

# STEERING SYSTEM

## SECTION **ST**

### CONTENTS

|  |    |  |    |
|--|----|--|----|
| <b>PRECAUTIONS AND PREPARATION</b> .....         | 2  | Tilt mechanism .....                               | 12 |
| Precautions.....                                 | 2  | Inspection .....                                   | 12 |
| Supplemental Restraint System "Air Bag".....     | 2  | <b>POWER STEERING GEAR AND LINKAGE</b> .....       | 13 |
| Steering System .....                            | 2  | Removal and Installation .....                     | 13 |
| Special Service Tools .....                      | 3  | Disassembly .....                                  | 16 |
| Commercial Service Tools.....                    | 4  | Inspection .....                                   | 17 |
| <b>ON-VEHICLE SERVICE</b> .....                  | 5  | Boot.....  | 17 |
| Checking Steering Wheel Play.....                | 5  | Rack.....  | 17 |
| Checking Neutral Position on Steering Wheel..... | 5  | Pinion Assembly .....                              | 17 |
| Pre-checking .....                               | 5  | Gear Housing Cylinder.....                         | 17 |
| Checking.....                                    | 5  | Tie-Rod Outer And Inner Socket .....               | 18 |
| Front Wheel Turning Angle .....                  | 5  | Assembly.....                                      | 18 |
| Checking Gear Housing Movement.....              | 5  | Adjustment.....                                    | 22 |
| Checking and Adjusting Drive Belts.....          | 6  | <b>POWER STEERING OIL PUMP</b> .....               | 24 |
| Checking Fluid Level .....                       | 6  | Disassembly and Assembly.....                      | 24 |
| Checking Fluid Leakage .....                     | 6  | Pre-disassembly Inspection.....                    | 24 |
| Bleeding Hydraulic System.....                   | 6  | Disassembly .....                                  | 25 |
| Checking Steering Wheel Turning Force.....       | 7  | Inspection .....                                   | 25 |
| Checking Hydraulic System.....                   | 8  | Pulley And Pulley Shaft.....                       | 25 |
| <b>STEERING WHEEL AND STEERING COLUMN</b> .....  | 9  | Assembly.....                                      | 26 |
| Removal .....                                    | 9  | <b>SERVICE DATA AND SPECIFICATIONS (SDS)</b> ..... | 27 |
| Steering Wheel .....                             | 9  | General Specifications .....                       | 27 |
| Steering Column.....                             | 9  | Inspection and Adjustment .....                    | 27 |
| Installation .....                               | 10 | General .....                                      | 27 |
| Steering Wheel .....                             | 10 | Steering Column.....                               | 27 |
| Steering Column.....                             | 10 | Steering Gear And Linkage.....                     | 27 |
| Disassembly and Assembly.....                    | 11 | Power Steering .....                               | 28 |

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### Precautions

#### SUPPLEMENTAL RESTRAINT SYSTEM "AIR BAG"

The Supplemental Restraint System "Air Bag" helps to reduce the risk or severity of injury to the driver and front passenger in a frontal collision. The Supplemental Restraint System consists of air bags (located in the center of the steering wheel and on the instrument panel on the passenger side), sensors, a control module, warning lamp, wiring harness and spiral cable. Information necessary to service the system safely is included in the **BF** section of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could lead to personal injury or death in the event of a severe frontal collision, all maintenance must be performed by an authorized NISSAN dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system.
- All SRS electrical wiring harnesses and connectors are covered with yellow outer insulation. Do not use electrical test equipment on any circuit related to the SRS "Air Bag".

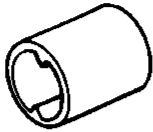
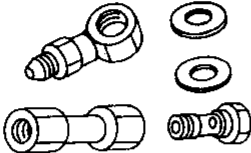
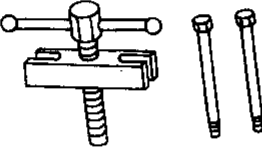
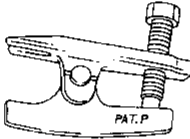
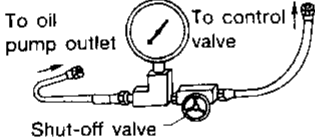
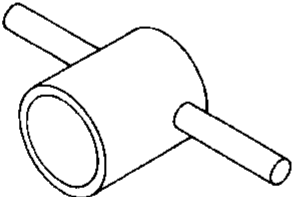
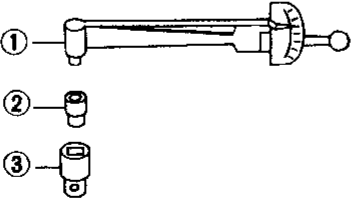
#### STEERING SYSTEM

- Before disassembly, thoroughly clean the outside of the unit.
- Disassembly should be done in a clean work area. It is important to prevent the internal parts from becoming contaminated by dirt or other foreign matter.
- When disassembling parts, be sure to place them in order on a part rack so they can be reinstalled in their proper positions.
- Use nylon cloths or paper towels to clean the parts; common shop rags can leave lint that might interfere with their operation.
- Before inspection or reassembly, carefully clean all parts with a general purpose, non-flammable solvent.
- Before assembly, apply a coat of recommended ATF\* to hydraulic parts. Vaseline may be applied to O-rings and seals. Do not use any grease.
- Replace all gaskets, seals and O-rings. Avoid damaging O-rings, seals and gaskets during installation. Perform functional tests whenever designated.

\*: Automatic Transmission Fluid type "DEXRON II™" or equivalent.

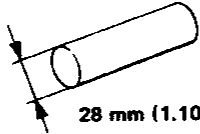
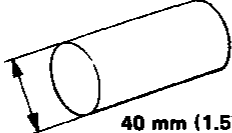
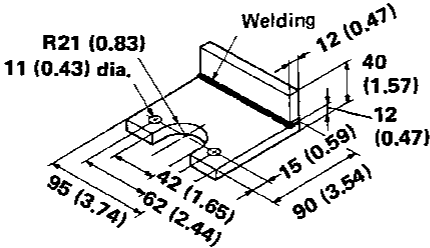
# PRECAUTIONS AND PREPARATION

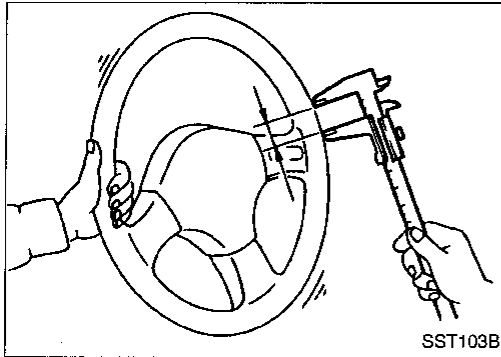
## Special Service Tools

| Tool number<br>(Kent-Moore No.)<br>Tool name   | Description   |                       |
|--|---|-----------------------|
| KV48100700<br>(J26364)<br>Torque adapter   |    | GI<br>MA<br>EM        |
| KV48102500<br>( - )<br>Pressure gauge adapter  |    | LC<br>EF &<br>EC      |
| ST27180001<br>(J25726-A)<br>Steering wheel puller  |    | FE<br>CL              |
| HT72520000<br>(J25730-A)<br>Ball joint remover   |   | MT<br>AT              |
| ST27091000<br>(J26357)<br>Pressure gauge   |  | FA<br>RA              |
| KV48104400<br>( - )<br>Rack seal ring reformer   |  | BR<br><b>ST</b><br>BF |
| ST3127S000<br>(See J25765-A)<br>①GG91030000<br>(J25765-A)<br>Torque wrench<br>②HT62940000<br>( - )<br>Socket adapter<br>③HT62900000<br>( - )<br>Socket adapter |  | HA<br>EL<br>IDX       |

# PRECAUTIONS AND PREPARATION

## Commercial Service Tools

| Tool name             | Description   |
|-----------------------|---|
| Rear oil seal drift   | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>28 mm (1.10 in) dia.</p> </div> <div style="text-align: right;">Installing rear oil seal</div> </div>  |
| Pinion oil seal drift | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  <p>40 mm (1.57 in) dia.</p> </div> <div style="text-align: right;">Installing pinion oil seal</div> </div>  |
| Oil pump attachment   | <div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">  </div> <div style="text-align: right;">Disassembling and assembling oil pump</div> </div> <p style="text-align: right; margin-top: 10px;">Unit: mm (in)</p> |



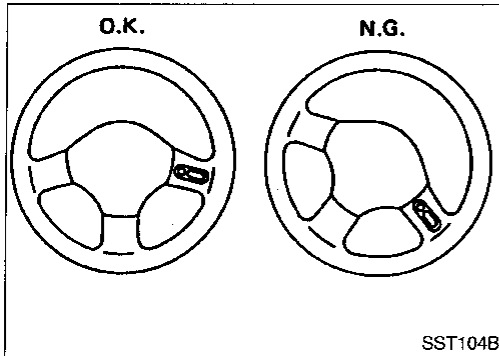
## Checking Steering Wheel Play

- With wheels in a straight-ahead position, check steering wheel play.

**Steering wheel play:**

**35 mm (1.38 in) or less**

- If it is not within specification, check the following for loose or worn components.
  - (1) Steering gear assembly
  - (2) Steering column
  - (3) Front suspension and axle



## Checking Neutral Position on Steering Wheel

### Pre-checking

- Make sure that wheel alignment is correct.

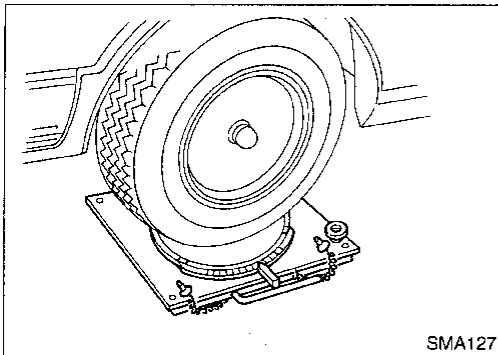
**Wheel alignment:**

**Refer to FA section ("Inspection and Adjustment", "SERVICE DATA AND SPECIFICATIONS").**

- Verify that the steering gear is centered before removing the steering wheel.

### Checking

1. Check that the steering wheel is in the neutral position when driving straight ahead.
2. If it is not in the neutral position, remove the steering wheel and reinstall it correctly.
3. If the neutral position is between two teeth, loosen tie-rod lock nuts and adjust tie-rods in the opposite direction by the same amount.



## Front Wheel Turning Angle

1. Rotate steering wheel all the way right and left; measure turning angle.

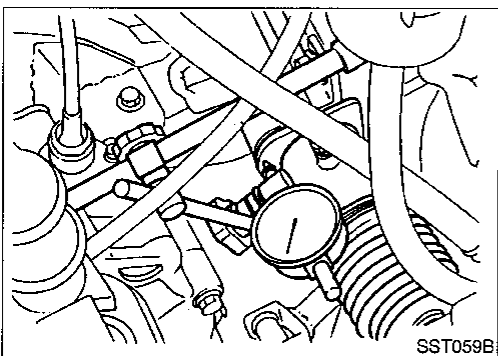
**Turning angle of full turns:**

**Refer to FA section ("Inspection and Adjustment", "SERVICE DATA AND SPECIFICATIONS").**

2. If it is not within specification, check rack stroke.

**Rack stroke "L":**

**Refer to ST-28.**



## Checking Gear Housing Movement

1. Check the movement of steering gear housing during stationary steering on a dry paved surface.
- Apply a force of 49 N (5 kg, 11 lb) to steering wheel to check the gear housing movement.

