

## REASSEMBLY

### 1. w/ A.D.D.:

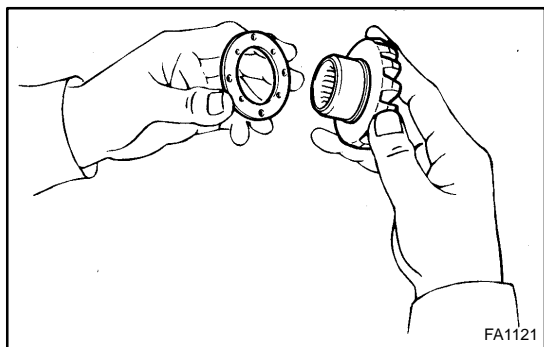
#### INSTALL NEW BEARINGS

Using SST and a press, install 2 new bearings.

SST 09950-60010 (09951-00380)

**Bearing press in depth:**

**0.3 ± 0.3 mm (0.012 ± 0.012 in.)**



### 2. ASSEMBLE DIFFERENTIAL CASE

(a) Install the 2 proper thrust washers on the 2 side gears.

**HINT:**

Using the table below, select 2 thrust washers which will ensure that the backlash is within the specifications.

#### Washer thickness

Thickness mm (in.)	Thickness mm (in.)
0.96 - 1.04 (0.0378 - 0.0409)	1.16 - 1.24 (0.0457 - 0.0488)
1.06 - 1.14 (0.0417 - 0.0449)	1.26 - 1.34 (0.0496 - 0.0528)

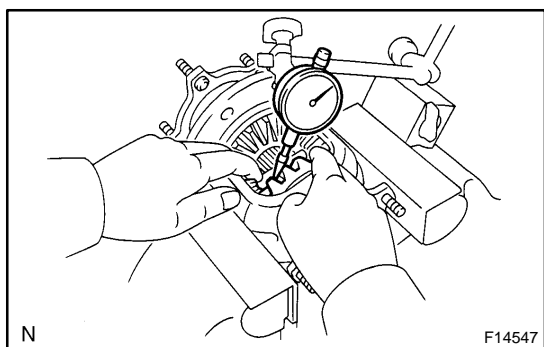
(b) Install the 2 side gears, 2 pinion gears, 2 pinion gear thrust washers and pinion shaft in the differential case.

**HINT:**

Align the holes of the differential case and pinion shaft.

(c) Measure the side gear backlash.

(1) Install the intermediate shaft to the differential case.

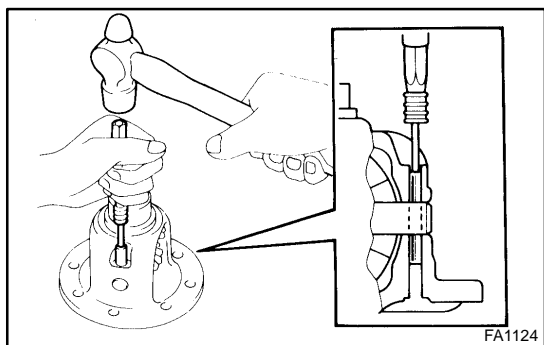


(2) Using a dial indicator, measure the side gear backlash with holding one pinion gear toward the differential case.

**Backlash: 0 - 0.20 mm (0 - 0.0079 in.)**

If the backlash is not within the specification, install 2 side gear thrust washers with different thicknesses.

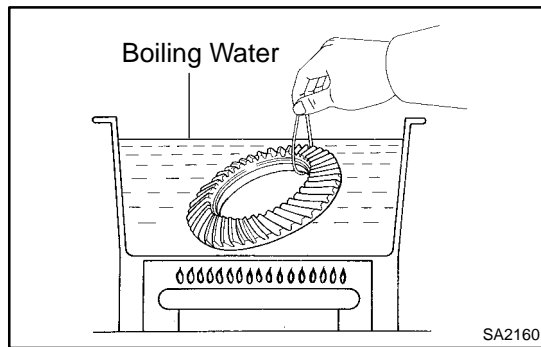
(3) Remove the intermediate shaft.



### 3. INSTALL STRAIGHT PIN AND STAKE DIFFERENTIAL CASE

(a) Using a pin punch and hammer, install the straight pin through the differential case and hole of the pinion shaft.

(b) Stake the differential case.



