

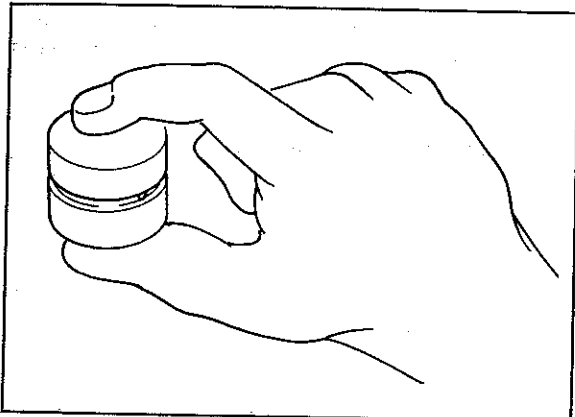
76G01B-125

6. Measure the camshaft end play. If it exceeds the maximum, replace the camshaft and/or the cylinder head.

End play:

0.08—0.10 mm (0.003—0.004 in)

Maximum: 0.20 mm (0.008 in)



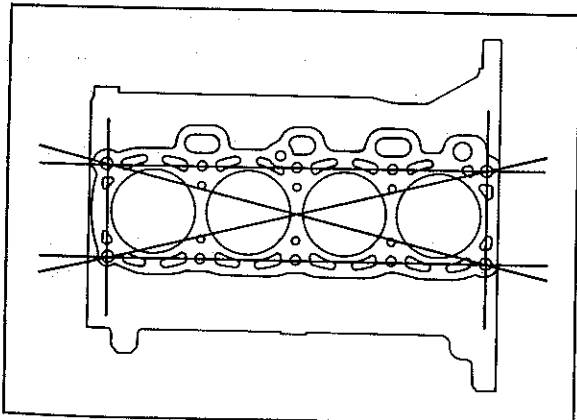
76G01B-064

Hydraulic Lash Adjuster (HLA)

1. Check the HLA face for wear or damage.
2. Hold the HLA between your fingers and press it. If the HLA moves, replace it.

Caution

Do not disassemble the HLA.



76F01B-018

Cylinder Block

Note

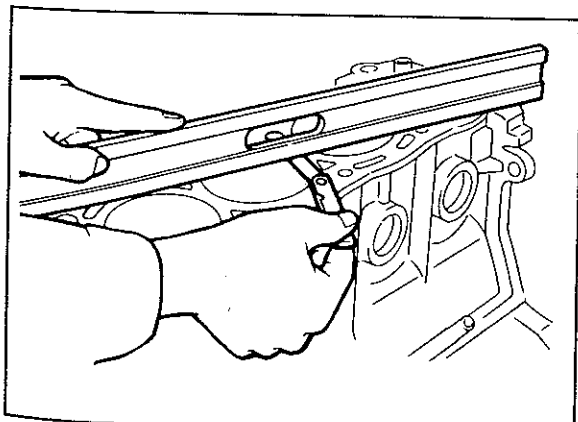
If the cylinder block is replaced, install the dowel pin to the cylinder block.

1. Check the cylinder block. Repair or replace if necessary.
 - (1) Leakage damage
 - (2) Cracks
 - (3) Scoring of wall
2. Measure the distortion of the top surface of the cylinder block in the six directions as shown in the figure.

Distortion: 0.15 mm (0.006 in) max.

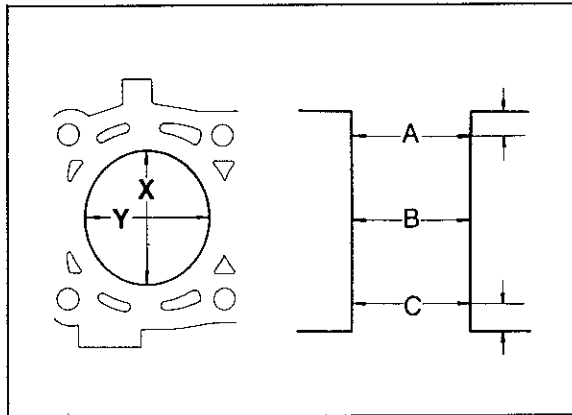
3. If the distortion exceeds the maximum, repair by grinding, or replace the cylinder block.

Grinding limit: 0.20 mm (0.008 in) max.

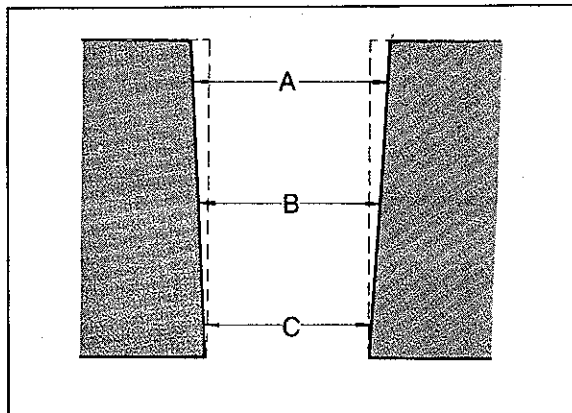


86U01X-101

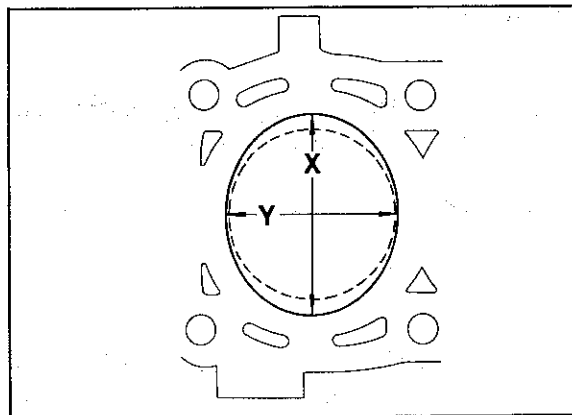
1B INSPECTION AND REPAIR



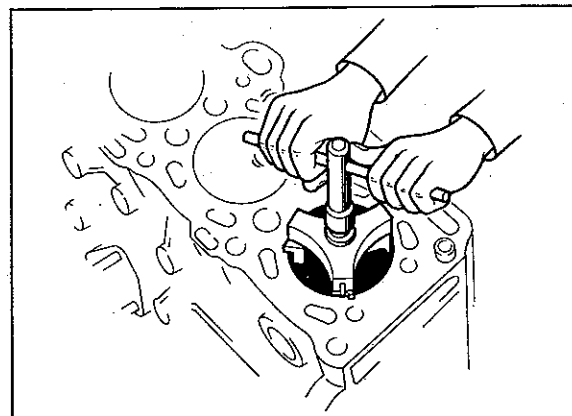
79G01C-070



79G01C-071



79G01C-072



86U01X-102

4. Measure the cylinder bore in directions X and Y at three levels in each cylinder as shown.

Cylinder bore mm (in)

Size	Bore
Standard	86.000—86.019 (3.3858—3.3866)
0.25 (0.010) oversize	86.250—86.269 (3.3957—3.3964)
0.50 (0.020) oversize	86.500—86.519 (3.4055—3.4062)

- (1) If the difference between the measurement A and C exceeds the maximum taper, rebore the cylinder to oversize.

Taper: 0.019 mm (0.0007 in) max.

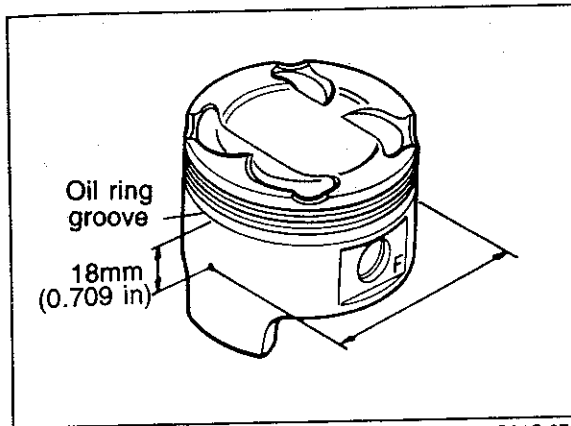
- (2) If the difference between the measurement X and Y exceeds the maximum out-of-round, rebore the cylinder to oversize.

Out-of-round: 0.019 mm (0.0007 in) max.

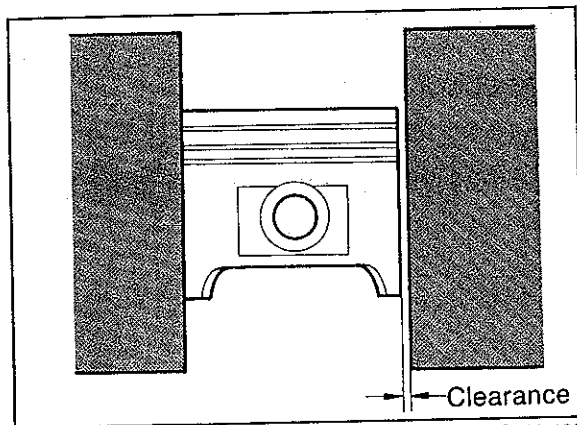
Caution

The boring size should be based on the size of an oversize piston and be the same for all cylinders.

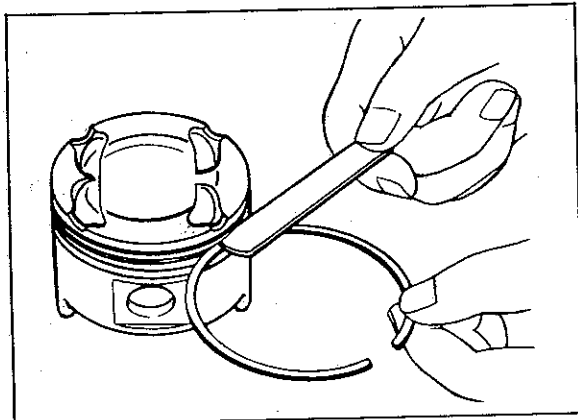
5. If the upper part of the cylinder wall shows uneven wear, remove the ridge with a ridge reamer.



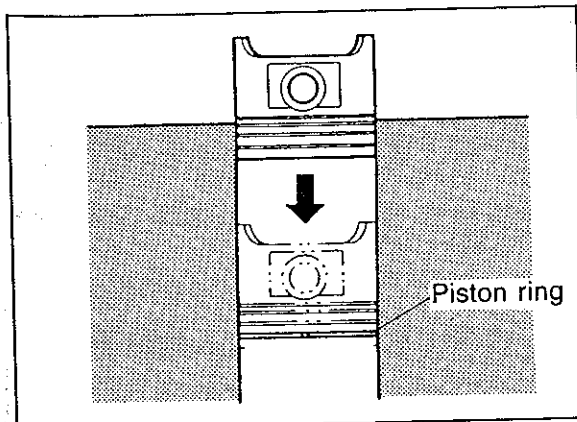
79G01C-073



76G01A-130



69G01A-125



86U01X-104

Piston

1. Inspect the outer circumferences of all pistons for seizure or scoring. Replace if necessary.
2. Measure the outer diameter of each piston at a right angle (90°) to the piston pin, **18 mm (0.709 in)** below the oil ring land lower edge.

Piston diameter

mm (in)

Size	Diameter
Standard	85.944—85.964 (3.3836—3.3844)
0.25 (0.010) oversize	86.194—86.214 (3.3935—3.3942)
0.50 (0.020) oversize	86.444—86.464 (3.4033—3.4041)

3. Check the piston to cylinder clearance.

Clearance:

0.036—0.075 mm (0.0014—0.0030 in)

Maximum: 0.15 mm (0.0059 in)

4. If the clearance exceeds the maximum, replace the piston or rebores the cylinders to fit oversize pistons.

Caution

If the piston is replaced, replace the piston rings also.

Piston and Piston Ring

1. Measure the piston ring to ring land clearance around the entire circumference using a new piston ring.

Clearance (Top and Second):

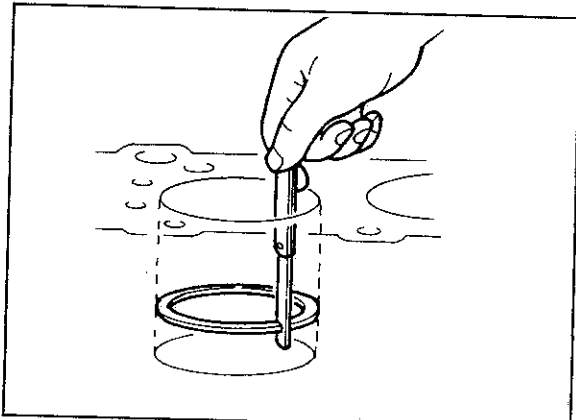
0.03—0.07 mm (0.001—0.003 in)

Maximum: 0.15 mm (0.006 in)

2. If the clearance exceeds the maximum, replace the piston.

3. Inspect the piston rings for damage, abnormal wear, or breakage. Replace if necessary.
4. Insert the piston ring into the cylinder by hand and push it to the bottom of the ring travel in using the piston.

1B INSPECTION AND REPAIR

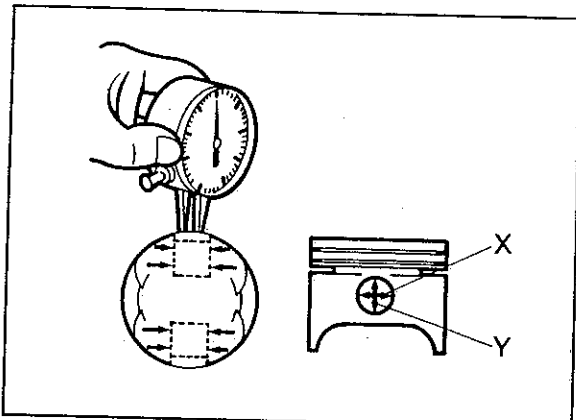


76G01B-065

5. Measure each piston ring end gap with a feeler gauge. Replace if necessary.

End gap

- Top : 0.20—0.35 mm (0.008—0.014 in)
- Second: 0.15—0.30 mm (0.006—0.012 in)
- Oil rail : 0.20—0.70 mm (0.008—0.028 in)
- Maximum: 1.0 mm (0.039 in)



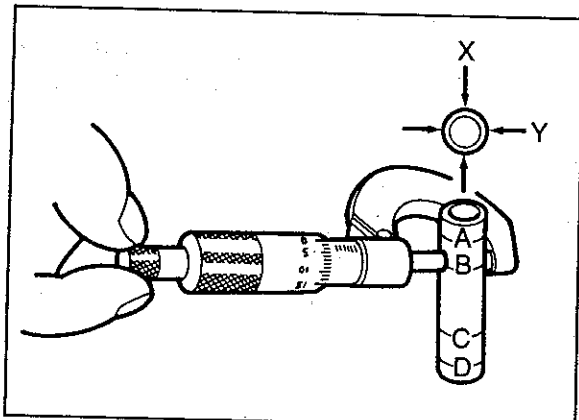
76G01B-066

Piston and Piston Pin

1. Measure the piston pin hole diameter in X and Y directions at four points.

Diameter:

- 21.988—21.998 mm (0.8657—0.8661 in)



76G01B-067

2. Measure the piston pin diameter.

Diameter:

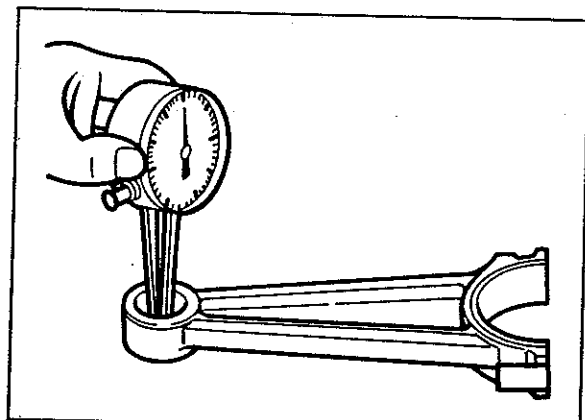
- 21.987—21.993 mm (0.8656—0.8659 in)

3. Determine the piston pin to piston clearance by subtracting the two figures.

Clearance:

- 0.005—0.011 mm (-0.0002—0.0004 in)

4. If the clearance exceeds the specification, replace the piston and/or piston pin.



76G01B-068

Connecting Rod

1. Measure the connecting rod small end bore.

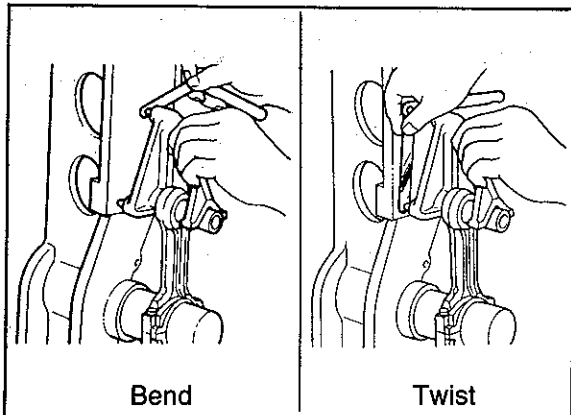
Diameter:

- 22.003—22.014 mm (0.8663—0.8667 in)

2. Check the clearance between the small end bore and piston pin.

Clearance:

- 0.010—0.027 mm (0.0004—0.0011 in)

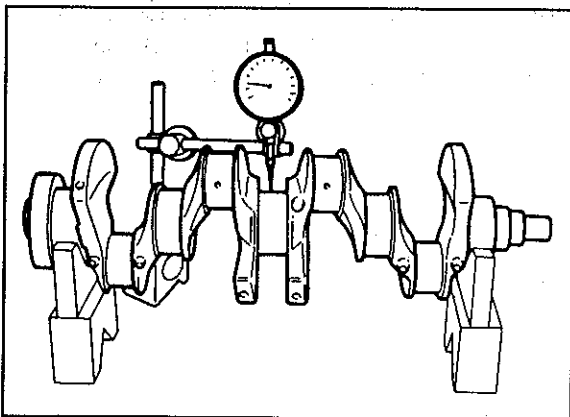


76F01B-027

3. Check each connecting rod for bending or twisting. Repair or replace if necessary.

Bend: 0.24 mm (0.0094 in) max.

Twist: 0.57 mm (0.0224 in) max.

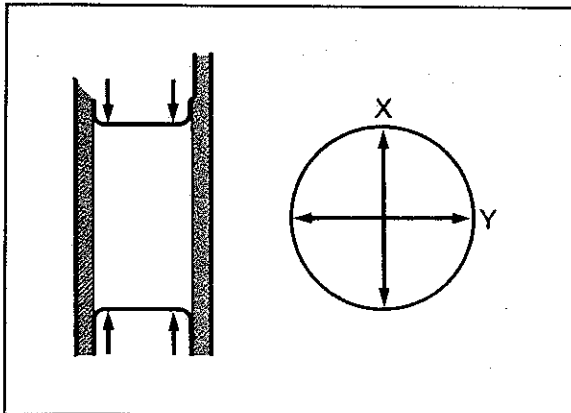


86U01X-109

Crankshaft

1. Check the journals and pins for damage, scoring, or oil hole clogging.
2. Set the crankshaft on V-blocks.
3. Check the crankshaft runout at the center journal. Replace if necessary.

Runout: 0.03 mm (0.0012 in) max.



76G01A-131

4. Measure each journal diameter in X and Y directions at two points.

Main journal

Diameter:

59.937—59.955 mm (2.3597—2.3604 in)

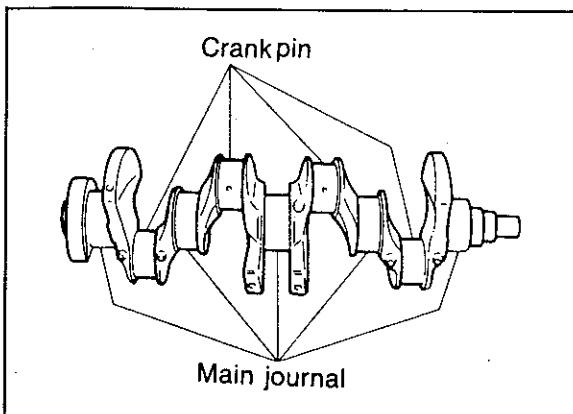
Out-of-round: 0.05 mm (0.0020 in) max.

Crankpin journal

Diameter:

50.940—50.955 mm (2.0055—2.0061 in)

Out-of-round: 0.05 mm (0.0020 in) max.



76G01A-132

5. If the diameter is less than the minimum, grind the journals to match undersize bearings.

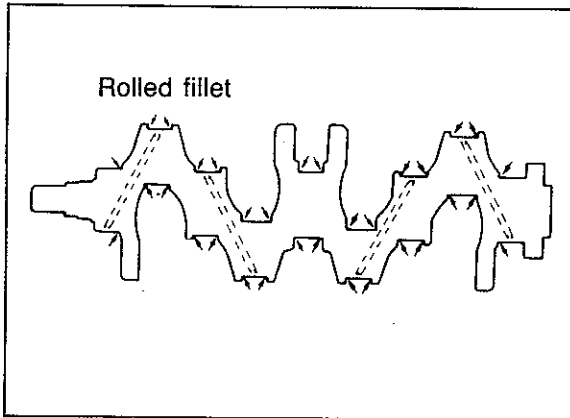
Undersize bearing: 0.25 mm (0.010 in),

0.50 mm (0.020 in), 0.75 mm (0.030 in)

Main journal diameter undersize mm (in)

Bearing size	Journal diameter
0.25 (0.010) No.1,2,4,5 undersize	59.693—59.711 (2.3501—2.3508)
No.3	59.687—59.705 (2.3499—2.3506)
0.50 (0.020) No.1,2,4,5 undersize	59.443—59.461 (2.3403—2.3410)
No.3	59.437—59.455 (2.3400—2.3407)
0.75 (0.030) No.1,2,4,5 undersize	59.193—59.211 (2.3304—2.3311)
No.3	59.187—59.205 (2.3302—2.3309)

1B INSPECTION AND REPAIR



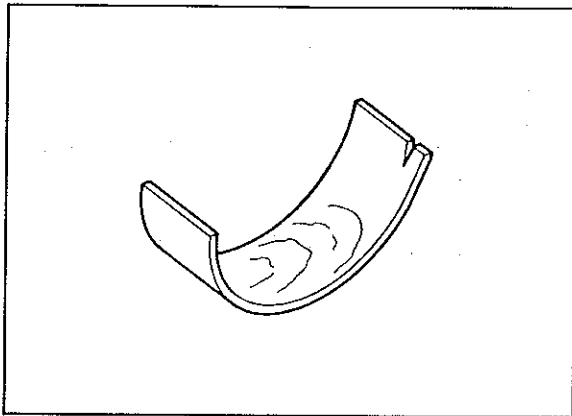
76G01A-133

Crankpin journal diameter undersize mm (in)

Bearing size	Journal diameter
0.25 (0.010) undersize	50.690—50.705 (1.9957—1.9963)
0.50 (0.020) undersize	50.440—50.455 (1.9858—1.9864)
0.75 (0.030) undersize	50.190—50.205 (1.9760—1.9766)

Caution

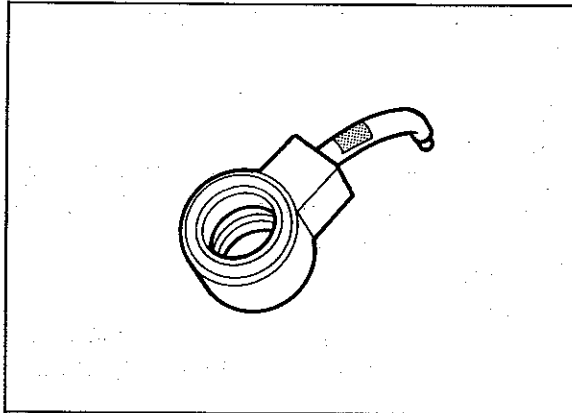
Do not grind the rolled fillet area.



79G01C-077

Main Bearing and Connecting Rod Bearing

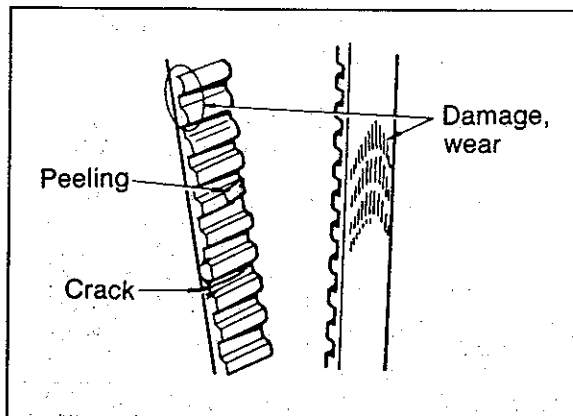
Check the main bearings and the connecting rod bearings for peeling, scoring, or other damage.



76G01B-069

Oil Jet

1. Check that the oil passage is not clogged.
2. Check that the check ball is not stuck.

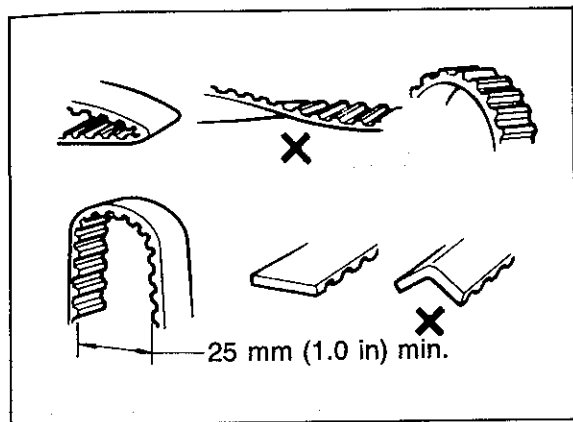


86U01X-113

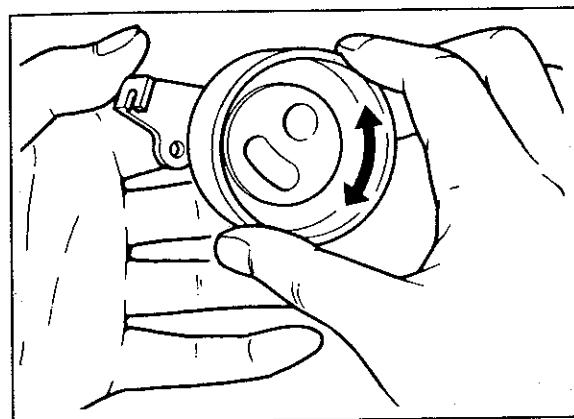
Timing Belt

1. Replace the timing belt if there is any oil or grease on it.
2. Check the timing belt for damage, wear, peeling, cracks, or hardening. Replace if necessary.

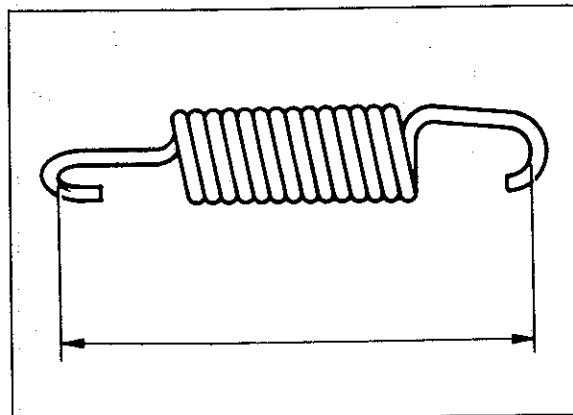
INSPECTION AND REPAIR 1B



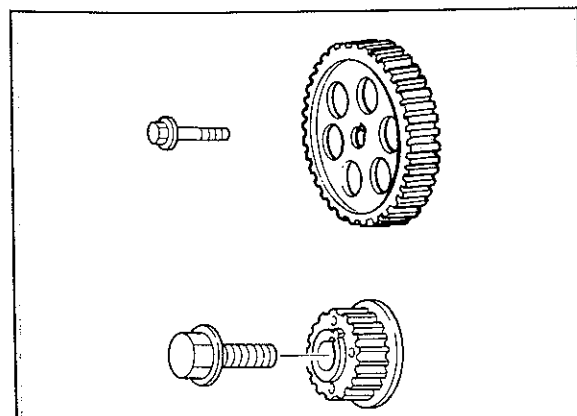
86U01X-114



86U01X-115



76G01B-126



86U01X-117

Caution

- a) Never forcefully twist, turn inside out, or bend the timing belt.
- b) Be careful not to allow oil or grease on the belt.

Timing Belt Tensioner and Idler Pulley

Check the timing belt tensioner and idler pulley for smooth rotation and abnormal noise. Replace if necessary.

Caution

Do not clean the tensioner with cleaning fluids. If necessary, use a soft rag to wipe it clean, and avoid scratching it.

Timing Belt Tensioner Spring

Check the free length of the tensioner spring. Replace if necessary.

Free length: 53.3 mm (2.098 in)

Timing Belt Pulley and Camshaft Pulley

Inspect the pulley teeth for wear, deformation, or other damage. Replace if necessary.

Caution

Do not clean the pulley with cleaning fluids. If necessary, use a rag to wipe it clean.

Timing Belt Cover (lower and upper)

Inspect the timing belt covers for damage or cracks. Replace if necessary.

1B ASSEMBLY (CYLINDER BLOCK)

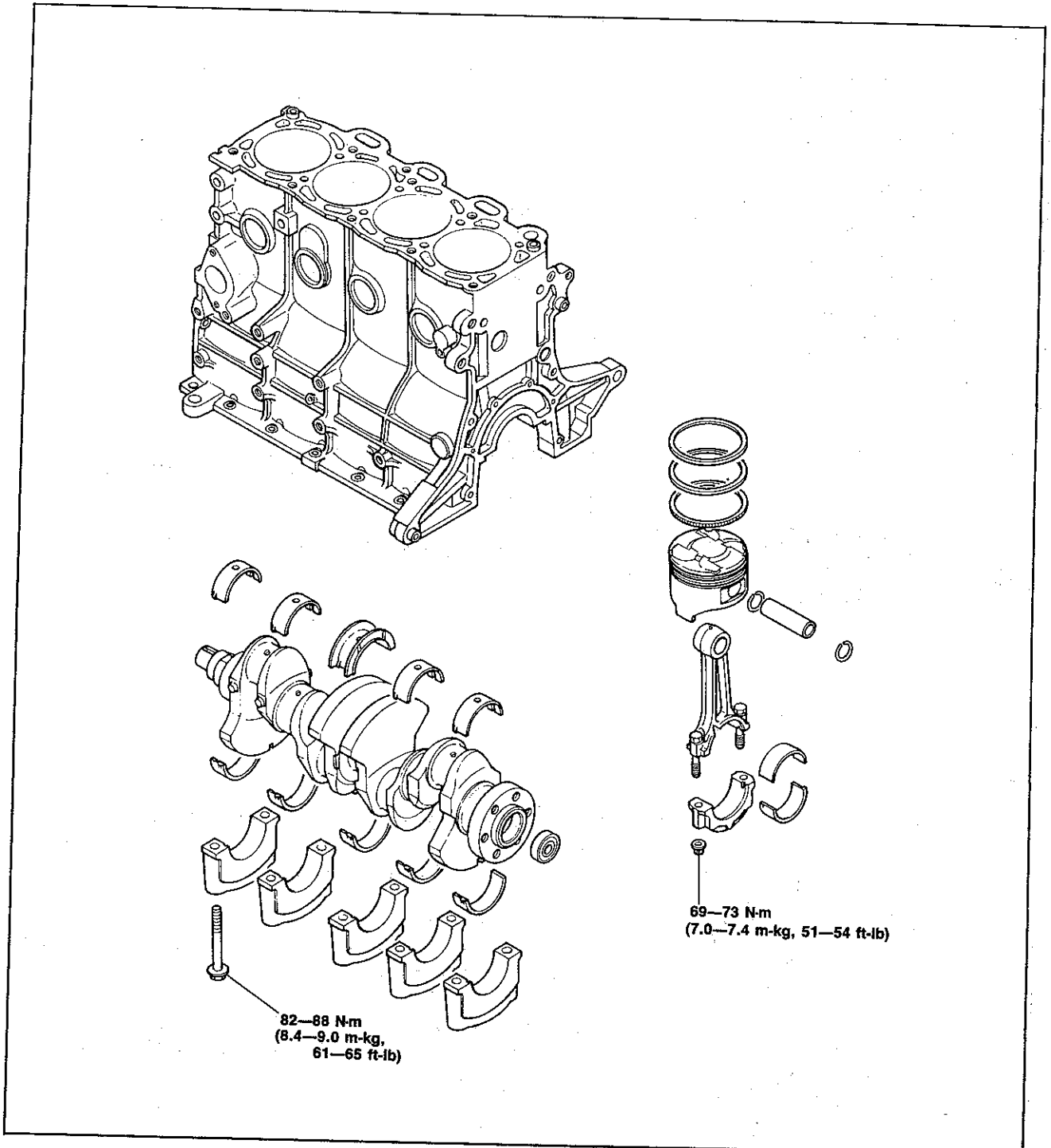
ASSEMBLY

1. Clean all parts before reinstallation.
2. Apply new engine oil to all sliding and rotating parts.
3. Replace plain bearings if they are peeling, burned, or otherwise damaged.
4. Tighten all bolts and nuts to the specified torques.

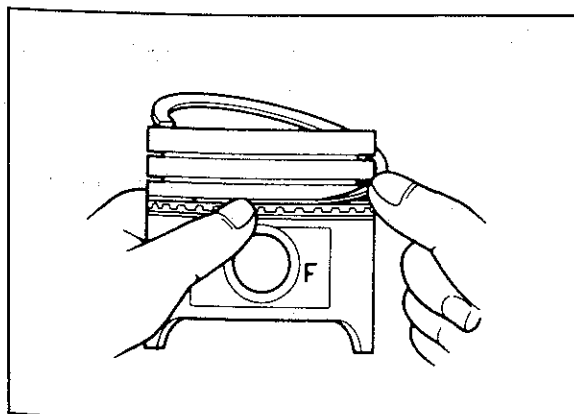
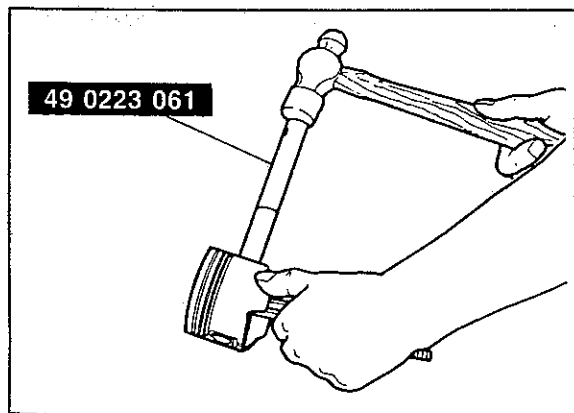
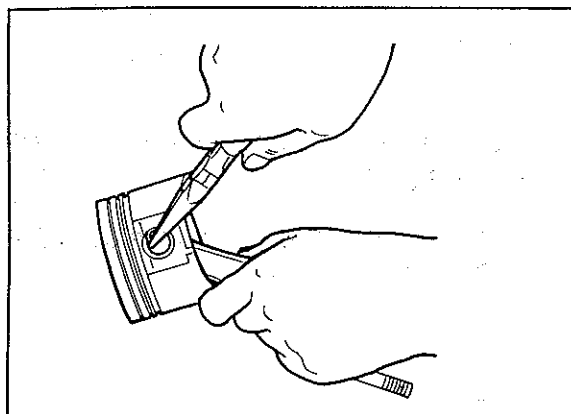
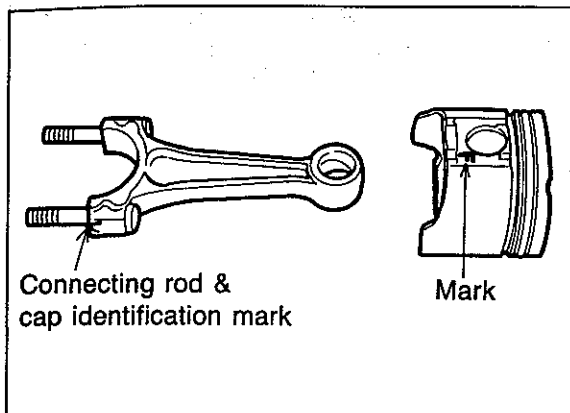
Caution

Do not reuse gaskets or oil seals.

CYLINDER BLOCK—I Torque Specifications



ASSEMBLY (CYLINDER BLOCK) 1B



Connecting Rod

1. Align the identification mark to the cap of large end of connecting rod and **F** mark on the piston as shown in the figure.
2. Apply a coat of engine oil to the circumference of each piston pin and to the small end of each connecting rod.

3. Set a clip into the clip groove in one side of the piston.

4. Insert the piston pin into the piston and connecting rod from the opposite side of the piston with the **SST**.
5. Tap the piston pin in until it touches the clip. Install the other clip into the groove in the piston.
6. Check the oscillation torque of the connecting rod. (Refer to page 1B—33.)

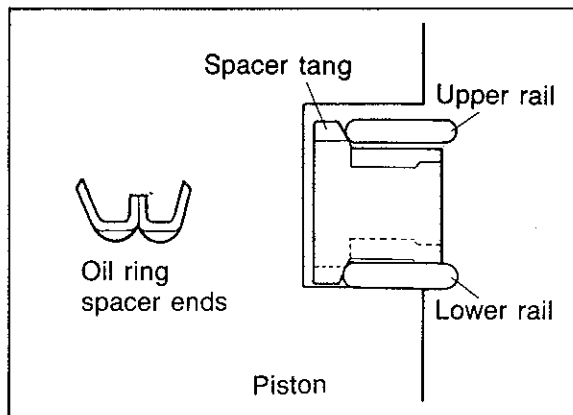
Piston Ring

1. Install the three-piece oil rings on the pistons.
 - (1) Apply engine oil to the oil ring spacer and rails.
 - (2) Install the oil ring spacer so that the opening faces upward.
 - (3) Install the upper rail and lower rail.

Note

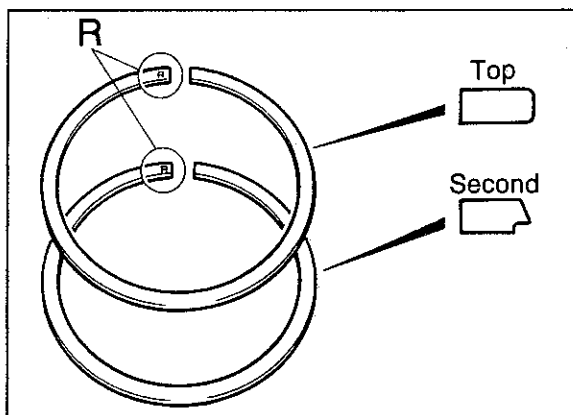
- a) The upper rail and lower rail are the same.
- b) Each rail can be installed with either face upward.

1B ASSEMBLY (CYLINDER BLOCK)



69G01A-145

2. Check that both rails are expanded by the spacer tangs as shown in the figure by checking that both rails turn smoothly in both directions.



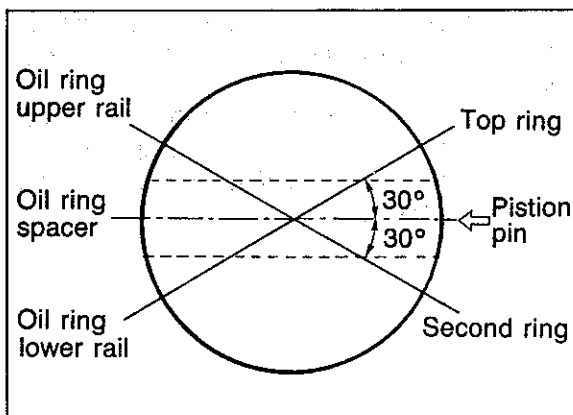
86U01X-121

3. Install the second ring to the piston first, then install the top ring. Use a piston ring expander.

Caution

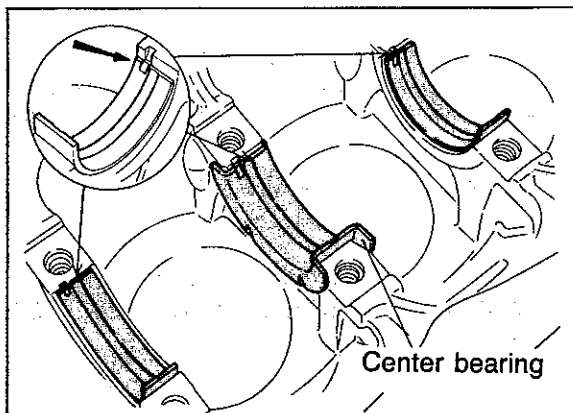
The rings must be installed with the "R" marks facing upward.

4. Apply a liberal amount of clean engine oil to the second and top piston rings.



69G01A-147

5. Position the opening of each ring as shown in the figure.



86U01X-215

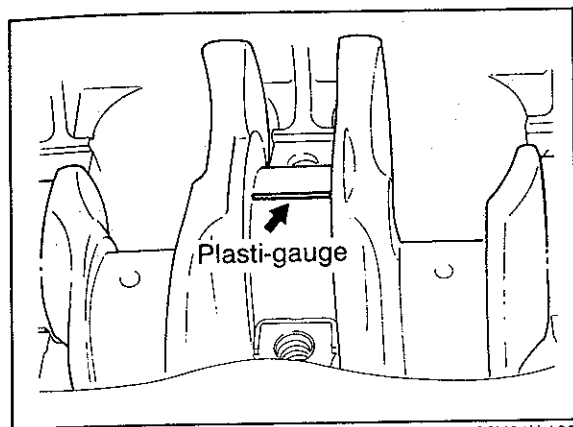
Crankshaft

1. Before installing the crankshaft, inspect the main bearing oil clearances as described.

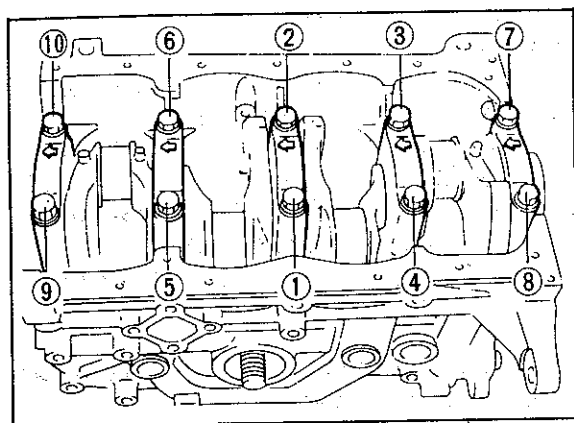
Note

The bearing with thrust shoulders is the center bearing in the cylinder block.

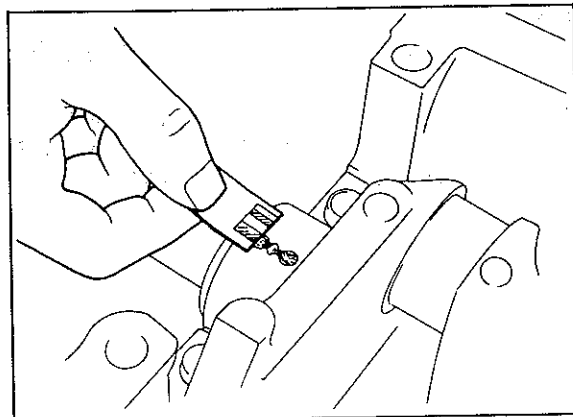
ASSEMBLY (CYLINDER BLOCK) 1B



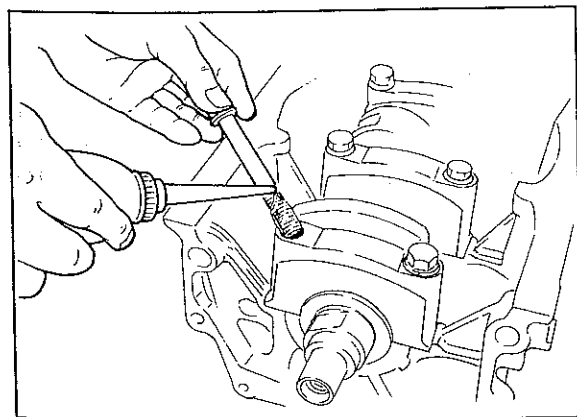
86U01X-122



86U01X-123



76G01B-073



86U01X-125

Oil clearance inspection

- (1) Remove any foreign material and oil from the journals and bearings.
- (2) Install the upper main bearings in the cylinder block.
- (3) Set the crankshaft into the cylinder block.
- (4) Position the plasti-gauge on top of the journals in the axial direction.

- (5) Install the main bearing caps along with the lower main bearings according to the cap number and ← mark.
- (6) Tighten the caps in two or three steps in the order in the figure.

Tightening torque:

82—88 N·m (8.4—9.0 m·kg, 61—65 ft·lb)

Caution

Do not rotate the crankshaft when measuring the oil clearances.

- (7) Remove the main bearing caps, and measure the plasti-gauge at each journal at the widest point for the smallest clearance, and at the narrowest point for the largest clearance. If the oil clearance exceeds specification, grind the crankshaft and use undersize main bearings. (Refer to page 1B—45.)

Oil clearance

No. 1, 2, 4, 5:

0.025—0.043 mm (0.0010—0.0017 in)

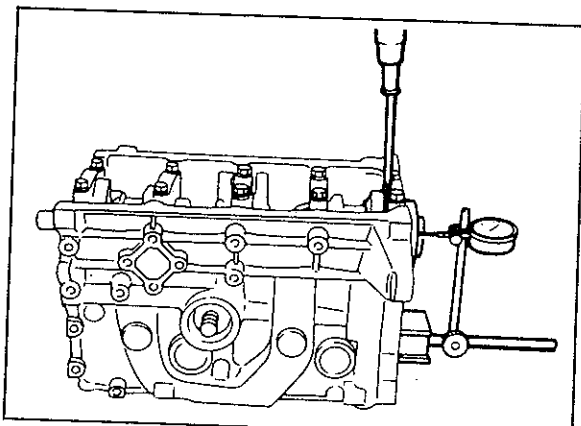
No. 3:

0.031—0.049 mm (0.0012—0.0019 in)

Maximum: 0.08 mm (0.0031 in)

2. Apply a liberal amount of engine oil to the main bearings and main journals.
3. Install the crankshaft and the main bearing caps according to the cap number and ← mark.

1B ASSEMBLY (CYLINDER BLOCK)



76G01A-074

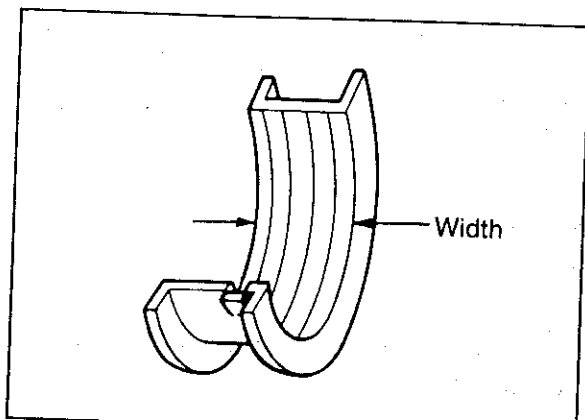
4. Inspect the crankshaft end play.

End play:

0.08—0.18 mm (0.0031—0.0071 in)

Maximum: 0.30 mm (0.012 in)

5. If the end play exceeds specification, grind the crankshaft and use undersize center main bearing.



86U01X-216

Center main bearing width

Standard:

27.94—27.99 mm (1.1000—1.1020 in)

0.25 mm (0.010 in) undersize:

28.04—28.09 mm (1.1040—1.1059 in)

0.50 mm (0.020 in) undersize:

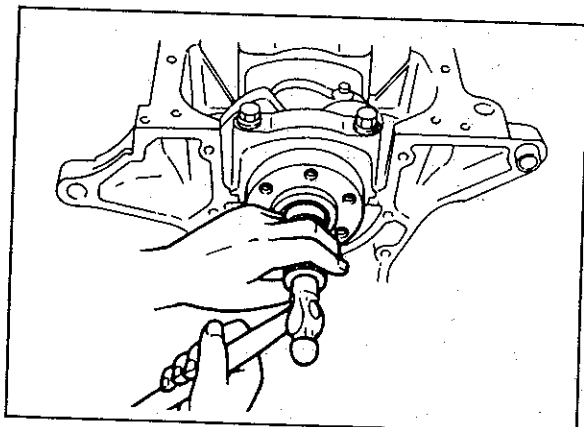
28.12—28.17 mm (1.1071—1.1091 in)

0.75 mm (0.030 in) undersize:

28.20—28.25 mm (1.1102—1.1122 in)

Note

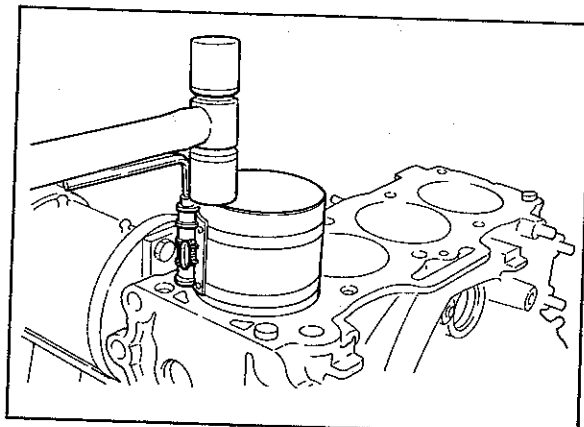
Wider thrust width is available only in undersize center main bearing.



76G01B-075

Pilot Bearing

1. Apply engine oil to the outer circumference of the bearing.
2. Set a piece of pipe (outer diameter 30—34 mm, 1.18—1.34 in) against the outer race of the bearing, then tap it evenly into the crankshaft.
3. Lubricate the bearing with grease.

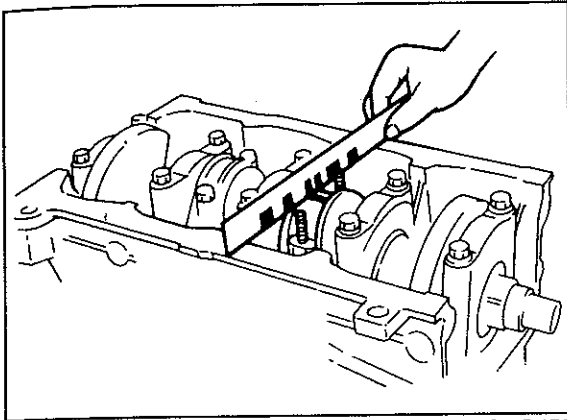


76G01A-136

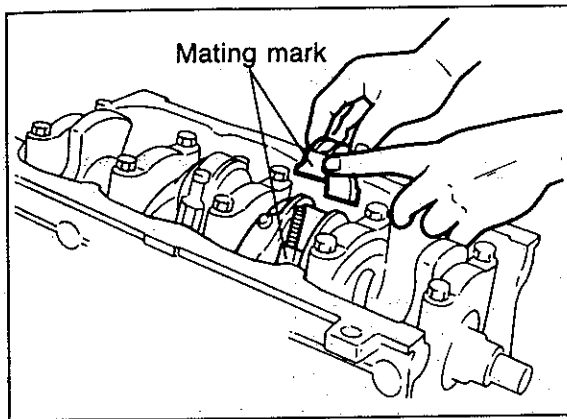
Piston and Connecting Rod Assembly

1. Apply a liberal amount of clean engine oil to the cylinder walls, piston, and rings.
2. Check the piston rings for the end gap alignment.
3. Insert each piston assembly into the cylinder block with the **F** mark facing the front of the engine. Use a piston installer tool (commercially available).

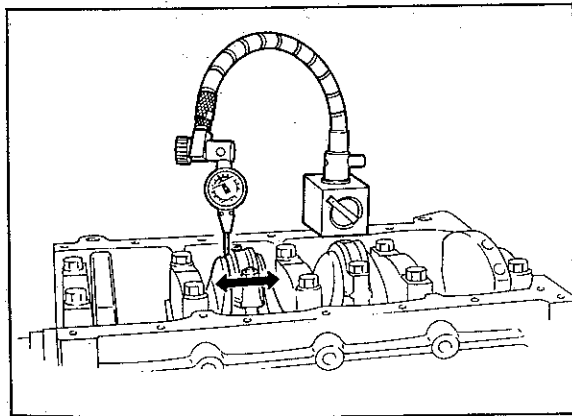
ASSEMBLY (CYLINDER BLOCK) 1B



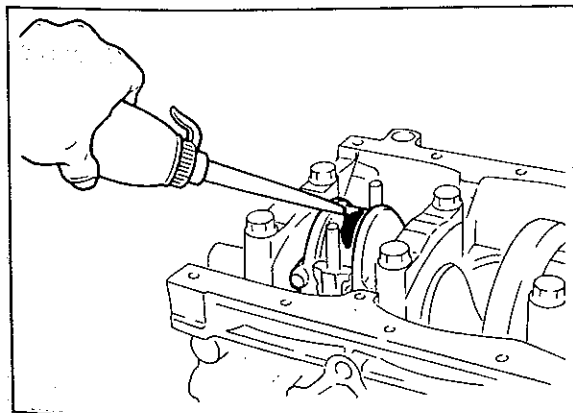
76G01B-076



76G01B-077



69G01B-139



76G01B-078

Connecting Rod Cap

1. Check the connecting rod bearing clearances using the same procedure as used for the main bearing oil clearance.

Connecting rod cap tightening torque:

69—73 N·m (7.0—7.4 m·kg, 51—54 ft·lb)

Oil clearance:

0.027—0.067 mm (0.0011—0.0026 in)

Maximum: 0.10 mm (0.0039 in)

Caution

Align the alignment marks on the cap and on the connecting rod when installing the connecting rod cap.

2. If the oil clearance exceeds specification grind the crankshaft and use undersize bearings. (Refer to page 1B—46.)

3. Check the side clearance of each connecting rod without the cap installed.

Side clearance:

0.110—0.262 mm (0.004—0.0103 in)

Maximum: 0.30 mm (0.012 in)

If the clearance exceeds the maximum, replace the connecting rod.

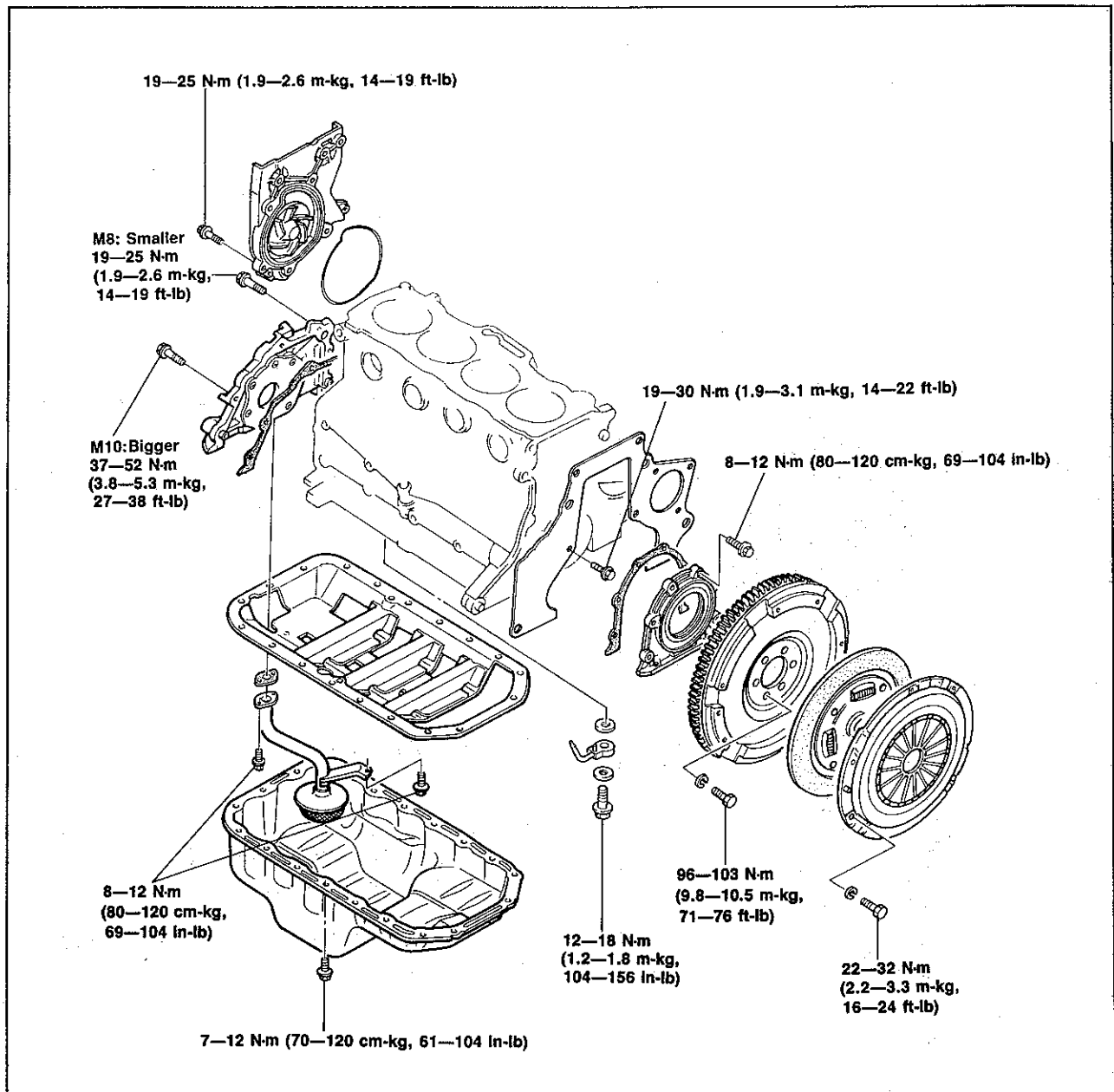
4. Apply a liberal amount of engine oil to the crankpin journal and connecting rod bearing.
5. Install the connecting rod cap with the alignment marks aligned.

Tightening torque:

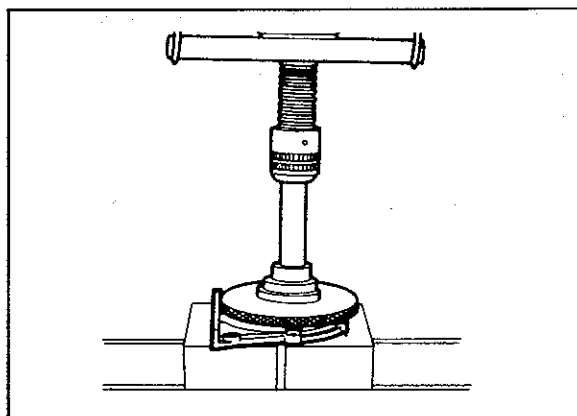
69—73 N·m (7.0—7.4 m·kg, 51—54 ft·lb)

1B ASSEMBLY (CYLINDER BLOCK)

CYLINDER BLOCK—II Torque Specifications



69G01A-166

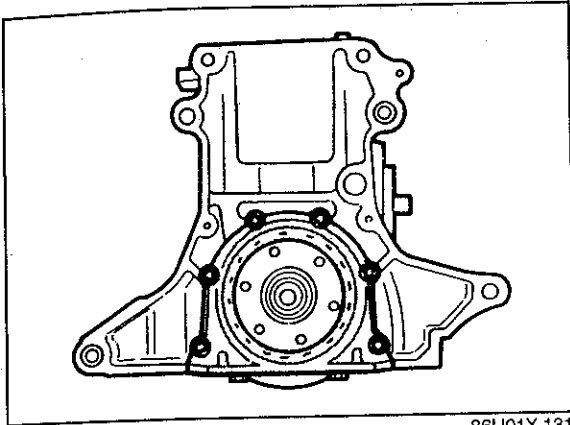


4BG01A-158

Rear Cover

1. Apply engine oil to the rear cover, oil seal and oil seal lip.
2. Press the oil seal into the rear cover.

ASSEMBLY (CYLINDER BLOCK) 1B

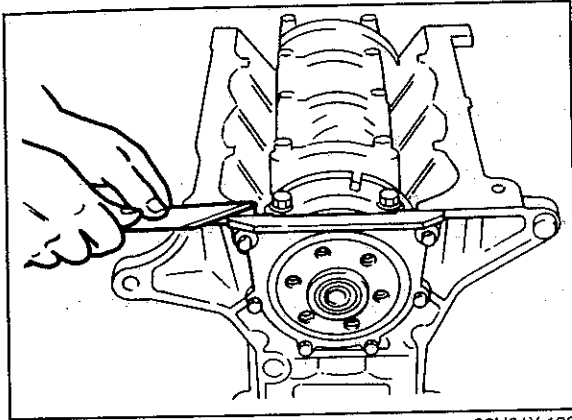


86U01X-131

3. Install the rear cover and a new gasket.

Tightening torque:

8—12 N·m (80—120 cm·kg, 69—104 in·lb)

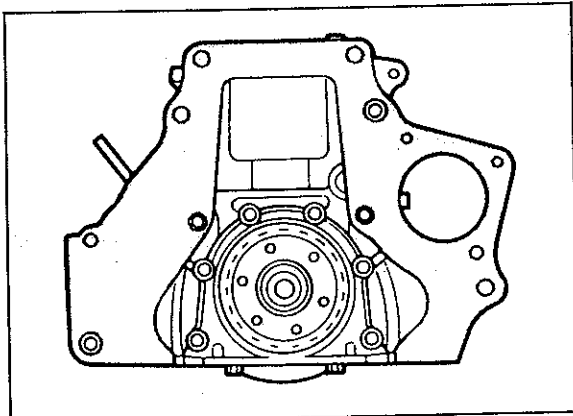


86U01X-132

4. Cut away the portion of the gasket that projects out from the rear cover assembly toward the oil pan side.

Caution

Do not scratch the rear cover assembly.



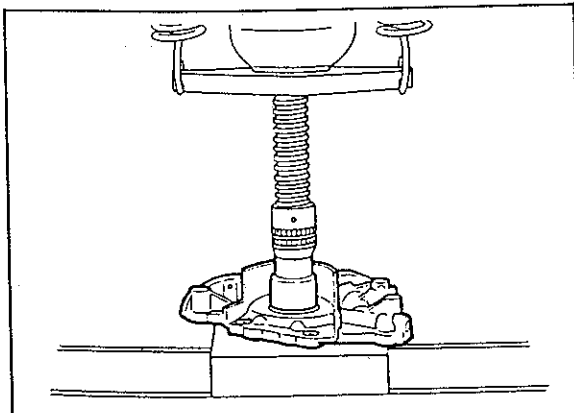
4BG01A-160

End Plate

Install the end plate.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)

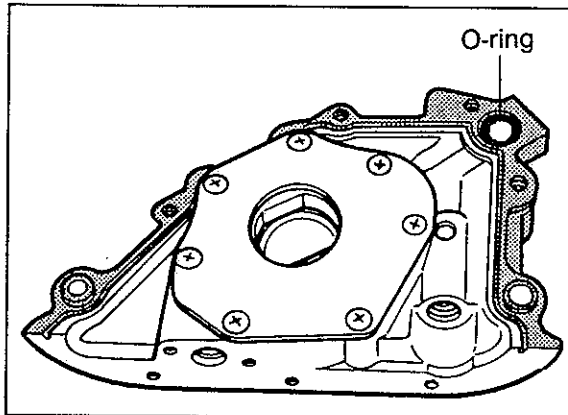


79G01C-085

Oil Pump

1. Apply engine oil to a new oil pump oil seal and the oil pump body.
2. Press the oil seal into the oil pump body.

1B ASSEMBLY (CYLINDER BLOCK)

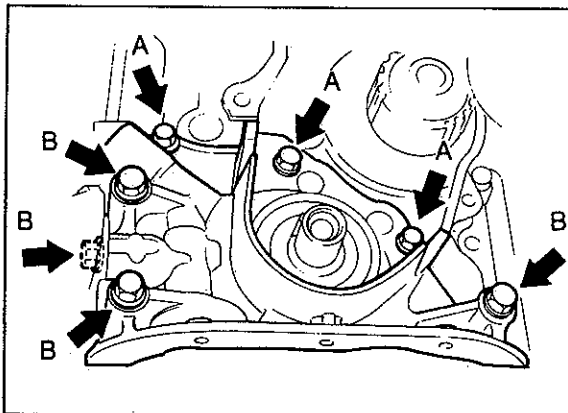


86U01X-133

3. Apply engine oil to the oil seal lip.
4. Remove any dirt or other material from the contact surfaces.
5. Apply a continuous bead of silicon sealant to the contact surface of the oil pump.

Caution

Do not allow any sealant to get into the oil hole.



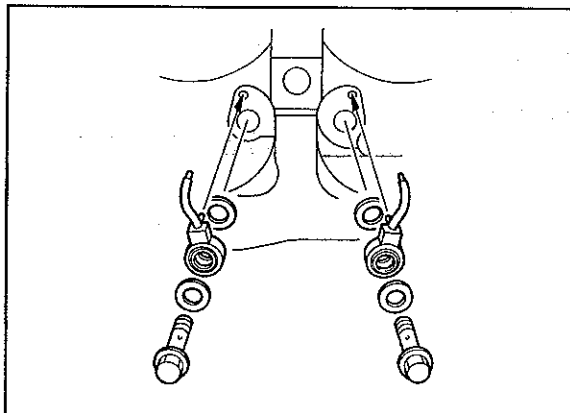
76G01A-137

6. Install a new O-ring into the pump body.
7. Install the oil pump.

Tightening torque

- (A): 19—25 N·m
(1.9—2.6 m·kg, 14—19 ft·lb)
- (B): 37—52 N·m
(3.8—5.3 m·kg, 27—38 ft·lb)

8. Remove any sealant which has been squeezed out.



76G01B-079

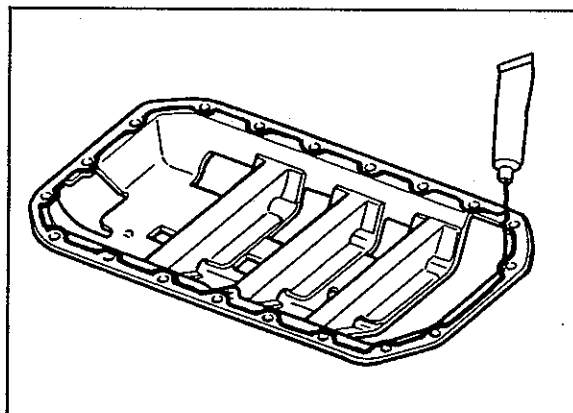
Oil Jet

Install the oil jet as shown in the figure.

Tightening torque: 12—18 N·m
(1.2—1.8 m·kg, 104—156 in·lb)

Caution

The shapes of the No. 1, 3 cylinders jet valves and No. 2, 4 jet valves are different.



76F01B-019

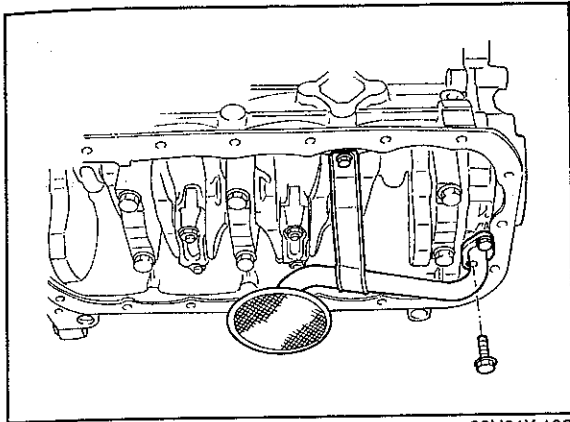
Stiffener

1. Remove any dirt or other material from the contact surface.
2. Apply a continuous bead of silicon sealant to the stiffener along the inside of the bolt holes, and overlap the ends.
3. Install the stiffener.

Tightening torque:

7—12 N·m (70—120 cm·kg, 61—104 in·lb)

ASSEMBLY (CYLINDER BLOCK) 1B



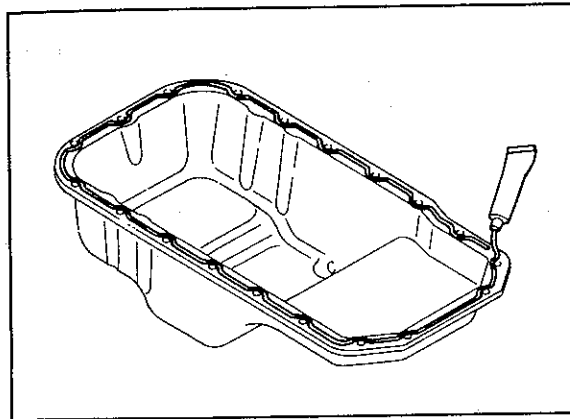
86U01X-136

Oil Strainer

Install the oil strainer and a new gasket.

Tightening torque:

8—12 N·m (80—120 cm·kg, 69—104 in·lb)



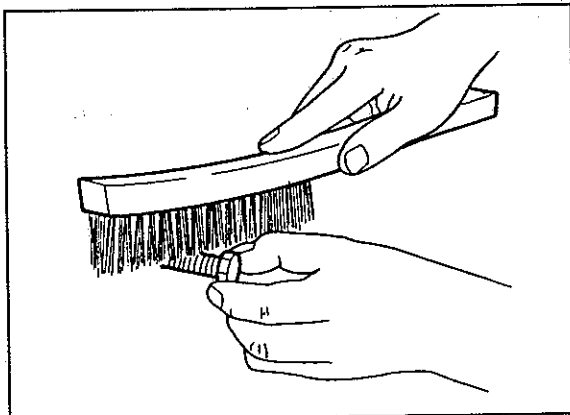
86U01X-137

Oil Pan

1. Apply a continuous bead of silicon sealant to the oil pan along the inside of the bolt holes, and overlap the ends.
2. Install the oil pan.

Tightening torque:

7—12 N·m (70—120 cm·kg, 61—104 in·lb)



76G01B-081

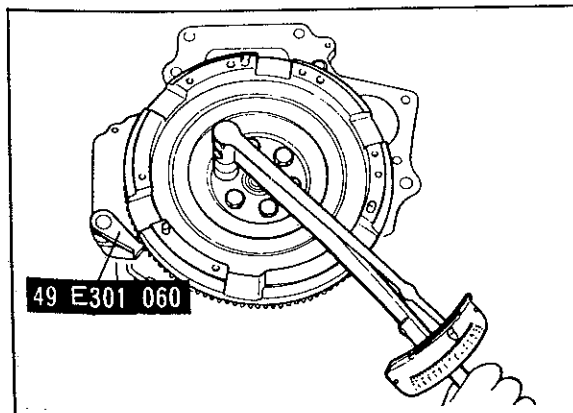
Flywheel

1. Remove any old sealant from the bolts and bolt holes. If old sealant can not be removed from the bolt, replace it.
2. Apply sealant to the bolt threads.

3. Install, and tighten the flywheel with the SST.

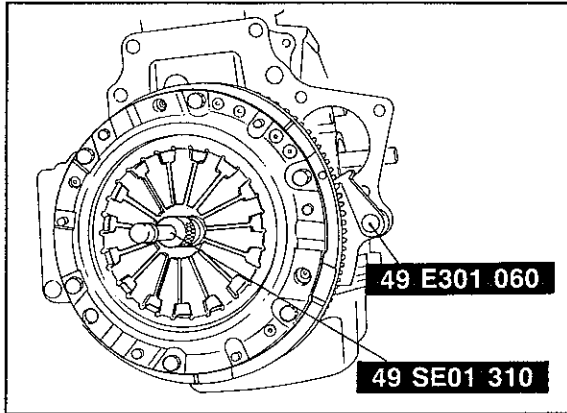
Tightening torque:

96—103 N·m (9.8—10.5 m·kg, 71—76 ft·lb)



76G01B-082

1B ASSEMBLY (CYLINDER BLOCK)



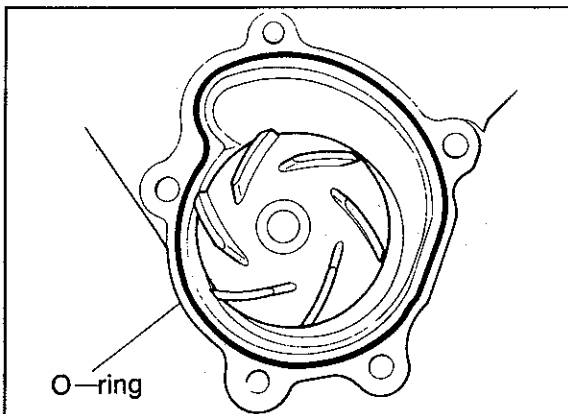
76G01B-083

Clutch Disc and Clutch Cover

Install the clutch disc and clutch cover using the SST.
(Refer to Section 6.)

Tightening torque:

22—32 N·m (2.2—3.3 m·kg, 16—24 ft·lb)



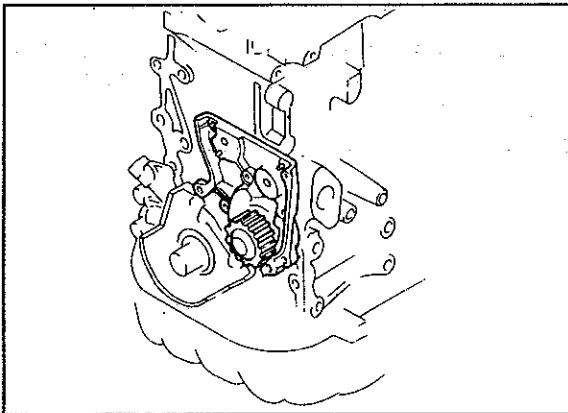
86U01X-142

Water Pump

1. Remove all dirt, grease, and other material from the water pump mounting surface.
2. Place a new O-ring in position.

Caution

Do not reuse the original O-ring.



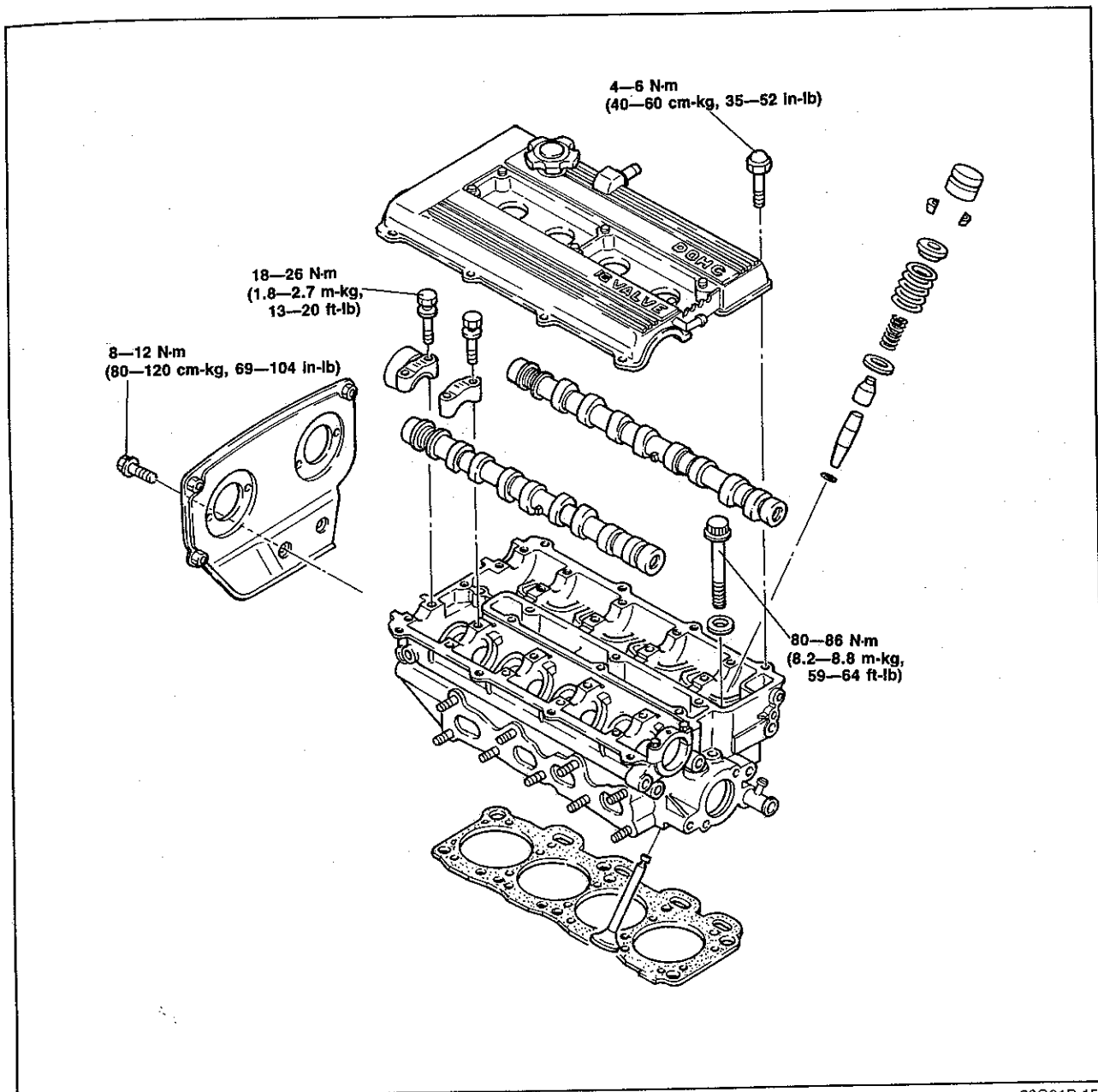
7BU01B-103

3. Install the water pump.

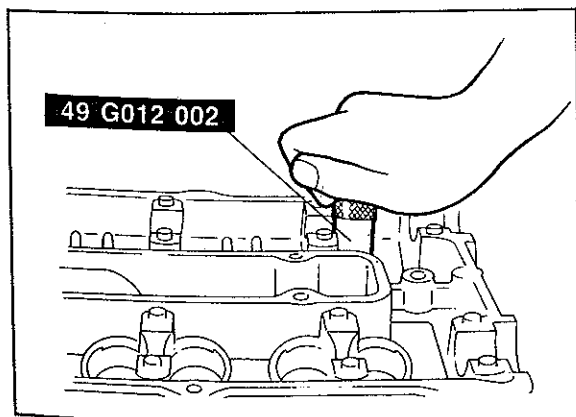
Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

CYLINDER HEAD Torque Specifications



69G01B-152

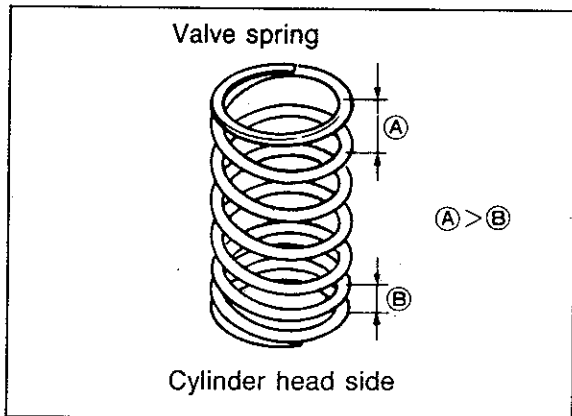


86U01X-143

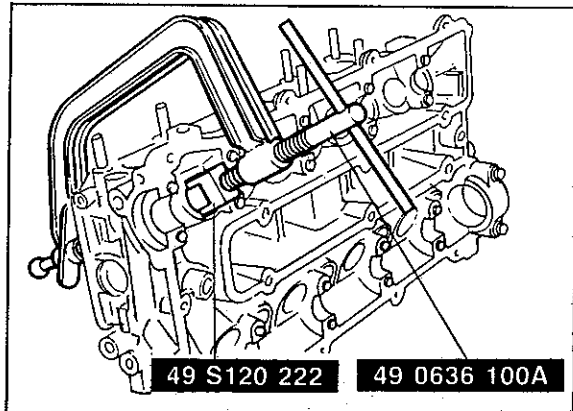
Valve Seal

1. Apply engine oil to the inside of the new valve seal.
2. Install the valve seal onto the valve guide with the SST.

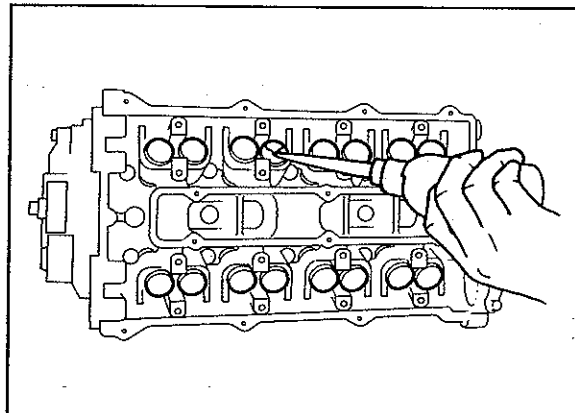
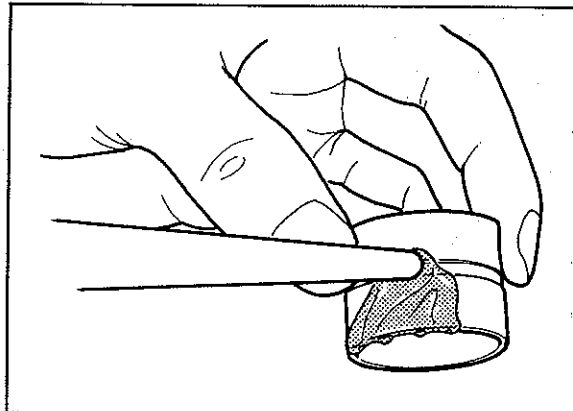
1B ASSEMBLY (CYLINDER HEAD)



76G01B-084



86U01X-145



Valve and Valve Spring

1. Install the lower spring seat.
2. Install the valve.
3. Install the valve springs and the upper spring seat.

Note

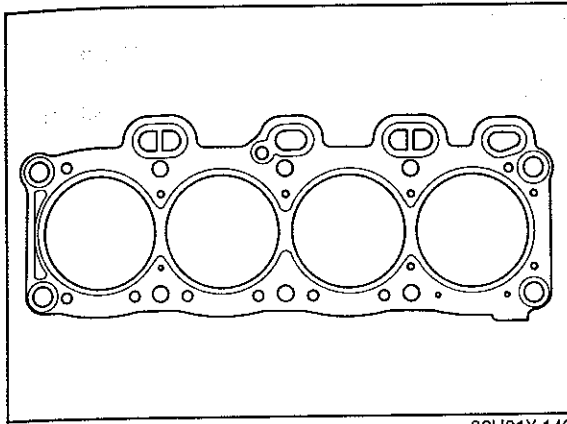
Install the outer and inner valve spring with the closer pitch toward the cylinder head.

4. Compress the valve spring with the **SST**; then install the valve keepers.
5. Tap the end of the valve stem lightly two or three times with a plastic hammer to confirm that the keepers are all fully seated.

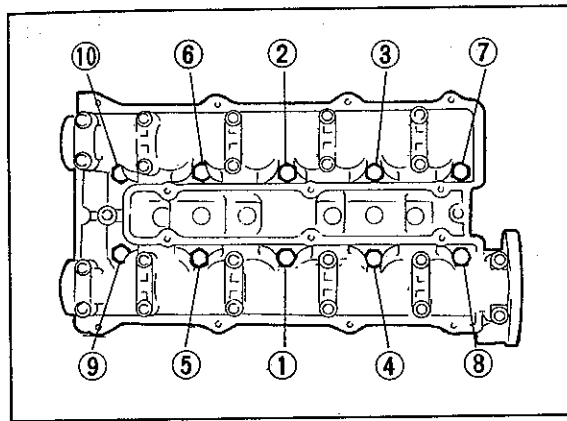
Hydraulic Lash Adjuster (HLA)

1. Apply engine oil to the sliding surface.
2. Install the HLA in the position from which they were removed.
3. Check for free movement.

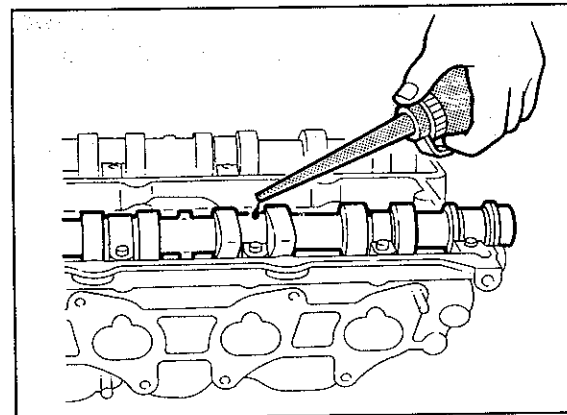
ASSEMBLY (CYLINDER HEAD) 1B



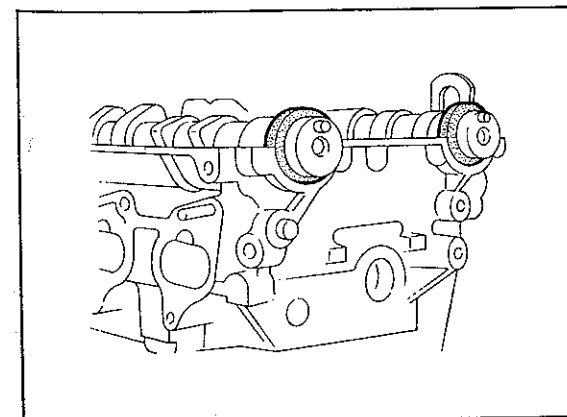
86U01X-146



86U01X-147



86U01X-148



76G01B-087

Cylinder Head

1. Thoroughly remove all dirt, oil, or other material from the top of the cylinder block.
2. Place the new cylinder head gasket in position.

3. Install the cylinder head.
4. Apply engine oil to the bolt threads and seat faces.
5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

Tightening torque:

80—86 Nm (8.2—8.8 m-kg, 59—64 ft-lb)

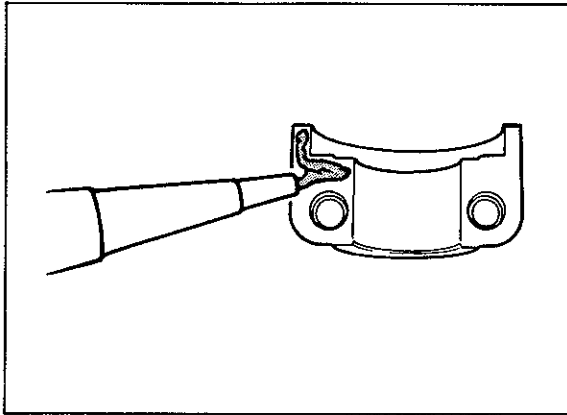
Camshaft

1. Apply a liberal amount of engine oil to the journals and bearings.
2. Place the camshaft in position with the dowel pin facing straight up.

Camshaft Oil Seal

1. Apply liberal amount of clean engine oil to the camshaft oil seal and cylinder head.
2. Install the camshaft oil seal.

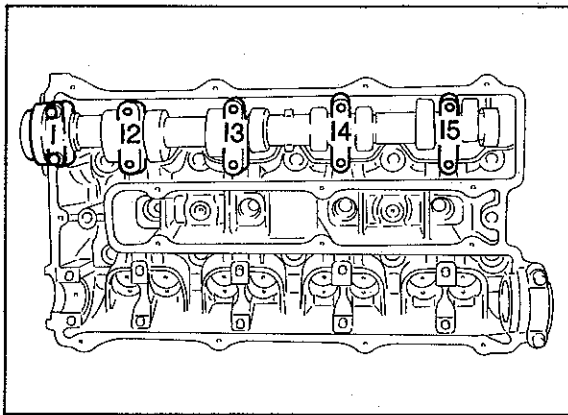
1B ASSEMBLY (CYLINDER HEAD)



76G01B-088

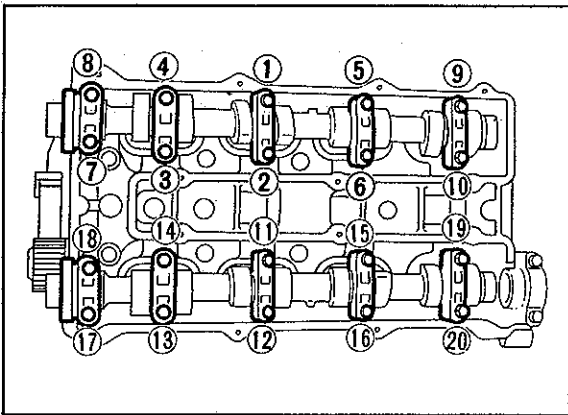
Camshaft Cap

1. Apply liberal amount of clean engine oil to the cam lobes and journals.
2. Apply silicon sealant to the front camshaft cap surface.



76G01B-089

3. Position the camshaft caps according to the cap number and mark.

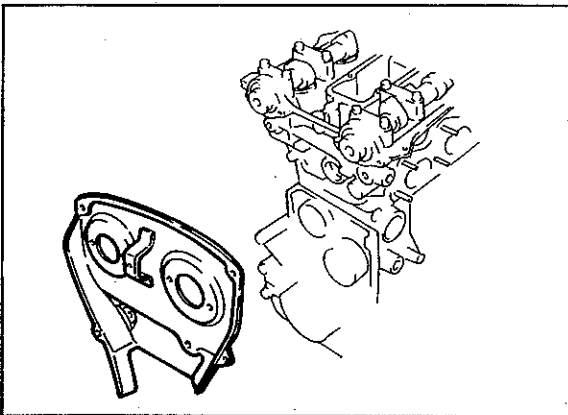


76G01B-090

4. Install the camshaft caps. Tighten the bolts in two or three steps in the order shown in the figure.

Tightening torque:

18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)



76G01B-091

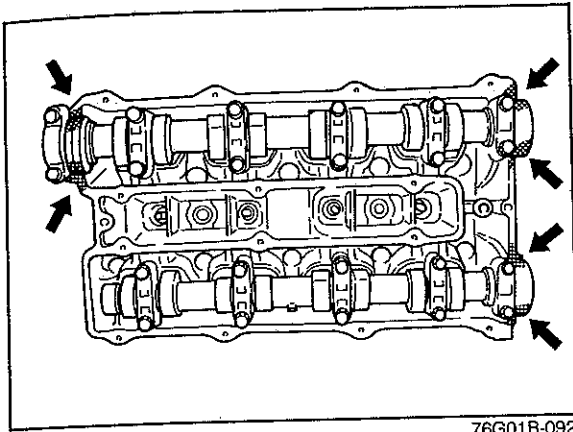
Seal Plate

Install the seal plate.

Tightening torque:

8—12 N·m (80—120 cm·kg, 69—104 in·lb)

ASSEMBLY (CYLINDER HEAD) 1B



76G01B-092

Cylinder Head Cover

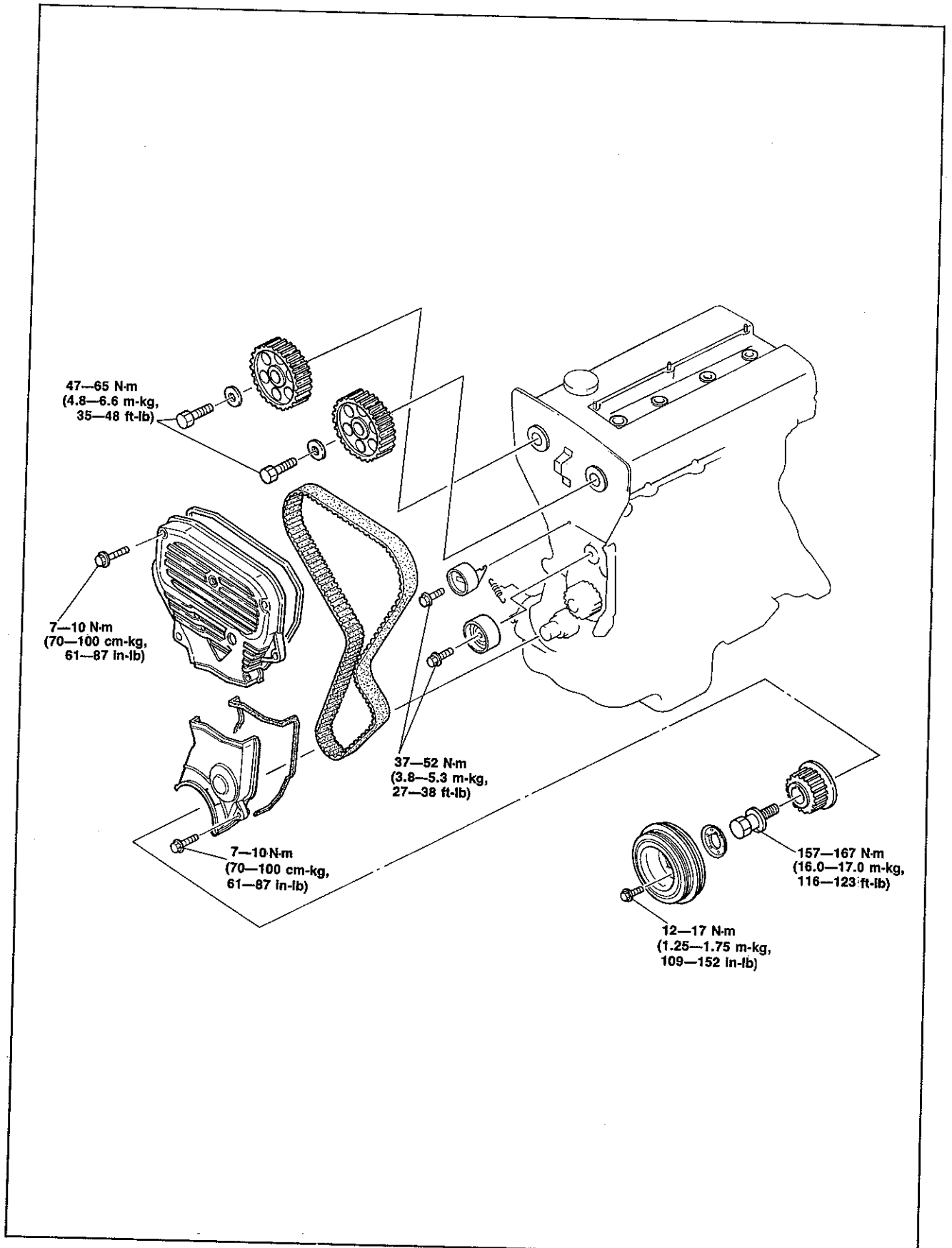
1. Apply silicon sealant to the shaded area shown in the figure.
2. Install the cylinder head cover.

Tightening torque:

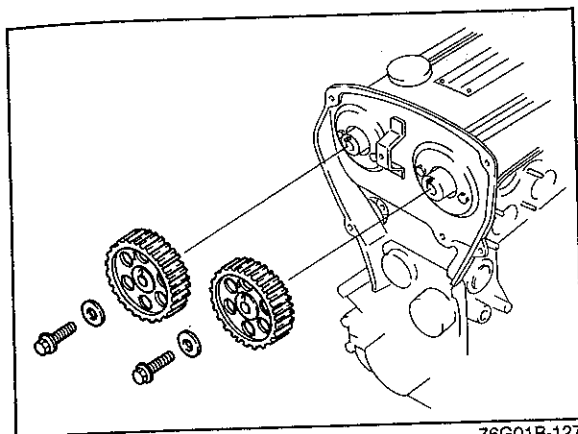
4—6 N·m (40—60 cm·kg, 35—52 in·lb)

1B ASSEMBLY (TIMING BELT)

TIMING BELT Torque Specifications



ASSEMBLY (TIMING BELT) 1B



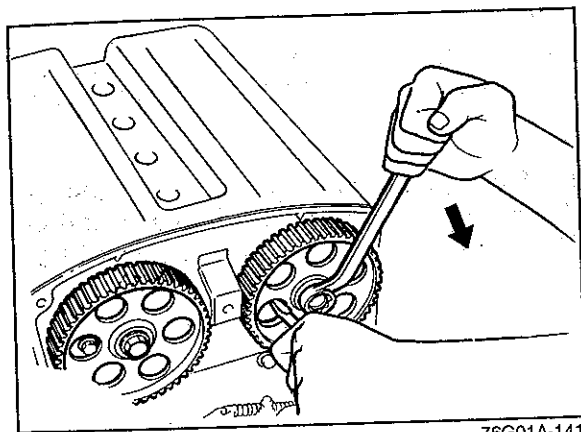
Camshaft Pulley

1. Install the camshaft pulley on the camshaft with the dowel pin fit into the hole at the **I** mark (intake side) and **E** mark (exhaust side).

2. Tighten the camshaft pulley lock bolt.

Tightening torque:

47—65 N·m (4.8—6.6 m·kg, 35—48 ft·lb)

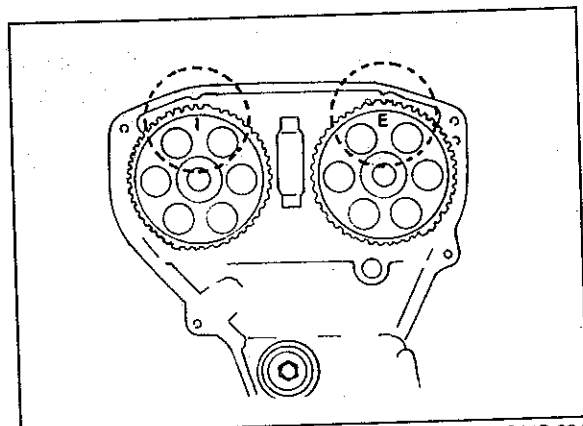


3. Align the mating mark on the camshaft pulleys with the alignment mark on the seal plate.

Note

For intake side camshaft pulley, align "I" mark.

For exhaust side camshaft pulley, align "E" mark.

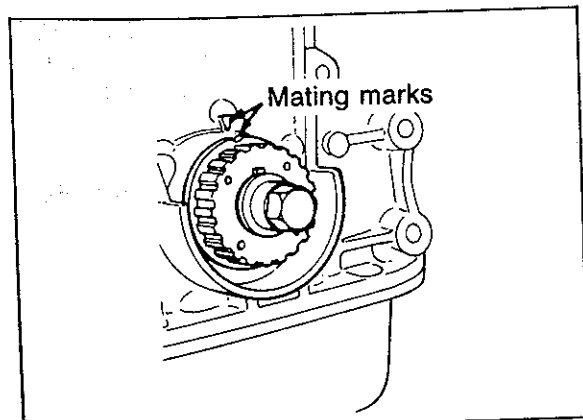


Timing Belt Pulley

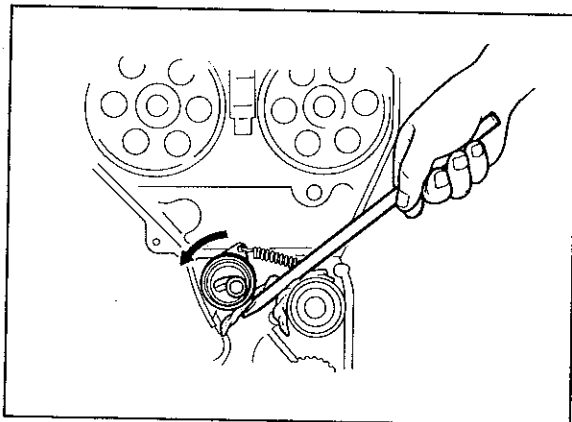
1. Reverse the direction of the **SST** (ring gear brake).
2. Install the crankshaft key.
3. Install the timing belt pulley on the crankshaft.

**Tightening torque: 157—167 N·m
(16.0—17.0 m·kg, 116—123 ft·lb)**

4. Release the ring gear brake.
5. Align the timing belt pulley and the pump body alignment marks.



1B ASSEMBLY (TIMING BELT)



69G01B-165

Timing Belt Idler Pulley

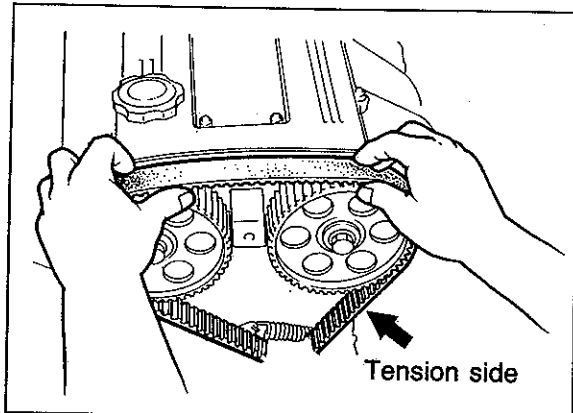
Install the timing belt idler pulley.

Tightening torque:

37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)

Timing Belt Tensioner

1. Install the timing belt tensioner and tensioner spring.
2. Tentatively secure the tensioner with the spring fully extended.



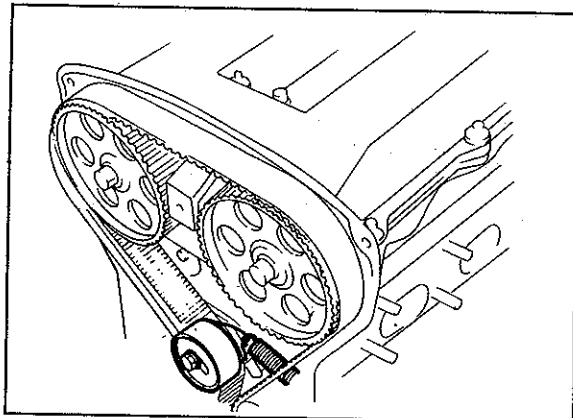
76G01B-095

Timing Belt

1. Install the timing belt so that there is no looseness at the tension side, and at the two camshaft pulleys.

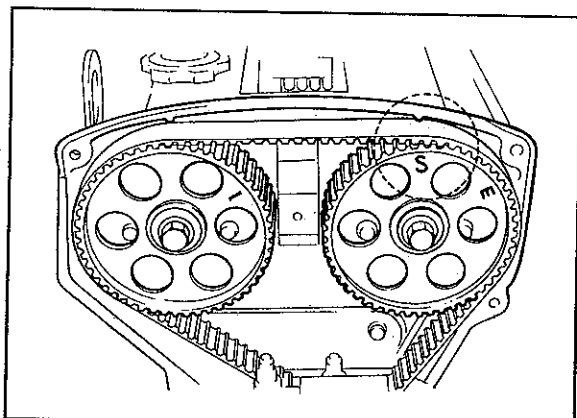
Caution

- a) If the timing belt is being reused, it must be reinstalled to rotate in the original direction.
- b) Check that there is no oil, grease, or dirt on the timing belt.



79G01C-097

2. Loosen the tensioner lock bolt.
3. Turn the crankshaft twice in the direction of rotation.
4. Check that the mating marks are correctly aligned. If not aligned, remove the timing belt and tensioner, and repeat the above-mentioned procedure.



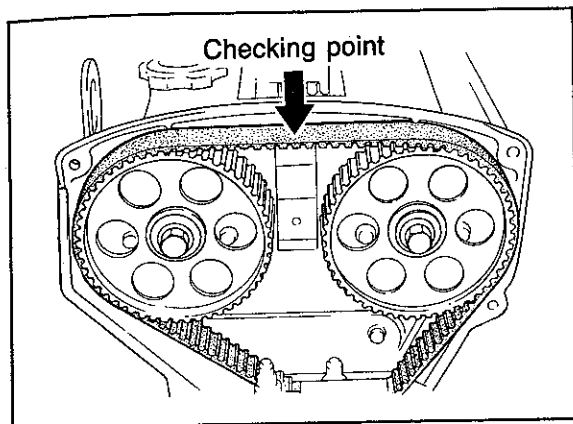
76G01B-096

5. Turn the crankshaft to align the **S** mark of the right side camshaft pulley with seal plate mating mark.
6. Tighten the timing belt tensioner lock bolt.

Tightening torque:

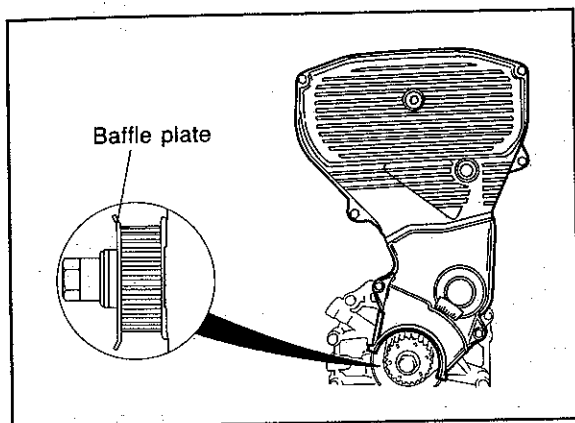
37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)

ASSEMBLY (TIMING BELT) 1B



7. Then turn the crankshaft and align the mating marks. Check the timing belt deflection. If the deflection is not correct, loosen the tensioner lock bolt and repeat steps 3—5 above. Replace the tensioner spring if necessary.

Belt deflection (98 N, 10 kg, 22 lb)
New : 8.5—9.5 mm (0.33—0.37 in)
Used: 9.0—10.0 mm (0.35—0.39 in)



Baffle Plate

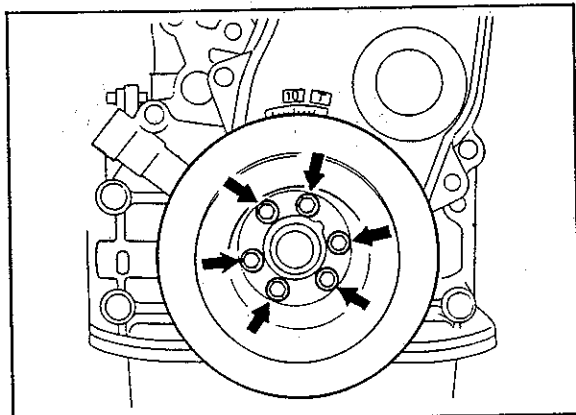
Position the baffle plate on the timing belt pulley.

Timing Belt Cover

Install the lower timing belt cover, upper timing belt cover, and new gaskets.

Tightening torque:

7—10 Nm (70—100 cm-kg, 61—87 in-lb)



Crankshaft Pulley

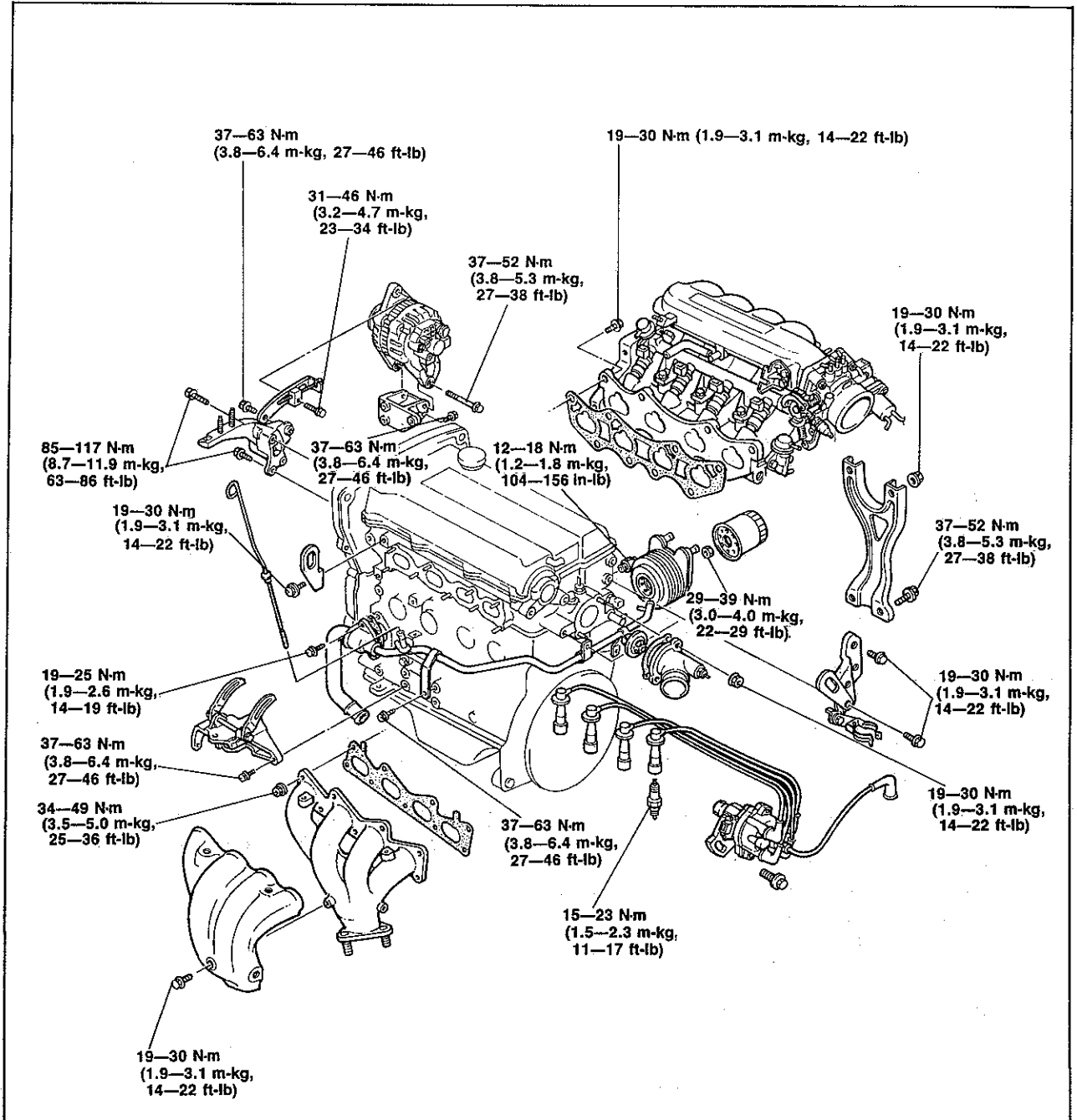
Install the crankshaft pulley.

Tightening torque: 12—17 Nm

(1.25—1.75 m-kg, 109—152 in-lb)

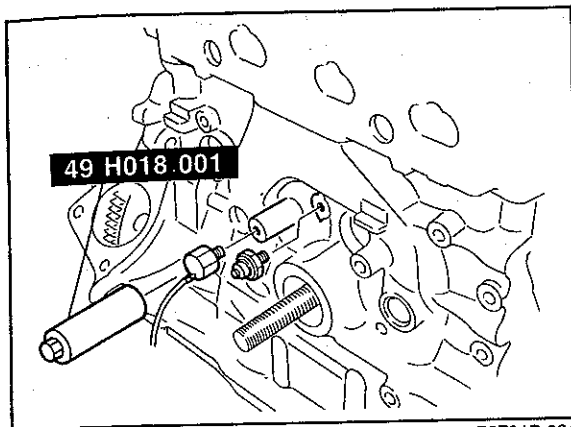
1B ASSEMBLY (AUXILIARY PARTS)

AUXILIARY PARTS Torque Specifications



86U01X-164

ASSEMBLY (AUXILIARY PARTS) 1E



76F01B-021

Knock Sensor

Install the knock sensor with the SST.

Tightening torque:

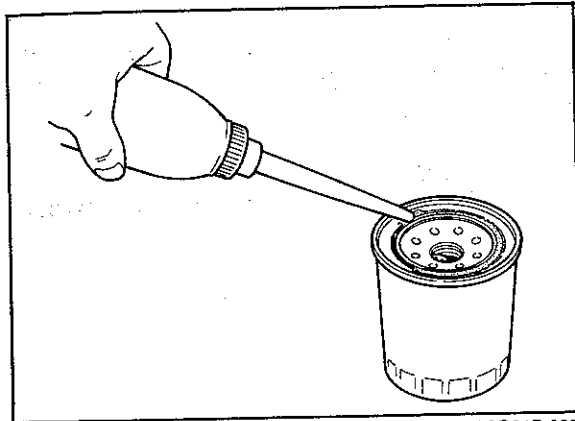
20—34 N·m (2.0—3.5 m·kg, 14—25 ft·lb)

Oil Pressure Switch

Install the oil pressure switch.

Tightening torque: 12—18 N·m

(1.2—1.8 m·kg, 104—156 in·lb)



76G01B-099

Oil Cooler

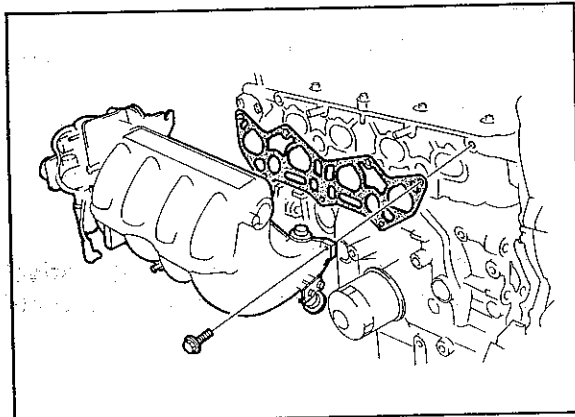
Install the oil cooler.

Tightening torque:

29—39 N·m (3.0—4.0 m·kg, 22—29 ft·lb)

Oil Filter

1. Apply a small amount of engine oil to the rubber seal of the new filter.
2. Install the oil filter and tighten it by hand until the rubber seal contacts the base.
3. Then tighten the filter 1 and 1/6 turn with a wrench.



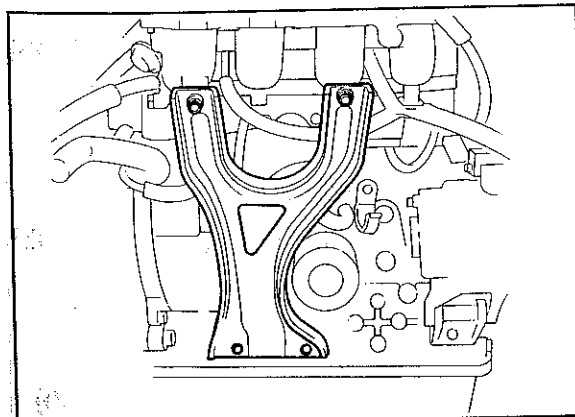
86U01X-167

Intake Manifold Assembly

1. Place the new gasket in position.
2. Install the intake manifold assembly.
3. Tighten the nuts in two or three steps.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)



86U01X-168

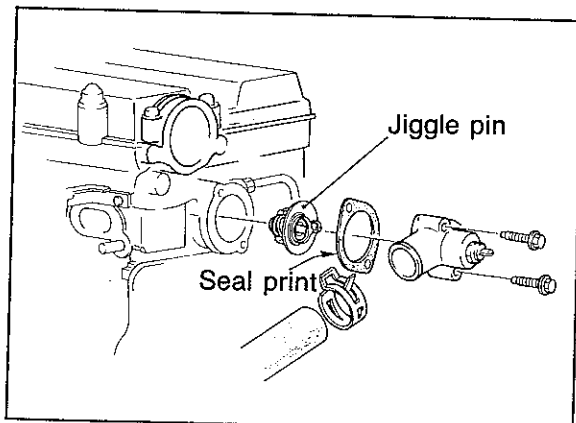
Intake Manifold Bracket

Install the intake manifold bracket.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)

1B ASSEMBLY (AUXILIARY PARTS)



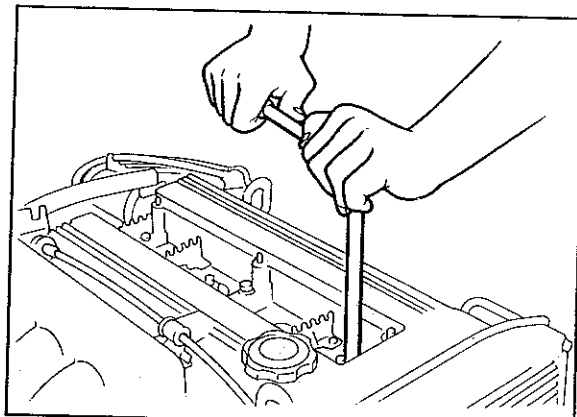
86U01X-169

Thermostat and Thermostat Cover

1. Install the thermostat into the cylinder head with the jiggle pin at the top.
2. Position a new gasket with the printed side facing the cylinder head.
3. Install the thermostat cover.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)



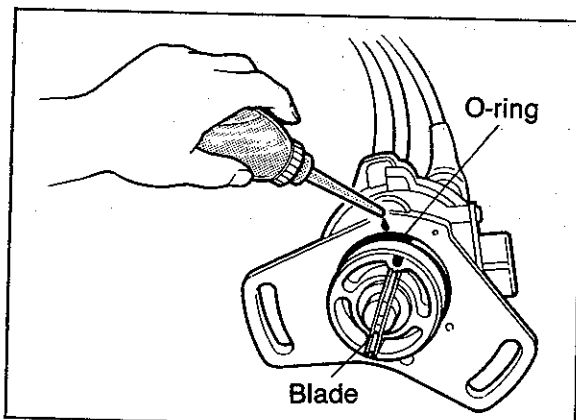
86U01X-219

Spark Plug

1. Apply anti-seize compound or molybdenum-based lubricant to the spark plug threads.
2. Install the spark plugs.

Tightening torque:

15—23 N·m (1.5—2.3 m·kg, 11—17 ft·lb)



76F01B-022

Distributor

1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor.
4. Loosely tighten the distributor mounting bolt.

Note

The distributor blade and the distributor drive groove are offset to prevent mistake installation.

Center Cover

Install the center cover.

Tightening torque:

8—12 N·m (80—120 cm·kg, 69—104 in·lb)

Engine Mount Bracket

1. Install the engine mount bracket.

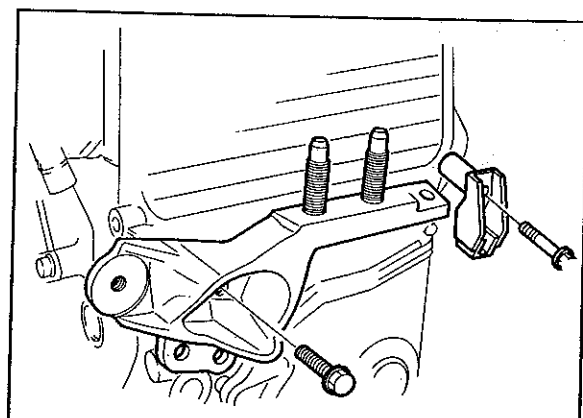
Tightening torque:

85—117 N·m (8.7—11.9 m·kg, 63—86 ft·lb)

2. Install the stay to the engine mount bracket.

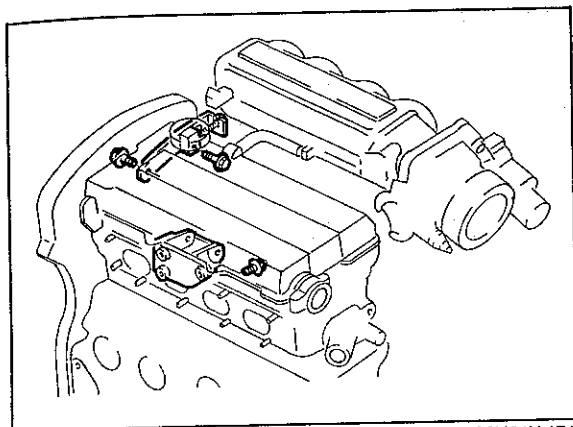
Tightening torque:

37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)



76G01B-101

ASSEMBLY (AUXILIARY PARTS) 1B



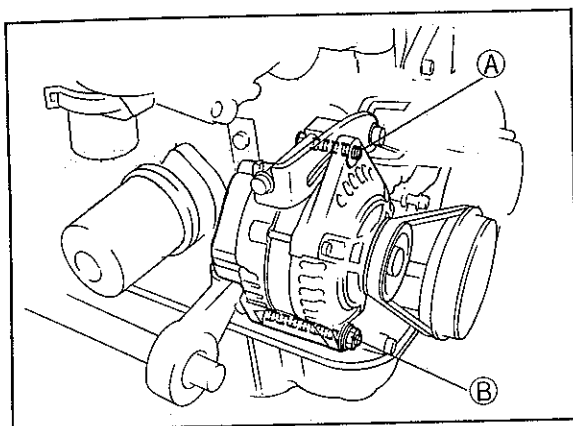
86U01X-171

Alternator

1. Install the alternator strap and bracket.

Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)



76G01B-102

2. Install the alternator.

Tightening torque

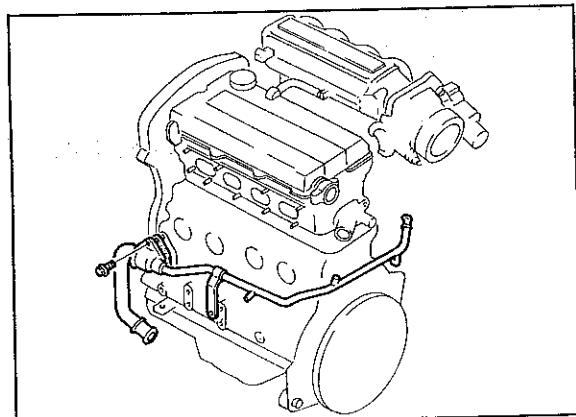
Ⓐ : 31—46 N·m

(3.2—4.7 m·kg, 23—34 ft·lb)

Ⓑ : 37—52 N·m

(3.8—5.3 m·kg, 27—38 ft·lb)

3. Install the alternator drive belt, and adjust the belt deflection. (Refer to page 1B—6.)



76G01B-103

Coolant Inlet Pipe and Bypass Pipe

1. Install the coolant inlet pipe.

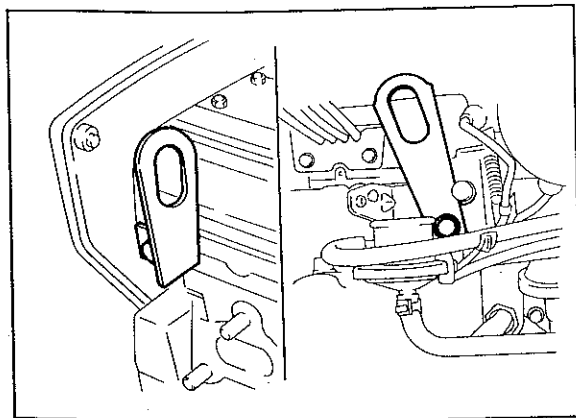
Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

2. Apply vegetable oil to the O-ring.
3. Install the coolant bypass pipe.

Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)



76G01A-092

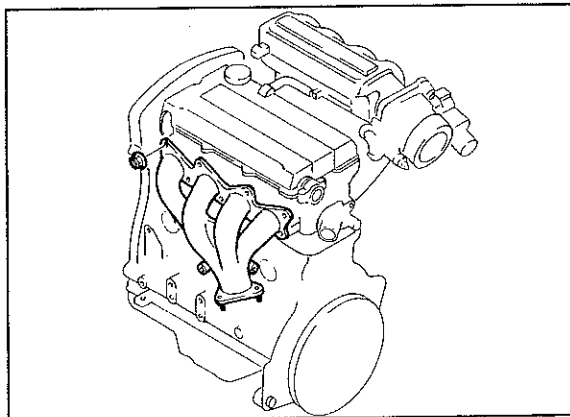
Engine Hanger

- Install the front and rear engine hangers.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)

1B ASSEMBLY (AUXILIARY PARTS)



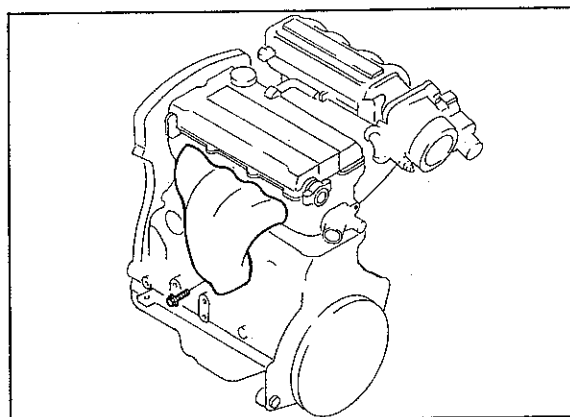
76G01B-105

Exhaust Manifold Assembly

1. Place the new gaskets in position with the ridge facing the cylinder head.
2. Install the exhaust manifold assembly.
3. Tighten the nuts in two or three steps.

Tightening torque:

34—49 N·m (3.5—5.0 m·kg, 25—36 ft·lb)



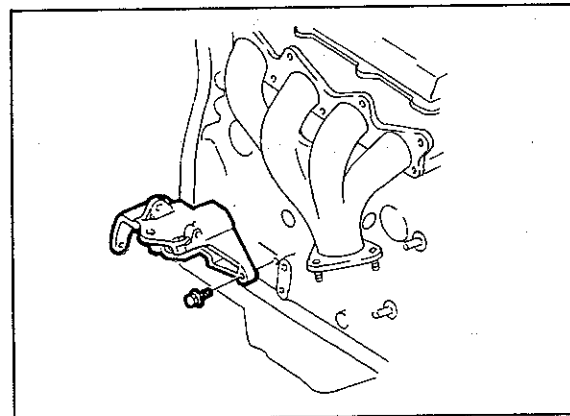
76F01B-023

Exhaust Manifold Insulator

Install the exhaust manifold insulator.

Tightening torque:

19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)



86U01X-178

P/S Oil Pump Bracket

Install the P/S oil pump bracket.

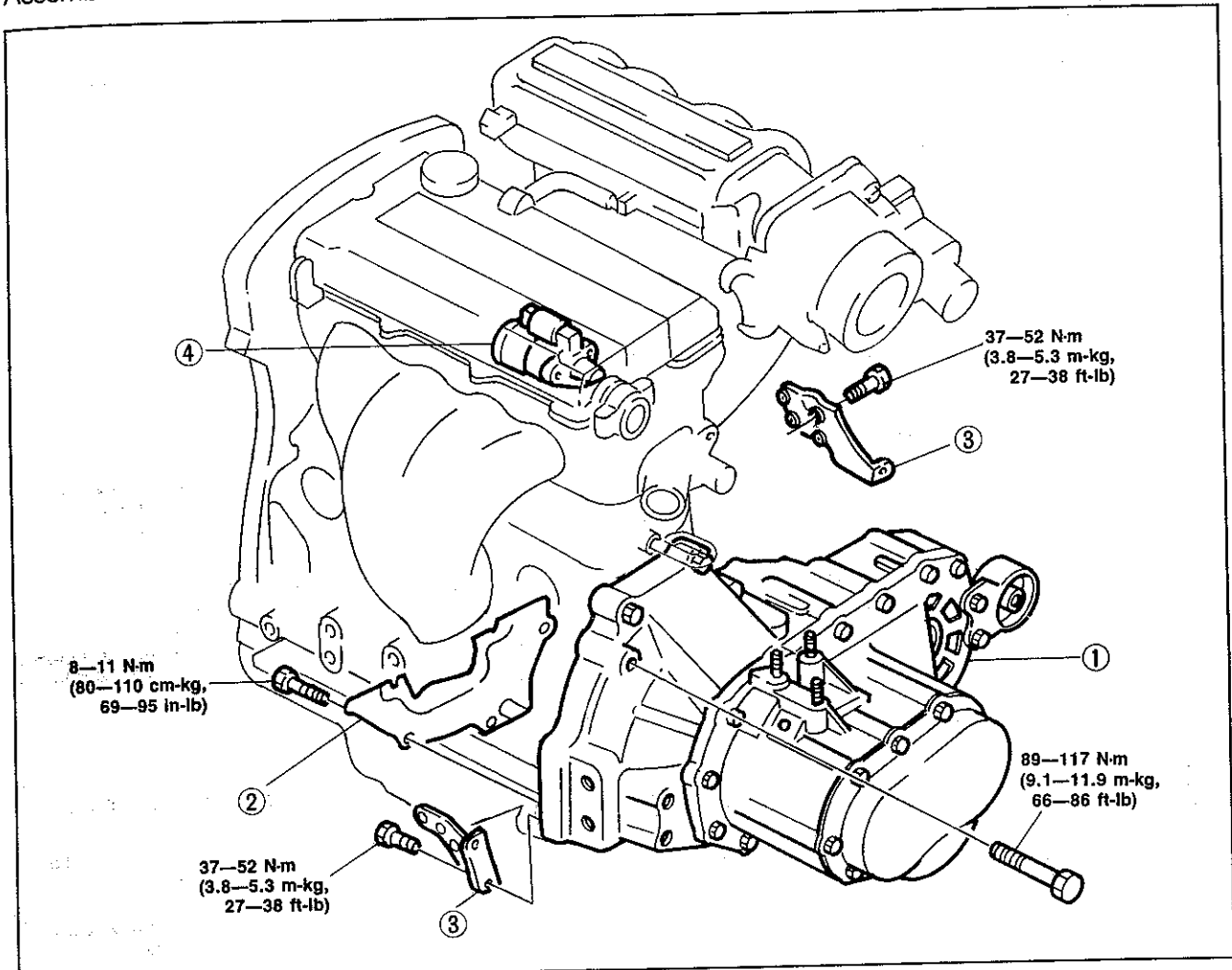
Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)

INSTALLATION

TRANSAXLE ASSEMBLY

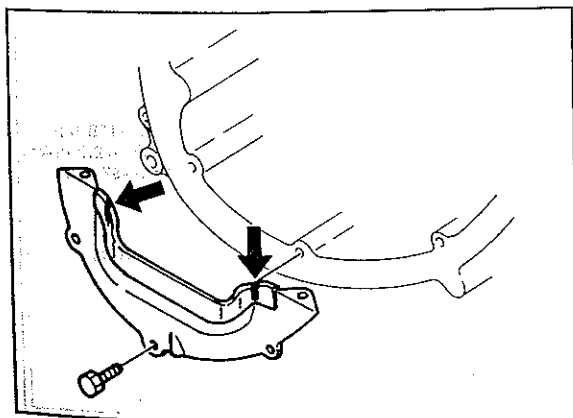
Assemble the transaxle to the engine in the sequence shown in the figure referring to the installation note.



76F01B-024

- 1. Transaxle
- 2. Clutch under cover

- 3. Gusset plate
- 4. Starter



081 X-1000

76G01A-144

Installation Note

Clutch under cover

Before installation, fill the notches with silicon as shown in the figure.

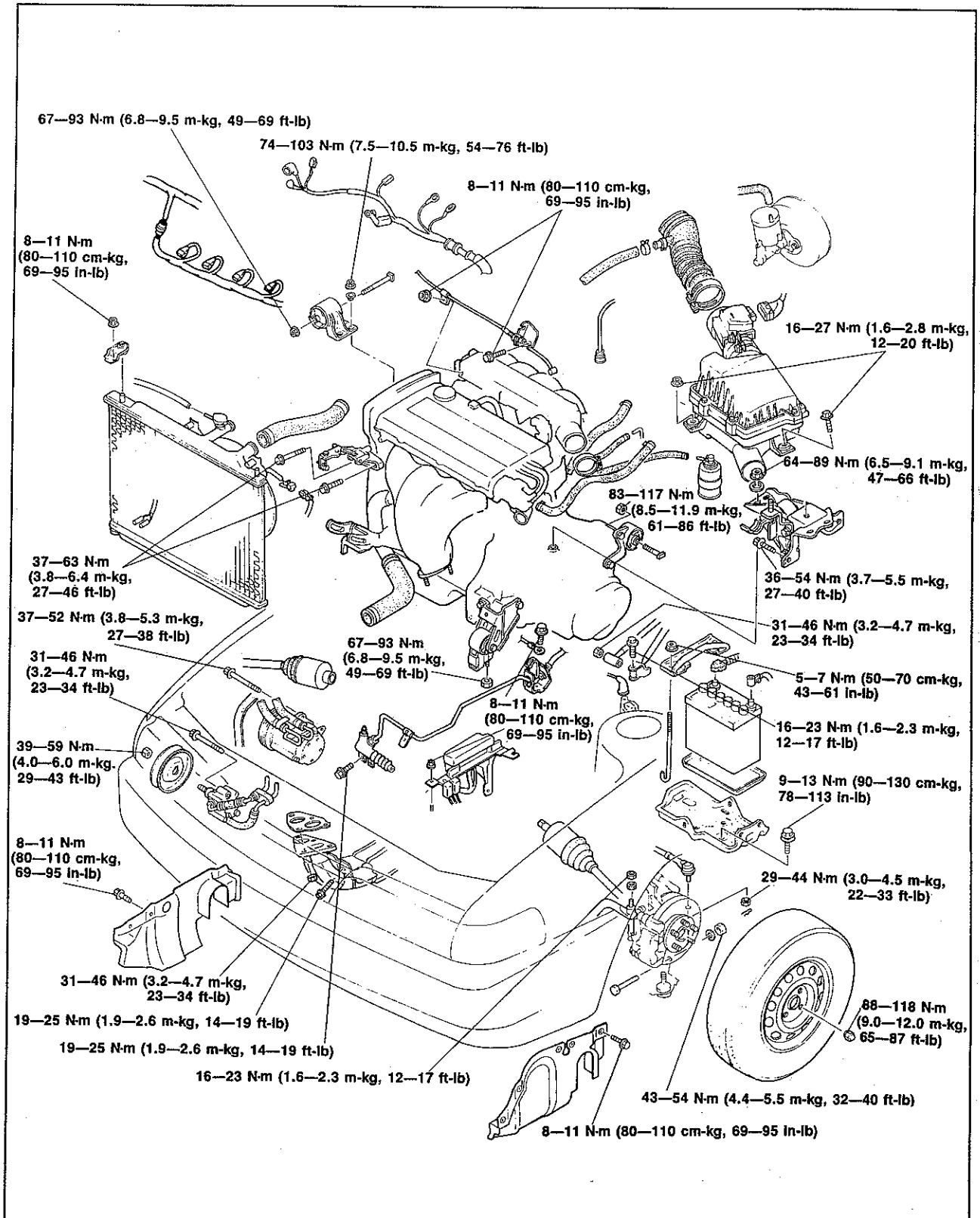
1B INSTALLATION

ENGINE INSTALLATION

Install the engine and transaxle assembly.

Warning: Be sure the vehicle is securely supported.

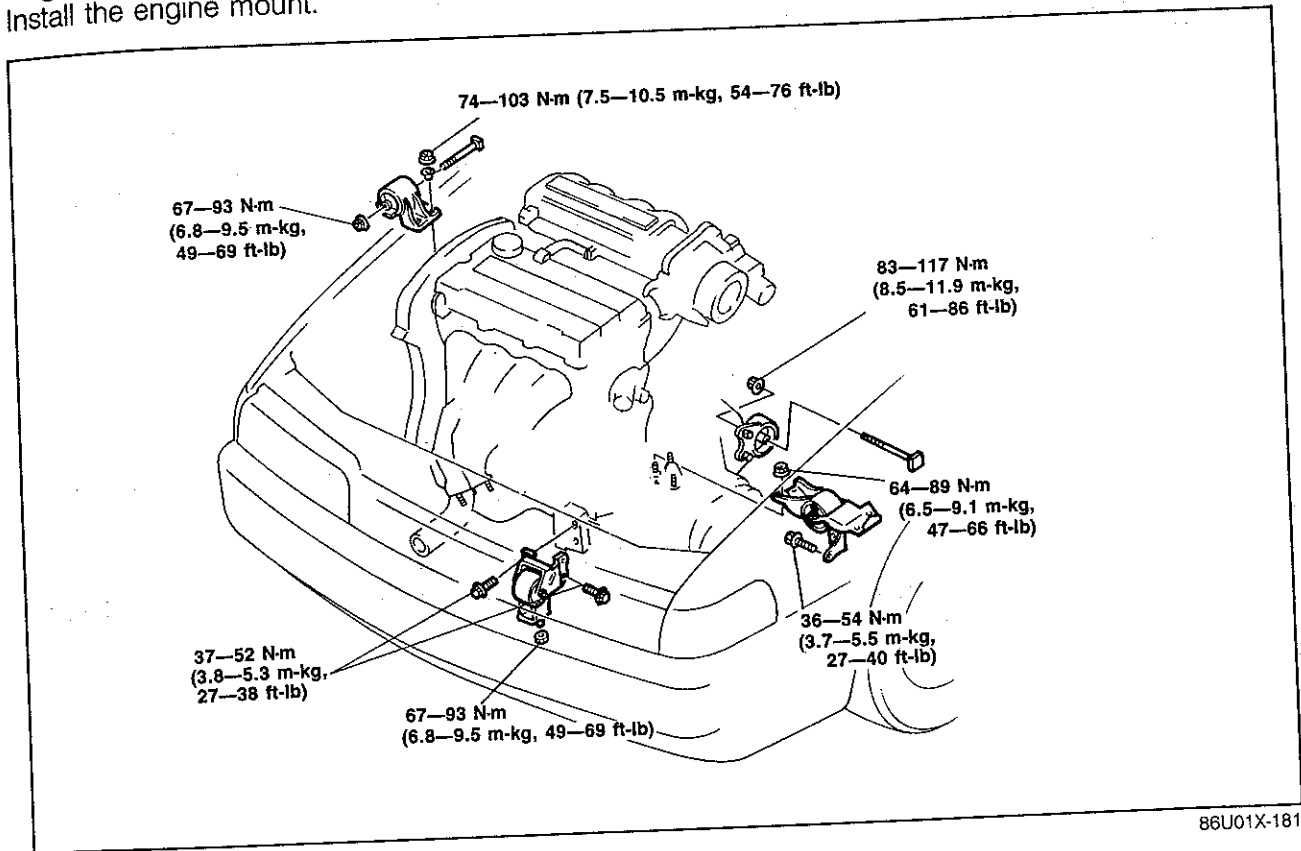
Torque Specifications



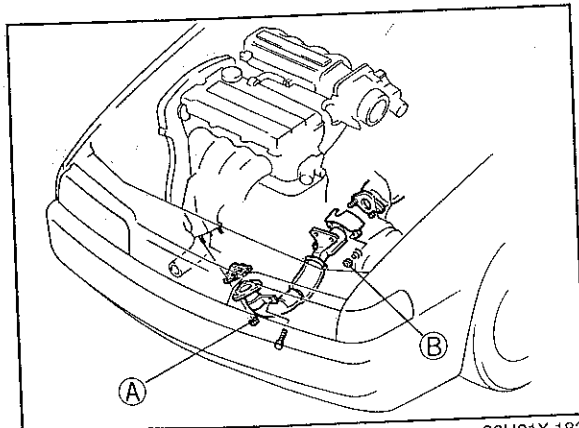
86U01X-180

Engine Mount

Install the engine mount.



86U01X-181



86U01X-182

Exhaust Pipe

1. Install the exhaust pipe.

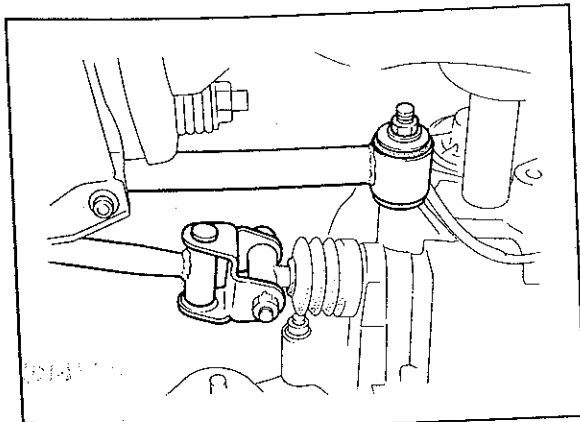
Tightening torque

- A** : 31—46 N-m
(3.2—4.7 m-kg, 23—34 ft-lb)
- B** : 64—89 N-m
(6.5—9.1 m-kg, 47—66 ft-lb)

2. Tighten the bracket bolt.

Tightening torque:

- 19—25 N-m (1.9—2.6 m-kg, 14—19 ft-lb)



76G01B-108

Extension Bar

Install the extension bar to the transaxle.

Tightening torque:

- 31—46 N-m (3.2—4.7 m-kg, 23—34 ft-lb)

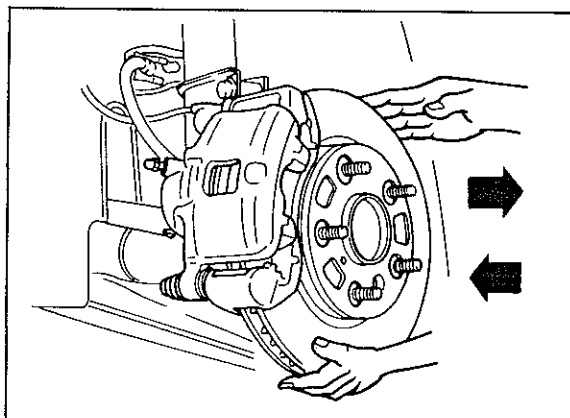
Change Rod

Install the change rod to the transaxle.

Tightening torque:

- 16—23 N-m (1.6—2.3 m-kg, 12—17 ft-lb)

1B INSTALLATION



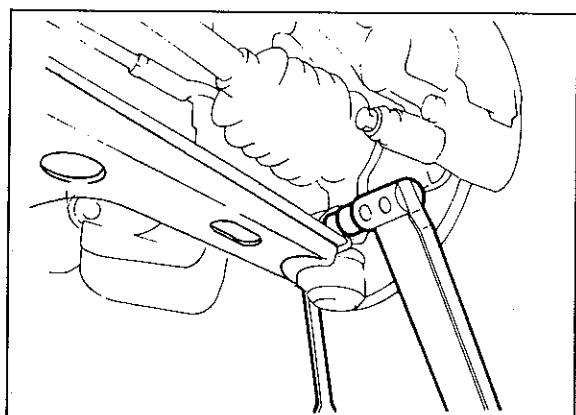
86U01X-184

Driveshaft

1. Apply grease to the end of the driveshaft.
2. Install the driveshaft and a new clip.

Caution

- a) When installing the driveshaft, be careful not to damage the oil seal.
- b) After installation, pull the front hub outward to confirm that the driveshaft is securely held by the clip.



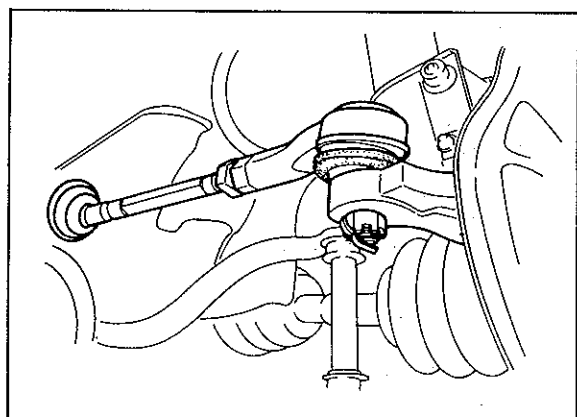
86U01X-185

Lower Arm

Install the lower arm ball-joint to the knuckle; then tighten the lock nut.

Tightening torque:

43—54 N·m (4.4—5.5 m·kg, 32—40 ft·lb)



86U01X-186

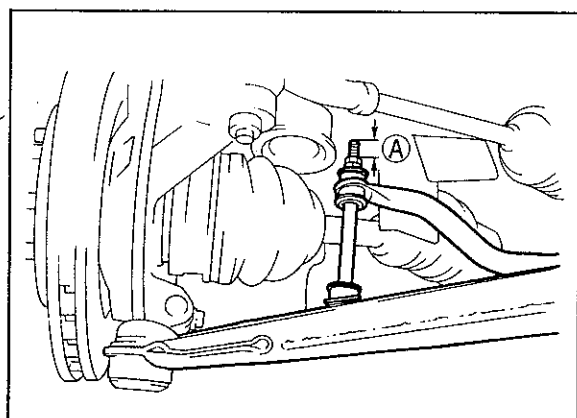
Tie-Rod End

1. Install the tie-rod end to the knuckle.

Tightening torque:

29—44 N·m (3.0—4.5 m·kg, 22—33 ft·lb)

2. Install the cotter pin.



86U01X-187

Stabilizer Control Rod

Install and adjust the front stabilizer control rods.

Dimension A: 20.1 mm (0.79 in)

Tightening torque:

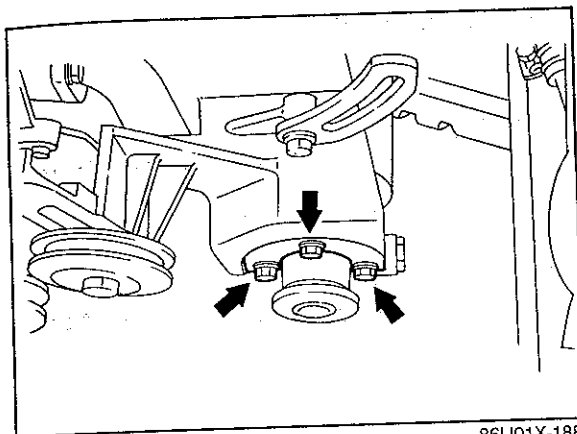
16—23 N·m (1.6—2.3 m·kg, 12—17 ft·lb)

Install the front wheel.

Tightening torque:

88—118 N·m (9.0—12.0 m·kg, 65—87 ft·lb)

INSTALLATION 1B



86U01X-188

P/S Oil Pump

1. Install the P/S oil pump.

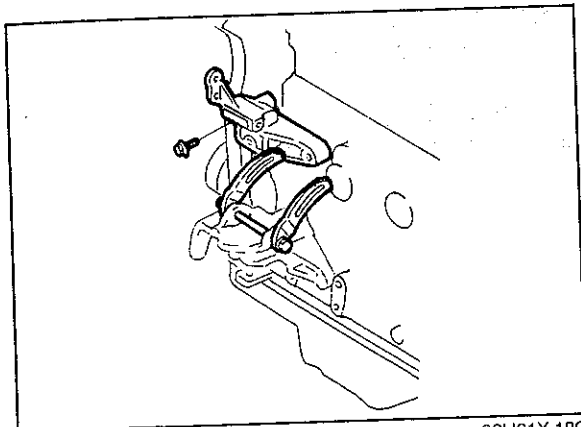
Tightening torque:

31—46 N·m (3.2—4.7 m·kg, 23—34 ft·lb)

2. Tighten the pulley lock nut.

Tightening torque:

39—59 N·m (4.0—6.0 m·kg, 29—43 ft·lb)



86U01X-189

A/C Compressor

1. Install the A/C compressor strap to the P/S oil pump bracket.

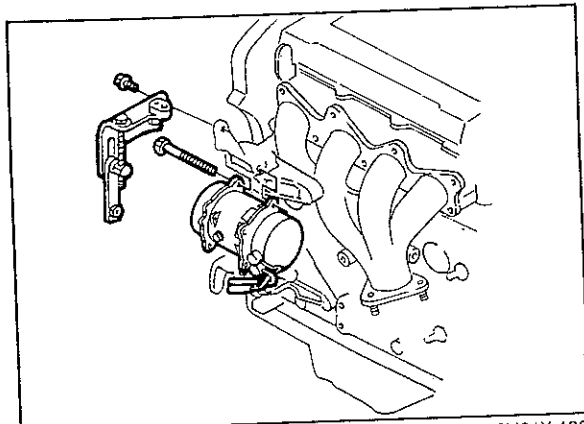
Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

2. Install the A/C compressor bracket.

Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)



86U01X-190

3. Install the A/C compressor.

4. Install the A/C compressor upper bracket.

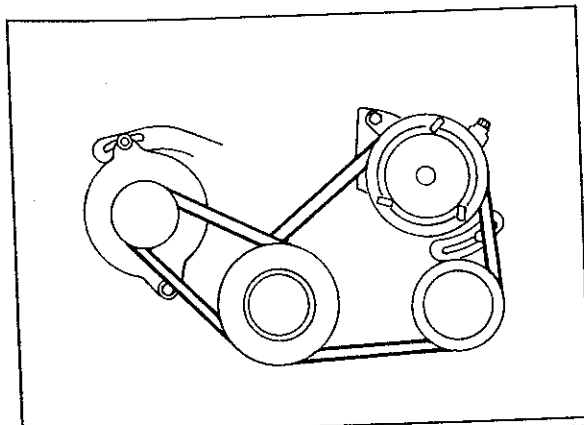
Tightening torque:

37—63 N·m (3.8—6.4 m·kg, 27—46 ft·lb)

5. Tighten to the lock nut and mounting bolts.

Tightening torque:

37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)

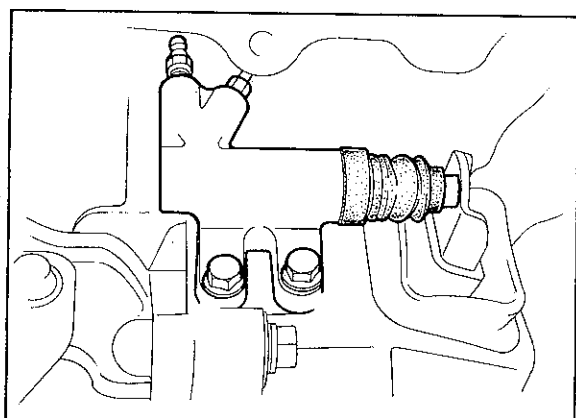


76G01B-109

Drive Belt

Install the drive belt and adjust the belt deflection. (Refer to page 1B—6.)

1B INSTALLATION



76G01B-110

Clutch Release Cylinder

1. Set the pipe bracket in position.

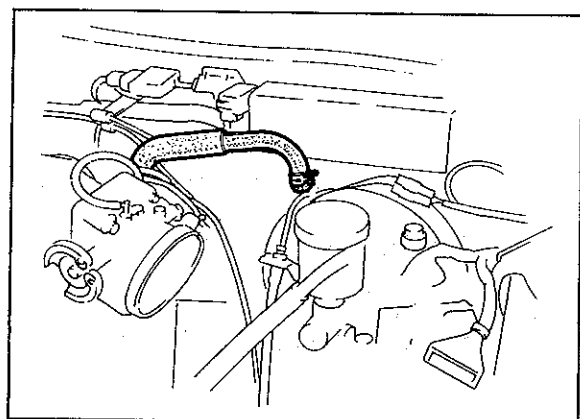
Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

2. Install the clutch release cylinder.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



76F01B-025

Speedometer Cable

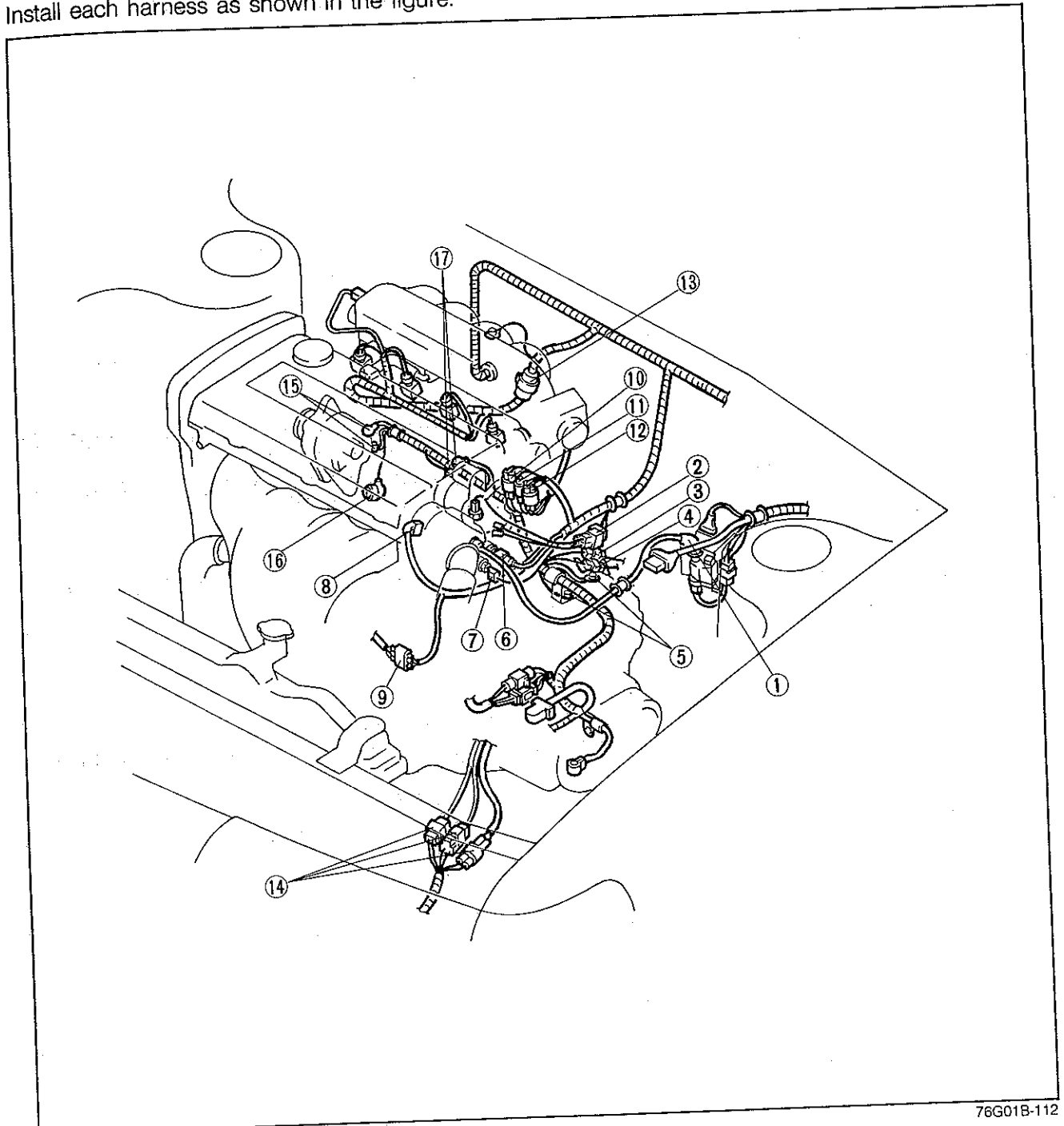
Install the speedometer cable.

Brake Vacuum Hose

Connect the brake vacuum hose.

Connector Location

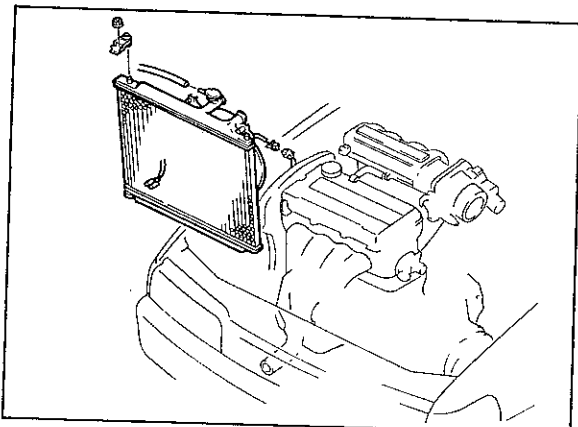
Install each harness as shown in the figure.



76G01B-112

- | | |
|-----------------------------|---|
| 1. IG coil | 10. Linear solenoid |
| 2. Heat gauge unit | 11. Solenoid valve (idle speed control) |
| 3. Speed sensor | 12. Throttle position sensor |
| 4. P/S switch | 13. Injection harness |
| 5. Engine ground | 14. Transmission harness |
| 6. Water temperature sensor | 15. Alternator |
| 7. Water thermo switch | 16. Oil pressure switch |
| 8. Crank angle sensor | 17. Starter |
| 9. Oxygen sensor | |

1B INSTALLATION



76G01B-113

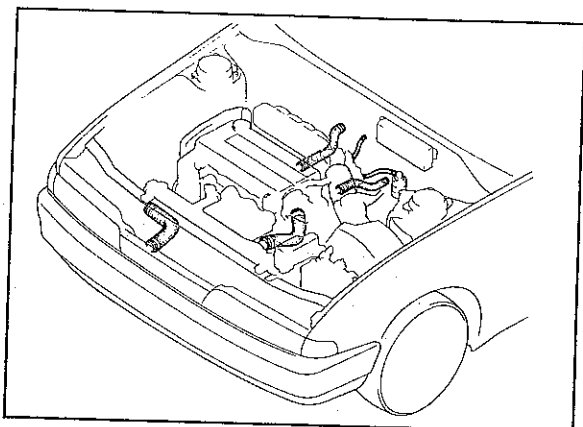
Radiator

1. Install the radiator and cooling fan.

Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

2. Connect the radiator harness.



76G01B-114

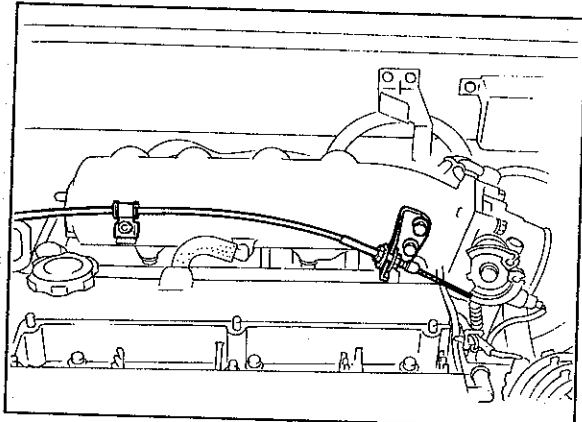
3. Connect the upper and lower radiator hoses.

Note

- a) Position the hose clamp in the original location on the hose.
- b) Squeeze the clamp lightly with large pliers to ensure a good fit.

Heater Hose and Fuel Hose

Connect the heater hoses and the fuel hoses.



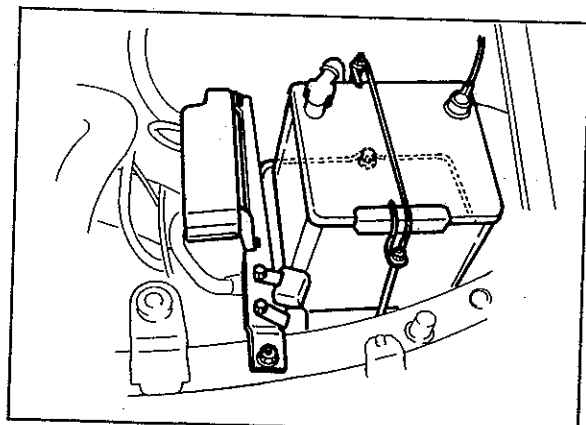
76G01B-115

High-Tension Lead

Connect the high-tension lead to the ignition coil.

Accelerator Cable

Install the accelerator cable.



76G01A-148

Battery and Battery Carrier

1. Install the battery carrier.

Tightening torque:

9—13 N·m (90—130 cm·kg, 78—113 in·lb)

2. Install the fuse box.

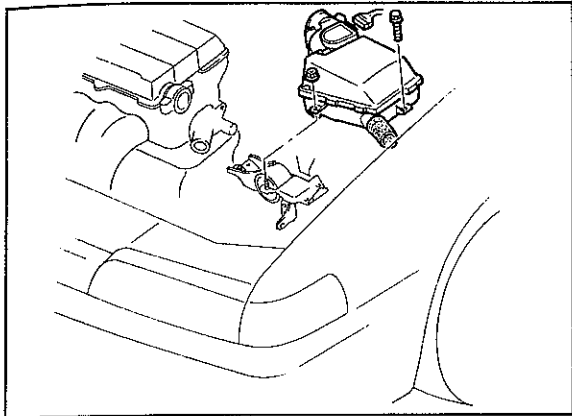
Tightening torque:

8—11 N·m (80—110 cm·kg, 69—95 in·lb)

3. Install the battery tray and battery.

Tightening torque:

5—7 N·m (50—70 cm·kg, 43—61 in·lb)



76G01B-116

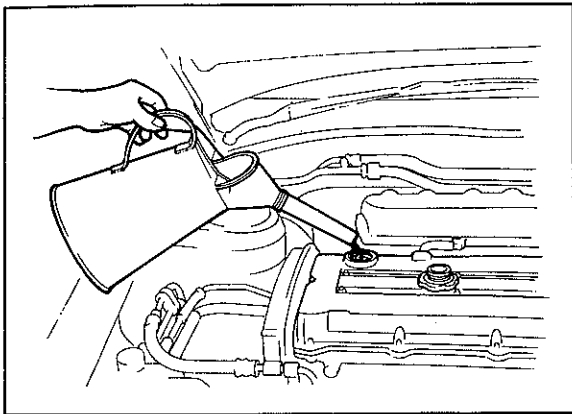
Air Cleaner Assembly

1. Install the air cleaner assembly.

Tightening torque:

16—27 N·m (1.6—2.8 m·kg, 12—20 ft·lb)

2. Connect the air flow sensor connector and air intake pipe.



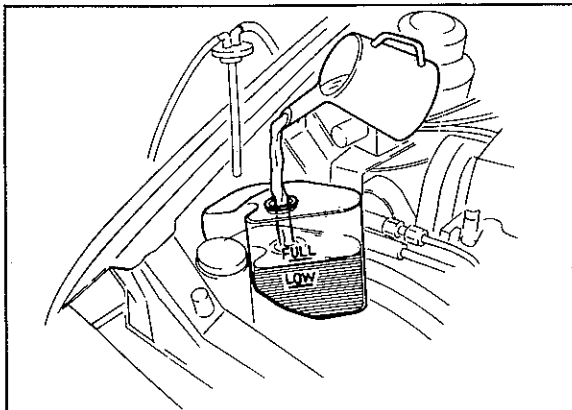
76F01B-026

Engine Oil

Add the specified amount and type of engine oil. (Refer to Section 2.)

Coolant

Close the drain plug, fill the radiator and reservoir tank with the specified amount and type of coolant. (Refer to Section 3.)



86U01X-204

Check Engine Condition

1. Check for leaks.
2. Perform engine adjustments if necessary.
3. Perform a road test.
4. Recheck the oil and coolant levels.

LUBRICATION SYSTEM

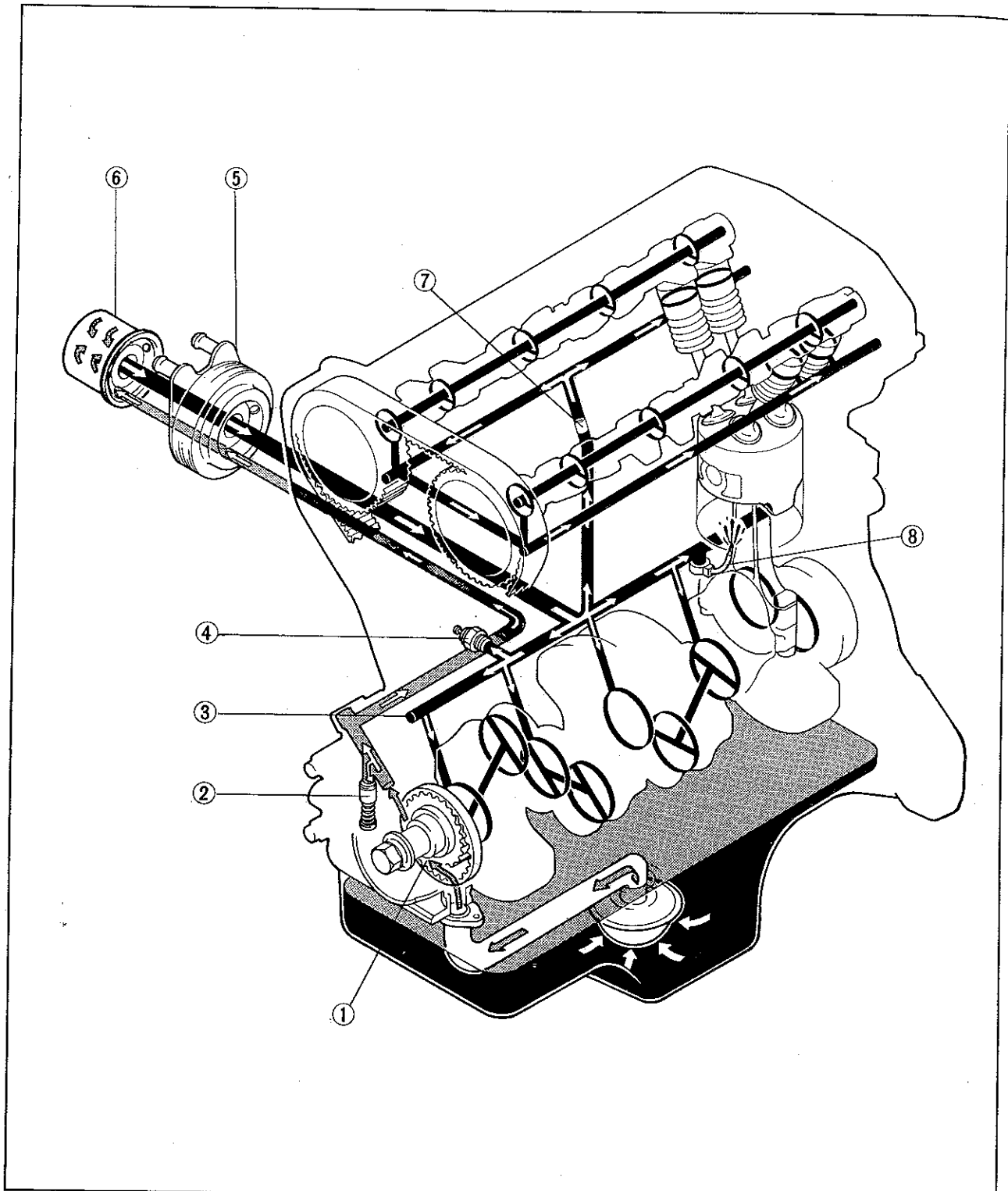
OUTLINE	2- 2
LUBRICATION CIRCUIT (DOHC).....	2- 2
LUBRICATION CIRCUIT (SOHC)	2- 3
SPECIFICATIONS.....	2- 4
TROUBLESHOOTING GUIDE	2- 4
INSPECTION	2- 5
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OIL PRESSURE	2- 5
ENGINE OIL	2- 5
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OIL COOLER	2- 6
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INSPECTION	2-11
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76F02X-001

2 OUTLINE

OUTLINE

LUBRICATION CIRCUIT (DOHC)

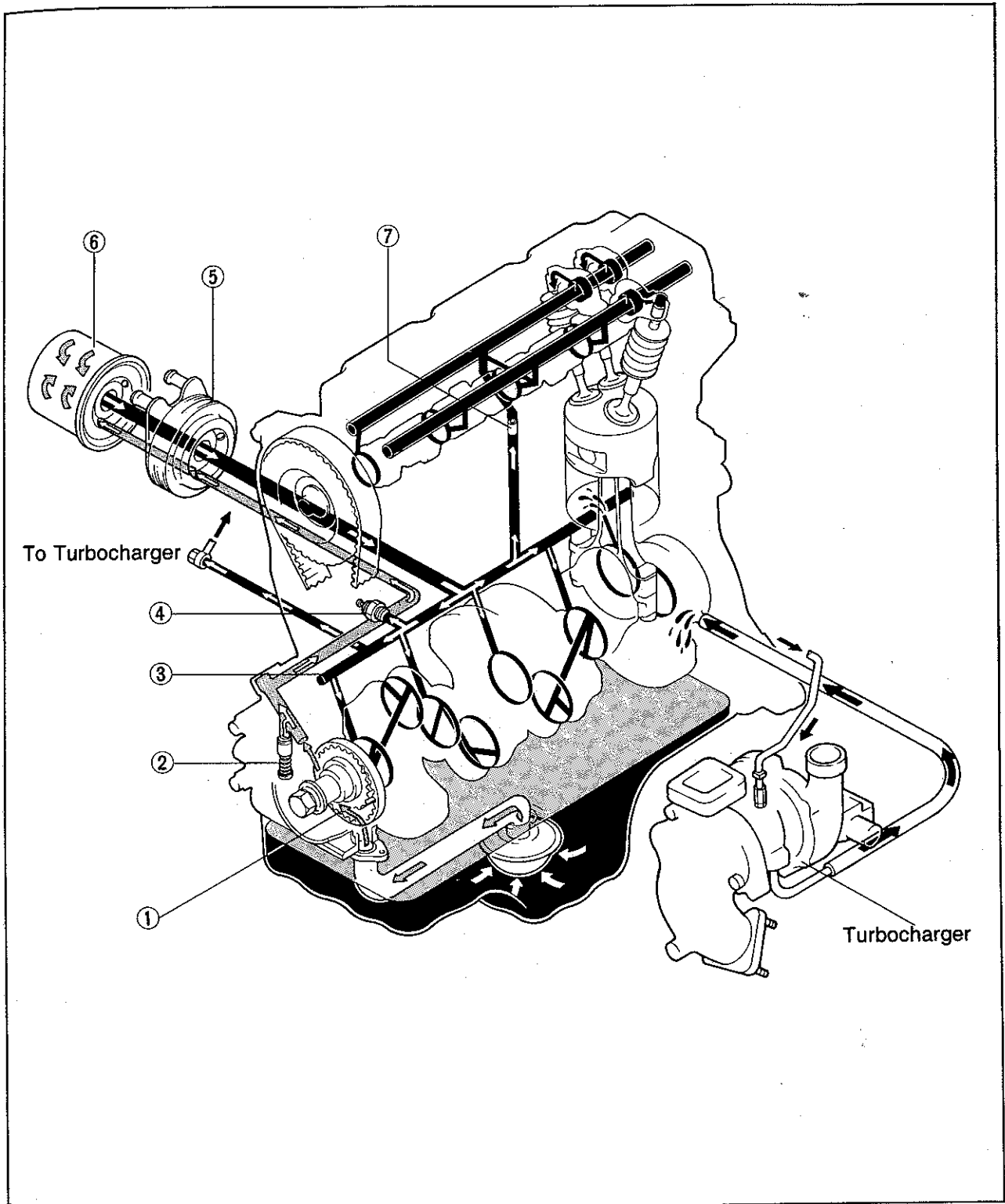


1. Oil pump
2. Pressure regulator valve
3. Main gallery
4. Oil pressure switch

5. Oil cooler
6. Oil filter
7. Oil control plug
8. Oil jet

76G02A-002

LUBRICATION CIRCUIT (SOHC)



76F02X-002

- | | |
|-----------------------------|---------------------------------------|
| 1. Oil pump | 5. Oil cooler (F2 Turbo, FE 12-valve) |
| 2. Pressure regulator valve | 6. Oil filter |
| 3. Main gallery | 7. Oil control plug |
| 4. Oil pressure switch | |

2 TROUBLESHOOTING GUIDE

SPECIFICATIONS

Item	Engine model	F2		FE DOHC	F6-F8-FE SOHC	
		Turbo	Non-Turbo			
Lubrication system		Force-fed				
Oil pump	Type	Trochoid gear		Crescent gear		
	Regulated pressure kPa (kg/cm ² , psi)	392 (4.0, 57)		490 (5.0, 71)	392 (4.0, 57)	
	Oil pressure kPa (kg/cm ² , psi)	1,000 rpm	147-245 (1.5-2.5, 21-36)			
		3,000 rpm	294-392 (3.0-4.0, 43-57)	343-441 (3.5-4.5, 50-64)	294-392 (3.0-4.0, 43-57)	
Oil filter	Type	Full-flow, paper element				
	Relief pressure differential kPa (kg/cm ² , psi)	98 (1.0, 14)				
Oil cooler	Type	Water cooled, 4-layer	Water cooled, 6-layer	Water cooled, 4-layer		
Oil warning pressure kPa (kg/cm ² , psi)		29 (0.3, 4.3)				
Oil capacity	Total (dry engine) liters (US qt, Imp qt)	4.6 (4.9, 4.0)		4.3 (4.5, 3.8)		
	Oil pan liters (US qt, Imp qt)	3.9 (4.1, 3.4)		3.6 (3.8, 3.2)		
	Oil filter liters (US qt, Imp qt)	0.3 (0.32, 0.26)		0.2 (0.21, 0.18)	0.3 (0.32, 0.26)	
Engine oil (API service)		SF	SD, SE, or SF			

76F02X-003

Recommended SAE Viscosity

Temperature (°C)	-30	-20	-10	0	10	20	30	40	50
	(°F)	-20	0	20	40	60	80	100	120
Engine oil	5W-30		30						
	5W-20		20W-20		40				
	10W-30								
	10W-40			10W-50					
	20W-40				20W-50				

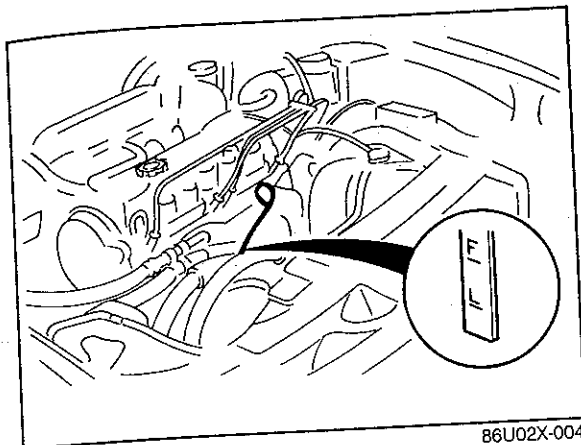
Temperature range anticipated before next oil change, °C(°F)

63G02D-303

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Engine hard starting	Improper engine oil	Replace	2- 5
	Insufficient engine oil	Add oil	2- 5
Excessive oil consumption	Oil working up or working down	Refer to Section 1	—
	Oil leakage	Repair	—
Oil pressure drop	Insufficient oil	Add oil	2- 5
	Oil leakage	Repair	—
	Worn or damaged oil pump gear	Replace	2-11
	Worn plunger (inside oil pump) or weak spring	Replace	2-11
	Clogged oil strainer	Clean	—
	Excessive main bearing or connecting rod bearing clearance	Refer to Section 1	—
Warning lamp illuminated while engine running	Oil pressure drop	As described above	—
	Malfunction of oil pressure switch	Refer to Section 15	—
	Malfunction of electrical system	Refer to Section 15	—

76F02X-004



86U02X-004

INSPECTION

ENGINE OIL

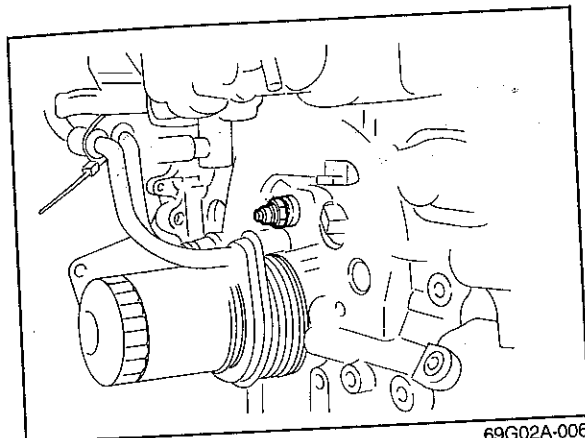
1. Be sure the vehicle is on level ground.
2. Warm up the engine to normal operating temperature and stop it.
3. Wait for five minutes.
4. Remove the oil level gauge and check the oil level and condition.
5. Add or replace oil if necessary.

Note

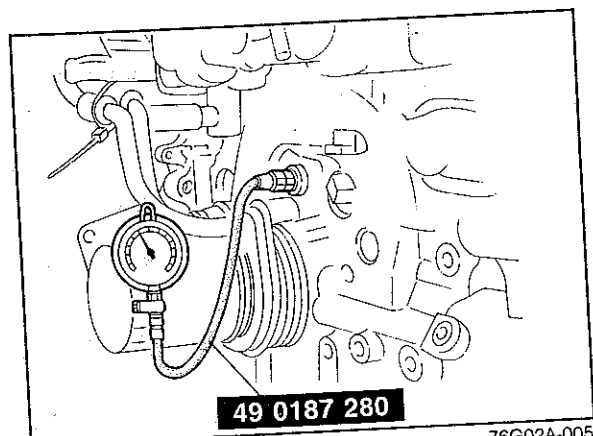
The distance between the L and F marks on the level gauge represents 1.0 liter (1.06 US qt, 0.88 Imp qt).

OIL PRESSURE

1. Remove the oil pressure switch.



69G02A-006



49 0187 280

76G02A-005

2. Screw the **SST** into the pressure switch installation hole.
3. Warm up the engine to normal operating temperature.
4. Run the engine at **3,000 rpm**, and note the gauge reading.

Oil pressure:

343—441 kPa

(3.5—4.5 kg/cm², 50—64 psi)...DOHC

294—392 kPa

(3.0—4.0 kg/cm², 43—57 psi)...SOHC

5. If the pressure is not as specified, check for the cause, and repair if necessary.
(Refer to Troubleshooting Guide.)

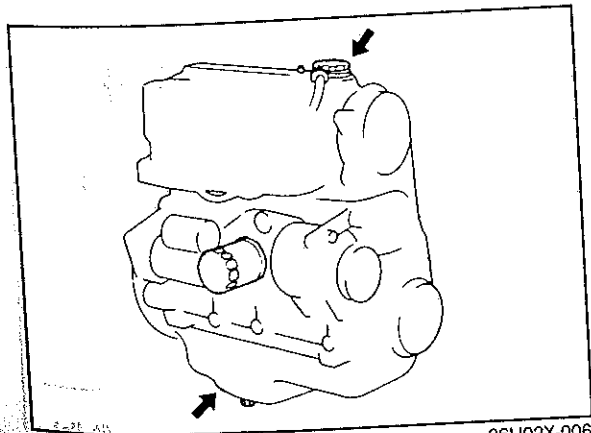
ENGINE OIL

REPLACEMENT

1. Warm up the engine to the normal operating temperature and stop it.
2. Remove the oil filler cap and the oil pan drain plug.
3. Drain the oil into a suitable container.

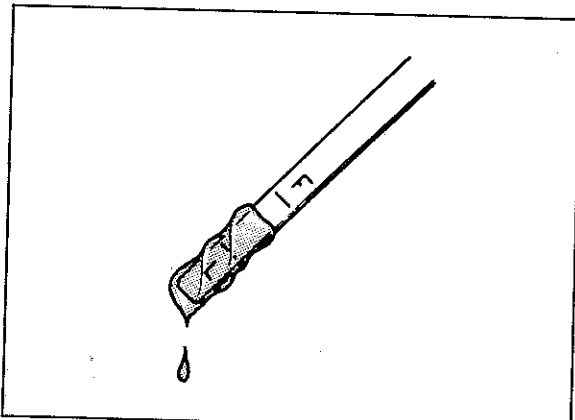
Warning

Be careful when draining, the oil is very hot.



86U02X-006

2 OIL FILTER, OIL COOLER



76F02X-005

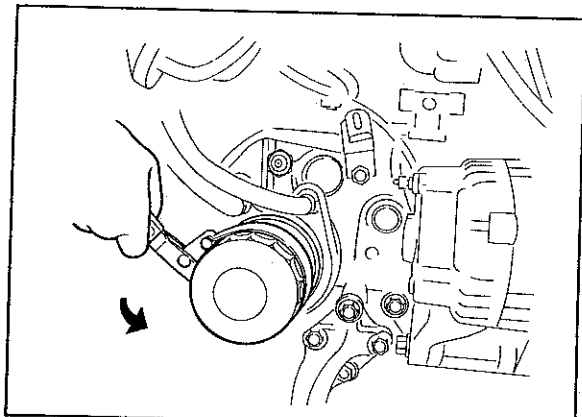
4. Install the drain plug and a new gasket.
5. Refill the engine with the specified type and amount of engine oil.
6. Refit the oil filler cap.

Oil pan capacity:

3.9 liters (4.1 US qt, 3.4 Imp qt)...F2

3.6 liters (3.8 US qt, 3.2 Imp qt)...F6-F8-FE

7. Recheck the oil level after the engine has been run.

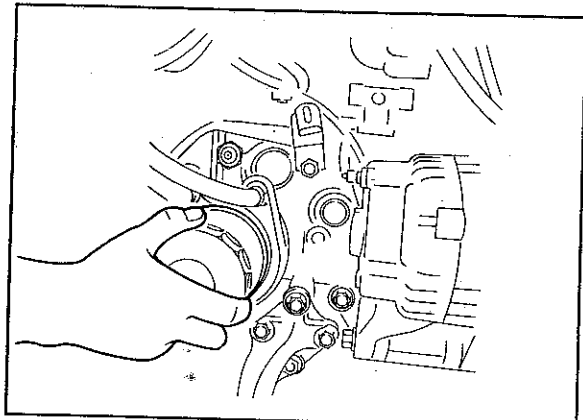


86U02X-008

OIL FILTER

REPLACEMENT

1. Remove the oil filter with a suitable wrench.
2. Use a clean rag to wipe off the mounting surface on the engine.



76G02A-007

3. (DOHC)
Install the oil filter until the rubber seal contacts the base and then tighten the filter 1 and 1/6 turn with a wrench.
- (SOHC)
Install the oil filter and tighten it by hand only. Do not use a wrench.
4. Start the engine and inspect around the filter seal for leaks.
5. Check the oil level and add oil if necessary.

Oil filter capacity:

0.20 liters (0.21 US qt, 0.18 Imp qt)...DOHC

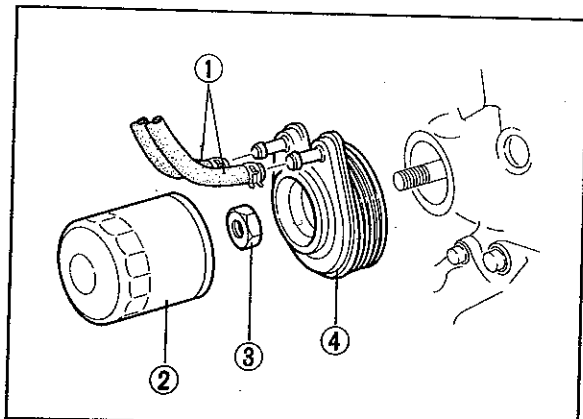
0.30 liters (0.32 US qt, 0.26 Imp qt)...SOHC

OIL COOLER (DOHC, F2 Turbo, FE 12-valve)

REMOVAL AND INSTALLATION

Remove in the sequence shown in the figure. Install in the reverse order of removal.

1. Water hose
2. Oil filter
3. Nut
4. Oil cooler



76F02X-006

Nut tightening torque:

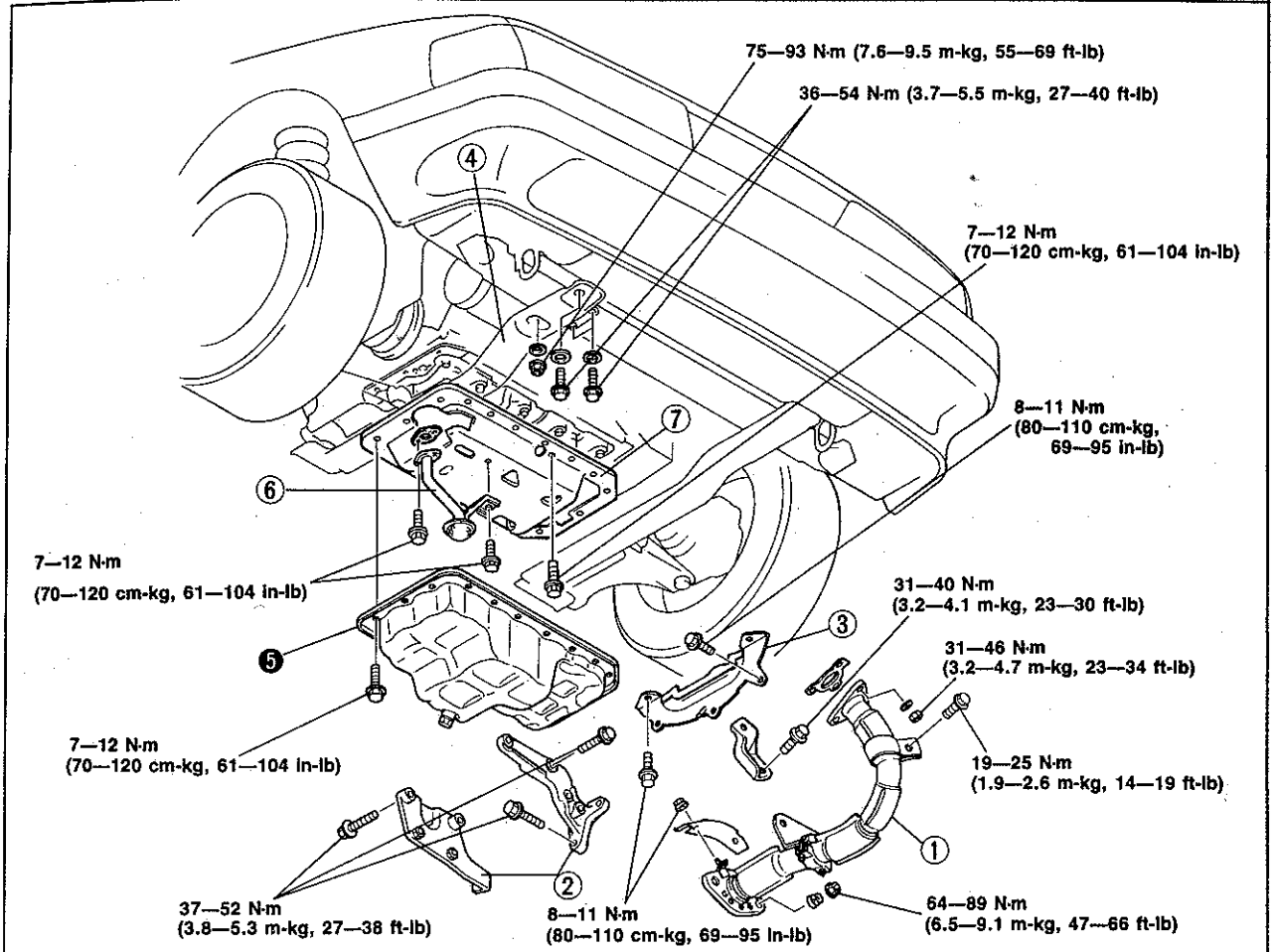
29—39 N·m (3.0—4.0 m·kg, 22—29 ft·lb)

OIL PAN

REMOVAL

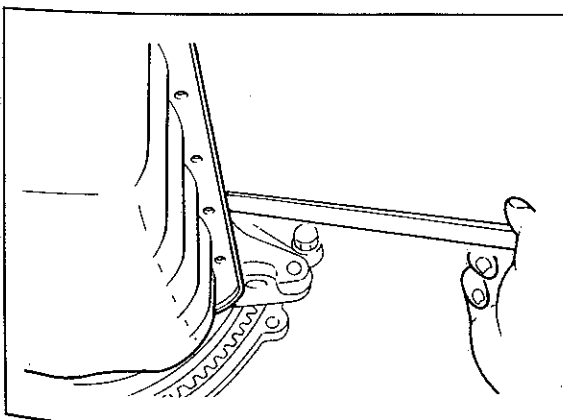
1. Disconnect the negative battery cable.
2. Drain the engine oil.
3. Remove in the sequence shown in the figure referring to the removal note for specially marked parts.

76G02A-009



76F02X-007

- | | |
|-------------------------------|-------------------------------|
| 1. Exhaust pipe | 5. Oil pan |
| 2. Gusset plate | 6. Oil strainer |
| 3. Clutch housing under cover | 7. Stiffener (DOHC, 12-valve) |
| 4. Sub frame (RH) | |



76F02X-008

Removal Note

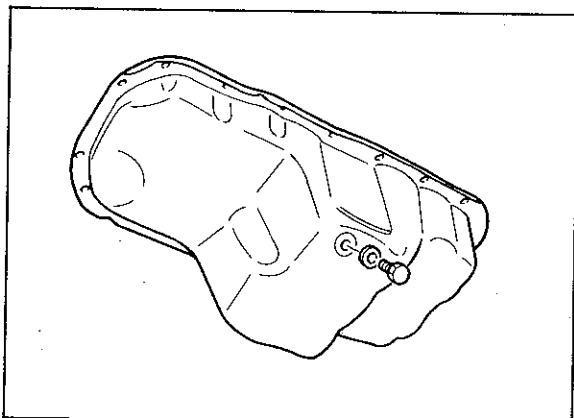
Oil pan

1. Remove the oil pan mounting bolts.
2. Insert a scraper or a suitable tool between the oil pan and the stiffener or the cylinder block to separate them.
3. Remove the oil pan.

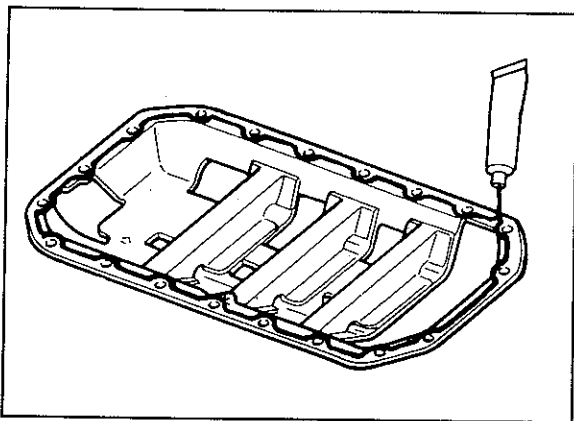
Caution

Do not bend the oil pan when prying loose.

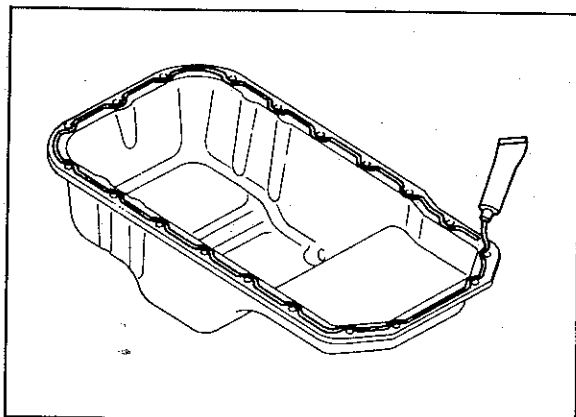
2 OIL PAN



4BG02X-037



76F02X-009



76F02X-010

INSPECTION

Check the following points. Repair or replace if necessary.

1. Cracks, deformation, damage
2. Damaged drain plug threads

INSTALLATION

Install in the reverse order of removal referring to the installation note.

Installation Note

Stiffener (DOHC, 12-valve)

1. Remove any dirt or other material from the contact surface.
2. Apply silicon sealant to the stiffener around inside of the bolt holes and overlap the ends.
3. Install the stiffener.

Tightening torque:

7—12 N·m (70—120 cm·kg, 61—104 in·lb)

Oil pan

1. Apply a continuous bead of silicon sealant to the oil pan around inside of the bolt holes and overlap the ends.
2. Install the oil pan.

Tightening torque:

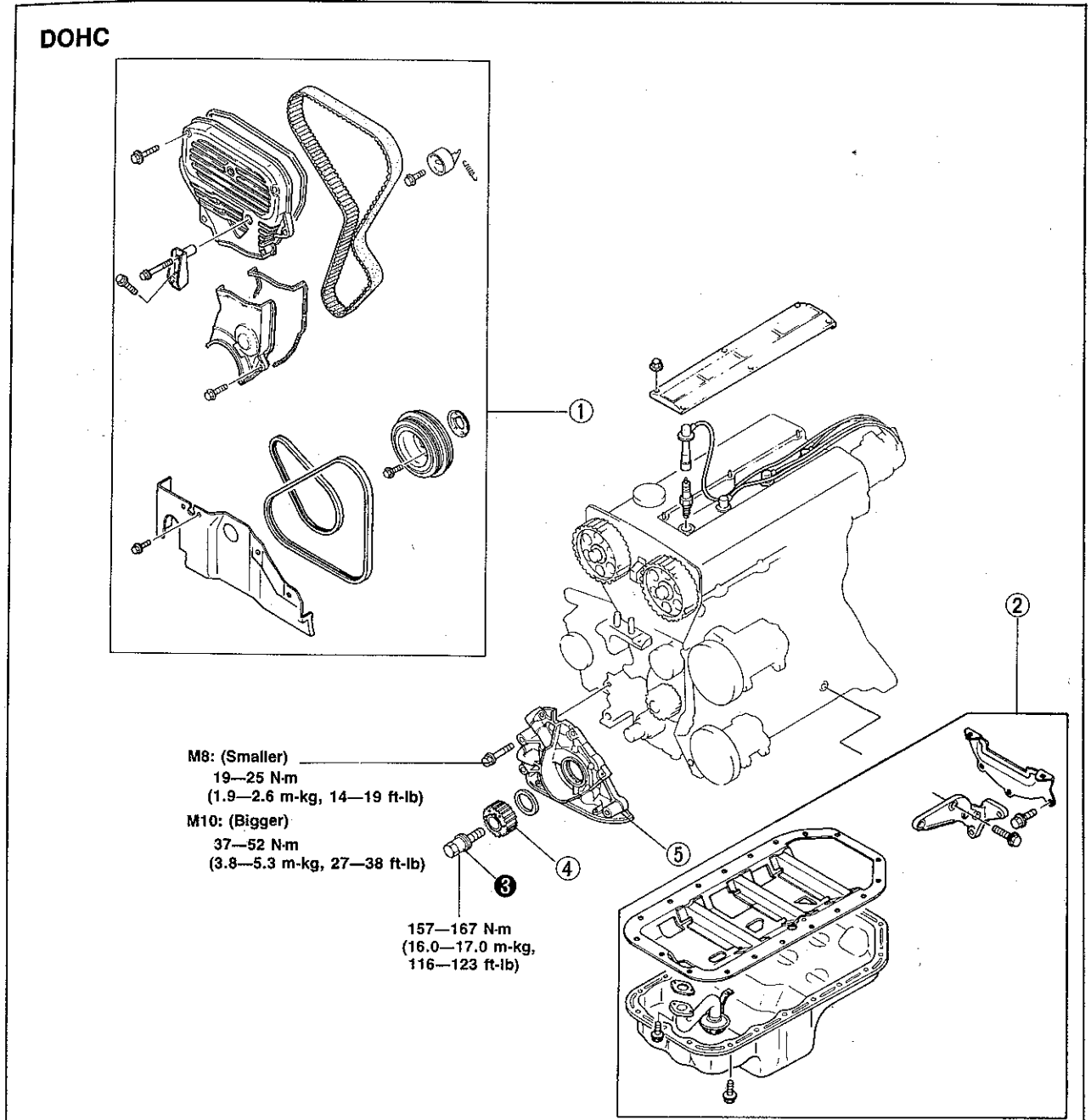
7—12 N·m (70—120 cm·kg, 61—104 in·lb)

OIL PUMP

REMOVAL

1. Disconnect the negative battery cable.
2. Drain the engine oil.
3. Remove in the sequence shown in the figure referring to the removal note for specially marked parts.

76G02A-015

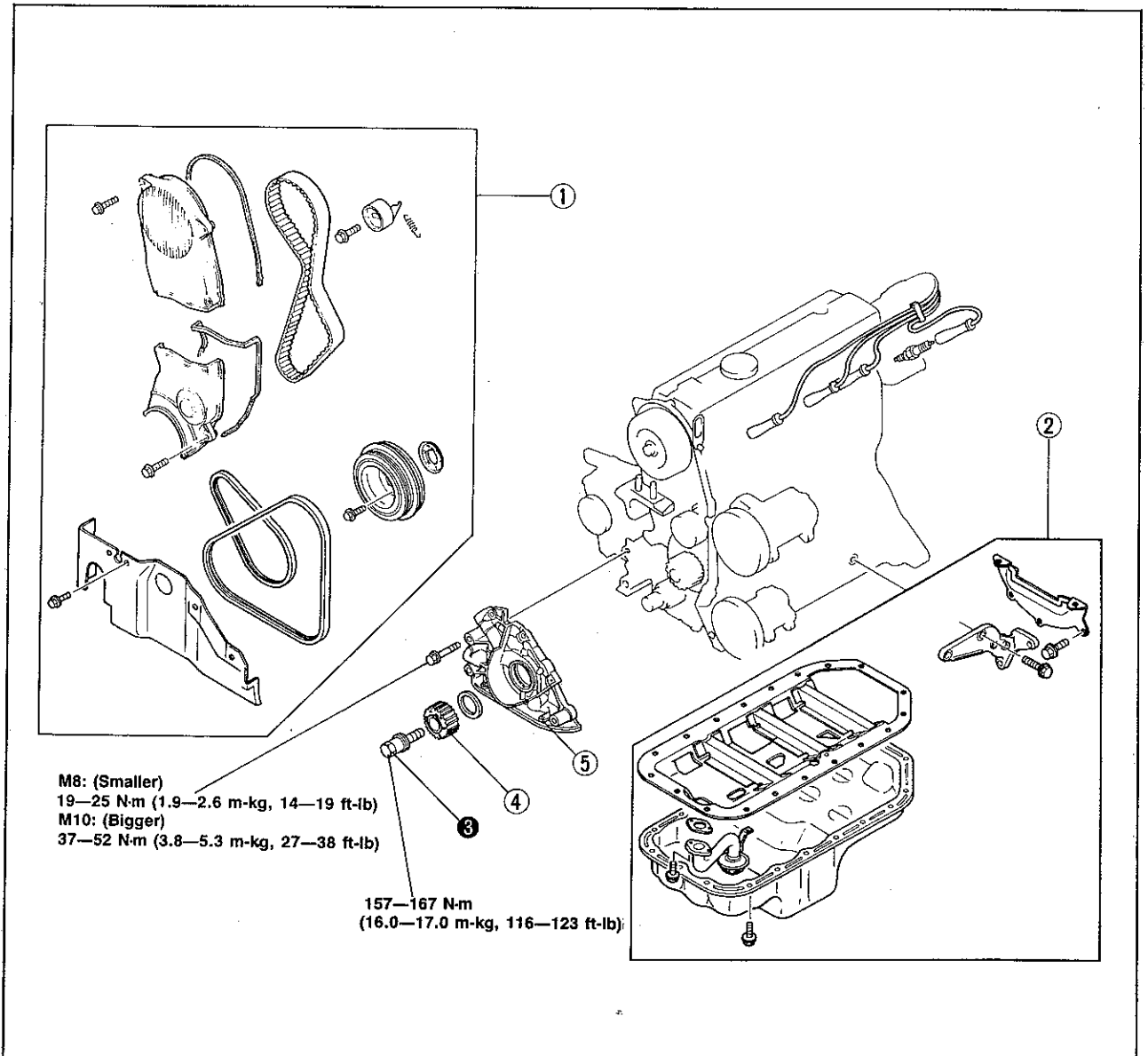


76F02X-011

1. Timing belt (Refer to Section 1B)
2. Oil pan (Refer to page 2—7.)
3. Timing belt pulley lock bolt

4. Timing belt pulley
5. Oil pump

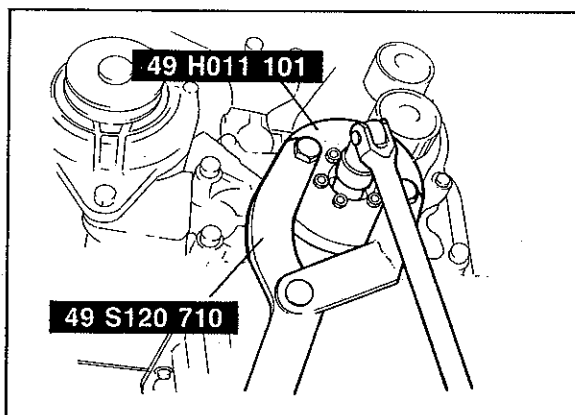
2 OIL PUMP



76F02X-012

1. Timing belt (Refer to Section 1)
2. Oil pan (Refer to page 2—7.)
3. Timing belt pulley lock bolt

4. Timing belt pulley
5. Oil pump



Removal Note

Timing belt pulley lock bolt

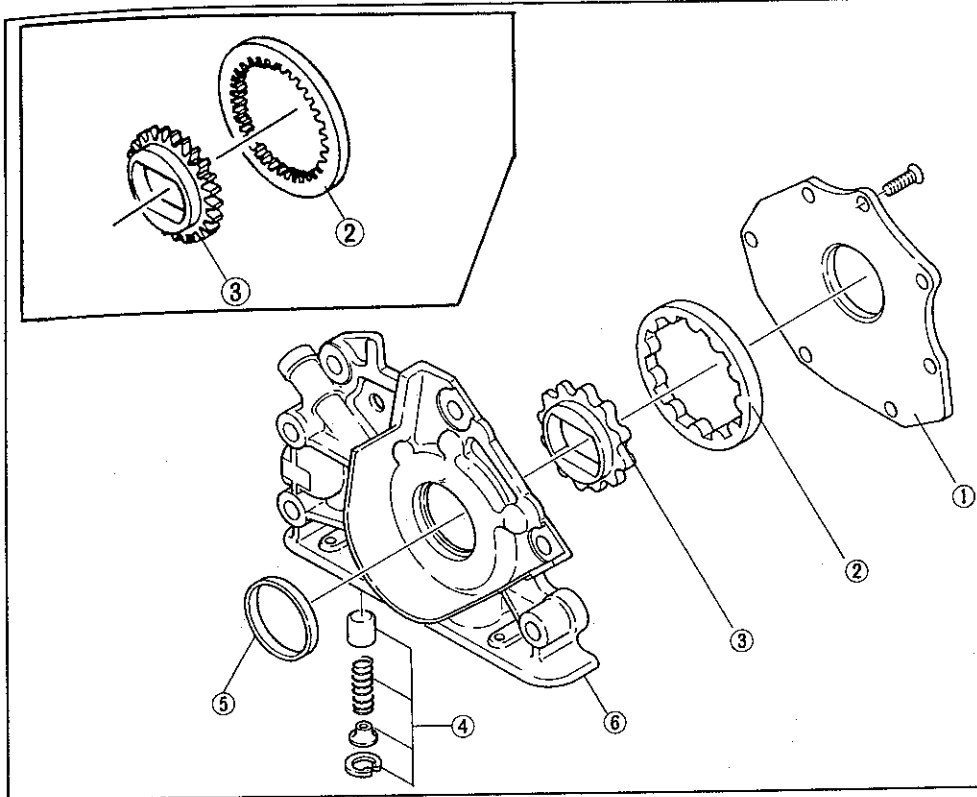
Hold the timing belt pulley with the **SST** and remove the lock bolt.

76G02A-026

DISASSEMBLY

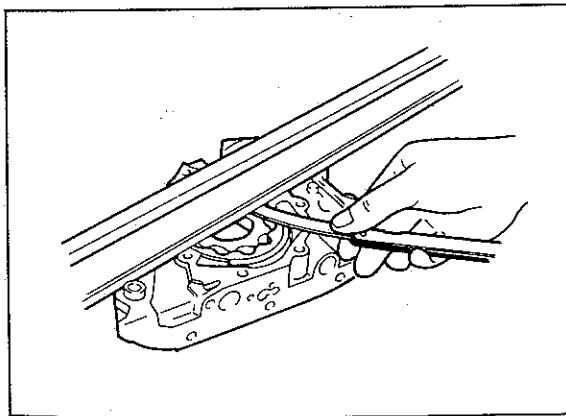
Disassemble in the sequence shown in the figure.

69G02B-012



1. Pump cover
2. Outer gear
3. Inner gear
4. Pressure relief valve
5. Oil seal
6. Oil pump body

76G02A-018



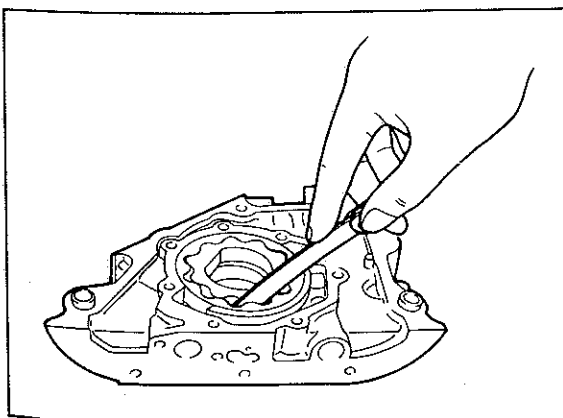
76F02X-013

INSPECTION

(DOHC, F2)

1. Check the following and replace any faulty parts.
 - (1) Distorted or damaged oil pump body or cover
 - (2) Worn or damaged plunger
 - (3) Weak or broken plunger spring
2. Measure the side clearance.

Clearance: 0.10 mm (0.004 in) max.

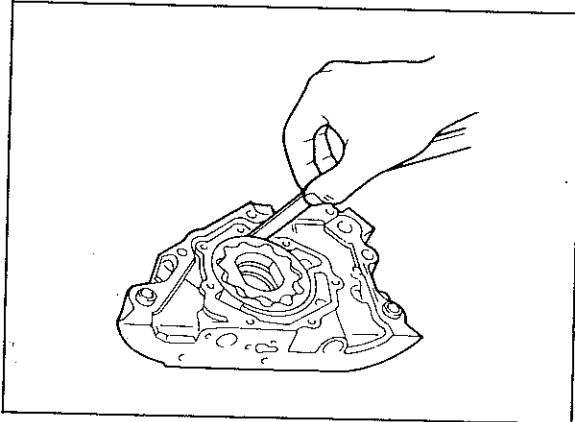


69G02B-015

3. Measure the tooth tip clearance.

Clearance: 0.18 mm (0.007 in) max.

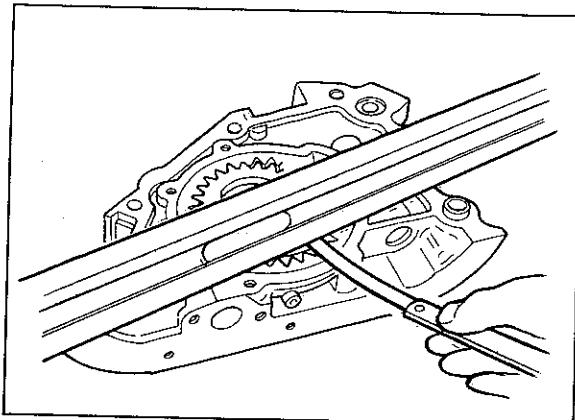
2 OIL PUMP



86U02X-021

4. Measure the outer gear to pump body clearance.

Clearance: 0.20 mm (0.008 in) max.



76F02X-014

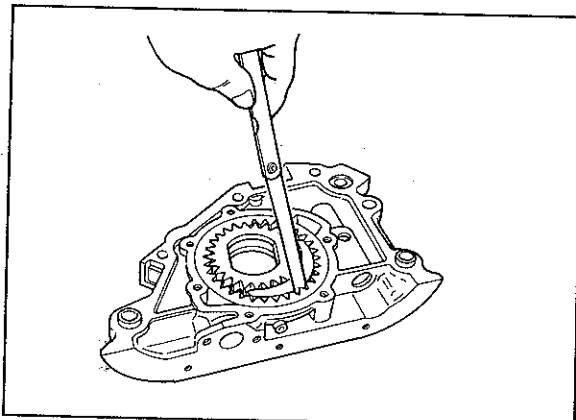
(SOHC, except F2)

1. Check the following and replace any faulty parts.

- (1) Distorted or damaged oil pump body or cover
- (2) Worn or damaged plunger
- (3) Weak or broken plunger spring

2. Measure the side clearance.

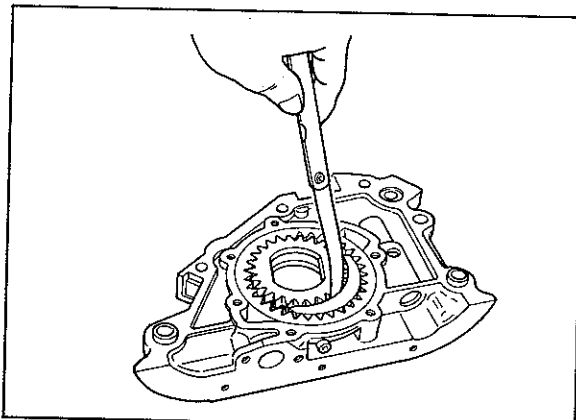
Clearance: 0.10 mm (0.004 in) max.



76G02A-021

3. Measure the outer gear tooth tip and crescent clearance.

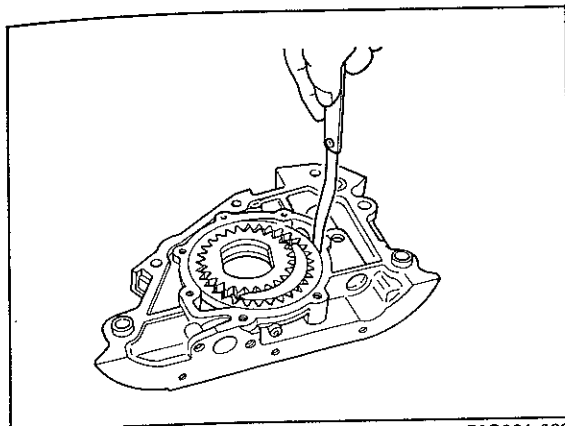
Clearance: 0.35 mm (0.014 in) max.



76G02A-022

4. Measure the inner gear tooth tip and crescent clearance.

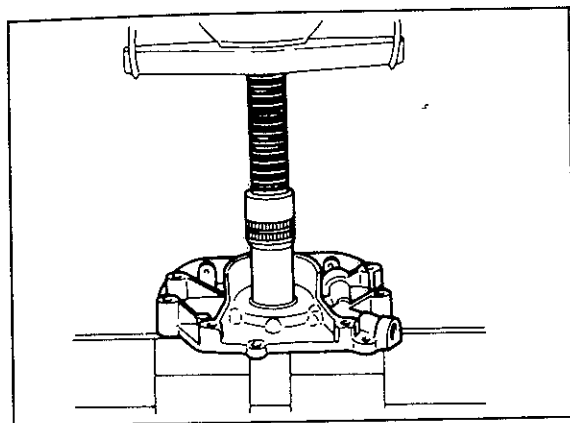
Clearance: 0.40 mm (0.016 in) max.



76G02A-023

5. Measure the outer gear to pump body clearance

Clearance: 0.20 mm (0.008 in) max.



86U02X-022

ASSEMBLY

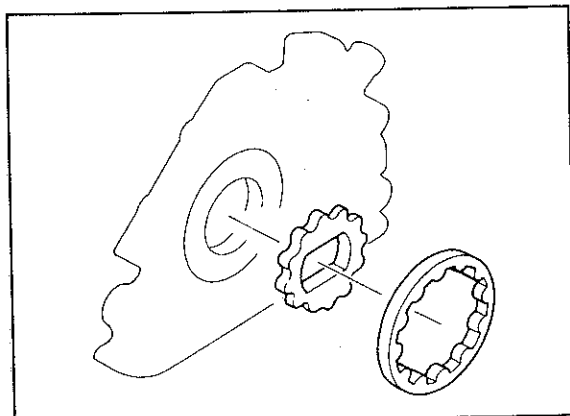
Assemble the pump as follows.

Oil Seal

1. Apply engine oil to the pump body and the outside of the new oil seal.
2. Press in the oil seal.

Pressure Relief Valve

1. Install the plunger and spring in the pump body.
2. Fit the snap ring.



76G02A-024

Outer and Inner Gear

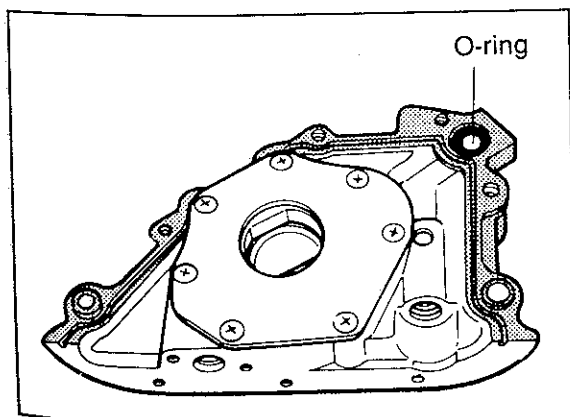
Install the gears to the pump body.

Oil Pump Cover

1. Apply thread locking compound to the cover mounting screws' threads.
2. Attach the oil pump cover to the body.

Tightening torque:

6—9 N·m (60—90 cm·kg, 52—78 in·lb)



76G02A-027

INSTALLATION

Install in the reverse order of removal referring to the installation note.

Installation Note

Oil pump

1. Apply grease to a new O-ring and install it in the oil pump body.
2. Apply silicon sealant to the shaded area as shown in the figure.
3. Apply engine oil to the oil seal lip.

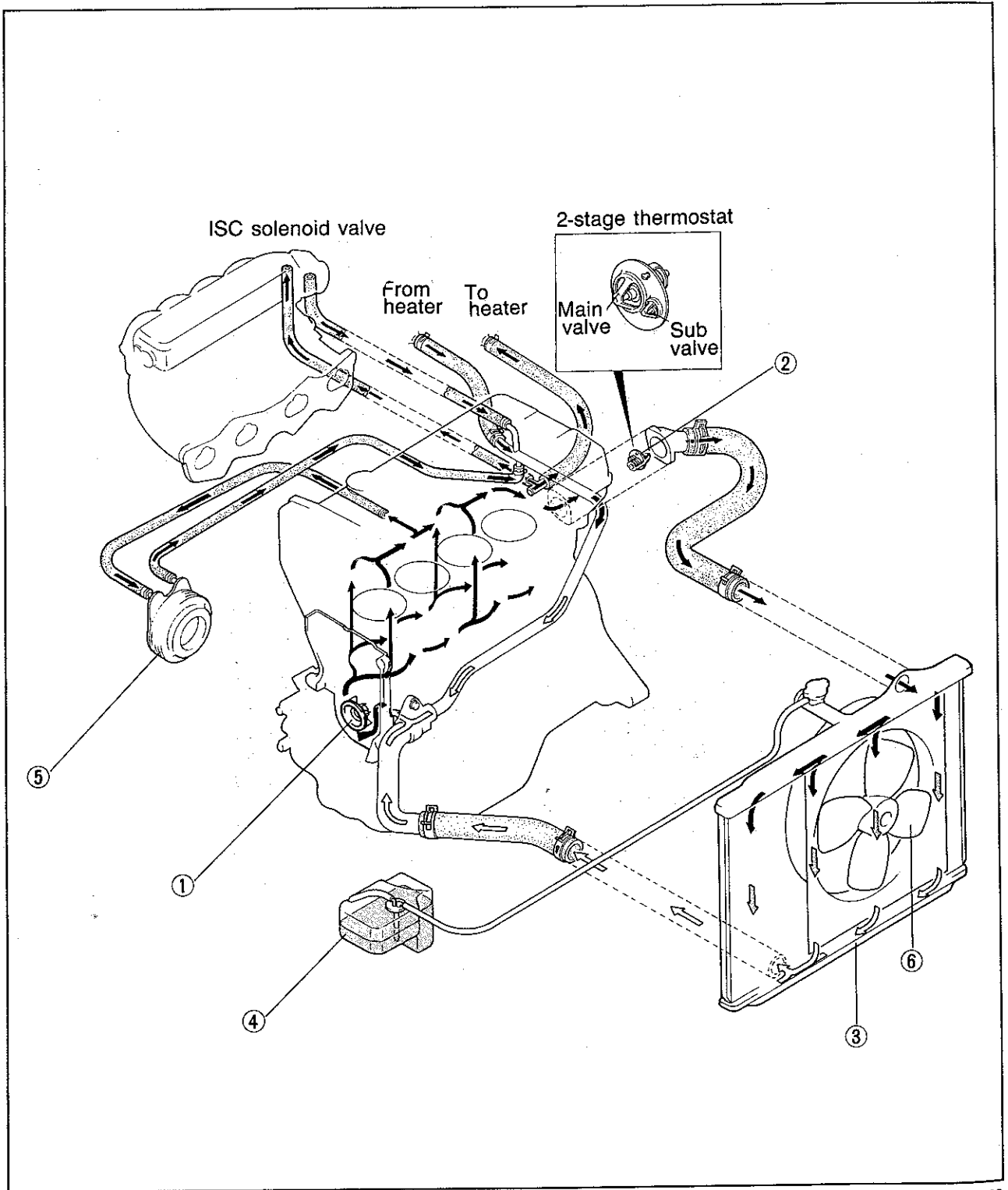
COOLING SYSTEM

OUTLINE	3- 2
COOLANT FLOW CHART (DOHC)	3- 2
COOLANT FLOW CHART (SOHC)	3- 3
SPECIFICATIONS	3- 4
TROUBLESHOOTING GUIDE	3- 4
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REPLACEMENT	3- 5
RADIATOR CAP	3- 6
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REMOVAL AND INSTALLATION	3- 7
INSPECTION	3- 7
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COOLING FAN	3-12
SYSTEM CIRCUIT	3-12
CIRCUIT INSPECTION	3-12
FAN MOTOR	3-13
WATER THERMO SWITCH	3-14

3 OUTLINE

OUTLINE

COOLANT FLOW CHART (DOHC)

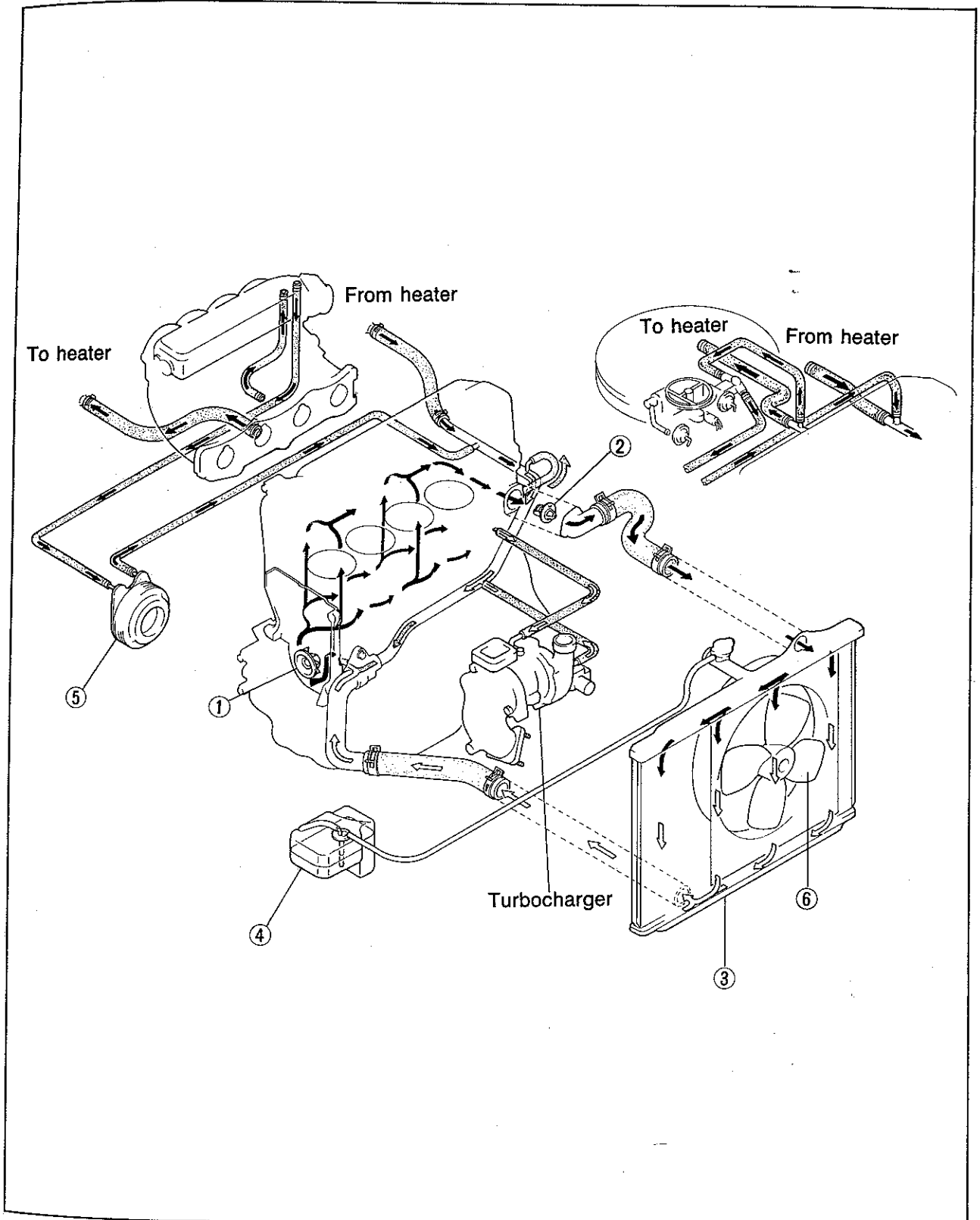


76G03A-002

- 1. Water pump
- 2. Thermostat
- 3. Radiator

- 4. Coolant reservoir
- 5. Oil cooler
- 6. Cooling fan

COOLANT FLOW CHART (SOHC)



- 1. Water pump
- 2. Thermostat
- 3. Radiator

- 4. Coolant reservoir
- 5. Oil cooler (F2 Turbo, FE 12-valve)
- 6. Cooling fan

76F03X-002

3 TROUBLESHOOTING GUIDE

SPECIFICATIONS

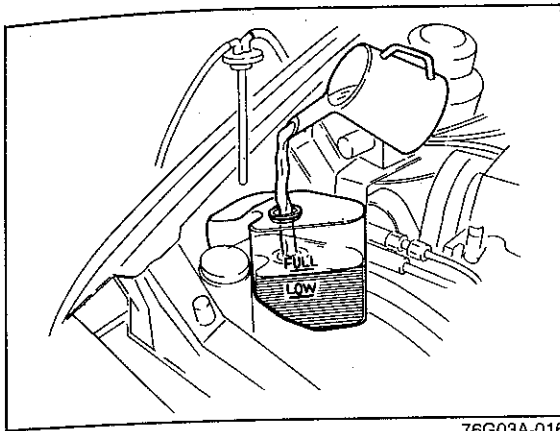
Item		Engine model		FE-DOHC	FE 12-valve	F2, FE 8-valve, F8, F6
Cooling system		Water cooled, forced circulation				
Coolant capacity liters (US qt, Imp qt)		With heater		7.5 (7.9, 6.6)		
		Without heater		7.0 (7.4, 6.2)		
Water pump	Type		Centrifugal, timing belt driven			
	Water seal		Unified seal			
Thermostat	Type		Wax, 2-stage		Wax	
	Opening temperature °C(°F)		Sub : 83.5—86.5 (182—188) Main: 86.5—89.5 (188—193)		86.5—89.5 (188—193)	80.5—83.5 (177—182)
	Full-open temperature °C(°F)		100 (212)		95 (203)	
	Full-open lift mm (in)		Sub: 1.5 (0.06) min. Main: 8.0 (0.31) min.		8.5 (0.33) min.	
Radiator	Type		Corrugated			
	Cap valve opening pressure kPa (kg/cm ² , psi)		74—103 (0.75—1.05, 11—15)			
Cooling fan	Capacity W		MTX		80	
			ATX		120 (160...only F2 turbo)	
	Number of blade		4			
	Outer diameter of blade mm (in)		MTX		320 (12.6)	
ATX			340 (13.4)			

76F03X-003

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Overheating	Insufficient coolant	Add	3— 5
	Coolant leakage	Repair	—
	Radiator fins clogged	Clean	3— 7
	Radiator cap malfunction	Replace	3— 6
	Cooling fan malfunction	Repair	3—12
	Thermostat malfunction	Replace	3—11
	Water passage clogged	Clean	3— 5
Corrosion	Water pump malfunction	Repair or replace	3— 8
	Impurities in coolant	Replace	3— 5

76F03X-004



76G03A-016

COOLANT

INSPECTION

Coolant Level (Engine cold)

1. Check that the coolant level is near the radiator inlet port.
2. Check that the coolant level in the coolant reservoir is between the FULL and LOW marks. Add coolant if necessary.

Warning

- a) Never remove the radiator cap while the engine is hot.
- b) Wrap a thick cloth around the cap when removing it.

Coolant Quality

1. Check that there is no build-up of rust or scales around the radiator cap or radiator filler neck.
2. Check that coolant is free from oil.
3. Replace the coolant, if necessary.

Coolant Leakage

1. Connect a tester and SST to the radiator inlet port.
2. Apply **103 kPa (1.05 kg/cm², 15 psi)** pressure to the system.
3. Check that the pressure is held. If not, check for coolant leakage.

Warning

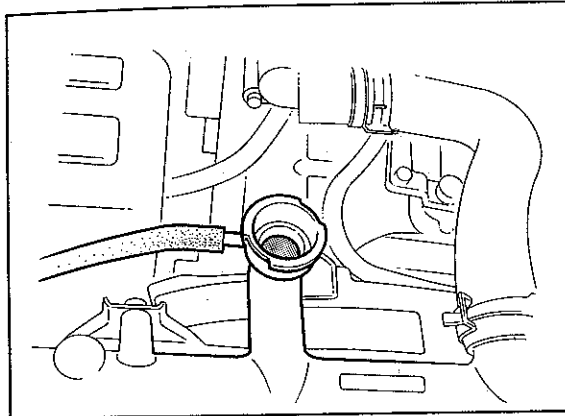
When removing either the radiator cap or the tester, loosen it slowly until the pressure in the radiator is released, and then remove it.

REPLACEMENT

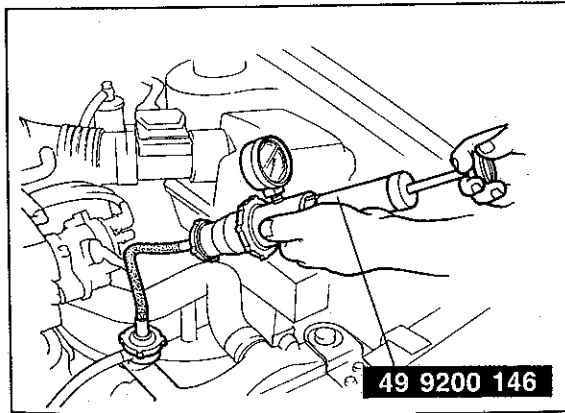
1. Remove the radiator cap and loosen the drain plug.
2. Drain the coolant into a suitable container.

Warning

- a) Never open the radiator cap while the engine is hot.
- b) Wrap a thick cloth around the cap when loosening.
- c) Use caution when draining hot coolant.

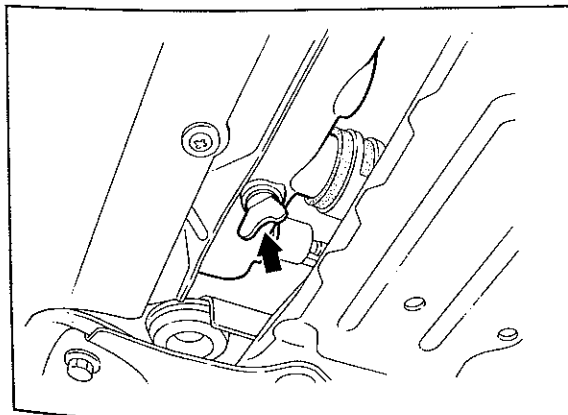


69G03A-006



49 9200 146

86U03X-005



86U03X-006

2,
E 8-valve,
3, F6

1.5-83.5
77-182)

5 (203)

76F03X-003

Page

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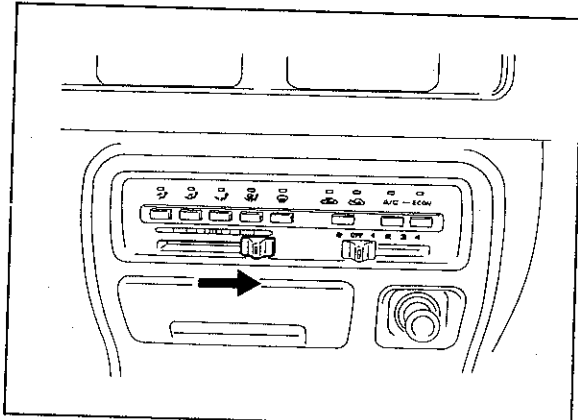
3-5

3-8

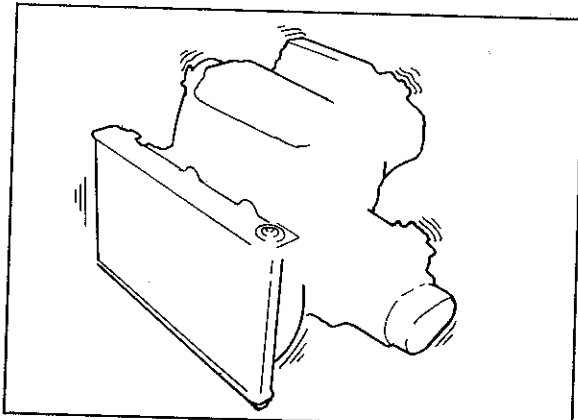
3-5

76F03X-004

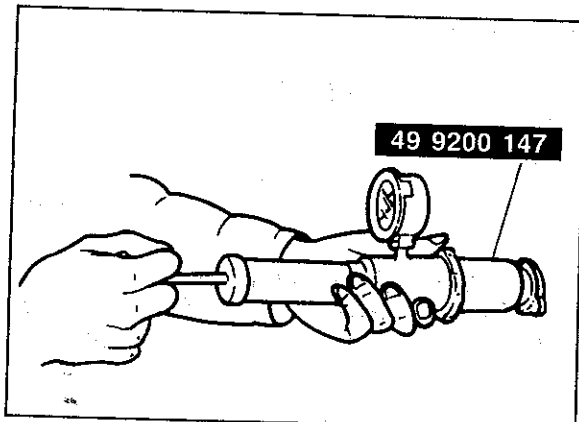
3 RADIATOR CAP



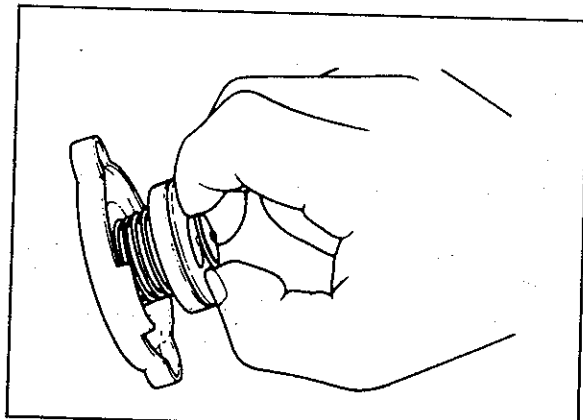
86U03X-028



86U03X-007



86U03X-008



86U03X-009

3. Set the heater control switch to the maximum hot position.
4. Flush the cooling system with water until all traces of color are gone, then let the system drain completely.
5. Fill with the proper mixture and amount of ethylene glycol-based coolant.

Caution

- a) Do not use alcohol- or methanol-based coolant.
- b) Use only soft (demineralized) water in the coolant mixture.

Anti-freeze solution mixture percentage

Protection	Volume percentage		Gravity at 20°C (68°F)
	Solution	Water	
Above -16°C (3°F)	35	65	1.054
Above -26°C (-15°F)	45	55	1.066
Above -40°C (-40°F)	55	45	1.078

6. Run the engine at idle with the radiator cap removed. Let any air bleed from the system, and add more coolant.
7. Install the radiator cap, and inspect all connections for leakage.

RADIATOR CAP

INSPECTION

Radiator Cap Valve

1. Remove foreign material (such as water residue) from between the radiator cap valve and the valve seat.
2. Attach the radiator cap to a tester with the SST. Apply pressure gradually to 74–103 kPa (0.75–1.05 kg/cm², 11–15 psi).
3. Wait about 10 seconds; then check that the pressure has not decreased.

Negative Pressure Valve

1. Pull the negative-pressure valve to open it. Check that it closes completely when released.
2. Check for damage on the contact surfaces, and for cracked or deformed seal packing.
3. Replace the radiator cap if necessary.

RADIATOR

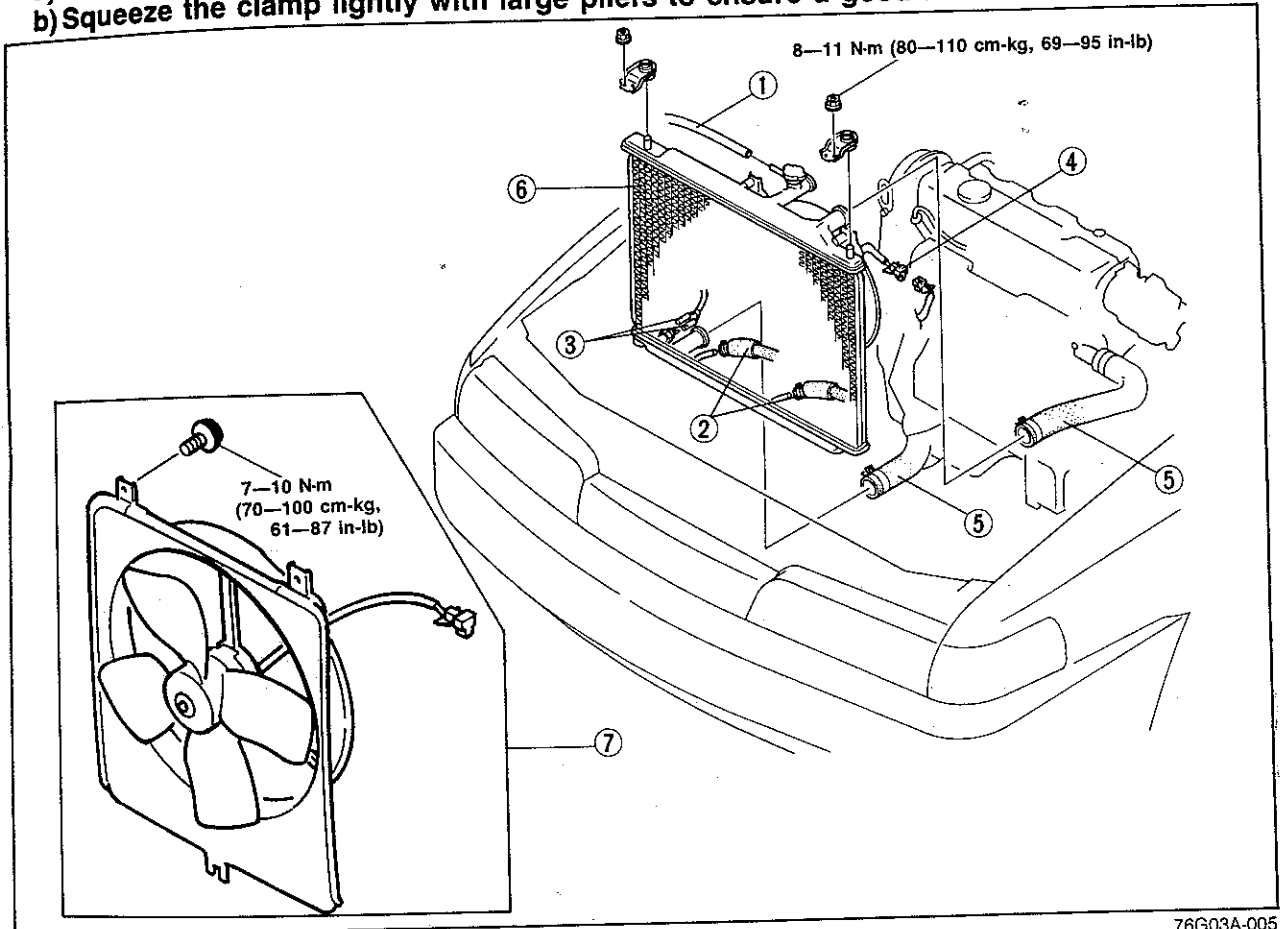
REMOVAL AND INSTALLATION

1. Drain the engine coolant.
2. Remove in the sequence shown in the figure.
3. Install in the reverse order of removal.

Note

- a) Position the hose clamp in the original location on the hose.
- b) Squeeze the clamp lightly with large pliers to ensure a good fit.

86U03X-010



76G03A-005

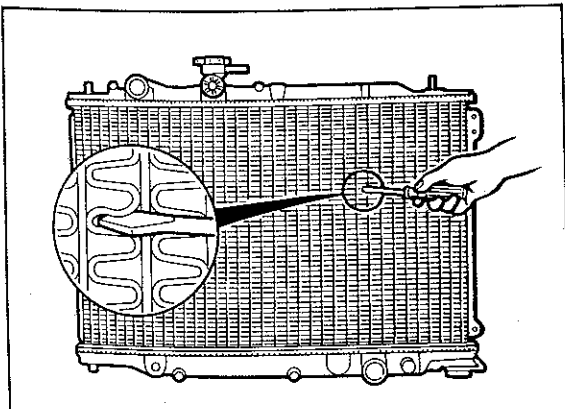
1. Coolant reservoir hose
2. ATF hose (ATX)
3. Water thermo switch connector
4. Cooling fan connector

5. Upper and lower radiator hose
6. Cooling fan and radiator assembly
7. Cooling fan

INSPECTION

Check the following points. Repair or replace if necessary.

1. Cracks, damage, or water leakage
2. Bent fins (Repair with a screwdriver)
3. Distorted or bent radiator inlet.



86U03X-012

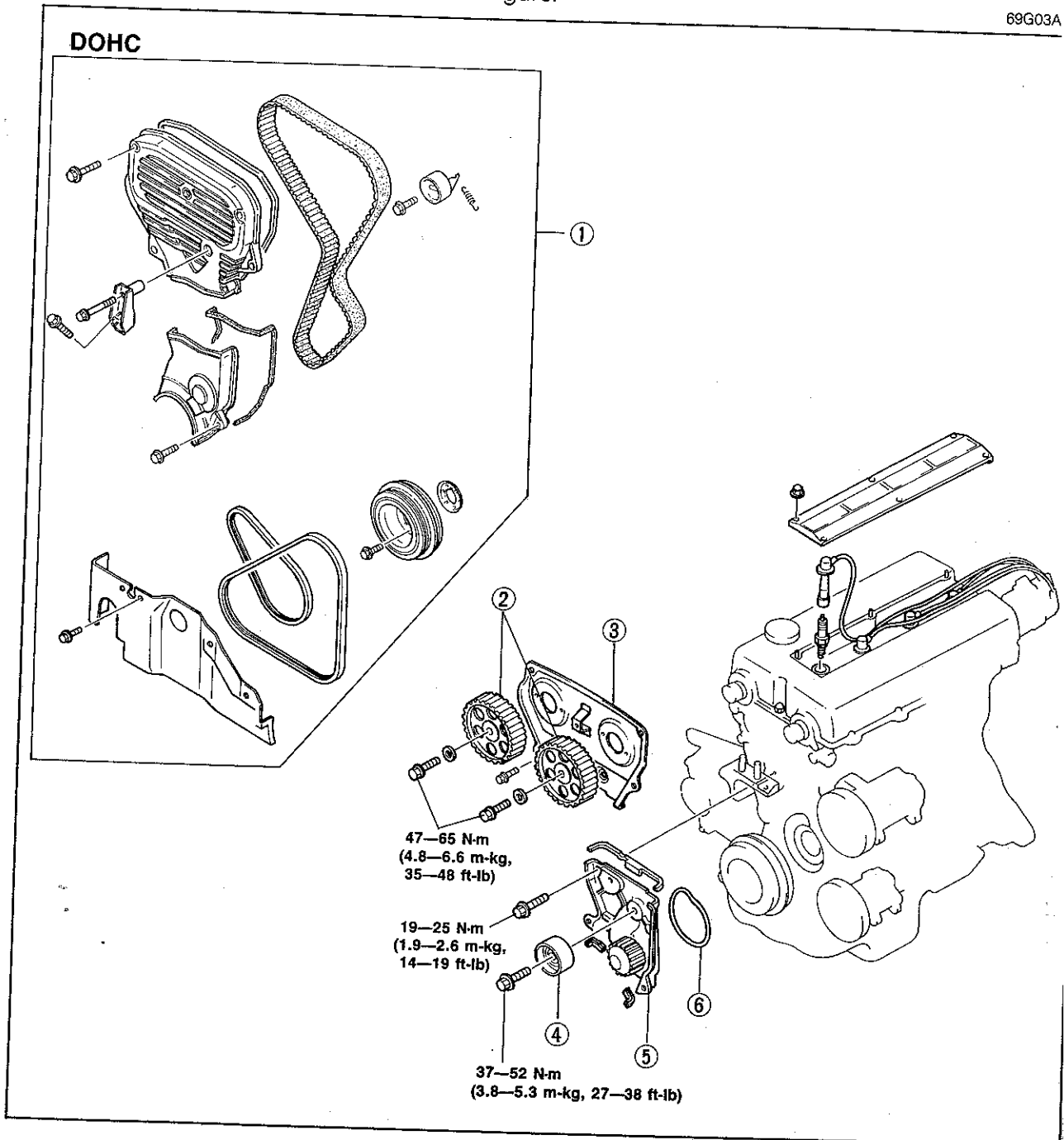
3 WATER PUMP

WATER PUMP

REMOVAL

1. Disconnect the negative battery cable.
2. Turn the crankshaft so that the No. 1 cylinder is at TDC of compression.
3. Drain the engine coolant.
4. Remove in the sequence shown in the figure.

69G03A

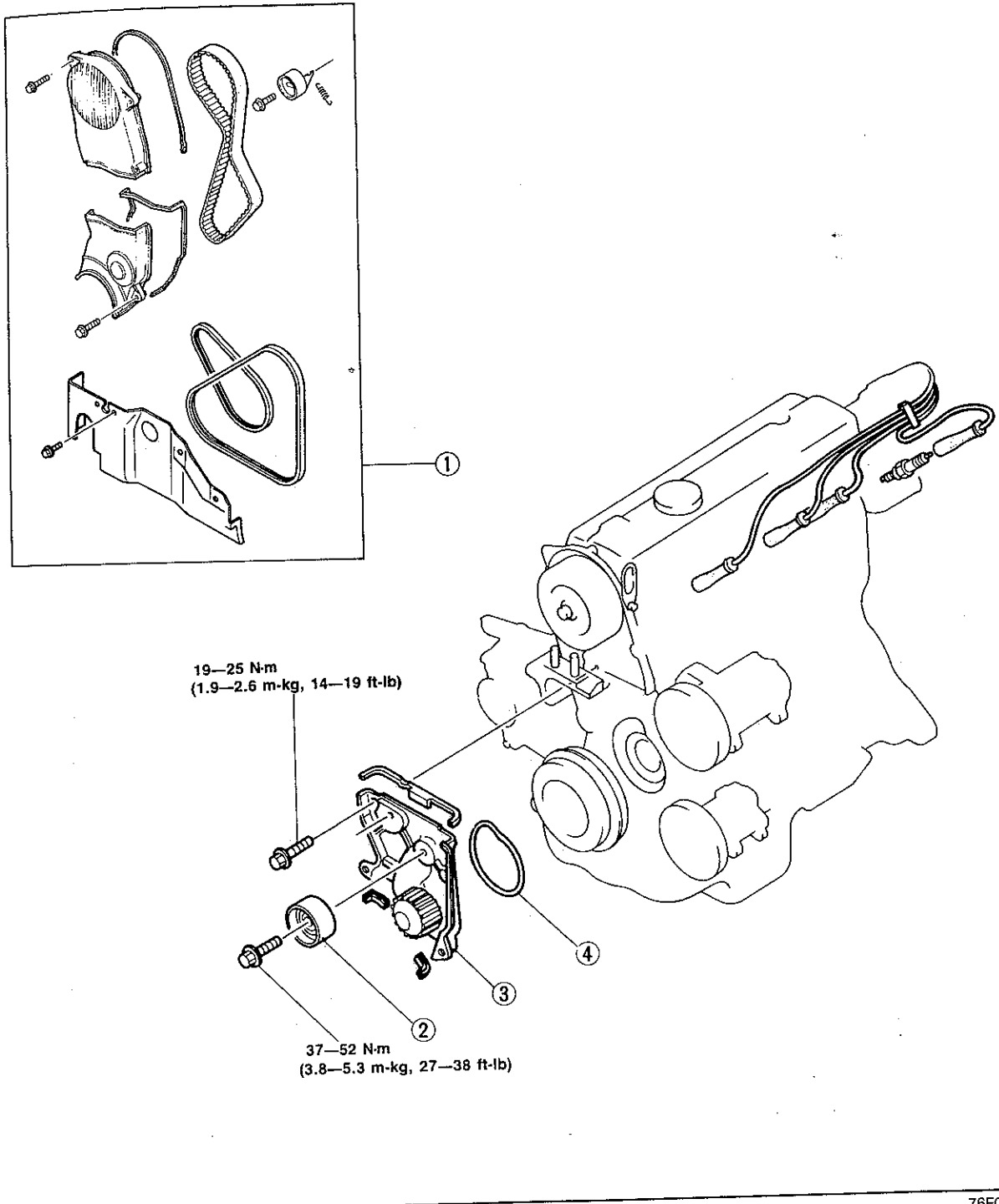


1. Timing belt (Refer to Section 1B)
2. Camshaft pulley (Refer to Section 1B)
3. Seal plate

4. Idler pulley
5. Water pump
6. O-ring

76G03A-006

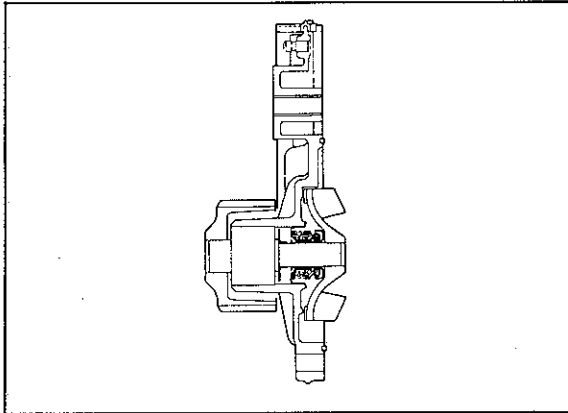
SOHC



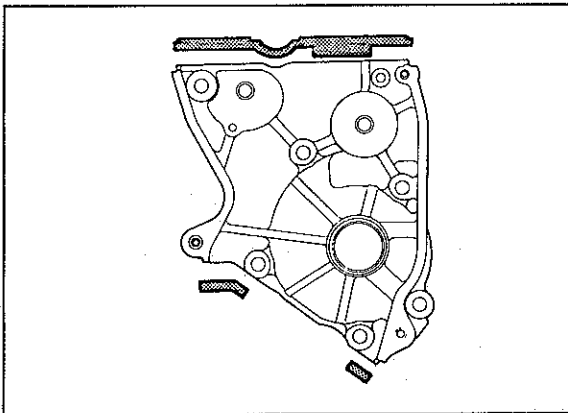
1. Timing belt
(F6-F8-FE...Refer to Section 1A,
F2...Refer to Section 1C)

2. Idler pulley
3. Water pump
4. O-ring

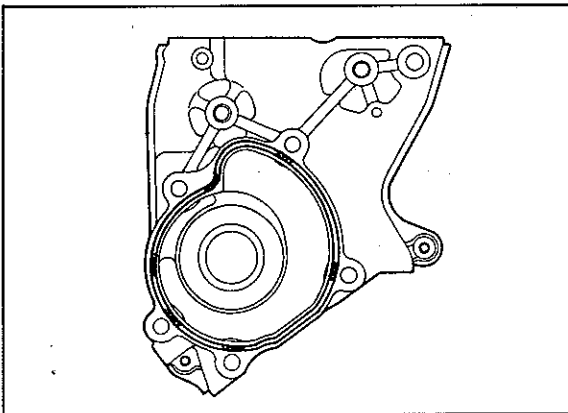
3 WATER PUMP



86U03X-014



76G03A-017



86U03X-016

INSPECTION

Check the following. Replace the pump if necessary.

1. Cracks or damage
2. Abnormal noise, bearing sticking or loose.

INSTALLATION

Install in the reverse order of removal referring to the installation note.

Installation Note

Rubber seal

Install the rubber seals on the water pump.

Water pump

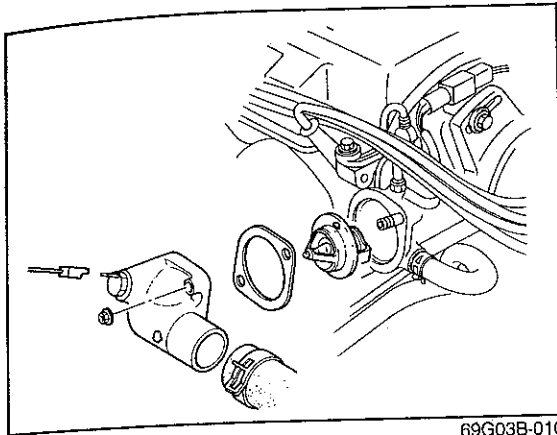
1. Remove any gasket fragments, dirt, or oil from the contact surfaces.
2. Install a new O-ring on the water pump.
3. Install the water pump.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

Note

To prevent dropping the O-ring when installing, put silicon sealant in the O-ring groove (shaded areas) as shown. Do not apply it to the contact surfaces.

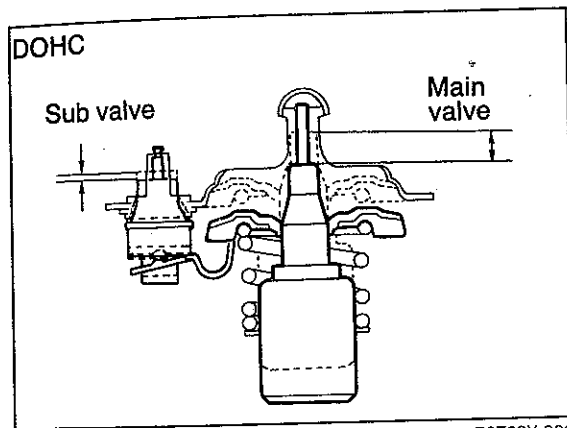


69G03B-010

THERMOSTAT

REMOVAL

1. Drain the engine coolant.
2. Remove the thermostat cover.
3. Remove the thermostat.



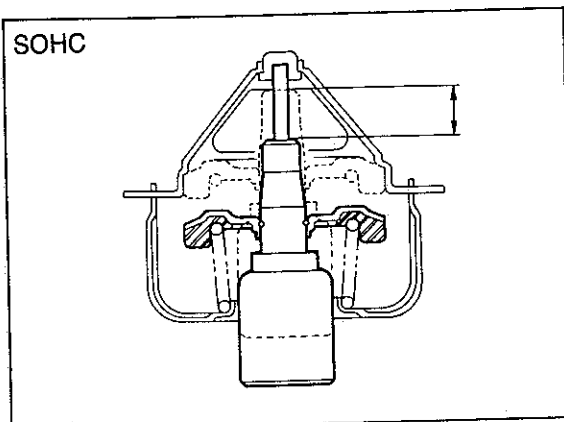
76F03X-006

INSPECTION

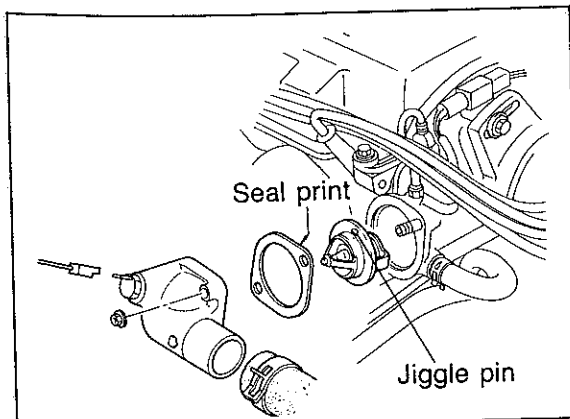
Check the thermostat. Replace if necessary.

1. Visually check that the valve is airtight.
2. Place the thermostat and a thermometer in water.
3. Gradually heat the water and check the following:

Model	Item		
	FE-DOHC	FE 12-valve	F2, FE 8-valve, F8, F6
Initial opening temperature	Sub valve 83.5—86.5°C (182—188°F) Main valve 86.5—89.5°C (188—193°F)	86.5—89.5°C (188—193°F)	80.5—83.5°C (177—182°F)
Full-open temperature	100°C (212°F)		95°C (203°F)
Full-open lift	Sub valve 1.5 mm (0.06 in) min. Main valve 8.0 mm (0.31 in) min.	8.5 mm (0.33 in) min.	



