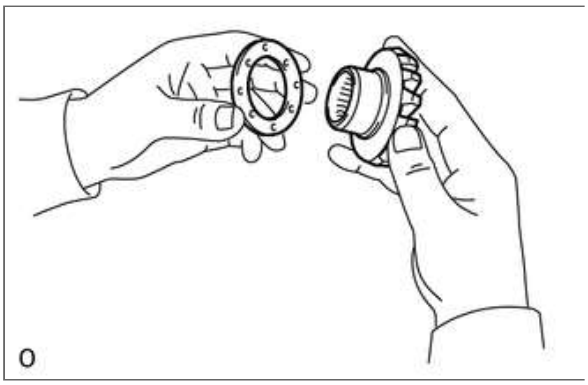
PROCEDURE

1.INSPECT DIFFERENTIAL SIDE GEAR BACKLASH

a.



Install the 2 rear No. 1 differential side gear thrust washers to the 2 rear differential side gears.

b. Install the 2 rear differential side gears to the differential case.

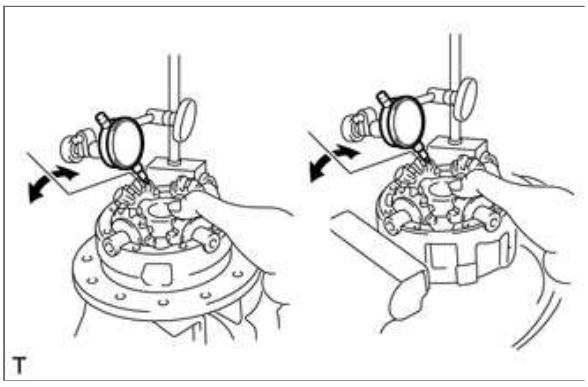
c. Install the 4 rear differential pinions and 4 rear differential pinion thrust washers to the rear differential spider.

d. Install the spider assembly to the differential case.

HINT:

Install the spider to the differential case tightly.

e.



While holding the front differential side gear and front differential spider, measure the side gear backlash.

Standard backlash:

0.02 to 0.15 mm (0.00079 to 0.00590 in.)

HINT:

- Measure at all 4 locations.
- Measure the backlash at the differential case LH and RH.
- Apply hypoid gear oil to each sliding surface and rotating part.

If the backlash is not within the specification, install a thrust washer of a different thickness.

Standard Washer Thickness:

Thickness	Thickness
1.53 to 1.57 mm (0.0603 to 0.0618 in.)	1.83 to 1.87 mm (0.0721 to 0.0736 in.)
1.58 to 1.62 mm (0.0623 to 0.0637 in.)	1.88 to 1.92 mm (0.0741 to 0.0755 in.)
1.63 to 1.67 mm (0.0642 to 0.0657 in.)	1.93 to 1.97 mm (0.0760 to 0.0775 in.)
1.68 to 1.72 mm (0.0662 to 0.0677 in.)	1.98 to 2.02 mm (0.0780 to 0.0795 in.)
1.73 to 1.77 mm (0.0682 to 0.0696 in.)	2.03 to 2.07 mm (0.0800 to 0.0814 in.)

Thickness	Thickness
1.78 to 1.82 mm (0.0701 to 0.0716 in.)	2.08 to 2.12 mm (0.0819 to 0.0834 in.)

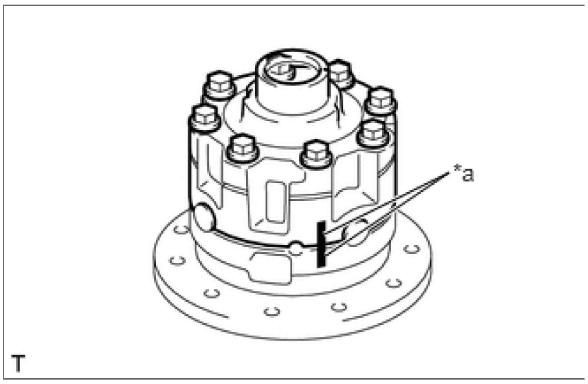
2.ASSEMBLE DIFFERENTIAL CASE

a. Install the spider assembly to the differential case.

HINT:

Install the spider to the differential case tightly.

b.



*a	Matchmark

Align the matchmarks and assemble the differential case LH and RH.

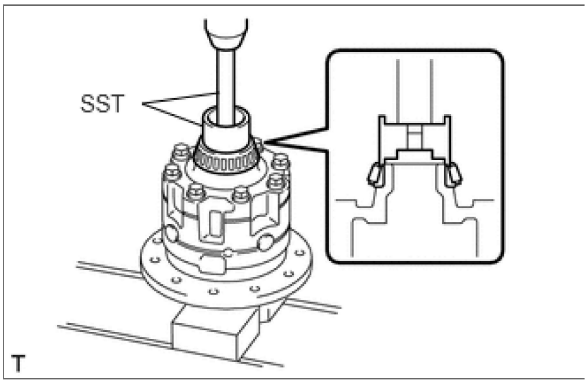
c. Install the 8 bolts and tighten them uniformly, a little at a time.

