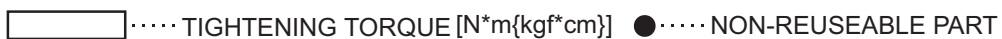
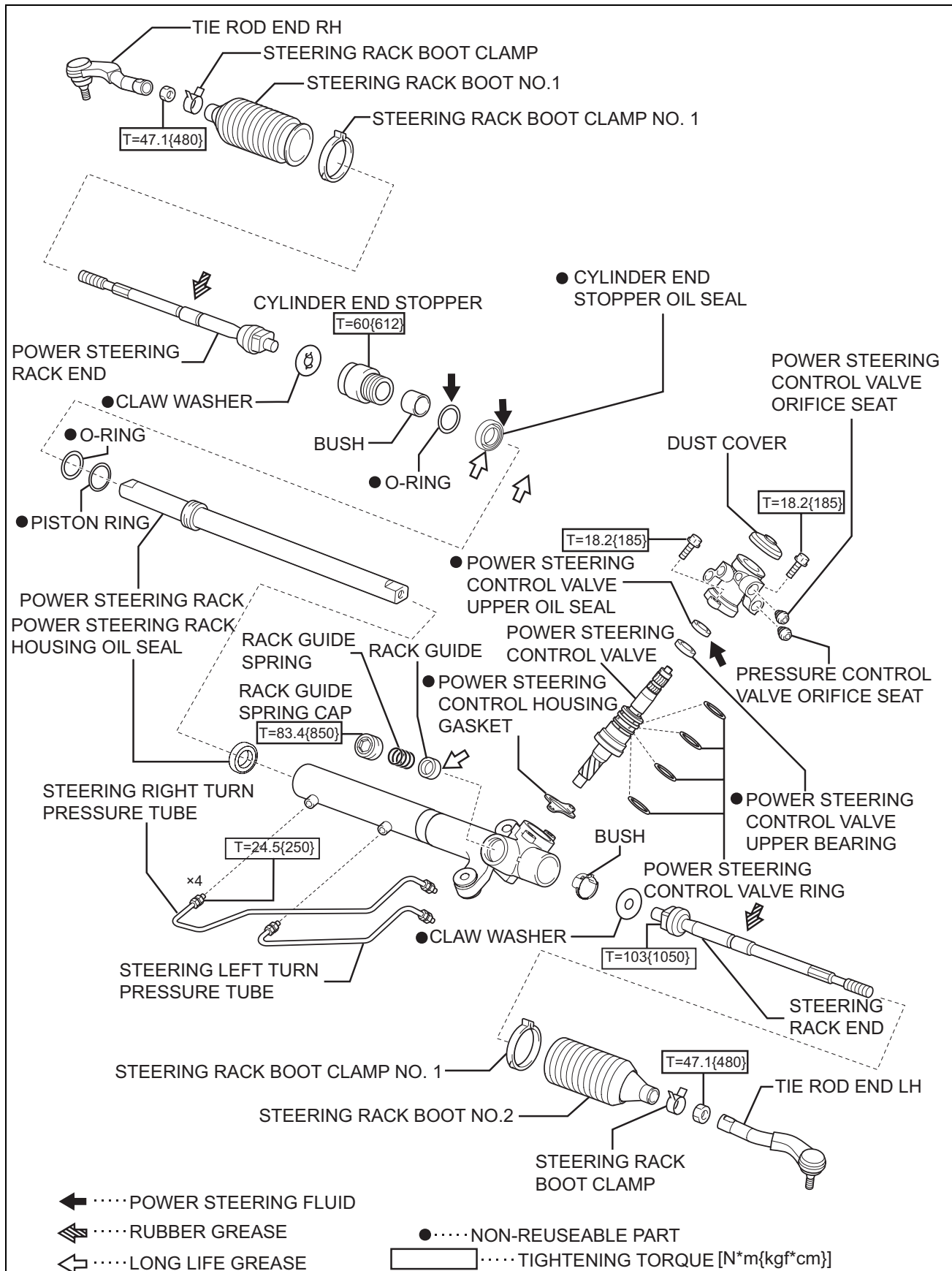


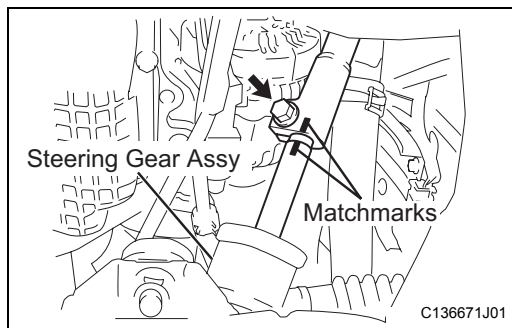
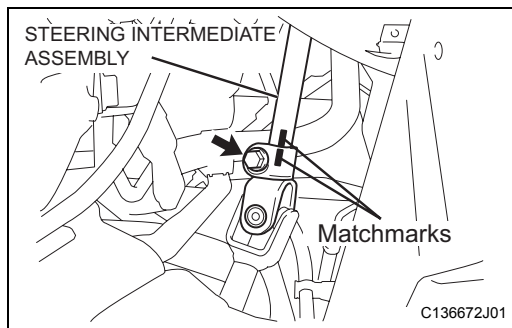
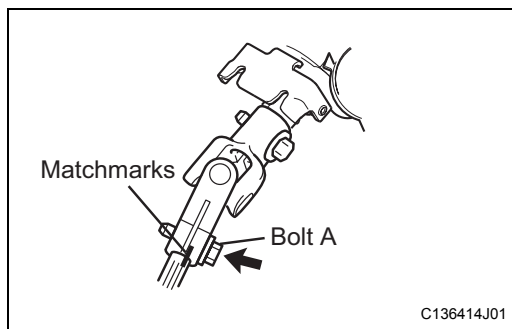
COMPONENTS





REMOVAL

1. CHECK FRONT TIRES FACING STRAIGHT AHEAD
2. REMOVE FRONT TIRE
3. REMOVE ENGINE UNDER COVER
4. REMOVE INSTRUMENT PANEL FINISH PANEL LWR (See page IP-11)
5. REMOVE INSTRUMENT PANEL UNDER COVER NO. 1 (See page IP-11)
6. DISCONNECT STEERING INTERMEDIATE SHAFT ASSEMBLY
 - (a) Put matchmarks on the steering intermediate shaft assembly and the steering column assembly.
 - (b) Remove bolt A.
7. REMOVE STEERING SHAFT UNIVERSAL JOINT ASSEMBLY
 - (a) Put matchmarks on the intermediate shaft and the steering shaft universal joint assembly.

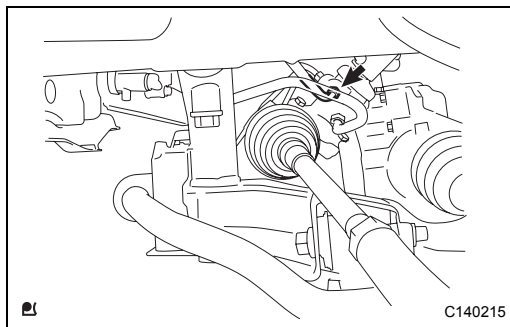


- (b) Remove the bolt and steering intermediate shaft assembly.
- (c) Put matchmarks on the steering shaft universal joint assembly and the steering gear.
- (d) Remove the bolt and steering shaft universal joint assembly.