#### 4. INSTALL RING GEAR ON DIFFERENTIAL CASE

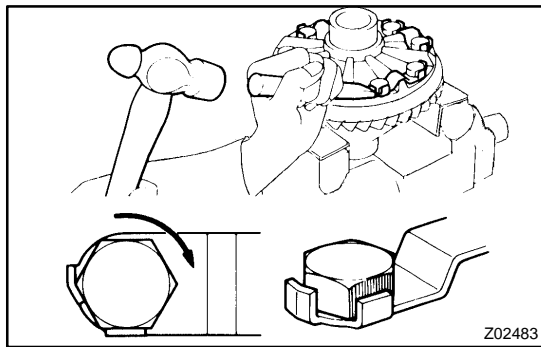
- Clean the contact surfaces of the differential case and ring gear.
- Heat the ring gear to about 100°C (212°F) in boiling water.
- Carefully remove the ring gear from the boiling water.
- After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential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

##### HINT:

Align the matchmarks on the ring gear and differential case.

- Temporarily install 5 new lock plates and 10 bolts so that the bolt holes in the ring gear and differential case are not misaligned.
- After the ring gear has cooled sufficiently, torque the ring gear set bolts.

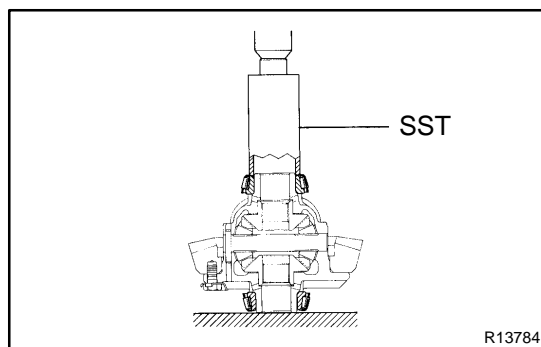
**Torque: 97 N·m (985 kgf-cm, 71 ft-lbf)**



- Using a drift punch and hammer, stake the 5 lock plates.

##### HINT:

Stake one claw flush with the flat surface of the bolt. For the claw contacting the protruding portion of the bolt, stake only the half on the tightening side.



#### 5. INSTALL SIDE BEARINGS

Using SST and a press, install the 2 bearings into the differential case.

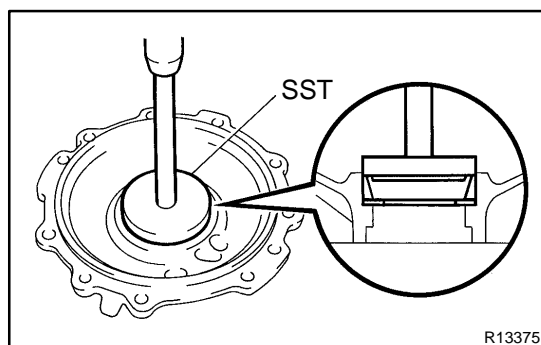
SST 09226-10010

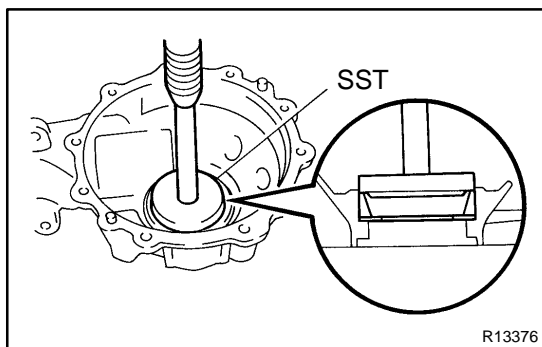
#### 6. INSTALL SIDE BEARING OUTER RACES

##### HINT:

When replacing the 2 side bearings, fit the 2 thinnest washers to each bearing and when reusing the bearings, fit the washers with the same thickness as removed.

