

# STEERING

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## 06-10 GENERAL PROCEDURES

06

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### PRECAUTION (STEERING)

X5U610W01

#### Wheels and tires removal/installation

- The removal and installation procedures for the wheels and tires are not mentioned in this section. When a wheel is removed, retighten it to **89—117 N·m {9.0—12.0 kgf·m, 66—86 ft·lbf}**.

#### Power steering components removal/installation

- If any power steering fluid line has been disconnected anytime during the procedure, add ATF M-III or equivalent (e.g. Dexron®II), bleed the fluid line, and inspect for leakage after the procedure has been completed.

#### Connectors disconnection/connection

- Obtain the code number and deactivate the audio anti theft system before disconnecting the battery.
- Disconnect the negative battery cable before doing any work that requires handling of connectors. Reconnect the negative battery cable only after the work is completed.

# 06-11 MANUAL STEERING

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06

## STEERING WHEEL AND COLUMN INSPECTION

### Steering Wheel Play Inspection

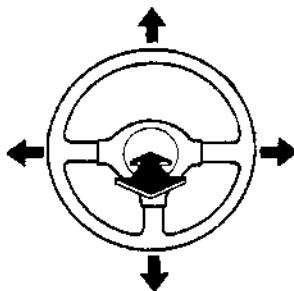
- If the play exceeds specification, either the steering joints are worn or the backlash of the steering gear is excessive. With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and verify that the play is within specification.

#### Play

0—30 mm {0—1.18 in}

### Steering Wheel Looseness Inspection

- Move the steering wheel as shown in the figure to inspect for column bearing wear, steering shaft joint play, steering wheel looseness, and column looseness.



X5U611WA9

### Steering Wheel Effort Inspection

- On level ground, jack up the front of the vehicle and support it on safety stands.
- Turn the steering wheel fully to the left and right at least 5 times.
- Move the steering wheel to put the wheels in the straight ahead position.
- Attach a pull scale to the outermost point of the steering wheel spoke. Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

#### Steering wheel effort

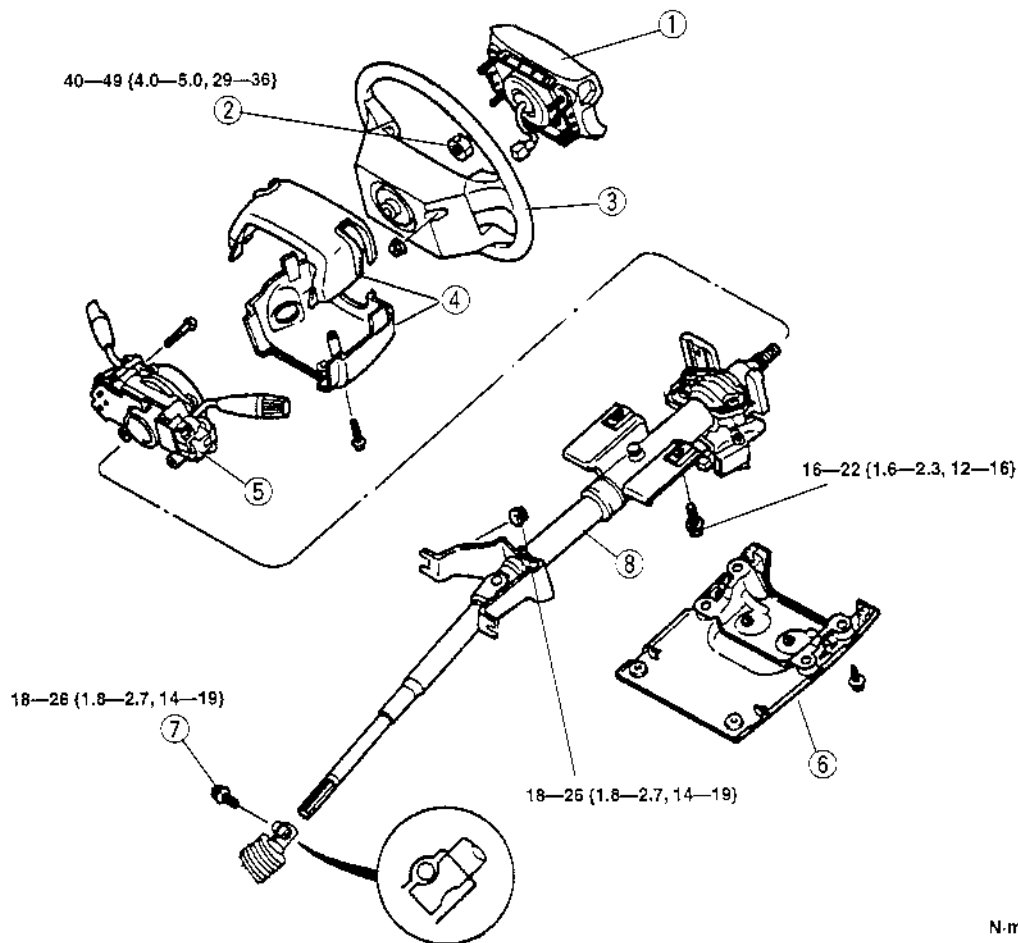
5—29 N {0.5—3.0 kgf, 1.1—6.6 lbf} (during one turn of steering wheel)

- If not as specified, inspect the following: rotation starting torque of pinion, rotation torque of each ball joint, and steering joints.

## STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION

X5U611W02

1. Remove in the order indicated in the table.
2. Install in the reverse order of removal.
3. After installation, verify that the horn sounds. If the horn does not sound, remove the air bag module and connect the module connectors.



N·m {kgf·m, ft·lb}

X5U611WA6

1	Air bag module 08-10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION
2	Locknut
3	Steering wheel Removal Note

4	Column cover
5	Combination switch
6	Lower panel
7	Intermediate shaft bolt
8	Steering shaft

### Steering Wheel Removal Note

#### Caution

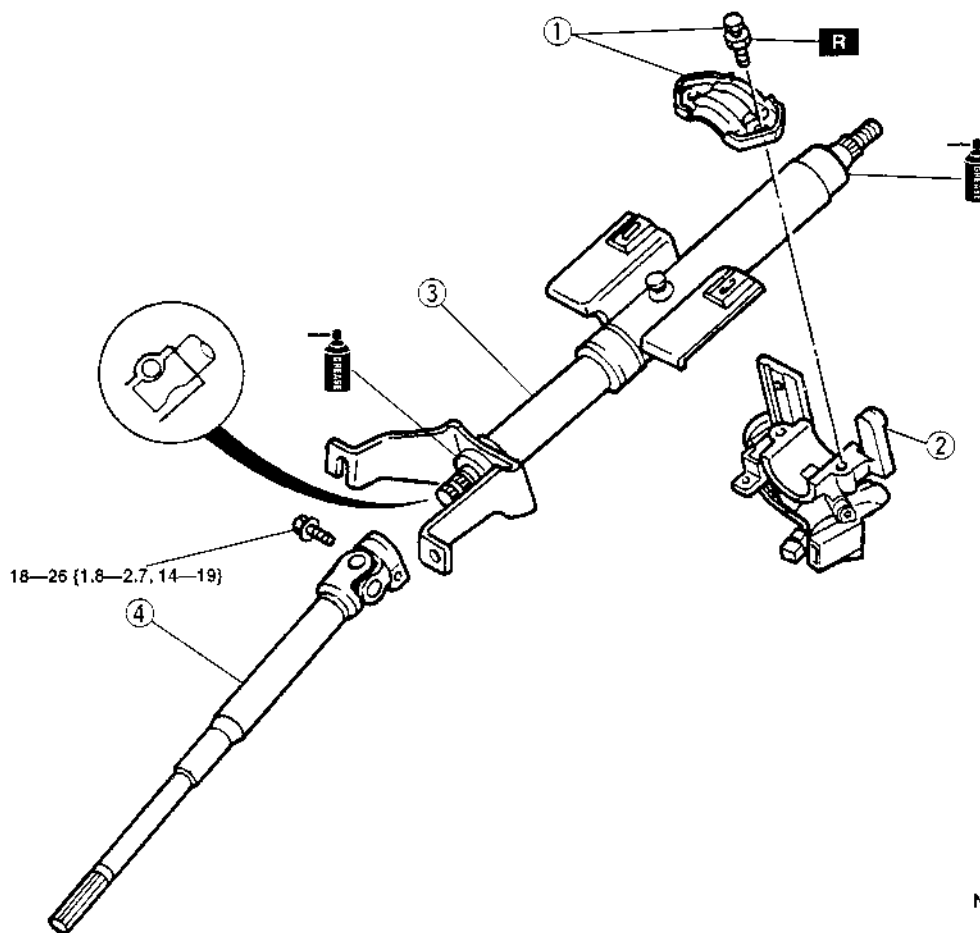
- Do not try to remove the steering wheel by hitting the shaft with a hammer. The column will collapse.

- Set the wheels in the straight-ahead position, remove the steering wheel by using a suitable puller.

## STEERING SHAFT DISASSEMBLY/ASSEMBLY

X5U611W03

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



N·m {kgf·m, ft·lbf}

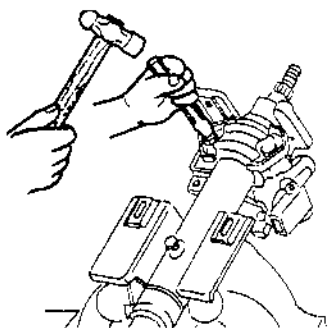
X5U611WA7

1	Steering lock mounting bolts and bracket ☞ Disassembly Note ☞ Assembly Note
2	Steering lock component

3	Steering shaft
4	Intermediate shaft

### Steering Lock Mounting Bolts and Bracket Disassembly Note

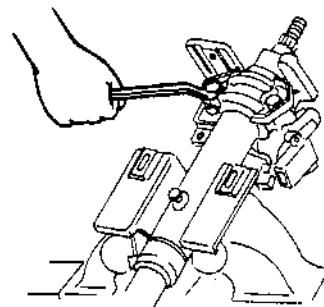
- Use a chisel to make a groove in the heads of the steering lock mounting bolts. Remove the bolts with a screwdriver. Remove the steering lock component.



U5U61105

### Steering Lock Mounting Bolts and Bracket Assembly Note

- Install the steering lock component. Install the new steering lock mounting bolts. Tighten the bolts until the heads break off.



U5U61106

# MANUAL STEERING

## STEERING SHAFT INSPECTION

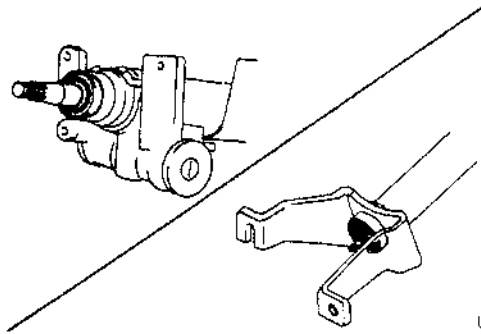
X5U611W04

- Inspect the following, and replace the column component as necessary.
- Column bearing damage.

