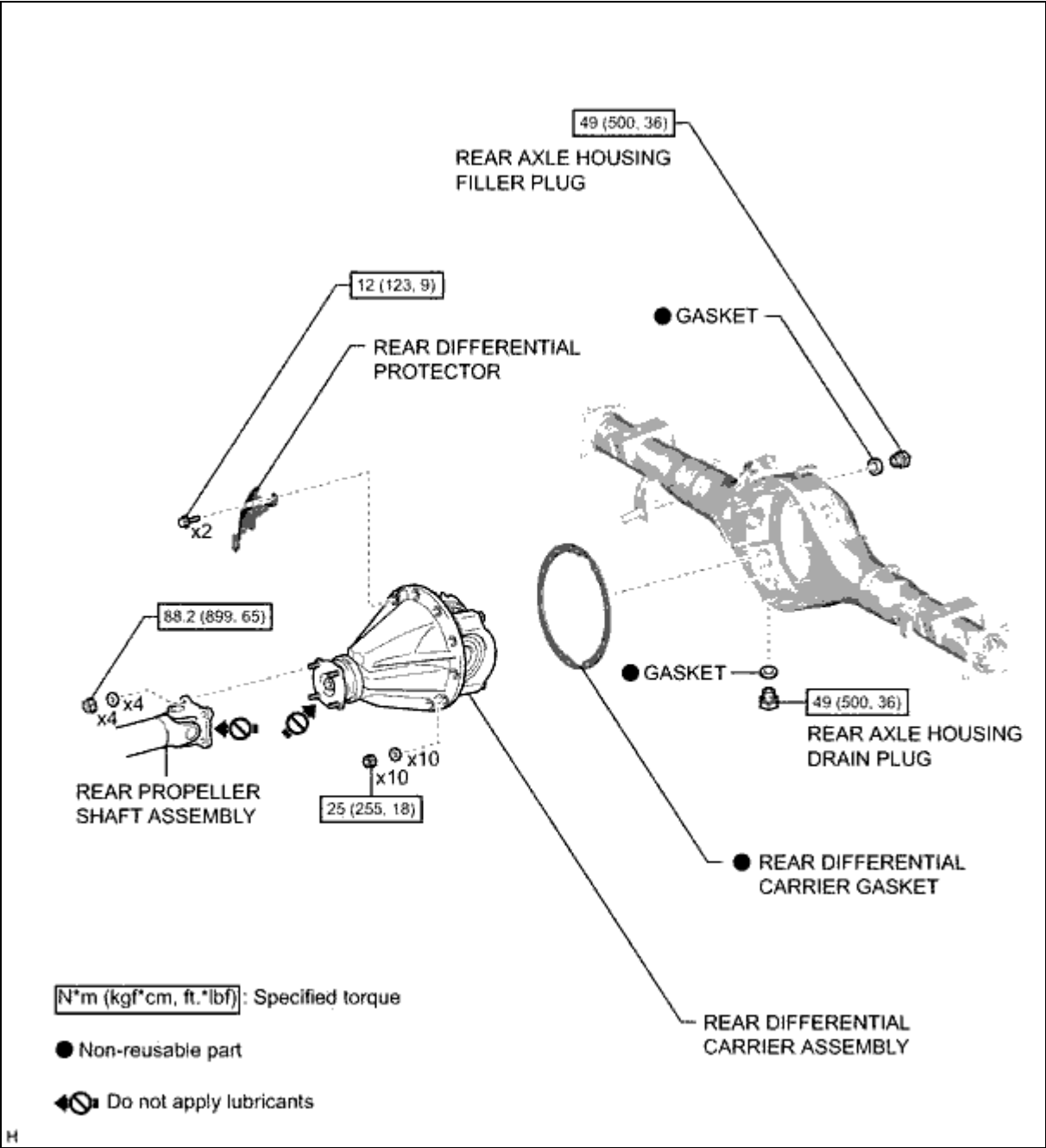


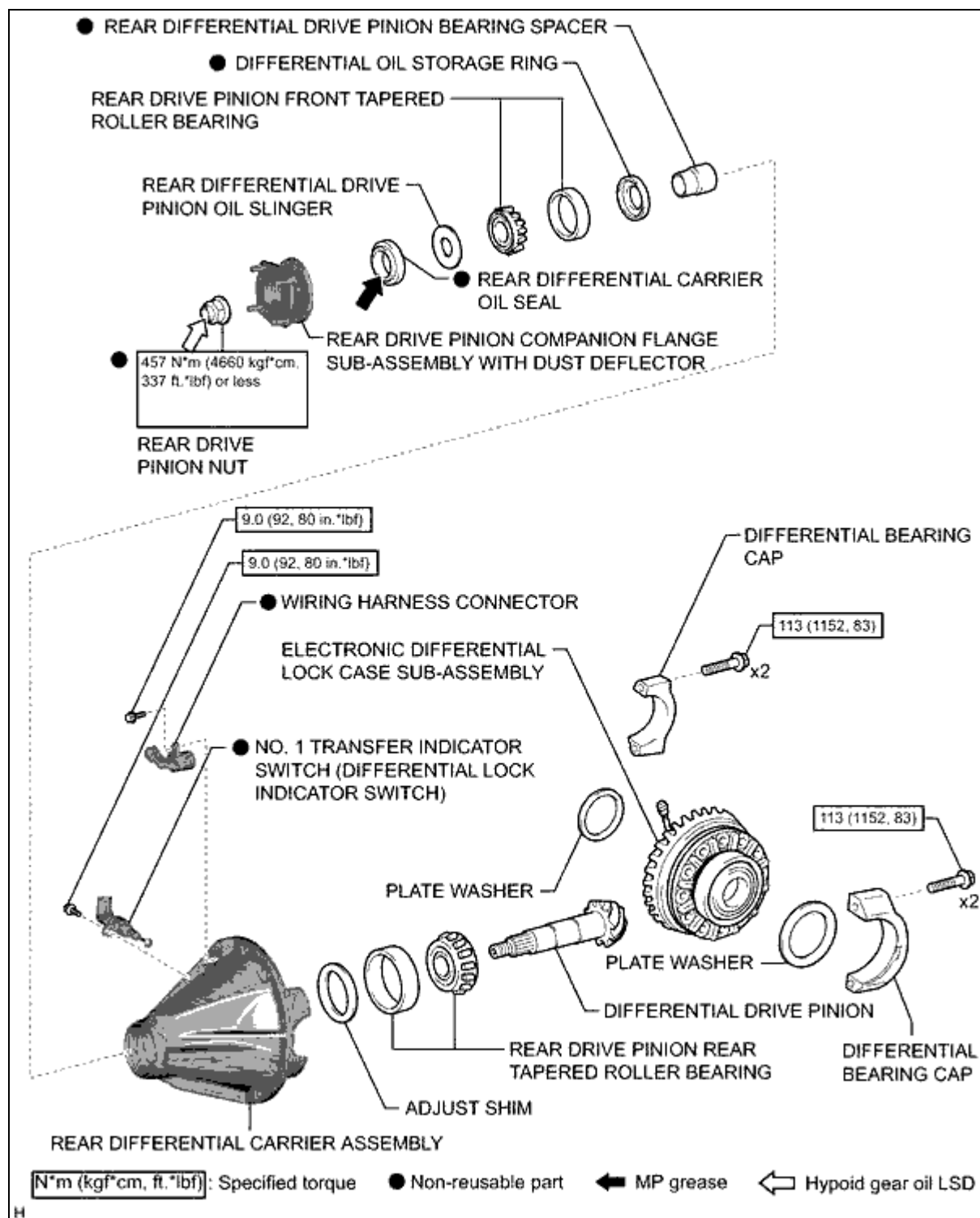
Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016GG00YX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/ Differential Lock): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

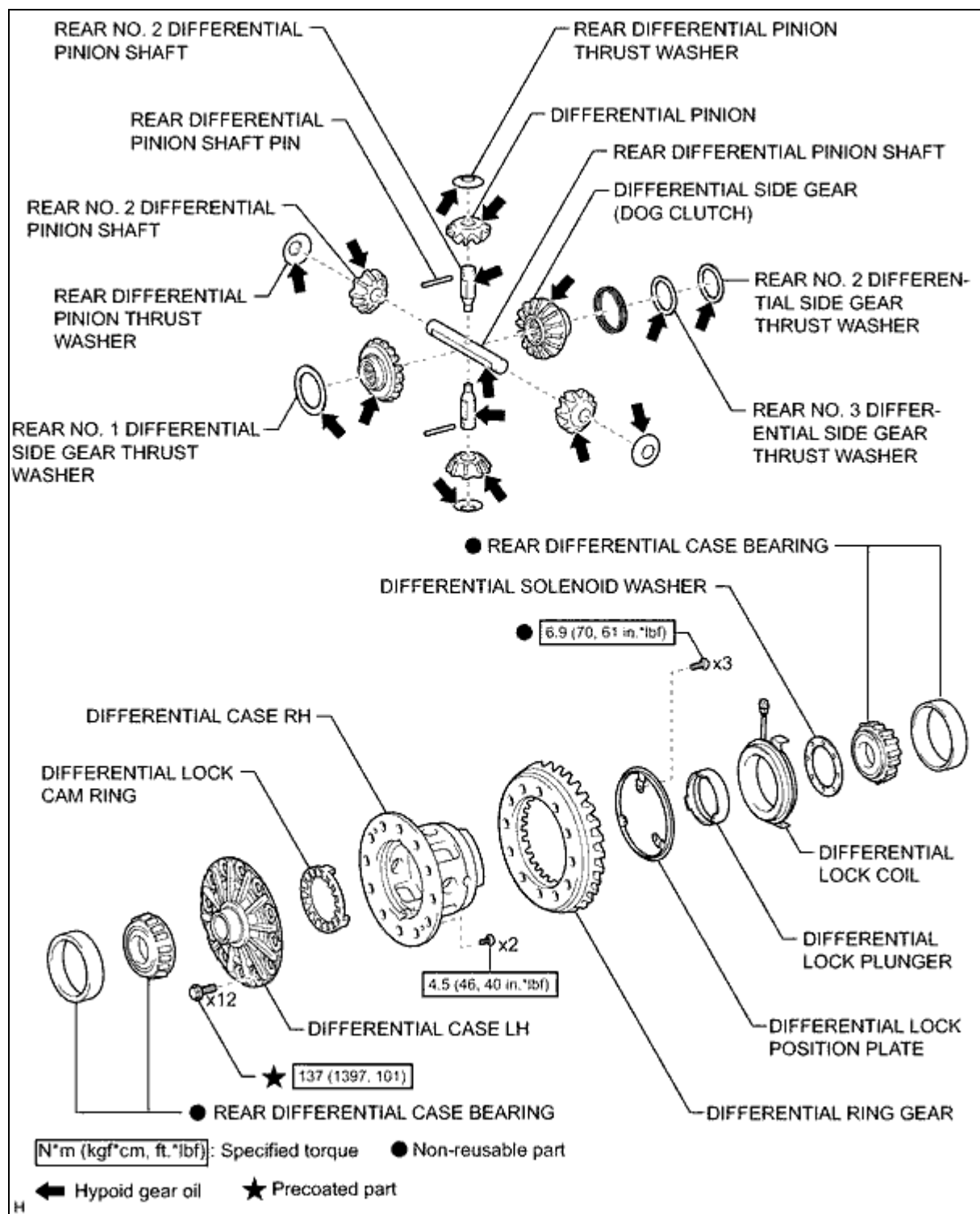
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



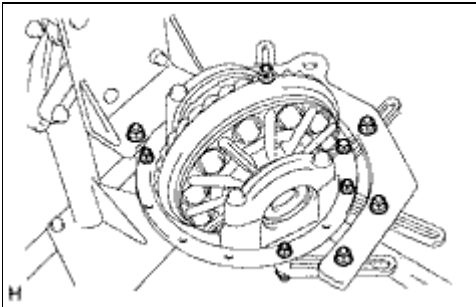
Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GH02BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/ Differential Lock): DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

HINT:
The following procedures are for BD22 (w/ Differential Lock).

1. SECURE REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Secure the rear differential carrier assembly.



2. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

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

Text in Illustration

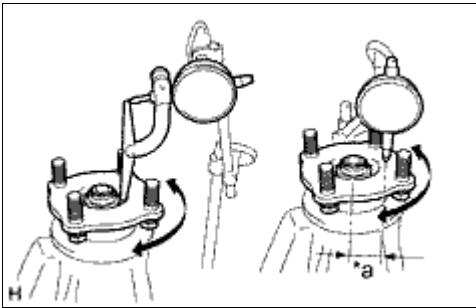
*a	30 mm (1.18 in.)
----	------------------

Maximum Runout:

RUNOUT	MAXIMUM
Vertical runout	0.10 mm (0.00394 in.)
Lateral runout	0.10 mm (0.00394 in.)

If the runout is more than the maximum, replace the companion flange.

3. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR



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

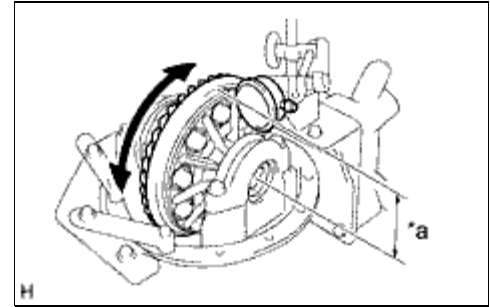
Text in Illustration

*a	98 mm (3.86 in.)
----	------------------

Maximum runout:

0.07 mm (0.00276 in.)

If the runout is more than the maximum, replace the differential ring gear with a new one.



4. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

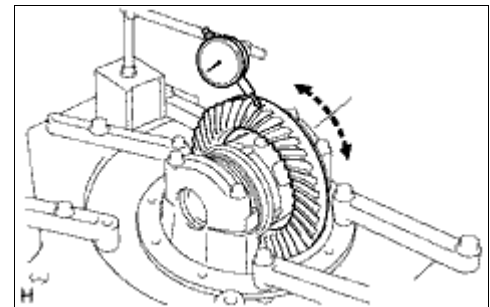
Standard backlash:

0.10 to 0.20 mm (0.00394 to 0.00787 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the ring gear.



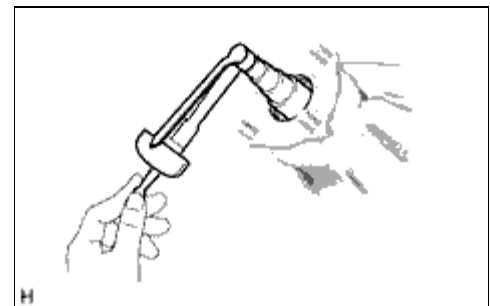
5. INSPECT TOTAL PRELOAD

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

If the result is not as specified, adjust the preload.

Standard Total Preload:

REDUCTION RATIO	SPECIFIED CONDITION
3.909	1.9 to 3.97 N*m (20 to 40 kgf*cm, 17 to 35 in.*lbf)
4.300	1.88 to 3.92 N*m (20 to 39 kgf*cm, 17 to 34 in.*lbf)



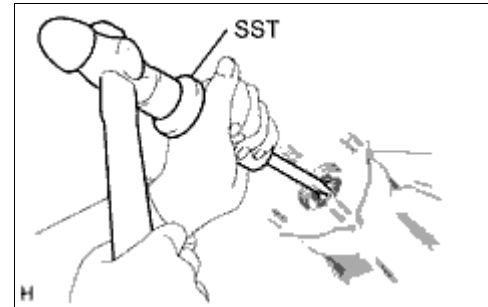
6. REMOVE REAR DRIVE PINION NUT

(a) Using a chisel and hammer, stake the rear drive pinion nut.

SST: 09930-00010

09931-00010

09931-00020



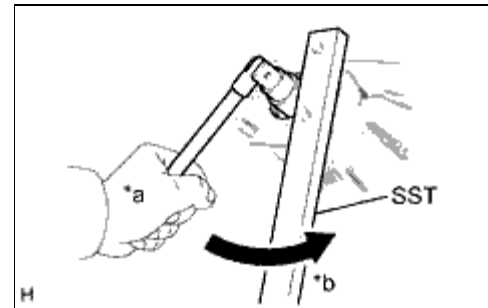
(b) Using SST to hold the companion flange in place, remove the rear drive pinion nut.

Text in Illustration

*a	Turn
*b	Hold

SST: 09330-00021

09330-00030



7. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR

(a) Using SST, remove the rear drive pinion companion flange sub-assembly with dust deflector.

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-40011

09951-04010

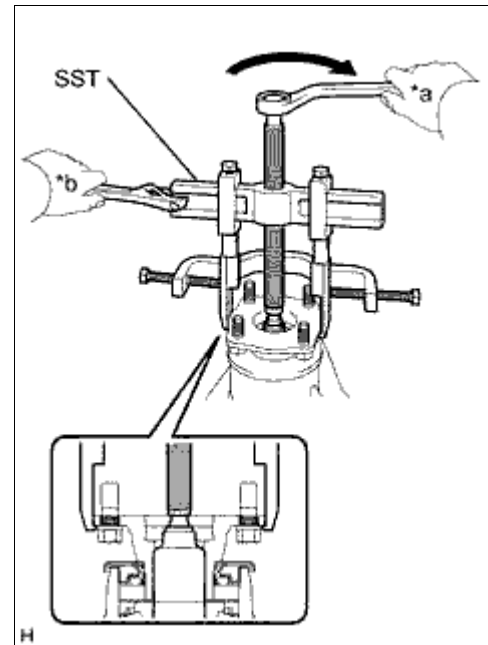
09953-04020

09954-04010

09955-04061

NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.



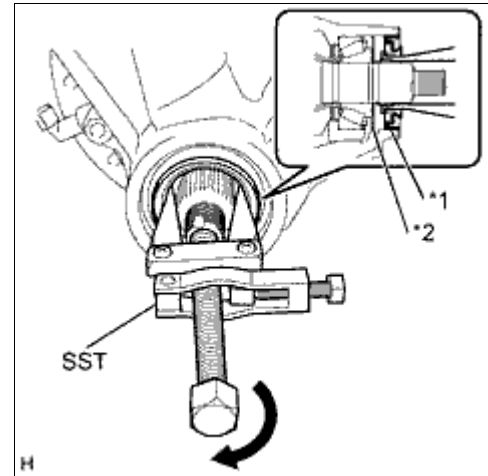
8. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

(a) Using SST, remove the rear differential carrier oil seal.

Text in Illustration

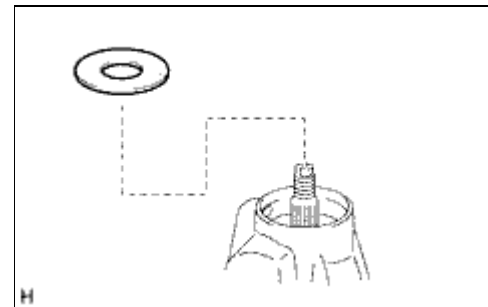
*1	Rear Differential Carrier Oil Seal
*2	Rear Differential Drive Pinion Oil Slinger

SST: 09308-10010



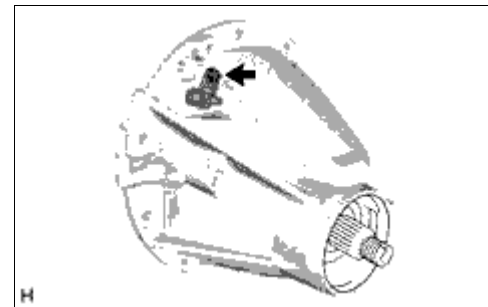
9. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

(a) Remove the rear differential drive pinion oil slinger from the differential drive pinion.

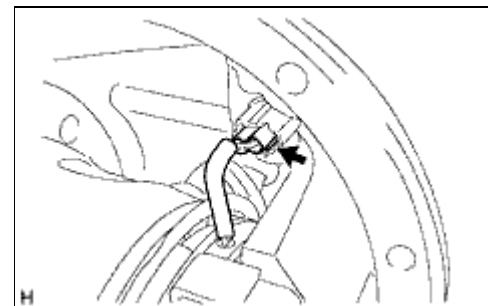


10. REMOVE WIRING HARNESS CONNECTOR

(a) Remove the bolt and wiring harness connector.



(b) Disconnect the connector.

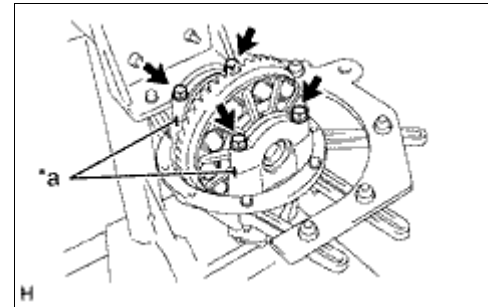


11. REMOVE DIFFERENTIAL BEARING CAP

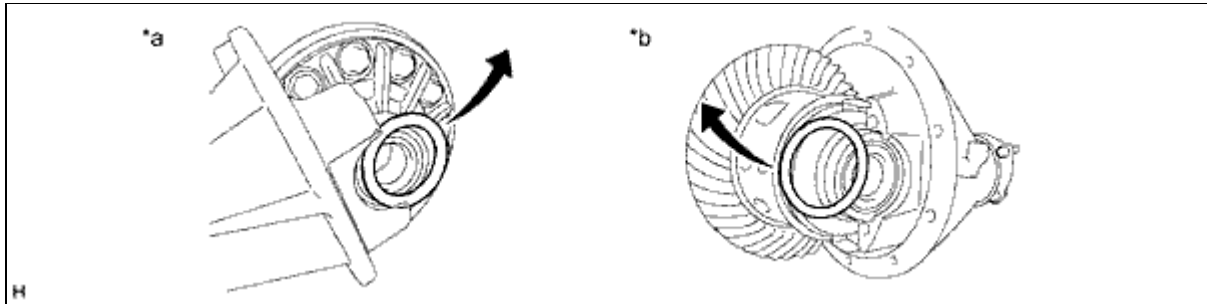
- (a) Place matchmarks on the differential bearing cap and differential carrier.

Text in Illustration

*a	Matchmark
----	-----------



- (b) Remove the 4 bolts and 2 differential bearing caps.
(c) Remove the 2 plate washers.



Text in Illustration

*a	LH Side (Ring Gear Side)	*b	RH Side (Differential Lock Coil Side)
----	--------------------------	----	---------------------------------------

HINT:

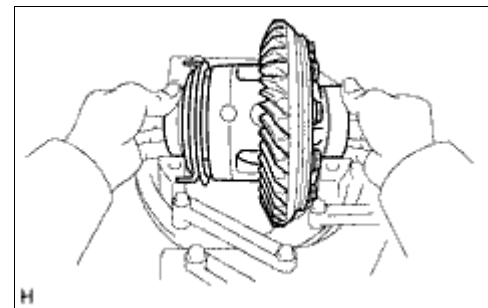
- Put identification marks on the plate washers to show the location for installation (LH side (ring gear side) or RH side (differential lock coil side)), or keep them separate so that they can be distinguished.
- Measure the thickness of each plate washers and note it.

12. REMOVE ELECTRONIC DIFFERENTIAL LOCK CASE SUB-ASSEMBLY

- (a) Remove the electronic differential lock case sub-assembly from the differential carrier.

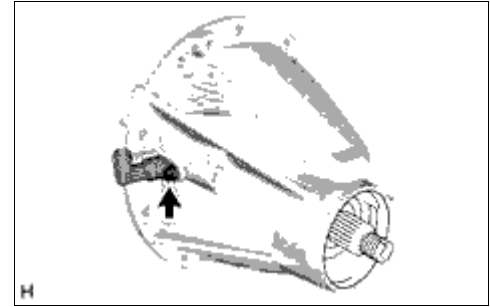
HINT:

Tag the 2 rear differential case bearings (outer) so that they can be reinstalled in the correct locations.



13. REMOVE NO. 1 TRANSFER INDICATOR SWITCH (DIFFERENTIAL LOCK INDICATOR SWITCH)

- (a) Remove the bolt and No. 1 transfer indicator switch (differential lock indicator switch).

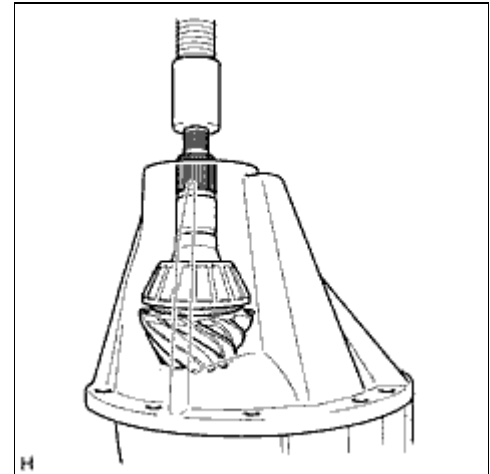


14. REMOVE DIFFERENTIAL DRIVE PINION

- (a) Using a press, remove the differential drive pinion with rear differential drive pinion bearing spacer from the differential carrier.

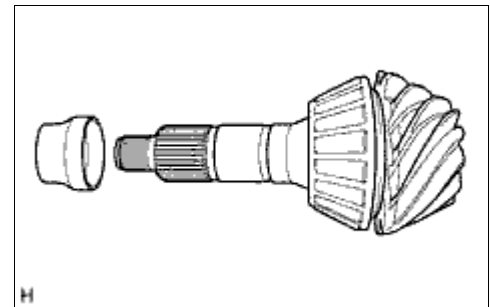
NOTICE:

Do not drop the differential drive pinion.



15. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

- (a) Remove the rear differential drive pinion bearing spacer from the differential drive pinion.



16. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press out the rear drive pinion rear tapered roller bearing (inner) from the differential drive pinion.

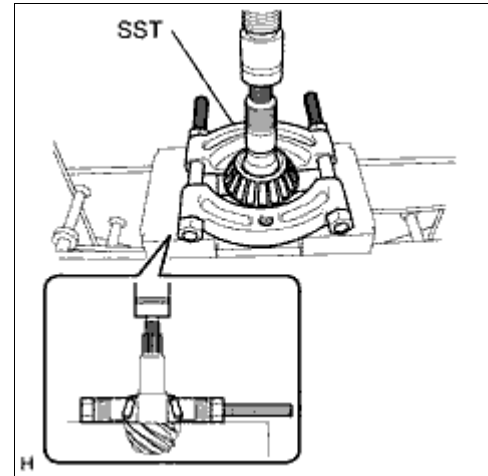
SST: 09555-55010

NOTICE:

Do not drop the differential drive pinion.

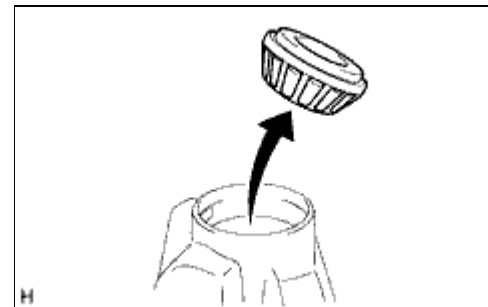
HINT:

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



17. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Remove the rear drive pinion front tapered roller bearing (inner) from the differential carrier.



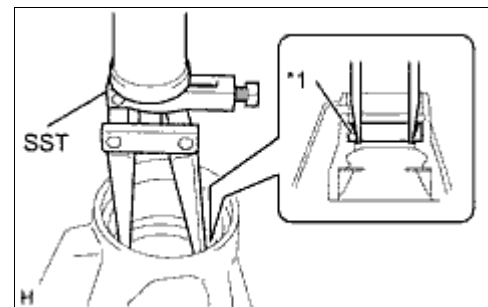
18. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the rear drive pinion front tapered roller bearing (outer) from the differential carrier.

Text in Illustration

*1	Rear Drive Pinion Front Tapered Roller Bearing (Outer)
----	--

SST: 09308-00010



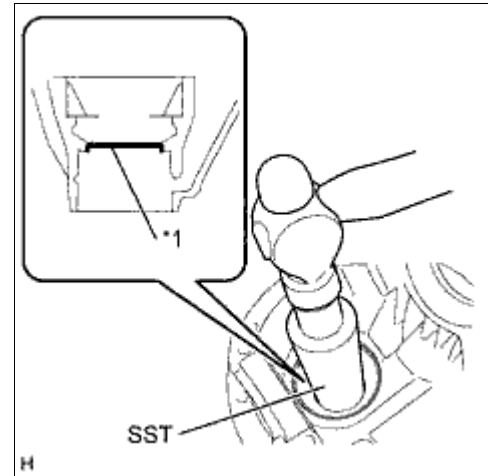
19. REMOVE DIFFERENTIAL OIL STORAGE RING

- (a) Using SST and a hammer, tap out the differential oil storage ring from the differential carrier.

Text in Illustration

*1	Differential Oil Storage Ring
----	-------------------------------

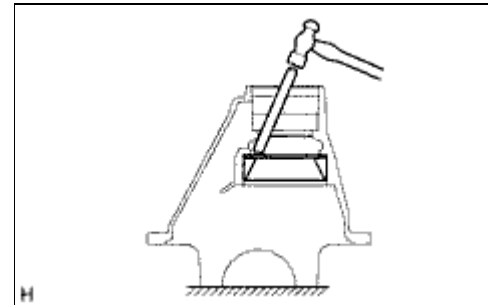
SST: 09316-60011



20. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using a brass bar and hammer, tap out the rear drive pinion rear tapered roller bearing (outer) and adjusting shim from the differential carrier.

If the bearing is damaged during removal, replace it.

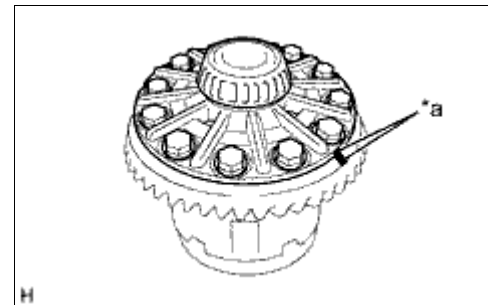


21. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the differential ring gear and differential case.

