

POWER STEERING FLUID BLEEDING

SR05P-13

1. **CHECK FLUID LEVEL** (See page [SR-5](#))
2. **JACK UP FRONT OF VEHICLE AND SUPPORT IT WITH STANDS**

3. **TURN STEERING WHEEL**

With the engine stopped, turn the wheel slowly from lock to lock several times.

4. **LOWER VEHICLE**

5. **START ENGINE**

Run the engine at idle for a few minutes.

6. **TURN STEERING WHEEL**

- (a) With the engine idling, turn the wheel to left or right full lock position and keep it there for 2 - 3 seconds, then turn the wheel to the opposite full lock position and keep it there for 2 - 3 seconds.

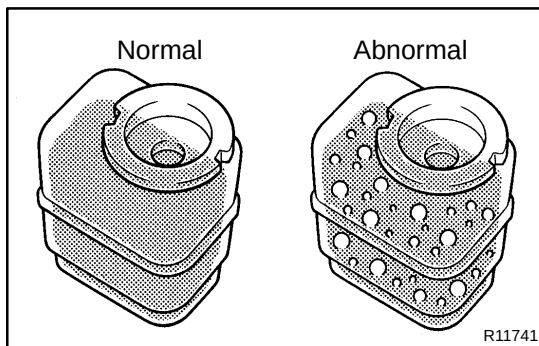
- (b) Repeat (a) several times.

7. **STOP ENGINE**

8. **CHECK FOR FOAMING OR EMULSIFICATION**

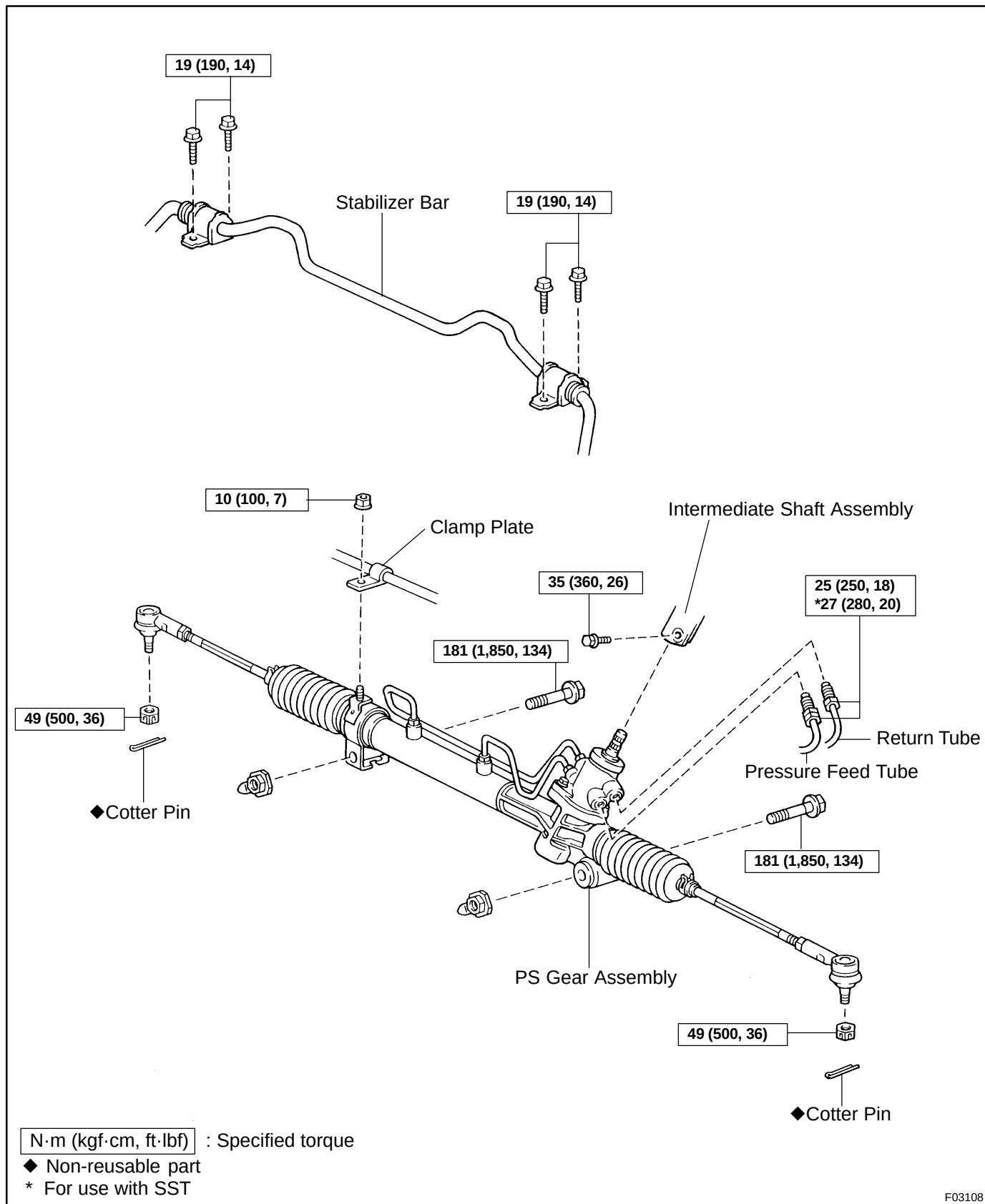
If the system has to be bled twice specifically because of foaming or emulsification, check for fluid leaks in the system.

9. **CHECK FLUID LEVEL** (See page [SR-5](#))