8. REMOVE TIE ROD END LH (See page DS-5)
9. REMOVE TIE ROD END RH

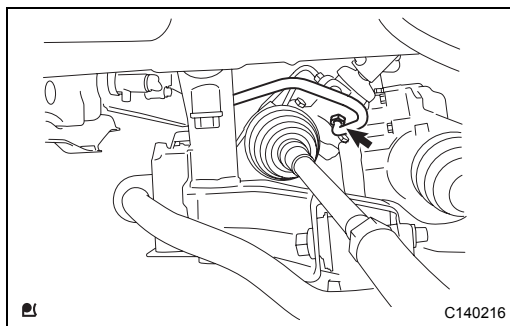
HINT:

Perform the same procedure for the RH as for the LH.



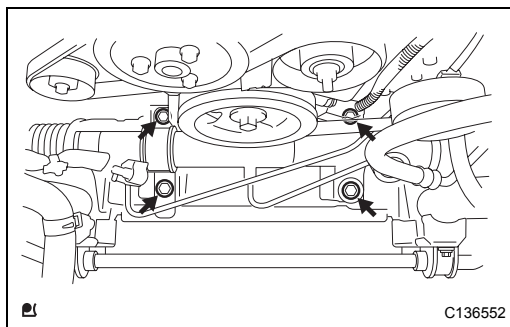
10. DISCONNECT OIL RESERVOIR TO PUMP HOSE

- (a) Using a union nut wrench, disconnect the oil reservoir to pump hose from the rack and pinion type power steering gear assembly.



11. DISCONNECT PRESSURE FEED TUBE ASSEMBLY

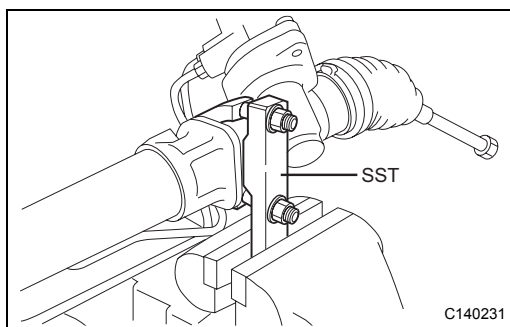
- (a) Using a union nut wrench, disconnect the pressure feed tube assembly from the rack and pinion type power steering gear assembly.



12. REMOVE RACK AND PINION TYPE POWER STEERING GEAR ASSEMBLY

- (a) Remove the 4 bolts and rack and pinion type power steering gear assembly from the suspension cross member.
- (b) Remove the rack and pinion type power steering gear assembly from the driver's seat side.

DISASSEMBLY



1. SECURE RACK AND PINION TYPE POWER STEERING GEAR ASSEMBLY

- (a) Secure the power steering link assembly in a vise using the SST wrapped with protection tape.

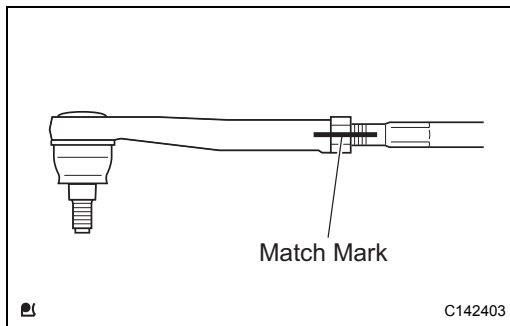
SST 09612-00012

HINT:

Remove and reinstall the securing SST as needed.

2. REMOVE TIE ROD END LH

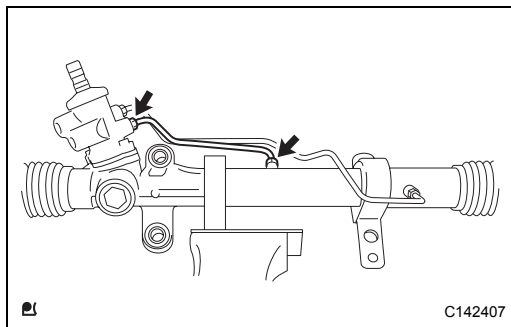
- (a) Put matchmarks on the tie rod end LH and the steering rack end.
- (b) Loosen the lock nut, and remove the tie rod end LH and the lock nut from the steering rack end.



3. REMOVE TIE ROD END RH

HINT:

Perform the same procedure for the RH as for the LH.



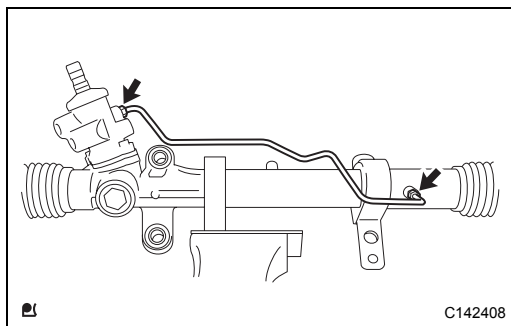
4. REMOVE STEERING LEFT TURN PRESSURE TUBE

SST 09633-00020

- (a) Using the SST, remove the steering left turn pressure tube from the rack and pinion type power steering gear assembly.

NOTICE:

Turning the steering wheel with the tube removed may cause residual fluid to fly out.



5. REMOVE STEERING RIGHT TURN PRESSURE TUBE

SST 09633-00020

HINT:

Remove the steering right turn pressure tube using the same procedure as for the left.

NOTICE:

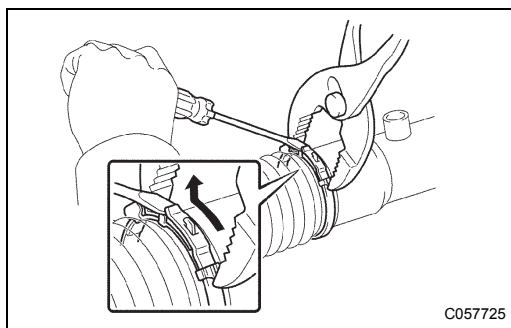
Turning the steering wheel with the tube removed may cause residual fluid to fly out.

6. REMOVE STEERING RACK BOOT CLIP

- (a) Remove the left and right steering rack boot clips from the left and right steering rack boots.

7. REMOVE STEERING RACK BOOT CLAMP NO. 1

- (a) Using pliers, pinch steering rack boot clamp No. 1.
 (b) Using a screwdriver, lift up and remove steering rack boot clamp No. 1 as shown in the illustration.



8. REMOVE STEERING RACK BOOT NO. 1

9. REMOVE STEERING RACK END

SST 09922-10010

- (a) Secure the steering rack end ball joint in the vise between aluminum plates.

NOTICE:

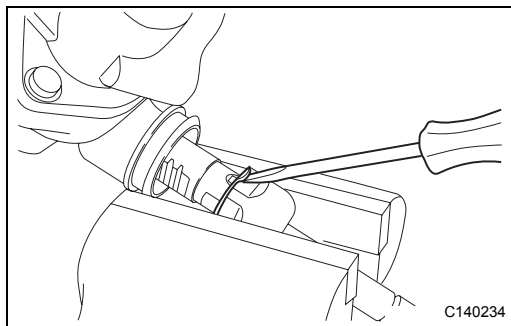
Do not tighten the vise too firmly.

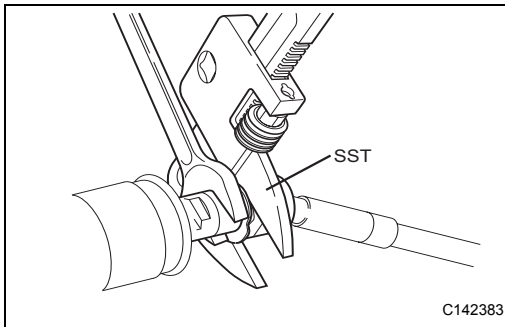
- (b) Using a screwdriver and hammer, unstake the RH and LH claw washers.

NOTICE:

Avoid any impact to the power steering rack.

- (c) Using a wrench, secure the steering rack.





- (d) Using the SST, remove the left and right steering rack ends.