Text in Illustration

*a	Matchmark
----	-----------

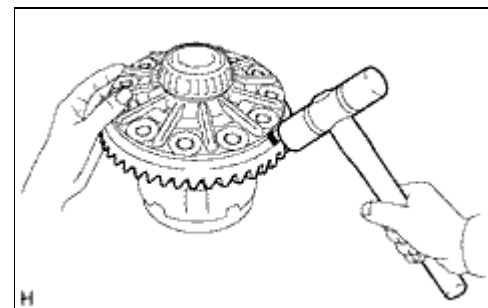


- (b) Remove the 12 differential ring gear set bolts.

- (c) Using a plastic-faced hammer, tap on the differential ring gear to remove it from the differential case.

NOTICE:

Do not damage the position plate when removing the ring gear.



22. INSPECT DIFFERENTIAL CASE ASSEMBLY RUNOUT

HINT:

If the ring gear runout is within the specified value (refer to the "Inspect Runout of Differential Ring Gear" procedure above), skip this step.

- (a) Install the rear differential case bearings (outer) to the electronic differential lock case sub-assembly.
- (b) Install the electronic differential lock case sub-assembly to the differential carrier.
- (c) Install the 2 plate washers.
- (d) Install the 2 differential bearing caps to the differential carrier with the 4 bolts.

Torque:

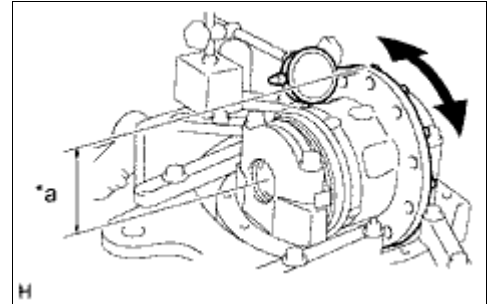
113 N·m {1152 kgf·cm, 83ft·lbf}

- (e) Using a dial indicator, measure the electronic differential case runout.

Text in Illustration

*a	92 mm (3.62 in.)
----	------------------

Maximum runout:
0.07 mm (0.00276 in.)



- (f) Remove the 4 bolts and 2 differential bearing caps.
- (g) Remove the 2 plate washers.
- (h) Remove the electronic differential lock case sub-assembly.
- (i) Remove the rear differential case bearings (outer).

23. REMOVE REAR DIFFERENTIAL CASE BEARING

- (a) for LH Side (Ring Gear Side):

Text in Illustration

*a	Turn
*b	Hold

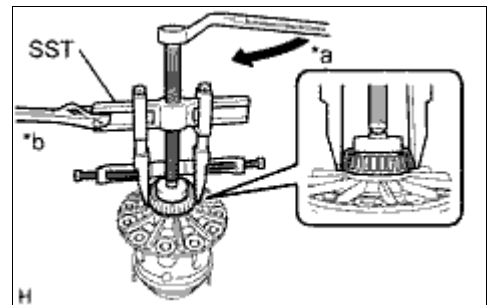
- (1) Using SST, remove the rear differential case bearing (inner) from the electronic differential lock case sub-assembly.

SST: 09950-40011

09951-04020
09952-04010
09953-04030
09954-04010
09955-04061
09957-04010
09958-04011

SST: 09950-60010

09951-00640



HINT:

Do not remove the case bearings when not replacing the

electronic differential lock case sub-assembly.

(b) for RH Side (Differential Lock Coil Side):

- (1) Using SST, remove the rear differential case bearing (inner) from the electronic differential lock case sub-assembly.

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-40011

09951-04020

09952-04010

09953-04030

09954-04010

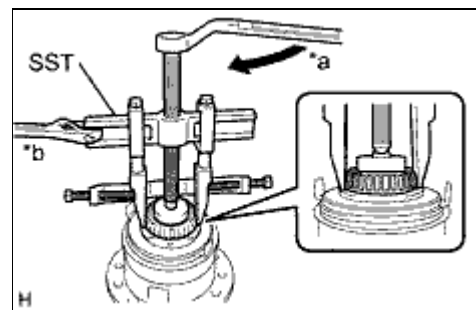
09955-04061

09957-04010

09958-04011

SST: 09950-60010

09951-00640



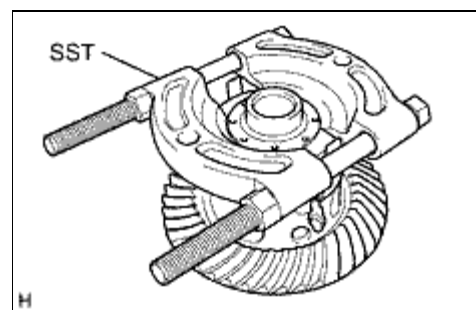
HINT:

Do not remove the case bearings when not replacing the electronic differential lock case sub-assembly.

24. REMOVE DIFFERENTIAL SOLENOID WASHER

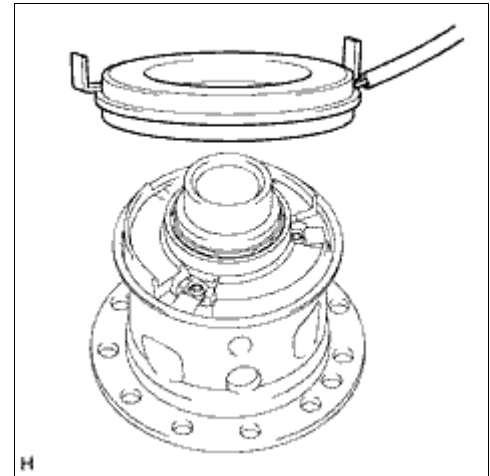
- (a) Tighten the 2 SST nuts evenly and remove the differential solenoid washer from the electronic differential lock case sub-assembly.

SST: 09555-55010



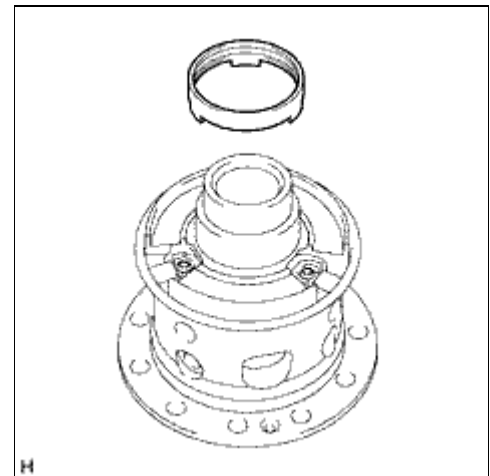
25. REMOVE DIFFERENTIAL LOCK COIL

- (a) Remove the differential lock coil from the electronic differential lock case sub-assembly.



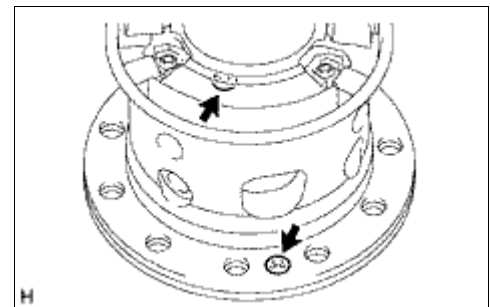
26. REMOVE DIFFERENTIAL LOCK PLUNGER

- (a) Remove the differential lock plunger from the rear differential case sub-assembly.



27. DISASSEMBLE REAR DIFFERENTIAL CASE SUB-ASSEMBLY

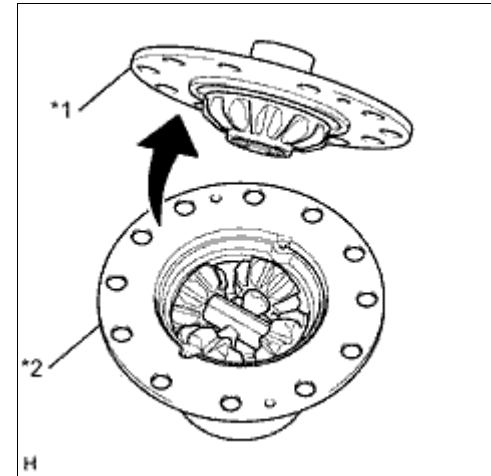
- (a) Remove the 2 screws.



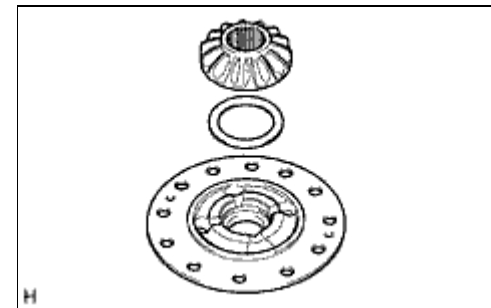
(b) Remove the differential case LH from the differential case RH.

Text in Illustration

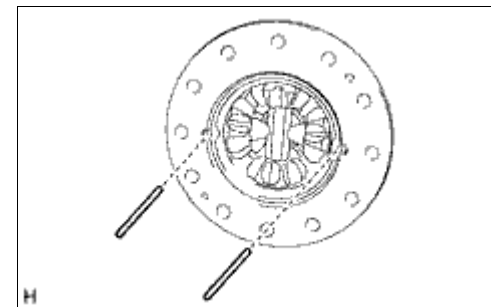
*1	Differential Case LH
*2	Differential Case RH



(c) Remove the differential side gear and rear No. 1 differential side gear thrust washer from the differential case LH.



(d) Remove the 2 rear differential pinion shaft pins.

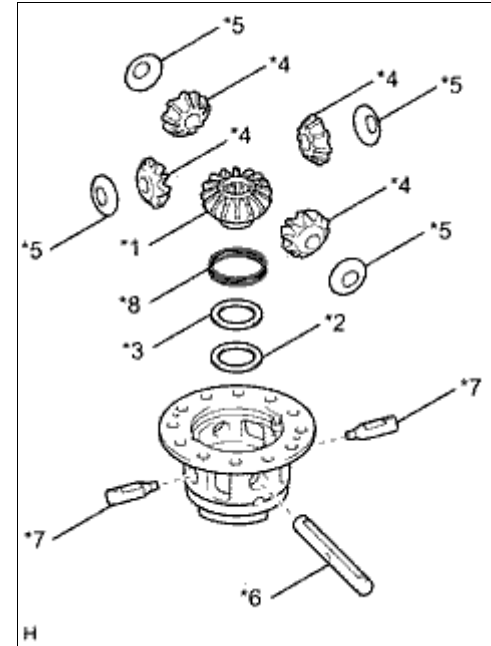


(e) Remove the following parts from the differential case RH.

Text in Illustration

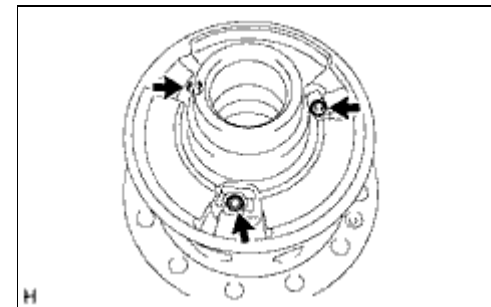
*1	Differential Side Gear (Dog Clutch)
*2	Rear No. 2 Differential Side Gear Thrust Washer
*3	Rear No. 3 Differential Side Gear Thrust Washer
*4	Differential Pinion
*5	Rear Differential Pinion Thrust Washer
*6	Rear Differential Pinion Shaft
*7	Rear No. 2 Differential Pinion Shaft
*8	Differential Lock Spring

- (1) Differential side gear (Dog clutch)
- (2) Rear No. 2 differential side gear thrust washer
- (3) Rear No. 3 differential side gear thrust washer
- (4) Differential pinion (4 pieces)
- (5) Rear differential pinion thrust washer (4 pieces)
- (6) Rear differential pinion shaft
- (7) Rear No. 2 differential pinion shaft (2 pieces)
- (8) Differential lock spring



28. REMOVE DIFFERENTIAL LOCK POSITION PLATE

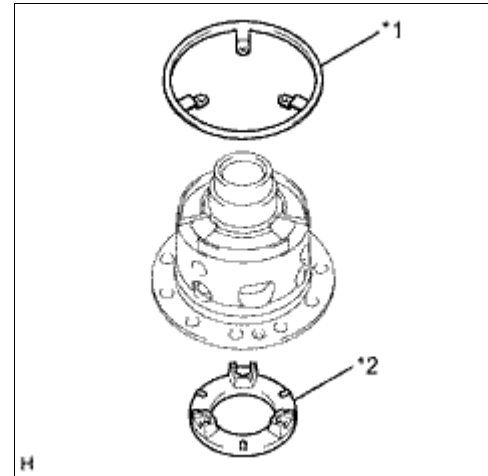
(a) Using a T25 "TORX" socket wrench, remove the 3 screws from the differential lock position plate.



- (b) Remove the differential lock position plate from the differential case RH.

Text in Illustration

*1	Differential Lock Position Plate
*2	Differential Lock Cam Ring



29. REMOVE DIFFERENTIAL LOCK CAM RING

- (a) Remove the differential lock cam ring from the differential case RH.

30. INSPECT DIFFERENTIAL GEAR KIT

- (a) Check that the differential pinion and differential side gear are not damaged.

If the differential pinion or differential side gear is damaged, replace the differential gear kit.

31. INSPECT DIFFERENTIAL CASE

- (a) Check that the differential case is not damaged.

If the differential case is damaged, replace it.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM00000174J01BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/ Differential Lock): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

HINT:

The following procedures are for BD22 (w/ Differential Lock).

1. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Clean the contact surfaces of the rear differential carrier assembly and axle housing.
- (b) Install the rear differential carrier assembly and a new rear differential carrier gasket with the 10 nuts and 10 washers.

Torque:

45 N·m {459 kgf·cm, 33ft·lbf}

CAUTION:

The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Do not damage the installation surface when installing the rear differential carrier assembly.
- The remaining oil may leak out when installing the rear differential carrier assembly.
- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- Install the bolts with the rear differential carrier assembly secured.

- (c) Connect the 2 connectors.

2. INSTALL REAR DIFFERENTIAL PROTECTOR

- (a) Install the differential protector with the 2 bolts.

Torque:

12.0 N·m {122 kgf·cm, 9ft·lbf}

3. INSTALL REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

4. INSTALL REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

5. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

6. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

7. ADD DIFFERENTIAL OIL

INFO

8. BLEED BRAKE SYSTEM (for Hydraulic Brake Booster)

INFO

9. BLEED BRAKE SYSTEM (for Vacuum Brake Booster)

INFO

10. ADJUST PARKING BRAKE

INFO

11. INSTALL REAR WHEELS

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

12. CHECK ABS SPEED SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

13. CHECK ABS SPEED SENSOR SIGNAL (for Vacuum Brake Booster)

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GI02CX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/ Differential Lock): REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

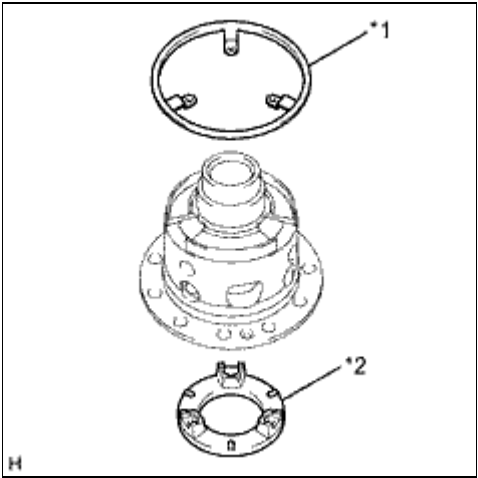
HINT:
The following procedures are for BD22 (w/ Differential Lock).

1. INSTALL DIFFERENTIAL LOCK CAM RING

- (a) Install the differential lock cam ring and differential lock position plate to the differential case RH.

Text in Illustration

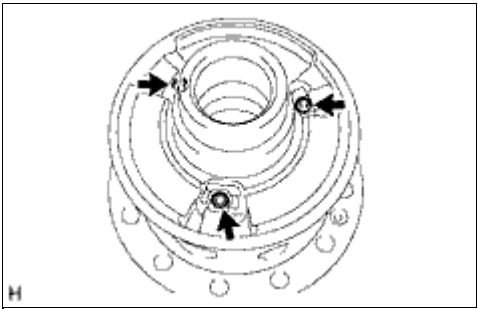
*1	Differential Lock Position Plate
*2	Differential Lock Cam Ring



2. INSTALL DIFFERENTIAL LOCK POSITION PLATE

- (a) Using a T25 "TORX" socket wrench, install the 3 new screws.

Torque:
6.9 N·m {70 kgf·cm, 61in·lbf}

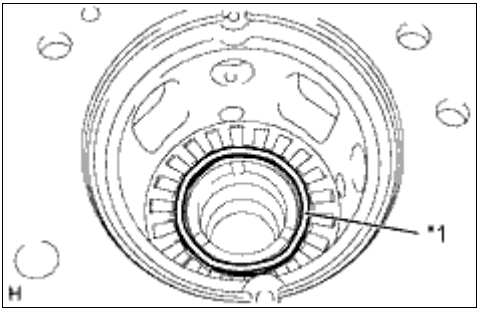


3. ASSEMBLE REAR DIFFERENTIAL CASE SUB-ASSEMBLY

- (a) Install the differential lock spring to the differential case RH.

Text in Illustration

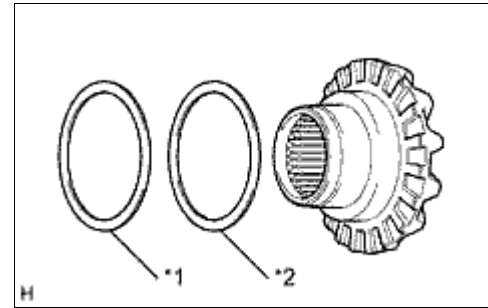
*1	Differential Lock Spring
----	--------------------------



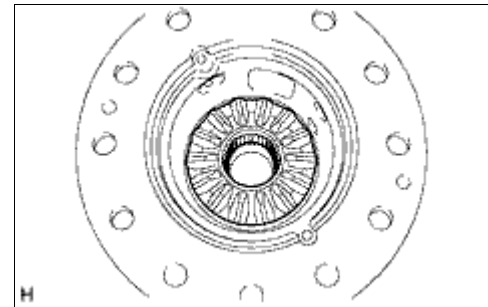
- (b) Install the rear No. 2 differential side gear thrust washer and rear No. 3 differential side gear thrust washer to the differential side gear (dog clutch).

Text in Illustration

*1	Rear No. 2 Differential Side Gear Thrust Washer
*2	Rear No. 3 Differential Side Gear Thrust Washer



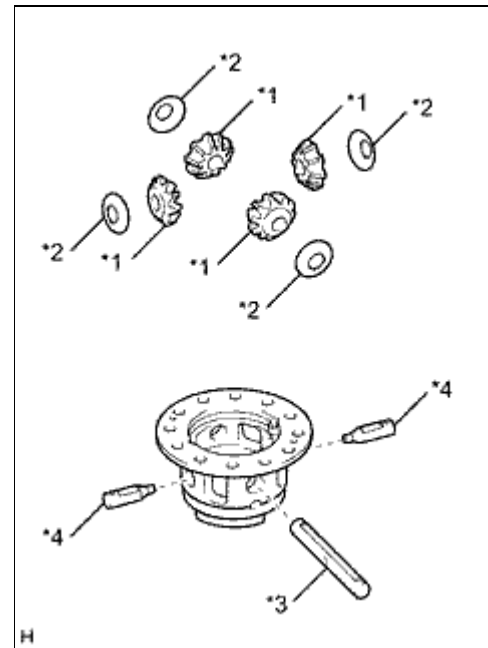
- (c) Install the differential side gear (dog clutch) to the differential case RH.



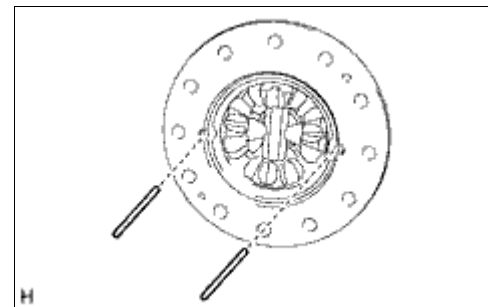
- (d) Install the 4 differential pinions, 4 rear differential pinion thrust washers, rear differential pinion shaft and the 2 rear No. 2 differential pinion shafts in the differential case RH.

Text in Illustration

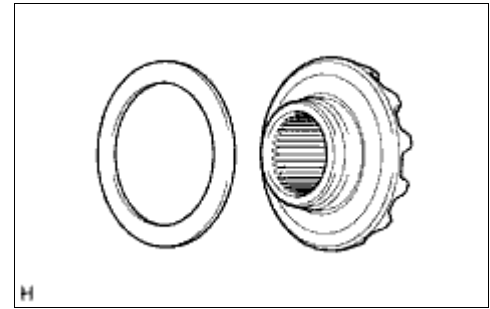
*1	Differential Pinion
*2	Rear Differential Pinion Thrust Washer
*3	Rear Differential Pinion Shaft
*4	Rear No. 2 Differential Pinion Shaft



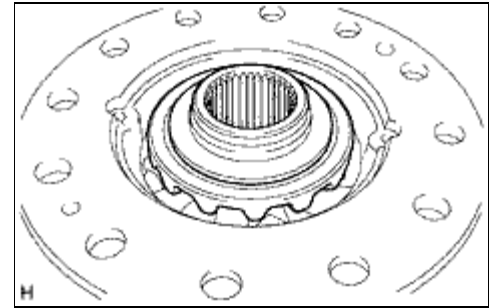
- (e) Install the 2 rear differential pinion shaft pins.



(f) Install the rear No. 1 differential side gear thrust washer to the differential side gear.



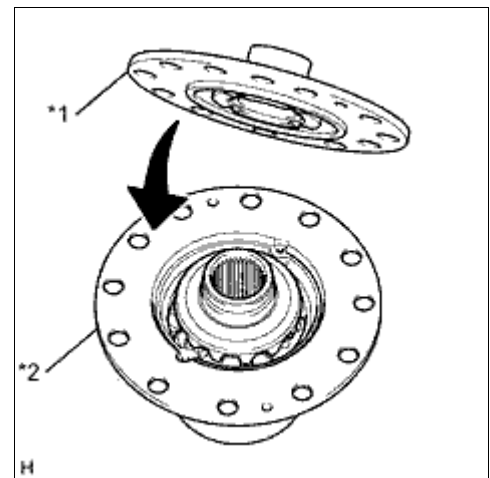
(g) Install the differential side gear.



(h) Install the differential case LH to the differential case RH.

Text in Illustration

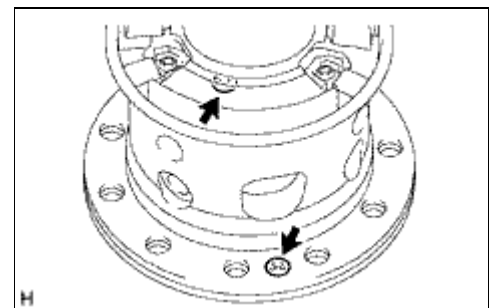
*1	Differential Case LH
*2	Differential Case RH



(i) Install the 2 screws.

Torque:

4.5 N·m {46 kgf·cm, 40in·lbf}



(j) Measure the side gear backlash.

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

Standard backlash:

0.05 to 0.20 mm (0.00197 to 0.00787 in.)

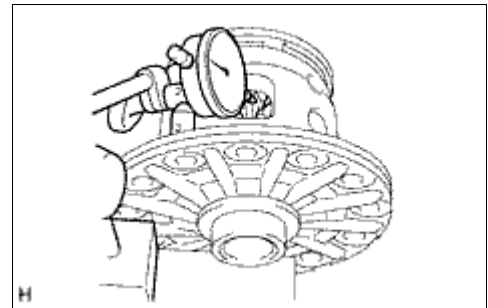
If the backlash is not as specified, install 2 side gear thrust washers with different thicknesses.

HINT:

Using the table below, select 3 thrust washers which will ensure that the backlash is within the specifications.

Standard Washer Thickness:

ITEM	THRUST WASHER	THICKNESS MM (IN.)
Differential side gear	No. 1 differential side gear thrust washer	1.05 to 1.15 (0.0414 to 0.0452)
		1.15 to 1.25 (0.0453 to 0.0492)
		1.25 to 1.35 (0.0493 to 0.0531)
		1.35 to 1.45 (0.0532 to 0.0570)
Differential side gear (dog clutch)	No. 2 differential side gear thrust washer	1.05 to 1.15 (0.0414 to 0.0452)
		1.15 to 1.25 (0.0453 to 0.0492)
		1.25 to 1.35 (0.0493 to 0.0531)
		1.35 to 1.45 (0.0532 to 0.0570)
	No. 3 differential side gear thrust washer	1.35 to 1.45 (0.0532 to 0.0570)



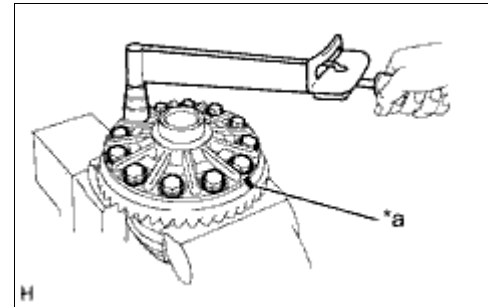
4. INSTALL DIFFERENTIAL RING GEAR

- (a) Clean the contact surfaces of the rear differential case sub-assembly and differential ring gear.
- (b) Heat the differential ring gear in boiling water that is approximately 100°C (212°F).
- (c) Carefully remove the differential ring gear from the boiling water.

- (d) After the moisture on the differential ring gear has completely evaporated, quickly align the matchmarks on the differential ring gear and electronic differential lock case and install the differential ring gear to the electronic differential lock case.

Text in Illustration

*a	Matchmark
----	-----------



- (e) After the ring gear cools down sufficiently, apply adhesive to the 12 bolts and Temporarily install them.

Adhesive:

Toyota Genuine Adhesive 1360K, Three Bond 1360K or equivalent

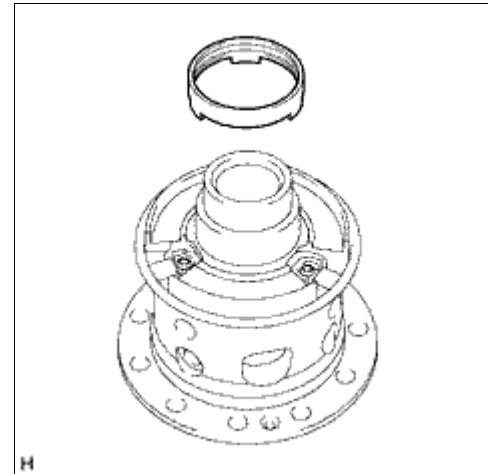
- (f) Diametrically tighten the 12 bolts uniformly in several passes.

Torque:

137 N·m {1397 kgf·cm, 101ft·lbf}

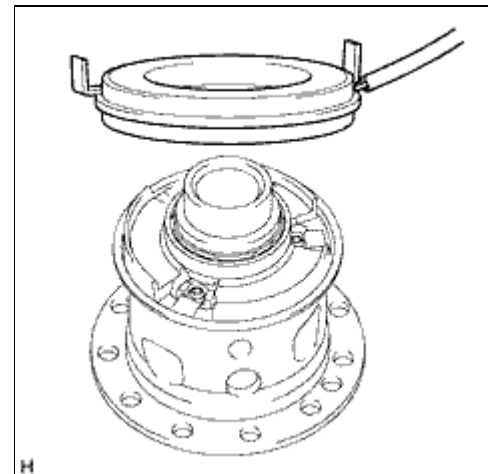
5. INSTALL DIFFERENTIAL LOCK PLUNGER

- (a) Install the differential lock plunger to the rear differential case sub-assembly.



6. INSTALL DIFFERENTIAL LOCK COIL

- (a) Install the differential lock coil to the electronic differential lock case sub-assembly.



7. INSTALL DIFFERENTIAL SOLENOID WASHER

- (a) Using SST and a press, press the differential solenoid washer to the electronic differential lock case sub-assembly.

Text in Illustration

*1	Differential Solenoid Washer
*a	0 to 0.15 mm

SST: 09316-20011

SST: 09950-60010

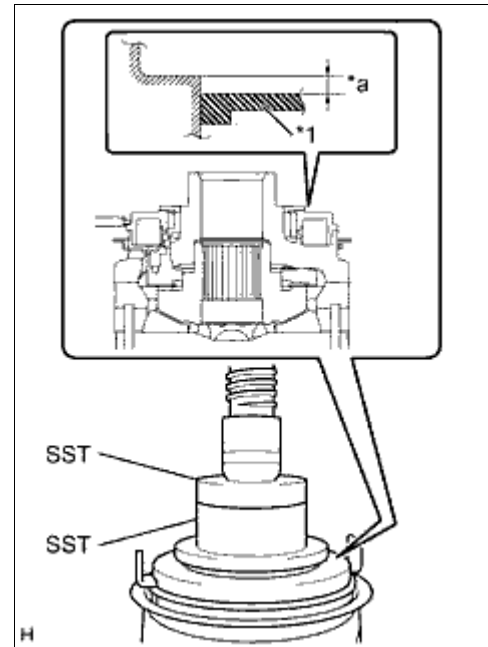
09951-00640

Differential solenoid washer depth:

0 to 0.15 mm (0 to 0.00590 in.)

NOTICE:

Make sure that the end face of the differential solenoid washer does not protrude from the end face of the electronic differential lock case sub-assembly.



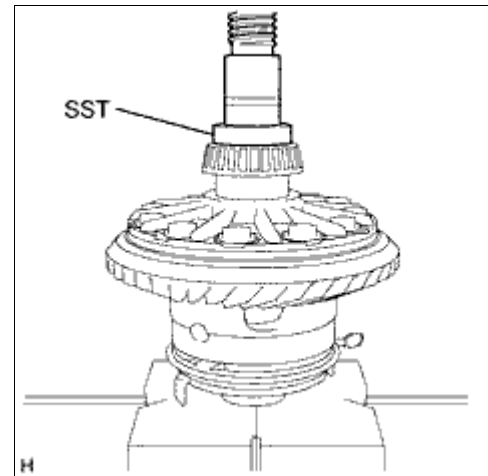
8. INSTALL REAR DIFFERENTIAL CASE BEARING

- (a) for LH Side (Ring Gear Side):

- (1) Using SST and a press, press a new rear differential case bearing (inner) to the electronic differential lock case sub-assembly.

