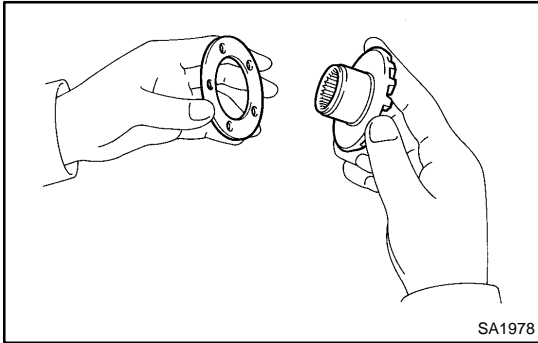


REASSEMBLY

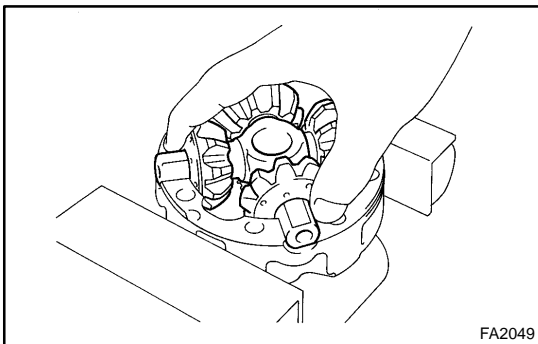
HINT:

- Using a shop rag, clean off any foreign object from the parts.
- Apply all of the sliding and rotating surfaces with hypoid gear oil.

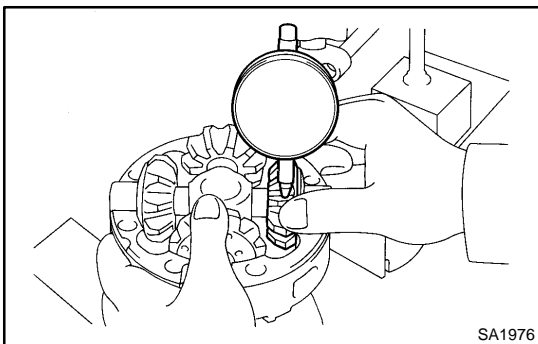


1. ASSEMBLE DIFFERENTIAL CASE

- Install the side gear thrust washer to the side gear.
- Install the side gear to the RH case.



- Install the 4 pinion gears and pinion gear thrust washers to the spider.
- Install the pinion gear with spider to the RH case.



- Using a dial indicator, measure the side gear backlash with holding the side gear and spider.
Backlash: 0.05 – 0.20 mm (0.0020 – 0.0079 in.)

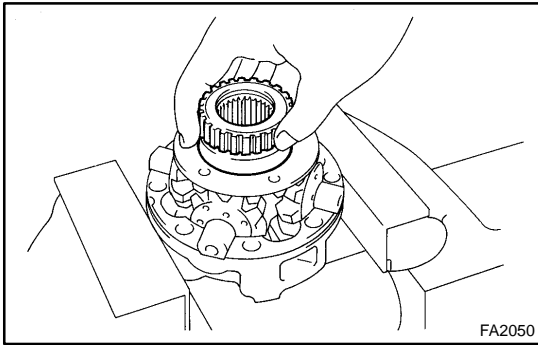
HINT:

- Measure at all 4 locations.
 - Measure the backlash at the RH case and the LH case.
- If the backlash is not within the specified value, install a thrust washer of a different thickness.

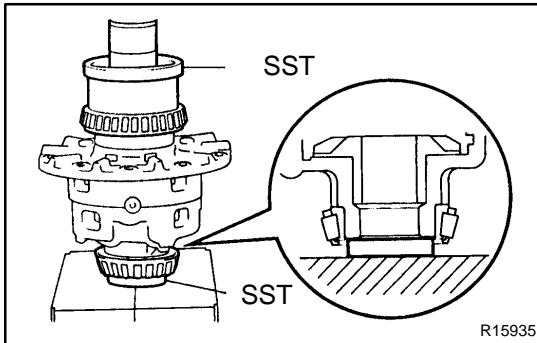
Thrust washer thickness:

Thickness mm (in.)	Thickness mm (in.)
0.9 (0.035)	1.2 (0.047)
1.0 (0.039)	1.3 (0.051)
1.1 (0.043)	–

- Install the side gear and side gear thrust washer to the RH case.
- Install the pinion gears and spider to the RH case.



- (h) Install the side gear and side gear thrust washer to the RH case.
- (i) Align the matchmarks on the RH and LH cases.
- (j) Install and torque the 8 bolts uniformly, a little at a time.
Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)



2. INSTALL SIDE BEARINGS

Using SST and a press, install the side bearings on the differential case.

