

POWER STEERING SYSTEM

PRECAUTION

1. HANDLING PRECAUTIONS FOR STEERING SYSTEM

- (a) Care must be taken when replacing parts. Incorrect replacement could affect the performance of the steering system and result in driving hazards.

2. HANDLING PRECAUTIONS FOR SRS AIRBAG SYSTEM

- (a) The vehicle is equipped with SRS (Supplemental Restraint System), such as airbags. If service operation is not carried out properly in the correct sequence, the airbag may suddenly deploy and this may result in serious injury. Before servicing (including inspection, replacement, removal and inspection of parts), be sure to read the precautionary notices for the supplemental restraint system (See page [RS-1](#)).

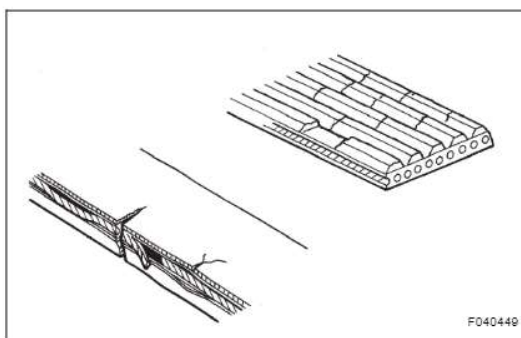
PS

PS-2

POWER STEERING – POWER STEERING SYSTEM

PROBLEM SYMPTOMS TABLE

Symptom	Suspected area	See page
Hard steering	Tires (Improperly inflated)	TW-1
	Power steering fluid level (Low)	PS-3
	Drive belt (Loose)	PS-2
	Front wheel alignment (Incorrect) (2WD)	TW-1
	Front wheel alignment (Incorrect) (4WD)	TW-1
	Steering system joints (Worn)	-
	Suspension arm ball joints (Worn) (2WD)	SP-22
	Suspension arm ball joints (Worn) (4WD)	SP-22
	Steering column (Binding)	-
	Vane pump	PS-10
	Power steering link (2WD)	PS-18
	Power steering link (4WD)	PS-23
Poor return	Tires (Improperly inflated)	TW-1
	Front wheel alignment (Incorrect) (2WD)	TW-1
	Front wheel alignment (Incorrect) (4WD)	SP-2
	Steering column (Binding)	-
	Power steering link (2WD)	PS-18
	Power steering link (4WD)	PS-23
Excessive play	Steering system joints (Worn)	-
	Suspension arm ball joints (Worn) (2WD)	SP-22
	Suspension arm ball joints (Worn) (4WD)	SP-22
	Intermediate shaft, Sliding yoke (Worn)	-
	Front wheel bearing (Worn)	-
	Power steering link (2WD)	PS-18
	Power steering link (4WD)	PS-23
Abnormal noise	Power steering fluid level (Low)	PS-3
	Steering system joints (Worn)	-
	Vane pump	PS-10
	Power steering link (2WD)	PS-18
	Power steering link (4WD)	PS-23



ON-VEHICLE INSPECTION

1. INSPECT DRIVE BELT

- (a) Visually check the belt for defects, such as excessive wear and frayed cords.

If any defects are found, replace the drive belt.

HINT:

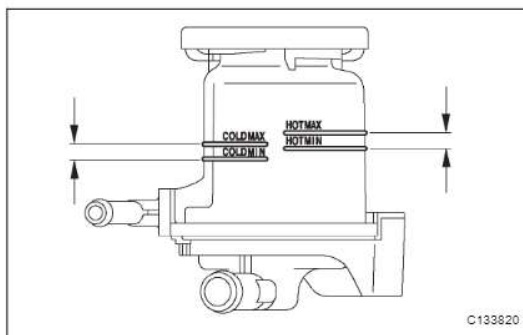
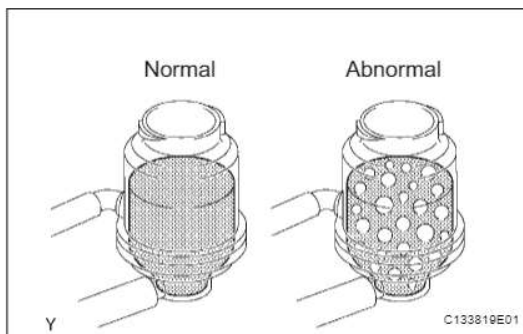
Cracks on the rib side of a belt are considered acceptable. Replace the belt if there are any missing ribs.

2. BLEED POWER STEERING SYSTEM

- (a) Check the fluid level.
- (b) Jack up the front of the vehicle and support it with stands.
- (c) Turn the steering wheel.
- (1) With the engine stopped, turn the wheel slowly from lock to lock several times.
- (d) Lower the vehicle.

POWER STEERING – POWER STEERING SYSTEM**PS-3**

- (e) Start the engine.
 - (1) Run the engine at idle for a few minutes.
- (f) Turn the steering wheel.
 - (1) With the engine idling, turn the wheel to the left or right full lock position and keep it there for 2 to 3 seconds. Then turn the wheel to the opposite full lock position and keep it there for 2 to 3 seconds (step A).
 - (2) Repeat step A several times.
- (g) Stop the engine.
- (h) Check for foaming or emulsification. Especially, if the system has to be bled twice because of foaming or emulsification, check for fluid leakage in the system.
- (i) Check the fluid level.

**3. INSPECT FLUID LEVEL**

- (a) Keep the vehicle level.
- (b) With the engine stopped, check the fluid level in the oil reservoir. If necessary, add fluid.

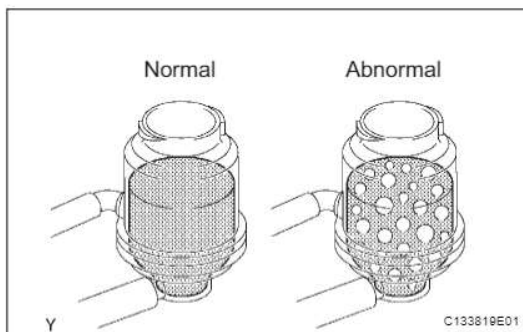
Fluid:**ATF "DEXRON" II or III****HINT:**

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

- (c) Start the engine and let it idle.
- (d) Turn the steering wheel from lock to lock several times to raise fluid temperature.

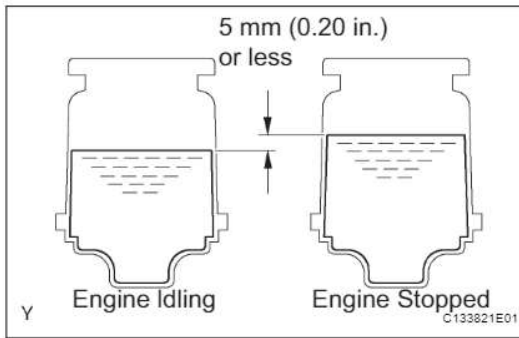
Fluid temperature:**75 to 80°C (167 to 176°F)**

- (e) Check for foaming or emulsification. If any foaming or emulsification is identified, bleed the power steering system.

**PS**

PS-4

POWER STEERING – POWER STEERING SYSTEM



- (f) With the engine idling, measure the fluid level in the oil reservoir.
- (g) Stop the engine.
- (h) Wait a few minutes and measure the fluid level in the oil reservoir again.

Maximum fluid level rise:

5 mm (0.20 in.)

If any problems are found, bleed the power steering system again.

- (i) Check the fluid level.

4. INSPECT STEERING FLUID PRESSURE

- (a) Disconnect the pressure feed tube from the vane pump (See page [PS-8](#)).
- (b) Connect SST as shown in the illustration.

SST 09640-10010 (09641-01010, 09641-01030, 09641-01060)

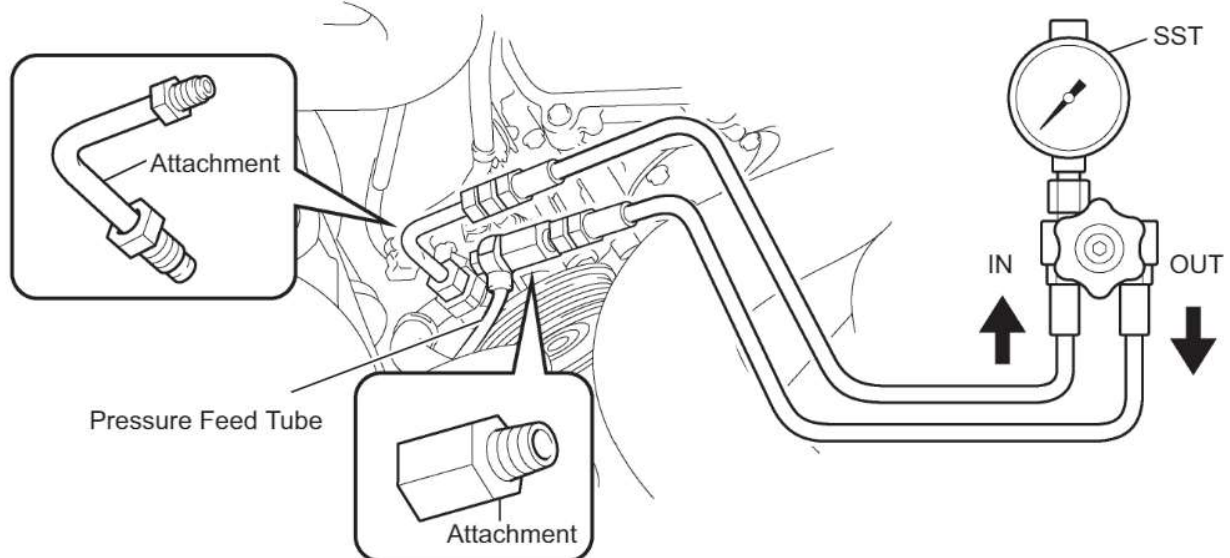
NOTICE:

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

- (c) Bleed the power steering system.
- (d) Start the engine and let it idle.
- (e) Turn the steering wheel from lock to lock several times to raise the fluid temperature.

Fluid temperature:

75 to 80 °C (167 to 176 °F)

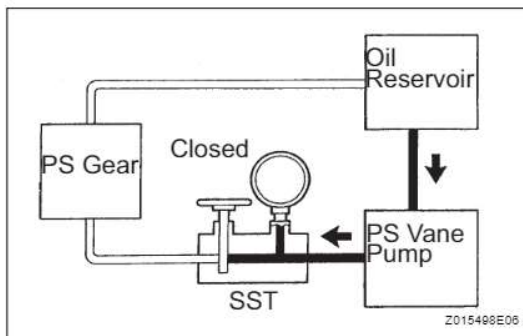


N

F043878E02

POWER STEERING – POWER STEERING SYSTEM

PS-5



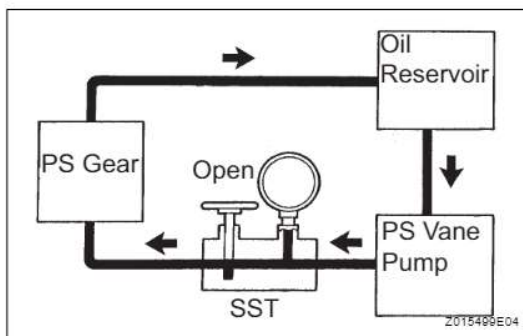
- (f) With the engine idling, close the valve of SST and check the reading on SST.

Fluid pressure:

8,300 to 8,800 kPa (85 to 90 kgf/cm², 1,209 to 1,280 psi)

NOTICE:

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



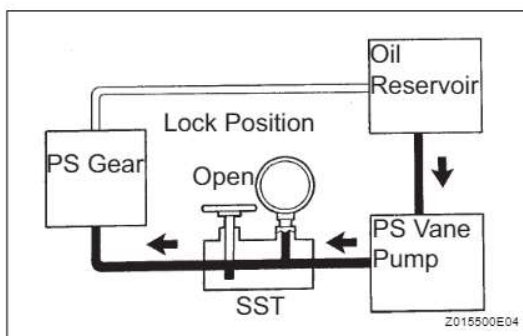
- (g) With the engine idling, fully open the valve.
(h) Measure the fluid pressure at the engine speeds of 1,000 rpm and 3,000 rpm.

Fluid pressure difference:

490 kPa (5 kgf/cm², 71 psi) or less

NOTICE:

Do not turn the steering wheel.



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

Fluid pressure:

8,300 to 8,800 kPa (85 to 90 kgf/cm², 1,209 to 1,280 psi)

NOTICE:

- Do not keep the steering wheel in the full lock position for more than 10 seconds.
- Do not let the fluid temperature become too high.

- (j) Disconnect SST.
(k) Connect the pressure feed tube to the vane pump (See page PS-14).
(l) Bleed the power steering system.

5. INSPECT STEERING EFFORT

- (a) Center the steering wheel assembly.
(b) Remove the steering pad (See page RS-345).
(c) Start the engine and let it idle.
(d) Measure the steering effort in both directions.

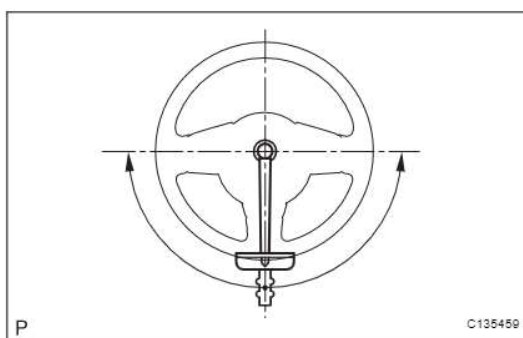
Steering effort (Reference):

6.0 N*m (60 kgf*cm, 53 in.*lbf) or less

HINT:

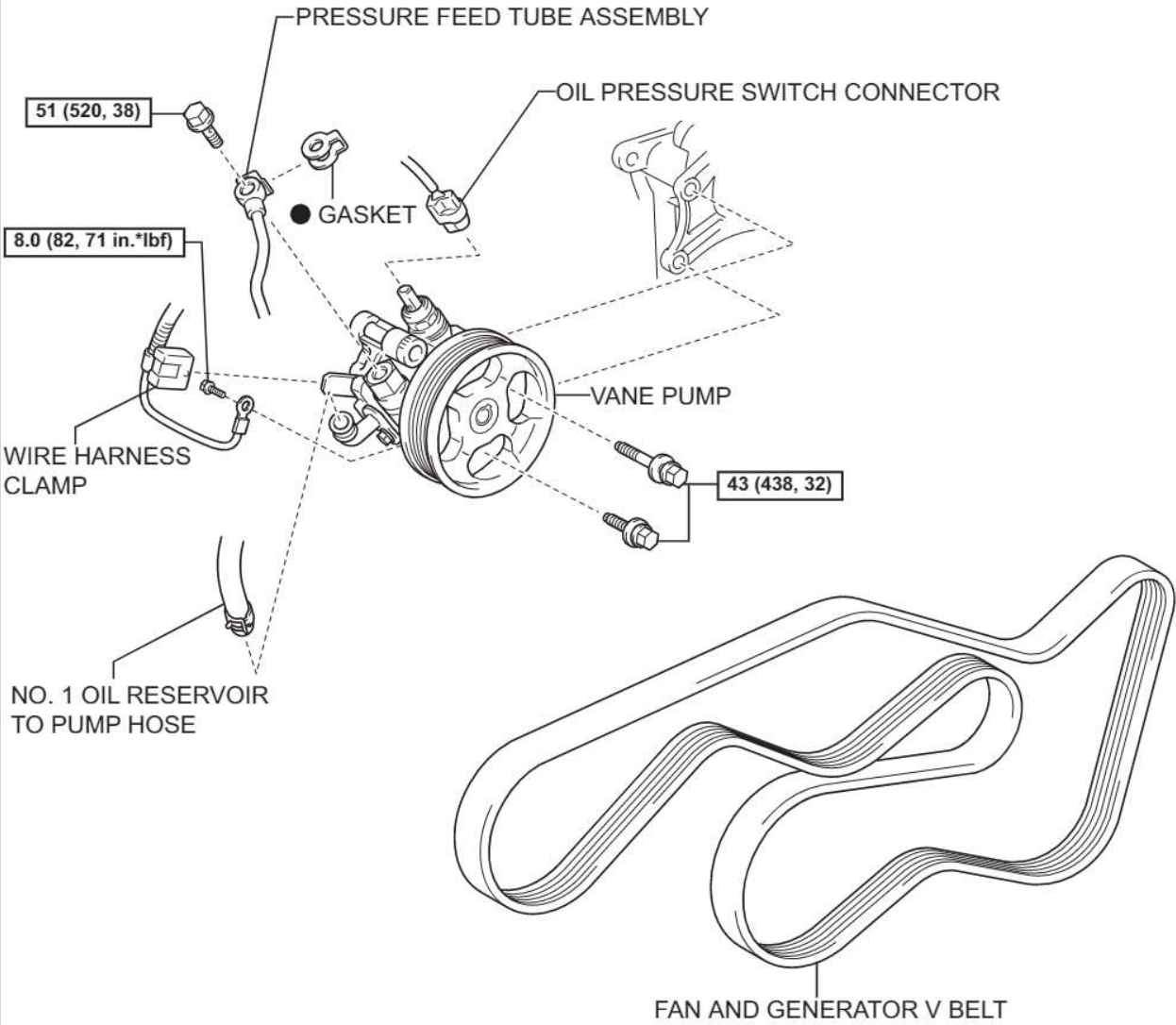
Check the tire type, pressure and contact surfaces before making a diagnosis.

- (e) Install the steering wheel assembly set nut.
Torque: 50 N*m (510 kgf*cm, 37 ft.*lbf)
(f) Install the steering pad (RS-346).



VANE PUMP
COMPONENTS

PS



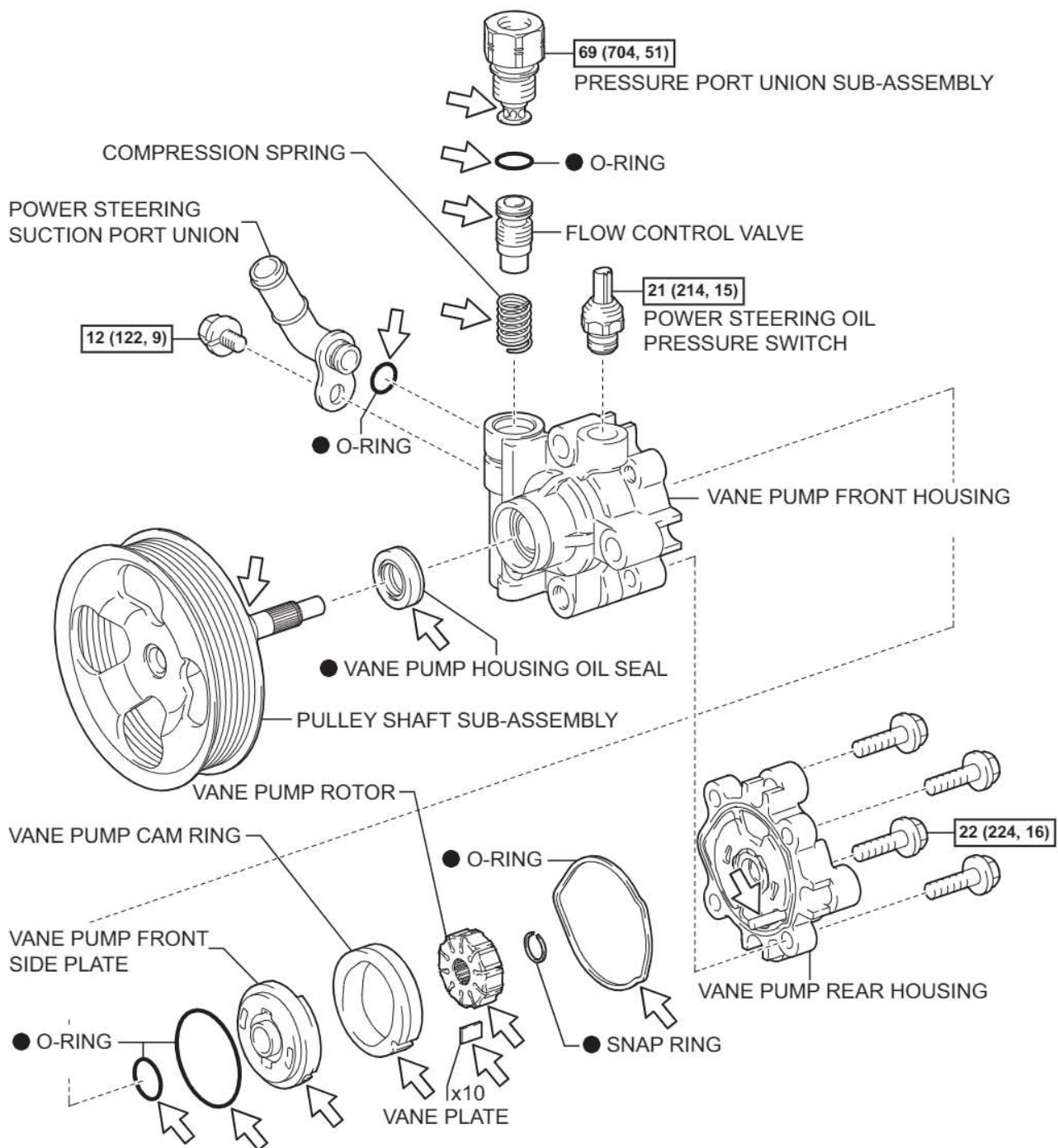
Y

C133830E01

POWER STEERING – VANE PUMP

PS-7

PS



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

● Non-reusable part ← Power steering fluid

P

C114127E02

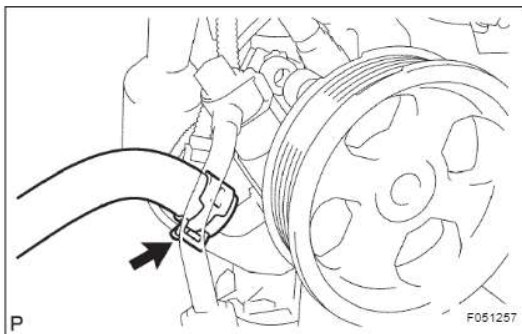
PS-8

POWER STEERING – VANE PUMP

REMOVAL

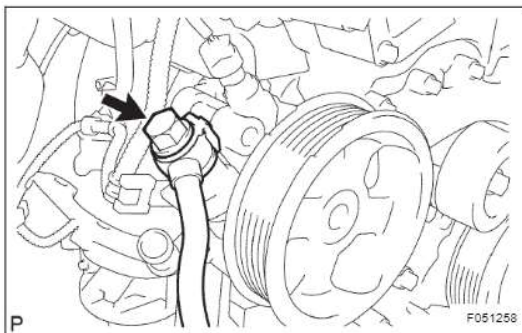
1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY** (See page [EM-6](#))
3. **REMOVE FAN AND GENERATOR V BELT** (See page [EM-6](#))
4. **DRAIN POWER STEERING FLUID**
5. **DISCONNECT NO. 1 OIL RESERVOIR TO PUMP HOSE**

- (a) Disengage the clip and disconnect the No. 1 oil reservoir to pump hose.