Turn off ignition key while checking.

**Movement of gear housing:**

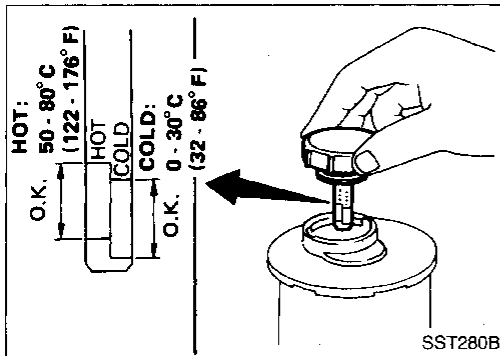
**±2 mm (±0.08 in) or less**

2. If movement exceeds the limit, replace mounting insulator after confirming proper installation of gear housing mounting brackets.

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## Checking and Adjusting Drive Belts

Refer to MA section ("Checking Drive Belts", "ENGINE MAINTENANCE").



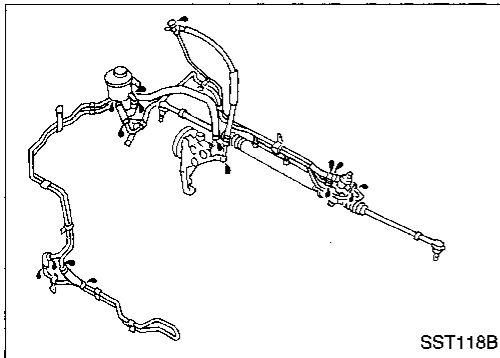
## Checking Fluid Level

Check fluid level.

Use the "HOT" range on dipstick at fluid temperatures of 50 to 80°C (122 to 176°F) or use the "COLD" range on dipstick at fluid temperatures of 0 to 30°C (32 to 86°F).

### CAUTION:

- Do not overfill.
- Recommended fluid is Automatic Transmission Fluid type "DEXRON II™" or equivalent.



## Checking Fluid Leakage

Check the lines for improper attachment and for leaks, cracks, damage, loose connections, chafing or deterioration.

1. Run engine between idle speed and 1,000 rpm.

**Make sure temperature of fluid in oil tank rises to 60 to 80°C (140 to 176°F).**

2. Turn steering wheel right-to-left several times.
3. Hold steering wheel at each "lock" position for five seconds and carefully check for fluid leakage.

### CAUTION:

**Do not hold the steering wheel in a locked position for more than 15 seconds.**

4. If fluid leakage at connectors is noticed, loosen flare nut and then retighten.

**Do not overtighten connector as this can damage O-ring, washer and connector.**

## Bleeding Hydraulic System

1. Raise front end of vehicle until wheels are clear of the ground.
2. Add fluid into oil tank to specified level. Then, quickly turn steering wheel fully to right and left and lightly touch steering stoppers.  
Repeat steering wheel operation until fluid level no longer decreases.
3. Start engine.  
Repeat step 2 above.

## ON-VEHICLE SERVICE

### Bleeding Hydraulic System (Cont'd)

- Incomplete air bleeding will cause the following to occur. When this happens, bleed air again.
  - a. Air bubbles in reservoir tank
  - b. Clicking noise in oil pump
  - c. Excessive buzzing in oil pump

While the vehicle is stationary or while moving the steering wheel slowly, fluid noise may occur in the valve or oil pump. This noise is inherent in this steering system, and it will not affect performance or durability of the system.

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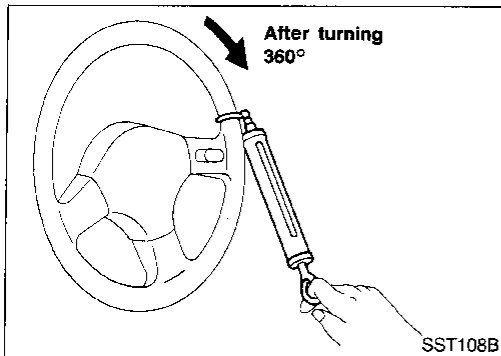
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### Checking Steering Wheel Turning Force

1. Park vehicle on a level, dry surface and set parking brake.
2. Start engine.
3. Bring power steering fluid up to adequate operating temperature. [Make sure temperature of fluid is approximately 60 to 80°C (140 to 176°F).]

**Tires need to be inflated to normal pressure.**

4. Check steering wheel turning force when steering wheel has been turned 360° from neutral position.

**Steering wheel turning force:**

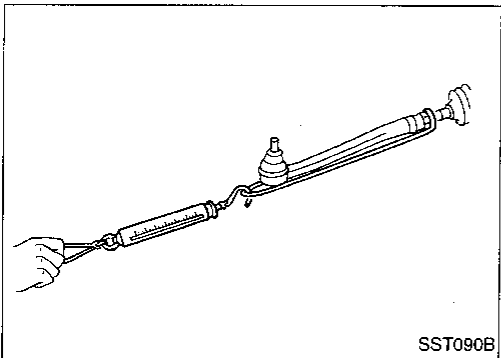
**39 N (4 kg, 9 lb) or less**

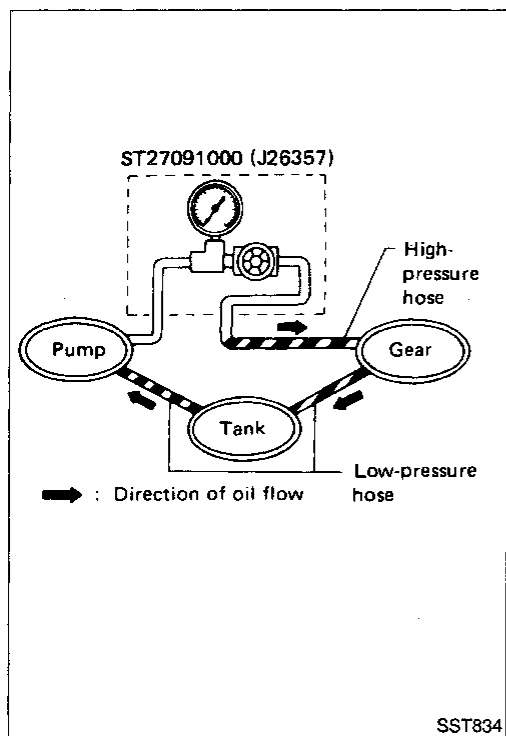
5. If steering wheel turning force is out of specifications, check rack sliding force to detect condition of steering gear assembly.
  - a. Disconnect steering column lower joint and knuckle arms from the gear.
  - b. Start and run engine at idle to make sure steering fluid has reached normal operating temperature.
  - c. While pulling tie-rod slowly from the neutral position, make sure rack sliding force is within specification.

**Rack sliding force:**

**118 - 235 N (12 - 24 kg, 26 - 53 lb)**

6. If rack sliding force is not within specification, replace steering gear assembly.





## Checking Hydraulic System

Before starting, check belt tension, driving pulley and tire pressure.

1. Set Tool. Open shut-off valve. Then bleed air. Refer to ST-6.
2. Run engine.

Make sure temperature of fluid in tank rises to 60 to 80°C (140 to 176°F).

### WARNING:

Warm up engine with shut-off valve fully opened. If engine is started with shut-off valve closed, oil pressure in oil pump will increase to relief pressure, resulting in an abnormal rise in oil temperature.

3. Check pressure with steering wheel fully turned to left and right positions with engine idling at 1,000 rpm.

### CAUTION:

Do not hold the steering wheel in a locked position for more than 15 seconds.

Oil pump maximum standard pressure:

7,649 - 8,238 kPa (78 - 84 kg/cm<sup>2</sup>, 1,109 - 1,194 psi)

4. If oil pressure is below the standard pressure, slowly close shut-off valve and check pressure.
  - When pressure reaches standard pressure, gear is damaged.
  - When pressure remains below standard pressure, pump is damaged.

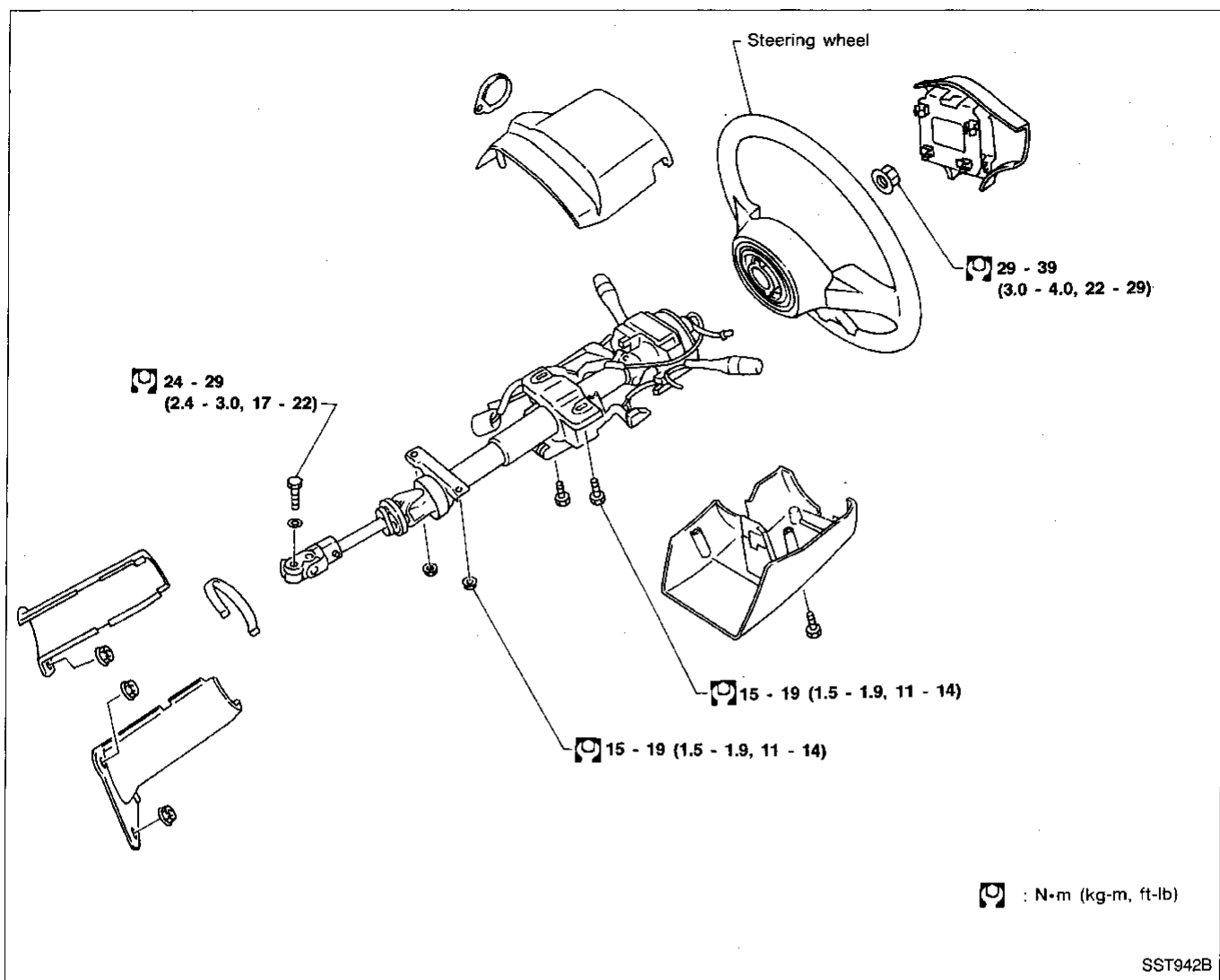
### CAUTION:

Do not close shut-off valve for more than 15 seconds.

