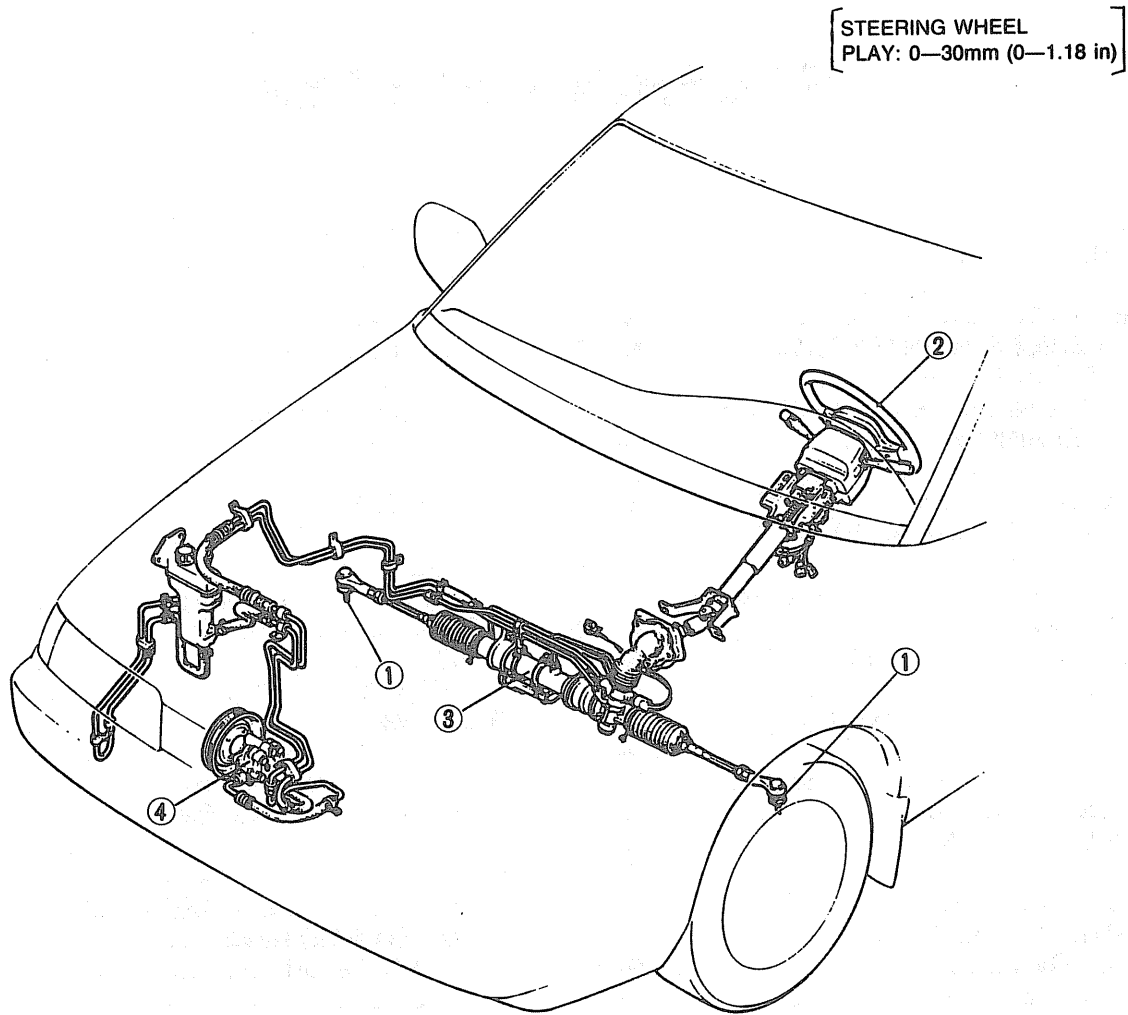


# STEERING SYSTEM

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ENGINE SPEED SENSING POWER STEERING (ESPS)



STEERING WHEEL  
PLAY: 0—30mm (0—1.18 in)

DRIVE BELT DEFLECTION  
NEW: AT 98 N (10kg, 22lb) 8—10mm (0.31—0.39 in)  
USED: AT 98 N (10kg, 22lb) 9—11mm (0.35—0.43 in)

16U0NX-002

- 1. Tie-rod end boot  
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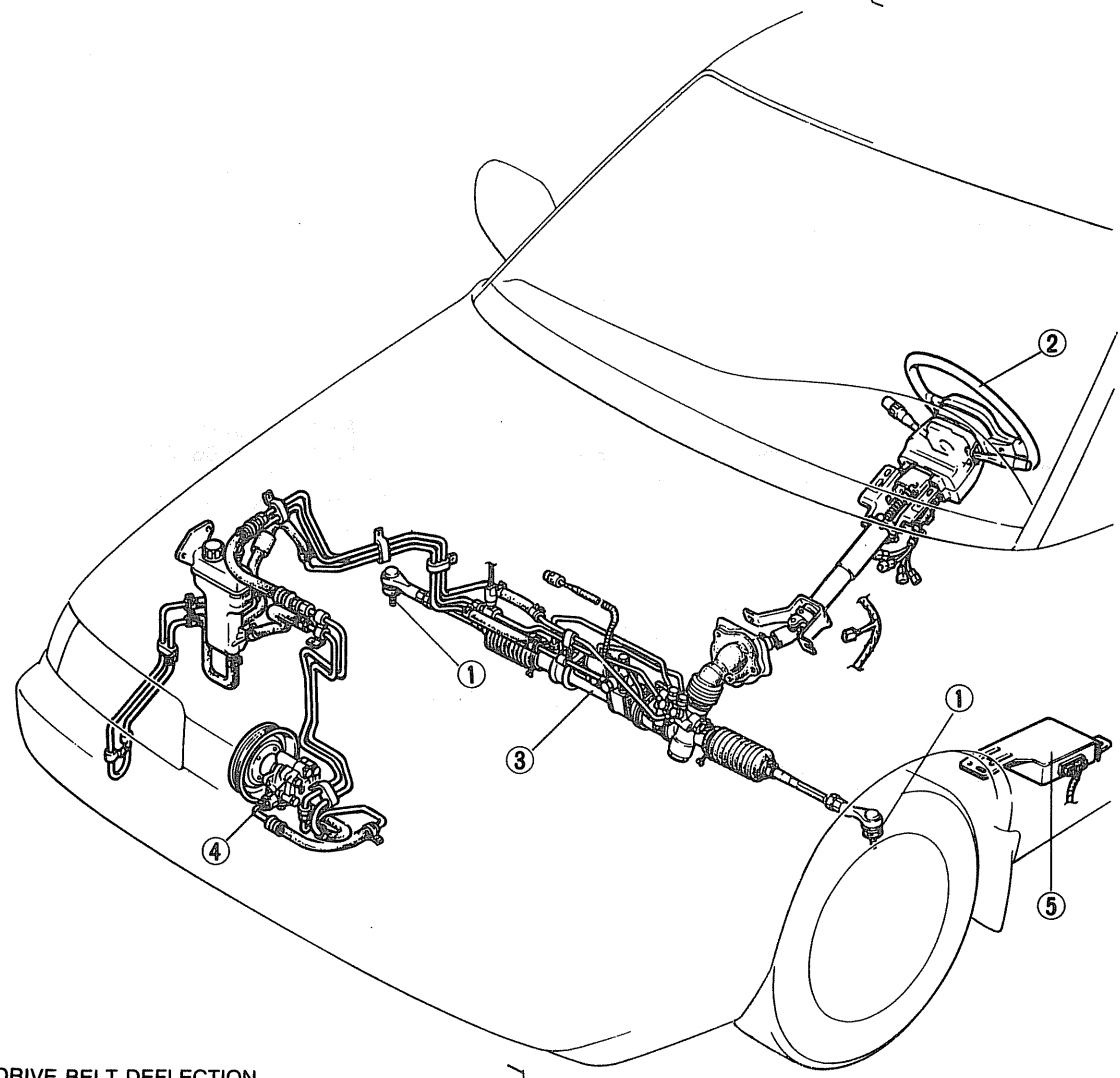
- 4. Oil pump  
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Note

- Engine speed sensing power steering is abbreviated ESPS.

**ELECTRONICALLY CONTROLLED POWER STEERING (ECPS)**

STEERING WHEEL  
PLAY: 0—30mm (0—1.18 in)



DRIVE BELT DEFLECTION  
NEW: AT 98 N (10kg, 22lb) 8—10mm (0.31—0.39 in)  
USED: AT 98 N (10kg, 22lb) 9—11mm (0.35—0.43 in)

16U0NX-003

<p>1. Tie-rod end boot Removal / Installation..... page N-12</p> <p>2. Steering wheel and column Removal ..... page N-15 Disassembly / Assembly..... page N-17 Installation ..... page N-19</p> <p>3. Steering gear and linkage Removal ..... page N-22 Disassembly ..... page N-44 Assembly..... page N-47 Installation ..... page N-23</p>	<p>4. Oil pump Removal / Installation..... page N-50 Disassembly / Assembly..... page N-52 Inspection..... page N-53</p> <p>5. Electrical components of electronically- controlled power steering ..... page N-54 Circuit diagram..... page N-54 Troubleshooting guide ..... page N-54 Troubleshooting ..... page N-54</p>
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**Note**  
• Electronically - controlled power steering is abbreviated ECPS.

OUTLINE

SPECIFICATIONS

Item		Specifications
Steering wheel	Outer diameter mm (in)	380 (15.0)
	Turns lock-to-lock	ESPS: 3.0 ECPS: 2.9
Steering shaft and joints	Shaft type	Collapsible
	Joint type	Cross joints (2)
	Tilt stroke mm (in)	40 (1.6)
Steering gear	Type	Rack and pinion
	Gear ratio	∞ (infinite)
Power steering fluid	Capacity liter (US qt, Imp qt)	ESPS: 0.9 (0.95, 0.80) ECPS: 1.0 (1.06, 0.98)
	Type	DEXRON-II or M-III

16U0NX-004

TROUBLESHOOTING GUIDE

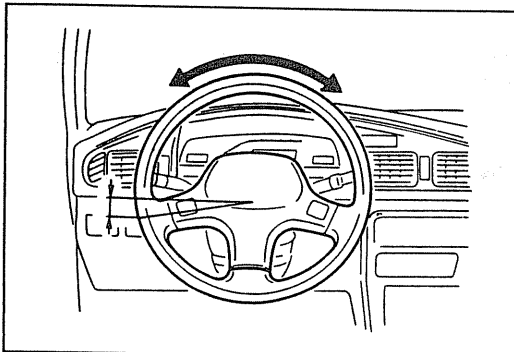
Problem	Possible Cause	Remedy	Page
<b>Steering "heavy"</b>	Poor lubrication, foreign material, or abnormal wear of steering ball joint Stuck or damaged lower arm ball joints Improper steering pinion preload Damaged steering gear Malfunction of steering shaft joint Improperly adjusted wheel alignment Malfunctioning steering gear Incorrect tire pressure Loose or damaged oil pump drive belt (Power steering) Low fluid level or air in fluid (Power steering) Leakage of fluid (Power steering) Insufficient oil pump pressure (Power steering) Malfunctioning electrical system*	Lubricate or replace  Replace Adjust Repair or replace Replace Adjust Repair or replace Adjust Adjust or replace Add fluid or bleed air Replace Replace Replace	N-12  Section R N-22 N-20 N-14 Section R N-20 Section Q N- 8 N- 8 N- 9 N-10 N-54
<b>Steering wheel pulls to one side</b>	Incorrect tire pressure Unevenly worn tires Weakened front spring Worn or damaged stabilizer and/or lower arm bushing Dragging brake Loose lower arm Improperly adjusted wheel alignment	Adjust Replace Replace Replace Repair Tighten Adjust	Section Q Section Q Section R Section R Section P Section R Section R
<b>General instability while driving</b>	Incorrect tire pressure Damaged or unbalanced wheel Worn or damaged steering joints Improper steering pinion preload Weakened front coil spring Worn or damaged stabilizer and/or lower arm bushing Malfunctioning shock absorber Improperly adjusted wheel alignment	Adjust Adjust or replace Replace Adjust Replace Replace Replace Adjust	Section Q Section Q N-14 N-22 Section R Section R Section R Section R
<b>"Shake" occurs (Steering wheel vibrates up/down)</b>	Excessive tire and wheel runout Loose lug nuts Unbalanced wheel(s) Cracked or worn engine mount rubber Cracked or worn transmission mount rubber	Replace Tighten Adjust or replace Replace Replace	Section Q Section Q Section Q Section B Sections J1, J2, K
<b>"Shimmy" occurs (Steering wheel vibrates left/right)</b>	Cracked or worn steering gear mount rubber Loose steering gear mounting bolts Stuck or damaged steering ball joint Excessive tire and wheel runout Loose lug nuts Unbalanced wheel(s) Incorrect tire pressure Unevenly worn tires Malfunction of shock absorber Loose shock absorber mounting bolts Stuck or damaged lower arm ball joint Cracked or worn suspension bushings Damaged or worn front wheel bearing Improperly adjusted front wheel alignment	Replace Tighten Replace Replace Tighten Adjust or replace Adjust Replace Replace Tighten Replace Replace Replace Adjust	N-20 N-20 N-12 Section Q Section Q Section Q Section Q Section Q Section R Section R Section R Section R Section R Section M Section R
<b>Excessive steering wheel play</b>	Worn steering gear Worn or damaged steering joints Worn or damaged lower arm bushing Loose gearbox housing mounting bolts Worn linkage or tie-rod ball joint	Replace Replace Replace Tighten Replace	N-22 N-14 Section R N-20 N-12
<b>Poor steering wheel return</b>	Incorrect tire pressure Stuck or damaged steering joints Improperly adjusted front wheel alignment Improper steering pinion preload Ball joint not operating smoothly Steering shaft contacting something	Adjust Replace Adjust Adjust Replace Repair	Section Q N-14 Section R N-22 N-12 N-14

\*Only for electronically-controlled power steering

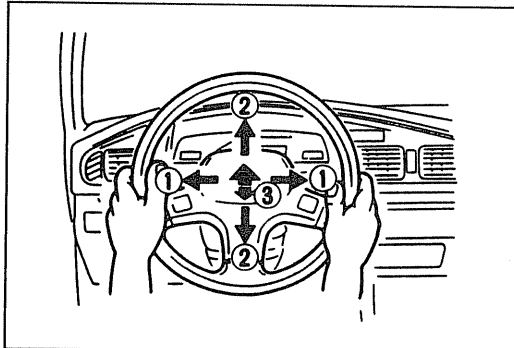
Problem	Possible Cause	Remedy	Page
<b>Abnormal noise from steering system</b>	Loose oil pump	Tighten	N-50
	Loose steering gear	Tighten	N-20
	Loose oil pump bracket	Tighten	Section B
	Loose oil pump pulley nut	Tighten	N-50
	Belt loose/tight	Adjust	N- 8
	Air intake	Bleed air	N-10
	Malfunction inside steering gear	Repair or replace	N-22
	Malfunction of oil pump	Adjust	N-50
	Obstruction near steering column or pressure hose	Repair or replace	N-14
	Loose steering linkage	Tighten or replace	N-20
Worn steering joints	Replace	N-14	
<b>Excessively light steering at high speed*</b>	Malfunctioning electrical system	Repair or replace	N-54

\*Only for electronically-controlled power steering

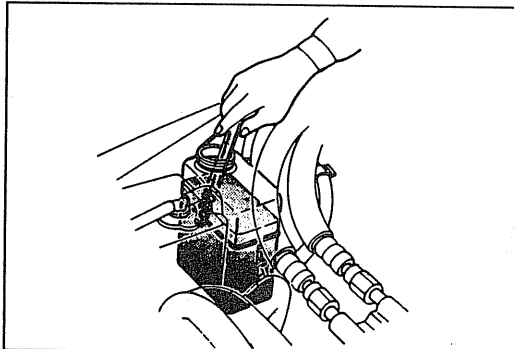
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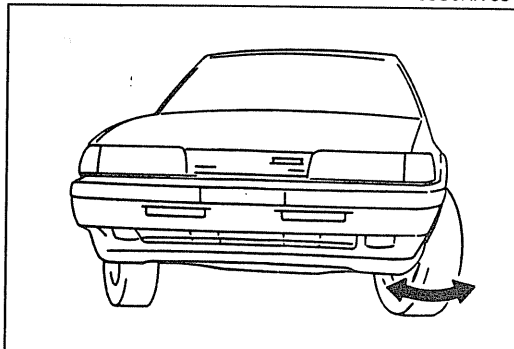
86U10X-010



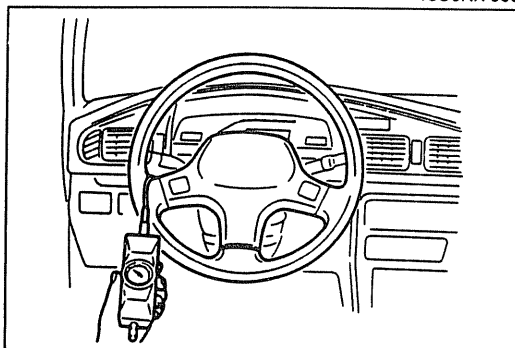
96U10X-006



06U0NX-051



16U0NX-006



## ON-VEHICLE MAINTENANCE

### STEERING WHEEL PLAY

With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and check that the play is within specification.

**Play: 0—30mm (0—1.18 in)**

#### Note

- If play exceeds specification, either the steering joints are worn or backlash of the steering gear is excessive.

### LOOSENESS OR PLAY OF STEERING WHEEL

Move the steering wheel in directions ①, ②, and ③ to check for column bearing wear, steering-shaft joint play, steering wheel looseness, and column looseness.

### STEERING WHEEL EFFORT

#### Power Steering

1. With the vehicle on a hard level surface, move the steering wheel to put the wheels in the straight-ahead position.
2. Start the engine and warm the power steering fluid to **50—60°C (122—140°F)**.
3. Attach a pull scale to the outer edge of the steering wheel spoke. Then, starting with the wheels in the straight-ahead position, check the steering effort required to turn the steering wheel to the left and to the right.
4. If the measured value exceeds specification, check the following: fluid level, air in system, fluid leakage at hose or connections, function of oil pump and gear box, and tire pressure.

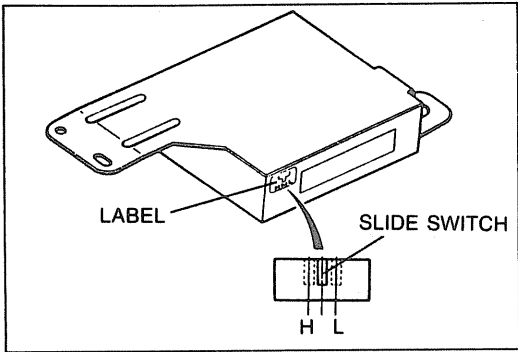
#### Steering wheel effort:

##### ESPS Type

26—31 N (2.6—3.2 kg, 5.7—7.0 lb)

##### ECPS Type

17—23 N (1.7—2.3 kg, 3.7—5.1 lb)

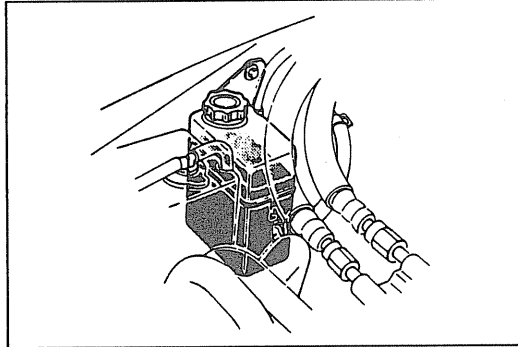


96U10X-010

**Note (ECPS)**

- Steering effort can be varied by the slide switch on the power steering control unit (approx. 10% variation at 10 km/h (6.2 mph) or more).

If heavier steering effort is required: H setting  
 If lighter steering effort is required: L setting



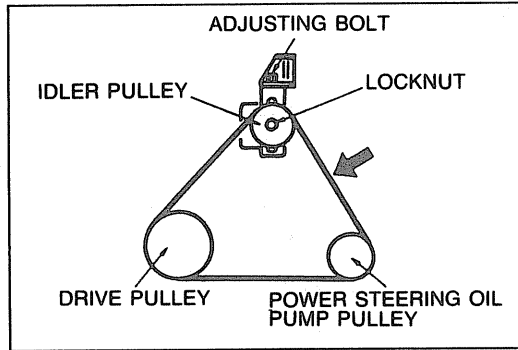
86U10X-017

**POWER STEERING FLUID LEVEL**

Check the power steering fluid level, and add fluid to the specified level if necessary.

**Caution**

- Use only the specified power steering fluid.



96U10X-011

**LOOSE OR DAMAGED OIL PUMP BELT**

Check the oil pump belt for looseness or damage. Adjust or replace if necessary.

To check the oil pump belt tension, apply moderate pressure (98 N, 10 kg, 22 lb) midway between the pulleys. Check the deflection, and adjust if necessary.

1. Loosen the locknut on the idler pulley.
2. Turn the adjusting bolt on the idler pulley until the correct tension is obtained.
3. Tighten locknut and recheck the tension.

**Tightening torque:**

**31–46 N·m (3.2–4.7 m·kg, 23–34 ft·lb)**

Drive belt	Deflection	
	New	Used
Power steering oil pump drive belt	8–10mm (0.31–0.39 in)	9–11mm (0.35–0.43 in)



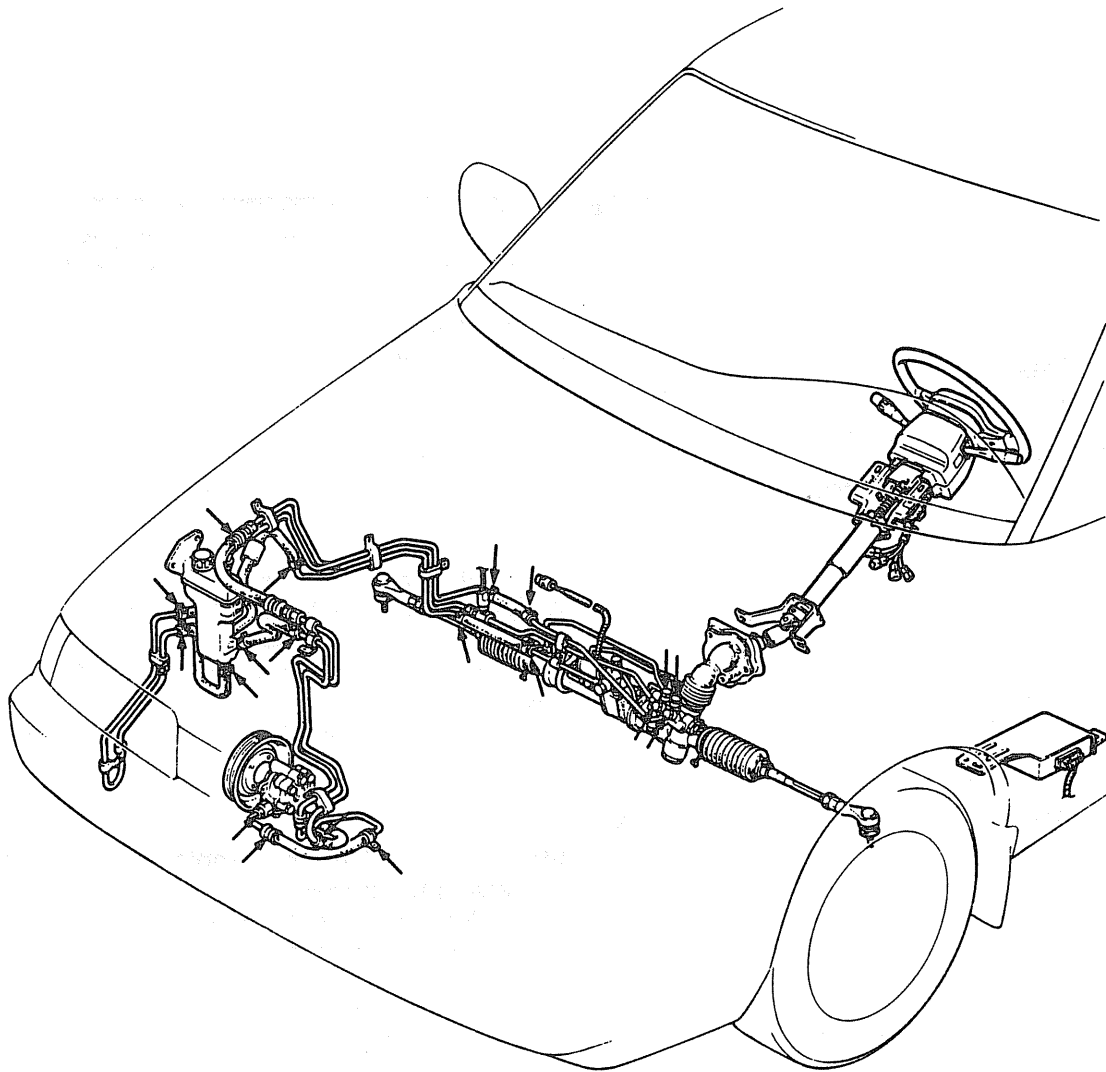
**LEAKAGE OF POWER STEERING FLUID**

Check the following points for fluid leakage:

1. Gear
2. Oil pump
3. All fluid pipes and connections
4. Solenoid valve (ECPS)

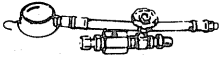

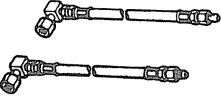
**Note**

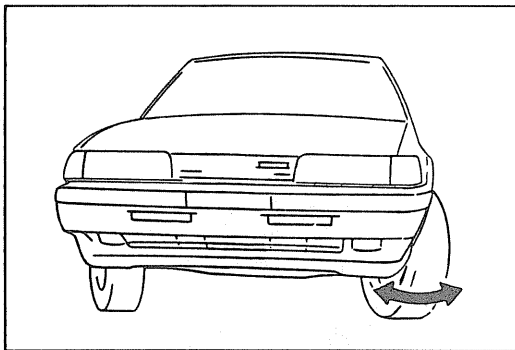
- Start the engine, and check for fluid leakage after turning the steering wheel completely to the left and right to apply fluid pressure. Do not keep the steering wheel in the fully turned position for more than 15 seconds.
- The points where fluid leakage may occur are indicated by the arrows in the figure.