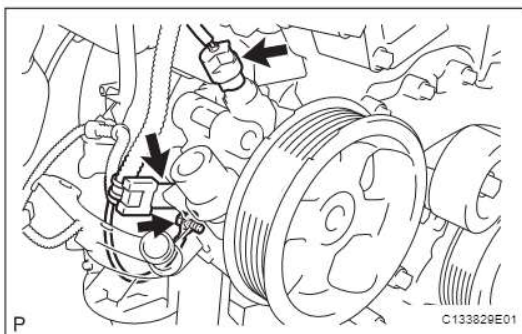
6. **DISCONNECT PRESSURE FEED TUBE ASSEMBLY**

- (a) Remove the union bolt, then disconnect the pressure feed tube.
- (b) Remove the gasket from the pressure feed tube.

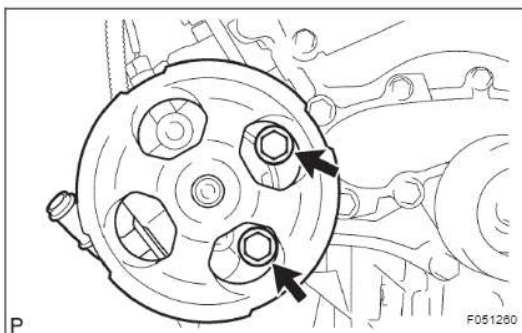


7. **REMOVE VANE PUMP**

- (a) Disconnect the oil pressure switch connector.
- (b) Remove the bolt and the wire harness clamp bracket.

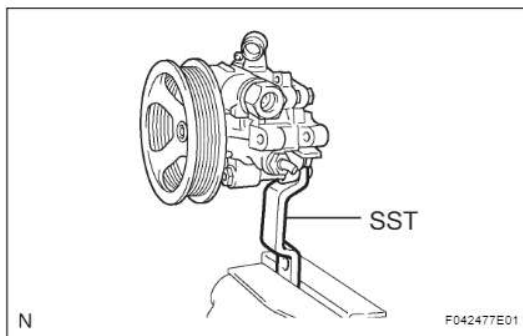


- (c) Remove the 2 bolts and the vane pump assembly.



POWER STEERING – VANE PUMP

PS-9

**DISASSEMBLY****1. FIX VANE PUMP**

- (a) Using SST, fix the vane pump assembly in a vise.

SST 09630-00014 (09631-00132)

NOTICE:

Do not over tighten the vise.

2. REMOVE POWER STEERING SUCTION PORT UNION

- (a) Remove the bolt and suction port union.
(b) Remove the O-ring from the suction port union.

3. REMOVE FLOW CONTROL VALVE

- (a) Remove the pressure port union.
(b) Remove the O-ring from the pressure port union.
(c) Remove the flow control valve and compression spring.

4. REMOVE POWER STEERING OIL PRESSURE SWITCH

NOTICE:

Be careful not to drop or badly damage the oil pressure switch. If damaged, replace it with a new one.

5. REMOVE VANE PUMP REAR HOUSING

- (a) Remove the 4 bolts and vane pump housing rear from the vane pump housing front.
(b) Remove the O-ring from the vane pump housing front.

6. REMOVE PULLEY SHAFT SUB-ASSEMBLY

NOTICE:

Be careful not to drop or badly damage the pulley shaft. If damaged, replace it with a new one.

- (a) Using a screwdriver, remove the snap ring from the pulley shaft.
(b) Remove the pulley shaft.

7. REMOVE VANE PUMP ROTOR

- (a) Remove the 10 vane plates.
(b) Remove the vane pump rotor.

8. REMOVE VANE PUMP CAM RING**9. REMOVE VANE PUMP FRONT SIDE PLATE**

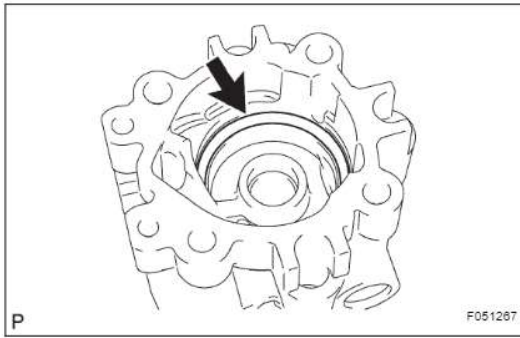
- (a) Remove the side plate from the vane pump housing front.
(b) Remove the O-ring from the side plate.



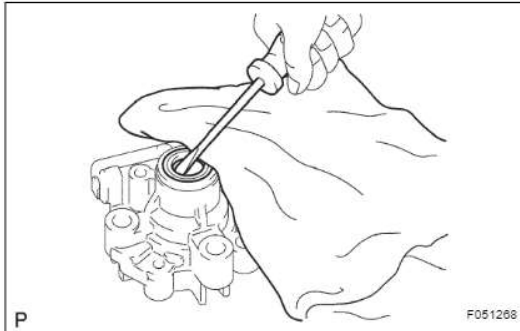
PS

PS-10

POWER STEERING – VANE PUMP



- (c) Remove the O-ring from the vane pump housing front.

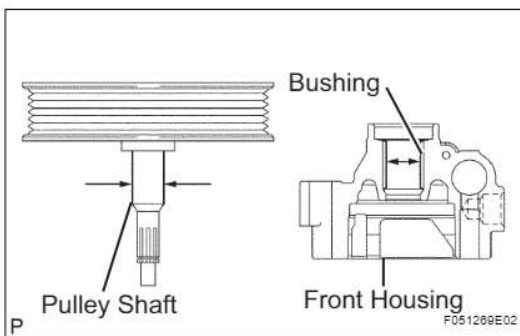


10. REMOVE VANE PUMP HOUSING OIL SEAL

- (a) Using screwdriver, remove the oil seal.

NOTICE:

Be careful not to damage the vane pump housing front.



INSPECTION

1. INSPECT OIL CLEARANCE

- (a) Using a micrometer and caliper gauge, measure the oil seal clearance.

Standard clearance:

0.021 to 0.043 mm (0.0008 to 0.0017 in.)

Maximum clearance:

0.07 mm (0.0028 in.)

If it is greater than the maximum, replace the vane pump assembly.

2. INSPECT VANE PUMP ROTOR AND VANE PUMP PLATE

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

Minimum height:

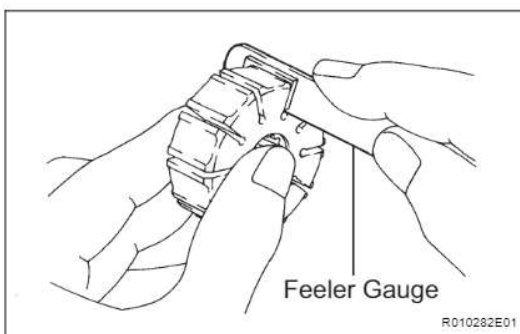
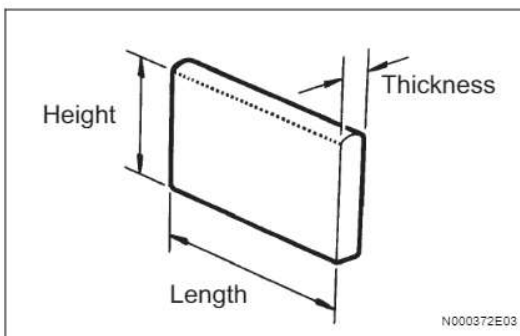
7.6 mm (0.299 in.)

Minimum thickness:

1.405 mm (0.0553 in.)

Minimum length:

11.993 mm (0.4722 in.)



- (b) Using a feeler gauge, measure the clearance between a side face of the vane pump rotor groove and vane plate.

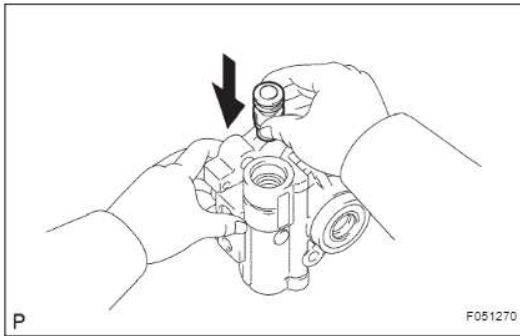
Maximum clearance:

0.025 mm (0.0010 in.)

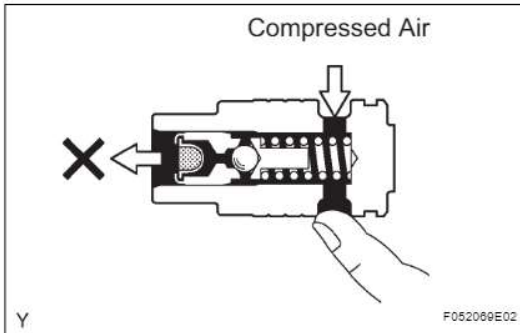
If it is greater than the maximum, replace the vane pump assembly.

POWER STEERING – VANE PUMP

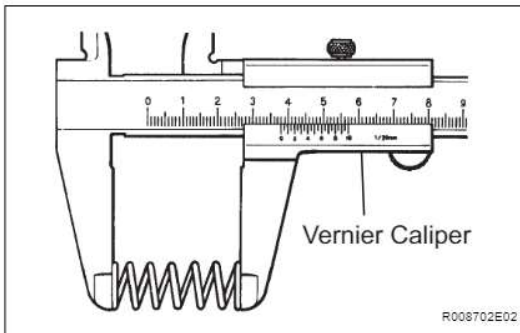
PS-11

**3. INSPECT FLOW CONTROL VALVE**

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



- (b) Check the flow control valve for leakage. Close one of the holes and apply compressed air of 392 to 490 kPa (4 to 5 kgf/cm², 57 to 71 psi) to the hole on the opposite side. Confirm that the air does not flow out from the end holes. If necessary, replace the vane pump assembly.

**4. INSPECT COMPRESSION SPRING**

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

Minimum free length:

29.2 mm (1.150 in.)

If it is not within the specification, replace the vane pump assembly.

5. INSPECT PRESSURE PORT UNION SUB-ASSEMBLY

- (a) If the union seat in the pressure port union is badly damaged, it could cause fluid leakage, so replace the vane pump assembly.

PS

PS-12

POWER STEERING – VANE PUMP

REASSEMBLY

NOTICE:

When installing, coat the parts indicated by the arrows with power steering fluid (See page PS-3).

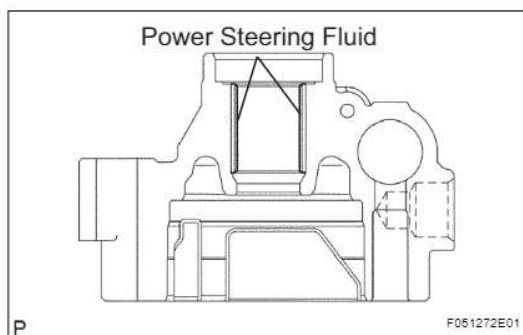
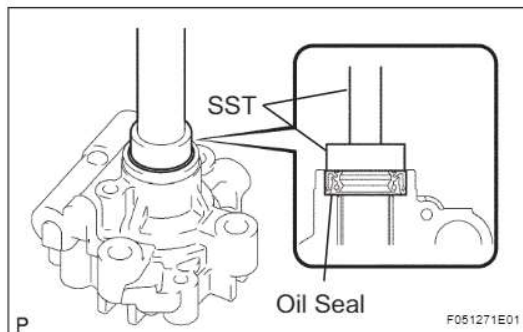
1. INSTALL VANE PUMP HOUSING OIL SEAL

- (a) Coat a new vane pump housing oil seal lip with power steering fluid.
- (b) Using SST and a press, install a new oil seal.

SST 09950-60010 (09951-00280), 09950-70010 (09951-07100)

NOTICE:

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

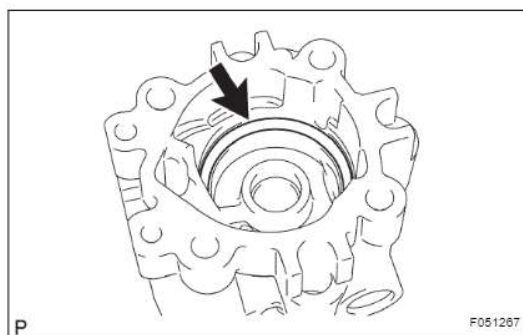


2. INSTALL PULLEY SHAFT SUB-ASSEMBLY

- (a) Coat the bushing inner surface of the vane pump housing front with power steering fluid.
- (b) Gradually insert the vane pump shaft.

NOTICE:

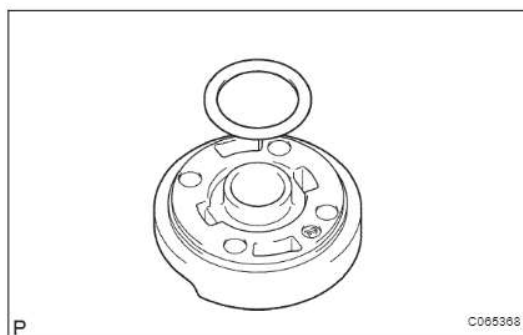
Do not damage the vane pump housing oil seal lip in the vane pump housing front.



3. INSTALL VANE PUMP FRONT SIDE PLATE

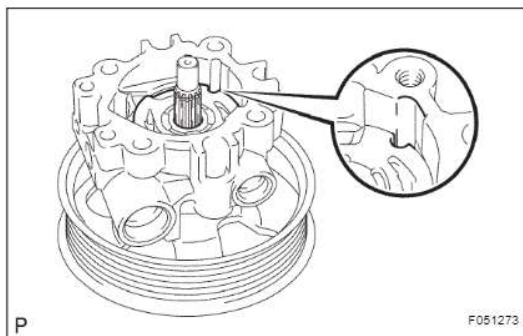
- (a) Coat a new O-ring with power steering fluid and install it onto the vane pump housing front.

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



POWER STEERING – VANE PUMP

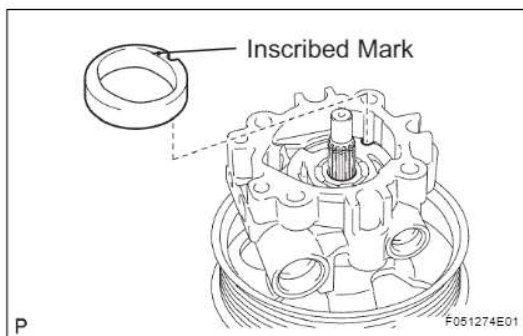
PS-13



- (c) Align the dent of the side plate with that of the vane pump housing front and install the side plate.

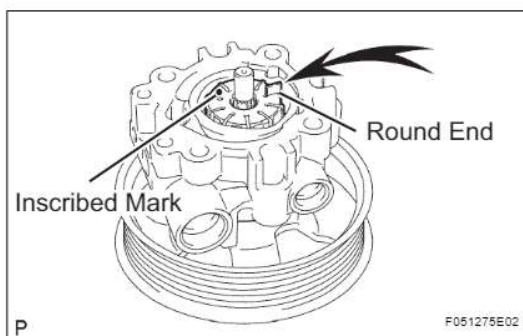
NOTICE:

Make sure that the side plate is installed facing the correct direction.

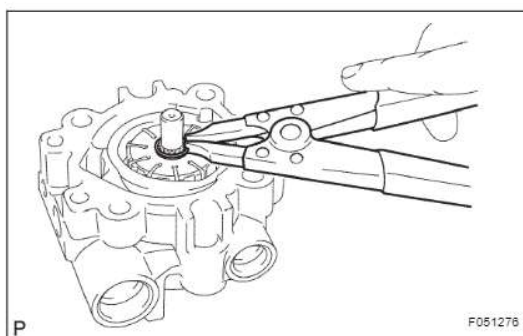
**4. INSTALL VANE PUMP CAM RING**

- (a) Align the dent of the cam ring with that of the side plate and install the cam ring with the inscribed mark facing outward.

PS

**5. INSTALL VANE PUMP ROTOR**

- (a) Install the vane pump rotor with the inscribed mark facing outward.
 (b) Coat the 10 vane plates with power steering fluid.
 (c) Install the vane plates with the round ends facing outward.

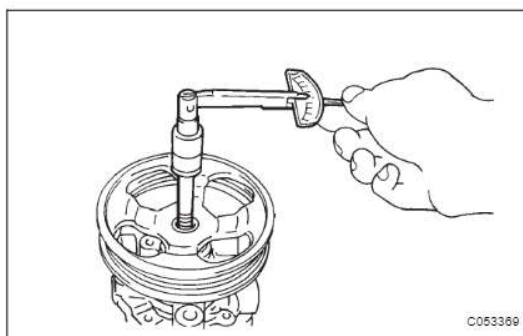


- (d) Using a snap ring expander, install a new snap ring onto the pulley shaft.

6. INSTALL VANE PUMP REAR HOUSING

- (a) Coat a new O-ring with power steering fluid and install it onto the vane pump housing rear.
 (b) Align the straight pin of the vane pump housing rear with the dents of the cam ring, side plate and vane pump housing front, and install the vane pump housing rear with the 4 bolts.

Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)

**7. INSPECT PRELOAD**

- (a) Check that the pump rotates smoothly without making any abnormal noises.
 (b) Provisionally install the service bolt.

Recommended service bolt:

Thread diameter:

10 mm (0.3937 in.)

Thread pitch:

1.25 mm (0.0492 in.)

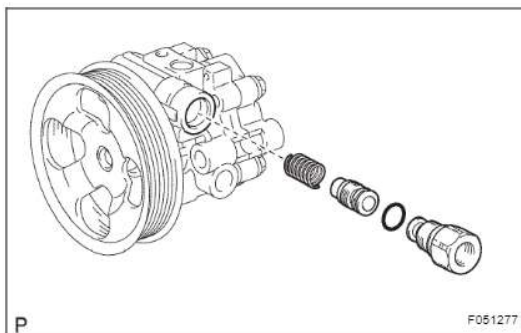
Bolt length:

50 mm (1.9685 in.)

PS-14

POWER STEERING – VANE PUMP

PS



- (c) Using a torque wrench, check the pump rotating torque.

Torque: 0.27 N*m (2.8 kgf*cm, 2.4 in.*lbf)

8. INSTALL POWER STEERING OIL PRESSURE SWITCH

- (a) Coat the O-ring with power steering fluid and install it onto the power steering oil pressure switch.
(b) Install the power steering oil pressure switch onto the vane pump.

Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)

9. INSTALL FLOW CONTROL VALVE

- (a) Coat the compression spring and flow control valve with power steering fluid.
(b) Install the compression spring and flow control valve.
(c) Coat a new O-ring with power steering fluid and install it onto the pressure port union.
(d) Install the pressure port union.

Torque: 69 N*m (704 kgf*cm, 51 ft.*lbf)

10. INSTALL POWER STEERING SUCTION PORT UNION

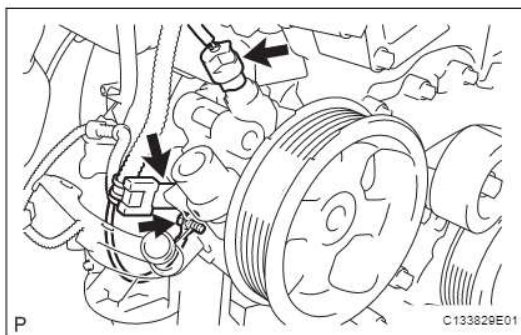
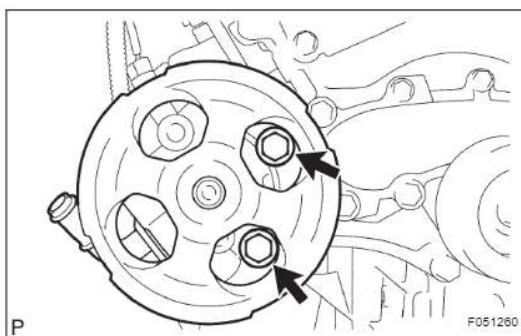
- (a) Coat a new O-ring with power steering fluid, and install it onto the suction port union.
(b) Install the suction port union with the bolt.

Torque: 12 N*m (122 kgf*cm, 9 ft.*lbf)

INSTALLATION

1. INSTALL VANE PUMP

- (a) Install the vane pump assembly with the 2 bolts.
Torque: 43 N*m (438 kgf*cm, 32 ft.*lbf)

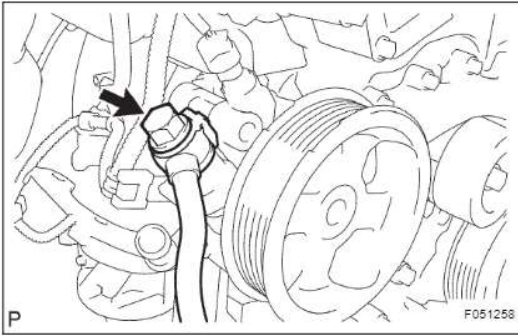


- (b) Install the wire harness clamp bracket with the bolt.
Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)

- (c) Connect the oil pressure switch connector.