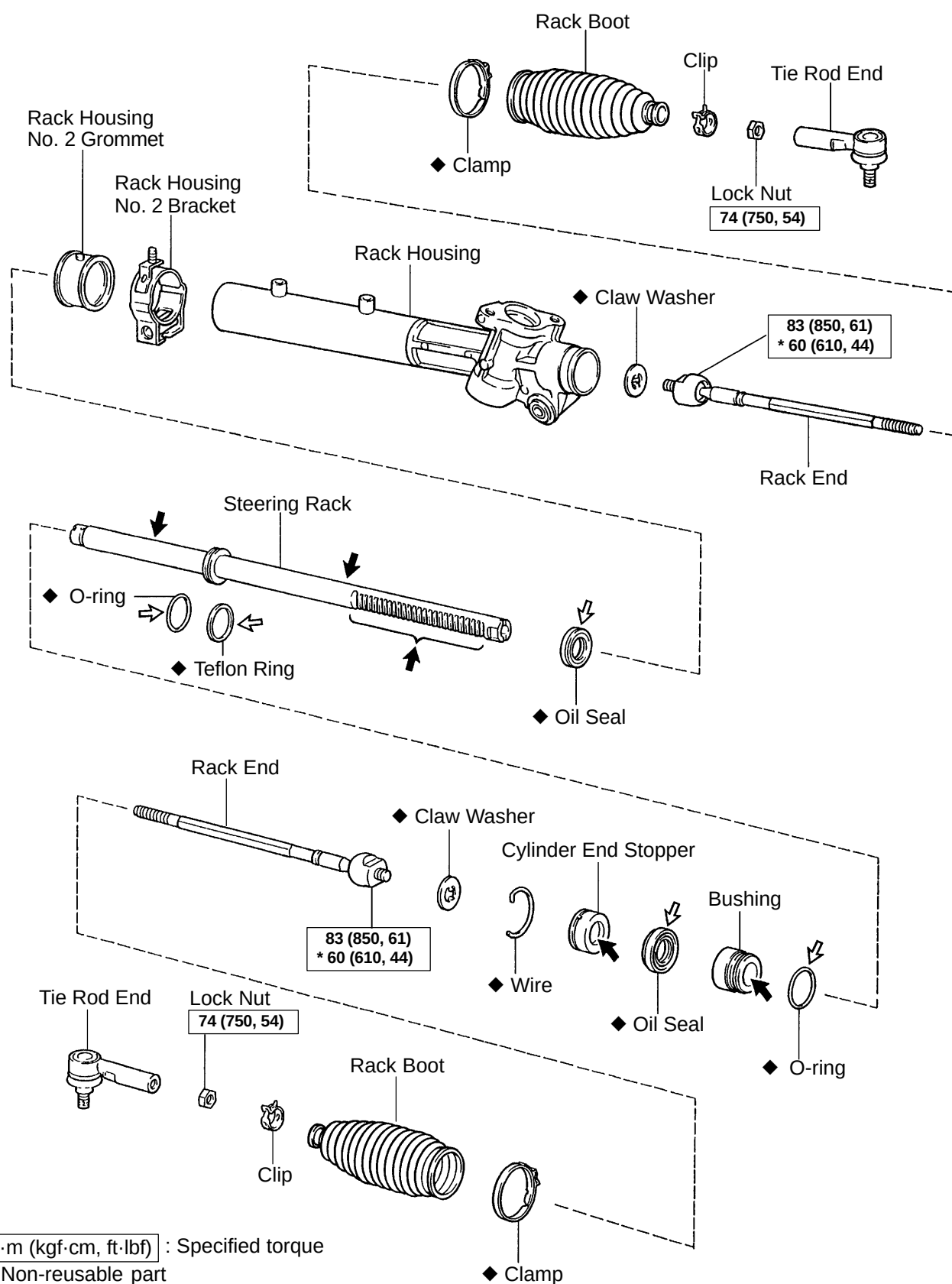


POWER STEERING GEAR COMPONENTS

SR064-08



F03108



N·m (kgf·cm, ft·lbf) : Specified torque

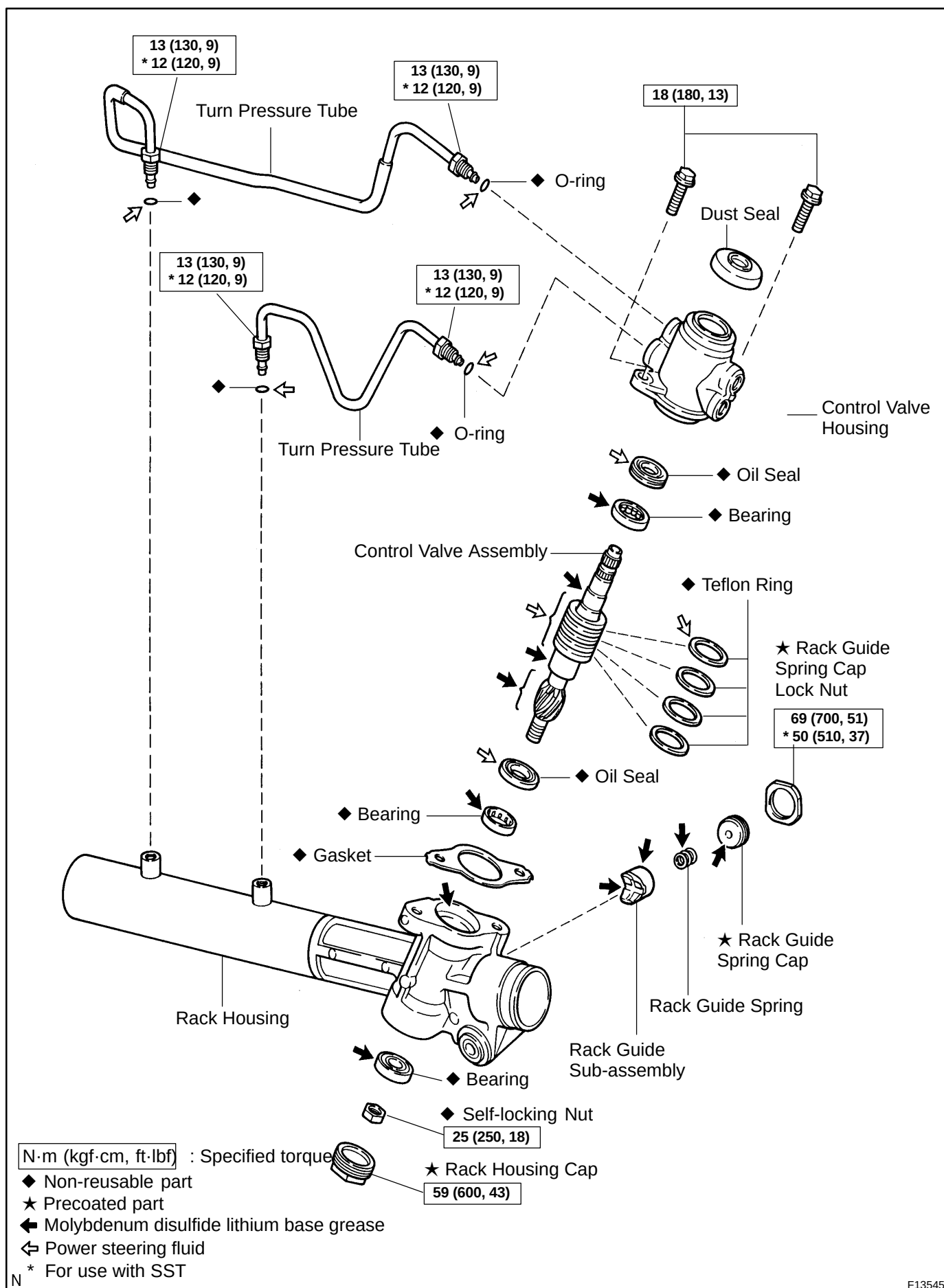
◆ Non-reusable part

← Molybdenum disulfide lithium base grease

↶ Power steering fluid

* For use with SST

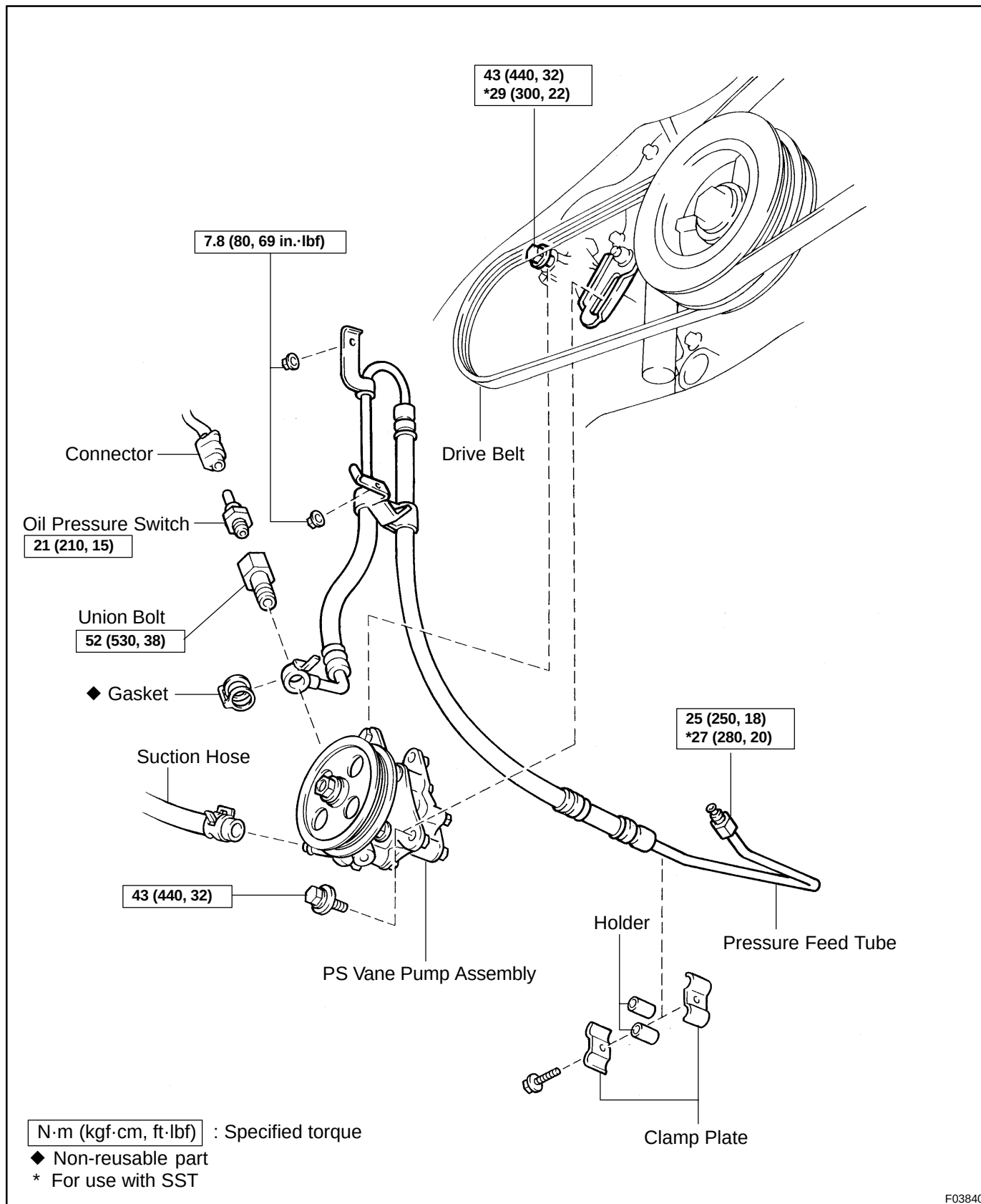
W04225



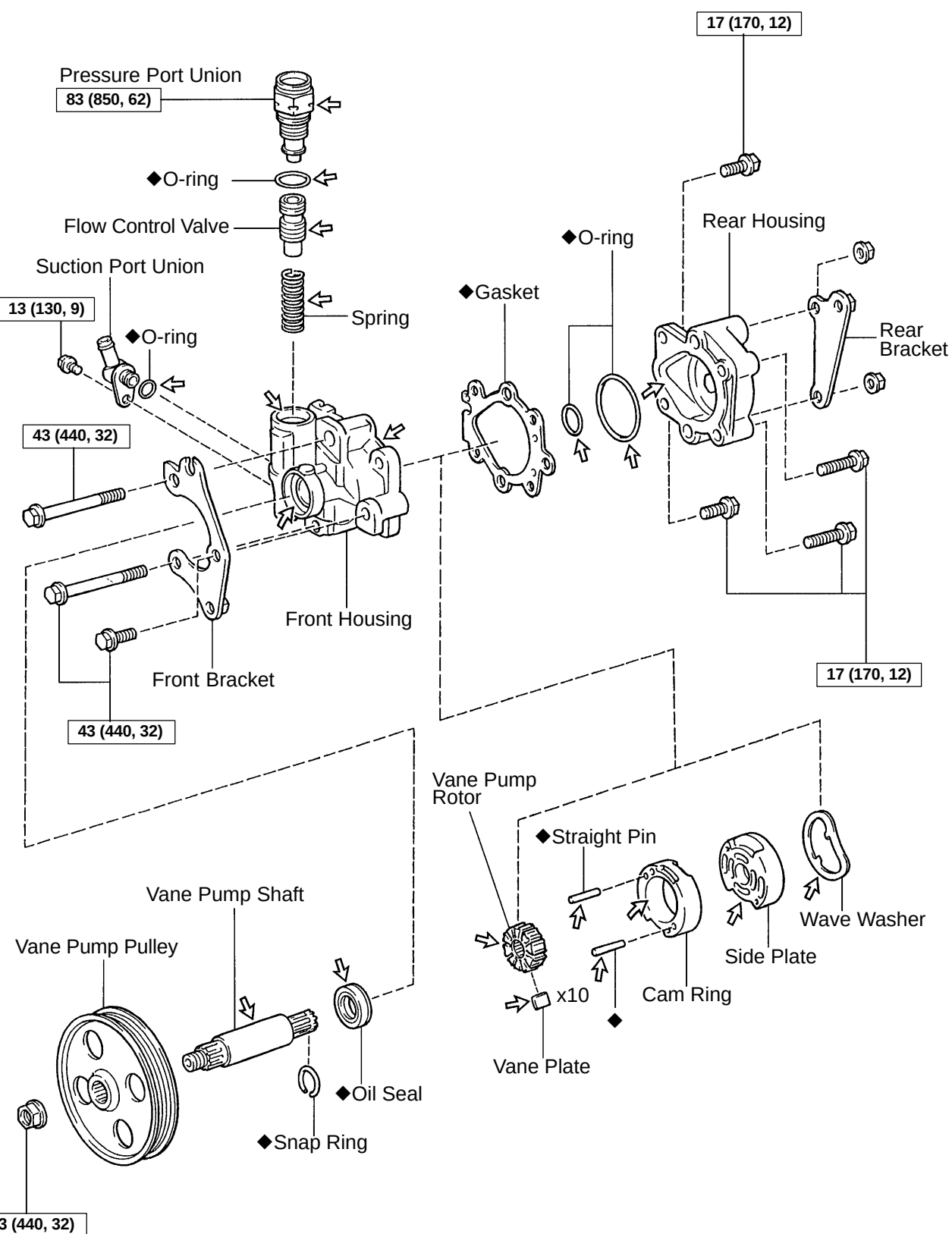
F13545

POWER STEERING VANE PUMP COMPONENTS

SR05Y-07



F03840



N·m (kgf·cm, ft·lbf) : Specified torque

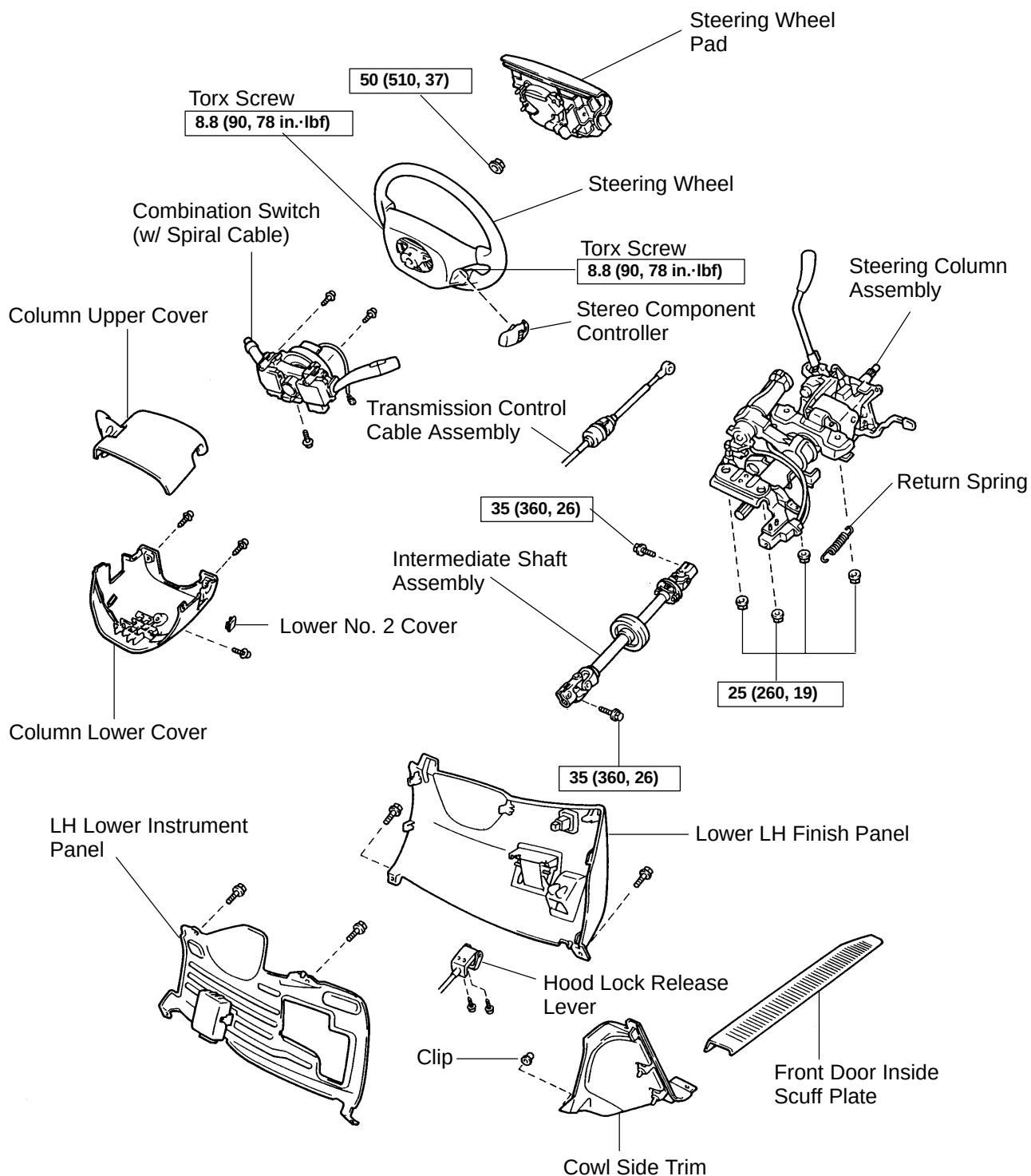
◆Non-reusable part

↺Power steering fluid

Z18987

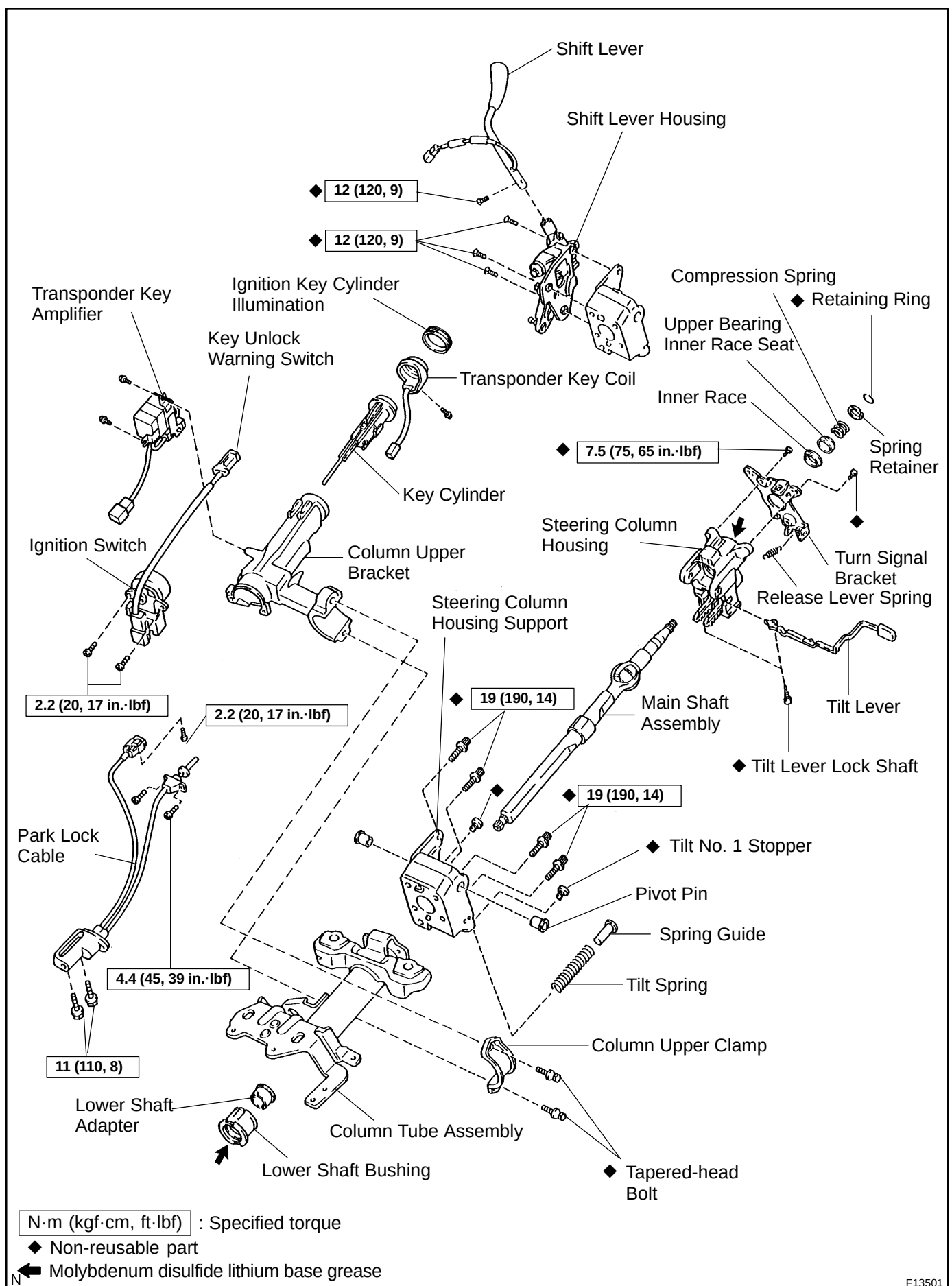
TILT STEERING COLUMN COMPONENTS

SR007-02

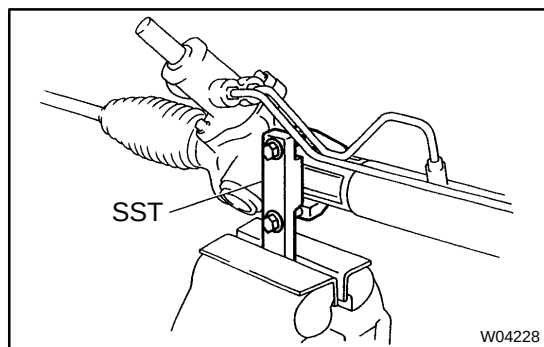


N N·m (kgf·cm, ft·lbf) : Specified torque

F12902



F13501



DISASSEMBLY

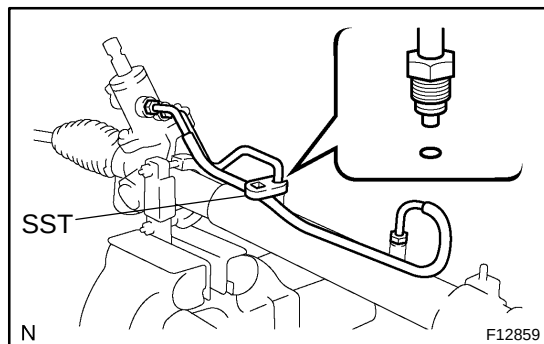
NOTICE:

When using a vise, do not overtighten it.

1. SECURE PS GEAR ASSEMBLY IN VISE

Using SST, secure the ps gear assembly in a vise.

SST 09612-00012

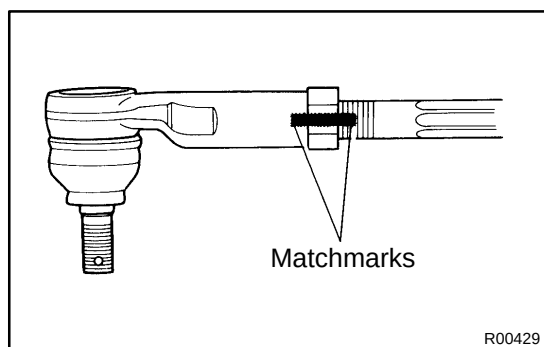


2. REMOVE 2 TURN PRESSURE TUBES

(a) Using SST, remove the tube.

SST 09023-38200

(b) Remove the 4 O-rings from the 2 turn pressure tubes.

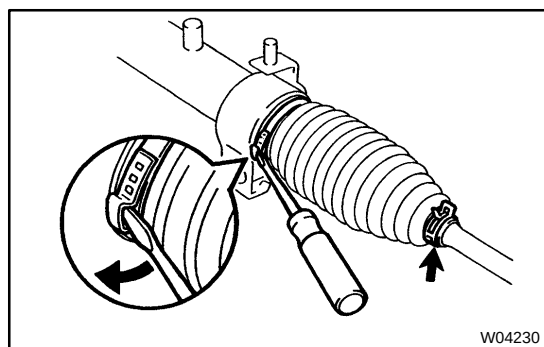


3. REMOVE RH AND LH TIE ROD ENDS AND LOCK NUTS

(a) Place matchmarks on the tie rod end and rack end.

(b) Loosen the lock nut, and remove the tie rod end and lock nut.

(c) Employ the same manner described above to the other side.



4. REMOVE RH AND LH CLIPS, RACK BOOTS AND CLAMPS

(a) Using a screwdriver, loosen the clamp.

NOTICE:

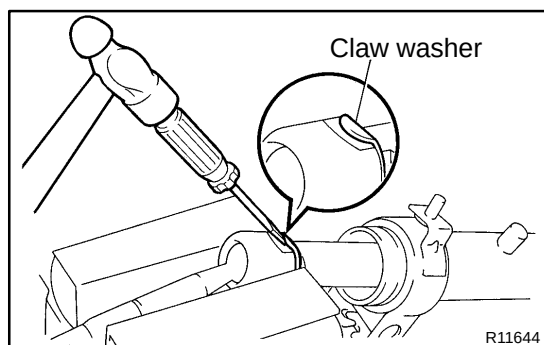
Be careful not to damage the boot.

(b) Remove the clip and rack boot.

(c) Employ the same manner described above to the other side.

HINT:

Mark the RH and LH rack boot.

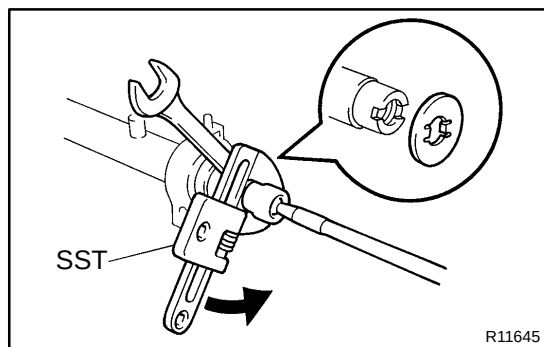


5. REMOVE RH AND LH RACK ENDS AND CLAW WASHERS

(a) Using a screwdriver and a hammer, unstake the claw washer.

NOTICE:

Avoid any impact on the steering rack.



- (b) Using a spanner (24 mm) to hold the steering rack steadily and using SST, remove the rack end.

SST 09922-10010

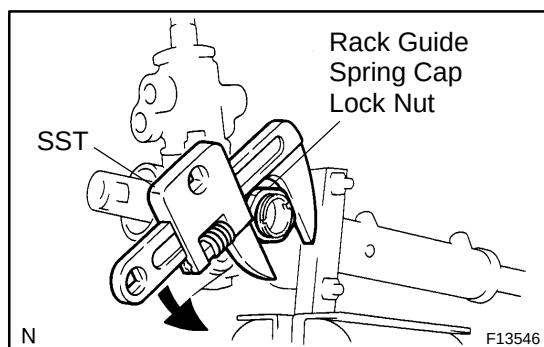
NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

- (c) Remove the claw washer from the rack end.
 (d) Employ the same manner described above to the other side.

HINT:

Mark the RH and LH rack ends.



6. REMOVE RACK GUIDE SPRING CAP LOCK NUT

Using SST, remove the rack guide spring cap lock nut.

SST 09922-10010

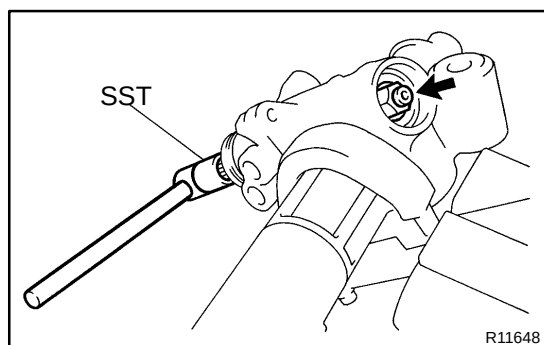
NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

7. REMOVE RACK GUIDE SPRING CAP, RACK GUIDE SPRING, RACK GUIDE SUB-ASSEMBLY

- (a) Using a hexagon wrench (21 mm), remove the rack guide spring cap.
 (b) Remove the rack guide spring and rack guide sub-assembly.

8. REMOVE RACK HOUSING CAP

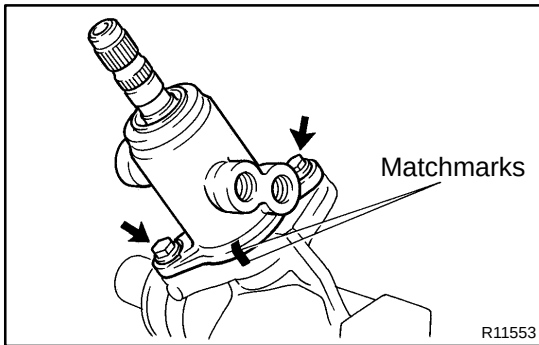


9. REMOVE SELF-LOCKING NUT

Using SST, stop the control valve shaft rotating and remove the self-locking nut.

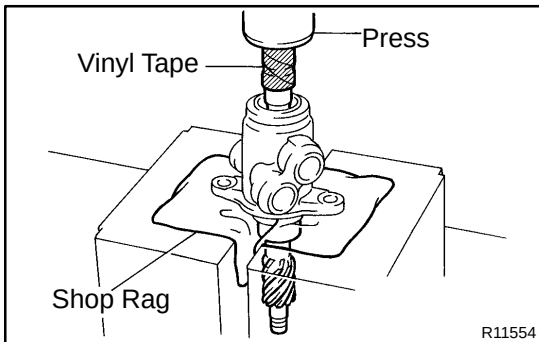
SST 09616-0001 1

10. REMOVE DUST COVER



11. REMOVE CONTROL VALVE HOUSING WITH CONTROL VALVE ASSEMBLY

- Place matchmarks on the control valve housing and rack housing.
- Remove the 2 bolts and control valve housing.
- Remove the gasket from the rack housing.



12. REMOVE CONTROL VALVE ASSEMBLY

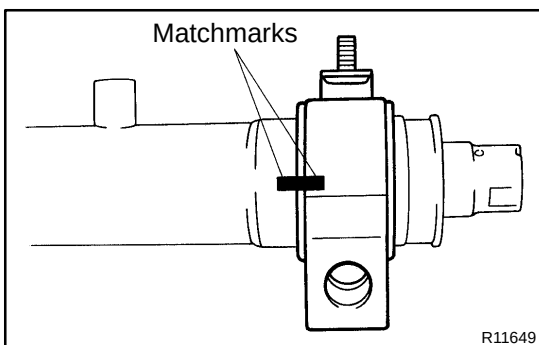
- To prevent oil seal lip damage, wind vinyl tape on the serrated part of the control valve shaft.
- Press out the control valve assembly with the oil seal.