Torque:

47.1 N*m (480 kgf*cm, 35 ft.*lbf)

3.INSTALL REAR DIFFERENTIAL CASE BEARING 41301A

a.



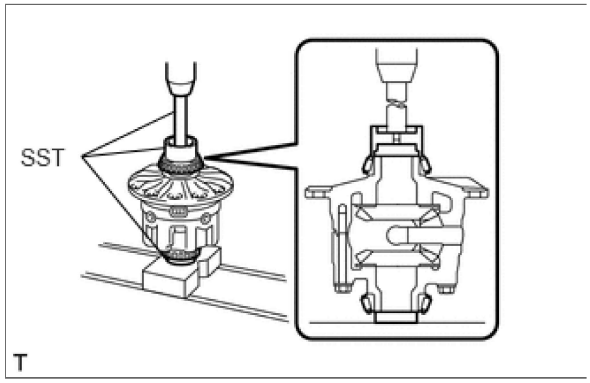
Using SST and a press, press in the RH side rear differential case bearing (inner race) on the differential case.

SST

09710-30050

09950-70010 (09951-07150)

b.



Using SST and a press, press in the LH side rear differential case bearing (inner race) on the differential case.

SST

09710-30050
09950-60010 (09951-00480)
09950-70010 (09951-07150)

4.INSTALL DIFFERENTIAL RING GEAR

a. Clean the threads of the bolts and differential case with non-residue solvent.

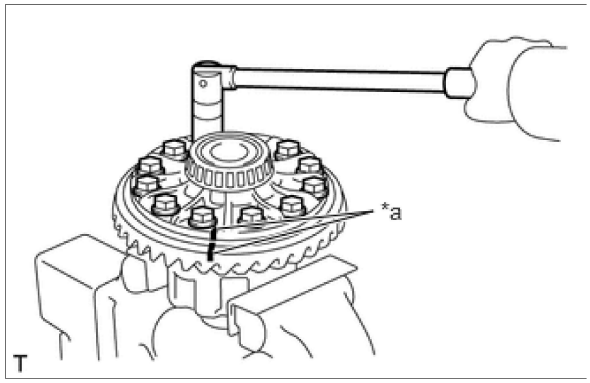
b. Clean the contact surfaces of the differential case and differential ring gear.

c. Heat the differential ring gear to about 100°C (212°F) in boiling water.

d. Carefully take the differential ring gear out of the boiling water.

e. After the moisture on the differential ring gear has completely evaporated, quickly install the differential ring gear to the differential case.

f.



*a	Matchmark

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

g. Apply thread lock adhesive to the threads of the 12 set bolts and temporarily install them.

Thread lock:
Toyota Genuine Adhesive 1360K, Three Bond 1360K or equivalent

h. After the differential ring gear cools down sufficiently, tighten the set bolts.

Torque:
137 N*m (1397 kgf*cm, 101 ft.*lbf)

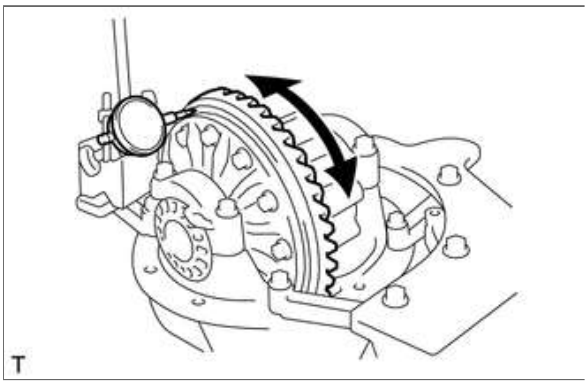
5.CHECK DIFFERENTIAL RING GEAR RUNOUT

a. Install the differential case and 2 rear differential case bearings (outer race) to the differential carrier, and install the 2 rear differential bearing adjusting nuts so that there is no play in the bearing.

b. Install the 2 bearing caps with the 4 bolts.

Torque:
90 N*m (918 kgf*cm, 66 ft.*lbf)

c.



Using a dial indicator, check the ring runout.