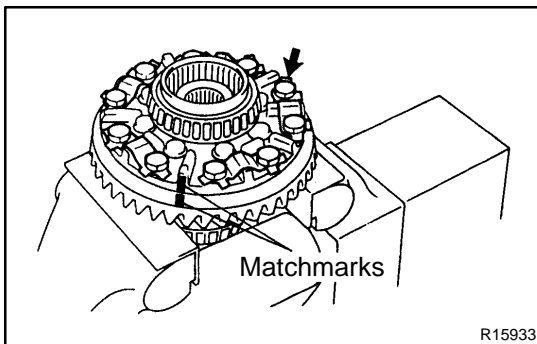
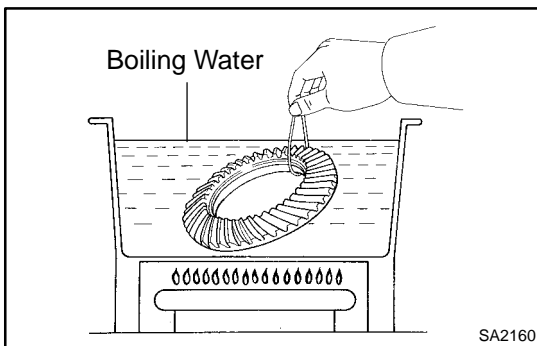
SST 09950-60010 (09951-00480, 09951-00550),
09950-60020 (09951-00730)

3. INSTALL RING GEAR ON DIFFERENTIAL CASE

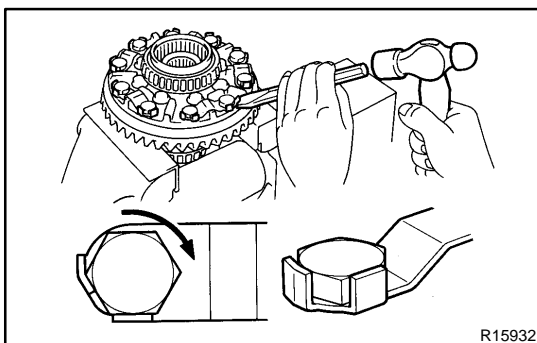
- (a) Clean the contact surfaces of the differential case and ring gear.
- (b) Heat the ring gear to about 100°C (212°F) in boiling water.
- (c) Carefully take the ring gear out of the boiling water.
- (d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.

HINT:

Align the matchmarks on the ring gear and differential case.



- (e) Temporarily install 5 new lock plates and 10 set bolts.
- (f) After the ring gear cools down enough, tighten the set bolts uniformly and a little at a time.
Torque: 97 N·m (985 kgf·cm, 71 ft·lbf)



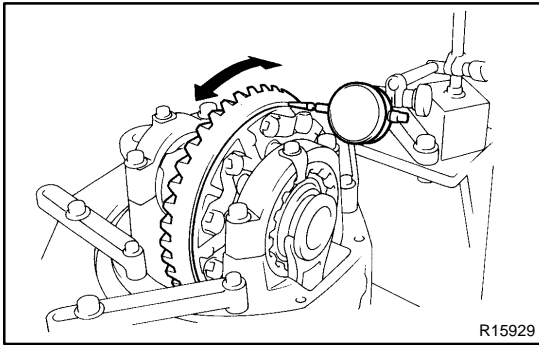
- (g) Using a chisel and hammer, stake the lock plates.

HINT:

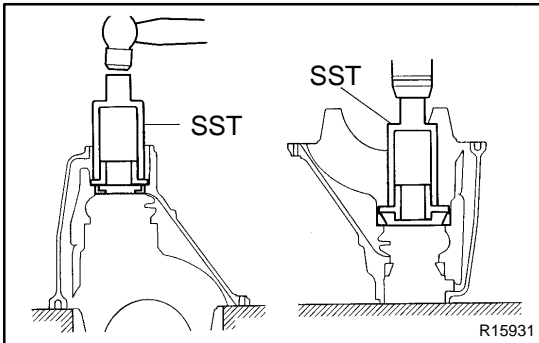
Stake the claws of the lock plates to fix the bolts. For the claw contacting the protruding portion of the bolt, stake only the half of it along the tightening direction.

4. CHECK RING GEAR RUNOUT

- (a) Install the differential case into the carrier and tighten the adjusting nut just to fill the play in the bearings.
- (b) Install the bearing caps.



- (c) Using a dial indicator, check the ring gear runout.
Maximum runout: 0.10 mm (0.0039 in.)
- (d) Remove the bearing caps and differential case.

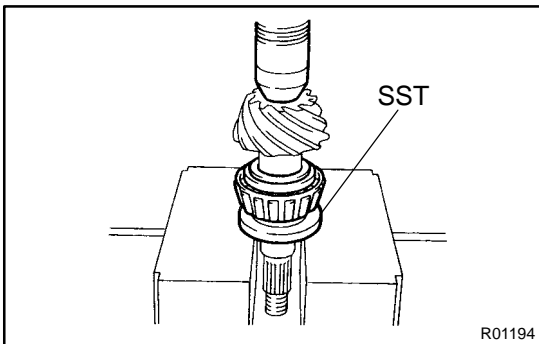


5. INSTALL NEW OIL STORAGE RING AND DRIVE PINION FRONT AND REAR BEARING OUTER RACES

- (a) Using SST and a hammer, install new oil storage ring.
SST 09316-60011 (09316-00011, 09316-00021)
- (b) Using SST and a press, install the outer races.
SST 09316-60011 (09316-00011, 09316-00021, 09316-00051)

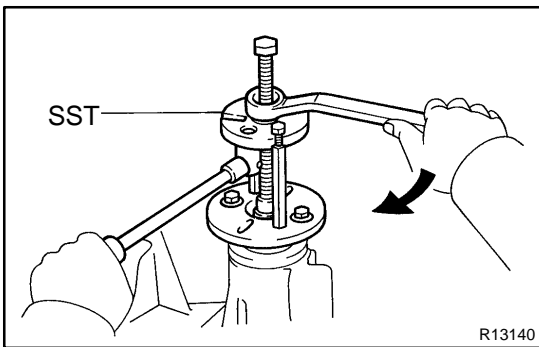
6. INSTALL DRIVE PINION FRONT BEARING

- (a) Install the plate washer on the drive pinion.
- (b) Using SST and a press, install the rear bearing onto the drive pinion.
SST 09506-30012