NOTICE:

- Place a shop rag between the valve housing and the blocks.
- Be careful not to drop the control valve assembly.
- Be careful not to damage the oil seal lip.

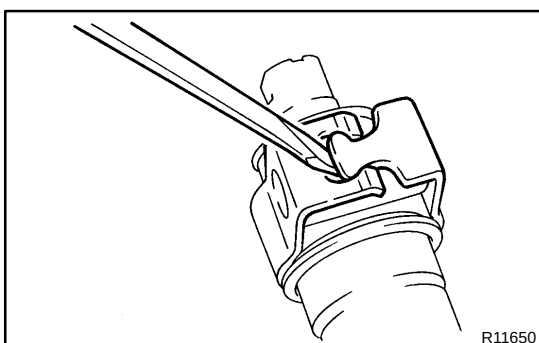
13. REMOVE OIL SEAL

Remove the oil seal from the control valve assembly.

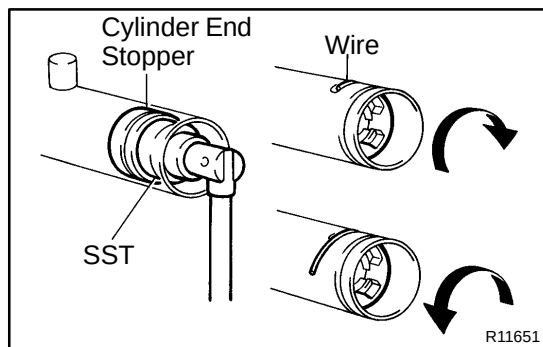


14. REMOVE RACK HOUSING NO. 2 BRACKET AND GROMMET

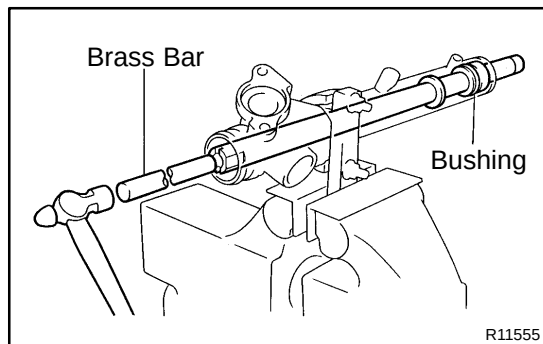
- Place matchmarks on the rack housing No. 2 bracket and rack housing.



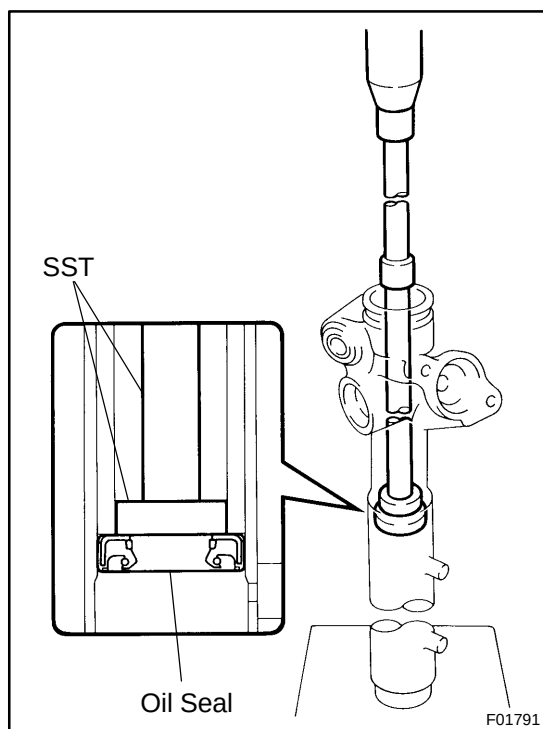
- Using a screwdriver, pry the clamp of the rack housing No. 2 bracket.
- Remove the rack housing No. 2 grommet from the rack housing No. 2 bracket.

**15. REMOVE CYLINDER END STOPPER**

- (a) Using SST, turn the cylinder end stopper clockwise until the wire end is visible through the service hole.
SST 09631-10021
- (b) Using SST, turn the cylinder end stopper counterclockwise, and remove the wire and cylinder end stopper.
SST 09631-10021

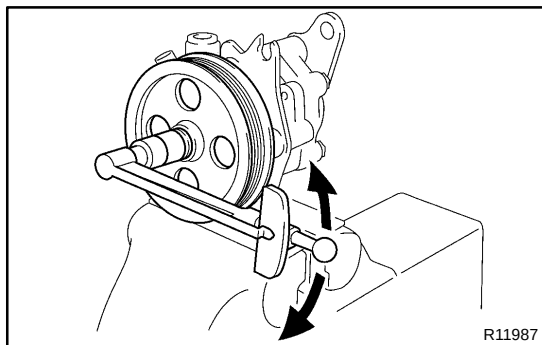
**16. REMOVE STEERING RACK AND BUSHING**

- (a) Using a brass bar and a hammer, tap out the rack with the bushing.
- (b) Remove the bushing from the steering rack.
- (c) Remove the O-ring from the bushing.

**17. REMOVE OIL SEAL**

Using SST, press out the oil seal.

SST 09950-60010 (09951-00290),
09950-70010 (09951-07360)



DISASSEMBLY

NOTICE:

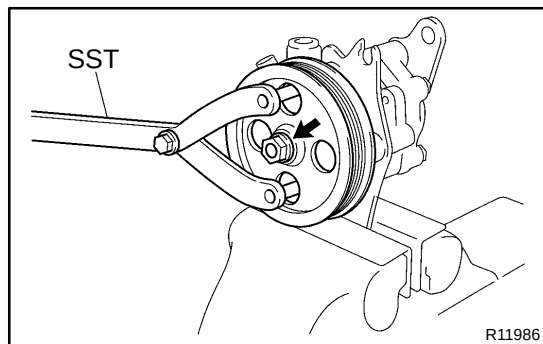
When using a vise, do not overtighten it.

1. MEASURE PS VANE PUMP ROTATING TORQUE

- Check that the pump rotates smoothly without abnormal noise.
- Using a torque wrench, check the pump rotating torque.

Rotating torque:

0.3 N·m (2.8 kgf·cm, 2.4 in·lbf) or less



2. REMOVE VANE PUMP PULLEY

Using SST to stop the pulley rotating, remove the nut.

SST 09960-10010 (09962-01000, 09963-01000)

3. REMOVE FRONT AND REAR BRACKETS

Remove the 3 bolts, 2 nuts, front and rear brackets.

4. REMOVE SUCTION PORT UNION

- Remove the bolt and suction port union.
- Remove the O-ring from the suction port union.

5. REMOVE PRESSURE PORT UNION, FLOW CONTROL VALVE AND SPRING

- Remove the pressure port union, flow control valve and spring.
- Remove the O-rings from the pressure port union.

6. REMOVE REAR HOUSING

- Remove the 4 bolts and rear housing.
- Remove the 2 O-rings from the rear housing.

7. REMOVE WAVE WASHER

8. REMOVE SIDE PLATE

9. REMOVE GASKET

10. REMOVE CAM RING, 10 VANE PLATES AND VANE PUMP ROTOR

- Remove the cam ring and 10 vane plates.

NOTICE:

Take care not to drop the vane plate.

- Using screwdriver, remove the snap ring and vane pump rotor from the vane pump shaft.

11. REMOVE VANE PUMP SHAFT

12. REMOVE STRAIGHT PINS

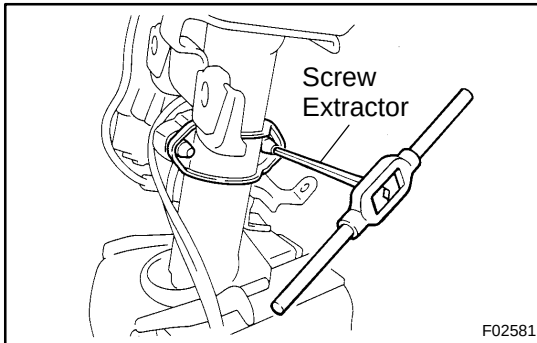
Remove the 2 straight pins from the front housing.

DISASSEMBLY

NOTICE:

When using a vise, do not overtighten it.

1. REMOVE IGNITION KEY CYLINDER ILLUMINATION

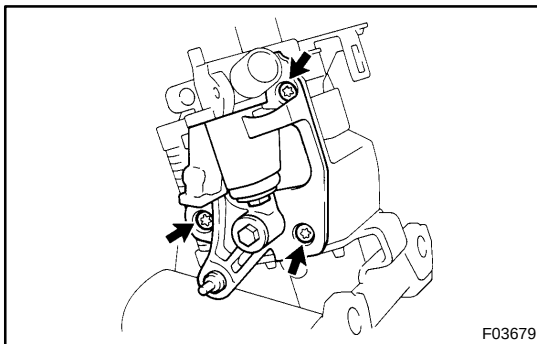


2. REMOVE COLUMN UPPER BRACKET AND COLUMN UPPER CLAMP

- Using a centering punch, mark the center of the 2 tapered-head bolts.
- Using a 3 - 4 mm (0.12 - 0.16 in.) drill, drill into the 2 bolts.
- Using a screw extractor, remove the 2 bolts, column upper bracket and column upper clamp.

3. REMOVE SHIFT LEVER

Remove the screw and shift lever.



4. REMOVE SHIFT LEVER HOUSING

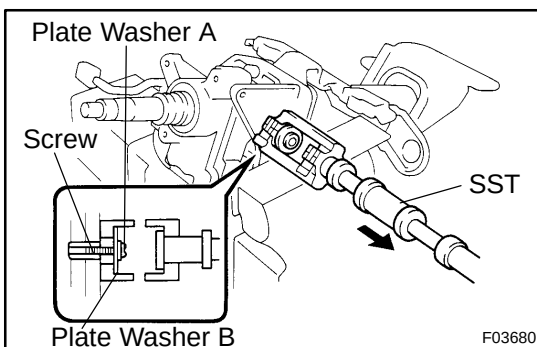
Remove the 3 torx screws and shift lever housing.

5. REMOVE PARK LOCK CABLE (See page AX-19)

6. REMOVE RELEASE LEVER SPRING

7. REMOVE TURN SIGNAL BRACKET

Remove the 2 torx screws and turn signal bracket.



8. REMOVE STEERING COLUMN HOUSING WITH MAIN SHAFT ASSEMBLY

- Set SST, plate washer (18 and 36 mm outer diameter) and screw (4.0 mm diameter, 0.7 mm pitch, 15.0 mm length), as shown in the illustration.

And then remove the 2 pivot pins.

SST 09910-00015 (09911-0001 1, 09912-00010)

Reference

Plate washer A (18 mm): 90562 - 04012

Plate washer B (36 mm): 90201 - 10201

Screw: 90154 - 40015

- Remove the steering column housing with the main shaft assembly from the column tube assembly.

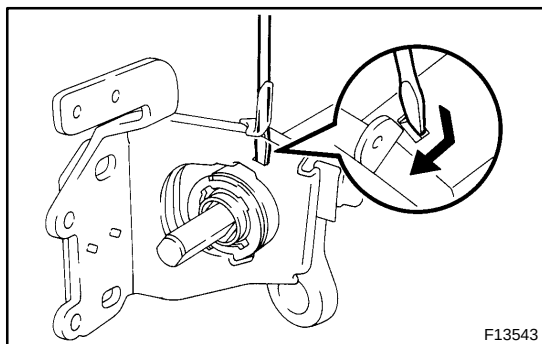
NOTICE:

Do not bend the universal joint of the main shaft assembly more than 20°.

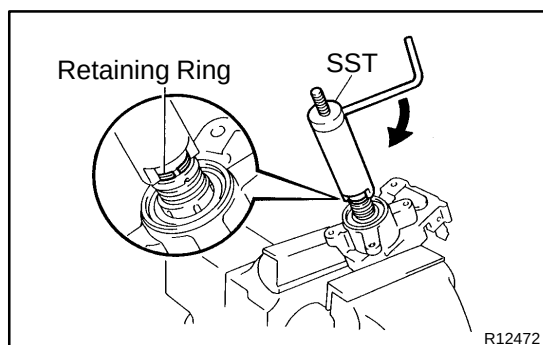
- Remove the housing support, tilt spring and spring guide from the steering column.

9. REMOVE STEERING COLUMN HOUSING SUPPORT

- (a) Remove the 4 torx bolts and steering column housing support.
- (b) Remove the 2 tilt No. 1 stoppers.

**10. REMOVE LOWER SHAFT BUSHING AND LOWER SHAFT ADAPTER**

Using a screwdriver, remove the lower shaft bushing and lower shaft adapter from the column tube assembly.

**11. REMOVE MAIN SHAFT ASSEMBLY**

- (a) Install SST to the main shaft assembly, as shown in the illustration.
SST 09612-07010
- (b) Using SST, compress the compression spring.

NOTICE:

Do not bend the universal joint of the main shaft assembly more than 20°.

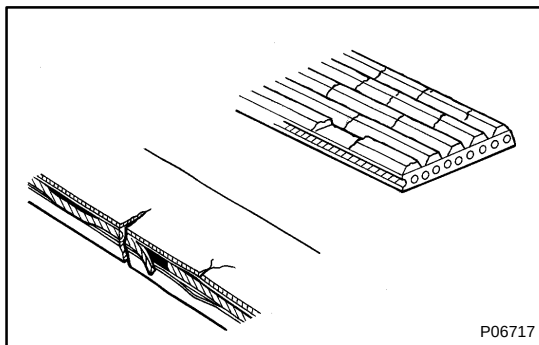
HINT:

Hold the main shaft assembly with your hand so that it does not rotate.

- (c) Using a screwdriver, remove the retaining ring.
- (d) Remove the spring retainer, compression spring, upper bearing inner race seat and inner race.

12. REMOVE TILT LEVER

Remove the tilt lever lock shaft and tilt lever.



DRIVE BELT INSPECTION

SR050-06

INSPECT DRIVE BELT

- (a) Visually check the belt for excessive wear, frayed cords, etc.

If any defect has been found, replace the drive belt.

HINT:

Cracks on the rib side of a drive belt are considered acceptable. If the missing chunks from the ribs are found on the drive belt, it should be replaced.

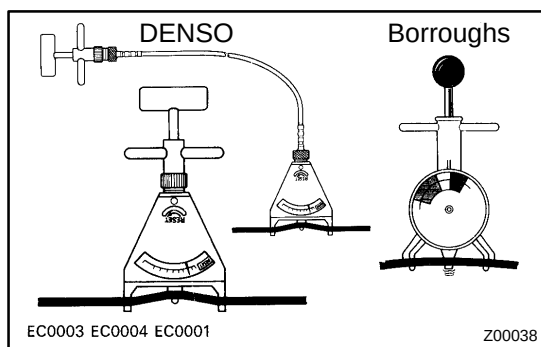
- (b) Measure the belt deflection.

Pressing force: 98 N (10 kgf, 221 lbf)

New belt: 8 to 10 mm (0.315 to 0.394 in.)

Used belt: 11 to 14 mm (0.433 to 0.551 in.)

If the belt deflection is not as specified, adjust it.



- (c) Using a belt tension gauge, measure the belt tension.

Belt tension gauge:

DENSO BTG-20 (95506-00020)

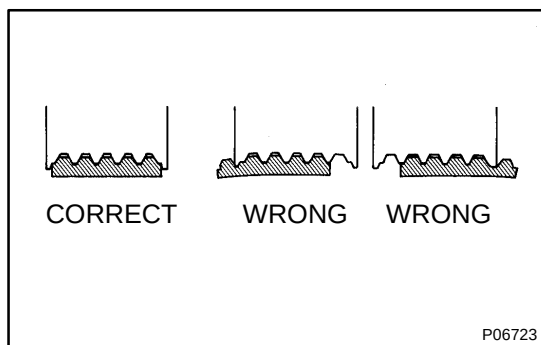
Borroughs No. BT-33-73F

Drive belt tension:

New belt: 132 - 154 lb

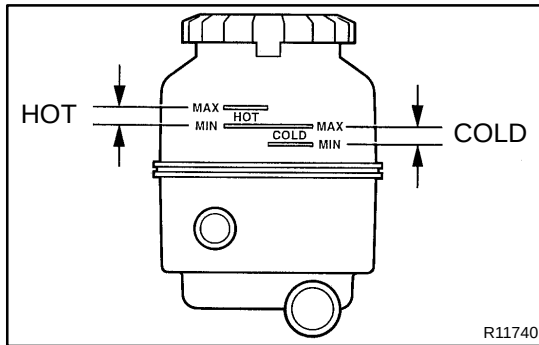
Used belt: 55 - 88 lb

If the belt tension is not as specified, adjust it.



HINT:

- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing a belt, check that it fits properly in the ribbed grooves.
- Check with your hand to confirm that the belt has not slipped out of the groove on the bottom of the pulley.
- After installing a new belt, run the engine for about 5 minutes and recheck the belt tension.



INSPECTION

1. CHECK FLUID LEVEL

- Keep the vehicle level.
- With the engine stopped, check the fluid level in the oil reservoir.

If necessary, add fluid.

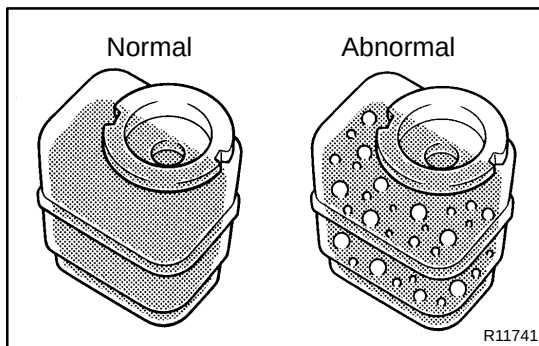
Fluid: ATF DEXRON® II or III

HINT:

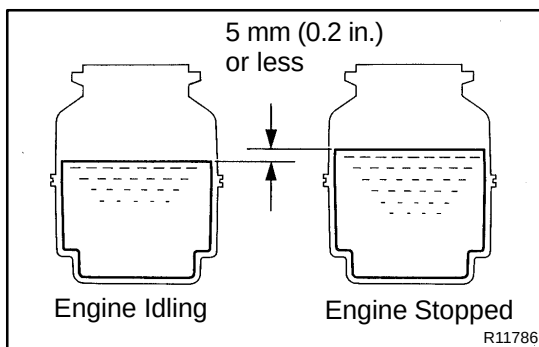
Check that the fluid level is within the HOT LEVEL range on the reservoir. If the fluid is cold, check that it is within the COLD LEVEL range.

- Start the engine and run it at idle.
- Turn the steering wheel from lock to lock several times to boost fluid temperature.