SST: 09950-60010

09951-00600



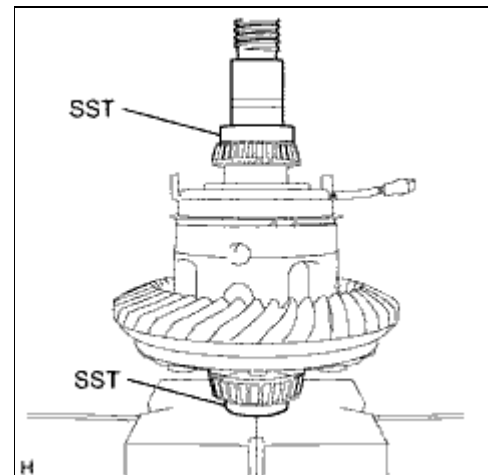
- (b) for RH Side (Differential Lock Coil Side):

- (1) Using SST and a press, press a new rear differential case bearing (inner) to the electronic differential lock case sub-assembly.

SST: 09950-60010

09951-00480

09951-00570



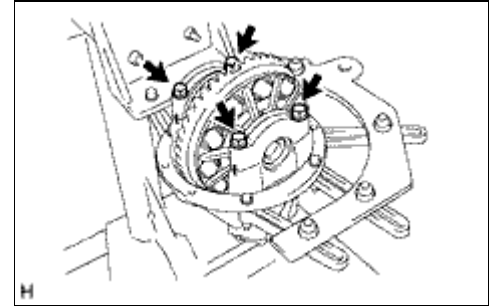
9. INSPECT DIFFERENTIAL RING GEAR RUNOUT

- (a) Install the differential case on the carrier, and install the 2 plate washers so that there is no play in the bearing.

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

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

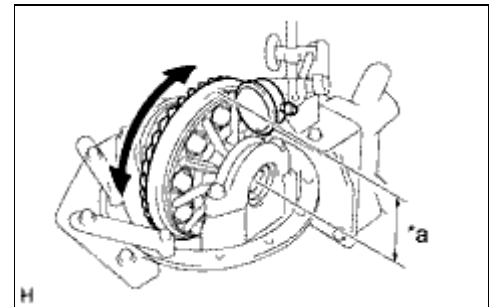


- (c) Using a dial indicator, measure the runout of the differential ring gear.

Text in Illustration

*a	98 mm (3.86 in.)
----	------------------

Maximum runout:
0.07 mm (0.00276 in.)



- (d) Remove the 2 differential bearing caps, 2 plate washers and electronic differential lock case sub-assembly.

10. INSTALL DIFFERENTIAL OIL STORAGE RING

- (a) Using SST and a hammer, tap in the differential oil storage ring.

Text in Illustration

*1	Differential Oil Storage Ring
----	-------------------------------

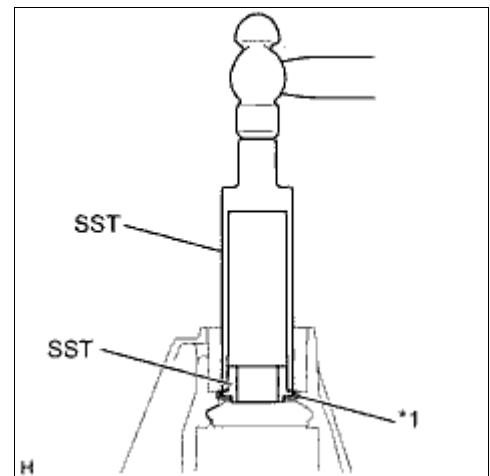
SST: 09316-60011

09316-00011

09316-00071

NOTICE:

Be careful not to damage the differential oil storage ring.



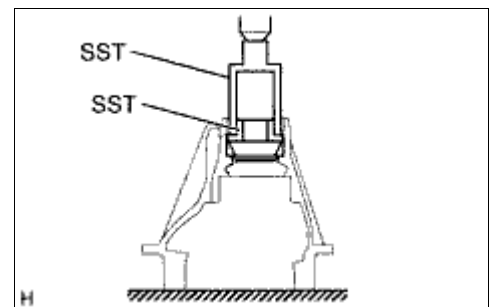
11. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST and a press, press the rear drive pinion front tapered roller bearing (outer) into the differential carrier.

SST: 09316-60011

09316-00011

09316-00031



12. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the adjust shim and rear drive pinion rear tapered roller bearing (outer) into the differential carrier.

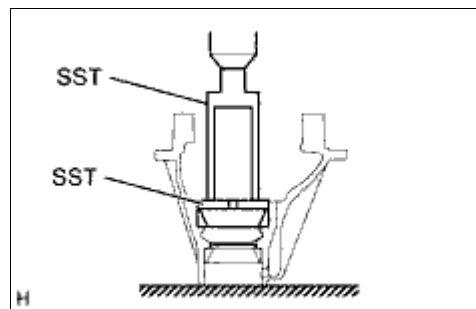
SST: 09316-60011

09316-00011

SST: 09951-01000

HINT:

First, install an adjust shim that has the same thickness as the removed adjust shim. After checking the tooth contact pattern, replace the adjust shim with one of a different thickness if necessary.



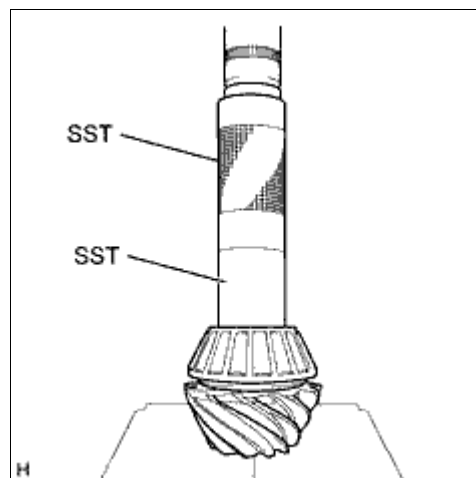
13. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the rear drive pinion rear tapered roller bearing (inner) onto the differential drive pinion.

SST: 09309-37010

SST: 09630-24014

09620-24051



14. ADJUST DIFFERENTIAL DRIVE PINION PRELOAD

- (a) Install the differential drive pinion, rear drive pinion tapered roller bearing (inner).

SST: 09316-60011

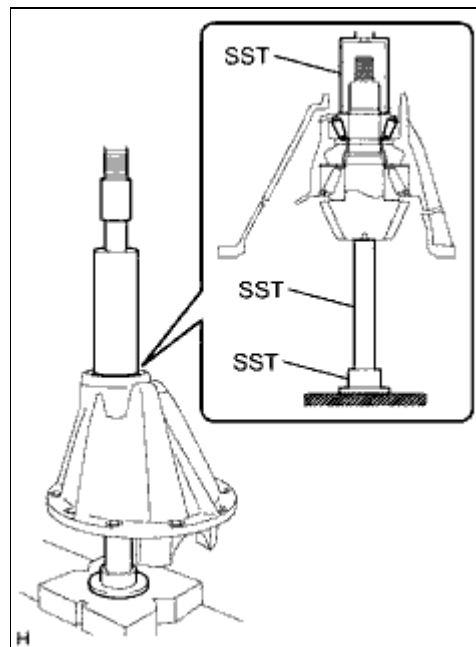
09316-00011

09316-00041

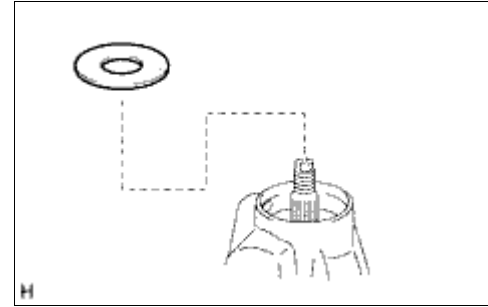
SST: 09608-04031

HINT:

Install the spacer and oil seal after adjusting the gear contact pattern.



(b) Install the rear differential drive pinion oil slinger.



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

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-30012

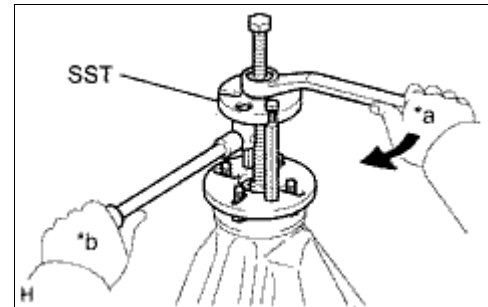
09951-03010

09953-03010

09954-03010

09955-03030

09956-03040



NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.

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

(e) Using SST to hold the rear drive pinion companion flange sub-assembly with dust deflector in place, slowly tighten the rear drive pinion nut within the drive pinion preload adjustment range so that it reaches the specified drive pinion preload (at Starting).

SST: 09330-00021

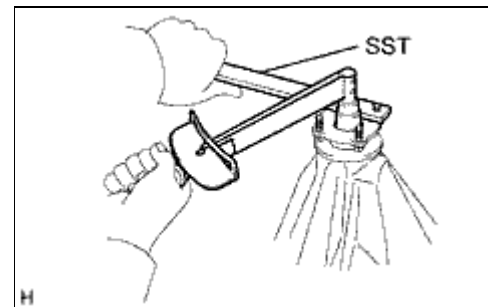
09330-00030

Limit torque value:

457 N*m (4660 kgf*cm, 337 ft.*lbf) or less

NOTICE:

- As there is no spacer, tighten a little at a time. Be careful not to overtighten the nut.
- Apply hypoid gear oil LSD to the drive pinion thread and nut seat face.



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

Standard Drive Pinion Preload (Starting Torque):

BEARING	PRELOAD
---------	---------

BEARING	PRELOAD
New bearing	1.51 to 3.48 N*m (16 to 35 kgf*cm, 14 to 30 in.*lbf)
Reused bearing	1.53 to 3.34 N*m (16 to 34 kgf*cm, 14 to 29 in.*lbf)

NOTICE:

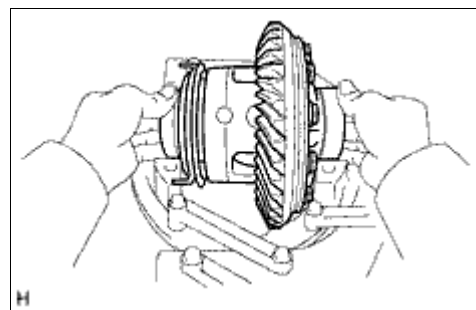
- For a more accurate measurement, rotate the bearing forward and backward several times before measuring.
- Record the differential drive pinion preload for the total preload measurement.

15. INSTALL ELECTRONIC DIFFERENTIAL LOCK CASE SUB-ASSEMBLY

- (a) Place the 2 rear differential case bearings (outer) to their respective bearings.

HINT:

Make sure the right and left races are not interchanged.

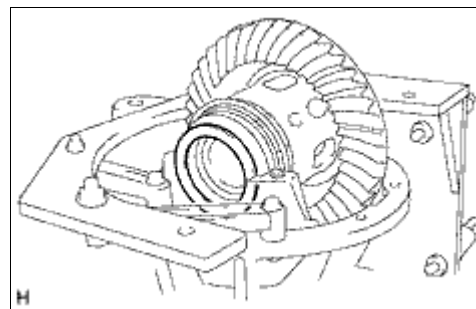


16. ADJUST DIFFERENTIAL RING GEAR BACKLASH

- (a) Install the plate washer to the RH side (differential lock coil side).

NOTICE:

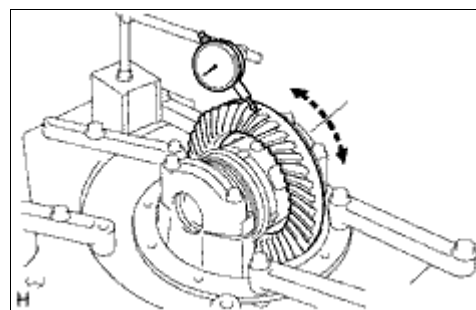
Make sure that the differential ring gear has backlash.



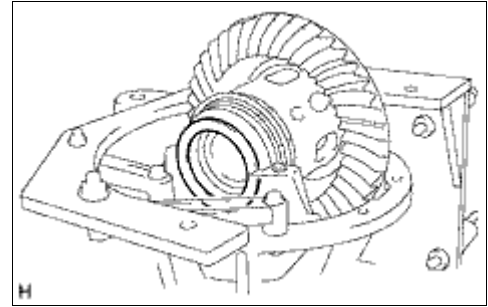
- (b) Using a dial indicator, while holding the rear drive pinion companion flange sub-assembly with dust deflector, measure the ring gear backlash.

Standard backlash (reference):

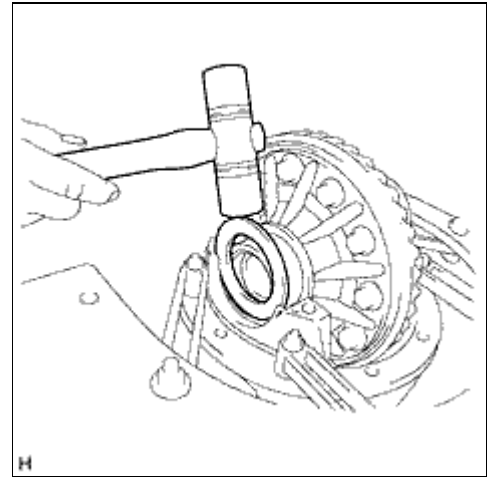
0.10 to 0.20 mm (0.00394 to 0.00787 in.)



- (c) Refer to the backlash when selecting a plate washer for the RH side (differential lock coil side).



- (d) Select a plate washer for the LH side (ring gear side) so that there is no gap between the rear differential case bearing (outer) and differential case.



- (e) Using a plastic-faced hammer, install the plate washer to the LH side (ring gear side).

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

Standard backlash:

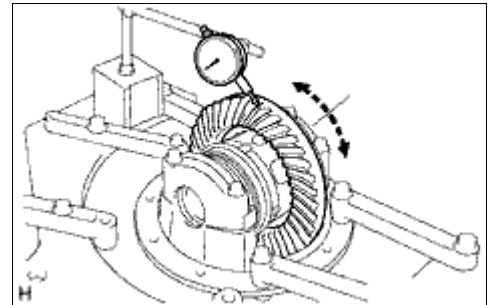
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

HINT:

If the backlash is not within the specification, adjust it by either increasing or decreasing the thickness of the plate washers on both sides by an equal amount.

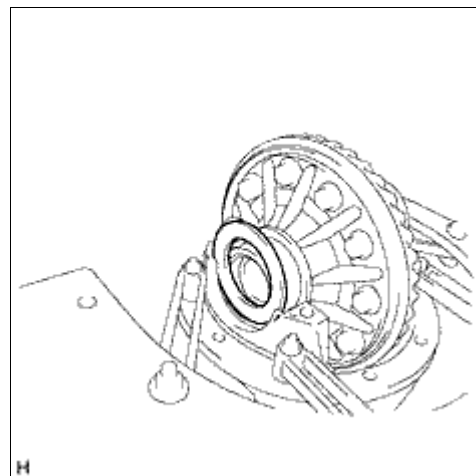
NOTICE:

- There should be no clearance between the plate washer and case.
- Make sure that there is ring gear backlash.

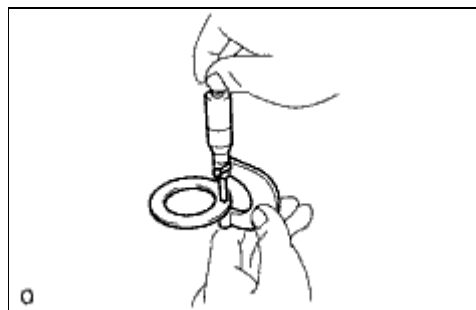


17. ADJUST SIDE BEARING PRELOAD

- (a) After adjusting the backlash of the differential ring gear, remove the plate washer from the LH side (ring gear side).



- (b) Using a micrometer, measure the thickness of the plate washer.



- (c) Using the backlash as a reference, select a new plate washer that is 0.05 to 0.20 mm (0.00197 to 0.00787 in.) thicker than the removed plate washer and, using a plastic-faced hammer, tap it in so that it fits against the bearing.

HINT:

Select a plate washer which can be pressed in 2/3 of the full amount with your finger.

- (d) Recheck the ring gear backlash.

Standard backlash:

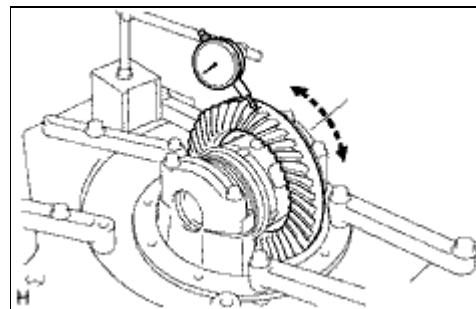
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

If the backlash is not within the specification, adjust it by either increasing or decreasing the thickness of the washers on both sides by an equal amount.

HINT:

An approximately 0.02 mm (0.000787 in.) change in each plate washer results in a 0.03 mm (0.00118 in.) change in the backlash.

Standard Washer LH (Ring Gear Side):



PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59044	2.07 to 2.09 (0.0815 to 0.0822)	90564-59060	2.39 to 2.41 (0.0941 to 0.0948)

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59045	2.09 to 2.11 (0.0823 to 0.0830)	90564-59061	2.41 to 2.43 (0.0949 to 0.0956)
90564-59046	2.11 to 2.13 (0.0831 to 0.0838)	90564-59062	2.43 to 2.45 (0.0957 to 0.0964)
90564-59047	2.13 to 2.15 (0.0839 to 0.0846)	90564-59063	2.45 to 2.47 (0.0965 to 0.0972)
90564-59048	2.15 to 2.17 (0.0847 to 0.0854)	90564-59064	2.47 to 2.49 (0.0973 to 0.0980)
90564-59049	2.17 to 2.19 (0.0855 to 0.0862)	90564-59065	2.49 to 2.51 (0.0981 to 0.0988)
90564-59050	2.19 to 2.21 (0.0863 to 0.0870)	90564-59066	2.51 to 2.53 (0.0989 to 0.0996)
90564-59051	2.21 to 2.23 (0.0871 to 0.0877)	90564-59067	2.53 to 2.55 (0.0997 to 0.1003)
90564-59052	2.23 to 2.25 (0.0878 to 0.0885)	90564-59068	2.55 to 2.57 (0.1004 to 0.1011)
90564-59053	2.25 to 2.27 (0.0886 to 0.0893)	90564-59069	2.57 to 2.59 (0.1012 to 0.1019)
90564-59054	2.27 to 2.29 (0.0894 to 0.0901)	90564-59070	2.59 to 2.61 (0.1020 to 0.1027)
90564-59055	2.29 to 2.31 (0.0902 to 0.0909)	90564-59071	2.61 to 2.63 (0.1028 to 0.1035)
90564-59056	2.31 to 2.33 (0.0910 to 0.0917)	90564-59072	2.63 to 2.65 (0.1036 to 0.1043)
90564-59057	2.33 to 2.35 (0.0918 to 0.0925)	90564-59073	2.65 to 2.67 (0.1044 to 0.1051)
90564-59058	2.35 to 2.37 (0.0926 to 0.0933)	90564-59074	2.67 to 2.69 (0.1052 to 0.1059)
90564-59059	2.37 to 2.39 (0.0934 to 0.0940)	-	-

Standard Washer RH (Differential Lock Coil Side):

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59075	2.05 to 2.07 (0.0807 to 0.0814)	90564-59091	2.37 to 2.39 (0.0934 to 0.0940)
90564-59076	2.07 to 2.09 (0.0815 to 0.0822)	90564-59092	2.39 to 2.41 (0.0941 to 0.0948)
90564-59077	2.09 to 2.11 (0.0823 to 0.0830)	90564-59093	2.41 to 2.43 (0.0949 to 0.0956)

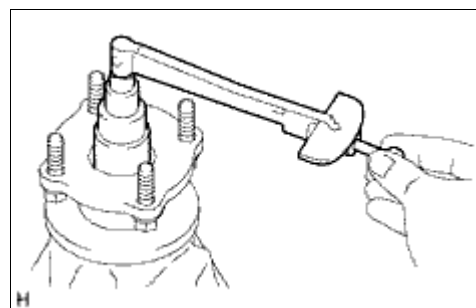
PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59078	2.11 to 2.13 (0.0831 to 0.0838)	90564-59094	2.43 to 2.45 (0.0957 to 0.0964)
90564-59079	2.13 to 2.15 (0.0839 to 0.0846)	90564-59095	2.45 to 2.47 (0.0965 to 0.0972)
90564-59080	2.15 to 2.17 (0.0847 to 0.0854)	90564-59096	2.47 to 2.49 (0.0973 to 0.0980)
90564-59081	2.17 to 2.19 (0.0855 to 0.0862)	90564-59097	2.49 to 2.51 (0.0981 to 0.0988)
90564-59082	2.19 to 2.21 (0.0863 to 0.0870)	90564-59098	2.51 to 2.53 (0.0989 to 0.0996)
90564-59083	2.21 to 2.23 (0.0871 to 0.0877)	90564-59099	2.53 to 2.55 (0.0997 to 0.1003)
90564-59084	2.23 to 2.25 (0.0878 to 0.0885)	90564-59100	2.55 to 2.57 (0.1004 to 0.1011)
90564-59085	2.25 to 2.27 (0.0886 to 0.0893)	90564-59101	2.57 to 2.59 (0.1012 to 0.1019)
90564-59086	2.27 to 2.29 (0.0894 to 0.0901)	90564-59102	2.59 to 2.61 (0.1020 to 0.1027)
90564-59087	2.29 to 2.31 (0.0902 to 0.0909)	90564-59103	2.61 to 2.63 (0.1028 to 0.1035)
90564-59088	2.31 to 2.33 (0.0910 to 0.0917)	90564-59104	2.63 to 2.65 (0.1036 to 0.1043)
90564-59089	2.33 to 2.35 (0.0918 to 0.0925)	90564-59105	2.65 to 2.67 (0.1044 to 0.1051)
90564-59090	2.35 to 2.37 (0.0926 to 0.0933)	90564-59106	2.67 to 2.69 (0.1052 to 0.1059)

18. INSPECT TOTAL PRELOAD

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

Standard Total Preload:

REDUCTION RATIO	ITEM	SPECIFIED CONDITION
3.909	New bearing	1.77 to 4.05 N*m (19 to 41 kgf*cm, 16 to 35 in.*lbf)
	Reused bearing	1.8 to 3.87 N*m (19 to 39 kgf*cm, 16 to 34 in.*lbf)
4.300	New bearing	1.75 to 4.00 N*m (18 to 40 kgf*cm, 16 to 35 in.*lbf)

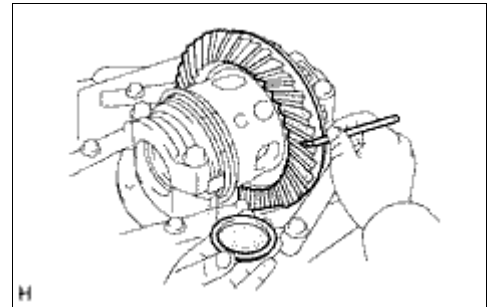


REDUCTION RATIO	ITEM	SPECIFIED CONDITION
	Reused bearing	1.78 to 3.82 N*m (19 to 38 kgf*cm, 16 to 33 in.*lbf)

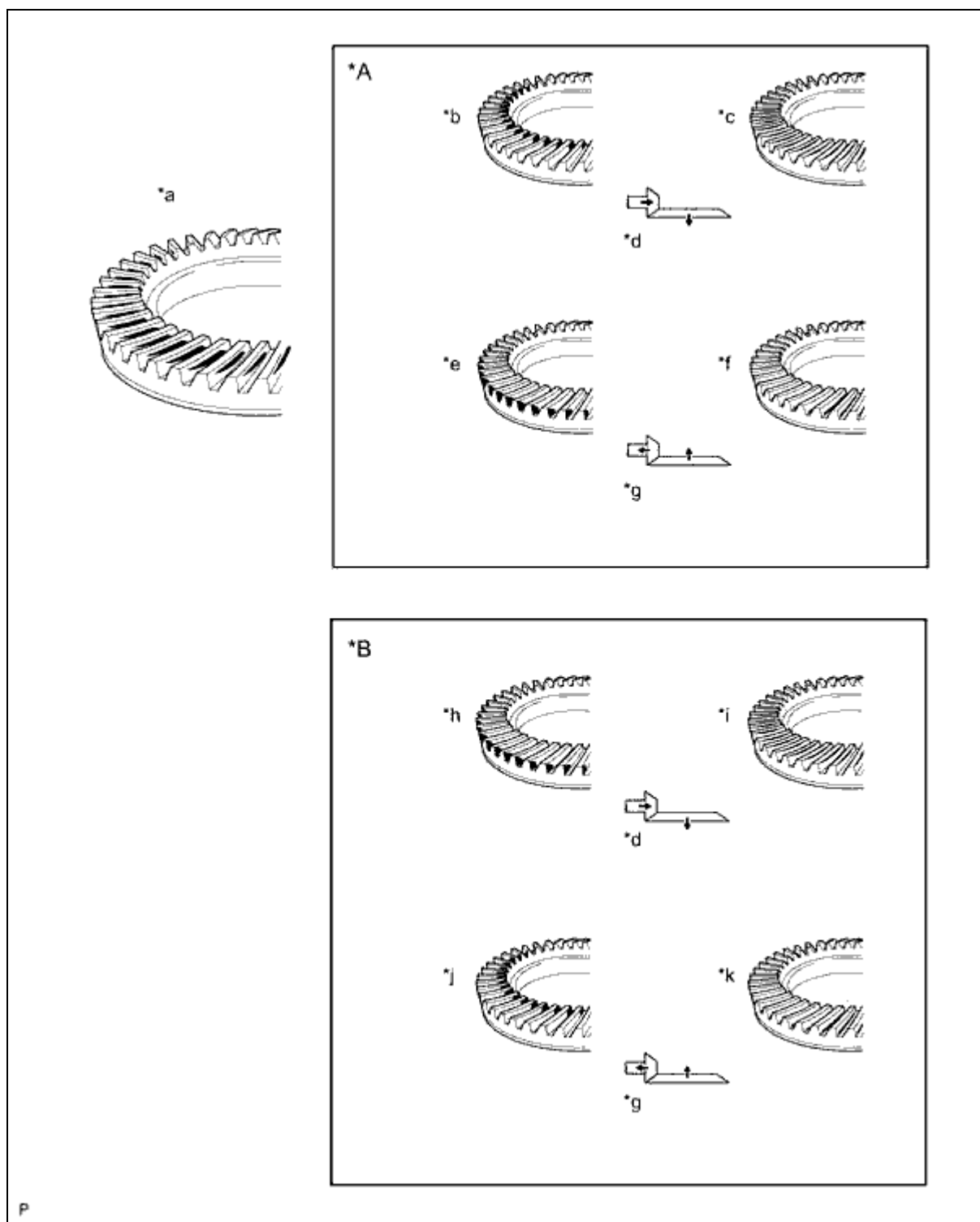
If necessary, disassemble and inspect the differential.

19. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at 3 different positions on the differential ring gear with Prussian blue.



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

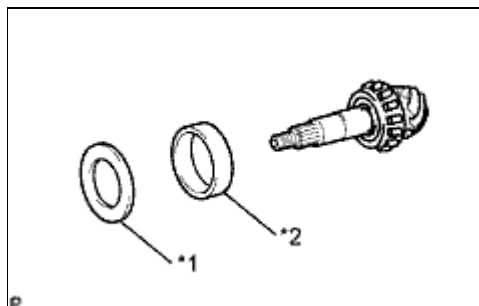


Text in Illustration

*A	Drive Side	*B	Coast Side
*a	Proper Contact	*b	Toe Contact
*c	Face Contact	*d	Select an adjusting washer that will shift the drive pinion closer to the ring gear.
*e	Heel Contact	*f	Flank Contact

*g	Select an adjusting washer that will shift the drive pinion away from the ring gear.	*h	Heel Contact
*i	Flank Contact	*h	Toe Contact
*k	Face Contact	-	-

If the teeth are not contacting properly, use the following chart to select a adjust shim.



Text in Illustration

*1	Adjust Shim
*2	Rear Drive Pinion Rear Tapered Roller Bearing (Outer)

Standard Adjust Shim Thickness:

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-78001	1.71 to 1.73 (0.0674 to 0.0681)	90564-78013	1.95 to 1.97 (0.0768 to 0.0775)
90564-78002	1.73 to 1.75 (0.0682 to 0.0688)	90564-78014	1.97 to 1.99 (0.0776 to 0.0783)
90564-78003	1.75 to 1.77 (0.0689 to 0.0696)	90564-78015	1.99 to 2.01 (0.0784 to 0.0791)
90564-78004	1.77 to 1.79 (0.0697 to 0.0704)	90564-78016	2.01 to 2.03 (0.0792 to 0.0799)
90564-78005	1.79 to 1.81 (0.0705 to 0.0712)	90564-78017	2.03 to 2.05 (0.0780 to 0.0807)
90564-78006	1.81 to 1.83 (0.0713 to 0.0720)	90564-78018	2.05 to 2.07 (0.0808 to 0.0814)
90564-78007	1.83 to 1.85 (0.0721 to 0.0728)	90564-78019	2.07 to 2.09 (0.0815 to 0.0822)
90564-78008	1.85 to 1.87 (0.0729 to 0.0736)	90564-78020	2.09 to 2.11 (0.0823 to 0.0830)
90564-78009	1.87 to 1.89 (0.0737 to 0.0744)	90564-78021	2.11 to 2.13 (0.0831 to 0.0838)
90564-78010	1.89 to 1.91 (0.0745 to 0.0751)	90564-78022	2.13 to 2.15 (0.0839 to 0.0846)
90564-78011	1.91 to 1.93 (0.0752 to 0.0759)	90564-78023	2.15 to 2.17 (0.0847 to 0.0854)
90564-78012	1.93 to 1.95 (0.0760 to 0.0767)	90564-78024	2.17 to 2.19 (0.0855 to 0.0862)

20. REMOVE REAR DRIVE PINION NUT [INFO](#)

21. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR [INFO](#)

22. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER [INFO](#)

23. REMOVE DIFFERENTIAL BEARING CAP [INFO](#)

24. REMOVE ELECTRONIC DIFFERENTIAL LOCK CASE SUB-ASSEMBLY [INFO](#)

25. REMOVE DIFFERENTIAL DRIVE PINION INFO

26. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING INFO

27. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER INFO

28. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING INFO

29. REMOVE DIFFERENTIAL OIL STORAGE RING INFO

30. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING INFO

31. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the adjust shim and rear drive pinion rear tapered roller bearing (outer) into the differential carrier.