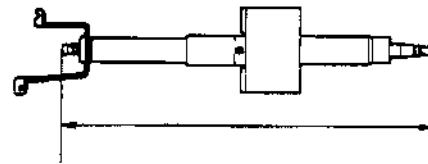
- Steering shaft length.

### Length

593.8—595.8 mm {23.38—23.45 in}



U5U61107



U5U61108

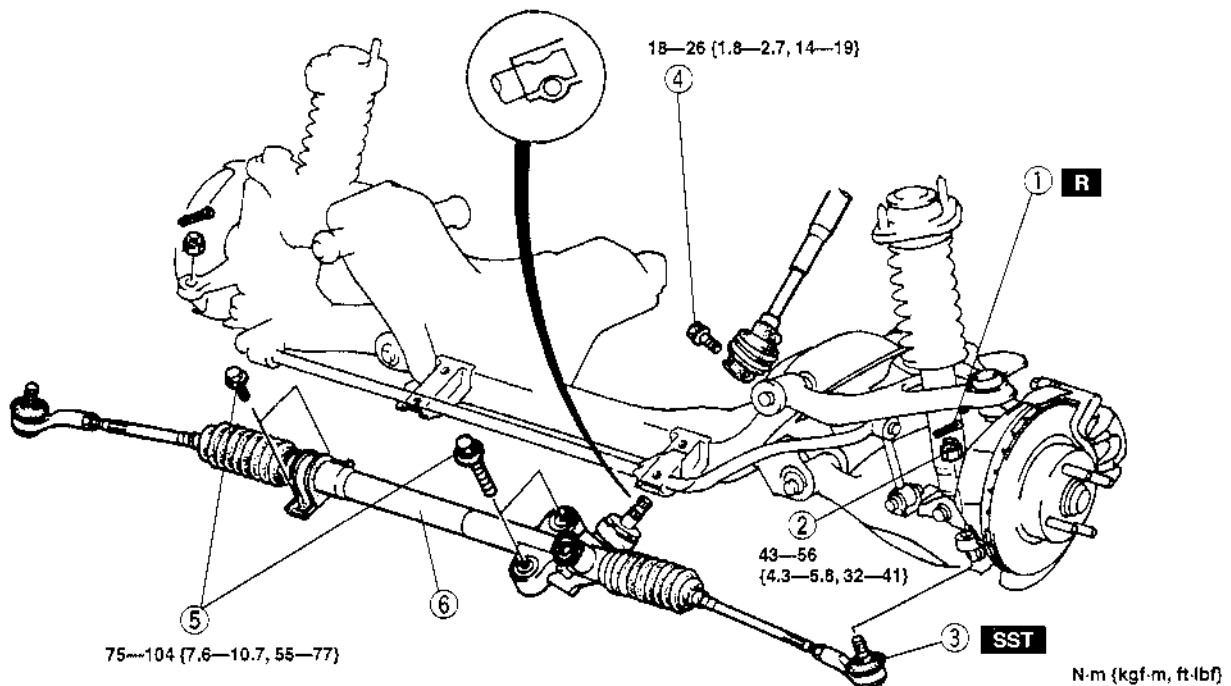
## STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION

X5U611W05

### Caution

- Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the harness if it is pulled by mistake. Before performing the following procedures, remove the ABS wheel-speed sensor (axle side) and fix it to an appropriate place where the sensor will not be pulled by mistake while servicing the vehicle.

- With the wheels in the straight-ahead position, remove in the order indicated in the table.
- Install in the reverse order of removal.
- Adjust the total toe-in.



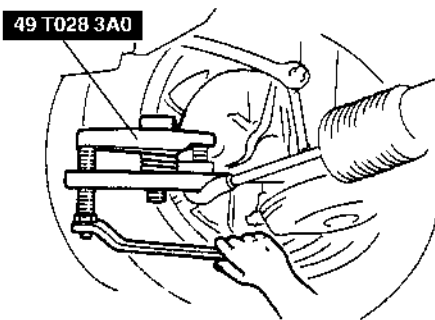
X5U611WA1

1	Cotter pin
2	Nut
3	Tie-rod end ball joint → Removal Note

4	Intermediate shaft bolt
5	Mounting bracket bolt
6	Steering gear and linkage

## Tie-rod End Ball Joint Removal Note

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



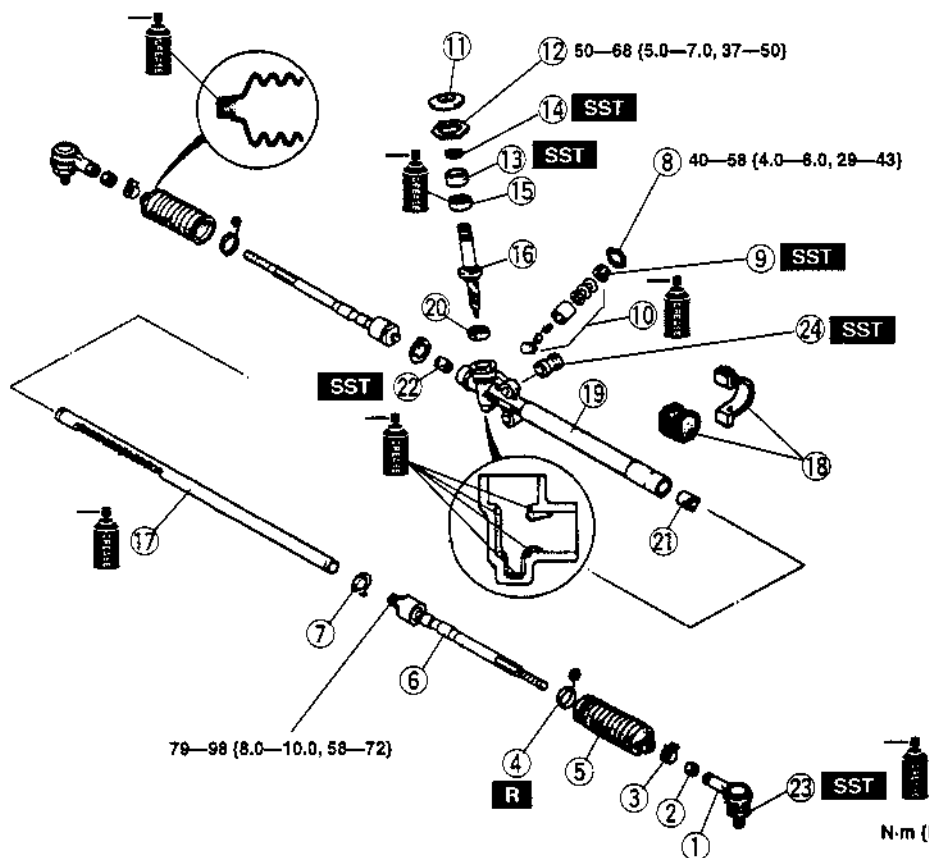
U5U81110

## STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY

X5U811W06

06

- Disassemble in the order indicated in the table.
- Assemble in the reverse order of disassembly.



X5U811WA2

1	Tie-rod end
2	Locknut (Tie-rod end)
3	Boot band
4	Boot wire
5	Boot
6	Tie rod Disassembly Note
7	Washer

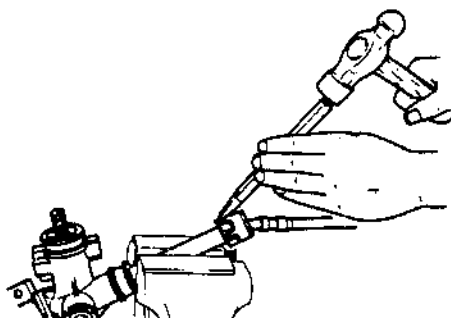
8	Locknut (Adjusting cover)
9	Adjusting cover Disassembly Note Assembly Note
10	Roller component
11	Dust cover
12	Locknut (Rear cover)

# MANUAL STEERING

13	Rear cover ☞ Assembly Note
14	Oil seal ☞ Disassembly Note
15	Upper bearing
16	Pinion shaft ☞ Assembly Note
17	Steering rack ☞ Disassembly Note ☞ Assembly Note
18	Mounting bracket and mount
19	Gear housing
20	Lower bearing ☞ Disassembly Note ☞ Assembly Note
21	Rack bushing ☞ Disassembly Note ☞ Assembly Note
22	Bushing ☞ Disassembly Note ☞ Assembly Note
23	Tie-rod end boot ☞ Disassembly Note ☞ Assembly Note
24	Mounting rubber ☞ Disassembly Note ☞ Assembly Note

## Tie Rod Disassembly Note

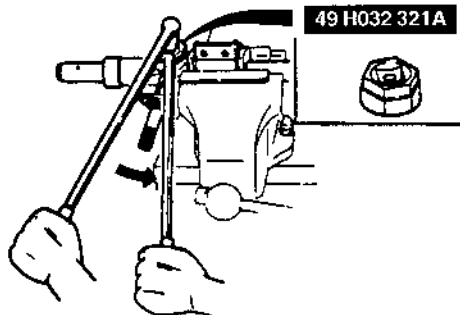
1. Unclamp the washer.
2. Remove the tie rod.



USU61112

## Adjusting Cover Disassembly Note

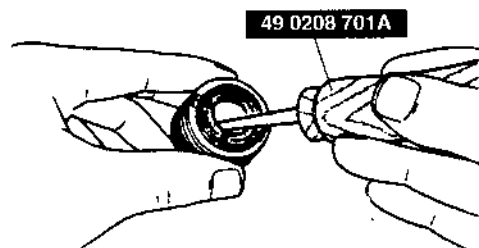
- Remove the adjusting cover by using the SST.



USU61113

## Oil Seal Disassembly Note

- Remove the oil seal by using the SST.

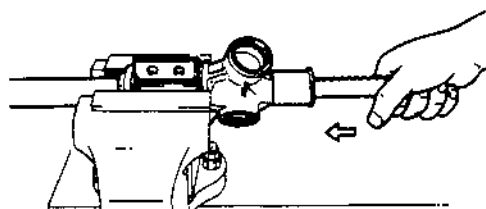


USU61114

## Steering Rack Disassembly Note

### Caution

- Removing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When removing the rack, remove it slowly and carefully.
- Remove the rack from the tube side.



USU61115

## Lower Bearing Disassembly Note

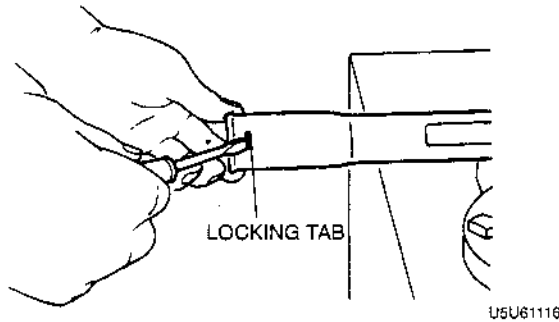
### Note

- The lower bearing does not need to be removed unless replacing it.
1. Heat the gear housing in water to about 80 °C {180 °F}.
  2. Tap the end of the housing with a plastic hammer to remove the lower bearing.