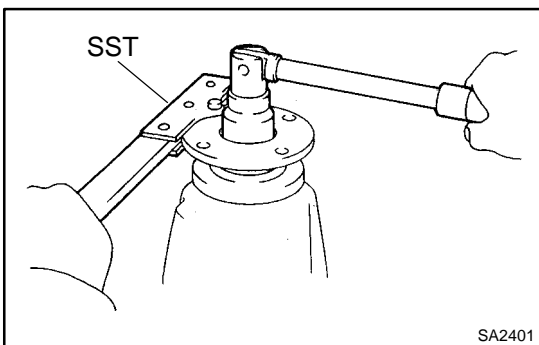


7. TEMPORARILY ADJUST DRIVE PINION PRELOAD

- (a) Install the drive pinion, front bearing and oil slinger.
HINT:
Assemble the spacer and oil seal after adjusting the gear contact pattern.



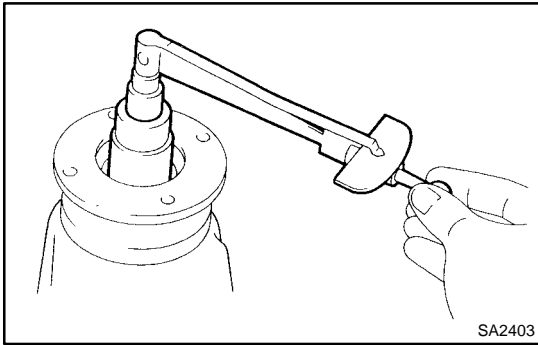
- (b) Install the companion flange with SST.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)



- (c) Adjust the drive pinion preload by tightening the companion flange nut.
Using SST to hold the flange, tighten the nut.
SST 09330-00021

NOTICE:

As there is no spacer, tighten a little at a time, being careful not to overtighten.



- (d) Using a torque wrench, measure the preload of the drive pinion using the backlash between the drive pinion and ring gear.

Preload (starting):

New bearing

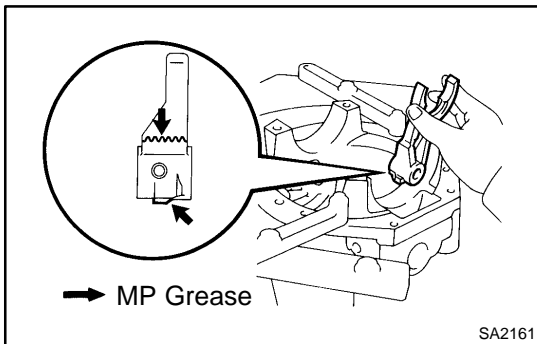
0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)

Reused bearing

0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.-lbf)

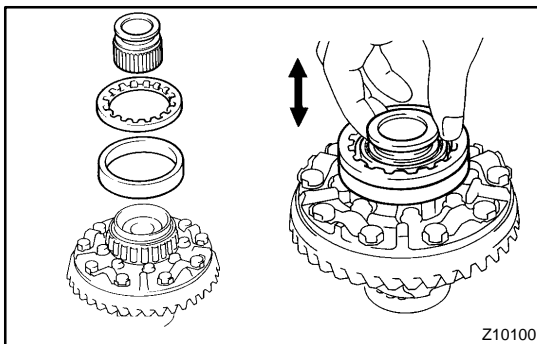
HINT:

Measure the total preload after first turning the bearing clockwise and counterclockwise several times to make the bearing smooth.



8. INSTALL DIFFERENTIAL CASE IN CARRIER

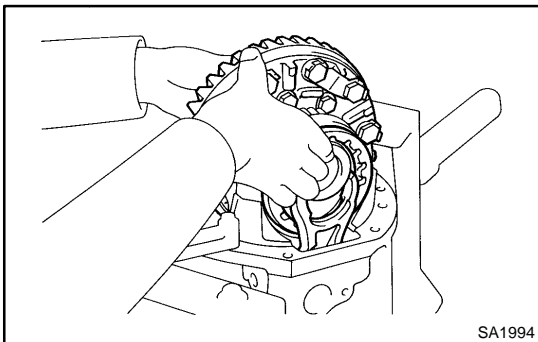
- (a) Apply MP grease on the rack of the shift fork and connecting part of the indicator switch.
- (b) Insert the shift fork into the differential carrier, as shown in the illustration.



- (c) Place the outer races, adjusting nuts on the left side to sleeve.

HINT:

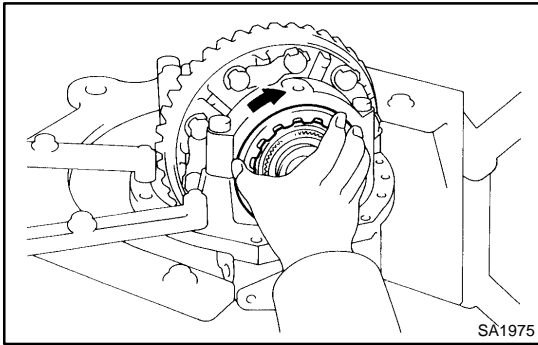
Check that the sleeve moves smoothly.



- (d) Install the shift fork in the groove of the sleeve holding it by hand and install the differential case in the carrier.

HINT:

Make sure that there is a backlash between the ring gear and drive pinion.