**POWER STEERING**

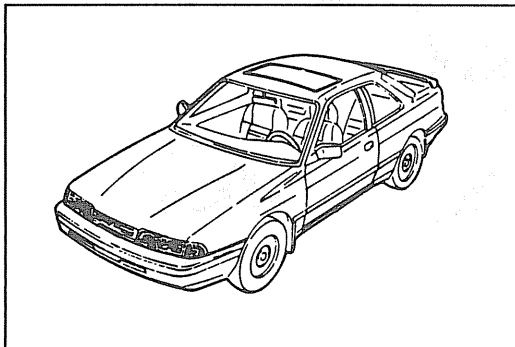
### INSPECTION / ADJUSTMENT

#### PREPARATION SST

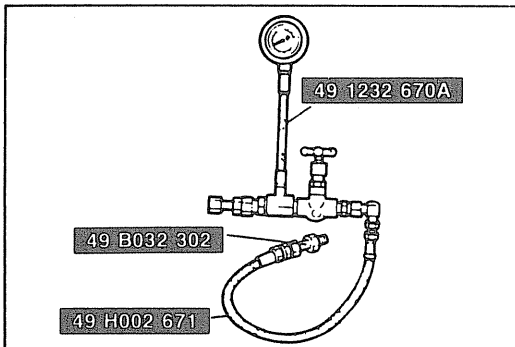
<p>49 1232 670A</p> <p>Gauge set, power steering</p> 	<p>For measurement of fluid pressure</p>	<p>49 B032 302</p> <p>Adapter</p> 	<p>For measurement of fluid pressure</p>
<p>49 H002 671</p> <p>Adapter, power steering gauge</p> 	<p>For measurement of fluid pressure</p>	16U0NX-009	



16U0NX-010



96U10X-015



96U10X-016

#### BLEEDING OF POWER STEERING SYSTEM

1. Check the fluid level, and add fluid if necessary.
2. Turn the steering wheel fully in both directions five (5) times (engine not running).
3. Recheck the fluid level. If the level has lowered, add fluid, and repeat from step 1.

4. Start the engine, and run it at idle.
5. Turn the steering wheel fully in both directions five (5) times to bleed the air from the system.
6. Check that the fluid is not foamy and that the fluid level has not lowered.  
If a problem is found, add fluid as necessary and repeat from Step 5.

#### Note

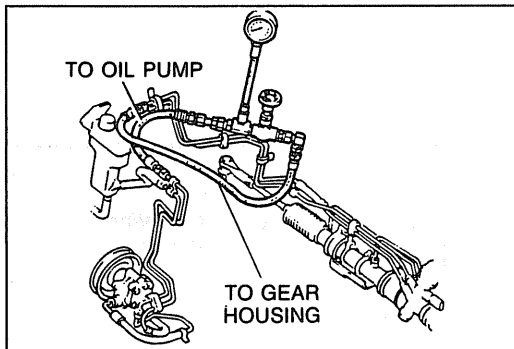
- If bleeding is not done completely, the following problems may appear:
  - Foamy fluid on level gauge.
  - Noise from power steering oil pump.

#### POWER STEERING PRESSURE

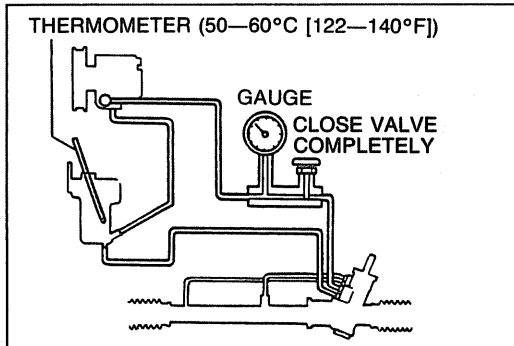
1. Disconnect the high-pressure hose from the gear housing side, and attach the SST.

#### Tightening torque:

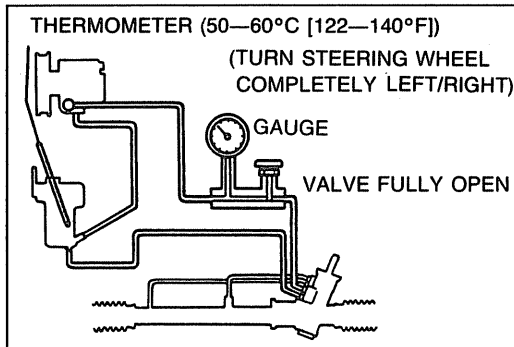
39—49 N·m (4.0—5.0 m·kg, 29—36 ft·lb)



16U0NX-056



16U0NX-011



16U0NX-012

2. Bleed the air from the system.
3. Open the gauge valve fully, then start the engine and turn the steering wheel fully left and right to raise the fluid temperature to 50—60°C (122—140°F).

4. To measure the fluid pressure generated by the oil pump, close the gauge valve completely and increase the engine speed to 1,000—1,500 rpm. If the fluid pressure is low, replace the oil pump assembly.

**Warning**

- Do not keep the valve closed for more than 15 seconds, the fluid temperature will increase excessively and damage the oil pump.

**Oil pump fluid pressure:**

7,355—7,846 kPa  
(75—80 kg/cm<sup>2</sup>, 1,066—1,138 psi)

5. To measure the fluid pressure at the gear housing, first open the gauge valve completely, increase the engine speed to 1,000—1,500 rpm, and then turn the steering wheel fully to the left and right.

**Warning**

- Do not keep the steering wheel in the fully turned position for more than 15 seconds, the fluid temperature will rise excessively and damage the oil pump.

**Gear housing fluid pressure:**

7,355—7,846 kPa  
(75—80 kg/cm<sup>2</sup>, 1,066—1,138 psi)

If the fluid pressure is low, repair or replace the gear box.

6. Remove the gauge set, and install and tighten the high-pressure hose to the specified torque.

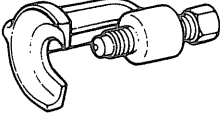
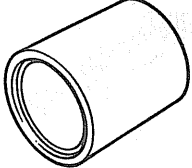
**Tightening torque:**

31—36 N·m (3.2—3.7 m·kg, 23—27 ft·lb)

7. Bleed the air from the system. (Refer to page N-10.)

### TIE-ROD END BOOT

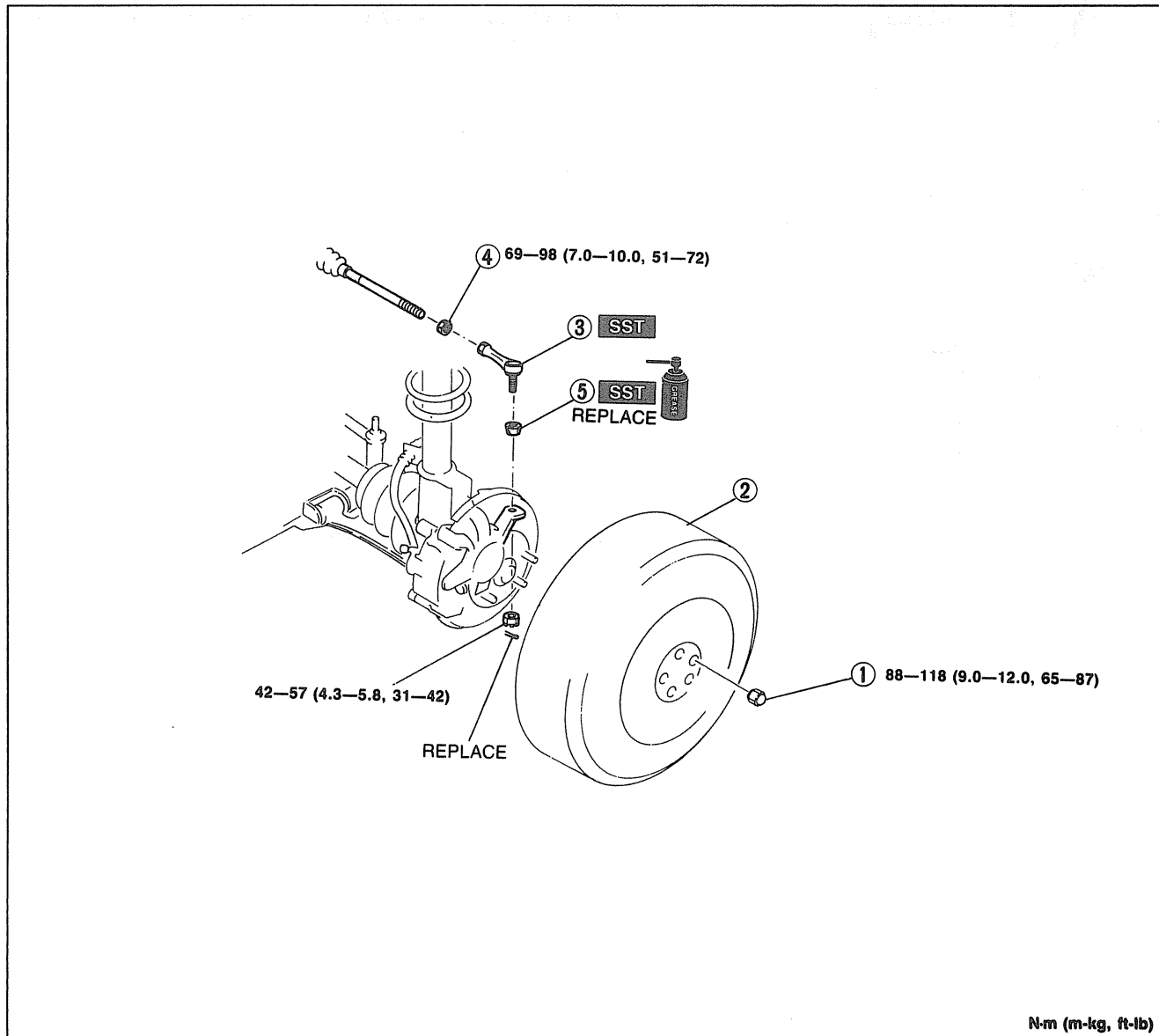
#### PREPARATION SST

<p>49 0118 850C Puller, ball joint</p> 	<p>For removal of tie-rod end</p>	<p>49 F034 201 Installer, dust boot</p> 	<p>For installation of dust boot</p>
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16U0NX-013

#### REMOVAL / INSTALLATION

1. Jack up the vehicle and support it with safety stands.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.
4. Tighten all nuts and bolts to the specified torque, referring to the figure.



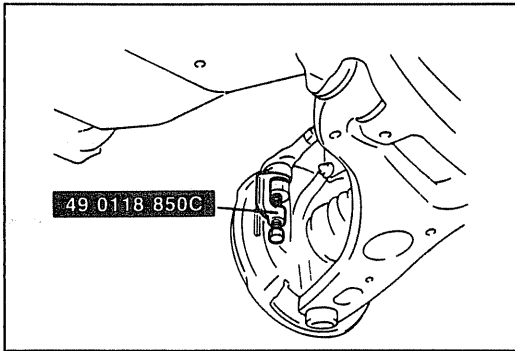
N·m (m·kg, ft·lb)

16U0NX-014

1. Lug nuts  
2. Wheel

3. Tie-rod end  
4. Nut

5. Boot

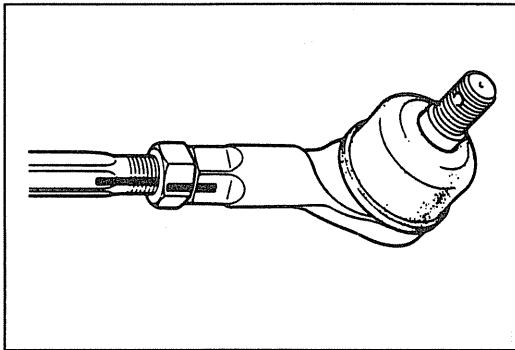


86U10X-030

### Removal Note

#### Tie-rod end

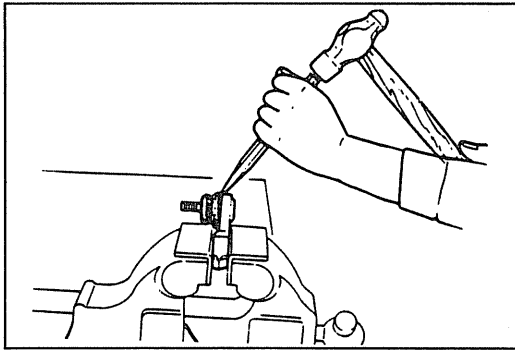
Separate the tie-rod end from the knuckle using the **SST**.



96U10X-021

### Nut

Before removing the nut from the tie-rod end, make a reference mark for installation.



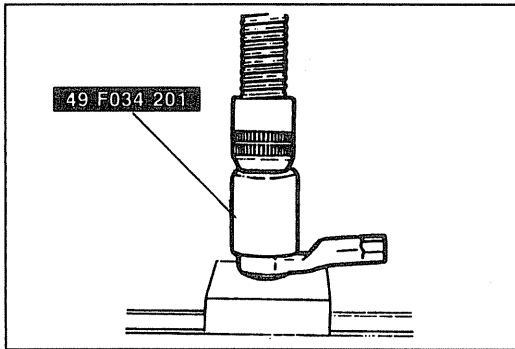
86U10X-031

### Boot

Secure the tie-rod end in a vise. Place a chisel against the boot and hold it at the angle shown. Remove the boot by tapping with a hammer.

### Caution

- Be careful not to scar the part where the boot is attached to the tie-rod end.



96U10X-022

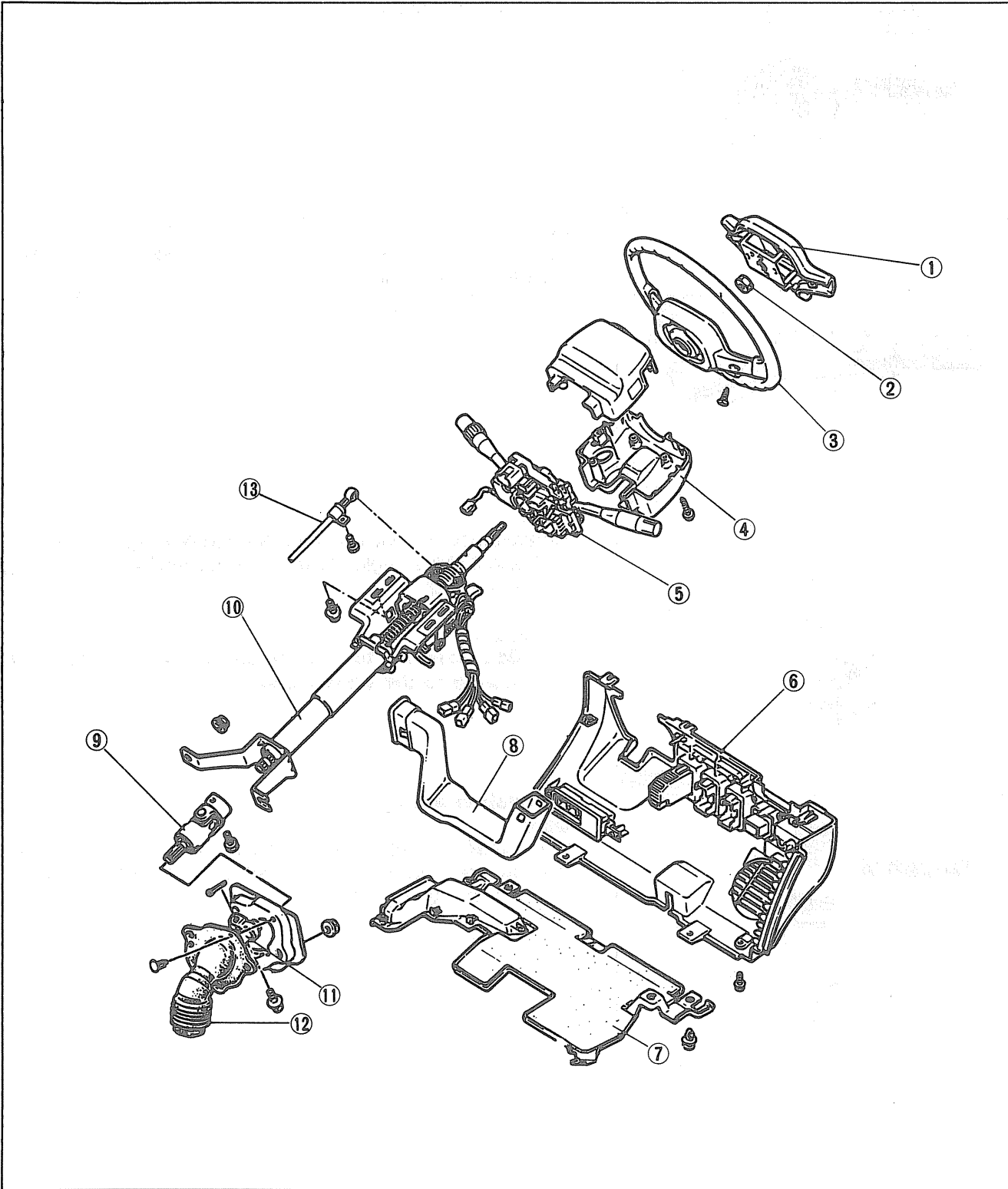
### Installation Note

#### Boot

Put a small amount of grease (lithium base, NLGI No. 2) into the new boot and set it onto the **SST**. Press the boot onto the tie-rod end with a press.

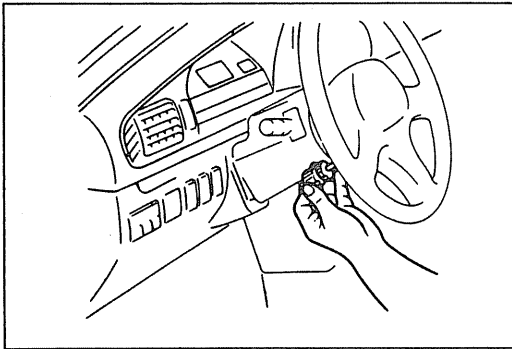
STEERING WHEEL AND COLUMN

STRUCTURAL VIEW

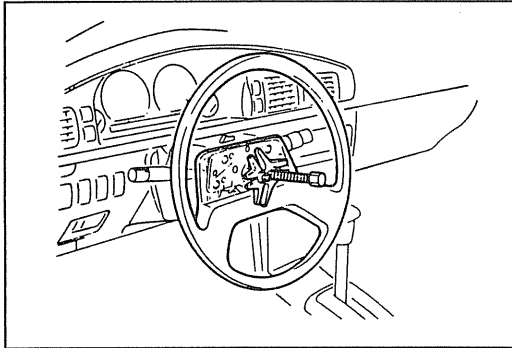


16UONX-015

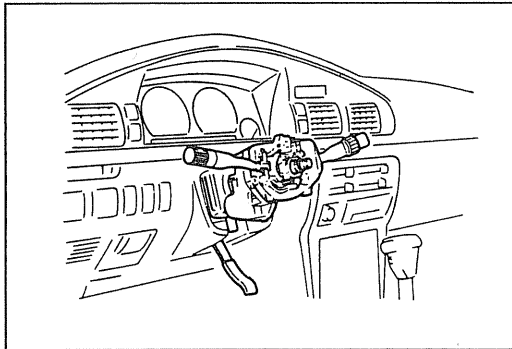
- |                       |                             |                         |
|-----------------------|-----------------------------|-------------------------|
| 1. Horn cap           | 6. Switch panel             | 11. Intermediate shaft  |
| 2. Locknut            | 7. Lower panel              | 12. Dust boot           |
| 3. Steering wheel     | 8. Duct                     | 13. Key interlock cable |
| 4. Column cover       | 9. Universal joint          |                         |
| 5. Combination switch | 10. Steering shaft assembly |                         |



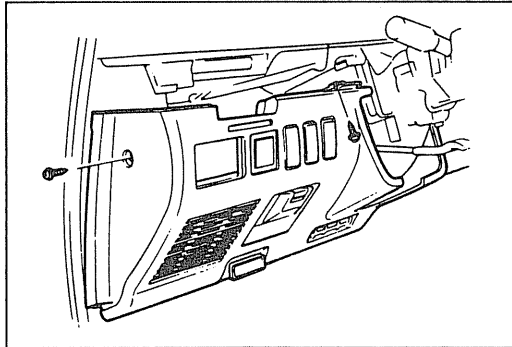
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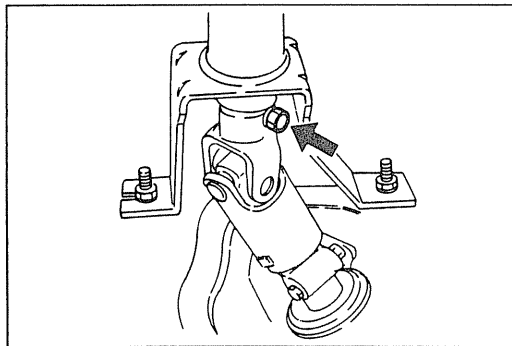
96U10X-023



86U10X-036



86U10X-037



86U10X-038

## REMOVAL

1. Disconnect the negative battery cable.
2. Remove the horn pad from the steering wheel.
3. Remove the locknut.

4. Remove the steering wheel with a suitable puller.

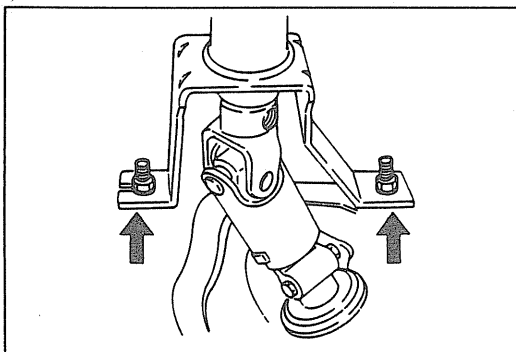
### Caution

- Do not subject the steering shaft to severe impact in the axial direction when removing or installing the steering wheel.

5. Remove the column cover.
6. Disconnect the ignition switch connector.
7. Remove the combination switch.

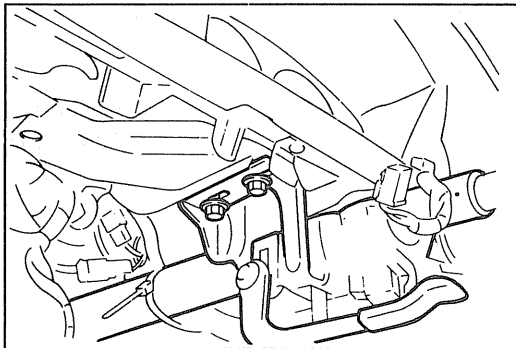
8. Remove the lower panel and switch panel.
9. Remove the duct.

10. Remove the bolt connecting the universal joint and steering shaft.



86U10X-039

11. Remove the nuts from the lower bracket of the steering shaft.

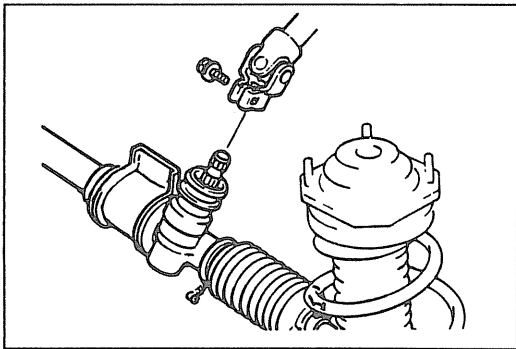


16U0NX-045

12. Remove the bolts from the upper bracket of the steering shaft.

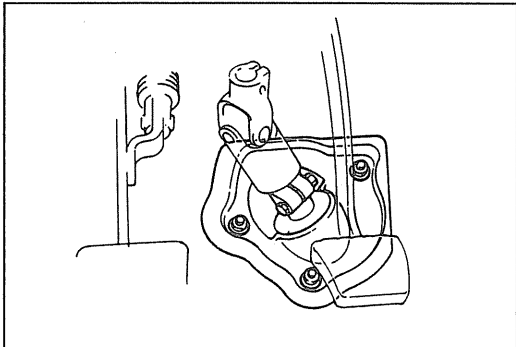
13. Remove the key interlock cable.