## Rack Bushing Disassembly Note

### Note

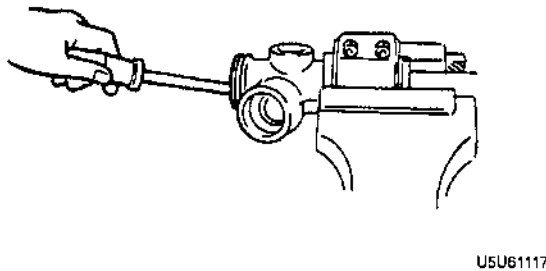
- The rack bushing does not need to be removed unless replacing it.
- Depress the locking tab, and carefully remove the rack bushing.



## Bushing Disassembly Note

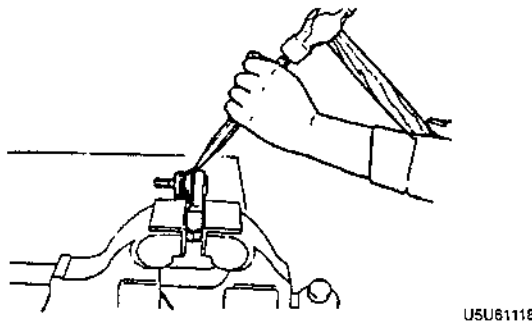
### Note

- The bushing does not need to be removed unless replacing it.
- Carefully break the bushing to remove it.



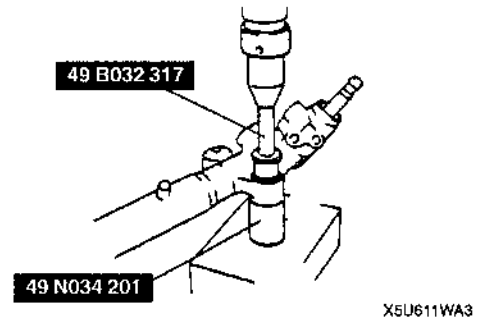
## Tie-rod End Boot Disassembly Note

- 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 it with a hammer.



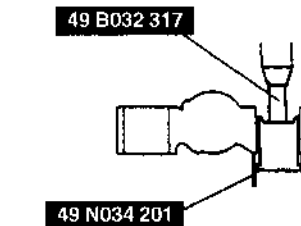
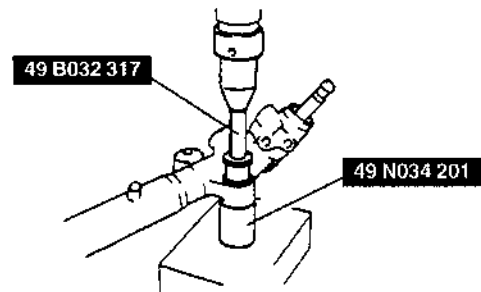
## Mounting Rubber Disassembly Note

- Press the mounting rubber out from the gear housing by using the SSTs and a press.



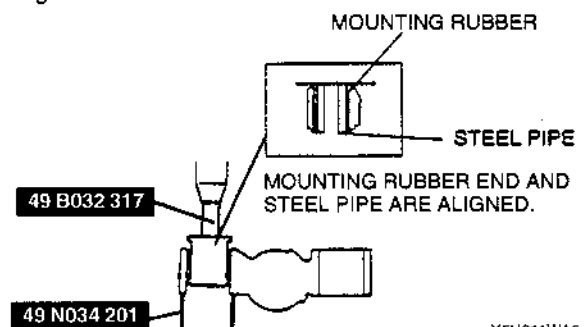
## Mounting Rubber Assembly Note

- Apply soapy water to the rubber part of the mounting rubber.
- Press the mounting rubber until the mounting rubber end comes out completely from the gear housing by using the SSTs and a press.



X5U611WA4

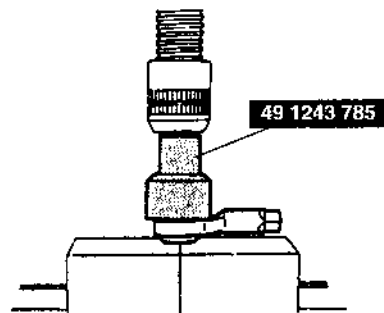
- Reverse the gear housing, then press the mounting rubber until the mounting rubber end comes out completely from the other side. At this time, mounting rubber end and steel pipe are aligned.





## Tie-rod End Boot Assembly Note

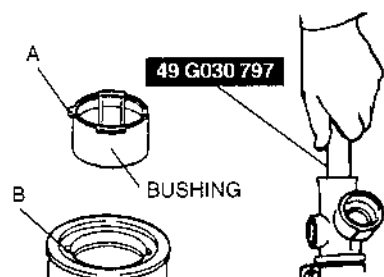
1. Wipe the grease off the ball joint.
2. Put a small amount of lithium-based grease into a new dust boot.
3. Install the dust boot onto the tie-rod end by using the **SST** and a press.
4. Wipe away any excessive grease.



U5U61119

## Bushing Assembly Note

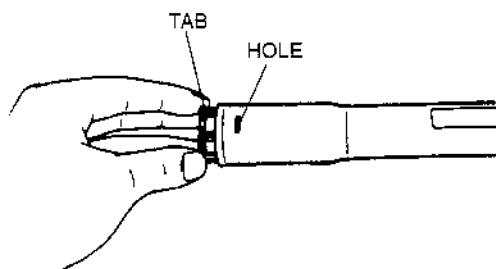
- Align A and B and press a new bushing into the gear housing by using the **SST** until the bushing is fully seated.



U5U61120

## Rack Bushing Assembly Note

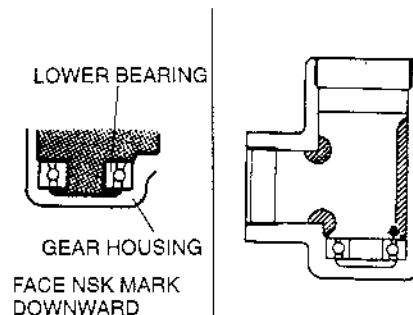
1. Align the tab of a new rack bushing with the hole in the column.
2. Push the rack bushing in until it is locked in place by the tab.



U5U61121

## Lower Bearing Assembly Note

1. Apply grease to a new lower bearing.
2. Set the lower bearing onto the pinion shaft so that the NSK mark on the bearing faces downward.
3. Insert the pinion shaft together with the lower bearing.
4. Press the pinion shaft to seat the lower bearing.
5. Apply grease to the inside of the gear housing as shown.



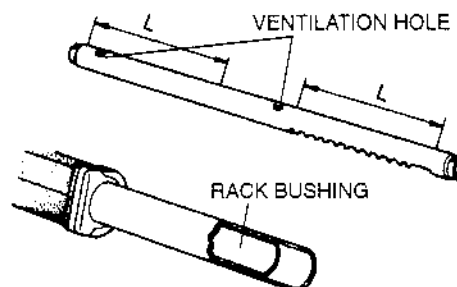
U5U61122

## Steering Rack Assembly Note

1. Secure the mounting bracket in a vise.
2. Apply grease to the rack bushing.
3. Apply grease to the rack teeth and the sliding surface.

### Caution

- Do not plug the ventilation holes with the grease.

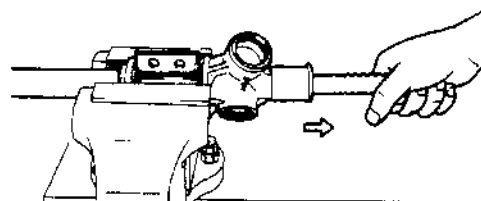


U5U61123

### Caution

- Installing the rack from the tube side can damage the rack bushing by dragging the rack teeth across it. When installing the rack, install it slowly and carefully.

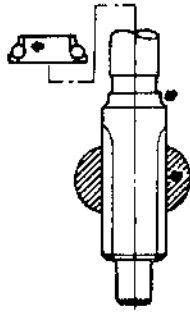
4. Slide the rack in from the tube side.



U5U61124

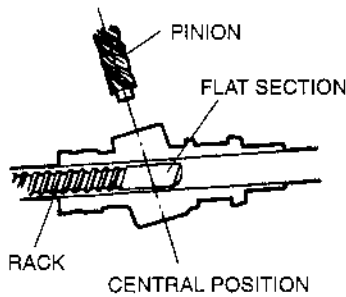
## Pinion Shaft Assembly Note

1. Apply grease to the inner race of the upper bearing and install it to the pinion shaft.
2. Apply grease to the teeth of the pinion shaft.



U5U61125

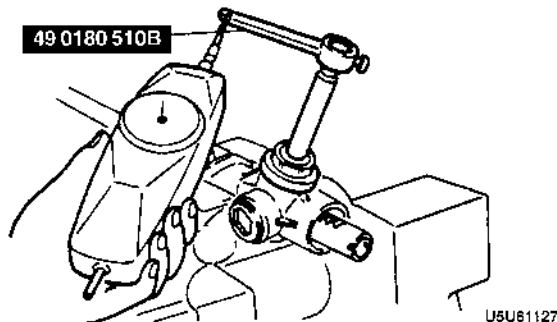
3. Turn the flat section of the rack toward the pinion, and insert the pinion.



U5U61126

## Rear Cover Assembly Note

1. Apply grease to the outer race of the upper bearing and install it in the gear housing.
2. Install a new oil seal to the rear cover.
3. Apply sealant to the threads of the rear cover and install it into the gear housing.
4. Rotate the pinion to the left and right a few times to seat the bearing.
5. Tighten the rear cover so that the starting torque of the pinion is **2.0—3.4 N·m {20—35 kgf·cm, 18—30 in·lbf}** (Pull scale reading: **20—34 N {2.0—3.5 kgf, 4.4—7.7 lbf}**) as inspected by using the SST and a pull scale.



U5U61127

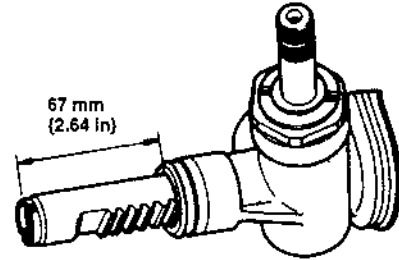
6. Tighten the locknut. Do not allow the rear cover to turn.

## Tightening torque

**50—68 N·m {5.0—7.0 kgf·m, 37—50 ft·lbf}**

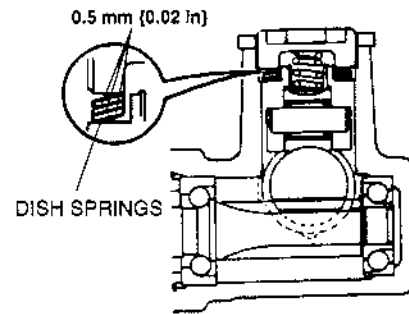
## Adjusting Cover Assembly Note

1. Carefully move the rack so that the pinion is set to the center (neutral position) of the rack gear as shown.



X5U611WAB

2. Install the roller component, needle roller, holder, dish springs, friction block, and the spring as shown.

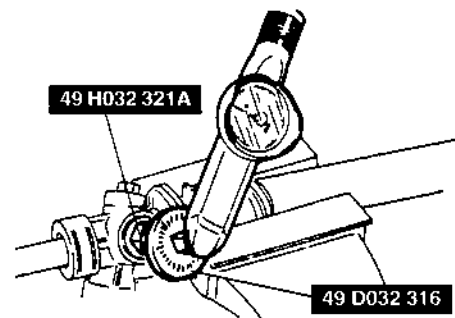


U5U61129

3. Tighten the adjusting cover to **9.8 N·m {100 kgf·cm, 87 in·lbf}**, then loosen it **25°—45°**. Use the SSTs to secure the adjusting cover and the locknut.