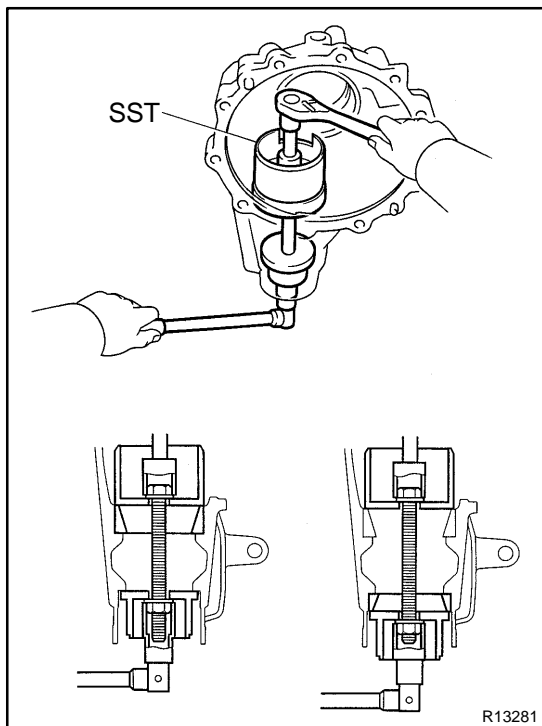
- Install a new plate washer to the side bearing retainer.
- Using SST and a press, install the bearing outer race to the side bearing retainer.  
SST 09950-60020 (09951-00790),  
09950-70010 (09951-07150)
- Install a new plate washer to the differential carrier.





- (d) Using SST and a press, install the bearing outer race to the differential carrier.

SST 09950-60020 (09951-00790),  
09950-70010 (09951-07150)



## 7. INSTALL DRIVE PINION FRONT AND REAR BEARING OUTER RACES

Using SST, install the 2 outer races.

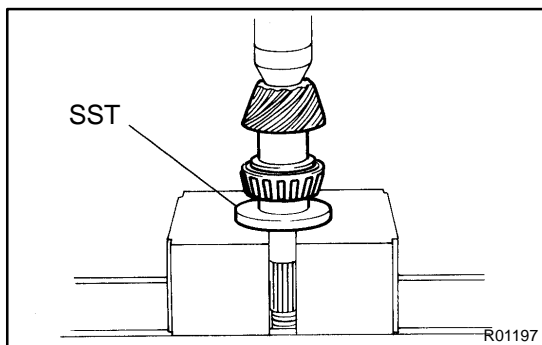
SST 09570-2201 1

## 8. INSTALL DRIVE PINION FRONT BEARING

- (a) Install the washer on the drive pinion.

HINT:

First fit a washer with the same thickness with the removed washer, then after checking the tooth contact pattern, replace the washer with one of a different thickness if necessary.



- (b) Using SST and a press, install the front bearing onto the drive pinion.

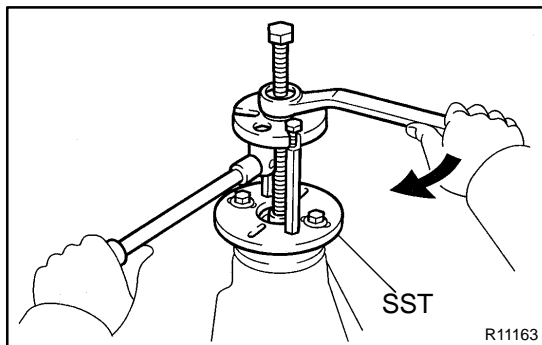
SST 09506-30012

## 9. TEMPORARILY ADJUST DRIVE PINION PRELOAD

- (a) Install the drive pinion and oil slinger.

HINT:

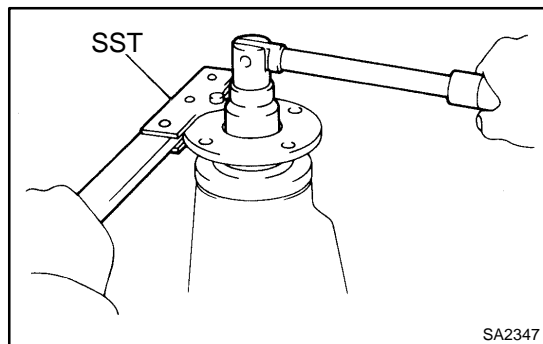
Assemble the spacer and oil seal after adjusting the ring gear tooth contact pattern.



- (b) Using SST, install the rear bearing, oil slinger and companion flange.

SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

- (c) Coat the threads of the nut with hypoid gear oil.



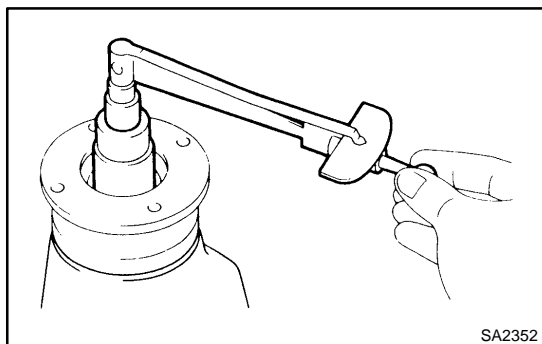
- (d) Adjust the drive pinion preload by tightening the companion flange nut.