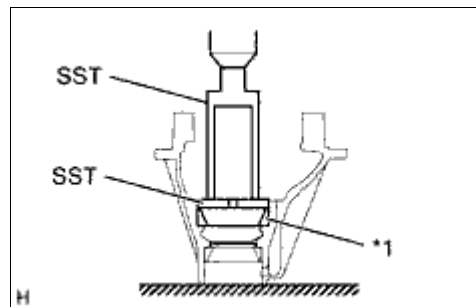
Text in Illustration

*1	Rear Drive Pinion Rear Tapered Roller Bearing (Outer)
----	---

SST: 09316-60011

09316-00011

SST: 09951-01000



32. INSTALL DIFFERENTIAL OIL STORAGE RING

- (a) Using SST and a hammer, tap in a new differential oil storage ring.

Text in Illustration

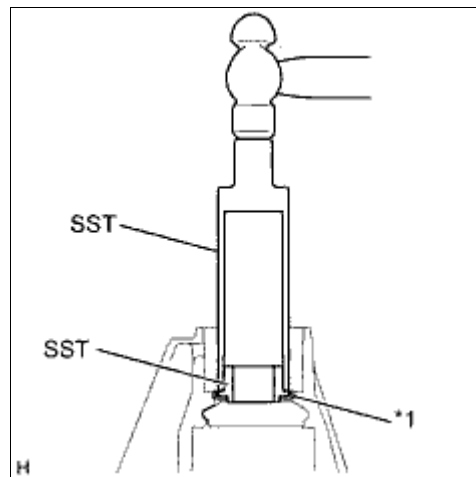
*1	Differential Oil Storage Ring
----	-------------------------------

SST: 09316-60011

09316-00011

NOTICE:

Be careful not to damage the differential oil storage ring.



33. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

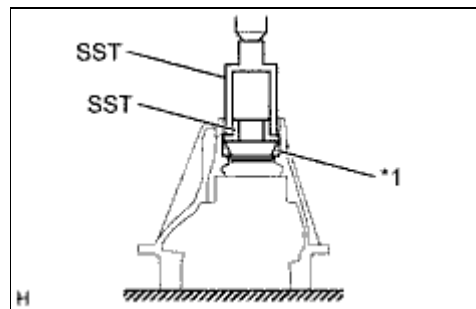
- (a) Using SST and a press, press the rear drive pinion front tapered roller bearing (outer) into the differential carrier.

Text in Illustration

*1	Rear Drive Pinion Front Tapered Roller Bearing (Outer)
----	--

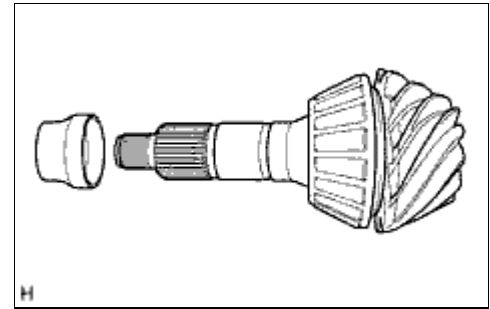
SST: 09316-60011

09316-00011



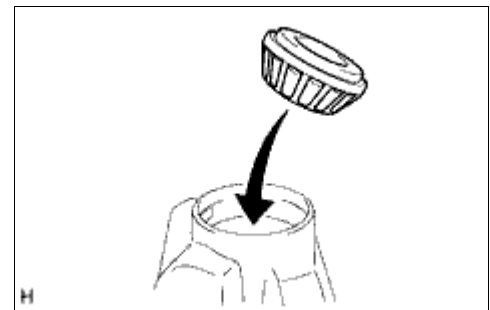
34. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

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



35. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Install the rear drive pinion front tapered roller bearing (inner) to the drive pinion.



36. INSTALL DIFFERENTIAL DRIVE PINION

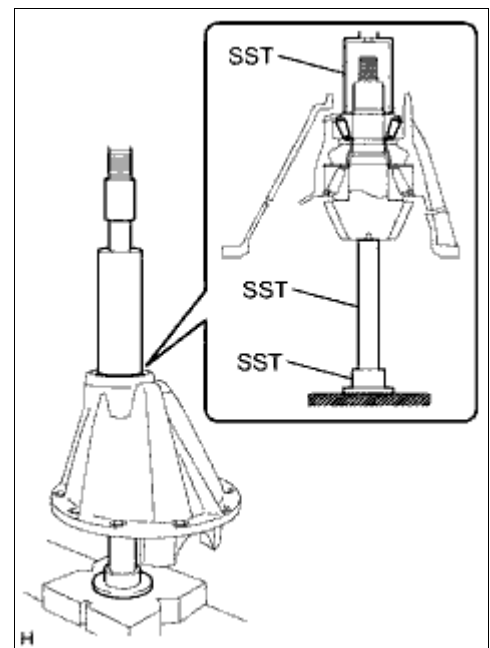
- (a) Using SST and a press, install the differential drive pinion.

SST: 09316-60011

09316-00011

09316-00041

SST: 09608-04031

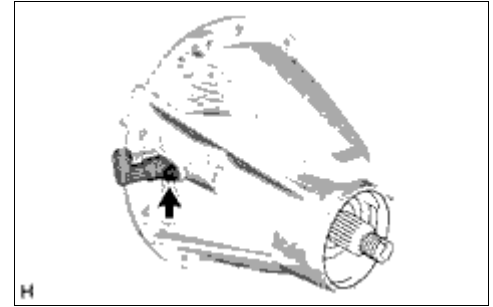


37. INSTALL NO. 1 TRANSFER INDICATOR SWITCH (DIFFERENTIAL LOCK INDICATOR SWITCH)

- (a) Install a new No. 1 transfer indicator switch (differential lock indicator switch) with the bolt.

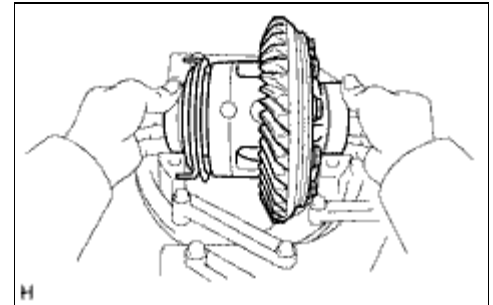
Torque:

9.0 N·m {92 kgf·cm, 80in·lbf}



38. INSTALL ELECTRONIC DIFFERENTIAL LOCK CASE SUB-ASSEMBLY

- (a) Place the 2 new bearing outer races to their respective bearings.

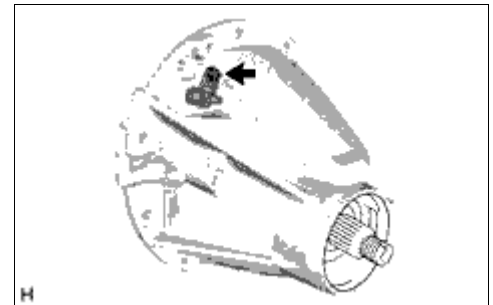


39. INSTALL WIRING HARNESS CONNECTOR

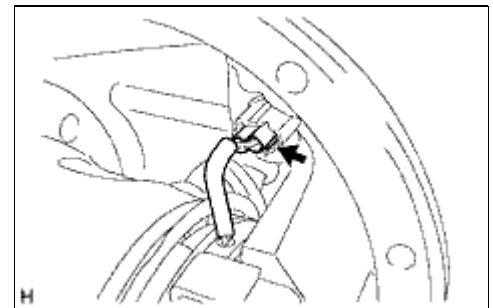
- (a) Install a new wiring harness connector with the bolt.

Torque:

9.0 N·m {92 kgf·cm, 80in·lbf}



- (b) Connect the connector.



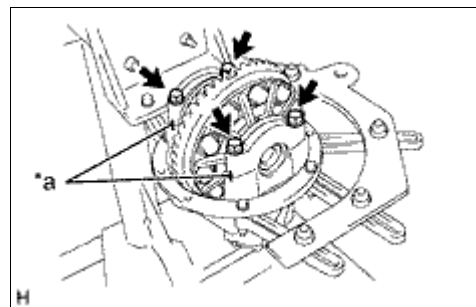
40. INSTALL DIFFERENTIAL BEARING CAP

- (a) Install the 2 plate washers.

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

Text in Illustration

*a	Matchmark
----	-----------



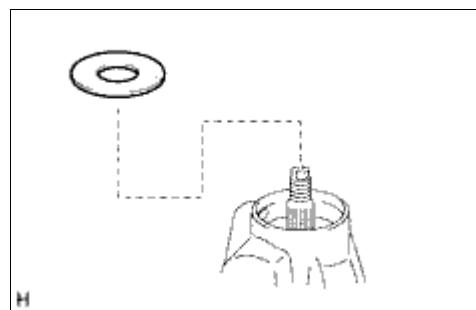
- (c) Install the right and left differential bearing caps with the 4 bolts.

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

41. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

- (a) Install the rear differential drive pinion oil slinger to the differential drive pinion.



42. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

INFO

43. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR

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

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-30012

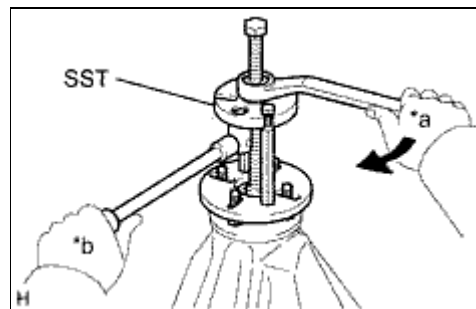
09951-03010

09953-03010

09954-03010

09955-03030

09956-03040



NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.

- (b) Apply hypoid gear oil LSD to the drive pinion thread and nut seat face.

- (c) Using SST to hold the companion flange in place, install a new nut.

Text in Illustration

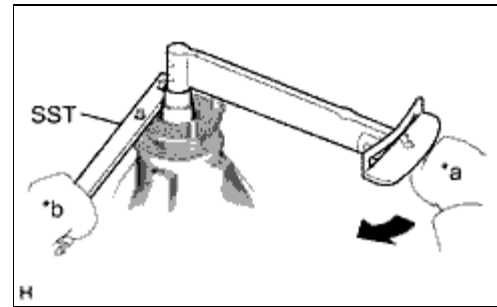
*a	Turn
*b	Hold

SST: 09330-00021

09330-00030

Limit torque value:

457 N*m (4660 kgf*cm, 337 ft.*lbf) or less



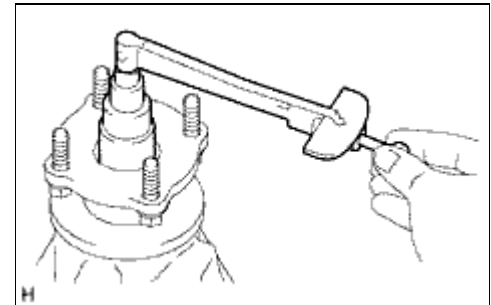
44. INSPECT TOTAL PRELOAD

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

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

Standard Total Preload:

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.87 to 4.15 N*m (20 to 43 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.90 to 3.97 N*m (20 to 41 kgf*cm, 17 to 35 in.*lbf)
4.300	New bearing	1.85 to 4.10 N*m (19 to 42 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.88 to 3.92 N*m (20 to 40 kgf*cm, 17 to 34 in.*lbf)



If necessary, disassemble and inspect the differential.

45. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

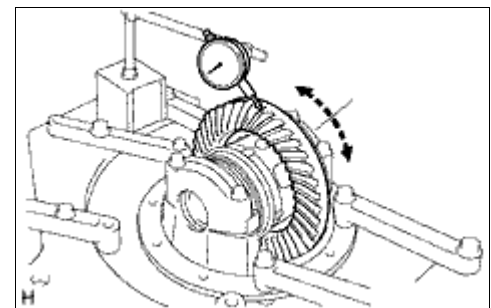
Standard backlash:

0.10 to 0.20 mm (0.00394 to 0.00787 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the differential ring gear.



46. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

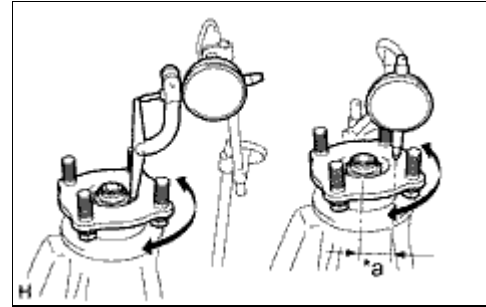
- (a) Using a dial indicator, measure the runout of the companion flange vertically and laterally.

Text in Illustration

*a	30 mm (1.18 in.)
----	------------------

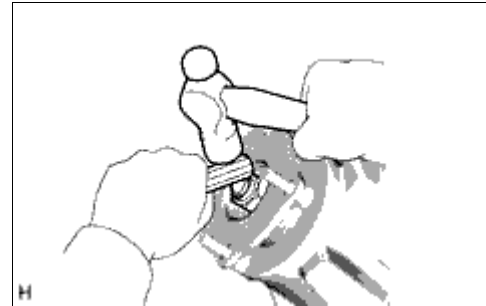
Maximum Runout:

RUNOUT	MAXIMUM
Vertical runout	0.10 mm (0.00394 in.)
Lateral runout	0.10 mm (0.00394 in.)



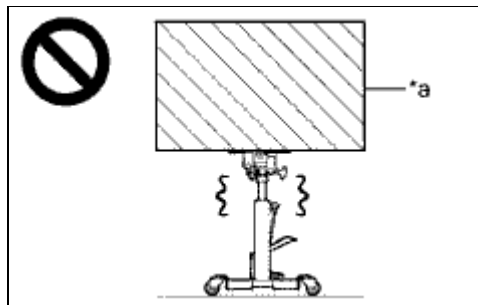
47. STAKE DRIVE PINION NUT

- (a) Using a chisel and hammer, stake the drive pinion nut.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM00000174K01BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/ Differential Lock): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL



Text in Illustration

*a	Object Exceeding Weight Limit of Transmission Jack
----	--

- Be sure to perform this procedure with several people as the rear differential carrier assembly is very heavy.
- Be sure to follow the procedure described in the repair manual, or the transmission jack may suddenly drop or a part may fall.

1. REMOVE REAR WHEELS

2. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

3. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

4. DRAIN DIFFERENTIAL OIL

INFO

5. REMOVE REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

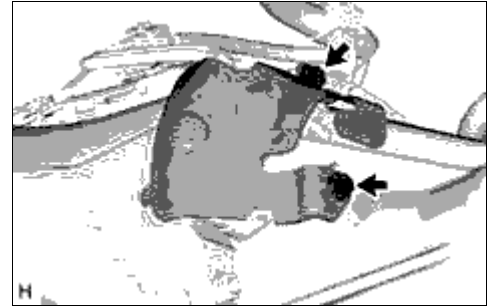
6. REMOVE REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

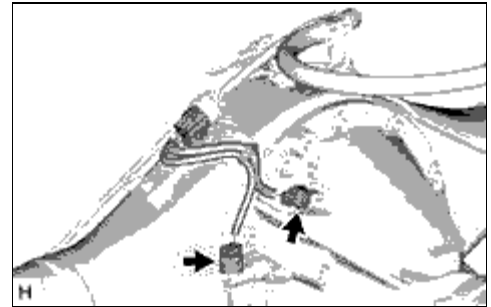
7. REMOVE REAR DIFFERENTIAL PROTECTOR

- (a) Remove the 2 bolts and differential protector from the differential carrier assembly.



8. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Disconnect the 2 connectors.



- (b) Remove the 10 nuts, 10 washers and rear differential carrier assembly.

NOTICE:

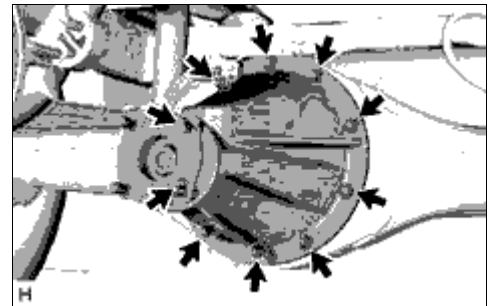
Be careful not to damage the contact surface.

CAUTION:

The rear differential carrier assembly is a heavy component.
Make sure that it is supported securely.

NOTICE:

- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- The remaining oil may leak out when removing the rear differential carrier assembly.
- Do not damage the installation surface when removing the rear differential carrier assembly.
- Remove the bolts with the rear differential carrier assembly secured.



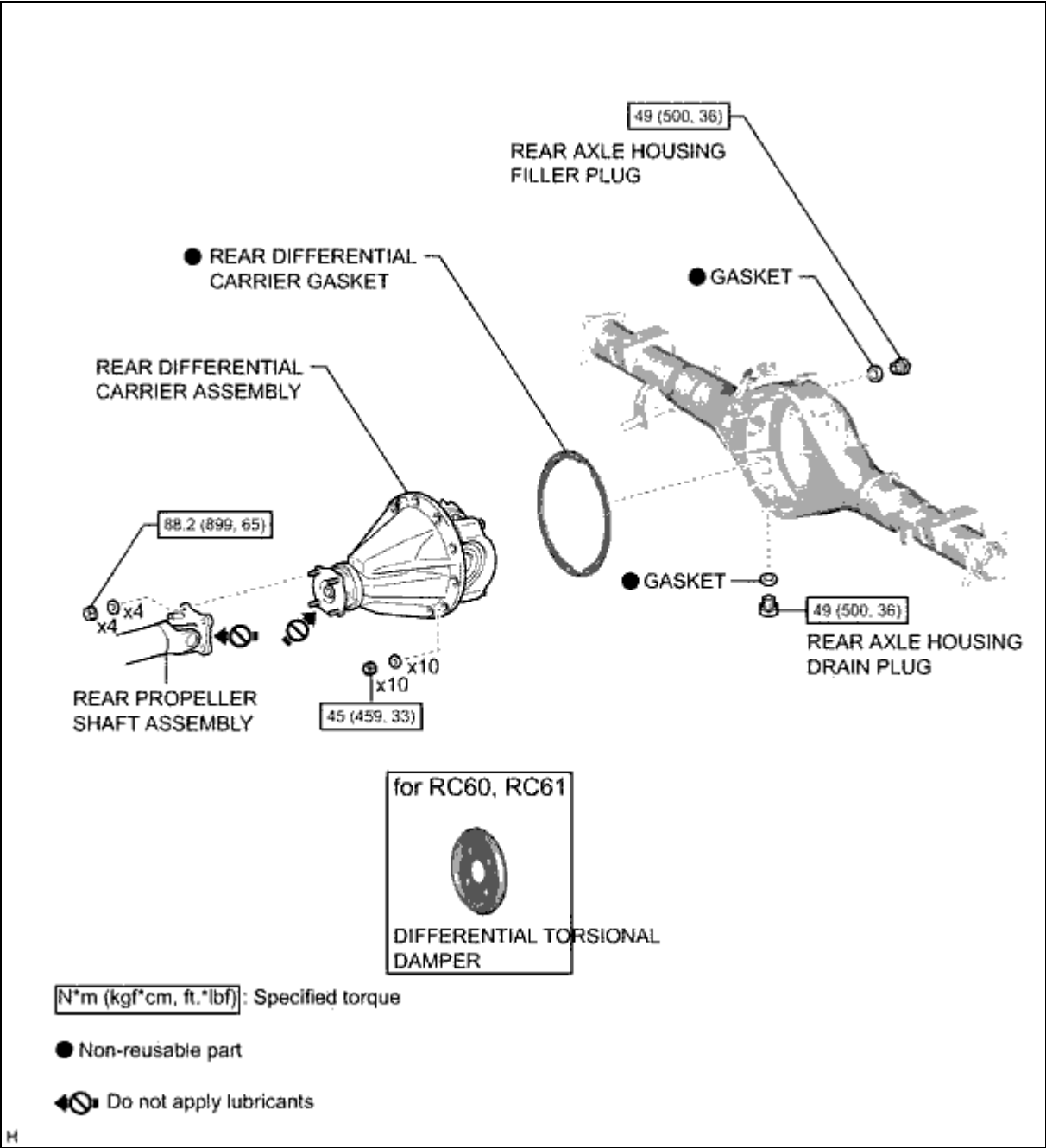
9. REMOVE REAR DIFFERENTIAL CARRIER GASKET



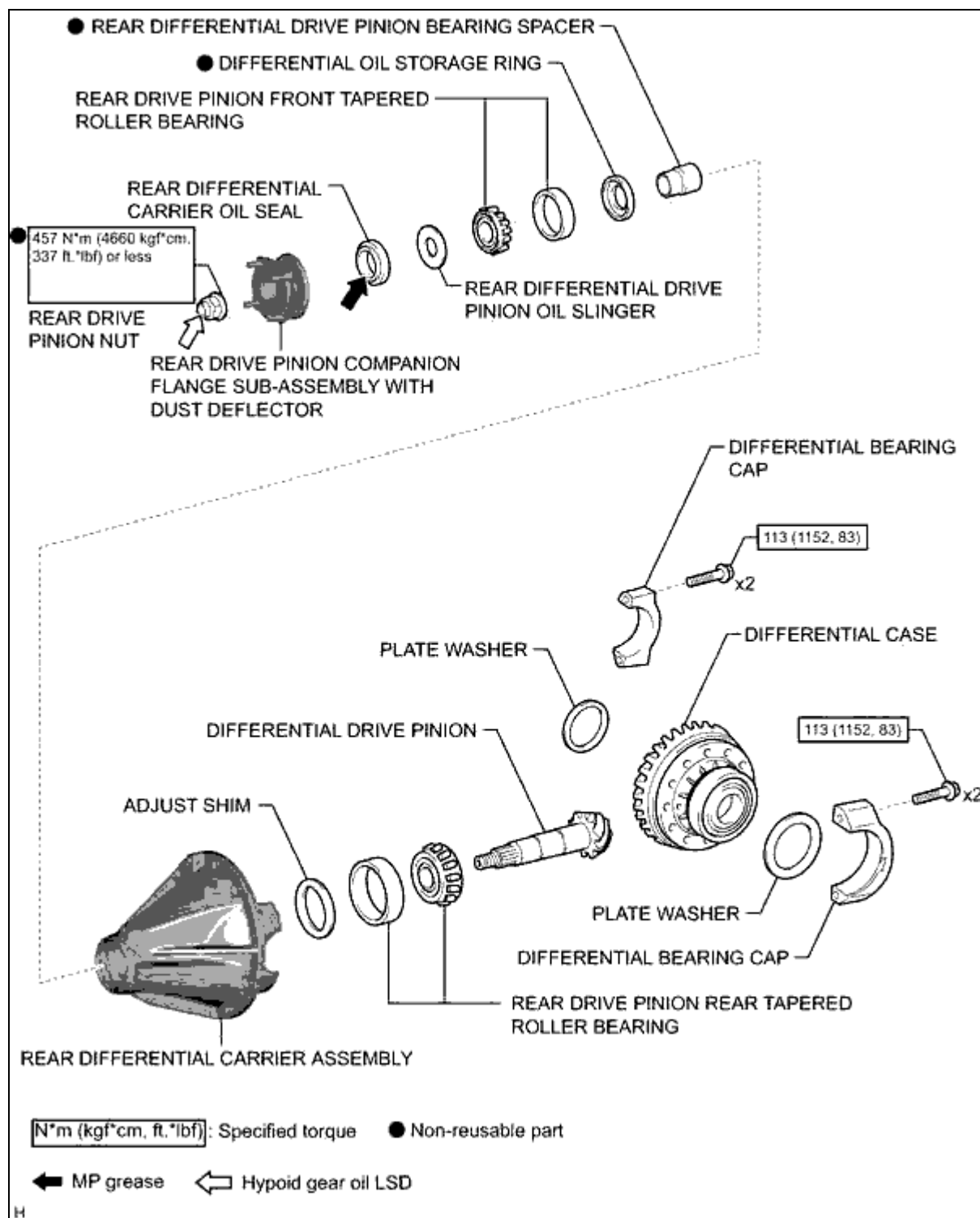
Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016GJ00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



ILLUSTRATION

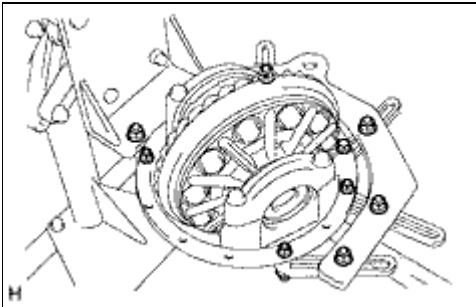
Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GK00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

HINT:
The following procedures are for BD22 (w/o Differential Lock).

1. SECURE REAR DIFFERENTIAL CARRIER ASSEMBLY

(a) Secure the rear differential carrier assembly.



2. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

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

Text in Illustration

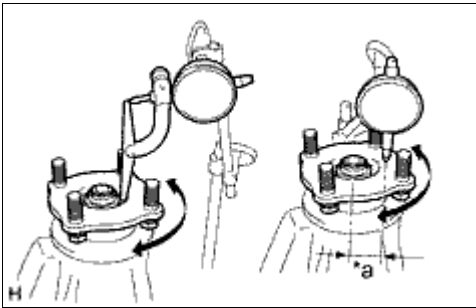
*a	30 mm (1.18 in.)
----	------------------

Maximum Runout:

RUNOUT	MAXIMUM
Vertical runout	0.10 mm (0.00394 in.)
Lateral runout	0.10 mm (0.00394 in.)

If the runout is more than the maximum, replace the companion flange.

3. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR



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

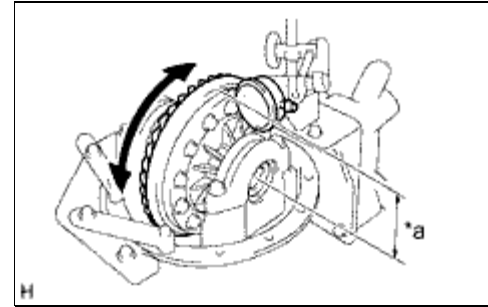
Text in Illustration

*a	98 mm (3.86 in.)
----	------------------

Maximum runout:

0.07 mm (0.00276 in.)

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



4. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

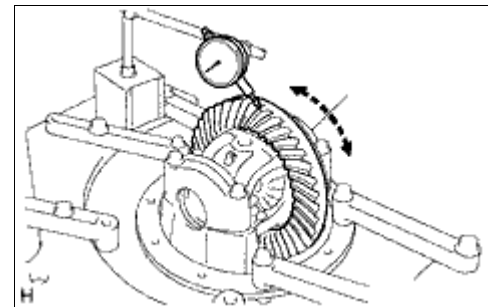
Standard backlash:

0.10 to 0.20 mm (0.00394 to 0.00787 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the ring gear.

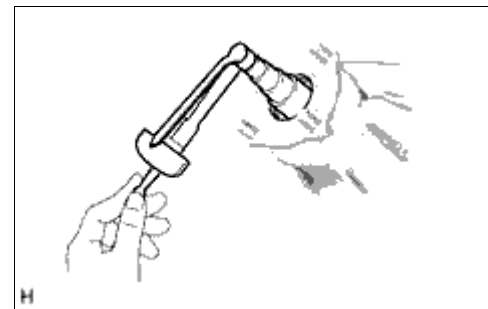


5. INSPECT TOTAL PRELOAD

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

Standard Total Preload:

REDUCTION RATIO	SPECIFIED CONDITION
3.909	1.9 to 3.97 N*m (20 to 40 kgf*cm, 17 to 35 in.*lbf)
4.300	1.88 to 3.92 N*m (20 to 39 kgf*cm, 17 to 34 in.*lbf)



If the result is not as specified, adjust the preload.

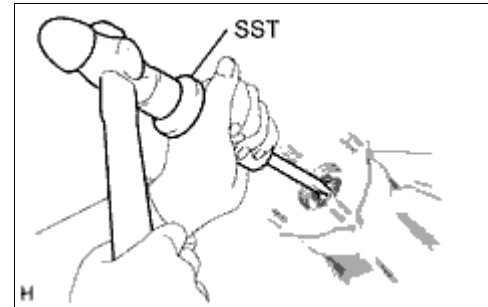
6. REMOVE REAR DRIVE PINION NUT

(a) Using a chisel and hammer, stake the rear drive pinion nut.

SST: 09930-00010

09931-00010

09931-00020



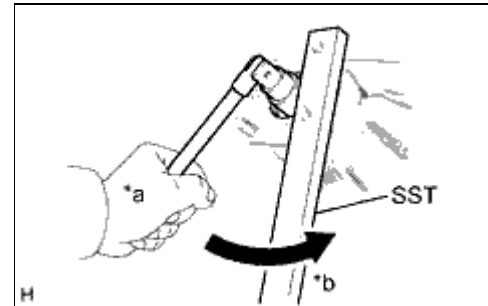
(b) Using SST to hold the rear drive pinion companion flange sub-assembly with dust deflector in place, remove the rear drive pinion nut.

Text in Illustration

*a	Turn
*b	Hold

SST: 09330-00021

09330-00030



7. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR

(a) Using SST, remove the rear drive pinion companion flange sub-assembly with dust deflector.