Fluid temperature: 80°C (176°F)



- Check for foaming or emulsification. If there is foaming or emulsification, bleed power steering system (See page [SR-4](#)).



- With the engine idling, measure the fluid level in the oil reservoir.
- Stop the engine.
- Wait a few minutes and remeasure the fluid level in the oil reservoir.

Maximum fluid level rise: 5 mm (0.20 in.)

If a problem is found, bleed power steering system (See page [SR-4](#)).

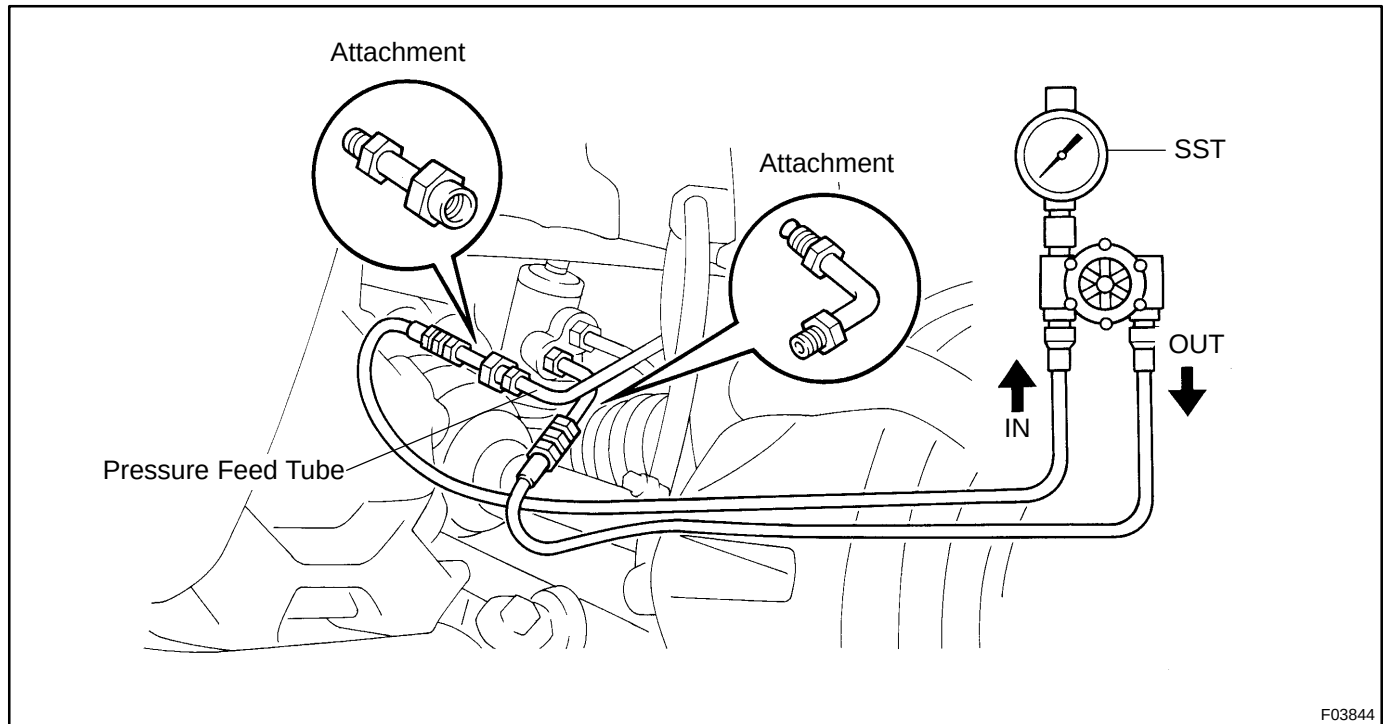
- Check the fluid level.

2. CHECK STEERING FLUID PRESSURE

- (a) Disconnect the pressure feed tube from the PS gear (See page [SR-37](#)).
- (b) Connect SST, as shown in the illustration below.
SST 09640-10010 (09641-01010, 09641-01020, 09641-01030)

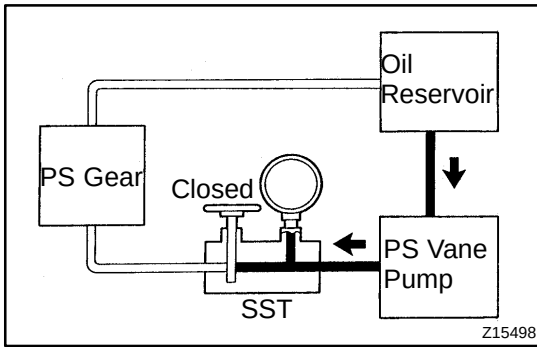
NOTICE:

Check that the valve of the SST is in the open position.



- (c) Bleed the power steering system (See page [SR-4](#)).
- (d) Start the engine and run it at idle.
- (e) Turn the steering wheel from lock to lock several times to boost fluid temperature.

Fluid temperature: 80 °C (176 °F)



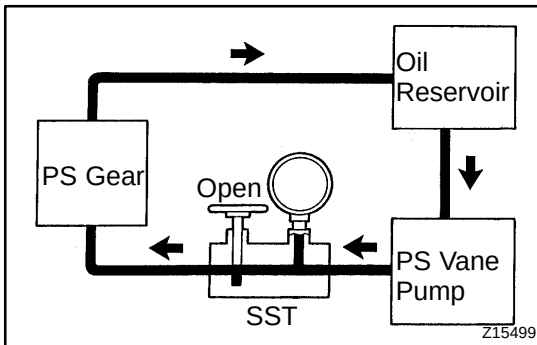
- (f) With the engine idling, close the valve of the SST and observe the reading on the SST.

Minimum fluid pressure:

7,845 kPa (80 kgf/cm², 1,138 psi)

NOTICE:

- Do not keep the valve closed for more than 10 seconds.
- Do not let the fluid temperature become too high.



- (g) With the engine idling, open the valve fully.

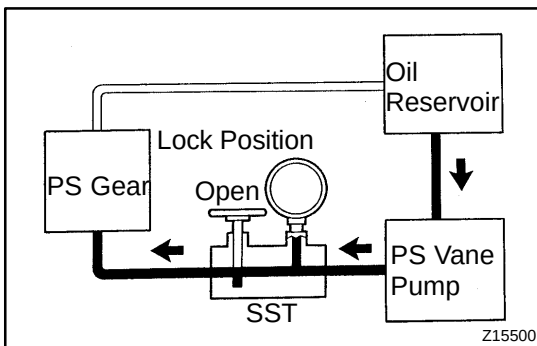
- (h) Measure the fluid pressure at engine speeds of 1,000 rpm and 3,000 rpm.

Difference fluid pressure:

490 kPa (5 kgf/cm², 71 psi) or less

NOTICE:

Do not turn the steering wheel.



- (i) With the engine idling and valve fully opened, turn the steering wheel to full lock position.

Minimum fluid pressure:

7,845 kPa (80 kgf/cm², 1,138 psi)

NOTICE:

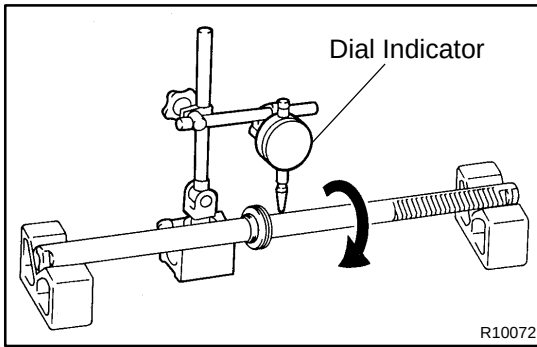
- Do not maintain lock position for more than 10 seconds.
- Do not let the fluid temperature become too high.

- (j) Disconnect the SST.

SST 09640- 10010 (09641- 01010, 09641- 01020, 09641-01030)

- (k) Connect the pressure feed tube to the PS gear (See page [SR-53](#)).

- (l) Bleed the power steering system (See page [SR-4](#)).



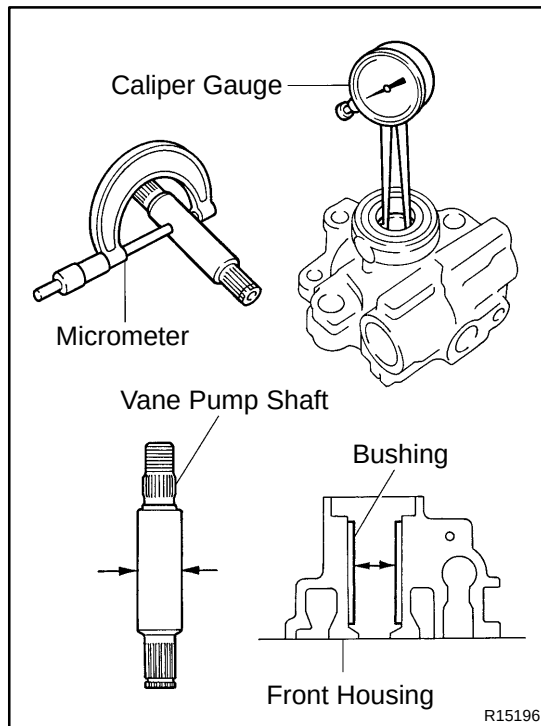
INSPECTION

INSPECT STEERING RACK

- (a) Using a dial indicator, check the steering rack for runout and for teeth wear and damage.

Maximum runout: 0.03 mm (0.0118 in.)

- (b) Check the back surface for wear and damage.



INSPECTION

NOTICE:

When using a vise, do not overtighten it.

1. CHECK OIL CLEARANCE BETWEEN VANE PUMP SHAFT AND BUSHING

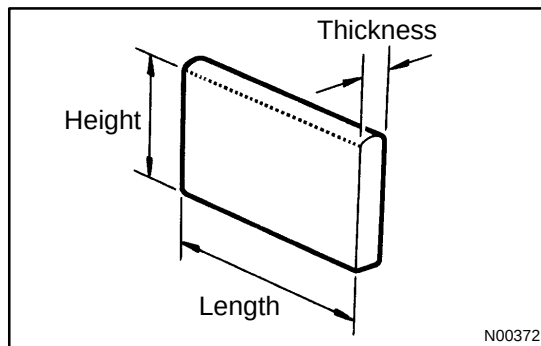
Using a micrometer and caliper gauge, measure the oil clearance.

Standard clearance:

0.03 - 0.05 mm (0.0012 - 0.0020 in.)

Maximum clearance: 0.07 mm (0.0028 in.)

If it is more than the maximum, replace the front housing and vane pump shaft.



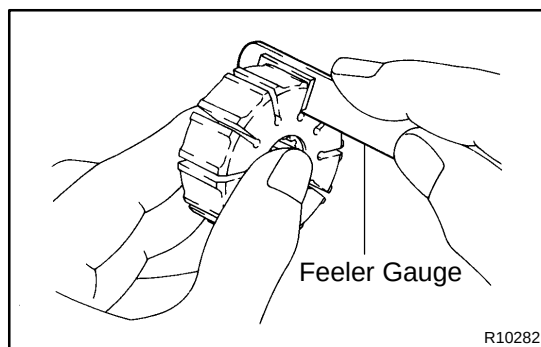
2. INSPECT VANE PUMP ROTOR AND VANE PLATES

(a) Using a micrometer, measure the height, thickness and length of the plates.

Minimum height: 8.6 mm (0.339 in.)

Minimum thickness: 1.397 mm (0.0550 in.)

Minimum length: 14.991 mm (0.5902 in.)

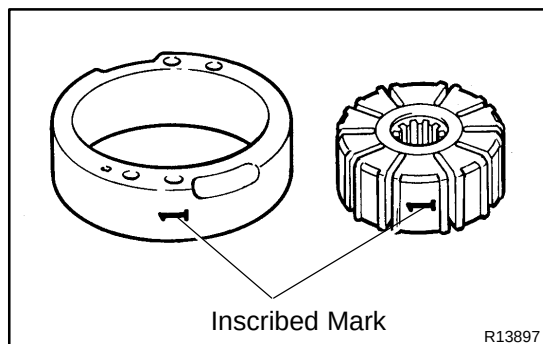


(b) Using a feeler gauge, measure the clearance between the rotor groove and plate.

Maximum clearance: 0.035 mm (0.0014 in.)

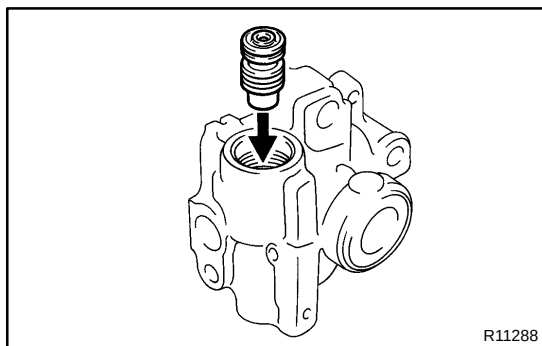
If it is more than the maximum, replace the plate and/or rotor with the one having the same mark stamped on the cam ring.

Inscribed mark: 1, 2, 3, 4 or None

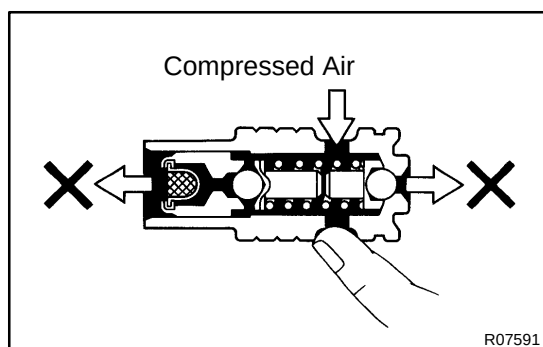
**HINT:**

There are 5 vane lengths with the following rotor and cam ring marks:

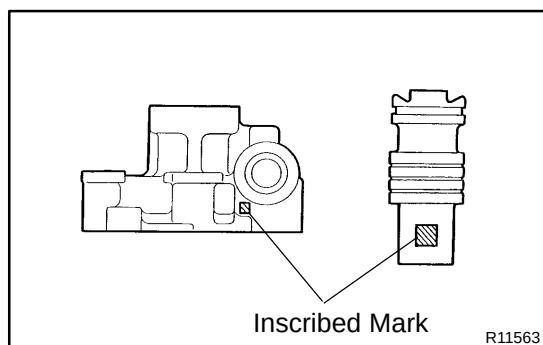
Rotor and cam ring mark	Vane plate part number	Vane plate length mm (in.)
None	44345-26010	14.999-15.001 (0.59051-0.59059)
1	44345-26020	14.997-14.999 (0.59043-0.59051)
2	44345-26030	14.995-14.997 (0.59035-0.59043)
3	44345-26040	14.993-14.995 (0.59027-0.59035)
4	44345-26050	14.991-14.993 (0.59020-0.59027)

**3. INSPECT FLOW CONTROL VALVE**

- (a) Coat the flow control valve with power steering fluid and check that it falls smoothly into the valve hole by its own weight.

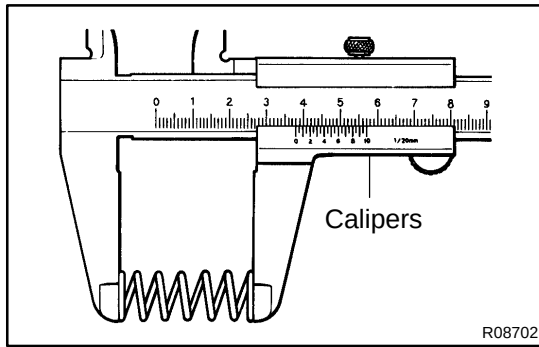


- (b) Check the flow control valve for leakage. Close one of the holes and apply 392 - 490 kPa (4 - 5 kgf/cm², 57 - 71 psi) of compressed air into the opposite side hole, and confirm that air does not come out from the end holes.



If necessary, replace the flow control valve with the one having the same letter as inscribed on the front housing.

Inscribed mark: A, B, C, D, E or F

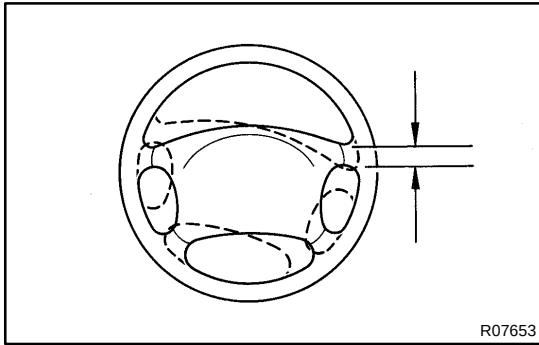


4. INSPECT SPRING

Using a vernier calipers, measure the free length of the spring.

Minimum free length: 32.3 mm (1.272 in.)

If it is not within the specification, replace the spring.



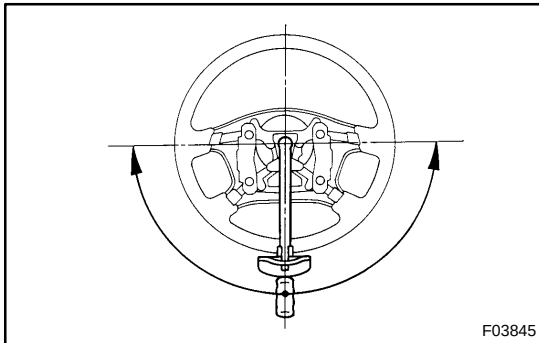
STEERING WHEEL INSPECTION

SR05R-15

1. CHECK STEERING WHEEL FREEPLAY

- Stop the vehicle and face the tires straight ahead.
- Rock the steering wheel gently up and down with a finger lightly, check the steering wheel freeplay.

Maximum freeplay: 30 mm (1.18 in.)



2. CHECK STEERING EFFORT

- Center the steering wheel.
- Remove the steering wheel pad (See page [SR-11](#)).
- Start the engine and run it at idle.
- Measure the steering effort in both directions.

Reference: 5.9 N·m (60 kgf·cm, 52 in·lbf)

HINT:

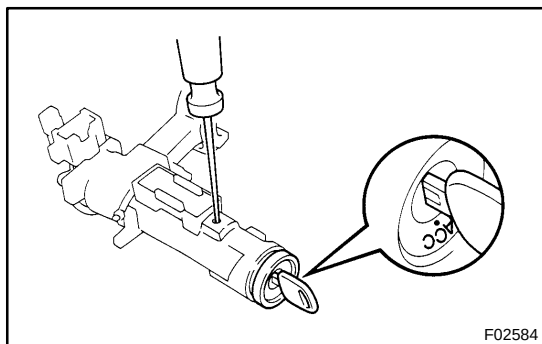
Take the tire type, pressure and contact surface into consideration before making your diagnosis.

- Torque the steering wheel set nut.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
- Install the steering wheel pad (See page [SR-20](#)).

INSPECTION

1. INSPECT STEERING LOCK OPERATION

Check that the steering lock mechanism operates properly.