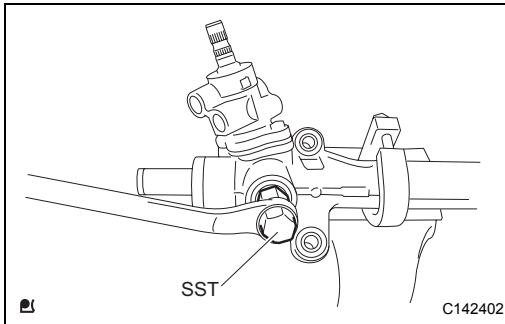
NOTICE:

- Use the SST in the correct direction.
- Secure the steering rack securely with a wrench.

- (e) Remove the left and right claw washers from the left and right steering rack ends.

10. REMOVE STEERING RACK GUIDE

SST 09612-10020



- (a) Using the SST, remove the power steering rack guide spring cap.

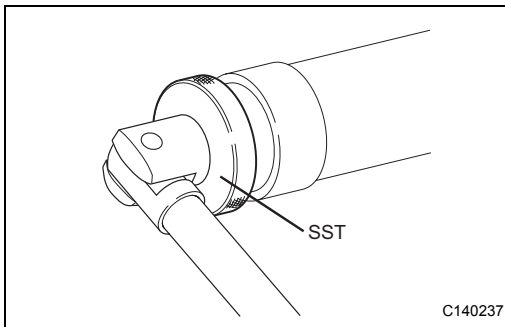
- (b) Remove the rack guide spring.

- (c) Remove the power steering rack guide.

11. REMOVE CYLINDER END STOPPER

SST 09631-20090

- (a) Using the SST, remove the cylinder end stopper.



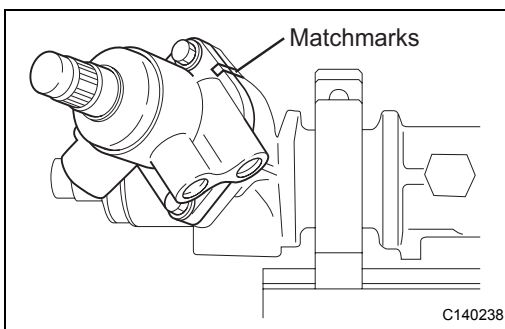
- (b) Remove the O-ring from the cylinder end stopper.

12. REMOVE POWER STEERING CONTROL VALVE ASSEMBLY

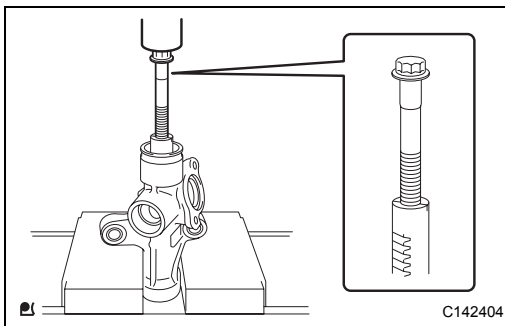
- (a) Put matchmarks on the rack housing and the control valve housing.

- (b) Remove the dust cover.

- (c) Remove the 2 bolts and then remove the power steering control valve from the power steering rack housing.



- (d) Remove the power steering control valve housing gasket.



13. REMOVE POWER STEERING RACK

- (a) Using a bolt (M14 x P1.5) and a press, remove the power steering rack and oil seal.

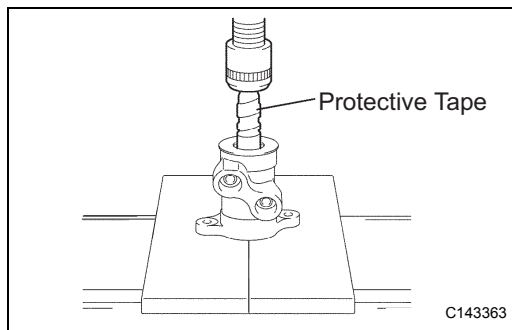
- (b) Using a screwdriver, remove the seal ring and O-ring from the power steering rack.

NOTICE:

Do not damage the ring groove.

14. REMOVE POWER STEERING CONTROL VALVE

- (a) Wrap the serrated area of the power steering control valve with protective tape.

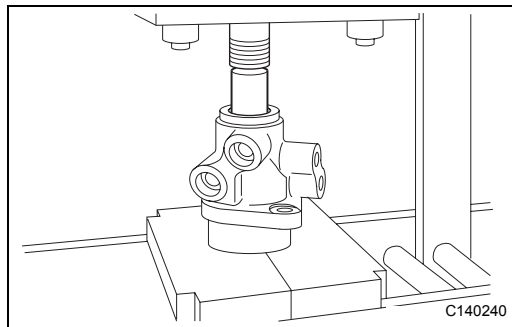


(b) Using a press, remove the power steering control valve.

(c) Using a screwdriver, remove the 4 control valve rings.

NOTICE:

- Do not damage the ring groove.
- Do not drop the power steering control valve.
- Do not damage the oil seal inside the control valve housing.



15. REMOVE POWER STEERING CONTROL VALVE UPPER BEARING

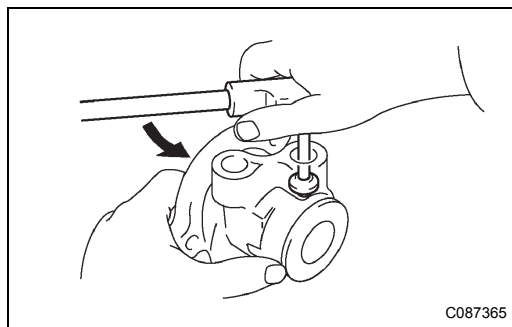
SST 09950-60010 (09951-00180 09951-00240 09952-06010)

(a) Using the SST and a press, remove the oil seal and power steering control valve bearing.

16. REMOVE PRESSURE CONTROL VALVE ORIFICE SEAT

NOTICE:

Replace the seat only if there is significant deformation that could possibly result in fluid leakage.



(a) Using a screw extractor, remove the power steering control valve spacer.

NOTICE:

- Do not turn the tap any more than necessary.
- Do not allow any chips to get into the port.
- Do not damage the inside of the port.

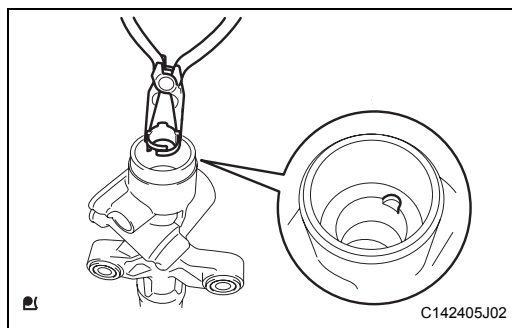
HINT:

The power steering control valve spacer has an inside diameter of 5.5 mm.

17. REMOVE POWER STEERING CONTROL VALVE UNION SEAT

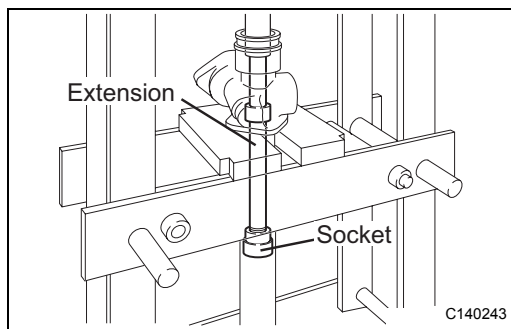
HINT:

- Use the same procedure as for the pressure control valve orifice seat.
- The power steering control valve union seat has an inside diameter of 6.0 mm.



18. REMOVE POWER STEERING RACK HOUSING OIL SEAL

(a) Using needle nose pliers, remove the power steering rack bush.



- (b) Using the SST, remove the oil seal.