5. If oil pressure is higher than standard pressure, check oil pump flow control valve.
6. After checking hydraulic system, remove Tool and add fluid as necessary, then completely bleed air out of system. Refer to ST-6.



# STEERING WHEEL AND STEERING COLUMN



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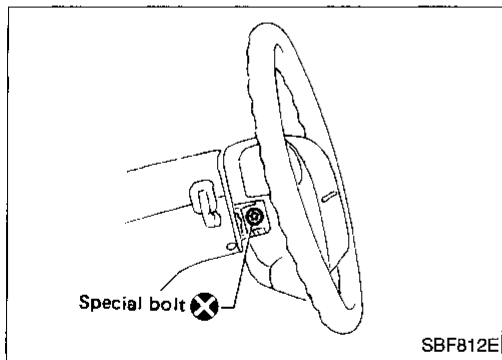
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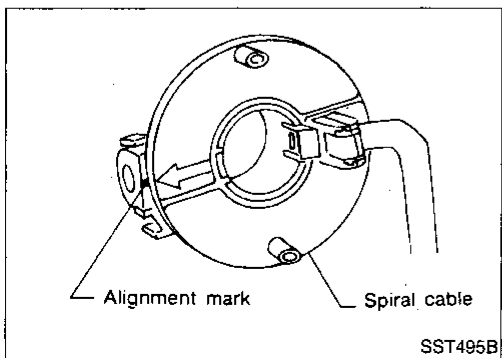
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## Removal

### STEERING WHEEL

Remove air bag module and spiral cable. Refer to BF section ("Removal — Air Bag Module and Spiral Cable", "SUPPLEMENTAL RESTRAINT SYSTEM").

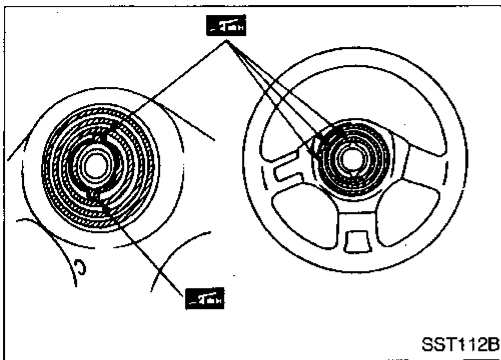


### STEERING COLUMN

#### CAUTION:

The rotation of the spiral cable (SRS "Airbag" component part) is limited. If the steering gear must be removed, set the front wheels in the straight-ahead direction. Do not rotate the steering column while the steering gear is removed.

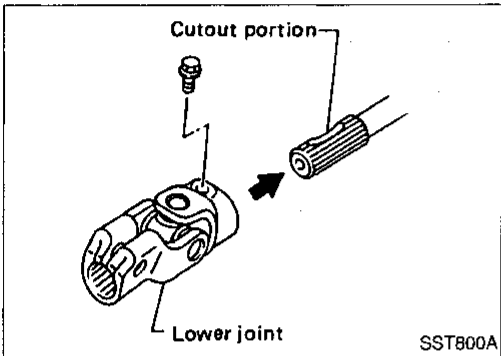
# STEERING WHEEL AND STEERING COLUMN



## Installation

### STEERING WHEEL

When installing steering wheel, apply multi-purpose grease to entire surface of turn signal cancel pin (both portions) and also to horn contact slip ring.



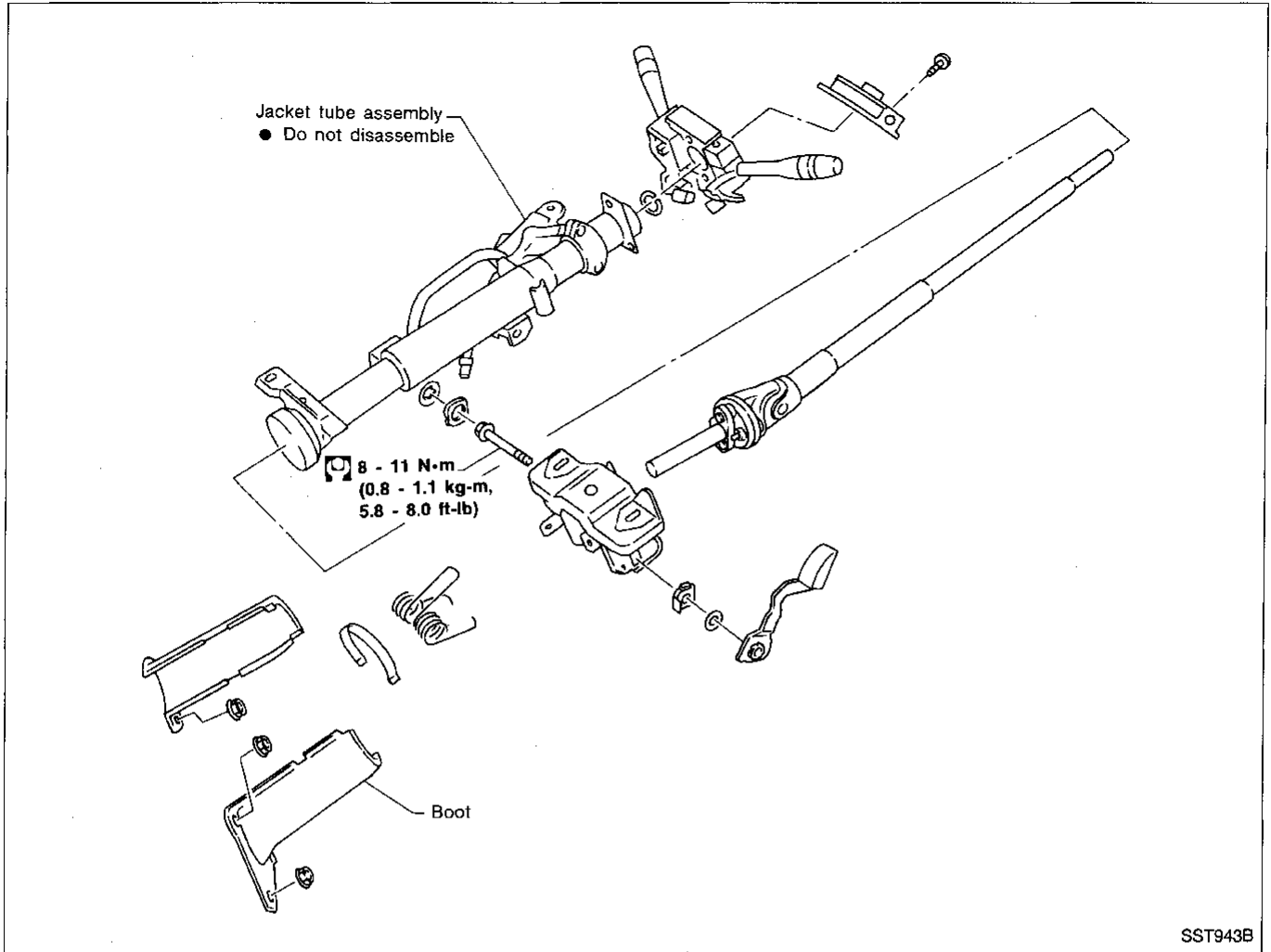
### STEERING COLUMN

- When installing steering column, fingertighten all lower bracket and clamp retaining bolts; then tighten them securely. Do not apply undue stress to steering column.
- When attaching coupling joint, be sure tightening bolt faces cutout portion.

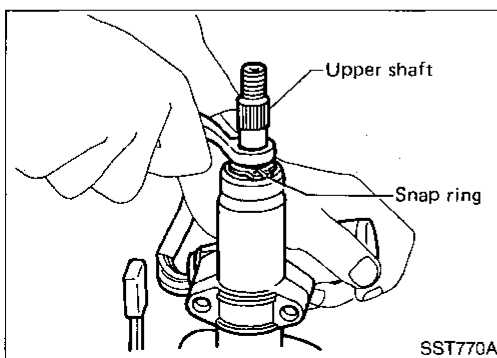
### CAUTION:

After installing steering column, turn steering wheel to make sure it moves smoothly and that the number of turns from the straight forward position to left and right locks are equal. Be sure that the steering wheel is in a neutral position when driving straight ahead.

## Disassembly and Assembly



- When disassembling and assembling, unlock steering lock with key.
- Ensure that rounded surface of snap ring faces toward bearing when snap ring is installed.

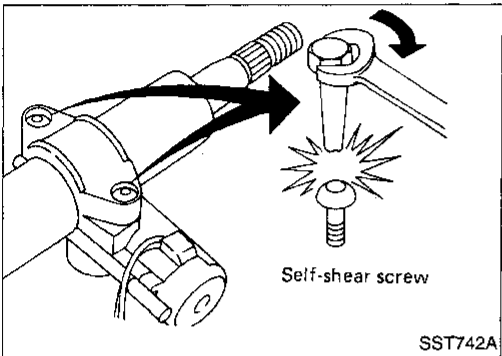
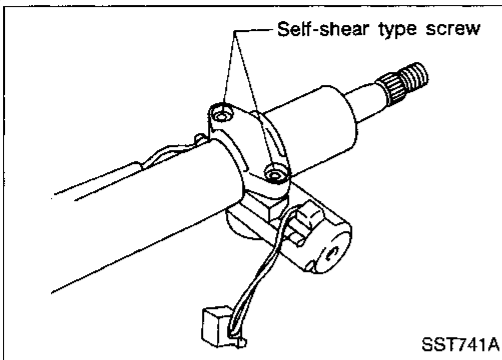


- Install snap ring on upper shaft with a suitable tool.