9. TEMPORARILY INSTALL BEARING CAPS

Align the matchmarks on the cap and carrier. Screw in the 4 bearing cap bolts 2 or 3 turns and press down the bearing cap by hand.

HINT:

If the bearing cap does not fit tightly on the carrier, the adjusting nuts are not threaded properly.

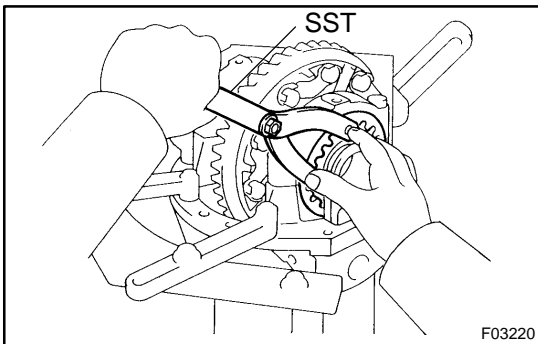
Reinstall the adjusting nuts if necessary.

10. ADJUST SIDE BEARING PRELOAD

- (a) Torque the 4 bearing cap bolts to the specified torque, then loosen them to the point where the adjusting nuts can be turned by hand.

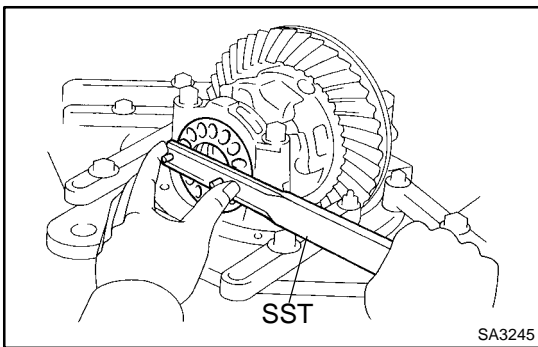
Torque: 78 N·m (800 kgf·cm, 58 ft·lbf)

- (b) Fully tighten the 4 bearing cap bolts by hand.



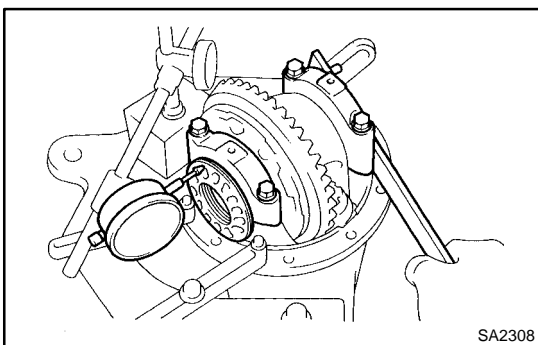
- (c) Using the SST, torque the adjusting nut on the ring gear side until the ring has a backlash of about 0.2 mm (0.008 in.).

SST 09960-10010 (09662-01000, 09963-00700)

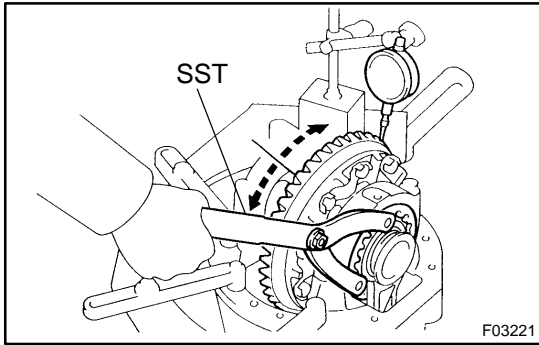


- (d) With turning the ring gear, use the SST to fully tighten the adjusting nut on the drive pinion side. After the bearings are settled, loosen the adjusting nut on the drive pinion side.

SST 09504-00011



- (e) Place a dial indicator on the top of the adjusting nut on the ring gear side.
- (f) Adjust the side bearing to zero preload by tightening the other adjusting nut until the pointer on the indicator begins to move.
- (g) Torque the adjusting nut 1 – 1.5 notches from the zero preload position.



- (h) Using a dial indicator, adjust the ring gear backlash until it is within specified value.

Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

HINT:

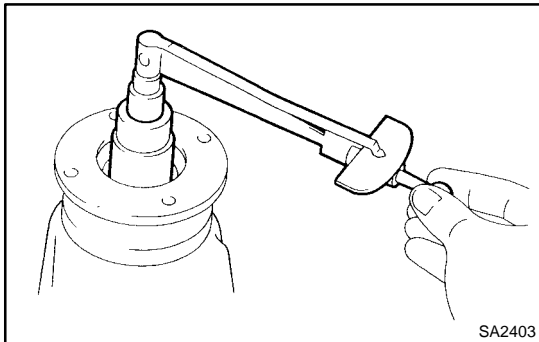
The backlash is adjusted by turning the right and left adjusting nuts by equal amount. For example, loosen the nut on the left side one notch and torque the nut on the right side one notch.

- (i) Torque the bearing cap bolts.

Torque: 78 N·m (800 kgf·cm, 58 ft·lbf)

- (j) Recheck the ring gear backlash.