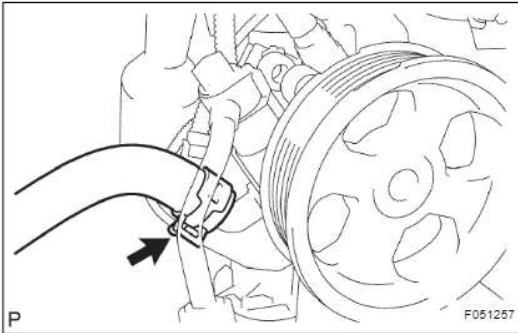
NOTICE:

Make sure that no oil adheres to the connector.

POWER STEERING – VANE PUMP**PS-15****2. CONNECT PRESSURE FEED TUBE ASSEMBLY**

- (a) Install a new gasket onto the pressure feed tube.
- (b) Install the pressure feed tube with the union bolt.

Torque: 51 N*m (520 kgf*cm, 38 ft.*lbf)

**3. CONNECT NO. 1 OIL RESERVOIR TO PUMP HOSE**

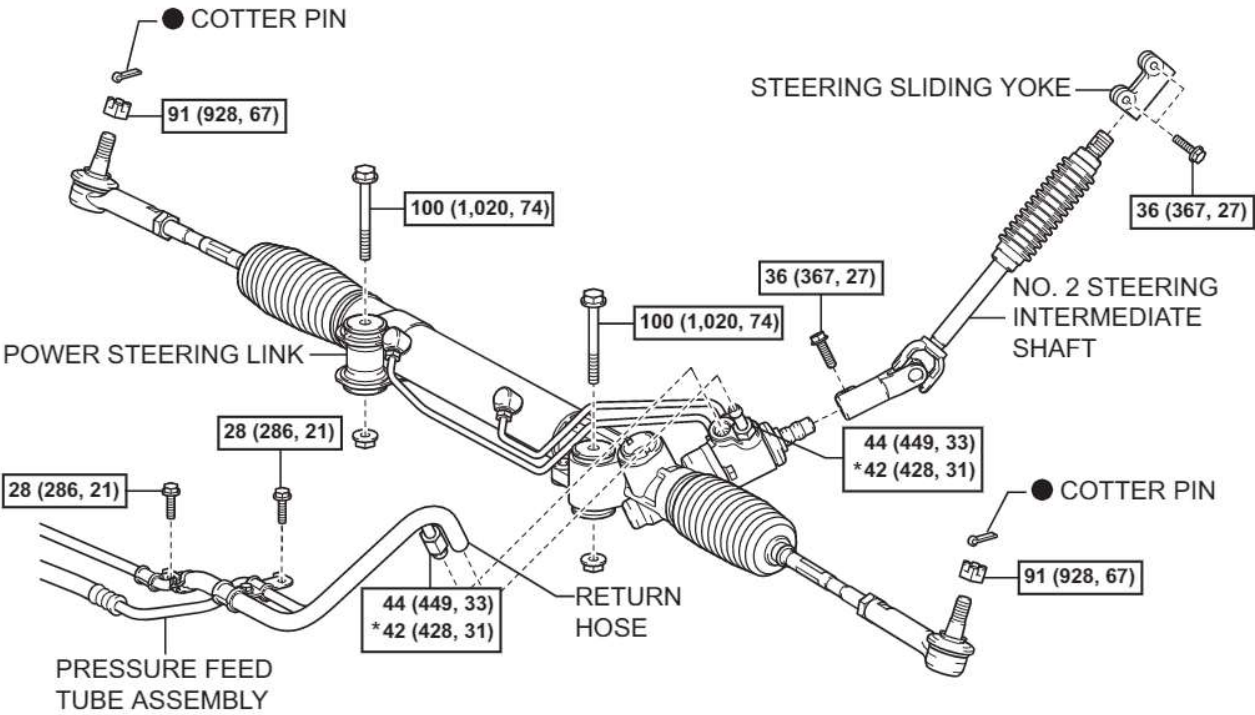
- (a) Connect the No. 1 oil reservoir to pump hose with the clip.

4. INSTALL FAN AND GENERATOR V BELT (See page [EM-6](#))**5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

6. ADD POWER STEERING FLUID**7. BLEED POWER STEERING FLUID (See page [PS-2](#))****8. CHECK FOR POWER STEERING FLUID LEAKAGE****9. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page [EM-7](#))****PS**

POWER STEERING LINK (for 2WD)
COMPONENTS

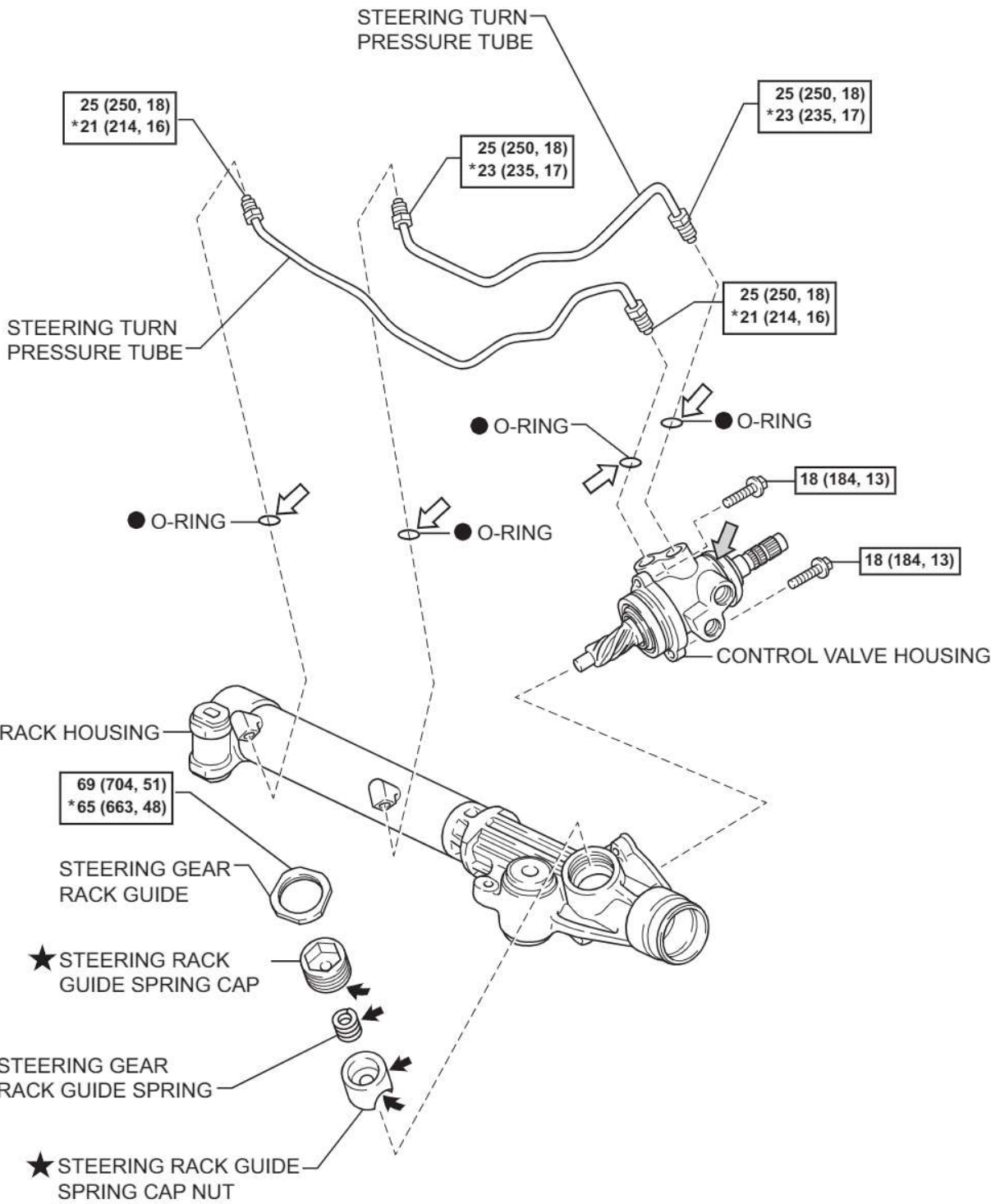


N*m (kgf*cm, ft*lb) : Specified torque ● Non-reusable part * For use with SST

PS-16

POWER STEERING – POWER STEERING LINK (for 2WD)

PS



N*m (kgf*cm, ft*lb) : Specified torque

← Molybdenum disulfide lithium base grease * For use with SST

● Non-reusable part

← Power steering fluid

★ Precoated part

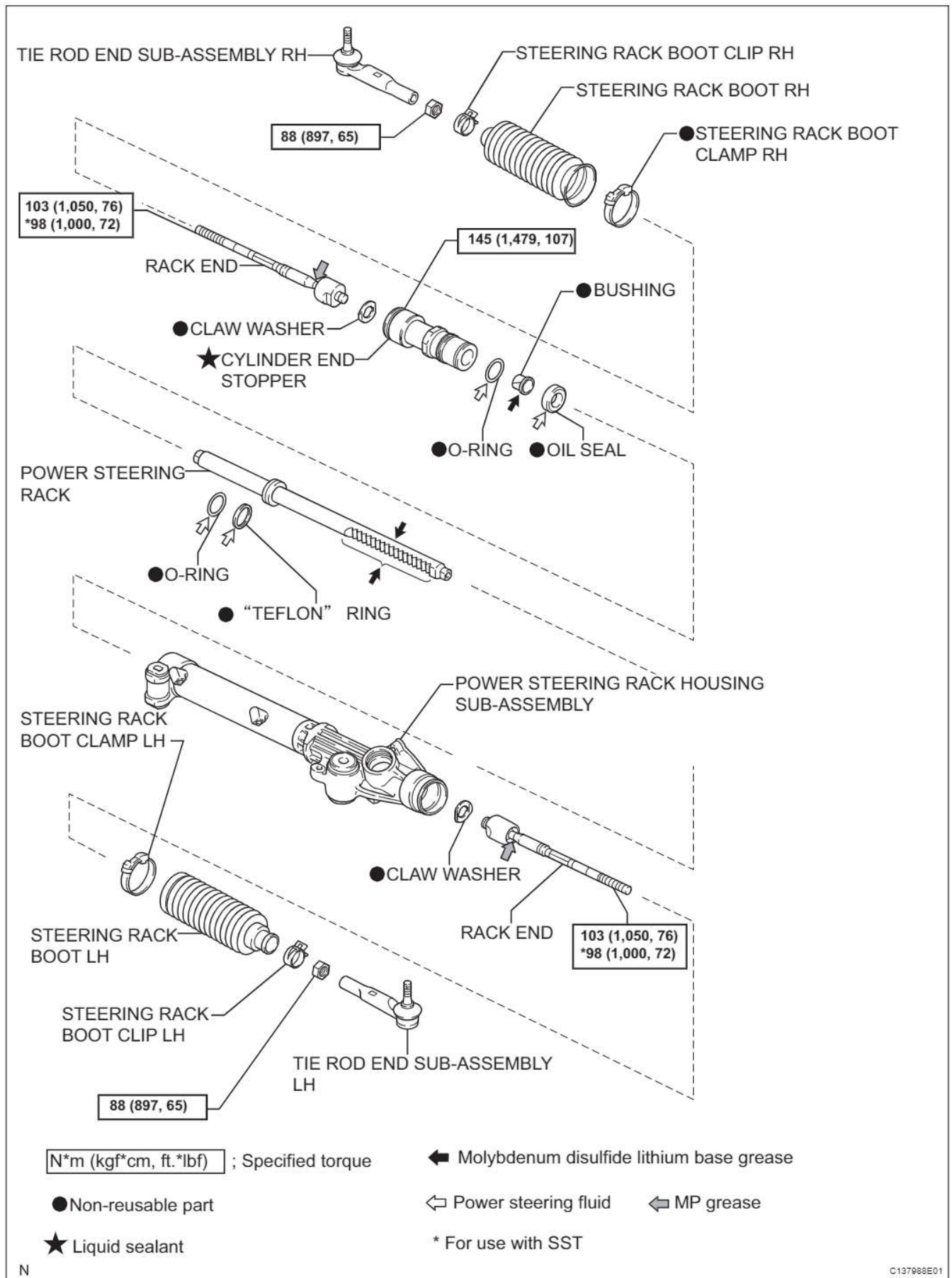
← MP grease

N

C137989E01

POWER STEERING – POWER STEERING LINK (for 2WD)

PS-17



PS

PS-18

POWER STEERING – POWER STEERING LINK (for 2WD)

REMOVAL

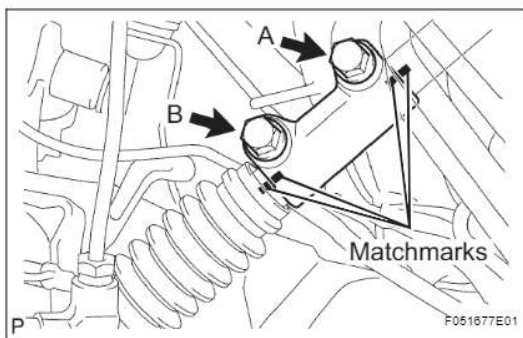
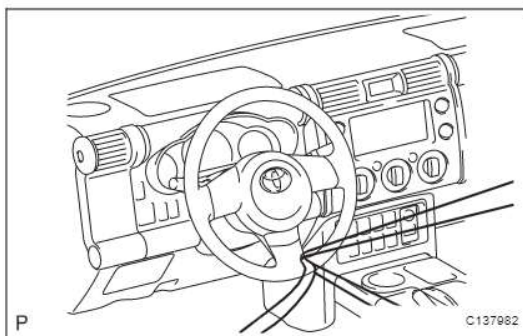
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
3. REMOVE NO.1 ENGINE UNDER COVER SUB-ASSEMBLY (See page EM-6)
4. REMOVE FAN AND GENERATOR V BELT (See page EM-6)
5. REMOVE FRONT WHEELS
6. REMOVE NO.2 STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY

- (a) Fix the steering wheel with the seat belt in order to prevent it from rotating.

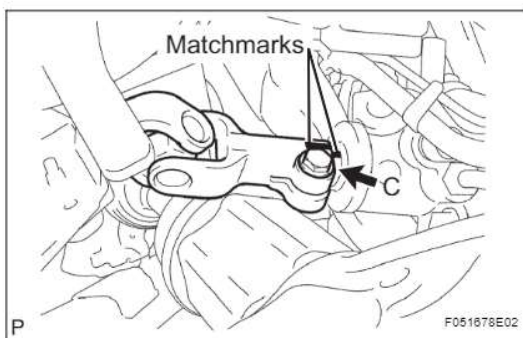
HINT:

The operation is effective for preventing any damage to the spiral cable.

PS



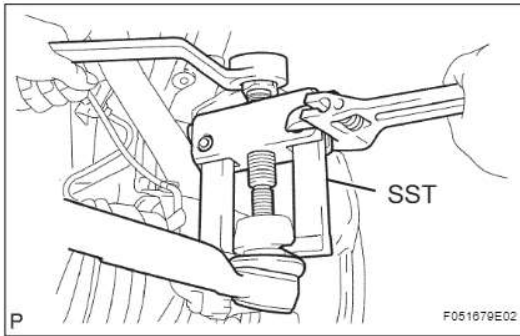
- (b) Place matchmarks on the steering sliding yoke, No. 2 steering intermediate shaft and steering intermediate shaft.
- (c) Remove bolts A and B from the steering sliding yoke.
- (d) Slide the steering sliding yoke up and separate it from the No. 2 steering intermediate shaft.
- (e) Pull down the steering sliding yoke from the steering intermediate shaft to remove it.



- (f) Place matchmarks on the No. 2 steering intermediate shaft and power steering link.
- (g) Remove bolt C from the No. 2 steering intermediate shaft.
- (h) Slide the No. 2 steering intermediate shaft up and remove it from the power steering link.

7. SEPARATE TIE ROD END SUB-ASSEMBLY LH

- (a) Remove the cotter pin and nut.

POWER STEERING – POWER STEERING LINK (for 2WD)**PS-19**

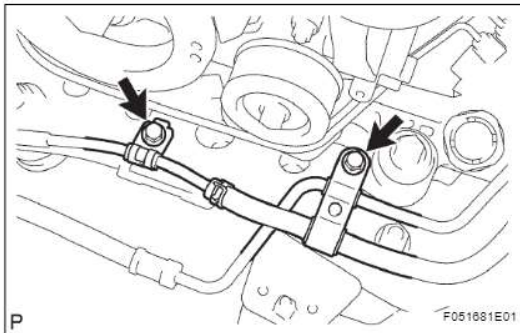
- (b) Using SST, separate the tie rod end from the steering knuckle arm.

SST 09628-62011

8. SEPARATE TIE ROD END SUB-ASSEMBLY RH

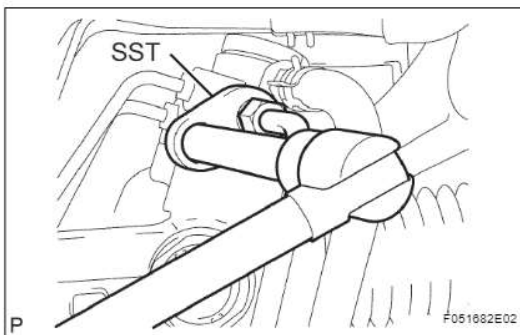
HINT:

The removal procedure for the RH side is the same as that for the LH side.



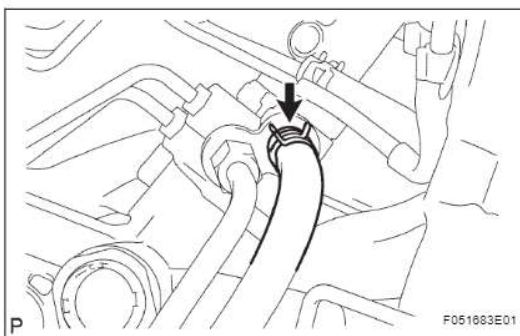
9. SEPARATE PRESSURE FEED TUBE ASSEMBLY

- (a) Remove the 2 bolts and separate the tube support brackets.

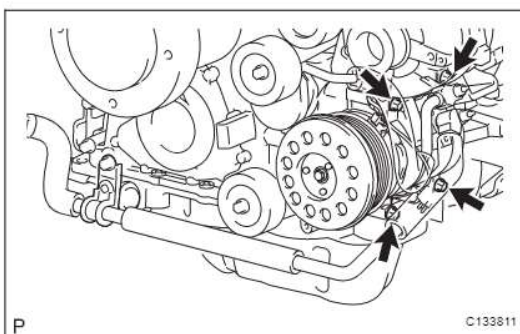


- (b) Using SST, loosen the flare nut and separate the pressure feed tube.

SST 09023-12701



- (c) Disengage the clip and disconnect the return hose.



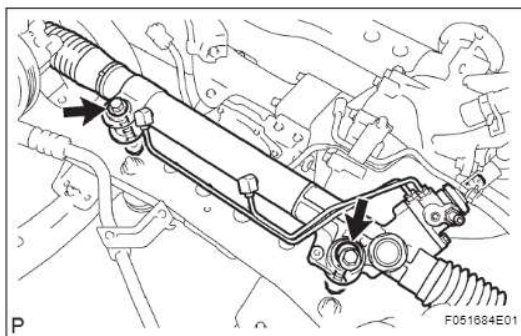
10. SEPARATE COOLER COMPRESSOR ASSEMBLY

- (a) Remove the 4 bolts and remove the cooler compressor and magnetic clutch.

PS

PS-20

POWER STEERING – POWER STEERING LINK (for 2WD)

**11. REMOVE POWER STEERING LINK**

- (a) Remove the 2 bolts and 2 nuts.

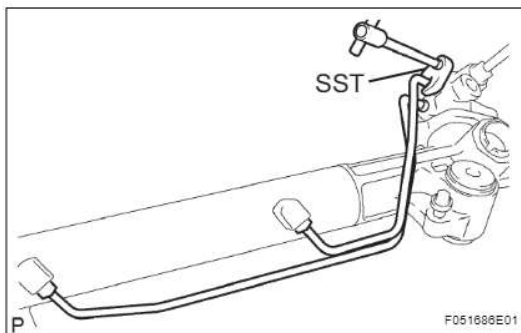
NOTICE:

The nut has a detent, so never turn the nut. Be sure to turn only the bolt.

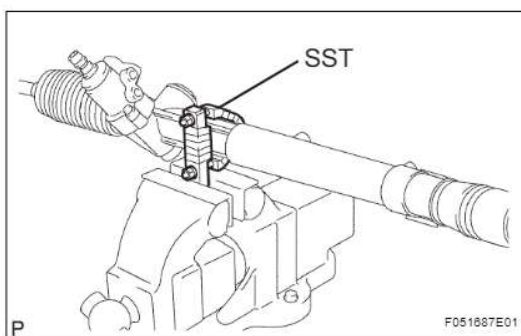
- (b) Tilt the transmission and remove the power steering link.

DISASSEMBLY**1. FIX POWER STEERING LINK**

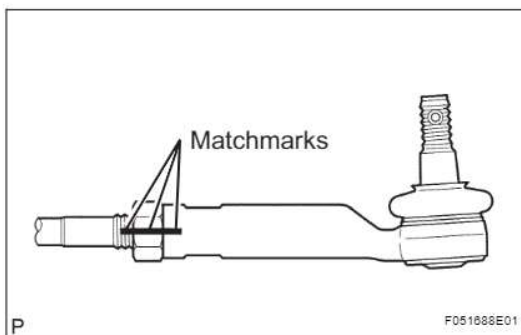
- (a) Using SST, remove the 2 turn pressure tubes.
SST 09023-38201



- (b) Using SST, fix the steering link between aluminum plates in a vise, as shown in the illustration.
SST 09612-00012

**2. REMOVE TIE ROD END SUB-ASSEMBLY LH**

- (a) Place matchmarks on the tie rod end, lock nut and rack end.
(b) Loosen the lock nut and remove the tie rod end and lock nut.