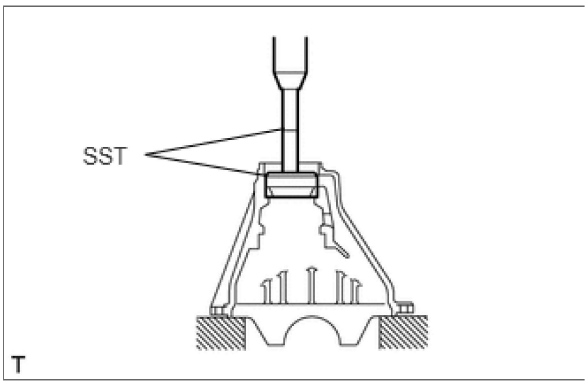
Maximum runout:
0.05 mm (0.00197)

If the runout is more than the maximum, replace the differential ring gear.

d. Remove the 4 bolts, 2 bearing caps, 2 rear differential bearing adjusting nuts and rear differential case.

6.INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING 41201B

a.

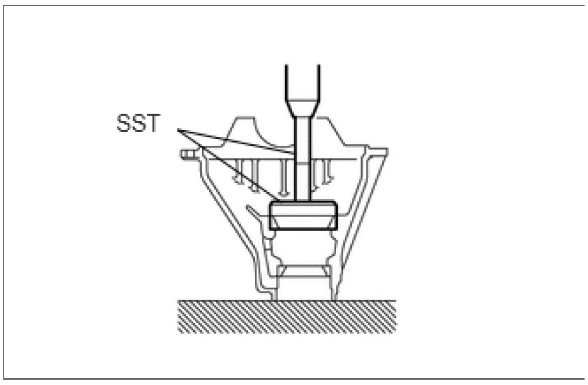


Using SST and a press, press in the rear drive pinion front tapered roller bearing (outer race).

SST
09950-60020 (09951-00710)
09950-70010 (09951-07150)

7.INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING 41201A

a.



Using SST and a press, press in the rear drive pinion rear tapered roller bearing (outer race).

SST

09950-60020 (09951-00890)
09950-70010 (09951-07150)

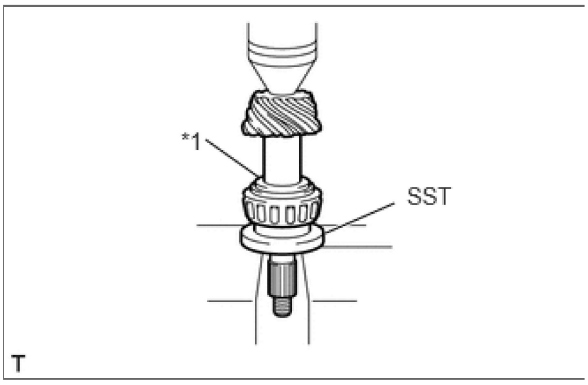
8.INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING 41201A

a. Install the rear differential drive pinion plate washer onto the drive pinion.

HINT:

First fit a rear differential drive pinion plate washer with the same thickness as the removed rear differential drive pinion plate washer, and then check the tooth contact pattern. Replace the rear differential drive pinion plate washer with one of a different thickness if necessary.

b.



*1	Rear Differential Drive Pinion Plate Washer

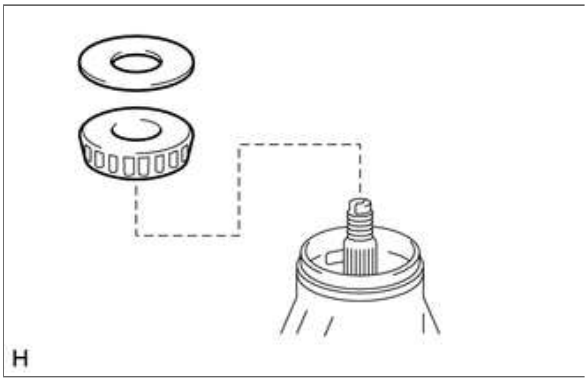
Using SST and a press, press in the rear drive pinion rear tapered roller bearing (inner race).

SST

09506-35010

9.INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

a.

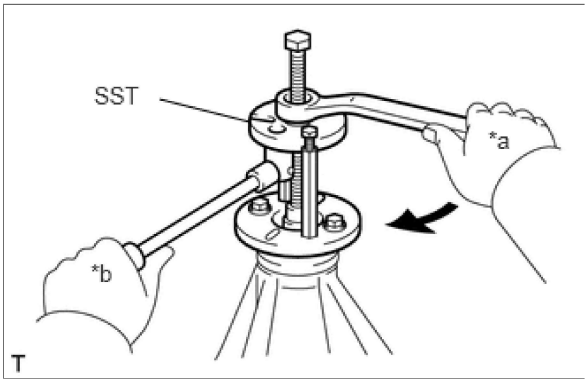


Install the differential drive pinion, rear drive pinion front tapered roller bearing (inner race) and rear differential drive pinion oil slinger.

