

DIFFERENTIAL SYSTEM

2905Y-01

PRECAUTION

1. Before disassembly, clean the outside of the rear differential assy and remove any sand or mud to prevent it from entering the inside of the assembly during disassembly and installation.
2. When removing a connected part made of light alloy such as a rear differential carrier cover, tap it off with a plastic hammer. Do not attempt to pry it off with a screwdriver.
3. Always arrange disassembled parts in order and protect them from dust.
4. Before installation, thoroughly clean and dry each part and then apply hypoid gear oil LSD to it. Do not use alkaline cleaner for aluminum or rubber parts and ring gear set bolts. Also, do not clean rubber parts such as O-rings or oil seals with white gasoline.
5. Coat any sliding surface and rotating part with hypoid gear oil LSD.
6. When holding a component part by vice, be sure to place an aluminum sheet under the part. Do not put it directly on the vice.
7. Be careful not to damage the contact surfaces of the case. Such damage may cause oil leakage.
8. Before applying sealant, remove deposited oil sealant and clean the part to be sealed using white gasoline.
9. Do not supply oil immediately after installing sealed parts. Leave it for at least an hour.
10. Damage on the surface being contact with an oil seal, O-ring or gasket may cause oil leakage. Special attention should be paid.
11. When press-fitting and oil seal, be careful not to damage the oil seal lip and outside periphery.
12. When replacing a bearing, replace the inner and outer races as a set.

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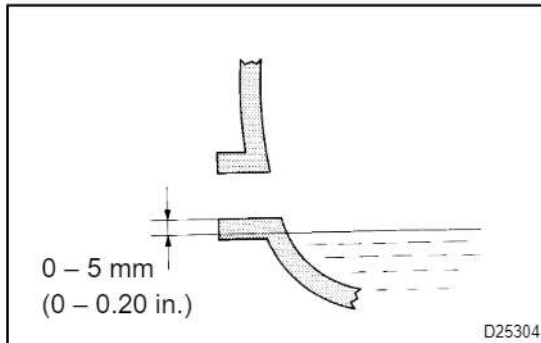
PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
Oil leak from front differential	1. Oil level (Too high or wrong grade)	29-3
	2. Front differential rear oil seal (Worn or damaged)	29-6
		29-27
	3. Companion flange (Loose or damaged)	29-6 29-27
Oil leak from rear differential	1. Oil level (Too high or wrong grade)	29-3
	2. Rear differential front oil seal (Worn or damaged)	29-44
		29-50
	3. Companion flange (Loose or damaged)	29-44 29-50
Oil leak from front drive pinion shaft	1. Oil level (Too high or wrong grade)	29-3
	2. Front differential rear oil seal (Worn or damaged)	29-6
		29-27
	3. Companion flange (Loose or damaged)	29-6 29-27
Oil leak from rear drive pinion shaft	1. Oil level (Too high or wrong grade)	29-3
	2. Rear differential front oil seal (Worn or damaged)	29-44
		29-50
	3. Companion flange (Loose or damaged)	29-44 29-50

DIFFERENTIAL OIL ADJUSTMENT

29060-01



1. INSPECT DIFFERENTIAL OIL

- (a) Stop the vehicle on the level place.
- (b) Remove the differential filler plug and gasket.
- (c) Check that the oil surface is within 5 mm (0.20 in.) from the lowest position of the inner surface of the differential filler plug opening.

NOTICE:

- ◆ Excessively large or small amount of oil may cause troubles.
- ◆ After replacing oil, drive the vehicle and check the oil level.

HINT:

If necessary fill the rear differential carrier assy with hypoid gear oil.

Oil grade:

Hypoid gear oil API GL-5

Recommended viscosity:

Above -18°C (0°F) SAE 90

Below -18°C (0°F) SAE 80W or 80W-90

Capacity:

Differential carrier assy front:

1.40 $\pm$ 0.05 liters

(1.48 $\pm$ 0.05 US qts, 1.23 $\pm$ 0.04 Imp. qts)

Differential carrier assy rear:

3.05 $\pm$ 0.05 liters

(3.22 $\pm$ 0.05 US qts, 2.68 $\pm$ 0.04 Imp. qts)

- (d) Check for oil leakage when the oil level is low.

- (e) Install the differential filler plug and a new gasket.

Torque:

Differential carrier assy front:

39 N·m (398 kgf·cm, 29 ft·lbf)

Differential carrier assy rear:

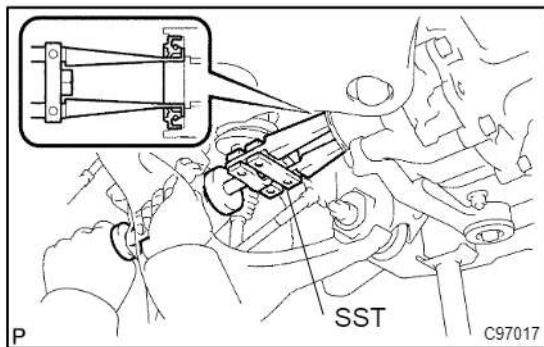
49 N·m (500 kgf·cm, 36 ft·lbf)

DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL (4WD)

REPLACEMENT

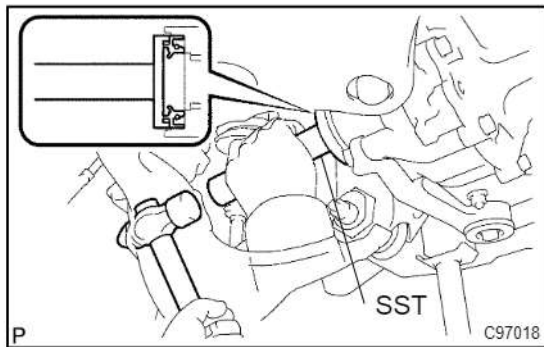
29061-02

1. REMOVE FRONT WHEEL
2. REMOVE ENGINE UNDER COVER ASSY REAR
 - (a) Remove the 6 bolts and engine under cover assy rear.
3. REMOVE ENGINE UNDER COVER SUB-ASSY NO.1
 - (a) Remove the 4 bolts and engine under cover sub-assy No.1.
4. DRAIN DIFFERENTIAL OIL (See page 29-3)
5. REMOVE FRONT AXLE HUB LH NUT (See page 30-18)
SST 09930-00010
6. SEPARATE SPEED SENSOR FRONT LH (See page 32-50)
7. SEPARATE TIE ROD END SUB-ASSY LH (See page 51-20)
SST 09628-62011
8. SEPARATE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)
9. REMOVE FRONT DRIVE SHAFT ASSY LH (See page 30-18)
SST 09520-01010, 09520-24010 (09520-32040)



10. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-00010



11. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST and a hammer, install a new oil seal.
SST 09554-30011
- (b) Coat the oil seal lip with MP grease.

12. INSTALL FRONT DRIVE SHAFT ASSY LH (See page 30-18)
13. CONNECT FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)
14. CONNECT TIE ROD END SUB-ASSY LH (See page 51-20)
15. CONNECT SPEED SENSOR FRONT LH (See page 32-50)
16. INSTALL FRONT AXLE HUB LH NUT (See page 30-18)
17. FILL UP DIFFERENTIAL OIL (See page 29-3)
18. INSPECT DIFFERENTIAL OIL (See page 29-3)
19. INSTALL ENGINE UNDER COVER SUB-ASSY NO.1
 - (a) Install the engine under cover sub-assy No.1 with the 4 bolts.

20. INSTALL ENGINE UNDER COVER ASSY REAR

- (a) Install the engine under cover assy rear with the 6 bolts.

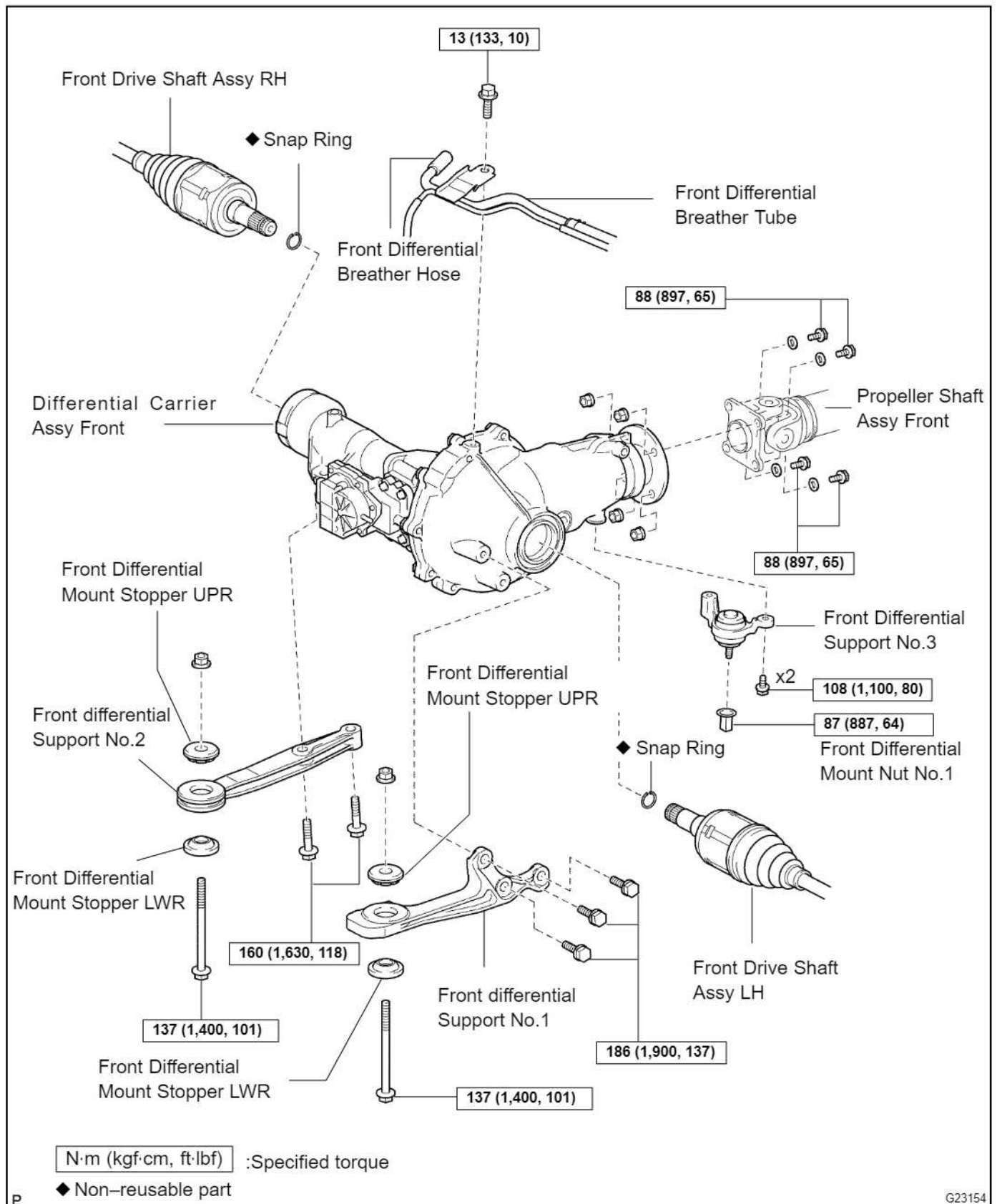
21. INSTALL FRONT WHEEL

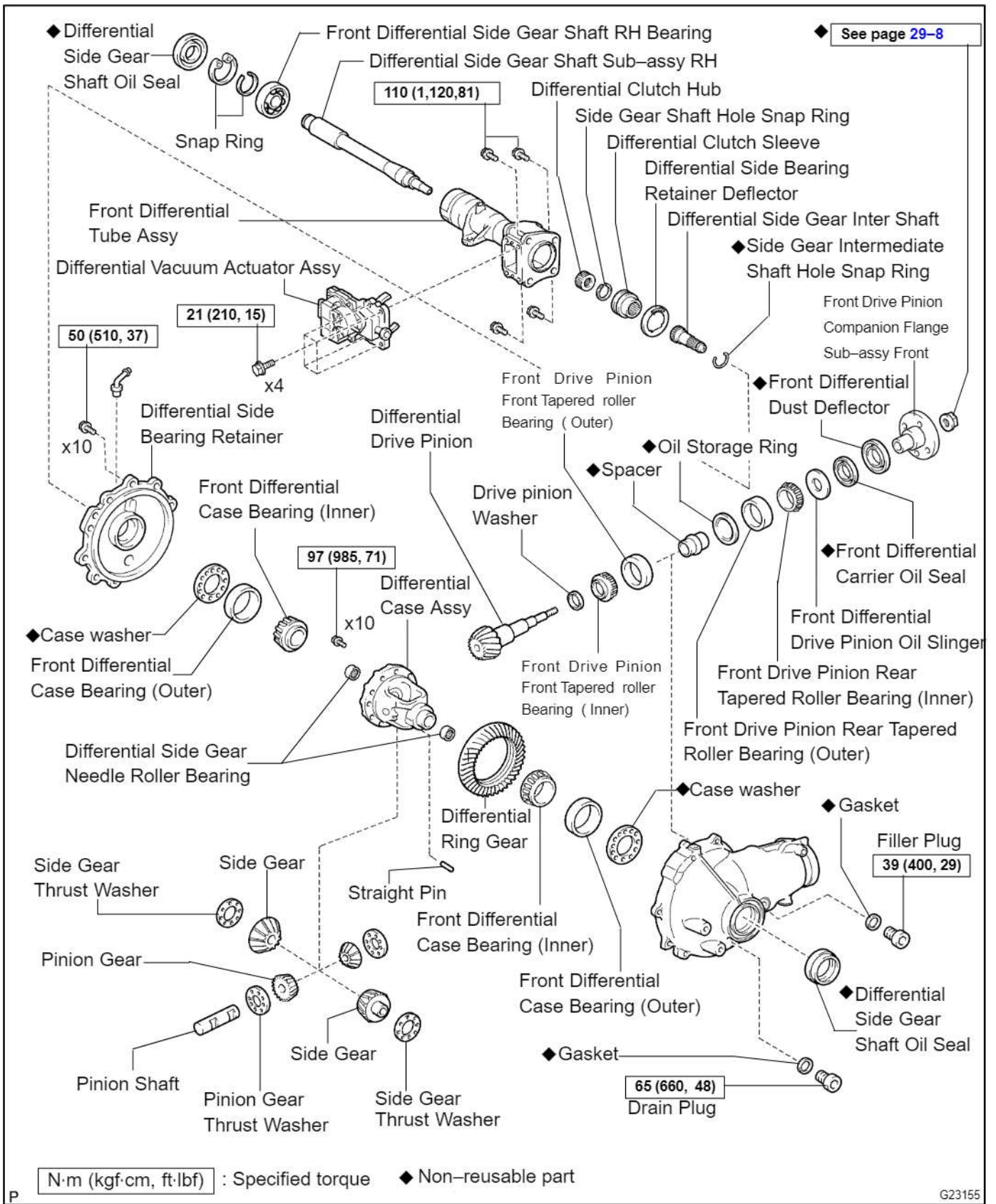
Torque: 112 N·m (1,142 kgf·cm, 83 ft·lbf)

22. CHECK ABS SPEED SENSOR SIGNAL (See page [05-803](#))

DIFFERENTIAL CARRIER ASSY FRONT (1GR-FE (4WD)) COMPONENTS

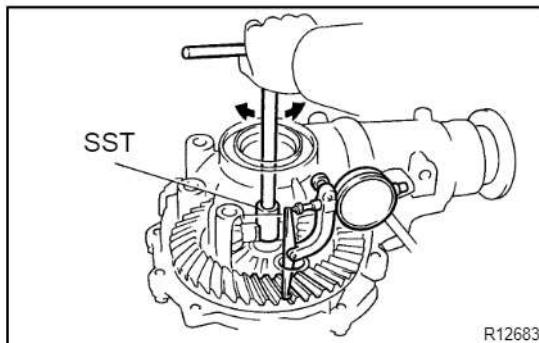
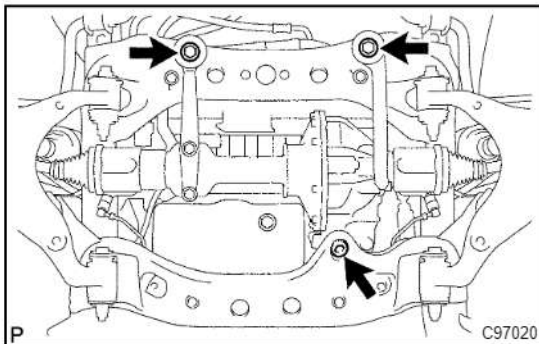
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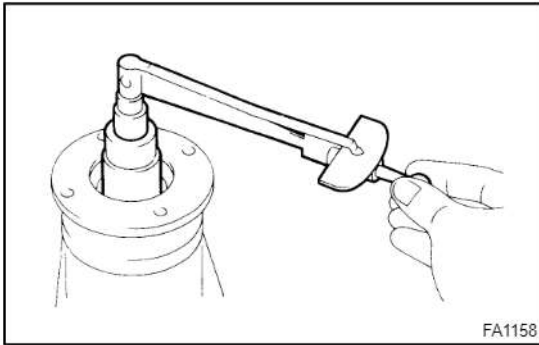


OVERHAUL

1. REMOVE FRONT WHEELS
2. REMOVE ENGINE UNDER COVER ASSY REAR
 - (a) Remove the 6 bolts and engine under cover assy rear.
3. REMOVE ENGINE UNDER COVER SUB-ASSY NO.1
 - (a) Remove the 4 bolts and engine under cover sub-assy No.1.
4. DRAIN DIFFERENTIAL OIL (See page 29-3)
5. REMOVE PROPELLER SHAFT ASSY FRONT (See page 30-4)
6. REMOVE FRONT AXLE HUB LH NUT (See page 30-18)
7. REMOVE FRONT AXLE HUB RH NUT (See page 30-18)
8. SEPARATE FRONT STABILIZER LINK ASSY LH (See page 26-27)
9. SEPARATE FRONT STABILIZER LINK ASSY RH (See page 26-27)
10. SEPARATE SPEED SENSOR FRONT LH (See page 32-50)
11. SEPARATE SPEED SENSOR FRONT RH (See page 32-50)
12. SEPARATE TIE ROD END SUB-ASSY LH (See page 51-20)
SST 09628-62011
13. SEPARATE TIE ROD END SUB-ASSY RH (See page 51-20)
SST 09628-62011
14. REMOVE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)
15. REMOVE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 RH (See page 26-22)
16. REMOVE FRONT DRIVE SHAFT ASSY LH (See page 30-18)
17. REMOVE FRONT DRIVE SHAFT ASSY RH (See page 30-18)



18. REMOVE DIFFERENTIAL CARRIER ASSY FRONT
 - (a) Remove the bolt and separate the front differential breather tube bracket.
 - (b) Support the front differential with a jack.
 - (c) Remove the front differential mount nut No.1.
 - (d) Remove the 2 front mounting bolts and 2 nuts.
 - (e) Disconnect the actuator hose and connector.
 - (f) Lower the jack and remove the front differential assembly.
 - (g) Remove the 2 bolts and front differential support No.3.
 - (h) Remove the 5 bolts and 2 front differential supports.
19. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION
 - (a) Using SST and a dial indicator, measure the ring gear backlash.
SST 09564-32011
Backlash: 0.11 – 0.18 mm (0.0043 – 0.0071 in.)
If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.



20. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

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

0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

21. INSPECT TOTAL PRELOAD

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

Total preload (at starting):

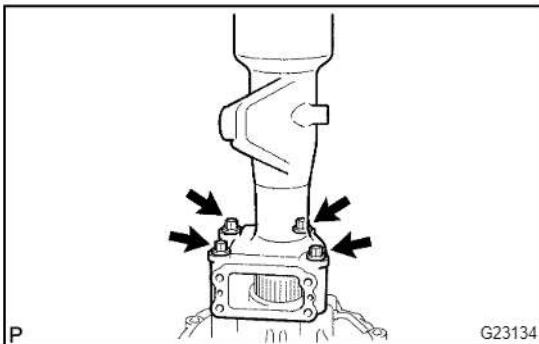
Drive pinion preload plus 0.20 – 0.63 N·m (2.0 – 6.4 kgf·cm, 1.8 – 5.6 in.·lbf)

If necessary, disassemble and inspect the differential.



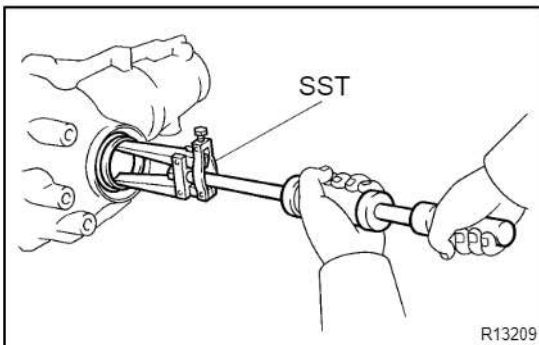
22. REMOVE DIFFERENTIAL VACUUM ACTUATOR ASSY

- (a) Remove the 4 bolts.
(b) Using a hammer, handle, remove the actuator assy.



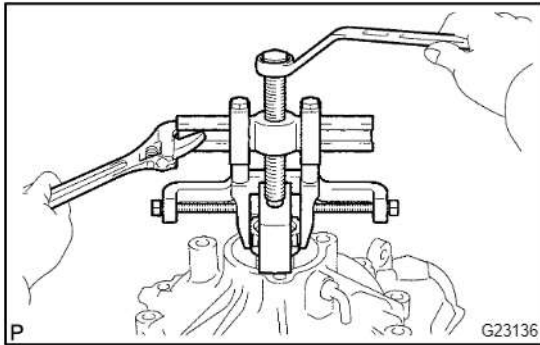
23. REMOVE FRONT DIFFERENTIAL TUBE ASSY

- (a) Remove the 4 bolts.
(b) Using a plastic hammer, remove the differential tube.



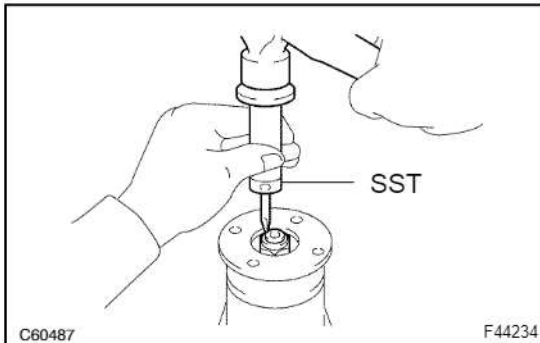
24. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-00010



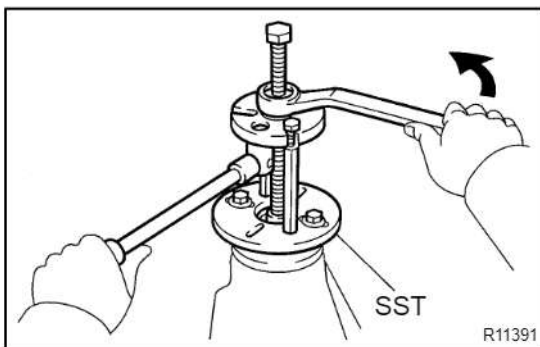
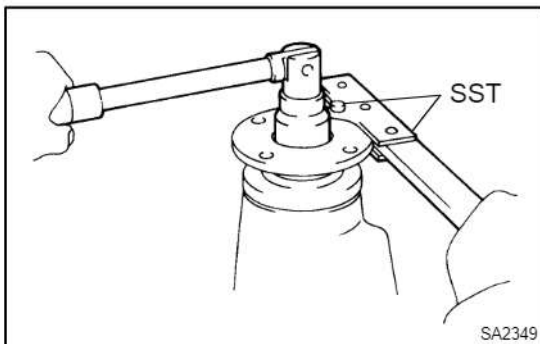
25. REMOVE DIFFERENTIAL SIDE GEAR INTER SHAFT SUB-ASSY

- (a) Using SST, remove the side gear inter shaft.
SST 09350-20015 (09369-20040), 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04011, 09957-04010, 09958-04011)
- (b) Remove the snap ring from the side gear inter shaft.

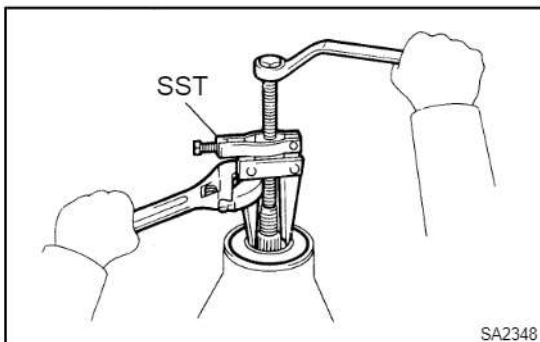


26. REMOVE FRONT DRIVE PINION COMPANION FLANGE SUB-ASSYFRONT

- (a) Using SST and a hammer, unstake the nut.
SST 09930-00010
- (b) Using SST to hold the companion flange, remove the nut.
SST 09330-00021 (09330-00030)



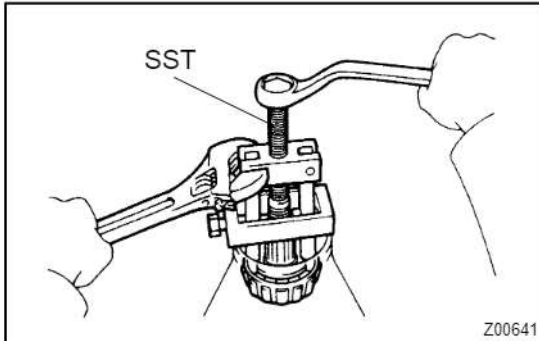
- (c) Using SST, remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)



27. REMOVE FRONT DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST, remove the oil seal from the differential carrier assy.
SST 09308-10010

28. REMOVE FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER



29. REMOVE FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

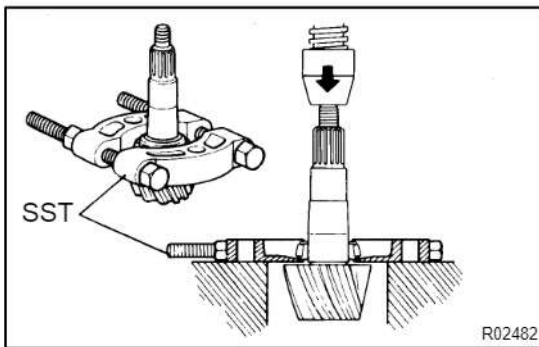
- Using SST, remove the rear bearing from the drive pinion.
SST 09556-22010
- Remove the bearing spacer.

30. REMOVE DIFFERENTIAL SIDE BEARING RETAINER

- Using a screwdriver, remove the union.
- Remove the 10 bolts and tap out the side bearing retainer with a plastic hammer.

31. REMOVE DIFFERENTIAL CASE ASSY

32. REMOVE DIFFERENTIAL DRIVE PINION

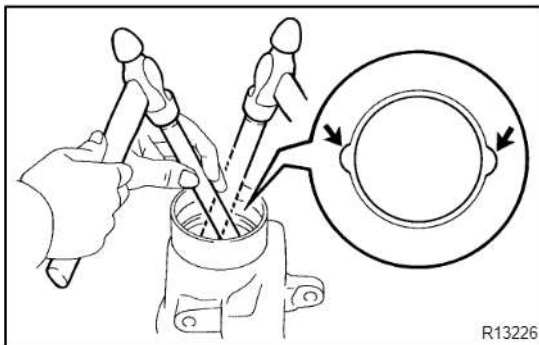


33. REMOVE FRONT DRIVE PINION FRONT TAPERED ROLLER BEARING

- Using SST and a press, remove the front bearing and washer from the drive pinion.
SST 09950-00020

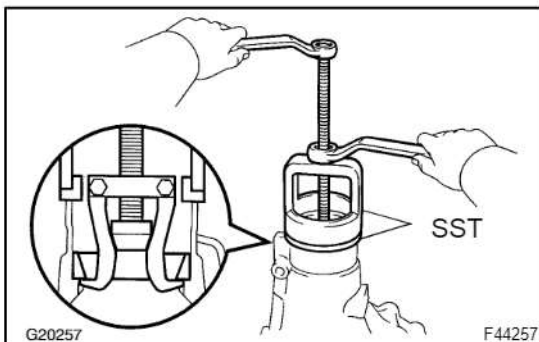
HINT:

If the drive gear or ring gear are damaged, replace them as a set.