**3. REMOVE TIE ROD END SUB-ASSEMBLY RH****HINT:**

Use the same procedures described for the LH side.

4. REMOVE STEERING RACK BOOT CLAMP LH

- (a) Using pliers and a screwdriver, loosen the clamp.

HINT:

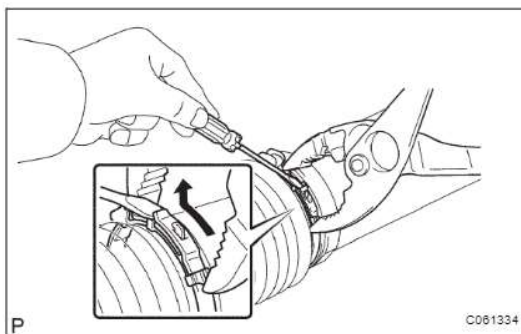
Mark the RH and LH boots.

NOTICE:

Be careful not to damage the boot.

5. REMOVE STEERING RACK BOOT CLAMP RH**HINT:**

Use the same procedures described for the LH side.



POWER STEERING – POWER STEERING LINK (for 2WD)**PS-21****6. REMOVE STEERING RACK BOOT CLIP LH**

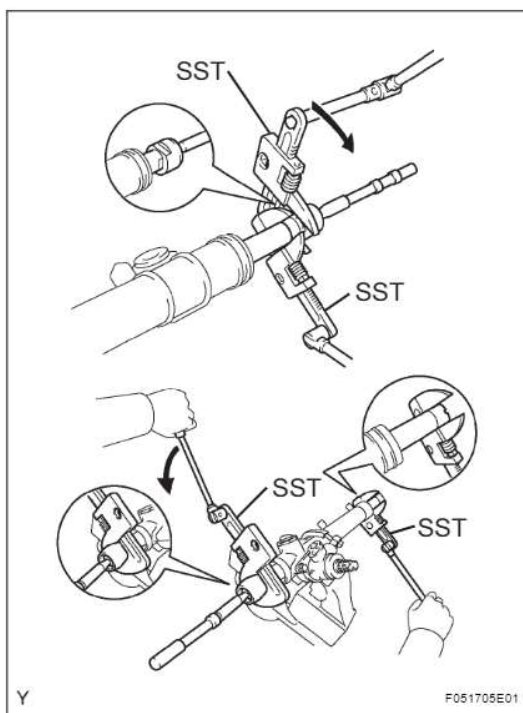
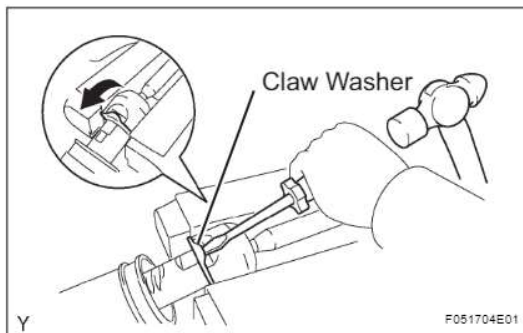
- (a) Using pliers, remove the clip.

NOTICE:**Be careful not to damage the boot.****7. REMOVE STEERING RACK BOOT CLIP RH****HINT:**

Use the same procedures described for the LH side.

8. REMOVE STEERING RACK BOOT LH**9. REMOVE STEERING RACK BOOT RH****10. REMOVE STEERING RACK END SUB-ASSEMBLY**

- (a) Using a screwdriver and hammer, stake back the 2 washers (LH and RH sides).

NOTICE:**Do not strike the steering rack.**

- (b) Using a wrench, hold the steering rack (LH side).

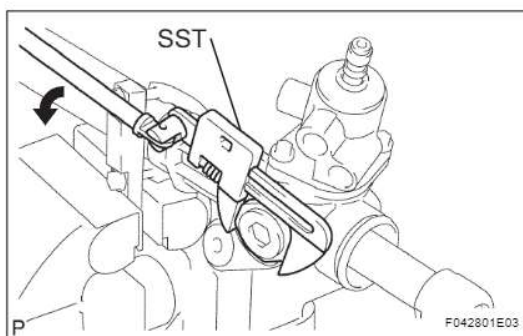
- (c) Using SST, remove the steering rack end (LH side) from the power steering rack.

SST 09922-10010**NOTICE:****Rotate SST in the direction shown in the illustration.**

- (d) Using SST, remove the steering rack end (RH side) from the power steering rack.

SST 09922-10010**NOTICE:****Rotate SST in the direction shown in the illustration.**

- (e) Remove the 2 claw washers.

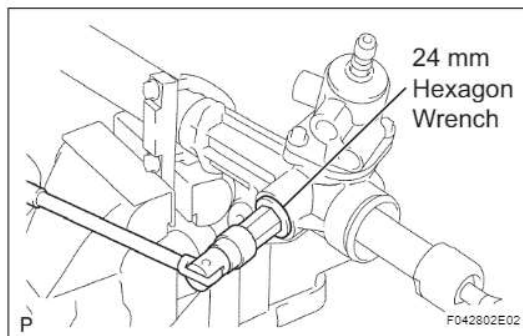
**11. REMOVE RACK GUIDE**

- (a) Using SST, remove the lock nut.

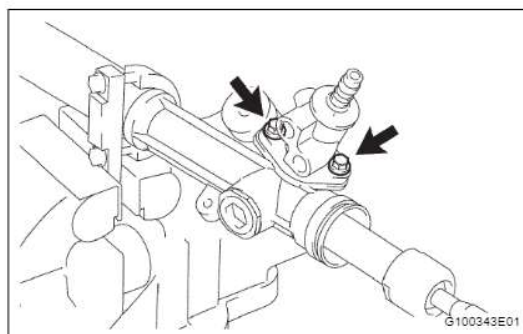
SST 09922-10010

- (b) Remove the claw washer.

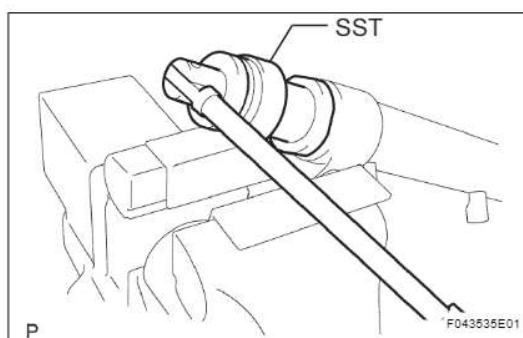
NOTICE:**Rotate SST in the direction shown in the illustration.****PS**

PS-22**POWER STEERING – POWER STEERING LINK (for 2WD)**

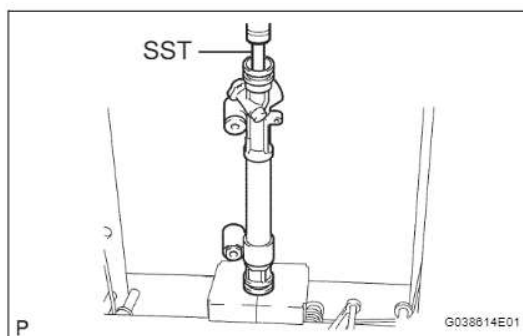
- (c) Using a 24 mm hexagon wrench, remove the rack guide spring cap.
- (d) Remove the spring and rack guide.

PS**12. REMOVE POWER STEERING CONTROL VALVE**

- (a) Remove the 2 bolts.
- (b) Pull out the control valve off the rack housing.

**13. REMOVE CYLINDER END STOPPER**

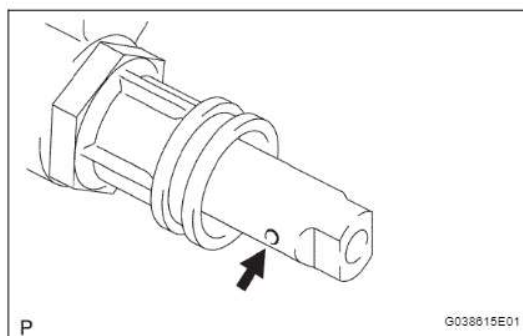
- (a) Using SST, remove the stopper.
SST 09631-20120

**14. REMOVE STEERING RACK AND OIL SEAL**

- (a) Using SST, press out the steering rack and oil seal.
SST 09950-70010 (09951-07200)

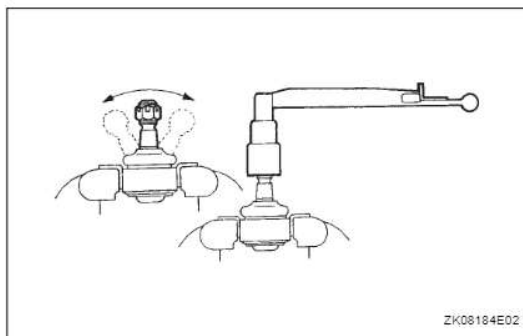
NOTICE:**Take care not to drop the steering rack.**

- (b) Remove the oil seal from the steering rack.

**15. INSPECT POWER STEERING RACK**

- (a) Insert a wire 20 mm (0.79 in.) into the vent hole of the steering rack and ensure that the vent hole is not clogged with grease.

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

POWER STEERING – POWER STEERING LINK (for 2WD)**PS-23****16. INSPECT TIE ROD END SUB-ASSEMBLY LH**

- Flip the ball joint stud back and forth 5 times as shown in the illustration, before installing the nut.
- Using a torque wrench, turn the nut continuously at a rate of 2 to 4 seconds per turn and take the torque reading on the 5th turn.

Torque: (turning)

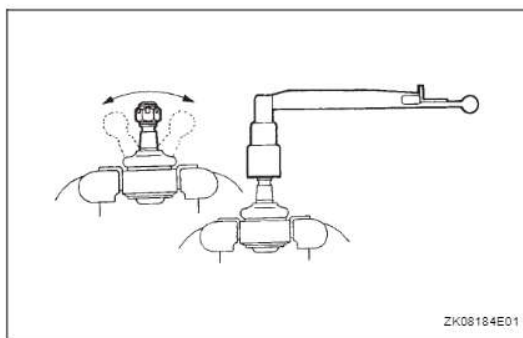
0.29 to 1.96 N*m (2.96 to 20 kgf*cm, 2.56 to 17.35 in.*lbf)

17. INSPECT TIE ROD END SUB-ASSEMBLY RH**HINT:**

Use the same procedures described for the LH side.

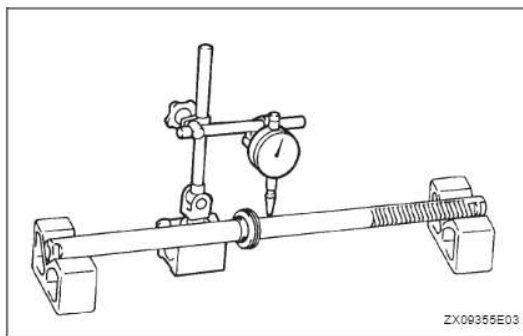
18. REMOVE STEERING RACK PISTON RING

- Using a screwdriver, remove the "Teflon" ring and O-ring from the steering rack.

NOTICE:**Be careful not to damage the groove of the ring.****PS****INSPECTION****1. INSPECT TIE ROD END SUB-ASSEMBLY**

- Flip the ball joint stud back and forth 5 times as shown in the illustration before installing the nut.
- Using a torque wrench, turn the nut continuously at a rate of 2 to 4 seconds per turn and check the torque reading on the 5th turn.

Torque: 0.29 to 1.96 N*m (2.96 to 20 kgf*cm, 2.56 to 17.35 in.*lbf)

**2. INSPECT POWER STEERING RACK**

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

Maximum runout:**0.3 mm (0.012 in.)**

If necessary, replace the power steering link assembly.

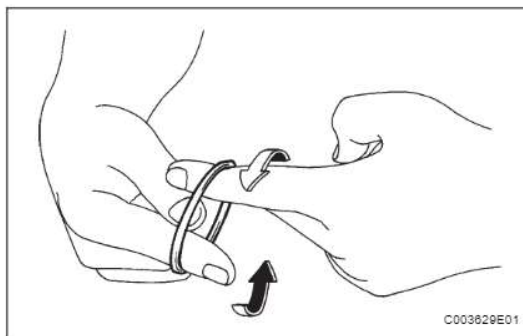
- Check the back surface for wear and damage. If necessary, replace the power steering link assembly.

REASSEMBLY**1. INSTALL STEERING RACK PISTON RING**

- Coat a new O-ring with power steering fluid and install it on the steering rack.
- Stretch a new "Teflon" ring with your fingers.

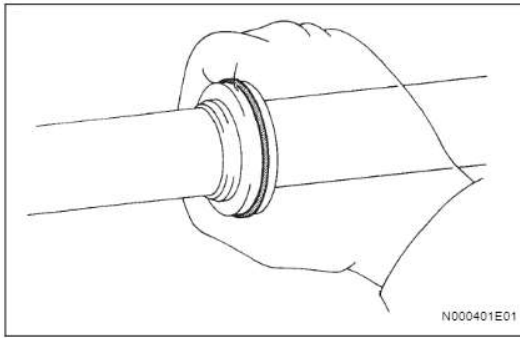
NOTICE:**Be careful not to overstretch the teflon ring.**

- Coat the "Teflon" ring with power steering fluid.



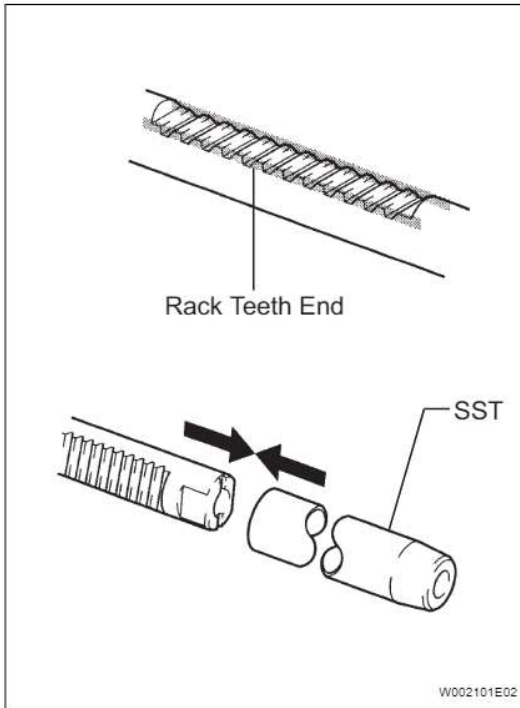
PS-24

POWER STEERING – POWER STEERING LINK (for 2WD)



- (d) Install the "Teflon" ring into the steering rack's groove. Grip the ring to press it into the groove.

PS



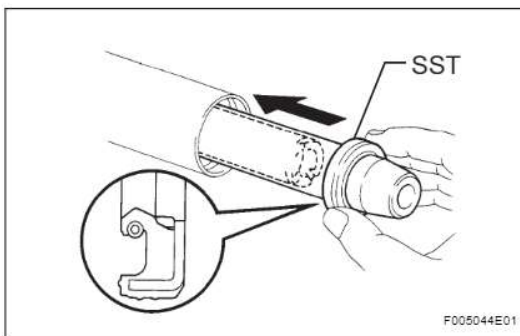
2. INSTALL POWER STEERING RACK

- (a) Apply grease onto the rack teeth ends.
(b) Install SST onto the steering rack.

SST 09631-00350**HINT:**

If necessary, scrape the burrs off the rack teeth end and burnish.

- (c) Coat SST and the power piston oil seal with power steering fluid.
(d) Install the steering rack onto the rack housing.
(e) Remove SST.

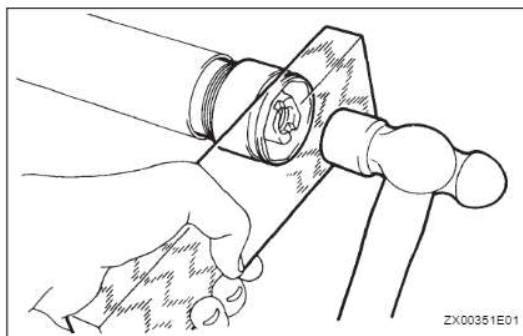


- (f) Coat SST with power steering fluid.
SST 09631-00350
(g) Install SST onto the steering rack opposite end.
(h) Coat the lip of a new oil seal with power steering fluid. Using SST, install the oil seal onto the steering rack.

NOTICE:

- Slide SST and the oil seal straight without tilting them.
- Install the oil seal facing in the correct direction.
- Be careful not to damage the lip of the oil seal.

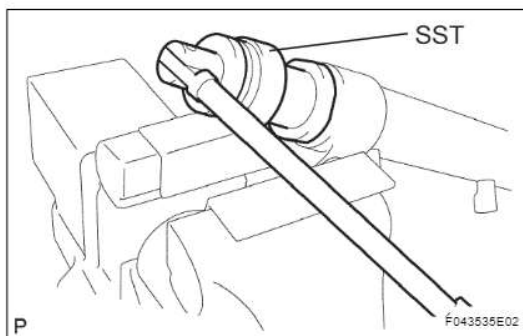
- (i) Remove SST.

POWER STEERING – POWER STEERING LINK (for 2WD)**PS-25****3. INSTALL CYLINDER END STOPPER**

- (a) Apply sealant to the stopper.
- (b) Using a wooden block and hammer, tap in the stopper until it is tightly installed.

Sealant:

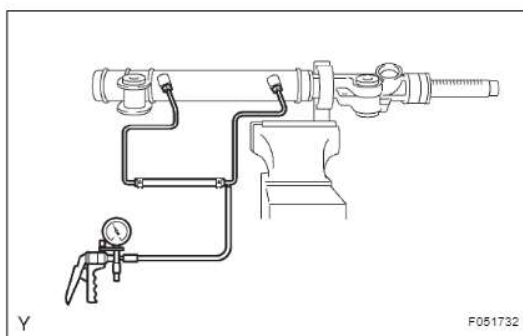
**Part No. 08833-00080, THREE BOND 1344,
LOCTITE 242 or the equivalent**



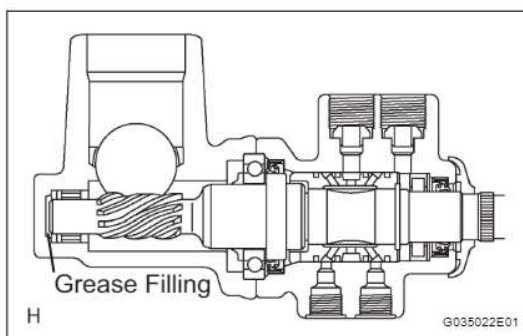
- (c) Using SST, tighten the stopper.

SST 09631-20120

Torque: 145 N*m (1,479 kgf*cm, 107 ft.*lbf)

PS**4. TEST AIR TIGHTNESS**

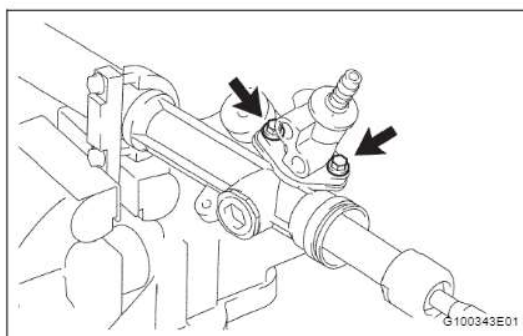
- (a) Install SST onto the unions of the rack housing.
SST 09631-12071 (09633-00010)
- (b) Apply 53.33 kPa (400 mmHg, 15.75 in.Hg) of vacuum for about 30 seconds.
- (c) Check that there is no change in the vacuum. If there is a change in the vacuum, check the installation of the oil seals.

**5. INSTALL POWER STEERING CONTROL VALVE**

- (a) Apply molybdenum disulfide base grease to the needle roller bearing inside the rack housing shown in the illustration.

Volume of grease applied:

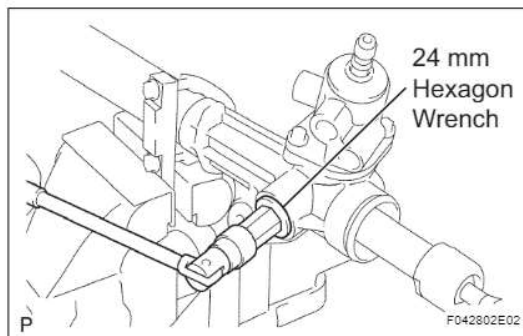
Approximately 2 g (0.07 oz)



- (b) Install the control valve with the 2 bolts.
Torque: 18 N*m (185 kgf*cm, 13 ft.*lbf)

PS-26

POWER STEERING – POWER STEERING LINK (for 2WD)



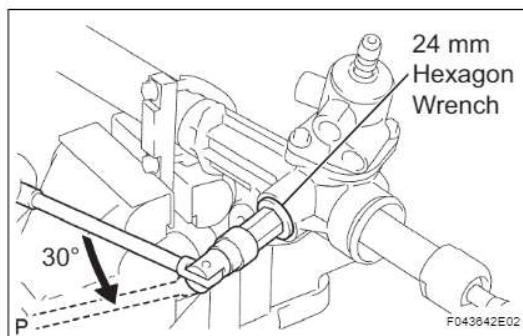
6. INSTALL RACK GUIDE

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

Sealant:

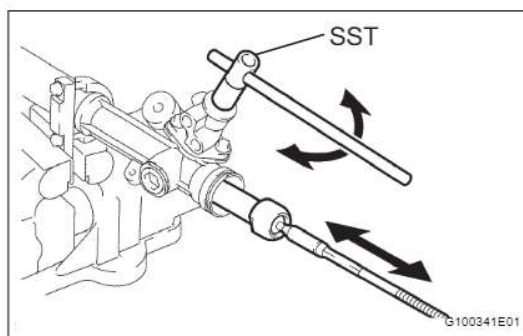
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or the equivalent

- (c) Using a 24 mm hexagon wrench, temporarily install the spring cap.



