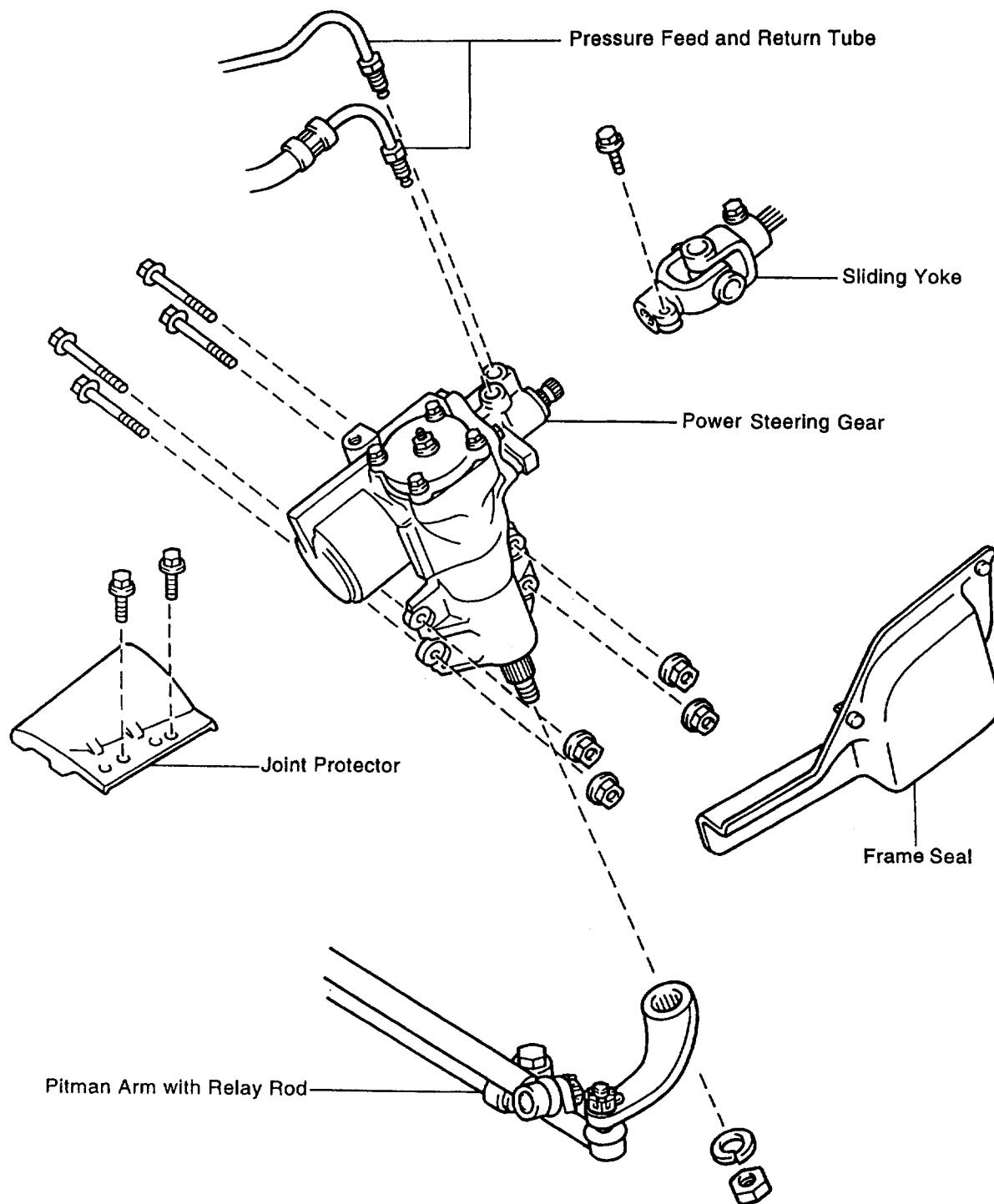