76F03X-007



86U03X-018

INSTALLATION

1. Install the thermostat into the cylinder head with jiggle pin at the top.
2. Install a new gasket with the seal print side facing the cylinder head.
3. Install the thermostat cover.

Tightening torque:

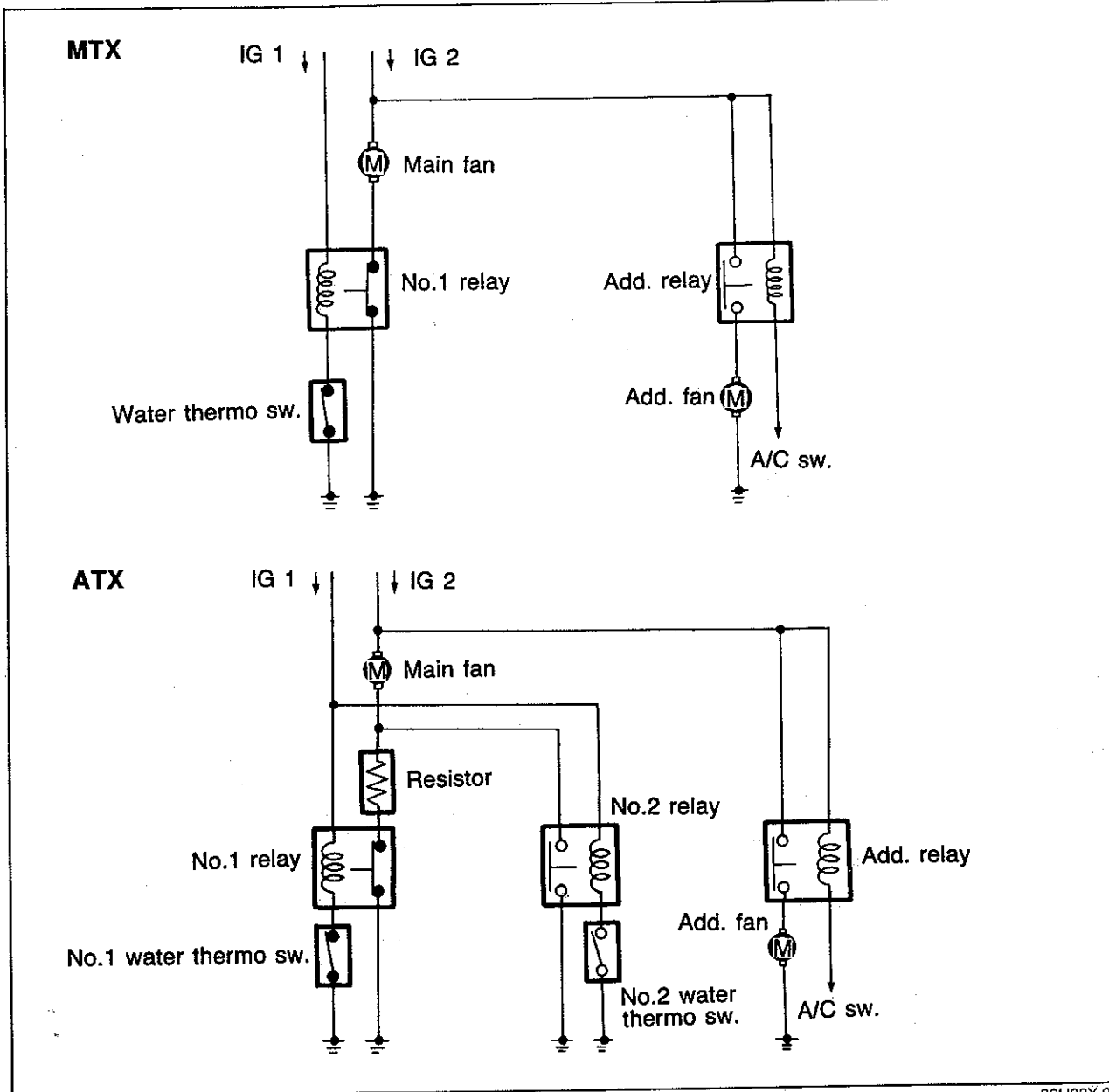
19—30 N·m (1.9—3.1 m·kg, 14—22 ft·lb)

4. Replenish the coolant.
5. Start the engine and check for leaks.

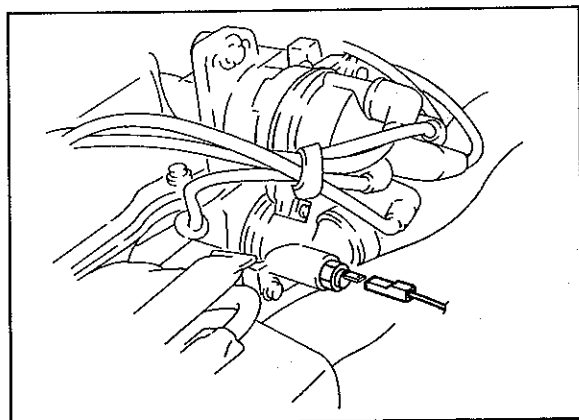
3 COOLING FAN

COOLING FAN

SYSTEM CIRCUIT



86U03X-0



CIRCUIT INSPECTION

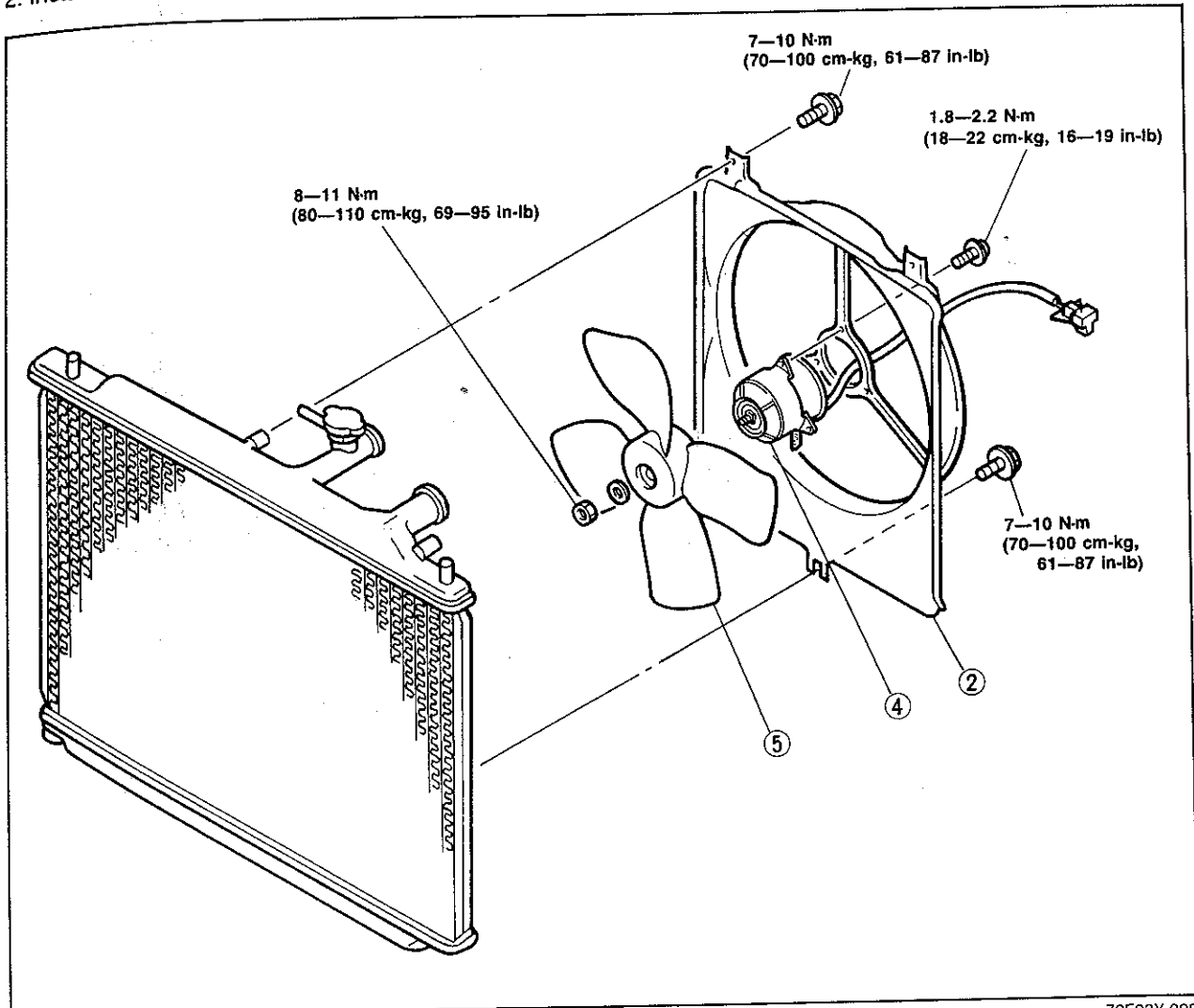
1. Turn the ignition switch ON.
2. Disconnect the water thermo switch connector, and check that the fan operates.
3. If the fan doesn't operate, check the fuse, fan relay, fan motor, thermo switch and wiring harness.

76G03A-010

FAN MOTOR Removal and Installation

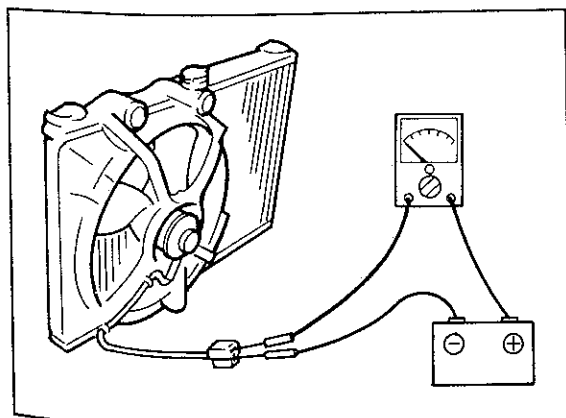
1. Remove in the sequence shown in the figure.
2. Install in the reverse order of removal.

86U03X-021



76F03X-008

1. Cooling fan assembly (Refer to page 3-7)
2. Cowling
3. Fan
4. Fan motor



76F03X-009

Inspection

1. Connect an ammeter and battery to the fan motor connectors.
2. Check that the fan motor operates smoothly at the specified current or less.

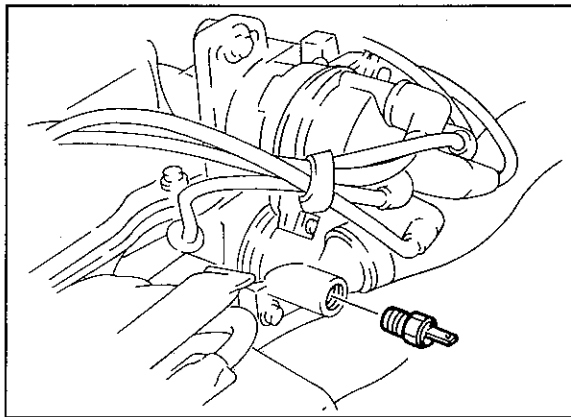
Current

MTX: 5.6-7.6 A

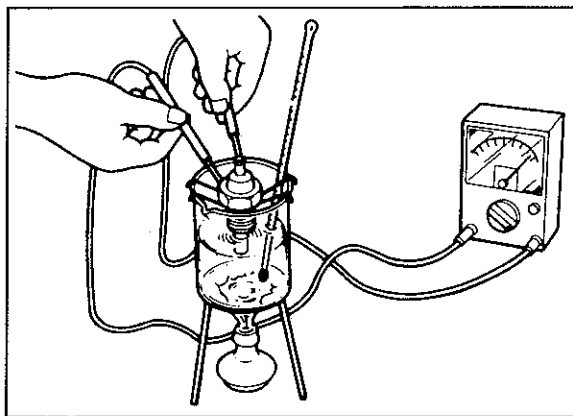
ATX (except F2 turbo): 8.0-11.0 A
(F2 turbo): 10.6-16.6 A

3. Replace the fan motor if necessary.

3 COOLING FAN



76G03A-013



76F03X-010

WATER THERMO SWITCH

1. Remove the cooling fan water thermo switch.

Note

Make sure that the ignition switch is OFF. If not, the fan will operate when the connector is removed.

2. Place the water thermo switch in water.
3. Heat the water gradually, and check for continuity of the switch with an ohmmeter. Replace necessary.

Water thermo switch (ON → OFF):

97°C (207°F)...FE DOHC, FE 12-valve
91°C (196°F)...F2, FE 8-valve, F8, F6

4. Install the water thermo switch and a new O-ring

Caution

Do not use sealing tape.

FUEL AND EMISSION CONTROL SYSTEMS (FUEL INJECTION FE DOHC)

OUTLINE	4B- 2	PRESSURE REGULATOR	
COMPONENT APPLICATION.....	4B- 2	CONTROL (PRC) SYSTEM	4B-63
SYSTEM DIAGRAM.....	4B- 3	COMPONENT DESCRIPTION	4B-64
COMPONENT LOCATION.....	4B- 4	TROUBLESHOOTING.....	4B-64
VACUUM HOSE ROUTING		DECELERATION CONTROL	
DIAGRAM.....	4B- 7	SYSTEM	4B-67
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COMPONENT DESCRIPTION	4B-36	CLUTCH SWITCH.....	4B-79
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IDLE SPEED CONTROL		ENGINE CONTROL UNIT	4B-80
(ISC) SYSTEM	4B-40	E/L CONTROL UNIT	4B-84
COMPONENT DESCRIPTION.....	4B-41	AIR FLOW SENSOR.....	4B-85
TROUBLESHOOTING.....	4B-42	IDLE SWITCH	4B-86
REMOVAL.....	4B-44	WATER THERMO SENSOR.....	4B-86
FUEL SYSTEM	4B-45	DISTRIBUTOR.....	4B-87
COMPONENT DESCRIPTION	4B-46	KNOCK SENSOR	4B-88
TROUBLESHOOTING.....	4B-47	INTAKE AIR THERMO SENSOR....	4B-88
FUEL PRESSURE RELEASE AND			
SERVICING FUEL SYSTEM.....	4B-48		
MULTI-PRESSURE TESTER.....	4B-49		
FUEL PUMP	4B-52		
PULSATION DAMPER.....	4B-53		
INJECTOR.....	4B-53		
REPLACEMENT	4B-55		
FUEL TANK.....	4B-60		

4B OUTLINE

OUTLINE

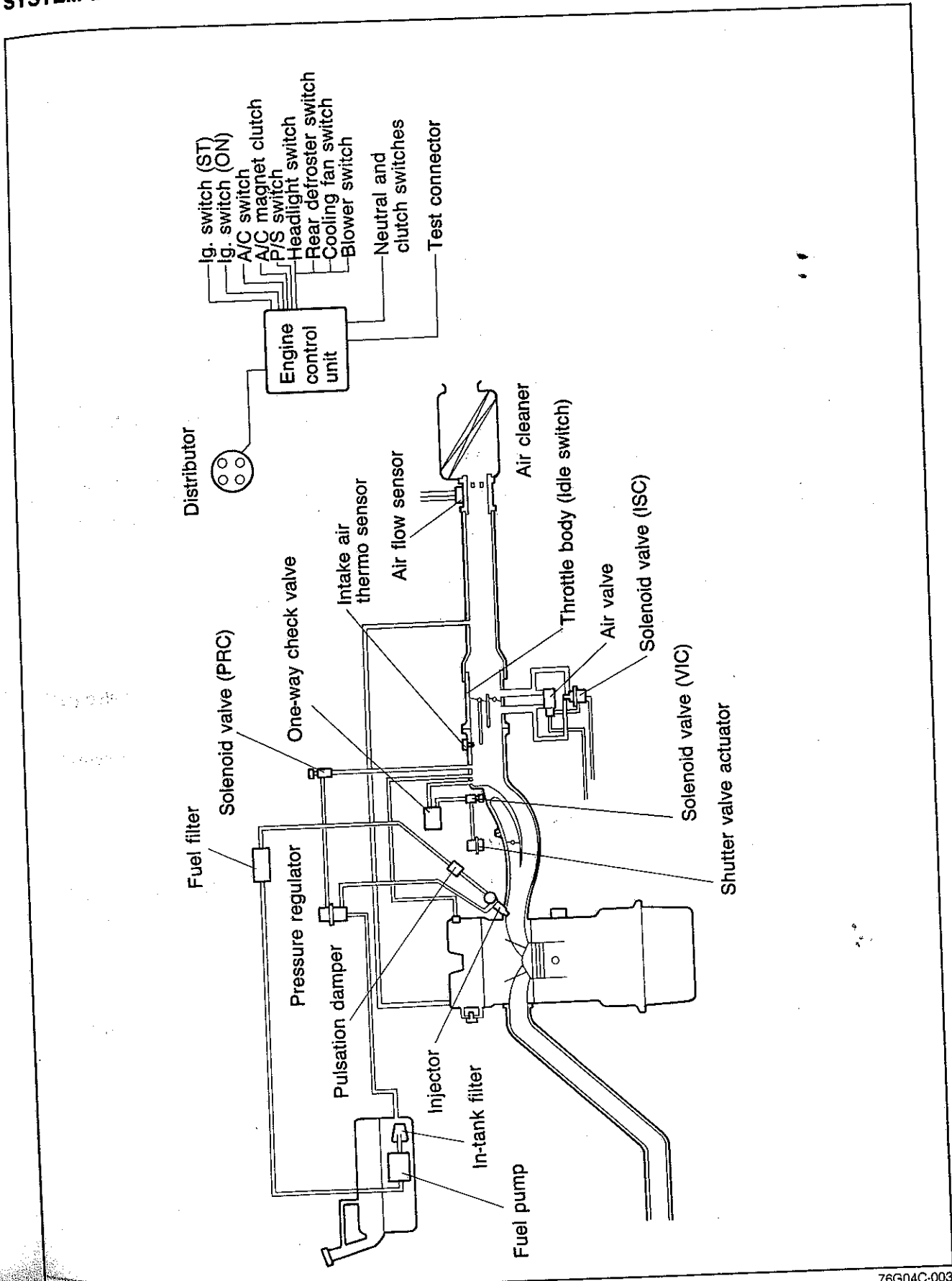
COMPONENT APPLICATION

Item		New	Previous	Remark
AIR INTAKE SYSTEM	Air flow sensor	○	○	Improved intake air amount measurement
	Dynamic chamber	○	○	
	Throttle body	○	○	New: 2 throttle valves Previous: 1 throttle valve
	Throttle sensor	X	○	Previous: Combined type
	Idle switch	○	○	
	Idle speed control (ISC) valve	○	X	Improved idle smoothness
	Air valve	○	○	New: Thermo wax type Previous: Bimetal type
	Resonance chamber	○	X	Minimized intake air noise
	Idle-up solenoid valve	X	○	System simplified (replaced by ISC valve)
	Dashpot	X	○ (MTX)	System simplified
	Secondary air injection	X	○	System simplified
FUEL SYSTEM	Pressure regulator control	○	X	
	Injector	○	○	Injection amount increased
CONTROL SYSTEM	Fuel injection pattern	Sequential injection (once per two revolutions)	1-group injection (once per two revolutions)	Improved engine response
	Fuel cut operation (Overspeed)	○	○	
ELECTRONIC SPARK ADVANCE (ESA) CONTROL SYSTEM		○	X	Improved engine performance
KNOCK CONTROL SYSTEM		○	X	—
EVAPORATIVE EMISSION CONTROL SYSTEM	Separator	○	X	Improved product quality
	Two-way check valve	○	○	—
FAIL-SAFE CONTROL SYSTEM		○	○	Diagnosis function for output devices
MONITOR SWITCH FUNCTION		○	X	Improved serviceability

76F04C-999

○: Equipped
X: Not equipped

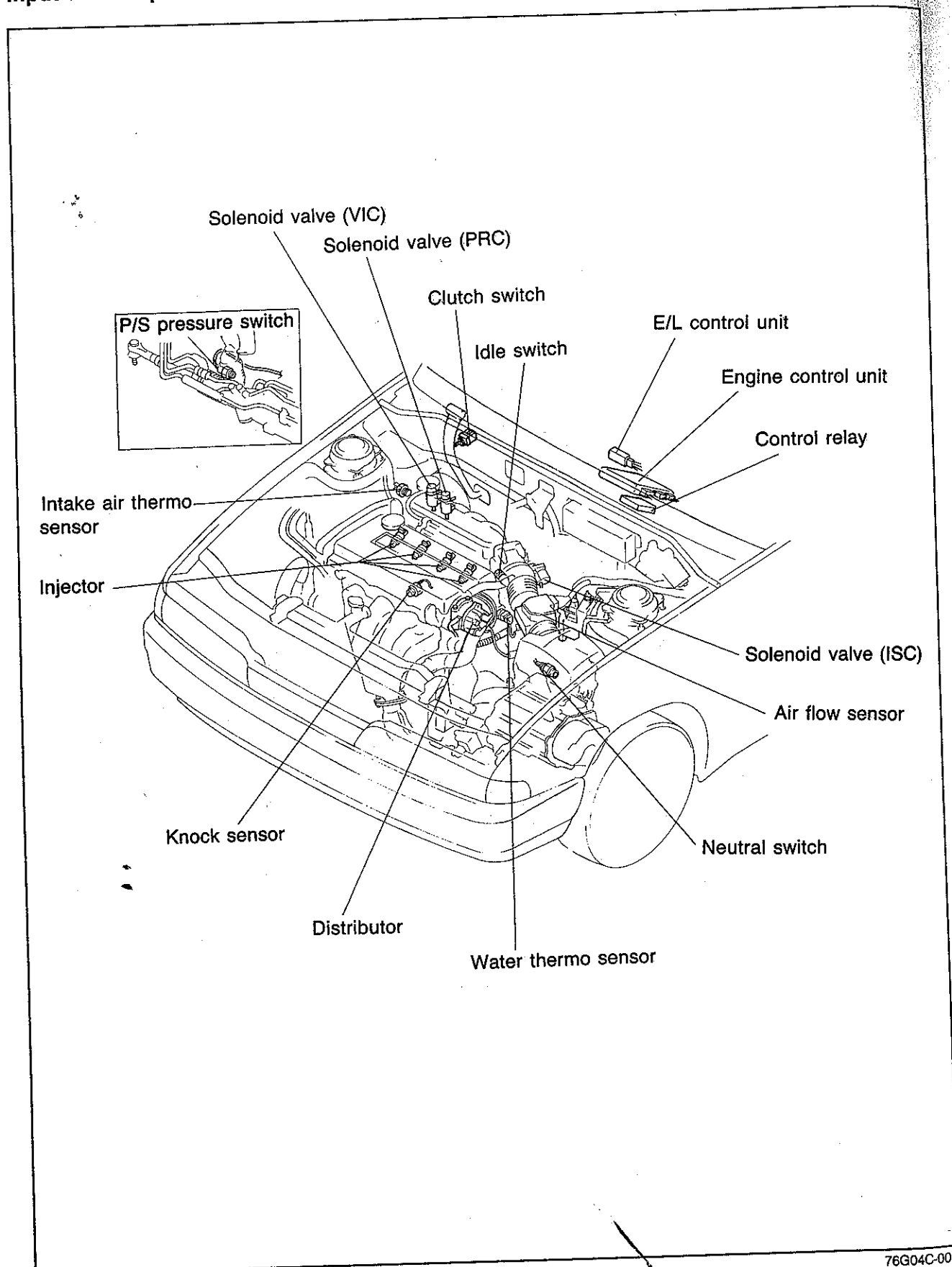
SYSTEM DIAGRAM



76G04C-003

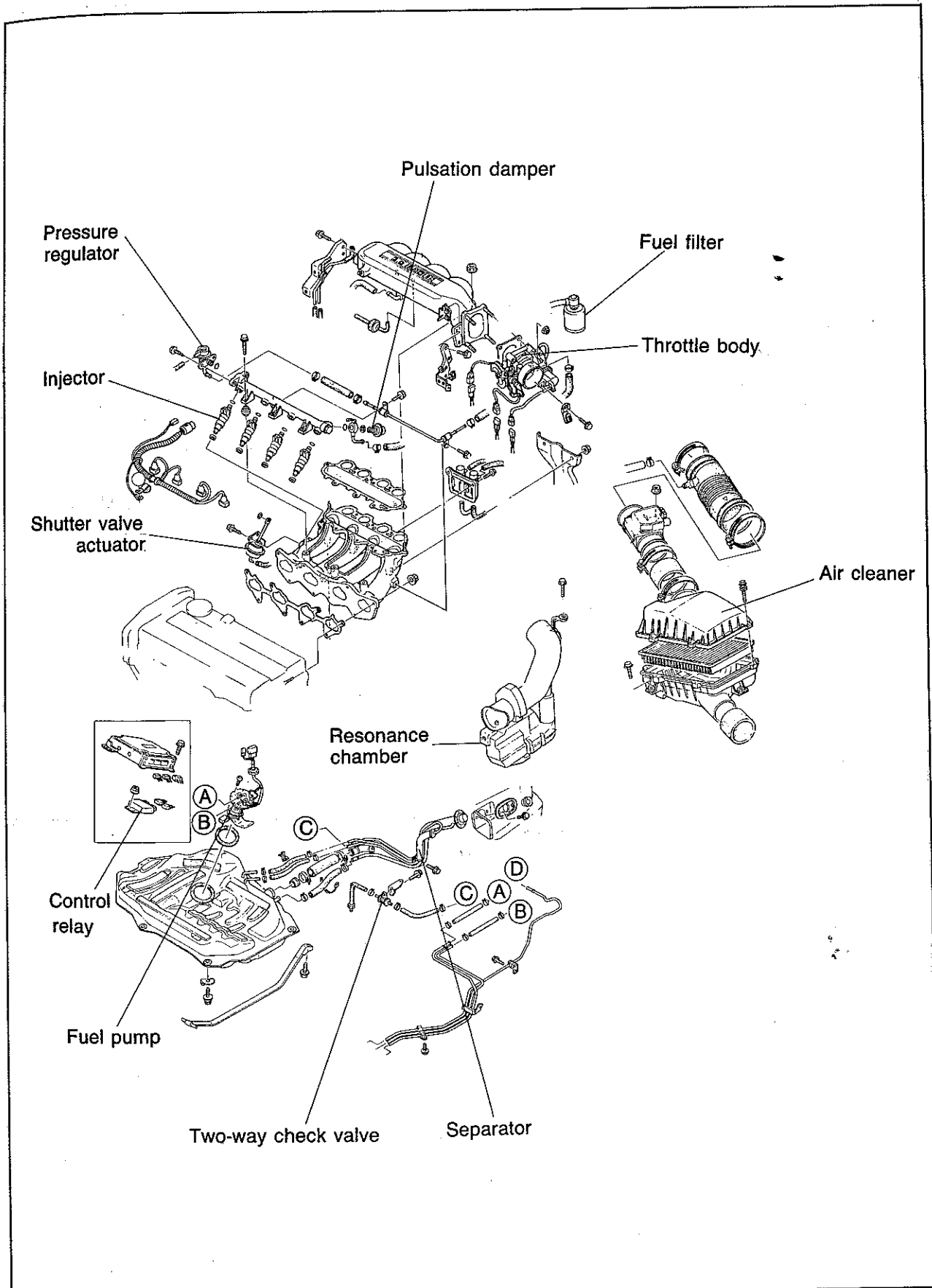
4B OUTLINE

COMPONENT LOCATION Input and Output Devices



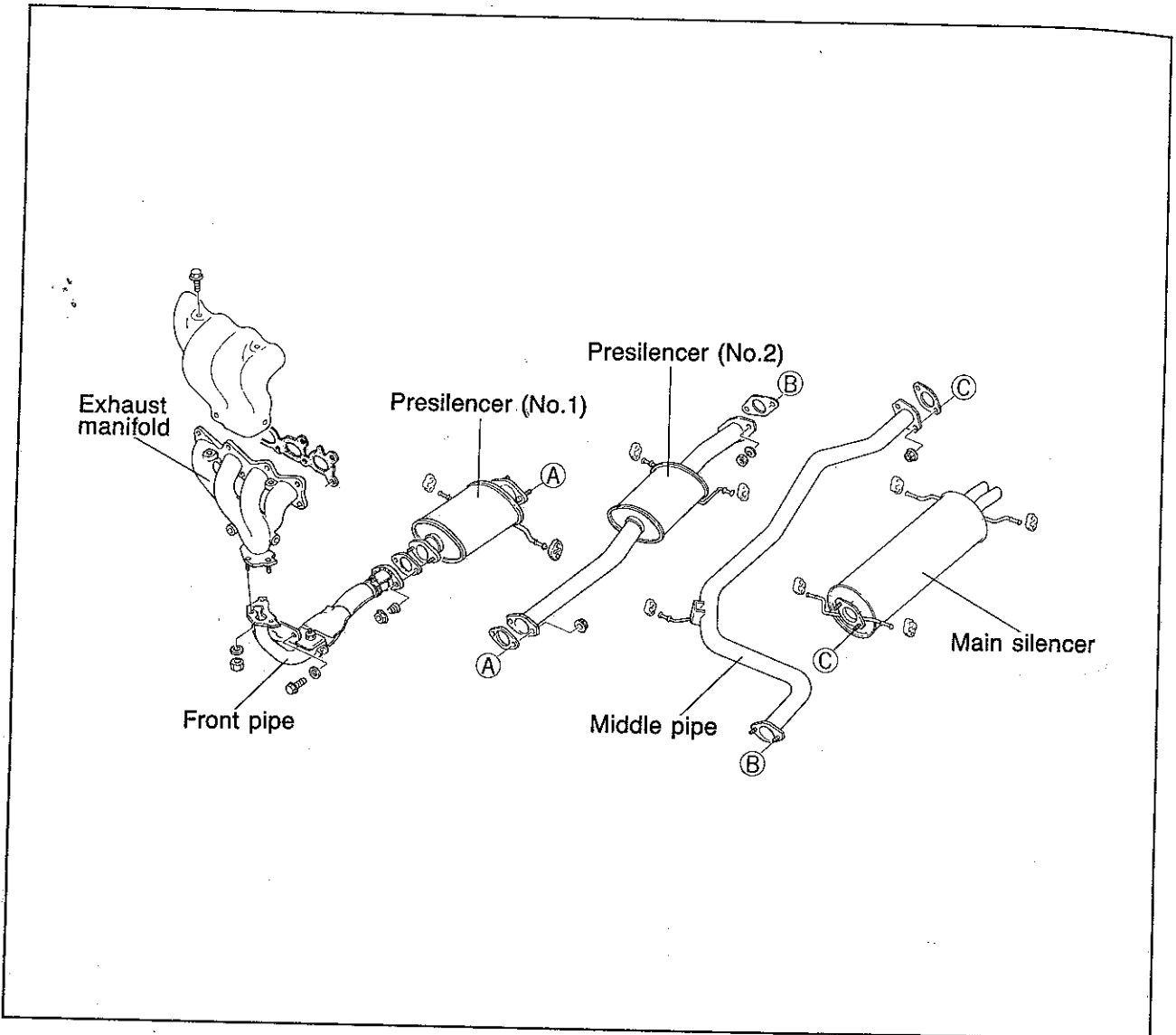
76G04C-004

Fuel System



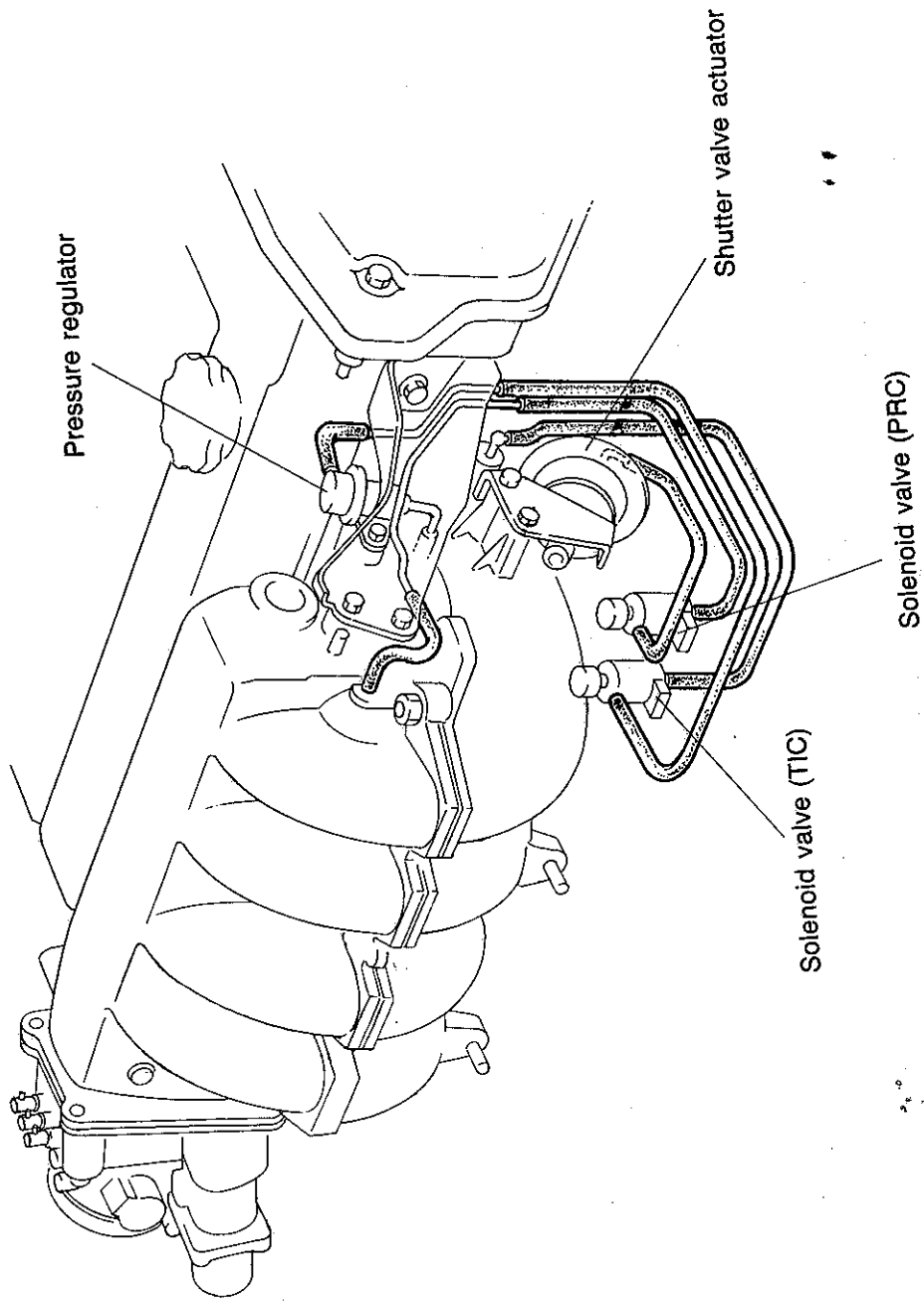
4B OUTLINE

Exhaust System



76G04C-006

VACUUM HOSE ROUTING DIAGRAM



ancer

76G04C-006

76G04C-007

4B OUTLINE

SPECIFICATIONS

Item		Specification
Idle speed	rpm	With test connector grounded 750 ± 50
Throttle body		
Type		Horizontal draft (2-barrel)
Throat diameter	mm (in)	No. 1
		No. 2
Fuel pump		
Type		Impeller (in-tank)
Output pressure	kPa (kg/cm ² , psi)	441—588 (4.5—6.0, 64—85)
Feeding capacity	cc (cu in)/10 sec.	220 (13.4) min.
Fuel filter		
Type	Low pressure side	Nylon element
	High pressure side	Paper element
Pressure regulator		
Type		Diaphragm
Regulating pressure	kPa (kg/cm ² , psi)	235—275 (2.4—2.8, 34—40)
Injector		
Type		High-ohmic
Type of drive		Voltage
Resistance	Ω	12—16
Injection amount	cc (cu in)/15 sec.	66—91 (4.03—5.55)
Idle speed control valve		
Solenoid resistance	Ω	6.3—9.9
Fuel tank		
Capacity	liters (US gal, Imp gal)	60 (15.9, 13.2)
Air cleaner		
Element type		Dry
Fuel		
Specification		Leaded or unleaded premium

76F04B-002

TROUBLESHOOTING GUIDE

This troubleshooting guide shows the malfunction code numbers and the symptoms of various failures. Perform troubleshooting as described below.

Possible cause		Input sensors and switches					Output solenoid valve					
		Ne signal	G signal	Knock sensor	Air flow sensor	Water thermo sensor	Intake air thermo sensor (Dynamic chamber)	Solenoid valve (Pressure regulator control)	Solenoid valve (Idle speed control)	Solenoid valve (Variable inertia charging system)		
Symptom and No.		4B—16	4B—16	4B—17	4B—17	4B—18	4B—19	4B—21	4B—23	4B—21		
1	Fault Indicated by SST Code No.	02	03	05	08	09	11	25	34	41		
2	Hard start or won't start (Crank OK)	<div style="text-align: center;">TROUBLESHOOTING PROCEDURE</div> <p>Note Code No. is to quickly determine which system or unit may be at fault by use of the SST. (Self-Diagnosis Checker 49 H018 9A1 or Digital Code Checker 49 G018 9A0 with Adaptor harness 49 9200 180)</p> <p>1st: Check input sensors and output solenoid valves with the SST. (Refer to page 4B—11.)</p> <p>2nd: Check other switches with the SST. (Refer to page 4B—22.)</p> <p>3rd: Check the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>Electrical system</p> <ol style="list-style-type: none"> 1) Battery condition 2) Fuses <p>Fuel system</p> <ol style="list-style-type: none"> 1) Fuel level 2) Fuel leakage 3) Fuel filter 4) Idle speed (with test connector grounded) <p>Engine</p> <ol style="list-style-type: none"> 1) Compression 2) Overheating </td> <td style="width: 50%; vertical-align: top;"> <p>Ignition system</p> <ol style="list-style-type: none"> 1) Ignition spark 2) Ignition timing (with test connector grounded) <p>Intake air system</p> <ol style="list-style-type: none"> 1) Air cleaner element 2) Vacuum or air leakage 3) Vacuum hose routing 4) Accelerator cable <p>Others</p> <ol style="list-style-type: none"> 1) Clutch slippage 2) Brake dragging </td> </tr> </table> <p>4th: Check Fuel and Emission Control Systems. (Refer to page 4B—10.)</p>									<p>Electrical system</p> <ol style="list-style-type: none"> 1) Battery condition 2) Fuses <p>Fuel system</p> <ol style="list-style-type: none"> 1) Fuel level 2) Fuel leakage 3) Fuel filter 4) Idle speed (with test connector grounded) <p>Engine</p> <ol style="list-style-type: none"> 1) Compression 2) Overheating 	<p>Ignition system</p> <ol style="list-style-type: none"> 1) Ignition spark 2) Ignition timing (with test connector grounded) <p>Intake air system</p> <ol style="list-style-type: none"> 1) Air cleaner element 2) Vacuum or air leakage 3) Vacuum hose routing 4) Accelerator cable <p>Others</p> <ol style="list-style-type: none"> 1) Clutch slippage 2) Brake dragging
<p>Electrical system</p> <ol style="list-style-type: none"> 1) Battery condition 2) Fuses <p>Fuel system</p> <ol style="list-style-type: none"> 1) Fuel level 2) Fuel leakage 3) Fuel filter 4) Idle speed (with test connector grounded) <p>Engine</p> <ol style="list-style-type: none"> 1) Compression 2) Overheating 	<p>Ignition system</p> <ol style="list-style-type: none"> 1) Ignition spark 2) Ignition timing (with test connector grounded) <p>Intake air system</p> <ol style="list-style-type: none"> 1) Air cleaner element 2) Vacuum or air leakage 3) Vacuum hose routing 4) Accelerator cable <p>Others</p> <ol style="list-style-type: none"> 1) Clutch slippage 2) Brake dragging 											

76F04B-003

4B TROUBLESHOOTING GUIDE

The Troubleshooting Guide lists the systems most likely to cause a given symptom. After finding which system(s) to check, refer to the pages shown for detailed guides.

Symptom No.	System	INTAKE AIR SYSTEM	FUEL SYSTEM	PRESSURE REGULATOR CONTROL (PRC) SYSTEM	IDLE SPEED CONTROL (ISC) SYSTEM	ELECTRONIC SPARK ADVANCE (ESA) CONTROL SYSTEM	POSITIVE CRANKCASE VENTILATION (PCV) SYSTEM	DECELERATION CONTROL SYSTEM	EXHAUST SYSTEM	VARIABLE INERTIA CONTROL (VIC) SYSTEM
	Page	4B-27	4B-45	4B-63	4B-40	4B-70	4B-73	4B-67	4B-74	4B-35
2	3	2	—	—	1	—	—	—	—	—
3	3	2	—	1	—	—	—	—	—	—
	4	3	—	2	—	1	—	—	—	—
4	4	3	—	1	—	2	—	—	—	—
	4	3	—	2	—	1	—	—	—	—
5	2	3	—	1	—	—	—	—	—	—
6	1	2	—	—	—	—	—	4	3	—
7	4	3	—	2	—	—	1	—	—	—
8	3	4	—	1	—	—	2	—	—	—
9	—	2	—	—	—	—	1	3	4	—
10	—	2	1	—	—	—	—	—	—	—
11	—	—	—	—	1	—	—	—	—	—
12	4	5	—	3	—	—	2	1	—	—

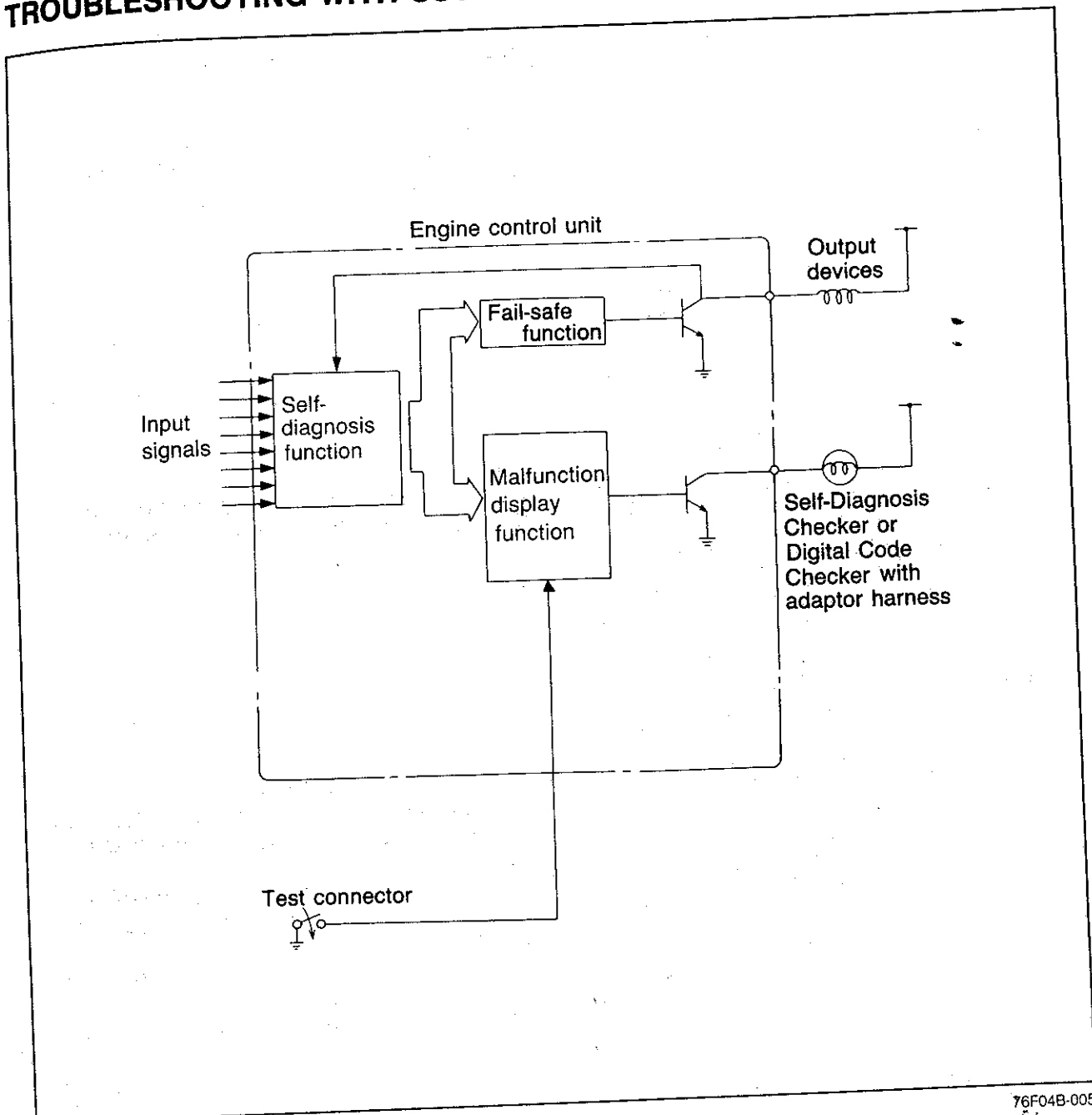
76F04B-004

The numbers of the list show the priorities of inspections, from the most possible system to that with the lowest possibility.

These were determined on the following basis:

- Ease of inspection
- Most possible system
- Most possible point in system

TROUBLESHOOTING WITH SST



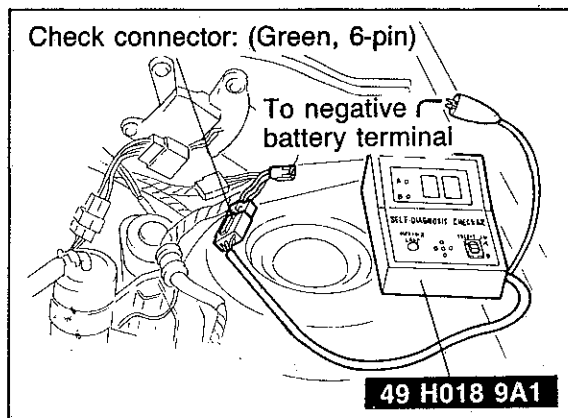
76F04B-005

When troubles occur in the main input devices or output devices, check for the cause with the **SST (Self-Diagnosis Checker 49 H018 9A1 or Digital Code Checker 49 G018 9A0 with Adaptor harness 49 9200 180)**. Failure of individual input and output devices is indicated and retrieved from the control unit as malfunction code numbers.

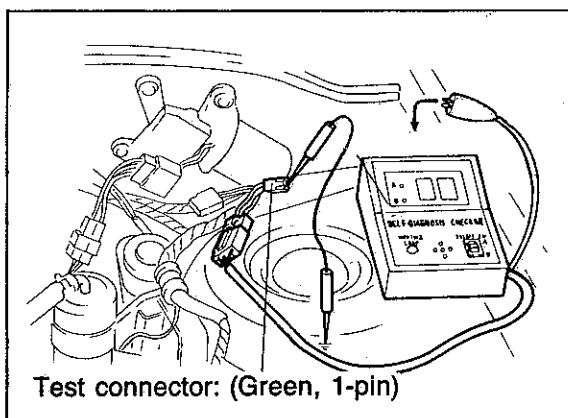
Note

The control unit constantly checks for malfunction of the input devices. But, the control unit checks for malfunction of output devices only in a 3 second period after the ignition switch is turned ON and with the test connector grounded.

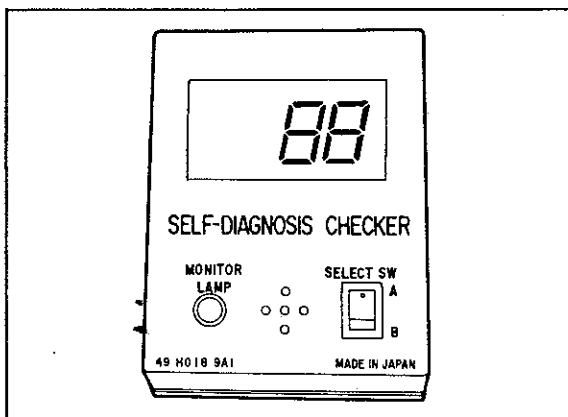
4B TROUBLESHOOTING WITH SST



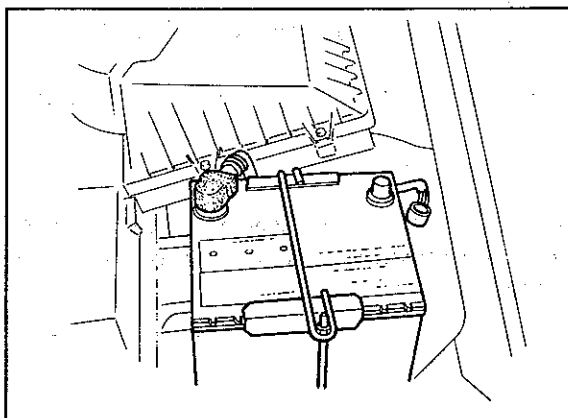
86U04A-011



86U04A-012



76F04B-006



76F04B-007

INSPECTION PROCEDURE

1. Connect the **SST** to the check connector. (Green, 6-pin) and the negative battery terminal.
2. Set the select switch to position A.

Note

The check connector is located at the rear of the left side wheel housing.

3. Ground the test connector (Green, 1-pin) with a jumper wire.

Note

The test connector is located near the Self-Diagnosis Checker check connector.

4. Turn the ignition switch ON.
5. Verify that **88** flashes on the digital display and that the buzzer sounds for **three seconds** after turning the ignition switch ON.
6. If **88** does not flash, check the control relay (refer to page 4B—78), power supply circuit, and check connector wiring.
7. If **88** flashes and the buzzer sounds continuously for more than **20 seconds** check the check connector wiring, or replace the engine control unit and perform steps 3 and 4 again.
8. Note the code numbers and check for the causes by referring to the check sequences shown on pages **4B—16 to 4B—21**. Repair as necessary.

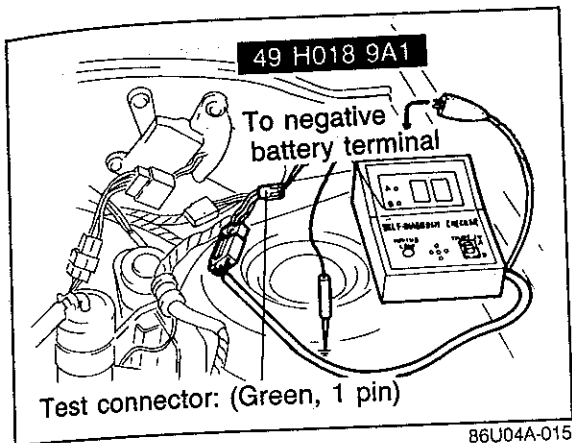
Note

Cancel the code numbers by performing the after-repair procedure after repairing.

AFTER-REPAIR PROCEDURE

1. Cancel the memory of malfunctions by disconnecting the negative battery cable and depressing the brake pedal for at least **five** seconds.

TROUBLESHOOTING WITH SST 4B



2. Connect the **SST** to the check connector.
3. Ground the test connector (Green, 1-pin) with a jumper wire.

**Ignition switch: ON
for six seconds**

76G04C-014

4. Turn the ignition switch ON for **six seconds** (do not start the engine).
5. Start and warm up the engine, then run it at **2,000 rpm** for **two minutes**.
6. Verify that no code numbers are displayed.

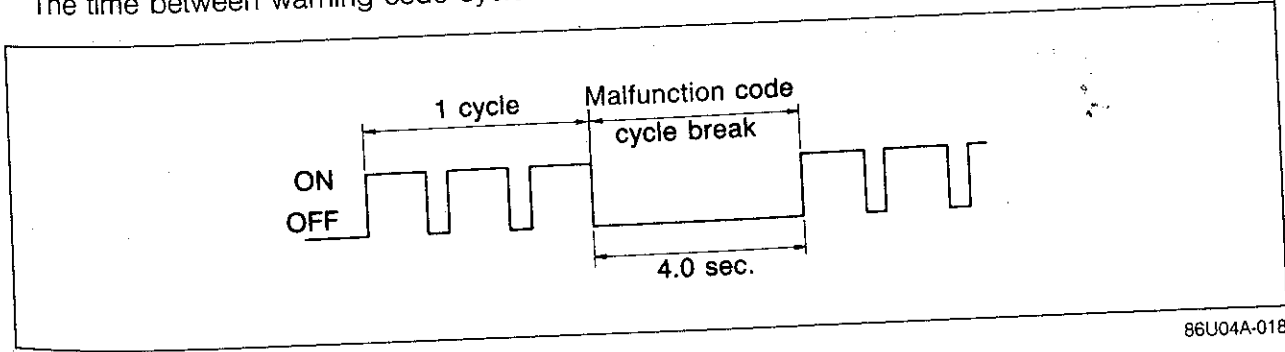
PRINCIPLE OF CODE CYCLE

Malfunction codes are determined as shown below.

86U04A-017

1. Code cycle break

The time between warning code cycles is 4.0 sec (the time the light is off).

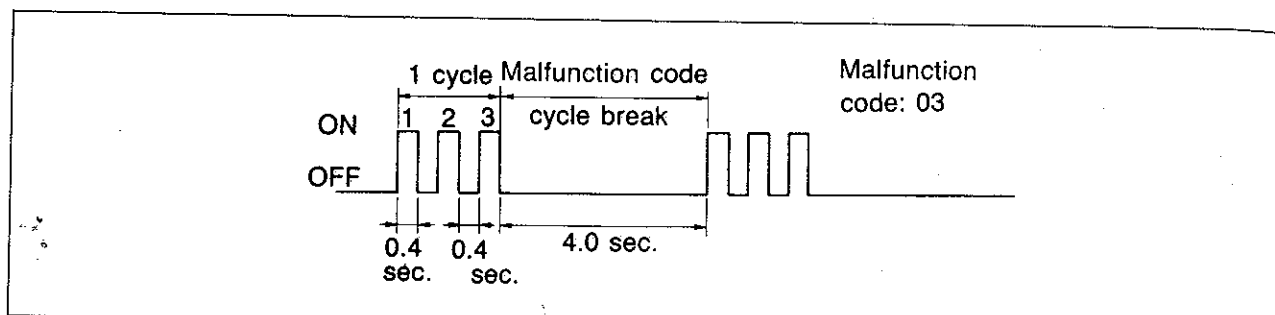


86U04A-018

4B TROUBLESHOOTING WITH SST

2. Second digit of malfunction code (ones position)

The digit in the ones position of the malfunction code represents the number of times the buzzer is on 0.4 sec during one cycle.

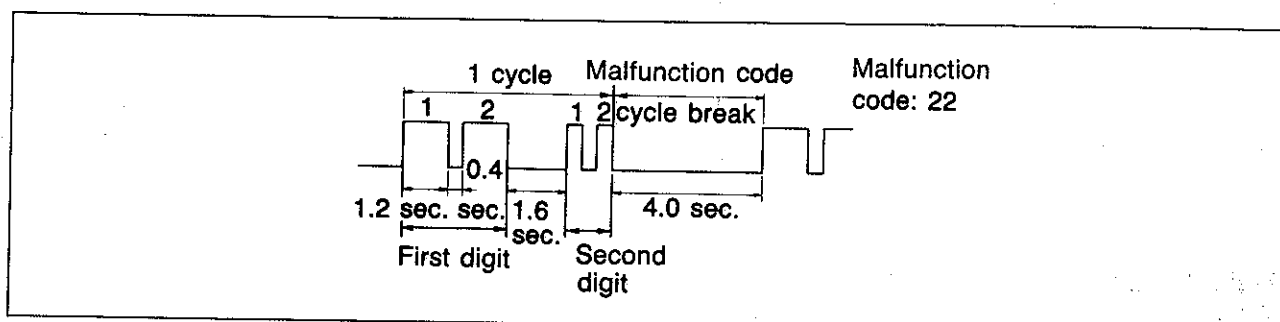


76G04C-015

3. First digit of malfunction code (tens position)

The digit in the tens position of the malfunction code represents the number of times the buzzer is on 1.2 sec during one cycle.

It should also be noted that the light goes off for 1.6 sec. between the long and short pulses of the buzzer.








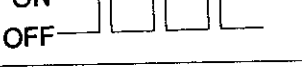






76G04C-016

CODE NUMBER

Malfunction display		Sensor or subsystem	Self-diagnosis	Fail-safe
Malfunction code no.	Malfunction code output signal pattern			
02	ON OFF	Ne signal	No Ne signal from crank angle sensor during cranking	—
03	ON OFF	G signal	No G signal	Cancels sequential injection
05	ON OFF	Knock sensor	Open or short circuit	<ul style="list-style-type: none"> Retards ignition timing 4°

76F04B-008

TROUBLESHOOTING WITH SST 4B

Malfunction display		Sensor or subsystem	Self-diagnosis	Fail-safe
Malfunction code no.	Malfunction code output signal pattern			
08	ON  OFF 	Air flow sensor	Open or short circuit	Maintains basic signal at preset value
09	ON  OFF 	Water thermo sensor	Open or short circuit	Maintains constant 35°C (95°F) command
11	ON  OFF 	Intake air thermo sensor (dynamic chamber)	Short circuit	Maintains constant 20°C (68°F) command
25	ON  OFF 	Solenoid valve (pressure regulator control)	Open or short circuit	—
34	ON  OFF 	Solenoid valve (idle speed control)		—
41	ON  OFF 	Solenoid valve (Variable inertia control)		—

76F04B-009

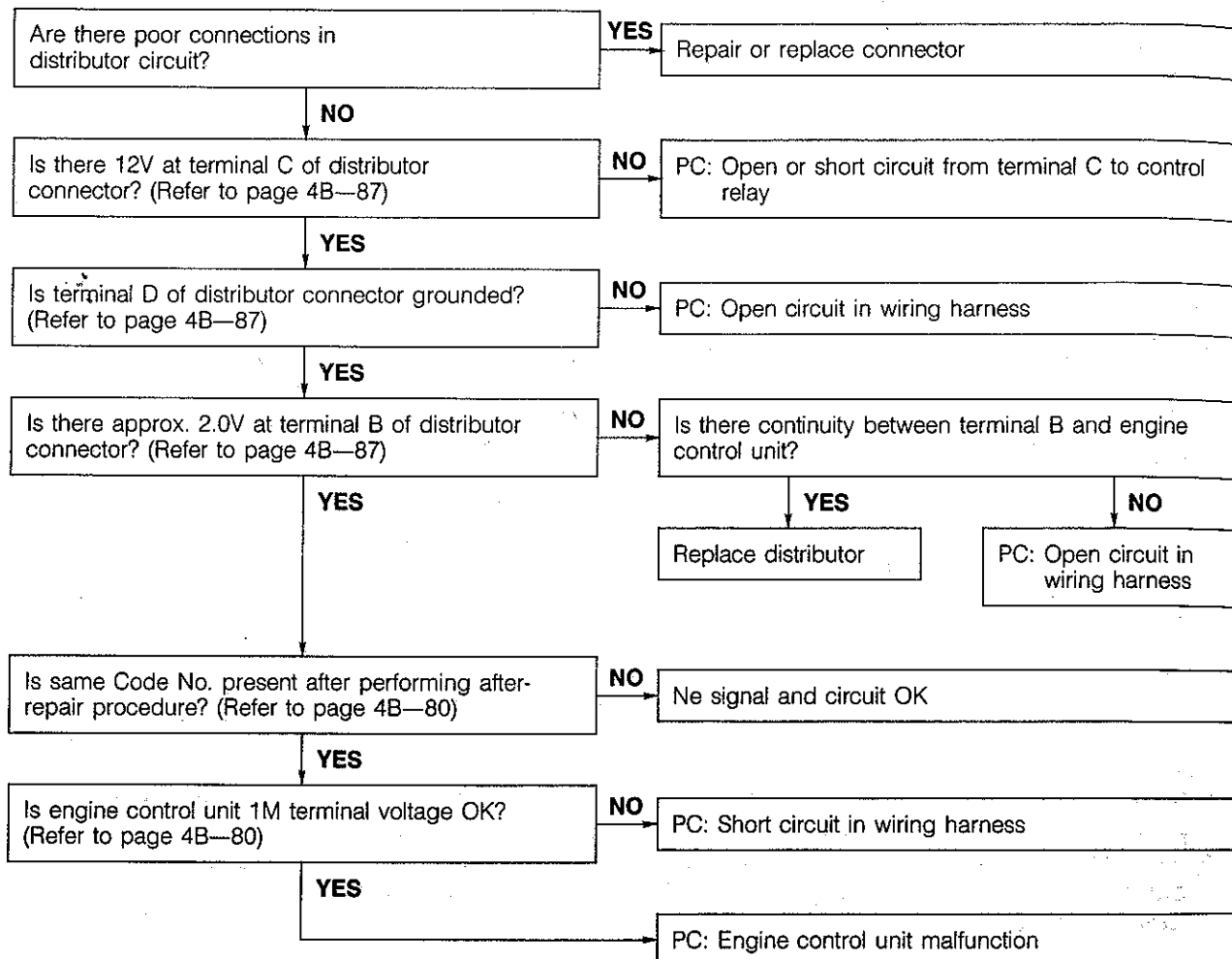
Caution

- a) If there is more than one failure present, the lowest number malfunction code is displayed first, the remaining codes are displayed sequentially.
- b) After repairing a failure, turn off the ignition switch disconnect the negative battery cable and depress the brake pedal for at least 5 seconds to erase the memory of a malfunction code.

4B TROUBLESHOOTING WITH SST

Code No.2 (Ne signal)

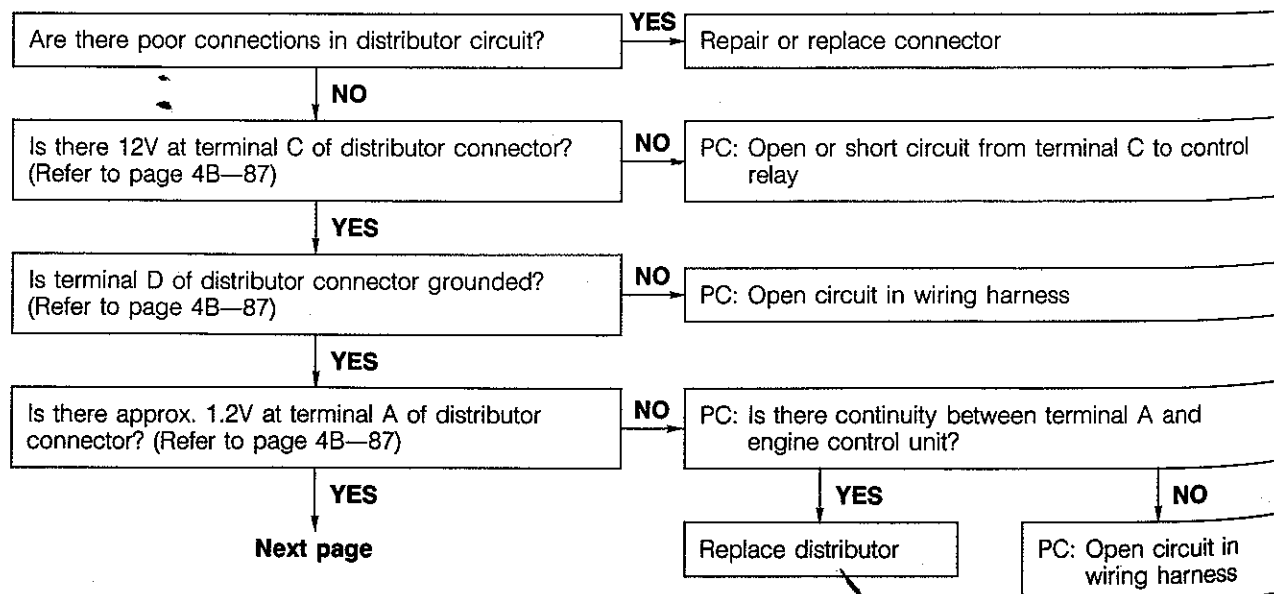
PC: Possible Cause

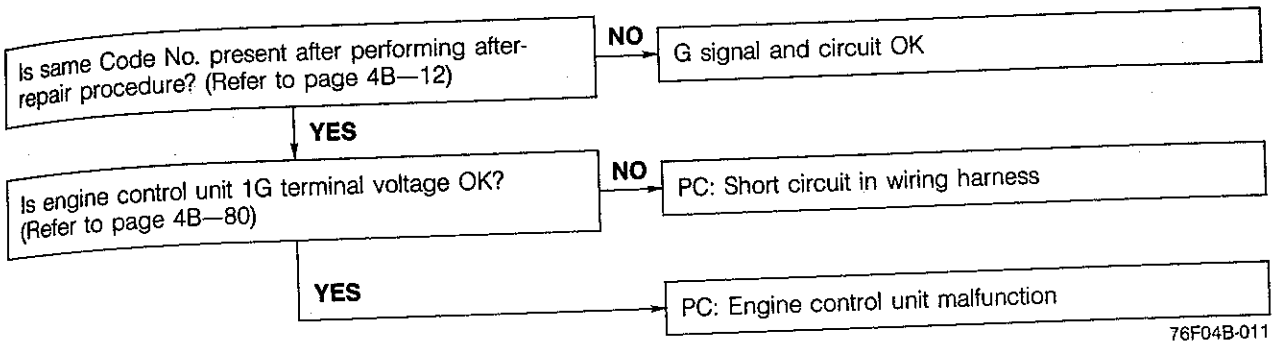


76F04B-010

Code No.3 (G signal)

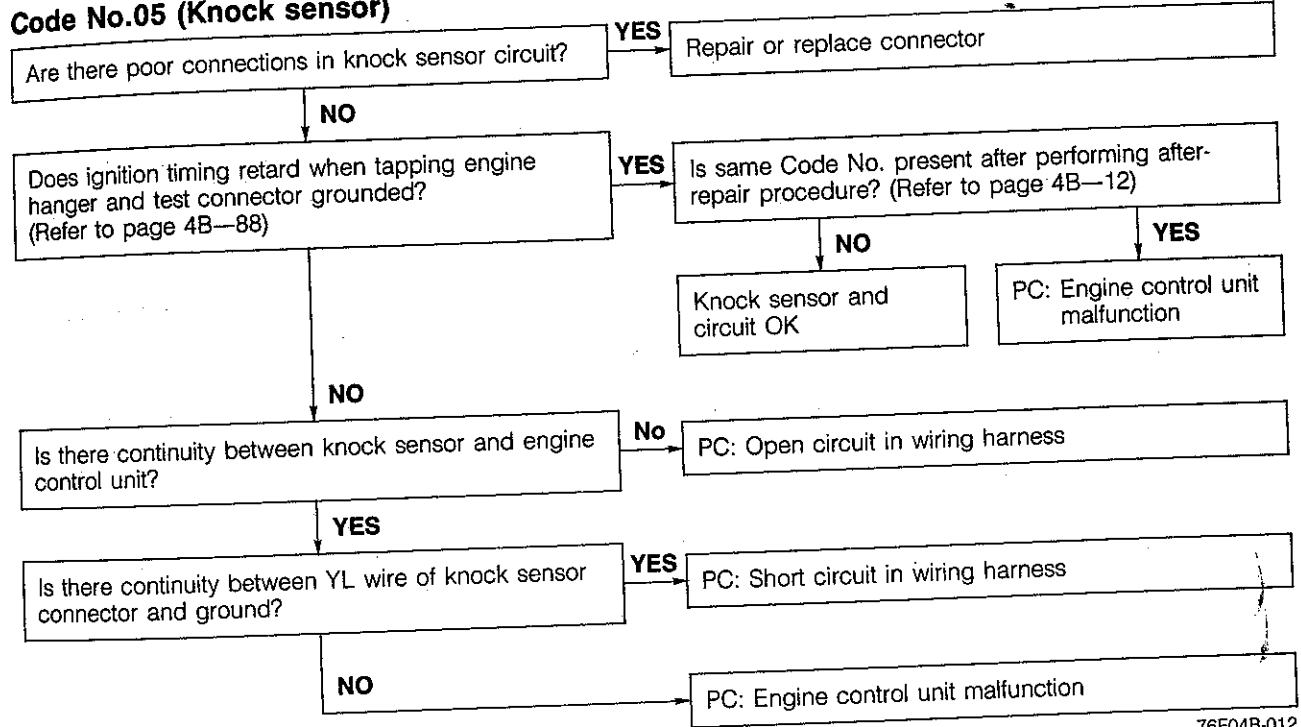
PC: Possible Cause





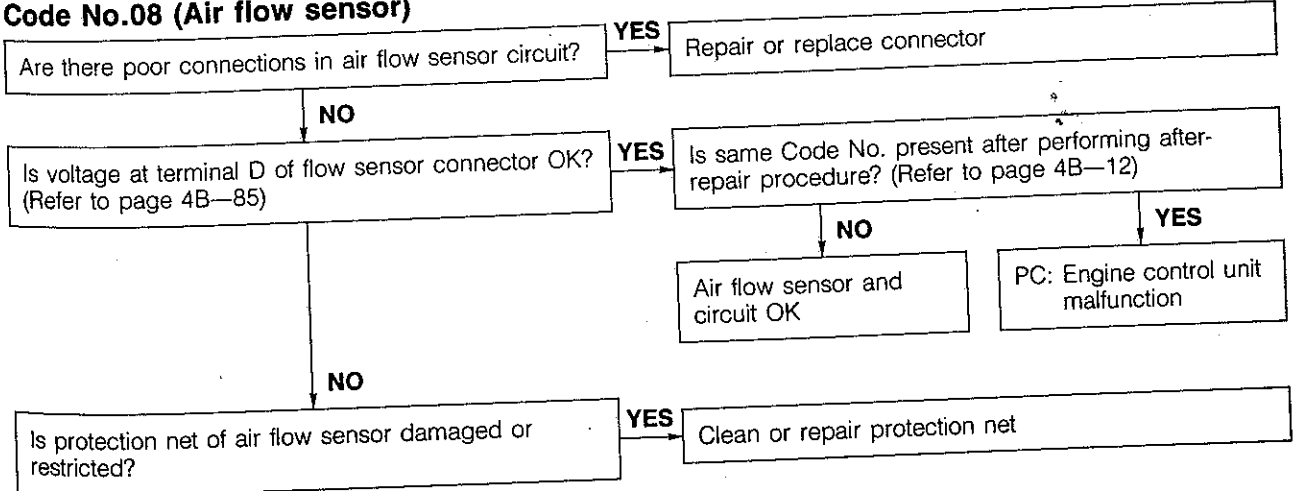
Code No.05 (Knock sensor)

PC: Possible Cause



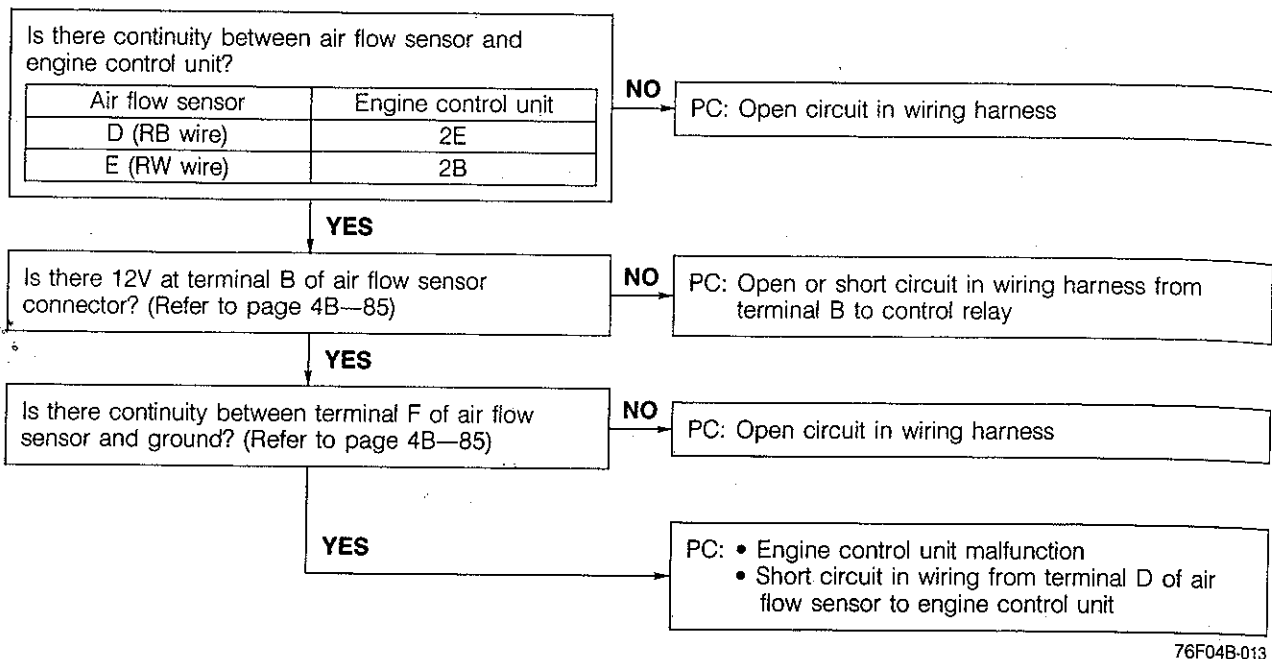
Code No.08 (Air flow sensor)

PC: Possible Cause



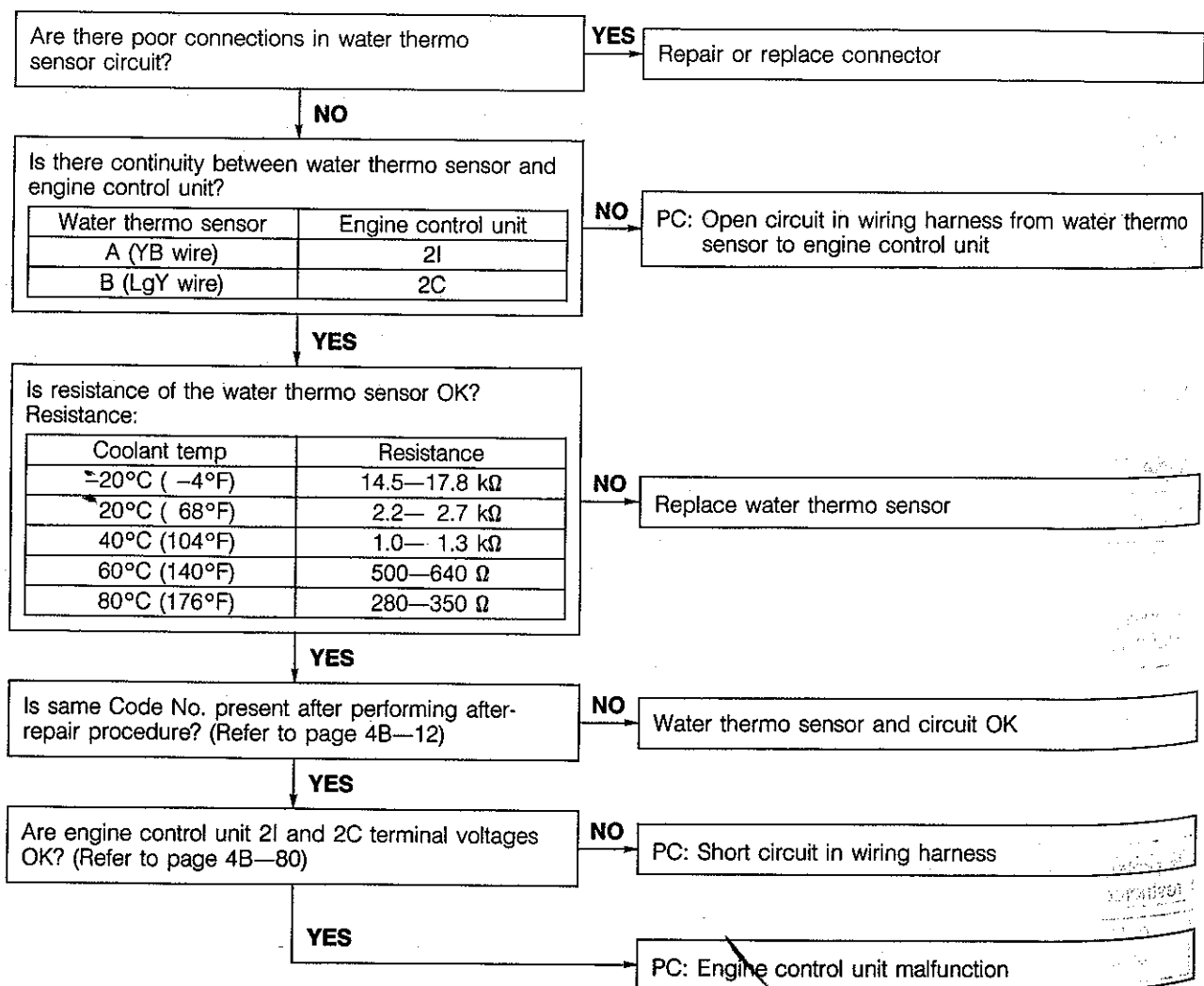
Next page

4B TROUBLESHOOTING WITH SST



Code No. 09 (Water thermo sensor)

PC: Possible Cause



No. 11 Code (Intake air thermo sensor)

PC: Possible Cause

Are there poor connections at intake air thermo sensor connectors?

YES

Repair or replace connector

NO

Is there continuity between intake air thermo sensor (dynamic chamber) and engine control unit?

Intake air thermo sensor (dynamic chamber)	Engine control unit
A (RC wire)	2J
B (LgY wire)	2C

NO

PC: Open circuit in wiring harness

YES

Is resistance of intake air thermo sensor (dynamic chamber) OK?
Resistance:

Temperature	Resistance
20°C (68°F)	29.7—36.3 kΩ
50°C (122°F)	8.4—10.2 kΩ
85°C (185°F)	2.5—3.1 kΩ

NO

Replace intake air thermo sensor (dynamic chamber)

YES

Is same Code No. present after performing after-repair procedure? (Refer to page 4B—12)

No

Intake air thermo sensor and circuit OK

Yes

Are engine control unit 2J and 2C terminal voltages OK? (Refer to page 4B—80)

NO

PC: Short circuit in wiring harness

YES

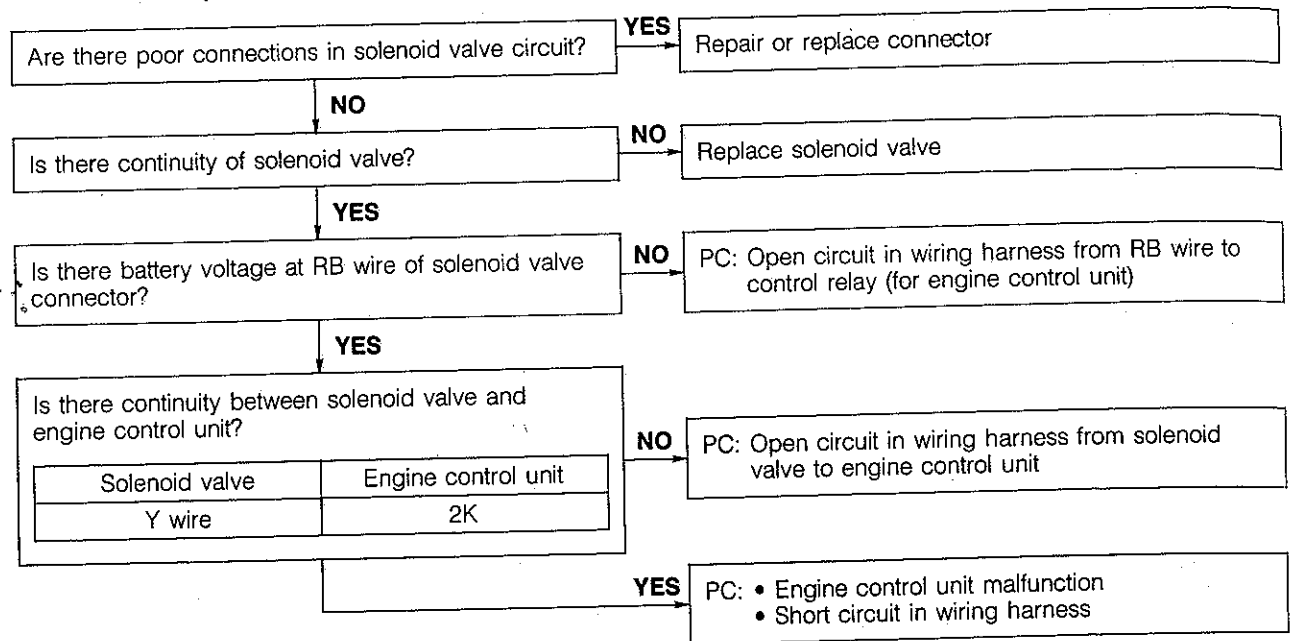
PC: Engine control unit malfunction

76F04B-015

4B TROUBLESHOOTING WITH SST

Code No. 25 (Solenoid valve—Pressure regulator control (PRC))

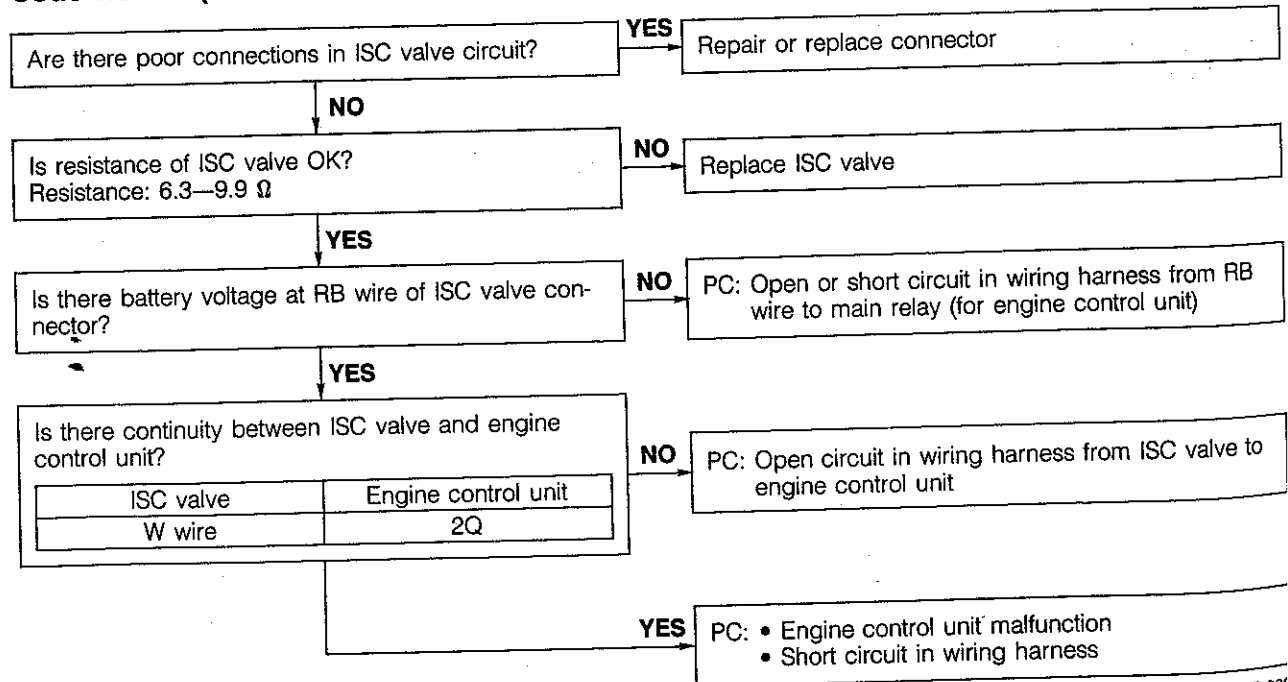
PC: Possible Cause



76G04C-028

Code No. 34 (Solenoid valve—Idle speed control (ISC))

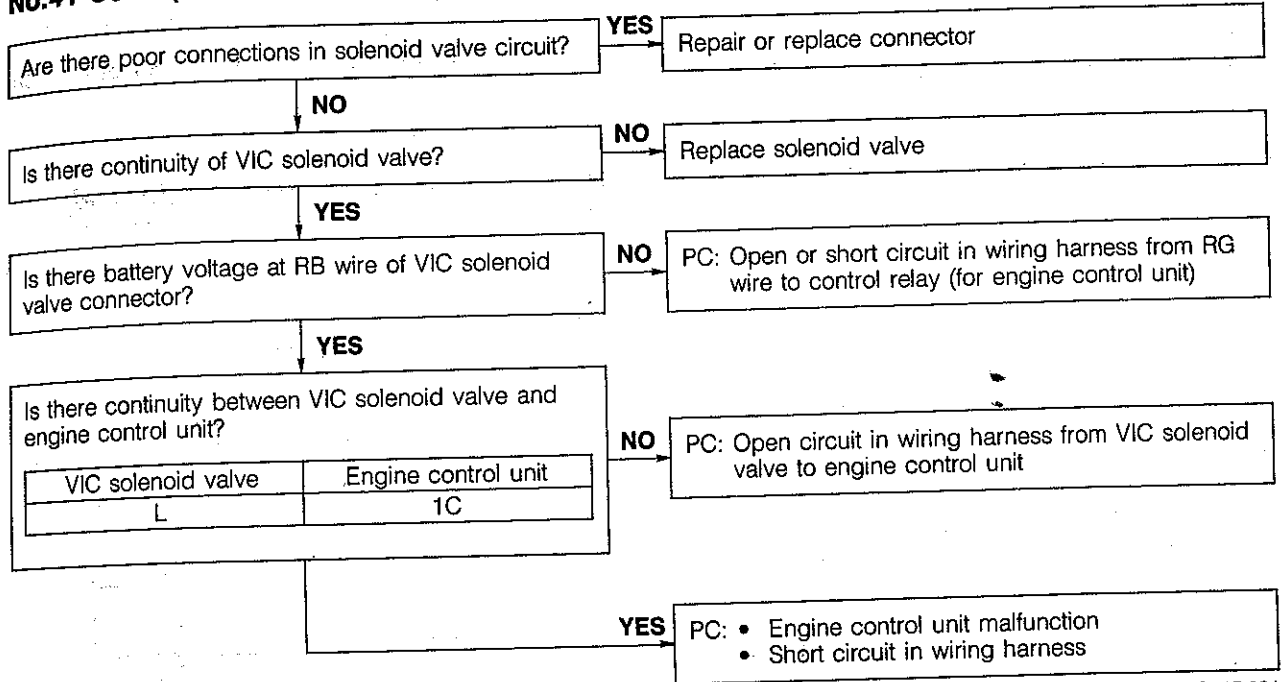
PC: Possible Cause



76G04C-034

No.41 Code (Solenoid valve—Variable inertia control (VIC))

PC: Possible Cause



Cause

to

use

B

to

032

74C-028

76G04C-034

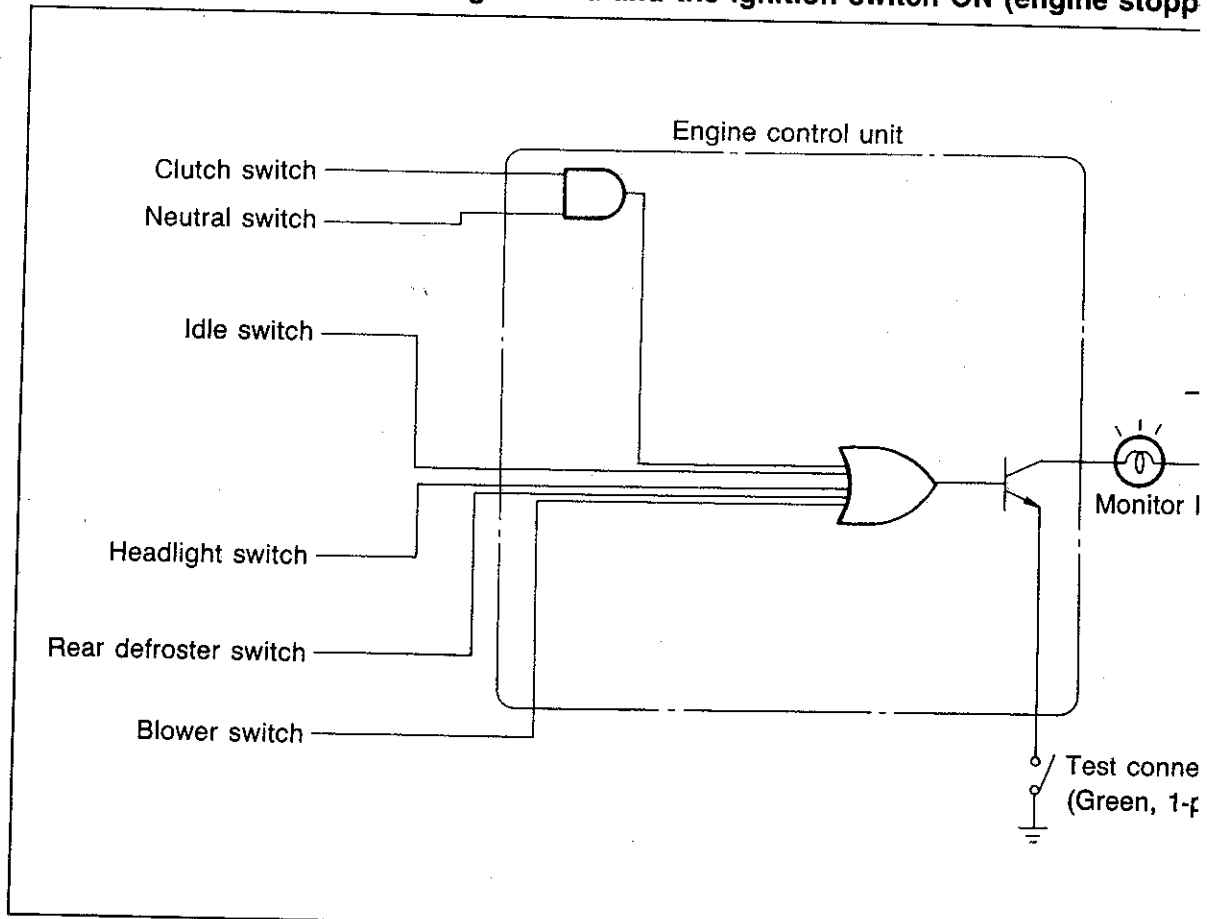
4B SWITCH MONITOR FUNCTION

SWITCH MONITOR FUNCTION

Individual switches can be monitored by the **SST (Self-Diagnosis Checker 49 G018 9A0 or Code Checker 49 9200 180)**.

Note

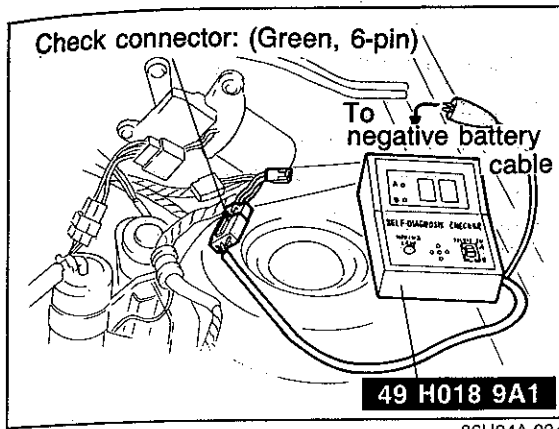
The test connector must be grounded and the ignition switch ON (engine stopp



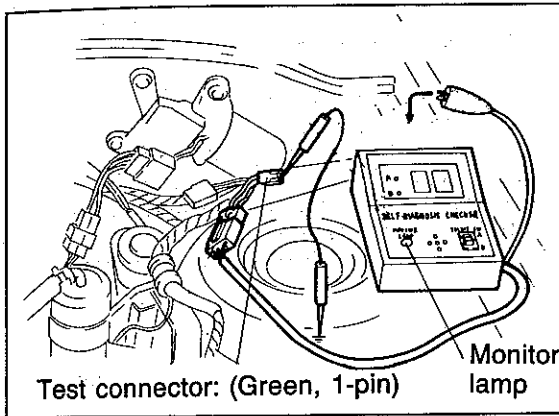
76

Switch	Self-Diagnosis Checker (Monitor lamp)		Remark
	Light ON	Light OFF	
Clutch switch	Pedal released	Pedal depressed	In gear
Neutral switch	In gear	Neutral	Clutch pedal release
Idle switch	Pedal depressed	Pedal released	—
Headlight switch	ON	OFF	—
Rear defroster switch	ON	OFF	—
Blower switch	ON	OFF	Blower motor position or "4"

SWITCH MONITOR FUNCTION 4B



86U04A-034



76F04B-017

INSPECTION PROCEDURE

1. Warm up the engine to normal operating temperature and stop it.
2. Connect the **SST** to the check connector (Green, 6-pin) and the negative battery terminal.

3. Connect a jumper wire between the test connector (Green, 1-pin) and a ground.
4. Turn the ignition switch ON. Check if the monitor lamp illuminates as each switch is operated as described below.

Caution

- a) If any one of the switches remains activated, the monitor lamp will stay on.
- b) Do not start the engine.

Procedure

Set conditions to deactivate each switch

- Transmission in neutral
- All pedals released

Verify that monitor lamp does not illuminate

NO

- Check each switch and related wiring harness
- Clutch and neutral switches :Refer to page 4B-79
 - Idle switch :Refer to page 4B-86
 - Headlight switch :Refer to section 15
 - Rear defroster switch :Refer to section 15
 - Blower switch :Refer to section 15
 - Water thermo switch :Refer to section 3

YES

Check each switch as described

76F04B-018

Neutral and Clutch switches

PC: Possible Cause

Shift transmission into gear

Check that monitor lamp illuminates with clutch pedal released

NO

- PC:
- Neutral or clutch switch malfunction (Refer to 4B-79)
 - Open circuit in related wiring harness
 - Engine control unit 1G terminal malfunction (Refer to page 4B-80)

YES

Depress clutch pedal

Check that monitor lamp does not illuminate

Return transmission to neutral

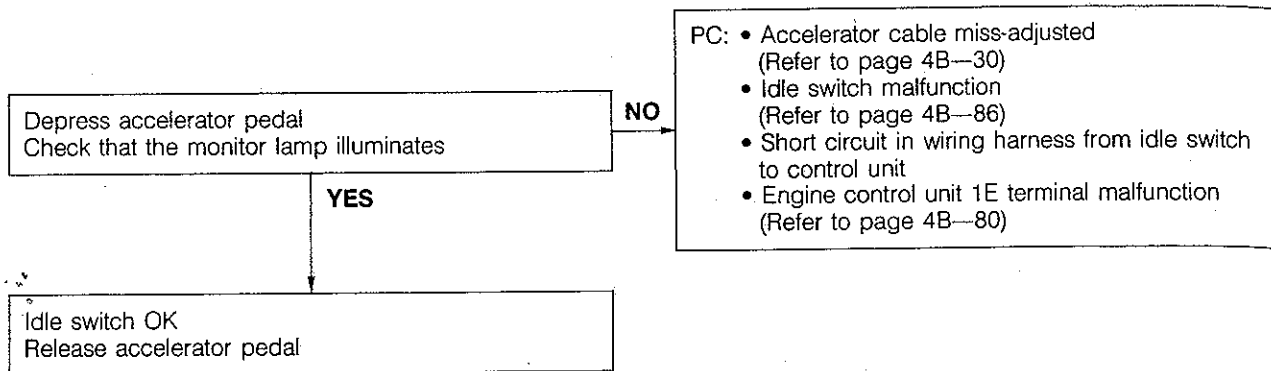
NO

- PC:
- Clutch switch malfunction (Refer to page 4B-79)

76F04B-019

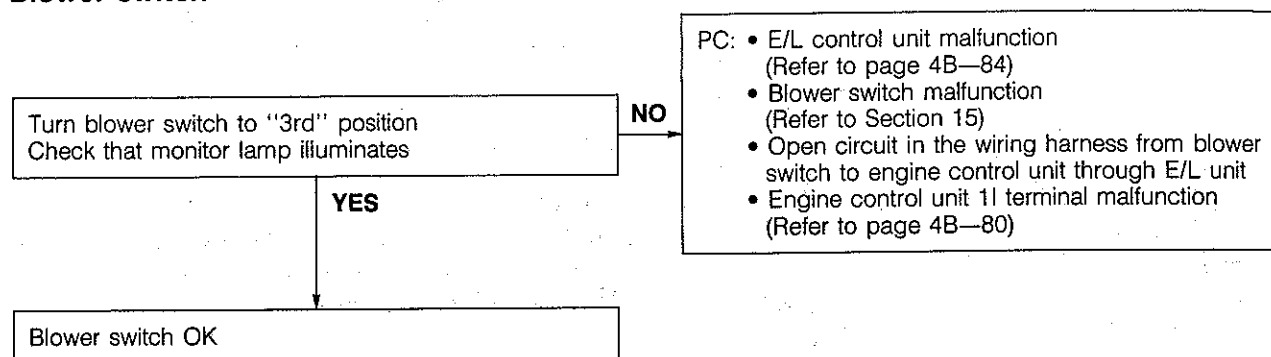
4B SWITCH MONITOR FUNCTION

Idle switch



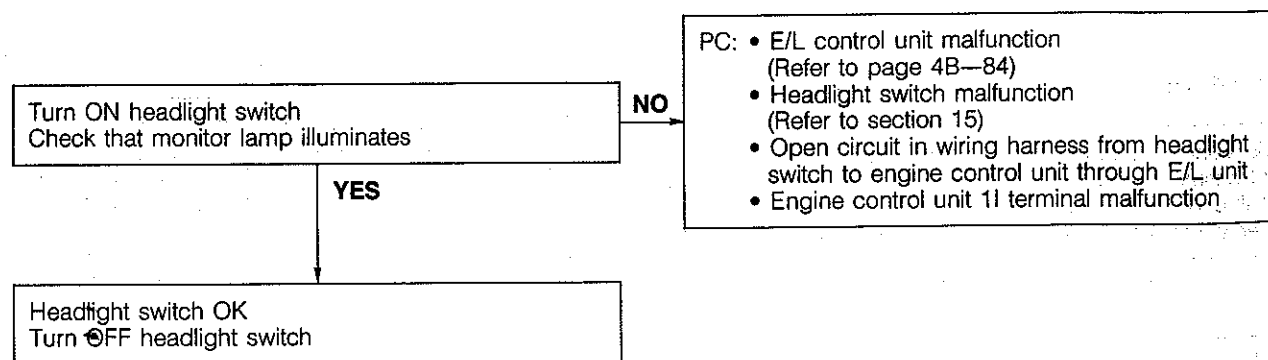
76F04B-020

Blower switch



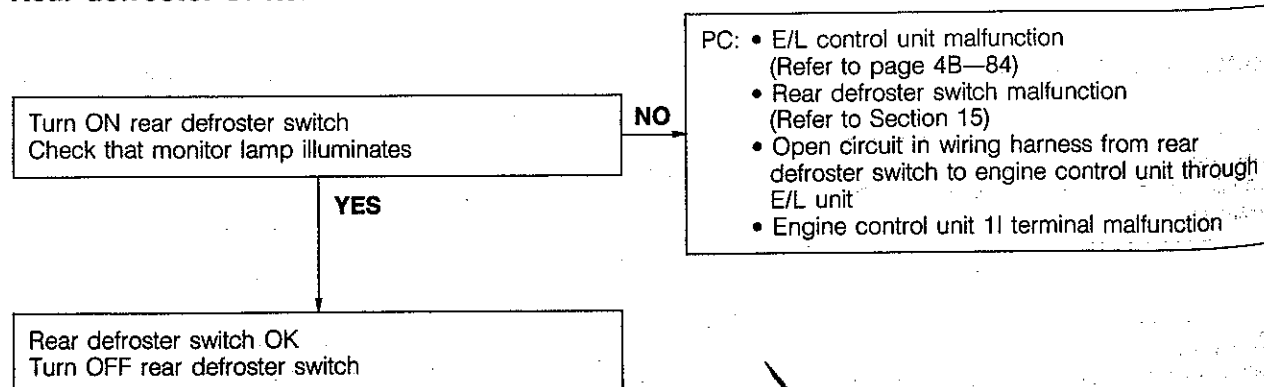
76F04B-021

Headlight switch



76F04B-022

Rear defroster switch



76F04B-023

IDLE ADJUSTMENT

IDLE SPEED Preparation

- 1) Check the condition of the engine (plugs, leaks in hoses, etc.).
- 2) Make sure all accessories are OFF.
- 3) Warm up the engine and run it for **three minutes at 2,500—3,000 rpm** in neutral.
- 4) Check the initial ignition timing and adjust it if necessary.

Inspection

1. Check that the idle speed is within specification without grounding the test connector (Green, 1-pin).

Specification:

Applied load	Idle speed
No load	750 ± 50 rpm
P/S load	750 ± 50 rpm
A/C and/or E/L load	800 ± 50 rpm

2. If not correct, adjust the initial idle speed.

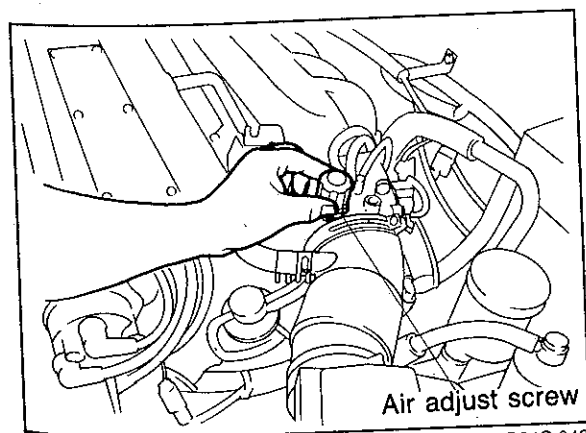
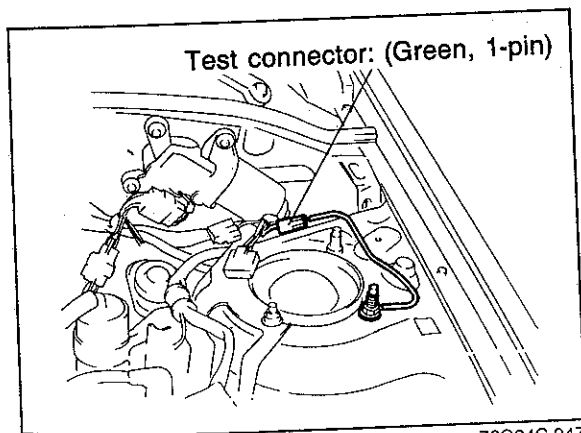
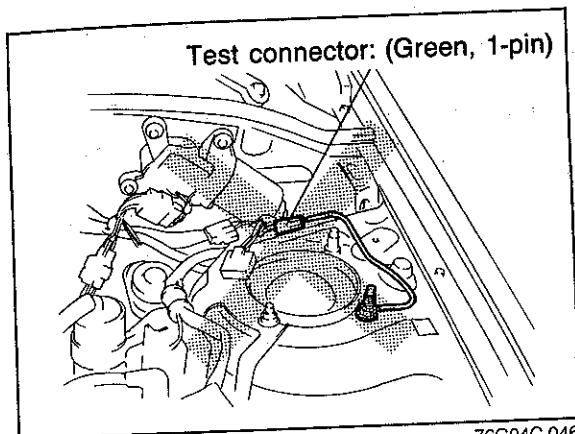
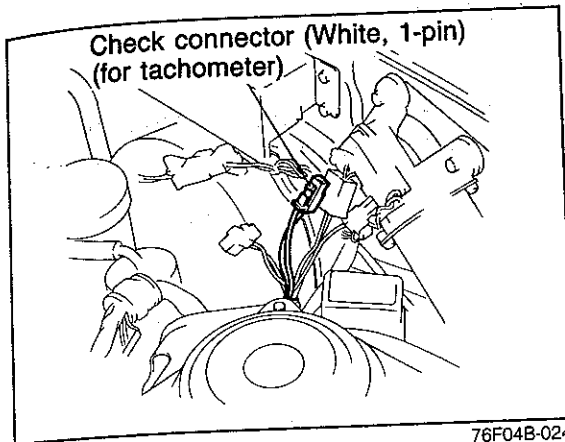
Adjustment

1. Ground the test connector (Green, 1-pin) with a jumper wire.
2. Turn all accessories and loads OFF.

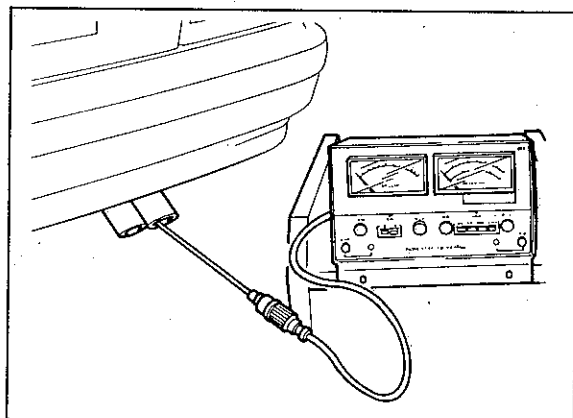
3. Remove the blind cap and adjust the initial idle speed to specification by turning the air adjust screw.

Initial idle speed: 750 ± 50 rpm

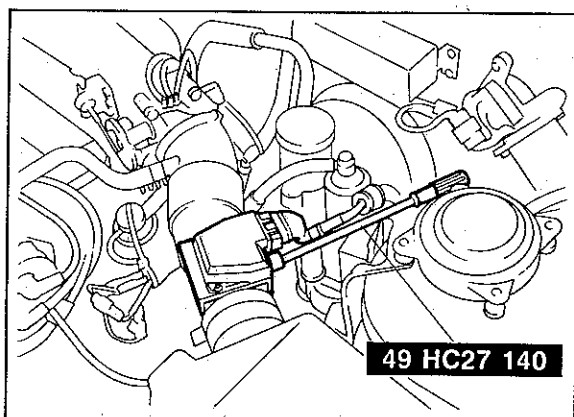
4. After adjusting the idle speed, install the blind cap and disconnect the jumper wire from the test connector.
5. Recheck the idle speed.
6. If not within specification, check the idle speed control (ISC) system.



4B IDLE ADJUSTMENT



76F04B-025



76G04C-051

IDLE MIXTURE

Note

Before checking or adjusting the idle mixture check and adjust the idle speed, if necessary.

1. Insert a gas analyzer pick-up into the tail pipe.

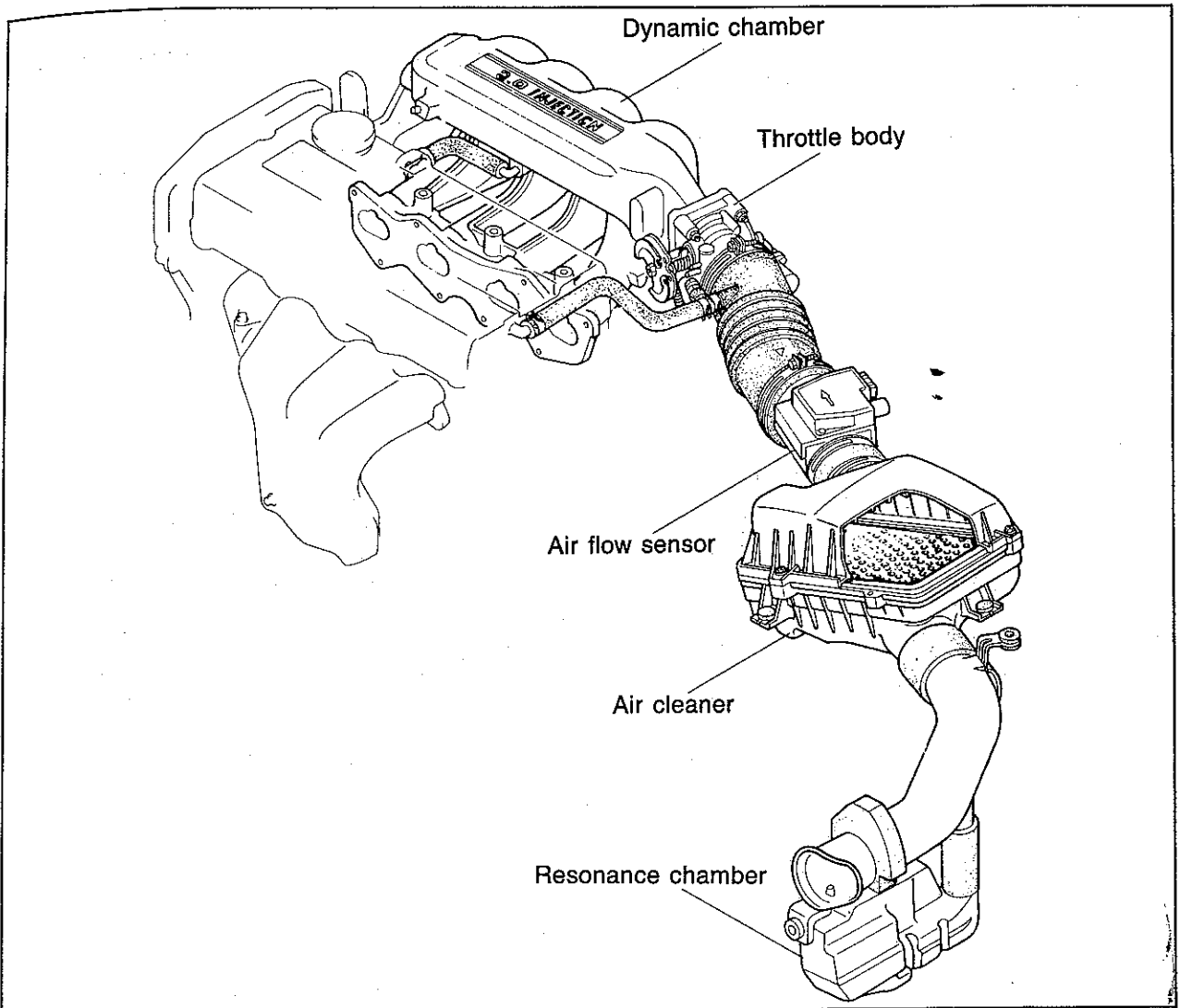
2. Check that the CO and HC concentrations are within specification.

CO concentration: $1.5 \pm 0.5\%$

HC concentration: Less than 1,000 PPM

3. If the CO or HC concentration is not within specification, turn the adjust screw with the **SST** to adjust.

INTAKE AIR SYSTEM



76G04C-052

This system controls the air required by the engine for operation. The system consists of the air duct, resonance chamber, air cleaner, air flow sensor, throttle body, dynamic chamber, and intake manifold.

COMPONENT DESCRIPTION

Component	Function	Remark
Air cleaner	Filters air entering throttle body	Dry type
Air flow sensor	Detects amount of intake air; sends signal to engine control unit	Hot-wire type
Resonance chamber	Minimizes intake air noise	
Throttle body	Controls intake air quantity	Integrated throttle sensor and idle switch

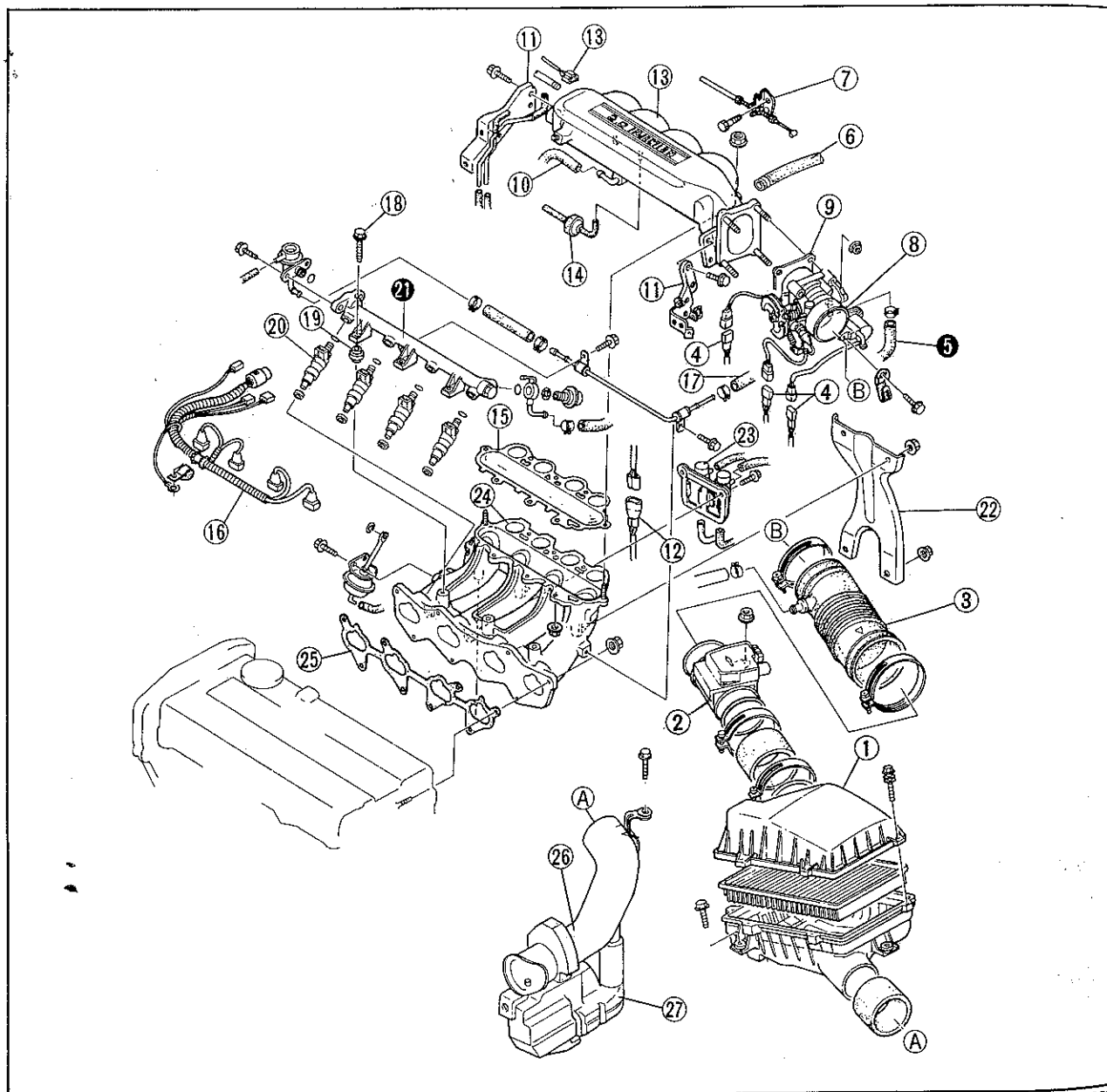
4B INTAKE AIR SYSTEM

REMOVAL

Caution

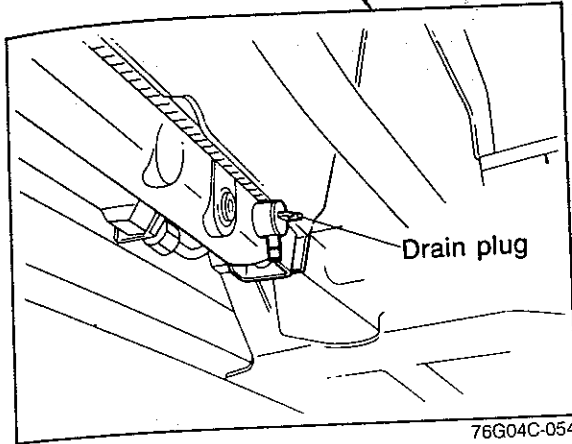
Before removing the following parts, release the fuel pressure from fuel system to reduce the possibility of injury or fire. (Refer to page 4B-48.)

Remove in the sequence shown in the figure, referring to the removal note.



- | | | |
|----------------------------------|---|-----------------------------|
| 1. Air cleaner | 11. Dynamic chamber brackets | 19. Heat insulator |
| 2. Air flow sensor | 12. Connectors (Knock sensor, Intake air thermo sensor) | 20. Injectors |
| 3. Air hoses | 13. Dynamic chamber | 21. Delivery pipe assembly |
| 4. Connectors (Idle switch, ISC) | 14. One-way check valve | 22. Intake manifold bracket |
| 5. Water hoses | 15. Gasket | 23. Solenoid valve |
| 6. Vacuum hose | 16. Wiring harness (Injectors) | 24. Intake manifold |
| 7. Accelerator cable | 17. Fuel hoses | 25. Gasket |
| 8. Throttle body | 18. Delivery pipe assembly mounting bolt | 26. Air duct |
| 9. Gasket. | | 27. Resonance chamber |
| 10. PCV hose | | |

76F04B-026

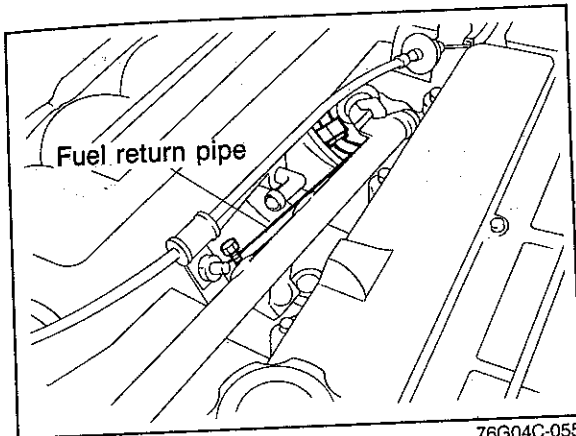


76G04C-054

Removal Note

Water hose

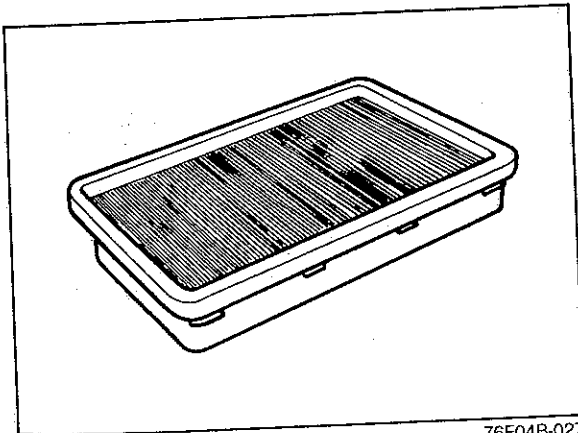
Before disconnecting the water hose, drain two liters of engine coolant.



76G04C-055

Delivery pipe assembly

1. Separate the fuel return pipe from the delivery pipe assembly.
2. Remove the delivery pipe assembly and the fuel return pipe.



76F04B-027

PARTS INSPECTION

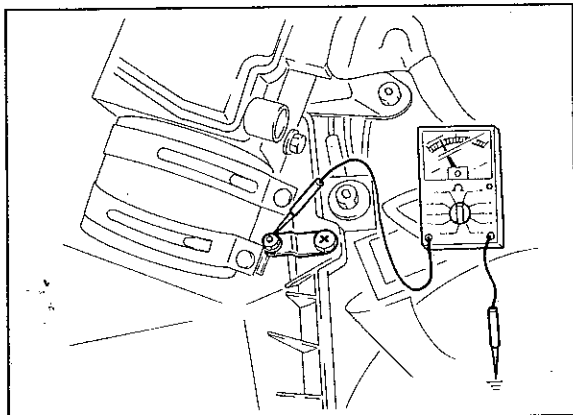
Air Cleaner Element

1. Check the condition of the air cleaner element.
2. Blow clean with compressed air, if necessary.

Caution

- a) The air cleaner must be replaced at the intervals outlined in the maintenance schedule.
- b) Never drive the vehicle without the air cleaner element, otherwise, damage to the air flow sensor (hot-wire) will occur.
- c) Never use an oil permeated air cleaner element, otherwise, contamination of the hot-wire will occur.

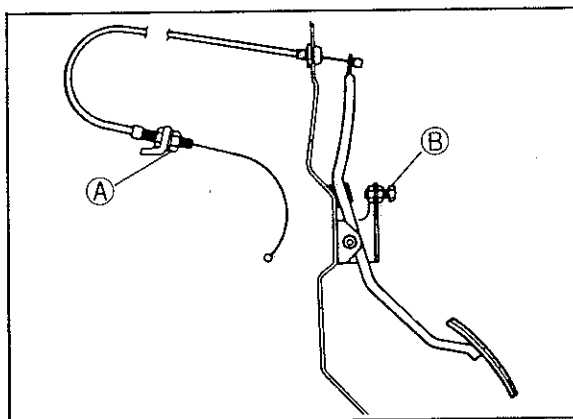
4B INTAKE AIR SYSTEM



76G04C-058

Air Cleaner Case

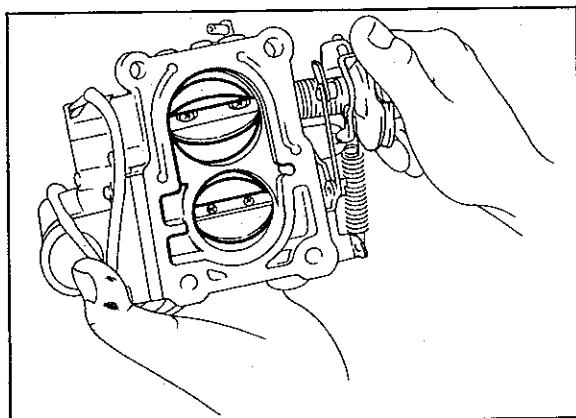
1. Check that the steel plate mounted on the upper case is grounded.
2. Replace, if necessary.



76G04C-059

Accelerator Cable

1. Inspect the deflection of the cable. If it is not within **1—3 mm (0.04—0.12 in.)**, adjust by turning nuts A.
2. Depress the accelerator pedal to the floor and confirm that the throttle valve is fully opened. Adjust by turning bolt B if necessary.



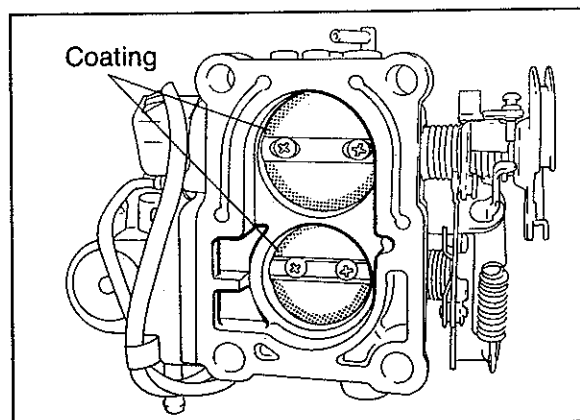
76G04C-060

Throttle Body

Note

The No. 2 throttle valve is preset at the factory to begin opening after the No. 1 throttle valve has opened approx. 25 degrees.

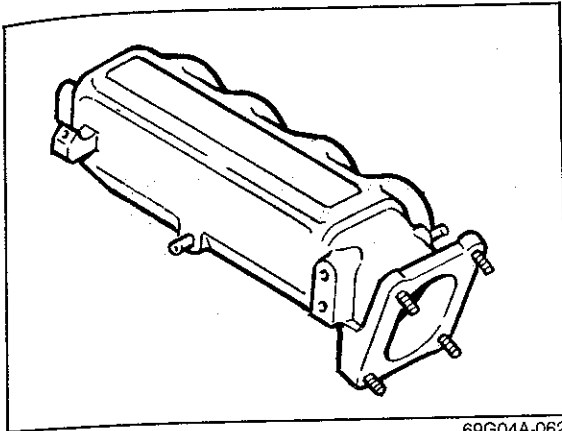
1. Check that the No. 1 and No. 2 throttle valves move smoothly when the throttle lever is moved from fully closed to fully open.
2. Replace, if necessary.



76F04B-028

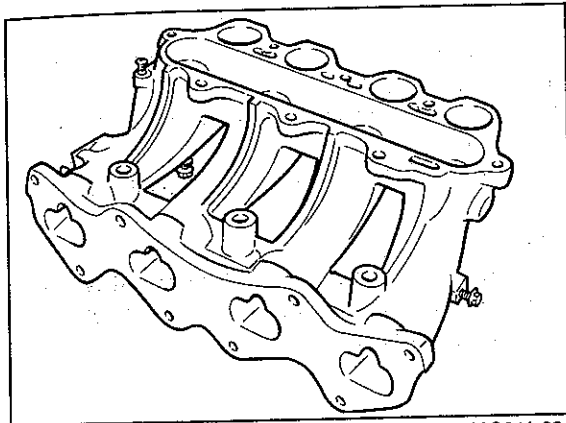
Caution

Do not remove the thin sealing coating from the throttle valves or bores.



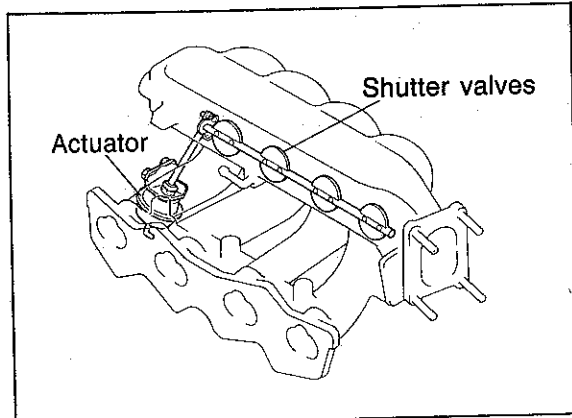
Dynamic Chamber

1. Visually check the dynamic chamber for damage.
2. Replace, if necessary.



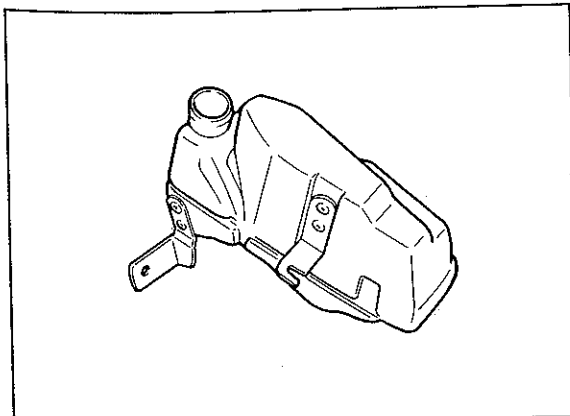
Intake Manifold

1. Visually check the intake manifold for damage.
2. Replace, if necessary.



Shutter Valves

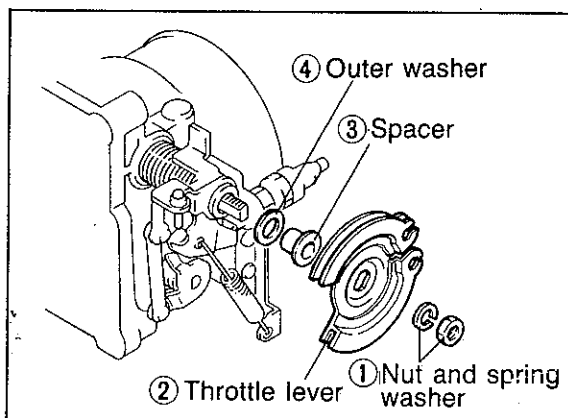
1. Visually check the shutter valves for damage.
2. Check that the shutter valves close and open fully.
3. Adjust or replace them, if necessary.



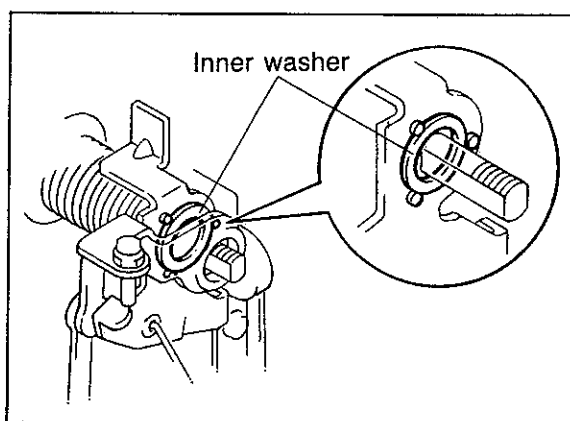
Resonance Chamber

1. Visually check the resonance chamber for damage.
2. Replace, if necessary.

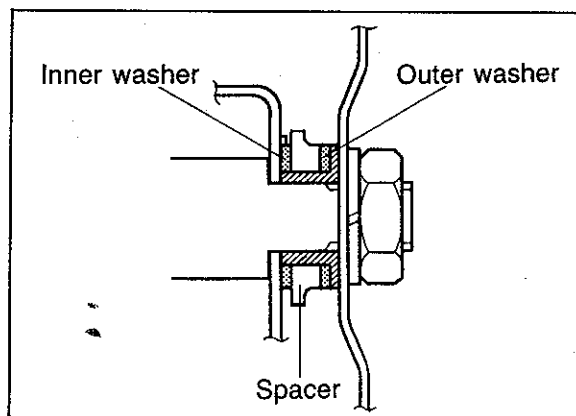
4B INTAKE AIR SYSTEM



69G04C-130



76F04B-029



76F04B-030

REPLACEMENT Throttle Lever Removal

Caution

When loosening the throttle lever nut, hold the throttle valves fully open to prevent damaging the idle switch.

Remove the throttle lever in the sequence shown in the figure.

Installation

1. Check that the inner washer is in the proper position as shown in the figure.
2. Assemble the spacer and outer washer and install them onto the throttle shaft.
3. Install the throttle lever onto the throttle shaft.

Caution

When tightening the throttle lever nut, hold the throttle valves fully closed to prevent bending the stop lever.

4. Tighten the throttle lever nut.

Tightening torque:

16—23 N·m (1.6—2.3 m·kg, 12—17 ft·lb)

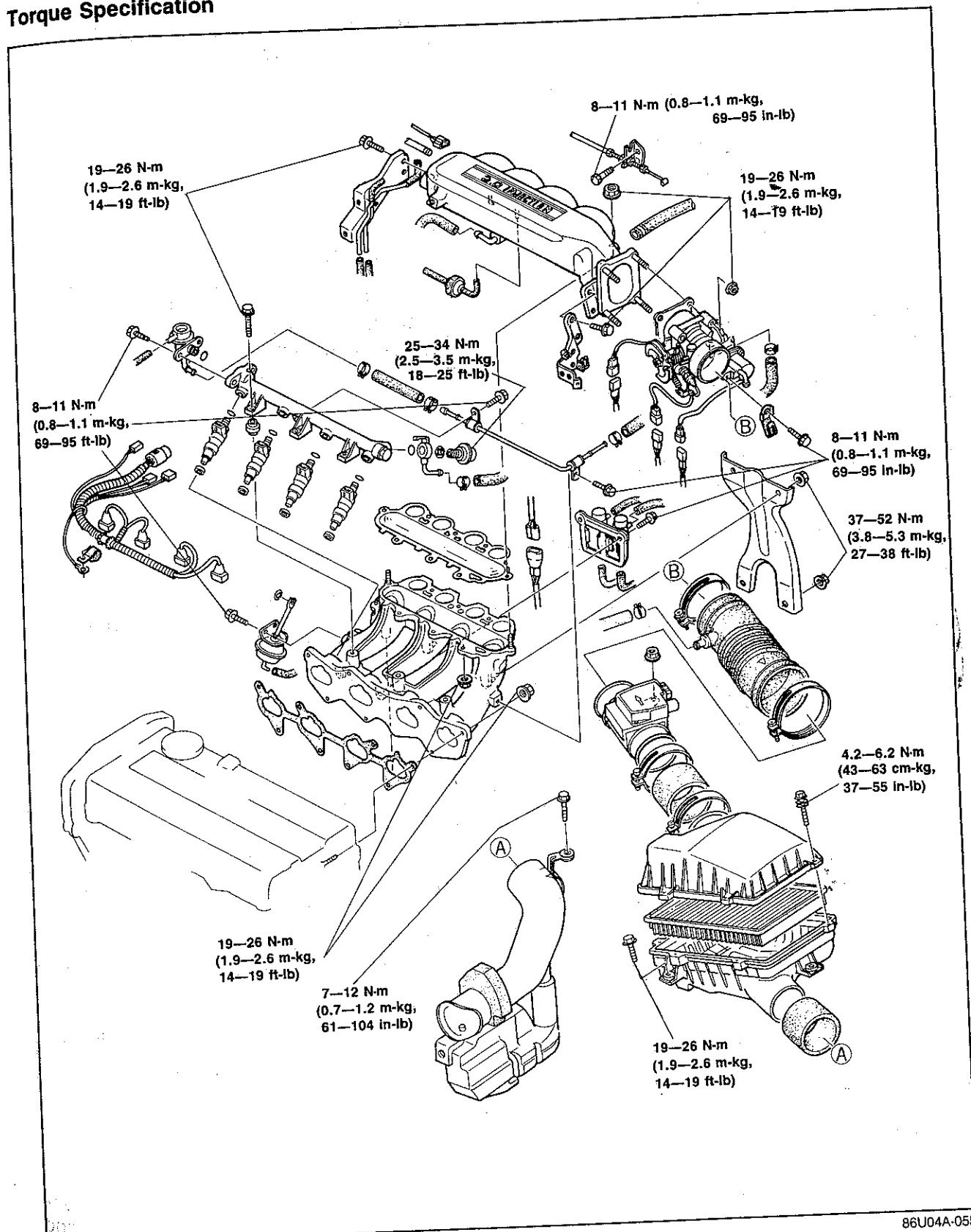
5. Check that the inner and outer washer and spacer are assembled correctly as shown.
6. Check that No.1 and No.2 throttle valves move smoothly and that No.2 throttle valve is closed completely when the No.1 throttle valve is closed.
7. Check the operation of the idle switch. (Refer to page 4B—86.)

INTAKE AIR SYSTEM 4B

INSTALLATION

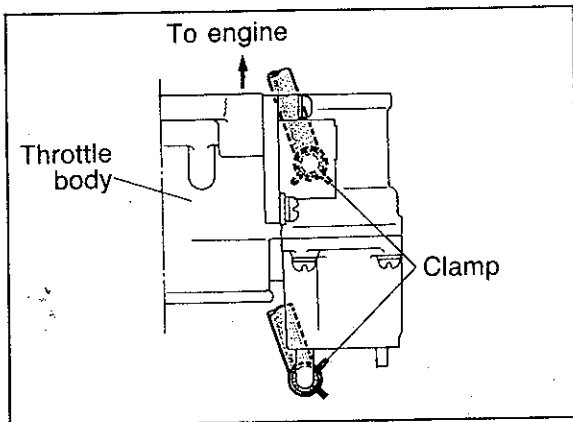
Install in the reverse order of removal, referring to the installation note.

Torque Specification

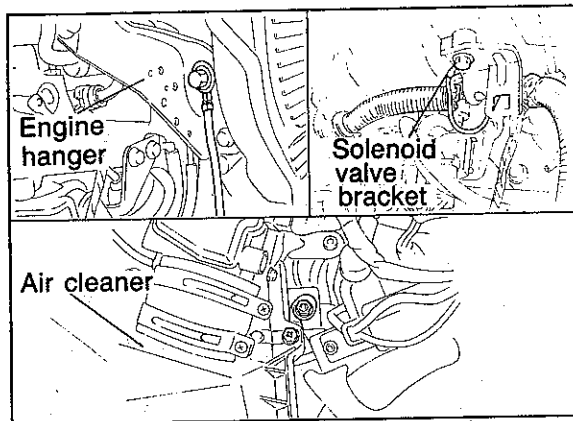


86U04A-055

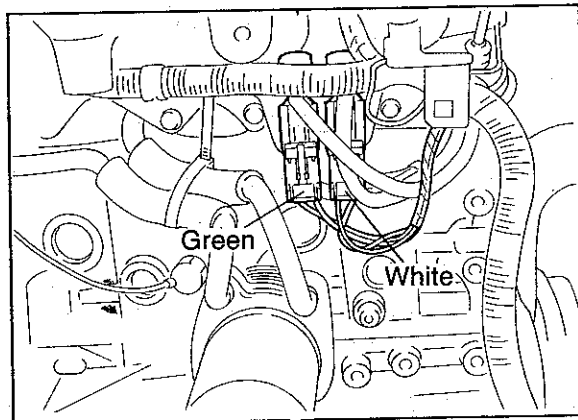
4B INTAKE AIR SYSTEM



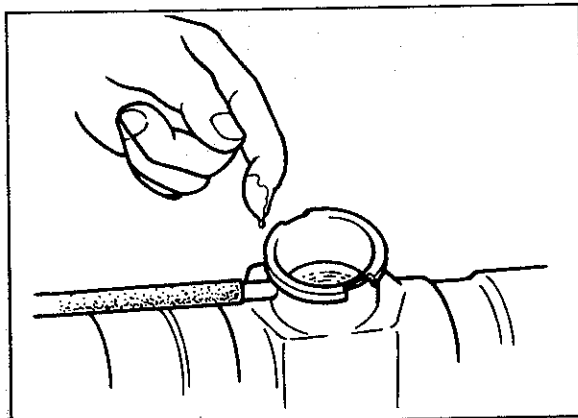
76F04B-Q31



76G04C-062



76G04C-063



76F04B-032

Installation Note

Water hose spring clamps

Face the clamp ends as shown in the figure.

Gasket

Use new gaskets at the intake manifold, dynamic chamber, and throttle body.

Ground harnesses

Make sure that the ground harnesses are tightened securely at the following positions.

- (1) Air cleaner upper case
- (2) Solenoid valve bracket
- (3) Engine hanger

Solenoid valve connectors

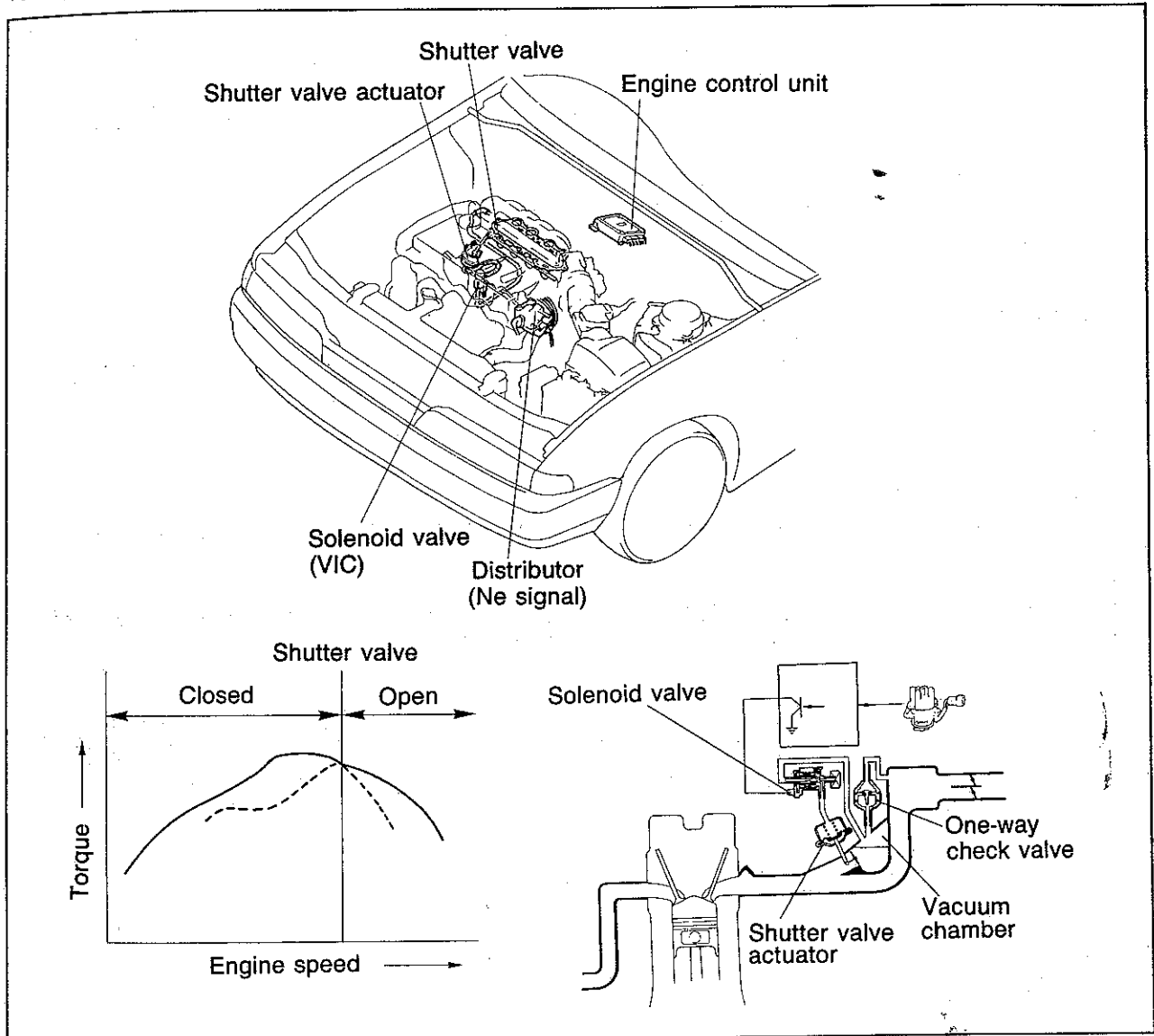
Connect the solenoid valve connectors at the positions shown in the figure.

Inspection after installation

1. After completing installation, fill the engine with the specified engine coolant.
2. Warm up the engine and run it at idle.
3. Check for any vacuum, coolant, or fuel leaks.

VARIABLE INERTIA CONTROL (VIC) SYSTEM

The VIC system supplements the intake air's inertial effect to create a torque band that runs from low rpm through the high rpm range. The system consists of the intake manifold, shutter valves, dynamic chambers, actuator, one-way check valve, three-way solenoid valve, and engine control unit.



76G04C-065

Intake Inertia Effect

The air within the dynamic chamber and intake manifold begins to flow during the first half of the air intake process. This air flow pushes air into the cylinder by its own inertial force during the second half of the air intake process. This improves the charging of the cylinder.

To most effectively put this inertia charging to use, the length of the manifold leading to the dynamic chamber needs to be changed in response to the engine rpm.

Length of intake manifold	Intake inertia effect
Long	Effective at low and middle speed
Short	Effective at high speed

The VIC system controls the length of the intake manifold travel by switching the shutter valve either open or closed at the specified engine rpm.

4B VIC SYSTEM

COMPONENT DESCRIPTION

Component	Function	Remark
Dynamic chamber	Provides chamber for VIC system operation	Integrates one-way check valve
Engine control unit	Monitors engine rpm, controls solenoid valve	ON: above 5400 rpm
Intake manifold	Incorporates short and long intake passages	Contains shutter valve
One-way check valve	Holds vacuum in vacuum chamber	Installed between dynamic chamber and vacuum chamber
Ne signal pick-up	Detects crank angle at 180° intervals; sends signal to engine control unit	Installed in distributor
Solenoid valve (VIC)	Controls vacuum to shutter valve actuator	
Shutter valve	Closes short intake port	
Shutter valve actuator	Actuates shutter valve according to vacuum from solenoid valve	

76F04B-033

TROUBLESHOOTING

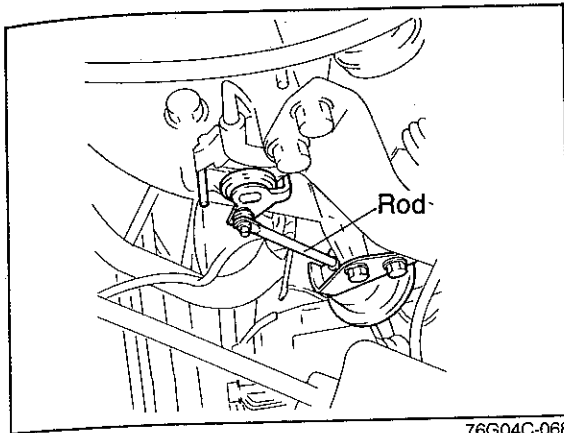
Check the condition of the wiring harness and connectors before checking the sensors or switches.

Note

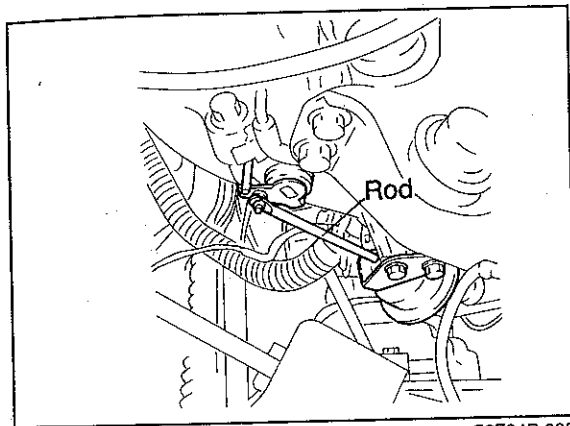
Make the system inspection first. If no problem is found, continue with inspection of the next system of the Troubleshooting Guide. (Refer to pages 4B-10 and 11.)

Possible cause		Vacuum chamber (Vacuum leak)	Shutter valve actuator	One-way check valve	Solenoid valve (VIC)		Engine control unit (1C)	System inspection
					Vacuum signal	Electric signal		
Page		4B-38	4B-37	4B-39	4B-38		4B-80	4B-37
Symptom								
Rough idle	During warm up	2	3	4	—	—	—	1
	After warming up	2	3	4	—	—	—	1
Poor acceleration, hesitation, or lack of power		6	5	7	2	3	4	1
Poor fuel consumption		6	5	7	2	3	4	1

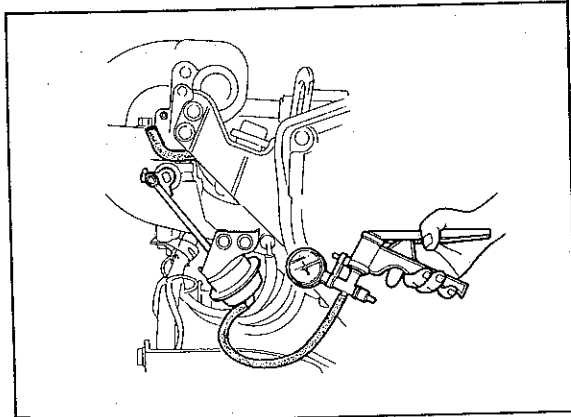
76F04B-034



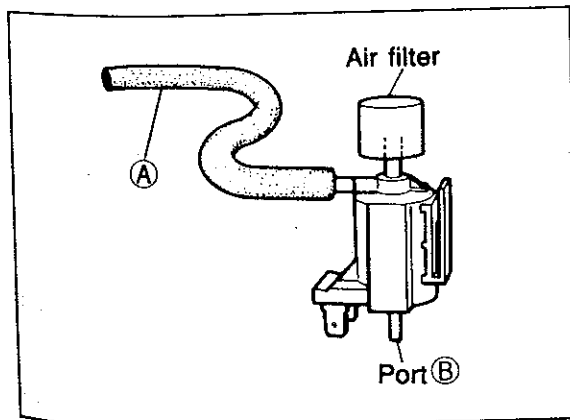
76G04C-068



76F04B-035



76G04C-070



76G04C-071

System Inspection

1. Warm up the engine to normal operating temperature and run it at idle.
2. Check that the rod has been pulled into the actuator.

3. Increase the engine speed and check that the rod is released above specification.

Specification: Approx. 5,400 rpm

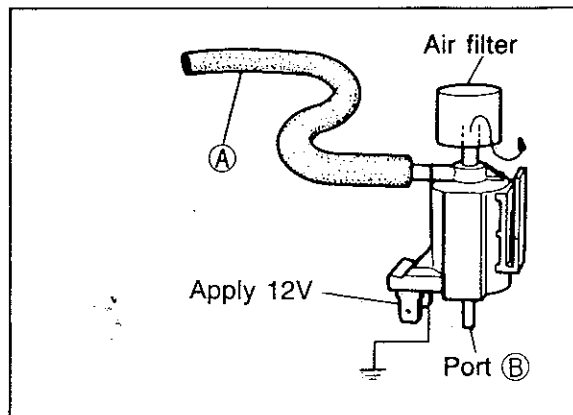
Shutter Valve Actuator

1. Disconnect the vacuum hose from the actuator, and connect a vacuum pump to the actuator.
2. Apply **approx. 200 mmHg (7.9 inHg)** vacuum and check that the rod is pulled into the actuator.

VIC Solenoid Valve

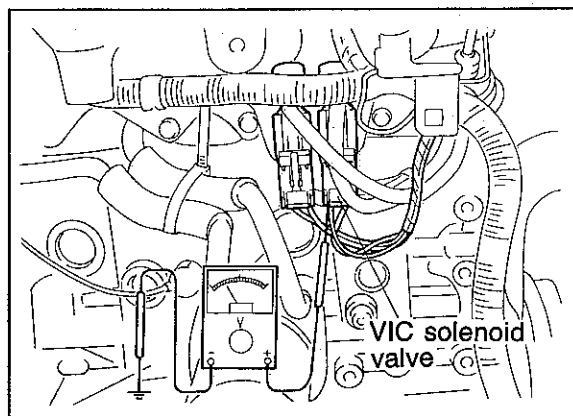
1. Disconnect the vacuum hoses from the solenoid valve.
2. Blow through the valve from port A and check that air flows from port B.

4B VIC SYSTEM



76G04C-072

3. Disconnect the solenoid valve connector and connect 12V and a ground to the terminals of the solenoid valve.
4. Blow through the valve from port A and check that air flows from the air filter.

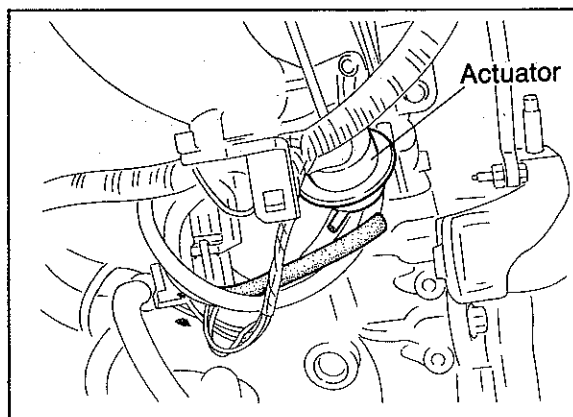


76F04B-036

Electrical Signal

1. Connect a voltmeter to the VIC solenoid valve (O wire).
2. Increase the engine speed and note the voltmeter reading.

Voltmeter reading	Engine speed
Approx. 12V	Below 5,300 rpm
Below 2.0V	Above 5,400 rpm



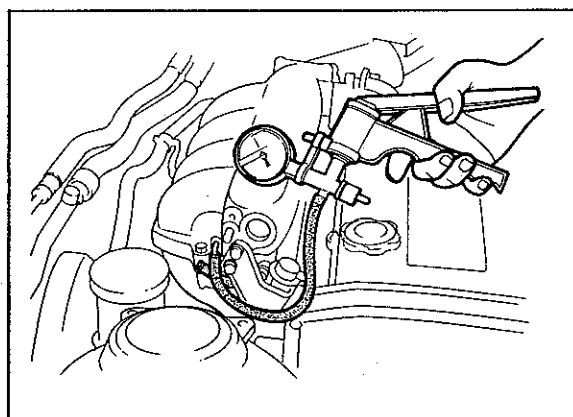
76F04B-037

Vacuum Signal

1. Disconnect the vacuum hose from the actuator.
2. Place a finger over the port opening and check that vacuum is felt at idle.
3. Increase the engine speed above specification and check that no vacuum is felt.

Specification: Approx. 5,400 rpm

4. Connect the vacuum hose.



76F04B-038

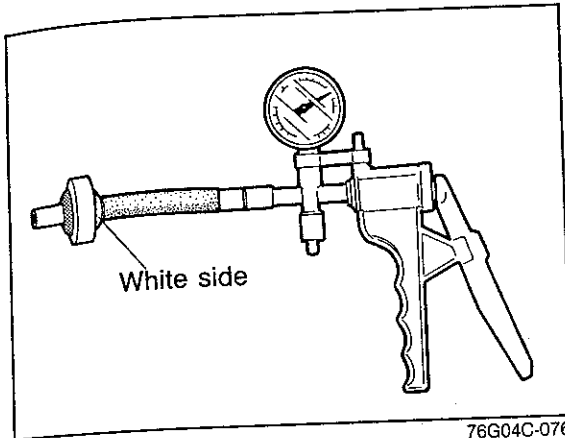
Vacuum Chamber

1. Disconnect the vacuum hose from the dynamic chamber.
2. Connect a vacuum pump to the dynamic chamber.
3. Apply vacuum and check that it is held.
4. If not correct, check the one-way check valve for vacuum leakage. (Refer to page 4B-39.)

Note

10 mm Hg (0.39 inHg) drop per 30 seconds is allowable.

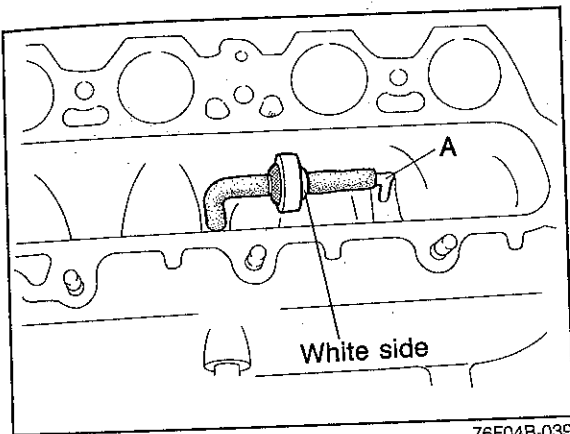
5. If the one-way check valve is good, check the dynamic chamber.



76G04C-076

One-way Check Valve Inspection

1. Remove the dynamic chamber.
2. Remove the one-way check valve.
3. Connect a vacuum pump as shown in the illustration.
4. Apply vacuum and check that it is held.
5. Connect the vacuum pump to the opposite port.
6. Apply vacuum and check that it is not held.
7. If not correct, replace the valve.



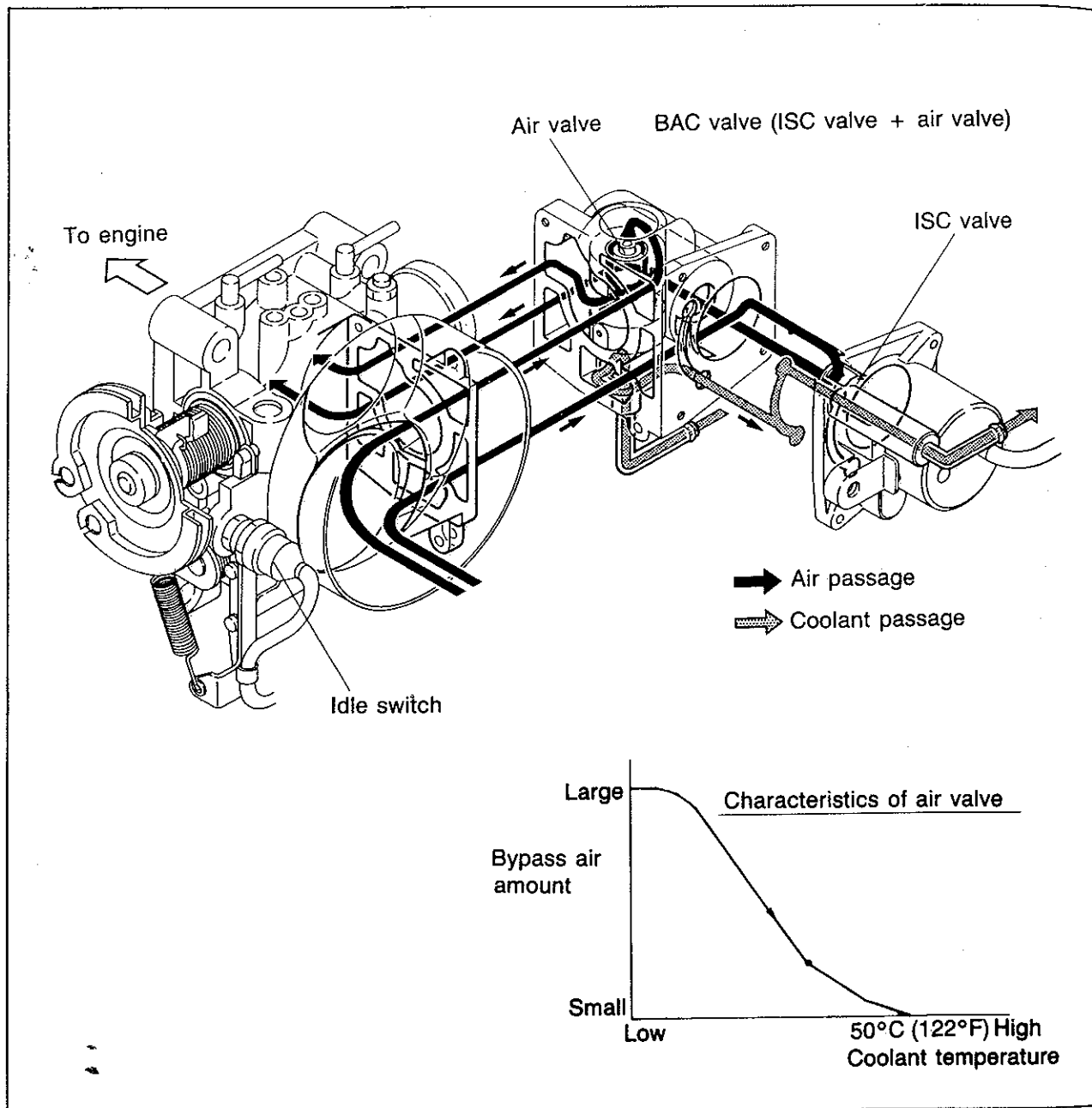
76F04B-039

Replacement

1. Remove the dynamic chamber. (Refer to page 4B-28.)
2. Remove the one-way check valve.
3. Install a new valve with the white side of the valve facing port A.

4B ISC SYSTEM

IDLE SPEED CONTROL (ISC) SYSTEM



76G04C-077

To improve idle smoothness, the ISC system controls the intake air amount by regulating the bypass air amount that passes through the throttle body. This system consists of the BAC valve and the control system.

The BAC valve consists of the air valve which functions only when the engine is cold (**below 50°C (122°F)**) and the ISC valve which works throughout the entire engine speed range.

COMPONENT DESCRIPTION

Component	Function	Remark
A/C switch	Detects air conditioner operation; sends signal to engine control unit	Switch ON when air conditioner operating
Air valve	When cold, supplies bypass air into dynamic chamber	<ul style="list-style-type: none"> • Engine speed increased to shorten warm-up period • Thermo wax type • Installed in BAC valve
Clutch switch	Detects in-gear condition; sends signal to engine control unit	Switch ON when clutch pedal released
E/L control unit	Detects that E/L is being applied; sends signal to engine control unit	
Engine control unit	Detects signals from input sensors and switches; controls solenoid valve (Idle speed control)	
Idle switch	Detects when throttle valve fully closed; sends signal to engine control unit	Installed on throttle body
Ne signal pick-up	Detects crank angle at 180° intervals; sends signal to engine control unit	Installed in distributor
Neutral switch	Detects in-gear condition; sends signal to engine control unit	Switch ON when in gear
P/S pressure switch	Detects P/S operation; sends signal to engine control unit	Switch ON when steering wheel turned right or left
Solenoid valve (Idle speed control)	Controls bypass air amount	<ul style="list-style-type: none"> • Controlled by duty signal from engine control unit • Installed in BAC valve • Operates idle-up
Test connector	For initial idle speed adjustment	<ul style="list-style-type: none"> • Green, 1-pin • Idle speed feedback control cancelled when connector grounded
Water thermo sensor	Detects coolant temperature; sends signal to engine control unit	

76G04C-078

4B ISC SYSTEM

TROUBLESHOOTING

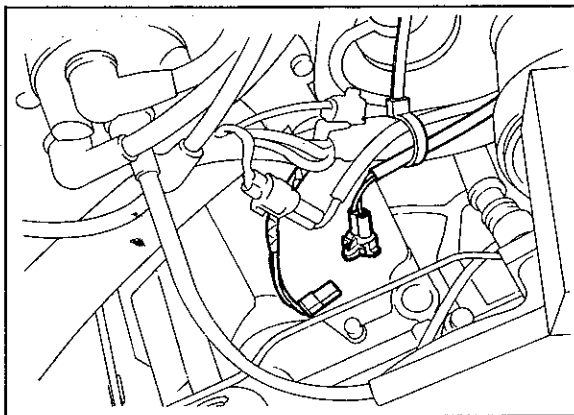
Check the condition of the wiring harness and connectors before checking the sensors or switches.

Note

Make the system inspection first. If no problem is found, continue with inspection of the next system of the Troubleshooting Guide. (Refer to pages 4B—10 and 11.)

Symptom	Possible cause	Air valve	P/S pressure switch	Solenoid valve (Idle speed control)	Water thermo sensor	Engine control unit terminal			System inspection
						1L	1W	2Q	
	Page	4B—43	4B—79	4B—44	4B—86	4B—80			4B—42
Engine stalls	During warm up	2	—	3	4	—	5	6	1
	After warm up	—	4	2	—	3	5	6	1
Rough idle	During warm up	2	—	3	—	—	4	5	1
	After warm up	—	4	2	—	3	5	6	1
High idle speed after warm up		2	5	3	—	4	6	7	1
Runs rough on deceleration		—	—	2	—	—	3	4	1
Afterburn in exhaust system		2	—	3	—	—	4	5	1
Fails emission test		2	—	3	—	—	4	5	1

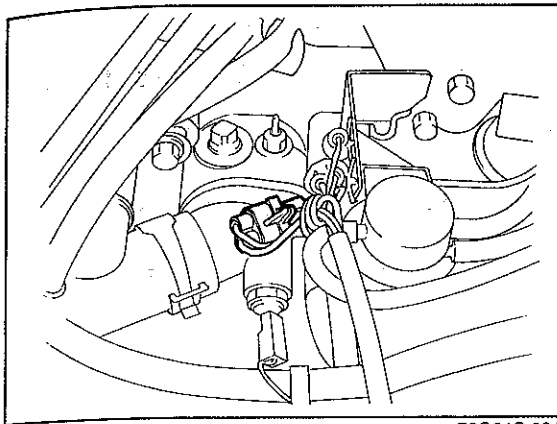
76F04B-040



76G04C-080

System Inspection (Air valve)

1. Ground the test connector (Green, 1-pin) with a jumper wire.
2. Disconnect the ISC valve connector (Gray, 2-pin) at idle while the engine is cold.
3. Note the engine speed and reconnect the connector.
4. Warm up the engine to the normal operating temperature and disconnect the connector again.
5. Check that the engine speed is lower than that when cold.



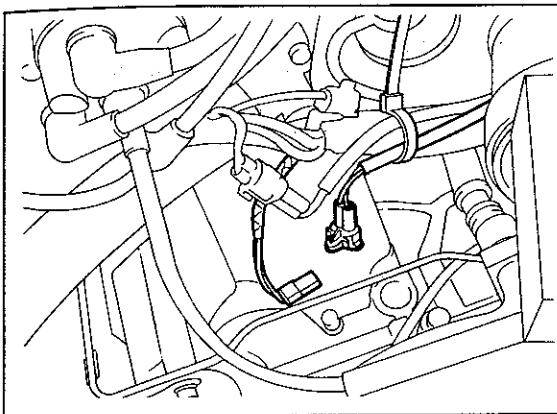
76G04C-081

(ISC valve)

6. Connect the ISC valve connector.

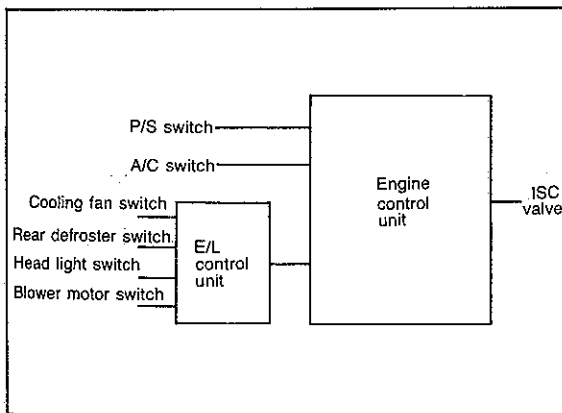
Note

- a) Make sure that the initial idle speed is set to specification.
- b) All accessory must be OFF.



76G04C-082

- 7. Again disconnect the ISC valve connector (engine at normal operating temperature).
- 8. Check that the engine speed decreases.
- 9. Reconnect the ISC valve connector.
- 10. Remove the jumper wire from the test connector and make sure that the idle speed is within specifications.

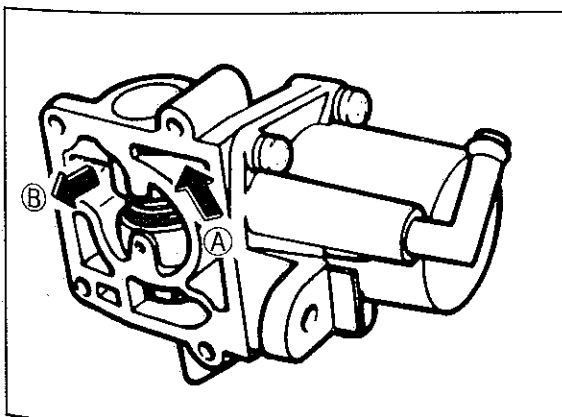


76G04C-083

(Load Test)

11. Apply power steering, electrical, and air conditioner loads and check that the idle speed is controlled to within specifications.

Load	Idle speed
P/S	750 ± 50
E/L	800 ± 50
A/C	800 ± 50
E/L and A/C	800 ± 50

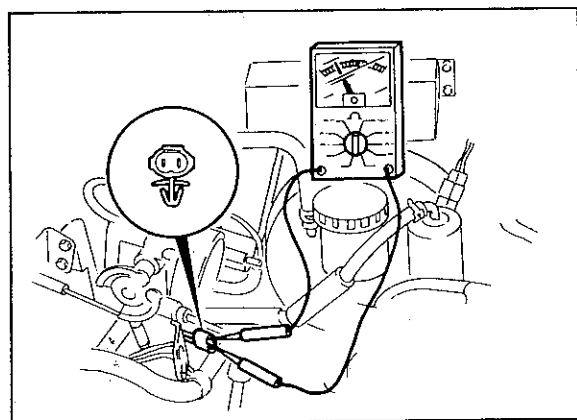


76F04B-041

BAC Valve Air valve

- 1. Remove the BAC valve from the throttle body.
- 2. Blow air through the valve from port A and check that air comes out of port B when the BAC valve is cold.
- 3. If not correct, replace the BAC valve. (Refer to page 4B-44.)

4B ISC SYSTEM



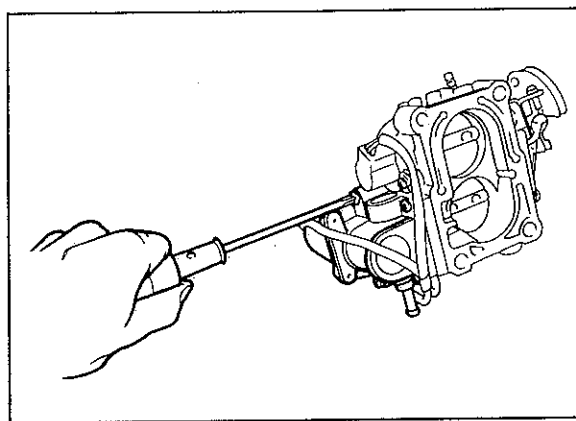
76F04B-042

ISC valve

1. Disconnect the ISC valve connector.
2. Connect an ohmmeter to the terminals of the ISC valve.
3. Check the resistance.

Resistance (at 20°C (68°F)): 6.3—9.9 Ω

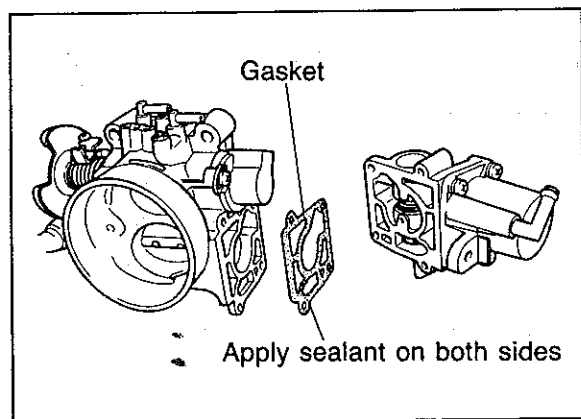
4. If not correct, replace the BAC valve.



76G04C-085

REMOVAL

1. Remove the screws.
2. Remove the BAC valve from the throttle body.



76G04C-086

Installation

Caution
Install a new gasket.

1. Remove any dirt or old sealant from the contact surfaces.
2. Apply sealant to both sides of the gasket.
3. Tighten the screws.

TECHNICAL DATA

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ENGINE (FE DOHC)	30— 8
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76F30X-001

30 TECHNICAL DATA

0. MEASUREMENT

Item		Model	Sedan	Hatchback
Overall length		mm (in)	4,515 (177.8)	4,515 (177.8)
Overall width		mm (in)	1,690 (66.5)	1,690 (66.5)
Overall height (14 inch/13 inch)		mm (in)	1,410 (55.5)/1,395 (54.9)	1,375 (54.1)/1,360 (53.5)
Wheel base		mm (in)	2,575 (101.4)	2,575 (101.4)
Tread (14 inch/13 inch)	mm (in)	Front	1,455 (57.3)/1,460 (57.5)	1,455 (57.3)/1,460 (57.5)
		Rear	1,465 (57.7)/1,455 (57.3)	1,465 (57.7)/1,455 (57.3)

1A. ENGINE (F6,F8,FE SOHC) 12-valve

Item		Engine model	FE 12-valve
Type			Gasoline, 4-cycle
Cylinder arrangement and number			In-line, 4-cylinders
Type of combustion chamber			Pentroof
Valve system			OHC, belt-driven
Bore x Stroke		mm (in)	86.0 x 86.0 (3.39 x 3.39)
Total piston displacement		cc (cu in)	1,998 (121.9)
Compression ratio			9.5 : 1
Compression pressure kPa (kg/cm ² , psi)-rpm	Standard		1,422 (14.5, 206)—280
	Minimum		996 (10.2, 144)—280
	Maximum difference between cylinders		196 (2.0, 28)
Valve timing	IN	Open BTDC	14°
		Close ABDC	56°
	EX	Open BBDC	69°
		Close ATDC	13°
Valve clearance	mm (in)	IN	0; Maintenance free
		EX	0; Maintenance free
Cylinder head			
Height		mm (in)	91.95—92.05 (3.620—3.624)
Distortion		mm (in) Maximum	0.15 (0.006)
Grinding limit		mm (in) Maximum	0.20 (0.008)
Valve and valve guide			
Valve head diameter	mm (in)	IN	32.4—32.6 (1.276—1.283)
		EX	33.9—34.1 (1.335—1.343)
Valve head thickness (margin)	mm (in)	IN	0.8—1.2 (0.031—0.047)
		EX	1.3—1.7 (0.051—0.067)
Valve face angle		IN	45°
		EX	45°
Valve length	mm (in)	IN	Standard 115.81 (4.5594)
		IN	Minimum 115.31 (4.5398)
	EX	EX	Standard 116.21 (4.5752)
		EX	Minimum 115.71 (4.5555)
Valve stem diameter	mm (in)	IN	6.970—6.985 (0.2744—0.2750)
		EX	6.965—6.980 (0.2742—0.2748)
Guide inner diameter	mm (in)	IN	7.01—7.03 (0.2760—0.2768)
		EX	7.01—7.03 (0.2760—0.2768)
Valve stem to guide clearance	mm (in)	IN	0.025—0.060 (0.0010—0.0024)
		EX	0.030—0.065 (0.0012—0.0026)
		Maximum	0.20 (0.0079)
Guide projection (Height "A")		mm (in)	19.8—20.3 (0.780—0.799)

Item		Engine model	FE 12-valve
Valve seat			
Seat angle		IN	45°
		EX	45°
Seat contact width	mm (in)	IN	1.2—1.6 (0.047—0.063)
		EX	1.2—1.6 (0.047—0.063)
Seat sinking (Measure valve protruding length) mm (in)	IN	Standard	50.2 (1.976)
		Maximum	51.0 (2.008)
	EX	Standard	50.2 (1.976)
		Maximum	51.0 (2.008)
Valve spring			
Free length	mm (in)	IN	49.5 (1.949)
			49.0 (1.929)
	EX	Standard	50.4 (1.984)
		Minimum	48.7 (1.917)
Out-of-square	mm (in)	Maximum	1.8 (0.071)
Setting load/height	N (kg, lb)/mm (in)	IN	203—230 (20.7—23.4, 45.5—51.5)/41 (1.614)
		EX	240—272 (24.5—27.7, 53.9—60.9)/41 (1.614)
Camshaft			
Cam lobe height	mm (in)	IN	41.290—41.390 (1.6256—1.6295)
			41.140 (1.6197)
	EX	Standard	41.797—41.897 (1.6455—1.6495)
		Minimum	41.647 (1.6396)
Journal diameter	mm (in)	Front and Rear (No. 1,5)	31.940—31.965 (1.2575—1.2585)
		Center (No. 2,3,4)	31.910—31.935 (1.2563—1.2573)
		Out-of-round	Maximum 0.05 (0.002)
Camshaft bearing oil clearance	mm (in)	Front and Rear (No. 1,5)	0.035—0.085 (0.0014—0.0033)
		Center (No. 2,3,4)	0.065—0.115 (0.0026—0.0045)
		Maximum	0.15 (0.0059)
Camshaft runout	mm (in)	Maximum	0.03 (0.0012)
Camshaft end play	mm (in)	Standard	0.08—0.16 (0.003—0.006)
		Maximum	0.20 (0.008)
Rocker arm and rocker arm shaft			
Rocker arm inner diameter	mm (in)		19.000—19.033 (0.748—0.749)
Rocker arm shaft diameter	mm (in)		18.959—18.980 (0.746—0.747)
Rocker arm to shaft clearance	mm (in)	Standard	0.020—0.074 (0.0008—0.0029)
		Maximum	0.10 (0.004)
Cylinder block			
Height	mm (in)		289.0 (11.38)
Distortion	mm (in)	Maximum	0.15 (0.006)
			0.20 (0.008)
Grinding limit	mm (in)		0.20 (0.008)
Cylinder bore diameter	mm (in)	Standard	86.000—86.019 (3.3858—3.3866)
		0.25 (0.010) oversize	86.250—86.269 (3.3957—3.3964)
		0.50 (0.020) oversize	86.500—86.519 (3.4055—3.4062)
Cylinder bore taper and out-of-round	mm (in)	Maximum	0.019 (0.0007)
Piston			
Piston diameter measured at 90° to pin bore axis and 18.0 mm (0.709 in) below oil ring groove mm (in)		Standard	85.944—85.964 (3.3836—3.3844)
		0.25 (0.010) oversize	86.194—86.214 (3.3935—3.3942)
		0.50 (0.020) oversize	86.444—86.464 (3.4033—3.4041)
Piston to cylinder clearance	mm (in)	Standard	0.036—0.075 (0.0014—0.0030)
		Maximum	0.15 (0.0059)
Piston ring			
Thickness	mm (in)	Top	1.47—1.49 (0.0579—0.0587)
		Second	1.47—1.49 (0.0579—0.0587)

30 TECHNICAL DATA

Item		Engine model	FE 12-valve	
End gap measured in cylinder	mm (in)	Top	0.20—0.35 (0.008—0.0138)	
		Second	0.15—0.30 (0.006—0.012)	
		Oil (rail)	0.20—0.70 (0.008—0.0276)	
		Maximum	1.0 (0.039)	
Ring groove width in piston	mm (in)	Top	1.52—1.54 (0.0598—0.0606)	
		Second	1.52—1.54 (0.0598—0.0606)	
		Oil	4.02—4.04 (0.1583—0.1591)	
Clearance of piston ring to ring groove	mm (in)	Top	0.03—0.07 (0.0012—0.0028)	
		Second	0.03—0.07 (0.0012—0.0028)	
		Maximum	0.15 (0.006)	
Piston pin				
Diameter	mm (in)		21.974—21.980 (0.8651—0.8654)	
Interference in connecting rod	mm (in)		0.013—0.037 (0.0005—0.0015)	
Piston to piston pin clearance	mm (in)		0.008—0.024 (0.0003—0.0009)	
Installation pressure	N (kg, lb)		4,900—14,700 (500—1,500, 1,100—3,300)	
Connecting rod and connecting rod bearing				
Length (Center to center)	mm (in)		151.95—152.05 (5.982—5.986)	
Twisting	mm (in)		0.57 (0.0224) max.	
Bending	mm (in)		0.24 (0.0094) max.	
Small end bore	mm (in)		21.943—21.961 (0.8640—0.8646)	
Big end bore	mm (in)		54.002—54.017 (2.1261—2.1266)	
Big end width	mm (in)		26.838—26.890 (1.0566—1.0587)	
Connecting rod side clearance	mm (in)	Standard	0.110—0.262 (0.004—0.010)	
		Maximum	0.30 (0.012)	
Crankshaft				
Crankshaft runout	mm (in)	Maximum	0.03 (0.0012)	
Main journal diameter	mm (in)	Standard size	59.937—59.955 (2.3597—2.3604)	
		0.25 (0.010) undersize	Standard	59.693—59.711 (2.3501—2.3508)
			No. 3	59.687—59.705 (2.3499—2.3506)
		0.50 (0.020) undersize	No. 1,2,4,5	59.443—59.461 (2.3403—2.3410)
			No. 3	59.437—59.455 (2.3400—2.3407)
		0.75 (0.030) undersize	No. 1,2,4,5	59.193—59.211 (2.3304—2.3311)
No. 3	59.187—59.205 (2.3302—2.3309)			
Main journal taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Crankpin diameter	mm (in)	Standard	50.940—50.955 (2.0055—2.0061)	
		0.25 (0.010) undersize	50.690—50.705 (1.9957—1.9963)	
		0.50 (0.020) undersize	50.440—50.455 (1.9858—1.9864)	
		0.75 (0.030) undersize	50.190—50.205 (1.9760—1.9766)	
Crankpin taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Main bearing				
Main journal bearing oil clearance	No. 1,2,4,5	Standard	0.025—0.043 (0.0010—0.0017)	
		Maximum	0.08 (0.0031)	
	No. 3	Standard	0.031—0.049 (0.0012—0.0019)	
		Maximum	0.08 (0.0031)	
Available undersize bearing	mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Crankpin bearing				
Crankpin bearing oil clearance	mm (in)	Standard	0.027—0.067 (0.0011—0.0026)	
		Maximum	0.10 (0.0039)	
Available undersize bearing	mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Thrust bearing (center main bearing)				
Crankshaft end play	mm (in)	Standard	0.08—0.18 (0.0031—0.0071)	
		Maximum	0.30 (0.0118)	
Bearing width	mm (in)	Standard	27.94—27.99 (1.100—1.102)	
		0.25 (0.010) oversize	28.04—28.09 (1.104—1.106)	
		0.50 (0.020) oversize	28.12—28.17 (1.107—1.109)	
		0.75 (0.030) oversize	28.20—28.25 (1.110—1.112)	

Item
Tim
Belt

8-va

Item
Type
Cylir
Type
Valv
Bore
Total
Com
Com
Valve
Valve
Cylin
Heigh
Disto
Grind
Valve
Valve
Valve
Valve
Guide
Valve
Guide

Item	Engine model	FE 12-valve
Timing belt		
Belt deflection	mm (in)/98 N (10 kg, 22 lb)	5.5—6.5 (0.22—0.26)

8-valve

Engine model			FE 8-valve	F8	F6
Item					
Type			Gasoline, 4-cycle		
Cylinder arrangement and number			In-line, 4-cylinders		
Type of combustion chamber			Multispherical		
Valve system			OHC, belt-driven		
Bore x Stroke	mm (in)		86.0 x 86.0 (3.39 x 3.39)	86.0 x 77.0 (3.39 x 3.03)	81.0 x 77.0 (3.19 x 3.03)
Total piston displacement	cc (cu in)		1,998 (121.9)	1,789 (109.1)	1,587 (96.8)
Compression ratio			8.6 : 1		9.0 : 1
Compression pressure kPa (kg/cm ² , psi)-rpm	Standard		1,275 (13.0, 185)—270		1,128 (11.5, 164)—270
	Minimum		893 (9.1, 129)—270		790 (8.1, 114)—270
	Maximum difference between cylinders		196 (2.0, 28)		
Valve timing	IN	Open BTDC	20°	17°	
		Close ABDC	65°	56°	
	EX	Open BBDC	65°	64°	
		Close ATDC	20°	15°	
Valve clearance	mm (in)	IN	0.30 (0.012)		
		EX	0.30 (0.012)		
Cylinder head					
Height	mm (in)		91.95—92.05 (3.620—3.624)		
Distortion	mm (in)	Maximum	0.15 (0.006)		
Grinding limit	mm (in)	Maximum	0.20 (0.008)		
Valve and valve guide					
Valve head diameter	mm (in)	IN	43.9—44.1 (1.728—1.736)		
		EX	35.9—36.1 (1.413—1.421)		
Valve head thickness (margin)	mm (in)	IN	0.8—1.2 (0.031—0.047)		
		EX	1.3—1.7 (0.051—0.067)		
Valve face angle			45°		
			45°		
Valve length	IN	Standard	111.89 (4.4051)		
		Minimum	111.39 (4.3854)		
	EX	Standard	111.69 (4.3972)		
		Minimum	111.19 (4.3776)		
Valve stem diameter	mm (in)	IN	8.030—8.045 (0.3161—0.3167)		
		EX	8.025—8.040 (0.3159—0.3165)		
Guide inner diameter	mm (in)	IN	8.07—8.09 (0.3177—0.3185)		
		EX	8.07—8.09 (0.3177—0.3185)		
Valve stem to guide clearance	mm (in)	IN	0.025—0.060 (0.0010—0.0024)		
		EX	0.030—0.065 (0.0012—0.0026)		
		Maximum	0.20 (0.0079)		
Guide projection (Height "A")	mm (in)		19.1—19.6 (0.752—0.772)		

30 TECHNICAL DATA

Item		Engine model		FE 8-valve	F8	F6	
Valve seat							
Seat angle			IN	45°			
			EX	45°			
Seat contact width	mm (in)			IN	1.2—1.6 (0.047—0.063)		
				EX	1.2—1.6 (0.047—0.063)		
Seat sinking (Measure valve protruding length) mm (in)	IN			Standard	46.5 (1.831)		
				Maximum	48.0 (1.890)		
	EX			Standard	46.5 (1.831)		
				Maximum	48.0 (1.890)		
Valve spring							
Free length	mm (in)	Outer			Standard	51.2 (2.016)	52.0 (2.047)
					Minimum	50.6 (1.992)	51.5 (2.028)
	Inner			Standard	45.7 (1.799)	44.0 (1.732)	
				Minimum	43.7 (1.720)	43.3 (1.705)	
Out-of-square	mm (in)		Maximum	1.8 (0.071)			
Setting load/height	N (kg, lb)/mm (in)			Outer	124 (12.7, 28) /36.5 (1.44)	128 (13.1, 29)/36.5 (1.44)	
				Inner	193 (19.6, 43) /41 (1.61)	189 (19.2, 42)/41 (1.61)	
Camshaft							
Cam lobe height	mm (in)	IN			Standard	38.107—38.207 (1.5003—1.5042)	
					Minimum	37.957 (1.4944)	
	EX			Standard	38.110—38.210 (1.5004—1.5043)		
				Minimum	37.960 (1.4945)		
Journal diameter	mm (in)			Front and Rear (No. 1,5)	31.940—32.035 (1.2575—1.2612)		
				Center (No. 2,3,4)	31.910—32.065 (1.2563—1.2624)		
				Out-of-round	Maximum 0.05 (0.002)		
Camshaft bearing oil clearance	mm (in)			Front and Rear (No. 1,5)	0.035—0.085 (0.0014—0.0033)		
				Center (No. 2,3,4)	0.065—0.115 (0.0026—0.0045)		
				Maximum	0.15 (0.0059)		
Camshaft runout	mm (in)			Maximum	0.03 (0.0012)		
Camshaft end play	mm (in)			Standard	0.08—0.16 (0.003—0.006)		
				Maximum	0.20 (0.008)		
Rocker arm and rocker arm shaft							
Rocker arm inner diameter	mm (in)				16.000—16.027 (0.6299—0.6310)		
Rocker arm shaft diameter	mm (in)				15.966—15.984 (0.6286—0.6293)		
Rocker arm to shaft clearance	mm (in)			Standard	0.016—0.061 (0.0006—0.0024)		
				Maximum	0.10 (0.004)		
Cylinder block							
Height	mm (in)		289.0 (11.38)	268.5 (10.57)			
Distortion	mm (in)	Maximum	0.15 (0.006)				
Grinding limit	mm (in)		0.20 (0.008)				
Cylinder bore diameter	mm (in)	Standard		86.000—86.019 (3.3858—3.3866)		81.000—81.019 (3.1890—3.1897)	
		0.25 (0.010) oversize		86.250—86.269 (3.3957—3.3964)		81.250—81.269 (3.1988—3.1996)	
		0.50 (0.020) oversize		86.500—86.519 (3.4055—3.4062)		81.500—81.519 (3.2087—3.2094)	
		0.75 (0.030) oversize		—		81.750—81.769 (3.2185—3.2192)	
		1.00 (0.039) oversize		—		82.000—82.019 (3.2283—3.2291)	
Cylinder bore taper and out-of-round	mm (in)	Maximum	0.019 (0.0007)				
Piston							
Piston diameter measured at 90° to pin bore axis and 18.0 mm (0.709 in) below oil ring groove mm (in)	Standard		85.944—85.964 (3.3836—3.3844)		80.944—80.964 (3.1868—3.1876)		
	0.25 (0.010) oversize		86.194—86.214 (3.3935—3.3942)		81.194—81.214 (3.1966—3.1974)		
	0.50 (0.020) oversize		86.444—86.464 (3.4033—3.4041)		81.444—81.464 (3.2065—3.2072)		

TECHNICAL DATA 30

Item		Engine model		FE 8-valve	F8	F6
		FE 8-valve	F8	F6	F6	
		0.75 (0.030) oversize		—	—	81.694—81.714 (3.2163—3.2171)
		1.00 (0.039) oversize		—	—	81.944—81.964 (3.2261—3.2269)
Piston and cylinder clearance	mm (in)	Standard		0.036—0.075 (0.0014—0.0030)		
		Maximum		0.15 (0.0059)		
Piston ring						
Thickness	mm (in)	Top		1.47—1.49 (0.0579—0.0587)		
		Second		1.47—1.49 (0.0579—0.0587)		
End gap measured in cylinder	mm (in)	Top		0.20—0.35 (0.008—0.0138)		
		Second		0.15—0.30 (0.006—0.012)		
		Oil (rail)		0.20—0.70 (0.008—0.0276)		
		Maximum		1.0 (0.039)		
Ring groove width in piston	mm (in)	Top		1.52—1.54 (0.0598—0.0606)		
		Second		1.52—1.54 (0.0598—0.0606)		
		Oil		4.02—4.04 (0.1583—0.1591)		
Clearance of piston ring to ring groove	mm (in)	Top		0.03—0.07 (0.0012—0.0028)		
		Second		0.03—0.07 (0.0012—0.0028)		
		Maximum		0.15 (0.006)		
Piston pin						
Diameter		mm (in)		21.974—21.980 (0.8651—0.8654)		
Interference in connecting rod		mm (in)		0.013—0.037 (0.0005—0.0015)		
Piston to piston pin clearance		mm (in)		0.008—0.024 (0.0003—0.0009)		
Installation pressure		N (kg, lb)		4,900—14,700 (500—1,500, 1,100—3,300)		
Connecting rod and connecting rod bearing						
Length (Center to center)		mm (in)		151.95—152.05 (5.982—5.986)		135.95—136.05 (5.352—5.356)
Twisting		mm (in)		0.57 (0.0224) max.		
Bending		mm (in)		0.24 (0.0094) max.		
Small end bore		mm (in)		21.943—21.961 (0.8640—0.8646)		
Big end bore		mm (in)		54.002—54.017 (2.1261—2.1266)		
Big end width		mm (in)		26.838—26.890 (1.0566—1.0587)		
Connecting rod side clearance	mm (in)	Standard		0.110—0.262 (0.004—0.010)		
		Maximum		0.30 (0.012)		
Crankshaft						
Crankshaft runout		mm (in)	Maximum	0.03 (0.0012)		
Main journal diameter	mm (in)	Standard size		59.937—59.955 (2.3597—2.3604)		
		0.25 (0.010) undersize	Standard	59.693—59.711 (2.3051—2.3508)		
			No. 3	59.687—59.705 (2.3499—2.3506)		
		0.50 (0.020) undersize	No. 1,2,4,5	59.443—59.461 (2.3403—2.3410)		
			No. 3	59.437—59.455 (2.3400—2.3407)		
		0.75 (0.030) undersize	No. 1,2,4,5	59.193—59.211 (2.3304—2.3311)		
	No. 3	59.187—59.205 (2.3302—2.3309)				
Main journal taper and out-of-round	mm (in)	Maximum		0.05 (0.0020)		
Crankpin diameter	mm (in)	Standard		50.940—50.955 (2.0055—2.0061)		
		0.25 (0.010) undersize		50.690—50.705 (1.9957—1.9963)		
		0.50 (0.020) undersize		50.440—50.455 (1.9858—1.9864)		
		0.75 (0.030) undersize		50.190—50.205 (1.9760—1.9766)		
Crankpin taper and out-of-round	mm (in)	Maximum		0.05 (0.0020)		
Oil bearing						
Main journal bearing oil clearance	mm (in)	No. 1,2,4,5	Standard	0.025—0.043 (0.0010—0.0017)		
			Maximum	0.08 (0.0031)		
		No. 3	Standard	0.031—0.049 (0.0012—0.0019)		
			Maximum	0.08 (0.0031)		
Available undersize bearing		mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)		
Crankpin bearing						
Crankpin bearing oil clearance	mm (in)	Standard		0.027—0.067 (0.0011—0.0026)		
		Maximum		0.10 (0.0039)		
Available undersize bearing		mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)		

30 TECHNICAL DATA

Engine model		FE 8-valve	F8	F6
Thrust bearing (center main bearing)				
Crankshaft end play	mm (in)	Standard	0.08—0.18 (0.0031—0.0071)	
		Maximum	0.30 (0.0118)	
Bearing width	mm (in)	Standard	27.94—27.99 (1.100—1.102)	
		0.25 (0.010) oversize	28.04—28.09 (1.104—1.106)	
		0.05 (0.020) oversize	28.12—28.17 (1.107—1.109)	
		0.75 (0.030) oversize	28.20—28.25 (1.110—1.112)	
Timing belt				
Belt deflection	mm (in)/98 N (10 kg, 22 lb)	5.5—6.5 (0.22—0.26)	4.0—5.0 (0.16—0.20)	

1B. ENGINE (FE DOHC)

Engine model		FE DOHC		
Type		Gasoline, 4-cycle		
Cylinder arrangement and number		In-line, 4-cylinders		
Type of combustion chamber		Pentroof		
Valve system		OHC, belt-driven		
Bore x Stroke		mm (in)		
		86.0 x 86.0 (3.39 x 3.39)		
Total piston displacement		cc (cu in)		
		1,998 (121.9)		
Compression ratio		10.0 : 1		
Compression pressure	Standard	1,422 (14.5, 206)—290		
	Minimum	996 (10.2, 144)—290		
	Maximum difference between cylinders	196 (2.0, 28)		
Valve timing	IN	Open BTDC	10°	
		Close ABDC	60°	
	EX	Open BBDC	60°	
		Close ATDC	10°	
Valve clearance	mm (in)	IN	0; Maintenance free	
		EX	0; Maintenance free	
Cylinder head				
Height		mm (in)		
		133.95—134.05 (5.274—5.278)		
Distortion	mm (in)	Maximum	0.15 (0.006)	
Grinding	mm (in)	Maximum	0.20 (0.008)	
HLA to cylinder head clearance	mm (in)	Standard	0.025—0.066 (0.0010—0.0026)	
		Maximum	0.18 (0.0071)	
Valve and valve guide				
Valve head diameter	mm (in)	IN	33.6—33.8 (1.323—1.331)	
		EX	28.8—29.0 (1.134—1.142)	
Valve head thickness (margin)	mm (in)	IN	1.0—1.7 (0.039—0.067)	
		EX	1.1—1.7 (0.043—0.067)	
Valve face angle		IN	45°	
		EX	45°	
Valve length	mm (in)	IN	Standard	103.18 (4.0622)
			Minimum	102.68 (4.0425)
	EX	Standard	103.94 (4.0921)	
		Minimum	103.44 (4.0724)	
Valve stem diameter	mm (in)	IN	5.970—5.985 (0.2350—0.2356)	
		EX	5.965—5.980 (0.2348—0.2354)	
Guide inner diameter	mm (in)	IN	6.01—6.03 (0.2366—0.2374)	
		EX	6.01—6.03 (0.2366—0.2374)	
Valve stem to guide clearance	mm (in)	IN	0.025—0.060 (0.0010—0.0024)	
		EX	0.030—0.065 (0.0012—0.0026)	
		Maximum	0.20 (0.0079)	
Guide projection (Height "A")	mm (in)	11.4—11.9 (0.449—0.469)		

Item	Valve seat
	Seat angle
	Seat contact
	Seat sinking
	Valve prot
	Valve spr
	Free lengt
	Out-of-squ
	Setting loa
	Camshaft
	Cam lobe
	Journal di
	Camshaft
	Camshaft
	Camshaft
	Cylinder
	Height
	Distortion
	Grinding li
	Cylinder b
	Cylinder bc
	Piston
	Piston dia
	at 90° to
	and 18.0
	below oil
	Piston to c
	Piston rir
	Thickness

Item	Engine model	FE DOHC		
Valve seat				
Seat angle		IN	45°	
		EX	45°	
Seat contact width	mm (in)	IN	1.2—1.6 (0.047—0.063)	
		EX	1.2—1.6 (0.047—0.063)	
Seat sinking (Measure valve protruding length) mm (in)	IN	Standard	36.8 (1.449)	
		Maximum	37.8 (1.488)	
	EX	Standard	36.8 (1.449)	
		Maximum	37.8 (1.488)	
Valve spring				
Free length	mm (in)	Outer	Standard	39.1 (1.539)
			Minimum	38.7 (1.524)
	Inner	Standard	38.0 (1.496)	
		Minimum	37.7 (1.484)	
Out-of-square	mm (in)	Maximum	Outer.....1.4 (0.055), Inner.....1.3 (0.051)	
Setting load/height	N (kg, lb)/mm (in)	Outer	78 (8.0, 17.6)/31.5 (1.240)	
		Inner	123 (12.5, 27.5)/33.0 (1.299)	
Camshaft				
Cam lobe height	mm (in)	IN	Standard	45.005—45.105 (1.772—1.776)
			Minimum	44.855 (1.7659)
	EX	Standard	45.005—45.105 (1.772—1.776)	
		Minimum	44.855 (1.7659)	
Journal diameter	mm (in)	Out-of-round	Maximum	29.940—29.965 (1.1787—1.1797) 0.05 (0.002)
Camshaft bearing oil clearance	mm (in)	Maximum		0.035—0.085 (0.0014—0.0033) 0.15 (0.0059)
Camshaft runout	mm (in)	Maximum		0.03 (0.0012)
Camshaft end play	mm (in)	Standard		0.08—0.10 (0.003—0.004)
		Maximum		0.20 (0.008)
Cylinder block				
Height	mm (in)			289.0 (11.38)
Distortion	mm (in)	Maximum		0.15 (0.006)
Grinding limit	mm (in)			0.20 (0.008)
Cylinder bore diameter	mm (in)	Standard		86.000—86.019 (3.3858—3.3866)
		0.25 (0.010) oversize		86.250—86.269 (3.3957—3.3964)
		0.50 (0.020) oversize		86.500—86.519 (3.4055—3.4062)
Cylinder bore taper and out-of-round	mm (in)	Maximum		0.019 (0.0007)
Piston				
Piston diameter measured at 90° to pin bore axis and 18.0 mm (0.709 in) below oil ring groove	mm (in)	Standard		85.944—85.964 (3.3836—3.3834)
		0.25 (0.010) oversize		86.194—86.214 (3.3935—3.3942)
		0.50 (0.020) oversize		86.444—86.464 (3.4033—3.4041)
Piston to cylinder clearance	mm (in)	Standard		0.036—0.075 (0.0014—0.0030)
		Maximum		0.15 (0.0059)
Piston ring				
Thickness	mm (in)	Top		1.47—1.49 (0.0579—0.0587)
		Second		1.47—1.49 (0.0579—0.0587)

30 TECHNICAL DATA

Item		Engine model	FE DOHC	
End gap measured in cylinder	mm (in)	Top	0.20—0.35 (0.008—0.0138)	
		Second	0.15—0.30 (0.006—0.012)	
		Oil (rail)	0.20—0.70 (0.008—0.0276)	
		Maximum	1.0 (0.039)	
Ring groove width in piston	mm (in)	Top	1.52—1.54 (0.0598—0.0606)	
		Second	1.52—1.54 (0.0598—0.0606)	
		Oil	4.02—4.04 (0.1583—0.1591)	
Clearance of piston ring to ring groove	mm (in)	Top	0.03—0.07 (0.0012—0.0028)	
		Second	0.03—0.07 (0.0012—0.0028)	
		Maximum	0.15 (0.006)	
Piston pin				
Diameter	mm (in)		21.987—21.993 (0.8656—0.8659)	
Connecting rod to piston pin clearance	mm (in)		0.010—0.027 (0.0004—0.0011)	
Piston to piston pin clearance	mm (in)		-0.005—0.011 (-0.0002—0.0004)	
Connecting rod and connecting rod bearing				
Length (Center and center)	mm (in)		149.95—150.05 (5.904—5.907)	
Twisting	mm (in)		0.57 (0.0224) max.	
Bending	mm (in)		0.24 (0.0094) max.	
Small end bore	mm (in)		22.003—22.014 (0.8663—0.8667)	
Big end bore	mm (in)		54.002—54.017 (2.1261—2.1266)	
Big end width	mm (in)		26.838—26.890 (1.0566—1.0587)	
Connecting rod side clearance	mm (in)	Standard	0.110—0.262 (0.004—0.010)	
		Maximum	0.30 (0.012)	
Crankshaft				
Crankshaft runout	mm (in)	Maximum	0.03 (0.0012)	
Main journal diameter	mm (in)	Standard size	59.937—59.955 (2.3597—2.3604)	
		0.25 (0.010) undersize	Standard	59.693—59.711 (2.3051—2.3508)
			No. 3	59.687—59.705 (2.3499—2.3506)
		0.50 (0.020) undersize	No. 1,2,4,5	59.443—59.461 (2.3403—2.3410)
			No. 3	59.437—59.455 (2.3400—2.3407)
		0.75 (0.030) undersize	No. 1,2,4,5	59.193—59.211 (2.3304—2.3311)
	No. 3	59.187—59.205 (2.3302—2.3309)		
Main journal taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Crankpin diameter	mm (in)	Standard	50.940—50.955 (2.0055—2.0061)	
		0.25 (0.010) undersize	50.690—50.705 (1.9957—1.9963)	
		0.50 (0.020) undersize	50.440—50.455 (1.9858—1.9864)	
		0.75 (0.030) undersize	50.190—50.205 (1.9760—1.9766)	
Crankpin taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Main bearing				
Main journal bearing oil clearance	mm (in)	No. 1,2,4,5	Standard	0.025—0.043 (0.0010—0.0017)
			Maximum	0.08 (0.0031)
		No. 3	Standard	0.031—0.049 (0.0012—0.0019)
			Maximum	0.08 (0.0031)
Available undersize bearing	mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Crankpin bearing				
Crankpin bearing oil clearance	mm (in)	Standard	0.027—0.067 (0.0011—0.0026)	
		Maximum	0.10 (0.0039)	
Available undersize bearing	mm (in)		0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Thrust bearing (center main bearing)				
Crankshaft end play	mm (in)	Standard	0.08—0.18 (0.0031—0.0071)	
		Maximum	0.30 (0.0118)	
Bearing width	mm (in)	Standard	27.94—27.99 (1.100—1.102)	
		0.25 (0.010) oversize	28.04—28.09 (1.104—1.106)	
		0.50 (0.020) oversize	28.12—28.17 (1.107—1.109)	
		0.75 (0.030) oversize	28.20—28.25 (1.110—1.112)	
Timing belt				
Belt deflection	mm (in)/98 N (10 kg, 22 lb)		8.5—9.5 (0.33—0.37)	

1C. ENGINE (F2)

Item		Engine model		F2	
				Turbo	Non-Turbo
Type		Gasoline, 4 cycle			
Cylinder arrangement and number		In-line, 4 cylinders			
Type of combustion chamber		Pentroof			
Valve system		OHC, belt driven			
Bore x Stroke		mm (in)		86.0 x 94.0 (3.39 x 3.70)	
Total piston displacement		cc (cu in)		2,184 (133.2)	
Compression ratio				7.8 : 1	8.6 : 1
Compression pressure kPa (kg/cm ² , psi)-rpm		Standard		960 (9.8, 139)-260	1,120 (11.4, 162)-270
		Minimum		680 (6.9, 98)-260	780 (8.0, 114)-270
		Maximum difference between cylinders		196 (2.0, 28)	
Valve timing		IN		Open BTDC	10°
				Close ABDC	49°
		EX		Open BBDC	55°
				Close ATDC	12°
Valve clearance		mm (in)		IN	0; Maintenance free
				EX	0; Maintenance free
Cylinder head					
Height		mm (in)		91.95—92.05 (3.620—3.624)	
Distortion		mm (in) Maximum		0.15 (0.006)	
Grinding limit		mm (in) Maximum		0.20 (0.008)	
Valve and valve guide					
Valve head diameter		mm (in)		IN	32.4—32.6 (1.276—1.283)
				EX	33.9—34.1 (1.335—1.343)
Valve head thickness (margin)		mm (in)		IN	0.8—1.2 (0.031—0.047)
				EX	1.3—1.7 (0.051—0.067)
Valve face angle				IN	45°
				EX	45°
Valve length		IN		Standard	115.81 (4.5594)
				Minimum	115.31 (4.5398)
		EX		Standard	116.21 (4.5752)
				Minimum	115.71 (4.5555)
Valve stem diameter		mm (in)		IN	6.970—6.985 (0.2744—0.2750)
				EX	6.965—6.980 (0.2742—0.2748)
Guide inner diameter		mm (in)		IN	7.01—7.03 (0.2760—0.2768)
				EX	7.01—7.03 (0.2760—0.2768)
Valve stem to guide clearance		mm (in)		IN	0.025—0.060 (0.0010—0.0024)
				EX	0.030—0.065 (0.0012—0.0026)
				Maximum	0.20 (0.0079)
Guide projection (Height "A")		mm (in)		19.8—20.3 (0.780—0.799)	
Valve seat					
Seat angle				IN	45°
				EX	45°
Seat contact width		mm (in)		IN	1.2—1.6 (0.047—0.063)
				EX	1.2—1.6 (0.047—0.063)
Seat sinking (Measure valve protruding length) mm (in)		IN		Standard	50.2 (1.976)
				Maximum	51.0 (2.008)
		EX		Standard	50.2 (1.976)
				Maximum	51.0 (2.008)

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Item			Engine model	
			Turbo	F2 Non-Turbo
Valve spring				
Free length	mm (in)	IN	Standard	49.5 (1.949)
			Minimum	48.3 (1.902)
	EX	Standard	50.4 (1.984)	
		Minimum	49.2 (1.937)	
Out-of-square	mm (in)	Maximum	1.7 (0.067)	
Setting load/height	N (kg, lb)/mm (in)	IN	203—230 (20.7—23.4, 45.5—51.5)/41 (1.614)	
		EX	240—272 (24.5—27.7, 53.9—60.9)/41 (1.614)	
Camshaft				
Camlobe height	mm (in)	IN	Standard	41.290—41.390 (1.6256—1.6295)
			Minimum	41.140 (1.6197)
	EX	Standard	41.797—41.897 (1.6455—1.6495)	
		Minimum	41.647 (1.6396)	
Journal diameter	mm (in)	Front and Rear (No. 1,5)		31.940—31.965 (1.2575—1.2585)
		Center (No. 2,3,4)		31.910—31.935 (1.2563—1.2573)
		Out-of-round	Maximum	0.05 (0.002)
Camshaft bearing oil clearance	mm (in)	Front and Rear (No. 1,5)		0.035—0.085 (0.0014—0.0033)
		Center (No. 2,3,4)		0.065—0.115 (0.0026—0.0045)
		Maximum	0.15 (0.0059)	
Camshaft runout	mm (in)	Maximum	0.03 (0.0012)	
Camshaft end play	mm (in)	Standard	0.08—0.16 (0.003—0.006)	
		Maximum	0.20 (0.008)	
Rocker arm and rocker arm shaft				
Rocker arm inner diameter	mm (in)		19.000—19.033 (0.748—0.749)	
Rocker arm shaft diameter	mm (in)		18.959—18.980 (0.746—0.747)	
Rocker arm to shaft clearance	mm (in)	Standard	0.020—0.074 (0.0008—0.0029)	
		Maximum	0.10 (0.004)	
Cylinder block				
Height	mm (in)		301.5 (11.87)	
Distortion	mm (in)	Maximum	0.15 (0.006)	
Grinding limit	mm (in)		0.20 (0.008)	
Cylinder bore diameter	mm (in)	Standard	86.000—86.019 (3.3858—3.3866)	
		0.25 (0.010) oversize	86.250—86.269 (3.3957—3.3964)	
		0.50 (0.020) oversize	86.500—86.519 (3.4055—3.4062)	
Cylinder bore taper and out-of-round	mm (in)	Maximum	0.019 (0.0007)	
Piston				
Piston diameter measured at 90° to pin bore axis and 18.0 mm (0.709 in) below oil ring groove	mm (in)	Standard	85.944—85.964 (3.3836—3.3844)	
		0.25 (0.010) oversize	86.194—86.214 (3.3935—3.3942)	
		0.50 (0.020) oversize	86.444—86.464 (3.4033—3.4041)	
Piston and cylinder clearance	mm (in)	Standard	0.036—0.075 (0.0014—0.0030)	
		Maximum	0.15 (0.0059)	
Piston ring				
Thickness	mm (in)	Top	1.47—1.49 (0.0579—0.0587)	
		Second	1.47—1.49 (0.0579—0.0587)	
End gap measured in cylinder	mm (in)	Top	0.20—0.35 (0.008—0.0138)	
		Second	0.15—0.30 (0.006—0.012)	
		Oil (rail)	0.20—0.70 (0.008—0.0276)	
		Maximum	1.0 (0.039)	
Ring groove width in piston	mm (in)	Top	1.52—1.54 (0.0598—0.0606)	
		Second	1.52—1.54 (0.0598—0.0606)	
		Oil	4.02—4.04 (0.1583—0.1591)	

Item		Engine model		
		F2		
		Turbo	Non-Turbo	
Clearance of piston ring to ring groove	mm (in)	Top	0.03—0.07 (0.0012—0.0028)	
		Second	0.03—0.07 (0.0012—0.0028)	
		Maximum	0.15 (0.006)	
Piston pin				
Diameter	mm (in)	21.974—21.980 (0.8651—0.8654)		
Interference in connecting rod	mm (in)	0.013—0.037 (0.0005—0.0015)		
Piston to piston pin clearance	mm (in)	0.008—0.024 (0.0003—0.0009)		
Installation pressure	N (kg, lb)	4,900—14,700 (500—1,500, 1,100—3,300)		
Connecting rod and connecting rod bearing				
Length (Center to center)	mm (in)	158.45—158.55 (6.238—6.242)		
Twisting	mm (in)	0.57 (0.0224) max.		
Bending	mm (in)	0.24 (0.0094) max.		
Small end bore	mm (in)	21.943—21.961 (0.8640—0.8646)		
Big end bore	mm (in)	54.002—54.017 (2.1261—2.1266)		
Big end width	mm (in)	26.838—26.890 (1.0566—1.0587)		
Connecting rod side clearance	mm (in)	Standard	0.110—0.262 (0.004—0.010)	
		Maximum	0.30 (0.012)	
Crankshaft				
Crankshaft runout	mm (in)	Maximum	0.03 (0.0012)	
Main journal diameter	mm (in)	Standard size	59.937—59.955 (2.3597—2.3604)	
		0.25 (0.010) undersize	Standard	59.693—59.711 (2.3051—2.3508)
			No. 3	59.687—59.705 (2.3499—2.3506)
		0.50 (0.020) undersize	No. 1,2,4,5	59.443—59.461 (2.3403—2.3410)
			No. 3	59.437—59.455 (2.3400—2.3407)
	0.75 (0.030) undersize	No. 1,2,4,5	59.193—59.211 (2.3304—2.3311)	
		No. 3	59.187—59.205 (2.3302—2.3309)	
Main journal taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Crank pin diameter	mm (in)	Standard	50.940—50.955 (2.0055—2.0061)	
		0.25 (0.010) undersize	50.690—50.705 (1.9957—1.9963)	
		0.50 (0.020) undersize	50.440—50.455 (1.9858—1.9864)	
		0.75 (0.030) undersize	50.190—50.205 (1.9760—1.9766)	
Crank pin taper and out-of-round	mm (in)	Maximum	0.05 (0.0020)	
Main bearing				
Main journal bearing oil clearance	mm (in)	No. 1,2,4,5	Standard	0.025—0.043 (0.0010—0.0017)
			Maximum	0.08 (0.0031)
		No. 3	Standard	0.031—0.049 (0.0012—0.0019)
			Maximum	0.08 (0.0031)
Available undersize bearing	mm (in)	0.25 (0.010), 0.50 (0.020), 0.75 (0.030)		
Crank pin bearing				
Crank pin bearing oil clearance	mm (in)	Standard	0.027—0.067 (0.0011—0.0026)	
		Maximum	0.10 (0.0039)	
Available undersize bearing	mm (in)	0.25 (0.010), 0.50 (0.020), 0.75 (0.030)		
Thrust bearing (center main bearing)				
Crankshaft end play	mm (in)	Standard	0.08—0.18 (0.0031—0.0071)	
		Maximum	0.30 (0.0118)	
Bearing width	mm (in)	Standard	27.94—27.99 (1.100—1.102)	
		0.25 (0.010) oversize	28.04—28.09 (1.104—1.106)	
		0.50 (0.020) oversize	28.12—28.17 (1.107—1.109)	
		0.75 (0.030) oversize	28.20—28.25 (1.110—1.112)	
Timing belt				
Belt deflection	mm (in)/98 N (10 kg, 22 lb)	8.0—9.0 (0.31—0.35)		

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2. LUBRICATION SYSTEM

Item	Engine model	F2		FE DOHC	F6,F8,FE SOHC
		Turbo	Non-Turbo		
Lubrication system		Force-fed			
Oil pump					
Type		Trochoid gear		Crescent gear	
Regulated pressure	kPa (kg/cm ² psi)	392 (4.0, 57)		490 (5.0, 71)	
Oil pressure	kPa (kg/cm ² , psi)	147—245 (1.5—2.5, 21—36)			
		1,000 rpm	294—392 (3.0—4.0, 43—57)	343—441 (3.5—4.5, 50—64)	294—392 (3.0—4.0, 43—57)
Inner rotor tooth tip to outer rotor clearance	mm (in)	Standard	0.044—0.084 (0.0017—0.0033)		
		Maximum	0.18 (0.0071)		
Outer rotor to body clearance	mm (in)	Standard	0.09—0.176 (0.0035—0.0069)		
		Maximum	0.20 (0.008)		
Side clearance	mm (in)	Standard	0.03—0.09 (0.0012—0.0035)		
		Maximum	0.10 (0.004)		
Inner gear tooth tip to crescent clearance	mm (in)	Standard	0.267—0.38 (0.011—0.015)		
		Maximum	0.40 (0.016)		
Outer gear tooth tip to crescent clearance	mm (in)	Standard	0.20—0.32 (0.008—0.0126)		
		Maximum	0.35 (0.0138)		
Outer gear to body clearance	mm (in)	Standard	0.09—0.184 (0.0035—0.0072)		
		Maximum	0.20 (0.008)		
Side clearance	mm (in)	Standard	0.03—0.063 (0.0012—0.0025)		
		Maximum	0.10 (0.004)		
Oil filter					
Type		Full flow, paper element			
Relief pressure differential	kPa (kg/cm ² , psi)	78—118 (0.8—1.2, 11—17)			
Oil cooler					
Type		Water cooled			
Oil pressure switch					
Activation pressure	kPa (kg/cm ² , psi)	29 (0.3, 4.3)			
Engine oil					
Capacity	liters (US qt, Imp qt)	Total (dry engine)	4.6 (4.9, 4.0)	4.3 (4.5, 3.8)	
		Oil pan	3.9 (4.1, 3.4)	3.6 (3.8, 3.2)	
		Oil filter	0.3 (0.32, 0.26)	0.2 (0.21, 0.18)	0.3 (0.32, 0.26)
Grade (API service)		SF	SD, SE, or SF		
Viscosity number	30°C (86°F) or over	SAE 40			
	0°C—40°C (32°F—104°F)	SAE 30			
	-10°C—20°C (14°F—68°F)	SAE 20W-20			
	-10°C—50°C (14°F—122°F) or over	SAE 20W-40 or 20W-50			
	-25°C—30°C (-13°F—86°F)	SAE 10W-30			
	-25°C—50°C (-13°F—122°F) or over	SAE 10W-40 or 10W-50			
	0°C—30°C (32°F—22°F) or below	SAE 5W-30			
-20°C (-4°F) or below	SAE 5W-20				

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COOLING SYSTEM

Engine model		FE DOHC	FE 12-valve	F6,F8, FE 8-valve, F2
Cooling system		Water-cooled, forced circulation		
Water pump		Centrifugal, timing belt driven		
Impeller diameter	mm (in)	70 (2.76)		
Number of impeller blades		6		
Speed ratio		1 : 1.00	1 : 1.05	
Water seal type		Unified mechanical seal		
Thermostat		Wax, 2-stage		
Temperature to open	°C (°F)	Sub: 83.5—86.5 (182—188) Main: 86.5—89.5 (188—193)	86.5—89.5 (188—193)	80.5—83.5 (177—182)
Full open	°C (°F)	100 (212)		95 (203)
Stem diameter	mm (in)	Sub: 1.5 (0.06) min. Main: 8.0 (0.31) min.	8.5 (0.33) min.	
Radiator		Corrugated fin		
Top opening valve pressure	kPa (kg/cm ² , psi)	74—103 (0.75—1.05, 11—15)		
Cooling system pressure	kPa (kg/cm ² , psi)	103 (1.05, 15)		
Cooling fan		Electric		
Capacity	W	MTX	80	
		ATX	— 120 (160 ...only F2 Turbo)	
Current	A	MTX	5.6—7.6	
		ATX	— 8.0—11.0 (10.6—16.6 ...only F2 Turbo)	
Number of blades		4		
Blade diameter	mm (in)	MTX	320 (12.6)	
		ATX	— 340 (13.4)	
Switching temperature OFF → ON	°C(°F)	97 (207)		91 (196)
Coolant		With heater		
Capacity	liters (US qt, Imp qt)	7.5 (7.9, 6.6)		
		Without heater		
		7.0 (7.4, 6.2)		
Antifreeze solution	Protection	Mixture percentage (volume) %		Specific gravity of mixture at 20°C (68°F)
		Water	Solution	
	Above -16°C (3°F)	65	35	1.054
	Above -26°C (-15°F)	55	45	1.066
Above -40°C (-40°F)	45	55	1.078	

30 TECHNICAL DATA

4A. FUEL AND EMISSION CONTROL SYSTEMS (CARBURETOR) F6 and F8 Engine

Engine		F6		F8			
Specification		New Zealand	RHD	RHD	LHD		
Idle speed	rpm	MTX	800 ⁺⁵⁰ / ₀				
		ATX (in N range)	950 ⁺⁵⁰ / ₀	900 ⁺⁵⁰ / ₀			
CO concentration	%	2.0 ± 0.5 (Without secondary air injection)					
Carburetor							
Type	Down draft, two barrel						
Throat diameter	mm (in)	Primary	30 (1.18)				
		Secondary	34 (1.34)				
Venturi diameter	mm (in)	Primary	23.5 (0.93)				
		Secondary	29.0 (1.14)				
Main nozzle	mm (in)	Primary	2.6 (0.10)				
		Secondary	2.8 (0.11)				
Main jet	mm (in)	Primary	MTX	1.10 (0.0433)	1.09 (0.0429)	1.14 (0.045)	1.09 (0.0429)
			ATX		1.08 (0.0425)	1.12 (0.044)	
		Secondary	1.50 (0.059)				
Main air bleed	mm (in)	Primary	MTX	0.60 (0.024)	0.60 (0.024)	0.55 (0.022)	0.60 (0.024)
			ATX		0.80 (0.031)	0.60 (0.024)	
		Secondary	0.50 (0.020)				
Slow jet	mm (in)	Primary	0.48 (0.019)	0.46 (0.018)			
		Secondary	1.00 (0.039)				
Slow air bleed	mm (in)	Primary	No. 1	0.80 (0.031)			
			No. 2	1.90 (0.075)			
		Secondary	No. 1	1.00 (0.039)	0.80 (0.031)	1.00 (0.039)	
			No. 2	0.50 (0.020)			
Power jet	mm (in)	0.50 (0.020)					
Fast idle adjustment Clearance between primary throttle valve and bore	mm (in)	1.40—1.76(0.055—0.069)		MTX: 0.48—0.64 (0.019—0.025) ATX: 0.56—0.72 (0.022—0.028)	1.40—1.73 (0.055—0.063)		
Float level adjustment	mm (in)	Max. fuel flow "L"		44 (1.73)			
		Clearance between float and air horn without gasket					
		Fuel stop "H"		12.5 (0.49)			
Clearance between float and air horn/without gasket; float lowered by own weight							
Choke breaker diaphragm	mmHg (in Hg)	Start	180—240 (7.1—9.5)	100—160 (3.9—6.3)	180—240 (7.1—9.5)		
		Stop	290—350 (11.4—13.8)	220—280 (8.7—11.0)	290—350 (11.4—13.8)		
Choke opener	mmHg (in Hg)	Start		35—65 (1.4—2.6)	35—65 (1.4—2.6)		
		Stop		130—190 (5.1—7.5)	130—190 (5.1—7.5)		
Accelerator linkage							
Free play of cable at carburetor	mm (in)	1—3 (0.039—0.118)					
Fuel tank capacity	Liters (US gal, Imp gal)	60 (15.9, 13.2)					
Fuel pump							
Type	Mechanical pump						
Delivery pressure	kPa (kg/cm ² , psi)	20—26 (0.20—0.27, 2.8—3.8)					
Feeding capacity	cc/min (cu in/min)	More than 860 (52.5) at idle					
Fuel filter							
Type	Paper element with magnet						
Air cleaner							
Fresh-Hot switching	Manual	Diaphragm type					
Element type	Oil permeated paper						
Fuel specification	Leaded regular						

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FE Engine

Engine		FE				
Specification		LHD	RHD and New Zealand	Australia		
Idle speed	rpm	MTX	800 ⁺⁵⁰		850 ⁺⁵⁰	
		ATX	900 ⁺⁵⁰ (in N range)			
CO concentration		2.0 ± 0.5 (Without secondary air injection)				
Carburetor						
Type		Down draft, two barrel				
Throat diameter	mm (in)	Primary	30 (1.18)			
		Secondary	34 (1.34)			
Venturi diameter	mm (in)	Primary	23.5 (0.93)			
		Secondary	29.0 (1.14)			
Main nozzle	mm (in)	Primary	2.6 (0.10)			
		Secondary	2.8 (0.11)			
Main jet	mm (in)	Primary	MTX	1.09 (0.0429)	1.14 (0.045)	1.10 (0.0433)
			ATX	1.08 (0.0425)	1.12 (0.044)	1.09 (0.0429)
		Secondary	1.50 (0.059)	1.55 (0.061)	1.50 (0.059)	
Main air bleed	mm (in)	Primary	MTX	0.60 (0.024)	0.50 (0.020)	0.50 (0.020)
			ATX	0.80 (0.031)	0.55 (0.022)	
		Secondary	0.50 (0.020)			
Slow jet	mm (in)	Primary	0.46 (0.018)			
		Secondary	MTX	1.00 (0.039)	1.10 (0.043)	1.20 (0.047)
			ATX			
Slow air bleed	mm (in)	Primary	No. 1	0.80 (0.031)		
			No. 2	1.90 (0.075)		
		Secondary	No. 1	1.00 (0.039)	0.80 (0.031)	
			No. 2	0.50 (0.020)		
Power jet		mm (in) 0.50 (0.020)				
Fast idle adjustment Clearance between primary throttle valve and bore	mm (in)	MTX	1.40—1.76	0.48—0.64 (0.019—0.025)		
		ATX	(0.055—0.069)	0.56—0.72 (0.022—0.028)		
Float level adjustment mm (in)	Max. fuel flow "L"		44 (1.73)		49 (1.93)	
	Clearance between float and air horn without gasket					
	Fuel stop "H"		12.5 (0.49)		13.5 (0.53)	
	Clearance between float and air horn without gasket float lowered by own weight					
Choke breaker diaphragm mmHg (in Hg)		Start	180—240 (7.1—9.5)	100—160 (3.9—6.3)	80 (3.1)	
		Stop	290—350 (11.4—13.8)	220—280 (8.7—11.0)	220 (8.7)	
Choke opener mmHg (in Hg)		Start	35—65 (1.4—2.6)	30—70 (1.2—2.8)		
		Stop	130—190 (5.1—7.5)	130—190 (5.1—7.5)		
Accelerator linkage						
Free play of cable at carburetor		mm (in) 1—3 (0.039—0.118)				
Fuel tank capacity		Liters (US gal, Imp gal) 60 (15.9, 13.2)				
Fuel pump						
Type		Mechanical pump				
Delivery pressure	kPa (kg/cm ² , psi)	20—26 (0.20—0.27, 2.8—3.8)	20—29 (0.20—0.30, 2.8—4.3)	20—26 (0.20—0.27, 2.8—3.8)		
Feeding capacity		cc/min (cu in/min) More than 860 (52.5) at idle				
Fuel filter						
Type		Paper element with magnet				
Air cleaner						
Fresh-Hot switching		Diaphragm		Manual		
Element type		Oil permeated paper				
Fuel specification		Leaded regular	Leaded super Unleaded super	Unleaded regular		

30 TECHNICAL DATA

4B. FUEL AND EMISSION CONTROL SYSTEM (FE DOHC)

Item		Specification
Idle speed	rpm	With test connector grounded 750 ± 50
Throttle body		Horizontal draft (2-barrel)
Type		46 (1.8)
Throat diameter	mm (in)	40 (1.6)
	No. 1	
	No. 2	
Fuel pump		Impeller (in tank)
Type		441-588 (4.5-6.0, 64-85)
Output pressure	kPa (kg/cm ² , psi)	220 (13.4) min.
Feeding capacity	cc (cu in)/10 seconds	
Fuel filter		Nylon element
Type	Low-pressure side	Paper element
	High-pressure side	
Pressure regulator		Diaphragm
Type		235-275 (2.4-2.8, 34-40)
Regulating pressure	kPa (kg/cm ² , psi)	
Injector		High-ohmic
Type		Voltage
Type of drive		12-16
Resistance	Ω	66-91 (4.03-5.55)
Injection amount	cc (cu in)/15 seconds	
Idle speed control valve		6.3-9.9
Solenoid resistance	Ω	
Fuel tank		60 (15.9, 13.2)
Capacity	liters (US gal, Imp gal)	
Air cleaner		Dry
Element type		
Fuel		Leaded or unleaded premium
Specification		

4C, 4D FUEL AND EMISSION CONTROL SYSTEM (F2)

Item		Engine model	Non-Turbo	Turbo
Idle speed		rpm	With test connector grounded 750 ± 25 (ATX: P range)	
Throttle body				
Type			Horizontal draft (2-barrel)	
Throat diameter	mm (in)	No. 1	MTX: 40 (1.6), ATX: 46 (1.8)	
		No. 2	MTX: 46 (1.8), ATX: 40 (1.6)	
Air flow meter				
Resistor	Ω	E2-VS	Fully closed: 20—400 Fully open: 20—1,000	
		E2-VC	100—400	
		E2-VB	200—400	
		E2-THA	-20°C (-4°F) 13,600—18,400 20°C (68°F) 2,210— 2,690 60°C (140°F) 493— 667	
Fuel pump				
Type			Impeller (in tank)	
Output pressure		kPa (kg/cm ² , psi)	441—588 (4.5—6.0, 64—85)	
Feeding capacity		cc (cu in)/10 seconds	220 (13.4) min.	
Fuel filter				
Type	Low-pressure side		Nylon element	
	High-pressure side		Paper element	
Pressure regulator				
Type			Diaphragm	
Regulating pressure		kPa (kg/cm ² , psi)	235—275 (2.4—2.8, 34—40)	
Injector				
Type			High-ohmic	
Type of drive			Voltage	
Resistance		Ω	12—16	11—15
Injection amount		cc (cu in)/15 seconds	44—61 (2.68—3.72)	73—90 (4.45—5.49)
Idle speed control valve				
Solenoid resistance		Ω	6.3—9.9	
Turbocharger				
Cooling method			Engine coolant	
Lubrication method			Engine oil	
Boost pressure (Maximum)		kPa (kg/cm ² , psi)	60 (0.61, 8.7): Solenoid duty value 100% 45 (0.46, 6.5): Solenoid duty value 0%	
Fuel tank				
Capacity		liters (US gal, Imp gal)	60 (15.9, 13.2)	
Air cleaner				
Element type			Oil permeated	
Fuel				
Specification			Unleaded regular	Unleaded premium (Unleaded regular)

30 TECHNICAL DATA

5. ENGINE ELECTRICAL SYSTEM

Item		Engine	F6	F8	FE (8 VALVE)	FE (12 VALVE)	FE (DOHC)	
Battery	Voltage	V	12, Negative ground					
	Type and capacity (20 hour rate)		34B19L(S): (33 Ah)					
Alternator	Type		A.C.					
	Output	V—A	12—70					
	Regulator type		Transistorized (built-in IC regulator)					
	Regulated voltage	V	14.1—14.7					
	Brush length mm (in)	Standard		16.5 (0.650)				
		Minimum		8.0 (0.315)				
Drive belt tension mm (in)/98 N (10 kg, 22 lb)			New: 6—8 (0.24—0.32), Used: 7—9 (0.28—0.35)					
Starter	Type		Coaxial reduction: FE (12 VALVE) and F2 Non-reduction: Others					
	Output	V—kW	12—0.85	12—0.95	12—1.4	12—0.95		
	Brush length mm (in)	Standard	17.0 (0.669)					
Minimum		11.5 (0.453)						
Ignition timing			6 ± 1° BTDC (Vacuum hose disconnected)				12 ± 1° BTDC (Test connector grounded)	
Distributor	Type		Fully transistorized (HEI)				Electronic spark advance	
	Centrifugal spark advance (crank angle/engine speed) degree/rpm		F6 -2—2/1,000 6—10/2,100 14—18/6,100 F8 -2—2/1,000 10—14/2,100 18—22/6,100 FE (8 VALVE) Unleaded fuel (MTX) -2—2/1,760 12—16/3,360 22—26/5,320 (ATX) -2—2/1,300 12—16/3,360 22—26/5,320 Others -2—2/1,460 10—14/2,540 22—26/5,540 FE (12 VALVE) -2—2/1,200 10—14/2,400 10—14/4,000 16—20/5,000					
		Vacuum spark advance (Crank angle/Vacuum) degree/mmHg (inHg)		F6 and F8 -2—2/100 (3.9) 6—10/300 (11.8) FE (8 VALVE) Unleaded fuel -2—2/120 (4.7) 8—12/245 (9.6) Others (MTX) -2—2/100 (3.9) 16—20/250 (9.8) (ATX) -2—2/100 (3.9) 10—14/200 (7.9) FE (12 VALVE) -2—2/120 (4.7) 11—15/300 (11.8)				
Spark plug	Type		FE (8 VALVE)* NGK: BPR5ES-11, BPR6ES-11 Nippon Denso: W16EXR-U11, W20EXR-U11 Others NGK: BPR5ES, BPR6ES Nippon Denso: W16EXR-U, W20EXR-U Motorcraft: AGR44CU, AGR34CU		NGK: BCPR5E, BCPR6E, BCPR7E Nippon Denso: Q16PR-U, Q20PR-U, Q22PR-U	NGK: BCPR5E BCPR6E BCPR7E		
	Plug gap	mm (in)	FE (8 VALVE)* 1.0—1.1 (0.039—0.043) Others 0.75—0.85 (0.030—0.033)		0.7—0.8 (0.028—0.031)	0.7—0.8 (0.028—0.031)		
Firing order			1—3—4—2					

* Australia

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Item	Engine		F2	
			Non-Turbo	Turbo
Battery	Voltage V		12, Negative ground	
	Type and capacity (20 hour rate)		34B 19L(S): (33 Ah)	
Alternator	Type		A.C.	
	Output V-A		12-70	
	Regulator type		Transistorized (built-in IC regulator)	
	Regulated voltage V		14.1-14.7	
	Brush length mm (in)	Standard	16.5 (0.650)	
		Minimum	8 (0.315)	
Drive belt tension mm (in)/98 N (10 kg, 22 lb)		New: 6-8 (0.24-0.32), Used: 7-9 (0.28-0.35)		
Starter	Type		Coaxial reduction: FE (12 VALVE) and F2 Non-reduction: Others	
	Output V-kW		12-1.4	
	Brush length mm (in)	Standard	17.5 (0.689)	
		Minimum	10.0 (0.394)	
Ignition timing		6° ± 1° BTDC (Vacuum hose disconnected)	9° ± 1° BTDC (Test connector ground)	
Distributor	Type		Fully transistorized (HEI)	Electronic spark advance
	Centrifugal spark advance (crank angle/engine speed) degree/rpm		F2—Non-Turbo -1.2-2/1,200 9.8-16/2,400 12-16/3,500 16-20/4,500	
	Vacuum spark advance (crank angle/vacuum) degree/mmHg (in Hg)		F2—Non-Turbo [A chamber] -2-2/110 (4.3) 18-22/275 (10.8) [B chamber] -2.8-0/110 (4.3) -8-2.8/200 (7.9)	
Spark plug	Type		NGK: ZFR5A-11 ZFR6A-11 ZFR7A-11 Nippon Denso: QJ16CR11 QJ20CR11 QJ22CR11	
	Plug gap mm (in)		1.0-1.1 (0.039-0.043)	
Firing order		1-3-4-2		

30 TECHNICAL DATA

6. CLUTCH

Item		Engine model	F6	F8	FE	FE DOHC	F2 Non-Turbo	F2 Turbo
Clutch control								
Type			Hydraulic					
Master cylinder inner diameter		mm (in)	15.87 (0.625)					
Release cylinder inner diameter		mm (in)	19.05 (0.750)					
Clutch fluid type			DOT-3 or DOT-4, FMVSS 116, or SAE J1703					
Clutch pedal								
Type			Suspended					
Pedal ratio		LHD	6.00					
		RHD	5.96					
Full stroke		mm (in)	135 (5.31)					
Height		mm (in)	216.5—221.5 (8.524—8.720)					
Free play		mm (in)	5—13 (0.20—0.51)					
Distance to floor when clutch fully disengaged		LHD	68 (2.7) or more					
		RHD	85 (3.3) or more					
Flywheel								
Deflection		mm (in)	0.2 (0.008) max.					
Grinding limit		mm (in)	0.5 (0.020) max.					
Clutch disc								
Type			Single dry plate					
Set load		N (kg, lb)	3434 (350, 770)	3846 (392, 862)	4316 (440, 968)			5499 (560, 1235)
Runout		mm (in)	1.0 (0.039) max.					
Wear limit		mm (in)	0.3 (0.012) from rivet head					
Outer diameter		mm (in)	200 (7.874)	215 (8.465)	225 (8.858)			240 (9.449)
Inner diameter		mm (in)	130 (5.118)	150 (5.906)				160 (6.299)
Facing thickness		mm (in)	Flywheel side		3.5 (0.14)			
			Pressure plate side		4.1 (0.16)			3.5 (0.14)
Clutch cover								
Type			Diaphragm spring					
Runout		mm (in)	0.05 (0.0020) max.					
Grinding limit		mm (in)	0.5 (0.020)					

7A. MANUAL TRANSAXLE

Item	Engine model MTX model	F6	F8	FE	F2 Non-Turbo	F2 Turbo
		G Type				H Type
Transmission						
Shift lever position		Floor shift				
Gear ratio	First	3.307				3.250
	Second	1.833				1.772
	Third	1.310	1.233			1.194
	Fourth	1.030	0.970	0.914	0.926	
	Fifth	0.837	0.795	0.717	0.711	
	Reverse	3.166				3.461
Oil capacity	liters (US qt, Imp qt)	3.35 (3.6, 3.0)				3.65 (3.9, 3.3)
Fluid type	ATF: DEXRON-II Above 0°F: API GL-4 or GL-5 SAE80W-90 or SAE90					
Clearance						
Clearance of lever and reverse idle gear	Standard	0.1—0.32 (0.004—0.013)				
	Wear limit	0.37 (0.015)				
Clearance of shift fork and clutch hub sleeve	Standard	1st/2nd	0.2—0.4 (0.008—0.016)			0.05—0.408 (0.002—0.016)
		Others				0.1—0.408 (0.004—0.016)
	Wear limit	0.458 (0.018)				
Clearance of synchronizer ring and gear	Standard	1.5 (0.059)				
	Wear limit	0.8 (0.021)				
Gear thrust clearance	First	0.05—0.28 (0.002—0.011)				0.130—0.354 (0.0051—0.0139)
	Second	0.18—0.46 (0.007—0.018)				0.150—0.262 (0.0059—0.0103)
	Third	0.05—0.20 (0.002—0.008)				0.150—0.262 (0.0059—0.0103)
	Fourth	0.17—0.37 (0.0064—0.014)				0.150—0.262 (0.0059—0.0103)
Bearing preload of primary shaft gear		N-m (cm-kg, in-lb) Primary shaft: 0.1—0.25 (1.0—2.5, 0.86—2.18) Secondary shaft: 0.2—0.4 (2.0—4.0, 1.7—3.4)				
Bearing preload adjust shim		mm (in) 0.25 (0.010), 0.30 (0.012), 0.35 (0.014), 0.40 (0.016), 0.45 (0.018), 0.50 (0.020), 0.55 (0.022), 0.60 (0.024), 0.65 (0.026), 0.70 (0.028), 0.75 (0.030), 0.80 (0.031)				
Differential						
Final gear	Type	Helical gear				
	Reduction ratio	3.850			4.105	
Side bearing preload		1.4—2.0 N-m (14—20 cm-kg, 12—17 in-lb)				
Bearing preload adjust shim		mm (in) 0.10 (0.004), 0.15 (0.006), 0.20 (0.008), 0.25 (0.010), 0.30 (0.012), 0.35 (0.014), 0.40 (0.016), 0.45 (0.018), 0.50 (0.020), 0.55 (0.022), 0.60 (0.024), 0.65 (0.026), 0.70 (0.028), 0.75 (0.030), 0.80 (0.031), 0.85 (0.033), 0.90 (0.035), 0.95 (0.037), 1.00 (0.039), 1.05 (0.041), 1.10 (0.043), 1.15 (0.045), 1.20 (0.047)				
Backlash of side gear and pinion gear		mm (in) 0—0.1 (0—0.004)				

30 TECHNICAL DATA

7B. AUTOMATIC TRANSAXLE (ELECTRONICALLY CONTROLLED AND 4-SPEED)

Item	Model	G4A-EL (EC-AT)		G4A-HL (4-Speed)	
		Turbo	Non-Turbo	FE engine	F8 engine
Gear ratio	1st	2.800			
	2nd	1.540			
	3rd	1.000			
	4th (OD)	0.700			
	Reverse	2.333			
Oil capacity	liters (US qt, Imp qt)	6.8 (7.2, 6.0)			
Fluid type		ATF Dexron II or M III			
Fluid level with the engine idling in P		Between F and L marks on gauge			
Stall speed					
After brake-in	D, S, L	rpm	2120—2420	2430—2530	2180—2280
	R	rpm	2080—2380	2390—2490	2140—2240
Time lag					
N → D		sec	0.5—1.0	0.4—1.2	
N → R		sec	0.5—1.0	0.4—1.5	
Line pressure					
D, S, L	Idle	kPa (kg/cm ² , psi)	353—432 (3.6—4.4, 51—63)	350—490 (3.6—5.0, 51—71)	
	Stall	kPa (kg/cm ² , psi)	873—1,040 (8.4—10.6, 127—151)	980—1230 (10.0—12.5, 142—178)	
R	Idle	kPa (kg/cm ² , psi)	598—942 (6.1—9.6, 87—137)	600—830 (6.1—8.5, 87—121)	
	Stall	kPa (kg/cm ² , psi)	1,668—2,011 (17.0—20.5, 242—292)	1470—1960 (15.0—20.0, 213—284)	
Throttle pressure					
D	Idle	kPa (kg/cm ² , psi)	39—88 (0.4—0.9, 6—13)	83—113 (0.85—1.15, 12—16)	
	Stall	kPa (kg/cm ² , psi)	471—589 (4.8—6.0, 68—85)	540—610 (5.5—6.2, 78—88)	
Governor pressure					
D	30 km/h (19 mph)	kPa (kg/cm ² , psi)	—	79—114 (0.81—1.16, 12—16)	82—117 (0.84—1.19, 12—17)
	55 km/h (34 mph)	kPa (kg/cm ² , psi)	—	146—190 (1.49—1.94, 21—28)	157—201 (1.60—2.05, 23—29)
	85 km/h (53 mph)	kPa (kg/cm ² , psi)	—	276—339 (2.81—3.46, 40—49)	302—366 (3.08—3.73, 44—53)

ft point (G4A-EL)

Throttle condition (Throttle sensor voltage)	Shift	Drum speed rpm		Vehicle speed km/h (mph)	
		Non-Turbo	Turbo	Non-Turbo	Turbo
Fully opened (4.3 volt)	D1→D2	5,000—5,500	4,900—5,500	54—56 (33—35)	53—59 (33—37)
	D2→D3	5,300—5,700	5,100—5,500	105—113 (65—70)	100—108 (62—67)
	D3→OD	5,400—5,700	5,450—5,800	165—175 (102—109)	
Half throttle (1.6—2.2 volt)	D1→D2	3,500—4,050	3,550—4,150	38—44 (24—27)	
	D2→D3	3,750—4,250	3,850—4,350	75—85 (47—53)	
	D3→OD	3,600—4,250	3,650—4,300	110—130 (68—81)	
	Lock-up ON (OD)	2,500—3,000	2,800—3,000	110—130 (68—81)	
	Lock-up OFF (OD)	2,400—2,850	2,400—2,900	104—124 (64—77)	
	OD→D3	1,950—2,450	1,800—2,300	85—107 (53—66)	77—99 (48—61)
	D3→D2	1,750—2,300	1,700—2,100	54—70 (33—43)	51—63 (32—39)
Kick-down	OD→D3	3,500—3,700	3,550—3,800	153—163 (95—101)	
	OD→D2	2,150—2,350	2,150—2,300	94—102 (58—63)	92—100 (57—62)
	OD→D1	950—1,100	1,000—1,150	42—48 (26—30)	44—50 (27—31)
	D3→D2	3,050—3,350	3,050—3,300	94—102 (40—63)	92—100 (57—62)
	D3→D1	1,350—1,550	1,450—1,650	42—48 (26—30)	44—50 (27—31)
	D2→D1	2,200—2,400	2,250—2,550	42—48 (26—30)	44—50 (27—31)
	D1→D2	4,900—5,450	4,750—5,300	54—60 (33—37)	51—57 (32—35)
Fully opened (4.3 volt)	D2→D3	5,100—5,500	4,900—5,300	102—110 (63—68)	96—104 (60—64)
	D3→OD	5,400—5,700	5,450—5,800	165—175 (102—109)	
	D1→D2	2,800—3,350	3,200—3,850	31—37 (19—23)	
Half throttle (1.6—2.2 volt)	D2→D3	3,000—3,400	3,450—3,900	60—68 (37—42)	
	D3→OD	2,900—3,450	3,350—4,000	89—107 (55—66)	
	Lock-up ON (OD)	2,050—2,500	2,400—2,850	91—109 (56—68)	
	Lock-up OFF (OD)	1,950—2,350	2,250—2,700	85—103 (53—64)	
	OD→D3	1,600—1,950	1,400—1,850	70—86 (43—53)	54—70 (33—43)
	D3→D2	1,200—1,550	1,250—1,550	38—48 (24—30)	34—42 (21—26)
	OD→D3	3,500—3,700	3,550—3,800	153—163 (95—101)	
Kick-down	OD→D2	2,050—2,250		90—98 (56—61)	89—97 (55—60)
	OD→D1	950—1,100	1,000—1,150	42—48 (26—30)	44—50 (27—31)
	D3→D2	2,950—3,200		90—98 (56—61)	89—97 (55—60)
	D3→D1	1,350—1,550	1,450—1,650	42—48 (26—30)	44—50 (27—31)
	D2→D1	2,100—2,400	2,250—2,550	42—48 (26—30)	44—50 (27—31)
	S1→S2	5,000—5,500	4,900—5,500	54—56 (33—35)	53—59 (33—37)
	S2→S3	5,300—5,700	5,100—5,500	105—113 (65—70)	100—108 (62—67)
Fully opened (4.3 volt)	S4→S3	3,750—4,000	3,850—4,050	165—175 (102—109)	
	S3→S2	3,050—3,350	3,050—3,300	94—102 (40—63)	92—100 (57—62)
	S2→S1	2,200—2,400	2,250—2,550	42—48 (26—30)	44—50 (27—31)
Half throttle (1.6—2.2 volt)	S1→S2	3,500—4,050	3,350—4,150	38—44 (24—27)	
	S2→S3	3,750—4,250	3,850—4,350	75—85 (47—53)	
	S4→S3	1,950—2,450	1,800—2,300	85—107 (53—66)	77—99 (48—61)
	S3→S2	1,750—2,300	1,700—2,100	54—70 (33—43)	51—63 (32—39)
Fully opened (4.3 volt)	L1→L2	5,000—5,500	4,900—5,500	54—56 (33—35)	53—59 (33—37)
	L2→L1	2,200—2,400	2,250—2,550	42—48 (26—30)	44—50 (27—31)
Half throttle (1.6—2.2 volt)	L1→L2	3,500—4,050	3,350—4,150	38—44 (24—27)	
	D2→D3	850—1,150	1,000—1,350	17—23 (11—14)	
Fully closed (0.5 volt)	D3→D2	250—400	250—500	7—13 (4—8)	
	OD→D3	3,750—4,000	4,350—4,600	165—175 (102—109)	
	S3→S2	3,600—3,850	4,100—4,400	110—118 (68—73)	108—116 (67—72)
	L2→L1	2,150—2,450	2,200—2,500	43—49 (27—30)	

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Shift point (G4A-HL)

Range	Throttle condition	Shifting	Vehicle speed km/h (mph)	
			FE engine	F8 engine
D	Fully opened	1st → 2nd	50—65 (31—40)	47—62 (29—38)
		2nd → 3rd	100—115 (62—71)	94—109 (58—68)
	Half throttle (1/2)	1st → 2nd	17—32 (11—20)	16—31 (10—19)
		2nd → 3rd	42—57 (26—35)	
		3rd → OD	79—94 (49—58)	74—89 (46—55)
	Kick-down	Lock-up	74—89 (46—55)	
		OD → 3rd	More than 88 (55)	More than 82 (51)
		OD → 2nd	34—103 (21—64)	33—97 (20—60)
		OD → 1st	27—49 (17—30)	26—48 (16—30)
		3rd → 2nd	34—103 (21—64)	33—97 (20—60)
1	Fully opened	3rd → 1st	11—49 (7—30)	10—48 (6—30)
		2nd → 1st	4—49 (2—30)	3—48 (2—30)
	Half throttle	1st → 2nd	56—71 (35—44)	52—67 (32—42)
1st → 2nd		56—71 (35—44)	52—67 (32—42)	
Kick-down	2nd → 1st	46—61 (29—38)	43—58 (27—36)	

Item	Model	G4A-EL (EC-AT)		G4A-HL (4-speed)	
		Turbo	Non-Turbo	FE engine	F8 engine
Torque converter					
Stall torque ratio		1.600—1.800 : 1	1.700—1.900 : 1	1.900—2.100 : 1	
Bushing diameter	mm (in)	Standard	53.030 (2.088)		
		Maximum	53.076 (2.090)		
Oil pump					
Clearance					
Cam ring to oil pump cover	mm (in)	Standard	0.005—0.020 (0.0002—0.0008)		
		Maximum	0.080 (0.003)		
Rotor to oil pump cover	mm (in)	Standard	0.005—0.020 (0.0002—0.0008)		
		Maximum	0.030 (0.0012)		
Vane to oil pump cover	mm (in)	Standard	0.015—0.050 (0.0006—0.0020)		
		Maximum	0.080 (0.003)		
Seal pin to oil pump cover	mm (in)	Standard	0.005—0.020 (0.0002—0.0008)		
		Maximum	0.060 (0.002)		
Vane to rotor groove	mm (in)	Standard	0.010—0.045 (0.0004—0.0018)		
		Maximum	0.065 (0.0026)		
Sleeve outer diameter	mm (in)	Standard	28.00 (0.102)		
Rotor bushing in inner diameter	mm (in)	Standard	28.00 (1.102)		
		Maximum	28.05 (1.104)		
Seal pin outer diameter	mm (in)	Standard	5.00 (0.197)		
		Minimum	4.90 (0.193)		
Guide ring outer diameter	mm (in)	Standard	57.85 (2.278)		
		Minimum	57.70 (2.272)		
Valve outer diameter	mm (in)	Standard	12.00 (0.472)		
		Minimum	11.86 (0.467)		

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Item	Model		G4A-EL (EC-AT)		G4A-HL (4-speed)	
			Turbo	Non-Turbo	FE engine	F8 engine
Forward clutch						
Number of drive/driven plate			4/4		3/3	
Drive plate thickness	mm (in)	Standard	1.6 (0.063)			
		Minimum	1.4 (0.055)			
Forward clutch clearance		mm (in)	1.0—1.2 (0.040—0.047)			
Retaining plate sizes		mm (in)	5.9 (0.232), 6.1 (0.240), 6.3 (0.248), 6.5 (0.256), 6.7 (0.264), 8.9 (0.350)			
Coasting clutch						
Number of drive/driven plates			2/2			
Drive plate thickness	mm (in)	Standard	1.6 (0.063)			
		Minimum	1.4 (0.055)			
Coasting clutch clearance		mm (in)	1.0—1.2 (0.040—0.047)			
Retaining plate sizes		mm (in)	4.6 (0.181), 4.8 (0.189), 5.0 (0.197), 5.2 (0.205), 5.4 (0.213), 5.6 (0.220)			
Return spring free length		mm (in)	29.8 (1.173)			
Reverse clutch						
Number of drive/driven plates			2/2			
Driven plate thickness	mm (in)	Standard	1.6 (0.063)			
		Minimum	1.4 (0.055)			
Reverse clutch clearance		mm (in)	2.1—2.4 (0.083—0.094)			
Retaining plate sizes		mm (in)	6.6 (0.260), 6.8 (0.268), 7.0 (0.276), 7.2 (0.283), 7.4 (0.291), 7.6 (0.299)			
I-4 clutch						
Number of drive/driven plates			5/5		4/4	
Drive plate thickness	mm (in)	Standard	1.6 (0.063)			
		Minimum	1.4 (0.055)			
I-4 clutch clearance		mm (in)	1.3—1.5 (0.051—0.059)			
Retaining plate sizes		mm (in)	3.8 (0.150), 4.0 (0.157), 4.2 (0.165), 4.4 (0.173), 4.6 (0.181), 4.8 (0.189)		4.8 (0.819), 5.0 (0.197), 5.2 (0.205), 5.4 (0.213), 5.6 (0.220)	
Return spring free length		mm (in)	33.2 (1.307)			
Forward and reverse brake						
Number of drive/driven plates			5/5		4/4	
Drive plate thickness	mm (in)	Standard	1.6 (0.063)			
		Minimum	1.4 (0.055)			
Forward and reverse brake clearance		mm (in)	2.1—2.4 (0.083—0.094)			
Retaining plate sizes		mm (in)	6.8 (0.268), 7.0 (0.276), 7.2 (0.283), 7.4 (0.291), 7.6 (0.299), 7.8 (0.307)			
Return spring free length		mm (in)	20.5 (0.807)			
Sun gear drum bushing		mm (in)	Maximum	33.425 (1.316)		
Small sun gear bushing		mm (in)	Maximum	24.021 (0.946)		
Carrier hub						
Clearance between pinion washer and planet carrier		mm (in)	Maximum	0.2—0.7 (0.008—0.028)		
Service						
Free length of return spring		mm (in)	Standard	42.0 (1.654)	43.25 (1.703)	42.0 (1.654) 43.25 (1.703)
3 accumulator valve						
3 accumulator valve spring		mm (in)	Standard	75.4 (2.968)	83.3 (3.280)	76.0 (2.992)

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Control valve spring (G4A-EL)

Spring name		Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)	Spring color
1-2 accumulator small spring	Non-Turbo	10.8 (0.425)	96.1 (3.788)	1.3 (0.051)	Light green
1-2 accumulator large spring	Non-Turbo	16.0 (0.630)	87.1 (3.429)	2.1 (0.083)	Red
	Turbo	12.8 (0.504)	83.6 (3.291)	1.7 (0.067)	White
Bypass, servo control spring	Non-Turbo	5.0 (0.197)	33.4 (1.315)	0.55 (0.022)	Maroon
	Turbo	5.0 (0.197)	37.1 (1.461)	0.55 (0.022)	White
2-3 timing spring		8.3 (0.327)	26.5 (1.043)	0.8 (0.031)	—
N/R accumulator rear spring		11.1 (0.437)	62.0 (2.441)	1.2 (0.047)	Light green
N/D accumulator front spring	Non-Turbo	9.8 (0.386)	52.9 (2.083)	1.0 (0.039)	Brown
	Turbo	9.8 (0.386)	68.0 (2.677)	1.1 (0.043)	Orange
Coasting bypass spring		5.8 (0.228)	37.7 (1.484)	0.6 (0.024)	Dark blue
3-2 timing spring		8.2 (0.323)	28.6 (1.126)	0.8 (0.031)	Red
3-2 capacity spring		5.4 (0.213)	30.6 (1.205)	0.5 (0.020)	White
Throttle relief ball spring		6.6 (0.260)	21.6 (0.850)	0.8 (0.031)	—
Pressure modifier spring		8.3 (0.327)	26.5 (1.043)	0.8 (0.031)	—
Low reducing spring		8.7 (0.343)	38.3 (1.508)	0.9 (0.035)	Black
1-2 shift spring		8.7 (0.343)	41.3 (1.626)	1.0 (0.039)	Yellow
2-3, 3-4 shift spring		7.4 (0.291)	36.6 (1.441)	0.8 (0.031)	Gray
Throttle backup spring		9.65 (0.380)	26.9 (1.060)	0.55 (0.022)	Red
Throttle modulator spring		6.3 (0.248)	47.9 (1.886)	0.8 (0.031)	—
Throttle assist spring		5.15 (0.203)	32.3 (1.272)	0.55 (0.022)	Dark green
Throttle spring		5.4 (0.213)	47.2 (1.858)	0.8 (0.031)	Pink
Converter relief ball spring		6.9 (0.272)	24.1 (0.949)	0.9 (0.035)	Maroon
Orifice check valve spring		5.0 (0.197)	12.5 (0.492)	0.23 (0.009)	—
Pressure regulator spring		11.5 (0.453)	26.5 (1.043)	1.0 (0.039)	Maroon
Lock-up control spring		5.0 (0.197)	35.2 (1.386)	0.6 (0.024)	Purple

Control valve springs (G4A-HL)

Spring name		Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)	Spring color
1-2 accumulator small spring	F8 engine	9.9 (0.400)	84.7 (3.335)	1.2 (0.047)	Red
1-2 accumulator large spring	FE engine	13.0 (0.512)	73.2 (2.881)	1.8 (0.071)	Pink
	F8 engine	16.0 (0.630)	84.7 (3.335)	2.0 (0.079)	White
Bypass spring		5.0 (0.197)	25.1 (0.988)	0.7 (0.028)	Yellow
Servo control spring		4.9 (0.193)	27.1 (1.067)	0.5 (0.020)	Light blue
2-3 timing spring		8.3 (0.327)	26.5 (1.043)	0.8 (0.031)	—
N-R accumulator rear spring		11.1 (0.437)	68.2 (2.685)	1.0 (0.039)	Blue
N-D accumulator front spring		9.8 (0.386)	60.9 (2.398)	1.1 (0.043)	Yellow
Low reducing spring		8.7 (0.343)	38.3 (1.508)	0.9 (0.035)	Black
OD release spring		6.0 (0.236)	32.6 (1.283)	0.6 (0.024)	Orange
Coasting bypass spring		5.8 (0.228)	31.3 (1.232)	0.6 (0.024)	Yellow
3-2 timing spring		8.2 (0.323)	28.55 (1.124)	0.8 (0.031)	Maroon
3-2 capacity spring		5.55 (0.219)	30.5 (1.201)	0.55 (0.022)	Light green
Throttle relief ball spring		6.6 (0.260)	20.3 (0.799)	0.8 (0.031)	Light green
1-2 shift control spring		5.5 (0.217)	46.0 (1.811)	0.5 (0.020)	Light green
1-2 shift spring		5.0 (0.197)	24.9 (0.980)	0.5 (0.020)	Gray
2-3 shift spring		6.1 (0.240)	39.7 (1.563)	0.65 (0.026)	Pink
3-4 shift spring		6.4 (0.252)	37.0 (1.457)	0.6 (0.024)	—
Throttle backup spring		6.4 (0.252)	33.5 (1.319)	0.6 (0.024)	Pink
Throttle modulator front spring		5.0 (0.197)	27.8 (1.094)	0.6 (0.024)	Red
Throttle modulator rear spring		7.15 (0.281)	30.8 (1.213)	0.85 (0.033)	Red
1 range control spring		6.15 (0.242)	39.2 (1.543)	0.65 (0.026)	White
2 range control spring		3.95 (0.156)	32.1 (1.264)	0.45 (0.018)	—
Kick-down spring		5.4 (0.213)	38.1 (1.500)	0.8 (0.031)	—
Throttle assist spring		5.15 (0.203)	32.3 (1.272)	0.55 (0.022)	Dark green
Throttle spring		5.4 (0.213)	48.3 (1.902)	0.8 (0.031)	—

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Spring name	Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)	Spring color
Converter relief ball spring	6.9 (0.272)	24.1 (0.949)	0.9 (0.035)	Maroon
Orifice check valve spring	5.0 (0.197)	12.5 (0.492)	0.23 (0.009)	—
Pressure regulator spring	9.5 (0.374)	30.7 (1.209)	0.7 (0.028)	—
Lock-up control spring	7.3 (0.287)	46.2 (1.819)	0.8 (0.031)	Blue
Lock-up support spring	6.1 (0.240)	43.5 (1.713)	0.65 (0.026)	Blue
OD lock-up spring	7.1 (0.280)	66.5 (2.618)	0.8 (0.031)	Red

Item	Model	G4A-EL (EC-AT)		G4A-HL (4-speed)	
		Turbo	Non-Turbo	FE engine	F8 engine
Gear assembly					
Total end play	mm (in)	0.25—0.50 (0.010—0.020)			
End play adjust race	mm (in)	1.2 (0.047), 1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087)			
Idle gear bearing preload	N-m (cm-kg, in-lb)	0.03—0.9 (0.3—9.0, 0.26—7.8)			
Preload adjust shims	mm (in)	0.10 (0.004), 0.12 (0.005), 0.14 (0.006), 0.16 (0.0063), 0.18 (0.007), 0.20 (0.008)			
Output gear bearing preload	N-m (cm-kg, in-lb)	0.03—0.9 (0.3—9.0, 0.26—7.8)			
Preload adjust shims	mm (in)	0.10 (0.004), 0.12 (0.005), 0.14 (0.006), 0.16 (0.0063), 0.18 (0.007), 0.20 (0.008), 0.50 (0.020)			
Drive and differential					
Final gear	Type	Helical gear			
	Reduction ratio	3,700 : 1			
Side bearing preload	N-m (cm-kg, in-lb)	2.9—3.9 (30—40, 26—35)			
Preload adjust shims	mm (in)	0.10 (0.004), 0.12 (0.005), 0.14 (0.006), 0.16 (0.0063), 0.18 (0.007), 0.20 (0.008), 0.50 (0.020), 0.70 (0.028), 1.00 (0.039)			
Backlash of side gear and pinion mm (in)	Standard	0.025—0.1 (0.001—0.004)			
	Maximum	0.5 (0.020)			
Torque converter distance "A" (Refer to page 7B—214)	mm (in)	25 (0.984)			

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7C. AUTOMATIC TRANSAXLE (3-SPEED)

Item		Engine model	FE engine	F6 engine
Model			F3A	
Gear ratio		1st	2.841	
		2nd	1.541	
		3rd	1.000	
		Reverse	2.400	
Oil capacity		Liters (US qt, Imp qt)	6.2 (6.6, 5.5)	
Fluid type			ATF Dexron-II or M-III	
Fluid level with the engine idling at P			Between F and L marks on gauge	
Stall revolution				
After brake in		rpm	2050—2150	1800—2050
Line pressure				
D, 1	Idle	kPa (kg/cm ² , psi)	294—392 (3—4, 43—57)	
	Stall	kPa (kg/cm ² , psi)	883—1079 (9—11, 128—156)	
2	Idle	kPa (kg/cm ² , psi)	785—1177 (8—12, 114—171)	
	Stall	kPa (kg/cm ² , psi)	785—1177 (8—12, 114—171)	
R	Idle	kPa (kg/cm ² , psi)	392—687 (4—7, 57—100)	
	Stall	kPa (kg/cm ² , psi)	1570—1864 (16—19, 228—270)	
Governor pressure				
D	30 km/h (19 mph)	kPa (kg/cm ² , psi)	78—137 (0.8—1.4, 11—20)	
	50 km/h (31 mph)	kPa (kg/cm ² , psi)	157—226 (1.6—2.3, 23—33)	
	85 km/h (53 mph)	kPa (kg/cm ² , psi)	314—402 (3.2—4.1, 46—58)	
Line pressure cut back				
Vacuum of vacuum pump			Governor pressure kPa (kg/cm ² , psi)	
0 mmHg (0 inHg)			98—157 (1.0—1.6, 14—23)	
200 mmHg (7.87 inHg)			39—98 (0.4—1.0, 6—14)	
Shift point				
Range	Throttle condition (manifold vacuum)	Shifting	Shift point speed km/h (mph)	
D	Fully opened 0—100 mmHg (0—3.94 inHg)	1st → 2nd	47—57 (29—35)	44—54 (27—33)
		2nd → 3rd	106—119 (66—74)	95—108 (59—67)
		3rd → 2nd	95—103 (59—64)	86—94 (53—58)
		2nd → 1st	35—39 (22—24)	34—38 (21—24)
	Half throttle 130 mmHg (5.12 inHg)	1st → 2nd	18—31 (11—19)	18—31 (11—19)
		2nd → 3rd	39—68 (24—42)	44—73 (27—45)
1	Fully closed	2nd → 1st	10—15 (6—9)	10—15 (6—9)
		2nd → 1st	32—39 (20—24)	33—40 (20—25)
Torque converter				
Stall torque ratio			1.800—2.100 : 1	
Bushing inner diameter		mm (in)	Standard	33.000—33.025 (1.299—1.300)
			Maximum	33.075 (1.302)
Oil pump				
Clearance				
Gear and pump cover		mm (in)	Standard	0.02—0.04 (0.0008—0.0016)
			Maximum	0.08 (0.0031)
Outer gear and crescent		mm (in)	Standard	0.14—0.21 (0.0055—0.0083)
			Maximum	0.25 (0.0098)
Outer gear and housing		mm (in)	Standard	0.05—0.20 (0.002—0.0079)
			Maximum	0.25 (0.0098)
Oil seal ring and ring groove		mm (in)	Standard	0.04—0.16 (0.0016—0.0063)
			Maximum	0.40 (0.0157)
Pump housing sleeve diameter		mm (in)	Standard	37.950—37.975 (1.494—1.495)
			Maximum	37.900 (1.492)
Inner gear bushing inner diameter		mm (in)	Standard	38.0—38.025 (1.496—1.497)
			Maximum	38.075 (1.499)

Item	Engine model	FE engine	F6 engine	
Front clutch				
Number of driven and drive plates		3		
Drive plate thickness	mm (in)	Standard	1.6 (0.063)	
		Minimum	1.4 (0.055)	
Front clutch clearance		1.6—1.8 (0.063—0.071)		
Retaining plate sizes		5.2 (0.205), 5.4 (0.213), 5.6 (0.220), 5.8 (0.228), 6.0 (0.236), 6.2 (0.244)		
Return spring free length		26.2 (1.031)		
Drum bushing inner diameter	mm (in)	Standard	44.000—44.025 (1.732—1.733)	
		Maximum	44.075 (1.735)	
Front clutch drum end play		0.5—0.8 (0.197—0.0315)		
End play adjust shims		1.3 (0.0512), 1.5 (0.0591), 1.7 (0.0669), 1.9 (0.0748), 2.1 (0.0827), 2.3 (0.0906), 2.5 (0.0984), 2.7 (0.1063)		
Rear clutch				
Number of driven and drive plates		4		
Drive plate thickness	mm (in)	Standard	1.6 (0.063)	
		Minimum	1.4 (0.055)	
Rear clutch clearance		0.8—1.0 (0.0315—0.0394)		
Retaining plate sizes		4.8 (0.189), 5.0 (0.197), 5.2 (0.205), 5.4 (0.213), 5.6 (0.220), 5.8 (0.228), 6.0 (0.236), 6.2 (0.244)		
Return spring free length		26.2 (1.031)		
Low and reverse brake				
Number of low and reverse brake plates		4		
Drive plate thickness	mm (in)	Standard	1.6 (0.063)	
		Minimum	1.4 (0.055)	
Low and reverse brake clearance		0.8—1.05 (0.032—0.041)		
Retaining plate sizes		4.6 (0.181), 4.8 (0.189), 5.0 (0.197), 5.2 (0.205), 5.4 (0.213), 5.6 (0.220)		
Return spring free length		27.7 (1.091)		
Servo				
Return spring free length		48.0 (1.89)	45.5 (1.79)	
Governor				
Primary spring	mm (in)	Outer diameter	9.0 (0.354)	
		Free length	17.2 (0.667)	
Secondary spring	mm (in)	Outer diameter	9.25 (0.364)	
		Free length	13.2 (0.520)	
One-way clutch				
Bushings diameter	mm (in)	Standard	129.987—130.013 (5.118—5.119)	
		Maximum	130.063 (5.121)	
Control valve springs				
Spring name		Outer dia. mm (in)	Free length mm (in)	Wire dia. mm (in)
Throttle backup spring		7.3 (0.287)	36.0 (1.417)	0.8 (0.031)
Downshift spring		5.55 (0.219)	21.9 (0.862)	0.55 (0.022)
2-3 shift spring		6.9 (0.272)	41.0 (1.614)	0.7 (0.028)
1-2 shift spring		6.4 (0.252)	31.63 (1.245)	0.4 (0.016)
Second lock spring		5.55 (0.219)	33.5 (1.319)	0.55 (0.022)
Pressure regulator spring		11.7 (0.461)	43.0 (1.693)	1.2 (0.047)
Throttle relief ball spring		7.0 (0.276)	11.2 (0.441)	0.9 (0.035)
Orifice check valve spring		5.0 (0.197)	15.5 (0.610)	0.23 (0.009)

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Engine model		FE engine	F6 engine
Gear assembly			
Total end play	mm (in)	0.25—0.50 (0.010—0.0196)	
End play adjust races	mm (in)	1.2 (0.047), 1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087)	
Idle gear bearing preload	Nm (cm-kg, in-lb)	0.03—0.9 (0.3—9.0, 0.26—7.81)	
Preload adjust shims	mm (in)	0.10 (0.0039), 0.12 (0.0047), 0.14 (0.0055), 0.16 (0.0063), 0.20 (0.0078), 0.50 (0.0196)	
Output gear bearing preload	Nm (cm-kg, in-lb)	0.03—0.9 (0.3—9.0, 0.26—7.81)	
Preload adjust shims	mm (in)	0.10 (0.0039), 0.12 (0.0047), 0.14 (0.0055), 0.16 (0.0063), 0.20 (0.0078), 0.50 (0.0196)	
Drive and differential			
Final gear	Type	Helical gear	
	Reduction ratio	3.450 : 1	3.631 : 1
Side bearing preload	Nm (cm-kg, in-lb)	2.1— 3.0 (21—31, 18—27)	
Preload adjust shims	mm (in)	0.10 (0.004), 0.12 (0.005), 0.14 (0.006), 0.16 (0.0063), 0.18 (0.007), 0.20 (0.008), 0.50 (0.020), 0.70 (0.028), 1.00 (0.039)	
Backlash of side gear and pinion	Standard	0.025—0.1 (0.001— 0.004)	
	Maximum	0.5 (0.020)	
Torque converter distance A (Refer to 7C—118)	mm (in)	20 (0.787)	

9. FRONT AND REAR AXLES

Engine model		F6, F8	FE, F2 Non-Turbo	F2 Turbo
Driveshaft				
Length of joint (between centers of joints)	mm (in)	368.5 (14.51)	360.0 (14.17)	355.5 (14.00)
	MTX	359.5 (14.15)	355.5 (14.00)	348.8 (13.73)
Shaft diameter	mm (in)	23.0 (0.91)	24.0 (0.94)	26.0 (1.02)
	ATX	23.0 (0.91)	24.0 (0.94)	26.0 (1.02)
Front axle				
Front wheel bearing end play	mm (in)	0.2 (0.0079) max.		
Rear axle				
Rear wheel bearing end play	mm (in)	0.2 (0.0079) max.		