14. Remove the steering shaft assembly.



16U0NX-046

15. Remove the bolts from the intermediate shaft.



16U0NX-047

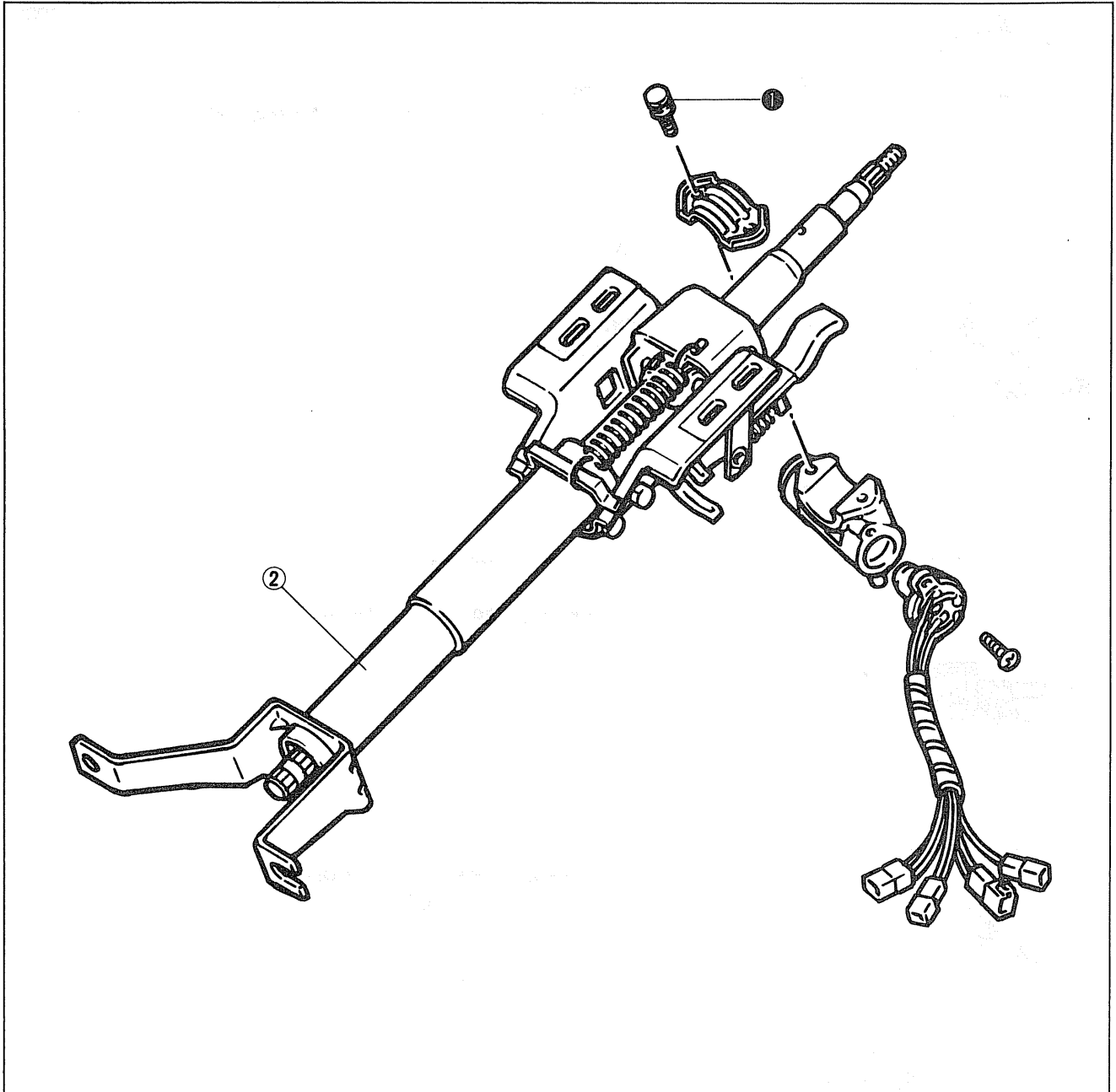
16. Remove the dust cover assembly.

17. Remove the intermediate shaft.



**DISASSEMBLY / ASSEMBLY**

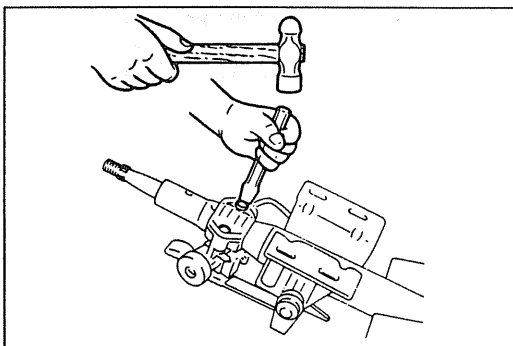
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of removal, referring to **Assembly Note**.



16U0NX-017

1. Steering lock bolt

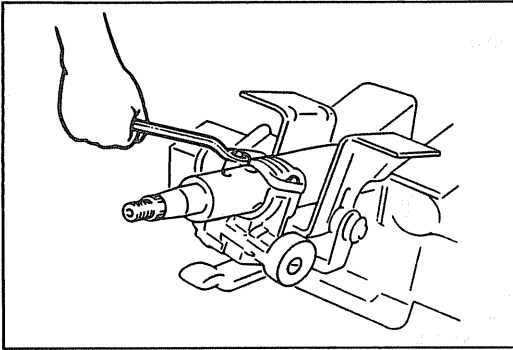
2. Steering shaft



86U10X-044

**Disassembly Note**  
**Steering lock**

Use a chisel to make a groove in the head of the steering lock installation screws. Remove the screws with a screwdriver; then remove the steering lock.



96U10X-025

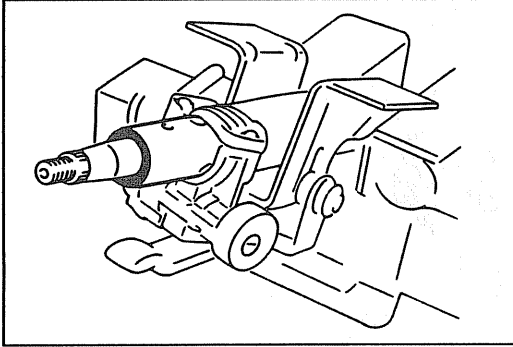
**Assembly Note**

**Steering lock**

Install the steering lock onto the jacket. Install new steering lock mounting screws, and tighten them until the heads break off.

**Caution**

- Check the operation of the lock while tightening the steering lock mounting screws.



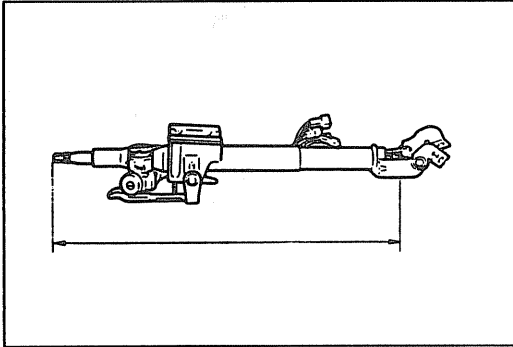
86U10X-046

**INSPECTION**

Check the following and replace any faulty parts.

**Shaft**

1. Wear of column bushing.

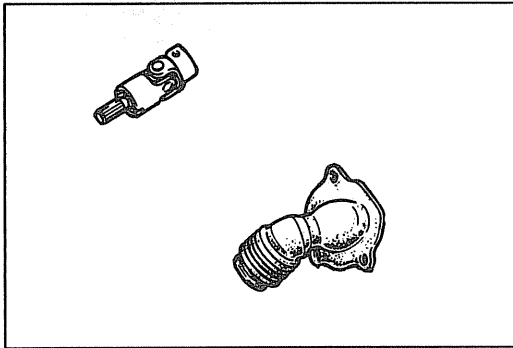


06U0NX-012

2. Length of steering column.

Length: 609.6—611.6mm (24.0—24.1 in)

3. Damage of column.



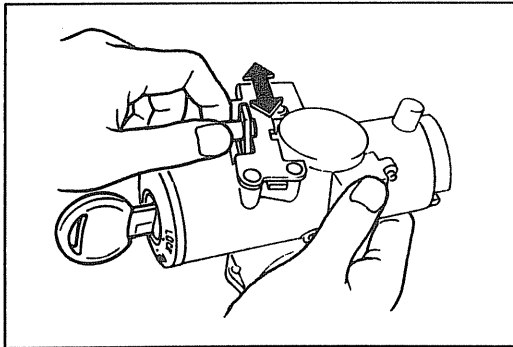
86U10X-048

**Intermediate Shaft and Universal Joint**

Looseness, abnormal noise, or sticking while rotating.

**Dust Boot**

Damage or deterioration.



06U0NX-052

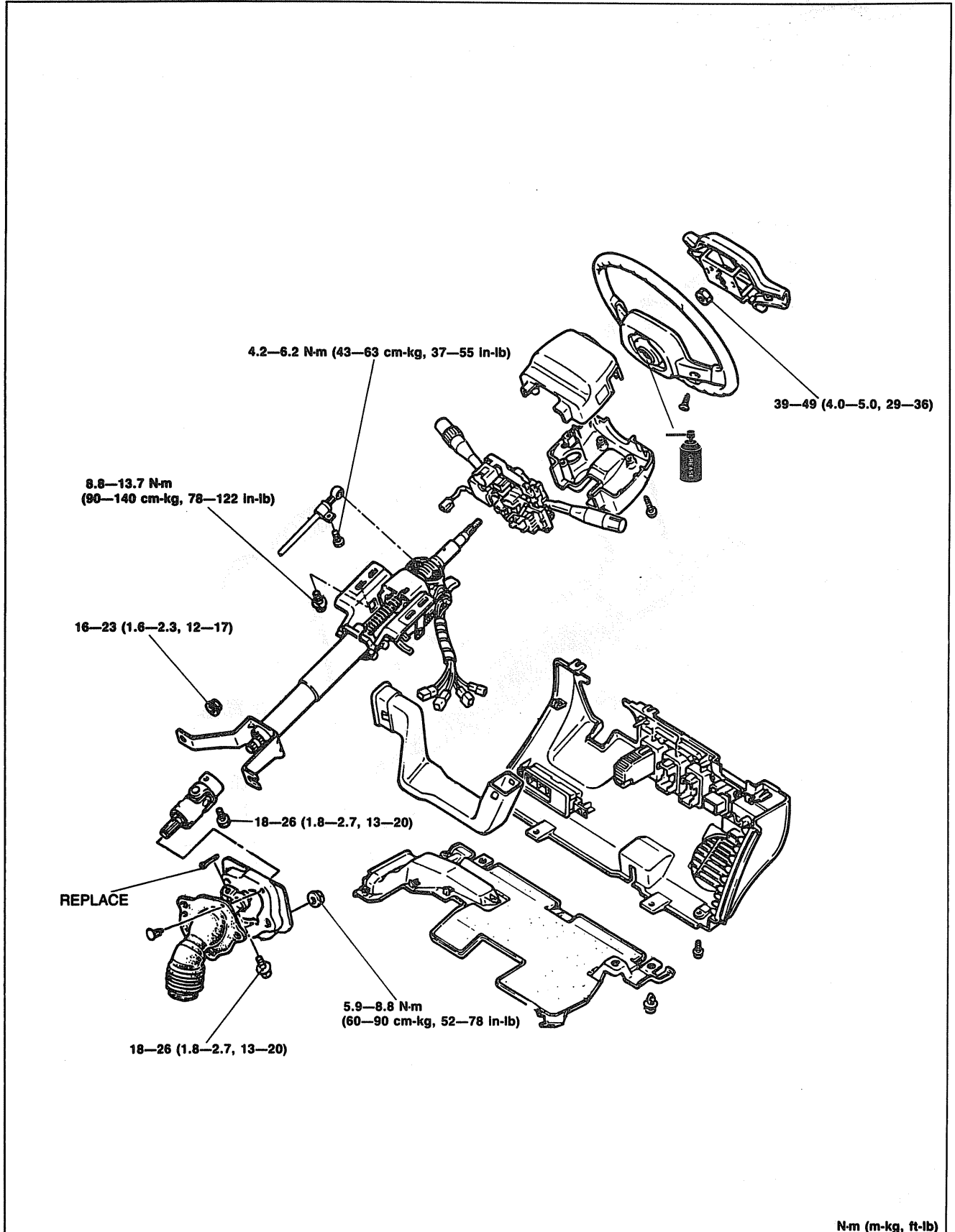
**Steering lock assembly (Automatic transaxle only)**

Verify that the cable connector does not move when the key is in the LOCK position and that it moves freely with the key in other positions.

## INSTALLATION

Install in the reverse order of removal.

## Torque Specifications



N-m (m-kg, ft-lb)

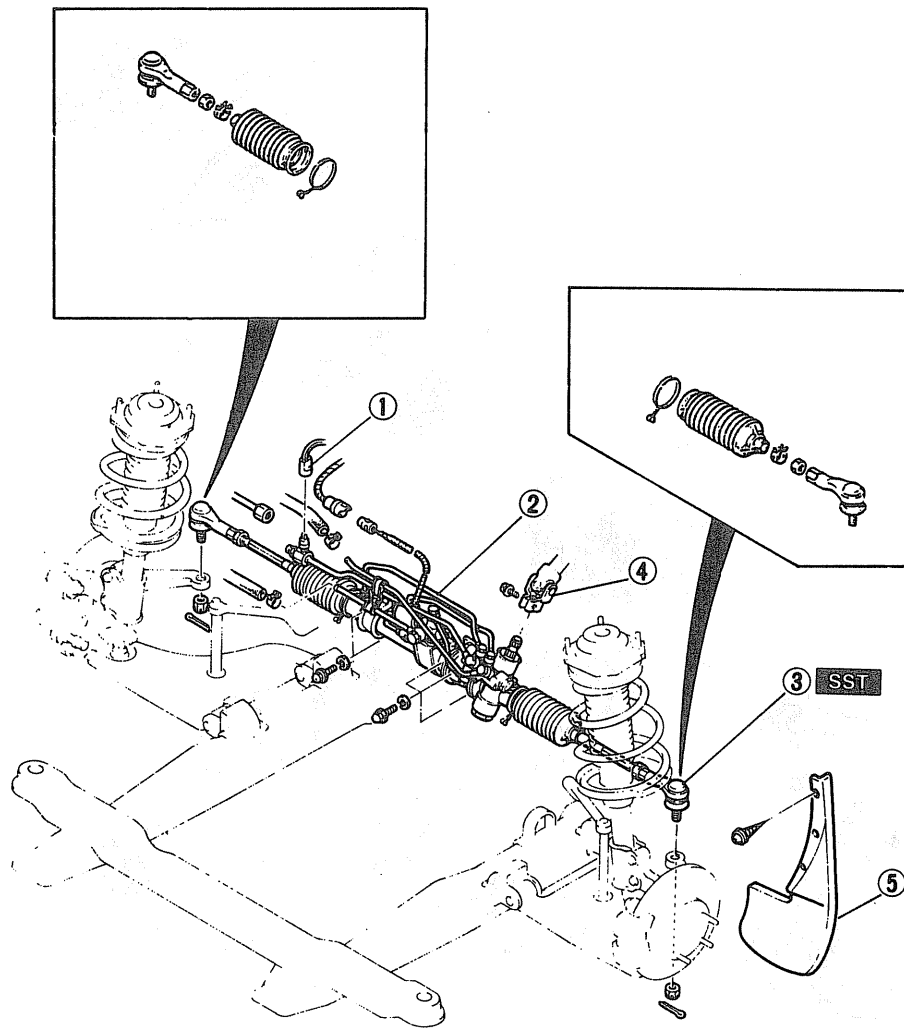
06U0NX-013

N-19

STEERING GEAR AND LINKAGE

STRUCTURAL VIEW

POWER STEERING

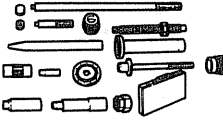


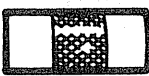










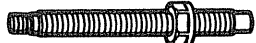
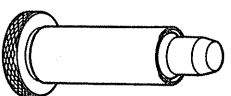


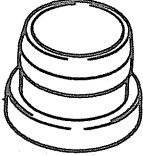


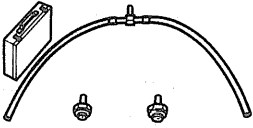
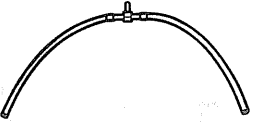

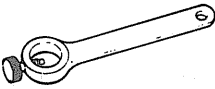
06U0NX-017

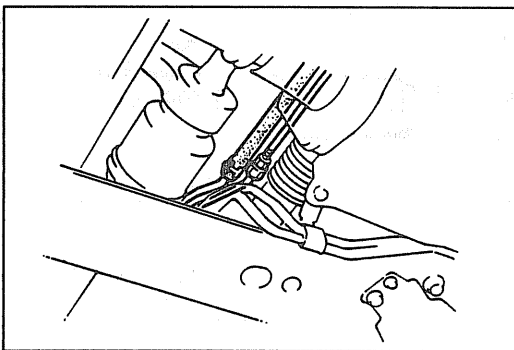
- 1. Oil pressure switch connector
- 2. Pipes
- 3. Tie-rod ends

- 4. Steering shaft universal joint
- 5. Mud flaps

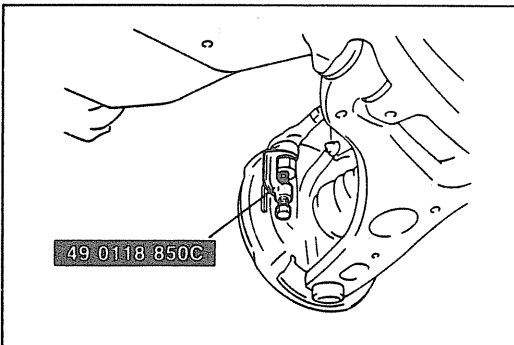
**PREPARATION  
SST**

<p>49 G032 3A0</p> <p>Repair set, power steering (Part of 49 G032 3A0)</p> 	<p>For repairing power steering</p>	<p>49 G032 307</p> <p>Remover body oil seal (Part of 49 G032 3A0)</p> 	<p>For removal of oil seal</p>
<p>49 F032 303</p> <p>Handle (Part of 49 G032 3A0)</p> 	<p>For removal of spacer and oil seal</p>	<p>49 G032 308</p> <p>Installer, oil seal (Part of 49 G032 3A0)</p> 	<p>For installation of oil seal</p>
<p>49 G032 301</p> <p>Attachment (Part of 49 G032 3A0)</p> 	<p>For removal of spacer and oil seal</p>	<p>49 G032 309</p> <p>Protector, pinion shaft (Part of 49 G032 3A0)</p> 	<p>For installation of oil seal</p>
<p>49 G032 302</p> <p>Attachment (Part of 49 G032 3A0)</p> 	<p>For removal of oil seal and bearing</p>	<p>49 G032 310</p> <p>Installer, oil seal &amp; spacer (Part of 49 G032 3A0)</p> 	<p>For installation of spacer and oil seal</p>
<p>49 G032 303</p> <p>Handle (Part of 49 G032 3A0)</p> 	<p>For removal of oil seal and bearing</p>	<p>49 G032 311</p> <p>Installer guide, oil seal &amp; spacer (Part of 49 G032 3A0)</p> 	<p>For installation of spacer and oil seal</p>
<p>49 G032 304</p> <p>Installer oil seal (Part of 49 G032 3A0)</p> 	<p>For installation of oil seal</p>	<p>49 G032 312</p> <p>Installer, bearing (Part of 49 G032 3A0)</p> 	<p>For installation of bearing</p>
<p>49 G032 305</p> <p>Protector, rack (Part of 49 G032 3A0)</p> 	<p>For removal and installation of rack</p>	<p>49 G032 313</p> <p>Installer, oil seal (Part of 49 G032 3A0)</p> 	<p>For installation of oil seal</p>
<p>49 G032 306</p> <p>Remover shaft, oil seal (Part of 49 G032 3A0)</p> 	<p>For removal of oil seal</p>	<p>49 G032 334</p> <p>Installer, oil seal</p> 	<p>For installation of oil seal</p>

<p>49 G032 335 Installer, oil seal</p> 	<p>For installation of oil seal</p>	<p>49 H032 321A Hexagon wrench (Part of 49 G032 3A0)</p> 	<p>For removal and installation of adjusting cover</p>
<p>49 D032 316 Protector (Part of 49 G032 3A0)</p> 	<p>For installation of adjusting cover</p>	<p>49 G032 3A1 Joint hose</p> 	<p>For hermetic inspection</p>
<p>49 G032 317 Hose (Part of 49 G032 3A1)</p> 	<p>For hermetic inspection</p>	<p>49 G032 319 Adapter (Part of 49 G032 3A1)</p> 	<p>For hermetic inspection</p>
<p>49 0180 510B Attachement, preload</p> 	<p>For measurement of pinion torque</p>	<p>16U0NX-018</p>	



86U10X-052



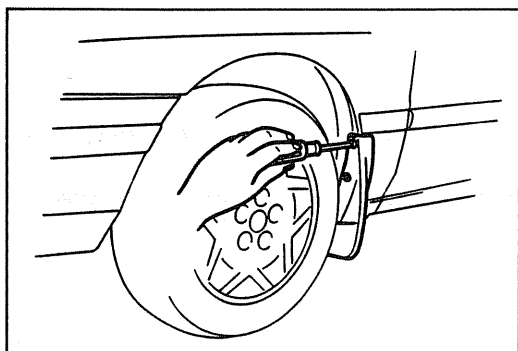
86U10X-053

REMOVAL

Note

- The power steering fluid will leak out when the return hose or the pressure hose is disconnected. Prepare a suitable container for it to drain into.

1. Disconnect the negative battery cable.
2. Disconnect the pressure switch connector.
3. Raise the vehicle on a lift or safety stands, and remove the front wheels.
4. Disconnect the power steering hose and pipe.
5. Disconnect the tie-rod ends from the knuckles with the **SST**.
6. Remove the steering shaft universal joint.



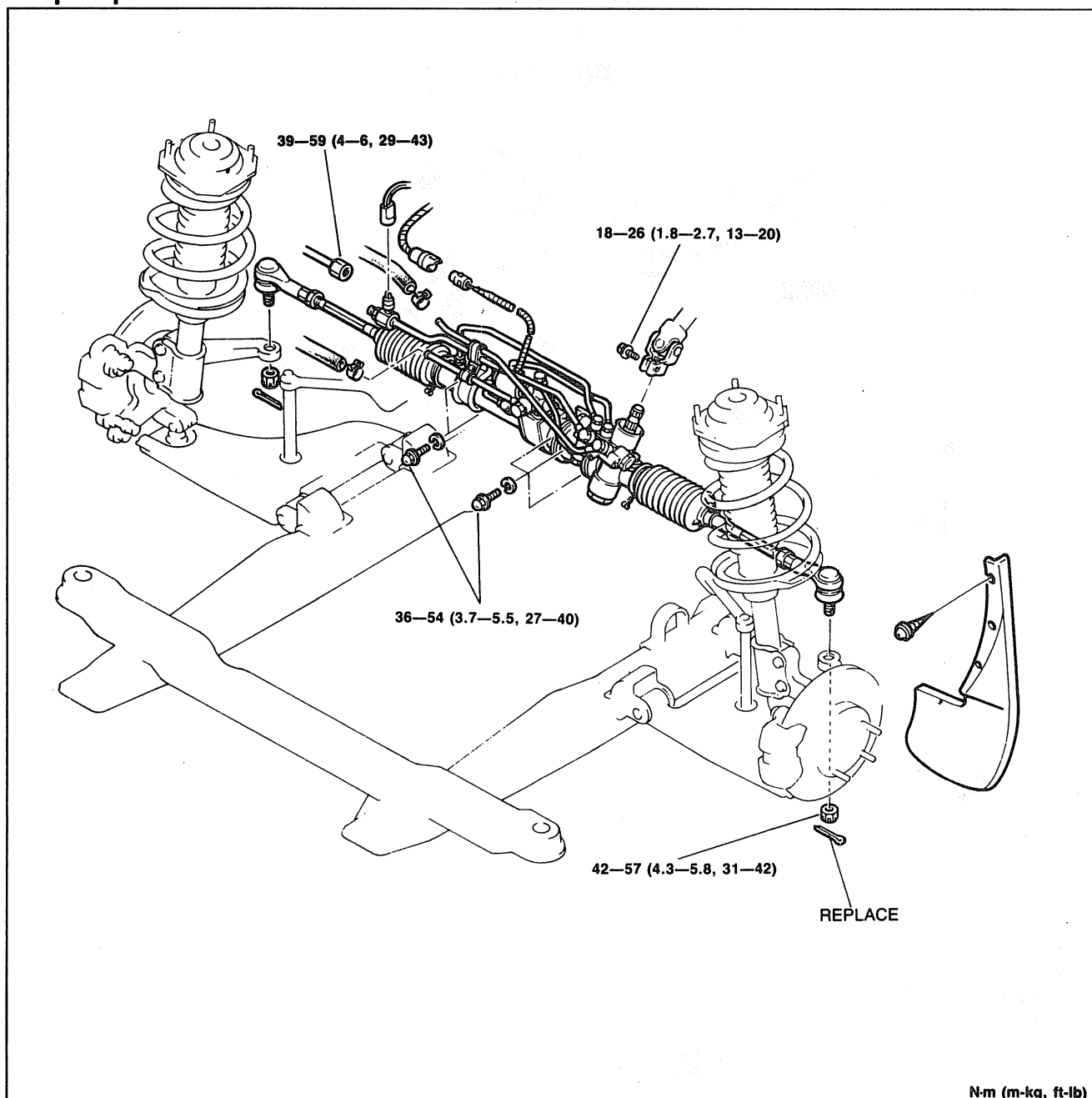
06U0NX-014

7. Remove the mud flap.
8. Remove the mounting bolts and the steering gear.
9. Remove the steering gear.

## INSTALLATION

Install in the reverse order of removal.