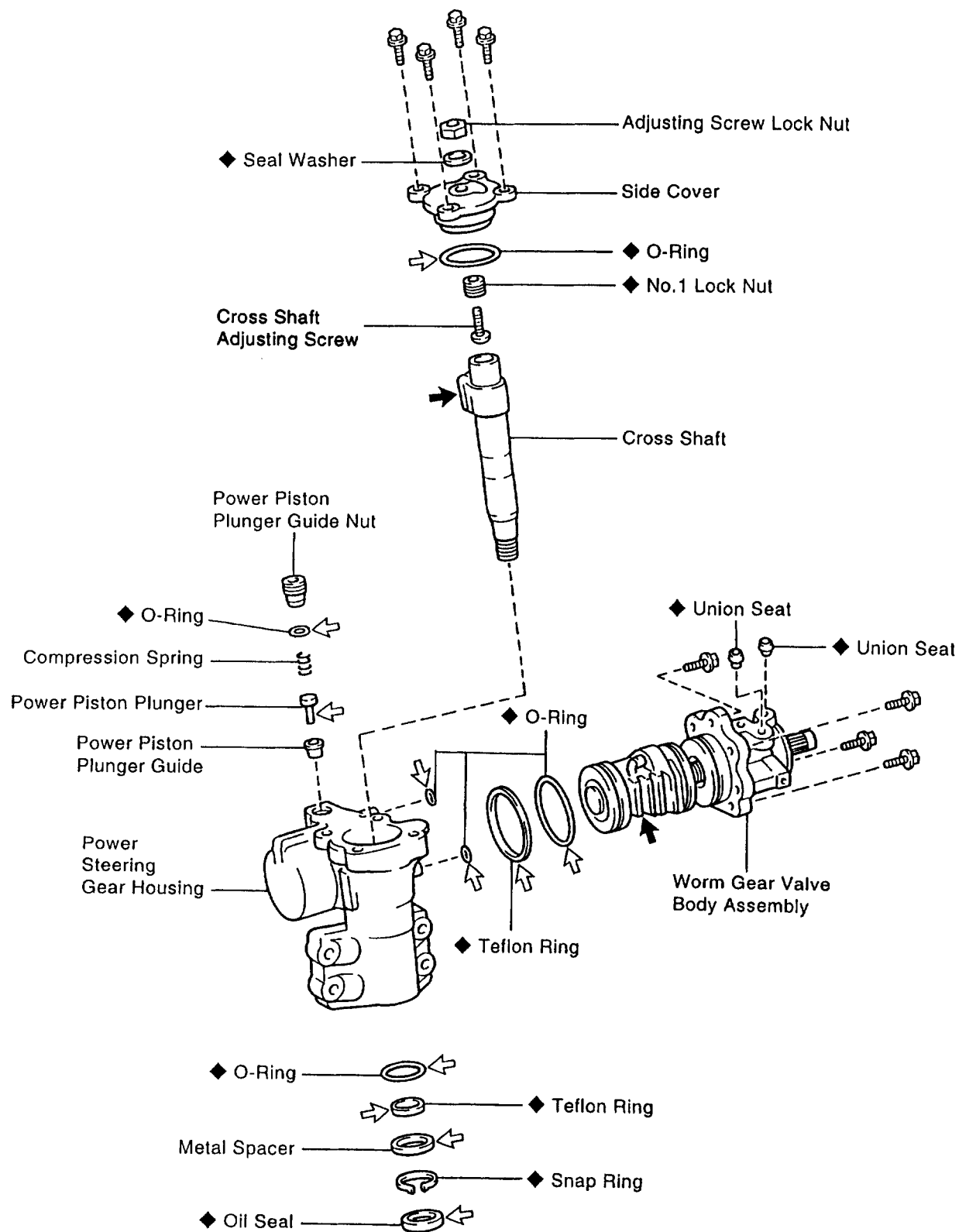