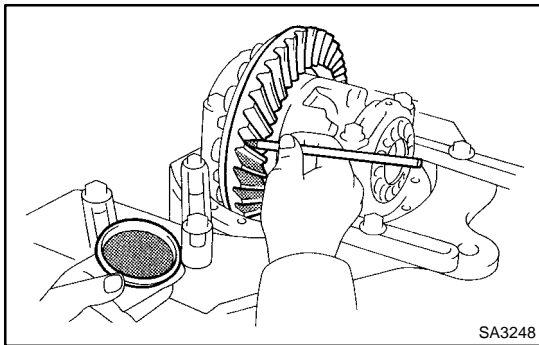
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)



- (k) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):

Drive pinion preload plus 0.4 – 0.6 N·m (4 – 6 kgf·cm, 3.5 – 5.2 in.-lbf)

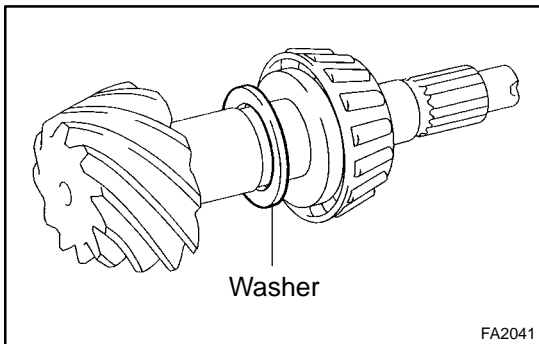
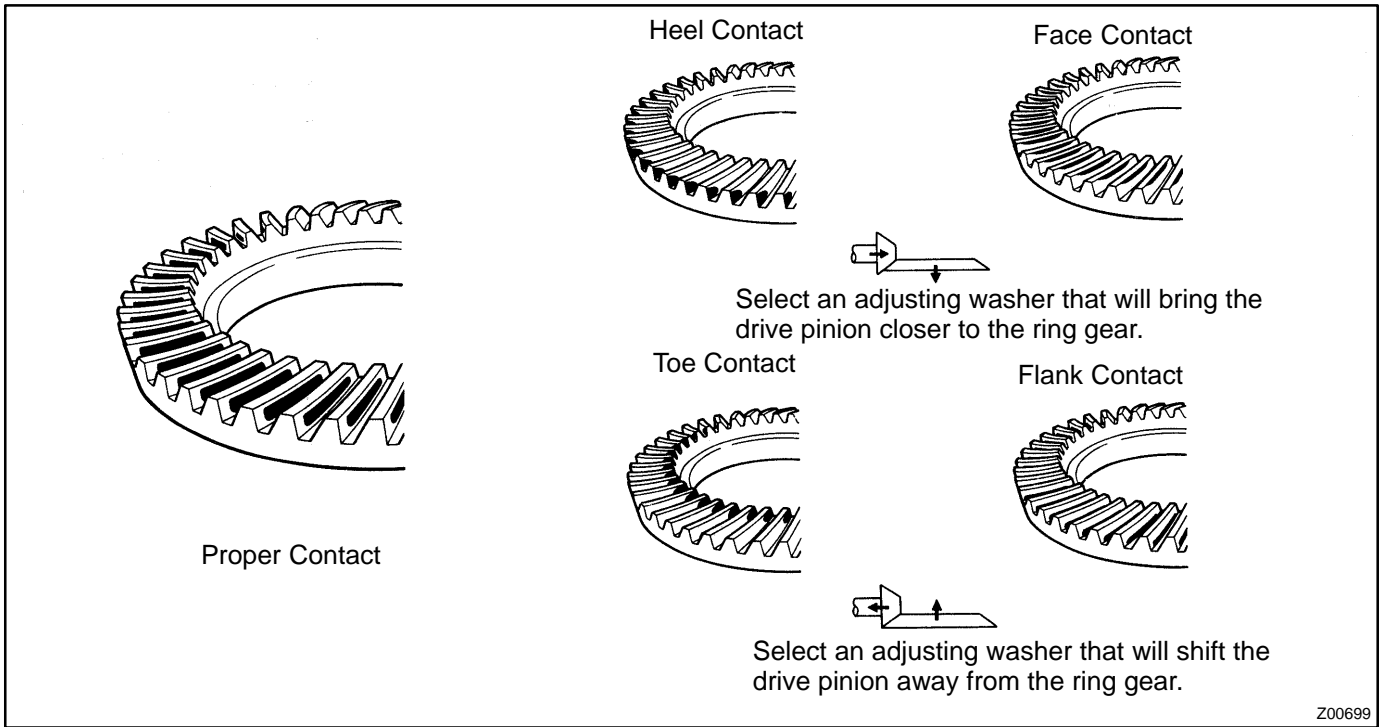


11. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at 3 different positions on the ring gear with red lead primer.

- (b) Hold the companion flange firmly and rotate the ring gear in both directions.

- (c) Inspect the tooth pattern.

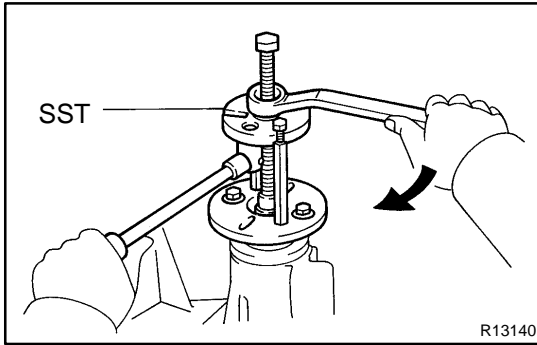


If the teeth are not contacting properly, use the following chart to select a proper washer for correction.