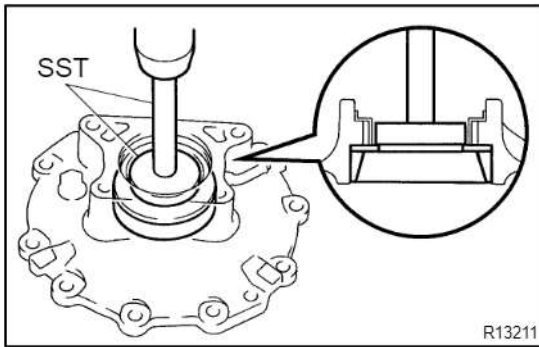
34. REMOVE FRONT BEARING OUTER RACE

- Using a brass bar and a hammer, remove the front bearing outer race.

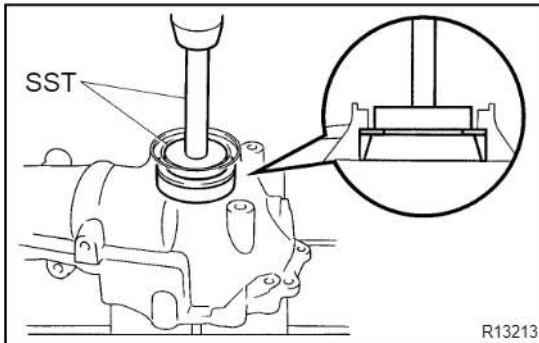


35. REMOVE REAR BEARING OUTER RACE

- Using SST, remove the rear bearing outer race.
SST 09502-12010, 09612-65014 (09612-01020, 09612-01050)
- Using a brass bar and a hammer, remove the oil storage ring.

**36. REMOVE SIDE BEARING OUTER RACE****HINT:**

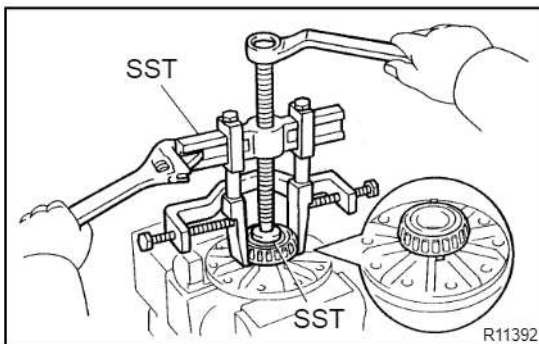
- ◆ Measure the plate washer and note the thickness.
 - ◆ Tag the bearing outer races to show the location for reassembly.
- (a) Using SST and a press, remove the outer race and plate washer from the bearing retainer.
SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)



- (b) Using SST and a press, remove the outer race and plate washer from the differential carrier assy.
SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)

37. REMOVE DIFFERENTIAL RING GEAR

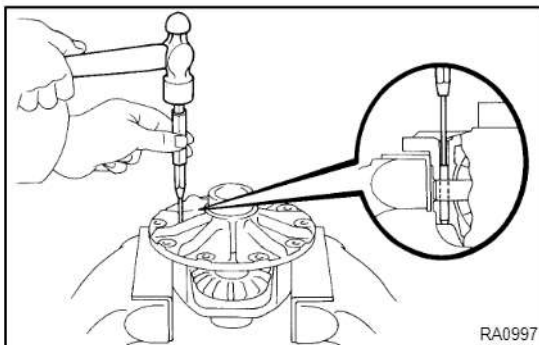
- (a) Place matchmarks on the ring gear and differential case assy.
(b) Remove the 10 bolts.
(c) Using a plastic hammer, tap on the ring gear to separate it from the differential case assy.

**38. REMOVE FRONT DIFFERENTIAL CASE BEARING**

- (a) Using SST, remove the 2 differential case bearings from the differential case assy.
SST 09950-60010 (09951-00390), 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010, 09958-04011)

HINT:

Fix the clews of SST to the notch in the differential case assy.

**39. DISASSEMBLE DIFFERENTIAL CASE**

- (a) Using a pin punch and a hammer, remove the straight pin.
(b) Remove the parts from the differential case assy.
- (1) Differential side gear (2 pieces)
 - (2) Differential side gear thrust washer (2 pieces)
 - (3) Differential pinion shaft
 - (4) Differential pinion gear (2 pieces)
 - (5) Differential pinion gear thrust washer (2 pieces)

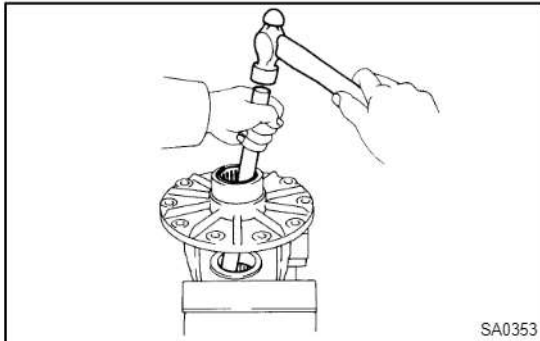
40. INSPECT DIFFERENTIAL GEAR KIT

- (a) Check that no damage is identified on the pinion gear and side gear.
If the pinion gear and/or side gear is damaged, replace the differential gear kit.

41. INSPECT FRONT DIFFERENTIAL CASE

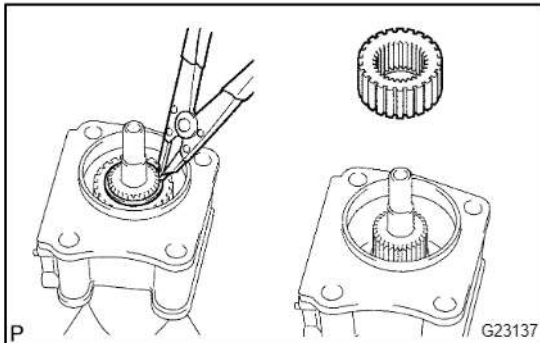
(a) Check that no damaged is differential case assy.

If the differential case assy is damaged, replace the differential case assy.



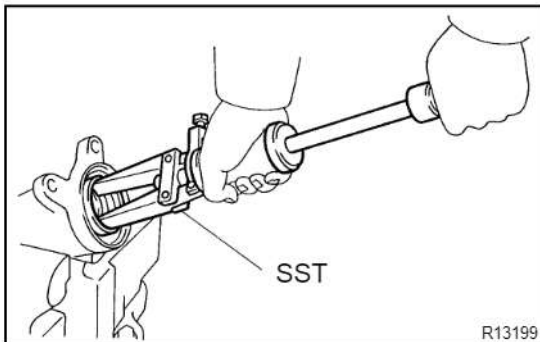
42. REMOVE FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING

(a) Using a brass bar and hammer, remove the 2 bearings.



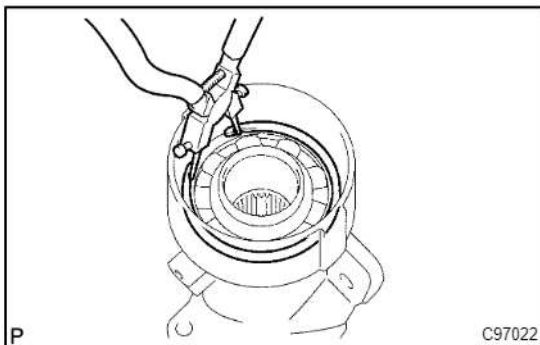
43. REMOVE DIFFERENTIAL CLUTCH HUB

(a) Using a snap ring expander, remove the snap ring.
(b) Remove the differential clutch hub.



44. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

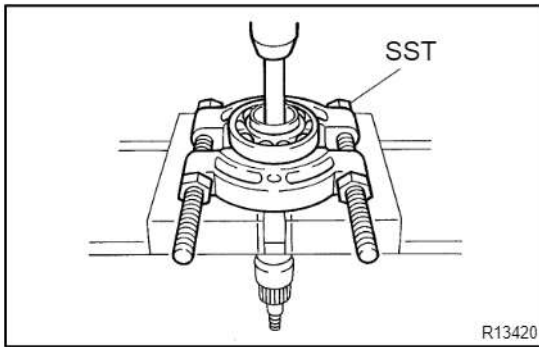
(a) Using SST, remove the oil seal from the differential tube.
SST 09308-00010



45. REMOVE DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSY RH

(a) Using a snap ring expander, remove the snap ring.
(b) Remove the side gear shaft from the differential tube.

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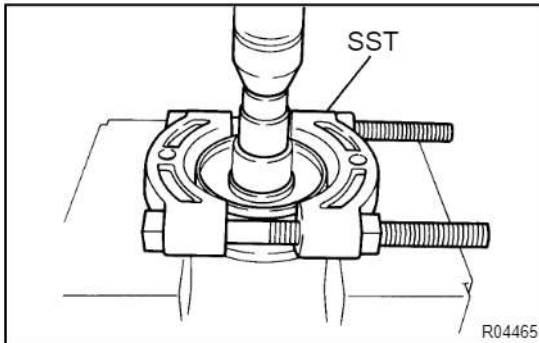


46. REMOVE FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- Using a snap ring expander, remove the snap ring.
- Using SST, a brass bar and a press, remove the bearing.
SST 09950-00020

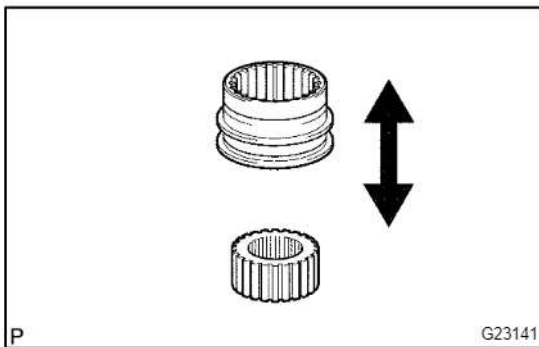
NOTICE:

Do not damage the bearing.



47. REMOVE FRONT DIFFERENTIAL DUST DEFLECTOR

- Using SST, a socket wrench and a press, remove the dust deflector
SST 09950-00020

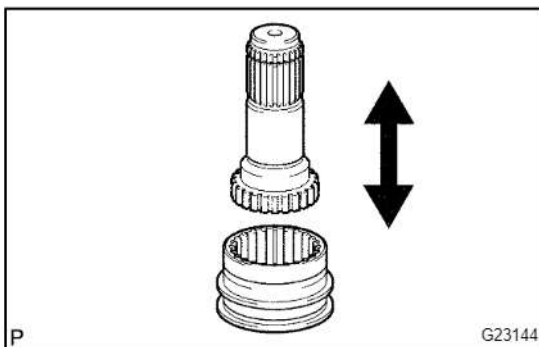


48. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND DIFFERENTIAL CLUTCH HUB

- Check the wear and damage of the clutch hub and clutch sleeve.

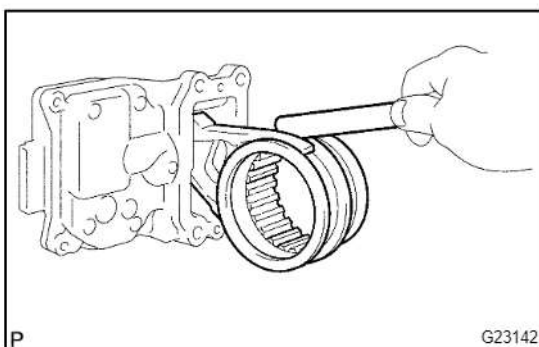
If necessary replace them

- Check that clutch sleeve slides smoothly on the clutch hub.



49. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND DIFFERENTIAL SIDE GEAR INTER SHAFT

- Check the wear and damage of the clutch hub and side gear inter shaft.
- Check that clutch sleeve slides smoothly on the side gear inter shaft.

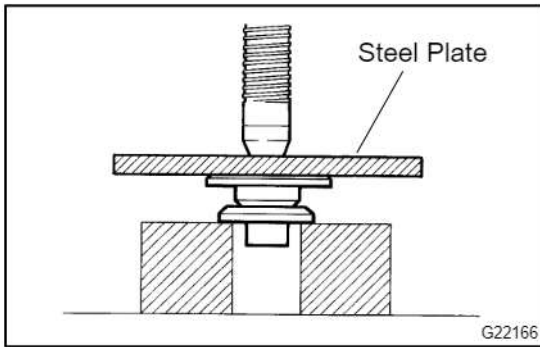


50. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND CLUTCH SLEEVE FORK CLEARANCE

- Using a feeler gauge, measure the clearance between the sleeve fork and clutch sleeve.

Maximum clearance: 0.35 mm (0.0138 in.)

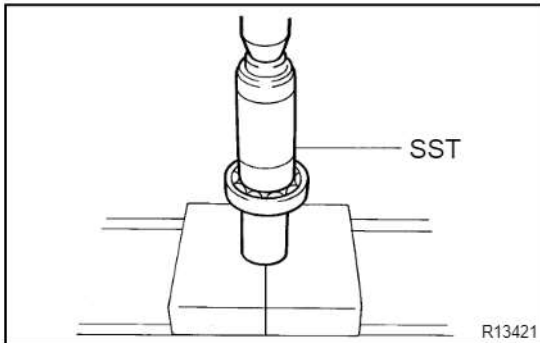
If the clearance exceeds the maximum, replace the fork or clutch sleeve.



- 51. INSTALL FRONT DIFFERENTIAL DUST DEFLECTOR**
(a) Using a steel plate and a press, install a new dust deflector.

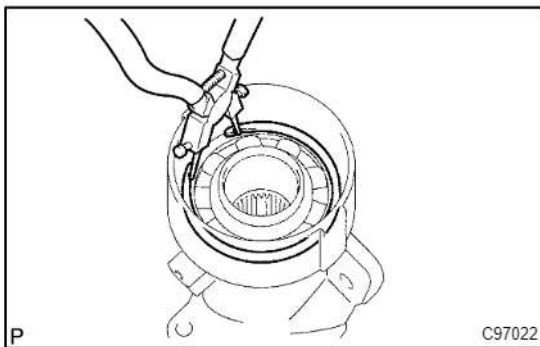
NOTICE:

Do not damage the dust deflector.



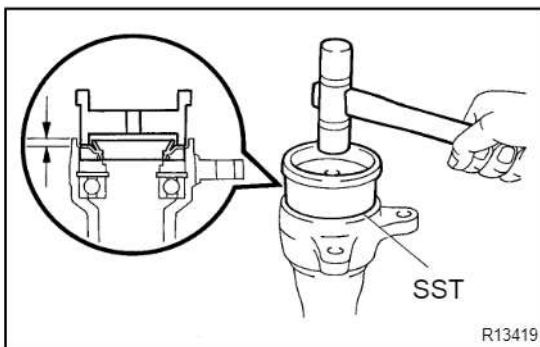
- 52. INSTALL FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING**

- (a) Using SST and a press, install the bearing.
SST 09223-00010
(b) Using a snap ring expander, install the snap ring.



- 53. INSTALL DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSY RH**

- (a) Install the side gear shaft into the differential tube.
(b) Using snap ring pliers, install the snap ring.



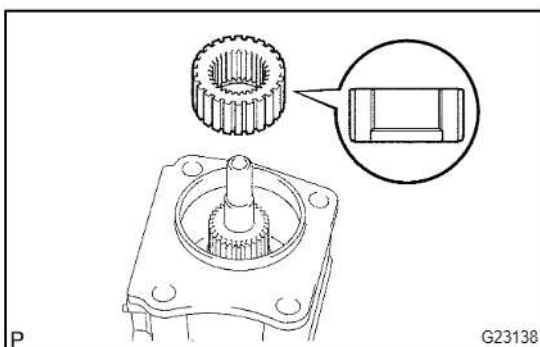
- 54. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL**

- (a) Using SST and a plastic hammer, install a new oil seal.
SST 09608-32010

Oil seal drive in depth:

5.3 ± 0.5 mm (0.2087 ± 0.0197 in.)

- (b) Coat the oil seal lip with MP grease.

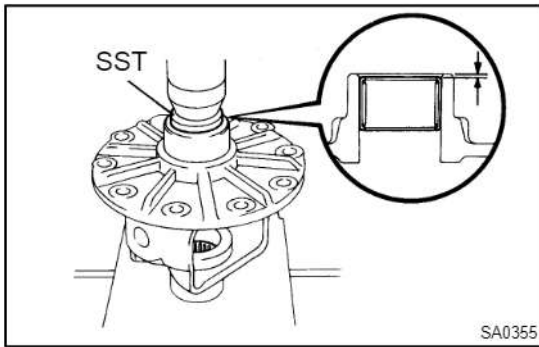


- 55. INSTALL DIFFERENTIAL CLUTCH HUB**

- (a) Install the clutch hub to the side gear inter shaft.
(b) Using snap ring pliers install the snap ring.

NOTICE:

Make sure to install the differential clutch hub in the correct direction.



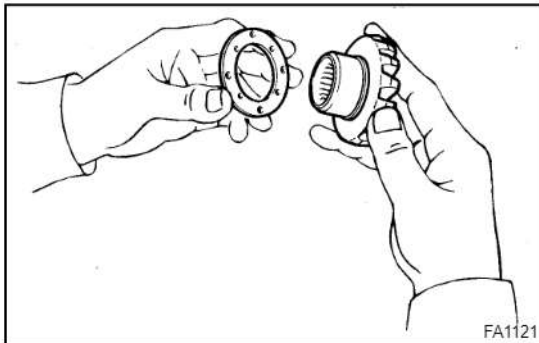
56. INSTALL FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING

- (a) Using SST and press, install 2 new bearings.

Bearing press in depth:

1.7 ± 0.3 mm (0.067 ± 0.012 in.)

SST 09950-60010 (09951-00380)



57. INSTALL FRONT DIFFERENTIAL CASE

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

HINT:

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

Washer thickness

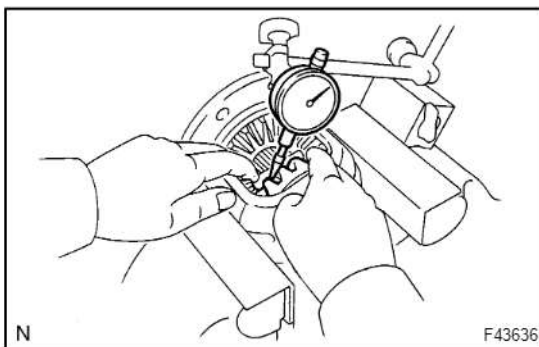
Thickness mm (in.)	Thickness mm (in.)
1.48 – 1.52 (0.0583 – 0.0598)	1.73 – 1.77 (0.0681 – 0.0697)
1.53 – 1.57 (0.0602 – 0.0618)	1.78 – 1.82 (0.0701 – 0.0717)
1.58 – 1.62 (0.0622 – 0.0638)	1.83 – 1.87 (0.0720 – 0.0736)
1.63 – 1.67 (0.0642 – 0.0657)	1.88 – 1.92 (0.0740 – 0.0756)
1.68 – 1.72 (0.0661 – 0.0677)	–

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

HINT:

Align the holes of the differential case assy and pinion shaft.

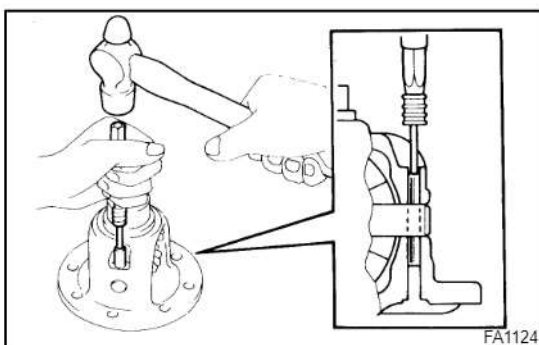
- (c) Measure the side gear backlash.



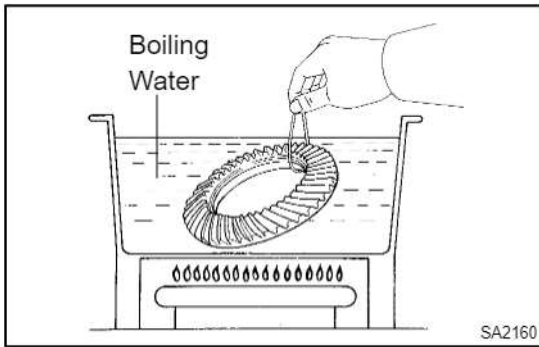
- (1) Using a dial indicator, measure the side gear backlash with holding one pinion gear toward the differential case assy.

Backlash: 0 – 0.15 mm (0 – 0.00591 in.)

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



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



58. INSTALL DIFFERENTIAL RING GEAR

- Clean the contact surfaces of the differential case assy 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 assy.

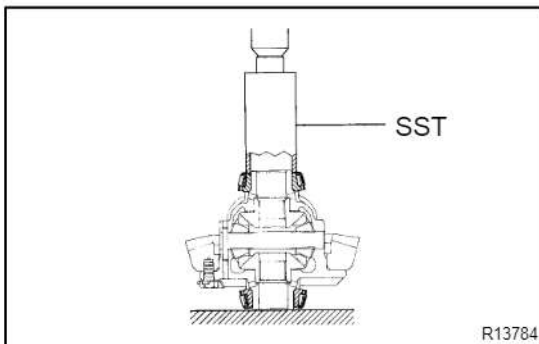
HINT:

Align the matchmarks on the ring gear and differential case assy.

- Temporarily install 10 bolts so that the bolt holes in the ring gear and differential case assy are not misaligned.
- After the ring gear has cooled sufficiently, torque the ring gear set bolts to which thread lock has been applied.

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

Thread lock: Part No. 08833-00100, THREE BOND 1360k or equivalent



59. INSTALL FRONT DIFFERENTIAL CASE BEARING

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

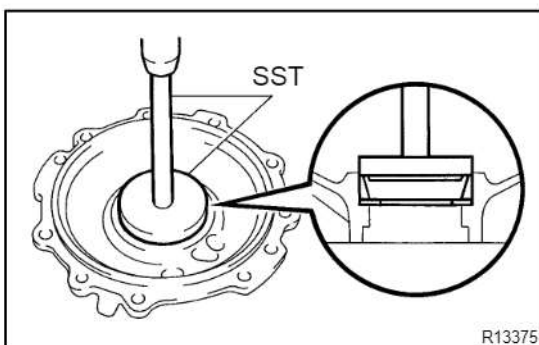
SST 09226-10010

60. INSTALL SIDE BEARING OUTER RACE

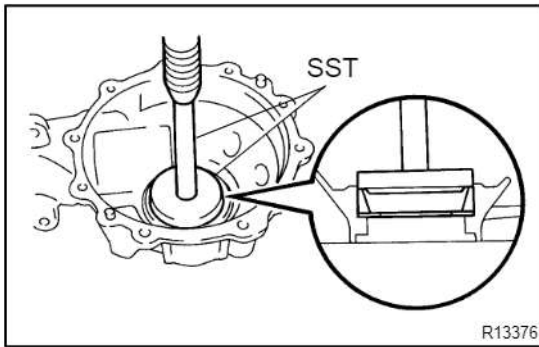
HINT:

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

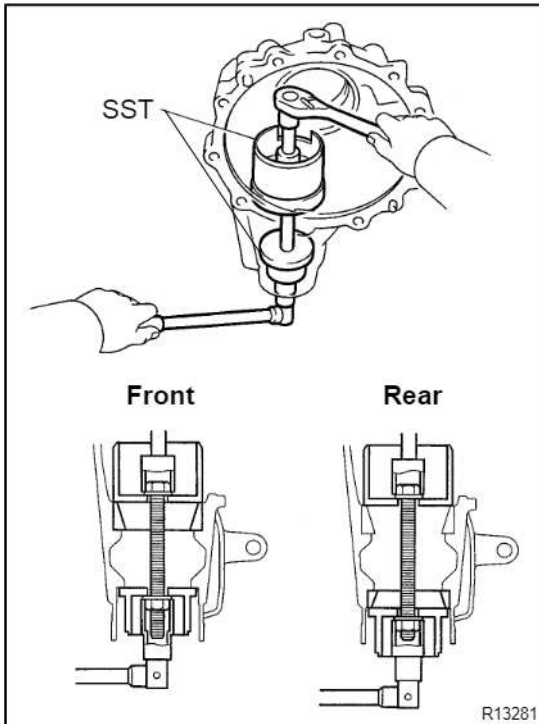
- Install a new plate washer to the side bearing retainer.



- Using SST and a press, install the bearing outer race to the differential case bearing retainer assy.
SST 09950-60020 (09951-00810), 09950-70010 (09951-07150)
- Install a new plate washer to the differential carrier assy.



- (d) Using SST and a press, install the bearing outer race to the differential carrier assy.
SST 09950-60020 (09951-00810), 09950-70010 (09951-07150)



61. INSTALL FRONT BEARING OUTER RACE

- (a) Using SST, install the outer race.
SST 09950-00020 (09951-00680, 09951-00890)

62. INSTALL REAR BEARING OUTER RACE

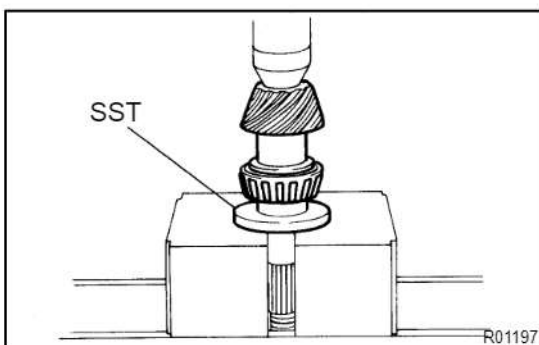
- (a) Install the oil strage ring.
(b) Using SST, install the outer race.
SST 09950-00020 (09951-00680, 09951-00890)

63. INSTALL FRONT DRIVE PINION FRONT TAPERED ROLLER 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 differential thickness if necessary.



- (b) Using SST and a press, install the front bearing onto the drive pinion.
SST 09506-30012

64. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

(a) Install the drive pinion.

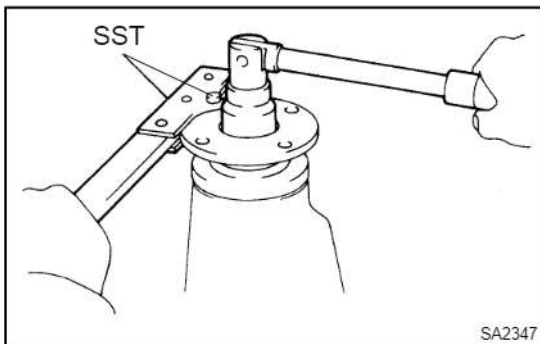
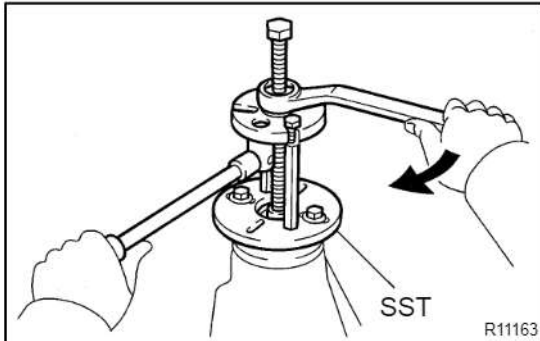
HINT:

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.

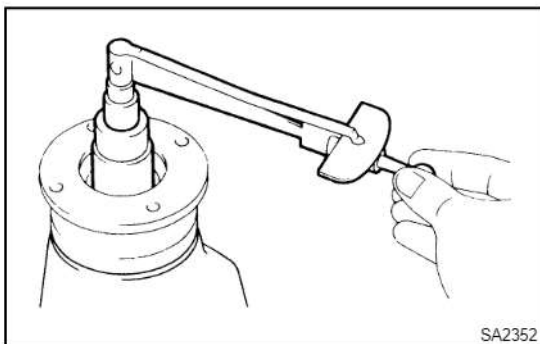


(d) Adjust the drive pinion preload by tightening the companion flange nut.

(e) Using SST to hold the companion flange, tighten the nut.
SST 09330-00021 (09330-00030)

NOTICE:

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



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

Preload (at starting)**New bearing:**

0.98 – 1.57 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.·lbf)

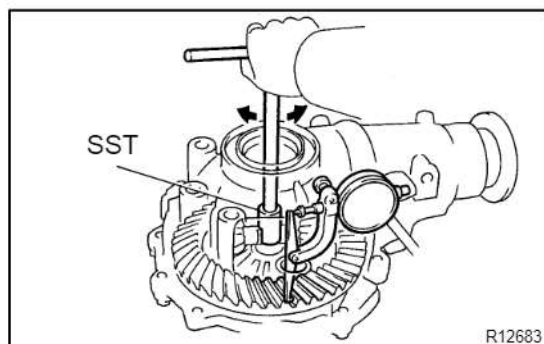
Reused bearing:

0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

65. INSTALL DIFFERENTIAL CASE ASSY

66. ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

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

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

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

SST 09564-32011

Backlash: 0.11 – 0.18 mm (0.0043 – 0.0071 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.