10. STEERING SYSTEM

Type		Manual steering	Power steering
Steering wheel	Outer diameter mm (in)	380 (15.0)	
	Turns lock to lock	4.32	2.93
Steering shaft and joints	Shaft type	Collapsible	
	Joint type	Cross joints (2)	
	Tilt stroke mm (in)	40 (1.6)	
Front steering gear	Type	Rack and pinion	
	Gear ratio	∞ (infinite)	
Power steering fluid	Capacity liter (US quarts, Imp quarts)	—	0.9 (0.95, 0.79)
	Type	—	Dexron II or M III

1. BRAKING SYSTEM

Item		Specifications	
Brake pedal	Height mm (in)	LHD & RHD 222 ± 5 (8.74 ± 0.2)	
	Free play mm (in)	4-7 (0.16-0.28)	
	Reserve travel mm (in)	95 (3.74) min.	
	(Clearance when pedal is depressed at 589 N (60 kg, 132 lb))		
	Lever ratio	4.2	
	Max. stroke mm (in)	LHD: 136.5 (5.37) RHD: 135 (5.31)	
Master cylinder	Type	Tandem	
	Bore mm (in)	22.22 (0.875)	
	Fluid type	DOT-3 or 4, or SAE J1703	
Front disc brake	Type	Disc (ventilated)	
	Thickness of pad mm (in)	Standard	10.0 (0.39)
		Minimum	2.0 (0.08)
	Area of pad mm ² (in ²)	4,800 (7.44)	
	Outer diameter of disc plate mm (in)	(a): 242 (9.53) (b): 264 (10.39)	
	Thickness of disc plate mm (in)	Standard	(a): 20.0 (0.79) (b): 24.0 (0.94)
		Minimum	(a): 18.0 (0.71) (b): 22.0 (0.87)
	Disc plate runout mm (in)	Maximum	0.1 (0.004)
Wheel cylinder bore mm (in)		53.97 (2.125)	
Rear drum brake	Type	Leading-trailing	
	Clearance between shoe and drum		Self-adjusting
	Thickness of lining mm (in)	Standard	(a): 5.0 (0.20) (b): 4.5 (0.18)
		Minimum	1.0 (0.04)
	Width of lining mm (in)	(a): 25 (0.98) (b): 30 (1.18)	
	Length of lining mm (in)	(a): 191.9 (7.56) (b): 219.3 (8.63)	
	Inner diameter of drum mm (in)	Standard	(a): 200.0 (7.87) (b): 228.6 (9.00)
		Maximum	(a): 201.5 (7.93) (b): 230.1 (9.06)
Wheel cylinder bore mm (in)		17.46 (0.687)	
Rear disc brake	Type	Disc (solid)	
	Thickness of pad mm (in)	Standard	8.0 (0.31)
		Minimum	1.0 (0.04)
	Area of pad mm ² (in ²)	2,900 (4.5)	
	Outer diameter of disc plate mm (in)	259 (10.2)	
	Thickness of disc plate mm (in)	Standard	10.0 (0.40)
		Minimum	8.0 (0.31)
Disc plate runout mm (in)	Maximum	0.1 (0.04)	
Wheel cylinder bore mm (in)		30.2 (1.19)	
Parking brake	Type	Center lever	
	Lever notches (Pulled at 98N (10 kg, 22 lb))	5-7	
Power brake unit	Diameter mm (in)	238 (9.37)	
	Clearance between master cylinder piston and push rod mm (in)	0 (0)	
	Fluid pressure per treading force kPa (kg/cm ² , psi)/N (kg, lb)	1,177 (12,171)/196 (20, 44) min. when no vacuum is applied 7,063 (72, 1,024)/196 (20, 44) min. when 500 mmHg (19.7 in Hg) vacuum is applied	
Rear wheel hydraulic control device (system)	Type	Dual proportioning valve (Non-ABS) or ABS	
	Break point kPa (kg/cm ² , psi)	Australia: 1,962 (20, 284) General LHD and RHD: 2,942 (30, 427)	

); General RHD 13 inch-wheel
 i); Except General RHD 13 inch-wheel

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12. WHEEL AND TIRE

Item		Type	Standard	
Wheel	Size		5-Jx13	
			5-Jx14, 5 1/2-JJx14	
			6JJx15	
		Offset mm (in)	42 (1.65)	
		Diameter of pitch circle mm (in)	114.3 (4.5)	
	Material		Steel or aluminum alloy	
Number of fixing nuts	13 inch-wheel	4		
	14 inch-wheel	5		
	15 inch-wheel			
Tire	Size	13 inch-wheel	6.45-13-6PR 165SR13 165/80R13 82S 185/70HR13 185/70R13 85H	
		14 inch-wheel	165SR14 165/80R14 84S 185/70HR14 185/70R14 87H 185/70R14 88H	
		15 inch-wheel	195/60R15 86H	
	Air pressure kPa (kg/cm ² , psi)	Front	216 (2.2, 31) or 196 (2.0, 28) Refer to tire labels for applications.	
		Rear	177 (1.8, 26)	
	Wheel and tire	Runout mm (in)	Horizontal	Steel wheel: 2.5 (0.098), Aluminum alloy wheel: 2.0 (0.079) max.
Vertical			2.0 (0.079) max.	
Unbalance g (oz)		13 inch-wheel	11 (0.39) max.	
		14 inch-wheel	10 (0.35) max.	
		15 inch-wheel	9 (0.32) max.	

13. SUSPENSION

Item		Specification									
Front suspension		Strut									
Type		3 ± 3 (0.12 ± 0.12)									
Front wheel alignment	Toe-in mm (in)	0°17' ± 45'									
	Camber angle	1°13' ± 45'									
	Caster angle	12°47'									
	King pin angle	36°26'33" (a) 34°00' ± 2°									
Maximum front steering angle	Inner	30°59'15" (a) 29°00' ± 2°									
	Outer										
Stabilizer	Type	Torsion bar									
	Diameter mm (in)	20.0 (0.79)									
Coil springs*	Identification color	Orange	Green	Light green	Pink	Brown	Purple	Gray	Blue	Cream	
	Wire diameter mm (in)	12.5 (0.49)	12.6 (0.49)	12.8 (0.50)	12.9 (0.51)	13.1 (0.52)	13.3 (0.53)	13.6 (0.54)	13.7 (0.54)	14.0 (0.55)	
	Coil inner diameter mm (in)	147.5 (5.8)									
	Free length mm (in)	344 (13.5)	353 (13.9)	362 (14.3)	370 (14.6)	372 (14.6)	365 (14.4)	350 (13.8)	358 (14.1)	345 (13.6)	
	Coil number	4.99	5.09	5.31	5.42	5.53	5.46	5.34	5.45	5.35	

* Refer to pages 13—4 for coil-spring applications.
(a) F2 Turbo EC-AT vehicles

TECHNICAL DATA 30

Item		Specification				
Rear suspension						
Type	Strut					
Rear wheel alignment	Toe-in mm (in)	0 ± 3 (0 ± 0.12)				
	Camber angle	-0°30' ± 45'				
Stabilizer	Type	Torsion bar				
	Diameter mm (in)	16 (0.63)				
Coil springs*	Identification color	Yellow	Brown	Blue	Green	Red
	Wire diameter mm (in)	11.8 (0.46)	11.9 (0.47)	12.1 (0.48)	12.2 (0.48)	12.4 (0.49)
	Coil inner diameter mm (in)	127.5 (5.0)				
	Free length mm (in)	314 (12.4)	323 (12.7)	327 (12.9)	332 (13.1)	336 (13.2)
	Coil number	5.72	5.87	6.03	6.04	6.21

* Refer to pages 13-5 for coil spring applications.

15. BODY ELECTRICAL SYSTEM

Item		Specification (W)
Front exterior lights	Halogen headlight	60/55
	Side turn and turn signal light	21
	Position light	5
Rear exterior lights	Back-up light	23
	License plate light	6
	Stop/Tail light	21/5
	Turn signal light	23

TECHNICAL DATA

Item		Specification (W)
Indicator and warning lights	Brake	1.4
	Oil pressure	1.4
	Fuel	1.4
	Washer level	1.4
	Rear	1.4
	Door	1.4
	ABS	1.4
	Alternator	1.4
	High beam	3.4
	Turn signal	3.4
	O/D OFF	0.8
	A/T mode	0.8
	A/T position	0.8
	Interior lights	Glove compartment light
Interior light		10
Luggage compartment light		5
Illumination lights	Motor	4.8
	Hazard switch	1.4
	Cigar lighter	3.4
	AAS switch	1.4
	Rear defroster switch	1.4
	A/T switch	1.4
	A/T	3.4
IG switch	1.4	

STANDARD BOLT AND NUT TIGHTENING TORQUE

Diameter mm (in)	Pitch mm (in)	4T			6T			8T		
		N-m	m-kg	ft-lb	N-m	m-kg	ft-lb	N-m	m-kg	ft-lb
6 (0.236)	1 (0.039)	4.2-6.2	0.43-0.63	3.1-4.6	6.9-9.8	0.7-1.0	5.0-7.2	7.8-11.8	0.8-1.2	5.8-8.8
8 (0.315)	1.25 (0.049)	9.8-14.7	1.0-1.5	7.2-10.8	16-23	1.6-2.3	12-17	18-26	1.8-2.7	13-20
10 (0.394)	1.25 (0.049)	20-28	2.0-2.9	14-21	31-46	3.2-4.1	23-34	36-54	3.7-5.5	27-40
12 (0.472)	1.5 (0.059)	34-50	3.5-5.1	25-37	55-80	5.6-8.2	41-59	63-93	6.4-9.5	46-69
14 (0.551)	1.5 (0.059)	—	—	—	75-103	7.7-10.5	56-76	102-137	10-14	75-101
16 (0.630)	1.5 (0.059)	—	—	—	116-157	12-16	85-116	156-211	16-22	115-156
18 (0.709)	1.5 (0.059)	—	—	—	167-225	17-23	123-166	221-299	23-31	163-221
20 (0.787)	1.5 (0.059)	—	—	—	231-314	24-32	171-231	308-417	31-43	227-307
22 (0.866)	1.5 (0.059)	—	—	—	314-423	32-43	231-312	417-564	43-58	307-416
24 (0.945)	1.5 (0.059)	—	—	—	475-546	41-56	298-403	536-726	55-74	396-536



Section	Applicable Model/s	Subject	Bulletin No.
00	Multi	TECHNICAL ASSISTANCE HOTLINE	001/00
			Issued
			11/20/00
			Revised

BULLETIN NOTE

- This bulletin supersedes AD-002/97, issued 02/18/97. The toll free number for Midwest dealers (formerly known as Mazda Great Lakes) has been changed and a new Menu Selection has been added.

APPLICABLE MODEL(S)/VINS

All models.

DESCRIPTION

Mazda North American Operations has established a single toll free phone number to provide technical assistance in support of "Fix It Right The First Time." This toll free number is available nationwide to all Mazda dealer service departments. It also replaces the Midwest dealers (formerly known as Mazda Great Lakes) technical assistance phone number. Please be sure to review the following information before contacting the hotline.

The Number

- (888) TEC-TIPS (832-8477)

Note

- "888" is a toll free area code.

Menu Selections

- Press:
 - To leave a voice-mail message to close an open file.
 - To speak to an English Speaking Technical Specialist.
 - To speak to a Spanish Speaking Technical Specialist.
 - (NEW) To obtain WDS Diagnostic Information.

Note

- You may press your selection at any time during the introduction greeting.

Time Available

- Monday through Friday, 6:00am to 5:00pm PST.

IMPORTANT STEPS TO FOLLOW BEFORE CONTACTING THE TECHNICAL ASSISTANCE HOTLINE

- Perform related Workshop Manual diagnostic procedures and check related:
 - Service Bulletins
 - Electronic Service Information (ESI)
 - M-Tips On-Line information
 - Warranty history for previous related repair attempts
 - Special Service Messages
 - M-Tips News Letter articles
- Record all applicable specifications and have this information available for the Technical Hotline Specialist.

EXAMPLES:

- Diagnostic Trouble Codes (DTCs)
- Parameter Identification Data (PID)

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

061081

PAGE 1 OF 2

- LA4A-EL Transmission Identification Number
- System Voltage/Resistance
- Freeze Frame Data
- Simulation Tests
- Automatic Transmission Diagnostic Sheet

WHEN CONTACTING THE TECHNICAL ASSISTANCE HOTLINE

Be prepared to provide the following information:

- Prior Reference Number (if available)
- Vehicle Identification Number (VIN)
- Dealer Code
- Current Vehicle Mileage
- Customer Concern/Symptoms/Conditions
- Results and Specification from Diagnostic Attempts
- Previous Repair Attempt Information

CONTINUOUS IMPROVEMENT ACTIVITIES

As part of our Continuous Improvement Activities, we have initiated a call quality follow-up phone survey. This survey is conducted three to five days after your initial call to the Hotline. You may be asked nine short questions on how your initial call was handled. These calls are made on a random basis, so you will not be surveyed on every call you make to the Hotline. Your input is very important to us and we will use it to improve the services that we provide.

Remember, the technical assistance hotline is established to HELP you "FIX IT RIGHT THE FIRST TIME." Technical assistance is available to authorized Mazda Dealer Technicians and Service Managers ONLY. This hotline is not for customer, parts, sales or warranty department personnel inquiries. Adhesive labels containing the Technical Assistance Hotline number are attached to this bulletin. Place one of these labels on or near each phone in the service department area.



SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL	Subject NEW V9.0 NGS CARD (49T0-88-010K) AND REPROGRAMMING OF V7.0 (49T0-88-010H)	Bulletin No. 001/00
		Issued 06/23/00
		Revised

DESCRIPTION

Per Special Service Tool Bulletin 0004/99, issued 08/30/99, your service department currently has two reprogrammable New Generation Star (NGS) cards, an older Version 7.0 program (P/N 49T0-88-010H) and a current Version 8.0 program (49T0-88-010J). On July 26, 2000, V8.0 will supersede to V9.0 (P/N 49T0-88-010K) as a new Mazda Required Tool (MRT) to properly service MAZDA vehicles.

America Kowa Seiki is offering a reprogramming service beginning July 5, 2000, which will update your older NGS Version 7.0 to Version 9.0 at a substantial savings. America Kowa Seiki must receive your V7.0 no later than **July 26, 2000**. Follow the **REPROGRAMMING PROCEDURE** on page two to participate in this service.

Note

- If your service department chooses not to participate, or cannot participate in this reprogramming service, a new NGS V9.0 card will be automatically shipped to your service department after July 26, 2000. **DO NOT SEND YOUR NGS VERSION 7.0 CARD TO MNAO Technical Services Department.**

APPLICATION

This card is used with your NGS Tester to properly service 1988 – 2001 Mazda Vehicles. Refer to your Workshop Manual for the application of this card and tester.

MNET 2000 ORDER PROCEDURE

If you want to receive a new NGS V9.0 Card earlier before the cutoff date of July 26, 2000, please submit an order thorough M:NET, Mazda's computer-based information and order fulfillment system. You will find information describing the ordering process in the M:NET Operations Guide.

PRICING

The price for the NGS V9.0 reprogramming exchange is \$279.07 plus shipping costs. If America Kowa Seiki does not receive your V7.0 card, or you miss the **June 26, 2000** cut-off date, the new card price is \$390.70 plus shipping costs.

SHIPPING AND BILLING INFORMATION

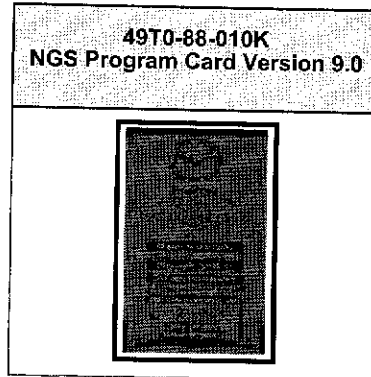
Reprogrammed NGS V9.0 cards will be shipped back to your Service Department within a week. Your parts account will be billed for the appropriate amount. **DO NOT SEND PAYMENT TO AMERICA KOWA SEIKI, INC.**

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

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Number: 001/00	Date Issued: 06/23/00	Revised:
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REPROGRAMMING PROCEDURE

Please use the following procedure to update your NGS Version 7.0 program card to NGS Version 9.0 program card.

STEP 1: Carefully inspect your V7.0 card for signs of damage (i.e. dents, cracks, fluid damage, etc.), since America Kowa Seiki will only accept cards that are reprogrammable.

STEP 2: Package your V7.0 card in small box with your Service Manager's business card taped to the NGS card. Send the package to the following address:

**America Kowa Seiki
13939 Equitable Road
Cerritos, CA. 90703**

RE: Mazda NGS Card Reprogramming

Step 3: Send your package by Federal Express 2 day or UPS Blue label prepaid. It must arrive at America Kowa Seiki by July 26, 2000.

Note

- **DO NOT SEND YOUR V8.0 NGS CARD!** Use this V8.0 card until your new V9.0 card arrives at your Service Department.

Please contact your District Customer Support Manager or America Kowa Seiki Customer Service (562-407-5860) if you have any questions regarding this information.

SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL	Subject SHIPMENT OF MAZDA TERMINAL REPAIR KIT DURING FEBRUARY 2001	Bulletin No. 001/01 Issued 02/14/01 Revised
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DESCRIPTION

This Service Bulletin is a follow-up to the Mazda Terminal Repair Kit Brochure sent last month which announced that this kit is a Mazda Required Tool for all Mazda Dealers. Automatic shipment of this kit will begin the week of February 26, 2001. Mazda's tool supplier, America Kowa Seiki, will provide sales and service support. The following table lists the individual part numbers for the kit and its components. The Mazda Terminal Repair Kit, replacement terminal pins, tools and connectors are only available through Mazda MNET 2000.

PART NUMBER	DESCRIPTION	NOTES	PRICE
49 L088 0A0	MAZDA TRK		\$575.00
49 L088 006	Cabinet (Plastic)	Compact, durable, complete system, which requires minimal space.	\$405.95
49 L088 0A1 49 L088 0A2 49 L088 0A3 49 L088 0A4 49 L088 0A5	Drawer # 1 Drawer # 2 Drawer # 3 Drawer # 4 Drawer # 5	Each drawer contains an outside face label identifying the drawers contents, as well as an actual size schematic of the drawer's contents on the inside top of each drawer. This system makes it easy to identify the correct location of replacement pins and tools.	Included in the above Cabinet
49 L088 0A1 001 49 L088 0A2 001 49 L088 0A3 001	Pin Series Pin Series Pin Series	100 Pins with 3 1/2" Pigtailes that will cover over 95% of replacements for all Mazda vehicles. Each wire is printed with its correct part number	Included in the above Cabinet
49 L088 002 49 L088 003 49 L088 004	Butt Connec. 22-24AGW Butt Connec. 18-20AGW Butt Connec. 10-12AGW	Waterproof Solder Butt Connectors for the positive connection needed to insure the best electrical contact, in order to provide accurate feedback through the vehicle's WDS & NGS Testing system.	\$14.44 \$14.44 \$8.75
49 L088 001	Solder Heating Tool	Portable butane tool used to melt the Butt's connecting solder and shrink the plastic tube to fuse & waterproof the repair.	\$28.00
49 L088 005	Wire Stripper	Used to cut and strip the wire of the damaged pin that is being replaced	\$7.00
49 L088 007	Instruction Book	Instruction on the proper usage of all of the products with-in this kit.	\$23.33
49 L088 008	Pin Extractor Tool Set	Used to dislodge the damaged pin being replaced from the Terminal.	\$31.50
49 L088 009	Feeler Tool Kit	Used to check any pin with-in the terminals for holding ability	\$21.87

APPLICATION

This kit provides technicians the ability to perform electrical harness repairs to OE standards and to reduce the need to replace complete harness assemblies on Mazda vehicles – which includes the Miata, Millenia, Protégé, MPV, 626, B-Series and Tribute. Please refer to the Terminal Repair Kit Instruction Book included with each kit for proper tool usage.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Number: 001/01	Date Issued: 02/14/01	Revised:
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PRICING

The introductory price for this tool is \$575.00 plus applicable tax and shipping costs. The price of this kit will remain effective for the initial 120-day introduction when it will increase to the regular list price of \$739.00.

SHIPPING AND BILLING INFORMATION

This kit will be shipped via UPS to your Service Department during the week of February 29, 2001. If necessary, please use Mazda MNET Order Tracker to track your shipment. Your dealer parts account will be automatically invoiced for this kit and if your Accounting Department has questions regarding this invoice, please call Mazda Special Service Tools (949-442-6597). **Do not send your payment to America Kowa Seiki, Inc. Please advise your shipping / receiving personnel of this tool shipment.**

MNET 2000 ORDER PROCEDURE

Please submit any additional Mazda Special Service Tool orders through MNET 2000, Mazda's computer-based information and order fulfillment system. You will find information describing the ordering process in the MNET 2000 Operations Guide.

CUSTOMER SERVICE

Mazda's tool supplier, America Kowa Seiki (800-824-9655), will ship the Terminal Repair Kit to your Service Department. Please call this toll-free number for warranty questions, product information, pricing, shipping, and ordering assistance. Customer Service Representatives are available from 9:00 AM until 5:00 PM PST, Monday through Friday.

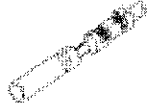
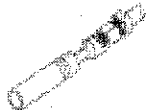
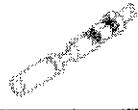
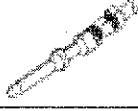
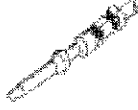
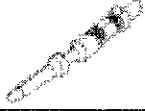
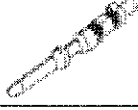

Please contact your District Customer Support Manager, America Kowa Seiki Customer Support (800-824-9655 or 562-407-5860) or Mazda Special Service Tools (949-442-6597 or specialtoolsequipment@mazdausa.com) if you have any questions regarding this information.

SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s All	Subject SHIPMENT OF MAZDA TERMINAL REPAIR KIT REPLACEMENT PINS DURING JANUARY 2002	Bulletin No. 001/02 Issued 01/14/02 Revised
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DESCRIPTION

The Mazda Terminal Repair Kit Replacement Terminal Pins illustrated below will be automatically shipped to your Service Department by Mazda's tool supplier, America Kowa Seiki, Inc. The replacement terminal pins are the latest addition to the Mazda Terminal Repair Kit (MNET part number 49L0-88-0A0) which is a Mazda Required Tool (MRT) for all Mazda Dealers. The Mazda Terminal Repair Kit, replacement terminal pins, tools and connectors are only available through Mazda MNET 2000.

PART NUMBER	DESCRIPTION	PIN	PRICE
49L0-88-0A3-021	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-022	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-023	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-024	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-025	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-026	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-027	Replacement Pin w/Pigtail (10 Pack)		\$19.00
49L0-88-0A3-028	Replacement Pin w/Pigtail (10 Pack)		\$19.00

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Number: 001-02	Date Issued: 01/14/02	Revised:
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APPLICATION

This kit provides technicians the ability to perform electrical harness repairs to OE standards and reduce the need to replace complete harness assemblies on Mazda vehicles - which includes the Miata, Millenia, Protégé, MPV, 626, B-Series and Tribute. Please refer to the Terminal Repair Kit Instruction Book included with each kit for proper tool usage.

PRICING

This program kit price for the terminal pins is \$59.27 plus applicable tax and shipping costs. Each shipment has eight terminal pin packages (three pins in each pack) included in this program offer - normally ordered MNET terminal pin sets will have ten pins per package.

MNET 2000 ORDER PROCEDURE

Please submit any additional Mazda Special Service Tool orders through MNET 2000, Mazda's computer-based information and order fulfillment system. You will find information describing the ordering process in the MNET 2000 Operations Guide or by using the MNET 2000 Help feature.

SHIPPING AND BILLING INFORMATION

This kit will be shipped via RPS to your service department during the week of January 21, 2002. Your dealer parts account will be automatically invoiced for this kit and if your Accounting Department has questions regarding this invoice, please call Mazda Special Service Tools (949) 442-6596. **Do not send your payment to America Kowa Seiki, Inc. Please advise your shipping / receiving personnel of this tool shipment.**

CUSTOMER SERVICE

Mazda's tool supplier, America Kowa Seiki (800) 824-9655, will ship the Terminal Repair Kit Replacement Terminal Pins to your service department. Please call this toll-free number for warranty questions, product information, pricing, shipping, and ordering assistance. Customer Service Representatives are available from 9:00 AM until 5:00 PM PST, Monday through Friday.

Please contact your District Customer Support Manager, America Kowa Seiki Customer Support (800) 824-9655 or (562) 407-5860 or Mazda Special Service Tools (949) 442-6596 or specialtoolequipment@mazdausa.com if you have any questions regarding this information.



SPECIAL SERVICE TOOL BULLETIN

Applicable Models ALL	Subject SST STORAGE CABINET SYSTEM (SST SCS) APRIL 1, 2002 PRICE INCREASE	Bulletin No. 002/02
		Issued 02/28/02
		Revised

DESCRIPTION

Mazda has four different cabinet configurations to organize and secure your Mazda Required Tools. All cabinets are shipped with a pre-installed drawer liner organization system that includes drawer liners, partition/dividers and a Tool Location Index. This index allows users to efficiently locate and inventory Mazda Required Tools and other tools. Shipment of Mazda New Model Tool packages automatically order the latest drawer liner updates to be sent directly to SST SCS owners. Additional drawer liner updates (lost or missing) are only available on Mazda MNET 2000. For drawer liner update ordering procedure see new instructions below.

MNET 2000 ORDER PROCEDURE

Order your SST Storage Cabinet System through **MNET 2000**, Mazda's computer-based information and order fulfillment system. You will find information describing the **MNET 2000** order process in the MNET 2000 Operations Guide or by using the MNET 2000 Help feature.

PRICING

Current pricing is effective until March 31, 2002. **Beginning April 1, 2002, new pricing will take effect as shown in the table below.**

SST Storage Cabinet System		Current Price	New Price
MAZDA-01	3 low cabinets with 21 drawers	\$2,629.00	\$2,849.00
MAZDA-02	3 low cabinets with 21 drawers, and steel top	\$2,849.00	\$3,069.00
MAZDA-03	3 low cabinets with 21 drawers, shelf riser, and 3 bookcases	\$3,599.00	\$3,819.00
MAZDA-04	2 high cabinets with 22 drawers	\$2,629.00	\$2,849.00
MAZDA-12	Opt. steel top addition to MAZDA-01 unit	\$500.00	\$529.00
MAZDA-13	Opt. 3 bookcases addition to MAZDA-02 unit	\$750.00	\$789.00
MAZDA-20	Replacement drawer pull inserts (pkg. 21)	\$20.00	\$20.00

SPECIAL "ORDER IN MARCH 2002 - PAYMENT IN OCTOBER 2002" DELAYED BILLING OPTION (Expires 03/31/02)

Mazda is offering dealers the option of ordering a new cabinet on MNET 2000 before March 31, 2002 and delay payment until their October 2002 parts account billing statement. This option is only available on the above four cabinet part numbers: MAZDA-01, MAZDA-02, MAZDA-03 and MAZDA-04. During this promotion Mazda MNET 2000 will automatically invoice the October 2002 dealer parts account for the full SST SCS amount. This offer ends on March 31, 2002 and all SST SCS orders placed after March 31st will receive the normal parts account paid in full monthly billing. For more information on this short term offer please call Mazda Special Service Tools (949) 442-6596 (Monday through Friday, 9:00 am to 5:00 pm PST).

SHIPPING AND BILLING INFORMATION

Cabinet systems are shipped directly from Stanley Storage. After March 31, 2002, MNET 2000 will automatically invoice the dealer parts account for the full amount. All Mazda SST Storage Cabinet Systems are special build-to-order products and require three to four weeks for delivery. Please contact Stanley Customer Service (1-800-333-4444) for estimated shipping status.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

REPLACEMENT SST STORAGE CABINET SYSTEM DRAWER LINER UPDATES MNET 2000 ORDER PROCEDURE

DESCRIPTION

The Mazda Special Service Tool Storage Cabinet System (SST SCS) has twenty one (21) individual drawer liners. SST SCS owners automatically receive a complete update package with detailed instructions for each New Model Tool package release. Replacement drawer liner updates (missing or lost) are only available on Mazda MNET 2000 – review the table below for part number, description and price information. The information is organized by SST Service Bulletin distribution and bulletin copies can be accessed through MNET 2000.

PRICING

The price for each replacement drawer liner update is \$ 4.00 (order quantity 1-10) plus applicable tax and shipping costs. In addition, your total MNET order for the replacement SST SCS drawer liner updates requires a \$ 10.00 fulfillment fee. *Prices are subject to change.*

SHIPPING AND BILLING INFORMATION

Shipment of replacement drawer liner updates is via UPS to your parts department. If necessary, please use MNET 2000 Order Tracker to track your shipment. Your dealer parts account will be automatically invoiced for these updates and if your Accounting Department has questions regarding this invoice please call Mazda Special Service Tools (949) 442-6596 (Monday through Friday, 9:00 am to 5:00 pm PST).

SST STORAGE CABINET SYSTEM UPDATE INFORMATION

New Model Tool drawer liner updates are automatically sent to your Service Department enclosed in drawer numbered envelopes. This information consists of easy update instructions, drawer liner update stickers, storage cabinet drawer index and any necessary drawer dividers. If you are not receiving these drawer liner updates please contact Mazda Special Service Tools (949) 442-6596 or e-mail specialtoolsequipment@mazdausa.com.

Service Bulletin 003/97, Issued 10/10/97

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00397A	1	418-063	ABS Breakout Box Adapter	\$4.00
MZ00498A	7	49G0-88-0A0	PCM Flashing Kit	\$4.00
MZ00397C	14	303-589	Engine Synchro Positioning Tool	\$4.00
MZ00397D	20	205-399	Vacuum Hub Seal Replacer/CV Tester	\$4.00
		205-401	Axle Hub Test Cap	
		205-402	Axle Hub Needle Bearing Replacer	
		205-403	Axle Hub Snap-ring Sleeve	
		205-404	Axle Hub Removal Clips	
MZ00397E	21	204-185	Suspension Torsion Bar Tool	\$4.00

Service Bulletin 002/98, Issued 03/18/98

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00298A	8	49N0-13-1A00	Engine Fuel Pressure Gauge Set	\$4.00
MZ00298B	15	49N0-19-0010	Oil Seal Installer	\$4.00
		49S0-19-0050	Oil Seal Puller	
		49S0-19-0060	Oil Seal Installer	

Service Bulletin 004/98, issued 08/05/98

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00498A	7	49G0-88-0110	NGS In-Car Flashing Cable	\$4.00
MZ00498B	9	49HD-64-406A	A/T Line Pressure Adapter	\$4.00
MZ00498C	14	303-638	Engine Synchro Positioning Tool	\$4.00
MZ00498D	15	49B0-19-0090	A/T Oil Pump Puller Adapter	\$4.00
MZ00498E	18	205-129	Differential Gauge Disc	\$4.00

Service Bulletin 002/99, issued 05/12/99

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00299A	12	303-009	Crankshaft Damper Remover	\$4.00
		303-456	Water Pump Pulley Plate	
		303-457	Shaft Protector	
MZ00299B	12	211-185	Pump Pulley Replacer	\$4.00
		303-463	Camshaft Seal Protector	
		303-464	Camshaft Seal Replacer	
		303-384	Rear Crankshaft Adapter Bolts	
		49L0-18-001	O2 Sensor Wrench	
MZ00299C	15	49L0-14-001	Pressure Gauge Adapter	\$4.00
MZ00299D	19	303-335	Crankshaft Seal Installer	\$4.00

Service Bulletin 005/99, issued 10/14/99

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00599A	3	49G0-66-001	ABS Harness Adapter	\$4.00
MZ00599B	8	310-075	Fuel Tank Lock Ring Wrench	\$4.00
MZ00599C	12	49UN-01-160	A/C 5/8" Female Quick Coupler Fitting	\$4.00
MZ00599D	14	211-016	Pump Pulley Remover	\$4.00
MZ00599E	15	205-495	Output Flange Installer	\$4.00

Service Bulletin 001/00, issued 06/23/00

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00199C	7	49T0-88-010K	NGS Program Card V9.0	\$4.00

Service Bulletin 002/00, Issued 06/23/00

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00200A	2	418-F468	Restraint System Diagnostic Simulator	\$4.00
		418-F470	Restraint System Diagnostic Simulator	
MZ00200D	8	310-069	Fuel Tank Unit Sender Wrench	\$4.00
MZ00200E	10	303-465	Camshaft Alignment Plate	\$4.00
		303-098	Camshaft Pulley Remover	
		303-164	Crankshaft Front Oil Seal Installer	
		303-328	Crankshaft Rear Main Oil Seal Installer	
		303-329	Crankshaft Rear Main Oil Seal Installer	
		303-574	Crankshaft TDC Timing Peg	
		303-050	Engine Lifting Bracket	
	303-673	Flywheel Holder		
MZ00200F	13	205-001-01	Differential Housing Spreader Adapters	\$4.00
MZ00200G	14	211-009	Power Steering Pump Pulley Remover	\$4.00
MZ00200H	14	307-351	TRS Alignment Tool	\$4.00
MZ00200I	16	303-577	Camshaft Holding Tool	\$4.00
		303-576	Camshaft Holding Tool Adapter	

Service Bulletin 002/00, issued 06/23/00

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00200K	21	307-428	RH Half shaft Fluid Seal Installer	\$4.00
		307-429	RH Half shaft Fluid Seal Remover	
		308-427	PTO Shaft Inner/Outer Oil Seal Installer	
		308-428	PTO Driven Gear Oil Seal Remover	
		308-429	PTO Driven Gear Oil Seal Installer	
		308-430	PTO Drive Gear Oil Seal Installer	
		308-431	Halfshaft Oil Seal Installer	

Service Bulletin 005/00, issued 08/25/00

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00200B	4	205-213	7.5" Differential Clutch Gauge	\$4.00
		205-270	8.8" Differential Clutch Gauge	
		205-013	Traction Lock Torque Tool	
MZ00200E	10	303-673	Flywheel Holder	\$4.00
MZ00200G	14	211-009	Power Steering Pump Pulley Remover	\$4.00
MZ00200I	16	303-576	Camshaft Holding Tool Adapter	\$4.00
		303-577	Camshaft Holding Tool	
MZ00200J	21	308-024	Remover / Replacer Tube	\$4.00
		308-058	Bearing Puller	
		308-092	Forcing Screw	
		303-573	Crankshaft TDC Timing Tool	
MZ00200K	21	205-503	Drive Pinion Nut Holding Tool	\$4.00

Service Bulletin 002/01, issued 02/14/01

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00201A	2	49D0-66-002	Airbag Deployment Harness Adapter	\$4.00
		49E0-66-001	Airbag Deployment Harness Adapter	
MZ00201B	15	49N0-61-0A0	A/C Cooler Pipe Remover Set	\$4.00

Service Bulletin 003/01, issued 06/06/01

MNET Part #	SST SCS Drawer #	Mazda Required Tool Number #	Special Tool Description	MNET PRICE
MZ00301A	11	49N0-17-101	Plate	\$4.00
		49N0-17-102	Plate	
MZ00301B	11	49N0-17-001	Bearing Installer	\$4.00
		49N0-17-103	Gear Installer	
		49N0-17-104	Joint Installer	
		49N0-17-105	Shaft	
		49N0-17-201	Setting Plate	
		49N0-17-202	Handle	
		49N0-17-203	Stopper	
		49N0-17-204	Setting Plate	
		49N0-17-207	Shaft Stopper	
		49N0-17-208	Guide Pin	
49N0-17-209	Oil Seal Installer			
MZ00301C	16	49N0-17-2A0	Clutch Hub Installer Set	\$4.00
MZ00301D	16	49N0-17-2A1	Clutch Hub Puller Set	\$4.00

Service Bulletin 005/01, issued 06/06/01

MZ00501A	14	49B0-66-8010	Radio Removal Tool	\$4.00
		49B0-66-8020	Radio Removal Tool	

Service Bulletin 008/01, issued 10/15/01

MZ00801A	9	205-126	Holding Tool	\$4.00
		204-069	Front Wheel Hub Installer	
MZ00801B	14	303-507	Crankshaft TDC Timing Peg	\$4.00
MZ00801C	16	308-153	Differential Bearing Cup Adapter	\$4.00
		308-388	Countershaft Bearing Cup Installer	
MZ00801D	16	204-161	Halfshaft Installer	\$4.00
		205-193	Axle Bearing Remover	
MZ00801E	16	303-674	Crankshaft Holding Tool	\$4.00
		205-072-02	Crankshaft Holding Tool Pins	
MZ00801F	19	303-473	Valve Spring Compressor	\$4.00
		303-581	Valve Spring Compressor	
MZ00801G	20	205-137	Drive Pinion Oil Seal Installer	\$4.00
MZ00801H	20	205-014	Drive Pinion Bearing Cup Installer	\$4.00
MZ00801I	21	308-059	Mainshaft Bearing Remover	\$4.00



SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL	Subject RECOMMENDED SPECIAL SERVICE TOOL STORAGE CABINET SYSTEMS	Bulletin No. 003/00
		Issued 08/14/00
		Revised

DESCRIPTION

The Mazda SST Storage Cabinet System has proven to be an effective means of organizing and securing Mazda's Special Tools. There are four different configurations of cabinets available to fit your needs.

All configurations are shipped with a pre-installed drawer liner organization method that includes drawer liners, partition/dividers and a Tool Location Index. This index allows users to efficiently locate and inventory Mazda Required Tools and Optional Tools.

The cabinet systems are easily updated. When a new SST(s) is shipped to your service department, drawer liner update information is sent separately to your service department. This information consists of update instructions, drawer liner/index update stickers, and any necessary drawer dividers. See attached brochure for further details.

APPLICATION

Each of the four cabinet systems is designed to store all your Mazda Required Tools with additional space available for other tools and equipment.

MNET 2000 ORDER PROCEDURE

Order your SST Storage Cabinet System order through **MNET 2000**, Mazda's computer-based information and order fulfillment system. You will find information describing the process of using **MNET 2000** in the MNET 2000 Operations Guide.

PRICING

October 2000 Price Increase

Units can be ordered at the existing prices, however, **effective October 1, 2000** new prices will take effect as shown in the table below.

SST Storage Cabinet System		Current Price	New Price
Mazda 01	3 low cabinets with 21 drawers	\$2,395.00	\$2,629.00
Mazda 02	3 low cabinets with 21 drawers, and steel top	\$2,595.00	\$2,849.00
Mazda 03	3 low cabinets with 21 drawers, shelf riser, and 3 bookcases	\$3,195.00	\$3,599.00
Mazda 04	2 high cabinets with 22 drawers	\$2,395.00	\$2,629.00

SHIPPING AND BILLING INFORMATION

Your order will be shipped directly from the manufacturer and your parts account invoiced upon receipt.

Please contact your District Customer Support Manager or Tools/Equipment Manager (949-442-6531 or specialtoolequipment@mazdausa.com) if you have any questions regarding this information.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

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SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL	Subject MAZDA SERVICE EQUIPMENT PROGRAM	Bulletin No. 003/02 Issued 04/19/02 Revised
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DESCRIPTION

The Mazda Service Equipment is the program Mazda dealers chose for purchasing equipment. Our partnership with Equipment Solutions, a division of Snap-on Incorporated, gives dealers the easiest, most efficient and cost-effective method of equipping a Mazda Service Department. Ordering is now even easier with Mazda MStore – using your Web Single Logon provides a secure, quick, convenient, and reliable method of purchasing products. Of course, dealers can order by phone (877) 768-6577 to talk to a MSE Customer Service Representative.

APPLICATION

The Mazda Service Equipment 2002 Catalog features a range of manufacturers who have been evaluated and monitored by Equipment Solutions. This initiative provides dealers the ability to purchase competitively priced equipment tested and approved on Mazda vehicles.

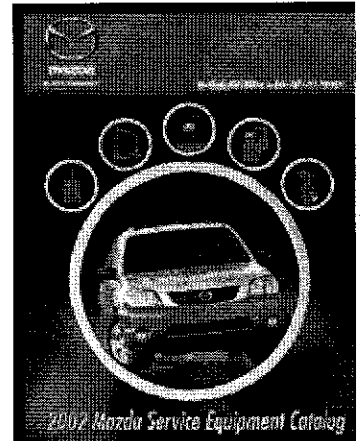
PRICING

Equipment pricing is divided into two types:

- Mazda Service Equipment Program Pricing – program pricing appears in the Mazda Service Equipment 2002 Catalog and Mazda MStore.
- Special Promotional Pricing – pricing appears in Mazda Service Equipment Quarterly Brochures, NADA Show promotions and Mazda Equipment Special Programs. Mazda MStore shows this special pricing as the Dealer Cost.

SHIPPING AND BILLING INFORMATION

The equipment supplier determines the shipping method. Equipment shall be sold F.O.B. Manufacturer's shipping point commercial carrier freight pre-paid. Equipment and shipping charges will be automatically invoiced to your dealer parts account. Questions regarding this invoice should be directed to Mazda Special Service Tools & Equipment (949) 442-6596. **Do not send your payment to Equipment Solutions and advise your shipping / receiving personnel of this equipment shipment.**



MAZ-02-632-0203

Mazda Service Equipment Catalog

LEASING OPTION

We offer competitive equipment Lease rates on orders over \$2,000.00. Call a Mazda Service Equipment Customer Service Representative (877) 768-6657 for leasing details.

INSTALLATION CHARGES

Equipment installed through the program will be automatically invoiced to your dealer parts account and questions regarding this invoice should be directed to Mazda Special Service Tools & Equipment (949) 442-6596.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

FACILITY ACTION PLANNING

Facility Action Coordinators are available to assist construction, expansion or renovation of your Mazda Service, Parts or Body Shop department. Our Mazda Service Equipment representatives have the expertise to help you avoid costly construction errors in selecting the right equipment. We offer the following services:

- Comprehensive equipment list using Mazda approved products.
- Installation bids on selected equipment using supplier trained and approved installers.
- Technical assistance provided for: architect, mechanical, electrical and general contractors.
- Total support in facility layout drawing of equipment.
- Coordinate equipment shipment and installation to meet your project timetable.

CUSTOMER SERVICE

Customer Service Representatives (877) 768-6657 (pick 1 for English or pick 2 for Spanish) are available from 7:30 AM until 7:00 PM CST, Monday through Saturday. Please call this toll-free number for warranty questions, product information, shipping and ordering assistance.

To arrange a dealer equipment consultation with a Mazda Service Equipment Area Sales Manager please call our Customer Service Representatives (877) 768-6657 to set up an appointment. Area Sales Managers are an important link between your dealership and MazdaApproved equipment suppliers. They will be calling on you to help determine your equipment needs, answer any product questions and assist in submitting your order on MStore.

MAZDA MSTORE ORDER PROCEDURE – 24 / 7 / 365

Please submit all Mazda Service Equipment orders through Mazda MStore - <http://dealers.mazdausa.com>, it is covered by Web Security Logon (WSL) and authorization is required for access. If you have questions regarding Mazda MStore please contact the Mazda Systems Help Center at (800) 421-6507.

Please contact Mazda Service Equipment (877) 768-6657, Mazda Special Service Tools & Equipment (949) 442-6596, or specialtoolsequipment@mazdausa.com if you have any questions regarding this information.

SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s All	Subject MAZDA SERVICE EQUIPMENT PROGRAM	Bulletin No. 004/01
		Issued 06/6/01
		Revised

DESCRIPTION

Mazda North American Operations is introducing a new program to support Dealers in purchasing service equipment. We have partnered with Equipment Solutions, a division of Snap-on Incorporated, in launching Mazda Service Equipment. This service assures Mazda dealers of receiving the easiest, most efficient and cost-effective method of equipping a Mazda Service Department. Dealers now have the opportunity to place their orders via Mazda MNET 2000 or by phone (877-768-6657). Use Mazda MNET 2000 to order additional Mazda Service Equipment Catalogs (part number MAZCAT001).

APPLICATION

The Mazda Service Equipment 2001 Catalog features a range of manufacturers who have been evaluated and monitored by Equipment Solutions. This initiative provides dealers the ability to purchase competitively priced equipment tested and approved on Mazda vehicles.

PRICING

Equipment pricing is divided into two types:

- Mazda Service Equipment Program Pricing – This program pricing appears in the Mazda Service Equipment 2001 Catalog and Mazda MNET 2000.
- Special Promotional Pricing – This pricing appears in Mazda Service Equipment Quarterly Brochures, NADA Show promotions and Mazda Equipment Special Programs. Mazda MNET 2000 shows this special pricing as the Dealer Cost.

SHIPPING AND BILLING INFORMATION

The equipment supplier determines the shipping method. If necessary, please use Mazda MNET 2000 Order Tracker to track your shipment. Equipment shall be sold F.O.B. Manufacturer's shipping point commercial carrier freight pre-paid.

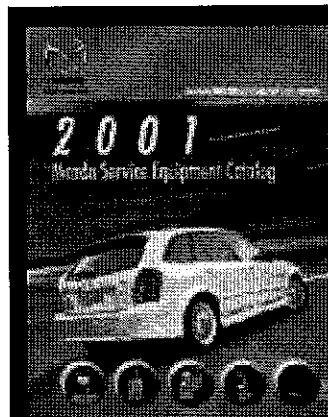
Your dealer parts account will be automatically invoiced for the equipment and shipping charges. Questions regarding this invoice should be directed to Mazda Special Service Tools & Equipment (949-442-6596). **Do not send your payment to Equipment Solutions and advise your shipping / receiving personnel of this equipment shipment.**

LEASING OPTION

We offer competitive equipment Lease rates on orders over \$2,000.00. Call a Mazda Service Equipment Customer Service Representative (877-768-6657) for leasing details.

INSTALLATION CHARGES

Equipment installed through the program will be automatically invoiced to your dealer parts account and questions regarding this invoice should be directed to Mazda Special Service Tools & Equipment (949-442-6596).



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Number: 004/01	Date Issued: 06/6/01	Revised:
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FACILITY ACTION PLANNING

Facility Action Coordinators are available to assist construction, expansion or renovation of your Mazda Service, Parts or Body Shop department. Our Mazda Service Equipment representatives have the expertise to help you avoid costly construction errors in selecting the right equipment. We offer the following services:

- Comprehensive equipment list using Mazda approved products.
- Installation bids on selected equipment using supplier trained and approved installers.
- Technical assistance provided for: architect, mechanical, electrical and general contractors.
- Total support in facility layout drawing of equipment.
- Coordinate equipment shipment and installation to meet your project timetable.

CUSTOMER SERVICE

Customer Service Representatives (877-768-6657, pick 1 for English or pick 2 for Spanish) are available from 7:30 AM until 7:00 PM CST, Monday through Saturday. Please call this toll-free number for warranty questions, product information, shipping and ordering assistance.

To arrange a dealer equipment consultation with a Mazda Service Equipment Area Sales Manager please call our Customer Service Representatives (877-768-6657) to set up an appointment. Area Sales Managers are an important link between your dealership and Mazda approved equipment suppliers. They will be calling on you to help determine your equipment needs, answer any product questions and assist in submitting your order on MNET 2000.

MNET 2000 ORDER PROCEDURE -- 24 / 7 / 365

Please submit all Mazda Service Equipment orders through MNET 2000, Mazda's computer-based information and order fulfillment system available 24 hours a day, 7 days a week, 365 days a year. You will find information describing the ordering process in the MNET 2000 Operations Guide or use the on-line MNET 2000 tool bar Help system.

Please contact your District Customer Support Manager, Mazda Service Equipment (877-768-6657) or Mazda Special Service Tools & Equipment (949-442-6596 or specialtoolsequipment@mazdausa.com) if you have any questions regarding this information.



SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL	Subject WDS Service Replacement - Return Freight Costs	Bulletin No. 005/02
		Issued 12/06/02
		Revised

DESCRIPTION

All Worldwide Diagnostic System (WDS) service replacement units will be shipped free of any freight charges from the WDS distribution center to your dealership. However, your dealership is responsible for all freight expenses to return the WDS unit requiring service to the distribution center.

SHIPPING AND BILLING INFORMATION

There are two options for returning a WDS which requires service to the WDS distribution center:

1. Dealer uses a pre-printed airway bill, which is included with each WDS service replacement. Using this method the dealer will be billed for the actual cost of return freight to the dealer's parts account statement. This billing will be listed as MT02-Z2-005 - WDS SERVICE RETURN FREIGHT.
2. The dealer pays for the return freight by using the dealer's freight account and shipping agent.

CUSTOMER SERVICE

To obtain a WDS service replacement, please contact the WDS Hotline (877) 722-8336. For return freight billing questions, please contact Mazda Special Tools and Equipment at (949) 442-6596 or e-mail specialtoolsequipment@mazdausa.com.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s ALL MODELS	Subject SHIPMENT OF MAZDA MICRO491 BATTERY TESTER DURING APRIL 2002	Bulletin No. 006/01 Issued 10/24/01 Revised 04/08/02
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DESCRIPTION

Many Mazda Dealers have ordered and used the Mazda Micro491 Battery Tester (MNET part # 162-00015) announced October 2001. This battery tester is the latest addition to the Mazda Required Equipment (MRE) list and will be automatically shipped to all dealers during the week of April 29, 2002 (dealers who have already ordered the tester on Mazda MNET will not receive an additional unit). Due to the large quantity order, Mazda will include the Micro491 IR Printer and Case for the package price of \$599.95 - a savings of \$195.05.

APPLICATION

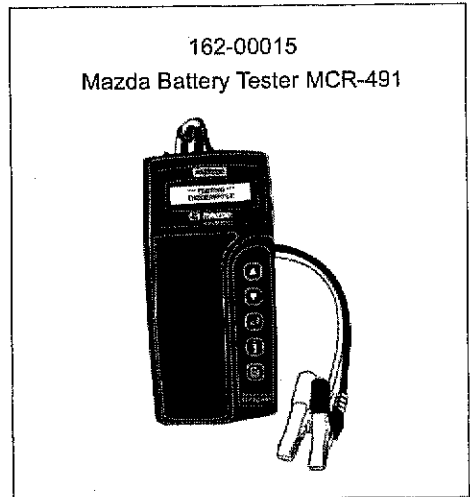
This equipment properly services the Miata, Millenia, Protégé, Protégé 5, MPV, 626, Truck and Tribute. Please refer to the Workshop Manual for the application of this equipment.

SPECIAL PRICING OFFER

Mazda is providing dealers a one-time introductory special on the Mazda Micro491 Battery Tester, IR Printer and Case Kit for only \$599.95 - individual component list price is \$795.00. The introductory price of \$599.95 plus applicable taxes and shipping is effective until May 15, 2002.

MNET 2000 ORDER PROCEDURE

Please submit any additional Mazda Battery Testers (part number 162-00015) or accessories orders through MNET 2000, Mazda's information and order fulfillment system.



MNET Part #	Description	Introductory Price	Program Price
162-00015	Mazda Micro 491 Battery Tester	\$524.00	\$575.00
162-00016	Mazda IR Printer and Carrying Case	\$220.00	\$220.00

SHIPPING AND BILLING INFORMATION

Automatic shipment should occur during the week of April 29, 2002. Your dealer parts account will be automatically invoiced for this tester kit and if your Accounting Department has questions regarding this invoice please call Mazda Special Service Tools (949) 442-6596. **Please advise your shipping/receiving personnel of this valuable equipment shipment.**

CUSTOMER SERVICE

Mazda Special Service Tools and Equipment is shipping the tester kit to your service department. For more information on this offer please call (949) 442-6596, Monday through Friday 9:00 AM until 5:00 PM PST or e-mail Mazda Special Service Tools and Equipment (specialtoolsequipment@mazdausa.com). If you encounter problems with the Micro491 please contact Midtronics Customer Service (800) 776-1995 to speak to a Customer Service Representative.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.



SPECIAL SERVICE TOOL BULLETIN

Applicable Model/s Miata	Subject SHIPMENT OF SPECIAL SERVICE TOOLS DURING JUNE 2001	Bulletin No. 003/01 Issued 06/6/01 Revised
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DESCRIPTION

The Mazda Special Service Tools (SSTs) illustrated on the following pages, will be automatically shipped to your service department by Mazda's tool vendor, America Kowa Seiki, Inc. These tools are the latest addition to the Mazda Required Tools (MRT) list and can be found on Mazda MNET 2000.

APPLICATION

These tools are used to properly service the Miata Six-Speed Manual Transmission. Please refer to your Workshop Manual Supplement for the application of these tools.

PRICING

The total price for these tools is \$577.52 plus applicable tax and shipping costs.

SHIPPING AND BILLING INFORMATION

These tools will be shipped via UPS to your service department during the week of June 18, 2001. If necessary, please use Mazda MNET Order Tracker to track your shipment. Your dealer parts account will be automatically invoiced for these tools and if your Accounting Department has questions regarding this invoice please call Mazda Special Service Tools (949-442-6596). **Do not send your payment to America Kowa Seiki, Inc. And advise your shipping / receiving personnel of this tool shipment.**

MNET 2000 ORDER PROCEDURE

Please submit any additional Mazda Special Service Tool orders through MNET 2000, Mazda's computer-based information and order fulfillment system. You will find information describing the ordering process in the MNET 2000 Operations Guide.

CUSTOMER SERVICE

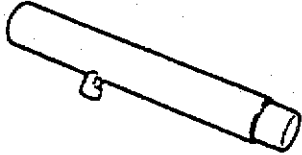
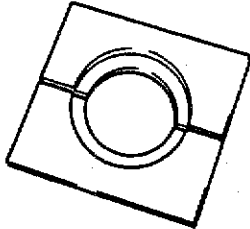
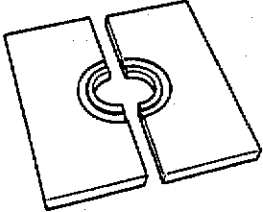
Mazda's tool supplier, America Kowa Seiki (800-824-9655), will ship the tools to your service department. Please call this toll-free number for warranty questions, product information, pricing, shipping, and ordering assistance. Customer Service Representatives are available from 9:00 AM until 5:00 PM PST, Monday through Friday.

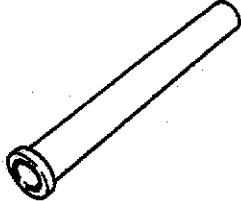
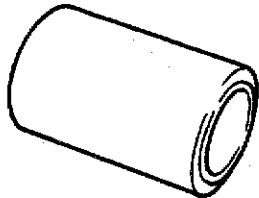

SST STORAGE CABINET SYSTEM UPDATE INFORMATION

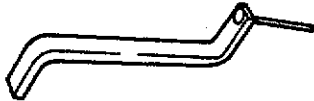
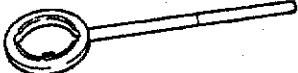

Update information will be sent to your Service Department enclosed in drawer numbered envelopes. This information will consist of easy update instructions, drawer liner/index update stickers, and any necessary drawer dividers.

Please contact your District Customer Support Manager, America Kowa Seiki Customer Service (800-824-9655 or 562-407-5860) or Mazda Special Service Tools (949-442-6596 or specialtoolsequipment@mazdausa.com) if you have any questions regarding this information.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

49N0-17-001 Bearing Installer	49N0-17-101 Plate	49N0-17-102 Plate
		

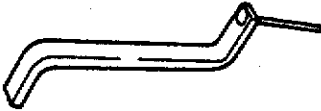
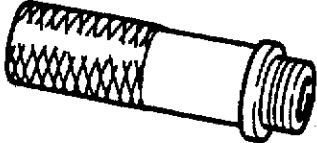

49L0-17-103 Gear Installer	49N0-17-104 Joint Installer	49N0-17-105 Shaft
		

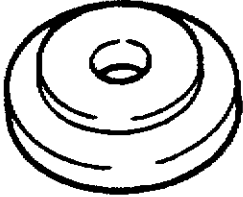
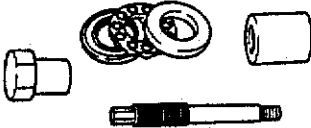
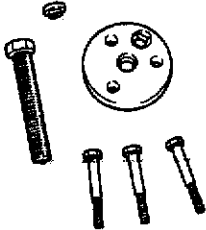
49N0-17-201 Setting Plate	49N0-17-202 Handle	49N0-17-203 Stopper
		

Number: 003/01

Date Issued: 06/6/01

Revised:

49N0-17-204 Setting Plate	49N0-17-207 Shaft Stopper	49N0-17-208 Guide Pin
 A metal setting plate with a long, thin shaft extending from one end. The plate has a curved, hook-like shape.	 A cylindrical shaft stopper with a threaded end and a textured, knurled section in the middle.	 A long, thin guide pin with a flanged end and a tapered tip.

49N0-17-209 Oil Seal Installer	49N0-17-2A0 Clutch Hub Installer Set	49N0-17-2A1 Clutch Hub Puller Set
 A circular oil seal installer with a central hole and a raised outer rim.	 A set of tools for installing a clutch hub, including a nut, washers, a sleeve, and a driver.	 A set of tools for pulling a clutch hub, including a bolt, a plate, and three pins.

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Category 5	Applicable Model/s All Models	Subject MAINTENANCE FREE BATTERY CHARGING & TESTING PROCEDURES	Bulletin No. 020/88
			Issued 11/29/88
			Revised

DESCRIPTION

There is a growing concern in the market regarding excessive battery claims as a result of insufficient charging and/or knowledge of the appropriate charging procedures.

The following information and procedures are provided to reduce the amount of unnecessary battery replacements. Listed in the warranty section of this bulletin is an operation number and appropriate labor hours for charging and inspection of MF type batteries.

NOTE:

Warranty procedures apply only if it is confirmed that the battery discharge was not the result of customer negligence. Vehicles that are in dealer inventory are the dealer's responsibility. Refer to the "Warranty Policies and Procedures Manual" concerning inventory vehicles.

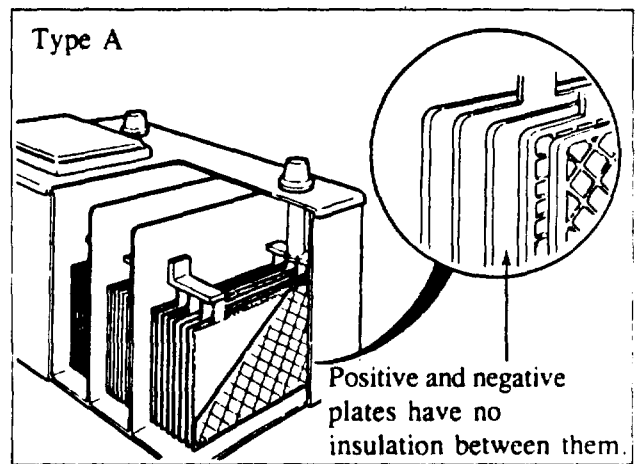
If you encounter a discharged Maintenance Free (MF) type calcium based battery from a customer complaint, follow the procedures described in this Service Bulletin for inspection, charging and testing operations.

NOTE:

- The MF type battery can recover its original performance by boost charging.
- The indicator located on the top surface of the battery does not turn from white to blue (indicating the necessity of recharge) until the battery has discharged 80% and the specific gravity drops to 1.150/20°C (68°F). (Refer to Service Bulletin, Category 5 no.013/88 for more details on MF type battery characteristics.)

GENERAL INFORMATION

Early battery construction (Type A) provided no safeguard in regards to batteries shorting out from one cell to another.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned

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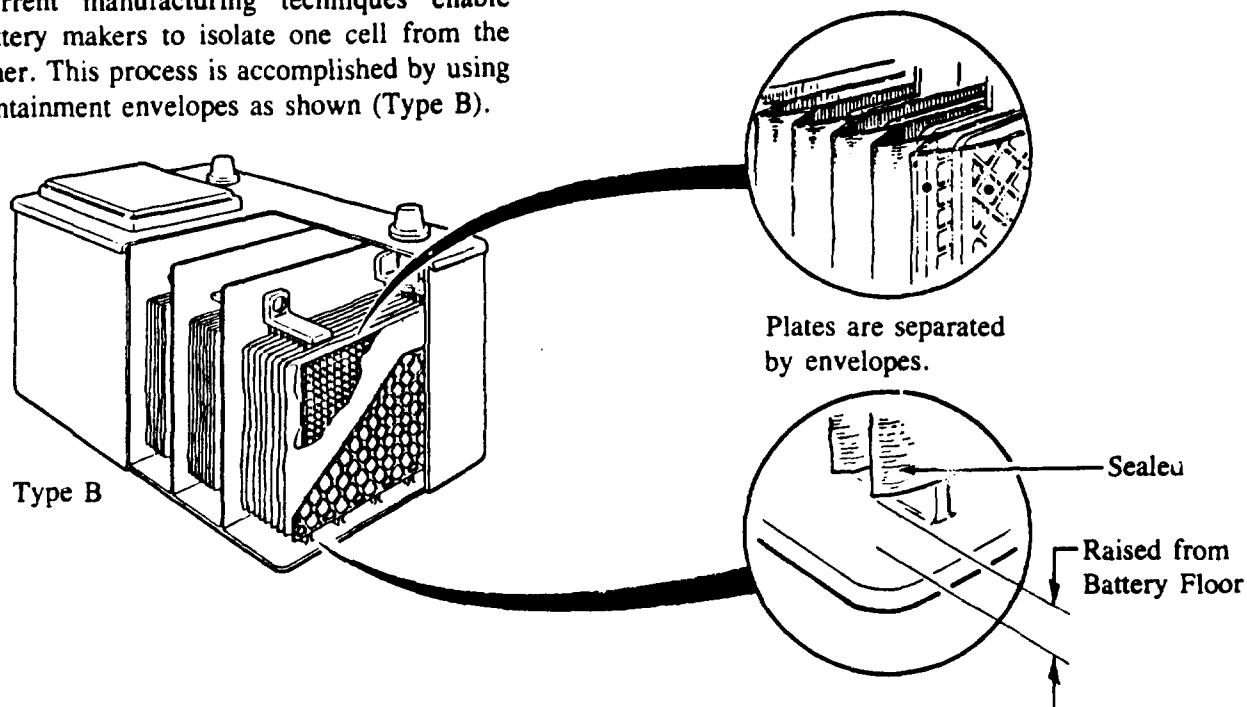
Signature _____

Service Manager

Signature _____

Parts Manager

Current manufacturing techniques enable battery makers to isolate one cell from the other. This process is accomplished by using containment envelopes as shown (Type B).



INSPECTION PROCEDURE

1. Inspect the battery terminals and cable ends for white crystal deposits. Clean if necessary.
2. Inspect vent surface for acid deposits. If deposits are found, clean the surface. If excessive amounts are found and cannot be properly removed, replace the battery.

CAUTION:

- Battery electrolyte is a sulfuric acid solution. If spilled on painted surfaces, clothing or skin, rinse off immediately with water.
- Always wear safety goggles or face shield when servicing a battery.

CHARGING PROCEDURE

Recharge an MF type battery at a rate of 20-30A for two (2) hours.

NOTE:

Most battery chargers require a boost range setting to obtain a sufficient amperage.
 $[20-30A \times 2 \text{ hrs} = 40-60 \text{ A/H}]$

CAUTION:

- The battery must be removed from the vehicle and put in a well ventilated area.
- Do not expose battery to fire, sparks, cigarettes, etc.
- During charging, make sure cells do not begin gassing (boiling) violently. If so, reduce charging rate.
- Wear safety glasses while checking battery conditions during charging.
- When charge is complete, disconnect in the order described below.
 1. Turn off battery charger main switch.
 2. Unhook negative clamp from negative terminal.
 3. Unhook positive clamp from positive terminal.

Number: 020/88	Date Issued: 11/29/88	Date Revised:
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TESTING PROCEDURE

NOTE:

Use Sun made equipment (VAT 40) or equivalent.

1. Apply a load three (3) times higher than battery capacity.

Results	Action
Voltage stays above 9.6 V	Battery OK
Voltage drops below 9.6 V	Replace Battery

2. Check current draw from battery as described in Service Bulletin, Category 5 no.017/88.
3. Check charging system as per Workshop Manual.

WARRANTY INFORMATION

Customer Comment Code: 5A
 Damage Code: 62
 Part No. of Main Cause: Part No. of Applicable Battery
 Operation No: G0501X-C-X Inspection, Charging & Testing of Battery
 Labor Hour: 0.3 Hr.

NOTE:

In ALL circumstances, record the results of the load test onto the repair order.

Service Bulletin

Handwritten signature and date: 11/24/88

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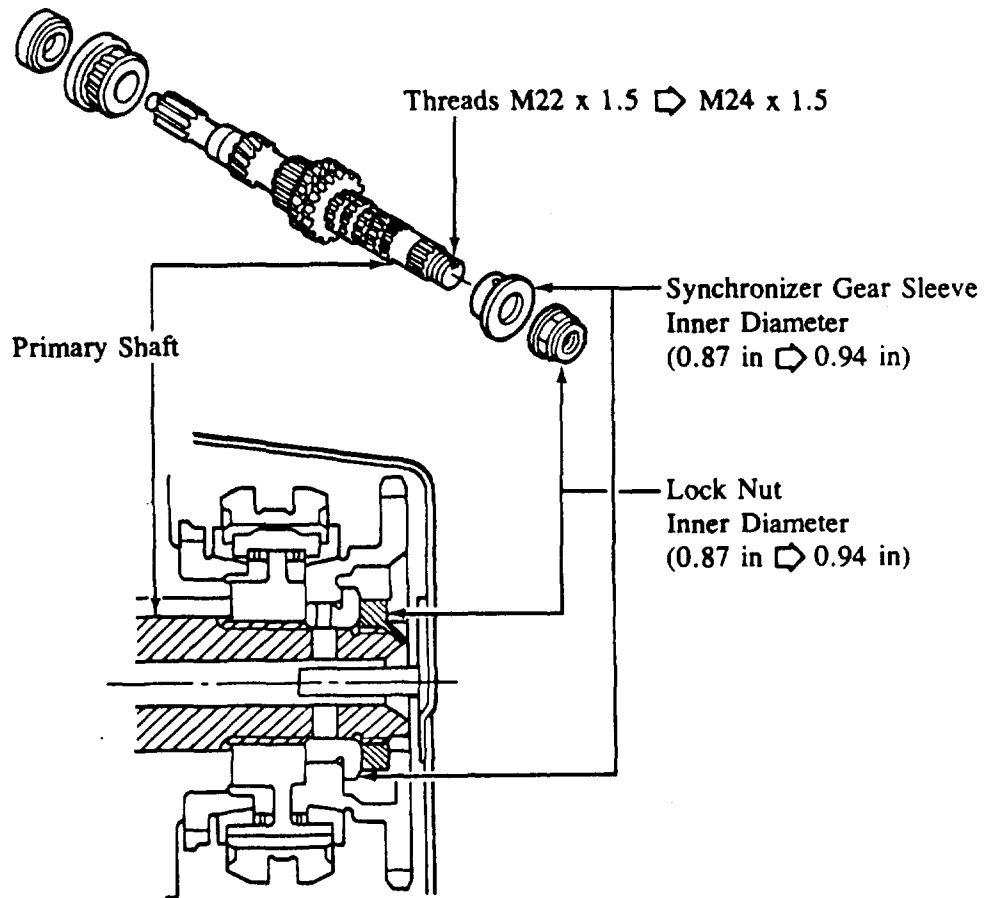


Category 7	Applicable Model/s 1988-89 MX-6/626 1988-89 323 Turbo	Subject MTX PRIMARY SHAFT	Bulletin No. 050/88 Issued 11/4/88 Revised
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DESCRIPTION

A diameter of the primary shaft end portion has been increased to 0.94 in (24 mm) from 0.87 in (22 mm) as shown below in order to increase the strength of the threaded portion of the primary shaft.

Due to the modification, the synchronizer gear sleeve and lock nut shown in the illustration have also been modified accordingly. Therefore, the modified primary shaft must be installed together with the modified synchronizer gear sleeve and lock nut.



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Signature _____

Service Manager

Parts Manager

Number: 050/88	Date Issued: 11/4/88	Date Revised:
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VIN OF PRODUCTION CHANGE

1989 MX-6/626 vehicles produced in Japan:

JM1GD★★★★ K1709751 August 1, 1988

1989 MX-6 vehicles produced in the U.S.A.:

IYVGD31A7 K5206170 September 14, 1988

1989 323 Turbo vehicles:

JM1BF234★ K0314527 August 1, 1988

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY	APPLIED MODEL
NEW	OLD			
G512 17 201F	G512 17 201E	Primary Shaft	NO	'88 323 T/C 4WD
G511 17 201F	G511 17 201E	Primary Shaft	NO	'88 323 T/C 2WD '88 626/MX-6
F520 17 628	G502 17 629A	Lock Nut	NO	'88 323 T/C '88 626/MX-6
G501 17 328A	G501 17 328	Synchronizer Gear Sleeve	NO	'88 323 T/C '88 626/MX-6

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Service Bulletin

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Category 1	Applicable Model/s 1988-1989 626/MX-6	Subject CYLINDER HEAD	Bulletin No. 041/89
			Issued 9/27/89
			Revised

DESCRIPTION

If the following conditions occur on the 1988-1989 626/MX-6 with low mileage (less than 3,000 miles), the cylinder head may have a crack around the intake valve guide, allowing engine oil to penetrate into the combustion chamber. If necessary, remove the cylinder head and inspect it.

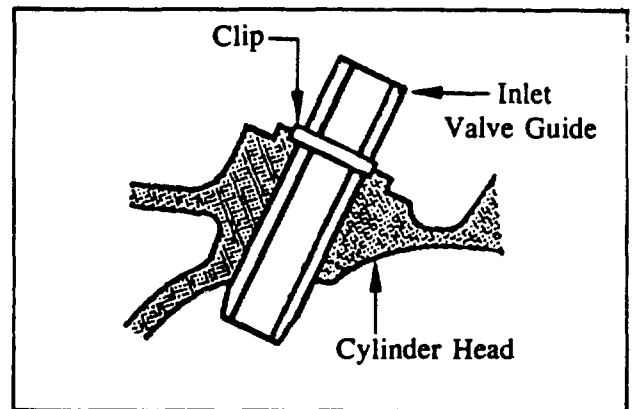
CUSTOMER'S COMMENTS:

1. Rough idle, all the time.
2. Black/Blue smoke emitted from exhaust pipe.

PROBLEM CONDITIONS:

1. Spark plugs are fouled with oil and fuel.
2. Oil level is low.

A modification has been introduced in production since March 1989. In connection with that modification, clips have been installed on the inlet valve guides.



VIN OF PRODUCTION CHANGE

- 1988-1989 626/MX-6 [Vehicles manufactured in Japan]

JM1GD★★★K1753711 March, 1989

- 1989 MX-6 [Vehicles manufactured in the U.S.A.]

1YVGD31C6K5239856 April 13, 1989

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
F201 10 100E	F201 10 100D	Cylinder Head	NEW→OLD
F220 10 100E	F220 10 100D	Cylinder Head	NEW→OLD

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Signature _____

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Category 1	Applicable Model/s 1988-1989 626/MX-6	Subject CYLINDER HEAD	Bulletin No. 041/89 Issued 9/27/89 Revised
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DESCRIPTION

If the following conditions occur on the 1988-1989 626/MX-6 with low mileage (less than 3,000 miles), the cylinder head may have a crack around the intake valve guide, allowing engine oil to penetrate into the combustion chamber. If necessary, remove the cylinder head and inspect it.

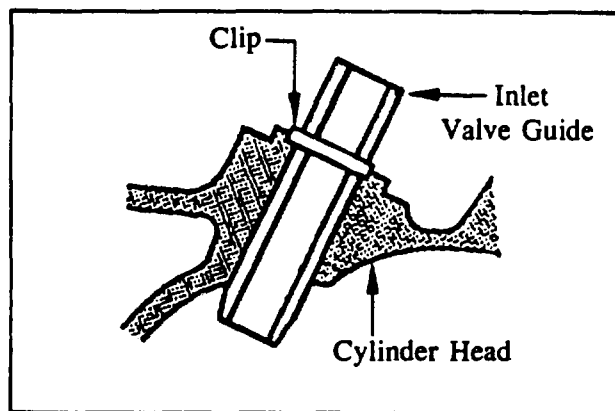
CUSTOMER'S COMMENTS:

1. Rough idle, all the time.
2. Black/Blue smoke emitted from exhaust pipe.

PROBLEM CONDITIONS:

1. Spark plugs are fouled with oil and fuel.
2. Oil level is low.

A modification has been introduced in production since March 1989. In connection with that modification, clips have been installed on the inlet valve guides.



VIN OF PRODUCTION CHANGE

- 1988-1989 626/MX-6 [Vehicles manufactured in Japan]

JM1GD★★★K1753711 March, 1989

- 1989 MX-6 [Vehicles manufactured in the U.S.A.]

1YVGD31C6K5239856 April 13, 1989

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
F201 10 100E	F201 10 100D	Cylinder Head	NEW→OLD
F220 10 100E	F220 10 100D	Cylinder Head	NEW→OLD

015999

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Category 1	Applicable Model/s 1988-'89 626/MX-6 ATX	Subject IDLE VIBRATION IN "D" RANGE	Bulletin No. 042/89 Issued 7/19/89 Revised
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DESCRIPTION

Excessive vibration may be felt in the steering wheel and seats while idling in "D" range, especially when electrical loads are applied. For proper repair procedures, please refer to the instructions in this Service Bulletin.

Please note that the customer may also describe this complaint as a low or rough idle and not necessarily complain of vibration.

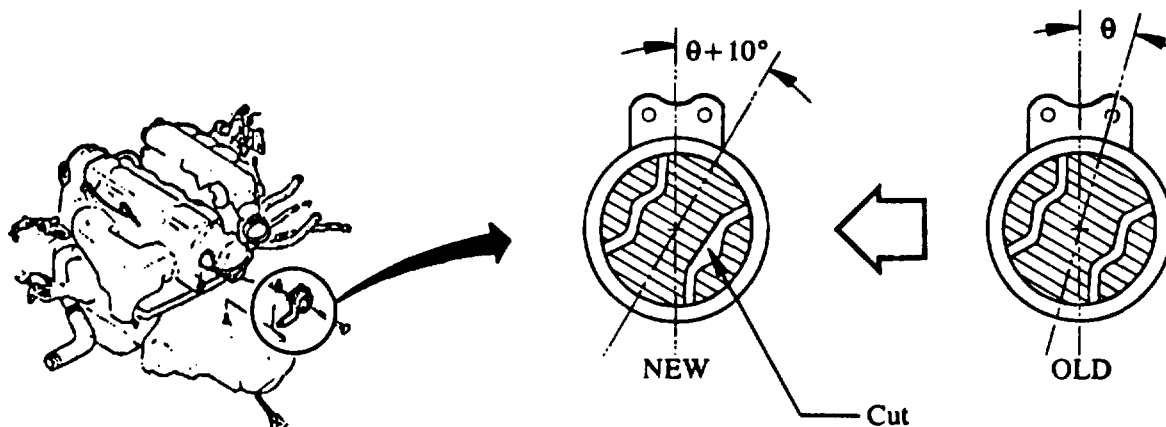
Therefore, confirm the customer complaint carefully before attempting any repair.

PRODUCTION CHANGE

No. 1 Engine Mount and Radiator Lower Mount Rubbers have been changed as follows:

■ No. 1 Engine Mount

- The diameter of the rubber has been increased from 3.15 in. to 3.54 in. since the November 1988 production.
- The rubber has been turned 10° toward the engine side since the November 1988 production.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

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Parts Manager

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Number: 042/89	Date Issued: 7/19/89	Date Revised:
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BEGINNING VIN OF PRODUCTION CHANGE

A. No.1 Engine Mount

For vehicles produced in Japan:
 1989 626/MX-6 JM1GD★★★★ K1725513 October 1, 1988

For vehicles produced in the U.S.A:
 1989 MX-6 1YVGD★★★★ K5213922 November 9, 1988

B. Radiator Lower Mount

For vehicles produced in Japan:
 1989 626/MX-6 JM1GD★★★★ K1769601 June 1, 1989

For vehicles produced in the U.S.A:
 1989 MX-6 1YVGD★★★★ K5245888 June 24, 1989

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGE ABILITY	APPLIED MODEL
NEW	OLD			
M002 39 040A	GJ23 39 040C	No.1 Engine Mount	NEW → OLD	ATX w/o Turbo
GJ28 39 040D	GJ28 39 040B	No.1 Engine Mount	NEW → OLD	ATX w/Turbo
F202 15 202B	F201 15 202A	Radiator Lower Mount	NEW → OLD	ATX w/o Turbo
B61A 15 202	F202 15 202B	Radiator Lower Mount	NEW → OLD	ATX w/Turbo

REPAIR PROCEDURE

1. Check that the idle speed is within the specification:

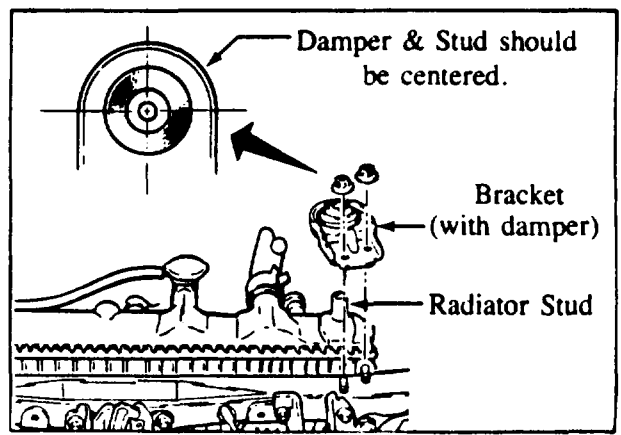
Idle Speed: 750 ± 25 RPM (in P range)

If the idle speed is not within the specification, adjust it to 750 RPM with test connector grounded.

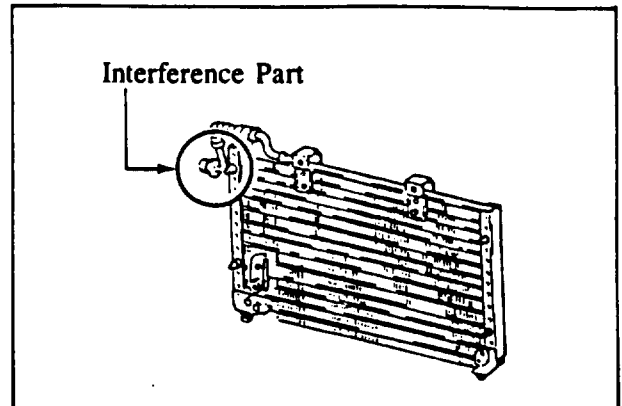
2. Replace the radiator lower mounts with the modified ones, if the vehicle was produced before the production change.

3. Check that the radiator is centered in the radiator upper brackets so that it can move more effectively as a dynamic damper. If not, adjust the radiator or the brackets as follows:

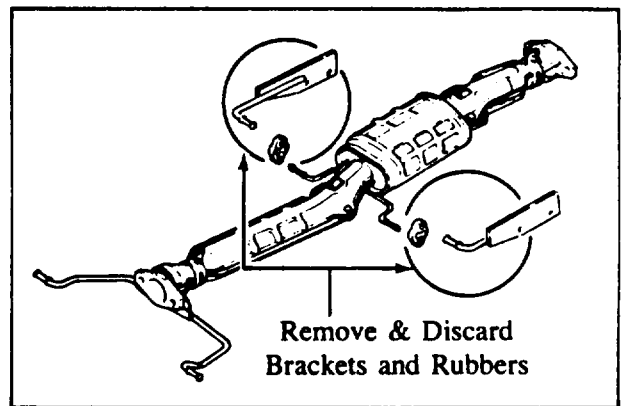
- Adjust the position of the upper brackets.
- Adjust the position of the radiator upper hose so that the radiator is not pushed or pulled out of position.



4. Check that the A/C pipe (from compressor to condenser) is not interfering with the radiator. If necessary, reposition the A/C pipe to make enough clearance between the A/C pipe and radiator.



5. Adjust the hood lock if a rattle noise is heard from the hood.
6. Replace the No.1 engine mount with a modified one, if the vehicle was produced before the production change.
7. Remove and discard the No.2 silencer hanger and rubbers which are located in front of the pre-silencer. After removing the hangers from the body, reinstall bolts into the body to prevent water from entering.
8. In a case where the idle vibration is not solved to a satisfactory level, ground the test connector and adjust the idle speed to 950 – 1000 RPM.



WARRANTY INFORMATION

Customer Comment Code:	83
Damage Code:	31
Part No. of Main Cause:	M002 39 040A or GJ28 39 040D
Operation Number:	XX0331-R-1 (for all repairs)
	XX0331-R-2 (except R & R of No.1 Engine Mount)
Labor Hours:	0.8 Hr (for all repairs)
	0.4 Hr (except R & R of No.1 Engine Mount)

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Category 12	Applicable Model/s 1988-1989 626/MX-6	Subject ALUMINUM WHEEL	Bulletin No. 005/88
			Issued 10/17/88
			Revised

DESCRIPTION

Aluminum road wheels that are hard to remove from the vehicle may be caused by galvanic corrosion between the wheel and hub. This condition is more likely to develop in areas that use large amounts of salt.

To correct this and prevent future corrosion build-up, clean the mating surfaces and apply grease. Refer to the following service procedure for detailed information.

SERVICE PROCEDURE

1. Remove the four (4) wheel and tire assemblies.
2. Using a wire brush, steel wool or other suitable material, remove the corrosion from front hubs, rear axle flanges and wheel center bore.
3. Apply grease (lithium base, NLGL No. 2) to the wheel center bore.

NOTE:

Do not allow grease in the wheel lug nut seats or on the wheel stud.

4. Reinstall the wheels on the vehicle.

VIN OF PRODUCTION CHANGE

VIN information will be given at a later date.

WARRANTY INFORMATION

Customer Comment Code: 99
Damage Code: 99
Part No. of Main Cause: 8BG1 37 6000
Operation No: XX0288RX
Labor Hour: 0.7 Hr.

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Parts Manager

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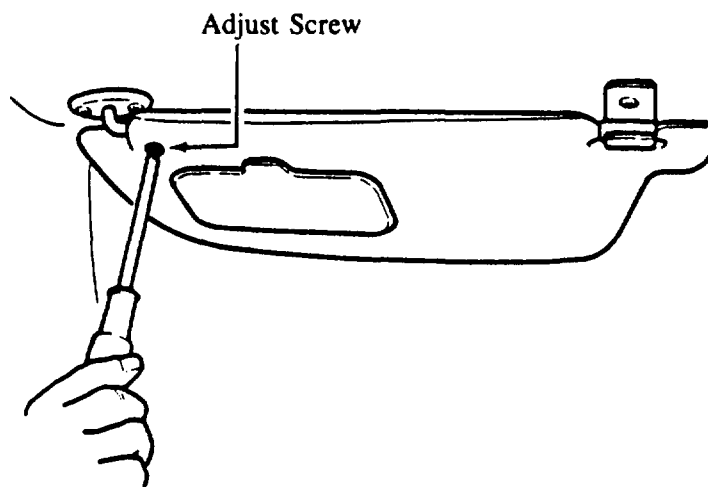


Category 14	Applicable Model/s (see below)	Subject SUNVISOR ADJUSTMENT	Bulletin No. 060/88
			Issued 11/4/88
			Revised

DESCRIPTION

On 1988-89 323, 626/MX-6, or B2200/2600 models you may notice problems during PDI or encounter customer complaints regarding sunvisor operation (i.e. sunvisor will not adjust up or down, or will not remain at a set position).

Check the adjustment screw (as shown) prior to replacement. Adjust the screw to enable the driver and/or passenger to rotate the sunvisors to any set position.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned

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Signature _____

Service Manager

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Category 14	Applicable Model/s 1988-1989 626/MX-6	Subject WIND NOISE	Bulletin No. 064/89
			Issued 4/11/89
			Revised

DESCRIPTION

If you receive a complaint of any of the conditions listed below, perform repairs applicable to the complaint.

This bulletin includes information previously published in Service Bulletins, Category 14, No.s 051/88 and 055/88.

NOTE:

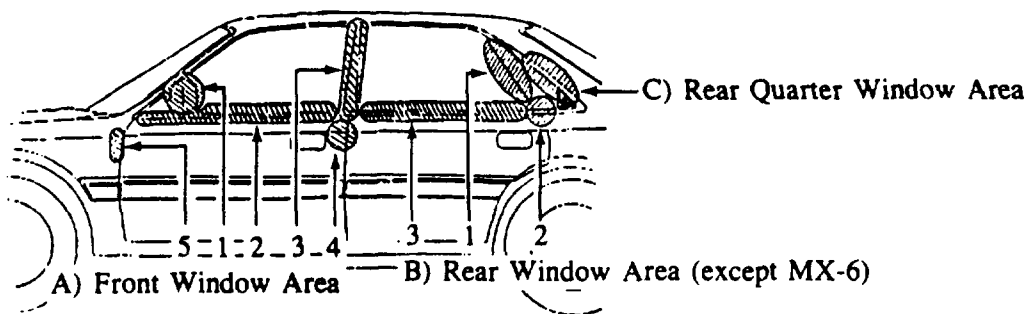
Repair parts for this bulletin are available as a kit for each model described.

Condition of Complaint:

- A) Wind noise at front door area during high speed driving
- B) Wind noise at rear door corner area
- C) Wind noise/fluttering noise at rear corner window area

NOTE:

For examples of areas mentioned, see illustration below.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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Service Manager

Parts Manager

Number: 064/89	Date Issued: 4/11/89	Date Revised:
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VIN OF PRODUCTION CHANGE

A) Front Window Area

- | | | | |
|----|--|--------------------|-------------------|
| 1. | 626 & MX-6 (Produced in Japan) | JM1GD★★★★ K1709751 | August 1, 1988 |
| | MX-6 (Produced in the U.S.A.) | 1YVGD31★★ K5208028 | October 1, 1988 |
| 2. | 626 & MX-6 (Produced in Japan) | JM1GD★★★★ J1573274 | March 1, 1988 |
| | MX-6 (Produced in the U.S.A.) | 1YVGD31★★ J5115722 | May 1, 1988 |
| 3. | Production change has not been made yet. | | |
| 4. | 626 & MX-6 (Produced in Japan) | JM1GD★★★★ J1566220 | February 1, 1988 |
| | MX-6 (Produced in the U.S.A.) | 1YVGD31★★ J5113045 | April 1, 1988 |
| 5. | MX-6 (Produced in Japan) | JM1GD31★★ K1709751 | August 1, 1988 |
| | MX-6 (Produced in the U.S.A.) | 1YVGD31★★ K5204343 | September 1, 1988 |

B. Rear Window Area (except MX-6)

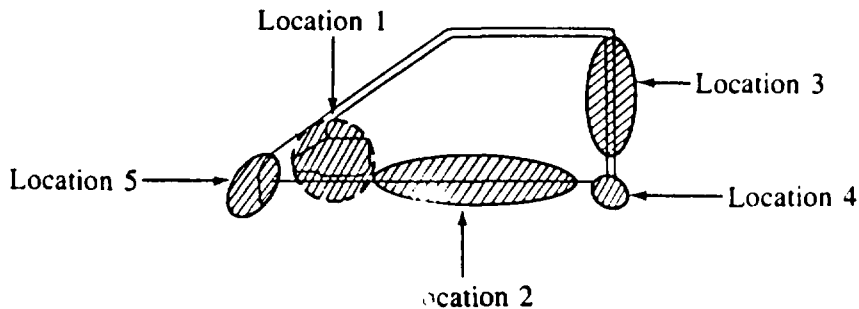
- | | | | |
|---------|--|--------------------|---------------|
| 1. & 2. | 626 4-Door & 5-Door | JM1GD★★★★ J1573274 | March 1, 1988 |
| 3. | Production change has not been made yet. | | |

C. Quarter Window Area

- | | | | |
|--|-------------------------------|--------------------|------------------|
| | 626 4-Door & 5-Door | JM1GD★★★★ J1559572 | January 1, 1988 |
| | MX-6 (Produced in Japan) | JM1GD31★★ J1566220 | February 1, 1988 |
| | MX-6 (Produced in the U.S.A.) | 1YVGD31★★ J5113045 | April 1, 1988 |

REPAIR PROCEDURES

Condition A: Wind Noise at Front Door Area During High Speed Driving

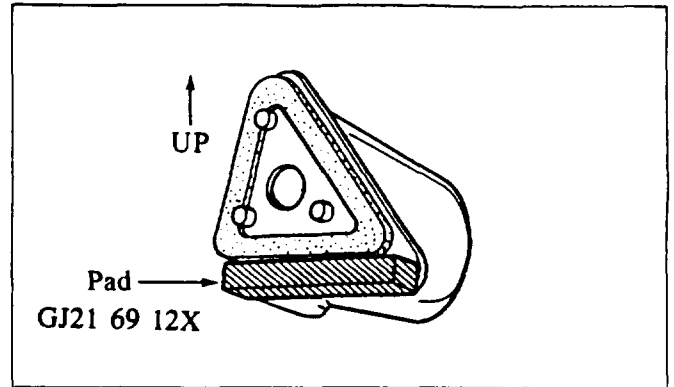


LOCATION 1 (DOOR MIRRORS)

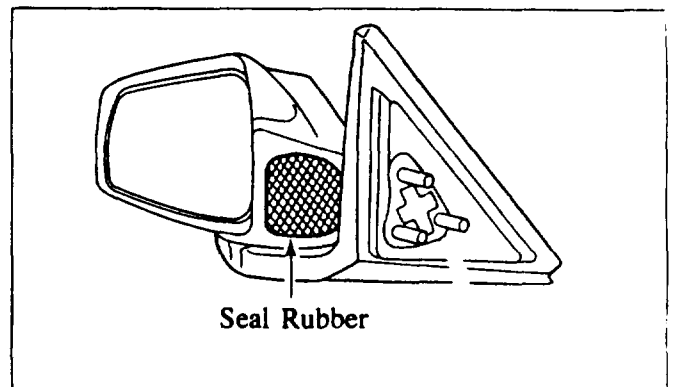
A. Manual & Powered Mirrors.

1. Using a flat screwdriver, carefully pry the inner sail garnish out of its position. (Start prying at top corner of sail garnish, then work downward).

CAUTION: Take care not to break the fastening tab at the bottom of the sail garnish.



2. Remove mirror and install pad on lower side of base as shown in the illustration.
3. Install seal rubber.
P/N GJ25 69 11X (RH)
P/N GJ25 69 17X (LH)

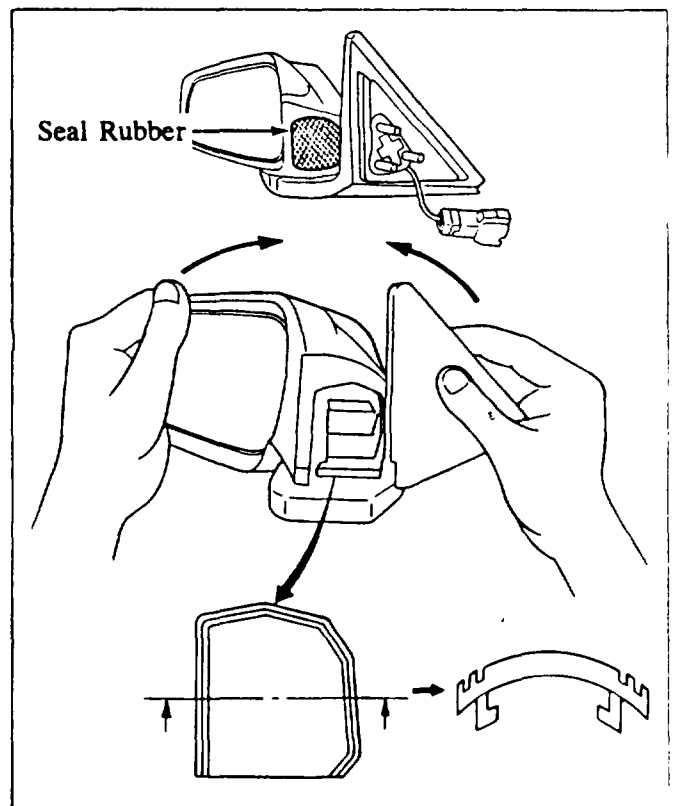


B. Power Mirror

- 1) Remove seal rubber.
- 2) While holding mirror assembly between thighs, push the assembly in the direction indicated by the arrows shown in the illustration and install new seal rubber.

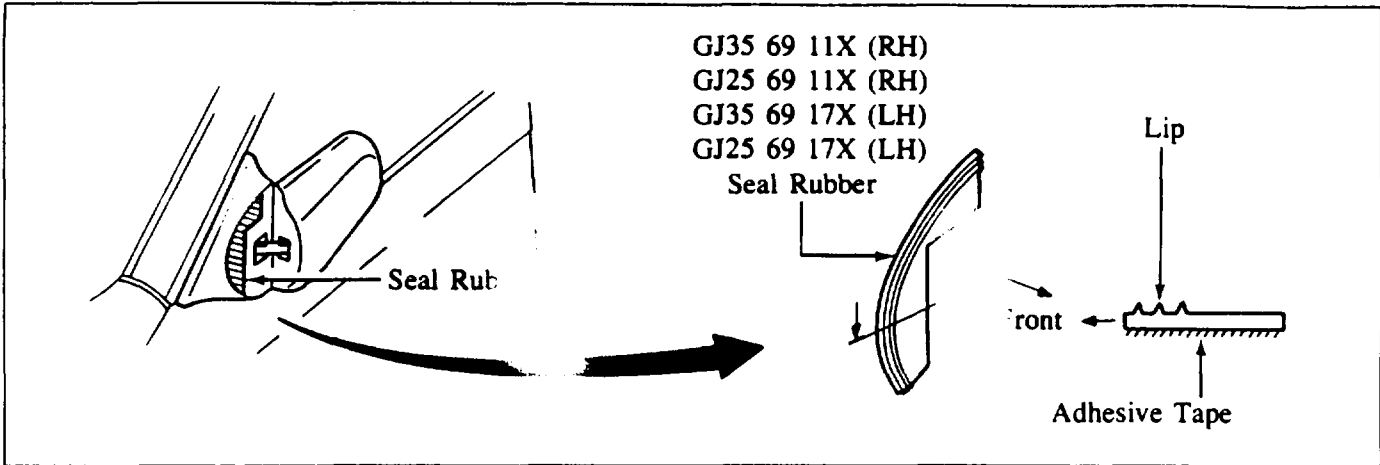
Seal Rubber:
P/N GJ35 69 11X (RH)
P/N GJ35 69 17X (LH)

- 3) Move assembly in the direction opposite that described in step 2), and confirm proper position of seal rubber.



C. Manual Mirror

Add respective (right and left) seal rubber to the mirror base.

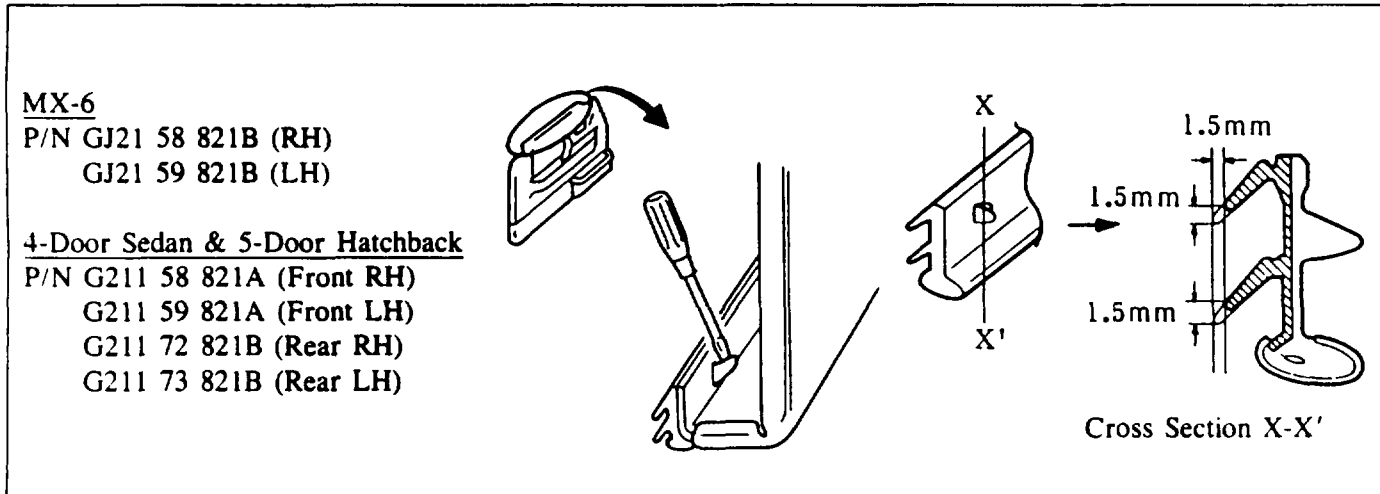


LOCATION 2 (GLASS INNER WEATHERSTRIP - ALL DOORS)

1. Remove door trim.
2. Replace glass inner weatherstrip with new strip.

NOTE:

New strip has an added length in the lip area.



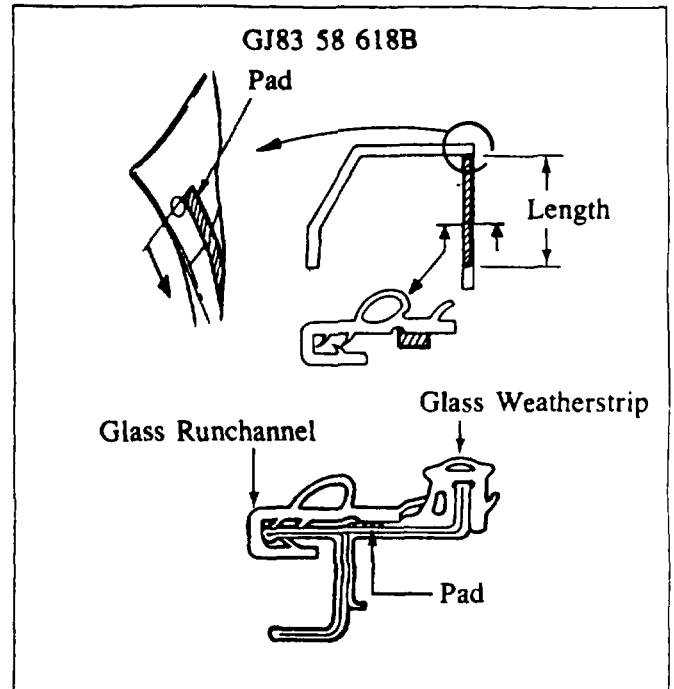
3. If item 4 repair is to be performed, do not reinstall the door panel yet; otherwise reinstall the door panel.

LOCATION 3: GLASS RUN CHANNEL (Front Door)

1. Lower window all the way.
2. Pull back the glass run channel as shown.
3. Attach the pad strip to the back of the glass run channel from the circled area.

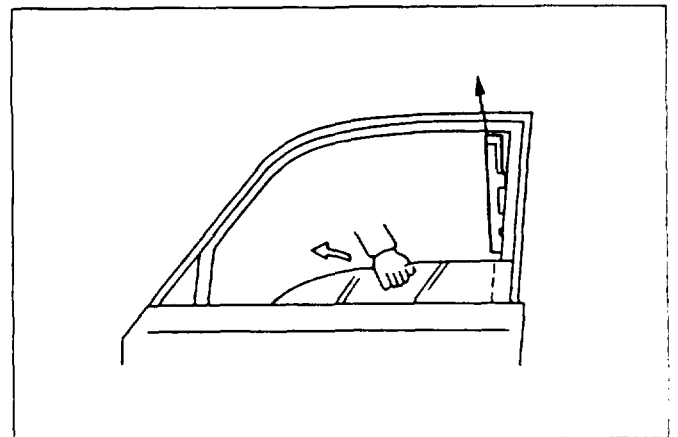
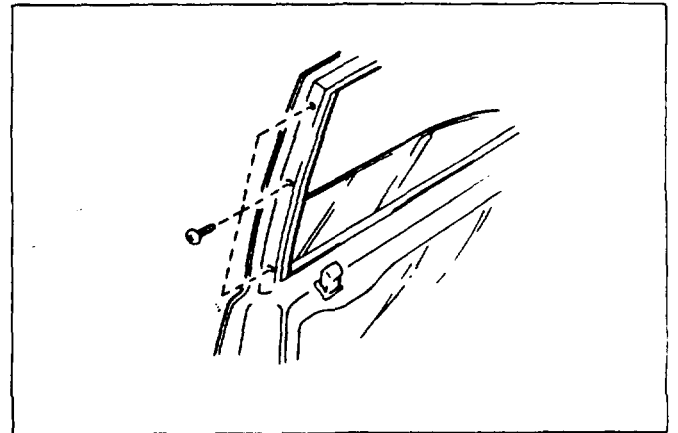
Pad Size:

Length = 400 mm
 Thickness = 2 mm
 Width = 10 mm



LOCATION 4: GLASS GUIDE RAIL (Front Door)

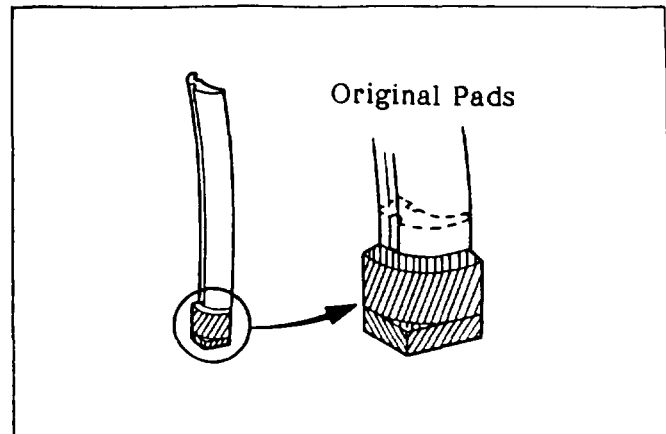
1. Remove the 3 screws which secure the glass guide rail and remove door panel.
2. Pull the glass guide rail toward the inside of the window frame and up. Move the window glass toward the front of the vehicle as shown.



3. Remove the original glass guide rail pad and replace it with a new one.

A) Install the glass rail pad so that the top of the pad is 30 mm from the bottom of the guide rail (see illustration).

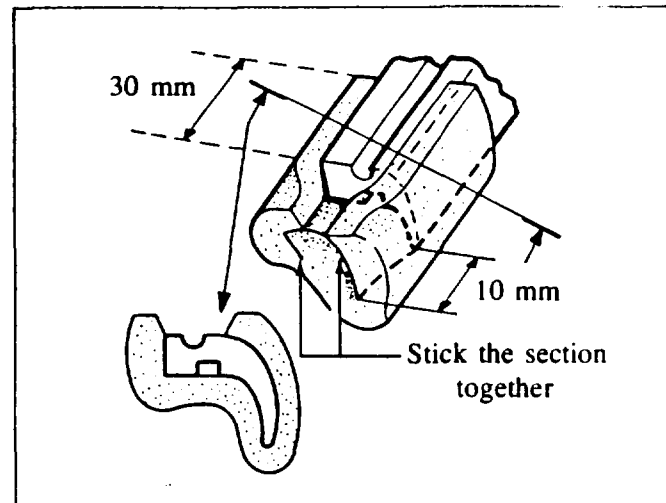
(P/N GJ21 58 619)



B) The remaining length of the pad (10 mm) should be pinched so that the sides stick together.

4. Reinstall glass guide rail and door panel.

CAUTION: For ease of installation door glass must be up approximately 4 in.

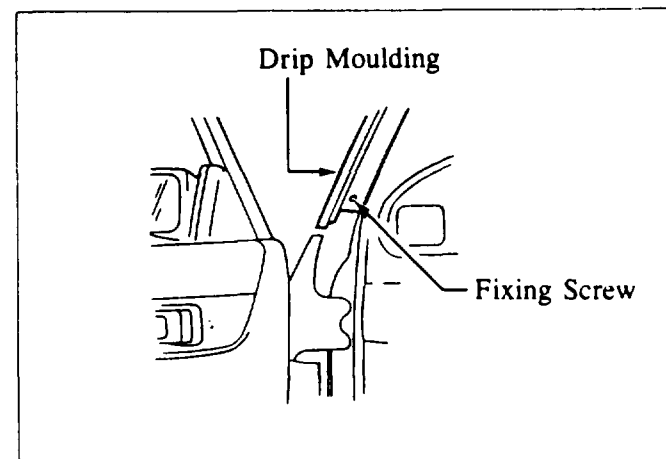


LOCATION 5: "A" PILLAR AREA

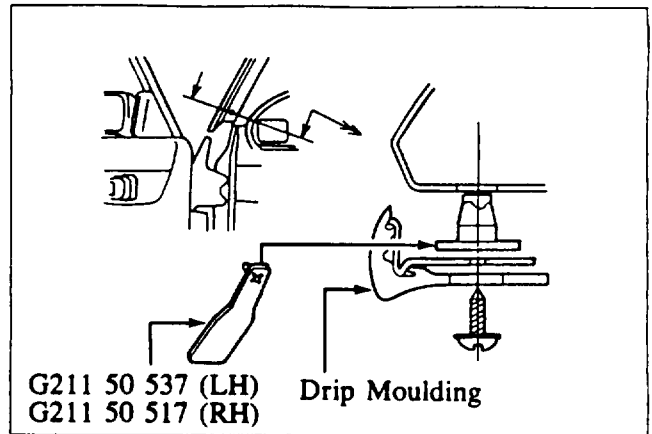
1. 4 & 5-Door Models

A) Open front door and remove the fixing screw from the lower side of the drip moulding.

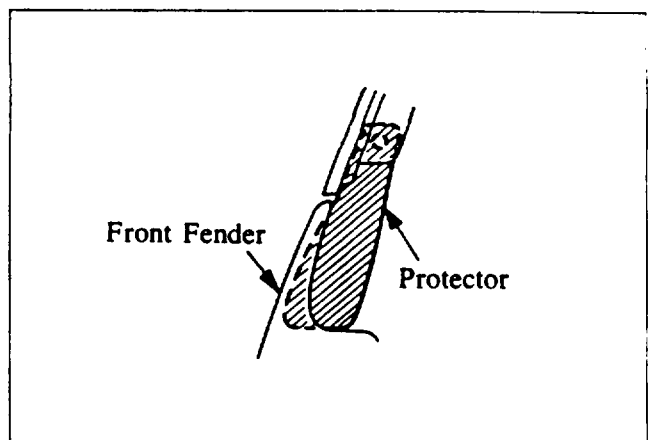
B) For 4 & 5-Door models, remove original screw boss from pillar and discard.



- C) Install a protector between the drip molding and the "A"-pillar.

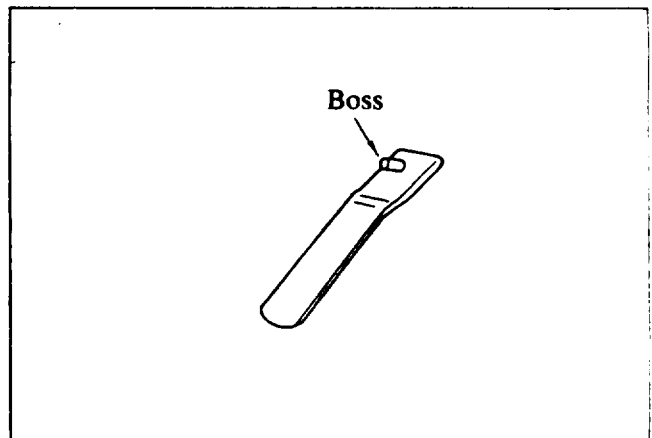


- D) Reinstall the fixing screw and insert the protector inside the cavity of the front fender.



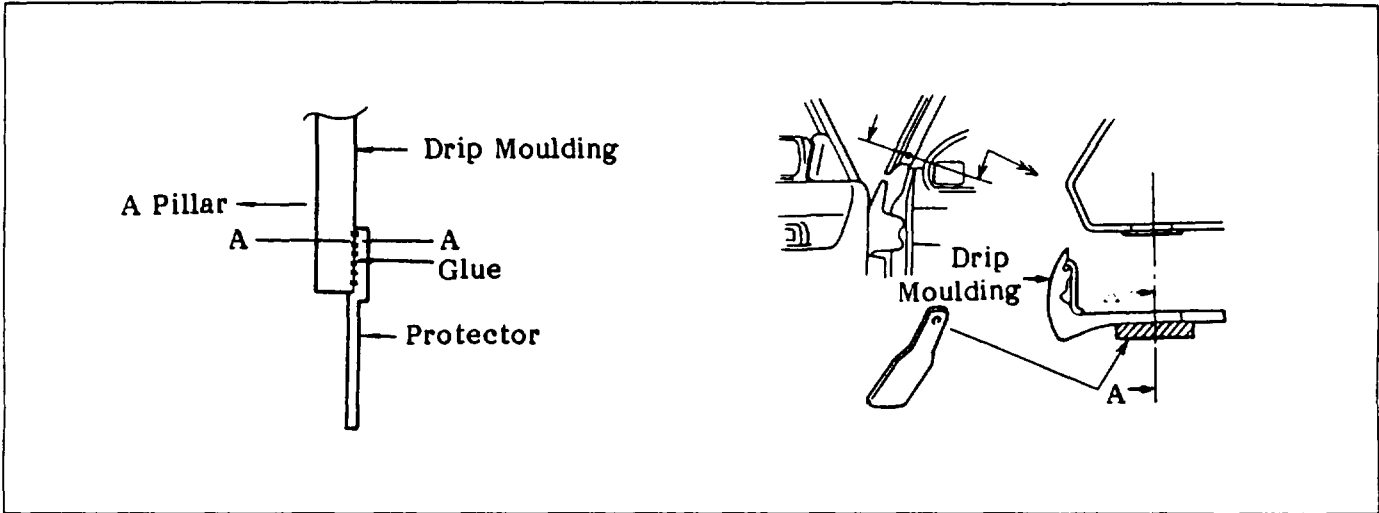
2. MX-6

- A) Cut the boss off of the protector.

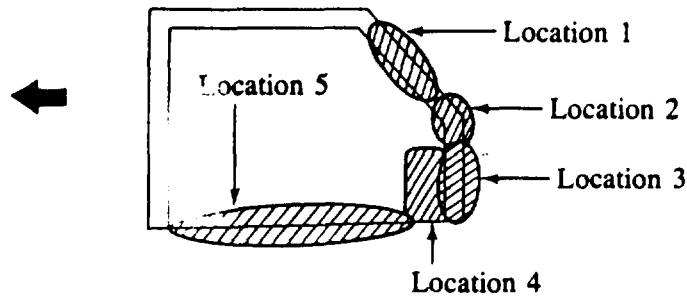


B) Glue the protector to the drip moulding as shown.

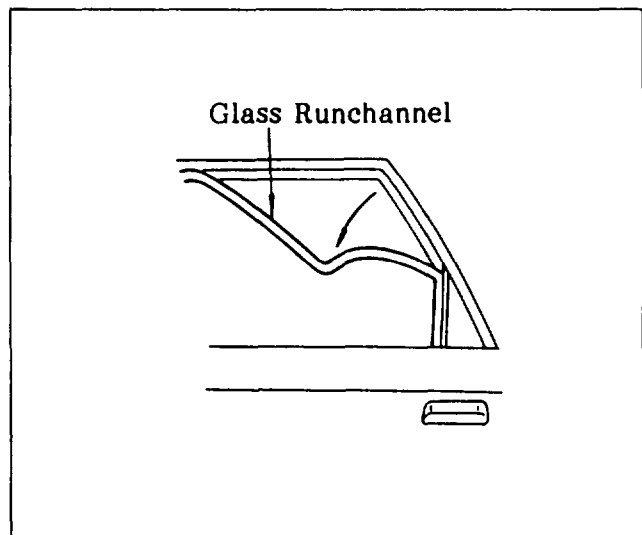
C) Insert protector into cavity in fender.



Condition B: Wind Noise at Rear Door Corner Area



1. Lower window all the way.
2. Pull off the rear corner section of the glass run channel.



3. Fold up the glass weatherstrip (see illustration [Location 1 portion]) and install a pad as indicated by the circle in the illustration.

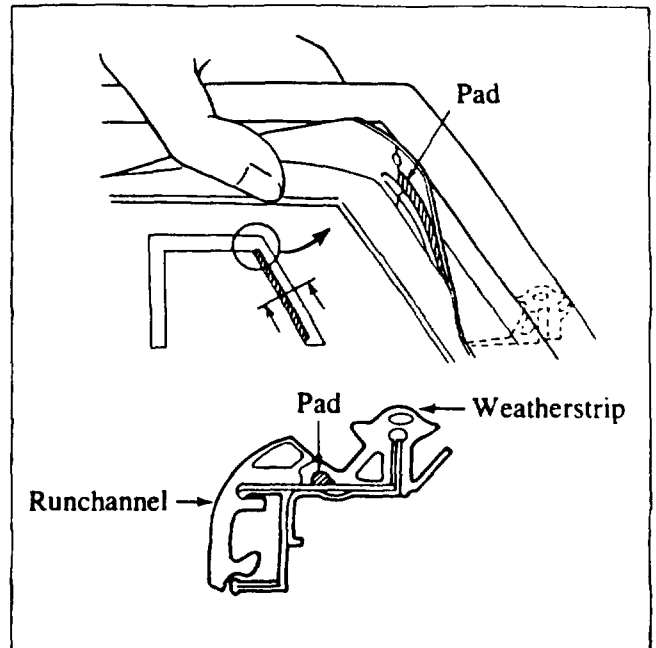
Reinstall the Glass Runchannel

Pad Length

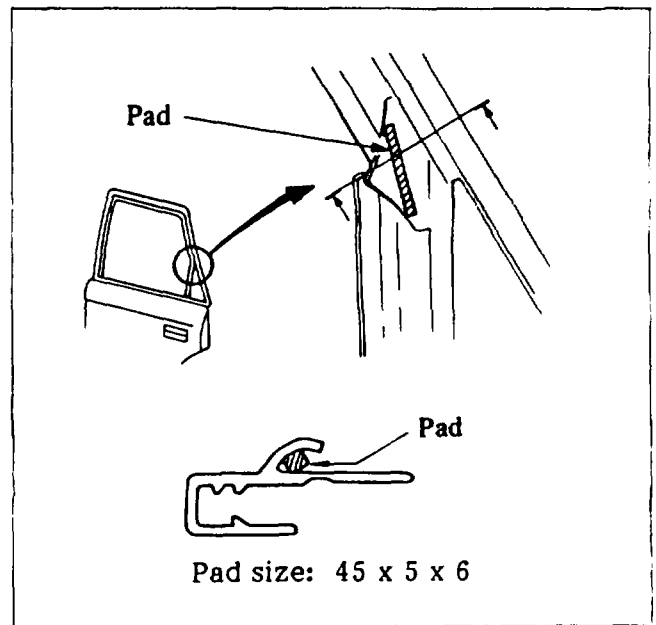
- 4-Door Sedan = 257 mm
(P/N GK59 72 618B)
- 5-Door Hatchback = 286 mm
(P/N G306 72 7F1A)

Pad Thickness = 3 mm

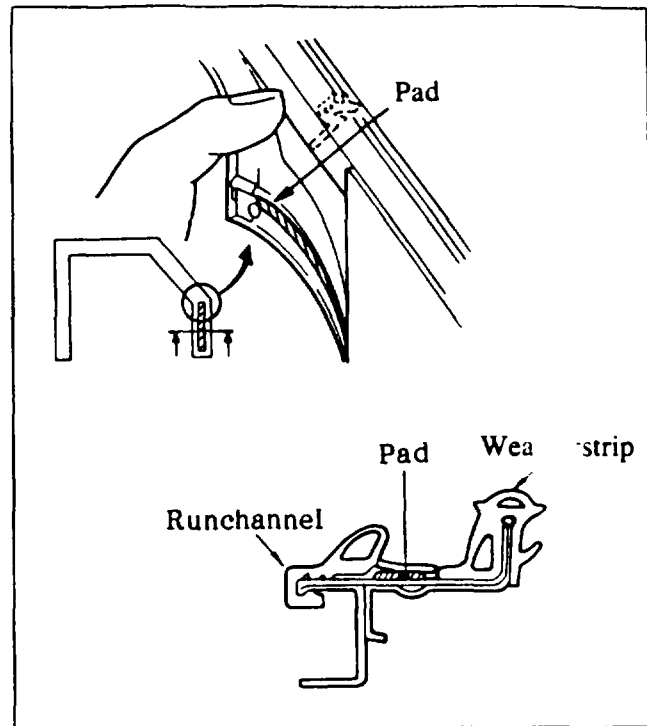
Pad Width = 5 mm



4. Install a pad (P/N GK59 72 619) on the reverse side of the corner lip (see illustration [Location 2 Portion]) to improve the sealing effectiveness.

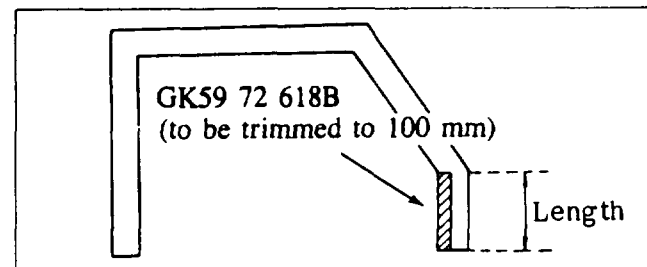


5. Fold up the glass run channel (see illustration [Location 3 portion]) and install a pad as indicated by the circle in the illustration.



Pad Size:

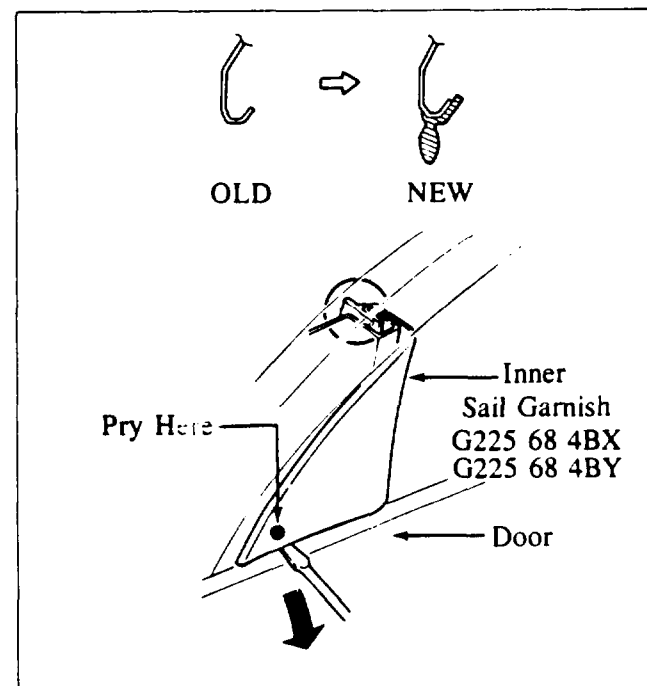
- Length (4 & 5-Door) = 100 mm
- Thickness = 2 mm
- Width = 10 mm



6. Using a flat screwdriver, remove the inner sail garnish by prying it out at the area shown by illustration and install a new level inner sail garnish.

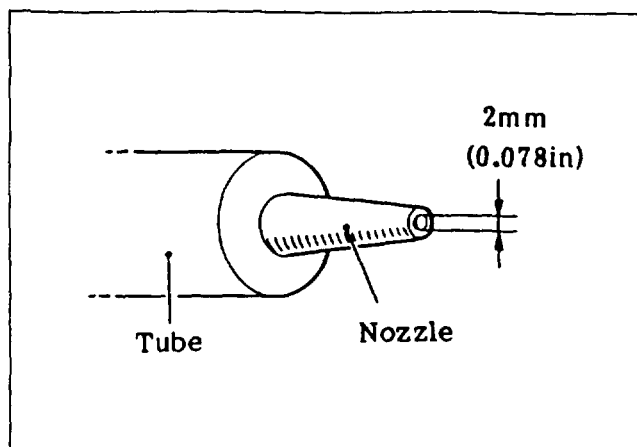
NOTE: Using a flat screwdriver, pry sail garnish out of its location, starting from the lower rear corner then working forward (as per illustration). Also, care must be taken not to damage paint on the surrounding area.

7. Perform rear door weatherstrip improvements following the same steps as used on the front door (Section 2, steps 1 & 2).

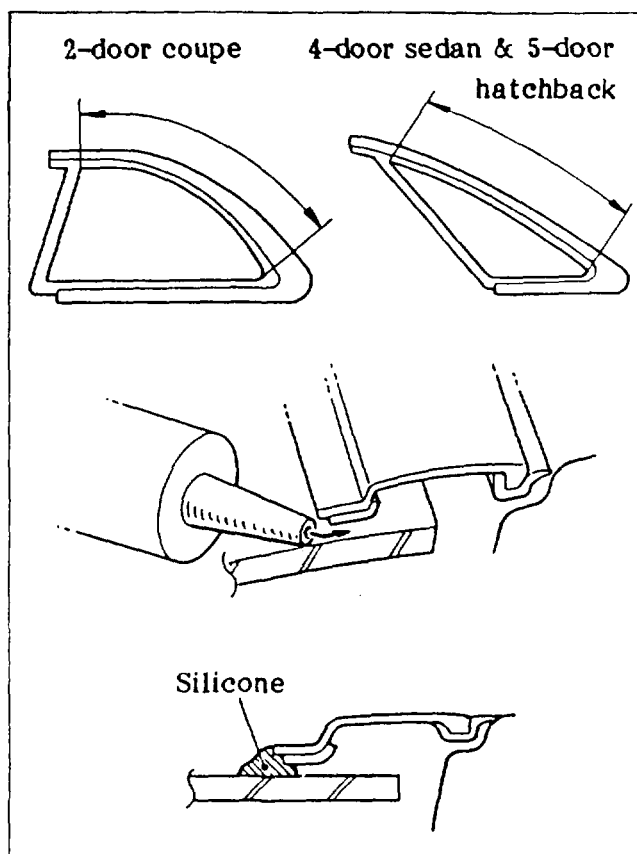


Condition C: Wind Noise/Fluttering Noise at Rear Quarter Window Area

1. Prepare a tube of silicone sealer as shown in the illustration.



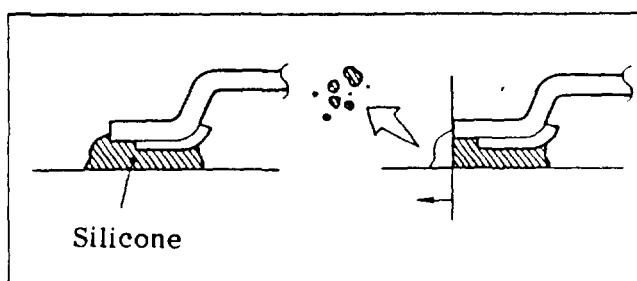
2. Clean the rear quarter window glass and apply silicone between the glass and the garnish.



3. Using a spatula, push the silicone into the area between the glass and garnish.
4. Remove all protruding silicone.

NOTE:

Silicone will cure and become hard in approximately 24 hours.



Number: 064/89	Date Issued: 4/11/89	Date Revised:
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PARTS INFORMATION

MX-6

Repair Kit Part Number: GJ83 75 750 (Noiseless Pack)

PART NO.	DESCRIPTION	QTY
GJ83 58 618B	Glass Runchannel Pad	2
GJ21 58 619	Guide Rail Pad	2
GJ21 58 821B	Weatherstrip-Glass In. RH	1
GJ21 59 821B	Weatherstrip-Glass In. LH	1
GJ21 50 517	"A"-Pillar Protector RH	1
GJ21 50 537	"A"-Pillar Protector LH	1
GJ21 50 G27 †	Rear Quarter Window Protector	2
GJ25 69 11X	Manual Mirror Seal Rubber RH	1
GJ25 69 17X	Manual Mirror Seal Rubber LH	1
GJ35 69 11X	Power Mirror Seal Rubber RH	1
GJ35 69 17X	Power Mirror Seal Rubber LH	1
GJ21 69 12X	Seal Packing	2

NOTE:

- The parts indicated by † are not necessary. Please discard them.
- Repair parts for these procedures will be available at the beginning of April, 1989.

Number: 064/89	Date Issued: 4/11/89	Date Revised:
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5-Door Hatchback

Repair Kit Part Number: GK72 75 750 (Noiseless Pack)

PART NO.	DESCRIPTION	QTY
G306 72 7F1A	Rear Door Weatherstrip Pad	2
GJ83 58 618B	Glass Runchannel Pad-Fr.	2
GK59 72 618B	Glass Runchannel Pad-Rr.	2
GK59 72 619	Glass Runchannel Pad-Rr. Door Corner	2
GJ21 58 619	Guide Rail Pad-Fr.	2
G211 58 821A	Weatherstrip-Glass In. Fr. RH	1
G211 59 821A	Weatherstrip-Glass In. Fr. LH	1
G211 72 821B	Weatherstrip-Glass In. Rr. RH	1
G211 73 821B	Weatherstrip-Glass In. Rr. LH	1
G211 50 517	"A"-Pillar Protector RH	1
G211 50 537	"A"-Pillar Protector LH	1
G225 50 G27 †	Rear Quarter Window Protector	2
G225 50 807 †	Rear Quarter Window Seal Rubber	2
G225 68 4BX	Sail Garnish Assembly RH	1
G225 68 4BY	Sail Garnish Assembly LH	1
GJ25 69 11X	Manual Mirror Seal Rubber RH	1
GJ25 69 17X	Manual Mirror Seal Rubber LH	1
GJ35 69 11X	Power Mirror Seal Rubber RH	1
GJ35 69 17X	Power Mirror Seal Rubber LH	1
GJ21 69 12X	Seal Packing	2

NOTE:

- The parts indicated by † are not necessary. Please discard them.
- Repair parts for these procedures will be available at the beginning of April, 1989.

Number: 064/89

Date Issued: 4/11/89

Date Revised:

4-Door Sedan

Repair Kit Part Number: GK59 75 750 (Noiseless Pack)

PART NO.	DESCRIPTION	QTY
G211 72 7F1A	Rear Door Weatherstrip Pad	2
GJ83 58 618B	Glass Runchannel Pad-Fr.	2
GK59 72 618B	Glass Runchannel Pad-Rr.	2
GK59 72 619	Glass Runchannel Pad-Rr. Door Corner	2
GJ21 58 619	Guide Rail Pad-Fr.	2
G211 58 821A	Weatherstrip-Glass In. Fr. RH	1
G211 59 821A	Weatherstrip-Glass In. Fr. LH	1
G211 72 821B	Weatherstrip-Glass In. Rr. RH	1
G211 73 821B	Weatherstrip-Glass In. Rr. LH	1
G211 50 517	"A"-Pillar Protector RH	1
G211 50 537	"A"-Pillar Protector LH	1
G211 50 G27 †	Rear Quarter Window Protector	2
G211 50 807 †	Rear Quarter Seal Rubber	2
G211 68 4BX	Sail Garnish Assembly RH	1
G211 68 4BY	Sail Garnish Assembly LH	1
GJ25 69 11X	Manual Mirror Seal Rubber RH	1
GJ25 69 17X	Manual Mirror Seal Rubber LH	1
GJ35 69 11X	Power Mirror Seal Rubber RH	1
GJ35 69 17X	Power Mirror Seal Rubber LH	1
GJ21 69 12X	Seal Packing	2

NOTE:

- The parts indicated by † are not necessary. Please discard them.
- Repair parts for these procedures will be available at the beginning of April, 1989.

Number: 064/89	Date Issued: 4/11/89	Date Revised:
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WARRANTY INFORMATION

Customer Comment Code: 6C
 Damage Code: 99
 Part Number of Main Cause: (e.g.) GK59 75 750 (Part Number of Repair Kit)
 Operation Number: (see charts below)
 Labor Hour: (see charts below)

Condition 1. 4-Door Sedan & 5-Door Hatchback

	REPAIR	OPERATION NO.	LABOR HOURS
A	Wind noise/fluttering noise from rear quarter garnish	XX0252RX	0.3 Hr.
B	Wind noise at rear door area	XX0274RX	0.5 Hr.
C	Wind noise at front door area and door mirror	XX0312RX	1.2 Hr.
D	A + B + C	XX0311RX	2.0 Hr.

Condition 2. MX-6

	REPAIR	OPERATION NO.	LABOR HOURS
A	Wind noise/fluttering noise from rear quarter garnish	XX0252RX	0.3 Hr.
B	Wind noise at front door area and door mirror	XX0312RX	1.2 Hr.
C	A + B	XX0309RX	1.5 Hr.

NOTE:

- Repair parts for these procedures will be available at the beginning of April, 1989.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 14	Applicable Model/s All Models	Subject STATIC ELECTRICITY SHOCK	Bulletin No. 067/89
			Issued 3/29/89
			Revised



DESCRIPTION

Drivers or passengers may occasionally feel static electricity shock when they touch the door after getting out of the vehicle.

If you encounter the customer complaint on the above condition, spray anti-static agent to the surface of the seat cushion and back trim.

The following anti-static agents are recommended for static electricity shock on Mazda vehicles.

MANUFACTURER	PRODUCT
Tech Spray	Anti-stat
National System Corporation	antistat
ACL Incorporation	Staticide
Chemtronics Inc.	Static Free

Before using the spray, carefully read the instructions of each product.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

014697

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 14	Applicable Model/s 1988-1989 626/MX-6	Subject CENTER CONSOLE LID LOCK	Bulletin No. 069/89
			Issued 9/1/89
			Revised

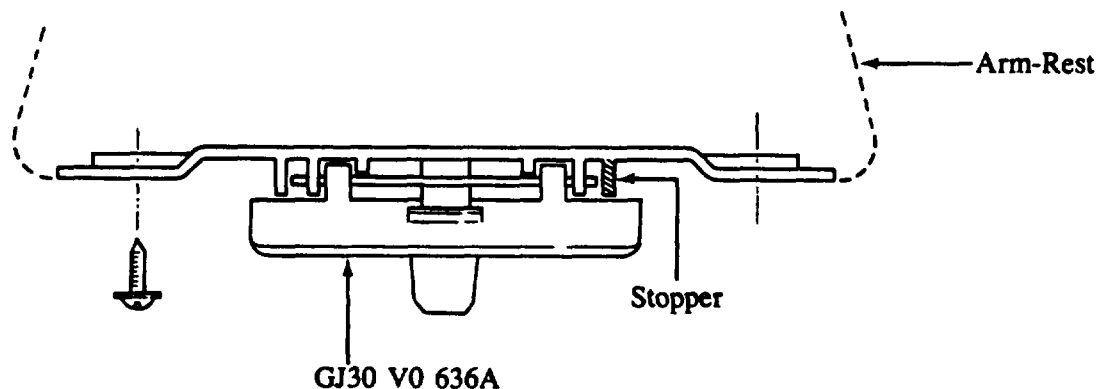
DESCRIPTION

On some of the 1988-1989 626/MX-6 models on which the console lid had been replaced with an accessory arm-rest, the hinge pin of the console lid lock may be loose and create a rattling noise because no stopper had been attached to the accessory arm-rest.

If you encounter this problem, replace the lock plate in the accessory arm-rest with a modified one.

PARTS INFORMATION

PART NUMBER		DESCRIPTION
NEW	OLD	
GJ30 V0 636A	GJ30 V0 636	Lock Plate



016004

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature _____
 Parts Manager

Service Bulletin

Handwritten: 11/22-14-89

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 15	Applicable Model/s (see below)	Subject IMPROPER OPERATION OF POWER WINDOW REGULATOR (Ball Type)	Bulletin No. 071/88 Issued 11/30/88 Revised
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DESCRIPTION

If you encounter any of the following symptoms on 1986-88 RX-7, 1986-89 323/323W, 1988 626/MX-6, 1988 929 models, repair the power window in accordance with the instructions in this Service Bulletin.

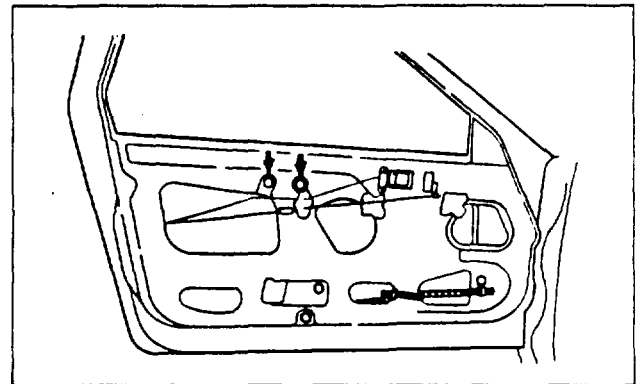
1. Slow movement of the window glass during operation.
2. Clicking noise during operation.
3. Rough movement of the window glass.

High friction of the ball movement inside the hose causes the hose and balls to get out of position, resulting in improper operation of the power window regulator.

REPAIR PROCEDURE

Replace the power window regulator guide assembly, the motor bracket and the sprocket with the new one and change the hose routing according to the following instructions.

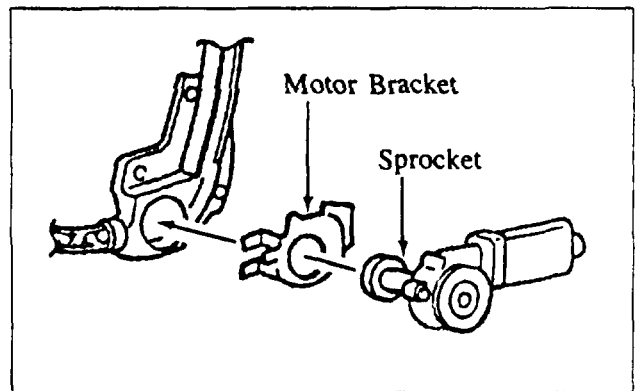
1. Remove the power window regulator from the door.
2. Disconnect the power window motor from the removed regulator.



3. Install the disconnected power window motor to the new regulator assembly with a new motor bracket and sprocket.

NOTE:

It is not necessary to replace the motor bracket for 323/323W and RX-7.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

013591

Signature _____

Service Manager

Signature _____

Parts Manager

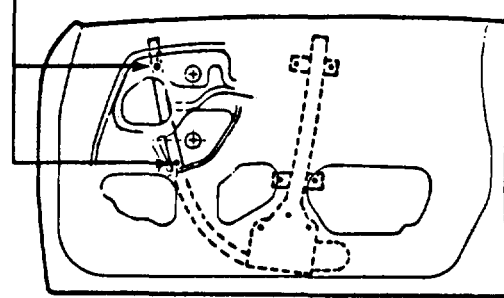
4. Change the hose routing as follows: (626 front & rear doors, 929 front door only)

- a) Make two holes (0.27in or 7mm dia.) at the points indicated by the arrows.
- b) Remove the burr around the holes by filing.
- c) Apply sealant around the holes for rust prevention.
- d) Install the regulator assembly to the door and route the hose as shown.

Refer to the following 1988 or 1989 Workshop Manual pages for proper disassembly, assembly and adjustment procedures.

Model	1988	1989
323	14-15 - 14-17	14-15 - 14-17
323W	14-13 - 14-15	14-12 - 14-14
626/MX-6	14-13 - 14-22	14-13 - 14-20
929	14-9 - 14-17	14-9 - 14-17
RX-7	14-27 - 14-33	---

Make 2 holes (dia. 7). (Unit: mm)



626 Front

CHANGE OF HOSE ROUTING

(626 Front & Rear Doors and 929 Front Door)

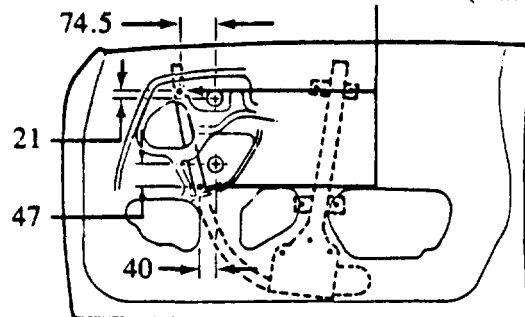
626 Front

- 1. Fix the hose at the two holes. Adjust clip location to ensure an even curve in the hose.

Conversion:

- 74.5mm - 2.9in
- 21mm - 0.8in
- 47mm - 1.9in
- 40mm - 1.6in
- 7mm - 0.27in

Make 2 holes (dia. 7).

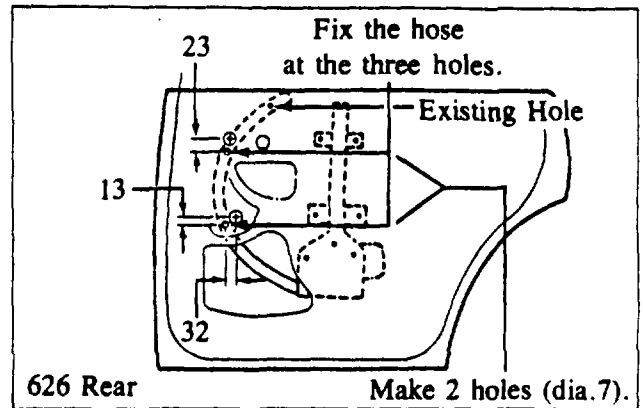


626 Front

626 Rear

1. Locate the hose at the inner panel corner as shown.
2. Adjust the clip location to ensure an even curve in the hose.

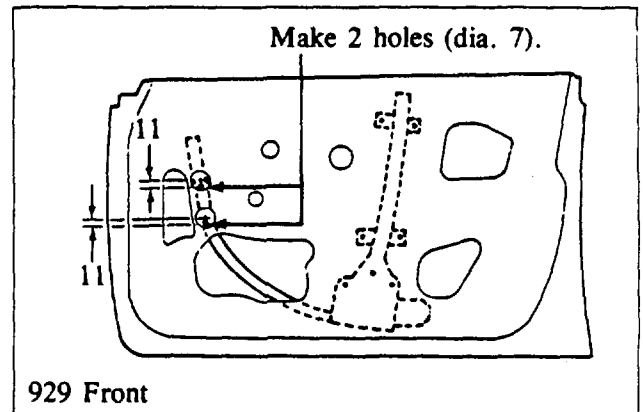
Conversion:
 23mm - 0.9in
 13mm - 0.5in
 32mm - 1.3in



929 Front

1. Fix the hose at the two holes. Adjust the clip location to ensure an even curve in the hose.

Conversion:
 11mm - 0.4in



Quick Reference of Repairs for Each Model:

Model	Door	Repair
323 323W	Front	• Power window regulator guide assembly R & R
626	Front & Rear	• Change of hose routing • Power window regulator guide assembly R & R • Motor bracket and sprocket R & R
MX-6	Front	• Power window regulator guide assembly R & R • Motor bracket and sprocket R & R
RX-7	Front	• Power window regulator guide assembly R & R • Sprocket R & R
929	Front & Rear	• Change of hose routing (front door only) • Power window regulator guide assembly R & R • Motor bracket and sprocket R & R

PARTS INFORMATION

1. Power Window Regulator Guide Assembly

Model	Door	Right Side	Left Side
323 HB 3-Door	Front	B112 58 590	B112 59 590
323 HB 5-Door	Front	B094 58 590A	B094 59 590A
323 Sedan 4-Door	Front	B094 58 590A	B094 59 590A
626 Sedan 4-Door	Front	G212 58 590	G212 59 590
	Rear	G212 72 590	G212 73 590
626 HB 5-Door	Front	G226 58 590	G226 59 590
	Rear	G226 72 590	G226 73 590
MX-6	Front	GJ22 58 590A	GJ22 59 590A
929	Front	H261 58 590	H261 59 590
	Rear	H261 72 590	H261 73 590
RX-7	Front	FB05 58 590B	FB05 59 590B

2. Motor Bracket

Model	Door	Right Side	Left Side
626	Front	H261 58 598	H261 59 598
	Rear	G212 72 598	G212 73 598
MX-6	Front	H261 58 598	H261 59 598
929	Front	H261 58 598	H261 59 598
	Rear	H261 59 598	H261 58 598

3. Sprocket

Model	Door	Right Side	Left Side
All	Front & Rear	FB05 58 581	---

Number: 071/88

Date Issued: 11/30/88

Date Revised:

VIN OF PRODUCTION CHANGE

323	JM1BF2*** K0302565	July 1, 1988
323W	JM1BW622★ K0200003	July 1, 1988
626	JM1GD2*** K1700621	June 10, 1988
MX-6	(produced in Japan) JM1GD31** J1589236	May 1, 1988
MX-6	(produced in the U.S.A.) 1YVGD	
929	JM1HC221★ K0202471	July 8, 1988
RX-7	JM1FC33** J0626331	July 1, 1988

WARRANTY INFORMATION

Customer Comment Code:	7J
Damage Code:	82
Part No. of Main Cause:	Part No. of Power Window Regulator Guide Assembly (see Page 4 of 5)
Operation No:	Regulator R & R - Refer to S.R.T. Manual Hose Rerouting - XX0299RX Original Motor R & R - XX0298RX
Labor Hours:	Regulator R & R - Refer to S.R.T. Manual Hose Rerouting - 0.2 Hr. (exclude regulator R & R) Original Motor, Motor Bracket - 0.2 Hr. (exclude regulator R & R) and Sprocket R & R

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



T 8-2-89

Category 15	Applicable Model/s 1988-89 626/MX-6 w/ Burglar Alarm	Subject ELECTRICAL MALFUNCTION OF C.P.U.	Bulletin No. 077/89
			Issued 5/5/89
			Revised

DESCRIPTION

If you encounter a 626 or MX-6 with the following customer complaints, the cause may be an inoperative C.P.U.

- Inoperative interior and courtesy light.

NOTE:

Before replacing the CPU, examine the switch to determine that it is working properly.

- Inoperative IG key illumination light and key reminder alarm.
- Inoperative seat belt warning light and alarm.
- Inoperative burglar alarm.

The soldering of C.P.U. terminal may crack and this will cause electrical malfunction of C.P.U. In this case, replace the C.P.U. with the modified one as shown. The modified C.P.U. has been installed in the production vehicles since November 1, 1988.

VIN OF PRODUCTION CHANGE

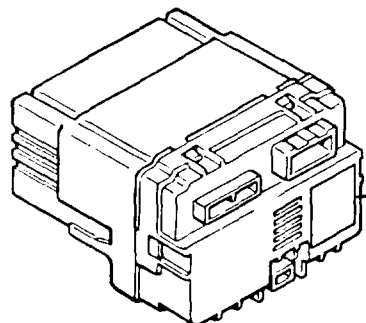
1989 MX-6 (produced in the U.S.A.)	1YVGD31★★ K5212501	November 1, 1988
1989 626 & MX-6 (produced in Japan)	JM1GD★★★★ K1731830	November 1, 1988

PARTS INFORMATION

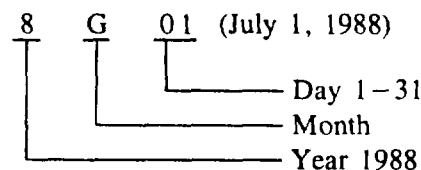
PART NUMBER	DESCRIPTION
GJ24 67 580A	C.P.U.

NOTE:

Although the part number of the C.P.U. has not been changed, the modified C.P.U. can be distinguished by a lot number on the C.P.U. as shown below.



NEC
P/N GJ24
Lot 8G01



A: January
G: July
L: December

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

015248

Service Manager

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



T 8-2-89

Category 15	Applicable Model/s 1988-89 626/MX-6 w/ Burglar Alarm	Subject ELECTRICAL MALFUNCTION OF C.P.U.	Bulletin No. 077/89
			Issued 5/5/89
			Revised

DESCRIPTION

If you encounter a 626 or MX-6 with the following customer complaints, the cause may be an inoperative C.P.U.

- Inoperative interior and courtesy light.

NOTE:

Before replacing the CPU, examine the switch to determine that it is working properly.

- Inoperative IG key illumination light and key reminder alarm.
- Inoperative seat belt warning light and alarm.
- Inoperative burglar alarm.

The soldering of C.P.U. terminal may crack and this will cause electrical malfunction of C.P.U. In this case, replace the C.P.U. with the modified one as shown. The modified C.P.U. has been installed in the production vehicles since November 1, 1988.

VIN OF PRODUCTION CHANGE

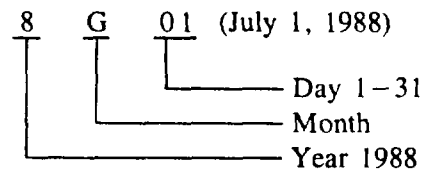
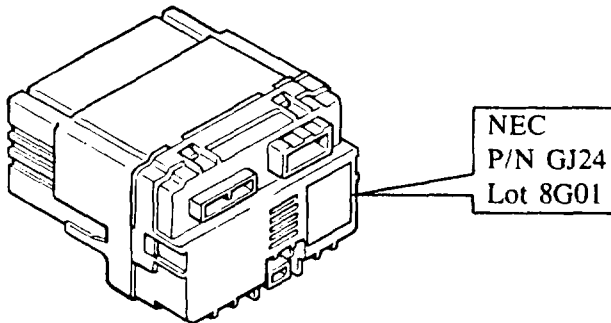
1989 MX-6 (produced in the U.S.A.)	1YVGD31★★ K5212501	November 1, 1988
1989 626 & MX-6 (produced in Japan)	JM1GD★★★★ K1731830	November 1, 1988

PARTS INFORMATION

PART NUMBER	DESCRIPTION
GJ24 67 580A	C.P.U.

NOTE:

Although the part number of the C.P.U. has not been changed, the modified C.P.U. can be distinguished by a lot number on the C.P.U. as shown below.



A: January
G: July
L: December

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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015248

Service Manager

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 15	Applicable Model/s All Models	Subject AUDIO SYSTEM TROUBLESHOOTING	Bulletin No. 078/89
			Issued 5/5/89
			Revised

T 8/1/89

DESCRIPTION

To simplify audio system troubleshooting, a flow chart (see next page) has been prepared. It contains essentials of audio system troubleshooting procedures, focusing on the following:

- Obtain accurate information of customer's complaint.
- Carry out appropriate diagnosis or troubleshooting to find the faulty part.
- Avoid replacing unnecessary parts.
- Verify whether the customer's complaint results from specific characteristics of FM radio waves. If so, the complaint cannot be corrected by audio component replacement.

Use the following materials with the attached flow chart when carrying out inspection and repair of the audio system.

- Audio System Troubleshooting Procedures (plastic sheet)
- Service Bulletin, Category 15, 050/87 (FM Reception)
- Audio Customer Questionnaire
- Workshop Manual

NOTE:

If it becomes necessary to disconnect power to the audio system, be sure to copy down the customer's pre-set stations. Reset these stations after repairs are complete.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

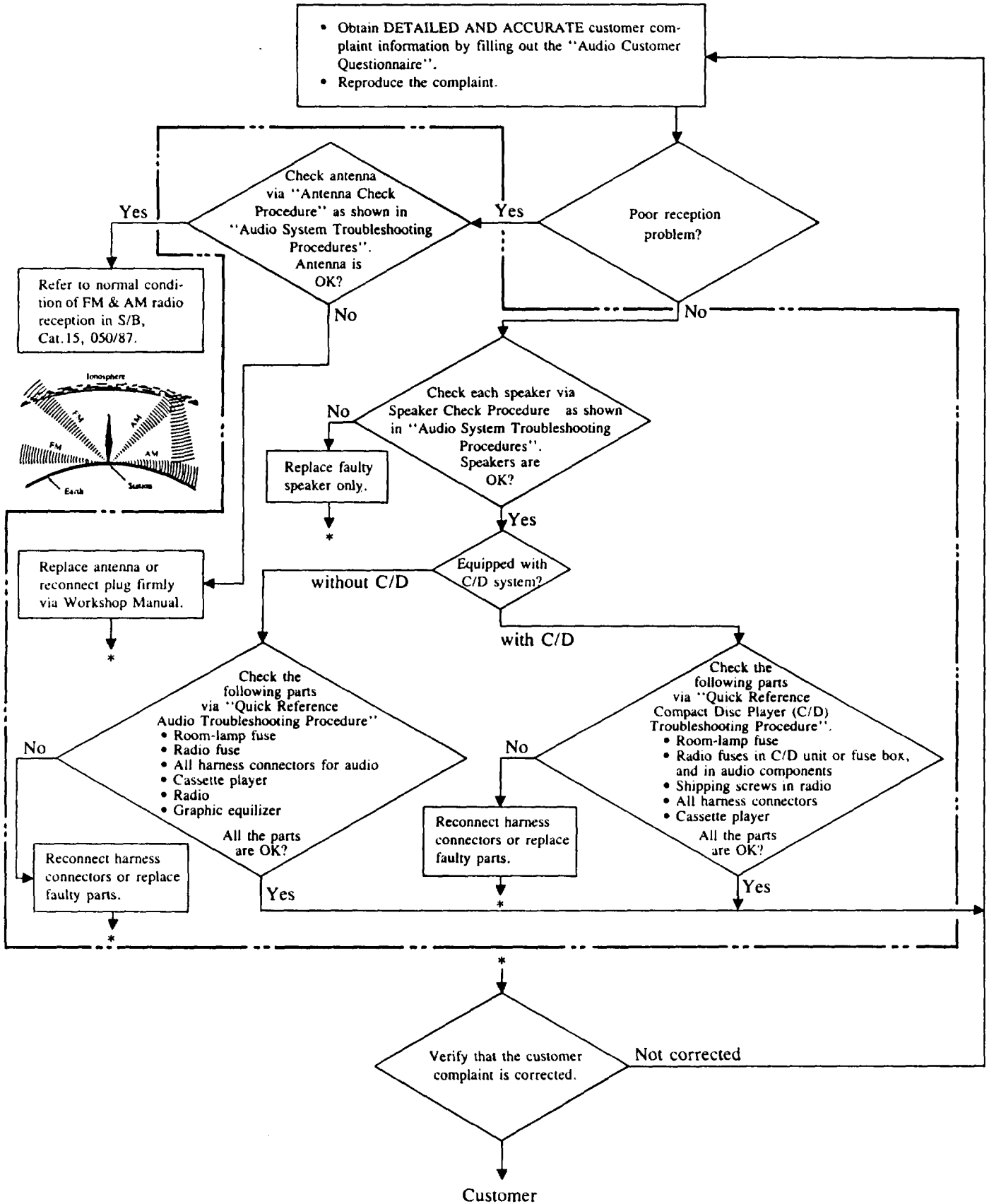
Signature _____

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AUDIO SYSTEM TROUBLESHOOTING



Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 16	Applicable Model/s 1988-1989 626/MX-6	Subject "REC-FRESH" LEVER	Bulletin No. 037/88
			Issued 12/7/88
			Revised

DESCRIPTION

If a customer complains that the manually operated "Rec-Fresh" control becomes hard to operate in the modes listed below, replace cases "A" and "B" and the "Rec-Fresh" door of the blower unit with the modified parts listed in this bulletin.

More than 55 mph approx.	Hard to change "Fresh" → "Rec"
Blower set in 4th speed	Hard to change "Rec" → "Fresh"

Modified parts have been incorporated into production vehicles since September 1988.

VIN OF PRODUCTION CHANGE

JM1GD★★★★ K1716188 September, 1988

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
GJ21 61 140E	GJ21 61 140D	Blower Unit	NEW → OLD
GJ21 61 B01A	GJ21 61 B01	Case "A"	NEW+P → OLD
GJ21 61 B02A	GJ21 61 B02	Case "B"	NEW+P → OLD
GJ21 61 B05	---	"Rec-Fresh" Door	---

NOTE:

When ordering new blower unit cases the "Rec-Fresh" door MUST be ordered also.

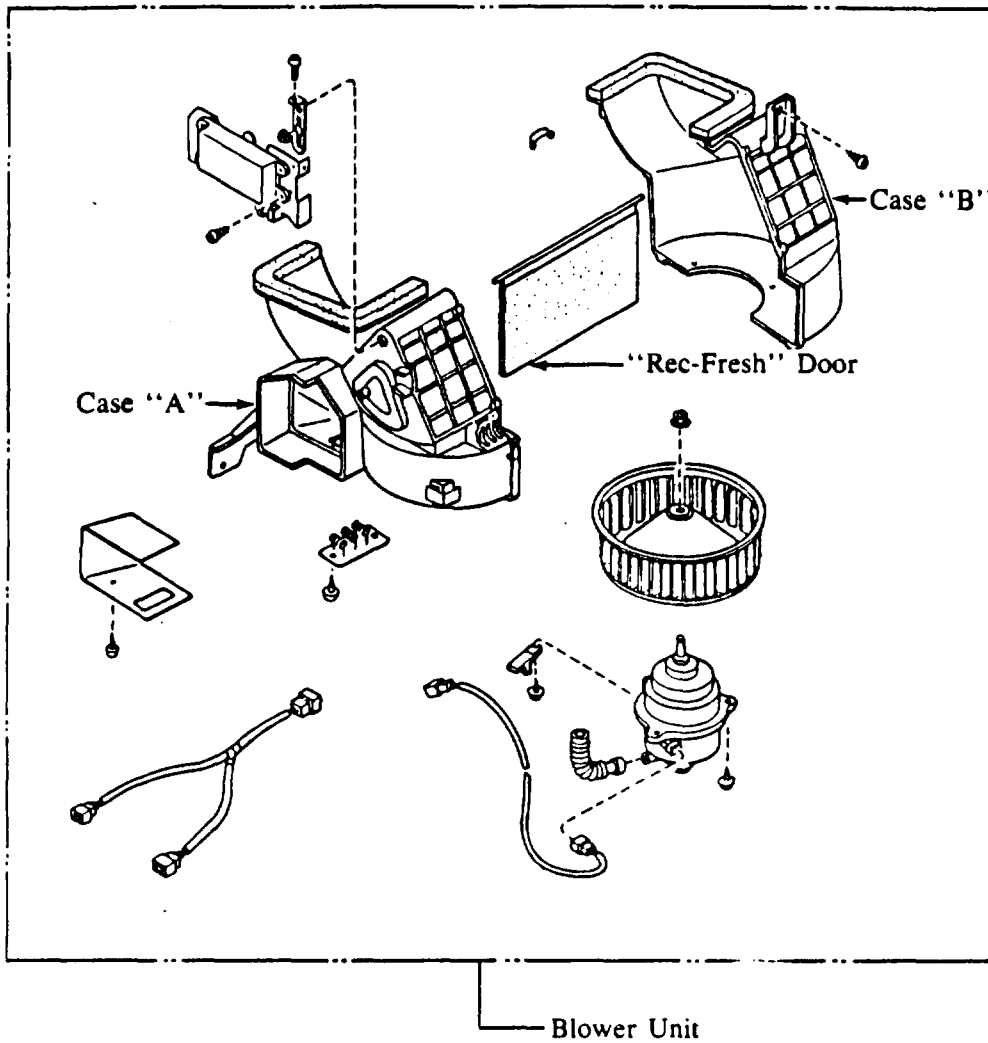
IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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Parts Manager



WARRANTY INFORMATION

Customer Comment Code: 7J
Damage Code: 83
Part No. of Main Cause: GJ21 61 B05
Operation No: XX0307RX
Labor Hours: 0.7

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

Category 2	Applicable Model/s All Models except RX-7 & B2600	Subject ENGINE OIL FILTER CARTRIDGE	Bulletin No. 005.89
			Issued 2/10/89
			Revised

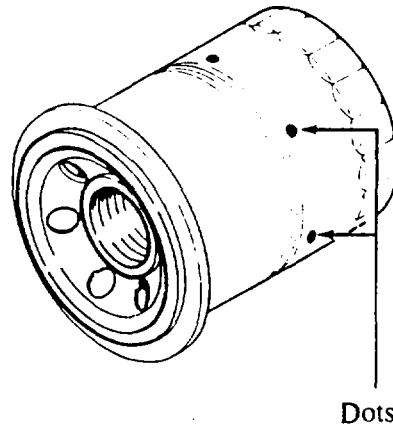
DESCRIPTION

Due to the introduction of miniature oil filter cartridges in the market, caution must be taken when installing these filters.

When installing, after contact is made between the oil filter "O" ring and the "O" ring sealing surface, use a suitable wrench and tighten the filter 1-1/6 turns more.

NOTE:

Six dots are printed on the cartridge at even intervals to facilitate tightening instructions (see illustration below).



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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014392

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Service Bulletin

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7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 4	Applicable Model/s All Models w/o Turbocharger	Subject USE OF REGULAR UNLEADED GASOLINE	Bulletin No. 054/89 Issued 2/20/89 Revised
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DESCRIPTION

It is recommended that REGULAR UNLEADED gasoline be used in all Mazda vehicles NOT equipped with a turbocharger. All non-turbocharged Mazda vehicles are designed to perform best when REGULAR UNLEADED fuel is used.

Due to the low volatility of some SUPER UNLEADED fuels, an overlean air-fuel condition may occur especially when cold. This may result in start and driveability problems.

We urge you to NOT recommend the use of SUPER UNLEADED gasoline to your customers. Also, if a customer complains about a rough idle after starting, inquire as to what type of fuel the customer has been using as a first step in troubleshooting.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned

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014393

Service Bulletin

Mazda (North America), Inc.
1444 McGaw Ave.
Irvine, California 92714
Telephone (714) 261-9429

7 8 2 89
MAZDA

Category 4	Applicable Model/s 1988-89 626/MX-6 (w/o Turbo)	Subject IDLE SPEED FLUCTUATION OR HUNTING	Bulletin No.	056/89
			Issued	4/24/89
			Revised	6/30/89

DESCRIPTION

Idle speed fluctuation or hunting may occur when the electrical load such as headlights, rear defroster and so on are turned on while idling. This condition likely occurs easily if the idle speed is adjusted too low.

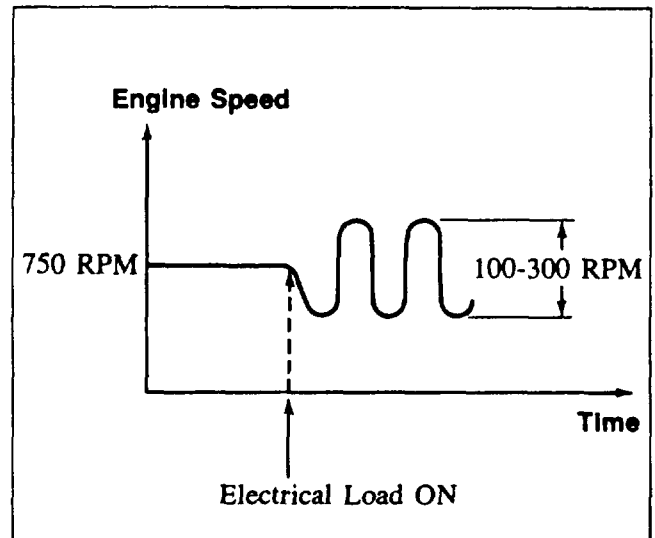
If you encounter a customer with a 1988-1989 626/MX-6 MTX complaining of idle fluctuation or similar complaint, adjust the idle speed according to the following repair procedure.

REPAIR PROCEDURE

1. Warm up the engine and check that the idle speed is within the specification.

★ **Idle Speed: 750 ± 25 RPM**
(in Neutral, with Test Connector grounded)

2. With the test connector NOT grounded, check for a fluctuation in the idle when the head lights and rear defroster are turned "ON". If fluctuation is present, ground the test connector and adjust the idle speed to 950 - 1000 RPM (in neutral with the parking brake applied).*



WARRANTY INFORMATION

Customer Comment Code: 03
Damage Code: 9H
P/N of Main Cause: F201 20 660
Quantity: 0 (Zero)
Operation Number: XX0330RX
Labor Hour: 0.2 Hr.

The revised section is indicated by an asterisk. Please replace the original bulletin with this revised bulletin.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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Parts Manager

Service Bulletin

Mazda (North America), Inc.
1444 McGaw Ave.
Irvine, California 92714
Telephone (714) 261-9429



Category 4	Applicable Model/s 1988-89 626/MX-6 (w/o Turbo)	Subject IDLE SPEED FLUCTUATION OR HUNTING	Bulletin No. 056/89 Issued 4/24/89 Revised
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DESCRIPTION

Idle speed fluctuation or hunting may occur when the electrical load such as headlights, rear defroster and so on are turned on while idling. This condition likely occurs easily if the idle speed is adjusted too low.

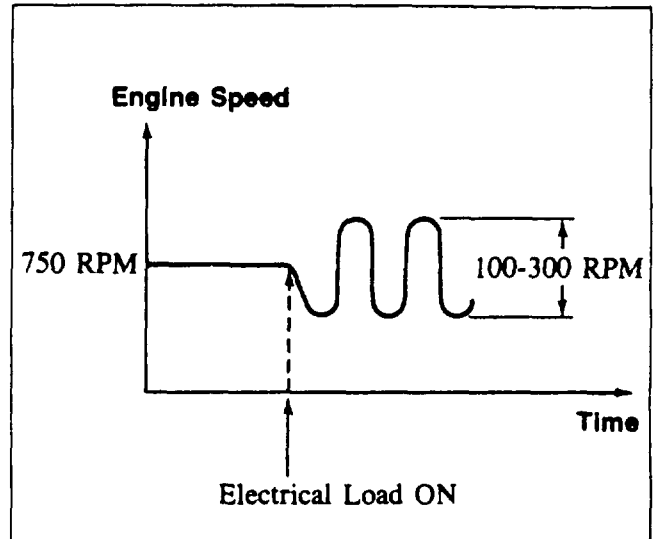
If you encounter a customer with a 1988-1989 626/MX-6 MTX complaining of idle fluctuation or similar complaint, adjust the idle speed according to the following repair procedure.

REPAIR PROCEDURE

1. Warm up the engine and check that the idle speed is within the specification.

★ **Idle Speed: 750 ± 25 RPM**
(in Neutral, with Test Connector grounded)

2. Check if the idle fluctuation occurs when the head light and rear defroster are turned on. If the fluctuation is still present, adjust the idle speed to 950-1000 rpm with the test connector grounded. (in Neutral or N-Range).



WARRANTY INFORMATION

Customer Comment Code: 03
Damage Code: 9H
P/N of Main Cause: F201 20 660
Quantity: 0 (Zero)
Operation Number: XX0330RX
Labor Hour: 0.2 Hr.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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015011

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 4	Applicable Model/s All Models (except B-Series)	Subject REMANUFACTURED EGI CONTROL UNIT PROGRAM	Bulletin No. 059/89
			Issued 7/19/89
			Revised

DESCRIPTION

In an effort to reduce the cost of repair, remanufactured EGI control units will be available effective July 5, 1989. These control units replace new EGI control units when replacement is necessary for models listed in the Parts Information section.

NOTE:

New EGI control units will NOT be available as the remanufactured unit will supersede the new. The units must be returned in accordance with the procedures prescribed in Parts Bulletin II/48E or E-9-89. Failure to do so will result in core forfeiture. These procedures include, but are not limited to, completion of the "Core Return Request" and "Core Credit Request". This information is critical to the program's success. **Do not include the bracket when returning the core. The bracket should be used when installing the remanufactured control unit. Please return cores WITHIN 7 DAYS to insure continued availability of remanufactured units.**

PARTS INFORMATION

RX-7 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
N304 18 881R	84-85 GSL-SE	N304 18 880A
N3Y6 18 881R	86-87 w/o Turbo	N326 18 880, N3Y6 18 880
N332 18 881R	87 Turbo	N332 18 880
N327 18 881R	88 Non-Turbo Coupe	N327 18 880
N333 18 881R	88 Turbo	N333 18 880
N338 18 881R	88 Convertible	N338 18 880
N350 18 881R	89 Non-Turbo Coupe CA	N350 18 880
N351 18 881R	89 Non-Turbo Coupe FED	N351 18 880
N352 18 881R	89 Convertible CA	N352 18 880
N353 18 881R	89 Convertible FED	N353 18 880
N370 18 881R	89 Turbo	N370 18 880

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

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Service Manager

Parts Manager

Number: 059/89	Date Issued: 7/19/89	Date Revised:
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323 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
B601 18 881R	86-87 All	B601 18 880C
B6B1 18 881R	88 Non-Turbo FED	B6B1 18 880B
B6B2 18 881R	88 Non-Turbo CA	B6B2 18 880A
B6B3 18 881R	88-89 Turbo FED	B6B3 18 880C
B6B4 18 881R	88-89 Turbo CA	B6B4 18 880B
B6K1 18 881R	89 Non-Turbo FED	B6K1 18 880
B6K2 18 881R	89 Non-Turbo CA	B6K2 18 880
BP01 18 881R	90 1.8 Liter, SOHC Sedan	---
BP10 18 881R	90 1.8 Liter, DOHC Sedan	---
B61K 18 881R	90 1.6 Liter, SOHC H/B	---

626/MX-6 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
FEH1 18 881R	86-87 626 Non-Turbo	FEH1 18 880C, FEH4 18 880
FEH5 18 881R	86-87 626 Turbo	FEH5 18 880C
F220 18 881R	88-89 626/MX-6 Turbo FED, A/T & M/T, 2WS	F220 18 880G
F222 18 881R	88-89 626/MX-6 Turbo CA, A/T & M/T, 2WS	F222 18 880J
F225 18 881R	88-89 626/MX-6 Turbo FED, 4WS	F225 18 880B
F226 18 881R	88-89 626/MX-6 Turbo CA, 4WS	F226 18 880B
F285 18 881R	90 626/MX-6 Non-Turbo FED, M/T (Japan Make)	---
F286 18 881R	90 626/MX-6 Non-Turbo FED, A/T (Japan Make)	---
F287 18 881R	90 626/MX-6 Turbo FED, 2WS (Japan Make)	---
F289 18 881R	90 MX-6 Turbo, 4WS (Japan Make)	---
F294 18 881R	90 626/MX-6 Non-Turbo CA, M/T (Japan Make)	---
F295 18 881R	90 626/MX-6 Non-Turbo CA, A/T (Japan Make)	---
F296 18 881R	90 626/MX-6 Turbo CA, 2WS (Japan Make)	---
F298 18 881R	90 626/MX-6 Turbo CA, 4WS (Japan Make)	---
F290 18 881R	90 626/MX-6 Non-Turbo FED, M/T (USA Make)	---
F291 18 881R	90 626/MX-6 Non-Turbo FED, A/T (USA Make)	---
F292 18 881R	90 626/MX-6 Turbo FED, (USA Make)	---
F2B5 18 881R	90 626/MX-6 Non-Turbo CA, M/T (USA Make)	---
F2B6 18 881R	90 626/MX-6 Non-Turbo CA, A/T (USA Make)	---
F2B7 18 881R	90 626/MX-6 Turbo CA, 2WS (USA Make)	---

NOTE:

Japan Make = Vehicle Produced in Japan (refer to VIN)

USA Make = Vehicle Produced in USA (refer to VIN)

Number: 059/89	Date Issued: 7/19/89	Date Revised:
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626/MX-6 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F201 18 881R	88 626/MX-6 Non-Turbo FED, A/T & M/T Also 89 626/MX-6 Non-Turbo FED, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F201 18 880L
ZPA1 18 881R	89 626/MX-6 Non-Turbo FED, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F201 18 880M
F203 18 881R	88 626/MX-6 Non-Turbo CA, A/T & M/T Also 89 626/MX-6 Non-Turbo CA, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F203 18 880L
ZPA3 18 881R	89 626/MX-6 Non-Turbo CA, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F203 18 880M
F204 18 881R	89 626/MX-6 Non-Turbo CA, A/T Up to: JM1GD★★★★-K1737083 1YVGD★★★★-K5223617	F204 18 880A
ZPA4 18 881R	89 626/MX-6 Non-Turbo CA, A/T From: JM1GD★★★★-K1737082 1YVGD★★★★-K5223618	F204 18 880B
F262 18 881R	89 626/MX-6 Non-Turbo FED, A/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F206 18 880A
ZPA2 18 881R	89 626/MX-6 Non-Turbo FED, A/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F206 18 880B

Number: 059/89	Date Issued: 7/19/89	Date Revised:
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929 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
JEY6 18 881R	88-89 FED	JE06 18 880G
JEY7 18 881R	88-89 CA	JE07 18 880C
JE27 18 881R	90 DOHC (929s), FED	---
JE28 18 881R	90 DOHC (929s), CA	---
JE39 18 881R	90 SOHC, FED	---
JE40 18 881R	90 SOHC, CA	---

MPV Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
JE15 18 881R	89 3.0 Liter	JE15 18 880F

NOTE:

89 2.6 Liter uses G601 18 880A, which is NOT included in the remanufactured EGI control unit program.

Miata Model

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
B61P 18 881R	90 Miata	---

WARRANTY INFORMATION

Remanufactured EGI units are warranted for the first 12 months (regardless of mileage) from the date of installation by a Mazda dealer or sold over the counter. Remanufactured EGI control units installed as a result of a warranty repair will be warranted for the remainder of the vehicle's emission warranty.

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 4	Applicable Model/s 1988-1989 626/MX-6	Subject INTERCHANGEABILITY OF E.G.I. CONTROL UNIT (E.C.U.)	Bulletin No. 060/89
			Issued 10/12/89
			Revised

DESCRIPTION

Since the December, 1988 production, the material used for some of the terminals of the connector between the E.C.U. and the engine harness has been changed from gold to tin. In accordance with this design change, there is no interchangeability between new and old parts regarding the E.C.U. and the engine harness.

If a new E.C.U. is installed using an old engine harness, although the system itself will operate normally, galvanic corrosion may occur due to the different materials of the terminal plating. The corrosion at the terminals may result in poor driveability.

Thus, when you replace an E.C.U. or an engine harness, please be sure to check the generation of the parts and use a replacement part of the same generation.

E.C.U.:

	Federal Specifications		California Specifications	
	with A/T	with M/T	with A/T	with M/T
1988 626/MX-6	F201 18 880L		F203 18 880L	
1989 626/MX-6 Up to JM1GD★★★★K1737081 or 1YVGD★★★★K5223616	F204 18 880A	F201 18 880L	F206 18 880A	F203 18 880L
1989 626/MX-6 After JM1GD★★★★K1737082 or 1YVGD★★★★K5223617	F204 18 880B	F201 18 880M	F206 18 880B	F203 18 880M

Engine Harness:

	Japan Production	MMUC Production
1988 & 1989 626/MX-6 Up to JM1GD★★★★K1737081 or 1YVGD★★★★K5223616	GJ21 67 020S	GJ51 67 020S
1988 & 1989 626/MX-6 After JM1GD★★★★K1737082 or 1YVGD★★★★K5223617	GJ21 67 020T	GJ51 67 020T

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

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Service Manager

Parts Manager

Number: 060/89	Date Issued: 10/12/89	Date Revised:
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NOTE:

To identify new and old parts, the color of the E.C.U. connectors and the engine harness have been changed from yellow to white at the time of the design change. When replacing an E.C.U. or an engine harness, check the color of the connector first and choose appropriate parts.

Yellow: Old E.C.U. and engine harness
White: New E.C.U. and engine harness

VIN OF PRODUCTION CHANGE

626/MX-6 w/o Turbo

Produced in Japan:	JM1GD★★★★ K1737082	December 1, 1988
Produced in the U.S.A.:	1YVGD★★★★ K5223617	January 18, 1989

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 4	Applicable Model/s 1988-1989 626/MX-6	Subject ROUGH IDLE AFTER COLD START	Bulletin No. 061/89 Issued 11/17/89 Revised
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DESCRIPTION

If the following conditions occur within 15 seconds after a cold start on a 1988-89 626/MX-6, install a repair kit according to the procedures shown in this bulletin.

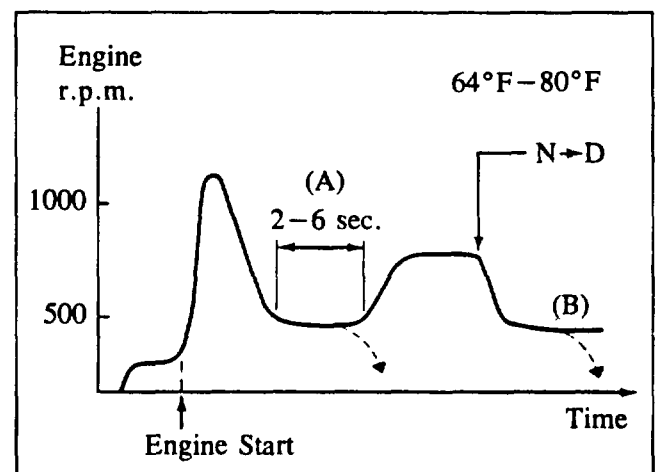
NOTE:

The repair kit cuts the negative pressure applied to the pressure regulator for 15 seconds after starting the engine to compensate the air/fuel ratio.

- A) Engine speed drops excessively for a few seconds after starting and then occasionally stalls.
- B) Engine speed drops excessively when shifting from "N" (P) to "D" (R) and then occasionally stalls.

NOTE:

This repair kit only functions for 15 seconds after the engine is started.



PARTS INFORMATION

PART NO.	DESCRIPTION
8AG2 13 SPX	Repair Kit

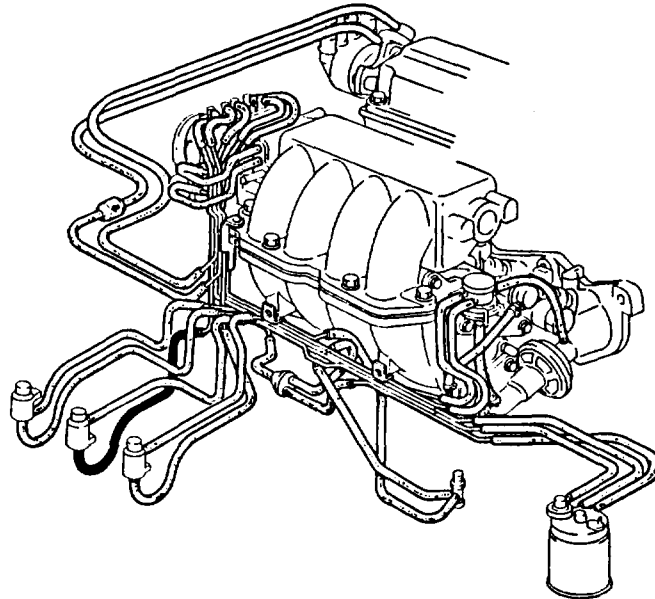
NO.	PART NO.	DESCRIPTION	QTY	NON-TURBO	TURBO
1.	F2Y1 18 701	Control Unit	1	●	●
2.	FE70 18 741A	3-Way Solenoid Valve	1	●	●
3.	F2Y1 67 SH0	Wire Harness	1	●	●
4.	9935 10 420G	Vacuum Hose	1	●	●
5.	9928 30 800	Hose Clip	2	N/A	●
6.	9970 93 140	Band	5	●	●
7.	GJY1 69 036	Vacuum Hose Label	1	●	N/A
8.	GJY2 69 036	Vacuum Hose Label	1	N/A	●

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

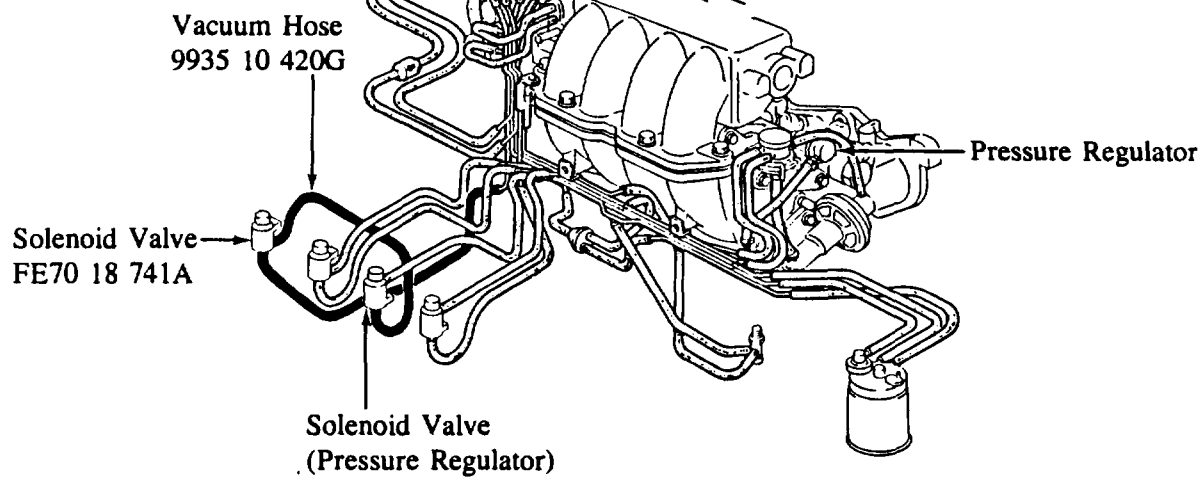
Signature 016601 Signature _____
Service Manager Parts Manager

Installation of Vacuum Hose
(without Turbo)

• Before Installation

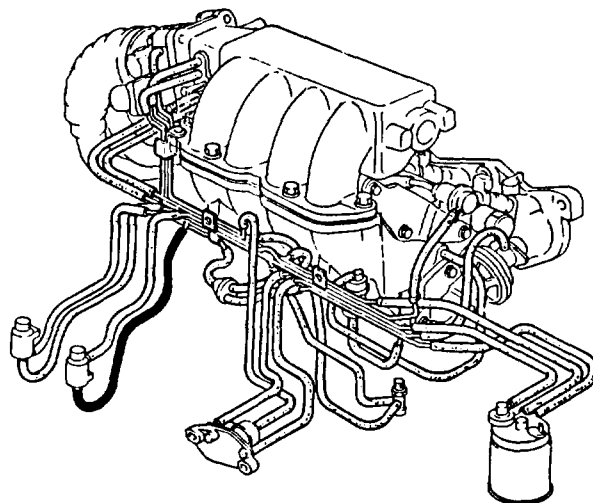


• After Installation

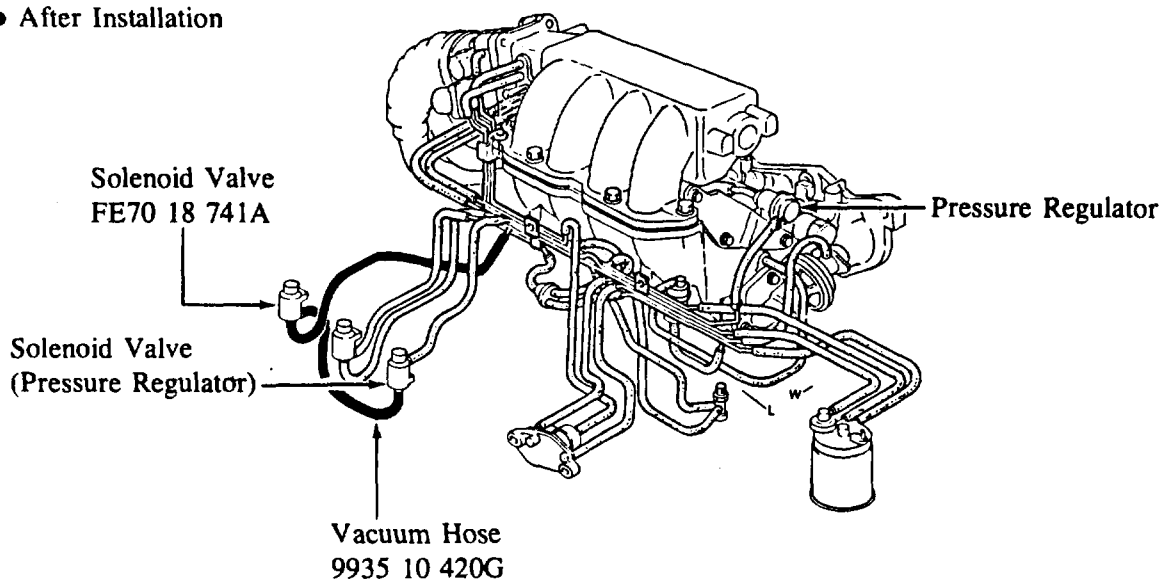


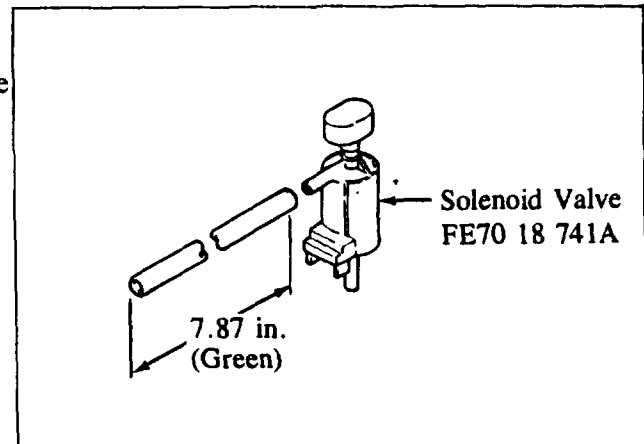
Installation of Vacuum Hose
(with Turbo)

● Before Installation

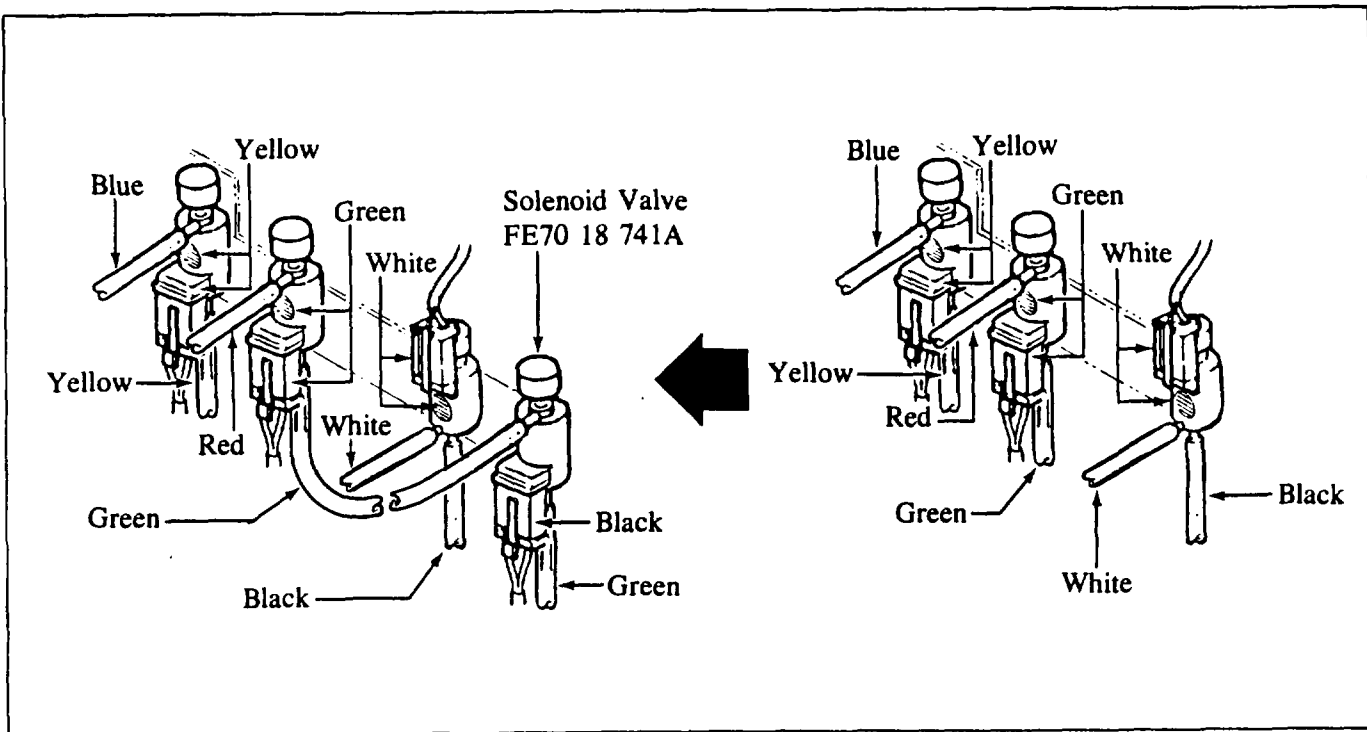


● After Installation



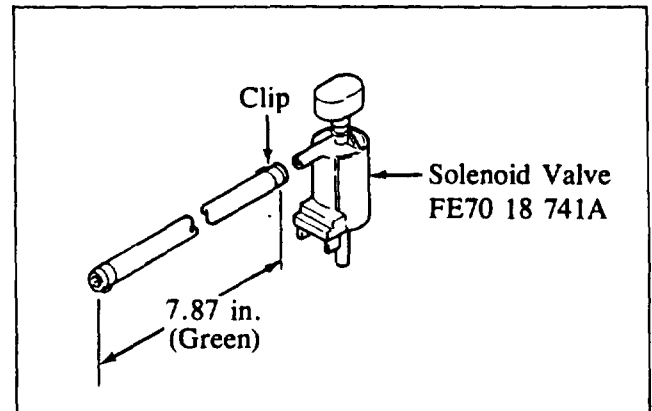
INSTALLATION PROCEDURE**1. Installation of Solenoid Valve & Vacuum Hose****A. Without Turbo**

- 1) Assemble the vacuum hose and the solenoid valve from the kit.
- 2) Disconnect the vacuum hose (Green) from the solenoid valve (with Green label) of the pressure regulator and install it on the solenoid valve of the kit.
- 3) Install the vacuum hose (Green) which was assembled with the solenoid valve (kit) at the first step onto the solenoid valve (with Green label) of the pressure regulator.
- 4) Install the solenoid valve onto the solenoid bracket.

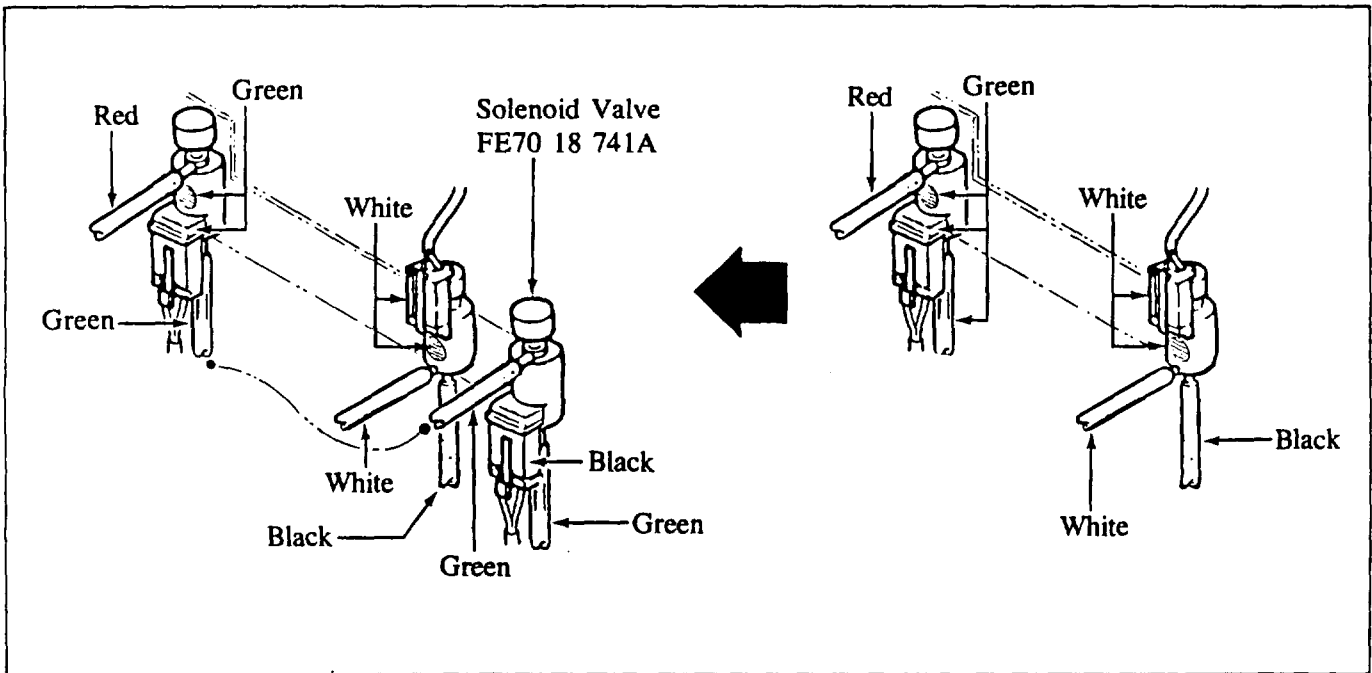


B. With Turbo

- 1) Assemble the vacuum hose and the solenoid valve from the kit.



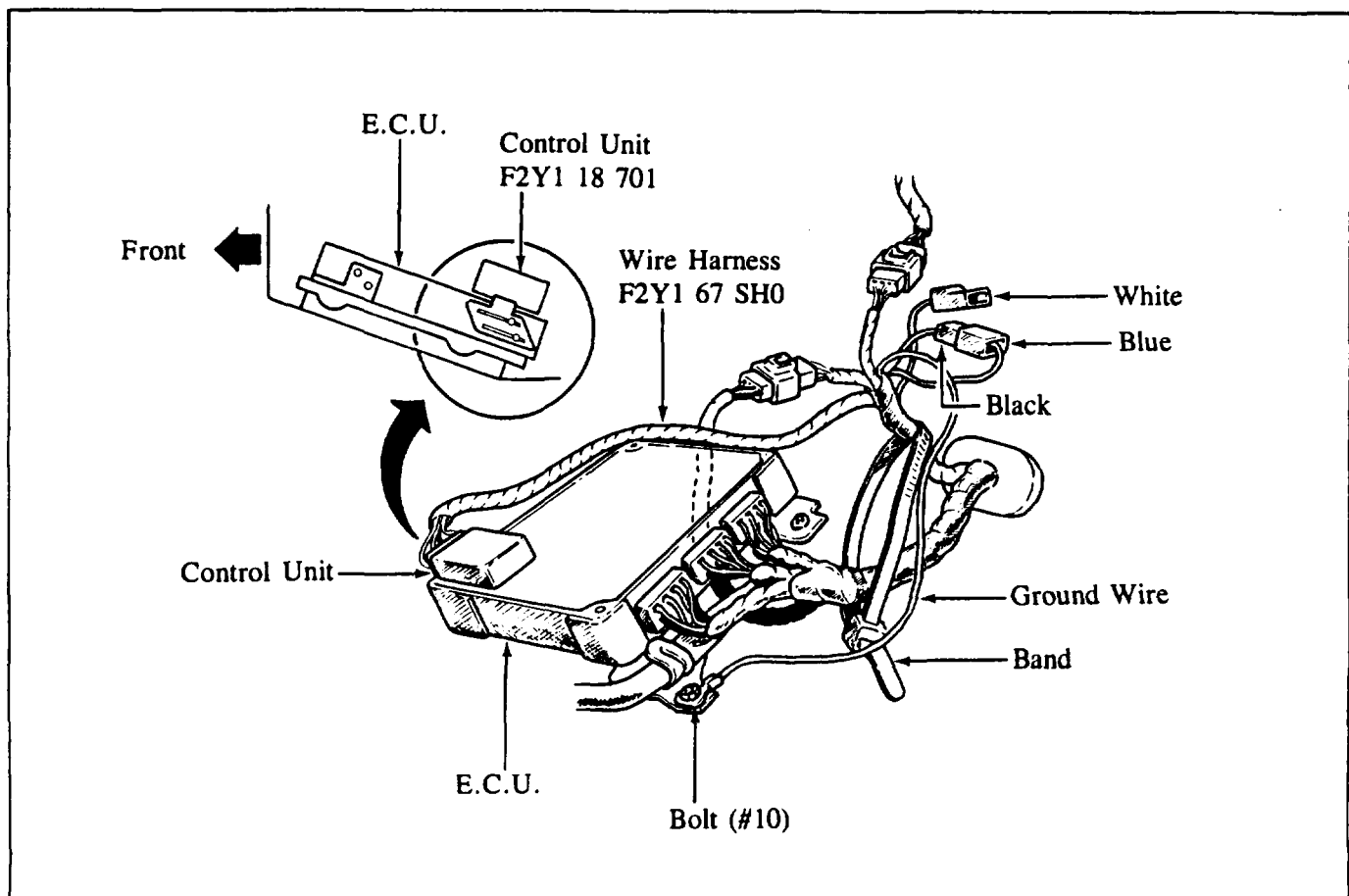
- 2) Disconnect the vacuum hose (Green) from the solenoid valve (with Green label) of the pressure regulator (with Green label) and install it onto the solenoid valve of the kit.
- 3) Install the vacuum hose (Green), which was assembled with the solenoid valve (kit) at the first step, onto the solenoid valve (with Green label) of the pressure regulator.
- 4) Install the solenoid valve onto the solenoid bracket.



2. Installation of Wire Harness (with & without Turbo)

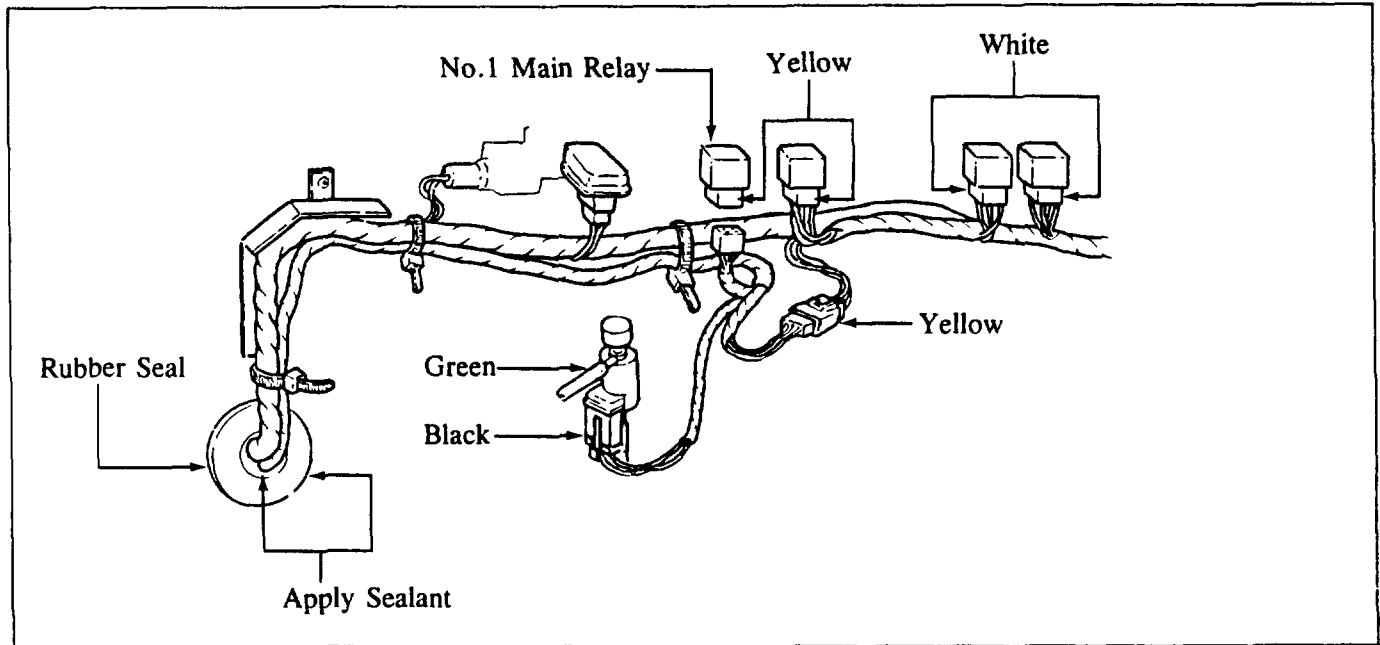
A. Under Dashboard

- 1) Install the control unit from the kit to lower left side of the E.C.U. (Emission Control Unit).
- 2) Connect the single couplers (Black & Blue) from the wire harness of the kit.
- 3) Connect the wire harness to the control unit.
- 4) Connect the 2 ends of the wire harness of the E.C.U. at DEM-01.
- 5) Install the ground wire with bolt (#10) and tighten it.
- 6) Fasten the wire harness with bands.
- 7) Pass the 3 ends of the wire harness through the rubber seal in the firewall.



B. In Engine Compartment

- 1) Connect the black coupler to the solenoid valve which was installed in step 1.
- 2) Disconnect the coupler from the No.1 main relay and install 2 ends of the wire harness between the main relay and its coupler.
- 3) Fasten the wire harness with bands.



NOTE:

Apply a sealing agent fully around the rubber seal. Otherwise, water or gas fumes may seep into the passenger compartment.

3. Adjust the idle speed to the upper limit of specification according to the Workshop Manual.
4. Verify that no negative pressure is applied to the pressure regulator for 15 seconds after starting the engine.
5. Attachment of Vacuum Hose Label (for California specifications only)
 - A) Clean the present vacuum hose label.
 - B) Attach the new label on the cleaned part.

Vacuum Hose Label for Non-Turbo: GJY1 69 036

Vacuum Hose Label for Turbo: GJY2 69 036

WARRANTY INFORMATION

Customer Comment Code: 99
 Damage Code: 99
 Part No. of Main Cause: 8AG2 13 SPX0
 Operation No: XX0248RX
 Labor Hour: 1.0 Hr.

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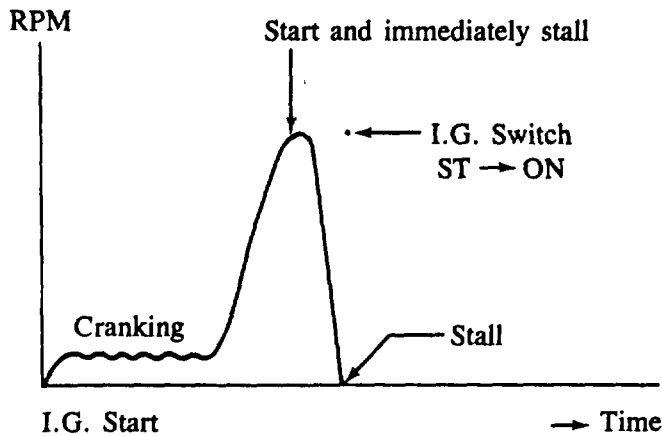
1 Jan 2/18

Category 4	Applicable Model/s 1989 323, 626, 929 & MPV (3.0L)	Subject ENGINE STALL WHEN E.C.U. IS COLD	Bulletin No. 064/89
			Issued 12/15/89
			Revised

DESCRIPTION

1989 323, 626, 929 and MPV (3.0L) models produced between November 1988 and January 1989 may exhibit the following problem in temperatures of less than 0°C.

The problem is that the engine starts while the I.G. key is turned to the "START" position, but immediately stalls when the key is returned to the "ON" position. This occurs only when the temperature of the Emission Control Unit (E.C.U.) is approximately 0°C or less. However, the engine operates normally when the temperature is higher than 0°C.



Problem Phenomenon

REPAIR PROCEDURE

1. Verify whether the engine stalls under the above condition.
2. Replace the E.C.U. if the problem is observed.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

016952

Service Manager

Parts Manager

Number: 064/89	Date Issued: 12/15/89	Date Revised:
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AFFECTED VIN RANGE

1989 929: JM1HC★★★★K0210413-217879
1989 626: JM1GD★★★★K1731830-746266
1YVGD★★★★K5212570-225932
1989 323: JM1BF★★★★K0343911-370717
1989 MPV (3.0L): JM3LV★★★★K0110558-121417

PARTS INFORMATION

REBUILT P/N	APPLICABLE MODEL	FED/CA
B6K1 18 881R B6B3 18 881R B6K2 18 881R B6B4 18 881R	'89 323 - Non-Turbo Turbo Non-Turbo Turbo	Federal Federal California California
F201 18 881R F220 18 881R F225 18 881R F203 18 881R F222 18 881R F226 18 881R	'89 626 - Non-Turbo 2WS Turbo 2WS Turbo 4WS Non-Turbo 2WS Turbo 2WS Turbo 4WS	Federal Federal Federal California California California
JEY6 18 881R JEY7 18 881R	'89 929	Federal California
JE15 18 881R	'89 MPV (3.0L)	

WARRANTY INFORMATION

Customer Comment Code: 1E
Damage Code: 63
Process No: B9008A
Part No. of Main Cause: Use applicable ECU part number.
Operation No: F0812X-R-X
Labor Hour: 0.4 Hr. (929 - 0.5 Hr.)

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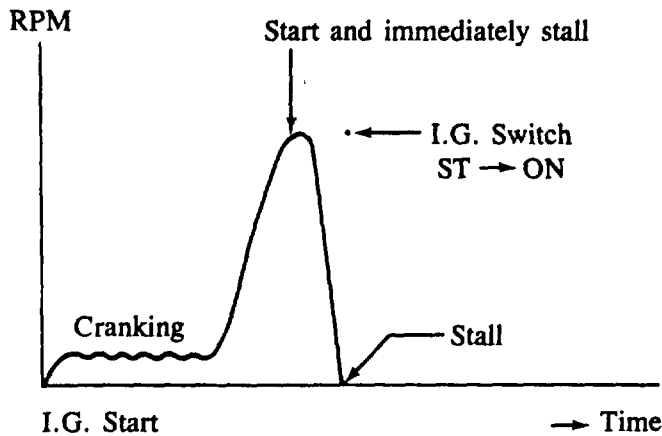
1 Jan 2/18

Category 4	Applicable Model/s 1989 323, 626, 929 & MPV (3.0L)	Subject ENGINE STALL WHEN E.C.U. IS COLD	Bulletin No. 064/89
			Issued 12/15/89
			Revised

DESCRIPTION

1989 323, 626, 929 and MPV (3.0L) models produced between November 1988 and January 1989 may exhibit the following problem in temperatures of less than 0°C.

The problem is that the engine starts while the I.G. key is turned to the "START" position, but immediately stalls when the key is returned to the "ON" position. This occurs only when the temperature of the Emission Control Unit (E.C.U.) is approximately 0°C or less. However, the engine operates normally when the temperature is higher than 0°C.



Problem Phenomenon

REPAIR PROCEDURE

1. Verify whether the engine stalls under the above condition.
2. Replace the E.C.U. if the problem is observed.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

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Service Manager

Parts Manager

Number: 064/89	Date Issued: 12/15/89	Date Revised:
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AFFECTED VIN RANGE

1989 929: JM1HC★★★★K0210413-217879
 1989 626: JM1GD★★★★K1731830-746266
 1YVGD★★★★K5212570-225932
 1989 323: JM1BF★★★★K0343911-370717
 1989 MPV (3.0L): JM3LV★★★★K0110558-121417

PARTS INFORMATION

REBUILT P/N	APPLICABLE MODEL	FED/CA
B6K1 18 881R B6B3 18 881R B6K2 18 881R B6B4 18 881R	'89 323 - Non-Turbo Turbo Non-Turbo Turbo	Federal Federal California California
F201 18 881R F220 18 881R F225 18 881R F203 18 881R F222 18 881R F226 18 881R	'89 626 - Non-Turbo 2WS Turbo 2WS Turbo 4WS Non-Turbo 2WS Turbo 2WS Turbo 4WS	Federal Federal Federal California California California
JEY6 18 881R JEY7 18 881R	'89 929	Federal California
JE15 18 881R	'89 MPV (3.0L)	

WARRANTY INFORMATION

Customer Comment Code: 1E
 Damage Code: 63
 Process No: B9008A
 Part No. of Main Cause: Use applicable ECU part number.
 Operation No: F0812X-R-X
 Labor Hour: 0.4 Hr. (929 - 0.5 Hr.)

Service Bulletin

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Category 40	Applicable Model/s All Models w/ EC-AT	Subject EC-AT TESTER REFERENCE TABLE	Bulletin No. 026/89 Issued 12/29/89 Revised
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DESCRIPTION

When using the EC-AT Tester, it is helpful to remember the following points:

- There are two versions of the EC-AT Tester:
 - 1) 49 G019 901 w/ adapter 49 H019 902
 - 2) 49 G019 901A
- There are a variety of harnesses available, referenced by model and model year.
- A plate used for one version of the EC-AT is not compatible with the other EC-AT version.

Depending on the version of the EC-AT Tester, use one of the charts below to reference the appropriate harness and plate.

EC-AT Tester 49 G019 901A	Model	Harness	Plate
	'87 626	49 G019 902	---
	'88-89 626	49 G019 911	49 G019 912
	'90 626†	49 G019 918	49 G019 912
	'90 626 T/C†	49 F019 901	49 G019 915
	'88-89 929	49 H019 901	49 H019 904
	'90 929	49 F019 901	49 H019 904
	'89-90 MPV	49 L019 901	49 L019 902
	'90 B2600i 4x4	49 L019 901	49 L019 902
	'90 323†	49 F019 901	49 B019 904
	'89-90 RX-7	49 F019 901	49 F019 902

† - Also requires selector 49 B019 9A1

EC-AT Tester & Adapter 49 G019 901 & 49 H019 902	Model	Harness	Plate
	'87 626	49 G019 902	---
	'88-89 626	49 G019 911	49 G019 913
	'90 626†	49 F019 918	49 G019 913
	'90 626 T/C†	49 F019 918	49 G019 916
	'88-89 929	49 H019 901	49 H019 903
	'90 929	49 F019 901	49 H019 903
	'89-90 MPV	49 L019 901	49 L019 903
	'90 B2600i 4x4	49 L019 901	49 L019 903
	'90 323†	49 F019 901	49 B019 905
	'89-90 RX-7	49 F019 901	49 F019 903

† - Also requires selector 49 B019 9A1

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IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

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Category 60	Applicable Model/s All Models	Subject USE OF CORPORATE LOGO	Bulletin No. 080/88
			Issued 9/19/88
			Revised

DESCRIPTION

Federal Motor Vehicle Safety Standard No. 108 prohibits the alteration of any "Lamps", "Reflective Device", and "Associated Equipment".

We urge you to remind dealer personnel and respective customers that the application of corporate logos and dealership names to any of the above mentioned surfaces (i.e. high mount stoplamps) is a violation of the aforementioned safety standard.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

012834

Service Manager

Parts Manager

Service Bulletin

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Category 7	Applicable Model/s 1987-1989 626/MX-6	Subject EC-AT SERVICE & REPAIR	Bulletin No. 054/89
			Issued 4/5/89
			Revised 8/18/89

DESCRIPTION

This bulletin contains information compiled from the EC-AT Service & Repair Video, and from previously released Service Bulletins listed below. Please delete these bulletins, and utilize the Video (P/N 9999-95-068F-89), the "Quick Reference Guides" (Technicians - P/N 9999-95-067F-89, Service Advisors - P/N 9999-95-066F-89), and this Service Bulletin for EC-AT complaints.

Category 7, no.s 038/87, 039/87, 041/88, 043/88, 044/88, 045/88, 046/88 & 049/88.*

NOTE:*

Prior to diagnosis, check if the vehicle was repaired under SSP05 (1988 626/MX-6) or SSP07 (1987 626 & 1988 323).

Repair procedures are suggested for the following EC-AT complaints: (Warranty Information for diagnosis and repairs are listed on page 8 of 8 of this bulletin.)

Slipping	Engine Flare	Vibration
Shift Shock	Surging	Hunting
Stall	Failure	Erratic Converter Lock-Up

The following possible causes are addressed in this bulletin:

1. ATF Condition or Improper Level
2. Internal Failure
3. Valve Body Modifications
4. Electrical System Malfunction
5. Adjustments needed

REPAIR PROCEDURES

Follow these procedures in order for any noted complaint.

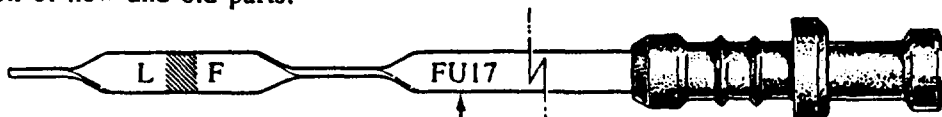
1. ATF Condition and Level (slip, flare, hunting, chatter, vibration, stall, shift shock)

- A. If repairing a 1987 vehicle, insure that the proper fluid level gauge is installed. (P/N FU17 19 880).

NOTE:

Do not overfill when using FU17 gauge.

Distinction of new and old parts.



016001

Marked with FU17 - NEW
 No marking - OLD

The revised sections are indicated by an asterisk. Please replace the original bulletin with this revised bulletin.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

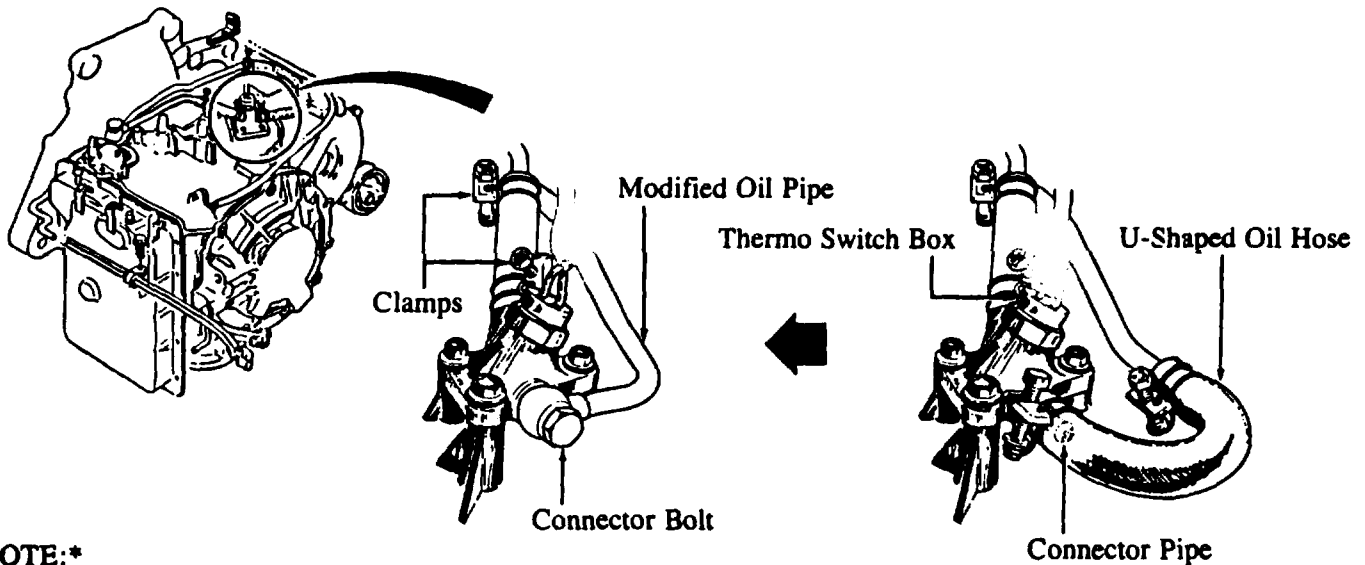
Signature _____

Parts Manager

B. Confirm the proper ATF level.

Warm up the engine for about 5–10 minutes (ATF temperature rises to 150°F) and then measure the ATF level. At 150°F, the ATF level should be at the “F” level mark with the engine running in “P” range.

C. If the fluid level is low, check for leakage, especially near the thermo-switch box. Make sure the modified oil pipe is installed on 1988 models. If leakage is found, refer to the illustration below for repair procedures.



NOTE:*

There have been 2 modifications as shown below:

MODIFICATION A

The “U”-shaped oil hose and connector pipe at the thermo switch box have been replaced with an oil line as shown below.

If you observe any leakage from this part, replace the oil pipe with the modified one according to the repair procedure in this bulletin.

MODIFICATION B

To provide more clamping force, the length of the bolts at the hose clamps on the cooler line has been increased. If you encounter a complaint of oil leakage at the oil hose, install a new hose with modified clamps.

VIN OF PRODUCTION CHANGE

Modification A.

1988 626/MX-6 vehicles manufactured in Japan
JM1GD★★★★ K1703425 July 11, 1988 *

1988 MX-6 vehicles manufactured in the U.S.A.
1YVGD★★★★ K5200001 August 1, 1988 *

Modification B.

1988 626/MX-6 vehicles manufactured in Japan
JM1GD★★★★ J1537054 October 6, 1987

1988 MX-6 vehicles manufactured in the U.S.A.
1YVGD★★★★ J5104074 December 18, 1987

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
FU31 19 9A0E	FU31 19 9A0D	Oil Pipe	NEW → OLD *
9938 11 000	---	Connector Bolt	---
9956 21 400	---	Packing (Washer)	---
FU32 19 9A6	---	Thermo Switch Box	---
9956 21 600	---	Packing (Washer)	---
9928 21 930H	9928 21 900	Hose Clamp	NEW → OLD *

NOTE: *

IT IS NOT NECESSARY TO REPLACE THE THERMO SWITCH BOX FOR THIS OPERATION UNLESS THE ORIGINAL IS DAMAGED.

2. Internal Failure (slip, flare, hunting, chatter, vibration, shift shock)

- A. Check the condition of the ATF. If it is burnt or discolored, inspect fluid in oil pan. Look for material in ATF.
- B. Perform the following:
 - performance and stall tests
 - repair or replace with rebuild as needed

3. Valve Body Modifications (shudder, surging, slip, flare, chatter, shift shock)

For 1988 626/MX-6, the following four modifications (A, B, C, D) to the valve body and the inner parts have been incorporated in order to correct the slippage and/or chatter when shifting from D1 – D2 and to reduce the shift shock when shifting from D1 – D2 or D2 – D3.

A. Insure that the proper modifications have been made as specified.

- Beginning No. of Transaxle Unit Applicable to each Modification

Location of I.D. Tag

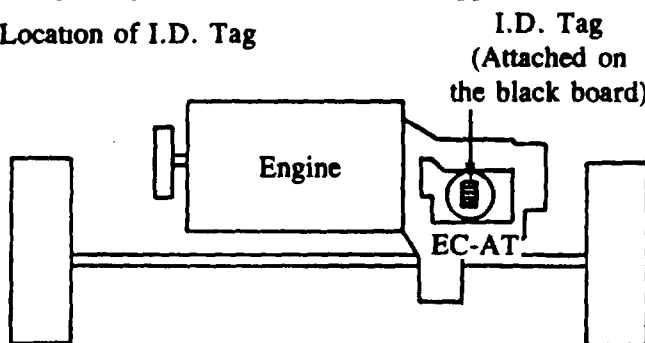
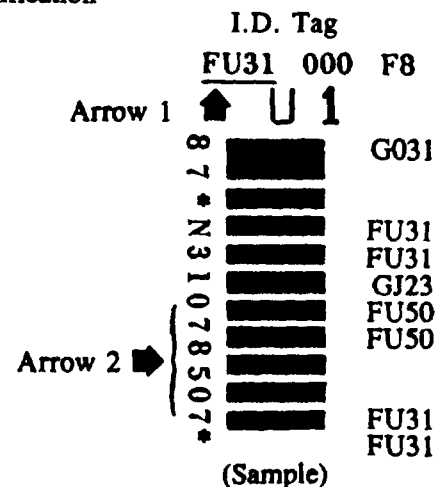


Figure looking from the front of vehicle

How to identify the unit No:

- (1) Find arrow 1 : FU31
- (2) Find arrow 2 : 078507
- (3) This unit No. is FU31-078507



PARTS INFORMATION

* PART NO.	DESCRIPTION
FU06 21 100V	Valve Body (for '87)
FU3H 21 100A	Valve Body (for '88 T/C)
FU4G 21 100A	Valve Body (for '88 non-T/C)
FUY1 21 227	Accumulator Spring (for '88 T/C)

NOTE:*

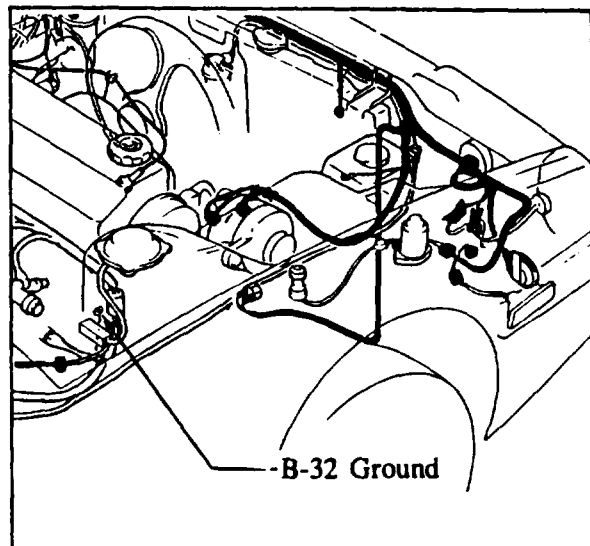
1988 T/C Models - repair should include accumulator spring installation to eliminate shift shock.

4. Electrical (all problems)

If vehicle is a 1988 or 1989, use EC-AT tester as per Workshop Manual.

If vehicle is a 1987 model, check the electrical system harness as follows:

- A. Check if the EGI harness is properly grounded at the B32 connector.
If the terminal is rusted or the bolt is loose, repair it and apply a suitable anti-rust agent.
Then, go to step B.
- B. Connect an EC-AT tester as per the 1987 626 Workshop Manual. (See page 7B-6)
- C. Turn the ignition switch "ON".



- D. Check if the throttle sensor voltage is within the following specification and is stabilized (not fluctuating).

Specification:

Throttle Closed: 0.4 - 0.6 Volts

Throttle Fully Opened: 4.0 Volts Approximately

If the reading is out of the specified range, adjust the throttle sensor setting as per the workshop manual (page 4A-17).

If the throttle sensor voltage fluctuates, go to step F.

- E. Start the engine.

If any inspection code is shown on the EC-AT Tester, perform the necessary repair as per the workshop manual.

Check the idle switch adjustment.

Idle switch input indicator should be on at idle and should be off when the accelerator pedal is depressed.

If not, check or adjust the idle switch as per the workshop manual.

Check the throttle sensor voltage.

If the throttle sensor voltage fluctuates, go to step F.

- F. Check the EGI and injection harness and their connector.

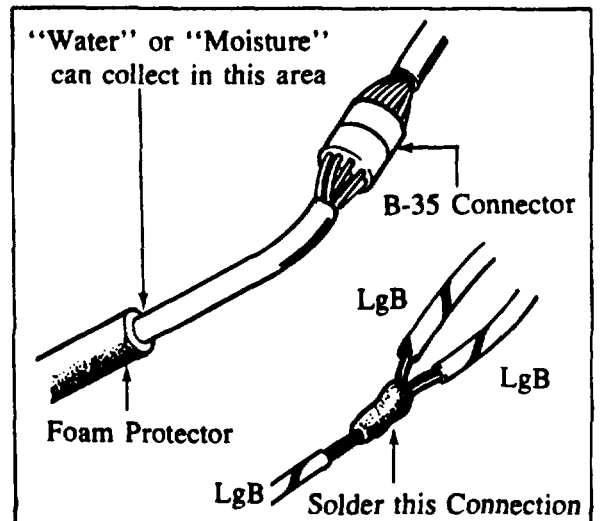
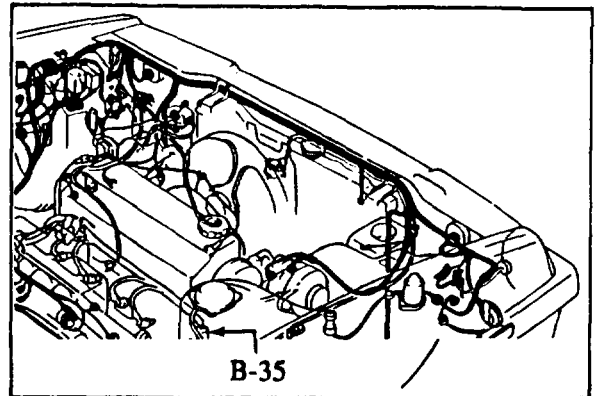
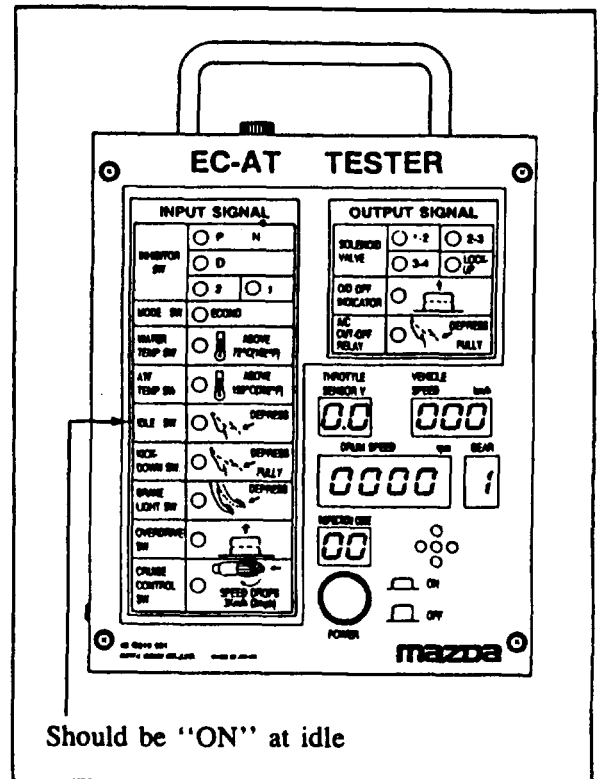
Check if the LgB, GO, LgW, LgR wires are properly connected at B-35 connector.

If the terminal is rusted or the harness is cut, clean up the terminal or repair the harness, then apply a suitable anti-rust agent.

Inspect the EGI harness for water or a poor connection under the foam protector area near the B-35 connector.

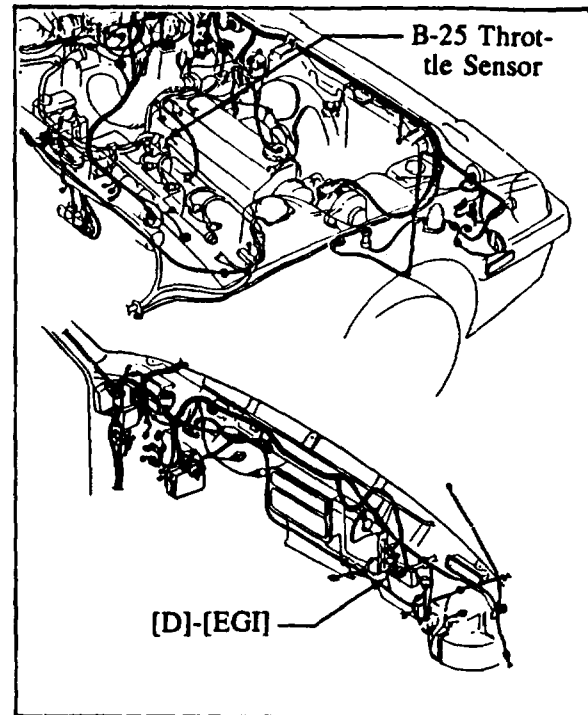
Check the point where the throttle sensor wires LgB, LgW and GO segments are joined by a crimp connection.

If it is rusted or moisture is found, solder these connectors and protect them with insulated tape. Make sure the harness is not touching the steering pipe. If the problem can not be solved after performing the above mentioned inspection, go to step G.



G. Check the B-25 and the X-09 connectors to determine if the LgB, GO, LgW and LgR wires are properly connected.

NOTE: The connecting point of the wires may be different depending on the production period of the vehicle.



5. Adjustments (all problems)

A. 2-4 Brake Band Adjustment

Remove the oil pan and gasket located on the underside of the transmission.

Loosen the lock nut and tighten the piston stem exactly at the specified torque.

Tightening Torque:
10 N-m (1.1 m-kg, 98 in-lbs)*

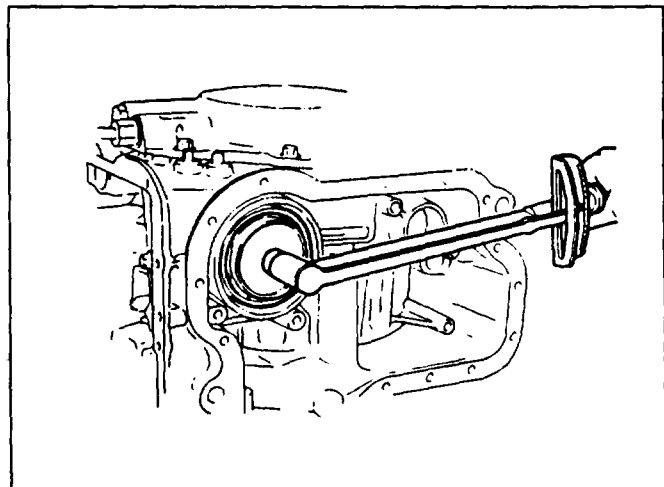
Loosen the piston stem exactly 2 turns.

Tighten the locknut.

Tightening Torque:*
31 N-m (18-29 ft-lbs)

NOTE:*

Quick Reference material reads in-lbs instead of ft-lbs in error.



B. Throttle Cable (Line Pressure) Adjustment

Turn off the engine.

Remove the splash shield next to the left front tire.

Remove the square head plug "L" and install the oil pressure gauge set.

Shift into "P" range and start the engine.

Adjust the idle speed to:
 Non-Turbo: 750–800 rpm
 Turbo: 725–775 rpm

Adjust locknuts:
 When the locknuts are moved, line pressure is increased or decreased as shown. Adjust the cable locknuts to correct position using the following procedure.

Step 1

Initially install the locknuts fully away from the throttle cam. (Loosen the cable all the way.)

Step 2

Adjust the locknuts in a clockwise direction as viewed from the front of the vehicle until the line pressure begins to increase above the specification shown.

Step 3

Adjust the locknuts in a counterclockwise direction until the line pressure decreases to the specification exactly. Tighten the locknuts.

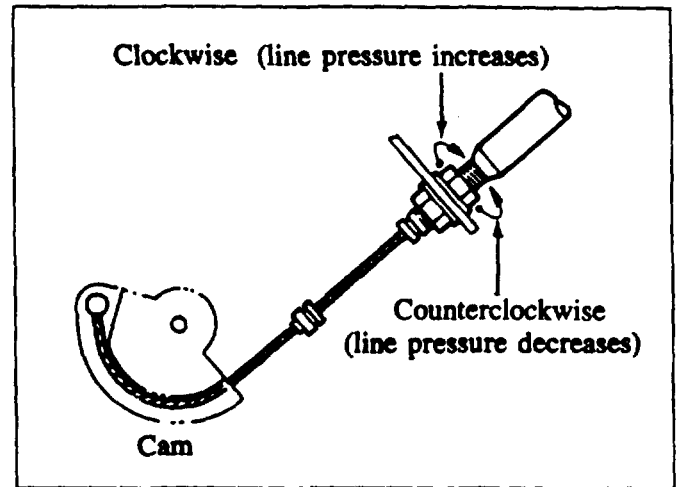
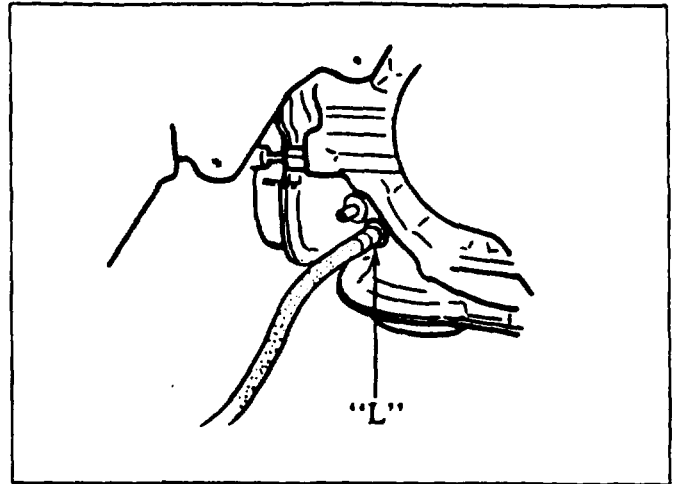
Standard:*
 4.0–4.6 kg/cm²
 (Free play of wire cable should be 0 mm.)

Anti-Flare Up:*
 4.6 kg/cm² (66 psi or 450 Kpa)

Anti-Shift Shock:*
 4.0 kg/cm² (57 psi or 390 Kpa)

NOTE:*

If shift shock still occurs, it may be necessary to fine tune line pressure.



NOTE:

Transmission in "P" range.

Turn off the engine.

Apply "Teflon" tape to threads and reinstall the square head plug.

WARRANTY INFORMATION**Performance Test**

Operation Number: K0001X-D-X
Labor Hours: 0.8 Hr.

Diagnosis

Operation Number: K0002X-D-X
Labor Hours: 1.1 Hr.

1. ATF Condition or Improper Level

A. Level Indicator (Warranty covered under diagnosis)

B. Leakage from Cooler Line

Customer Comment Code: 2J
Damage Code: 38
Part Number of Main Cause: FU31 19 9A0E
Operation No: 19930X-R-1
Labor Hours: 0.4 Hr.

2. Internal Failure

Warranty Information for Performance Test and Diagnosis

3. Valve Body Modifications**A. Valve Body Assembly Replacement**

Customer Comment Code: 2E
Damage Code: 31
Part Number of Main Cause: FU31 21 100N or FU32 21 100R
Operation No: 19750X-R-X
Labor Hours: 1.8 Hr.

B. Valve Body Assembly Overhaul

Customer Comment Code: 2E
Damage Code: 31
Part Number of Main Cause: FU31 21 085
Operation No: 19750X-H-X
Labor Hours: 2.4 Hr.

Number: 054/89	Date Issued: 4/5/89	Date Revised: 8/18/89
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4. Electrical System Malfunction

Customer Comment Code: 99
Damage Code: 99
Part Number of Main Cause: FU16 19 090 (EC-AT Assy.)
Operation No: XX0277RX
Labor Hours: 0.4 Hr.

NOTE:

Labor Hours include the following items:

- Throttle sensor and idle switch inspection and adjustment
- EGI harness and dash harness inspection and repair

5. Adjustments Needed

Customer Comment Code: 99
Damage Code: 99
Part Number of Main Cause: FU17 19 880
Operation No: XX0268RX
Labor Hours: 1.5 Hr.

NOTE:

Includes 2-4 brake band adjustment, ATF level check, and throttle cable adjustment.

Service Bulletin



Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 7	Applicable Model/s 1987-1989 626/MX-6	Subject EC-AT SERVICE & REPAIR	Bulletin No. 054/89
			Issued 4/5/89
			Revised

DESCRIPTION

This bulletin contains information compiled from the EC-AT Service & Repair Video, and from previously released Service Bulletins listed below. Please delete these bulletins, and utilize the Video (P/N 9999-95-068F-89), the "Quick Reference Guides" (Technicians - P/N 9999-95-067F-89, Service Advisors - P/N 9999-95-066F-89), and this Service Bulletin for EC-AT complaints.

Category 7, no.s 043/88, 044/88, 045/88, 046/88, 049/88, 051/88 & 058/89.

Repair procedures are suggested for the following EC-AT complaints: (Warranty Information for diagnosis and repairs are listed on page 8 of 8 of this bulletin.)

Slipping	Engine Flare	Vibration
Shift Shock	Surging	Hunting
Stall	Failure	Erratic Converter Lock-Up

The following possible causes are addressed in this bulletin:

1. ATF Condition or Improper Level
2. Internal Failure
3. Valve Body Modifications
4. Electrical System Malfunction
5. Adjustments needed

REPAIR PROCEDURES

Follow these procedures in order for any noted complaint.

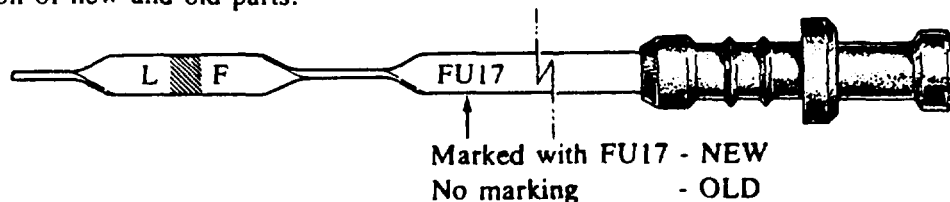
1. ATF Condition and Level (slip, flare, hunting, chatter, vibration, stall, shift shock)

- A. If repairing a 1987 vehicle, insure that the proper fluid level gauge is installed. (P/N FU17 19 880).

NOTE:

Do not overfill when using FU17 gauge.

Distinction of new and old parts.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

015012

Service Manager

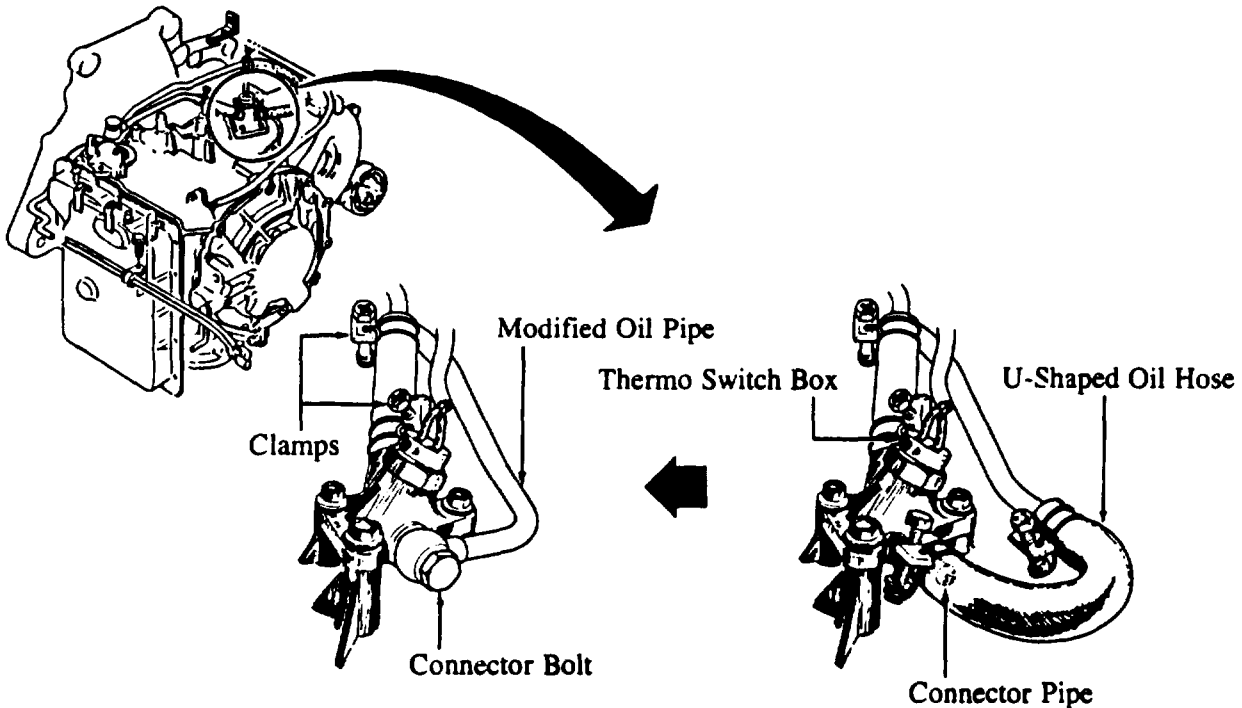
Parts Manager

Number: 054/89	Date Issued: 4/5/89	Date Revised:
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B. Confirm the proper ATF level.

Warm up the engine for about 5–10 minutes (ATF temperature rises to 150°F) and then measure the ATF level. At 150°F, the ATF level should be at the "F" level mark with the engine running in "P" range.

C. If the fluid level is low, check for leakage, especially near the thermo-switch box. Make sure the modified oil pipe is installed on 1988 models. If leakage is found, refer to the illustration below for repair procedures.



VIN OF PRODUCTION CHANGE

Modification A.

1988 626/MX-6 vehicles manufactured in Japan
 JM1GD★★★★ K1703425 July 11, 1988 *

1988 MX-6 vehicles manufactured in the U.S.A.
 1YVGD★★★★ K5200001 August 1, 1988 *

Modification B.