Using SST to hold the flange, tighten the nut.

SST 09330-00021

**NOTICE:**

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



- (e) Using a torque wrench, measure the preload.

**Preroid (at starting)**

**New bearing:**

**1.2 - 1.9 N·m (12 - 19 kgf·cm, 10.4 - 16.5 in.-lbf)**

**Reused bearing:**

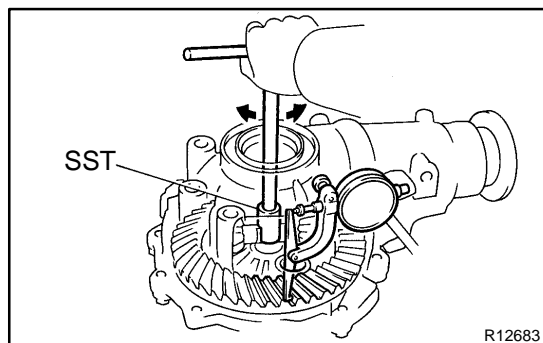
**0.6 - 1.0 N·m (6 - 10 kgf·cm, 5.2 - 8.7 in.-lbf)**

**10. INSTALL DIFFERENTIAL CASE IN DIFFERENTIAL CARRIER**

**11. ADJUST RING GEAR BACKLASH**

- (a) Install the side bearing retainer with the 10 bolts.

**Torque: 69 N·m (700 kgf·cm, 51 ft-lbf)**



- (b) Using SST and a dial indicator, measure the ring gear backlash.

SST 09564-3201 1

**Backlash: 0.10 - 0.18 mm (0.0039 - 0.0070 in.)**

- (c) If it is not within the specification, adjust it by either increasing or decreasing the washers on both sides by an equal amount.

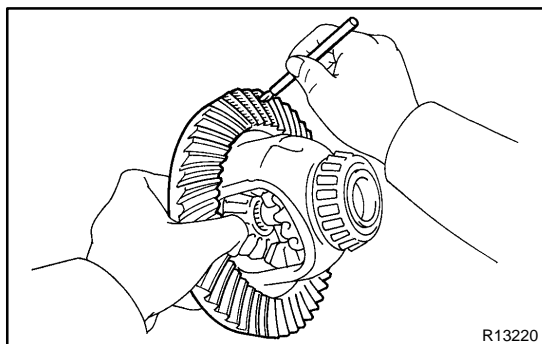
**HINT:**

There should be no clearance between the plate washer and case.

Make sure that there is ring gear backlash.

**Washer thickness**

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
2.00 - 2.02 (0.0787 - 0.0795)	2.27 - 2.29 (0.0894 - 0.0902)	2.54 - 2.56 (0.1000 - 0.1008)
2.03 - 2.05 (0.0799 - 0.0807)	2.30 - 2.32 (0.0906 - 0.0913)	2.57 - 2.59 (0.1012 - 0.1020)
2.06 - 2.08 (0.0811 - 0.0819)	2.33 - 2.35 (0.0917 - 0.0925)	2.60 - 2.62 (0.1024 - 0.1031)
2.09 - 2.11 (0.0823 - 0.0831)	2.36 - 2.38 (0.0929 - 0.0937)	2.63 - 2.65 (0.1035 - 0.1043)
2.12 - 2.14 (0.0835 - 0.0843)	2.39 - 2.41 (0.0941 - 0.0949)	2.66 - 2.68 (0.1047 - 0.1055)
2.15 - 2.17 (0.0846 - 0.0854)	2.42 - 2.44 (0.0953 - 0.0961)	2.69 - 2.71 (0.1059 - 0.1067)
2.18 - 2.20 (0.0858 - 0.0866)	2.45 - 2.47 (0.0965 - 0.0972)	2.72 - 2.74 (0.1071 - 0.1079)
2.21 - 2.23 (0.0870 - 0.0878)	2.48 - 2.50 (0.0976 - 0.0984)	2.75 - 2.77 (0.1083 - 0.1091)
2.24 - 2.26 (0.0882 - 0.0890)	2.51 - 2.53 (0.0988 - 0.0996)	2.78 - 2.80 (0.1094 - 0.1102)