## Torque Specifications



N-m (m-kg, ft-lb)

86U10X-055

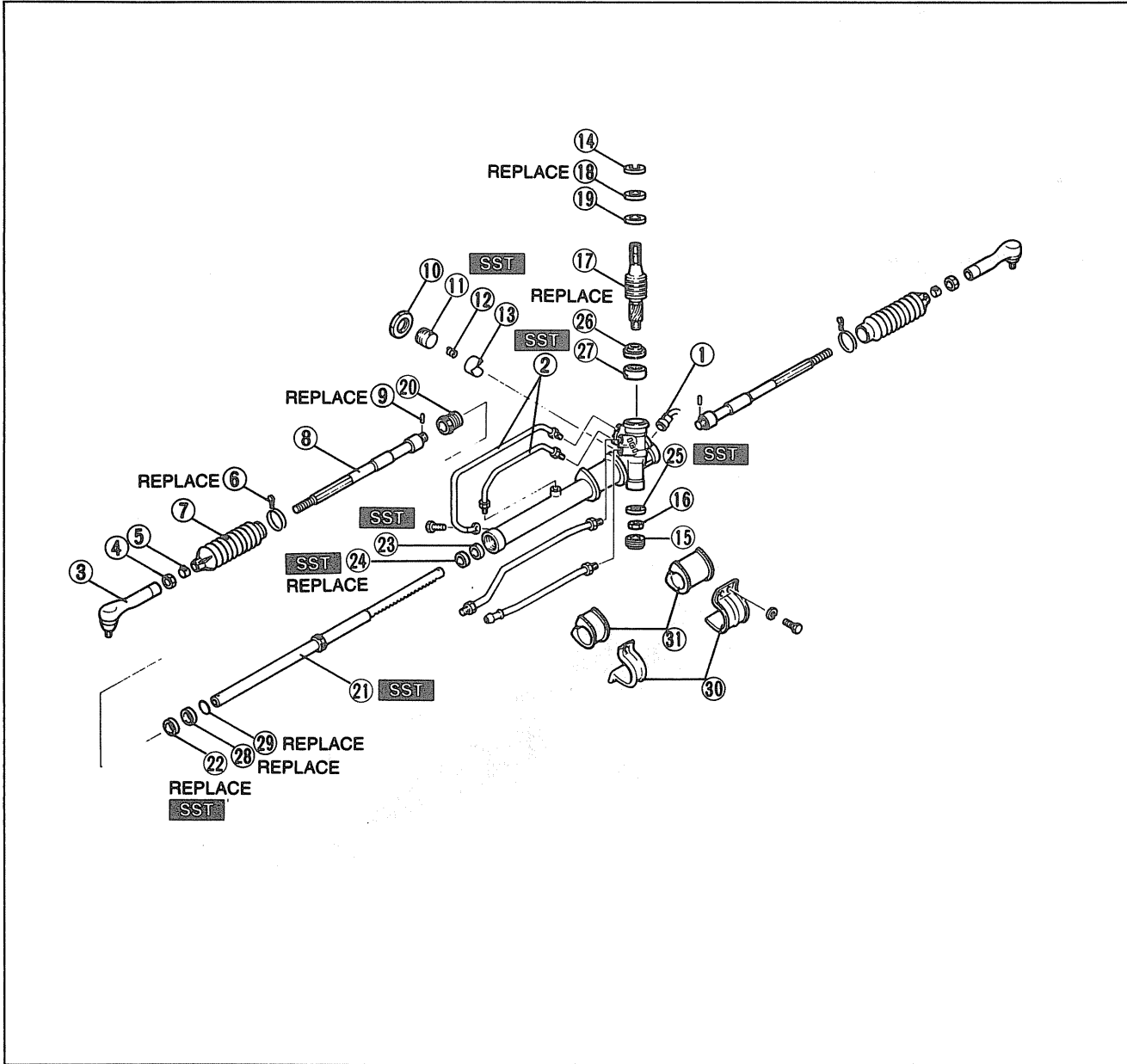
N-23

### DISASSEMBLY (ESPS [Except Part No. GN81])

Disassemble in the order shown in the figure, referring to Disassembly Note.

#### Caution

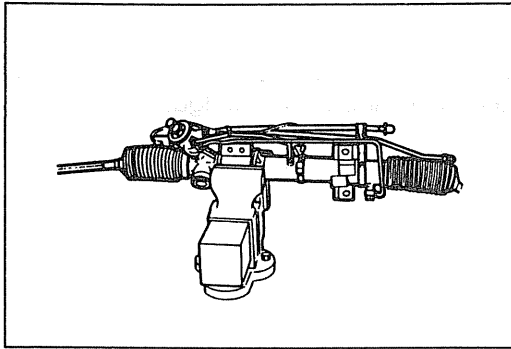
- In order to prevent the entrance of dirt, all disassembly and assembly should be done in a clean area.
- Before disassembly, plug all pipe fittings, and thoroughly clean the steering gear and linkage.



16UONX-019

- |                             |   |                           |
|-----------------------------|---|---------------------------|
| 1. Oil pressure switch      | 11. Adjusting cover                         | 21. Rack                  |
| 2. Oil pipe                 | 12. Spring                                  | 22. Oil seal              |
| 3. Tie-rod end              | 13. Pressure pad                            | 23. Spacer                |
| 4. Tie-rod end locknut      | 14. Snap ring                               | 24. Oil seal              |
| 5. Spring clamp             | 15. Housing cover                           | 25. Lower bearing         |
| 6. Boot wire                | 16. Lower bearing locknut                   | 26. Oil seal              |
| 7. Boot                     | 17. Pinion shaft and control valve assembly | 27. Needle bearing        |
| 8. Tie-rod                  | 18. Oil seal                                | 28. Seal ring             |
| 9. Lock pin                 | 19. Upper bearing                           | 29. O-ring                |
| 10. Adjusting cover locknut | 20. Rack bushing assembly                   | 30. Mounting bracket      |
|                             |   | 31. Mounting rubber mount |





86U10X-122

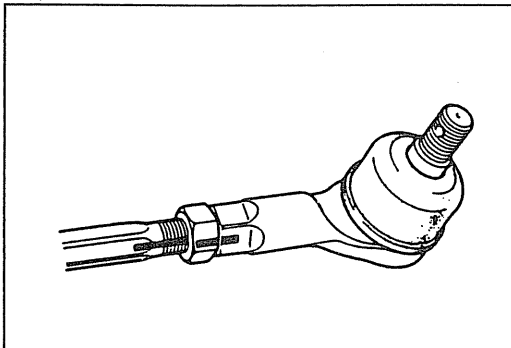
### Disassembly Note

#### Steering gear and linkage

Secure the gear and linkage in a vise.

#### Caution

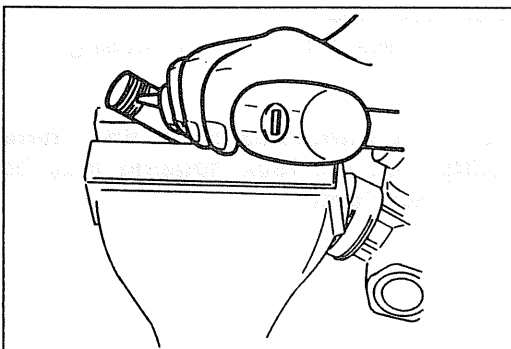
- Insert protective material (such as copper plates) in the jaws of the vise.



86U10X-123

#### Tie-rod ends

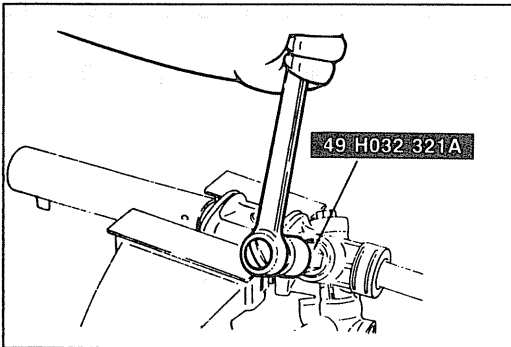
Before removing the tie-rod ends, make a mark for proper installation.



86U10X-124

#### Tie-rod

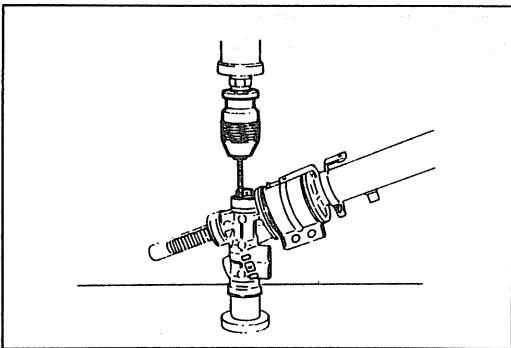
1. Remove the tie-rod from rack.
2. Remove the roll pin with a pin-punch and hammer.



96U10X-072

#### Adjusting cover

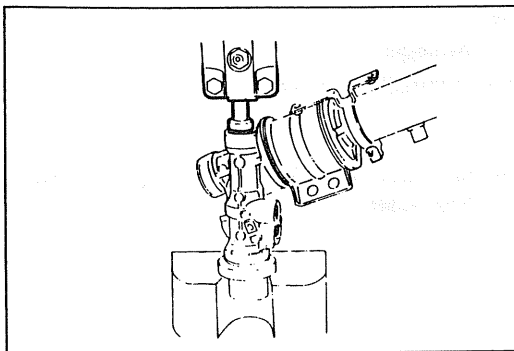
1. Remove the locknut from the adjusting cover.
2. Remove the adjusting cover with the **SST**.
3. Remove the spring and pressure pad.



86U10X-126

#### Housing cover

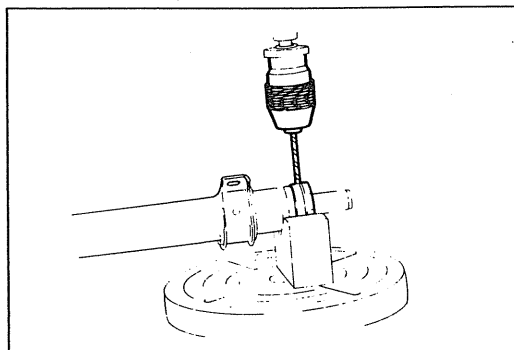
1. Cut away the staked areas with a drill.
2. Remove the housing cover.



86U10X-127

**Pinion shaft**

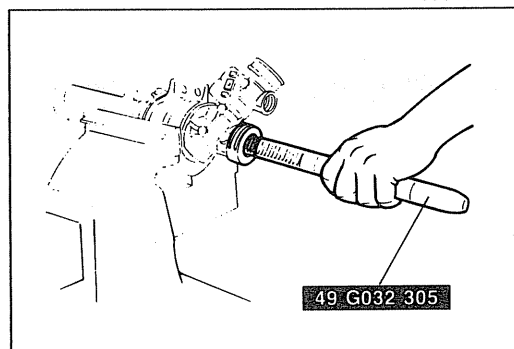
1. Remove the locknut.
2. Set the gear housing assembly on a press and remove the pinion shaft assembly as shown in the figure.



86U10X-128

**Rack bushing**

1. Cut away the staked areas with a drill.
2. Remove the rack bushing.



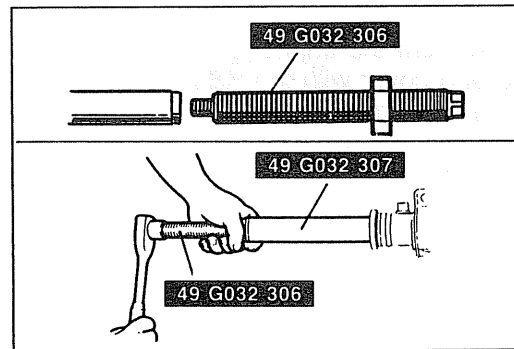
86U10X-129

**Rack and oil seal at tube side**

1. Slide the **SST** over the rack from the gear housing side.

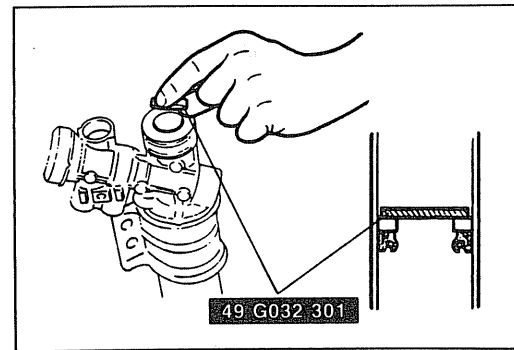
**Note**

- If the rack is removed without using the **SST**, there is the possibility that the rack housing may be damaged by the rack teeth.



96U10X-073

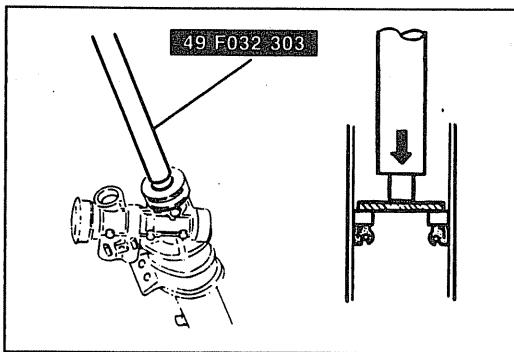
2. Install the **SST** to the threaded part of the rack at the tube side.
3. Remove the oil seal at the tube side by pulling out the rack.



86U10X-131

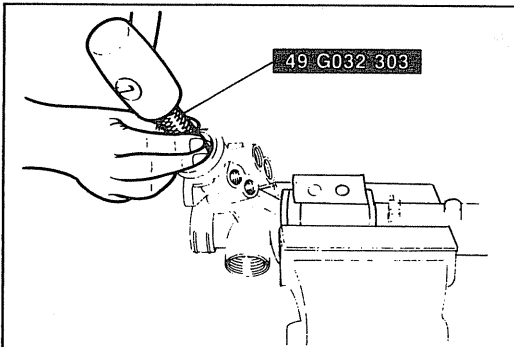
**Spacer and oil seal at housing side**

1. Insert the **SST** from the pinion housing side so that it contacts the spacer.



86U10X-132

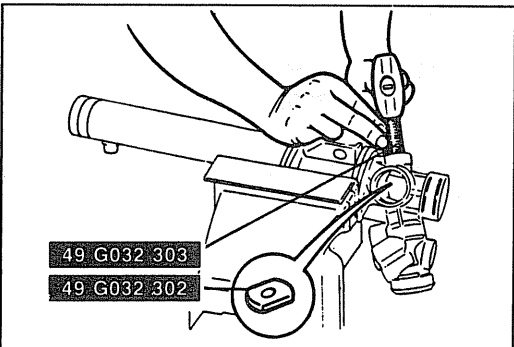
2. Set the **SST** against the **SST** inserted in step 1.
3. Secure the gear housing in a vise.
4. Drive the spacer and oil seal out of the housing.



86U10X-133

### Lower bearing

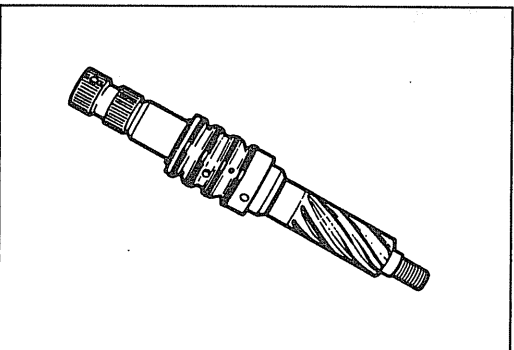
Drive the lower bearing out of the housing with the **SST**.



86U10X-134

### Oil seal and needle bearing

1. Insert the **SST** so that it contacts the needle bearing.
2. Drive the oil seal and needle bearing out with the **SST** bar.



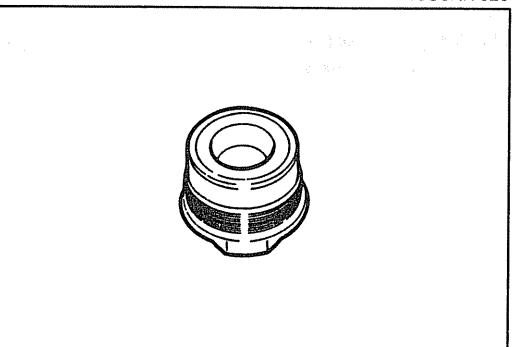
16U0NX-020

### INSPECTION

Check for the following and replace any necessary parts.

#### Pinion shaft assembly

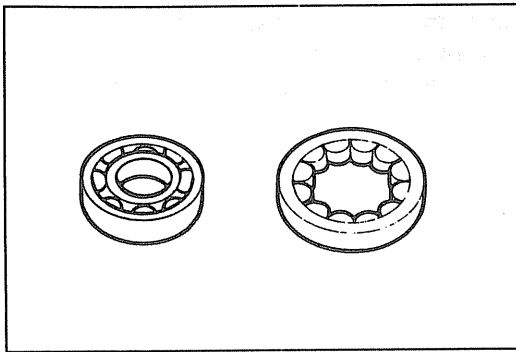
1. Pinion shaft teeth wear or damage.
2. Control valve damage, clogging, or wear.



86U10X-136

#### Rack bushing

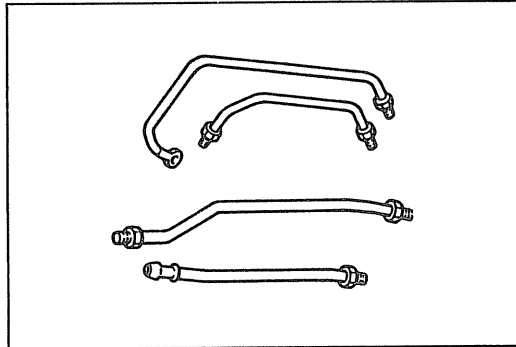
Wear or damage.



86U10X-137

**Bearing**

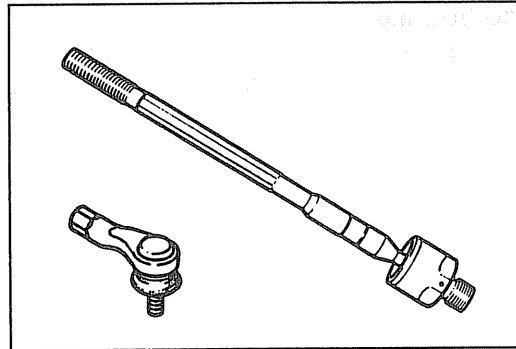
Wear, damage, and operation.



86U10X-138

**Oil pipe**

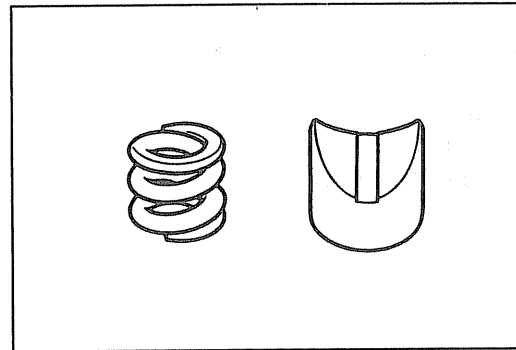
Clogging or damage.



86U10X-139

**Tie-rod and tie-rod end**

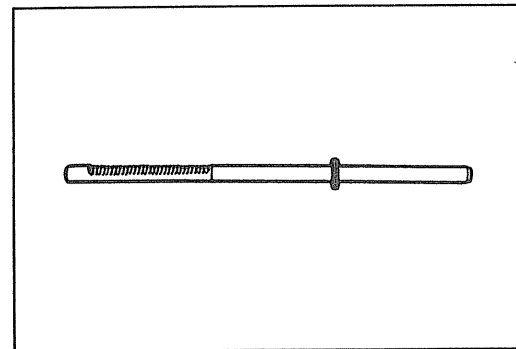
1. Tie rod damage.
2. Tie-rod ball joint damage and operation.
3. Tie rod-end damage and operation.



86U10X-140

**Pressure pad and spring**

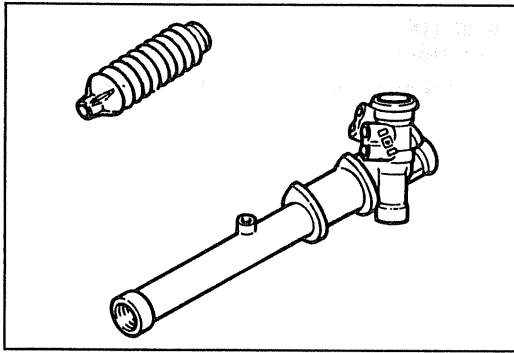
1. Pressure pad damage.
2. Spring damage.



86U10X-141

**Rack**

1. Rack cracking, damage, or wear of teeth.
2. Seal ring holder wear or damage.
3. Rack piston side corrosion.

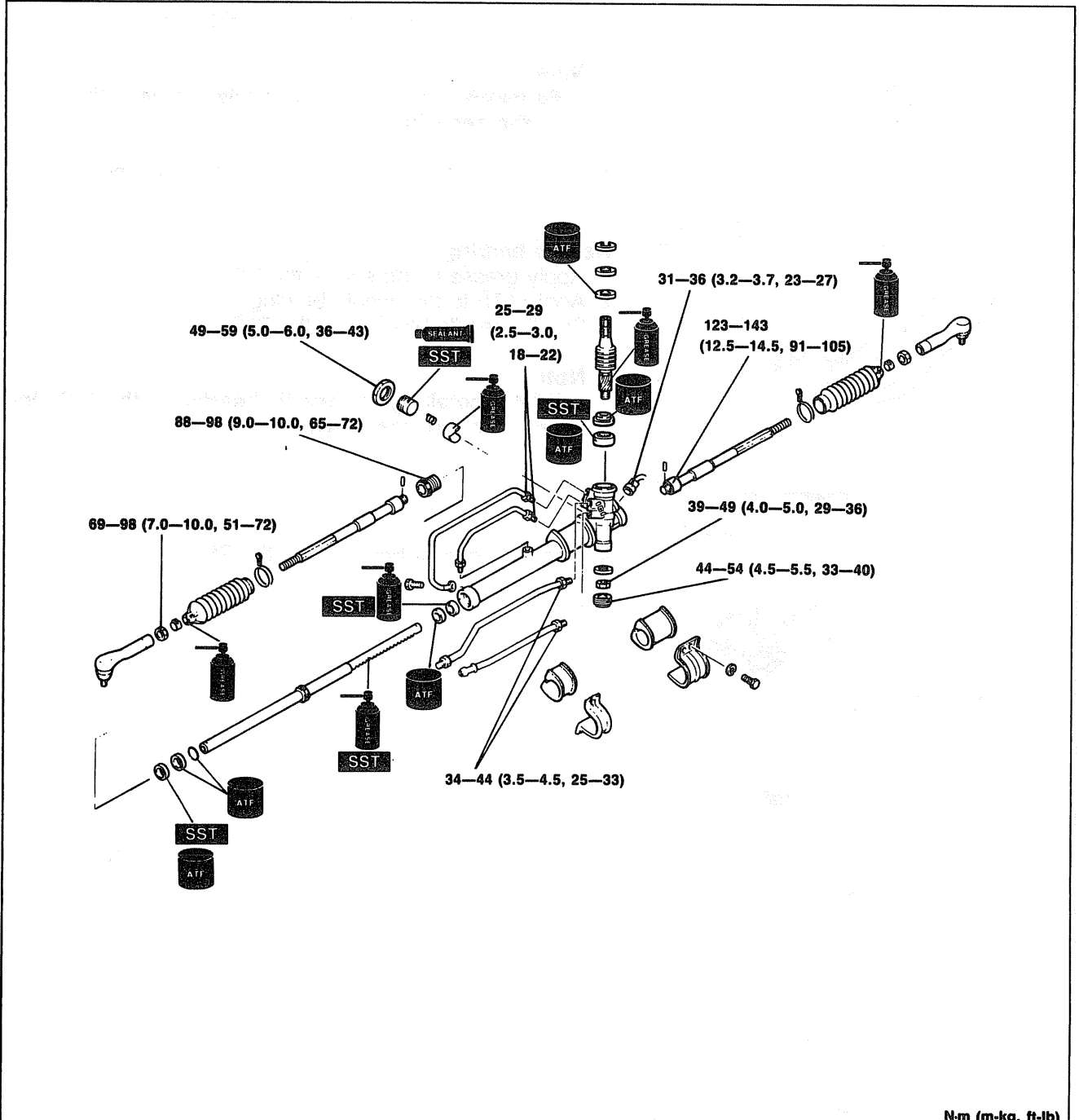


86U10X-142

### Gear housing and boots

1. Gear housing cracking or damage.
2. Boot cracking or tearing.

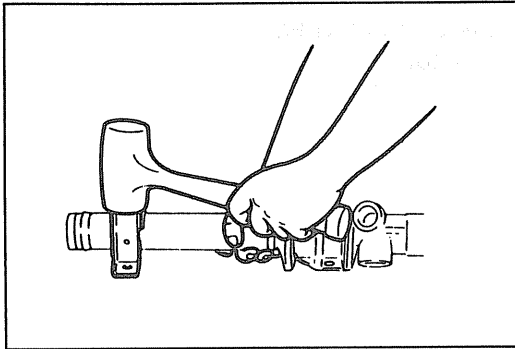
### ASSEMBLY (ESPS [Except Part No. GN81]) Torque Specifications



N-m (m-kg, ft-lb)

16U0NX-021

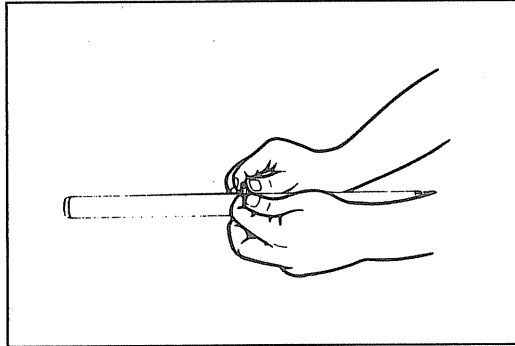
N-29



86U10X-143

**Mounting bracket and rubber**

1. Install the mounting rubber.
2. Tap the mounting bracket on with a plastic hammer.



96U10X-075

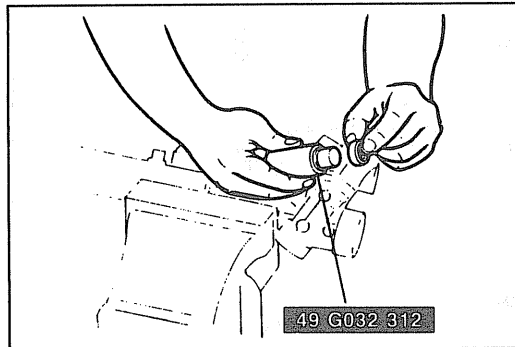
**O-ring and seal ring**

1. Apply AFT to the O-ring and seal ring.
2. Install the O-ring in the ring groove of the rack.
3. Install the seal ring in the groove of the rack.