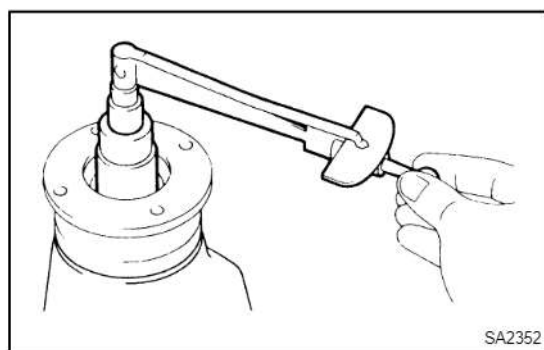
HINT:

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

Make sure that there is ring gear backlash.

Washer thickness:

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.59 – 1.61 (0.0626 – 0.0634)	1.89 – 1.91 (0.0744 – 0.0752)	2.19 – 2.21 (0.0862 – 0.0870)
1.62 – 1.64 (0.0638 – 0.0646)	1.92 – 1.94 (0.0756 – 0.0764)	2.22 – 2.24 (0.0874 – 0.0882)
1.65 – 1.67 (0.0650 – 0.0657)	1.95 – 1.97 (0.0768 – 0.0776)	2.25 – 2.27 (0.0886 – 0.0894)
1.68 – 1.70 (0.0661 – 0.0669)	1.98 – 2.00 (0.0780 – 0.0787)	2.28 – 2.30 (0.0898 – 0.0906)
1.71 – 1.73 (0.0673 – 0.0681)	2.01 – 2.03 (0.0791 – 0.0800)	2.31 – 2.33 (0.0909 – 0.0917)
1.74 – 1.76 (0.0685 – 0.0693)	2.04 – 2.06 (0.0803 – 0.0811)	2.34 – 2.36 (0.0921 – 0.0929)
1.77 – 1.79 (0.0697 – 0.0705)	2.07 – 2.09 (0.0815 – 0.0823)	2.37 – 2.39 (0.0933 – 0.0941)
1.80 – 1.82 (0.0709 – 0.0717)	2.10 – 2.12 (0.0827 – 0.0835)	2.40 – 2.42 (0.0945 – 0.0953)
1.83 – 1.85 (0.0720 – 0.0728)	2.13 – 2.15 (0.0839 – 0.0846)	2.43 – 2.45 (0.0957 – 0.0965)
1.86 – 1.88 (0.0732 – 0.0740)	2.16 – 2.18 (0.0850 – 0.0858)	2.46 – 2.48 (0.0969 – 0.0976)

**67. INSPECT TOTAL PRELOAD**

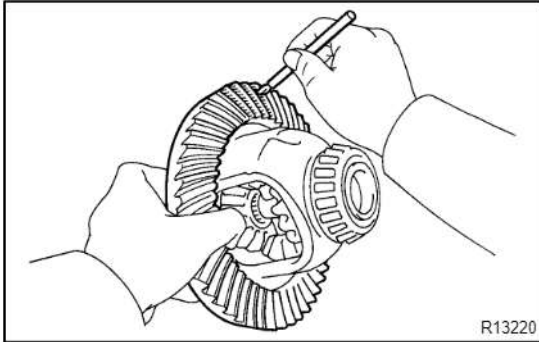
- (a) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):**Drive pinion preload plus****0.20 – 0.63 N·m (2.0 – 6.4 kgf·cm, 1.8 – 5.6 in·lbf)**

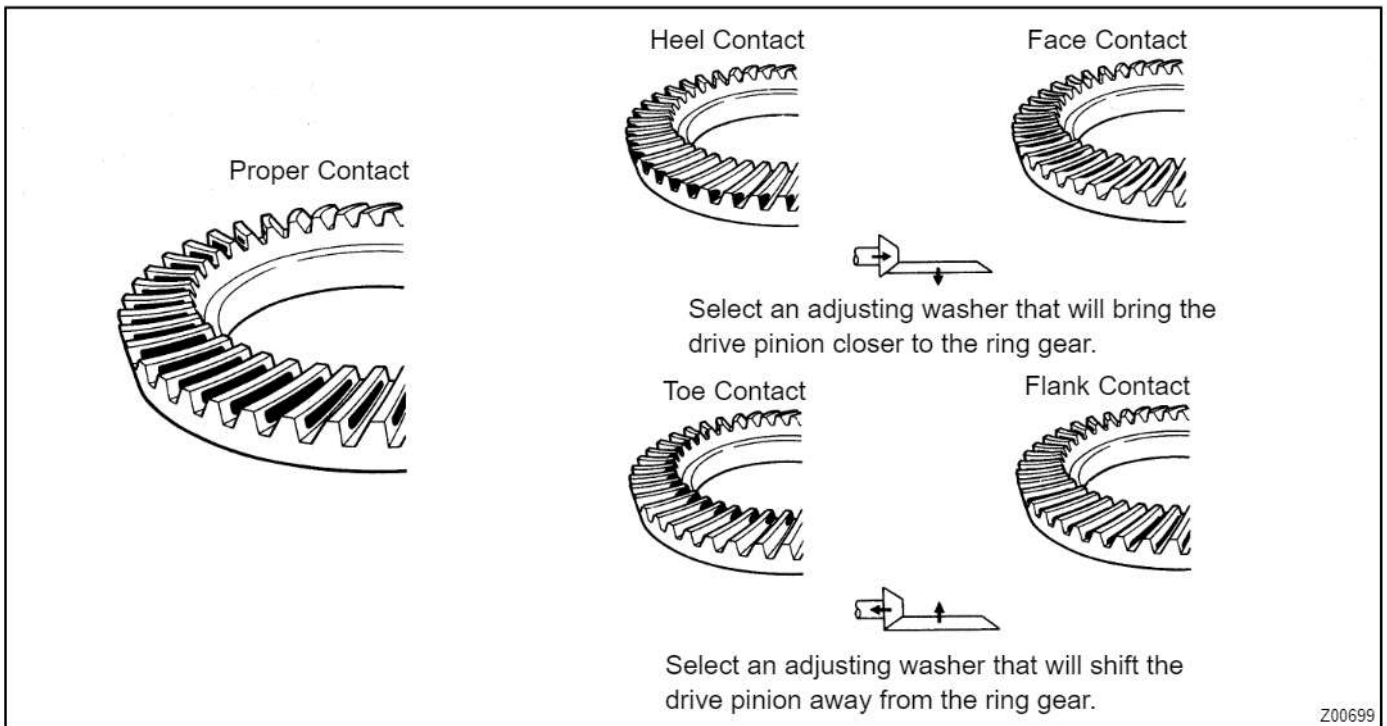
If necessary, disassemble and inspect the differential.

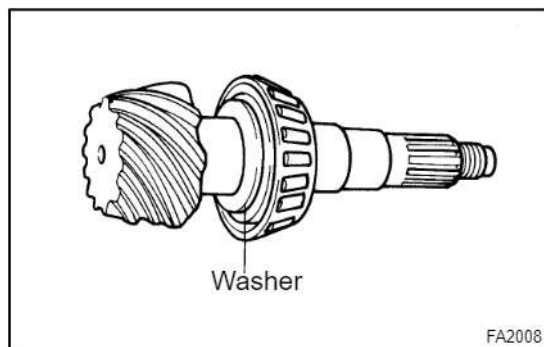
68. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Remove the side bearing retainer and differential case assy.



- (b) Coat 3 or 4 teeth at the 3 different positions on the ring gear with red lead.
- (c) Install the differential case assy and side bearing retainer.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
- (d) Hold the companion flange firmly and rotate the ring gear in both directions.
- (e) Remove the differential case and side bearing retainer and differential case assy.
- (f) 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)	–

- (g) Remove the companion flange and oil slinger.
SST 09330-00021 (09330-00030), 09950-30012
(09951-03010, 09953-03010, 09954-03010,
09955-03030, 09956-03020)
- (h) Remove the rear bearing.
SST 09556-22010

69. INSTALL FRONT DIFFERENTIAL DRIVE PINION BEARING SPACER

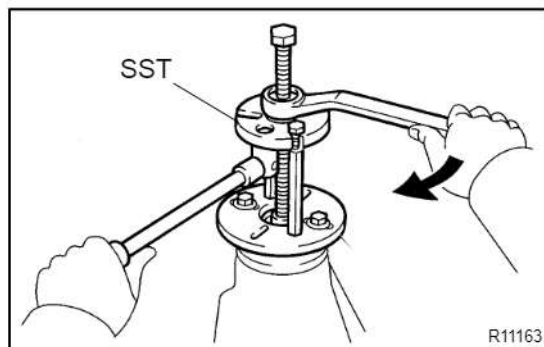
- (a) Install a new bearing spacer and oil strage ring.

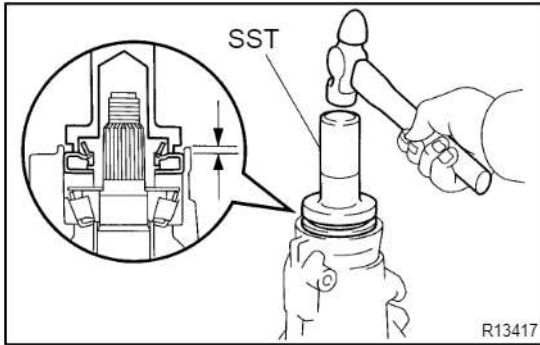
70. INSTALL FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

71. INSTALL FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER

72. INSTALL FRONT DRIVE PINION COMPANION FLANGE SUB-ASSYFRONT

- (a) Place the companion flange on the drive pinion.
- (b) Coat the threads of a new nut with hypoid gear oil LSD.
- (c) Using SST and the companion flange, install the rear tapered roller bearing, then remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010,
09954-03010, 09955-03030, 09956-03020)





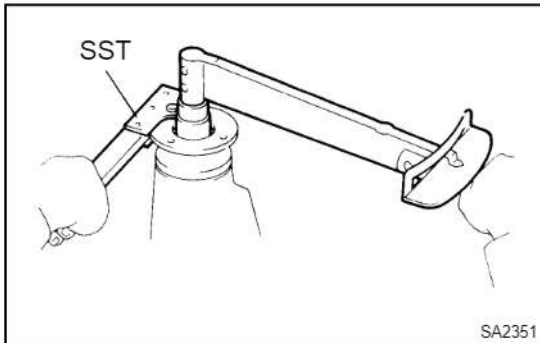
73. INSTALL FRONT DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST and a hammer, install the oil seal.
SST 09330-00021 (09330-00030), 09554-22010

Oil seal drive in depth:

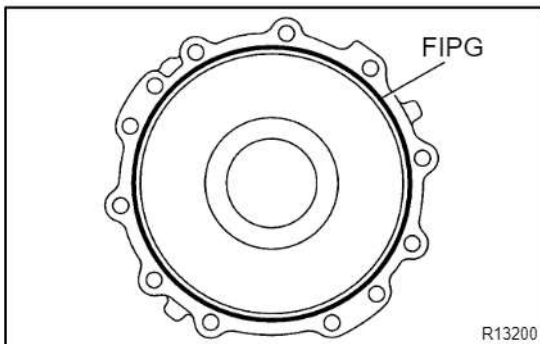
4.35 ± 0.45 mm (0.171 ± 0.018 in.)

- (b) Coar the oil seal lip with MP grease.



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

Torque: 370 N·m (3,770 kgf·cm, 37 ft·lbf)



74. INSTALL DIFFERENTIAL SIDE BEARING RETAINER

- (a) Remove the any old FIPG material and be careful not to drop oil on the contact surfaces of the differential carrier and side bearing retainer.
(b) Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.

- (c) Apply FIPG to the side bearing retainer, as shown.

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

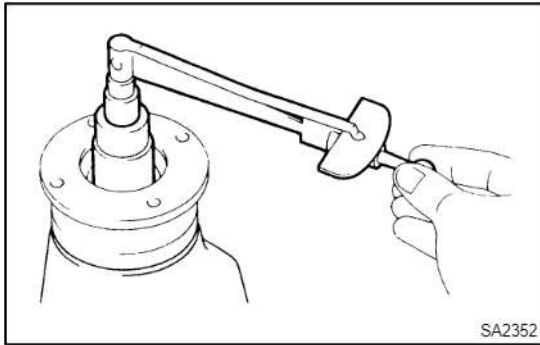
HINT:

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

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

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

- (e) Install a union.



- 75. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**
 (a) Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

Preload (at starting)

New bearing:

0.98 – 1.57 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in·lbf)

Reused bearing:

0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 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: 370 N·m (3,773 kgf·cm, 268 ft·lbf) or less

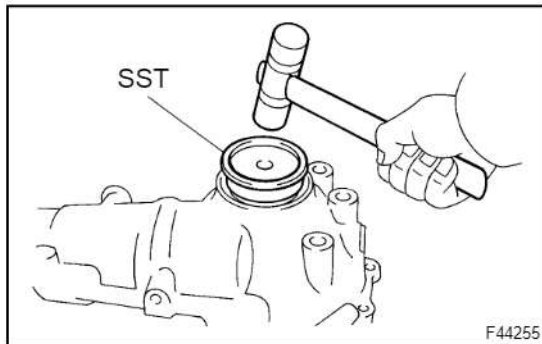
If the maximum torque is exceeded while retightening the nut, replace the bearing spacer and repair the preload procedure. Do not back off the nut to reduce the preload.

76. INSPECT TOTAL PRELOAD

77. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

78. INSPECT FRONT DRIVE PINION COMPANION FLANGE SUB-ASSY FRONT

79. INSTALL FRONT DRIVE PINION COMPANION FLANGE FRONT NUT



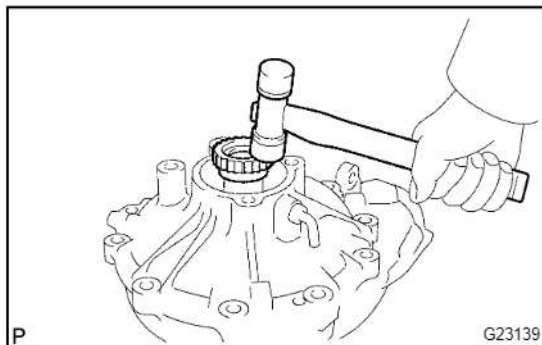
80. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

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

SST 09608-32010

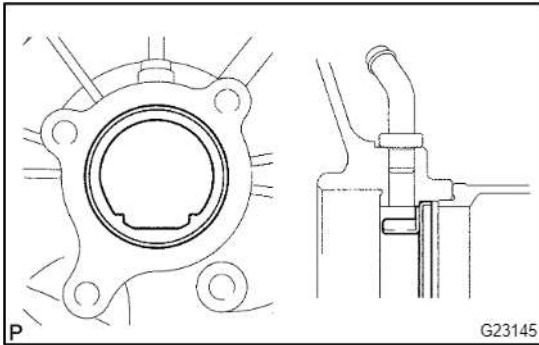
- (b) Coat the oil seal lip with MP grease.

Oil seal drive in depth: 0 ± 0.45 mm (0 ± 0.0177 in.)



81. INSTALL DIFFERENTIAL SIDE GEAR INTER SHAFT SUB-ASSY

- (a) Install a new snap ring to the side gear inter shaft.
 (b) Using a plastic hammer, side gear inter shaft to the differential case.
 (c) Check that there 2 – 3 mm (0.08 – 0.12 in.) of play in axial direction.
 (d) Check that the side gear inter shaft will not come out by trying to pull it completely out by hand.

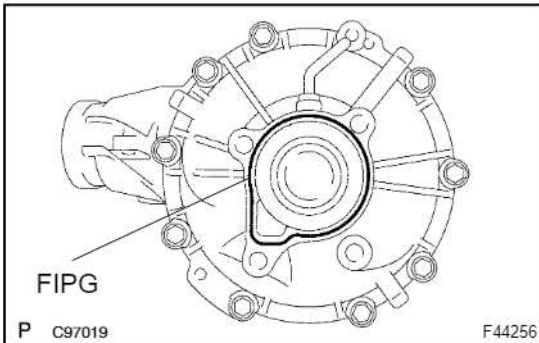


82. INSTALL FRONT DIFFERENTIAL SIDE BEARING RETAINER DEFLECTOR

- Using a brass bar and a hammer, install the side bearing retainer deflector.

NOTICE:

Make sure to install the side bearing retainer deflector in the correct direction.



83. INSTALL FRONT DIFFERENTIAL TUBE ASSY

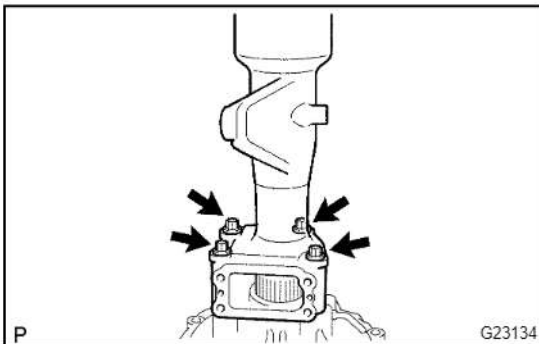
- Remove the any oil FIPG material and be careful not to drop oil on the contact surfaces of the differential and clutch case.
- Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.
- Apply FIPG to the differential, as shown.

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

HINT:

Install the differential tube within 10 minutes after applying FIPG.

- Install the differential tube to the differential carrier assy.



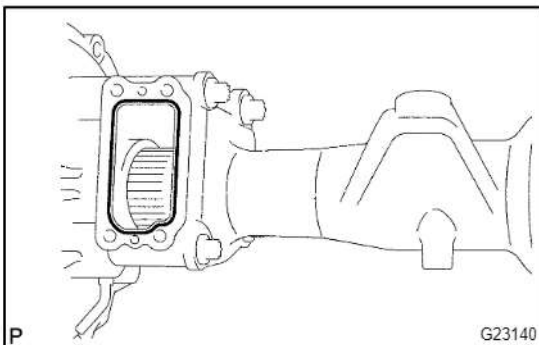
- Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichloroethylene.

- Apply adhesive to 2 to 3 threads of the bolts end.

Adhesive: Part No. 08833–00070, THREE BOND 1324 or equivalent

- Install the 4 bolts.

Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf) or less



84. INSTALL DIFFERENTIAL VACUUM ACTUATOR ASSY

- Remove the any oil FIPG material and be careful not to drop oil on the contact surfaces of the actuator and clutch case.

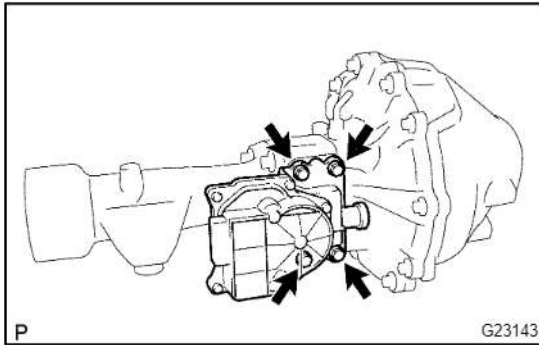
- Clean connecting surfaces of any residual FIPG material using gasoline or alcohol.

- Apply FIPG to the differential tube, as shown.

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

HINT:

Install the actuator within 10 minutes after applying FIPG.

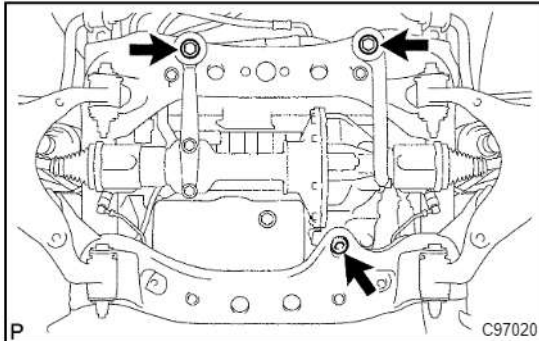


- (d) Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichloroethylene.
- (e) Install the actuator assy to the differential tube.
- (f) Apply adhesive to 2 to 3 threads of the bolts end.

Adhesive: Part No. 08833-00070, THREE BOND 1281 or equivalent

- (g) Install the 4 bolts.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)



85. INSTALL DIFFERENTIAL CARRIER ASSY FRONT

- (a) Connect the actuator hose and connector.
- (b) Install the No.1 mounting support with the 3 bolts.
Torque: 186 N·m (1,900 kgf·cm, 137 ft·lbf)
- (c) Install the No.2 mounting support with the 2 bolts.
Torque: 160 N·m (1,630 kgf·cm, 118 ft·lbf)
- (d) Install the front differential support No.3 with the 2 bolts.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)
- (e) Support the front differential with a jack.
- (f) Install the 2 front mounting bolts and nuts.
Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)
- (g) Install the front differential mount nuts No.1.
Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)
- (h) Install the front differential breather tube bracket with a bolt.
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)
- (i) Lower the jack.

86. INSTALL FRONT DRIVE SHAFT ASSY LH (See page 30-18)

87. INSTALL FRONT DRIVE SHAFT ASSY RH (See page 30-18)

88. INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)

89. INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 RH (See page 26-22)

90. INSTALL TIE ROD END SUB-ASSY LH (See page 51-20)

91. INSTALL TIE ROD END SUB-ASSY RH (See page 51-20)

92. INSTALL SPEED SENSOR FRONT LH (See page 32-50)

93. INSTALL SPEED SENSOR FRONT RH (See page 32-50)

94. INSTALL FRONT STABILIZER LINK ASSY LH (See page 26-27)

95. INSTALL FRONT STABILIZER LINK ASSY RH (See page 26-27)

96. INSTALL FRONT AXLE HUB LH NUT (See page 30-18)

97. INSTALL FRONT AXLE HUB RH NUT (See page 30-18)

98. INSTALL PROPELLER SHAFT ASSY FRONT (See page 30-4)

99. FILL UP DIFFERENTIAL OIL (See page 29-3)

100. INSPECT DIFFERENTIAL OIL (See page 29-3)

101. INSTALL ENGINE UNDER COVER SUB-ASSY NO.1

- (a) Install the engine under cover sub-assy No.1 with the 4 bolts.

102. INSTALL ENGINE UNDER COVER ASSY REAR

- (a) Install the engine under cover assy rear with the 6 bolts.

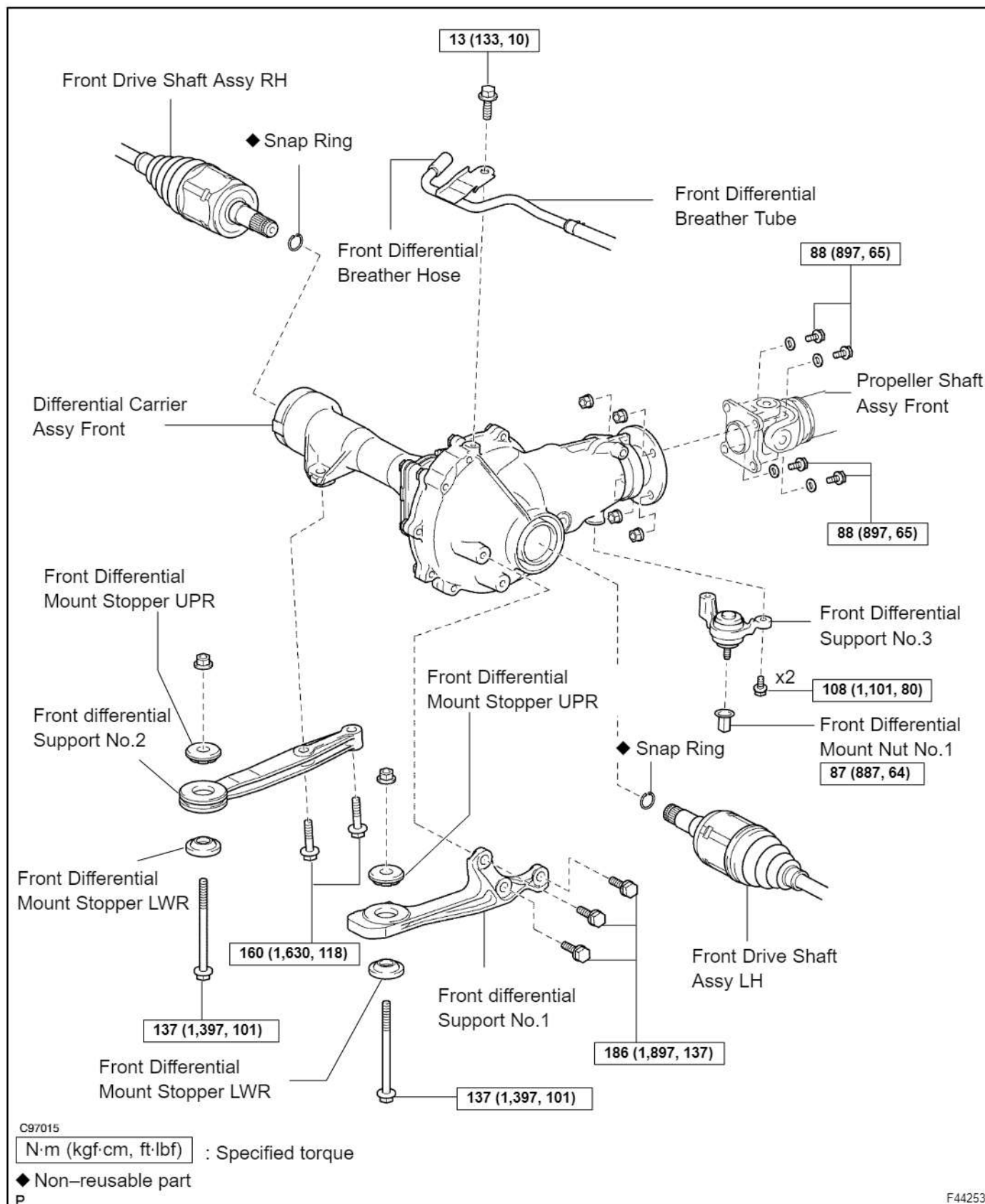
103. INSTALL FRONT WHEEL

Torque: 112 N·m (1,142 kgf·cm, 83 ft·lbf)

104. CHECK ABS SPEED SENSOR SIGNAL (See page 05-803)

DIFFERENTIAL CARRIER ASSY FRONT (2UZ-FE (4WD)) COMPONENTS

2909E-01



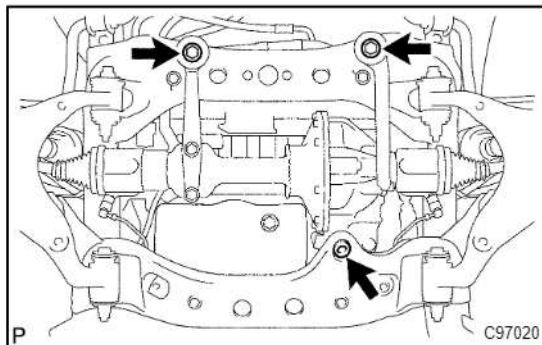
cardiagn.com

F44253

DIFFERENTIAL CARRIER ASSY FRONT (2UZ-FE (4WD)) OVERHAUL

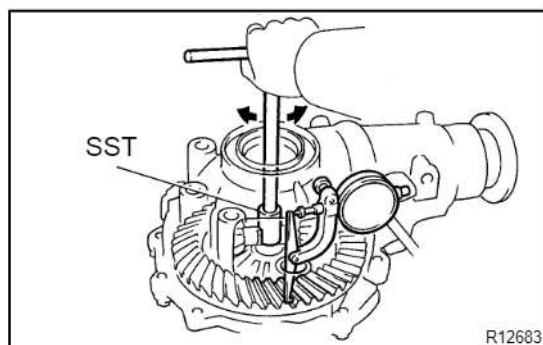
29063-03

1. REMOVE FRONT WHEELS
2. REMOVE ENGINE UNDER COVER ASSY REAR
 - (a) Remove the 6 bolts and engine under cover assy rear.
3. REMOVE ENGINE UNDER COVER SUB-ASSY NO.1
 - (a) Remove the 4 bolts and engine under cover sub-assy No.1.
4. DRAIN DIFFERENTIAL OIL (See page 29-3)
5. REMOVE PROPELLER SHAFT ASSY FRONT (See page 30-4)
6. REMOVE FRONT AXLE HUB LH NUT (See page 30-18)
7. REMOVE FRONT AXLE HUB RH NUT (See page 30-18)
8. SEPARATE FRONT STABILIZER LINK ASSY LH (See page 26-27)
9. SEPARATE FRONT STABILIZER LINK ASSY RH (See page 26-27)
10. SEPARATE SPEED SENSOR FRONT LH (See page 32-50)
11. SEPARATE SPEED SENSOR FRONT RH (See page 32-50)
12. SEPARATE TIE ROD END SUB-ASSY LH (See page 51-20)
SST 09628-62011
13. SEPARATE TIE ROD END SUB-ASSY RH (See page 51-20)
SST 09628-62011
14. REMOVE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)
15. REMOVE FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 RH (See page 26-22)
16. REMOVE FRONT DRIVE SHAFT ASSY LH (See page 30-18)
17. REMOVE FRONT DRIVE SHAFT ASSY RH (See page 30-18)



18. REMOVE DIFFERENTIAL CARRIER ASSY FRONT

- (a) Remove the bolt and separate the front differential breather tube bracket.
- (b) Support the front differential with a jack.
- (c) Remove the front differential mount nut No.1.
- (d) Remove the 2 front mounting bolts and 2 nuts.
- (e) Lower the jack and remove the front differential assembly.
- (f) Remove the 2 bolts and front differential support No.3.
- (g) Remove the 5 bolts and 2 front differential supports.