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-40011

09951-04010

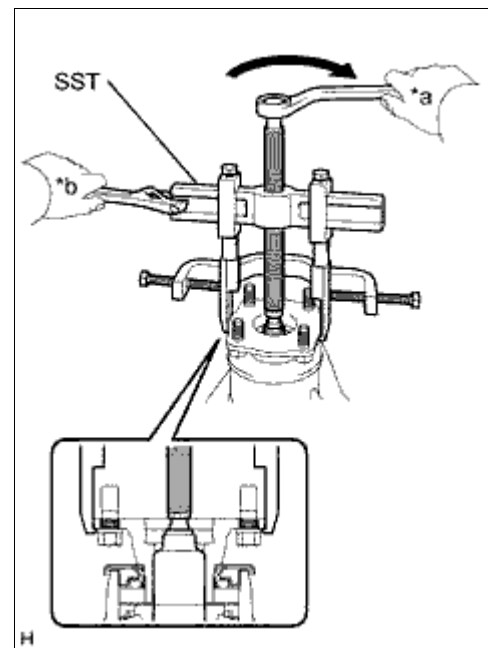
09953-04020

09954-04010

09955-04061

NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.



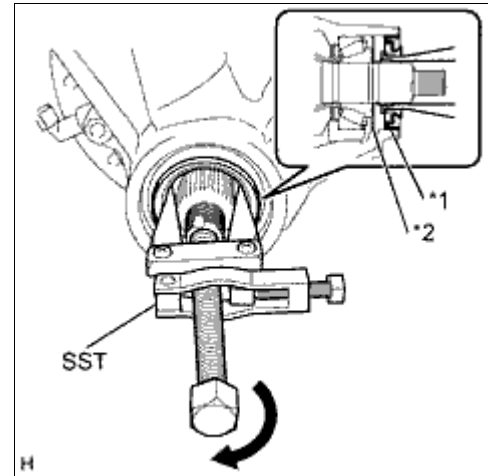
8. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

(a) Using SST, remove the rear differential carrier oil seal.

Text in Illustration

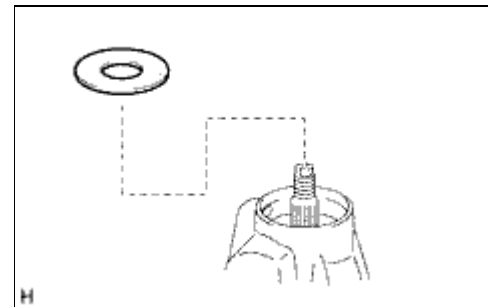
*1	Rear Differential Carrier Oil Seal
*2	Rear Differential Drive Pinion Oil Slinger

SST: 09308-10010



9. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

(a) Remove the rear differential drive pinion oil slinger from the differential drive pinion.

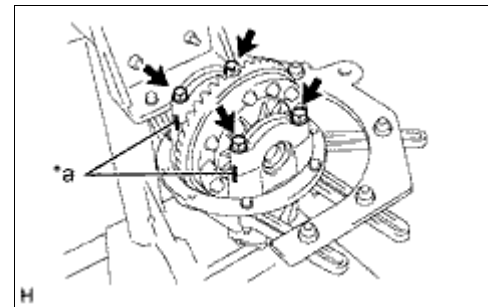


10. REMOVE DIFFERENTIAL BEARING CAP

(a) Place matchmarks on the differential bearing cap and differential carrier.

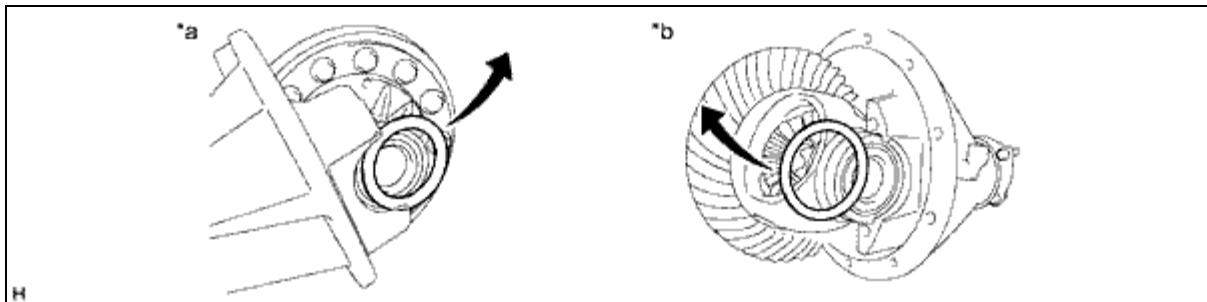
Text in Illustration

*a	Matchmark
----	-----------



(b) Remove the 4 bolts and 2 differential bearing caps.

(c) Remove the 2 plate washers.



Text in Illustration

*a	LH Side (Back Side)	*b	RH Side (Teeth Side)
----	---------------------	----	----------------------

HINT:

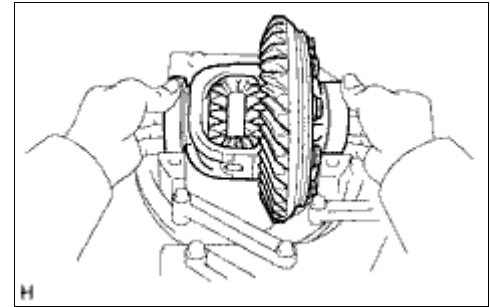
- Put identification marks on the plate washers to show the location for installation (LH side (back side) or RH side (teeth side)), or keep them separate so that they can be distinguished.
- Measure the thickness of each plate washers and note it.

11. REMOVE DIFFERENTIAL CASE ASSEMBLY

- (a) Remove the differential case assembly from the differential carrier.

HINT:

Tag the 2 rear differential case bearings (outer) so that they can be reinstalled in the correct locations.

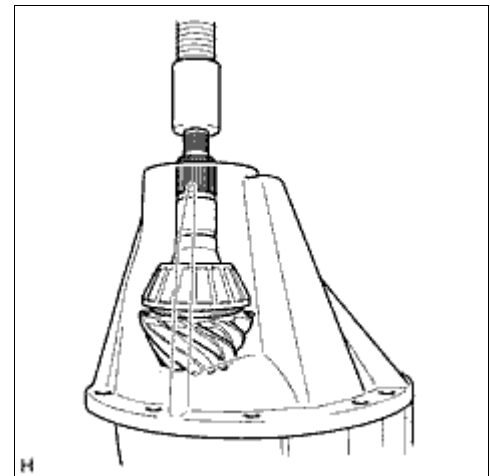


12. REMOVE DIFFERENTIAL DRIVE PINION

- (a) Using a press, remove the differential drive pinion with rear differential drive pinion bearing spacer from the differential carrier.

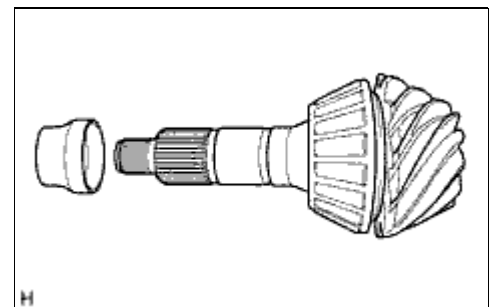
NOTICE:

Do not drop the differential drive pinion.



13. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

- (a) Remove the rear differential drive pinion bearing spacer from the differential drive pinion.



14. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press out the rear drive pinion rear tapered roller bearing (inner) from the differential drive pinion.

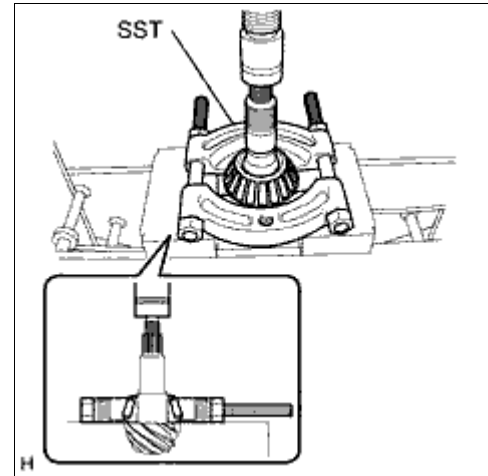
SST: 09555-55010

NOTICE:

Do not drop the differential drive pinion.

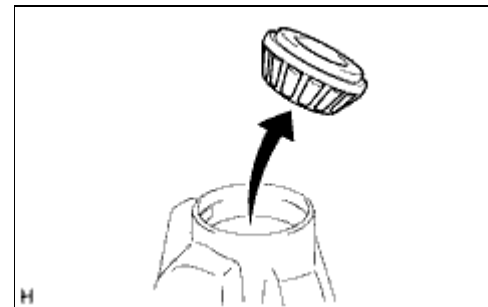
HINT:

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



15. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Remove the rear drive pinion front tapered roller bearing (inner) from the differential carrier.



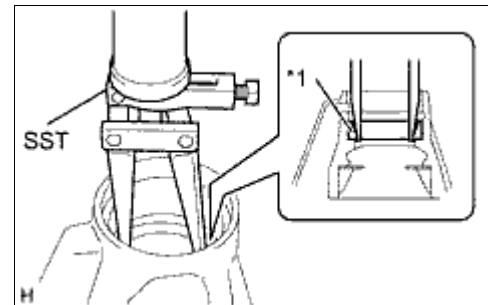
16. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the rear drive pinion front tapered roller bearing (outer) from the differential carrier.

Text in Illustration

*1	Rear Drive Pinion Front Tapered Roller Bearing (Outer)
----	--

SST: 09308-00010



17. REMOVE DIFFERENTIAL OIL STORAGE RING

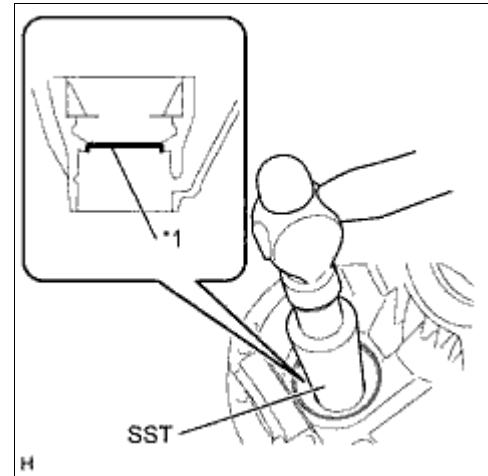
- (a) Using SST and a hammer, tap out the differential oil storage ring from the differential carrier.

Text in Illustration

*1	Differential Oil Storage Ring
----	-------------------------------

SST: 09316-60011

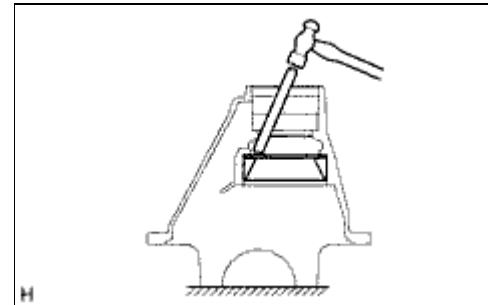
09316-00011



18. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using a brass bar and hammer, tap out the rear drive pinion rear tapered roller bearing (outer) and adjust shim from the differential carrier.

If the bearing is damaged during removal, replace it.

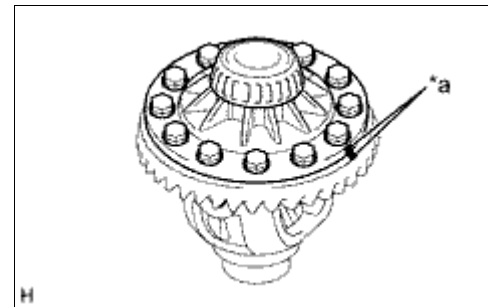


19. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the differential ring gear and differential case.

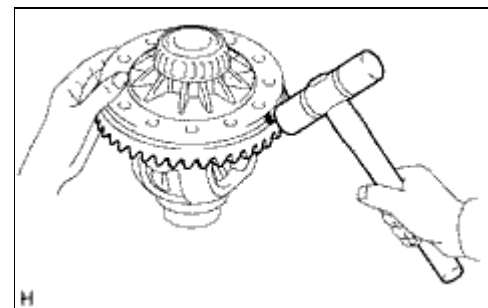
Text in Illustration

*a	Matchmark
----	-----------



- (b) Remove the 12 differential ring gear set bolts.

- (c) Using a plastic-faced hammer, tap on the differential ring gear to remove it from the differential case.



20. INSPECT DIFFERENTIAL CASE ASSEMBLY RUNOUT

HINT:

If the ring gear runout is within the specified value (refer to the "Inspect Runout of Differential Ring Gear" procedure above), skip this step.

- (a) Install the rear differential case bearings (outer) to the differential case.
- (b) Install the differential case assembly to the differential carrier.
- (c) Install the 2 plate washers.
- (d) Install the 2 differential bearing caps to the differential carrier with the 4 bolts.

Torque:

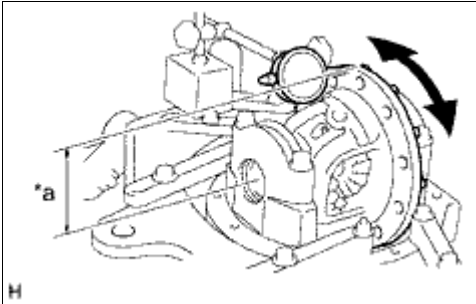
113 N·m {1152 kgf·cm, 83ft·lbf}

- (e) Using a dial indicator, measure the differential case runout.

Text in Illustration

*a	92 mm (3.86 in.)
----	------------------

Maximum runout:
0.07 mm (0.00276 in.)



- (f) Remove the 4 bolts and 2 differential bearing caps.
- (g) Remove the 2 plate washers.
- (h) Remove the differential case assembly.
- (i) Remove the rear differential case bearings (outer).

21. REMOVE REAR DIFFERENTIAL CASE BEARING

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

Text in Illustration

*a	Turn
*b	Hold

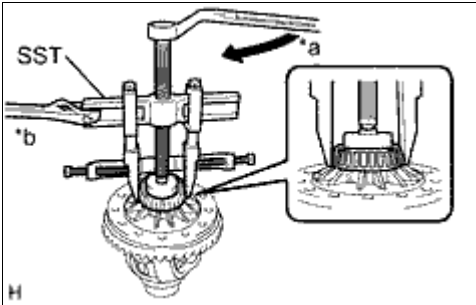
SST: 09950-40011

SST: 09950-60010

- 09951-04020
- 09952-04010
- 09953-04030
- 09954-04010
- 09955-04061
- 09958-04011

SST: 09950-60010

09951-00360

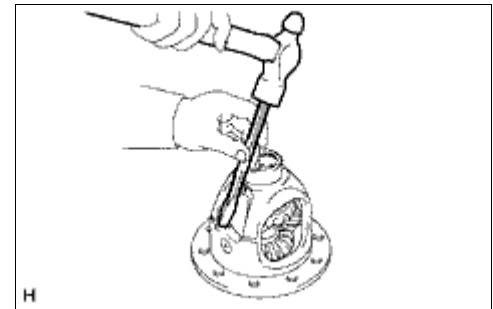


HINT:

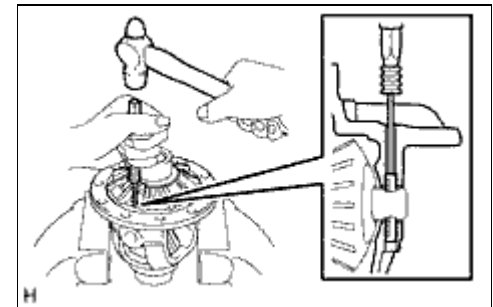
Do not remove the rear differential case bearings (inner) when not replacing the differential case assembly.

22. DISASSEMBLE DIFFERENTIAL CASE

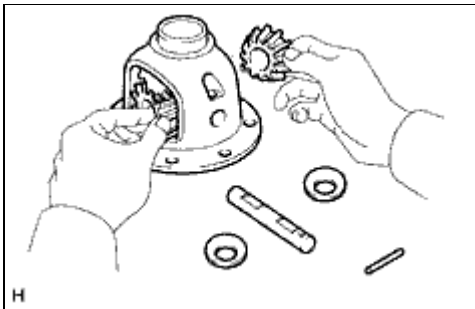
(a) Using a chisel and hammer, unstake the differential case.



(b) Using a pin punch and hammer, tap out the straight pin.



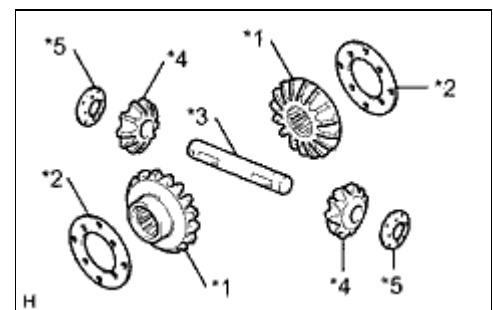
(c) Remove the following parts from the differential case.



(1) Side gear (2 pieces)

Text in Illustration

*1	Side Gear
*2	Rear No. 1 Differential Side Gear Thrust Washer
*3	Pinion Shaft
*4	Pinion Gear
*5	Pinion Gear Thrust Washer



(2) Rear No. 1 differential side gear thrust washer (2 pieces)

(3) Pinion shaft

(4) Pinion gear (2 pieces)

(5) Pinion gear thrust washer (2 pieces)

23. INSPECT REAR DIFFERENTIAL GEAR KIT

- (a) Check that the differential pinion and differential side gear are not damaged.

If the differential pinion or differential side gear is damaged, replace the differential gear kit.

24. INSPECT DIFFERENTIAL CASE

- (a) Check that the differential case is not damaged.

If the differential case is damaged, replace it.



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000017DE02NX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT DIFFERENTIAL PINION AND SIDE GEAR

(a) Check that there is no damage to the pinion gear or side gear.

If the pinion gear and/or side gear is damaged, replace the differential.

2. INSPECT DIFFERENTIAL CASE

(a) Check that the differential case is not damaged.

If the differential case is damaged, replace it.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000017B200BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

HINT:

The following procedures are for BD22 (w/o Differential Lock).

1. INSTALL DIFFERENTIAL CARRIER ASSEMBLY REAR

- Clean the contact surfaces of the rear differential carrier assembly and axle housing.
- Install the rear differential carrier assembly and a new rear differential carrier gasket with the 10 nuts and 10 washers.

Torque:

45 N·m {459 kgf·cm, 33ft·lbf}

CAUTION:

The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Do not damage the installation surface when installing the rear differential carrier assembly.
- The remaining oil may leak out when installing the rear differential carrier assembly.
- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- Install the bolts with the rear differential carrier assembly secured.

2. INSTALL REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

3. INSTALL REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

4. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

5. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

6. ADD DIFFERENTIAL OIL

INFO

7. BLEED BRAKE SYSTEM (for Hydraulic Brake Booster)

INFO

8. BLEED BRAKE SYSTEM (for Vacuum Brake Booster)

INFO

9. ADJUST PARKING BRAKE

INFO

10. INSTALL REAR WHEELS

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

11. CHECK ABS SPEED SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

12. CHECK ABS SPEED SENSOR SIGNAL (for Vacuum Brake Booster)

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GL00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

HINT:

The following procedures are for BD22 (w/o Differential Lock).

1. ASSEMBLE DIFFERENTIAL CASE

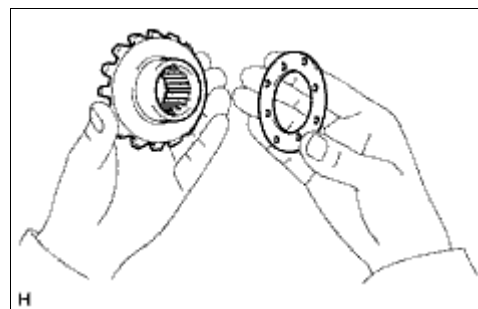
- (a) Install the rear No. 1 differential side gear thrust washer to the side gear.

HINT:

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

Standard Washer Thickness:

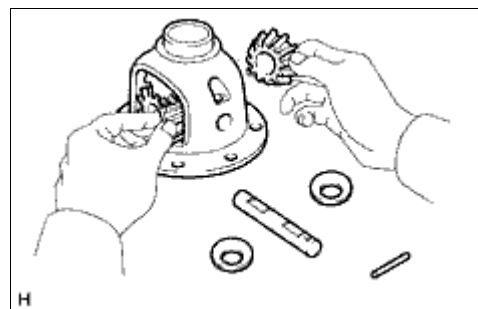
PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
41361-0K110	1.43 to 1.47 (0.0563 to 0.0578)	41361-0K340	1.68 to 1.72 (0.0662 to 0.0677)
41361-0K300	1.48 to 1.52 (0.0583 to 0.0598)	41361-0K350	1.73 to 1.77 (0.0682 to 0.0696)
41361-0K310	1.53 to 1.57 (0.0603 to 0.0618)	41361-0K360	1.78 to 1.82 (0.0701 to 0.0716)
41361-0K320	1.58 to 1.62 (0.0622 to 0.0637)	41361-0K370	1.83 to 1.87 (0.0721 to 0.0736)
41361-0K330	1.63 to 1.67 (0.0642 to 0.0657)	-	-



- (b) Install 2 side gears, 2 pinion gears, 2 rear No. 1 differential side gear thrust washers, 2 pinion gear thrust washers and the pinion shaft in the differential case.

HINT:

Align the holes of the differential case and pinion shaft.



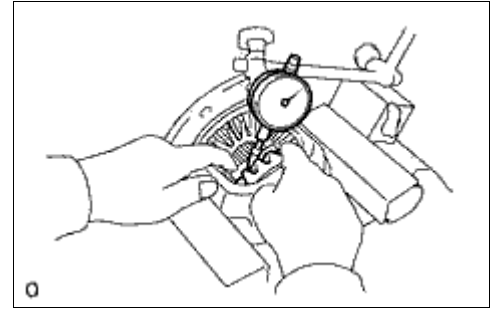
(c) Measure the side gear backlash.

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

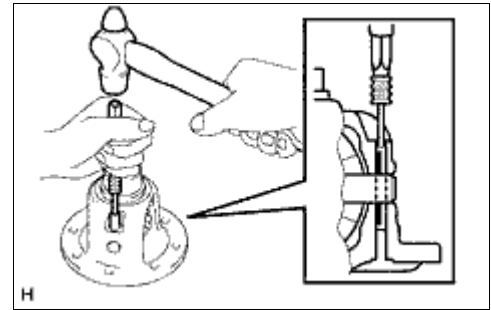
Backlash:

0.05 to 0.20 mm (0.00197 to 0.00787 in.)

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



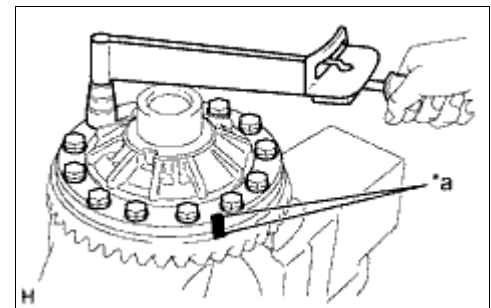
- (d) Using a pin punch and hammer, tap in the straight pin through the differential case and hole of the pinion shaft.



(e) Stake the differential case.

2. INSTALL DIFFERENTIAL RING GEAR

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



Text in Illustration

*a	Matchmark
----	-----------

- (e) After the ring gear cools down sufficiently, apply adhesive to the 12 bolts and Temporarily install them.

Adhesive:

Toyota Genuine Adhesive 1360K, Three Bond 1360K or equivalent

- (f) Diametrically tighten the 12 bolts uniformly in several passes.

Torque:

137 N·m {1397 kgf·cm, 101ft·lbf}

3. INSTALL REAR DIFFERENTIAL CASE BEARING

- (a) Using SST and a press, press the 2 rear differential case bearings onto the differential case.

SST: 09950-60010

09951-00430

09951-00470

09951-00480

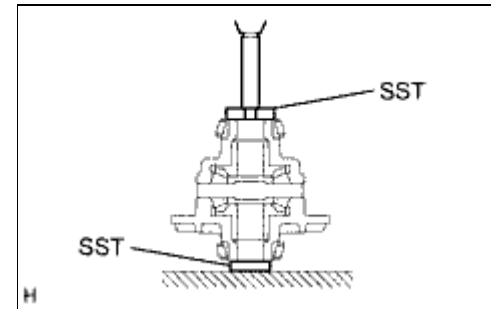
09951-00550

SST: 09950-70010

09951-00560

09951-00570

09951-07150



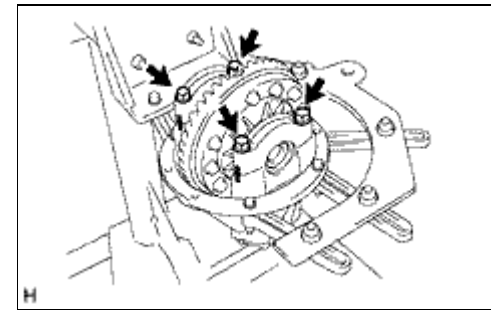
4. INSPECT DIFFERENTIAL RING GEAR RUNOUT

- (a) Install the differential case on the differential carrier, and install the 2 plate washers so that there is no play in the bearing.

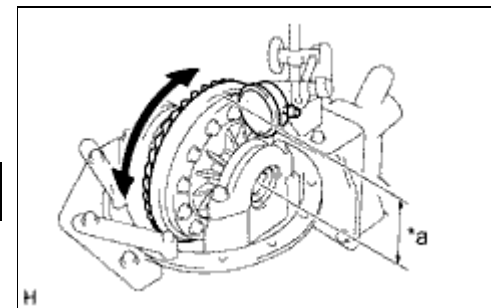
- (b) Install the 2 differential bearing caps with the 4 bolts.

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}



- (c) Using a dial indicator, measure the runout of the differential ring gear.



Text in Illustration

*a	98 mm (3.86 in.)
----	------------------

Maximum runout:

0.07 mm (0.00276 in.)

- (d) Remove the 2 differential bearing caps, 2 plate washers and differential case assembly.

5. INSTALL DIFFERENTIAL OIL STORAGE RING

(a) Using SST and a hammer, tap in the differential oil storage ring.

Text in Illustration

*1	Differential Oil Storage Ring
----	-------------------------------

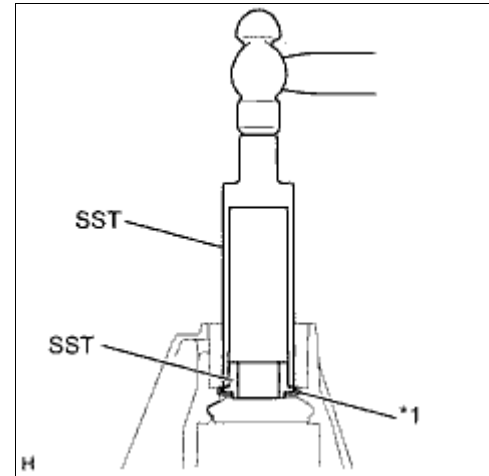
SST: 09316-60011

09316-00011

09316-00071

NOTICE:

Be careful not to damage the differential oil storage ring.



6. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

(a) Using SST and a press, press the rear drive pinion front tapered roller bearing (outer) into the differential carrier.

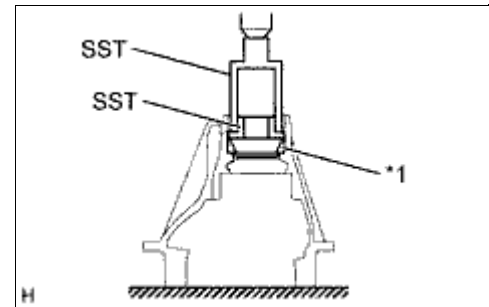
Text in Illustration

*1	Rear Drive Pinion Front Tapered Roller Bearing (Outer)
----	--

SST: 09316-60011

09316-00011

09316-00031



7. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

(a) Using SST and a press, press the adjust shim and rear drive pinion rear tapered roller bearing (outer) into the differential carrier.

Text in Illustration

*1	Rear Drive Pinion Rear Tapered Roller Bearing (Outer)
----	---

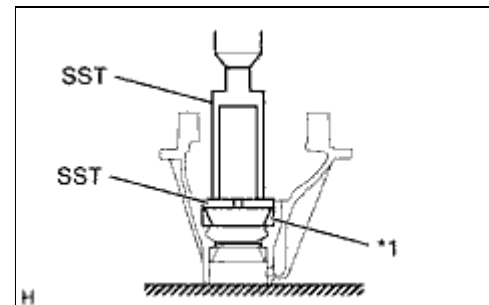
SST: 09316-60011

09316-00011

SST: 09951-01000

HINT:

First, install an adjust shim that has the same thickness as the removed adjust shim. After checking the tooth contact pattern, replace the adjust shim with one of a different thickness if necessary.



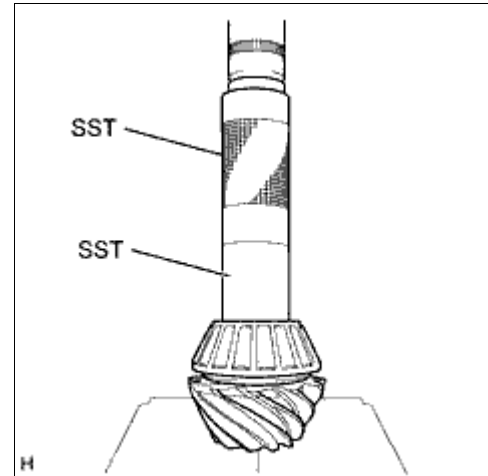
8. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the rear drive pinion rear tapered roller bearing (inner) onto the differential drive pinion.

SST: 09309-37010

SST: 09630-24014

09620-24051



9. ADJUST DIFFERENTIAL DRIVE PINION PRELOAD

- (a) Install the differential drive pinion, rear drive pinion front tapered roller bearing (inner).