HINT:

Install the rear differential drive pinion bearing spacer and rear differential carrier oil seal after adjusting the gear contact pattern.

b.



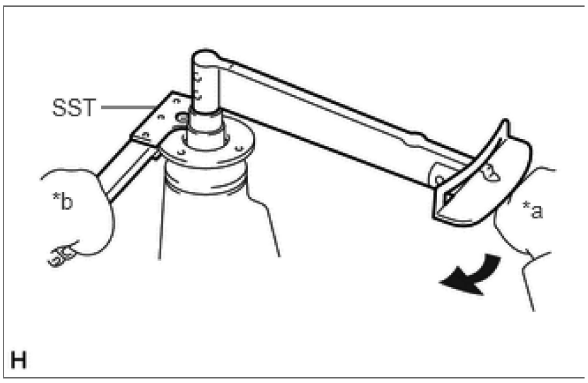
*a	Turn
*b	Hold

Using SST, install the rear drive pinion companion flange sub-assembly with dust deflector.

SST

09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03040)

c.



*a	Turn
*b	Hold

Using SST, hold the rear drive pinion companion flange sub-assembly.

SST

09330-00021 (09330-00030)

d. Using a 30 mm socket wrench and torque wrench, gradually tighten the rear drive pinion companion flange nut within the adjustment range of the differential drive pinion preload.

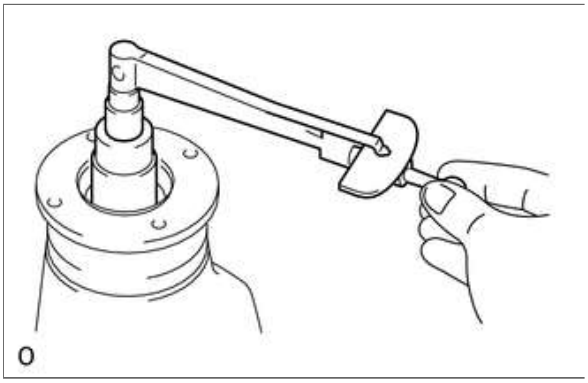
Torque:

441 N*m (4497 kgf*cm, 325 ft.*lbf)
or less

NOTICE:

- As there is no rear differential drive pinion bearing spacer, tighten the rear drive pinion companion flange nut a little at a time. Be careful not to overtighten it.
- Apply hypoid gear oil LSD to the drive pinion threads and rear drive pinion companion flange nut seat face.

e.



Using a torque wrench, measure the preload.

Standard Preload (At Starting):

Bearing	Specified Condition
New	1.04 to 1.69 N*m (11 to 17 kgf*cm, 10 to 14 in.*lbf)
Reused	0.85 to 1.37 N*m (9 to 13 kgf*cm, 8 to 12 in.*lbf)

HINT:

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

10.INSTALL DIFFERENTIAL CASE ASSEMBLY

a. Place the 2 rear differential case bearings (outer race) on their respective bearings.

HINT:

Do not interchange the left and right outer races.

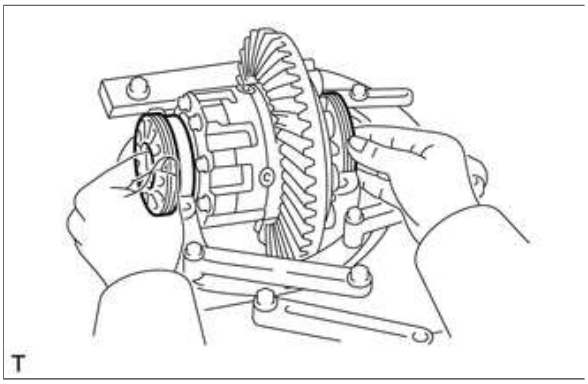
b. Install the differential case onto the differential carrier.

HINT:

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

11.INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT 41315

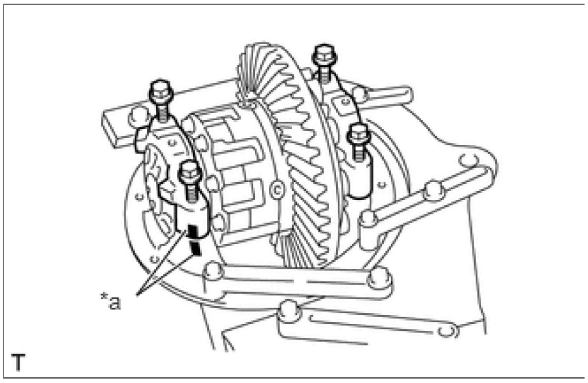
a.



Install the 2 rear differential bearing adjusting nuts onto the differential carrier, making sure the nuts are threaded properly.

12.INSPECT AND ADJUST DIFFERENTIAL RING GEAR BACKLASH

a.