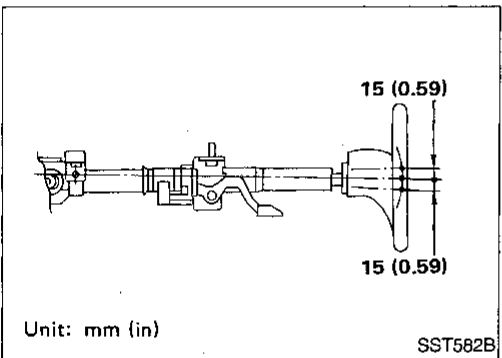
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## STEERING WHEEL AND STEERING COLUMN

### Disassembly and Assembly (Cont'd)

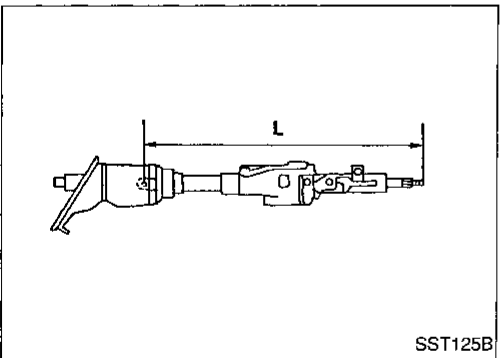


- Steering lock
- a. Break self-shear type screws with a drill or other appropriate tool.
- b. Install self-shear type screws and then cut off self-shear type screw heads.



### Tilt mechanism

- After installing steering column, check tilt mechanism operation.



### Inspection

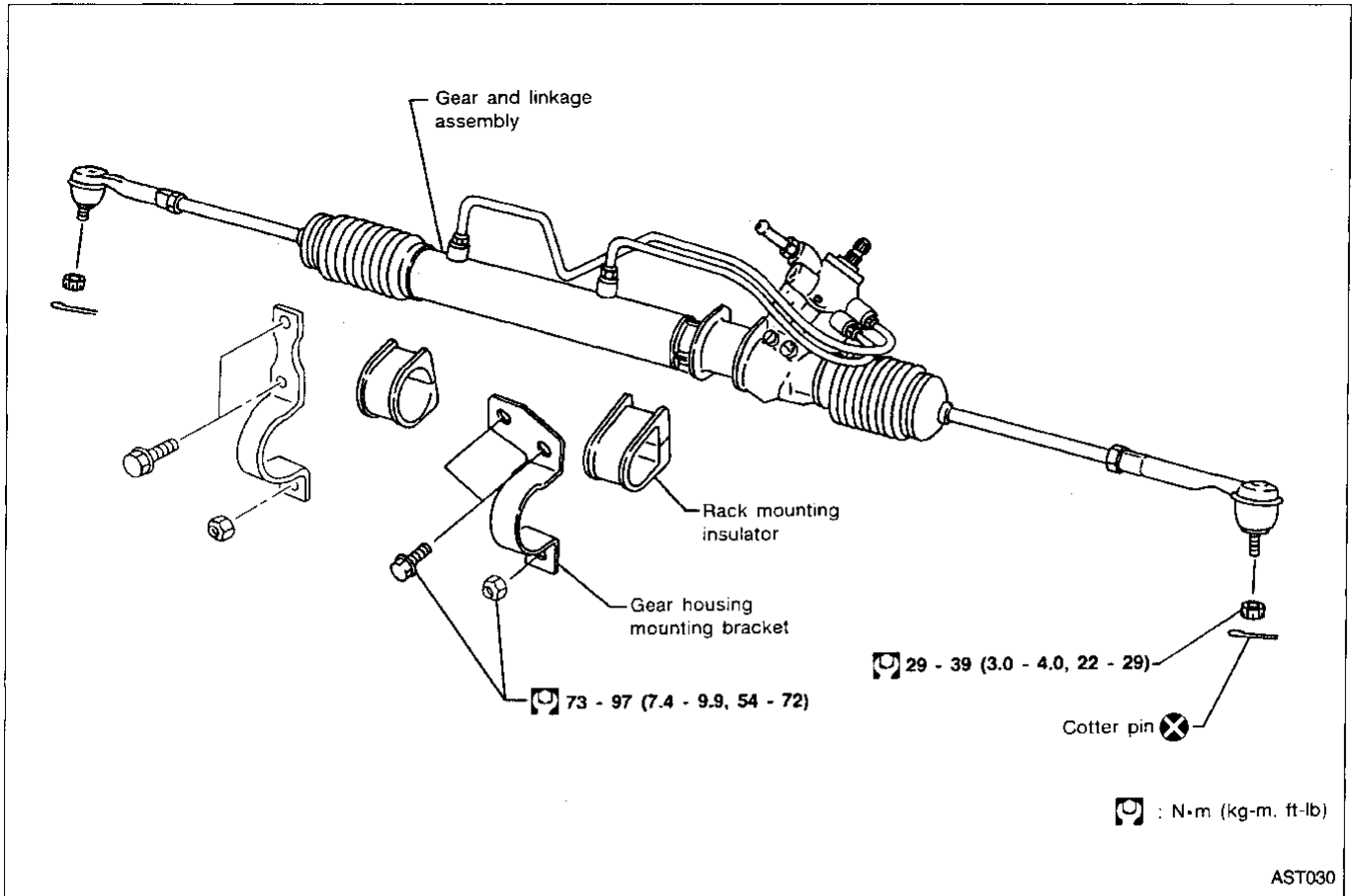
- When steering wheel can not be rotated smoothly, check the steering column for the following and replace damaged parts.
  - a. Check column bearings for damage or unevenness. Lubricate with recommended multi-purpose grease or replace steering column as an assembly, if necessary.
  - b. Check jacket tube for deformation or breakage. Replace if necessary.
- When the vehicle is involved in a light collision, check column length "L". If it is not within specifications, replace steering column as an assembly.

**Column length "L":**

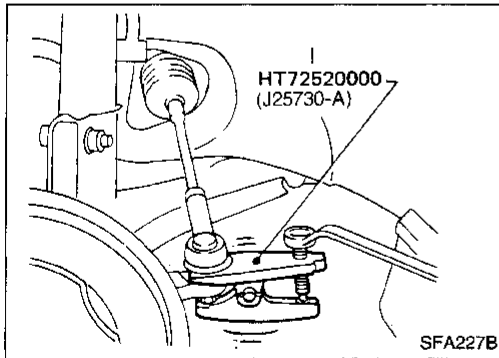
**525.6 - 528.4 mm (20.69 - 20.80 in)**

# POWER STEERING GEAR AND LINKAGE

## Removal and Installation



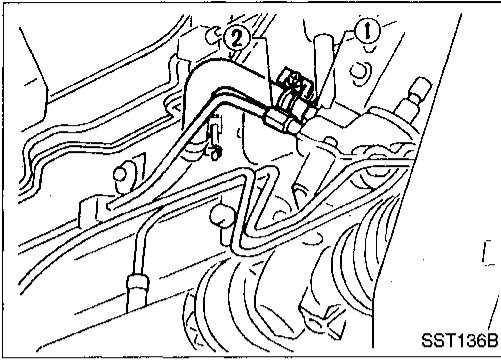
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- Detach tie-rod outer sockets from knuckle arms with Tool.

## POWER STEERING GEAR AND LINKAGE

### Removal and Installation (Cont'd)



- Install pipe connector.
- Observe specified tightening torque when tightening high-pressure and low-pressure pipe connectors. Excessive tightening can damage threads or connector O-ring.
- The O-ring in low-pressure pipe connector is larger than that in high-pressure connector. Take care to install the proper O-ring.

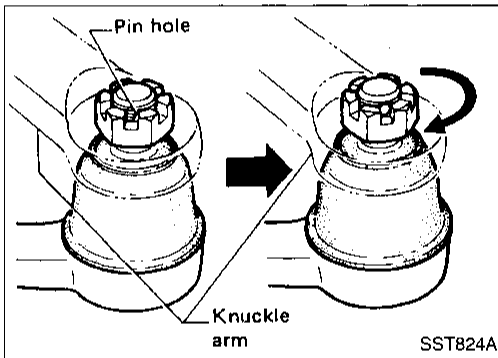
#### Connector tightening torque:

##### Low-pressure side "1"

27 - 39 N·m (2.8 - 4.0 kg-m, 20 - 29 ft-lb)

##### High-pressure side "2"

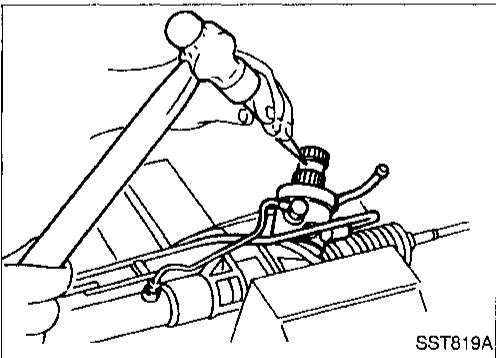
15 - 25 N·m (1.5 - 2.5 kg-m, 11 - 18 ft-lb)



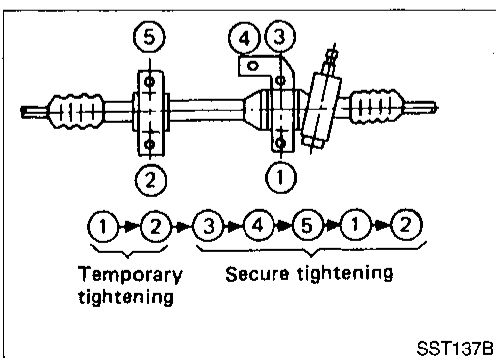
- Initially, tighten nut on tie-rod outer socket and knuckle arm to 29 to 39 N·m (3 to 4 kg-m, 22 to 29 ft-lb). Then tighten further to align nut groove with first pin hole so that cotter pin can be installed.

#### CAUTION:

Tightening torque must not exceed 49 N·m (5 kg-m, 36 ft-lb).