1988 626/MX-6 vehicles manufactured in Japan
 JM1GD★★★★ J1537054 October 6, 1987

1988 MX-6 vehicles manufactured in the U.S.A.
 1YVGD★★★★ J5104074 December 18, 1987

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
FU31 19 9A0E	FU31 19 9A0D	Oil Pipe	NEW → OLD *
9938 11 000	---	Connector Bolt	---
9956 21 400	---	Packing (Washer)	---
FU32 19 9A6	---	Thermo Switch Box	---
9956 21 600	---	Packing (Washer)	---
9928 21 930H	9928 21 900	Hose Clamp	NEW → OLD *

NOTE: *

IT IS NOT NECESSARY TO REPLACE THE THERMO SWITCH BOX FOR THIS OPERATION UNLESS THE ORIGINAL IS DAMAGED.

2. Internal Failure (slip, flare, hunting, chatter, vibration, shift shock)

A. Check the condition of the ATF. If it is burnt or discolored, inspect fluid in oil pan. Look for material in ATF.

B. Perform the following:

- performance and stall tests
- repair or replace with rebuild as needed

3. Valve Body Modifications (shudder, surging, slip, flare, chatter, shift shock)

For 1988 626/MX-6, the following four modifications (A, B, C, D) to the valve body and the inner parts have been incorporated in order to correct the slippage and/or chatter when shifting from D1 – D2 and to reduce the shift shock when shifting from D1 – D2 or D2 – D3.

A. Insure that the proper modifications have been made as specified.

- Beginning No. of Transaxle Unit Applicable to each Modification

Location of I.D. Tag

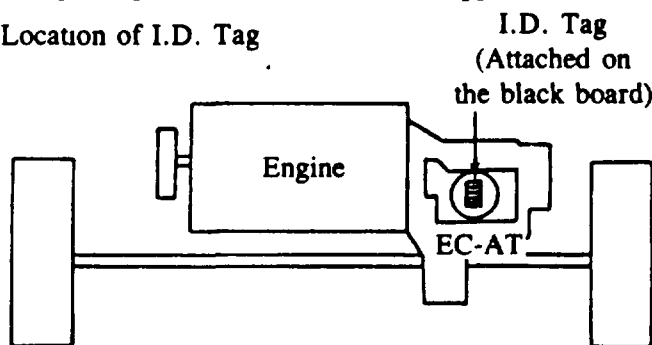
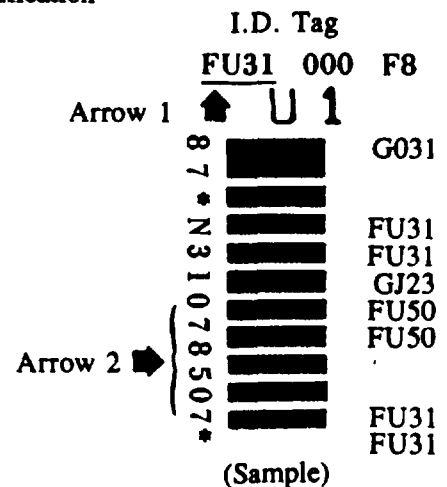


Figure looking from the front of vehicle

How to identify the unit No:

- (1) Find arrow 1 : FU31
- (2) Find arrow 2 : 078507
- (3) This unit No. is FU31-078507



Number: 054/89	Date Issued: 4/5/89	Date Revised:
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Modification/Addition		Beginning No. of Applicable Transaxle Unit	
		Non-Turbo	Turbo
A	Modification of rear body and premain separator†	FU--081065	FU--081143
B	Addition/modification of 1-2 accumulator springs	N.A.	FU--083280
C	Modification of 1-2 accumulator springs	FU--089583	N.A.
D	Addition of one-way orifice	FU--089583	FU--089440

NOTE:

†Premain Separator: only for non-turbo model

• Production Date of each Modification

Modification/Addition		Production Date			
		MC Make		MMUC Make	
		T/C	non-T/C	T/C	non-T/C
A	Modification of rear body and premain separator†	Sept. '87		Dec. '87	
B	Addition/modification of 1-2 accumulator springs	Oct. '87	N.A.	Dec. '87	N.A.
C	Modification of 1-2 accumulator springs	N.A.	Oct. '87	N.A.	Jan. '88
D	Addition of one-way orifice	Oct. '87		Jan. '88	

NOTE:

†Premain Separator: only for non-turbo model

PARTS INFORMATION

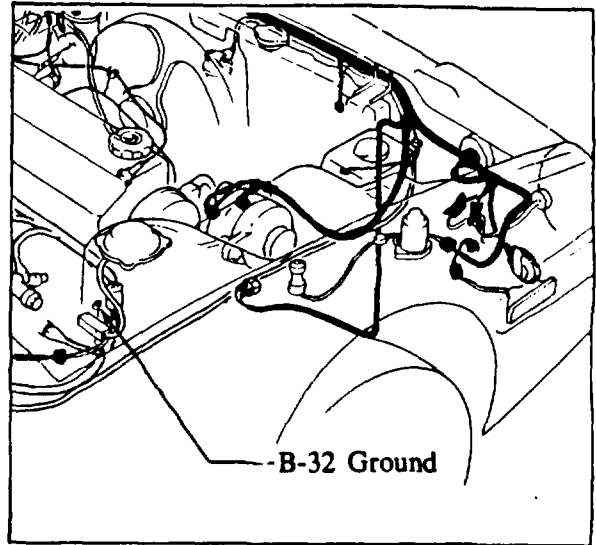
PART NUMBER		DESCRIPTION	INTERCHANGEABILITY	APPLIED MODEL
NEW	OLD			
FU31 21 100N	FU31 21 100	Valve Body Assy	NEW → OLD	Non-Turbo
FU32 21 100R	FU32 21 100		NEW → OLD	Turbo
FU32 21 227B	---	Accumulator Spring	---	Turbo
FU44 21 222				
FU3A 21 227	---	Accumulator Spring	---	Non-Turbo
FU3A 21 222A	---			
FU31 21 085	---	One-Way Orifice	---	Non-Turbo Turbo

4. Electrical (all problems)

If vehicle is a 1988 or 1989, use EC-AT tester as per Workshop Manual.

If vehicle is a 1987 model, check the electrical system harness as follows:

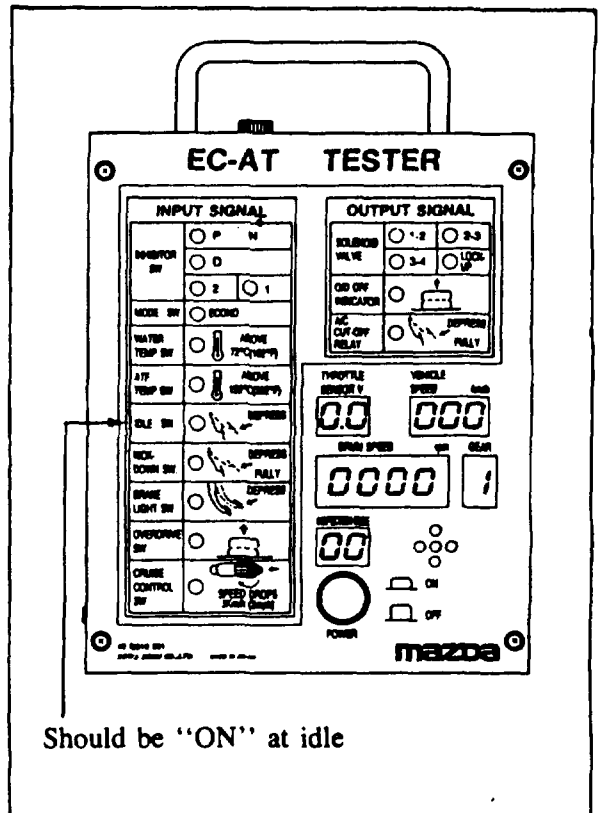
- A. Check if the EGI harness is properly grounded at the B32 connector.
If the terminal is rusted or the bolt is loose, repair it and apply a suitable anti-rust agent.
Then, go to step B.
- B. Connect an EC-AT tester as per the 1987 626 Workshop Manual. (See page 7B-6)
- C. Turn the ignition switch "ON".



- D. Check if the throttle sensor voltage is within the following specification and is stabilized (not fluctuating).
Specification:
Throttle Closed: 0.4 - 0.6 Volts
Throttle Fully Opened: 4.0 Volts Approximately

If the reading is out of the specified range, adjust the throttle sensor setting as per the workshop manual (page 4A-17).
If the throttle sensor voltage fluctuates, go to step F.

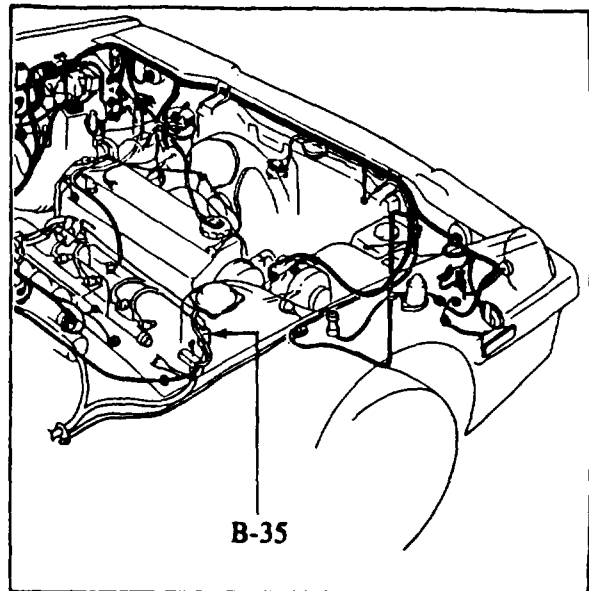
- E. Start the engine.
If any inspection code is shown on the EC-AT Tester, perform the necessary repair as per the workshop manual.
Check the idle switch adjustment.
Idle switch input indicator should be on at idle and should be off when the accelerator pedal is depressed.
If not, check or adjust the idle switch as per the workshop manual.
Check the throttle sensor voltage.
If the throttle sensor voltage fluctuates, go to step F.



F. Check the EGI and injection harness and their connector.

Check if the LgB, GO, LgW, LgR wires are properly connected at B-35 connector.

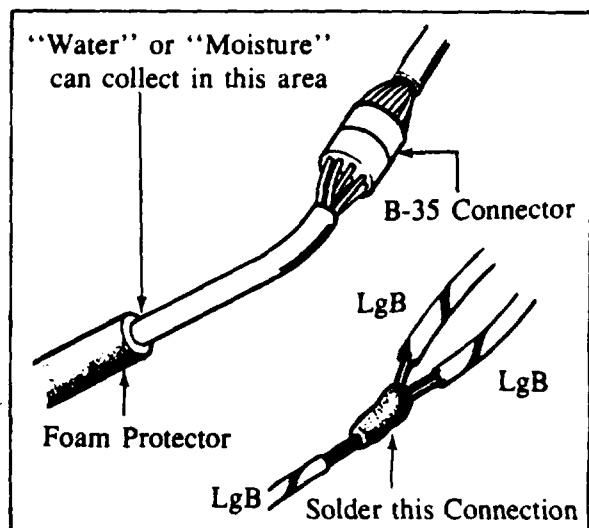
If the terminal is rusted or the harness is cut, clean up the terminal or repair the harness, then apply a suitable anti-rust agent.



Inspect the EGI harness for water or a poor connection under the foam protector area near the B-35 connector.

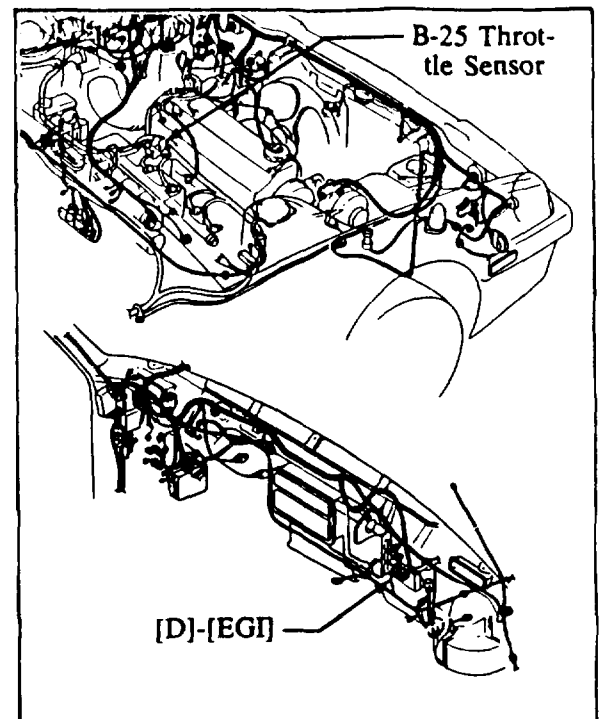
Check the point where the throttle sensor wires LgB, LgW and GO segments are joined by a crimp connection.

If it is rusted or moisture is found, solder these connectors and protect them with insulated tape. Make sure the harness is not touching the steering pipe. If the problem can not be solved after performing the above mentioned inspection, go to step G.



G. Check the B-25 and the X-09 connectors to determine if the LgB, GO, LgW and LgR wires are properly connected.

NOTE: The connecting point of the wires may be different depending on the production period of the vehicle.



5. Adjustments (all problems)

A. 2-4 Brake Band Adjustment

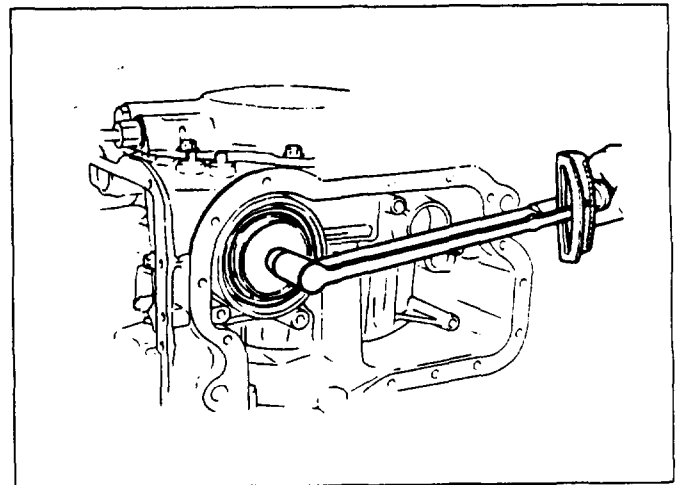
Remove the oil pan and gasket located on the underside of the transmission.

Loosen the lock nut and tighten the piston stem exactly at the specified torque.

Tightening Torque:
10 N-m (1.1 m-kg, 96 in-lb)

Loosen the piston stem exactly 2 turns.

Tighten the locknut.



B. Throttle Cable (Line Pressure) Adjustment

Turn off the engine.

Remove the splash shield next to the left front tire.

Remove the square head plug "L" and install the oil pressure gauge set.

Shift into "P" range and start the engine.

Adjust the idle speed to:

Non-Turbo: 750–800 rpm

Turbo: 725–775 rpm

Adjust locknuts:

When the locknuts are moved, line pressure is increased or decreased as shown. Adjust the cable locknuts to correct position using the following procedure.

Step 1

Initially install the locknuts fully away from the throttle cam. (Loosen the cable all the way.)

Step 2

Adjust the locknuts in a clockwise direction as viewed from the front of the vehicle until the line pressure begins to increase above the specification shown.

Step 3

Adjust the locknuts in a counterclockwise direction until the line pressure decreases to the specification exactly. Tighten the locknuts.

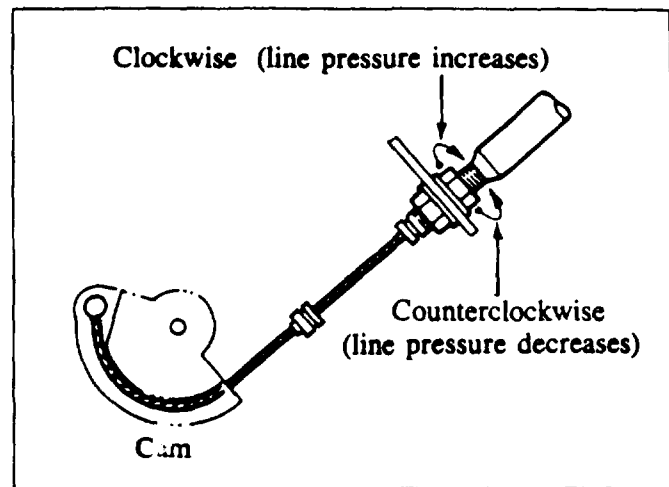
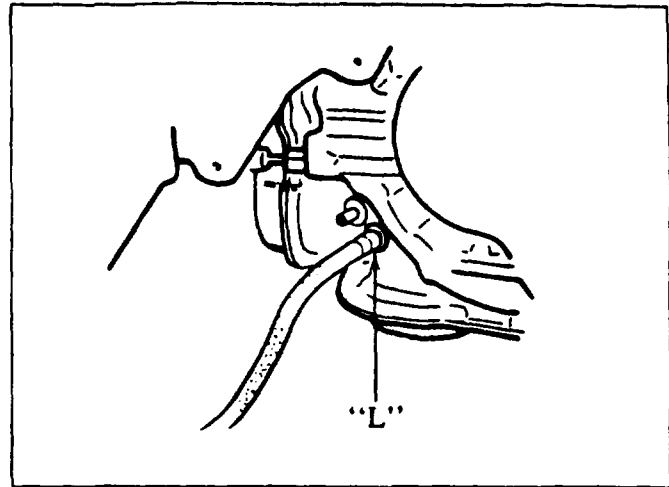
Specified Pressure: 450 kPa (4.6 kg/cm², 66 psi)

NOTE:

Transmission in "P" range.

Turn off the engine.

Apply "Teflon" tape to threads and reinstall the square head plug.



Number: 054/89	Date Issued: 4/5/89	Date Revised:
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WARRANTY INFORMATION

Performance Test

Operation Number: K0001X-D-X
 Labor Hours: 0.8 Hr.

Diagnosis

Operation Number: K0002X-D-X
 Labor Hours: 1.1 Hr.

1. ATF Condition or Improper Level

A. Level Indicator (Warranty covered under diagnosis)

B. Leakage from Cooler Line

Customer Comment Code: 2J
 Damage Code: 38
 Part Number of Main Cause: FU31 19 9A0E
 Operation No: 19930X-R-1
 Labor Hours: 0.4 Hr.

2. Internal Failure

Warranty Information for Performance Test and Diagnosis

3. Valve Body Modifications

A. Valve Body Assembly Replacement

Customer Comment Code: 2E
 Damage Code: 31
 Part Number of Main Cause: FU31 21 100N or FU32 21 100R
 Operation No: 19750X-R-X
 Labor Hours: 1.8 Hr.

B. Valve Body Assembly Overhaul

Customer Comment Code: 2E
 Damage Code: 31
 Part Number of Main Cause: FU31 21 085
 Operation No: 19750X-H-X
 Labor Hours: 2.4 Hr.

Number: 054/89	Date Issued: 4/5/89	Date Revised:
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4. Electrical System Malfunction

Customer Comment Code: 99
Damage Code: 99
Part Number of Main Cause: FU16 19 090 (EC-AT Assy.)
Operation No: XX0277RX
Labor Hours: 0.4 Hr.

NOTE:

Labor Hours include the following items:

- Throttle sensor and idle switch inspection and adjustment
- EGI harness and dash harness inspection and repair

5. Adjustments Needed

Customer Comment Code: 99
Damage Code: 99
Part Number of Main Cause: FU17 19 880
Operation No: XX0268RX
Labor Hours: 1.5 Hr.

NOTE:

Includes 2-4 brake band adjustment, ATF level check, and throttle cable adjustment.

Service Bulletin

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Irvine, California 92718
Telephone (714) 727-1990

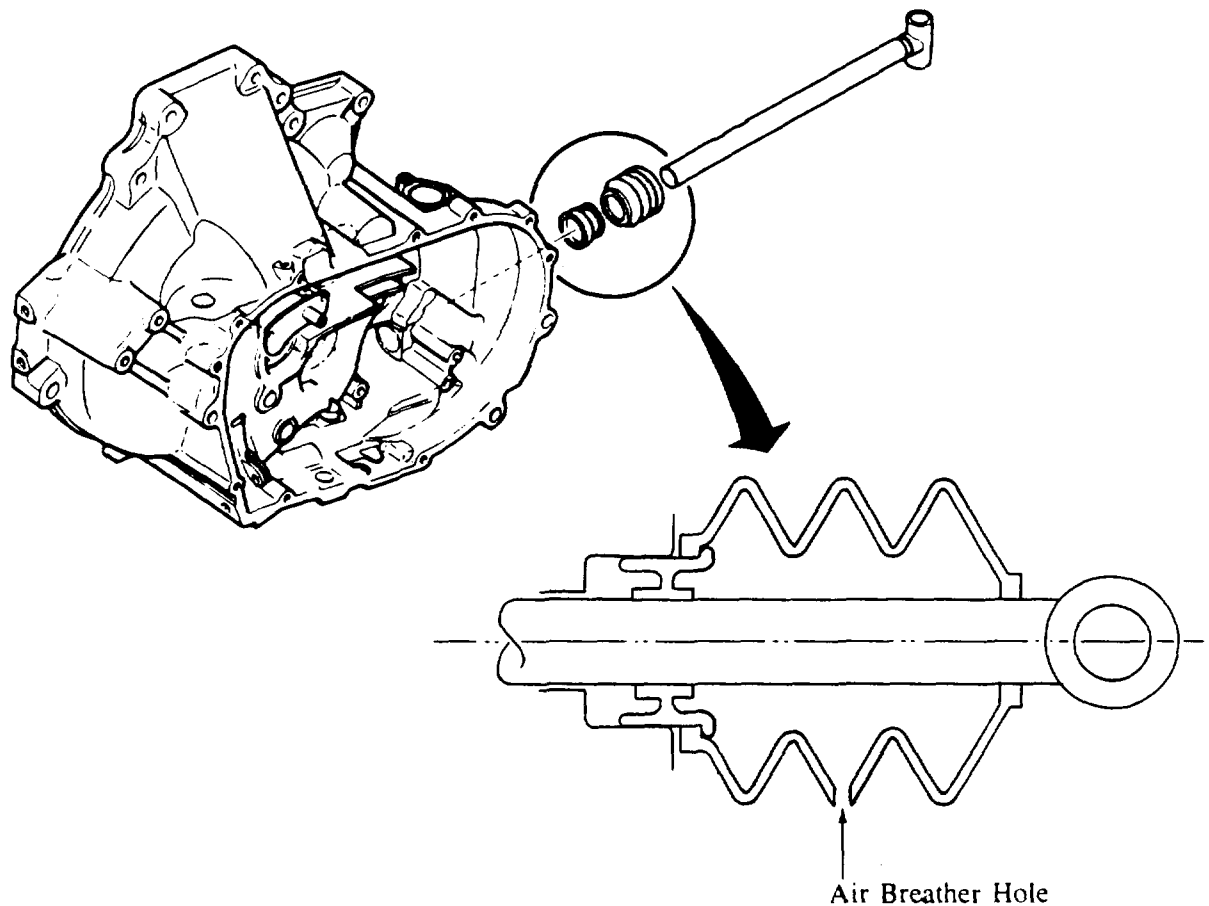


Category 7	Applicable Model/s All MTX Models	Subject PROPER INSTALLATION OF CHANGE ROD BOOT	Bulletin No. 056/89
			Issued 2/15/89
			Revised

DESCRIPTION

When you remove the change rod boot for repair, be sure to install it with the air breather hole directed downward.

This is to prevent water or mud from collecting inside the boot through the air breather hole. If water or mud does come into the boot area, it will cause corrosion on the change rod and as a result, the oil seal will be damaged, which may cause oil leakage.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned

Signature _____

Service Manager

Signature _____

Parts Manager

014395

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 7	Applicable Model/s 1988-1989 626/MX-6 (Turbo)	Subject REVERSE IDLE GEAR MODIFICATION	Bulletin No. 057/89 Issued 9/27/89 Revised
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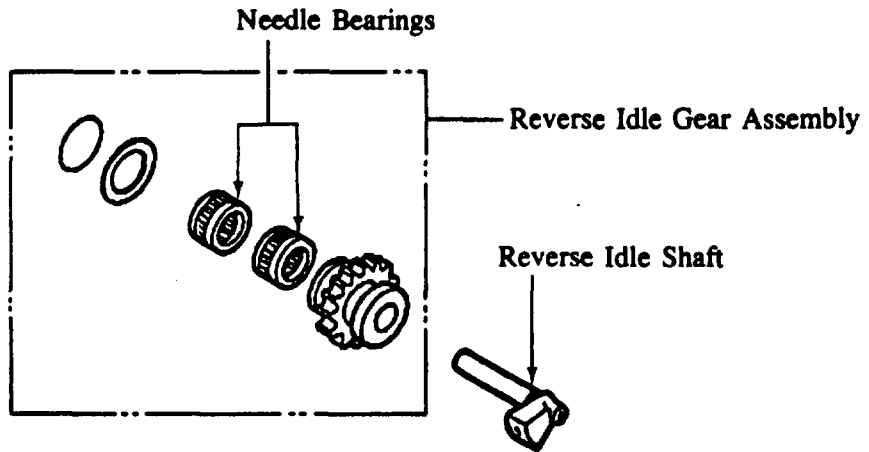
DESCRIPTION

To improve the overall durability and operation of the reverse idle gear assembly, the following modifications have been introduced.

- 1) The needle bearing in reverse idle gear assembly has been improved.
- 2) The hardening process has been applied on the surface of reverse idle gear to which needle bearing touches.
- 3) The reverse idle shaft has been redesigned.

NOTE:

If complaints of erratic operation or excessive wear are found, please replace both the reverse idle gear assembly (including needle bearings) and reverse idle shaft with modified ones.



016002

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Number: 057/89	Date Issued: 9/27/89	Date Revised:
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VIN OF PRODUCTION CHANGE

626/MX-6 vehicles manufactured in Japan:

JM1GD★★★★K1766409 May 1, 1989

MX-6 vehicles manufactured in the U.S.A:

1YVGD★★★★K5245311 June 19, 1989

PARTS INFORMATION

PART NUMBER		DESCRIPTION	QTY	INTERCHANGEABILITY
NEW	OLD			
H501 17 310G	H501 17 310F	Reverse Idle Gear Assembly	1	NEW → OLD
H501 17 315F	H501 17 315E	Reverse Idle Shaft	1	NEW → OLD
H505 17 283A	H505 17 283	Needle Bearing	1	NEW → OLD

WARRANTY INFORMATION

Customer Comment Code: 2B
 Damage Code: 99
 Part No. of Main Cause: H501 17 310G
 Operation No: J0311X-R-X
 Labor Hour: 4.1 Hr.

Service Bulletin

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 Irvine, California 92718
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Category 7	Applicable Model/s 1987-89 626/MX6 ATX	Subject ENGINE STALL AFTER HARD STOP	Bulletin No. 058/89
			Issued 3/10/89
			Revised

DESCRIPTION

When ATF level is low, coming to a quick stop causes air to enter the ATF oil line. This temporarily reduces line pressure and engages the lock-up clutch. In this condition, the torque converter is unable to slip and the engine stalls.

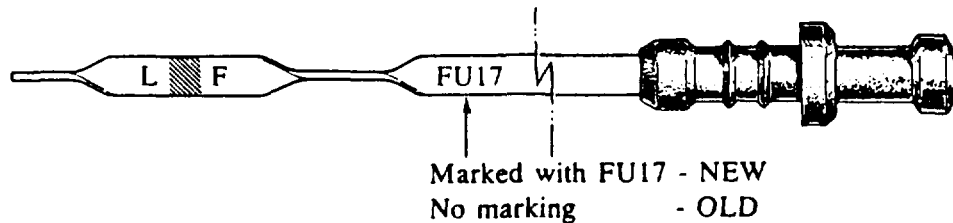
Should a customer complain of engine stalling after a sudden stop, check the following:

1. ATF leakage especially around thermo switch box. (Refer to Service Bulletin Category 7, No. 053/88.)
2. Proper level of ATF.
3. Correct ATF level gauge (for 1987 vehicles, refer to the parts information below).

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
FU17 19 880	FU16 19 880	Level Gauge	NEW → OLD

NOTE:
 Distinction of new and old parts.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

014694

Service Bulletin

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 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 7	Applicable Model/s 1987-89 626/MX6 ATX	Subject ENGINE STALL AFTER HARD STOP	Bulletin No. 058/89
			Issued 3/10/89
			Revised

DESCRIPTION

When ATF level is low, coming to a quick stop causes air to enter the ATF oil line. This temporarily reduces line pressure and engages the lock-up clutch. In this condition, the torque converter is unable to slip and the engine stalls.

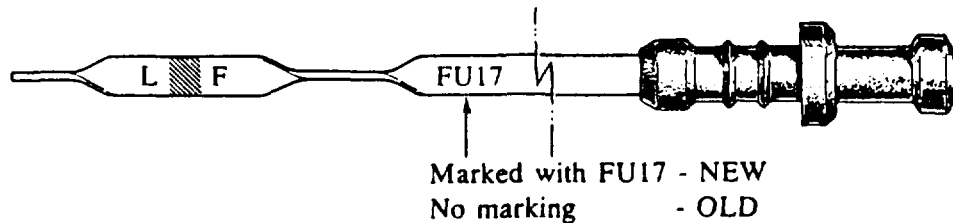
Should a customer complain of engine stalling after a sudden stop, check the following:

1. ATF leakage especially around thermo switch box. (Refer to Service Bulletin Category 7, No. 053/88.)
2. Proper level of ATF.
3. Correct ATF level gauge (for 1987 vehicles, refer to the parts information below).

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY
NEW	OLD		
FU17 19 880	FU16 19 880	Level Gauge	NEW → OLD

NOTE:
 Distinction of new and old parts.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Service Bulletin

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Irvine, California 92718
Telephone (714) 727-1990



Category 7	Applicable Model/s '87-'89 626/MX-6 Turbo & Non-Turbo	Subject EC-AT REBUILD PROGRAM	Bulletin No. 065/89 Issued 9/27/89 Revised
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DESCRIPTION

Mazda (North America), Inc. (MANA) has been supplying rebuilt EC-AT assemblies since October 3, 1988. MANA has been preparing these assemblies with all up-to-date modifications as described in bulletin Category 7 no. 051/88.

This bulletin is being provided for up-to-date information regarding the 1989 model year.

NOTE:

1. Using EC-AT tester, verify that the problem is not solenoid related and that indeed the assembly has failed.
2. Before removing the failed assembly, an "EC-AT Inspection Sheet" (supplied by MANA, see attached) should be filled out with the customer. This sheet, which should be returned with the failed unit and a copy retained with the Repair Order, contains information pertinent to this program.
3. Refer to Mazda Parts Bulletin E-7-88 (for Western Regions) and V-32 (for Eastern Regions) for procedures required for ordering rebuilt EC-ATs and preparation regarding the return of the failed assembly PRIOR to shipping (i.e. draining instructions, parts to be removed and/or retained [see figure on page 2 of 3] and the installation of assorted plugs, brackets, holders and mounts).
4. Refer to Mazda Warranty Bulletin 072/88 (for Western Regions) and Category 7, no. 001/88 (for Eastern Regions) for terms applicable to this program. Remember, it is important that if replacement is necessary, you must contact your DSM for authorization.

MANA will supply an "EC-AT Instruction Manual" containing updated "Installation" and "Adjustment" procedures with each rebuilt unit.

NOTE:

1. Failure to fill out the "Inspection Sheet" may result in the forfeiture of the core refund.
2. DO NOT remove the VIN I.D. tag from the core. This is in violation of Federal Law.

016003

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

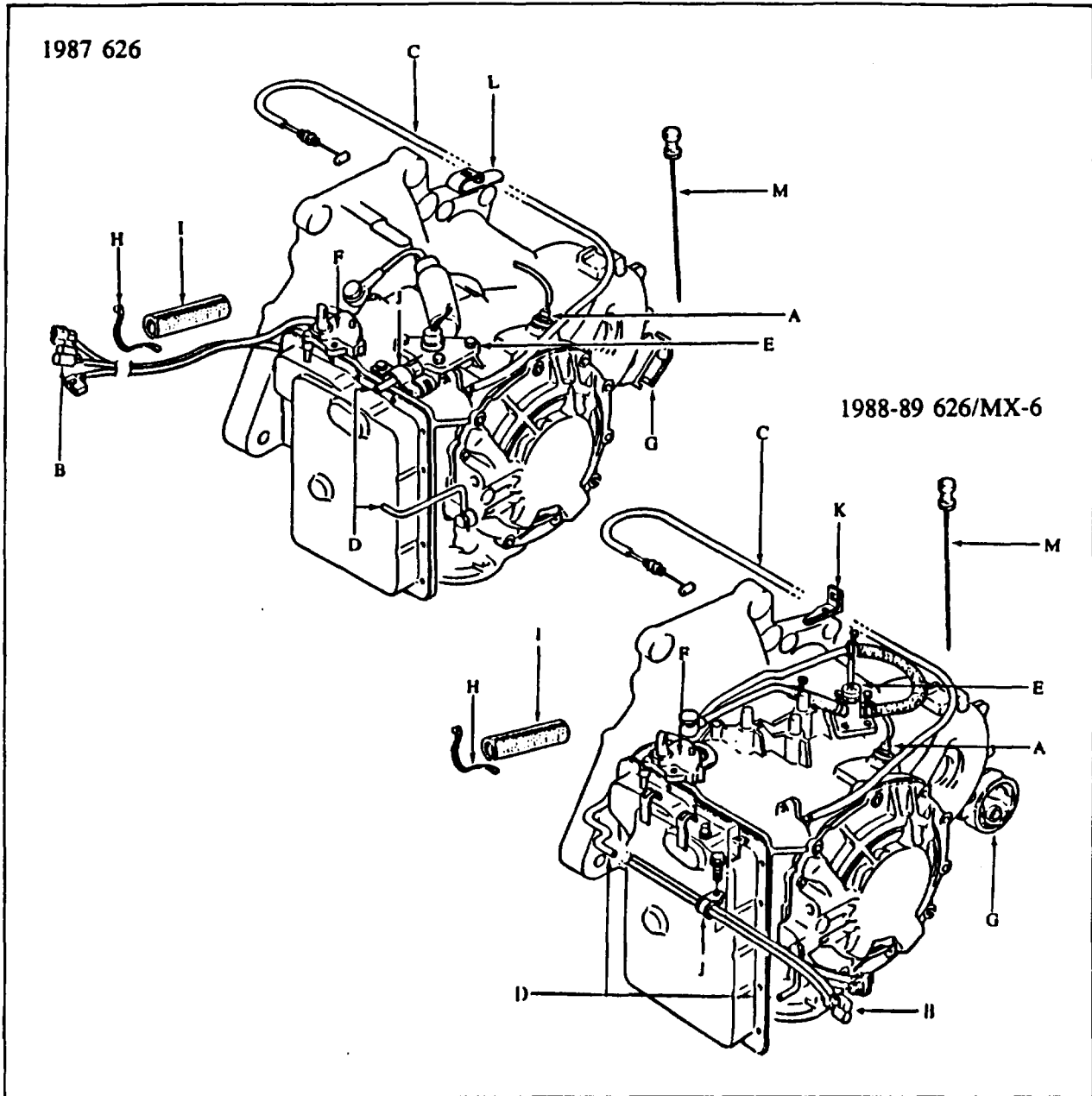
Signature _____

Service Manager

Signature _____

Parts Manager

For your convenience, the illustration below shows items which should be reinstalled on the rebuilt transmission (-) and returned (x) with the failed assembly.



	1987 626	1988-89 626/MX-6
A) Pulse Generator	X	X
B) Cord	X	X
C) Throttle Cable	X	X
D) Oil Pipes	X	X
E) Thermo Switch Box	X	X
F) Inhibitor Switch	X	X
G) Engine Mounting Rubber No.1	X	X
H) Bands (for Cord)	X	X
I) Protector (for Cord)	X	X
J) Clip (for Cord)	X	X
K) Throttle Cable Bracket	-	X
L) Throttle Cable Clip	X	-
M) Oil Level Gauge	X	-

NOTE:

Before removing ECOT from vehicle, remove drain plug and drain ATF from failed assembly.

EC-AT INSPECTION SHEET

INSTRUCTIONS:

Please complete this form and submit it with the return EC-AT unit to repair facility.

Date: / /

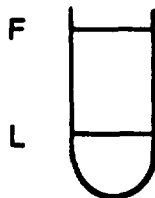
- 1. Dealer Code: _____
- 2. Dealer Name: _____
- 3. Year/Model: _____
- 4. VIN No: _____
- 5. Unit No: _____
- 6. Mileage: _____
- 7. Delivery Date: _____
- 8. Problem Date: _____

9. Customer Comment (please indicate with a ✓ mark):

- Slip: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Shock: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Flare: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Noise: () 1 () 2 () 3 () 4 () R
- No Movement: () 1 () 2 () 3 () 4 () R
- Oil Leakage (Location): _____

10. Checking Results:

- Condition of ATF: () OK () Burned () Other _____
- ATF Level:



(indicate with an arrow)

- EC-AT Tester Result Code No: _____

11. Comments:

12. Technician's Signature: _____

Service Bulletin

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Irvine, California 92718
Telephone (714) 727-1990



Category 7	Applicable Model/s '87 - '89 626/MX-6 Turbo & Non-Turbo	Subject EC-AT REBUILD PROGRAM	Bulletin No. 065/89 Issued 9/27/89 Revised 10/31/89
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DESCRIPTION

Mazda (North America), Inc. (MANA) has been supplying rebuilt EC-AT assemblies since October 3, 1988. MANA has been preparing these assemblies with all up-to-date modifications as described in bulletin Category 7 no. 051/88.

This bulletin is being provided for up-to-date information regarding the 1989 model year.

NOTE:

1. Using EC-AT tester, verify that the problem is not solenoid related and that indeed the assembly has failed.
2. Before removing the failed assembly, an "EC-AT Inspection Sheet" (supplied by MANA, see attached) should be filled out with the customer. This sheet, which should be returned with the failed unit and a copy retained with the Repair Order, contains information pertinent to this program.
3. Refer to Mazda Parts Bulletin E-7-88 (for Western Regions) and V-32 (for Eastern Regions) for procedures required for ordering rebuilt EC-ATs and preparation regarding the return of the failed assembly PRIOR to shipping (i.e. draining instructions, parts to be removed and/or retained [see figure on page 2 of 3] and the installation of assorted plugs, brackets, holders and mounts).
4. Refer to Mazda Warranty Bulletin, Category K no. 1, for terms applicable to this program. Remember, it is important that if replacement is necessary, you must contact your DSM for authorization. *

MANA will supply an "EC-AT Instruction Manual" containing updated "Installation" and "Adjustment" procedures with each rebuilt unit.

NOTE:

1. Failure to fill out the "Inspection Sheet" may result in the forfeiture of the core refund.
2. DO NOT remove the VIN I.D. tag from the core. This is in violation of Federal Law.

The revised section is indicated by an asterisk. Please replace the original bulletin with this revised bulletin.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

016279

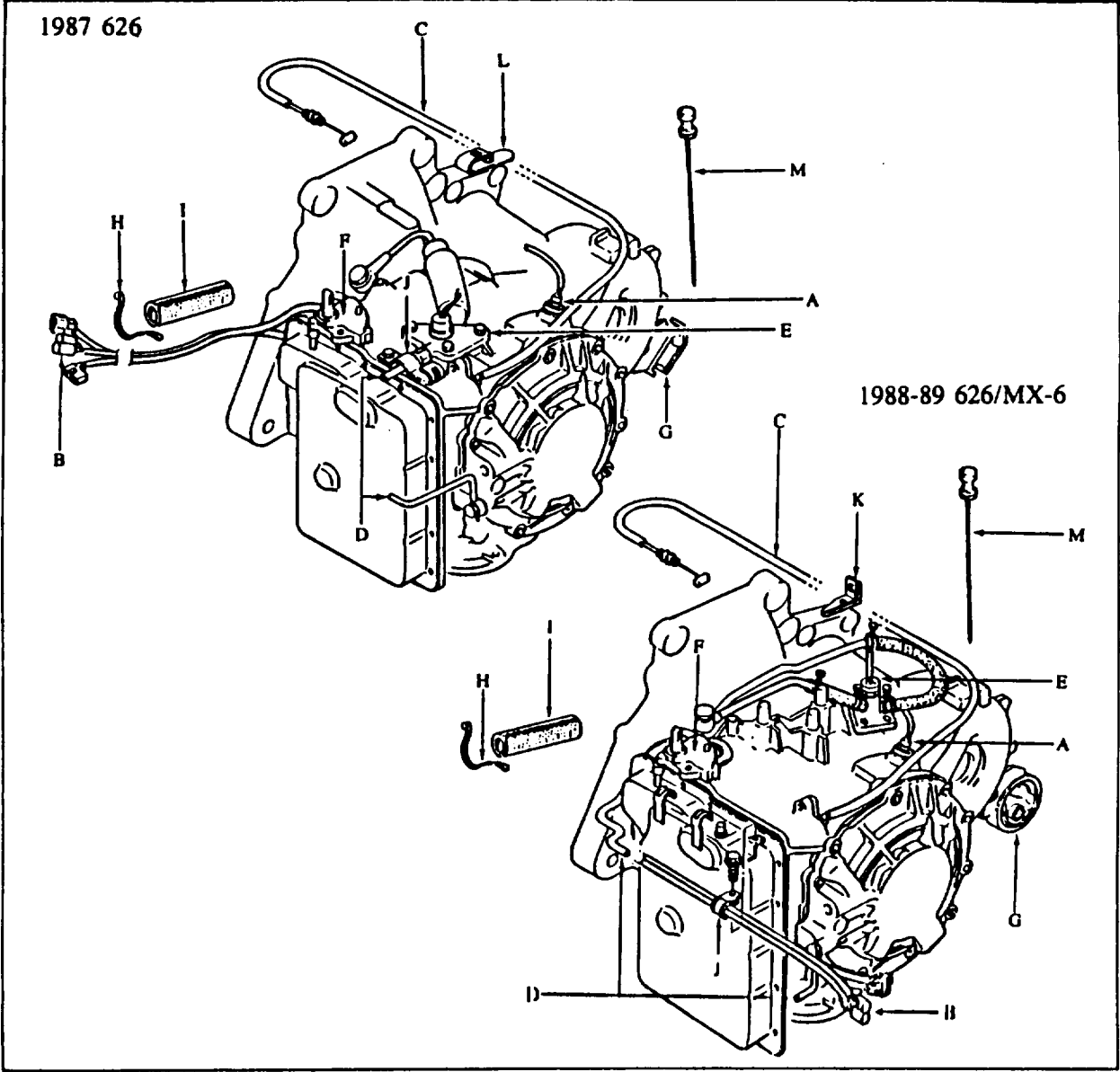
Signature _____

Service Manager

Signature _____

Parts Manager

For your convenience, the illustration below shows items which should be reinstalled on the rebuilt transmission (-) and returned (x) with the failed assembly.



	1987 626	1988-89 626/MX-6
A) Pulse Generator	x	x
B) Cord	x	x
C) Throttle Cable	x	x
D) Oil Pipes	x	x
E) Thermo Switch Box	x	x
F) Inhibitor Switch	x	x
G) Engine Mounting Rubber No.1	x	x
H) Bands (for Cord)	x	x
I) Protector (for Cord)	x	x
J) Clip (for Cord)	x	x
K) Throttle Cable Bracket	-	x
L) Throttle Cable Clip	x	-
M) Oil Level Gauge	x	-

NOTE:
Before removing EC-AT from vehicle, remove drain plug and drain ATF from failed assembly.

EC-AT INSPECTION SHEET

INSTRUCTIONS:

Please complete this form and submit it with the return EC-AT unit to repair facility.

Date: / /

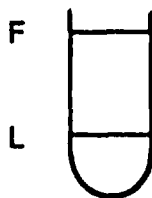
- 1. Dealer Code: _____
- 2. Dealer Name: _____
- 3. Year/Model: _____
- 4. VIN No: _____
- 5. Unit No: _____
- 6. Mileage: _____
- 7. Delivery Date: _____
- 8. Problem Date: _____

9. Customer Comment (please indicate with a ✓ mark):

- Slip: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Shock: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Flare: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Noise: () 1 () 2 () 3 () 4 () R
- No Movement: () 1 () 2 () 3 () 4 () R
- Oil Leakage (Location): _____

10. Checking Results:

- Condition of ATF: () OK () Burned () Other _____
- ATF Level:



(indicate with an arrow)

- EC-AT Tester Result Code No: _____

11. Comments:

12. Technician's Signature: _____

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category 7	Applicable Model/s 1988-89 626/MX-6 & 929	Subject TURBINE SENSOR/PULSE GENERATOR	Bulletin No. 067/89
			Issued 10/12/89
			Revised



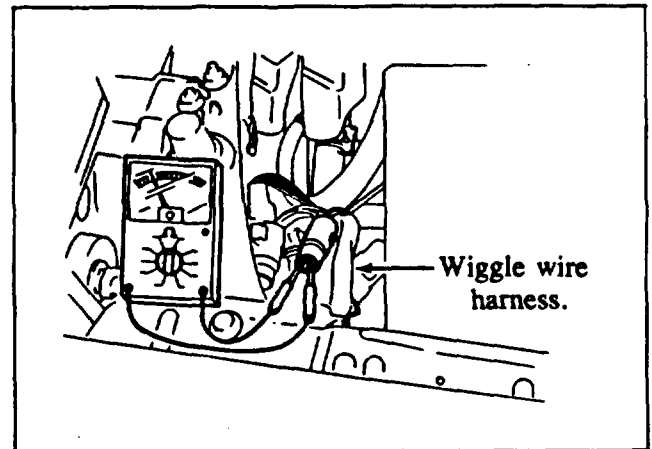
DESCRIPTION

On some of the subject vehicles, the hold lamp goes ON and OFF while driving. If the EC-AT tester is connected, it indicates "Code 55". As one of the causes for this phenomenon, poor internal contact of the turbine sensor is probable.

When judging the performance of the turbine sensor, wiggle the wire harness of the turbine sensor as illustrated below and check whether the resistance value is within the specification.

If a poor contact exists in the turbine sensor, resistance value changes and the value reads out of specification when wiggling the wire harness.

Model	Resistance Specification
626/MX-6	200-400 Ω
929	Approx. 245 Ω



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

016280

Signature _____

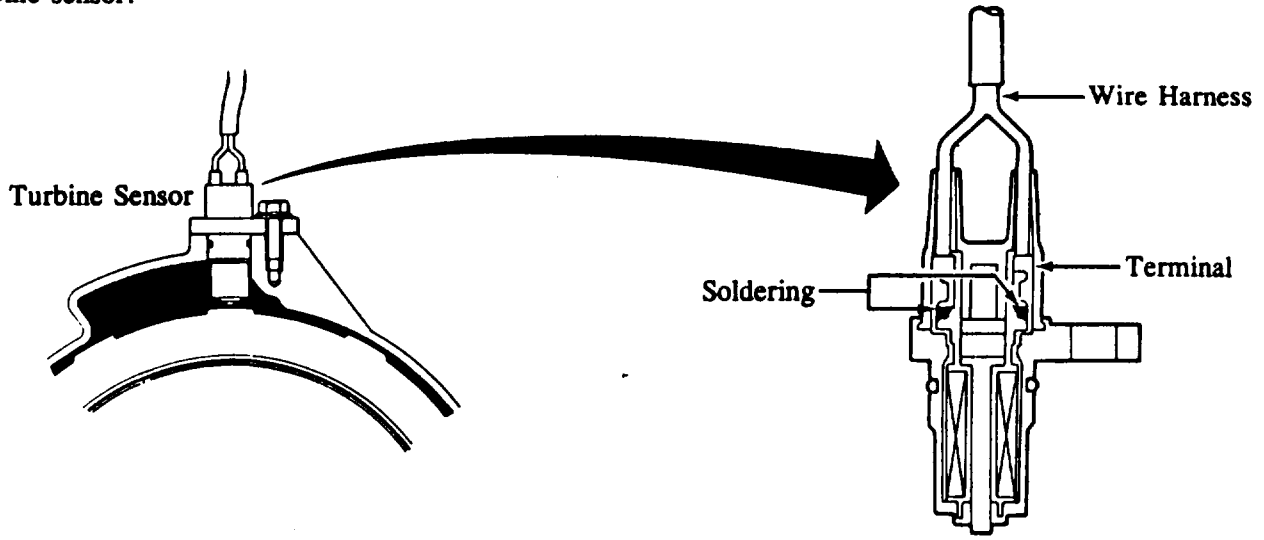
Signature _____

Service Manager

Parts Manager

PRODUCTION CHANGE

To improve this, a connection soldering process has been newly adopted to the wire harness and terminal of the turbine sensor.



VIN OF PRODUCTION CHANGE

929:	JM1HC★★★★K0210413	November 1, 1988
626/MX-6:	JM1GD★★★★K1731830	November 1, 1988 (MC Production)
MX-6:	1YVGD★★★★K5243834	January 1, 1989 (MMUC Production)

PARTS INFORMATION

The part numbers have not been changed.

PART NUMBER		DESCRIPTION	INTERCHANGEABILITY	APPLIED MODEL
NEW	OLD			
FU31 21 550B	---	Pulse Generator	NEW → OLD	626/MX-6
BV02 21 571A	---	Turbine Sensor	NEW → OLD	929

Service Bulletin

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2/18

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category 7	Applicable Model/s 1988-89 626/MX-6 Turbo	Subject D1-D2 SHIFT SHOCK	Bulletin No. 070/89 Issued 12/15/89 Revised
---------------	---	------------------------------	---

DESCRIPTION

If you encounter a customer complaint regarding D1 to D2 shift shock during light throttle (1/4 opening) during warm-up, repair the problem in accordance with the following procedure.

NOTE:

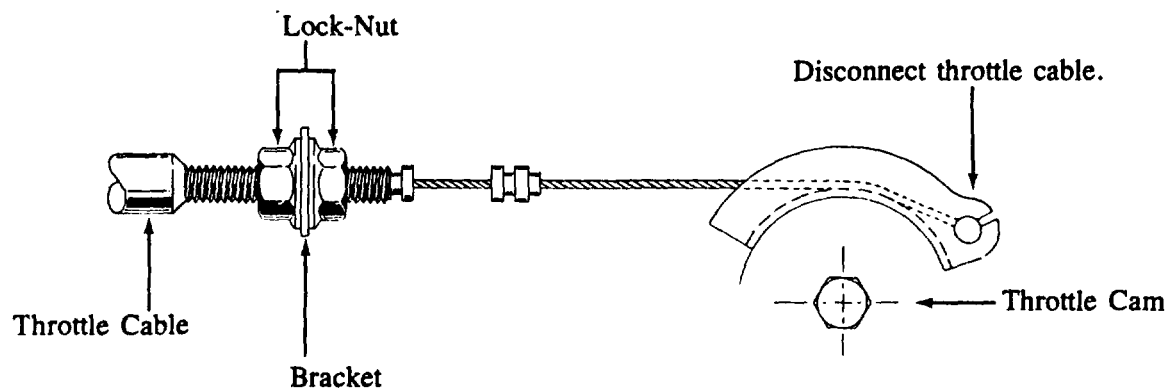
Perform the repair procedure referring to the Workshop Manual for details.

REPAIR PROCEDURE

1. Conduct a test drive and confirm the customer's complaint.
2. Check that the line pressure is within 4.0–4.6 kg/cm² (57–66 psi) at idle (725–775 rpm) in "P" range at normal operating temperature.

If the line pressure is out of the specification, adjust the line pressure by adjusting the lock nuts of the throttle cable.

3. Verify that the throttle cable is free of "slack" in accordance with the following procedure.
 - a) Read the line pressure (a) indicated on the pressure gauge (P/N 49B0 19 901).
 - b) Disconnect the throttle cable from the throttle cam and read the line pressure (b).



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

016961

Signature _____

Service Manager

Signature _____

Parts Manager

Number: 070/89	Date Issued: 12/15/89	Date Revised:
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- If the value of the line pressure (a) is higher than (b), the result is OK.
- If the line pressure does not change, go back to step 2 and readjust the throttle cable.

LINE PRESSURE	RESULT
(a) > (b)	OK
(a) = (b)	NG → Readjust

NOTE:

When the throttle cable has "slack", the line pressure does not increase in proportion to the engine torque, causing D1 to D2 shift shock.

4. After adjusting the line pressure (throttle cable), be sure to verify the condition of shift shock by road testing.

If the result is still unacceptable, proceed to the next step.

5. Replace the valve body with one for the 1990 model (P/N FU3H 21 100A).

WARRANTY INFORMATION

1. When Repair Prodedure steps 1 – 4 were conducted:

Customer Comment Code: 26
 Damage Code: 9H
 Part No. of Main Cause: FU32 21 600D
 Operation No: XX0355-R-X
 Labor Hours: 0.8 Hr.

2. When Repair Prodedure steps 1 – 5 were conducted:

Customer Comment Code: 26
 Damage Code: 9N
 Part No. of Main Cause: FU3H 21 100A
 Quantity: 01
 Operation No: K0306B-R-X – 1.8 Hrs.
 XX0355-R-X – 0.8 Hrs.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject RECALL CAMPAIGN AND SPECIAL SERVICE PROGRAM SERVICE REQUIREMENTS	Bulletin No. 002/96
			Issued 05/15/96
			Revised

IMPORTANT NOTIFICATION

The following requirements pertain to all Recall Campaigns and Special Service Programs (SSP). Please ensure that dealer personnel responsible for performing these functions are also aware of these requirements.

1. Dealers are required to perform all applicable Recall Campaign and SSP repairs to inventory vehicles or replacement parts prior to customer delivery through sale or lease.

- Under the National Traffic and Motor Vehicle Safety Act and other Federal and State laws, if there has been a recall campaign, dealers must assure that all new vehicles and items or replacement equipment are free of safety defects and comply with applicable Federal Motor Vehicle Safety and Emission Standards at the time of delivery to the customer. These requirements are also applicable to all used vehicles.
- This does not prohibit offering for sales or lease such vehicles or items of equipment.

2. Dealers must attach an "AUTHORIZATION NOTIFICATION" label to the designated location when Recall Campaign and SSP repairs are completed.

- In most recall campaigns, Federal or State law requires attaching an "Authorization Modification" (Recall Completion) label to a designated location on the vehicle for future reference.
- Dealers must complete the label with necessary information (Campaign Number, Dealer Code and Repair Date). Refer to the label below.
- Failure to follow this requirement will result in dealer violation of Federal and State laws.
- These labels are available from Helm, Inc.

AUTHORIZED MODIFICATION	
CAMPAIGN NO:	_____
DEALER CODE:	_____
DATE:	/ /
P/N 9999-95-085A-00	

060057

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject TECHNICAL ASSISTANCE HOTLINE	Bulletin No. 002/97
			Issued 02/18/97
			Revised

DESCRIPTION

Mazda Motor of America, Inc. has established a single toll free phone number to provide technical assistance in support of **"Fix It Right The First Time."** The toll free number is available nationwide to all Mazda dealer service departments and replaces the previous technical assistance phone numbers.

The Number

- The new number is: **(888) TEC-TIPS (832-8477)** Effective February 24, 1997

NOTE: Toll free area code is "888."

This Technical Assistance Hotline number does not apply to the dealers within the Mazda Great Lakes Distributorship. Those dealers in this area should continue to call 1-800-748-0044.

Time Available

- Hotline Assistance is available Monday through Friday, 8:30am to 5:00pm within your region.

IMPORTANT STEPS PRIOR TO CONTACTING THE TECHNICAL ASSISTANCE HOTLINE

1. Perform related workshop manual diagnostic procedures and check for related:

Service Bulletins

Special Service Messages

M-Tips On-Line information

M-Tips News Letter articles

Warranty history for previous related repair attempts

2. Record all applicable specifications and have this information available for the Technical Hotline Specialist.

EXAMPLES:

Diagnostic Trouble Codes (DTCs)

Freeze Frame Data

Parameter Identification (PID)

Simulation Tests

LA4A-EL Transmission Identification Number

Automatic Transmission Diagnostic Sheet

System Voltage/Resistance

WHEN CONTACTING THE TECHNICAL ASSISTANCE HOTLINE

Provide the following information:

Vehicle Identification Number (VIN)

Current Vehicle Mileage

Customer Concern/Symptoms/Conditions

Previous Repair Attempt Information

Results and Specification from Diagnostic Attempts

Remember, the technical assistance hotline is established to **HELP** you **"FIX IT RIGHT THE FIRST TIME."** Technical assistance is available to authorized Mazda Dealer Technicians and Service Managers **ONLY**. This hotline is not for customer, parts, sales or warranty department personnel inquiries.

Adhesive labels containing the Technical Assistance Hotline number (excluding the Great Lakes area) are attached to this bulletin. Place one of these labels on or near each phone in the service department area.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject VEHICLE TOWING PRECAUTIONS	Bulletin No.	003/96
			Issued	07/12/96
			Revised	

APPLICABLE MODELS

All Models

DESCRIPTION

Vehicle towing **MUST** be performed according to a defined procedure listed in each model's owner's manual. Deviating from this procedure may cause internal transmission/transaxle damage. Currently the number of repairs occurring due to improper tow techniques has increased.

All related dealer personnel must be aware of the proper towing procedure and ensure that towing service providers follow the procedure when towing is necessary. Dealer personnel responsible for towing arrangements should provide a copy of the owner's manual instructions to towing service providers.

NOTE: Damage due to improper towing is not a warrantable repair.

060058

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject SPEEDOMETER REPLACEMENT PROCEDURE	Bulletin No. 003/97
			Issued 02/25/97
			Revised

DESCRIPTION

In accordance with Federal regulations, follow the procedures listed below when replacing a speedometer.

NOTE:

1. Mazda vehicles are manufactured with tamper-proof speedometers and the mileage can not be altered or adjusted.
2. When a speedometer is replaced, the new speedometer will read zero (0).
3. This procedure is extremely important to accurately represent actual vehicle mileage.
4. The "Speedometer Replacement Label" referenced below is available through the Mazda Program Center for a limited time. Mazda Motor of America, Inc. is providing 1 sheet of 20 labels with this bulletin.

REPLACEMENT PROCEDURE

1. Remove and replace the speedometer according to the workshop manual.
2. Complete the following information on the "Speedometer Replacement Label."
 - Mileage before speedometer replacement.
 - Date of replacement.
 - Dealer code.
3. Attach the label to the driver's side "B" pillar.
4. Complete the "Speedometer Replacement Record" in the Warranty Information Booklet referenced below.

<table border="1"><tr><td>SPEEDOMETER REPLACEMENT</td></tr><tr><td>Mileage: _____ (Before Replacement)</td></tr><tr><td>Date Replaced: ____/____/____</td></tr><tr><td>Dealer Code: _____</td></tr></table> <p>Complete Information and Install On Driver's Side "B" Pillar</p>	SPEEDOMETER REPLACEMENT	Mileage: _____ (Before Replacement)	Date Replaced: ____/____/____	Dealer Code: _____
SPEEDOMETER REPLACEMENT				
Mileage: _____ (Before Replacement)				
Date Replaced: ____/____/____				
Dealer Code: _____				

SPEEDOMETER REPLACEMENT RECORD
Speedometer replaced on _____ with _____ miles
Dealer Name _____
Dealer Signature _____
After the speedometer is replaced, total mileage should be determined by adding the mileage listed here to the current mileage shown on the speedometer installed.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject KEY REPLACEMENT (California Dealers Only)	Bulletin No. *005/94
			Issued 7/5/94
			Revised 7/5/94

The revised portion of this bulletin is indicated by an asterisk(*). Replace the original bulletin with this revised copy.

APPLICABLE MODELS

All Models

DESCRIPTION

The following information should be communicated to all service and parts department personnel and/or locksmith and vendors supplying replacement keys to customers.

Customers requesting replacement keys for their vehicle that **do not have the original key for use in duplication**, must submit the information listed below.

This information must be kept on file at the dealership for a period of **one year**. The information must be made available for inspection by any peace officer or the Bureau Of Collections And Investigative Services during normal business hours or submitted to the bureau upon request.

Details of this requirement are outlined under California Penal Code No. 466.6.

Information Required:

1. Customer Name
2. Address
3. Telephone Number (if any)
4. Date Of Birth
5. Driver's License Number (or I.D. No.)
6. VIN Of The Vehicle
7. Vehicle License Number
8. Vehicle Year
9. Vehicle Make
10. Vehicle Color
11. Date Of Key Duplication
12. Customer's Signature

We suggest this information be recorded on a repair order regardless of the department supplying the key. Service Managers are advised to make copies of this bulletin and post the information in the appropriate areas of the dealership

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

Parts Manager

059149

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject KEY REPLACEMENT (California Dealers Only)	Bulletin No. *005/94
			Issued 6/10/94
			Revised 7/5/94

The revised portion of this bulletin is indicated by an asterisk(*). Replace the original bulletin with this revised copy

APPLICABLE MODELS

All Models

DESCRIPTION

The following information should be communicated to all service and parts department personnel and/or locksmith and vendors supplying replacement keys to customers.

Customers requesting replacement keys for their vehicle that **do not have the original key for use in duplication**, must submit the information listed below.

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8. Vehicle Year
9. Vehicle Make
10. Vehicle Color
11. Date Of Key Duplication
12. Customer's Signature

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.....
Index # **039129**
.....

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

Parts Manager



Category AD	Applicable Model/s All Models	Subject SERVICE COLLATERAL HELM PROGRAM	Bulletin No. 006/90
			Issued 3/16/90
			Revised

M 5/90

DESCRIPTION

Effective March 26, 1990 the following collateral material will no longer be available through your regional parts warehousing system.

1. 1980-90 Workshop Manuals
2. 1980-90 Wiring Diagrams
3. 1980-90 Bodyshop Manuals
4. 1980-90 Owner's Manuals
5. Service Bulletin Books
6. SRT Microfiche
7. Warranty Policies and Procedures Manuals
8. Warranty Quick Reference Guides
9. PDI Forms

The items mentioned above will now be available through HELM, INC. Accompanying this bulletin are copies of wholesale (dealer) and retail (consumer) order forms. These forms list part numbers, descriptions and prices (wholesale and retail) for all items covered by this program. As items are added to and deleted from this program, and maintenance is required to the order form, you will be informed by Service and/or Parts Bulletins until a revised order form is printed and distributed.

ORDERING PROCEDURE

The following methods have been established for dealerships wishing to place collateral orders.

1. Using the "800" number:
 - A. Charge to dealer parts account
 - B. Credit card
2. Using order form:
 - A. Charge to dealer parts account
 - B. Credit card
 - C. Check or money order

NOTE:

1. If dealer parts account is used the dealer should be ready to identify himself by dealer number as the status of the account will be checked by HELM.
2. At this time, there is no C.O.D. system.

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

017903

Service Manager

Parts Manager

Number: 006/90	Date Issued: 3/16/90	Date Revised:
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BILLING PROCEDURE

If you elect to use the dealer parts account for ordering purposes, you will be billed by MMA (Mazda Motor of America, Inc.) at month's end. For those dealerships within the Mazda Distributors Great Lakes area, you will be billed directly from them.

In addition to items listed on the order form, you will, from time to time, receive other collateral from HELM which represents items slated for all dealer mailings.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION NOTICE	Bulletin No. 007/94 Issued 8/8/94 Revised
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Important Notice

The National Highway Traffic Safety Administration (NHTSA) has amended Section 154 of the National Traffic and Motor Vehicle Safety Act.

The Amendment [Section 154 (d)] requires that dealers perform all recall campaign repairs to inventory vehicles or replacement parts prior to delivery to customers through sale or lease.

Under this Amendment, if there has been a recall campaign, dealers must assure that all new vehicles and new items or replacement equipment are free of safety defects and comply with all applicable Federal Motor Vehicle Safety Standards at the time of delivery to the consumer. It is also applicable to all used vehicles.

This does not prohibit offering for sale or lease such vehicles or items of equipment.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____
Service Manager Parts Manager

059150



Category AD	Applicable Model/s All Models	Subject SERVICE ADVISOR'S DIAGNOSTIC QUESTIONNAIRE	Bulletin No. 010/93
			Issued 11/19/93
			Revised

DESCRIPTION

To help technicians diagnose vehicle problems, detailed descriptions of the symptoms are essential. Problems related to **driveability, noise, vibrations and harshness (NVH), steering stability** and the **audio system** are difficult to repair without enough proper information from the customer.

In many cases, the customers tell you only what they can explain about the vehicle problems. These explanations usually lack detail technicians need to make a proper diagnosis. Even if the customers can explain the problems in detail, they may lack the technical knowledge to describe problems in terms technicians can easily understand. Therefore, the service advisor must help the customers describe the vehicle condition so that technicians can fully understand it before starting repairs.

That's why Mazda has produced the attached Service Advisor Diagnostic Questionnaire (part No. 9999 95 DIAG 93). Its simple format allows the advisor to quickly and accurately gather key details from the customer about the vehicle's symptoms. We have provided 50 copies for your initial use.

INSTRUCTIONS

1. Ensure an ample supply of questionnaire copies exists in the service reception area for service advisor use.
2. When customers complain of problems related to **NVH, driveability, steering stability or the audio system**, ask the applicable questions and check the boxes. Note additional customer comments or information, if necessary, on the lines provided.
3. After completing the questionnaire with the customer, attach it to the repair order and give both documents to the technician.
4. Using the questionnaire as a guide, the technicians should be able to diagnose the condition and record the repair result on the questionnaire.
5. After the repair is complete, keep the questionnaire with the repair order and retain the documents in your service files.

NOTE: You can order additional quantities (Part Number 9999 95 DIAG 93) free of charge by calling Helm, Inc. in Detroit, MI at (800) 782-4356, Monday through Friday, 9 a.m. to 5 p.m. (EST).

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Category AD	Applicable Model/s All Models	Subject NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION NOTICE	Bulletin No. 027/92 Issued 6/2/92 Revised
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Important Notice

The National Highway Traffic Safety Administration (NHTSA) has amended Section 154 of the National Traffic and Motor Vehicle Safety Act.

The Amendment [Section 154 (d)] requires that dealers perform all recall campaign repairs to inventory vehicles or replacement parts prior to delivery to customers through sale or lease.

Under this Amendment, if there has been a recall campaign, dealers must assure that all new vehicles and new items of replacement equipment are free of safety defects and comply with all applicable Federal Motor Vehicle Safety Standards at the time of delivery to the consumer.

This does not prohibit offering for sale or lease such vehicles or items of equipment.

AD

Administration

059135

Service Bulletin *I*

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category AD	Applicable Model/s All Models	Subject CERTIFICATION OF EMISSION-RECALLED VEHICLES IN CALIFORNIA	Bulletin No. 028/92 Issued 11/30/92 Revised
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AFFECTED VINS

1. This bulletin applies only to California dealers and;
2. All models repaired after July 31, 1991 under an emission recall campaign.

DESCRIPTION

The California Department of Motor Vehicles (DMV) and the California Air Resources Board (CARB) have launched a Registration Renewal/Recall Tie-In program.

1. California dealers repairing vehicles after July 31, 1991 under an emission recall campaign are required to issue the owner a "Proof of Correction" certificate. See example below. These certificates may be ordered free of charge by contacting the:

MMA - Pacific Region
 Customer Relations Dept.
 Tel. #: (714) 380-7705

Please provide the Recall Campaign number when placing an order.

2. Vehicle owners must be instructed to keep the certificate. During vehicle registration renewal and if the registration renewal form indicates a certification requirement, the owner must submit the "Proof of Correction" certificate (with the registration renewal form) to the DMV.

Vehicle Emission Recall - Proof of Correction				
License Number	Make Mazda	Year Model 1990	Body Type 2-Door	Vehicle Identification Number J M 1 N A 3 S 1
Manufacturer Mazda Motor Corporation		Recall Number # 45206		
The above described vehicle has been repaired, modified and/or equipped with new emission control devices to meet applicable California Emission Control Laws.				
Dealer's Name		Address, City, State and Zip		
Date	Dealership's Authorized Signature			
	x			
This certificate must be returned to the DMV with your billing notice.				

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature _____
 Parts Manager

Index # **032164**

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category B	Applicable Model/s 1988-90 626/MX-6 ATX	Subject IDLE VIBRATION IN "D" RANGE	Bulletin No. 001/90
			Issued 4/20/90
			Revised

NOTE:

No. 1 and no. 2 engine mounts, which are more effective for this subject matter, are now available as service parts only for field complaints. The mass-production change and field countermeasure were explained in Service Bulletin, Category 1 no. 042/89. When you encounter a customer complaint regarding the following description, please handle it in accordance with this bulletin.

DESCRIPTION

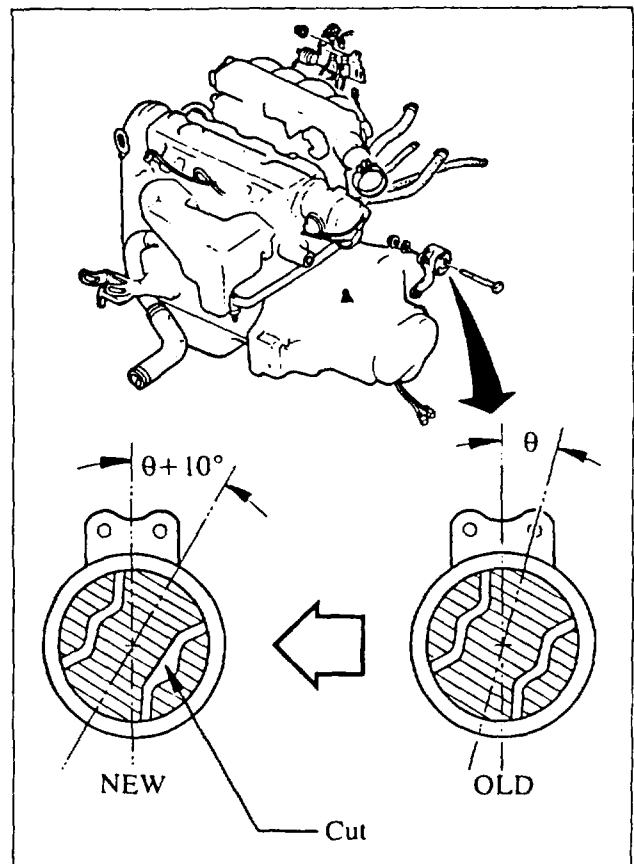
Excessive vibration may be felt in the steering wheel and seats while idling in "D" range, especially when electrical load is applied. For the proper repair procedure, refer to the instructions in this Service Bulletin.

Please note that the customer may also describe this complaint as a low rough idle and may not necessarily complain of vibration. Therefore, confirm the customer complaint carefully before attempting any repair.

PRODUCTION CHANGE

No. 1 engine mount and radiator lower mount rubbers have been changed as follows:

- No. 1 Engine Mount
 - a) The diameter of the rubber has been increased from 3.15 in. to 3.54 in. since the November, 1988 production.
 - b) The rubber has been turned 10° toward the engine side since the November, 1988 production.
- Radiator Lower Mount
 - a) Changed since June, 1989 production.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

PARTS INFORMATION

FIELD COUNTER-MEASURE PART	MASS-PRODUCTION PART	DESCRIPTION	APPLICABLE MODELS
⊗GNY1 39 040	M002 39 040A	#1 Engine Mount	ATX w/o Turbo
⊗GNY2 39 040	GJ28 39 040D	#1 Engine Mount	ATX w/ Turbo
⊗GNY1 39 050	—	#2 Engine Mount	ATX (all)
F202 15 202B	F202 15 202B	Radiator Lower Mount	ATX w/o Turbo
B61A 15 202	B61A 15 202	Radiator Lower Mount	ATX w/ Turbo

NOTE:

The “⊗” indicates that parts are available for field complaints. They are more effective for the problem described in this bulletin than the mass-production parts.

REPAIR PROCEDURE

1. Check that the idle speed is within the specification.

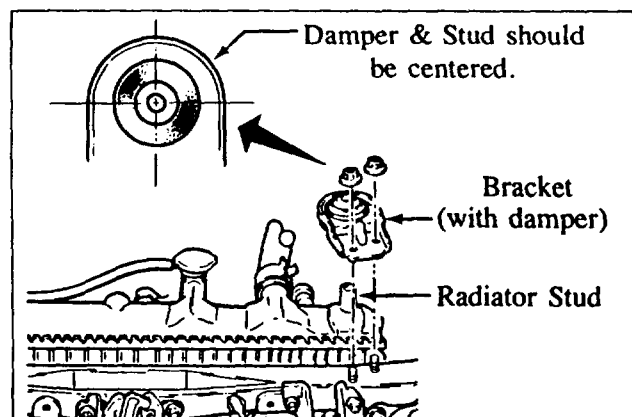
Idle Speed: 750 ± 25 RPM (in P range)

If the idle speed is not within the specification, adjust it to 750 RPM with test connector grounded.

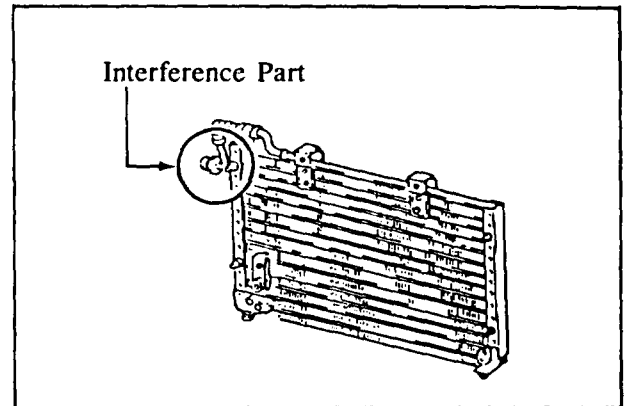
2. Replace the radiator lower mounts with modified ones.

3. Check that the radiator is centered in the radiator upper brackets so that it can move more effectively as a dynamic damper. If not, adjust the radiator or the brackets as follows:

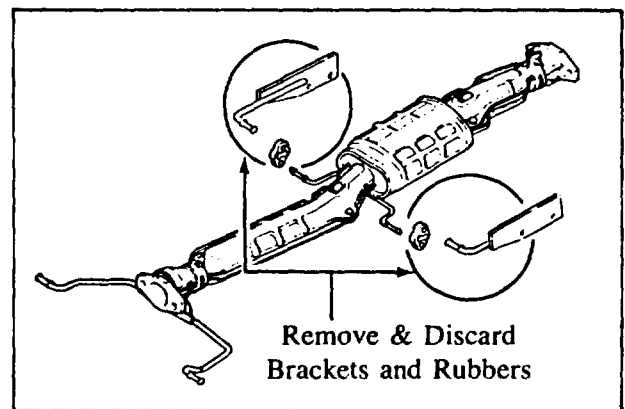
- Adjust the position of the upper brackets.
- Adjust the position of the radiator upper hose so the radiator is not pushed or pulled out of position.



4. Check if the A/C pipe (from compressor to condenser) is not interfering with the radiator. If necessary, reposition the A/C pipe to make enough clearance between the A/C pipe and the radiator.



5. Adjust the hood lock if a rattle noise is heard from the hood.
6. Replace the no. 1 and no. 2 engine mounts with countermeasure parts.
7. Remove and discard the no. 2 silencer hanger and rubbers which are located in front of the pre-silencer. After removing the hangers from the body, reinstall the bolts into the body to prevent water from entering.
8. In a case where the idle vibration is not corrected to a satisfactory level, ground the test connector and adjust the idle speed to 950–1000 RPM. Then, disconnect the test connector.



WARRANTY INFORMATION

Warranty Type Code:	A
Customer Comment Code:	83
Damage Code:	97
Part No. of Main Cause:	GNY1 39 0400 (ATX w/o Turbo) GNY2 39 0400 (ATX w/Turbo) GNY1 39 0500 (ATX w/Turbo, w/o Turbo)
Operation No:	XX0376-R-X (for all repairs) XX0331-R-2 (except R&R of no. 1 and no. 2 engine mounts)
Labor Hours:	1.0 Hr. (for all repairs) 0.4 Hr. (except R&R of no. 1 and no. 2 engine mounts)

Service Bulletin

T \$ 400

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category B	Applicable Model/s 1988-'90 626/MX-6	Subject HYDRAULIC LASH ADJUSTER (HLA) NOISE	Bulletin No.	004/90
			Issued	6/8/90
			Revised	

DESCRIPTION

If you encounter a complaint of HLA noise when returning to an idle after freeway driving that continues for approximately one minute, the rocker arms may need to be replaced.

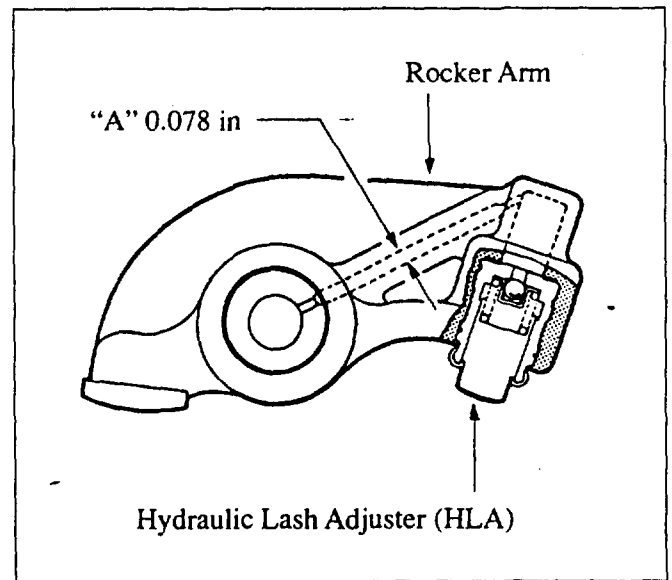
As illustrated, the diameter of the oil passage "A" on the modified rocker arm has been enlarged (0.031 in to 0.078 in). With this modification, oil volume to the HLA increases and the period of HLA noise is reduced.

PARTS INFORMATION

PART NUMBER	DESCRIPTION	QTY
F201 12 130B	Rocker Arm Assembly	6
F201 12 150B	Rocker Arm Assembly	6

NOTE:

There are two different configurations for the Rocker Arm Assembly. See page B-63 in the 1990 Workshop Manual for more information.



REPAIR PROCEDURE

- 1) When removed from the rocker arm shaft, inspect the contact area of the rocker arm. If it is scratched, replace the rocker arm shaft. Otherwise, due to oil pressure, leakage may result.
- 2) Please instruct customers to observe scheduled maintenance intervals. Inadequate amounts of oil or oil deterioration may cause the problem to reoccur.

VIN OF PRODUCTION CHANGE

626/MX-6 manufactured in Japan
JM1GD◆◆◆L1831322 February 1, 1990

626/MX-6 manufactured in U.S.A
1YVGD◆◆◆L5248982 March 19, 1990

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

018941

Service Manager

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category B	Applicable Model/s All Models	Subject PARTIAL ENGINE (LONG BLOCK) AVAILABILITY	Bulletin No. 004/94 Issued 3/9/94 Revised
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DESCRIPTION

Partial engines are available as repair components and will replace the need to replace the entire engine. When installing a partial engine, the following components must be utilized from the original engine:

1. Engine Electrical Parts
2. Cooling System Parts
3. Intake And Exhaust System Parts
4. Fuel And Emission Control Parts
5. Clutch And/Or Flywheel

PARTS INFORMATION

See the following pages for applicable models and part numbers

WARRANTY INFORMATION

Partial engines are warranted for the remainder or the original vehicle warranty or for the first 12 months after installation of the partial engine, whichever is longer. **All warranty repairs of partial engine replacement will require prior authorization form the DCSM.**

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Index # 037856
.....

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Number: 004/94

Date Issued: 3/9/94

Revised:

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM**B-TRUCKS**

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1979-84 B2000	HEA4-23-800	8AU1-23-900	
1986-87 B2000	FEY3-02-300	8AU1-02-310	Requires the replacement of the Heat Gauge Unit - G607-18-510.
1987-89 B2200	F2Y3-02-300	8AU2-02-310	
1990-93 B2200 (CAL) (FED)	F2Y6-02-300	8AU5-02-310	
	F2Y7-02-300	8AU2-02-310	
1990-93 B2600 (4 x 4) (A/T) (M/T)	G6Y1-02-300	8AU3-02-310	
	G6Y2-02-300	8AU3-02-310	
1990-93 B2600 (4 x 2) (A/T) (M/T)	G6Y3-02-300	8AU3-02-310	
	G6Y4-02-300	8AU3-02-310	
1994 B-TRUCKS	NONE	NONE	

MPV

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1989-94 MPV (2.6L)	NONE	NONE	Use G601-02-200 (Short Block)
1989-94 MPV (3.0L)	NONE	NONE	Use JE22-02-200B (Short Block)

NAVAJO

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1991-93 NAVAJO	NONE	NONE	

323

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1986-89 323 (1.6L, 4 x 2)	B630-02-300	8AB1-02-310	
1988-89 323 (1.6L TURBO) (4 x 2) (4 x 4)	WILL BE AVAILABLE.	8AB2-02-310	
	WILL BE AVAILABLE.	8AB2-02-310	
1990-92 323 (1.6L, 4 x 2)	B6AL-02-300	8AB9-02-310	
1993-94 323 (1.6L, 4 x 2) (FED) (CAL)	B6AL-02-300	8AB9-02-310	
	B6BN-02-300	8AB8-02-310	

PROTEGE

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1990-94 PROTEGE (1.8L DOHC) (M/T) (A/T)	BP05-02-300	8ABA-02-310	
	BP06-02-300	8ABA-02-310	
1990-94 PROTEGE (1.8L SOHC) (M/T) (A/T)	BP01-02-300	8ABB-02-310	
	BP02-02-300	8ABB-02-310	

Number: 004/94	Date Issued: 3/9/94	Revised:
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NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

626 / MX-6

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1981-82 626	HE41-02-300	8AU1-02-310	
1983-85 626	FE01-02-300	8AG1-02-310	
1986-87 626 (NON-TURBO)	FEY1-02-300	8AG2-02-310	Requires the replacement of the Heat Gauge Unit - G607-18-510.
	(TURBO) FEY2-02-300	8AG3-02-310	
1988-89 626 / MX-6 (NON-TURBO)	F2Y1-02-300	8AG4-02-310	
	(TURBO) F2Y2-02-300	8AG5-02-310	
1990-92 626 / MX-6 (NON-TURBO)	F2Y4-02-300	8AG4-02-310	
	(TURBO) WILL BE AVAILABLE.	8AG5-02-310	
1993-94 626 / MX-6 (2.0L) (M/T)	WILL BE AVAILABLE.	8AGB-02-310	
1993 626 / MX-6 (2.0L) (A/T)	WILL BE AVAILABLE.	8AGB-02-310	
1994 626 / MX-6 (2.0L) (A/T)	WILL BE AVAILABLE.	8AGB-02-310	
1993-94 626 / MX-6 (2.5L)	WILL BE AVAILABLE.	8AE3-02-310	

929

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1988-89 929 (3.0L SOHC)	JE15-02-300	8AH1-02-310	
1990-91 929 (3.0L) (SOHC)	JE39-02-300	8AJA-02-310	
	(DOHC) NONE	NONE	Use JE48-02-200B (Short Block)
1992-93 929 (3.0L DOHC)	NONE	NONE	Use JE48-02-200B (Short Block)
1994 929 (3.0L DOHC)	WILL BE AVAILABLE.	8AH3-02-310	

RX-7

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
ALL RX-7	---	---	See Parts Bulletin R-6 - MANA Rebuilt Rotary Engines

MIATA

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1990-93 MIATA (1.6L) (M/T)	B61P-02-300	8AN1-02-310	
	(A/T) B64J-02-300	8AN1-02-310	
1994 MIATA (1.8L)	WILL BE AVAILABLE.	8ABC-02-310	

Number: 004/94

Date Issued: 3/9/94

Revised:

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM***MX-3***

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1992-93 MX-3 (1.6L, I-4)	B66S-02-300	8AE2-02-310	
1994 MX-3 (1.6L, I-4)	WILL BE AVAILABLE.	8ABD-02-310	
1992-94 MX-3 (1.8L, V-6)	WILL BE AVAILABLE.	8AE3-02-310	

MILLENNIA

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1994 MILLENNIA (2.3L, V-6 MILLER)	WILL BE AVAILABLE.	8AK1-02-310A	
(2.5L, V-6)	WILL BE AVAILABLE.	8AK2-02-310	

Service Bulletin

Mazda Motor of America, Inc.
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Telephone (714) 727-1990



Category B	Applicable Model/s All Models	Subject PARTIAL ENGINE (LONG BLOCK) AVAILABILITY	Bulletin No. 004/94
			Issued 3/9/94
			Revised 6/21/94

DESCRIPTION

Partial engines are available as repair components and will replace the need to replace the entire engine. When installing a partial engine, the following components must be utilized from the original engine:

1. Engine Electrical Parts
2. Cooling System Parts
3. Intake And Exhaust System Parts
4. Fuel And Emission Control Parts
5. Clutch And/Or Flywheel

PART INFORMATION

See the following pages for applicable models and part numbers.

WARRANTY INFORMATION

Partial engines are warranted for the remainder of the original vehicle warranty or the first 12 months after installation of the partial engine, whichever is longer. **All warranty repairs of the partial engine replacement will require prior authorization from the DCSM.**

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Index # 039131
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IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____
Service Manager Parts Manager

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

B-TRUCKS

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1979-84 B2000	HEA4-23-800	8AU1-23-900	
1986-87 B2000	FEY3-02-300	8AU1-02-310	Requires the replacement of the Heat Gauge Unit - G607-18-510.
1987-89 B2200	F2Y3-02-300	8AU2-02-310	
1990-93 B2200 (CAL) (FED)	F2Y6-02-300	8AU5-02-310	
	F2Y7-02-300	8AU2-02-310	
1990-93 B2600 (4 x 4) (A/T) (M/T)	G6Y1-02-300	8AU3-02-310	
	G6Y2-02-300	8AU3-02-310	
1990-93 B2600 (4 x 2) (A/T) (M/T)	G6Y3-02-300	8AU3-02-310	
	G6Y4-02-300	8AU3-02-310	
1994 B-TRUCKS	NONE	NONE	

MPV

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1989-94 MPV (2.6L)	G6Y5-02-300	8AL1-02-310	
1989-94 MPV (3.0L) (4 X 2) (4 X 4)	JE57-02-300	8AL2-02-310	
	JE58-02-300	8AL2-02-310	

NAVAJO

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1991-93 NAVAJO	NONE	NONE	

323

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1986-89 323 (1.6L, 4 x 2)	B630-02-300	8AB1-02-310	Does Not Fit 86-87 w/ Std. Strg & A/C
1988-89 323 (1.6L TURBO) (4 x 2) (4 x 4)	WILL BE AVAILABLE.	8AB2-02-310	
	WILL BE AVAILABLE.	8AB2-02-310	
1990-92 323 (1.6L, 4 x 2)	B6AL-02-300	8AB9-02-310	
1993-94 323 (1.6L, 4 x 2) (FED) (CAL)	B6AL-02-300	8AB9-02-310	
	B6BN-02-300	8AB8-02-310	

PROTEGE

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1990-94 PROTEGE (1.8L DOHC) (M/T) (A/T)	BP05-02-300	8ABA-02-310	
	BP06-02-300	8ABA-02-310	
1990-94 PROTEGE (1.8L SOHC) (M/T) (A/T)	BP01-02-300	8ABB-02-310	
	BP02-02-300	8ABB-02-310	

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

626 / MX-6

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1981-82 626	HE41-02-300	8AU1-02-310	
1983-85 626	FE01-02-300	8AG1-02-310	
1986-87 626 (NON-TURBO)	FEY1-02-300	8AG2-02-310	Requires the replacement of the Heat Gauge Unit - G607-18-510.
	(TURBO)	FEY2-02-300	
1988-89 626 / MX-6 (NON-TURBO)	F2Y1-02-300	8AG4-02-310	
	(TURBO)	F2Y2-02-300	8AG5-02-310
1990-92 626 / MX-6 (NON-TURBO)	F2Y4-02-300	8AG4-02-310	
	(TURBO)	F2Y5-02-300	8AG5-02-310
1993-94 626 / MX-6 (2.0L) (MT)	FS01-02-300A	8AGB-02-310	
1993 626 / MX-6 (2.0L) (AT)	FS01-02-300A	8AGB-02-310	
1994 626 / MX-6 (2.0L) (AT)	FS71-02-300A	8AGB-02-310	
1993-94 626 / MX-6 (2.5L)	KLY1-02-300A	8AE3-02-310	

929

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1988-89 929 (3.0L SOHC)	JE15-02-300	8AH1-02-310	
1990-91 929 (3.0L) (SOHC)	JE39-02-300	8AJA-02-310	
	(DOHC)	JE27-02-300	8AJB-02-310
1992-93 929 (3.0L DOHC)	NONE	NONE	Use JE48-02-200B (Short Block)
1994 929 (3.0L DOHC)	JE74-02-300A	8AH3-02-310	

RX-7

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
ALL RX-7	---	---	See Parts Bulletin R-6 - MANA Rebuilt Rotary Engines

MIATA

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1990-93 MIATA (1.6L) (MT)	B61P-02-300	8AN1-02-310	
	(AT)	B64J-02-300	8AN1-02-310
1994 MIATA (1.8L)	BPE8-02-300	8ABC-02-310	

NEW ENGINE (LONG BLOCK) REPLACEMENT PROGRAM

MX-3

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1992-93 MX-3 (1.6L, I-4)	B66S-02-300	8AE2-02-310	
1994 MX-3 (1.6L, I-4)	B6DC-02-300	8ABD-02-310	
1992-94 MX-3 (1.8L, V-6)	K8Y1-02-300	8AE3-02-310	

MILLENNIA

YEAR / MODEL	ENGINE P/N	GASKET P/N	REMARKS
1994 MILLENNIA (2.3L, V-6 MILLER)	KJY2-02-300	8AK1-02-310A	
(2.5L, V-6)	KL47-02-300	8AK2-02-310	

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714) 727-1990



Category B	Applicable Model/s All HLA Models	Subject HLA NOISE AFTER LONG STORAGE	Bulletin No. 005/95
			Issued 3/28/95
			Revised

APPLICABLE MODELS/VINS

A primary cause of HLA noise is the result of oil draining back to the crankcase during long periods of storage. Category B of the applicable workshop manual contains diagnostic information to determine if the HLA is normal or requires replacement. The following information will update the procedure listed in the manual. Follow this procedure to determine if the HLA requires replacement. Instructions in the manual will be revised in the 1996 manual.

NOTE: Service Managers should make a reference to this bulletin in the applicable workshop manuals.

DIAGNOSTIC PROCEDURE

1. Check engine oil and replenish if necessary.

NOTE: If the oil is dirty or a service interval has been missed, replace the oil. Inform the customer of the need to change oil and that this is not covered under the normal vehicle warranty.

2. Run the engine to normal operating temperature.
3. Increase the idle to 2,000 - 3,000rpm and maintain this speed until HLA noise stops or 20 minutes.

NOTE: Do not exceed 20 minutes. Currently the workshop manual states 10 minutes, this will be revised in the 1996 workshop manual.

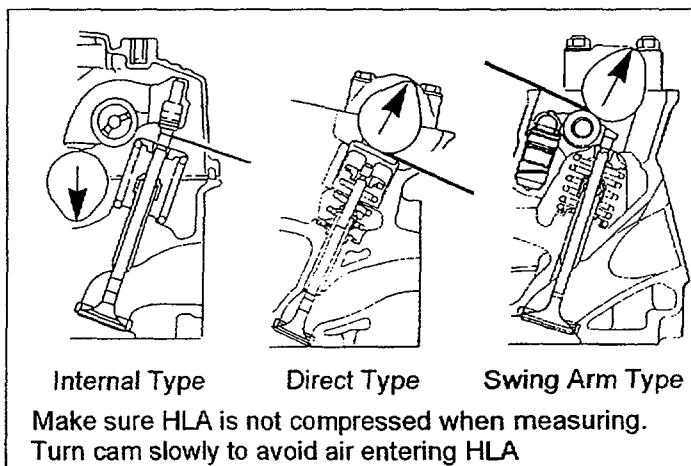
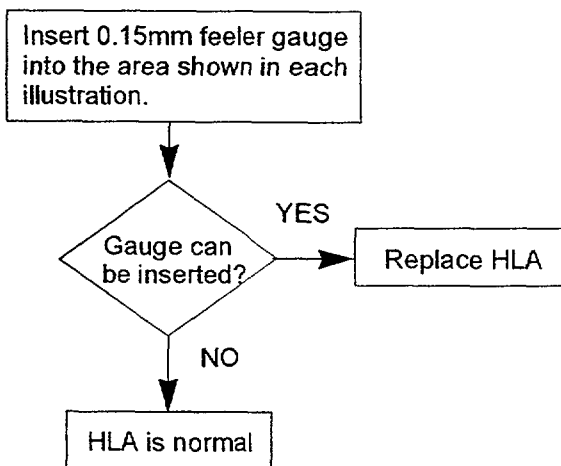
Watch the engine temperature during this operation. If the temperature exceeds normal range, reduce the engine speed to idle until the temperature returns to normal.

If the above method does not eliminate the HLA noise, the following may be the cause of the noise:

- a) Low oil pressure due to clogged oil pump strainer
- b) Oil pump internal problems
- c) Faulty HLA

Refer to the workshop manual for additional troubleshooting information for items "a" and "b" above.

If the HLA is suspected as the cause of the noise item "c", identify the faulty HLA and replace **only those that require replacement**. Use the method below to determine which HLA requires replacement.



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # 042423

T) A

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category B	Applicable Model/s 1988-'89 626/MX-6	Subject IMPROVED CYLINDER HEAD COVER GASKET	Bulletin No.	008/91
			Issued	6/20/91
			Revised	

DESCRIPTION

A cylinder head cover gasket with higher sealing capabilities was introduced into vehicle production as shown below.

If you receive a customer complaint of seepage, replace the gasket with Part No. F201 10 235D according to procedures in section "1" or "B" of your Workshop Manual.

VIN OF PRODUCTION CHANGE

Japan Made	JM1GD◆◆◆K1746266	January 1, 1989
USA Made	1YVGD31A8K5229795	February 16, 1989

PARTS INFORMATION

PART NUMBER		DESCRIPTION	INTERCHANGE- ABILITY
NEW	OLD		
F201 10 235D	F201 10 235C	Cylinder Head Cover Gasket	New ↔ Old

WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 76
Damage Code: 9E
Part No. of Main Cause: F201 10 235D
Quantity: 1
Operation No: B0403XRX
Labor Hour: 0.3 Hr.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

023463 Service Manager

Signature _____

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
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Category B	Applicable Model/s 1988-'91 626/MX-6 A/T	Subject IDLE VIBRATION IN DRIVE	Bulletin No. 010/91
			Issued 10/3/91
			Revised

DESCRIPTION

The steering wheel and seat on some 626/MX-6 vehicles may vibrate too much while idling in drive ("D"). The vibrations may be stronger when an electrical load is applied (headlamps, wipers, etc.). This may be caused by a combination of engine and radiator mounts.

To correct this problem, install new engine and radiator mounts using the Inspection and Repair Procedure below. New engine and radiator mounts are now installed during production (see VIN of Production Change below).

NOTE:

This Service Bulletin replaces Service Bulletins, Category 1, No. 042/89 and Category B, No. 001/90.

VIN OF PRODUCTION CHANGE

No. 1 & 2 Engine Mounts

1991	JM1GD◆◆◆◆M1902957	October 1, 1990
	1YVGD◆◆◆◆M5131853	November 7, 1990

Lower Radiator Mount

1989 Non-Turbo	JM1GD◆◆◆◆K1769601	June 1, 1989
	1YVGD◆◆◆◆K5245888	June 24, 1989
1991 Turbo	JM1GD◆◆◆◆M1901869	September 1, 1990
	1YVGD◆◆◆◆M5120718	October 2, 1990

INSPECTION & REPAIR PROCEDURE

1. If the steering wheel and seat vibrate too much at idle, perform the following steps.
2. Check if idle speed is 725-775 rpm in "P." If not, adjust it to 750 rpm with test connector grounded.
3. Install new lower radiator mounts.
4. Center the radiator stud in the damper of the radiator upper bracket. See Section "3" or "E" of the Workshop Manual.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

5. If necessary, move the A/C pipe away from the radiator. **Figure 1.**
6. If hood rattles, adjust the hood lock.
7. Install new No. 1 and No. 2 engine mounts. See Section "1" or "B" of the Workshop Manual.

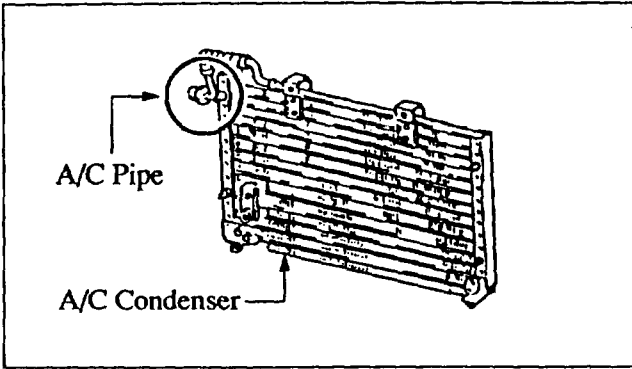


Figure 1: Check A/C Pipe at Area Shown

8. Remove and discard the muffler hangers and rubbers. **Figure 2.**
9. Install the hanger bolts into the body to prevent water entry.
10. If the steering wheel and seat still vibrate too much, ground the test connector. Adjust idle speed to 950–1000 rpm in "P." Disconnect the test connector.

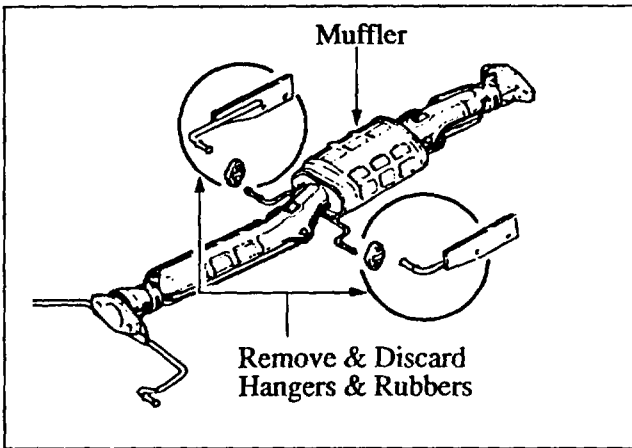


Figure 2: View of Muffler Hangers & Rubbers

PARTS INFORMATION

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
M002 39 040B	No. 1 Engine Mount	Non-Turbo
GJ28 39 040E	No. 1 Engine Mount	Turbo
GJ23 39 050C	No. 2 Engine Mount	All
F202 15 202B	Lower Radiator Mount	All

Number: 010/91	Date Issued: 10/3/91	Date Revised:
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WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 83
Damage Code: 97
Part No. of Main Cause: No. 1 Engine Mounts
 M002 39 040B (Non-Turbo)
 GJ28 39 040E (Turbo)
 No. 2 Engine Mounts
 GJ23 39 050C (All)
 Lower Radiator Mount
 F202 15 202B (All)
Operation No. & XX0376RX (Includes R&R of No. 1 & No. 2 Engine Mounts)
 Labor Hour: 1.0 Hr.
 XX0331R2 (All repairs except R&R of No. 1 & No. 2 Engine Mounts)
 0.4 Hr.

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category B	Applicable Model/s 1988-'91 626/MX-6 A/T	Subject IDLE VIBRATION IN DRIVE	Bulletin No. 010/91
			Issued 10/3/91
			Revised

DESCRIPTION

The steering wheel and seat on some 626/MX-6 vehicles may vibrate too much while idling in drive ("D"). The vibrations may be stronger when an electrical load is applied (headlamps, wipers, etc.). This may be caused by a combination of engine and radiator mounts.

To correct this problem, install new engine and radiator mounts using the Inspection and Repair Procedure below. New engine and radiator mounts are now installed during production (see VIN of Production Change below).

NOTE:

This Service Bulletin replaces Service Bulletins, Category 1, No. 042/89 and Category B, No. 001/90.

VIN OF PRODUCTION CHANGE

No. 1 & 2 Engine Mounts

1991	JM1GD◆◆◆◆M1902957	October 1, 1990
	1YVGD◆◆◆◆M5131853	November 7, 1990

Lower Radiator Mount

1989 Non-Turbo	JM1GD◆◆◆◆K1769601	June 1, 1989
	1YVGD◆◆◆◆K5245888	June 24, 1989
1991 Turbo	JM1GD◆◆◆◆M1901869	September 1, 1990
	1YVGD◆◆◆◆M5120718	October 2, 1990

INSPECTION & REPAIR PROCEDURE

1. If the steering wheel and seat vibrate too much at idle, perform the following steps.
2. Check if idle speed is 725-775 rpm in "P." If not, adjust it to 750 rpm with test connector grounded.
3. Install new lower radiator mounts.
4. Center the radiator stud in the damper of the radiator upper bracket. See Section "3" or "E" of the Workshop Manual.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

5. If necessary, move the A/C pipe away from the radiator. **Figure 1.**
6. If hood rattles, adjust the hood lock.
7. Install new No. 1 and No. 2 engine mounts. See Section "1" or "B" of the Workshop Manual.

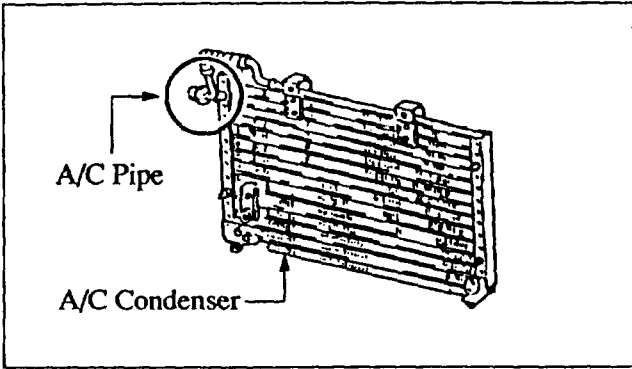


Figure 1: Check A/C Pipe at Area Shown

8. Remove and discard the muffler hangers and rubbers. **Figure 2.**
9. Install the hanger bolts into the body to prevent water entry.
10. If the steering wheel and seat still vibrate too much, ground the test connector. Adjust idle speed to 950–1000 rpm in "P." Disconnect the test connector.

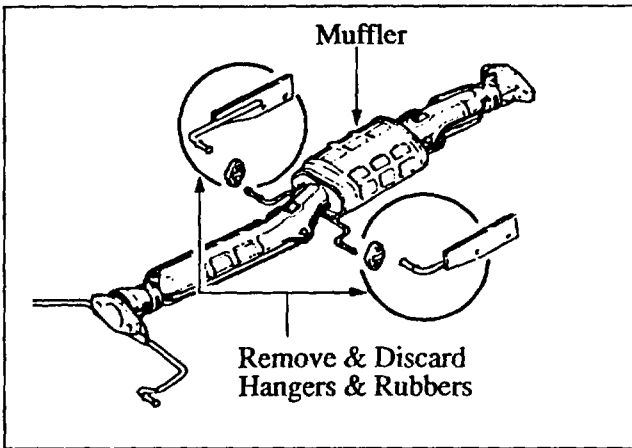


Figure 2: View of Muffler Hangers & Rubbers

PARTS INFORMATION

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
M002 39 040B	No. 1 Engine Mount	Non-Turbo
GJ28 39 040E	No. 1 Engine Mount	Turbo
GJ23 39 050C	No. 2 Engine Mount	All
F202 15 202B	Lower Radiator Mount	All

Number: 010/91	Date Issued: 10/3/91	Date Revised:
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WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 83
Damage Code: 97
Part No. of Main Cause: No. 1 Engine Mounts
M002 39 040B (Non-Turbo)
GJ28 39 040E (Turbo)
No. 2 Engine Mounts
GJ23 39 050C (All)
Lower Radiator Mount
F202 15 202B (All)
Operation No. & Labor Hour: XX0376RX (Includes R&R of No. 1 & No. 2 Engine Mounts)
1.0 Hr.
XX0331R2 (All repairs except R&R of No. 1 & No. 2 Engine Mounts)
0.4 Hr.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714) 727-1990

Category D	Applicable Model/s Various Models	Subject OIL PRESSURE SWITCH LEAKAGE	Bulletin No. 001/97
			Issued 07/01/97
			Revised

NOTE: This bulletin supersedes bulletin Cat. D 003/96.

APPLICABLE MODELS

See Vehicle Application Chart on page 2 of 2

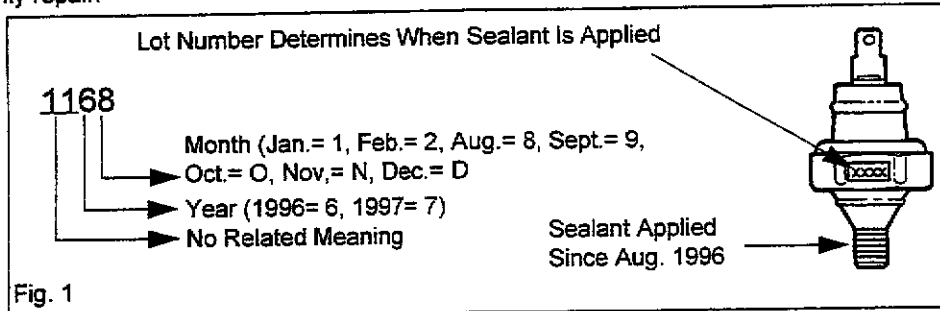
DESCRIPTION

Engine oil may leak from the oil pressure switch causing the engine oil light to illuminate. The type of switch has been changed to reduce the concern. During normal vehicle maintenance or customer concerns, inspect the switch and if necessary, repaired according to this bulletin.

REPAIR PROCEDURE

- Verify the condition.
 - If the oil pressure switch is leaking, proceed to step 2.
 - If the switch is not leaking (and the light illuminating), refer to the section D of the workshop manual for diagnostic and repair information.
- Replace the oil pressure switch with a new part.
 - Apply the sealant (listed below) to the threads and install the switch.

Sealant: Three Bond: TB1207D or Loctite: Ultra Black 598 (or equivalent)
- Verify repair.



PARTS INFORMATION

Part Number		Description	Qty.	Int.	Model
New	Old				
B367-18-501 (w/ sealant)	FS11-18-50X	Oil Pressure Switch	1	A	626, MX-6, Millenia, MX-3 (K8)
B367-18-501 (w/ sealant)	B367-18-501 (w/o sealant)	Oil Pressure Switch	1	A	323, MX-6, Millenia, MX-3 (B6)

Interchangeability Code "A" = The new part can be used in place of the old part, but the old part can not be used in place of the new part.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Number: 001/97	Date Issued: 07/01/97	Revised:
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WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A
 Symptom Code: 76
 Damage Code: 9A
 Causal Part No.: B367-18-501
 Quantity: 1
 Operation Number/Labor Hrs: T0504XRX / .04 Hrs. (Millenia)
 T0504XRX / .03 Hrs. (626/MX-6)
 T0504XRX / .03 Hrs. (MX-3)

VEHICLE APPLICATION CHART

Model	Mass Production Change
323 (B6)	—
Protege (BP, Z5)	8/1/96
Miata (B6, BP)	
626/MX-6 (FSD, KLD)	9/12/96
Millenia (KLD, KJS)	8/1/96
MX-3 (K8)	—

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714) 727-1990



Category D	Applicable Model/s Various Models	Subject OIL PRESSURE SWITCH LEAKAGE ENGINE OIL LIGHT ILLUMINATION	Bulletin No. 003/96
			Issued 09/23/96
			Revised

AFFECTED MODELS

See Vehicle Application Chart on page 2 of 2

DESCRIPTION

Engine oil may leak from the oil pressure switch causing the engine oil light to illuminate. The type of switch has been changed to reduce this concern.

Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

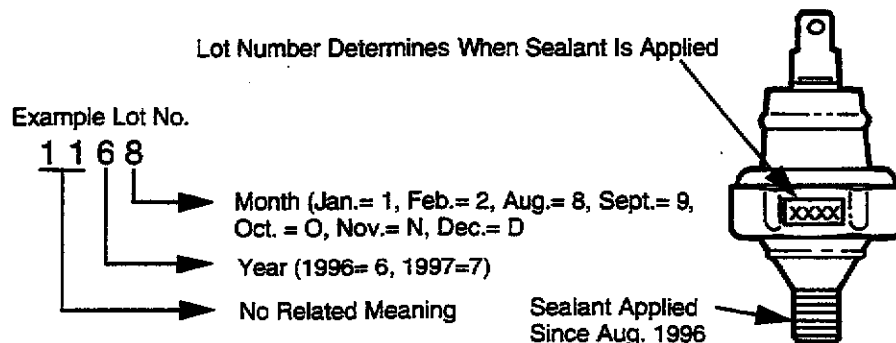
REPAIR PROCEDURE

- Verify the complaint.
 - If the oil pressure switch is leaking, proceed to step 2.
 - If the switch is not leaking (and the light illuminating), refer to the section D of the workshop manual for diagnostic and repair information.
- Replace the oil pressure switch with a new part (refer to Parts Information).
 - Apply the sealant (listed below) to the threads and install the switch.
Three Bond: TB1207D or Loctite: Ultra Black 598 (or equivalent)
- Verify repair.

PARTS INFORMATION

Part Number		Description	Qty.	Inter.	Model
New	Old				
B367-18-501 (w/sealant)	FS11-18-50X	Oil Pressure Sw.	1	A	626, MX-6, Millenia, MX-3 (K8)
B367-18-501 (w/sealant)	B367-18-501 (w/o sealant)	Oil Pressure Sw.	1	A	323, Protege, MX-5, MX-3 (B6)

Interchangeability Code "A" = The new part can be used in place of the old part, but the old part can not be used in place of the new part.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Number: 003/96	Date Issued: 09/23/96	Revised:
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WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A
Symptom Code: 76
Damage Code: 9A
Part Number Main Cause: B367-18-501
Quantity: 1
Operation Number/Labor Hrs: T0504XRX / .04 Hrs. (Millenia)
T0504XRX / .03 Hrs. (626/MX-6)
T0504XRX / .03 Hrs. (MX-3)

VEHICLE APPLICATION CHART

Model	Mass Production Change
323 (B6)	---
Protege (BP, Z5)	8/1/96
Miata (B6, BP)	
MX-3 (B6)	---
626/MX-6 (FSD, KLD)	9/12/96
Millenia (KLD, KJS)	8/1/96
MX-3 (K8)	---

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category E	Applicable Model/s All Models	Subject RECONDITIONED ANTI-FREEZE	Bulletin No. 001/90
			Issued 2/14/90
			Revised

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Ⓚ 4/90

DESCRIPTION

Mazda Motor Corporation (MC) does not recommend the use of reconditioned anti-freeze. Please use ethylene glycol base coolant for Mazda's aluminum engines.

Although it is available on the market, reconditioned anti-freeze might contain silicon particles, which could abrade the water pump seal, or it might contain other chemicals, alcohol or methanol, that may erode metal parts.

Since MC does not advocate the use of reconditioned anti-freeze, any problems caused by its use cannot be covered by the warranty.

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IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____
Service Manager Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category E	Applicable Model/s All Models	Subject PROPYLENE GLYCOL BASED COOLANT	Bulletin No. 001/94
			Issued 10/21/94
			Revised

AFFECTED MODELS

All Mazda Vehicles

DESCRIPTION

Mazda does not recommend propylene glycol coolants. Available information indicates the following characteristics regarding propylene glycol coolants:

- Provides less heat transfer
- May not provide adequate corrosion protection (to meet Mazda specifications)
- Freezing temperature is 10 - 20% higher than ethylene glycol based coolants

Mazda recommends ethylene glycol and water mixture. Customer's with questions regarding coolant should be directed to the information in Section 7 of their owner's manual.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

Parts Manager

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Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category E	Applicable Model/s All Models	Subject RECONDITIONED ANTI-FREEZE	Bulletin No. 002/96
			Issued 06/27/96
			Revised

AFFECTED MODELS

All Models

DESCRIPTION

Mazda does not recommend the use of reconditioned anti-freeze. Mazda recommends ethylene glycol base coolants for all Mazda aluminum engines.

Although reconditioned anti-freeze is available, this product may contain silicon particles which may be abrasive to the water pump seal. Additionally, reconditioned anti-freeze may contain chemicals (alcohol or methanol) that erode metal parts.

Service Managers should inform customers that Mazda does not recommend reconditioned anti-freeze and that problems (mechanical and otherwise) related to the use of reconditioned anti-freeze are not warrantable.

Caution: Anti-freeze is considered a hazardous and toxic substance. Handled and disposed must be done in accordance with local, state and federal laws.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
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Category F	Applicable Model/s 1988-89 626/MX-6	Subject INTERCHANGEABILITY OF E.G.I. CONTROL UNIT (E.C.U.)	Bulletin No. 001/90
			Issued 2/14/90
			Revised

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See 4/90

DESCRIPTION

Since the December, 1988 production, the material used for some of the terminals of the connector between the E.C.U. and the engine harness has been changed from gold to tin. In accordance with this design change, there is no interchangeability between new and old parts regarding the E.C.U. and the engine harness.

If a new E.C.U. is installed using an old engine harness, although the system itself will operate normally, galvanic corrosion may occur due to the different materials of the terminal plating. The corrosion at the terminals may result in poor driveability.

Thus, when you replace an E.C.U. or an engine harness, please be sure to check the generation of the parts and use a replacement part of the same generation.

E.C.U.:

	Federal Specifications		California Specifications	
	with A/T	with M/T	with A/T	with M/T
1988 626/MX-6	F201 18 881R		F203 18 881R	
1989 626/MX-6 Up to JM1GD★★★★K1737081 or 1YVGD★★★★K5223616	F262 18 881R	F201 18 881R	F204 18 881R	F208 18 881R
1989 626/MX-6 After JM1GD★★★★K1737082 or 1YVGD★★★★K5223617	ZPA2 18 881R	ZPA1 18 881R	ZPA4 18 881R	ZPA3 18 881R

Engine Harness:

1988 & 1989 626/MX-6 Up to JM1GD★★★★K1737081 or 1YVGD★★★★K5223616	GJ21 67 020S
1988 & 1989 626/MX-6 After JM1GD★★★★K1737082 or 1YVGD★★★★K5223617	GJ21 67 020U

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IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

Parts Manager

Number: 001/90	Date Issued: 2/14/90	Date Revised:
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NOTE:

To identify new and old parts, the color of the E.C.U. connectors and the engine harness has been changed from yellow to white at the time of the design change. When replacing an E.C.U. or an engine harness, check the color of the connector first and choose appropriate parts.

- Yellow: Old E.C.U. and engine harness
- White: New E.C.U. and engine harness

VIN OF PRODUCTION CHANGE

626/MX-6 w/o Turbo

Produced in Japan: JM1GD★★★★ K1737082 December 1, 1988
Produced in the U.S.A.: 1YVGD★★★★ K5223617 January 18, 1989

IMPORTANT:

This bulletin replaces Service Bulletin Category 4, no. 060/89. Please reference this bulletin when using your 1989 Service Bulletin file.

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Service Bulletin

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Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category F	Applicable Model/s All EFI Models (Except DIESEL)	Subject FUEL INJECTOR CLEANER	Bulletin No.	001/93
			Issued	1/11/93
			Revised	

DESCRIPTION

To improve fuel injection performance, Mazda has tested and approved a highly effective FUEL INJECTOR CLEANER. The kit and cleaner is recommended for all Mazda fuel injection systems. Mazda's Fuel Injector Cleaner uses a chemical "reducing agent" rather than the common solvent used in the typical aftermarket cleaners. As a result, in tests against aftermarket competitors, Mazda's cleaner outperformed all others and was the only one to restore the fuel injector's flow rate to the original factory specifications.

Dirty fuel injectors are an increasing common problem. Many cases are due to gasoline deposits such as gum, resin and sulfur. These deposits can cause stalling, difficult starting, rough idle and diminished power.

Mazda's Fuel Injector Cleaner and Fuel Injection Tool Kit are available through the Parts Department. Also available is a Fuel Injector Service Brochure that is free of charge from Helm, Inc. (1-800-782-4356). This brochure outlines to your customer the importance and advantages of a clean fuel injection system. Refer to the following part numbers when ordering:

<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>REMARKS</u>
Fuel Injector Cleaner	0000 77 2019	case of 12 cans
Tool Kit	0000 77 2026	w/ instructions (Req'd for use with the cleaner.)
Fuel Injector Service Brochures	9999 95 043N 92	QTY: 1 package = 50 brochures

We recommend that you offer Mazda's Fuel Injector Cleaner as part of your routine maintenance menu. Mazda's fuel injectors should be cleaned every 15,000 miles.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

..... Service Manager

Parts Manager

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Service Bulletin

LJA

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category F	Applicable Model/s All EFI Models (Except DIESEL)	Subject FUEL INJECTOR CLEANER	Bulletin No. 001/93
			Issued 1/11/93
			Revised

DESCRIPTION

To improve fuel injection performance, Mazda has tested and approved a highly effective FUEL INJECTOR CLEANER. The kit and cleaner is recommended for all Mazda fuel injection systems. Mazda's Fuel Injector Cleaner uses a chemical "reducing agent" rather than the common solvent used in the typical aftermarket cleaners. As a result, in tests against aftermarket competitors, Mazda's cleaner outperformed all others and was the only one to restore the fuel injector's flow rate to the original factory specifications.

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<u>DESCRIPTION</u>	<u>PART NUMBER</u>	<u>REMARKS</u>
Fuel Injector Cleaner	0000 77 2019	case of 12 cans
Tool Kit	0000 77 2026	w/ instructions (Req'd for use with the cleaner.)
Fuel Injector Service Brochures	9999 95 043N 92	QTY: 1 package = 50 brochures

We recommend that you offer Mazda's Fuel Injector Cleaner as part of your routine maintenance menu. Mazda's fuel injectors should be cleaned every 15,000 miles.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

..... Service Manager

Parts Manager

Index # **032586**

Service Bulletin

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Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
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Category F	Applicable Model/s All Models	Subject PROPER PREPARATION FOR STATE EMISSION INSPECTION & MAINTENANCE TEST	Bulletin No. 005/93
			Issued 4/28/93
			Revised

DESCRIPTION

Some vehicles with properly functioning emission control systems may fail certain states' emission inspection and maintenance test(s) (tailpipe emission tests).

In order to avoid the above mentioned condition, make sure the following items are observed before conducting the test:

- Engine should be warmed up but not overheating (as indicated by gauge or warning light).
- All electrical loads and A/C should be turned off.
- For 5-speed models: Neutral range should be selected.
- For automatic transmission models: "N" or "P" range should be selected.

NOTE: All Mazda vehicles meet the U.S. EPA and California emission standards when tested under the EPA certification test procedure.

PREPARATION PROCEDURE

Perform the following before conducting the emission inspection and maintenance test:

1. Before testing, bring the engine's operating temperature to normal by operating the engine for approximately 3 minutes at 2500-3000 rpm.

NOTE: When the cooling fan has cycled on and off twice, the engine has reached its normal operating temperature.

2. Test the vehicle as soon as possible after the engine has warmed up. Keep the engine at operating temperature during the test.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
..... Service Manager

Signature _____
Parts Manager

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Service Bulletin

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Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category F	Applicable Model/s (listed below)	Subject REMANUFACTURED EGI CONTROL UNIT PROGRAM	Bulletin No. 008/90 Issued 12/19/90 Revised
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DESCRIPTION

In an effort to reduce the cost of repair, remanufactured EGI control units were available effective July 5, 1989. These control units replace new EGI control units when replacement is necessary for the following models: '86-'91 323/Protegé, '86-'90 626/MX-6, '88-'90 929, '89-'91 MPV, '90-'91 MX-5 and '84-'91 RX-7.

NOTE:

New EGI control units will NOT be available as the remanufactured unit will supersede the new. The units must be returned in accordance with the procedures prescribed in Parts Bulletin II/48E or E-9-89. Failure to do so will result in core forfeiture. These procedures include, but are not limited to, completion of the "Core Return Request" and "Core Credit Request." This information is critical to the program's success. **Do not include the bracket when returning the core. The bracket should be used when installing the remanufactured control unit. Please return cores WITHIN 7 DAYS to insure continued availability of remanufactured units.**

PARTS INFORMATION

323/Protegé Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
B601 18 881R	'86-'87 All	B601 18 880C
B6B1 18 881R	'88 Non-Turbo FED	B6B1 18 880B
B6B2 18 881R	'88 Non-Turbo CA	B6B2 18 880A
B6B3 18 881R	'88-'89 Turbo FED	B6B3 18 880C
B6B4 18 881R	'88-'89 Turbo CA	B6B4 18 880B
B6K1 18 881R	'89 Non-Turbo FED	B6K1 18 880
B6K2 18 881R	'89 Non-Turbo CA	B6K2 18 880
BP01 18 881R	'90-'91 Protecge, SOHC	---
BP10 18 881R	'90-'91 Protecge, DOHC	BP10 18 881A-C
B61K 18 881R	'90-'91 323	---
BP47 18 881R	'91 Protecge, SOHC 4WD	---
ZPA5 18 881R	'90-'91 Protecge, DOHC	BP10 18 881D

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IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

Service Manager

Parts Manager

Number: 008/90	Date Issued: 12/19/90	Date Revised:
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626/MX-6 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
FEH1 18 881R	'86-'87 626 Non-Turbo	FEH1 18 880C FEH4 18 880
FEH5 18 881R	'86-'87 626 Turbo	FEH5 18 880C
F220 18 881R	'88-'89 626/MX-6 Turbo FED, A/T & M/T, 2WS	F220 18 880G
F222 18 881R	'88-'89 626/MX-6 Turbo CA, A/T & M/T, 2WS	F222 18 880J
F225 18 881R	'88-'89 626/MX-6 Turbo FED, 4WS	F225 18 880B
F226 18 881R	'88-'89 626/MX-6 Turbo CA, 4WS	F226 18 880B
F285 18 881R	'90 626/MX-6 Non-Turbo FED, M/T (Japan Make)	---
F286 18 881R	'90 626/MX-6 Non-Turbo FED, A/T (Japan Make)	---
F287 18 881R	'90 626/MX-6 Turbo FED, 2WS (Japan Make)	---
F289 18 881R	'90 MX-6 Turbo, 4WS (Japan Make)	---
F294 18 881R	'90 626/MX-6 Non-Turbo CA, M/T (Japan Make)	---
F295 18 881R	'90 626/MX-6 Non-Turbo CA, A/T (Japan Make)	---
F296 18 881R	'90 626/MX-6 Turbo CA, 2WS (Japan Make)	---
F298 18 881R	'90 626/MX-6 Turbo CA, 4WS (Japan Make)	---
F290 18 881R	'90 626/MX-6 Non-Turbo FED, M/T (USA Make)	---
F291 18 881R	'90 626/MX-6 Non-Turbo FED A/T (USA Make)	---
F292 18 881R	'90 626/MX-6 Turbo FED (USA Make)	---
F2B5 18 881R	'90 626/MX-6 Non-Turbo CA, M/T (USA Make)	---
F2B6 18 881R	'90 626/MX-6 Non-Turbo CA, A/T (USA Make)	---
F2B7 18 881R	'90 626/MX-6 Turbo CA, 2WS (USA Make)	---

NOTE:

Japan Make: vehicle produced in Japan (refer to VIN)

USA Make: vehicle produced in USA (refer to VIN)

Number: 008/90	Date Issued: 12/19/90	Date Revised:
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626/MX-6 Models (cont'd)

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F201 18 881R	'88 626/MX-6 Non-Turbo FED, A/T & M/T	F201 18 880L
F201 18 881R	'89 626/MX-6 Non-Turbo FED, M/T Up to: JM1GD◆◆◆◆-K1737082 1YVGD◆◆◆◆-K5223617	F201 18 880L
ZPA1 18 881R	'89 626/MX-6 Non-Turbo FED, M/T From: JM1GD◆◆◆◆-K1737083 1YVGD◆◆◆◆-K5223618	F201 18 880M
F203 18 881R	'88 626/MX-6 Non-Turbo CA, A/T & M/T	F203 18 880L
F203 18 881R	'89 626/MX-6 Non-Turbo CA, M/T Up to: JM1GD◆◆◆◆-K1737082 1YVGD◆◆◆◆-K5223617	F203 18 880L
ZPA3 18 881R	'89 626/MX-6 Non-Turbo CA, M/T From: JM1GD◆◆◆◆-K1737083 1YVGD◆◆◆◆-K5223618	F203 18 880M
F204 18 881R	'89 626/MX-6 Non-Turbo CA, A/T Up to: JM1GD◆◆◆◆-K1737083 1YVGD◆◆◆◆-K5223617	F204 18 880A
ZPA4 18 881R	'89 626/MX-6 Non-Turbo CA, A/T From: JM1GD◆◆◆◆-K1737082 1YVGD◆◆◆◆-K5223618	F204 18 880B
F262 18 881R	'89 626/MX-6 Non-Turbo FED, A/T Up to: JM1GD◆◆◆◆-K1737082 1YVGD◆◆◆◆-K5223617	F206 18 880A
ZPA2 18 881R	'89 626/MX-6 Non-Turbo FED, A/T From: JM1GD◆◆◆◆-K1737083 1YVGD◆◆◆◆-K5223618	F206 18 880B

929 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
JEY6 18 881R	'88-'89 FED	JE06 18 880G
JEY7 18 881R	'88-'89 CA	JE07 18 880C
JE27 18 881R	'90 DOHC (929S), FED	---
JE28 18 881R	'90 DOHC (929S), CA	---
JE39 18 881R	'90 SOHC, FED	---
JE40 18 881R	'90 SOHC, CA	---

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MPV Models (see note below)

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
JE15 18 881R	'89 3.0 Liter	JE15 18 880F
JE43 18 881R	'90-'91 MPV 3.0 Liter	JE43 18 881
ZPA9 18 881R	'91 MPV 3.0 Liter	JE43 18 881A

NOTE:

'89 2.6 Liter uses G601 18 881A, which is NOT included in the remanufactured EGI control unit program.

MX-5 Miata Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
B61P 18 881R	'90-'91 Miata M/T	B61P 18 881A
B64J 18 881R	'91 Miata A/T	B64J 18 881

RX-7 Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
N304 18 881R	'84-'85 GSL-SE	N304 18 880A
N3Y6 18 881R	'86-'87 Non-Turbo	N326 18 880 N3Y6 18 880
N332 18 881R	'87 Turbo	N332 18 880
N327 18 881R	'88 Non-Turbo Coupe	N327 18 880
N333 18 881R	'88 Turbo	N333 18 880
N338 18 881R	'88 Convertible	N338 18 880
N350 18 881R	'89-'91 Non-Turbo Coupe CA	N350 18 880
N351 18 881R	'89-'91 Non-Turbo Coupe FED	N351 18 880
N352 18 881R	'89-'91 Convertible CA	N352 18 880
N353 18 881R	'89-'91 Convertible FED	N353 18 880
N370 18 881R	'89-'91 Turbo	N370 18 880

WARRANTY INFORMATION

Remanufactured EGI units are warranted for the first 12 months (regardless of mileage) from the date of installation by a Mazda dealer or sold over the counter. Remanufactured EGI control units installed as a part of a warranty repair will be warranted for the remainder of the vehicle's emission warranty.

Service Bulletin

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Category F	Applicable Model/s All Models	Subject DRIVEABILITY CONCERNS RELATED TO FUEL VOLATILITY	Bulletin No. 013/96
			Issued 05/24/96
			Revised

APPLICABLE MODELS

All Models

DESCRIPTION

Some driveability concerns are related to fuel volatility. This bulletin briefly describes some of the symptoms and causes.

SYMPTOM

1. Unleaded gasoline with volatility too high for ambient temperatures may cause the following concerns during warmed-up driving and hot restarts:

- No Start
- Rough Idle
- Surging
- Vapor Lock

NOTE: These symptoms are most typical during spring and summer months when winter gasoline may still be available.

2. Unleaded gasoline with volatility too low for ambient temperatures may cause the following concerns:

- Long Crank Time
- Rough Idle
- Hesitation
- Poor Throttle Response
- Induction Backfire
- Stalls
- Similar symptoms caused by lean operation during initial cold starts and drive-away.

NOTE: Gasoline's volatility is higher (vaporizes easily) in the winter and lower in the summer.

REPAIR PROCEDURE

1. Verify the concern.
2. Perform the diagnostics in section F of the workshop manual.

NOTE: Often, no trouble codes are found if the concern(s) are caused by gasoline.

3. If the concern(s) is still present, the fuel volatility may be the cause. Refer to the appropriate condition on page 2 for diagnostic information.

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WARM ENGINE - WARM / HOT AMBIENT TEMPERATURES

- Recommend that the customer try to identify a source of fresh, good quality gasoline. A station which receives frequent shipments of fuel will likely be a source of fresh, good quality gasoline.
- Using such gasoline may be more appropriate for these ambient temperatures.

COLD ENGINE - COLD AMBIENT TEMPERATURES

- Advise customer's using a higher than recommended octane to switch to the recommendations in the owner's manual.
 - Do not advise using a higher octane than recommended for that engine. Premium octane grade unleaded gasoline does not provide better fuel economy or performance than regular octane grade gasoline. **Only** advise using a higher octane grade gasoline to avoid potentially damaging "spark knock" or "ping." Recommend this octane only after diagnostic procedures are ineffective.
 - Advise customers using the recommended octane grade unleaded gasoline to try another brand.
 - If customers are using a gasoline containing an oxygenate, advise them to try another brand of oxygenated gasoline. If possible, advise customers in this category to try a gasoline which is not oxygenated.
- NOTE:** The oxygenate type should be posted on the pumps.

GENERAL INFORMATION

- No fuel additives will resolve this concern(s).
- Always use a gasoline with a "In-tank System Deposit Control" detergent that helps maintain proper operation of fuel injectors and keeps valves clean.
- This information may be used on any model year vehicles exhibiting these concerns.

Service Bulletin

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Category F	Applicable Model/s All Models	Subject CALIFORNIA REFORMULATED GASOLINE (Effect On Vehicle Performance, Fuel Economy)	Bulletin No. 014/96
			Issued 06/06/96
			Revised

DESCRIPTION

This bulletin is issued to provide service personnel with information to answer commonly asked questions regarding California Reformulated Gasoline (CaRFG). Please use this information to address customer concerns.

BACKGROUND

- The purpose of CaRFG is to reduce emissions.
- CaRFG replaces the traditionally high pollution generating gasoline distributed in Northern California.
- CaRFG improves the reformulated gasoline distributed in Southern California.

The California Air Resources Board (CARB) expects smog forming emissions from motor vehicles to decrease by approximately 15% due to CaRFG.

MAZDA'S POSITION ON CaRFG

- CaRFG does not affect the new vehicle or emission warranty.
- Mazda recommends the use of CaRFG as a cost effective means of reducing emissions to provide cleaner air.
- Vehicle and laboratory testing of CaRFG ensures that CaRFG is acceptable for customer use.
- Based on the above studies, no unusual vehicle performance concerns are expected.

DIFFERENCE BETWEEN CaRFG AND OTHER GASOLINES

CaRFG consists of the same basic components as other gasoline but, pollutes less due to cleaner burning components and fewer toxic components. These components provide:

- Reduced aromatic hydrocarbons to form less smog emissions.
- Added oxygenates to reduce emissions.
- Decreases the amount of vehicle fuel evaporation.
- Lower sulfur to provide more efficient catalytic converter operation.
- Reduced benzene by approximately 50%.

CaRFG AFFECT ON VEHICLE PERFORMANCE

Properly blended CaRFG should have no adverse affect on vehicle performance, engine durability or fuel system components. Basic components of CaRFG are not significantly different from other cleaner burning gasoline used in the United States for several years.

If the vehicle is a California calibrated 1996 or later model, the vehicle will:

- Operate satisfactorily on gasoline in the other 49 states but the emission control system performance may be effected.
- Using gasoline other than CaRFG may cause the Malfunction Indicator Light (MIL) to illuminate or cause the vehicle to fail an emission test.

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CaRFG AFFECT ON FUEL ECONOMY

A very small reduction in MPG (less than one-half MPG) is possible if the customer uses gasoline without oxygenates. This is attributed to the lower energy content of oxygenates, which have been included in all Southern California gasoline since January 1995 and some gasoline since the 1970s.

NOTE: Driving habits, vehicle maintenance and weather conditions all affect fuel economy. Fuel economy may vary more than 1 MPG from one fill up to the next using the same gasoline.

NO SPECIAL ADDITIVES ARE NECESSARY WHEN USING CaRFG.

It is not necessary to add anything to the vehicle's fuel tank after CaRFG is purchased from the service station. California regulations require deposit control additives in CaRFG to avoid port fuel injector and valve deposits.

OLDER VEHICLE'S PERFORMANCE USING CaRFG

Older vehicles are expected to operate satisfactorily on CaRFG because these vehicles have been operating on gasoline similar to CaRFG for a number of years.

However, considerable testing indicates that older, high mileage vehicles are more susceptible to fuel system problems due to age and normal wear and tear regardless of whether they are operated on conventional or CaRFG gasoline.

NOTE: Owners of older vehicles are encouraged to have their vehicle's fuel systems inspected periodically and to follow their vehicle manufacturers recommendations regarding vehicle maintenance.

ODOR EMMITTED FROM CaRFG

CaRFG is not expected to smell different from gasoline most vehicles currently use. If unusual odor is noticed, it is probably be from oxygenates. Most service stations use vapor recovery systems to minimize gasoline vapor release to the atmosphere during refueling.

ADDITIONAL INFORMATION REGARDING CaRFG

Customers can receive more information on CaRFG from the California Air Resources Board at the following toll-free number: 1-800-922-7349.

Service Bulletin

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MAZDA

Category F	Applicable Model/s See Below	Subject VANE TYPE AIR FLOW METER CONNECTOR HANDLING	Bulletin No. 028/96 Issued 12/26/96 Revised
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APPLICABLE MODELS

All models with vane type air flow meters.

DESCRIPTION

Vane type air flow meters disconnected during driveability problem diagnostics may become damaged during connector disconnection.

To avoid unnecessary replacement, follow the procedures below to properly remove vane type air flow meter connections.

Service Managers should place a copy of this bulletin in section F of the applicable workshop manuals.

NOTE: Air flow meter replacement due to connector circuit damage may result in warranty claim denial.

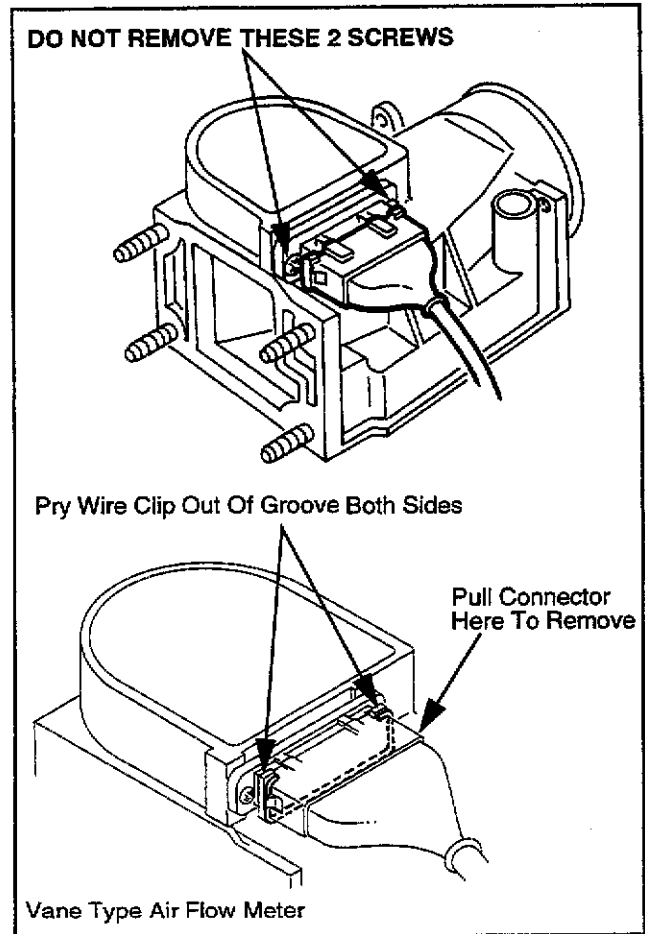
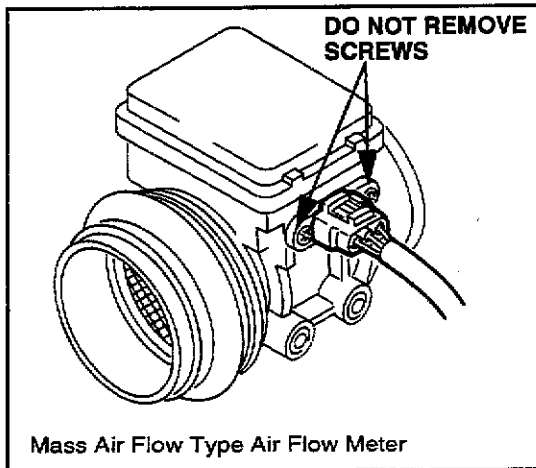
CONNECTOR REMOVAL PROCEDURE

CAUTION: DO NOT remove the two (2) screws on the air flow meter. Removing these screws and pulling on the connector will damage the air flow meter circuitry.

This instruction applies to other type air flow meters as well.

1. Remove wire clip from groove at both sides using a small screwdriver.
2. Remove connector.

NOTE: Connector may be hard to remove, apply steady force on connector body **NOT** harness wiring.



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Category F (01)	Applicable Model/s See Below	Subject TAS (THROTTLE ADJUSTMENT SCREW) ADJUSTMENT	Bulletin No. 014/98
			Issued 12/09/98
			Revised

APPLICABLE MODEL(S)/VINS

All fuel injected models.

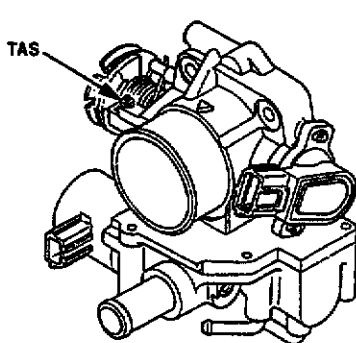
DESCRIPTION

Fuel injected vehicles with idle speed control motors should NOT have the TAS (Throttle Adjustment Screw) adjusted for any reason. Refer to illustration below. The TAS functions as a stopper when the throttle valve is fully closed. During production, the TAS is accurately set by measuring the airflow rate past a closed throttle plate. Any adjustment to this screw will affect PCM control of idle speed.

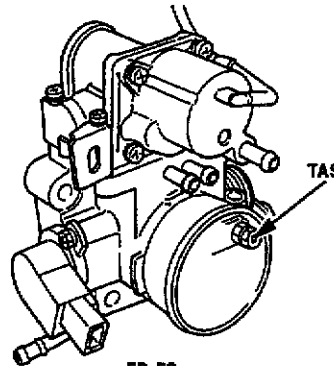
Customers complaining of low idle speed should have their vehicle repaired using the Workshop Manual.

Note

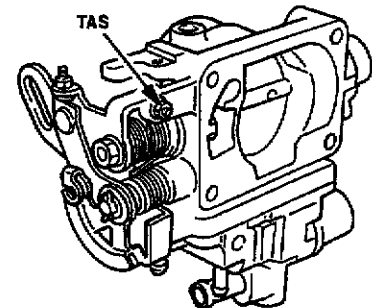
- Tampering with this screw will affect the idle contact switch and/or throttle position sensor settings. This can lead to rough idle and difficulty in diagnosis of idle quality concerns.
- The TAS locations on the examples below may vary depending on model year of vehicle.



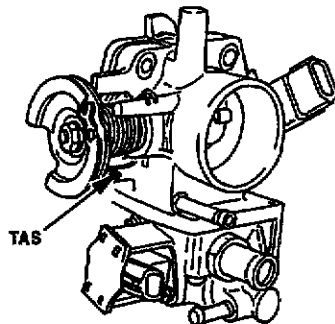
B6, BF, ZM



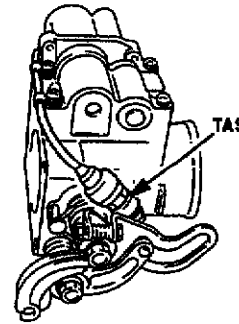
FP, FS



KL



FP, FS



F2, G6

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Service Bulletin

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Category G	Applicable Model/s All Models	Subject MAINTENANCE FREE BATTERY DIAGNOSTIC AND CHARGING PROCEDURE	Bulletin No. 001/97 Issued 04/08/97 Revised 06/19/97
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NOTE: The information in this bulletin has changed. Replace the original bulletin with this revised copy.

APPLICABLE MODELS

All Models

DESCRIPTION

The information in this bulletin describes:

- Conditions that may lead to battery failure
- Correct servicing and inspection procedures
- Samples of current inspection sheets and maintenance records
- Requirements for Warranty submission

TABLE OF CONTENTS

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9. Warranty Claim Submission	9
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Attachments: Sample of battery Maintenance Records and Battery Check Sheet

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1. CONDITIONS LEADING TO BATTERY PROBLEMS

If a customer complains of poor battery performance (i.e. slow start, no start) perform the following quick check prior to detailed diagnostics or part replacement.

Item	Check
Condition Prior To Battery Problem	Door Open, Lights Left On, Radio On Etc.
Vehicle Condition	Add-On Accessories Installed Properly (Alarms, Cellular Phones, Stereo Amp. Etc.)
Battery Condition	Correct Fluid Level. Check Indicator "Eye" (If Equipped) And Note Color
Cable Condition	Must Be Free Of Corrosion, Terminals Tight
Vehicle Wiring Grounds	Check By Voltage Drop Measures
Alternator	Check Alternator Output (Between 13.5 And 15.5 Volts)
Alternator Drive Belt	Must Be Set To Correct Tension And In Good Condition

A preliminary check of these items will, in most cases, reveal the problem without time consuming detailed diagnostics.

NOTE: As a result of the product testing on returned parts, 60% of the returned alternators and 20% of the returned batteries are classified NTF (No Trouble Found).

2. BATTERY MAINTENANCE RESPONSIBILITY

Mazda Motor of America has instituted a comprehensive battery maintenance program at port facilities to maintain peak battery performance until delivery to the dealer. After wholesale delivery, it is the dealer's responsibility to maintain the condition of the batteries in new Mazda vehicles while in inventory and at the time of new car delivery.

Batteries must be periodically recharged to maintain a measured 12.4 volts or better. Loss of battery voltage is dependent on ambient temperature, demo use and time in inventory.

Mazda recommends voltage checks at one month intervals and just prior to retail delivery. The maintenance and inspection process will vary based on dealer inventory and environmental factors the affect battery life (i.e. extreme temperatures).

3. BATTERY MAINTENANCE RECORD

Mazda has installed a "Battery Check Tag" on the mirror of all vehicles (except B-Series and Miata) starting June 1, 1996. The tag will document the maintenance efforts of the port personnel and subsequent maintenance at the dealership.

A sample of the "Battery Check Tag" is attached to this bulletin. **Do not remove this tag from the mirror until retail delivery.**

The dealership is responsible for entering the vehicle's battery voltage onto the tag on the following occasions:

- Wholesale Delivery
- Planned Dealer Inventory Maintenance
- Retail Delivery

NOTE: Entries must be identified by the dealership employee number for quality tracking purposes. After retail delivery, the tag must be kept with the vehicle's service file.

If a battery claim is made on the vehicle while in inventory, a copy of the "Battery Check Tag" must be attached to the repair order.

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4. SERVICING EQUIPMENT REQUIREMENTS

In order to accurately and quickly check the condition of maintenance-free batteries, you should have available a digital volt meter capable of reading to 0.01V and a battery tester utilizing load cells (VAT 40, or equivalent) or electronic testing (Midtronics Power Sensor Plus).

- VAT 40 testers require the battery to be charged to 12V or higher.
- Midtronics testers require 10.2V or higher to test and provides an indicator lamp confirming that the battery is OK to test. See Service Bulletin ST, 003/95 for Midtronics purchase information.

5. CHARGING AND LOAD TESTING INFORMATION

The chart below gives specific charging amps, times and load test amps for 1993 - 97 vehicles.

Refer to the applicable workshop manual for other model year vehicles and additional troubleshooting information.

FACTORY INSTALLED BATTERIES

Model	Battery	Max. Charge Current (AMP)	Charge Time (Min.)	Load Test (AMP)
Protege / 323	55D23L	30	30	180
626 / MX-6	GROUP58R	30	30	174
929	55D23L	30	30	180
	80D26L	35	30	195
Millenia	75D26L	35	30	195
	80D26L			
MX-3	50D20L	25	30	150
	55D23L	30	30	180
	65D23L	30	30	165
MX-5 Miata	S46A24L	20	30	105
RX-7	55D23L	30	30	180
	65D23L	30	30	165
	75D26L	35	30	195
MPV	50D20L	25	30	150
	80D26L	35	30	195
B-Series	50D20L	25	30	150
	75D26L	35	30	195
	80D26L	35	30	195
1994-97 B-Series	BX-58C	35	20	270
	BXT-65-650	35	20	325
Navajo	BXT-65-650	35	20	325

6. BATTERY DIAGNOSTIC PROCEDURES (USING LOAD TESTER VAT-40 or equivalent on Lead-Acid Batteries)

1. Start engine and confirm that the alternator warning light is not illuminated.

NOTE: If the warning light is illuminated, the self-diagnostic function is operating. Check the alternator and related harness. Refer to the instructions in section G of the workshop manual.

2. Check the alternator belt tension and condition.
3. Turn the vehicle headlights "ON." Check the engine belt and alternator bearing for unusual noise by raising and lowering the engine RPM.
4. Turn the ignition and all accessories "OFF."
5. Connect the load tester.
6. Apply the load tester referring to the table on page 3 and the flow charts on page 5 or 7 (depending on the test equipment. The final voltage must be above the minimum value shown in the table. Record the voltage on the "Battery Check Sheet."
 - If the voltage is more than the minimum, measure the open circuit voltage. Charge the battery is less than 12.4V.
 - If the voltage is less than the minimum, "quick" or "boost" charge the battery for 30 minutes.

CAUTION: DO NOT "quick" or "boost" charge MX-5 Miata batteries. These batteries are gel type and must not be charged at more than 20 amps.

- Perform a load test again. If the battery is still below the minimum, replace the battery and proceed to step 8.

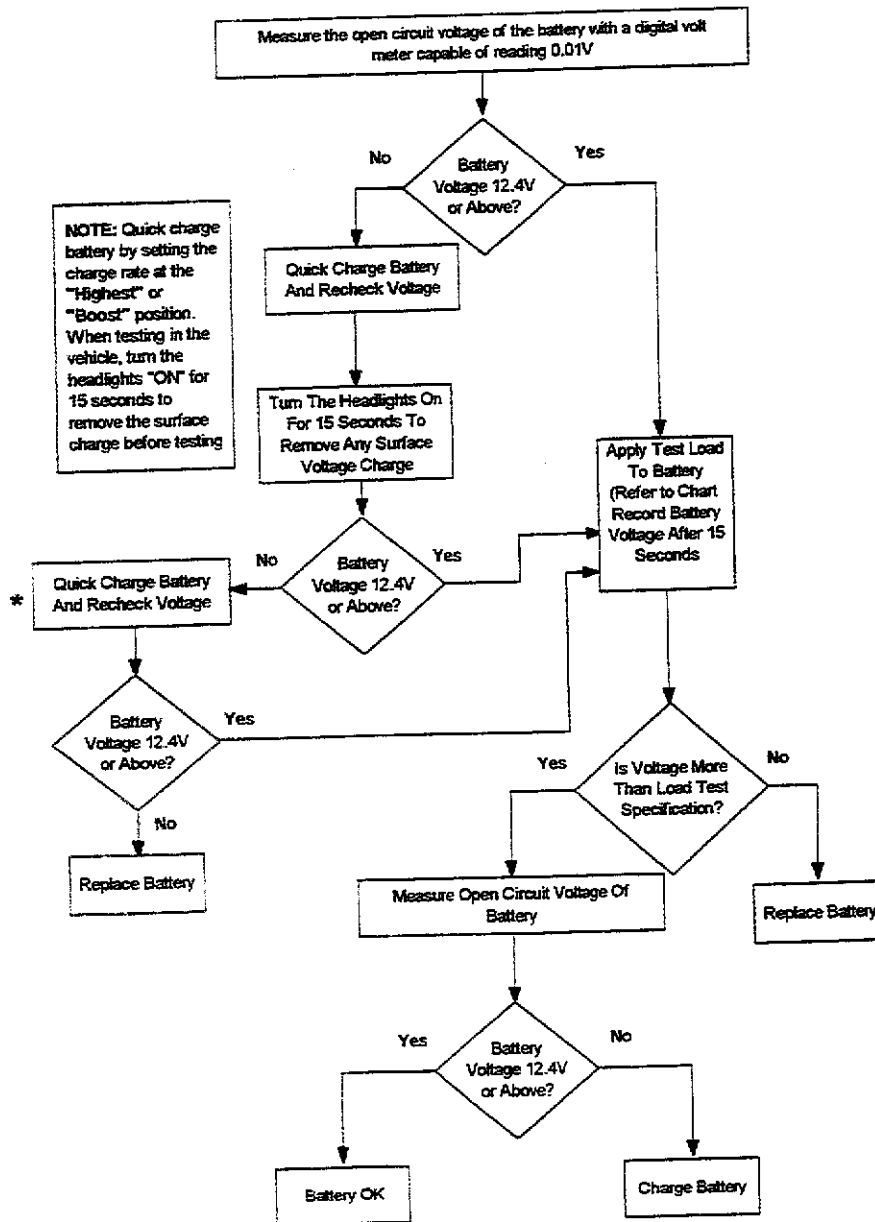
7. Start the vehicle and raise the RPM to 2500.
8. Connect the battery load tester and apply a load equal to the alternator rating.
 - If the voltage is 13.5V to 15.0V the alternator and battery are functioning correctly.
 - If the voltage is more than 15.0V replace the alternator.
 - If the voltage is 13.5V or under, check for resistance between the battery and terminals "B" and "S." Inspect the harness for damage. Repair as necessary. Retest the alternator. If the voltage is still less than 13.5V

CAUTION: Diagnostic procedures for lead-acid battery performance are different for those used for maintenance-free batteries (lithium hybrid batteries). Incorrect diagnostics will result in false readings and unnecessary battery replacement is the wrong procedure is followed.

Use "Flow Chart" on Page 5

6.1 BATTERY DIAGNOSTIC PROCEDURES (Using Load Tester VAT-40 or Equivalent on Maintenance-Free Batteries)

Diagnostic procedures used for testing lead-acid batteries provide false reading leading to unnecessary replacement if used on maintenance-free batteries. The information below is provided for diagnosing maintenance-free batteries.



***CAUTION : DO NOT BOOST OR QUICK CHARGE MX-5 MIATA "GEL TYPE" BATTERIES.**

6.2 BATTERY DIAGNOSTIC PROCEDURES (Using Midtronics PowerSensor Plus Tester on Lead-Acid Batteries)

1. Connect the Midtronics PowerSensor Plus tester, if low voltage is found (less than 10.2V) charge the battery for two (2) hours and recheck. If the voltage is greater than 10.2V, test battery condition without precharging. If low voltage is still found after a two (2) hour charge, replace the battery according to the information in the warranty section of this bulletin.
2. If the tester indicates that the battery is not at fault, refer to the appropriate workshop manual or BETM (Body Electrical Troubleshooting Manual) for troubleshooting and repair information.

The following are additional Midtronics PowerSensor Plus tester features:

Position "A" will test for an open circuit (bad cell or broken internal circuit). This is indicated by a "Red" LED light. If an open circuit is indicated, replace the battery using the criteria described in the warranty section of this bulletin.

Position "B" a "green" LED indicated that the battery has at least 10.2V and can therefore be tested without pre-charging. This position requires that the CCA rating (for the specific battery type under test) be set on the Midtronics PowerSensor Plus Tester dial. Refer to the attached chart (on page 3 of 9) to determine actual CCA. The Midtronics PowerSensor Plus Tester then determines actual CCA by measuring the condition of the battery voltage and plate condition.

Position "C" measures the alternator output when the engine is running and also indicated "Open Circuit Voltage".

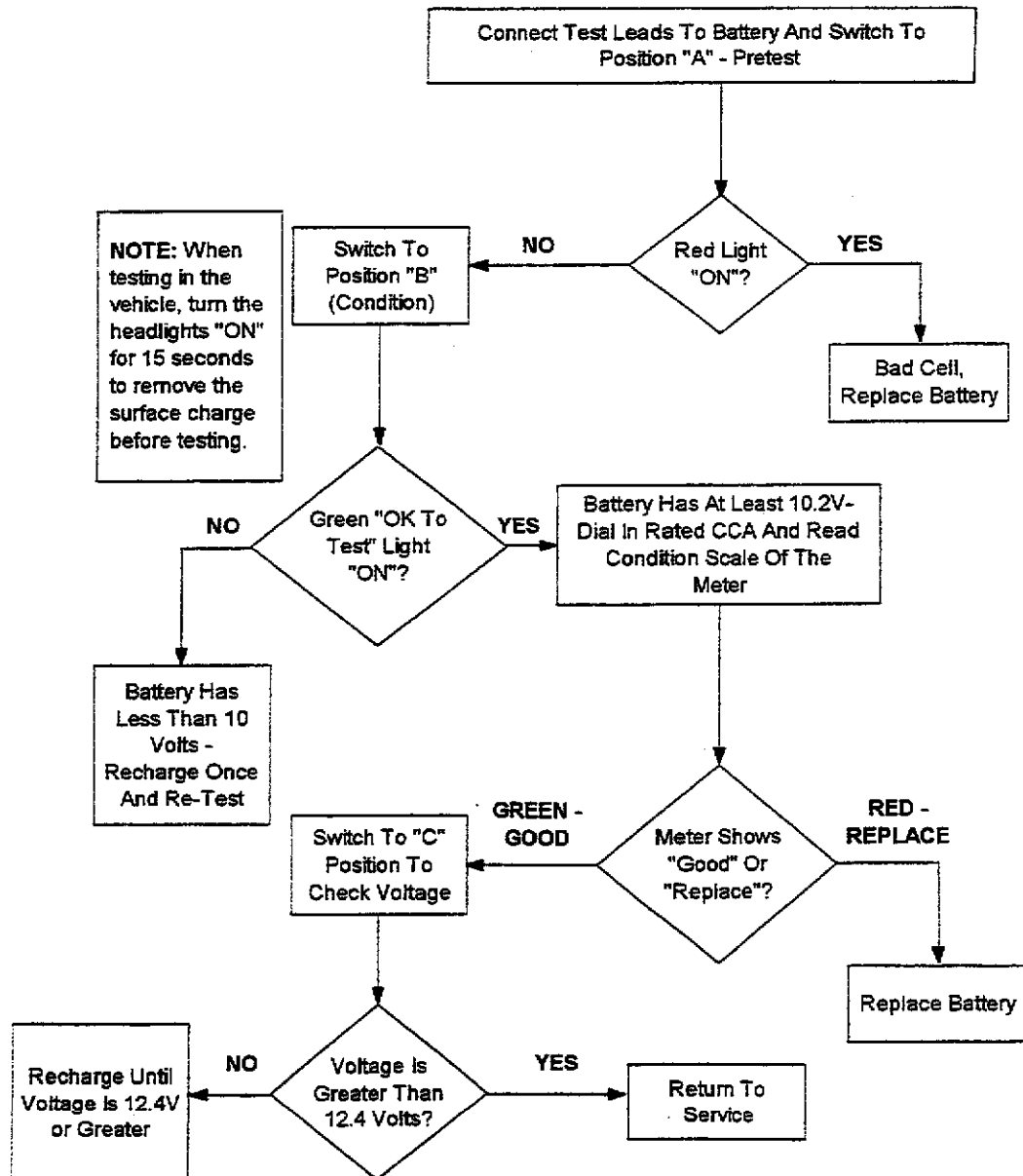
Position "D" Indicates actual CCA condition of the battery. By comparing the indicated reading to the battery's rated CCA, the battery condition is determined (ex. indicated CCA of 400 for a battery with a 600 rating indicated that the battery is 2/3 down on capacity). This decline will occur through normal aging and does not necessarily indicate that the battery requires replacement. It provides a general indication of the battery "health" for your customer.

IMPORTANT

Diagnostic procedures for lead-acid batteries performance are different than those used for maintenance-free batteries (lithium hybrid type). Incorrect diagnosis will result in false readings and unnecessary battery replacement if the wrong procedure is followed.

6.3 BATTERY DIAGNOSTIC PROCEDURES (Using Midtronics PowerSensor Plus Tester on Maintenance-Free Batteries)

Diagnostic procedures used for testing lead-acid batteries provide false readings leading to unnecessary replacement if used on maintenance-free batteries. The information below is provided for diagnosing maintenance-free batteries.



7. PARTS INFORMATION (Mazda Finish Line Batteries)

Make	Year	Model	O.E.M. CCA	Part Number	CCA
GLC	1981-85	FWD	320	0000-80-026R-WB	525
	1981-85	Optinal For Above	360	0000-80-0035-WB	550
	1977-80	RWD	320	0000-80-0024-WB	460
MX-3	1992-95	All 1.6L	310	0000-80-026R-WB	525
	1992-95	Optional For Above	360	0000-80-0035-WB	550
	1992-95	All V6 1.8L	415	0000-80-024F-WB	525
626/MX-6	1993-97	All	582	0000-80-058R-WB	582
	1983-92	All Except Diesel	320	0000-80-026R-WB	525
	1983-92	Optional For Above	360	0000-80-0035-WB	550
	1984-85	Diesel	620	0000-80-124F-WB	700
	1979-82	All	235	0000-80-0024-WB	460
RX-7	1993-95	A/T	490	0000-80-224F-WB	625
	1993-95	M/T	420	0000-80-026R-WB	525
	1984-92	All	320	0000-80-026R-WB	525
	1979-83	All	370	0000-80-0024-WB	460
323/Protege	1988-97	All	310	0000-80-026R-WB	525
	1988-97	Optional For Above	585	0000-80-0035-WB	525
929	1988-95	All w/o Cold Package	320	0000-80-0035-WB	550
	1988-95	All w/ Cold Packages	585	0000-80-124F-WB	700
Millenia	1995-97	All	490	0000-80-124F-WB	700
B2000, B2200	1973-93	All Except Diesel	375	0000-80-0024-WB	460
	1973-93	Optional For Above	375	0000-80-026R-WB	525
	1982-84	Diesel	600	0000-80-0124-WB	675
B2300, B3000, B4000	1994-97	B2300, B3000 Std. Cab	540	0000-80-58HD-WB	582
	1994-97	B23090, B3000 Optional Cold Spec.	650	0000-80-0065-WB	875
	1994-97	B4000 Cab Plus	850	0000-80-0065-WB	875
B2600, B2600i	1989-93	All	310	0000-80-0024-WB	460
	1987-88	All B2600	320	0000-80-026R-WB	525
	1987-88	Optional For Above	390	0000-80-224F-WB	525
Navajo	1991-94	All	650	0000-80-0065-WB	875
MPV	1991-97	All	310	0000-80-026R-WB	525
	1991-97	Optional Cold Package	585	0000-80-124F-WB	700

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8. WARRANTABLE CHARGING AND/OR REPLACEMENT

The information below outlines when battery charging or replacement is covered under vehicle warranty.

- Charging / Testing

Charging or testing is not covered under vehicle warranty and is considered part of normal dealer processing responsibility. Boost charging is covered within 48 hours of vehicle delivery.

NOTE: This operation will require completion of the Battery Check Sheet.

- Wholesale Delivery Inspection

Battery replacement requires DCSM authorization. Additionally, the Battery Check Sheet and Battery Check Tag must be completed and attached to the repair order. **If the documents are not attached to the repair order, the claim is subject to debit.**

- After Retail Delivery

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedures in this bulletin. The Battery Check Sheet must be completed and attached to the repair order. **If the documents are not attached to the repair order, the claim is subject to debit.**

9. WARRANTY CLAIM SUBMISSION

Dealers submitting warranty claims must retain copies of the Battery Check Tag and the Battery Check Sheet. The operation number listed below is used for Battery Inspection, Charging and Testing. This includes:

- Battery Load Test
- Battery Replacement
- Charging and Capacity Testing
- Charging Test
- Dark Current Test

10. WARRANTY INFORMATION (For testing, charging and replacement)

Symptom Code:	Complete Actual Code
Damage Code:	Complete Actual Code
Part Number Main Cause:	Complete Actual Part Number
Operation Number:	G0501ACX
Labor Hours:	0.5 Hrs. (All vehicles except 929)
	0.6 Hrs. (929)

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California
Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject DIAGNOSTIC PROCEDURES (See Itemized List Below)	Bulletin No. 002/93 Issued 9/16/93 Revised
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APPLICABLE MODELS

All 1988 model vehicles through 1994 model vehicles except Navajo and 1994 B-Series.

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. **Outline Of Diagnostics, Parts Requirements and Warranty Application** - Illustrates the steps from diagnostics through parts return and warranty submission.
2. **Diagnostic Procedures** - Step by step testing of the component and circuit.
3. **Component Check Sheet** - Details of the customer complaint and events leading to the repair.
NOTE: Proper completion of the check sheets are required for warranty claim submission.

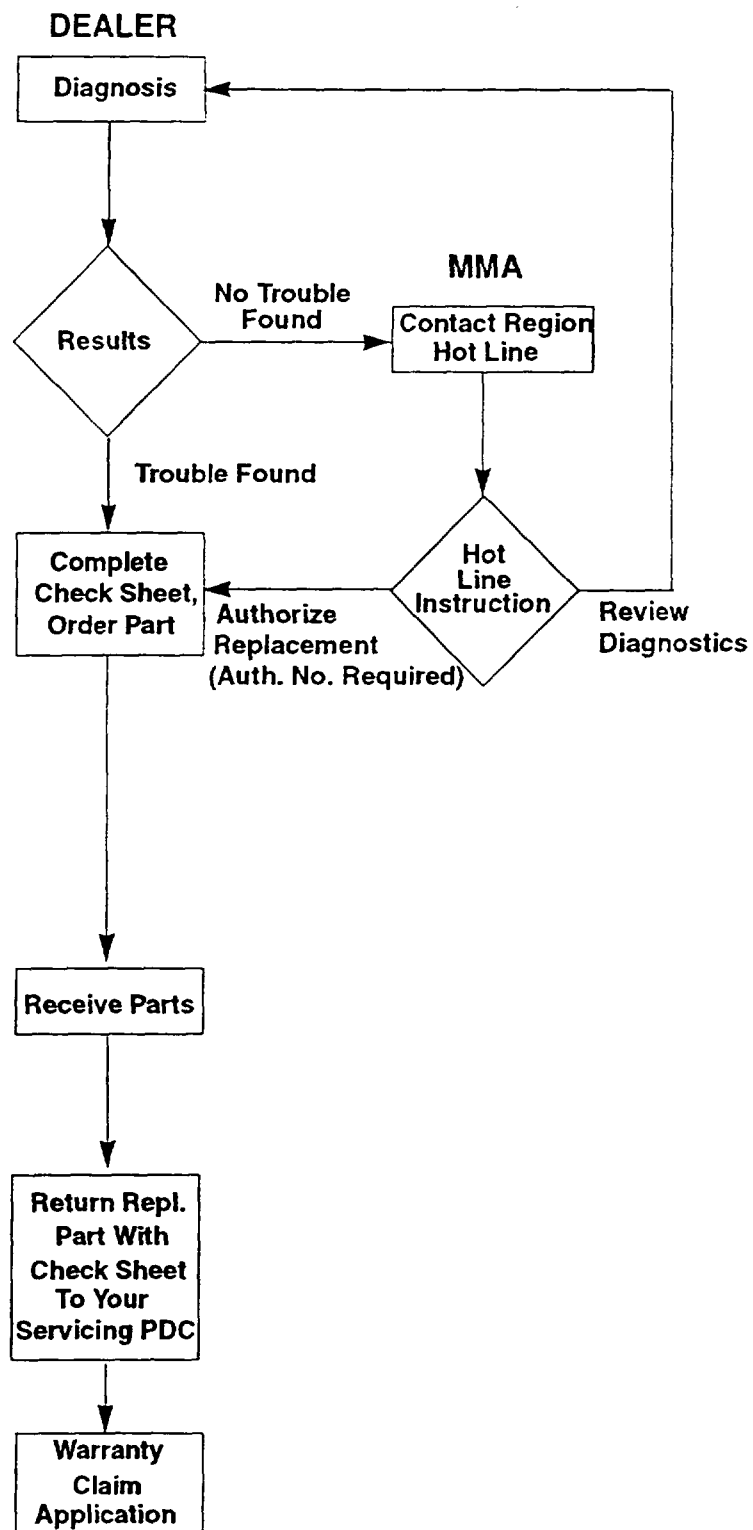
NOTE: See page two of this bulletin for an individual component index.

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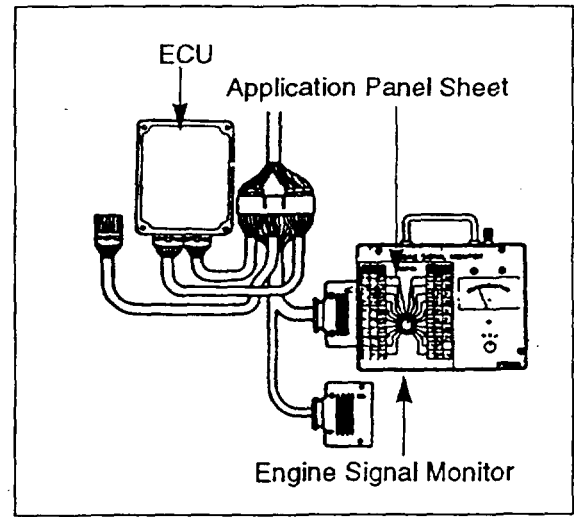
Refer to the applicable workshop manual for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 1- ECU DIAGNOSTICS PROCEDURE

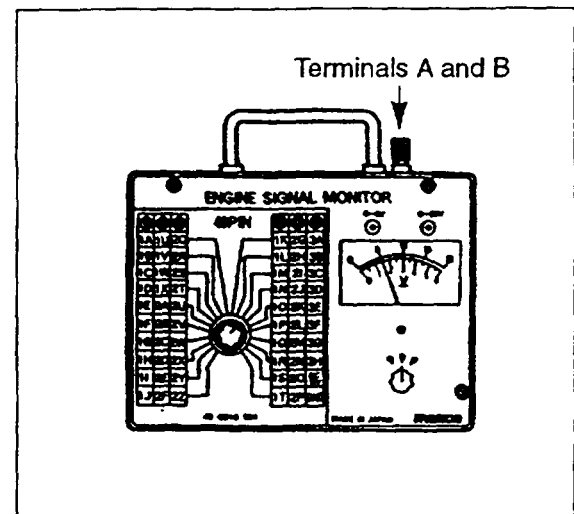
1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor and Adapter) as shown. Place application panel sheet on the Engine Signal Monitor.



3. Measure the voltage according to the specifications in the workshop manual.
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

CAUTION: Terminals A&B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings.

Never apply current to these terminals, damage to the ECU will result.



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Revised:

ECU CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Terminal Voltage Out Of Specification: ___ Yes ___ No

Terminal Number	Voltage Reading	Factory Specifications

According to Service Bulletin instructions: ___ Category ___ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

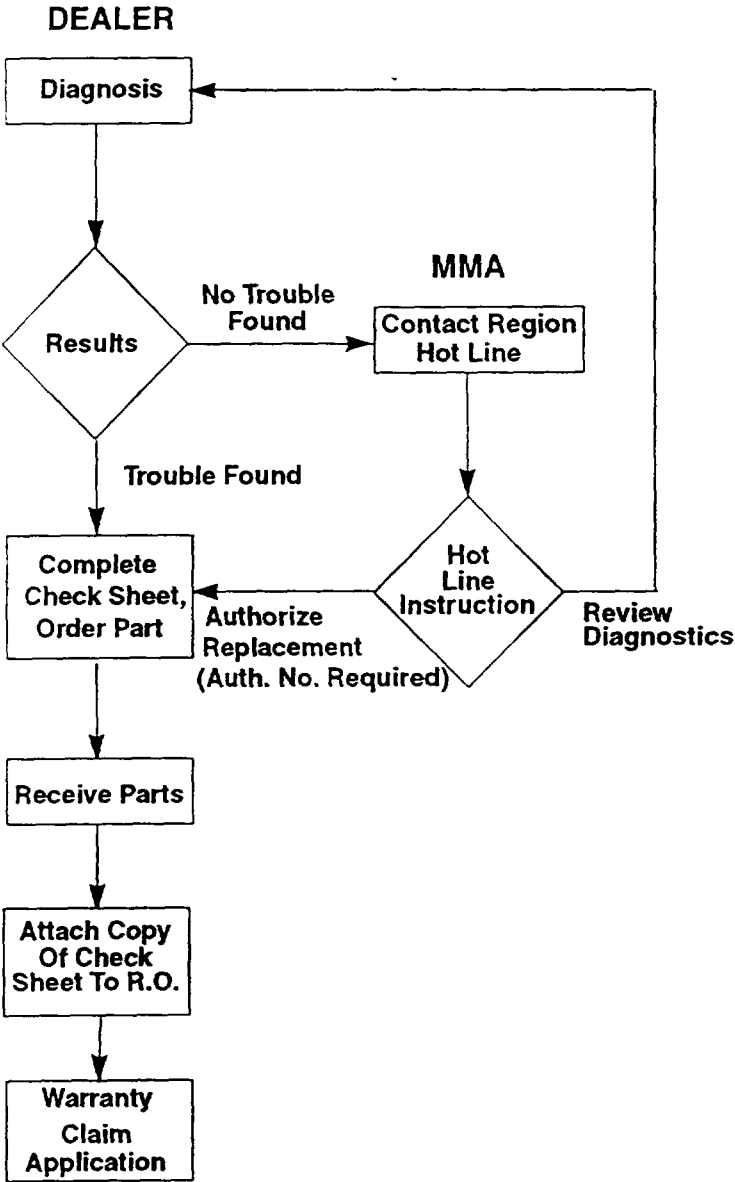
Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

1988 - 92 B2600

1989 - 90 RX-7 (up to and including vehicles with a VIN of JM1FC3*L0806489**

1993 RX-7

1. Check the air intake temperature sensor resistance.
 - a) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
 - b) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time.

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

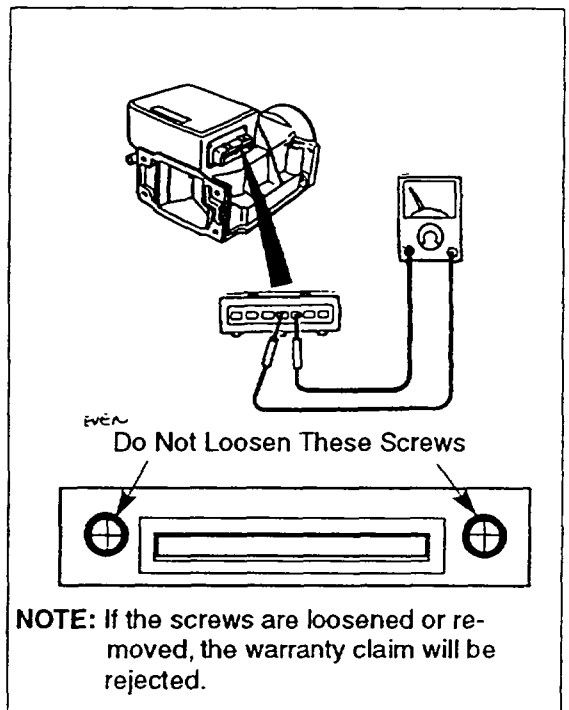
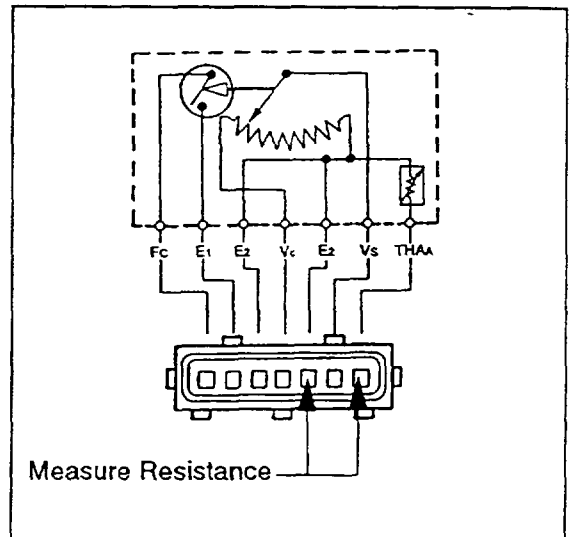
CAUTION: Refer to the illustration at the right and the "Standard Values" table when measuring resistance.

Standard Values

Ambient Temp. (F)	Resistance (K, Ohms)	Ambient Temp. (F)	Resistance (K, Ohms)
0	11.1 - 18.7	70	1.9 - 2.9
10	8.2 - 13.7	80	1.5 - 2.3
20	6.4 - 10.3	90	1.2 - 1.9
30	4.9 - 7.9	100	0.9 - 1.5
40	3.8 - 6.0	110	0.8 - 1.3
50	3.0 - 4.7	120	0.6 - 1.1
60	2.4 - 3.7		

2. Check resistance between E2 and Vc.
2. Standard Value= 200 - 400 ohms

NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

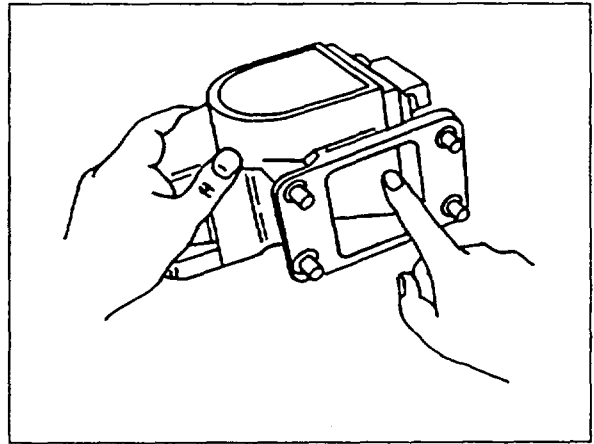


Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES CONT'D.

NOTE: The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

1986 - 89 323**1990 - 93 323/Protege****1990 - 92 626/MX-6****1990 - 91 929****1988 - 93 MPV****1990 - 93 MX-5****1993 MX-3 (1.6 Litre)**

1. Check for smooth movement of the measuring plate.
If no problem is found, reinstall the air flow meter.
2. If no problem is found in the air flow meter, contact the Technical Hotline for assistance.



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AIR FLOW METER CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Air Flow Meter Out Of Specification: ___ Yes ___ No

	Measurement	Factory Specifications
Intake Air Temperature Sensor		
Base Resistance (E2-VC)		

Measuring Plate Does Not Move Smoothly ___ Yes ___ No

According to Service Bulletin instructions: _____ Category _____ Number

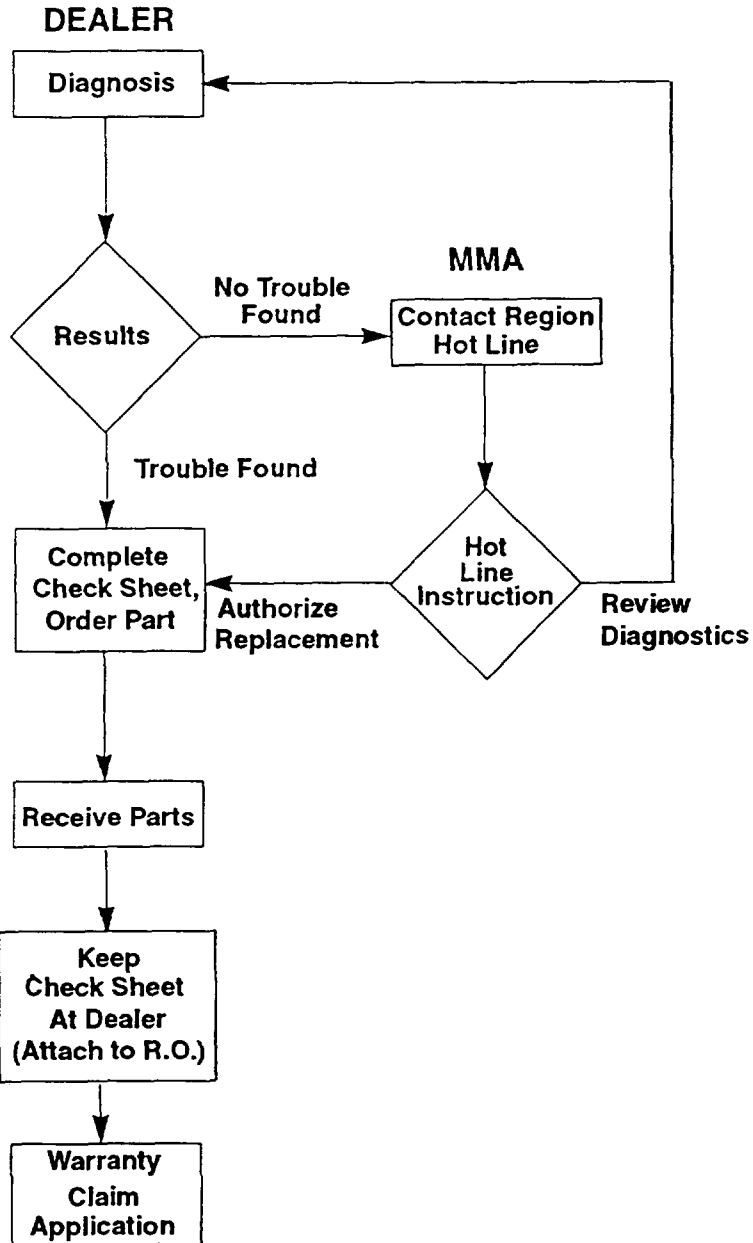
According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

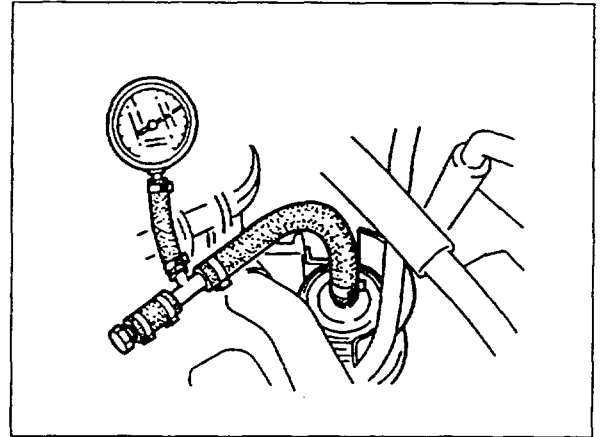


Section 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.
3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

WARNING: Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the workshop manual for further instructions.

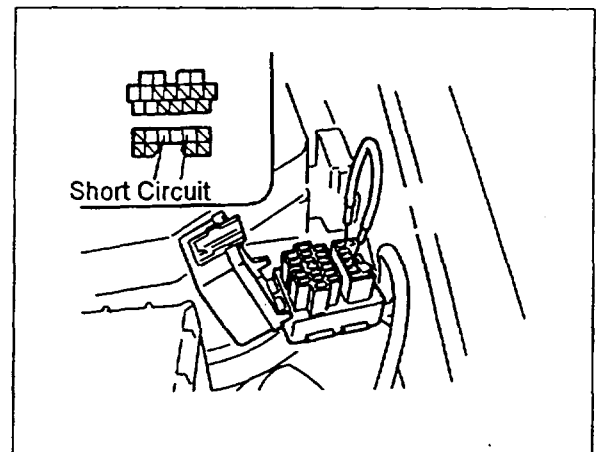
4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter.
6. Short circuit the fuel pump test terminals (yellow 2 pin connector with a jumper wire on the following vehicles.



1988 - 89 323	1993 - 626/MX-6
1990 - 91 929	1989 - 92 MPV
1989 - 91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles.

1990 - 93 323/Protege	1993 626/MX-6
1992 - 93 929	1992 - 93 MX-3
1990 - 93 MX-5	1993 RX-7



8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires.

Year/Model	Standard Value (PSI)
1988-89 323, 1990-91 323/Protege, 1990-92 626/MX-6, 1990-91 929, MPV (All)	49 or Over
1992-93 323/Protege, 1992-93 929, 1993 626/MX-6, MX-3 (All), MX-5 (All)	52 or Over
1989-91 RX-7	56 or Over
1993 RX-7	53 or Over

FUEL PUMP DIAGNOSTIC PROCEDURES CONT'D.

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

a) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.

b) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side).

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

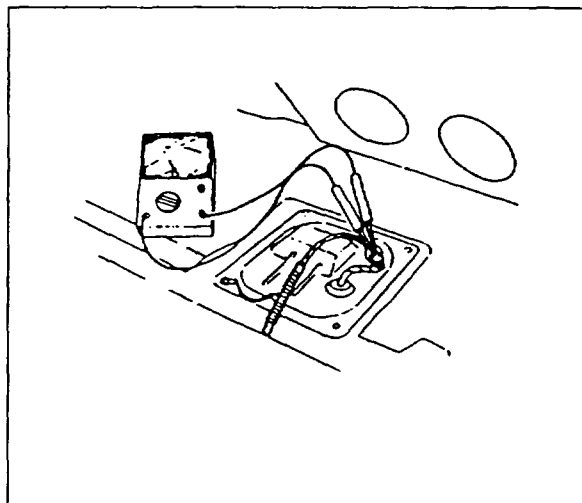
If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)

9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.

11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance.



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FUEL PUMP CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Fuel Pump Did Not Operate: ___ Yes ___ No

Insufficient Fuel Pressure: ___ Yes ___ No

Maximum Fuel Pump Pressure: _____(PSI) Factory Specification: _____

According to Service Bulletin instructions: _____ Category _____ Number

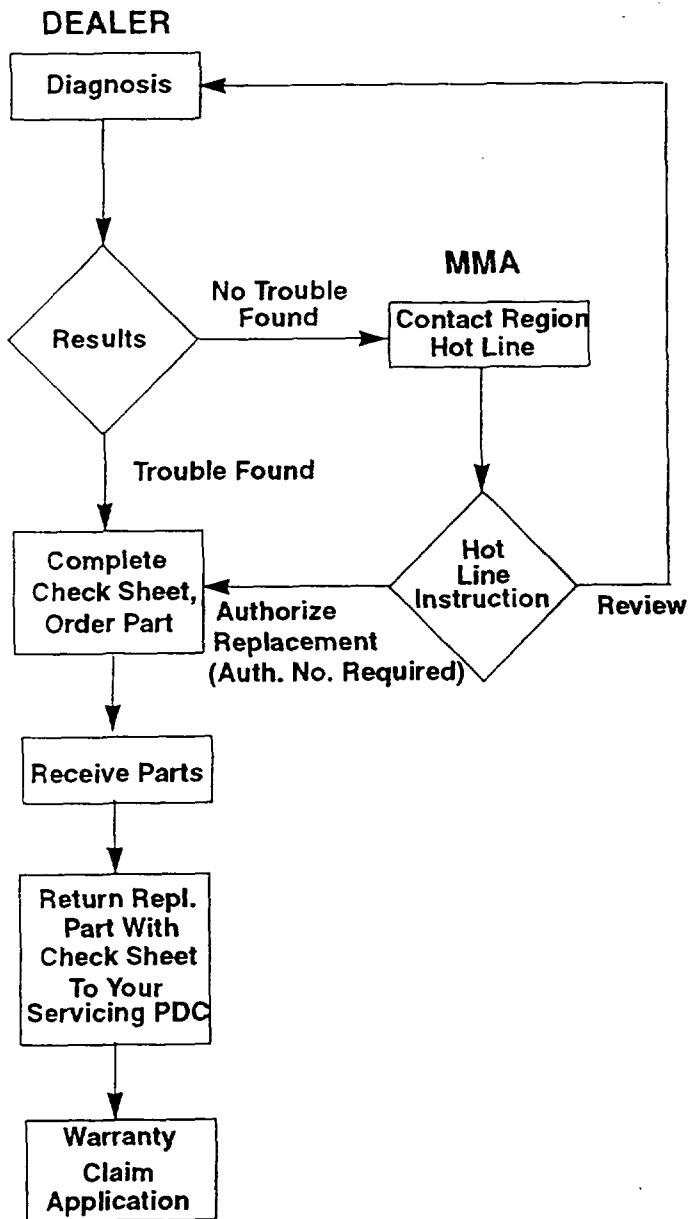
According to DSM or Hot Line Authorization: _____(Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed fuel pump to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 4 - CHARGING SYSTEM DIAGNOSTIC PROCEDURES

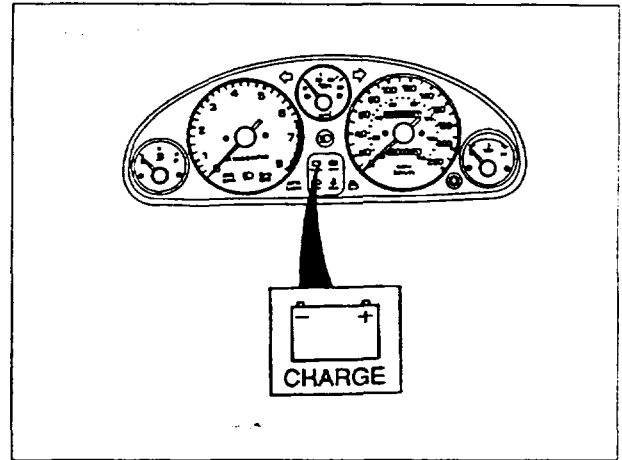
1. Start the engine and confirm that the alternator warning light is not illuminating.

NOTE: If the warning light is illuminated, the self diagnosis operation is functioning. Check the alternator and related harness' according to section "G" of the workshop manual.

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).
4. Apply the load test referring to the chart to the right. The final voltage must be above the standard minimum value shown below.



STANDARD MINIMUM VOLTAGE

Approx Battery Temperature	Minimum Voltage
70F (21C)	9.6V
60F (15C)	9.5V
50F (10C)	9.4V
40F (4C)	9.3V
30F (-1C)	9.1V
20F (-7C)	8.9V

If the voltage measures at or above the minimum, proceed to step 4.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 4.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the workshop manual for instructions.

LOAD TEST CHART

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180 195
MX-3	150 180 165
MX-5	105
RX-7	180 165 195
MPV	150 195
B-Series	150 195 195

Section 4 - CHARGING SYSTEM DIAGNOSTICS CONT'D.

4. Start the vehicle and raise the RPM to 2500.
5. Connect a battery load tester (VAT 40/70 or equivalent)
6. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

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ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Alternator output or battery voltage was out of specification: ___ Yes ___ No

	Reading	Factory Spec.
Output Voltage		
Output Amp.		
Instrument Used		
Battery Voltage (Open Terminal)		
Battery Voltage (Load Test)		

According to Service Bulletin instructions: ___ Category ___ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

MELA Comments:	

Signature _____	Date: ___/___/___

Number: 002/93

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Section 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code

Damage Code: Complete Applicable Code

Part Number Main Cause: Complete Applicable Part Number

Operation Number and Labor Hours:

	Operation Number	Labor Hours
Engine Control Unit(ECU), Diagnosis	F0005XDX	0.9
Air Flow Sensor (AFM), Diagnosis	F0006XDX	0.4
Fuel Pump, Diagnosis	F0007XDX	0.5
Charging System, Diagnosis	G0003XDX	1.4

NOTE: Labor hours shown are the maximum allowable time. Claim only the actual time used for these operations.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California
Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject DIAGNOSTIC PROCEDURES (See Itemized List Below)	Bulletin No. 002/93
			Issued 9/16/93
			Revised

APPLICABLE MODELS

All 1988 model vehicles through 1994 model vehicles except Navajo and 1994 B-Series.

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. **Outline Of Diagnostics, Parts Requirements and Warranty Application** - Illustrates the steps from diagnostics through parts return and warranty submission.
2. **Diagnostic Procedures** - Step by step testing of the component and circuit.
3. **Component Check Sheet** - Details of the customer complaint and events leading to the repair.
NOTE: Proper completion of the check sheets are required for warranty claim submission.

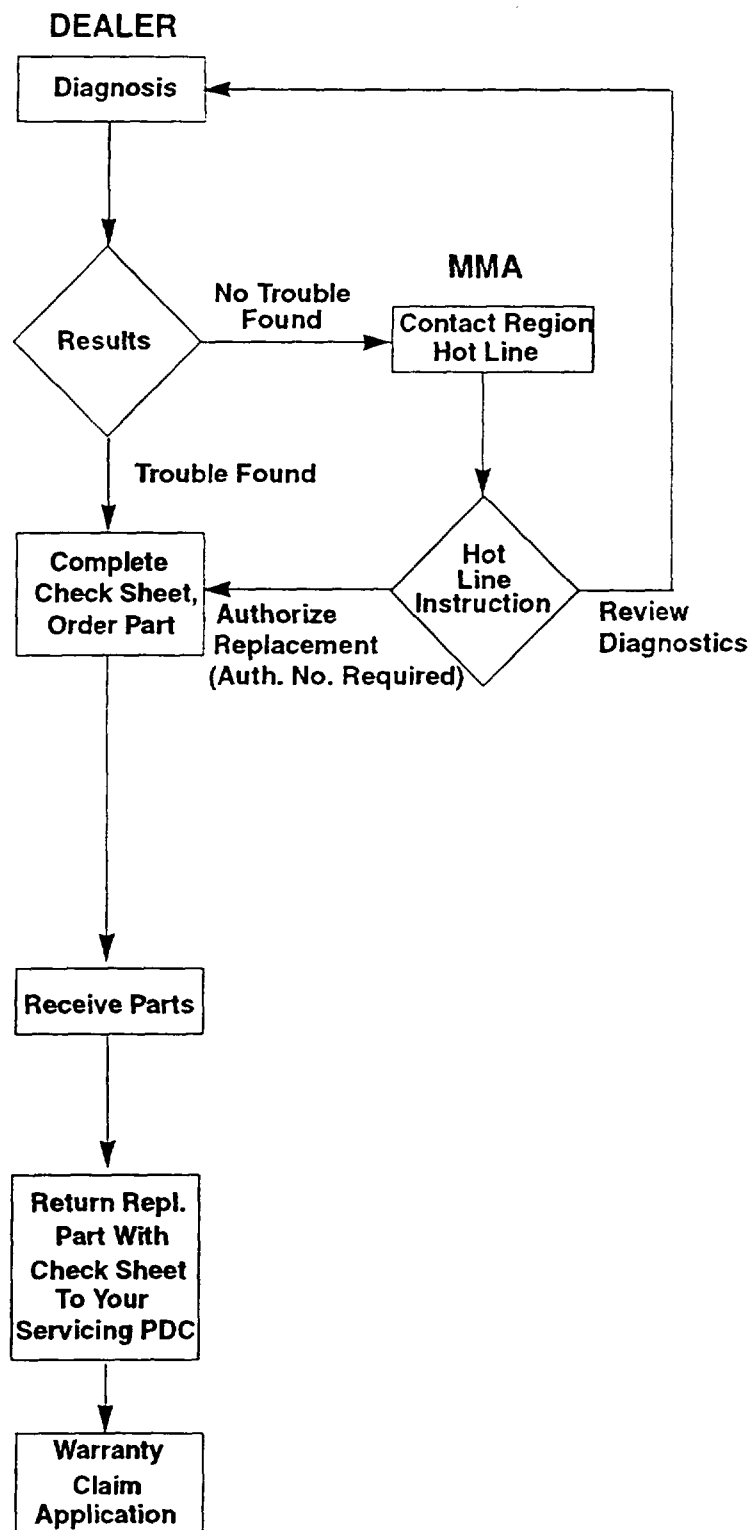
NOTE: See page two of this bulletin for an individual component index.

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Charging System Diagnostics	15
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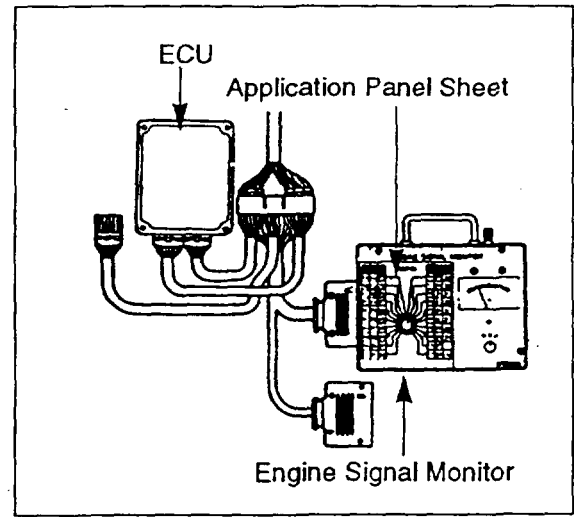
Refer to the applicable workshop manual for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 1- ECU DIAGNOSTICS PROCEDURE

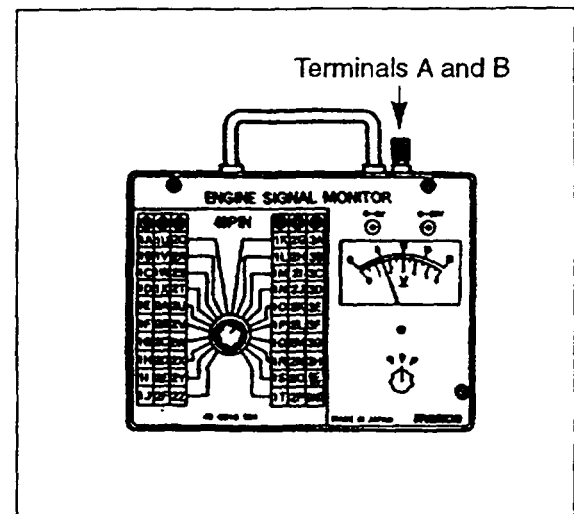
1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor and Adapter) as shown. Place application panel sheet on the Engine Signal Monitor.



3. Measure the voltage according to the specifications in the workshop manual.
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

CAUTION: Terminals A&B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings.

Never apply current to these terminals, damage to the ECU will result.



Number: 002/93

Date Issued: 9/16/93

Revised:

ECU CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Terminal Voltage Out Of Specification: ___ Yes ___ No

Terminal Number	Voltage Reading	Factory Specifications

According to Service Bulletin instructions: ___ Category ___ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

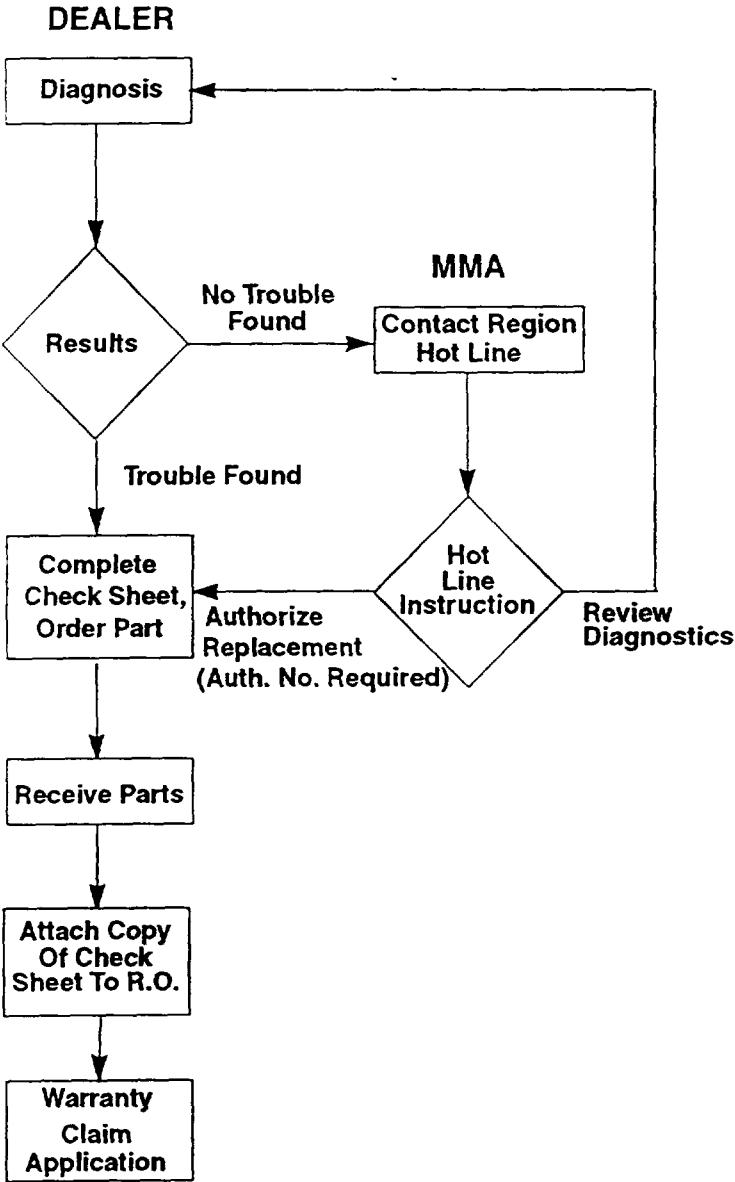
Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

1988 - 92 B2600

1989 - 90 RX-7 (up to and including vehicles with a VIN of JM1FC3*L0806489**

1993 RX-7

1. Check the air intake temperature sensor resistance.
 - a) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
 - b) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time.

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to the illustration at the right and the "Standard Values" table when measuring resistance.

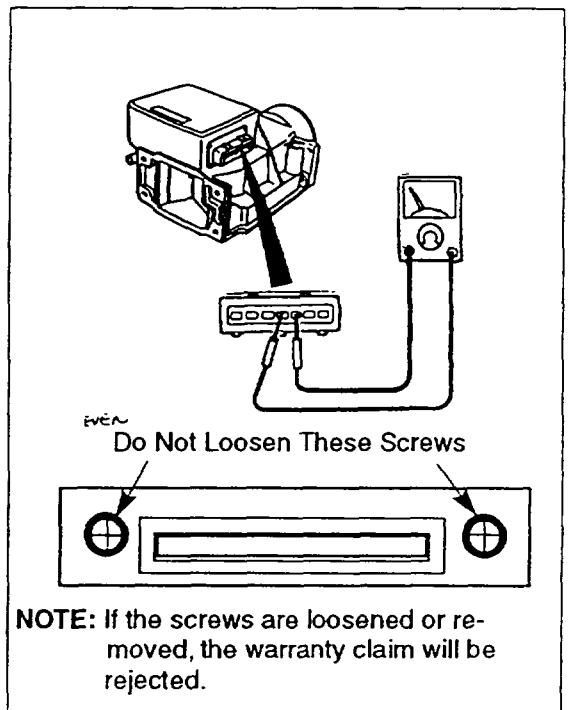
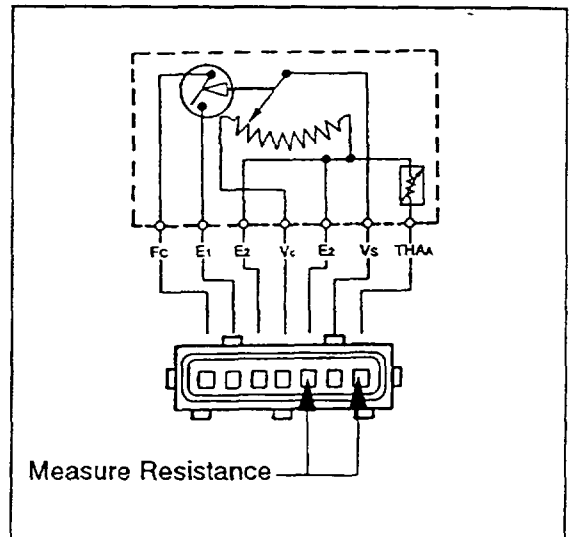
Standard Values

Ambient Temp. (F)	Resistance (K, Ohms)	Ambient Temp. (F)	Resistance (K, Ohms)
0	11.1 - 18.7	70	1.9 - 2.9
10	8.2 - 13.7	80	1.5 - 2.3
20	6.4 - 10.3	90	1.2 - 1.9
30	4.9 - 7.9	100	0.9 - 1.5
40	3.8 - 6.0	110	0.8 - 1.3
50	3.0 - 4.7	120	0.6 - 1.1
60	2.4 - 3.7		

2. Check resistance between E2 and Vc.

2. Standard Value= 200 - 400 ohms

NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

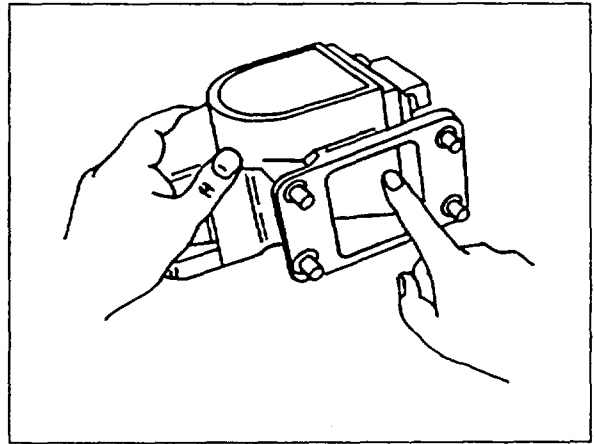


Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES CONT'D.

NOTE: The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

1986 - 89 323**1990 - 93 323/Protege****1990 - 92 626/MX-6****1990 - 91 929****1988 - 93 MPV****1990 - 93 MX-5****1993 MX-3 (1.6 Litre)**

1. Check for smooth movement of the measuring plate.
If no problem is found, reinstall the air flow meter.
2. If no problem is found in the air flow meter, contact the Technical Hotline for assistance.



Number: 002/93	Date Issued: 9/16/93	Revised:
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AIR FLOW METER CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ____/____/____ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ____ Yes ____ No

3. Reason for replacement:

Air Flow Meter Out Of Specification: ____ Yes ____ No

	Measurement	Factory Specifications
Intake Air Temperature Sensor		
Base Resistance (E2-VC)		

Measuring Plate Does Not Move Smoothly ____ Yes ____ No

According to Service Bulletin instructions: _____ Category _____ Number

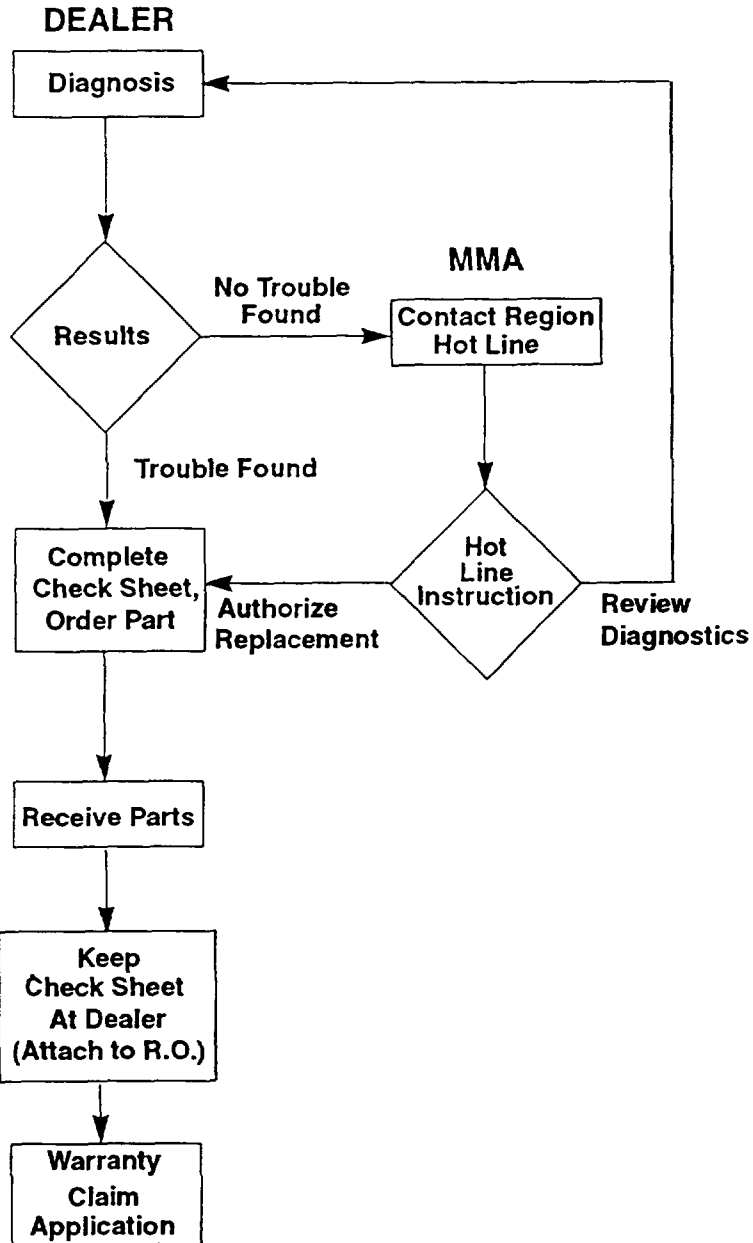
According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

Technician's Signature: _____ Date: ____/____/____

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

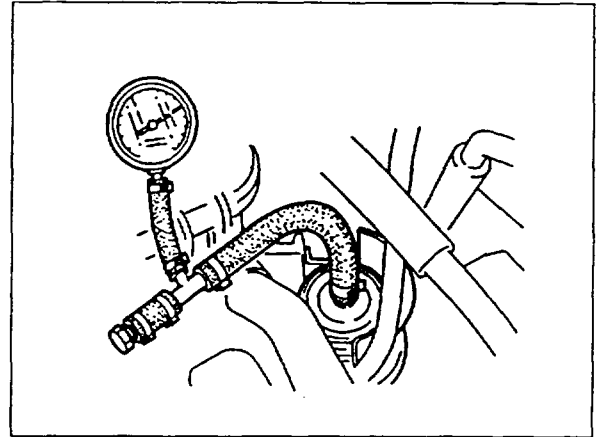


Section 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.
3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

WARNING: Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the workshop manual for further instructions.

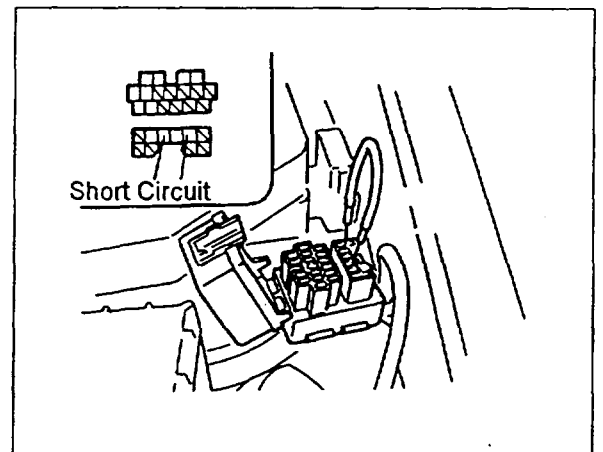
4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter.
6. Short circuit the fuel pump test terminals (yellow 2 pin connector with a jumper wire on the following vehicles.



1988 - 89 323	1993 - 626/MX-6
1990 - 91 929	1989 - 92 MPV
1989 - 91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles.

1990 - 93 323/Protege	1993 626/MX-6
1992 - 93 929	1992 - 93 MX-3
1990 - 93 MX-5	1993 RX-7



8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires.

Year/Model	Standard Value (PSI)
1988-89 323, 1990-91 323/Protege, 1990-92 626/MX-6, 1990-91 929, MPV (All)	49 or Over
1992-93 323/Protege, 1992-93 929, 1993 626/MX-6, MX-3 (All), MX-5 (All)	52 or Over
1989-91 RX-7	56 or Over
1993 RX-7	53 or Over

FUEL PUMP DIAGNOSTIC PROCEDURES CONT'D.

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- a) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- b) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side).

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

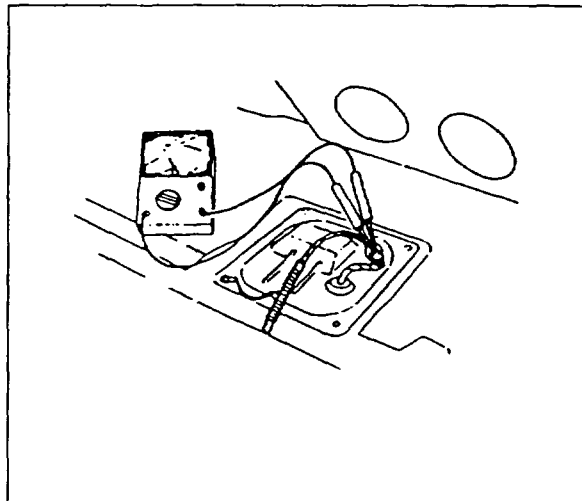
If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)

9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.

11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance.



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FUEL PUMP CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Fuel Pump Did Not Operate: ___ Yes ___ No

Insufficient Fuel Pressure: ___ Yes ___ No

Maximum Fuel Pump Pressure: _____(PSI) Factory Specification: _____

According to Service Bulletin instructions: _____ Category _____ Number

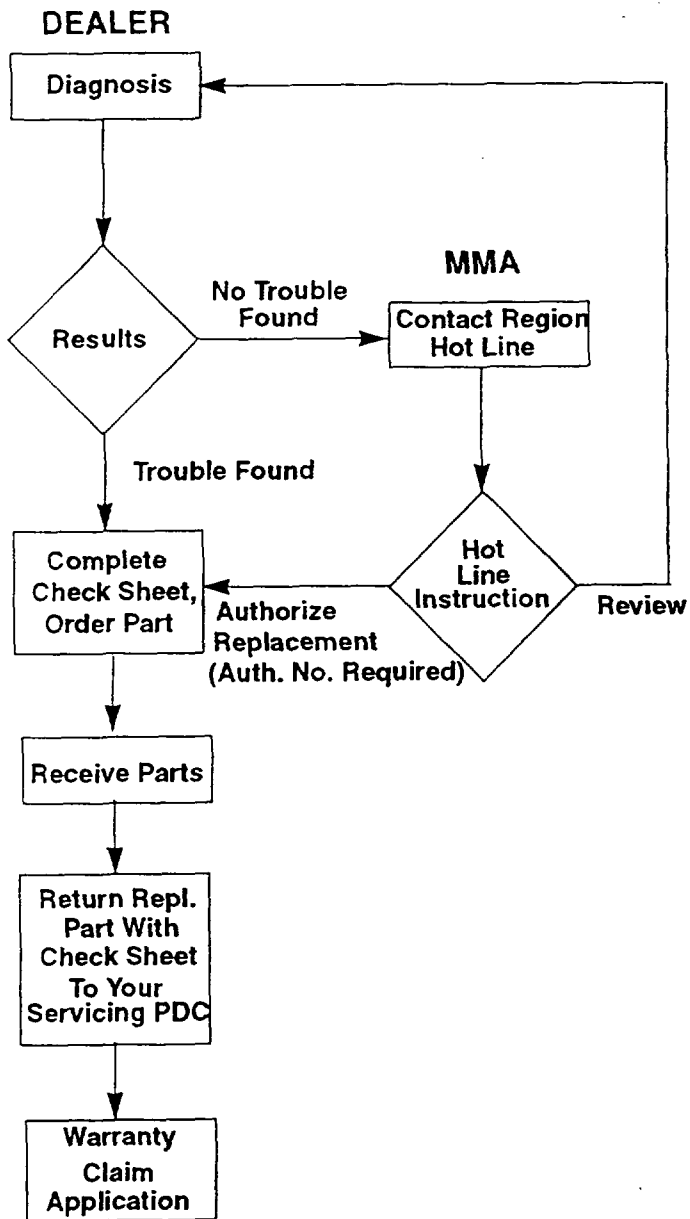
According to DSM or Hot Line Authorization: _____(Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed fuel pump to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 4 - CHARGING SYSTEM DIAGNOSTIC PROCEDURES

1. Start the engine and confirm that the alternator warning light is not illuminating.

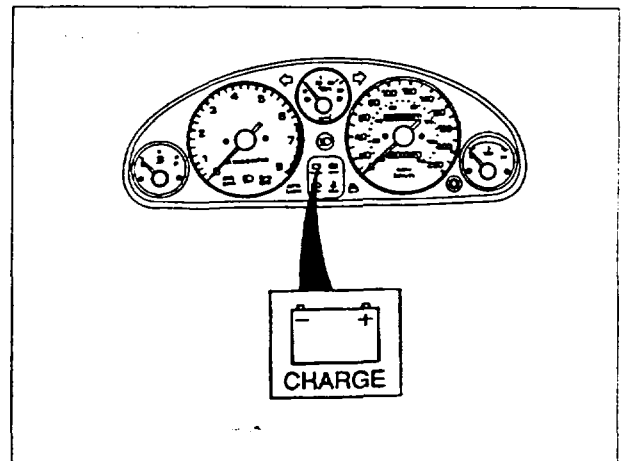
NOTE: If the warning light is illuminated, the self diagnosis operation is functioning. Check the alternator and related harness' according to section "G" of the workshop manual.

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).

4. Apply the load test referring to the chart to the right. The final voltage must be above the standard minimum value shown below.



STANDARD MINIMUM VOLTAGE

Approx Battery Temperature	Minimum Voltage
70F (21C)	9.6V
60F (15C)	9.5V
50F (10C)	9.4V
40F (4C)	9.3V
30F (-1C)	9.1V
20F (-7C)	8.9V

If the voltage measures at or above the minimum, proceed to step 4.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 4.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the workshop manual for instructions.

LOAD TEST CHART

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180 195
MX-3	150 180 165
MX-5	105
RX-7	180 165 195
MPV	150 195
B-Series	150 195 195

Section 4 - CHARGING SYSTEM DIAGNOSTICS CONT'D.

4. Start the vehicle and raise the RPM to 2500.
5. Connect a battery load tester (VAT 40/70 or equivalent)
6. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

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ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Alternator output or battery voltage was out of specification: ___ Yes ___ No

	Reading	Factory Spec.
Output Voltage		
Output Amp.		
Instrument Used		
Battery Voltage (Open Terminal)		
Battery Voltage (Load Test)		

According to Service Bulletin instructions: ___ Category ___ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

MELA Comments:	

Signature _____	Date: ___/___/___

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Section 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code

Damage Code: Complete Applicable Code

Part Number Main Cause: Complete Applicable Part Number

Operation Number and Labor Hours:

	Operation Number	Labor Hours
Engine Control Unit(ECU), Diagnosis	F0005XDX	0.9
Air Flow Sensor (AFM), Diagnosis	F0006XDX	0.4
Fuel Pump, Diagnosis	F0007XDX	0.5
Charging System, Diagnosis	G0003XDX	1.4

NOTE: Labor hours shown are the maximum allowable time. Claim only the actual time used for these operations.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California
Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject DIAGNOSTIC PROCEDURES (See Itemized List Below)	Bulletin No. 002/93
			Issued 9/16/93
			Revised

APPLICABLE MODELS

All 1988 model vehicles through 1994 model vehicles except Navajo and 1994 B-Series.

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. **Outline Of Diagnostics, Parts Requirements and Warranty Application** - Illustrates the steps from diagnostics through parts return and warranty submission.
2. **Diagnostic Procedures** - Step by step testing of the component and circuit.
3. **Component Check Sheet** - Details of the customer complaint and events leading to the repair.
NOTE: Proper completion of the check sheets are required for warranty claim submission.

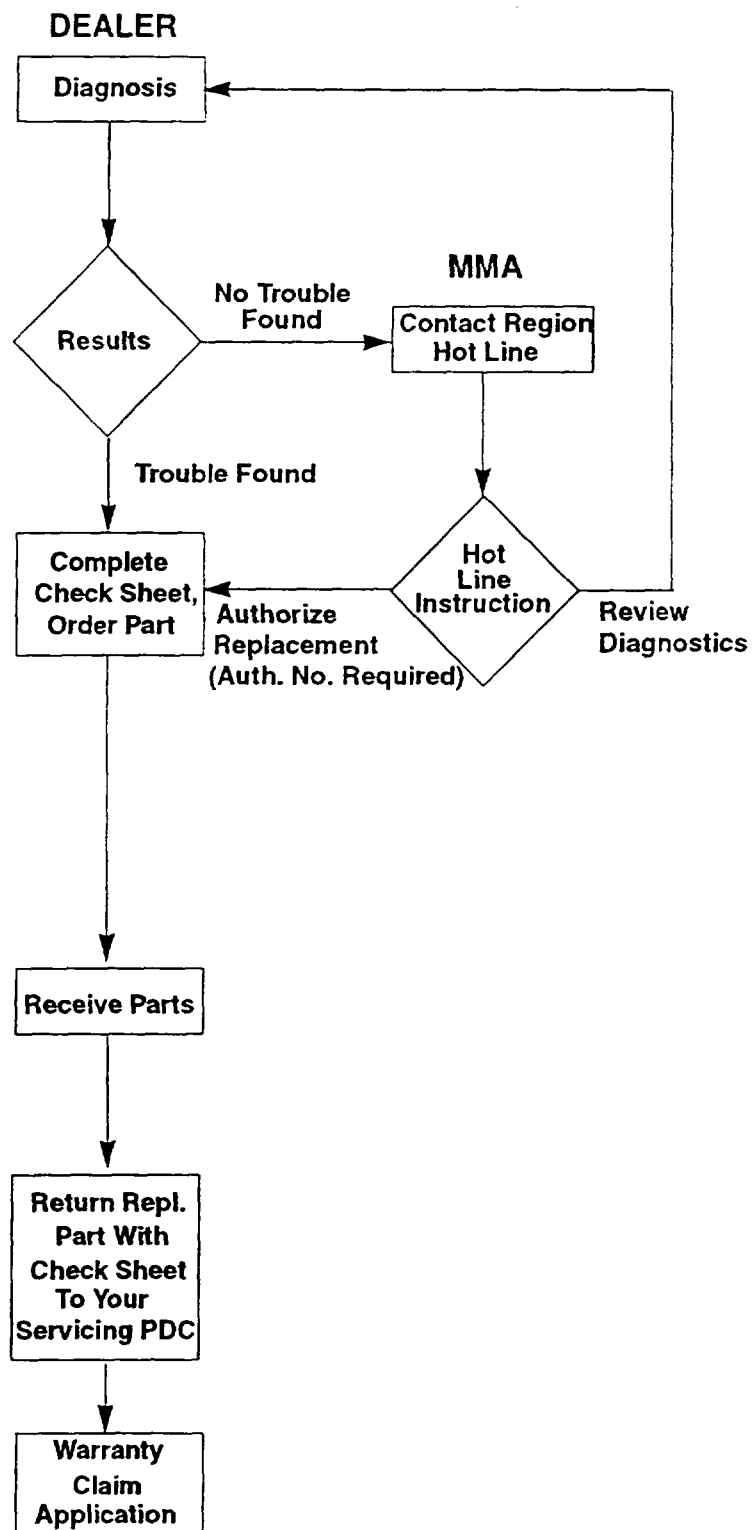
NOTE: See page two of this bulletin for an individual component index.

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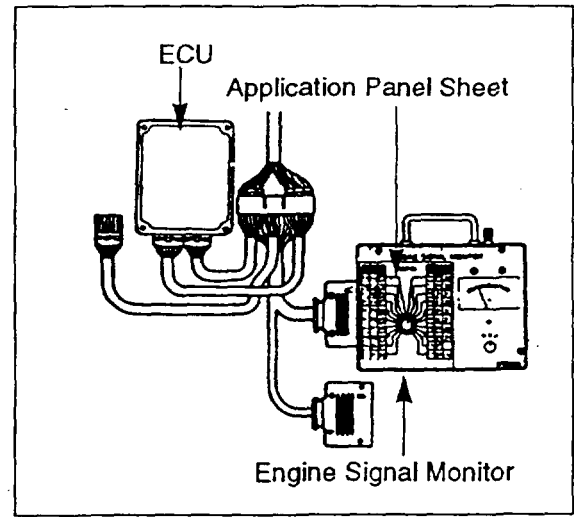
Refer to the applicable workshop manual for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 1- ECU DIAGNOSTICS PROCEDURE

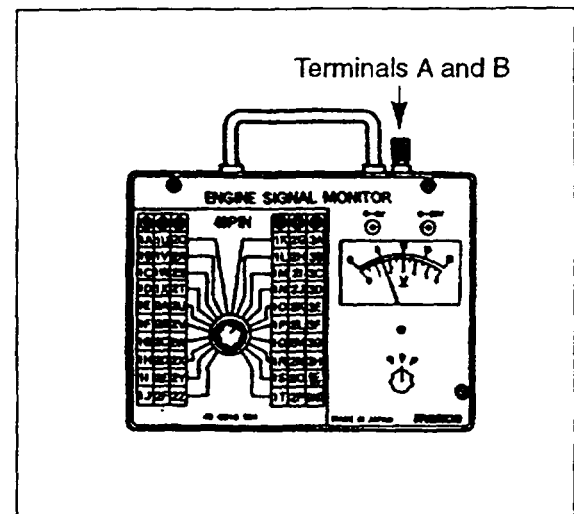
1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor and Adapter) as shown. Place application panel sheet on the Engine Signal Monitor.



3. Measure the voltage according to the specifications in the workshop manual.
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

CAUTION: Terminals A&B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings.

Never apply current to these terminals, damage to the ECU will result.



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ECU CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: _____ Yes _____ No

3. Reason for replacement:

Terminal Voltage Out Of Specification: _____ Yes _____ No

Terminal Number	Voltage Reading	Factory Specifications

According to Service Bulletin instructions: _____ Category _____ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

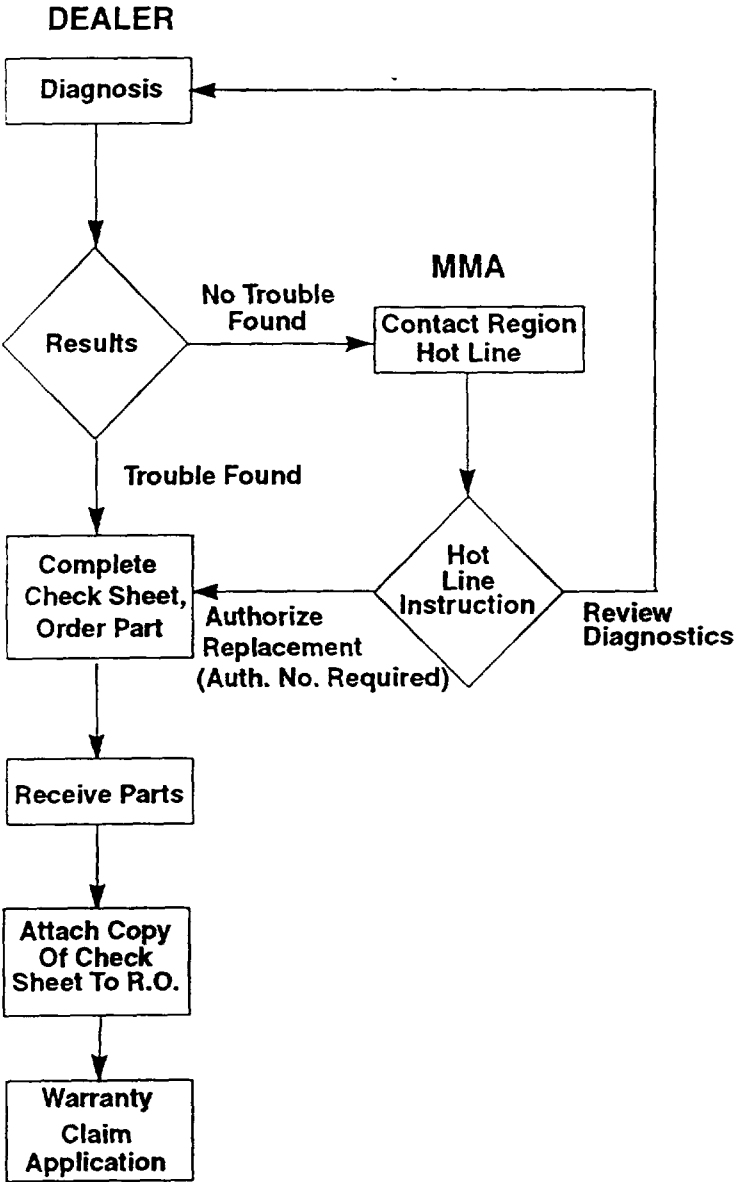
Other: _____

4. Repair Type: _____ Warranty _____ Customer Pay

Technician's Signature: _____ Date: ___/___/___

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

1988 - 92 B2600

1989 - 90 RX-7 (up to and including vehicles with a VIN of JM1FC3*L0806489**

1993 RX-7

1. Check the air intake temperature sensor resistance.
 - a) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
 - b) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time.

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to the illustration at the right and the "Standard Values" table when measuring resistance.

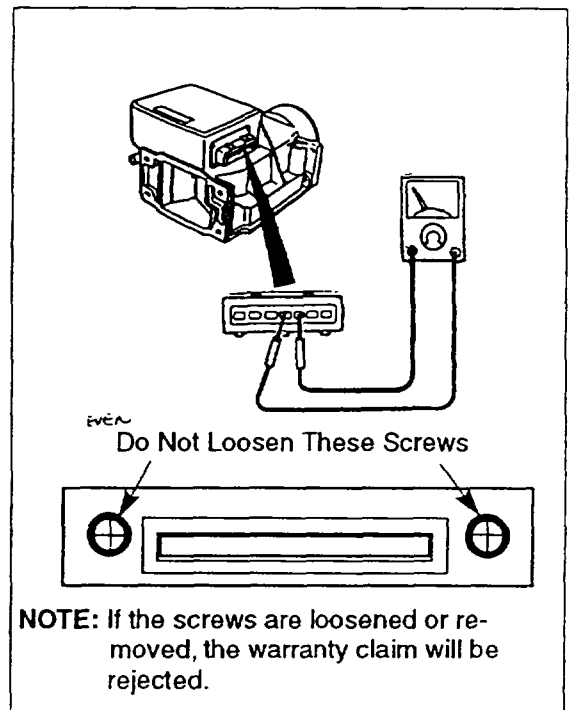
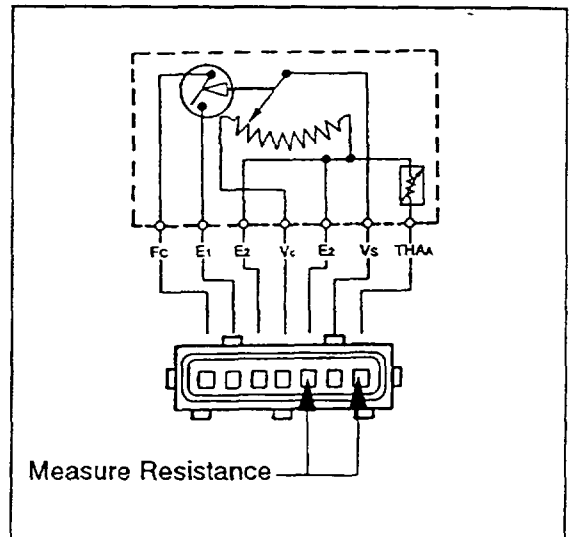
Standard Values

Ambient Temp. (F)	Resistance (K, Ohms)	Ambient Temp. (F)	Resistance (K, Ohms)
0	11.1 - 18.7	70	1.9 - 2.9
10	8.2 - 13.7	80	1.5 - 2.3
20	6.4 - 10.3	90	1.2 - 1.9
30	4.9 - 7.9	100	0.9 - 1.5
40	3.8 - 6.0	110	0.8 - 1.3
50	3.0 - 4.7	120	0.6 - 1.1
60	2.4 - 3.7		

2. Check resistance between E2 and Vc.

2. Standard Value= 200 - 400 ohms

NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

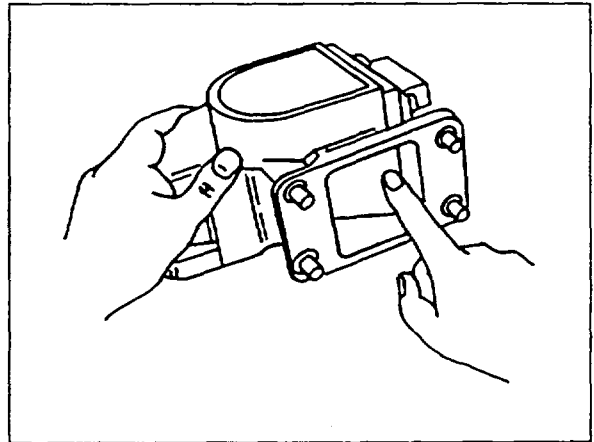


Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES CONT'D.

NOTE: The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

1986 - 89 323**1990 - 93 323/Protege****1990 - 92 626/MX-6****1990 - 91 929****1988 - 93 MPV****1990 - 93 MX-5****1993 MX-3 (1.6 Litre)**

1. Check for smooth movement of the measuring plate.
If no problem is found, reinstall the air flow meter.
2. If no problem is found in the air flow meter, contact the Technical Hotline for assistance.



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AIR FLOW METER CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Air Flow Meter Out Of Specification: ___ Yes ___ No

	Measurement	Factory Specifications
Intake Air Temperature Sensor		
Base Resistance (E2-VC)		

Measuring Plate Does Not Move Smoothly ___ Yes ___ No

According to Service Bulletin instructions: _____ Category _____ Number

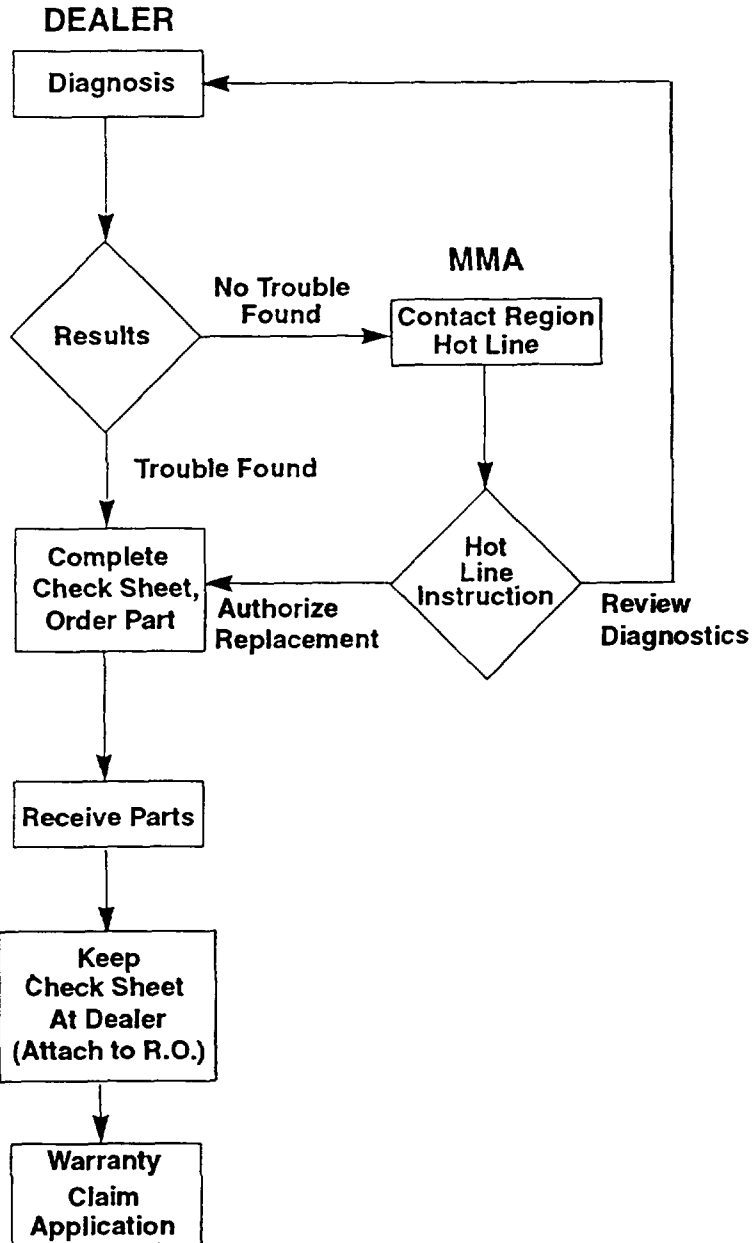
According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

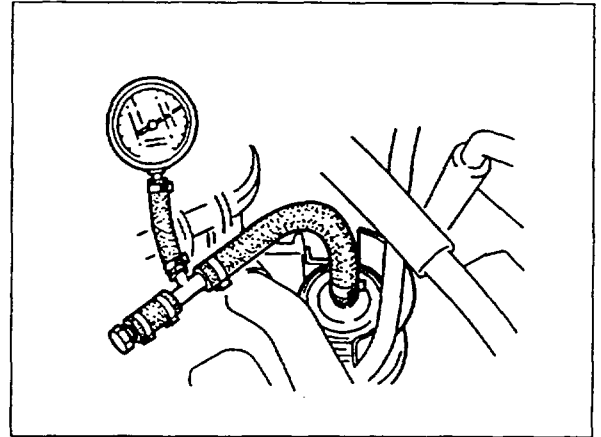


Section 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.
3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

WARNING: Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the workshop manual for further instructions.

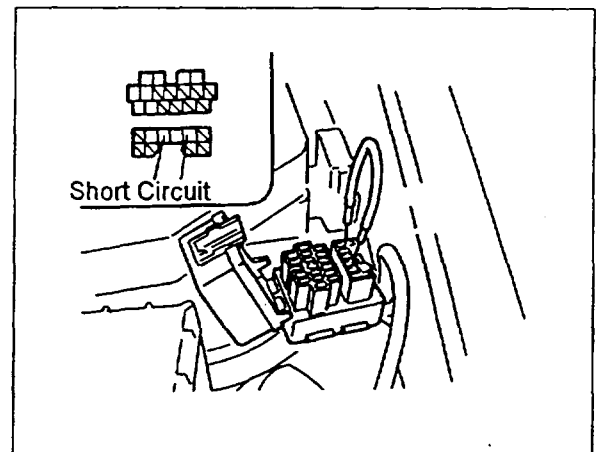
4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter.
6. Short circuit the fuel pump test terminals (yellow 2 pin connector with a jumper wire on the following vehicles.



1988 - 89 323	1993 - 626/MX-6
1990 - 91 929	1989 - 92 MPV
1989 - 91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles.

1990 - 93 323/Protege	1993 626/MX-6
1992 - 93 929	1992 - 93 MX-3
1990 - 93 MX-5	1993 RX-7



8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires.

Year/Model	Standard Value (PSI)
1988-89 323, 1990-91 323/Protege, 1990-92 626/MX-6, 1990-91 929, MPV (All)	49 or Over
1992-93 323/Protege, 1992-93 929, 1993 626/MX-6, MX-3 (All), MX-5 (All)	52 or Over
1989-91 RX-7	56 or Over
1993 RX-7	53 or Over

FUEL PUMP DIAGNOSTIC PROCEDURES CONT'D.

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

a) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.

b) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side).

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

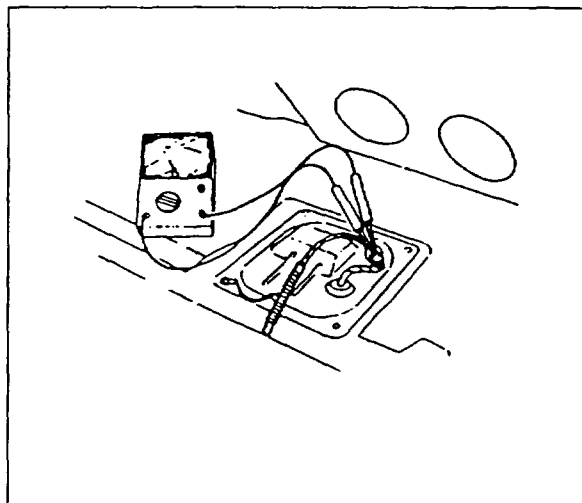
If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)

9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.

11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance.



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FUEL PUMP CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Fuel Pump Did Not Operate: ___ Yes ___ No

Insufficient Fuel Pressure: ___ Yes ___ No

Maximum Fuel Pump Pressure: _____(PSI) Factory Specification: _____

According to Service Bulletin instructions: _____ Category _____ Number

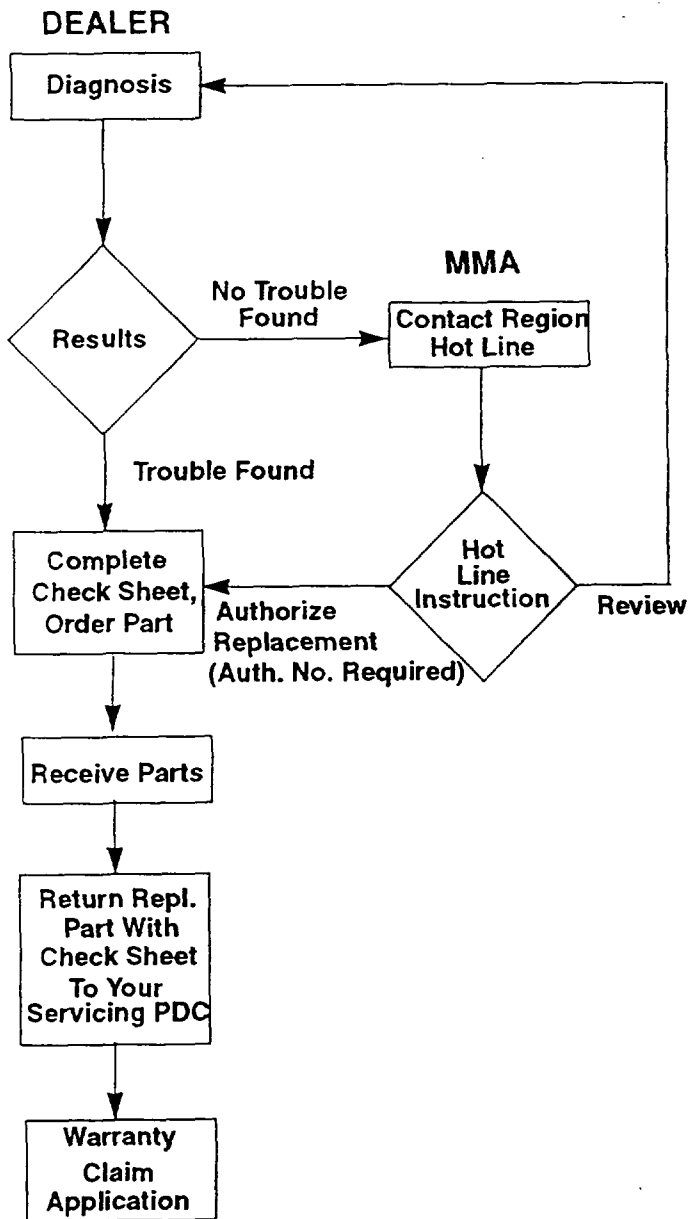
According to DSM or Hot Line Authorization: _____(Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed fuel pump to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 4 - CHARGING SYSTEM DIAGNOSTIC PROCEDURES

1. Start the engine and confirm that the alternator warning light is not illuminating.

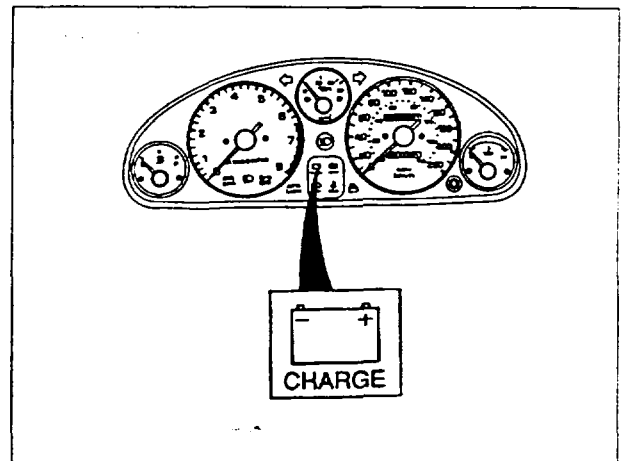
NOTE: If the warning light is illuminated, the self diagnosis operation is functioning. Check the alternator and related harness' according to section "G" of the workshop manual.

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).

4. Apply the load test referring to the chart to the right. The final voltage must be above the standard minimum value shown below.



STANDARD MINIMUM VOLTAGE

Approx Battery Temperature	Minimum Voltage
70F (21C)	9.6V
60F (15C)	9.5V
50F (10C)	9.4V
40F (4C)	9.3V
30F (-1C)	9.1V
20F (-7C)	8.9V

If the voltage measures at or above the minimum, proceed to step 4.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 4.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the workshop manual for instructions.

LOAD TEST CHART

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180 195
MX-3	150 180 165
MX-5	105
RX-7	180 165 195
MPV	150 195
B-Series	150 195 195

Section 4 - CHARGING SYSTEM DIAGNOSTICS CONT'D.

4. Start the vehicle and raise the RPM to 2500.
5. Connect a battery load tester (VAT 40/70 or equivalent)
6. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

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ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Alternator output or battery voltage was out of specification: ___ Yes ___ No

	Reading	Factory Spec.
Output Voltage		
Output Amp.		
Instrument Used		
Battery Voltage (Open Terminal)		
Battery Voltage (Load Test)		

According to Service Bulletin instructions: _____ Category _____ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

MELA Comments:	

Signature _____	Date: ___/___/___

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Section 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code

Damage Code: Complete Applicable Code

Part Number Main Cause: Complete Applicable Part Number

Operation Number and Labor Hours:

	Operation Number	Labor Hours
Engine Control Unit(ECU), Diagnosis	F0005XDX	0.9
Air Flow Sensor (AFM), Diagnosis	F0006XDX	0.4
Fuel Pump, Diagnosis	F0007XDX	0.5
Charging System, Diagnosis	G0003XDX	1.4

NOTE: Labor hours shown are the maximum allowable time. Claim only the actual time used for these operations.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California
Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject DIAGNOSTIC PROCEDURES (See Itemized List Below)	Bulletin No. 002/93
			Issued 9/16/93
			Revised

APPLICABLE MODELS

All 1988 model vehicles through 1994 model vehicles except Navajo and 1994 B-Series.

DESCRIPTION

This bulletin contains diagnostic and repair procedures for the following components:

- Engine Control Units (ECU)
- Air Flow Meters
- Fuel Pumps
- Alternators

Each procedure includes the following:

1. **Outline Of Diagnostics, Parts Requirements and Warranty Application** - Illustrates the steps from diagnostics through parts return and warranty submission.
2. **Diagnostic Procedures** - Step by step testing of the component and circuit.
3. **Component Check Sheet** - Details of the customer complaint and events leading to the repair.
NOTE: Proper completion of the check sheets are required for warranty claim submission.

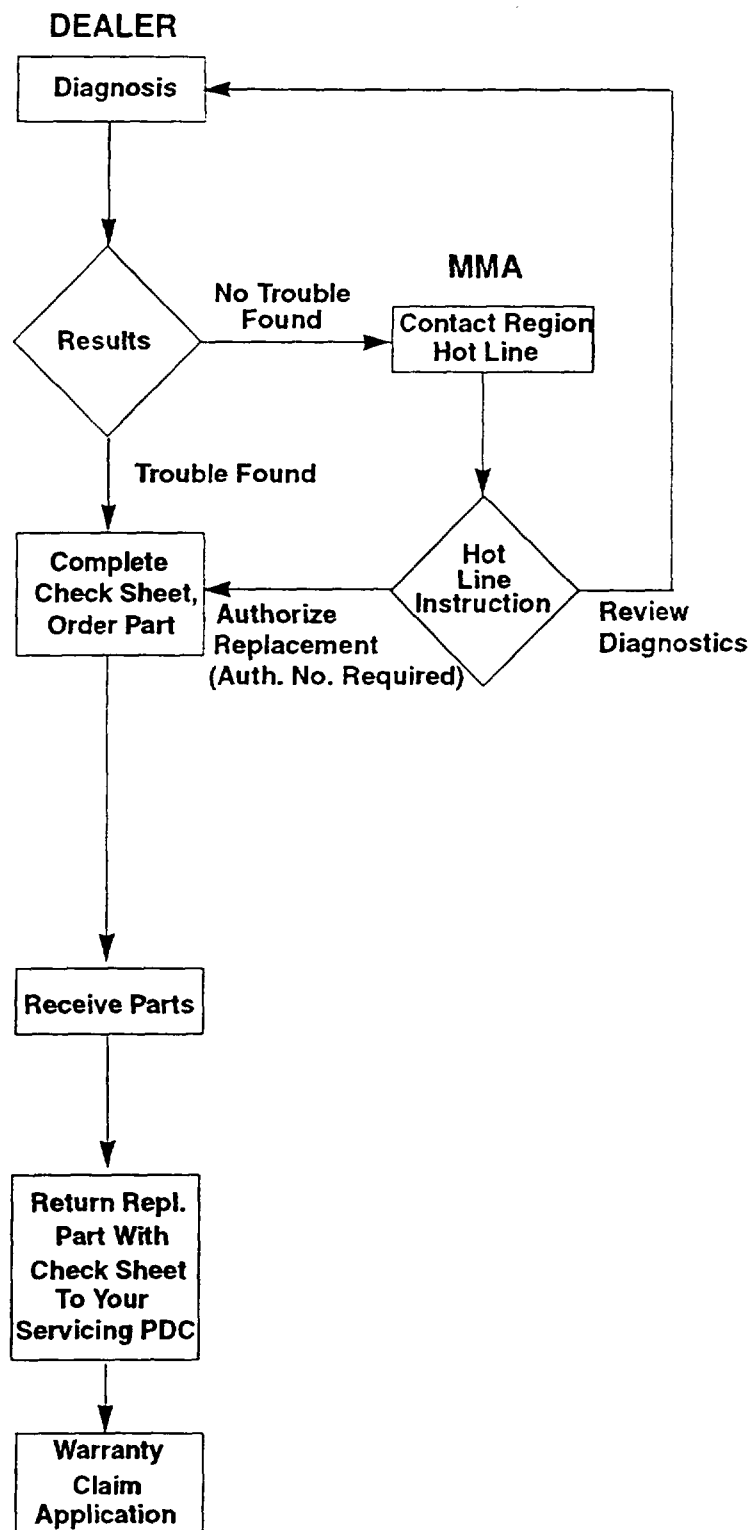
NOTE: See page two of this bulletin for an individual component index.

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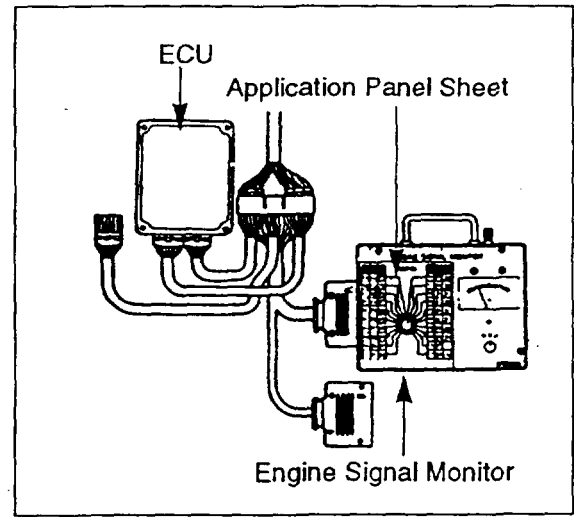
Refer to the applicable workshop manual for symptoms not described in this bulletin. If further reference is required, contact the Technical Hotline in your area.

ECU - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



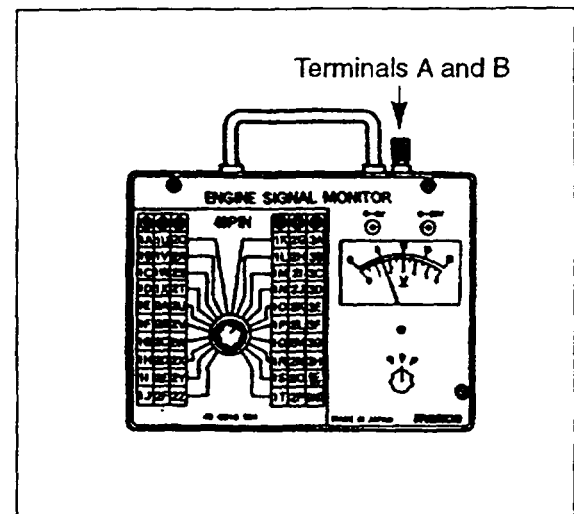
Section 1- ECU DIAGNOSTICS PROCEDURE

1. Disconnect ECU connectors
2. Connect SST (Engine Signal Monitor and Adapter) as shown. Place application panel sheet on the Engine Signal Monitor.



3. Measure the voltage according to the specifications in the workshop manual.
4. If the voltage is different than specified, check the related input and output devices and wiring for damage. If no problem is found and the reading remains out of specification, replace the ECU.
5. If the voltage is within specification and the problem still exists, contact the Technical Hotline for assistance.

CAUTION: Terminals A&B are for external voltmeter connections. Use these terminal to attach a digital voltmeter or oscilloscope for precise volt readings.



Never apply current to these terminals, damage to the ECU will result.

Number: 002/93

Date Issued: 9/16/93

Revised:

ECU CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: _____ Yes _____ No

3. Reason for replacement:

Terminal Voltage Out Of Specification: _____ Yes _____ No

Terminal Number	Voltage Reading	Factory Specifications

According to Service Bulletin instructions: _____ Category _____ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

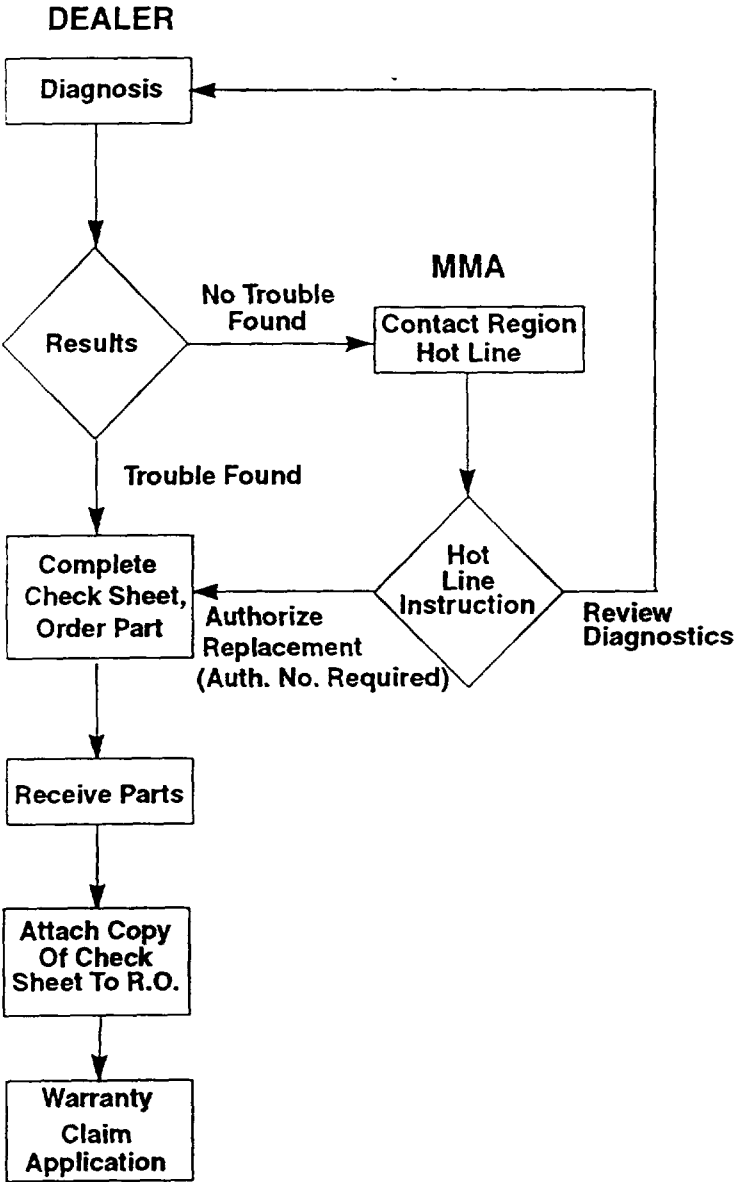
Other: _____

4. Repair Type: _____ Warranty _____ Customer Pay

Technician's Signature: _____ Date: ___/___/___

NOTE: This check sheet must be returned with the replaced part to your servicing PDC

AIR FLOW METER - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES

NOTE: Procedures listed below do not apply to the following model/year vehicles:

1988 - 92 B2600

1989 - 90 RX-7 (up to and including vehicles with a VIN of JM1FC3*L0806489**

1993 RX-7

1. Check the air intake temperature sensor resistance.
 - a) Remove air flow meter and allow to sit until its temperature is the same as the ambient temperature.
 - b) Using a multi tester, measure and record the resistance of the intake air temperature sensor terminals (THAA-E2) and the atmospheric temperature at that time.