*a	Matchmark

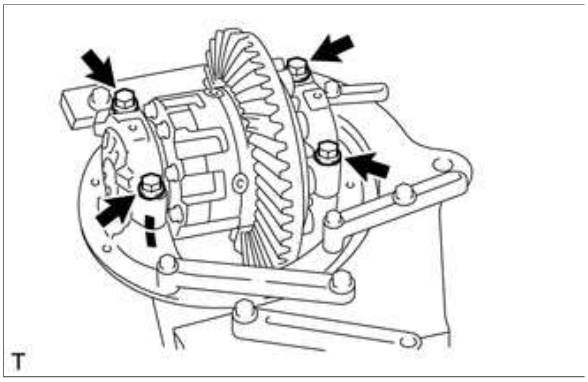
Align the matchmarks on the bearing caps and differential carrier. Screw in the 4 bearing cap bolts 2 or 3 turns and press down the bearing caps by hand.

HINT:

If the bearing caps do not fit tightly on the carrier, the adjusting nuts are not engaged properly.

Reinstall the rear differential bearing adjusting nuts if necessary.

b.

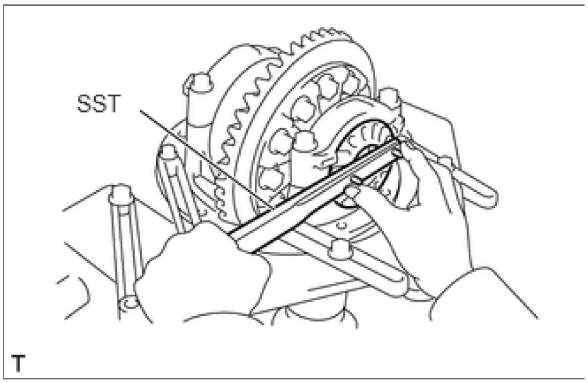


Tighten the 4 bolts.

Torque:

90 N*m (918 kgf*cm, 66 ft.*lbf)

c.



Loosen the 4 bolts to the point where the rear differential bearing adjusting nuts can be turned by SST.

SST

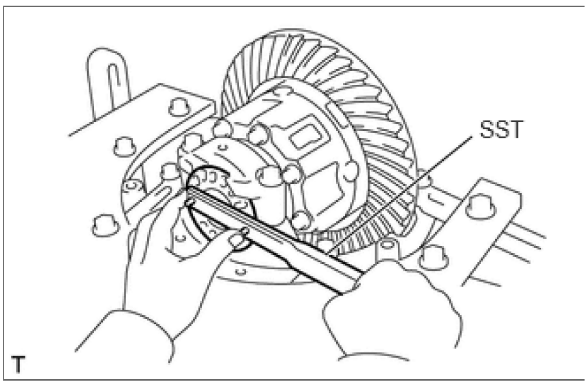
09504-00011

d. Using SST, tighten the rear differential bearing adjusting nut on the ring gear side until the ring gear has a backlash of about 0.2 mm (0.00787 in.).

SST

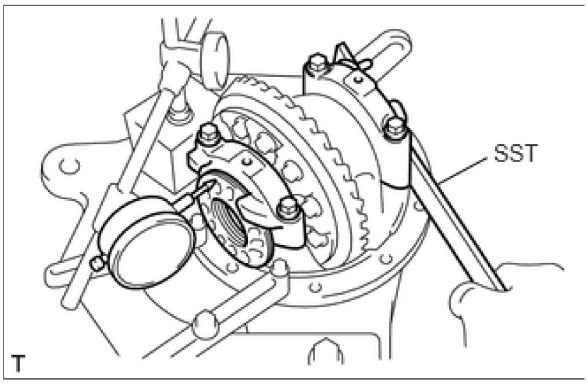
09504-00011

e.



While turning the differential ring gear, use SST to tighten the rear differential bearing adjusting nut on the differential drive pinion side. After the bearings are settled, loosen the rear differential bearing adjusting nut on the differential drive pinion side.

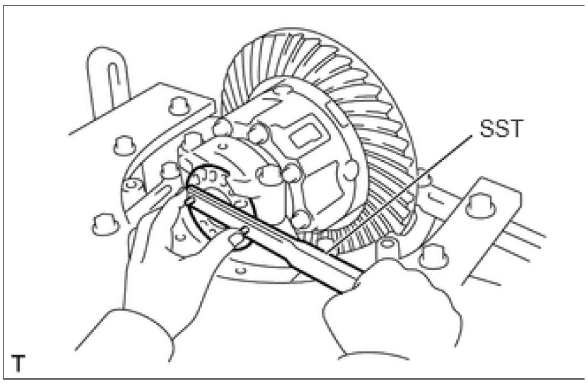
f.