**12. MEASURE TOTAL PRELOAD**

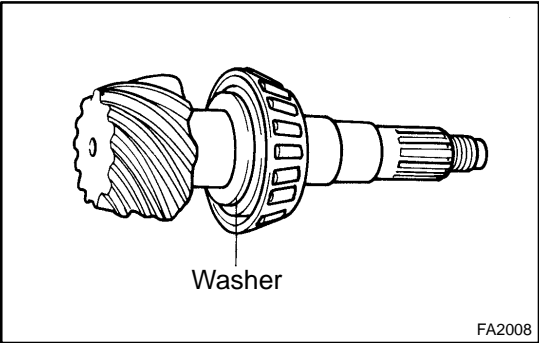
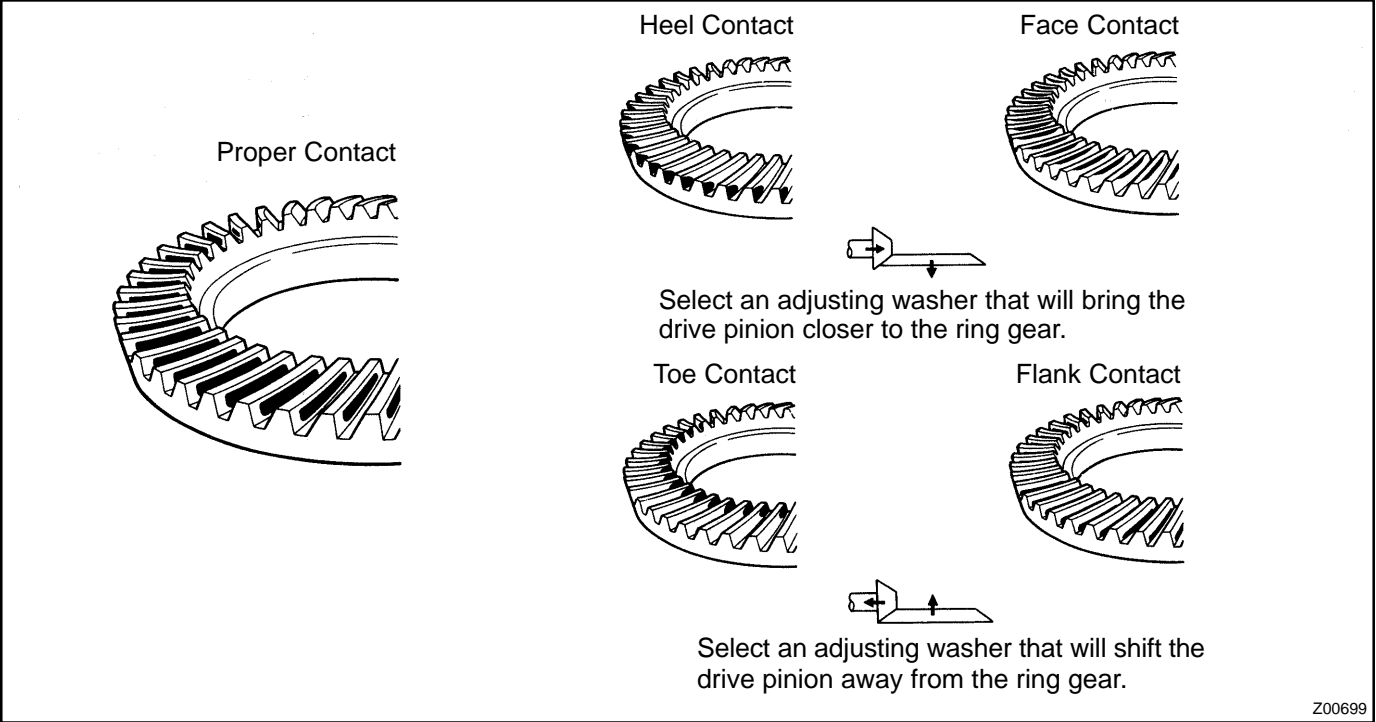
Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

**Total preload (at starting):**

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

**13. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION**

- Remove the side bearing retainer and differential case.
- Coat 3 or 4 teeth at the 3 different positions on the ring gear with red lead.
- Install the differential case and side bearing retainer.  
**Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)**
- Hold the companion flange firmly and rotate the ring gear in both directions.
- Remove the side bearing retainer and differential case.
- Inspect the tooth contact pattern.