SST: 09316-60011

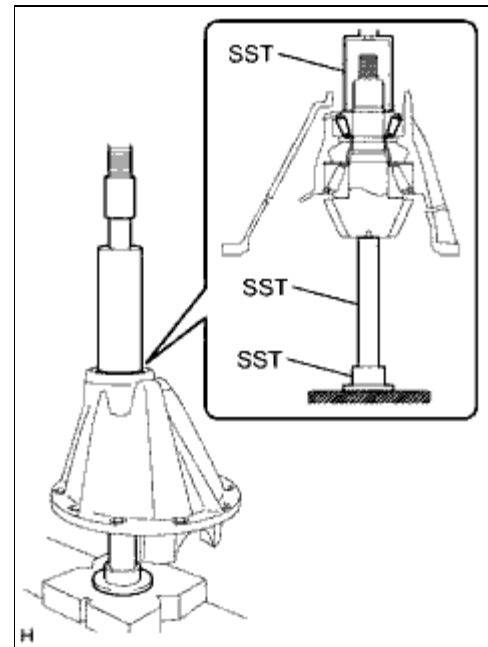
09316-00011

09316-00041

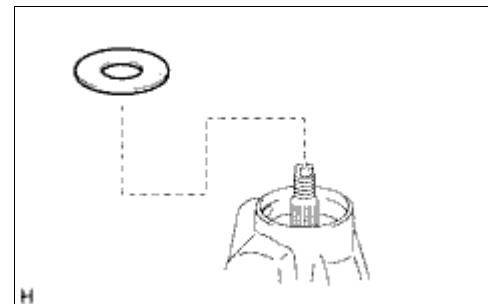
SST: 09608-04031

HINT:

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



- (b) Install the rear differential drive pinion oil slinger.



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

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-30012

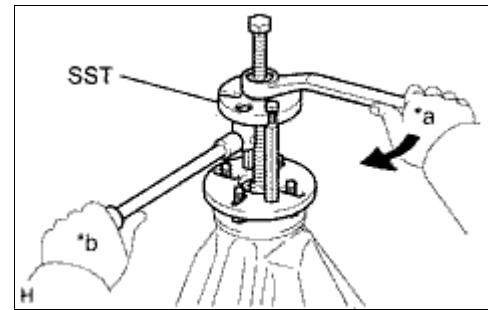
09951-03010

09953-03010

09954-03010

09955-03030

09956-03040



NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.

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

- (e) Using SST to hold the companion flange in place, slowly tighten the nut within the drive pinion preload adjustment range so that it reaches the specified drive pinion preload (at Starting).

SST: 09330-00021

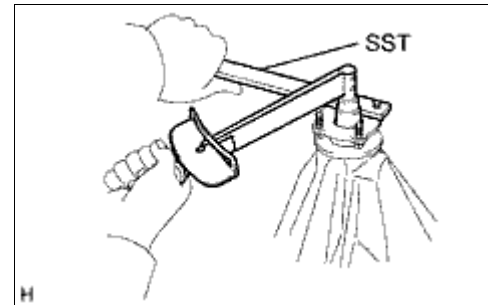
09330-00030

Limit torque value:

457 N*m (4660 kgf*cm, 337 ft.*lbf) or less

NOTICE:

- As there is no spacer, tighten a little at a time. Be careful not to overtighten the nut.
- Apply hypoid gear oil LSD to the drive pinion thread and nut seat face.



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

Standard Drive Pinion Preload (Starting Torque):

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.51 to 3.48 N*m (16 to 35 kgf*cm, 14 to 30 in.*lbf)
4.300	Reused bearing	1.53 to 3.34 N*m (16 to 34 kgf*cm, 14 to 29 in.*lbf)

NOTICE:

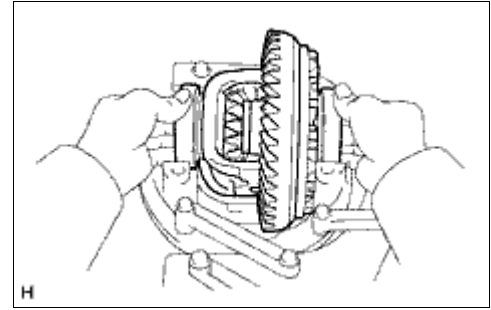
- For a more accurate measurement, rotate the bearing forward and backward several times before measuring.
- Record the differential drive pinion preload for the total preload measurement.

10. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Place the 2 rear differential case bearings (outer) to their respective bearings.

HINT:

Make sure the right and left races are not interchanged.

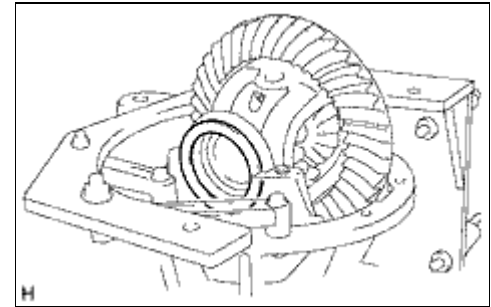


11. ADJUST DIFFERENTIAL RING GEAR BACKLASH

- (a) Install the plate washer to the RH side (teeth side).

NOTICE:

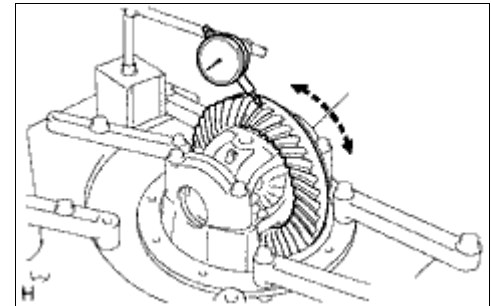
Make sure that the differential ring gear has backlash.



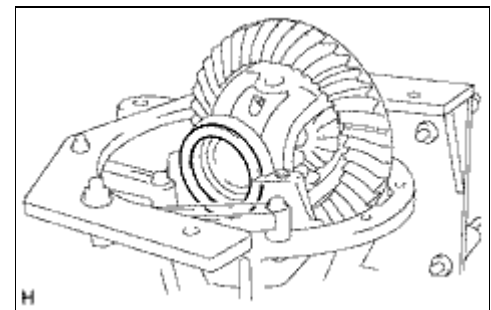
- (b) Using a dial indicator, while holding the companion flange, measure the ring gear backlash.

Standard backlash (reference):

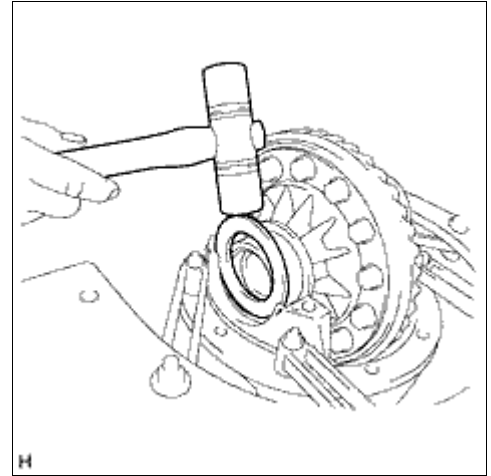
0.10 to 0.20 mm (0.00394 to 0.00787 in.)



- (c) Refer to the backlash when selecting a plate washer for the RH side (teeth side).



- (d) Select a plate washer for the LH side (back side) so that there is no gap between the rear differential case bearing (outer) and differential case.



- (e) Using a plastic-faced hammer, install the plate washer to the LH side (back side).

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

Standard backlash:

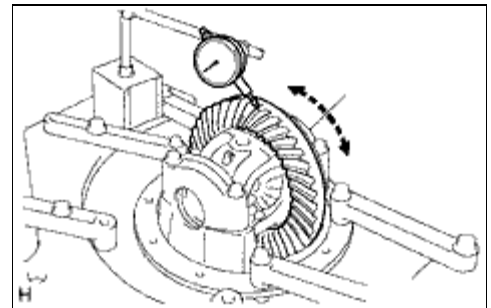
0.10 to 0.20 mm (0.00394 to 0.00787 in.)

HINT:

If the backlash is not within the specification, adjust it by either increasing or decreasing the thickness of the washers on both sides by an equal amount.

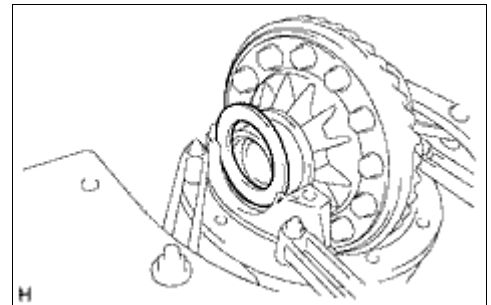
NOTICE:

- There should be no clearance between the plate washer and case.
- Make sure that there is ring gear backlash.

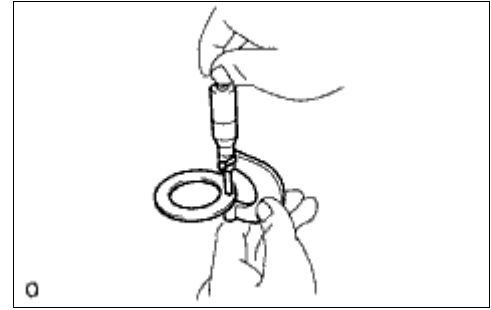


12. ADJUST SIDE BEARING PRELOAD

- (a) After adjusting the backlash of the differential ring gear, remove the plate washer from the LH side (back side).



(b) Using a micrometer, measure the thickness of the plate washer.



(c) Using the backlash as a reference, select a new washer that is 0.05 to 0.20 mm (0.00197 to 0.00787 in.) thicker than the removed plate washer and, using a plastic-faced hammer, tap it in so that it fits against the bearing.

HINT:

Select a plate washer which can be pressed in 2/3 of the full amount with your finger.

(d) Recheck the ring gear backlash.

Standard backlash:

0.10 to 0.20 mm (0.00394 to 0.00787 in.)

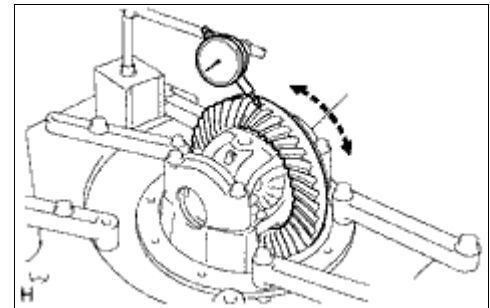
If the backlash is not within the specification, adjust it by either increasing or decreasing the thickness of the washers on both sides by an equal amount.

HINT:

An approximately 0.02 mm (0.000787 in.) change in each plate washer results in a 0.03 mm (0.00118 in.) change in the backlash.

Standard Washer LH (Back Side):

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59044	2.07 to 2.09 (0.0815 to 0.0822)	90564-59060	2.39 to 2.41 (0.0941 to 0.0948)
90564-59045	2.09 to 2.11 (0.0823 to 0.0830)	90564-59061	2.41 to 2.43 (0.0949 to 0.0956)
90564-59046	2.11 to 2.13 (0.0831 to 0.0838)	90564-59062	2.43 to 2.45 (0.0957 to 0.0964)
90564-59047	2.13 to 2.15 (0.0839 to 0.0846)	90564-59063	2.45 to 2.47 (0.0965 to 0.0972)
90564-59048	2.15 to 2.17 (0.0847 to 0.0854)	90564-59064	2.47 to 2.49 (0.0973 to 0.0980)
90564-59049	2.17 to 2.19 (0.0855 to 0.0862)	90564-59065	2.49 to 2.51 (0.0981 to 0.0988)
90564-59050	2.19 to 2.21 (0.0863 to 0.0870)	90564-59066	2.51 to 2.53 (0.0989 to 0.0996)



PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59051	2.21 to 2.23 (0.0871 to 0.0877)	90564-59067	2.53 to 2.55 (0.0997 to 0.1003)
90564-59052	2.23 to 2.25 (0.0878 to 0.0885)	90564-59068	2.55 to 2.57 (0.1004 to 0.1011)
90564-59053	2.25 to 2.27 (0.0886 to 0.0893)	90564-59069	2.57 to 2.59 (0.1012 to 0.1019)
90564-59054	2.27 to 2.29 (0.0894 to 0.0901)	90564-59070	2.59 to 2.61 (0.1020 to 0.1027)
90564-59055	2.29 to 2.31 (0.0902 to 0.0909)	90564-59071	2.61 to 2.63 (0.1028 to 0.1035)
90564-59056	2.31 to 2.33 (0.0910 to 0.0917)	90564-59072	2.63 to 2.65 (0.1036 to 0.1043)
90564-59057	2.33 to 2.35 (0.0918 to 0.0925)	90564-59073	2.65 to 2.67 (0.1044 to 0.1051)
90564-59058	2.35 to 2.37 (0.0926 to 0.0933)	90564-59074	2.67 to 2.69 (0.1052 to 0.1059)
90564-59059	2.37 to 2.39 (0.0934 to 0.0940)	-	-

Standard Washer RH (Teeth Side)::

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59075	2.05 to 2.07 (0.0807 to 0.0814)	90564-59091	2.37 to 2.39 (0.0934 to 0.0940)
90564-59076	2.07 to 2.09 (0.0815 to 0.0822)	90564-59092	2.39 to 2.41 (0.0941 to 0.0948)
90564-59077	2.09 to 2.11 (0.0823 to 0.0830)	90564-59093	2.41 to 2.43 (0.0949 to 0.0956)
90564-59078	2.11 to 2.13 (0.0831 to 0.0838)	90564-59094	2.43 to 2.45 (0.0957 to 0.0964)
90564-59079	2.13 to 2.15 (0.0839 to 0.0846)	90564-59095	2.45 to 2.47 (0.0965 to 0.0972)
90564-59080	2.15 to 2.17 (0.0847 to 0.0854)	90564-59096	2.47 to 2.49 (0.0973 to 0.0980)
90564-59081	2.17 to 2.19 (0.0855 to 0.0862)	90564-59097	2.49 to 2.51 (0.0981 to 0.0988)
90564-59082	2.19 to 2.21 (0.0863 to 0.0870)	90564-59098	2.51 to 2.53 (0.0989 to 0.0996)
90564-59083	2.21 to 2.23 (0.0871 to 0.0877)	90564-59099	2.53 to 2.55 (0.0997 to 0.1003)

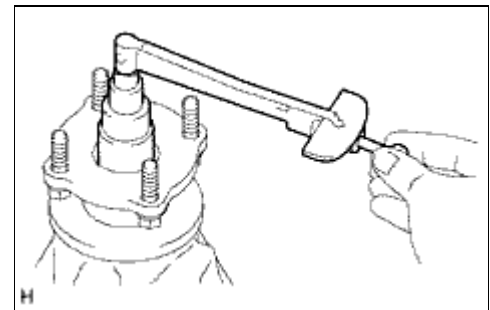
PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-59084	2.23 to 2.25 (0.0878 to 0.0885)	90564-59100	2.55 to 2.57 (0.1004 to 0.1011)
90564-59085	2.25 to 2.27 (0.0886 to 0.0893)	90564-59101	2.57 to 2.59 (0.1012 to 0.1019)
90564-59086	2.27 to 2.29 (0.0894 to 0.0901)	90564-59102	2.59 to 2.61 (0.1020 to 0.1027)
90564-59087	2.29 to 2.31 (0.0902 to 0.0909)	90564-59103	2.61 to 2.63 (0.1028 to 0.1035)
90564-59088	2.31 to 2.33 (0.0910 to 0.0917)	90564-59104	2.63 to 2.65 (0.1036 to 0.1043)
90564-59089	2.33 to 2.35 (0.0918 to 0.0925)	90564-59105	2.65 to 2.67 (0.1044 to 0.1051)
90564-59090	2.35 to 2.37 (0.0926 to 0.0933)	90564-59106	2.67 to 2.69 (0.1052 to 0.1059)

13. INSPECT TOTAL PRELOAD

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

Standard Total Preload:

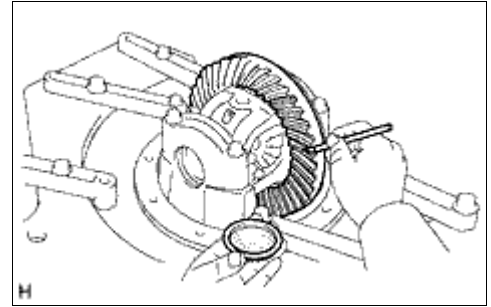
REDUCTION RATIO	ITEM	SPECIFIED CONDITION
3.909	New bearing	1.77 to 4.05 N*m (19 to 41 kgf*cm, 16 to 35 in.*lbf)
	Reused bearing	1.8 to 3.87 N*m (19 to 39 kgf*cm, 16 to 34 in.*lbf)
4.300	New bearing	1.75 to 4.00 N*m (18 to 40 kgf*cm, 16 to 35 in.*lbf)
	Reused bearing	1.78 to 3.82 N*m (19 to 38 kgf*cm, 16 to 33 in.*lbf)



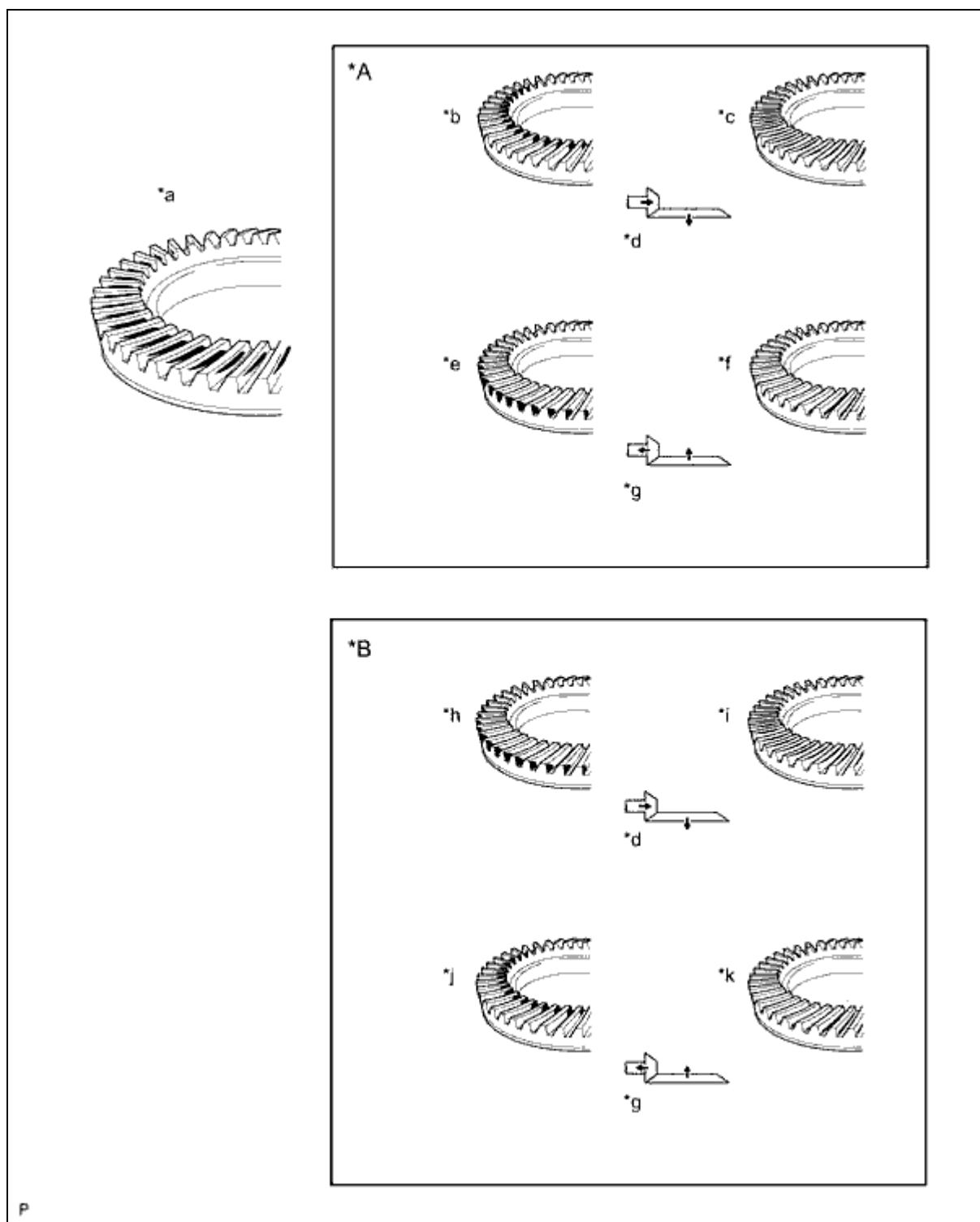
If necessary, disassemble and inspect the differential.

14. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at 3 different positions on the differential ring gear with Prussian blue.



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

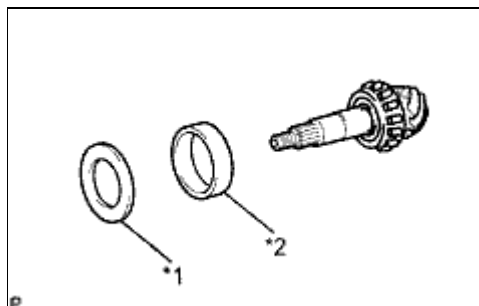


Text in Illustration

*A	Drive Side	*B	Coast Side
*a	Proper Contact	*b	Toe Contact
*c	Face Contact	*d	Select an adjusting washer that will shift the drive pinion closer to the ring gear.
*e	Heel Contact	*f	Flank Contact

*g	Select an adjusting washer that will shift the drive pinion away from the ring gear.	*h	Heel Contact
*i	Flank Contact	*j	Toe Contact
*k	Face Contact	-	-

If the teeth are not contacting properly, use the following chart to select a proper adjust shim.



Text in Illustration

*1	Adjust Shim
*2	Rear Drive Pinion Rear Tapered Roller Bearing (Outer)

Standard Adjust Shim Thickness:

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-78001	1.71 to 1.73 (0.0674 to 0.0681)	90564-78013	1.95 to 1.97 (0.0768 to 0.0775)
90564-78002	1.73 to 1.75 (0.0682 to 0.0688)	90564-78014	1.97 to 1.99 (0.0776 to 0.0783)
90564-78003	1.75 to 1.77 (0.0689 to 0.0696)	90564-78015	1.99 to 2.01 (0.0784 to 0.0791)
90564-78004	1.77 to 1.79 (0.0697 to 0.0704)	90564-78016	2.01 to 2.03 (0.0792 to 0.0799)
90564-78005	1.79 to 1.81 (0.0705 to 0.0712)	90564-78017	2.03 to 2.05 (0.0780 to 0.0807)
90564-78006	1.81 to 1.83 (0.0713 to 0.0720)	90564-78018	2.05 to 2.07 (0.0808 to 0.0814)
90564-78007	1.83 to 1.85 (0.0721 to 0.0728)	90564-78019	2.07 to 2.09 (0.0815 to 0.0822)
90564-78008	1.85 to 1.87 (0.0729 to 0.0736)	90564-78020	2.09 to 2.11 (0.0823 to 0.0830)
90564-78009	1.87 to 1.89 (0.0737 to 0.0744)	90564-78021	2.11 to 2.13 (0.0831 to 0.0838)
90564-78010	1.89 to 1.91 (0.0745 to 0.0751)	90564-78022	2.13 to 2.15 (0.0839 to 0.0846)
90564-78011	1.91 to 1.93 (0.0752 to 0.0759)	90564-78023	2.15 to 2.17 (0.0847 to 0.0854)
90564-78012	1.93 to 1.95 (0.0760 to 0.0767)	90564-78024	2.17 to 2.19 (0.0855 to 0.0862)

15. REMOVE REAR DRIVE PINION NUT [INFO](#)

16. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR [INFO](#)

17. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER [INFO](#)

18. REMOVE DIFFERENTIAL BEARING CAP [INFO](#)

19. REMOVE DIFFERENTIAL CASE ASSEMBLY [INFO](#)

20. REMOVE DIFFERENTIAL DRIVE PINION INFO

21. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER INFO

22. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING INFO

23. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING INFO

24. REMOVE DIFFERENTIAL OIL STORAGE RING INFO

25. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING INFO

26. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the adjust shim and rear drive pinion rear tapered roller bearing (outer) into the differential carrier.

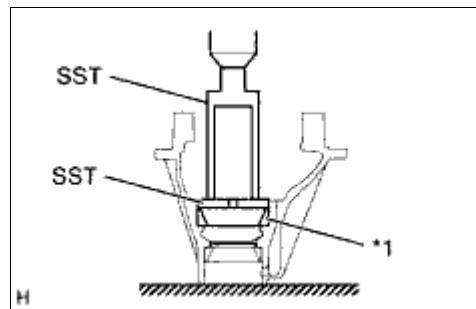
Text in Illustration

*1	Rear Drive Pinion Rear Tapered Roller Bearing (Outer)
----	---

SST: 09316-60011

09316-00011

SST: 09951-01000



27. INSTALL DIFFERENTIAL OIL STORAGE RING

- (a) Using SST and a hammer, tap in a new differential oil storage ring.

Text in Illustration

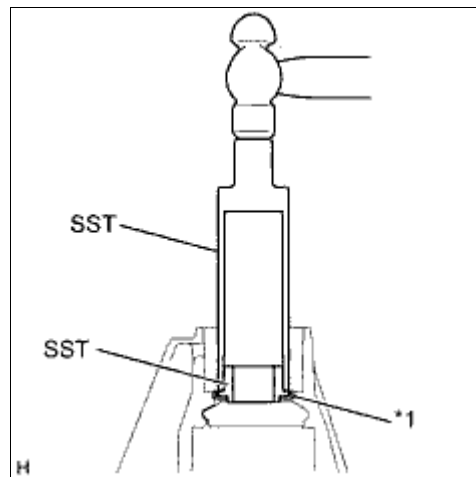
*1	Differential Oil Storage Ring
----	-------------------------------

SST: 09316-60011

09316-00011

NOTICE:

Be careful not to damage the differential oil storage ring.



28. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

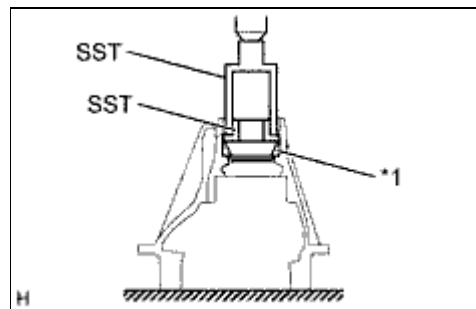
- (a) Using SST and a press, press the rear drive pinion front tapered roller bearing (outer) into the differential carrier.

Text in Illustration

*1	Rear Drive Pinion Front Tapered Roller Bearing (Outer)
----	--

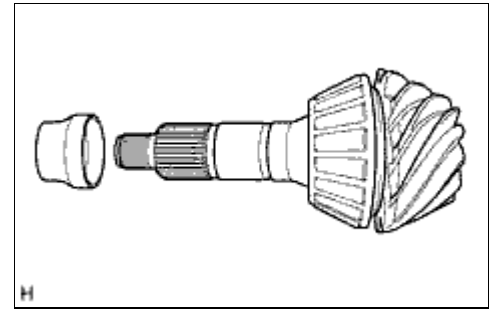
SST: 09316-60011

09316-00011



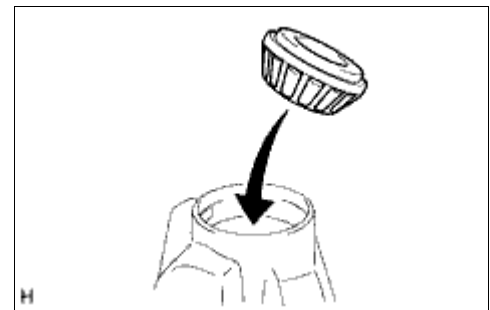
29. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

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



30. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Install the rear drive pinion front tapered roller bearing (inner).



31. INSTALL DIFFERENTIAL DRIVE PINION

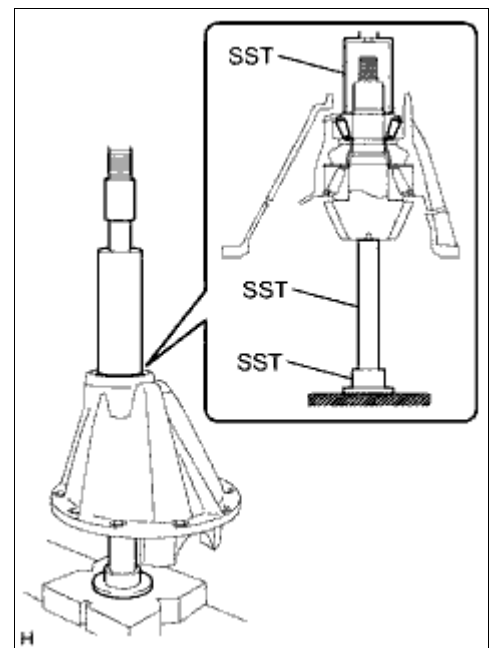
- (a) Using SST and a press, install the differential drive pinion.

SST: 09316-60011

09316-00011

09316-00041

SST: 09608-04031

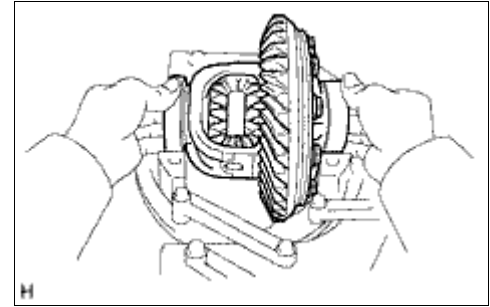


32. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Place the 2 rear differential case bearings (outer) to their respective bearings.

HINT:

Make sure the right and left races are not interchanged.

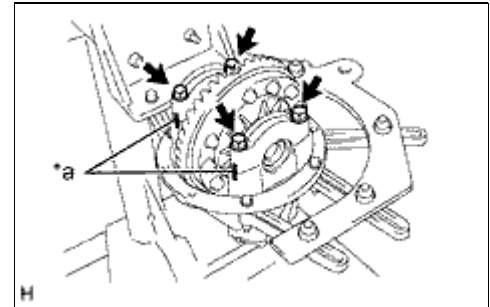


33. INSTALL DIFFERENTIAL BEARING CAP

- (a) Install the 2 plate washers.
- (b) Align the matchmarks on the differential bearing cap and differential carrier.

Text in Illustration

*1	Matchmark
----	-----------



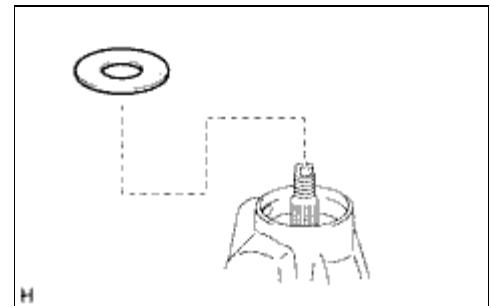
- (c) Install the right and left differential bearing caps with the 4 bolts.