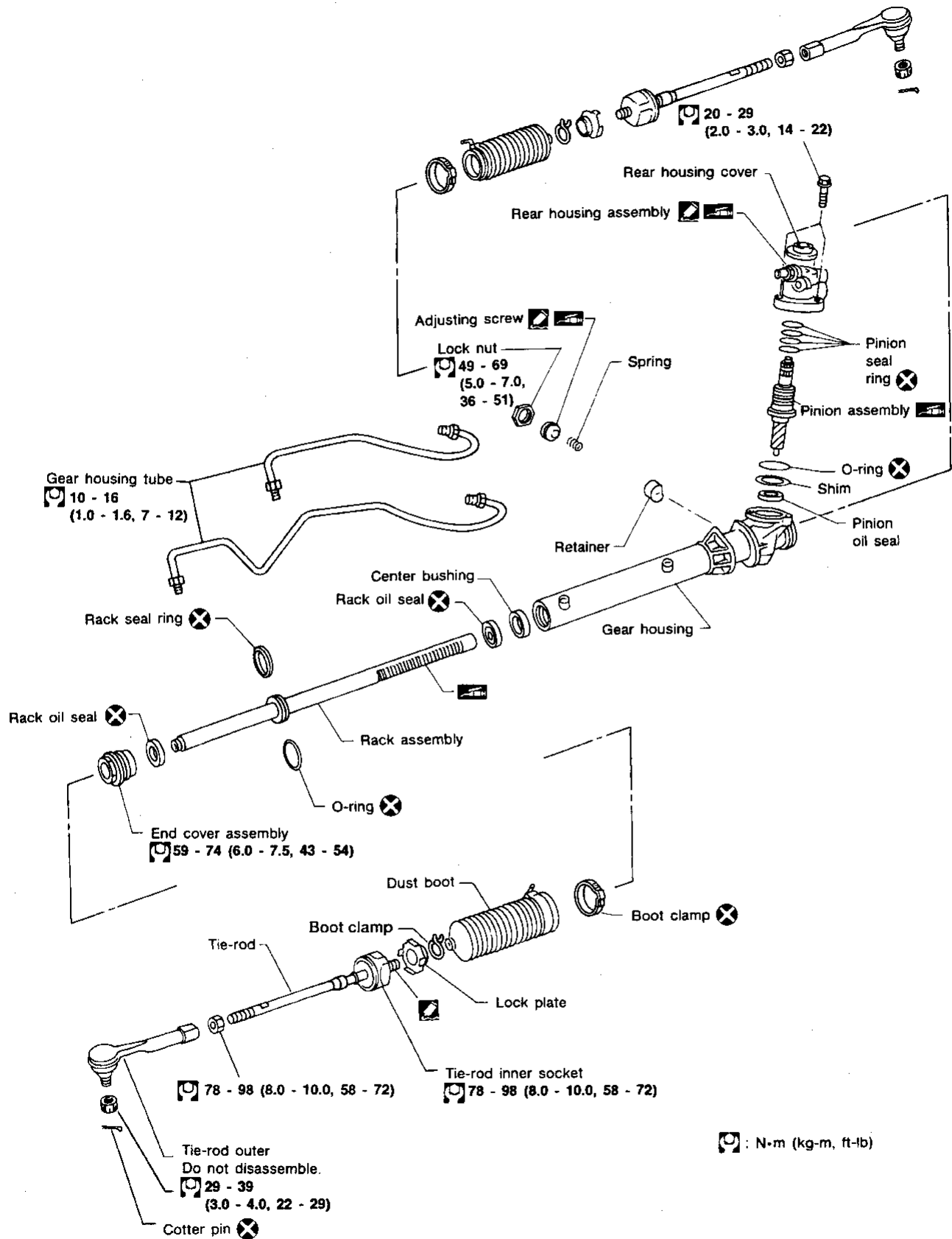


- Before removing lower joint from gear, set gear in neutral (wheels in straight-ahead position). After removing lower joint, put matching mark on pinion shaft and pinion housing to record neutral position of gear.
- To install, set left and right dust boots to equal deflection, and attach lower joint by aligning matching marks of pinion shaft and pinion housing.



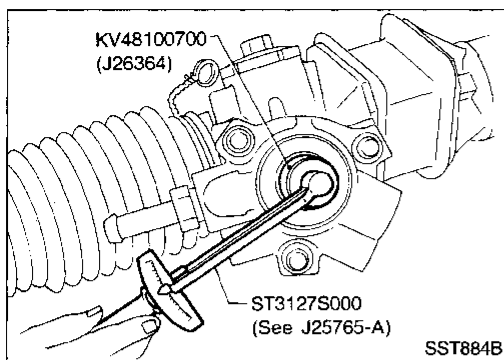
- Tighten gear housing mounting bracket bolts in the order shown.

# POWER STEERING GEAR AND LINKAGE



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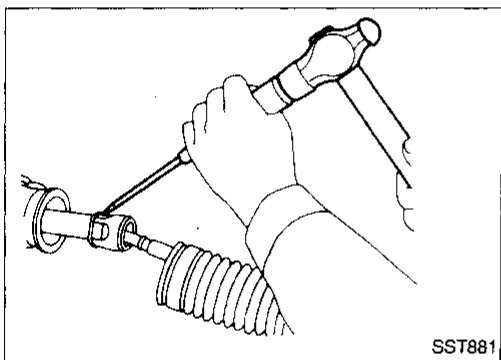
## POWER STEERING GEAR AND LINKAGE



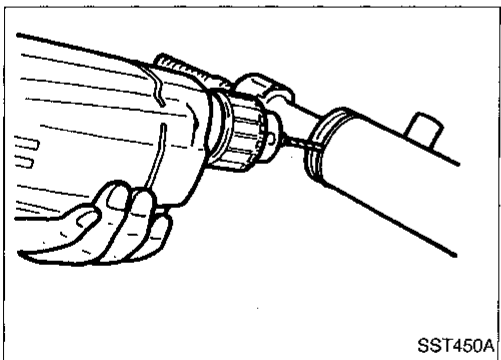
### Disassembly

1. Prior to disassembling, measure pinion rotating torque. Record the pinion rotating torque as a reference.
  - Before measuring, disconnect gear housing tube and drain fluid.
  - Use soft jaws when holding steering gear housing. Handle gear housing carefully, as it is made of aluminum. Do not grip cylinder in a vise.
2. Remove pinion gear.

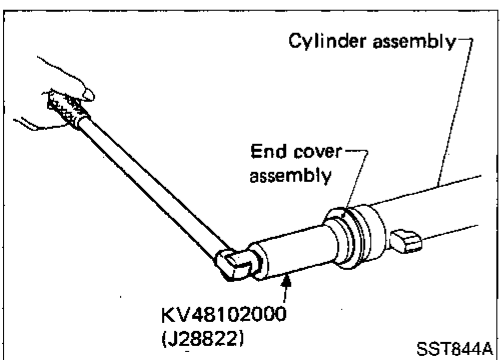
**Be careful not to damage pinion gear when removing pinion seal ring.**



3. Remove tie-rod outer sockets and boots.
4. Loosen tie-rod inner socket by prying up staked portion, and remove socket.
5. Remove retainer.
6. Remove pinion assembly.



7. Drill staked portion of gear housing end with drill of 2 to 2.5 mm (0.079 to 0.098 in) diameter, until the staking is eliminated.

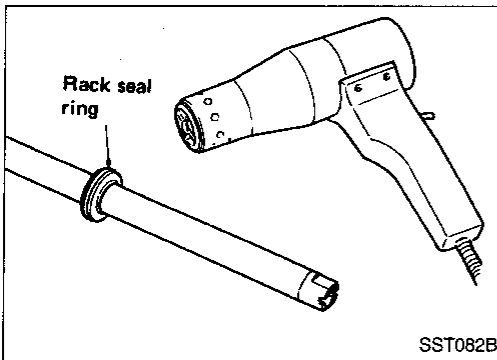


8. Remove end cover assembly with Tool.
9. Draw out rack assembly.



# POWER STEERING GEAR AND LINKAGE

## Disassembly (Cont'd)



10. Remove rack seal ring.
  - Using a heat gun, heat rack seal to approximately 40°C (104°F).
  - Remove rack seal ring.

**Be careful not to damage rack.**

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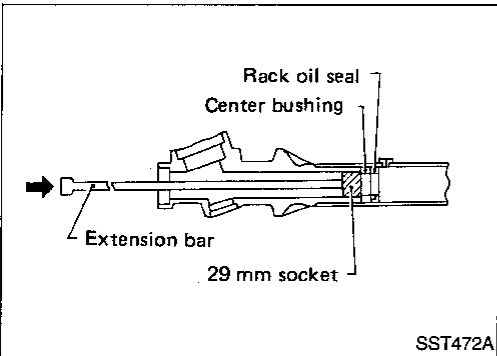
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11. Remove center bushing and rack oil seal using tape wrapped socket and extension bar.

**Do not scratch inner surfaces of pinion housing.**

## Inspection

Thoroughly clean all parts in cleaning solvent or automatic transmission fluid type "DEXRON II™", and blow dry with compressed air, if available.

## BOOT

Check condition of boot. If cracked excessively, replace it.

## RACK

Thoroughly examine rack gear. If damaged, cracked or worn, replace it.

## PINION ASSEMBLY

- Thoroughly examine pinion gear. If pinion gear is damaged, cracked or worn, replace it.
- Inspect bearings to see that they roll freely and are free from cracked, pitted, or worn balls, rollers and races. Replace if necessary.

## GEAR HOUSING CYLINDER

Check gear housing cylinder bore for scratches or other damage. Replace if necessary.

# POWER STEERING GEAR AND LINKAGE

## Inspection (Cont'd)

### TIE-ROD OUTER AND INNER SOCKET

- Check ball joint for swinging force.

**Tie-rod outer ball joint:**

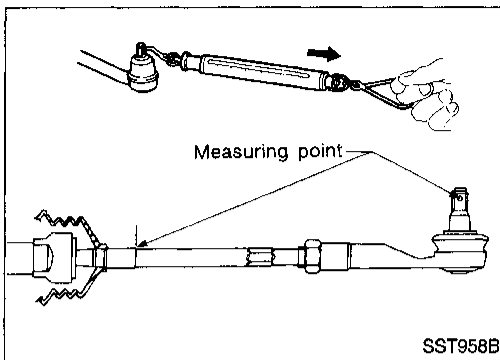
6.9 - 64.7 N

(0.7 - 6.6 kg, 1.5 - 14.6 lb)

**Tie-rod inner ball joint:**

15.7 - 140.2 N

(1.6 - 14.3 kg, 3.5 - 31.5 lb)

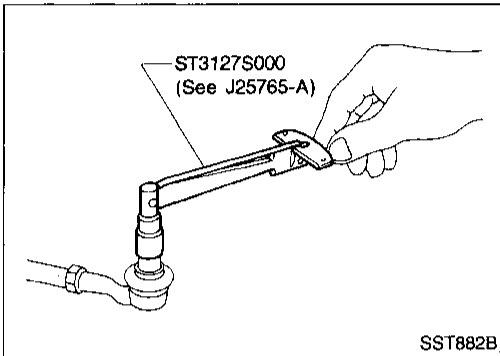


- Check ball joint for rotating torque.

**Tie-rod outer ball joint:**

0.3 - 2.9 N·m

(3 - 30 kg-cm, 2.6 - 26.0 in-lb)



- Check ball joint for axial end play.

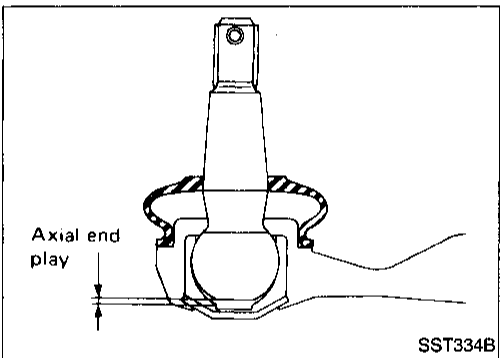
**Tie-rod outer ball joint:**

0.1 mm (0.004 in) or less

**Tie-rod inner ball joint:**

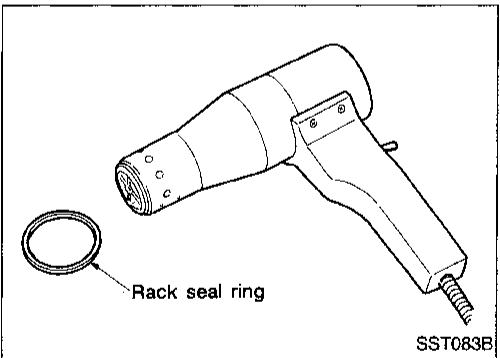
0.3 mm (0.012 in) or less

- Check condition of dust cover. If cracked excessively, replace it.