NOTICE:

Do not damage the rack housing when pressing with a press.

SST 09950-60010

- (c) Thoroughly clean the inside and outside of the removed steering rack housing with cleaning oil to remove grease and dirt.

NOTICE:

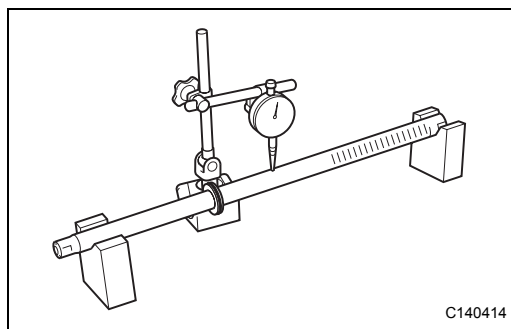
- Use a bamboo brush to clean the inside of the housing to avoid damage.
- After cleaning, apply air to the inside and outside of the housing to remove all of the oil cleaner.

19. CHECK POWER STEERING RACK

- (a) Check the tooth surface for wear and damage.
- (b) Using a V-block and dial indicator, check the bend of the rack.

Standard:

0.15 mm (center portion of the rack)



INSPECTION

1. INSPECT TIE ROD END LH

- (a) Secure the tie rod end LH ball joint in the vise between aluminum plates.

NOTICE:

Do not tighten the vise too firmly.

- (b) Install the flange nut to the stud bolt.
- (c) Flip the ball joint back and forth 5 times or more.
- (d) Set a torque wrench to the nut, turn the ball joint continuously at a rate of 3 to 5 seconds per turn, and check the turning torque.

Torque: 3.5 N*m (35.7 kgf*cm)

2. INSPECT TIE ROD END RH

HINT:

Perform the same procedure for the RH as for the LH.

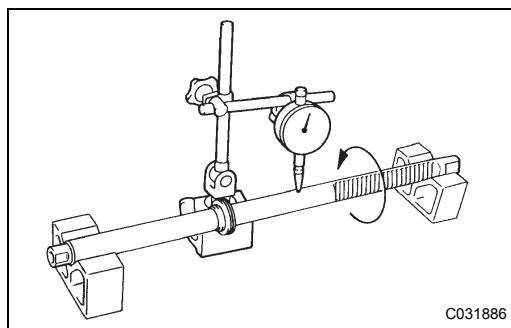
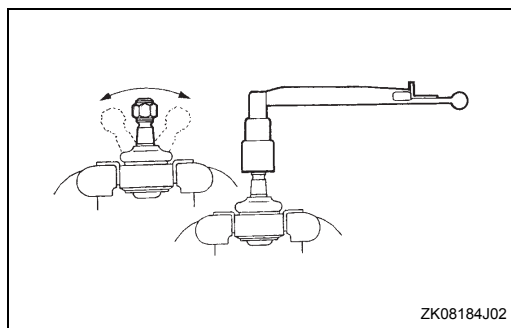
3. INSPECT POWER STEERING RACK

- (a) Check the tooth surface for wear and damage.

- (b) Using a V-block and dial indicator, check the bend of the power steering rack.

Maximum bend:

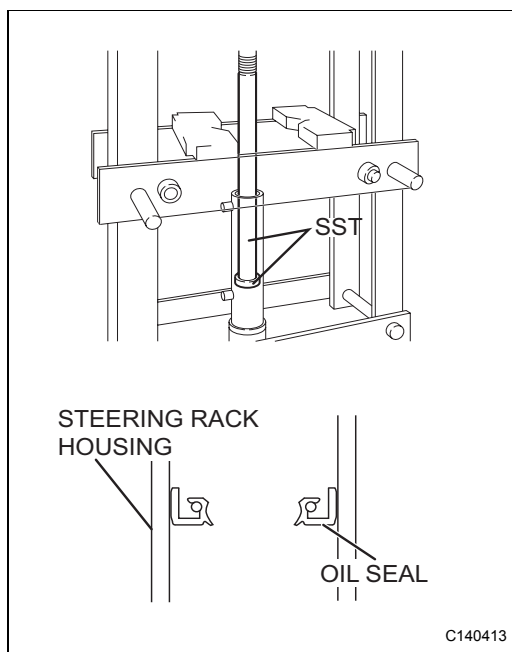
0.15 mm



REASSEMBLY

1. INSTALL POWER STEERING RACK HOUSING OIL SEAL

- (a) Coat the lip of the new power steering rack housing oil seal with power steering fluid.

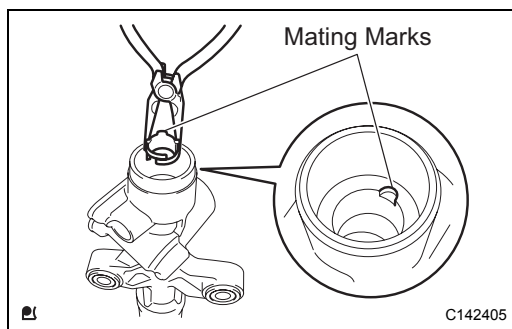


- (b) Using the SST, install the power steering rack housing oil seal to the rack housing.

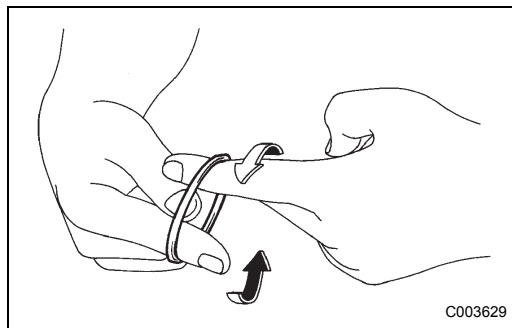
SST 09950-60010 (09951-00230 09951-00410)

NOTICE:

- Make sure the oil seal is installed in the correct direction.
- Install the oil seal straight.



- (c) Using needle nose pliers, install a new power steering rack bush to the rack housing.



2. INSTALL POWER STEERING RACK

- (a) Lightly stretch the O-ring using fingers as shown in the illustration and install the O-ring to the ring groove of the steering rack.

NOTICE:

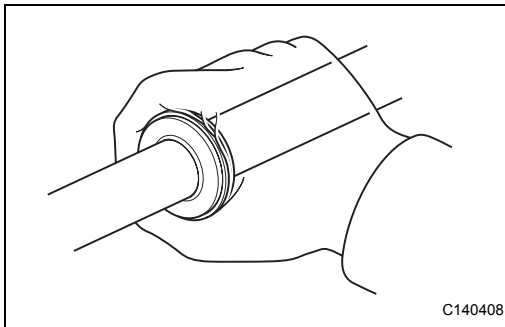
- Before installing, coat the O-ring with power steering fluid.
- Do not twist or damage the O-ring.

- (b) Work the power piston ring and stretch it with your fingers to make it easier to install.

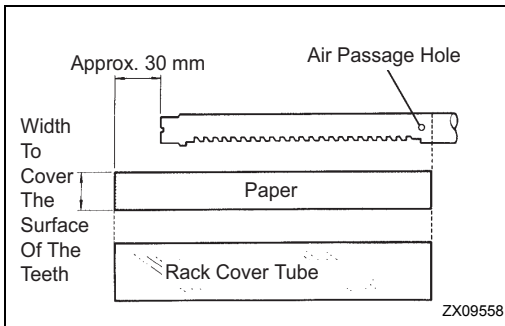
- (c) Install the power piston ring to the power steering rack.

NOTICE:

- Before installing, coat the seal ring with power steering fluid.
- Do not stretch the power piston ring excessively.
- Stretch the full circumference of the power piston ring evenly.
- Do not damage the power piston ring.
- After installing the power piston ring, coat the ring groove with power steering fluid.