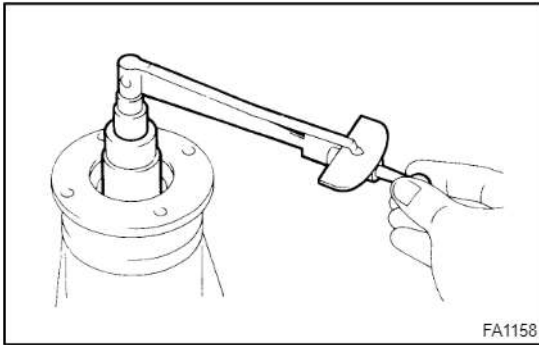
19. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

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

SST 09564-32011

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

If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.



20. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

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

0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in·lbf)

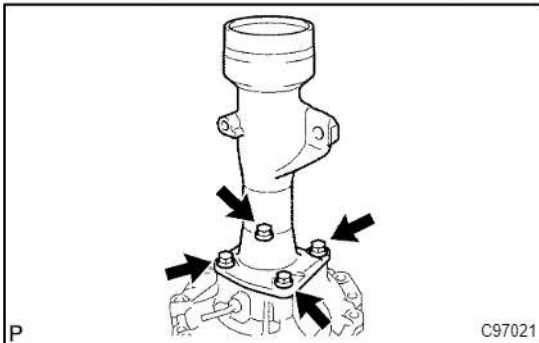
21. INSPECT TOTAL PRELOAD

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

Total preload (at starting):

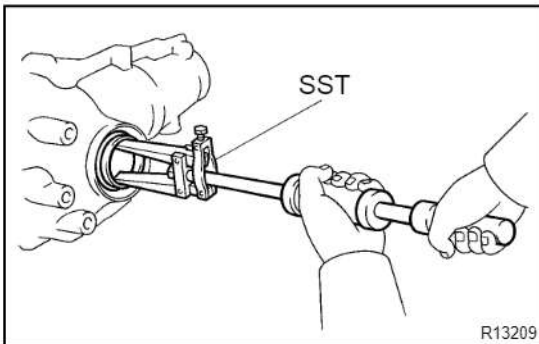
Drive pinion preload plus 0.25 – 0.45 N·m (2.5 – 4.6 kgf·cm, 2.2 – 4.0 in·lbf)

If necessary, disassemble and inspect the differential.



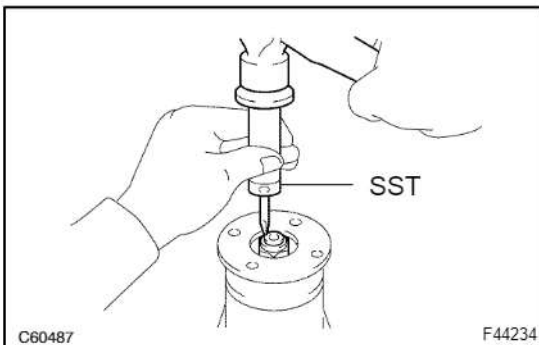
22. REMOVE FRONT DIFFERENTIAL TUBE ASSY

- (a) Remove the 4 bolts.
(b) Using a plastic hammer, remove the differential tube.



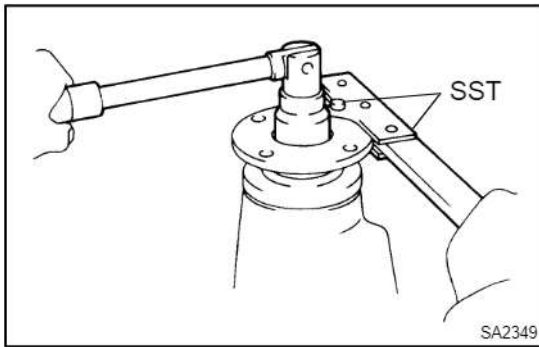
23. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-00010

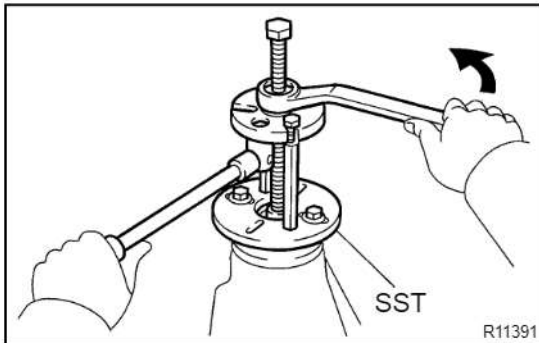


24. REMOVE FRONT DRIVE PINION COMPANION FLANGE SUB-ASSY FRONT

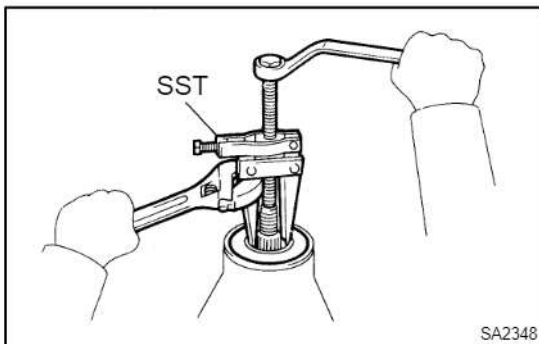
- (a) Using SST and a hammer, unstake the nut.
SST 09930-00010



- (b) Using SST to hold the companion flange, remove the nut.
SST 09330-00021 (09330-00030)



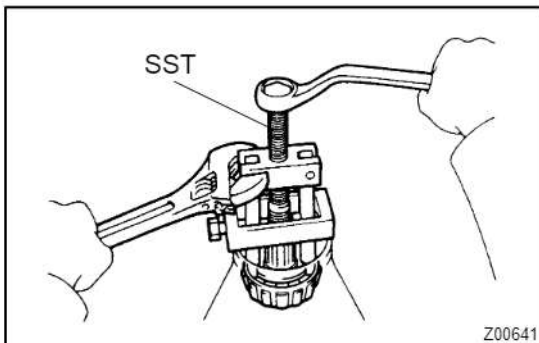
- (c) Using SST, remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010,
09954-03010, 09955-03030, 09956-03020)



25. REMOVE FRONT DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST, remove the oil seal from the differential carrier assy.
SST 09308-10010

26. REMOVE FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER



27. REMOVE FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

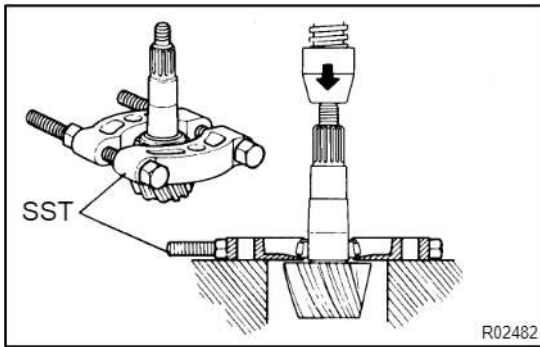
- (a) Using SST, remove the rear bearing from the drive pinion.
SST 09556-22010
(b) Remove the bearing spacer.

28. REMOVE DIFFERENTIAL SIDE BEARING RETAINER

- (a) Using a screwdriver, remove the union.
(b) Remove the 10 bolts and tap out the side bearing retainer with a plastic hammer.

29. REMOVE DIFFERENTIAL CASE ASSY

30. REMOVE DIFFERENTIAL DRIVE PINION



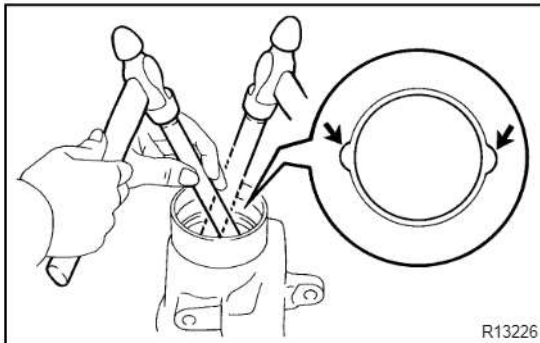
31. REMOVE FRONT DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST and a press, remove the front bearing and washer from the drive pinion.

SST 09950-00020

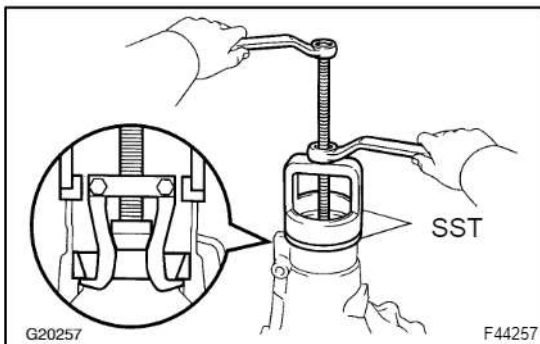
HINT:

If the drive gear or ring gear are damaged, replace them as a set.



32. REMOVE FRONT BEARING OUTER RACE

- (a) Using a brass bar and a hammer, remove the front bearing outer race.

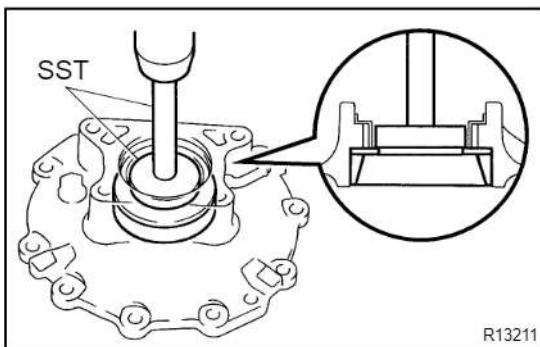


33. REMOVE REAR BEARING OUTER RACE

- (a) Using SST, remove the rear bearing outer race.

SST 09502-12010, 09612-65014 (09612-01020, 09612-01050)

- (b) Using a brass bar and a hammer, remove the oil storage ring.



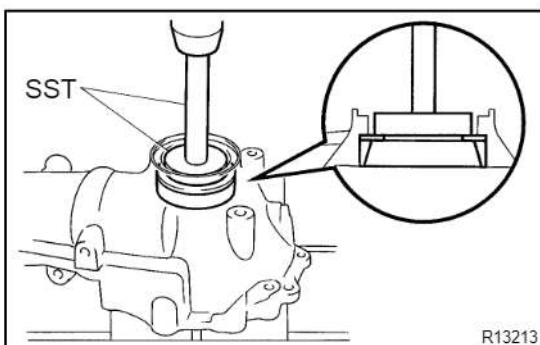
34. REMOVE SIDE BEARING OUTER RACE

HINT:

- ◆ Measure the plate washer and note the thickness.
- ◆ Tag the bearing outer races to show the location for reassembly.

- (a) Using SST and a press, remove the outer race and plate washer from the bearing retainer.

SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)

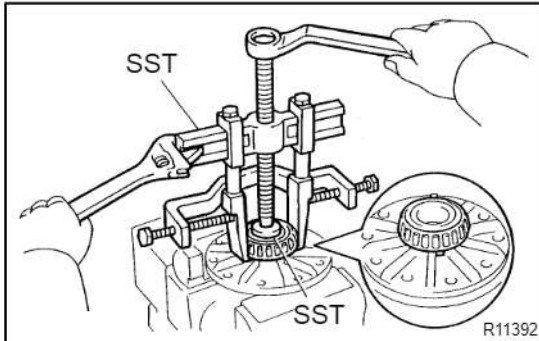


- (b) Using SST and a press, remove the outer race and plate washer from the differential carrier assy.

SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)

35. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the ring gear and differential case assy.
- (b) Remove the 10 bolts.
- (c) Using a plastic hammer, tap on the ring gear to separate it from the differential case assy.

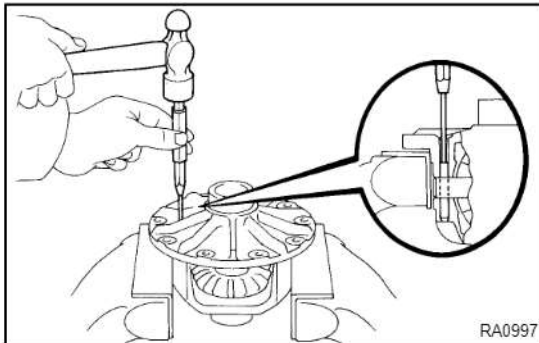
**36. REMOVE FRONT DIFFERENTIAL CASE BEARING**

- (a) Using SST, remove the 2 differential case bearings from the differential case assy.

SST 09950-60010 (09951-00390), 09950-40011
(09951-04020, 09952-04010, 09953-04030,
09954-04010, 09955-04061, 09957-04010,
09958-04011)

HINT:

Fix the clews of SST to the notch in the differential case assy.

**37. DISASSEMBLE DIFFERENTIAL CASE**

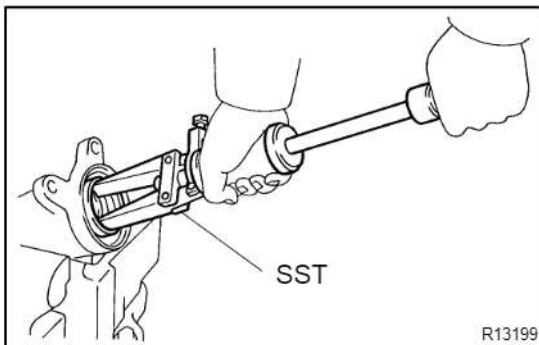
- (a) Using a pin punch and a hammer, remove the straight pin.
- (b) Remove the parts from the differential case assy.
 - (1) Differential side gear (2 pieces)
 - (2) Differential side gear thrust washer (2 pieces)
 - (3) Differential pinion shaft
 - (4) Differential pinion gear (2 pieces)
 - (5) Differential pinion gear thrust washer (2 pieces)

38. INSPECT DIFFERENTIAL GEAR KIT

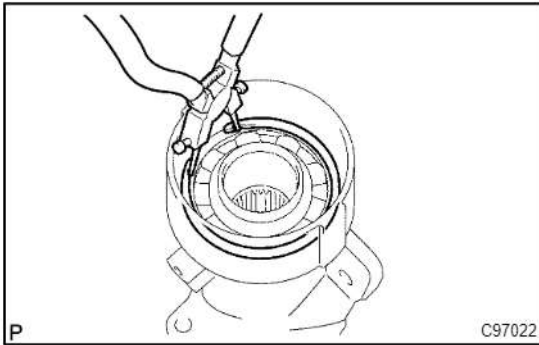
- (a) Check that no damage is identified on the pinion gear and side gear.
- If the pinion gear and/or side gear is damaged, replace the differential gear kit.

39. INSPECT FRONT DIFFERENTIAL CASE

- (a) Check that no damage is identified on the differential case assy.
- If the differential case assy is damaged, replace the differential case assy.

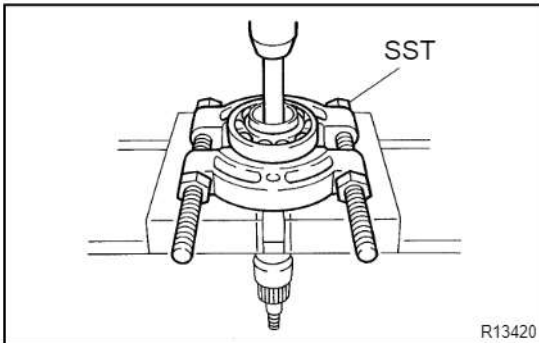
**40. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL**

- (a) Using SST, remove the oil seal from the differential tube.
- SST 09308-00010



41. REMOVE DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSY RH

- Using a snap ring expander, remove the snap ring.
- Remove the side gear shaft from the differential tube.

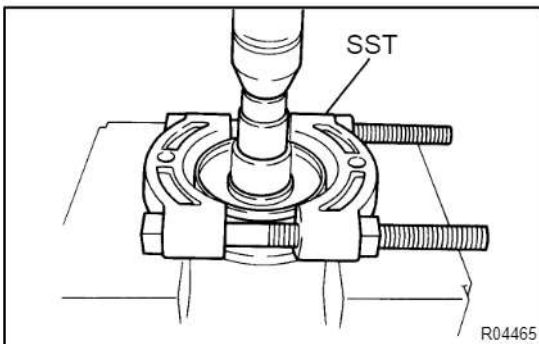


42. REMOVE FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- Using a snap ring expander, remove the snap ring.
- Using SST, a brass bar and a press, remove the bearing.
SST 09950-00020

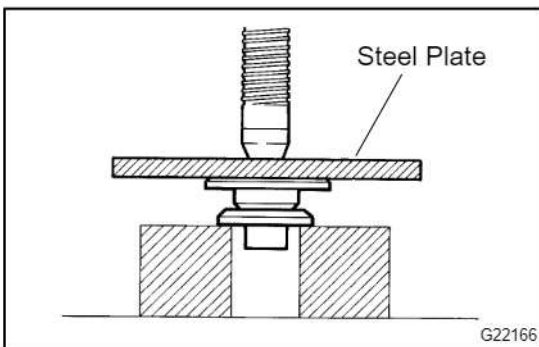
NOTICE:

Do not damage the bearing.



43. REMOVE FRONT DIFFERENTIAL DUST DEFLECTOR

- Using SST, a socket wrench and a press, remove the dust deflector.
SST 09950-00020

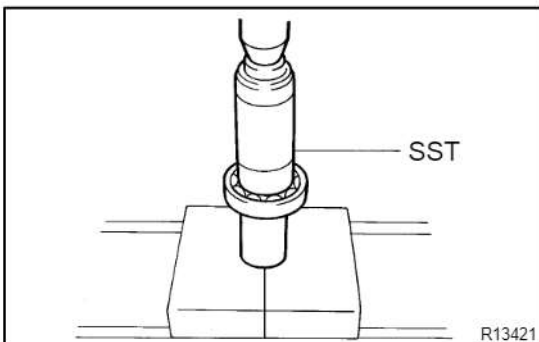


44. INSTALL FRONT DIFFERENTIAL DUST DEFLECTOR

- Using a steel plate and a press, install a new dust deflector.

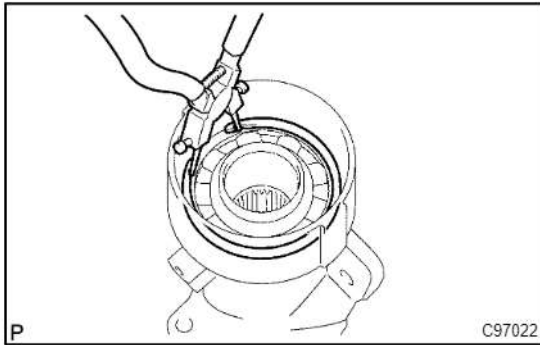
NOTICE:

Do not damage the dust deflector.



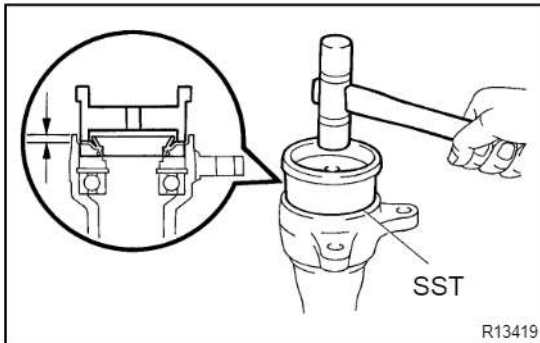
45. INSTALL FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- Using SST and a press, install the bearing.
SST 09223-00010
- Using a snap ring expander, install the snap ring.



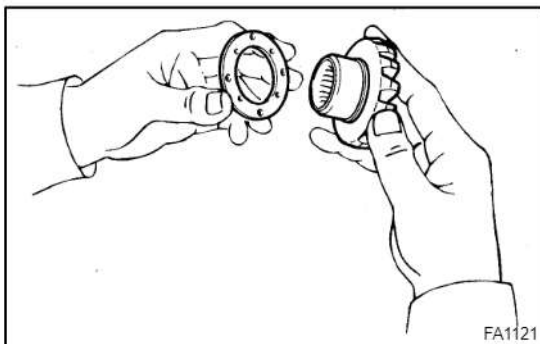
46. INSTALL DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSY RH

- (a) Install the side gear shaft into the differential tube.
- (b) Using snap ring pliers, install the snap ring.



47. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST and a plastic hammer, install a new oil seal.
SST 09608-32010
Oil seal drive in depth:
5.3 ± 0.5 mm (0.2087 ± 0.0197 in.)
- (b) Coat the oil seal lip with MP grease.



48. INSTALL FRONT DIFFERENTIAL CASE

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

HINT:

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

Washer thickness

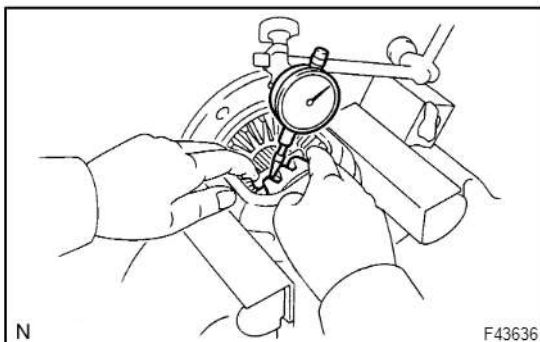
Thickness mm (in.)	Thickness mm (in.)
1.48 – 1.52 (0.0583 – 0.0598)	1.73 – 1.77 (0.0681 – 0.0697)
1.53 – 1.57 (0.0602 – 0.0618)	1.78 – 1.82 (0.0701 – 0.0717)
1.58 – 1.62 (0.0622 – 0.0638)	1.83 – 1.87 (0.0720 – 0.0736)
1.63 – 1.67 (0.0642 – 0.0657)	1.88 – 1.92 (0.0740 – 0.0756)
1.68 – 1.72 (0.0661 – 0.0677)	–

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

HINT:

Align the holes of the differential case assy and pinion shaft.

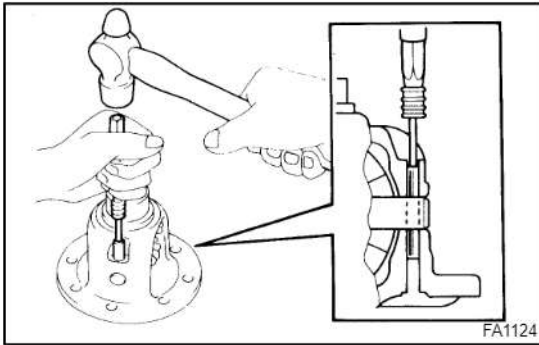
- (c) Measure the side gear backlash.



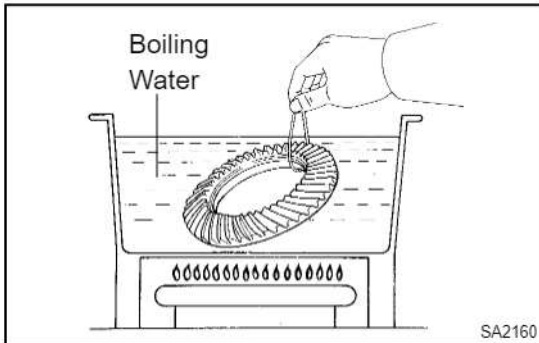
- (1) Using a dial indicator, measure the side gear backlash with holding one pinion gear toward the differential case assy.

Backlash: 0 – 0.15 mm (0 – 0.00591 in.)

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



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



49. INSTALL DIFFERENTIAL RING GEAR

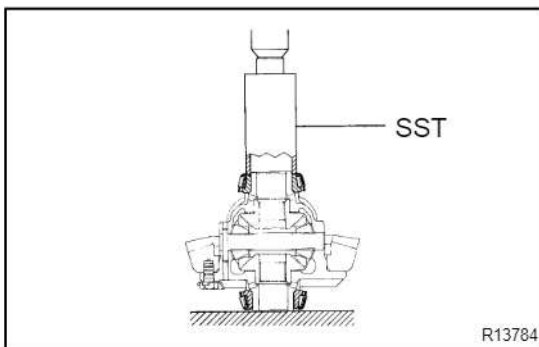
- (a) Clean the contact surfaces of the differential case assy and ring gear.
- (b) Heat the ring gear to about 100°C (212°F) in boiling water.
- (c) Carefully remove the ring gear from the boiling water.
- (d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear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

HINT:

Align the matchmarks on the ring gear and differential case assy.

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

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



50. INSTALL FRONT DIFFERENTIAL CASE BEARING

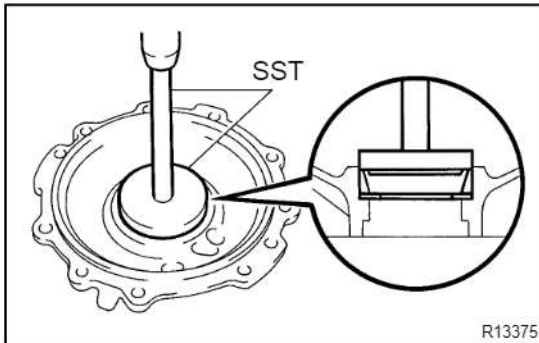
- (a) Using SST and a press, install the 2 differential case bearings into the differential case assy.

SST 09226-10010

51. INSTALL SIDE BEARING OUTER RACE**HINT:**

When replacing the 2 differential case bearings, fit 2 new thin-
nest washers to each bearing and when reusing the bearings,
fit the thickness washers with the same thickness as removed.

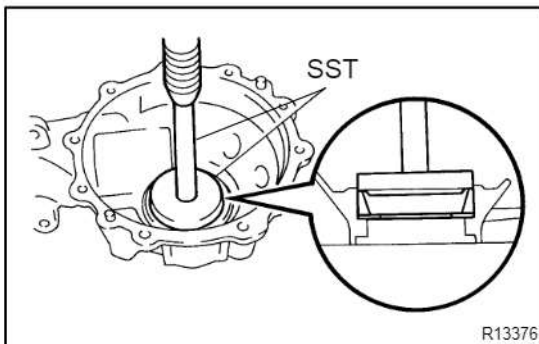
- (a) Install a new plate washer to the side bearing retainer.



- (b) Using SST and a press, install the bearing outer race to the differential case bearing retainer assy.

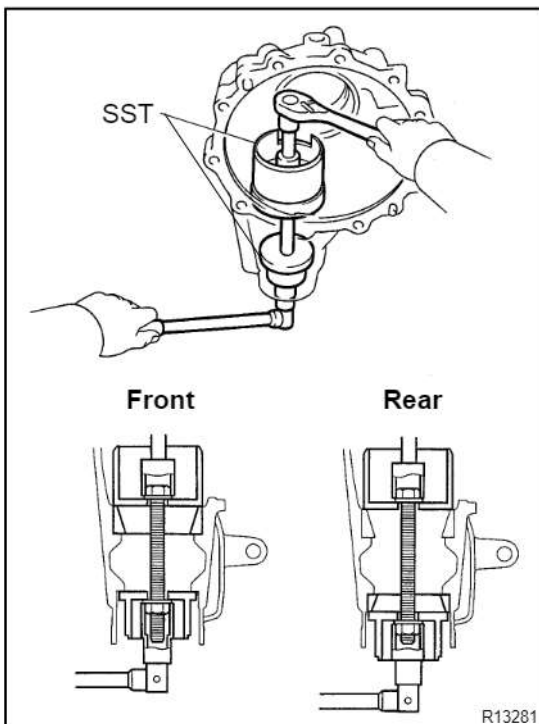
SST 09950-60020 (09951-00810), 09950-70010
(09951-07150)

- (c) Install a new plate washer to the differential carrier assy.