2. IF NECESSARY, REPLACE KEY CYLINDER

- Place the ignition key at the ACC position.
- Push down the stop pin with a screwdriver, and pull out the cylinder.
- Install a new cylinder.

HINT:

Make sure the key is at the ACC position.

3. INSPECT IGNITION SWITCH (See page [BE-15](#))

4. IF NECESSARY, REPLACE IGNITION SWITCH

- Remove the 2 screws and ignition switch from the column upper bracket.
- Install a new ignition switch with the 2 screws.

Torque: 2.2N·m (20kgf·cm, 17in·lbf)

5. INSPECT KEY UNLOCK WARNING SWITCH (See page [BE-15](#))

6. IF NECESSARY, REPLACE KEY UNLOCK WARNING SWITCH

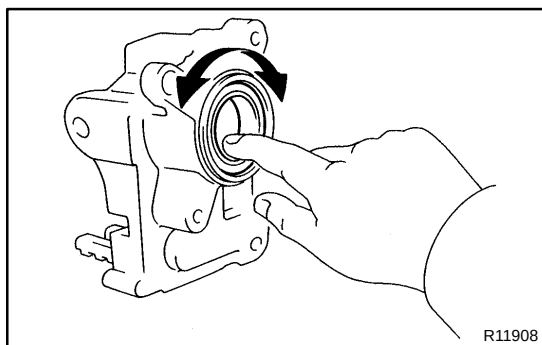
- Slide the key unlock warning switch out of the column upper bracket.
- Slide a new key unlock warning switch in the column upper bracket.

7. INSPECT TRANSPONDER KEY COIL (See page [BE-159](#))

8. IF NECESSARY, REPLACE TRANSPONDER KEY COIL

9. IF NECESSARY, REPLACE TRANSPONDER KEY AMPLIFIER

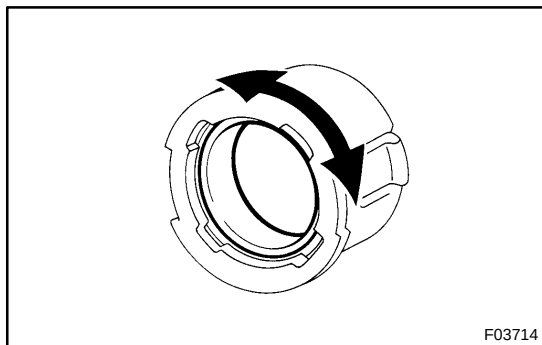
- Remove the 2 screws and transponder key amplifier.
- Install a new transponder key amplifier with the 2 screws.



10. INSPECT BEARING

- Check the bearing rotation condition and check for abnormal noise.

If the bearing is worn or damaged, replace the column tube.



(b) Check the bearing rotation condition and check for abnormal noise.

If the bearing is worn or damaged, replace the column tube.

INSTALLATION

1. INSTALL PS GEAR ASSEMBLY

- (a) Install the ps gear assembly from the LH of the vehicle.

NOTICE:

Do not damage the turn pressure tubes.

- (b) Install the 2 gear assembly set bolts and nuts.

Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)

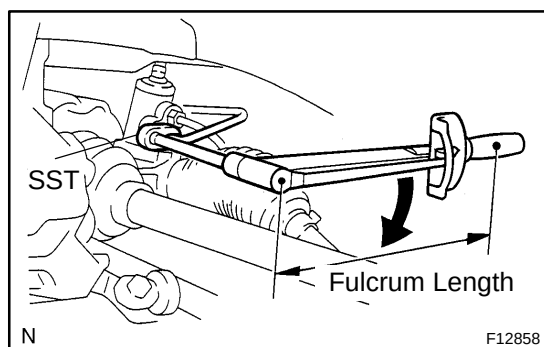
HINT:

Lift up the stabilizer bar and install the bolts.

2. CONNECT STABILIZER BAR

Connect the stabilizer bar with the 4 bolts.

Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)



3. CONNECT PRESSURE FEED AND RETURN TUBES

Using SST, connect the pressure feed and return tubes.

SST 09023-38400

Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)

HINT:

- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
- This torque value is effective in case that SST is parallel to a torque wrench.

4. CONNECT CLAMP PLATE

Connect the clamp plate with the nut.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

5. CONNECT INTERMEDIATE SHAFT ASSEMBLY

(See page [SR-20](#))

6. CONNECT RH AND LH TIE ROD ENDS

(See page [SA-13](#))

7. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

HINT:

Do it with the front of the vehicle jacked up.

8. CENTER SPIRAL CABLE (See page [SR-20](#))

9. INSTALL STEERING WHEEL

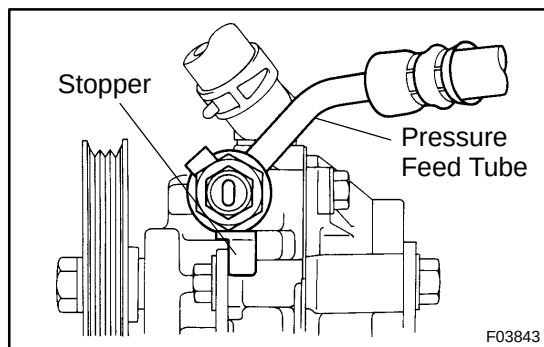
- (a) Align the matchmarks on the steering wheel and steering column main shaft.
- (b) Temporarily tighten the steering wheel set nut.
- (c) Connect the connector.

10. BLEED POWER STEERING SYSTEM

(See page [SR-4](#))

11. CHECK STEERING WHEEL CENTER POINT

12. TORQUE STEERING WHEEL SET NUT
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
13. INSTALL STEERING WHEEL PAD (See page [SR-20](#))
14. CHECK FRONT WHEEL ALIGNMENT
(See page [SA-4](#))



INSTALLATION

1. INSTALL PRESSURE FEED TUBE

- (a) Install the pressure feed tube and a new gasket to the PS vane pump assembly with the union bolt.

HINT:

Make sure the stopper of the pressure feed tube touches the front bracket as shown in the illustration, then install the union bolt.

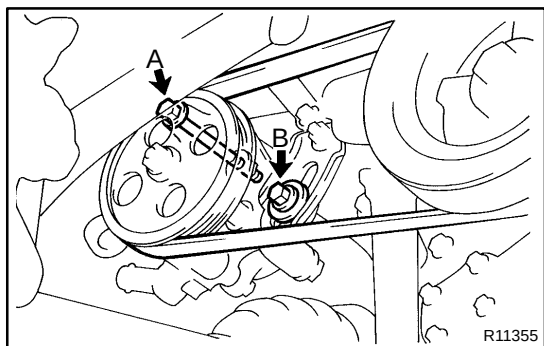
Torque: 52 N·m (530 kgf·cm, 38 ft·lbf)

- (b) Install the oil pressure switch to the union bolt.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

NOTICE:

Be careful to prevent oil seal from being attached to the connector.

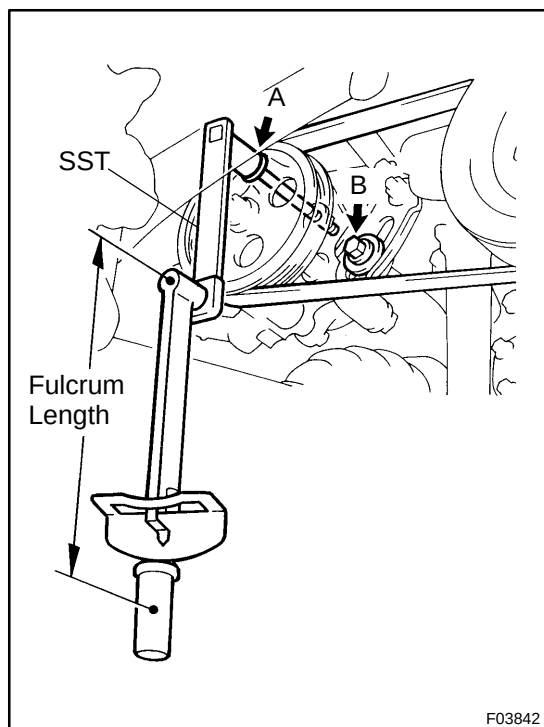


2. INSTALL PS VANE PUMP ASSEMBLY WITH PRESS-ER FEED TUBE

Temporarily install the PS vane pump assembly with the 2 ("A" and "B") bolts.

3. INSTALL DRIVE BELT

- (a) Adjust drive belt tension (See page [SR-3](#)).



- (b) Using SST, torque the bolt "A".

SST 09249-63010

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

HINT:

Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).

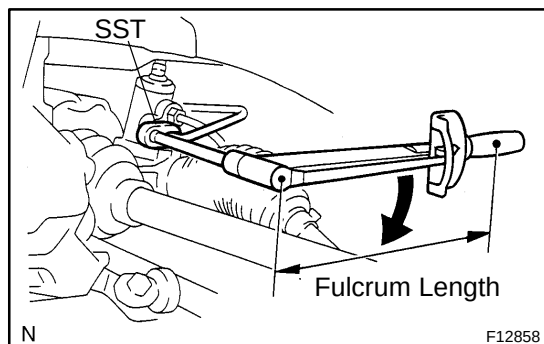
- (c) Torque the bolt B.

Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

- (d) Connect the connector to the oil pressure switch.

NOTICE:

Be careful for oil on the connector.



4. CONNECT PRESSURE FEED TUBE

- (a) Using SST, connect the pressure feed tube to the PS gear assembly.

SST 09023-38400

Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)

HINT:

- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
 - This torque value is effective in case that SST is parallel to a torque wrench.
- (b) Install the 2 clamp plates and 2 holders to the pressure feed tube, and tighten the bolt.
- (c) Install the 2 clamp plate set nuts.

Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

5. CONNECT RETURN HOSE

Connect the return hose with the clip.

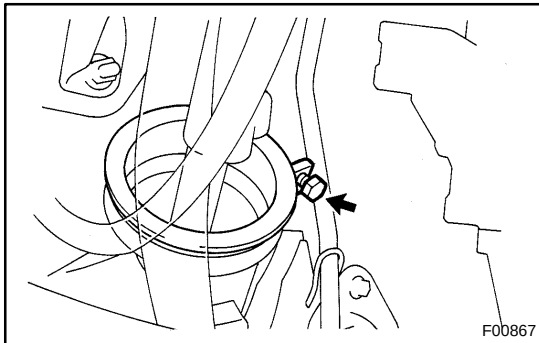
6. BLEED POWER STEERING SYSTEM

(See page [SR-4](#))

INSTALLATION

1. INSTALL STEERING COLUMN ASSEMBLY

- Install the steering column assembly with the 4 nuts.
Torque: 25 N·m (260 kgf·cm, 19 ft·lbf)
- Install the return spring.
- Connect the connectors.



- Tighten the clamp bolt.

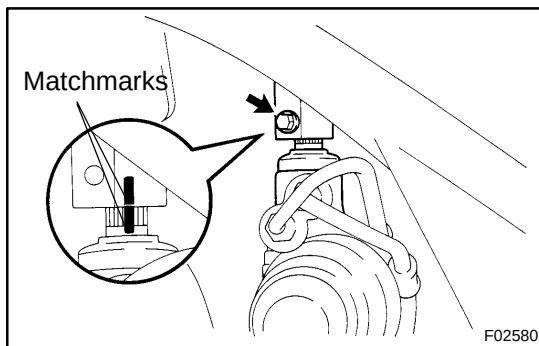
2. INSTALL INTERMEDIATE SHAFT ASSEMBLY

Install the intermediate shaft assembly with the bolt.

Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)

3. CONNECT TRANSMISSION CONTROL CABLE ASSEMBLY

Connect the transmission control cable assembly to the shift lever assembly.



4. CONNECT INTERMEDIATE SHAFT ASSEMBLY

- Align the matchmarks on the intermediate shaft assembly and control valve shaft.
- Install the bolt.

Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)

5. INSTALL SPIRAL CABLE (See page [BE-17](#))

6. INSTALL COMBINATION SWITCH WITH SPIRAL CABLE

- Install the combination switch with spiral cable with the 3 screws.
- Connect the airbag connector.
- Connect the 5 connectors.

7. INSTALL UPPER AND LOWER COLUMN COVERS

- Install the column upper and lower covers with the 3 screws
- Install the lower No. 2 cover to the lower cover.

8. INSTALL LOWER INSTRUMENT FINISH PANEL

- Install the LH lower instrument finish panel with the 2 bolts.
- Connect the connector.

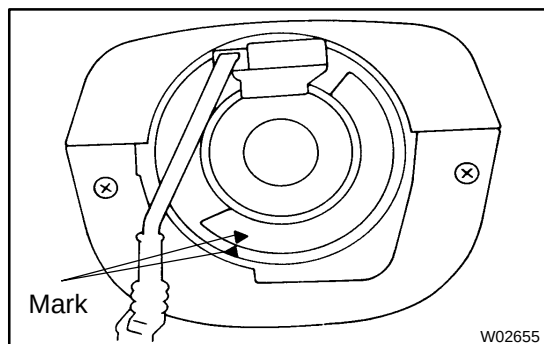
9. INSTALL LOWER LH FINISH PANEL

- Connect the connector.
- Install the lower LH finish panel with the 2 screws.
- Connect the hood lock control lever with the 2 screws.

10. INSTALL COWL SIDE TRIM

Install the cowl side trim with the clip.

11. INSTALL FRONT DOOR INSIDE SCUFF PLATE

**12. CENTER SPIRAL CABLE**

- (a) Check that the front wheels are facing straight ahead.
- (b) Turn the cable counterclockwise by hand until it becomes harder to turn.
- (c) Then rotate the cable clockwise about 3 turns to align the mark.

HINT:

The cable will rotate about 3 turns to either left or right of the center.

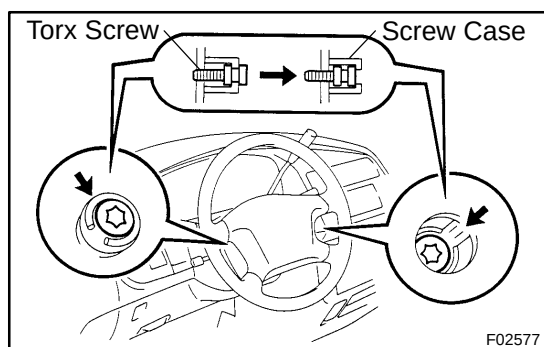
13. INSTALL STEERING WHEEL

- (a) Align the matchmarks on the steering wheel and main shaft.
- (b) Install the steering wheel set nut.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
- (c) Connect the connector.

14. INSTALL STEERING WHEEL PAD**NOTICE:**

- Never use airbag parts from another vehicle. When replacing parts, replace with new ones.
- Make sure the wheel pad is installed to the specified torque.
- If the wheel pad has been dropped, or there are cracks, dents or other defects on the case or connector, replace the wheel pad with a new one.
- When installing the wheel pad, take care that the wirings do not interfere with other parts and are not pinched between other parts.

- (a) Connect the airbag connector.



- (b) Install the steering wheel pad after confirming that the circumference groove of the torx screws is caught on the screw case.
- (c) Using a torx socket wrench, torque the 2 screws.

Torque: 8.8 N·m (90 kgf·cm, 78 in·lbf)

15. INSTALL STEREO COMPONENT CONTROLLER ASSEMBLY

Install the stereo component controller assembly.

16. CHECK STEERING WHEEL CENTER POINT

STEERING SYSTEM

SR05M-02

PRECAUTION

- Care must be taken to replace parts properly because they could affect the performance of the steering system and result in a driving hazard.
- The SIENNA is equipped with SRS (Supplemental Restraint System) such as the driver airbag and front passenger airbag. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deployed during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices in the RS section.

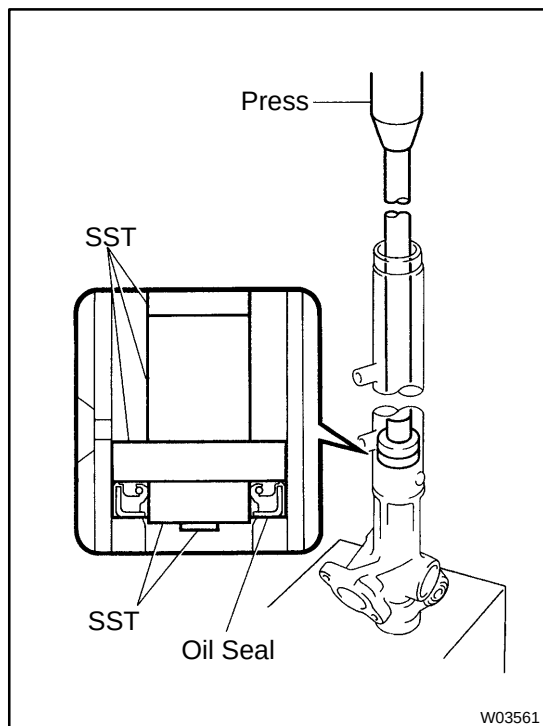
TROUBLESHOOTING

SR05N-02

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in the order shown. If necessary, repair or replace these parts.

Symptom	Suspect Area	See page
Hard steering	1. Tires (Improperly inflated) 2. Power steering fluid level (Low) 3. Drive belt (Loose) 4. Front wheel alignment (Incorrect) 5. Steering system joints (Worn) 6. Suspension arm ball joints (Worn) 7. Steering column (Binding) 8. Power steering vane pump 9. Power steering gear	SA-2 SR-5 SR-3 SA-4 - SA-37 - SR-22 SR-34
Poor return	1. Tires (Improperly inflated) 2. Front wheel alignment (Incorrect) 3. Steering column (Binding) 4. Power steering gear	SA-2 SA-4 - SR-34
Excessive play	1. Steering system joints (Worn) 2. Suspension arm ball joints (Worn) 3. Intermediate shaft (Worn) 4. Front wheel bearing (Worn) 5. Power steering gear	- SA-37 - SA-9 SR-34
Abnormal noise	1. Power steering fluid level (Low) 2. Steering system joints (Worn) 3. Power steering vane pump 4. Power steering gear	SR-5 - SR-22 SR-34



REASSEMBLY

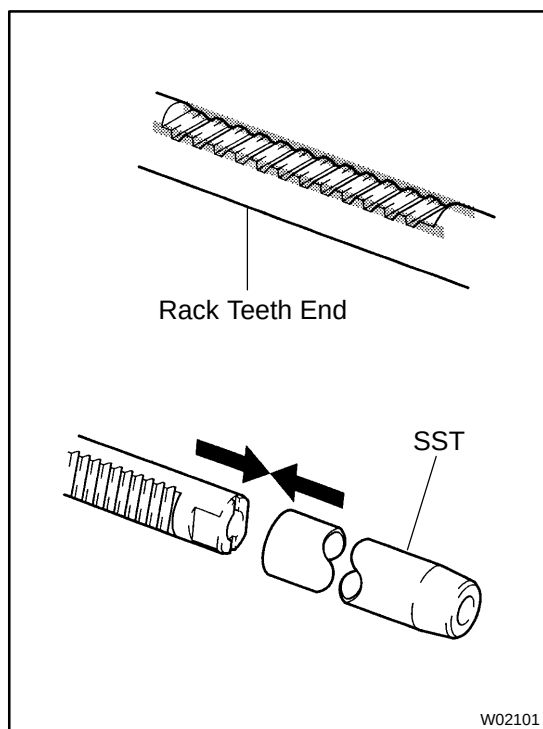
NOTICE:

When using a vise, do not overtighten it.