## Tightening torque

**40—58 N·m {4.0—6.0 kgf·m, 29—43 ft·lbf}**



U5U61130

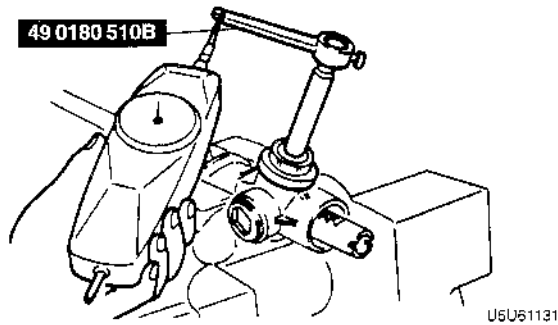
4. Measure the starting torque of the pinion by using the SST.

## Center position ± 90°

**1.0—1.1 N·m**

**{9.5—11.5 kgf·cm, 8.3—9.9 in·lbf}**

5. If not as specified, repeat steps 2 and 3.



## STEERING GEAR AND LINKAGE INSPECTION

### Tie End Inspection

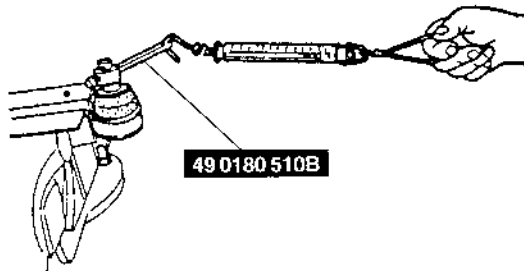
1. Inspect the tie-rod end for damage and boot cracks. Replace it as necessary.
2. Inspect the ball joint for looseness. Replace the tie-rod end as necessary.
3. Rotate the ball joint 5 times.
4. Measure the rotation torque of the ball joint by using the **SST** and pull scale.

#### Rotation torque

0.3—2.9 N·m {3—30 kgf·cm, 2.6—26 in·lbf}

#### Pull scale reading

3—29 N {0.3—3.0 kgf, 0.7—6.6 lbf}



5. If not as specified, replace the tie-rod end.

### Tie Rod Inspection

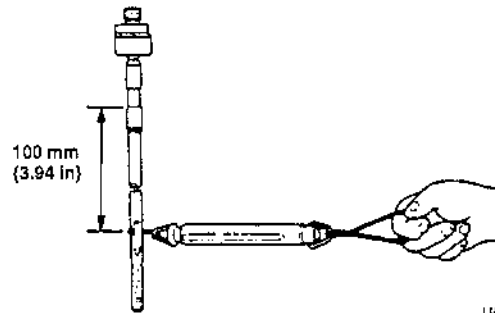
1. Inspect the tie rod for bending and damage. Replace it as necessary.
2. Inspect the ball joint for looseness. Replace the tie rod as necessary.
3. Swing the tie rod 5 times.
4. Measure the swing torque by using a pull scale.

#### Swinging torque

0.5—3.1 N·m {5—32 kgf·cm, 4.4—27.7 in·lbf}

#### Pull scale reading

3.0—19.6 N {0.3—2.0 kgf, 0.7—4.4 lbf}



5. If not as specified, replace the tie rod.

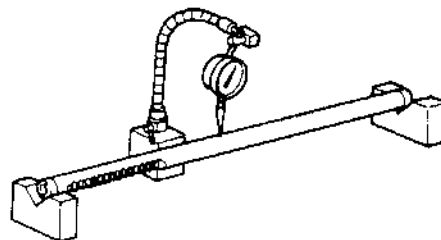
### Steering Rack Inspection

1. Inspect for cracks, damage, and tooth wear. Replace as necessary.
2. Measure runout of the rack.

#### Runout

0.3 mm {0.012 in} max.

3. If not as specified, replace the rack.



## 06-12 ENGINE SPEED SENSING POWER STEERING

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<b>STEERING GEAR AND LINKAGE</b>		<b>POWER STEERING OIL PUMP</b>	
<b>DISASSEMBLY/ASSEMBLY</b> .....	06-12-6	<b>DISASSEMBLY/ASSEMBLY</b> .....	06-12-12
Locknut Disassembly Note .....	06-12-7	Power Steering Oil Pump	
Pinion Shaft and Housing Component		Disassembly Note .....	06-12-13
Disassembly Note .....	06-12-7	Rotor Assembly Note .....	06-12-13
Pinion Shaft Component		Cam Ring Assembly Note .....	06-12-13
Disassembly Note .....	06-12-8	Blade Assembly Note .....	06-12-13
Snap Ring Disassembly Note .....	06-12-8		

### AIR BLEEDING

X5U612W01

1. Inspect the fluid level.
2. Turn the steering wheel fully to the left and right several times with the engine not running.
3. Inspect the fluid level. If it has dropped, add fluid.
4. Repeat steps 2 and 3 until the fluid level stabilizes.
5. Start the engine and let it idle.
6. Turn the steering wheel fully to the left and right several times.
7. Verify that the fluid is not foamy and that the fluid level has not dropped.
8. Add fluid as necessary, and repeat steps 6 and 7.

### POWER STEERING FLUID INSPECTION

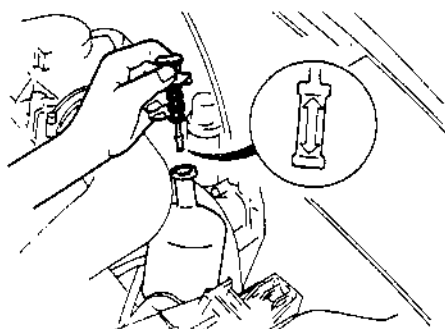
X5U612W02

#### Fluid Level Inspection

1. Verify that the fluid level is between the H and L marks.
2. Add the specified power steering fluid if it is below the L mark. Remove the fluid if it is above the H mark.

#### Fluid specification

ATF M-III or equivalent (e.g. Dexron®II)



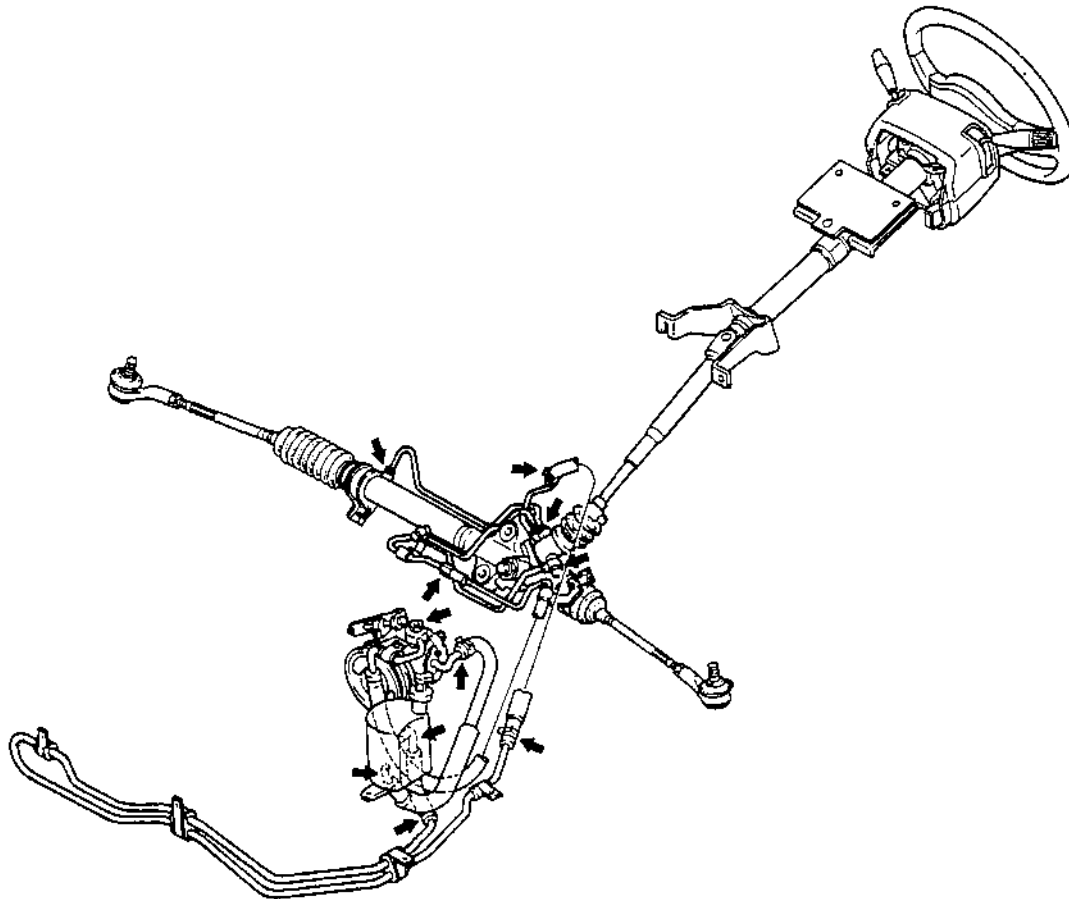
U5U6\*201

# ENGINE SPEED SENSING POWER STEERING

## Fluid Leakage Inspection

### Caution

- Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.
- Start the engine and let it idle. Turn the steering wheel fully left and fully right to apply fluid pressure. Inspect the points shown in the figure for fluid leakage.



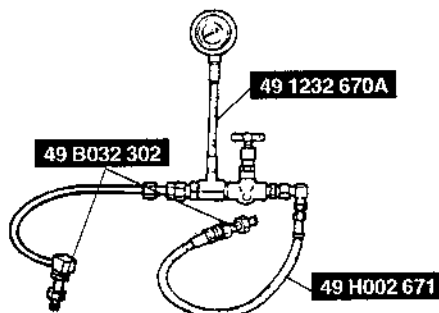
X5U612WA0

## Fluid Pressure Inspection

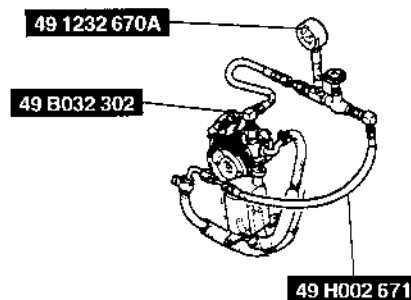
1. Assemble the SSTs as shown in the figure.

### Tightening torque

40—49 N·m {4.0—5.0 kgf·m, 29—36 ft·lbf}



U5U61203



U5U61204

2. Mark both hose connections to ensure that the hose is reinstalled in its original position.
3. Disconnect the pressure hose from the oil pump. Attach the SSTs.