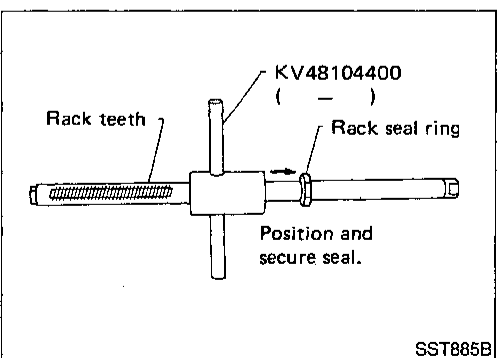
## Assembly

1. Using a heat gun, heat new rack seal ring (made of Teflon) to approximately 40°C (104°F) and install it onto rack with your hand.



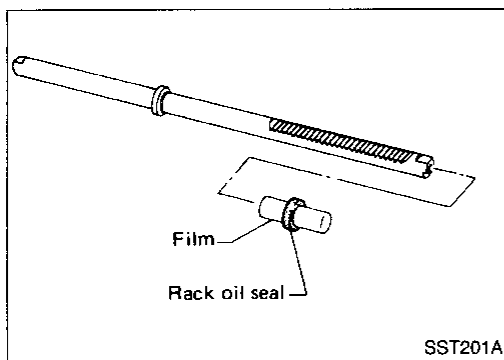
2. Using Tool, compress periphery of rack seal ring to position and secure it on rack.

**Always insert Tool from the rack gear side.**



# POWER STEERING GEAR AND LINKAGE

## Assembly (Cont'd)



3. Insert new rack oil seal.
  - Place plastic film into rack oil seal to prevent damage by rack teeth.
  - Do not forget to remove plastic film after rack oil seal is positioned properly.
  - Make sure lips of rack oil seal face each other.

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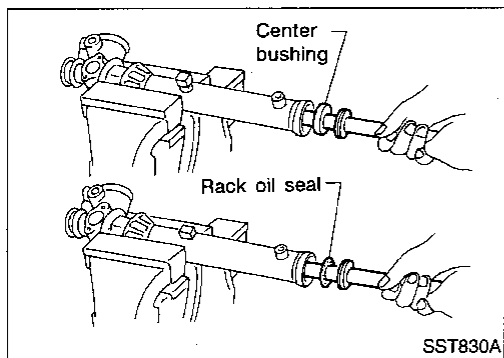
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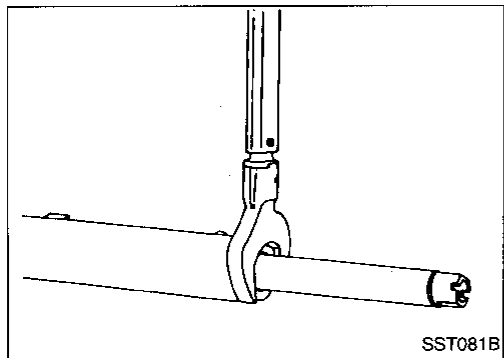
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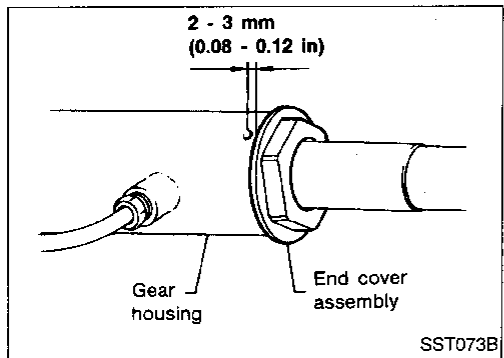
IDX



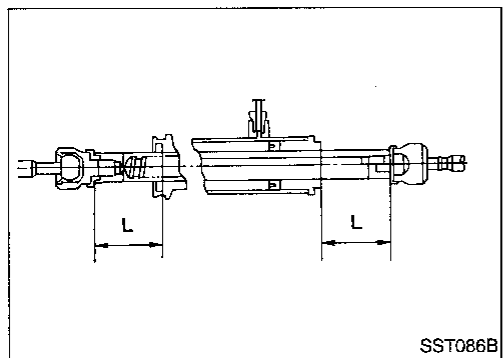
4. Install center bushing and rack oil seal with rack assembly.



5. Tighten end cover assembly with a suitable tool.



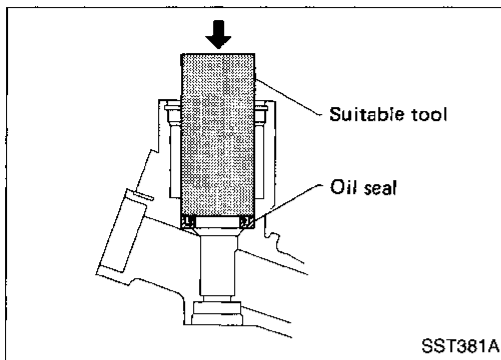
6. Fasten end cover assembly to gear housing by staking.



7. Set rack gear in neutral position.  
**Rack stroke "L":**  
Refer to SDS, ST-28.

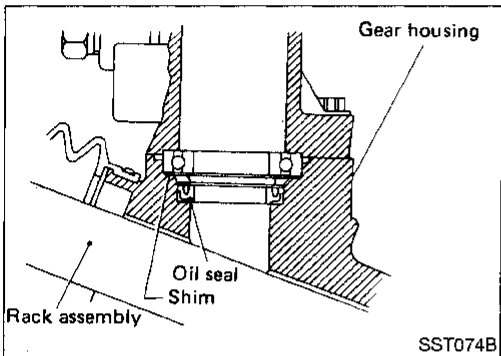
## POWER STEERING GEAR AND LINKAGE

### Assembly (Cont'd)

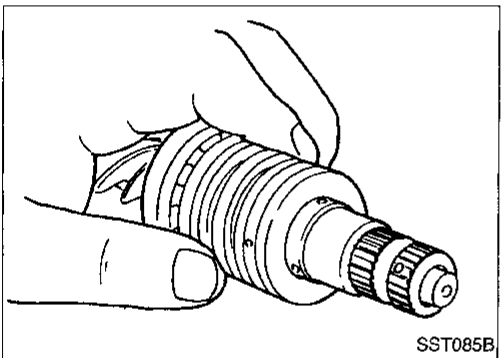


8. Coat seal lip of new pinion oil seal with multi-purpose grease and install it to pinion housing of gear housing with a suitable tool.

**Make sure lip of oil seal faces up when installed.**

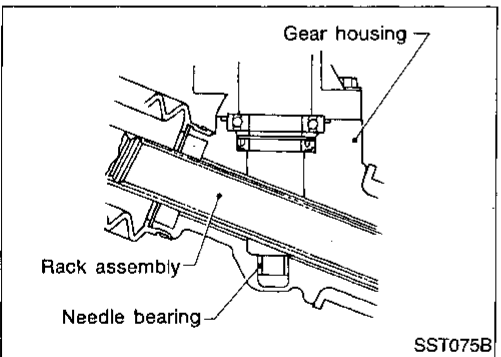


9. Install pinion bearing adjusting shim(s).
- Whenever pinion assembly, gear housing and rear housing are disassembled, replace shim(s) with new ones. Always use the same number of shim(s) when replacing.

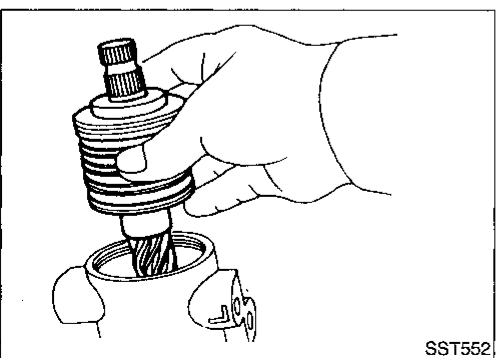


10. Install new pinion seal ring (made of Teflon) on pinion gear assembly.

- Using a heat gun, heat pinion seal ring to approximately 40°C (104°F) before installing it onto pinion gear assembly.
- Make sure pinion seal ring is properly settled in valve groove.



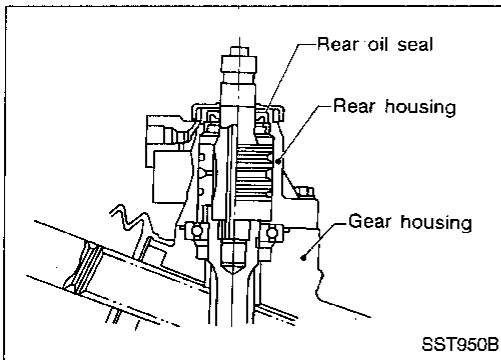
11. Apply a coat of multi-purpose grease to needle bearing roller and oil seal lip before installing pinion assembly in gear housing.



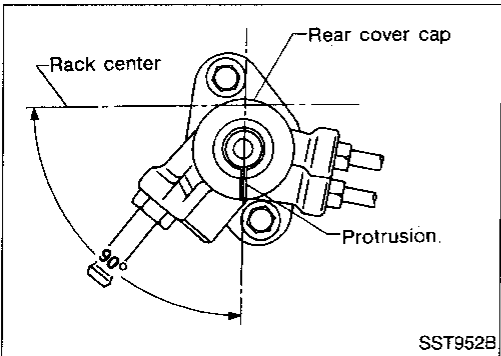
12. Install pinion assembly to pinion housing.  
**Be careful not to damage pinion oil seal.**

# POWER STEERING GEAR AND LINKAGE

## Assembly (Cont'd)



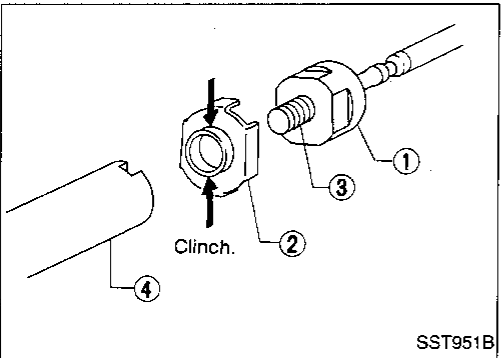
13. Apply a coat of multi-purpose grease to new rear oil seal lip before installing rear housing.



14. Install rear cover cap so that protrusion of rear housing cover is positioned as shown in figure at left.

**Be careful not to damage worm ring and oil seal.**

15. Install retainer spring and adjusting screw temporarily.

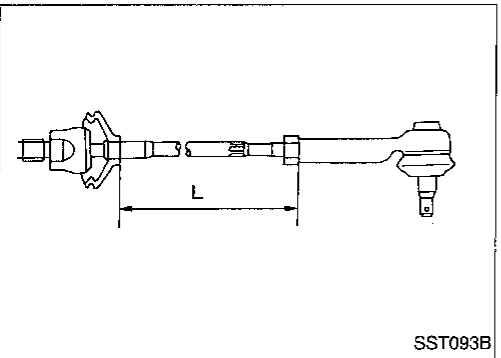


16. Install new lock plate.

- Attach lock plate ② to side rod inner socket ①.
- Apply locking sealant to inner socket threads ③. Screw inner socket into rack ④ and tighten to specified torque.
- Clinch two places of lock plate at rack's groove.