Place a dial indicator on the top of the rear differential bearing adjusting nut on the differential ring gear side.

g. Adjust the rear differential case bearing to zero preload by tightening the other rear differential bearing adjusting nut until the pointer on the indicator begins to move.

h.

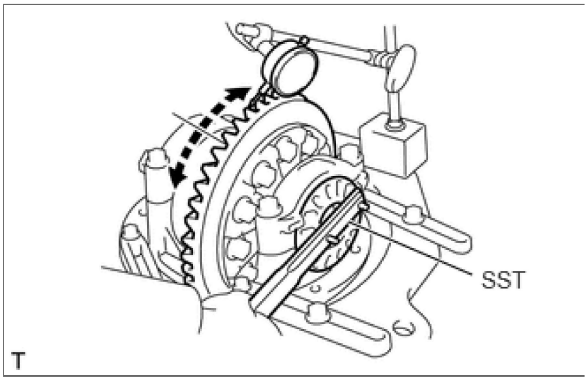


Using SST, tighten the rear differential bearing adjusting nut 1 to 1.5 notches from the zero preload position.

SST

09504-00011

i.

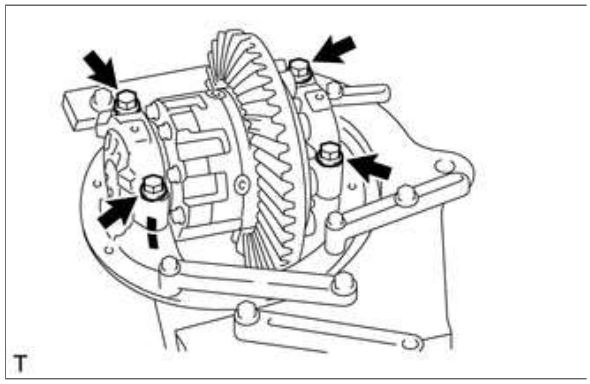


Using a dial indicator, adjust the ring gear backlash until it is within the specification.

Standard backlash:
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

HINT:
The backlash is adjusted by turning the left and right adjusting nuts by an equal amount. For example, loosen the nut on the left side 1 notch and tighten the nut on the right side 1 notch.

j.



Tighten the 4 bearing cap bolts.

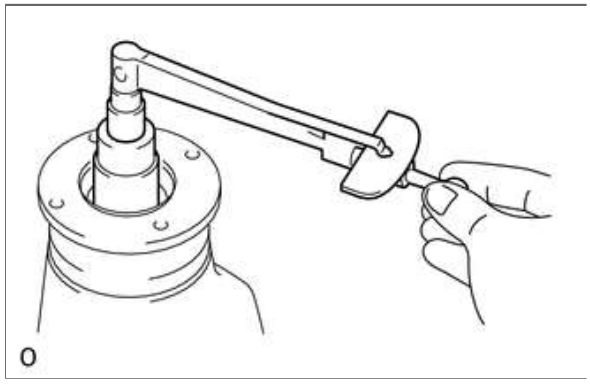
Torque:
90 N*m (918 kgf*cm, 66 ft.*lbf)

k. After rotating the ring gear 5 turns or more, recheck the ring gear backlash.

Standard backlash:
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

13.INSPECT TOTAL PRELOAD

a.



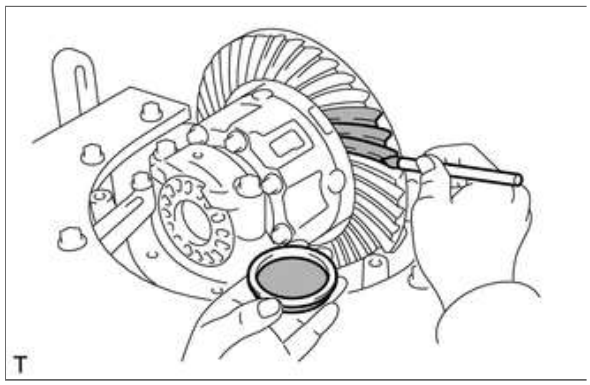
Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Standard Drive Pinion Preload (At Starting):

Side Bearing Supplier	Preload
NSK	0.43 to 0.65 N*m (5 to 6 kgf*cm, 4 to 5 in.*lbf) + Standard drive pinion preload
NACHI	0.38 to 0.63 N*m (4 to 6 kgf*cm, 4 to 5 in.*lbf) + Standard drive pinion preload