NOTE: Use a multi tester with an accuracy equivalent of the FLUK 70 series.

CAUTION: Refer to the illustration at the right and the "Standard Values" table when measuring resistance.

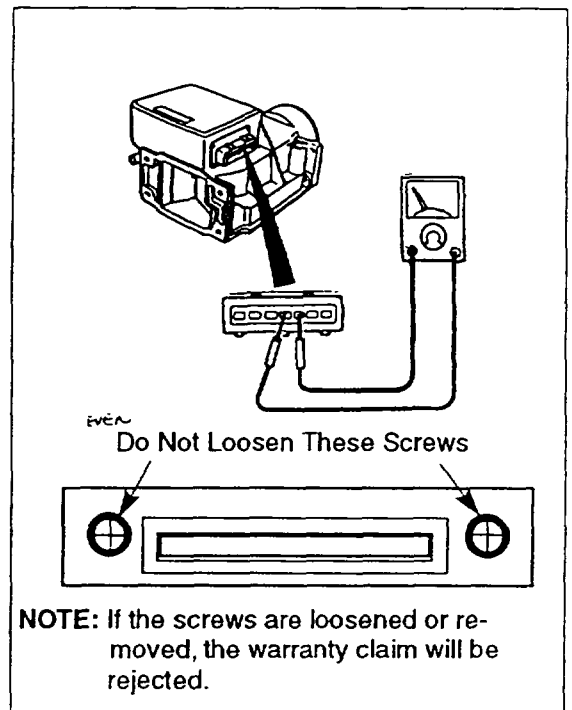
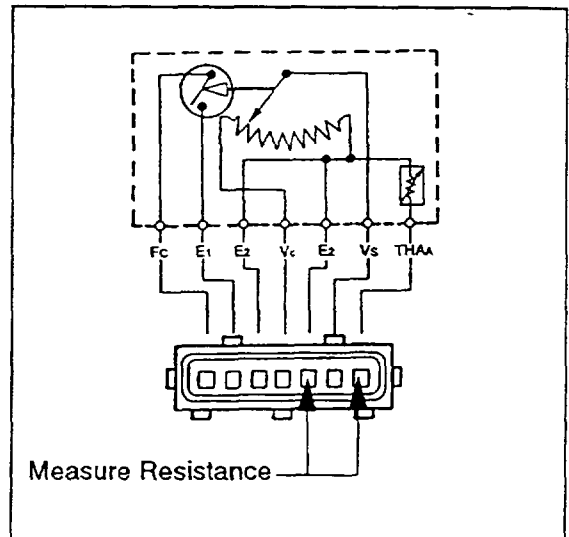
Standard Values

Ambient Temp. (F)	Resistance (K, Ohms)	Ambient Temp. (F)	Resistance (K, Ohms)
0	11.1 - 18.7	70	1.9 - 2.9
10	8.2 - 13.7	80	1.5 - 2.3
20	6.4 - 10.3	90	1.2 - 1.9
30	4.9 - 7.9	100	0.9 - 1.5
40	3.8 - 6.0	110	0.8 - 1.3
50	3.0 - 4.7	120	0.6 - 1.1
60	2.4 - 3.7		

2. Check resistance between E2 and Vc.

2. Standard Value= 200 - 400 ohms

NOTE: Use a multi-tester with the accuracy equivalent of a FLUK 70 Series.

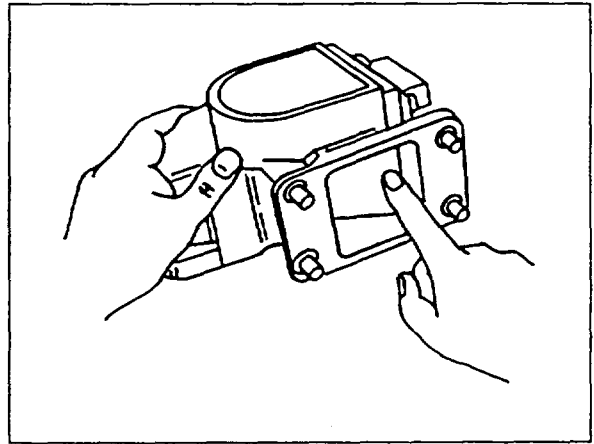


Section 2 - AIR FLOW METER DIAGNOSTIC PROCEDURES CONT'D.

NOTE: The following models have air flow meters with measuring plates and should be diagnosed using the method listed below:

1986 - 89 323**1990 - 93 323/Protege****1990 - 92 626/MX-6****1990 - 91 929****1988 - 93 MPV****1990 - 93 MX-5****1993 MX-3 (1.6 Litre)**

1. Check for smooth movement of the measuring plate.
If no problem is found, reinstall the air flow meter.
2. If no problem is found in the air flow meter, contact the Technical Hotline for assistance.



Number: 002/93	Date Issued: 9/16/93	Revised:
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AIR FLOW METER CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Air Flow Meter Out Of Specification: ___ Yes ___ No

	Measurement	Factory Specifications
Intake Air Temperature Sensor		
Base Resistance (E2-VC)		

Measuring Plate Does Not Move Smoothly ___ Yes ___ No

According to Service Bulletin instructions: _____ Category _____ Number

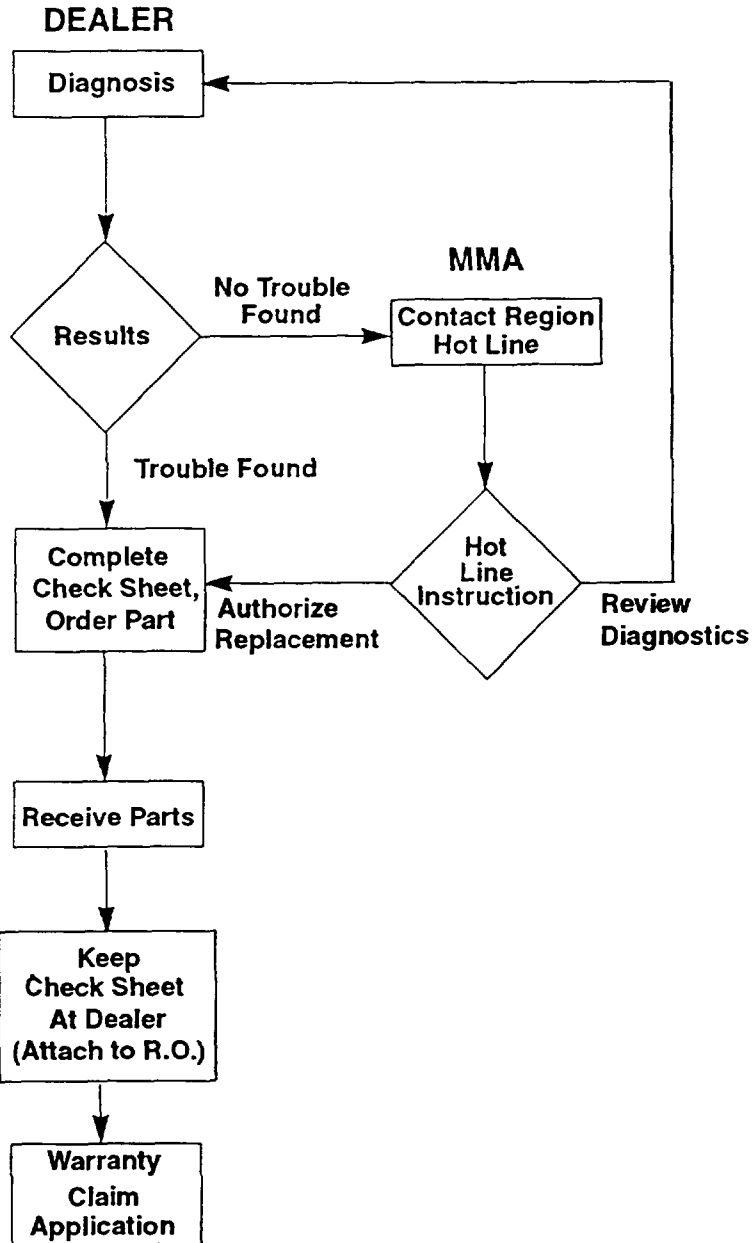
According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed air flow meter to Mazda, attach a copy of the check sheet and repair order.

FUEL PUMP - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION

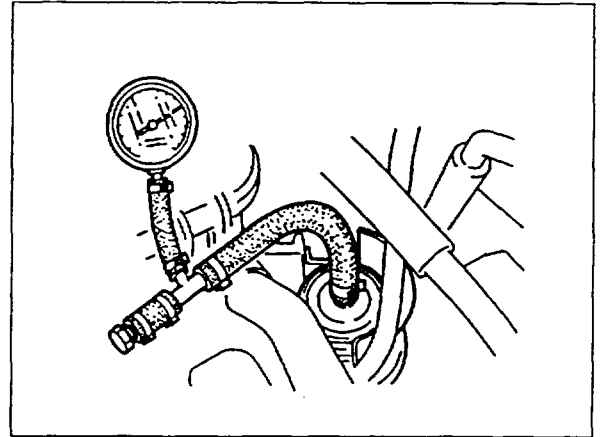


Section 3 - FUEL PUMP DIAGNOSTIC PROCEDURES

1. Disconnect negative terminal and check battery voltage. Voltage should be 12.4V or more. Reconnect terminal.
2. Start engine and run at idle.
3. Disconnect circuit opening relay. Engine will continue to run until all fuel in the supply line is used.

WARNING: Step 3 is designed to eliminate fuel in the supply line and enable safe installation of the fuel pressure gauge. Refer to the workshop manual for further instructions.

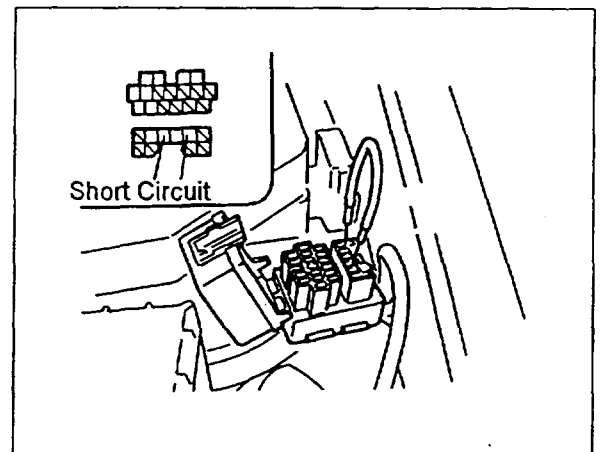
4. Disconnect the negative battery terminal.
5. Install the fuel pressure gauge on the outlet side of the fuel filter.
6. Short circuit the fuel pump test terminals (yellow 2 pin connector with a jumper wire on the following vehicles.



1988 - 89 323	1993 - 626/MX-6
1990 - 91 929	1989 - 92 MPV
1989 - 91 RX-7	

7. Short circuit the fuel pump check terminal and the ground terminal of the diagnostic connector with a jumper wire on the following vehicles.

1990 - 93 323/Protege	1993 626/MX-6
1992 - 93 929	1992 - 93 MX-3
1990 - 93 MX-5	1993 RX-7



8. Turn the ignition switch on and measure the maximum fuel pressure. Turn the ignition switch off and remove the jumper wires.

Year/Model	Standard Value (PSI)
1988-89 323, 1990-91 323/Protege, 1990-92 626/MX-6, 1990-91 929, MPV (All)	49 or Over
1992-93 323/Protege, 1992-93 929, 1993 626/MX-6, MX-3 (All), MX-5 (All)	52 or Over
1989-91 RX-7	56 or Over
1993 RX-7	53 or Over

FUEL PUMP DIAGNOSTIC PROCEDURES CONT'D.

9. If the value of fuel pressure (Max.) is below standard, measure the voltage at the fuel pump connector (vehicle side) using the procedures below.

- a) Reinstall the jumper wire and turn the Ignition on. Refer to steps 6 and 7 of the previous page.
- b) Connect test leads to the fuel pump positive and negative terminals and measure the voltage at the fuel pump connector (vehicle side).

NOTE: Do not disconnect the fuel pump connector.

If the voltage is above the standard value, replace the fuel pump.

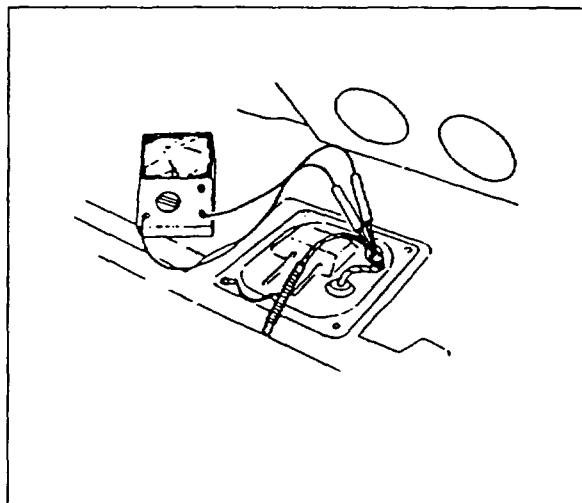
If the voltage is below standard, check for a damaged harness, relay or a poor ground at the pump.

Standard Value: 8.5V and over (93 RX-7)

9.5V and over (Other Models)

10. After restoring the standard voltage value, measure the fuel pump pressure (Max.). If pressure is not to specification, replace the fuel pump.

11. If no trouble is found with the fuel pump and the problem still exists, contact the Technical Hotline for assistance.



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FUEL PUMP CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: ___ A/T: ___ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Fuel Pump Did Not Operate: ___ Yes ___ No

Insufficient Fuel Pressure: ___ Yes ___ No

Maximum Fuel Pump Pressure: _____(PSI) Factory Specification: _____

According to Service Bulletin instructions: _____ Category _____ Number

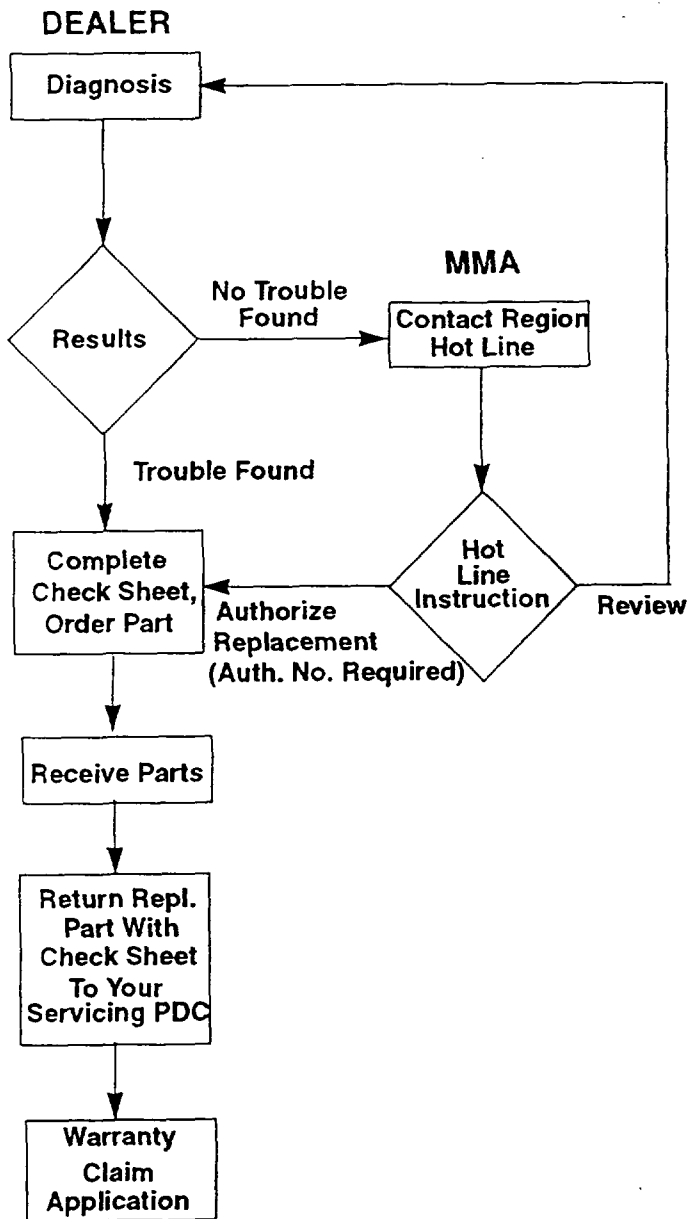
According to DSM or Hot Line Authorization: _____(Authorization Number)

Other: _____

Technician's Signature: _____ Date: ___/___/___

NOTE: Attach the check sheet to the repair order. If requested to return the failed fuel pump to Mazda, attach a copy of the check sheet and repair order.

CHARGING SYSTEM - OUTLINE OF DIAGNOSTICS, PARTS ORDERING AND WARRANTY APPLICATION



Section 4 - CHARGING SYSTEM DIAGNOSTIC PROCEDURES

1. Start the engine and confirm that the alternator warning light is not illuminating.

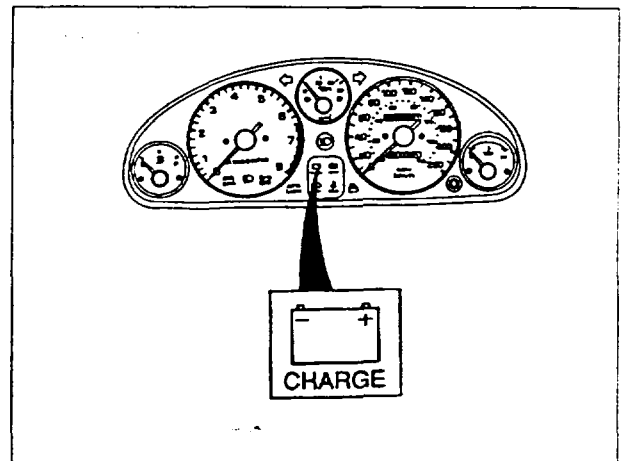
NOTE: If the warning light is illuminated, the self diagnosis operation is functioning. Check the alternator and related harness' according to section "G" of the workshop manual.

2. Fluctuate the engine RPM and listen for alternator bearing or engine belt noise. If noise is present, inspect for loose or damaged belt or damage to the alternator bearing.

NOTE: Perform the above inspection with the vehicle headlights illuminated.

3. Turn off the ignition and all accessories. Connect a load tester (VAT-40 or equivalent).

4. Apply the load test referring to the chart to the right. The final voltage must be above the standard minimum value shown below.



STANDARD MINIMUM VOLTAGE

Approx Battery Temperature	Minimum Voltage
70F (21C)	9.6V
60F (15C)	9.5V
50F (10C)	9.4V
40F (4C)	9.3V
30F (-1C)	9.1V
20F (-7C)	8.9V

If the voltage measures at or above the minimum, proceed to step 4.

If the voltage is below the minimum, quick charge the battery for 30 minutes and load test. If the battery remains below the minimum, replace the battery and proceed to step 4.

NOTE: Battery inspection and charging procedures for Navajo vehicles are different than those outlined in this bulletin. Refer to the workshop manual for instructions.

LOAD TEST CHART

Model	Test Load (Amps)
323/Prot.	180
626/MX-6	174
929	180 195
MX-3	150 180 165
MX-5	105
RX-7	180 165 195
MPV	150 195
B-Series	150 195 195

Section 4 - CHARGING SYSTEM DIAGNOSTICS CONT'D.

4. Start the vehicle and raise the RPM to 2500.
5. Connect a battery load tester (VAT 40/70 or equivalent)
6. Apply a load equal to the alternator rating. The generated voltage should be 14.1V to 14.7V.

LOAD TEST RESULTS

Over 14.7V - Replace Alternator

Under 14.1V - Check for resistance between the battery and terminals "B" and "S". If resistance is present, repair the damaged harness and retest. If the voltage is still below 14.1V, replace the alternator.

14.1V to 14.7V - No trouble with the alternator or battery.

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Date Issued: 9/16/93

Revised:

ALTERNATOR AND BATTERY CHECK SHEET

Dealer Name _____ Technician Number: _____

Vehicle Year: _____ Model: _____ M/T: _____ A/T: _____ VIN: _____

Repair Date: ___/___/___ Mileage: _____ Repair Order Number: _____

1. Customer Complaint: _____

2. Was the customer's complaint verified: ___ Yes ___ No

3. Reason for replacement:

Alternator output or battery voltage was out of specification: ___ Yes ___ No

	Reading	Factory Spec.
Output Voltage		
Output Amp.		
Instrument Used		
Battery Voltage (Open Terminal)		
Battery Voltage (Load Test)		

According to Service Bulletin instructions: ___ Category ___ Number

According to DSM or Hot Line Authorization: _____ (Authorization Number)

Other: _____

4. Repair Type: ___ Warranty ___ Customer Pay

Technician's Signature: _____ Date: ___/___/___

MELA Comments:	

Signature _____	Date: ___/___/___

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Section 5 - WARRANTY INFORMATION

Symptom Code: Complete Applicable Code

Damage Code: Complete Applicable Code

Part Number Main Cause: Complete Applicable Part Number

Operation Number and Labor Hours:

	Operation Number	Labor Hours
Engine Control Unit(ECU), Diagnosis	F0005XDX	0.9
Air Flow Sensor (AFM), Diagnosis	F0006XDX	0.4
Fuel Pump, Diagnosis	F0007XDX	0.5
Charging System, Diagnosis	G0003XDX	1.4

NOTE: Labor hours shown are the maximum allowable time. Claim only the actual time used for these operations.

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject MAINTENANCE FREE BATTERY DIAGNOSTIC AND CHARGING PROCEDURE	Bulletin No. 002/95
			Issued 4/5/95
			Revised

DESCRIPTION

The following information describes the correct inspection and servicing procedures for original equipment Mazda batteries. This bulletin replaces the previously released bulletin Cat. G, No. 003/93

NOTE: Diagnostic procedures used for lead-acid batteries provide false readings and contribute to unnecessary replacement if used on maintenance free batteries.

The instructions in this bulletin apply to wholesale delivery vehicles, vehicles in dealer inventory and retailed vehicles. The instructions include:

- | | |
|---|--|
| 1. Inspection Procedures | 2. Battery Charging Information |
| 3. Battery Diagnostic Procedure
(Flow Chart) | 4. Charging System Diagnostic Procedures
(Equipment Requirements) |
| 5. Cold Cranking Amperage
(CCA) Specifications | 6. Warranty Information |
| 8. Battery Check Sheet | 7. Battery Maintenance Record |

Both the "Battery Check Sheet" and the "Battery Maintenance Record" are available in pad form from HELM Inc..

1. INSPECTION

A) At Wholesale Delivery

- Measure the voltage with a digital voltmeter. If the voltage is 12.4 V or more, the battery is normal. If the battery is less than 12.4V, refer to the table on page 2 for "boost" and "quick" charging specifications.

Or

- Test the battery with a load or electronic tester (i.e. VAT 40 or MIDTRONICS PowerSensor Plus). Refer to the table on page 3 or 4 (depending on test equipment) for minimum voltage specifications.
- If the battery is not within the minimum specification, contact your DCSM for authorization prior to replacing the battery. See the Warranty Information on page 7.

NOTE: Do not install the "ROOM" fuse until retail delivery. Following this procedure will minimize the amount of dark current drawn from the battery. Dark current is current drawn by various electronic circuits which are constantly "ON". Examples of these circuits are engine and transmission CPUs, alarm systems and radio memories.

B) Vehicles In Dealer Inventory

- All batteries require periodic maintenance and, if necessary, supplemental charging to maintain battery performance.
- Measure the amount of battery voltage once a month. If the voltage is less than 12.4V, perform a "quick" or "boost" charge according to the instructions on page 2 and complete the Battery Maintenance Record.

NOTE: Run the vehicle's engine 20-30 minutes once per week (with A/C "ON", if equipped). Running the engine will charge the battery and circulate the A/C refrigerant oil to maintain seals. If possible, periodically relocate the vehicle to keep brake rotor surfaces free of rust.

C) Just Prior To Retail Delivery

- Measure the battery voltage with a digital voltmeter or use the MIDTRONICS PowerSensor Plus tester in the "C" position for a voltage check or the "D" position to provide battery CCA rating. If the voltage is 12.4 V or more, the battery is normal and the vehicle may be delivered.

NOTE: MIDTRONICS PowerSensor Plus requires only 10.2V to accurately test battery condition.

- If the voltage is less than 12.4V, refer to the table on page 2 for "boost" and "quick" charging specifications prior to delivery.

NOTE: If the battery power level is significantly low, driving the vehicle will not sufficiently restore battery charge. Install the "ROOM" fuse just prior to vehicle delivery.

Signature _____ Signature _____ Index # 042722



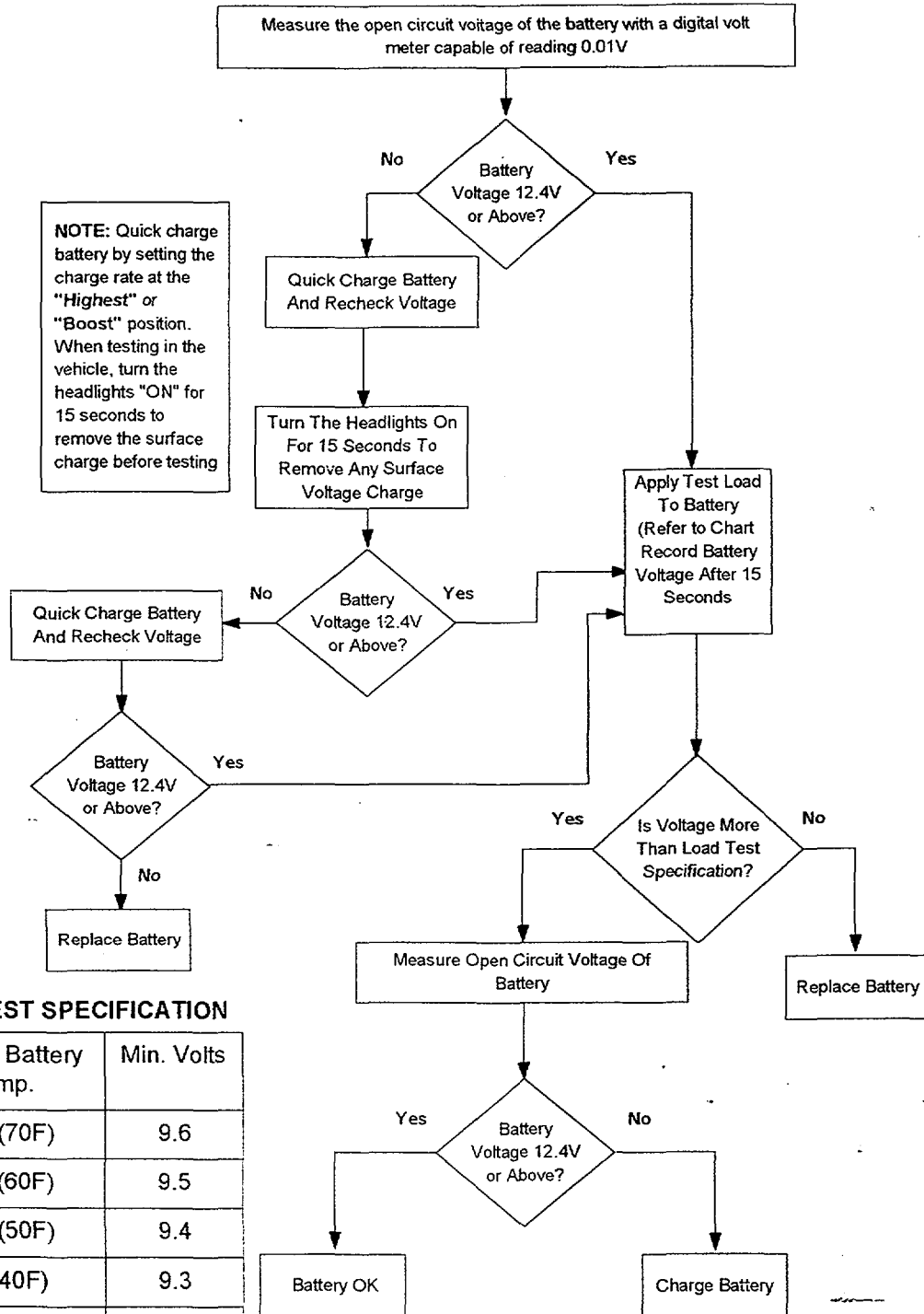
2. CHARGING INFORMATION

The chart below gives specific charging amps, times and load test amps for 1993 -'95 vehicles. Refer to the applicable workshop manual for other model year vehicles and additional troubleshooting information.

Model	Battery	Max. Charge Current (AMP)	Charge Time (Min.)	Load Test (AMP)
Protege/323	55D23L	30	30	180
626/MX-6	GROUP58R	30	30	174
929	55D23L	30	30	180
	80D26L	35	30	195
Millenia	75D26L	35	30	195
	80D26L			
MX-3	50D20L	25	30	150
	55D23L	30	30	180
	65D23L	30	30	165
MX-5	S46A24L	20	30	105
RX-7	55D23L	30	30	180
	65D23L	30	30	165
	75D26L	35	30	195
MPV	50D20L	25	30	150
	80D26L	35	30	195
B-Series	50D20R	25	30	150
	75D26R	35	30	195
	80D26R	35	30	195
94-95 B-Series	BX-58C	35	20	270
	BXT-65-650	35	20	325
Navajo	BXT-65-650	35	20	325

3. BATTERY DIAGNOSTIC PROCEDURES (Load Test Using VAT-40 or Equivalent)

Diagnostic procedures used for testing lead-acid batteries provide false readings leading to unnecessary replacement if used on maintenance-free batteries. Follow the table below when diagnosing systems with maintenance-free batteries.



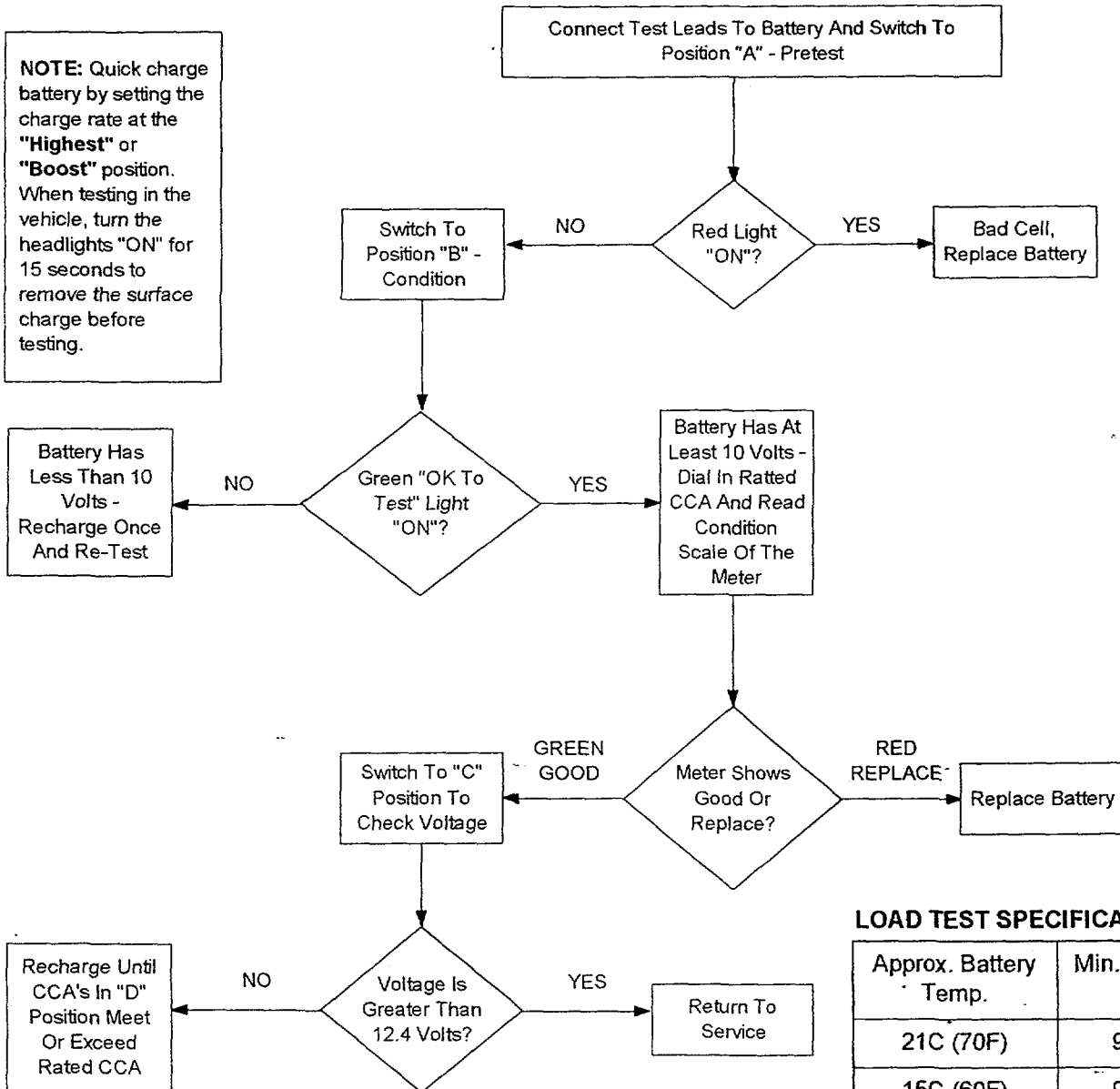
NOTE: Quick charge battery by setting the charge rate at the "Highest" or "Boost" position. When testing in the vehicle, turn the headlights "ON" for 15 seconds to remove the surface charge before testing

LOAD TEST SPECIFICATION

Approx. Battery Temp.	Min. Volts
21C (70F)	9.6
15C (60F)	9.5
10C (50F)	9.4
4C (40F)	9.3
-1C (30F)	9.1
-7C (20F)	8.9
-12C (10F)	8.7
-18C (0F)	8.5

3. BATTERY DIAGNOSTIC PROCEDURES (Using *Midtronics PowerSensor Plus*)

Diagnostic procedures used for testing lead-acid batteries provide false readings leading to unnecessary replacement if used on maintenance-free batteries. Follow the table below when diagnosing systems with maintenance-free batteries.



LOAD TEST SPECIFICATION

Approx. Battery Temp.	Min. Volts
21C (70F)	9.6
15C (60F)	9.5
10C (50F)	9.4
4C (40F)	9.3
-1C (30F)	9.1
-7C (20F)	8.9
-12C (10F)	8.7
-18C (0F)	8.5

This flow chart is not available in pad form. Dealers are requested to make copies at the dealership. This chart will be provided in pad form at the next printing.

4. CHARGING SYSTEM DIAGNOSTIC PROCEDURE (Equipment Procedures)

1. Check the following:

- Connectors
- Grounds
- Alternator Condition
- Fuses

(USING VAT-40 OR EQUIVALENT)

2. Start engine and confirm that alternator warning light is not illuminated.

NOTE: If the warning light is illuminated, the self diagnostic function is operating. Check the alternator and related harness. Refer to the instructions in section G of the applicable workshop manual.

3. Check the alternator belt tension and condition.

4. Turn the vehicle headlights "ON". Check engine belt and alternator bearing for unusual noise by raising and lowering the engine RPM.

5. Turn ignition and all accessories "OFF".

6. Connect a load tester.

7. Apply the load test referring to the table and flow chart on page 3 or 4 (depending on the test equipment). The final voltage must be above the minimum value shown in the table. Record the voltage on the "Battery Check Sheet".

- If the voltage is more than the minimum, measure the open circuit voltage. Charge the battery if less than 12.4V.
- If the voltage is less than the minimum, "quick" or "boost" charge the battery for 30 minutes. Perform a load test again. If the battery is still below the minimum, replace the battery and proceed to step 8.

8. Start the vehicle and raise the RPM to 2500.

9. Connect the battery load tester and apply a load equal to the alternator rating.

- If the voltage is 13.5V to 15.0V, the alternator and battery are functioning correctly.
- If the voltage is more than 15.0V, replace the alternator.
- If the voltage is 14.1V or under, check for resistance between the battery and terminals "B" and "S". Inspect the harness for damage. Repair as necessary. Retest the alternator. If the voltage is still less than 14.1V, replace the alternator.

(USING MIDTRONICS PowerSensor Plus TESTER)

1. Connect the MIDTRONICS PowerSensor Plus tester. If low voltage is found (less than 10.2V) charge the battery for two (2) hours and recheck. If the voltage is greater than 10.2V, test battery condition without pre-charging. If low voltage is still found, replace the battery according to the information in the warranty section of this bulletin.

2. If the tester indicates that the battery is not at fault, refer to the appropriate workshop manual or BETM (Body Electrical Troubleshooting Manual) for troubleshooting and repair information.

The following are additional MIDTRONICS PowerSensor Plus tester features:

Position "A" will test for an open circuit (bad cell or broken internal circuit). This is indicated by a "Red" LED light. If an open circuit is indicated, replace the battery using the criteria described in the warranty section of this bulletin.

Position "B" a "green" LED indicates that the battery has at least 10.2V and can therefore be tested without pre-charging. This position indicates battery cold cranking amperage (CCA). This position requires that the CCA rating be set on the MIDTRONICS PowerSensor Plus Tester dial. Refer to the attached chart to determine CCA. The MIDTRONICS PowerSensor Plus tester then determines actual CCA by measuring the actual condition of the battery voltage and plate condition.

Position "C" measures the alternator output when the engine is started and also indicates "Open-Circuit Voltage"

Position "D" indicates actual CCA condition of the battery. By comparing the indicated reading to the battery's rated CCA, the battery capacity is determined (ex. Indicated CCA of 400 for a battery with a 600 rating = the battery is 2/3 down on capacity). This decline will occur through normal aging and does not necessarily indicate that the battery requires replacement.

See page 6 for the appropriate ratings.

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5. BATTERY COLD CRANKING AMPERAGE (CCA) RATINGS

NOTE: CCA Rating Numbers (stamped on battery covers) are required for use with MIDTRONICS PowerSensor Plus Battery Tester.

WET BATTERY APPLICATION GUIDE

Model / Year	Factory Battery (JIS) Number	Group Size**	OEM Battery CCA	Replacement Battery CCA	Replacement Battery Part Number
323 / PROTEGE					
1982-86	50D20L	GR24	280	460	0000 80 024R WB
1986 - 91	50D20L	GR26R	320	525	0000 80 026R WB
1988 - 95*	55D23L	GR35	360	525	0000 80 035R WB
626 / MX-6					
1980-92	50D20L	GR26R	410	525	0000 80 026R WB
1983-91*	55D23L	GR35	360	525	0000 80 035R WB
1992-95	582, 540	GR58R	582	582	0000 80 058R WB
MILLENNIA					
1995	75D26L, 490	GR24	490	675	0000 80 124F WB
929					
1988-95	50D20L	GR26R	310	525	0000 80 026R WB
1988-91*	80D26L, 582	GR24	585	675	0000 80 124R WB
MPV					
1989-95	50D20L, 306	GR26R	310	525	0000 80 026R WB
1989-95 (Cold Pack)	80D26L, 582	GR58R	585	675	0000 80 124F WB
RX-7					
1986-88	50D20L, 306	GR26R	310	460	0000 80 0024 WB
1989-93	55D23L, 356	GR35	360	525	0000 80 0035 WB
1986-93	65D23L, 420	GR35	420	460	0000 80 0024 WB
1992-95	75D26L	GR24	415	500	0000 80 224F WB
1992-95		24F	490	675	0000 80 124F WB
MX-3					
1992-93 (I-4)	50D23L	GR26R	310	525	0000 80 026R WB
1992-95 (V6)	55D23L	GR35	360	525	0000 80 035R WB
1992-95 (ALL)		GR24F	415	500	0000 80 224F WB
B-SERIES					
1986-91	50D20L	GR26R	320	525	0000 80 026R WB
1986-95 (Cold Pack)	75D26L	GR24	390	500	0000 80 224F WB
1988		GR26R	390	500	0000 80 224F WB
1995	582, 540	GR58R	540	540	0000 80 58HD WB
1995*		GR65R	650	875	0000 80-0065 WB
NAVAJO					
1991-94	650	GR65R	650	875	0000 80 0065 WB

NOTE:

* Indicates optional batteries to those listed just above.

** The "GROUP" size refers to the battery external dimensions and **not** the CCA rating. Batteries can have the same group size and different CCA ratings.

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6. WARRANTY INFORMATION

Charging System Diagnosis

Symptom Code:	Complete Actual Code
Damage Code:	Complete Actual Code
Part Number Main Cause:	Complete Actual Part Number
Operation Number:	G0501ACX
Labor Hours:	0.5Hrs (Vehicles other than 929) 0.6Hrs (929 Vehicles)

NOTE: The above operation number is used for **Battery Inspection, Charging and Testing. This includes:**

- Battery Load Test
- Battery Replenishment
- Charging and Capacity Test
- Charging Test
- Dark Current Test

NOTE: If a charging problem still exists after battery charging and/or replacement, follow the charging diagnostic procedures covered under operation number G0001*DX to identify the problem. Basic diagnostic operations require separate punch/flag time. Hours shown on the SRT microfiche are the maximum allowable times.

The information below outlines when battery charging or replacement is covered under vehicle warranty.

• **Wholesale Delivery Inspection**

Charging/testing is not covered under vehicle warranty and is considered part of normal dealer processing responsibility. Boost charging is covered within 48 hours of vehicle delivery. **This operation will require completion of the Battery Check Sheet.**

Replacement requires DCSM authorization. Additionally, **the Battery Check Sheet must be completed** and attached to the repair order. If the check sheet is not attached to the repair order, the claim will be denied.

• **Vehicles In Dealer Inventory**

Maintenance of vehicles in dealer inventory is the responsibility of the dealer and is not covered under vehicle warranty. If a battery problem results from defects in material/workmanship, battery replacement is covered under vehicle warranty with DCSM authorization. Maintain the battery according to the schedules and procedures listed on page 1 of this bulletin. **Complete the Battery Maintenance Record** and attach a copy of the completed record to the repair order. If a copy is not attached to the repair order, the claim will be denied.

• **After Retail Delivery (First Ninety (90) Days After Retail Delivery)**

Charging/testing is not covered under vehicle warranty unless accompanied by a related repair (i.e. alternator failure). **This operation will require completion of the Battery Check Sheet.**

Replacement is covered with DCSM authorization only if the battery has been properly maintained while in inventory. **A copy of the Battery Maintenance Record and Battery Check Sheet** must be completed and attached to the repair order. If copies are not attached to the repair order, the claim will be denied.

After Retail Delivery (After Ninety (90) Days From Retail Delivery)

Charging/testing is not covered under the vehicle warranty unless accompanied by a related repair (i.e. alternator failure). **This operation will require completion of the Battery Check Sheet.**

Replacement is covered under normal warranty if the battery is judged defective after charging and diagnosing the battery according to the procedure in this bulletin.

The Battery Check Sheet must be completed and attached to the repair order. If copies are not attached to the repair order, the claim will be denied.

BATTERY CHECK SHEET

NOTE: Attach this Check Sheet to the reverse side of the Repair Order.

1. Was the customer's complaint verified? ____ Yes ____ No

2. Battery Inspection Results

Information	Reading
Instrument Used For Test	
Battery Voltage (Open Terminal)	
Battery Voltage (Load Test)	

3. Authorization Number _____ *(If battery was replaced prior to retail sale or within 90 days of retail sale)*

See Reverse Side For Battery Diagnostic Flow Chart

BATTERY MAINTENANCE RECORD

VIN: _____

Inspection			Charging and Load Test if the battery voltage measures less than 12.4V		Signature
Date	Voltage	Removal of ROOM Fuse	After Charging	Load Test	

- Battery voltage should be checked according to the Service Bulletin Cat. G, No. 002/95.
- Removal of the ROOM fuse should be confirmed. Check the column ("Removal of ROOM Fuse") during inspection.
- Date, voltage and signature must be filled out on inspection.
- The record should be retained at the dealer when the vehicle is retailed.

NOTE:

- If the battery voltage measures less than 12.4V, driving the vehicle will not sufficiently charge the battery. Do not release a vehicle with a battery that is below full charge.
- Install the ROOM fuse just prior to vehicle delivery.
- Removing the ROOM fuse reduces the amount of "dark-current" voltage that is drained from the battery.

See Reverse Side For Battery Diagnostic Flow Chart

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category G	Applicable Model/s All Models	Subject MAINTENANCE FREE BATTERY DIGNOSTIC AND CHARGING PROCEDURES	Bulletin No. 003/93
			Issued 9/15/93
			Revised

APPLICABLE MODELS/VINS

All Mazda vehicles

DESCRIPTION

Vehicles in dealer inventory require periodic battery inspection and if necessary, supplemental charging.

NOTE: If the vehicle's maintenance free battery is excessively discharged, conventional charging procedures will not return the battery to full power.

This bulletin contains the following:

- Inspection Recommendations
- Diagnostic Procedures
- Charging Information
- Warranty Information
- Battery Diagnostic Check Sheet

INSPECTION RECCOMMENDATIONS

AT WHOLESALE DELIVERY

1. Measure the voltage with a digital voltmeter.
2. If the voltage is 12.4V or more, the battery is in normal condition.
3. If the voltage is less than 12.4V, the battery requires a quick charge prior to load testing. Quick charge by setting the charge rate of the battery charge to the "highest" or "boost" position. Refer to the table on page 3.
4. Load test the battery. Refer to the table on page 2 for minimum voltage specifications.
5. If not within specification, contact your DCSM for authorization prior to replacing the battery. See warranty information on page 3.
6. Do not install the "ROOM" fuse. This will minimize the drainage on the battery from the CPU, instrument panel, etc.

NOTE: Remove "ROOM" fuse on Navajo and B-Series vehicles.

VEHICLES IN DEALER INVENTORY

Measure the battery voltage at least once per month. If the voltage is less than 12.4V, perform a quick charge according to the table on page 3.

RETAIL DELIVERY

1. Measure the battery voltage.
2. If the voltage is 12.4V or more, the battery is in normal condition and the vehicle may be delivered.
3. If the voltage is less than 12.4V perform a quick charge according to the table on page 3 prior to delivery.

NOTE: Reinstall the ROOM fuse just prior to delivery. This will decrease the amount of "key off" voltage that is drained from the battery.

If the battery voltage measured less than 12.4V, driving the vehicle will not sufficiently charge the battery.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

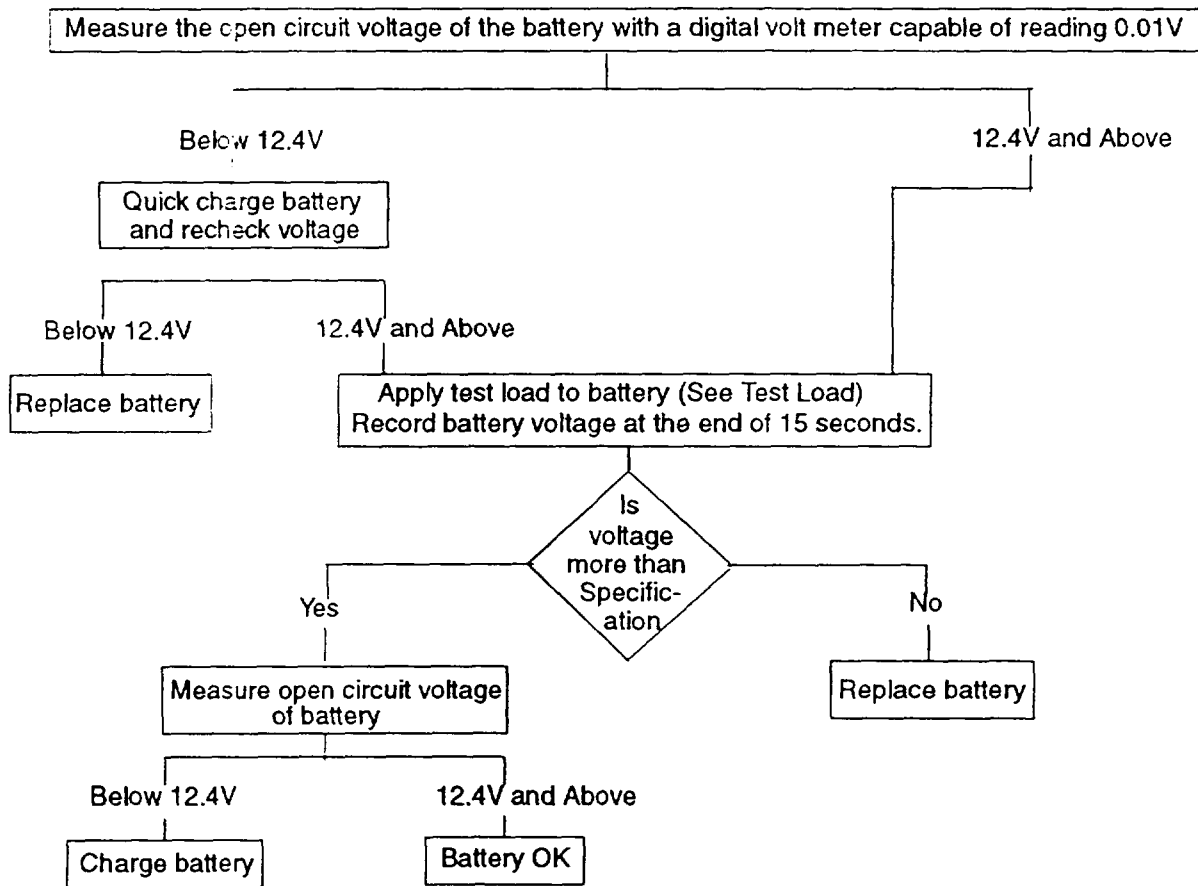
Service Manager

Parts Manager

DIAGNOSTIC PROCEDURES

Because of their design, maintenance free batteries must not be diagnosed using procedures developed for lead storage batteries. This will provide a false reading and result in unnecessary replacement.

The table below should be followed when diagnosing maintenance free batteries.



LOAD TEST SPECIFICATION

Approx. Battery Temp.	Min. Volts
21C (70F)	9.6
15C (60F)	9.5
10C (50F)	9.4
4C (40F)	9.3
-1C (30F)	9.1
-7C (20F)	8.9
-12C (10F)	8.7
-18C (0F)	8.5

NOTE: Quick charge the battery by setting the charge rate at the "highest" or "boost" position.

CHARGING INFORMATION

The chart below gives specific charging amps, charging times and test load amps for 1993 model year vehicles and their original batteries. Refer to the applicable workshop manual for other model years.

Model	Battery	Max. Charge Current (AMPs.)	Charge Time (Min.)	Test Load (AMPs.)
323/Prot.	55D23L	30	30	180
626/MX-6	GROUP58R	30	30	174
929	55D23L	30	30	180
	80D26L	35	30	195
MX-3	50D20L	25	30	150
	55D23L	30	30	180
	65D23L	30	30	165
MX-5	S46A24L	20	30	105
RX-7	55D23L	30	30	180
	65D23L	30	30	165
	75D26L	35	30	195
MPV	50D20L	25	30	150
	80D26L	35	30	195
B-Series	50D20R	25	30	150
	75D26R	35	30	195
	80D26R	35	30	195
'94 B-Series	BX-58C	35	20	270
	BXT-65-650	35	20	325
Navajo	BXT-65-650	35	20	325

WARRANTY INFORMATION

The information below outlines when charging or replacement is covered under warranty.

1. WHOLESALE DELIVERY INSPECTION

Charging - Testing is not covered under warranty and is considered part of normal dealer processing responsibility. Boost charging is covered. This will require completion of the inspection sheet.

Replacement - Requires DCSM authorization. Additionally, the diagnostic check sheet must be completed and attached to the repair order. If the inspection sheet is not attached, the claim may be denied.

2. VEHICLES IN DEALER INVENTORY

Battery problems that occur after the wholesale delivery inspection are not subject to warranty. Maintenance of vehicles in dealer inventory is the responsibility of the dealer.

If the battery problem results from defects in material/manufacturing, replacement is covered with the authorization of the DCSM. Check the battery according to the diagnostics described in this bulletin and complete the battery diagnostic check sheet. Attach the diagnostic check sheet to the repair order.

3. AFTER RETAIL

Charging - Not covered under normal warranty unless accompanied by a related repair.

Replacement - The battery is covered under normal warranty if it is judged defective after diagnosing and charging according to the procedures listed in this bulletin. A battery diagnostic check sheet must be completed and attached to the repair order.

BATTERY CHECK SHEET FOR INVENTORY VEHICLES

1. Was the customer's complaint verified? ____ Yes ____ No

2. Battery Inspection Results

	Reading
Instrument Used	
Battery Voltage (Open Terminal)	
Battery Voltage (Load Test)	

3. Authorization number if battery was replaced prior to retail sale of the vehicle: _____

NOTE: This check sheet must be attached to the reverse side of the repair order.

Copy this check sheet at the dealer and keep in file for future use.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714) 727-1990

MAZDA

Category G	Applicable Model/s See Below	Subject CHECKING POINTS FOR DEAD BATTERY	Bulletin No. 003/96
			Issued 12/26/96
			Revised

APPLICABLE MODELS

All models except M - Edition MX-5 Miata

DESCRIPTION

The following information provides basic instructions for measuring dark current and guidelines to determine if the current is excessive.

DARK CURRENT

Current which flows from the battery even when the ignition is in the OFF position and the key removed. This current is used to maintain memory functions in the radio, clock, CPU and other electronic equipment. Current will vary depending on the vehicle's electronic components.

Average Dark Current = Less than 20 mA.

NOTE: If the ignition key is in the ACC position, current flow may be up to 250 mA. This amount of current is capable of draining the battery within 2 - 3 days.

DARK CURRENT CHECKING PROCEDURE

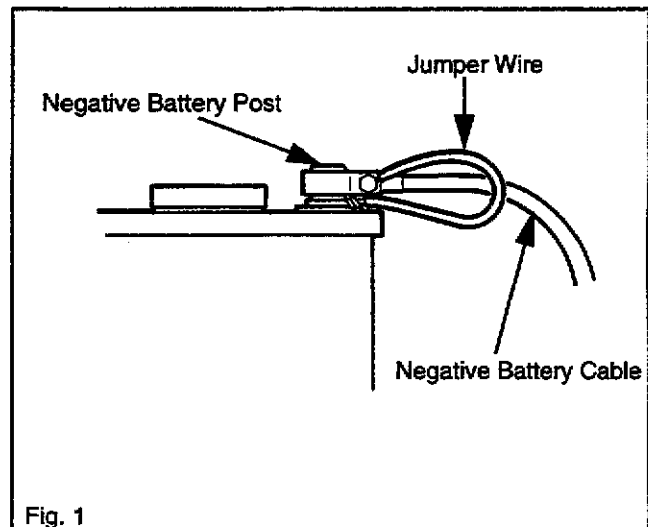
1. Turn ignition OFF and remove key from ignition.
2. Turn off all electrical loads and confirm that doors and trunk lid are completely closed.
3. Measure voltage from the battery.
 - If less than 10V, connect a fully charged battery parallel to the vehicle battery using a booster cable.

NOTE: Do not disconnect the battery cables during this step (if the battery cables are disconnected with any circuits which still operate when the ignition switch is removed, the problem symptom may not be duplicated and the correct dark current can not be measured even if the cable is reconnected).

4. Use a jumper wire to connect the negative battery cable to the negative battery post. Refer to Fig. 1.
5. Confirm that jumper wire is connected and disconnect the negative battery cable.

NOTES:

- **Vehicles with Anti-Theft Devices** - Open hood and disconnect coupler from the hood switch so that the warning light on the theft deterrent system does not illuminate.
 - **Vehicles with Anti-Theft Audio Systems** - Confirm that the customer has the personal code number.
6. Select "Maximum Amperage Range" (1A or 3A) on the circuit tester and connect tester. Refer to Fig. 2
 - "RED" positive probe (+) - Connect to negative cable.
 - "BLACK" negative probe (-) - Connect to negative battery post.



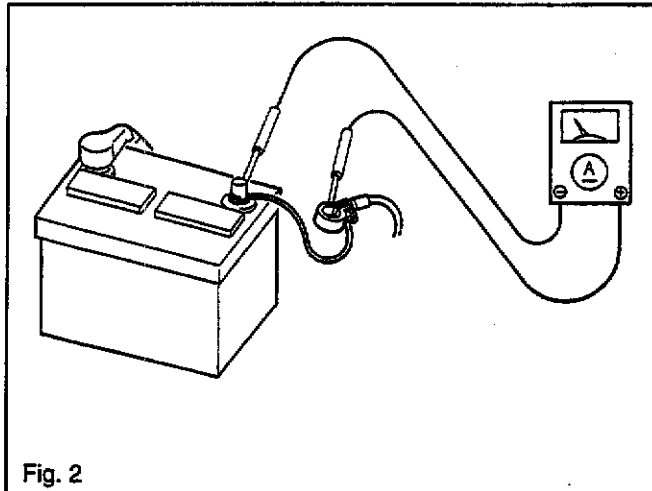
CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

7. Disconnect the jumper wire and measure current.

CAUTION: Do not open doors or trunk lid during this measurement. Excessive current will damage the tester.

NOTE: If the measurement range of the tester is not high enough to measure this current, connect the jumper wire first (otherwise the conductivity between the battery cable and the battery is shut off momentarily when the measurement range is changed).

Change setting to 100 mA or 30 mA, disconnect the jumper wire and measure current.



8. If the current is more than 20 mA, perform the following:
- Disconnect the "ROOM" fuse and measure dark current.
 - Reconnect "ROOM" fuse to determine if current has changed.
 - If the current measurement is more than 2.5 mA, disconnect and connect each fuse to determine which circuit is drawing abnormal current.
9. Repair or replace faulty component(s) according to the workshop manual.

CHECKING POINT FOR DEAD BATTERY

1. Measure the dark current according to the instructions on page 1 of 2 and above.

NOTE: If the dark current is higher than specified, especially if the vehicle has accessories that may draw excessive current, investigate the cause.
2. Measure the open circuit voltage of the battery and/or load test according to the instructions in the workshop manual (Battery, "Charging System").

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category G	Applicable Model/s All except B-Series & Navajo	Subject WIPER MOTOR INOPERATIVE CIRCUIT BREAKER ACTIVATION	Bulletin No. 003/97 Issued 05/19/97 Revised
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NOTE: This bulletin is superseded by T013/97.

APPLICABLE MODELS:

All except B-Series and Navajo.

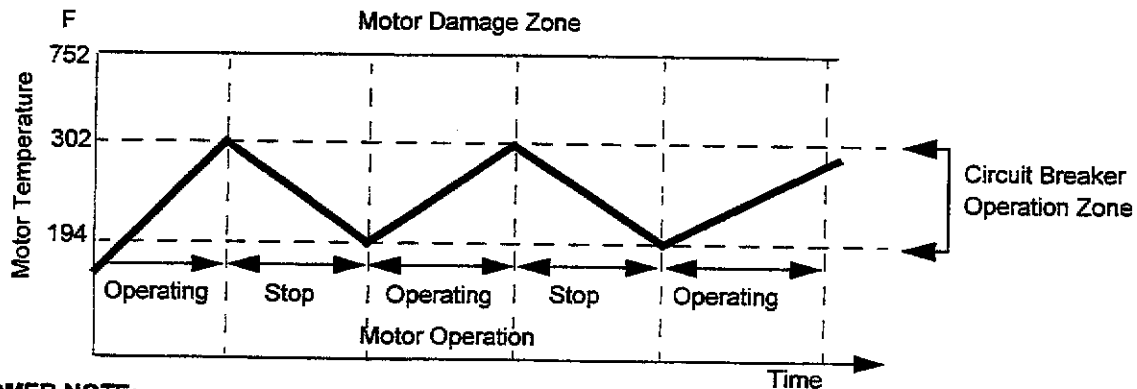
DESCRIPTION:

The wiper motor is equipped with a built-in circuit breaker to protect the circuit and motor from over heating due to motor overloading. Overload may occur when:

- Motor temperature exceeds 150 degrees (C) [302 degrees (F)].
- Wipers are frozen to the windshield.
- Wiper motion is restricted due to heavy loads (snow or mud build-up).

NOTE: Circuit automatically resets when motor temperature decreases below 90 degrees C (194 degrees F).

The information in this bulletin is provided to answer customer questions regarding occasional wiper motor perceived problems and prevent unnecessary wiper motor replacement.



CUSTOMER NOTE:

To prevent wiper motor binding:

- Remove ice or snow build-up from windshield with a suitable tool.
- Confirm the wiper is free by carefully raising blades from glass.
- **NEVER** operate wipers on dry windshield.

If the wiper operation stops:

- Guide the vehicle to the side of road and stop.
- Turn wipers "OFF".
- Wait approximately 5 minutes and turn the wiper switch "ON".
 - If the wipers activate, the wiper motor and circuitry are functioning properly (circuit breaker activated).
 - If the wipers fail to activate, proceed to your nearest dealer when you can safely drive the vehicle.

Technician's Note: If the wiper motor does not operate, check the wiper motor circuit (Refer to Workshop Manual for the specific model) and replace wiper motor if necessary.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Category G (01)	Applicable Model/s All Models except B-Series & Nav.	Subject DEAD BATTERY (INSPECTING FOR BACK-UP CURRENT)	Bulletin No. 001/98 Issued 10/22/98 Revised
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APPLICABLE MODEL(S)/VINS

All models except B-Series and Navajo.

DESCRIPTION

Battery is dead after vehicle sits overnight or for a short period of time. This could be caused by excessive back-up current drawn through the battery after the engine is shut off.

Note

- Back-up current is defined as the current that flows to the memory circuits (i.e. radio, PCM) while the key is out of the ignition and doors are closed with all lights turned off.

Customers complaining of this concern should have their vehicle repaired using the following procedure.

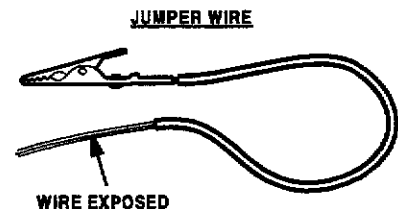
REPAIR PROCEDURE

- Verify customer complaint.
- Turn off all electrical loads (including accessories), remove key from ignition, and close all doors.

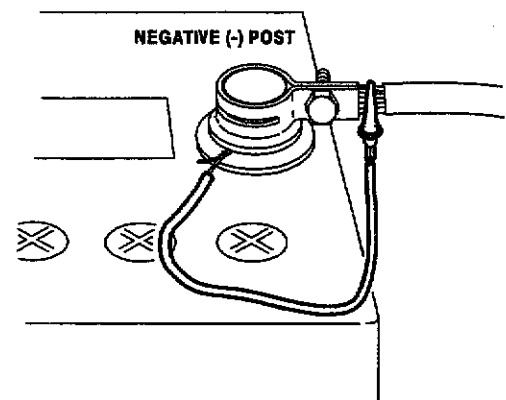
Note

- Disable hood light (if equipped).

- To avoid deleting the audio memory presets or OBD-II fault memory, prepare a jumper wire as shown.
- Carefully loosen the negative battery clamp without disconnecting it from the post.



- Slightly lift clamp and wrap the jumper wire around the bottom of the post and attach the alligator clip to the cable clamp.

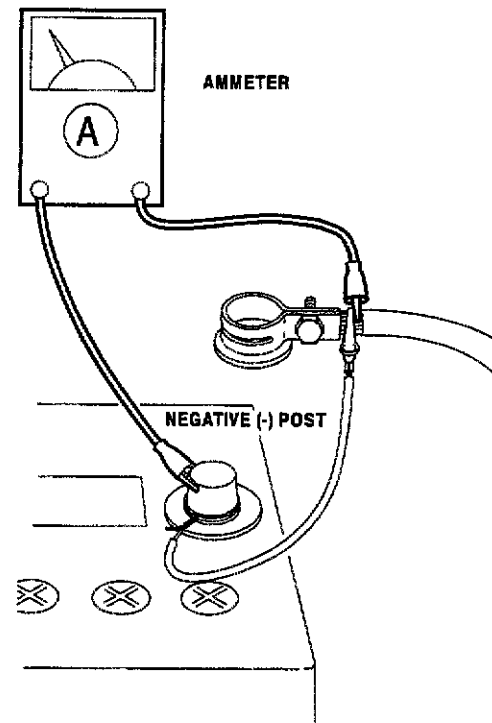


CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

6. Remove the clamp from post then connect an ammeter as shown.

Note

- Be sure ammeter fuse is good. If fuse is blown, it will create an open circuit which will defeat the purpose of this procedure.



7. Remove the alligator clip from the cable clamp and measure the back-up current.

Specification

20mA (0.020A)

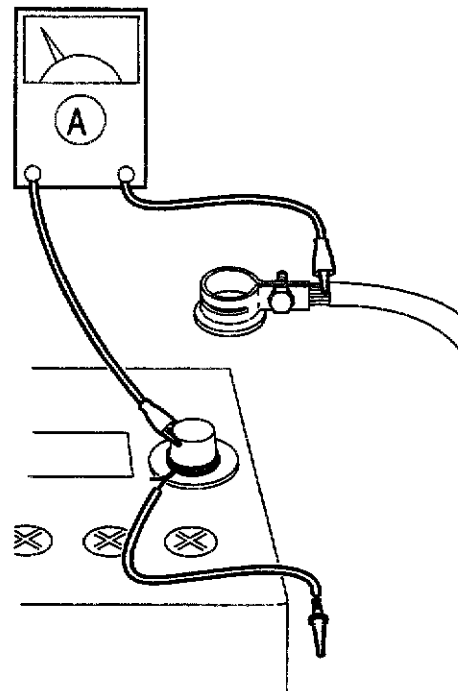
- It is necessary to wait a minimum of one (1) minute after removing the key from the ignition and closing all doors before measuring back-up current. This is the time necessary for dome lights and CPU's to shut down and back-up current to achieve specification.

If back-up current exceeds specification, a short exists or a defective component is causing excessive current flow.

Locate the source of excessive current draw and repair as necessary. Then proceed to STEP 8.

If the current draw is within specification, refer to Workshop Manual for diagnostics.

8. Verify repair.



Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
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T

Category K	Applicable Model/s 1987-90 626/MX-6 1988-89 323	Subject EC-AT/HAT REBUILD PROGRAM	Bulletin No. 002/90
			Issued 3/16/90
			Revised

DA 5/90

DESCRIPTION

Mazda (North America), Inc. (MANA) has been supplying rebuilt Electronically Controlled Automatic Transmissions (EC-ATs) for Turbo and non-Turbo models since October 3, 1988. These assemblies have been prepared with up-to-date modifications as described in bulletin Category 7, no. 051/88. MANA will also be supplying Hydraulic Automatic Transmissions (HATs) effective March 5, 1990.

This bulletin is provided for up-to-date information regarding the 1989 model year.

NOTE:

1. Using the EC-AT tester, verify that the problem is not solenoid related and that the assembly has indeed failed.
2. Before removing the failed assembly, an EC-AT/HAT Inspection Sheet (supplied by MANA, see attached), should be filled out with the customer. This inspection sheet, which should be returned with the failed unit and a copy retained with the repair order, contains information regarding this program.
3. Refer to Mazda Parts Bulletin E-7-88 (Western Regions, revised 3/5/90), and V-32 (Eastern Regions, revised 3/5/90), for procedures required for ordering rebuilt EC-ATs and for instructions regarding the return of the failed assembly (i.e. draining instructions, part removal, etc.).
4. Refer to Mazda Warranty Bulletin, Category K, no. 1 (revised 3/5/90), for the terms of this program. If replacement is necessary, you **MUST** contact your DSM for authorization.

MANA will supply an instruction manual containing installation and adjustment procedures with each rebuilt unit.

NOTE:

1. **Failure to fill out the EC-AT/HAT Inspection Sheet may result in the forfeiture of the core refund.**
2. **DO NOT remove the VIN I.D. tag from the core -- removing it would be a violation of Federal Law.**

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

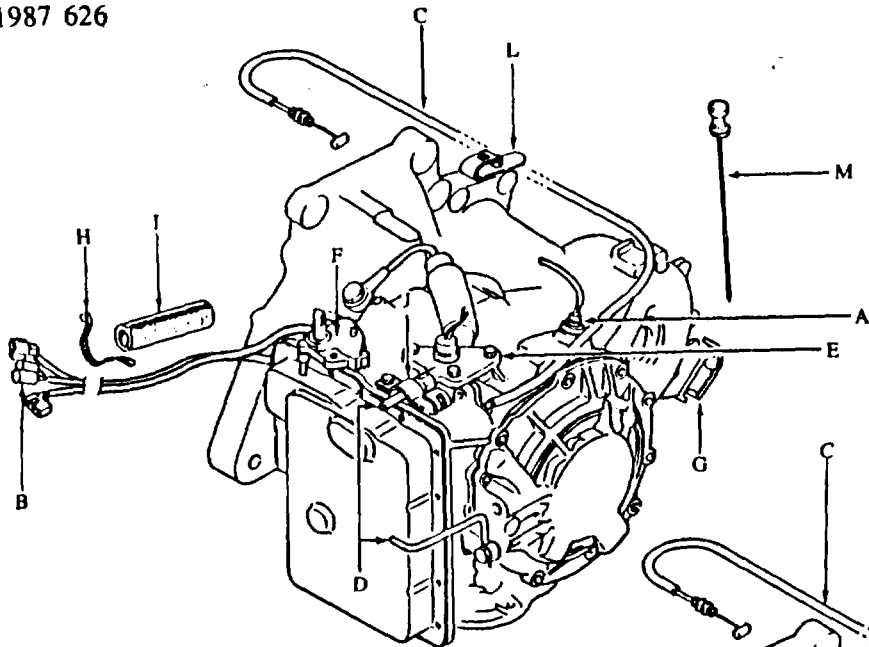
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Service Manager

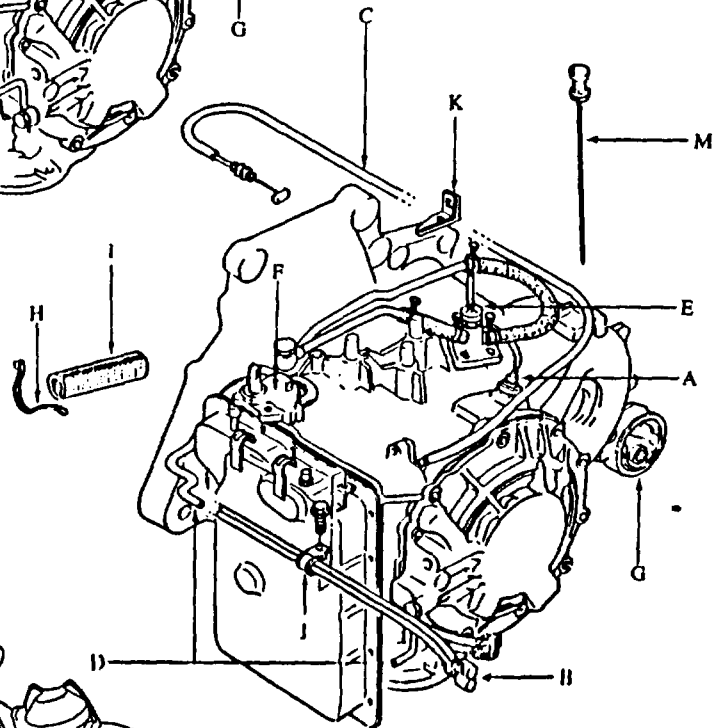
Parts Manager

The following parts should remain on the core before returning to MANA. Refer to the illustrations below and the reference chart on the next page.

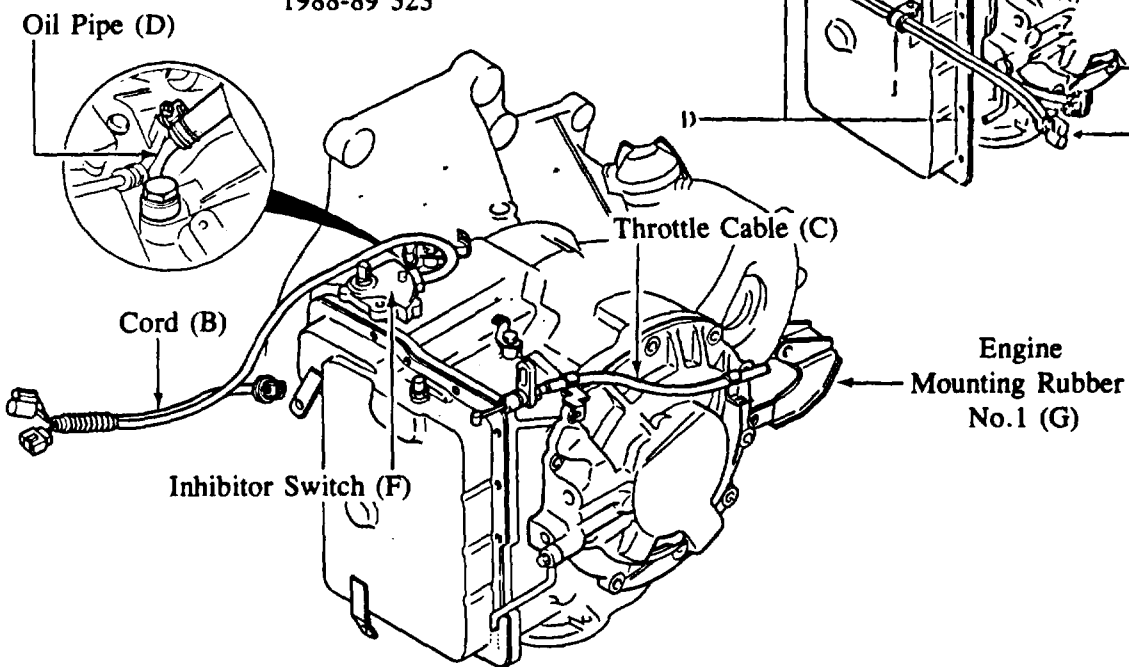
1987 626



1988-89 626/MX-6



1988-89 323



Number: 002/90	Date Issued: 3/16/90	Date Revised:
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The following parts should REMAIN on the core before returning to MANA:

	1987 626	1988-90 626/MX-6	1988-89 323
A) Pulse Generator	x	x	-
B) Cord	x	x	x
C) Throttle Cable	x	x	x
D) Oil Pipes	x	x	x
E) Thermo Switch Box	x	x	-
F) Inhibitor Switch	x	x	x
G) Engine Mounting Rubber No.1	x	x	x
H) Bands (for cord)	x	x	-
I) Protector (for cord)	x	x	-
J) Clip (for cord)	x	x	-
K) Throttle Cable Bracket	-	x	-
L) Throttle Cable Clip	x	-	-
M) Oil Level Gauge	x	-	-

NOTE:

The oil level gauge for the 1987 626 has been modified as shown in Service Bulletin, Category 7, no. 045/88. The modified oil level gauge will be supplied with the rebuilt EC-AT from MANA -- please return the old oil level gauge with the core.

The following parts should be REMOVED from the core before returning to MANA:

	1987 626	1988-90 626/MX-6	1988-89 323
Oil Level Tube	x	x	x
Oil Level Gauge	-	x	x
Speedometer Driven Gear Assy.	x	x	x

EC-AT/HAT INSPECTION SHEET

Instructions:

Please complete this form and submit it with the return EC-AT/HAT unit to the repair facility.

Date: / /

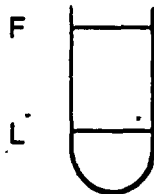
1. Dealer Code: _____
2. Dealer Name: _____
3. Year/Model: _____
4. VIN No: _____
5. Unit No: _____
6. Mileage: _____
7. Delivery Date: _____
8. Problem Date: _____

9. Customer Comment (please indicate with a ✓ mark):

- Slip: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Shock: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Flare: () 1-2 () 2-3 () 3-4 () 4-3 () 3-2 () 2-1
- Noise: () 1 () 2 () 3 () 4 () R
- No Movement: () 1 () 2 () 3 () 4 () R
- Oil Leakage (Location): _____

10. Checking Results:

- Condition of ATF: () OK () Burned () Other _____
- ATF Level:



(indicate with an arrow)

- EC-AT Tester Result Code No: _____

11. Comments:

12. Technician's Signature: _____

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category K	Applicable Model/s All Models With A/T or ATX	Subject AUTOMATIC TRANSMISSION DIAGNOSTIC PROCEDURES	Bulletin No. 002/94
			Issued 10/4/94
			Revised

APPLICABLE MODELS

All vehicles with automatic transmissions or automatic transaxles

DESCRIPTION

Follow the information listed in this bulletin when diagnosing automatic transmission/transaxle problems or after installing a new or rebuilt transmission/transaxle

Contents:

- Service Advisor / Technician Check Sheet & Diagnostic Flow Chart
- Power Flushing Equipment Recommendations

A supply of fifty (50) Service Advisor / Technician Check Sheets & Diagnostic Flow Charts are provided with this bulletin. These are useful tools in preventing unnecessary replacement of transmissions, illustrating step by step diagnostics and are required for replacement authorization.

Additional pads of fifty (50) are available free of charge from Helm, Inc.

For additional information regarding transmission/transaxle diagnostics, refer to the applicable workshop manual and/or contact your regional/distributor hot line.

NOTE: If the transmission oil cooler is not cleaned with the proper power flushing equipment prior to repair completion, and comeback problems occur due to clogged oil cooler circuits, the repair cost will not be warrantable.

RECOMMENDED POWER FLUSHING MANUFACTURERS / EQUIPMENT

Manufacturer / Telephone Number	Part Number / Description
OTC / (800) 533-0492	60081 / Portable Torque Converter Oil Cooler Cleaner

NOTE: 1) Power flushers require installation of a 5 micron filter.

2) All of the above flushers require adapters / attachments for Mazda vehicle applications.

3) Questions regarding usage and applications should be directed to the flusher manufacturer.

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 Index # **040346**

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature _____
 Parts Manager

AUTOMATIC TRANSMISSION CHECK SHEET

Dealer: _____

R.O.# _____

SERVICE ADVISOR

Service Writer: _____ Dealer No. _____ Date: ___/___/___

Customer's Name: _____ Dealer Telephone No. (____) _____

Model _____ Year _____ Engine _____ Mileage _____ VIN _____

Aftermarket Parts Installed? Yes ___ No ___ (list, if yes) _____

Customer Description Of Problem: _____

WHEN DOES PROBLEM OCCUR?

Test Drive Vehicle? Yes ___ No ___	No Movement: 1 ___ 2 ___ 3 ___ 4 ___ R ___
Engine Temperature? Cold ___ Hot ___ All ___	Noise: 1 ___ 2 ___ 3 ___ 4 ___ R ___
Road Condition? Flat ___ Hilly ___	Slip: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___
Vehicle Speed? High ___ Cruise ___ Low ___ All ___	Shock: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___
Is The Problem Intermittent? Yes ___ No ___	Flare: 1-2 ___ 2-3 ___ 3-4 ___ 4-3 ___ 3-2 ___ 2-1 ___
Is The Problem Occurring Now? Yes ___ No ___	

SERVICE TECH / SERVICE MGR

PROBLEM DESCRIPTION / DIAGNOSIS

Description: _____

Problem Duplicated? Yes ___ No ___ Test Drive? Yes ___ No ___ Serv. Bulletin Relating To Problem? _____ / _____
(list, if yes)

Trans. Fluid Cond.: Milky ___ Burnt ___ Particles/Sludge ___ Normal ___ Trans Fluid Level: High ___ Low ___ Normal ___

Trans. Leaks? Yes ___ No ___
(list area(s), if yes)

Engine Electrical System: Battery Voltage (engine running) _____ Volts
 KOEO: _____ (Key On Engine Off)
 KOER: _____ (Key On Engine Running)
LA4A-EL Transmission Only

TEST RESULTS

Problem Category: Codes _____ Leaks ___ Fluid Cond. ___ Driveability ___ Unusual Noise ___
(list codes, if yes)

Line Pressure/Stall Test Results:

Range	Line Pressure Kg/f ___ psi ___		
	Idle	Stall	RPM
Park / Neutral			
D, S, L			
Reverse			

RECOMMENDATIONS

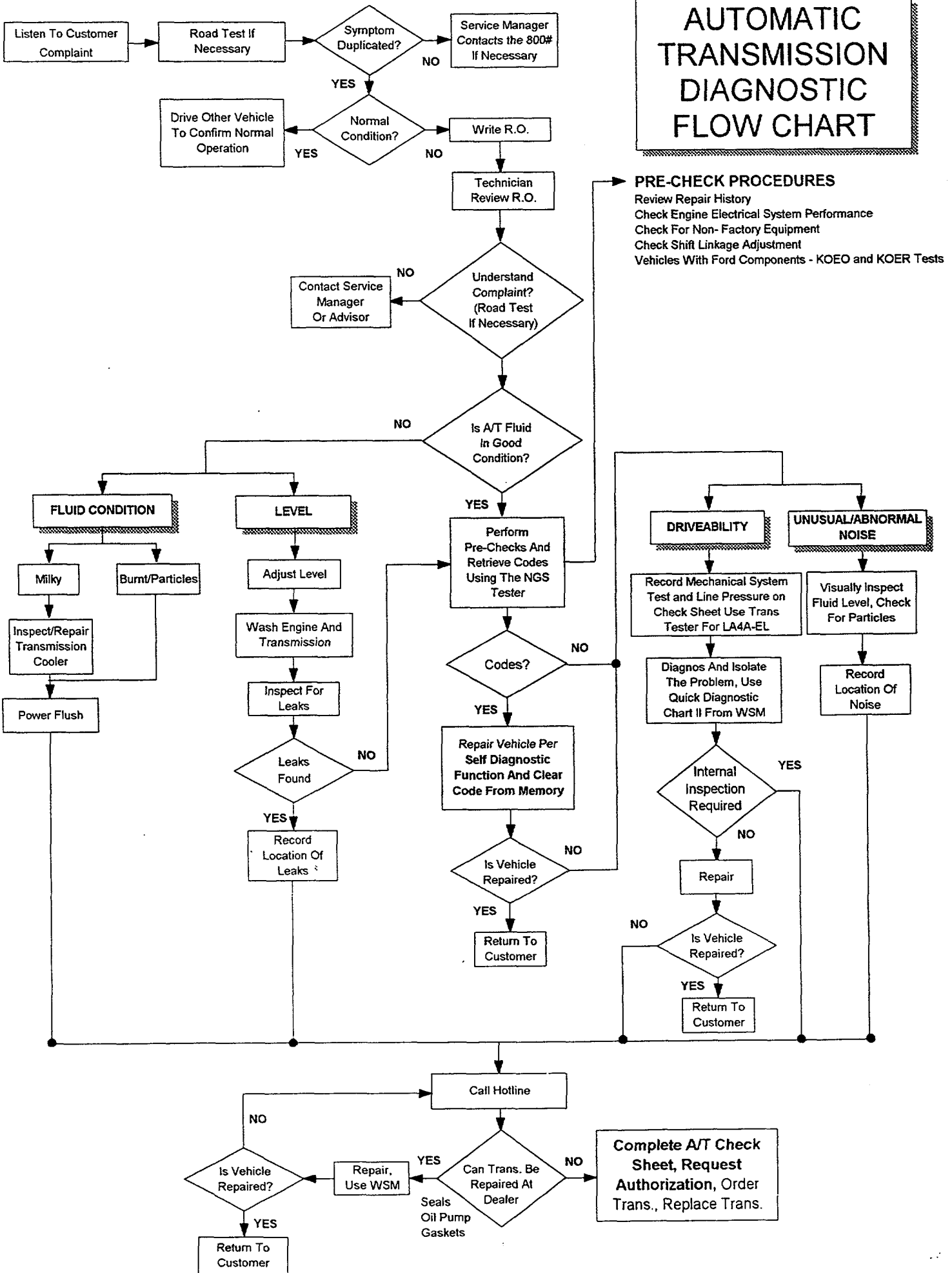
Did You Use The "Quick Diagnostic Chart II" In The WSM? Yes ___ No ___ Was It Useful? Yes ___ No ___

Contact Regional Hotline For Assistance? Yes ___ No ___
(list person contacted, if yes) _____ (date) ___/___/___

Recommendation: Normal Condition ___ Repair Trans. ___ Exchange ___
(MASH Authorization Number) _____ (date) ___/___/___



AUTOMATIC TRANSMISSION DIAGNOSTIC FLOW CHART



Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

WJK
MAZDA

Category K*	Applicable Model/s 1988-89 626/MX-6 Turbo	Subject D1-D2 SHIFT SHOCK	Bulletin No. 003/90 Issued 4/20/90 Revised
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DESCRIPTION

If you encounter a customer complaint regarding D1 to D2 shift shock during light throttle (¼ opening) during warm-up, repair the problem in accordance with the following procedure.

NOTE:

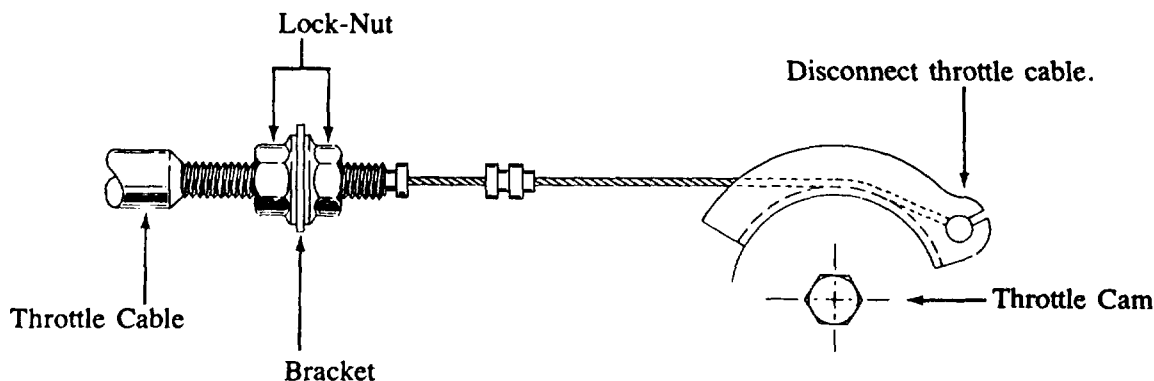
Perform the repair procedure referring to the Workshop Manual for details.

REPAIR PROCEDURE

1. Conduct a test drive and confirm the customer's complaint.
2. Check that the line pressure is within 4.0–4.6 kg/cm² (57–66 psi) at idle (725–775 rpm) in "P" range at normal operating temperature.

If the line pressure is out of the specification, adjust the line pressure by adjusting the lock nuts of the throttle cable.

3. Verify that the throttle cable is free of "slack" in accordance with the following procedure.
 - a) Read the line pressure (a) indicated on the pressure gauge (P/N 49B0 19 901).
 - b) Disconnect the throttle cable from the throttle cam and read the line pressure (b).



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Number: 003/90	Date Issued: 4/20/90	Date Revised:
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- If the value of the line pressure (a) is higher than (b), the result is OK.
- If the line pressure does not change, go back to step 2 and readjust the throttle cable.

LINE PRESSURE	RESULT
(a) > (b)	OK
(a) = (b)	NG → Readjust

NOTE:

When the throttle cable has "slack", the line pressure does not increase in proportion to the engine torque, causing D1 to D2 shift shock.

4. After adjusting the line pressure (throttle cable), be sure to verify the condition of shift shock by road testing.

If the result is still unacceptable, proceed to the next step.

5. Replace the valve body with one for the 1990 model (P/N FU3H 21 100A).

WARRANTY INFORMATION

1. When Repair Procedure steps 1 – 4 were conducted:

Warranty Type Code: A
Customer Comment Code: 26
Damage Code: 9H
Part No. of Main Cause: FU32 21 600B
Operation No: XX0355-R-X
Labor Hours: 0.8 Hr.

2. When Repair Procedure steps 1 – 5 were conducted:

Warranty Type Code: A
Customer Comment Code: 26
Damage Code: 9N
Part No. of Main Cause: FU3H 21 100A
Quantity: 01
Operation No: K0306B-R-X 1.8 Hrs.
XX0355-R-X 0.8 Hrs.

IMPORTANT:

This bulletin is a revision of Service Bulletin Category 7, no. 070/89. Please reference this bulletin when using your 1989 Service Bulletin file.

Service Bulletin

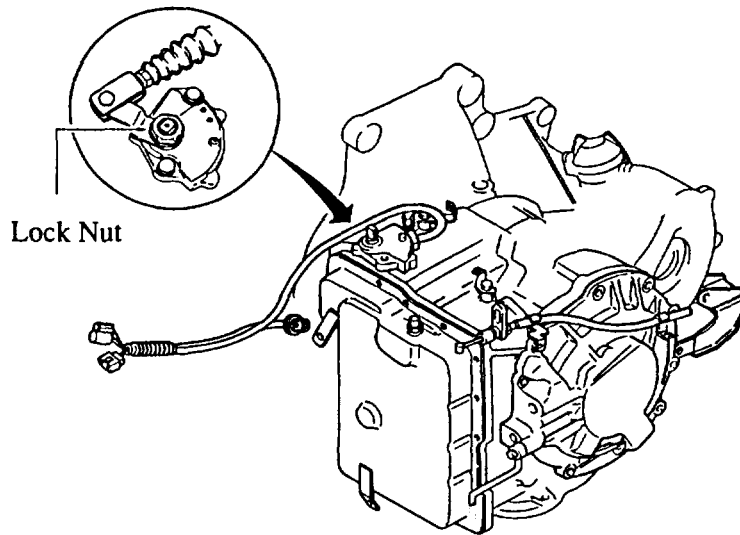
Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category K	Applicable Model/s See below	Subject ATX MANUAL SHAFT LOCK NUT TORQUE	Bulletin No. 004/90
			Issued 4/23/90
			Revised

DESCRIPTION

When tightening the manual shaft lock nut of the automatic transaxle, be sure to tighten it with the specified torque listed below.



TIGHTENING TORQUE

1986-90 626	44-64 N-m (33-47 ft-lb, 4.5-6.5 kg-cm)
1988-89 323	44-64 N-m (33-47 ft-lb, 4.5-6.5 kg-cm)
1990 323/Protégé	31-46 N-m (23-34 ft-lb, 3.2-4.7 kg-cm)

IMPORTANT NOTE:

The use of a powerwrench (air or electric impact wrench) is **not recommended** when installing the lock nut. Reaction force applied to the shaft during installation may cause internal transaxle damage.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

021319

Service Bulletin

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 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



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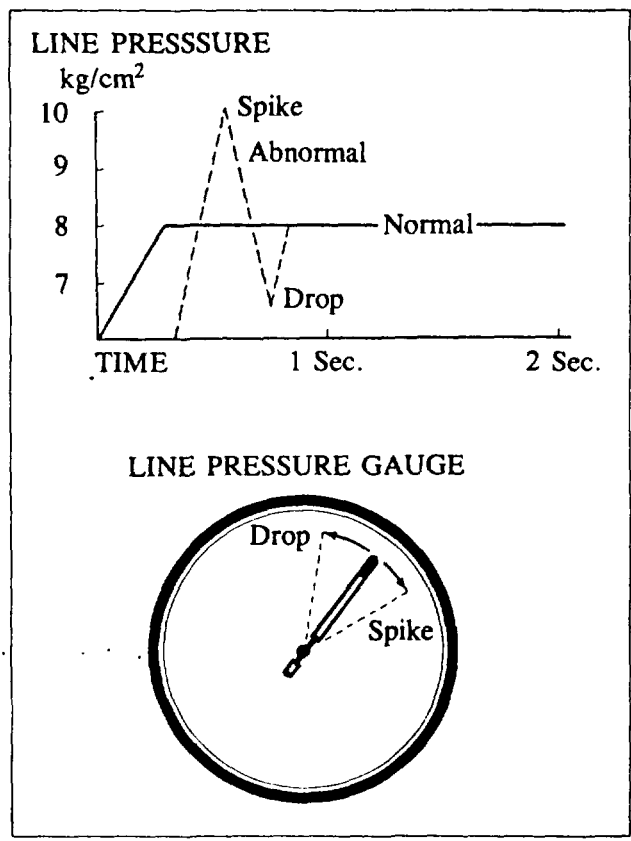
Category K	Applicable Model/s 1988-90 626/MX-6 incl. Turbo	Subject EC-AT SLIPPAGE IN FORWARD GEARS	Bulletin No. 005/90
			Issued 5/14/90
			Revised

DESCRIPTION

If you encounter a complaint about 2-3 gear slippage or flare-up, it may be caused by improper function of the oil pump. Please check and repair this problem according to the procedure described in this bulletin. At the mass-production line, the oil pump has been modified since the date indicated under VIN of Production Change.

CHECKING & REPAIR PROCEDURES

1. Warm up the engine to normal operating temperature.
2. Check the line pressure in "P" range at idle. Adjust it if necessary.
 Specification: 4.4-4.6 kg/cm² (63-66 psi)
3. Perform the following tests while the engine speed is kept at 2,000 rpm in "Park."
 - A. Pull the throttle cable to the end of its travel (full throttle) and read the line pressure. Line pressure should be higher than 8.0 kg/cm² (115 psi).
 - B. Next, quickly and smoothly pull the throttle cable out to one-half way of its travel (half throttle) and hold. Check for line pressure spike (maximum) and drop (minimum) readings using a line pressure gauge.
 - A good oil pump should show a smooth increase of pressure and level off at a stable pressure.
 - If the spool valve of the oil pump is stuck, it may cause a pressure spike and variation in pressure before leveling off, or it may show little/no increase in pressure. (Refer to the illustrations.)
4. If a problem is found in Step 3, replace the oil pump spool valve according to the Replacement Procedure.
5. Recheck the line pressure according to Step 2 and perform the road test to confirm that the problem is fixed.



IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

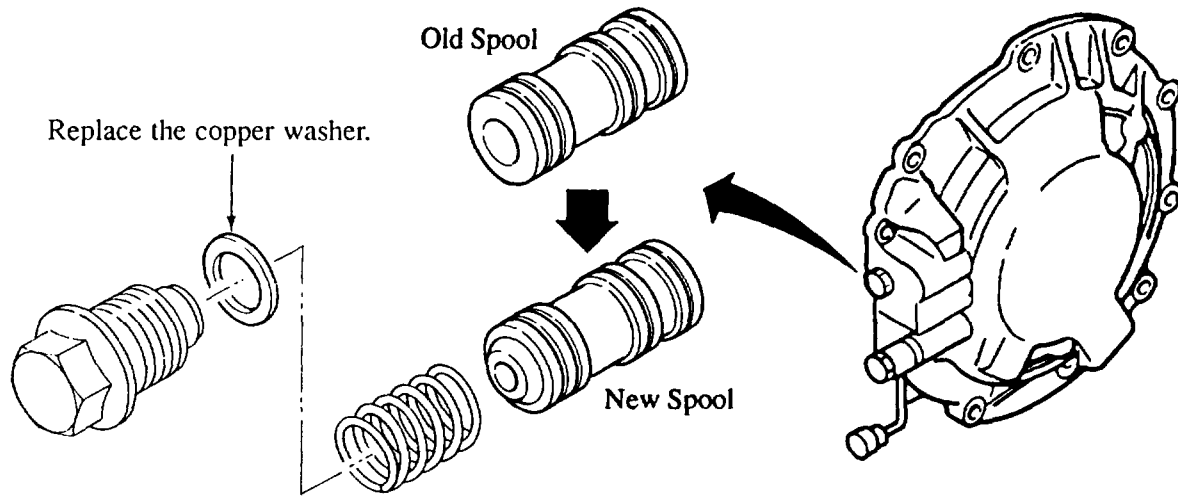
Service Manager

Parts Manager

021320

SPOOL VALVE REPLACEMENT PROCEDURE

1. Lift up the vehicle on a hoist.
2. Remove the spool valve plug using 19mm swivel socket and a 6in extension.



3. Remove the spring and spool valve with a small pencil magnet.
4. Insert the new spool valve into the oil pump with the partially closed end pointing outward.
5. Insert the spring until it becomes flush with the oil pump housing.
6. Replace the copper washer on the spool valve plug and reinstall the plug onto the oil pump housing. Tighten the plug by the specified torque.

Specified Torque: 2.4–3.6 m·kg (17–25 ft·lbs)

7. Check the ATF level, and add fluid if necessary.
8. Recheck the line pressure and adjust if necessary.

Specification: 4.4–4.6 kg/cm² (63–66 psi)

PARTS INFORMATION

PART NUMBER	DESCRIPTION
FU02 19 735F	Oil Pump Spool
FU02 19 738A	Copper Washer

Number: 005/90	Date Issued: 5/14/90	Date Revised:
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VIN OF PRODUCTION CHANGE

1990 626/MX-6 vehicles manufactured in Japan:

JM1GD222◆	}	L1830953	January 25, 1990
JM1GD224◆			
JM1GD242◆			
JM1GD244◆			
JM1GD312◆			
JM1GD314◆			

1990 626/MX-6 vehicles manufactured in the U.S.A.:

1YVGD22B◆	}	L5244868	March 8, 1990
1YVGD22D◆			
1YVGD31B◆			
1YVGD31D◆			

WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 99
Damage Code: 99
Part No. of Main Cause: FU02 19 735F
Operation No: XX0379-R-1 – Max. 0.8 Hr. (Check & Adjustment)
XX0379-R-2 – Max. 1.0 Hr. (Check, Adjustment & Repair)

NOTE: Labor operation no. XX0379-R-1 is included in labor operation no. XX0379-R-2.

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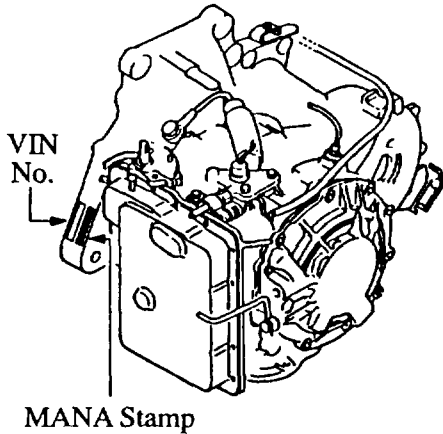
Category K	Applicable Model/s '87-'91 626/MX-6 '88-'89 323	Subject REBUILT EC-AT/HAT IDENTIFICATION	Bulletin No. 006/90
			Issued 11/21/90
			Revised

DESCRIPTION

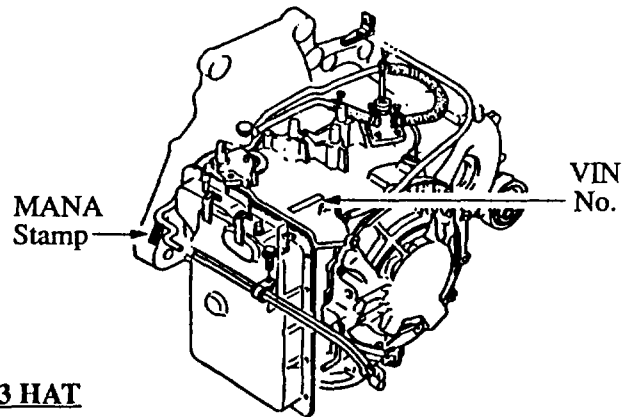
All MANA (Mazda [North America], Inc.) rebuilt EC-AT/HAT transaxle assemblies have a MANA ID number stamped on the housing. The illustrations shown below indicate where these ID numbers are stamped.

NOTE: Matching vehicle and transaxle VIN numbers indicate a factory installed powertrain.

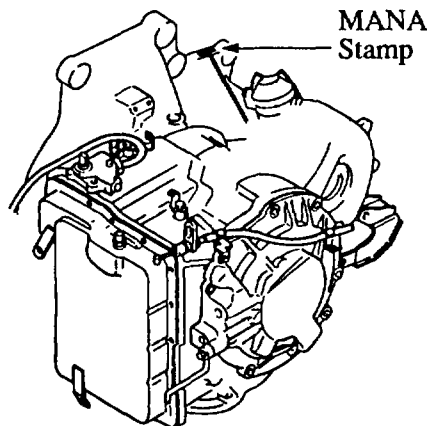
1987 626 EC-AT



1988-'91 626/MX-6 EC-AT



1988-'89 323 HAT



WARNING: Federal law prohibits the removal of VIN tags from any transaxle assembly.

021624

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Service Bulletin

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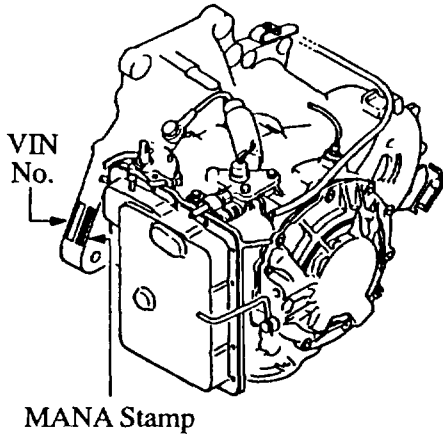
Category K	Applicable Model/s '87-'91 626/MX-6 '88-'89 323	Subject REBUILT EC-AT/HAT IDENTIFICATION	Bulletin No. 006/90
			Issued 11/21/90
			Revised

DESCRIPTION

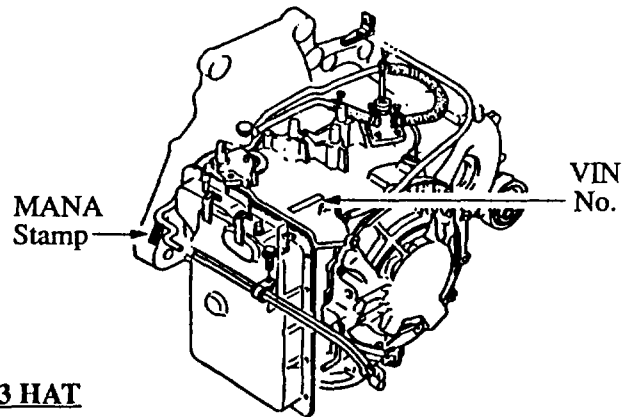
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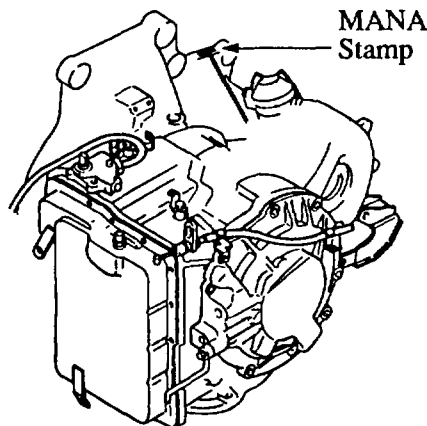
1987 626 EC-AT



1988-'91 626/MX-6 EC-AT



1988-'89 323 HAT



WARNING: Federal law prohibits the removal of VIN tags from any transaxle assembly.

021624

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Category K (05)	Applicable Model/s All Models	Subject AUTOMATIC TRANSMISSION COOLER/LINE FLUSHING PROCEDURE	Bulletin No. 005/98
			Issued 04/22/98
			Revised 12/31/98

BULLETIN NOTE

- This bulletin supersedes K 005/98 dated 04/22/98. The REPAIR PROCEDURE and WARRANTY INFORMATION has been revised.

APPLICABLE MODEL(S)/VINS

All models with automatic transmission.

DESCRIPTION

Automatic transmission (A/T) oil cooler/lines must be power flushed completely before an overhauled or replacement A/T is installed. One of the causes of repeat A/T failures is an internal automatic transmission fluid (ATF) restriction at the inlet side of the oil cooler. This restriction is usually caused by an accumulation of metal particles and debris (from a previous A/T failure) on the internal mesh type baffle of the oil cooler. Power flushing will remove the restriction by back flushing the cooler/lines followed by forward flushing to ensure full ATF flow. See **FIGURE 1** of a typical ATF cooler.

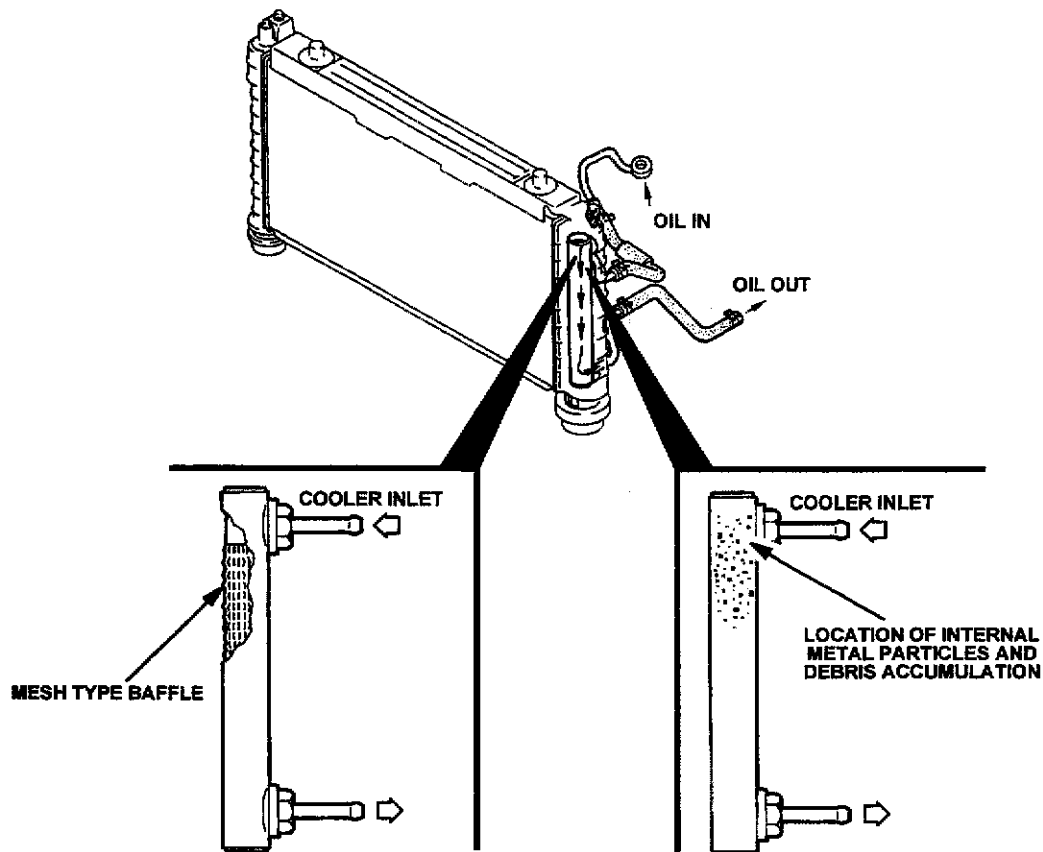


FIGURE 1

060403

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Number: 005/98	Date Issued: 04/22/98	Revised: 12/31/98
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Caution

- Repeat repairs caused by improper or lack of cooler line flushing will not be covered under warranty.

Recommended Power Flushing Equipment

Part Number	Description
J35944-AMAZ	Kent-Moore Flusher w/Mazda Adaptors
60081-M	OTC Flusher w/Mazda Adaptors

REPAIR PROCEDURE

Before power flushing, inspect the hoses/lines and clamps. Power flushing must begin with back flushing followed by forward flushing to quickly dislodge the restriction. If back flushing is not performed before forward flushing, the restriction could further reduce the ATF flow through the internal mesh type baffle of the cooler and flushing will not be effective or possible.

Inspecting Oil Lines & Clamps

Be sure to inspect the lines (hoses/pipes) for cuts, crimps (pinched), cracks or any other damage before reusing them. If any problem exists or the hose comes off when applying oil pressure, replace it.

Caution

- Always use new clamps when replacing hoses.

Back Flushing

1. Using the Power Flushing Equipment manufacturer's instructions, connect equipment so the flushing fluid flows in the opposite direction of normal fluid flow. Refer to page 4 to determine normal fluid flow. See typical example of back flushing flow in *Figure 2*.
2. Flush oil cooler/lines until discharge fluid is clean.

Caution

- If the cooler can not be properly flushed using recommended equipment, send the radiator out for sublet cleaning or replace.

Note

- Refer to the WSM or Automatic Transmission Quick Reference Guide (P/N 9999-95-4501-96) for exact location of cooler line inlet./ outlet fittings.

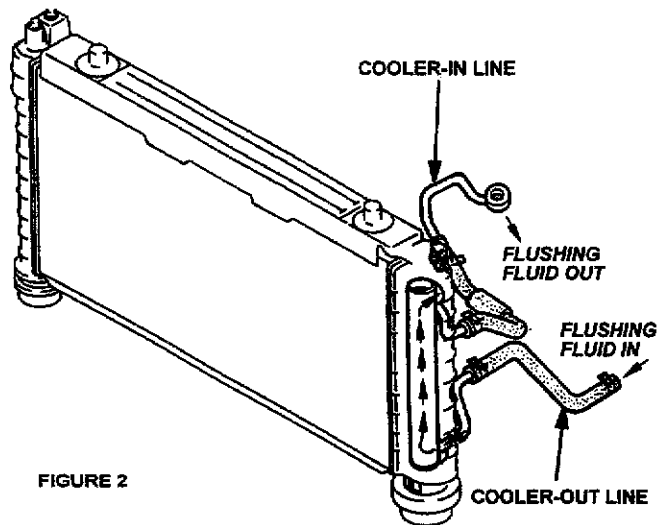


FIGURE 2

Forward Flushing

3. Connect power flushing equipment so the flushing fluid flows in the direction of normal fluid flow. Refer to page 4 to determine fluid flow. See typical example of forward flushing flow in **FIGURE 3**.
4. Flush oil cooler/lines until discharge fluid is clean.

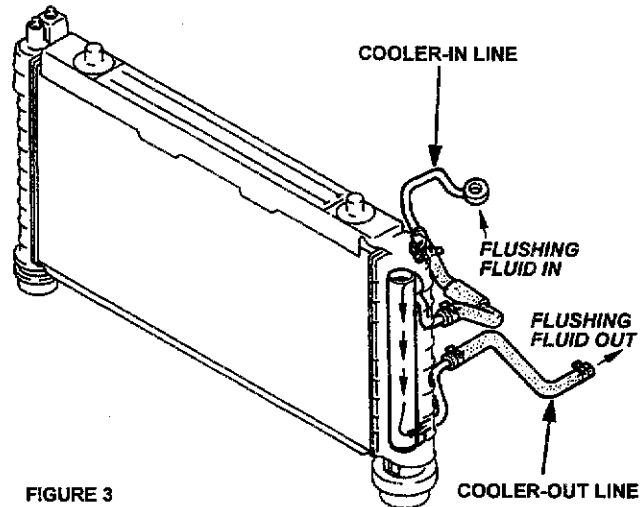


FIGURE 3

WARRANTY INFORMATION**Note**

- This information applies to verified customer complaints on vehicles covered under normal warranty. Refer to the SRT microfiche for warranty term information.
- When you submit a warranty claim on automatic transmission complete replacement, add any of the following operation numbers and labor hours to the operation number and labor hours for automatic transmission complete R&R.

Operation Number / Labor Hours:

MPV L4 = K0101XRU/0.4

MPV V6 2WD = K0101XRU/0.4

MPV V6 4WD = K0101XRU/0.4

Millenia 2.3L = K0101XRU/0.4

Millenia 2.5L = K0101XRU/0.4

RX-7 = K0101XRU/0.4

MX-5 = K0101XRU/0.4

MX-3 L4 = K0101ARU/0.4

MX-3 V6 = K0101BRU/0.4

929 = K0101XRU/0.4

626/MX-6 L4 = K0101XRU/0.4

626/MX-6 V6 = K0101XRU/0.4

Protege/323 2WD, 1.6L & 1.8L = K0101XRU/0.4

Protege/323 2WD, 1.5L = K0101XRU/0.4

Protege/323 4WD = K0101XRU / 0.4

B-Series 2.3L = K0101ARU / 0.4

B-Series 2.5L = K0101BRU / 0.4

B-Series 3.0L (4X4) = K0101CRU / 0.4

B-Series 3.0L (4X2) = K0101DRU / 0.4

B-Series 4.0L (4X4) = K0101ERU / 0.4

B-Series 4.0L (4X2) = K0101FRU / 0.4

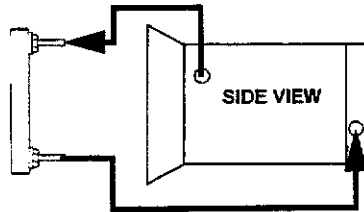
Navajo (4X4) = K0101ERU / 0.4

Navajo (4X2) = K0101FRU / 0.4

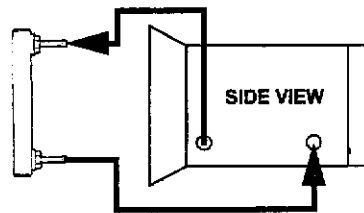
Typical Automatic Transmission/Transaxle Normal Fluid Flow & Cooler Line Fitting Locations

(Refer to applicable WSM for specific details.)

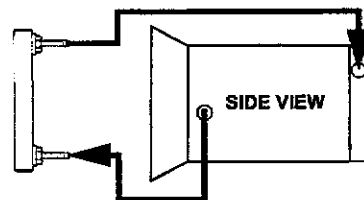
FRONT WHEEL DRIVE (TRANSAXLE)



PROTEGE, MILLENIA (KL), 626 (FS)

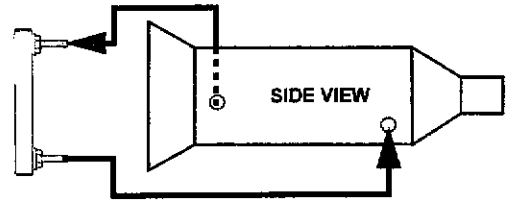


MILLENIA (KJ)

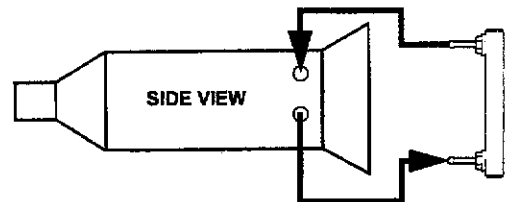


626 (KL)

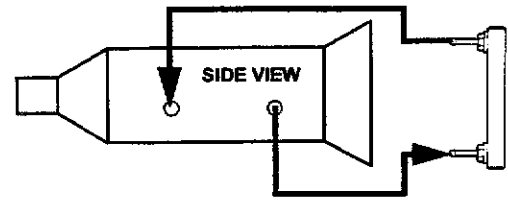
REAR WHEEL DRIVE



MPV, RX-7, 929, MIATA (NA)



B-TRUCKS



MIATA (NB)

Service Bulletin

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Category N	Applicable Model/s All Models	Subject STEERING WHEEL SLIGHTLY OFF CENTER	Bulletin No. 001/94
			Issued 2/18/94
			Revised

DESCRIPTION

The steering wheel on some vehicles may be off center even though the drives straight and no left or right pulling occurs.

If a customer complains about the position of the steering wheel, confirm that the vehicle is not pulling and repair as described in this bulletin.

REPAIR PROCEDURE

1. While driving on a straight road, place the steering wheel in a neutral position. If the steering wheel is not centered, go to step 2.
2. Using the outside circumference of the steering wheel, measure the distance between the steering wheel's neutral position and a centered position. If it is more than 30mm (1.18in.) remove the steering wheel and install in the correct position. If the steering wheel is still off center, go to step 3.
3. Measure the distance as shown in step 2. If less than 30mm (1.18in), loosen both left and right tie rod end lock nuts. Turn the tie rods in opposite directions **by the same amount** until the steering wheel is centered.
4. Road test the vehicle to confirm the steering wheel is centered. If not centered, repeat step 3.

The chart below shows the approximate distance the outside circumference of the steering wheel will move per 90 degree turn of the tie rod (both left and right, in opposite directions).

Model	Type	Approximate Distance
1990-94 323/Protege	With P/S Without P/S	8mm 12mm
1992-94 MX-3	4cyl. 6cyl.	8mm 7mm
1993-94 RX-7		7mm
1993-94 626/MX-6		9mm
1992-94 929		11mm
1989-94 MPV	4x2 4x4	13mm 12mm
1990-94 MX-5 MIATA		10mm
1995 Millenia		10 mm

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature _____
 Parts Manager

Index # **037569**

Number: 001/94	Date Issued: 2/18/94	Revised:
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WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
Customer Comment Code: 30
Damage Code: 9H
Part Number Main Cause: 5555 FE 001
Operation Number: XX0640RX
Labor Hours: 0.5Hr.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category N	Applicable Model/s See Below	Subject ALIGNMENT SPECIFICATIONS	Bulletin No.	001/95
			Issued	1/19/95
			Revised	

NOTE: This bulletin was originally released as Cat. N, #003/94. Replace the original bulletin with this revised copy.

APPLICABLE MODELS

All models except Navajo and 1994 and on B-Series

DESCRIPTION

This bulletin provides background information on standard specification and measuring conditions for wheel alignment.

Measured values are not absolute. Variations occur between technician, equipment and the condition of the vehicle at the time of measurement. To avoid unnecessary adjustments, specifications and measurement conditions have been changed in the workshop manual. These changes are described below.

NOTE: Changes in the specifications do not imply that alignment tolerances have increased during production.

Vehicle alignment is set to the median specifications during production and technicians should also use median specifications during alignment adjustment.

NEW SPECIFICATIONS

ITEMS		STANDARD TOLERANCE	NOTE
Front	Camber (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Caster (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Toe (Total toe-in)	+/- 4mm (Angle indicated is also described)	One side toe is not mentioned. (No specification)
Rear	Camber (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Toe (Total toe-in)	+/- 4mm (Angle indicated is also described)	One side toe is not mentioned. (No specification)
	Thrust Angle	+/-0.8 degrees	

NOTE: Each vehicle varies in specification median. Refer to the workshop manual for each vehicle's specification.

VEHICLE PREPARATION AND CONDITION

1. The vehicle should have:

- No Passengers
- No Luggage
- Gas Tank Full, Radiator and Engine Oil To The Specified Levels
- Spare Tire, Jack And Tools Stored In Designated Areas
- Tire Pressure Checked And, If Necessary, Adjusted.

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Number: 001/95

Date Issued: 1/19/95

Revised:

2. The table below contains examples of front caster specifications based on fuel tank level.

Fuel Gauge Indication	Front Caster (Shown in degrees, minutes)
Empty	3 degrees 05' to 5 degrees 05"
1/4	3 degrees 10' to 5 degrees 10"
1/2	3 degrees 15' to 5 degrees 15"
3/4	3 degrees 20' to 5 degrees 20"
Full	3 degrees 25' to 5 degrees 25"

NOTE: Specifications may differ between models.

3. Follow the operating procedures specified for the alignment equipment being used.
4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

Service Bulletin

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Category N	Applicable Models 1988-92 626/MX-6	Subject RATTLING NOISE FROM THE POWER STEERING RESERVOIR	Bulletin No.	003/93
			Issued	11/5/93
			Revised	

APPLICABLE MODELS/VINS

1988 through 1992 626 and MX-6 vehicles

DESCRIPTION

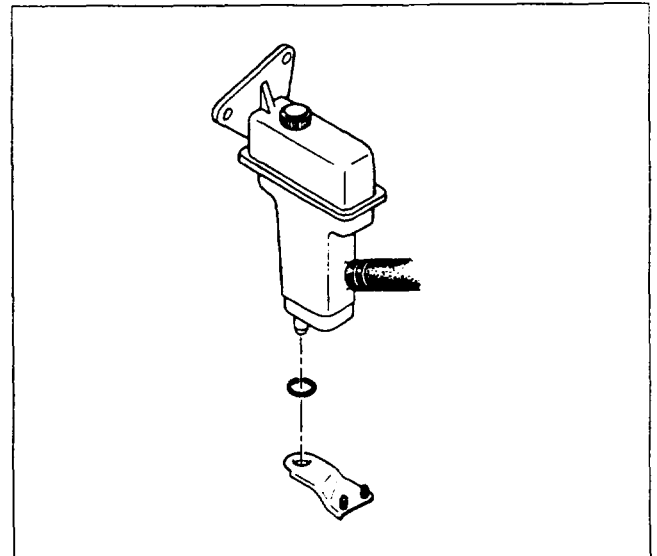
A rattling noise heard from the front passenger side of the vehicle may be caused by the power steering reservoir mounting pin and the lower mounting bracket locator hole. The noise is difficult to duplicate and is most evident during cold engine starts.

NOTE: Service Managers should copy this bulletin and place it in the Noise, Vibration and Harshness Manual.

REPAIR PROCEDURE

1. Verify that the complaint is not coming from another part of the vehicle.
2. Remove the 2 mounting bolts from the bottom of the power steering reservoir.
3. Lift the reservoir to access the lower mounting bracket.

NOTE: When raising the reservoir, take care not to spill the power steering fluid on painted surfaces. If fluid does spill, clean up immediately.
4. Insert grommet into the locator hole in the lower mounting bracket.
5. Lubricate the grommet to facilitate installation of the locator pin on the reservoir.
6. Install the two mounting bracket bolts.



PARTS INFORMATION

Part Number	Description
G211 32 425	Rubber Grommet

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
 Customer Comment Code: 82
 Damage Code: 99
 Part Number Main Cause: G211 32 425
 Quantity: 1
 Operation Number: XX0594RX
 Labor Hours: 0.4Hrs.

.....
 Index # **036598**

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



✱

Category N	Applicable Model/s All Models	Subject ALIGNMENT SPECIFICATIONS	Bulletin No. 003/94
			Issued 12/23/94
			Revised

DESCRIPTION

This bulletin provides background information on standard specification and measuring conditions for wheel alignment.

Measured values are not absolute. Variations occur between technician, equipment and the condition of the vehicle at the time of measurement. To avoid unnecessary adjustments, specifications and measurement conditions have been changed in the workshop manual. These changes are described below.

NOTE: Changes in the specifications do not imply that alignment tolerances have increased during production.

Vehicle alignment is set to the median specifications during production and technicians should also use median specifications during alignment adjustment.

NEW SPECIFICATIONS

ITEMS		STANDARD TOLERANCE	NOTE
Front	Camber (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Caster (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Toe (Total toe-in)	+/- 4mm (Angle indicated is also described)	One side toe is not mentioned. (No specification)
Rear	Camber (Difference between right and left)	+/- 1 (+/-1.5) degrees	
	Toe (Total toe-in)	+/- 4mm (Angle indicated is also described)	One side toe is not mentioned. (No specification)
	Thrust Angle	+/-0.8 degrees	

NOTE: Each vehicle varies in specification median. Refer to the workshop manual for each vehicle's specification.

VEHICLE PREPARATION AND CONDITION

1. The vehicle should have:

- No Passengers
- No Luggage
- Gas Tank Full, Radiator and Engine Oil To The Specified Levels
- Spare Tire, Jack And Tools Stored In Designated Areas
- Tire Pressure Checked And, If Necessary, Adjusted.

NOTE: If the specifications are different (depending on load conditions), adjust the pressure for the lightest load.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

Service Manager
 Index # **040959**

Parts Manager

Number: 003/94

Date Issued: 12/23/94

Revised:

2. The table below contains examples of front caster specifications based on fuel tank level.

Fuel Gauge Indication	Front Caster (Shown in degrees, minutes)
Empty	3 degrees 05' to 5 degrees 05"
1/4	3 degrees 10' to 5 degrees 10"
1/2	3 degrees 15' to 5 degrees 15"
3/4	3 degrees 20' to 5 degrees 20"
Full	3 degrees 25' to 5 degrees 25"

NOTE: Specifications may differ between models.

3. Follow the operating procedures specified for the alignment equipment being used.
4. Prior to measuring the current settings, firmly push the vehicle bumper up and down to stabilize the vehicle's height.

Service Bulletin

Mazda Motor of America, Inc.
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Irvine, California 92718
Telephone (714) 727-1990



Category N	Applicable Model/s 1988-92 626/MX-6	Subject RATTLING NOISE FROM THE POWER STEERING RESERVOIR	Bulletin No. 003/94
			Issued 8/10/94
			Revised

NOTE: This bulletin was originally issued as Cat. N, 003/94³ on 11/5/93. Please replace the bulletin in your file with a copy of this revised bulletin.

APPLICABLE MODELS/VINS

1988 through 1992 626 and MX-6 vehicles

DESCRIPTION

A rattling noise heard from the front passenger side of the vehicle may be caused by the power steering reservoir mounting pin and the lower mounting bracket locator hole. The noise is difficult to duplicate and is most evident during cold engine starts.

NOTE: Service Managers should copy this bulletin and place it in the Noise, Vibration and Harshness Manual.

REPAIR PROCEDURE

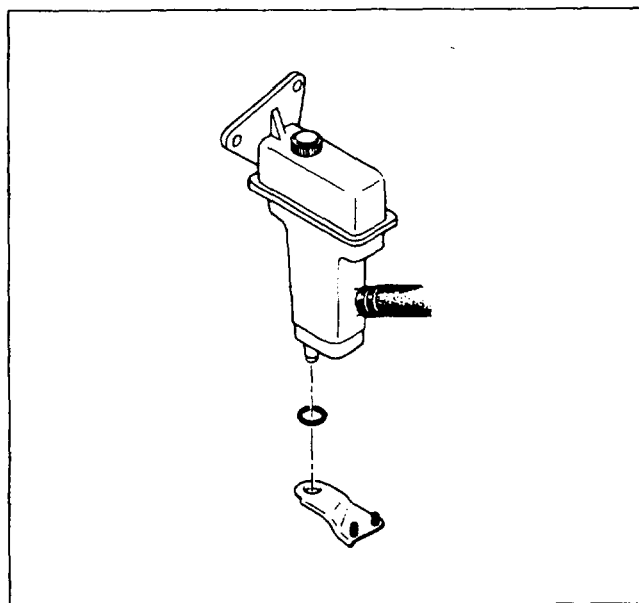
1. Verify the complaint and confirm that it is not coming from another part of the vehicle.
2. Remove the 2 mounting bolts from the bottom of the power steering reservoir.
3. Lift the reservoir to access the lower mounting bracket.

NOTE: When raising the reservoir, take care not to spill the power steering fluid on painted surfaces. If fluid does spill, clean up immediately.

4. Insert grommet into the locator hole in the lower mounting bracket.
5. Lubricate the grommet to facilitate installation of the locator pin on the reservoir.
6. Install the two mounting bracket bolts.
7. Verify problem is corrected.

PARTS INFORMATION

Part Number	Description
G211 32 425	Rubber Grommet



WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
Customer Comment Code: 82
Damage Code: 99
Part Number Main Cause: G211 32 425
Quantity: 1
Operation Number: XX0594RX
Labor Hours: 0.2Hrs.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Index # **040048**

Signature _____

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

Category N	Applicable Model/s All Models With Rack/Pinion	Subject CHECKING PROCEDURE FOR POWER STEERING BOOT LEAKAGE	Bulletin No. 004/97 Issued 12/28/97 Revised
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DESCRIPTION

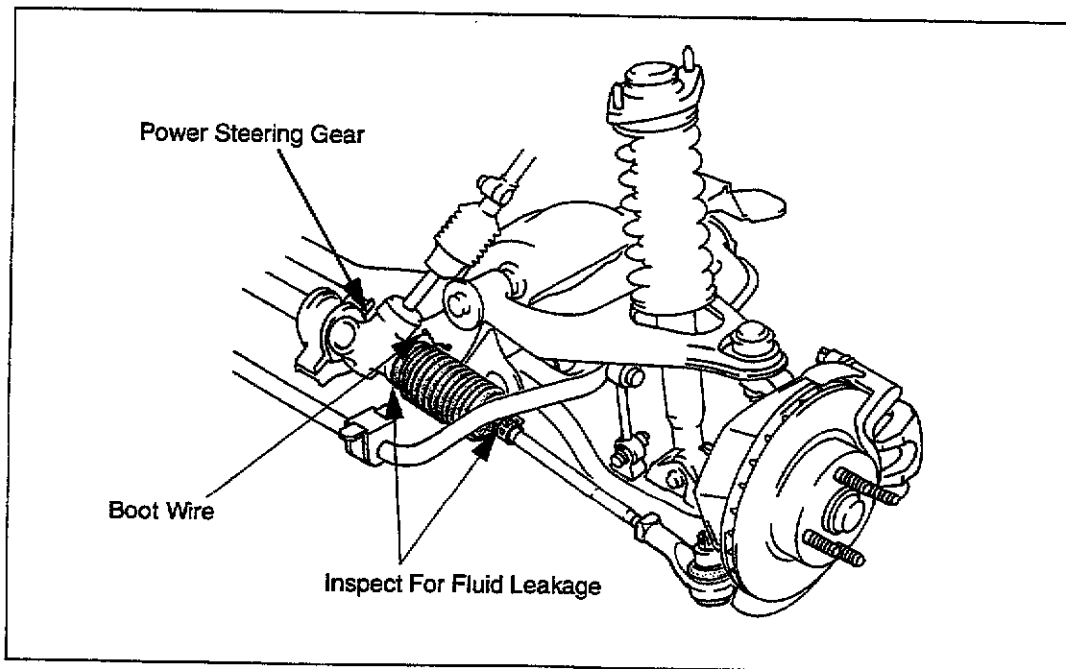
Customers complaining of problems associated with power steering fluid loss should have the vehicle inspected according to the instructions in section N of the workshop manual. If the leak is determined to be coming from the power steering gear, follow the procedures listed below.

NOTE: Service Managers should place a copy of this bulletin in section N of the workshop manual.

INSPECTION PROCEDURE

1. Check the color of the fluid that is leaking.
 - If the fluid is red, proceed to step 3.
 - If the fluid is any color other than red, (i.e. yellow, colorless), this is grease and no problem exists with the power steering gear. Proceed to step 2.
2. Inspect the boot for damage (i.e. cracks or tears).
3. Remove the boot wire and inspect the inside of the boot for contamination (dirt, water, etc.).
 - If there is a large quantity of red fluid inside the boot, this indicates insufficient sealing. Replace the side seal and the power steering gear according to section N of the workshop manual.
 - If a minimal quantity of red fluid is present, proceed to step 4.
4. Start the engine and turn the steering wheel right and left, lock to lock.
 - If the fluid is leaking, replace the side seal and the power steering gear according to section N of the workshop manual.
 - If no fluid is leaking, no problem exists in the power steering gear.

CAUTION: DO NOT keep the steering wheel fully turned to the locked position for more than five (5) seconds. Power steering system damage may occur.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

060301

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category N	Applicable Model/s All Models Ex. B-Ser. & Nav.	Subject STEERING WHEEL SLIGHTLY OFF CENTER	Bulletin No. 005/95
			Issued 3/15/95
			Revised

DESCRIPTION

The steering wheel on some models may be slightly off center. The vehicle still drives straight and does not pull right or left.

IF a customer complains of the position of the steering wheel, confirm that the vehicle is not pulling and repair according to the instructions in this bulletin.

REPAIR PROCEDURE

1. Drive on a straight road and place the steering wheel in a neutral position. If the steering wheel is not centered, go to step 2.
2. Using the outside circumference of the steering wheel, measure the distance between the neutral position and the center position.

NOTE: If the distance is larger than 30mm (1.18in.) remove the steering wheel and reinstall in the correct position. If the steering wheel is still off center, proceed to step 3.

3. Measure the distance described in step 2. If less than 30mm (1.18in) loosen both left and right tie rod end lock nuts. Turn the rods in the opposite directions **by the same amount** until the steering wheel is centered.
4. Road test the the vehicle to confirm the steering wheel is centered. If not centered, repeat step 3.

The chart below shows the approximate distance that the outside circumference will move per 90 degree turn on the tie rod (both left and right in opposite directions).

Model	Type	Approx. Distance
1990-94 323/Protege, 1995 Protege	With P/S	8mm
	Without P/S	12mm
1992-95 MX-3	4 cyl.	8mm
	6 cyl.	7mm
1993-95 RX-7	All	7mm
1992-95 626/MX-6	All	9mm
1992-95 929	All	11mm
1989-95 MPV	4 x 2	13mm
	4 x 4	12mm
1990-95 MX-5 Miata	All	10mm
1995 Millenia	All	10mm

WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Current Warranty Term Information)

Warranty Type: A
Symptom Code: 30
Damage Code: 9H
Part Number Main Cause: 5555 FE 001
Operation Number: XX0640RX
Labor Hours: 0.5Hrs.

Index # 042428

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all informaton to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager



Category N (06)	Applicable Model/s All Models (Ex. Nav. & B-Ser.)	Subject STEERING WHEEL SLIGHTLY OFF CENTER	Bulletin No. 001/98
			Issued 04/15/98
			Revised

NOTE: This bulletin replaces bulletin 001/94, 005/95 and 001/96(all in Category N). Please make a note of this in your respective bulletin books.

APPLICABLE MODELS

All Models except the Navajo and B-Series.

DESCRIPTION

Some vehicles may have an off center steering wheel but no right or left hand pulling. Customers complaining of this concern should have the vehicle inspected and if necessary, repaired according to this bulletin.

REPAIR PROCEDURE

1. Test drive the vehicle on a straight road.
2. Place the steering wheel in a neutral position. Do not apply any turning effort.
 - If the vehicle tracks straight and the steering wheel is NOT in a centered position, proceed to step 3.
3. Use the outside circumference of the steering wheel to measure the distance between the center position and the neutral position.
 - If the measurement is more than 30mm (1.18in) remove the steering wheel and install it in the centered position. Refer to the workshop manual for removal and installation procedures.
 - If the measurement is less than 30mm (1.18in):
 - a) Loosen both right and left hand tie-rod end lock nuts.
 - b) Turn the tie-rod ends **in opposite directions by equal amounts**, until the steering wheel is centered.
3. Verify the repair.

The chart below shows the approximate distance the outside diameter will move for every 1/4 (90 degree) turn of the tie-rod end.

Model	Approximate Distance
1990 -98 323/Protege	8mm (with PS) 11-12mm (without PS)
1992 - 95 MX-3	8mm (4cyl.) 7mm (6 cyl.)
1993 - 95 RX-7	7mm
1993 - 97 626 / MX-6 1998 626	9 - 10mm
1992-95 929	11mm
1989 - 98 MPV	13mm (4x2) 12mm (4x4)
1990 - 98 MX-5 1999 MX-5	8mm (with PS) 10mm (without PS)
1995 - 98 Millenia	10mm

WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information.)

Warranty Type: A
Symptom Code: 30
Damage Code: 9H
Part Number Main Cause: 5555-FE-001
Quantity: 0
Operation Number: XX0640RX
Labor Hours: 0.5 Hrs.

060417

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
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Category P	Applicable Model/s All Models	Subject BRAKE JUDDER REPAIR	Bulletin No. 001/95
			Issued 4/27/95
			Revised

The revised portion of this bulletin is indicated by an asterisk (*). Replace the original bulletin with this revised copy. This bulletin was originally released in Sept. 1994 as Cat P, 006/94.

DESCRIPTION

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- Disk Thickness Variation (DTV)
- rotor run-out and/or
- rotor surface rust (which leads to DTV)

This bulletin describes the causes and corrections for each condition.

CAUSES OF JUDDER

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with mileage accumulation if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

CORRECTION

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda Motor of America has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduce comeback repairs.

The steps necessary for correction of brake judder are as follows:

1. If the vehicle is in dealer inventory and the condition is rotor rust:
 - a. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
 - b. If vibration/pulsation is still felt, proceed to step "c".
 - c. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1mm per side).
NOTE: If machining is performed, the Service Manager's signature **must appear on the repair order**.
2. If the vehicle has been in service:
 - a. Verify customer's complaint with a test drive.
 - b. If brake judder is felt, proceed to step c. If brake judder is not felt, refer to the workshop manual or the NVH manual for additional troubleshooting information.
 - c. Mark the **front** wheel(s) and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the **front** wheel(s).
NOTE: A high majority of brake judder is due to DTV of the **front rotors**. Customer complaints of brake judder are most often corrected by **machining the front rotors only**.
 - d. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining. **Limit: Stated minimum thickness for the model plus 0.8mm.**
 - e. If machining can be achieved, an on-car brake lathe is recommended and **will be required for all warranty repairs after January 1, 1995** to ensure a precise rotor surface.

Continued On Next Page

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # 142729

Number: 001/95	Date Issued: 4/27/95	Revised:
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After machining rotor(s) with an on-car brake lathe, you must remove all metal cuttings (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- f. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV must be removed by on-car machining, even on new rotor(s).
- g. Install the wheel in the same location relative to the hub as it was originally positioned.
- h. Torque wheel lug nuts to the specifications in the service manual.
- i. Test drive the vehicle to confirm repair.
- j. If the brake judder is still felt, correct the rear rotor(s) using steps "c" through "i".

SERVICE TOOLS

The Accu-Turn (model 8750) On-Car Brake Lathe is recommended by Mazda Motor of America. The brake lathe will be available soon from MMA's National Accounts Program at a substantial savings. When the national account is established, a Special Tools Service Bulletin will be released which will contain further details. However, if you wish to receive a brochure on this brake lathe, please call Accu-Turn at (800) 551-2228.

WARRANTY INFORMATION

Applies To Vehicles Covered Under Normal Warranty

Warranty Type Code: A
 Customer Comment Code: 83
 Damage Code: 9B
 Parts No. Of Main Cause: **** 33 25*
 **** 26 25* (Rear of Vehicle - Rear Wheel Drive Only)

Location		Operation Number	Labor Hours
Front	One Side	P0113AMX	0.7
	Both Sides	P0113BMX	1.2
Rear*	One Side	P0214AMX	0.7
	Both Sides	P0214BMX	1.2

NOTE:

1. Unnecessary replacement of rotors will result in warranty claim denial.
2. Brake pad replacement costs will not be warrantable for brake judder repair.
3. If an on-car lathe is used, apply the labor time from the table above.

NOTE: Warranty policy does not permit using an off-car brake lathe after January 1, 1995. The next issue of the SRT microfiche will be revised to show new labor times.

**Brake Drums
SRT
1993-1995**

Description	Labor Operation	626/MX-6	MPV 1993 only	323/PRO	MX-3	93 B-series and earlier	Labor Operation	Navajo	94 B-series and later
Rear Brakes									
Brake Drum(s), R&R									
one side	P0201ARX	0.3	0.3	0.3	0.3	0.3		0.5	0.4
both sides	P0201BRX	0.4	0.6	0.6 1995 0.3	0.4	0.6		0.7	0.6
Brake Drum(s), Machine									
one side	P0201AMX	MAX	MAX	MAX	MAX	MAX		MAX	MAX
both sides	P0201BMX	0.7	0.6	0.6	0.6	1.3		0.4	0.4
Brake Shoe(s), R&R									
one side	P0204ARX	0.4	0.5	0.5 1995 0.3	0.4	0.7	P0204XRX	1.0	1.0
both sides	P0204BRX	0.6	0.8	0.8 1995 0.5	0.6	1.0	P0204XRX	1.0	1.0

To submit for reimbursement on warranty brake repairs follow these examples:

1. Machine brake drums and replace brake shoes

Labor Operation	Time	Description of Repair
P0201BRX	per chart	brake drums, R&R
P0201BMX	per chart	brake drums, machine

2. Replace brake shoes

Labor Operation	Time	Description of Repair
P0204BRX	per chart	brake shoes, R&R

3. Replace brake drums and replace brake shoes

Labor Operation	Time	Description of Repair
P0201BRX	per chart	brake shoes, R&R

4. Replace brake drums only

Labor Operation	Time	Description of Repair
P0201BRX	per chart	brake drums, R&R

Rear Disc Brakes
SRT
1993-1995

Description	Labor Operation	Millenia	626/MX-6	RX-7	MX-5	MPV 94 - 95	MX-3	929	Labor Operation	323/PRO
Rear Brakes										
Disc Plate(s), R&R one side	P0208ARX	0.3	0.4	0.3	0.4	0.6	0.4	0.4	P0208ARX	0.5
both sides	P0208BRX	0.4	0.6	0.4	0.5	0.8	0.6	0.6	P0208GRX	0.4
Includes pads R&R										1995 0.9
Disc Plate(s), Machine on vehicle one side	P0214AMX	0.7	0.7	0.7	0.7	0.7	0.7	0.7		0.7
both sides	P0214BMX	1.2	1.2	1.2	1.2	1.2	1.2	1.2		1.2
Includes: brake pads, R&R and brake caliper, R&R										
Pad(s), R&R one side	P0209ARX	0.3	0.4	0.3	0.4	0.5	0.5	0.3		0.4
both sides	P0209BRX	0.5	0.5	0.5	0.5	0.6	0.9	0.5		0.3
										1995 0.5

NOTE: After February 1, 1995, the on vehicle lathe will be required for disc rotor machining.

To submit for reimbursement on warranty brake repairs follow these examples:

1. Replace brake pads

Labor Operation	Time	Description of Repair
P0209BRX	per chart	pads, R&R

3. Replace disc plates and replace brake pads

Labor Operation	Time	Description of Repair
P0208BRX	per chart	disc plates, R&R

2. Machine disc plates on the vehicle and replace brake pads

Labor Operation	Time	Description of Repair
P0214BMX	per chart	on vehicle lathe

4. Replace disc plates only

Labor Operation	Time	Description of Repair
P0208BRX	per chart	disc plates, R&R

Front Brakes
SRT
1993-1995

Description	Labor Operation	Millenia	626/MX-6	RX-7	MX-5	MPV	323/PRO	MX-3	929	Labor Operation	Nevejo	94 B-series and later	Labor Operation	93 B-series and earlier
Front Brakes														
Disc Plate(s), R&R														
one side	P010ZARX	0.5	0.3	0.3	0.5	0.6	0.5	0.3	0.4	P010ZARX	2wd 0.8 4wd 0.8	2wd 0.5 4wd 0.7	P010ZARX	2wd 0.6 4wd 0.9
both sides	P010ZBRX	0.6	0.5	0.5	0.6	0.9	0.9	0.5	0.7	P010ZCRX	2wd 0.9 4wd 1.1	2wd 0.8 4wd 1.1	P010ZCRX	2wd 1.1 4wd 1.1
includes pads R&R														
Disc Plate(s), Machine on vehicle														
one side	P0113AMX	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	P0113AMX	2wd 0.8 4wd 0.6	2wd 0.8 4wd 0.6	P0113AMX	2wd 0.8 4wd 0.6
both sides	P0113BMX	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	P0113CMX	2wd 1.5 4wd 1.1	2wd 1.5 4wd 1.1	P0113DMX	2wd 1.5 4wd 1.1
includes: brake pads, R&R and brake caliper, R&R														
one side	P0104ARX	0.5	0.4	0.3	0.4	0.4	0.4	0.5	0.4	P0113DMX	2wd 1.1 4wd 1.1	2wd 1.1 4wd 1.1	P0113DMX	2wd 1.1 4wd 1.1
both sides	P0104BRX	0.6	0.5	0.4	0.6	0.5	0.5	0.5	0.6					

NOTE: After February 1, 1995, the on vehicle lathe will be required for disc rotor machining.

To submit for reimbursement on warranty brake repairs follow these examples:

1. Replace brake pads

Labor Operation	Time	Description of Repair
P0104BRX	per chart	pads, R&R

2. Machine disc plates on the vehicle and replace brake pads

Labor Operation	Time	Description of Repair
P0113BMX	per chart	on vehicle lathe

3. Replace disc plates and replace brake pads

Labor Operation	Time	Description of Repair
P0102BRX	per chart	disc plates, R&R

4. Replace disc plates only

Labor Operation	Time	Description of Repair
P0102BRX	per chart	disc plates, R&R

Service Bulletin

Mazda Motor of America, Inc.
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Telephone (714) 727-1990



Category P	Applicable Model/s All Models	Subject BRAKE ROTOR MACHINING AND REPLACEMENT CRITERIA	Bulletin No. 001/96 Issued 02/07/96 Revised
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APPLICABLE MODELS

All Models with Disc Brakes

DESCRIPTION

Policies for warrantable repair and replacement of brake rotors are described in this bulletin. Follow these guidelines to ensure proper repairs for brake problems.

Brake Judder:

1. Measure the thickness of the rotor.
 - If, after machining, the remaining thickness will be below the minimal allowable thickness, replace the rotor. Refer to the workshop manual for allowable thickness.
 - If the rotor thickness meets or exceeds allowable thickness, proceed to step 2.
2. Machine the rotors using an "on-the-car" brake lathe.
3. Follow the detailed repair procedures located in Service Bulletin, Category P, 001/95 and the applicable workshop manual.

Other Than Brake Judder:

1. Inspect the rotor(s) for cracks.
 - If cracks are **not found**, refer to the table on page 2 for repair/replacement criteria. Do not replace the rotor(s).
 - If cracks are **found**, replace the rotor.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

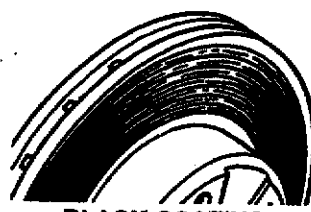
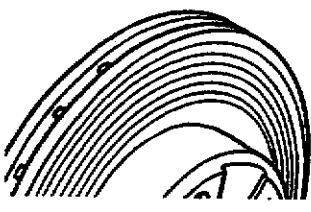

Parts Manager

Number: 001/96

Date Issued: 02/07/96

Revised:

ROTOR MACHINING AND REPLACEMENT CRITERIA

Concern	Example	Operation	
		Machine	Replace
Brake Judder	N/A	Yes	No
Other Than Brake Judder <ul style="list-style-type: none"> • Black Coating from abrasion powder adhering to rust spots on the disc. • Light Scratches similar to grooves on an audio record. 	 	No	No
Cracks In Rotor		No	Yes (See Note 1)
Rotor Thickness Will Be Less Than Specified (After Machining). Refer to the WSM for limit specifications.	N/A	No	Yes (See Note 1)
New Rotor Replacement (See Note 1)	N/A	Yes	—

NOTE:

1. When rotor replacement is necessary, machine the newly installed disc with an on the car brake lathe.
2. MMA may request (within 30 days after the claim has been paid) that replaced rotors be returned for inspection and product evaluation.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category P	Applicable Model/s All Models 1989-'92	Subject BRAKE ROTOR/DRUM INSPECTION CRITERIA	Bulletin No. 003/91
			Issued 10/9/91
			Revised

DESCRIPTION

When inspecting the brake rotor or drum for wear, refer to the following to determine if a rotor/drum can be resurfaced by machining.

INSPECTION PROCEDURE

Brake Rotor Inspection:

Many rotors have been replaced unnecessarily for brake noise. If the rotors do not contain cracks or deep grooves, and the remaining rotor thickness allows for machining, the rotors should be resurfaced.

NOTE:

Minimum allowed rotor thickness is stamped on rotor surface.

Rotor Thickness Specification:

MPV 1992

4X2

New	30.0 mm (1.18 in)
Minimum	28.0 mm (1.10 in)

4X4

New	28.0 mm (1.10 in)
Minimum	26.0 mm (1.02 in)

MPV 1989-'91

4X2 & 4X4

New	24.0 mm (0.94 in)
Minimum	22.0 mm (0.87 in)

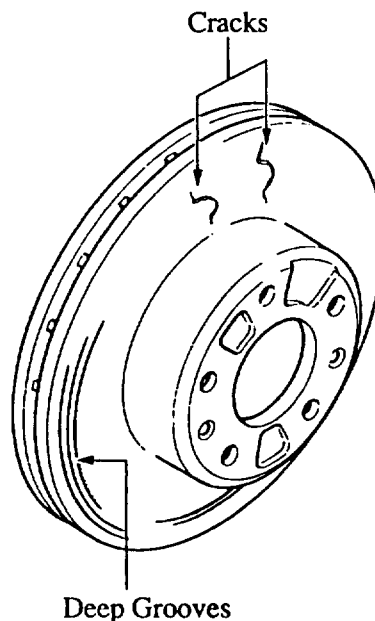
B-Series 1989-'92

4X4

New	22.0 mm (0.87 in)
Minimum	20.0 mm (0.79 in)

4X2

New	20.0 mm (0.79 in)
Minimum	18.0 mm (0.71 in)



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

024547

Navajo 1991-'92

New 24.9 mm (0.98 in)
 Minimum 20.6 mm (0.81 in)

323/Protegé

(Front) 1990-'92

New 22.0 mm (0.87 in)
 Minimum 20.0 mm (0.79 in)

(Front) 1989

New 18.0 mm (0.71 in)
 Minimum 16.0 mm (0.63 in)

(Rear) 1989-'92

New 9.0 mm (0.35 in)
 Minimum 7.0 mm (0.28 in)

(Rear) 1989

New 10.0 mm (0.39 in)
 Minimum 8.0 mm (0.31 in)

MX-3 1992

(Front)

New 22.0 mm (0.87 in)
 Minimum 20.0 mm (0.79 in)

(Rear)

New 9.0 mm (0.35 in)
 Minimum 8.0 mm (0.31 in)

626/MX-6 1989-'92

(Front)

New 24.0 mm (0.94 in)
 Minimum 22.0 mm (0.87 in)

(Rear)

New 10.0 mm (0.39 in)
 Minimum 8.0 mm (0.31 in)

MX-5 1990-'92

(Front)

New 18.0 mm (0.71 in)
 Minimum 16.0 mm (0.63 in)

(Rear)

New 9.0 mm (0.35 in)
 Minimum 7.0 mm (0.28 in)

RX-7 1989-'91

(Front)

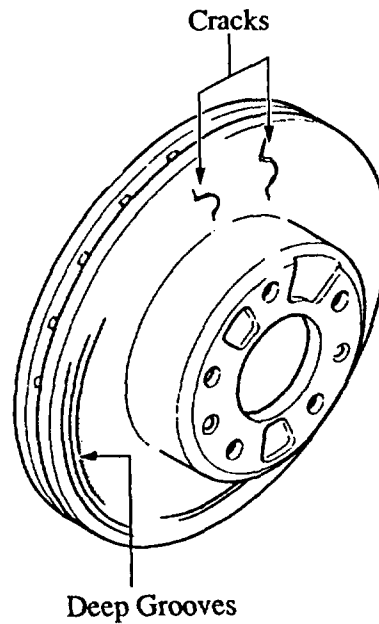
New 22.0 mm (0.87 in)
 Minimum 20.0 mm (0.79 in)

(Rear Solid)

New 10.0 mm (0.39 in)
 Minimum 8.0 mm (0.31 in)

(Rear Ventilated)

New 20.0 mm (0.79 in)
 Minimum 18.0 mm (0.71 in)



Rotor Thickness Specification (Cont.)

929

(Front) 1992

New 24.0 mm (0.94 in)

Minimum 22.0 mm (0.87 in)

(Front) 1989-'91

New 22.0 mm (0.87 in)

Minimum 20.0 mm (0.79 in)

(Rear) 1990-'92

New 18.0 mm (0.71 in)

Minimum 16.0 mm (0.63 in)

(Rear) 1989

New 10.0 mm (0.39 in)

Minimum 8.0 mm (0.31 in)

Brake Drum Inspection:

Most brake drums DO NOT require replacement. Only drums containing deep grooves or blue (hot) spots should be replaced. Drums not showing these signs should be resurfaced by means of machining as long as the maximum inside diameter is not exceeded.

NOTE:

Maximum allowed drum inside diameter is stamped on the exterior drum surface.

Brake Drum Specification:

MPV 1989-'92

Inside Diameter (New) ... 260.0 mm (10.24 in)

Inside Diameter (Max.) .. 261.5 mm (10.30 in)

B-Series 1989-'92

Inside Diameter (New) ... 260.0 mm (10.24 in)

Inside Diameter (Max.) .. 261.5 mm (10.30 in)

Navajo 1991-'92

Inside Diameter (Max.) .. 256.3 mm (10.09 in)

323/Protegé 1989 & '92

Inside Diameter (New) ... 200.0 mm (7.87 in)

Inside Diameter (Max.) .. 201.0 mm (7.91 in)

323/Protegé 1990 & '91

Inside Diameter (New) ... 228.6 mm (9.00 in)

Inside Diameter (Max.) .. 229.6 mm (9.04 in)

MX-3 1992

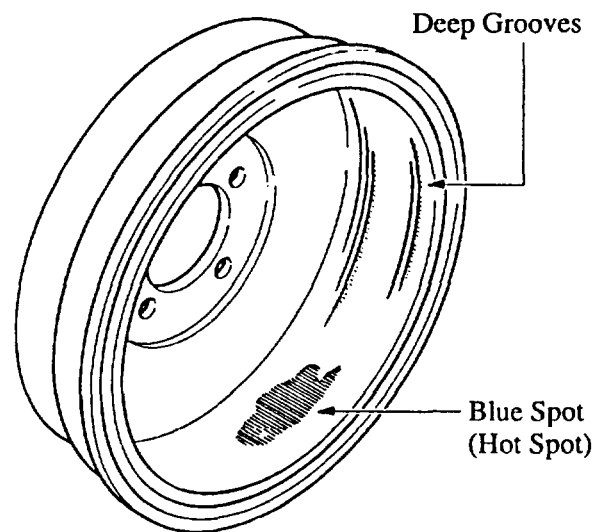
Inside Diameter (New) ... 200.0 mm (7.87 in)

Inside Diameter (Max.) .. 201.0 mm (7.91 in)

626/MX-6 1989-'92

Inside Diameter (New) ... 228.6 mm (9.00 in)

Inside Diameter (Max.) .. 230.1 mm (9.06 in)



Service Bulletin

Mazda Motor of America, Inc.
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Irvine, California 92718
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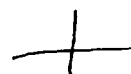


Category P	Applicable Model/s All Models	Subject BRAKE JUDDER REPAIR	Bulletin No. 006/94
			Issued 9/1/94
			Revised

DESCRIPTION

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- Disk Thickness Variation (DTV)
- rotor run-out and/or
- rotor surface rust (which leads to DTV)



This bulletin describes the causes and corrections for each condition.

CAUSES OF JUDDER

1. Disc Thickness Variation (DTV) - DTV creates a vibration/pulsation during application of the brakes. DTV will increase with mileage accumulation if the run-out of the disc is excessive.
2. Disc Rotor Run-Out - Run-out, or rotor "wobble", leads to DTV. It is corrected by precision machining to bring the run-out within specification.
3. Rotor Surface Rust - Under certain conditions (storage or use in extreme environments), the surface of the brake rotors may become rusted in the pad non-contact area. If this corrosion penetrates the rotor surface deeply enough, it will not wear or rub off during normal use. This will cause DTV.

CORRECTION

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda Motor of America has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduce comeback repairs.

The steps necessary for correction of brake judder are as follows:

1. If the vehicle is in dealer inventory and the condition is rotor rust:
 - a. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
 - b. If vibration/pulsation is still felt, proceed to step "c".
 - c. Machine the rotor surface enough to remove all rust or surface staining (generally 0.1mm per side).
NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.
2. If the vehicle has been in service:
 - a. Verify customer's complaint with a test drive.
 - b. If brake judder is felt, proceed to step c. If brake judder is not felt, refer to the workshop manual or the NVH manual for additional troubleshooting information.
 - c. Mark the **front wheel(s)** and the lug nut stud with chalk. This will determine the original position of the wheel to the rotor. Remove the **front wheel(s)**.
NOTE: A high majority of brake judder is due to DTV of the **front rotors**. Customer complaints of brake judder are most often corrected by **machining the front rotors only.**
 - d. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining. **Limit: Stated minimum thickness for the model plus 0.8mm.**
 - e. If machining can be achieved, an on-car brake lathe is recommended and will be required for all warranty repairs after January 1, 1995 to ensure a precise rotor surface.

Index # 040049

Continued On Next Page

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Manager

Parts Manager

Number: 006/94	Date Issued: 9/1/94	Revised:
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After machining rotor(s) with an on-car brake lathe, you **must remove all metal cuttings** (particles) from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- f. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV **must be** removed by on-car machining, even on new rotor(s).
- g. Install the wheel in the same location relative to the hub as it was originally positioned.
- h. Torque wheel lug nuts to the specifications in the service manual.
- i. Test drive the vehicle to confirm repair.
- j. If the brake judder is still felt, correct the rear rotor(s) using steps "c" through "i".

SERVICE TOOLS

The Accu-Turn (model 8750) On-Car Brake Lathe is recommended by Mazda Motor of America. The brake lathe will be available soon from MMA's National Accounts Program at a substantial savings. When the national account is established, a Special Tools Service Bulletin will be released which will contain further details. However, if you wish to receive a brochure on this brake lathe, please call Accu-Turn at (800) 551-2228.

WARRANTY INFORMATION

Applies To Vehicles Covered Under Normal Warranty

- Warranty Type Code: A
- Customer Comment Code: 83
- Damage Code: 9B
- Parts No. Of Main Cause: **** 33 25*
- **** 26 25* (Rear of Vehicle - **Rear Wheel Drive Only**)

Location		Operation Number	Labor Hours
Front	One Side	P0113CMX	0.7
	Both Sides	P0113DMX	1.2
Rear	One Side	P0113EMX	0.7
	Both Sides	P0113FMX	1.2

NOTE:

1. Unnecessary replacement of rotors will result in warranty claim denial.
2. Brake pad replacement costs will not be warrantable for brake judder repair.
3. The '95 SRT Microfiche (for the MX-3, RX-7, 929, MPV, MIATA, etc.) shows labor times for on-car rotor machining are 0.8 Hrs. Max for one side and 1.5 Hrs. Max. for both sides.
4. If an Accur-Turn on-car lathe is used, apply the labor time from the table above. If an off-car lathe is used (until Jan.1, 1995), use the labor times from the 1994 SRT. The next issue of the SRT microfiche will be revised to show the new labor times.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Category P	Applicable Model/s All Models	Subject BRAKE JUDDER REPAIR	Bulletin No. 006/94 Issued 9/1/94 Revised 12/23/94
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The revised portion of this bulletin is indicated by an asterisk (*). Replace the original bulletin with this revised copy.

DESCRIPTION

Customers who complain of vibration or pulsation in the steering wheel, brake pedal, floor or seat while applying the brakes may be experiencing symptoms of brake judder. Judder is caused by:

- Disk Thickness Variation (DTV)
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CORRECTION

In order to effectively correct brake judder, rotor surfaces must be precisely machined. Mazda Motor of America has evaluated both on and off-car brake lathes and has determined that on-car lathes are more precise and greatly reduce comeback repairs.

The steps necessary for correction of brake judder are as follows:

1. If the vehicle is in dealer inventory and the condition is rotor rust:
 - a. Clean the rotor surface by driving the vehicle several miles while frequently applying the brakes.
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NOTE: If machining is performed, the Service Manager's signature must appear on the repair order.
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 - a. Verify customer's complaint with a test drive.
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NOTE: A high majority of brake judder is due to DTV of the front rotors. Customer complaints of brake judder are most often corrected by machining the front rotors only.
 - d. Measure the remaining front rotor thickness and run-out. Determine if sufficient rotor material remains to allow machining. **Limit: Stated minimum thickness for the model plus 0.8mm.**
 - e. If machining can be achieved, an on-car brake lathe is recommended and will be required for all warranty repairs after January 1, 1995 to ensure a precise rotor surface.

Continued On Next Page

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Index # 040960

Signature _____

Parts Manager

Number: 006/94

Date Issued: 9/1/94

Revised: 12/23/94

After machining rotor(s) with an on-car brake lathe, you **must remove all metal cuttings (particles)** from the ABS "toothed ring" (the reluctor) and the ABS sensor. Failure to remove these particles will prevent proper function of the ABS system.

- f. If machining can not be achieved due to rotor thickness limitations, the dealer should replace the rotor. To ensure a successful repair, run-out and/or DTV **must be** removed by on-car machining, even on new rotor(s).
- g. Install the wheel in the same location relative to the hub as it was originally positioned.
- h. Torque wheel lug nuts to the specifications in the service manual.
- i. Test drive the vehicle to confirm repair.
- j. If the brake judder is still felt, correct the rear rotor(s) using steps "c" through "i".

SERVICE TOOLS

The Accu-Turn (model 8750) On-Car Brake Lathe is recommended by Mazda Motor of America. The brake lathe will be available soon from MMA's National Accounts Program at a substantial savings. When the national account is established, a Special Tools Service Bulletin will be released which will contain further details. However, if you wish to receive a brochure on this brake lathe, please call Accu-Turn at (800) 551-2228.

*WARRANTY INFORMATION

Applies To Vehicles Covered Under Normal Warranty

Warranty Type Code: A
Customer Comment Code: 83
Damage Code: 9B
Parts No. Of Main Cause: **** 33 25*
**** 26 25* (Rear of Vehicle - Rear Wheel Drive Only)

Location		Operation Number	Labor Hours
Front	One Side	P0113AMX	0.7
	Both Sides	P0113BMX	1.2
Rear	One Side	P0214ARX	0.7
	Both Sides	P0214BRX	1.2

NOTE:

1. Unnecessary replacement of rotors will result in warranty claim denial.
2. Brake pad replacement costs will not be warrantable for brake judder repair.
3. If an Accur-Turn on-car lathe is used, apply the labor time from the table above. If an off-car lathe is used (until Jan.1, 1995), use the labor times from the 1994 SRT. The next issue of the SRT microfiche will be revised to show the new labor times.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category Q	Applicable Model/s All Models	Subject INSTALLATION OF TIRE CHAINS	Bulletin No. 005/93
			Issued 6/3/93
			Revised

DESCRIPTION

Tire chains may scratch or chip aluminum wheels. **If chains are to be installed, aluminum wheels should be changed to steel wheels.**

Please remind your customers of the following instructions when installing tire chains on their vehicle. These recommendations are also explained in the vehicles owner's manual.

1. Investigate local regulations before using tire chains.
2. Use only SAE Class "S" chains, and make sure they fit the vehicle's tires.
3. Follow the chain manufacturer's instructions.
4. Remove the steel wheel covers (if equipped) to avoid scratches or damage.
5. **Front Wheel Drive Vehicles**— Secure the chains on the front tires as tightly as possible. Retighten after one-half mile of driving.
Rear Wheel Drive— Secure the chains to the rear wheels as tightly as possible. Retighten after one-half mile of driving.

CAUTION:

- CHAINS MAY AFFECT VEHICLE HANDLING.
- DO NOT GO FASTER THAN 30 MPH OR THE MANUFACTURER'S RECOMMENDED SPEED, WHICHEVER IS LOWER.
- DRIVE CAREFULLY AND AVOID BUMPS, HOLES AND SHARP TURNS.
- AVOID LOCKED-WHEEL BRAKING.
- DO NOT USE CHAINS ON THE TEMPORARY TIRE. THEY MAY DAMAGE THE VEHICLE AND THE TIRE.

Service Bulletin



Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714)727-1990



Category S	Applicable Model/s 1988-91 MX-6/626	Subject WIND NOISE	Bulletin No. 004/93
			Issued 2/12/93
			Revised

NOTE: This bulletin supercedes Service Bulletin # 036/92, Cat. S, issued 7/7/92.

DESCRIPTION

On some 1988-91MX-6/626 models, wind noise may be heard when driving more than 40 miles per hour. This wind noise occurs when air leaks into or out of the vehicle while driving or when air travels across an unsealed body surface.

The repair procedures contained in this bulletin replace all other procedures previously released.

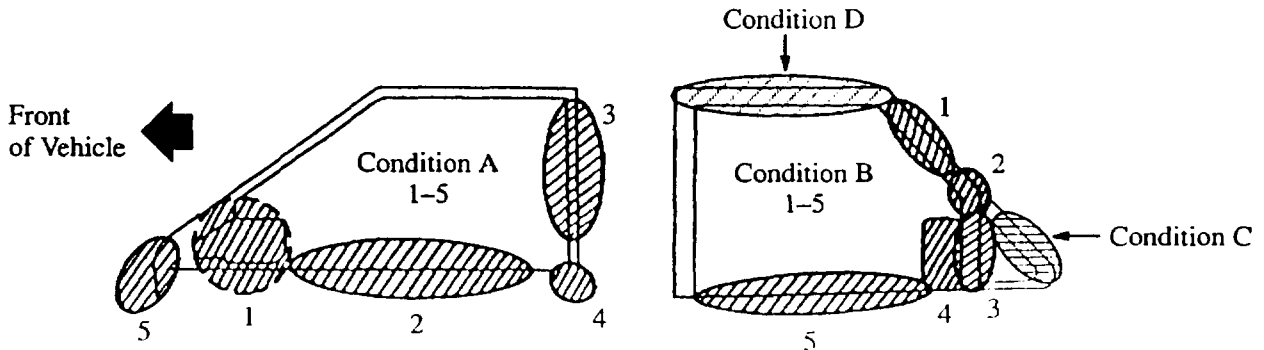
INSPECTION AND REPAIR PROCEDURE

Inspect the vehicle for installation of previous repair kits. If modifications have been made, verify location of wind noise. If noise is still present, inspect installation quality.

Verify location of complaint.

The illustration below shows the general areas where wind noise may occur (A-D). Specific locations of wind noise are shown numerically.

- A) Wind noise at front door area during high speed (above 40 mph) driving (pages 2 through 7).
- B) Wind noise at rear door area (pages 8 through 11).
- C) Wind noise/fluttering noise at rear corner window area (pages 11 and 12).
- D) Wind noise from front and rear door area due to window drop (page 13).



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

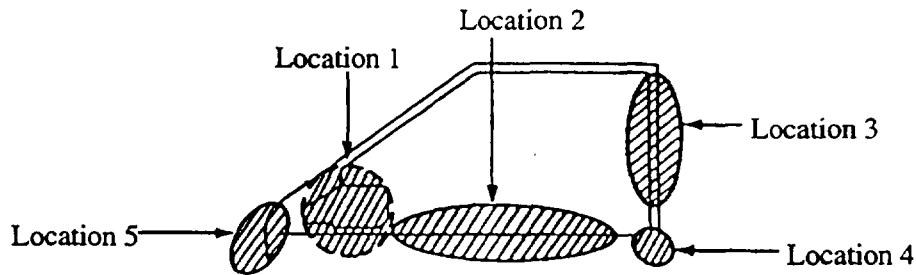
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Service Manager

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Parts Manager

Index # **032678**

INSPECTION AND REPAIR PROCEDURE (CONT'D)**NOTE:**

Repair parts for this bulletin are available as a kit. For the 1988 and 1989 models, install all items in the kit. For the 1990 and 1991 models, carry out only the door mirror, rear quarter window, corner bracket, and glass guide rail operations.

Condition A: Wind noise at front door area during high speed (above 40 mph) driving**LOCATION 1 (DOOR MIRRORS)(ALL MODELS/YEARS)****Manual and Power Mirrors**

1. Using a flat screwdriver, carefully pry the inner sail garnish out of its position. (Start prying at the top corner of the sail garnish then work downward.)

CAUTION:

TAKE CARE NOT TO BREAK THE FASTENING TAB AT THE BOTTOM OF THE SAIL GARNISH.

2. Remove mirror and install corner bracket.
3. Install Pad 1 on the side of the base. **Figure 1.**
4. Install Pad 2 on lower side of base. **Figure 1.**
5. Install Pad 3 (triangular pad) as shown. **Figure 1.**

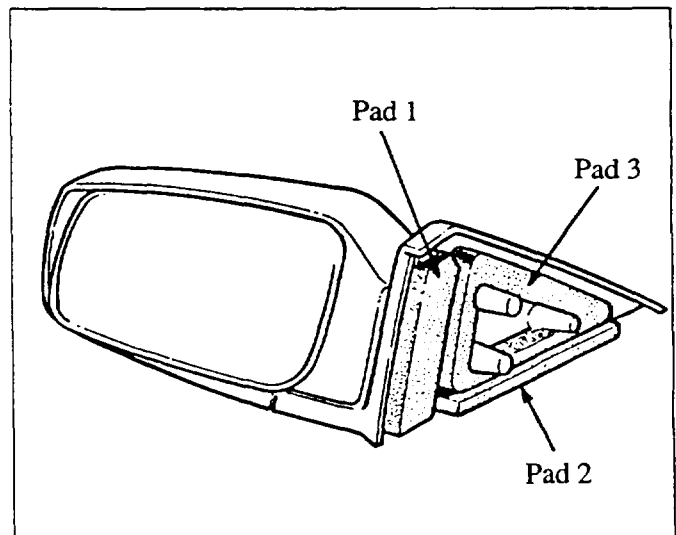


Figure 1: Door Mirror

INSPECTION AND REPAIR PROCEDURE (CONT'D)**Power Mirrors Only**

6. Add respective (right and left) seal rubber to the mirror. **Figure 2.**

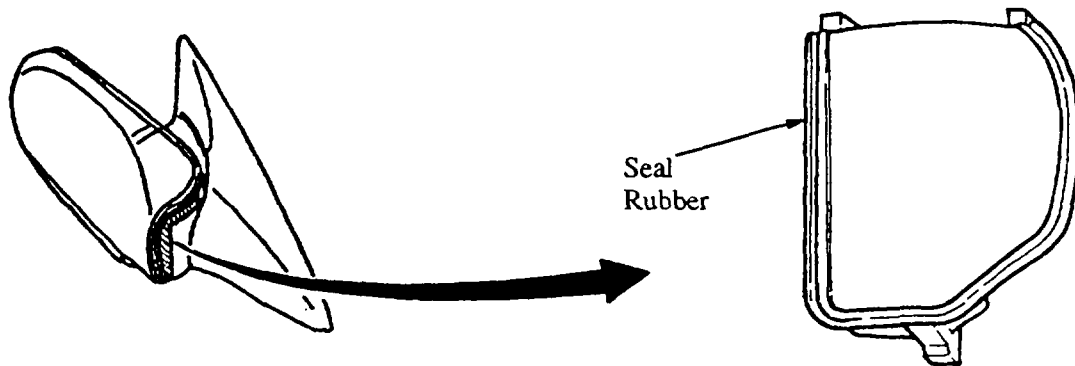


Figure 2: Power Door Mirror

Manual Mirrors Only

7. Add respective (right and left) seal rubber to the mirror base. **Figure 3.**

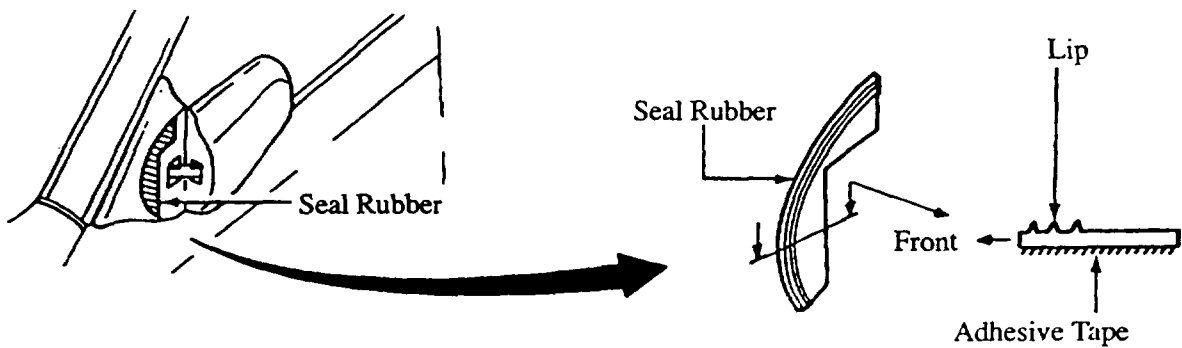


Figure 3: Door Mirror

Manual and Power Mirrors

8. Reinstall mirror.

INSPECTION AND REPAIR PROCEDURE (CONT'D)**LOCATION 2 (GLASS INNER WEATHERSTRIP-ALL DOORS)(1988-'89 MODELS ONLY)**

1. Lower window all the way.
2. Remove door trim.
3. Replace glass inner weatherstrip with new strip. Figure 4.

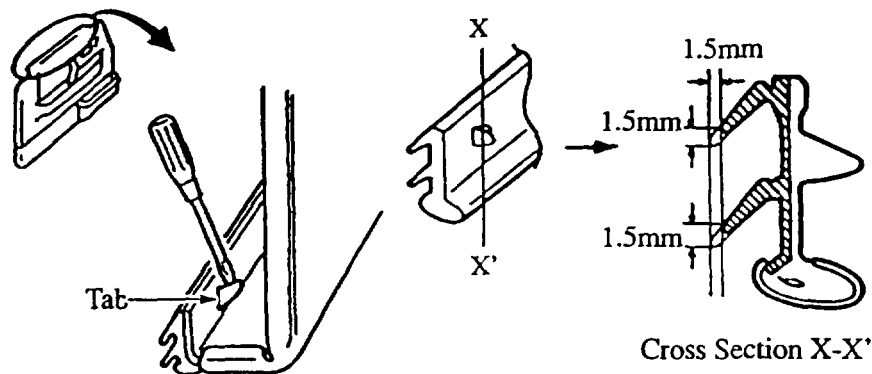


Figure 4: Top of inner door panel.

LOCATION 3 (GLASS RUN CHANNEL-FRONT DOOR)(1988-'89 MODELS ONLY)

1. Lower window all the way.
2. Pull back the glass run channel. Figure 5.
3. Attach the pad strip to the back of the glass run channel from the circled area.

Pad size:
 Length - 400 mm
 Thickness - 2 mm
 Width - 10 mm

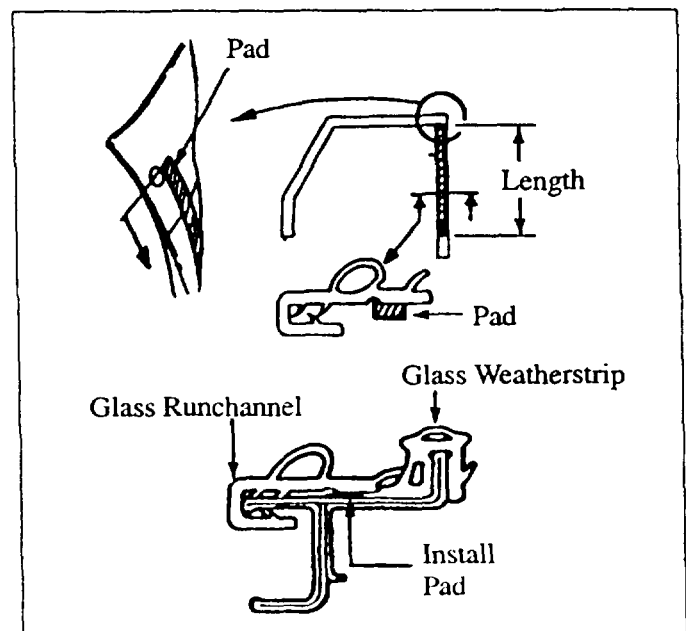
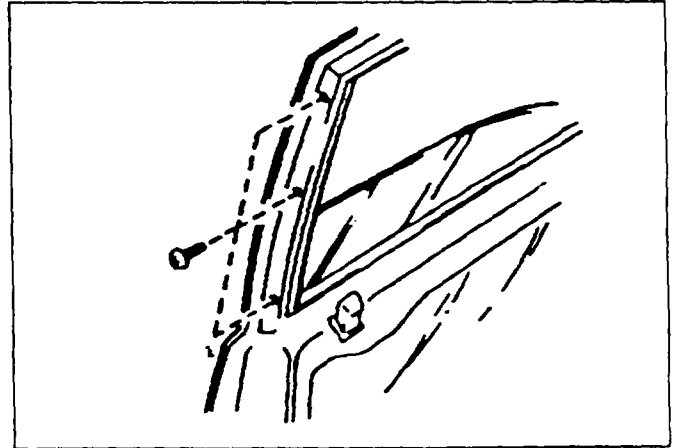


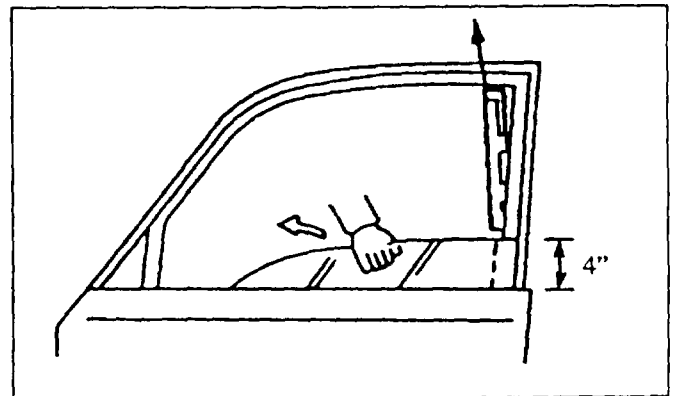
Figure 5: Front Door

INSPECTION AND REPAIR PROCEDURE (CONT'D)**LOCATION 4 (GLASS GUIDE RAIL)(ALL MODELS/YEARS)**

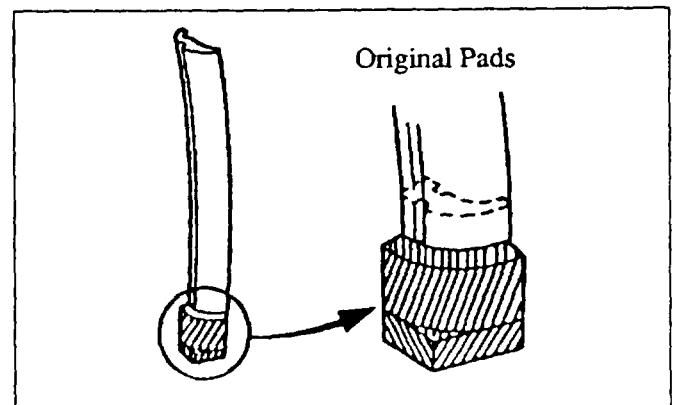
1. Remove the 3 screws which secure the glass guide rail and remove the door inner trim panel. **Figure 6.**

**Figure 6: Rear of front door**

2. Lower the window glass to about 4" showing. Pull the glass guide rail toward the inside of the window frame and up. Move the window glass toward the front of the vehicle. **Figure 7.**

**Figure 7: Front door**

3. Remove the original glass guide rail pad and replace it with a new one. **Figure 8.**
 - A) Install the new glass guide rail pad so that the top of the pad is 30 mm from the bottom of the guide rail. **Figure 9.**

**Figure 8: Original glass guide rail pad**

INSPECTION AND REPAIR PROCEDURE (CONT'D)

B) The remaining length of the pad (10 mm) should be pinched so that the sides stick together. **Figure 9.**

4. Reinstall the glass guide rail and door inner trim panel.

CAUTION:

For ease of installation, door glass must be up approximately 4 inches.

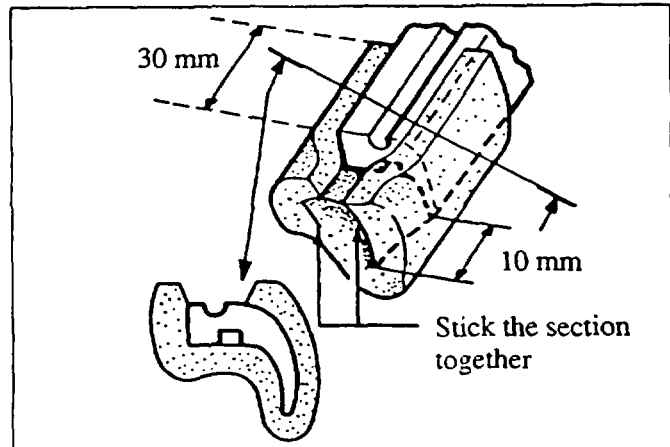


Figure 9: New glass guide rail pad

LOCATION 5 ("A" PILLAR AREA)(1988-'89)**4 and 5-door models**

1. Open the front door and remove the mounting screw from the lower side of the drip molding. **Figure 10.**

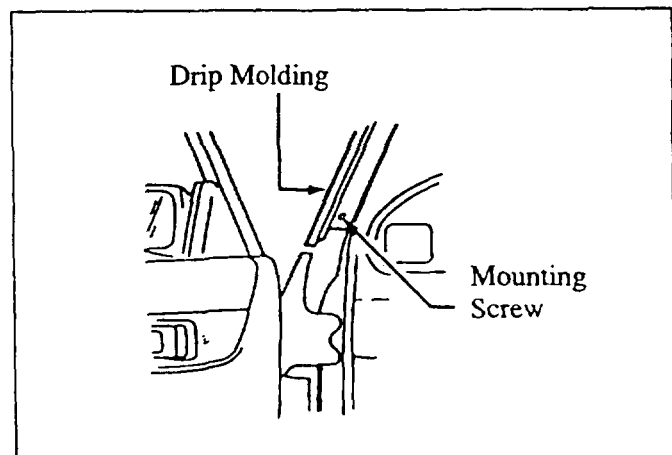


Figure 10: "A" pillar area

2. Remove the original screw boss from the pillar and discard.
3. Install a protector between the drip molding and the "A" pillar. **Figure 11.**

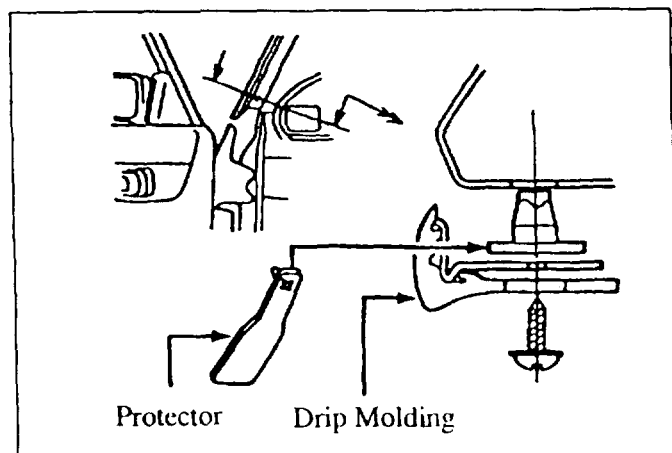


Figure 11: "A" pillar area

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Reinstall the mounting screw and insert the protector inside the front fender cavity. **Figure 12.**

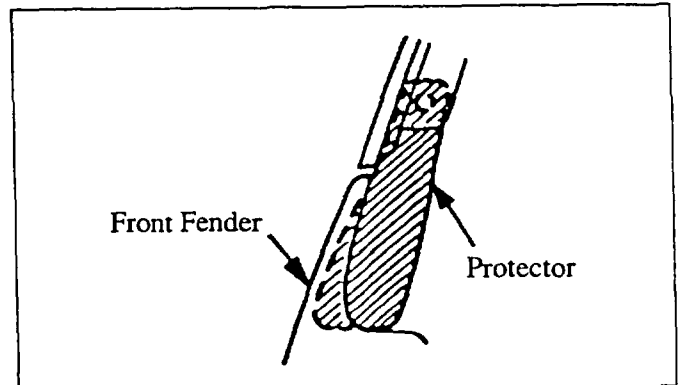


Figure 12: *Base of "A" pillar*

MX-6

1. Cut the boss off of the protector. **Figure 13.**

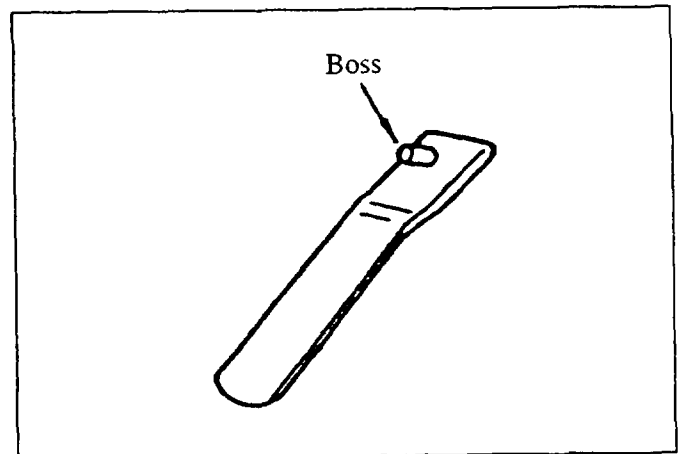


Figure 13: *Protector*

2. Glue the protector to the drip molding. **Figure 14.**
3. Insert protector into fender cavity. **Figure 14.**

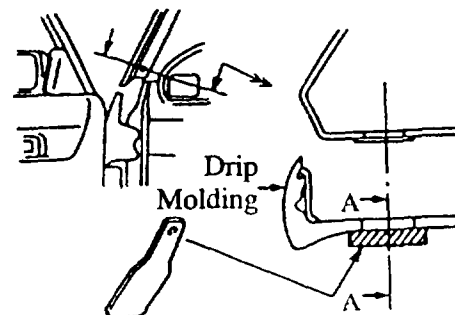
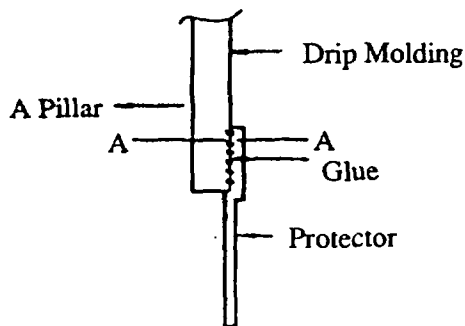
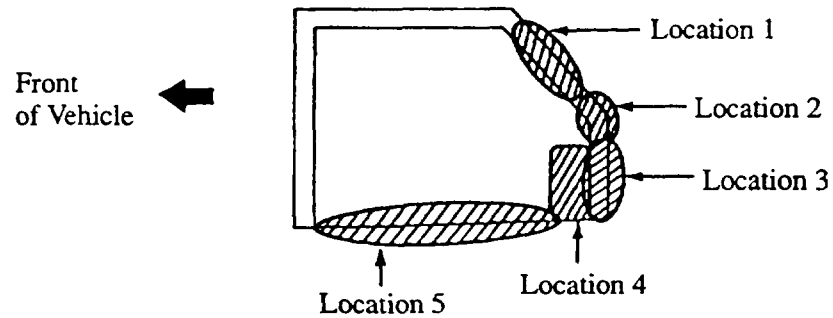
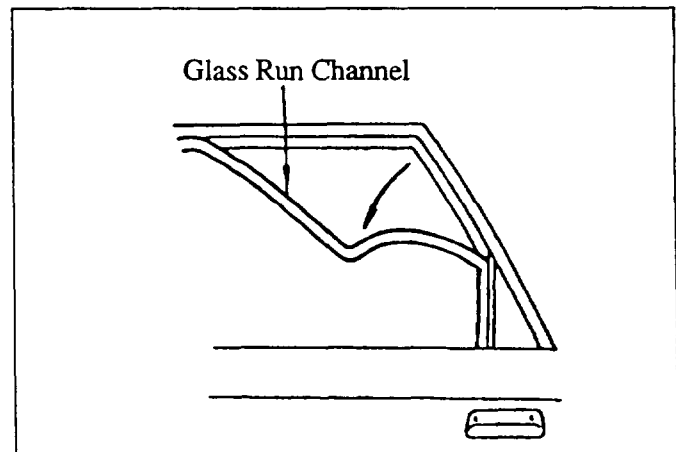


Figure 14: *Front of "A" pillar area*

INSPECTION AND REPAIR PROCEDURE (CONT'D)**Condition B: Wind noise at rear door area. (1988-'89 models only)****LOCATION 1 (TOP REAR OF WINDOWS)**

1. Lower window all the way.
2. Pull off the rear corner section of the glass run channel. **Figure 15.**

**Figure 15: Rear door**

INSPECTION AND REPAIR PROCEDURE (CONT'D)

3. Fold up the glass weatherstrip and install a pad as indicated by the circle in Figure 16.

Pad size:

Length

D 4-Door Sedan

- 257 mm

D 5-Door Hatchback

- 286 mm

Thickness

- 3mm

Width

- 5 mm

4. Reinstall the glass run channel.

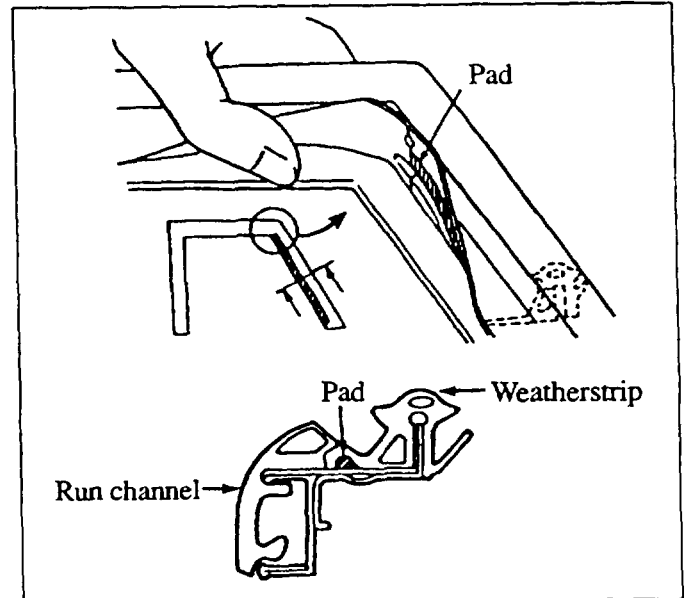


Figure 16: Top of rear door

LOCATION 2 (MIDDLE REAR OF WINDOWS)

Install a pad on the reverse side of the corner lip (circled area) to improve the sealing effectiveness. Figure 17.

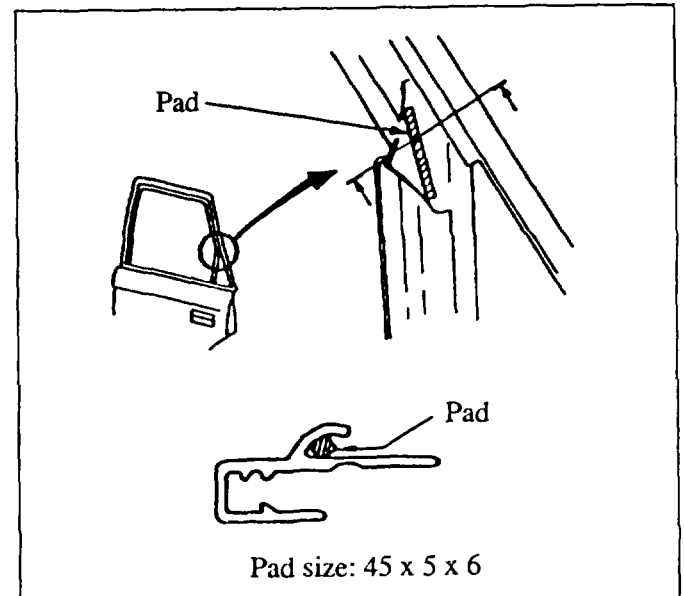


Figure 17: Rear of rear door

INSPECTION AND REPAIR PROCEDURE (CONT'D)

LOCATION 3 (REAR OF WINDOWS)

Fold the glass run channel and install a pad in area indicated by the circle. **Figures 18 and 19.**

Pad size:

- Length (4 and 5-door) - 200 mm
- Thickness - 2 mm
- Width - 10 mm

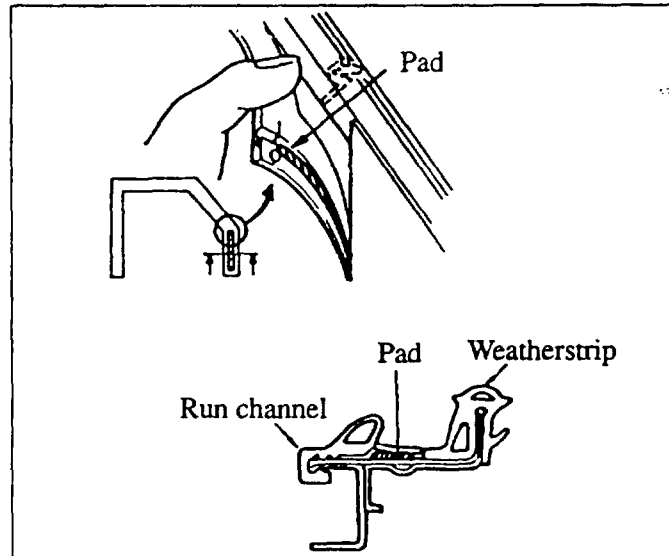


Figure 18: Rear top of rear door

LOCATION 4 (SAIL GARNISH)

Using a flat screwdriver, remove the inner sail garnish by prying it out and installing a new level inner sail garnish. **Figure 20.**

NOTE:

Using a flat screwdriver, pry sail garnish out of its location. Start from the lower rear corner and work forward. Also, be careful not to damage the paint on the surrounding area. **Figure 20.**

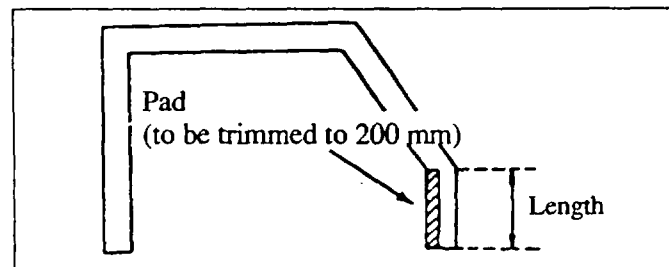


Figure 19: Sail garnish area

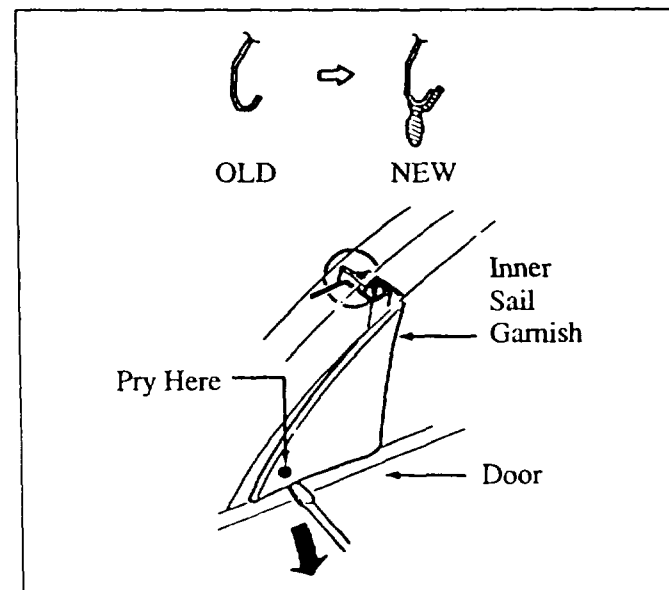


Figure 20: Sail garnish

INSPECTION AND REPAIR PROCEDURE (CONT'D)**LOCATION 5 (REAR GLASS WEATHERSTRIP)**

Perform rear door weatherstrip improvements following the same steps as used on the front door.
(Condition A, Location 2)

Condition C: Wind noise/fluttering noise at rear corner window area**1988-'91 2-Door Coupe**

1. Prepare a tube of silicone sealer as shown.
Figure 21.

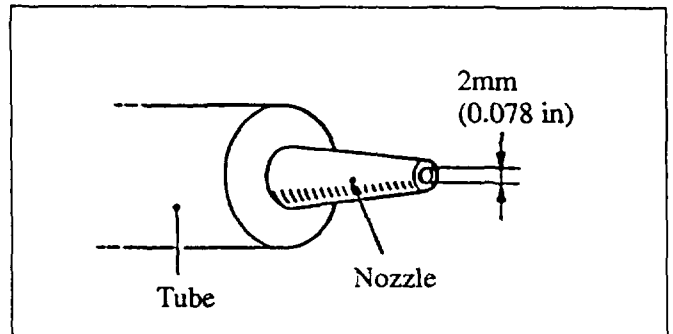


Figure 21: Tube of silicone sealer.

2. Clean the rear quarter window glass and apply silicone between the glass and the garnish.
Figure 22.
3. Using a spatula, push the silicone into the area between the glass and garnish.

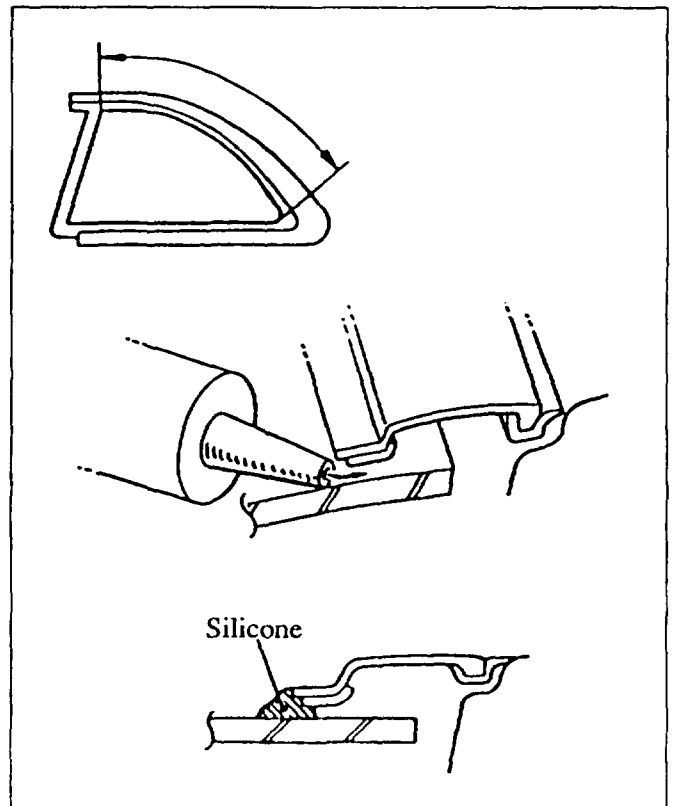


Figure 22: Rear quarter window glass

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Remove all protruding silicone. **Figure 23.**

NOTE:

Silicone will cure and become hard in approximately 24 hours.

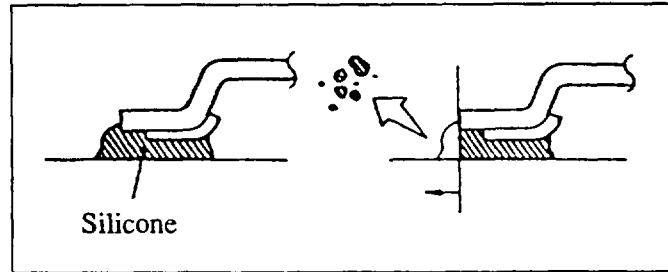


Figure 23: Excess silicone removal area

1988-'91 4-Door Sedan

1. Take out the garnish and glass removing any remaining sponge tape around them.
2. Clean the above mentioned area with alcohol or degreaser to remove grease and oil.
3. Apply the primer to the glass. Allow the primer to dry for approximately 10 minutes.
4. Adhere double-coated tape to the garnish (in the previously taped area). **Figure 24.**

NOTE:

When adhering the double-coated tape, set the tape beforehand to make sure the tape is positioned correctly.

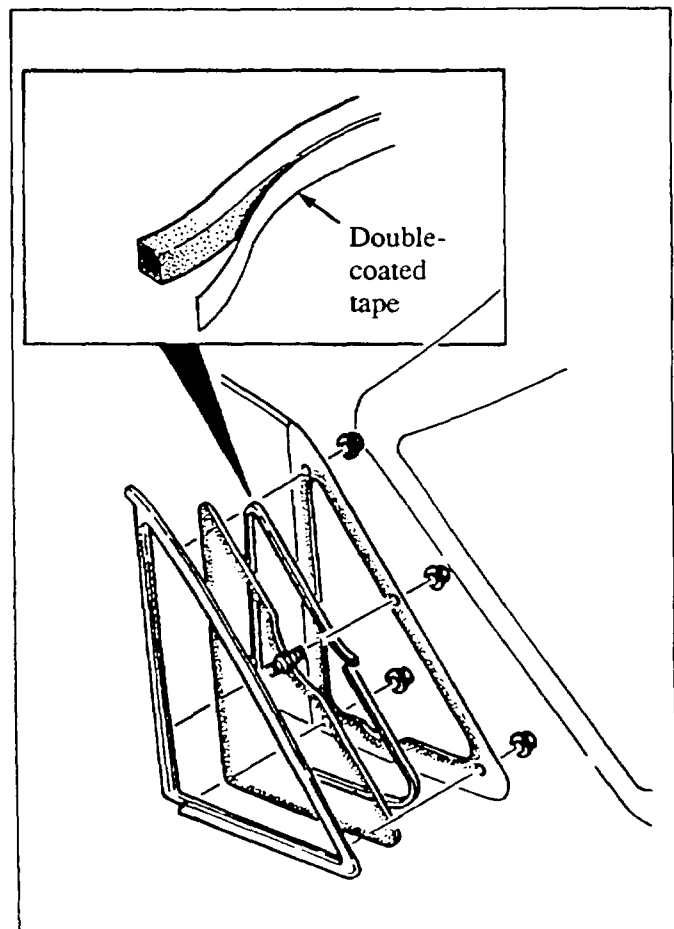
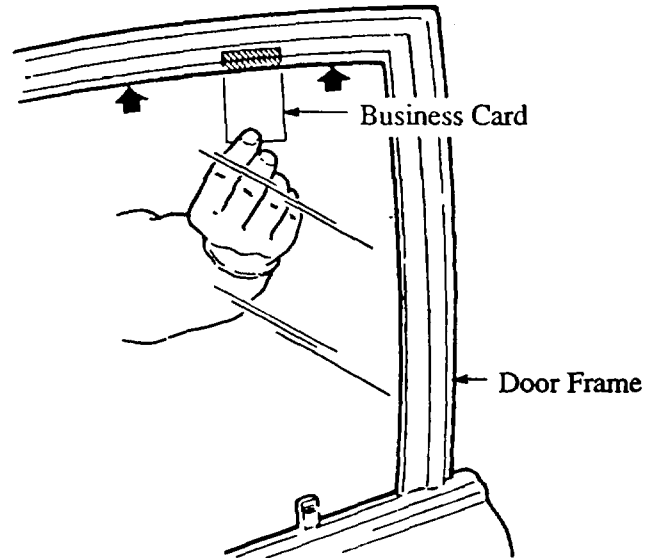


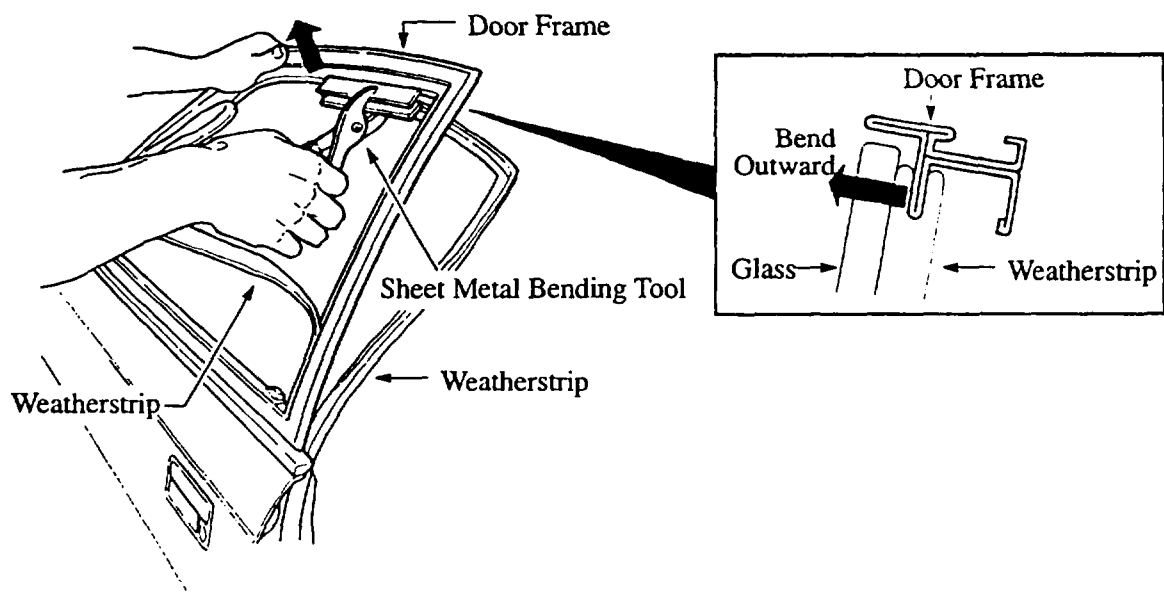
Figure 24: Rear quarter garnish area

INSPECTION AND REPAIR PROCEDURE (CONT'D)**Condition D: Door Glass Drop**

1. Use a business card as you would a feeler gauge to check for looseness (gaps) between the door glass and weatherstrip. The weatherstrip should press firmly against the glass around the entire door frame. Areas that do not form a tight seal between the glass and weatherstrip may allow the glass to drop thereby causing air leaks.
2. With the window in the down position, remove the following parts according to Workshop Manual procedures section S:
 - a) Black Plastic Inner Sail Garnish
 - b) Window Frame Weatherstrip
3. Remove the weatherstrip to access the glass run channel frame.
4. Carefully bend the weatherstrip frame slightly outward ($1/16''$) to increase the pressure of the weatherstrip against the glass. Use a sheet metal bending tool (Snap-on P/N VP8R or equivalent).

**NOTE:**

Protect the painted surface of the vehicle by wrapping the metal bending tool with cloth or foam.



5. Install removed parts in the reverse order of removal.
6. Recheck the weatherstrip using the business card insertion technique.

Number: 004/93	Date Issued: 2/12/93	Date Revised: 8/17/92
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PARTS INFORMATION

PART NUMBER	DESCRIPTION
GR45 75 750	MX-6 Repair Kit
GR11 75 750	4 & 5-Door Repair Kit

WARRANTY INFORMATION

(Applies to vehicles covered under warranty.)

Warranty Type Code: A
Customer Comment Code: 78
Damage Code: 99
Part No. of Main Cause: Part No. of Repair Kit (see Parts Information above)
Operation No: See charts below.
Labor Hours: See charts below.

1. 4-door Sedan and 5-door Hatchback

CONDITION	REPAIR	OPERATION NO. (one side only)	LABOR HOURS (one side only)
A	Wind noise at front door area during high speed driving	XX0312RX	1.2
B	Wind noise at rear door area	XX0274RX	0.5
C	Wind noise/fluttering noise at rear corner window area	XX0252RX	0.3
D	A+B+C	XX0311RX	2.0

NOTE: If applicable to R & L sides, use given operation no. and labor hours twice.

2. MX-6

CONDITION	REPAIR	OPERATION NO. (one side only)	LABOR HOURS (one side only)
A	Wind noise at front door area during high speed driving	XX0312RX	1.2
B	Wind noise/fluttering noise at rear corner window area	XX0252RX	0.3
C	A+B	XX0309RX	1.5

NOTE: If applicable to R & L sides, use given operation no. and labor hours twice.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714)727-1990



Category S	Applicable Model/s 1988-91 626/MX-6 (USA Made)	Subject WATER ENTERING INTERIOR	Bulletin No. 006/93
			Issued 2/12/93
			Revised

NOTE: This bulletin supercedes Service Bulletin # 034/92, Cat. S, issued 7/7/92.

DESCRIPTION

Some 1988-91, USA made 626/MX-6 vehicles may experience interior water leaks. This occurs in the front floor, the headliner (sunroof), or the trunk areas. If the area where water entered the vehicle cannot be confirmed, a water leak test must be performed. These tests are described in the Inspection and Repair section of this bulletin.

INSPECTION AND REPAIR PROCEDURE

To perform the appropriate procedure, refer to the following chart.

LOCATION	PAGES
I. Right Front Side of Passenger Compartment	Pages 1 through 6
II. Left Front Side of Passenger Compartment	Pages 6 through 9
III. Trunk Compartment and Under Rear Seat	Pages 9 through 13
IV. Sunroof of Headliner Area	Pages 13 through 15

LOCATION I: RIGHT FRONT SIDE OF PASSENGER COMPARTMENT

Location of Water Leak Source

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # **032680**

INSPECTION AND REPAIR PROCEDURE (CONT'D)

5. With the door closed, watch for water leaks during hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam, then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 1 and 2.**

NOTE:

DO NOT direct water into blower motor opening (under cowl panel).

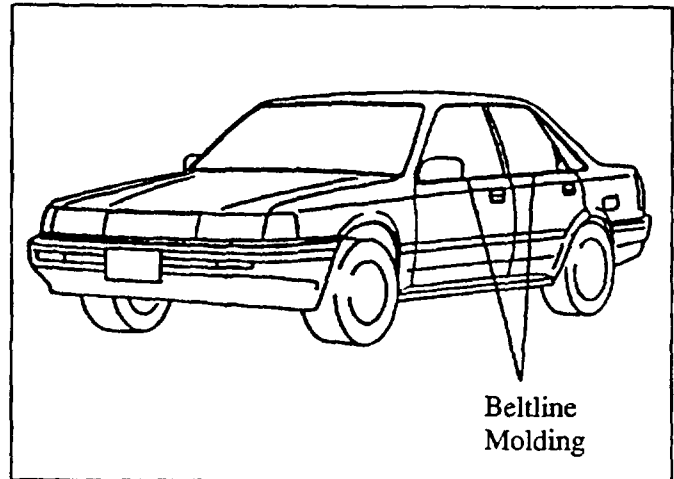


Figure 1: Beltline Molding Location

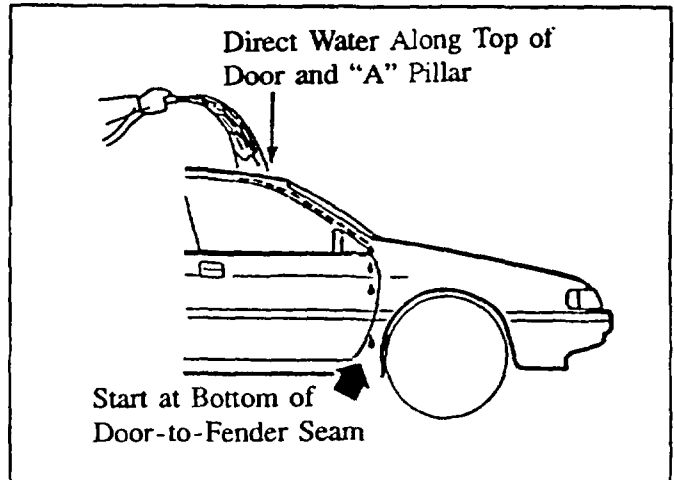


Figure 2: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 3.**

- AREA A: KICK PANEL (pages 3 and 4)
 AREA B: UNDER DASH (pages 4 and 5)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 5)
 AREA D: OVER SILL PLATE (page 6)

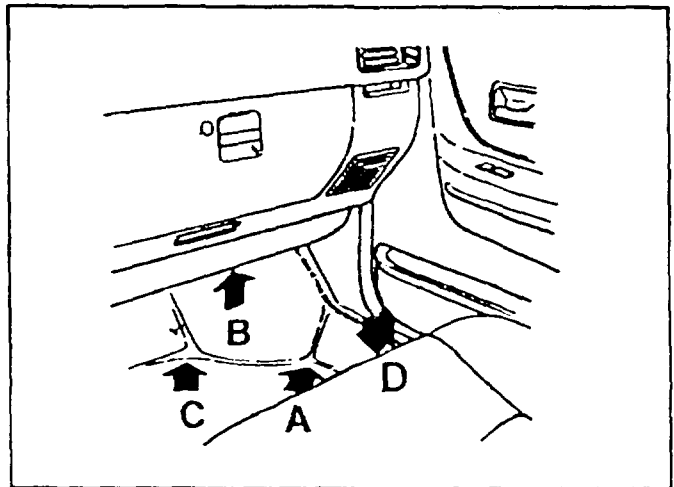
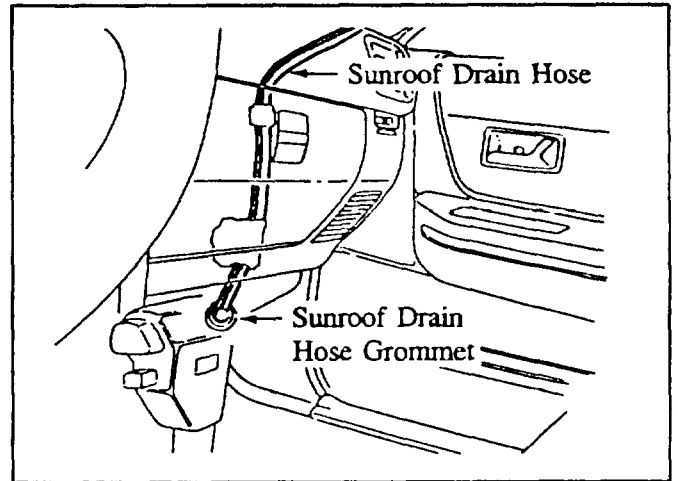


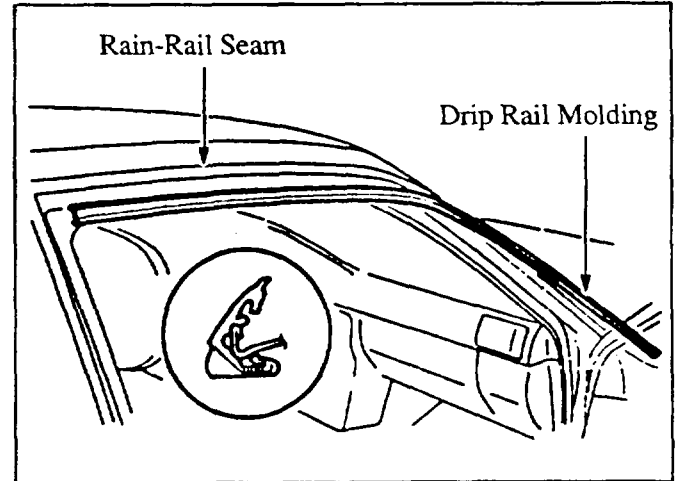
Figure 3: Possible Water Leak Areas

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA A: KICK PANEL**

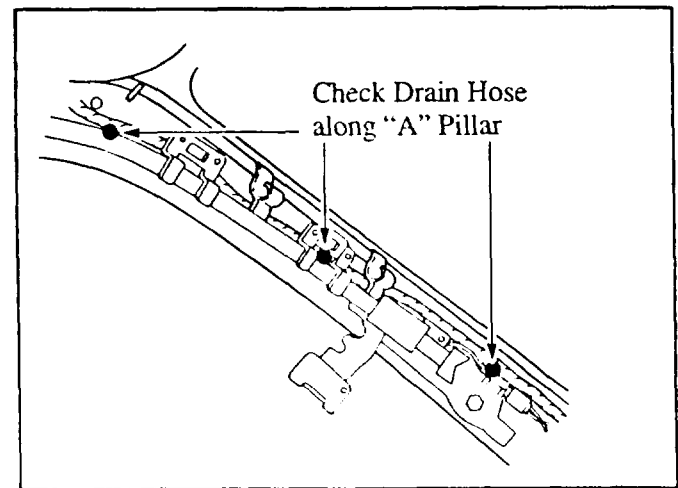
1. Remove kick panel and inspect.
2. Make sure that the door electrical harness boot and the sunroof drain hose grommet are seated. Check that the sunroof drain hose is not kinked and extends through the lower kick panel.

Figure 4.**Figure 4: Checking the Sunroof Drain Hose**

3. Remove the drip-rail molding and inspect rain-rail seams for missing sealer or pinholes. Seal any suspected sealer defects. **Figure 5.**
4. Open the sunroof. Using a squeeze bottle filled with water, pour water down the front drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.

**Figure 5: Drip Rail Molding**

5. If the leak is still present, remove cap and screw from the front windshield header. Remove the "A" pillar side molding. Check the drain hose for kinks. **Figure 6.**
6. If necessary, reposition the hose so that there are no loops, kinks or pinched areas. Repeat the water test. Make sure that the sunroof drains properly with no leaks. **Figure 7.**

**Figure 6: Checking Front Drain Hose**

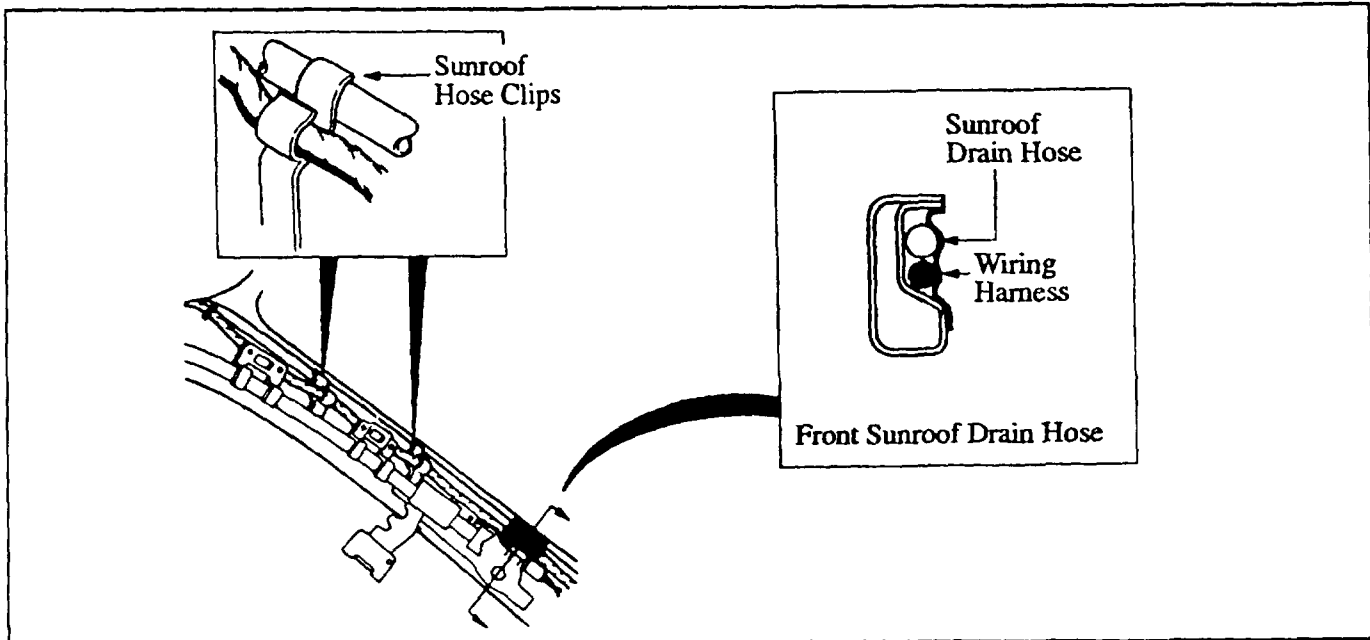
INSPECTION AND REPAIR PROCEDURE (CONT'D)

Figure 7: Checking Front Drain Hose

7. If necessary, remove the damaged section of hose. Install a replacement piece of hose with a 9.5mm (3/8 inch) outside diameter which provides a tight fit to the existing hose.

AREA B: UNDER DASH

1. Confirm that the upper cowl drain plug (black tube) has been modified (the dimension of the drain hole has been enlarged to 10mm). Also confirm that there are no obstructions and that the plug drains properly.
2. Using a mechanic's mirror, look for signs of water leakage under the dash (e.g. water/washer solvent stains).
3. Set the heater control air intake control lever to the first position. Remove the blower fan (3 screws) and look for water entering the blower motor opening.
4. Check all grommets shown in Figure 8 for leaks by spraying water on each one. Replace any grommets that leak.

NOTE: Apply silicone sealer to the bottom of the grommet during installation.

5. If the grommets do not leak, seal the baffle seam by reaching up through the blower motor opening and seal the areas indicated in Figure 8.
6. If water is leaking from the the firewall, check for studs and grommets that might be loose or improperly seated on the engine side of the firewall. If necessary, remove, redress, and reinstall the studs. Retap the holes and, if necessary, replace the bolts. Apply sealer to the threads before installing the bolts. Apply silicone sealer to the bottom of the grommets prior to installation.

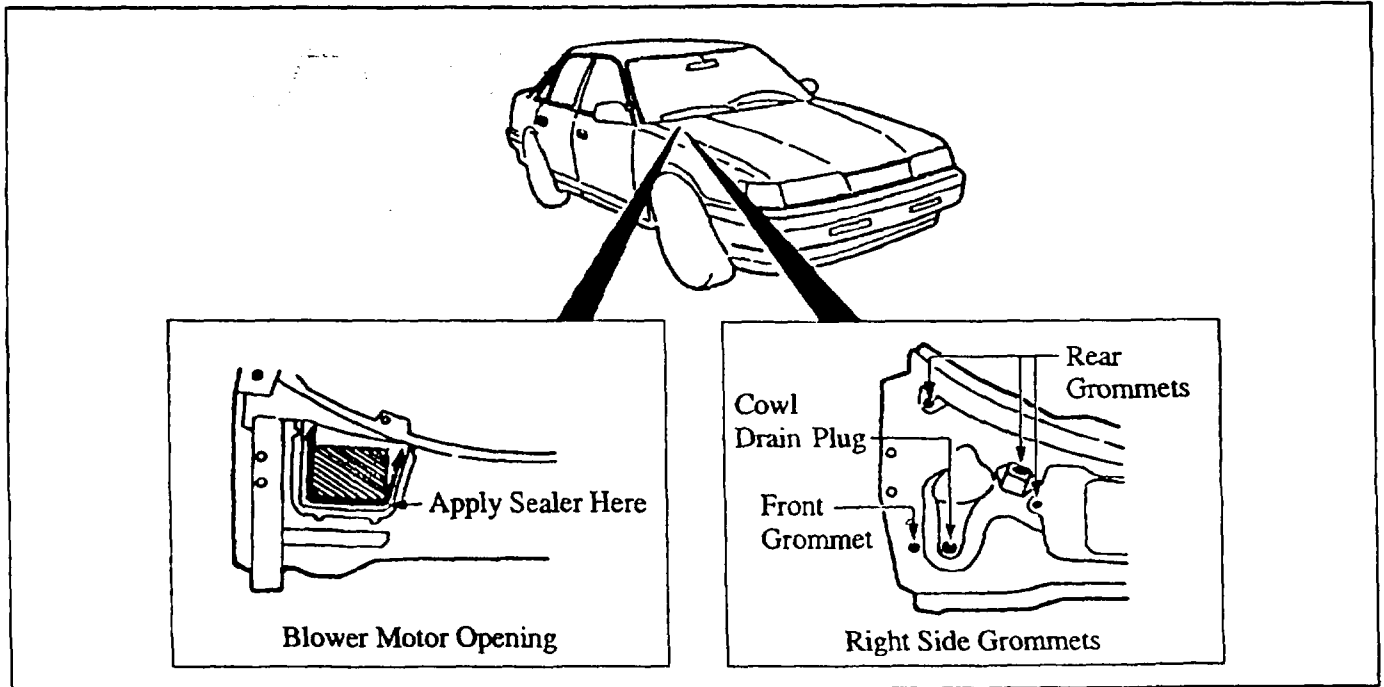
INSPECTION AND REPAIR PROCEDURE (CONT'D)

Figure 8: Checking Right Side Cowl for Leaks

7. If a leak is found, remove the black plastic cowl vent, then remove the foam strip from the underside.
NOTE: Before installing the new foam pads, make sure to apply sealer to both sides of the pad.
8. Reinstall the black plastic cowl vent. Perform a water leak test by directing water around the outer edges of the cowl vent. Inspect for water leakage or moisture.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad, and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes among the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 9.**

NOTE: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanics mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 9.**

NOTE: The illustration shows the fender removed. Complete fender removal is not required.

CAUTION: USE CARE WHEN MOVING FENDER FOR INSPECTION AND RESEALING BODY SEAMS. DO NOT ALLOW THE FENDER TO BUCKLE.

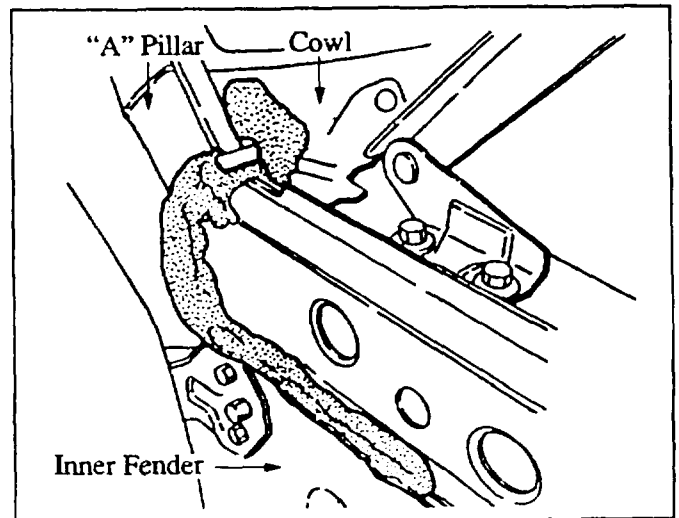


Figure 9: View of Adequate Body Sealer

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA D: OVER SILL PLATE**

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 10.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.
3. Confirm that the door drain holes are draining properly and are not obstructed.

NOTE: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

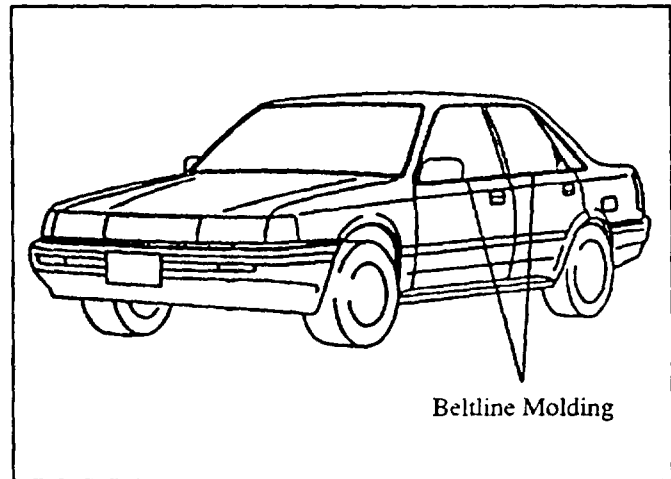


Figure 10: Area of Beltline Molding

LOCATION II: LEFT FRONT SIDE OF PASSENGER COMPARTMENT**Location of Water Leak Source**

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.
5. With the door closed, watch for water leaks during the hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 10 and 11.**

NOTE: Do not direct water into blower motor opening (under cowl panel.)

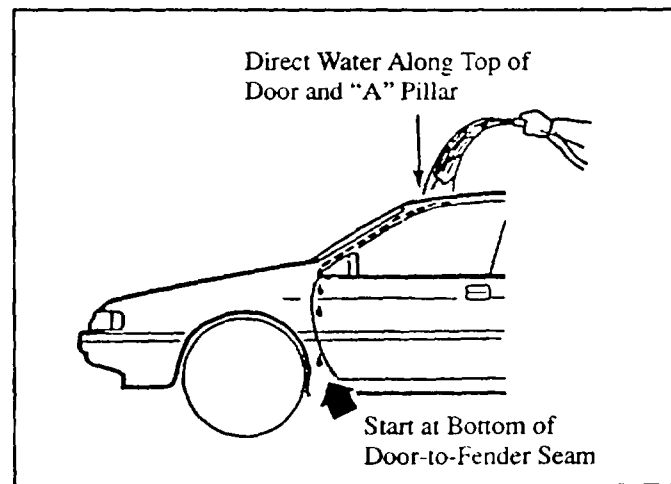


Figure 11: Locating Source of Front Water Leak

INSPECTION AND REPAIR PROCEDURE (CONT'D)

- Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 12.**

AREA A: KICK PANEL (pages 7)

AREA B: UNDER DASH (pages 7 and 8)

AREA C: CORNER OF FIREWALL
AND INNER FENDER (page 8)

AREA D: OVER SILL PLATE (pages 8 and 9)

AREA A: KICK PANEL

- Follow the same repair procedure described for the right front side of the passenger compartment.
- Run water on the antenna. Make sure the antenna tube is intact on the bottom of the power antenna motor and water drains properly (for models equipped with power antenna.)
- If necessary, position the hose so there are no loops, kinks or pinched areas. If the hose cannot be corrected or is out, remove the damaged section of hose. Install a replacement piece of hose (4.7 mm [3/16 in.] outside diameter) which provides a tight fit to the existing hose.
- If the leak persists, inspect the antenna bezel molding and gasket for correct sealing and mounting. Confirm that the mounting screw is fully seated and that the gasket is firmly contacting the roof sheet metal. **Figure 13.**

AREA B: UNDER DASH

- Using a mechanic's mirror, look for signs of water leakage under the dash.
- Check the cowl grommet for leaks by spraying water on it. Replace the grommet if it leaks. Apply sealer to the bottom side of the grommet during installation. **Figure 14.**

NOTE: Only one grommet is located in an area where it may cause a water leak.

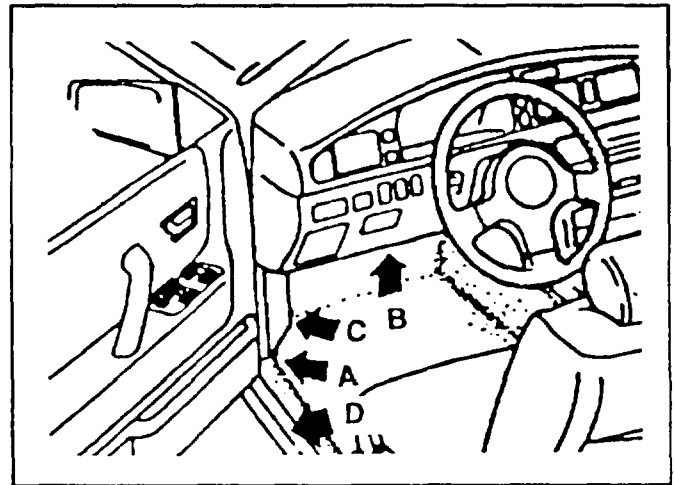


Figure 12: Possible Water Leak Areas

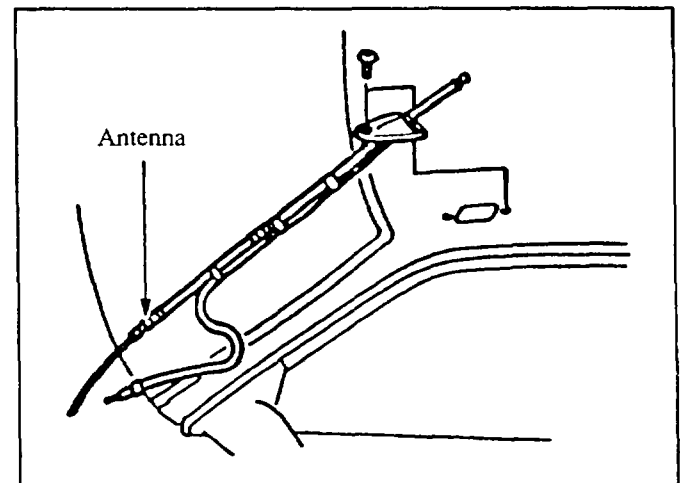


Figure 13: Inspecting Antenna Bezel

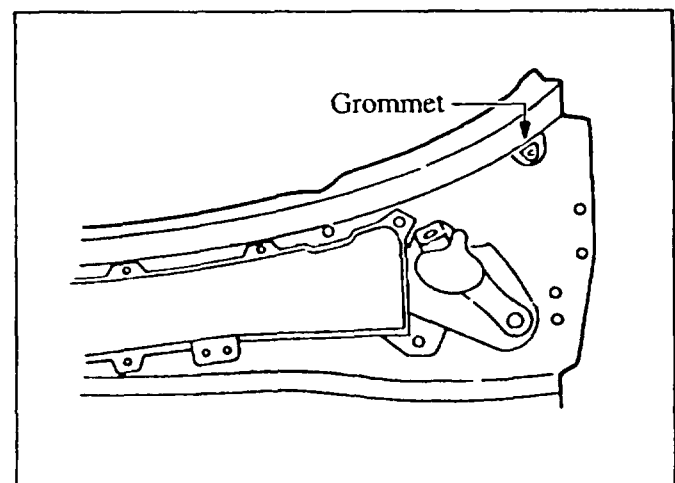


Figure 14: Left Side Grommet

INSPECTION AND REPAIR PROCEDURE (CONT'D)

3. If water is leaking from the fire wall, check for improperly seated studs, loose grommets, and cross-threaded bolts on the engine side of the firewall.
4. If necessary, remove the studs, clean the threads and reinstall. Remove cross-threaded or high bolts, retap holes and, if necessary, replace bolts. Be sure to apply sealer to the threads before installing the bolts. Finally, replace any loose grommets.
5. Remove the black plastic cowl vent, direct a stream of water at each stud and, if any leaks are found, apply sealer.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes along the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 15.**

NOTE: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanic's mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 15.**

NOTE: The illustration shows the fender removed. Complete fender removal is not required.

CAUTION:USE CARE WHEN MOVING FENDER FOR INSPECTION AND RESEALING BODY SEAMS. DO NOT ALLOW THE FENDER TO BUCKLE.

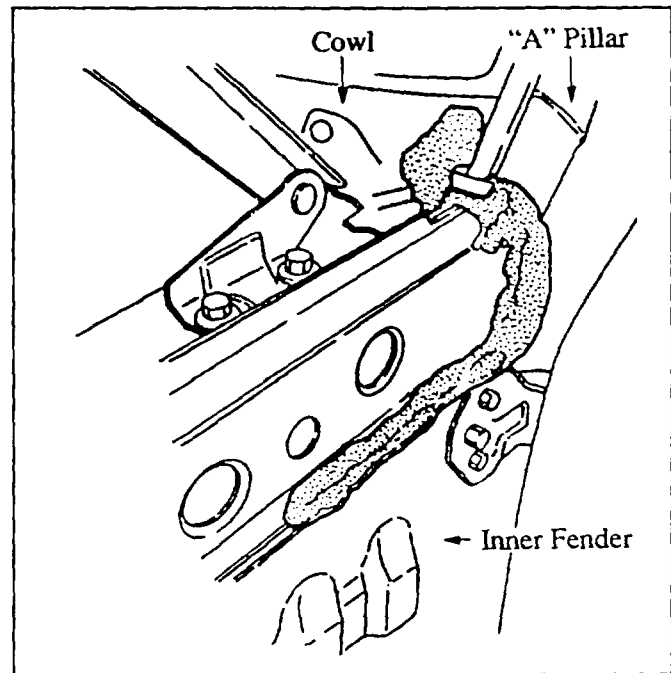


Figure 15: View of Adequate Body Sealer

3. Also inspect the antenna bezel molding for correct sealing and mounting as described in the repair section of AREA A (page 7).

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 16.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.

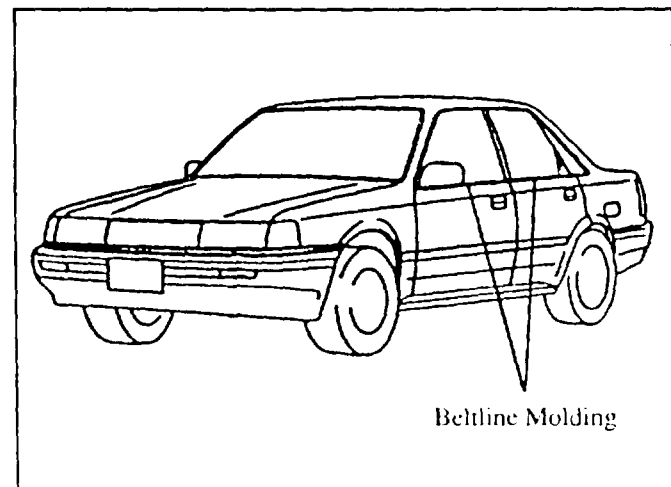


Figure 16: Area of Beltline Molding

INSPECTION AND REPAIR PROCEDURE (CONT'D)

3. Confirm that the door drain holes are draining properly and are not obstructed.

NOTE: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

LOCATION III: TRUNK COMPARTMENT AND UNDER REAR SEAT**Location of Water Leak Source**

1. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Carpet, side panels and rear seat bottom may have to be removed to locate the source of the leaks.
4. Lower the rear seat backs. From inside the vehicle, close the door and, using a flashlight, look for water leaks during the hose test.
5. Have an assistant direct the water stream over the entire rear of the vehicle, concentrating on the following areas: **Figure 17**.
 - Along the deck lid to body gap.
 - Up each "C" pillar and across the upper portion of the rear window.
 - Along the key lock cylinder, rear deck lid finisher and combination lamps.
 - Along the fuel filler door-to-body gap.
6. Have an assistant direct the water stream over the entire inner wheel well area concentrating on the following areas:
 - Inner wheel well-to-quarter panel seam and bumper plug. **Figure 18**.
 - Inner wheel well-to-trunk floor pan seam. **Figure 19**.
 - Inner wheel well-to-floor pan seam (to check for leakage under the rear seat.)

NOTE: Direct a heavy stream of water where the rocker panel meets the inner wheel well (to check for leakage into the rocker panel). **Figure 17**.

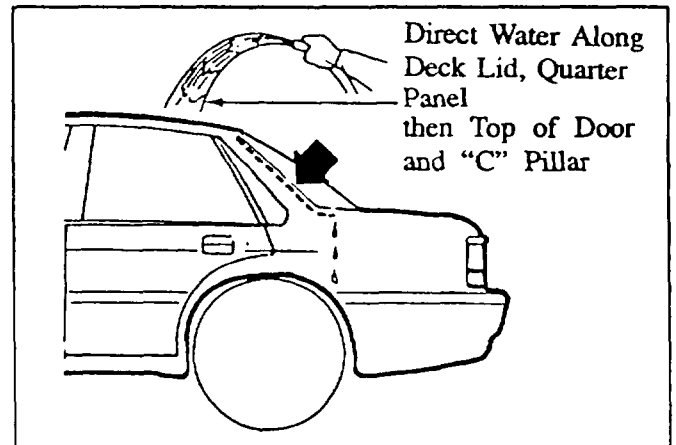


Figure 17: Locating Source of Rear Water Leak

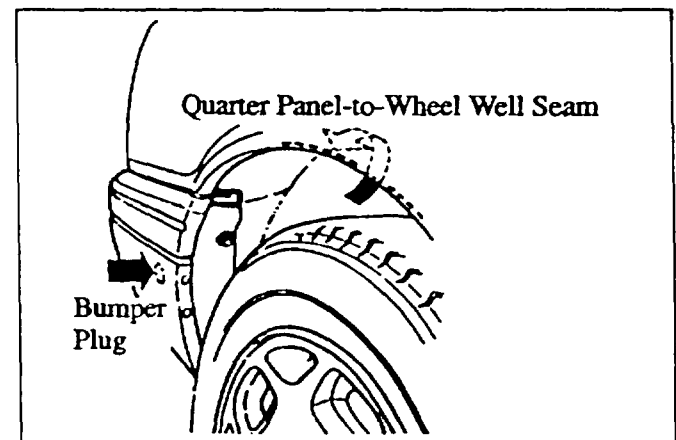


Figure 18: Bumper Plug and Wheel Test Area

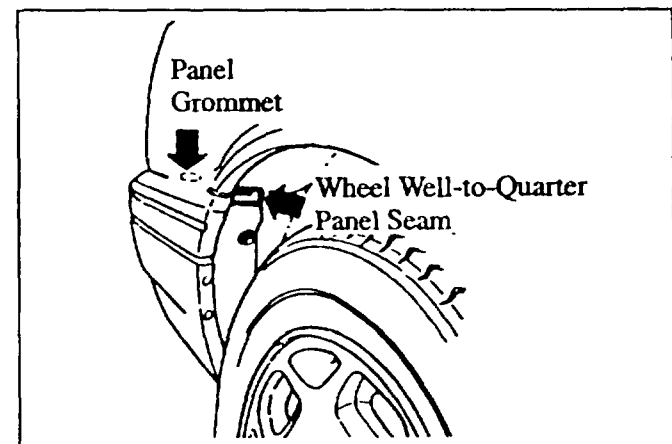


Figure 19: Wheel Well-to-Quarter Panel Seam

INSPECTION AND REPAIR PROCEDURE (CONT'D)

7. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 20.**

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA (pages 10 and 11)

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM (pages 11 and 12)

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL (page 12)

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS (page 12)

AREA E: KEY LOCK CYLINDER (page 13)

8. If water is collecting in storage wells, check the drain holes for debris or undercoating.

NOTE: Do not seal up the drain holes at the bottom of area C.

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA

1. If water is running down over the interior trunk end-panel trim or over/under the trunk weatherstrip, pull up the trunk weatherstrip and check grey sealer material and any body seams near the linkage area. Confirm that grey sealer covers the top of the flange in one solid strip. Check for pinholes, missing sealer or burrs.

Figure 21 and Figure 22.

2. If water is located behind the interior trunk end-panel trim or carpet, remove the trim panel. Direct a stream of water at the rear of the vehicle and pinpoint the location of the leak. Check the body seams for any pinholes or missing sealer. **Figure 21.**

3. If pinholes and/or missing sealer are found in step 2, add a non-hardening grey body seam sealer to fill in the empty spots and reinstall the trunk weatherstrip. Make sure the trunk weatherstrip is routed under the latch striker and press it firmly in place. Retest for water leaks.

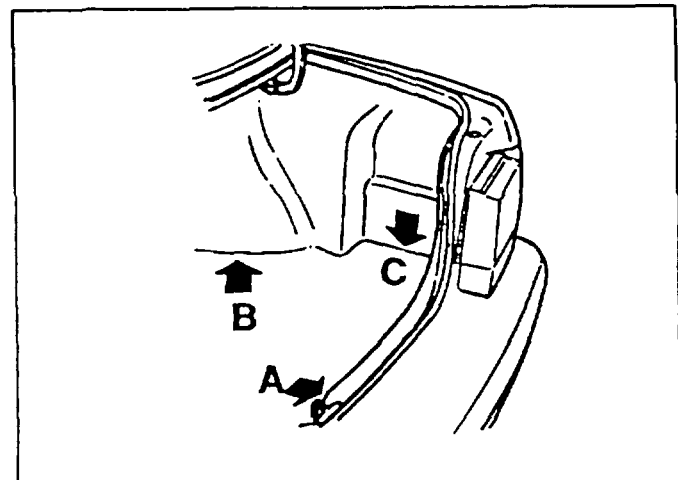


Figure 20: Locating Possible Water Leak Areas

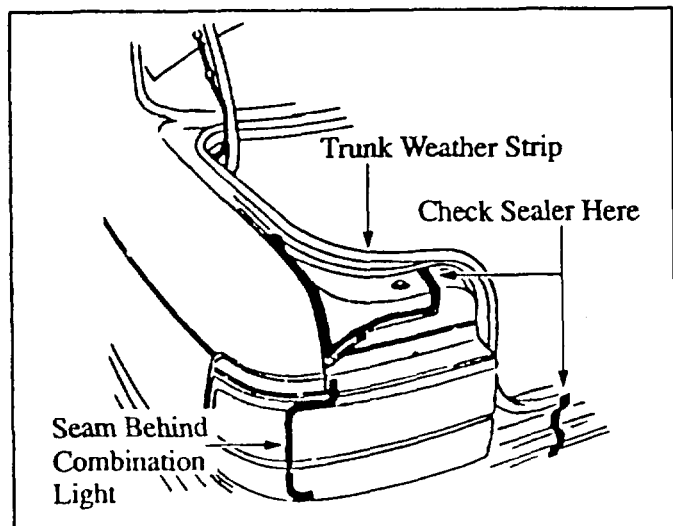


Figure 21: Inspecting Rear Trunk Area

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. If the leak is from the combination lamp(s) area, confirm that the mounting studs/nuts are tight and the assemblies are not cracked. Check end panel-to-quarter panel seams for any pinholes or missing sealer. If the leak continues, remove the combination lamp(s) and gasket(s). Install a new gasket to the combination lamp(s). **Figure 21.**

NOTE: Before installing the new gasket, apply sealer to both sides of the gasket. Also, confirm body-to-combination lamp surfaces are flush and no burrs are present.

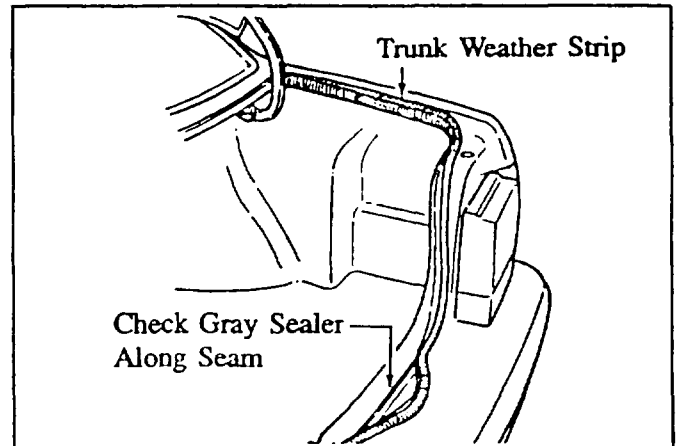


Figure 22: Checking Grey Sealer Under Trunk Weatherstrip

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM

1. If water leaks into the forward area of the trunk, make sure that the weatherstrip is properly seated and not leaking. **Figure 23.**
2. If no problems are found, check all trunk opening seams and the inner wheel well-to-trunk floor pan seam for missing sealer or pin holes. Seal any suspected areas and retest for leaks. If no problems are found, go to step 3.

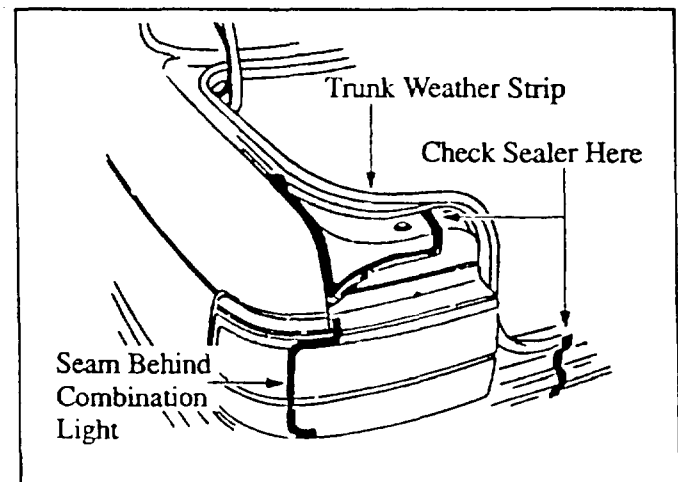


Figure 23: Inspecting Rear Trunk Area

3. If necessary, remove the rear shoulder seat belt mounts and inside "C" pillar trim panel(s). Remove the mounting nuts. Next, remove the rear window glass side molding. **Figures 24 and 25.**

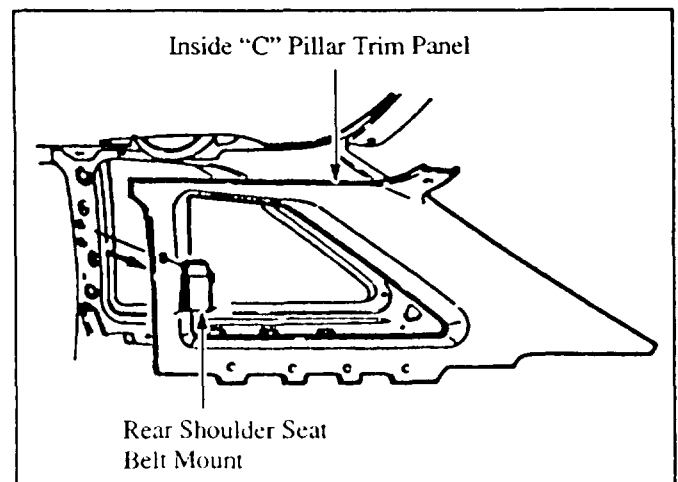


Figure 24: Removing Inside "C" Pillar Trim Panel

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Check the condition of the rear window sealer in this area. Use a flashlight to find small pinholes. Check extractor side molding mounting hardware for missing or damaged sealer or gaskets. Apply sealer to all mounting points as necessary. **Figure 25.**

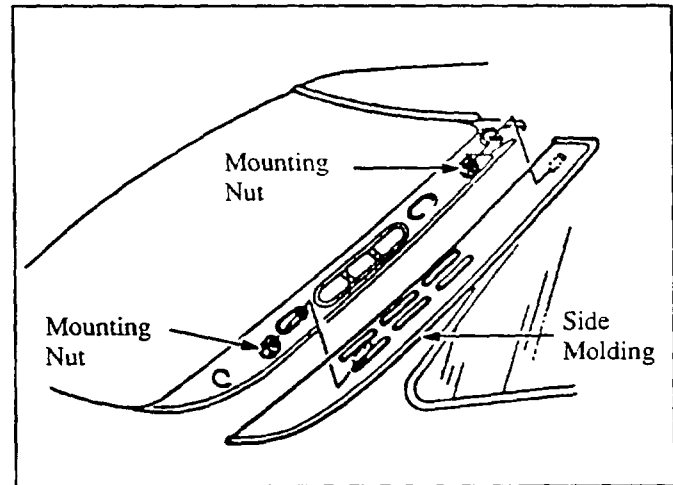


Figure 25: Removing Rear Window Glass Side Molding

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL

1. If water is collecting in storage wells, check drain holes for dirt or undercoating.

NOTE: Do not seal up drain holes at the bottom of the storage wells.

2. Check for any leaks at the grommet and plug between the quarter panel and bumper. Examine seams for missing sealer or pin holes. Seal any suspected defects. **Figures 26 and 27.**
3. Check for any leaks at the fuel filler neck-to-body in the left quarter. If moisture is present, remove the filler neck.
4. Apply sealer to both sides of the gasket and reinstall.

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS

1. Remove rear seat bottom and lift carpet.
2. Check for any leaks due to pin holes or missing sealer along the inner wheel well-to-body seam.
3. Remove the plastic sill plates and confirm that there is no water being retained inside the rocker panel.
4. If water is present, seal the inner wheel well-to-rocker panel seam.