**Note**

- Be careful not to cut or otherwise damage the edge of the seal ring.

4. Compress the seal ring by hand to fit it into the groove.



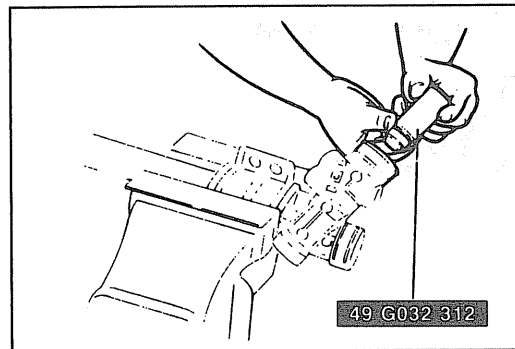
86U10X-145

**Needle bearing**

1. Apply grease to the end of the SST.
2. Apply ATF to the needle bearing.
3. Set the needle bearing on the SST.

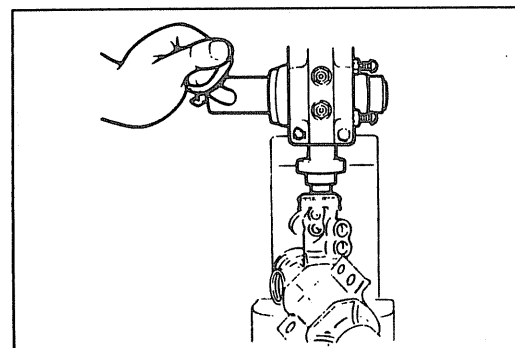
**Note**

- When installing the needle bearing to the SST, install the embossed side first.



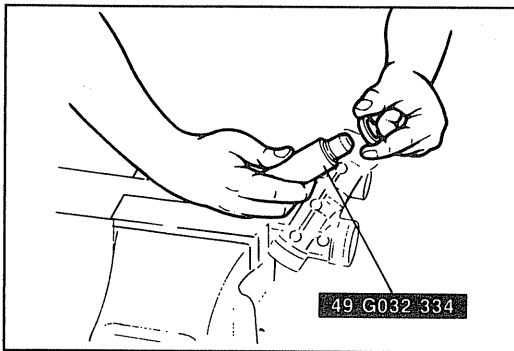
86U10X-146

4. Insert the needle bearing and the SST into the housing.

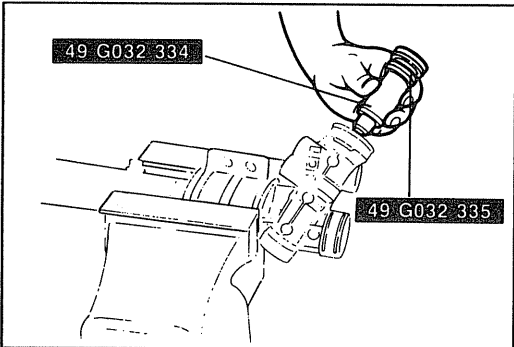


86U10X-147

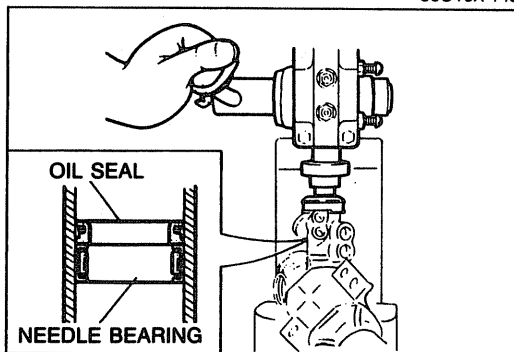
5. Set the housing on a press and press in the bearing.



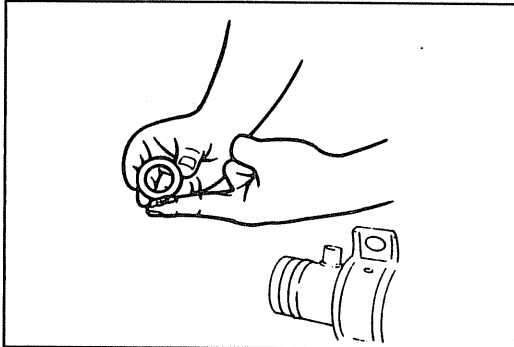
86U10X-148



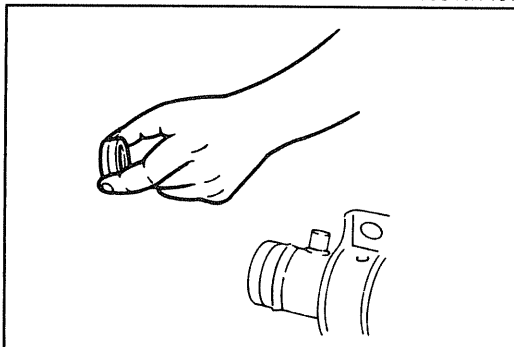
86U10X-149



86U10X-150



86U10X-151



86U10X-152

## Oil seal

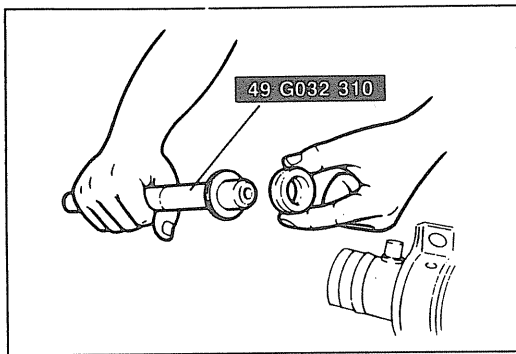
1. Apply grease to the end of the **SST**.
2. Apply ATF to the oil seal.
3. Set the oil seal on the **SST**.

4. Insert the oil seal and the **SST** into the housing.

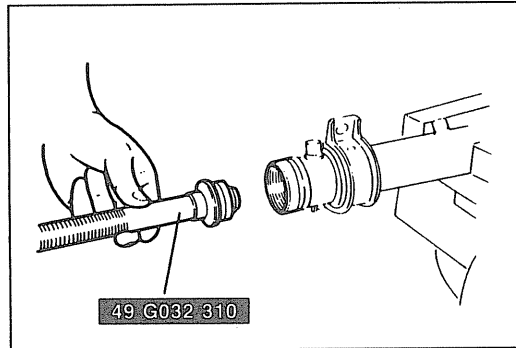
5. Set the housing on a press and press in the seal.

## Spacer and pinion housing side oil seal

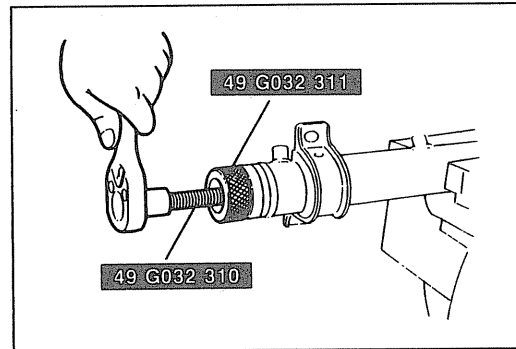
1. Apply grease to flat surface of the spacer.
2. Connect the oil seal to the grease coated surface of the spacer.
3. Apply ATF to the inside and outside of the spacer and oil seal.



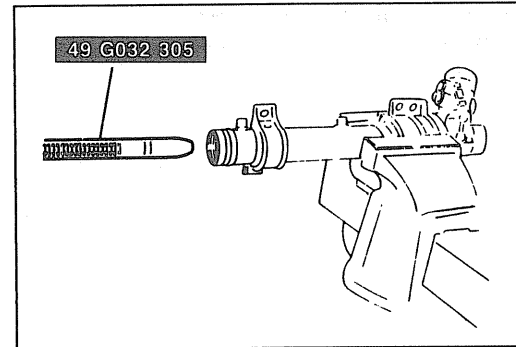
86U10X-153



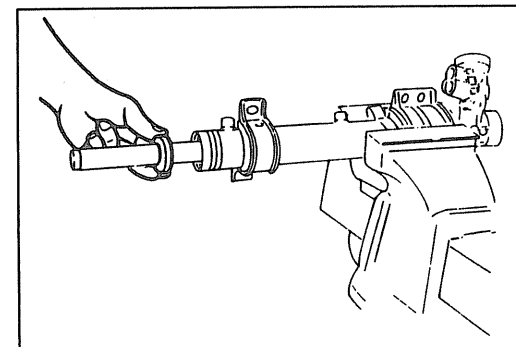
86U10X-154



86U10X-155



86U10X-156



86U10X-157

4. Set the spacer and oil seal on the **SST**.

5. Insert the **SST** from the tube side.

6. Install and tighten the **SST** nut against the tube.

7. Turn the **SST** shaft in as far as it will go to push in the seal and spacer.

8. Remove the **SST**.

**Rack**

1. Apply grease (lithium base, NLGI No.2) to the friction surface and teeth of the rack.

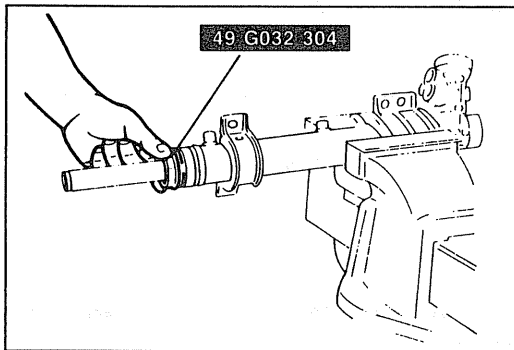
2. Slide the **SST** over the rack and slide it in from the tube side.

3. Remove the **SST**.

**Oil seal (Rack)**

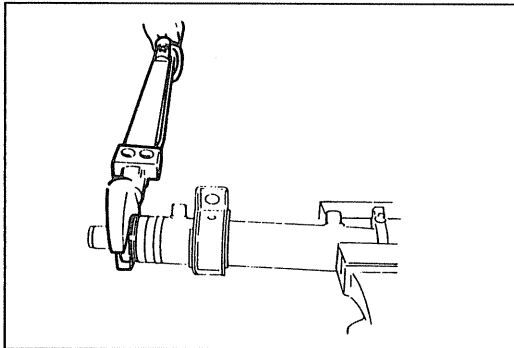
1. Apply ATF to the oil seal and slide it on the rack.





96U10X-076

2. Set the **SST** on the rack.
3. Turn the **SST** as far as it will go to push the oil seal into the tube.
4. Remove the **SST**.



96U10X-077

### Rack bushing

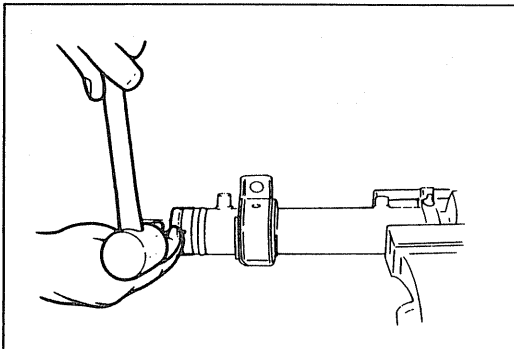
1. Install the rack bushing assembly in the rack housing.

#### Tightening torque:

**88—98 N·m (9—10 m·kg, 65—72 ft·lb)**

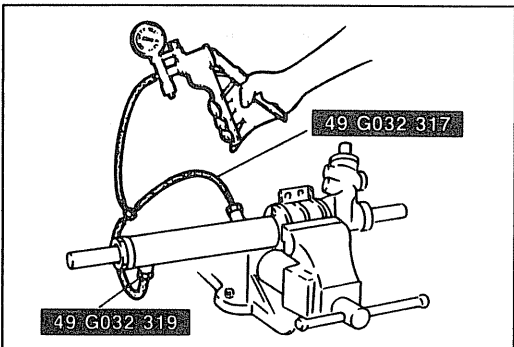
#### Note

- The oil seal is pushed to the correct position in the rack housing by tightening the rack bushing.



86U10X-160

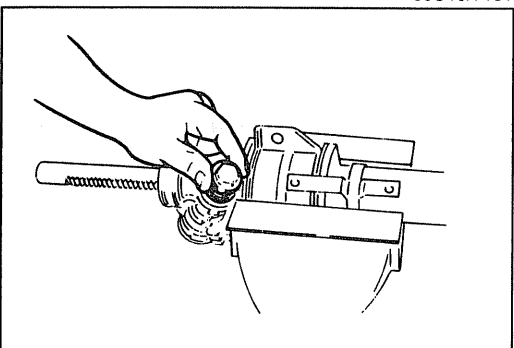
2. Stake the rack housing at two points **approx 1.5 mm (0.06 in)** from the end with a hammer and center punch.



86U10X-161

### Hermetic inspection

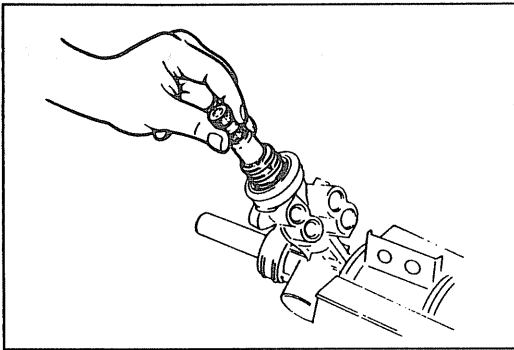
1. Connect the **SST** to the cylinder housing.
2. Connect a vacuum pump to the **SST**.
3. Apply **400 mmHg (15.7 inHg)** vacuum.
4. Verify that vacuum is held for at least **30 sec**. If not, check the seal and assembly.



16U0NX-048

### Lower bearing

1. Secure the gear housing in a vise so that the lower bearing bore faces upward.
2. Apply ATF to the lower bearing, then install it in the housing.
3. Press the bearing into the gear housing with the housing cover. Tighten the cover until resistance suddenly increases.



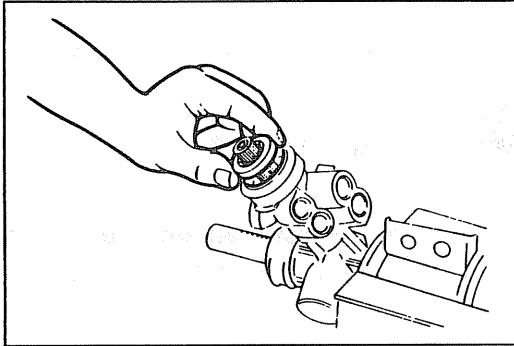
86U10X-163

**Pinion shaft assembly**

1. Apply grease (lithium base, NLGI No. 2) to the teeth of the pinion shaft.
2. Apply ATF to the seal ring and the friction surface of the control valve.
3. Install the pinion shaft in the housing.

**Note**

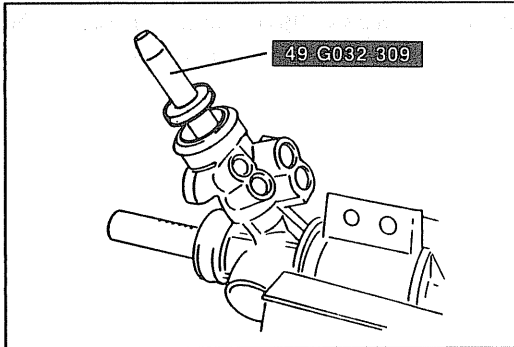
- Be careful not to damage the oil seal by the teeth of the pinion.
- Be careful not to damage the edge of the seal ring and control valve.



86U10X-164

**Upper bearing**

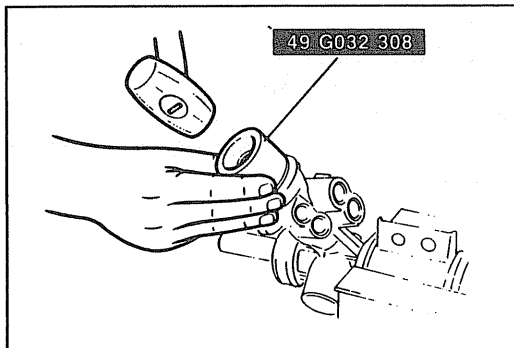
Apply ATF to the upper bearing, then install it.



86U10X-165

**Oil seal**

1. Apply ATF to the oil seal, and fill inside the lip with grease (lithium base, NLGI No. 2).
2. Slide the **SST** over the serrations of the pinion shaft assembly.
3. Slide the oil seal over the **SST** and position it in the housing.

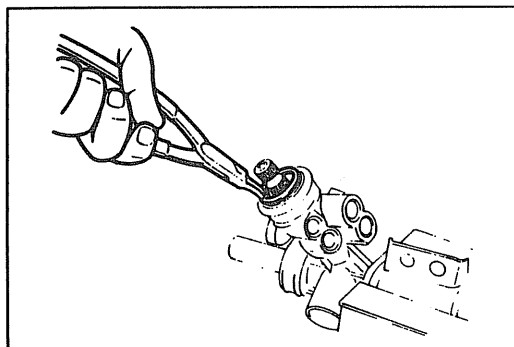


86U10X-166

4. Tap the oil seal in with the **SST** until the snap ring installation groove in the housing is just visible.

**Note**

- Apply uniform force to the oil seal when installing.



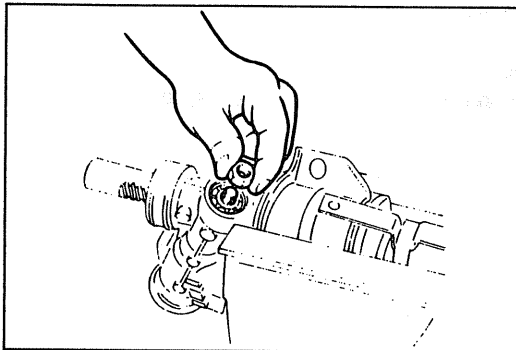
86U10X-167

**Snap ring**

Install the snap ring.

**Note**

- Verify that the snap ring is correctly seated in the ring groove of the housing.



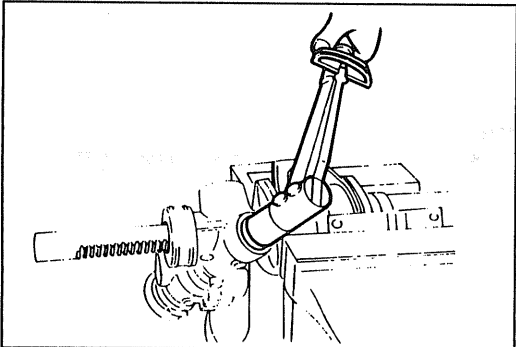
96U10X-078

### Locknut

1. Temporarily install the tie-rod on the tube side of the rack.
2. Invert the housing and install the locknut on the pinion shaft.  
Turn it until the tie-rod contacts the tube.
3. Tighten the locknut.

### Tightening torque:

**39—49 N·m (4.0—5.0 m·kg, 29—36 ft·lb)**



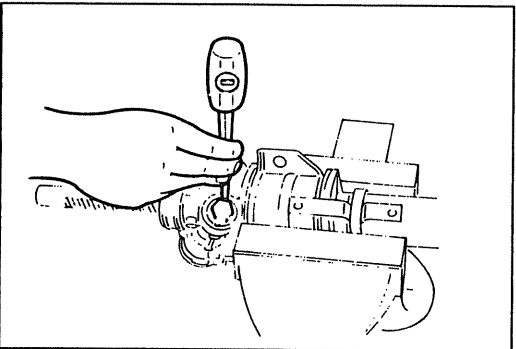
86U10X-169

### Housing cover

1. Apply thread sealant to the housing cover threads.
2. Install the housing cover.

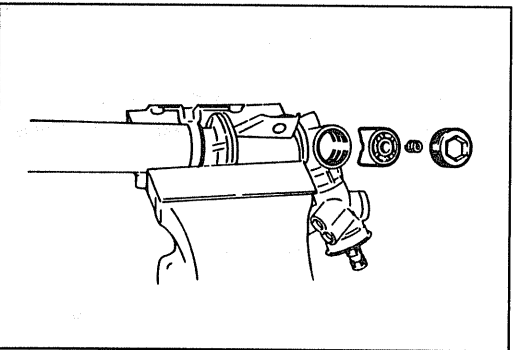
### Tightening torque:

**44—54 N·m (4.5—5.5 m·kg, 33—40 ft·lb)**



86U10X-170

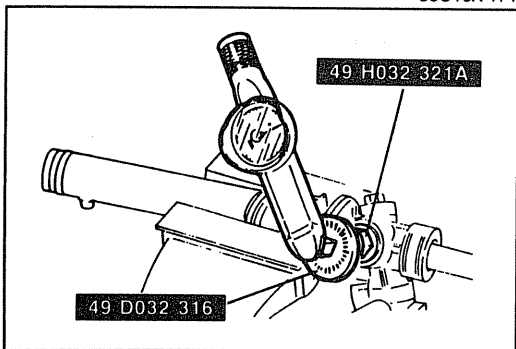
3. Stake between the rack housing and housing cover at two points with a center punch.



86U10X-171

### Pressure pad

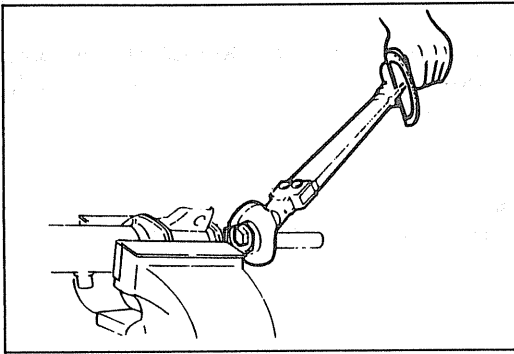
1. Secure the gear housing in a vise so that the pressure pad position faces upward.
2. Apply grease (lithium base NLGI No. 2) to the rack sliding surface of the pressure pad, then install it in the housing.
3. Install the pressure pad.



96U10X-079

### Adjusting cover

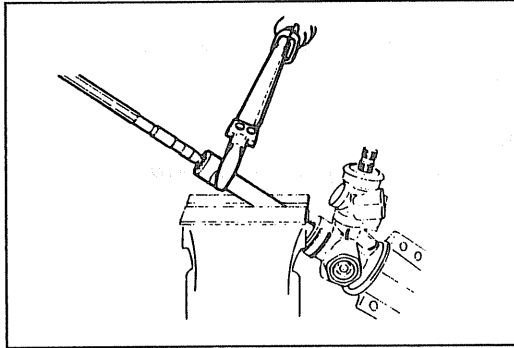
1. Set the rack in the center position.
2. Tighten the adjusting cover to **9.8 N·m (100 cm·kg, 7.2 ft·lb)**, then loosen it.
3. Tighten again to **4.9 ± 0.5 N·m (50 ± 5 cm·kg, 3.6 ± 0.4 ft·lb)**, and then return it 45°.
4. Apply thread sealant to the exposed threads of the adjusting cover.



86U10X-173

5. Install and tighten the locknut.

**Tightening torque:**  
 49—59 N·m (5.0—6.0 m·kg, 36—43 ft·lb)

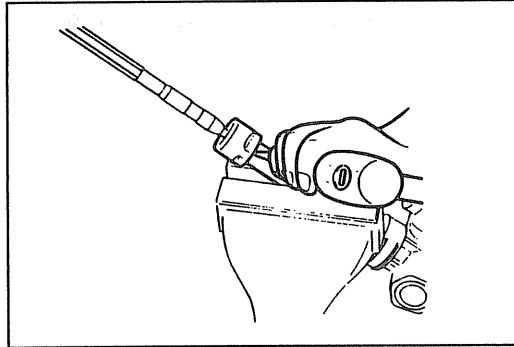


16U0NX-022

**Tie-rod**

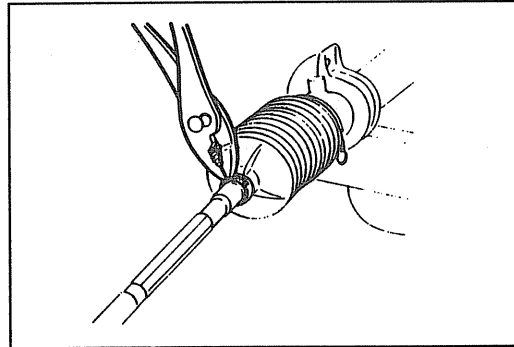
1. Secure the rack in a vise.
2. Install the tie-rod onto the rack.