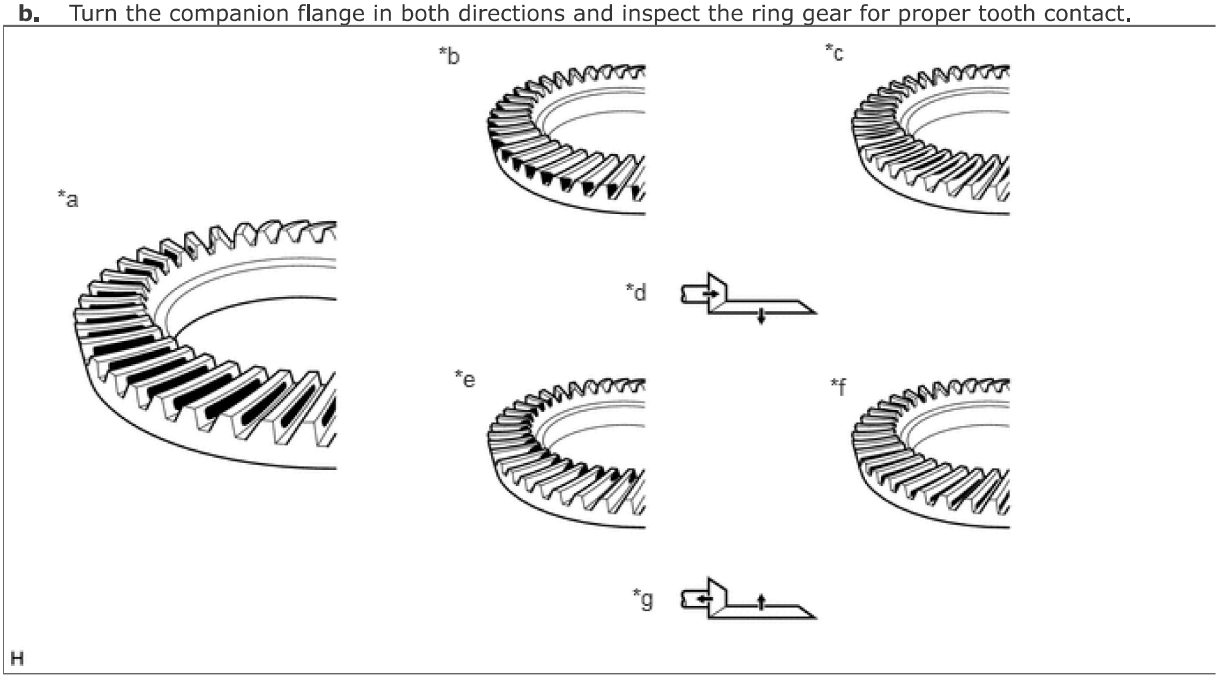
14.INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

a.

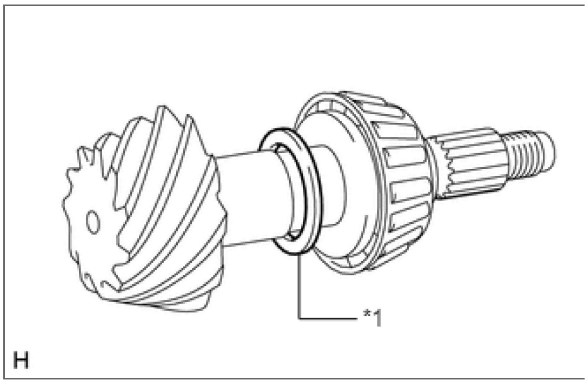


Coat 3 or 4 teeth at 3 different positions on the ring gear with Prussian blue.

b. Turn the companion flange in both directions and inspect the ring gear for proper tooth contact.



*a	Proper Contact	*b	Heel Contact
*c	Face Contact	*d	Select an adjusting washer that will shift the drive pinion closer to the ring gear (*b, *c)
*e	Toe Contact	*f	Flank Contact
*g	Select an adjusting washer that will shift the drive pinion away from the ring gear (*e, *f)	-	-



*1	Rear Differential Drive Pinion Plate Washer

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

Standard Washer Thickness:

Thickness	Thickness
1.04 to 1.06 mm (0.0410 to 0.0417 in.)	1.315 to 1.335 mm (0.0518 to 0.0525 in.)

Thickness	Thickness
1.065 to 1.085 mm (0.0420 to 0.0427 in.)	1.34 to 1.36 mm (0.0528 to 0.0535 in.)
1.09 to 1.11 mm (0.0430 to 0.0437 in.)	1.365 to 1.385 mm (0.0538 to 0.0545 in.)
1.115 to 1.135 mm (0.0439 to 0.0446 in.)	1.39 to 1.41 mm (0.0548 to 0.0555 in.)
1.14 to 1.16 mm (0.0449 to 0.0456 in.)	1.415 to 1.435 mm (0.0558 to 0.0564 in.)
1.165 to 1.185 mm (0.0459 to 0.0466 in.)	1.44 to 1.46 mm (0.0567 to 0.0574 in.)
1.19 to 1.21 mm (0.0469 to 0.0476 in.)	1.465 to 1.485 mm (0.0577 to 0.0584 in.)
1.215 to 1.235 mm (0.0479 to 0.0486 in.)	1.49 to 1.51 mm (0.0587 to 0.0594 in.)
1.24 to 1.26 mm (0.0489 to 0.0496 in.)	1.515 to 1.535 mm (0.0597 to 0.0604 in.)
1.265 to 1.285 mm (0.0499 to 0.0505 in.)	1.54 to 1.56 mm (0.0607 to 0.0614 in.)
1.29 to 1.31 mm (0.0508 to 0.0515 in.)	-