POWER STEERING GEAR COMPONENTS

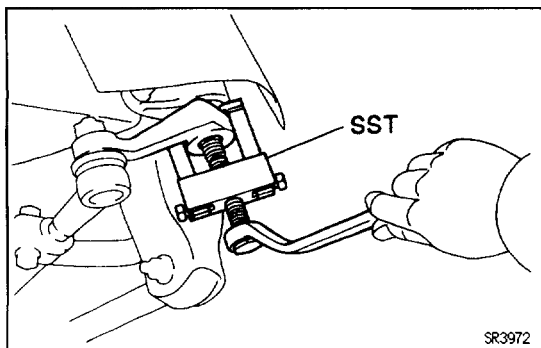




♦ Non-reusable part

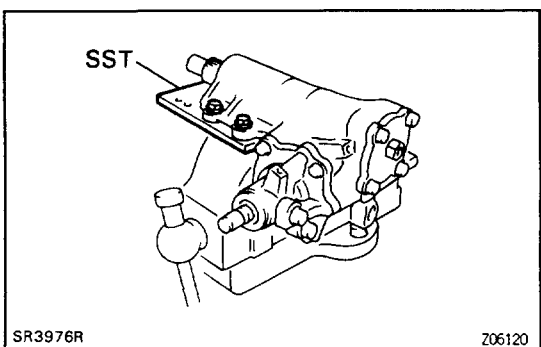
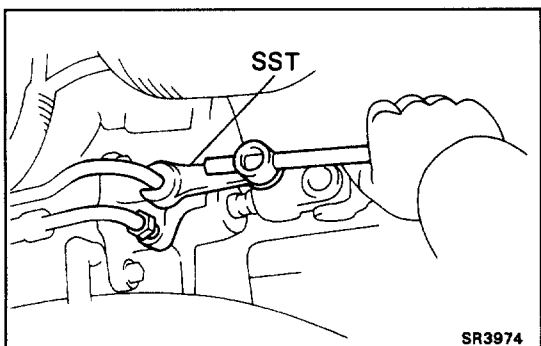
⇨ Apply power Steering Fluid

⇨ Molybdenum disulphide lithium base grease



POWER STEERING GEAR REMOVAL

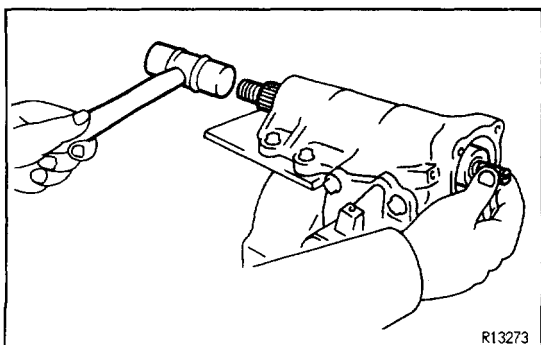
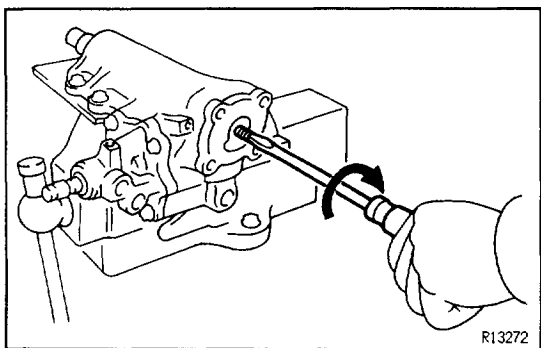
1. **REMOVE FRAME SEAL**
2. **REMOVE LINK JOINT PROTECTOR**
Remove the 2 bolts.
3. **DISCONNECT PITMAN ARM WITH RELAY ROD**
 - (a) Remove the pitman arm set nut and spring washer.
 - (b) Using SST, disconnect the pitman arm from the gear assembly.
SST 09628-62011
4. **DISCONNECT PRESSURE FEED AND RETURN TUBES**
Using SST, disconnect the pressure feed and return tubes.
SST 09631-22020
5. **DISCONNECT SLIDING YOKE SUB-ASSEMBLY**
(See page [SR-14](#))
6. **REMOVE PS GEAR ASSEMBLY**
Remove the 4 installation bolts and nuts.

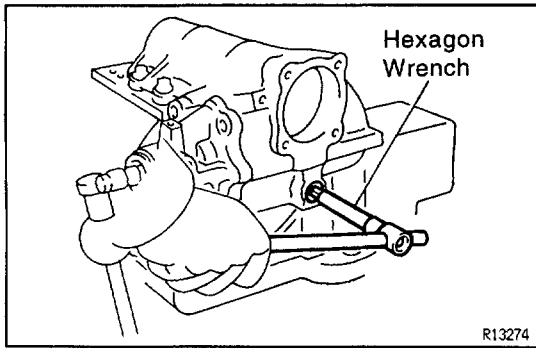


POWER STEERING GEAR DISASSEMBLY

NOTICE: When using a vise, do not overtighten it.

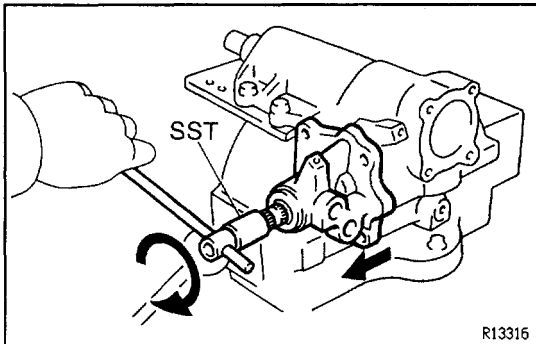
1. **SECURE PS GEAR ASSEMBLY IN VISE**
Secure the gear assembly on SST and clamp SST in a vise.
SST 09630-00013 (09631-00141)
2. **REMOVE ADJUSTING SCREW LOCK NUT AND SEAL WASHER**
3. **REMOVE SIDE COVER**
 - (a) Remove the 4 bolts.
 - (b) Turn the cross shaft adjusting screw clockwise until the cover comes off.
 - (c) Remove the O-ring from the cover.
4. **REMOVE CROSS SHAFT**
Using a plastic hammer, tap on the cross shaft end and pull out the shaft.