Washer thickness:

Thickness mm (in.)	Thickness mm (in.)
1.70 (0.0669)	2.03 (0.0799)
1.73 (0.0681)	2.06 (0.0811)
1.76 (0.0693)	2.09 (0.0823)
1.79 (0.0705)	2.12 (0.0835)
1.82 (0.0717)	2.15 (0.0846)
1.85 (0.0728)	2.18 (0.0858)
1.88 (0.0740)	2.21 (0.0870)
1.91 (0.0752)	2.24 (0.0882)
1.94 (0.0764)	2.27 (0.0894)
1.97 (0.0776)	2.30 (0.0906)
2.00 (0.0787)	2.33 (0.0917)

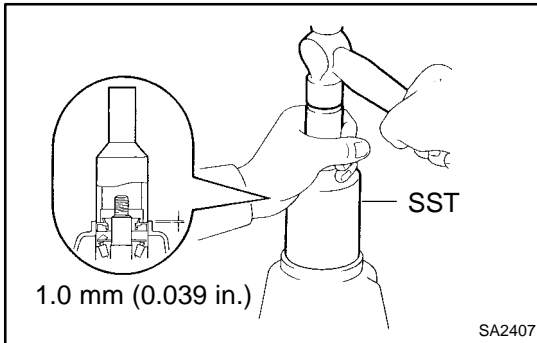
12. REMOVE COMPANION FLANGE (See page SA-179)
13. REMOVE OIL SLINGER AND FRONT BEARING (See page SA-179)
14. INSTALL BEARING SPACER AND FRONT BEARING
 - (a) Place a new bearing spacer on the shaft.
 - (b) Place the front bearing and oil slinger.



- (c) Using SST and the companion flange, install the front bearing then remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

15. INSTALL OIL SEAL

- (a) Coat a new oil seal lip with MP grease.

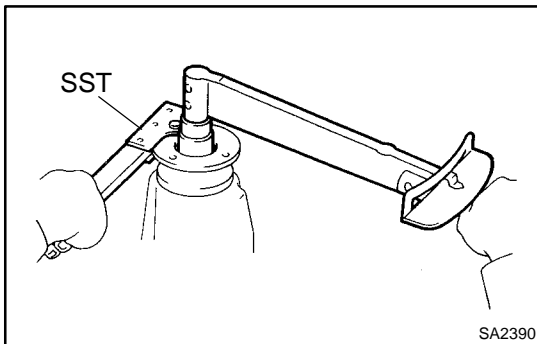


- (b) Using SST and a hammer, install a new oil seal.
SST 09214-76011

Oil seal drive in depth: 1.0 mm (0.039 in.)

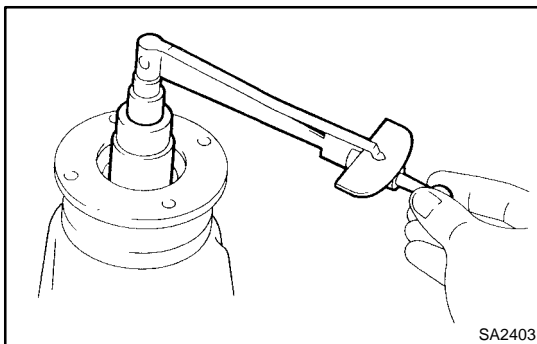
16. INSTALL COMPANION FLANGE

- (a) Place the companion flange on the drive pinion.
(b) Coat the threads of a new nut with hypoid gear oil.



- (c) Using SST to hold the flange, tighten the nut.
SST 09330-00021

Torque: 196 N·m (2,000 kgf·cm, 145 ft·lbf)



17. ADJUST DRIVE PINION PRELOAD

Using a torque wrench, measure the preload of the drive pinion using the backlash between the drive pinion and ring gear.

Preload (at starting):

New bearing

0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)

Reuse bearing

0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.-lbf)

If preload is greater than the specified value, replace the bearing spacer.

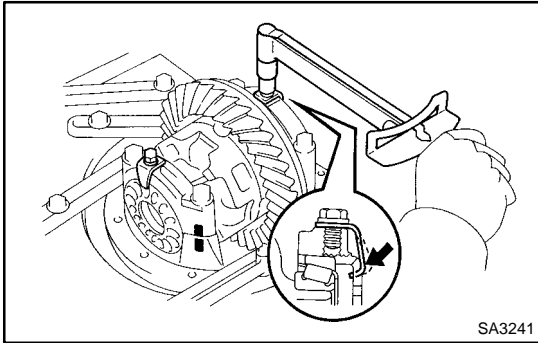
If preload is less than the specified value, retighten the nut a little at a time with a torque of 13 N·m (130 kgf·cm, 9 ft·lbf) until the specified preload is reached.

Torque: 343 N·m (3,500 kgf·cm, 253 ft·lbf) or less

If the maximum torque is exceeded while retightening the nut, replace the bearing spacer and repeat the preload adjusting procedure. Do not loosen the pinion nut to reduce the preload.