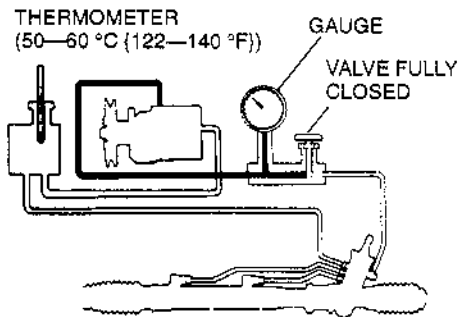
4. Bleed the air from the system.
5. Open the gauge valve fully. Start the engine and turn the steering wheel fully left and right to raise the fluid temperature to 50—60 °C {122—140 °F}.

### Caution

- Do not let the valve stay closed for more than 5 seconds. The increase in fluid temperature will damage the oil pump.

## ENGINE SPEED SENSING POWER STEERING

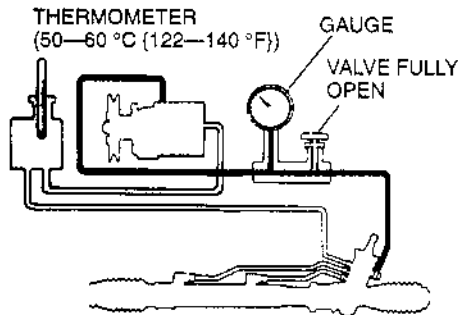
6. Close the gauge valve completely. Increase the engine speed to **1,000—1,500 rpm** and measure the fluid pressure generated by the oil pump. If the pressure is not within specification, replace the oil pump component.



U5U61205

**Oil pump fluid pressure**  
**7846—8335 kPa**  
**{80—85 kgf/cm<sup>2</sup>, 1138—1208 psi}**

7. Open the gauge valve fully and increase the engine speed to **1,000—1,500 rpm**.



U5U61206

### Caution

- **Never hold the steering wheel to the extreme left or right for more than five seconds with the engine running. This could damage the power steering pump.**

8. Turn the steering wheel fully to the left and right and measure the fluid pressure generated by the gear housing. If the pressure is not within specification, replace the gear housing component.

**Gear housing fluid pressure**  
**7846—8335 kPa**  
**{80—85 kgf/cm<sup>2</sup>, 1138—1208 psi}**

9. Remove the gauge set. Install and tighten the pressure hose to the specified torque.

**Tightening torque**  
**32—47 N·m {3.2—4.8 kgf·m, 24—34 ft·lb}**

10. Bleed the air from the system.

# ENGINE SPEED SENSING POWER STEERING

## STEERING WHEEL AND COLUMN INSPECTION

X5U612W03

### Steering Wheel Play Inspection

(Refer to 06–11 STEERING WHEEL AND COLUMN INSPECTION, Steering Wheel Play Inspection.)

### Steering Wheel Looseness Inspection

(Refer to 06–11 STEERING WHEEL AND COLUMN INSPECTION, Steering Wheel Looseness Inspection.)

### Steering Wheel Effort Inspection

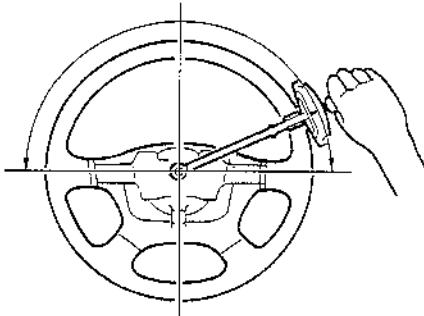
1. Check the following points:
  - (1) Tire size and tire pressure
  - (2) Fluid level
  - (3) Drive belt deflection
2. With the vehicle on a hard, level surface, put the wheels in the straight-ahead position.
3. Start the engine and warm the power steering fluid to **50–60 °C {122–140 °F}**.
4. Remove the air bag module. (Refer to 08–10 DRIVER-SIDE AIR BAG MODULE REMOVAL/INSTALLATION.)
5. Measure the steering wheel effort by using a torque wrench.

### Steering wheel effort

**7.8 N·m {80 kgf·cm, 69 in·lbf} max.**

#### Note

- To determine whether the steering effort is satisfactory or not, perform the inspection on another vehicle of the same model and under the same conditions, and compare the results.
  - The steering wheel effort varies with conditions as shown below.
    1. Road conditions, such as dry or wet, and asphalt or concrete.
    2. Tire conditions, such as brand, wear, and tire pressure.
6. If not as specified, note the following:
- (1) Air in system
  - (2) Fluid leakage at hose or connectors
  - (3) Function of oil pump and steering gear



U5U61207

## STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION

U5U612AD

(Refer to 06–11 STEERING WHEEL AND COLUMN REMOVAL/INSTALLATION.)

## STEERING SHAFT DISASSEMBLY/ASSEMBLY

U5U612AE

(Refer to 06–11 STEERING SHAFT DISASSEMBLY/ASSEMBLY.)

## STEERING SHAFT INSPECTION

U5U612AF

(Refer to 06–11 STEERING SHAFT INSPECTION.)

# ENGINE SPEED SENSING POWER STEERING

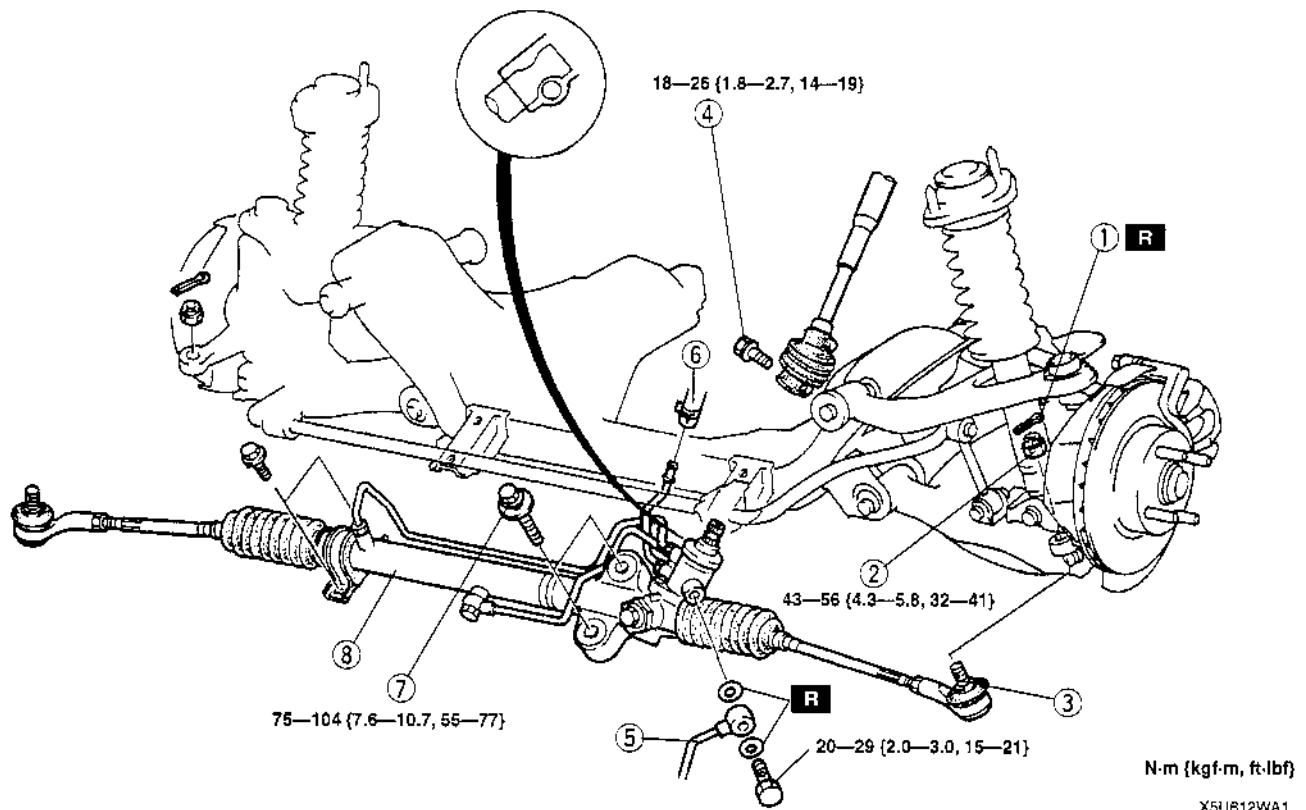
## STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION

X5U612W04

### Caution

- Performing the following procedures without first removing the ABS wheel-speed sensor may possibly cause an open circuit in the harness if it is pulled by mistake. Before performing the following procedures, remove the ABS wheel-speed sensor (axle side) and fix it to an appropriate place where the sensor will not be pulled by mistake while servicing the vehicle.

1. Remove in the order indicated in the table.
2. With the wheels in the straight-ahead position, install in the reverse order of removal.
3. After installation, inspect the total toe-in and adjust it as necessary.



1	Cotter pin
2	Nut
3	Tie-rod end ball joint ➤ 06-11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Tie-rod End Ball Joint Removal Note