**Tightening torque:**  
 123—143 N·m (12.5—14.5 m·kg, 91—105 ft·lb)



16U0NX-023

3. Tap in a new lock pin.



16U0NX-049

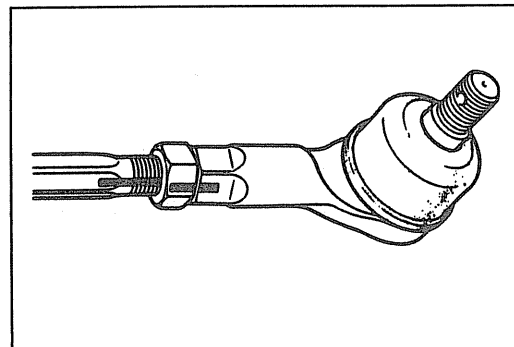
**Boot**

1. Apply grease to the inner surface of the small end of the boot.
2. Install the boot. Wrap a new wire around the large end of the boot twice and then twist it 4 to 4.5 times. Bend the twisted part toward the mounting bracket.

**Note**

- Be careful not to break the boot wire.

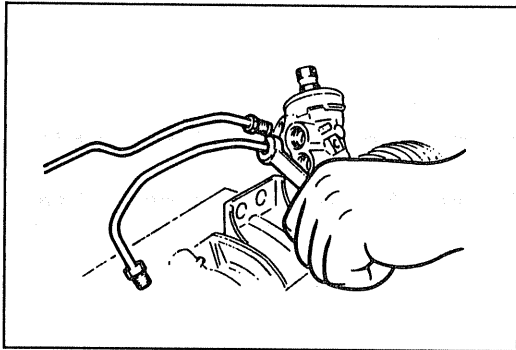
3. Install the spring clamp on the small end of the boot.



96U10X-082

**Tie-rod end**

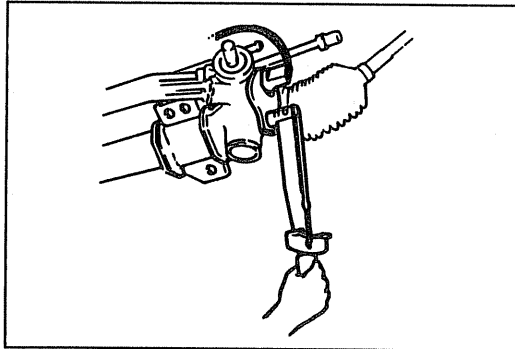
Align with the marks made before disassembly, and tighten the nut.



86U10X-083

### Oil pipe

1. Secure the mounting bracket in a vise so that the oil pipe connections face upward.
2. Install the oil pipes.



86U10X-179

### Oil pressure switch

1. Install the pressure switch O-ring in the gear housing.
2. Install the oil pressure switch.

### Tightening torque:

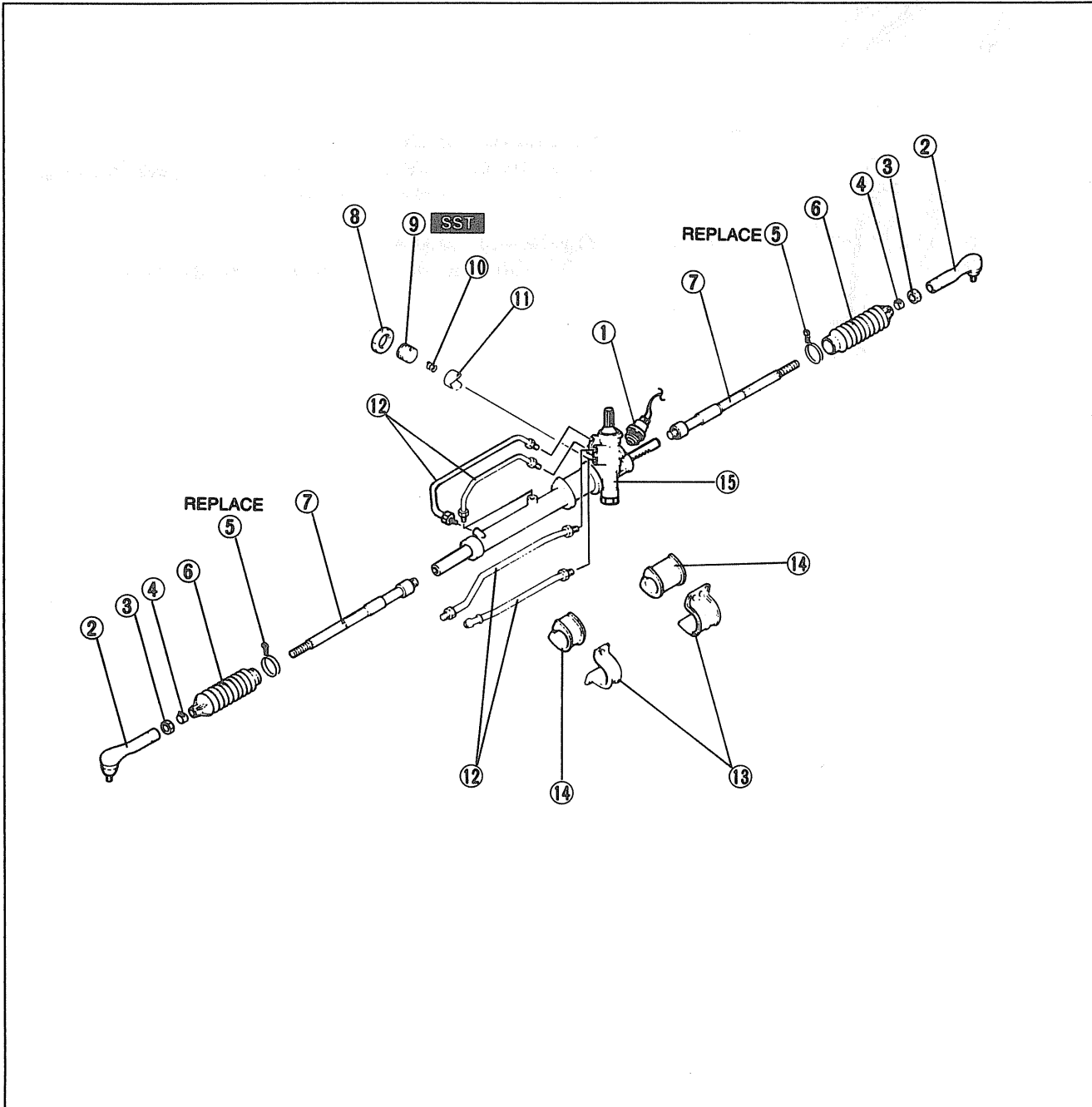
**31—36 N·m (3.2—3.7 m·kg, 23—27 ft·lb)**

### DISASSEMBLY (ESPS [Parts No. GN81])

Disassemble in the order shown in the figure, referring to Disassembly Note.

#### Caution

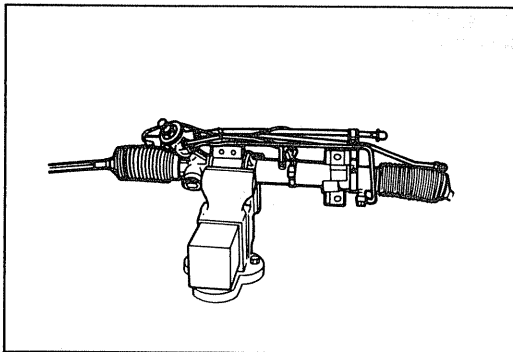
- In order to prevent the entrance of dirt, all disassembly and assembly should be done in a clean area.
- Before disassembly, plug all pipe fittings, and thoroughly clean the steering gear and linkage.



16UONX-024

1. Oil pressure switch
2. Tie-rod end
3. Tie-rod end locknut
4. Spring clip
5. Boot wire
6. Boot
7. Tie-rod
8. Adjust cover locknut

9. Adjust cover
10. Spring
11. Pressure pad
12. Oil pipe
13. Mounting bracket
14. Mounting rubber mount
15. Steering gear and housing assembly



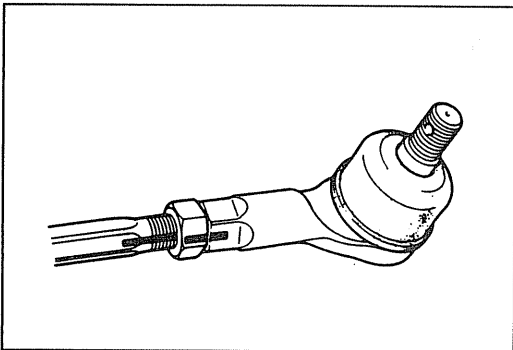
86U10X-122

**Disassembly Note**  
**Steering gear and linkage**

Secure the gear and linkage in a vise.

**Caution**

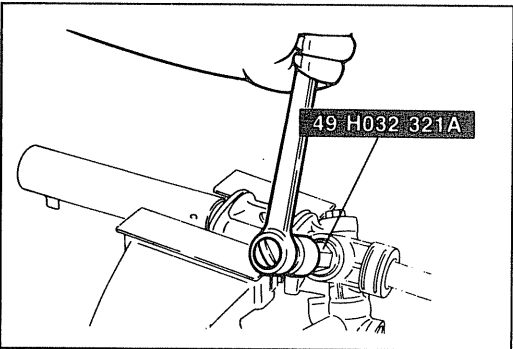
- Insert protective material (such as copper plates) in the jaws of the vise.



86U10X-123

**Tie-rod ends**

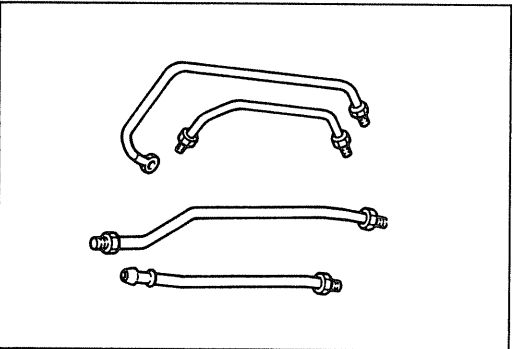
Before removing the tie-rod ends, make a mark for proper installation.



96U10X-072

**Adjusting cover**

1. Remove the locknut from the adjusting cover.
2. Remove the adjusting cover with the **SST**.
3. Remove the spring and pressure pad.



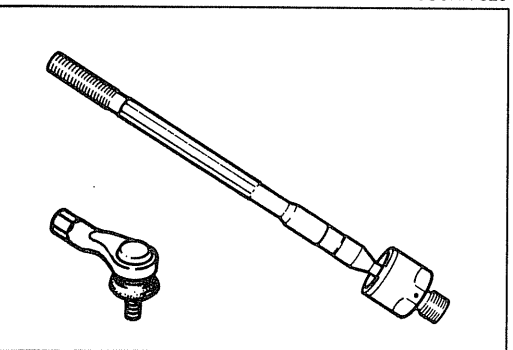
16U0NX-025

**INSPECTION**

Check for the following and replace any necessary parts.

**Oil pipe**

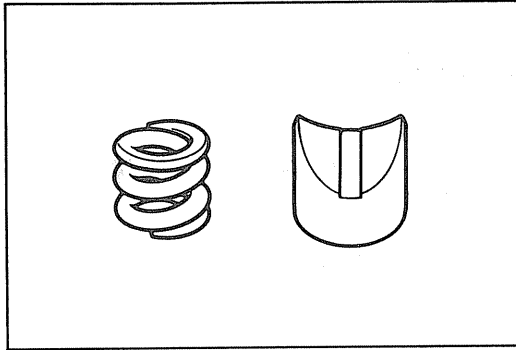
Clogging or damage.



86U10X-139

**Tie-rod and tie-rod end**

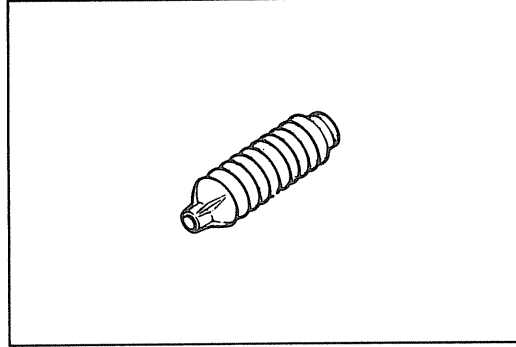
1. Tie rod damage.
2. Tie-rod ball joint damage and operation.
3. Tie rod-end damage and operation.



86U10X-140

### Pressure pad and spring

1. Pressure pad damage.
2. Spring damage.



16U0NX-026

### Boots

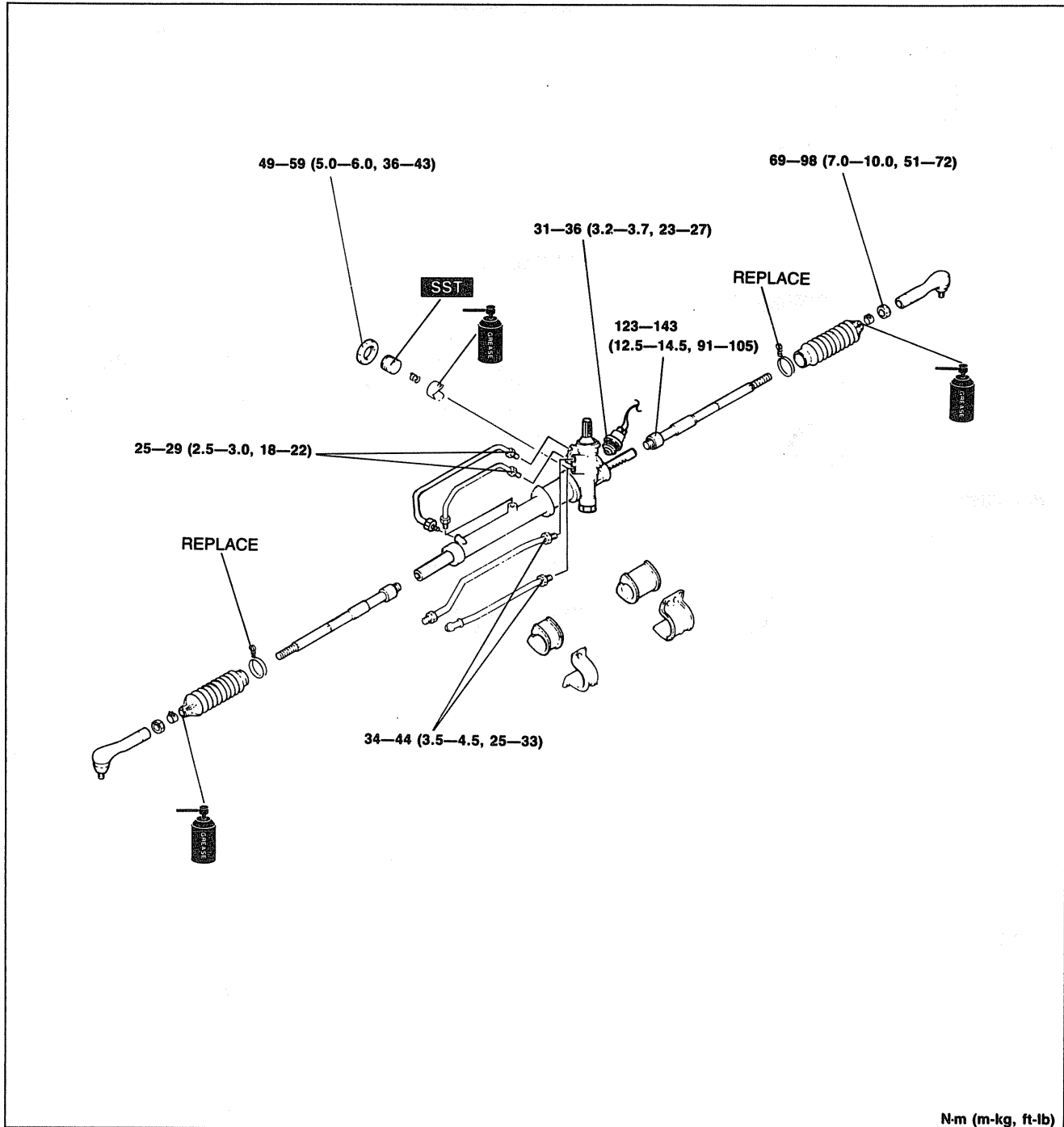
1. Boot cracking or tearing.



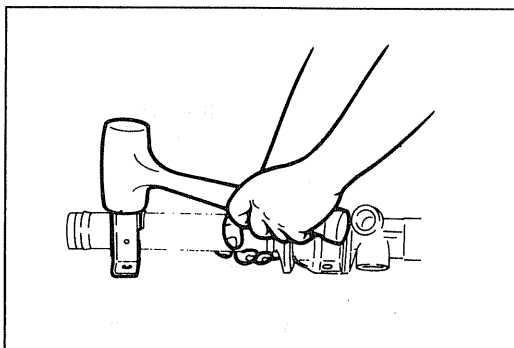
# STEERING GEAR AND LINKAGE

N

## ASSEMBLY (ESPS [Part No. GN81]) Torque Specifications



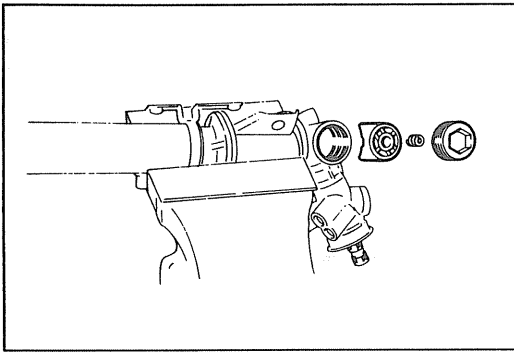
16U0NX-027



### Mounting bracket and rubber

1. Install the mounting rubber.
2. Tap the mounting bracket on with a plastic hammer.

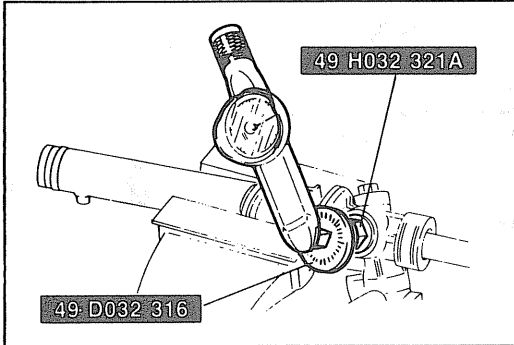
86U10X-143



86U10X-171

**Pressure pad**

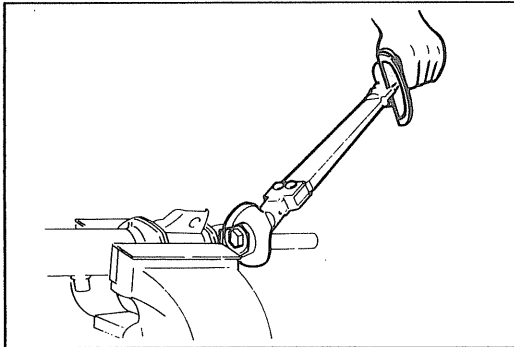
1. Secure the gear housing in a vise so that the pressure pad position faces upward.
2. Apply grease (lithium base NLGI No. 2) to the rack sliding surface of the pressure pad, then install it in the housing.
3. Install the pressure pad.



96U10X-079

**Adjusting cover**

1. Set the rack in the center position.
2. Tighten the adjusting cover to **9.8 N-m (100 cm-kg, 7.2 ft-lb)**, then loosen it.
3. Tighten again to **4.9 ± 0.5 N-m (50 ± 5 cm-kg, 3.6 ± 0.4 ft-lb)**, and then return it 45°.
4. Apply thread sealant to the exposed threads of the adjusting cover.

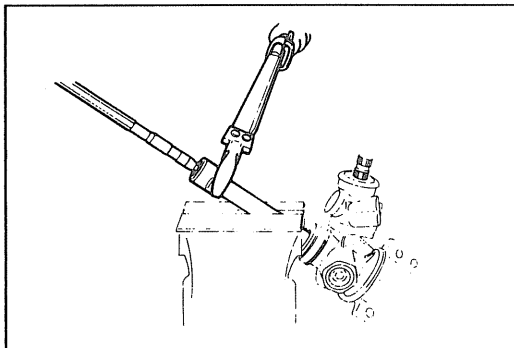


86U10X-173

5. Install and tighten the locknut.

**Tightening torque:**

**49—59 N-m (5.0—6.0 m-kg, 36—43 ft-lb)**



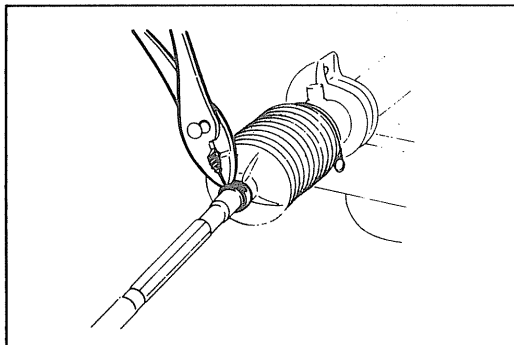
96U10X-080

**Tie-rod**

1. Secure the rack in a vise.
2. Install the tie-rod onto the rack.

**Tightening torque:**

**123—143 N-m (12.5—14.5 m-kg, 90.6—105 ft-lb)**



16U0NX-050

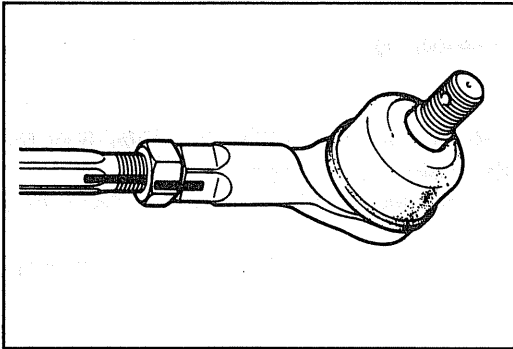
**Boot**

1. Apply grease to the inner surface of the small end of the boot.
2. Install the boot. Wrap a new wire around the large end of the boot twice and then twist it 4 to 4.5 times. Bend the twisted part toward the mounting bracket.

**Note**

- Be careful not to break the boot wire.

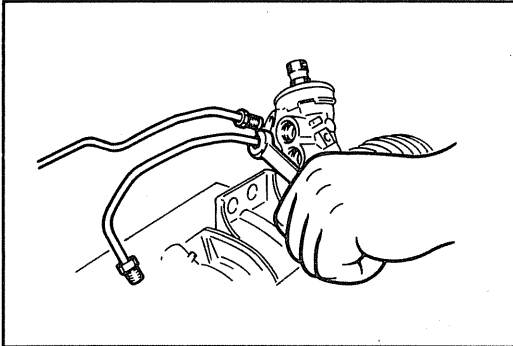
3. Install the spring clamp on the small end of the boot.



96U10X-082

### Tie-rod end

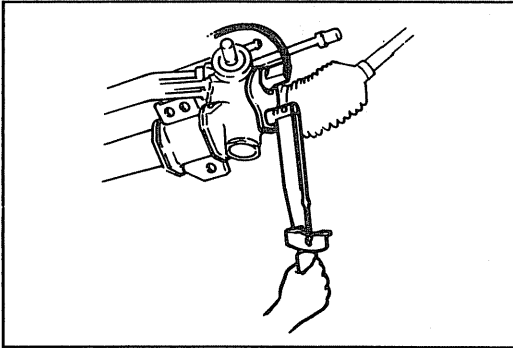
Align with the marks made before disassembly, and tighten the nut.