- (d) While holding the stretched seal ring with your hand, allow the seal ring to shrink.



- (e) With the rack cover tube covering the tooth surface and port, cut the rack cover tube so it is approximately 30 mm longer than the power steering rack.

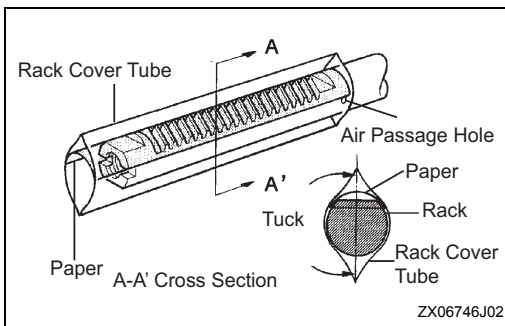
NOTICE:

As it is used to protect the cylinder tube oil seal, before using the rack cover tube, check that it has no burrs, cracks or other damage.

- (f) Cut a piece of newspaper so it is wide enough to cover the power steering rack teeth and the same length as the rack cover tube.

HINT:

Make sure the newspaper is large enough that the power steering rack leaves no teeth marks on the rack cover tube when the tube is contracted.

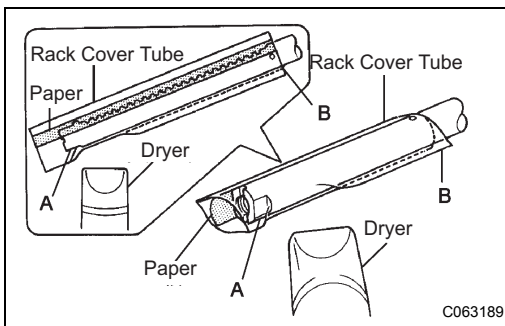


- (g) Fill the grooved sections of the power steering rack teeth with amix long life grease.

NOTICE:

Do not clog the ventilation hole of the steering rack with grease.

- (h) Position the newspaper so that it covers the power steering rack teeth.
(i) Insert the rack cover tube in the direction of the crease shown in the illustration until it covers the ports.



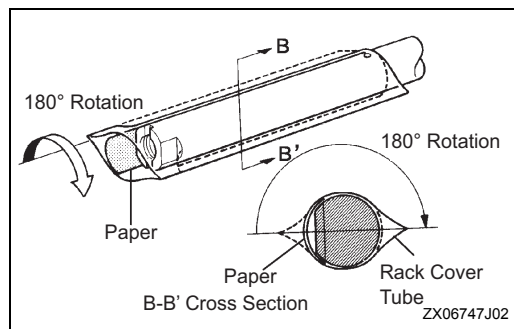
- (j) Using the rear side of the teeth, bring the dryer air outlet to the power steering rack at an angle as shown in the illustration, and move the dryer so that it pushes the air inside the rack cover tube to side B and in doing so, contracts the rack cover tube from part A to part B.

NOTICE:

If the rack cover tube is contracted by the dryer from the side of the power steering rack teeth, it will leave teeth marks on the rack cover tube, which will make it difficult to remove the rack cover tube.

HINT:

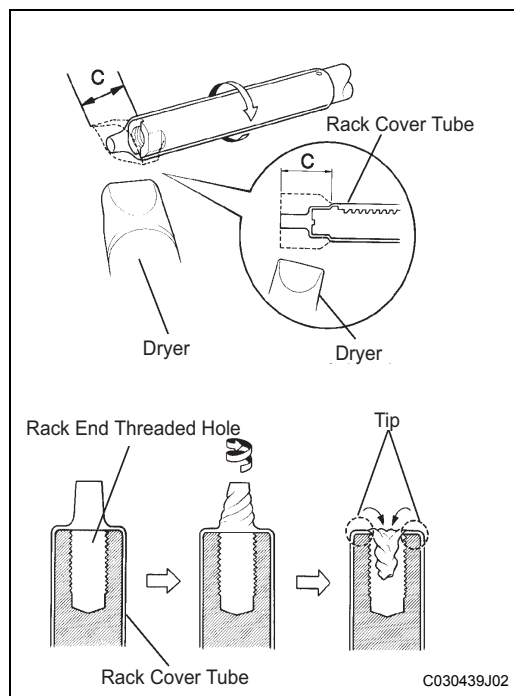
Using a fine head on the dryer air outlet makes it easier to contract the crease on the rack cover tube one side at a time.



- (k) Turn just the rack cover tube approximately 180 degrees.
- (l) Using the rear side of the power steering rack, contract the the other side of the rack cover tube.
- (m) Pull out the newspaper.

HINT:

- If the newspaper rips, pull off the rack cover tub to remove it.
- When installing the rack cover tube, be sure to insert the power steering rack until it fully covers the ports.



- (n) While rotating the power steering rack, thoroughly heat just the rack cover tube end C, and then twist it quickly while pushing it into the steering rack end installation hole.

NOTICE:

The rack cover tube may become difficult to remove if heat is also applied to the teeth.

- (o) Make sure that there are no protrusions, edges or similar on the rack cover tube end.

HINT:

If there are any protrusions or edges on the end, heat the end once again and push the protrusions and or edges into the rack end installation hole using a pen or similar.

- (p) Check that the surface of the rack cover tube is not scratched or otherwise damaged.
- (q) Coat the rack cover tube and power steering rack power piston ring with power steering fluid.
- (r) Install the power steering rack to the rack housing and remove the rack cover tube.

NOTICE:

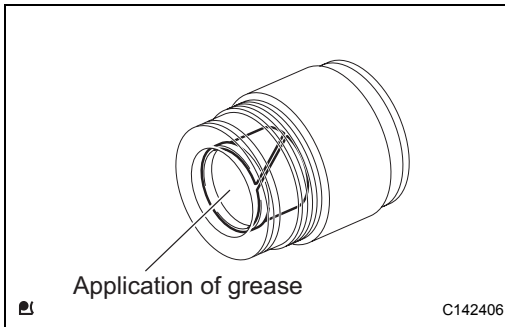
- Do not damage the power piston ring.
- Do not reuse the rack cover tube.
- As there is a risk that the power steering cylinder tube oil seal may be damaged by power steering rack over-stroke, do not move the power steering rack any more than needed after the rack cover tube is removed until the control valve is installed.

3. INSTALL CYLINDER END STOPPER

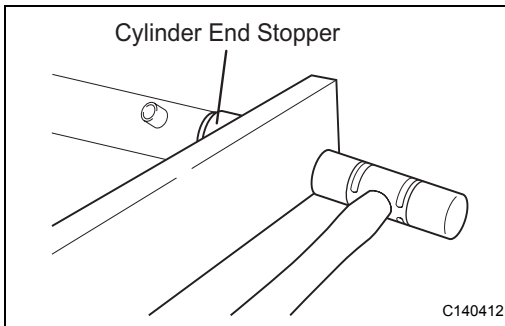
- (a) Coat the lip of a new cylinder end stopper oil seal with power steering fluid.
- (b) Install the cylinder end stopper oil seal to the rack housing.

NOTICE:

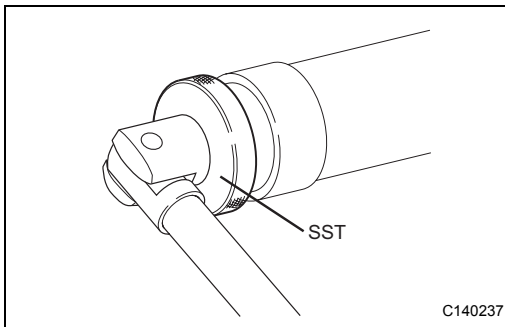
- Make sure the cylinder end stopper oil seal is installed in the correct direction.
- Do not damage the cylinder end stopper oil seal.
- (c) Check that the bush located on the inner surface of the cylinder end stopper is not damaged.