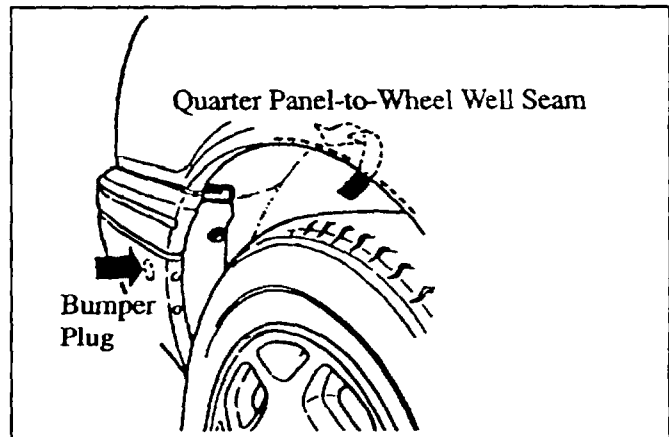


Figure 26: Bumper Plug and Wheel Test Area

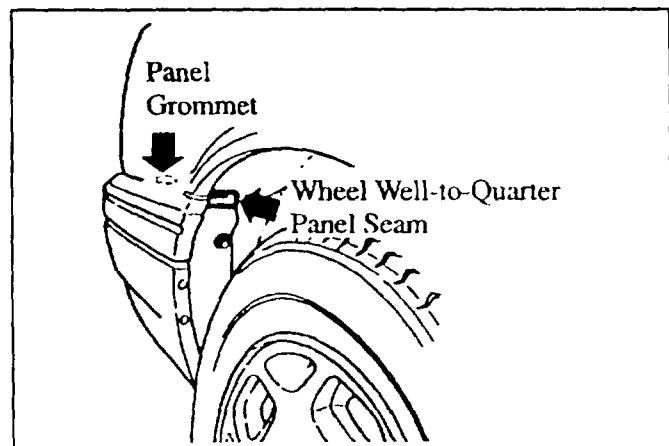


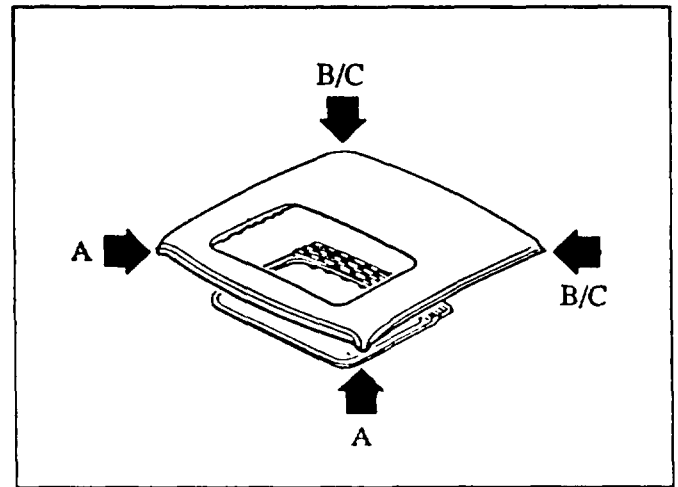
Figure 27: Wheel Well-to-Quarter Panel Seam

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA E: KEY LOCK CYLINDER**

1. If the leak occurs at the key lock cylinder, remove or replace gasket.
2. After installing the gasket, seal around the key lock cylinder-to-deck lid area from the inside with silicone.

LOCATION IV: SUNROOF OR HEADLINER AREA**Location of Water Leak Source**

1. Have an assistant help locate the exact point of water entry.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Make sure the sunroof is completely closed.
If necessary, readjust sunroof.
(See Workshop Manual Section S.)
4. Run water over the sunroof and note in which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 28.**

**Figure 28: Locating Source of Top Water Leaks**

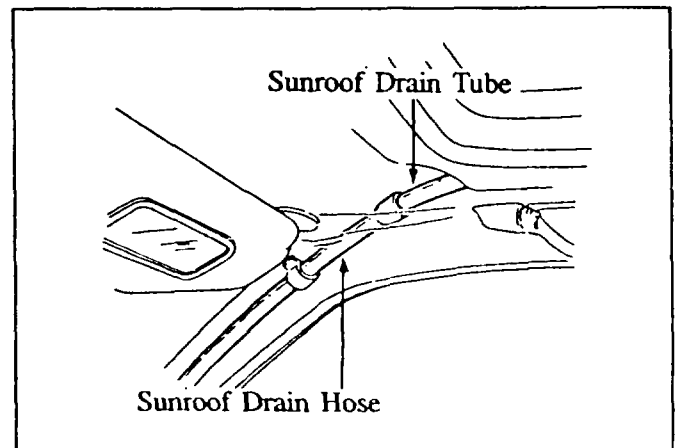
AREA A: FORWARD HEADLINER AREA
(page 13)

AREA B: REAR PASSENGER COMPARTMENT AREA (page 14)

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL
(pages 14 and 15)

AREA A: FORWARD HEADLINER AREA

1. Open the sunroof and make sure that the sunroof drain tubes are intact and that no holes are present. If welds are damaged or have holes, repair or replace the sunroof frame.
2. If welds and drain tubes are OK, remove the front header and side trim pieces. Remove the headliner retainer clips (2 metal and 1 plastic per side), sunroof welt, and sun visor.
3. Carefully lower the headliner. Using a flashlight, check that the drain hose tubes are attached to the sunroof frame. **Figure 29.**
4. Direct a small stream of water into sunroof drain holes to make sure the drain tubes do not leak. If leaking is present, check for damaged hoses.
5. If the hoses are damaged, install a replacement piece of hose which provides a tight fit to the existing hose. The outside diameter of the replacement hose should be 9.5mm (3/8 in).

**Figure 29: Checking Front Drain Hose and Tube**

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA B: REAR PASSENGER COMPARTMENT AREA**

1. Remove rear header trim, rear shoulder mounts, and inside "C" pillar trim panel(s). **Figure 30.**

HINT: Leave lower attaching screws in place and tilt "C" pillar trim back.

CAUTION: DO NOT USE TOO MUCH FORCE WHEN PULLING THE "C" PILLAR TRIM. PERMANENT DAMAGE (STRESS MARKS) MAY RESULT.

2. Make sure sunroof drain hose grommets are seated. Check that the sunroof drain hose is not kinked and extends through the outer rear side molding.
3. Open the sunroof and, using a squeeze bottle filled with water, pour water down the rear drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.
4. If necessary, position the hose so that there are no loops, kinks or pinched areas. Check for kinks at the drain hose clip. Repeat the water test. Make sure that the sunroof drains properly and does not leak. **Figure 31.**
5. If necessary, install a new hose.
6. If hose routing is OK and hose is intact, check for leaks at the rear window.

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL

1. Remove the rear header trim, rear shoulder seat-belt mounts, and inside "C" pillar trim panel(s). **Figure 30.**

HINT: Leave lower attaching screws in place and tilt "C" pillar trim back.

CAUTION: DO NOT USE TOO MUCH FORCE WHEN PULLING THE "C" PILLAR TRIM. PERMANENT DAMAGE (STRESS MARKS) MAY RESULT.

2. Remove headliner retaining clips (1 plastic and 3 metal per side.)

CAUTION: DO NOT REMOVE THE 2 CENTER PLASTIC RETAINING CLIPS.

3. Make sure that the drain hose routing is correct. Check for damage along the drain hoses by pulling down the headliner.

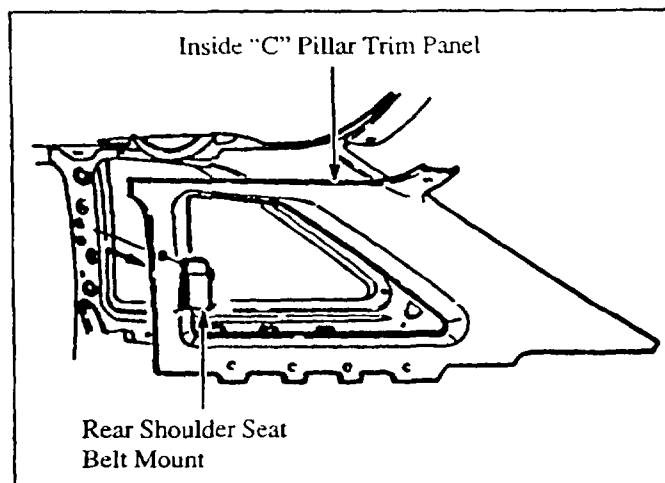


Figure 30: Removing Inside "C" Pillar Trim Panel

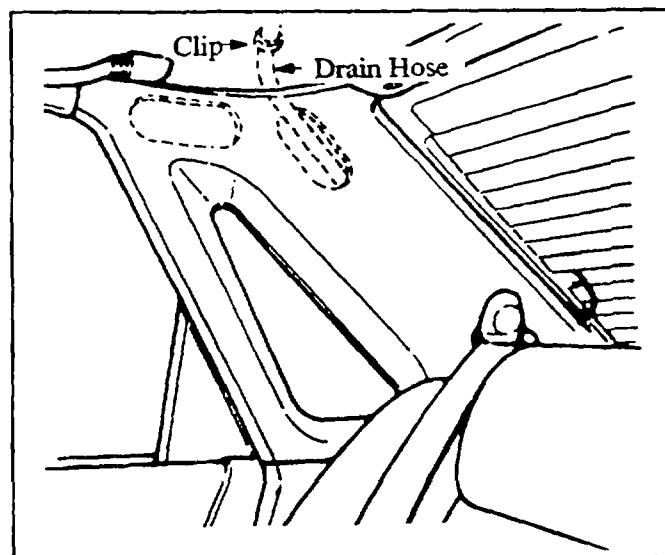


Figure 31: Rear Sunroof Drain Hose

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Check that the drain hoses are attached to the sunroof drain tubes. Replace hose(s) as necessary. Check for kinks at the drain hose clip. **Figure 31.**

CAUTION:USE CARE WHEN PULLING THE HEADLINER DOWN. IF IT IS PULLED TOO FAR, THE HEADLINER WILL BE PERMANENTLY DETACHED FROM THE HIDDEN BRACKET.

5. Check if welds around the rear sunroof drain tubes are intact and drain properly. With the sunroof closed, direct water over the sunroof and check for leaks at the drain tubes. If the welds are damaged or have holes, repair or replace the sunroof frame.

WARRANTY INFORMATION

(Applies to vehicles covered under warranty.)

Warranty Type Code: A
 Customer Comment Code: 77
 Damage Code: 9K
 Part No. of Main Cause: 5555 WA 001
 Operation No.: See Chart Below.
 Labor Hours: See Chart Below.
 Location Code: Applicable location code necessary. Codes found in SRT microfiche or Warranty Policies and Procedures Manual.

PROCEDURE	OPERATION NUMBER	LABOR HOURS
Water Testing	YY0064RX	0.5
Repair of Right Front Side of Passenger Compartment	YY0033RX	Not to exceed 0.9 Hrs.
Repair of Left Front Side of Passenger Compartment	YY0034RX	Not to exceed 0.9 Hrs.
Repair of Trunk Compartment and Under Rear Seat	YY0035RX	Not to exceed 0.9 Hrs.
Repair of Sunroof or Headliner Area	YY0036RX	Not to exceed 0.9 Hrs.

- NOTE:** - Water testing and labor hours for each area are not to exceed four (4) entries.
 - Enter each area of water entry as a separate problem. Each problem should have a different location code.
 - Subsequent repairs to the same area will be denied.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714)727-1990



Category S	Applicable Model/s 1988-91 626/MX-6 (USA Made)	Subject WATER ENTERING INTERIOR	Bulletin No. 006/93
			Issued 2/12/93
			Revised

NOTE: This bulletin supercedes Service Bulletin # 034/92, Cat. S, issued 7/7/92.

DESCRIPTION

Some 1988-91, USA made 626/MX-6 vehicles may experience interior water leaks. This occurs in the front floor, the headliner (sunroof), or the trunk areas. If the area where water entered the vehicle cannot be confirmed, a water leak test must be performed. These tests are described in the Inspection and Repair section of this bulletin.

INSPECTION AND REPAIR PROCEDURE

To perform the appropriate procedure, refer to the following chart.

LOCATION	PAGES
I. Right Front Side of Passenger Compartment	Pages 1 through 6
II. Left Front Side of Passenger Compartment	Pages 6 through 9
III. Trunk Compartment and Under Rear Seat	Pages 9 through 13
IV. Sunroof of Headliner Area	Pages 13 through 15

LOCATION I: RIGHT FRONT SIDE OF PASSENGER COMPARTMENT

Location of Water Leak Source

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # **032680**

INSPECTION AND REPAIR PROCEDURE (CONT'D)

5. With the door closed, watch for water leaks during hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam, then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 1 and 2.**

NOTE:

DO NOT direct water into blower motor opening (under cowl panel).

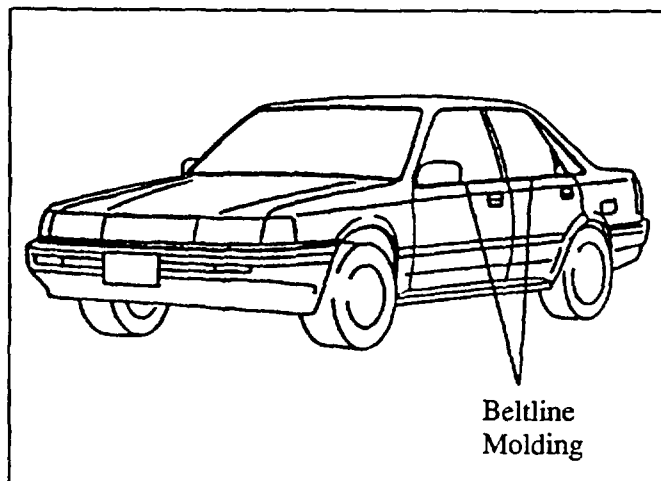


Figure 1: Beltline Molding Location

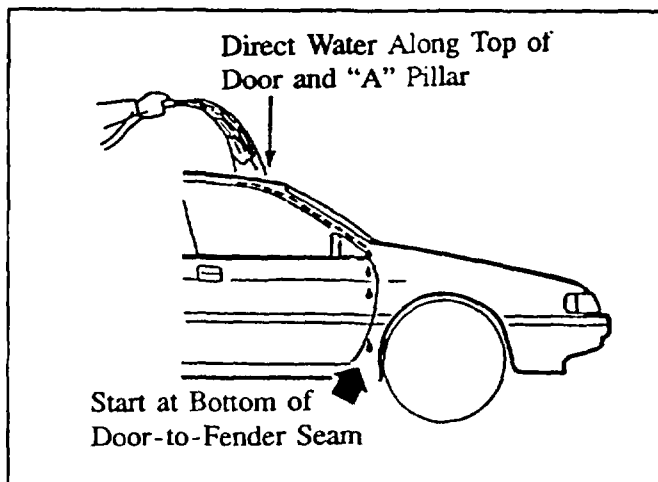


Figure 2: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 3.**

- AREA A: KICK PANEL (pages 3 and 4)
 AREA B: UNDER DASH (pages 4 and 5)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 5)
 AREA D: OVER SILL PLATE (page 6)

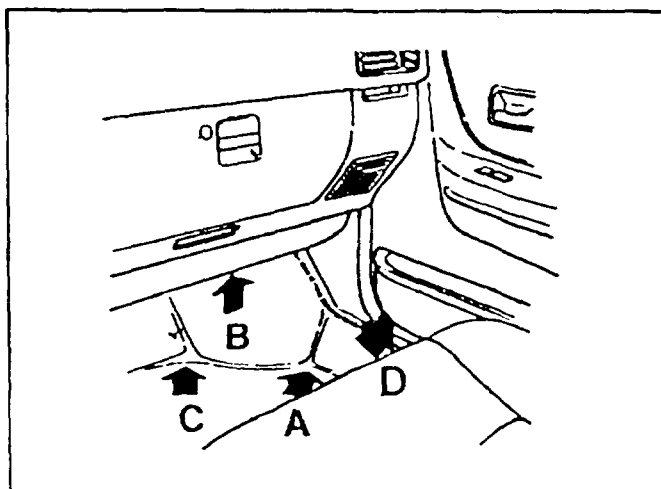
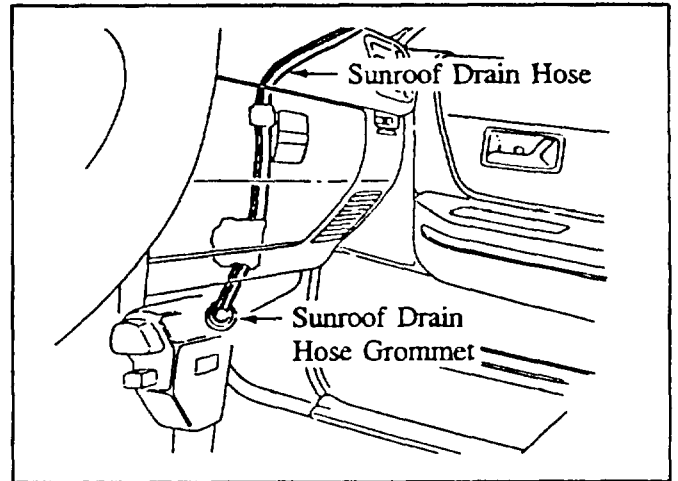


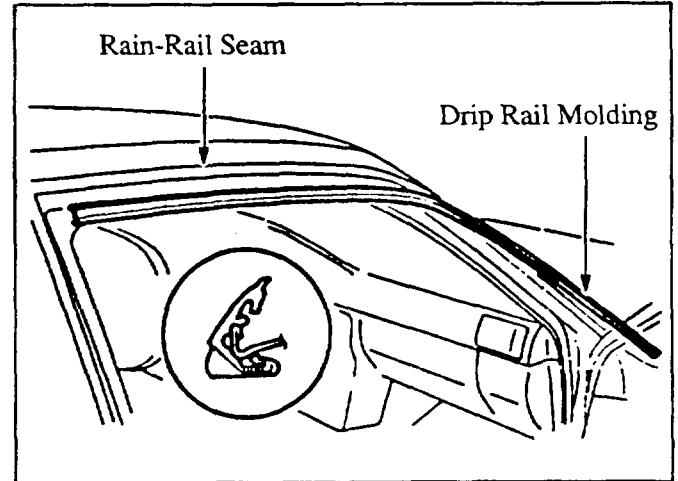
Figure 3: Possible Water Leak Areas

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA A: KICK PANEL**

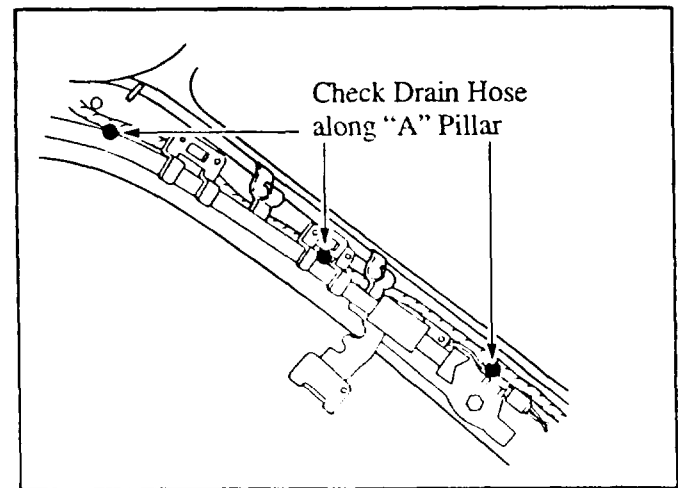
1. Remove kick panel and inspect.
2. Make sure that the door electrical harness boot and the sunroof drain hose grommet are seated. Check that the sunroof drain hose is not kinked and extends through the lower kick panel.

Figure 4.**Figure 4: Checking the Sunroof Drain Hose**

3. Remove the drip-rail molding and inspect rain-rail seams for missing sealer or pinholes. Seal any suspected sealer defects. **Figure 5.**
4. Open the sunroof. Using a squeeze bottle filled with water, pour water down the front drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.

**Figure 5: Drip Rail Molding**

5. If the leak is still present, remove cap and screw from the front windshield header. Remove the "A" pillar side molding. Check the drain hose for kinks. **Figure 6.**
6. If necessary, reposition the hose so that there are no loops, kinks or pinched areas. Repeat the water test. Make sure that the sunroof drains properly with no leaks. **Figure 7.**

**Figure 6: Checking Front Drain Hose**

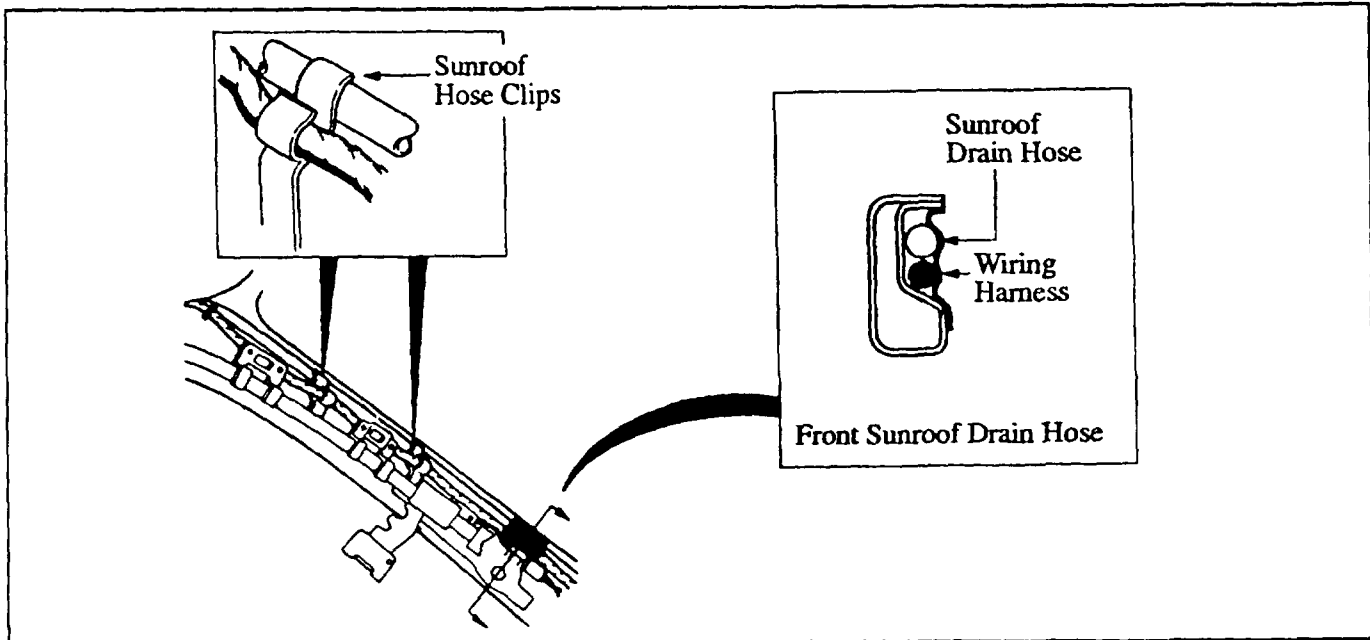
INSPECTION AND REPAIR PROCEDURE (CONT'D)

Figure 7: Checking Front Drain Hose

7. If necessary, remove the damaged section of hose. Install a replacement piece of hose with a 9.5mm (3/8 inch) outside diameter which provides a tight fit to the existing hose.

AREA B: UNDER DASH

1. Confirm that the upper cowl drain plug (black tube) has been modified (the dimension of the drain hole has been enlarged to 10mm). Also confirm that there are no obstructions and that the plug drains properly.
2. Using a mechanic's mirror, look for signs of water leakage under the dash (e.g. water/washer solvent stains).
3. Set the heater control air intake control lever to the first position. Remove the blower fan (3 screws) and look for water entering the blower motor opening.
4. Check all grommets shown in Figure 8 for leaks by spraying water on each one. Replace any grommets that leak.

NOTE: Apply silicone sealer to the bottom of the grommet during installation.

5. If the grommets do not leak, seal the baffle seam by reaching up through the blower motor opening and seal the areas indicated in Figure 8.
6. If water is leaking from the the firewall, check for studs and grommets that might be loose or improperly seated on the engine side of the firewall. If necessary, remove, redress, and reinstall the studs. Retap the holes and, if necessary, replace the bolts. Apply sealer to the threads before installing the bolts. Apply silicone sealer to the bottom of the grommets prior to installation.

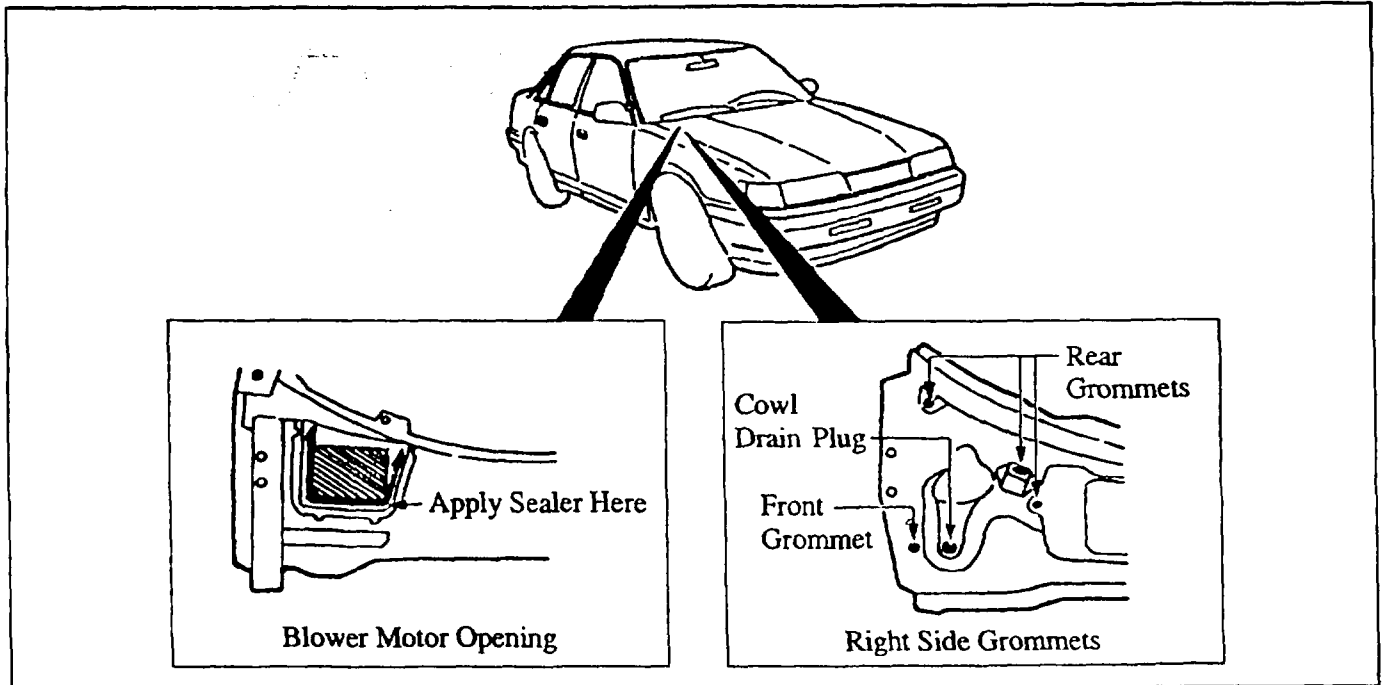
INSPECTION AND REPAIR PROCEDURE (CONT'D)

Figure 8: Checking Right Side Cowl for Leaks

7. If a leak is found, remove the black plastic cowl vent, then remove the foam strip from the underside.
NOTE: Before installing the new foam pads, make sure to apply sealer to both sides of the pad.
8. Reinstall the black plastic cowl vent. Perform a water leak test by directing water around the outer edges of the cowl vent. Inspect for water leakage or moisture.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad, and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes among the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 9.**

NOTE: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanics mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 9.**

NOTE: The illustration shows the fender removed. Complete fender removal is not required.

CAUTION: USE CARE WHEN MOVING FENDER FOR INSPECTION AND RESEALING BODY SEAMS. DO NOT ALLOW THE FENDER TO BUCKLE.

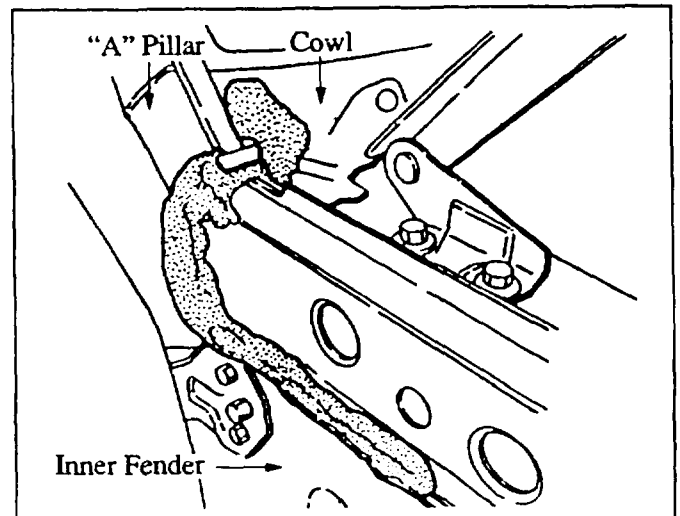


Figure 9: View of Adequate Body Sealer

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA D: OVER SILL PLATE**

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 10.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.
3. Confirm that the door drain holes are draining properly and are not obstructed.

NOTE: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

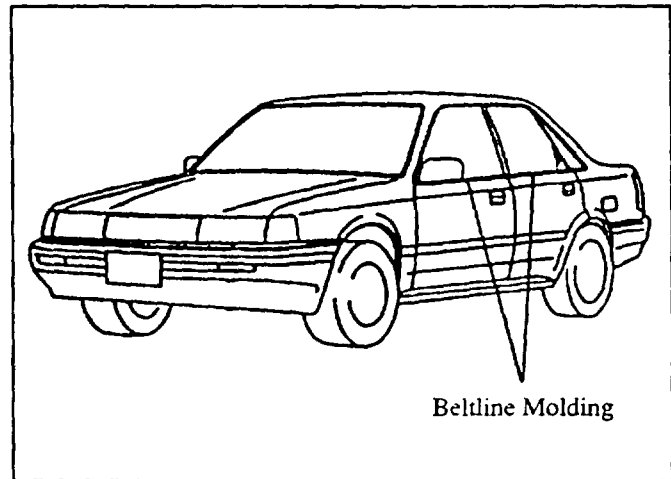


Figure 10: Area of Beltline Molding

LOCATION II: LEFT FRONT SIDE OF PASSENGER COMPARTMENT**Location of Water Leak Source**

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.
5. With the door closed, watch for water leaks during the hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 10 and 11.**

NOTE: Do not direct water into blower motor opening (under cowl panel.)

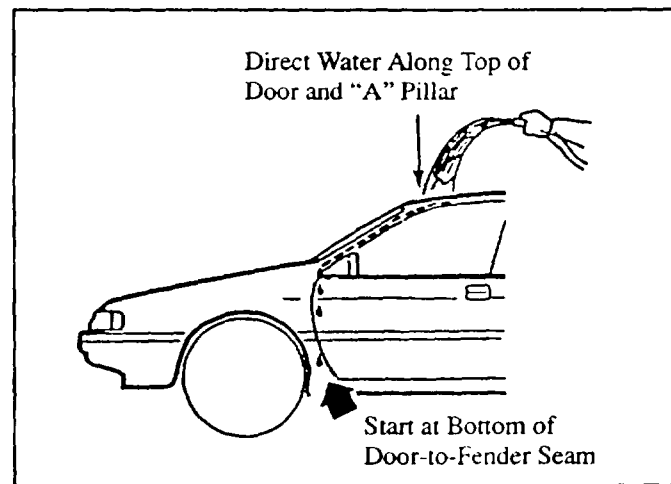


Figure 11: Locating Source of Front Water Leak

INSPECTION AND REPAIR PROCEDURE (CONT'D)

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 12.**

AREA A: KICK PANEL (pages 7)

AREA B: UNDER DASH (pages 7 and 8)

AREA C: CORNER OF FIREWALL
AND INNER FENDER (page 8)

AREA D: OVER SILL PLATE (pages 8 and 9)

AREA A: KICK PANEL

1. Follow the same repair procedure described for the right front side of the passenger compartment.
2. Run water on the antenna. Make sure the antenna tube is intact on the bottom of the power antenna motor and water drains properly (for models equipped with power antenna.)
3. If necessary, position the hose so there are no loops, kinks or pinched areas. If the hose cannot be corrected or is out, remove the damaged section of hose. Install a replacement piece of hose (4.7 mm [3/16 in.] outside diameter) which provides a tight fit to the existing hose.
4. If the leak persists, inspect the antenna bezel molding and gasket for correct sealing and mounting. Confirm that the mounting screw is fully seated and that the gasket is firmly contacting the roof sheet metal. **Figure 13.**

AREA B: UNDER DASH

1. Using a mechanic's mirror, look for signs of water leakage under the dash.
2. Check the cowl grommet for leaks by spraying water on it. Replace the grommet if it leaks. Apply sealer to the bottom side of the grommet during installation. **Figure 14.**

NOTE: Only one grommet is located in an area where it may cause a water leak.

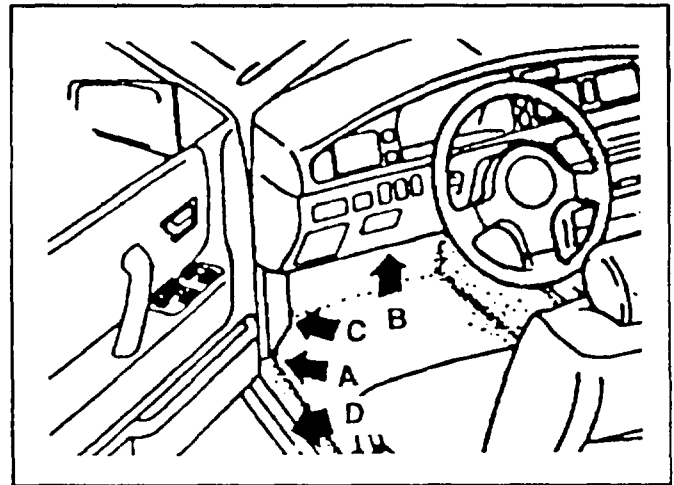


Figure 12: Possible Water Leak Areas

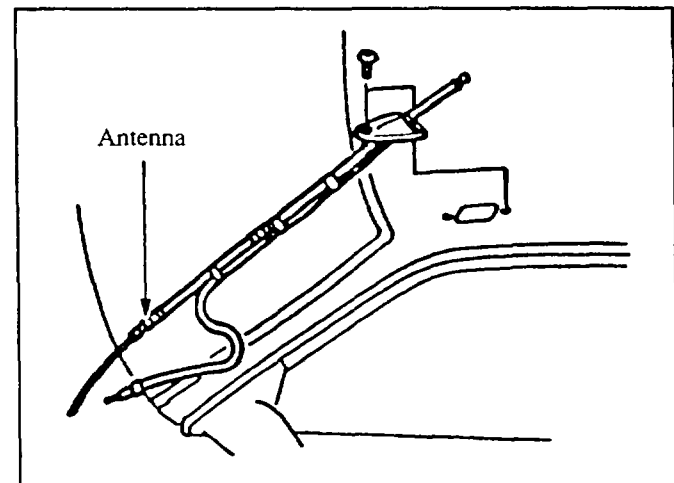


Figure 13: Inspecting Antenna Bezel

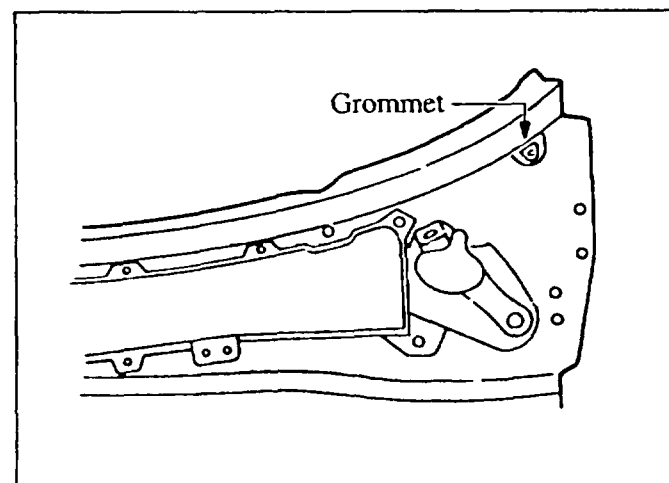


Figure 14: Left Side Grommet

INSPECTION AND REPAIR PROCEDURE (CONT'D)

3. If water is leaking from the fire wall, check for improperly seated studs, loose grommets, and cross-threaded bolts on the engine side of the firewall.
4. If necessary, remove the studs, clean the threads and reinstall. Remove cross-threaded or high bolts, retap holes and, if necessary, replace bolts. Be sure to apply sealer to the threads before installing the bolts. Finally, replace any loose grommets.
5. Remove the black plastic cowl vent, direct a stream of water at each stud and, if any leaks are found, apply sealer.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes along the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 15.**

NOTE: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanic's mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 15.**

NOTE: The illustration shows the fender removed. Complete fender removal is not required.

CAUTION:USE CARE WHEN MOVING FENDER FOR INSPECTION AND RESEALING BODY SEAMS. DO NOT ALLOW THE FENDER TO BUCKLE.

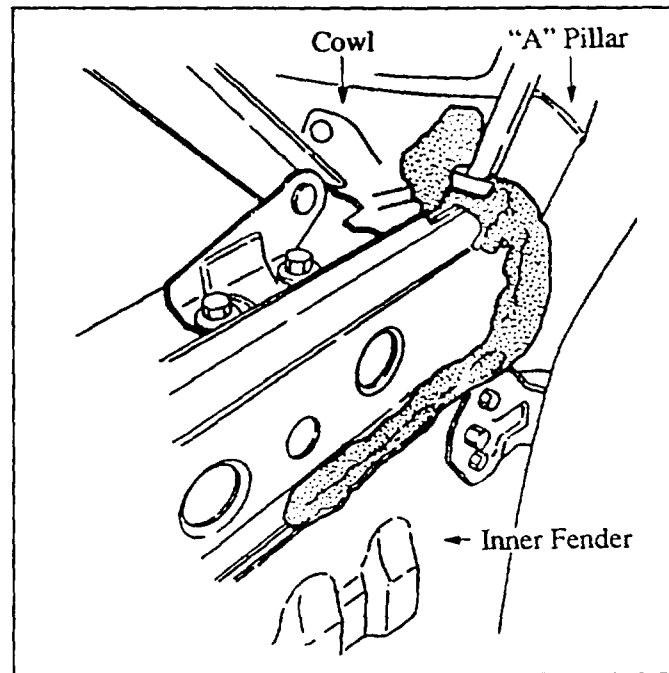


Figure 15: View of Adequate Body Sealer

3. Also inspect the antenna bezel molding for correct sealing and mounting as described in the repair section of AREA A (page 7).

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 16.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.

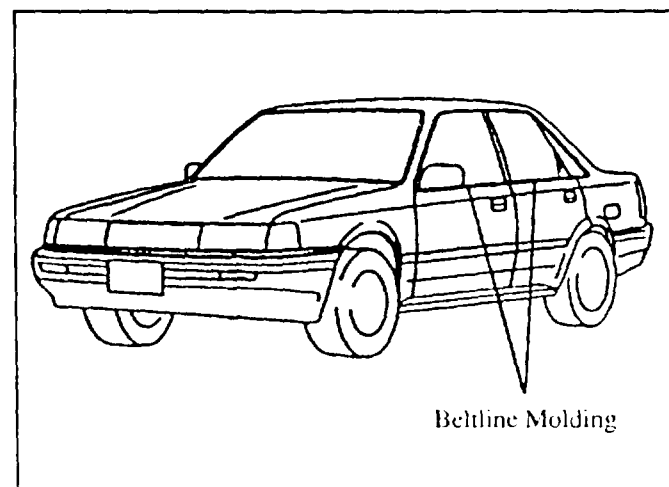


Figure 16: Area of Beltline Molding

INSPECTION AND REPAIR PROCEDURE (CONT'D)

3. Confirm that the door drain holes are draining properly and are not obstructed.

NOTE: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

LOCATION III: TRUNK COMPARTMENT AND UNDER REAR SEAT**Location of Water Leak Source**

1. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Carpet, side panels and rear seat bottom may have to be removed to locate the source of the leaks.
4. Lower the rear seat backs. From inside the vehicle, close the door and, using a flashlight, look for water leaks during the hose test.
5. Have an assistant direct the water stream over the entire rear of the vehicle, concentrating on the following areas: **Figure 17**.
 - Along the deck lid to body gap.
 - Up each "C" pillar and across the upper portion of the rear window.
 - Along the key lock cylinder, rear deck lid finisher and combination lamps.
 - Along the fuel filler door-to-body gap.
6. Have an assistant direct the water stream over the entire inner wheel well area concentrating on the following areas:
 - Inner wheel well-to-quarter panel seam and bumper plug. **Figure 18**.
 - Inner wheel well-to-trunk floor pan seam. **Figure 19**.
 - Inner wheel well-to-floor pan seam (to check for leakage under the rear seat.)

NOTE: Direct a heavy stream of water where the rocker panel meets the inner wheel well (to check for leakage into the rocker panel). **Figure 17**.

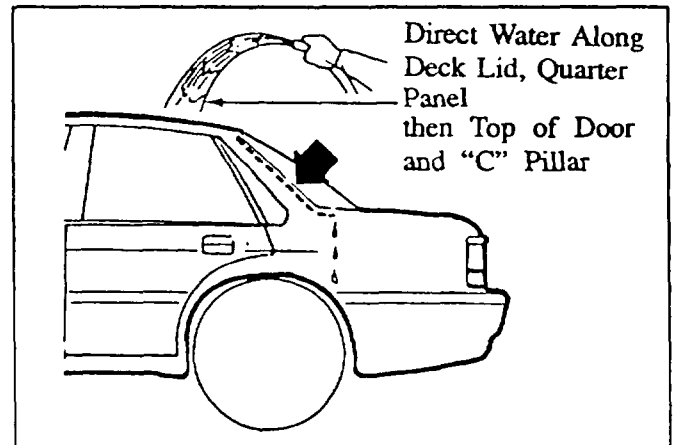


Figure 17: Locating Source of Rear Water Leak

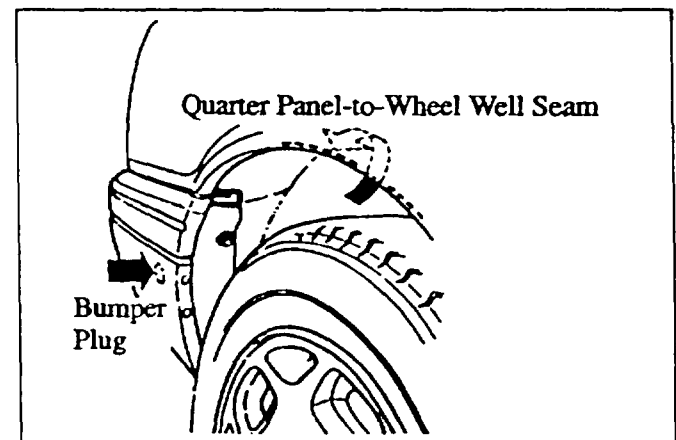


Figure 18: Bumper Plug and Wheel Test Area

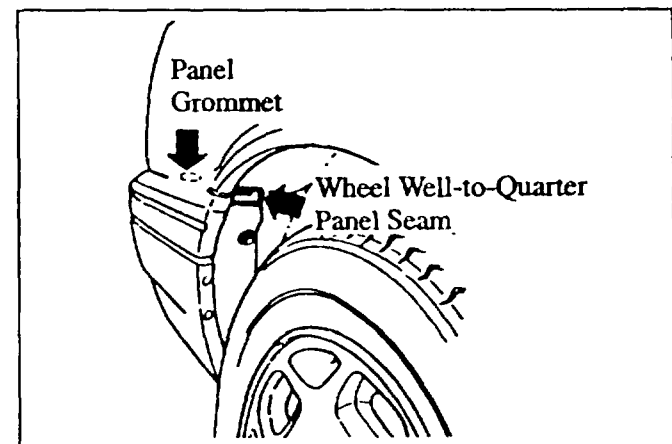


Figure 19: Wheel Well-to-Quarter Panel Seam

INSPECTION AND REPAIR PROCEDURE (CONT'D)

7. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 20.**

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA (pages 10 and 11)

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM (pages 11 and 12)

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL (page 12)

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS page 12)

AREA E: KEY LOCK CYLINDER (page 13)

8. If water is collecting in storage wells, check the drain holes for debris or undercoating.

NOTE: Do not seal up the drain holes at the bottom of area C.

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA

1. If water is running down over the interior trunk end-panel trim or over/under the trunk weatherstrip, pull up the trunk weatherstrip and check grey sealer material and any body seams near the linkage area. Confirm that grey sealer covers the top of the flange in one solid strip. Check for pin holes, missing sealer or burrs.

Figure 21 and Figure 22.

2. If water is located behind the interior trunk end-panel trim or carpet, remove the trim panel. Direct a stream of water at the rear of the vehicle and pinpoint the location of the leak. Check the body seams for any pinholes or missing sealer. **Figure 21.**

3. If pinholes and/or missing sealer are found in step 2, add a non-hardening grey body seam sealer to fill in the empty spots and reinstall the trunk weatherstrip. Make sure the trunk weatherstrip is routed under the latch striker and press it firmly in place. Retest for water leaks.

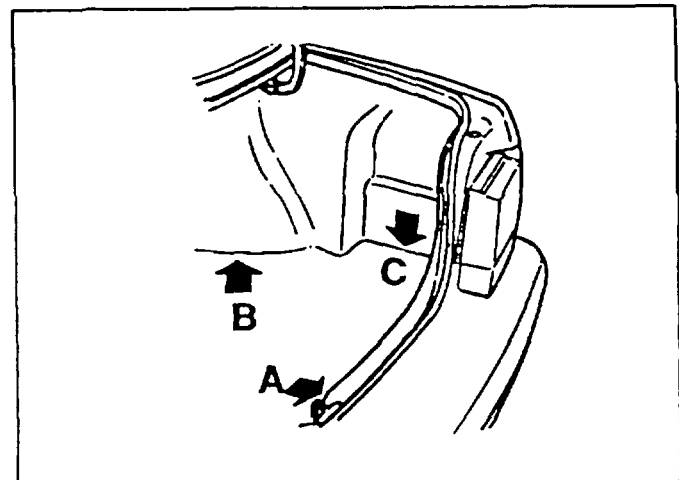


Figure 20: Locating Possible Water Leak Areas

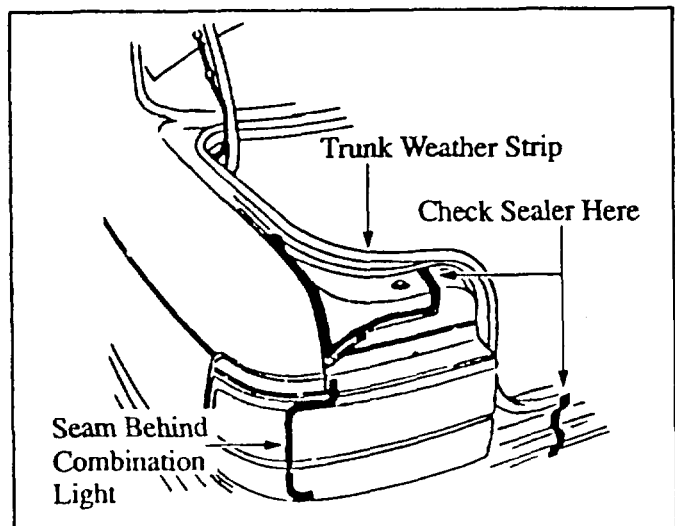


Figure 21: Inspecting Rear Trunk Area

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. If the leak is from the combination lamp(s) area, confirm that the mounting studs/nuts are tight and the assemblies are not cracked. Check end panel-to-quarter panel seams for any pinholes or missing sealer. If the leak continues, remove the combination lamp(s) and gasket(s). Install a new gasket to the combination lamp(s). **Figure 21.**

NOTE: Before installing the new gasket, apply sealer to both sides of the gasket. Also, confirm body-to-combination lamp surfaces are flush and no burrs are present.

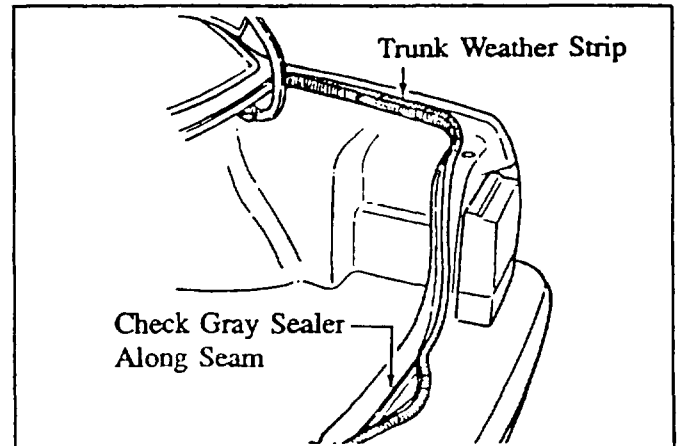


Figure 22: Checking Grey Sealer Under Trunk Weatherstrip

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM

1. If water leaks into the forward area of the trunk, make sure that the weatherstrip is properly seated and not leaking. **Figure 23.**
2. If no problems are found, check all trunk opening seams and the inner wheel well-to-trunk floor pan seam for missing sealer or pin holes. Seal any suspected areas and retest for leaks. If no problems are found, go to step 3.

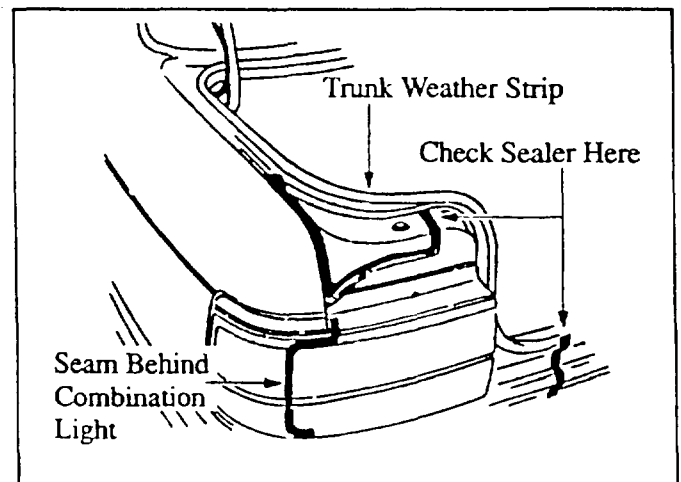


Figure 23: Inspecting Rear Trunk Area

3. If necessary, remove the rear shoulder seat belt mounts and inside "C" pillar trim panel(s). Remove the mounting nuts. Next, remove the rear window glass side molding. **Figures 24 and 25.**

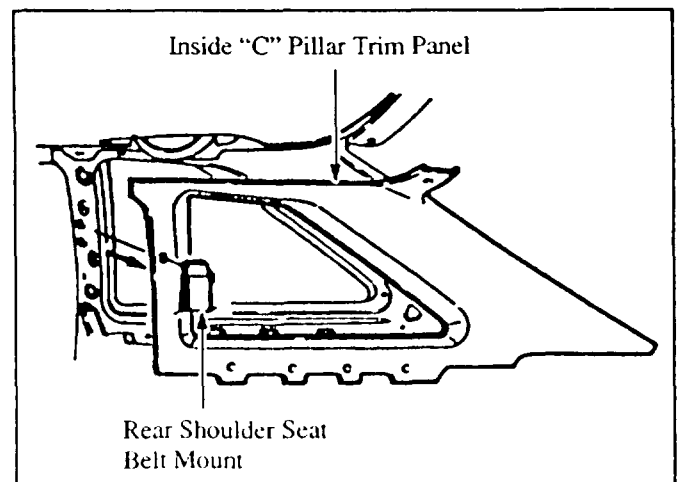


Figure 24: Removing Inside "C" Pillar Trim Panel

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Check the condition of the rear window sealer in this area. Use a flashlight to find small pinholes. Check extractor side molding mounting hardware for missing or damaged sealer or gaskets. Apply sealer to all mounting points as necessary. **Figure 25.**

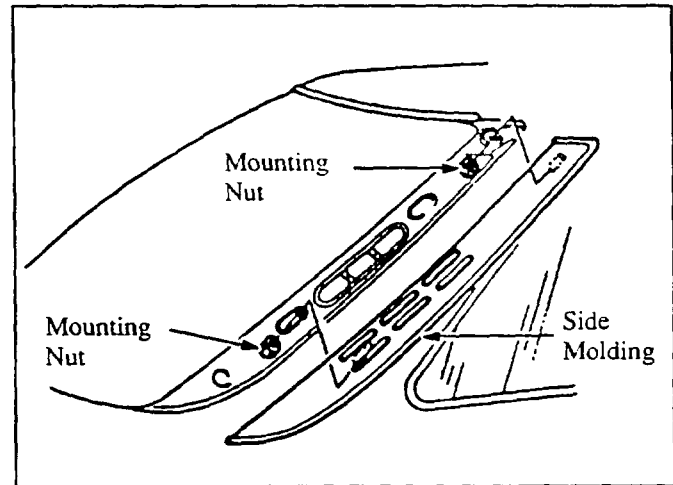


Figure 25: Removing Rear Window Glass Side Molding

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL

1. If water is collecting in storage wells, check drain holes for dirt or undercoating.

NOTE: Do not seal up drain holes at the bottom of the storage wells.

2. Check for any leaks at the grommet and plug between the quarter panel and bumper. Examine seams for missing sealer or pin holes. Seal any suspected defects. **Figures 26 and 27.**
3. Check for any leaks at the fuel filler neck-to-body in the left quarter. If moisture is present, remove the filler neck.
4. Apply sealer to both sides of the gasket and reinstall.

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS

1. Remove rear seat bottom and lift carpet.
2. Check for any leaks due to pin holes or missing sealer along the inner wheel well-to-body seam.
3. Remove the plastic sill plates and confirm that there is no water being retained inside the rocker panel.
4. If water is present, seal the inner wheel well-to-rocker panel seam.

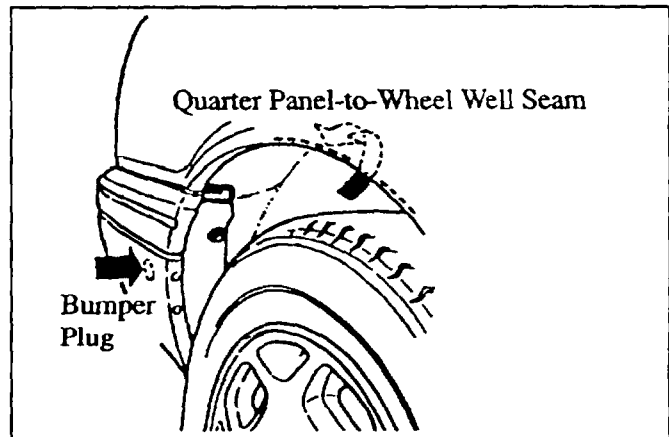


Figure 26: Bumper Plug and Wheel Test Area

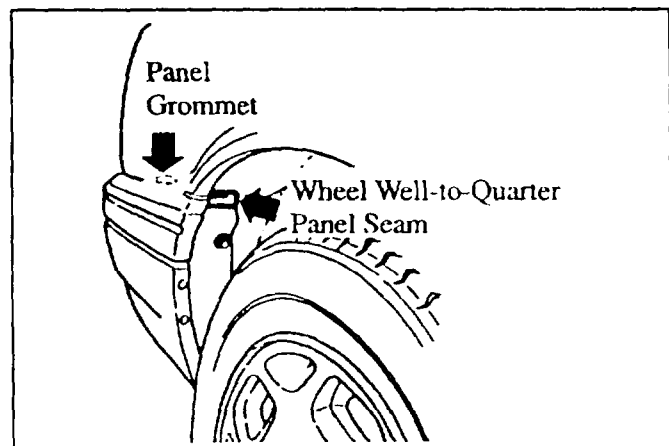


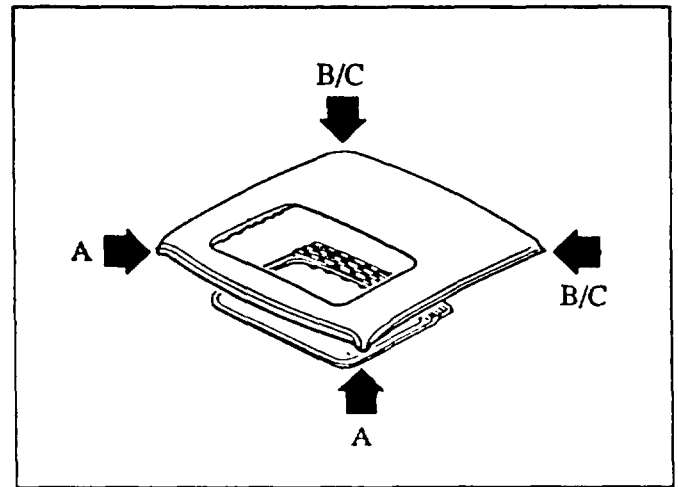
Figure 27: Wheel Well-to-Quarter Panel Seam

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA E: KEY LOCK CYLINDER**

1. If the leak occurs at the key lock cylinder, remove or replace gasket.
2. After installing the gasket, seal around the key lock cylinder-to-deck lid area from the inside with silicone.

LOCATION IV: SUNROOF OR HEADLINER AREA**Location of Water Leak Source**

1. Have an assistant help locate the exact point of water entry.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Make sure the sunroof is completely closed.
If necessary, readjust sunroof.
(See Workshop Manual Section S.)
4. Run water over the sunroof and note in which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 28.**

**Figure 28: Locating Source of Top Water Leaks**

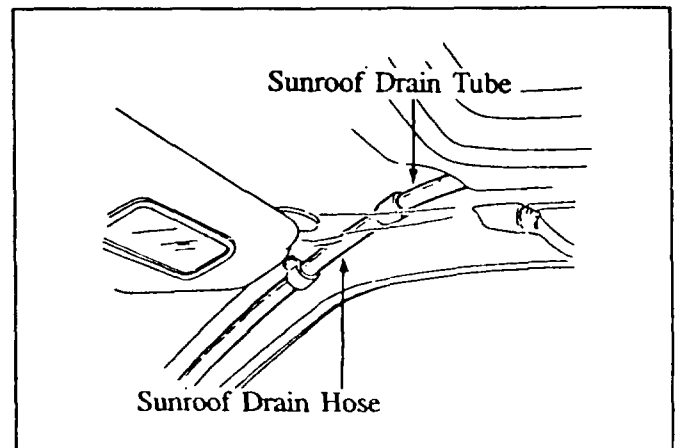
AREA A: FORWARD HEADLINER AREA
(page 13)

AREA B: REAR PASSENGER COMPARTMENT AREA (page 14)

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL
(pages 14 and 15)

AREA A: FORWARD HEADLINER AREA

1. Open the sunroof and make sure that the sunroof drain tubes are intact and that no holes are present. If welds are damaged or have holes, repair or replace the sunroof frame.
2. If welds and drain tubes are OK, remove the front header and side trim pieces. Remove the headliner retainer clips (2 metal and 1 plastic per side), sunroof welt, and sun visor.
3. Carefully lower the headliner. Using a flashlight, check that the drain hose tubes are attached to the sunroof frame. **Figure 29.**
4. Direct a small stream of water into sunroof drain holes to make sure the drain tubes do not leak. If leaking is present, check for damaged hoses.
5. If the hoses are damaged, install a replacement piece of hose which provides a tight fit to the existing hose. The outside diameter of the replacement hose should be 9.5mm (3/8 in).

**Figure 29: Checking Front Drain Hose and Tube**

INSPECTION AND REPAIR PROCEDURE (CONT'D)**AREA B: REAR PASSENGER COMPARTMENT AREA**

1. Remove rear header trim, rear shoulder mounts, and inside "C" pillar trim panel(s). **Figure 30.**

HINT: Leave lower attaching screws in place and tilt "C" pillar trim back.

CAUTION: DO NOT USE TOO MUCH FORCE WHEN PULLING THE "C" PILLAR TRIM. PERMANENT DAMAGE (STRESS MARKS) MAY RESULT.

2. Make sure sunroof drain hose grommets are seated. Check that the sunroof drain hose is not kinked and extends through the outer rear side molding.
3. Open the sunroof and, using a squeeze bottle filled with water, pour water down the rear drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.
4. If necessary, position the hose so that there are no loops, kinks or pinched areas. Check for kinks at the drain hose clip. Repeat the water test. Make sure that the sunroof drains properly and does not leak. **Figure 31.**
5. If necessary, install a new hose.
6. If hose routing is OK and hose is intact, check for leaks at the rear window.

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL

1. Remove the rear header trim, rear shoulder seat-belt mounts, and inside "C" pillar trim panel(s). **Figure 30.**

HINT: Leave lower attaching screws in place and tilt "C" pillar trim back.

CAUTION: DO NOT USE TOO MUCH FORCE WHEN PULLING THE "C" PILLAR TRIM. PERMANENT DAMAGE (STRESS MARKS) MAY RESULT.

2. Remove headliner retaining clips (1 plastic and 3 metal per side.)

CAUTION: DO NOT REMOVE THE 2 CENTER PLASTIC RETAINING CLIPS.

3. Make sure that the drain hose routing is correct. Check for damage along the drain hoses by pulling down the headliner.

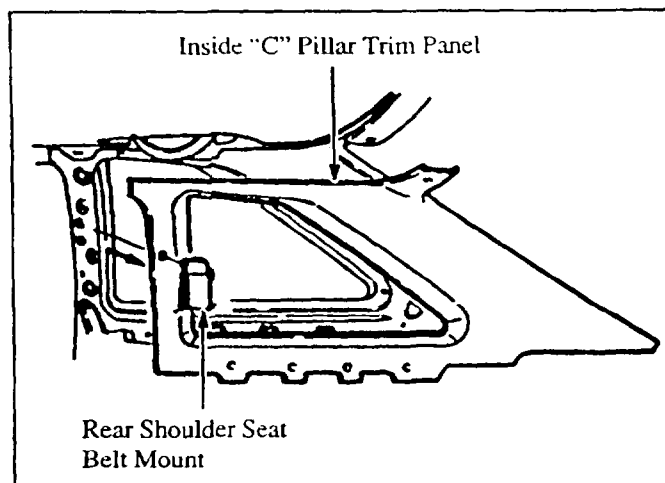


Figure 30: Removing Inside "C" Pillar Trim Panel

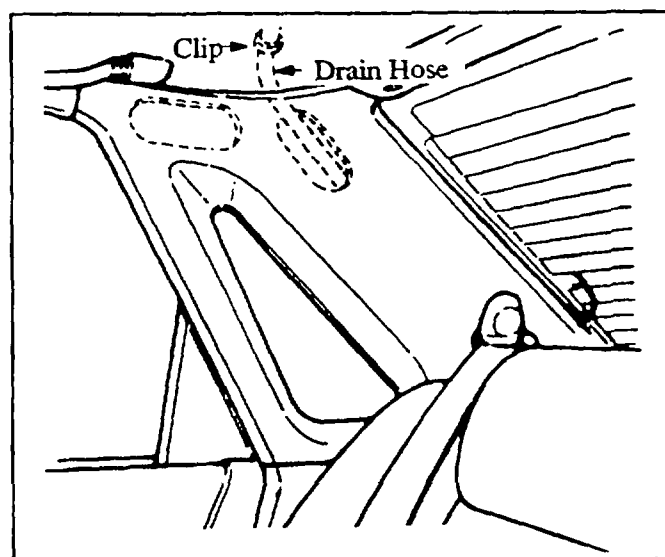


Figure 31: Rear Sunroof Drain Hose

INSPECTION AND REPAIR PROCEDURE (CONT'D)

4. Check that the drain hoses are attached to the sunroof drain tubes. Replace hose(s) as necessary. Check for kinks at the drain hose clip. **Figure 31.**

CAUTION:USE CARE WHEN PULLING THE HEADLINER DOWN. IF IT IS PULLED TOO FAR, THE HEADLINER WILL BE PERMANENTLY DETACHED FROM THE HIDDEN BRACKET.

5. Check if welds around the rear sunroof drain tubes are intact and drain properly. With the sunroof closed, direct water over the sunroof and check for leaks at the drain tubes. If the welds are damaged or have holes, repair or replace the sunroof frame.

WARRANTY INFORMATION

(Applies to vehicles covered under warranty.)

Warranty Type Code: A
Customer Comment Code: 77
Damage Code: 9K
Part No. of Main Cause: 5555 WA 001
Operation No.: See Chart Below.
Labor Hours: See Chart Below.
Location Code: Applicable location code necessary. Codes found in SRT microfiche or Warranty Policies and Procedures Manual.

PROCEDURE	OPERATION NUMBER	LABOR HOURS
Water Testing	YY0064RX	0.5
Repair of Right Front Side of Passenger Compartment	YY0033RX	Not to exceed 0.9 Hrs.
Repair of Left Front Side of Passenger Compartment	YY0034RX	Not to exceed 0.9 Hrs.
Repair of Trunk Compartment and Under Rear Seat	YY0035RX	Not to exceed 0.9 Hrs.
Repair of Sunroof or Headliner Area	YY0036RX	Not to exceed 0.9 Hrs.

- NOTE:** - Water testing and labor hours for each area are not to exceed four (4) entries.
- Enter each area of water entry as a separate problem. Each problem should have a different location code.
- Subsequent repairs to the same area will be denied.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1988-'91 626	Subject PASSIVE SHOULDER BELT DOOR SWITCH HARNESS MODIFICATION	Bulletin No. 013/91
			Issued 8/8/91
			Revised

DESCRIPTION

Replacement passive shoulder belt assemblies have a red/yellow wire from the limit switch connector. This wire plugs into the door catch connector on 1988 and '89 626 models.

There is no car-side harness plug for this wire on 1990 and '91 626 models. When replacing this assembly on 1990 and '91 626's, cut the wire and tape it to prevent short circuits from occurring. **Figure 1.**

NOTE:

Red/yellow wire applies to 1988 and 1989 626 models only.

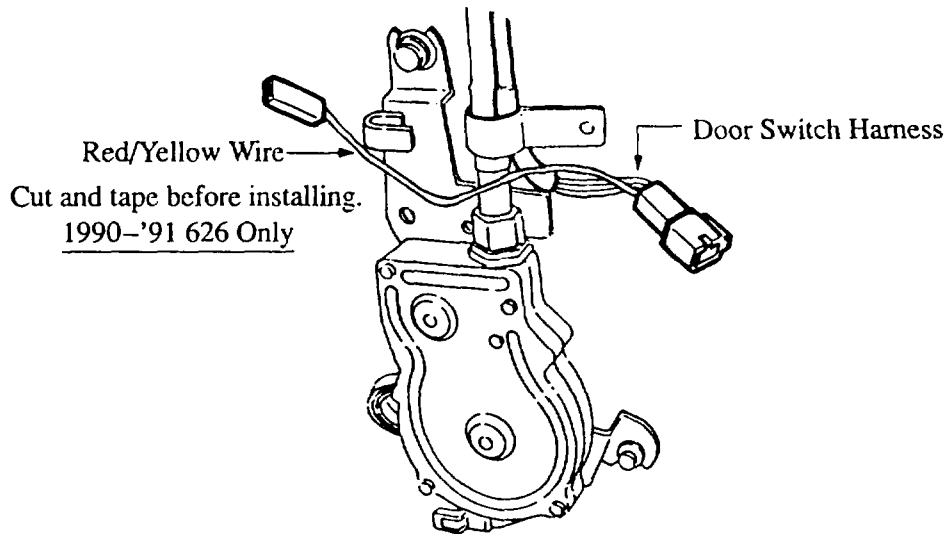


Figure 1: Door Switch Harness Wire Location

PARTS INFORMATION

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
GJ35 57 930E	Right Passive Shoulder Belt Assy.	1988-'91 626, 4-Door
GJ35 57 990E	Left Passive Shoulder Belt Assy.	1988-'91 626, 4-Door
GJ40 57 930E	Right Passive Shoulder Belt Assy.	1988-'91 626, 5-Door
GJ40 57 990E	Left Passive Shoulder Belt Assy.	1988-'91 626, 5-Door

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

Service Manager

Parts Manager

024212

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1988 - '91 626	Subject PASSIVE SHOULDER BELT DOOR SWITCH HARNESS MODIFICATION	Bulletin No. 013/91
			Issued 8/8/91
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NOTE:

Red/yellow wire applies to 1988 and 1989 626 models only.

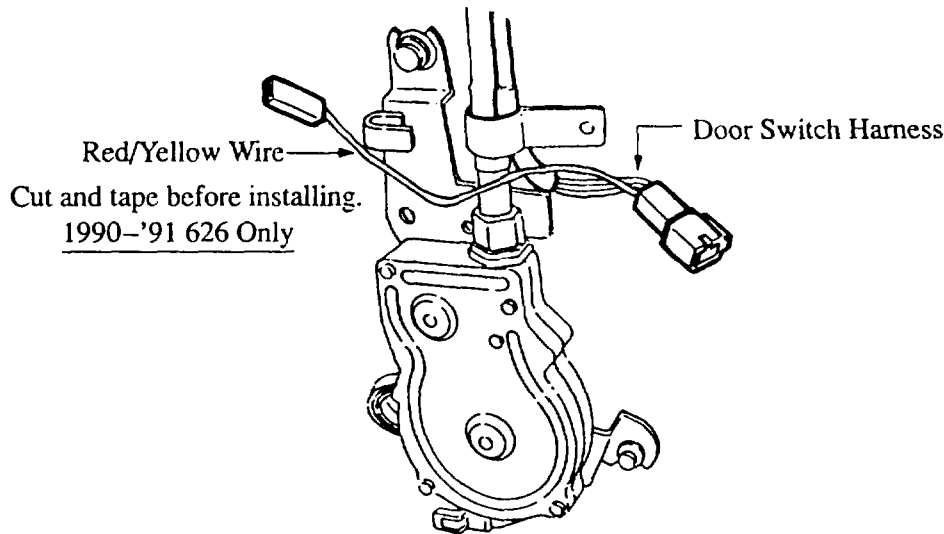


Figure 1: Door Switch Harness Wire Location

PARTS INFORMATION

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
GJ35 57 930E	Right Passive Shoulder Belt Assy.	1988-'91 626, 4-Door
GJ35 57 990E	Left Passive Shoulder Belt Assy.	1988-'91 626, 4-Door
GJ40 57 930E	Right Passive Shoulder Belt Assy.	1988-'91 626, 5-Door
GJ40 57 990E	Left Passive Shoulder Belt Assy.	1988-'91 626, 5-Door

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

Service Manager

Parts Manager

024212

Service Bulletin

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 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category S	Applicable Model/s 1988-92 626	Subject WATER ENTERING TRUNK AND/OR COMBINATION LAMP ASSEMBLY	Bulletin No. 017/94 Issued 4/5/94 Revised
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APPLICABLE MODELS/VINS

626/MX-6
 1988-92 All vehicles

DESCRIPTION

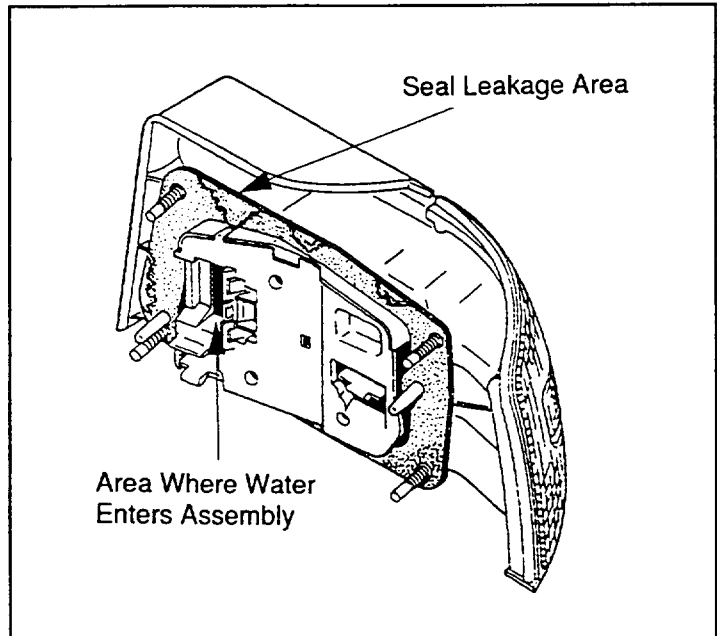
Tail lights that fail due to water entering the combination lamp assembly are caused by leaks in the gasket and not the combination lamp assembly. Recent studies show that assemblies are being replaced unnecessarily.

REPAIR PROCEDURE

1. Verify complaint.
2. Remove water from the trunk area with a shop vacuum.
3. Check the trunk weather-strip for damage and proper positioning.
4. Remove the rear combination lamp and inspect the body to lamp assembly seal. Refer to the illustration for signs of water leakage.
5. If the lamp seal is leaking, replace the seal and confirm that the installation studs are tight and no cracks exist in the assembly.
6. Install the lamp assembly with a new seal.

NOTE: Prior to installing the lamp assembly, apply sealant to both sides of the seal and confirm that the seal to lamp assembly is flush and no burrs are present.

7. Water test the vehicle according to instructions in Service Bulletin Category S, No. 034/92.
8. If water is still entering the vehicle, perform the troubleshooting and repair procedures listed in the above bulletin.



.....
 Index # 037871

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature _____
 Parts Manager

Number: 017/94	Date Issued: 4/5/94	Revised:
----------------	---------------------	----------

PARTS INFORMATION

Part Number	Description	Model
G717 51 158	Base Gasket	626 (4 door)
GJ21 51 158	Base Gasket	MX-6
G225 51 158	Rear Combination Lamp Gasket	626 (5 door, Right)
G225 51 168	Rear Combination Lamp Gasket	626 (5 door, Left)

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
Customer Comment Code: 77
Damage Code: 9A
Part Number Main Cause: See Part Information
Quantity: 1
Operation Number/Labor Hours: T0318ARX / 0.3Hr (one side, 626/MX-6)
T0318CRX / 0.4Hr (both sides, 626/MX-6)
T0318BRX / 0.3Hr (one side, 5 door)
T0318DRX / 0.4Hr (both sides, 5 door)

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Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
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Category S	Applicable Model/s 1988-92 626	Subject WATER ENTERING TRUNK AND/OR COMBINATION LAMP ASSEMBLY	Bulletin No. 017/94 Issued 4/5/94 Revised
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APPLICABLE MODELS/VINS

626/MX-6
 1988-92 All vehicles

DESCRIPTION

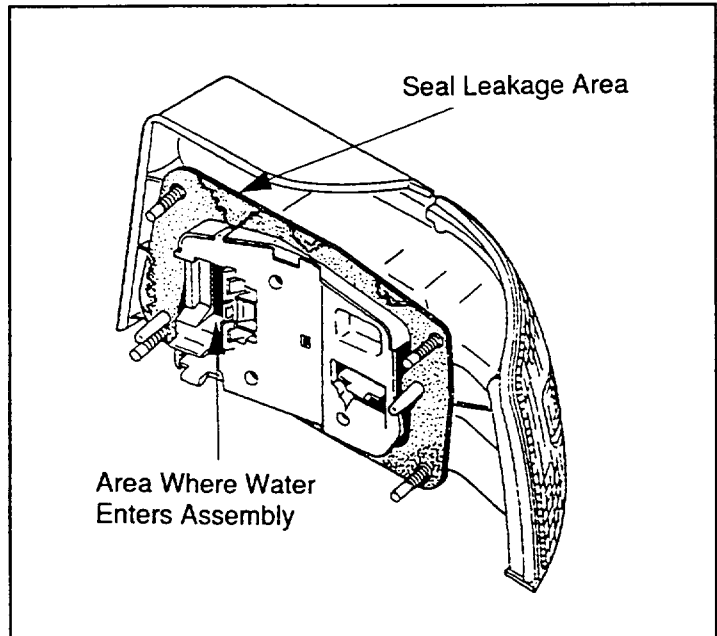
Tail lights that fail due to water entering the combination lamp assembly are caused by leaks in the gasket and not the combination lamp assembly. Recent studies show that assemblies are being replaced unnecessarily.

REPAIR PROCEDURE

1. Verify complaint.
2. Remove water from the trunk area with a shop vacuum.
3. Check the trunk weather-strip for damage and proper positioning.
4. Remove the rear combination lamp and inspect the body to lamp assembly seal. Refer to the illustration for signs of water leakage.
5. If the lamp seal is leaking, replace the seal and confirm that the installation studs are tight and no cracks exist in the assembly.
6. Install the lamp assembly with a new seal.

NOTE: Prior to installing the lamp assembly, apply sealant to both sides of the seal and confirm that the seal to lamp assembly is flush and no burrs are present.

7. Water test the vehicle according to instructions in Service Bulletin Category S, No. 034/92.
8. If water is still entering the vehicle, perform the troubleshooting and repair procedures listed in the above bulletin.



.....
 Index # 037871

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 Service Manager

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 Parts Manager

Number: 017/94	Date Issued: 4/5/94	Revised:
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PARTS INFORMATION

Part Number	Description	Model
G717 51 158	Base Gasket	626 (4 door)
GJ21 51 158	Base Gasket	MX-6
G225 51 158	Rear Combination Lamp Gasket	626 (5 door, Right)
G225 51 168	Rear Combination Lamp Gasket	626 (5 door, Left)

WARRANTY INFORMATION

(Applies To Vehicles Covered Under Normal Warranty)

Warranty Type: A
Customer Comment Code: 77
Damage Code: 9A
Part Number Main Cause: See Part Information
Quantity: 1
Operation Number/Labor Hours: T0318ARX / 0.3Hr (one side, 626/MX-6)
T0318CRX / 0.4Hr (both sides, 626/MX-6)
T0318BRX / 0.3Hr (one side, 5 door)
T0318DRX / 0.4Hr (both sides, 5 door)

Service Bulletin

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7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1988-'90 626/MX-6	Subject INOPERATIVE SEAT HEIGHT ADJUSTER	Bulletin No.	020/91
			Issued	12/12/91
			Revised	12/18/91

DESCRIPTION

Some 626/MX-6 driver's seats may not adjust up or down. This is caused by a broken seat height adjuster.*

The height adjuster unit has been changed and included into production as of August, 1990. Vehicles having this problem that were produced prior to August, 1990 should have the new adjuster unit installed.

NOTE:

This does not effect the seat back adjustment.

VIN OF PRODUCTION CHANGE

Japan Made JM1GD◆◆◆M1901140 August, 1990
USA Made 1YVGD◆◆◆L5257399 August, 1990

REPAIR PROCEDURE

Replace the driver's seat adjuster unit according to procedures in Section S or 14 of your Workshop Manual.

PARTS INFORMATION

PART NUMBER	DESCRIPTION	APPLICABLE MODEL
GK88 88 61XA	Adjuster Unit	1988-'90 626
GJ23 88 61XA	Adjuster Unit	1988-'90 MX-6

WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 82
Damage Code: 9G
Part No. of Main Cause: GK88 88 61XA (626)
GJ23 88 61XA (MX-6)
Quantity: 1
Operation No./Labor Hour: S0913ARX/0.7 Hr. (one [1] seat)
S0913BRX/1.2 Hr. (two [2] seats)

NOTE:

Repairs allowed only within normal vehicle warranty coverage.

* The revised section is indicated by an asterisk. Please replace the original bulletin with this revised bulletin.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature

Signature

Index : 025898 Service Manager

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1989 to 1998 All Models	Subject PRE-PAINTING PREPARATION FOR FRONT AND REAR BUMPERS	Bulletin No. 020/97
			Issued 10/23/97
			Revised

NOTE: This bulletin replaces the previously issued bulletin (Cat. S 031/95).

APPLICABLE MODELS/VINS

All 1989 - 98 model vehicles

DESCRIPTION

Prepare replacement bumpers for painting according to the instructions in this bulletin.

NOTE: Service Managers are requested to distribute these instructions to bodyshop personnel.

PREPARATION PROCEDURE

1. Soak a terry cloth towel in isopropyl alcohol.

CAUTION: Grease / Wax remover that contains "Naptha" based solvent (ex. PPG DX-330) may remove the bumper's factory primer. If this occurs, the bumper will require primer application prior to painting.

2. Clean the entire surface with the alcohol soaked towel.
3. Allow bumper to air dry.

NOTE: The bumper must be completely dry before painting.

4. Remove any lint threads remaining on the bumper with compressed air.
5. Paint the bumper according to the paint manufacturer's instructions.

NOTE: A sample of painting procedure is attached. Bodyshops using other paint manufacturers should follow their bumper painting procedures.

SUPPLIES REQUIRED

Terry Cloth Towel	Available Locally
Isopropyl Alcohol	Available Locally
PPG Multi-Prep (DX103)	Optional - Available through authorized PPG distribution locations

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

MAZDA

Category S	Applicable Model/s See Below	Subject DIRT ON SEAT BELT AND ANCHOR	Bulletin No. 028/96
			Issued 06/27/96
			Revised

AFFECTED MODELS

All Models except Navajo and B-Series

DESCRIPTION

Dirt accumulating on the seat belt anchor or webbing may restrict seat belt travel over the anchor. This may cause some customers to complain that the seat belt will not retract or requires effort to pull out. Customers with this concern should have the belt inspected and serviced according to this bulletin.

SERVICE PROCEDURE

1. Clean the seat belt contact area and sash guide.

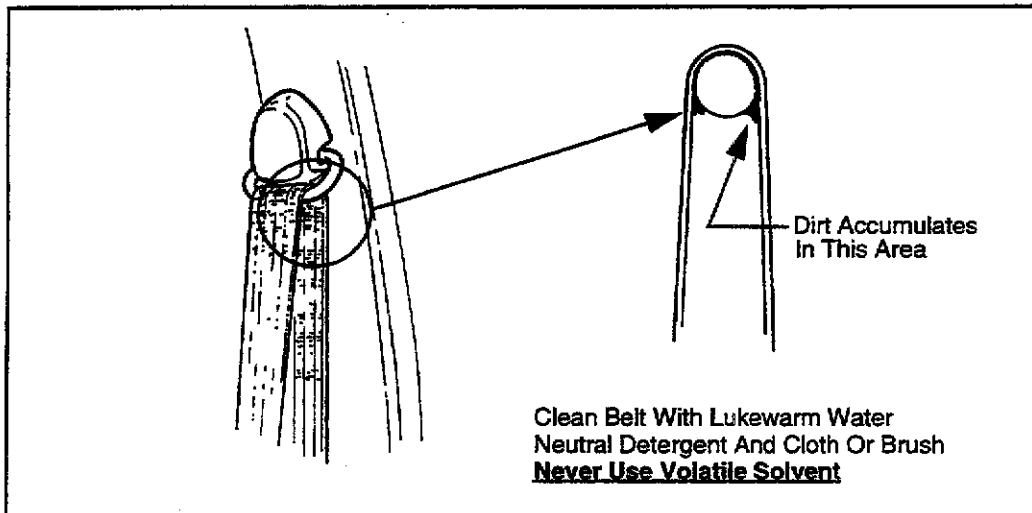
NOTE: Use a brush or cloth, lukewarm water and neutral detergent.

CAUTION: Do not use volatile solvent for cleaning, this substance may affect the seat belt strength.

2. Verify seat belt operation.

- If the seat belt is not operating smoothly, refer to the workshop manual for troubleshooting procedures.

NOTE: The seat belt will not retract smoothly while wet. Allow seat belt to dry before verifying operation.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1989-96 All Models	Subject PRE-PAINTING PREPARATION FOR FRONT AND REAR BUMPERS	Bulletin No. 031/95 Issued 10/17/95 Revised
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APPLICABLE MODELS

All 1989 to 1996 vehicles.

DESCRIPTION

Prepare replacement bumpers for painting according to the instructions in this bulletin.

NOTE: Service Managers are requested to distribute this information to body shop personnel.

PREPARATION PROCEDURE

1. Soak terry cloth towel in isopropyl alcohol (or equivalent solvent).

CAUTION: Grease / Wax remover that contains "Naphtha" based solvents (ex. PPG DX-330) may remove the bumper's factory primer. If this occurs, the bumper will require primer application prior to painting.

2. Clean entire surface with alcohol soaked towel (or equivalent solvent).
3. Allow bumper to air dry.

NOTE: The bumper must be completely dry prior to painting.

4. Remove any lint threads remaining on bumper with compressed air.
5. Paint bumper according to paint manufacturer's recommendations.

SUPPLIES REQUIRED

Terry Cloth Towel	Available Locally
Isopropyl Alcohol	Available Locally
PPG Multi-Prep (DX-103)	Optional - Available at authorized PPG distribution locations

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature **059743** _____

Parts Manager

Not coded

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714)727-1990



Category S	Applicable Model/s 1988-'91 626/MX-6 (USA made)	Subject WATER ENTERING INTERIOR	Bulletin No. 034/92
			Issued 7/7/92
			Revised

DESCRIPTION

Some 1988-'91, USA made 626/MX-6 vehicles may experience interior water leaks. This occurs in the front floor, the headliner (sunroof), or the trunk areas. If the area where water entered the vehicle cannot be confirmed, a water leak test must be performed. These tests are described in the Inspection and Repair section of this bulletin.

INSPECTION AND REPAIR PROCEDURE

To perform the appropriate procedure, refer to the following chart.

LOCATION	PAGES
I. Right Front Side of Passenger Compartment	Pages 1 through 6
II. Left Front Side of Passenger Compartment	Pages 6 through 9
III. Trunk Compartment and Under Rear Seat	Pages 9 through 13
IV. Sunroof of Headliner Area	Pages 13 through 15

LOCATION I: RIGHT FRONT SIDE OF PASSENGER COMPARTMENT

Location of Water Leak Source

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # 030218

5. With the door closed, watch for water leaks during hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam, then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 1 and 2.**

NOTE:

DO NOT direct water into blower motor opening (under cowl panel).

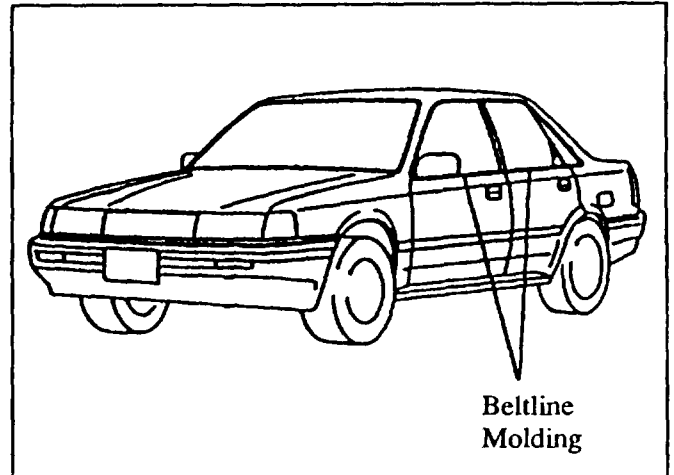


Figure 1: Beltline Molding Location

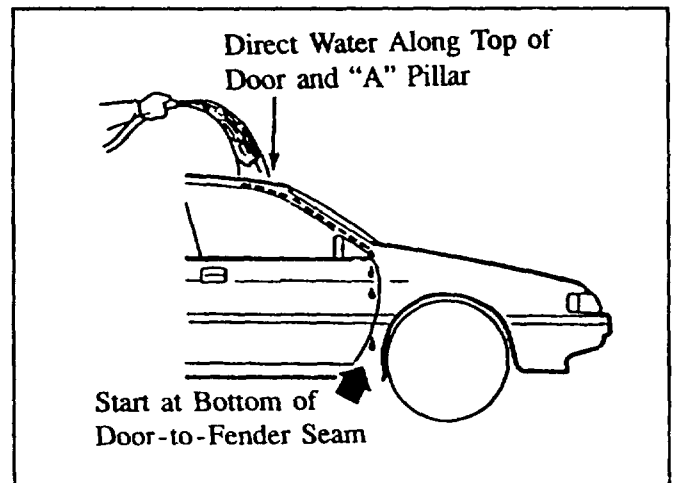


Figure 2: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 3.**

- AREA A: KICK PANEL (pages 3 and 4)
 AREA B: UNDER DASH (pages 4 and 5)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 5)
 AREA D: OVER SILL PLATE (page 6)

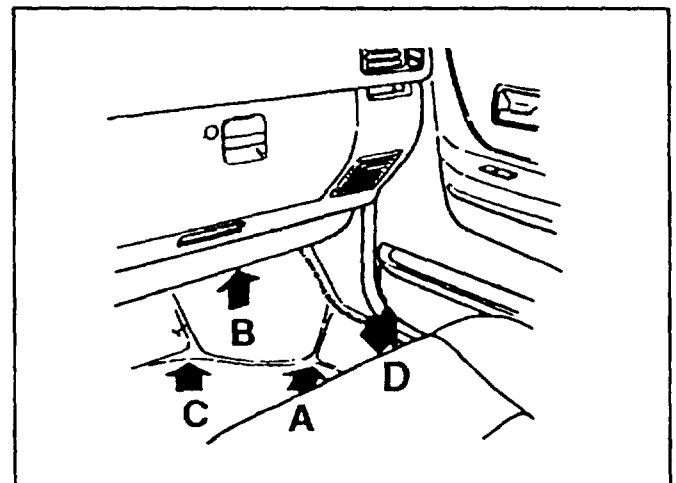


Figure 3: Possible Water Leak Areas

Repair Procedure

AREA A: KICK PANEL

1. Remove kick panel and inspect.
2. Make sure that the door electrical harness boot and the sunroof drain hose grommet are seated. Check that the sunroof drain hose is not kinked and extends through the lower kick panel.

Figure 4.

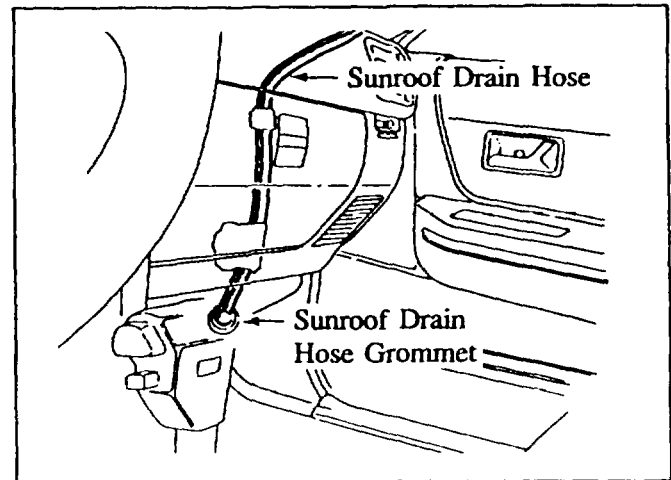


Figure 4: Checking the Sunroof Drain Hose

3. Remove the drip-rail molding and inspect rain-rail seams for missing sealer or pinholes. Seal any suspected sealer defects. Figure 5.
4. Open the sunroof. Using a squeeze bottle filled with water, pour water down the front drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.

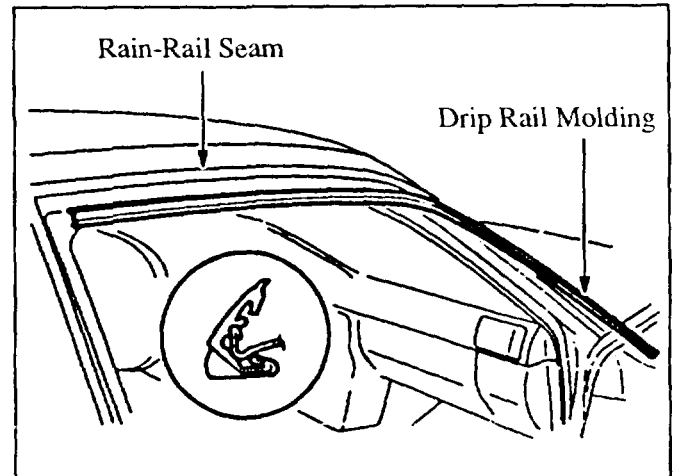


Figure 5: Drip Rail Molding

5. If the leak is still present, remove cap and screw from the front windshield header. Remove the "A" pillar side molding. Check the drain hose for kinks. Figure 6.
6. If necessary, reposition the hose so that there are no loops, kinks or pinched areas. Repeat the water test. Make sure that the sunroof drains properly with no leaks. Figure 7.

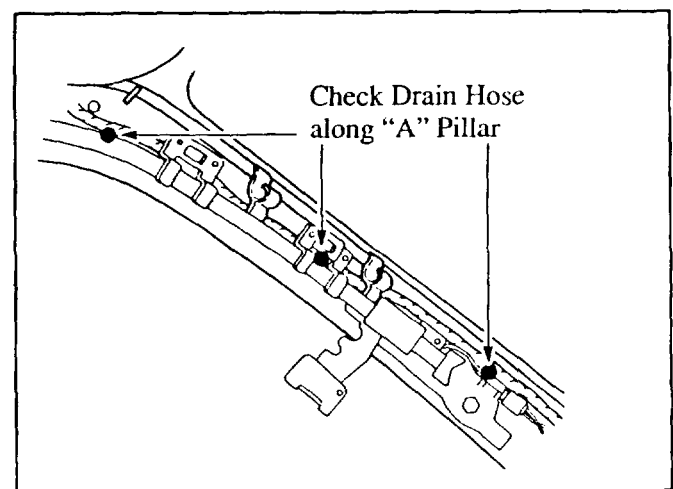


Figure 6: Checking Front Drain Hose

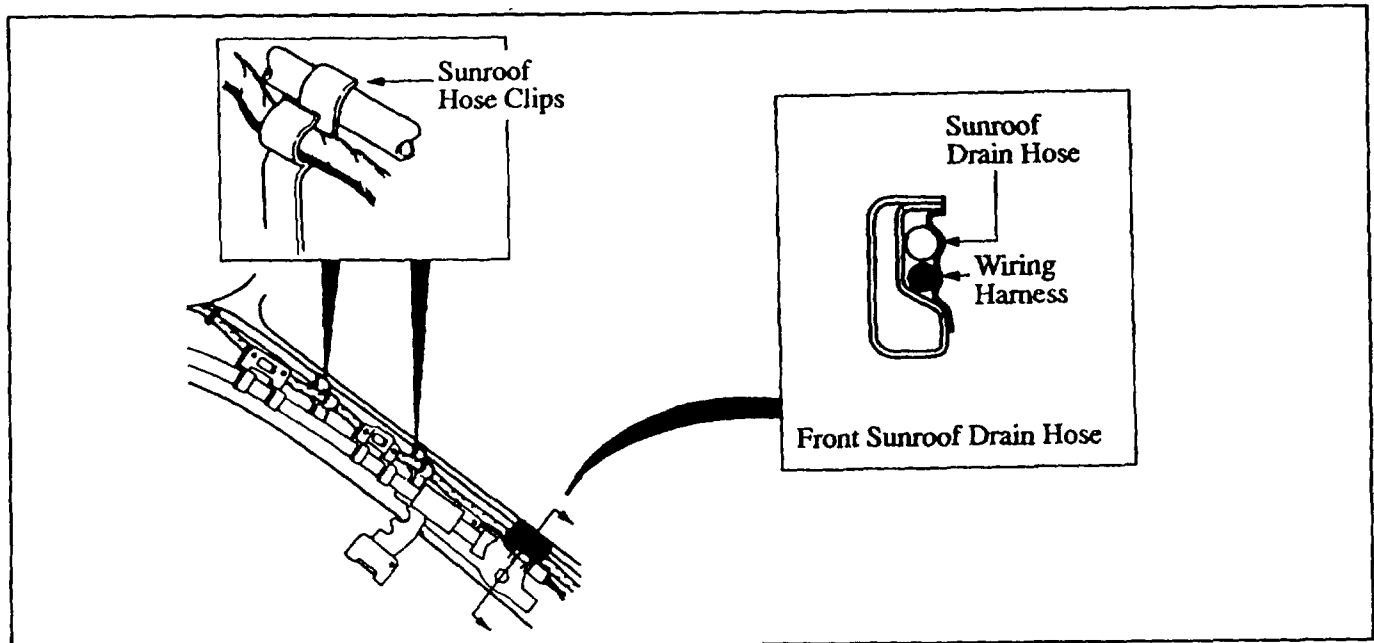


Figure 7: Checking Front Drain Hose

7. If necessary, remove the damaged section of hose. Install a replacement piece of hose with a 9.5mm (3/8 inch) outside diameter which provides a tight fit to the existing hose.

AREA B: UNDER DASH

1. Confirm that the upper cowl drain plug (black tube) has been modified (the dimension of the drain hole has been enlarged to 10mm). Also confirm that there are no obstructions and that the plug drains properly.
2. Using a mechanic's mirror, look for signs of water leakage under the dash (e.g. water/washer solvent stains).
3. Set the heater control air intake control lever to the first position. Remove the blower fan (3 screws) and look for water entering the blower motor opening.
4. Check all grommets shown in Figure 8 for leaks by spraying water on each one. Replace any grommets that leak.

Note: Apply silicone sealer to the bottom of the grommet during installation.

5. If the grommets do not leak, seal the baffle seam by reaching up through the blower motor opening and seal the areas indicated in Figure 8.
6. If water is leaking from the the firewall, check for studs and grommets that might be loose or improperly seated on the engine side of the firewall. If necessary, remove, redress, and reinstall the studs. Retap the holes and, if necessary, replace the bolts. Apply sealer to the threads before installing the bolts. Apply silicone sealer to the bottom of the grommets prior to installation.

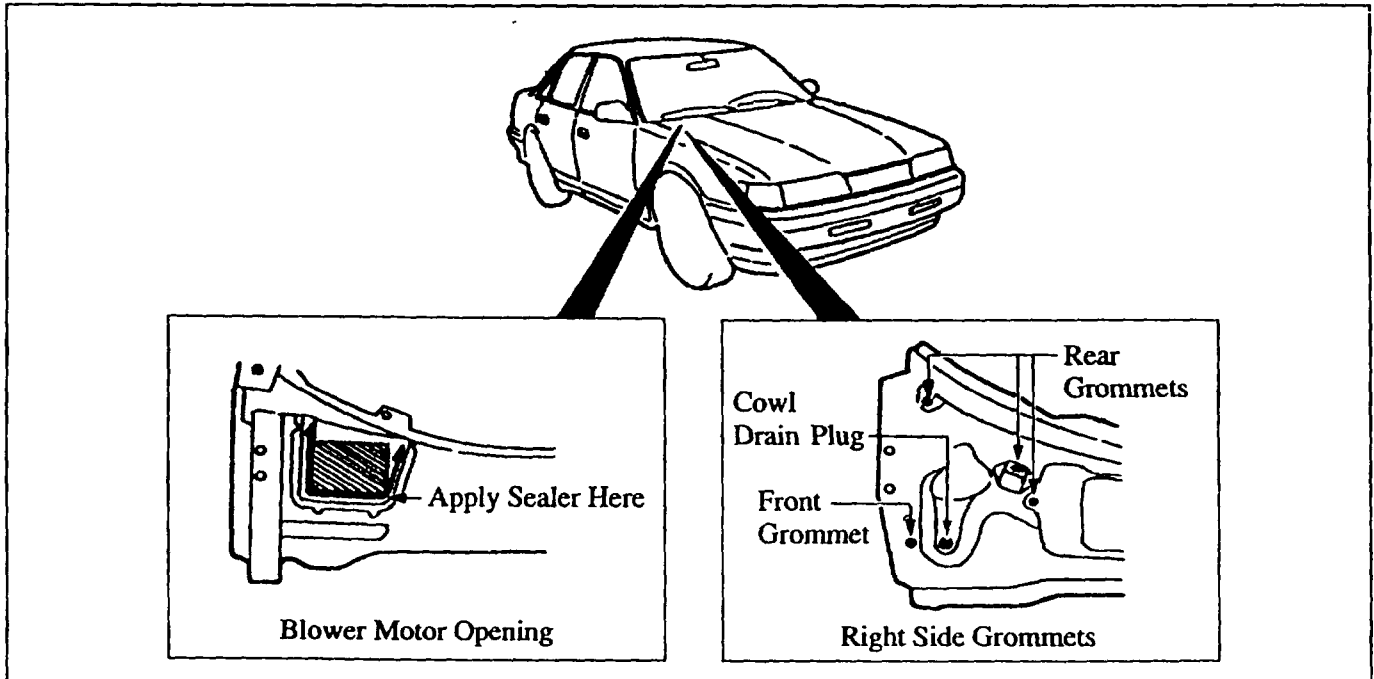


Figure 8: Checking Right Side Cowl for Leaks

- If a leak is found, remove the black plastic cowl vent, then remove the foam strip from the underside.

Note: Before installing the new foam pads, make sure to apply sealer to both sides of the pad.

- Reinstall the black plastic cowl vent. Perform a water leak test by directing water around the outer edges of the cowl vent. Inspect for water leakage or moisture.

AREA C: CORNER OF FIREWALL AND INNER FENDER

- Lift carpet and pad, and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes among the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. Figure 9.

Note: This procedure should only be done by experienced body shop personnel.

- Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanics mirror, inspect sealer hidden by the upper fender for skips and pinholes. Figure 9.

Note: The illustration shows the fender removed. Complete fender removal is not required.

Caution: Use care when moving fender for inspection and resealing body seams. Do not allow the fender to buckle.

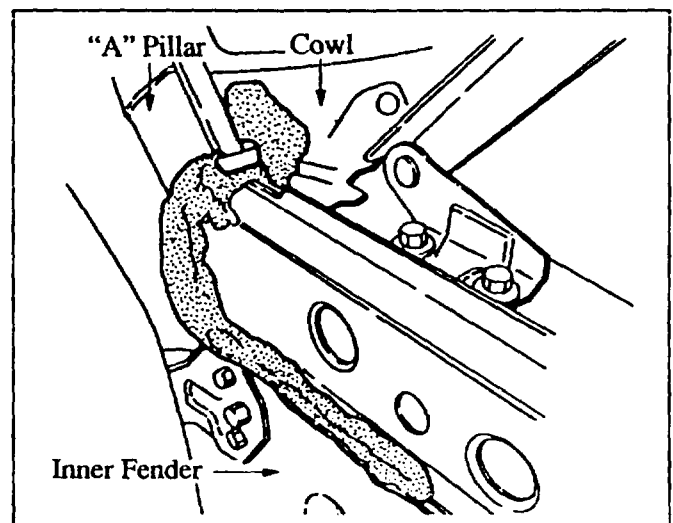


Figure 9: View of Adequate Body Sealer

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 10.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.
3. Confirm that the door drain holes are draining properly and are not obstructed.

Note: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

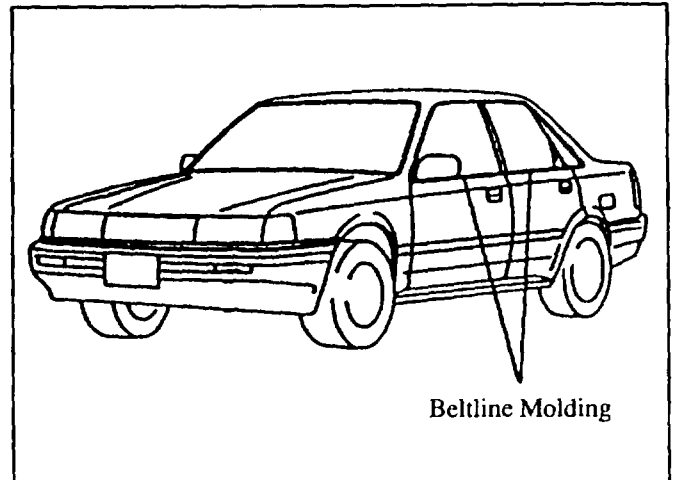


Figure 10: Area of Beltline Molding

LOCATION II: LEFT FRONT SIDE OF PASSENGER COMPARTMENT**Location of Water Leak Source**

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.
5. With the door closed, watch for water leaks during the hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 10 and 11.**

Note: Do not direct water into blower motor opening (under cowl panel.)

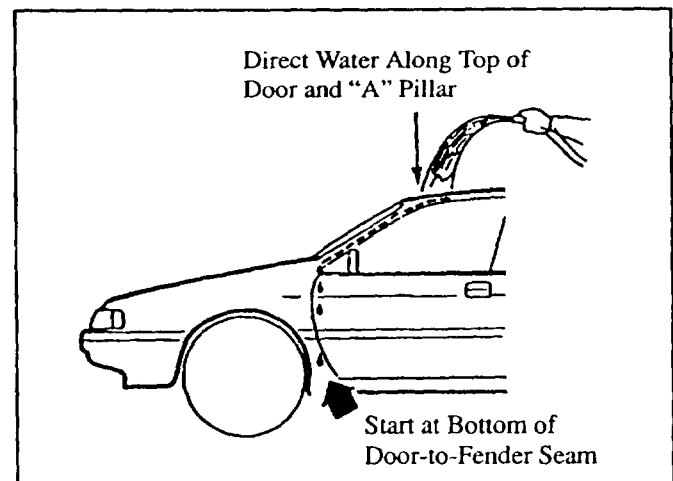


Figure 11: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 12.**

- AREA A: KICK PANEL (pages 7)
 AREA B: UNDER DASH (pages 7 and 8)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 8)
 AREA D: OVER SILL PLATE (pages 8 and 9)

Repair Procedure

AREA A: KICK PANEL

1. Follow the same repair procedure described for the right front side of the passenger compartment.
2. Run water on the antenna. Make sure the antenna tube is intact on the bottom of the power antenna motor and water drains properly (for models equipped with power antenna.)
3. If necessary, position the hose so there are no loops, kinks or pinched areas. If the hose cannot be corrected or is out, remove the damaged section of hose. Install a replacement piece of hose (4.7 mm [3/16 in.] outside diameter) which provides a tight fit to the existing hose.
4. If the leak persists, inspect the antenna bezel molding and gasket for correct sealing and mounting. Confirm that the mounting screw is fully seated and that the gasket is firmly contacting the roof sheet metal. **Figure 13.**

AREA B: UNDER DASH

1. Using a mechanic's mirror, look for signs of water leakage under the dash.
2. Check the cowl grommet for leaks by spraying water on it. Replace the grommet if it leaks. Apply sealer to the bottom side of the grommet during installation. **Figure 14.**

Note: Only one grommet is located in an area where it may cause a water leak.

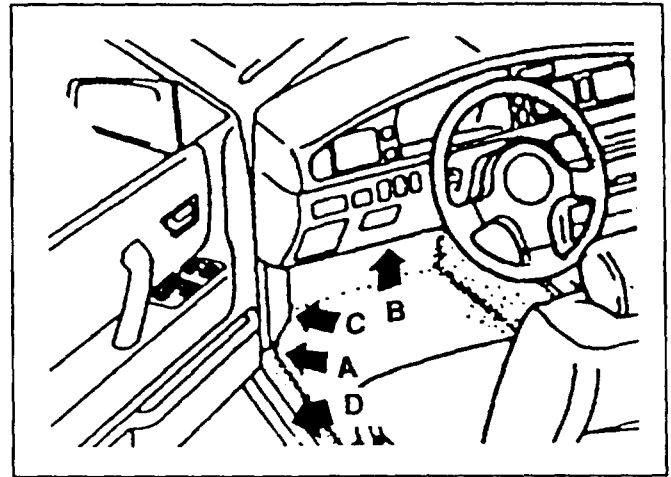


Figure 12: Possible Water Leak Areas

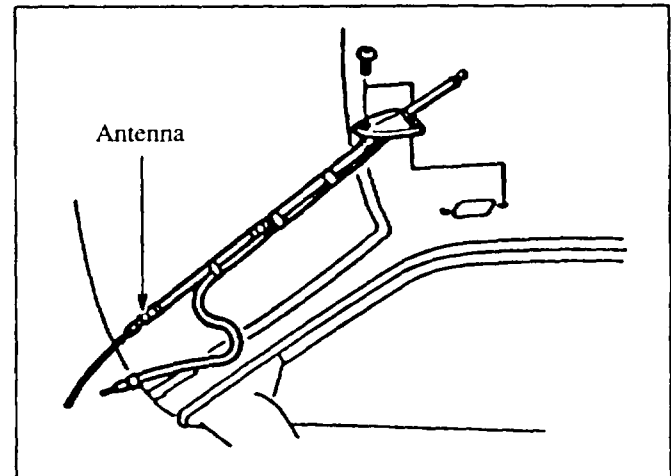


Figure 13: Inspecting Antenna Bezel

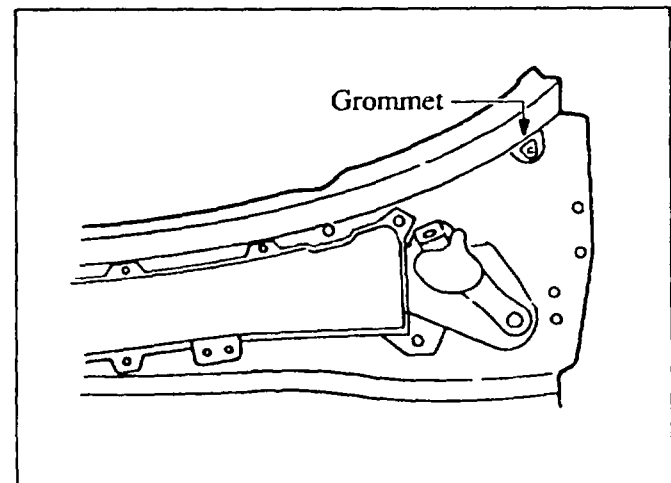


Figure 14: Left Side Grommet

3. If water is leaking from the firewall, check for improperly seated studs, loose grommets, and cross-threaded bolts on the engine side of the firewall.
4. If necessary, remove the studs, clean the threads and reinstall. Remove cross-threaded or high bolts, retap holes and, if necessary, replace bolts. Be sure to apply sealer to the threads before installing the bolts. Finally, replace any loose grommets.
5. Remove the black plastic cowl vent, direct a stream of water at each stud and, if any leaks are found, apply sealer.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes along the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 15.**

Note: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanic's mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 15.**

Note: The illustration shows the fender removed. Complete fender removal is not required.

Caution: Use care when moving fender for inspection and resealing body seams. Do not allow the fender to buckle.

3. Also inspect the antenna bezel molding for correct sealing and mounting as described in the repair section of AREA A (page 7).

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 16.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.

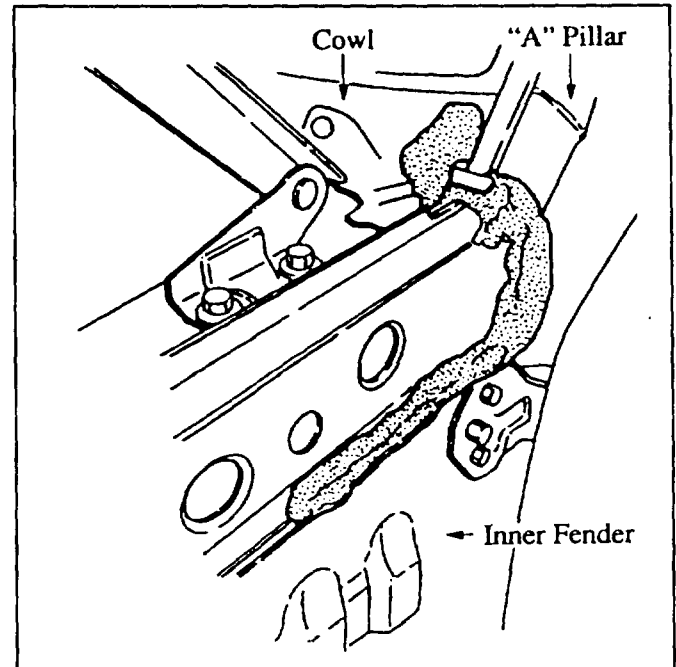


Figure 15: View of Adequate Body Sealer

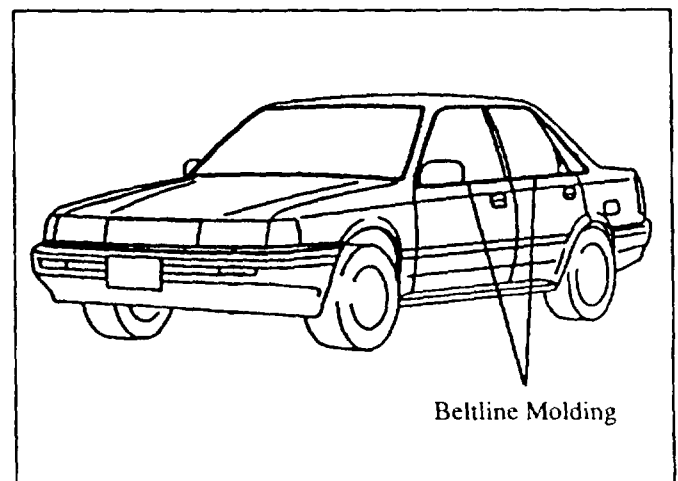


Figure 16: Area of Beltline Molding

3. Confirm that the door drain holes are draining properly and are not obstructed.

Note: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

LOCATION III: TRUNK COMPARTMENT AND UNDER REAR SEAT

Location of Water Leak Source

1. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Carpet, side panels and rear seat bottom may have to be removed to locate the source of the leaks.
4. Lower the rear seat backs. From inside the vehicle, close the door and, using a flashlight, look for water leaks during the hose test.

5. Have an assistant direct the water stream over the entire rear of the vehicle, concentrating on the following areas: **Figure 17.**

- Along the deck lid to body gap.
- Up each "C" pillar and across the upper portion of the rear window.
- Along the key lock cylinder, rear deck lid finisher and combination lamps.
- Along the fuel filler door-to-body gap.

6. Have an assistant direct the water stream over the entire inner wheel well area concentrating on the following areas:

- Inner wheel well-to-quarter panel seam and bumper plug. **Figure 18.**
- Inner wheel well-to-trunk floor pan seam. **Figure 19.**
- Inner wheel well-to-floor pan seam (to check for leakage under the rear seat.)

Note: Direct a heavy stream of water where the rocker panel meets the inner wheel well (to check for leakage into the rocker panel). **Figure 17.**

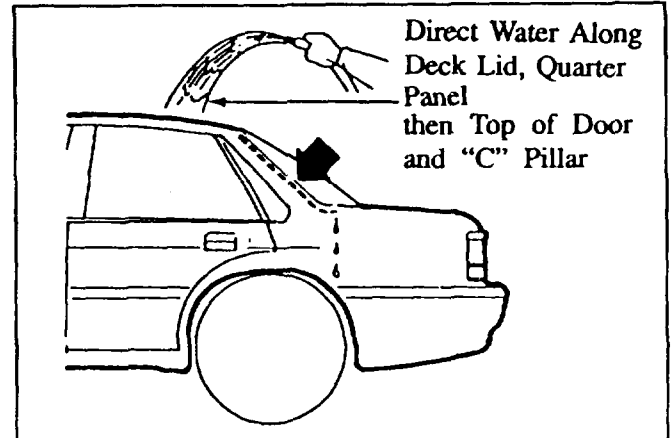


Figure 17: Locating Source of Rear Water Leak

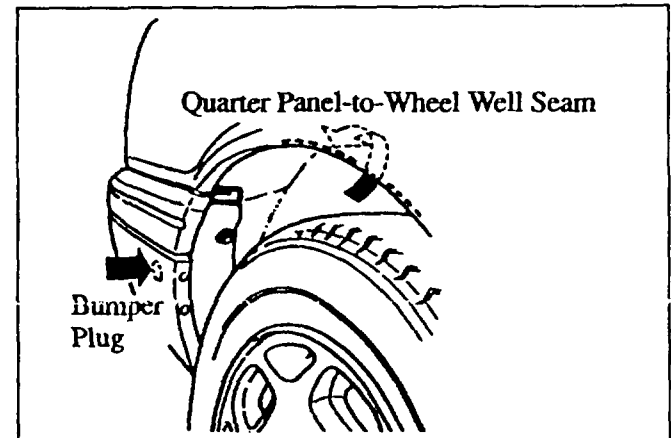


Figure 18: Bumper Plug and Wheel Test Area

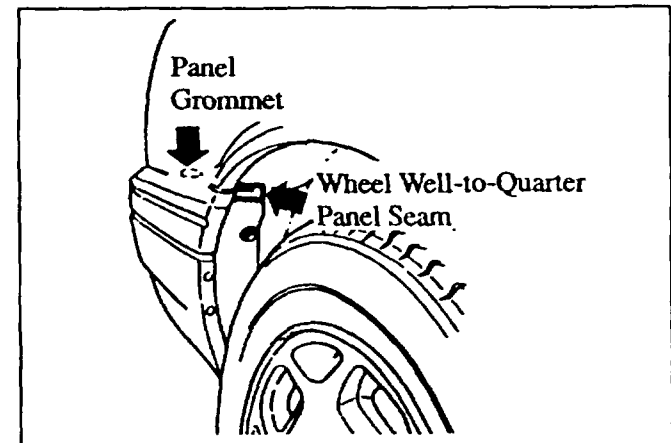


Figure 19: Wheel Well-to-Quarter Panel Seam

7. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 20.**

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA (pages 10 and 11)

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM (pages 11 and 12)

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL (page 12)

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS (page 12)

AREA E: KEY LOCK CYLINDER (page 13)

8. If water is collecting in storage wells, check the drain holes for debris or undercoating.

Note: Do not seal up the drain holes at the bottom of area C.

Repair Procedure

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA

1. If water is running down over the interior trunk end-panel trim or over/under the trunk weatherstrip, pull up the trunk weatherstrip and check grey sealer material and any body seams near the linkage area. Confirm that grey sealer covers the top of the flange in one solid strip. Check for pin holes, missing sealer or burrs. **Figure 21** and **Figure 22.**
2. If water is located behind the interior trunk end-panel trim or carpet, remove the trim panel. Direct a stream of water at the rear of the vehicle and pinpoint the location of the leak. Check the body seams for any pinholes or missing sealer. **Figure 21.**
3. If pinholes and/or missing sealer are found in step 2, add a non-hardening grey body seam sealer to fill in the empty spots and reinstall the trunk weatherstrip. Make sure the trunk weatherstrip is routed under the latch striker and press it firmly in place. Retest for water leaks.

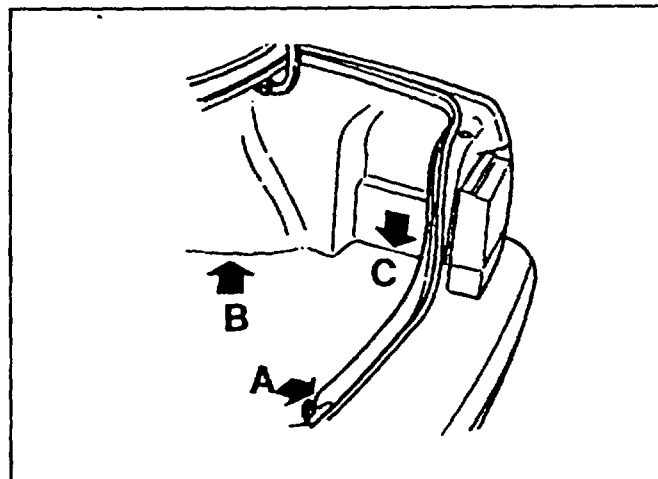


Figure 20: Locating Possible Water Leak Areas

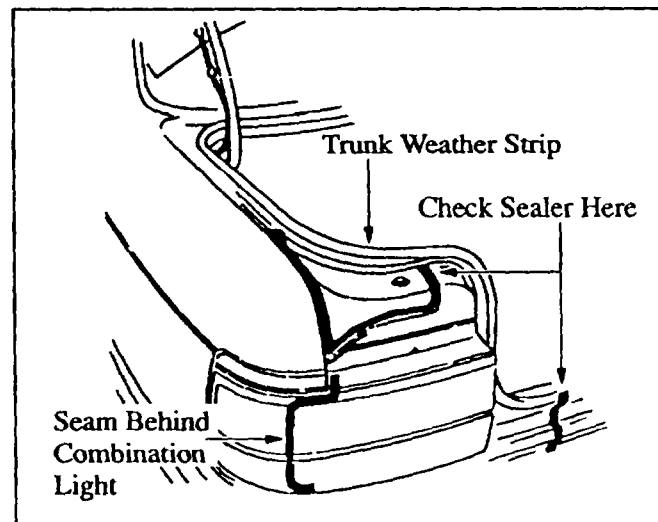


Figure 21: Inspecting Rear Trunk Area

- If the leak is from the combination lamp(s) area, confirm that the mounting studs/nuts are tight and the assemblies are not cracked. Check end panel-to-quarter panel seams for any pinholes or missing sealer. If the leak continues, remove the combination lamp(s) and gasket(s). Install a new gasket to the combination lamp(s). Figure 21.

Note: Before installing the new gasket, apply sealer to both sides of the gasket. Also, confirm body-to-combination lamp surfaces are flush and no burrs are present.

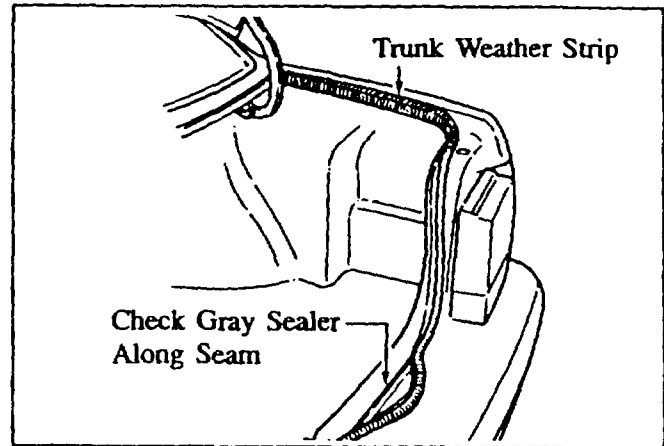


Figure 22: Checking Grey Sealer Under Trunk Weatherstrip

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM

- If water leaks into the forward area of the trunk, make sure that the weatherstrip is properly seated and not leaking. Figure 23.
- If no problems are found, check all trunk opening seams and the inner wheel well-to-trunk floor pan seam for missing sealer or pin holes. Seal any suspected areas and retest for leaks. If no problems are found, go to step 3.

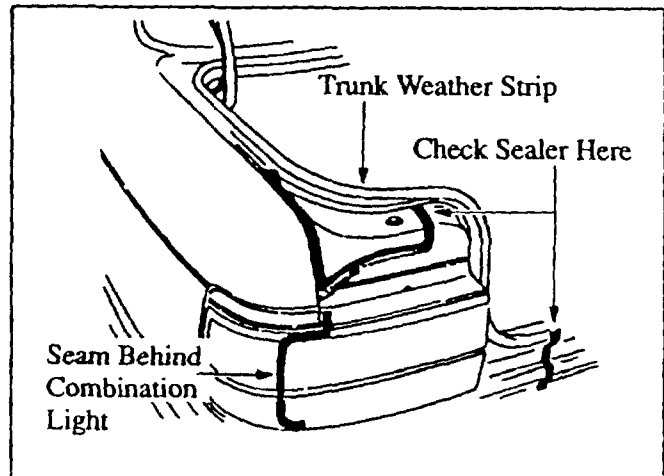


Figure 23: Inspecting Rear Trunk Area

- If necessary, remove the rear shoulder seat belt mounts and inside "C" pillar trim panel(s). Remove the mounting nuts. Next, remove the rear window glass side molding. Figures 24 and 25.

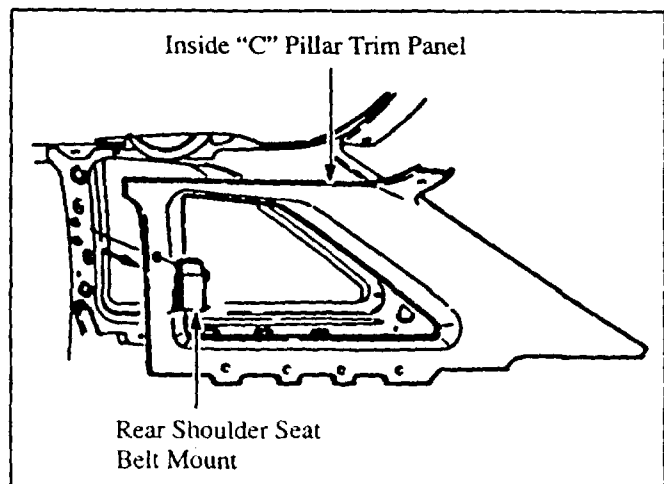


Figure 24: Removing Inside "C" Pillar Trim Panel

4. Check the condition of the rear window sealer in this area. Use a flashlight to find small pinholes. Check extractor side molding mounting hardware for missing or damaged sealer or gaskets. Apply sealer to all mounting points as necessary. **Figure 25.**

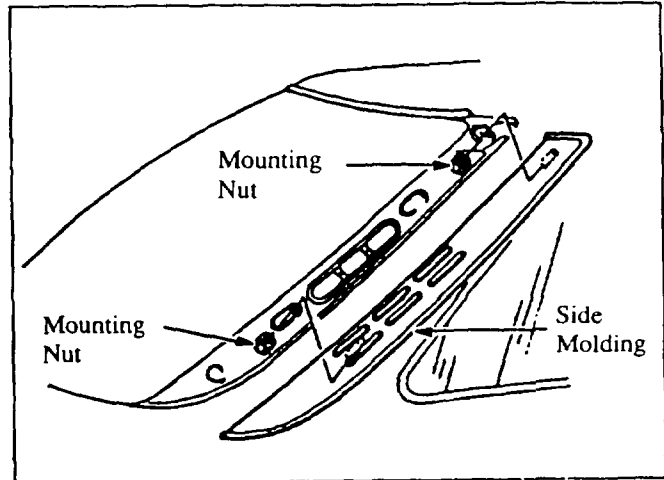


Figure 25: Removing Rear Window Glass Side Molding

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL

1. If water is collecting in storage wells, check drain holes for dirt or undercoating.

Note: Do not seal up drain holes at the bottom of the storage wells.

2. Check for any leaks at the grommet and plug between the quarter panel and bumper. Examine seams for missing sealer or pin holes. Seal any suspected defects. **Figures 26 and 27.**
3. Check for any leaks at the fuel filler neck-to-body in the left quarter. If moisture is present, remove the filler neck.
4. Apply sealer to both sides of the gasket and reinstall.

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS

1. Remove rear seat bottom and lift carpet.
2. Check for any leaks due to pin holes or missing sealer along the inner wheel well-to-body seam.
3. Remove the plastic sill plates and confirm that there is no water being retained inside the rocker panel.
4. If water is present, seal the inner wheel well-to-rocker panel seam.

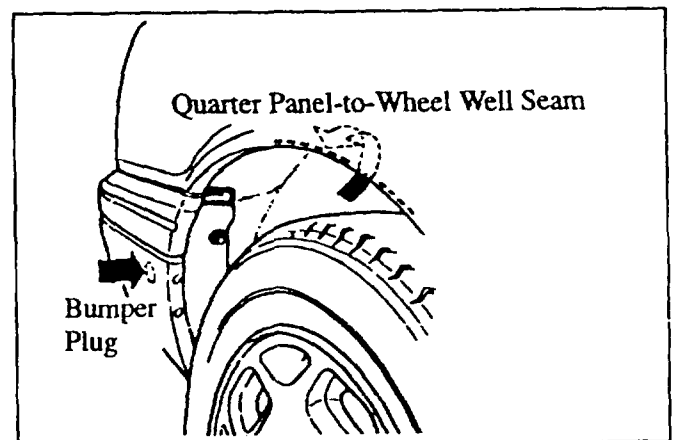


Figure 26: Bumper Plug and Wheel Test Area

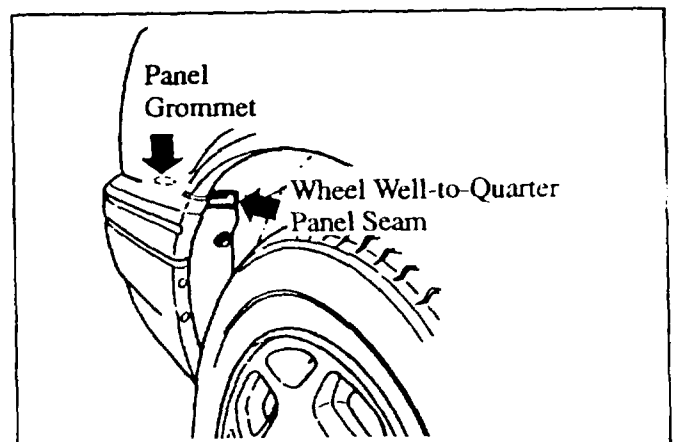


Figure 27: Wheel Well-to-Quarter Panel Seam

AREA E: KEY LOCK CYLINDER

1. If the leak occurs at the key lock cylinder, remove or replace gasket.
2. After installing the gasket, seal around the key lock cylinder-to-deck lid area from the inside with silicone.

LOCATION IV: SUNROOF OR HEADLINER AREA**Location of Water Leak Source**

1. Have an assistant help locate the exact point of water entry.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Make sure the sunroof is completely closed. If necessary, readjust sunroof. (See Workshop Manual Section S.)
4. Run water over the sunroof and note in which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 28.**

AREA A: FORWARD HEADLINER AREA
(page 13)

AREA B: REAR PASSENGER COMPARTMENT AREA (page 14)

AREA C: REAR HEADLINER OR
SUNROOF SLIDING PANEL
(pages 14 and 15)

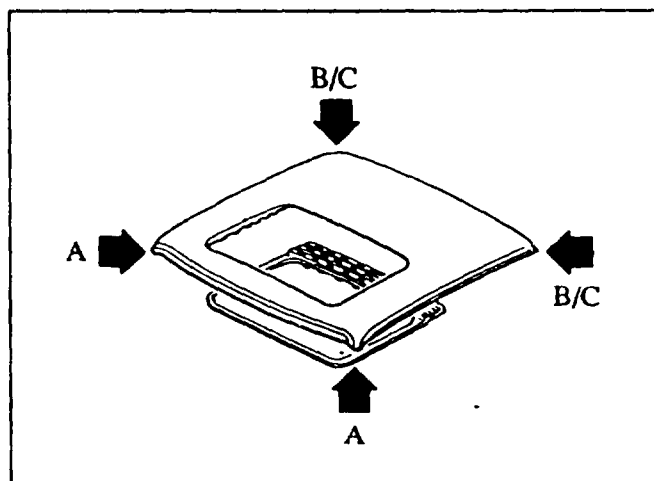


Figure 28: Locating Source of Top Water Leaks

AREA A: FORWARD HEADLINER AREA

1. Open the sunroof and make sure that the sunroof drain tubes are intact and that no holes are present. If welds are damaged or have holes, repair or replace the sunroof frame.
2. If welds and drain tubes are OK, remove the front header and side trim pieces. Remove the headliner retainer clips (2 metal and 1 plastic per side), sunroof welt, and sun visor.
3. Carefully lower the headliner. Using a flashlight, check that the drain hose tubes are attached to the sunroof frame. **Figure 29.**
4. Direct a small stream of water into sunroof drain holes to make sure the drain tubes do not leak. If leaking is present, check for damaged hoses.
5. If the hoses are damaged, install a replacement piece of hose which provides a tight fit to the existing hose. The outside diameter of the replacement hose should be 9.5mm (3/8 in).

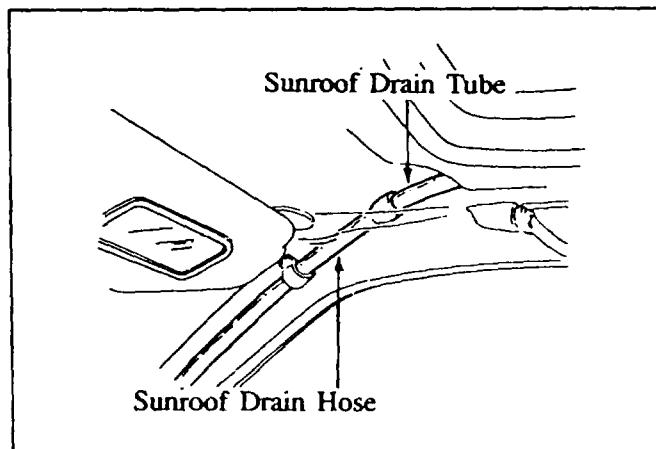


Figure 29: Checking Front Drain Hose and Tube

AREA B: REAR PASSENGER COMPARTMENT AREA

1. Remove rear header trim, rear shoulder mounts, and inside "C" pillar trim panel(s). **Figure 30.**

Hint: Leave lower attaching screws in place and tilt "C" pillar trim back.

Caution: Do not use too much force when pulling on the "C" pillar trim. Permanent damage (white stress marks) may result.

2. Make sure sunroof drain hose grommets are seated. Check that the sunroof drain hose is not kinked and extends through the outer rear side molding.
3. Open the sunroof and, using a squeeze bottle filled with water, pour water down the rear drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.
4. If necessary, position the hose so that there are no loops, kinks or pinched areas. Check for kinks at the drain hose clip. Repeat the water test. Make sure that the sunroof drains properly and does not leak. **Figure 31.**
5. If necessary, install a new hose.
6. If hose routing is OK and hose is intact, check for leaks at the rear window.

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL

1. Remove the rear header trim, rear shoulder seatbelt mounts, and inside "C" pillar trim panel(s). **Figure 30.**

Hint: Leave lower attaching screws in place and tilt "C" pillar trim back.

Caution: Do not use too much force when pulling on the "C" pillar trim. Permanent damage (white stress marks) may result.

2. Remove headliner retaining clips (1 plastic and 3 metal per side.)

Caution: Do not remove the 2 center plastic retaining clips.

3. Make sure that the drain hose routing is correct. Check for damage along the drain hoses by pulling down the headliner.

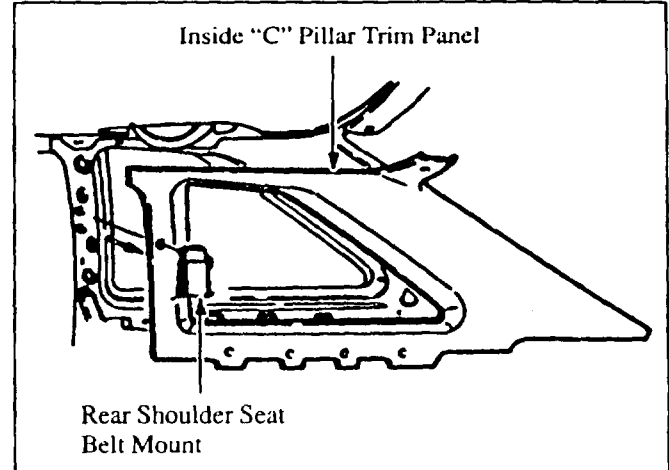


Figure 30: Removing Inside "C" Pillar Trim Panel

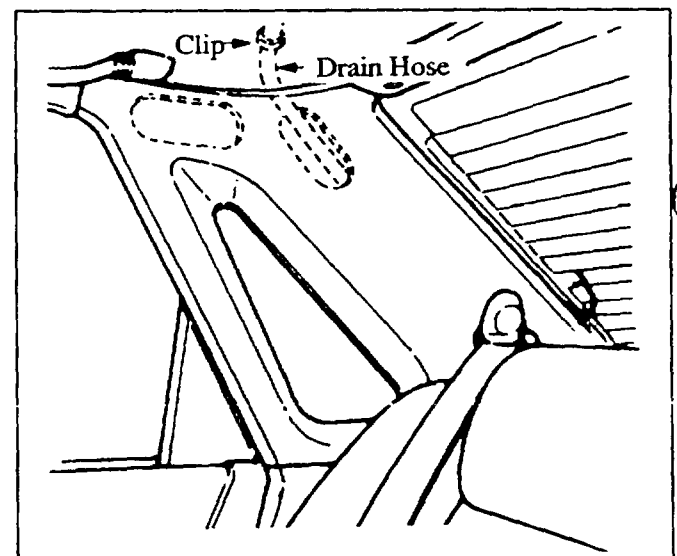


Figure 31: Rear Sunroof Drain Hose

Number: 034/92	Date Issued: 7/7/92	Date Revised:
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4. Check that the drain hoses are attached to the sunroof drain tubes. Replace hose(s) as necessary. Check for kinks at the drain hose clip. **Figure 31.**

Caution: Use care when pulling the headliner down. If it is pulled too far, the headliner will be permanently detached from the hidden bracket.

5. Check if welds around the rear sunroof drain tubes are intact and drain properly. With the sunroof closed, direct water over the sunroof and check for leaks at the drain tubes. If the welds are damaged or have holes, repair or replace the sunroof frame.

WARRANTY INFORMATION

Warranty Type Code: A
Customer Comment Code: 6D
Damage Code: 38
Part No. of Main Cause: 5555 WA 0010
Operation No.: See Chart Below
Labor Hours: See Chart Below
Location Code: Applicable location code necessary. Codes found in SRT microfiche or Warranty Policies and Procedures Manual.

PROCEDURE	OPERATION NUMBER	LABOR HOURS
Water Testing	YY0064RX	0.5
Repair of Right Front Side of Passenger Compartment	YY0033RX	Not to exceed 0.9
Repair of Left Front Side of Passenger Compartment	YY0034RX	Not to exceed 0.9
Repair of Trunk Compartment and Under Rear Seat	YY0035RX	Not to exceed 0.9
Repair of Sunroof or Headliner Area	YY0036RX	Not to exceed 0.9

Note:

- Water testing and labor hours for each area are not to exceed four (4) entries.
- Enter each area of water entry as a separate problem. Each problem should have a different location code.
- Subsequent repairs to the same area will be denied.

Not coded

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714)727-1990



Category S	Applicable Model/s 1988-'91 626/MX-6 (USA made)	Subject WATER ENTERING INTERIOR	Bulletin No. 034/92
			Issued 7/7/92
			Revised

DESCRIPTION

Some 1988-'91, USA made 626/MX-6 vehicles may experience interior water leaks. This occurs in the front floor, the headliner (sunroof), or the trunk areas. If the area where water entered the vehicle cannot be confirmed, a water leak test must be performed. These tests are described in the Inspection and Repair section of this bulletin.

INSPECTION AND REPAIR PROCEDURE

To perform the appropriate procedure, refer to the following chart.

LOCATION	PAGES
I. Right Front Side of Passenger Compartment	Pages 1 through 6
II. Left Front Side of Passenger Compartment	Pages 6 through 9
III. Trunk Compartment and Under Rear Seat	Pages 9 through 13
IV. Sunroof of Headliner Area	Pages 13 through 15

LOCATION I: RIGHT FRONT SIDE OF PASSENGER COMPARTMENT

Location of Water Leak Source

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # 030218

5. With the door closed, watch for water leaks during hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam, then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 1 and 2.**

NOTE:

DO NOT direct water into blower motor opening (under cowl panel).

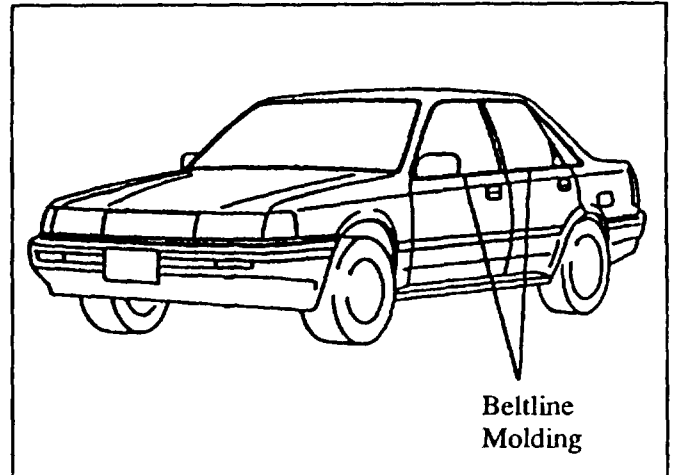


Figure 1: Beltline Molding Location

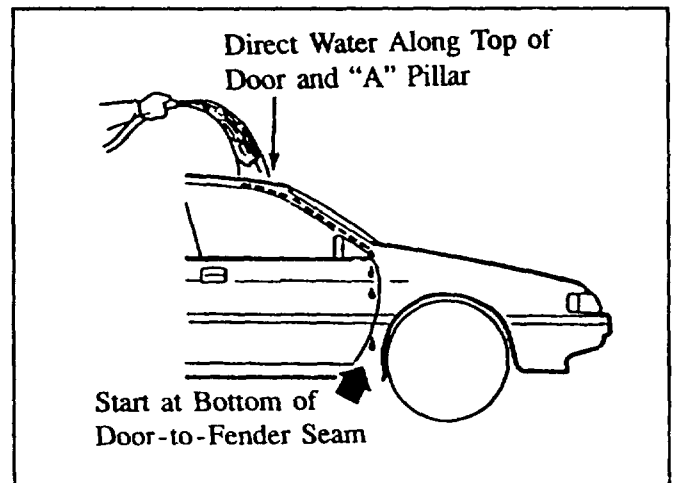


Figure 2: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 3.**

- AREA A: KICK PANEL (pages 3 and 4)
 AREA B: UNDER DASH (pages 4 and 5)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 5)
 AREA D: OVER SILL PLATE (page 6)

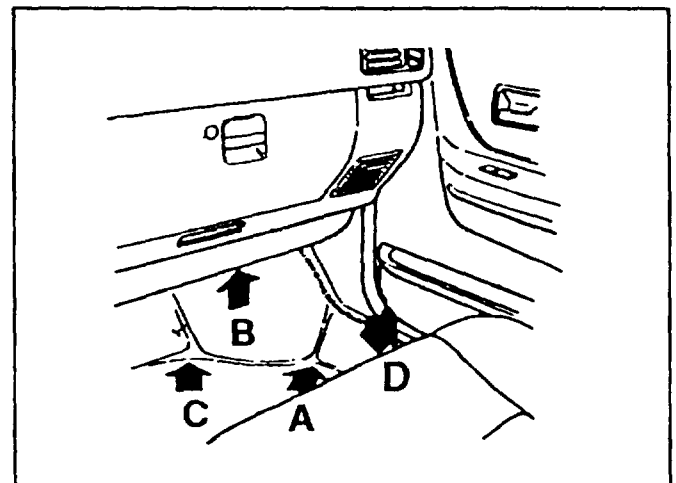


Figure 3: Possible Water Leak Areas

Repair Procedure

AREA A: KICK PANEL

1. Remove kick panel and inspect.
2. Make sure that the door electrical harness boot and the sunroof drain hose grommet are seated. Check that the sunroof drain hose is not kinked and extends through the lower kick panel.

Figure 4.

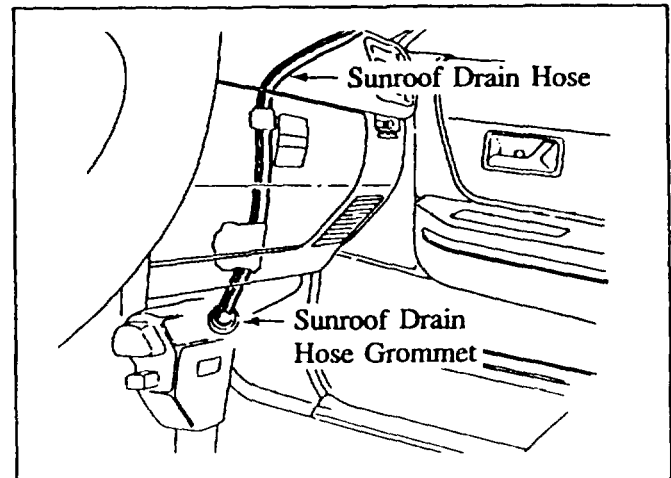


Figure 4: Checking the Sunroof Drain Hose

3. Remove the drip-rail molding and inspect rain-rail seams for missing sealer or pinholes. Seal any suspected sealer defects. Figure 5.
4. Open the sunroof. Using a squeeze bottle filled with water, pour water down the front drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.

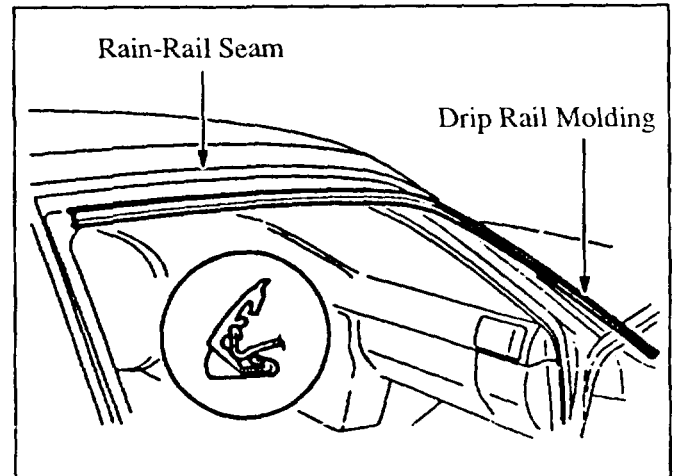


Figure 5: Drip Rail Molding

5. If the leak is still present, remove cap and screw from the front windshield header. Remove the "A" pillar side molding. Check the drain hose for kinks. Figure 6.
6. If necessary, reposition the hose so that there are no loops, kinks or pinched areas. Repeat the water test. Make sure that the sunroof drains properly with no leaks. Figure 7.

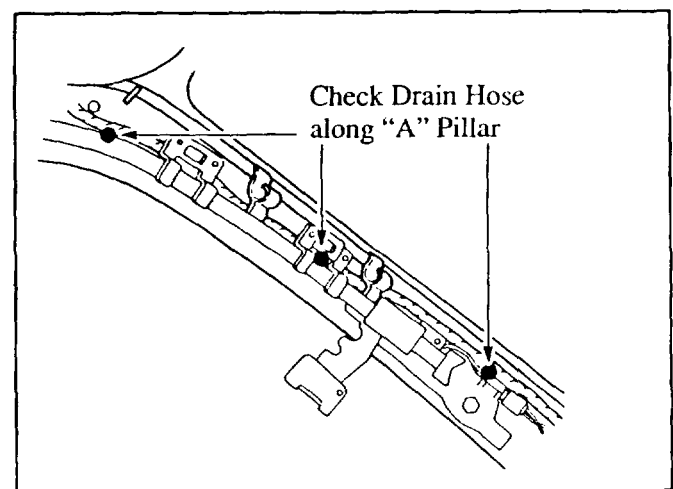


Figure 6: Checking Front Drain Hose

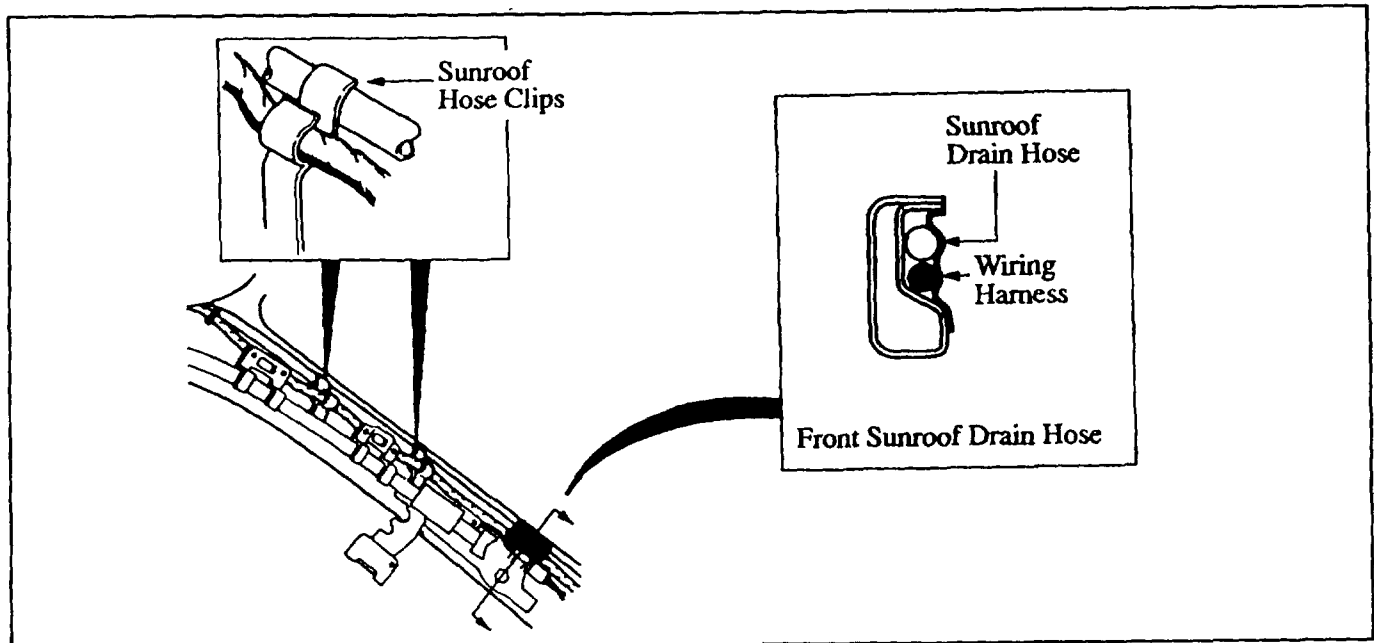


Figure 7: Checking Front Drain Hose

7. If necessary, remove the damaged section of hose. Install a replacement piece of hose with a 9.5mm (3/8 inch) outside diameter which provides a tight fit to the existing hose.

AREA B: UNDER DASH

1. Confirm that the upper cowl drain plug (black tube) has been modified (the dimension of the drain hole has been enlarged to 10mm). Also confirm that there are no obstructions and that the plug drains properly.
2. Using a mechanic's mirror, look for signs of water leakage under the dash (e.g. water/washer solvent stains).
3. Set the heater control air intake control lever to the first position. Remove the blower fan (3 screws) and look for water entering the blower motor opening.
4. Check all grommets shown in Figure 8 for leaks by spraying water on each one. Replace any grommets that leak.

Note: Apply silicone sealer to the bottom of the grommet during installation.

5. If the grommets do not leak, seal the baffle seam by reaching up through the blower motor opening and seal the areas indicated in Figure 8.
6. If water is leaking from the the firewall, check for studs and grommets that might be loose or improperly seated on the engine side of the firewall. If necessary, remove, redress, and reinstall the studs. Retap the holes and, if necessary, replace the bolts. Apply sealer to the threads before installing the bolts. Apply silicone sealer to the bottom of the grommets prior to installation.

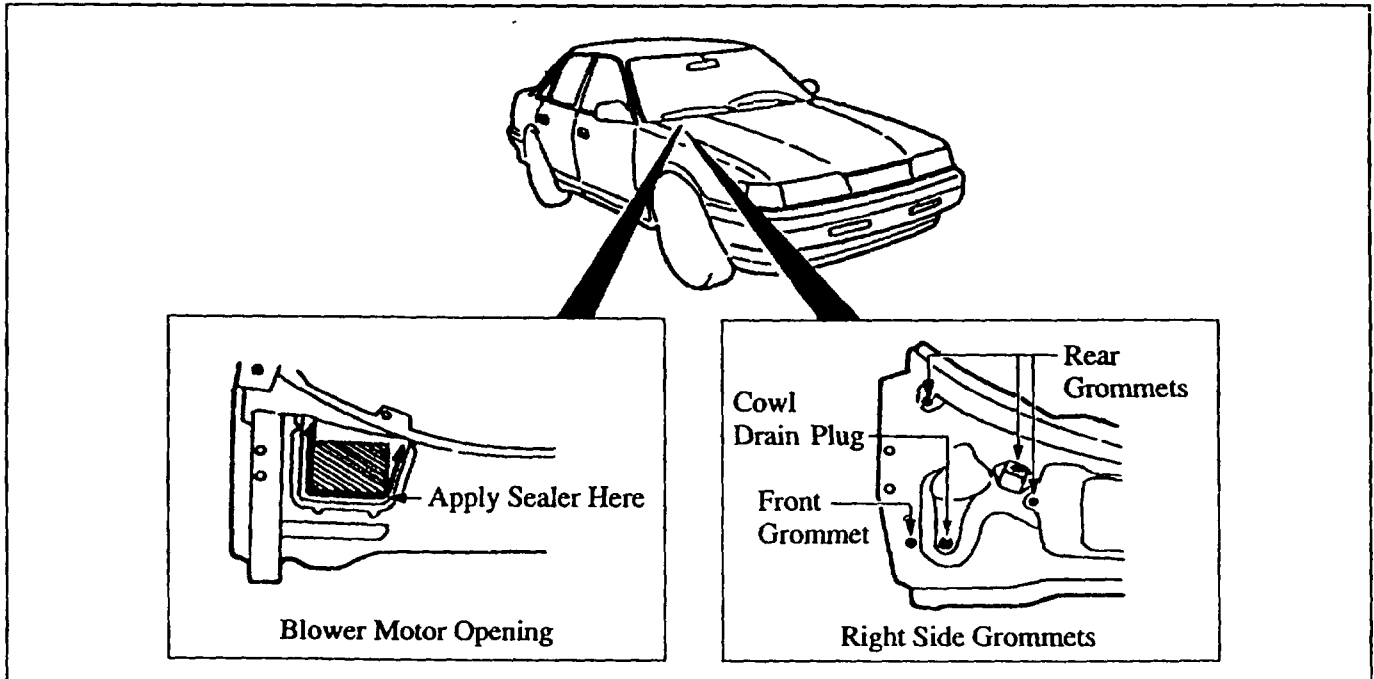


Figure 8: Checking Right Side Cowl for Leaks

- If a leak is found, remove the black plastic cowl vent, then remove the foam strip from the underside.

Note: Before installing the new foam pads, make sure to apply sealer to both sides of the pad.

- Reinstall the black plastic cowl vent. Perform a water leak test by directing water around the outer edges of the cowl vent. Inspect for water leakage or moisture.

AREA C: CORNER OF FIREWALL AND INNER FENDER

- Lift carpet and pad, and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes among the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. Figure 9.

Note: This procedure should only be done by experienced body shop personnel.

- Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanics mirror, inspect sealer hidden by the upper fender for skips and pinholes. Figure 9.

Note: The illustration shows the fender removed. Complete fender removal is not required.

Caution: Use care when moving fender for inspection and resealing body seams. Do not allow the fender to buckle.

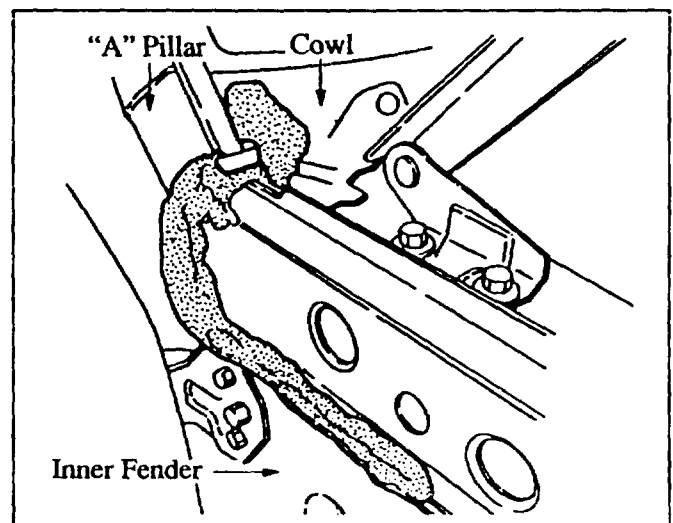


Figure 9: View of Adequate Body Sealer

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 10.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.
3. Confirm that the door drain holes are draining properly and are not obstructed.

Note: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

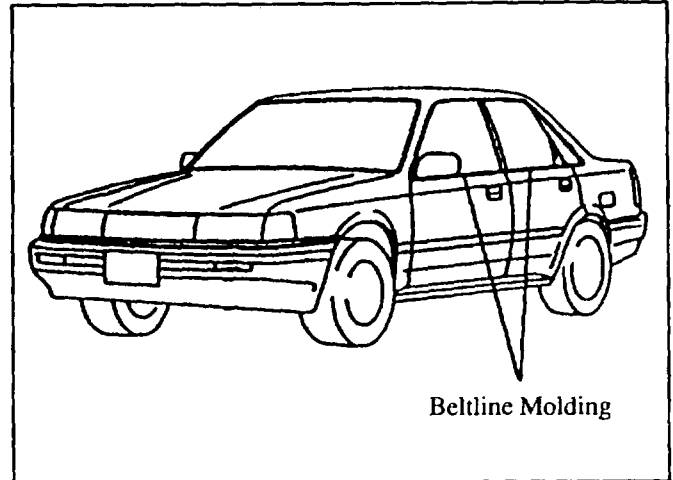


Figure 10: Area of Beltline Molding

LOCATION II: LEFT FRONT SIDE OF PASSENGER COMPARTMENT**Location of Water Leak Source**

1. Remove the dash undercover, scuff plate and kick panel. Pull back the carpet and pad. Remove the front seat, carpet, and pad if necessary.
2. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
3. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
4. Get inside the vehicle and use a flashlight to help locate the water entry point.
5. With the door closed, watch for water leaks during the hose test. Have an assistant slowly direct the water stream up from the bottom portion of the door-to-fender seam then up the "A" pillar to the top of the door and around the windshield. Next, have the assistant slowly direct water along the window beltline molding (if the vehicle is a four door, perform this test on both the front and rear doors.) **Figures 10 and 11.**

Note: Do not direct water into blower motor opening (under cowl panel.)

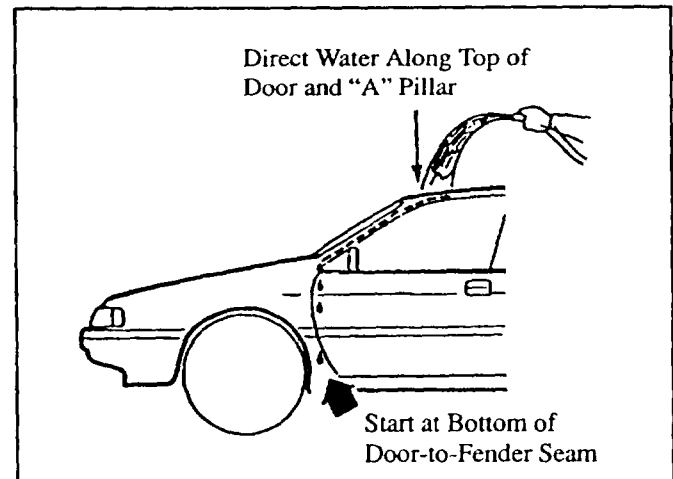


Figure 11: Locating Source of Front Water Leak

6. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 12.**

- AREA A: KICK PANEL (pages 7)
 AREA B: UNDER DASH (pages 7 and 8)
 AREA C: CORNER OF FIREWALL
 AND INNER FENDER (page 8)
 AREA D: OVER SILL PLATE (pages 8 and 9)

Repair Procedure

AREA A: KICK PANEL

1. Follow the same repair procedure described for the right front side of the passenger compartment.
2. Run water on the antenna. Make sure the antenna tube is intact on the bottom of the power antenna motor and water drains properly (for models equipped with power antenna.)
3. If necessary, position the hose so there are no loops, kinks or pinched areas. If the hose cannot be corrected or is out, remove the damaged section of hose. Install a replacement piece of hose (4.7 mm [3/16 in.] outside diameter) which provides a tight fit to the existing hose.
4. If the leak persists, inspect the antenna bezel molding and gasket for correct sealing and mounting. Confirm that the mounting screw is fully seated and that the gasket is firmly contacting the roof sheet metal. **Figure 13.**

AREA B: UNDER DASH

1. Using a mechanic's mirror, look for signs of water leakage under the dash.
2. Check the cowl grommet for leaks by spraying water on it. Replace the grommet if it leaks. Apply sealer to the bottom side of the grommet during installation. **Figure 14.**

Note: Only one grommet is located in an area where it may cause a water leak.

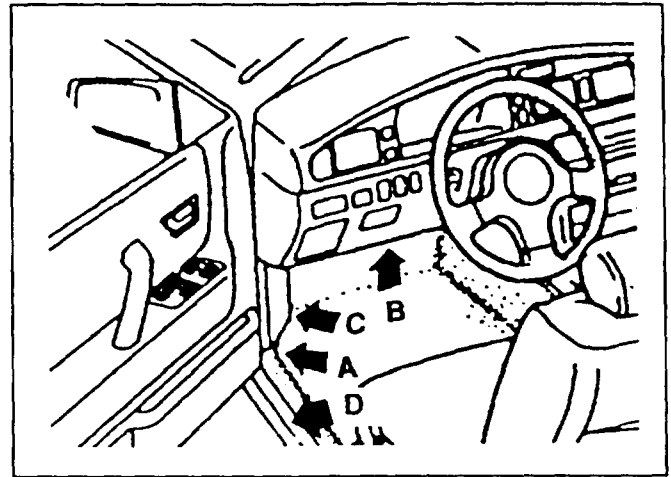


Figure 12: Possible Water Leak Areas

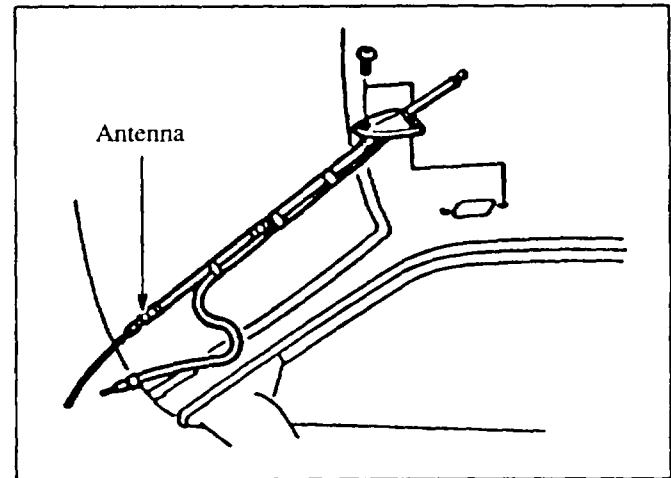


Figure 13: Inspecting Antenna Bezel

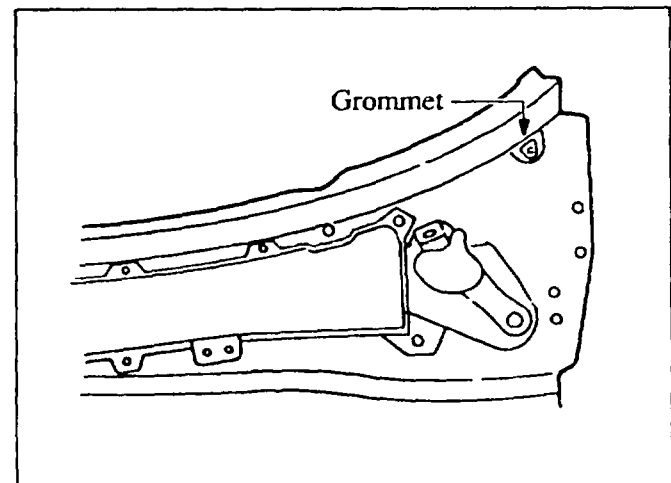


Figure 14: Left Side Grommet

3. If water is leaking from the firewall, check for improperly seated studs, loose grommets, and cross-threaded bolts on the engine side of the firewall.
4. If necessary, remove the studs, clean the threads and reinstall. Remove cross-threaded or high bolts, retap holes and, if necessary, replace bolts. Be sure to apply sealer to the threads before installing the bolts. Finally, replace any loose grommets.
5. Remove the black plastic cowl vent, direct a stream of water at each stud and, if any leaks are found, apply sealer.

AREA C: CORNER OF FIREWALL AND INNER FENDER

1. Lift carpet and pad and feel for water. If water is present, remove windshield wipers and cowl plate. Check for missing sealer or holes along the lower "A" pillar-to-cowl seam. Apply sealer to any suspected areas. **Figure 15.**

Note: This procedure should only be done by experienced body shop personnel.

2. Remove the door jamb nut and bolt, also remove the four (4) upper fender bolts. Using a mechanic's mirror, inspect sealer hidden by the upper fender for skips and pinholes. **Figure 15.**

Note: The illustration shows the fender removed. Complete fender removal is not required.

Caution: Use care when moving fender for inspection and resealing body seams. Do not allow the fender to buckle.

3. Also inspect the antenna bezel molding for correct sealing and mounting as described in the repair section of AREA A (page 7).

AREA D: OVER SILL PLATE

1. While an assistant directs water along the beltline molding, inspect for water entering from over the plastic sill plate. **Figure 16.**
2. If water is entering over the sill plate, remove the door panel and check that the plastic sheeting Butyl sealer is pressed firmly against the door frame. Also, check that no gaps are present between the sheet metal and the plastic.

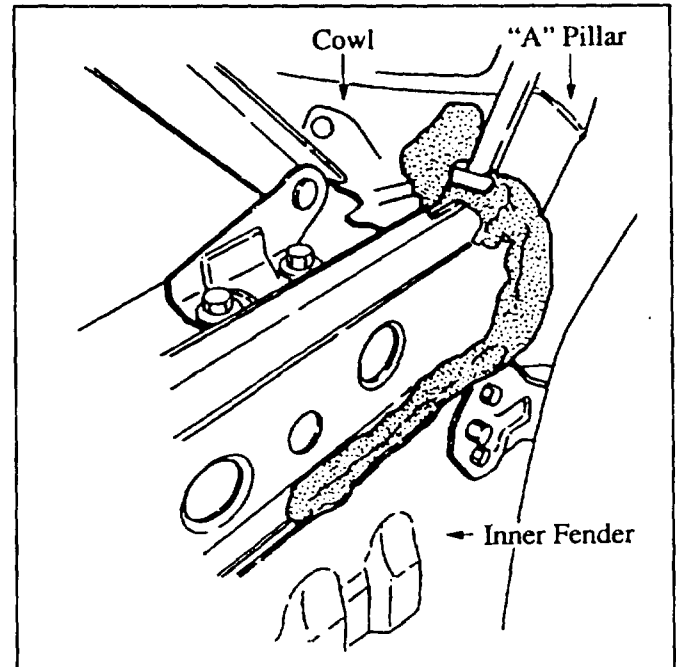


Figure 15: View of Adequate Body Sealer

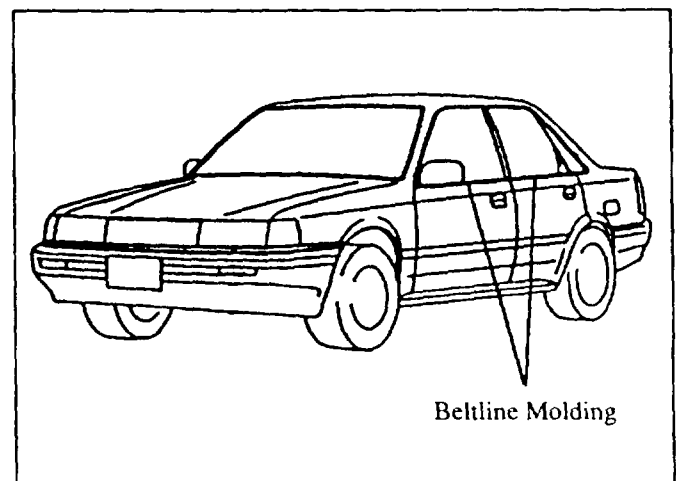


Figure 16: Area of Beltline Molding

3. Confirm that the door drain holes are draining properly and are not obstructed.

Note: If Butyl sealer is hard or non-pliable, new sealer will need to be applied to the plastic sheeting to properly seal water leaking from these areas.

LOCATION III: TRUNK COMPARTMENT AND UNDER REAR SEAT

Location of Water Leak Source

1. At least 12 minutes should be spent during initial hose testing, because the water may have to move through several body seams before being detected.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Carpet, side panels and rear seat bottom may have to be removed to locate the source of the leaks.
4. Lower the rear seat backs. From inside the vehicle, close the door and, using a flashlight, look for water leaks during the hose test.

5. Have an assistant direct the water stream over the entire rear of the vehicle, concentrating on the following areas: **Figure 17.**

- Along the deck lid to body gap.
- Up each "C" pillar and across the upper portion of the rear window.
- Along the key lock cylinder, rear deck lid finisher and combination lamps.
- Along the fuel filler door-to-body gap.

6. Have an assistant direct the water stream over the entire inner wheel well area concentrating on the following areas:

- Inner wheel well-to-quarter panel seam and bumper plug. **Figure 18.**
- Inner wheel well-to-trunk floor pan seam. **Figure 19.**
- Inner wheel well-to-floor pan seam (to check for leakage under the rear seat.)

Note: Direct a heavy stream of water where the rocker panel meets the inner wheel well (to check for leakage into the rocker panel). **Figure 17.**

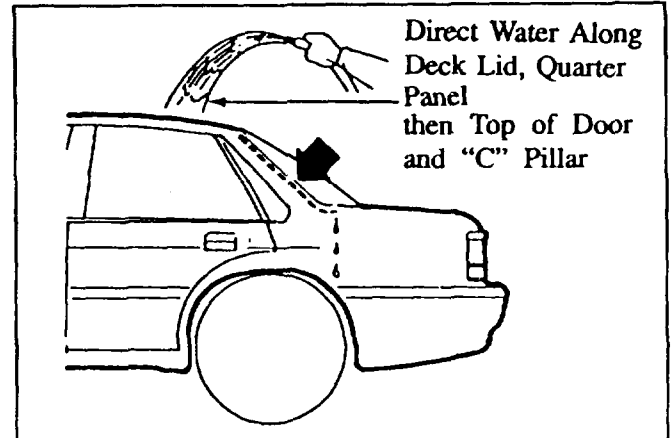


Figure 17: Locating Source of Rear Water Leak

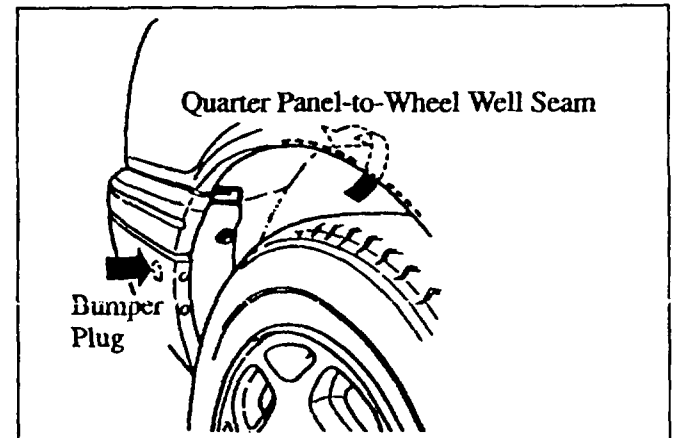


Figure 18: Bumper Plug and Wheel Test Area

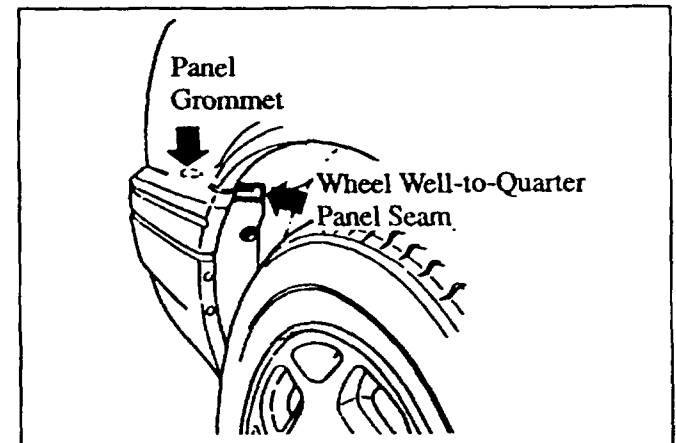


Figure 19: Wheel Well-to-Quarter Panel Seam

7. Note which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 20.**

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA (pages 10 and 11)

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM (pages 11 and 12)

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL (page 12)

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS (page 12)

AREA E: KEY LOCK CYLINDER (page 13)

8. If water is collecting in storage wells, check the drain holes for debris or undercoating.

Note: Do not seal up the drain holes at the bottom of area C.

Repair Procedure

AREA A: INTERIOR TRUNK END PANEL TRIM (PLASTIC) AND/OR TRUNK WEATHERSTRIP - ALSO REAR COMBINATION LAMPS AREA

1. If water is running down over the interior trunk end-panel trim or over/under the trunk weatherstrip, pull up the trunk weatherstrip and check grey sealer material and any body seams near the linkage area. Confirm that grey sealer covers the top of the flange in one solid strip. Check for pin holes, missing sealer or burrs. **Figure 21** and **Figure 22.**
2. If water is located behind the interior trunk end-panel trim or carpet, remove the trim panel. Direct a stream of water at the rear of the vehicle and pinpoint the location of the leak. Check the body seams for any pinholes or missing sealer. **Figure 21.**
3. If pinholes and/or missing sealer are found in step 2, add a non-hardening grey body seam sealer to fill in the empty spots and reinstall the trunk weatherstrip. Make sure the trunk weatherstrip is routed under the latch striker and press it firmly in place. Retest for water leaks.

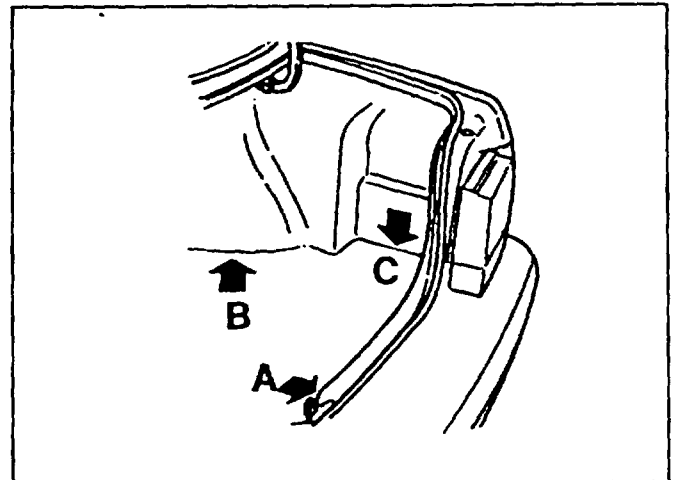


Figure 20: Locating Possible Water Leak Areas

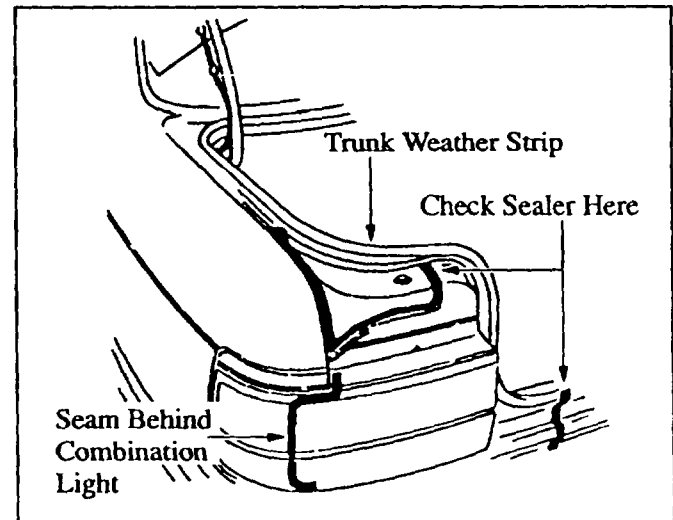


Figure 21: Inspecting Rear Trunk Area

- If the leak is from the combination lamp(s) area, confirm that the mounting studs/nuts are tight and the assemblies are not cracked. Check end panel-to-quarter panel seams for any pinholes or missing sealer. If the leak continues, remove the combination lamp(s) and gasket(s). Install a new gasket to the combination lamp(s). Figure 21.

Note: Before installing the new gasket, apply sealer to both sides of the gasket. Also, confirm body-to-combination lamp surfaces are flush and no burrs are present.

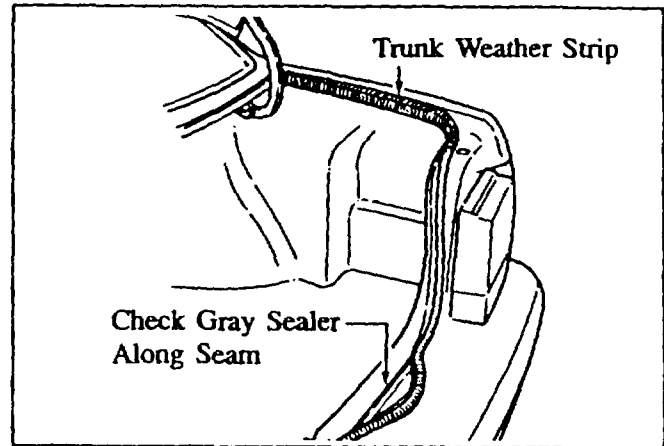


Figure 22: Checking Grey Sealer Under Trunk Weatherstrip

AREA B: INNER WHEEL WELL-TO-TRUNK FLOOR PAN SEAM

- If water leaks into the forward area of the trunk, make sure that the weatherstrip is properly seated and not leaking. Figure 23.
- If no problems are found, check all trunk opening seams and the inner wheel well-to-trunk floor pan seam for missing sealer or pin holes. Seal any suspected areas and retest for leaks. If no problems are found, go to step 3.

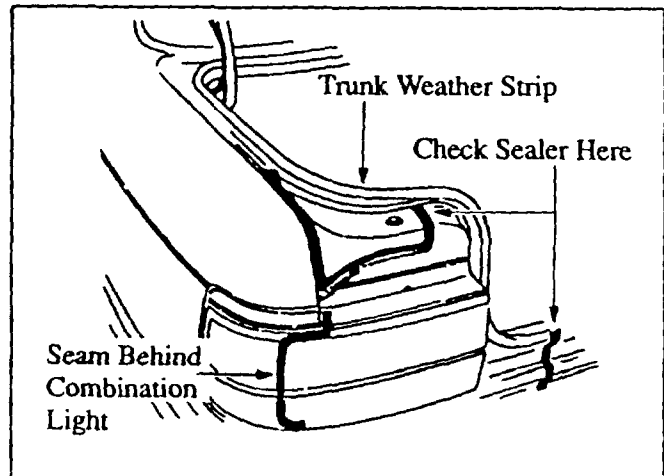


Figure 23: Inspecting Rear Trunk Area

- If necessary, remove the rear shoulder seat belt mounts and inside "C" pillar trim panel(s). Remove the mounting nuts. Next, remove the rear window glass side molding. Figures 24 and 25.

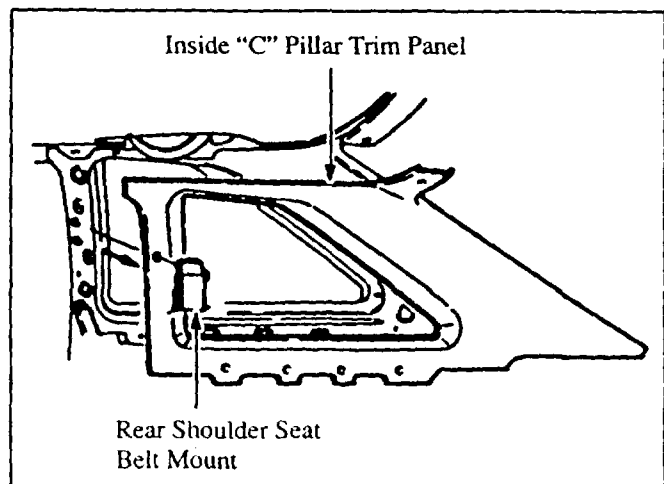


Figure 24: Removing Inside "C" Pillar Trim Panel

4. Check the condition of the rear window sealer in this area. Use a flashlight to find small pinholes. Check extractor side molding mounting hardware for missing or damaged sealer or gaskets. Apply sealer to all mounting points as necessary. **Figure 25.**

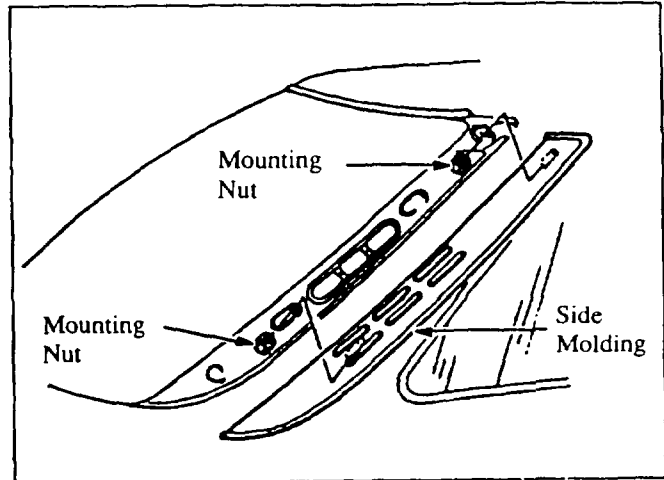


Figure 25: Removing Rear Window Glass Side Molding

AREA C: STORAGE WELLS (RIGHT OR LEFT) BEHIND WHEEL WELL

1. If water is collecting in storage wells, check drain holes for dirt or undercoating.

Note: Do not seal up drain holes at the bottom of the storage wells.

2. Check for any leaks at the grommet and plug between the quarter panel and bumper. Examine seams for missing sealer or pin holes. Seal any suspected defects. **Figures 26 and 27.**
3. Check for any leaks at the fuel filler neck-to-body in the left quarter. If moisture is present, remove the filler neck.
4. Apply sealer to both sides of the gasket and reinstall.

AREA D: INNER WHEEL WELL-TO-FLOOR PAN (UNDER REAR SEAT) AND INSIDE THE ROCKER PANELS

1. Remove rear seat bottom and lift carpet.
2. Check for any leaks due to pin holes or missing sealer along the inner wheel well-to-body seam.
3. Remove the plastic sill plates and confirm that there is no water being retained inside the rocker panel.
4. If water is present, seal the inner wheel well-to-rocker panel seam.

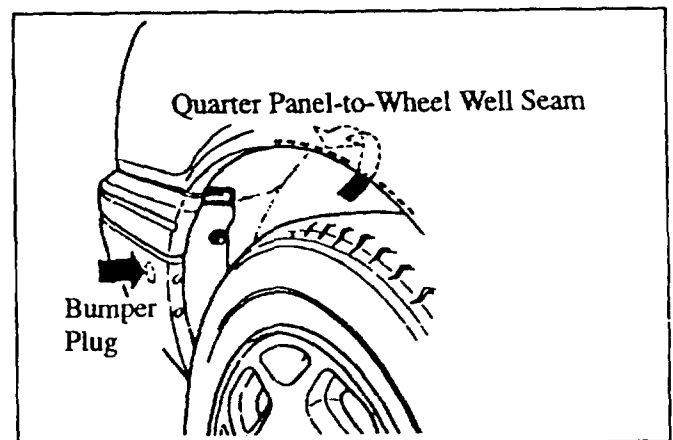


Figure 26: Bumper Plug and Wheel Test Area

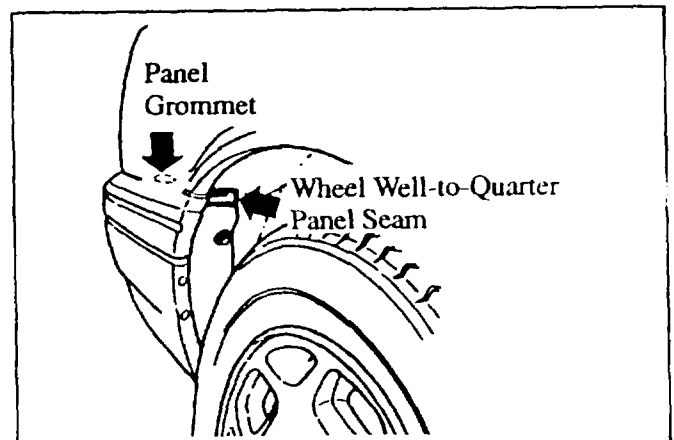


Figure 27: Wheel Well-to-Quarter Panel Seam

AREA E: KEY LOCK CYLINDER

1. If the leak occurs at the key lock cylinder, remove or replace gasket.
2. After installing the gasket, seal around the key lock cylinder-to-deck lid area from the inside with silicone.

LOCATION IV: SUNROOF OR HEADLINER AREA**Location of Water Leak Source**

1. Have an assistant help locate the exact point of water entry.
2. Turn the water pressure to the hose so that a 12" to 18" stream of water is present while the hose is in a vertical position.
3. Make sure the sunroof is completely closed. If necessary, readjust sunroof. (See Workshop Manual Section S.)
4. Run water over the sunroof and note in which area the water enters the vehicle. Refer to the appropriate location's repair procedure. **Figure 28.**

AREA A: FORWARD HEADLINER AREA
(page 13)

AREA B: REAR PASSENGER COMPARTMENT AREA (page 14)

AREA C: REAR HEADLINER OR
SUNROOF SLIDING PANEL
(pages 14 and 15)

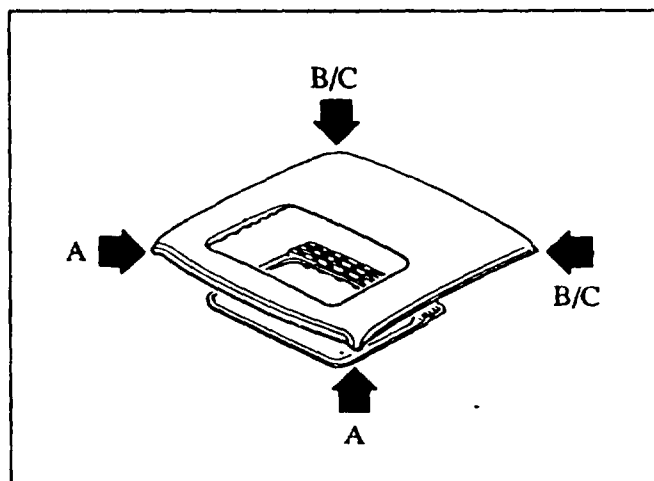


Figure 28: Locating Source of Top Water Leaks

AREA A: FORWARD HEADLINER AREA

1. Open the sunroof and make sure that the sunroof drain tubes are intact and that no holes are present. If welds are damaged or have holes, repair or replace the sunroof frame.
2. If welds and drain tubes are OK, remove the front header and side trim pieces. Remove the headliner retainer clips (2 metal and 1 plastic per side), sunroof welt, and sun visor.
3. Carefully lower the headliner. Using a flashlight, check that the drain hose tubes are attached to the sunroof frame. **Figure 29.**
4. Direct a small stream of water into sunroof drain holes to make sure the drain tubes do not leak. If leaking is present, check for damaged hoses.
5. If the hoses are damaged, install a replacement piece of hose which provides a tight fit to the existing hose. The outside diameter of the replacement hose should be 9.5mm (3/8 in).

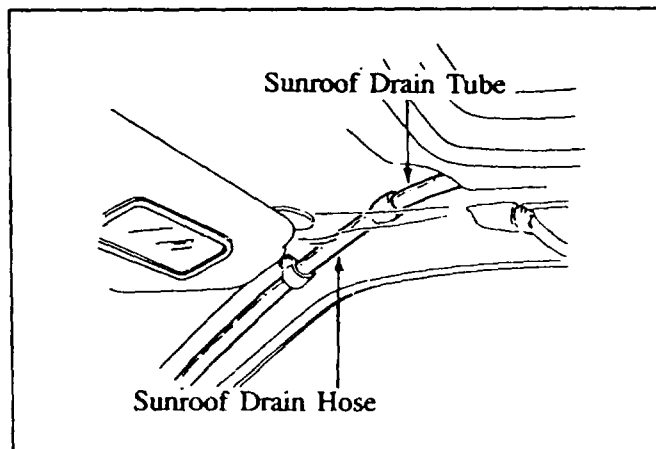


Figure 29: Checking Front Drain Hose and Tube

AREA B: REAR PASSENGER COMPARTMENT AREA

1. Remove rear header trim, rear shoulder mounts, and inside "C" pillar trim panel(s). **Figure 30.**

Hint: Leave lower attaching screws in place and tilt "C" pillar trim back.

Caution: Do not use too much force when pulling on the "C" pillar trim. Permanent damage (white stress marks) may result.

2. Make sure sunroof drain hose grommets are seated. Check that the sunroof drain hose is not kinked and extends through the outer rear side molding.
3. Open the sunroof and, using a squeeze bottle filled with water, pour water down the rear drain holes. Check for signs of leakage at the sunroof drain tube-to-drain hose.
4. If necessary, position the hose so that there are no loops, kinks or pinched areas. Check for kinks at the drain hose clip. Repeat the water test. Make sure that the sunroof drains properly and does not leak. **Figure 31.**
5. If necessary, install a new hose.
6. If hose routing is OK and hose is intact, check for leaks at the rear window.

AREA C: REAR HEADLINER OR SUNROOF SLIDING PANEL

1. Remove the rear header trim, rear shoulder seatbelt mounts, and inside "C" pillar trim panel(s). **Figure 30.**

Hint: Leave lower attaching screws in place and tilt "C" pillar trim back.

Caution: Do not use too much force when pulling on the "C" pillar trim. Permanent damage (white stress marks) may result.

2. Remove headliner retaining clips (1 plastic and 3 metal per side.)

Caution: Do not remove the 2 center plastic retaining clips.

3. Make sure that the drain hose routing is correct. Check for damage along the drain hoses by pulling down the headliner.

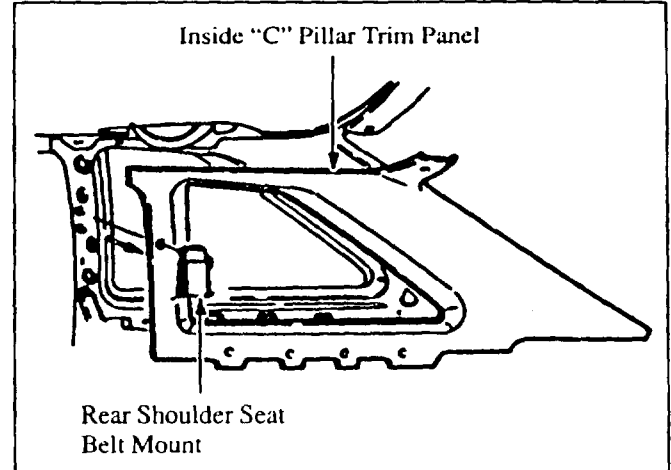


Figure 30: Removing Inside "C" Pillar Trim Panel

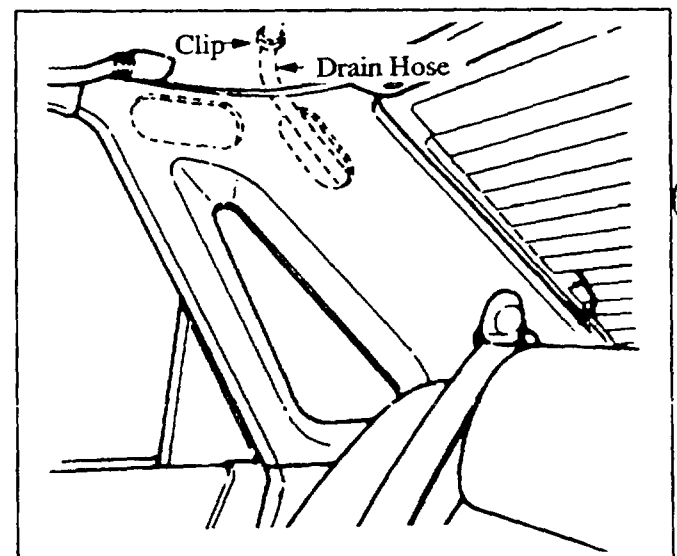


Figure 31: Rear Sunroof Drain Hose

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4. Check that the drain hoses are attached to the sunroof drain tubes. Replace hose(s) as necessary. Check for kinks at the drain hose clip. **Figure 31.**

Caution: Use care when pulling the headliner down. If it is pulled too far, the headliner will be permanently detached from the hidden bracket.

5. Check if welds around the rear sunroof drain tubes are intact and drain properly. With the sunroof closed, direct water over the sunroof and check for leaks at the drain tubes. If the welds are damaged or have holes, repair or replace the sunroof frame.

WARRANTY INFORMATION

Warranty Type Code: A
 Customer Comment Code: 6D
 Damage Code: 38
 Part No. of Main Cause: 5555 WA 0010
 Operation No.: See Chart Below
 Labor Hours: See Chart Below
 Location Code: Applicable location code necessary. Codes found in SRT microfiche or Warranty Policies and Procedures Manual.

PROCEDURE	OPERATION NUMBER	LABOR HOURS
Water Testing	YY0064RX	0.5
Repair of Right Front Side of Passenger Compartment	YY0033RX	Not to exceed 0.9
Repair of Left Front Side of Passenger Compartment	YY0034RX	Not to exceed 0.9
Repair of Trunk Compartment and Under Rear Seat	YY0035RX	Not to exceed 0.9
Repair of Sunroof or Headliner Area	YY0036RX	Not to exceed 0.9

Note:

- Water testing and labor hours for each area are not to exceed four (4) entries.
- Enter each area of water entry as a separate problem. Each problem should have a different location code.
- Subsequent repairs to the same area will be denied.

Service Bulletin

Not coded

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714)727-1990



Category S	Applicable Model/s 1988-'91 626/MX-6	Subject WIND NOISE	Bulletin No. 036/92
			Issued 7/7/92
			Revised

DESCRIPTION

On some 1988-'91 626/MX-6 models, wind noise may be heard when driving more than 40 miles per hour. This wind noise occurs when air leaks into or out of the vehicle while driving or when air travels across an unsealed body surface.

The repair procedures contained in this bulletin replace all other procedures previously released.

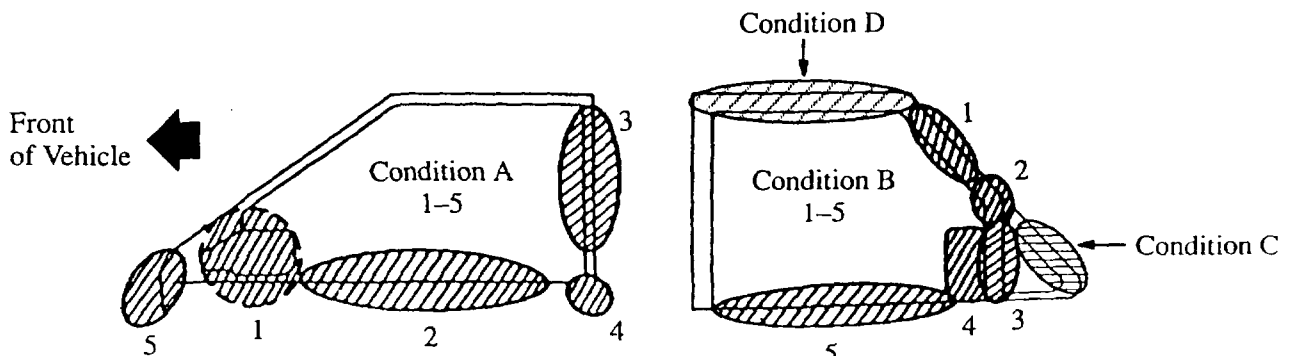
INSPECTION AND REPAIR PROCEDURE

Inspect the vehicle for installation of previous repair kits. If modifications have been made, verify location of wind noise. If noise is still present, inspect installation quality.

Verify location of complaint.

The illustration below shows the general areas where wind noise may occur (A-D). Specific locations of wind noise are shown numerically.

- A) Wind noise at front door area during high speed (above 40 mph) driving (pages 2 through 7).
- B) Wind noise at rear door area (pages 8 through 11).
- C) Wind noise/fluttering noise at rear corner window area (pages 11 and 12).
- D) Wind noise from front and rear door area due to window drop (page 13).



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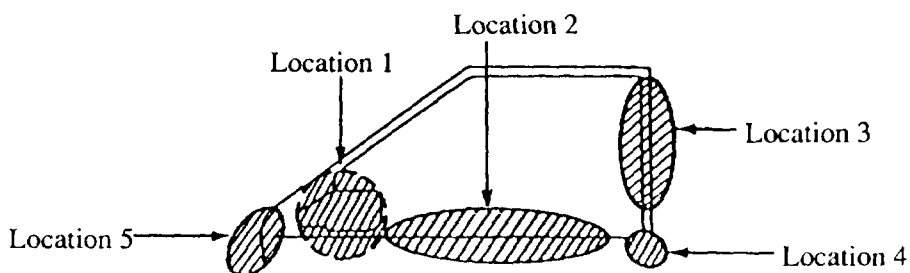
IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

NOTE:

Repair parts for this bulletin are available as a kit. For the 1988 and 1989 models, install all items in the kit. For the 1990 and 1991 models, carry out only the door mirror, rear quarter window, corner bracket, and glass guide rail operations.

Condition A: Wind noise at front door area during high speed (above 40 mph) driving**LOCATION 1 (DOOR MIRRORS)(ALL MODELS/YEARS)****Manual and Power Mirrors**

1. Using a flat screwdriver, carefully pry the inner sail garnish out of its position. (Start prying at the top corner of the sail garnish then work downward.)

CAUTION:

Take care not to break the fastening tab at the bottom of the sail garnish.

2. Remove mirror and install corner bracket.
3. Install Pad 1 on the side of the base. **Figure 1.**
4. Install Pad 2 on lower side of base. **Figure 1.**
5. Install Pad 3 (triangular pad) as shown. **Figure 1.**

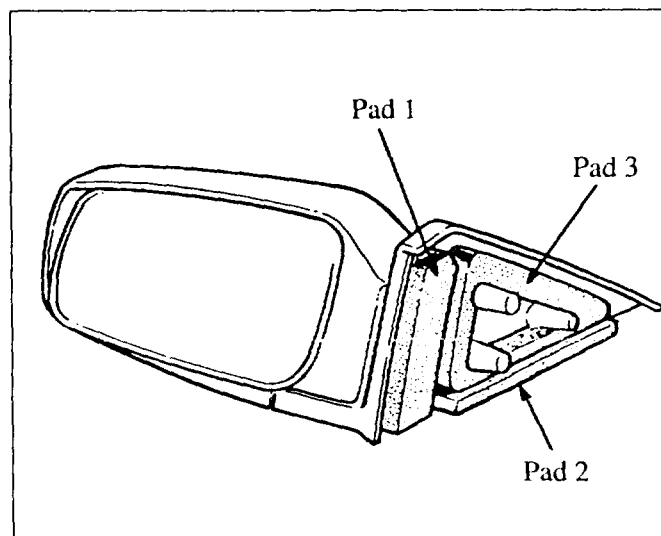


Figure 1: Door Mirror

Power Mirrors Only

6. Add respective (right and left) seal rubber to the mirror. **Figure 2.**

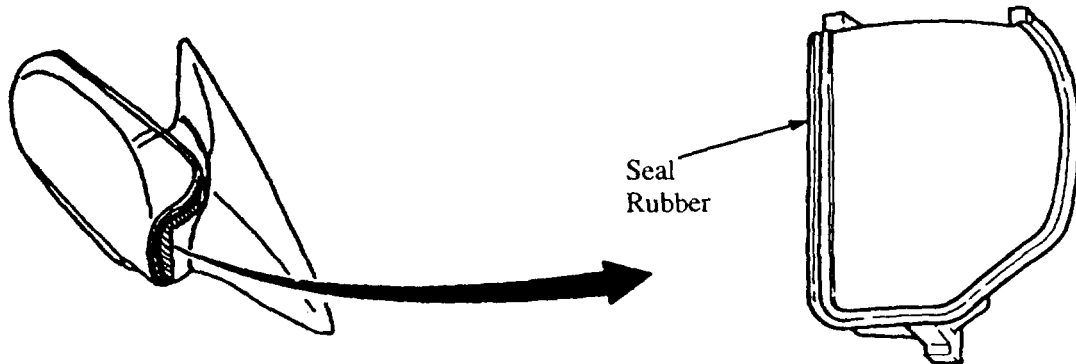


Figure 2: Power Door Mirror

Manual Mirrors Only

7. Add respective (right and lip) seal rubber to the mirror base. **Figure 3.**

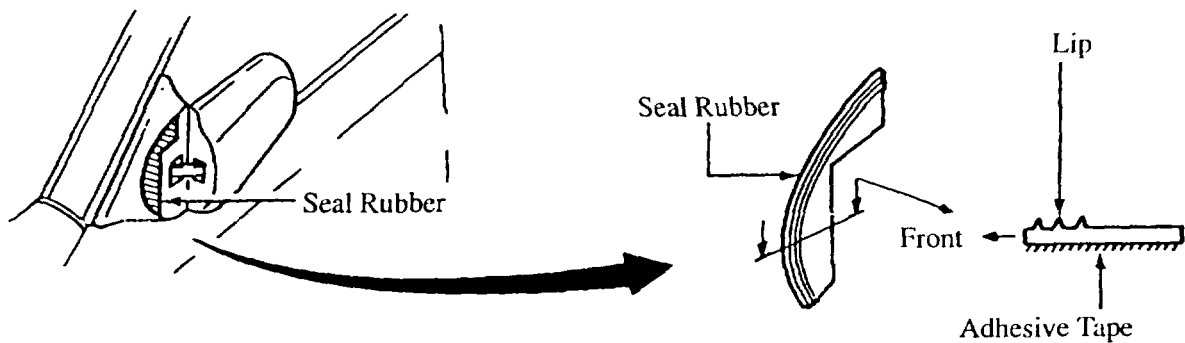


Figure 3: Door Mirror

Manual and Power Mirrors

8. Reinstall mirror.

LOCATION 2 (GLASS INNER WEATHERSTRIP-ALL DOORS)(1988-'89 MODELS ONLY)

1. Lower window all the way.
2. Remove door trim.
3. Replace glass inner weatherstrip with new strip. **Figure 4.**

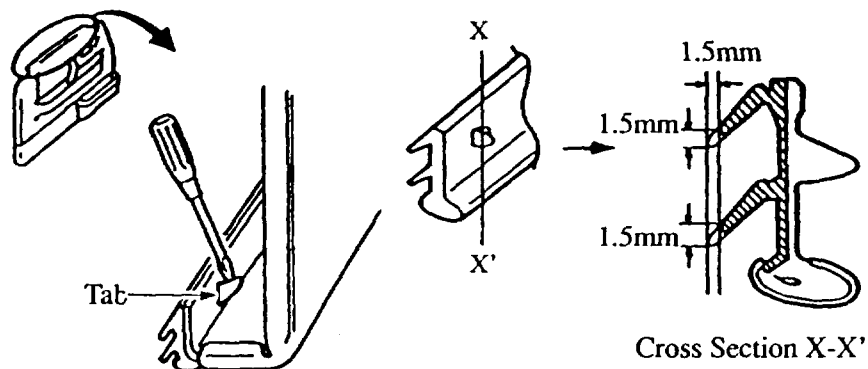


Figure 4: Top of inner door panel.

LOCATION 3 (GLASS RUN CHANNEL-FRONT DOOR)(1988-'89 MODELS ONLY)

1. Lower window all the way.
2. Pull back the glass run channel. **Figure 5.**
3. Attach the pad strip to the back of the glass run channel from the circled area.

Pad size:
 Length - 400 mm
 Thickness - 2 mm
 Width - 10 mm

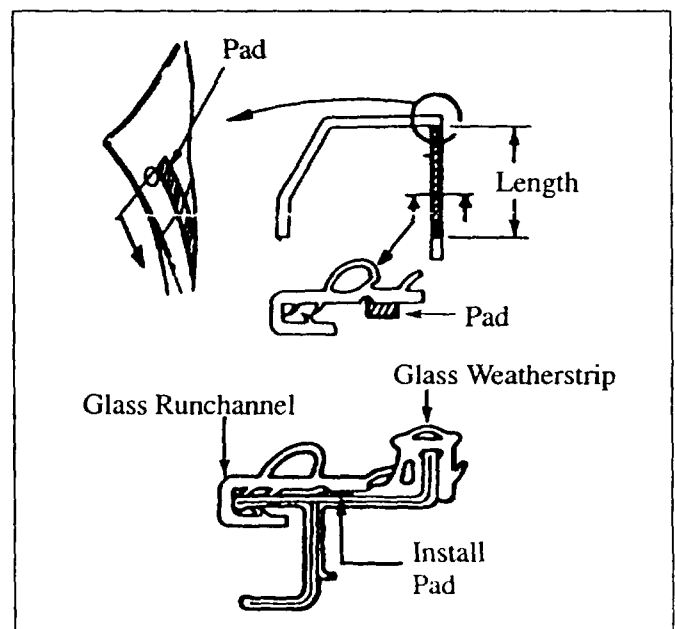


Figure 5: Front Door

LOCATION 4 (GLASS GUIDE RAIL)(ALL MODELS/YEARS)

1. Remove the 3 screws which secure the glass guide rail and remove the door inner trim panel. **Figure 6.**

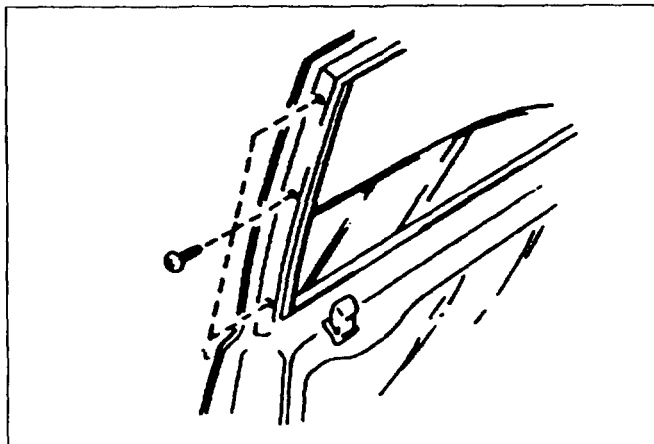


Figure 6: Rear of front door

2. Lower the window glass to about 4" showing. Pull the glass guide rail toward the inside of the window frame and up. Move the window glass toward the front of the vehicle. **Figure 7.**

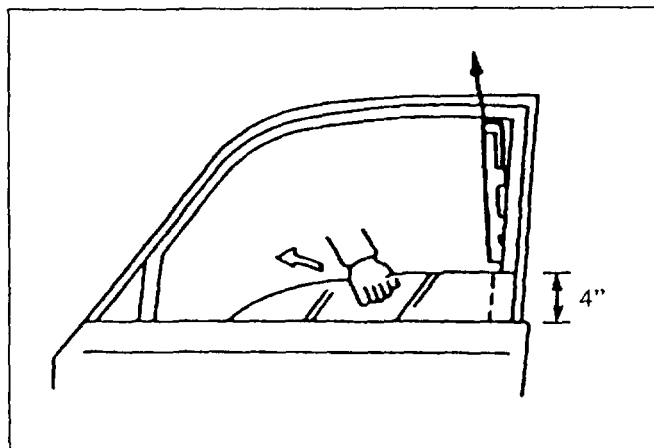


Figure 7: Front door

3. Remove the original glass guide rail pad and replace it with a new one. **Figure 8.**
 - A) Install the new glass guide rail pad so that the top of the pad is 30 mm from the bottom of the guide rail. **Figure 9.**

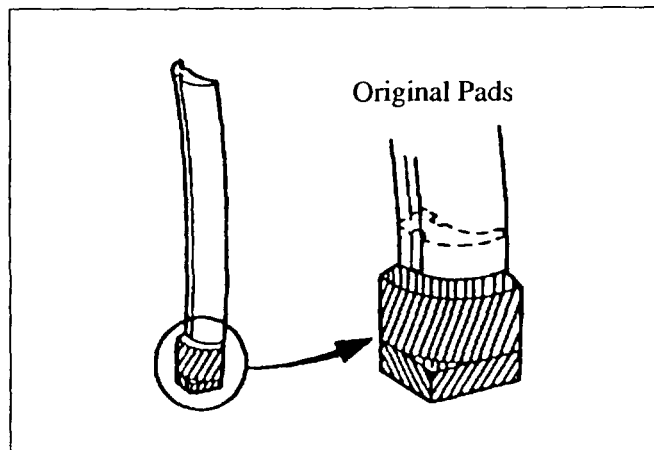


Figure 8: Original glass guide rail pad

B) The remaining length of the pad (10 mm) should be pinched so that the sides stick together. **Figure 9.**

- Reinstall the glass guide rail and door inner trim panel.

CAUTION:

For ease of installation, door glass must be up approximately 4 inches.

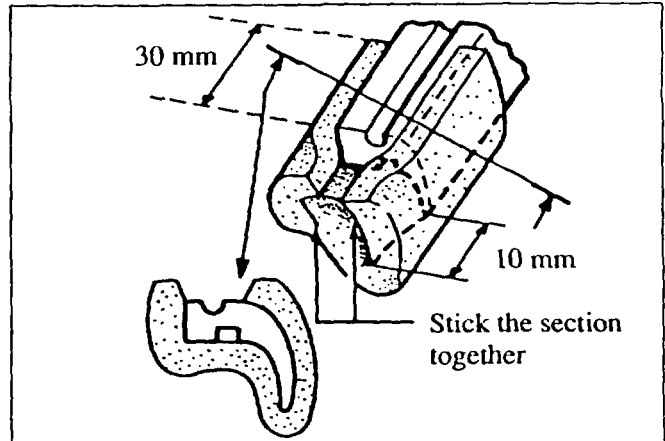


Figure 9: New glass guide rail pad

LOCATION 5 ("A" PILLAR AREA)(1988-'89)

4 and 5-door models

- Open the front door and remove the mounting screw from the lower side of the drip molding. **Figure 10.**

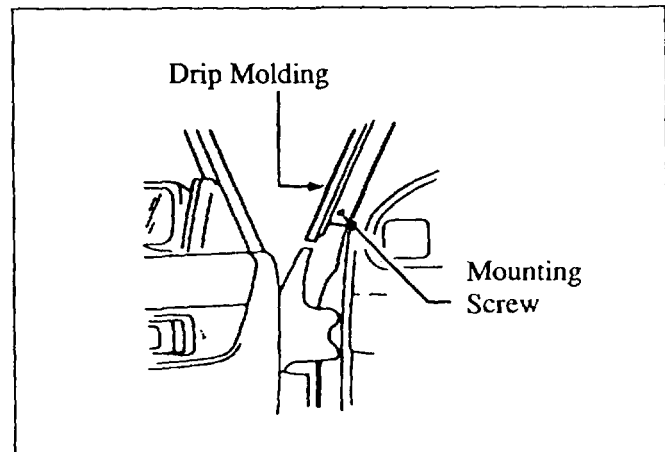


Figure 10: "A" pillar area

- Remove the original screw boss from the pillar and discard.
- Install a protector between the drip molding and the "A" pillar. **Figure 11.**

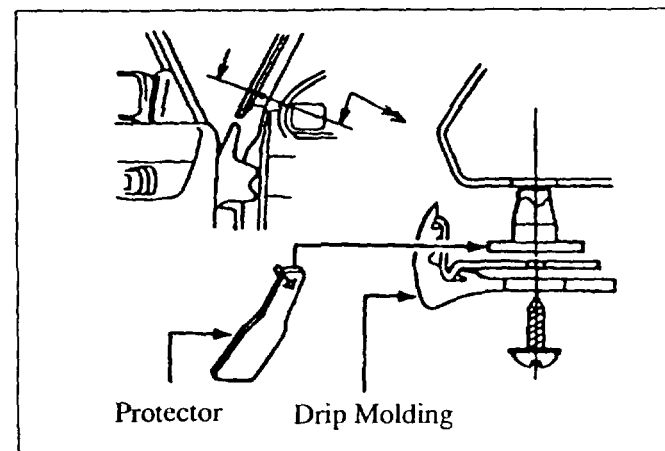


Figure 11: "A" pillar area

- Reinstall the mounting screw and insert the protector inside the front fender cavity. **Figure 12.**

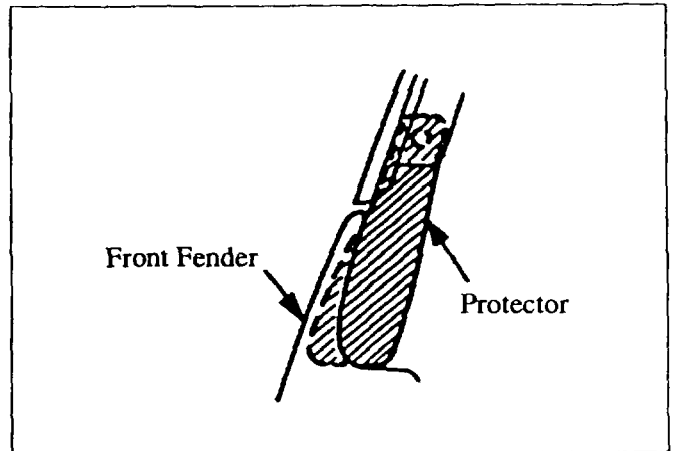


Figure 12: Base of "A" pillar

MX-6

- Cut the boss off of the protector. **Figure 13.**

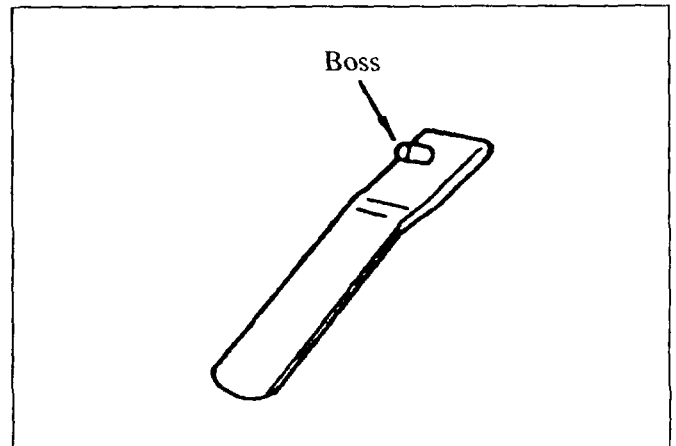


Figure 13: Protector

- Glue the protector to the drip molding. **Figure 14.**
- Insert protector into fender cavity. **Figure 14.**

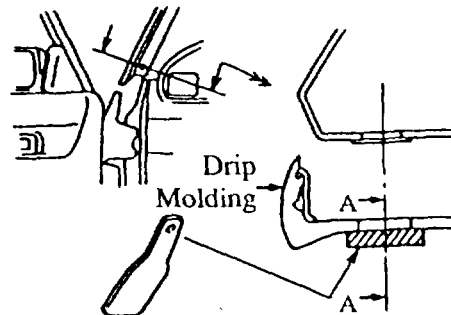
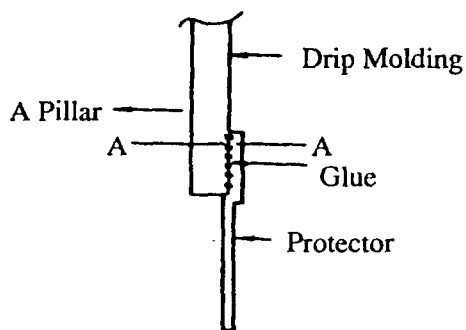
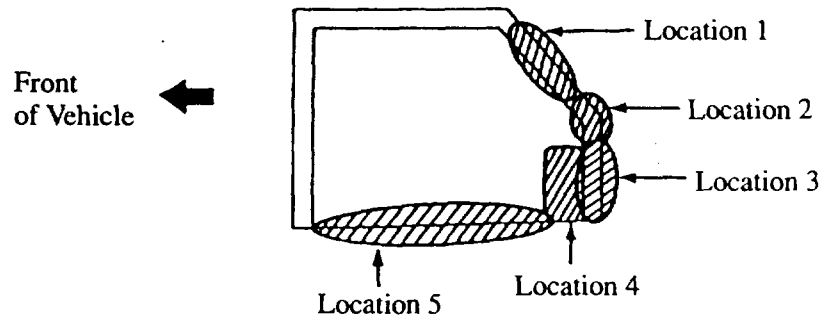
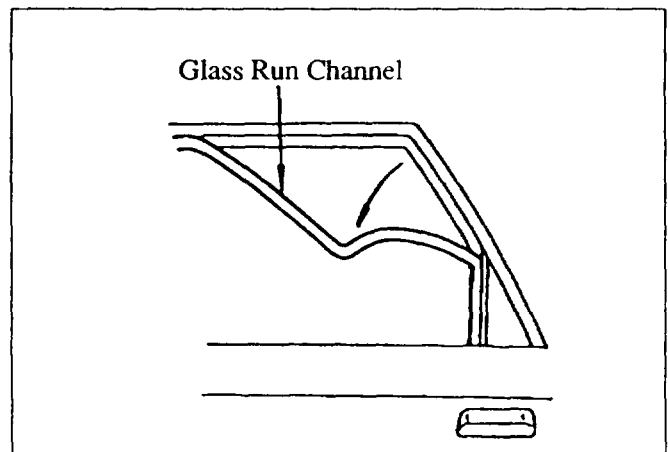


Figure 14: Front of "A" pillar area

Condition B: Wind noise at rear door area. (1988-'89 models only)**LOCATION 1 (TOP REAR OF WINDOWS)**

1. Lower window all the way.
2. Pull off the rear corner section of the glass run channel. **Figure 15.**

**Figure 15: Rear door**

3. Fold up the glass weatherstrip and install a pad as indicated by the circle in Figure 16.

Pad size:

Length

D 4-Door Sedan - 257 mm

D 5-Door Hatchback - 286 mm

Thickness - 3mm

Width - 5 mm

4. Reinstall the glass run channel.

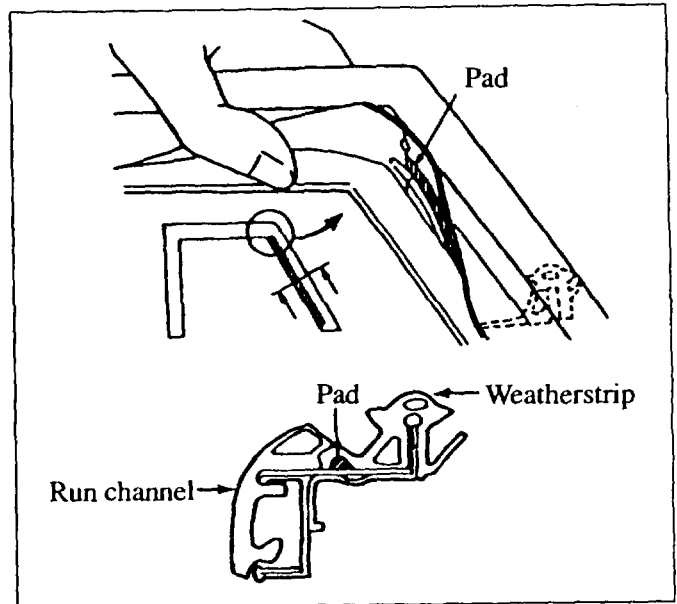


Figure 16: Top of rear door

LOCATION 2 (MIDDLE REAR OF WINDOWS)

Install a pad on the reverse side of the corner lip (circled area) to improve the sealing effectiveness. Figure 17.

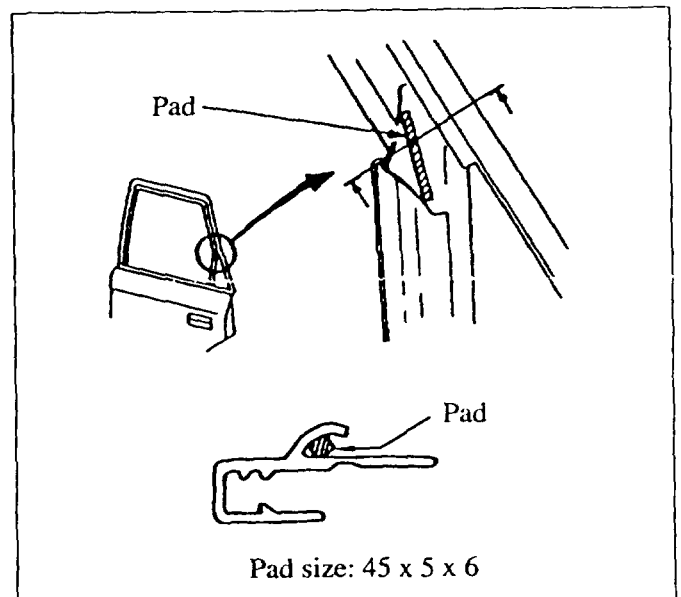


Figure 17: Rear of rear door

LOCATION 3 (REAR OF WINDOWS)

Fold the glass run channel and install a pad in area indicated by the circle. **Figures 18 and 19.**

Pad size:

- Length (4 and 5-door) - 200 mm
- Thickness - 2 mm
- Width - 10 mm

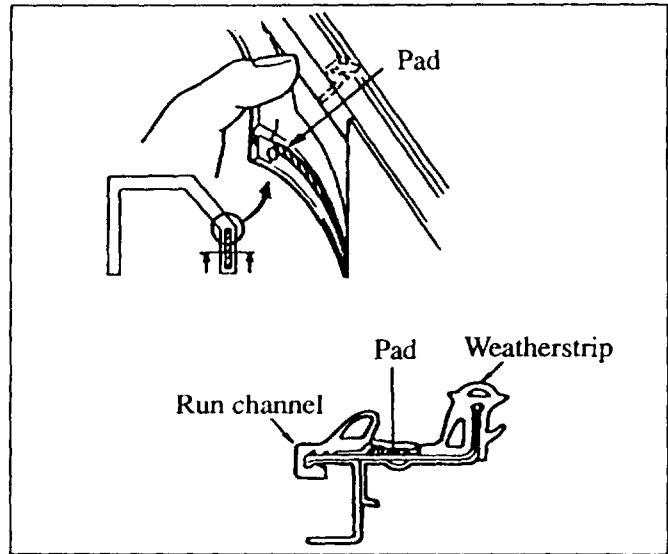


Figure 18: Rear top of rear door

LOCATION 4 (SAIL GARNISH)

Using a flat screwdriver, remove the inner sail garnish by prying it out and installing a new level inner sail garnish. **Figure 20.**

NOTE:

Using a flat screwdriver, pry sail garnish out of its location. Start from the lower rear corner and work forward. Also, be careful not to damage the paint on the surrounding area. **Figure 20.**

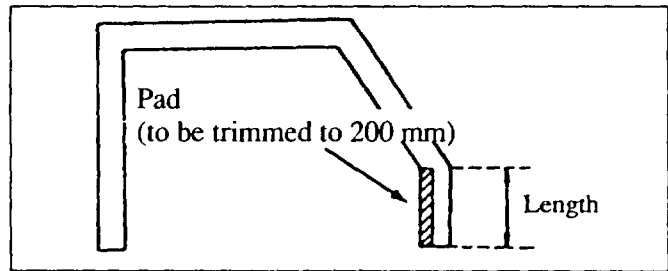


Figure 19: Sail garnish area

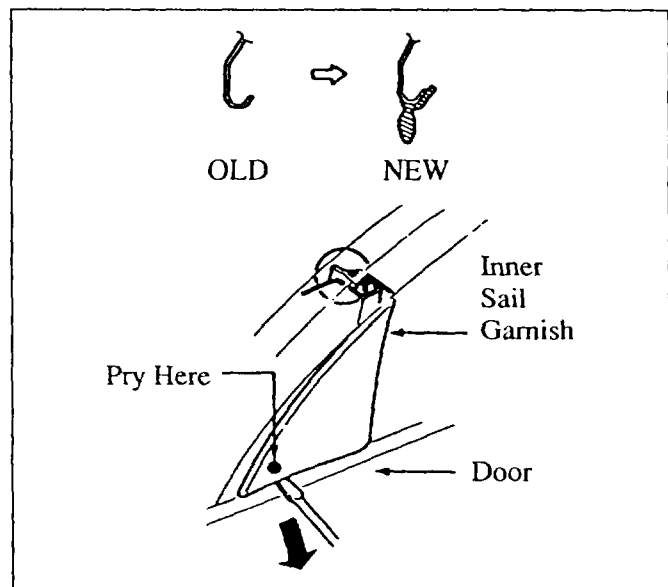


Figure 20: Sail garnish

LOCATION 5 (REAR GLASS WEATHERSTRIP)

Perform rear door weatherstrip improvements following the same steps as used on the front door.
(Condition A, Location 2)

Condition C: Wind noise/fluttering noise at rear corner window area**1988-'91 2-Door Coupe**

1. Prepare a tube of silicone sealer as shown.
Figure 21.

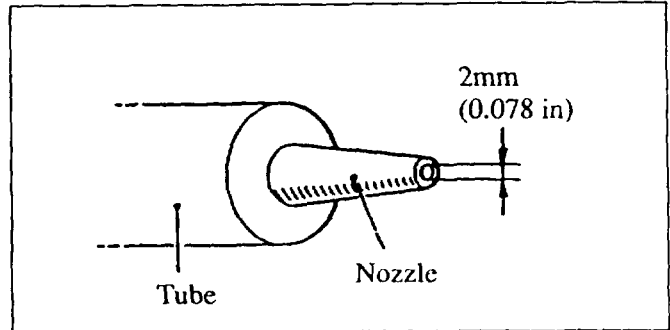


Figure 21: Tube of silicone sealer.

2. Clean the rear quarter window glass and apply silicone between the glass and the garnish.
Figure 22.
3. Using a spatula, push the silicone into the area between the glass and garnish.

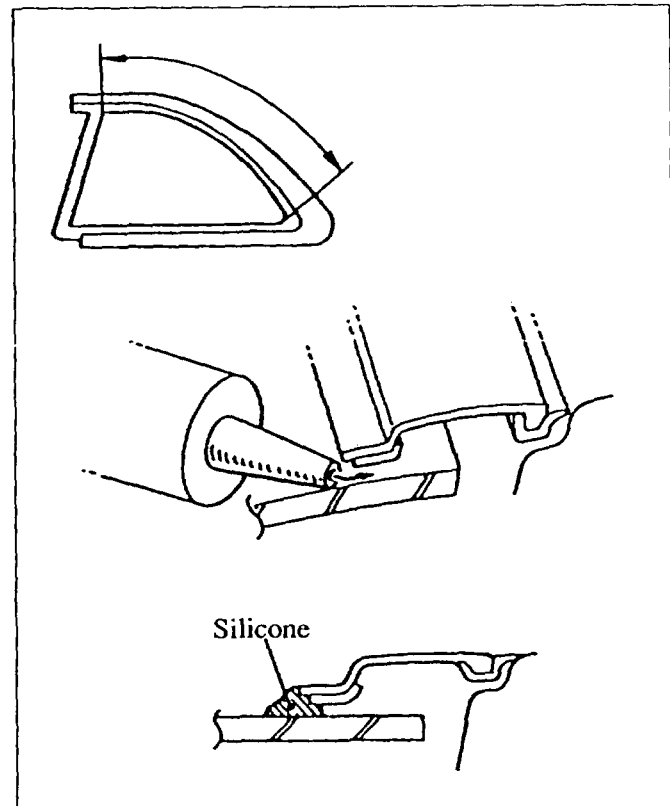


Figure 22: Rear quarter window glass

4. Remove all protruding silicone. **Figure 23.**

NOTE:

Silicone will cure and become hard in approximately 24 hours.

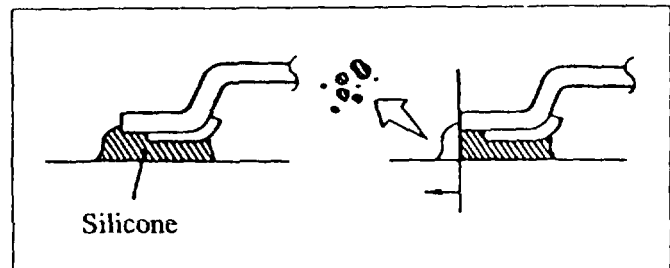


Figure 23: *Excess silicone removal area*

1988-'91 4-Door Sedan

1. Take out the garnish and glass removing any remaining sponge tape around them.
2. Clean the above mentioned area with alcohol or degreaser to remove grease and oil.
3. Apply the primer to the glass. Allow the primer to dry for approximately 10 minutes.
4. Adhere double-coated tape to the garnish (in the previously taped area). **Figure 24.**

NOTE:

When adhering the double-coated tape, set the tape beforehand to make sure the tape is positioned correctly.

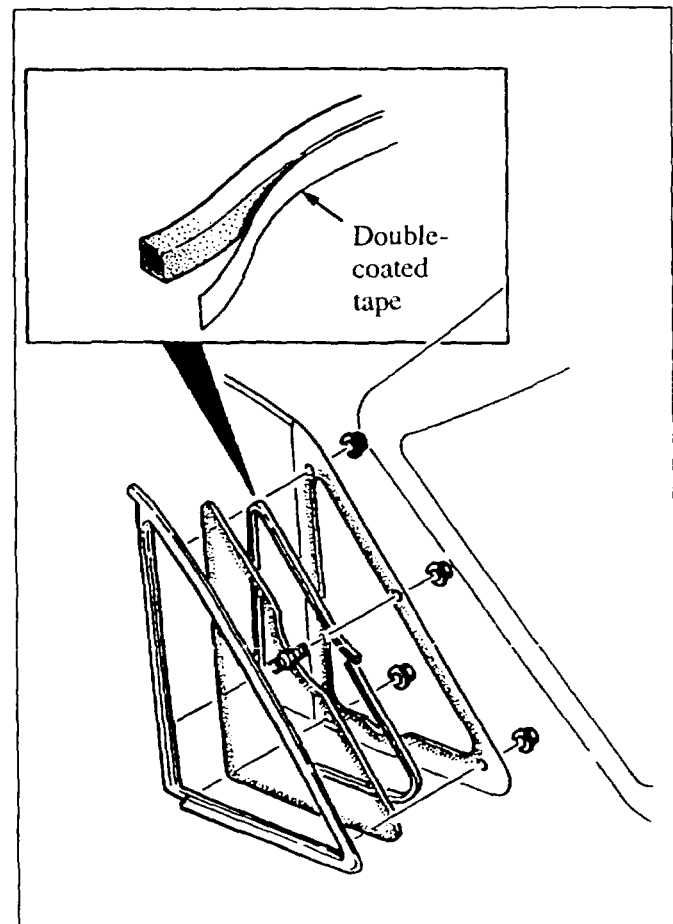
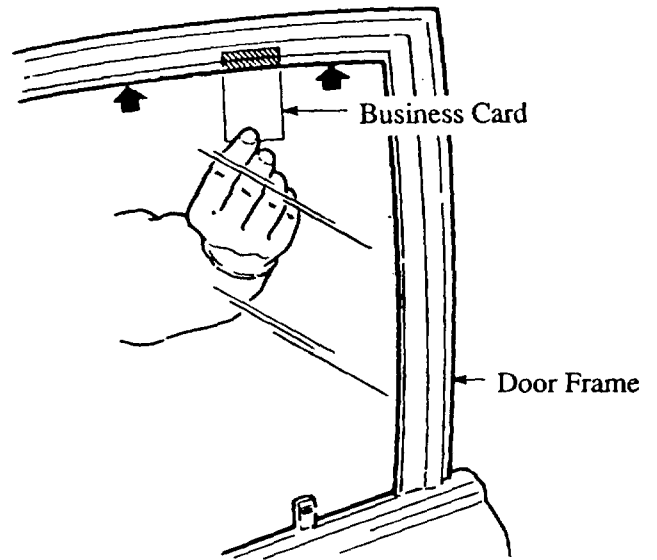


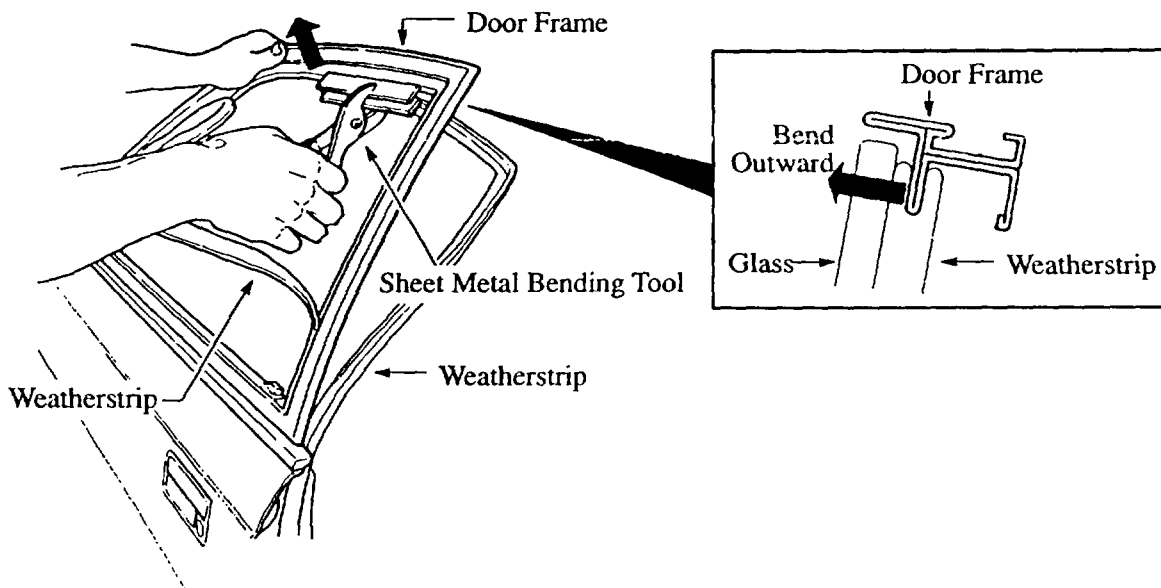
Figure 24: *Rear quarter garnish area*

Condition D: Door Glass Drop

1. Use a business card as you would a feeler gauge to check for looseness (gaps) between the door glass and weatherstrip. The weatherstrip should press firmly against the glass around the entire door frame. Areas that do not form a tight seal between the glass and weatherstrip may allow the glass to drop thereby causing air leaks.
2. With the window in the down position, remove the following parts according to Workshop Manual procedures section S:
 - a) Black Plastic Inner Sail Garnish
 - b) Window Frame Weatherstrip
3. Remove the weatherstrip to access the glass run channel frame.
4. Carefully bend the weatherstrip frame slightly outward (1/16") to increase the pressure of the weatherstrip against the glass. Use a sheet metal bending tool (Snap-on P/N VP8R or equivalent).

**NOTE:**

Protect the painted surface of the vehicle by wrapping the metal bending tool with cloth or foam.



5. Install removed parts in the reverse order of removal.
6. Recheck the weatherstrip using the business card insertion technique.

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PARTS INFORMATION

PART NUMBER	DESCRIPTION
GR45 75 750	MX-6 Repair Kit
GR11 75 750	4 & 5-door Repair Kit

WARRANTY INFORMATION

(Applies to vehicles covered under warranty.)

Warranty Type Code: A
Customer Comment Code: 6C
Damage Code: 99
Part No. of Main Cause: Part No. of Repair Kit (see Parts Information above)
Operation No: See charts below.
Labor Hours: See charts below.

1. 4-door Sedan and 5-door Hatchback

CONDITION	REPAIR	OPERATION NO.	LABOR HOURS
A	Wind noise at front door area during high speed driving	XX0312RX	1.2
B	Wind noise at rear door area	XX0274RX	0.5
C	Wind noise/fluttering noise at rear corner window area	XX0252RX	0.3
D	A+B+C	XX0311RX	2.0

2. MX-6

CONDITION	REPAIR	OPERATION NO.	LABOR HOURS
A	Wind noise at front door area during high speed driving	XX0312RX	1.2
B	Wind noise/fluttering noise at rear corner window area	XX0252RX	0.3
C	A+B	XX0309RX	1.5

TJA

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category S	Applicable Model/s 1988-'91 626/MX-6	Subject POWER DOOR LOCKS MALFUNCTION	Bulletin No. 018/91
			Issued 11/22/91
			Revised

DESCRIPTION

A driver's side door lock that does not lock or unlock the remaining doors may have a damaged circuit in the door lock switch.

Modified switches have been installed in production vehicles starting June 3, 1991 (Hofu production) and June 25, 1991 (Flat Rock production). **These modified switches are not interchangeable** with switches on vehicles produced prior to June 3rd and June 25th respectively.

Vehicles produced prior to June 3rd and June 25th that experience this driver door lock problem, should have switches replaced with the original switch. The replacement switch must be water-proofed to prevent problem reoccurrence. See Repair Procedure for instructions.

VIN OF PRODUCTION CHANGE

Japan Made - 626/MX-6	JM1GD◆◆◆◆M1917355	June 3, 1991
USA Made - 626	1YVGD22B8M5186161	June 25, 1991

REPAIR PROCEDURE

1. Inspect switch. See Section 14 or S of the Workshop Manual.
2. If necessary, replace the driver's door lock switch. See Workshop Manual for replacement procedures. **Figure 1.**

NOTE:
The modified parts are not interchangeable with the original parts. Refer to the VIN and Parts Information for correct model-to-parts application.

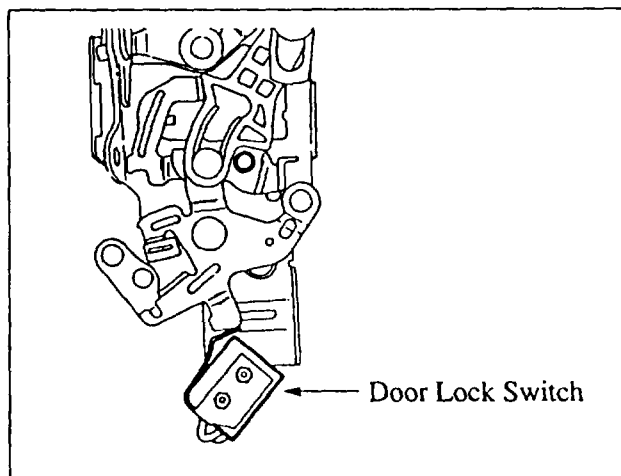


Figure 1: Power Door Lock Switch
(Driver's Door)

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

.....
Service Manager

Parts Manager

Index # **025896**

- Using Three-Bond Synthetic Rubber-Type Adhesive (1521) or equivalent (silicon sealer), apply adhesive around the attaching nuts. **Figure 2.**
- Allow adhesive to dry for about 10 minutes. Install the door lock mechanism and the door panel.

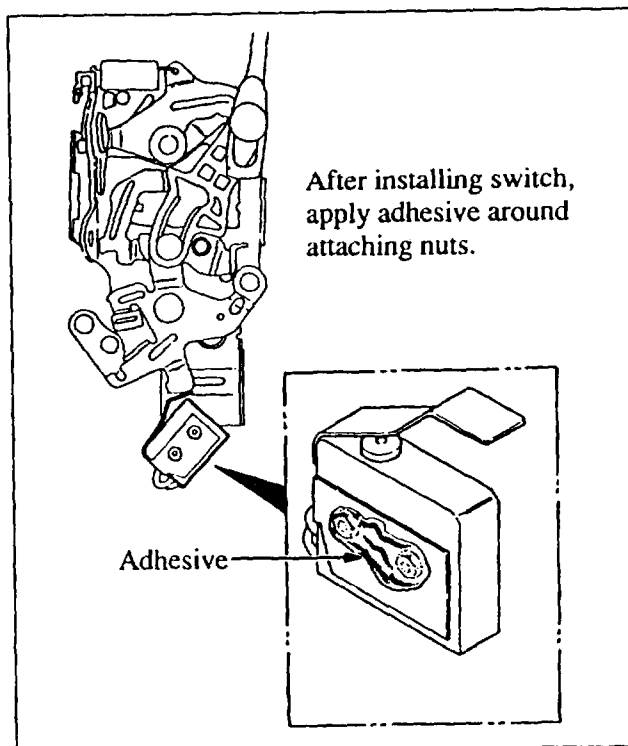


Figure 2: Applying Adhesive to Switch

PARTS INFORMATION

PART NUMBER		DESCRIPTION	QTY	APPLICABLE MODEL
MODIFIED	ORIGINAL			
G212 58 312A (Vehicles produced on or after June 3rd)	G212 58 312 (Vehicles produced prior to June 3rd)	Left Front Door Lock Switch	1	1988-'91 626
GJ24 58 312A (Vehicles produced on or after June 25th)	GJ24 58 312 (Vehicles produced prior to June 25th)	Left Front Door Lock Switch	1	1988-'91 MX-6

WARRANTY INFORMATION

Warranty Type Code: A
 Customer Comment Code: 41 or 42
 Damage Code: 93
 Quantity: 1
 Part No. of Main Cause: G212 58 312A or GJ24 58 312A
 Operation No: S1007XRX
 Labor Hours: 0.4 Hr.

Category S (09)	Applicable Model/s SEE BELOW	Subject WIND NOISE AROUND DOORS	Bulletin No. 018/98 Issued 07/29/98 Revised
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APPLICABLE MODEL(S)/VINS

All models except Miata and MX-6.

DESCRIPTION

Wind noise around doors may occur with some vehicles. This may be caused by the door weather-strip seal.

Customers complaining of this should have their vehicle inspected and repaired according to this service bulletin.

REPAIR PROCEDURE

1. Verify customer complaint.
2. Examine weather-strip for the following conditions:
 - Rips, tears, cuts
 - Loose or falling off
 - Excessive deterioration
 - If the weather-strip has any of the above conditions, replace it. Go to step 3.
 - If weather-strip does not have any of the above conditions, but wind noise still exists, proceed to the "Card Test" below.

Card Test

- A. Open the door and insert a business card (0.2MM thickness) between the door and the weather-strip at the base of the A-pillar. Close the door.
- B. Slide the business card up along the A-pillar.
 - If the card slides easily at any location along the A-pillar, the sealing contact between the door is insufficient and requires adjustment. Proceed to "DOOR ADJUSTMENT".
 - If there is consistent resistance, proceed to the "White Grease Test".

Note

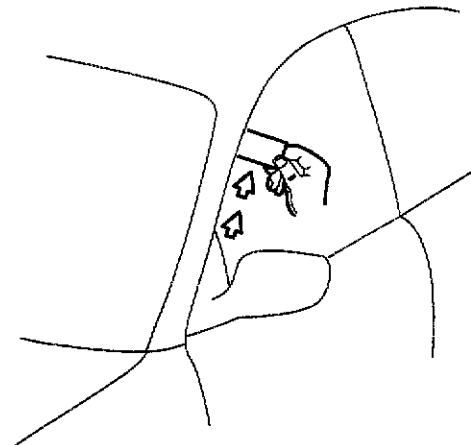
- The card test can only be used to evaluate the A-pillar sealing contact. Use the following "White Grease Test" to evaluate the rest of the weather-strip.

White Grease Test

- A. Roll down windows and adequately cover all interior surfaces to prevent contact with grease.
- B. Thoroughly and evenly spray the sheet metal surface of the body that seals against the weather-strip on the door.

Note

- It is recommended that you use KAR Products #78620 "Multi-purpose white grease (aerosol spray)" or equivalent.
- Do not spray the weather-strip.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

- C. Using only the door handle, very gently close the door. This will prevent over-slam which could result in an inaccurate reading.
- D. Open the door and measure the width of the grease pattern that is left along the length of the weather-strip (check for any unevenness in width).
- If 4mm or more, sealing contact is adequate if door closing effort is acceptable. Clean grease from vehicle.
 - If 3mm or less, sealing contact is insufficient. Clean grease from vehicle and proceed to "DOOR ADJUSTMENT".

Door Adjustment

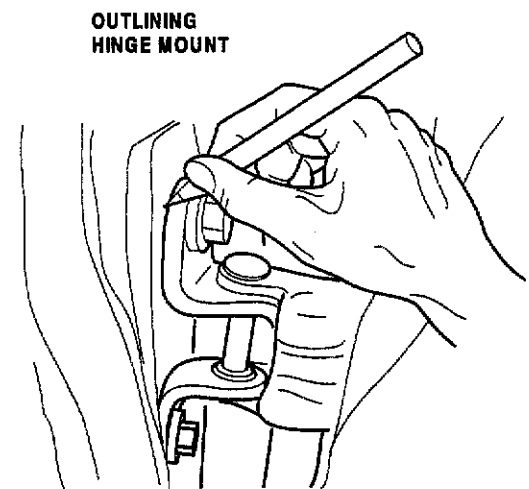
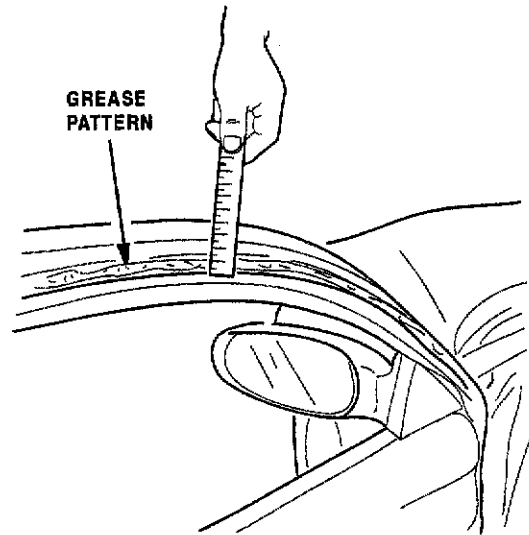
The door should be adjusted to obtain the proper seal compression while maintaining proper door alignment. The hinges control the in/out location of the door at the front as well as overall tip or tilt of the door when viewed from the front or rear. The door striker controls the in/out location of the door at the rear latch.

Caution

- **Do not pry or force the door into alignment.**

In addition to Workshop Manual procedures for door alignment, the following information tips are provided

- As a guideline, if the weather-strip contact is insufficient, the door hinge(s) should be adjusted 2-4 mm inward. Determine the amount of movement by outlining the hinge mount area before door adjustment and after.
- Adjusting one hinge at a time will prevent any extreme door movement. This is done by loosening the hinge bolts and moving the door with a padded pry bar just enough to permit movement of the door.
- Hinges should be adjusted first, followed by the striker.
- Adjustment to the rear door(s), if applicable, may require adjustments to the front door and possibly to the front fender to maintain alignment.
- Door closing effort should be checked to ensure that it remains acceptable after adjustments are completed. If any doors are too difficult to close, the seal compression may be excessive and adjustment will need to be repeated.
- After completing adjustments, verify seal compression by using the card test and white grease test.



3. Verify repair.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category SST	Applicable Model/s See Below	Subject SEPTEMBER 1995 SPECIAL TOOL SHIPMENT	Bulletin No. 006/95
			Issued 9/21/95
			Revised

DESCRIPTION

The Special Service Tools (SSTs) illustrated below are Mazda Required Tools (MRTs) and will automatically be shipped to dealers by Mazda's tool vendor, America Kowa Seiki, Inc.

APPLICATION

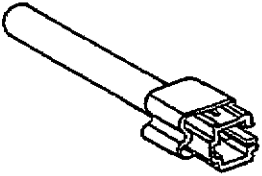
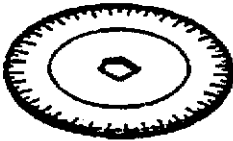

The air bag simulator tool is used to properly service the 1996 B-Series truck. The protractor and hexagon wrench tools are used on various year/models for servicing steering components. Refer to the Workshop Manual for the application(s) of these tools.

PRICING

The total price for these tools is \$28.75. Individual prices are illustrated below.

SHIPPING & BILLING INFORMATION

These tools will be shipped prepaid via UPS to dealers during the specified week as shown in the illustration. Your parts account will be billed for this tool upon its receipt. Please advise your shipping/receiving personnel of this tool shipment.

49UN-01-1500 Air Bag Simulator \$6.74	49D0-32-316 Protractor \$8.04	49H0-32-321A Hex Wrench \$13.97
		
Ship Date: Week of 9/25/95	Ship Date: Week of 9/25/95	Ship Date: Week of 9/25/95

If you have any questions regarding this information contact your District Customer Support Manager, America Kowa Seiki (800-824-9655 or 800-535-5455) or Tools/Development Manager (714-588-5059).

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

059763

Signature _____

Signature _____

Service Bulletin

Mazda North American Operations
Irvine, CA 92718-2906



Category ST	Applicable Model/s ALL	Subject NEW V5.0 NGS CARD (49T0-88-010F) AND REPROGRAMMING OF V3.0 (49T0-88-010D)	Bulletin No. 001/98 Issued 02/23/98 Revised
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DESCRIPTION

Per Service Bulletin Cat. ST 004/97, issued 10/10/97, your service department currently has two reprogrammable New Generation Star (NGS) cards, an older Version 3.0 program (P/N 49T0-88-010D) and a current Version 4.0 program (P/N 49T0-88-010E). On March 25, 1998, V4.0 will supersede to V5.0 (P/N 49T0-88-010F) as a new Mazda Required Tool (MRT) to properly service MAZDA vehicles.

Mazda's tool vendor, America Kowa Seiki, Inc. (AKS), is offering a reprogramming service which will update your older Version 3.0 to Version 5.0 at a substantial savings. Your V3.0 card must be received by AKS no later than **March 4, 1998**. Follow the **REPROGRAMMING PROCEDURE** on page two to participate in this service.

Note: If your service department chooses not to participate, or cannot participate in this reprogramming service, a new V5.0 card will be automatically shipped to your service department.

APPLICATION

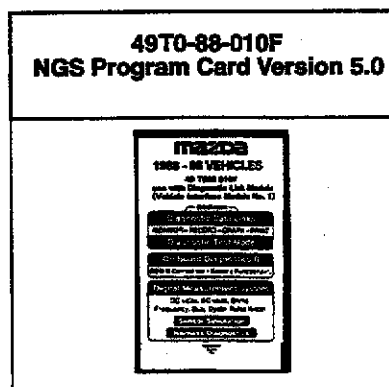
This card is used with your NGS Tester to properly service 1988 - 1999 Mazda Vehicles. Refer to your Workshop Manual for the application of this card and tester.

PRICING

The price for the V5.0 reprogramming exchange is \$216.09 plus shipping costs. If AKS does not receive your V3.0 card, or you miss the **March 4, 1998** cut-off date, the new card price is \$316.57 plus shipping costs.

SHIPPING AND BILLING INFORMATION

Your NGS card with V5.0 will be shipped to you by March 25, 1998. Your parts account will be billed for the appropriate amount. **DO NOT SEND PAYMENT TO AMERICA KOWA SEIKI, INC.**



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

060465

Number: 001/98	Date Issued: 2/23/98	Revised:
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REPROGRAMMING PROCEDURE

Please use the following procedure to update your NGS Version 3.0 card to Version 5.0 card.

STEP 1: Carefully inspect your V3.0 card for signs of damage (i.e. dents, cracks, etc.), since America Kowa Seiki will only accept cards that are reprogrammable.

STEP 2: Package your V3.0 card in a small box with your Service Manager's business card taped to the NGS card. Send the package to the following address:

**America Kowa Seiki, Inc.
20013 S. Rancho Way
Rancho Dominguez, CA. 90220**

RE: Mazda NGS Card Reprogramming

STEP 3: Send your package by Federal Express 2 day or UPS Blue label prepaid. It must arrive at America Kowa Seiki, Inc. by **March 4, 1998**.

Note:

DO NOT SEND YOUR V4.0 NGS CARD! Use this V4.0 card until your new V5.0 card arrives at your service department.

Please contact your District Customer Support Manager, America Kowa Seiki (800-824-9655 or 310-638-1000, ext. 211.) or the Tools/Equipment Manager (714-442-6531) if you have any questions regarding this information.

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category ST —	Applicable Model/s — All Models w/ EC-AT	Subject PROPER EC-AT CONNECTION	Bulletin No. 002/90
			Issued 8/1/90
			Revised

DESCRIPTION

When using the EC-AT Tester, it is critical that the 6-pin connector (with ground) that is located on the bottom left-hand corner of the EC-AT Tester body is **never** connected at the same time an adapter harness is being used.