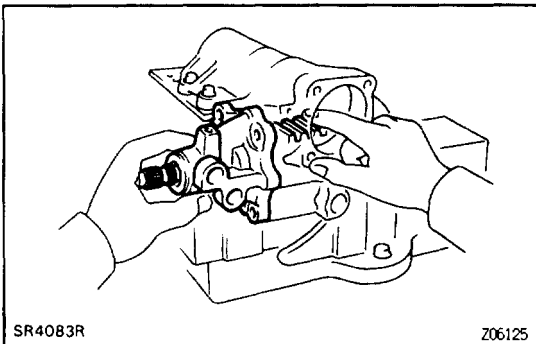
5. REMOVE POWER PISTON PLUNGER GUIDE NUT, COMPRESSION SPRING, POWER PISTON PLUNGER AND POWER PISTON PLUNGER GUIDE

- (a) Using a hexagon wrench (10 mm), remove the plunger guide nut.
- (b) Remove the O-ring from the plunger guide nut.

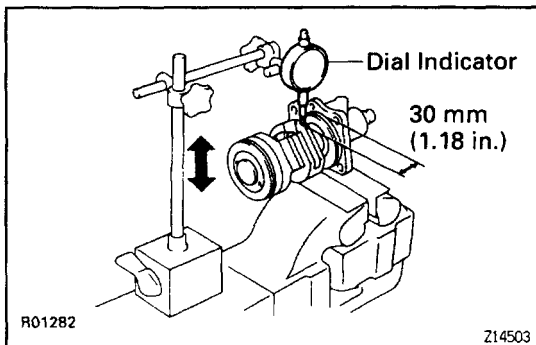


6. REMOVE WORM GEAR VALVE BODY ASSEMBLY

- (a) Remove the 4 bolts.
- (b) Using SST, turn the valve body shaft clockwise with holding the worm gear by your finger so it cannot move.
SST 09616-00010



- (c) Pull out the valve body assembly.
NOTICE: Ensure that the worm gear does not come off the worm shaft.
- (d) Remove the 2 O-rings from the gear housing.



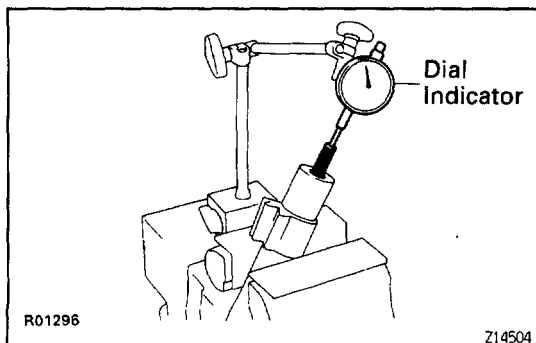
POWER STEERING GEAR INSPECTION AND REPLACEMENT

NOTICE: When using a vise, do not overtighten it.

1. INSPECT BALL CLEARANCE

Using a dial indicator, check the ball clearance. Move the worm gear up and down.

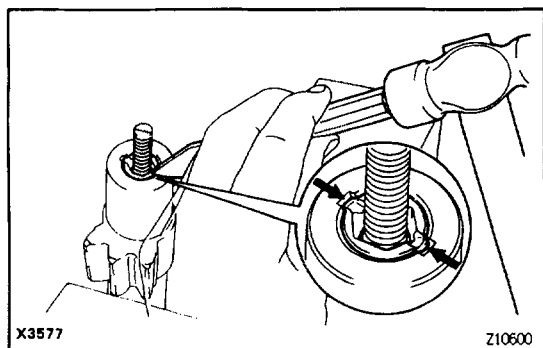
	Clearance	mm (in.)
Maximum	0.15	(0.0059)



2. INSPECT CROSS SHAFT ADJUSTING SCREW THRUST CLEARANCE

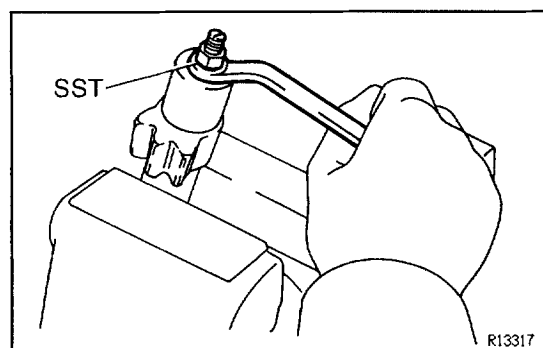
Using a dial indicator, measure the thrust clearance.