86U10X-083

### Oil pipe

1. Secure the mounting bracket in a vise so that the oil pipe connections face upward.
2. Install the oil pipes.



86U10X-179

### Oil pressure switch

1. Install the pressure switch O-ring in the gear housing.
2. Install the oil pressure switch.

### Tightening torque:

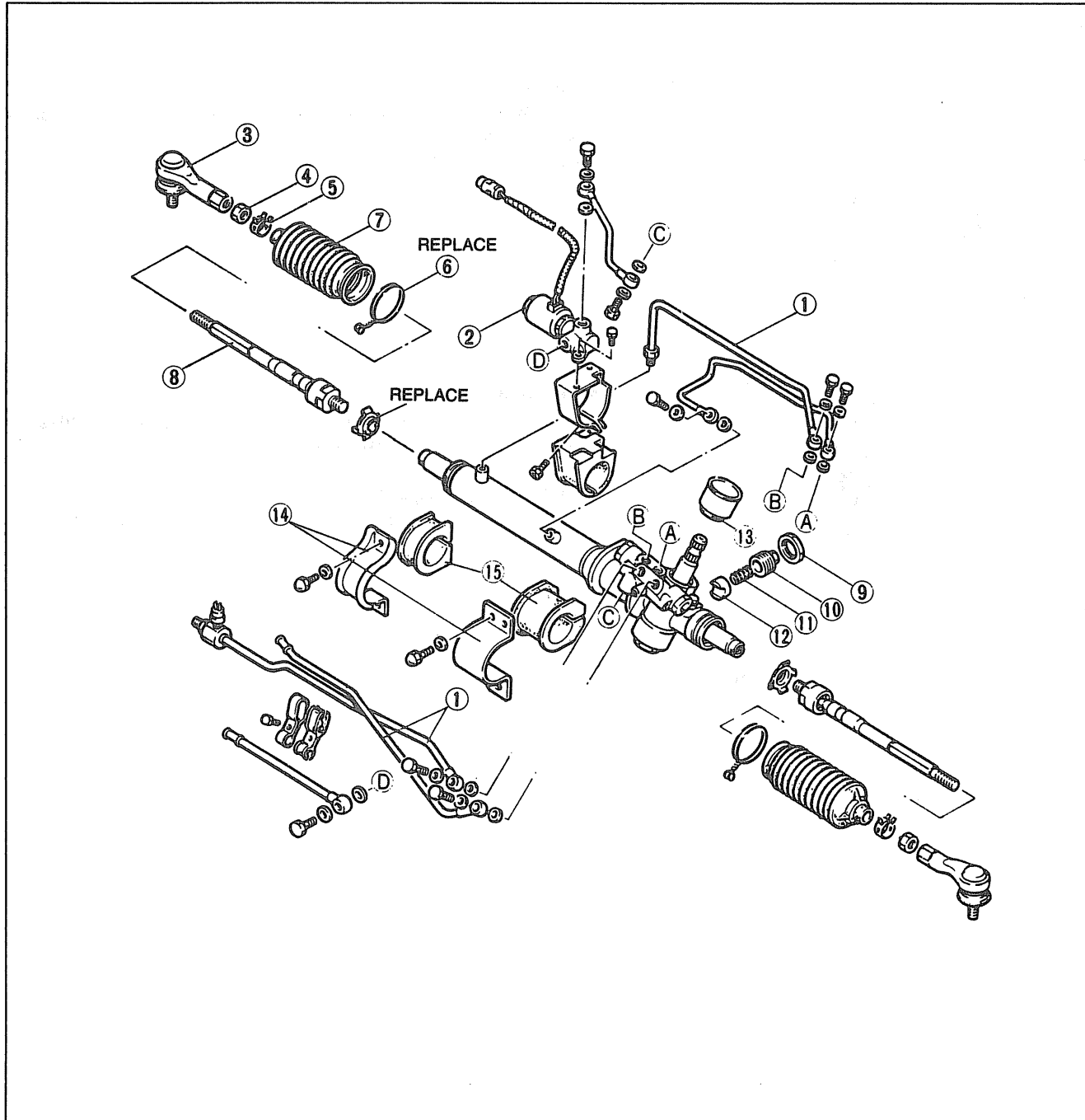
**31—36 N·m (3.2—3.7 m·kg, 23—27 ft·lb)**

### DISASSEMBLY (ECPS)

Disassemble in the order shown in the figure, referring to **Disassembly Note**.

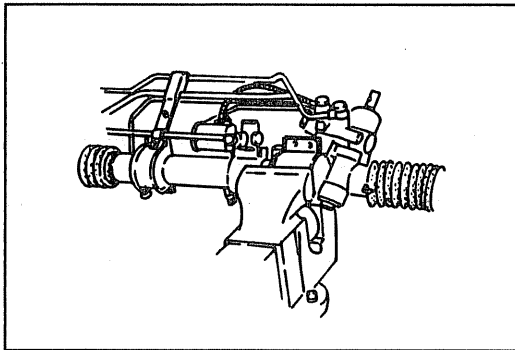
#### Caution

- Because adjustment of the spool valve is not possible, do not disassemble the gear box for spool valve repairs. If repairs are necessary, replace the gear box assembly.
- In order to prevent the entrance of dirt, all disassembly and assembly should be done in a clean area.
- Before disassembly, plug the pipe fittings, and thoroughly clean the steering gear and linkage.



16U0NX-028

- |                        |                            |                      |
|------------------------|----------------------------|----------------------|
| 1. Pipe                | 6. Boot wire               | 11. Spring           |
| 2. Solenoid valve      | 7. Boot                    | 12. Pressure pad     |
| 3. Tie-rod end         | 8. Tie-rod                 | 13. Oil seal         |
| 4. Tie-rod end locknut | 9. Adjusting cover locknut | 14. Mounting bracket |
| 5. Spring clamp        | 10. Adjusting cover        | 15. Mounting rubber  |



16U0NX-051

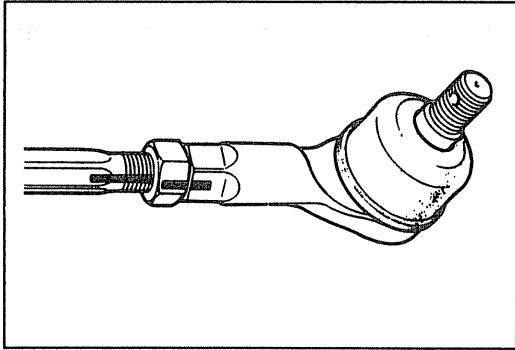
### Disassembly Note

#### Steering gear and linkage

Secure the mounting part of the removed gear and linkage in a vise.

#### Caution

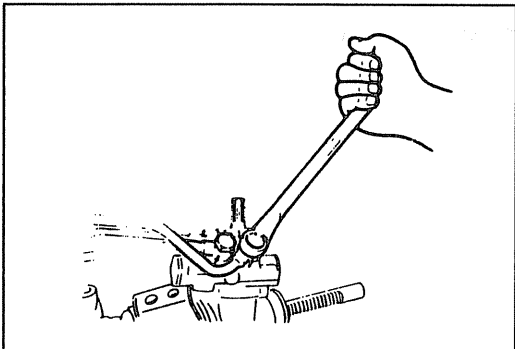
- Insert protective material (such as copper plates) in the jaws of the vise.



86U10X-182

#### Tie-rod ends

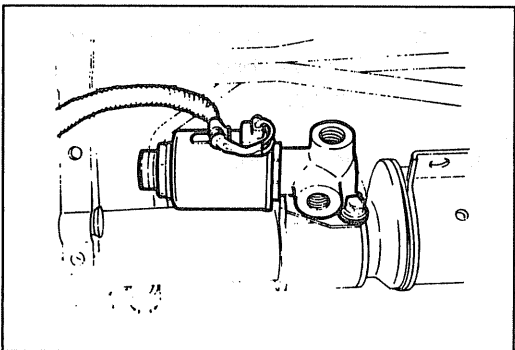
Before removing the tie-rod ends, make a mark for proper installation.



86U10X-183

#### Oil pipe

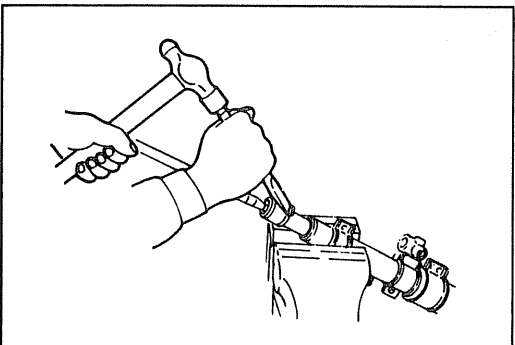
Mark the pressure and return pipes and the valve case for proper installation. Remove the pipes.



86U10X-184

#### Solenoid valve

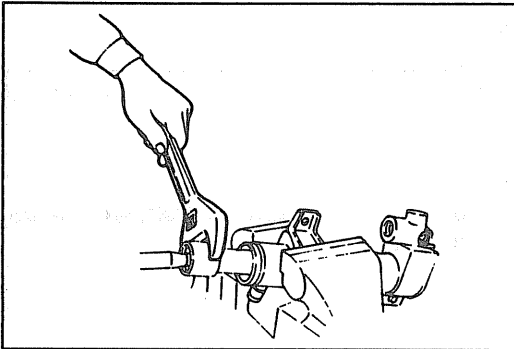
Remove the solenoid valve.



86U10X-185

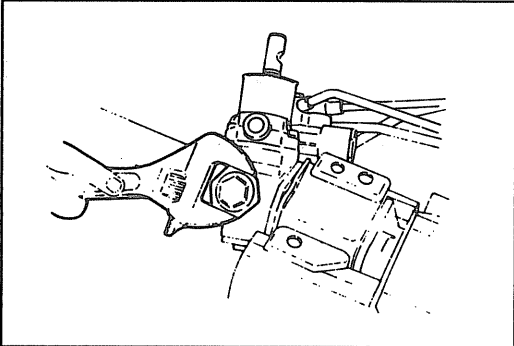
#### Tie-rods

1. Uncrimp the washer as shown in the figure.



63U10X-127

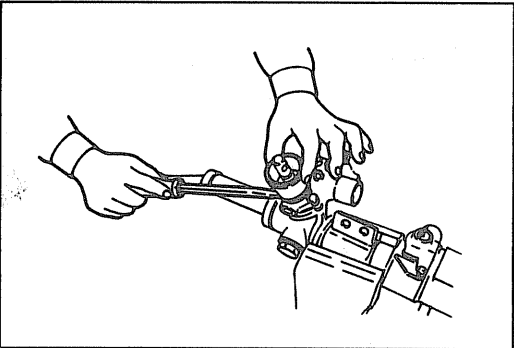
2. Remove the tie-rod from the rack.



96U10X-085

#### Locknut and adjusting cover

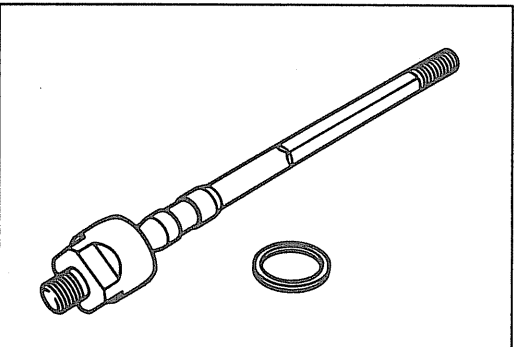
Loosen the locknut and remove the adjusting cover, spring, and pressure pad.



86U10X-188

#### Oil seal

Remove the oil seal with a screwdriver.

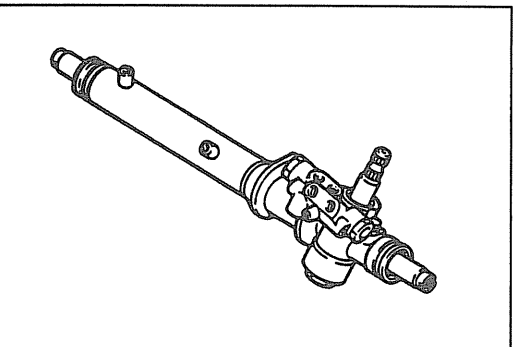


16U0NX-029

#### INSPECTION (ECPS)

Check for the following and replace any necessary parts.

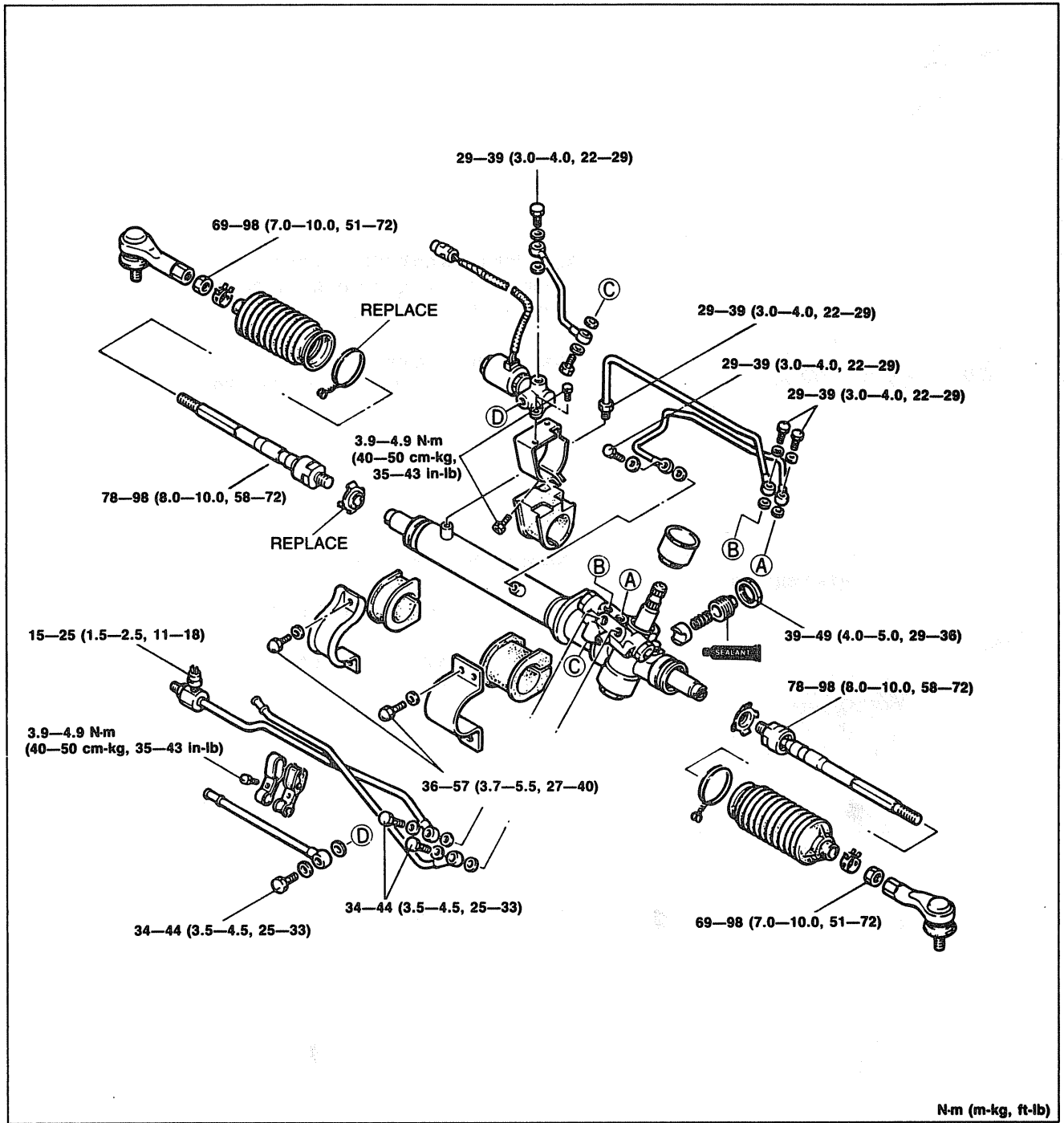
1. Cracked, damaged, or deteriorated boots.
2. Worn pressure pad friction surface.
3. Loose or sticking tie-rod ball joint.
4. Bent or damaged tie-rod or tie-rod end.



96U10X-087

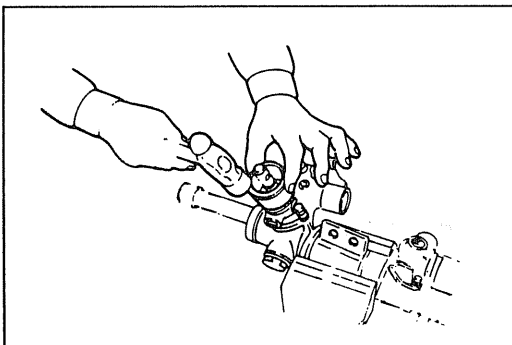
5. Cracked or damaged gear housing.
6. Steering gear oil leakage.

## ASSEMBLY (ECPS) Torque Specifications

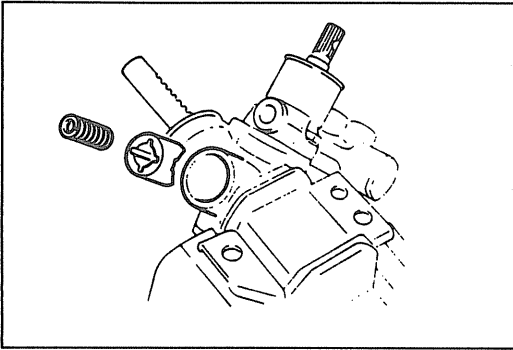


16UONX-030

1. Install the oil seal with a suitable pipe.

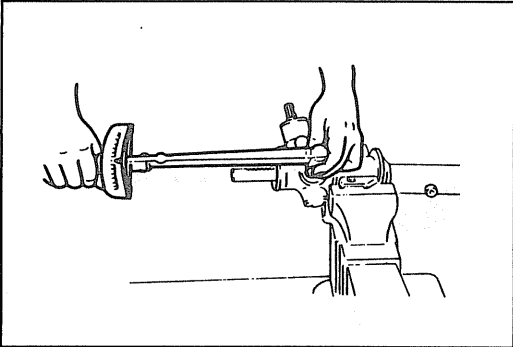


96U10X-088



96U10X-089

2. Install the pressure pad and spring in the gear housing.

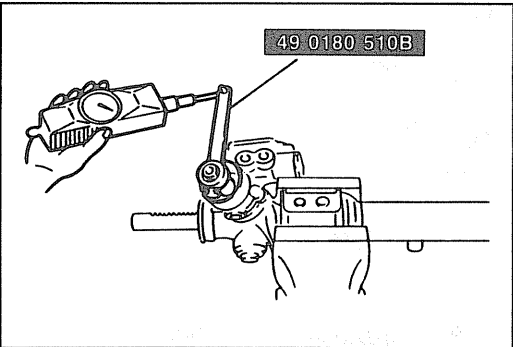


96U10X-090

3. Apply thread sealant to the threads of the adjusting cover.  
4. Install the adjusting cover to the gear housing and tighten it as specified; then loosen it 35°.

**Tightening torque:**

4.5—5.5 N·m (45—55 cm·kg, 39—48 in·lb)

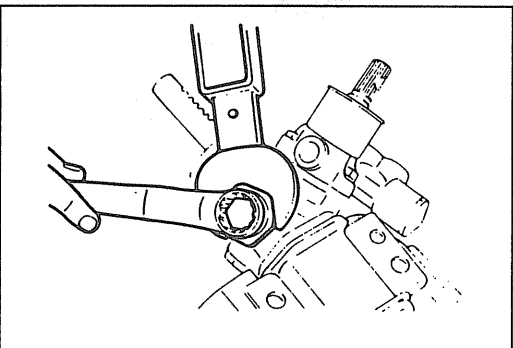


96U10X-091

5. Measure the pinion torque with the SST.

**Pull scale:** 1,000—1,400 g (35.3—49.4 oz)

6. If the pinion torque is not within specification, readjust the adjusting cover.

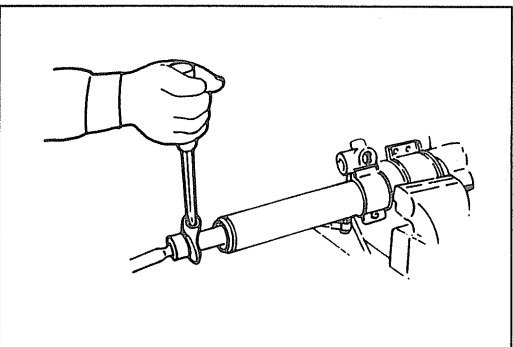


96U10X-092

7. Lock the adjusting cover with the locknut.

**Tightening torque:**

40—50 N·m (4—5 m·kg, 29—36 ft·lb)



16U0NX-031

8. Set the housing in a vise and install the end washer. Tighten the tie-rod.

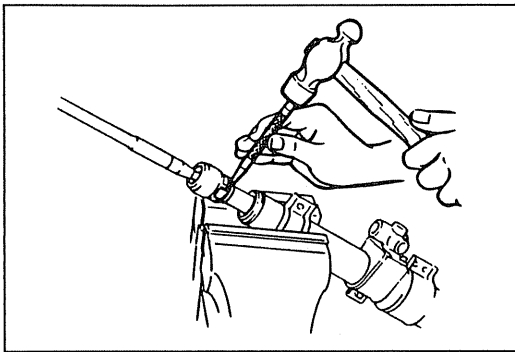
**Tightening torque:**

78—98 N·m (8—10 m·kg, 58—72 ft·lb)

**Caution**

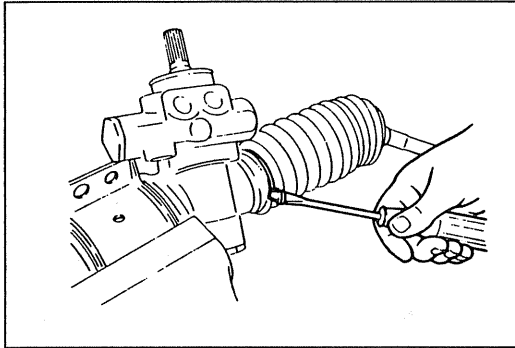
- Insert protective material (such as copper plates) in the jaws of the vise.





96U10X-094

9. Stake the washer in two places with a punch.

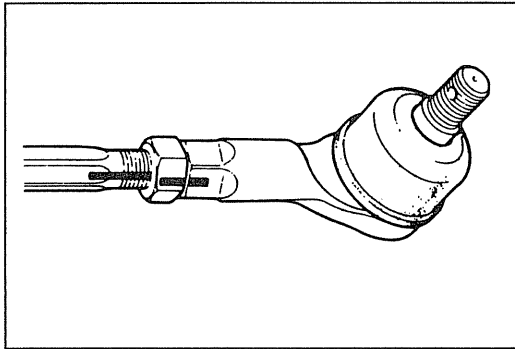


16U0NX-052

10. Install the boot. Wrap a new wire around it twice and twist it 4 to 4.5 times.

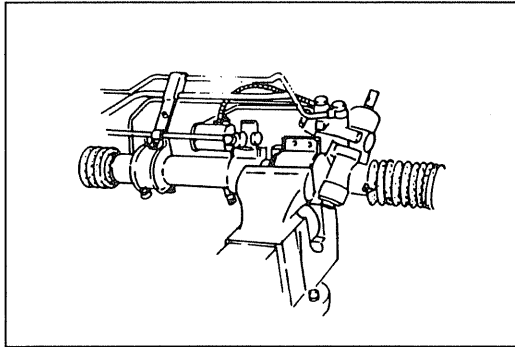
**Caution**

**Be sure that the boot is not twisted or dented.**



96U10X-096

11. Install the tie-rod ends, aligning them with the marks made before disassembly.



96U10X-097

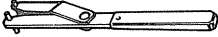
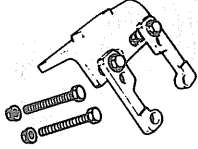
12. Install the solenoid valve and pressure switch.

13. Align the oil pipes with the marks made before disassembly, then tighten them.

OIL PUMP

PREPARATION

SST

<p>49 W023 585A</p> <p>Adjust wrench, oil pump pulley</p> 	<p>For removal of oil pump pulley</p>	<p>49 F032 301</p> <p>Hanger, oil pump body</p> 	<p>For disassembly and assembly of oil pump</p>
---	---------------------------------------	--	---

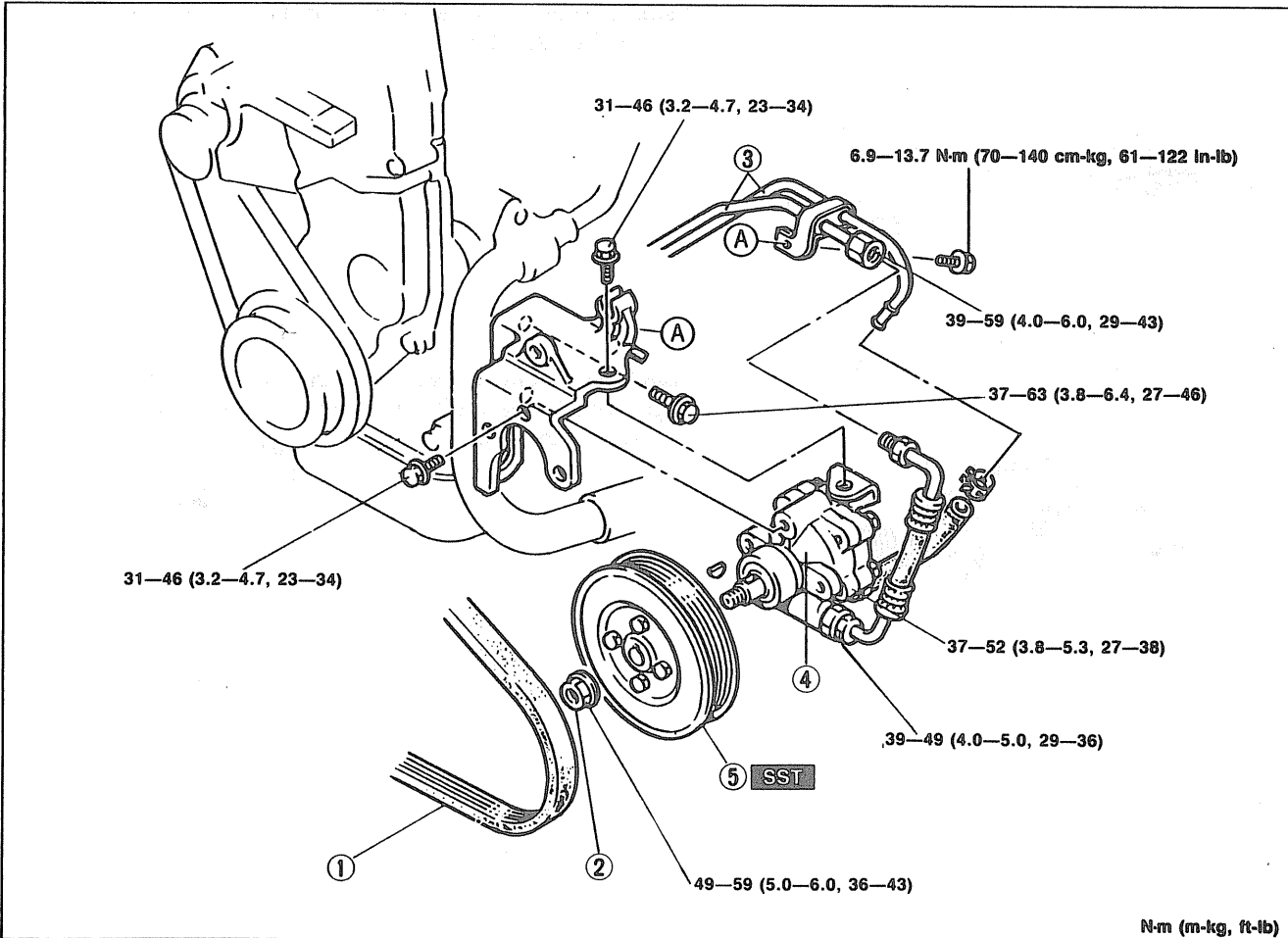
16U0NX-032

REMOVAL / INSTALLATION

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure, referring to Removal Note.
3. Install in the reverse order of removal.
4. Tighten all nuts and bolts to the specified torque, referring to the figure.