- (d) Coat the bush located on the inner surface of the cylinder end stopper with long life chassis grease.
- (e) Coat a new O-ring with power steering fluid and install it to the cylinder end stopper.



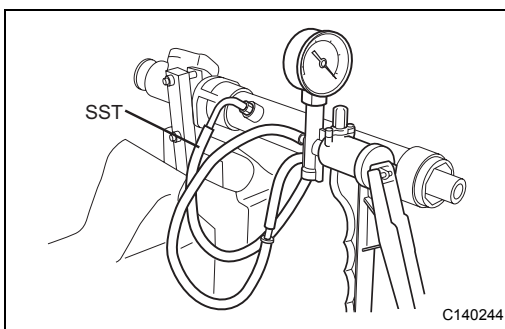
- (f) Coat the inner surface of the bush of the cylinder end stopper with power steering fluid and drive in the bush to the rack housing so that the cylinder end stopper can be tightened.



- (g) Using the SST, tighten the cylinder end stopper.
Torque: 60 N*m (612 kgf*cm)

4. CHECK POWER STEERING RACK HOUSING AIRTIGHTNESS SST 09631-12071

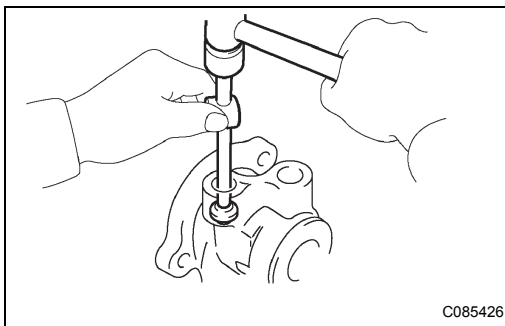
- (a) Install the SST on the rack housing.



- (b) Install a MIGHTY VAC to the SST. Then apply a vacuum of 53.33 kPa (400 mm Hg) for 30 seconds and check that there is no change to the vacuum pressure in that time.

NOTICE:

If there is any air leakage, inspect the cylinder end stopper oil seal and cylinder tube oil seal and replace.



5. INSTALL PRESSURE CONTROL VALVE ORIFICE SEAT

- (a) Using a sliding T-handle and hammer, lightly tap in a new power steering control valve spacer.

NOTICE:

Do not allow any foreign matter to get into the port.

6. INSTALL POWER STEERING CONTROL VALVE UNION SEAT

HINT:

Use the same procedure as for the pressure control valve orifice seat.

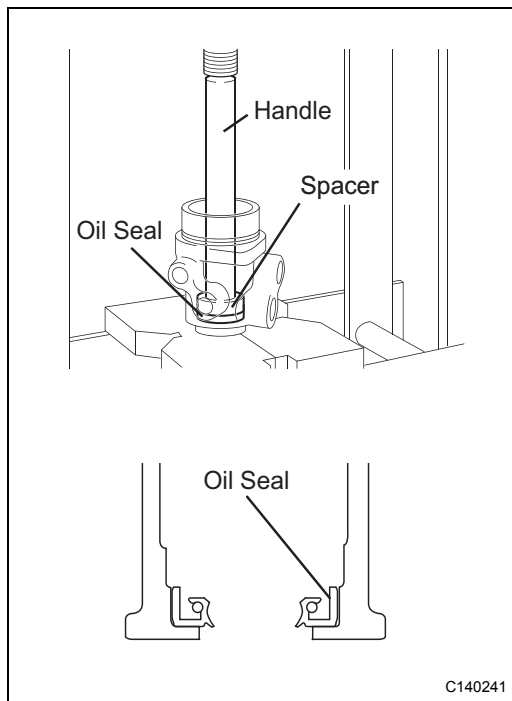
7. INSTALL POWER STEERING CONTROL VALVE UPPER OIL SEAL

- Apply power steering fluid to the lip of the new power steering control valve upper oil seal and power steering control valve upper bearing.
- Using the SST and a press, press in the power steering control valve upper oil seal.

SST 09950-60010 (09951-00290)

NOTICE:

- Make sure the power steering control valve upper oil seal is installed in the correct direction.
- While pressing in with the press, do not apply an excessive force.



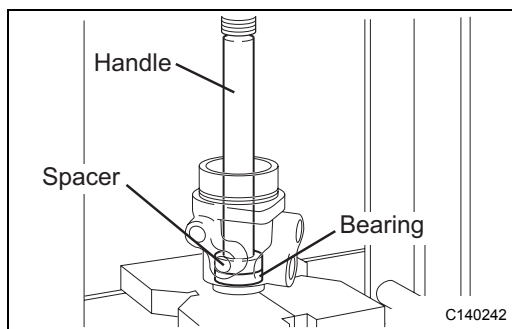
8. INSTALL POWER STEERING CONTROL VALVE UPPER BEARING

- Using the SST and a press, press in the power steering control valve upper bearing.

SST 09950-60010 (09951-00320)

NOTICE:

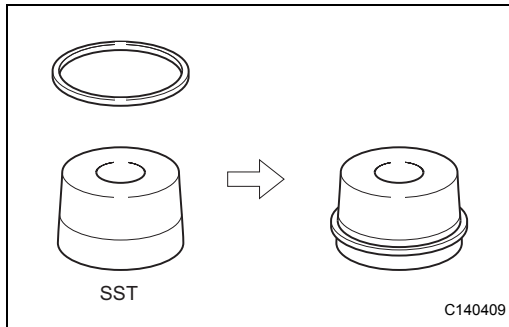
While pressing in with the press, do not apply an excessive force.



9. INSTALL POWER STEERING CONTROL VALVE

SST 09631-20070

- Coat 4 new power steering control valve rings with power steering fluid.



- (b) Using the SST, stretch the 4 control valve rings.

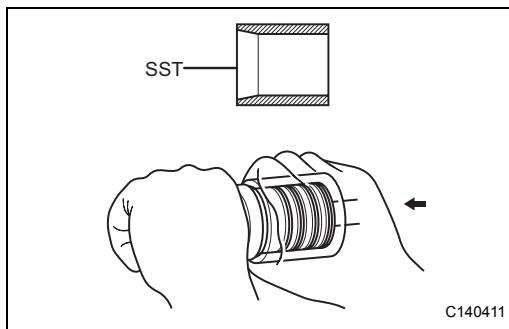
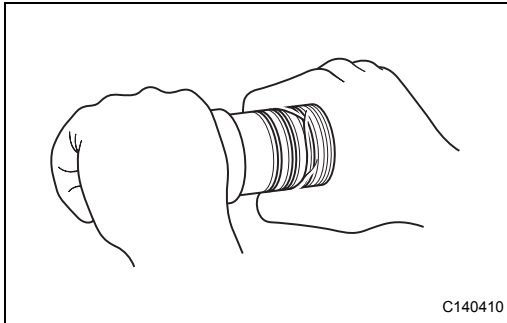
HINT:

Insert the seal rings from the smaller diameter side of the SST. Slide the rings toward the larger diameter side of the SST to stretch them.

NOTICE:

- Do not stretch the power steering control valve rings excessively.
- Stretch the full circumference of the power steering control valve rings evenly.
- Do not damage the power steering control valve rings.

- (c) While holding the 4 power steering control valve rings and allow them to shrink.



- (d) Coat the 4 rings with power steering fluid. Using the SST, allow the rings to shrink further.

- (e) Wrap the serrated area of the control valve with protective tape.

- (f) Coat the oil seal with power steering fluid.

- (g) Using a press, install the power steering control valve to the power steering control valve housing.