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

34. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

- (a) Install the rear differential drive pinion oil slinger to the differential drive pinion.



35. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

[INFO](#)

36. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR

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

Text in Illustration

*a	Turn
*b	Hold

SST: 09950-30012

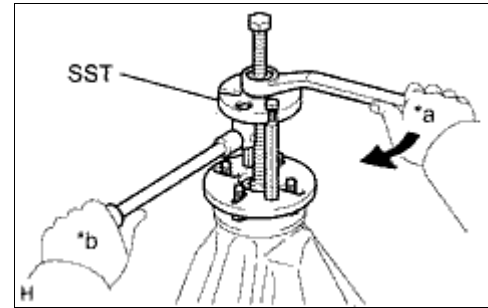
09951-03010

09953-03010

09954-03010

09955-03030

09956-03040



NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.

- (b) Apply hypoid gear oil LSD to the drive pinion thread and nut seat face.

- (c) Using SST to hold the companion flange in place, install a new nut.

Text in Illustration

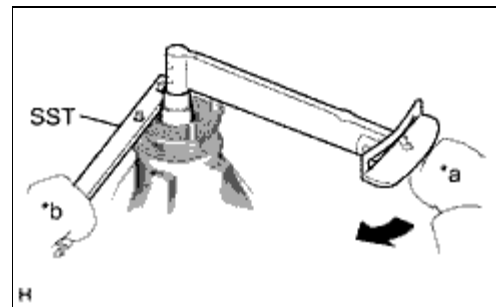
*a	Turn
*b	Hold

SST: 09330-00021

09330-00030

Limit torque value:

457 N*m (4660 kgf*cm, 337 ft.*lbf) or less



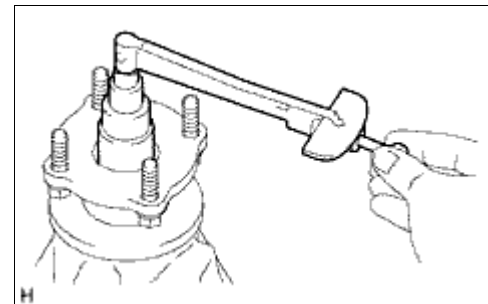
37. INSPECT TOTAL PRELOAD

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

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

Standard Total Preload:

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.87 to 4.15 N*m (20 to 43 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.90 to 3.97 N*m (20 to 41 kgf*cm, 17 to 35 in.*lbf)



REDUCTION RATIO	BEARING	PRELOAD
4.300	New bearing	1.85 to 4.10 N*m (19 to 42 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.88 to 3.92 N*m (20 to 40 kgf*cm, 17 to 34 in.*lbf)

If necessary, disassemble and inspect the differential.

38. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

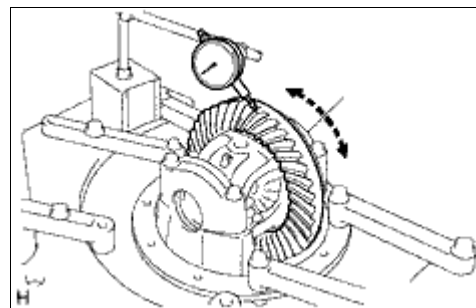
Standard backlash:

0.10 to 0.20 mm (0.00394 to 0.00787 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the ring gear.



39. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

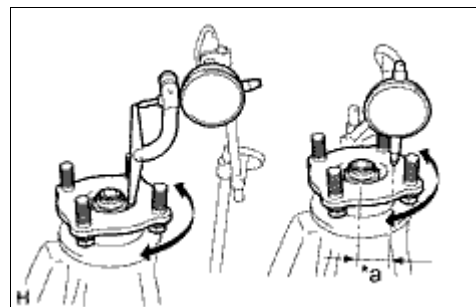
- (a) Using a dial indicator, measure the runout of the companion flange vertically and laterally.

Text in Illustration

*a	30 mm (1.18 in.)
----	------------------

Maximum Runout:

RUNOUT	MAXIMUM
Vertical runout	0.10 mm (0.00394 in.)
Lateral runout	0.10 mm (0.00394 in.)



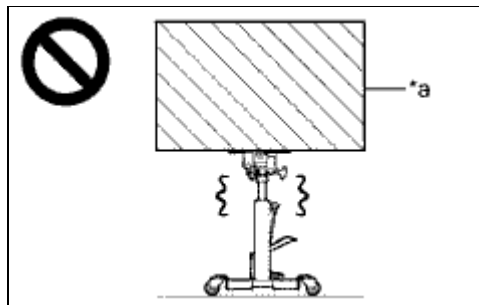
40. STAKE DRIVE PINION NUT

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000017B300BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY (w/o Differential Lock): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL



Text in Illustration

*a	Object Exceeding Weight Limit of Transmission Jack
----	--

- Be sure to perform this procedure with several people as the rear differential carrier assembly is very heavy.
- Be sure to follow the procedure described in the repair manual, or the transmission jack may suddenly drop or a part may fall.

HINT:

The following procedures are for BD22 (w/o Differential Lock).

1. REMOVE REAR WHEELS

2. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

3. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

4. DRAIN DIFFERENTIAL OIL

INFO

5. REMOVE REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

6. REMOVE REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

7. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

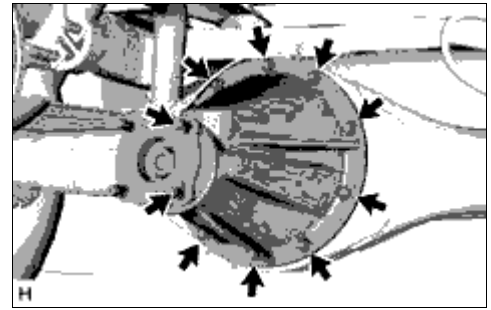
- (a) Remove the 10 nuts, 10 washers and rear differential carrier assembly.

CAUTION:

The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- The remaining oil may leak out when removing the rear differential carrier assembly.
- Do not damage the installation surface when removing the rear differential carrier assembly.
- Remove the bolts with the rear differential carrier assembly secured.



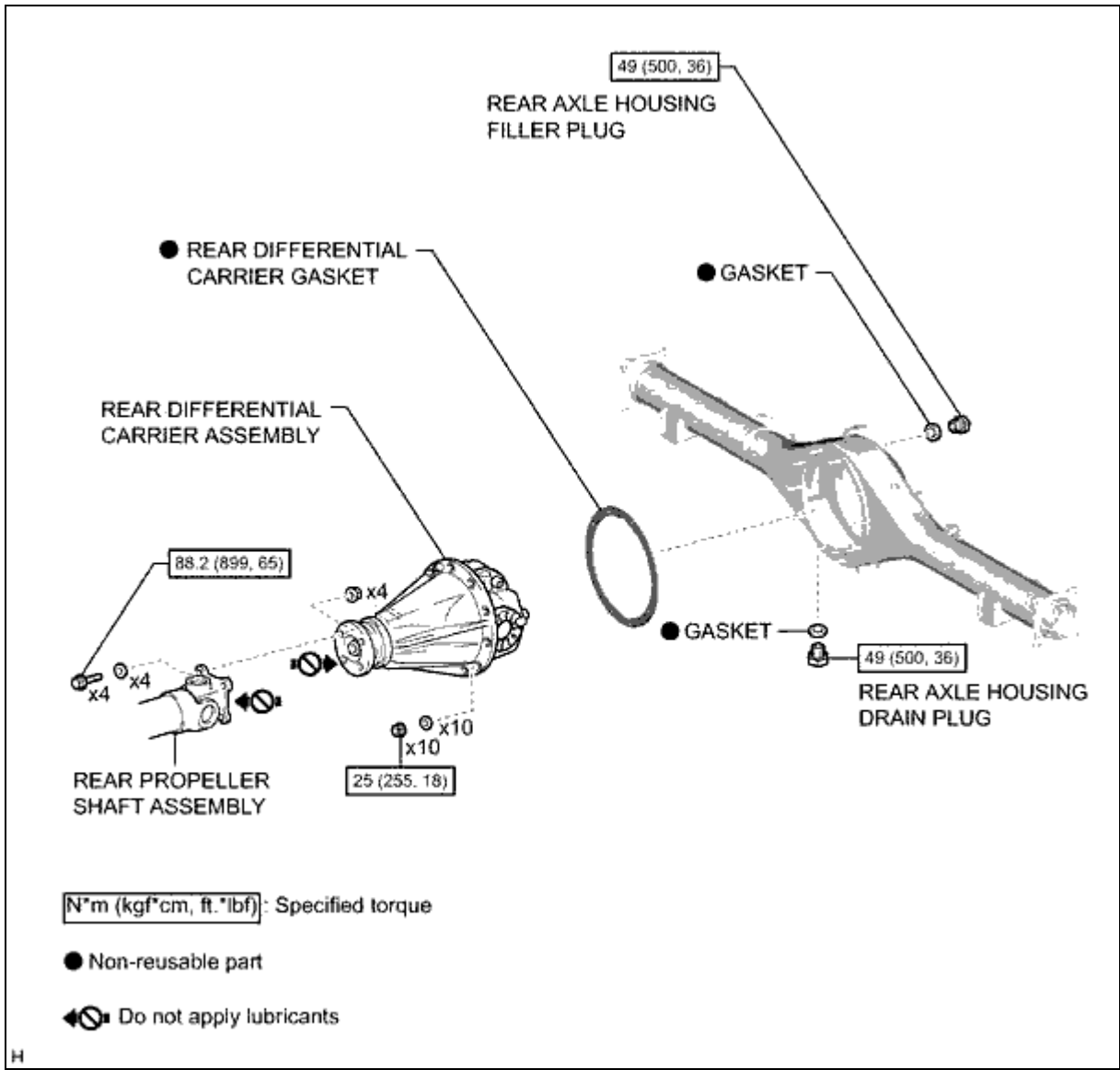
8. REMOVE REAR DIFFERENTIAL CARRIER GASKET



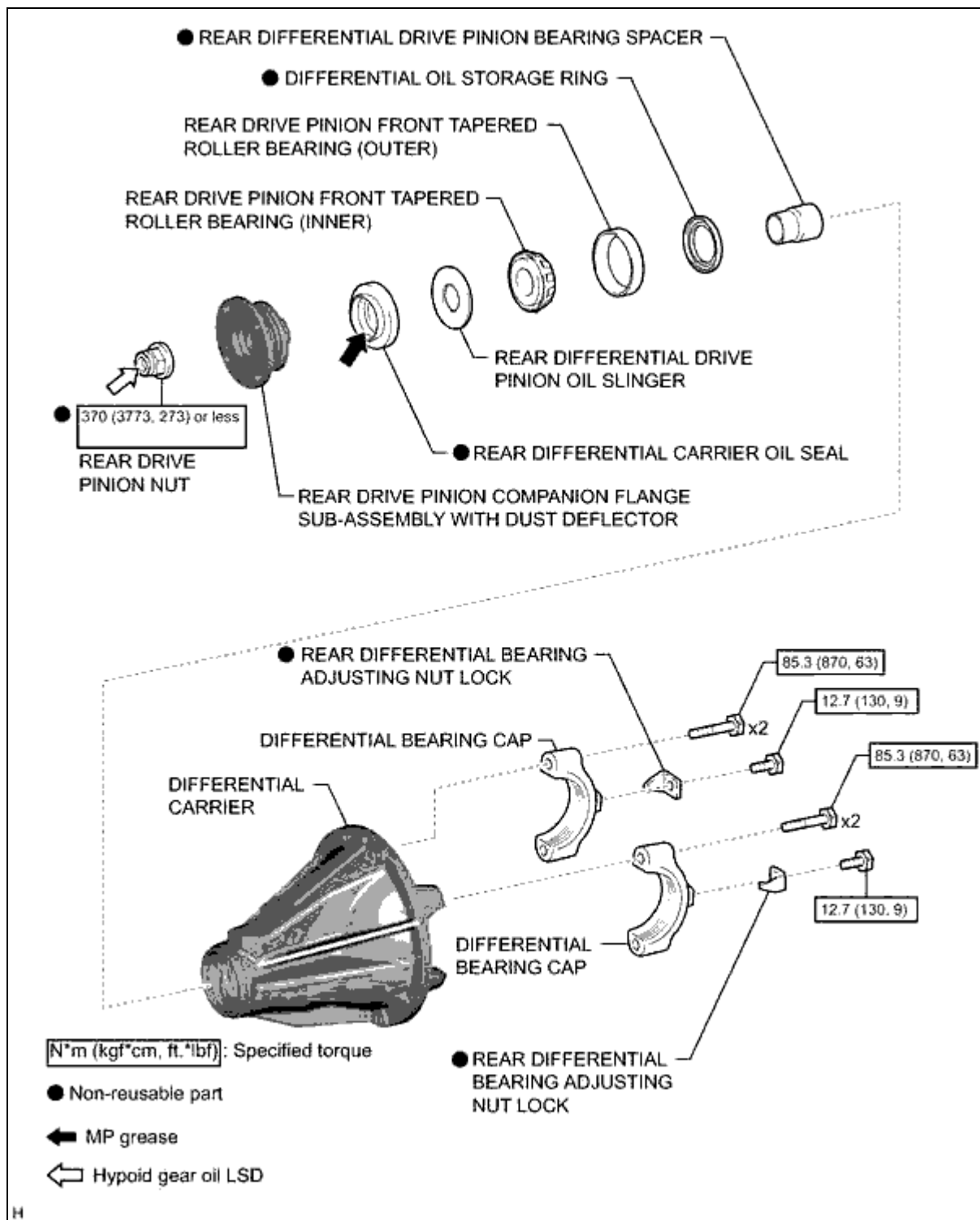
Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VK6000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

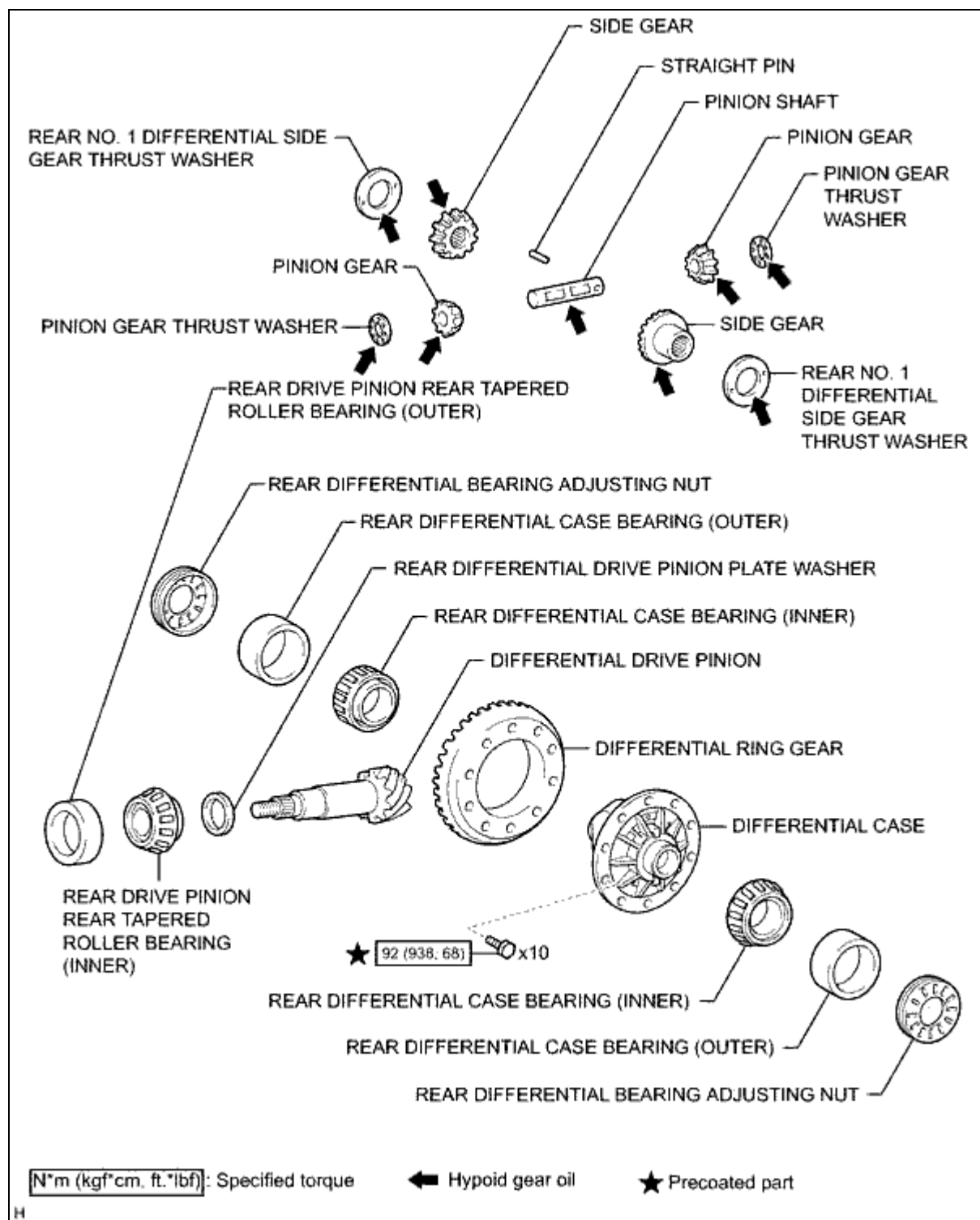
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



H



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VK8000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

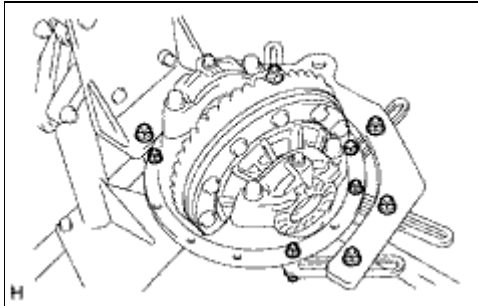
DISASSEMBLY

HINT:

The following procedures are for BD20 (w/o Differential Lock).

1. SECURE REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Secure the differential carrier.



2. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

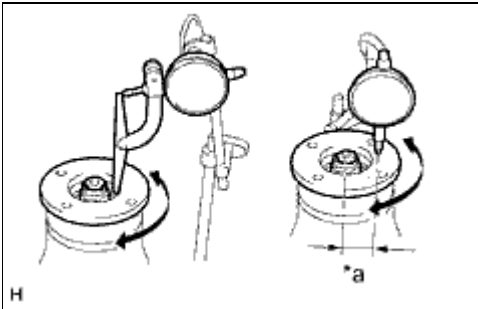
- (a) Using a dial indicator, measure the runout of the companion flange vertically and laterally.

Text in Illustration

*a	30 mm (1.18 in.)
----	------------------

Maximum Runout:

RUNOUT	MAXIMUM
Vertical runout	0.10 mm (0.00394 in.)
Lateral runout	0.10 mm (0.00394 in.)



If the runout is more than the maximum, replace the companion flange.

3. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR

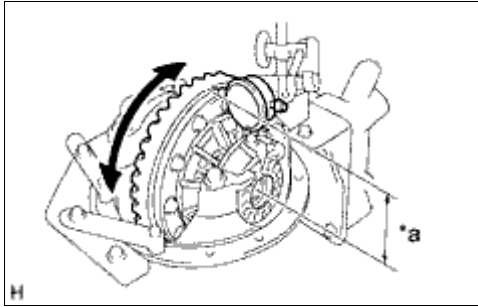
- (a) Using a dial indicator, check the runout of the ring gear.

Text in Illustration

*a	92 mm (3.62 in.)
----	------------------

Maximum runout:
0.07 mm (0.00276 in.)

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



with a new one.

4. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

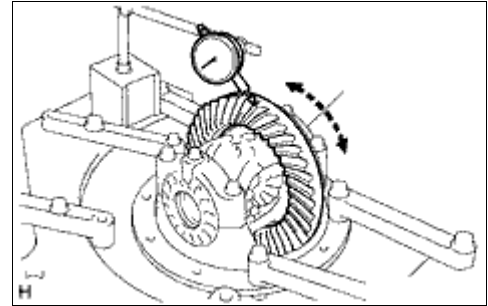
Backlash:

0.13 to 0.18 mm (0.00512 to 0.00708 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the ring gear.



5. INSPECT TOTAL PRELOAD

INFO

6. REMOVE REAR DRIVE PINION NUT

INFO

7. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR

INFO

8. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

INFO

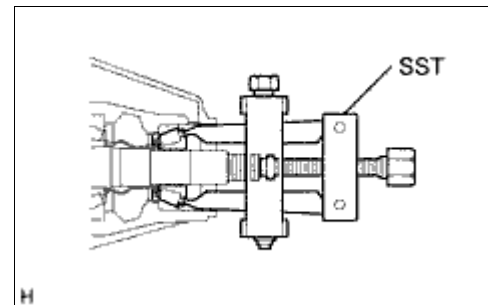
9. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

INFO

10. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

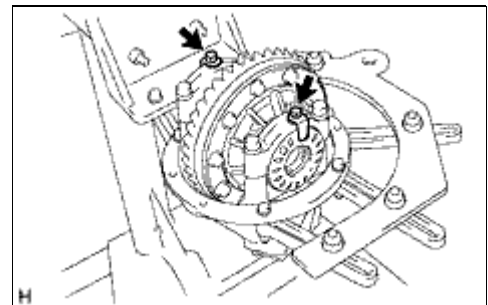
- (a) Using SST, remove the rear drive pinion front tapered roller bearing (inner) from the differential drive pinion.

SST: 09556-22010



11. REMOVE REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK

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

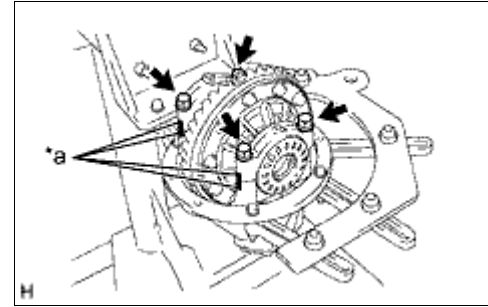


12. REMOVE DIFFERENTIAL CASE ASSEMBLY

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

Text in Illustration

*a	Matchmark
----	-----------

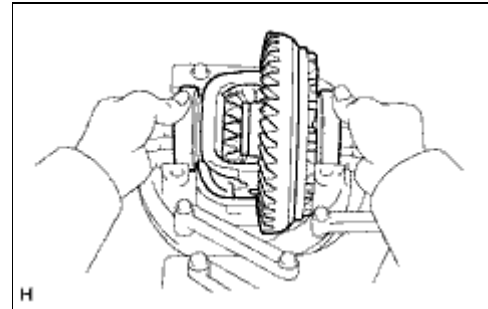


- (b) Remove the 4 bolts and 2 differential bearing caps.
(c) Remove the 2 rear differential bearing adjusting nuts.

- (d) Remove the rear differential case assembly from the differential carrier.

HINT:

Tag the 2 rear differential case bearings (outer) so that they can be reinstalled in the correct locations.



13. REMOVE DIFFERENTIAL DRIVE PINION

- (a) Remove the differential drive pinion and rear differential drive pinion bearing spacer from the differential carrier.

14. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press out the rear drive pinion rear tapered roller bearing (inner) and rear differential drive pinion plate washer from the differential drive pinion.

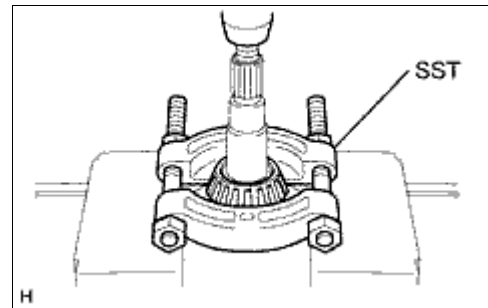
SST: 09950-00020

NOTICE:

Do not drop the differential drive pinion.

HINT:

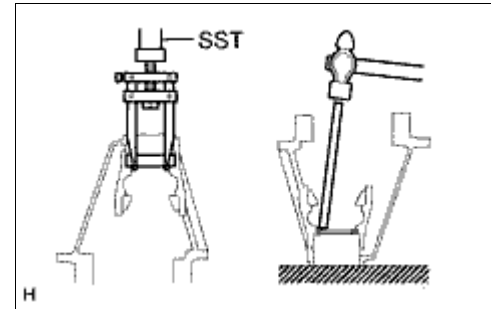
If the differential drive pinion or differential ring gear is damaged, replace them as a set.



15. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the rear drive pinion front tapered roller bearing (outer) from the differential carrier.

SST: 09308-00010



- (b) Using a brass bar and hammer, tap out the differential oil storage ring from the differential carrier.

HINT:

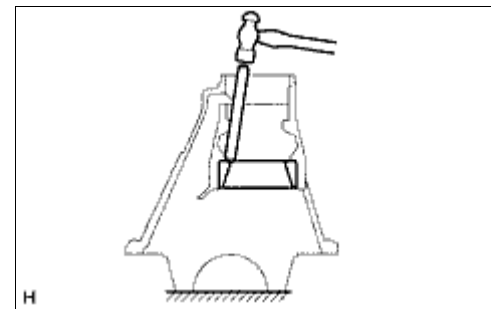
If the bearing is damaged during removal, replace it.

16. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using a brass bar and hammer, tap out the rear drive pinion rear tapered roller bearing (outer) from the differential carrier.

HINT:

If the bearing is damaged during removal, replace it.

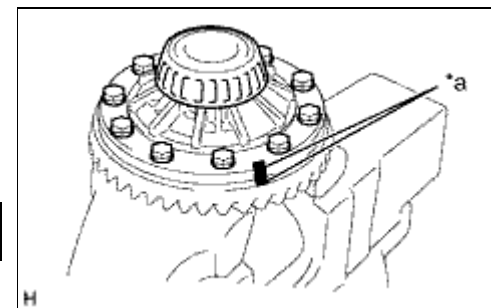


17. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the differential ring gear and differential case.

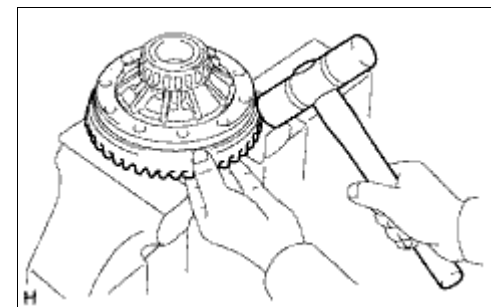
Text in Illustration

*a	Matchmark
----	-----------



- (b) Remove the 10 differential ring gear set bolts.

- (c) Using a plastic-faced hammer, tap on the differential ring gear to separate it from the differential case.



18. INSPECT DIFFERENTIAL CASE ASSEMBLY RUNOUT

If the ring gear runout is within the specified value (refer to the "Inspect Runout of Differential Ring Gear" procedure above), skip this step.

- (a) Install the rear differential case bearings (outer) to the differential case.
- (b) Install the differential case to the differential carrier.
- (c) Install the 2 adjusting nuts.
- (d) Install the 2 bearing caps to the differential carrier with the 4 bolts.

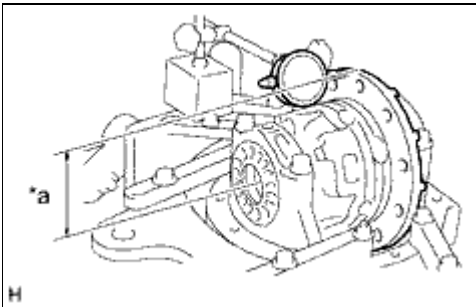
Torque:
85.3 N·m {870 kgf·cm, 63ft·lbf}

- (e) Using a dial indicator, measure the differential case runout.

Text in Illustration

*a	87 mm (3.43 in.)
----	------------------

Maximum runout:
0.07 mm (0.00276 in.)



- (f) Remove the 4 bolts and 2 differential bearing caps.
- (g) Remove the 2 rear differential bearing adjusting nuts.
- (h) Remove the differential case assembly.
- (i) Remove the rear differential case bearings (outer).

19. REMOVE REAR DIFFERENTIAL CASE BEARING

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

Text in Illustration

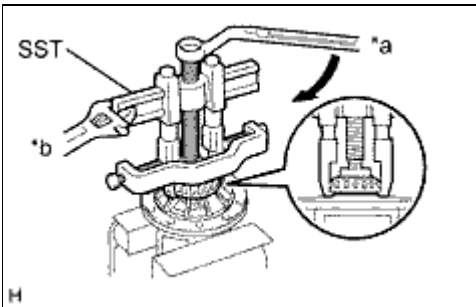
*a	Turn
*b	Hold

SST: 09950-40011

- 09951-04020
- 09952-04010
- 09953-04030
- 09954-04010
- 09955-04061
- 09957-04010
- 09958-04011

SST: 09950-60010

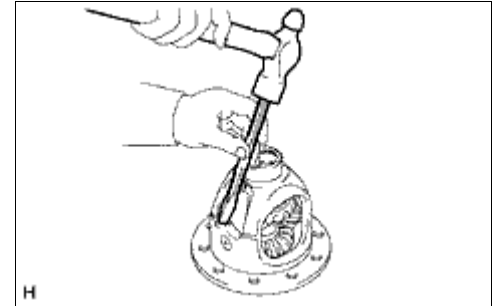
- 09951-00360



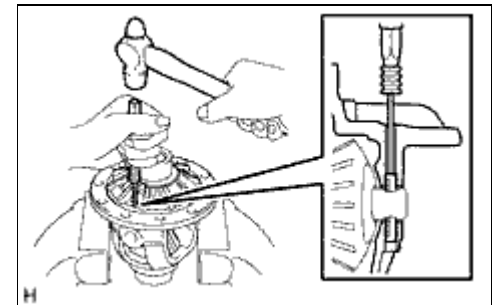
HINT:
Do not remove the rear differential case bearings when not replacing the differential case.