	Clearance	mm (in.)
Maximum	0.03-0.05	(0.0012-0.0020)

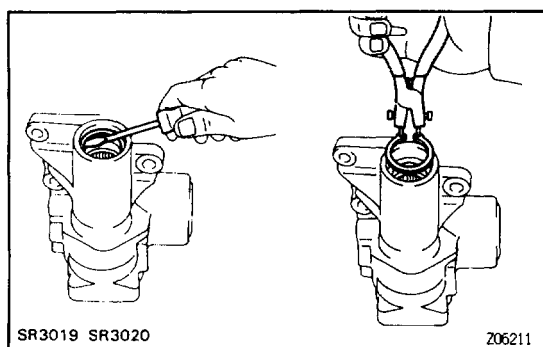


3. IF NECESSARY, ADJUST CROSS SHAFT ADJUSTING SCREW THRUST CLEARANCE

- (a) Using a chisel and hammer, unstake the No.1 lock nut.

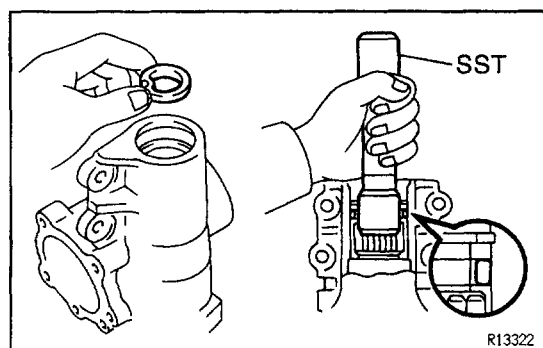


- (b) Using SST, remove the No.1 lock nut.
SST 09630-00013 (09631-00050)
- (c) Using a screwdriver, adjust the adjusting screw for correct thrust clearance.
- (d) Tighten a new lock nut.
- (e) Stake the lock nut.



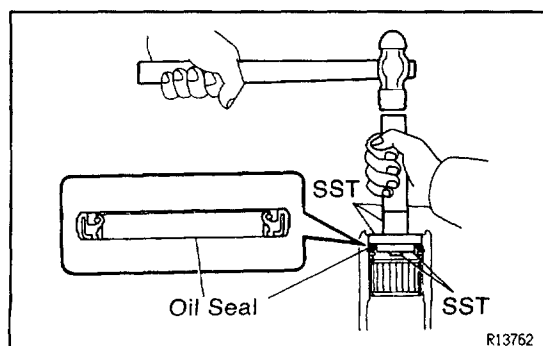
4. IF NECESSARY, REPLACE OIL SEAL, METAL SPACER AND TEFLON RING

- (a) Using a screwdriver, pry out the oil seal from the gear housing.
- (b) Using snap ring pliers, remove the snap ring from the gear housing.
- (c) Remove the metal spacer, teflon ring and O-ring from the gear housing.



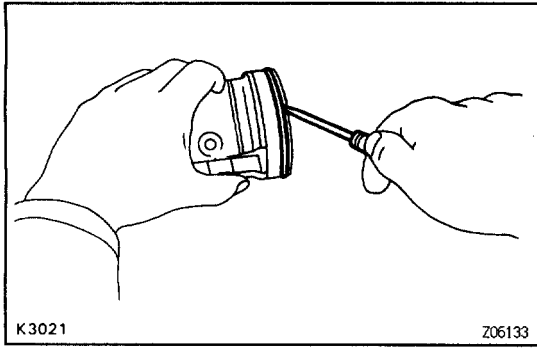
- (d) Coat a new O-ring and metal spacer with power steering fluid.
- (e) Install the O-ring and metal spacer.
- (f) Using snap ring pliers, install a new snap ring.
- (g) Coat a new teflon ring with power steering fluid.
- (h) Form a teflon ring into a heart shape and install it with hand.
- (i) Using SST, form the teflon ring.
SST 09630-00013 (09631-00120)

NOTICE: The teflon ring must be squeezed before inserting the cross shaft or damage will result.