7. ADJUST TOTAL PRELOAD

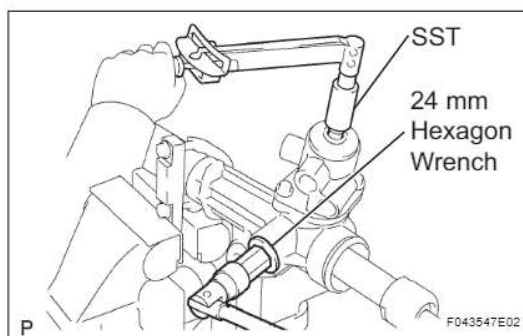
- (a) To prevent the steering rack teeth from damaging the lip of the oil seal, temporarily install the RH and LH rack ends.
- (b) Using a 24 mm hexagon wrench, tighten the rack guide spring cap.
Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf)
- (c) Loosen the cap 30°.



- (d) Using SST, turn the control valve shaft right and left 1 or 2 times. The rack end will move in and out.

SST 09616-00011

- (e) Using a 24 mm hexagon wrench, loosen the cap until the rack guide spring does not function.



- (f) Using SST, a torque wrench and 24 mm hexagon wrench, tighten the cap until the preload is within the specification.
SST 09616-00011
Torque: Preload (turning)
0.8 to 1.6 N*m (8.2 to 16.3 kgf*cm, 7.1 to 14.2 in.*lbf)

NOTICE:

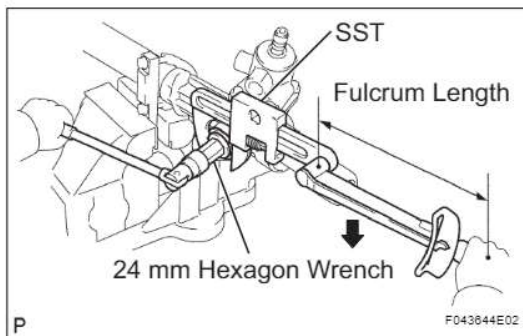
Perform adjustments in the tightening direction of the spring cap.

- (g) Apply sealant to 2 or 3 threads of the lock nut.

Sealant:

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

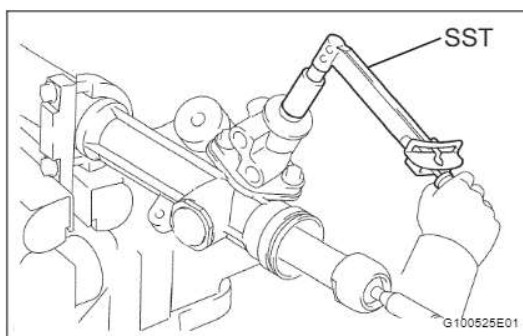
- (h) Temporarily install the lock nut.

POWER STEERING – POWER STEERING LINK (for 2WD)**PS-27**

- (i) Using a 24 mm hexagon wrench, hold the rack guide spring cap. Using SST, torque the nut.

SST 09922-10010**Torque: 69 N*m (704 kgf*cm, 51 ft.*lbf) for use without SST****65 N*m (660 kgf*cm, 48 ft.*lbf) for use with SST****NOTICE:****Rotate SST in the direction shown in the illustration.****HINT:**

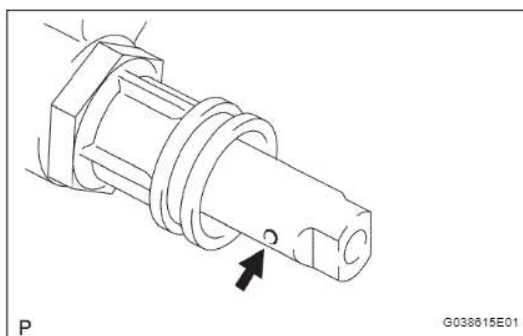
Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).



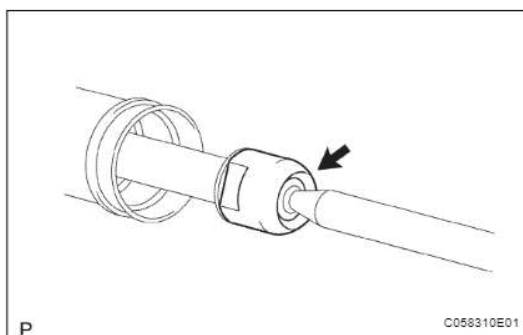
- (j) Using SST, recheck the total preload.

Torque: Preload (turning)**0.8 to 1.6 N*m (8.2 to 1.6 kgf*cm, 1.1 to 14.2 in.*lbf)****SST 09616-00011**

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

**8. INSPECT POWER STEERING RACK**

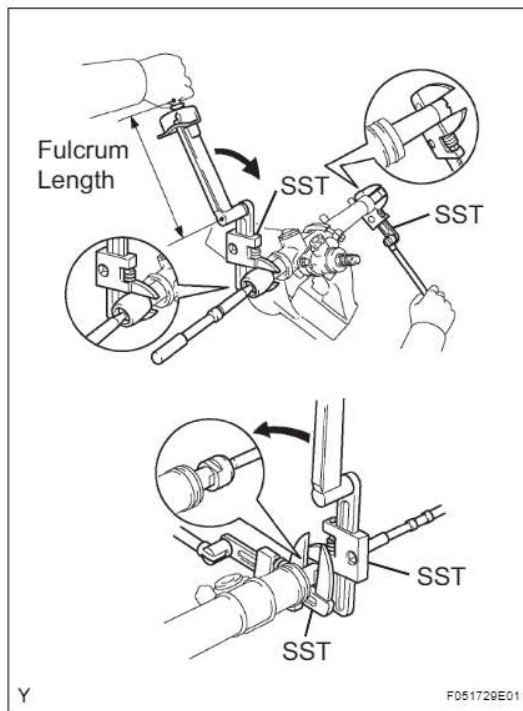
- (a) Insert a wire 20 mm (0.79 in.) into the vent hole of the steering rack, and ensure that the vent hole is not clogged with grease.

NOTICE:**If the hole is clogged, the pressure inside the boot will change after it is assembled and the steering wheel is turned.****9. INSTALL STEERING RACK END SUB-ASSEMBLY**

- (a) Install 2 new claw washers onto the power steering rack while aligning the notch on the steering rack end with the claw.
 (b) Temporarily install the 2 steering rack ends onto the power steering rack.
 (c) Fill up the ball joint of the steering rack ends with MP grease.

PS-28

POWER STEERING – POWER STEERING LINK (for 2WD)



- (d) Using SST, install the power steering rack end (LH side) onto the power steering rack.

SST 09922-10010

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf) for use without SST

98 N*m (1,000 kgf*cm, 72 ft.*lbf) for use with SST

NOTICE:

- Rotate SST in the direction shown in the illustration.
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (e) Using SST and a wrench, install the power steering rack (LH side).

SST 09922-10010

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf) for use without SST

98 N*m (1,000 kgf*cm, 72 ft.*lbf) for use with SST

NOTICE:

- Rotate SST in the direction shown in the illustration.
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (f) Using a brass bar and hammer, stake the 2 claw washers (LH and RH sides).

NOTICE:

Do not strike the steering rack.

10. INSTALL STEERING RACK BOOT LH

- (a) Install the boot.

NOTICE:

Be careful not to damage or twist the boot.

11. INSTALL STEERING RACK BOOT RH

HINT:

Use the same procedures described for the LH side.

12. INSTALL STEERING RACK BOOT CLAMP LH

- (a) Using the pliers and screwdriver, install the rack boot clamp, as shown in the illustration.

13. INSTALL STEERING RACK BOOT CLAMP RH

HINT:

Use the same procedures described for the LH side.

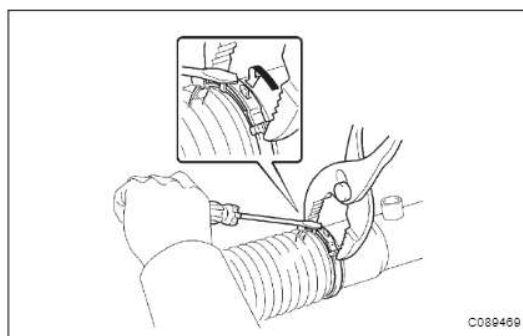
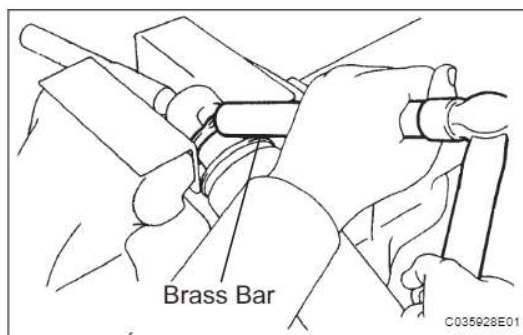
14. INSTALL STEERING RACK BOOT CLIP LH

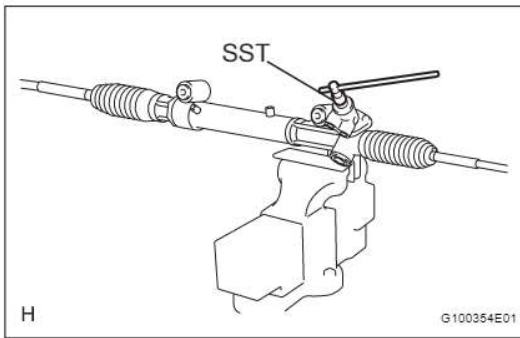
- (a) Using pliers, install the clip.

15. INSTALL STEERING RACK BOOT CLIP RH

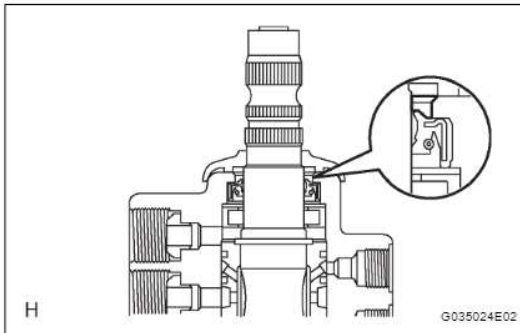
HINT:

Use the same procedures described for the LH side.

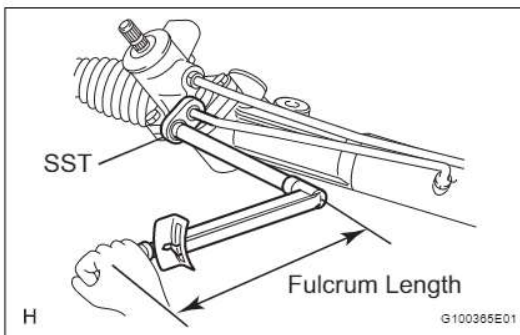


POWER STEERING – POWER STEERING LINK (for 2WD)**PS-29****16. INSTALL POWER STEERING LINK**

- (a) Using SST, check that the rack boot stretches smoothly when the control valve shaft is being rotated.

SST 09616-00011

- (b) Apply MP grease as shown in the illustration.
(c) Install the dust cover.

**17. INSTALL STEERING TURN PRESSURE TUBE**

- (a) Apply power steering fluid to 2 new O-rings. Using SST, install the 2 O-rings and the LH steering turn pressure tube.

SST 09023-38201**Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf) for use without SST****23 N*m (230 kgf*cm, 17 ft.*lbf) for use with SST****HINT:**

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- This torque value is effective when SST is parallel to the torque wrench.

- (b) Apply power steering fluid to 2 new O-rings. Using SST, install the 2 O-rings and the RH steering turn pressure tube.

SST 09023-38201**Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf) for use without SST****23 N*m (235 kgf*cm, 17 ft.*lbf) for use with SST****HINT:**

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- This torque value is effective when SST is parallel to the torque wrench.

PS

PS-30

POWER STEERING – POWER STEERING LINK (for 2WD)

INSTALLATION

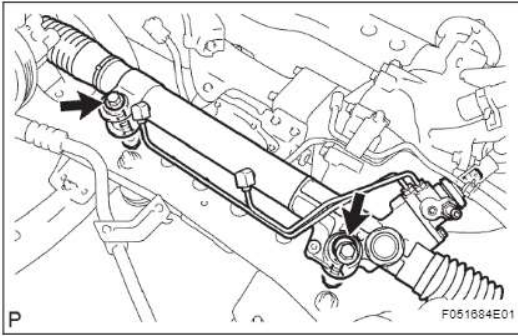
1. INSTALL POWER STEERING LINK

- (a) Install the power steering link with the 2 bolts and 2 nuts.

Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

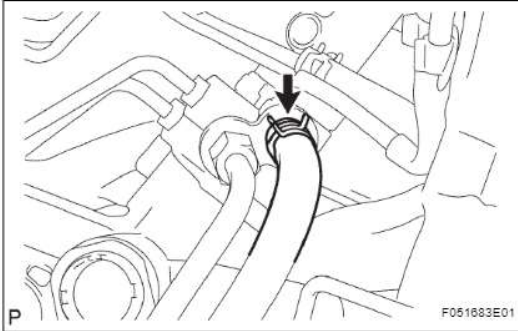
NOTICE:

Never turn the nut since it has a detent. Be sure to turn only the bolt.



2. INSTALL PRESSURE FEED TUBE ASSEMBLY

- (a) Connect the return hose with the clip.



- (b) Using SST, tighten the flare nut and connect the pressure feed tube.

SST 09023-12701

Torque: for use without SST

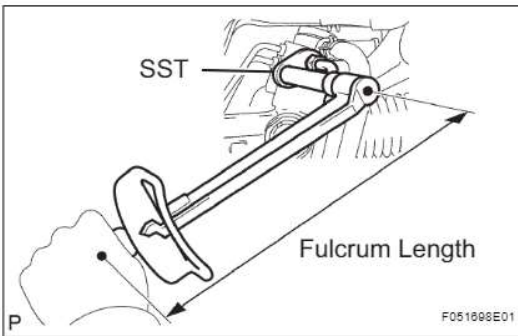
44 N*m (449 kgf*cm, 33 ft.*lbf)

for use with SST

42 N*m (420 kgf*cm, 31 ft.*lbf)

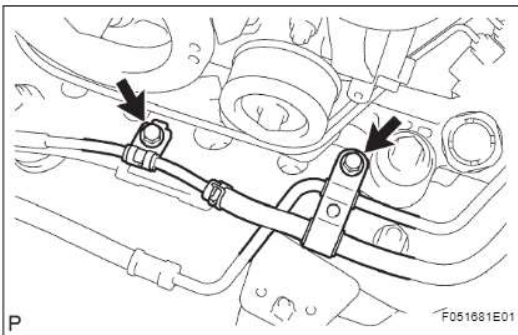
HINT:

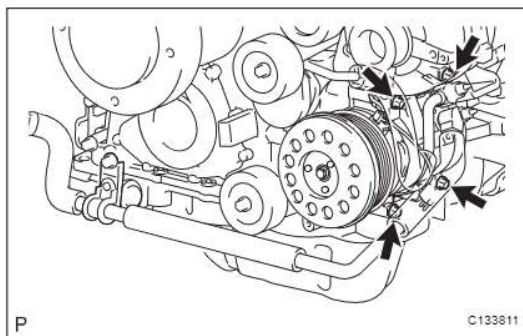
- Use a torque wrench with a fulcrum length of 300 mm (11.81 in.).
- This torque value is effective when SST is parallel to the torque wrench.



- (c) Install the tube support brackets with the 2 bolts.

Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)



POWER STEERING – POWER STEERING LINK (for 2WD)**PS-31****3. INSTALL COOLER COMPRESSOR ASSEMBLY**

- (a) Install the cooler compressor and magnetic clutch with the 4 bolts.

4. INSTALL TIE ROD END SUB-ASSEMBLY LH

- (a) Install the tie rod end onto the steering knuckle arm.
(b) Install the nut.

Torque: 91 N*m (928 kgf*cm, 67 ft.*lbf)

- (c) Install a new cotter pin.

5. INSTALL TIE ROD END SUB-ASSEMBLY RH

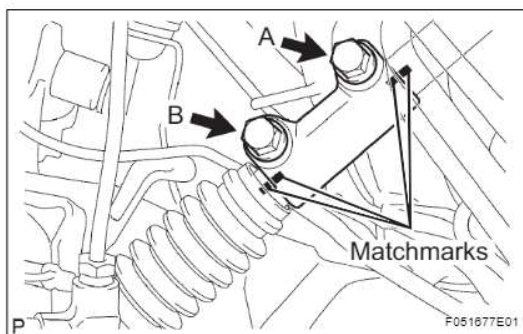
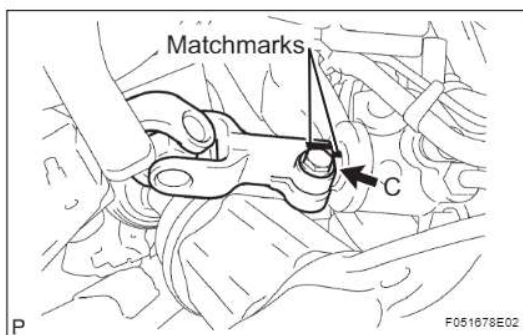
HINT:

The installation procedure for the RH side is the same as that for the LH side.

6. INSTALL NO. 2 STEERING INTERMEDIATE SHAFT

- (a) Align the matchmarks on the No. 2 steering intermediate shaft and power steering link.
(b) Install the No. 2 steering intermediate shaft onto the power steering link with bolt C.

Torque: 36 N*m (367 kgf*cm, 27 ft.*lbf)



- (c) Align the matchmarks on the steering intermediate shaft and steering sliding yoke.
(d) Install the steering sliding yoke onto the steering intermediate shaft and slide it upward.
(e) Align the matchmarks on the steering sliding yoke and No. 2 steering intermediate shaft.
(f) Install the steering sliding yoke with bolts A and B.

Torque: 36 N*m (367 kgf*cm, 27 ft.*lbf)

7. REMOVE FAN AND GENERATOR V BELT (See page [EM-6](#))**8. INSTALL FRONT WHEELS**

Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)

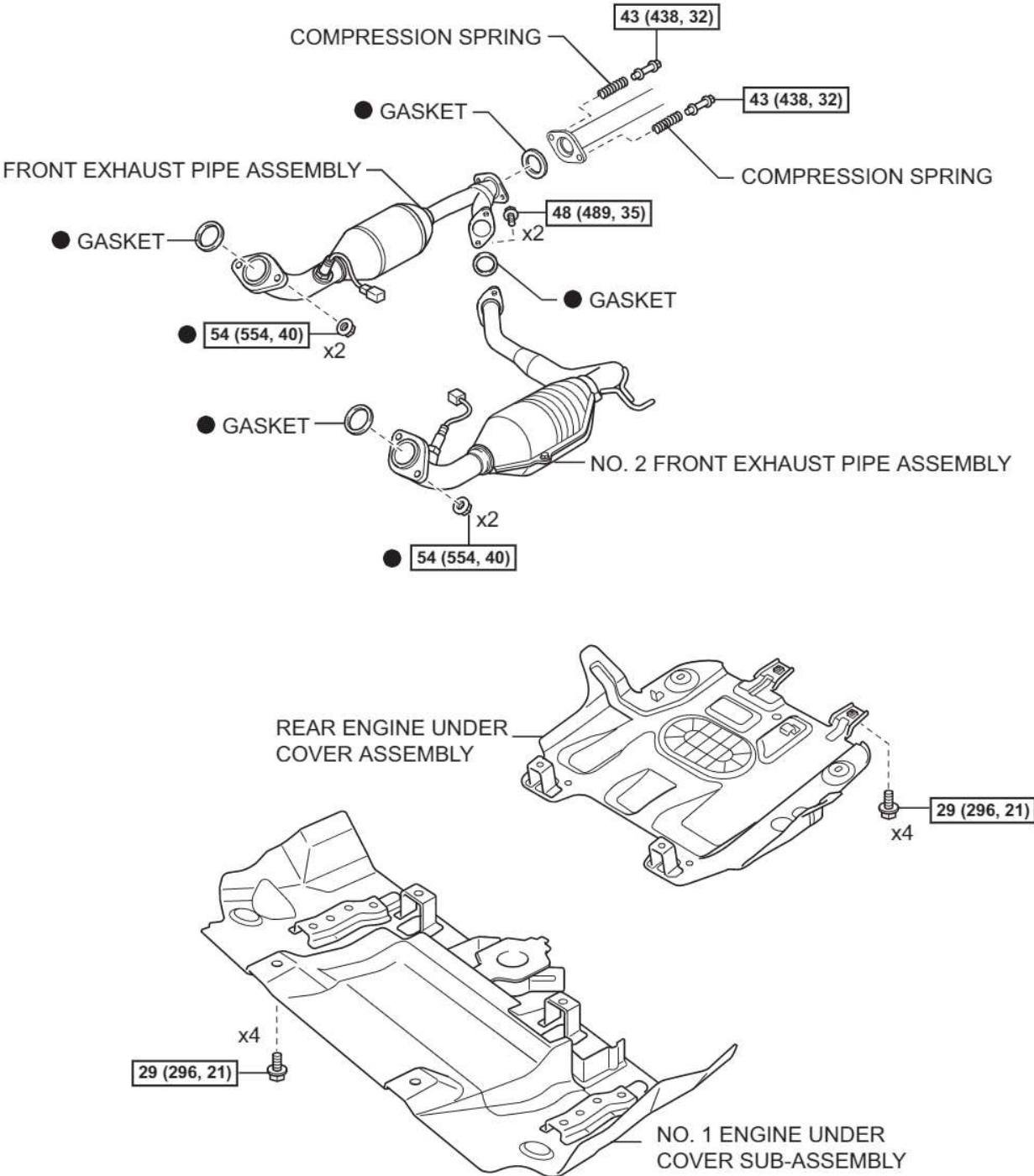
9. PLACE FRONT WHEELS FACING STRAIGHT AHEAD**10. INSPECT STEERING WHEEL CENTER POINT****11. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