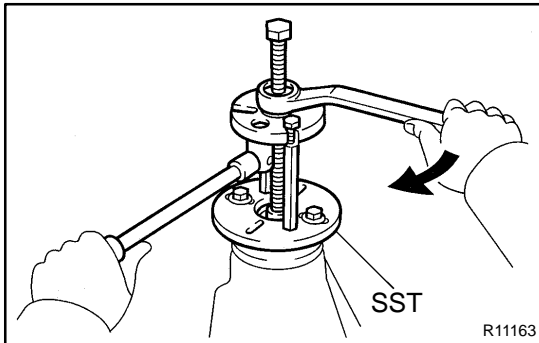
If the teeth are not contacting properly, use the following chart to select a proper washer for correction.

Washer thickness

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.69 - 1.71 (0.0665 - 0.0673)	1.93 - 1.95 (0.0760 - 0.0768)	2.17 - 2.19 (0.0854 - 0.0862)
1.72 - 1.74 (0.0677 - 0.0685)	1.96 - 1.98 (0.0772 - 0.0780)	2.20 - 2.22 (0.0866 - 0.0874)
1.75 - 1.77 (0.0689 - 0.0697)	1.99 - 2.01 (0.0783 - 0.0791)	2.23 - 2.25 (0.0878 - 0.0886)
1.78 - 1.80 (0.0701 - 0.0709)	2.02 - 2.04 (0.0795 - 0.0803)	2.26 - 2.28 (0.0890 - 0.0898)
1.81 - 1.83 (0.0713 - 0.0720)	2.05 - 2.07 (0.0807 - 0.0815)	2.29 - 2.31 (0.0902 - 0.0909)
1.84 - 1.86 (0.0724 - 0.0732)	2.08 - 2.10 (0.0819 - 0.0827)	2.32 - 2.34 (0.0913 - 0.0921)
1.87 - 1.89 (0.0736 - 0.0744)	2.11 - 2.13 (0.0831 - 0.0839)	-
1.90 - 1.92 (0.0748 - 0.0756)	2.14 - 2.16 (0.0843 - 0.0850)	-

14. **REMOVE COMPANION FLANGE AND OIL SLINGER**  
(See page SA-30 )
15. **REMOVE REAR BEARING** (See page SA-30 )
16. **INSTALL NEW BEARING SPACER, REAR BEARING AND OIL SLINGER**

- (a) Install a new bearing spacer and place the rear bearing and oil slinger.

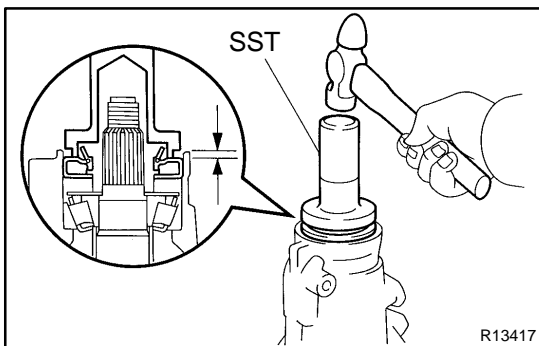


- (b) Using SST and the companion flange, install the rear bearing, then remove the companion flange.

SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

#### 17. **INSTALL OIL SEAL**

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



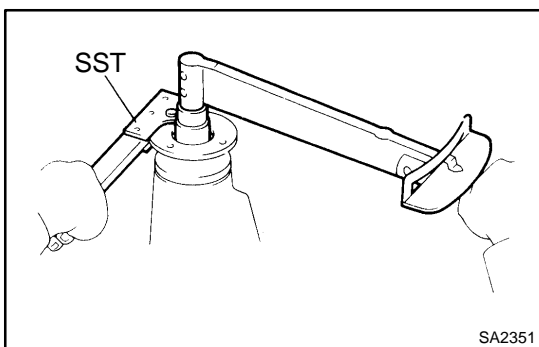
- (b) Using SST and a hammer, install the oil seal.

SST 09554-22010

**Oil seal drive in depth: 4.5 mm (0.177 in.)**

#### 18. **INSTALL COMPANION FLANGE**

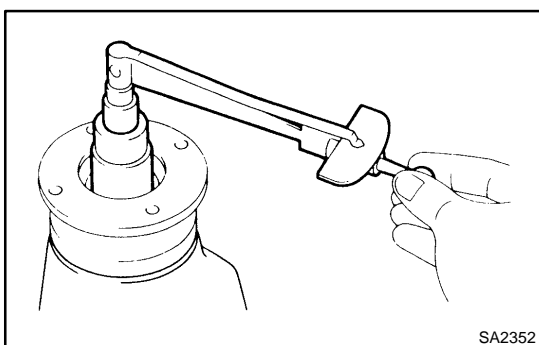
- (a) Place the companion flange on the drive pinion.
- (b) Coat the threads of a new nut with hypoid gear oil.