Symptom codes should be retrieved from the Control Unit♦ first using the 6-pin connector; after disconnecting the 6-pin connector, the adapter harness can be used for further diagnosis.

♦ "Control Unit" refers to EC-AT Control Unit, except for 1990 626/MX-6 non-Turbo. For these models, the EC-AT Control Unit is incorporated into the Engine Control Unit.

REPAIR PROCEDURE

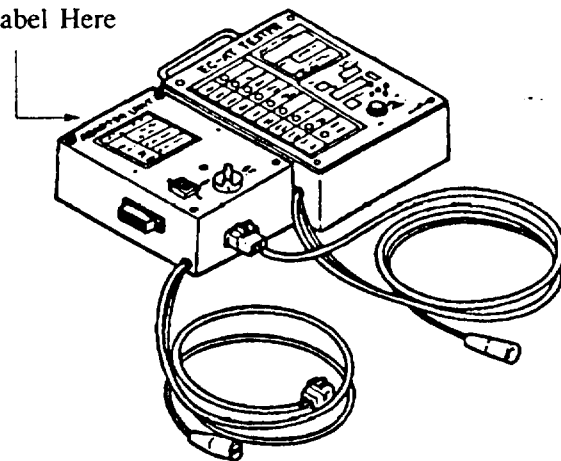
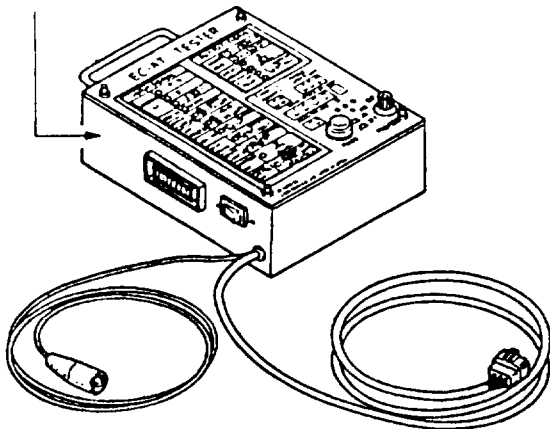
Please affix the attached label on the left side of the EC-AT Tester body, to the left of the adapter harness connector. On versions with the adapter, affix the label on the top panel of the adapter.

EC-AT Tester
(49 G019 901A)

EC-AT Tester w/ Adapter
(49 G019 901 & 49 H019 902)

Affix Label Here

Affix Label Here



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

Service Manager

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s All 1988-95 Models	Subject SHIPMENT OF NGS PROGRAM CARD VERSION 2.0	Bulletin No. 002/94
			Issued 10/25/94
			Revised 11/16/94

The revised portion of this bulletin is indicated by an asterisk (*). Replace the original bulletin with this revised copy

DESCRIPTION

The "NGS Program Card" (P/N 49T0-88-010) used with your New Generation Star tester has been discontinued. The card is replaced with a new card that includes all 1995 model information.

This new program card "Version 2.0" (P/N 49T0-88-010A) is a MRT (Minimum Required Tool) and will automatically be shipped to all dealers on October 26, 1994 by Mazda's tool vendor, America Kowa Seiki, Inc. The cost of the new card is \$235.75. This cost will be charged to your parts account upon its receipt.

NOTE: 1) Please advise your shipping/receiving personnel of this shipment.

- 2) **This program card is small.** Therefore, we recommend that your service manager, shop foreman, or lead technician install this card in your NGS tester and discard the discontinued card immediately. This will prevent misapplication or misdiagnosis when using the NGS tester to service a Mazda vehicle.

APPLICATION

Refer to the attached table for applications of this new card.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Page 1 of 2

059153

Number: 002/94	Date Issued: 10/25/94	Revised: 11/16/94
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***APPLICATION TABLE FOR NGS PROGRAM CARD VERSION 2.0 (P/N 49T0-88-010A)**

NOTE	APPLICABLE MODEL	PCM* ¹	TCM* ²	ABS	A/C	CCM* ³
	1995 MILLENIA	O* ⁴	(O)	O* ⁵	O	O
X	1995 PROTEGE	O* ⁴	(O)	O	-	O
X	1995 626/MX-6 WITH FS ENGINE	O	-	O	-	O
X	1995 626/MX-6 WITH KL ENGINE	O	O	O	-	O
X	1995 929	O	O	O	O	O
X	1995 MX-3	O	O	O	-	-
X	1995 MIATA	O	O	O	-	-
X	1995 RX-7	O	O	O	-	O
X	1995 MPV	O	O	-	-	-
X	1995 B2300, B3000, B4000	O* ⁴	(O)	O	-	-
	1994 323/PROTEGE	O	O	-	-	-
	1994 626/MX-6 WITH FS ENGINE (EC-AT)	O	(O)	O	-	O
	1994 626/MX-6 WITH FS ENGINE (MT)	O	-	O	-	O
	1994 626/MX-6 WITH KL ENGINE	O	O	O	-	O
	1994 929	O	O	-	O	O
	1994 MX-3	O	O	O	-	-
	1994 MIATA	O	O	O	-	-
	1994 RX-7	O	O	-	-	-
	1994 MPV WITH G6 ENGINE	O	O	-	-	O
	1994 MPV WITH JE ENGINE	O	O	-	-	-
	1994 NAVAJO	O	(O)	-	-	-
	1994 B2300 2.3L (49S)	O	(O)	O	-	-
	1994 B2300 2.3L (CAL)	O	(O)	-	-	-
	1994 B3000 & B4000	O	(O)	-	-	-
	1993 NAVAJO	O	-	O	-	-
	1992 - 1993 ALL VEHICLES EXCEPT NAVAJO	O	O	O	O	O
	1991 - 1992 NAVAJO	O	-	-	-	-
	1991 ALL VEHICLES EXCEPT NAVAJO	O	O	-	-	-
	1988 - 1990 ALL VEHICLES	O	O	-	-	-

*1: PCM= Power Control Module

*2: TCM= Transmission Control Module

*3: CCM= Cruise Control Module

*4: on-vehicle control unit equipped with OBD-II

*5: include Traction Control System

(O): means there is no TCM, but it is possible to diagnose the TCM from the PCM menu.

X: means these year/models are newly added to the program card.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s All 1988-95 Models	Subject SHIPMENT OF NGS PROGRAM CARD VERSION 2.0	Bulletin No. 002/94
			Issued 10/25/94
			Revised 11/16/94

The revised portion of this bulletin is indicated by an asterisk (*). Replace the original bulletin with this revised copy

DESCRIPTION

The "NGS Program Card" (P/N 49T0-88-010) used with your New Generation Star tester has been discontinued. The card is replaced with a new card that includes **all** 1995 model information.

This new program card "Version 2.0" (P/N 49T0-88-010A) is a MRT (Minimum Required Tool) and will automatically be shipped to all dealers on October 26, 1994 by Mazda's tool vendor, America Kowa Seiki, Inc. The cost of the new card is \$235.75. This cost will be charged to your parts account upon its receipt.

NOTE: 1) Please advise your shipping/receiving personnel of this shipment.

- 2) **This program card is small.** Therefore, we recommend that your service manager, shop foreman, or lead technician install this card in your NGS tester and discard the discontinued card immediately. This will prevent misapplication or misdiagnosis when using the NGS tester to service a Mazda vehicle.

APPLICATION

Refer to the attached table for applications of this new card.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

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Index # **040969**
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IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

*APPLICATION TABLE FOR NGS PROGRAM CARD VERSION 2.0 (P/N 49T0-88-010A)

NOTE	APPLICABLE MODEL	PCM* ¹	TCM* ²	ABS	A/C	CCM* ³
	1995 MILLENIA	O* ⁴	(O)	O* ⁵	O	O
X	1995 PROTEGE	O* ⁴	(O)	O	-	O
X	1995 626/MX-6 WITH FS ENGINE	O	-	O	-	O
X	1995 626/MX-6 WITH KL ENGINE	O	O	O	-	O
X	1995 929	O	O	O	O	O
X	1995 MX-3	O	O	O	-	-
X	1995 MIATA	O	O	O	-	-
X	1995 RX-7	O	O	O	-	O
X	1995 MPV	O	O	-	-	-
X	1995 B2300, B3000, B4000	O* ⁴	(O)	O	-	-
	1994 323/PROTEGE	O	O	-	-	-
	1994 626/MX-6 WITH FS ENGINE (EC-AT)	O	(O)	O	-	O
	1994 626/MX-6 WITH FS ENGINE (MT)	O	-	O	-	O
	1994 626/MX-6 WITH KL ENGINE	O	O	O	-	O
	1994 929	O	O	-	O	O
	1994 MX-3	O	O	O	-	-
	1994 MIATA	O	O	O	-	-
	1994 RX-7	O	O	-	-	-
	1994 MPV WITH G6 ENGINE	O	O	-	-	O
	1994 MPV WITH JE ENGINE	O	O	-	-	-
	1994 NAVAJO	O	(O)	-	-	-
	1994 B2300 2.3L (49S)	O	(O)	O	-	-
	1994 B2300 2.3L (CAL)	O	(O)	-	-	-
	1994 B3000 & B4000	O	(O)	-	-	-
	1993 NAVAJO	O	-	O	-	-
	1992 - 1993 ALL VEHICLES EXCEPT NAVAJO	O	O	O	O	O
	1991 - 1992 NAVAJO	O	-	-	-	-
	1991 ALL VEHICLES EXCEPT NAVAJO	O	O	-	-	-
	1988 - 1990 ALL VEHICLES	O	O	-	-	-

*1: PCM= Power Control Module

*2: TCM= Transmission Control Module

*3: CCM= Cruise Control Module

*4: on-vehicle control unit equipped with OBD-II

*5: include Traction Control System

(O): means there is no TCM, but it is possible to diagnose the TCM from the PCM menu.

X: means these year/models are newly added to the program card.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



D

Category ST	Applicable Model/s ALL CURRENT	Subject MAZDA REQUIRED TOOL (MRT) INVENTORY LIST	Bulletin No. 002/95
			Issued 4/27/95
			Revised

DESCRIPTION

Attached is a "Mazda Required Tool (MRT) Inventory List". It contains all Special Service Tools your dealer is currently required to have to properly service Mazda vehicles.

As needed, Mazda will issue Special Tool Service Bulletins to address any updates* to this list. A new list will be issued annually incorporating all applicable updates from the previous year.

* NOTE: Updates will not include price changes. Prices are subject to change without notice. Use the toll free telephone numbers listed below "ORDERING TOOLS" to contact America Kowa Seiki, Inc., Mazda's tool vendor, for current pricing.

APPLICATION

This inventory list is to be used by your dealer to assist you with maintaining a complete inventory of these required tools.

ORDERING TOOLS

Directly contact America Kowa Seiki, Inc. using the toll free telephone numbers listed below to order any Mazda Special Service Tool.

(800) 824-9655 OR (800) 535-5455

Hours: Monday - Friday

9:00 AM - 5:00 PM (Pacific Standard Time)

BILLING FOR TOOLS

Your dealer will be billed directly by America Kowa Seiki. YOU CANNOT BILL TOOL ORDERS TO YOUR PARTS ACCOUNT.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/ Development Manager at (714) 588-5059.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____ **Index # 042733**
Parts Manager

MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

Page 1

PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
0000-42-0010	ANTI-LOCK BRAKE SYSTEM CHECKER	\$1,957.58			
4901-80-321A	MAIN DRIVE GEAR BEARING INSTALLER	\$25.60			
4901-80-510B	BEARING PRELOAD MEAS. ATTACHMENT	\$9.80			
4902-23-630B	REAR AXLE SHAFT PULLER	\$50.40			
4902-59-4400	MAINSHAFT HOLDER	\$25.25			
4902-59-7200	SIDE BEARING NUT WRENCH	\$40.90			
4902-59-7450	BEARING SEPARATOR	\$62.15			
4903-05-4300	MAIN DRIVESHAFT PUSHER	\$60.86			
4903-78-3750	CLUTCH SPRING COMPRESSOR	\$31.70			
4903-78-3900	OIL PUMP PULLER	\$35.91			
4903-78-400B	OIL PRESSURE GAUGE SET	\$117.16			
4905-00-3300	TRANSMISSION BEARING INSTALLER	\$23.70			
4906-03-635A	REAR SHAFT BEARING NUT WRENCH	\$71.95			
4906-36-100B	VALVE SPRING LIFTER ARM & PIVOT	\$56.09			
4907-27-4150	BEARING INSTALLER	\$22.45			
4908-23-072A	ECCENTRIC SHAFT BEARING INSTALLER	\$20.80			
4908-39-305A	COUNTERWEIGHT PULLER (A/T)	\$63.85			
4908-39-425C	BEARING PULLER SET	\$203.95			
4912-32-670A	P/S OIL PRESSURE GAUGE SET	\$246.10			
4912-43-465A	MAINSHAFT LOCK NUT WRENCH	\$41.05			
4912-85-0710	ECCENTRIC SHAFT BEARING PULLER	\$42.20			
4918-81-055A	COUNTERWEIGHT STOPPER	\$40.71			
4985-01-631A	REAR AXLE SHAFT PULLER ATTACHMEN	\$71.55			
4985-31-5550	GAUGE BLOCK	\$62.16			
4985-31-5650	MIDDLE PINION	\$196.62			
4992-00-162A	ENGINE SIGNAL MONITOR	\$346.28			
4992-00-1630	ADAPTOR HARNESS	\$166.45			
4992-00-1670	ADAPTOR HARNESS	\$158.98			
4992-00-4430	IGNITER CHECKER ADAPTOR HARNESS	\$27.30			
4992-02-0100	PRESSURE PLATE HOLDER BAR	\$42.90			
4992-02-0200	PRESSURE PLATE REMOVER	\$20.81			
4992-02-0300	SEAL PLATE REMOVER	\$94.41			
4992-02-0400	SHAFT SEAL REMOVER	\$51.40			

4/5/95

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

Page 2

PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49B0-01-7270	SPACER SELECTOR FR. WHEEL HUB	\$25.90			
49B0-12-0060	VALVE SPRING LIFTER ARM & PIVOT	\$14.40			
49B0-12-0110	H-L-A HOLE PROTECTOR	\$5.20			
49B0-12-0A20	PIVOT	\$45.43			
49B0-17-1020	PRELOAD ADAPTOR	\$20.45			
49B0-17-1A00	BEARING REMOVER SET	\$191.80			
49B0-19-0020	BODY (RETURN SPRING COMPRESSOR)	\$59.23			
49B0-19-0040	ECAT BRAKE BAND ADAPTOR	\$6.50			
49B0-19-0050	ECAT BRAKE BAND ADAPTOR	\$6.50			
49B0-19-0070	PRELOAD ADAPTOR	\$26.45			
49B0-19-0080	LEAK CHECKER	\$53.69			
49B0-19-9010	OIL PRESSURE GAUGE	\$89.13			
49B0-19-9040	PANEL (MMC)	\$31.05			
49B0-19-9080	HARNESS ADAPTOR	\$270.25			
49B0-19-9A00	SYSTEM SELECTOR	\$102.93			
49B0-19-9A10	ECAT SELECTOR	\$402.50			
49B0-25-0010	DUST SEAL INSTALLER	\$23.40			
49B0-26-1A00	REAR HUB PULLER	\$98.90			
49B0-27-0010	DIFFERENTIAL SIDE GEAR HOLDER	\$10.90			
49B0-27-0030	ATTACHMENT "M"	\$17.60			
49B0-27-0040	MEASURING PLATE	\$26.70			
49B0-27-0060	DIFFERENTIAL SIDE GEAR HOLDER	\$9.70			
49B0-32-3040	POWER STEERING GAUGE ADAPTOR	\$49.45			
49B0-43-0010	ADJUST GAUGE	\$63.25			
49B0-43-0020	BEARING INSTALLER	\$9.40			
49B0-61-0050	A/C SEAL PLATE REMOVER	\$14.95			
49B0-92-9530	INJECTOR CHECKER "M"	\$17.74			
49D0-19-0010	BOLT, SHIM SELECTOR SET	\$8.70			
49D0-19-9020	HARNESS ADAPTOR	\$197.80			
49E0-10-1A10	HANGER SET, ENGINE	\$71.08			
49E0-11-0010	GUIDE, PISTON PIN	\$7.94			
49E0-11-0020	SCREW	\$17.25			
49E0-11-1A10	HOLDER SET	\$58.31			

4/5/95

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

Page 3

PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49E0-18-9A00	INJECTOR CHECKER	\$184.00			
49E0-43-0010	GAUGE, PUSH ROD	\$74.75			
49E0-43-0020	INSTALLER, RETAINER	\$23.23			
49E0-43-003A	TURNING LOCK TOOL	\$72.86			
49E3-01-0600	RING GEAR BRAKE	\$17.50			
49F0-11-1010	RING GEAR BRAKE	\$52.90			
49F0-11-1A10	BEARING INSTALLER SET	\$25.27			
49F0-17-1010	SYNCHRONIZER RING HOLDER "M"	\$26.25			
49F0-17-1A00	UNIVERSAL WRENCH	\$73.03			
49F0-18-0020	IGNITER CHECKER	\$57.50			
49F0-18-0030	ADAPTOR HARNESS	\$50.60			
49F0-18-9030	SHEET	\$5.75			
49F0-19-0010	OIL SEAL INSTALLER	\$22.42			
49F0-19-0A00	ADAPTOR SET	\$49.03			
49F0-19-901A	ECAT HARNESS	\$182.07			
49F0-19-9020	PANEL (MMC)	\$31.05			
49F0-26-1020	BEARING INSTALLER	\$22.45			
49F0-26-1030	WHEEL HUB PULLER	\$69.00			
49F0-26-1040	SENSOR ROTOR INSTALLER	\$48.30			
49F0-27-0A00	PINION HEIGHT ADJ. GAUGE	\$557.80			
49F0-27-0A10	BEARING INSTALLER SET	\$126.50			
49F0-28-2A00	RUBBER BUSHING PLR/INST. SET	\$149.50			
49F0-33-0010	DISC BRAKE PISTON STOPPER	\$31.10			
49F0-43-0010	ADJUST GAUGE	\$19.00			
49F0-61-0010	LOGICON CHECKER ADAPTOR	\$16.30			
49F4-01-330B	BEARING INSTALLER SET	\$56.95			
49F4-01-380E	SHIM SELECTOR SET	\$1,059.14			
49F4-01-4400	PRIMARY SHAFT HOLDER	\$15.10			
49FT-01-3610	BEARING REMOVER	\$32.15			
49FT-01-3740	ONE-WAY CLUTCH POSITION HOLDER	\$22.43			
49FT-01-3760	SERVO PISTON TOOL	\$14.65			
49FT-01-3770	LOW/REVERSE PISTON REPLACER	\$48.45			
49FT-01-4390	IDLER GEAR SHAFT HOLDER	\$11.40			

4/5/95

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49FT-01-515A	PRELOAD ADAPTOR	\$15.70			
49G0-17-1010	ATTACHMENT "N"	\$20.35			
49G0-17-1A00	BEARING REMOVER SET	\$285.00			
49G0-17-2020	ATTACHMENT PRELOAD ADAPTOR	\$22.75			
49G0-17-2030	ATTACHMENT "P"	\$20.35			
49G0-18-9010	THROTTLE SENSOR ADAPTOR HARNESS	\$11.40			
49G0-18-9030	ADAPTOR HARNESS	\$316.25			
49G0-18-9040	SHEET	\$5.17			
49G0-19-0110	BEARING INSTALLER "M"	\$15.40			
49G0-19-0120	LEAK CHECKER "M"	\$43.43			
49G0-19-0130	BEARING REMOVER "M"	\$46.20			
49G0-19-0170	OIL SEAL INSTALLER "M"	\$25.70			
49G0-19-0180	SHIM SELECTOR SET "M"	\$161.90			
49G0-19-0200	PRELOAD ADAPTOR	\$21.70			
49G0-19-0220	ATTACHMENT "K"	\$20.00			
49G0-19-0300	PLATE	\$9.70			
49G0-19-0310	WRENCH	\$20.59			
49G0-19-0A00	TRANSAXLE HANGER	\$264.50			
49G0-19-0A20	TURBINE SHAFT HOLDER SET	\$31.40			
49G0-19-0A7A	RETURN SPRING COMPRESSOR SET	\$159.85			
49G0-19-9110	ADAPTOR HARNESS	\$139.65			
49G0-19-9120	PANEL	\$27.80			
49G0-19-9150	PANEL (MMC)	\$31.06			
49G0-19-9180	HARNESS	\$258.75			
49G0-25-0010	DRIVESHAFT SENSOR ROTOR INSTALLE	\$37.15			
49G0-26-1010	BEARING REPLACER	\$13.30			
49G0-26-1020	BEARING REPLACER	\$23.95			
49G0-26-1030	SUPPORT BLOCK	\$29.35			
49G0-27-0010	SELECTOR-0-75	\$191.75			
49G0-27-0020	BEARING REMOVER	\$95.25			
49G0-27-0030	DIFFERENTIAL SIDE GEAR HOLDER	\$9.60			
49G0-30-2220	VALVE SPRING LIFTER ARM & PIVOT	\$13.15			
49G0-30-3380	ATTACHMENT "D"	\$9.90			

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49G0-30-3700	REMOVING PLATE	\$37.05			
49G0-30-380C	SHIM SELECTOR SET	\$734.55			
49G0-30-4400	PRIMARY SHAFT HOLDER	\$16.90			
49G0-30-4550	DIFFERENTIAL SIDE GEAR HOLDER	\$1.85			
49G0-30-7000	SHOCK ABSORBER BOX WRENCH SET	\$24.40			
49G0-30-7250	FRONT HUB PULLER	\$53.00			
49G0-30-7950	OIL SEAL INSTALLER	\$22.25			
49G0-32-3550	ADJUST GAUGE	\$6.00			
49G0-33-1070	KNUCKLE DUST COVER INSTALLER	\$13.55			
49G0-33-1A10	FRONT HUB PULLER SET	\$142.00			
49G7-10-2810	OIL PRESSURE GAUGE ADAPTOR	\$13.80			
49H0-02-6710	POWER STEERING GAUGE ADAPTOR	\$112.40			
49H0-10-4010	OIL SEAL INSTALLER & REMOVER	\$18.98			
49H0-11-001B	SUPPORT BLOCK HEAD	\$29.89			
49H0-12-0100	BOX WRENCH	\$35.80			
49H0-17-1010	HOOK	\$70.40			
49H0-17-5010	ENGINE SUPPORT	\$24.73			
49H0-18-0010	KNOCK SENSOR WRENCH	\$22.20			
49H0-18-9100	ADAPTOR HARNESS	\$37.38			
49H0-18-9120	INJECTOR CHECK HARNESS	\$16.68			
49H0-18-9A10	SELF DIAGNOSIS CHECKER	\$244.00			
49H0-19-0020	ADAPTOR	\$23.05			
49H0-19-9050	ADAPTOR HARNESS	\$197.80			
49H0-19-9080	ADAPTOR HARNESS	\$194.35			
49H0-19-9090	PANEL	\$35.08			
49H0-19-9A10	ECAT TESTER	\$803.74			
49H0-25-0010	BEARING INSTALLER	\$13.35			
49H0-25-0020	DUST SEAL INSTALLER	\$16.40			
49H0-25-0030	BEARING INSTALLER	\$18.40			
49H0-25-0040	BEARING INSTALLER	\$14.55			
49H0-26-101A	FRONT HUB SENSOR ROTOR INSTALLER	\$43.10			
49H0-26-1020	BEARING REMOVER	\$44.90			
49H0-26-1030	SUPPORT BLOCK	\$26.35			

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49H0-26-1040	GUIDE BLOCK	\$34.60			
49H0-26-1080	REMOVING PLATE	\$99.60			
49H0-27-0010	COLLAR "M"	\$11.50			
49H0-27-0020	BEARING REMOVER "M"	\$63.55			
49H0-28-3010	DUST BOOT INSTALLER	\$20.00			
49H0-32-3220	ADAPTOR	\$44.85			
49H0-33-1010	BEARING REMOVER	\$16.05			
49H0-33-1020	INSTALLER, SENSOR ROTOR	\$25.88			
49H0-61-0030	ATTACHMENT, A/C	\$16.50			
49H0-61-0040	A/C SEAL SEAT REPLACER, A/C	\$10.80			
49H0-66-0020	DEPLOYMENT TOOL	\$116.72			
49H0-66-0030	HARNES ADAPTOR	\$39.10			
49H0-66-0040	SHORT CIRCUIT CONNECTOR	\$27.35			
49H0-75-280A	COMPRESSION TESTER	\$822.14			
49H0-75-4060	ADAPTOR	\$9.70			
49H0-80-7400	PRESSURE TESTER	\$66.15			
49J0-19-0020	CAP	\$13.22			
49J0-27-0010	BEARING INSTALLER	\$19.55			
49J0-27-0020	COLLAR	\$24.56			
49L0-11-0A0B	PISTON PIN SETTING TOOL SET	\$240.36			
49L0-11-2A00	BALANCE SHAFT BUSHING REPLACER S	\$102.12			
49L0-12-0A00	VALVE SEAL/GUIDE INSTALLER SET	\$47.69			
49L0-17-3020	ADAPTOR, CHANGE MOTOR	\$11.27			
49L0-19-0010	BOLT, A/T CLUTCH SPRING COMPRESSO	\$21.53			
49L0-19-9020	PANEL	\$29.81			
49L0-28-0A00	AIR PRESSURE GAUGE SET	\$171.67			
49L0-33-1010	INSTALLER, OIL SEAL	\$26.04			
49M0-05-5610	CARRIER HANGER	\$250.00			
49M0-05-7960	OIL SEAL INSTALLER BODY "M"	\$23.40			
49N0-18-0010	ADAPTOR HARNES	\$50.03			
49N0-27-0010	GAUGE BLOCK	\$41.40			
49N0-34-2130	DIFFERENTIAL BUSHING INSTALLER	\$31.63			
49S1-20-520A	REAR AXLE SHAFT BEARING PULLER	\$143.80			

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49S1-20-645A	REAR AXLE SHAFT HOLDER	\$36.80			
49S1-20-7480	ATTACHMENT	\$10.25			
49S2-31-3950	CHAIN EXPANSION TOOL	\$65.55			
49S2-31-6350	LOCKNUT WRENCH "M"	\$42.90			
49S2-31-6600	NEEDLE BEARING PULLER	\$108.05			
49SE-01-310A	CLUTCH DISC CENTERING TOOL	\$33.70			
49T0-12-0A00	TAPPET HOLDER SET	\$194.25			
49T0-18-9020	ADAPTOR HARNESS	\$457.71			
49T0-18-9050	SHEET	\$7.81			
49T0-18-9060	HARNESS ADAPTOR	\$557.31			
49T0-88-010A	ROM CARD VER 2	\$290.56			
49T0-88-0A00	NGS, DELUXE SET (W/O ROM CD)	\$1,058.44	*	*	
49U0-14-0010	AIR PRESSURE TESTER	\$41.44			
49U0-17-3A0A	SHIM SELECTOR GAUGE SET	\$266.45			
49U0-18-0010	ADAPTOR HARNESS "A"	\$151.60			
49U0-19-0A0A	TRANSMISSION HANGER	\$451.75			
49U0-25-0010	PROTECTOR INSTALLER	\$47.05			
49U0-27-0010	COLLAR "M"	\$14.55			
49U0-27-0030	OIL SEAL INSTALLER "M"	\$27.55			
49U0-27-0050	BEARING INSTALLER	\$20.13			
49U0-27-0060	BEARING & OIL SEAL INSTALLER	\$19.55			
49U0-27-0070	OIL SEAL INSTALLER	\$24.54			
49U0-33-1010	BEARING INSTALLER "M"	\$16.05			
49U0-34-2A00	LOWER ARM BUSHING PULLER/INSTALLE	\$91.70			
49U0-43-0030	ANGLE GAUGE	\$35.10			
49UB-39-585A	ADJUST WRENCH	\$33.40			
49UN-01-0010	CRANKSHAFT DAMPER REMOVER	\$33.18		*	
49UN-01-0020	CRANKSHAFT DAMPER REPLACER	\$35.06		*	
49UN-01-0030	FRONT COVER SEAL REMOVER	\$67.88		*	
49UN-01-0040	FRONT COVER ALIGNER	\$43.07		*	
49UN-01-0050	FRONT CRANK SEAL INSTALLER	\$13.41		*	
49UN-01-0060	FUEL LINE COUPLING TOOL	\$11.66		*	
49UN-01-0070	CLUTCH HOLDING TOOL	\$22.66		*	

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49UN-01-0080	FAN CLUTCH NUT WRENCH	\$13.38		*	
49UN-01-0090	REAR OIL SEAL REPLACER	\$50.13		*	
49UN-01-0100	FUEL PRESSURE GAUGE	\$106.47	*	*	
49UN-01-0110	MAINSHAFT LOCKNUT WRENCH	\$40.19		*	
49UN-01-0120	BELL HOUSING SEAL REPLACER	\$19.63		*	
49UN-01-0130	COUNTER LEVER WRENCH	\$13.77		*	
49UN-01-0140	BALL DETENT INSTALLER	\$9.06		*	
49UN-01-0150	FRONT PUMP ALIGNMENT SET	\$133.45		*	
49UN-01-0160	SERVO ROD SELECTING GAUGE	\$41.22		*	
49UN-01-0170	LIP SEAL PROTECTOR	\$6.46		*	
49UN-01-0180	SEAL PROTECTOR	\$9.45		*	
49UN-01-0190	FRONT PUMP SEAL REPLACER	\$11.18		*	
49UN-01-0200	FRONT PUMP SEAL STAKING TOOL	\$44.91		*	
49UN-01-0210	A/T TEST PLATE	\$21.12		*	
49UN-01-0220	COLLET	\$61.94		*	
49UN-01-0230	ACTUATOR PIN	\$24.95		*	
49UN-01-0240	FRONT SHAFT NEEDLE BEARING REPLA	\$11.45		*	
49UN-01-0250	INPUT SHAFT BUSH/BEARING REPLACER	\$34.31		*	
49UN-01-0260	DIFFERENTIAL HOUSING SPREADER	\$265.00		*	
49UN-01-0270	SPREADER ADAPTORS	\$66.23		*	
49UN-01-0280	AXLE BEARING SEAL INSTALLER	\$39.20		*	
49UN-01-0290	PINION/CARRIER BEARING PULLER	\$451.02		*	
49UN-01-0300	DUMMY BEARING SET	\$105.10		*	
49UN-01-0310	DIFFERENTIAL BEARING REPLACER	\$12.05		*	
49UN-01-0320	AXLE BEARING REMOVER	\$41.43		*	
49UN-01-0330	AXLE BEARING REMOVER	\$28.47		*	
49UN-01-0340	SHIM DRIVER	\$12.22		*	
49UN-01-0350	PINION BEARING CUP REPLACER	\$65.08		*	
49UN-01-0360	PINION BEARING CONE REPLACER	\$54.40		*	
49UN-01-0370	HEX LOCKNUT WRENCH	\$16.90		*	
49UN-01-0380	SPINDLE BEARING REPLACER	\$17.35		*	
49UN-01-0400	SEAL REPLACER	\$27.29		*	
49UN-01-0410	BEARING CUP REPLACER	\$19.03		*	

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49UN-01-0420	LOCKNUT WRENCH	\$24.95		*	
49UN-01-0430	SHAFT SEAL INSTALLER	\$10.88		*	
49UN-01-0440	SHAFT SEAL REMOVER	\$26.22		*	
49UN-01-0450	SHAFT SEAL PROTECTOR	\$6.98		*	
49UN-01-0460	COIL PRESSING TOOL	\$25.90		*	
49UN-01-0470	COIL REMOVER SHAFT PROTECTOR	\$22.95		*	
49UN-01-0480	PRESSURE TEST PLATE	\$20.11		*	
49UN-01-0490	SNAP RING PLIERS	\$27.19		*	
49UN-01-0500	RADIO REMOVING TOOL X 2 SETS	\$28.94			
49UN-01-0510	3/8" FUEL LINE DISCONNECT TOOL	\$6.55		*	
49UN-01-0520	1/2" FUEL LINE DISCONNECT TOOL	\$6.55		*	
49UN-01-0530	5/16" FUEL LINE DISCONNECT TOOL	\$4.40		*	
49UN-01-0540	3/8" FUEL LINE DISCONNECT TOOL	\$4.40		*	
49UN-01-0570	EDIS DIAGNOSTIC CABLE	\$557.00		*	
49UN-01-0580	60 PIN BREAKOUT BOX	\$477.00	*	*	
49UN-01-0580-1	BREAKOUT BOX OVERLAY	\$15.95			
49UN-01-0590	MAP/BP SENSOR TESTER	\$81.00		*	
49UN-01-0600	FIXED ORIFICE TUBE TOOLS	\$16.54		*	
49UN-01-0610	BROKEN ORIFICE TUBE EXTRACTOR	\$9.23		*	
49UN-01-0620	TEVES ABS ADAPTOR (BLEEDER)	\$248.58			
49UN-01-0630	TEVES ABS ADAPTOR (JUMPER)	\$155.72			
49UN-01-0640	REAR MAIN SEAL INSTALLER	\$59.82	*	*	
49UN-01-0650	VALVE SPRING COMPRESSOR	\$36.42	*	*	
49UN-01-0660	VALVE STEM SEAL INSTALLER	\$18.89	*	*	
49UN-01-0670	CAMSHAFT BELT TENSION TOOL	\$34.79	*	*	
49UN-01-0680	FRONT COVER ALIGNMENT TOOL	\$52.12	*	*	
49UN-01-0690	CRANKSHAFT H.E. SENSOR POSIT.	\$5.22	*	*	
49UN-01-0700	2.3L CRANK SEAL INSTALLER	\$61.27	*	*	
49UN-01-0710	MAZDA A/T TESTER SET W/CASE	\$624.39	*	*	
49UN-01-0720	LIP SEAL PROTECTOR	\$4.71	*	*	
49UN-01-0730	BEARING CONE REPLACER	\$19.72	*	*	
49UN-01-0740	DIFFERENTIAL SIDE BRG REPLACER	\$55.40	*	*	
49UN-01-0760	SPINDLE/AXLE BRG REPLACER	\$95.45	*	*	

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Note

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PART NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49UN-01-0770	SYNCHRO POSITIONER TOOL	\$12.32	*	*	
49UN-01-0780	DIS DIAGNOSTIC HARNESS	\$443.19	*	*	
49UN-01-0790	TFI-BOB ADAPTOR	\$262.57	*	*	
49UN-01-0800	SEAL PULLER	\$65.70	*	*	
49UN-01-0850	SHIFTER SHAFT ALIGNMENT TOOL	\$12.45			
49UN-01-0860	MLPS ALIGNMENT TOOL	\$21.76			
49UN-01-0870	CONVERTER SEAL REMOVER	\$47.45			
49UN-01-0890	CD4E CABLE, OVERLAY	\$54.48	*	*	
49UN-01-0910	CD4E MLP CABLE, MANUAL	\$43.14	*	*	
49UN-01-1040	SERVO COVER REM./REPL.	\$32.21			
49UN-01-1280	ADAPTOR (ATF OIL PRESSURE)	\$44.86			
49UN-01-1290	SEAL REPLACER	\$11.65			
49UN-01-1300	104 PIN BREAKOUT BOX	\$540.93	*	*	
49UN-01-1310	AIR BAG SIMULATOR	\$10.63	*	*	
49UN-01-1320	4R44E/4R55E CABLE/OVERLAY	\$78.33	*	*	
49UN-01-1360	REAR MAIN SEAL INSTALLER	\$54.71			
49UN-11-1010	THREADED ADAPTOR	\$22.31		*	
49UN-17-1010	BEARING DRIVER ATTACHMENT	\$31.90		*	
49UN-27-0010	GAUGE BLOCK (FRONT)	\$55.04		*	
49UN-27-0020	GAUGE BLOCK (REAR)	\$44.39		*	
49UN-27-0030	COLLAR "A"	\$26.04		*	
49UN-27-0040	COLLAR B	\$23.31		*	
49W0-27-0010	OIL SEAL INSTALLER "M"	\$38.30			

4/5/95

- Noté:** (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s ALL MODELS	Subject EXCHANGE PROGRAM NGS CARD VERSION 2.02 (P/N 49T0-88-010C)	Bulletin No. 002/96
			Issued 02/23/96
			Revised 06/06/96

NOTE: This is a revision to an existing Service Bulletin. Please replace the original copy with this revised copy.

Background

Mazda distributed NGS Card version 2.01 (49T0-88-010B) to all dealers during the week of October 23, 1995. This card is used with the NGS tester (49T0-88-0A0). The card has several problems when used on specific Mazda models. The table below lists the models, problems, causes, as well as the actions to correct them:

ITEM #	APPLICABLE MODELS	PROBLEM	CAUSE	ACTION
1	1996 Protege (Z5 & BP - A/T only)	Unable to communicate with PCM.	NGS card vehicle ID information is different from vehicle.	Corrected with updated card version 2.02.
2	1996 B-Series (ABS, Air Bag)	Unable to communicate with C/U.	Communication method of card is different from vehicle.	Corrected with updated card version 2.02.
3	1995 Protege 1995 Millenia 1996 All Models	When displaying memory data, time scale is different from actual time scale.	Time scale method is incorrect.	Modify software for next card version.
4	1996 Miata, 929, MPV, Millenia	Unable to retrieve DTCs from ABS (Bosch manufactured).	Mismatch of NGS/Bosch specifications.	Modify software for next card version.
5	1996 626/MX-6 (FS - A/T only)	DTCs are displayed by performing "quick test".	Quick test procedures missing from Workshop Manual.	WSM correction sent to dealers April 18, 1996.

The Exchange Program

Mazda is implementing an exchange program to provide dealers an updated card version 2.02 that will resolve items 1 and 2. The remainder of the items will be resolved with the next version of the card due Fall 1996. On specific dates, dealers will automatically be shipped an updated card with shipping materials to return their old NGS card version 2.01 (49T0-88-010B). **An updated card will be identified by its new version (2.02) and part number (49T0-88-010C) located on the card's label.**

Benefit

This program is free of charge to dealers. However, **if a dealer does not send their old card version 2.01 within 2 days of receipt, their parts account will be debited \$235.75.**

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Program Implementation

- The program will be implemented one region at a time. The table below lists each regional office and the date their dealers will be sent a RPS envelope containing an updated card and the shipping materials to return their old card. It is the dealers' responsibility to note when they should expect their envelope.

Mazda Office	Implementation Date
Northeast	6/11/96
Southeast	6/21/96
Western	7/3/96
Mazda Great Lakes	7/15/96
Gulf	ALREADY UPDATED

- Detailed Procedures:

STEP 1: A RPS envelope is shipped (Economy - 2nd day) to a Region's dealers on the implementation date illustrated in the above table. The envelope will contain the following:

- Instruction sheet.
- Updated NGS card version 2.02.
- Pre-addressed stay-flat (return shipping carton) with dealer return address and RPS bar code.
- Completed RPS Vendor Return Pick-up Record (form).

STEP 2: Dealers receive and unpack the envelope. The dealer then:

- Puts their old NGS card version 2.01 in stay-flat and seals stay-flat. **DO NOT ENCLOSE THE RPS VENDOR RETURN PICK-UP RECORD!**
- Telephones RPS for next day pick-up (800) 937-4587.

NOTE: 1. THE DEALER MUST SEND THEIR EXISTING CARD 2.01 WITHIN 2 DAYS OF RECEIPT OF THE ENVELOPE OTHERWISE THEIR PARTS ACCOUNT WILL BE DEBITED \$235.75!

NOTE: 2. The dealer is to contact Hickok, Inc. (800) 342-5080 if they do not receive an envelope.

STEP 3: RPS arrives for pick-up. The RPS driver receives the stay-flat and RPS Vendor Return Pick-up Record.

- During the implementation of this program, a dealer can contact their regional office to borrow an updated card for a critical repair if they have not received their updated card at that time.
- This program has a tracking system that will identify dealers that did not return their old card. These dealers' parts accounts will be debited accordingly.

If a dealer experiences problems other than those listed in the table on page one, they should contact America Kowa Seiki (800-824-9655). If there are any questions regarding this program contact your District Customer Support Manager or Tools/Equipment Manager (714) 442-6564.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s ALL	Subject RECOMMENDED SST STORAGE CABINET SYSTEMS	Bulletin No. 002/97
			Issued 03/27/97
			Revised

DESCRIPTION

Mazda has developed and is now offering new SST Storage Cabinet Systems. To meet the various dealer storage needs there are four different systems available. Each of these systems contain the same organization method. This organization method is intended to efficiently locate and inventory your SSTs.

APPLICATION

The cabinet systems are designed to store all your MRTs for all models. These systems also have additional space for your other SSTs.

PRICING

See attached brochure.

NOTE: It is not necessary to provide a P.O. # on the brochure's order form. Your parts account will be debited.

SHIPPING & BILLING INFORMATION

See attached brochure.

Please contact your District Customer Support Manager, America Kowa Seiki (800-824-9655 or 800-535-5455) or Tools/Equipment Manager (714-442-6564) if you have any questions regarding this information.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s All Current	Subject BRAKE JUDDER REPAIR ACCU INDUSTRIES NATIONAL ACCOUNT	Bulletin No. 003/94 Issued 10/28/94 Revised
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DESCRIPTION

Mazda's engineers have concluded that the rotor surfaces must be precisely machined to effectively correct brake judder. They also conclude that on-car brake lathes are more precise than off-car brake lathes for machining rotor surfaces. Therefore, an on-car brake lathe is recommended and **will be required for all rotor machining done under warranty after January 1, 1995** (see Service Bulletin Category P #006/94, Issue Date 9/1/94).

After an extensive evaluation, it became evident that the Accu-Turn On-Car brake lathe manufactured by Accu Industries demonstrated the following advantages:

1. Accuracy
2. Easy to use (specially designed Mazda adapters allows even easier installation)
3. Cost effective (lathe can adapt to any vehicle)
4. Strong field support network

Mazda specifically recommends the Accu-Turn On-Car brake lathe. To support your purchase of this lathe, a national account has been established which allows you to order it directly from the manufacturer at a substantial savings. This lathe is available at a **special introductory price of \$2995 until December 15, 1994**. This price includes the lathe with universal adapters, Mazda specially designed adapters, and in-dealer training. After December 15, 1994, the price will go to \$3850. Attached is a flyer that gives more details and the ordering procedures. If you want to order this lathe, be sure to note the following:

1. You can pre-order your lathe with Accu Industries immediately. Due to the anticipated demand, it is recommended that you order now. All lathes will be shipped on a first come, first serve basis.
2. Accu Industries will begin shipping lathes 11/1/94. Shipments will include the specially designed Mazda adapters.
3. You must place your order by December 15, 1994 to be guaranteed delivery before the January 1, 1995 warranty deadline. **THERE ARE NO EXCEPTIONS!**
4. After the delivery of the lathe, your parts account will be debited accordingly.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

871650

Number: 002/94	Date Issued: 10/25/94	Revised: 11/16/94
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***APPLICATION TABLE FOR NGS PROGRAM CARD VERSION 2.0 (P/N 49T0-88-010A)**

NOTE	APPLICABLE MODEL	PCM* ¹	TCM* ²	ABS	A/C	CCM* ³
	1995 MILLENIA	O* ⁴	(O)	O* ⁵	O	O
X	1995 PROTEGE	O* ⁴	(O)	O	-	O
X	1995 626/MX-6 WITH FS ENGINE	O	-	O	-	O
X	1995 626/MX-6 WITH KL ENGINE	O	O	O	-	O
X	1995 929	O	O	O	O	O
X	1995 MX-3	O	O	O	-	-
X	1995 MIATA	O	O	O	-	-
X	1995 RX-7	O	O	O	-	O
X	1995 MPV	O	O	-	-	-
X	1995 B2300, B3000, B4000	O* ⁴	(O)	O	-	-
	1994 323/PROTEGE	O	O	-	-	-
	1994 626/MX-6 WITH FS ENGINE (EC-AT)	O	(O)	O	-	O
	1994 626/MX-6 WITH FS ENGINE (MT)	O	-	O	-	O
	1994 626/MX-6 WITH KL ENGINE	O	O	O	-	O
	1994 929	O	O	-	O	O
	1994 MX-3	O	O	O	-	-
	1994 MIATA	O	O	O	-	-
	1994 RX-7	O	O	-	-	-
	1994 MPV WITH G6 ENGINE	O	O	-	-	O
	1994 MPV WITH JE ENGINE	O	O	-	-	-
	1994 NAVAJO	O	(O)	-	-	-
	1994 B2300 2.3L (49S)	O	(O)	O	-	-
	1994 B2300 2.3L (CAL)	O	(O)	-	-	-
	1994 B3000 & B4000	O	(O)	-	-	-
	1993 NAVAJO	O	-	O	-	-
	1992 - 1993 ALL VEHICLES EXCEPT NAVAJO	O	O	O	O	O
	1991 - 1992 NAVAJO	O	-	-	-	-
	1991 ALL VEHICLES EXCEPT NAVAJO	O	O	-	-	-
	1988 - 1990 ALL VEHICLES	O	O	-	-	-

*1: PCM= Power Control Module

*2: TCM= Transmission Control Module

*3: CCM= Cruise Control Module

*4: on-vehicle control unit equipped with OBD-II

*5: include Traction Control System

(O): means there is no TCM, but it is possible to diagnose the TCM from the PCM menu.

X: means these year/models are newly added to the program card.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



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Category ST	Applicable Model/s ALL	Subject BATTERY TESTER RECOMMENDATION/ NEW NATIONAL ACCOUNT	Bulletin No. 003/95
			Issued 4/27/95
			Revised

RECOMMENDATION

After completing an extensive battery tester evaluation, Mazda recommends the Midtronics PowerSensor Plus electronic battery tester. It is used for diagnosing batteries as outlined in Service Bulletin Category G 002/95, issue date April 5, 1995.

Please refer to the attached flyer for the benefits of this tester.

NEW NATIONAL ACCOUNT

Mazda has established a national account with Midtronics, Inc. which allows you to directly order from them a special package containing this tester. The following are highlights of this account. For further details refer to the attached flyer.

Pricing

The special package is available at the introductory price of \$598.50. This price is effective up to and including July 31, 1995. After this date the price will be \$680.00. THERE ARE NO EXCEPTIONS!

Order Information

Use the easy ordering procedures on the attached flyer to order your tester package.

Shipping & Billing Information

Your order will be shipped prepaid via UPS. Your parts account will be billed upon delivery.

Your District Customer Support Manager will be offering a demonstration of this tester during their next dealer visit. If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

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Index # 042734
.....

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager



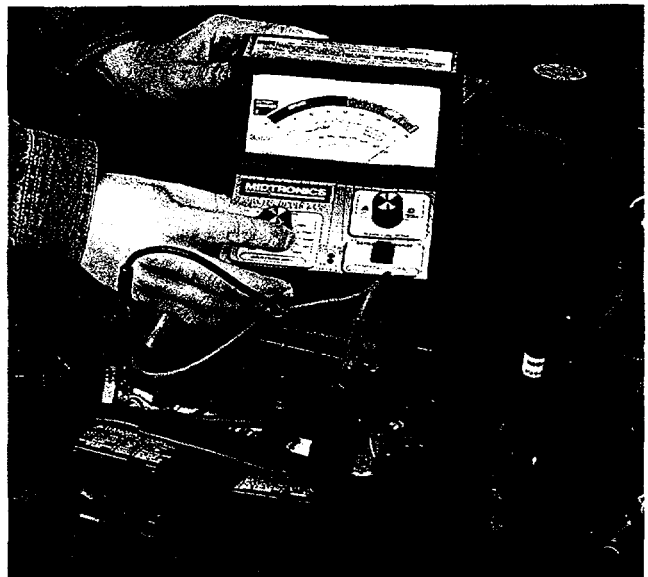
POWERSENSOR PLUS ELECTRONIC BATTERY TESTER

Mazda is proud to introduce the Midtronics PowerSensor Plus electronic battery tester as recommended service equipment for all dealers. This electronic battery tester has been evaluated extensively by Mazda. It is to be used for the maintenance free battery diagnostic and charging procedures outlined in Service Bulletin Category G 002 / 95, issue date April 5, 1995. This tester will also be used by Mazda when testing batteries.

Your District Customer Support Manager will be offering a demonstration on this tester during their next dealer visit. To assist you with the purchase of this recommended equipment, we are offering a special introductory price which is only available until July 31, 1995.

Benefits:

- No need to pre-charge battery, tests batteries as low as 10.2 volts.
- Fast - less than 10 seconds for a complete battery test.
- Locates "discharged only" and "marginal" batteries that will fail soon.
- Compensates for low temperature - no need for the battery to be at room temperature.
- Portability - tests batteries in or out of the vehicle.
- Test is repeatable - it does not apply a load on the battery.
- Safety - no sparks or heat, locates batteries with a "bad" cell.



(tear along perforation)



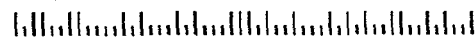
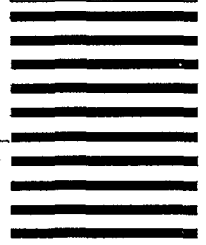
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 386 BURR RIDGE, IL

POSTAGE WILL BE PAID BY ADDRESSEE

ATTN: ORDER DEPARTMENT
Midtronics, Inc.

8230 S. Madison Street
Burr Ridge, IL 60521-9756



THE SPECIAL MAZDA PACKAGE INCLUDES:

- Battery Tester
- Carrying Case
- Battery Side Post Adapters
- Extra Fuses
- Instruction Card



Special Introductory Price of: \$598.50 (taxes not included)

- After July 31, 1995, the price will be \$680.00.
- Your order will be billed to your parts account upon delivery.

Three Easy Ways to Order:



MAIL
Order Form



Phone
(800) 776-1995



Fax
(708) 323-2844

(tear along perforation)

BUSINESS REPLY FORM

Please send me 1 Mazda Package.

Dealer Name: _____ Dealer No.: _____

Contact Name: _____

Please contact me about the battery tester.

Street Address: _____

City: _____ County: _____

State: _____ Zip Code: _____

Phone No.: (_____) _____ Ext. _____ Dealer P.O. No.: _____

Authorized Signature: _____

Service Bulletin

Mazda North American Operations
Irvine, CA 92718-2906



Category ST	Applicable Model/s All Models	Subject RECOMMENDED SPECIAL SERVICE TOOL STORAGE CABINET SYSTEMS	Bulletin No. 003/98 Issued 7/16/98 Revised
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DESCRIPTION

The Mazda SST Storage Cabinet System has proven to be an effective means of organizing and securing Mazda's Special Tools. There are four different configurations of cabinets available to fit your needs.

All configurations are shipped with a pre-installed drawer liner organization method that includes drawer liners, partition/dividers and a Tool Location Index. This index allows users to efficiently locate and inventory Mazda Required Tools and Optional Tools.

The cabinet systems are easily updated. When a new SST(s) is shipped to your service department, drawer liner update information is enclosed for the SST. This information consists of update instructions, drawer liner/index update stickers, and any necessary drawer dividers. See attached brochure for further details.

APPLICATION

Each of the four cabinet systems is designed to store all your Mazda Required Tools with additional space available for other tools and equipment.

ORDER PROCEDURE - MAZDA M:NET

Order your SST Storage Cabinet System order through M:NET, Mazda's computer-based information and order fulfillment system. You will find information describing the process of using M:NET in the M:NET Operations Guide.

PRICING

Summer 1998 Promotional Pricing

During July, August, and September, you can order cabinets at the discounted prices listed below. In addition, the cabinet manufacturer, Stanley Storage Systems, is providing free shipping during this promotion. Your parts account will be billed over a three month period.

SST Storage Cabinet System		Summer 1998 Price	Dealer Price
Mazda 01	3 low cabinets with 21 drawers	\$2,195.00	\$2,395.00
Mazda 02	3 low cabinets with 21 drawers, and steel top	\$2,395.00	\$2,595.00
Mazda 03	3 low cabinets with 21 drawers, shelf riser, and 3 bookcases	\$2,995.00	\$3,195.00
Mazda 04	2 high cabinets with 22 drawers	\$2,195.00	\$2,395.00

SHIPPING AND BILLING INFORMATION

Your order will be shipped directly from the manufacturer and your parts account billing will begin upon receipt. Again, your parts account will be billed over a three month period.

Please contact your District Customer Support Manager, America Kowa Seiki (800-824-9655 or 310-638-1000 ext. 211) or Tools/Equipment Manager (714-442-6531) if you have any questions regarding this information.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

060467

Page 1 of 1

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s ALL CURRENT	Subject MAZDA REQUIRED TOOL (MRT) INVENTORY LIST	Bulletin No. 004/96
			Issued 08/21/96
			Revised

DESCRIPTION

Attached is a "Mazda Required Tool (MRT) Inventory List". It contains all Special Service Tools your dealer is currently required to have to properly service Mazda vehicles.

As needed, Mazda will issue Special Tool Service Bulletins to address any updates* to this list. A new list will be issued annually incorporating all applicable updates from the previous year.

* NOTE: Updates will not include price changes. Use the toll free telephone numbers listed below "ORDERING TOOLS" to contact America Kowa Seiki, Inc., Mazda's tool vendor, for current pricing.

APPLICATION

This inventory list is to be used by your dealer to assist you with maintaining a complete inventory of these required tools.

ORDERING TOOLS

Directly contact America Kowa Seiki, Inc. using the toll free telephone numbers listed below to order any Mazda Special Service Tool.

(800) 824-9655 OR (800) 535-5455

BILLING FOR TOOLS

Your dealer will be billed directly by America Kowa Seiki. **YOU CANNOT BILL TOOL ORDERS TO YOUR PARTS ACCOUNT.**

If you have any questions regarding this information contact your District Customer Support Manager or Tools/ Equipment Manager at (714) 442-6465.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

Pg. 1

TOOL NUMBER	DESCRIPTION	DEALER PRICE	Notes		INV. YES/NO
			1	2	
0000-42-0010	ANTI-LOCK BRAKE SYSTEM CHECKER	\$1,957.58			
4901-80-321A	MAIN DRIVE GEAR BEARING INSTALLER	\$32.00			
4901-80-510B	BEARING PRELOAD MEAS. ATTACHMENT	\$12.25			
4902-23-630B	REAR AXLE SHAFT PULLER	\$63.00			
4902-59-4400	MAINSHAFT HOLDER	\$31.56			
4902-59-7200	SIDE BEARING NUT WRENCH	\$51.13			
4903-05-4300	MAIN DRIVESHAFT PUSHER	\$76.08			
4903-78-3750	CLUTCH SPRING COMPRESSOR	\$39.63			
4903-78-3900	OIL PUMP PULLER	\$44.89			
4903-78-400B	OIL PRESSURE GAUGE SET	\$146.45			
4905-00-3300	TRANSMISSION BEARING INSTALLER	\$29.63			
4906-03-635A	REAR SHAFT BEARING NUT WRENCH	\$89.94			
4906-36-100B	VALVE SPRING LIFTER ARM & PIVOT	\$70.11			
4907-27-4150	BEARING INSTALLER	\$28.06			
4908-39-305A	COUNTERWEIGHT PULLER (A/T)	\$79.81			
4908-39-425C	BEARING PULLER SET	\$254.94			
4912-32-670A	P/S OIL PRESSURE GAUGE SET	\$307.63			
4912-43-465A	MAINSHAFT LOCK NUT WRENCH	\$51.31			
4912-85-0710	ECCENTRIC SHAFT BEARING PULLER	\$52.75			
4918-81-055A	COUNTERWEIGHT STOPPER	\$50.89			
4985-01-631A	REAR AXLE SHAFT PULLER ATTACHMENT	\$89.44			
4985-31-5550	GAUGE BLOCK	\$77.70			
4985-31-5650	MIDDLE PINION	\$245.78			
4992-00-162A	ENGINE SIGNAL MONITOR	\$432.85			
4992-00-1670	ADAPTOR HARNESS	\$198.73			
4992-02-0200	PRESSURE PLATE REMOVER	\$26.01			
4992-02-0300	SEAL PLATE REMOVER	\$118.01			
4992-02-0400	SHAFT SEAL REMOVER	\$64.25			
49B0-12-0060	VALVE SPRING LIFTER ARM & PIVOT	\$18.00			
49B0-12-0A20	PIVOT	\$56.79			
49B0-17-1020	PRELOAD ADAPTOR	\$25.56			
49B0-17-1A00	BEARING REMOVER SET	\$239.75			
49B0-19-0020	BODY (RETURN SPRING COMPRESSOR)	\$74.04			
49B0-19-0040	ECAT BRAKE BAND ADAPTOR	\$8.13			
49B0-19-0050	ECAT BRAKE BAND ADAPTOR	\$8.13			
49B0-19-0070	PRELOAD ADAPTOR	\$33.06			
49B0-19-0080	LEAK CHECKER	\$67.11			
49B0-19-9010	OIL PRESSURE GAUGE	\$111.41			
49B0-19-9040	PANEL (MMC)	\$38.81			
49B0-19-9080	HARNESS ADAPTOR	\$337.81			
49B0-19-9A00	SYSTEM SELECTOR	\$128.66			
49B0-19-9A10	ECAT SELECTOR	\$503.13			
49B0-25-0010	DUST SEAL INSTALLER	\$29.25			
49B0-26-1A00	REAR HUB PULLER	\$123.63			
49B0-32-3040	POWER STEERING GAUGE ADAPTOR	\$61.81			
49B0-43-0010	ADJUST GAUGE	\$79.06			
49B0-43-0020	BEARING INSTALLER	\$11.75			
49B0-61-0050	A/C SEAL PLATE REMOVER	\$18.69			

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

8/15/96

kk@mist

MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

Pg. 2

TOOL NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49D0-19-0010	BOLT, SHIM SELECTOR SET	\$10.88			
49D0-19-9020	HARNESS ADAPTOR	\$247.25			
49D0-32-3160	PROTRACTOR	\$8.78			
49E0-11-0010	GUIDE, PISTON PIN	\$9.93			
49E0-11-0020	SCREW	\$21.56			
49E0-11-1A10	HOLDER SET	\$72.89			
49E0-43-001A	GAUGE, PUSH ROD	\$120.22			
49E0-43-0020	INSTALLER, RETAINER	\$29.04			
49E0-43-003A	TURNING LOCK TOOL	\$91.08			
49F0-11-1A10	BEARING INSTALLER SET	\$31.59			
49F0-17-1010	SYNCHRONIZER RING HOLDER "M"	\$32.81			
49F0-17-1A00	UNIVERSAL WRENCH	\$91.29			
49F0-18-0020	IGNITER CHECKER	\$71.88			
49F0-18-0030	ADAPTOR HARNESS	\$63.25			
49F0-18-9030	SHEET	\$7.19			
49F0-19-0010	OIL SEAL INSTALLER	\$28.03			
49F0-19-0A00	ADAPTOR SET	\$61.29			
49F0-19-901A	ECAT HARNESS	\$227.59			
49F0-26-1020	BEARING INSTALLER	\$28.06			
49F0-26-1030	WHEEL HUB PULLER	\$86.25			
49F0-26-1040	SENSOR ROTOR INSTALLER	\$60.38			
49F0-27-0A00	PINION HEIGHT ADJ. GAUGE	\$697.25			
49F0-27-0A10	BEARING INSTALLER SET	\$158.13			
49F0-43-0010	ADJUST GAUGE	\$23.75			
49F4-01-330B	BEARING INSTALLER SET	\$71.19			
49F4-01-4400	PRIMARY SHAFT HOLDER	\$18.88			
49FT-01-3610	BEARING REMOVER	\$40.19			
49FT-01-4390	IDLER GEAR SHAFT HOLDER	\$14.25			
49G0-17-1A00	BEARING REMOVER SET	\$356.25			
49G0-17-2020	ATTACHMENT PRELOAD ADAPTOR	\$28.44			
49G0-18-9010	THROTTLE SENSOR ADAPTOR HARNESS	\$14.25			
49G0-18-9030	ADAPTOR HARNESS	\$395.31			
49G0-18-9040	SHEET	\$6.46			
49G0-18-9060	SHEET	\$16.61			
49G0-19-0110	BEARING INSTALLER "M"	\$19.25			
49G0-19-0120	LEAK CHECKER "M"	\$54.29			
49G0-19-0130	BEARING REMOVER "M"	\$57.75			
49G0-19-0170	OIL SEAL INSTALLER "M"	\$32.13			
49G0-19-018A	SHIM SELECTOR SET "M"	\$202.38			
49G0-19-0200	PRELOAD ADAPTOR	\$27.13			
49G0-19-0220	ATTACHMENT "K"	\$25.00			
49G0-19-0310	WRENCH	\$25.74			
49G0-19-0A7A	RETURN SPRING COMPRESSOR SET	\$199.81			
49G0-25-0010	DRIVESHAFT SENSOR ROTOR INSTALLER	\$46.44			
49G0-26-1020	BEARING REPLACER	\$29.94			
49G0-26-1030	SUPPORT BLOCK	\$36.69			
49G0-30-2220	VALVE SPRING LIFTER ARM & PIVOT	\$16.44			
49G0-30-3380	ATTACHMENT "D"	\$12.38			

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 ◆ (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

8/15/96

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

Pg. 3

TOOL NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49G0-30-3700	REMOVING PLATE	\$46.31			
49G0-30-380C	SHIM SELECTOR SET	\$918.19			
49G0-30-4400	PRIMARY SHAFT HOLDER	\$21.13			
49G0-30-7950	OIL SEAL INSTALLER	\$27.81			
49G0-32-3550	ADJUST GAUGE	\$7.50			
49G0-33-1070	KNUCKLE DUST COVER INSTALLER	\$16.94			
49G0-33-1A10	FRONT HUB PULLER SET	\$177.50			
49H0-02-6710	POWER STEERING GAUGE ADAPTOR	\$140.50			
49H0-10-4010	OIL SEAL INSTALLER & REMOVER	\$23.73			
49H0-11-001B	SUPPORT BLOCK HEAD	\$37.36			
49H0-12-0100	BOX WRENCH	\$44.75			
49H0-17-1010	HOOK	\$88.00			
49H0-18-9100	ADAPTOR HARNESS	\$46.73			
49H0-18-9A10	SELF DIAGNOSIS CHECKER	\$305.00			
49H0-19-0020	ADAPTOR	\$28.81			
49H0-19-9050	ADAPTOR HARNESS	\$247.25			
49H0-19-9080	ADAPTOR HARNESS	\$242.94			
49H0-19-9090	PANEL	\$43.85			
49H0-19-9A10	ECAT TESTER	\$1,004.68			
49H0-25-0010	BEARING INSTALLER	\$16.69			
49H0-25-0020	DUST SEAL INSTALLER	\$20.50			
49H0-25-0030	BEARING INSTALLER	\$23.00			
49H0-25-0040	BEARING INSTALLER	\$18.19			
49H0-26-101A	FRONT HUB SENSOR ROTOR INSTALLER	\$53.88			
49H0-26-1040	GUIDE BLOCK	\$43.25			
49H0-26-1080	REMOVING PLATE	\$124.50			
49H0-27-0010	COLLAR "M"	\$14.38			
49H0-27-0020	BEARING REMOVER "M"	\$79.44			
49H0-28-3010	DUST BOOT INSTALLER	\$25.00			
49H0-32-321A	HEX WRENCH	\$13.99			
49H0-32-3220	ADAPTOR	\$56.06			
49H0-33-1010	BEARING REMOVER	\$20.06			
49H0-33-1020	INSTALLER, SENSOR ROTOR	\$32.35			
49H0-61-0040	A/C SEAL SEAT REPLACER, A/C	\$13.50			
49H0-66-0020	DEPLOYMENT TOOL	\$145.90			
49H0-66-0030	HARNESS ADAPTOR	\$48.88			
49H0-66-0040	SHORT CIRCUIT CONNECTOR	\$34.19			
49H0-75-280A	COMPRESSION TESTER	\$1,027.68			
49H0-75-4060	ADAPTOR	\$12.13			
49H0-80-7400	PRESSURE TESTER	\$82.69			
49J0-19-0020	CAP	\$16.53			
49J0-27-0010	BEARING INSTALLER	\$24.44			
49J0-27-0020	COLLAR	\$30.70			
49L0-11-0A0B	PISTON PIN SETTING TOOL SET	\$300.45			
49L0-11-2A00	BALANCE SHAFT BUSHING REPLACER SET	\$127.65			
49L0-12-0A00	VALVE SEAL/GUIDE INSTALLER SET	\$59.61			
49L0-17-3020	ADAPTOR, CHANGE MOTOR	\$14.09			
49L0-19-0010	BOLT, A/T CLUTCH SPRING COMPRESSOR	\$26.91			

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

Pg. 4

TOOL NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49L0-19-9020	PANEL	\$37.26			
49L0-33-1010	INSTALLER, OIL SEAL	\$32.55			
49L0-33-1030	SENSOR ROTOR INSTALLER	\$31.25			
49M0-05-7960	OIL SEAL INSTALLER BODY "M"	\$29.25			
49N0-18-0010	ADAPTOR HARNESS	\$62.54			
49N0-27-0010	GAUGE BLOCK	\$51.75			
49N0-34-2130	DIFFERENTIAL BUSHING INSTALLER	\$39.54			
49S0-26-0010	INSTALLER	\$28.67			
49S1-20-520A	REAR AXLE SHAFT BEARING PULLER	\$179.75			
49S1-20-645A	REAR AXLE SHAFT HOLDER	\$46.00			
49S1-20-7480	ATTACHMENT	\$12.82			
49S2-31-6350	LOCKNUT WRENCH "M"	\$53.63			
49S2-31-6600	NEEDLE BEARING PULLER	\$135.06			
49T0-12-0A00	TAPPET HOLDER SET	\$242.81			
49T0-18-9020	ADAPTOR HARNESS	\$572.14			
49T0-18-9050	SHEET	\$9.76			
49T0-18-9060	HARNESS ADAPTOR	\$696.64			
49T0-88-010C	ROM CARD VER. 2.02	\$290.56			
49T0-88-0A00	NGS, DELUXE SET W/O ROM CARD	\$1,362.22	◆	◆	
49U0-14-0010	AIR PRESSURE TESTER	\$41.44			
49U0-18-0010	ADAPTOR HARNESS "A"	\$189.50			
49U0-25-0010	PROTECTOR INSTALLER	\$58.81			
49U0-27-0010	COLLAR "M"	\$18.19			
49U0-27-0030	OIL SEAL INSTALLER "M"	\$34.44			
49U0-27-0050	BEARING INSTALLER	\$25.16			
49U0-27-0060	BEARING & OIL SEAL INSTALLER	\$24.44			
49U0-27-0070	OIL SEAL INSTALLER	\$30.68			
49U0-33-1010	BEARING INSTALLER "M"	\$20.06			
49U0-34-2A00	LOWER ARM BUSHING PULLER/INSTALLER	\$114.63			
49UB-39-585A	ADJUST WRENCH	\$41.75			
49UN-01-0010	CRANKSHAFT DAMPER REMOVER	\$39.16		◆	
49UN-01-0020	CRANKSHAFT DAMPER REPLACER	\$41.37		◆	
49UN-01-0030	FRONT COVER SEAL REMOVER	\$80.10		◆	
49UN-01-0040	FRONT COVER ALIGNER	\$50.82		◆	
49UN-01-0050	FRONT CRANK SEAL INSTALLER	\$14.90		◆	
49UN-01-0060	FUEL LINE COUPLING TOOL	\$12.96		◆	
49UN-01-0070	CLUTCH HOLDING TOOL	\$22.66		◆	
49UN-01-0080	FAN CLUTCH NUT WRENCH	\$29.03		◆	
49UN-01-0100	FUEL PRESSURE GAUGE	\$125.63	◆	◆	
49UN-01-0110	MAINSHAFT LOCKNUT WRENCH	\$47.42		◆	
49UN-01-0120	BELL HOUSING SEAL REPLACER	\$23.17		◆	
49UN-01-0130	COUNTER LEVER WRENCH	\$16.24		◆	
49UN-01-0140	BALL DETENT INSTALLER	\$10.69		◆	
49UN-01-0150	FRONT PUMP ALIGNMENT SET	\$157.47		◆	
49UN-01-0160	SERVO ROD SELECTING GAUGE	\$48.64		◆	

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 ◆ (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

8/15/96

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

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TOOL NUMBER	DESCRIPTION	DEALER PRICE	Notes		INV. YES/NO
			1	2	
49UN-01-0170	LIP SEAL PROTECTOR	\$7.62		◆	
49UN-01-0180	SEAL PROTECTOR	\$11.16		◆	
49UN-01-0190	FRONT PUMP SEAL REPLACER	\$13.19		◆	
49UN-01-0200	FRONT PUMP SEAL STAKING TOOL	\$52.99		◆	
49UN-01-0210	A/T TEST PLATE	\$24.92		◆	
49UN-01-0220	COLLET	\$90.13		◆	
49UN-01-0230	ACTUATOR PIN	\$27.60		◆	
49UN-01-0240	FRONT SHAFT NEEDLE BEARING REPLACE	\$13.51		◆	
49UN-01-0250	INPUT SHAFT BUSH/BEARING REPLACER	\$34.31		◆	
49UN-01-0260	DIFFERENTIAL HOUSING SPREADER	\$276.08		◆	
49UN-01-0270	SPREADER ADAPTORS	\$78.16		◆	
49UN-01-0280	AXLE BEARING SEAL INSTALLER	\$46.26		◆	
49UN-01-0290	PINION/CARRIER BEARING PULLER	\$689.00		◆	
49UN-01-0300	DUMMY BEARING SET	\$135.15		◆	
49UN-01-0310	DIFFERENTIAL BEARING REPLACER	\$14.22		◆	
49UN-01-0320	AXLE BEARING REMOVER	\$48.89		◆	
49UN-01-0330	AXLE BEARING REMOVER	\$33.60		◆	
49UN-01-0340	SHIM DRIVER	\$14.42		◆	
49UN-01-0350	PINION BEARING CUP REPLACER	\$75.58		◆	
49UN-01-0360	PINION BEARING CONE REPLACER	\$54.40		◆	
49UN-01-0370	HEX LOCKNUT WRENCH	\$16.90		◆	
49UN-01-0380	SPINDLE BEARING REPLACER	\$20.48		◆	
49UN-01-0400	SEAL REPLACER	\$32.20		◆	
49UN-01-0410	BEARING CUP REPLACER	\$22.46		◆	
49UN-01-0420	LOCKNUT WRENCH	\$24.95		◆	
49UN-01-0430	SHAFT SEAL INSTALLER	\$12.83		◆	
49UN-01-0440	SHAFT SEAL REMOVER	\$30.32		◆	
49UN-01-0450	SHAFT SEAL PROTECTOR	\$8.23		◆	
49UN-01-0460	COIL PRESSING TOOL	\$30.32		◆	
49UN-01-0470	COIL REMOVER SHAFT PROTECTOR	\$26.84		◆	
49UN-01-0480	PRESSURE TEST PLATE	\$23.73		◆	
49UN-01-0500	RADIO REMOVING TOOL X 2	\$17.77		◆	
49UN-01-0570	EDIS DIAGNOSTIC CABLE	\$600.00		◆	
49UN-01-0580	60 PIN BREAKOUT BOX	\$492.95	◆	◆	
49UN-01-0590	MAP/BP SENSOR TESTER	\$81.00		◆	
49UN-01-0600	FIXED ORIFICE TUBE TOOLS	\$19.52		◆	
49UN-01-0610	BROKEN ORIFICE TUBE EXTRACTOR	\$10.89		◆	
49UN-01-0620	TEVES ABS ADAPTOR (BLEEDER)	\$259.13		◆	
49UN-01-0630	TEVES ABS ADAPTOR (JUMPER)	\$156.64		◆	
49UN-01-0640	REAR MAIN OIL SEAL INSTALLER	\$59.82	◆	◆	

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 ◆ (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

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MAZDA REQUIRED TOOL (MRT) INVENTORY LIST

Notes

Pg. 6

TOOL NUMBER	DESCRIPTION	DEALER PRICE	1	2	INV. YES/NO
49UN-01-0650	VALVE SPRING COMPRESSOR	\$36.42	◆	◆	
49UN-01-0660	VALVE STEM SEAL INSTALLER	\$20.26	◆	◆	
49UN-01-0670	CAMSHAFT BELT TENSION TOOL	\$34.79	◆	◆	
49UN-01-0680	FRONT COVER ALIGNMENT TOOL	\$52.12	◆	◆	
49UN-01-0690	CRANKSHAFT H.E. SENSOR POSIT.	\$6.16	◆	◆	
49UN-01-0700	2.3L CRANK SEAL INSTALLER	\$61.27	◆	◆	
49UN-01-0710	MAZDA A/T TESTER SET W/CASE	\$728.89	◆	◆	
49UN-01-0720	LIP SEAL PROTECTOR	\$5.48	◆	◆	
49UN-01-0730	BEARING CONE REPLACER	\$19.72	◆	◆	
49UN-01-0740	DIFFERENTIAL SIDE BRG REPLACER	\$61.34	◆	◆	
49UN-01-0760	SPINDLE/AXLE BRG REPLACER	\$95.45	◆	◆	
49UN-01-0770	SYNCHRO POSITIONER TOOL	\$12.32	◆	◆	
49UN-01-0780	DIS DIAGNOSTIC HARNESS	\$443.19	◆	◆	
49UN-01-0790	TFI-BOB ADAPTOR	\$262.57	◆	◆	
49UN-01-0800	SEAL PULLER	\$65.70	◆	◆	
49UN-01-0850	SHIFTER SHAFT ALIGNMENT TOOL	\$20.59			
49UN-01-0860	MLPS ALIGNMENT TOOL	\$25.96			
49UN-01-0870	CONVERTER SEAL REMOVER	\$55.99			
49UN-01-0880	SEAL REPLACER	\$20.89			
49UN-01-0890	CD4E CABLE, OVERLAY	\$72.22	◆	◆	
49UN-01-0910	CD4E MLP CABLE, MANUAL	\$63.33	◆	◆	
49UN-01-1040	SERVO COVER REMOVER/REPLACER	\$33.24			
49UN-01-1280	ADAPTOR (ATF OIL PRESSURE)	\$54.20			
49UN-01-1290	SEAL REPLACER	\$13.74			
49UN-01-1300	104 PIN BREAKOUT BOX	\$540.93	◆	◆	
49UN-01-1310	AIR BAG SIMULATOR	\$10.63	◆	◆	
49UN-01-1320	4R44E/4R55E CABLE/OVERLAY	\$78.33	◆	◆	
49UN-01-1340	VALVE SEAL REPLACER	\$26.25			
49UN-01-1350	VALVE SPRING COMPRESSOR	\$54.58			
49UN-01-1360	REAR MAIN SEAL REPLACER	\$56.47			
49UN-01-1440	SERVO COVER COMPRESSOR	\$45.00			
49UN-01-1470	4R44E/4R55E MLP CABLE	\$103.05			
49UN-01-1480	SYNCHRO POSITIONING TOOL	\$59.12			
49UN-01-1500	AIR BAG SIMULATOR	\$10.97			
49UN-11-1010	THREADED ADAPTOR	\$27.89		◆	
49UN-17-1010	BEARING DRIVER ATTACHMENT	\$39.88		◆	
49UN-27-0010	GAUGE BLOCK (FRONT)	\$68.80		◆	
49UN-27-0020	GAUGE BLOCK (REAR)	\$55.49		◆	
49UN-27-0030	COLLAR "A"	\$32.55		◆	
49UN-27-0040	COLLAR "B"	\$29.14		◆	
49W0-27-0010	OIL SEAL INSTALLER "M"	\$47.88			

Notes: (1) This tool is required by Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.
 ◆ (2) This tool is required by Ford or Ford/Lincoln/Mercury and therefore not required by Mazda if the service area is combined at one location.

8/15/96

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Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s ALL	Subject NEW V4.0 NGS CARD (49T0-88-010E) AND REPROGRAMMING OF V2.02 (49T0-88-010E)	Bulletin No. 004/97 issued 10/10/97 Revised
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DESCRIPTION

Per Special Tool Service Bulletin 006/96, issued 11/21/96, your dealer should currently have two reprogrammable New Generation Star (NGS) cards. One card contains an older Version 2.02 (P/N 49T0-88-010C) and the other card contains your most current Version 3.0 (P/N 49-T0-88-010D).

Your most current Version 3.0 has been supersede to Version 4.0 (P/N 49T0-88-010E). It includes new 1998 service information. This new version is a Mazda Required Tool (MRT) since it is used with the NGS tester to properly service MAZDA vehicles.

Mazda's tool vendor, America Kowa Seiki, Inc. (AKS), is offering a reprogramming service which will update your older Version 2.02 to Version 4.0 at a substantial savings. Follow the REPROGRAMMING PROCEDURE on page two to participate in this service.

NOTE:

If your dealer chooses not to participate, or cannot participate in this reprogramming service, a new card with V4.0 will automatically be shipped to your dealer at a substantially higher price.

APPLICATION

This card is used with your NGS tester to properly service 1988-1998 Mazda Vehicles. Refer to your Workshop Manual for the application of this card and the tester.

PRICING

The price for the V4.0 reprogramming service is \$210.00 plus return shipping costs. If you do not participate in the V4.0 reprogramming, or miss the October 31, 1997 cut-off date, your cost will be \$313.32 plus shipping costs.

SHIPPING & BILLING INFORMATION

Your NGS card with V4.0 will be shipped to you by November 14, 1997. DO NOT SEND PAYMENT TO AMERICA KOWA SEIKI, INC. Your parts account will be billed for the appropriate amount.

Please contact your District Customer Support Manager, America Kowa Seiki (800-824-9655 or 310-638-1000) or Tools/Equipment Manager (714-442-6531) if you have any questions regarding this information.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Number:


Date issued:

Revised:

REPROGRAMMING PROCEDURE

Use the following procedure to have your Version 2.02 card updated to Version 4.0:

STEP 1: Identify your card by using ball-point pen or permanent marker and enter your dealer information as shown in the following example:

	<ul style="list-style-type: none">• Store card in plastic cover• Keep card dry• Do not expose card to direct sunlight or extreme temperature• Do not bend or drop
YOUR DEALER CODE	82396
DEALER NAME	XYZ MAZDA
CITY, STATE	ANYTOWN, MA
	 Made in the U.S.A. by Hakok Incorporated

NOTE:

We recommend that you identify your card to ensure that you will receive the same card that you submitted for reprogramming.

STEP 2: Carefully package your card and address it to the following address:

**America Kowa Seiki, Inc.
20013 S. Rancho Way
Rancho Dominguez, CA 90220**

RE: MAZDA NGS CARD REPROGRAMMING

STEP 3: Send your package prepaid. Your dealer is responsible for shipping costs. Be sure it arrives at America Kowa Seiki, Inc. no later than October 31, 1997.

NOTE:

1. **DO NOT SEND YOUR V3.0 CARD!** You are to use this card with your NGS tester while your older card is being updated.
2. Your older card will be returned to you if you miss the October 31, 1997 cut-off date and a new card with V4.0 will automatically be shipped to you .

Your reprogrammed V4.0 card will be shipped to you no later than November 14, 1997.

Category ST	Applicable Model/s ALL	Subject NEW V6.0 NGS CARD (49T0-88-010G) AND REPROGRAMMING OF V4.0 (49T0-88-010E)	Bulletin No. 005/98 Issued 08/25/98 Revised
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DESCRIPTION

Per Service Bulletin Cat. ST 001/98, issued 02/23/98, your service department currently has two reprogrammable New Generation Star (NGS) cards, an older Version 4.0 program (P/N 49T0-88-010E) and a current Version 5.0 program (49T0-88-010F). On September 11, 1998, V5.0 will supersede to V6.0 (P/N 49T0-88-010G) as a new Mazda Required Tool (MRT) to properly service MAZDA vehicles.

MNAO Technical Services Department is offering a reprogramming service which will update your older Version 4.0 to Version 6.0 at a substantial savings. Your V4.0 must be received by MNAO Technical Services Department no later than **September 4, 1998**. Follow the **REPROGRAMMING PROCEDURE** on page two to participate in this service.

Note

- Be sure to send your V4.0 card to MNAO Technical Services Department. **DO NOT SEND YOUR VERSION 4.0 CARD TO AMERICA KOWA SEIKI, INC.**
- If your service department chooses not to participate, or cannot participate in this reprogramming service, a new V6.0 card will be automatically shipped to your service department.

APPLICATION

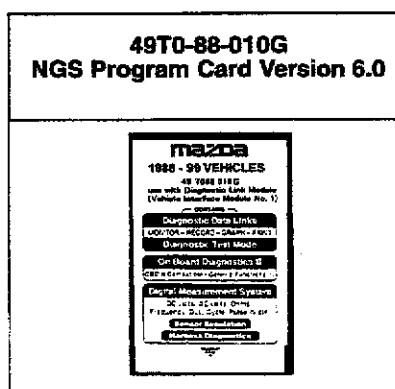
This card is used with your NGS Tester to properly service 1988 – 1999 Mazda Vehicles. Refer to your Workshop Manual for the application of this card and tester.

PRICING

The price for the V6.0 reprogramming exchange is \$216.09 plus shipping costs. If MNAO Technical Services Department does not receive your V4.0 card, or you miss the **September 4, 1998** cut-off date, the new card price is \$316.57 plus shipping costs.

SHIPPING AND BILLING INFORMATION

Your NGS card with V6.0 will be shipped to you by September 11, 1998. Your parts account will be billed for the appropriate amount. **DO NOT SEND PAYMENT TO AMERICA KOWA SEIKI, INC.**



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Number: 005/98	Date Issued: 08/025/98	Revised:
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REPROGRAMMING PROCEDURE

Please use the following procedure to update your NGS Version 4.0 program card to Version 6.0 program card.

STEP 1: Carefully inspect your V4.0 card for signs of damage (i.e. dents, cracks, fluid damage, etc.), since MNAO Technical Services Department will only accept cards that are reprogrammable.

STEP 2: Package your V4.0 card in a small box with your Service Manager's business card taped to the NGS card. Send the package to the following address:

**MNAO Technical Services Department
1444 McGaw Avenue
Irvine, CA. 92614**

RE: Mazda NGS Card Reprogramming

Step 3: Send your package by Federal Express 2 day or UPS Blue label prepaid. It must arrive at MNAO Technical Services Department by September 4, 1998.

NOTE:

DO NOT SEND YOUR V5.0 NGS CARD! Use this V5.0 card until your new V6.0 card arrives at your Service Department.

Please contact your District Customer Support Manager or Tools / Equipment Manager (949-442-6531) if you have any questions regarding this information.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

MAZDA

Category ST	Applicable Model/s ALL 1988-96 MODELS	Subject SHIPMENT OF SPECIAL TOOLS DURING NOVEMBER 1996	Bulletin No. 006/96
			Issued 11/21/96
			Revised

DESCRIPTION

Your NGS program card version 2.02 (p/n 49T0-88-010C) used with your New Generation Star tester has been superceded to version 3.0 (p/n 49T0-88-010C). Version 3.0 includes 1997 new model information.

IMPORTANT: DO NOT LOSE OR DISPOSE OF YOUR OLD VERSION 2.02 CARD! Both the 2.02 and 3.0 cards are reprogrammable. All future versions of the NGS program card will be available via reprogramming. Next year Mazda will request you to return your old version 2.02 card so that it can be reprogrammed to version 4.0 while you continue to use your 3.0 card. Reprogramming reduces your cost for future versions by charging you only for reprogramming instead of the card plus reprogramming and eliminates NGS down time.

If you lose or dispose of your card, you will be required to purchase both a new card and programming at a substantially higher price.

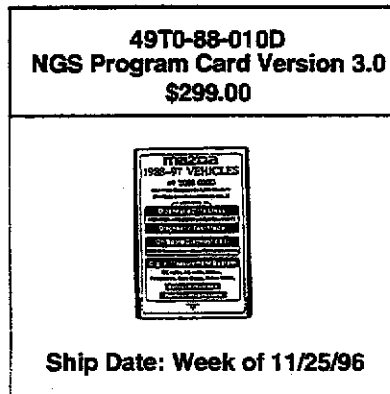
Below is an illustration of this new card. It is a Mazda Required Tool (MRT) and will be automatically shipped to your dealer by Mazda's tool vendor, America Kowa Seiki, Inc.

APPLICATION

Refer to the attached table for the application of this card.

PRICING

The price of this card is \$299.00.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Number: 006/96	Date Issued: 11/21/96	Revised:
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SHIPPING AND BILLING INFORMATION

This tool will be shipped prepaid via UPS to your dealer during the week of November 25 ,1996. Your parts account will be billed for this tool upon its receipt. Please advise your shipping/receiving personnel of this tool shipment.

NOTE: This program card is small. Therefore, we recommend that your service manager, shop foreman, or lead technician install this card in the NGS tester. This will prevent misapplication or misdiagnosis when using the NGS tester to service a Mazda vehicle.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/ Equipment Manager at (714) 442-6564.

APPLICATION TABLE FOR NGS PROGRAM CARD VERSION 3.0(P/N 49T0-88-010D)

NOTE	APPLICABLE MODEL	PCM*1	TCM*2	ABS	A/C	CCM*3	GEM*4	IABM*5	RAP*6
X	1997 PROTEGE with Z5 engine (MT)	O		O					
X	1997 PROTEGE with Z5 engine (AT)	O	(O)	O					
X	1997 PROTEGE with BP engine (MT)	O		O					
X	1997 PROTEGE with BP engine (AT)	O	(O)	O					
X	1997 626/MX-6 with FS engine (MT)	O		O		O			
X	1997 626/MX-6 with FS engine (AT)	O	(O)	O		O			
X	1997 626/MX-6 with KL engine (MT)	O		O		O			
X	1997 626/MX-6 with KL engine (AT)	O	(O)	O		O			
X	1997 MIATA with BP engine (MT)	O		O		O			
X	1997 MIATA with BP engine (AT)	O	(O)	O		O			
X	1997 MPV with JE engine (AT)	O	(O)	O		O			
X	1997 MILLENIA with KL engine (AT)	O	(O)	O*7	O	O			
X	1997 MILLENIA with KJ engine (AT)	O	(O)	O*7	O	O			
X	1997 B2300 (AT)	O	(O)	O			O	O	O
X	1997 B2300 (MT)	O		O			O	O	O
X	1997 B4000 (AT)	O	(O)	O			O	O	O
X	1997 B4000 (MT)	O		O			O	O	O
	1995-96 MILLENIA	O*8	(O)	O*8	O	O			
	1996 PROTEGE (MT)	O*8		O		O			
	1996 PROTEGE (AT)	O*8	(O)	O		O			
	1996 626/MX-6 (MT)	O*8		O		O			
	1996 626/MX-6 (AT)	O*8	(O)	O		O			
	1996 MIATA (MT)	O*8		O					
	1996 MIATA (AT)	O*8	(O)	O					
	1996 MPV	O*8	(O)	O		O			
	1996 B2300, B3000, B4000 (MT)	O*8		O					
	1996 B2300, B3000, B4000 (AT)	O*8	(O)	O					
	1995 PROTEGE	O*8	(O)	O	-	O			
	1995 626/MX-6 with FS engine	O	-	O	-	O			
	1995 626/MX-6 with KL engine	O	O	O	-	O			
	1995 929	O	O	O	O	O			
	1995 MX-3	O	O	O	-	-			

Number: 006/96	Date Issued: 11/21/96	Revised:
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NOTE	APPLICABLE MODEL	PCM*1	TCM*2	ABS	A/C	CCM*3	GEM*4	IABM*5	RAP*6
	1995 MIATA	0	0	0	-	-			
	1995 RX-7	0	0	0	-	0			
	1995 MPV	0	0	-	-	-			
	1995 B2300, B3000, B4000	0*8	(0)	0	-	-			
	1994 323/PROTEGE	0	0	-	-	-			
	1994 626/MX-6 with FS engine (EC-AT)	0	(0)	0	-	0			
	1994 626/MX-6 with FS engine (MT)	0	-	0	-	0			
	1994 626/MX-6 with KL engine	0	0	0	-	0			
	1994 929	0	0	-	0	0			
	1994 MX-3	0	0	0	-	-			
	1994 MIATA	0	0	0	-	-			
	1994 RX-7	0	0	-	-	-			
	1994 MPV with G6 engine	0	0	-	-	0			
	1994 MPV with JE engine	0	0	-	-	-			
	1994 NAVAJO	0	(0)	-	-	-			
	1994 B2300 2.3L (49S) (SEE SERVICE NOTE BELOW)	0	(0)	0	-	-			
	1994 B2300 2.3L (CAL)	0	(0)	-	-	-			
	1994 B3000 & B4000 (SEE SERVICE NOTE BELOW)	0	(0)	-	-	-			
	1993 NAVAJO	0	-	0	-	-			
	1992 - 1993 ALL EXCEPT NAVAJO	0	0	0	0	0			
	1991 - 1992 NAVAJO	0	-	-	-	-			
	1991 ALL EXCEPT NAVAJO	0	0	-	-	-			
	1988 - 1990 ALL	0	0	-	-	-			

*1: PCM= Powertrain Control Module
 *2: TCM= Transmission Control Module
 *3: CCM= Cruise Control Module
 *4: GEM = Generic Electronic Module
 *5: IABM = Integrated Air Bag Module

*6: RAP = Remote Anti Theft Module
 *7: Include Traction Control System
 *8: on-vehicle control unit equipped with OBD-II
 *9: includes Traction Control System

(0): means there is no TCM, but it is possible to diagnose the TCM from the PCM menu.
 X: means these year/models are newly added to the program card.

SERVICE NOTE

When using the NGS tester's "PID/DATA MONITOR AND RECORD" function on 1994 B2300 & B4000 Federal-specification vehicles, a "LINK COMMUNICATION ERROR" message may be shown on the NGS tester screen. If this occurs, be sure to follow the procedure below.

- 1. When choosing the applicable model on the NGS screen, select the California-specification model instead of Federal-specification model.**
- 2. Then use the "PID/DATA MONITOR AND RECORD" function.**

Be sure to enter the Federal-specification model on the tester's screen ("B2300 49S" or "B4000 49S") when using other NGS functions.

Category ST	Applicable Model/s All Models	Subject INSPECTION PROCEDURE FOR TEST LEAD OF NGS TESTER	Bulletin No. 006/98
			Issued 09/30/98
			Revised

APPLICABLE MODEL(S)/VINS

All models

DESCRIPTION

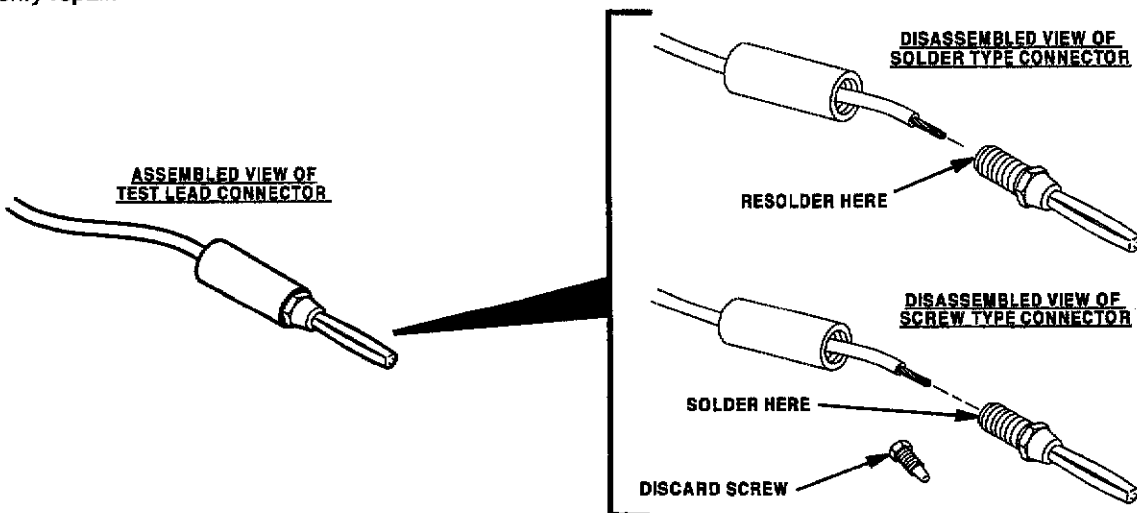
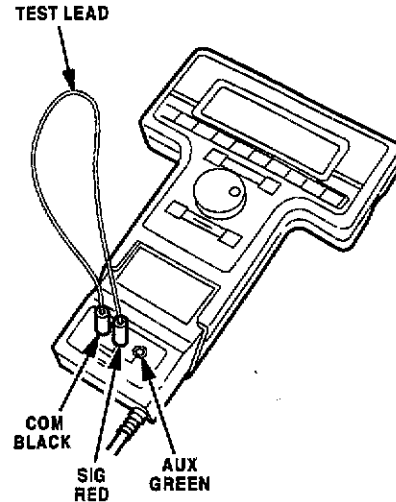
The NGS test lead connectors may become loose or corroded causing incorrect readings. Before using the ohm meter function of the NGS tester for diagnosing electrical circuits, check for excessive resistance in the test leads and connectors and repair them if necessary.

Note

- Two types of connectors (screw and solder) are used on the NGS test leads.

INSPECTION PROCEDURE

1. Verify concern.
2. Select "Ohm Meter" on the tester and connect a test lead between the COM (black) and SIG (red) terminal on the NGS tester and note the reading.
 - A reading of 0 ohms indicates that the test lead and connections do not have excess resistance.
 - A reading other than 0 ohms may indicate a poor connection (go to STEP 3).
3. Disassemble the connectors and check for corrosion, solder breakage, or looseness. Resolder connections to repair as necessary. Refer to illustration below.
4. Verify repair.



CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Consumers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, consumers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

Category ST	Applicable Model/s All 1988-96 Models	Subject SPECIAL TOOLS SHIPMENT DURING OCTOBER 1995	Bulletin No. 007/95 Issued 10/24/95 Revised
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DESCRIPTION

The NGS Program Card (P/N 49T0-88-010A; version 2.0) used with your New Generation Star tester has been discontinued. It has been replaced by a revised card (P/N 49T0-88-010B; version 2.01) that includes all 1996 model information.

Below is an illustration of this new Special Service Tool (SST). It is a Mazda Required Tool (MRT) and will be automatically shipped to your dealer by Mazda's tool vendor, America Kowa Seiki, Inc.

APPLICATION

Refer to the attached table for the application of this revised card.

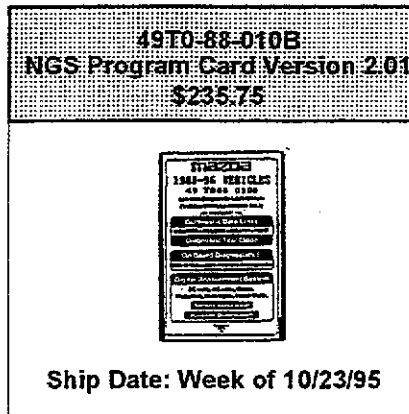
PRICING

The price of this tool is \$235.75 as illustrated below.

SHIPPING AND BILLING INFORMATION

This tool will be shipped prepaid via UPS to your dealer during the week of October 23, 1995. Your parts account will be billed for this tool upon its receipt. Please advise your shipping/receiving personnel of this tool shipment.

NOTE: This program card is small. Therefore, we recommend that your service manager, shop foreman, or lead technician install this card in the NGS tester and discard the discontinued card immediately. This will prevent misapplication or misdiagnosis when using the NGS tester to service a Mazda vehicle.



If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature 059764

Parts Manager

Number: 007/95

Date issued: 10/24/95

Revised:

APPLICATION TABLE FOR NGS PROGRAM CARD VERSION 2.01 (P/N 49T0-88-010B)

NOTE	APPLICABLE MODEL	PCM*1	TCM*2	ABS	A/C	CCM*3
X	1995-96 MILLENIA	O*4	(O)	O*5	O	O
X	1996 PROTEGE (MT)	O*4		O		O
X	1996 PROTEGE (AT)	O*4	(O)	O		O
X	1996 626/MX-6 (MT)	O*4		O		O
X	1996 626/MX-6 (AT)	O*4	(O)	O		O
X	1996 MIATA (MT)	O*4		O		
X	1996 MIATA (AT)	O*4	(O)	O		
X	1996 MPV	O*4	(O)	O		O
X	1996 B2300, B3000, B4000 (MT)	O*4		O		
X	1996 B2300, B3000, B4000 (AT)	O*4	(O)	O		
	1995 PROTEGE	O*4	(O)	O	-	O
	1995 626/MX-6 WITH FS ENGINE	O	-	O	-	O
	1995 626/MX-6 WITH KL ENGINE	O	O	O	-	O
	1995 929	O	O	O	O	O
	1995 MX-3	O	O	O	-	-
	1995 MIATA	O	O	O	-	-
	1995 RX-7	O	O	O	-	O
	1995 MPV	O	O	-	-	-
	1995 B2300, B3000, B4000	O*4	(O)	O	-	-
	1994 323/PROTEGE	O	O	-	-	-
	1994 626/MX-6 WITH FS ENGINE (EC-AT)	O	(O)	O	-	O
	1994 626/MX-6 WITH FS ENGINE (MT)	O	-	O	-	O
	1994 626/MX-6 WITH KL ENGINE	O	O	O	-	O
	1994 929	O	O	-	O	O
	1994 MX-3	O	O	O	-	-
	1994 MIATA	O	O	O	-	-
	1994 RX-7	O	O	-	-	-
	1994 MPV WITH G6 ENGINE	O	O	-	-	O
	1994 MPV WITH JE ENGINE	O	O	-	-	-
	1994 NAVAJO	O	(O)	-	-	-
	1994 B2300 2.3L (49S)	O	(O)	O	-	-
	1994 B2300 2.3L (CAL)	O	(O)	-	-	-
	1994 B3000 & B4000	O	(O)	-	-	-
	1993 NAVAJO	O	-	O	-	-
	1992 - 1993 ALL VEHICLES EXCEPT NAVAJO	O	O	O	O	O
	1991 - 1992 NAVAJO	O	-	-	-	-
	1991 ALL VEHICLES EXCEPT NAVAJO	O	O	-	-	-

*1: PCM= Powertrain Control Module

*2: TCM= Transmission Control Module

*3: CCM= Cruise Control Module

*4: On-vehicle control unit equipped with OBD-II

5: Includes Traction Control System

(O): Means there is no TCM, but it is possible to diagnose the TCM from the PCM menu.

X: Means these year/models are newly added to the program card.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category ST	Applicable Model/s All Models	Subject REQUIREMENT OF HFC-134a A/C RECOVERY AND RECYCLING TRAINING AND EQUIPMENT	Bulletin No. 008/95
			Issued 10/24/95
			Revised

DESCRIPTION

A new law by the United States Environmental Protection Agency (EPA) requires all dealers who work with and make A/C repairs to have:

- Technicians trained and certified by an EPA approved organization.
- EPA approved HFC-134a recover/recycling or recover-only equipment.

These requirements become effective November 15, 1995.

To become more familiar with this new law, review the attached EPA fact sheet. It further explains this law and addresses some general concerns. For your convenience, the lists of approved certifying training organizations and approved equipment referenced in the fact sheet are also attached.

If your dealership works with and makes A/C repairs, be sure you have the approved training and equipment to conform to this new law by November 15, 1995.

If you have any questions concerning this information, please contact:

- The EPA's Stratospheric Ozone Information Hotline at 1-800-296-1996 (10am-4pm EST, Monday-Friday, except federal holidays).
- Your District Customer Support Manager or Tools/Development Manager (714-588-5059).

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature **059765** _____

Parts Manager



RECYCLING REFRIGERANT FROM MOTOR VEHICLE AIR CONDITIONERS

A regulation signed in July, 1992 by the Administrator of the United States Environmental Protection Agency (EPA), requires that motor vehicle air conditioning refrigerant be recycled. This fact sheet will help you become familiar with this law and address some of your concerns.

Our Threatened Ozone Layer

The stratospheric ozone layer shields the earth from harmful ultraviolet (UV) radiation. Scientists worldwide believe that synthetic chemicals such as chlorofluorocarbons (CFCs, also known by the trade name Freon) are rapidly destroying this layer of gas 10 to 30 miles above the earth's surface. Ozone loss of 3.5% globally has already been recorded and is greatest over Antarctica, where a seasonal ozone "hole" occurs. Recent data strongly suggests that substantial losses may also develop over the North Pole, exposing parts of the U.S. to increasing levels of UV radiation.

Ozone loss in the atmosphere is likely to lead to an increase in skin cancer and cataracts and could weaken the human immune system. Agriculture, as well as plant and animal life, may also be dramatically affected.

Impact of Motor Vehicle Air Conditioners

One of the single largest uses of CFCs in the U.S. is as a refrigerant in automobile air conditioners. CFC-12 in motor vehicles accounts for over 20% of all CFC use in this country.

Commonly released into the air when car or truck air conditioners are serviced, CFCs rise to the strat-

osphere where they can remain active for up to 120 years. Solar rays break these molecules apart, releasing chlorine. A single chlorine atom can destroy over one hundred thousand ozone molecules.

Worldwide Action to Protect the Ozone Layer

The United States has joined over 135 other countries in a global effort to protect the ozone layer as a Party to the international treaty known as the Montreal Protocol. In 1990, these countries agreed to phase out production of ozone-depleting substances, including CFC-12, by the year 2000. The 1990 Clean Air Act Amendments (the Act) incorporated this production phaseout date and also addressed the use and emission of these chemicals. President Bush later pledged to halt almost all U.S. production of CFCs by the end of 1995.

Section 609 of the Act gives the EPA the authority to establish requirements to prevent the release of refrigerants during the servicing of motor vehicle air conditioners. Recycling of CFCs can occur at minimal cost and without damaging motor vehicle A/C systems. The following sections describe the requirements of the law and its potential impact on the service industry.

Clean Air Act Requirements

Approved Equipment

Technicians repairing or servicing motor vehicle air conditioners must use either refrigerant recover/recycle or recover-only equipment approved by EPA. Recover/recycle equipment both recovers the refrigerant from the motor vehicle and

processes it through an oil separator, a filter, and a dryer. Approved recover/recycle machines meet the technical specifications of SAE Standard J-1990 and must have the capacity to purify used refrigerant to SAE Standard J-1991 for safe and direct return to the air conditioner following repairs.

Recover-only equipment removes the refrigerant from the A/C unit as specified by SAE Standard J-2209 and transfers it into a holding tank. Technicians are then required by law either to recycle the used refrigerant on site or send it to an off-site reclamation facility to be purified to ARI Standard 700 before it can be used to recharge A/C equipment.

A list of approved equipment is available from EPA at the address on the back of this fact sheet. Most certified equipment will be labeled as "design-certified to SAE standards."

Technician Training and Certification

Technicians who repair or service motor vehicle air conditioners must be trained and certified by an EPA-approved organization. Training programs must cover use of recycling equipment in compliance with SAE Standard J-1989, the regulatory requirements, the importance of refrigerant containment, and the effects of ozone depletion. To be certified, technicians must pass a test demonstrating their knowledge in these areas. A list of approved testing programs is available from EPA at the address on the back of this fact sheet.

Sales Restrictions

The sale of any size containers of CFCs to anyone other than certified

technicians is prohibited after November 14, 1994. This provision is intended to discourage "do-it-yourselfers" who recharge their own air conditioners. Such individuals often release refrigerant because they typically do not have access to recycling equipment. The Agency encourages "do-it-yourselfers" to bring their cars to certified technicians who can properly fix air conditioners using approved equipment. This avoids damage to a/c equipment by improper charging and helps protect the environment.

Recordkeeping Requirements

Service shops must certify to EPA that they own approved equipment. If refrigerant is recovered and sent to a reclamation facility, the name and address of that facility must be retained.

Impacts on A/C Service

Because of the planned CFC phase-out and the tax on CFCs, shops that service air conditioners can expect the price of CFC-12 to increase and its availability to decrease. Widespread refrigerant recycling, however, reduces the need for virgin CFC-12 and thus helps keep costs down. Refrigerant recycling is an important step towards the goal of eliminating CFC use. It means that car owners can have their air conditioners fixed until alternatives to CFC-12 are developed.

Refrigerant in New Cars

Automobile manufacturers are responding to the CFC phaseout by producing new vehicles with an alternative refrigerant called HFC-134a. This refrigerant does not deplete the ozone layer because it does not contain chlorine. About half of 1993 model year cars and almost all 1994 model year cars are equipped with HFC-134a air conditioning systems.

Choices for Older Car Owners

As for existing cars, when the supply of CFC-12 is no longer available, owners may modify their a/c systems to accept the HFC-134a. Since the HFC-134a works at a higher pressure than the CFC-12, retrofitting will require that some

Important Dates

July 14, 1992	EPA final regulations published
November 15, 1992	Small container sales restriction goes into effect
November 15, 1994	Sales restriction expands to include all sizes of containers
November 15, 1995	CFC-12 regulations, including recovery and recycling requirements and certification of both technicians and equipment, expand to affect all substitutes for CFC-12

components be replaced. EPA estimates that retrofits will cost between \$100 and \$800. The specific requirements will vary depending on the make, model and age of the car, and on the car's history of air-conditioning servicing. If you are having major service performed on your CFC-12 air-conditioning system, modifying the system may be appropriate. Auto manufacturers are currently working to identify retrofit procedures. Most manufacturers have toll-free consumer hotlines which you can call to determine if retrofit procedures have been developed for your automobile.

Alternative Refrigerants

EPA's Significant New Alternatives Policy (SNAP) program reviews alternatives to CFC-12 to determine the risks posed to human health and the environment by that alternative. HFC-134a has been approved under the SNAP program. Some refrigerant manufacturers and distributors are conducting research to determine if other substitutes exist which will cool adequately, work compatibly with the components in a/c systems with minimal retrofit procedures. These substitutes must be reviewed under the SNAP program. It is important to keep in mind that the SNAP program does not evaluate the effect of a substitute refrigerant on the life or performance of the components in your car's a/c system, or the effect of a substitute

on the system's cooling capacity.

By November 15, 1995, all substitute refrigerants will have to be recovered and recycled, technicians handling those substitutes will have to be certified, and equipment used to service those substitutes will have to be approved.

* * * * *

By complying with these regulations, you will help preserve the ozone layer for future generations.

For further information, please contact the Stratospheric Ozone Information Hotline at 1-800-296-1996 (10am-4pm EST, Monday-Friday, except federal holidays), or you may write:

MVACs Recycling Program Manager
Stratospheric Protection Division
6205J
U.S. Environmental Protection
Agency
401 M Street, S.W.
Washington, D.C. 20460



United States
Environmental
Protection Agency

Office of Air and Radiation
Stratospheric Protection Division
6205J

August 16, 1995

Section 609 Approved Refrigerant Recover/Recycle and Recover-Only Equipment

The following lists contain the section 609 approved refrigerant recover/recycle and recover-only equipment.

- Table I - contains recover/recycle equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.
- Table II - contains recover/recycle equipment determined to be substantially identical to approved equipment.
- Table III - contains recover-only equipment approved by Underwriters Laboratory (UL) and ETL Testing Laboratories, Inc.
- Table IV - contains recover-only equipment determined to be substantially identical to approved equipment.

All lists will be updated as equipment is approved. **Models listed for the first time in this update are in bold type.**

TABLE 1

Manufacturer	Model	Remarks *
A. Gramkow	RRC	
AES NTRON	Retriever 2.2AC and 2.2A	
Airosol Company, Inc	Chargette RC2000, RC2200	
American ThermoFlo	18000	Dual refrigerant
Applied Ecological Systems	2.2c	
Assemblies Systems Corp.	NS-2000	
Atlas Supply Company	EAC-205, -250, -750, -1400, -1500	Multiple Listing
Atlas/SPX - Robinair	EAC-125, EAC-370, 679125, 679137	
Automotive Diagnostics, Division of SPX Corporation	40-375	Multiple Listing
Bear/SPX - Robinair	40-310, 17352C/17352, 17355C, 40-327, 40-370	
Belco Controls Inc.	08	
Carquest Corporation	209990	Multiple Listing
Carrier	12RA001100	
Caterpillar Inc/ SPX -Robinair	4C8754, 4C8755, 905786, 905787, 905788, 905789, 905790	
Century Mfg. Co.	MR-1991-A, -R, ME-1991-A, 160-002, -003, -004, -005, -013, -014, -015, -016. Solar 5090, -5100, -5110, 7100, 8100, 85100, 86100.	
Chrysler/SPX-Robinair	OT-17350, OT-17400, OT-17700	
Classic Tool Design, Inc.	FBR-11#	# certified by ETL, Inc.

Manufacturer	Model	Remarks *
Cornwell/SPX-Robinair	RA-17350C, RA-17400, RA-17500B, RA-17700	
Diavia/SPX-Robinair	17705	
D.W. Myers Enterprises, Inc.	AM 6000, MR-1991-A, MR-1991-R, ME-1991-A	
Dowmar Solvent Recovery Systems, Inc.	DR12R	Multiple Listing
Draf Industries	1400	
Enspeco, Inc.	RMS-3112	
Environmental Products Amalgamated Pty.Ltd	SKYE.EP3, SKYE.EP-4/5	
Environmental Systems Products, Inc.	FICS 9000	Multiple Listing
Environmental Technologies Corporation	SYSTEM I 102-12	
Everco/SPX-Robinair	A9990	
Everco Industries, Inc	A9950	
Firestone/SPX-Robinair	TE 48-30-960-7	
Fluoro Tech, Inc.	Fluoromizer 3000R (FM3000R), FM3000 with RM3 module (Fluoromizer, 3000), FM4000-12*	* Certified by ETL, Inc. Multiple Listing
Ford Motor Company	158-00001,-00002, 01400900, 02300100	Multiple Listing
Ford-New Holland/SPX-Robinair	FNH00140, FNH00141, FNH00335	
Four Seasons	59870	Multiple Listing
Four Seasons	59900, 59901	
General Motors/SPX-Robinair	17250B	
Honda/SPX-Robinair	J-3810-CH	

Manufacturer	Model	Remarks *
IG-LO, Inc; Subsidiary of Valvoline, Inc	1400, 1500	
IG-LO, Inc.; Subsidiary of Valvoline, Inc.	1000	Multiple Listing
Infiniti/SPX4-Robinair	J-38100-INF	
International Carbonics Inc. (now The Youngstown Research and Development Company YRD)	RRR-SS, BH-RRR	
James Kamm Technologies, Inc.	K-3333, K3333-TB, AC-3333	
John Deere/SPX-Robinair	JTO 2020, JTO 2021, JTO 2052	
Kent Moore/SPX-Robinair	J-38100-C, J-38100-B, J-38750, J-38550-B, J-39770, 42-17400, 43-40015-HDE, 43-40018-HDE, 42-175250-C, 43-40017-HDE, 42-17350-C, 43-40014-HDE, J-38100-D	
Kolpak Mfg. Co.	ZRM2000	
Lexus/SPX-Robinair	00002-01396-02	
MAC Tools Inc	ACRRC-750, AC650, AC751, AC760 AC600*, AC700*, AC800*	Multiple Listing * Multiple listing by ETL, Inc.
MAC Tools, Inc/SPX-Robinair	AC17350C, AC17400, AC17500B, AC17700, AM 6000	
Matco Tools Corp.	ACRM120, ACRM3412	Multiple Listing
MATCO Tools/SPX-Robinair	AC17350, AC17400, AC17500B, AC17700	
Mastercool, U.S.A. Inc	Supervamp 62000, 65000, 65500	
Mazda/SPX-Robinair	17401MAZ	
MDI	1/2 HPCA	
Mitsubishi/SPX-Robinair	17400MIT, 17401MIT	

Manufacturer	Model	Remarks *
Moog Automotive, Inc	209990	Multiple Listing
Murray Corporation	ATC-1000, -1100, -5000	
Myers Enterprises	MR-1991-A, MR-1991-R, ME-1991-A	
NAPA	209990	Multiple Listing
NAPA Temp. Products	ATC1100, -5000	Multiple Listing
Nissan/SPX-Robinair	J-38100-NI, 17400NIS, 42-17250-NI, 17401NIS, 17403NIS	
OTC/SPX-Robinair	OEM-1380, -1396, -1412, -1420, -48158, -48463	
Ozone Environmental Industries Inc.	R-6A, OS-1000, OS-4000, OS-2000	
P&F Technologies	PF-8	
Power Manufacturing	R-12a	
Promax Industries, Inc	Roger-1 (front and back), Roger 1B	Consists of front and back systems
R & D Fountain Industries	AM6000	
Refrigerant Recovery Systems, Inc	ST100A	
Refrigerant Recovery Technologies, Inc	Fluoromizer 3000R (FM3000R), FM3000 with RM3 module (Fluoromizer 3000), FM4000-12*	* Certified by ETL, Inc.
Refrigerant Technologies, Inc	RRC-1000, RRC-750, RRC-750X, RRC-751, TC-700*, TX-600*, AC-800*, TX-200*	* Certified by ETL, Inc.
Refrigeration Transfer Systems/Justice Supply and Glass	RFT-2212, RFT-2234	
Rolo Inc.	91R12	
Rotunda/Ford (Sun & SPX)	158-00001, 158-00002, 014-00900, 023-00100, 078-00802, 078-00800, 078-00801	

Manufacturer	Model	Remarks *
R.S.I.	Port-O-Zone, Automotive	
Saturn/SPX-Robinair	42-A7250, 17400ASAT	
Snap-On Tools Company	ACT2500, ACT3000, ACT3300, ACTR3000, ACTH3400	Multiple Listing
SPX Corporation; Robinair Division	12134A, 12135A, 17251C, 014-00900, AC17145, GM17250B, J38100B, -C, 17400A, 17401A, 17500B, 17501B, 17503B, 17300, -01, -03, -50, -50C, -51, -51C, -52, -52C, -53, -53C, -54, -54C, -55C, 17400, -01, -03, -25, 17666, 17700, -01, -03, -15, -25, 17800, 17150, 17151A (for use with models 17350C, 17351C, 17500, 17500B, 17501B, and 17625A only)	
Sun Electric Corporation	MRC-150,-300,-312,-400,-500, MTC-4000, NAPA-1100,-5000,-A9950, ATC-1000,-1100,-5000,-078-00800, -00801,-00802,-00805, ACT-3120, -3540, -4100.	
Technical Chemical Company	SERCON -8000 (-M,-A,-MA,-MAH,-MV,-MAV,-H),-9000 (-M,-A,-MA,-MV,-MAH,-MAV,-H),-9220,-9220M, -5000H with -SR4000 or 4000A filter unit, -5000A, -5000AB, -5000MB or -5000MBJ with SR4000, 4000A or -4000H filter unit.	
Toyota/SPX-Robinair	TOY-01380, TOY-01396, 00002-01396-01, 42-17400, 17400TOYJ, 17401TOYJ, 17404TOYJ	
Trane Division of American Standard, Inc	RRPC	Multiple Listing
Van Steenburgh Engineering Lab, Inc	JV90-4,-3,-2,-1, LV30-4,-3,-2,-1, CV15-4,-3,-2,-1	

Manufacturer	Model	Remarks *
Watsco Components, Inc.	WC-2	Multiple Listing
White Industries; Division of K-Whit Tools	01050, 01060, 01061, 01080, 01095, 01075, 01234a	
Wynn's Climate Systems	90-0001A, -0458A, -1100A, -1300A, -1500A	
The Youngstown Research and Development Company YRD (formerly International Carbonics)	RRR-SS, BH-RRR	

* A UL Multiple Listing (referred to as private labeling by the industry) is the formal publication of the name of company that appears on equipment that is basically UL Listed for another company. It would be similar to a private brand except that the basic company name need not appear anywhere on the product. This equipment has been evaluated to determine the minimum purity specifications for recycled CFC-12 for use in mobile automotive air conditioning systems. Such equipment is provided with the following auxiliary marking "Design Certified by Underwriters Laboratories for Compliance with * _____ (date) to indicate that the equipment has been investigated for compliance with the applicable SAE requirements.

Table II.

Substantially Identical Recover/Recycle Equipment

<p>REJUVENATOR ST-100 and ST-1000 Refrigerant Recovery Systems, Inc. P.O. Box 360298 Tampa, Florida 33673 (800)327-9142</p>	<p>White Industries Model 01050 K-Whit Tools, Inc. 100 Visionary Way Fishers, IN 46038 (800)849-6830</p>
<p>R-12 Recover-Recycle Machine Justice Glass and Supply Company 2445 Third Avenue Huntington, West Virginia 25703 (800)624-3420</p>	<p>NAPA TEMP ATC-1000 Murray/Division of Moog Automotive, Inc P.O. Box 7224 St. Louis, MO 63177 (314) 385-3400</p>
<p>CFC-SAV-R (with Robinair retrofit kit 17217) LSK, Inc Mcpherson, KS 67460</p>	<p>Everco A9989 (with Robinair retrofit kits 17217 and 17216) Everco Industries P.O. Box 7224 St. Louis, MO 63177 (314) 385-3400</p>
<p>Robinair 17200 (with retrofit kits 17216 and 17217), 17500, RTB17200, RTB17500. Robinair Division, SPX Corporation Robinair Way Montpelier, OH 43543-0193 (419) 485-8300</p>	<p>MODEL K-3330 James Kamm Technologies, Inc. P.O. Box 8961 4730 W. Bancroft A-3 Toledo, Ohio 43615 (419) 531-3313</p>
<p>Space Age Air Products, Inc. Model 010 (with retrofit kit Robinair 17217)</p>	<p>AES-Ntron Models 2.2 and 2.4 456 Creamery Way Exton, PA 19341 (215)594-9309</p>

TABLE III

Manufacturer	Model	Remarks *
AES NTRON	R1.1AC	
Assemblies Systems Corp.	NS750A	no longer manufactured
Clardy Manufacturing Co.	CP4MA	
C Mar Industries Inc.	CM20-12A	
DAVECO Recovery Division of DAVECO Industries Inc.	41250, 41250-2	
Econozone, Inc. (RSB Engineering)	Econozone 29A	
Environmental Products Amalgamated PTY Ltd.	EP10A	
Environmental Technologies Corp.	The-Pro-A	
Fluoro Tech, Inc.	FM3000	* Certified by ETL, Inc.
MDI	5150D	
National Refrigeration Products, Inc.	UL.V63	
Power Manufacturing, Inc.	012B-FRSPORT-01 (Power R1)	
Refrigerant Recovery Systems, Inc.	RC-1-A	
Refrigerant Recovery Technologies, Inc.	FM3000	* Certified by ETL, Inc.
Refrigerant Technologies, Inc.	TX 200	* Certified by ETL, Inc.

Manufacturer	Model	Remarks *
R.S.I.	Mini-Sucker1 Automotive Recovery System, RSI Part Number 600075	
SPX Corporation, Robinair Division	17625A	
Technical Chemical	SR5000MBJ, SR1000MBJ	
Watsco Components Inc.	WC1S-A	
White Industries Div. of K-Whit Tools Inc.	01055	

* A UL Multiple Listing (referred to as private labeling by the industry) is the formal publication of the name of company that appears on equipment that is basically UL Listed for another company. It would be similar to a private brand except that the basic company name need not appear anywhere on the product. This equipment has been evaluated to determine the minimum purity specifications for recycled CFC-12 for use in mobile automotive air conditioning systems. Such equipment is provided with the following auxiliary marking "Design Certified by Underwriters Laboratories for Compliance with * _____ (date) to indicate that the equipment has been investigated for compliance with the applicable SAE requirements.

Table IV. Substantially Identical Recover-only Equipment

(None approved as of this date)		



United States
Environmental Protection
Agency

Office of Air and Radiation
Stratospheric Protection Division
6205J

LIST OF APPROVED SECTION 609 CERTIFYING ORGANIZATIONS

OZONE PROTECTION HOTLINE TOLL-FREE (800) 296-1996

EPA'S OZONE DEPLETION WORLD WIDE WEB SITE:

<http://www.epa.gov/docs/ozone/index.html>

September 22, 1995

(This list will be updated when other technician certification programs are approved. Section 609 covers technician certification in the motor vehicle sector only.)

An asterisk (*) indicates that the program offers home study.

Note: Ryder Trucks formerly offered a certification program. Retailers should continue to accept Ryder cards.

C.F.C. Reclamation and Recycling Service, Inc.
P.O. Box 560
Abilene, Texas 79604
(915) 675-5311

approval date: 3/31/93

*The Greater Cleveland Automobile Dealers'
Association
6100 Rockside Woods Boulevard, Suite 235
Independence, Ohio 44131
(216) 328-1500

approval date: 8/12/92

*International Mobile Air Conditioning
Association
P.O. Box 9000
Fort Worth, TX 76147-2000
(817) 338-1100

approval date: 6/29/92

Mechanic's Education Association
10 Main Street
Netcong, New Jersey 07857-1111
(201) 426-9001

approval date: 3/30/93

*Mobile Air Conditioning Society
P.O. Box 97
East Greenville, PA 18041
(215) 679-2220

approval date: 6/12/92

*National Institute of Automotive Service
Excellence
13505 Dulles Technology Drive
Herndon, Virginia 22071-3415
(703) 713-3800

approval date: 6/29/92

New York State Association of Service Stations
and Repair Shops, Inc.
Automotive Technician Training Program
8 Elk Street
Albany, New York 12207
(518) 434-6102

approval date: 8/12/92

Rancho Santiago College
1530 West 17th
Santa Ana, California 92706
(714) 564-6661

approval date: 8/12/92

*Refrigerant Certification Services
8203 Willow Place South
Houston, Texas 77070-9998
(800) 597-9291

approval date: 4/19/93

NOTE: Only RCS technicians with credentials
dated after April 19, 1993 will be considered
trained by an EPA-approved certifying program.

Snap-on Tools Corporation
2801 80th Street
Kenosha, Wisconsin 53141-1410
(414) 656-5200

approval date: 3/30/93

Texas Engineering Extension Service
San Antonio Training Division
The Texas A & M University System
9350 South Presa
San Antonio, Texas 78223-4799
(512) 633-1000

approval date: 3/30/93

*Waco Chemicals, Inc.,
12306 Montague Street
Pacoima, California 91331
(818) 897-3018

approval date: 7/13/93

*ESCO Institute
1350 West Northwest Highway
Suite 205
Mount Prospect, IL 60056
(800) 726-9696

approval date: 12/27/94

New York State Department of Motor Vehicles,
Division of Vehicle Safety - Technical Training
Unit
Empire State Plaza
Swan Street Building, Room 111
Albany, New York 12228
(518) 474-4049

approval date: 5/10/95

*Air Conditioning Contractors of
America/Ferris State University
1712 New Hampshire Avenue, NW
Washington, D.C. 20009
(202) 483-9370

approval date: 9/22/95

(The programs listed below are intended specifically for the employees of these companies)

Geneva Steel
P.O. Box 2500
Provo, Utah 84603
(801) 227-9000

approval date: 2/4/93

Jiffy Lube International
P.O. Box 2967
Houston, Texas 77252-2967
(713) 546-4100

approval date: 9/14/93

Kmart Corporation
East/Central Regional Office
Auto Training Center
551 North Hicks Road
Palatine, Illinois 60067
(708)358-3205

approval date: 8/12/92

Los Angeles County Metropolitan
Transportation Authority (MTA)
900 Lyon Street
Los Angeles, California 90012
(213) 972-5159

approval date: 2/1/94

Minnesota Department of Transportation
Central Services Building
Central Shop Unit
6000 Minnehaha Avenue South
St. Paul Minnesota 55111
(612) 725-2345

approval date: 2/1/94

Potomac Electric Power Company
8400-B Old Marlboro Pike
Upper Marlboro, Maryland 20772
(301) 967-5294

approval date: 8/12/92

Whayne Supply Company
P.O. Box 35900
Louisville, KY 40323-5900
(502)774-4441

approval date: 7/19/93

U.S. Army Ordnance Center and School
Attn: TP-SB-TSED-C10 (SFC Powell)
Aberdeen Proving Ground
Aberdeen, Maryland 21005-5201
(410) 278-4099

approval date: 8/12/92

Yellow Freight System, Inc.
10990 Roe Avenue
P.O. Box 7270
Overland Park, Kansas 66207
(913) 345-3000

approval date: 8/12/92

Service Bulletin

Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category ST	Applicable Model/s All Models with A/T and ATX	Subject RECOMMENDED A/T COOLER-LINE FLUSHING EQUIPMENT / NEW NATIONAL ACCOUNT	Bulletin No. 009/95
			Issued 11/14/95
			Revised

RECOMMENDATION

Service Bulletin Category K 002/95, issue date 8/10/95, states that **the automatic transmission oil cooler and lines must be flushed whenever performing a major transmission repair or replacement.**

MMA has evaluated flushing equipment and is recommending Kent-Moore's and OTC's products. Both pieces of equipment provide effective cleaning results and adapt to other manufacturer's vehicles.

There is a difference in procedures and costs between these two pieces of equipment. MMA is offering you the choice of two recommended pieces of equipment so that you can best decide which piece of equipment fits your needs. To assist in your decision, the chart below lists the advantages and disadvantages between the Kent-Moore and OTC flushers:

MANUFACTURER/ MODEL	ADVANTAGES	DISADVANTAGES
Kent-Moore J-35944-MAZ A/T Oil Cooler & Line Flusher	<ul style="list-style-type: none"> • Inexpensive. • Requires little storage space. • Does not requires periodic filter replacements (has no filters). 	<ul style="list-style-type: none"> • Not as easy to use. • Requires shop water and air hoses for flushing procedure. • Does not recycle its flushing fluid. Each flushing procedure requires the disposal of 18-20 gallons of waste (water/ATF/flushing fluid) that cannot be dumped in shop drain. Dealer must consult state and local authorities for proper disposal of waste.
OTC 60081-M Portable Oil Cooler/ Torque Converter Cleaner	<ul style="list-style-type: none"> • Cleaner recycles its solvent. Therefore, it does not require the disposal of flushing solvent after each procedure. • Requires only 5 gallons of flushing solvent which can be used for several flushing procedures (actual number of flushing procedures is dependant on how contaminated the cooler/lines are). • Easier to use. • Does not require shop water and air hoses for flushing procedure. • Also cleans torque converters. 	<ul style="list-style-type: none"> • More expensive. • Requires more storage space. • Requires periodic filter and solvent replacement. Solvent cannot be dumped in shop drain. Dealer must consult state and local authorities for proper disposal of solvent.

NEW NATIONAL ACCOUNT

MMA has established national accounts with Kent-Moore and OTC to allow direct ordering of a special Mazda package at a discounted price. The following are highlights of this account. For further details, refer to the attached flyers.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
 Service Manager

Signature 059766
 Parts Manager

Number: 009/95	Date Issued: 11/14/95	Revised:
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Pricing

The special Mazda packages from Kent-Moore and OTC are available with introductory pricing. **The introductory prices are effective through December 31, 1995.** After this date the prices increase (see below).
THERE ARE NO EXCEPTIONS!

MANUFACTURER/MODEL	INTRODUCTORY PRICE (expires after 12/31/95)	FOLLOW-UP PRICE (effective 1/1/96)
Kent-Moore J35944-MAZ A/T Oil Cooler and Line Flusher	\$226.00	\$272.55
OTC 60081-M Portable Oil Cooler/Torque Converter Cleaner	\$2,151.65	\$2,541.00

Order Information

Use the easy ordering procedures in the attached flyers.

Shipping and Billing Information

Your order will be shipped directly from the manufacturer. **Your parts account will be billed upon receipt.**

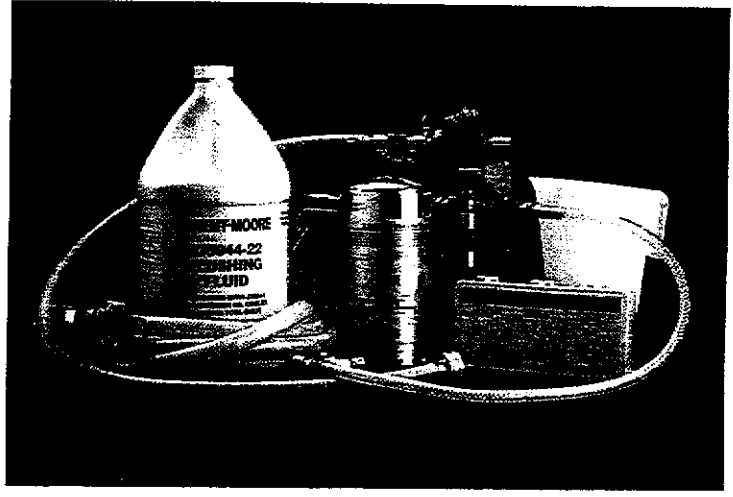
NOTE: ONLY THE INTRODUCTORY PRICE OF THE KENT-MOORE EQUIPMENT INCLUDES FREIGHT.

If you have any questions regarding this information contact your District Customer Support Manager or Tools/Development Manager at (714) 588-5059.

THIS SPECIAL MAZDA PACKAGE INCLUDES:

J 35944-A A/T Flusher which includes:

- chrome plated brass tank
- one gallon of J 35944-22 flushing fluid (enough for six flushing operations; additional fluid can be purchased directly from Kent-Moore).
- complete operating instructions.



• **J 41763 Adapter Kit - A/T Oil Cooler And Line Flusher** (for Mazda Vehicles)

NOTE: For those dealers that already have a Kent-Moore A/T Cooler Flusher, an adapter kit can be purchased from Kent-Moore for \$36.65

Special Introductory Price of: \$226⁰⁰ (freight included)

- Upon receipt of your order, your parts account will be billed \$226 + applicable taxes. After the introductory price expires, you will be billed directly by Kent-Moore.
- After December 31, 1995, this introductory price expires. The package will then be available directly from Kent-Moore for the price of \$272.55 (freight not included).

Three Easy Ways to Order:



Mail
Order Form



Phone
(800) 345-2233



Fax
(800) 578-7375

(tear along perforation)

BUSINESS REPLY FORM

Please send me 1 Mazda Package.

Dealer Name: _____ Dealer No.: _____

Contact Name: _____

Please contact me about the Mazda Package.

Street Address: _____

City: _____ County: _____

Please send me 1 Adapter Kit only.

State: _____ Zip Code: _____

Phone No.: (_____) _____ Ext. _____ Dealer P.O. No.: _____

Authorized Signature: _____



KENT-MOORE

J 35944-AMAZ Automatic Transmission Oil Cooler And Line Flusher

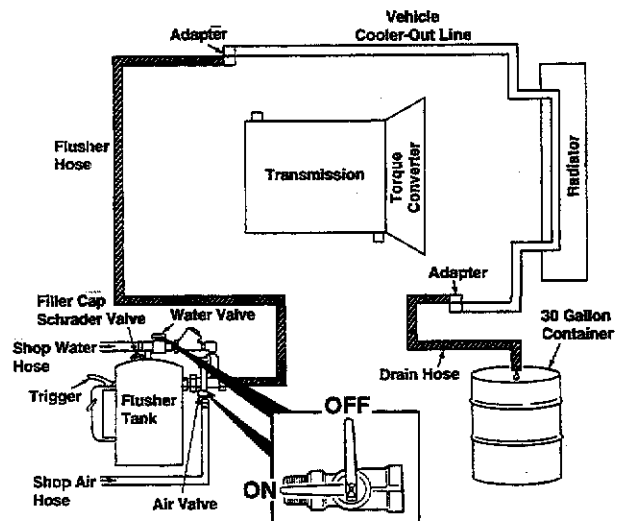
Mazda is proud to introduce Kent-Moore's A/T Oil Cooler And Line Flusher as recommended service equipment for all dealers. It has been evaluated by Mazda. As stated in Service Bulletin Category K 002/95, issue date 8/10/95, the A/T oil cooler and lines must be flushed whenever performing a major transmission repair or replacement.

As shown in the illustration below, the flusher flows a water/flushing fluid mixture through the vehicle cooler/line circuit and drains to a container for disposal. To dislodge debris, short blasts of shop air are injected into the circuit while the mixture is flowing. The flusher/cooler line connections are then reversed to perform a back flush. Shop air is used to dry the circuit.

To assist you with the purchase of this recommended equipment, we are offering a special introductory price which is only good until December 31, 1995.

Benefits:

- **Cost Effective** - This flusher is one of the less expensive flushers available in today's market.
- **Time Efficient** - The actual flushing procedure takes approximately 10 minutes.
- **Excellent Performance** - Intermittent blasts of regular shop air, as high as 120 PSI, creates a dramatic surge of water/flushing fluid which dislodges foreign materials in the cooler and lines.



MZ95-208

(tear along perforation)



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
 FIRST-CLASS MAIL PERMIT NO 292 WARREN MICHIGAN

POSTAGE WILL BE PAID BY ADDRESSEE
 ATTENTION: ORDER DEPARTMENT
KENT-MOORE SPECIAL TOOLS
 28635 MOUND RD
 WARREN MI 48092-9923



The Special Mazda Package Includes

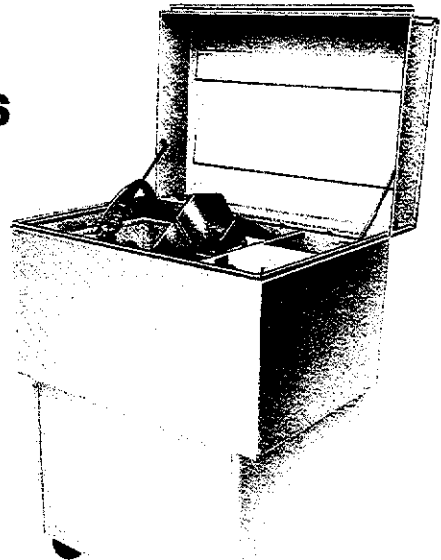
- **No. 60081 Portable Oil Cooler/Torque Converter Cleaner**

Approved solvents (requires 5 gal., not included):

- Ashland 140, Ashland 140 Solvent-K, Ashland 140 Solvent-L
- Ker-Mac 142 Flash Solvent (Kerr-McGee)
- Shell-Sol 140 (Shell)

- **J41763 Adapter Kit — A/T Oil Cooler and Line Flusher (for Mazda Vehicles)**

NOTE: For those dealers that already have an OTC No. 60081 Portable Oil Cooler/Torque Converter Cleaner, an adapter kit can be purchased directly from OTC for \$36.65.

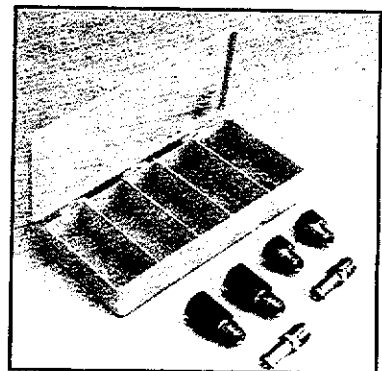


Special Introductory Price of: \$2151.65

(freight not included)

- Upon receipt of your order, your parts account will be billed \$2151.65 + freight & applicable taxes. After the introductory price expires, you will be billed directly by OTC.

- After December 31, 1995, this introductory price expires. The package will then be available directly from OTC for the price of \$2541.00 (freight & taxes not included).



Three Easy Ways to Order:



MAIL
Order Form



PHONE
(800) 533-0492



FAX
(507) 455-7240

(tear along perforation)

BUSINESS REPLY FORM

Please send me one Mazda Package.
Dealer Name: _____ Dealer No.: _____
Contact Name: _____

Please contact me about the Mazda Package.
Street Address: _____
City: _____ County: _____

Please send me one Adapter Kit only.
State: _____ Zip Code: _____
Phone No.: (_____) _____ Ext. _____ Dealer P.O. No.: _____

Authorized Signature: _____

MAZDA

OTC

No. 60081-M Portable Oil Cooler/Torque Converter Cleaner

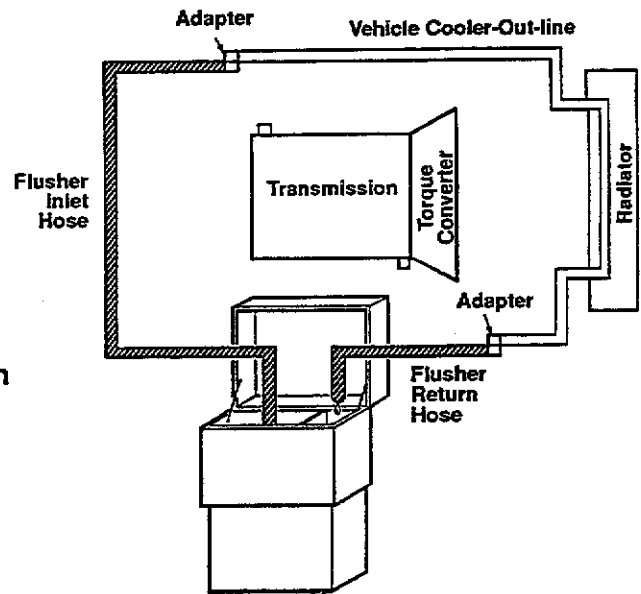
Mazda is proud to introduce OTC's Portable Oil Cooler/Torque Converter Cleaner as recommended service equipment for all dealers. As stated in Service Bulletin Category K 002/95, issue date 8/10/95, the A/T oil cooler and lines must be flushed whenever performing a major transmission repair or replacement.

Though this equipment may be perceived as expensive, it will save money in the long run because it recycles its cleaning solvent. Therefore, it does not require the disposal of used cleaning solvent after each flushing. As shown in the illustration below, this cleaner is connected to the vehicle cooler lines. The cleaner circulates cleaning solvent through the cooler/lines and returns it to the cleaner to be recycled through a 5 micron filter that is located within the cleaner. The solvent continues to be re-circulated until the flow from the cooler/lines is clear.

To assist you with the purchase of this recommended equipment, we are offering a special introductory price which is only good until December 31, 1995.

Benefits:

- **Saves Money** — The cleaner has an internal 5 micron filter, which allows its 5 gallons of solvent to be recycled and reused. Therefore, solvent costs and waste disposal costs are reduced.
- **Easy to Use** — Just connect the hoses, electrical cord, and turn on. No back flushing required.
- **Easy to Store** — The cleaner is contained within its own roll-around cabinet.
- **Easy to Maintain** — The cleaner requires the periodic replacement of solvent and filter.
- **Versatile** — Adapts to other OEM's vehicles. Also, flushes torque converters.



Litho in U.S.A.
10-95/95-163

(tear along perforation)



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO 72 OWATONNA, MN 55060-9911

POSTAGE WILL BE PAID BY ADDRESSEE

Attn: Ms. Jan Fandel
OTC, A division of SPX Corporation
655 Eisenhower Drive
Owatonna, MN 55060-9911



Service Bulletin

T

8/90

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category T	Applicable Model/s All Models	Subject GENUINE MAZDA CRUISE CONTROL	Bulletin No.	003/90
			Issued	6/15/90
			Revised	

DESCRIPTION

Be sure to install genuine Mazda Cruise Control Systems on Mazda vehicles. When an aftermarket cruise control system is installed, there is a possibility that the system will not function properly. To avoid malfunction, recommend that customers purchase the Genuine Cruise Control System.

Mazda will not bear responsibility for an accident resulting from the use of an aftermarket cruise control system.

018952

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category T	Applicable Model/s See Below	Subject POWER ANTENNA MAST REPLACEMENT	Bulletin No. 005/95
			Issued 3/28/95
			Revised

APPLICABLE MODELS/VINS

All vehicles equipped with a power operated antenna.

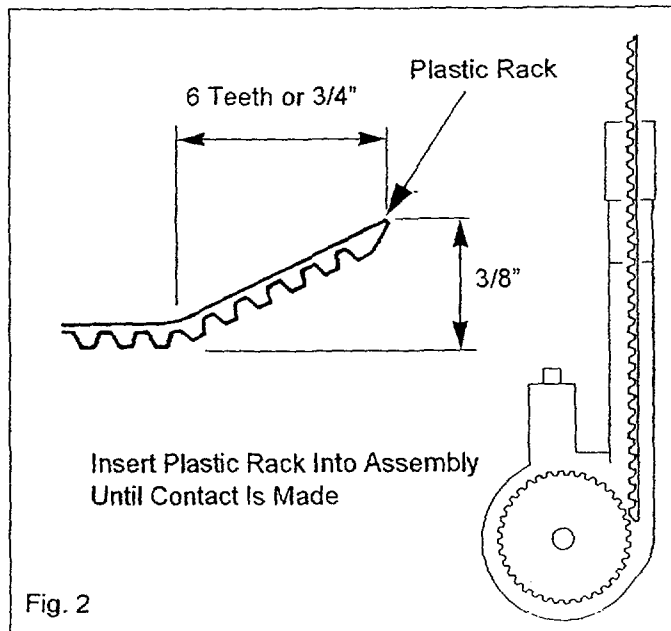
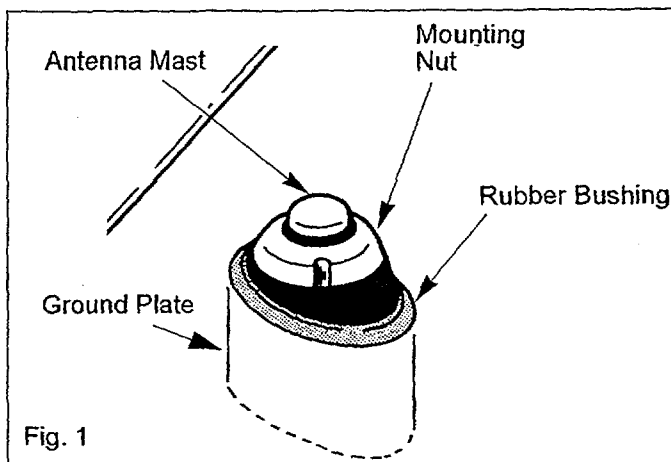
DESCRIPTION

It is not necessary to replace the entire antenna assembly if an antenna mast is damaged. Follow the procedures below to replace only the mast portion of the assembly.

NOTE: Bent or broken antenna masts (i.e. damage not due to defects in material and workmanship) are not covered under vehicle warranty.

REPAIR PROCEDURES

1. Remove the mounting nut with snap ring pliers or a spanner wrench.
2. Hold the mast and have an assistant turn the radio "ON". If the antenna mast does not pop up, use slip joint pliers to pull the mast up.
NOTE: Holding the antenna mast is necessary to prevent paint damage.
3. Remove any debris from the ground plate, rubber bushing and mounting nut.
4. Apply a small amount of lubricant to these pieces.
5. Bend the plastic rack as shown. This will facilitate installation.
6. Insert plastic rack into assembly until contact is made.
7. Have an assistant turn the radio "OFF" to retract the antenna mast into the assembly.
8. Assemble rubber bushing and mounting nut. Tighten nut.
9. Verify operation.



Index # 042431

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____
Service Manager Parts Manager

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category T	Applicable Model/s All Models (Ex. Nav. B-Ser.)	Subject PARTS REPLACEMENT AFTER AIRBAG DEPLOYMENT	Bulletin No. 007/97
			Issued 04/25/97
			Revised

APPLICABLE MODELS

1988 - 97 models except Navajo and B-Series

DESCRIPTION

If you repair a vehicle in which the driver's side and/or passenger side air bag deployed due to collision, **always replace the SAS or Diagnostic Module** in addition to damaged components. Replacement will ensure the system is completely operational.

Use the table below to determine which system is installed in the vehicle.

SAS Unit		Diagnostic Module	
Model	Year	Model	Year
MPV	1996 - 97	MPV	1993 - 95 (See Note 1)
626 / MX-6	1995 - 97	626 / MX-6	1993 - 94
MX-5 Miata	1995 - 97	MX-5 Miata	1990 - 94
Protege	1995 - 97	RX-7 (Conv.)	1988 - 91 (See Note 2)
Millenia	1995 - 97	RX-7	1993 - 95
		929	1992 - 95
		MX-3	1994 - 95

CAUTION: Never attempt to repair the air bag system wiring; always replace any damaged wiring.

NOTE:

1. 1993 MPV incorporated air bag systems during a mid-year production change.
2. 1992 RX-7 convertibles were available only in the Canadian market.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990

MAZDA

Category T	Applicable Model/s All except B-Series & Navajo	Subject WIPER MOTOR INOPERATIVE CIRCUIT BREAKER ACTIVATION	Bulletin No. 013/97 Issued 06/19/97 Revised
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NOTE: This bulletin replaces previous service bulletins Cat. 15-070/88 and Cat. G 003/97. Remove Cat. G 003/97 from your files.

APPLICABLE MODELS:

All except B-Series and Navajo.

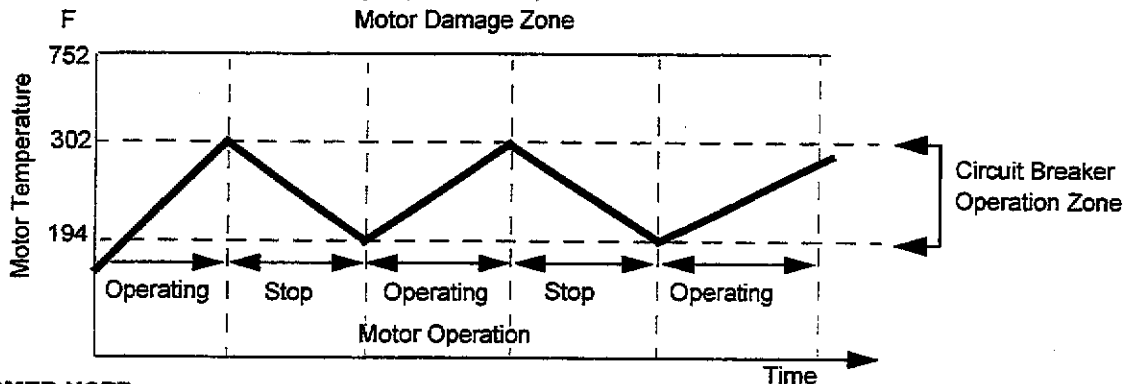
DESCRIPTION:

The wiper motor is equipped with a built-in circuit breaker to protect the circuit and motor from over heating due to motor overloading. Overload may occur when:

- Motor temperature exceeds 150 degrees (C) [302 degrees (F)].
- Wipers are frozen to the windshield.
- Wiper motion is restricted due to heavy loads (snow or mud build-up).

NOTE: Circuit automatically resets when motor temperature decreases below 90 degrees C (194 degrees F).

The information in this bulletin is provided to answer customer questions regarding occasional wiper motor perceived problems and prevent unnecessary wiper motor replacement.



CUSTOMER NOTE:

To prevent wiper motor binding:

- Remove ice or snow build-up from windshield with a suitable tool.
- Confirm the wiper is free by carefully raising blades from glass.
- **NEVER** operate wipers on dry windshield.

If the wiper operation stops:

- Guide the vehicle to the side of road and stop.
- Turn wipers "OFF".
- Wait approximately 5 minutes and turn the wiper switch "ON".
 - If the wipers activate, the wiper motor and circuitry are functioning properly (circuit breaker activated).
 - If the wipers fail to activate, proceed to your nearest dealer when you can safely drive the vehicle.

Technician's Note: If the wiper motor does not operate, check the wiper motor circuit (Refer to Workshop Manual for the specific model) and replace wiper motor if necessary.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Number: 013/97	Date Issued: 06/19/97	Revised:
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3. To prevent wiper motor binding:

- When wiper blades become stuck to the windshield due to freezing, heavy snow build-up or nonuse for long period, follow the procedures described below.

Condition	Action
Wiper blades will not move because of freezing or heavy snow build-up.	Remove ice or snow. Confirm that blades are free.
Wiper blades stuck to windshield because of long-term nonuse.	Carefully raise blades from glass, being careful not to damage them.

CAUTION: Never operate the wipers when the windshield is dry. Squirt washer fluid on the glass before using the wipers to clean the windshield.

Service Managers and Service Advisors should relay the following to customers with this concern.

CUSTOMER NOTE:

- If the circuit breaker opens and stops operation of the wiper motor, operation will resume once the circuit resets itself (approx. 5 minutes).
- If while the circuit breaker is open, the wiper switch is turned "OFF", the wiper will automatically move to the "PARK" position once the circuit breaker resets.

If the wiper motor stops while the vehicle is in motion:

- Carefully guide the vehicle off the road and stop. Turn the wiper switch "OFF".
- Wait approximately 5 minutes then turn the wiper switch "ON" to verify wiper operation. If the wipers operate, the wiper motor is functioning correctly (circuit breaker opened momentarily).

Technician's Note: If the wiper motor does not operate, check the wiper motor circuit (Refer to Workshop Manual or specific model) and replace wiper motor if necessary.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category T	Applicable Model/s All Models	Subject REAR WINDOW DEFROSTER GRID LINE REPAIR PROCEDURE	Bulletin No. 015/95
			Issued 11/14/95
			Revised 12/21/95

The "Description" and "Warranty" portion of this bulletin are revised. Changes are highlighted by bold print. Replace the original bulletin with this revised copy.

APPLICABLE MODELS

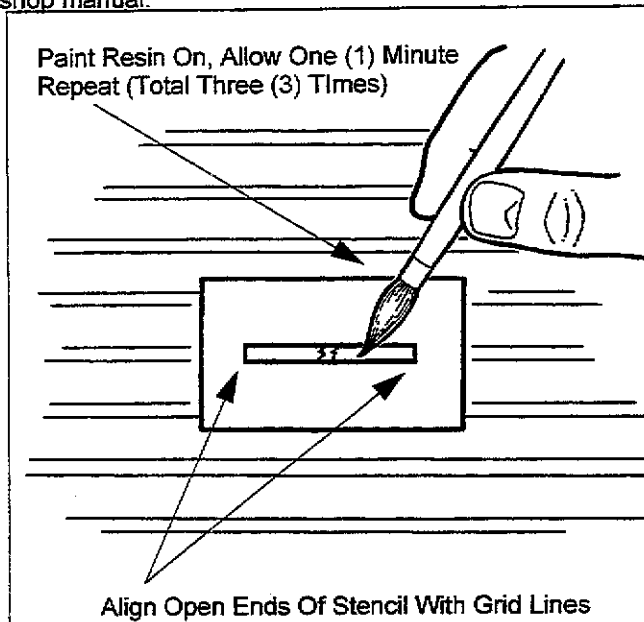
All Models

DESCRIPTION

The following procedure should be used to repair broken grid lines on rear window defrosters. Place a copy of these procedures in the appropriate section of the workshop manual.

REPAIR PROCEDURE

1. Turn the defroster switch On with the ignition in the On position.
2. Determine the broken grid line visually or with a test light or voltage meter.
3. Turn the defroster and ignition Off.
4. Clean the area with a glass cleaner.
5. Remove the protective backing from the stencil.
6. Align both ends of the broken grid line with the opening in the stencil and press firmly to attach.
NOTE: Make sure both ends are aligned prior to attaching.
7. Shake the bottle of resin well.
CAUTION: Continuity failure will occur if the ingredients are not mixed completely.
8. Brush on the resin **overlapping both ends** of the broken grid line.
NOTE: Use paint remover to clean brush for future applications.
9. Repeat application (total of 3 times) when the surface is tack-free (approximately one (1) minute).
10. Allow to dry twenty (20) minutes.
11. Carefully peel stencil from glass.
12. Allow twenty-four (24) hours before activating rear defroster.



WARRANTY INFORMATION

(Applies To Verified Customer Complaints On Vehicles Covered Under Normal Warranty. Refer To The SRT Microfiche For Warranty Term Information. Damage Which Occurs Through Customer Misuse Or Abuse Is Not Considered A Warrantable Repair.)

Warranty Type: A
Symptom Code: D5
Damage Code: AA
Part Number Main Cause: 0000 88 5067
Quantity: 0
Operation Number: XX0777RX
Labor Hours: 0.3Hrs.

NOTE: Labor Hours includes the cost of resin.

PARTS INFORMATION

Part Number	Description
0000 88 5067	Resin

NOTE: Product will repair grid scratches up to 4in.

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature 059756

Parts Manager

Mazda Tips

June 1994

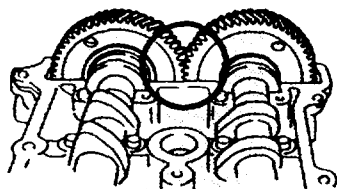
Timely Repair Information for Mazda Dealer Service Personnel

Cam Gear (1995 Millenia)

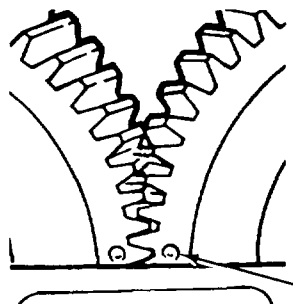
Both Millenia engines (2.5-liter/KL, 2.3-liter/KJ) have the same camshaft gears, but different timing marks are used to set valve timing.

Stamp marks (dots) appear on the KL camshaft gears, while paint lines *and the dots* appear on the KJ gears. Align the stamp marks to adjust valve timing on the KL model and use the paint lines for the KJ model.

Camshaft Gears

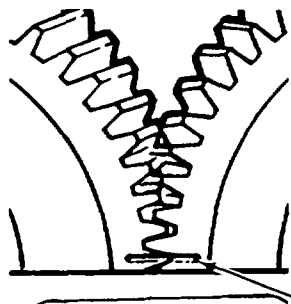


KL



Stamp Marks

KJ



Paint Lines

Keyless Entry System (1995 Millenia; 1994 929)

Here's some information to help you better understand keyless entry system operating conditions, reprogramming and transmitter operation.

Operating Conditions

- The system may not always work in some customers' garages that use garage door openers. The reason: garage door openers can interfere with the system's transmitter signal - even if the door openers are not in use. Don't replace the system (or parts of it) if this happens to a customer. The system will start working again if the car is moved away from the door opener unit.

- Metal wall surroundings and fluorescent lights - common in service shops - may also interfere with the system's function. You may need to move the car to an open area if you're re-programming the transmitter.

Mazda is currently working to improve the system's operation in these circumstances.

Re-programming an Inoperative Transmitter

1. Confirm the transmitter is inoperative. Test this outside of the shop, just in case it might not function correctly inside (see above).
2. Re-program the system - outside, if necessary - according to the **April Mazda Tips** procedure (pages 1 & 2).
3. If the system is still inoperative, check the transmitter battery. Replace it if necessary.
4. If this fails to correct the condition, call your regional technical hotline.

Transmitter Operation Highlights

- Pressing the "Unlock" button will unlock the driver's door immediately.
- Holding that button down for one second will unlock all of the doors.
- To unlock the trunk or activate the panic mode, hold down the appropriate button **for at least one second**.
- After the transmitter unlocks the doors, all doors will lock again in 30 seconds if one of them is not opened.

Continued

Index • **039144**

Questions? Contact your regional technical hotline.

Page 1

"Keyless Entry System," cont.'d

•**Important:** If one transmitter operates two vehicles, it was mistakenly programmed. Re-program both vehicles with their own transmitters.

929 Keyless Entry System

The 929's keyless entry system design is similar to the Millenia system design, but the conditions we've mentioned do not occur as often. This is because the keyless receiver is in a different location on the 929.

**Driveability (1995 Millenia)**

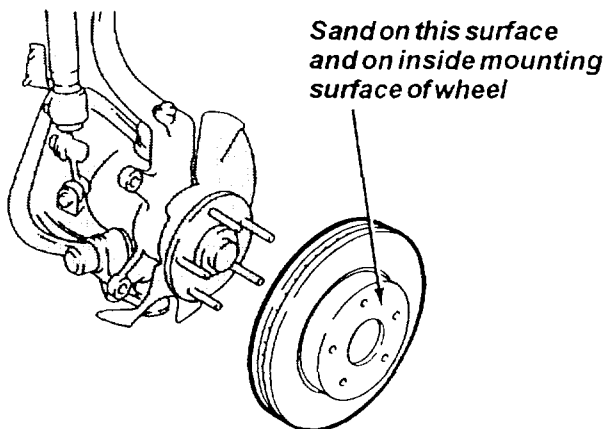
Before replacing components to correct driveability problems, check for loose connections at the PCME or other components. The loose connections may also prevent the NGS tester's diagnostic operation.

Besides the PCME, inspect connectors at the air flow meter, TPS, ignitor, boost sensor, etc. See the back page for more information on causes of NGS tester malfunction ("NGS System Messages").

**Front Wheel (1995 Millenia)**

A clicking sound from the outside of either front wheel may occur when the vehicle is moving slowly and turning to the left or right. You may hear several clicks each time the wheel goes round, but they occur irregularly.

To get rid of this condition, remove the wheel and use rough sand paper to clean the disc plate and wheel mounting surface (see illustration). Carefully remove abrasive dust that's produced from sanding and install the wheel. Tighten the lug nuts to 94 ft. lbf.

**Hotline Call Requirements (1995 Millenia)**

We want the Millenia Powertrain Technical Hotline to be the most helpful possible tool for you. So when you call the Hotline with *transaxle* questions, please be prepared to offer the following information:

- Dealer code, VIN and mileage.
- Customer complaint and problem condition.
- Transmission fluid level and condition.
- Trouble codes (pages K1-3 to K1-6 in the Millenia Workshop Manual).
- System Voltages (pages K1-100 to K1-103 in Millenia Workshop Manual).
- Line pressure and stall speed reading at operation temperature in all gears.

Also, you should have this same information handy when you call your Regional Technical Hotline with transmission questions about other models.

**Questions about the Millenia powertrain?
Remember to call the national Millenia Powertrain
Technical Hotline: 1-800-TECH-940 (832-4940)**

**Illuminated Entry System (1995 Millenia - Both Models)**

Page Z-86 of the Wiring Diagram incorrectly labels a normally open switch as "Outer Door Handle Switch." It should be labeled as the "Key Cylinder Switch" because the key cylinder - not the door handle - activates the illuminated entry system.

Here's how the system works: If the dome light switch is in the "Door" position, unlocking the passenger or driver's-side door (with a key or remote) triggers the dome light and C-pillar lights to come on.

Please note that the Millenia does not use the key cylinder illumination feature found in some other models.

**CD Player/Random Feature (1995 Millenia)**

The owner's manual incorrectly states that pressing the random play button activates the feature "from the next selection."

For vehicles with a trunk-mounted CD changer,

Continued

"CD Player/Random Feature," cont.'d.

pressing the button will activate random play immediately, cancelling the current track.

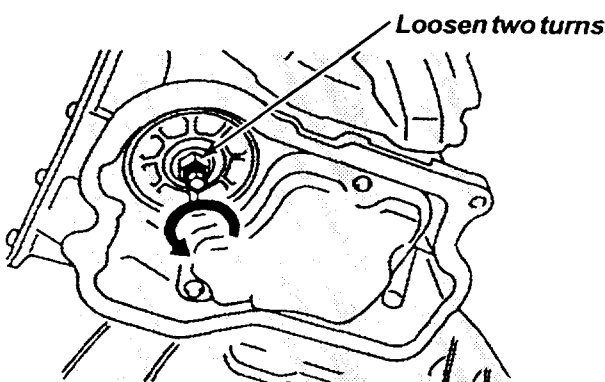
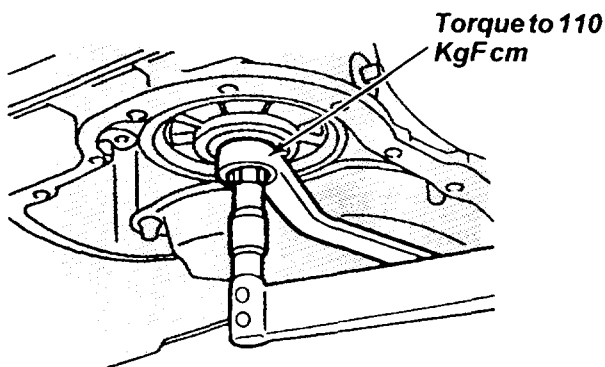
This is a normal function on these models, so don't replace the CD player - it's not defective. The owner's manual will be corrected to clarify this function.

Shift Feel (1995 Millenia-2.5-liter GF4A-EL)

A harsh shift from first to second and second to third may be the result of a tight 2-4 brake band adjustment. To confirm the condition, test drive two equally equipped vehicles and compare shift quality. If you verify the condition, adjust the band according to the Workshop Manual procedure on page K1-111, using the following new specifications for steps 10 and 11:

Step 10 - Torque piston stem to **110 KgF cm**.

Step 11 - Loosen piston stem **two turns**.



Reassemble components and test drive vehicle again, checking this time for shift flare. If flare exists:

1. Remove transmission oil pan, drain fluid and loosen piston stem locknut.

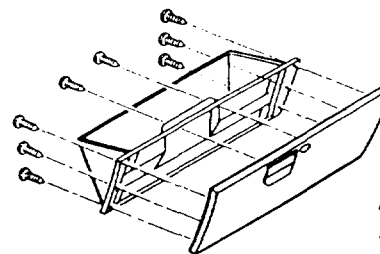
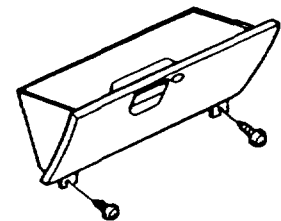
2. Tighten piston stem 1/4 turn. Tighten locknut, reassemble components and test drive one last time.

Look for a service bulletin and a Workshop Manual correction on this subject in the near future.

Glovebox Door (1993-'94 626/MX-6)

A glovebox door and hinge that rattles or squeaks may be a result of loose screws. To eliminate this condition, make sure the two hinge screws and the eight inner glove box lid screws are adequately tight.

Hinge Screws (2 total)



Inner Glove Box Lid Screws (8 total)

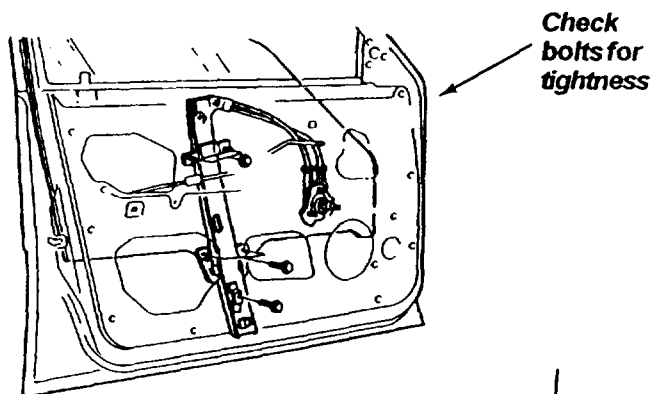

Window Weatherstripping (1993-'94 MX-6)

A squeaking noise from the front driver and passenger-side windows may occur when the windows rub against the weatherstripping. To stop the squeaking, spray silicone lubricant on a rag and wipe all the weatherstripping where it touches the window.

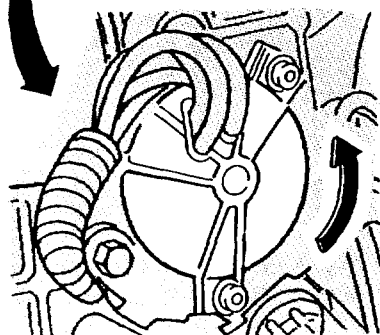
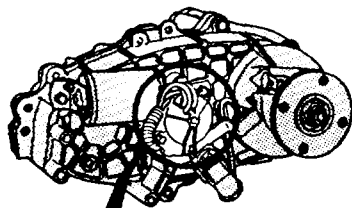
Window Regulator Bolts (1990-'94 323/Protegé)

Do not simply replace the window regulator (manual or power) if the door rattles or if it's difficult to roll a manual window up and down. First check for loose window regulator mounting bolts. Remove the door panel and ensure the bolts are tightened to 61-87 in.-lbs., 6.9-9.8 N.m. (illustration, next pg.).


Continued

"Window Regulator Bolts," Cont. 'd

**Shift To 4WD
(1991-1994 Navajo)**

An open electrical contact in the change motor position plate may prevent shifts into or out of four wheel drive intermittently. To correct this condition, rotate the plate cover one notch counterclockwise after loosening the three cover screws.



Rotate one notch


**Spark Plug Variations
(1990-'94 Navajo/
1994 B-4000)**

Do not replace 4.0-liter engine spark plugs if you notice different identification numbers stamped on the right side and left side plugs. For example, the the number "42P" may ap-

pear on the left plug, while "42PG" is stamped on the right one. This a normal numbering system used in mass production.

All spark plugs you order from the PDCs, however, will have the same numbers on them.


NGS System Messages

If the NGS screen displays "DATA LINK ERROR," check for:

- Loose link adaptor/power cable connections;
- Incorrect vehicle and engine selection.
- Tightness of NGS data link connector terminal;
- Tightness of X-13 connector terminal (you'll find this terminal under the plastic carpet protector just below the left side of the radio);
- Tightness of PCME connector(s) terminal (PCME is under the radio).

If "DATA LINK ERROR" still appears after you cycle the ignition key, check whether the NGS tester is operating properly by testing it on a known good vehicle (same model).

If the "DATA LINK ERROR" appears on this vehicle, the NGS tester could be defective. Call Kowa Seiki for questions at 1-800-535-5455 (Calif. only) or 1-800-824-9655 (outside Calif.) Monday through Friday, 9:00 A.M. to 5:00 P.M. (Pacific Time).

mazda

Mazda Tips
Mazda Motor of America, Inc. (MMA)
Customer Support Division

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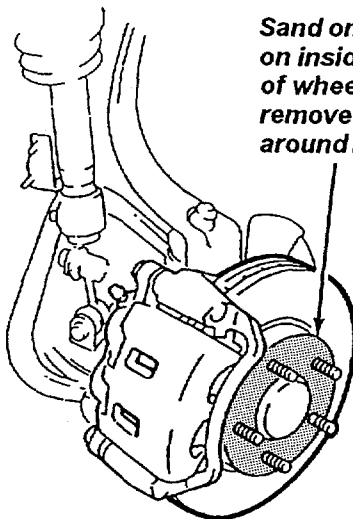
Mazda Motor of America
Parts/Service Publications
#2 Holland
Irvine, Calif. 92718

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Front Wheel ('95 Millenia)

You probably don't need to replace any parts if a customer complains the vehicle's front wheels make a clicking sound. Often, several clicks can be heard from the outside wheel during a slow turn.

We featured this concern in the June issue of *Mazda Tips* and the fix still applies: remove the wheel, then use coarse sandpaper to clean the disc plate's contact area and the wheel mounting surface (see illustration). Carefully remove the abrasive dust produced from sanding and re-install the wheel. Tighten lug nuts to a maximum torque of 94 ft. lbs.



Sand on this surface and on inside mounting surface of wheel. You don't need to remove brake rotor (sand around bolts).

Fuse Box Cover ('95 Millenia)

In September, the Mazda factory began placing the cabin fuse box cover in the glove box instead of installing it. The reason: the cover gets scuffed up during transport if it's installed.

Please retrieve the cover from the glove box and install it during PDI.

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Index #

Owner's Manual ('95 Millenia)

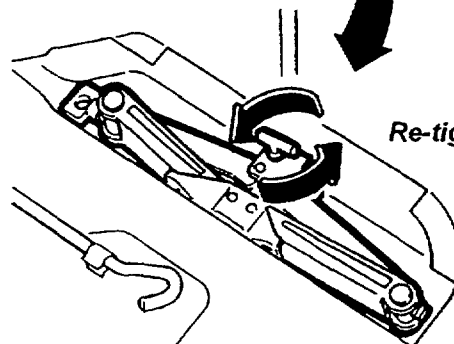
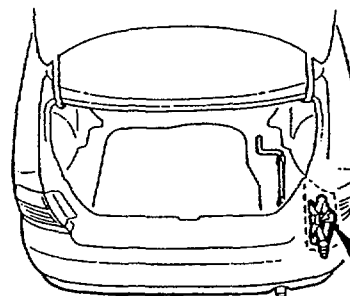
Page 4-50 of the Owner's Manual offers information about the Solar Ventilation System.

This option does not exist for U.S.-distributed models, so please disregard the information.

Mazda has revised this page in the most recent edition of the Owner's Manual.

Tire Jack Wing Bolt ('95 Protegé)

The spare tire jack wing bolt may be too tight. During PDI, make sure you can loosen the bolt by hand. If you can't, loosen it with a suitable tool and re-tighten it by hand until it is finger tight. Then, tighten it another eighth of a turn by hand.



Re-tighten by hand

Code P1797 ('95 Protegé)

The '95 Workshop Manual (page F1-59) incorrectly states that Diagnostic Trouble Code P1797 applies to "ATX vehicles only."

This code is also used on MTX vehicles. If you find it in the Power Control Module (PCM) memory on an MTX vehicle, check the clutch switch circuit (Workshop Manual pages F1-53 and F2-53).

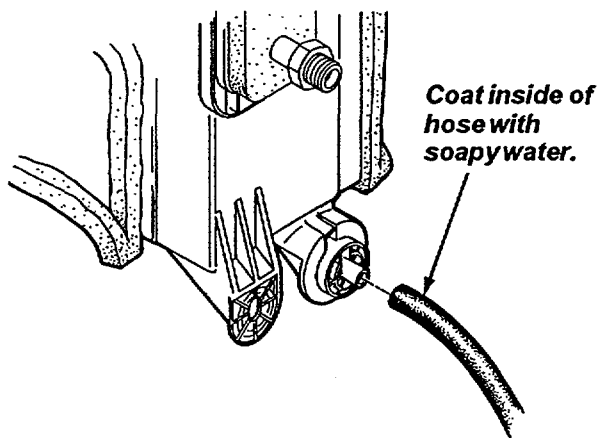
Mazda will issue a service bulletin with a correction page in the near future.

A/C Evaporator Hose ('93-'95 626/MX-6)

Water from the air conditioning evaporator case could leak onto the front passenger's side carpet because the case's drain hose may fall off.

Before you attach the end of the hose onto the case, coat the first 40 mm of the inside of it with soapy water. This will create a bond with the case's spout that is sticky enough to prevent the hose from falling off again.

Be sure to re-insert the hose completely and check that the other end is routed through the firewall grommet.



Timing Belt ('92-'94 929)

The engine may have a rough idle, lose power below 4500 rpm or stall, but it doesn't misfire and there are no codes. Your next step? See if the

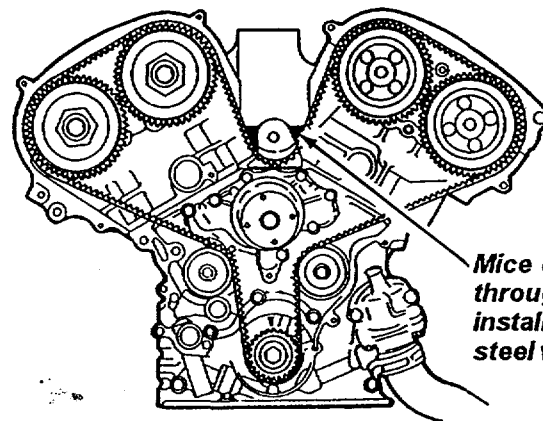
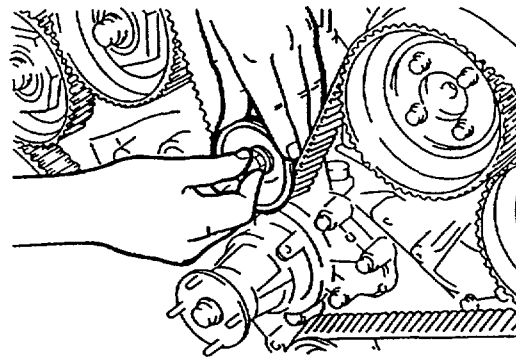
timing belt has jumped one or more teeth.

Mice may cause the belt to jump teeth. In cold climates especially, they can crawl through a gap between the two cylinder heads and possibly build a nest on the belt. When the engine starts up, this interference may force the belt off track.

If you discover this condition, you can prevent it by cleaning and re-setting the belt, then putting stainless steel wool in the gap. You must remove the No. 2 Idler Pulley to get to the gap (see WSM pages B12 to B15). Don't use plain steel wool because it will rust.

Next, clean the engine surfaces around the wool and apply high-temperature silicone around it. This will form a seal to the surface and reinforce the blockage.

Remove No. 2 Idler Pulley to see gap.



Wind Leaks ('92-'94 929)

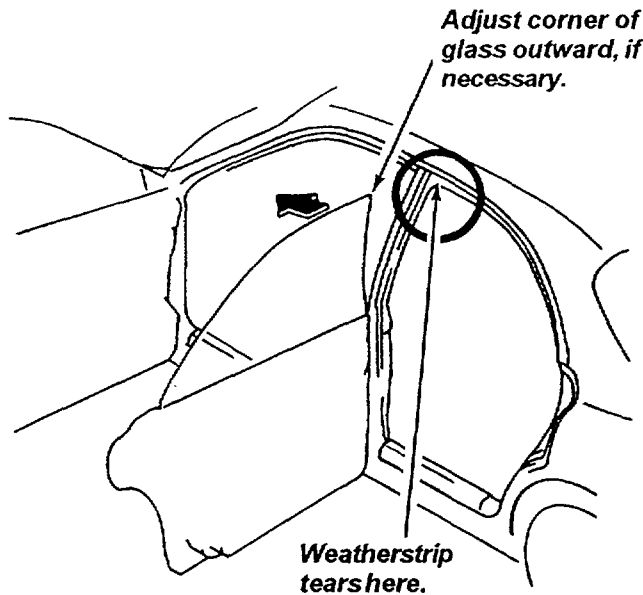
A torn weatherstrip at the rear door's upper front corner may cause wind or water leaks. In

Continued, next page

"Wind Leaks," cont.'d.

time, the weatherstrip could tear if a slightly misaligned door glass digs into it when the door is closed.

If the weatherstrip is torn, install a new one, but ensure the door glass is properly adjusted. If the glass is set too far inward, adjust the corner slightly outward, according to the Workshop Manual procedure (page S-22). Be careful not to adjust it too far outward or you'll create another wind or water leak.



CD Player (Miata)

The compact disc player may skip while the vehicle travels over railroad tracks or other severe bumps.

To correct this condition, the manufacturer (Pioneer) added rubber cushions to the bottom of the players installed in vehicles built after September 8, 1993.

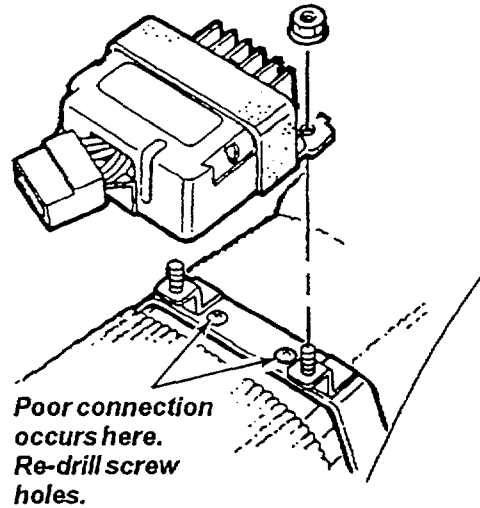
A field service repair kit is not available, so call Pioneer's service center at 1-800-553-3756 for a modified exchange unit.

Audio System Speaker ('94 RX-7)

On some '94 vehicles, the front center speaker may work intermittently because of a poor ground connection at the speaker's amplifier mounting bracket. The amplifier is located

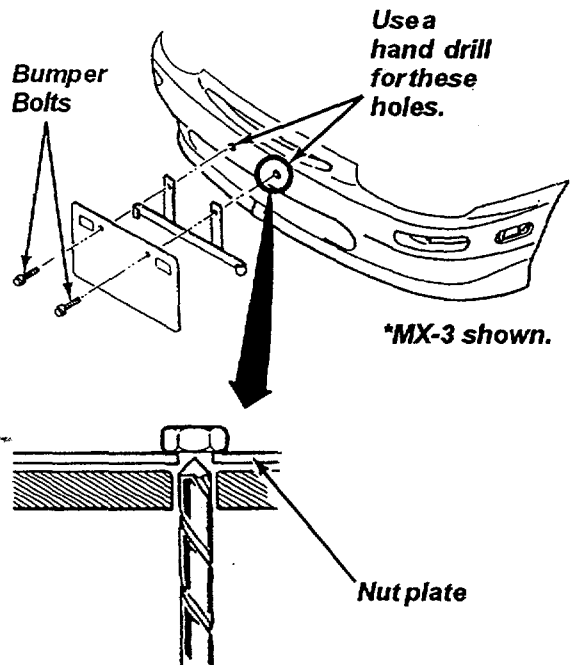
behind the gear shift lever.

The poor connection results from stripped screw holes on the bracket. Redrill the screw holes and use either larger machine screws or rivets. You might also consider installing a separate ground wire to the vehicle body.



License Plate Installation (929,626/MX-6, Protegé, MX-3, Millenia)

When you drill the holes to install the license plate frame, do it by hand. If you use a power drill, the nut plate attached to the inside of the bumper could come off.



Continued, next page

"License Plate Installation," cont.'d.

The nuts on this plate anchor the bumper bolts you use to install the license plate frame. And if the nut plate comes off, you must remove the bumper to repair it.

If you don't have a hand drill, you can turn a power drill by hand.

**A/C Spring Lock Couplers ('94 Navajo and B-Series)**

Don't automatically replace spring lock couplers, fittings and hoses if you see refrigerant oil around them. What appears to be oil leaking from the couplers could simply be oil residue used to aid assembly at the factory.

To check, wipe the couplers and the fittings clean, then use an electronic leak detector or R-134a fluorescent tracer dye. Be sure to follow the instructions provided for these tools.

Lug Nut Torque (All Models)

Use a torque wrench to re-install the wheel after brake or suspension servicing. Tighten lug nuts to Workshop Manual specifications to avoid warping brake rotors.

✓ Mazda Tips Online Update

Mazda Tips Online disks to will be distribute to dealers with the fourth-quarter MDCS release in mid-November. Here's what's included on the disks:

- A service bulletin index with short descriptions.
- *Mazda Tips* newsletter articles from past months.
- New information provided exclusively for *Mazda Tips Online*.
- Special service messages.
- Vehicle warranty history, pending recalls, etc.
- A "Dealer Comments" feature.

✓ Millenia "Best in Class"

Mazda will soon launch a new program to help dealers make the Millenia "Best in Class"

on the upcoming J.D. Power customer satisfaction surveys. The program aims to establish the industry's highest quality pre-delivery service and the most thorough new delivery for the Millenia.

Look for special program instructions, materials and promotional tools in the mail.

✓ Warranty Codes

Starting this month, Mazda requests that technicians verify the warranty Customer Comment codes that apply to a vehicle condition. The reason is simple: technicians are the most qualified to make a technical judgement. However, technicians still need to get proper input from customers.

By the end of October, technicians should receive the "Technician's Quick Reference to Mazda Warranty," a handy two-panel card that lists warranty "Symptom" and "Damage" codes. On the card, "Customer Comment" codes are called "Symptom" codes. The new name is more appropriate since technicians will make the final evaluation of the vehicle's condition.

Mazda Tips
Mazda Motor of America, Inc. (MMA)
Customer Support Division

An editorial board comprising MMA service staff members generates and verifies information for this publication. To contribute a newsletter item, contact your regional service department. All contributions become property of MMA, which assumes permission to publish them without further consideration. For comments, suggestions or questions, write to:

Mazda Motor of America
Parts/Service Publications
#2 Holland
Irvine, Calif. 92718

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Category U	Applicable Model/s 1989-92 626	Subject INSPECTION & REPAIR PROCEDURE – AIR LEAK FROM THE HEATER SYSTEM	Bulletin No. 001/93
			Issued 3/8/93
			Revised

DESCRIPTION

When the heater system does not provide sufficient heat, air may be leaking around the sealing plate between the blower unit and the cooler unit or between the cooler unit and the heater unit, or air may be escaping through a grommet hole.

This bulletin outlines the procedures to effectively troubleshoot and repair the air leak condition.

INSPECTION AND REPAIR PROCEDURE

A. INSPECTING AIR LEAKAGE AROUND THE SEALING PLATE

1. Remove the glove box. If the vehicle is equipped with A/C, see **Figure 1**. If the vehicle has no A/C, refer to **Figure 2**.

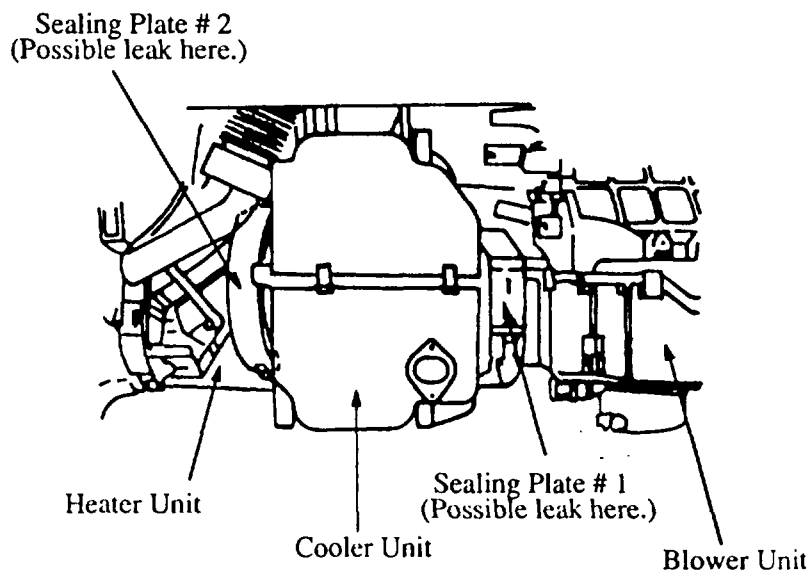


Figure 1: A/C System

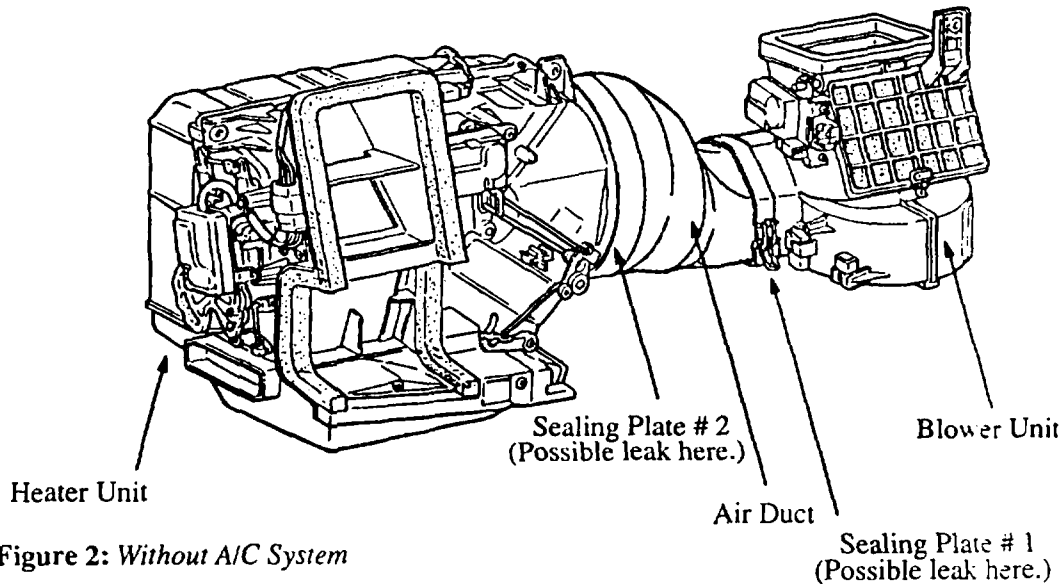
IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

-----Service Manager

Signature _____

Parts Manager

REPAIR PROCEDURE (CONT'D)**A. INSPECTING AIR LEAKAGE AROUND THE SEALING PLATE (Cont'd)****Figure 2: Without A/C System**

- To test, set the heater control as follows:

Set the mode control switch to DEFROST.

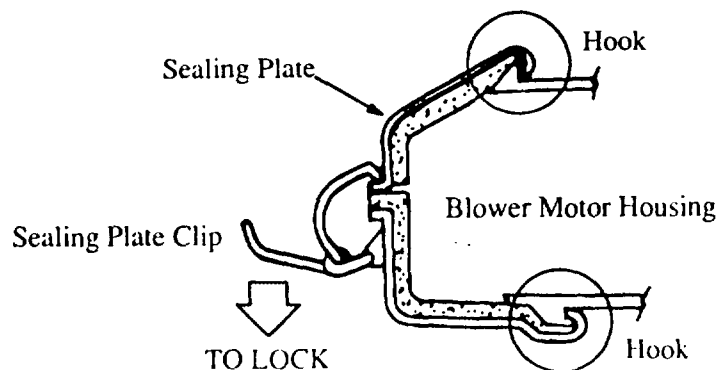
Set the Recycle/Fresh switch to FRESH.

Set the Fan Speed switch to MAXIMUM.

Inspect the sealing plates for air leaks. If a leak exists, proceed to the next Repair Procedure.

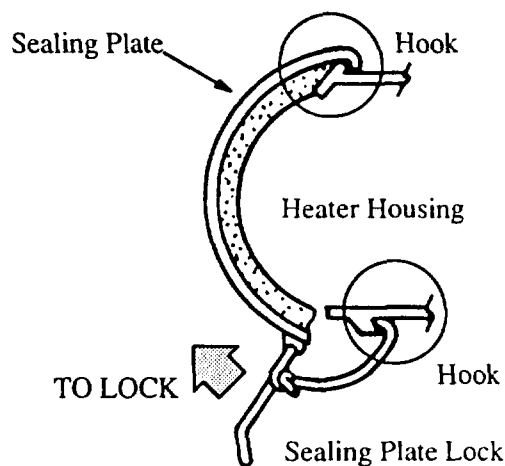
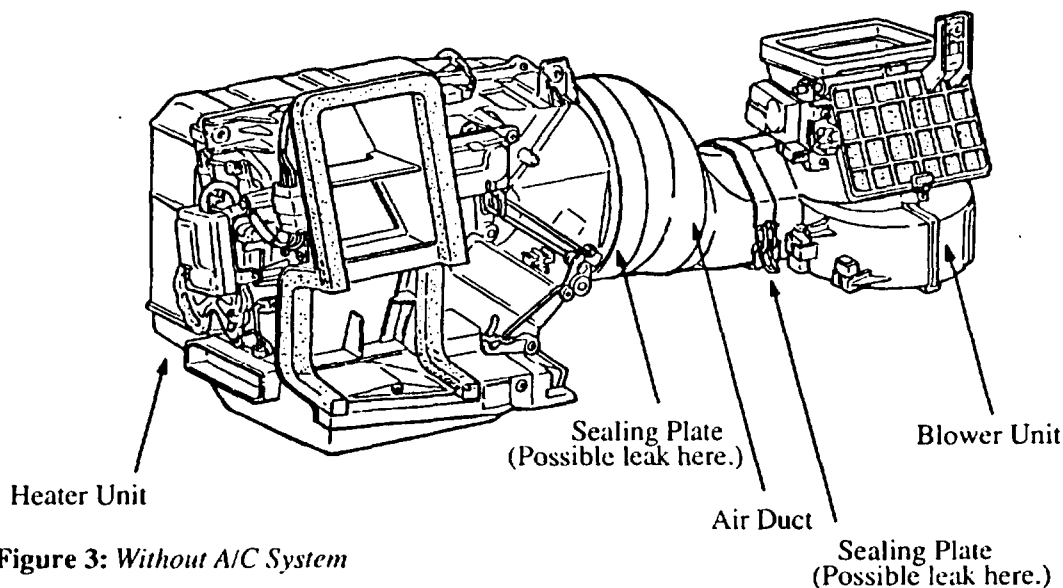
B. REPAIRING AIR LEAK BETWEEN BLOWER UNIT AND COOLER UNIT (W/ A/C)

- Make sure the 2 hooks of the sealing plate # 1 (Figure 1) attach properly on the blower case. If not, adjust the hook and lock.
- Make sure the sealing plate clip locks securely. If not, lock the clip.
- Make sure the sealing plate is installed between the blower unit and cooling unit properly and securely locked. If not, readjust and relock securely.
- Check that the air does not leak according to Procedure A. Then, install the glove box.

SEALING PLATE # 1 – CROSS-SECTION VIEW

REPAIR PROCEDURE (CONT'D)**C. REPAIRING AIR LEAK BETWEEN COOLER UNIT AND HEATER UNIT (W/ A/C)**

1. Make sure the 2 hooks of the sealing plate # 2 (Figure 1) attach properly on the heater housing. Inspect the upper hook closely because it is more difficult to attach. If necessary, readjust the hook and lock.
2. Make sure the sealing plate lock is securely fastened. If not, readjust.
3. Make sure the sealing plate is properly installed in between the cooler and heater units. If not, readjust and lock.
4. Check that the air does not leak according to Procedure A. Then, install the glove box.

SEALING PLATE # 2 – CROSS-SECTION VIEW**D. REPAIRING AIR LEAK – VEHICLES W/O A/C****Figure 3: Without A/C System**

1. Make sure the sealing plates between the blower unit and the air duct, and between the air duct and heater unit are installed properly. See procedures B and C. Check the sealing plates making sure that they are properly installed on the air duct.

Number: 001/93	Date Issued: 3/8/93	Date Revised:
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REPAIR PROCEDURE (CONT'D)

D. REPAIRING AIR LEAK – VEHICLES W/O A/C (Cont'd)

2. Check that the air does not leak according to Procedure A. Then, install the glove box.

NOTE: If the installation is correct, but air leaks because the shape of the sealing plate is distorted, replace the sealing plate with a new one.

E. AIR LEAK THROUGH THE GROMMET HOLE

Make sure that each firewall grommet is installed properly. If dislocated, apply soap water or spray lubricant to the grommet sleeve and reinstall. Check the A/C drain hose grommet, the vehicle harness grommet and the speedometer cable grommet for proper installation.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category U	Applicable Model/s All Models	Subject A/C O-RING REPLACEMENT	Bulletin No. 001/94
			Issued 2/28/94
			Revised

APPLICABLE MODELS/VINS

All Models

DESCRIPTION

Refer to the illustrations on the attached pages and chart below when replacing air conditioning system o-rings. These o-rings are designed for use in both R12 and R134 air conditioning systems.

O-Ring No.	Pipe Size	O-Ring Size	Part Number	89-94 323/Prot.	92-94 MX-3	90-93 MX-5	94 MX-5	89-94 RX-7	95 RX-7	89-93 MPV (S)	94 MPV (S)	88-92 626/MX-6	93-94 626/MX-6	90-93 B-Series	* 94 -Series	* 91-94 Navajo
1	6mm	6.9x1.78	LB51 61 J1X	6	5	4	4	6	6			5	5			
2	5/16in	6.8x1.5	LB52 61 J1X							3	3					
3	3/8in	7.65x1.78	LB53 61 J1X							1	1			4		
4	12mm	10.8x1.78	LB54 61 J1X	3	3	3	1	2	1	3	2	2	2	2		
5	12mm axial	10.8x2.4	LB55 61 J1X				1		1		1	1				
6	16mm	14.0x1.78	LB56 61 J1X	2	2	3	2	3	2	2	1	3	3	4		
7	16mm axial	13.4x2.4	LB57 61 J1X				1		1		1					
8		3/8	ZZL0 61 J19												3	3
9		1/2													4	4
10		5/8													3	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

* These vehicles are equipped with Ford air conditioning systems. O-Rings for these systems are supplied as a kit (P/N ZZL0 61 J19). The kit contains 96 o-rings (24 o-rings each of the sizes listed above and 24, 3/4inch o-rings).

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

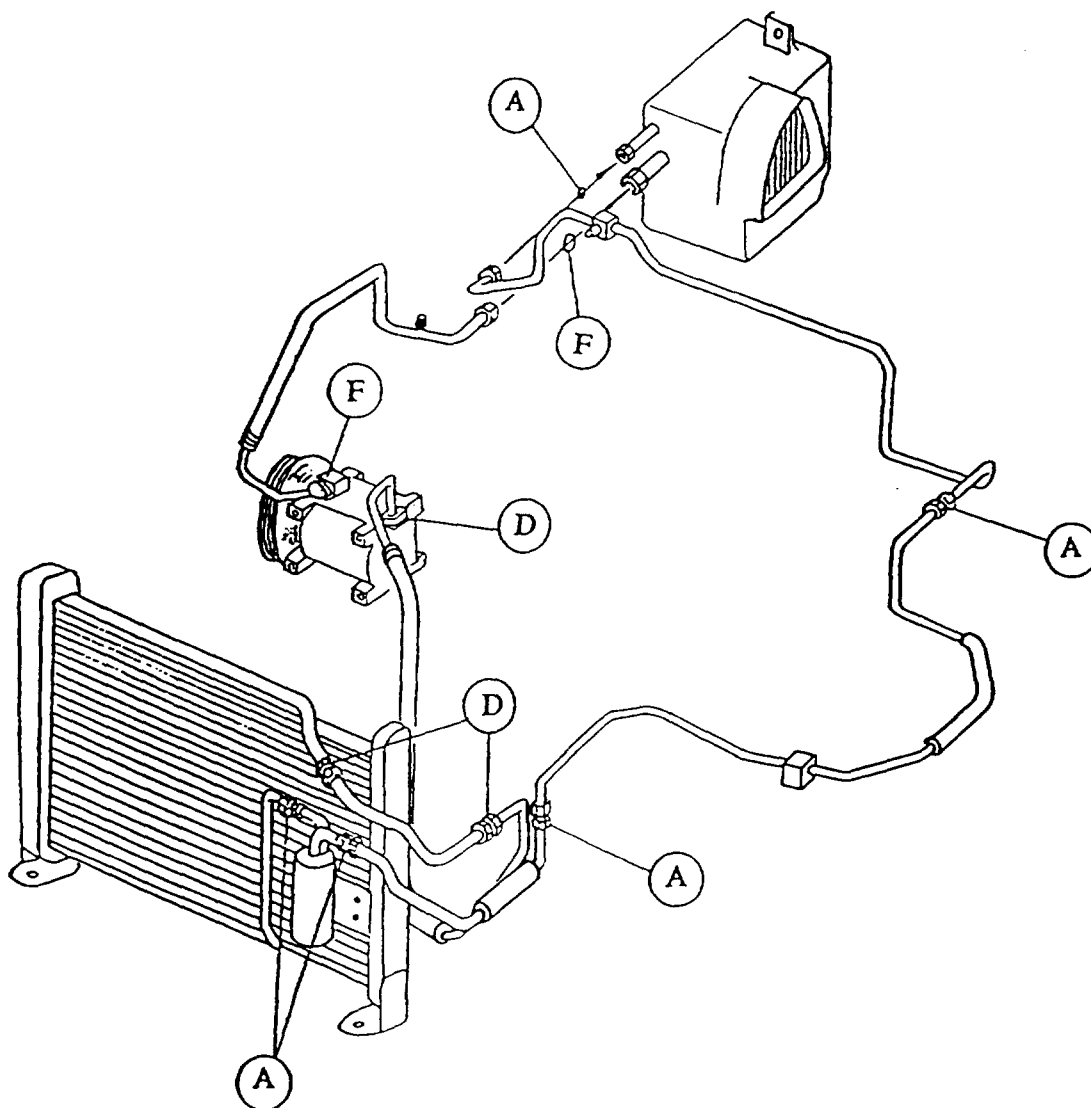
Signature _____

Service Manager.....

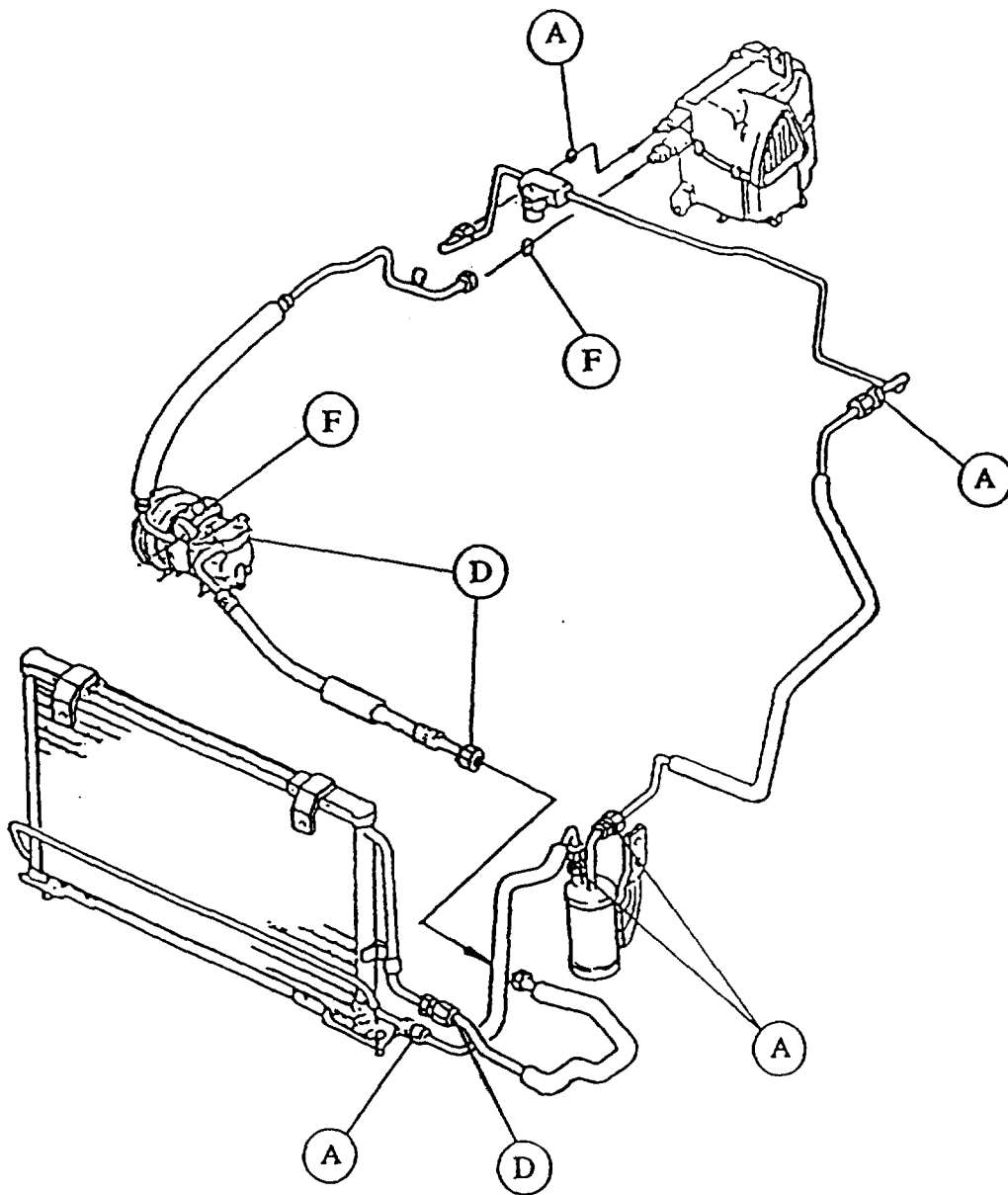
Signature _____

Parts Manager

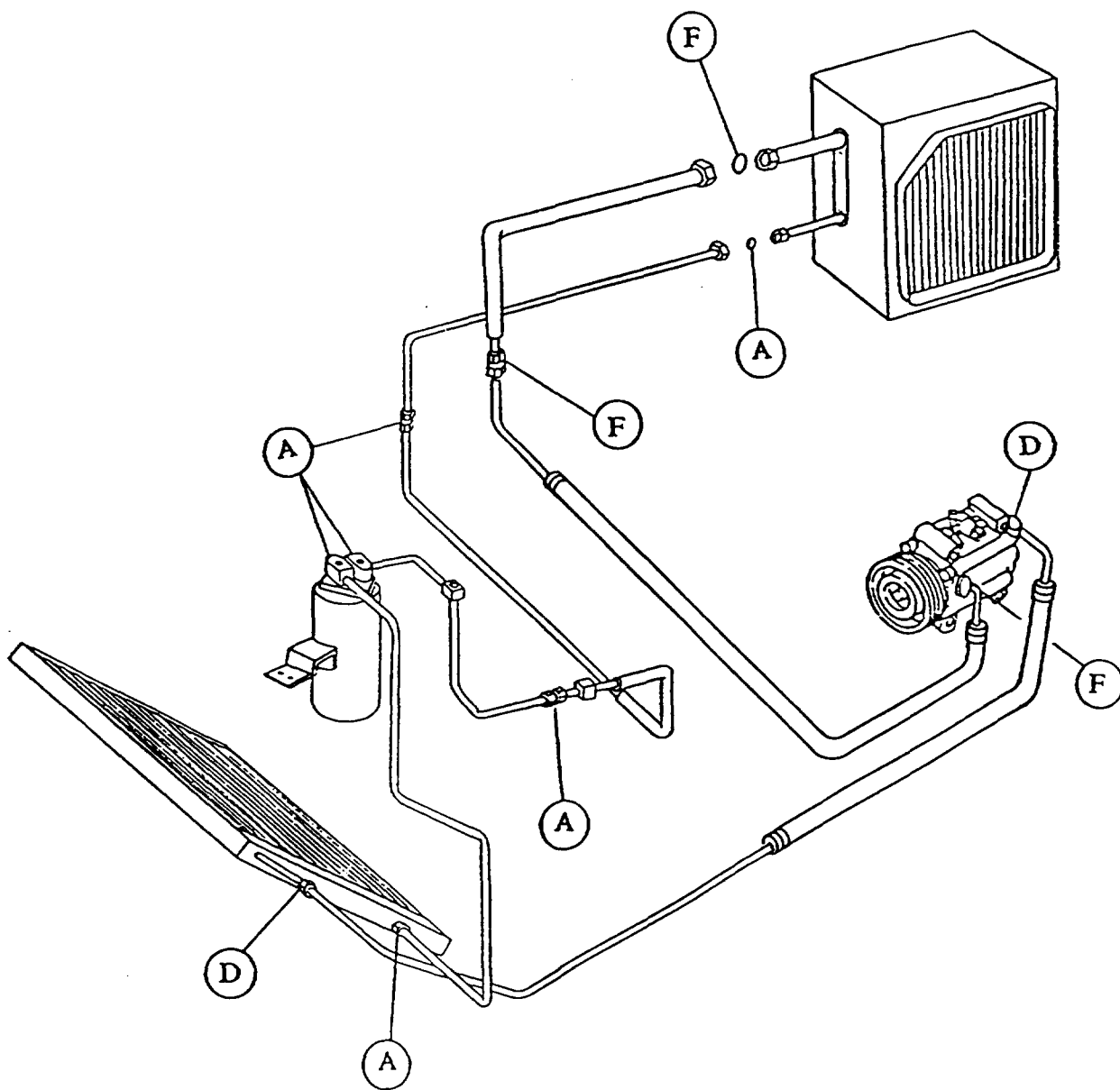
323/PROTEGE



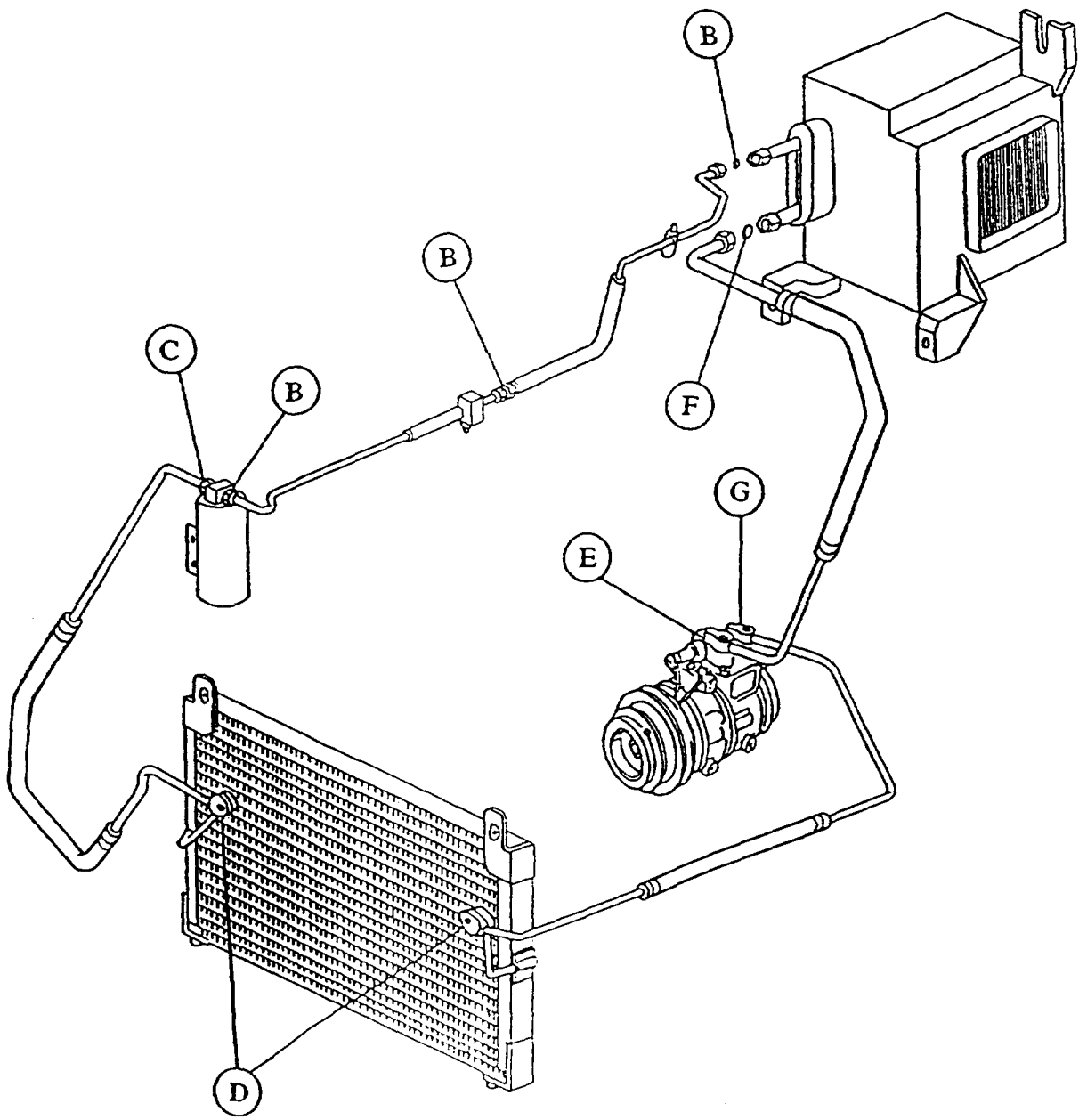
MX-3



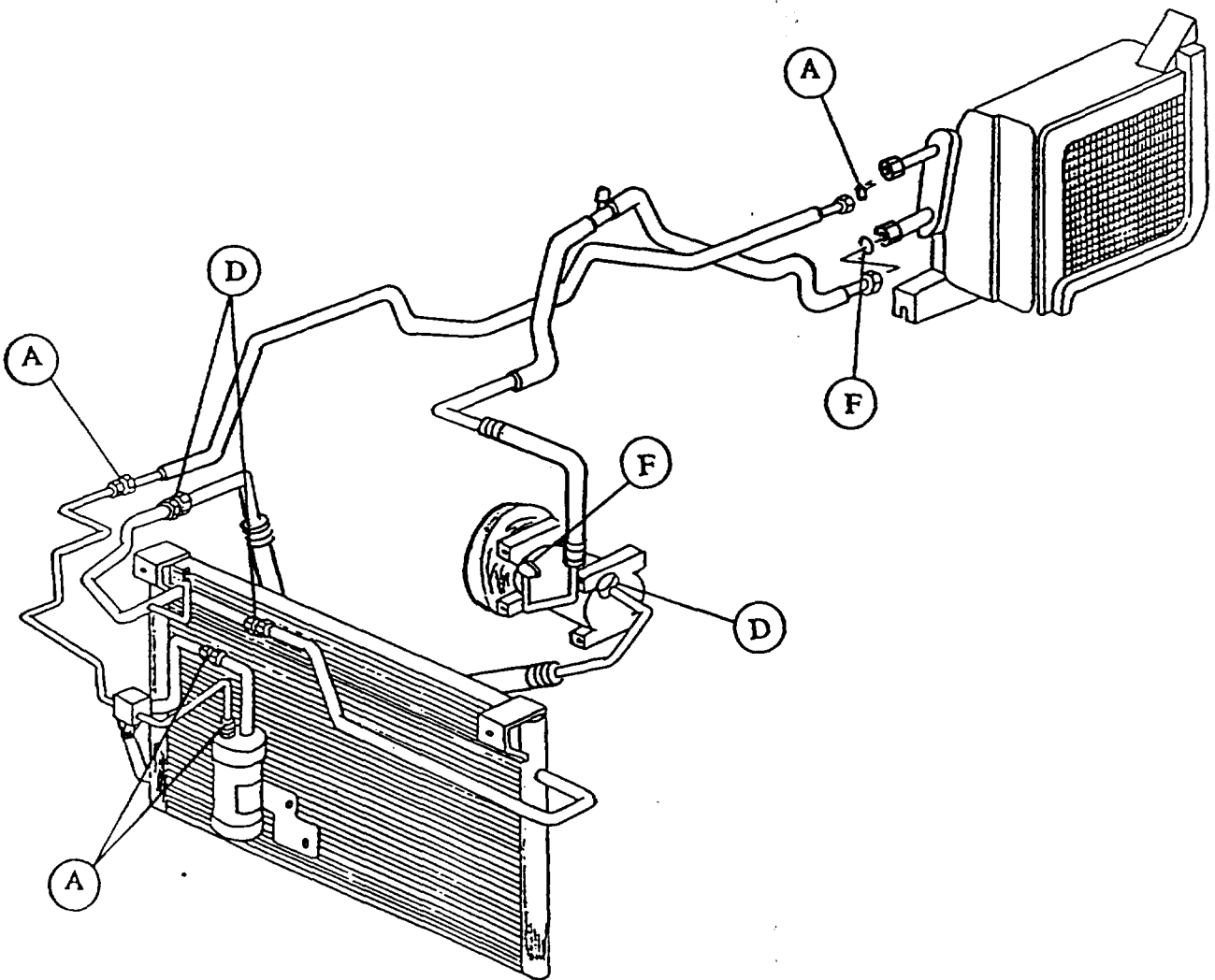
RX-7



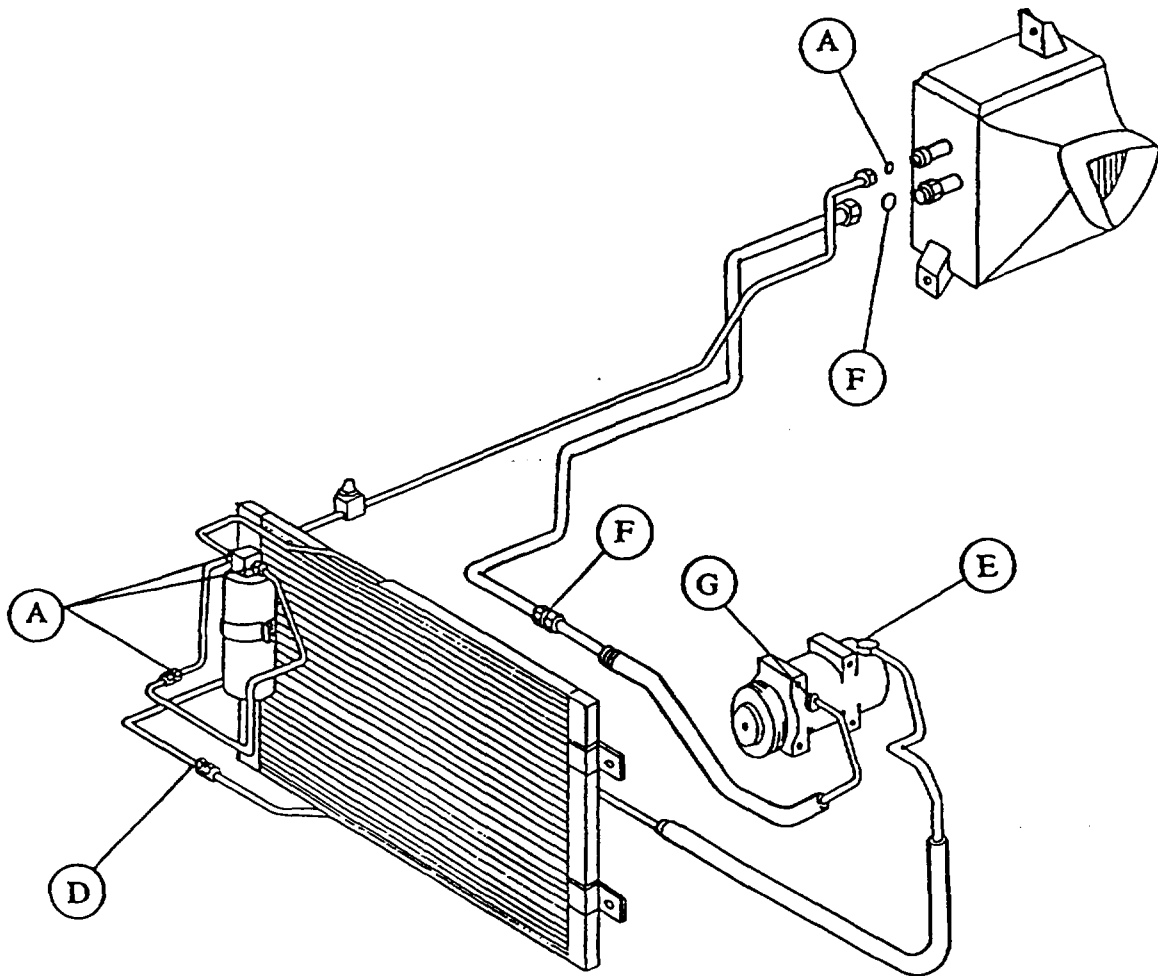
MPV



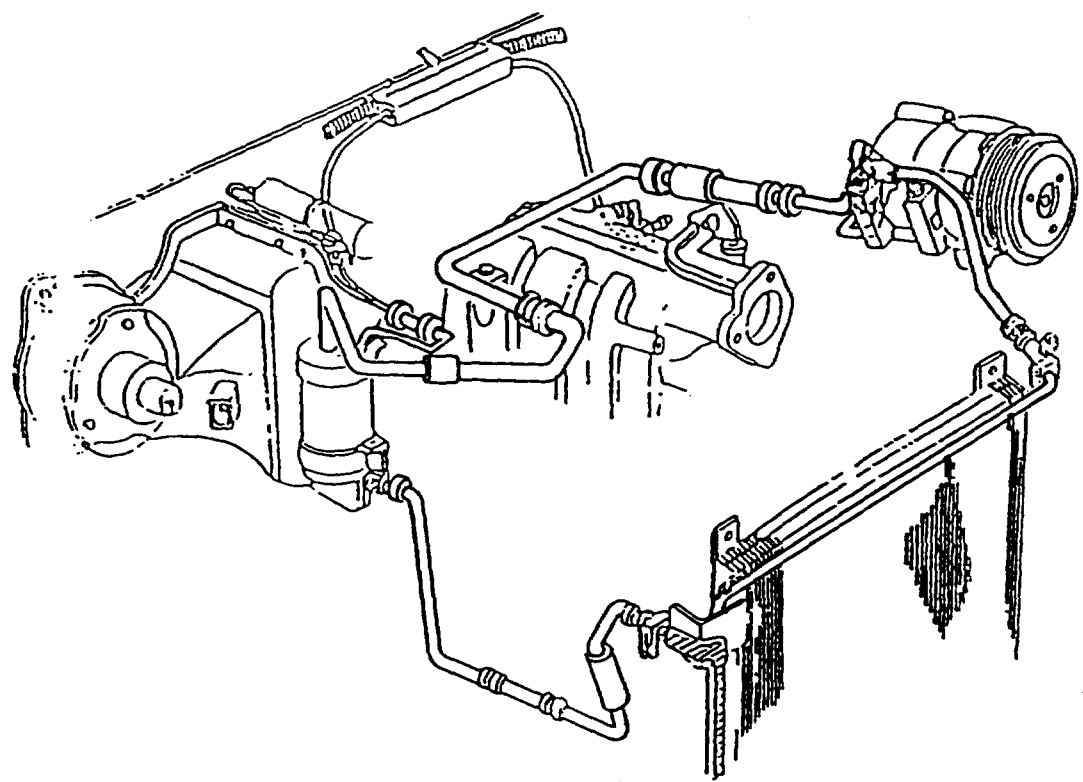
626/MX-6



MIATA



NAVAJO/94' B-TRUCK



Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714) 727-1990



MAZDA

Category U	Applicable Model/s All Models	Subject A/C O-RING REPLACEMENT	Bulletin No. 001/94
			Issued 2/28/94
			Revised 4/28/94

Pages 1 of 8 and 8 of 8 have been revised. Replace the original pages of your bulletin with the revised pages.

APPLICABLE MODELS/VINS

All Models

DESCRIPTION

Refer to the illustrations on the attached pages and chart below when replacing air conditioning system o-rings. These o-rings are designed for use in both R12 and R134 air conditioning systems.

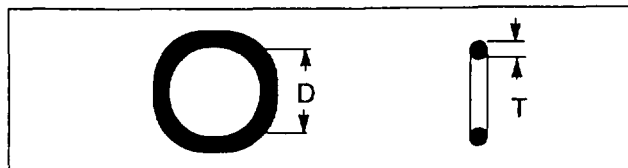
*

O-Ring Description				O-Ring Quantity Per Vehicle												
O-Ring Code	Pipe Size	O-Ring Size D x T	Part Number & Kit Number	89-94 323/Prot.	92-94 MX-3	90-93 MX-5	94 MX-5	89-94 RX-7	95 RX-7	89-93 MPV (S)	94 MPV (S)	88-92 626/MX-6	93-94 626/MX-6	90-93 B-Series	* 94-Series	* 91-94 Navajo
A	6mm	6.9x1.78	LB51 61 J1X	5	5	4	4	6	6			5	5			
B	5/16in	6.8x1.5	LB52 61 J1X							3	3					
C	3/8in	7.65x1.78	LB53 61 J1X							1	1			4		
D	12mm	10.8x1.78	LB54 61 J1X	3	3	3	1	2	1	3	2	2	2	2		
E	12mm axial	10.8x2.4	LB55 61 J1X				1		1		1	1				
F	16mm	14.0x1.78	LB56 61 J1X	2	2	3	2	3	2	2	1	3	3	4		
G	16mm axial	13.4x2.4	LB57 61 J1X				1		1		1					
H		3/8	ZZL0 61 J19 (Kit)												3	3
-J		1/2													4	4
K		5/8													3	3

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

* These vehicles are equipped with Ford air conditioning systems. O-Rings for these systems are supplied as a kit (P/N ZZL0 61 J19). The kit contains 96 o-rings (24 o-rings each of the sizes listed above and 24, 3/4inch o-rings).

The illustration to the right indicates where the o-ring is measured to determine diameter and thickness. Use this information and the chart above to identify the proper part if o-rings are accidentally mixed.



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

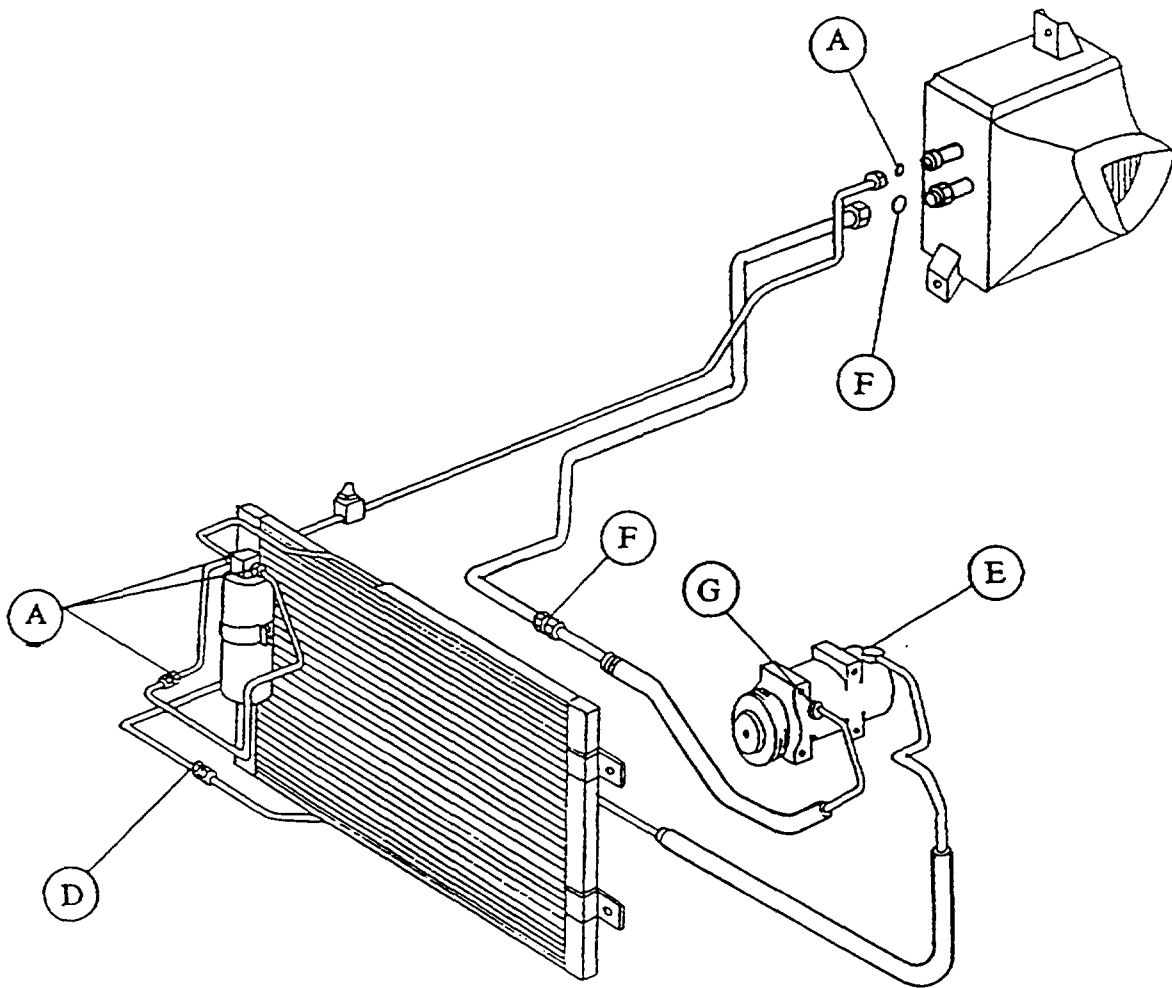
Signature _____

Service Manager

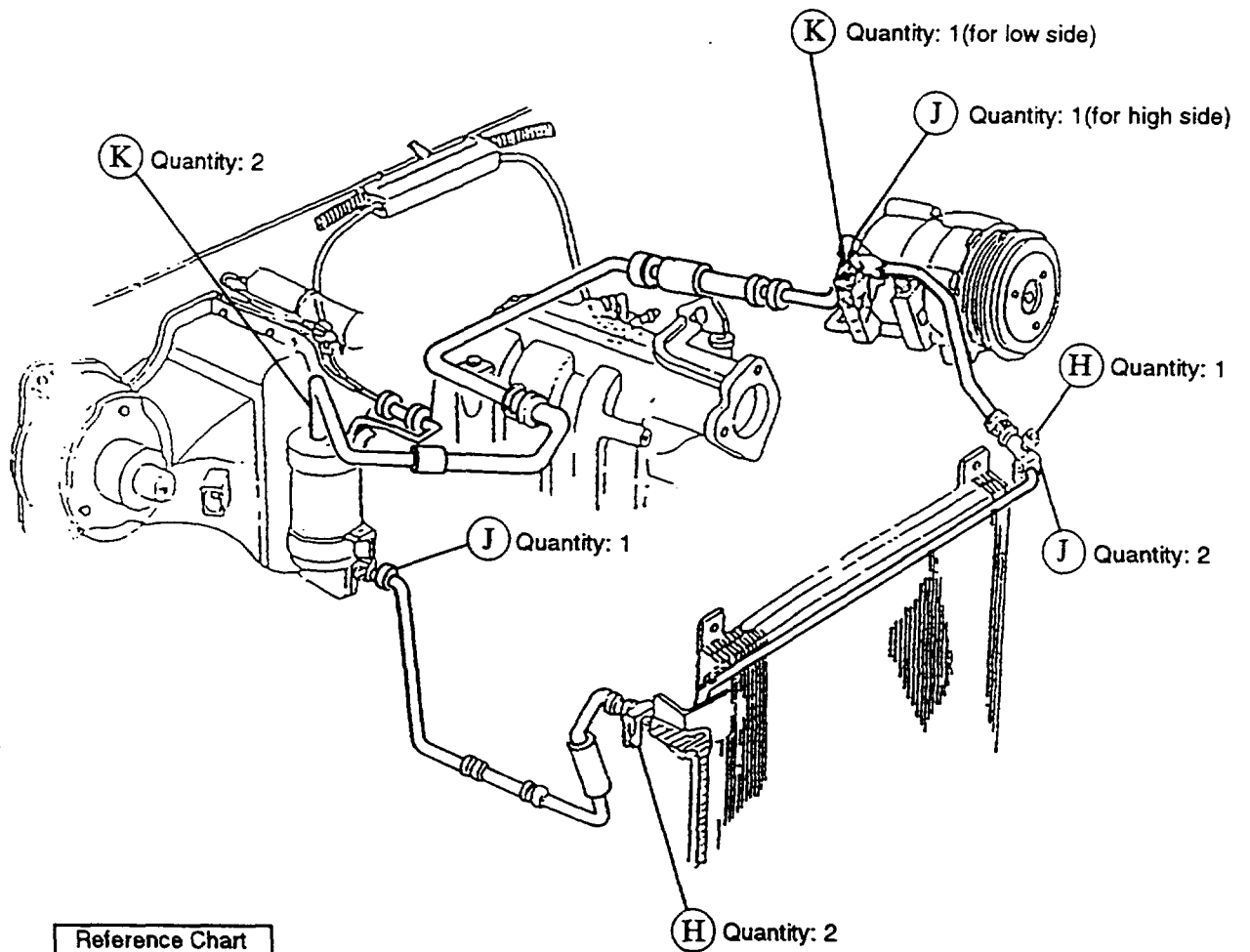
Signature _____

Parts Manager

MIATA



NAVAJO/94' B-TRUCK



Reference Chart		
Code	Size	Q'ty
H	3/8"	3
J	1/2"	4
K	5/8"	3

Service Bulletin

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 Irvine, California 92718
 Telephone (714) 727-1990



Category U	Applicable Model/s See Below	Subject RECEIVER DRIER REPLACEMENT CRITERIA WHEN REPLACING OTHER A/C COMPONENTS	Bulletin No. 001/95
			Issued 2/15/95
			Revised

APPLICABLE MODELS/VINS

All models equipped with R12 and R134a (Except Navajo and 1994 and later B-Series vehicles).

DESCRIPTION

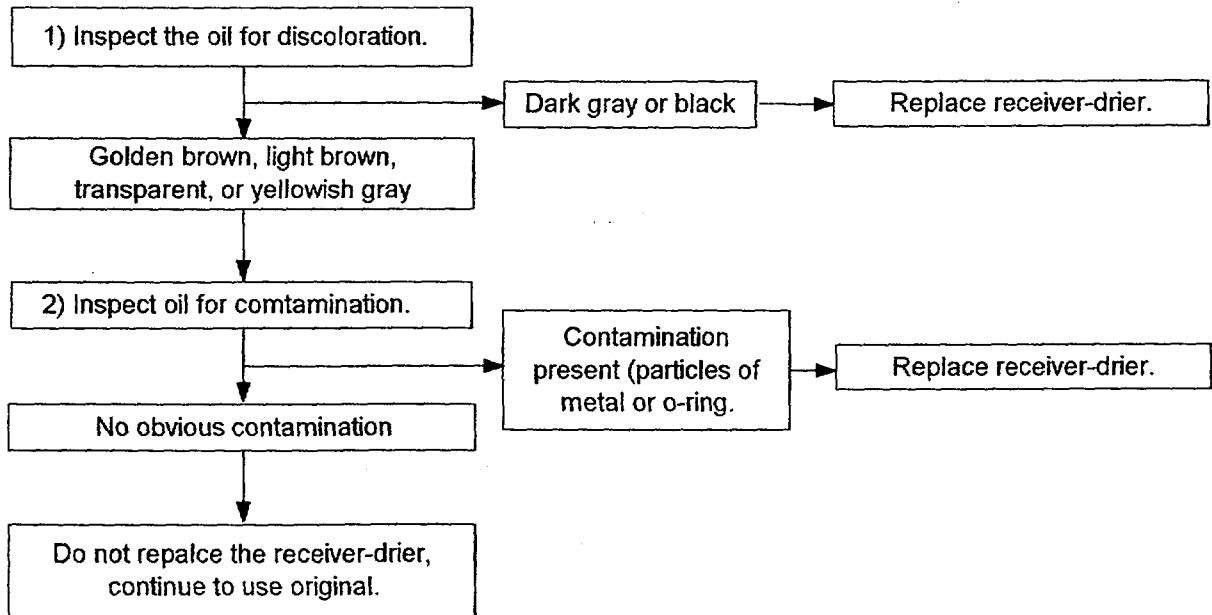
The following information is designed to assist dealers in determining when to replace the receiver-drier when replacing other A/C components. Do not replace the receiver-drier unless the following criteria has been met.

RECEIVER-DRIER REPLACEMENT CRITERIA WHEN REPLACING OTHER A/C SYSTEM COMPONENTS:

Replace the receiver-drier when the A/C system has been ruptured and ALL system pressure is lost. Receiver-drier will require replacement if the compressor oil becomes discolored or foreign substances become visible as indicated in the flow chart below.

NOTE: Refer to section U of the workshop manual for additional receiver-drier diagnostic procedures.

If an A/C component has failed, extract the compressor oil from the failed part and inspect the oil according to the procedure below. Follow the procedure to determine if the receiver-drier requires replacement as a precaution.



CAUTION: Before charging, always evacuate the A/C system thoroughly to remove air and moisture. Use a vacuum pump to evacuate the system. Hold vacuum at 29 inches (740mm Hg) for 5 - 10 minutes

Index # **041590**

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____ Signature _____

Service Bulletin

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7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



T WA

Category U	Applicable Model/s 1988-89 626/MX-6	Subject CONTINUOUS A/C COMPRESSOR ENGAGEMENT	Bulletin No. 002/90 Issued 4/23/90 Revised
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DESCRIPTION

If the A/C compressor is engaged all the time -- even when the A/C and blower switches are OFF -- the ground circuit in the E.G.I. control unit may have been damaged by a surge current from the magnetic clutch or the cooling fan motor.

Continuous A/C compressor operation may cause evaporator freeze-up. Depending on the weather, it might take 30-60 minutes to freeze-up.

Although the surge current caused the E.C.U. damage, it has been found that the root of the cause is a faulty transistor installed in some control units.

TEST PROCEDURE

- a) Connect the engine signal monitor (49 9200 162) and the adaptor harness (49 9200 163).
- b) Set the selector switch and monitor switch to "1F."
- c) Check the voltage at idle with the blower switch ON.

With the A/C switch ON, voltage should be below 2.5V.
With the A/C switch OFF, voltage should be 12V.

- d) If voltage readings are OK, the problem is in another component.

VIN OF PRODUCTION CHANGE

JM1GD★★★★L1800000 (1990 Model)
1YVGD★★★★L5100000 (1990 Model)

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

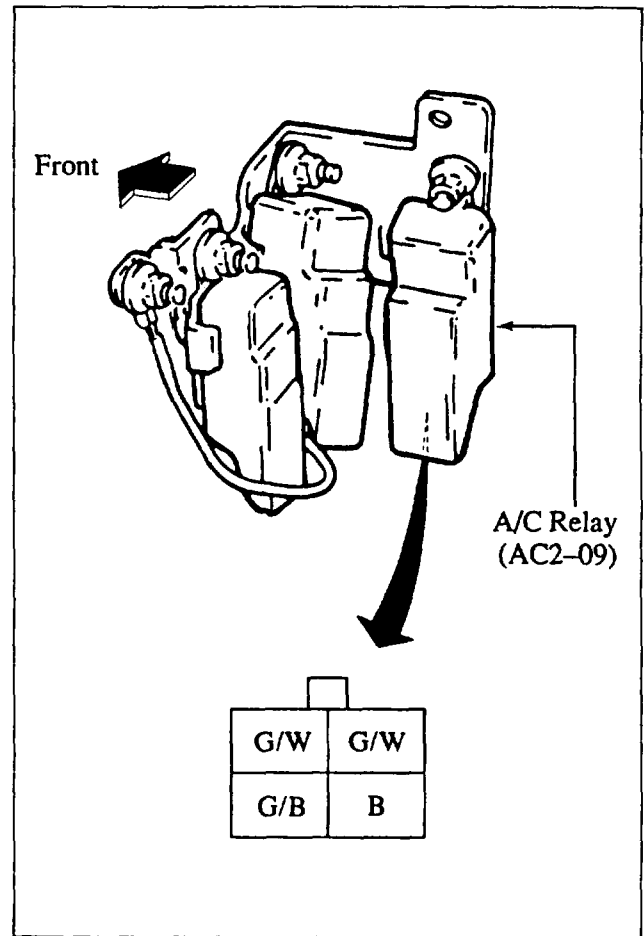
Parts Manager

REPAIR PROCEDURE

If the "1F" voltage was incorrect, the E.C.U. has an internal failure. Replace the E.C.U. and the A/C relay (AC2-09).

Since the E.C.U. has not been modified, the A/C relay (AC2-09) should be replaced with a new, resistance-type relay. Used in the 1990 626/MX-6 models, the resistance-type relay prevents the surge current from flowing into the control unit.

The A/C relay (AC2-09) is located below the right headlamp. There are three relays in one place. Locate the A/C relay by referring to the wire colors illustrated.



PARTS INFORMATION

PART NUMBER		DESCRIPTION
NEW	OLD	
H310 67 740	FB11 67 740	A/C Relay

WARRANTY INFORMATION

Warranty Type Code: A
 Customer Comment Code: 60
 Damage Code: 9W
 Part No. of Main Cause: Use E.G.I. Control Unit Part No. (see attached charts)
 Quantity: 1 pc.
 Operation No: E.G.I Control Unit R&R - F0812X-R-X (0.4 Hr.)
 A/C Relay R&R - U0601X-R-X (0.3 Hr.)

Number: 002/90	Date Issued: 4/23/90	Date Revised:
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626/MX-6 Turbo Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F220 18 881R	88-89 626/MX-6 Turbo FED, A/T & M/T, 2WS	F220 18 880G
F222 18 881R	88-89 626/MX-6 Turbo CA, A/T & M/T, 2WS	F222 18 880J
F225 18 881R	88-89 626/MX-6 Turbo FED, 4WS	F225 18 880B
F226 18 881R	88-89 626/MX-6 Turbo CA, 4WS	F226 18 880B

626/MX-6 Non-Turbo Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F201 18 881R	88 626/MX-6 Non-Turbo FED, A/T & M/T Also 89 626/MX-6 Non-Turbo FED, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F201 18 880L
ZPA1 18 881R	89 626/MX-6 Non-Turbo FED, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F201 18 880M
F203 18 881R	88 626/MX-6 Non-Turbo CA, A/T & M/T Also 89 626/MX-6 Non-Turbo CA, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F203 18 880L
ZPA3 18 881R	89 626/MX-6 Non-Turbo CA, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F203 18 880M
F204 18 881R	89 626/MX-6 Non-Turbo CA, A/T Up to: JM1GD★★★★-K1737083 1YVGD★★★★-K5223617	F204 18 880A
ZPA4 18 881R	89 626/MX-6 Non-Turbo CA, A/T From: JM1GD★★★★-K1737082 1YVGD★★★★-K5223618	F204 18 880B
F262 18 881R	89 626/MX-6 Non-Turbo FED, A/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F206 18 880A
ZPA2 18 881R	89 626/MX-6 Non-Turbo FED, A/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F206 18 880B

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



T WA

Category U	Applicable Model/s 1988-89 626/MX-6	Subject CONTINUOUS A/C COMPRESSOR ENGAGEMENT	Bulletin No. 002/90 Issued 4/23/90 Revised
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DESCRIPTION

If the A/C compressor is engaged all the time -- even when the A/C and blower switches are OFF -- the ground circuit in the E.G.I. control unit may have been damaged by a surge current from the magnetic clutch or the cooling fan motor.

Continuous A/C compressor operation may cause evaporator freeze-up. Depending on the weather, it might take 30-60 minutes to freeze-up.

Although the surge current caused the E.C.U. damage, it has been found that the root of the cause is a faulty transistor installed in some control units.

TEST PROCEDURE

- a) Connect the engine signal monitor (49 9200 162) and the adaptor harness (49 9200 163).
- b) Set the selector switch and monitor switch to "1F."
- c) Check the voltage at idle with the blower switch ON.

With the A/C switch ON, voltage should be below 2.5V.
With the A/C switch OFF, voltage should be 12V.

- d) If voltage readings are OK, the problem is in another component.

VIN OF PRODUCTION CHANGE

JM1GD★★★★L1800000 (1990 Model)
1YVGD★★★★L5100000 (1990 Model)

IMPORTANT Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

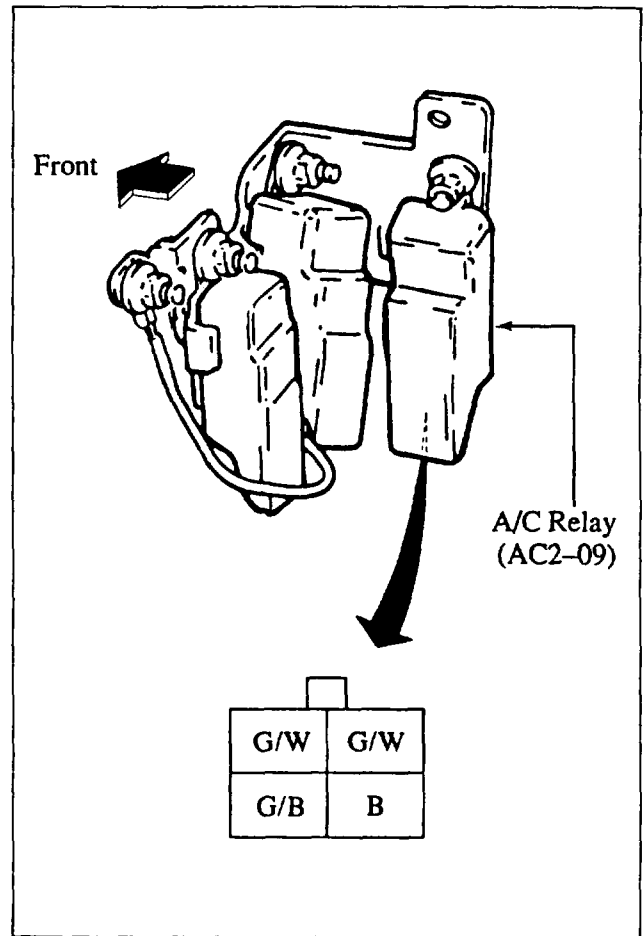
Parts Manager

REPAIR PROCEDURE

If the "1F" voltage was incorrect, the E.C.U. has an internal failure. Replace the E.C.U. and the A/C relay (AC2-09).

Since the E.C.U. has not been modified, the A/C relay (AC2-09) should be replaced with a new, resistance-type relay. Used in the 1990 626/MX-6 models, the resistance-type relay prevents the surge current from flowing into the control unit.

The A/C relay (AC2-09) is located below the right headlamp. There are three relays in one place. Locate the A/C relay by referring to the wire colors illustrated.



PARTS INFORMATION

PART NUMBER		DESCRIPTION
NEW	OLD	
H310 67 740	FB11 67 740	A/C Relay

WARRANTY INFORMATION

Warranty Type Code: A
 Customer Comment Code: 60
 Damage Code: 9W
 Part No. of Main Cause: Use E.G.I. Control Unit Part No. (see attached charts)
 Quantity: 1 pc.
 Operation No: E.G.I Control Unit R&R - F0812X-R-X (0.4 Hr.)
 A/C Relay R&R - U0601X-R-X (0.3 Hr.)

Number: 002/90	Date Issued: 4/23/90	Date Revised:
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626/MX-6 Turbo Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F220 18 881R	88-89 626/MX-6 Turbo FED, A/T & M/T, 2WS	F220 18 880G
F222 18 881R	88-89 626/MX-6 Turbo CA, A/T & M/T, 2WS	F222 18 880J
F225 18 881R	88-89 626/MX-6 Turbo FED, 4WS	F225 18 880B
F226 18 881R	88-89 626/MX-6 Turbo CA, 4WS	F226 18 880B

626/MX-6 Non-Turbo Models

Remanufactured EGI Control Unit	Application	Replaces New EGI Control Unit
F201 18 881R	88 626/MX-6 Non-Turbo FED, A/T & M/T Also 89 626/MX-6 Non-Turbo FED, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F201 18 880L
ZPA1 18 881R	89 626/MX-6 Non-Turbo FED, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F201 18 880M
F203 18 881R	88 626/MX-6 Non-Turbo CA, A/T & M/T Also 89 626/MX-6 Non-Turbo CA, M/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F203 18 880L
ZPA3 18 881R	89 626/MX-6 Non-Turbo CA, M/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F203 18 880M
F204 18 881R	89 626/MX-6 Non-Turbo CA, A/T Up to: JM1GD★★★★-K1737083 1YVGD★★★★-K5223617	F204 18 880A
ZPA4 18 881R	89 626/MX-6 Non-Turbo CA, A/T From: JM1GD★★★★-K1737082 1YVGD★★★★-K5223618	F204 18 880B
F262 18 881R	89 626/MX-6 Non-Turbo FED, A/T Up to: JM1GD★★★★-K1737082 1YVGD★★★★-K5223617	F206 18 880A
ZPA2 18 881R	89 626/MX-6 Non-Turbo FED, A/T From: JM1GD★★★★-K1737083 1YVGD★★★★-K5223618	F206 18 880B

Service Bulletin

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7755 Irvine Center Drive
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Telephone (714) 727-1990



Category U	Applicable Model/s All Models	Subject A/C O-RING REPLACEMENT	Bulletin No. 005/97
			Issued 03/10/97
			Revised

APPLICABLE MODELS

All Models

DESCRIPTION

Refer to the appropriate illustration on the attached pages and the chart below when replacing A/C system o-rings. These o-rings are designed for use in both R-12 and R-134a systems.

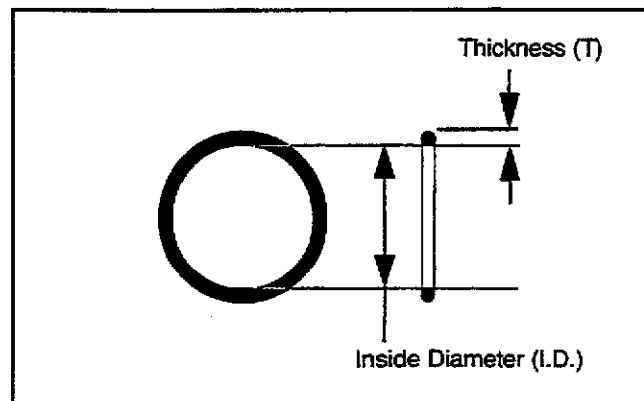
Code	Pipe Size	O-Ring Size IDxT	Part and Kit Numbers	O-Ring Quantity Per Vehicle																			
				89-94 323/Protege	90-93 MX-5	92-95 MX-3	94-97 MX-5	89-94 RX-7 (See Note)	95 RX-7	89-93 MPV (S)	94-97 MPV (S)	89-92 626/MX-6	93-97 626/MX-6	90-93 B-Series	94-97 B-Series	91-94 Navajo	95-97 Protege	96-97 Millennia	92-93 929	94-95 929	89-93 MPV (Dual)	94-95 MPV (Dual)	89-97 MPV (Dual)
A	8mm	6.9x1.76	LB51-61-J1X	6	4	5	4	6	6							5					7		
B	5/16in	6.8x1.5	LB52-61-J1X							3	3											10	
C	3/8in	7.65x1.78	LB53-61-J1X							1	1			4							3		
D	12mm	10.8x1.78	LB54-61-J1X	3	2	3	1	2	1	3	2	2	3	2		2						3	
E	12mm axial	10.8x2.4	LB55-61-J1X		1		1	1	1		1										6		
F	16mm	14.0x1.78	LB56-61-J1X	2	2	2	2	3	2	2	1	3	2	4		3						7	
G	16mm axial	13.4x2.4	LB57-61-J1X		1		1	1	1		1					3	2	3					
H	3/8in	7.36x1.8	9XG0-19-8300												2	2		2					
J	1/2in	10.16x1.85	9XG0-19-8201												3	3		2					
K	5/8in	12.95x1.85	9XG0-19-8400												2	2		3		2			
L	5/8in	6.07x1.78	C003-61-J17														4	2	5				
M	18mm axial	14x1.78	C004-61-J17																				
N	5/8in	10.8x1.78	C005-61-J17																				
P	12mm	10.8x2.4	W257-61-J17																				3
Q	5/16in	6.7x1.8	W326-61-J17																				10
R	16mm	13.4x2.4	W329-61-J17																				5

NOTE: Part numbers ending with "J1X" are delivered in quantities of ten (10).

*These vehicles are equipped with Ford air conditioning systems.

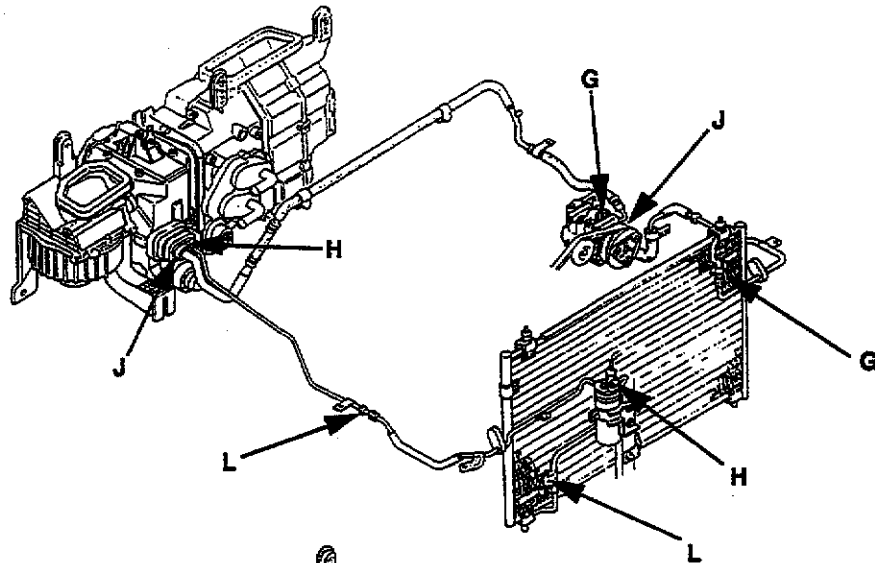
The illustration to the right indicates where the o-ring must be measured to determine diameter and thickness. Use this information and the chart above to identify the proper part if the o-rings are accidentally mixed.