1. COAT PARTS INDICATED BY ARROWS WITH POWER STEERING FLUID OR MOLYBDENUM DISULFIDE LITHIUM BASE GREASE (See page [SR-34](#))
2. INSTALL OIL SEAL
 - (a) Coat a new oil seal lip with power steering fluid.
 - (b) Using SST, press in the oil seal.
SST 09950-60010 (09951-00240, 09951-00430, 09952-06010), 09950-70010 (09951-07360)

NOTICE:

- Make sure that the oil seal is installed facing in the correct direction.
- Take care that the oil seal does not get reversed as you install it.



3. INSTALL STEERING RACK

- (a) Install SST to the steering rack.
SST 09631-33010

HINT:

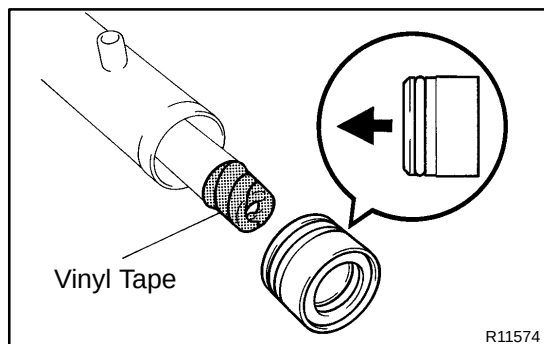
If necessary, scrape the burrs off the rack teeth end and bur-nish.

- (b) Coat the SST with power steering fluid.
- (c) Install the rack into the rack housing.

NOTICE:

Be careful not to damage the oil seal lip.

- (d) Remove SST.
SST 09631-33010

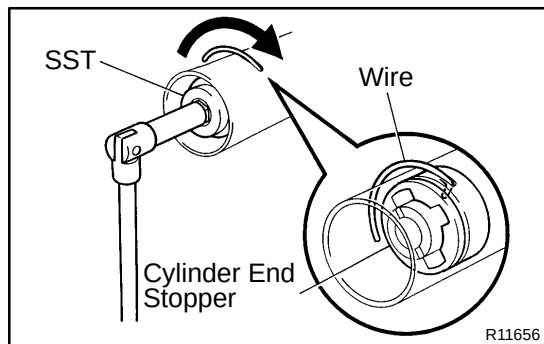


4. INSTALL BUSHING

- Coat a new O-ring with power steering fluid and install it to the bushing.
- To prevent oil seal lip damage, wind vinyl tape on the steering rack end, and apply power steering fluid.
- Install the bushing.

NOTICE:

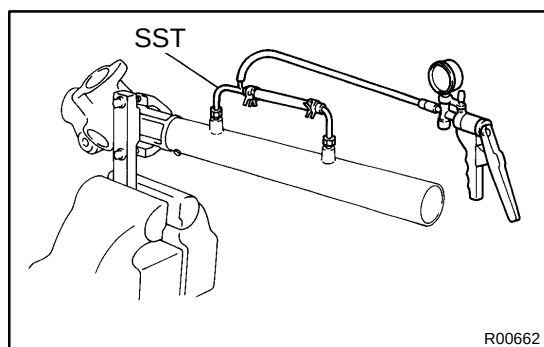
- Make sure that the bushing is installed facing in the correct direction.
- Be careful not to damage the oil seal lip.



5. INSTALL CYLINDER END STOPPER

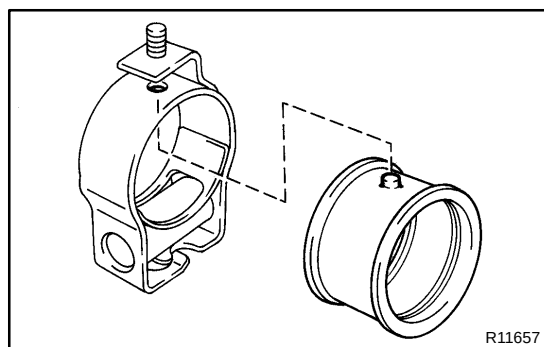
- Align the installation hole for the wire of the cylinder end stopper with the slot of the rack housing.
- Install a new wire into the cylinder end stopper.
- Using SST, turn the cylinder end stopper clockwise $450 \pm 50^\circ$.

SST 09631-10021



6. AIR TIGHTNESS TEST

- Install SST to the rack housing.
SST 09631-12071
 - Apply 53 kPa (400 mmHg, 15.75 in.Hg) of vacuum for about 30 seconds.
 - Check that there is no change in the vacuum.
- If there is change in the vacuum, check the installation of the oil seals.



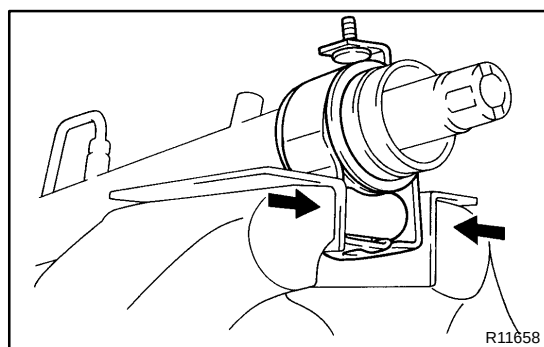
7. INSTALL RACK HOUSING NO. 2 BRACKET AND GROMMET

- Install the rack housing No. 2 grommet to the rack housing No. 2 bracket.

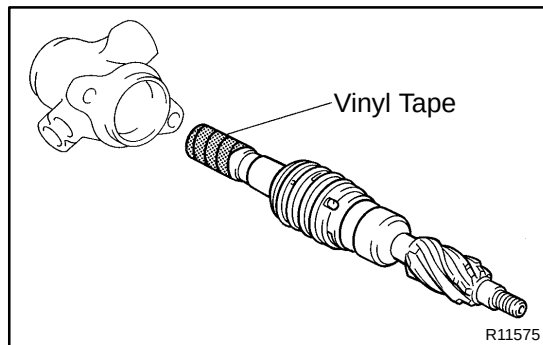
HINT:

Align the projection of the rack housing No. 2 grommet with the hole of the rack housing No. 2 bracket.

- Align the matchmarks on the rack housing No. 2 bracket and rack housing.



- Place the rack housing No. 2 bracket in a vise and tighten the vise to fasten the clamp.

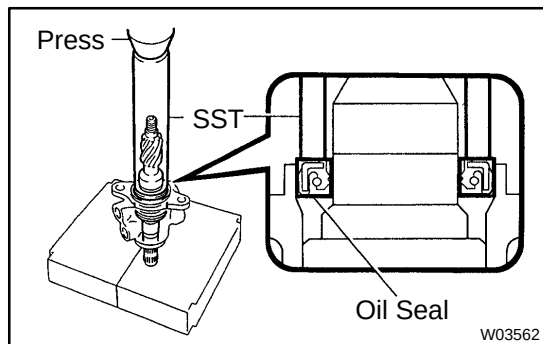


8. INSTALL CONTROL VALVE ASSEMBLY

- To prevent oil seal lip damage, wind vinyl tape on the serrated part of the valve shaft.
- Coat the teflon rings with power steering fluid.
- Install the control valve assembly into the control valve housing.

NOTICE:

Be careful not to damage the teflon rings and oil seal.



9. INSTALL OIL SEAL

- Coat a new oil seal lip with power steering fluid.
- Using SST, press in the oil seal.
SST 09612-2201 1

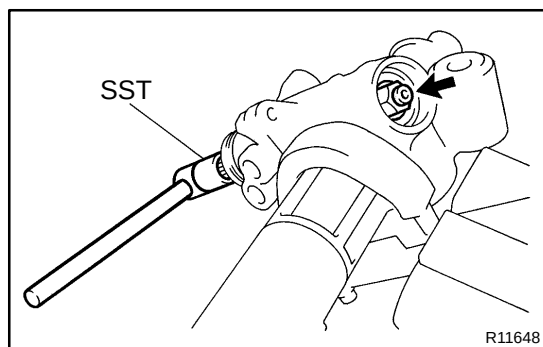
NOTICE:

Make sure that the oil seal is installed facing in the correct direction.

10. INSTALL CONTROL VALVE HOUSING WITH CONTROL VALVE ASSEMBLY

- Place a new gasket on the rack housing.
- Align the matchmarks on the control valve housing and rack housing.
- Install the 2 bolts.

Torque: 18 N·m (180 kgf·cm, 13 ft·lbf)



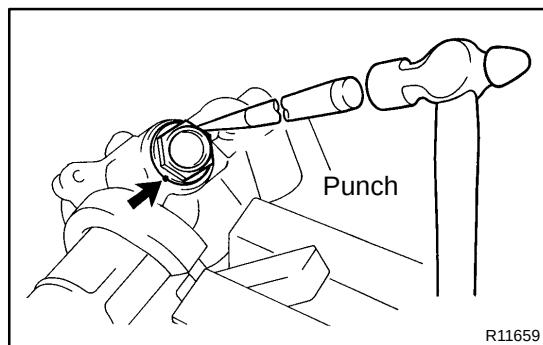
11. INSTALL SELF-LOCKING NUT

Using SST, stop the control valve shaft rotating and install a new self-locking nut.

SST 09616-0001 1

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

12. INSTALL DUST COVER



13. INSTALL RACK HOUSING CAP

- Apply sealant to 2 or 3 threads of the rack housing cap.
Sealant:

Part No.08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- Install the rack housing cap.
Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)
- Using a punch and a hammer, stake the 2 parts of the rack housing cap.

14. INSTALL RACK GUIDE SUB- ASSEMBLY, RACK GUIDE SPRING AND RACK GUIDE SPRING CAP

- (a) Install the rack guide sub- assembly and rack guide spring.
- (b) Apply sealant to 2 or 3 threads of the rack guide spring cap.

Sealant:

Part No.08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (c) Temporarily install the rack guide spring cap.

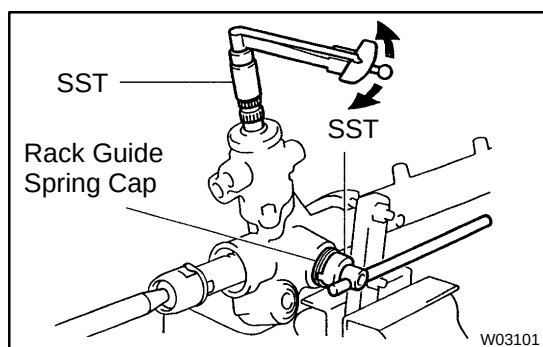
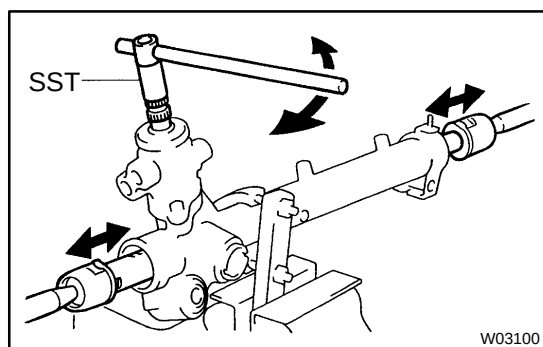
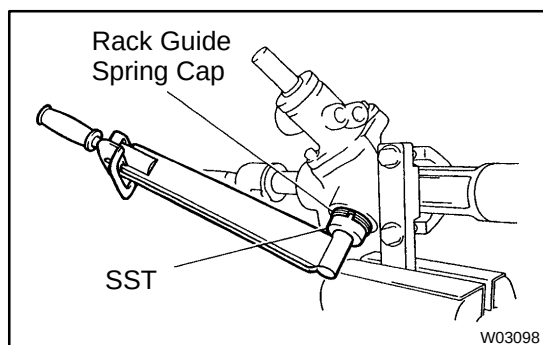
15. ADJUST TOTAL PRELOAD

- (a) To prevent the steering rack teeth from damaging the oil seal lip, temporarily install the RH and LH rack ends.

- (b) Using a hexagon wrench (21 mm), torque the rack guide spring cap.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

- (c) Using a hexagon wrench (21 mm), return the cap 12°.



- (d) Using SST, turn the control valve shaft right and left 1 or 2 times.

SST 09616-0001 1

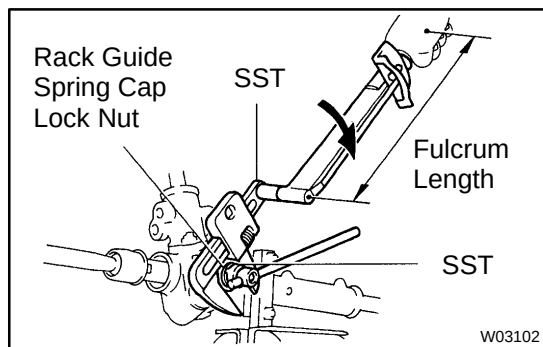
- (e) Using a hexagon wrench (21 mm), loosen the rack guide spring cap until the rack guide spring is not functioning.

- (f) Using SST, a torque wrench and a hexagon wrench (21 mm), tighten the rack guide spring cap until the preload is within specification.

SST 09616-0001 1

Preload (turning):

0.8 - 1.4 N·m (8 - 14 kgf·cm, 6.9 - 12.2 in.·lbf)

**16. INSTALL RACK GUIDE SPRING CAP LOCK NUT**

- (a) Apply sealant to 2 or 3 threads of the rack guide spring cap lock nut.

Sealant:

Part No.08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (b) Temporarily install the rack guide spring cap lock nut.
 (c) Using a hexagon wrench (21 mm), hold the rack guide spring cap and using SST, torque the rack guide spring cap lock nut.

SST 09922-10010

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

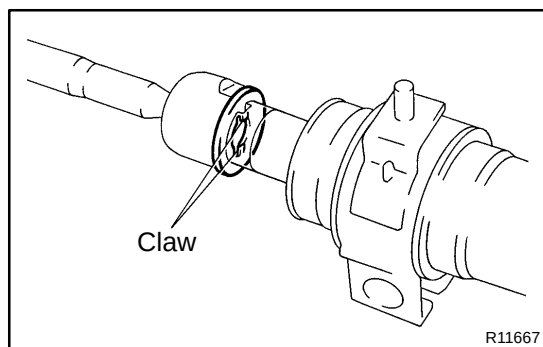
Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (d) Recheck the total preload.

Preload (turning):

0.8 - 1.4 N·m (8 - 14 kgf·cm, 6.9 - 12.2 in·lbf)

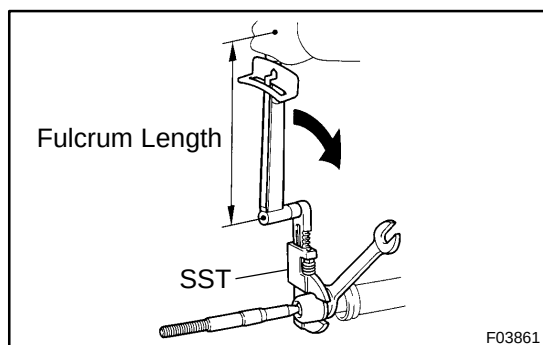
- (e) Remove the RH and LH rack ends.

**17. INSTALL RH AND LH CLAW WASHERS AND RACK ENDS**

- (a) Install a new claw washer, and temporarily install the rack ends.

HINT:

Align the claws of the claw washers with the steering rack grooves.



- (b) Using a spanner (24 mm), hold the steering rack steadily and using SST, torque the rack end.

SST 09922-10010

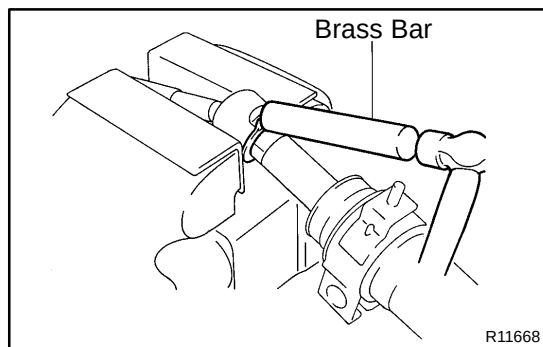
Torque: 60 N·m (610 kgf·cm, 44 ft·lbf)

NOTICE:

Use SST 09922-10010 in the direction shown in the illustration.

HINT:

Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

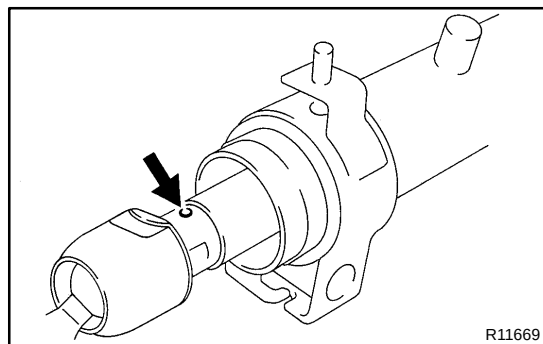


- (c) Using a brass bar and a hammer, stake the claw washer.

NOTICE:

Avoid any impact on the steering rack.

- (d) Employ the same manner described above to the other side.

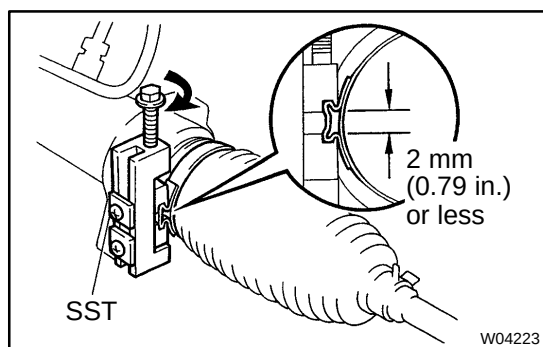


18. INSTALL RH AND LH RACK BOOTS, CLAMPS AND CLIPS

- (a) Ensure that the steering rack hole is not clogged with grease.

HINT:

If the hole is clogged, the pressure inside the rack boot will change after it is assembled and the steering wheel is turned.

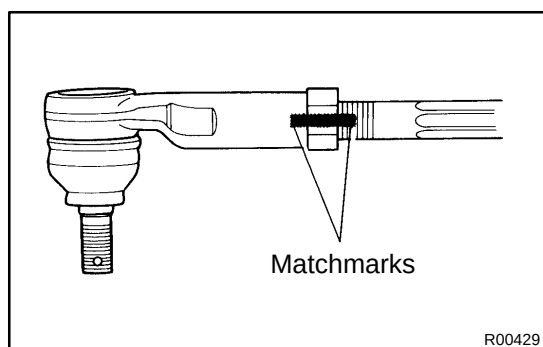


- (b) Install the rack boot, clip and a new clamp.

NOTICE:

Be careful not to damage or twist the rack boot.

- (c) Using SST, tighten the clamp as shown in the illustration.
SST 09521-24010
- (d) Employ the same manner described above to the other side.