NOTICE:

- Do not damage the power steering control valve rings.
- Do not damage the power steering control valve upper oil seal inside the power steering control valve housing.
- When the power steering control valve cannot be pressed in easily, make sure that the control valve ring is not pinched and that the bearing inside the control valve housing is not tilted.

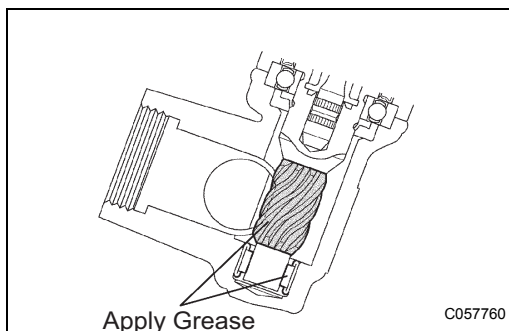
10. INSTALL POWER STEERING CONTROL VALVE ASSEMBLY

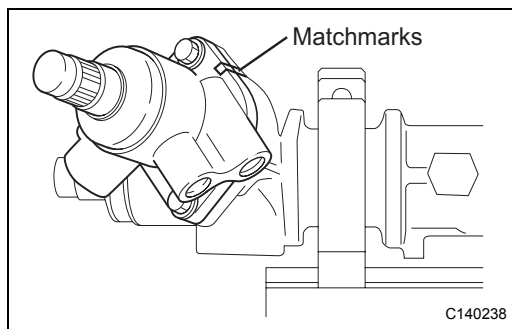
- (a) Coat the grooved sections of the pinion rack teeth with long life grease.

- (b) Coat the needle roller bearing inside the rack housing with long life grease.

- (c) Install a new power steering control valve housing gasket to the control valve housing.

- (d) Align matchmarks of the control valve housing and the rack housing, and install the power steering control valve assembly.



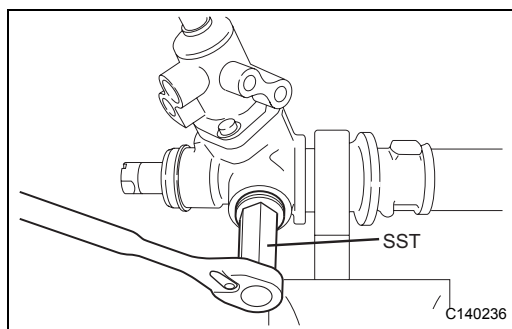
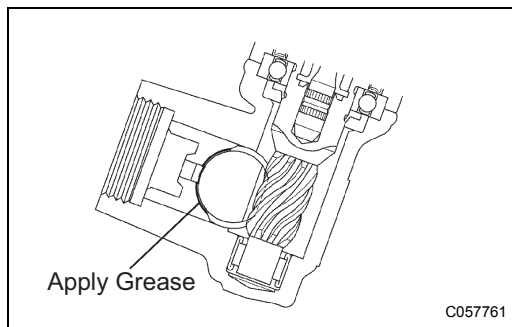


- (e) Install the power steering control valve housing to the power steering rack housing using 2 bolts.

Torque: 18.2 N*m (185 kgf*cm)

11. INSTALL STEERING RACK GUIDE

- Coat the surface that contacts the power steering rack with long life grease.
- Install the power steering rack guide to the rack housing.
- Clean the threaded parts of the spring cap and the rack housing.
- Install the rack guide spring to the rack housing.
- Temporarily tighten the spring cap.
- Engage the power steering rack and the control valve.



- (g) Using the SST, install the spring cap.

Torque: 83.4 N*m (850 kgf*cm)

12. INSPECT TOTAL PRELOAD

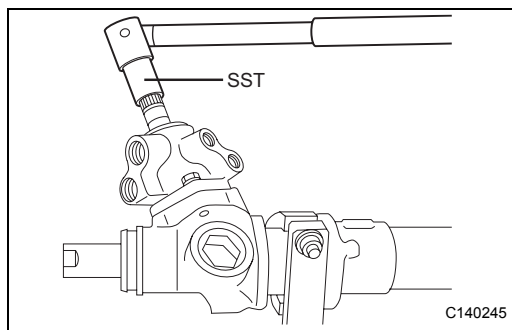
SST 09616-00010

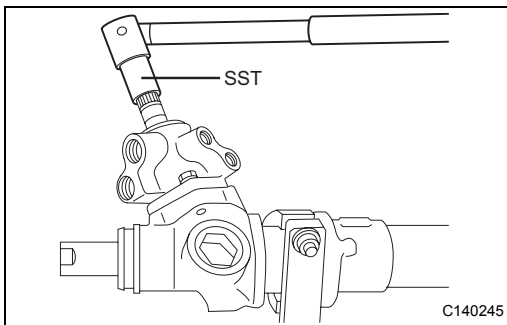
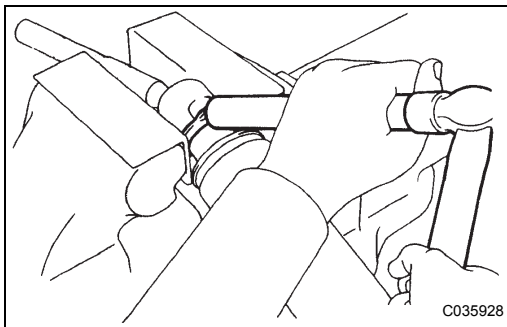
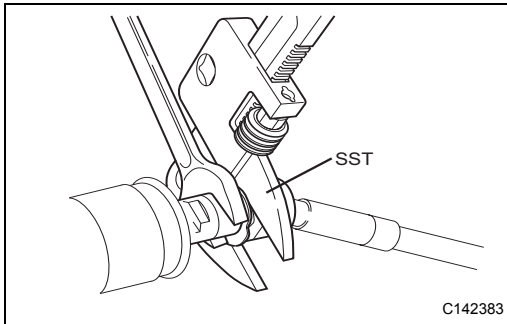
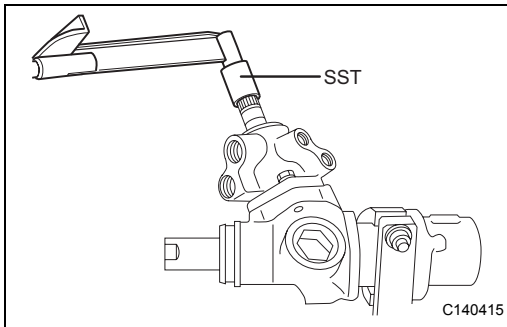
- (a) Temporarily install the left and right steering rack ends to the power steering rack.

NOTICE:

Make sure to install the left and right steering rack ends because moving the power steering rack at full stroke without installing the steering rack ends may damage the oil seal.

- (b) Using the SST, move the power steering rack 1 to 2 times at full stroke to work in the power steering rack.





- (c) Using the SST, inspect total preload.

Standard:

0.8 to 1.5 N*m (8 to 14.8 kg*cm)

- (d) Remove the right and left steering rack ends from the power steering rack.

13. INSTALL STEERING RACK END

- (a) Align the claws of 2 new claw washers with the RH and LH steering rack end grooves to install them to the steering rack ends.

- (b) Temporarily install the left and right steering rack ends.

- (c) Using the SST and a wrench, install the steering rack end to the power steering rack.

Torque: 103 N*m (1050 kgf*cm)

NOTICE:

- Use the SST in the correct direction.
- When tightening, do not twist the steering rack.
- Secure the power steering rack securely with a spanner.

- (d) Secure the steering rack end ball joint in the vise between aluminum plates.

NOTICE:

Do not tighten the vise too firmly.

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

NOTICE:

Avoid any impact to the power steering rack.

14. INSTALL STEERING RACK BOOT NO. 2

- (a) INSTALL LEFT AND RIGHT STEERING RACK BOOTS AND BOOT CLAMP Install the left and right steering rack boots and boot clamp.