NOTE: Illustration not available for 1989-94 RX-7

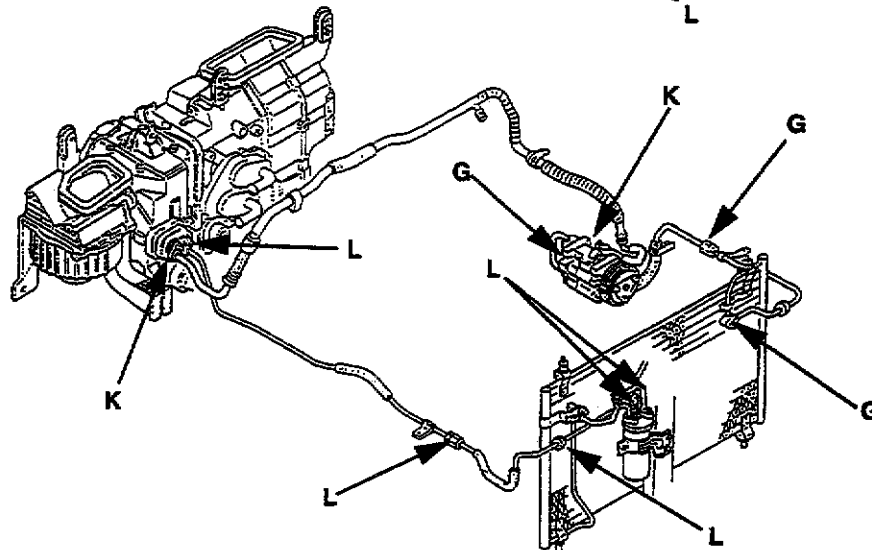


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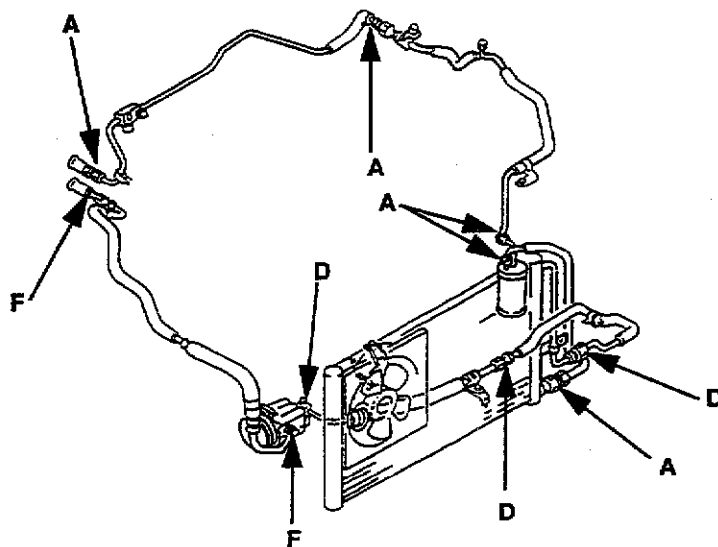
1992 - 93 929



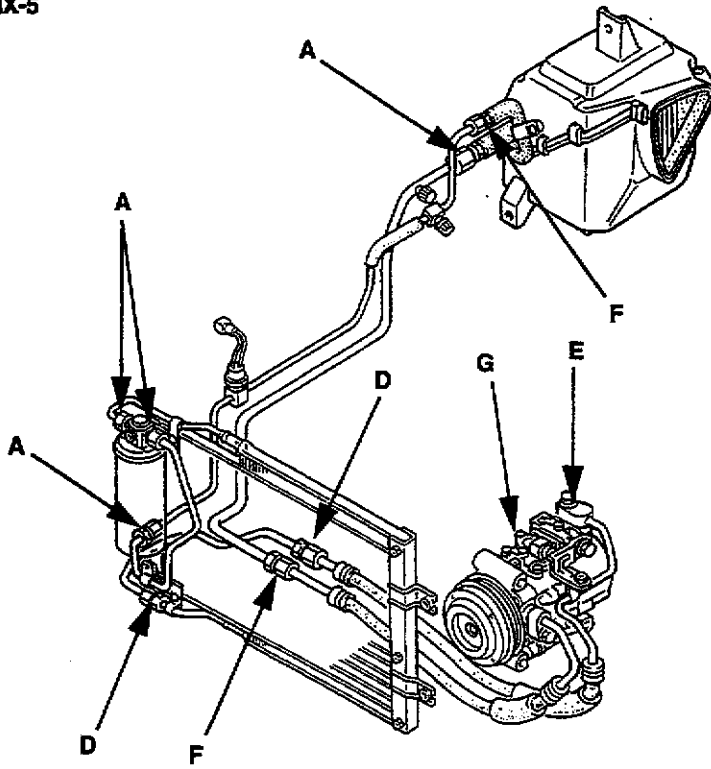
1994 - 95 929



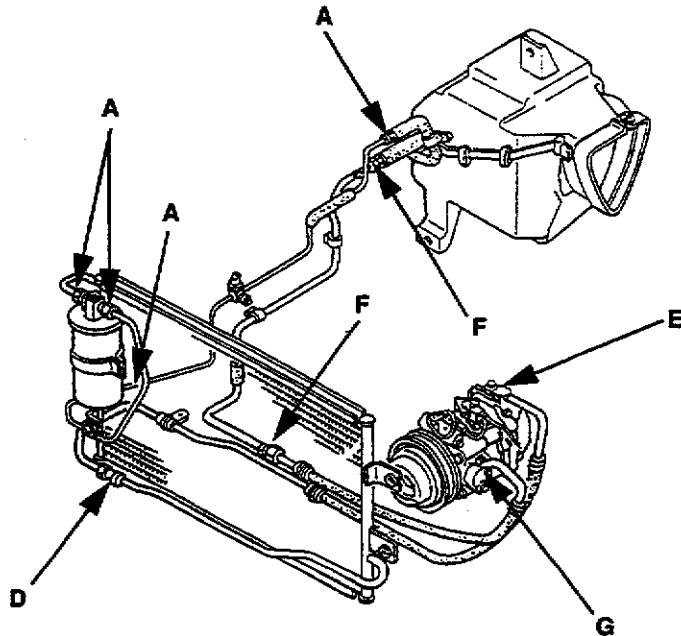
1992 - 95 MX-3



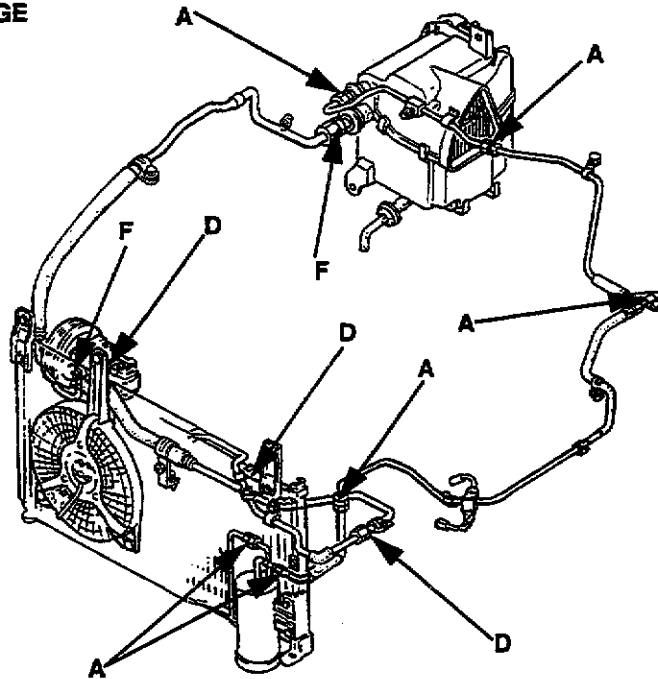
1990 - 93 MX-5



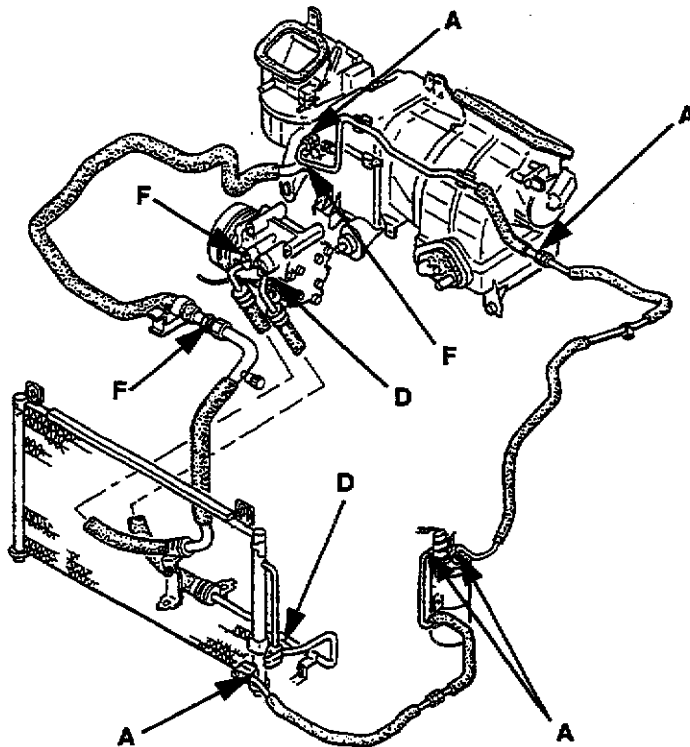
1994 - 97 MX-5



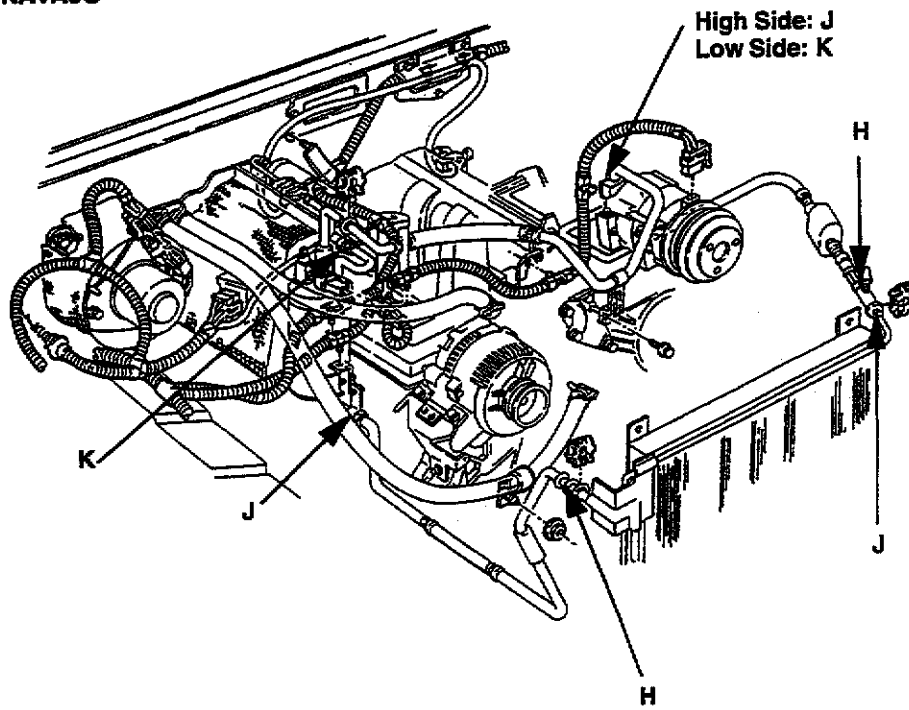
1989 - 94 323/PROTEGE



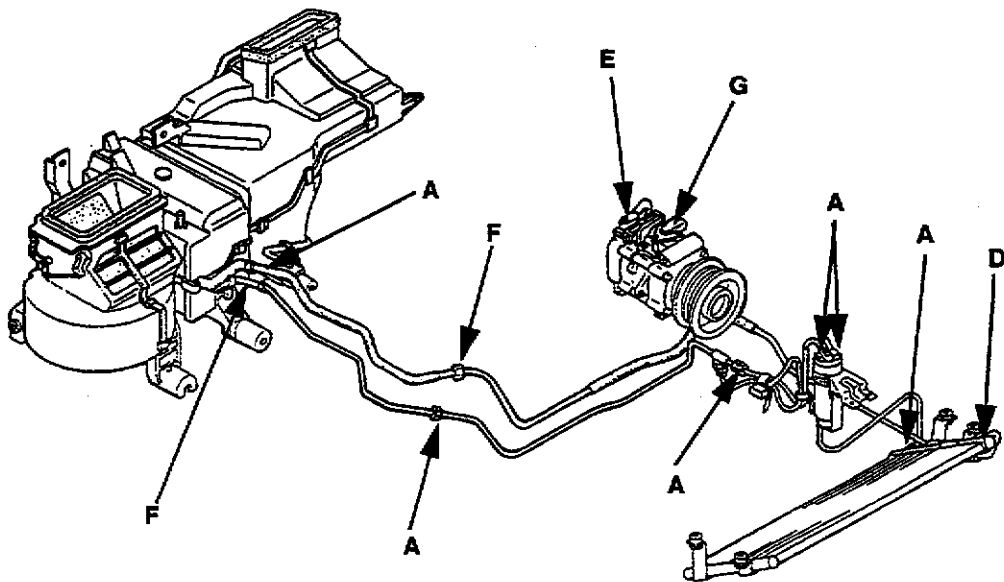
1995 - 97 PROTEGE



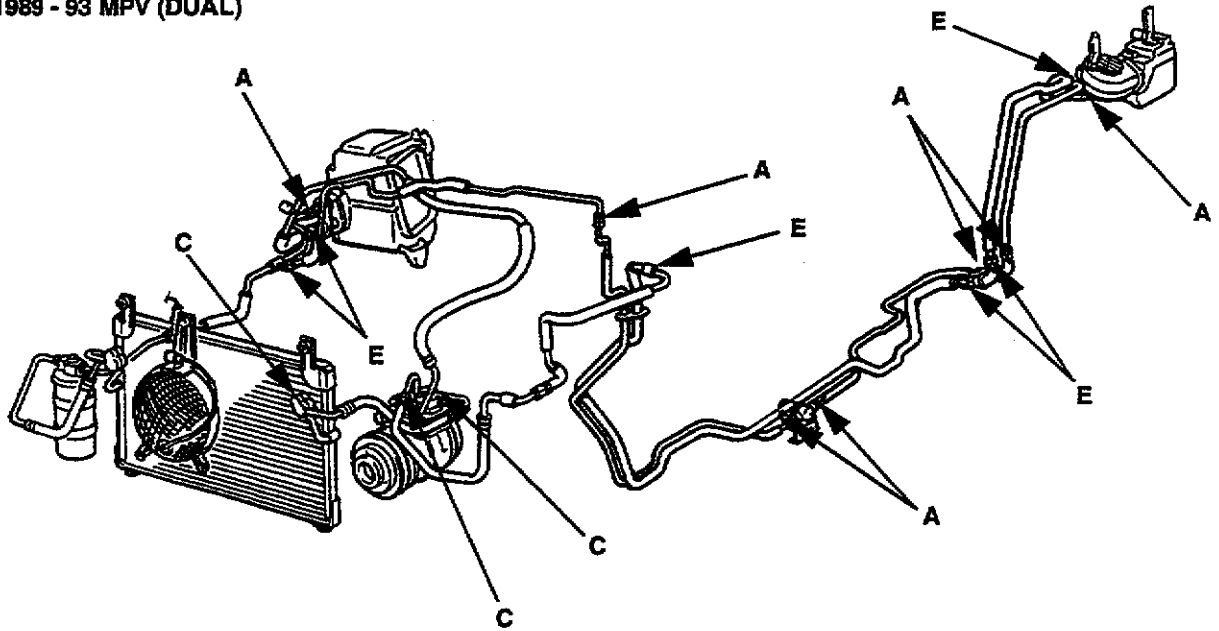
1991 - 94 NAVAJO



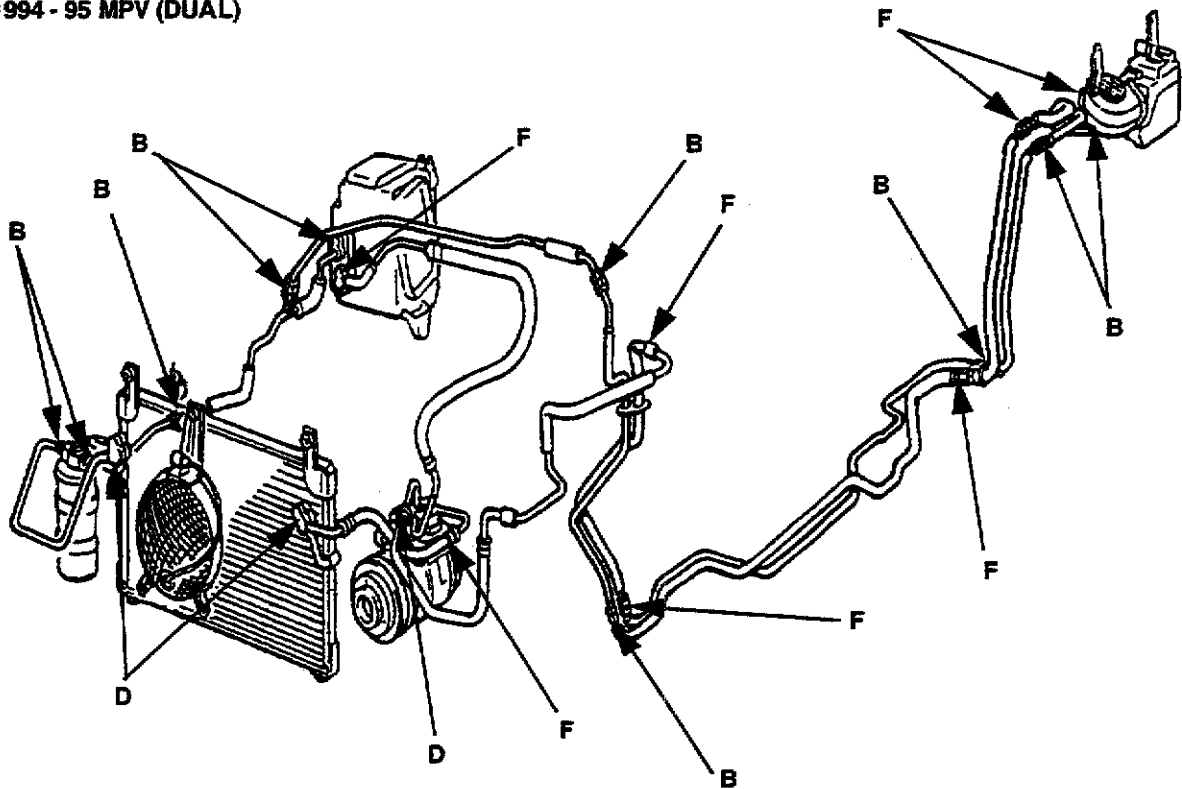
1995 RX-7



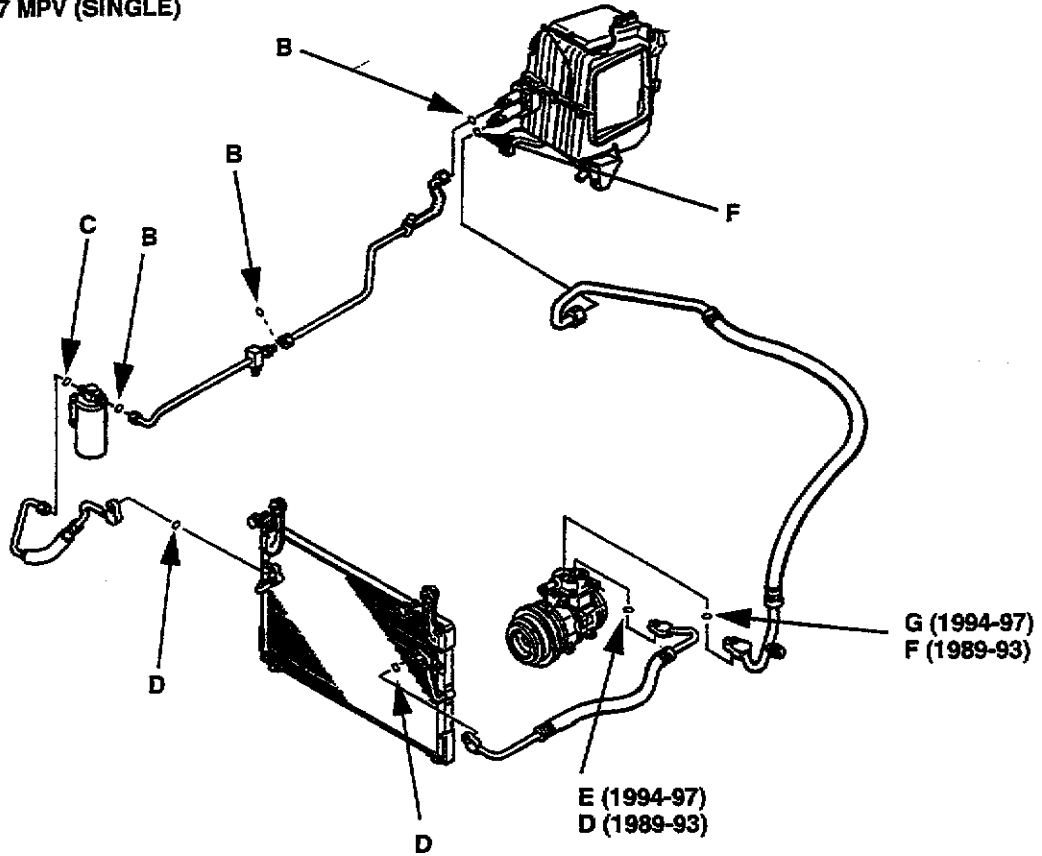
1989 - 93 MPV (DUAL)



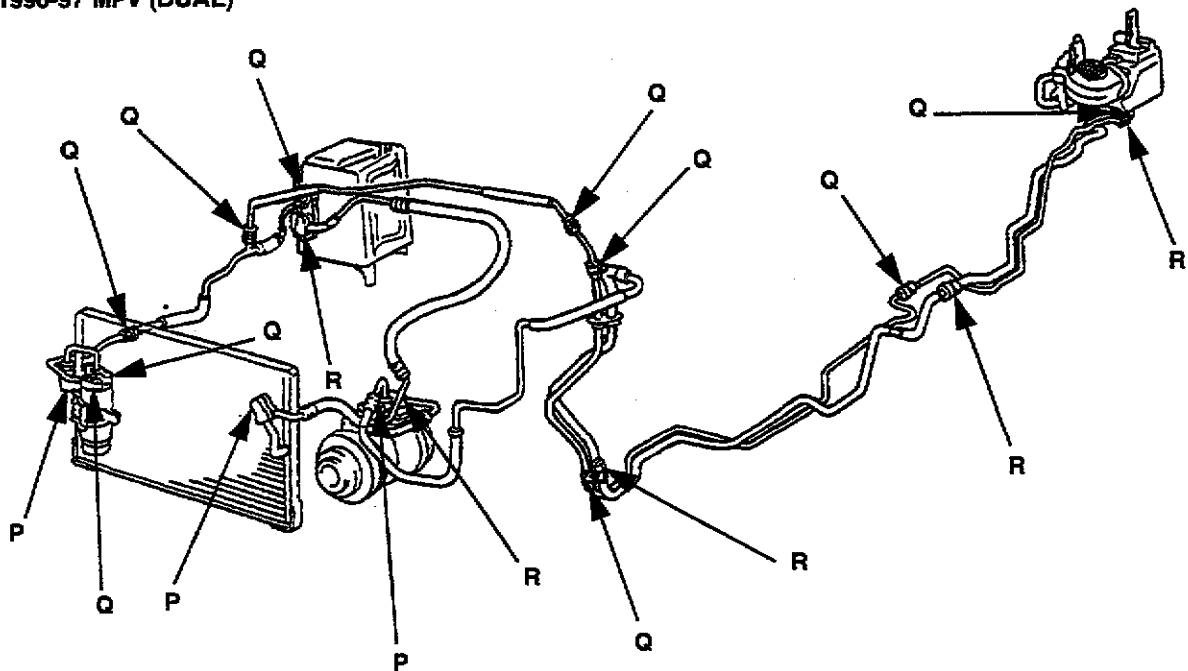
1994 - 95 MPV (DUAL)



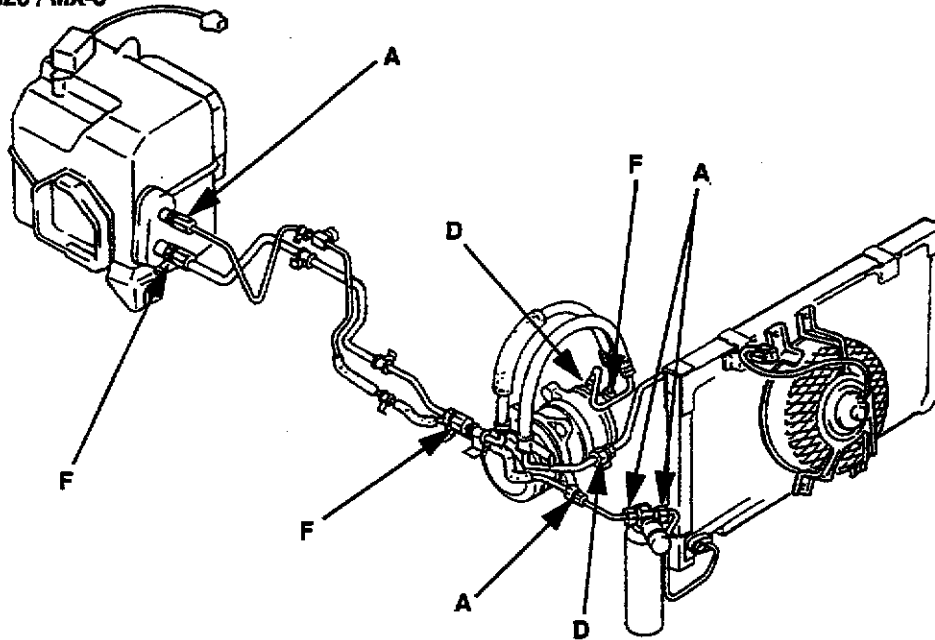
1989 - 97 MPV (SINGLE)



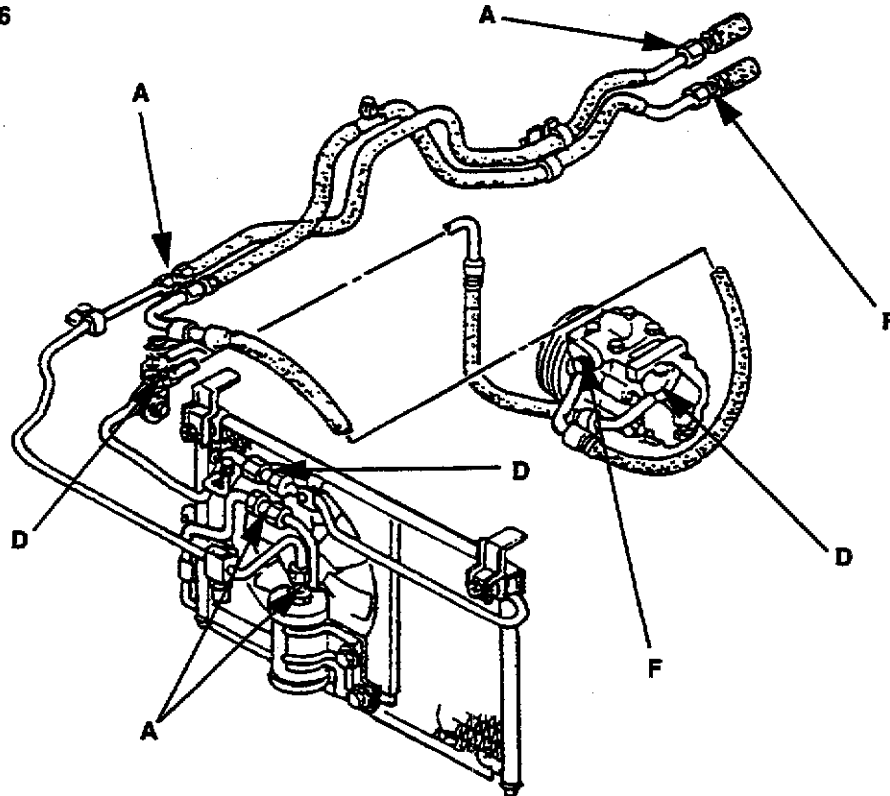
1996-97 MPV (DUAL)



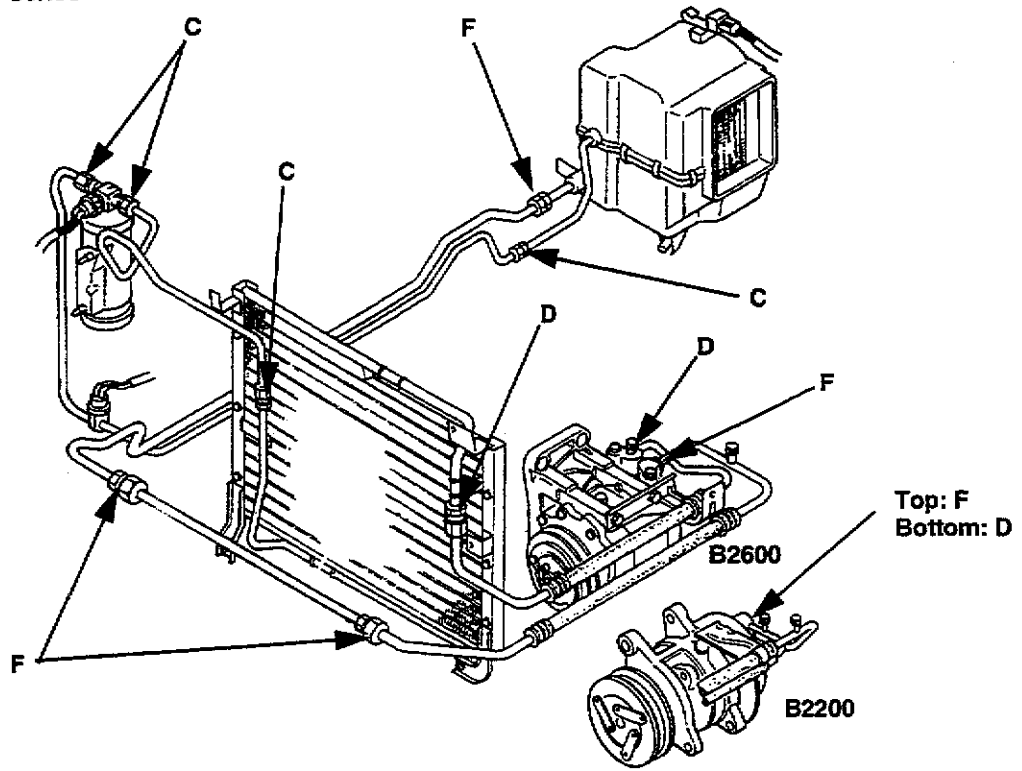
1988 - 92 626 / MX-6



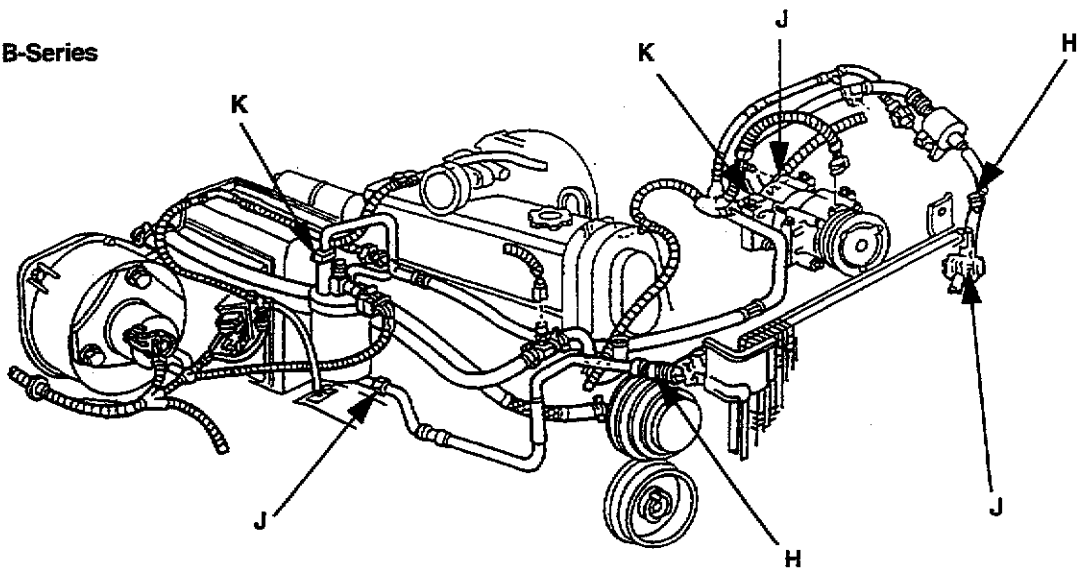
1993 - 97 626 / MX-6



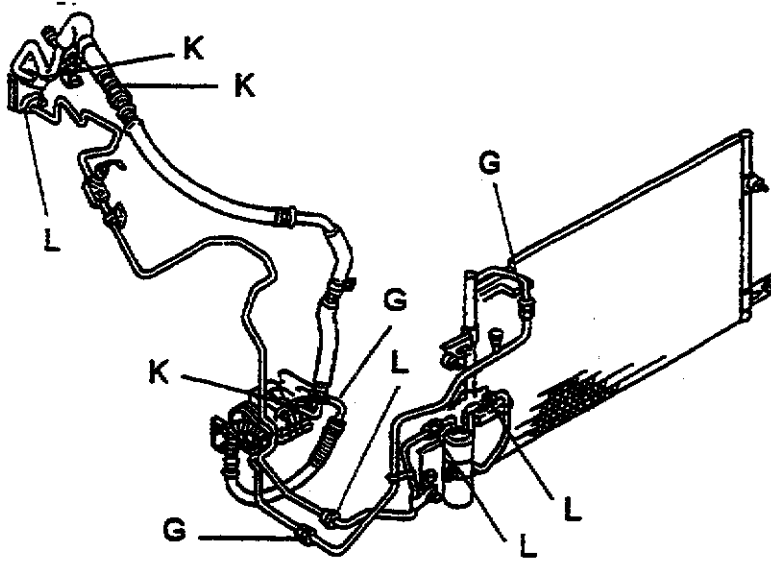
1990 - 93 B-Series



1994 - 97 B-Series



1995 - 97 Millenia



Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



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Category U	Applicable Model/s (listed below)	Subject ELIMINATION OF FUSE PLUG FROM RECEIVER/DRIER TANK	Bulletin No. 007/90 Issued 12/19/90 Revised
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DESCRIPTION

In order to comply with the SAE standard (J639), a pressure relief valve has been incorporated on the air conditioner compressor for the following models: '88-'91 626/MX-6, '86-'91 RX-7 and '86-'91 B-Series. The pressure relief valve is designed to release refrigerant in order to protect the A/C system if the high side pressure reaches 450 psi.

As a result of this pressure relief valve, the fuse plug previously used as a safety device is no longer needed and will be eliminated from the receiver/drier tank. However, the receiver/drier tank with the fuse plug will still be available as a service part for the models listed below because the A/C compressor used in early production of A/C kits for these models did not have the relief valve.

When replacing the receiver/drier tank during A/C service, check whether the A/C compressor has a pressure relief valve or not.

CAUTION:

The receiver/drier tank without the fuse plug should not be installed on vehicles in which the A/C compressor does not have a pressure relief valve.

PARTS INFORMATION

MODEL	RECEIVER/DRIER TANK with Fuse Plug (for compressor w/o relief valve)	RECEIVER/DRIER TANK without Fuse Plug (for compressor w/ relief valve)	REMARKS
'88-'91 626/MX-6	GJ51 61 500B	GJ51 61 500C	non-Turbo A/T Turbo A/T & M/T
	GJ54 61 500A	GJ54 61 500B	non-Turbo M/T
	GM39 61 500A	GM39 61 500B	4WS M/T & A/T
'86-'91 RX-7	0000 67 A90A 6A	0000 67 A90B 6A	
'86-'91 B2000/B2200	0000 67 A91A 0P	0000 67 A91B 0P	
'87-'91 B2600	0000 67 A33A 7P	0000 67 A33B 7P	

021628

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Service Manager

Signature _____

Parts Manager

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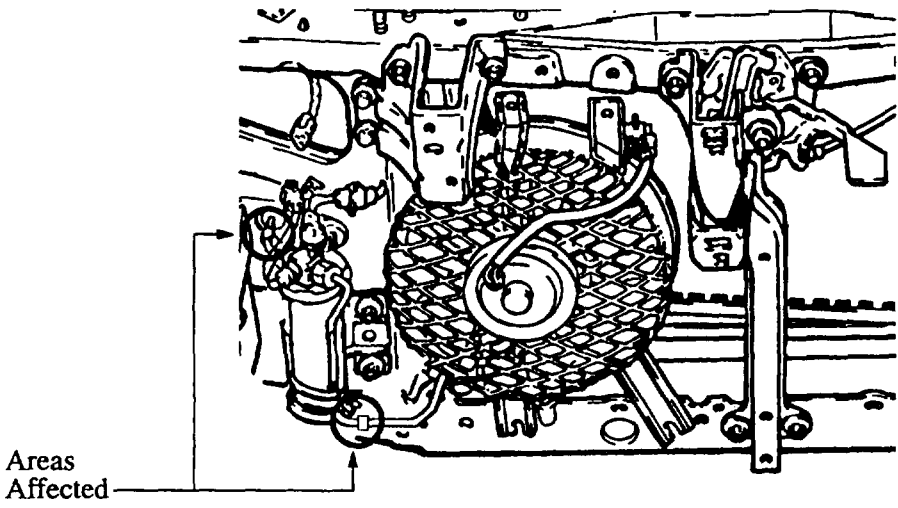


Category U	Applicable Model/s 1988-'90 626/MX-6 w/ A/C	Subject REFRIGERANT LEAK FROM INLET/OUTLET PIPE OF RECEIVER/DRIER TANK	Bulletin No.	008/90
			Issued	12/19/90
			Revised	

DESCRIPTION

It has been found that the inlet or outlet pipe of the receiver/drier tank may develop a pinhole at the area shown below where the pipes are held by small steel clips. This may result in a refrigerant leak.

Galvanic corrosion occurs between the aluminum pipe and the steel clip. This condition is more likely to develop in geographic areas that use large amounts of salt on the roads and highways.



SERVICE HINTS

- If a refrigerant leak is suspected, inspect the pipes of the receiver/drier tank.
- The inlet/outlet pipes are available as a service part. Refer to the parts information in this bulletin.
- In order to prevent galvanic corrosion from recurrence, place vinyl tape (insulator tape) between the steel clip and the aluminum pipe.

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IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

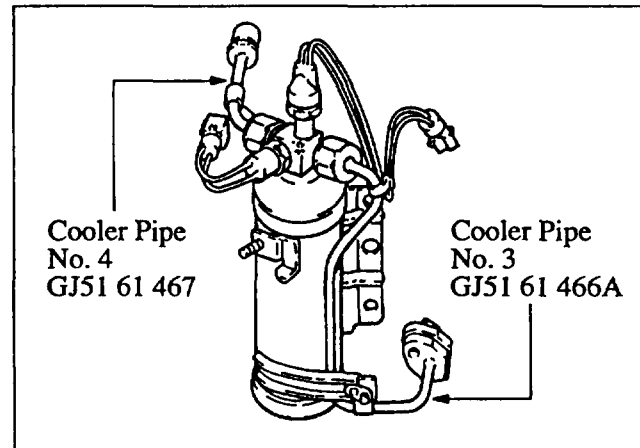
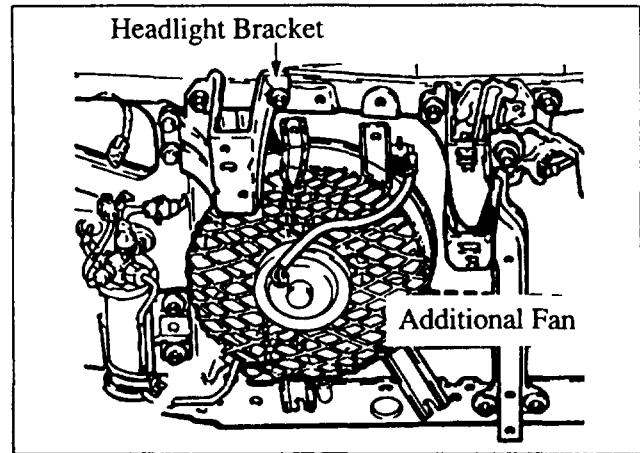
Signature _____

Service Manager

Parts Manager

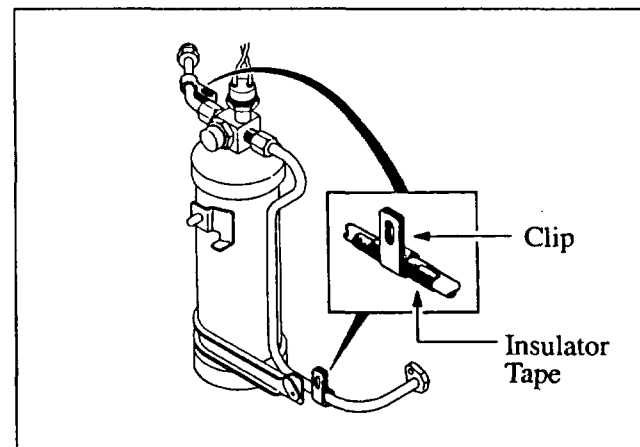
REPAIR PROCEDURE

1. Charge the A/C system with small gas amount. Locate the pinhole on the pipes by using a gas leak detector.
2. Remove the following parts:
 - a) Right turn signal light
 - b) Front grill
 - c) Right headlight assembly
 - d) Headlight bracket
 - e) Additional fan in front of condenser
3. Remove the receiver/drier tank and replace the necessary pipe.

**NOTE:**

When replacing the pipes, place the vinyl tape (insulator tape) between the steel clip and the aluminum pipe in order to prevent galvanic corrosion from recurrence.

4. Reinstall the parts removed during step 2.
5. Evacuate and charge the system. Make sure that there is no leak and that the A/C works properly. Check the headlight and turn signal light operation. Adjust the headlight aiming, if necessary.



Number: 008/90	Date Issued: 12/19/90	Date Revised:
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PARTS INFORMATION

PART NUMBER	DESCRIPTION	QTY
GJ51 61 466A	Cooler Pipe No. 3	1
GJ51 61 467	Cooler Pipe No. 4	1

WARRANTY INFORMATION

Warranty Type Code: A
 Customer Comment Code: A1
 Damage Code: AG
 Part No. of Main Cause: GJ51 61 466A or GJ51 61 4670
 Operation No: YY0020RX
 Related Part Number: 0000 00 0837 (max. qty. - 2.0 lbs)
 Labor Hour: 1.0 Hr. (evacuation & gas charge included)

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category U	Applicable Model/s ALL MODELS	Subject USE OF A/C TRACER DYE	Bulletin No. 008/97
			Issued 05/19/97
			Revised

AFFECTED MODELS

All models.

DESCRIPTION

Use a florescent A/C leak detecting tracer dye and light for finding minute, intermittent leaks.

NOTE: Most electronic leak detectors can detect small steady leaks, but are ineffective on minute, intermittent leaks.

WHEN USING A/C TRACER DYE METHOD:

1. Follow the A/C tracer dye manufacturers instructions.

NOTE: Different manufacturers have different methods for installing, measuring and diagnosing with their particular product.

CAUTION:

- Use only a tracer dye that is compatible with the type of refrigerant and oil in the vehicle's A/C system.
- Tracer dye can lead to misdiagnosis and unnecessary parts replacement if used improperly.

2. After repairing the leak, clean the area that is covered with A/C tracer dye.

NOTE: This will prevent a future technician from mistaking this residue as a current leak.

3. When diagnosing an A/C leak on a vehicle that previously had tracer dye installed, thoroughly clean the suspected area and re-verify the leak prior to repairing.
4. After repairing the leak, evacuate and recharge the system as outlined in the workshop manual.

NOTE: DO NOT add additional A/C tracer dye when recharging the system.

- Flushing or changing the A/C oil is not necessary.
- Small amounts of the tracer dye will be found in the Recovery / Recycling tank, if recovery is necessary.

Tracer Dye Suppliers:

Supplier	Available At	Part Number	Note
Spectronics Corporation	(800) 641-1133	-----	(Or Equivalent)
Ford - Rotunda	See Dealer	112-R0027	(Or Equivalent)

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Refrigerant / Compressor Oil Reference Chart

Model	Model Year	Refrigerant	Compressor Oil Type
MX-6 / 626	93' and prior	R12	ATMOS S150
	94' and after	R134a	ATMOS GU10
PROTEGE	94' and prior	R12	ATMOS S150
	95' and after	R134a	SP10
MIATA	93' and prior	R12	ND7
	94' and after	R134a	ND9
RX-7	94' and prior'	R12	ND7
	95' and after	R134a	ND9
MX-3	93' and prior	R12	ATMOS S150
	94' and after	R134a	ATMOS GU10
MPV	93' and prior	R12	ND6
	94' and after	R134a	ND8
MILLENIA	95' and after	R134a	ATMOS GU10
929	93' and prior	R12	ATMOS S150
	94' and after	R134a	ATMOS GU10
NAVAJO	93' and prior	R12	ESHM2C31A2
	94' and after	R134a	WSHM1C231B
B-SERIES	Built before 9/20/93	R12	ESHM2C31A2
	Built after 9/20/93	R134a	WSHM1C231B

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category U	Applicable Model/s All Models	Subject A/C O-RING REPLACEMENT	Bulletin No. 009/95
			Issued 9/21/95
			Revised

APPLICABLE MODELS/VINS

All Models

DESCRIPTION

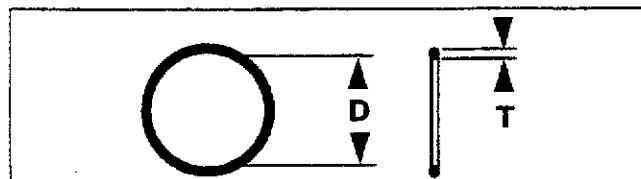
Refer to the illustrations on the attached pages and the chart below when replacing air conditioning system O-rings. These O-rings are designed for use in both R12 and R134 air conditioning systems.

O-Ring Description				O-Ring Quantity Per Vehicle																			
O-Ring Code	Pipe Size	O-Ring Size D X T	Part Numbers and Kit Numbers	89-94 323/Protege	92-96 MX-3	90-93 MX-5	94-96 MX-5	89-94 RX-7	95-96 RX-7	89-93 MPV (S)	94-95 MPV (S)	88-92 626/MX-6	93-96 626/MX-6	90-93 B-Series	*94-96 B-Series	*91-94 Navajo	95-96 Protege	95 Millenia	92-93 929	94-95 929	89-93 MPV (DUAL)	94-95 MPV (DUAL)	
A	8mm	6.9 x 1.78	LB51 61 J1X	5	5	4	4	6	6			5	5				6					14	
B	5/16in	6.8 x 1.5	LB52 61 J1X							3	3												13
C	3/8in	7.65 x 1.78	LB53 61 J1X							1	1			4								3	
D	12mm	10.8 x 1.78	LB54 61 J1X	3	3	3	1	2	1	3	2	1	2	2			2						3
E	12mm axial	10.8 x 2.4	LB55 61 J1X				1	1		1												11	
F	16mm	14.0 x 1.78	LB56 61 J1X	2	2	3	2	3	2	2	1	3	3	4			3						9
G	16mm axial	13.4 x 2.4	LB57 61 J1X				1	1		1								3	3	3			
H	3/8in	7.36 x 1.80	ZZL0 61 J19 (KIT)												3	3			3				
J	1/2in	10.16 x 1.85														4	4			2			
K	5/8in	12.95 x 1.85														3	3		3	2	2		
L	5/8in	6.1 x 1.8	C003 61 J17															4		5			

NOTE: Part numbers ending in "J1X" are delivered in quantities of 10.

* These vehicles are equipped with Ford air conditioning systems. O-rings for these systems are supplied as a kit (P/N ZZL0 61 J19). The kit contains 96 O-rings (24 o-rings each of the sizes listed above and 24, 3/4 inch O-rings).

The illustration to the right indicates where the O-ring is measured to determine diameter and thickness. Use this information and the chart above to identify the proper part if the O-rings are accidentally mixed.



IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

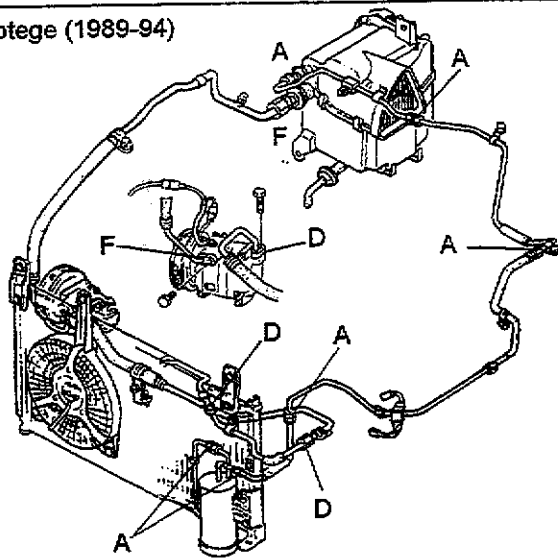
Service Manager

Signature _____

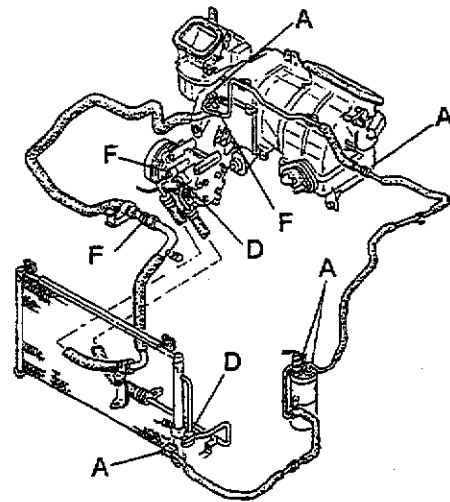
Parts Manager

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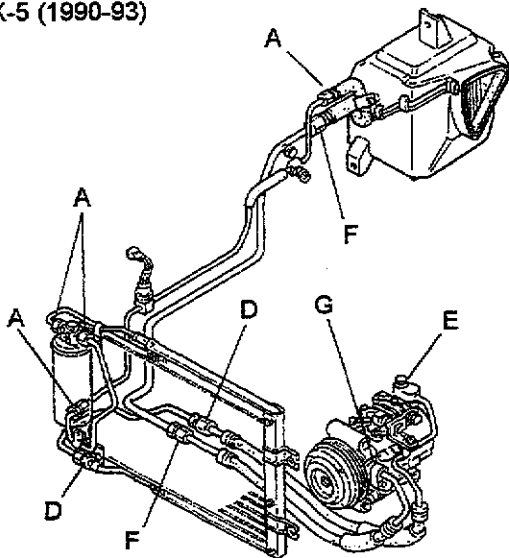
Protege (1989-94)



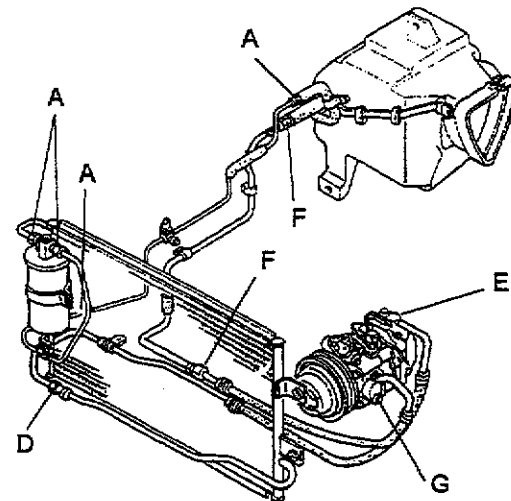
Protege (1995)



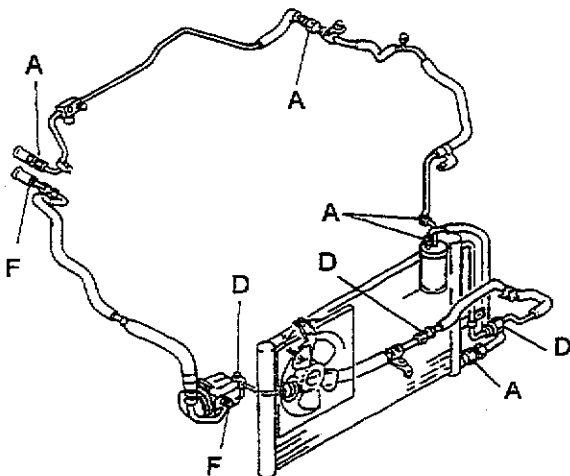
MX-5 (1990-93)



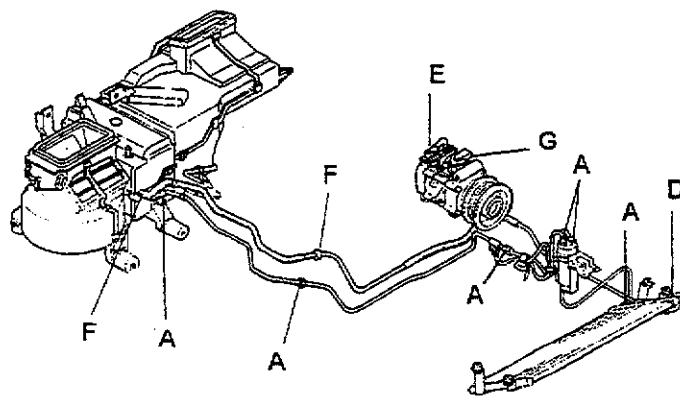
MX-5 (1994-95)



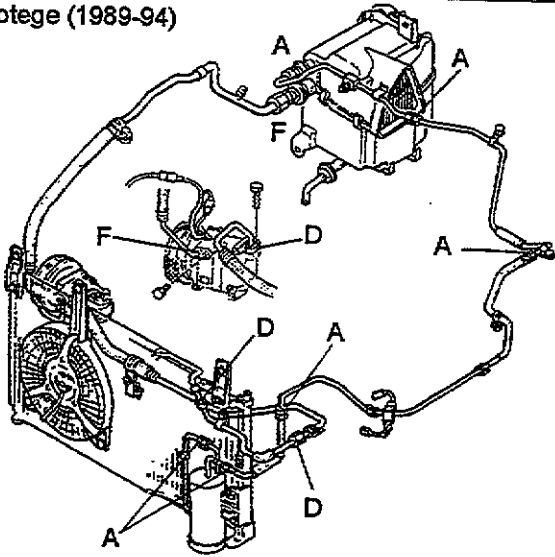
MX-3 (1992-96)



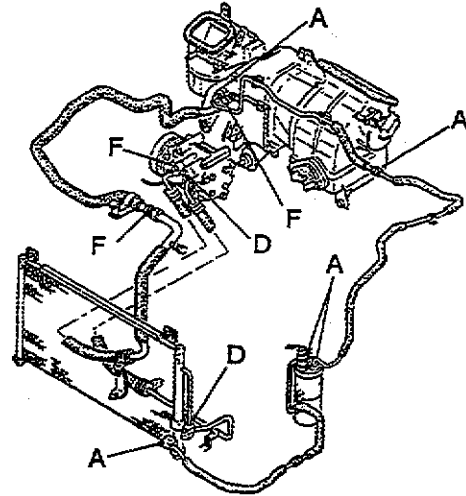
RX-7 (1993-96)



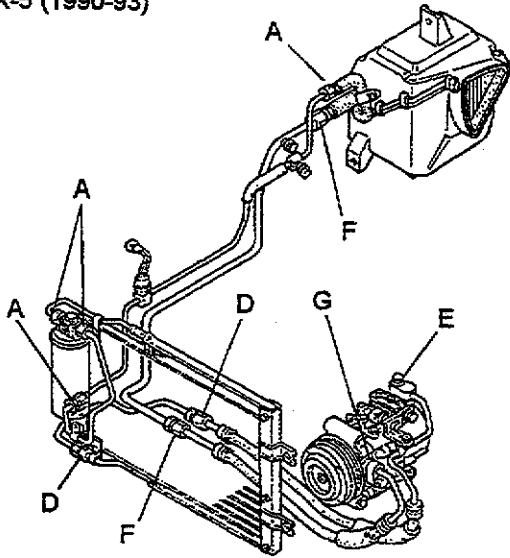
Protege (1989-94)



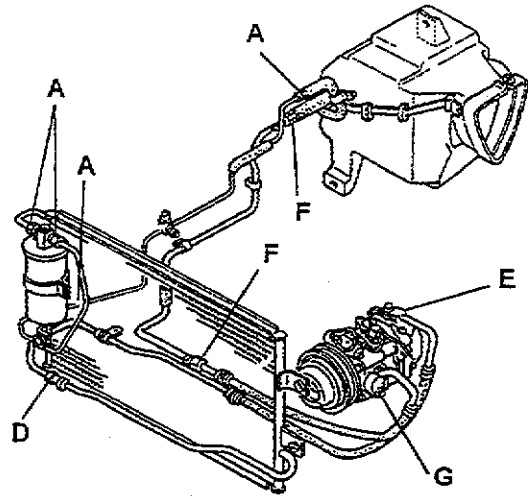
Protege (1995-96)



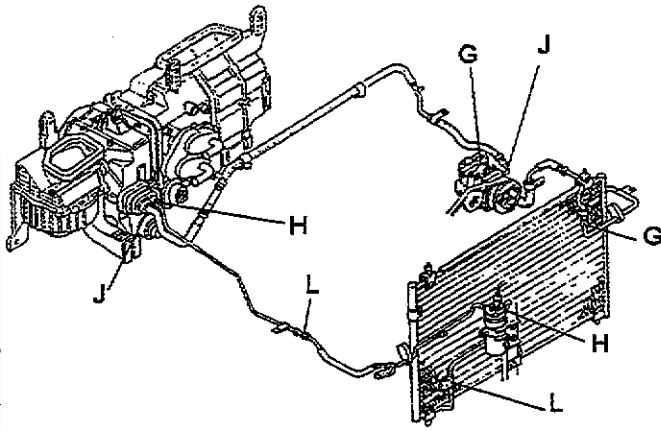
MX-5 (1990-93)



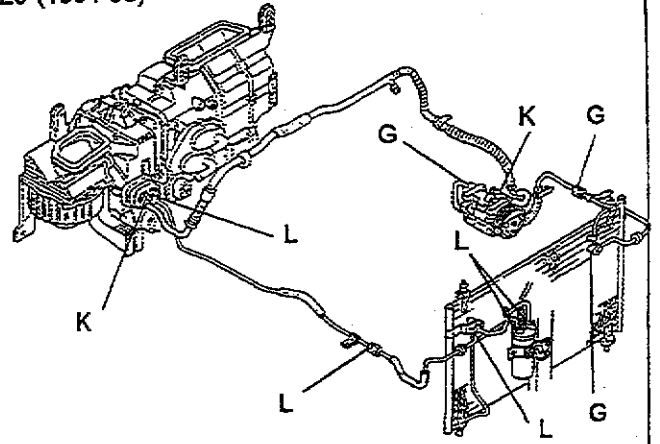
MX-5 (1994-96)



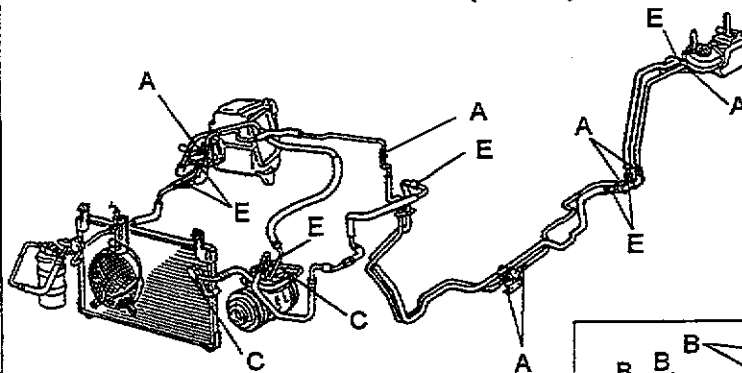
929 (1992-93)



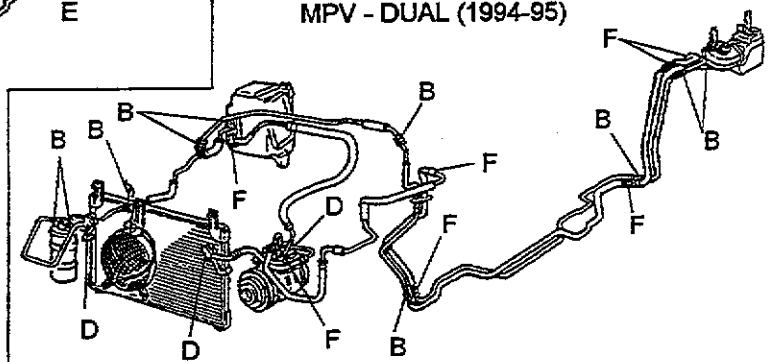
929 (1994-95)



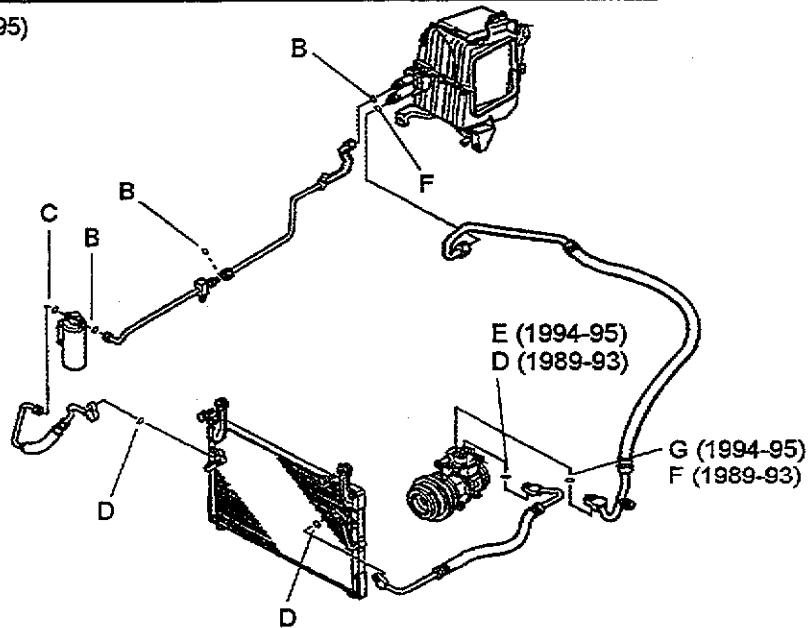
MPV - DUAL (1989-93)



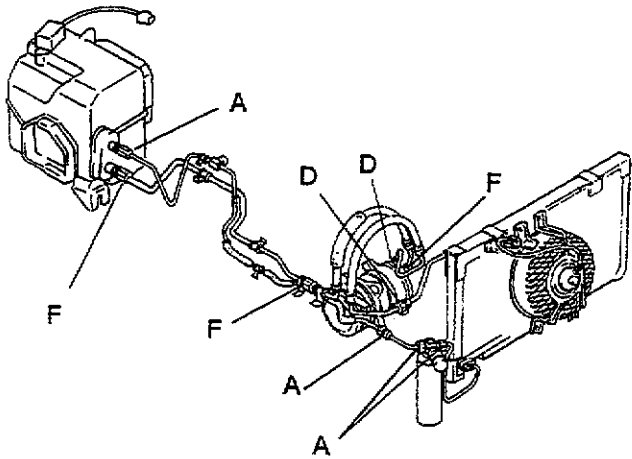
MPV - DUAL (1994-95)



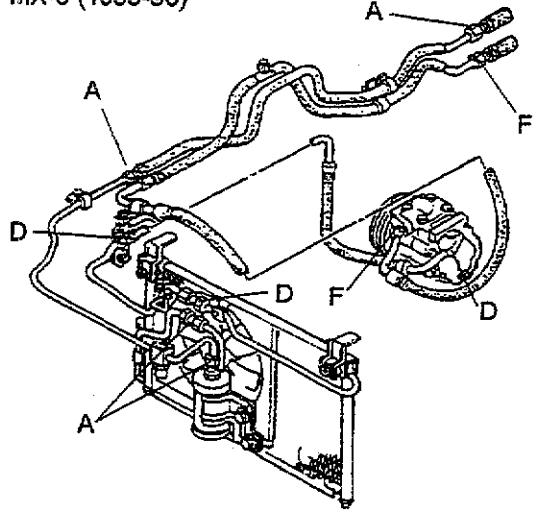
MPV Single A/C (1989 - 1995)



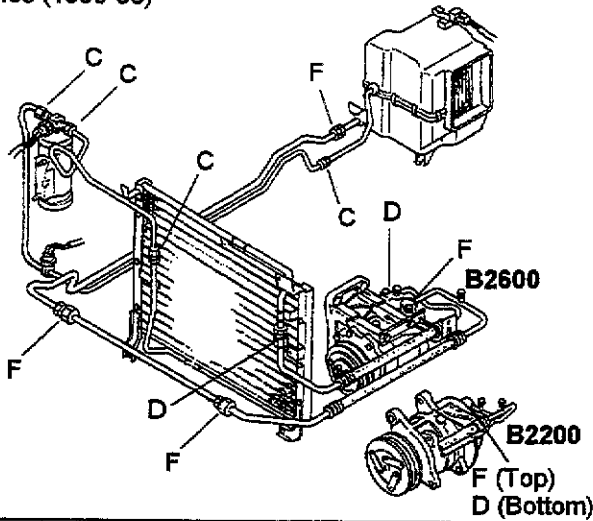
626 / MX-6 (1988-92)



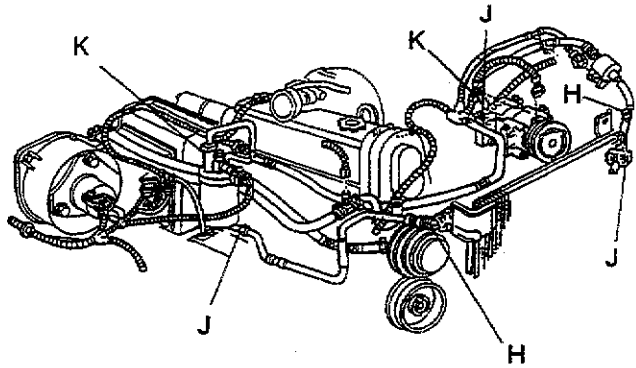
626 / MX-6 (1993-96)



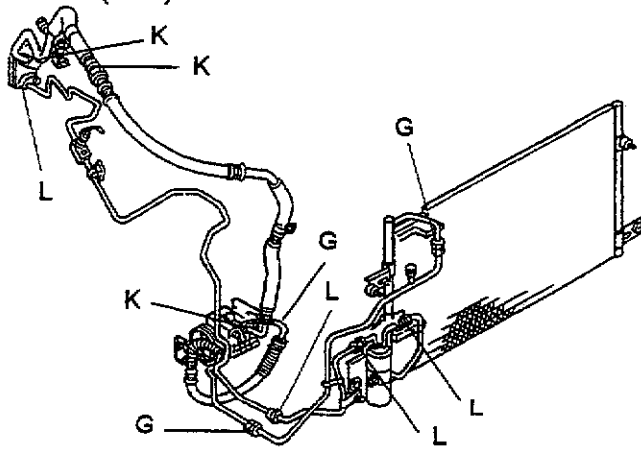
B-Series (1990-93)



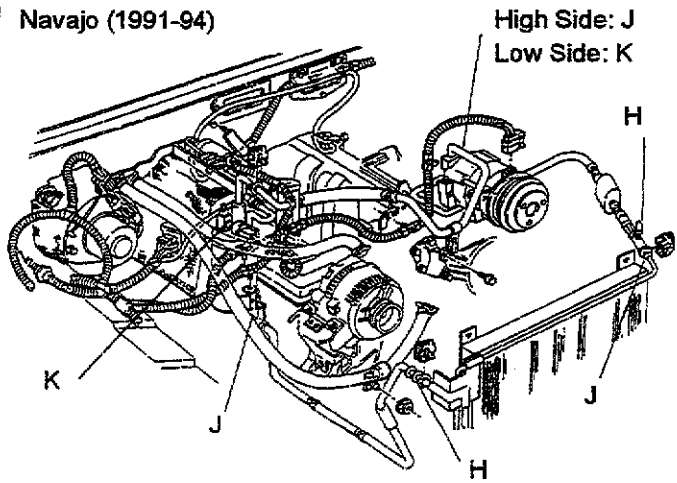
B-Series (1994-96)



Millenia (1995)



Navajo (1991-94)



Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



Category U	Applicable Model/s All Models	Subject USE OF R-12 REFRIGERANT SUBSTITUTES	Bulletin No. 009/96
			Issued 10/21/96
			Revised

APPLICABLE MODELS

All Models

DESCRIPTION

Mazda Corporation does not approve of using substitute R-12 refrigerants when an A/C system requires charging. Use of these products may result in component damage and loss of warranty.

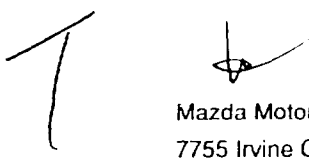
If service is required on a vehicle with an R-12 system, use only new or known good recycled refrigerant.

NOTE: A/C systems designed to operate on R-134a can be recharged using only HFC-134a.

Using R-12 substitutes may result in a hazardous condition and/or A/C component damage.

CONSUMER NOTICE: The information and instructions in this bulletin are intended for use by skilled technicians. Mazda technicians utilize the proper tools / equipment and take training to correctly and safely maintain Mazda vehicles. These instructions should not be performed by "do-it-yourselfers." Customers should not assume this bulletin applies to their vehicle or that their vehicle will develop the described concern. To determine if the information applies, customers should contact their nearest authorized Mazda dealership.

Service Bulletin



Mazda Motor of America, Inc.
 7755 Irvine Center Drive
 Irvine, California 92718
 Telephone (714) 727-1990



Category U	Applicable Model/s (see below)	Subject A/C ODOR	Bulletin No. 015/92
			Issued 7/21/92
			Revised

APPLICABLE MODELS

1990 323/Protegé
 1988-'90 626/MX-6
 1990 MX-5 Miata
 1986-'90 B-Series

DESCRIPTION

A musty odor may be emitted from the ventilators after switching the A/C "ON" or "OFF." This is due to mildew forming on the evaporator core.

Cores have been modified with a resin coating which resists mildew. This new resin coated evaporator core was installed during production between April (MX-5 and B-Series) and May (323/Protegé, 626/MX-6) 1990.

Vehicles built prior to the above dates experiencing this symptom should have the modified evaporator installed. Replace the A/C evaporator according to procedures in the appropriate Workshop Manual section 16 or U.

Contact your District Service Manager for an authorization number before beginning work.

PARTS INFORMATION

PART NUMBER		DESCRIPTION	APPLICABLE MODEL
NEW	OLD		
BR70 61 J10A	BR70 61 J10	Evaporator	1990 323/Protegé
GJ51 61 J10B	GJ51 61 J10	Evaporator	1988-'90 626/MX-6
NA01 61 J10A	NA01 61 J10	Evaporator	1990 MX-5 Miata
0000 67 B31A 0P	0000 67 B31A 6P	Evaporator	1986-'90 B-Series

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____

Signature _____

.....
 Service Manager

Parts Manager

Index * **030189**

Number: 015/92	Date Issued: 7/21/92	Date Revised:
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WARRANTY INFORMATION

(Applies to vehicles covered under warranty.)

Warranty Type Code: Q
Customer Comment Code: A5
Damage Code: AE

Part No. of Main Cause:

323/Protegé BR70 61 J10A
626/MX-6 GJ51 61 J10B
MX-5 Miata NA01 61 J10A
B-Series 0000 67 B31A 0P

Quantity: 1

Related Part Number: 0000 00 0837 (Refrigerant)

Quantity: 2

Operation No/Labor Hour:

(Evaporator R&R)

323/Protegé U0604XRX / 0.6 Hrs.
626/MX-6 U0604XRX / 0.6 Hrs.
MX-5 Miata U0604XRX / 0.6 Hrs.
B-Series U0604XRX / 0.5 Hrs.

(Evacuation & Recharge)

All Models U0003XRX / 0.5 Hrs.

NOTE:

An authorization number must be obtained from your District Service Manager prior to evaporator core replacement.

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
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Telephone (714)727-1990



Category U	Applicable Model/s (see below)	Subject A/C O-RING INSTALLATION PROCEDURE	Bulletin No. 016/92
			Issued 9/4/92
			Revised

DESCRIPTION

A procedure for A/C O-ring installation has been developed. Be sure to follow this procedure to eliminate refrigerant leaks and unnecessary repairs.

APPLICABLE MODEL/S

1988-'92 626/ MX-6	1989-'93 MPV (single A/C only)
1988-'92 B-Series	1990-'93 MX-5 Miata
1988-'93 323/Protegé	1992-'93 MX-3
1989-'91 RX-7 (Non-Turbo)	

INSTALLATION PROCEDURE

1. Before installing the O-ring, inspect the pipe/hose for any damage.
2. Verify the O-ring is clean and free from defects. Place O-ring on pipe. Be sure it is seated properly (figure 1).

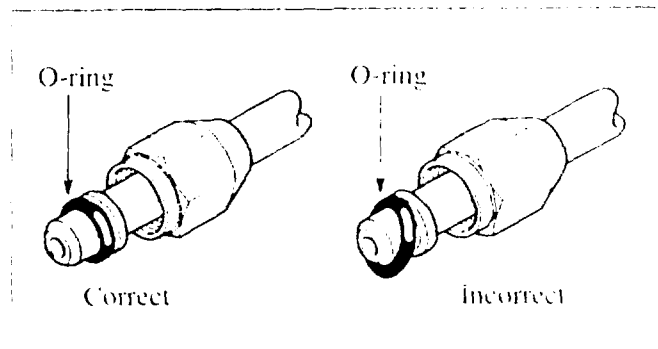


Figure 1: O-Ring Placement

3. Lightly apply oil to the O-ring with refrigerant oil. Do not oil the threads or connecting hose seat (figure 2).

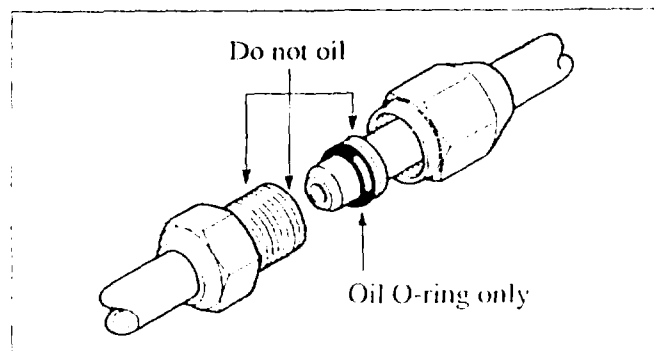


Figure 2: Oil Locations

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

Signature _____
Service Manager

Signature _____
Parts Manager

Index # 030854

4. Align both fittings before threading on the nut (figure 3).

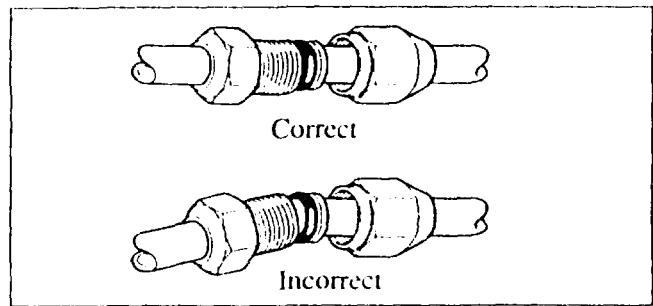


Figure 3: Fitting Alignment

5. After threading on the nut, tighten it by hand as much as possible (figure 4).

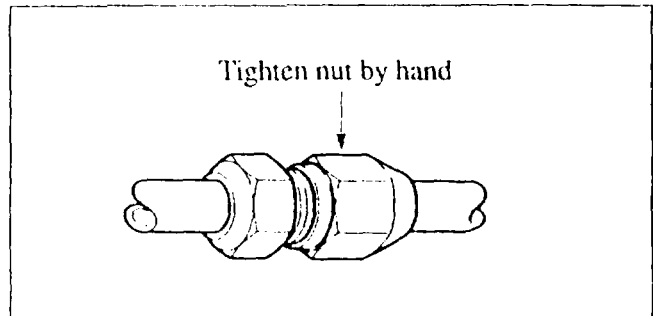


Figure 4: Tightening of Fitting

6. Torque the nut to the proper specification, using a backup wrench to prevent damage (figure 5).

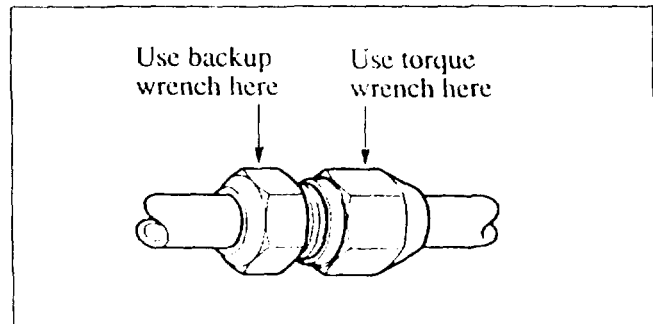


Figure 5: Final Tightening of Fitting

To further assist in A/C installation and repairs, a list of torque specifications for all hose and pipe connections has been compiled. The list only applies to A/C kits manufactured by Mazda North America. For the location of each of the fittings, refer to the "applied location" section of chart 1. The letters in this section correspond to locations shown in figures 6-12.

APPLIED LOCATION	IDEAL TORQUE SPEC. (ft-lb)	TORQUE SPECIFICATION		WRENCH SIZE (mm)		
		(ft-lb)	(kg)	NUT	UNION	SOCKET
A	12	7.2-14.4	1.0-2.0	19	17, 16	—
B	18	14.4-21.6	2.0-3.0	27	24, 22	—
C	15	10.8-18.0	1.5-2.5	24	22	—
D	10	9.4-10.8	1.3-1.5	17	17, 14	—
E	15	10.8-18.0	1.5-2.5	22	19	—
H	15	10.8-15.8	1.5-2.2	—	—	12

Chart 1: Torque Specifications

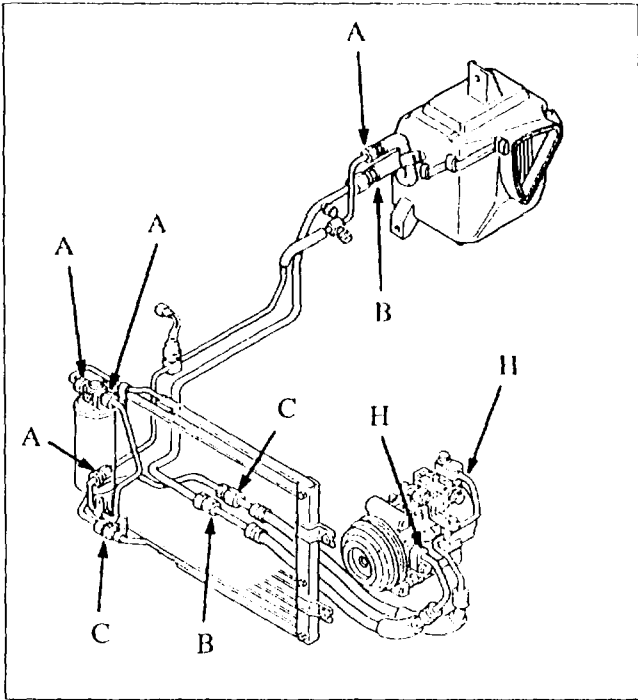


Figure 6: MX-5 A/C System

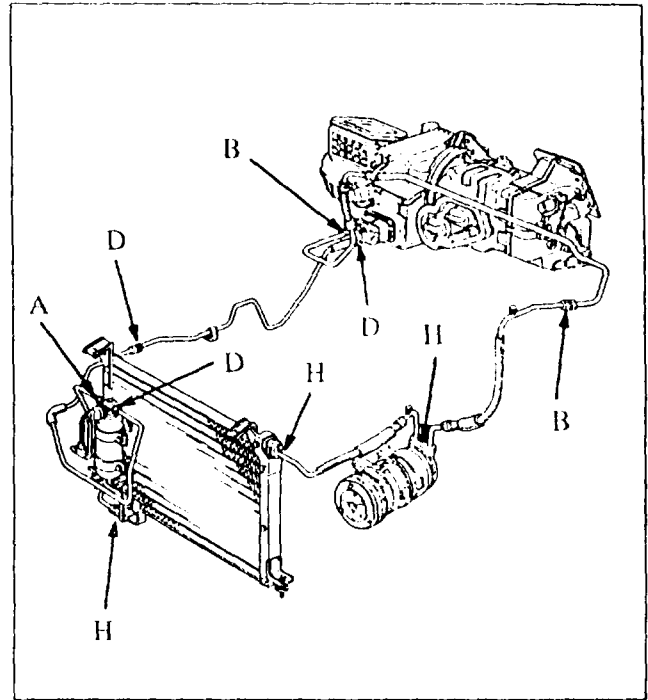


Figure 7: MPV (Single A/C) System

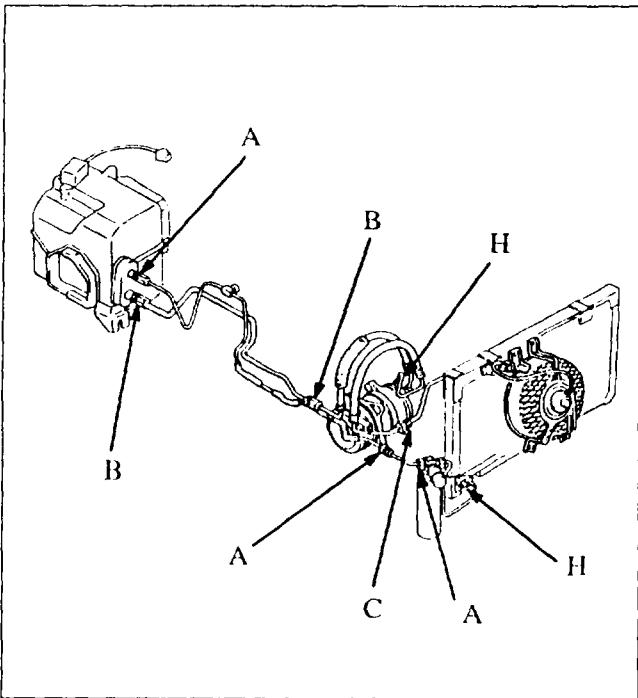


Figure 8: MX-6/626 A/C System

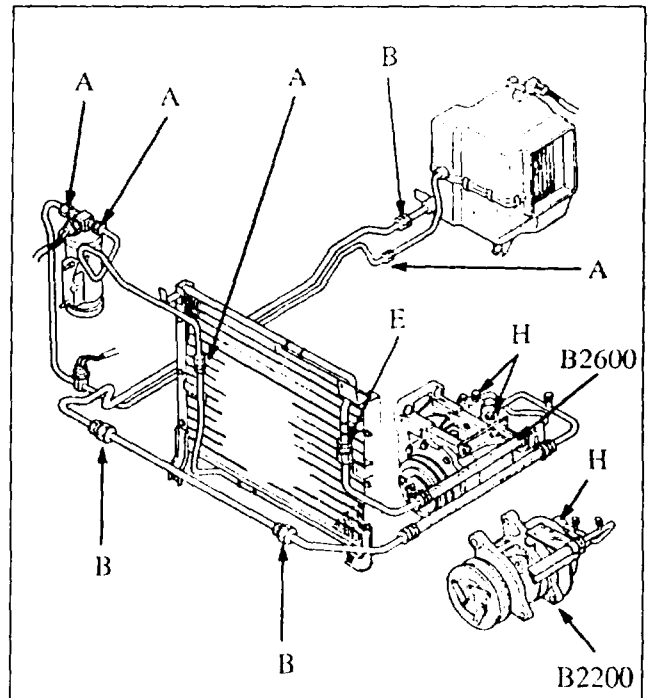


Figure 9: B-Series A/C System

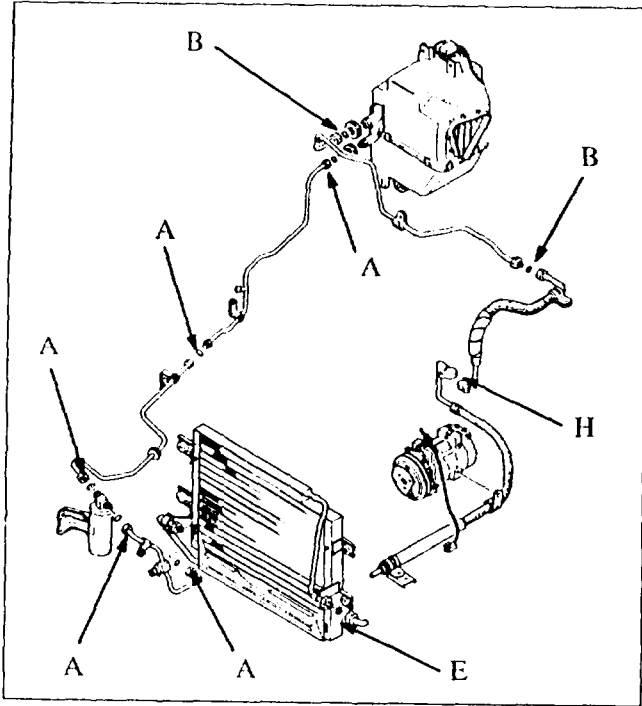


Figure 10: RX-7 (Non-turbo) A/C System

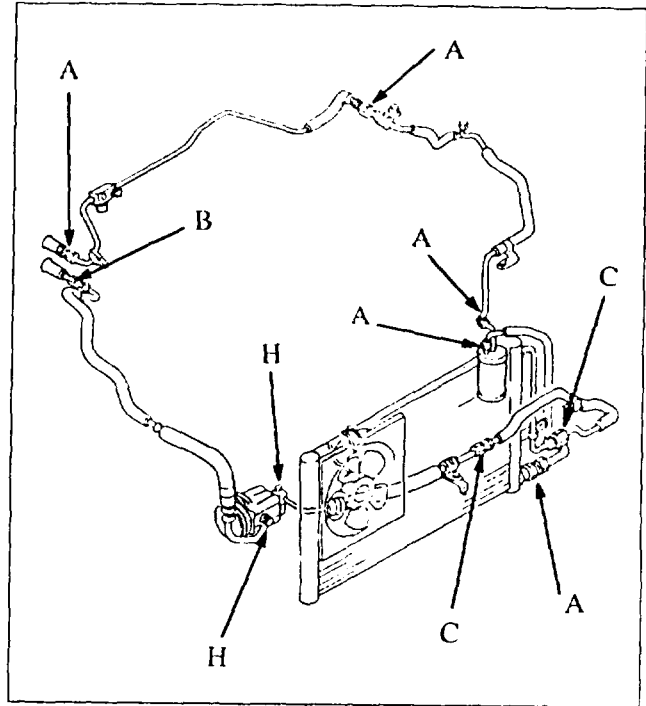


Figure 11: MX-3 A/C System

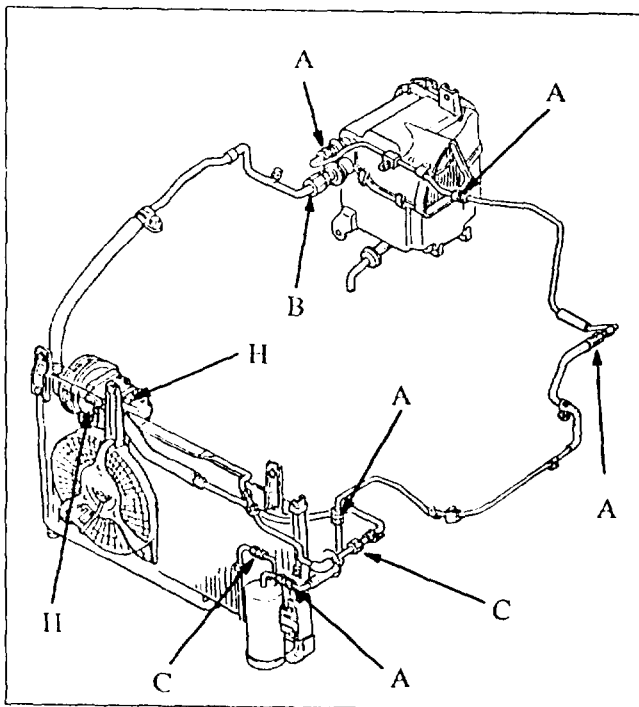


Figure 12: 323/Protegé A/C System

Service Bulletin

Mazda Motor of America, Inc.
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Irvine, California 92718
Telephone (714) 727-1990



Category W	Applicable Model/s (see below)	Subject WORKSHOP MANUAL CORRECTIONS	Bulletin No. 009/91
			Issued 5/8/91
			Revised

DESCRIPTION

Listed below are pages for the 1988-'91 626/MX-6, 1989-'91 B2200, B2600 and 1991 323/Protegé Workshop Manuals which require revisions. Please replace the current pages with the replacement pages provided.

- 1988 626/MX-6
 - 1-27
 - 1-71
- 1989 626/MX-6
 - 1-19
 - 1-58
- 1989 B2200, B2600i
 - R-7
 - R-8
 - R-21
 - R-22-1
 - R-22-2
 - R-22-3
- 1990 626/MX-6
 - B-19
 - B-65
- 1990 B2200, B2600i
 - P-51
 - R-7
 - R-8
 - R-21
 - R-22-1
 - R-22-2
 - R-22-3
- 1991 323/Protegé
 - J1-24
 - J1-31
- 1991 626/MX-6
 - B-19
 - B-65
- 1991 B2200, B2600i
 - R-7
 - R-8
 - R-21
 - R-22-1
 - R-22-2
 - R-22-3

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

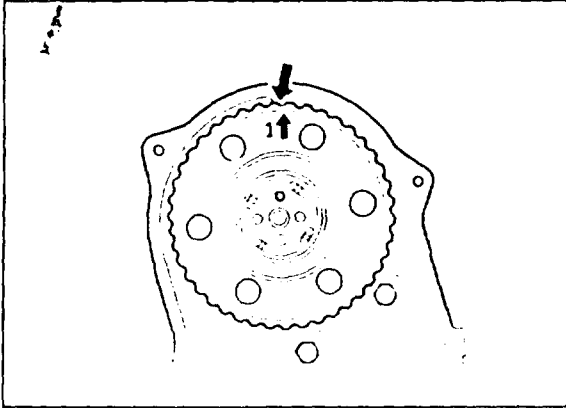
Signature _____

Service Manager

Signature _____

Parts Manager

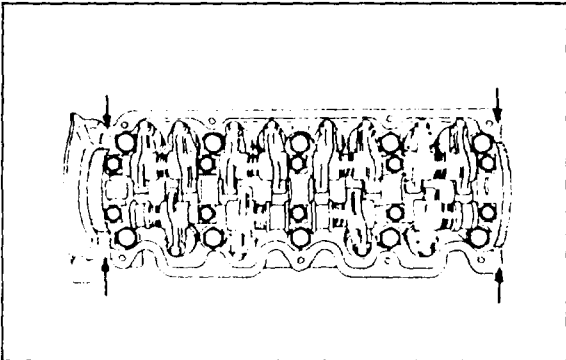
024214



86U01X-053

Timing belt

Install the timing belt. (Refer to TIMING BELT of ON-VEHICLE MAINTENANCE.)



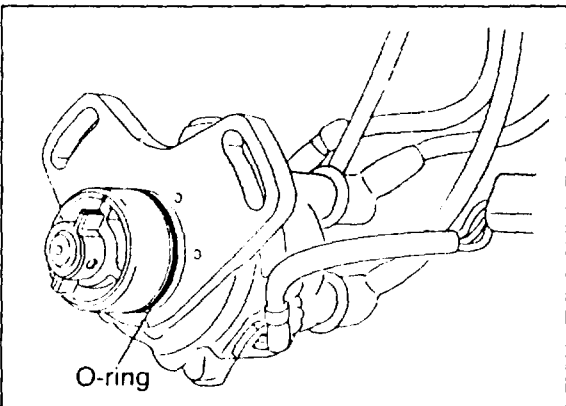
86U01X-054

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

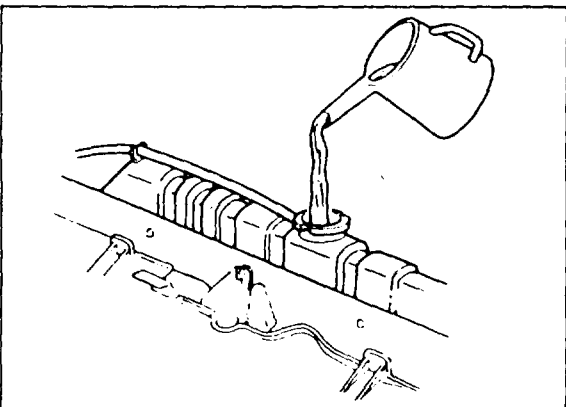
6—8 N·m (60—80 cm·kg, 52—69 in·lb)



86U01X-039

Distributor

1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor into the rear housing.
4. Loosely tighten the distributor mounting bolt.



86U01X-055

Steps After Installation

1. Fill the radiator with the specified amount and type of coolant.
2. Perform the necessary engine adjustments. (Refer to TUNE-UP PROCEDURE.)

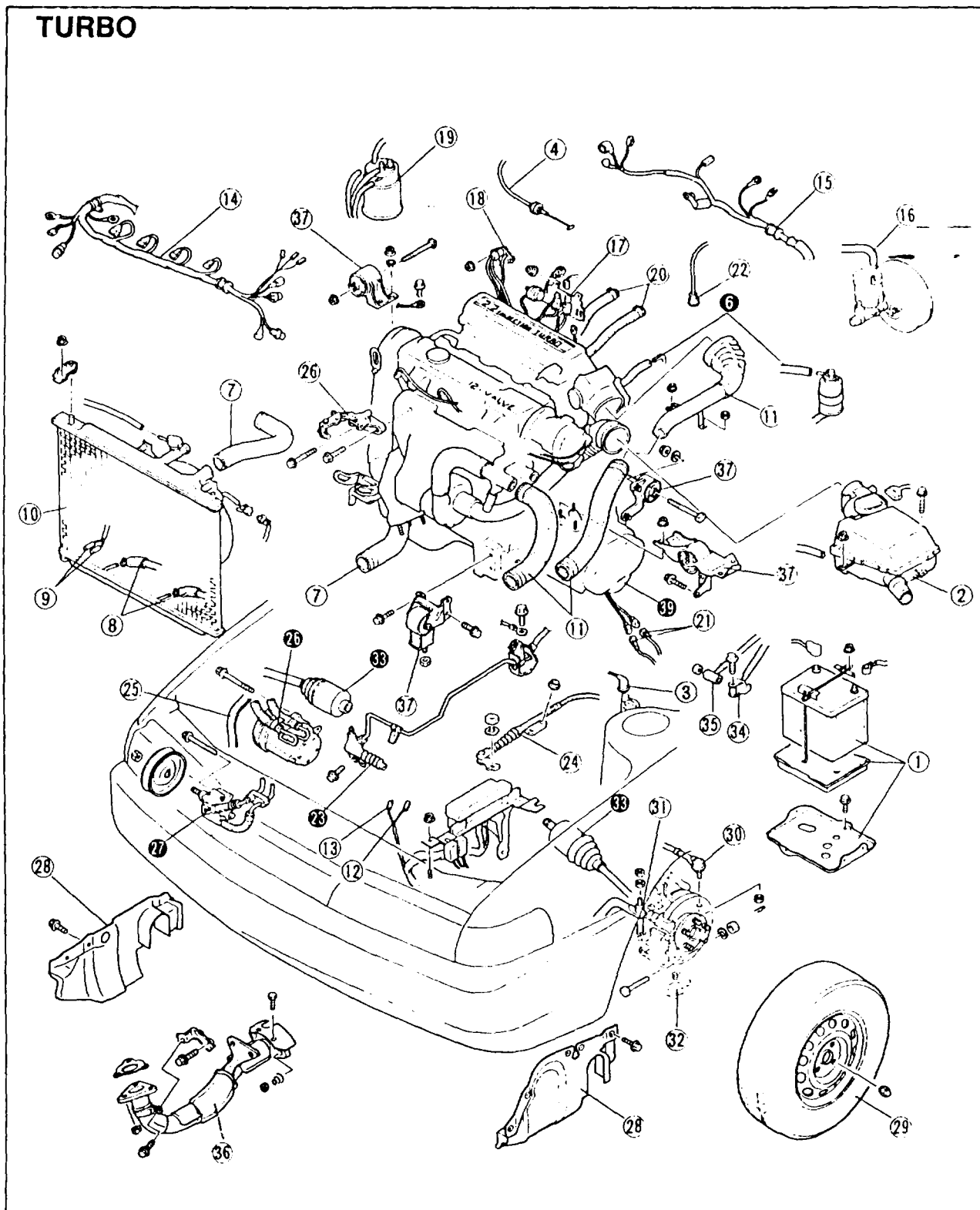
1 REMOVAL

REMOVAL

Warning: Release the fuel pressure. (Refer to Section 4.)

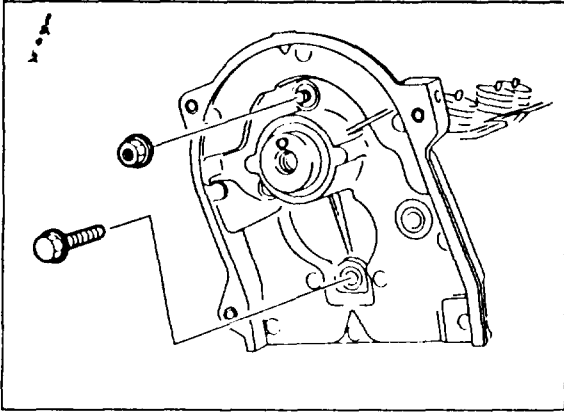
1. Disconnect the negative battery cable.
2. Drain the engine oil and coolant.
3. Remove in the sequence shown in the figure, for the specially marked parts referring to removal note.

TURBO



86U01X-056

ASSEMBLY (CYLINDER HEAD) 1

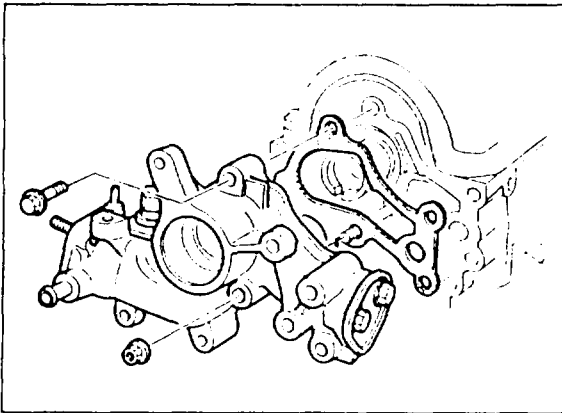


86U01X-156

3. Apply engine oil to the oil seal lip.
4. Install the front housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



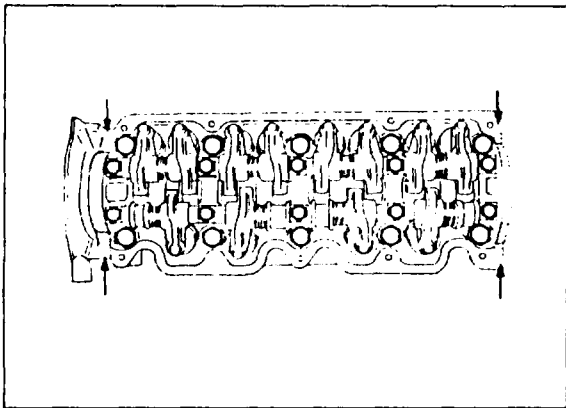
86U01X-157

Rear Housing

Install the rear housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



86U01X-158

Cylinder head cover and gasket

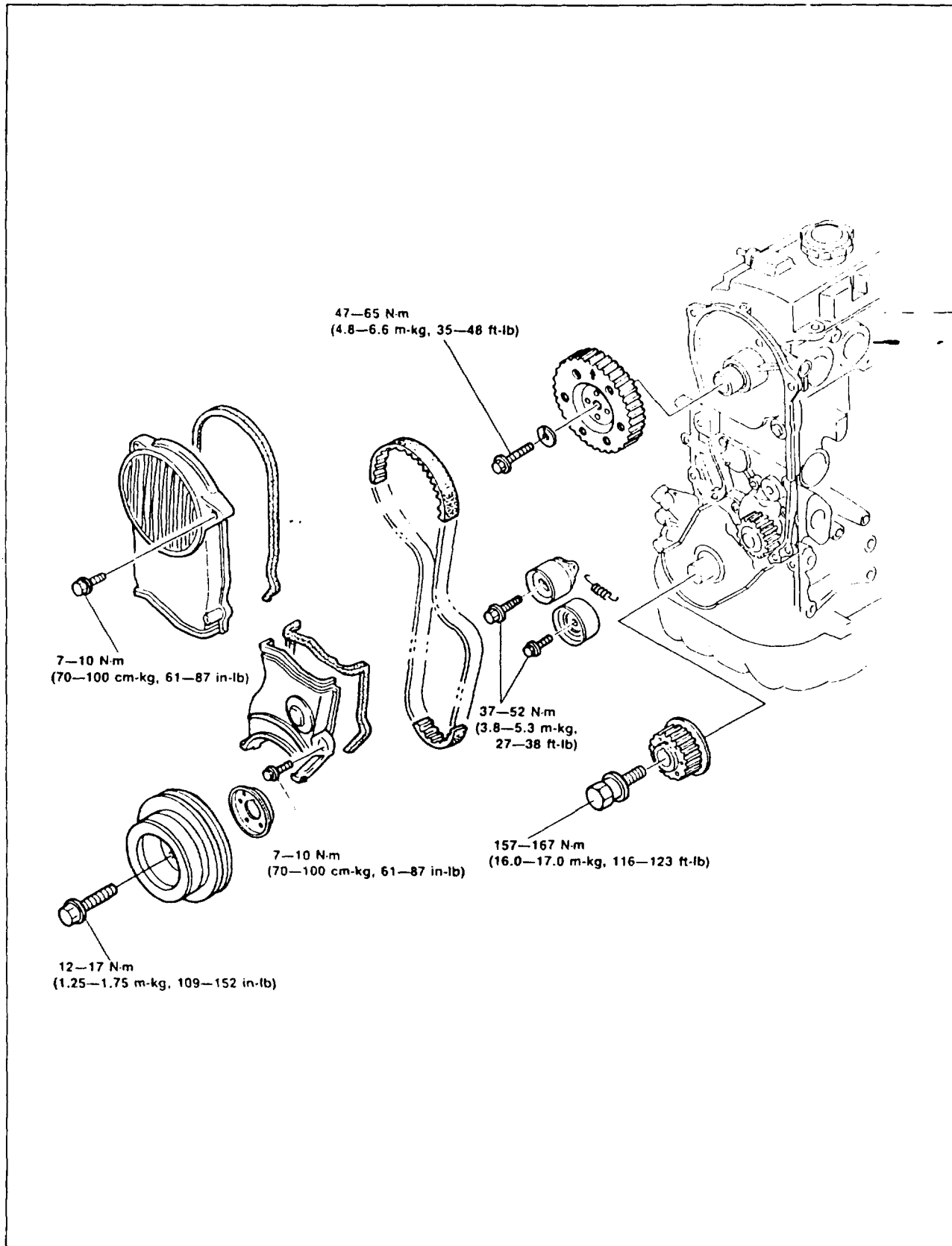
1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

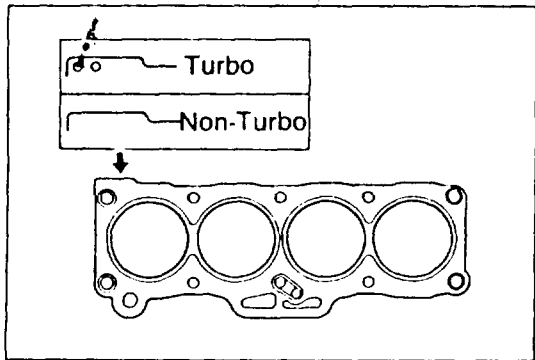
1 ASSEMBLY (TIMING BELT)

TIMING BELT Torque Specifications

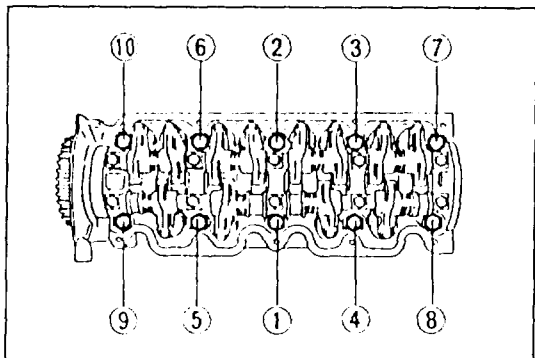


69G01B 160

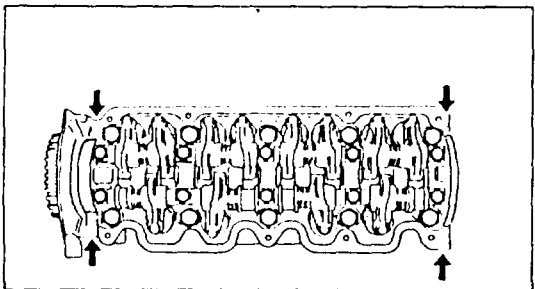
ON-VEHICLE MAINTENANCE (CYLINDER HEAD) 1



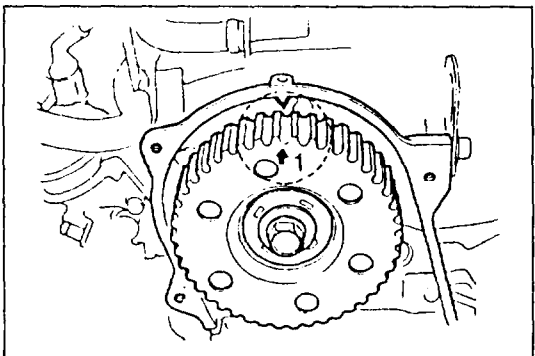
86U01X-035



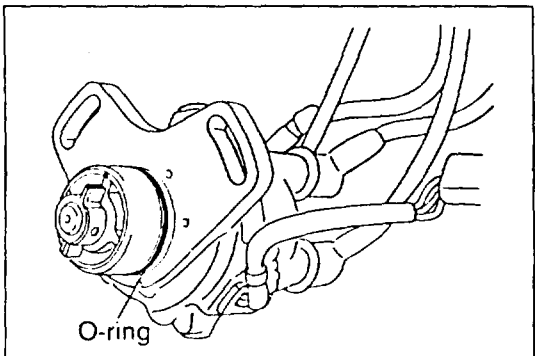
86U01X-036



86U01X-037



96U01X-021



86U01X-039

Installation note

Cylinder head

1. Thoroughly remove all dirt and oil from the top of the cylinder block with a rag.
2. Place a new cylinder head gasket in position.

3. Set the cylinder head in place.
4. Apply engine oil to the bolt threads and seat faces.
5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

Tightening torque:

80—86 N·m (8.2—8.8 m·kg, 59—64 ft·lb)

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

Timing belt

1. Align the **↑1** mark of the camshaft pulley with the front housing matching mark.
2. Install the timing belt. (Refer to TIMING BELT of ON-VEHICLE MAINTENANCE.)

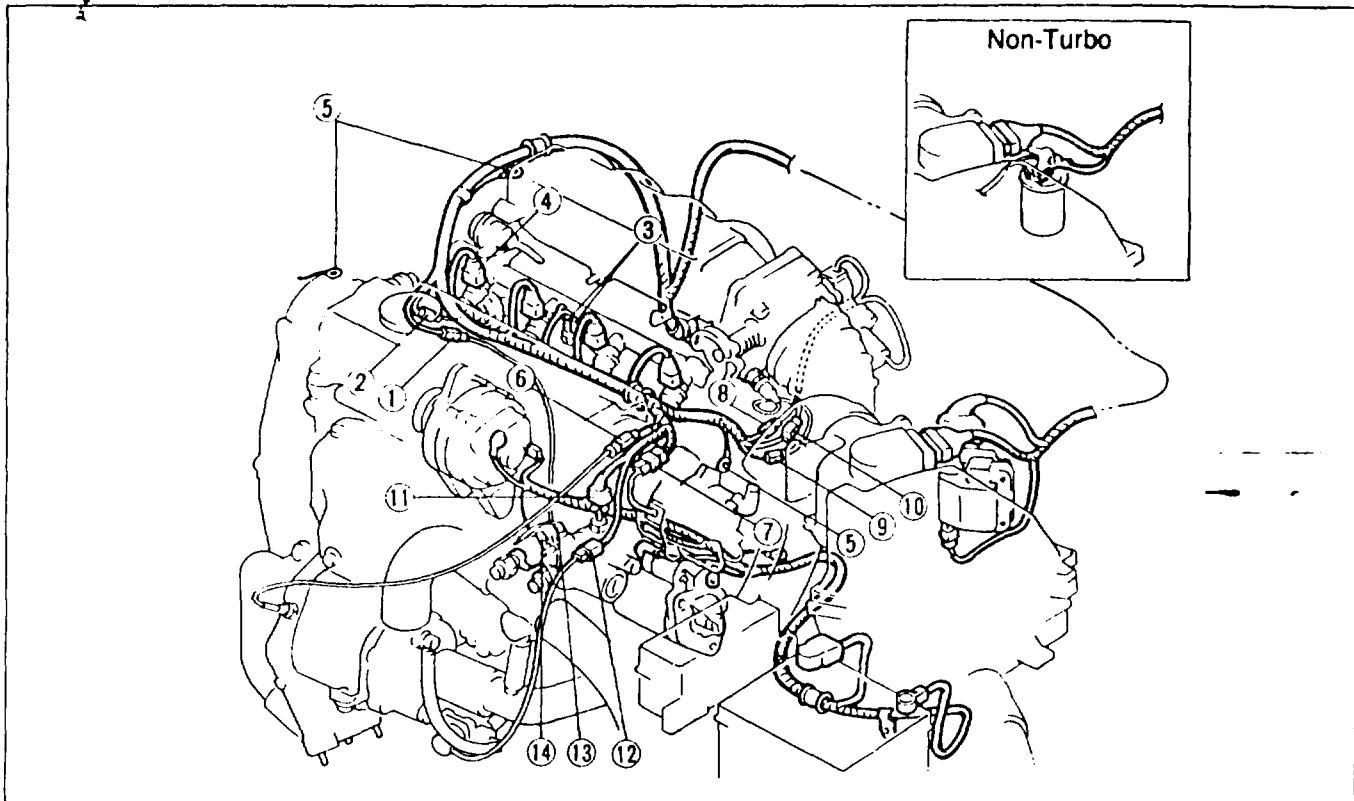
Distributor

1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor into the rear housing.
4. Loosely tighten the distributor mounting bolt.

1 ON-VEHICLE MAINTENANCE (CYLINDER HEAD)

Engine harness connector

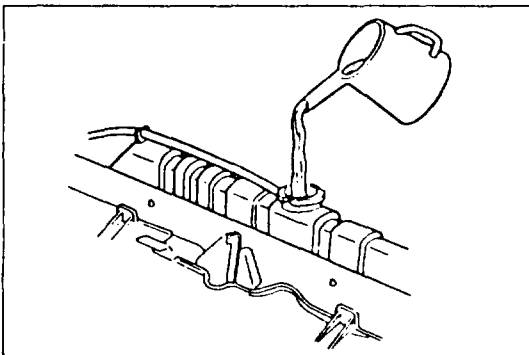
Install the engine harness connectors.



86U01X-040

1. Knock sensor (turbo)
2. EGR position sensor (turbo)
3. Water thermo switch
4. Injector
5. Engine ground
6. Oxygen sensor
7. Crank angle sensor (turbo)

8. Solenoid valve (idle speed control)
9. Idle switch
10. Throttle sensor
11. Water thermo sensor
12. Waste gate solenoid valve (turbo)
13. Heat gauge unit
14. Water thermo switch

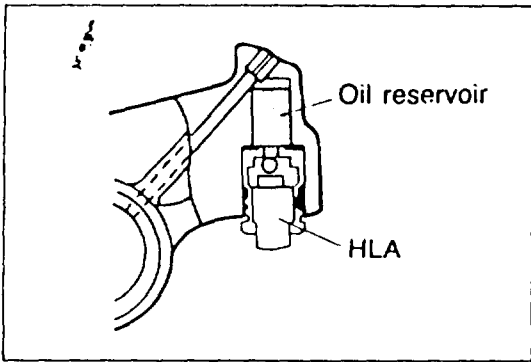


96U01X-022

Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant.
2. Perform the necessary engine adjustments. (Refer to TUNE-UP PROCEDURE.)

ASSEMBLY (CYLINDER HEAD) 1



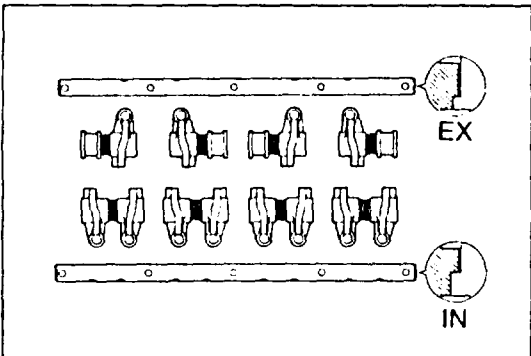
86U01X-149

Hydraulic Lash Adjuster (HLA)

1. Pour engine oil into the oil reservoir in the rocker arm.
2. Apply engine oil to the new HLA.
3. Carefully install the HLA into the rocker arm.

Caution

Be careful not to damage the O-ring when installing the HLA.



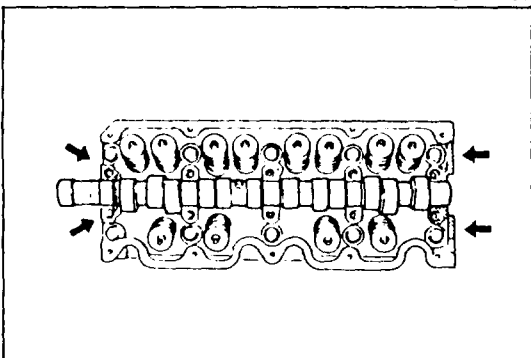
86U01X-150

Camshaft Cap, Rocker Arm and Shaft Assembly

1. Assemble the rocker arm and shaft assembly as shown in the figure.

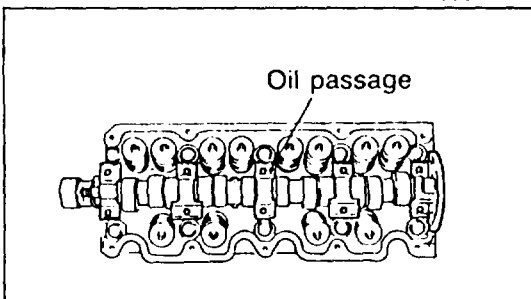
Note

- a) The intake side shaft has twice as many oil holes as the exhaust side shaft.
- b) The stepped ends are the rear of the shafts.



76G01A-140

2. Apply silicon sealant to the shaded areas shown in the figure.

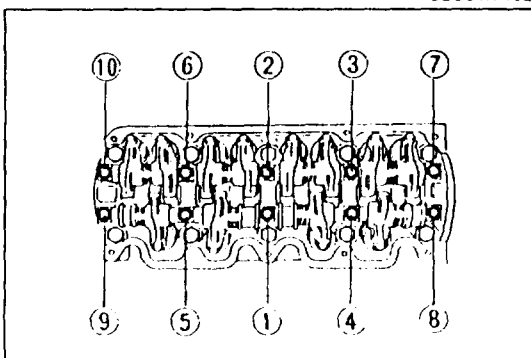


86U01X-152

3. Apply liberal amount of clean engine oil to the cam lobes and journals.
4. Position the camshaft caps according to the ← mark.

Note

The No. 3 camshaft cap has an oil passage from the cylinder head, be certain it is installed correctly.



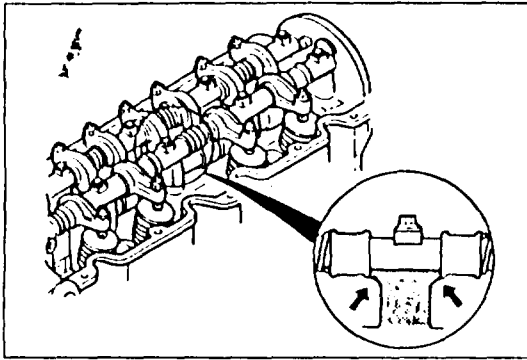
86U01X-153

5. Install the rocker arm and shaft assemblies. Tighten the bolts in two or three steps in the order shown in the figure.

Tightening torque:

18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)

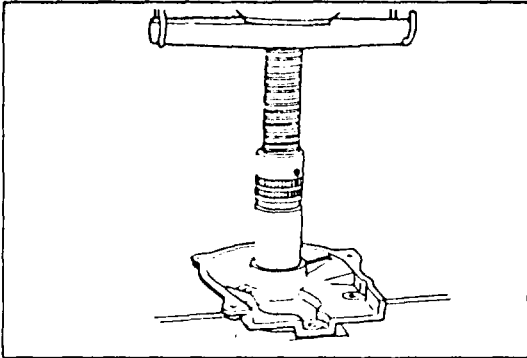
1 ASSEMBLY (CYLINDER HEAD)



86U01X-154

Caution

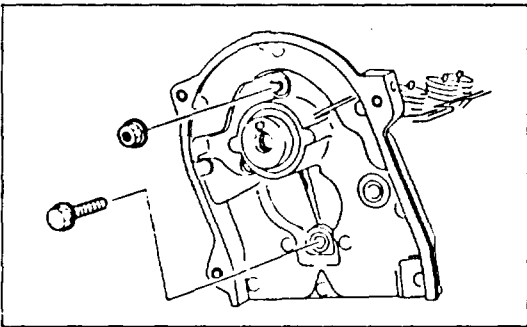
Be careful that the rocker arms or spacers do not get caught between the shaft and camshaft cap.



86U01X-155

Front Housing

1. Apply engine oil to the front housing and a new oil seal.
2. Press the oil seal into the front housing.

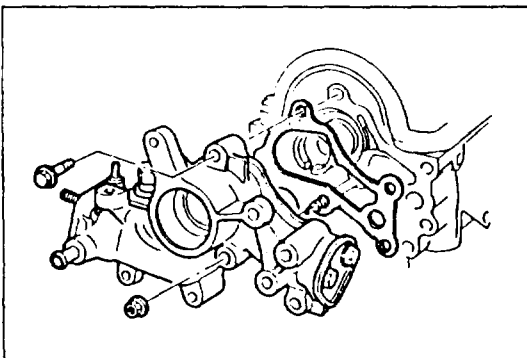


86U01X-156

3. Apply engine oil to the oil seal lip.
4. Install the front housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



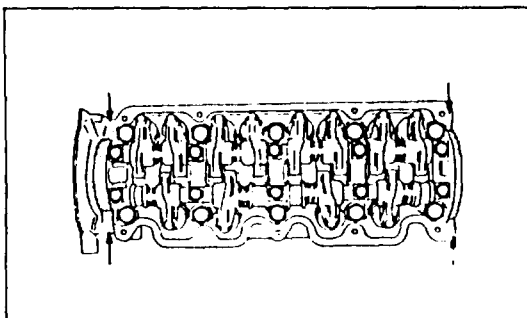
86U01X-157

Rear Housing

Install the rear housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



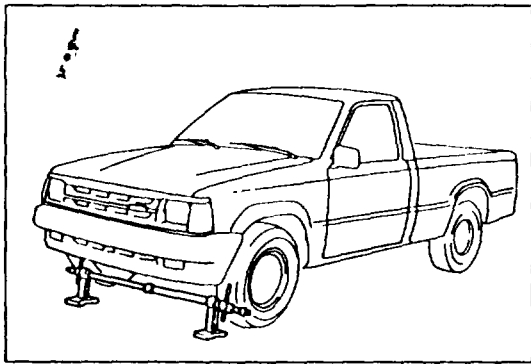
96U01X-055

Cylinder head cover and gasket

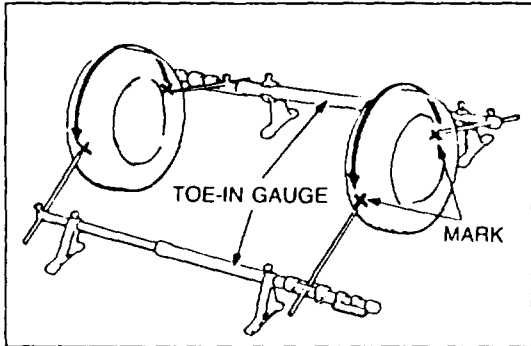
1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

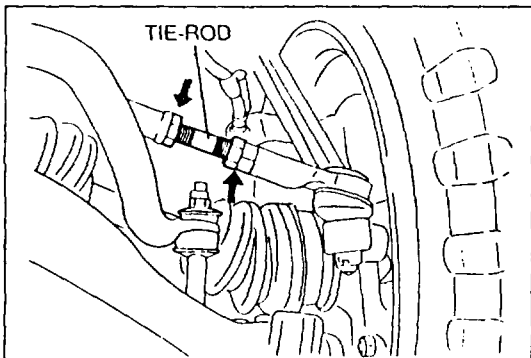
6—8 N·m (60—80 cm·kg, 52—69 in·lb)



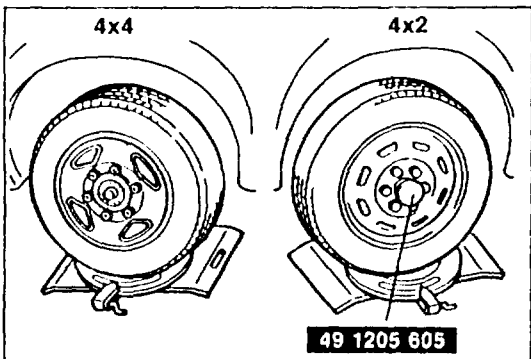
9BU0RX-011



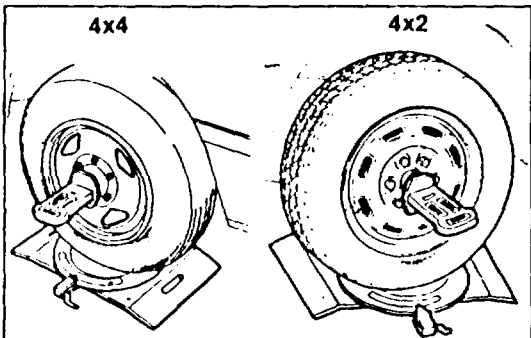
9BU0RX-012



9BU0RX-013



9BU0RX-014



9BU0RX-015

Total Toe-in

Inspection

1. Raise the front end of the vehicle until the wheels clear the ground.
2. Turn the wheels by hand; mark a line in the center of each tire tread by using a scribing block.
3. Place the front wheels in the straight-ahead position, and lower the vehicle.

4. To inspect the toe-in, measure the distance between the marked lines at the front and rear of the wheels.

Both measurements must be taken at equal distances from the ground.

Total Toe-in:

- $3 \pm 3\text{mm}$ ($0.12 \pm 0.12\text{ in}$)
- $18' \pm 18'$

Adjustment

To adjust the toe-in, loosen the left and right tie-rod lock-nuts, and turn each tie-rod an equal amount.

Locknut tightening torque:

$69\text{--}78\text{ N}\cdot\text{m}$ ($7.0\text{--}8.0\text{ m}\cdot\text{kg}$, $51\text{--}58\text{ ft}\cdot\text{lb}$)

Note

- a) The left and right tie-rods are both right threaded. To increase the toe-in, turn the right tie-rod toward the front of the vehicle, and turn the left tie-rod by the same amount toward the rear.
- b) One turn of the tie-rod (both sides) changes the toe-in by about 30mm (1.21 in).

Camber and Caster

Inspection (4x2)

1. Position the front wheels on a turning radius gauge.
2. Remove the wheel hub cap.
3. Remove the wheel hub nut.
4. Attach the **SST** to the wheel hub.
5. Attach a camber/caster gauge to the **SST**

Inspection (4x4)

1. Position the front wheels on a turning radius gauge.
2. Remove the drive flange. (Refer to Section M.)
3. Attach a camber/caster gauge to the wheel hub.

Camber and Caster:

Item	Model	4x2		4x4
		M/S	P/S	P/S
Camber angle		$0^{\circ}45' \pm \frac{30'}{20}$		$1^{\circ}00' \pm \frac{30'}{20}$
Caster angle		$0^{\circ}50' \pm 45'$	$1^{\circ}50' \pm 45'$	$2^{\circ}00' \pm 45'$

M/S: Manual steering, P/S: Power steering

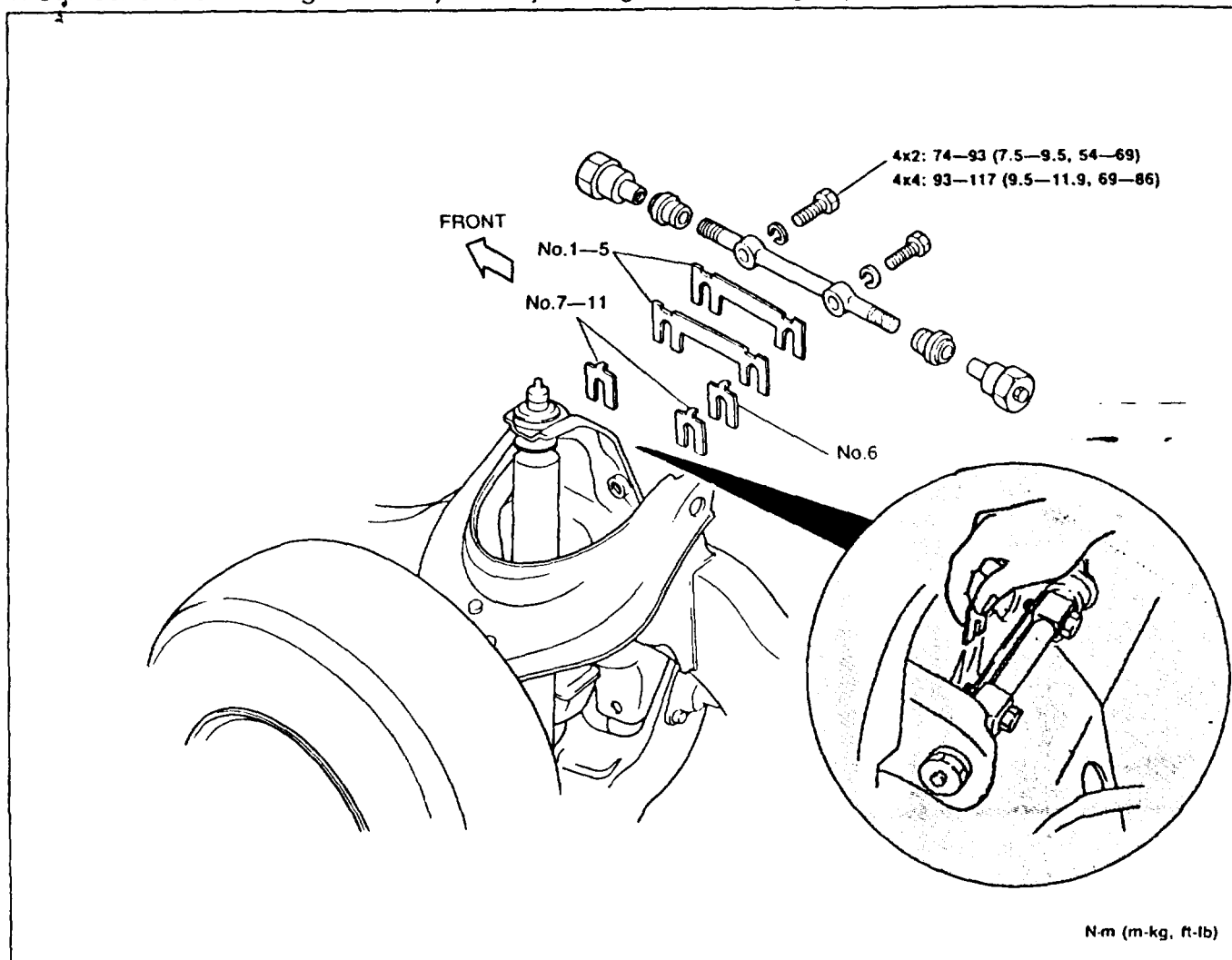
Left/right difference:

Camber: 30' or less, Caster: 45' or less

R WHEEL ALIGNMENT

Adjustment

1. Camber and caster angles are adjusted by adding or subtracting adjustment shims.



N-m (m-kg, ft-lb)

9BU0RX 016

No.	Thickness mm (in)	No.	Thickness mm (in)
1	1.0 (0.004)	7	1.0 (0.004)
2	1.6 (0.063)	8	1.6 (0.063)
3	2.0 (0.079)	9	2.0 (0.079)
4	3.2 (0.126)	10	3.2 (0.126)
5	4.0 (0.157)	11	4.0 (0.157)
6	2.0 (0.079)		

Note

1. Shims No.1—5 are used at the left and right sides (2/side).
2. Shims No.7—11 are used at the front and rear of the left and right sides (2/side).
3. Shim No.6 is for models equipped with power steering and is used at the rear only of the left and right sides (1/side).
4. **Camber:** A change of shim thickness (at front and rear) of 1mm (0.004 in) results in a change of about 15'.
5. **Caster:** A change of shim thickness (at front or rear only) of 1mm (0.004 in) results in a change of about 30'.

2. After adjustment, reinstall the hub nut (**4x2**) and tighten it while adjusting the bearing preload. (Refer to Section M.) Reinstall the drive flange (**4x4**) and tighten it to **29—34 N-m (3.0—3.5 m-kg, 22—25 ft-lb)**.

FRONT SUSPENSION (DOUBLE WISHBONE) R

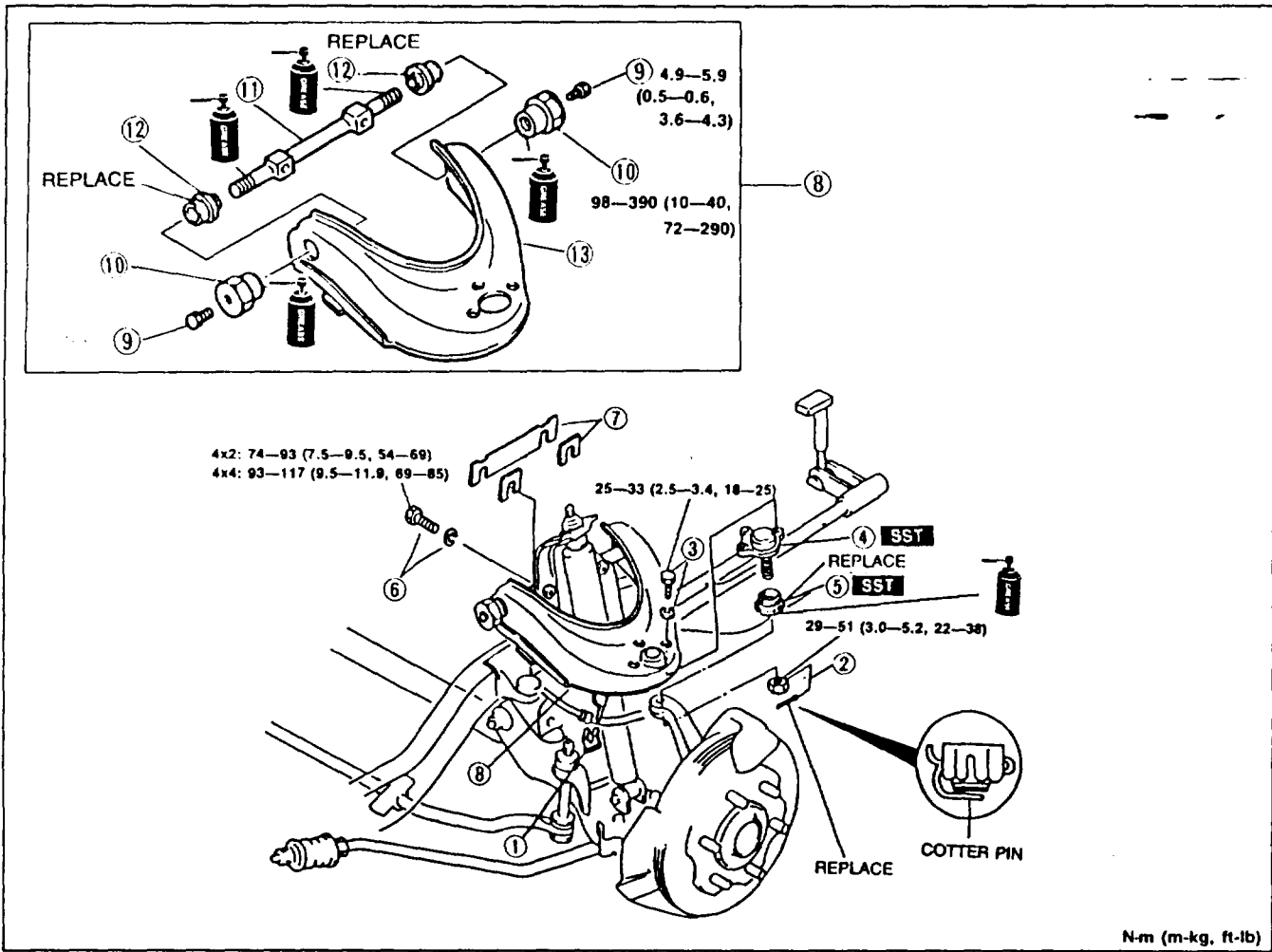
UPPER ARM (4x2 AND 4x4)

Removal and Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal note**.
5. Install in the reverse order of removal, referring to **Installation note**.

Note

- During removal, note the number, amount and position of the adjustment shims so that they are reinstalled in the correct positions.
- After installation, check the wheel alignment and adjust it if necessary. (Refer to page R-7.)

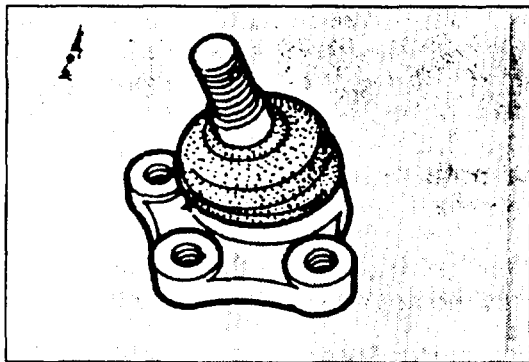


N-m (m-kp, ft-lb)

1BU0RX-018

- | | |
|-------------------------------------|-------------------------------------|
| 1. Clip | 7. Adjustment shims |
| 2. Cotter pin and nut | 8. Upper arm assembly |
| 3. Bolts and washers | 9. Plug |
| 4. Upper arm ball joint | 10. Threaded bushing |
| Removal note page R-22-1 | Removal note page R-22-2 |
| Inspection page R-22-1 | Installation note page R-22-2 |
| 5. Upper arm ball joint boot | 11. Upper arm shaft |
| Removal note page R-22-1 | Installation note page R-22-2 |
| Installation note page R-22-1 | 12. Dust seal |
| 6. Bolts and washers | 13. Upper arm |
| | Inspection page R-22-2 |

R FRONT SUSPENSION (DOUBLE WISHBONE)

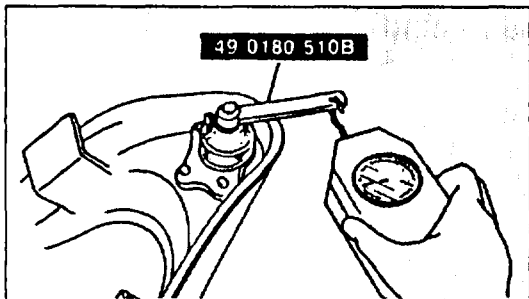


1BU0RX-026

Inspection

Check for the following and repair or replace parts as necessary.

1. Cracking, damage, and bending of upper arm and upper arm shaft.
2. Damage and poor operation of upper arm ball joint.



1BU0RX-027

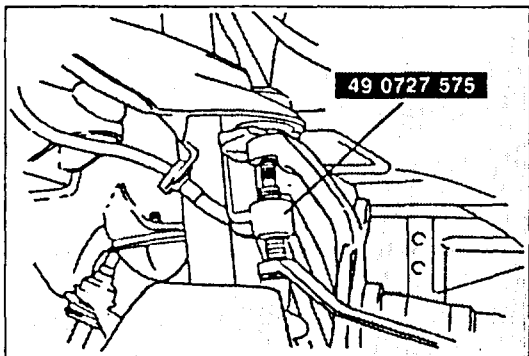
3. Upper arm ball joint preload.

Attach the **SST** to the ball stud, and measure the preload with a pull scale.

Caution

Measure the preload after first rocking the ball joint stud 3 or 4 times.

Pull scale reading: 20—34 N (2.0—3.5 kg, 4.4—7.7 lb)
(While ball stud is rotating)

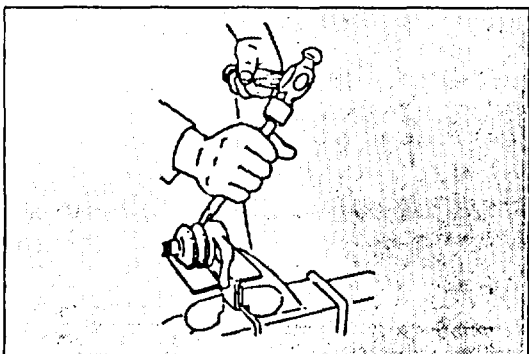


1BU0RX-019

Removal note

Upper arm ball joint/Knuckle arm

Using the **SST**, separate the upper arm ball joint from the knuckle arm.



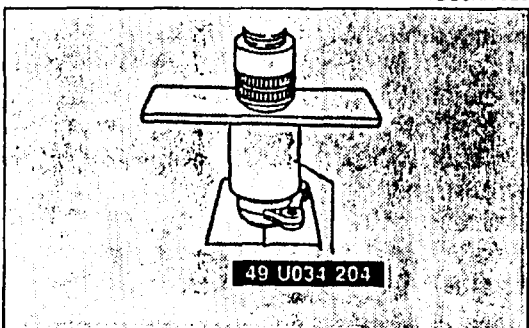
1BU0RX-020

Upper arm ball joint boot

1. Secure the upper arm in a vise.
2. Use a chisel as shown to remove the upper arm ball joint boot.

Note

Use protective plates in the jaws of the vise to prevent damage to the part secured.

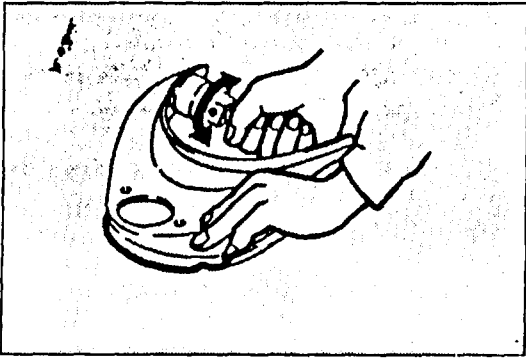


1BU0RX-025

Upper arm ball joint boot

1. Liberally coat the new boot with grease, and use the **SST** to press it on.

FRONT SUSPENSION (DOUBLE WISHBONE) R



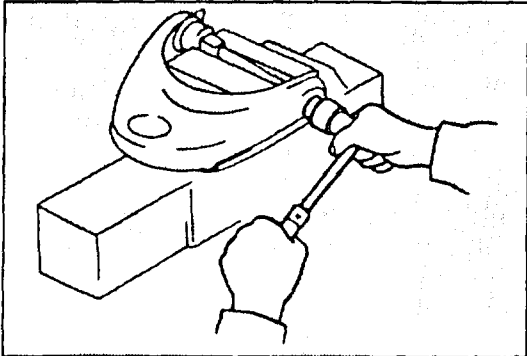
1BU0RX-024

Inspection

Verify that the upper arm shaft turns smoothly.

Caution

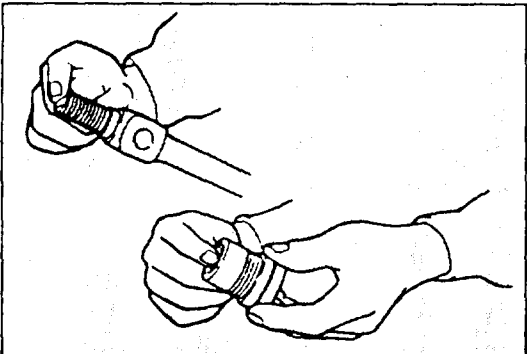
If the upper arm shaft cannot be turned smoothly, replace the upper arm and/or threaded bushings.



1BU0RX-021

Threaded bushing

1. Secure the upper arm shaft in a vise.
2. Alternately loosen the threaded bushings in steps.
3. Remove the threaded bushings.

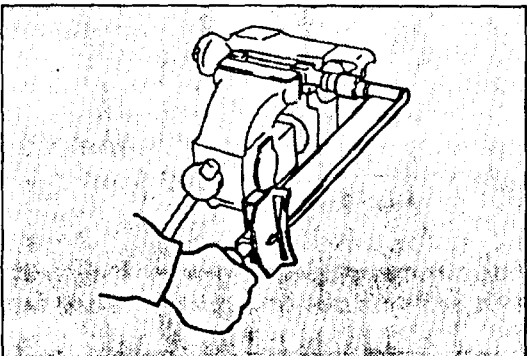


1BU0RX-022

Installation note

Upper arm shaft/Threaded bushing

1. Apply the specified grease to the upper arm shaft and threaded bushings.



1BU0RX-027

2. Secure the upper arm shaft in a vise.
3. Install the dust seals and upper arm shaft to the upper arm.
4. Alternately tighten the threaded bushings in steps.

Tightening torque:

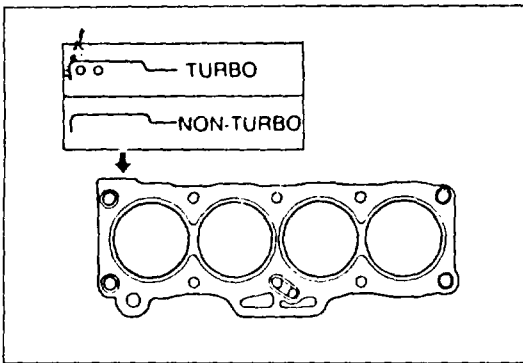
98—390 N·m (10—40 m·kg, 72—290 ft·lb)

Caution

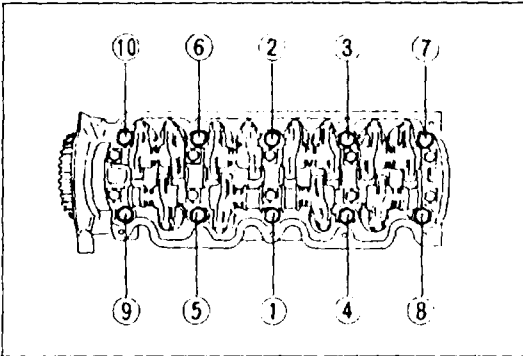
If the specified tightening torque cannot be obtained, replace the upper arm and/or threaded bushings.

R FRONT SUSPENSION (DOUBLE WISHBONE)

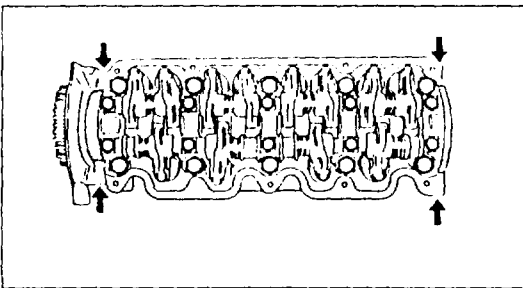
MEMO



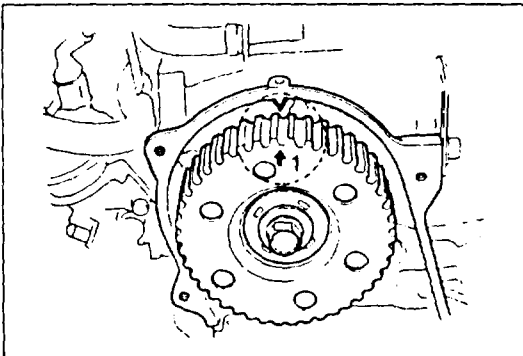
86U01X-035



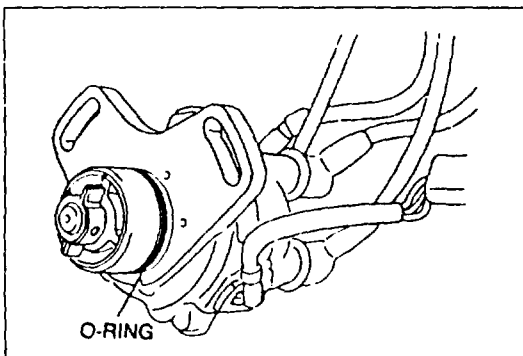
86U01X-036



86U01X-037



96U01X-021



86U01X-039

Installation note

Cylinder head

1. Thoroughly remove all dirt and oil from the top of the cylinder block with a rag.
2. Place a new cylinder head gasket in position.

3. Set the cylinder head in place.
4. Apply engine oil to the bolt threads and seat faces.
5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

Tightening torque:

80—86 N·m (8.2—8.8 m·kg, 59—64 ft·lb)

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

Timing belt

1. Align the **↑1** mark of the camshaft pulley with the front housing matching mark.
2. Install the timing belt. (Refer to TIMING BELT of ON-VEHICLE MAINTENANCE.)

Distributor

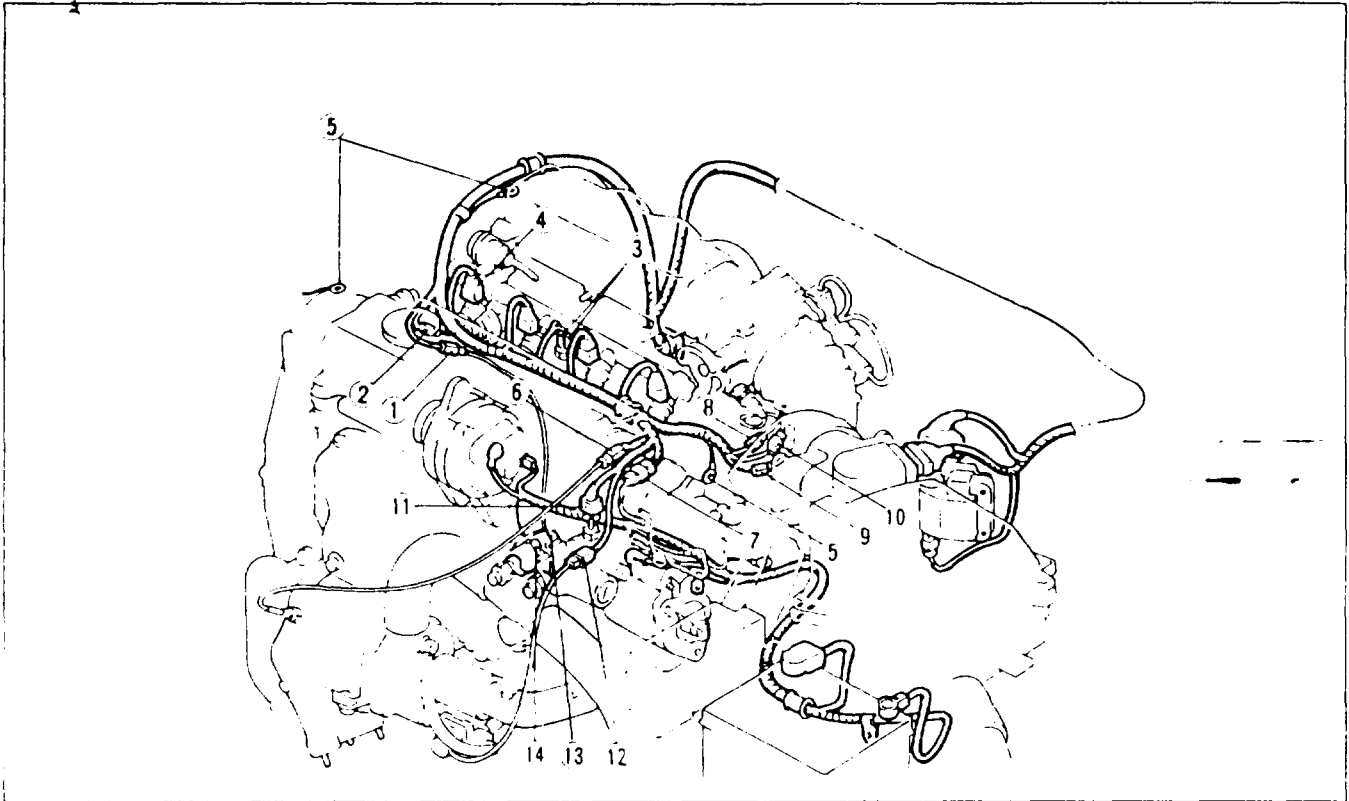
1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor into the rear housing.
4. Loosely tighten the distributor mounting bolt.

B

ON-VEHICLE MAINTENANCE (CYLINDER HEAD GASKET)

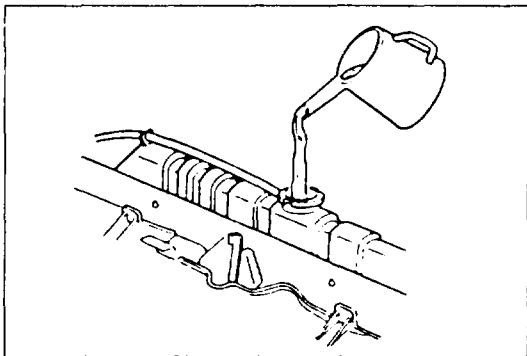
Engine harness connector

Install the engine harness connectors.



86UC • 040

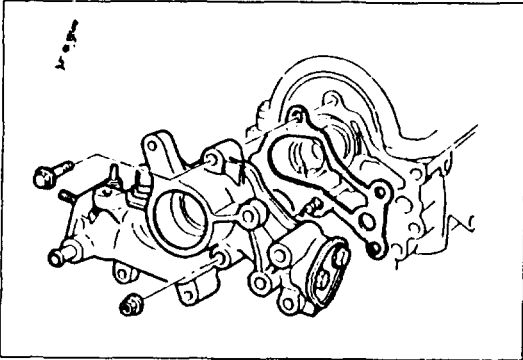
- | | |
|--------------------------------|--|
| 1. Knock sensor (turbo) | 8. Solenoid valve (idle speed control) |
| 2. EGR position sensor (turbo) | 9. Idle switch |
| 3. Water thermo switch | 10. Throttle sensor |
| 4. Injector | 11. Water thermo sensor |
| 5. Engine ground | 12. Waste gate solenoid valve (turbo) |
| 6. Oxygen sensor | 13. Heat gauge unit |
| 7. Crank angle sensor (turbo) | 14. Water thermo switch |



96U01X-022

Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant.
2. Perform the necessary engine adjustments. (Refer to TUNE-UP PROCEDURE.)



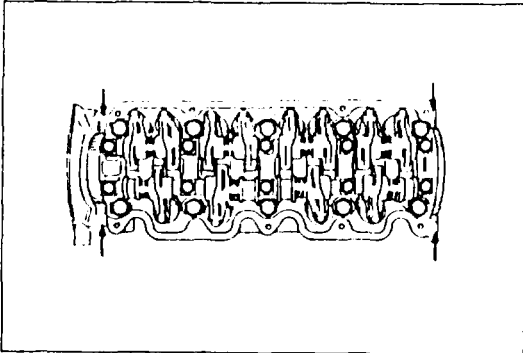
86U011 157

Rear Housing

Install the rear housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



96U011 155

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

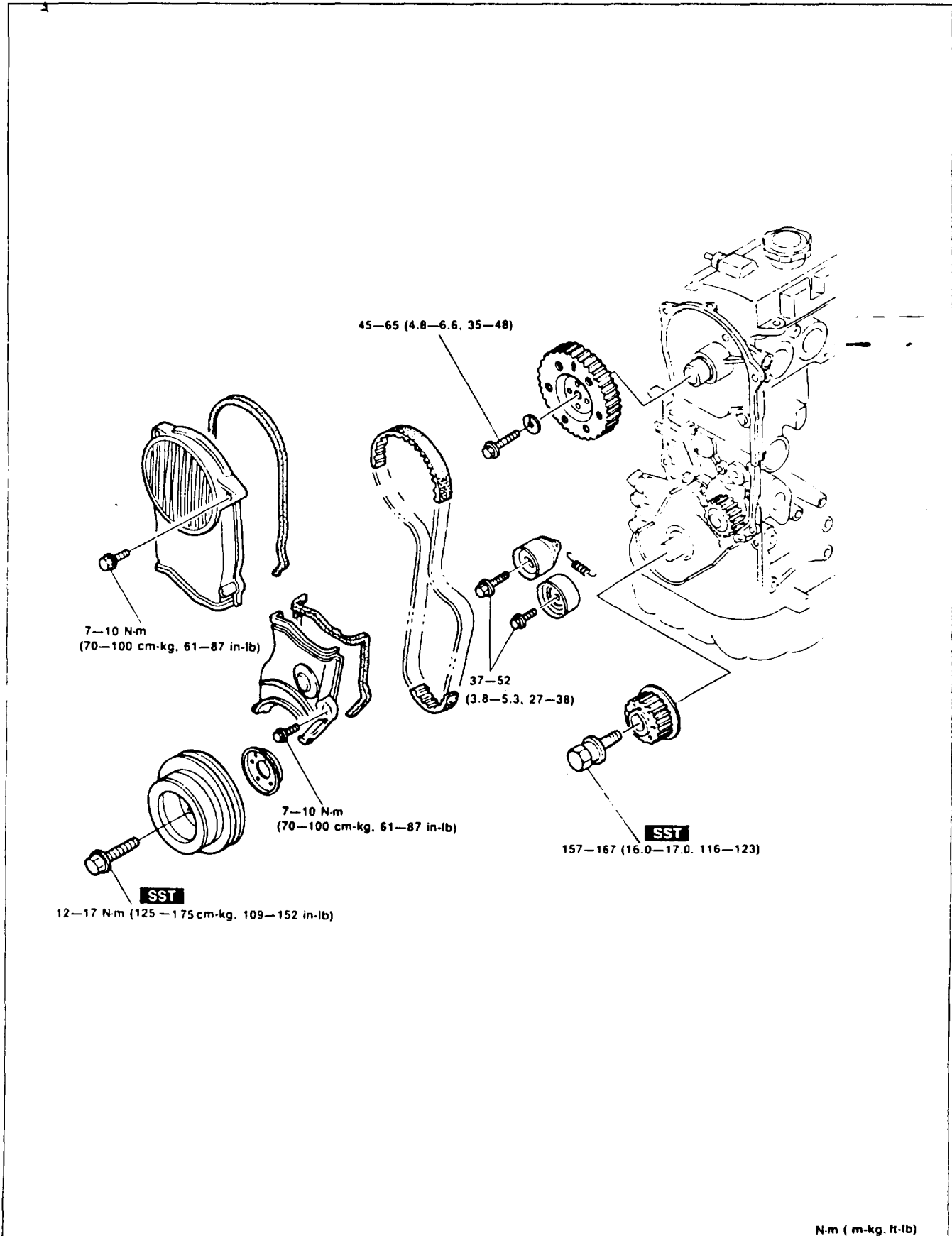
Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

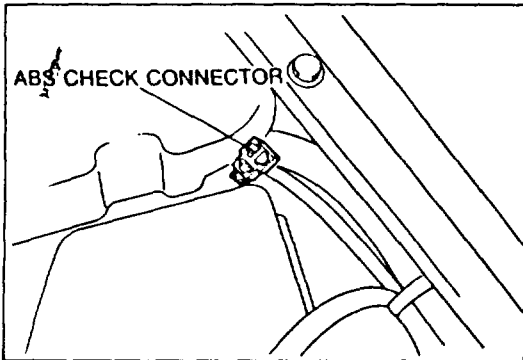
B

ASSEMBLY (TIMING BELT)

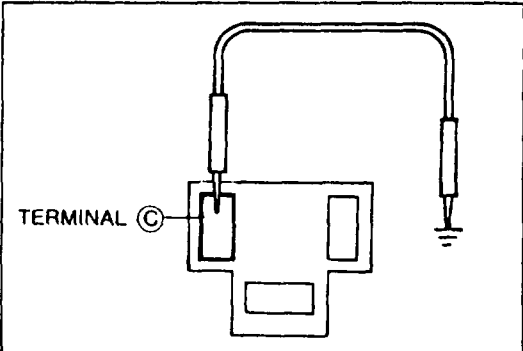
TIMING BELT Torque Specifications



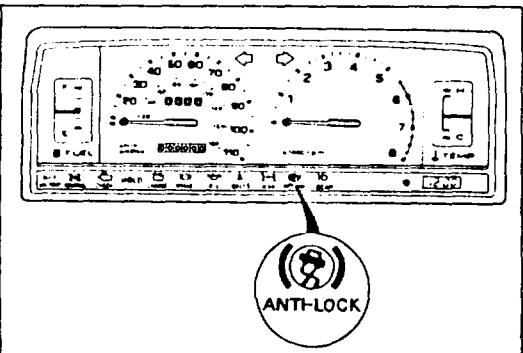
REAR-WHEEL ANTI-LOCK BRAKE SYSTEM P



0MU0PX-025



0BU0PX-031



0BU0PX-032

Obtaining A Flashing Pattern

1. Locate the ABS check connector.

Note

The check connector (Blue: 3-pins), is located in the left in the engine compartment.

2. Attach a jumper wire to the terminal © (yellow wire) and ground it to the chassis for one second and release it. When the ground is made and broken the ABS warning lamp will begin to flash.

3. Count a flashing number of the ABS warning lamp.

Note

- a) A flashing pattern consists of a number of short flashes and ends with a long flash. Count the short flashes and include the long flash in the count.
- b) A same flashing pattern repeats until ignition switch is turned off. After the ignition switch is turned off, then when the ignition switch is turned on again, a same flashing pattern appears.
- c) If there is more than one system fault only the first recognized flashing pattern will be obtained.
- d) Verify the flashing pattern by reading it several times.

P REAR-WHEEL ANTI-LOCK BRAKE SYSTEM

Flashing Pattern Chart

Number of flashing	Failure location	Failure condition	Flowchart number
1	—	(1 flash should not occur)	ABS-1
2	Hydraulic unit	Open in isolation solenoid circuit	ABS-2
3		Open in dump solenoid circuit	ABS-3
4		Solenoid valve switch closed	ABS-4
5	—	System dumps too many times in 4x2 (4x2 and 4x4 vehicles) (condition occurs while making normal or hard stops. Rear brake may lock.)	ABS-5
6	Speed sensor	(Speed sensor signal rapidly cuts in and out) condition only occurs while driving	ABS-6
7	Hydraulic unit	Shorted ground circuit (Isolation solenoid)	ABS-7
8		Shorted ground circuit (Dump solenoid)	ABS-8
9	Speed sensor	High speed sensor resistance	ABS-9
10		Low speed sensor resistance	ABS-10
11	Stoplight switch	Stoplight switch circuit defective. (Condition indicated only when driving above 56 km/h [35 mph])	ABS-11
12	—	(12 flashes should not occur)	ABS-12
13	Control unit	Control unit speed circuit phase lock loop failure detected during self-test	ABS-13
14		Control unit program check sum failure detected during self-test	ABS-14
15		Control unit RAM failure detected during self-test	ABS-15
16	—	(16 or more flashes should not occur)	ABS-16

CBU0PX-033

Caution

- a) When checking resistance at the control unit terminals, always disconnect the battery cable. Improper resistance may occur with the vehicle battery connected.
- b) When using a test lead for testing at the control unit terminals, use a fine needle to prevent damage to the terminal.

WHEEL ALIGNMENT

PRE-INSPECTION

1. Check the tire inflations and set to the recommended pressure if necessary.
2. Inspect the front wheel bearing play and correct if necessary.
3. Inspect the wheel and tire runout.
4. Inspect the ball joints and steering linkage for any excessive looseness.
5. The vehicle must be on level ground and have no luggage or passenger load.
6. The difference in height between the left and right sides from the center of the wheel to the fender brim must not exceed **10mm (0.39 in)**.

OBU0RX-003

FRONT WHEEL ALIGNMENT

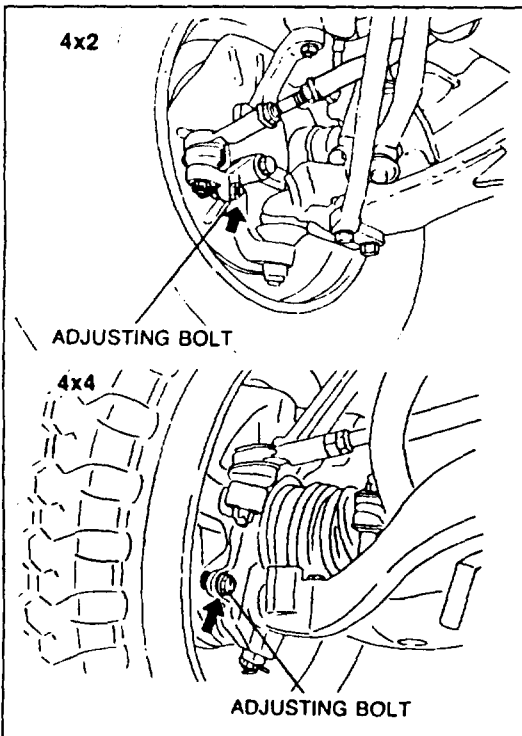
Specifications

Item			Specifications	
			4x2	4x4
Front wheel alignment (*1 Unladen)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)	
		degree	$18' \pm 18'$	
	Maximum steering angle	Inner	$35^{\circ}00' \pm 2^{\circ}$	$33^{\circ}30' \pm 2^{\circ}$
		Outer	$33^{\circ}00' \pm 2^{\circ}$	$30^{\circ}00' \pm 2^{\circ}$
	Camber angle		$0^{\circ}45' \pm \frac{30}{80}$	$1^{\circ}00' \pm \frac{30}{80}$
	Caster angle		M/S: $0^{\circ}50' \pm 45'$ P/S: $1^{\circ}50' \pm 45'$	$2^{\circ}00' \pm 45'$
Kingpin angle		$8^{\circ}15'$	$10^{\circ}20'$	

M/S: Manual steering P/S: Power steering

OBU0RX-004

*1 Fuel tank full; radiator coolant and engine oil at specified level, and spare tire, jack, and tools in designated position.



Adjustment

Maximum steering angle

Adjust the turning angle as follows:

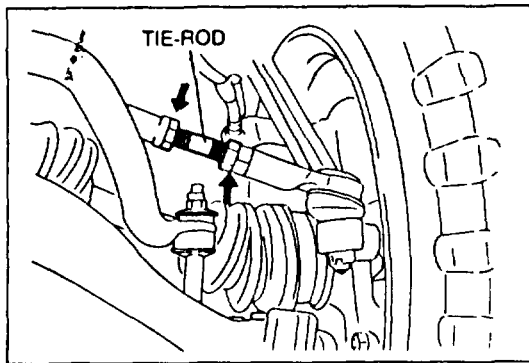
1. Loosen the adjusting bolt locknut.
2. Turn the adjusting bolt to provide the correct turning angle.
3. After adjustment, tighten the locknut to the specified torque.

Tightening torque:

39—59 N·m (4.0—6.0 m·kg, 29—43 ft·lb)

1BU0RX-002

R WHEEL ALIGNMENT



1BU0RX-003

Total toe-in

To adjust the toe-in, loosen the left and right tie-rod locknuts, and turn each tie-rod an equal amount.

Locknut tightening torque:

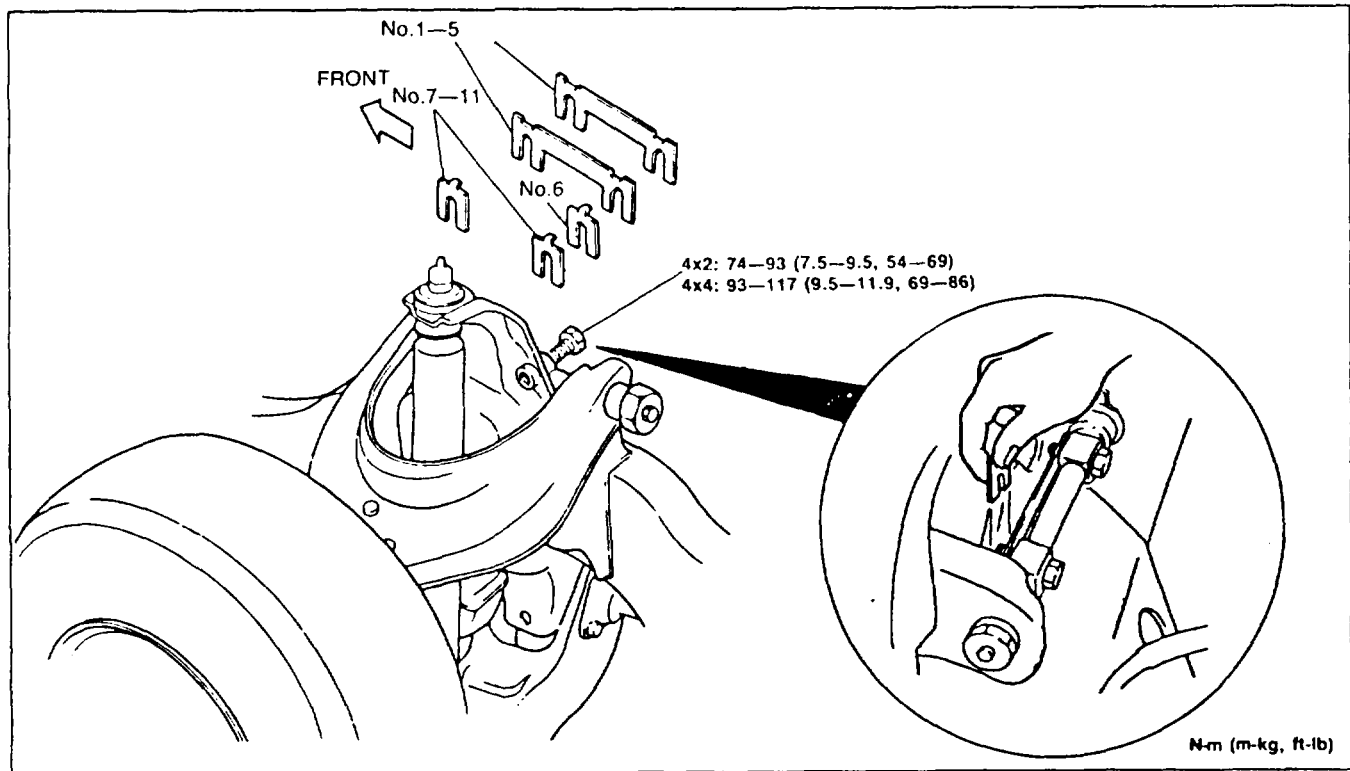
69—78 N·m (7.0—8.0 m·kg, 51—58 ft·lb)

Note

- a) The left and right tie-rods are both right threaded. To increase the toe-in, turn the right tie-rod toward the front of the vehicle, and turn the left tie-rod by the same amount toward the rear.
- b) One turn of the tie-rod (both sides) changes the toe-in by about 30mm (1.18 in).

Camber and caster

To adjust the camber and caster angles, loosen the bolts of the upper arm shaft and insert or remove adjustment shims.



N·m (m·kg, ft·lb)

1BU0RX-017

No.	Thickness mm (in)	No.	Thickness mm (in)
1	1.0 (0.004)	7	1.0 (0.004)
2	1.6 (0.063)	8	1.6 (0.063)
3	2.0 (0.079)	9	2.0 (0.079)
4	3.2 (0.126)	10	3.2 (0.126)
5	4.0 (0.157)	11	4.0 (0.157)
6	2.0 (0.079)		

Note

1. Shims No.1—5 are used at the left and right sides (2/side).
2. Shims No.7—11 are used at the front and rear of the left and right sides (2/side).
3. Shim No.6 is for models equipped with power steering and is used at the rear only of the left and right sides (1/side).
4. **Camber:** A change of shim thickness (at front and rear) of 1mm (0.004 in) results in a change of about 15'.
5. **Caster:** A change of shim thickness (at front or rear only) of 1mm (0.004 in) results in a change of about 30'.

FRONT SUSPENSION (DOUBLE WISHBONE) **R**

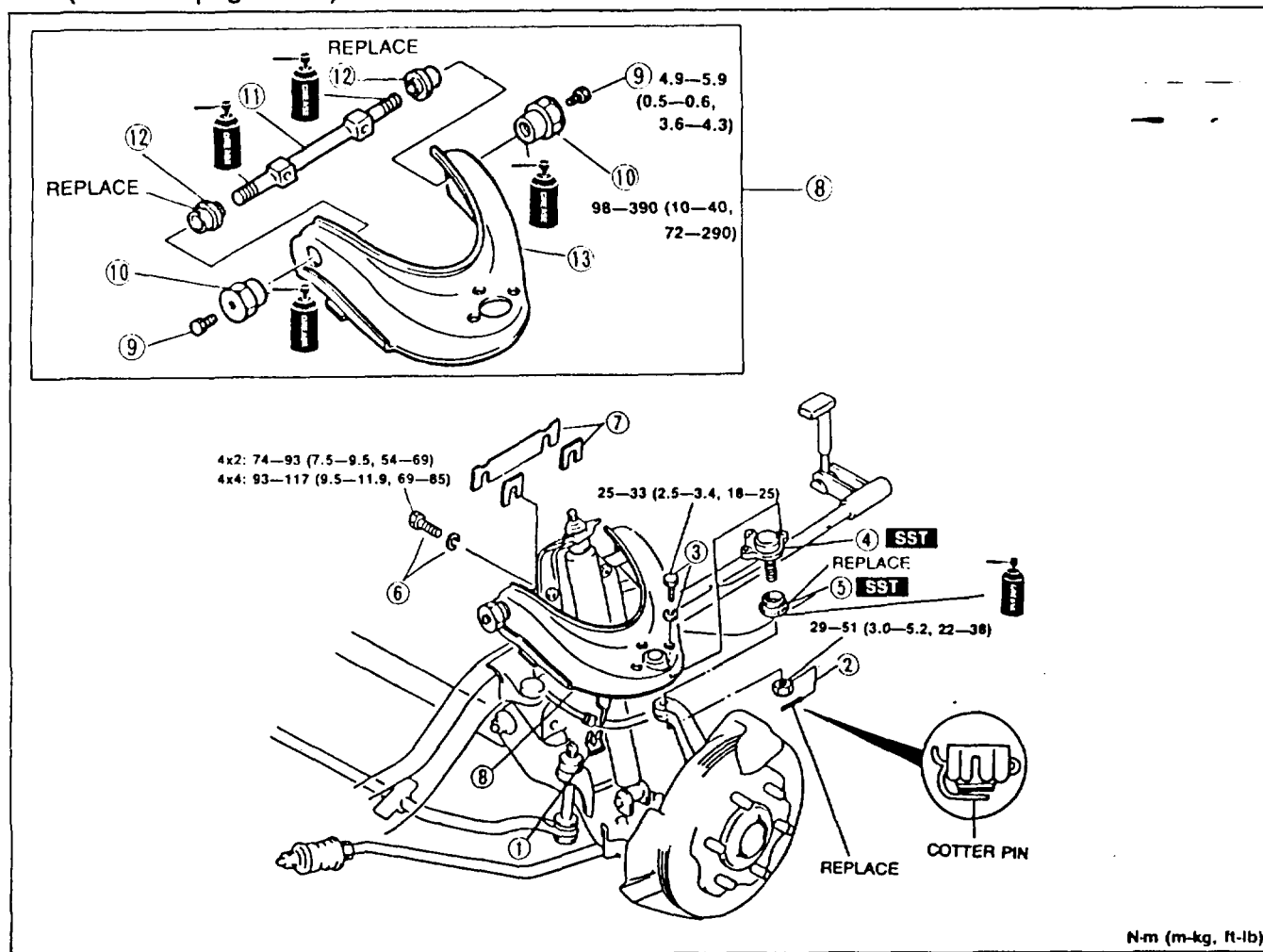
UPPER ARM (4x2 AND 4x4)

Removal and Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal note**.
5. Install in the reverse order of removal, referring to **Installation note**.

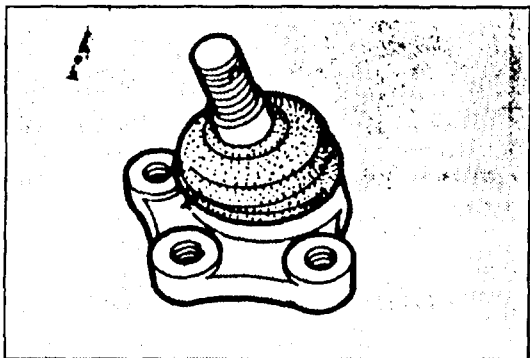
Note

- a) During removal, note the number, amount and position of the adjustment shims so that they are reinstalled in the correct positions.
- b) After installation, check the wheel alignment and adjust it if necessary.
(Refer to page R-7.)

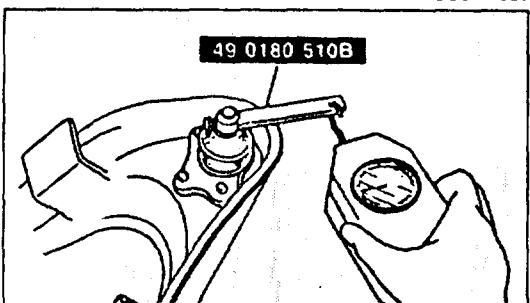


- | | |
|-------------------------------------|-------------------------------------|
| 1. Clip | 7. Adjustment shims |
| 2. Cotter pin and nut | 8. Upper arm assembly |
| 3. Bolts and washers | 9. Plug |
| 4. Upper arm ball joint | 10. Threaded bushing |
| Removal note page R-22-1 | Removal note page R-22-2 |
| Inspection page R-22-1 | Installation note page R-22-2 |
| 5. Upper arm ball joint boot | 11. Upper arm shaft |
| Removal note page R-22-1 | Installation note page R-22-2 |
| Installation note page R-22-1 | 12. Dust seal |
| 6. Bolts and washers | 13. Upper arm |
| | Inspection page R-22-2 |

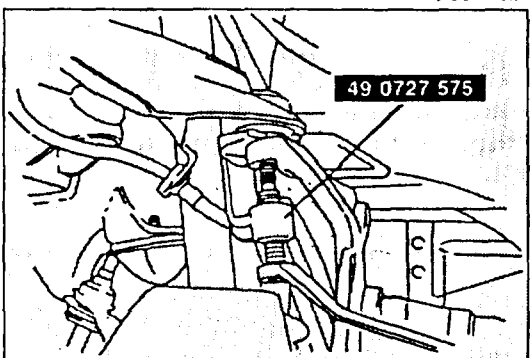
R FRONT SUSPENSION (DOUBLE WISHBONE)



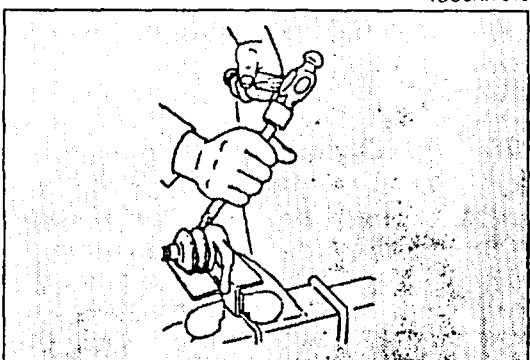
1BU0RX-026



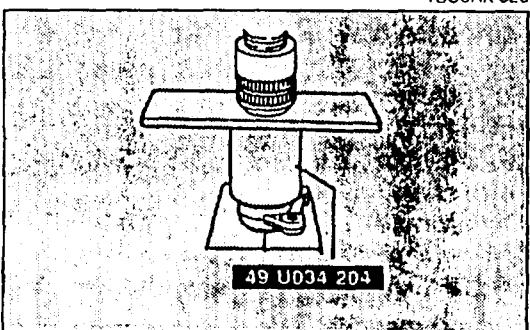
1BU0RX-027



1BU0RX-019



1BU0RX-020



1BU0RX-025

Inspection

Check for the following and repair or replace parts as necessary.

1. Cracking, damage, and bending of upper arm and upper arm shaft.
2. Damage and poor operation of upper arm ball joint.

3. Upper arm ball joint preload.

Attach the **SST** to the ball stud, and measure the preload with a pull scale.

Caution

Measure the preload after first rocking the ball joint stud 3 or 4 times.

Pull scale reading: 20—34 N (2.0—3.5 kg, 4.4—7.7 lb)
(While ball stud is rotating)

Removal note

Upper arm ball joint/Knuckle arm

Using the **SST**, separate the upper arm ball joint from the knuckle arm.

Upper arm ball joint boot

1. Secure the upper arm in a vise.
2. Use a chisel as shown to remove the upper arm ball joint boot.

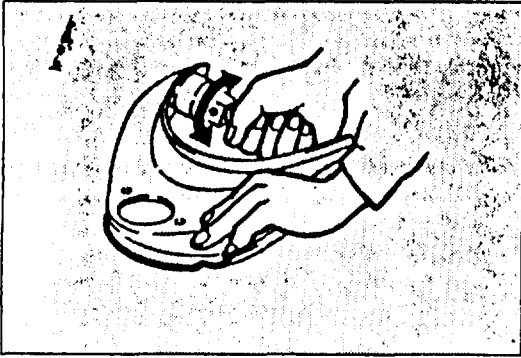
Note

Use protective plates in the jaws of the vise to prevent damage to the part secured.

Upper arm ball joint boot

1. Liberally coat the new boot with grease, and use the **SST** to press it on.

FRONT SUSPENSION (DOUBLE WISHBONE) R



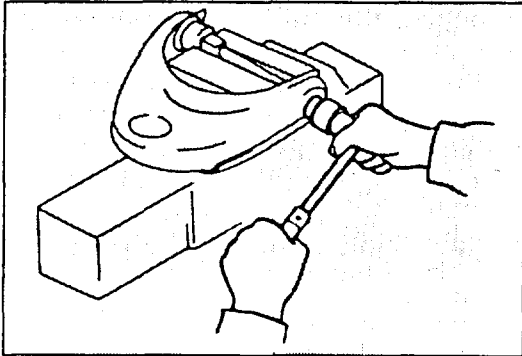
1BU0RX-024

Inspection

Verify that the upper arm shaft turns smoothly.

Caution

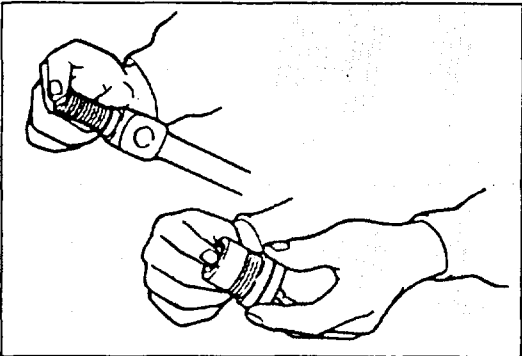
If the upper arm shaft cannot be turned smoothly, replace the upper arm and/or threaded bushings.



1BU0RX-021

Threaded bushing

1. Secure the upper arm shaft in a vise.
2. Alternately loosen the threaded bushings in steps.
3. Remove the threaded bushings.

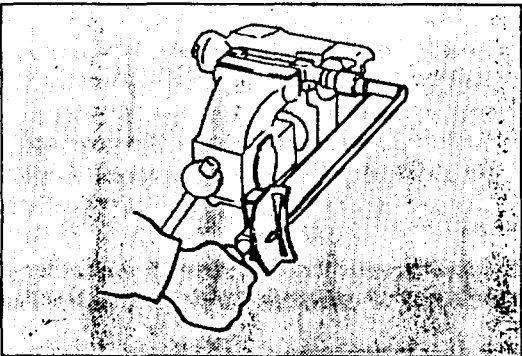


1BU0RX-022

Installation note

Upper arm shaft/Threaded bushing

1. Apply the specified grease to the upper arm shaft and threaded bushings.



1BU0RX-027

2. Secure the upper arm shaft in a vise.
3. Install the dust seals and upper arm shaft to the upper arm.
4. Alternately tighten the threaded bushings in steps.

Tightening torque:

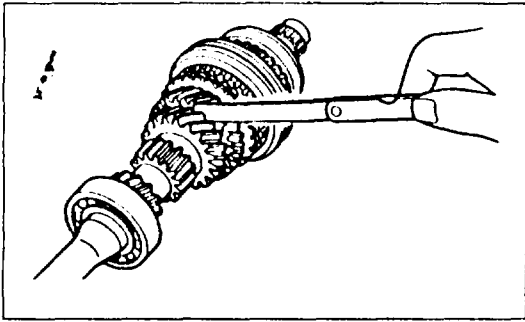
98—390 N·m (10—40 m·kg, 72—290 ft·lb)

Caution

If the specified tightening torque cannot be obtained, replace the upper arm and/or threaded bushings.

R FRONT SUSPENSION (DOUBLE WISHBONE)

MEMO



03U0J1-039

Preinspection

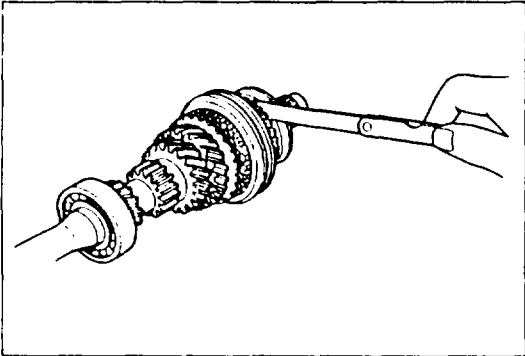
3rd gear thrust clearance

1. Measure the clearance between 3rd gear and 2nd gear.

Clearance: 0.06—0.21mm (0.002—0.008 in)

Maximum: 0.26mm (0.010 in)

2. If the clearance exceeds the maximum, check the contact surfaces of the 3rd gear, 2nd gear and clutch hub (3rd/4th). Replace worn or damaged parts.



03U0J1-040

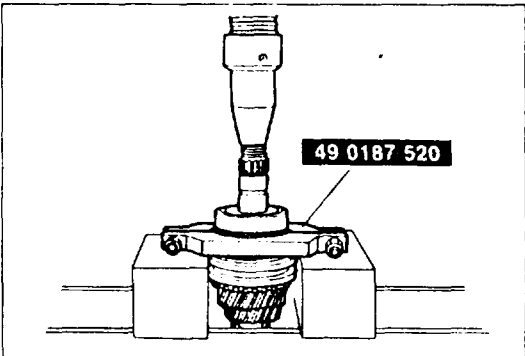
4th gear thrust clearance

1. Measure the clearance between 4th gear and the ball bearing.

Clearance: 0.21—0.61mm (0.008—0.024 in)

Maximum: 0.66mm (0.026 in)

2. If the clearance exceeds the maximum, check the contact surfaces of the 4th gear, ball bearing, and clutch hub (3rd/4th). Replace worn or damaged parts.



03U0J1-041

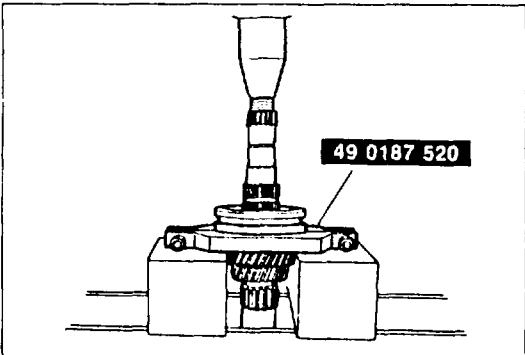
Disassembly note

Bearing and 4th gear

Caution

- Hold the shaft with one hand so that it does not fall.

1. Remove the ball bearing and 4th gear with the SST.



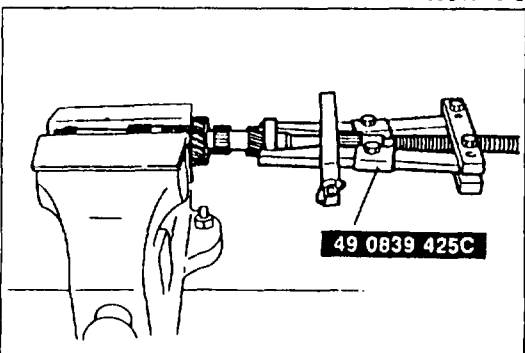
03U0J1-042

Clutch hub assembly (3rd/4th), synchronizer ring (3rd) and 3rd gear

Caution

- Hold the shaft with one hand so that it does not fall.

1. Remove the retaining ring.
2. Remove the clutch hub assembly (3rd/4th), synchronizer ring (3rd) and 3rd gear with the SST.



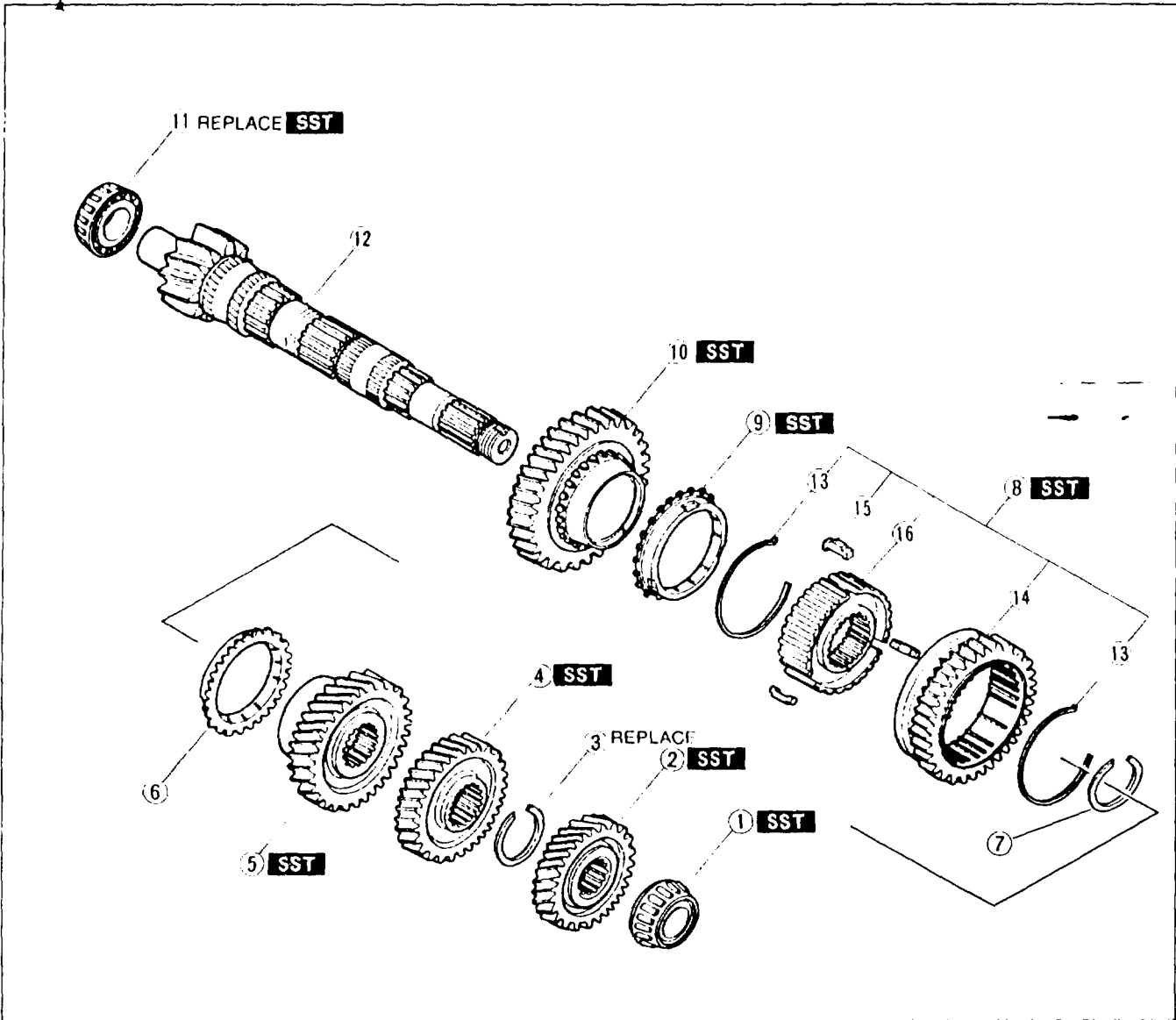
03U0J1-043

Bearing

1. Remove the bearing with the SST.

Secondary Shaft Assembly

1. Measure the thrust clearance of 1st gear and 2nd gear, referring to **Preinspection**.
2. Disassemble in the order shown in the figure, referring to **Disassembly Note**.

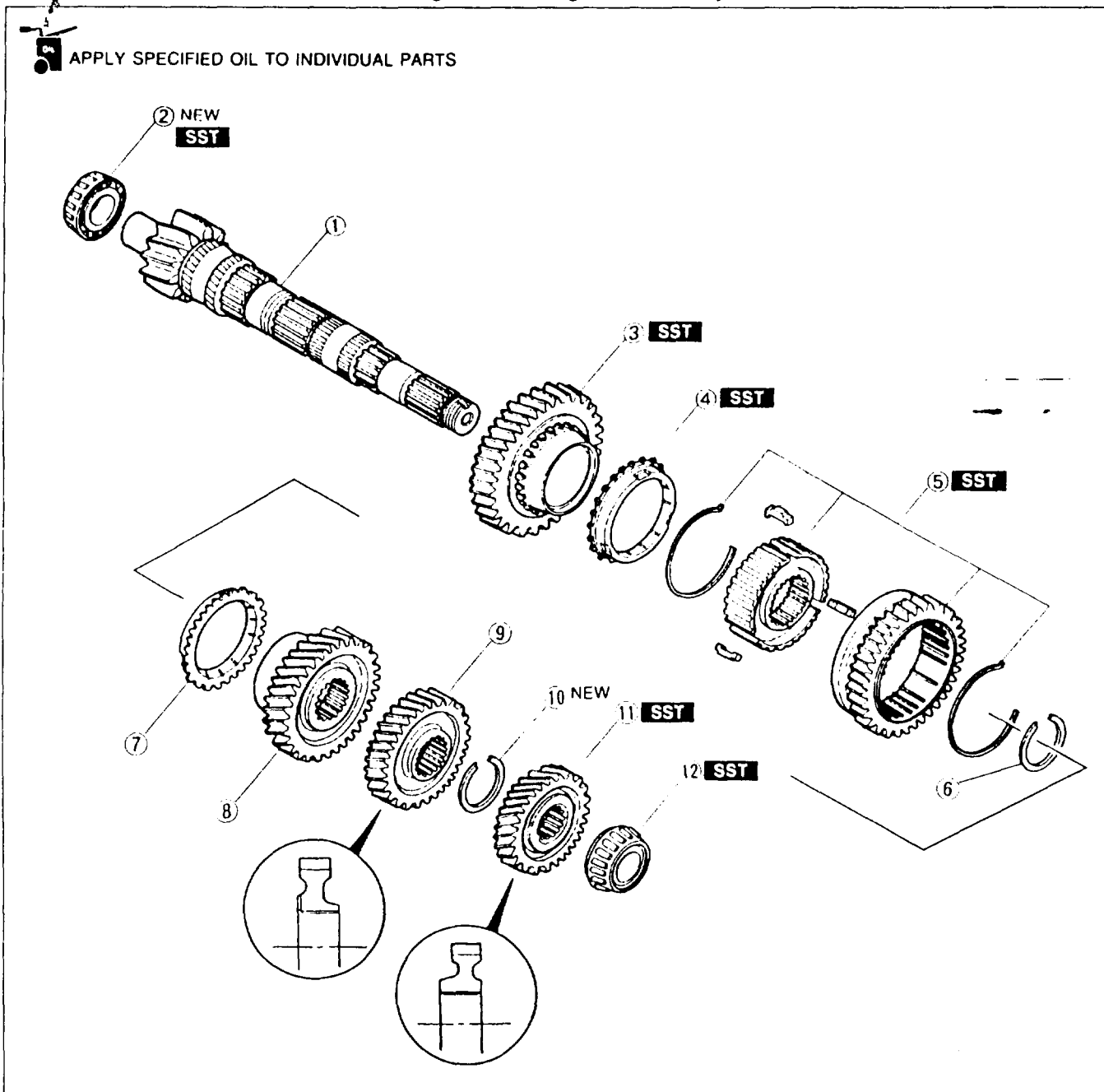


03U0J1-044

- | | |
|--|--|
| 1. Bearing inner race
Disassembly Note..... page J1-25 | 9. Synchronizer ring (1st)
Disassembly Note..... page J1-25
Inspection..... page J1-27 |
| 2. Secondary 4th gear
Disassembly Note..... page J1-25 | 10. 1st gear
Disassembly Note..... page J1-25
Inspection..... page J1-29 |
| 3. Retaining ring | 11. Bearing inner race
Disassembly Note..... page J1-26 |
| 4. Secondary 3rd gear
Disassembly Note..... page J1-25 | 12. Secondary shaft
Inspection..... page J1-28 |
| 5. 2nd gear
Disassembly Note..... page J1-25
Inspection..... page J1-29 | 13. Synchronizer spring |
| 6. Synchronizer ring (2nd)
Inspection..... page J1-27 | 14. Clutch hub sleeve |
| 7. Retaining ring | 15. Synchronizer key |
| 8. Clutch hub assembly (1st/2nd)
Disassembly Note..... page J1-25
Inspection..... page J1-29 | 16. Clutch hub |

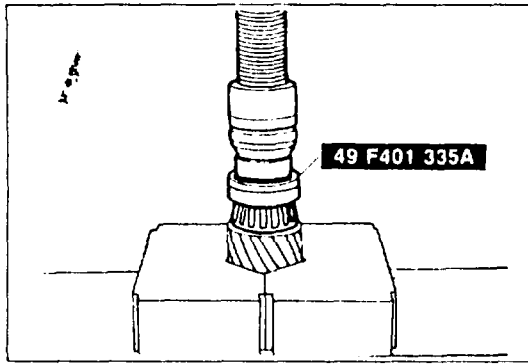
Secondary Shaft Assembly

1. Assemble in the order shown in the figure, referring to **Assembly Note**.



03U0J1 068

- | | |
|----------------------------------|------------|
| 1. Secondary shaft | |
| 2. Bearing inner race | |
| Assembly Note..... | page J1-32 |
| 3. 1st gear | |
| Assembly Note..... | page J1-32 |
| 4. Synchronizer ring (1st) | |
| Assembly Note..... | page J1-32 |
| 5. Clutch hub assembly (1st/2nd) | |
| Assembly Note..... | page J1-32 |
| 6. Retaining ring | |
| 7. Synchronizer ring (2nd) | |
| Assembly Note..... | page J1-32 |
| 8. 2nd gear | |
| Assembly Note..... | page J1-32 |
| 9. Secondary 3rd gear | |
| Assembly Note..... | page J1-32 |
| 10. Retaining ring | |
| 11. Secondary 4th gear | |
| Assembly Note..... | page J1-32 |
| 12. Bearing inner race | |
| Assembly Note..... | page J1-32 |

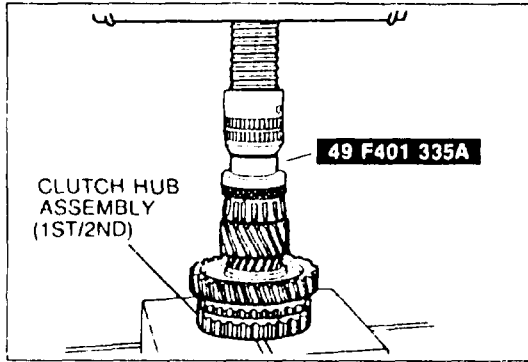


03U0J1-069

Assembly note

Bearing inner race

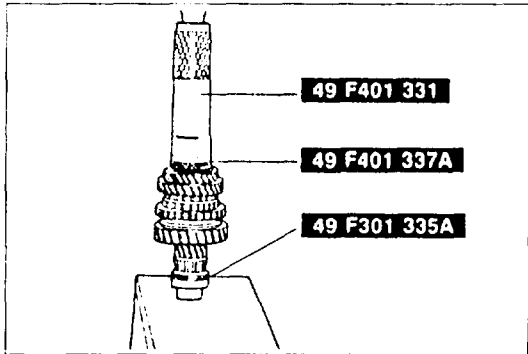
1. Install the new bearing inner race with the SST.



03U0J1-070

1st gear, synchronizer ring (1st) and clutch hub assembly (1st/2nd)

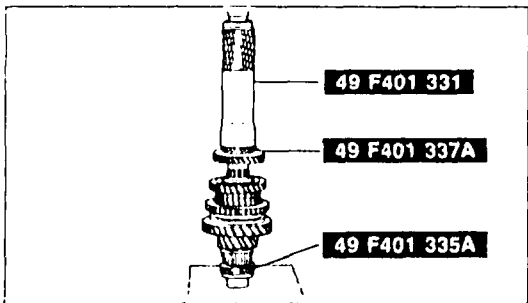
1. Install the 1st gear, synchronizer ring (1st) and clutch hub assembly (1st/2nd) with the SST.



03U0J1-071

Synchronizer ring (2nd), 2nd gear, and secondary 3rd gear

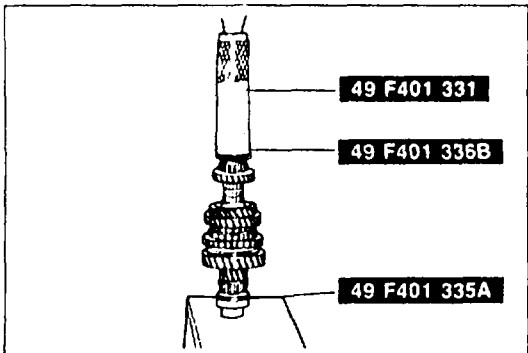
1. Install the synchronizer ring (2nd), 2nd gear, and secondary 3rd gear with the SST.



03U0J1-072

Secondary 4th gear

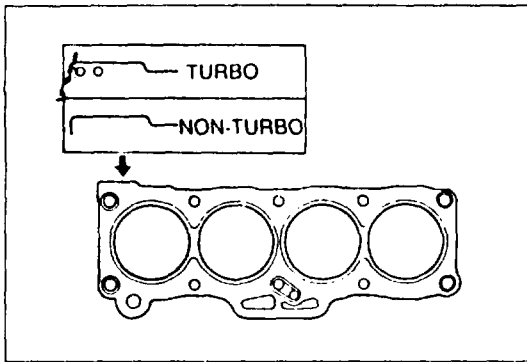
1. Install the secondary 4th gear with the SST.



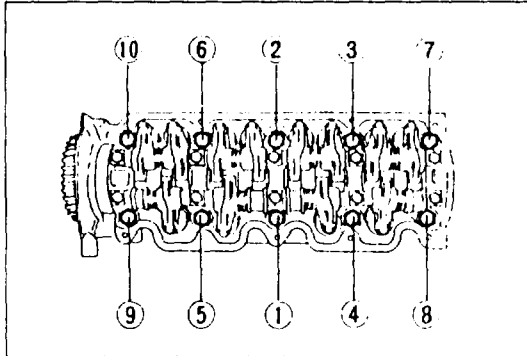
03U0J1-073

Bearing inner race (4th gear)

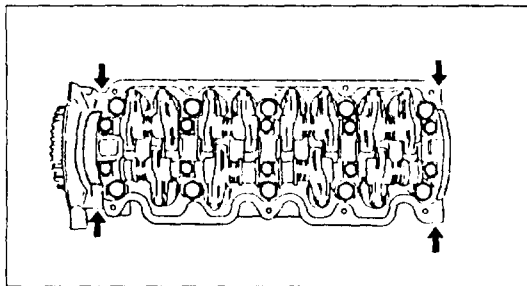
1. Install the new bearing inner race with the SST.



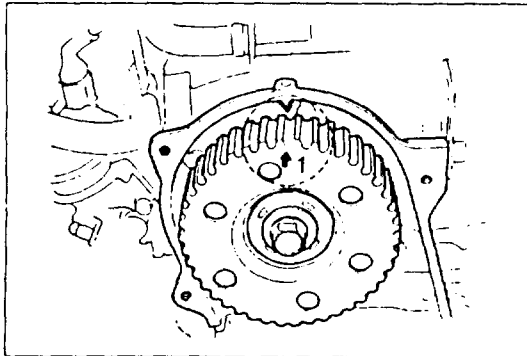
86U01X-035



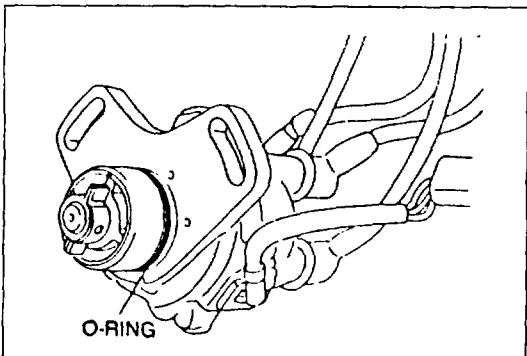
86U01X-036



86U01X-037



96U01X-021



86U01X-039

Installation Note

Cylinder head

1. Thoroughly remove all dirt and oil from the top of the cylinder block with a rag.
2. Place a new cylinder head gasket in position.

3. Set the cylinder head in place.
4. Apply engine oil to the bolt threads and seat faces.
5. Tighten the cylinder head bolts in two or three steps in the order shown in the figure.

Tightening torque:

80—86 N·m (8.2—8.8 m·kg, 59—64 ft·lb)

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

Timing belt

1. Align the ↑1 mark of the camshaft pulley with the front housing matching mark.
2. Install the timing belt. (Refer to TIMING BELT of ON-VEHICLE MAINTENANCE.)

Distributor

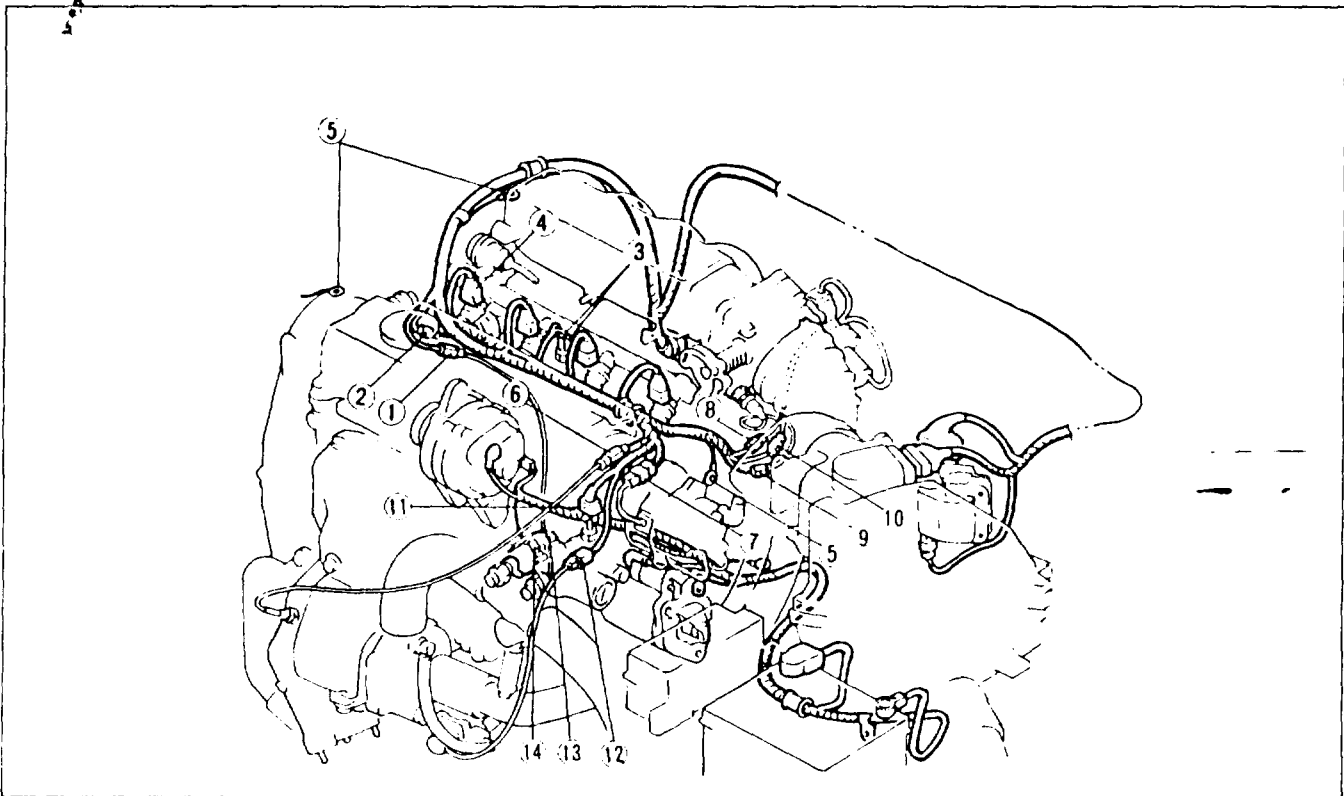
1. Apply engine oil to the O-ring, and position it on the distributor.
2. Apply engine oil to the blade.
3. Install the distributor into the rear housing.
4. Loosely tighten the distributor mounting bolt.

B

ON-VEHICLE MAINTENANCE (CYLINDER HEAD GASKET)

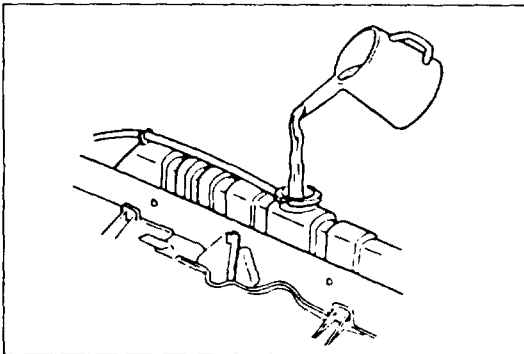
Engine harness connector

Install the engine harness connectors.



BE J01X 040

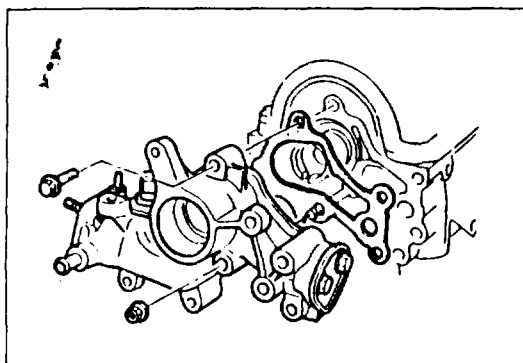
- | | |
|--------------------------------|--|
| 1. Knock sensor (turbo) | 8. Solenoid valve (idle speed control) |
| 2. EGR position sensor (turbo) | 9. Idle switch |
| 3. Water thermo switch | 10. Throttle sensor |
| 4. Injector | 11. Water thermo sensor |
| 5. Engine ground | 12. Waste gate solenoid valve (turbo) |
| 6. Oxygen sensor | 13. Heat gauge unit |
| 7. Crank angle sensor (turbo) | 14. Water thermo switch |



96U01X-022

Steps After Installation

1. Fill the radiator with the specified amount and type of engine coolant.
2. Perform the necessary engine adjustments. (Refer to TUNE-UP PROCEDURE.)



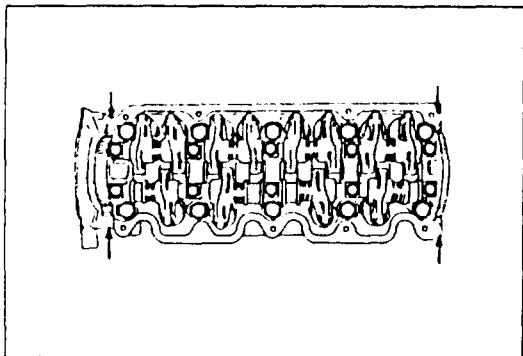
86U01X-157

Rear Housing

Install the rear housing and a new gasket.

Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)



96U01X-055

Cylinder head cover and gasket

1. Clean out used silicon sealant from the gasket and gasket groove.
2. Apply new silicon sealant to the back of the gasket.
3. Apply silicon sealant to the shaded areas shown in the figure.
4. Install the cylinder head cover.

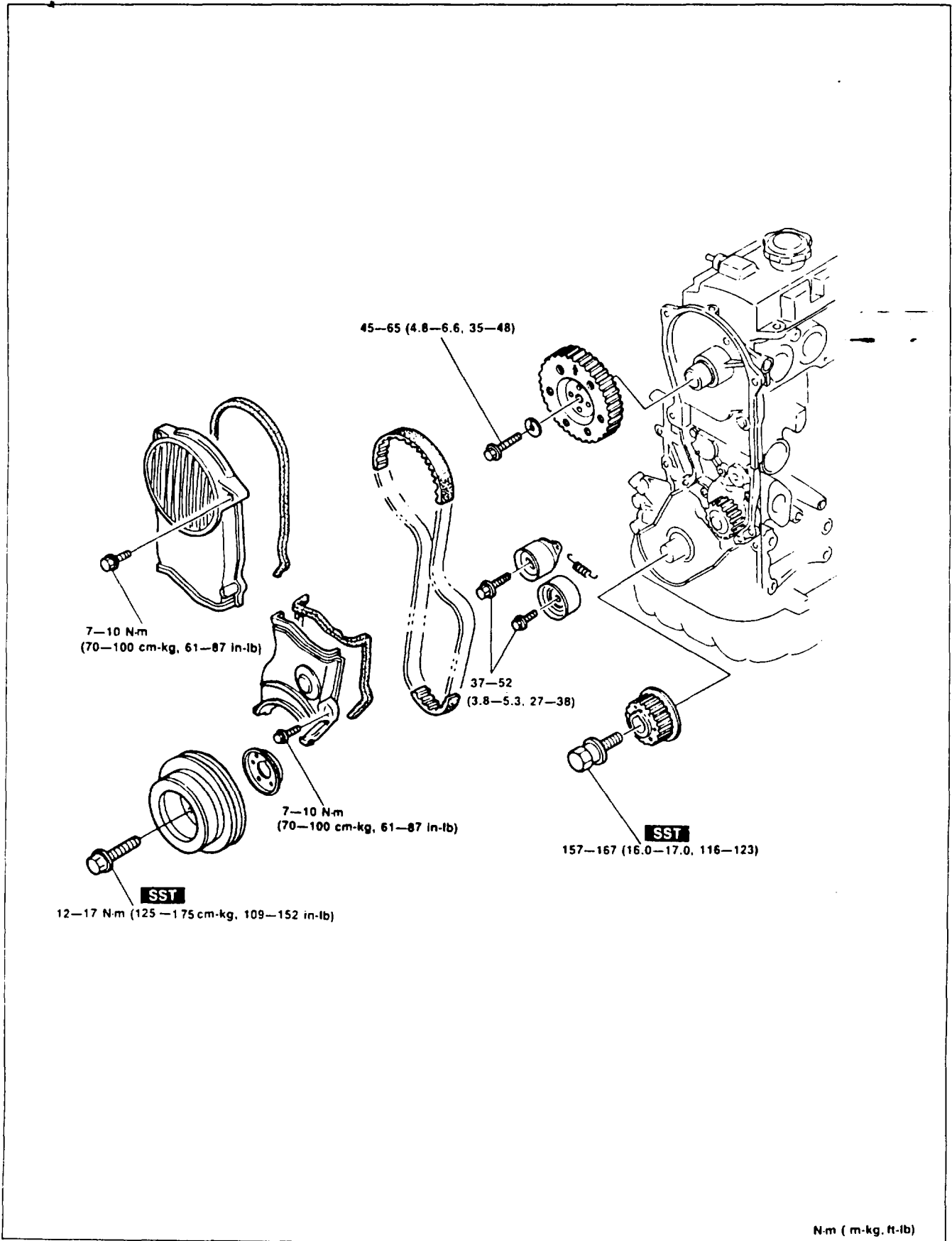
Tightening torque:

6—8 N·m (60—80 cm·kg, 52—69 in·lb)

B

ASSEMBLY (TIMING BELT)

TIMING BELT Torque Specifications



N·m (m·kg, ft·lb)

69G01B 160

WHEEL ALIGNMENT

PRE-INSPECTION

1. Check the tire inflations and set to the recommended pressure if necessary.
2. Inspect the front wheel bearing play and correct if necessary.
3. Inspect the wheel and tire runout.
4. Inspect the ball joints and steering linkage for any excessive looseness.
5. The vehicle must be on level ground and have no luggage or passenger load.
6. The difference in height between the left and right sides from the center of the wheel to the fender brim must not exceed **10mm (0.39 in)**.

0BU0RX-003

FRONT WHEEL ALIGNMENT

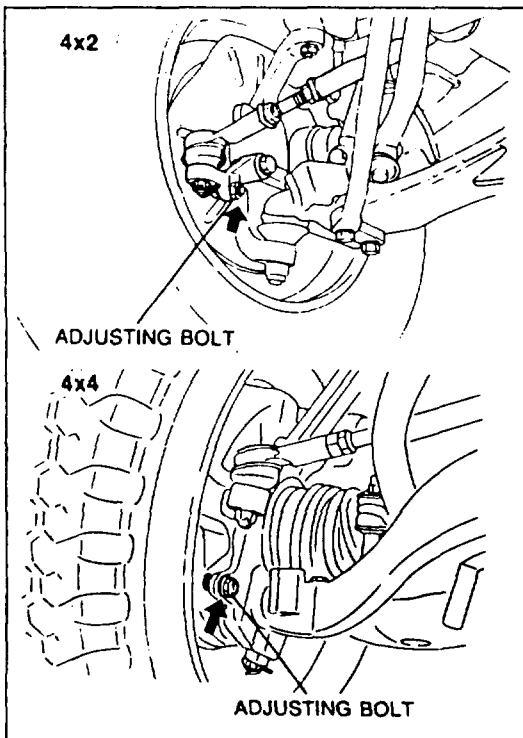
Specifications

Item			Specifications	
			4x2	4x4
Front wheel alignment (*1 Unladen)	Total toe-in	mm (in)	3 ± 3 (0.12 \pm 0.12)	
		degree	$18' \pm 18'$	
	Maximum steering angle	Inner	$35^{\circ}00' \pm 2^{\circ}$	$33^{\circ}30' \pm 2^{\circ}$
		Outer	$33^{\circ}00' \pm 2^{\circ}$	$30^{\circ}00' \pm 2^{\circ}$
	Camber angle		$0^{\circ}45' \begin{smallmatrix} +30' \\ -20' \end{smallmatrix}$	$1^{\circ}00' \begin{smallmatrix} +30' \\ -20' \end{smallmatrix}$
	Caster angle		M/S: $0^{\circ}50' \pm 45'$ P/S: $1^{\circ}50' \pm 45'$	$2^{\circ}00' \pm 45'$
Kingpin angle		$8^{\circ}15'$	$10^{\circ}20'$	

M/S: Manual steering P/S: Power steering

0BU0RX-004

*1 Fuel tank full; radiator coolant and engine oil at specified level, and spare tire, jack, and tools in designated position.



Adjustment

Maximum steering angle

Adjust the turning angle as follows:

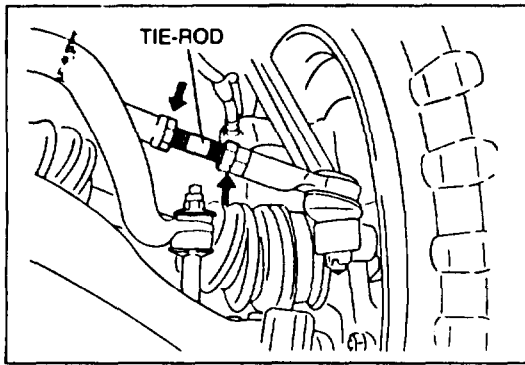
1. Loosen the adjusting bolt locknut.
2. Turn the adjusting bolt to provide the correct turning angle.
3. After adjustment, tighten the locknut to the specified torque.

Tightening torque:

39—59 N·m (4.0—6.0 m·kg, 29—43 ft·lb)

1BU0RX-002

R WHEEL ALIGNMENT



1BU0RX-003

Total toe-in

To adjust the toe-in, loosen the left and right tie-rod locknuts, and turn each tie-rod an equal amount.

Locknut tightening torque:

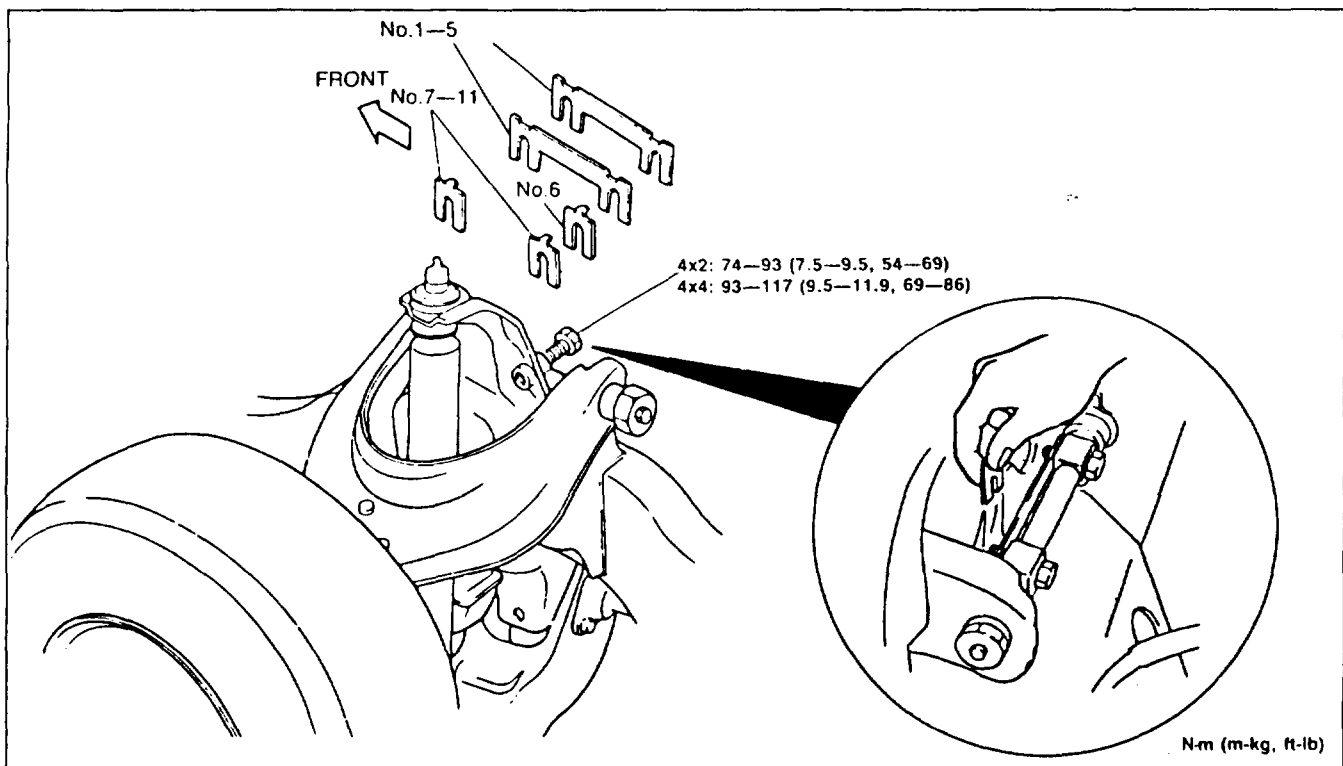
69—78 N·m (7.0—8.0 m·kg, 51—58 ft·lb)

Note

- a) The left and right tie-roads are both right threaded. To increase the toe-in, turn the right tie-rod toward the front of the vehicle, and turn the left tie-rod by the same amount toward the rear.
- b) One turn of the tie-rod (both sides) changes the toe-in by about 30mm (1.18 in).

Camber and caster

To adjust the camber and caster angles, loosen the bolts of the upper arm shaft and insert or remove adjustment shims.



1BU0RX-017

No.	Thickness mm (in)	No.	Thickness mm (in)
1	1.0 (0.004)	7	1.0 (0.004)
2	1.6 (0.063)	8	1.6 (0.063)
3	2.0 (0.079)	9	2.0 (0.079)
4	3.2 (0.126)	10	3.2 (0.126)
5	4.0 (0.157)	11	4.0 (0.157)
6	2.0 (0.079)		

Note

1. Shims No.1—5 are used at the left and right sides (2/side).
2. Shims No.7—11 are used at the front and rear of the left and right sides (2/side).
3. Shim No.6 is for models equipped with power steering and is used at the rear only of the left and right sides (1/side).
4. **Camber:** A change of shim thickness (at front and rear) of 1mm (0.004 in) results in a change of about 15'.
5. **Caster:** A change of shim thickness (at front or rear only) of 1mm (0.004 in) results in a change of about 30'.

FRONT SUSPENSION (DOUBLE WISHBONE) **R**

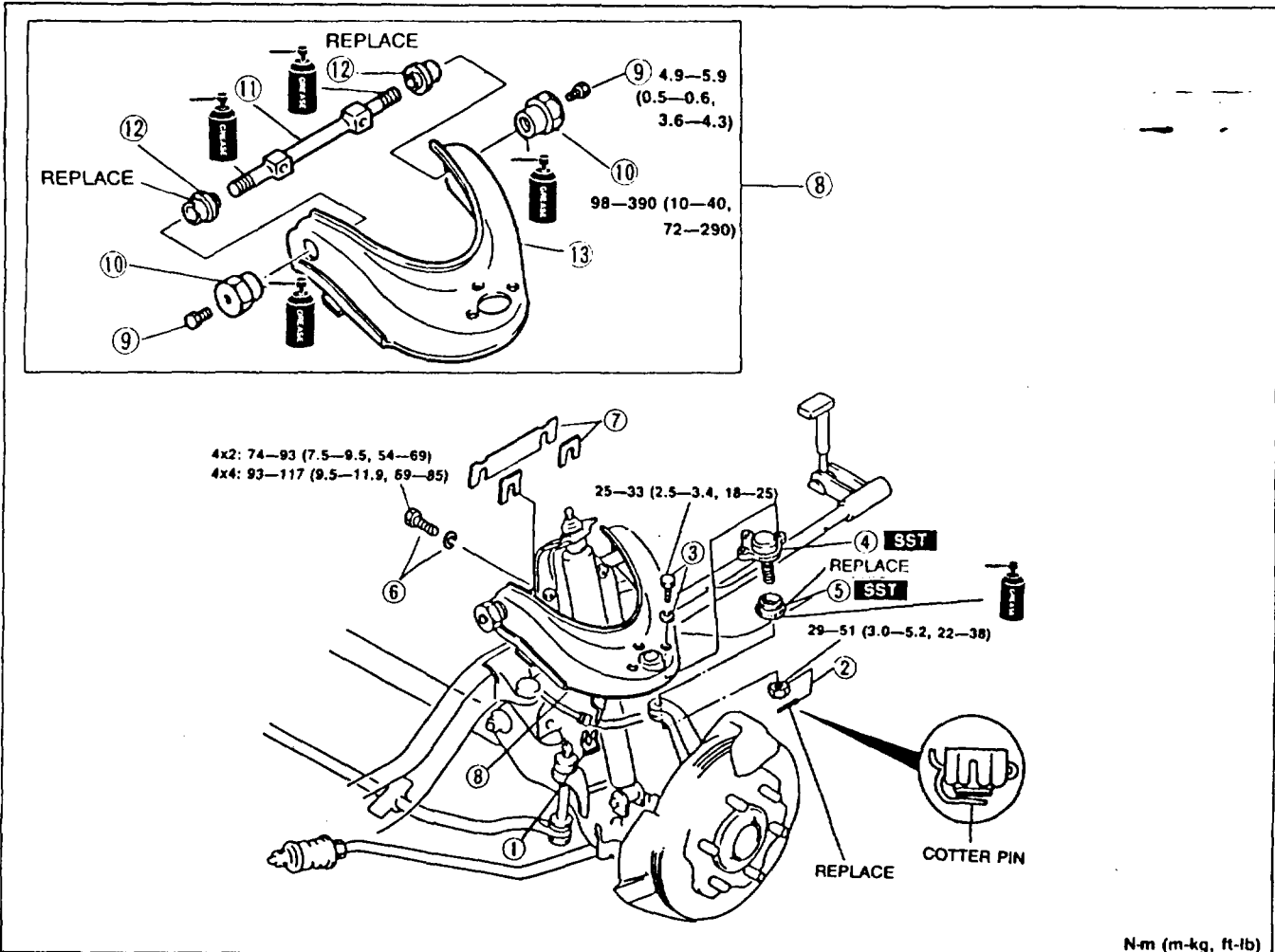
UPPER ARM (4x2 AND 4x4)

Removal and Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal note**.
5. Install in the reverse order of removal, referring to **Installation note**.

Note

- a) During removal, note the number, amount and position of the adjustment shims so that they are reinstalled in the correct positions.
- b) After installation, check the wheel alignment and adjust it if necessary. (Refer to page R-7.)

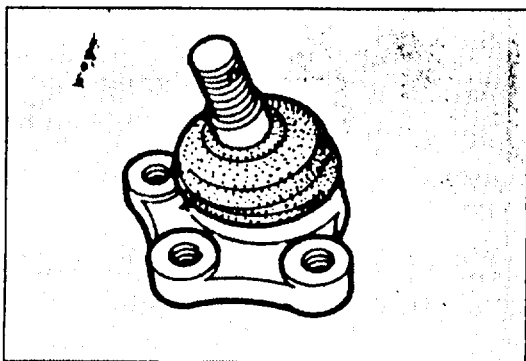


N·m (m·kg, ft·lb)

1BU0RX-018

- | | |
|-------------------------------------|-------------------------------------|
| 1. Clip | 7. Adjustment shims |
| 2. Cotter pin and nut | 8. Upper arm assembly |
| 3. Bolts and washers | 9. Plug |
| 4. Upper arm ball joint | 10. Threaded bushing |
| Removal note page R-22-1 | Removal note page R-22-2 |
| Inspection page R-22-1 | Installation note page R-22-2 |
| 5. Upper arm ball joint boot | 11. Upper arm shaft |
| Removal note page R-22-1 | Installation note page R-22-2 |
| Installation note page R-22-1 | 12. Dust seal |
| 6. Bolts and washers | 13. Upper arm |
| | Inspection page R-22-2 |

R FRONT SUSPENSION (DOUBLE WISHBONE)

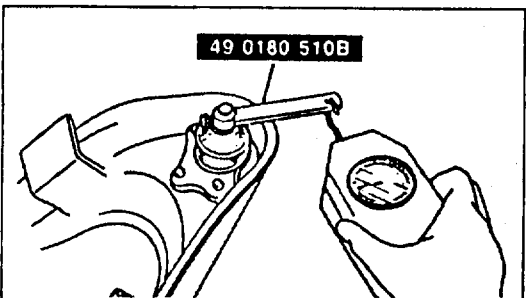


1BU0RX-026

Inspection

Check for the following and repair or replace parts as necessary.

1. Cracking, damage, and bending of upper arm and upper arm shaft.
2. Damage and poor operation of upper arm ball joint.



1BU0RX-027

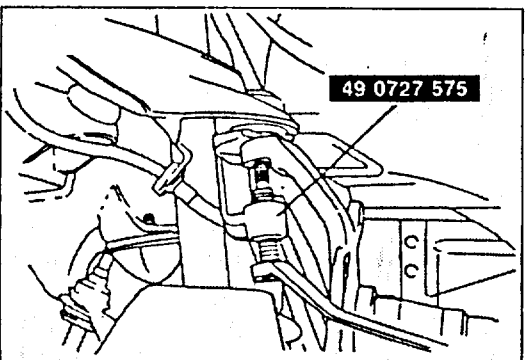
3. Upper arm ball joint preload.

Attach the **SST** to the ball stud, and measure the preload with a pull scale.

Caution

Measure the preload after first rocking the ball joint stud 3 or 4 times.

Pull scale reading: 20—34 N (2.0—3.5 kg, 4.4—7.7 lb)
(While ball stud is rotating)

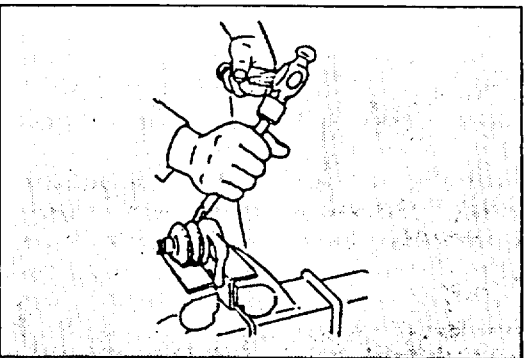


1BU0RX-019

Removal note

Upper arm ball joint/Knuckle arm

Using the **SST**, separate the upper arm ball joint from the knuckle arm.



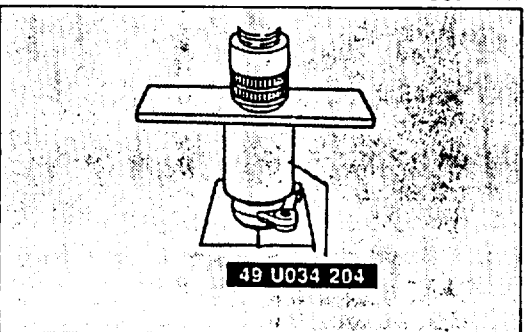
1BU0RX-020

Upper arm ball joint boot

1. Secure the upper arm in a vise.
2. Use a chisel as shown to remove the upper arm ball joint boot.

Note

Use protective plates in the jaws of the vise to prevent damage to the part secured.

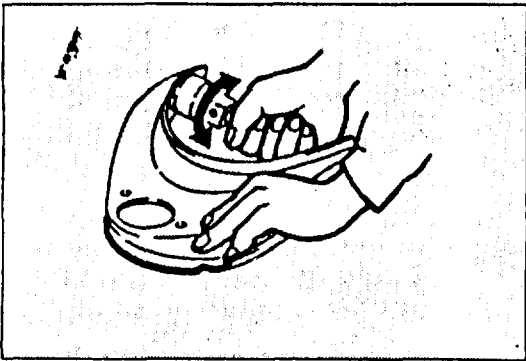


1BU0RX-025

Upper arm ball joint boot

1. Liberally coat the new boot with grease, and use the **SST** to press it on.

FRONT SUSPENSION (DOUBLE WISHBONE) R



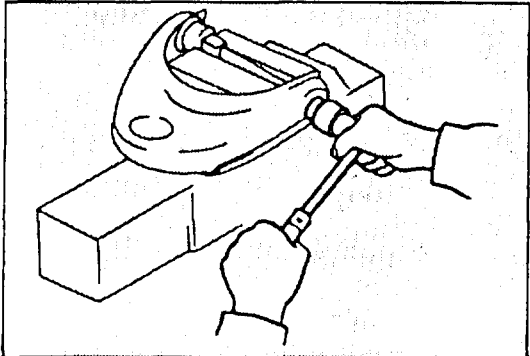
1BU0RX-024

Inspection

Verify that the upper arm shaft turns smoothly.

Caution

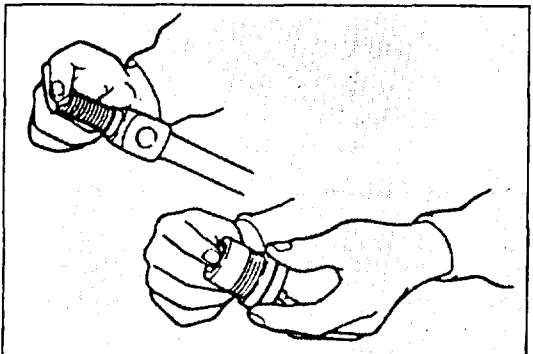
If the upper arm shaft cannot be turned smoothly, replace the upper arm and/or threaded bushings.



1BU0RX-021

Threaded bushing

1. Secure the upper arm shaft in a vise.
2. Alternately loosen the threaded bushings in steps.
3. Remove the threaded bushings.

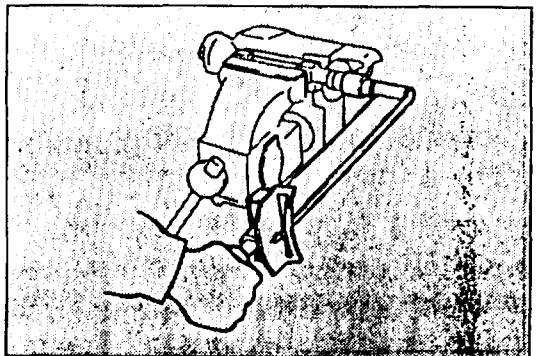


1BU0RX-022

Installation note

Upper arm shaft/Threaded bushing

1. Apply the specified grease to the upper arm shaft and threaded bushings.



1BU0RX-027

2. Secure the upper arm shaft in a vise.
3. Install the dust seals and upper arm shaft to the upper arm.
4. Alternately tighten the threaded bushings in steps.

Tightening torque:

98—390 N·m (10—40 m·kg, 72—290 ft·lb)

Caution

If the specified tightening torque cannot be obtained, replace the upper arm and/or threaded bushings.

R FRONT SUSPENSION (DOUBLE WISHBONE)

MEMO

Service Bulletin

Mazda Motor of America, Inc.
7755 Irvine Center Drive
Irvine, California 92718
Telephone (714) 727-1990



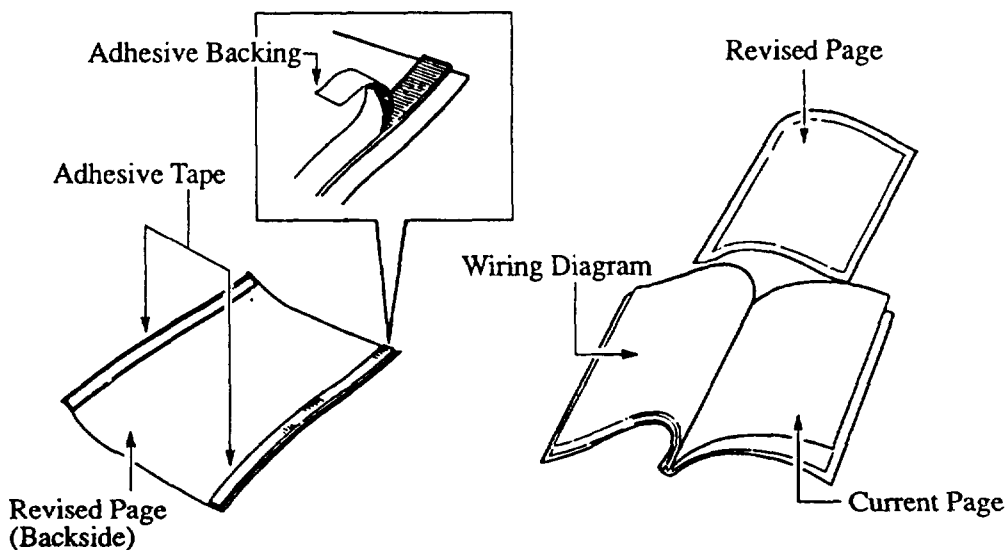
Category Z	Applicable Model/s 1989-'91 626/MX-6	Subject WIRING DIAGRAM CORRECTIONS	Bulletin No. 001/91
			Issued 8/13/91
			Revised

DESCRIPTION

Attached are revised pages for the 1989-'91 626/MX-6 Wiring Diagrams.

Note:

Wiring diagrams are in a bound book. Revised pages have adhesive strips for attaching over current pages (see below).



023773

IMPORTANT: Service and Parts Managers should read this bulletin carefully, sign and convey all information to those concerned.

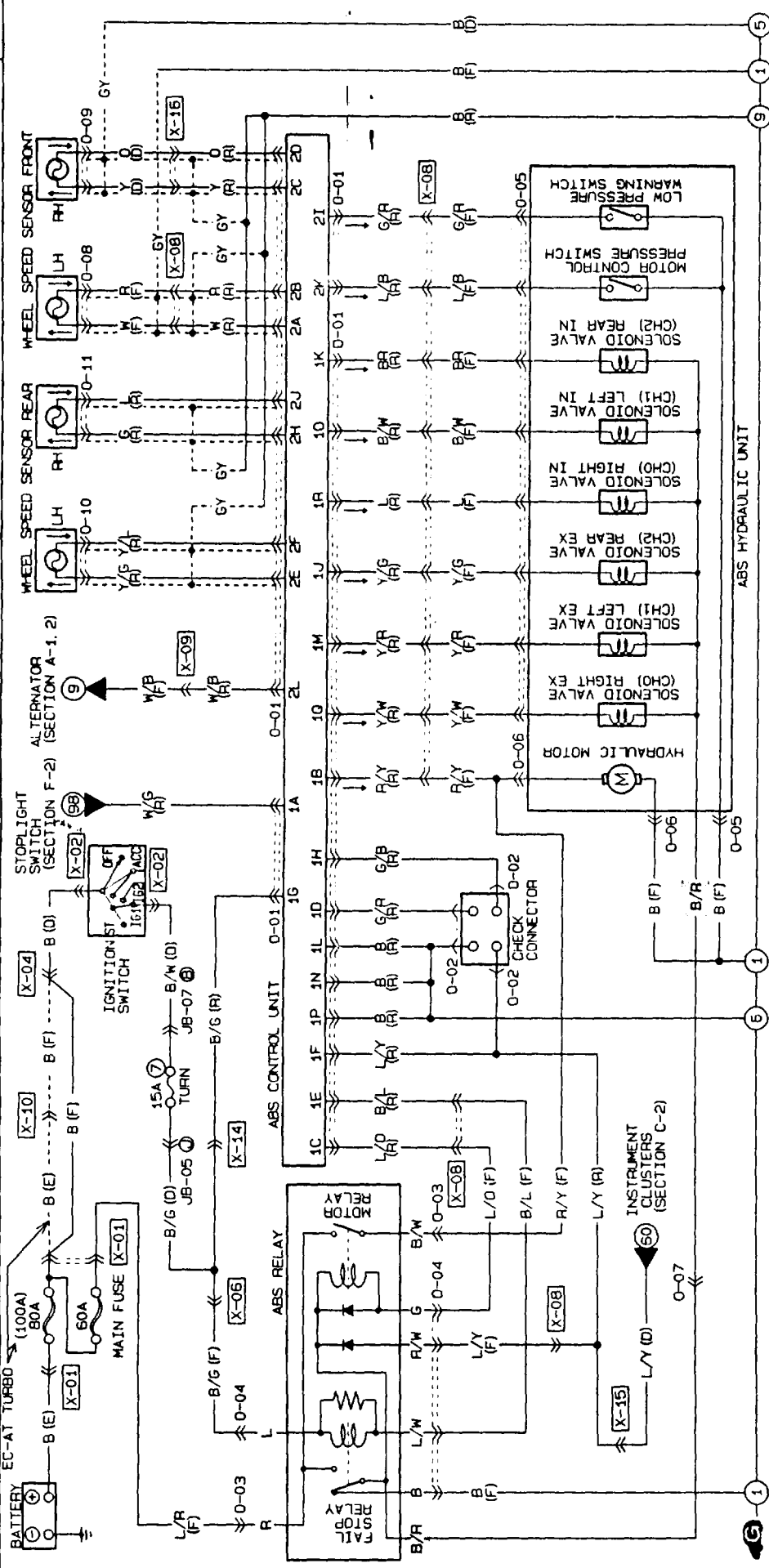
Signature _____

Service Manager

Signature _____

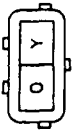
Parts Manager

ANTI-LOCK BRAKE SYSTEM

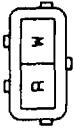


<p>O-01 ABS CONTROL UNIT (R)</p> <table border="1"> <tr><td>10</td><td>Y/W</td></tr> <tr><td>11</td><td>B/W</td></tr> <tr><td>12</td><td>Y/R</td></tr> <tr><td>13</td><td>BR</td></tr> <tr><td>14</td><td>B/G</td></tr> <tr><td>15</td><td>B/L</td></tr> <tr><td>16</td><td>L/O</td></tr> <tr><td>17</td><td>W/G</td></tr> <tr><td>18</td><td>L</td></tr> <tr><td>19</td><td>B</td></tr> <tr><td>20</td><td>Y/G</td></tr> <tr><td>21</td><td>G/B</td></tr> <tr><td>22</td><td>L/Y</td></tr> <tr><td>23</td><td>G/R</td></tr> <tr><td>24</td><td>R/Y</td></tr> <tr><td>25</td><td>3R</td></tr> <tr><td>26</td><td>1P</td></tr> <tr><td>27</td><td>1N</td></tr> <tr><td>28</td><td>1L</td></tr> <tr><td>29</td><td>1K</td></tr> </table>	10	Y/W	11	B/W	12	Y/R	13	BR	14	B/G	15	B/L	16	L/O	17	W/G	18	L	19	B	20	Y/G	21	G/B	22	L/Y	23	G/R	24	R/Y	25	3R	26	1P	27	1N	28	1L	29	1K	<p>O-02 CHECK CONNECTOR (R)</p> <table border="1"> <tr><td>B</td><td>G/R</td></tr> <tr><td>L</td><td>G/B</td></tr> </table>	B	G/R	L	G/B	<p>O-03 ABS RELAY (F)</p> <table border="1"> <tr><td>R/Y</td><td>L/R</td></tr> </table>	R/Y	L/R	<p>O-04 ABS RELAY (F)</p> <table border="1"> <tr><td>B/L</td><td>L/O</td></tr> <tr><td>B/G</td><td>L/Y</td></tr> <tr><td>B</td><td>B</td></tr> </table>	B/L	L/O	B/G	L/Y	B	B
10	Y/W																																																						
11	B/W																																																						
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B/G	L/Y																																																						
B	B																																																						
<p>O-05 ABS HYDRAULIC UNIT (F)</p> <table border="1"> <tr><td>B</td><td>B/W</td><td>Y/G</td></tr> <tr><td>L/B</td><td>Y/M</td><td>BR</td></tr> <tr><td>G/R</td><td>L</td><td>Y/R</td></tr> </table>	B	B/W	Y/G	L/B	Y/M	BR	G/R	L	Y/R	<p>O-06 ABS HYDRAULIC MOTOR (F)</p> <table border="1"> <tr><td>R/Y</td><td>B</td></tr> </table>	R/Y	B	<p>O-07 CONNECTOR BETWEEN ABS RELAY & ABS HYDRAULIC UNIT</p> <table border="1"> <tr><td>B/R</td></tr> </table>	B/R	<p>O-08 WHEEL SPEED SENSOR FRONT LH (F)</p> <table border="1"> <tr><td>R</td><td>N</td></tr> </table>	R	N																																						
B	B/W	Y/G																																																					
L/B	Y/M	BR																																																					
G/R	L	Y/R																																																					
R/Y	B																																																						
B/R																																																							
R	N																																																						
<p>O-09 WHEEL SPEED SENSOR FRONT RH (D)</p> <table border="1"> <tr><td>D</td><td>Y</td></tr> </table>	D	Y	<p>O-10 WHEEL SPEED SENSOR REAR LH (R)</p> <table border="1"> <tr><td>Y/L</td><td>Y/G</td></tr> </table>	Y/L	Y/G	<p>O-11 WHEEL SPEED SENSOR REAR RH (R)</p> <table border="1"> <tr><td>L</td><td>G</td></tr> </table>	L	G																																															
D	Y																																																						
Y/L	Y/G																																																						
L	G																																																						

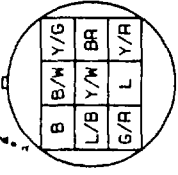
D-28 WHEEL SPEED SENSOR FRONT RH (D)



F-41 WHEEL SPEED SENSOR FRONT LH (F)



F-42 ABS HYDRAULIC UNIT (F)



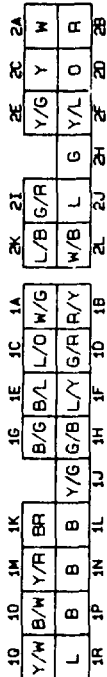
F-43 ABS RELAY (F)



F-44 ABS HYDRAULIC MOTOR (F)



R-27 ABS CONTROL UNIT (R)



R-26 WHEEL SPEED SENSOR REAR LH (R)



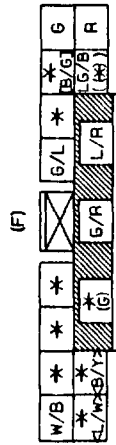
R-29 WHEEL SPEED SENSOR REAR RH (R)



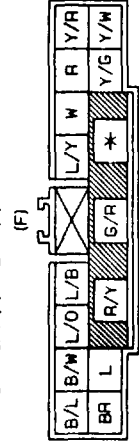
R-30 CHECK CONNECTOR (R)



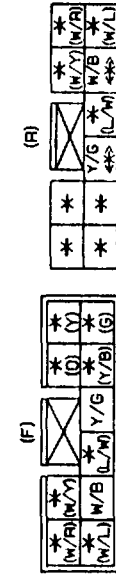
FD-03 FRONT (F) -DASH (D)



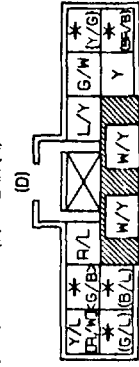
FR-01 FRONT (F) -REAR (R)



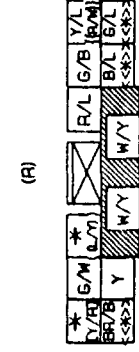
FR-02 FRONT (F) -REAR (R)



DR-01 DASH (D) -REAR (R)



DR-03 DASH (D) -REAR (R)



D-28 WHEEL SPEED SENSOR FRONT RH (D)

F-41 WHEEL SPEED SENSOR FRONT LH (F)

R-26 WHEEL SPEED SENSOR REAR LH (R)

R-29 WHEEL SPEED SENSOR REAR RH (R)

FR-01 FRONT (F) -REAR (R)

F-44 ABS HYDRAULIC MOTOR (F)

R-30 CHECK CONNECTOR (R)

() ... EC-AT
 < > ... TURBO 2 DOOR MODEL
 { } ... WITH ABS
 [] ... CANADA MODEL
 () ... EC-AT WITH THEFT-DETERRENT SYSTEM
 << >> ... EC-AT NON TURBO MODEL

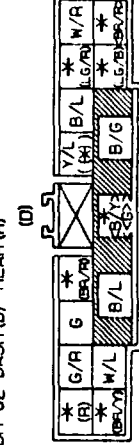
() ... WITH 4WS SYSTEM
 (1) ... WITH ABS
 < > ... WITH ABS SYSTEM
 (1) ... WITHOUT PASSIVE SHOULDER BELT

() ... TURBO MODEL & EC-AT NON TURBO CANADA MODEL
 < > ... WITH THEFT-DETERRENT SYSTEM
 [] ... TURBO MODEL

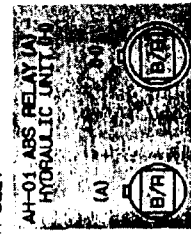
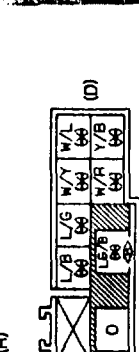
() ... WITH THEFT-DETERRENT SYSTEM
 < > ... EC-AT WITH ABS & TURBO WITHOUT 4WS SYSTEM
 { } ... 5 DOOR MODEL
 (1) ... EC-AT WITH NON TURBO MODEL
 << >> ... THEFT-DETERRENT SYSTEM
 (1) ... TURBO 2 DOOR MODEL
 [] ... WITH 4WS SYSTEM

() ... EC-AT NON TURBO MODEL
 < > ... WITH 4WS SYSTEM

DR-02 DASH (D) -REAR (R)

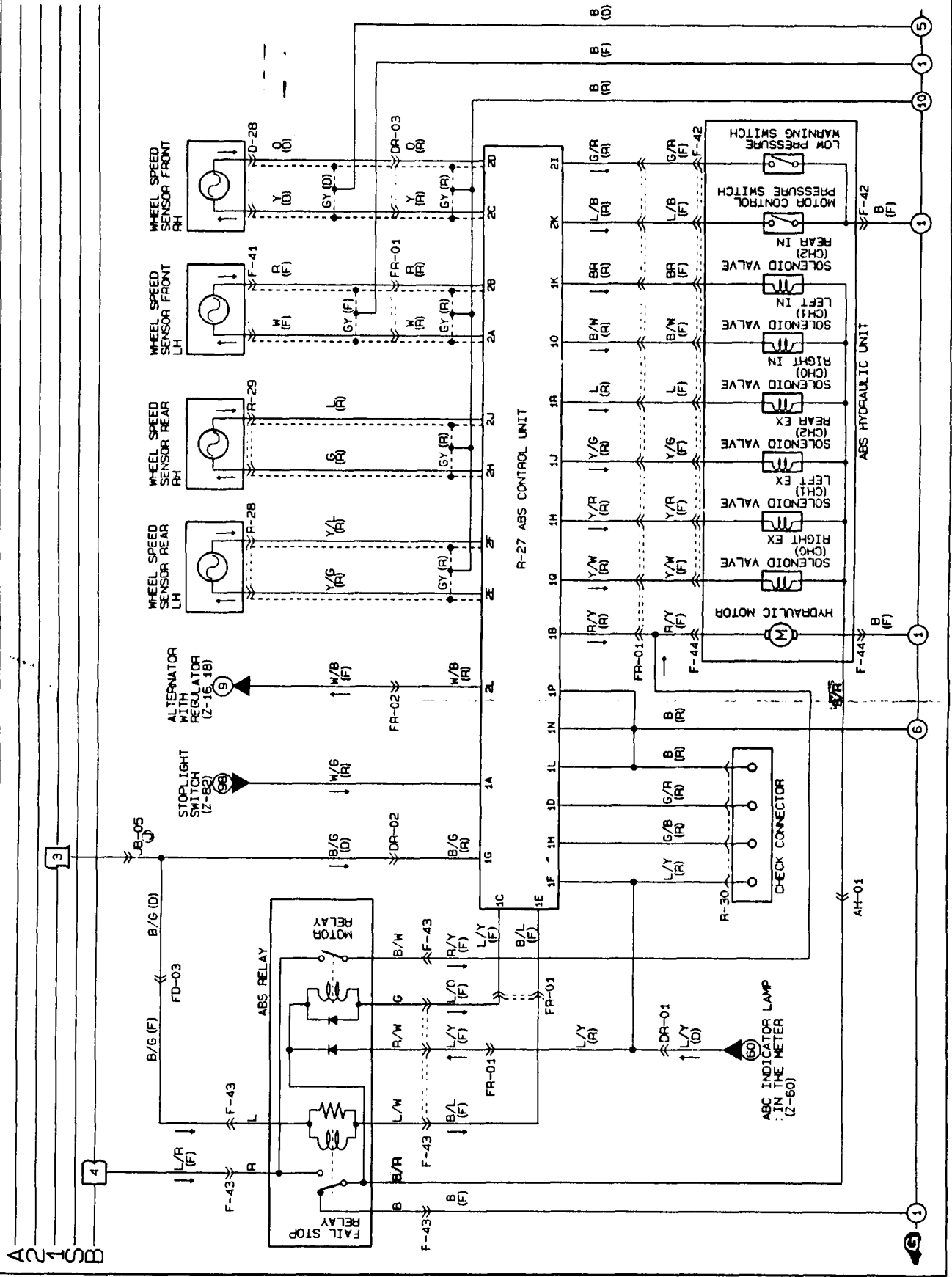


DR-03 DASH (D) -REAR (R)

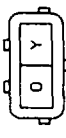


Z WIRING DIAGRAM

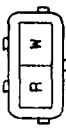
ANTI-LOCK BRAKE SYSTEM (ABS)



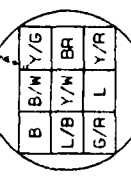
D-28 WHEEL SPEED SENSOR (FR) (D)



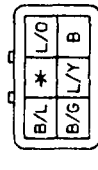
F-41 WHEEL SPEED SENSOR (FL) (F)



F-42 HYDRAULIC UNIT (F)



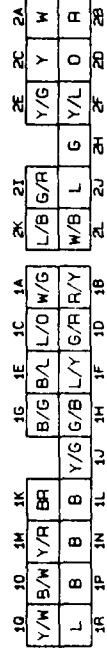
F-43 ABS RELAY (F)



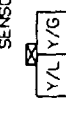
F-44 ABS HYDRAULIC MOTOR (F)



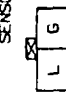
R-27 ABS CONTROL UNIT (R)



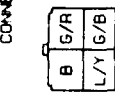
R-28 WHEEL SPEED SENSOR (RL) (R)



R-29 WHEEL SPEED SENSOR (RR) (R)



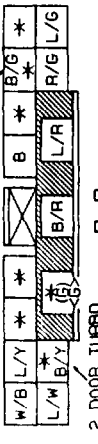
R-30 CHECK CONNECTOR (R)



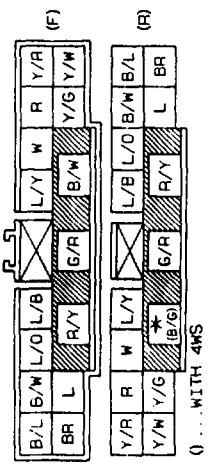
AH-01 ABS RELAY (A) - HYDRAULIC UNIT (H)



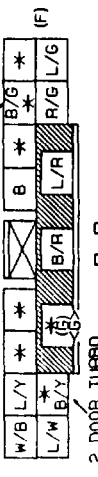
FD-03 FRONT (F) - DASH (D)



FR-01 FRONT (F) - REAR (R)

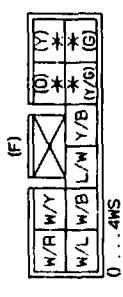


2 DOOR TURBO

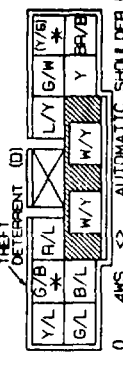


0...EC-AT WITH THEFT-DETERRENT
0...EC-AT WITHOUT THEFT-DETERRENT

FR-02 FRONT (F) - REAR (R)

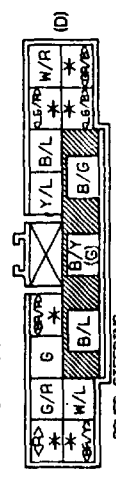


DR-01 DASH (D) - REAR (R)

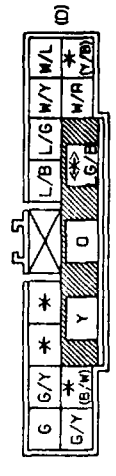


0...4MS
0...4MS <-...AUTOMATIC SHOULDER BELT

DR-02 DASH (D) - REAR (R)



DR-03 DASH (D) - REAR (R)



0...EC-AT <-...THEFT-DETERRENT

50 WIRING DIAGRAM

ABS CONTROL SYSTEM