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

SST 09950-60020 (09951-00810), 09950-70010
(09951-07150)

**52. INSTALL FRONT BEARING OUTER RACE**

- (a) Using SST, install the outer race.

SST 09950-00020 (09951-00680, 09951-00890)

53. INSTALL REAR BEARING OUTER RACE

- (a) Install the oil strage ring.

- (b) Using SST, install the outer race.

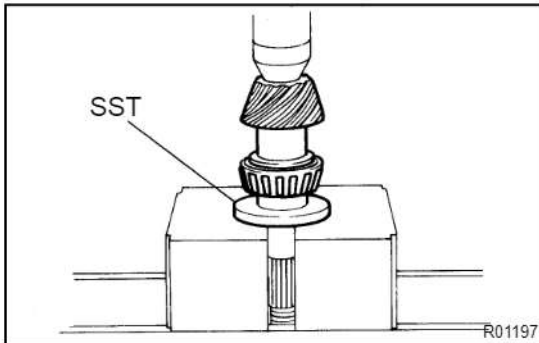
SST 09950-00020 (09951-00680, 09951-00890)

54. INSTALL FRONT DRIVE PINION FRONT TAPERED ROLLER 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.

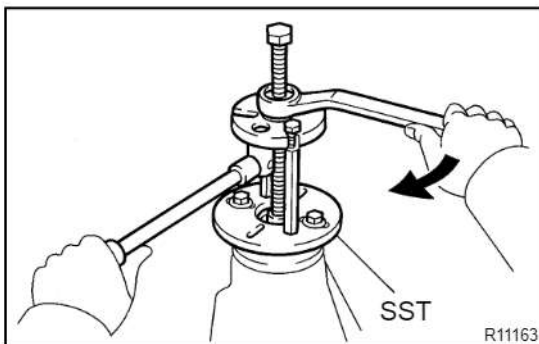
SST 09506-30012

55. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

- (a) Install the drive pinion.

HINT:

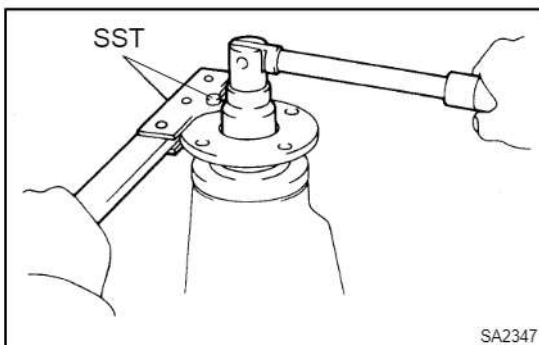
Assemble the spacer and oil seal after adjusting the ring gear tooth contact pattern.



- (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.

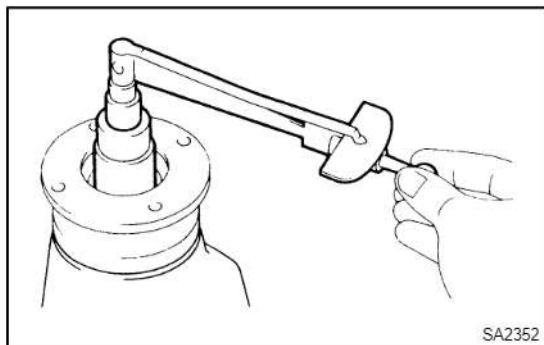


- (d) Adjust the drive pinion preload by tightening the companion flange nut.

- (e) Using SST to hold the companion flange, tighten the nut.
SST 09330-00021 (09330-00030)

NOTICE:

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



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

Preload (at starting)

New bearing:

0.98 – 1.57 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.·lbf)

Reused bearing:

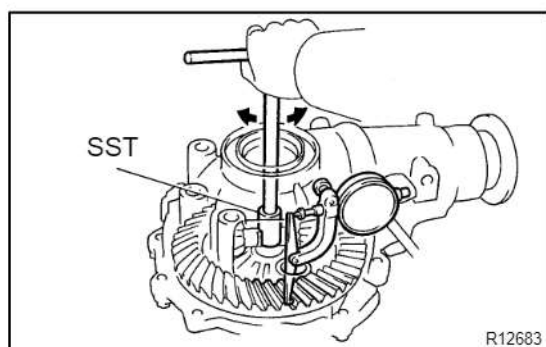
0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

56. INSTALL DIFFERENTIAL CASE ASSY

57. ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

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

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)



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

SST 09564-32011

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

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

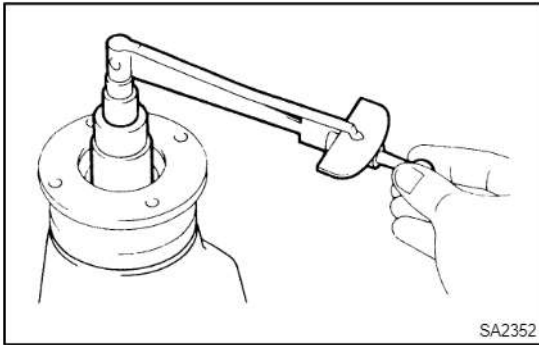
HINT:

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

Make sure that there is ring gear backlash.

Washer thickness:

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.59 – 1.61 (0.0626 – 0.0634)	1.89 – 1.91 (0.0744 – 0.0752)	2.19 – 2.21 (0.0862 – 0.0870)
1.62 – 1.64 (0.0638 – 0.0646)	1.92 – 1.94 (0.0756 – 0.0764)	2.22 – 2.24 (0.0874 – 0.0882)
1.65 – 1.67 (0.0650 – 0.0657)	1.95 – 1.97 (0.0768 – 0.0776)	2.25 – 2.27 (0.0886 – 0.0894)
1.68 – 1.70 (0.0661 – 0.0669)	1.98 – 2.00 (0.0780 – 0.0787)	2.28 – 2.30 (0.0898 – 0.0906)
1.71 – 1.73 (0.0673 – 0.0681)	2.01 – 2.03 (0.0791 – 0.0800)	2.31 – 2.33 (0.0909 – 0.0917)
1.74 – 1.76 (0.0685 – 0.0693)	2.04 – 2.06 (0.0803 – 0.0811)	2.34 – 2.36 (0.0921 – 0.0929)
1.77 – 1.79 (0.0697 – 0.0705)	2.07 – 2.09 (0.0815 – 0.0823)	2.37 – 2.39 (0.0933 – 0.0941)
1.80 – 1.82 (0.0709 – 0.0717)	2.10 – 2.12 (0.0827 – 0.0835)	2.40 – 2.42 (0.0945 – 0.0953)
1.83 – 1.85 (0.0720 – 0.0728)	2.13 – 2.15 (0.0839 – 0.0846)	2.43 – 2.45 (0.0957 – 0.0965)
1.86 – 1.88 (0.0732 – 0.0740)	2.16 – 2.18 (0.0850 – 0.0858)	2.46 – 2.48 (0.0969 – 0.0976)



58. INSPECT TOTAL PRELOAD

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

Total preload (at starting):

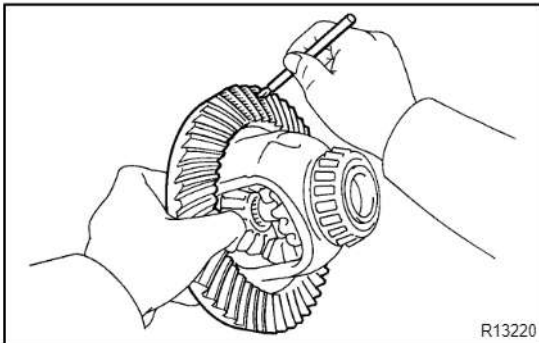
Drive pinion preload plus

0.25 – 0.45 N·m (2.5 – 4.6 kgf·cm, 2.2 – 4.0 in.·lbf)

If necessary, disassemble and inspect the differential.

59. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Remove the side bearing retainer and differential case assy.



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

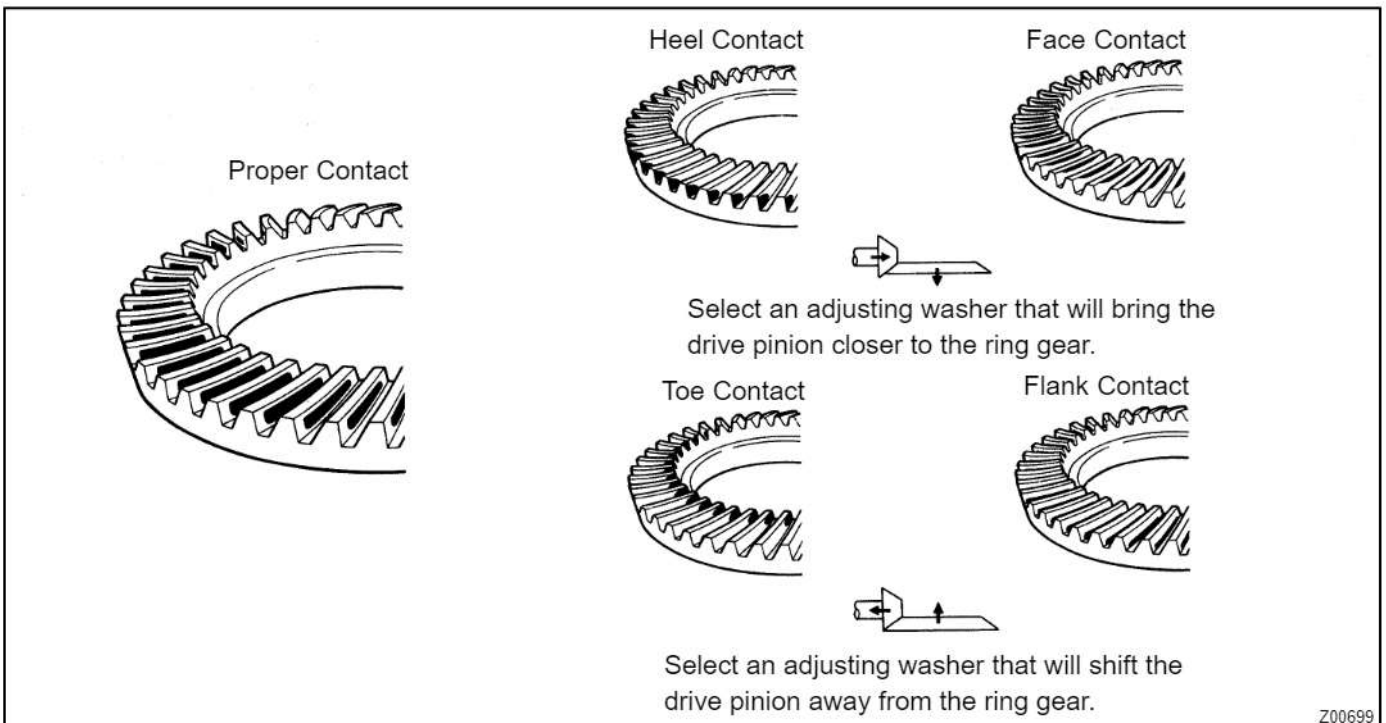
- (c) Install the differential case assy and side bearing retainer.

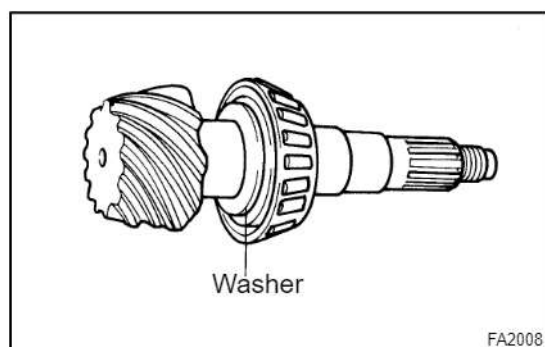
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

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

- (e) Remove the differential case and side bearing retainer and differential case assy.

- (f) 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)	–

- (g) Remove the companion flange and oil slinger.
SST 09330-00021 (09330-00030), 09950-30012
(09951-03010, 09953-03010, 09954-03010,
09955-03030, 09956-03020)
- (h) Remove the rear bearing.
SST 09556-22010

60. INSTALL FRONT DIFFERENTIAL DRIVE PINION BEARING SPACER

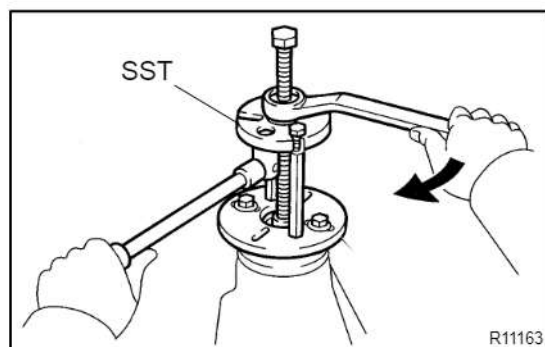
- (a) Install a new bearing spacer and oil strage ring.

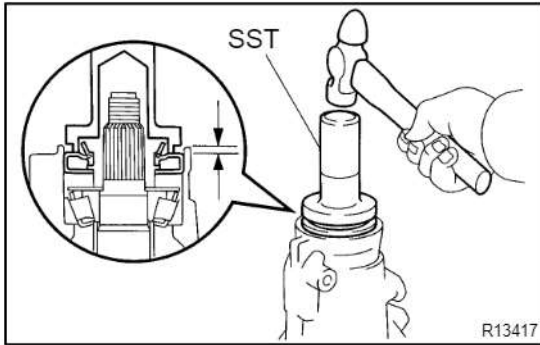
61. INSTALL FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

62. INSTALL FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER

63. INSTALL FRONT DRIVE PINION COMPANION FLANGE SUB-ASSY FRONT

- (a) Place the companion flange on the drive pinion.
(b) Coat the threads of a new nut with hypoid gear oil LSD.
- (c) Using SST and the companion flange, install the rear tapered roller bearing, then remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010,
09954-03010, 09955-03030, 09956-03020)





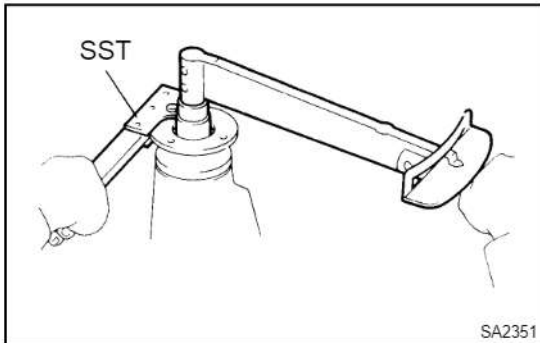
64. INSTALL FRONT DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST and a hammer, install the oil seal.
SST 09330-00021 (09330-00030), 09554-22010

Oil seal drive in depth:

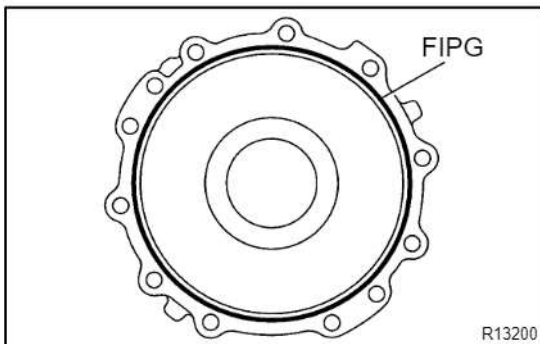
4.35 ± 0.45 mm (0.171 ± 0.018 in.)

- (b) Coar the oil seal lip with MP grease.



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

Torque: 370 N·m (3,770 kgf·cm, 37 ft·lbf)



65. INSTALL DIFFERENTIAL SIDE BEARING RETAINER

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

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

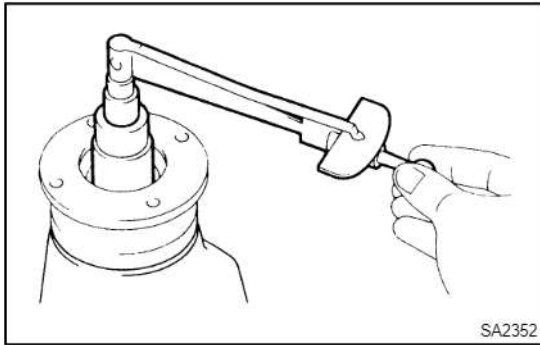
HINT:

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

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

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

- (e) Install a union.



- 66. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**
 (a) Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

Preload (at starting)

New bearing:

0.98 – 1.57 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in·lbf)

Reused bearing:

0.49 – 0.78 N·m (5 – 8 kgf·cm, 4.3 – 6.9 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: 370 N·m (3,773 kgf·cm, 268 ft·lbf) or less

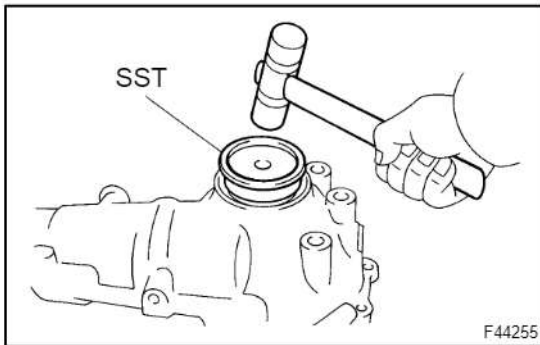
If the maximum torque is exceeded while retightening the nut, replace the bearing spacer and repair the preload procedure. Do not back off the nut to reduce the preload.

67. INSPECT TOTAL PRELOAD

68. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

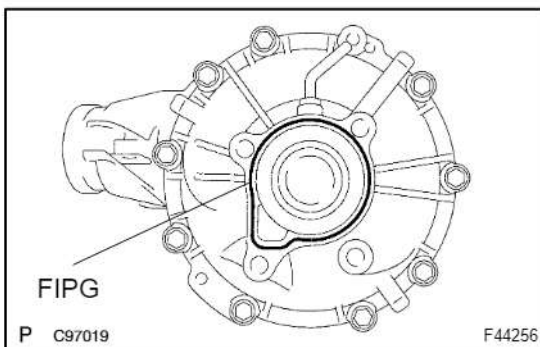
69. INSPECT FRONT DRIVE PINION COMPANION FLANGE SUB-ASSY FRONT

70. INSTALL FRONT DRIVE PINION COMPANION FLANGE FRONT NUT



71. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

- (a) Using SST and a plastic hammer, install a new oil seal until its surface is flush with the differential carrier end.
 SST 09608-32010
 (b) Coat the oil seal lip with MP grease.



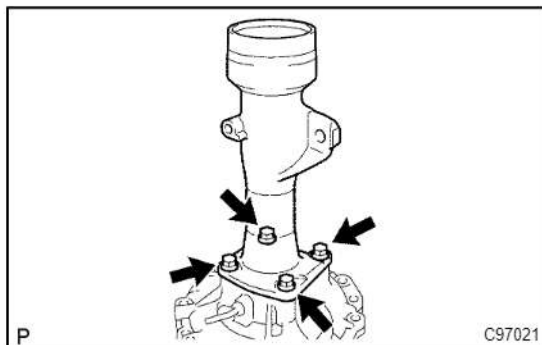
72. INSTALL FRONT DIFFERENTIAL TUBE ASSY

- (a) Remove the any oil 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

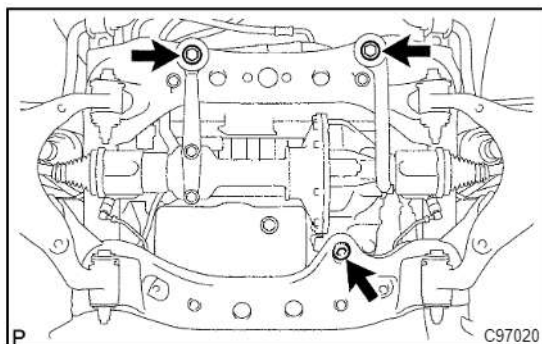
HINT:

Install the differential tube within 10 minutes after applying FIPG.

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



- (e) Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichloroethylene.
- (f) Apply adhesive to 2 to 3 threads of the bolts end.
Adhesive: Part No. 08833-00070, THREE BOND 1324 or equivalent
- (g) Install the 4 bolts.
Torque: 110 N·m (1,122 kgf·cm, 81 ft·lbf) or less



73. INSTALL DIFFERENTIAL CARRIER ASSY FRONT

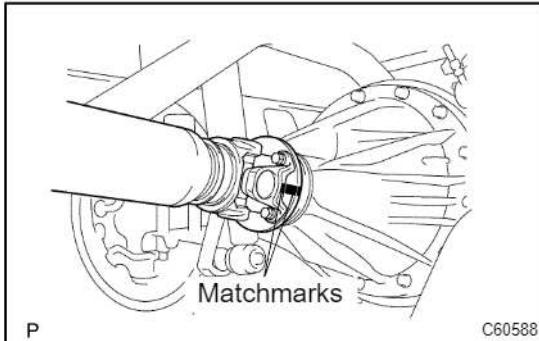
- (a) Install the No.1 mounting support with the 3 bolts.
Torque: 186 N·m (1,900 kgf·cm, 137 ft·lbf)
- (b) Install the No.2 mounting support with the 2 bolts.
Torque: 160 N·m (1,630 kgf·cm, 118 ft·lbf)
- (c) Install the front differential support No.3 with the 2 bolts.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)
- (d) Support the front differential with a jack.
- (e) Install the 2 front mounting bolts and nuts.
Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)
- (f) Install the front differential mount nuts No.1.
Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)
- (g) Install the front differential breather tube bracket with a bolt.
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)
- (h) Lower the jack.

- 74. INSTALL FRONT DRIVE SHAFT ASSY LH (See page 30-18)
- 75. INSTALL FRONT DRIVE SHAFT ASSY RH (See page 30-18)
- 76. INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 LH (See page 26-22)
- 77. INSTALL FRONT SUSPENSION ARM SUB-ASSY LOWER NO.1 RH (See page 26-22)
- 78. INSTALL TIE ROD END SUB-ASSY LH (See page 51-20)
- 79. INSTALL TIE ROD END SUB-ASSY RH (See page 51-20)
- 80. INSTALL SPEED SENSOR FRONT LH (See page 32-50)
- 81. INSTALL SPEED SENSOR FRONT RH (See page 32-50)
- 82. INSTALL FRONT STABILIZER LINK ASSY LH (See page 26-27)
- 83. INSTALL FRONT STABILIZER LINK ASSY RH (See page 26-27)
- 84. INSTALL FRONT AXLE HUB LH NUT (See page 30-18)
- 85. INSTALL FRONT AXLE HUB RH NUT (See page 30-18)
- 86. INSTALL PROPELLER SHAFT ASSY FRONT (See page 30-4)
- 87. FILL UP DIFFERENTIAL OIL (See page 29-3)
- 88. INSPECT DIFFERENTIAL OIL (See page 29-3)
- 89. INSTALL ENGINE UNDER COVER SUB-ASSY NO.1
 - (a) Install the engine under cover sub-assy No.1 with the 4 bolts.
- 90. INSTALL ENGINE UNDER COVER ASSY REAR
 - (a) Install the engine under cover assy rear with the 6 bolts.
- 91. INSTALL FRONT WHEEL
Torque: 112 N·m (1,142 kgf·cm, 83 ft·lbf)
- 92. CHECK ABS SPEED SENSOR SIGNAL (See page 05-803)

REAR DIFFERENTIAL CARRIER OIL SEAL REPLACEMENT

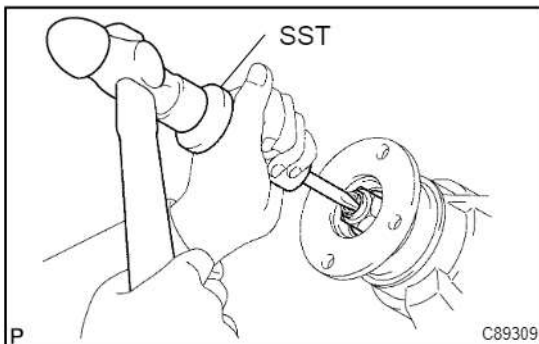
29064-01

1. DRAIN DIFFERENTIAL OIL (See page 29-3)



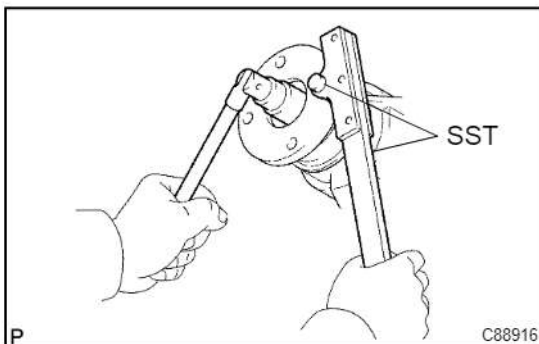
2. SEPARATE PROPELLER SHAFT ASSY

- Place matchmarks on the propeller shaft flange and differential flange.
- 2WD Drive Type:
Remove the 4 nuts and 4 washers.
- 4WD Drive Type:
Remove the 4 nuts, 4 bolts and 4 washers.
- Suspend the propeller shaft assy with wire or similar.

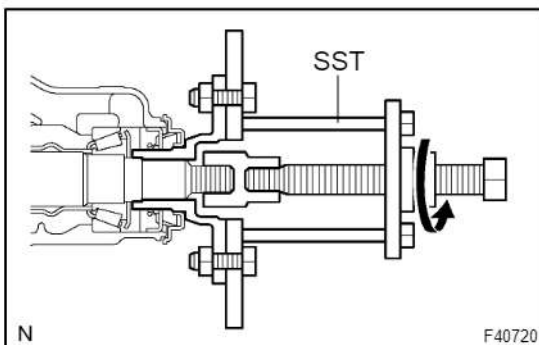


3. REMOVE REAR DRIVE PINION NUT

- Using SST and a hammer, unstake the nut.
SST 09930-00010

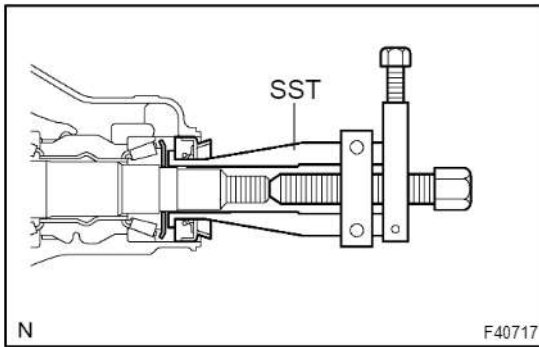


- Using SST to hold the companion flange, remove the nut.
SST 09330-00021 (09330-00030)



4. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

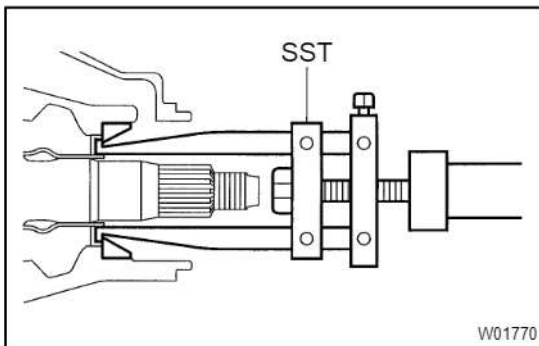
- Using SST, remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)



5. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-10010

6. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER



7. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the front bearing.
SST 09556-22010
(b) Using SST, remove the front bearing outer race.
SST 09308-00010
(c) Using a screwdriver, bend the oil strage ring and remove it.

8. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

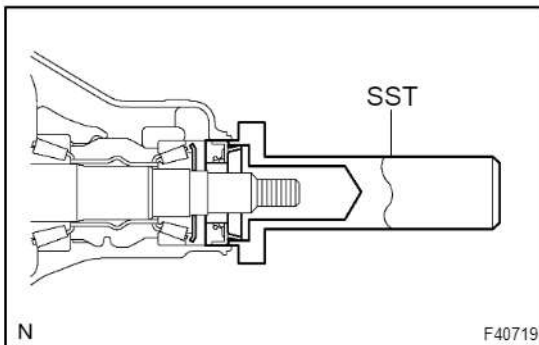
9. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

- (a) Install a new rear differential drive pinion bearing spacer.

10. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

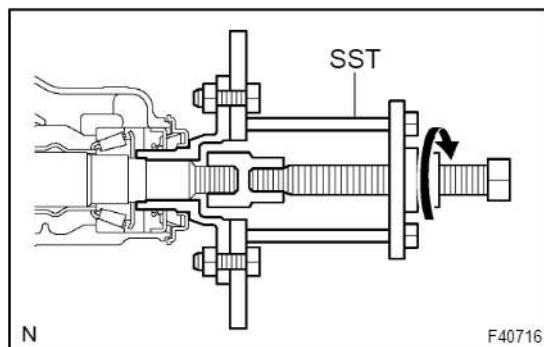
- (a) Using a brass bar and a hammer, install a new oil strage ring.
(b) Using SST and a hammer, install the front bearing outer race.
SST 09316-60011 (09316-00011, 09316-00021)
(c) Install the front bearing.

11. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER



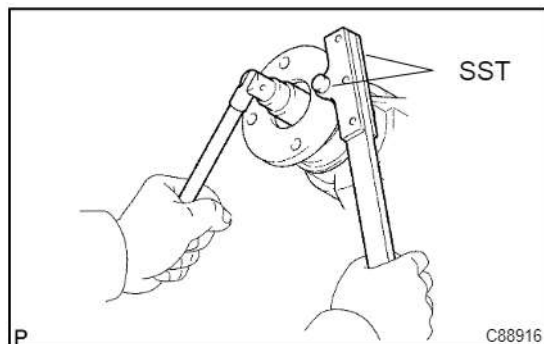
12. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

- (a) Using SST and a hammer, install a new oil seal.
SST 09554-30011
Oil seal drive in depth:
0.7 - 1.3 mm (0.0276 - 0.0512 in.)
(b) Coat with oil seal lip with MP grease.



13. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

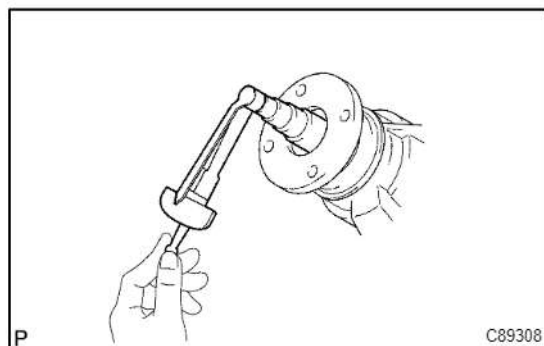
- Using SST, install the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)
- Coat the threads of a new nut with hypoid gear oil LSD.



- Using SST, to hold the companion flange, torque the nut.
SST 09330-00021 (09330-00030)

Torque:

215 N·m (2,190 kgf·cm, 159 ft·lbf)



14. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

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

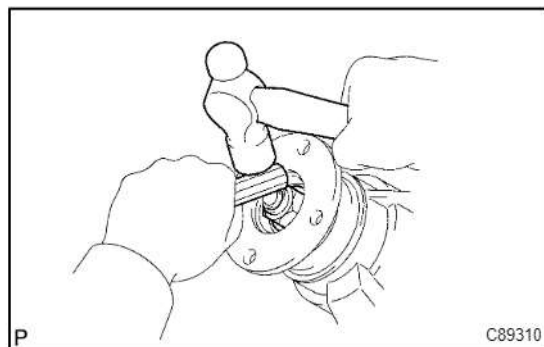
New bearing:

1.05 – 1.64 N·m (10.7 – 16.7 kgf·cm, 9.3 – 14.5 in·lbf)

Reused bearing:

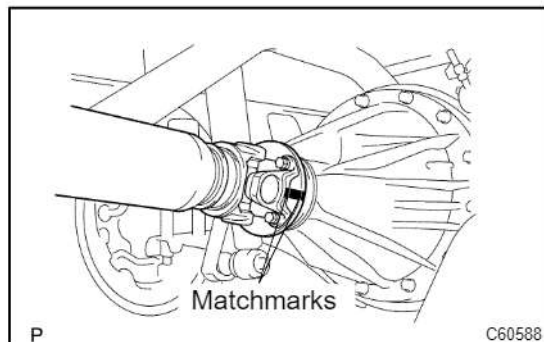
0.56 – 0.85 N·m (5.7 – 8.7 kgf·cm, 5.0 – 7.5 in·lbf)

If necessary, disassemble and inspect the differential assy.



15. INSTALL REAR DRIVE PINION NUT

- Using a chisel and a hammer, stake the nut.



16. INSTALL PROPELLER SHAFT ASSY

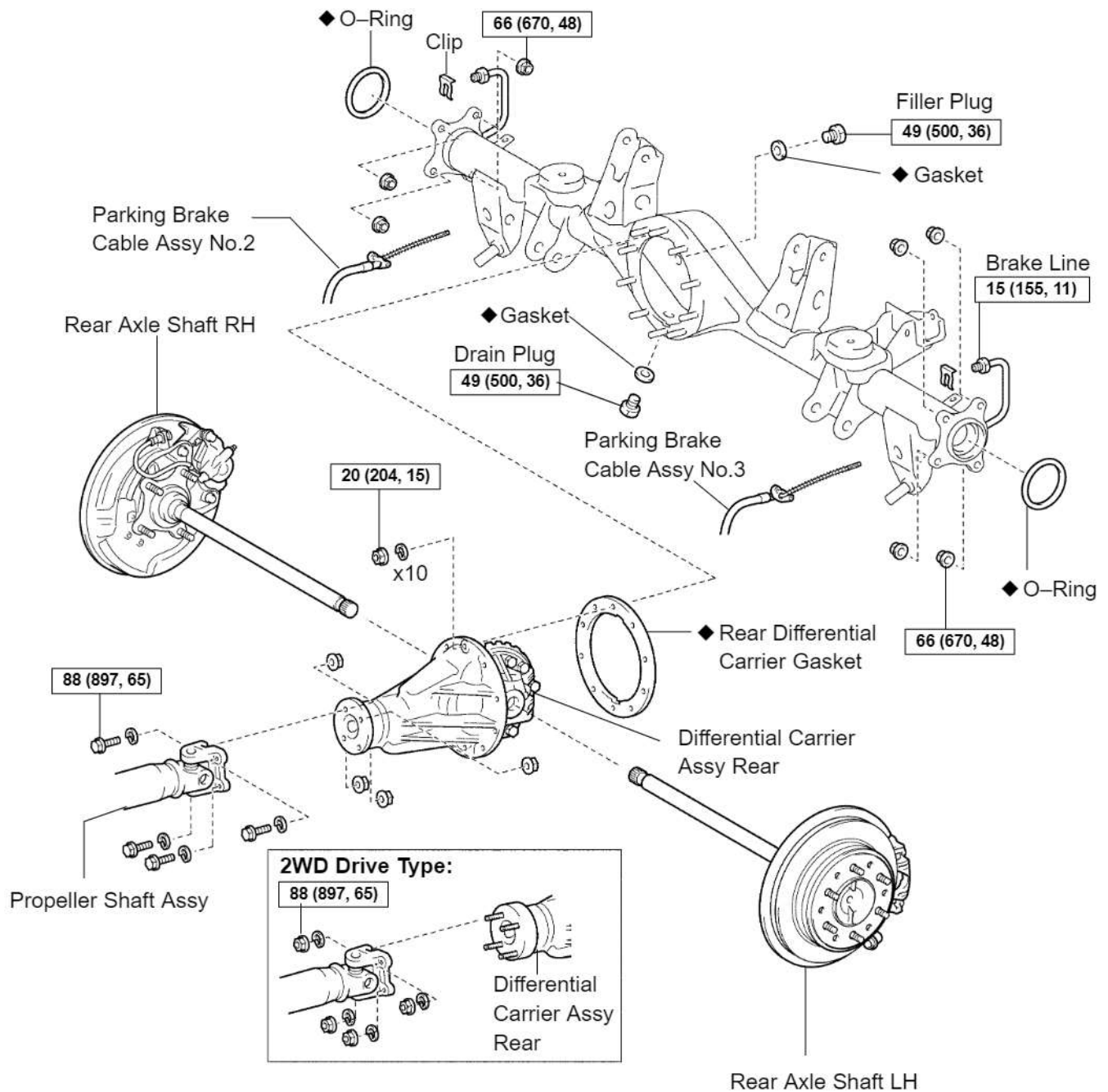
- Align the matchmarks on the propeller shaft differential flange.
- 2WD Drive Type:
Install the propeller shaft with the 4 washers and 4 nuts.
Torque: 88 N·m (887 kgf·cm, 64 ft·lbf)
- 4WD Drive Type:
Install the propeller shaft with the 4 bolts, 4 washers and 4 nuts.
Torque: 88 N·m (887 kgf·cm, 64 ft·lbf)

17. FILL UP DIFFERENTIAL OIL (See page 29-3)
18. INSPECT DIFFERENTIAL OIL (See page 29-3)

DIFFERENTIAL CARRIER ASSY REAR COMPONENTS

29065-01

4WD Drive Type:



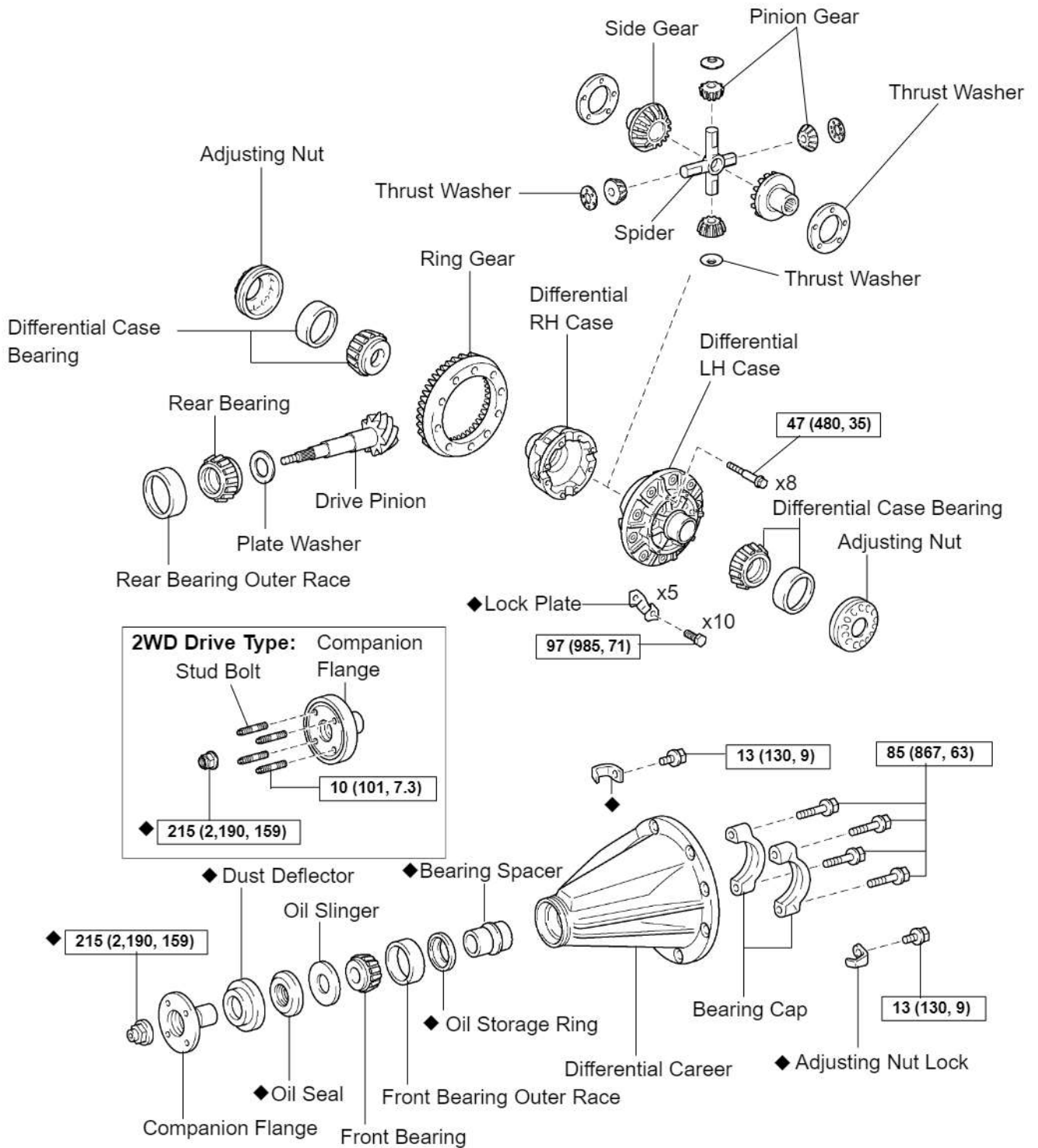
F43603

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

◆ Non-reusable part

F44235

4WD Drive Type:



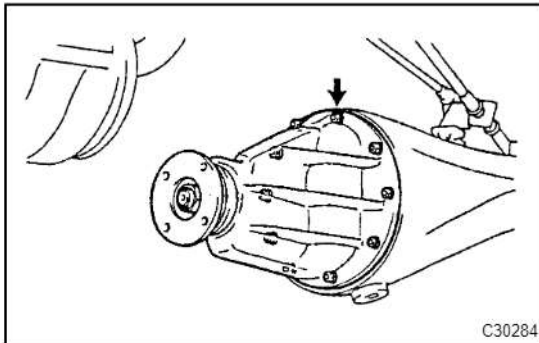
N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

F43606

OVERHAUL

1. REMOVE REAR WHEEL
2. SEPARATE PROPELLER SHAFT ASSY (See page 30-11)
3. DRAIN DIFFERENTIAL OIL (See page 29-3)
4. SEPARATE SPEED SENSOR REAR LH (See page 32-52)
5. SEPARATE SPEED SENSOR REAR RH (See page 32-52)
6. SEPARATE REAR DISC BRAKE CALIPER ASSY LH (See page 32-23)
7. SEPARATE REAR DISC BRAKE CALIPER ASSY RH (See page 32-23)
8. REMOVE REAR DISC (See page 32-23)
9. REMOVE PARKING BRAKE SHOE RETURN TENSION SPRING (See page 33-15)
10. REMOVE PARKING BRAKE SHOE STRUT COMPRESSION SPRING (See page 33-15)
11. REMOVE PARKING BRAKE SHOE STRUT LH (See page 33-15)
12. REMOVE PARKING BRAKE SHOE (See page 33-15)
13. REMOVE REAR AXLE SHAFT W/BACKING PLATE (See page 30-38)



14. REMOVE DIFFERENTIAL CARRIER ASSY REAR

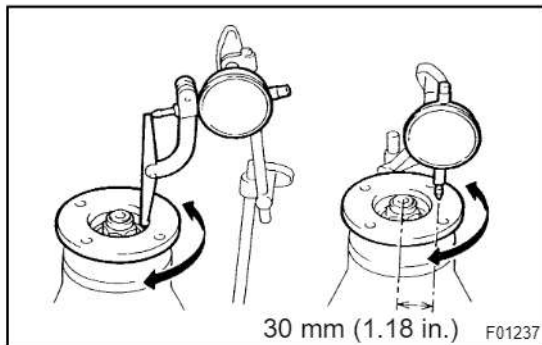
- (a) Remove the 10 nuts, 10 washers and differential carrier assy.

NOTICE:

Be careful not to damage the removal surface.

15. REMOVE REAR DIFFERENTIAL CARRIER GASKET

16. FIX DIFFERENTIAL CARRIER ASSY REAR



17. INSPECT RUNOUT OF REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

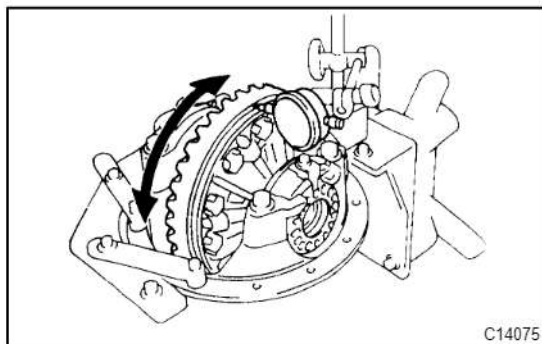
- (a) Using a dial indicator, measure the vertical and lateral runout of the companion flange.

Maximum runout:

Vertical runout: 0.1 mm (0.0039 in.)

Lateral runout: 0.1 mm (0.0039 in.)

If the runout are not within the specification, replace the companion flange.

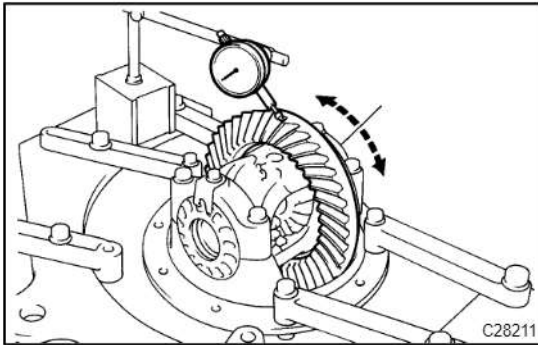


18. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR

- (a) Using a dial indicator, check the runout of the ring gear.

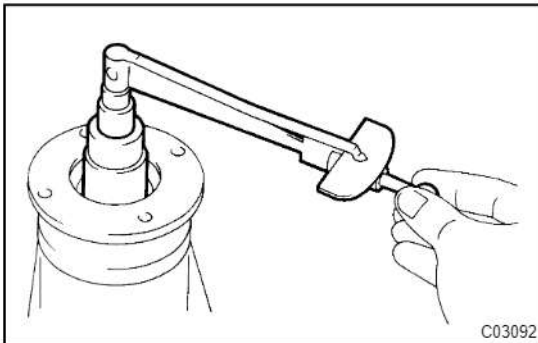
Maximum runout: 0.07 mm (0.0028 in.)

If the runout is greater than the maximum, replace the ring gear with new one.

**19. INSPECT DIFFERENTIAL RING GEAR BACKLASH**

- (a) Using a dial indicator, check the backlash of the ring gear.
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.

**20. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**

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

Preload (at starting):

0.56 – 0.85 N·m (5.7 – 8.7 kgf·cm, 5.0 – 7.5 in.·lbf)

HINT:

Before measurement, rotate the ring gear 5 time or more.

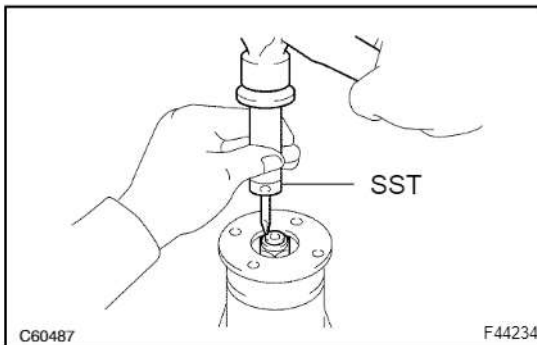
21. INSPECT TOTAL PRELOAD

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

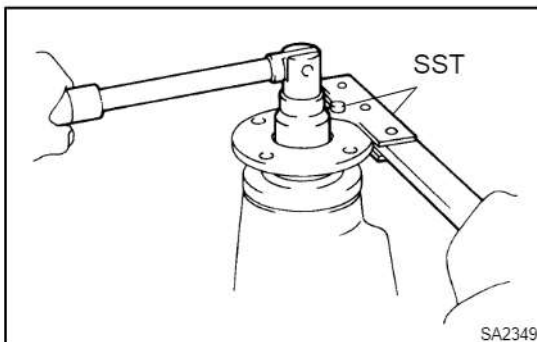
Total preload (at starting):

Drive pinion preload plus 0.39 – 0.59 N·m (4.0 – 6.0 kgf·cm, 3.5 – 5.2 in.·lbf)

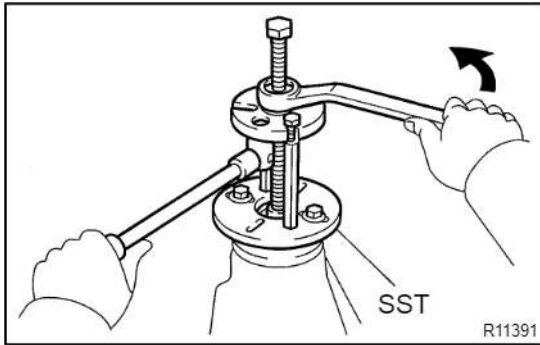
If necessary, disassemble and inspect the differential.

**22. REMOVE REAR DRIVE PINION NUT**

- (a) 2WD drive type:
 Using a torx socket (E10), remove the 4 stud bolts.
 (b) Using SST and a hammer, unstake the nut.
 SST 09930-00010

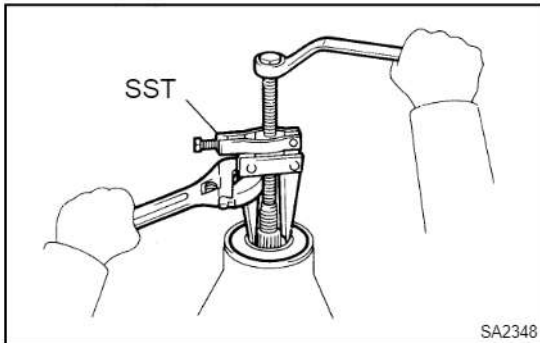


- (c) Using SST to hold the companion flange, remove the nut.
 SST 09330-00021 (09330-00030)



23. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

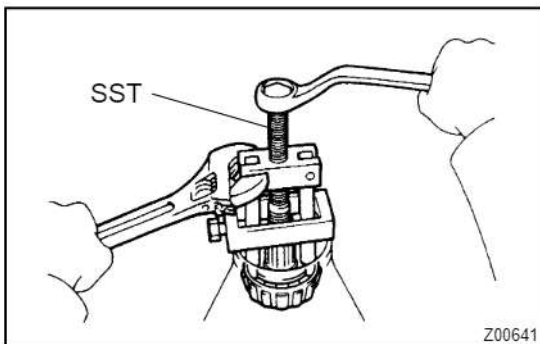
- (a) Using SST, remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)



24. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

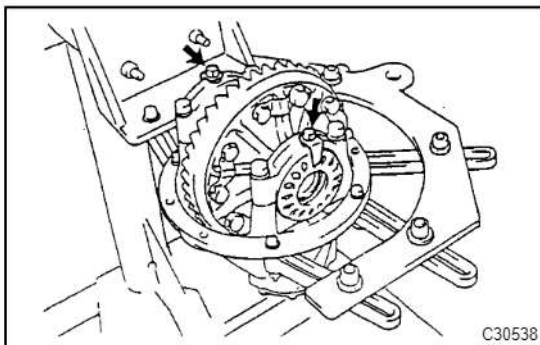
- (a) Using SST, remove the oil seal from the differential carrier.
SST 09308-10010

25. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER



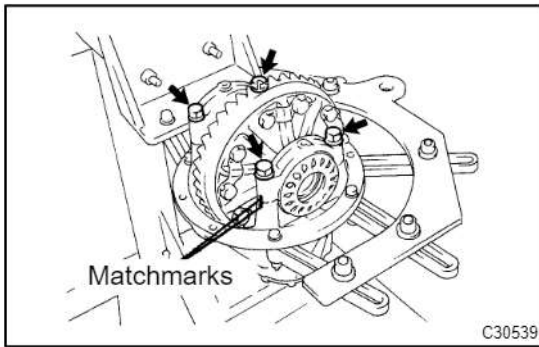
26. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the front bearing from the drive pinion.
SST 09556-22010

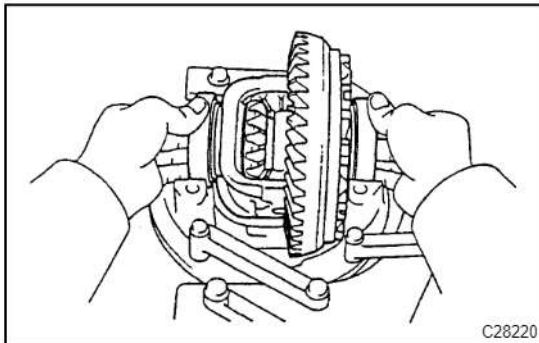


27. REMOVE REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK

- (a) Remove the 2 bolts and 2 adjusting nut locks.

**28. REMOVE DIFFERENTIAL CASE ASSY**

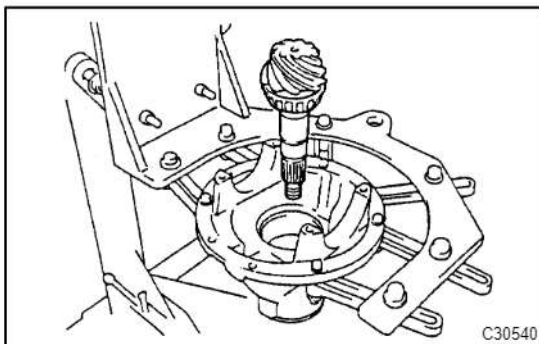
- (a) Place matchmarks on the bearing cap and differential carrier.
- (b) Remove the 4 bolts and 2 bearing caps.
- (c) Remove the 2 adjusting nuts.



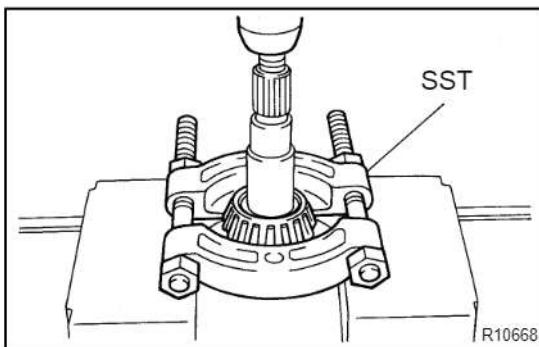
- (d) Remove the rear differential case assy and 2 bearing outer races from the differential carrier assy.

HINT:

Tag the 2 bearing outer races to show the location for reassembling.

**29. REMOVE DIFFERENTIAL DRIVE PINION**

- (a) Remove the drive pinion from the differential carrier assy.
- (b) Remove the bearing spacer.

**30. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING**

- (a) Using SST and a press, remove the rear bearing from the drive pinion.

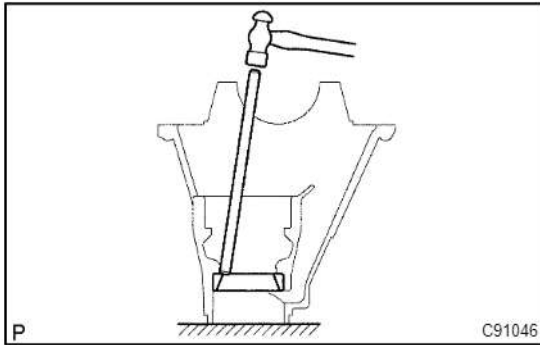
SST 09950-00020

HINT:

If the drive pinion or ring gear are damaged, replace them as a set.

31. REMOVE REAR DIFFERENTIAL DRIVE PINION PLATE WASHER

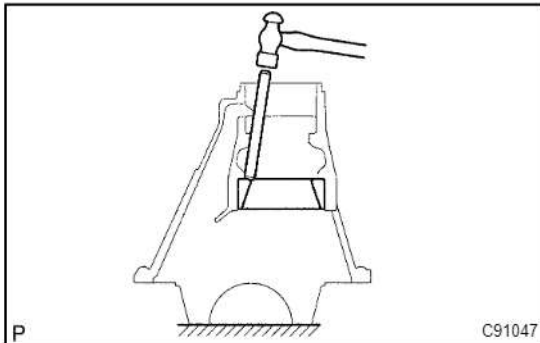
- (a) Remove the plate washer from the drive pinion.

**32. REMOVE FRONT BEARING OUTER RACE**

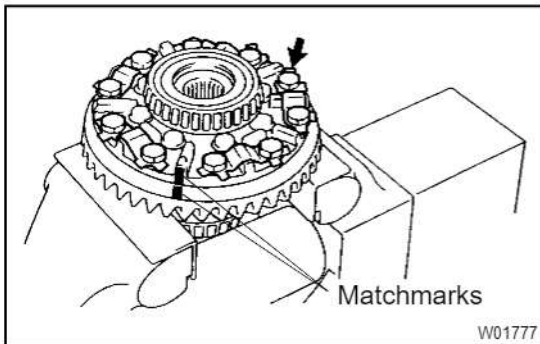
- (a) Using a brass bar and a hammer, remove the front bearing outer race from the differential carrier assy.

33. REMOVE DIFFERENTIAL OIL STORAGE RING

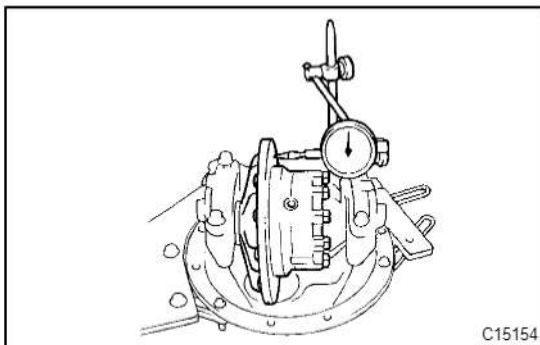
- (a) Using a brass bar and a hammer, remove the oil storage ring.