4	Bolt
5	Pressure pipe
6	Return hose
7	Mounting bracket bolt
8	Steering gear and linkage

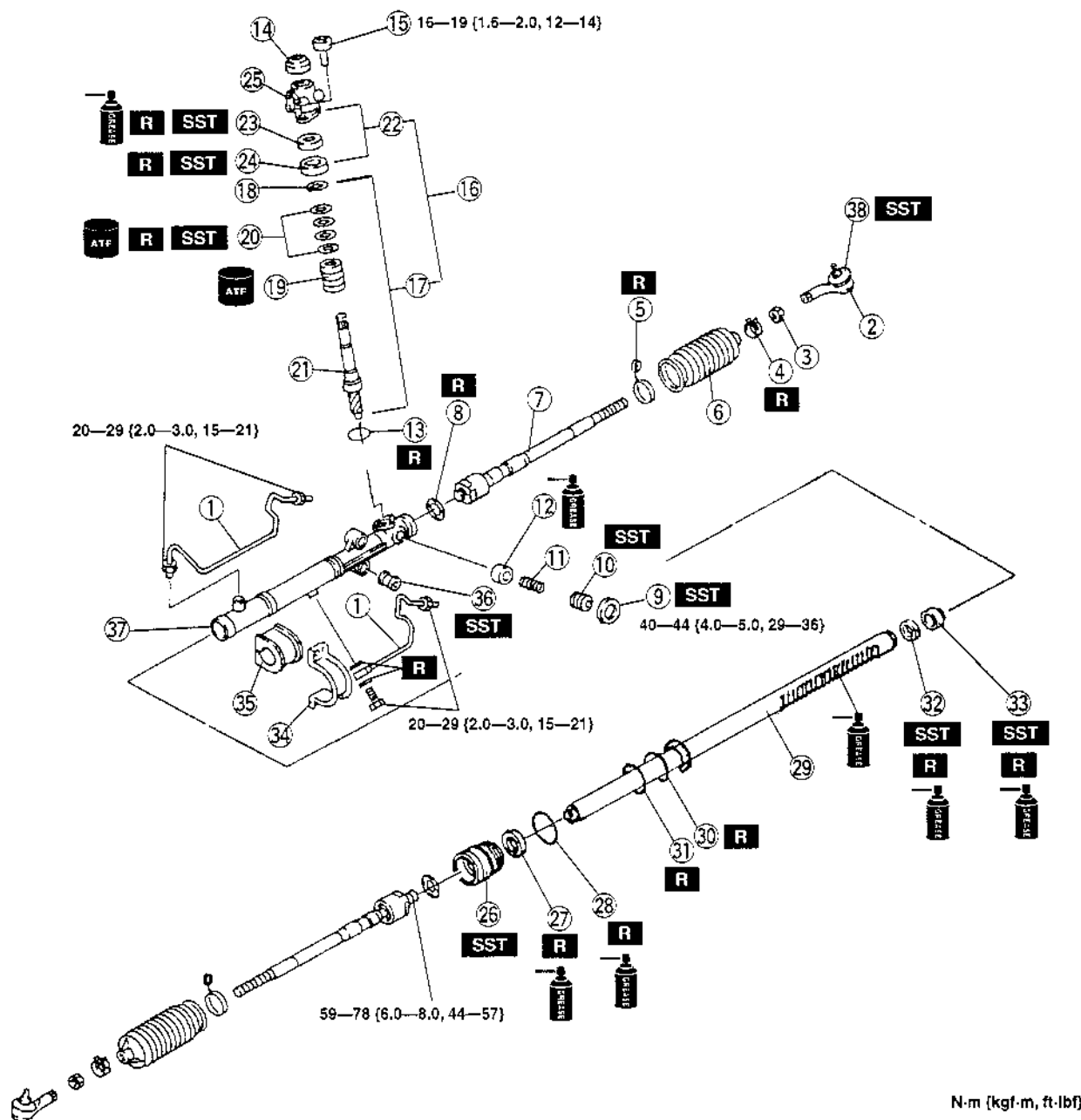


# ENGINE SPEED SENSING POWER STEERING

## STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY

X5U612W05

1. Disassemble in the order indicated in the table.
2. Assemble in the reverse order of disassembly.



X5U612WA2

1	Oil pipe
2	Tie-rod end
3	Locknut (Tie-rod end)
4	Boot band
5	Boot wire
6	Boot
7	Tie rod 06-11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie Rod Disassembly Note

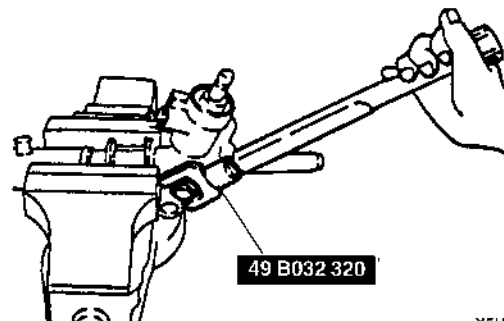
8	Washer
9	Locknut (Adjusting cover) 06-11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie Rod Disassembly Note
10	Adjusting cover 06-11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie Rod Disassembly Note
11	Yoke spring
12	Support yoke
13	O-ring
14	Dust cover
15	Socket bolt

# ENGINE SPEED SENSING POWER STEERING

16	Pinion shaft and housing component ☞ Disassembly Note
17	Pinion shaft component ☞ Disassembly Note
18	Snap ring ☞ Disassembly Note
19	Control valve component
20	Seal ring ☞ Assembly Note
21	Pinion shaft
22	Valve housing component
23	Upper bearing ☞ Disassembly Note ☞ Assembly Note
24	Oil seal ☞ Disassembly Note ☞ Assembly Note
25	Valve housing
26	Holder ☞ Disassembly Note ☞ Assembly Note
27	U gasket
28	O-ring
29	Steering rack
30	Seal ring
31	O-ring
32	Oil seal ☞ Disassembly Note ☞ Assembly Note
33	Inner guide ☞ Disassembly Note ☞ Assembly Note
34	Mounting bracket
35	Mount
36	Mounting rubber ☞ 06-11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Mounting Rubber Disassembly Note ☞ 06-11 STEERING GEAR AND LINKAGE REMOVAL/INSTALLATION, Mounting Rubber Assembly Note
37	Gear housing
38	Tie-rod end boot ☞ 06-11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie-rod End Boot Removal Note ☞ 06-11 STEERING GEAR AND LINKAGE DISASSEMBLY/ASSEMBLY, Tie-rod End Boot Assembly Note

## Locknut Disassembly Note

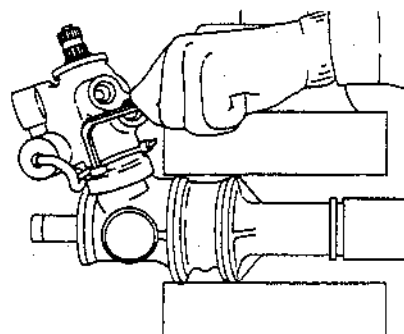
- Remove the locknut by using the SST.



X5U612WA3

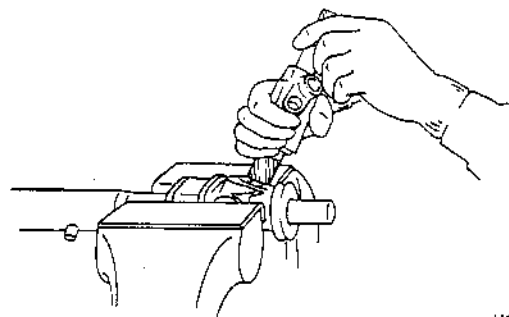
## Pinion Shaft and Housing Component Disassembly Note

- Remove the socket bolts (2 points) which fix the pinion shaft and housing.



U5U61210

- Hold the pinion shaft as shown, and pull out the pinion shaft and housing component.



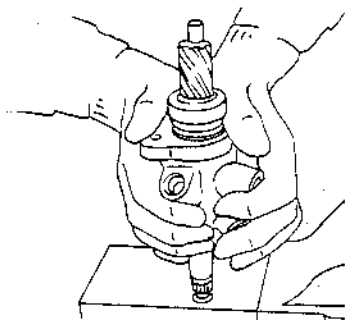
U5U61211

# ENGINE SPEED SENSING POWER STEERING

## Pinion Shaft Component Disassembly Note

### Note

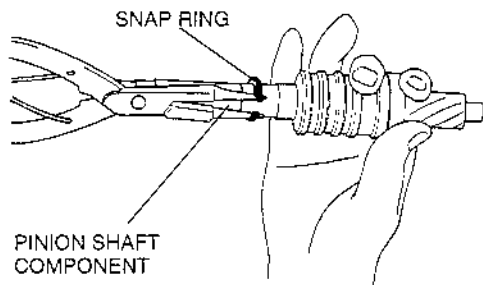
- If the pinion shaft does not come out easily, remove it by using a press.
- Push out the pinion shaft component from the valve housing as shown.



U5U61212

## Snap Ring Disassembly Note

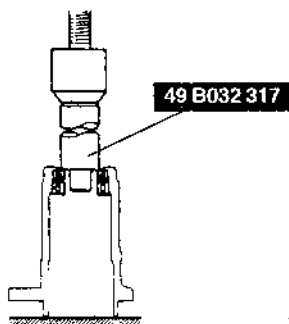
- Carefully remove the snap ring without damaging the pinion shaft component.



U5U61213

## Upper Bearing, Oil Seal Disassembly Note

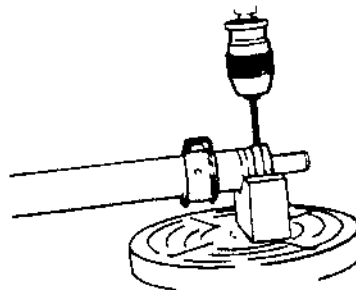
1. Set the SST as shown.
2. Using a press, remove the oil seal and upper bearing without applying pressure to the edge of the valve housing.



X5U612WA4

## Holder Disassembly Note

1. Cut away the staked area by using a drill.



X5U612WA5

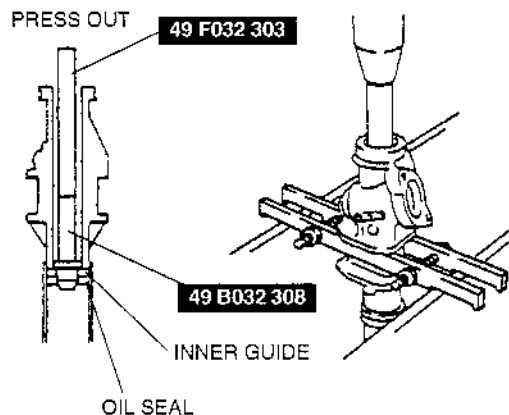
### Caution

- Carefully pull out the holder without damaging the U gasket.

2. Remove the holder.

## Oil Seal, Inner Guide Disassembly Note

1. Set the SSTs into the valve side.
2. Press out the oil seal and inner guide.

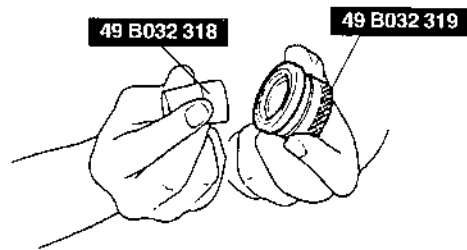


X5U612WAF

# ENGINE SPEED SENSING POWER STEERING

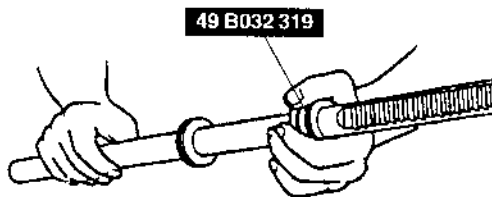
## Oil Seal, Inner Guide Assembly Note

1. Install a new O-ring and new seal ring to the rack's piston.
2. After installing the seal ring, seat it properly at the piston circumference.
3. Install a new oil seal and inner guide to the SST.



X5U612WA7

4. Using the SST, place the oil seal and inner guide at the edge of the steering rack's pinion, and remove the SST.



X5U612WA8

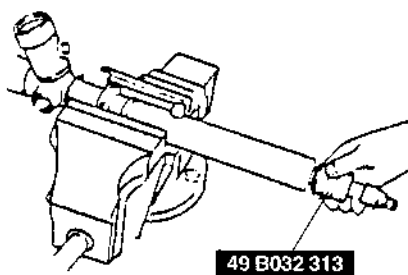
## Caution

- When pressing in, do not apply a load pressure of more than 39230 kPa (400 kg/cm<sup>2</sup>, 5688 psi), because to do so will damage the oil seal and inner guide.
- Apply grease to the seal ring, oil seal and inner guide.

5. After mounting the steering rack to the gear housing, use a press to install the oil seal and inner guide to the correct position.