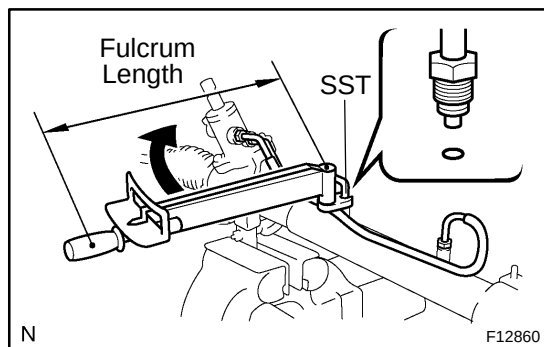
19. INSTALL RH AND LH TIE ROD ENDS AND LOCK NUTS

- (a) Screw the lock nut and tie rod end onto the rack end until the matchmarks are aligned.

- (b) After adjusting toe-in, torque the lock nut (See page [SA-4](#)).

Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)

- (c) Employ the same manner described above to the other side.

**20. INSTALL 2 TURN PRESSURE TUBES**

- (a) Coat 4 new O-rings with power steering fluid and install them to the 2 turn.
- (b) Using SST, install the pressure tubes.

SST 09023-38200

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)**HINT:**

- Use a torque wrench with a fulcrum length of 250 mm (9.84 in.).
- This torque value is effective in case that SST is parallel to a torque wrench.

REASSEMBLY

NOTICE:

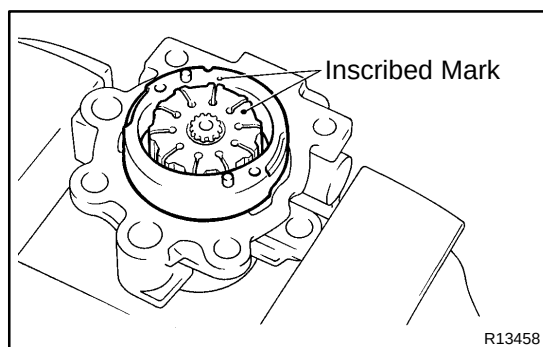
When using a vise, do not overtighten it.

1. COAT PARTS INDICATED BY ARROWS WITH POWER STEERING FLUID (See page [SR-22](#))
2. INSTALL VANE PUMP SHAFT
3. INSTALL STRAIGHT PINS

Using a plastic hammer, tap in 2 new straight pins.

NOTICE:

Be careful not to damage the straight pins.

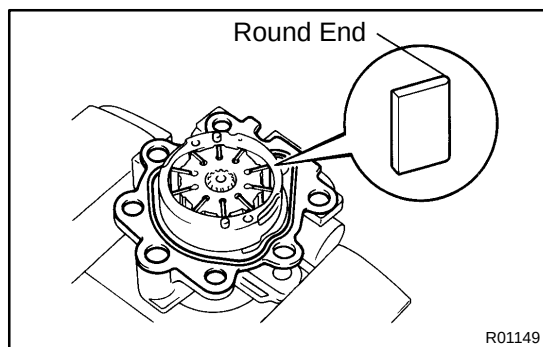


4. INSTALL CAM RING

Align the holes of the cam ring and 2 straight pins, and install the cam ring with the inscribed mark facing outward.

5. INSTALL VANE PUMP ROTOR

- (a) Install the vane pump rotor with the inscribed mark facing outward.
- (b) Install a new snap ring to the vane pump shaft.



6. INSTALL 10 VANE PLATES

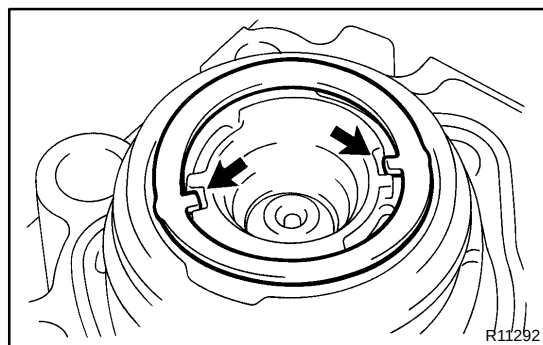
Install the 10 vane plates with the round end facing outward.

7. INSTALL GASKET

Install a new gasket.

8. INSTALL SIDE PLATE

Align the holes of the side plate and 2 straight pins and install the side plate.



9. INSTALL WAVE WASHER

Install the wave washer so that its protrusions fit into the slots in the side plate.

10. INSTALL REAR HOUSING

- (a) Coat 2 new O-rings with power steering fluid and install them to the rear housing.
- (b) Install the rear housing with the 4 bolts.

Torque: 17 N·m (170 kgf·cm, 12 ft·lbf)

11. INSTALL SPRING, FLOW CONTROL VALVE AND PRESSURE PORT UNION

- (a) Install the flow control valve facing the correct direction (See page [SR-22](#)).
- (b) Coat a new O-ring with power steering fluid and install it to the pressure port union.
- (c) Install the pressure port union.

Torque: 83 N·m (850 kgf·cm, 62 ft·lbf)

12. INSTALL SUCTION PORT UNION

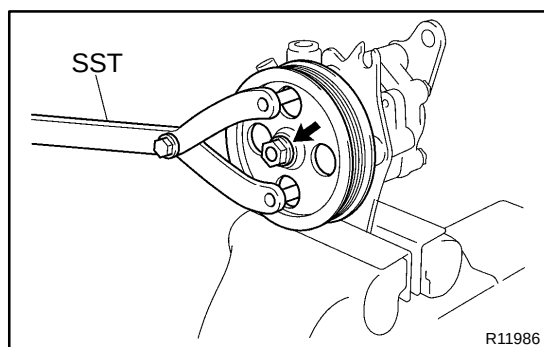
- (a) Coat a new O-ring with power steering fluid and install it to the suction port union.
- (b) Install the suction port union with the bolt.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

13. INSTALL FRONT AND REAR BRACKETS

Install the front and rear brackets with 3 bolts and 2 nuts.

Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

**14. INSTALL VANE PUMP PULLEY**

- (a) Install the vane pump pulley and nut to the vane pump shaft.
- (b) Using SST, stop the pulley rotating and torque the nut. SST 09960-10010 (09962-01000, 09963-01000)

Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

15. MEASURE PS VANE PUMP ROTATING TORQUE (See page [SR-25](#))

REASSEMBLY

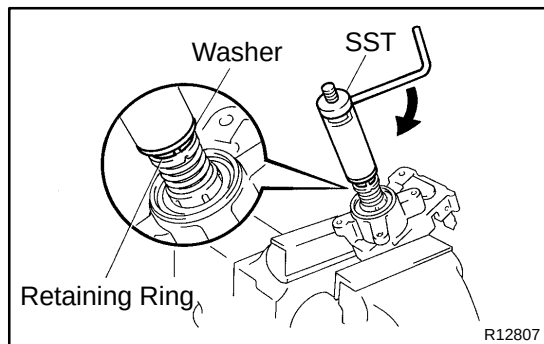
NOTICE:

When using a vise, do not overtighten it.

1. **COAT WITH MOLYBDENUM DISULFIDE LITHIUM BASE GREASE (See page SR-9)**

2. **INSTALL TILT LEVER**

Install the tilt lever with the tilt lever lock shaft.



3. **INSTALL MAIN SHAFT ASSEMBLY**

- (a) Install the inner race, upper bearing inner race seat, compression spring and spring retainer.
- (b) Install a new retaining ring to the main shaft assembly.
- (c) Install the washer of SST to the main shaft assembly.
- (d) Install SST to the main shaft assembly, as shown in the illustration.

SST 09612-07010

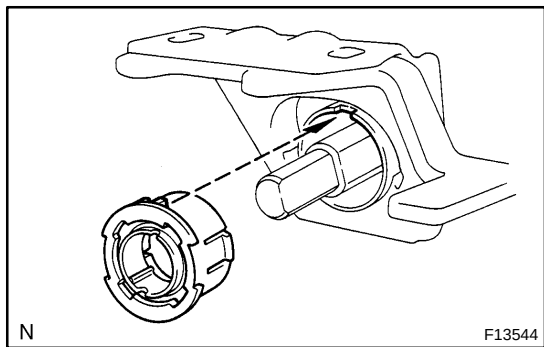
- (e) Using SST, push down the retaining ring until it fits into the shaft groove.

NOTICE:

Do not bend the universal joint of the main shaft assembly more than 20°.

HINT:

Hold the main shaft assembly with your hand so that it does not rotate.



4. **INSTALL LOWER SHAFT ADAPTER AND LOWER SHAFT BUSHING**

Align a ditch of the tube and projection of the lower shaft bushing, and install the lower shaft adapter and lower shaft bushing in the column tube assembly.

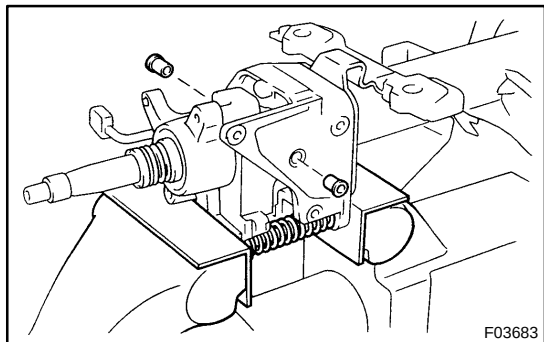
5. **INSTALL STEERING COLUMN HOUSING SUPPORT**

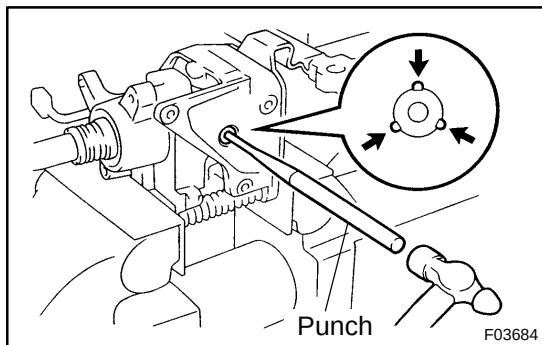
- (a) Install the 2 new tilt No. 1 stopper.
- (b) Install the steering column housing support with the 4 new torx bolts.

Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)

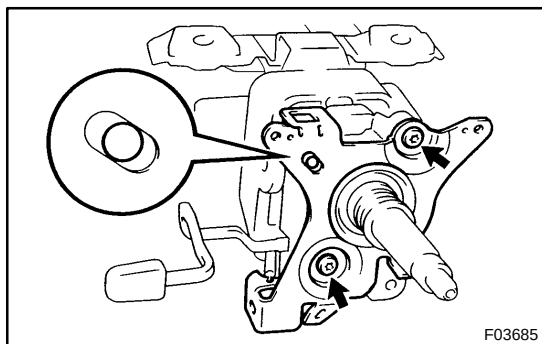
6. **INSTALL STEERING COLUMN HOUSING**

- (a) Install the steering column housing with the main shaft assembly into the column tube assembly.
- (b) Install the tilt spring and spring guide.
- (c) Using a vise to hold the column housing and column housing support.
- (d) Temporarily install 2 new pivot pins.





- (e) Using a punch and a hammer, tap in the pivot pin.
- (f) Using a pin punch, stake on 3 places evenly around the hole as shown in the illustration.



7. INSTALL TURN SIGNAL BRACKET

Install the turn signal bracket with the 2 new screws.

Torque: 7.5 N·m (75 kgf·cm, 65 in·lbf)

HINT:

Set the hole of the bracket and projection of steering column housing.

8. INSTALL RELEASE LEVER SPRING

9. INSTALL PARK LOCK CABLE (See page [AX-20](#))

10. INSTALL SHIFT LEVER HOUSING

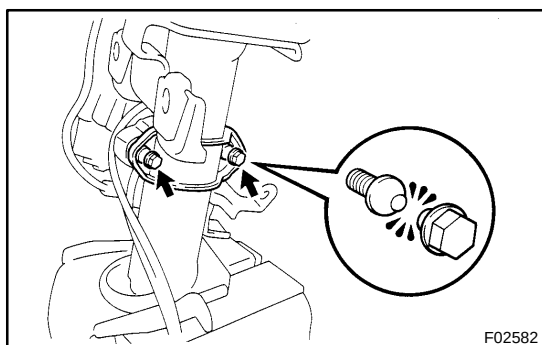
Install the shift lever housing with the 3 screws.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)

11. INSTALL SHIFT LEVER

Install the shift lever with the screw.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



12. INSTALL COLUMN UPPER BRACKET AND COLUMN UPPER CLAMP

- (a) Install the column upper bracket and column upper clamp with 2 new tapered-head bolts.
- (b) Tighten the 2 tapered-head bolts until the bolt heads break off.

13. INSTALL IGNITION KEY CYLINDER ILLUMINATION

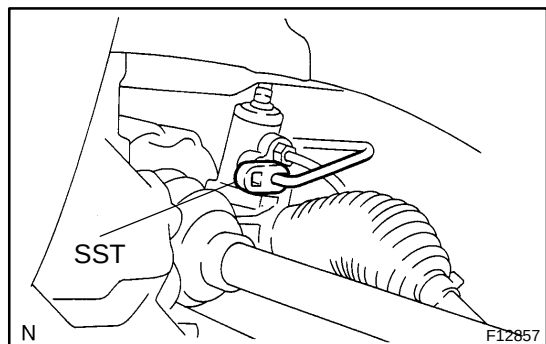
REMOVAL

NOTICE:

Remove the steering wheel assembly before the steering gear removal, because there is possibility of breaking of the spiral cable.

1. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
2. REMOVE STEERING WHEEL PAD (See page [SR-11](#))
3. REMOVE STEERING WHEEL (See page [SR-11](#))
4. DISCONNECT RH AND LH TIE ROD ENDS
(See page [SA-9](#))
5. DISCONNECT INTERMEDIATE SHAFT ASSEMBLY
(See page [SR-11](#))
6. DISCONNECT CLAMP PLATE

Remove the nut and clamp plate.



7. DISCONNECT PRESSURE FEED AND RETURN TUBES

Using SST, disconnect the pressure feed and return tubes.

SST 09023-38400

8. DISCONNECT STABILIZER BAR

Remove the 4 bolts and disconnect the stabilizer bar.

HINT:

Do not remove the stabilizer bar.

9. REMOVE PS GEAR ASSEMBLY

(a) Remove the 2 gear assembly set bolts and nuts.

HINT:

Lift up the stabilizer bar and remove the bolts.

(b) Remove the PS gear assembly from the LH of the vehicle.

NOTICE:

Do not damage the turn pressure tubes.

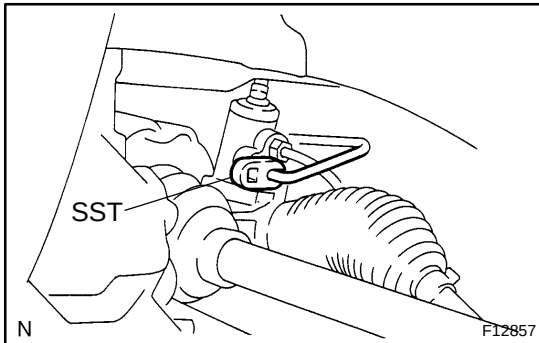
REMOVAL

1. DISCONNECT RETURN HOSE

Remove the clip and disconnect the hose.

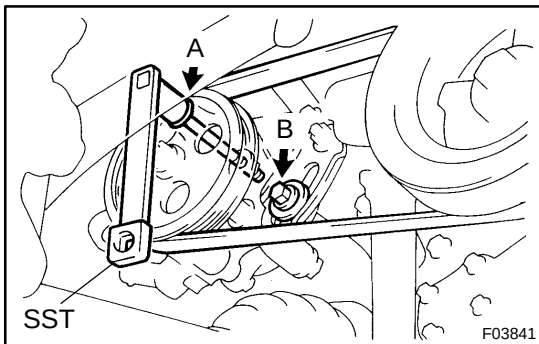
NOTICE:

Take care not to spill fluid on the drive belt.



2. DISCONNECT PRESSURE FEED TUBE

- Remove the 2 clamp plate set nuts.
- Remove the bolt, 2 clamp plates and 2 holders from the tube.
- Using SST, disconnect the pressure feed tube from the PS gear assembly.
SST 09023-38400



3. REMOVE DRIVE BELT

- Using SST, loosen the bolt "A".
SST 09249-63010
- Loosen the bolt "B".

4. REMOVE PS VANE PUMP ASSEMBLY WITH PRESSURE FEED TUBE

- Disconnect the connector from the oil pressure switch.
- Using SST, loosen bolt "A" sufficiently so that pump assembly can be removed.
SST 09249-63010

HINT:

Bolt "A" cannot be removed.

5. REMOVE PRESSURE FEED TUBE

- Remove the oil pressure switch from the union bolt.

NOTICE:

Be careful not to drop the oil pressure switch.

If the oil pressure switch is dropped or strongly damaged, replace it with a new one.

- Remove the union bolt, gasket and pressure feed tube.

REMOVAL

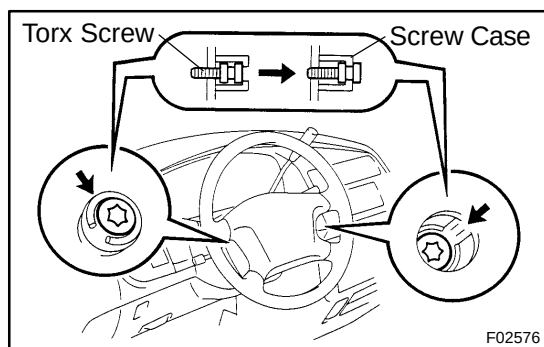
1. REMOVE STEREO COMPONENT CONTROLLER ASSEMBLY

Remove the stereo component controller assembly.

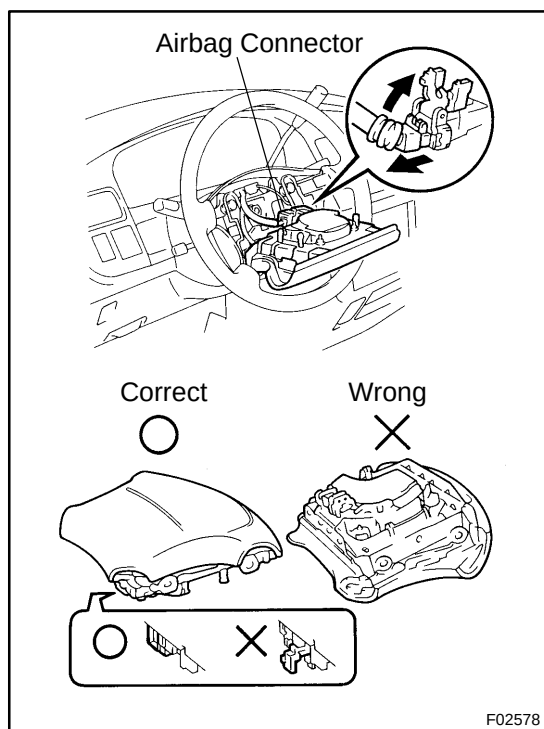
2. REMOVE STEERING WHEEL PAD

NOTICE:

If the airbag connector is disconnected with the ignition switch at ON or ACC, DTCs will be recorded.