- (j) Coat a new oil seal with power steering fluid.
- (k) Using SST, drive the oil seal into the gear housing.
SST 09950-60010 (09951-00360, 09951-00410,
09952-06010, 90155-60003),
09950-70010 (09951-07200)

NOTICE: Make sure you install the oil seal facing the correct direction.



5. IF NECESSARY, REPLACE TEFLON RING AND O— RING

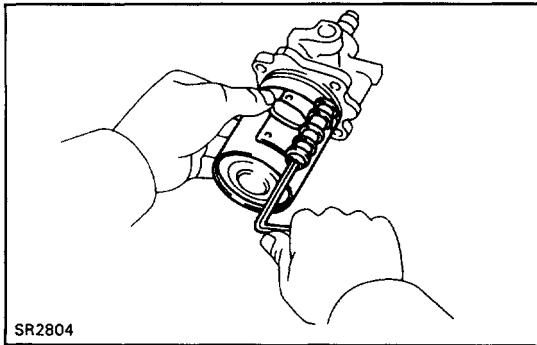
- (a) Using a screwdriver, remove the teflon ring and O— ring from the worm gear valve body assembly.

NOTICE: Be careful not to damage the worm gear valve body assembly.

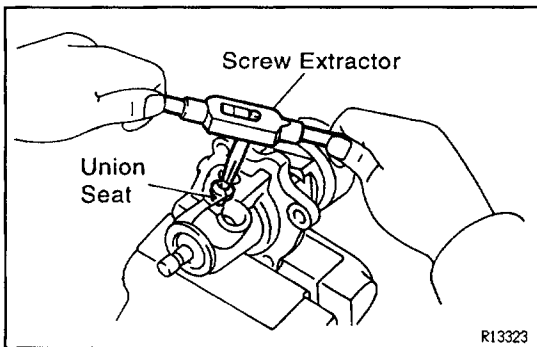
- (b) Coat a new O— ring with power steering fluid and install it.
 (c) Expand a new teflon ring with your fingers.

NOTICE: Be careful not to overexpand the teflon ring.

- (d) Install the teflon ring.

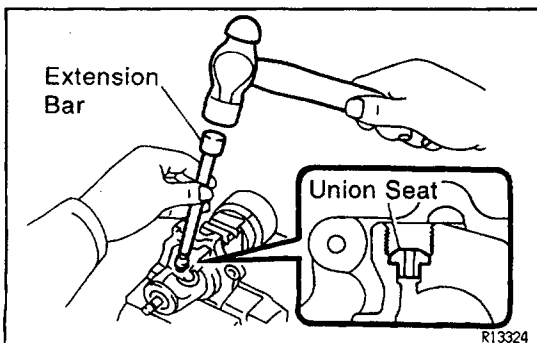


- (e) Coat the teflon ring with power steering fluid and snug it down with piston ring compressor for 5–7 minutes.



6. IF NECESSARY, REPLACE UNION SEATS

- (a) Using a screw extractor, remove the 2 union seats from the worm gear valve body assembly.



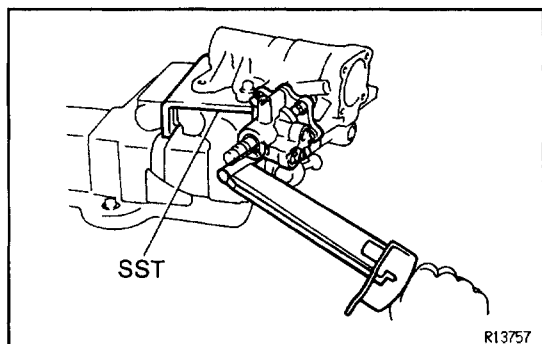
- (b) Using a hammer and extension bar, tap in 2 new union seats.
NOTICE: Before installing the union seat, remove dust sticking to the worm gear valve body assembly.

POWER STEERING GEAR ASSEMBLY

NOTICE: When using a vise, do not overtighten it.

1. INSTALL WORM GEAR VALVE BODY ASSEMBLY

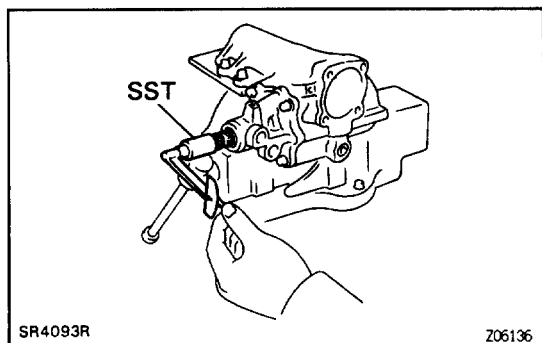
- (a) Coat 2 new O-rings with power steering fluid.
- (b) Install the 2 O-rings to the gear housing.