18. RECHECK RING GEAR BACKLASH (See page [SA-179](#))

19. RECHECK TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION (See step 11.)
20. CHECK COMPANION FLANGE RUNOUT (See page SA-179)
21. STAKE DRIVE PINION NUT

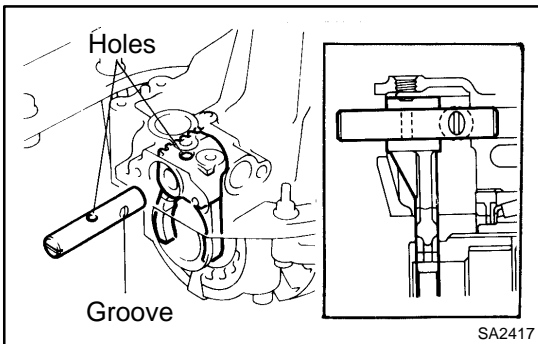


22. INSTALL ADJUSTING NUT LOCKS

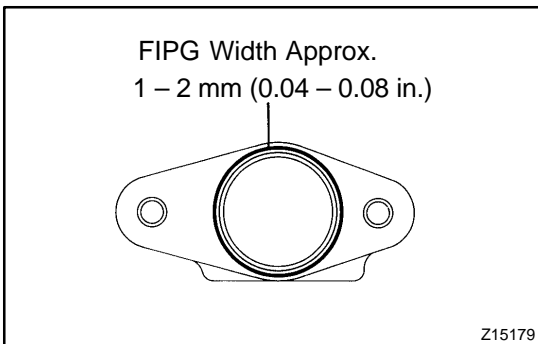
- (a) Install 2 new nut locks on the bearing caps.
Torque: 13 N·m (130 kgf-cm, 9 ft-lbf)
- (b) After tightening bolts, bend the nut locks.

23. INSTALL SHIFT FORK SHAFT

- (a) Apply MP grease onto the outer circuit of the fork shaft.



- (b) Install the fork shaft to match the hole of the shift fork and that of the shift fork shaft.
- (c) Remove any FIPG material and be careful not to drop oil on the contacting surface of the differential carrier and shaft retainer.

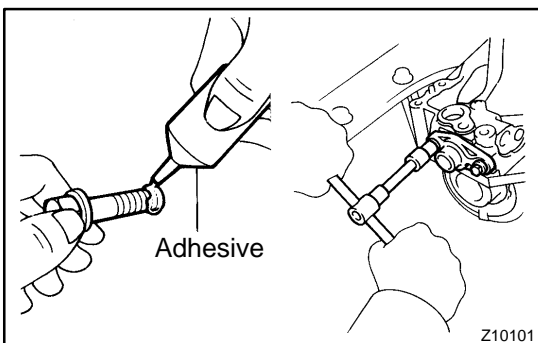


- (d) Apply FIPG to the carrier, as shown in the illustration.
FIPG:
Part No. 08826-00090, THREE BOND 1281 or equivalent

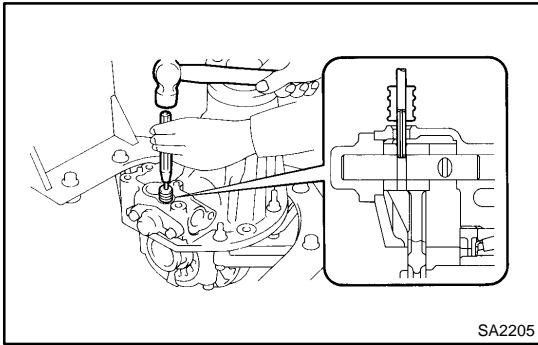
HINT:

Install the shaft retainer within 10 minutes after applying FIPG.

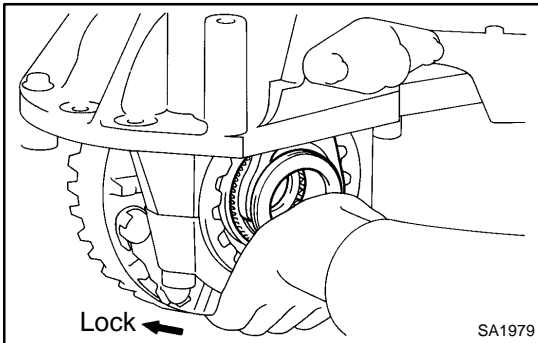
- (e) Clean the threads of the bolts and retainer bolts holes with toluene or trichlorethylene.



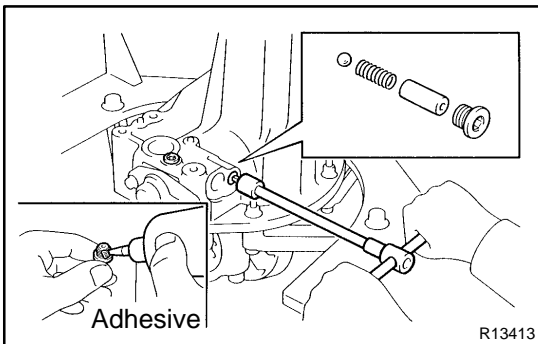
- (f) Apply adhesive to 2 or 3 threads of the mount bolt end.
Adhesive:
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent
- (g) Tighten the shaft retainer with the 2 bolts.
Torque: 24 N·m (240 kgf-cm, 17 ft-lbf)



- (h) Using a pin punch and hammer, install the slotted spring pin to the shift fork.



- (i) Shift the fork deeply and keep the differential lock condition.



- (j) Install the steel ball, spring and spring seat.
 (k) Clean the threads of 2 plugs and plug holes with toluene or trichlorethylene.
 (l) Apply adhesive to the plug threads.
Adhesive:
Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent
 (m) Using a hexagon wrench, install and tighten the screw plugs.