Note

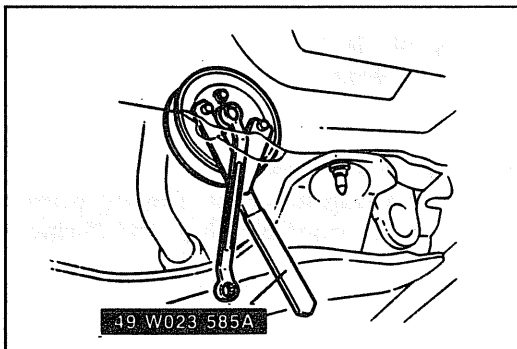
- The power steering fluid will leak out when the return hose or the pressure hose is disconnected. Prepare a suitable container for it to drain into.
- After installation, inspect the deflection of the oil pump belt, bleed the air from the system, and check for fluid leakage.



N-m (m-kg, ft-lb)

16U0NX-033

- |          |                    |
|----------|--------------------|
| 1. Belt  | 4. Oil pump        |
| 2. Nut   | 5. Oil pump pulley |
| 3. Pipes |                    |

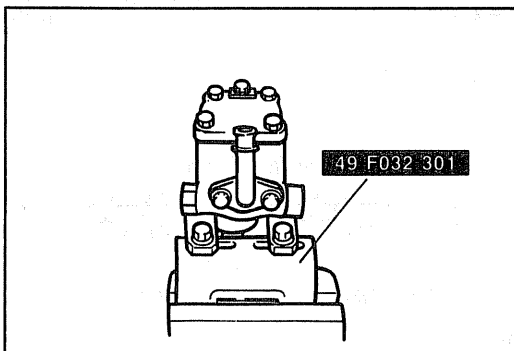


16U0NX-034

**Removal Note****Oil pump**

1. Hold the oil pump pulley with the **SST**, and remove the pulley nut.
2. Slide the pulley forward. Remove the hose, pipes, then pump.
3. Remove the pulley.



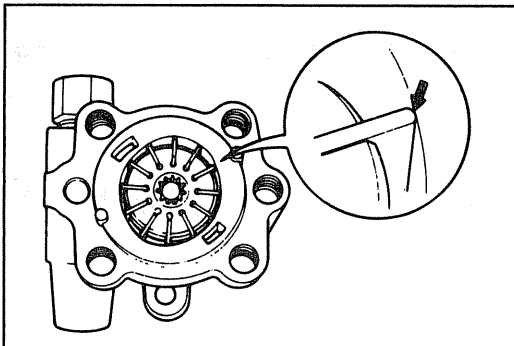


16UONX-036

### Disassembly Note

#### Oil pump body

Secure the oil pump body with the **SST**.

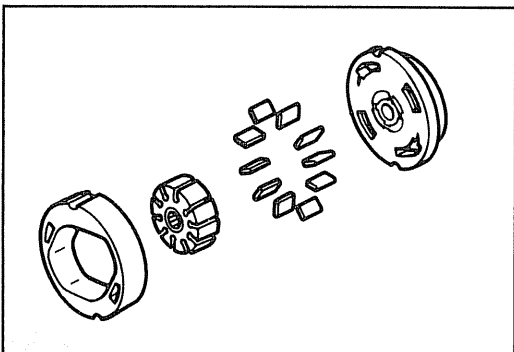


16UONX-037

### Assembly Note

#### Vane

Place the vanes in the rotor with the rounded edges against the cam.

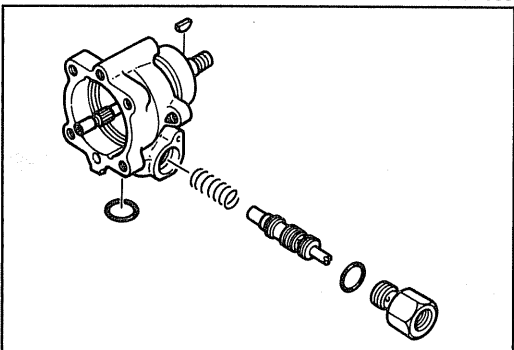


16UONX-038

### INSPECTION

Check for the following, and replace the pump assembly if necessary.

1. Vane damage.
2. Cam ring, rotor or side plate wear.



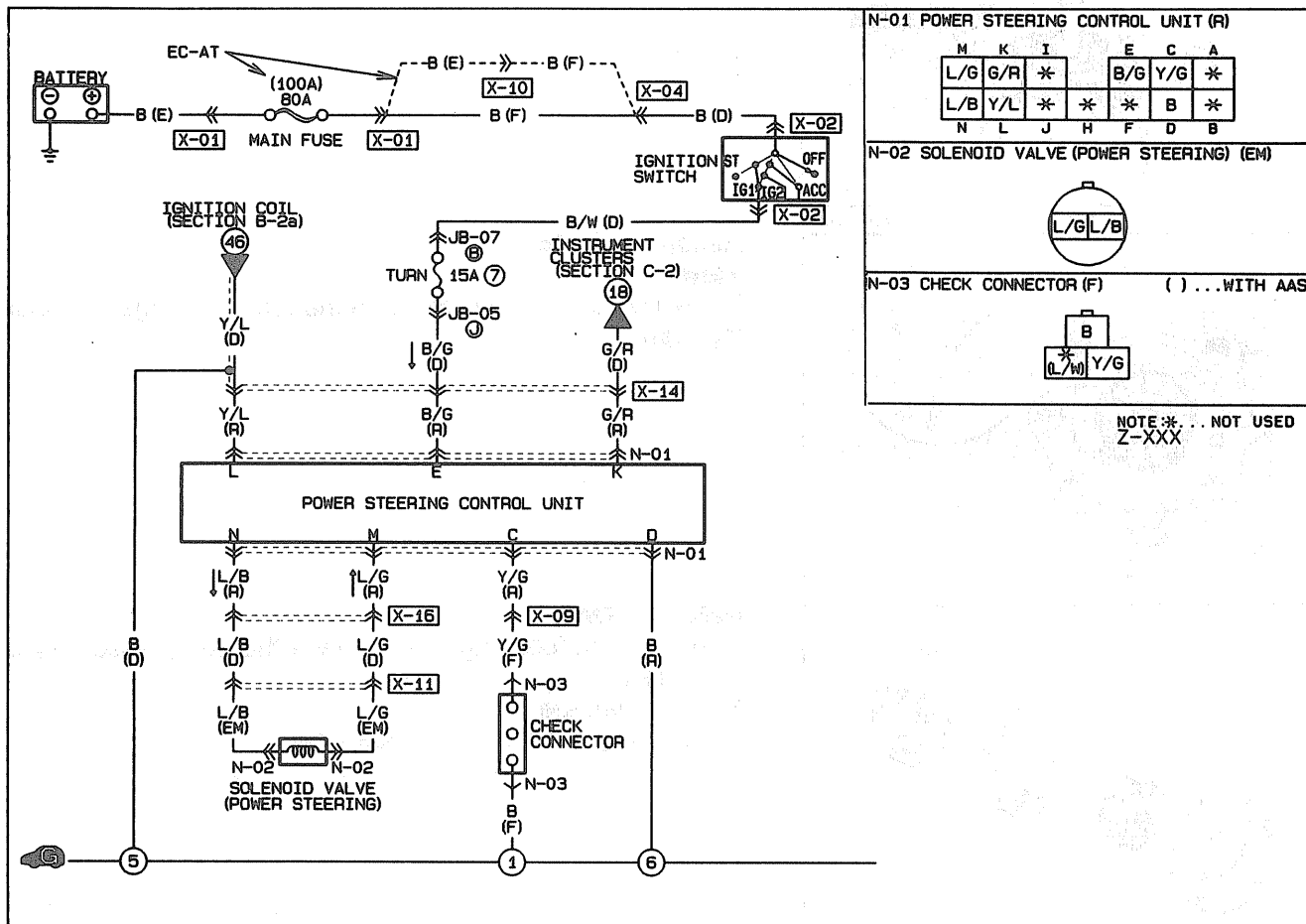
16UONX-039

3. Control valve damage.
4. Control valve installation hole damage.
5. Pump body assembly damage.

# N ELECTRICAL COMPONENTS OF ELECTRONICALLY-CONTROLLED POWER STEERING (ECPS)

## ELECTRICAL COMPONENTS OF ELECTRONICALLY-CONTROLLED POWER STEERING (ECPS)

### WIRING DIAGRAM



16U0NX-040

### Note

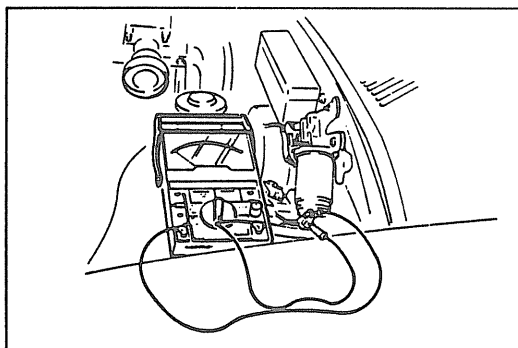
- Refer to page N-3 for component location.

### TROUBLESHOOTING GUIDE

The power steering control unit contains a self-diagnosis function to detect malfunctions within itself, the ECPS electrical components, and its circuits.

If a malfunction is detected, the control unit indicates where the problem is located by outputting specific voltage pulsations at terminal-wire (Y/G) of the check connector.

Troubleshooting of the ECPS system is easily performed by comparing the output pattern with those of the Diagnosis Table on pages N-56.



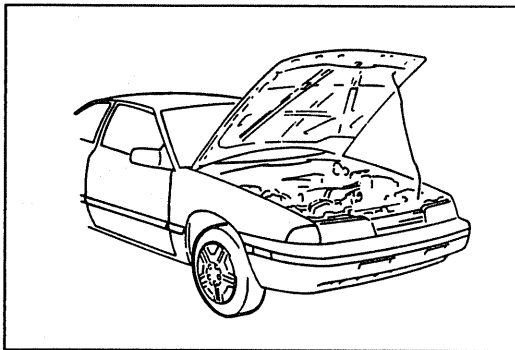
06U0NX-027

### TROUBLESHOOTING

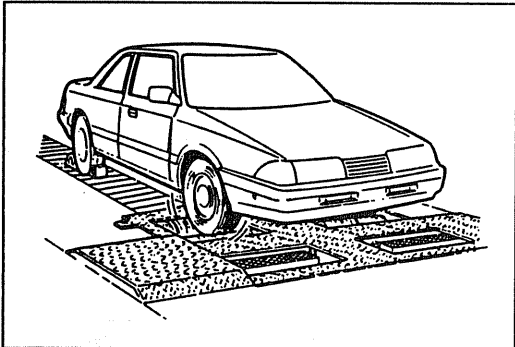
#### How To Use Self-Diagnosis System

By using the control unit's self-diagnosis function and a voltmeter, malfunctions of the system are easily determined. When diagnosing malfunctions, follow the steps below.

1. Connect a voltmeter to terminal-wire (Y/G) of the check connector in the engine compartment.
2. Check the output patterns as described on the following page.



16U0NX-053

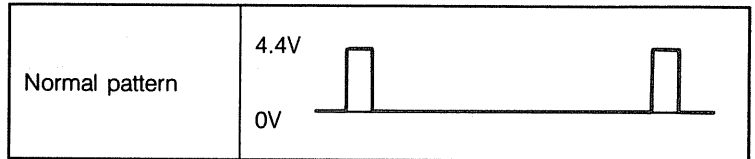


16U0NX-054

**Checking Condition**

**Condition A**

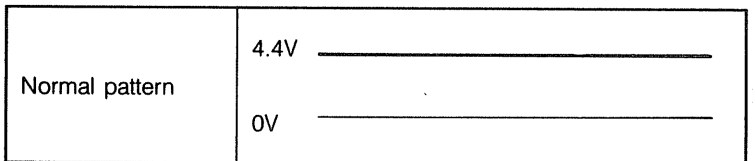
1. Turn the ignition switch OFF.
2. Start the engine and let it idle.
3. Turn the steering wheel to the straight-ahead position, and check the output pattern.



Refer to page N-56 if other patterns and for indicated failure points.

**Condition B**

1. Turn the ignition switch OFF.
2. Place the vehicle on a chassis roller tester. Secure it with chains and block the rear wheels.
3. Start the engine. Put the transmission in gear and operate the vehicle to more than 10 km/h (6.2 mph).
4. Check the output pattern.



Refer to page N-56 if other patterns and for indicated failure points.

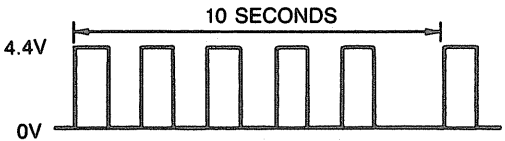
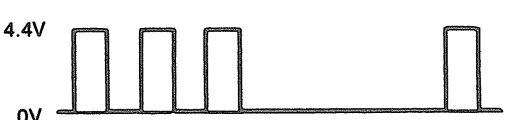

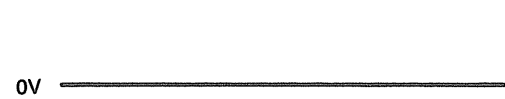
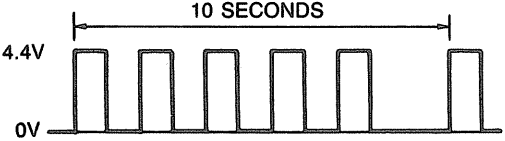


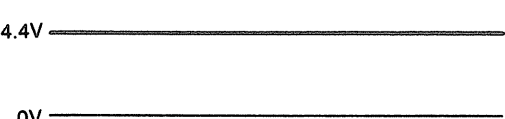

**Note**

- For vehicles equipped with ABS, the ABS warning lamp may come on. This is not a failure. The light will be cancelled when turning the ignition switch OFF and back ON.

16U0NX-041

# N ELECTRICAL COMPONENTS OF ELECTRONICALLY-CONTROLLED POWER STEERING (ECPS)

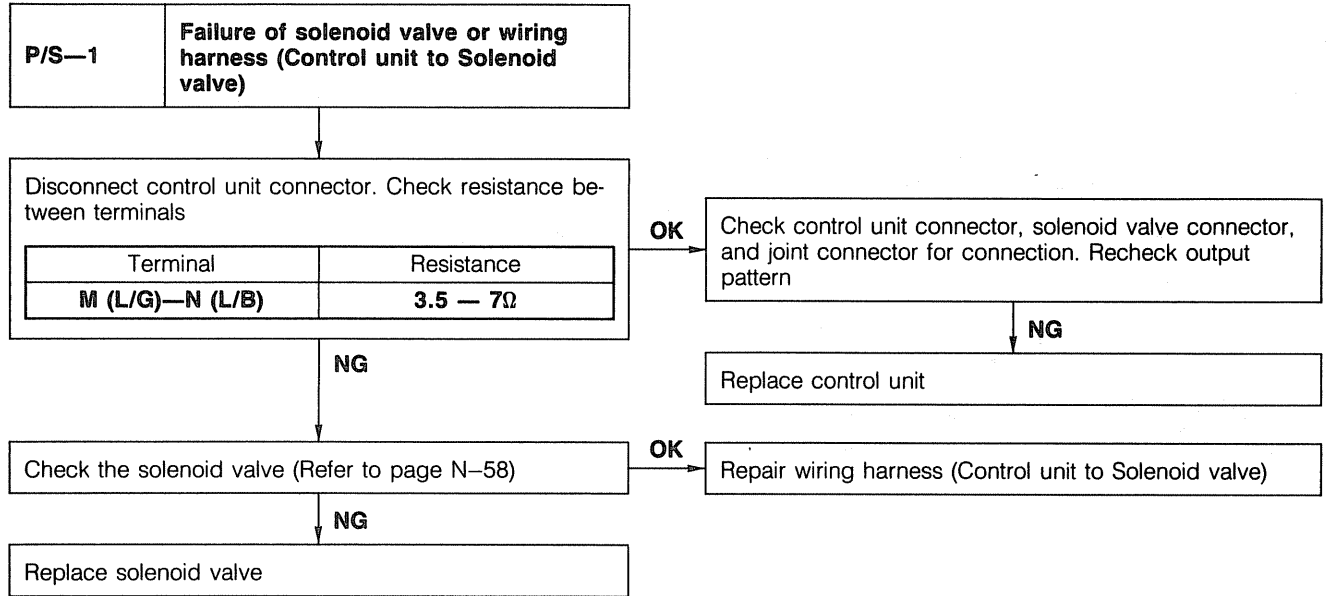
Diagnosis Table

Condition	Output pattern	Malfunction	Flowchart No.
<p><b>A</b> Steering wheel in straight ahead position with engine idling</p>	 <p>4.4V 0V</p>	<p>Power steering solenoid valve or wiring harness (Control unit to Solenoid valve)</p>	<p>P/S—1 Refer to page N-57</p>
	 <p>4.4V 0V</p>	<p>Wiring harness (Control unit to Ignition coil)</p>	<p>P/S—2 Refer to page N-57</p>
	 <p>4.4V 0V</p>	<p>Normal operation</p>	<p>—</p>
	 <p>0V</p>	<p>Wiring harness (Fuse box to Control unit or Control unit to Body ground)</p>	<p>P/S—4 Refer to page N-58</p>
<p><b>B</b> Front wheels driven at more than 10 km/h (6.2 mph)</p>	 <p>4.4V 0V</p>	<p>Power steering solenoid valve or wiring harness (Control unit to Solenoid valve)</p>	<p>P/S—1 Refer to page N-57</p>
	 <p>4.4V 0V</p>	<p>Wiring harness (Control unit to Ignition coil)</p>	<p>P/S—2 Refer to page N-57</p>
	 <p>4.4V 0V</p>	<p>Vehicle speed sensor or wiring harness (Control unit to Meter)</p>	<p>P/S—3 Refer to page N-57</p>
	 <p>4.4V 0V</p>	<p>Normal operation</p>	<p>—</p>
	 <p>0V</p>	<p>Wiring harness (Fuse box to Control unit or Control unit to Body ground)</p>	<p>P/S—4 Refer to page N-58</p>

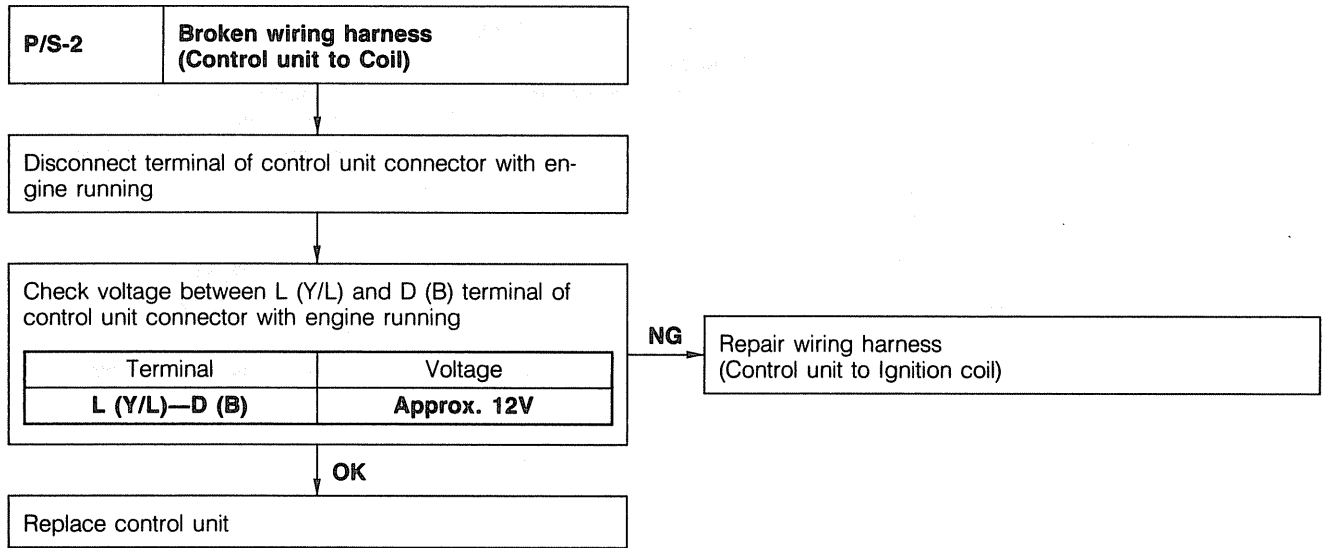
16U0NX-042



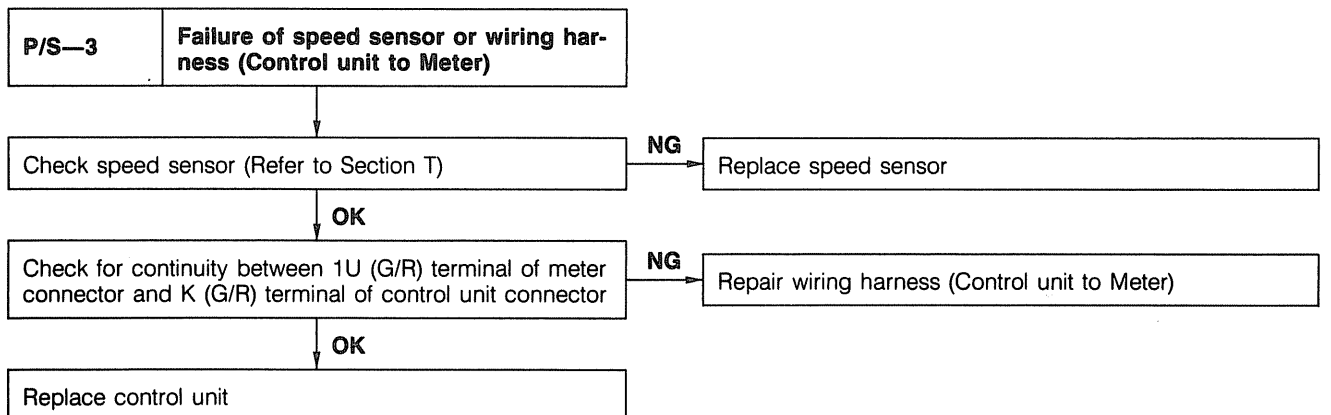
**Flowchart**



16U0NX-043



06U0NX-033



16U0NX-044

# N ELECTRICAL COMPONENTS OF ELECTRONICALLY-CONTROLLED POWER STEERING (ECPS)

**P/S-4** Broken wiring harness (Fuse box to Control unit, or Control unit to Body ground)

Measure voltage between terminals of control unit connector to body ground with ignition ON

Terminal	Voltage
E (B/G)	Approx. 12V
D (B)	Approx. 0V

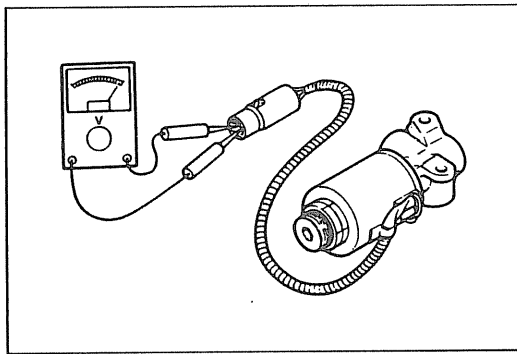
OK

Replace control unit

NG

Replace METER 10A fuse or repair wiring harnesses (Fuse box to Control unit or Control unit to Body ground)

06U0NX-035



06U0NX-036

## Power Steering Solenoid Valve Inspection

1. Listen for actuation sound of the solenoid valve when applying 12V between A and B terminals.
2. If no sound is heard, check the resistance of the solenoid valve with an ohmmeter.

Terminals	Resistance
<b>A — B</b>	<b>3.4—6.9Ω</b>

3. If there is no continuity or resistance is high, replace the solenoid valve.

## Vehicle Speed Sensor Inspection

Refer to Section T.

16U0NX-055