12. ADD POWER STEERING FLUID**13. BLEED POWER STEERING FLUID (See page [PS-2](#))****14. CHECK FOR POWER STEERING FLUID LEAKAGE****15. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT (See page [SP-2](#))****16. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page [EM-7](#))****PS**

POWER STEERING LINK (for 4WD)
COMPONENTS

PS



N*m (kgf*cm, ft*lb) :Specified torque

● Non-reusable part

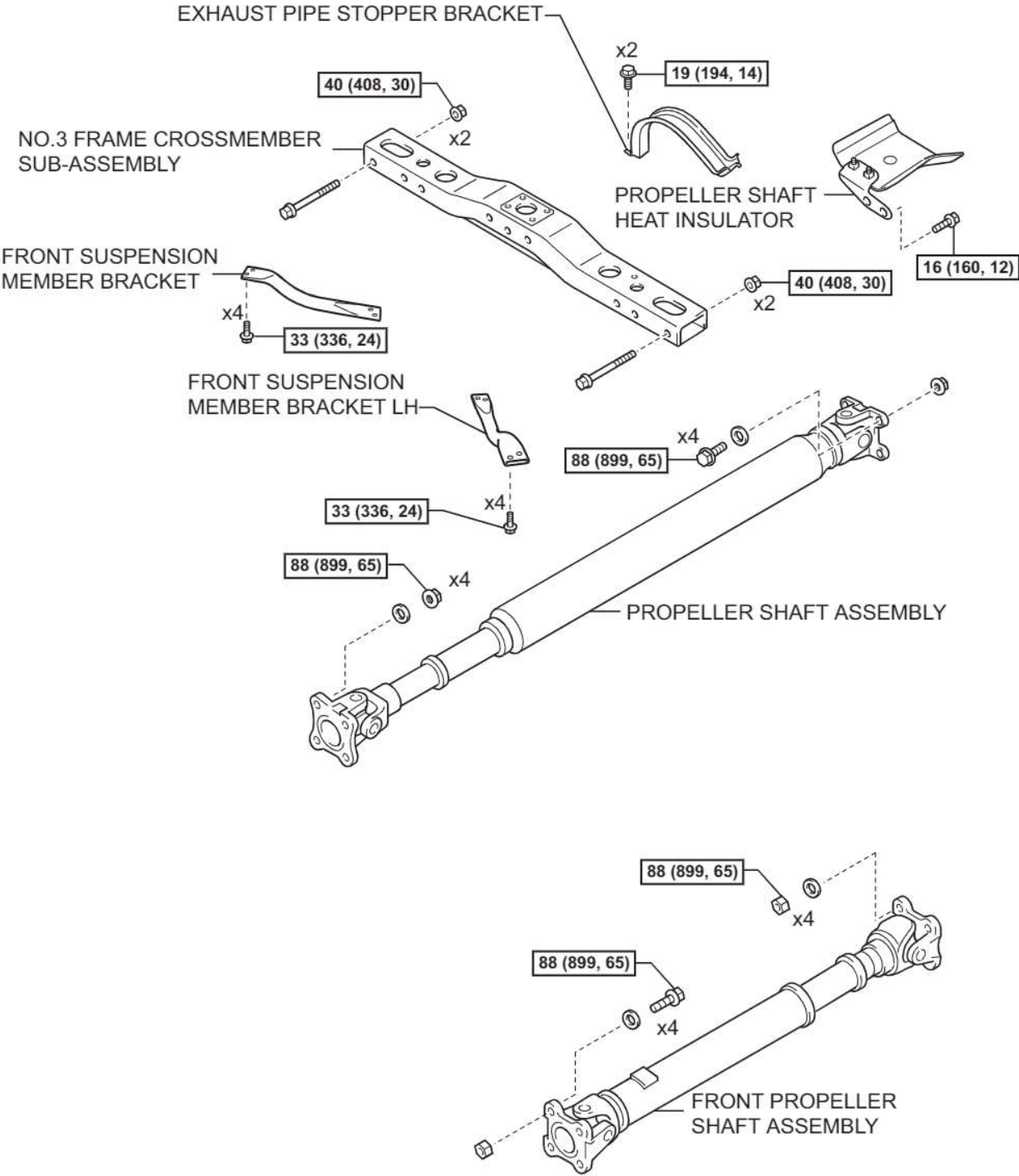
Y

C133785E01

POWER STEERING – POWER STEERING LINK (for 4WD)

PS-33

PS



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

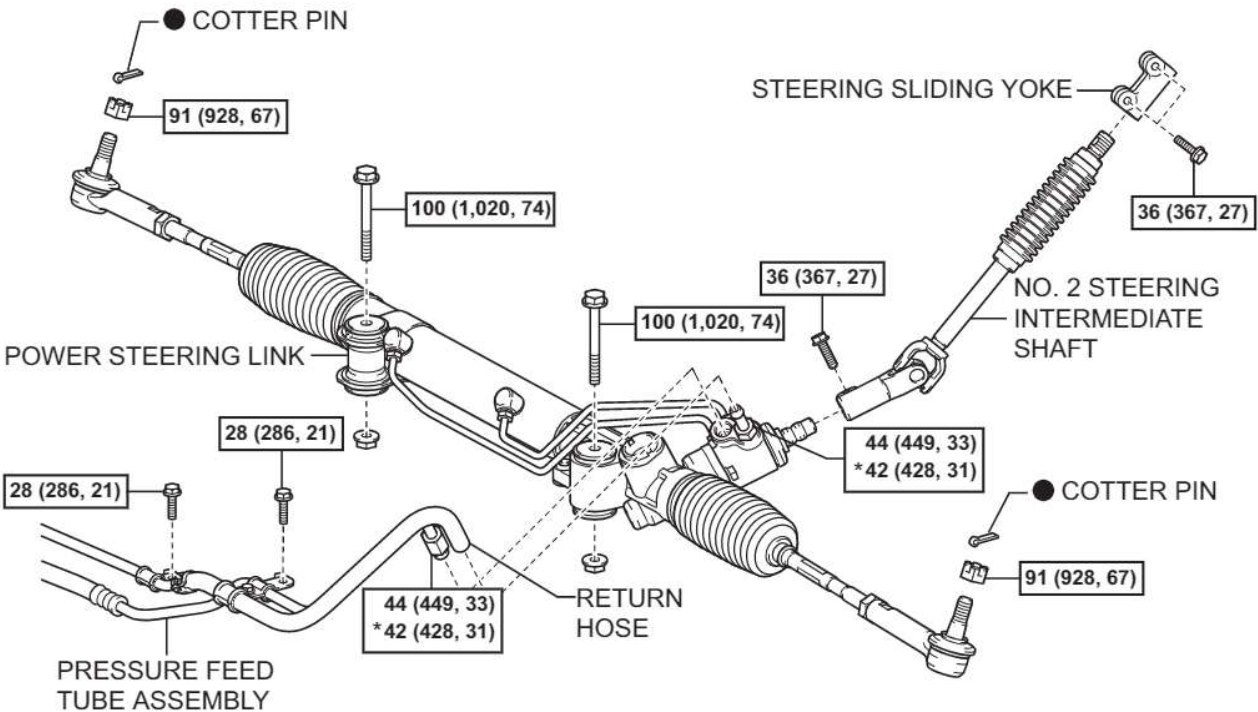
Y

C137987E01

PS-34

POWER STEERING – POWER STEERING LINK (for 4WD)

PS



N*m (kgf*cm, ft*lb) : Specified torque ● Non-reusable part * For use with SST

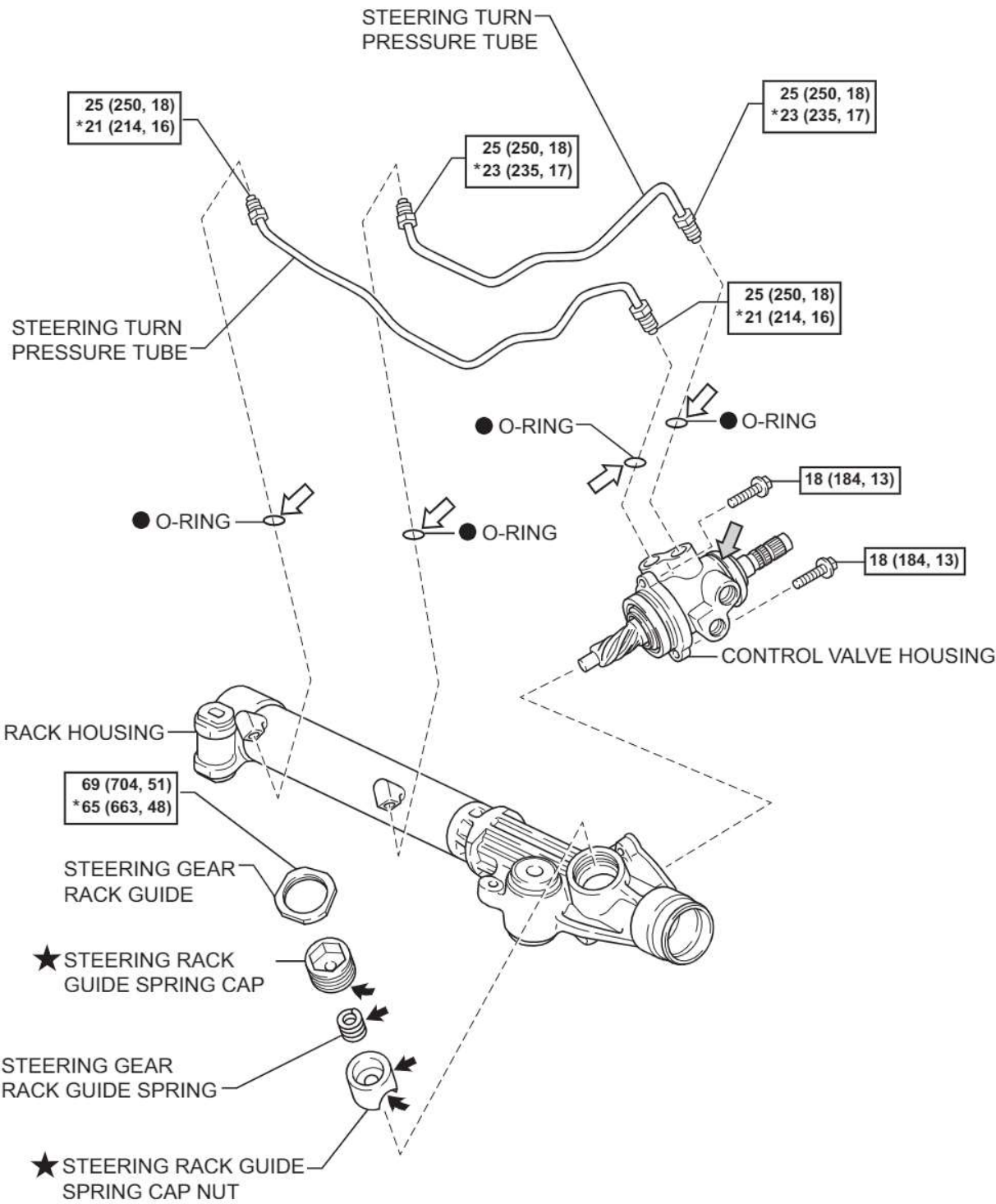
P

C133818E01

POWER STEERING – POWER STEERING LINK (for 4WD)

PS-35

PS



[N*m (kgf*cm, ft*lb)] : Specified torque

← Molybdenum disulfide lithium base grease * For use with SST

● Non-reusable part

← Power steering fluid

★ Precoated part

← MP grease

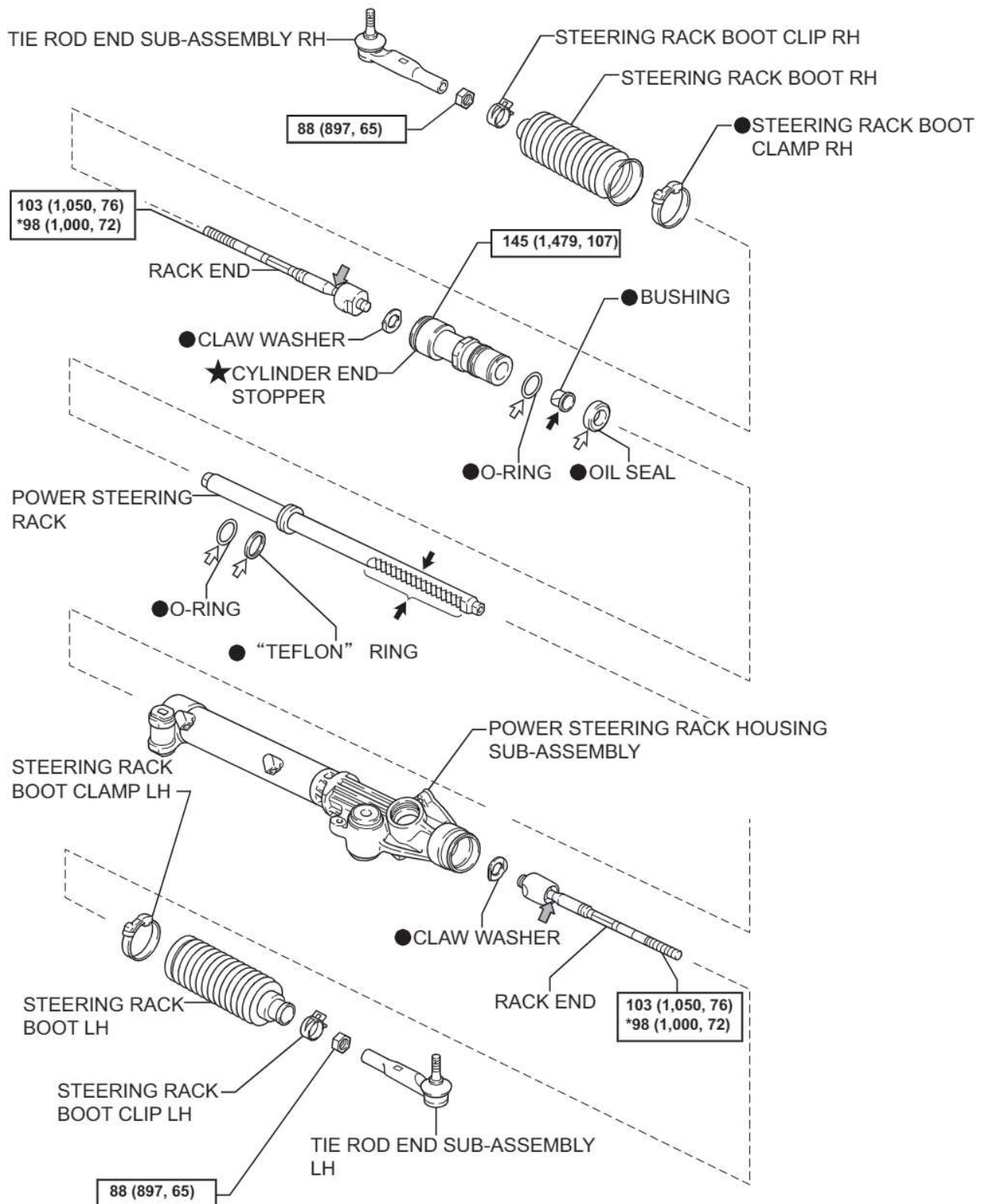
N

C137989E01

PS-36

POWER STEERING – POWER STEERING LINK (for 4WD)

PS



N*m (kgf*cm, ft.*lbf) ; Specified torque

← Molybdenum disulfide lithium base grease

● Non-reusable part

⇐ Power steering fluid

⇐ MP grease

★ Liquid sealant

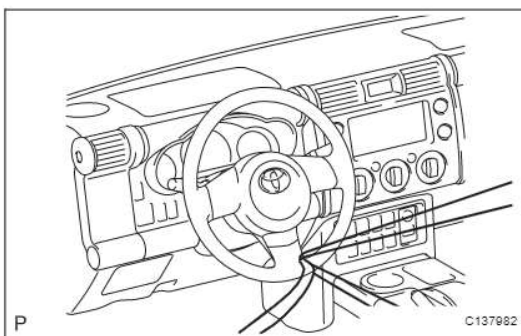
* For use with SST

N

C137988E01

REMOVAL

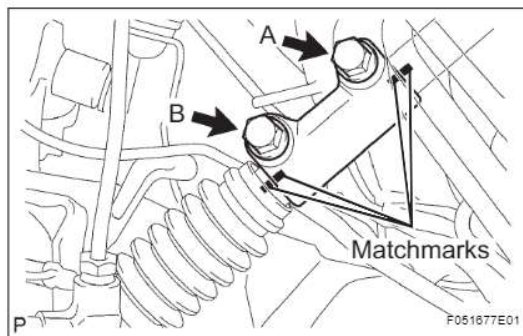
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. PLACE FRONT WHEELS FACING STRAIGHT AHEAD
3. REMOVE FRONT WHEELS
4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page [EM-6](#))
5. REMOVE REAR ENGINE UNDER COVER ASSEMBLY
 - (a) Remove the 4 bolts, then remove the rear engine under cover.
6. REMOVE NO. 2 EXHAUST FRONT PIPE ASSEMBLY (See page [EX-4](#))
7. REMOVE FRONT EXHAUST PIPE ASSEMBLY (See page [EX-4](#))
8. REMOVE PROPELLER SHAFT HEAT INSULATOR (See page [AT-178](#))
9. REMOVE FRONT PROPELLER SHAFT ASSEMBLY (See page [PR-2](#))
10. REMOVE PROPELLER SHAFT ASSEMBLY (See page [PR-9](#))
11. REMOVE AUTOMATIC TRANSMISSION WITH TRANSFER (See page [AT-180](#))
12. REMOVE FRONT SUSPENSION MEMBER BRACKET LH (See page [AT-180](#))
13. REMOVE FRONT SUSPENSION MEMBER BRACKET (See page [AT-180](#))
14. REMOVE NO. 3 FRAME CROSSMEMBER SUB-ASSEMBLY (See page [MT-11](#))
15. REMOVE NO.2 STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY
 - (a) Fix the steering wheel with the seat belt in order to prevent it from rotating.
HINT:
The operation is effective for preventing any damage to the spiral cable.



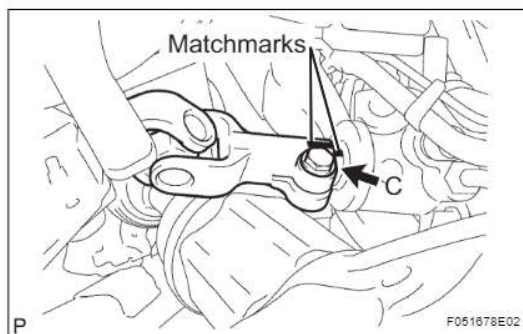
P

C137982

PS

PS-38**POWER STEERING – POWER STEERING LINK (for 4WD)**

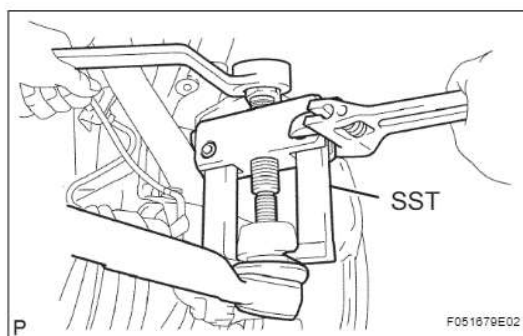
- (b) Place matchmarks on the steering sliding yoke, No. 2 steering intermediate shaft and steering intermediate shaft.
- (c) Remove bolts A and B from the steering sliding yoke.
- (d) Slide the steering sliding yoke up and separate it from the No. 2 steering intermediate shaft.
- (e) Pull down the steering sliding yoke from the steering intermediate shaft to remove it.



- (f) Place matchmarks on the No. 2 steering intermediate shaft and power steering link.
- (g) Remove bolt C from the No. 2 steering intermediate shaft.
- (h) Slide the No. 2 steering intermediate shaft up and remove it from the power steering link.

16. SEPARATE TIE ROD END SUB-ASSEMBLY LH

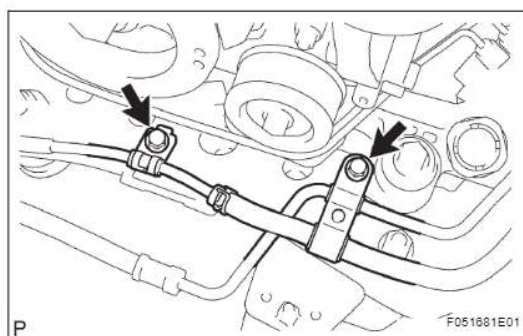
- (a) Remove the cotter pin and nut.



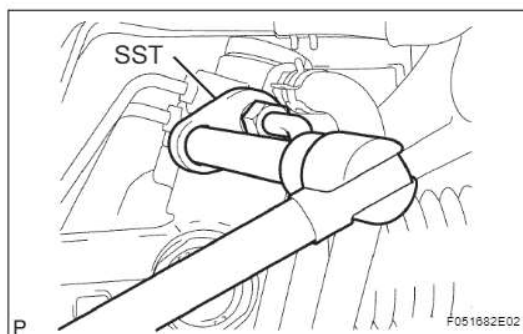
- (b) Using SST, separate the tie rod end from the steering knuckle arm.

SST 09628-62011**17. SEPARATE TIE ROD END SUB-ASSEMBLY RH****HINT:**

The removal procedure for the RH side is the same as that for the LH side.