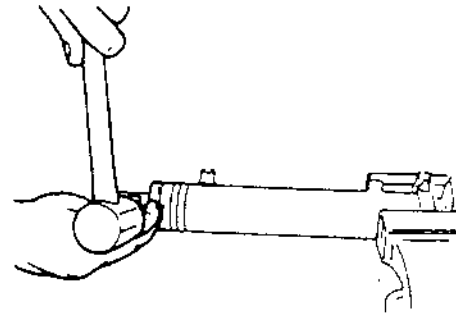
## Holder Assembly Note

1. Apply grease to the U-gasket and O-ring.
2. Assemble the U-gasket and O-ring into the holder.
3. Assemble the holder by using the SST.



X5U612WA9

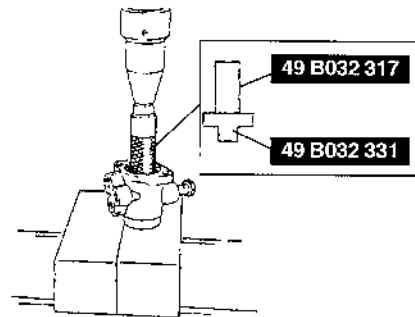
4. Stake the holder to the cylinder by using a punch.



X5U612WAA

## Oil Seal Assembly Note

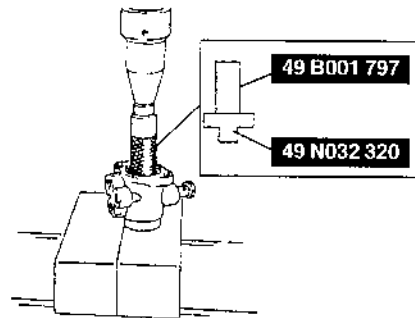
1. Apply grease to a new oil seal.
2. Press in the new oil seal by using the SSTs.



X5U612WAB

## Upper Bearing Assembly Note

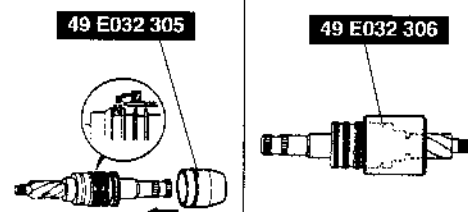
1. Apply grease to a new upper bearing.
2. Press in the upper bearing by using the SST.



X5U612WAC

## Seal Ring Assembly Note

1. Install a new seal ring to the valve part of the pinion shaft by using the SST.
2. After installing it, seat it properly by using the SST.



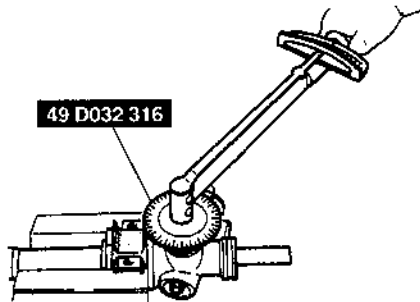
X5U612WAD

3. Install the snap ring.

## ENGINE SPEED SENSING POWER STEERING

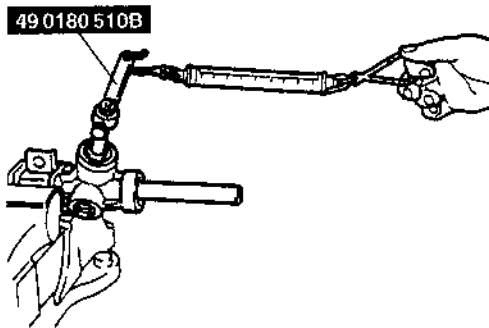
### Adjusting Cover Assembly Note

1. Set the rack to the center position.
2. Tighten the adjusting cover to **4.9 N·m {50 kgf·cm, 43 in·lbf}** three times, then return it **25°** by using the **SST**.



U5U61237

3. Apply sealant to the threads of the locknut.
4. Attach the locknut.
5. Measure the pinion torque by using the **SST** and a pull scale.



U5U61238

### Standard

Center of rack  $\pm 90^\circ$  **1.0—1.1 N·m**  
{**10—12 kgf·cm, 8.7—10.4 in·lbf**}

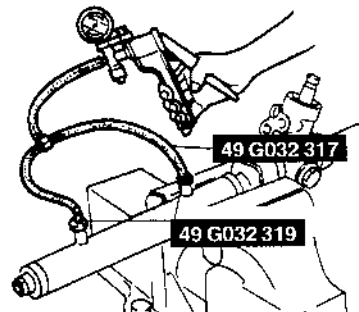
6. If not as the specified, repeat steps 2 through 6.
7. Install the locknut by using the **SST** (49 B032 320).

### Tightening torque

**40—49 N·m {4.0—5.0 kgf·m, 29—36 ft·lbf}**

### Hermetic sealing inspection

1. Connect the **SSTs** to the power cylinder section of the gear housing.
2. Apply **53.3 kPa {400 mmHg, 15.7 inHg}** vacuum with a vacuum pump and verify that it is held for at least **30 seconds**.
3. If the vacuum is not held, replace the oil seal.



U5U61239

## STEERING GEAR AND LINKAGE INSPECTION

X5U612W06

### Tie-rod End Inspection

(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Tie-rod End Inspection.)

### Tie Rod Inspection

(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Tie Rod Inspection.)

### Steering Rack Inspection

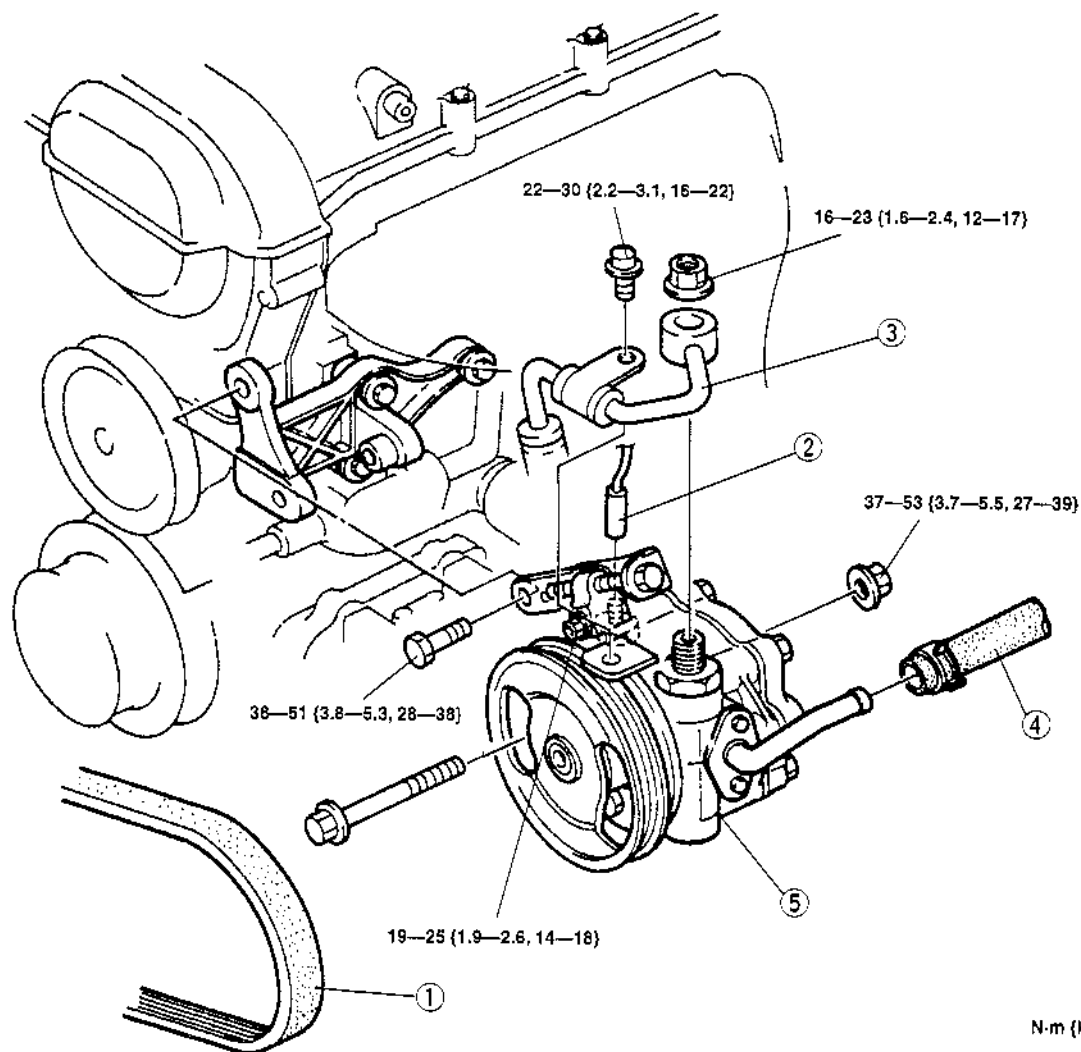
(Refer to 06–11 STEERING GEAR AND LINKAGE INSPECTION, Steering Rack Inspection.)

# ENGINE SPEED SENSING POWER STEERING

## POWER STEERING OIL PUMP REMOVAL/INSTALLATION

X5U612W07

1. Remove the cooling fan. (Refer to 01-12 RADIATOR REMOVAL/INSTALLATION.)
2. Remove in the order indicated in the table.
3. Install in the reverse order of removal.
4. Adjust the drive belt. (Refer to 01-10 DRIVE BELT ADJUSTMENT.)



N·m (kgf·m, ft·lb)