- (b) Using the SST, rotate the control valve and check that the steering rack boot expands and contracts smoothly.

15. INSTALL STEERING LEFT TURN PRESSURE TUBE

SST 09633-00020

- (a) Using the SST, install the steering left turn pressure tube to the power steering gear assembly.

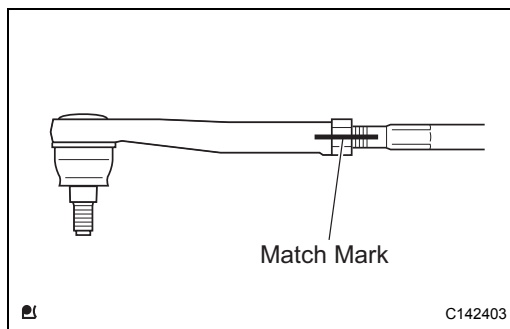
Torque: 24.5 N*m (250 kgf*cm)

16. INSTALL STEERING RIGHT TURN PRESSURE TUBE

SST 09633-00020

- (a) Use the same procedure as for the steering left turn pressure tube.

Torque: 24.5 N*m (250 kgf*cm)



17. INSTALL TIE ROD END LH

- (a) Install the lock nut and the tie rod end LH to the rack end until the matchmarks are aligned and install the lock nut.

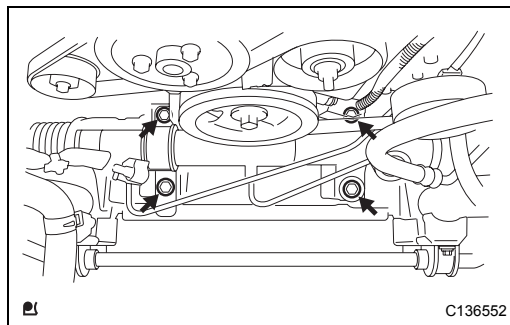
Torque: 47.1 N*m (480 kgf*cm)

18. INSTALL TIE ROD END RH

HINT:

Install the RH in the same way as the LH.

INSTALLATION



1. INSTALL RACK AND PINION TYPE POWER STEERING GEAR ASSEMBLY

- (a) Using a torque wrench, install the rack and pinion type power steering gear assembly.

Torque: 90.5 N*m (923 kgf*cm)

2. INSTALL STEERING SHAFT UNIVERSAL JOINT ASSEMBLY

- (a) Align the matchmarks and install the steering shaft universal joint assembly to the steering gear assembly.

NOTICE:

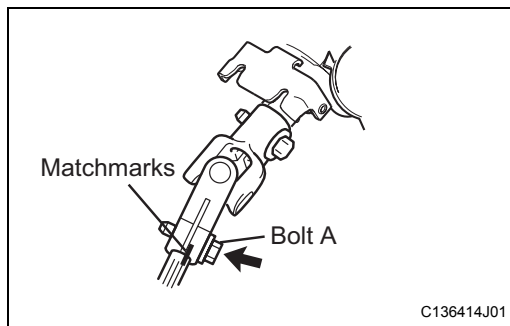
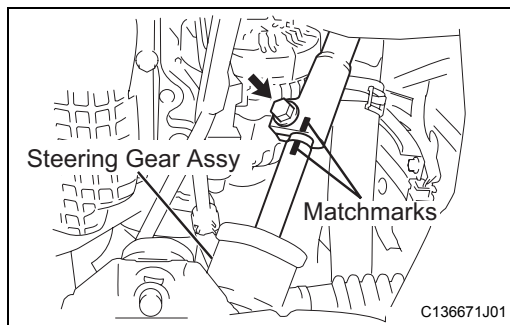
Insert the steering shaft universal joint assembly until the spline part can no longer be seen.

- (b) After temporarily tightening a new bolt by hand, fully tighten the bolt.

Torque: 35 N*m (357 kgf*cm)

- (c) Insert the steering intermediate shaft into the column hole cover from the cabin side.

- (d) Align matchmarks and connect the steering column assembly to the steering intermediate shaft assembly.

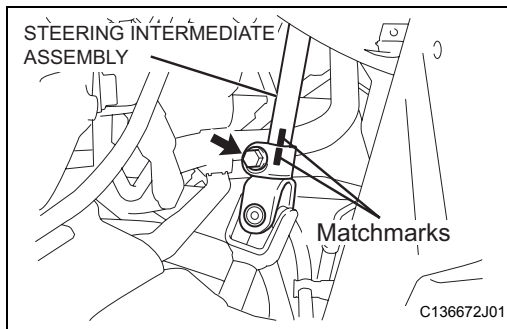


- (e) Temporarily tighten bolt A by hand so that the steering intermediate shaft assembly slides slightly.

- (f) Align the matchmarks and connect the steering intermediate shaft and the steering shaft universal joint assembly.

NOTICE:

Insert the steering intermediate shaft until the serrated part can no longer be seen.

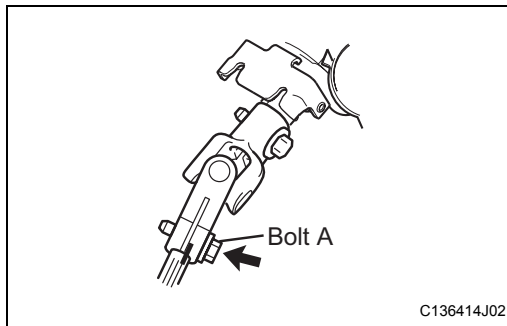


- (g) After temporarily tightening a new bolt by hand, fully tighten the bolt.

Torque: 29.4 N*m (300 kgf*cm)

NOTICE:

Make sure the bolt does not run on the notch of the steering intermediate shaft.

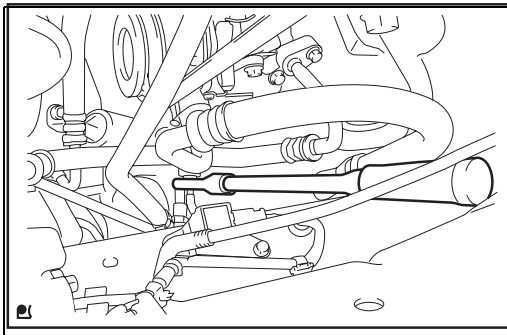


- (h) Fully tighten bolt A.

Torque: 29.4 N*m (300 kgf*cm)

3. **INSTALL INSTRUMENT PANEL UNDER COVER NO. 1** (See pageIP-18)

4. **INSTALL INSTRUMENT PANEL FINISH PANEL LWR** (See pageIP-18)



5. **CONNECT OIL RESERVOIR TO PUMP HOSE**

- (a) Using a torque wrench, connect the oil reservoir to pump hose to the rack and pinion type power steering gear assembly.

Torque: 44.1 N*m (450 kgf*cm)

6. **CONNECT PRESSURE FEED HOSE**

- (a) Using a torque wrench, connect the pressure feed hose to the rack and pinion type power steering gear assembly.

Torque: 44.1 N*m (450 kgf*cm)

7. **INSTALL TIE ROD END LH** (See pageDS-10)

8. **INSTALL TIE ROD END RH**

HINT:

Perform the same procedure for the RH as for the LH.

9. **REFILL POWER STEERING FLUID**

10. **BLEED AIR FROM POWER STEERING FLUID** (See pagePS-4)

11. **CHECK POWER STEERING FLUID LEVEL** (See pagePS-3)

12. **CHECK FOR POWER STEERING FLUID LEAKAGE**

13. **INSTALL ENGINE UNDER COVER**

14. **INSTALL FRONT TIRE**

Torque: 103 N*m (1050 kgf*cm)

15. **PERFORM ZERO POINT CALIBRATION**