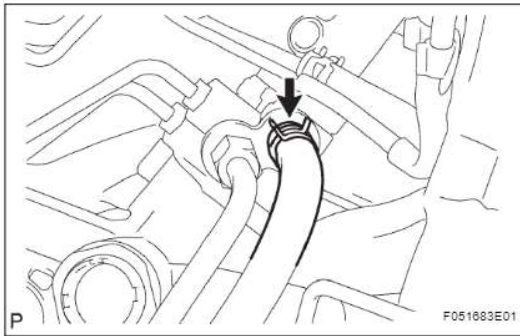
**18. SEPARATE PRESSURE FEED TUBE ASSEMBLY**

- (a) Remove the 2 bolts and separate the tube support brackets.

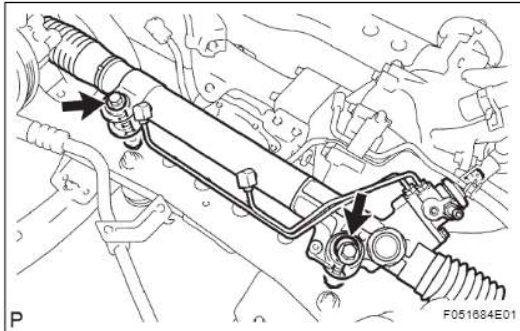


- (b) Using SST, loosen the flare nut and separate the pressure feed tube.

SST 09023-12701

POWER STEERING – POWER STEERING LINK (for 4WD)**PS-39**

- (c) Disengage the clip and disconnect the return hose.

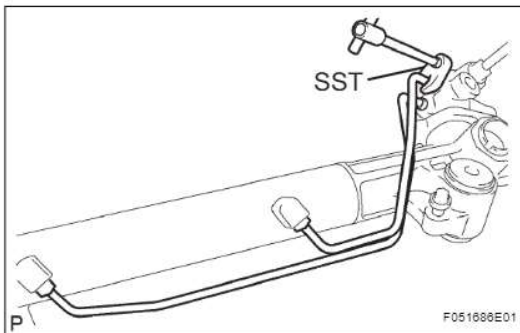
**19. REMOVE POWER STEERING LINK**

- (a) Remove the 2 bolts and 2 nuts.

NOTICE:

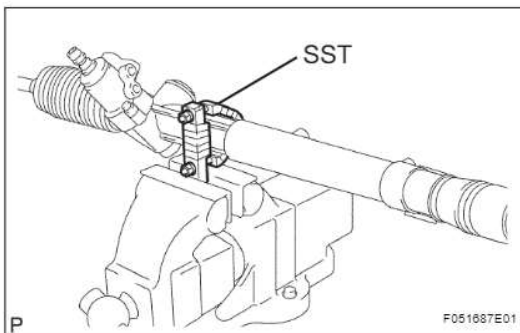
The nut has a detent, so never turn the nut. Be sure to turn only the bolt.

- (b) Tilt the transmission and remove the power steering link.

**DISASSEMBLY****1. FIX POWER STEERING LINK**

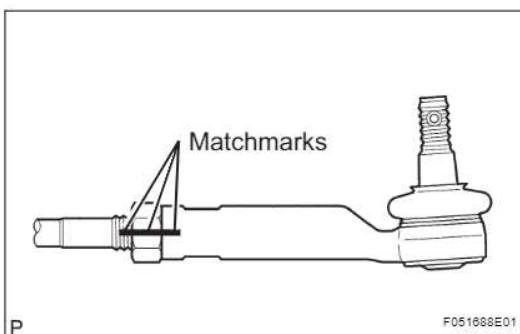
- (a) Using SST, remove the 2 turn pressure tubes.

SST 09023-38201



- (b) Using SST, fix the steering link between aluminum plates in a vise, as shown in the illustration.

SST 09612-00012

**2. REMOVE TIE ROD END SUB-ASSEMBLY LH**

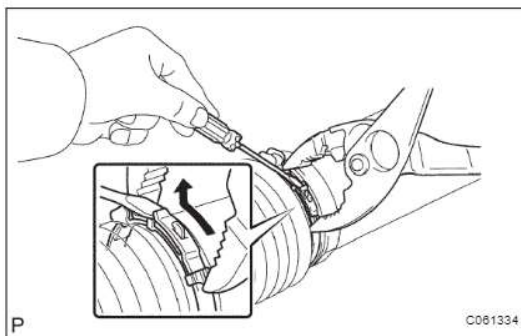
- (a) Place matchmarks on the tie rod end, lock nut and rack end.
(b) Loosen the lock nut and remove the tie rod end and lock nut.

3. REMOVE TIE ROD END SUB-ASSEMBLY RH**HINT:**

Use the same procedures described for the LH side.

PS-40

POWER STEERING – POWER STEERING LINK (for 4WD)

**4. REMOVE STEERING RACK BOOT CLAMP LH**

- (a) Using pliers and a screwdriver, loosen the clamp.

HINT:

Mark the RH and LH boots.

NOTICE:**Be careful not to damage the boot.****5. REMOVE STEERING RACK BOOT CLAMP RH****HINT:**

Use the same procedures described for the LH side.

6. REMOVE STEERING RACK BOOT CLIP LH

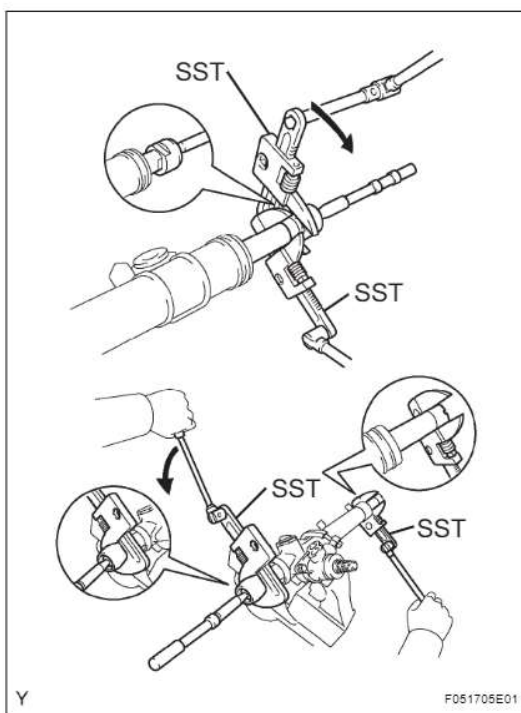
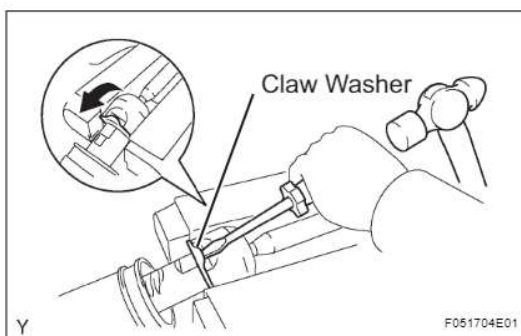
- (a) Using pliers, remove the clip.

NOTICE:**Be careful not to damage the boot.****7. REMOVE STEERING RACK BOOT CLIP RH****HINT:**

Use the same procedures described for the LH side.

8. REMOVE STEERING RACK BOOT LH**9. REMOVE STEERING RACK BOOT RH****10. REMOVE STEERING RACK END SUB-ASSEMBLY**

- (a) Using a screwdriver and hammer, stake back the 2 washers (LH and RH sides).

NOTICE:**Do not strike the steering rack.**

- (b) Using a wrench, hold the steering rack (LH side).

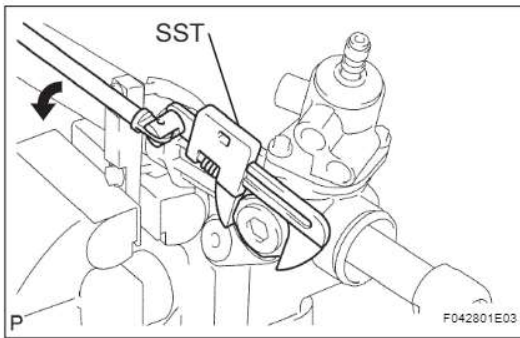
- (c) Using SST, remove the steering rack end (LH side) from the power steering rack.

SST 09922-10010**NOTICE:****Rotate SST in the direction shown in the illustration.**

- (d) Using SST, remove the steering rack end (RH side) from the power steering rack.

SST 09922-10010**NOTICE:****Rotate SST in the direction shown in the illustration.**

- (e) Remove the 2 claw washers.

POWER STEERING – POWER STEERING LINK (for 4WD)**PS-41****11. REMOVE RACK GUIDE**

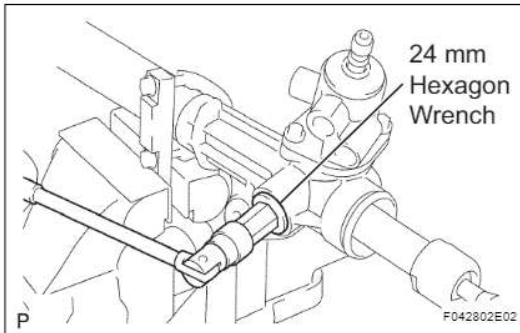
- (a) Using SST, remove the lock nut.

SST 09922-10010

- (b) Remove the claw washer.

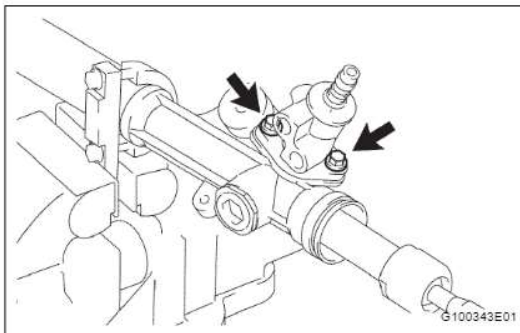
NOTICE:

Rotate SST in the direction shown in the illustration.



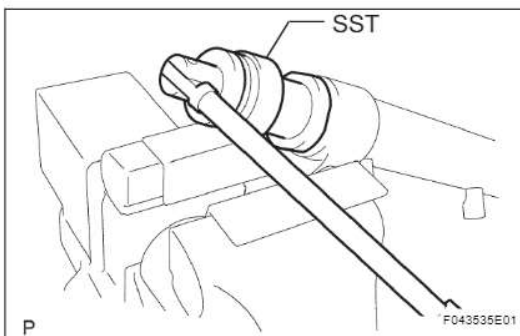
- (c) Using a 24 mm hexagon wrench, remove the rack guide spring cap.

- (d) Remove the spring and rack guide.

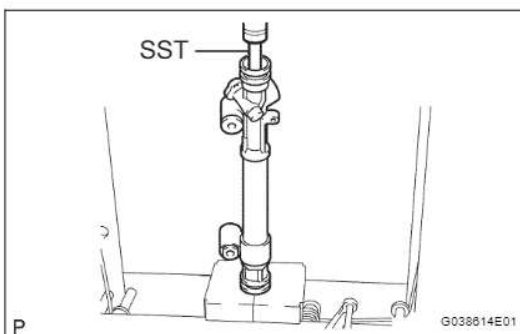
**12. REMOVE POWER STEERING CONTROL VALVE**

- (a) Remove the 2 bolts.

- (b) Pull out the control valve from the rack housing.

**13. REMOVE CYLINDER END STOPPER**

- (a) Using SST, remove the stopper.

SST 09631-20120**14. REMOVE STEERING RACK AND OIL SEAL**

- (a) Using SST, press out the steering rack and oil seal.

SST 09950-70010 (09951-07200)**NOTICE:**

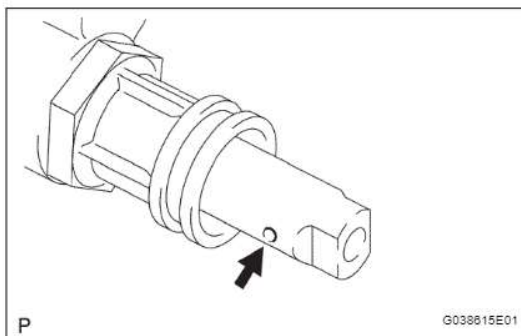
Take care not to drop the steering rack.

- (b) Remove the oil seal from the steering rack.

PS

PS-42

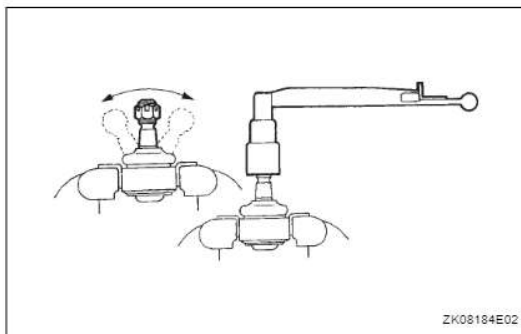
POWER STEERING – POWER STEERING LINK (for 4WD)

**15. INSPECT POWER STEERING RACK**

- (a) Insert a wire 20 mm (0.79 in.) into the vent hole of the steering rack and ensure that the vent hole is not clogged with grease.

NOTICE:

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

**16. INSPECT TIE ROD END SUB-ASSEMBLY LH**

- (a) Flip the ball joint stud back and forth 5 times as shown in the illustration, before installing the nut.
 (b) Using a torque wrench, turn the nut continuously at a rate of 2 to 4 seconds per turn and take the torque reading on the 5th turn.

Torque: (turning)

0.29 to 1.96 N*m (2.96 to 20 kgf*cm, 2.56 to 17.35 in.*lbf)

17. INSPECT TIE ROD END SUB-ASSEMBLY RH**HINT:**

Use the same procedures described for the LH side.

18. REMOVE STEERING RACK PISTON RING

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

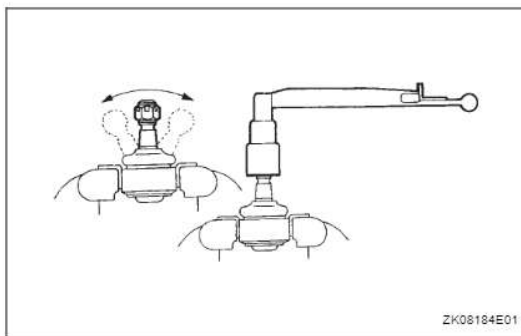
NOTICE:

Be careful not to damage the groove of the ring.

INSPECTION**1. INSPECT TIE ROD END SUB-ASSEMBLY**

- (a) Flip the ball joint stud back and forth 5 times as shown in the illustration before installing the nut.
 (b) Using a torque wrench, turn the nut continuously at a rate of 2 to 4 seconds per turn and check the torque reading on the 5th turn.

Torque: 0.29 to 1.96 N*m (2.96 to 20 kgf*cm, 2.56 to 17.35 in.*lbf)

**2. INSPECT POWER STEERING RACK**

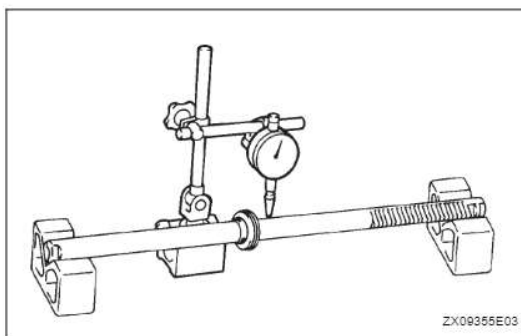
- (a) Using a dial indicator, check the power steering rack for runout, teeth wear and damage.

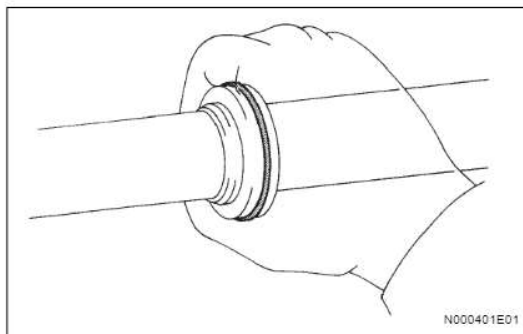
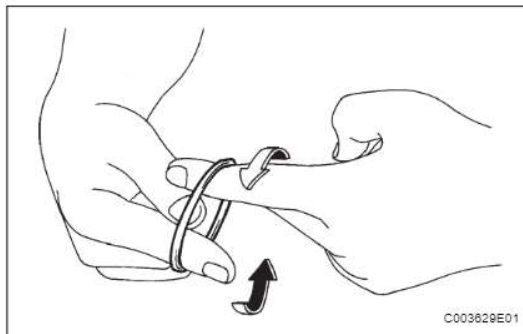
Maximum runout:

0.3 mm (0.012 in.)

If necessary, replace the power steering link assembly.

- (b) Check the back surface for wear and damage. If necessary, replace the power steering link assembly.





REASSEMBLY

1. INSTALL STEERING RACK PISTON RING

- Coat a new O-ring with power steering fluid and install it onto the steering rack.
- Stretch a new "Teflon" ring with your fingers.
NOTICE:
Be careful not to overstretch the "Teflon" ring.
- Coat the "Teflon" ring with power steering fluid.

- Install the "Teflon" ring onto the steering rack groove. Grip the ring to press it into the groove.

PS

2. INSTALL POWER STEERING RACK

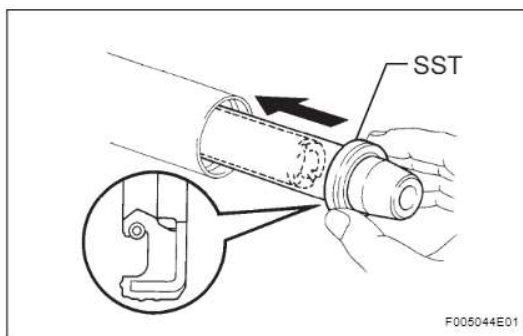
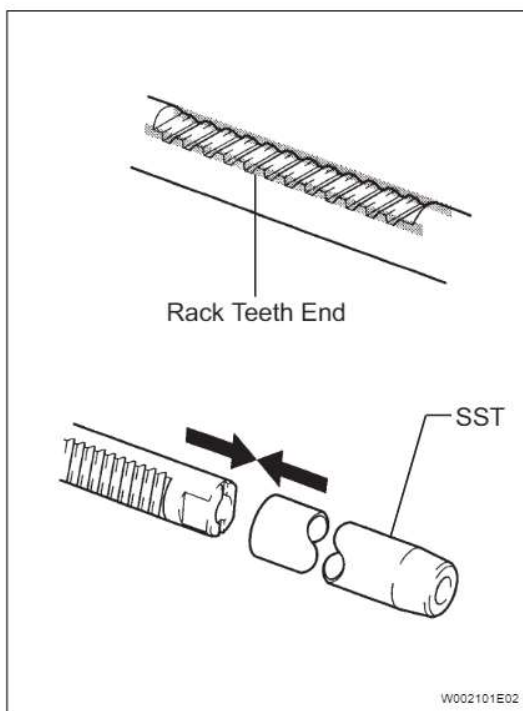
- Apply grease onto the rack teeth ends.
- Install SST onto the steering rack.

SST 09631-00350

HINT:

If necessary, scrape the burrs off the rack teeth end and burnish.

- Coat SST and the power piston oil seal with power steering fluid.
- Install the steering rack onto the rack housing.
- Remove SST.



- Coat SST with power steering fluid.
SST 09631-00350
- Install SST onto the steering rack opposite end.
- Coat the lip of a new oil seal with power steering fluid. Using SST, install the oil seal onto the steering rack.

NOTICE:

- Slide SST and the oil seal straight without tilting them.
- Install the oil seal facing in the correct direction.

PS-44

POWER STEERING – POWER STEERING LINK (for 4WD)

- Be careful not to damage the lip of the oil seal.

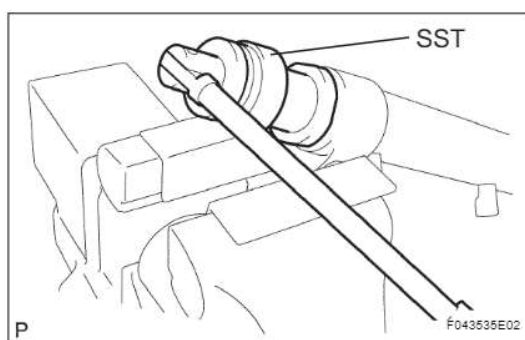
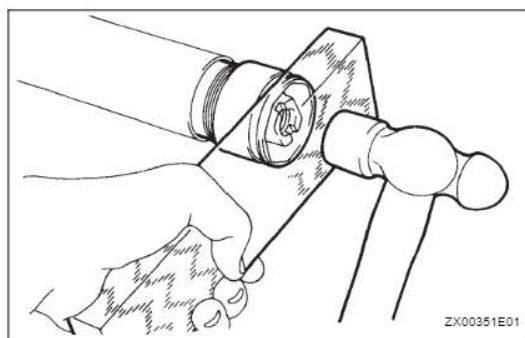
(i) Remove SST.

3. INSTALL CYLINDER END STOPPER

- Apply sealant to the stopper.
- Using a wooden block and hammer, tap in the stopper until it is tightly installed.

Sealant:

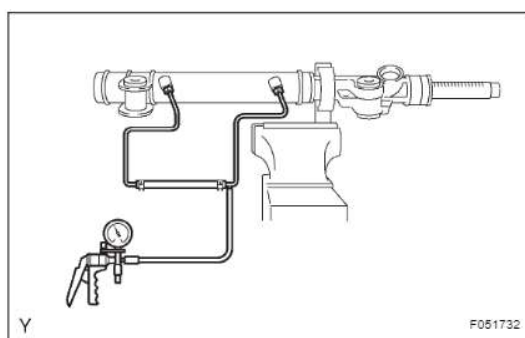
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or the equivalent



(c) Using SST, tighten the stopper.

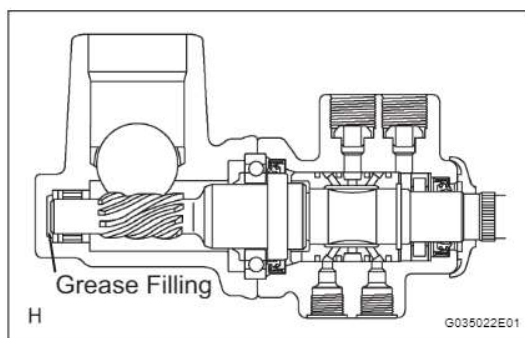
SST 09631-20120

Torque: 145 N*m (1,479 kgf*cm, 107 ft.*lbf)



4. TEST AIR TIGHTNESS

- Install SST to the unions of the rack housing.
SST 09631-12071 (09633-00010)
- Apply 53.33 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 a change in the vacuum, check the installation of the oil seals.