- (c) Secure the gear housing on SST and clamp SST in vise. SST 09630-00013 (09631-00141)
- (d) Torque the 4 bolts.

Torque: 61 N·m (620 kgf·cm, 45 ft·lbf)

NOTICE: Be careful not to damage the teflon ring.



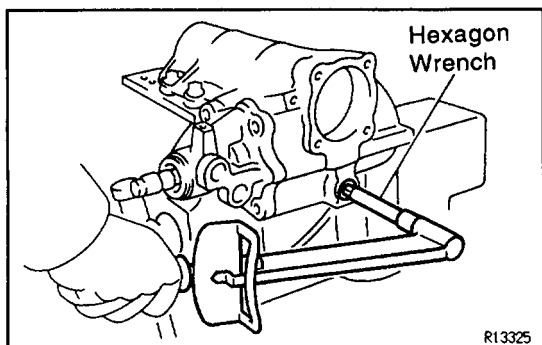
- (e) Using SST and a torque wrench, check the valve body assembly rotating torque.

SST 09616-00010

Rotating torque:

0.3-0.5 N·m (3-5.5 kgf·cm, 2.6-4.8 in·lbf)

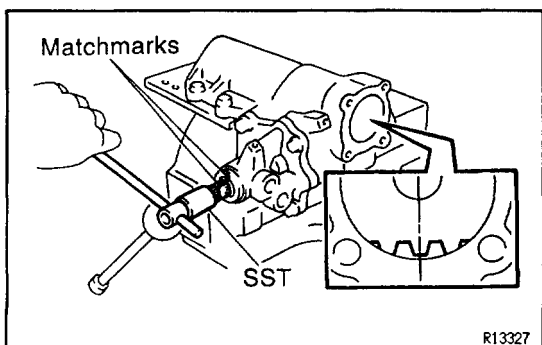
HINT: Hold the worm gear to prevent it from turning. If rotating torque is not correct, replace the worm gear valve body assembly.



2. INSTALL POWER PISTON PLUNGER GUIDE, POWER PISTON PLUNGER, COMPRESSION SPRING AND POWER PISTON PLUNGER GUIDE NUT

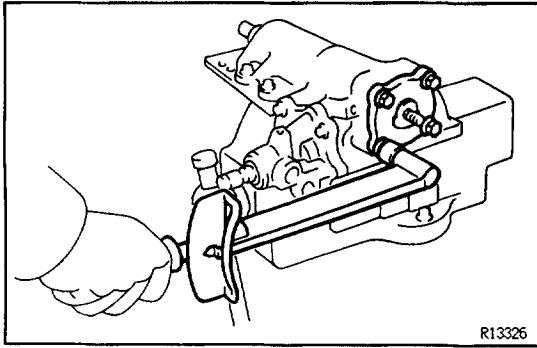
- (a) Coat a new O-ring with power steering fluid.
- (b) Install the O-ring to the plunger guide nut and install the plunger guide nut with a hexagon wrench (10 mm).

Torque: 20 N·m (205 kgf·cm, 15 ft·lbf)



3. DETERMINE CENTER POSITION

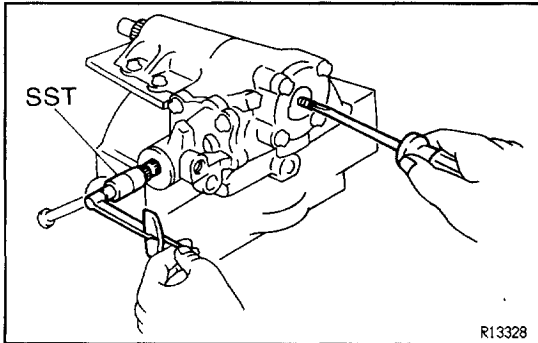
- (a) Using SST, turn the worm gear valve body shaft so full lock in both directions and determine the exact center. SST 09616-00010
- (b) Place matchmarks on the worm gear valve body shaft and worm gear valve body housing to show neutral position.



4. INSTALL CROSS SHAFT AND SIDE COVER

- (a) Coat a new O-ring with power steering fluid.
- (b) Install the O-ring on the side cover.
- (c) Assemble the cross shaft to the side cover.
HINT: Fully loosen the cross shaft adjusting screw.
- (d) Install and push the cross shaft into the gear housing so that the center teeth mesh together.
- (e) Torque the 4 bolts in a diagonal pattern.