**CAUTION:**

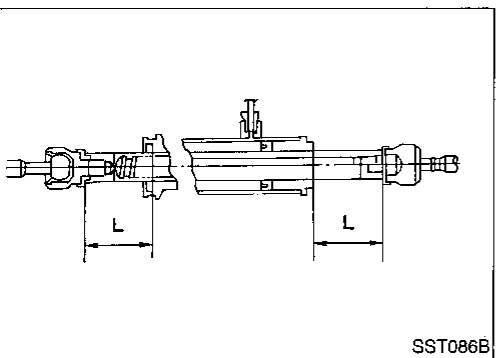
**To prevent scratching the boot, remove burrs from lock plate.**



17. Tighten outer socket lock nut.

**Tie-rod length "L":**

**Refer to SDS, ST-27.**



18. Measure rack stroke.

**Rack stroke "L":**

**Refer to SDS, ST-28.**

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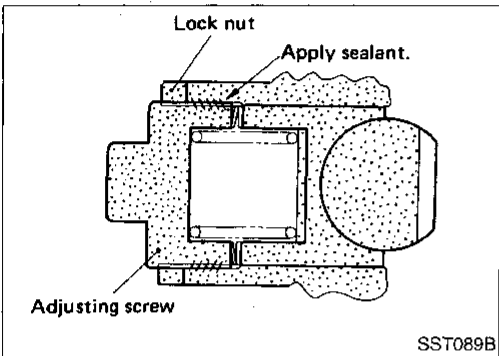
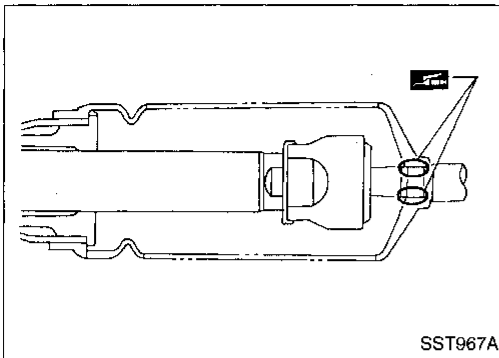
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# POWER STEERING GEAR AND LINKAGE

## Assembly (Cont'd)

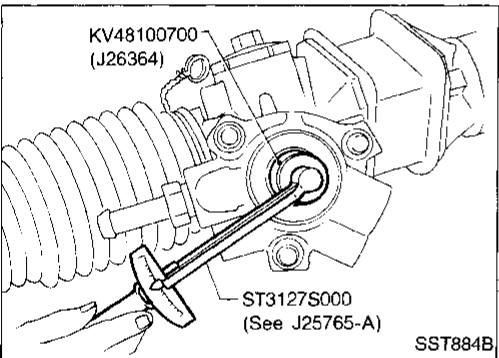
19. Before installing boot, coat the contact surfaces between boot and tie-rod with grease.



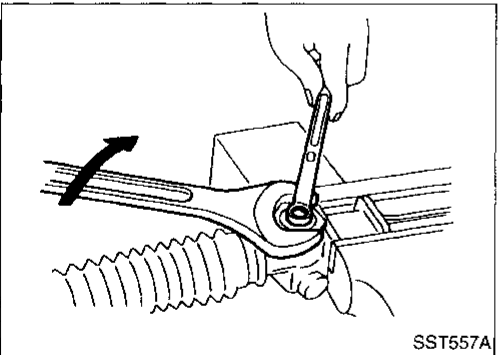
## Adjustment

Adjust pinion rotating torque as follows:

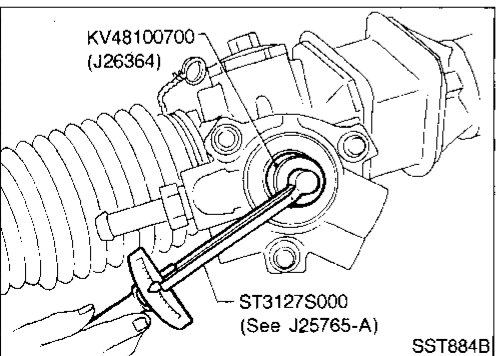
1. Set rack to the neutral position without fluid in the gear.
2. Coat the adjusting screw with locking sealant and screw it in.
3. Lightly tighten lock nut.
4. Tighten adjusting screw to a torque of 14.7 N·m (150 kg-cm, 130 in-lb).



5. Move rack over its entire stroke several times.
6. Loosen adjusting screw by 30°.



7. Prevent adjusting screw from turning, and tighten lock nut to specified torque.



8. Measure pinion rotating torque.

### Lock to lock:

#### Average rotating torque

0.8 - 1.3 N·m (8 - 13 kg-cm, 6.9 - 11.3 in-lb)

#### Within ±100° from the neutral position:

#### Maximum torque variation

0.4 N·m (4 kg-cm, 3.5 in-lb)

#### Outside the above range:

#### Maximum force variation

0.6 N·m (6 kg-cm, 5.2 in-lb)

# POWER STEERING GEAR AND LINKAGE

## Adjustment (Cont'd)

- If pinion rotating torque is not within specifications, readjust it starting from procedure 4. If pinion rotating torque is still out of specifications after readjustment, replace steering gear assembly.

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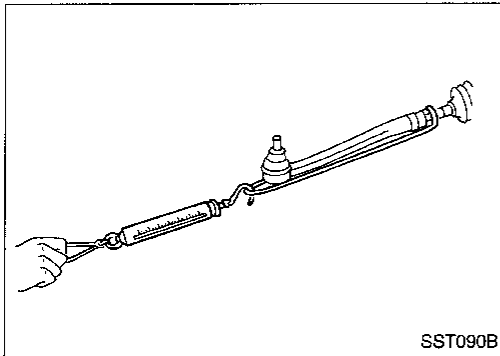
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9. Check rack sliding force on vehicle as follows:
  - a. Install steering gear onto vehicle, but do not connect tie-rod to knuckle arm.
  - b. Connect all piping and fill with steering fluid.
  - c. Start engine and bleed air completely.
  - d. Disconnect steering column lower joint from the gear.
  - e. Keep engine at idle and make sure steering fluid has reached normal operating temperature.
  - f. While pulling tie-rod slowly from the neutral position, make sure rack sliding force is within specification.

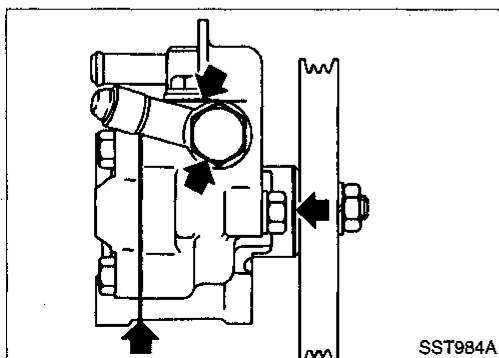
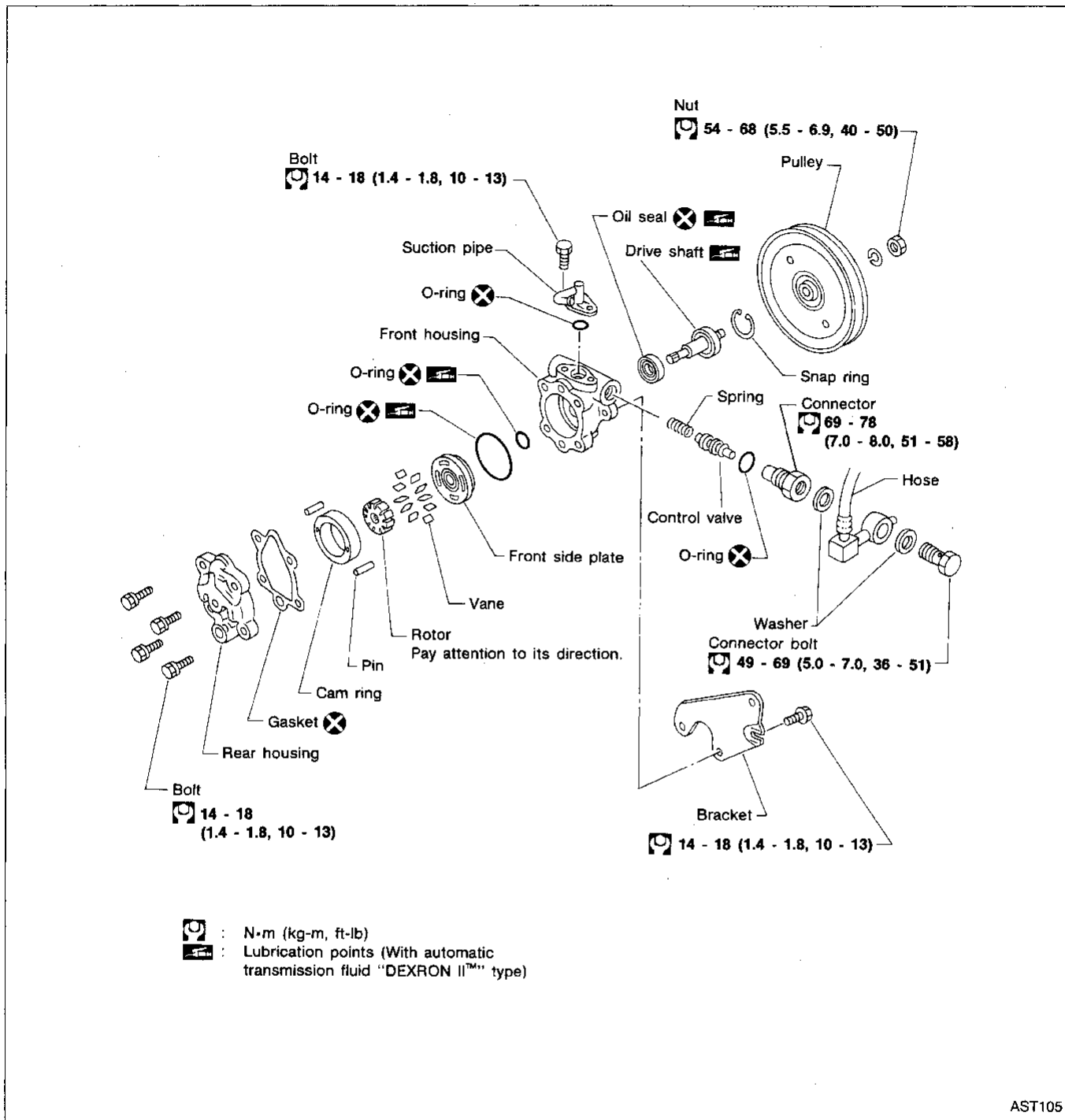
### Rack sliding force:

**118 - 235 N (12 - 24 kg, 26 - 53 lb)**

- If rack sliding force is not within specification, readjust by repeating adjustment procedure from the beginning.
- If rack sliding force is still out of specification after readjustment, gear assembly needs to be replaced.