- Place the front wheels facing straight ahead.
- Using a torx socket wrench, loosen the 2 torx screws until the groove along the screw circumference catches on the screw case.



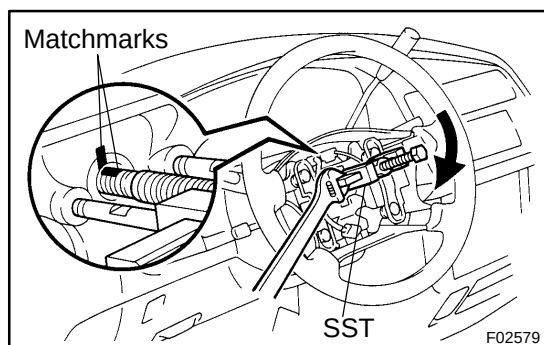
- Pull out the wheel pad from the steering wheel and disconnect the airbag connector.

CAUTION:

- When storing the wheel pad, keep the upper surface of the pad facing upward.
- Never disassemble the wheel pad.

NOTICE:

When removing the wheel pad, take care not to pull the airbag wire harness.



3. REMOVE STEERING WHEEL

- Disconnect the connector.
- Remove the steering wheel set nut.
- Place matchmarks on the steering wheel and main shaft assembly.
- Using SST, remove the steering wheel.
SST 09950-50012 (09951-05010, 09952-05010, 09953-05020, 09954-05020)

4. REMOVE FRONT DOOR INSIDE SCUFF PLATE

5. REMOVE COWL SIDE TRIM

Remove the clip and cowl side trim.

6. REMOVE LOWER LH FINISH PANEL

- (a) Remove the 2 screws and disconnect the hood lock control lever.
- (b) Remove the 2 bolts and lower LH finish panel.
- (c) Disconnect the connector.

7. REMOVE LH LOWER INSTRUMENT PANEL

- (a) Disconnect the connectors.
- (b) Remove the 2 bolts and LH lower instrument panel.

8. REMOVE UPPER AND LOWER COLUMN COVERS

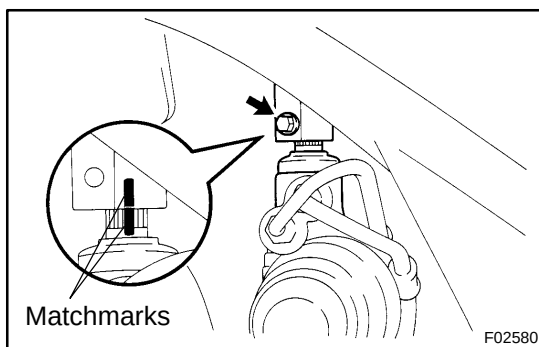
- (a) Remove the lower No. 2 cover from the lower column cover.
- (b) Remove the 3 screws, upper and lower column covers.

9. REMOVE COMBINATION SWITCH WITH SPIRAL CABLE

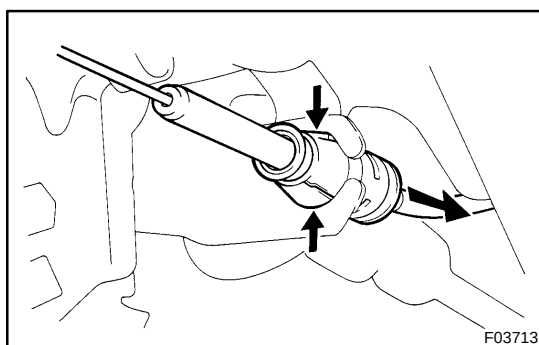
- (a) Disconnect the 5 connectors.
- (b) Disconnect the airbag connector.
- (c) Remove the 3 screws and combination switch with spiral cable.

10. REMOVE SPIRAL CABLE (See page [BE-17](#))**NOTICE:**

Do not disassemble the spiral cable or apply oil to it.

**11. DISCONNECT INTERMEDIATE SHAFT ASSEMBLY**

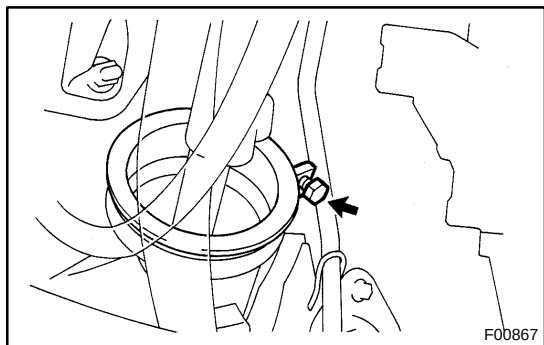
- (a) Place matchmarks on the intermediate shaft assembly and control valve shaft.
- (b) Remove the bolt and disconnect the intermediate shaft assembly.

**12. DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**

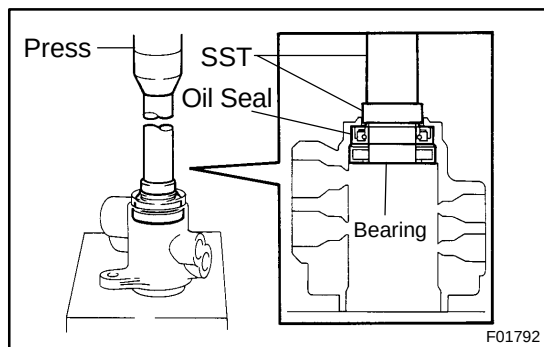
Disconnect the transmission control cable assembly from the column shift lever assembly.

13. REMOVE INTERMEDIATE SHAFT ASSEMBLY

Remove the bolt and intermediate shaft assembly.

**14. REMOVE STEERING COLUMN ASSEMBLY**

- (a) Loosen the clamp bolt.
- (b) Disconnect the connectors.
- (c) Remove the return spring.
- (d) Remove the 4 column assembly set nuts and steering column assembly.



REPLACEMENT

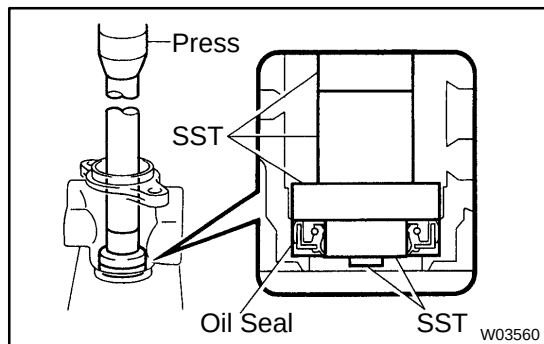
NOTICE:

When using a vise, do not overtighten it.

1. IF NECESSARY, REPLACE OIL SEAL AND BEARING

- (a) Using SST, press out the oil seal and bearing from the control valve housing.

SST 09950-60010 (09951-00250),
09950-70010 (09951-07200)



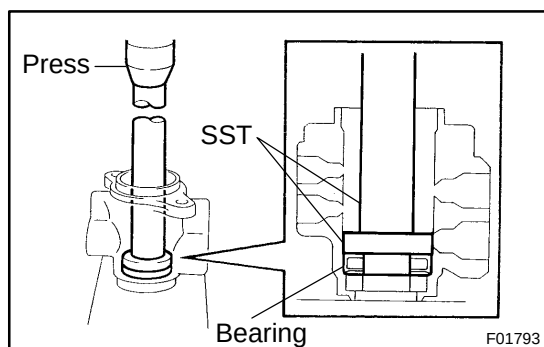
- (b) Coat a new oil seal lip with power steering fluid.

- (c) Using SST, press in the oil seal.

SST 09950-60010 (09951-00180, 09951-00320,
09952-06010), 09950-70010 (09951-07200)

NOTICE:

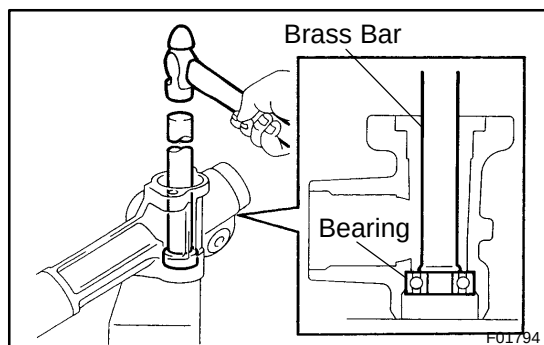
Make sure that the oil seal is installed facing in the correct direction.



- (d) Coat a new bearing with molybdenum disulfide lithium base grease.

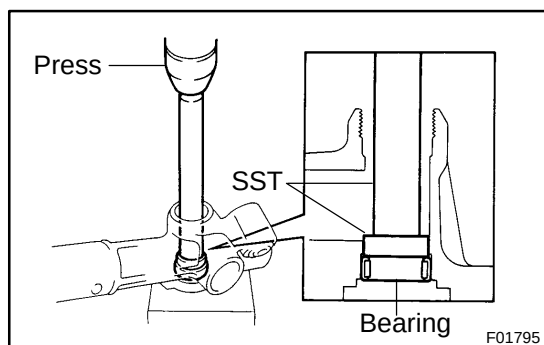
- (e) Using SST, press in the bearing.

SST 09950-60010 (09951-00340),
09950-70010 (09951-07200)



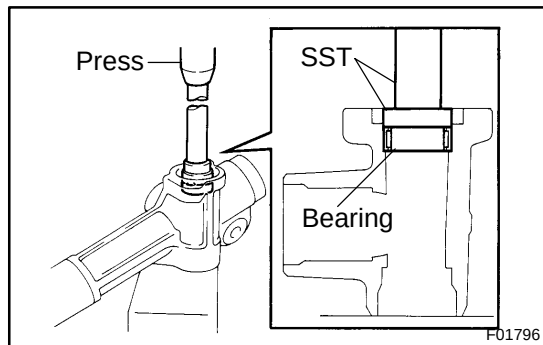
2. IF NECESSARY, REPLACE 2 BEARINGS

- (a) Using a brass bar and a hammer, tap out the bearing from the rack housing.

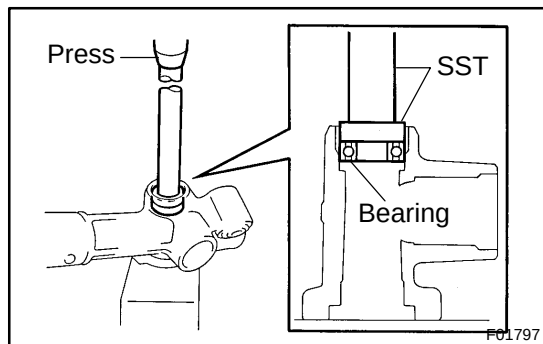


- (b) Using SST, press out the bearing from the rack housing.

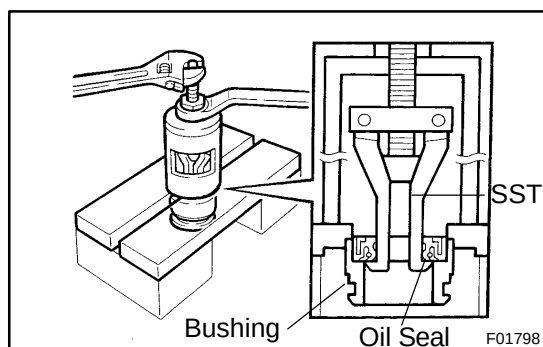
SST 09950-60010 (09951-00260),
09950-70010 (09951-07200)



- (c) Coat a new bearing with molybdenum disulfide lithium base grease.
- (d) Using SST, press in the bearing.
SST 09950-60010 (09951-00310),
09950-70010 (09951-07200)



- (e) Coat a new bearing with molybdenum disulfide lithium base grease.
- (f) Using SST, press in the bearing.
SST 09950-60010 (09951-00320),
09950-70010 (09951-07200)

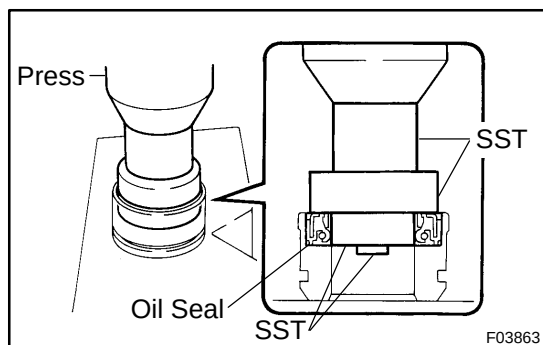


3. IF NECESSARY, REPLACE OIL SEAL

- (a) Using SST, remove the oil seal from the bushing.
SST 09527-2001 1, 09612-24014 (09613-22011)

NOTICE:

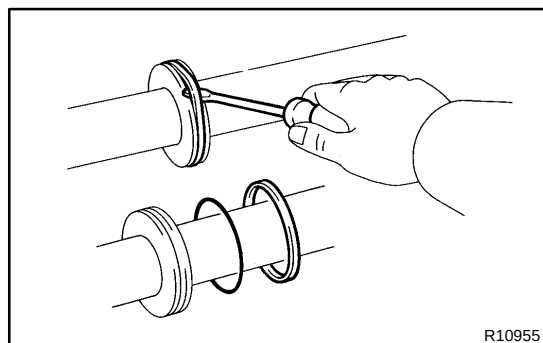
Be careful not to damage the bushing.



- (b) Coat a new oil seal lip with power steering fluid.
- (c) Using SST, press in the oil seal.
SST 09950-60010 (09951-00240, 09951-00400,
09952-06010)

NOTICE:

Make sure that the oil seal is installed facing in the correct direction.



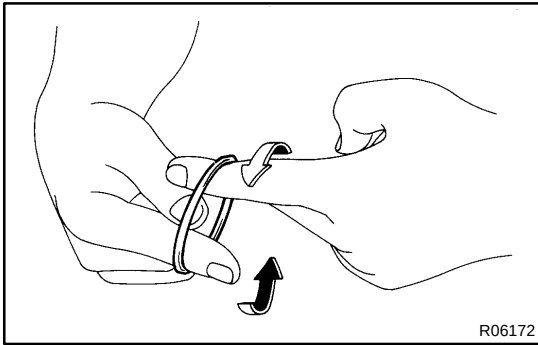
4. IF NECESSARY, REPLACE TEFLON RING AND O-RING

- (a) Using a screwdriver, remove the teflon ring and O-ring from the steering rack.

NOTICE:

Be careful not to damage the groove for the teflon ring.

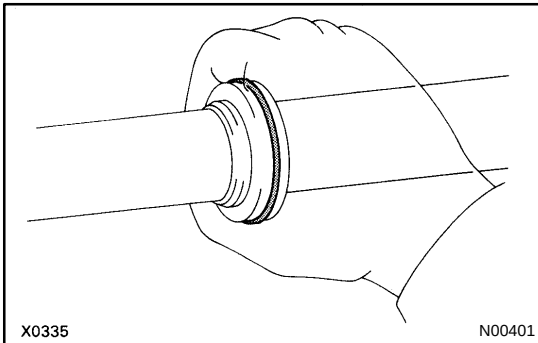
- (b) Coat a new O-ring with power steering fluid and install it.



(c) Expand a new teflon ring with your fingers.

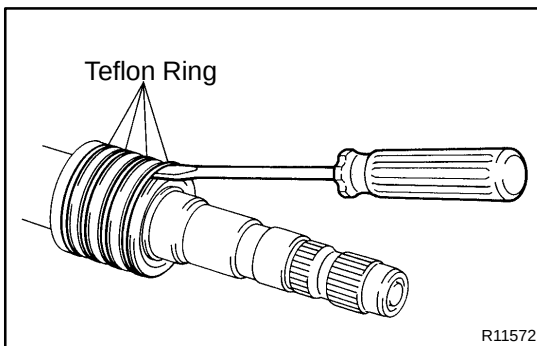
NOTICE:

Be careful not to over-expand the ring.



(d) Coat the ring with power steering fluid.

(e) Install the ring to the steering rack, and settle it down with your fingers.



5. IF NECESSARY, REPLACE TEFLON RINGS

(a) Using a screwdriver, remove the teflon rings from the control valve assembly.

NOTICE:

Be careful not to damage the grooves for the teflon ring.

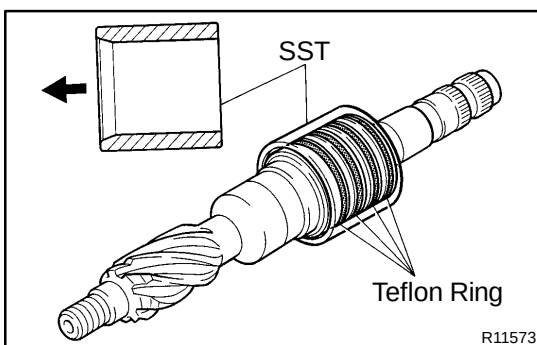
(b) Expand 4 new teflon rings with your fingers.

NOTICE:

Be careful not to over expand the teflon ring.

(c) Coat the teflon rings with power steering fluid.

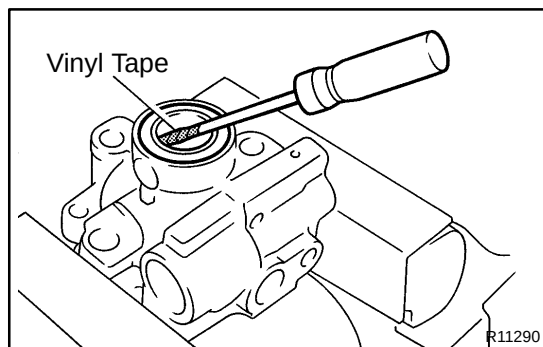
(d) Install the teflon rings to the control valve assembly, and settle them down with your fingers.



(e) Carefully slide the tapered end of SST over the teflon rings until the teflon rings fit to the control valve assembly.
SST 09631-20081

NOTICE:

Be careful not to damage the teflon rings.



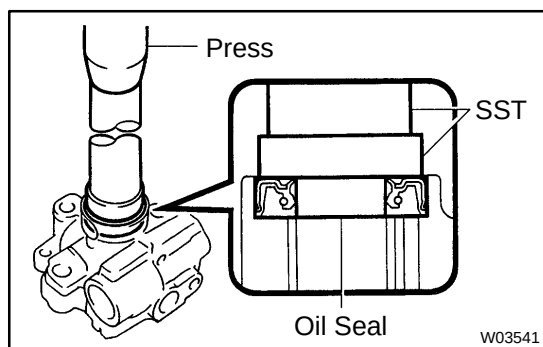
REPLACEMENT

IF NECESSARY, REPLACE OIL SEAL

- (a) Using a screwdriver with vinyl tape wound around its tip, remove the oil seal.

NOTICE:

Be careful not to damage the front housing.



- (b) Coat a new oil seal lip with power steering fluid.

- (c) Using SST, press in the oil seal.

SST 09950-60010 (09951-00330),
09950-70010 (09951-07100)

NOTICE:

Make sure that the oil seal is installed facing in the correct direction.