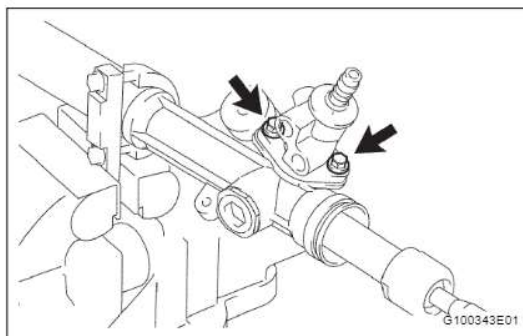
5. INSTALL POWER STEERING CONTROL VALVE

- Apply molybdenum disulfide base grease to the needle roller bearing inside the rack housing shown in the illustration.

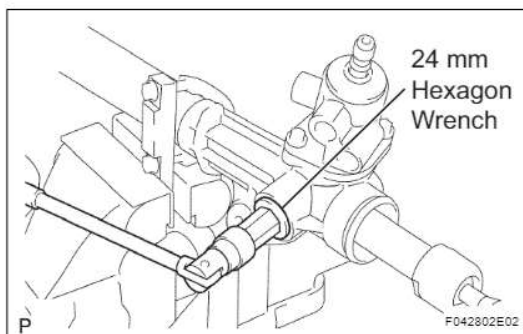
Volume of grease applied:

Approximately 2 g (0.07 oz)

PS

POWER STEERING – POWER STEERING LINK (for 4WD)**PS-45**

- (b) Install the control valve with the 2 bolts.
Torque: 18 N*m (185 kgf*cm, 13 ft.*lbf)

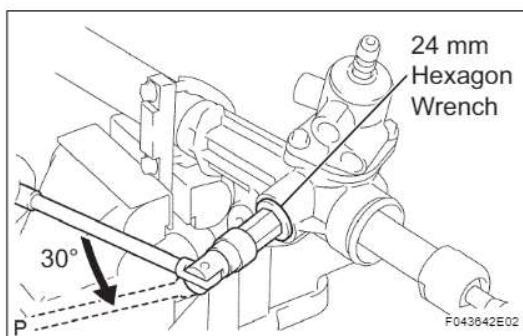
**6. INSTALL RACK GUIDE**

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

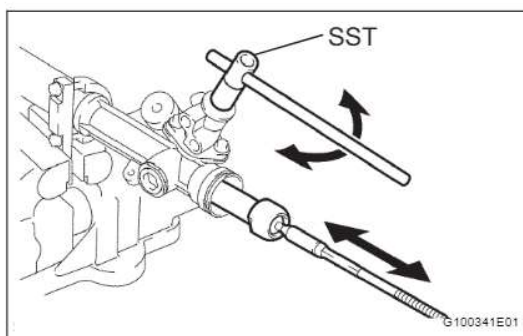
Sealant:

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

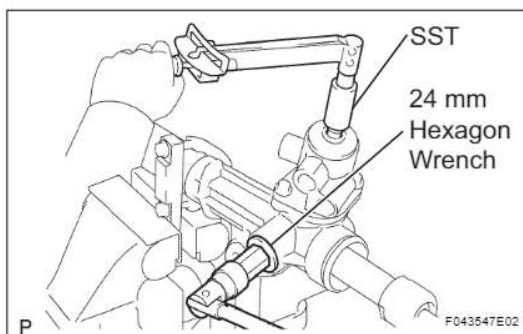
- (c) Using a 24 mm hexagon wrench, temporarily install the spring cap.

**7. ADJUST TOTAL PRELOAD**

- (a) To prevent the steering rack teeth from damaging the lip of the oil seal, temporarily install the RH and LH rack ends.
 (b) 2WD:
 Using a 24 mm hexagon wrench, tighten the rack guide spring cap.
Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf)
 (c) Loosen the cap 30°.



- (d) Using SST, turn the control valve shaft right and left 1 or 2 times. The rack end will move in and out.
SST 09616-00011
 (e) Using a 24 mm hexagon wrench, loosen the cap until the rack guide spring does not function.



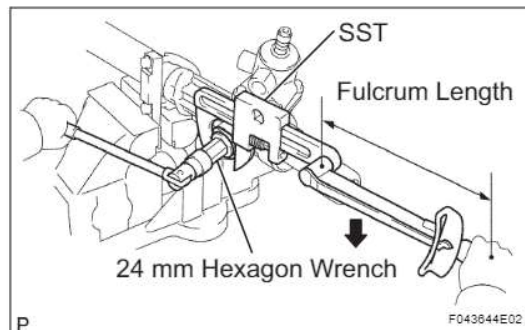
- (f) Using SST, a torque wrench and 24 mm hexagon wrench, tighten the cap until the preload is within the specification.
SST 09616-00011
Torque: Preload (turning)
0.8 to 1.6 N*m (8.2 to 16.3 kgf*cm, 7.1 to 14.2 in.*lbf)

NOTICE:

Perform adjustments in the tightening direction of the spring cap.

PS-46

POWER STEERING – POWER STEERING LINK (for 4WD)



- (g) Apply sealant to 2 or 3 threads of the lock nut.

Sealant:

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

- (h) Temporarily install the lock nut.

- (i) Using a 24 mm hexagon wrench, hold the rack guide spring cap. Using SST, torque the nut.

SST 09922-10010

Torque: 69 N*m (704 kgf*cm, 51 ft.*lbf) for use without SST

65 N*m (660 kgf*cm, 48 ft.*lbf) for use with SST

NOTICE:

Rotate SST in the direction shown in the illustration.

HINT:

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

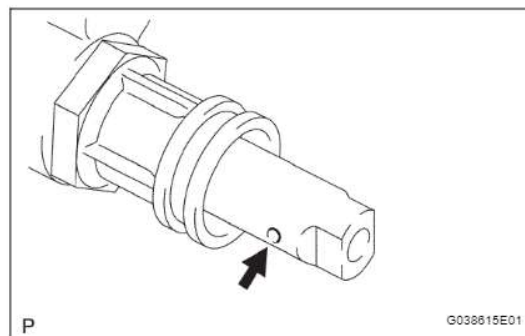
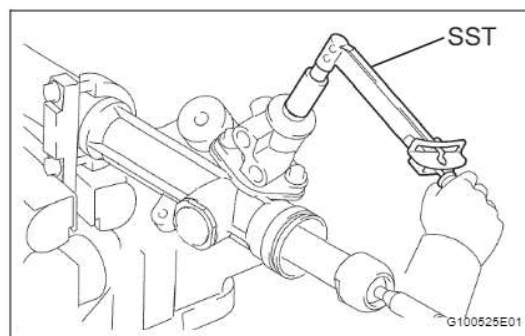
- (j) Using SST, recheck the total preload.

Torque: Preload for (turning)

0.8 to 1.6 N*m (8.2 to 16.3 kgf*cm, 1.1 to 14.2 in.*lbf)

SST 09616-00011

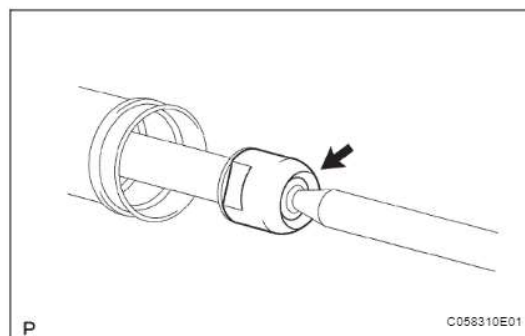
- (k) Remove the RH and LH rack ends.

**8. INSPECT POWER STEERING RACK**

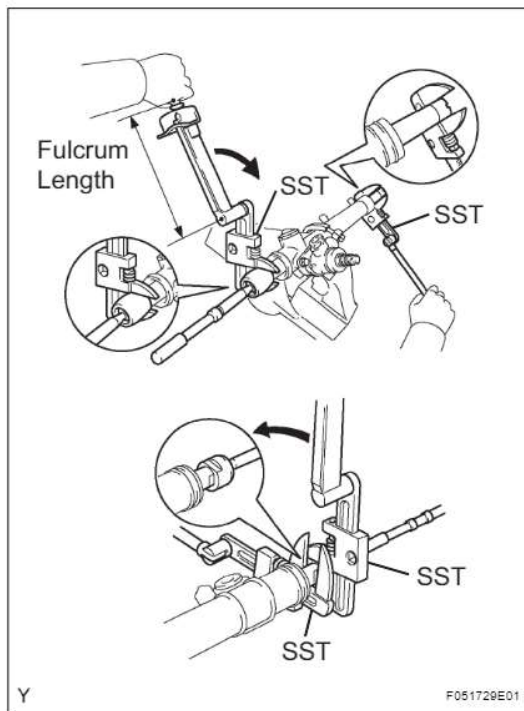
- (a) Insert a wire 20 mm (0.79 in.) into the vent hole of the steering rack, and ensure that the vent hole is not clogged with grease.

NOTICE:

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

**9. INSTALL STEERING RACK END SUB-ASSEMBLY**

- (a) Install 2 new claw washers onto the power steering rack while aligning the notch on the steering rack end with the claw.
- (b) Temporarily install the 2 steering rack ends onto the power steering rack.
- (c) Fill up the ball joint of the steering rack ends with MP grease.

POWER STEERING – POWER STEERING LINK (for 4WD)**PS-47**

- (d) Using SST, install the power steering rack end (LH side) onto the power steering rack.

SST 09922-10010

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf) for use without SST

98 N*m (1,000 kgf*cm, 72 ft.*lbf) for use with SST

NOTICE:

- Rotate SST in the direction shown in the illustration.
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

- (e) Using SST and a wrench, install the power steering rack (LH side).

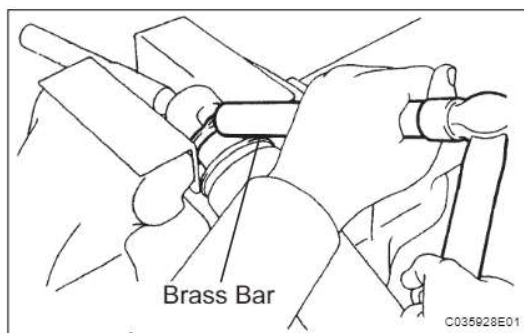
SST 09922-10010

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf) for use without SST

98 N*m (1,000 kgf*cm, 72 ft.*lbf) for use with SST

NOTICE:

- Rotate SST in the direction shown in the illustration.
- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).

PS

- (f) Using a brass bar and hammer, stake the 2 claw washers (LH and RH sides).

NOTICE:

Do not strike the steering rack.

10. INSTALL STEERING RACK BOOT LH

- (a) Install the boot.

NOTICE:

Be careful not to damage or twist the boot.

11. INSTALL STEERING RACK BOOT RH**HINT:**

Use the same procedures described for the LH side.

12. INSTALL STEERING RACK BOOT CLAMP LH

- (a) Using the pliers and a screwdriver, install the rack boot clamp, as shown in the illustration.

13. INSTALL STEERING RACK BOOT CLAMP RH**HINT:**

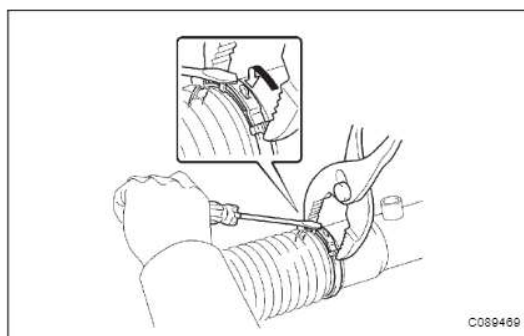
Use the same procedures described for the LH side.

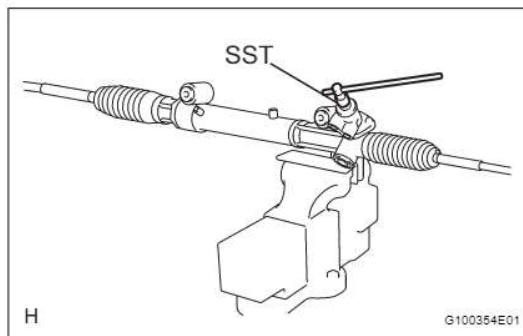
14. INSTALL STEERING RACK BOOT CLIP LH

- (a) Using pliers, install the clip.

15. INSTALL STEERING RACK BOOT CLIP RH**HINT:**

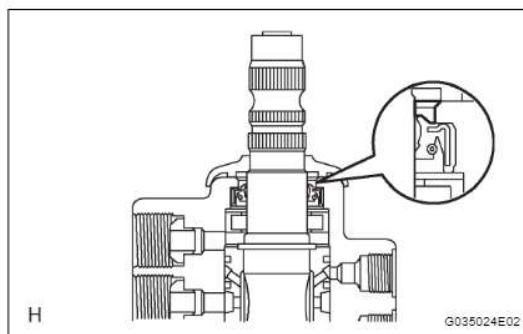
Use the same procedures described for the LH side.



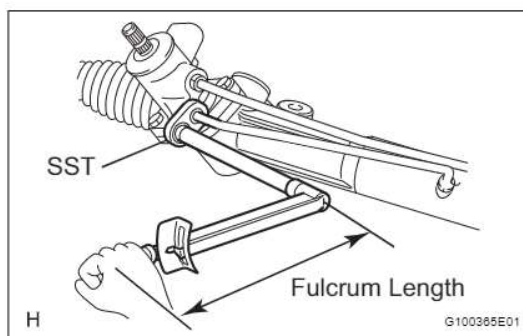
PS-48**POWER STEERING – POWER STEERING LINK (for 4WD)****16. INSTALL POWER STEERING LINK**

- (a) Using SST, check that the rack boot stretches smoothly when the control valve shaft is being rotated.

SST 09616-00011



- (b) Apply MP grease as shown in the illustration.
(c) Install the dust cover.

**17. INSTALL STEERING TURN PRESSURE TUBE**

- (a) Apply power steering fluid to 2 new O-rings. Using SST, install the 2 O-rings and the LH turn pressure tube.

SST 09023-38201

Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf) for use without SST
23 N*m (230 kgf*cm, 17 ft.*lbf) for use with SST

HINT:

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- This torque value is effective when SST is parallel to the torque wrench.

- (b) Apply power steering fluid to 2 new O-rings. Using SST, install the 2 O-rings and the RH turn pressure tube.

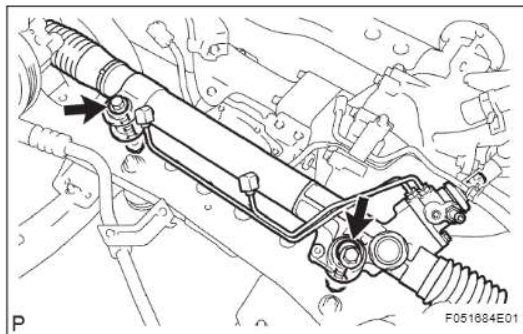
SST 09023-38201

Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf) for use without SST
23 N*m (230 kgf*cm, 17 ft.*lbf) for use with SST

HINT:

- Use a torque wrench with a fulcrum length of 345 mm (13.58 in.).
- This torque value is effective when SST is parallel to the torque wrench.

PS

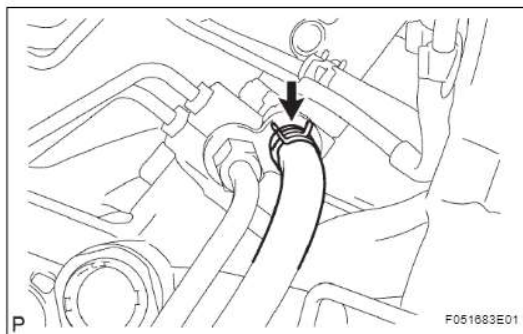
POWER STEERING – POWER STEERING LINK (for 4WD)**PS-49****INSTALLATION****1. INSTALL POWER STEERING LINK**

- (a) Install the power steering link with the 2 bolts and 2 nuts.

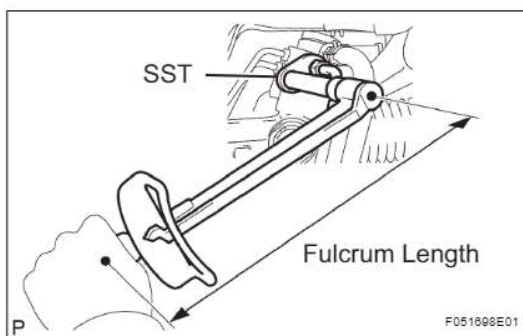
Torque: 100 N*m (1,020 kgf*cm, 74 ft.*lbf)

NOTICE:

Never turn the nut since it has a detent. Be sure to turn only the bolt.

**2. INSTALL PRESSURE FEED TUBE ASSEMBLY**

- (a) Connect the return hose with the clip.



- (b) Using SST, tighten the flare nut and connect the pressure feed tube.

SST 09023-12701

Torque: for use without SST

44 N*m (449 kgf*cm, 33 ft.*lbf)

for use with SST

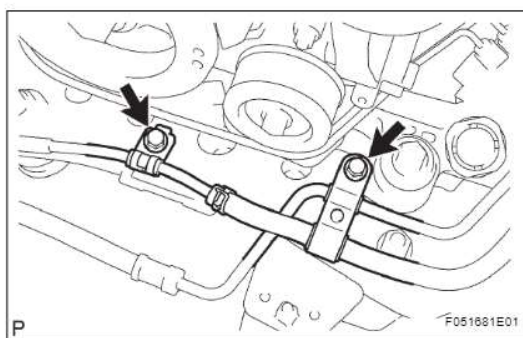
42 N*m (420 kgf*cm, 31 ft.*lbf)

HINT:

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

- (c) Install the tube support brackets with the 2 bolts.

Torque: 28 N*m (286 kgf*cm, 21 ft.*lbf)

**3. INSTALL TIE ROD END SUB-ASSEMBLY LH**

- (a) Install the tie rod end onto the steering knuckle arm.
(b) Install the nut.

Torque: 91 N*m (928 kgf*cm, 67 ft.*lbf)

- (c) Install a new cotter pin.

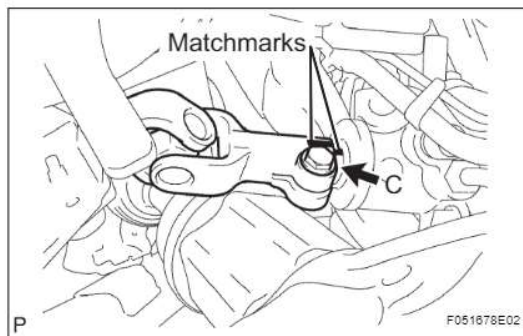
4. INSTALL TIE ROD END SUB-ASSEMBLY RH**HINT:**

The installation procedure for the RH side is the same as that for the LH side.

PS

PS-50

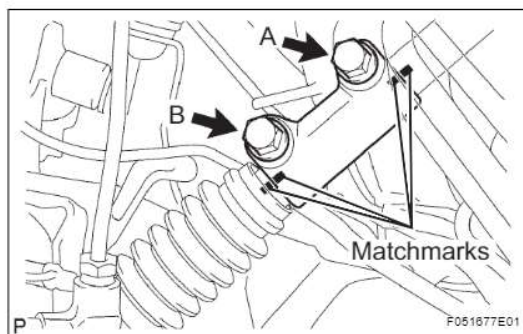
POWER STEERING – POWER STEERING LINK (for 4WD)



5. INSTALL NO.2 STEERING INTERMEDIATE SHAFT SUB-ASSEMBLY

- (a) Align the matchmarks on the No. 2 steering intermediate shaft and power steering link.
- (b) Install the No. 2 steering intermediate shaft onto the power steering link with bolt C.

Torque: 36 N*m (367 kgf*cm, 27 ft.*lbf)



- (c) Align the matchmarks on the steering intermediate shaft and steering sliding yoke.
 - (d) Install the steering sliding yoke onto the steering intermediate shaft and slide it upward.
 - (e) Align the matchmarks on the steering sliding yoke and No. 2 steering intermediate shaft.
 - (f) Install the steering sliding yoke with bolts A and B.
- Torque: 36 N*m (367 kgf*cm, 27 ft.*lbf)**

6. INSTALL NO. 3 FRAME CROSSMEMBER SUB-ASSEMBLY (See page [MT-12](#))

7. INSTALL FRONT SUSPENSION MEMBER BRACKET LH (See page [AT-183](#))

8. INSTALL FRONT SUSPENSION MEMBER BRACKET (See page [AT-183](#))

9. INSTALL PROPELLER SHAFT ASSEMBLY (See page [PR-14](#))

10. INSTALL FRONT PROPELLER SHAFT ASSEMBLY (See page [PR-6](#))

11. INSTALL PROPELLER SHAFT HEAT INSULATOR (See page [AT-185](#))

12. INSTALL FRONT EXHAUST PIPE ASSEMBLY (See page [EX-4](#))

13. INSTALL NO. 2 EXHAUST FRONT PIPE ASSEMBLY (See page [EX-5](#))

14. INSTALL FRONT WHEELS

Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)

15. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

16. INSPECT STEERING WHEEL CENTER POINT

17. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

18. ADD POWER STEERING FLUID

19. BLEED POWER STEERING FLUID (See page [PS-2](#))

20. CHECK FOR POWER STEERING FLUID LEAKAGE

21. CHECK FOR EXHAUST GAS LEAKAGE

PS

- 22. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**
(See page [SP-2](#))
- 23. INSTALL REAR ENGINE UNDER COVER ASSEMBLY**
 - (a) Install the rear engine under cover with the 4 bolts.
Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)
- 24. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page [EM-7](#))**

PS