Torque: 22 N·m (220 kgf-cm, 16 ft-lbf)

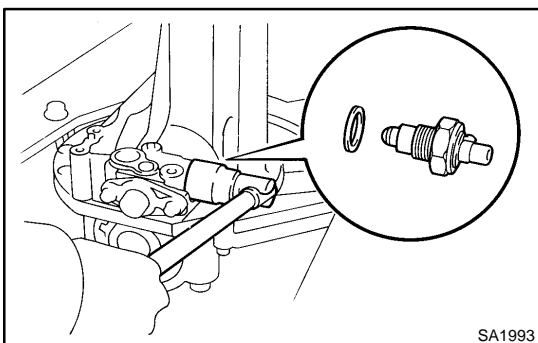
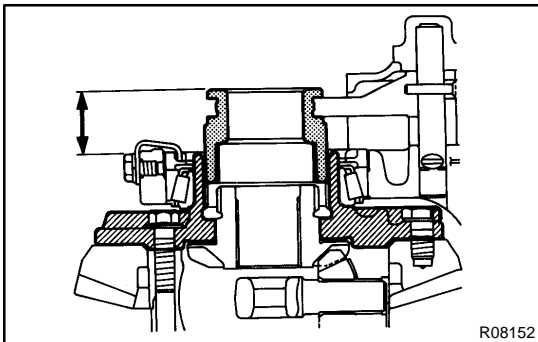
24. MEASURE DISTANCE BETWEEN SLEEVE AND DIFFERENTIAL CASE END SIDE

Measure distance between the sleeve and tip of the differential case when differential is free and locked respectively.

Standard distance:

Lock: 17.44 – 18.86 mm (0.6866 – 0.7425 in.)

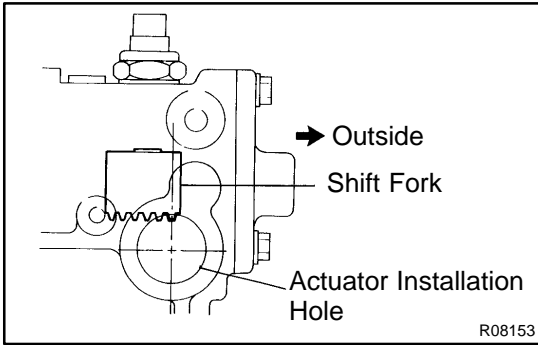
Free: 32.40 – 33.90 mm (1.2756 – 1.3346 in.)



25. INSTALL DIFF. LOCK INDICATOR SWITCH

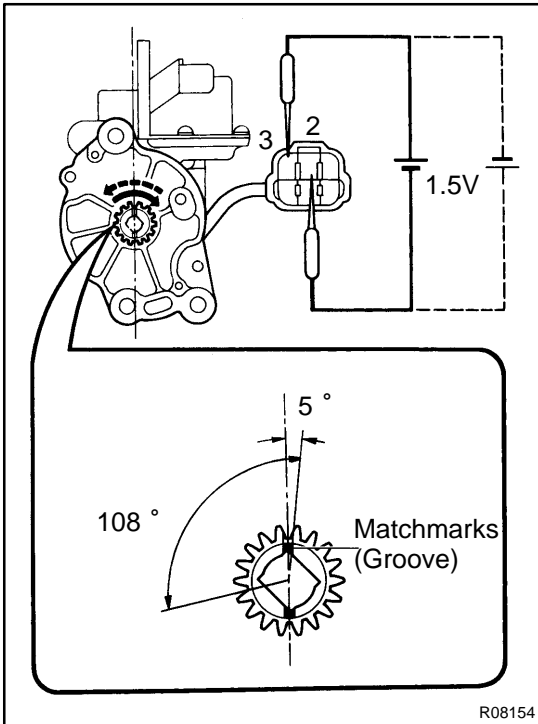
Install the indicator switch with a new gasket.

Torque: 40 N·m (410 kgf-cm, 30 ft-lbf)



26. INSTALL ACTUATOR

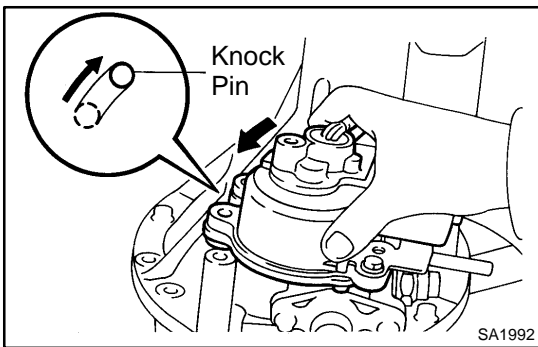
- (a) Check that the outermost rack tooth of the shift fork is virtually above the center line of the actuator installation hole.



- (b) Ensure that the matchmarks on the pinion of the actuator is in the extent between zero and 5 degrees clockwise above the center line of the actuator.

NOTICE:

- If the matchmarks are not in this extent, rotate the pinion to be matched.
 - Don't supply the battery positive voltage directly between terminals.
 - If the matchmarks come to the extension limit of the rotation, don't electrify moreover.
- (c) Install a new O-ring to the actuator.
 (d) Apply a light coat of gear oil to the O-ring.
 (e) Apply MP grease to the gear part.



- (f) Insert the actuator so that the long hole on the actuator side fits with the knock pin on the carrier side.

HINT:

Do not damage the O-ring of the actuator.

- (g) Align the actuator with the long hole and rotate the actuator counterclockwise when the knock pin reaches the right-hand side.
 (h) Install the actuator to the differential carrier with the bolt so that the outermost rack tooth of the shift fork will fit the matchmarks on the pinion of the actuator.

Torque: 26 N·m (270 kgf·cm, 20 ft·lbf)