15.REMOVE REAR DRIVE PINION COMPANION FLANGE NUT **41204G**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

16.REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR **41204**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

17.REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER **41214**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

18.REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING **41201B**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

19.INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER **41231**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

20.INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING **41201B**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

21.INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER **41214**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

22.INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL **41201C**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

23.INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR **41204**

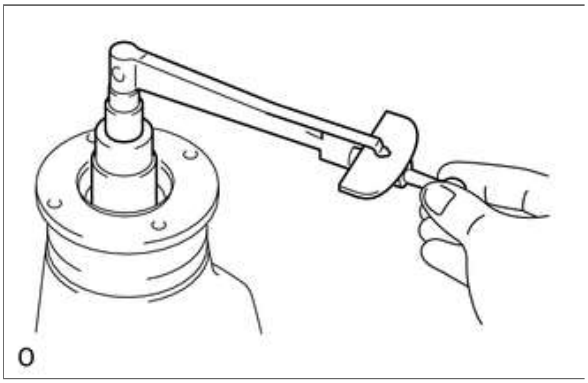
Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

24.INSPECT DRIVE PINION PRELOAD

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER ASSEMBLY(for Standard)>DISASSEMBLY

25.INSPECT TOTAL PRELOAD

a.



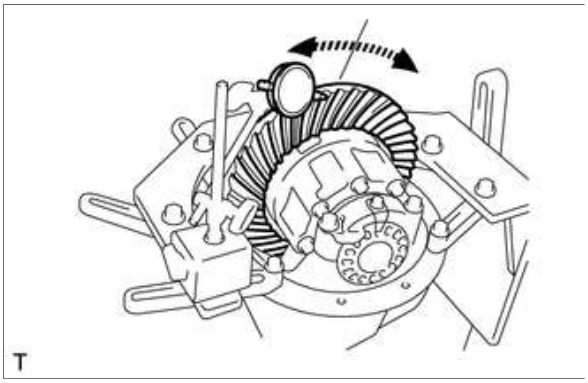
Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Standard Total Preload (At Starting):

Side Bearing Supplier	Preload
NSK	0.43 to 0.65 N*m (5 to 6 kgf*cm, 4 to 5 in.*lbf) + Standard drive pinion preload
NACHI	0.38 to 0.63 N*m (4 to 6 kgf*cm, 4 to 5 in.*lbf) + Standard drive pinion preload

26.INSPECT DIFFERENTIAL RING GEAR BACKLASH

a.



Using a dial indicator, measure the ring gear backlash.

Standard backlash:
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

HINT:
Measure at 3 or more positions around the circumference of the ring gear.

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

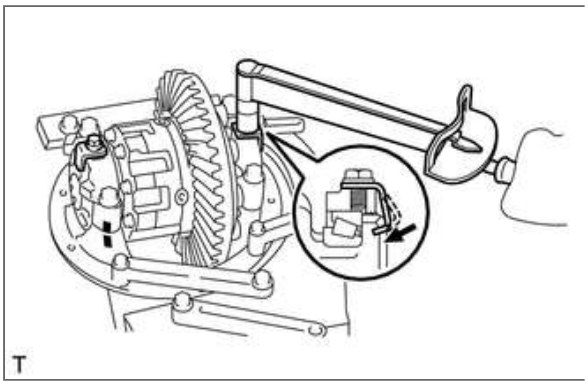
27.INSPECT RUNOUT OF REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY **41204**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER ASSEMBLY(for Standard)>DISASSEMBLY

28.STAKE REAR DRIVE PINION COMPANION FLANGE NUT **41204G**

Click hereDrivetrain>AXLE AND DIFFERENTIAL>REAR DIFFERENTIAL CARRIER OIL SEAL>REPLACEMENT

a.



Install 2 new rear differential bearing adjusting nut locks on the bearing caps.

b. Install the 2 bolts, and bend the 2 rear differential bearing adjusting nut locks.

Torque:
12.7 N*m (130 kgf*cm, 9 ft.*lbf)

c. Bend the 2 rear differential bearing adjusting nut locks.