Torque: 61 N·m (620 kgf·cm, 45 ft·lbf)

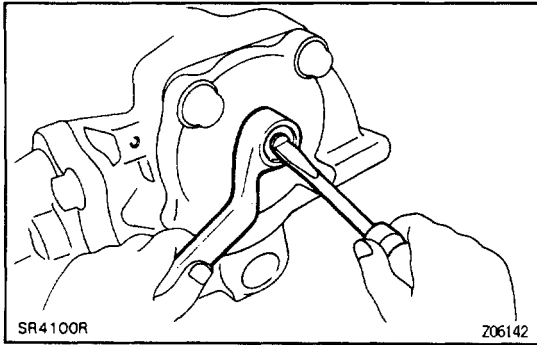


5. ADJUST CROSS SHAFT ADJUSTING SCREW

- (a) Install SST with a torque wrench on the worm gear valve body shaft.
SST 09616-00010
- (b) Turn the cross shaft adjusting screw until the preload is within specification.

Preload (Turning):

0.74–10.8 N·m (7.5–11.0 kgf·cm, 6.5–9.6 in. ·lbf)

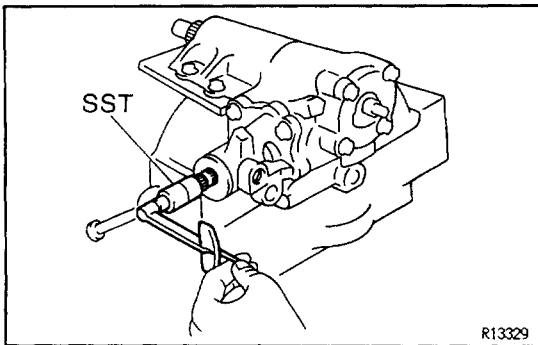


6. INSTALL NEW SEAL WASHER

7. INSTALL ADJUSTING SCREW LOCK NUT

Torque the lock nut while holding the cross shaft adjusting screw.

Torque: 46 N·m (470 kgf·cm, 34 ft·lbf)



8. CHECK TOTAL PRELOAD

Using SST and a torque wrench, check total preload.

SST 09616-00010

Total preload (Turning):

0.74–1.08 N·m (7.5–11.0 kgf·cm, 6.5–9.6 in. ·lbf)

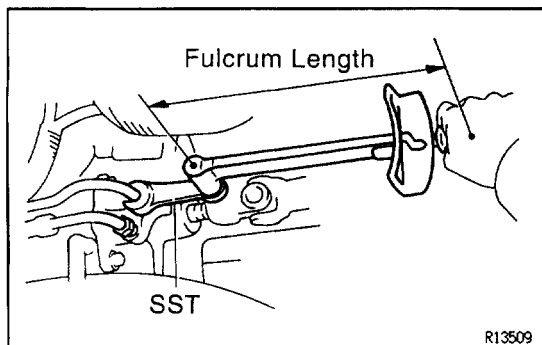
POWER STEERING GEAR INSTALLATION

1. INSTALL PS GEAR ASSEMBLY

- (a) Torque the 4 installation bolts and nuts.
Torque: 142 N·m (1,450 kgf·cm, 105 ft·lbf)

2. CONNECT SLIDING YOKE SUB-ASSEMBLY

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

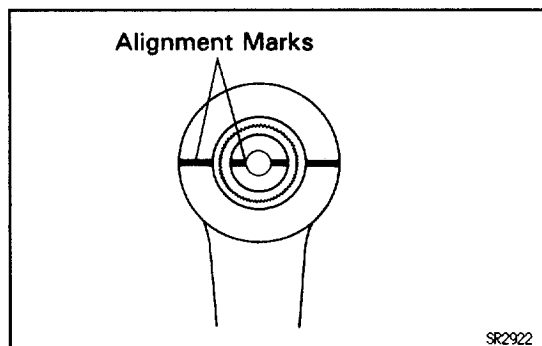
**3. CONNECT PRESSURE FEED AND RETURN TUBES**

Using SST, connect the pressure feed and return tubes.

SST 09631-22020

Torque: 36 N·m (366 kgf·cm, 26 ft·lbf)

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

**4. CONNECT PITMAN ARM WITH RELAY ROD**

(a) Align the alignment marks on the cross shaft and pitman arm and connect the pitman arm.

(b) Install the spring washer and pitman arm set nut.

Torque: 177 N·m (1,800 kgf·cm, 130 ft·lbf)

5. BLEED POWER STEERING SYSTEM

(See page [SR-7](#))

6. CHECK STEERING WHEEL CENTER POINT