- (c) Using SST to hold the flange, torque the nut.

SST 09330-00021

**Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)**



#### 19. **ADJUST DRIVE PINION PRELOAD**

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

**Preroad (at starting):**

**New bearing:**

**1.2 - 1.9 N·m (12 - 19 kgf·cm, 10.4 - 16.5 in.-lbf)**

**Reused bearing:**

**0.6 - 1.0 N·m (6 - 10 kgf·cm, 5.2 - 8.7 in.-lbf)**

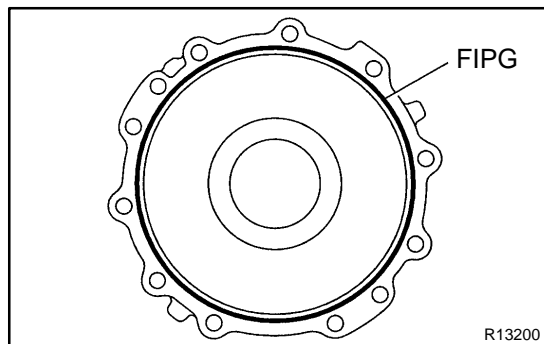
If the preload is greater than the specification, replace the bearing spacer.

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

**Torque: 223 N·m (2,275 kgf·cm, 165 ft·lbf) or less**

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

## 20. INSTALL DIFFERENTIAL CASE



## 21. INSTALL SIDE BEARING RETAINER

- Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential carrier and side bearing retainer.
- Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.
- Apply FIPG to the side bearing retainer, as shown.

**FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent**

HINT:

Install the side bearing retainer within 10 minutes after applying FIPG.

- Install the side bearing retainer with the 10 bolts.

**Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)**

## 22. CHECK TOTAL PRELOAD

## 23. RECHECK RING GEAR BACKLASH

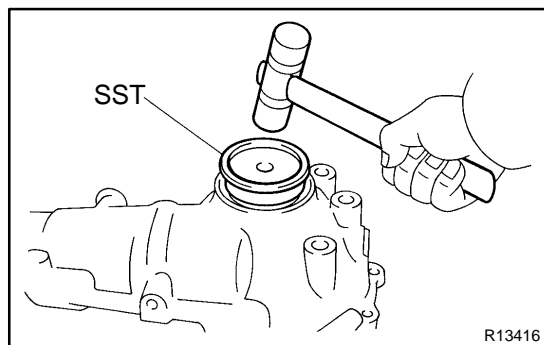
(See page [SA-30](#) )

## 24. RECHECK TEETH CONTACT BETWEEN RING GEAR AND DRIVE PINION (See step 13)

## 25. CHECK RUNOUT OF COMPANION FLANGE

(See page [SA-30](#) )

## 26. STAKE DRIVE PINION NUT



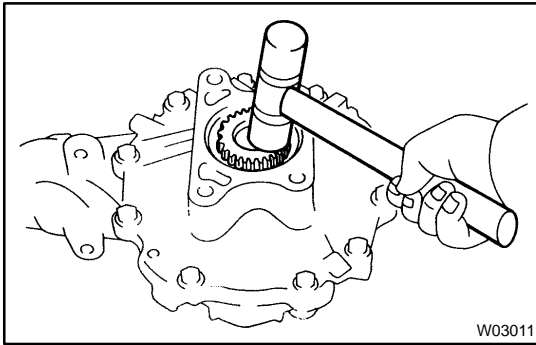
## 27. INSTALL SIDE OIL SEAL

- Using SST and a plastic hammer, install a new oil seal until its surface is flush with the differential carrier end.

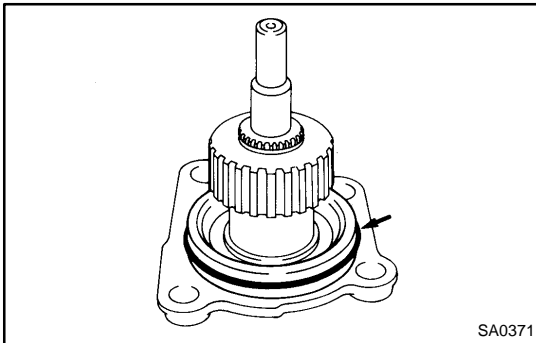
SST 09608-32010

- Coat the oil seal lip with MP grease.