X5U612WA6

1	Drive belt
2	Power steering pressure switch connector
3	Pressure pipe

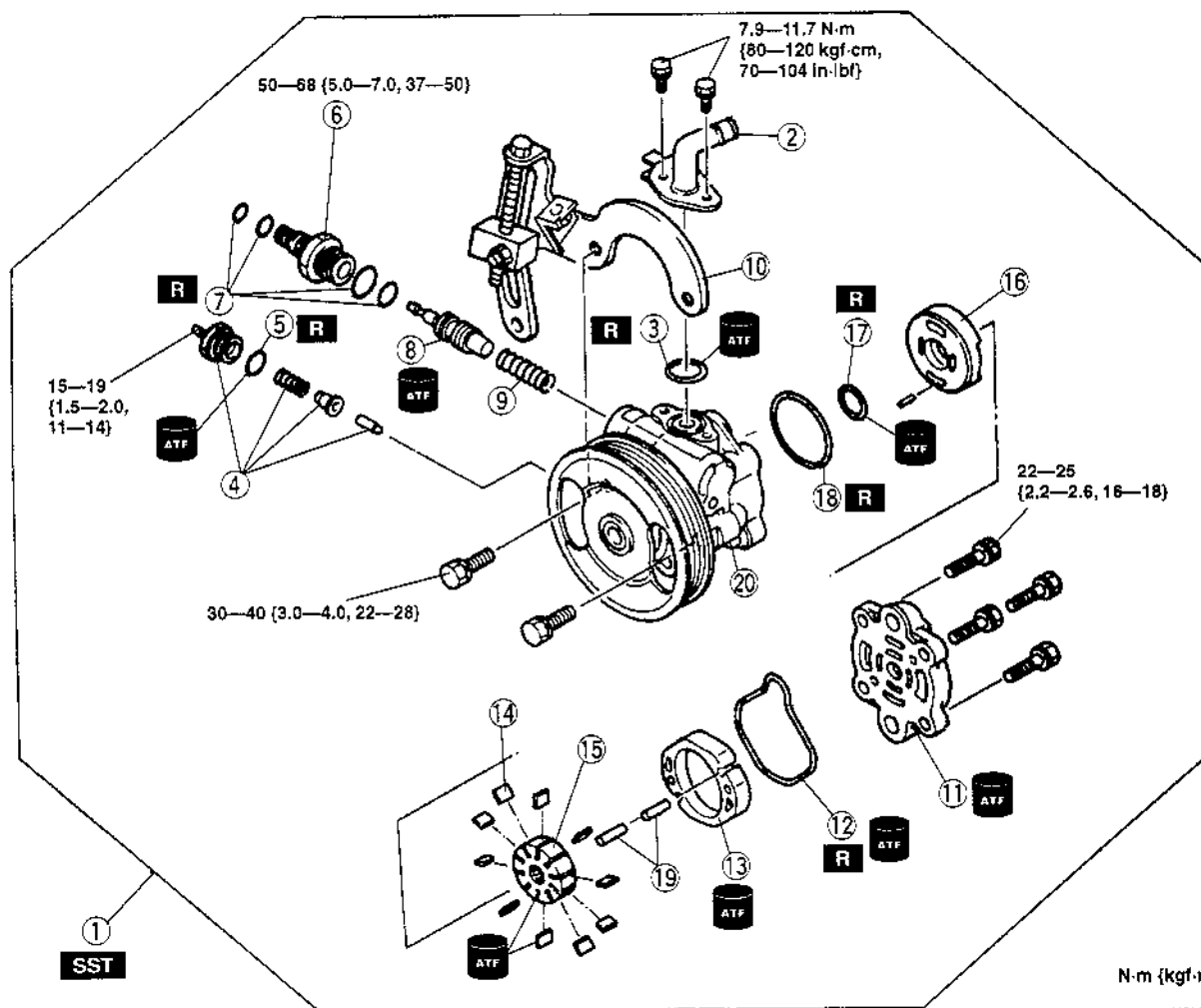
4	Return hose
5	Power steering oil pump

# ENGINE SPEED SENSING POWER STEERING

## POWER STEERING OIL PUMP DISASSEMBLY/ASSEMBLY

X5U612W08

1. The following procedure is for replacement of the O-rings only. Replace the pump component if other repairs are necessary.
2. Disassemble in the order indicated in the table.
3. Assemble in the reverse order of disassembly.



N·m {kgf·m, ft·lbf}

X5U612WAE

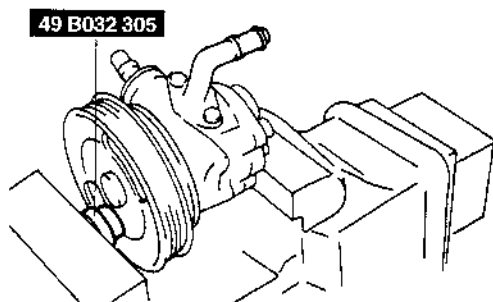
1	Oil pump ☞ Disassembly Note
2	Suction pipe
3	O-ring
4	Power steering pressure switch component
5	O-ring
6	Connector
7	O-ring
8	Control valve
9	Spring
10	Bracket
11	Pump body rear

12	O-ring
13	Cam ring ☞ Assembly Note
14	Blade ☞ Assembly Note
15	Rotor ☞ Assembly Note
16	Side plate
17	O-ring
18	O-ring
19	Pin
20	Pump body front

## ENGINE SPEED SENSING POWER STEERING

### Power Steering Oil Pump Disassembly Note

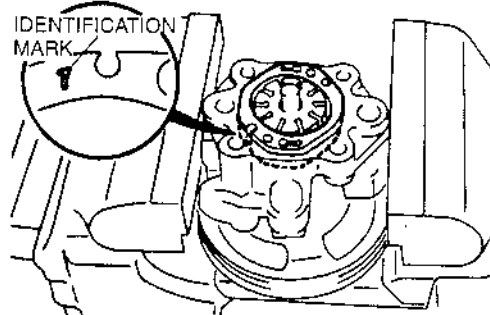
- Use the **SST** when securing the oil pump in a vise, so that force is not applied to the pulley or shaft.



U5U61242

### Cam Ring Assembly Note

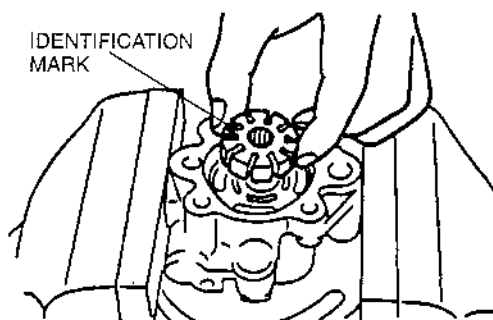
- Install the cam ring with the identification mark facing downward.



U5U61244

### Rotor Assembly Note

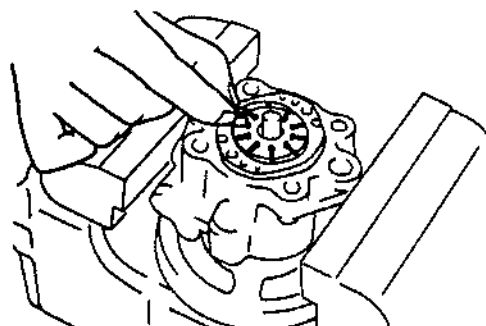
- Install the rotor with the identification mark facing upward.



U5U61243

### Blade Assembly Note

- Install the blades into the rotor with the rounded edges facing outward.



U5U61245



# 06-50 TECHNICAL DATA

06 STEERING ..... 06-50-1

## 06 STEERING

X5U650W01

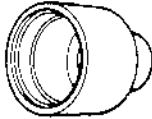
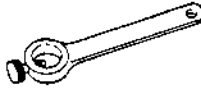
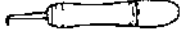

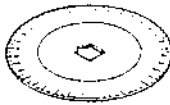
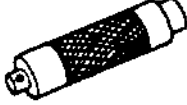
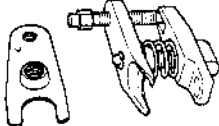
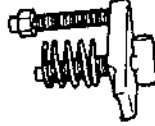





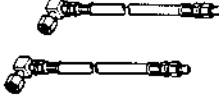
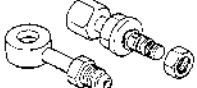

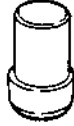

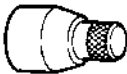

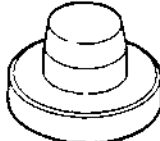
Item			Manual steering	Engine speed sensing power steering
Steering wheel	Play	(mm {in})	0—30 {0—1.18}	
	Effort	(N·m {kgf·cm, in·lbf})	5—29 {0.5—3.0, 1.1—6.6}	7.8 {80, 69} max.
Steering column and shaft	Length	(mm {in})	593.8—595.8 {23.38—23.45}	
Steering gear	Tie-rod end	Rotation torque (N·m {kgf·cm, in·lbf})	0.5—3.1 {5—32, 4.4—22.7}	
		Pull-scale reading (N {kgf, lbf})	3.0—19.6 {0.3—2.0, 0.7—4.4}	
	Tie rod	Swinging torque (N·m {kgf·cm, in·lbf})	0.1—3.4 {1—35, 0.9—30.3}	
		Pull-scale reading (N {kgf, lbf})	0.7—21.5 {0.07—2.20, 0.16—4.84}	
	Pinion shaft	Rotation torque (N·m {kgf·cm, in·lbf})	1.0—1.1 {9.5—11.5, 8.3—9.9}	1.0—1.1 {10—12, 8.7—10.4}
	Gear housing fluid pressure (kPa {kgf/cm <sup>2</sup> , psi})		—	7846—8335 {80—85, 1138—1208}
Power steering oil pump	Oil pump fluid pressure (kPa {kgf/cm <sup>2</sup> , psi})		—	7846—8335 {80—85, 1138—1208}
Power steering system	Fluid	Type	—	ATF M-III or equivalent (e.g. Dexron®II)
		Capacity (L {US qt, Imp qt})	—	0.79 {0.84, 0.70} [MT] 0.68 {0.72, 0.60} [AT]

## 06-60 SERVICE TOOLS


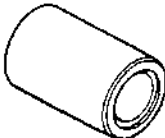



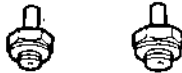
06 STEERING SST ..... 06-60-1

### 06 STEERING SST

X5U660WG1

<p>49 1243 785</p> <p>Boot installer</p>  <p>T1243785X</p>	<p>49 0180 510B</p> <p>Preload attachment</p>  <p>TC80510B</p>	<p>49 0208 701A</p> <p>Boot air out tool</p>  <p>T02C9701A</p>
<p>49 H032 321A</p> <p>Hexagon wrench</p>  <p>TH032321A</p>	<p>49 D032 316</p> <p>Protractor</p>  <p>TD032316X</p>	<p>49 G030 797</p> <p>Handle</p>  <p>TG030797X</p>
<p>49 T028 3A0</p> <p>Ball joint puller set</p>  <p>TTC283A0X</p>	<p>49 T028 303</p> <p>Body (Part of 49 T028 3A0)</p>  <p>TTC28303X</p>	<p>49 T028 304</p> <p>Attachment (Part of 49 T028 3A0)</p>  <p>TT028304X</p>
<p>49 B032 317</p> <p>Bearing &amp; oil seal remover</p>  <p>TB032317X</p>	<p>49 1232 670A</p> <p>Power steering gauge set</p>  <p>T1232670A</p>	<p>49 1232 672</p> <p>Gauge (Part of 49 1232 670A)</p>  <p>T1232672X</p>
<p>49 1232 673</p> <p>Valve body (Part of 49 1232 670A)</p>  <p>T1232673X</p>	<p>49 H002 671</p> <p>Power steering gauge adapter</p>  <p>TH002671X</p>	<p>49 B032 304</p> <p>Power steering gauge adapter</p>  <p>TBC32304X</p>
<p>49 B032 308</p> <p>Rod seal remover body</p>  <p>TB032308X</p>	<p>49 B032 318</p> <p>Rod seal guide</p>  <p>TB032318X</p>	<p>49 B032 319</p> <p>Rod seal protector body</p>  <p>TB032319X</p>
<p>49 B032 313</p> <p>Outer box protector</p>  <p>TB032313X</p>	<p>49 B032 320</p> <p>Wrench</p>  <p>TB032320X</p>	<p>49 B032 331</p> <p>Oil seal installer</p>  <p>TB032331X</p>

## SERVICE TOOLS

49 B001 797 Handle  TB001797X	49 N034 201 Oil seal installer  TN034201X	49 F032 303 Handle  TF032303X
49 N032 320 Oil seal installer  TN032320X	49 G032 317 Hose  TG032317X	49 G032 319 Adapter  TG032319X