**34. REMOVE REAR BEARING OUTER RACE**

- (a) Using a brass bar and a hammer, remove the rear bearing outer race from the differential carrier assy.

**35. REMOVE DIFFERENTIAL RING GEAR**

- (a) Place matchmarks on the ring gear and differential case assy.
 (b) Using a screwdriver and a hammer, unstake the 5 lock plates.
 (c) Remove the 10 ring gear set bolts and 5 lock plates.
 (d) Using a plastic hammer, tap on the ring gear to separate it from the differential case assy.

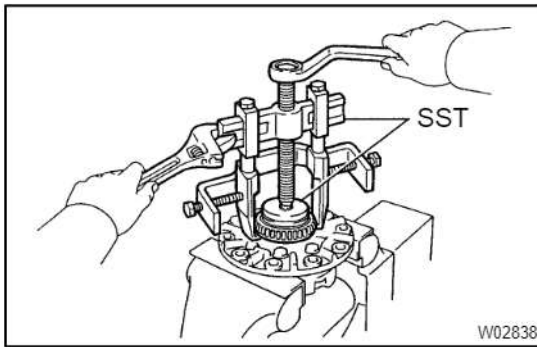
**36. INSPECT DIFFERENTIAL CASE ASSY RUNOUT****HINT:**

It will be done only when it exceeds the limit at the ring gear run-out check.

- (a) Install the differential case assy to the differential carrier assy.
 (b) Align the matchmarks, install the 2 bearing caps with the 4 bolts to the differential carrier assy.

Torque: 85 N·m (867 ft·lbf, 63 ft·lbf)

- (c) Inspect the differential case runout.
Maximum runout: 0.07 mm (0.0028 in.)
 (d) Remove the 4 bolts and 2 bearing caps from the differential carrier assy.
 (e) Remove the differential case assy from the differential carrier assy.

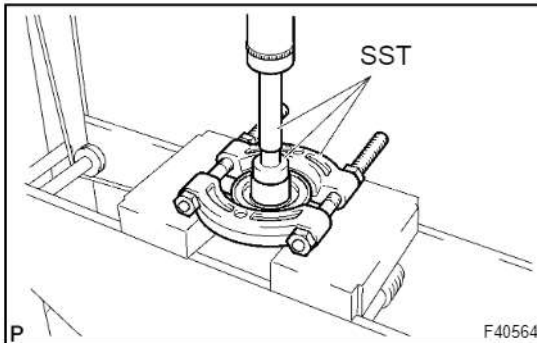
**37. REMOVE REAR DIFFERENTIAL CASE BEARING**

- (a) Using SST, remove the rear 2 differential case bearings from the differential case assy.

SST 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00480), 09950-60020 (09951-00730)

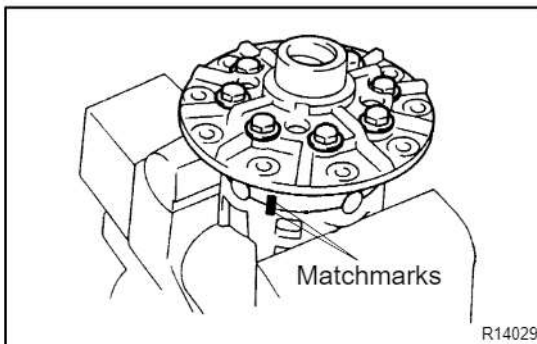
HINT:

Fix the clews of SST to the notches in the differential case assy.

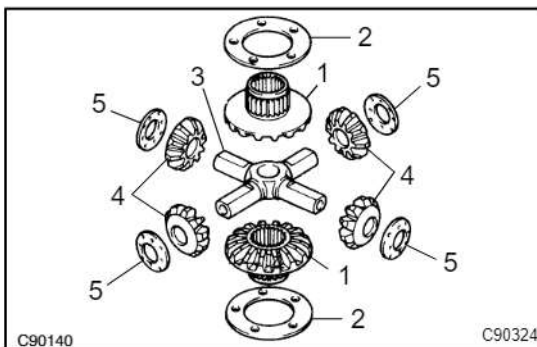
**38. REMOVE REAR DIFFERENTIAL DUST DEFLECTOR**

- (a) Using SST and a press, remove the dust deflector.

SST 09950-60010 (09951-00380), 09950-70010 (09951-07150), 09950-00020

**39. DISASSEMBLE DIFFERENTIAL CASE**

- (a) Place matchmarks on the LH and RH cases.
 (b) Remove the 8 bolts uniformly, a little at a time.
 (c) Using a plastic hammer, separate the LH and RH cases.



- (d) Remove the parts from the differential case assy.

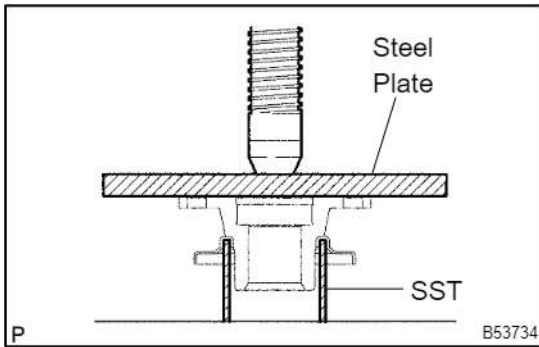
- (1) Differential side gear (2 pieces)
- (2) Differential side gear thrust washer (2 pieces)
- (3) Differential spider
- (4) Differential pinion (4 pieces)
- (5) Differential pinion thrust washer (4 pieces)

40. INSPECT DIFFERENTIAL PINION AND SIDE GEAR

- (a) Check that no damage is identified on the pinion gear and side gear.
 If the pinion gear and/or side gear is damaged, replace the differential.

41. INSPECT DIFFERENTIAL CASE

- (a) Check that no damage is identified on the differential case assy.
 If the differential case assy is damaged, replace the differential case assy.

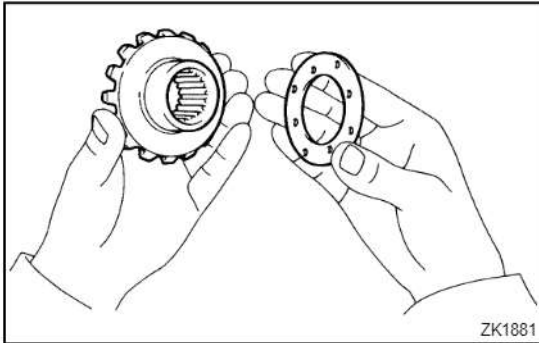
**42. INSTALL REAR DIFFERENTIAL DUST DEFLECTOR**

- (a) Using SST, a press and a steel plate, install the dust deflector.

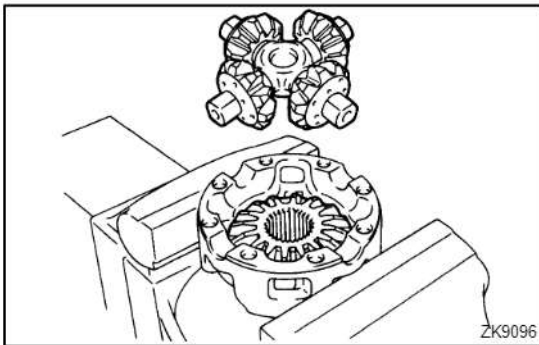
SST 09636-20010

NOTICE:

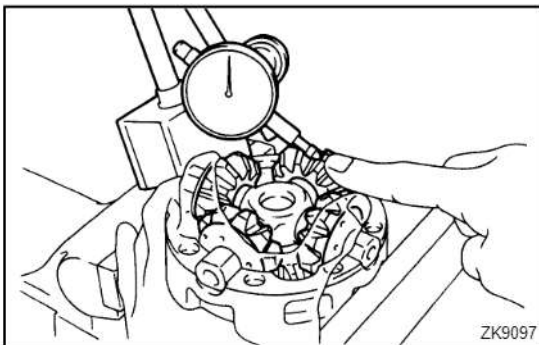
Be careful not to damage the dust deflector.

**43. INSTALL DIFFERENTIAL CASE ASSY**

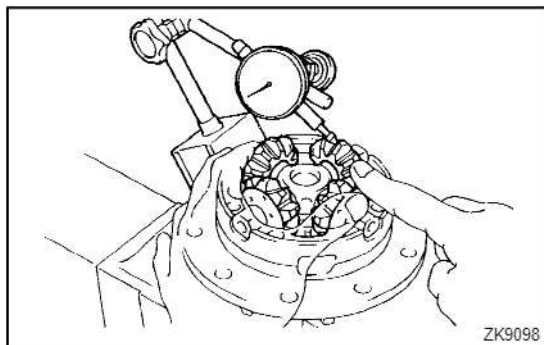
- (a) Install the differential side gear thrust washer to the differential side gear.
 (b) Install the 4 differential pinion thrust washers and 4 differential pinion gears to the differential spider.
 (c) Fix the differential case RH.



- (d) Install the differential side gear and differential spider to the differential case RH.



- (e) Using a dial indicator, measure the differential case RH side backlash while holding pinion toward the case.
Backlash: 0.05 – 0.20 mm (0.002 – 0.008 in.)
 (f) Remove the differential spider from the differential case RH.



- (g) Install the differential side gear and differential spider to the differential case LH.
- (h) Using a dial indicator, measure the differential case LH side backlash while holding pinion toward the case.

HINT:

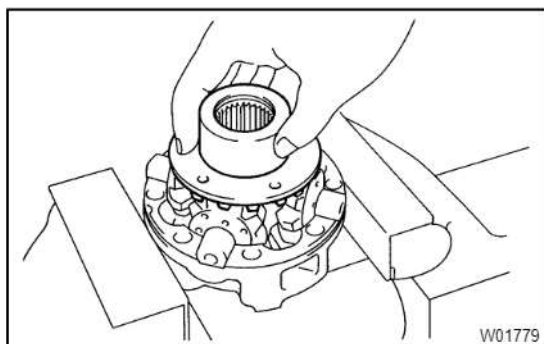
Measure at all 4 locations.

Backlash: 0.05 – 0.20 mm (0.002 – 0.008 in.)

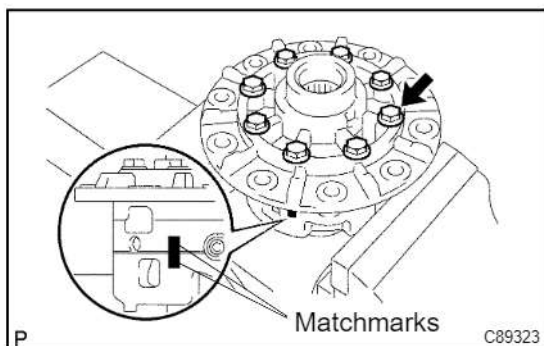
If the backlash is not within the specification, install the 2 side gear thrust washers with different thickness.

Thrust washer thickness:

Thickness mm (in.)	Thickness mm (in.)
0.9 (0.0354)	1.2 (0.0472)
1.0 (0.0394)	1.3 (0.0512)
1.1 (0.0433)	–

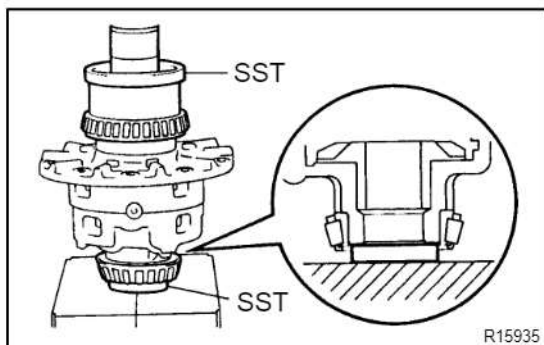


- (i) Install the differential side gear thrust washer to the RH case.
- (j) Install the differential pinion gears and differential spider to the RH case.
- (k) Install the differential side gear and differential side gear thrust washer to the RH case.



- (l) Align the matchmarks and assemble the RH and LH cases.
- (m) Using a plastic hammer, install the RH and LH cases.
- (n) Install the 8 bolts.

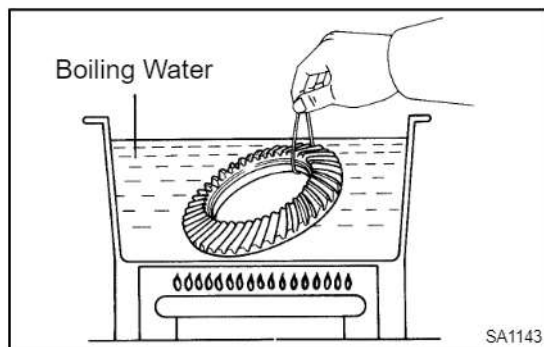
Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)



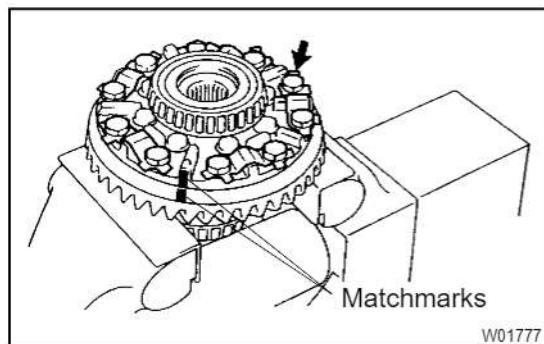
44. INSTALL REAR DIFFERENTIAL CASE BEARING

- (a) Using SST and a press, install the 2 differential case bearings on the differential case assy.

SST 09223-15020, 09950-60010 (09951-00480, 09951-00550), 09950-60020 (09951-00730)

**45. INSTALL DIFFERENTIAL RING GEAR**

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

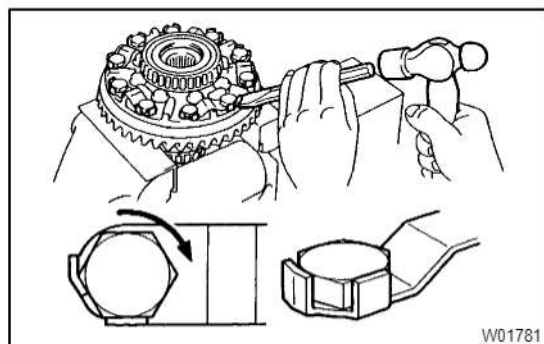


- Align the matchmarks on the ring gear and differential case assy.
- Temporarily install 5 new lock plates and 10 set bolts.
- After the ring gear cools down enough, torque the 8 bolts uniformly at a time.

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

HINT:

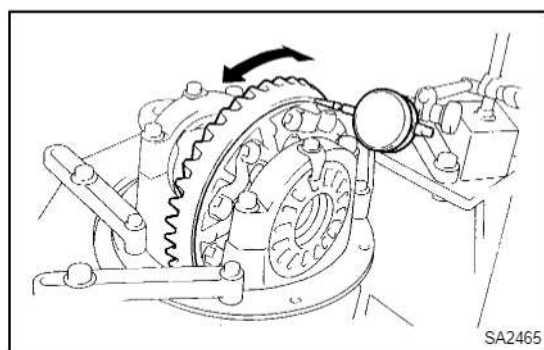
Tighten the bolts in diagonal order little by little over several times.



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

HINT:

Stake one claw so that it is 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.

**46. INSPECT DIFFERENTIAL RING GEAR RUNOUT**

- Install the differential case on the carrier, and install the 2 adjusting nut so that there is no play in the bearing.
- Install the 2 bearing caps with the 4 bolts.

Torque: 85 N·m (867 kgf·cm, 63 ft·lbf)

- Install the 2 adjusting nut locks with the 2 bolts.

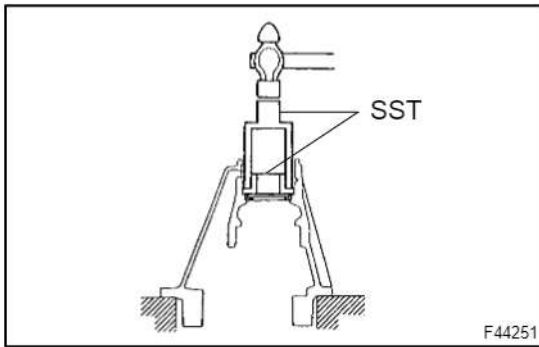
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

- Using a dial indicator, measure the runout of the ring gear.

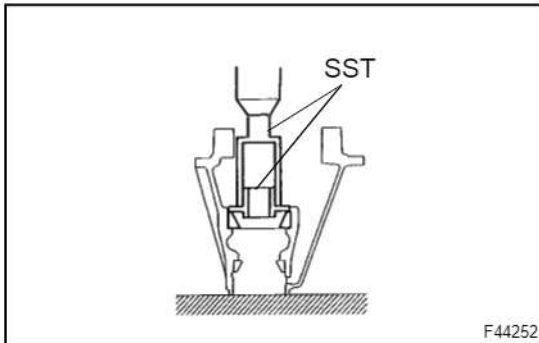
Maximum runout: 0.07 mm (0.0028 in.)

If it is not within the specification, replace the ring gear.

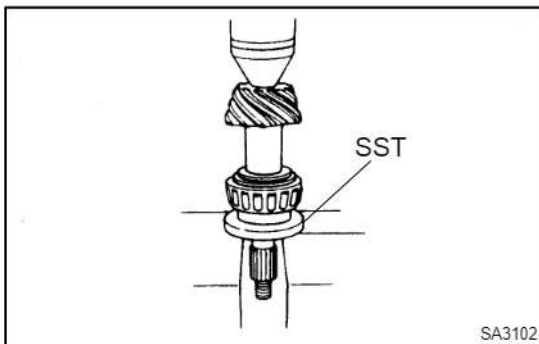
- Remove the 2 bolts and adjusting nut locks.
- Remove the 2 bearing caps, 2 adjusting nuts and differential case assy.

**47. INSTALL FRONT BEARING OUTER RACE**

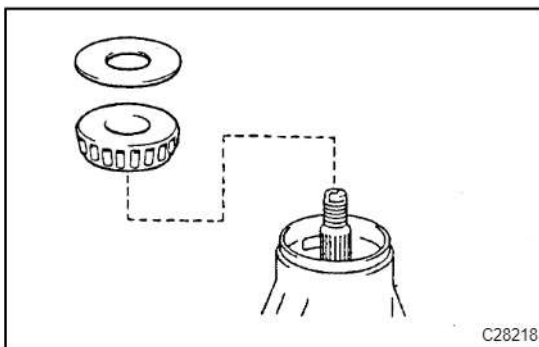
- (a) Using a brass bar and a hammer, install a new oil storage ring.
 - (b) Using SST and a hammer, install the front bearing outer race to the differential carrier assy.
- SST 09316-60011 (09316-00011, 09316-00021)

**48. INSTALL REAR BEARING OUTER RACE**

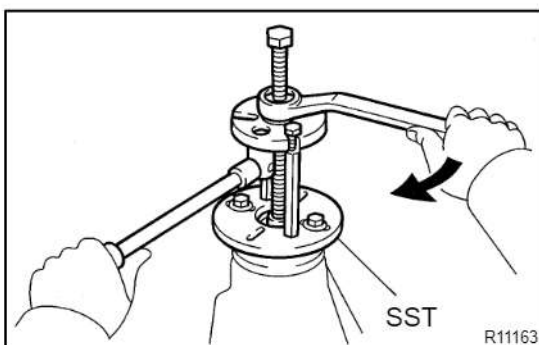
- (a) Using SST and a press, install the rear bearing outer race to the differential carrier case.
- SST 09316-60011 (09316-00011, 09316-00051)

**49. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

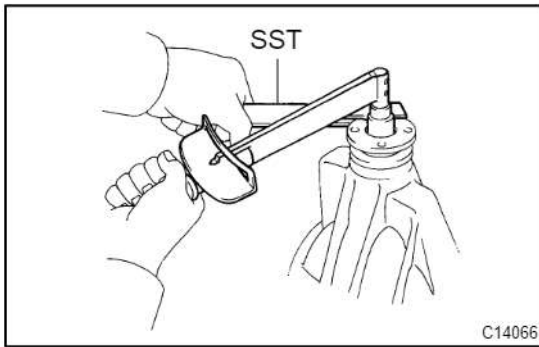
- (a) Install the plate washer on the drive pinion.
 - (b) Using SST and a press, install the rear bearing onto the drive pinion.
- SST 09506-30012

**50. ADJUST DIFFERENTIAL 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.



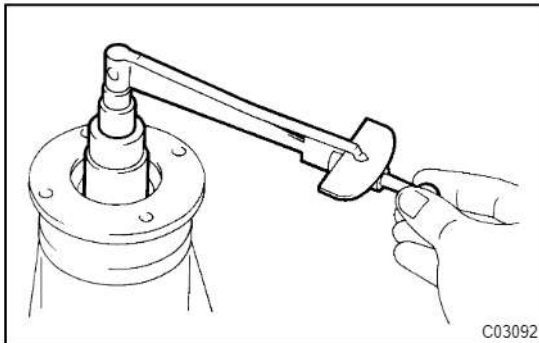
- (b) Using SST, install the companion flange.
- SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)
- (c) Coat the threads of the nut with hypoid gear oil LSD.



- (d) Using SST to hold the companion flange, torque the nut.
SST 09330-00021
Torque: 215 N·m (2,190 kgf·cm, 159 ft·lbf)

NOTICE:

- ◆ As there is no spacer, torque a little at a time, being careful not to overtighten it.
- ◆ Apply hypoid gear oil LSD of the nut.



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

Preload (at starting):**New bearing:**

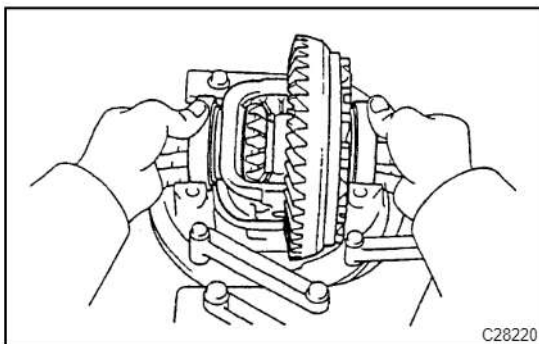
1.05 – 1.64 N·m (10.7 – 16.7 kgf·cm, 9.3 – 14.5 in·lbf)

Reused bearing:

0.56 – 0.85 N·m (5.7 – 8.7 kgf·cm, 5.0 – 7.5 in·lbf)

HINT:

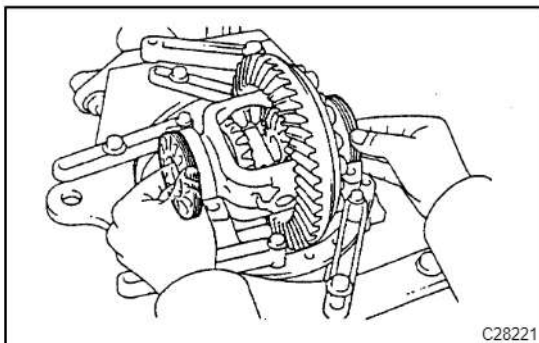
Measure the total preload after first turning the bearing clockwise and counterclockwise several times to make the bearing smooth.

**51. INSTALL REAR DIFFERENTIAL CASE SUB-ASSY**

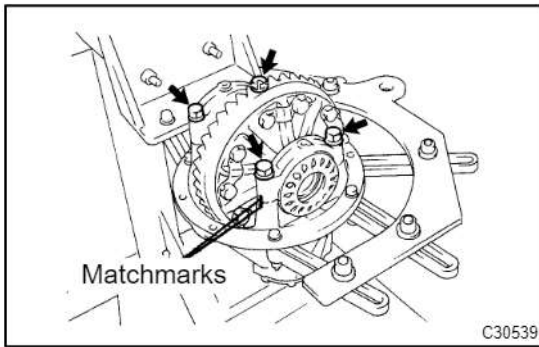
- (a) Place the 2 bearing outer races on their respective bearings.
(b) Install the differential case assy in the differential carrier assy.

HINT:

- ◆ Make sure the right and left outer races are not interchanged.
- ◆ Make sure that there is a backlash between the ring rear and drive pinion.

**52. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT**

- (a) Install the rear differential bearing adjusting nuts on the carrier, making sure the nuts are threaded properly.



53. ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

- (a) Align the matchmarks on the bearing cap and differential carrier assy.

- (b) Install the 2 bearing caps with the 4 bolts.

Torque: 85 N·m (867 kgf·cm, 63 ft·lbf)

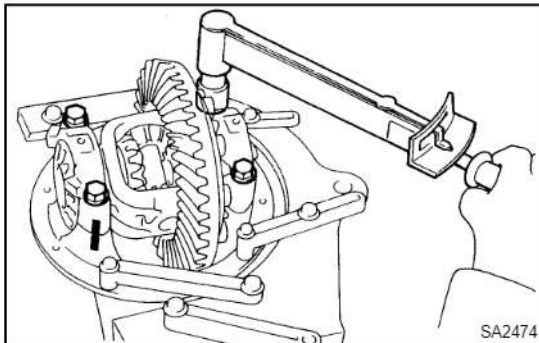
HINT:

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

Reinstall the adjusting nuts if necessary.

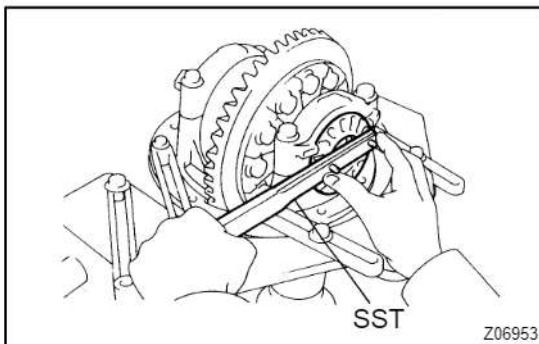
- (c) Torque the 4 bearing cap bolts to the specified torque, then loosen them to the point where the adjusting nuts can be turned by SST.

SST 09504-00011



- (d) 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.).

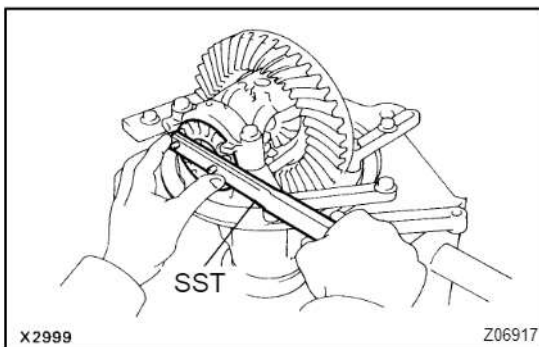
SST 09504-00011



- (e) While 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.

- (f) Using SST, torque the adjusting nut 1 – 1.5 notches from the 0 preload position.

SST 09504-00011



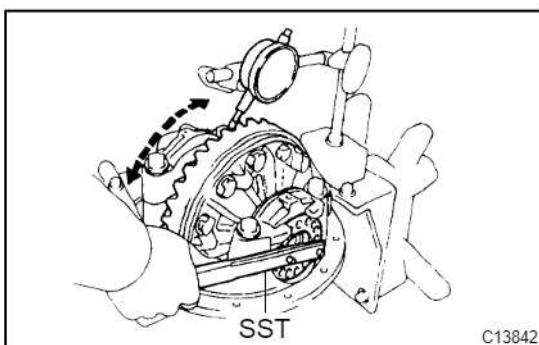
- (g) Using a dial indicator, adjust the ring gear backlash until it is within the specification.