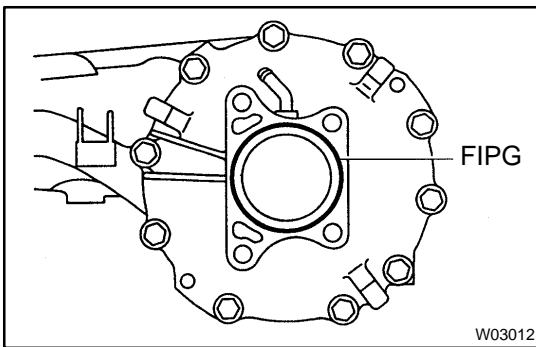
**28. w/ A.D.D.:****INSTALL INTERMEDIATE SHAFT NO. 1**

- (a) Install a new snap ring to the intermediate shaft No. 1.
- (b) Using a plastic hammer, install the intermediate shaft No. 1 to the differential case.
- (c) Check that there is 2 - 3 mm (0.08 - 0.12 in.) of play in axial direction.
- (d) Check that the intermediate shaft No. 1 will not come out by trying to pull it completely out by hand.

**29. w/ A.D.D.:****INSTALL CLUTCH CASE TO DIFFERENTIAL TUBE**

- (a) Coat the O-ring with MP grease.
- (b) Install a new O-ring to the tube.
- (c) Install the clutch case to the tube.
- (d) Using a torx socket E14, install the 2 torx bolts.

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

**30. w/ A.D.D.:****INSTALL CLUTCH SLEEVE****31. INSTALL DIFFERENTIAL TUBE TO DIFFERENTIAL**

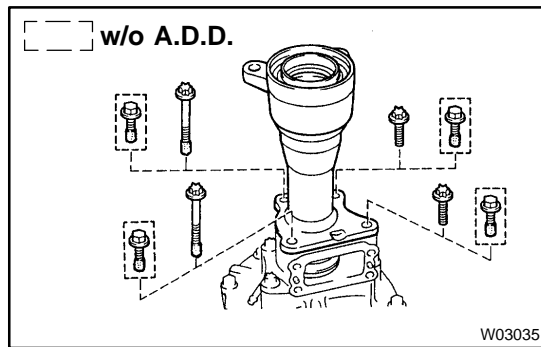
- (a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential and clutch case.
- (b) Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.
- (c) Apply FIPG to the differential, as shown.

**FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent**

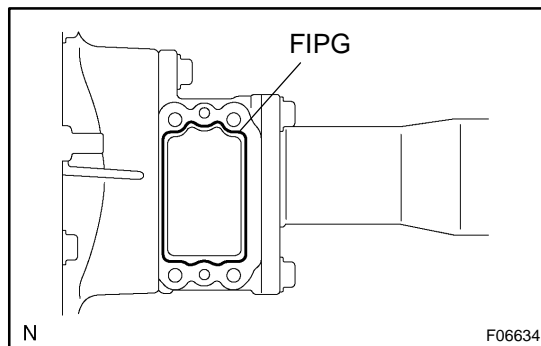
**HINT:**

Install the differential tube within 10 minutes after applying FIPG.

- (d) Install the differential tube to the differential.



- (e) Clean the threads of the 4 bolts (w/o A.D.D.) or 2 torx bolts (w/ A.D.D.) and retainer bolt holes with toluene or trichloroethylene.
- (f) Apply adhesive to 2 or 3 threads of the bolts end.  
**Adhesive: Part No. 08833-00070, THREE BOND 1324 or equivalent**
- (g) w/o A.D.D.:  
Install the 4 bolts.  
**Torque: 105 N·m (1,070 kgf-cm, 77 ft-lbf)**
- (h) w/ A.D.D.:  
Using a torx socket E14, install the 4 torx bolts.  
**Torque: 78 N·m (800 kgf-cm, 58 ft-lbf)**



### 32. w/ A.D.D.:

#### INSTALL A.D.D. ACTUATOR

- (a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the actuator and clutch case.
- (b) Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.
- (c) Apply FIPG to the clutch case, as shown.  
**FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent**

#### HINT:

Install the actuator within 10 minutes after applying FIPG.

- (d) Install the 4 bolts.  
**Torque: 21 N·m (210 kgf-cm, 15 ft-lbf)**