# POWER STEERING OIL PUMP

## Disassembly and Assembly



### Pre-disassembly Inspection

Disassemble the power steering oil pump only if the following items are found.

- Oil leak from any point shown in the figure.
- Deformed or damaged pulley.
- Poor performance.



## Disassembly

### CAUTION:

- Parts which can be disassembled are strictly limited. Never disassemble parts other than those specified.
- Disassemble in as clean a place as possible.
- Clean your hands before disassembly.
- Do not use rags; use nylon cloths or paper towels.
- Follow the procedures and cautions in the Service Manual.
- When disassembling and reassembling, do not let foreign matter enter or contact the parts.

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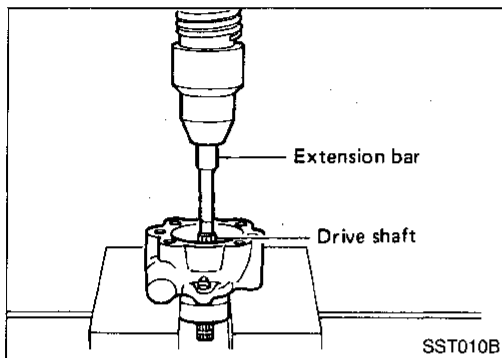
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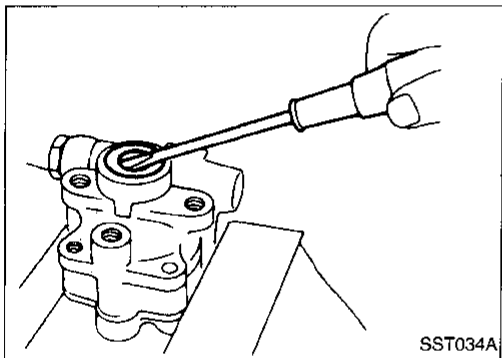
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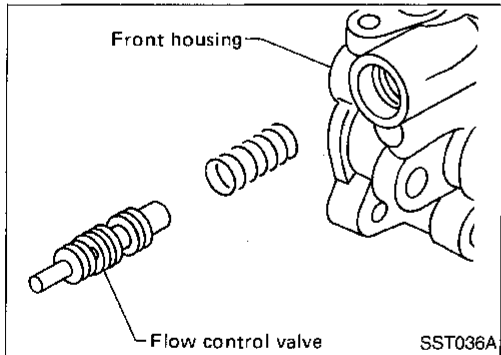
IDX



- Remove snap ring, then draw drive shaft out.  
**Be careful not to drop drive shaft.**



- Remove oil seal.  
**Be careful not to damage front housing.**



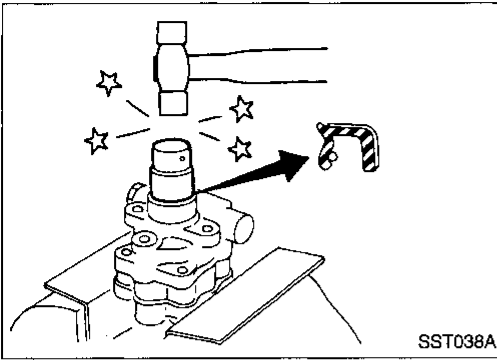
- Remove connector.  
**Be careful not to drop control valve.**

## Inspection

### PULLEY AND PULLEY SHAFT

- If pulley is cracked or deformed, replace it.
- If an oil leak is found around pulley shaft oil seal, replace the seal.
- If serration of pulley or pulley shaft is deformed or worn, replace it.

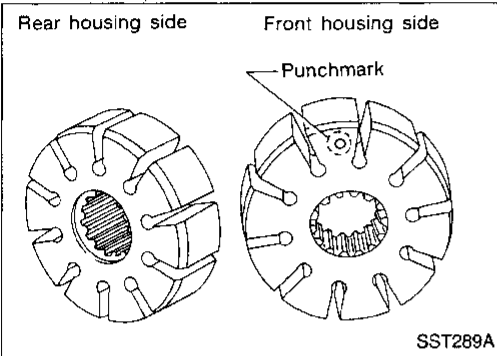
# POWER STEERING OIL PUMP



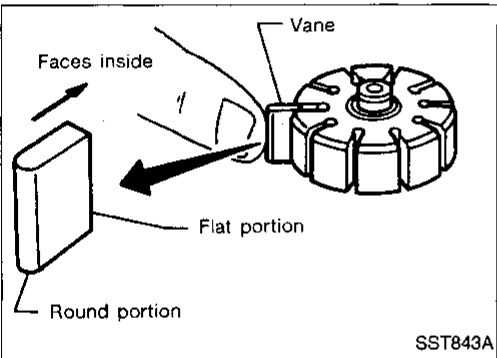
## Assembly

Assemble oil pump, noting the following instructions.

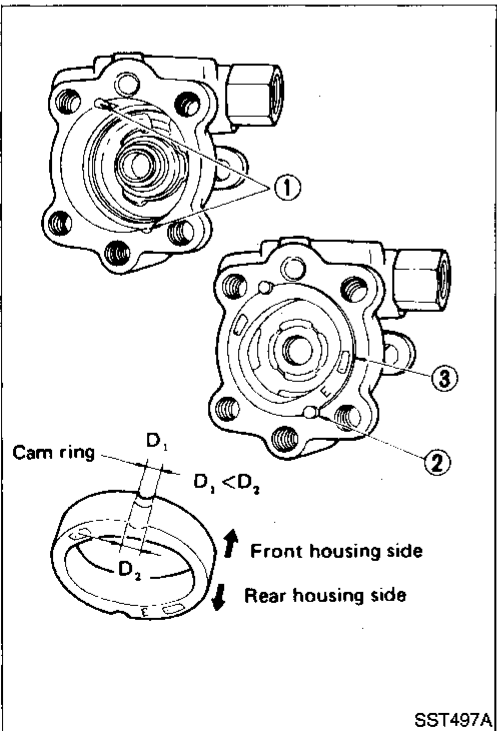
- Before installation, coat the O-rings and oil seal with ATF\*
  - Make sure O-rings and oil seal are properly installed. When assembling vanes to rotor, rounded surfaces of vanes must face cam ring side.
  - Always install new O-rings and oil seal.
  - Be careful of oil seal direction.
- \*: Automatic Transmission Fluid type "DEXRON II™" or equivalent



- Pay attention to the direction of rotor.



- Install vanes properly.



- Insert pin ② into pin groove ① of front housing and front side plate. Then install cam ring ③ as shown at left.

# SERVICE DATA AND SPECIFICATIONS (SDS)

## General Specifications

|   |                   |
|---|-------------------|
| Applied model                             | All               |
| Steering model                            | Power steering    |
| Steering gear type                        | PR26K             |
| Steering overall gear ratio               | 17.2              |
| Turns of steering wheel<br>(Lock to lock) | 2.83              |
| Steering column type                      | Collapsible, tilt |

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## Inspection and Adjustment

### GENERAL

|                                      |                                |
|--------------------------------------|--------------------------------|
| Steering wheel axial play<br>mm (in) | 0 (0)                          |
| Steering wheel play<br>mm (in)       | 35 (1.38) or less              |
| Movement of gear housing<br>mm (in)  | $\pm 2$ ( $\pm 0.08$ ) or less |

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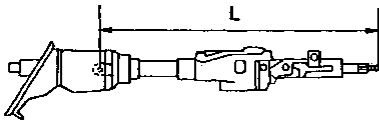
### STEERING GEAR AND LINKAGE

| Steering gear type   | PR26V                                    |
|--|--|
| Tie-rod outer ball joint<br>Swinging force<br>at cotter pin hole<br>N (kg, lb) | 6.9 - 64.7<br>(0.7 - 6.6, 1.5 - 14.6)    |
| Rotating torque<br>N·m (kg-cm, in-lb)  | 0.3 - 2.9<br>(3 - 30, 2.6 - 26.0)        |
| Axial end play<br>mm (in)  | 0.1 (0.004) or less                      |
| Tie-rod inner ball joint<br>Swinging force*                                    | 15.7 - 140.2<br>(1.6 - 14.3, 3.5 - 31.5) |
| Axial end play<br>mm (in)  | 0.3 (0.012) or less                      |
| Tie-rod standard length "L"<br>mm (in)   | 158.2 (6.23)                             |

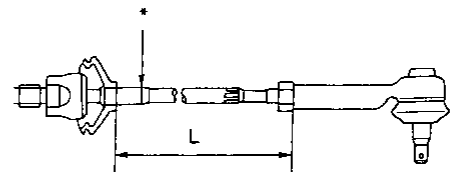
\*: Measuring point

### STEERING COLUMN

|                                       |                               |
|---------------------------------------|-------------------------------|
| Steering column length "L"<br>mm (in) | 525.6 - 528.4 (20.69 - 20.80) |
|---------------------------------------|-------------------------------|



SST125B



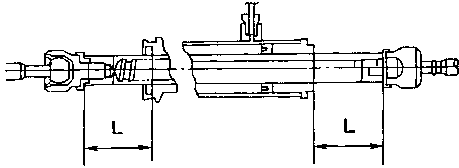
SST371B

# SERVICE DATA AND SPECIFICATIONS (SDS)

## Inspection and Adjustment (Cont'd)

### STEERING GEAR AND LINKAGE (Cont'd)

|                            |           |
|----------------------------|-----------|
| Steering gear type         | PR26V     |
| Rack stroke "L"<br>mm (in) | 66 (2.60) |



SST086B

|  |   |
|--|---|
| Pinion gear preload without gear fluid<br>N·m (kg-cm, in-lb) |   |
| Lock to lock   |   |
| Average rotating torque                                      | 0.78 - 1.27<br>(8.0 - 13.0, 6.9 - 11.3) |
| Within $\pm 100^\circ$ from the neutral position             |   |
| Maximum torque variation                                     | 0.4 (4, 3.5)                            |
| Outside the above range                                      |   |
| Maximum torque variation                                     | 0.6 (6, 5.2)                            |

### POWER STEERING

|   |            |   |
|---|------------|---|
| Rack sliding force<br>Under normal operating oil pressure                             | N (kg, lb) | 118 - 235<br>(12 - 24, 26 - 53)           |
| Retainer adjustment<br>Adjusting screw  |            |   |
| Initial tightening torque<br>N·m (kg-cm, in-lb)                                       |            | 14.7 (150, 130)                           |
| Returning angle   | degree     | 30°                                       |
| Steering wheel turning force<br>(Measured at one full turn from the neutral position) | N (kg, lb) | 39 (4, 9) or less                         |
| Fluid capacity (Approximate)<br>ℓ (US qt, Imp qt)                                     |            | 0.9 (1, 3/4)                              |
| Oil pump maximum pressure<br>kPa (kg/cm <sup>2</sup> , psi)                           |            | 7,649 - 8,238<br>(78 - 84, 1,109 - 1,194) |