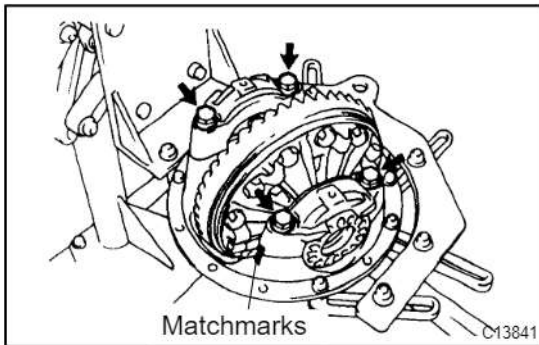
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

SST 09504-00011

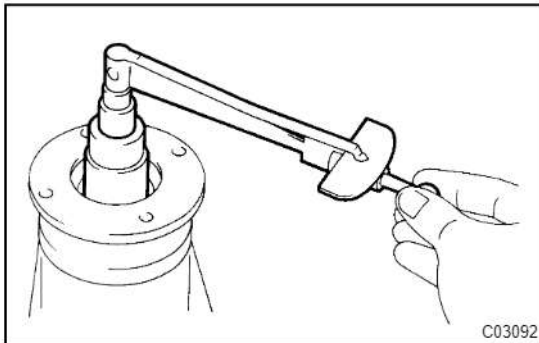
HINT:

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





- (h) Torque the 4 bearing cap bolts.
Torque: 85 N·m (867 kgf·cm, 63 ft·lbf)



54. INSPECT TOTAL PRELOAD

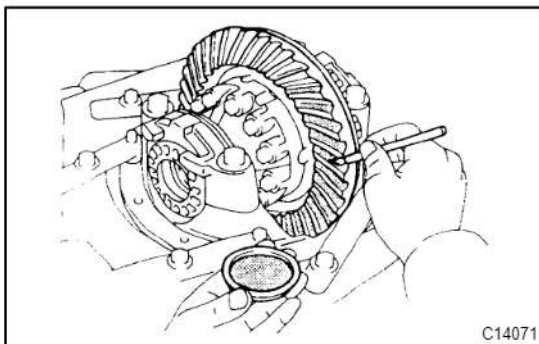
- (a) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):

Drive pinion preload plus

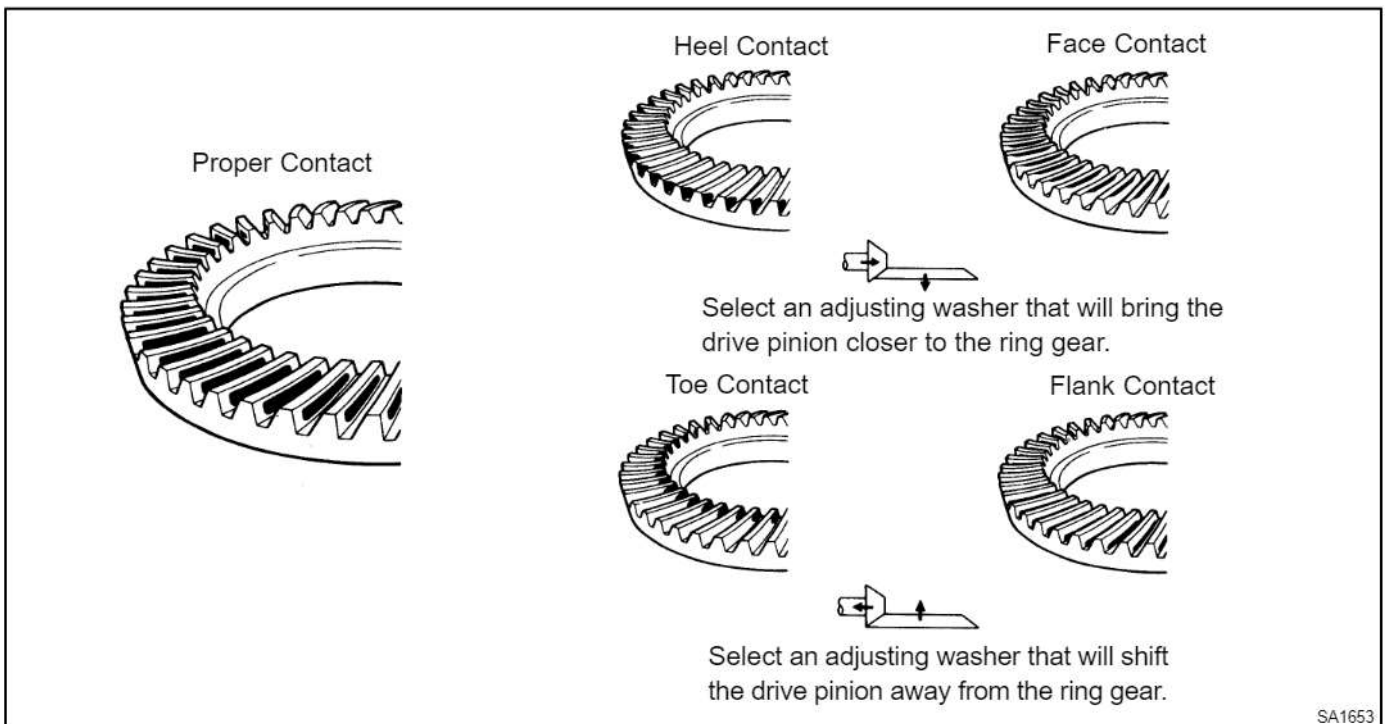
0.39 – 0.59 N·m (4.0 – 6.0 kgf·cm, 3.5 – 5.2 in·lbf)

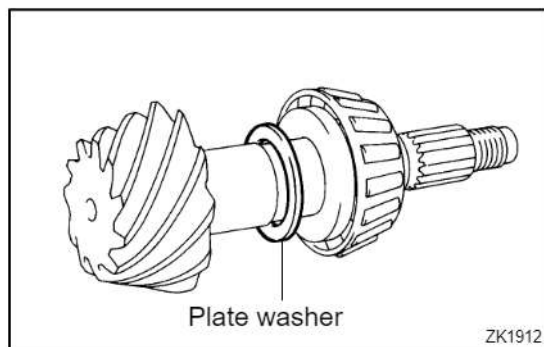
If necessary, disassemble and inspect the differential.



55. 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.
 (b) Hold the companion flange firmly and rotate the ring gear in both directions.
 (c) Inspect the tooth contact pattern.





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

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)

56. REMOVE REAR DRIVE PINION NUT

SST 09330-00021

57. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

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

58. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

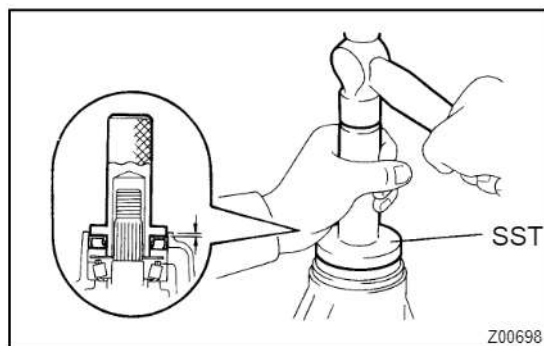
59. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

SST 09556-22010

60. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

61. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

62. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER



63. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

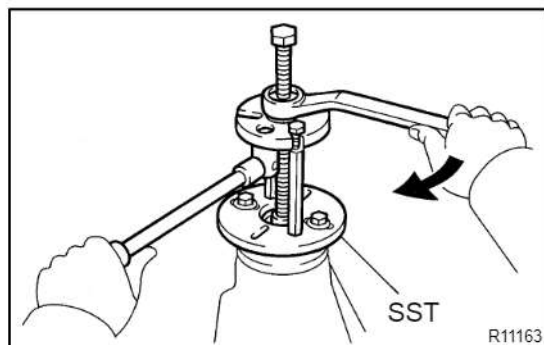
- (a) Using SST and a hammer, install a new oil seal.

SST 09554-30011

Oil seal drive in depth:

1.0 ± 0.45 mm (0.039 ± 0.018 in.)

- (b) Coat the oil seal lip with the MP grease.

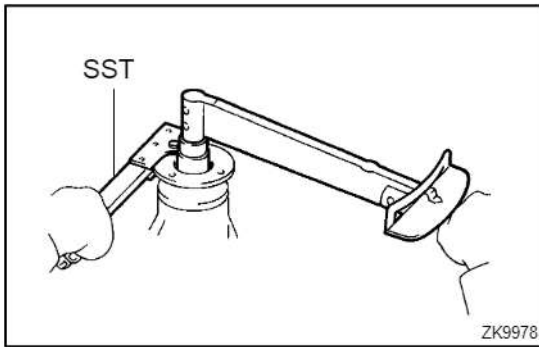


64. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

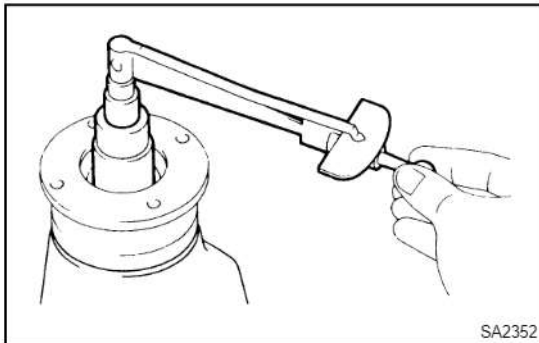
- (a) Using SST, install the companion flange on the drive pinion.

SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030), 09330-00021

- (b) Coat the threads of a new nut with hypoid gear oil LSD.



- (c) Using SST to hold the companion flange, torque the nut.
SST 09330-00021
Torque: 215 N·m (2,190 kgf·cm, 159 ft·lbf)



65. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

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

Preload (at starting):

New bearing:

1.05 – 1.64 N·m (10.7 – 16.7 kgf·cm, 9.3 – 14.5 in·lbf)

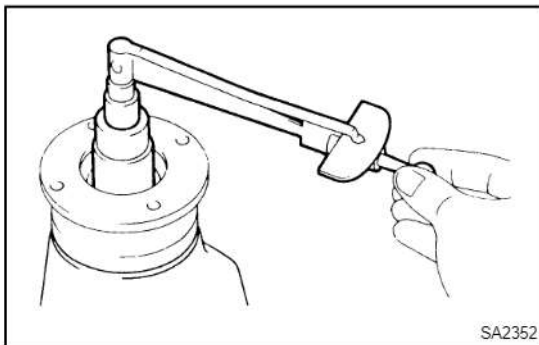
Reused bearing:

0.56 – 0.85 N·m (5.7 – 8.7 kgf·cm, 5.0 – 7.5 in·lbf)

- ◆ If the preload is greater than the specification, replace the bearing spacer.
- ◆ If the preload is less than the specification, retorque the nut with 13 N·m (130 kgf·cm, 9 ft·lbf) of torque at a time until the specified preload is reached.

Torque: 370 N·m (3,773 kgf·cm, 26.8 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.



66. INSPECT TOTAL PRELOAD

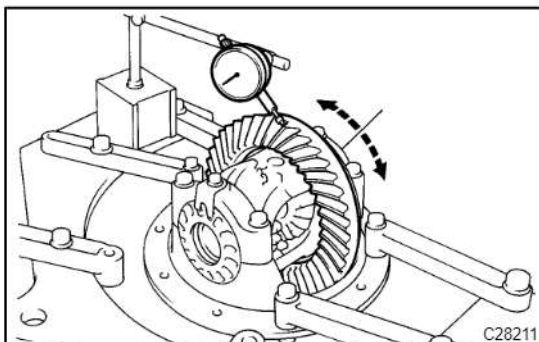
- (a) Using a torque wrench, measure the preload.

Total preload (at starting):

Drive pinion preload plus

0.39 – 0.59 N·m (4.0 – 6.0 kgf·cm, 3.5 – 5.2 in·lbf)

If necessary, disassemble and inspect the differential.

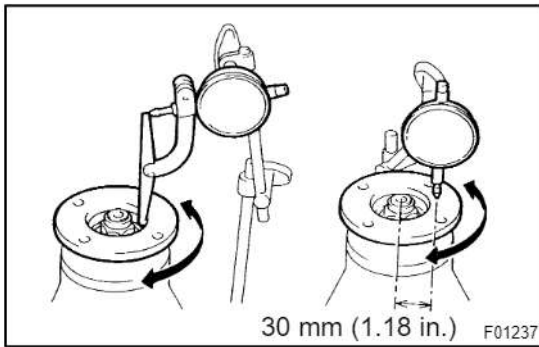


67. INSPECT DIFFERENTIAL RING GEAR BACKLASH

- (a) Using a dial indicator, check the backlash of the ring gear.

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

If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.



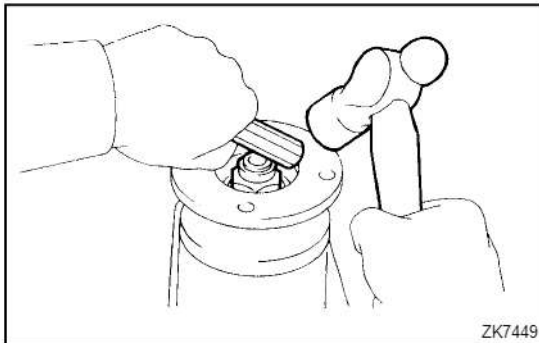
68. INSPECT RUNOUT OF REAR DRIVE PINION COMPANION FLANGE SUB-ASSY REAR

- (a) Using a dial indicator, measure the runout of the companion flange vertically and horizontally.

Maximum runout:

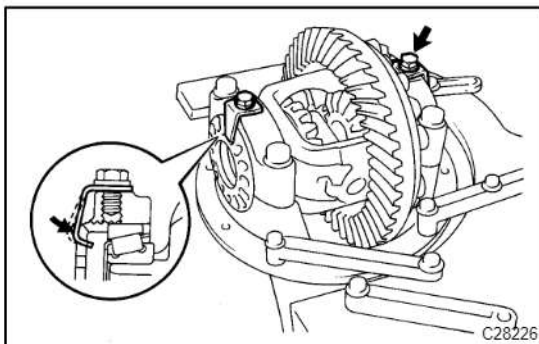
Vertical runout: 0.1 mm (0.0039 in.)

Lateral runout: 0.1 mm (0.0039 in.)



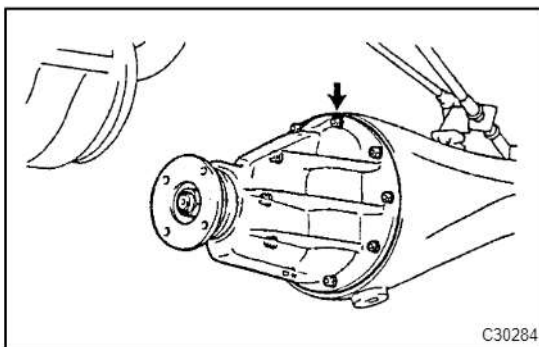
69. INSTALL REAR DRIVE PINION NUT

- (a) Using a chisel and a hammer, stake the nut.
- (b) 2WD drive type:
Using a torx socket (E10), install the 4 stud bolts.
Torque: 10 N·m (101 kgf·cm, 7.3 ft·lbf)



70. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK

- (a) Install 2 new rear differential bearing adjusting locks on the bearing caps.
Torque: 13 N·m (133 kgf·cm, 96 ft·lbf)
- (b) After tightening 2 bolts, bend the adjusting nut locks.



71. INSTALL DIFFERENTIAL CARRIER ASSY REAR

- (a) Clean the contact surfaces of the rear differential carrier assy and rear axle housing assy.
- (b) Install the rear differential carrier assy and a new gasket with the 10 nuts, 10 washers and washers.
Torque: 20 N·m (204 kgf·cm, 15 ft·lbf)

72. INSTALL REAR AXLE SHAFT W/BACKING PLATE (See page 30-38)

SST 09316-60011 (09316-00051)

73. INSTALL PARKING BRAKE SHOE (See page 33-15)

74. INSTALL PARKING BRAKE SHOE STRUT LH (See page 33-15)

75. INSTALL PARKING BRAKE SHOE STRUT COMPRESSION SPRING (See page 33-15)

76. INSTALL PARKING BRAKE SHOE RETURN TENSION SPRING (See page 33-15)

77. INSTALL REAR DISC (See page 32-23)

78. CONNECT REAR DISC BRAKE CALIPER ASSY LH (See page 32-23)

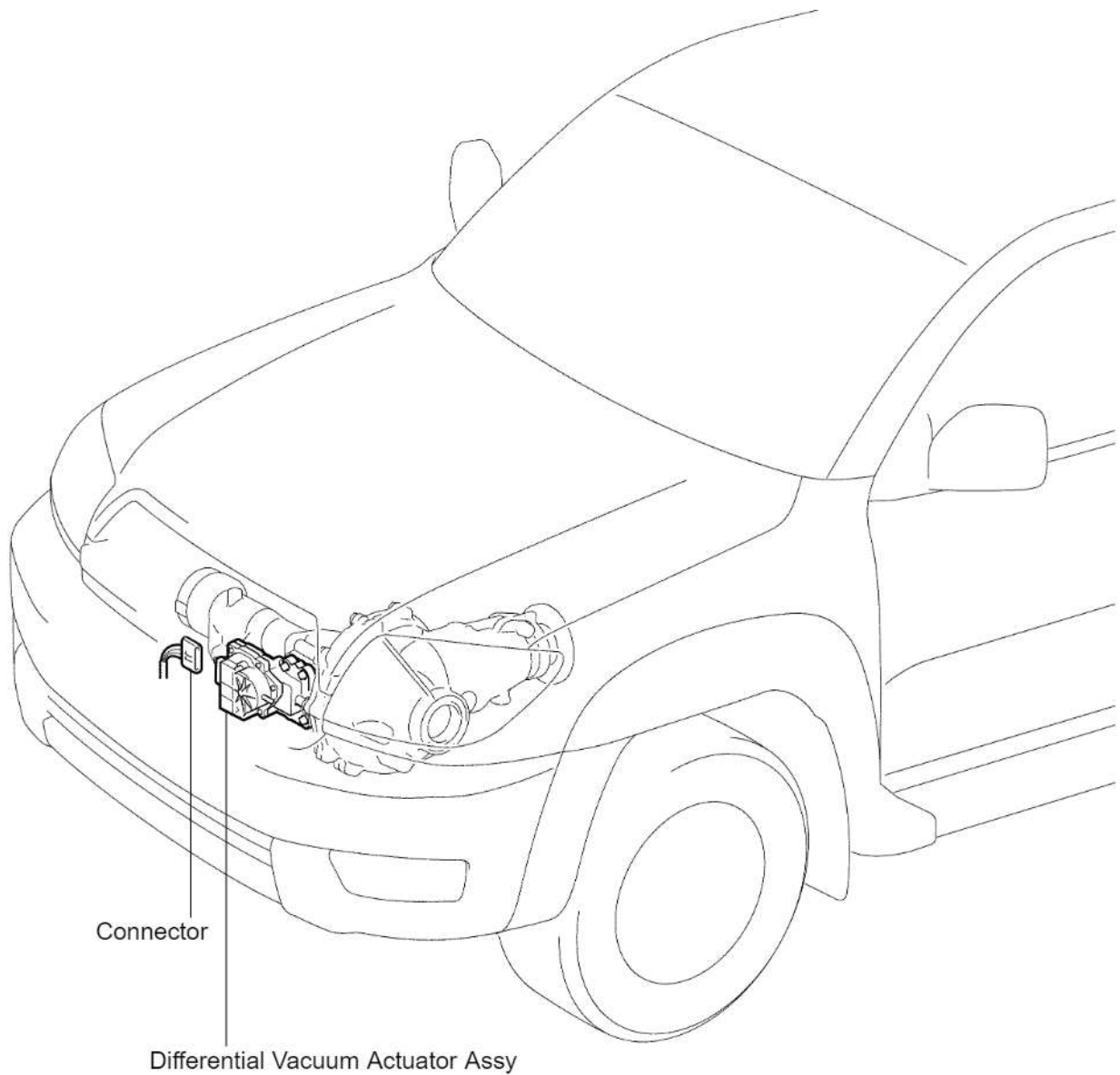
79. CONNECT REAR DISC BRAKE CALIPER ASSY RH (See page 32-23)

80. CONNECT SPEED SENSOR REAR LH (See page 32-52)

81. CONNECT SPEED SENSOR REAR RH (See page [32-52](#))
82. INSTALL PROPELLER SHAFT ASSY (See page [30-11](#))
83. FILL RESERVOIR WITH BRAKE FLUID (See page [32-4](#))
84. BLEED MASTER CYLINDER (See page [32-4](#))
85. BLEED BRAKE LINE (See page [32-4](#))
86. INSPECT BRAKE FLUID LEVEL IN RESERVOIR (See page [32-4](#))
87. CHECK BRAKE FLUID LEAKAGE (See page [32-4](#))
88. FILL UP DIFFERENTIAL OIL (See page [29-3](#))
89. INSPECT DIFFERENTIAL OIL (See page [29-3](#))
90. INSTALL REAR WHEEL
Torque: 112 N·m (1,142 kgf·cm, 83 ft·lbf)
91. INSPECT AND ADJUST PARKING BRAKE LEVER TRAVEL (See page [33-2](#))
92. CHECK ABS SPEED SENSOR SIGNAL (See page [05-803](#))

DIFFERENTIAL VACUUM ACTUATOR ASSY (1GR-FE (4WD)) COMPONENTS

2906V-01



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REPLACEMENT

1. REMOVE ENGINE UNDER COVER ASSY REAR

- (a) Remove the 6 bolts and engine under cover assy rear.

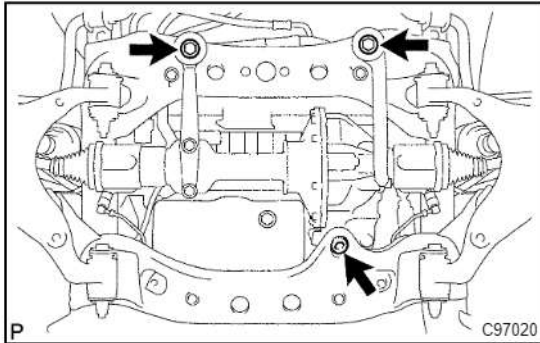
2. REMOVE ENGINE UNDER COVER SUB-ASSY NO.1

- (a) Remove the 4 bolts and engine under cover sub-assy No.1.

3. REMOVE FRONT DIFFERENTIAL DRAIN PLUG

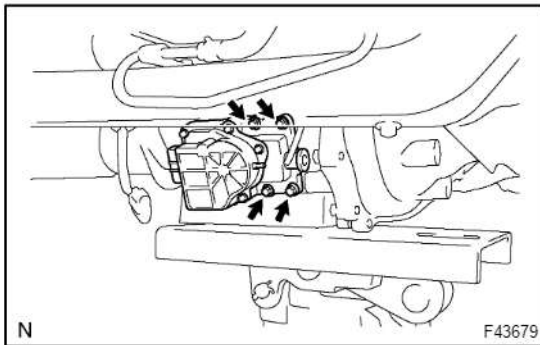
4. DRAIN DIFFERENTIAL OIL (See page 29-3)

5. REMOVE PROPELLER SHAFT ASSY FRONT (See page 30-4)

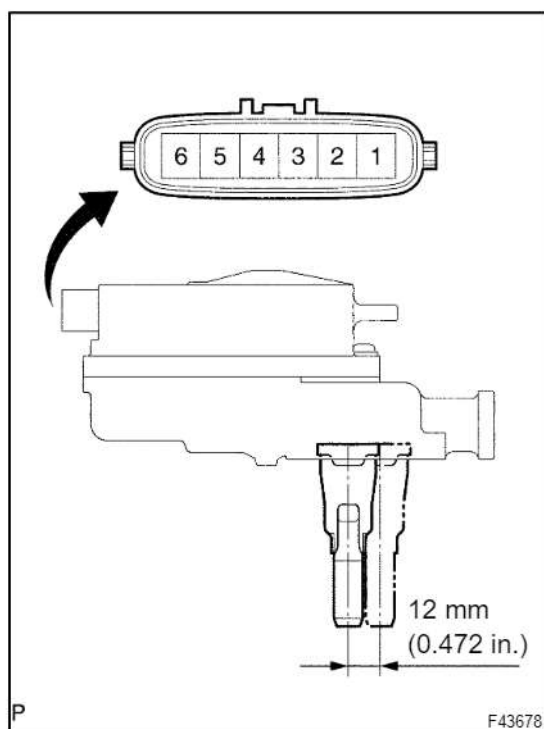


6. REMOVE DIFFERENTIAL VACUUM ACTUATOR ASSY

- (a) Remove the bolt and separate the front differential breather tube bracket.
 (b) Support the front differential with a jack.
 (c) Remove the front differential mount nut No.1.
 (d) Remove the 2 front mounting bolts and 2 nuts.
 (e) Disconnect the actuator hose and connector.
 (f) Lower the jack.



- (g) Remove the 4 bolts and differential vacuum actuator assy.



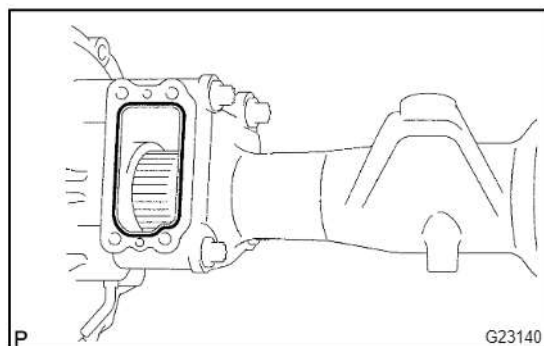
7. INSPECT DIFFERENTIAL VACUUM ACTUATOR ASSY

- Measure the resistance between the terminals 1 – 2.
Standard resistance: 0.1 – 100 Ω
- Measure the resistance between the terminals 1 or 2 and body ground.
Standard resistance: 5 M Ω or more

If the resistance value is not as specified, replace the differential vacuum actuator assembly.

- Apply battery positive voltage between the terminal 1 – 2, and check the actuator operation by sound, actuator status and continuity between the terminal 3 – 4, 5 – 4 and 6 – 4.

Battery voltage applied terminal	3 – 4 terminals continuity	5 – 4 terminals continuity	6 – 4 terminals continuity	Actuator status
1 (+) – 2 (–)	Continuity	Continuity	No continuity	Connected
1 (–) – 2 (+)	No continuity	No continuity	Continuity	Disconnected

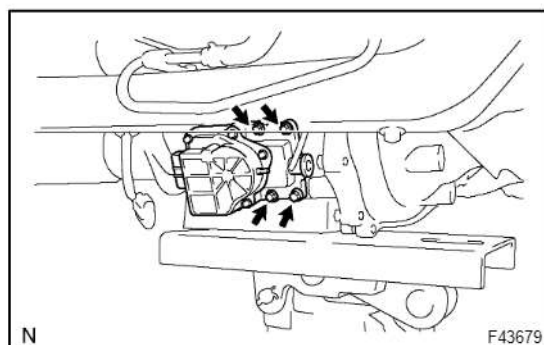


8. INSTALL DIFFERENTIAL VACUUM ACTUATOR ASSY

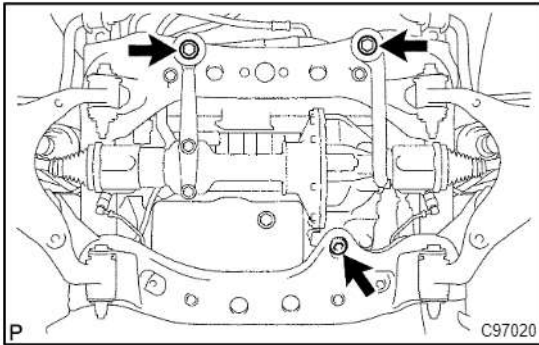
- Remove the any oil FIPG material and be careful not to drop oil on the contact surfaces of the actuator and clutch case.
- Clean connecting surfaces of any residual FIPG material using gasoline or alcohol.
- Apply FIPG to the differential tube, as shown.
FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT:

Install the actuator within 10 minutes after applying FIPG.



- Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichloroethylene.
- Install the differential vacuum actuator assy to the differential tube.
- Apply adhesive to 2 to 3 threads of the bolts end.
Adhesive: Part No. 08833-00070, THREE BOND 1281 or equivalent
- Install the 4 bolts.
Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)



- (h) Connect the actuator hose and connector.
- (i) Install the No.1 mounting support with the 3 bolts.
Torque: 186 N·m (1,900 kgf·cm, 137 ft·lbf)
- (j) Install the No.2 mounting support with the 2 bolts.
Torque: 160 N·m (1,630 kgf·cm, 118 ft·lbf)
- (k) Install the front differential support No.3 with the 2 bolts.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)
- (l) Support the front differential with a jack.
- (m) Install the 2 front mounting bolts and nuts.
Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)
- (n) Install the front differential mount nuts No.1.
Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)
- (o) Install the front differential breather tube bracket with a bolt.
Torque: 13 N·m (133 kgf·cm, 10 ft·lbf)
- (p) Lower the jack.

9. INSTALL PROPELLER SHAFT ASSY FRONT (See page 30-4)

10. INSPECT DIFFERENTIAL OIL (See page 29-3)

11. ADD INSPECT DIFFERENTIAL OIL (See page 29-3)

12. INSTALL ENGINE UNDER COVER SUB-ASSY NO.1

- (a) Install the engine under cover sub-assy No.1 with the 4 bolts.

13. INSTALL ENGINE UNDER COVER ASSY REAR

- (a) Install the engine under cover assy rear with the 6 bolts.