20. DISASSEMBLE DIFFERENTIAL CASE

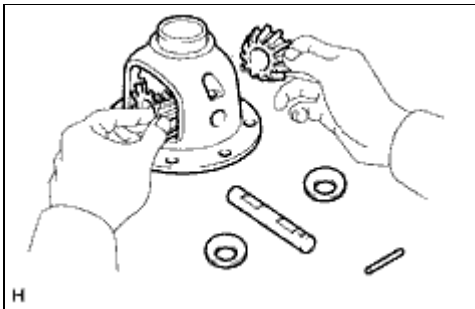
(a) Using a chisel and hammer, unstake the differential case.



(b) Using a pin punch and hammer, tap out the straight pin.



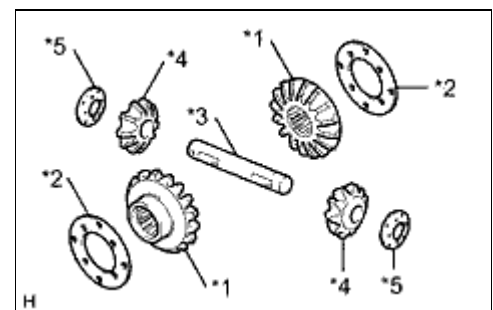
(c) Remove the following parts from the differential case.



(1) Side gear (2 pieces)

Text in Illustration

*1	Side Gear
*2	Rear No. 1 Differential Side Gear Thrust Washer
*3	Pinion Shaft
*4	Pinion Gear
*5	Pinion Gear Thrust Washer



(2) Rear No. 1 differential side gear thrust washer (2 pieces)

(3) Pinion shaft

(4) Pinion gear (2 pieces)

(5) Pinion gear thrust washer (2 pieces)

21. INSPECT REAR DIFFERENTIAL GEAR KIT

- (a) Check that the differential pinion and differential gear are not damaged.

If the differential pinion or differential side gear is damaged, replace the rear differential gear kit.

22. INSPECT DIFFERENTIAL CASE

- (a) Check that the differential case is not damaged.

If the differential case is damaged, replace it.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VK5000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

HINT:

The following procedures are for BD20 (w/o Differential Lock).

1. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

- Clean the contact surfaces of the rear differential carrier assembly and axle housing.
- Install the rear differential carrier assembly, a new rear differential carrier gasket and the washers with the 10 nuts.

Torque:

25 N·m {255 kgf·cm, 18ft·lbf}

CAUTION:

The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Do not damage the installation surface when installing the rear differential carrier assembly.
- The remaining oil may leak out when installing the rear differential carrier assembly.
- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- Install the bolts with the rear differential carrier assembly secured.

2. INSTALL REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

3. INSTALL REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

4. BLEED AIR FROM BRAKE LINE (for Hydraulic Brake Booster)

INFO

5. BLEED AIR FROM BRAKE LINE (for Vacuum Brake Booster)

INFO

6. ADD DIFFERENTIAL OIL

INFO

7. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

8. INSTALL REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

9. ADJUST PARKING BRAKE

INFO

10. INSTALL REAR WHEELS

Torque:

113 N·m {1152 kgf·cm, 83ft·lbf}

11. CHECK ABS SPEED SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

12. CHECK ABS SPEED SENSOR SIGNAL (for Vacuum Brake Booster)

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VK9000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

HINT:

The following procedures are for BD20 (w/o Differential Lock).

1. ASSEMBLE DIFFERENTIAL CASE

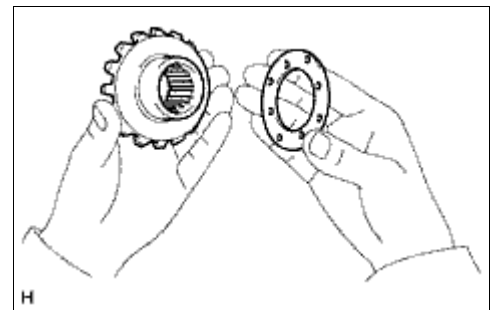
- (a) Install the rear No. 1 differential side gear thrust washer to the side gear.

HINT:

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

Standard Washer Thickness:

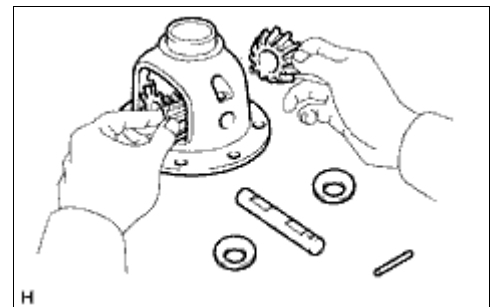
PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
41361-0K010	1.48 to 1.52 (0.0583 to 0.0598)	41361-0K060	1.73 to 1.77 (0.0682 to 0.0696)
41361-0K020	1.53 to 1.57 (0.0603 to 0.0618)	41361-0K070	1.78 to 1.82 (0.0701 to 0.0716)
41361-0K030	1.58 to 1.62 (0.0622 to 0.0637)	41361-0K080	1.83 to 1.87 (0.0721 to 0.0736)
41361-0K040	1.63 to 1.67 (0.0642 to 0.0657)	41361-0K090	1.88 to 1.92 (0.0741 to 0.0755)
41361-0K050	1.68 to 1.72 (0.0662 to 0.0677)	-	-



- (b) Install 2 side gears, 2 pinion gears, 2 rear No. 1 differential side gear thrust washers, 2 pinion gear thrust washers and the pinion shaft in the differential case.

HINT:

Align the holes of the differential case and pinion shaft.



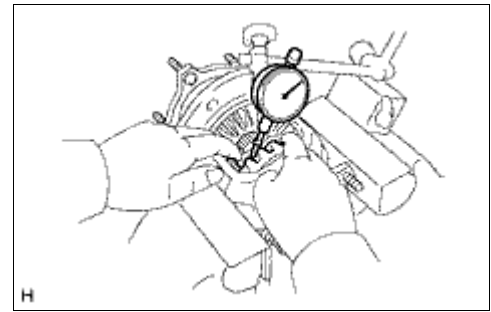
(c) Measure the side gear backlash.

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

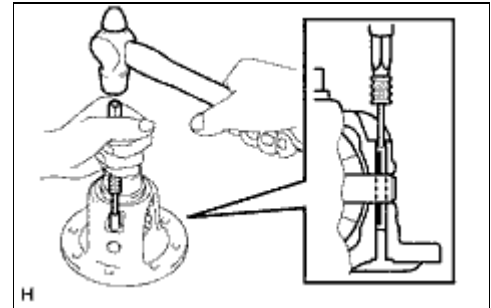
Backlash:

0.05 to 0.20 mm (0.00197 to 0.00787 in.)

If the backlash is not as specified, install 2 rear No. 1 differential side gear thrust washers with different thicknesses.



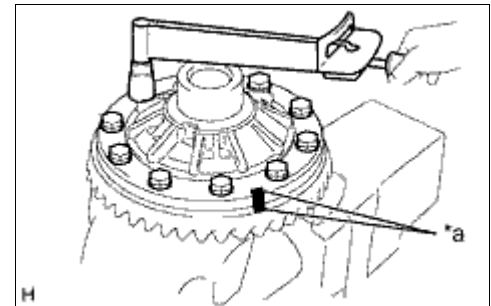
- (d) Using a pin punch and hammer, tap in the straight pin through the differential case and hole of the pinion shaft.



(e) Stake the differential case.

2. INSTALL DIFFERENTIAL RING GEAR

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



Text in Illustration

*a	Matchmark
----	-----------

- (e) After the ring gear cools down sufficiently, apply adhesive to the 10 bolts and Temporarily install them.

Adhesive:

Toyota Genuine Adhesive 1360K, Three Bond 1360K or equivalent

- (f) Diametrically tighten the 10 bolts uniformly in several passes.

Torque:

92 N·m {938 kgf·cm, 68ft·lbf}

3. INSTALL REAR DIFFERENTIAL CASE BEARING

- (a) Using SST and a press, press the 2 rear differential case bearings (inner) onto the differential case.

SST: 09950-60010

09951-00430

09951-00470

09951-00480

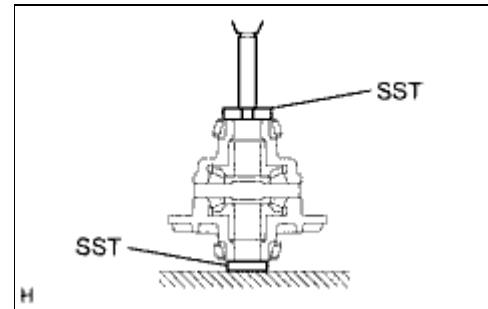
09951-00550

SST: 09950-70010

09951-00560

09951-00570

09951-07150



4. INSPECT DIFFERENTIAL RING GEAR RUNOUT

- (a) Install the differential case on 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:

85.3 N·m {870 kgf·cm, 63ft·lbf}

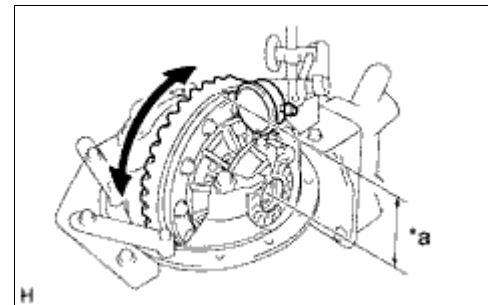
- (c) Using a dial indicator, measure the runout of the differential ring gear.

Text in Illustration

*a	92 mm (3.62 in.)
----	------------------

Maximum runout:

0.07 mm (0.00276 in.)



- (d) Remove the 2 bearing caps, 2 rear differential bearing adjusting nuts and differential case.

5. INSTALL DIFFERENTIAL RING GEAR INFO

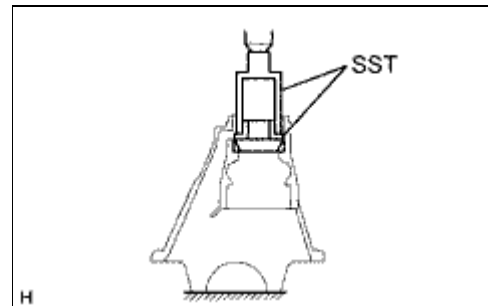
6. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST and a press, press the rear drive pinion front tapered roller bearing (outer) to the differential carrier.

SST: 09316-60011

09316-00011

09316-00021



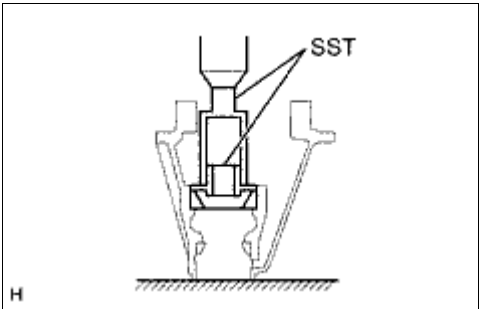
7. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, press the rear drive pinion rear tapered roller bearing (outer) into the differential carrier.

SST: 09316-60011

09316-00011

09316-00041



8. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

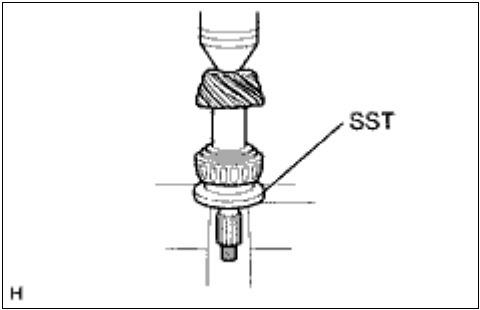
- (a) Install the rear differential drive pinion plate washer to the differential drive pinion.

HINT:

First, install a rear differential drive pinion plate washer that has the same thickness as the removed washer. After checking the tooth contact pattern, replace the plate washer with one of a different thickness if necessary.

- (b) Using SST and a press, press the rear drive pinion tapered roller bearing (inner) onto the differential drive pinion.

SST: 09506-30012

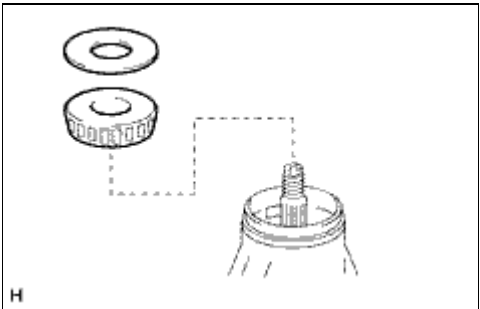


9. ADJUST DIFFERENTIAL DRIVE PINION PRELOAD

- (a) Install the differential drive pinion, rear drive pinion front tapered roller bearing (inner) 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) Using SST, install the rear drive pinion companion flange sub-assembly with dust deflector.

Text in Illustration

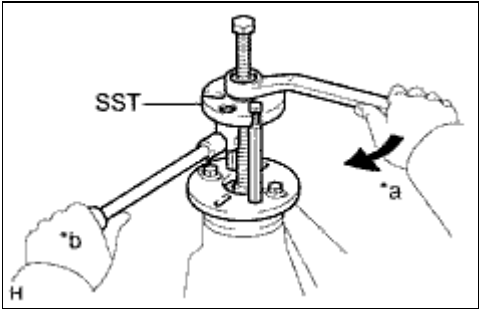
*a	Turn
*b	Hold

SST: 09950-30012

09951-03010

09953-03010

09954-03010

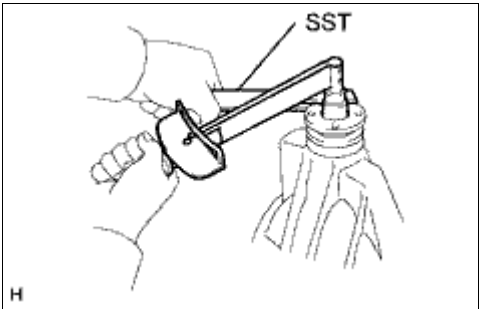


09955-03030
09956-03040

NOTICE:

Before using SST (center bolt), apply hypoid gear oil to its threads and tip.

- (c) Adjust the drive pinion preload by tightening the rear drive pinion nut.



- (d) Using SST to hold the companion flange in place, tighten the rear drive pinion nut.

SST: 09330-00021

09330-00030

Limit torque value:

370 N*m(3773 kgf*cm, 273 ft.*lbf) or less

NOTICE:

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

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

Standard Drive Pinion Preload (Starting Torque):

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	0.99 to 1.94 N*m 1 to 19 kgf*cm, 9 to 17 in.*lbf)
4.300	Reused bearing	0.99 to 1.82 N*m (11 to 18 kgf*cm, 9 to 16 in.*lbf)

NOTICE:

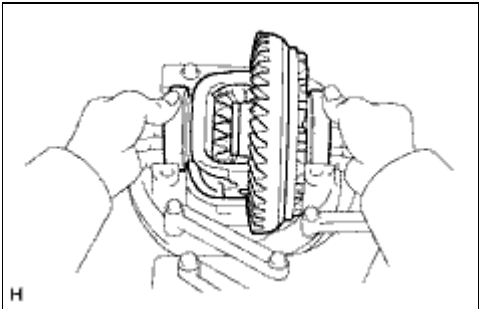
- For a more accurate measurement, rotate the bearing forward and backward several times before measuring.
- Record the differential drive pinion preload for the total preload measurement.

10. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Place the 2 rear differential case bearings (outer) to their respective bearings.

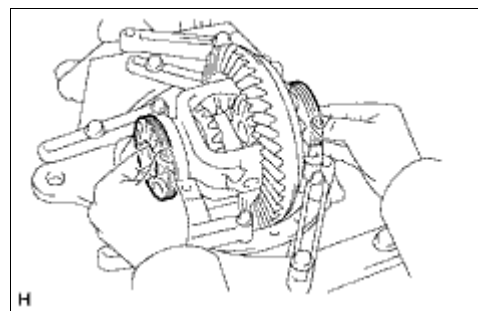
HINT:

Make sure the right and left races are not interchanged.



11. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT

- (a) Install the 2 rear differential bearing adjusting nuts to the carrier, making sure the nuts are threaded properly.

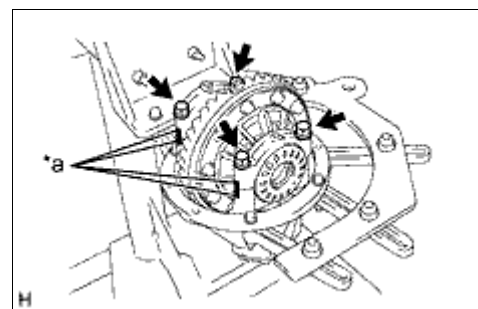


12. INSPECT AND ADJUST DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION BACKLASH

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

Text in Illustration

*a	Matchmark
----	-----------



- (b) Install the right and left bearing caps with the 4 bolts.

Torque:

85.3 N·m {870 kgf·cm, 63ft·lbf}

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

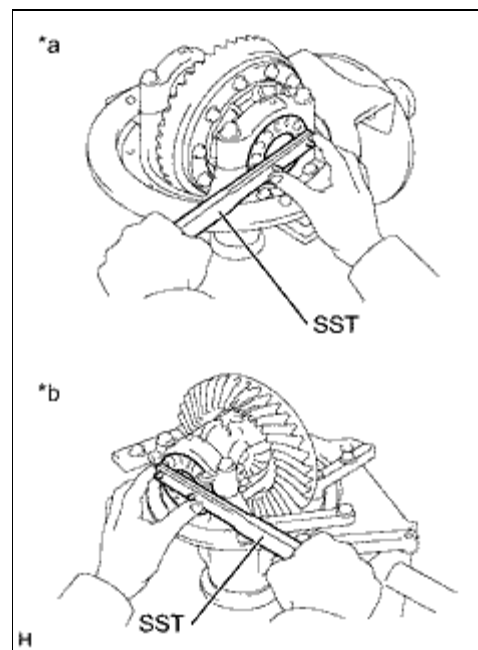
HINT:

Reinstall the adjusting nuts if necessary.

- (c) Loosen the 4 bearing cap bolts to the point where the adjusting nuts can be turned by SST.

Text in Illustration

*a	for LH Side
*b	for RH Side



(d) Using SST, tighten the 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

SST: 09960-10010

09962-01000

09963-00700

(e) While turning the ring gear, use SST to tighten the adjusting nut on the drive pinion side. After the bearings have settled, loosen the adjusting nut on the drive pinion side.

(f) Using SST, tighten the adjusting nut 1 to 1.5 notches from the 0 preload position.

SST: 09504-00011

SST: 09960-10010

09962-01000

09963-00700

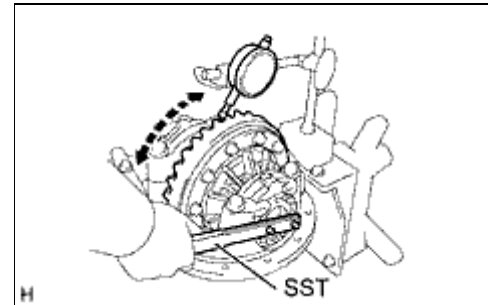
(g) Using a dial indicator, adjust the ring gear backlash until it is within the specification.

Standard backlash:

0.13 to 0.18 mm (0.00512 to 0.00708 in.)

HINT:

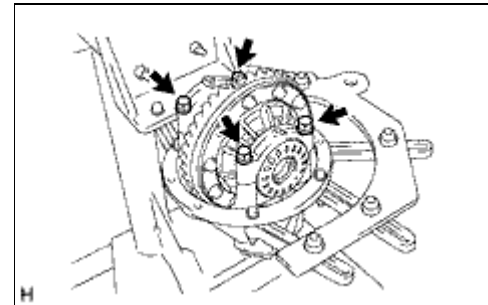
- The backlash is adjusted by turning the left and right adjusting nuts an equal amount. For example, loosen the nut on the right side one notch and loosen the nut on the left side one notch.
- Perform the measurement at 3 or more positions around the circumference of the differential ring gear.



(h) Tighten the bearing cap bolts.

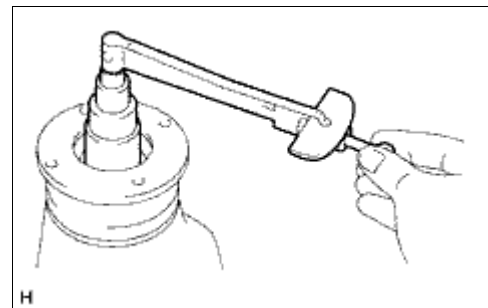
Torque:

85.3 N·m {870 kgf·cm, 63ft·lbf}



13. INSPECT TOTAL PRELOAD

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



(b) Using a torque wrench, measure the total preload.

Standard Total Preload:

REDUCTION RATIO	ITEM	SPECIFIED CONDITION
3.909	New bearing	1.35 to 2.63 N*m (14 to 27 kgf*cm, 12 to 23 in.*lbf)
	Reused bearing	1.35 to 2.40 N*m (14 to 24 kgf*cm, 12 to 21 in.*lbf)
4.300	New bearing	1.31 to 2.56 N*m (14 to 26 kgf*cm, 12 to 22 in.*lbf)
	Reused bearing	1.32 to 2.35 N*m (14 to 23 kgf*cm, 12 to 20 in.*lbf)

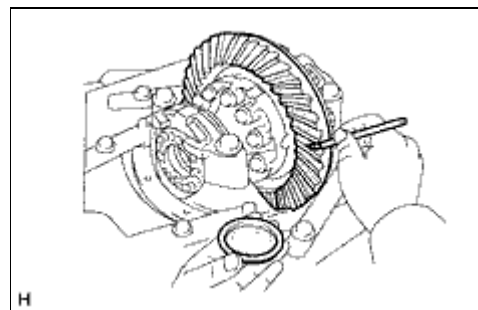
If necessary, disassemble and inspect the differential.

NOTICE:

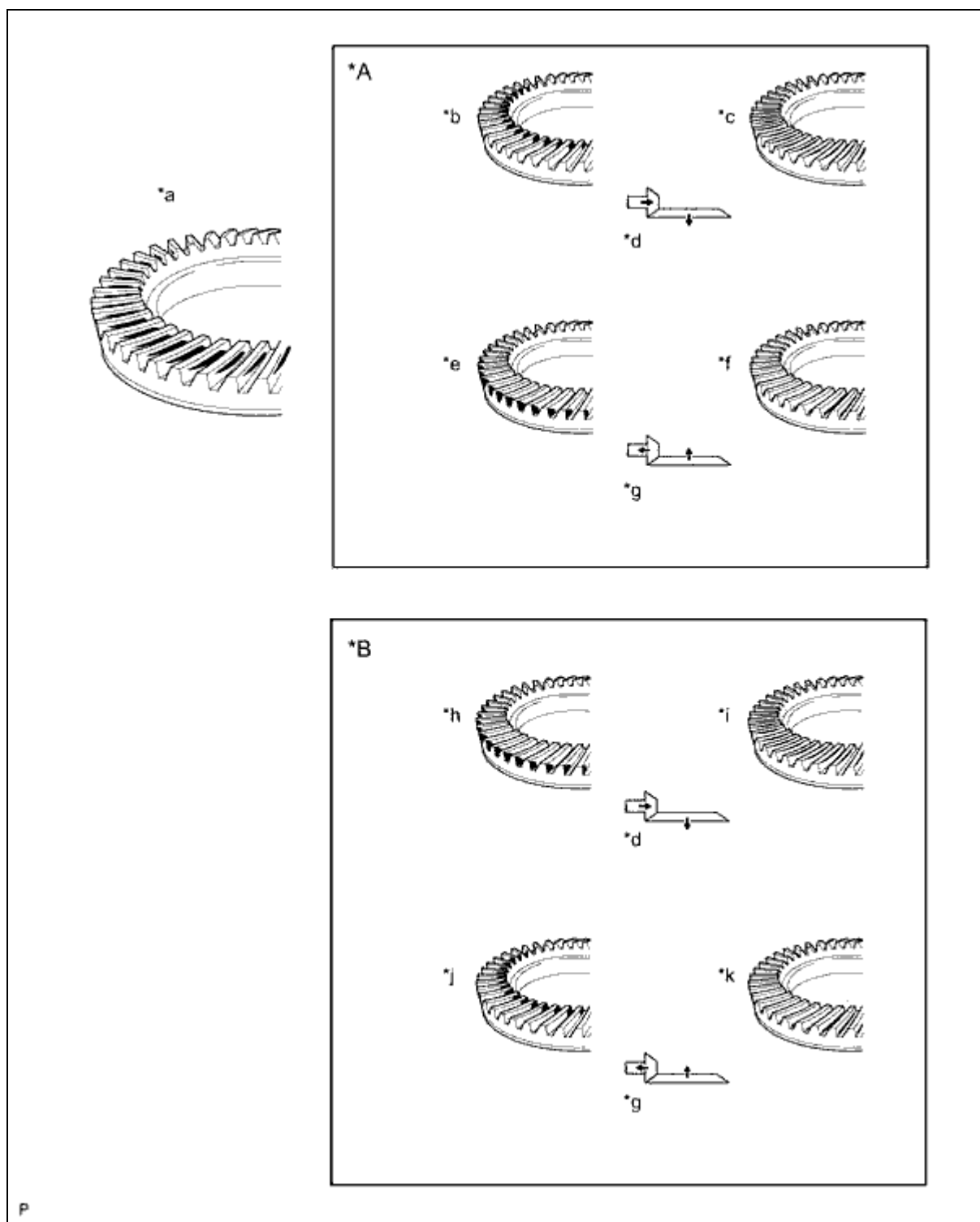
Record the total preload.

14. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at 3 different positions on the differential ring gear with Prussian blue.



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

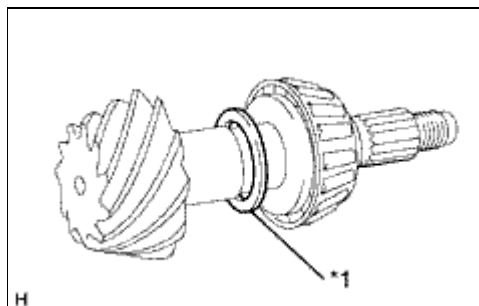


Text in Illustration

*A	Drive Side	*B	Coast Side
*a	Proper Contact	*b	Toe Contact
*c	Face Contact	*d	Select an adjusting washer that will shift the drive pinion closer to the ring gear.
*e	Heel Contact	*f	Flank Contact

*g	Select an adjusting washer that will shift the drive pinion away from the ring gear.	*h	Heel Contact
*i	Flank Contact	*j	Toe Contact
*k	Face Contact	-	-

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



Text in Illustration

*1	Rear Differential Drive Pinion Plate Washer
----	---

Standard Plate Washer Thickness:

PART NO.	THICKNESS MM (IN.)	PART NO.	THICKNESS MM (IN.)
90564-35109	1.69 to 1.71 (0.0666 to 0.0673)	90564-35120	2.02 to 2.04 (0.0796 to 0.0803)
90564-35110	1.72 to 1.74 (0.0678 to 0.0685)	90564-35121	2.05 to 2.07 (0.0807 to 0.0814)
90564-35111	1.75 to 1.77 (0.0689 to 0.0696)	90564-35123	2.08 to 2.10 (0.0819 to 0.0826)
90564-35112	1.78 to 1.80 (0.0701 to 0.0708)	90564-35124	2.11 to 2.13 (0.0831 to 0.0838)
90564-35113	1.81 to 1.83 (0.0713 to 0.0720)	90564-35125	2.14 to 2.16 (0.0843 to 0.0850)
90564-35114	1.84 to 1.86 (0.0725 to 0.0732)	90564-35126	2.17 to 2.19 (0.0855 to 0.0862)
90564-35115	1.87 to 1.89 (0.0737 to 0.0744)	90564-35127	2.20 to 2.22 (0.0867 to 0.0874)
90564-35116	1.90 to 1.92 (0.0748 to 0.0755)	90564-35128	2.23 to 2.25 (0.0878 to 0.0885)
90564-35117	1.93 to 1.95 (0.0760 to 0.0767)	90564-35129	2.26 to 2.28 (0.0890 to 0.0897)
90564-35118	1.96 to 1.98 (0.0772 to 0.0779)	90564-35130	2.29 to 2.31 (0.0902 to 0.0909)
90564-35119	1.99 to 2.01 (0.0784 to 0.0791)	90564-35131	2.32 to 2.34 (0.0914 to 0.0921)

15. REMOVE REAR DRIVE PINION NUT [INFO](#)

16. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR [INFO](#)

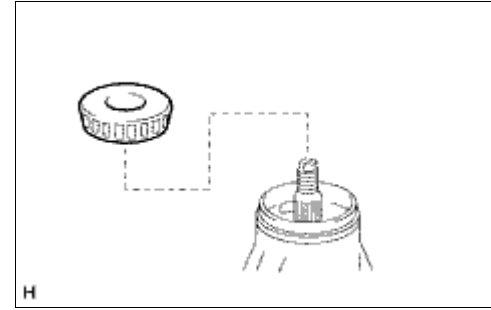
17. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER [INFO](#)

18. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING [INFO](#)

19. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER [INFO](#)

20. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Install the rear drive pinion front tapered roller bearing (inner) to the differential drive pinion.



21. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER INFO

22. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL INFO

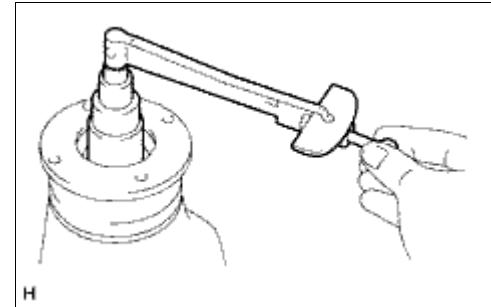
23. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY WITH DUST DEFLECTOR INFO

24. INSPECT TOTAL PRELOAD

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

Standard Total Preload:

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.45 to 2.73 N*m (15 to 27 kgf*cm, 13 to 24 in.*lbf)
	Reused bearing	1.45 to 2.50 N*m (15 to 25 kgf*cm, 13 to 22 in.*lbf)
4.300	New bearing	1.41 to 2.66 N*m (15 to 27 kgf*cm, 13 to 23 in.*lbf)
	Reused bearing	1.42 to 2.45 N*m (15 to 24 kgf*cm, 13 to 21 in.*lbf)



If necessary, disassemble and inspect the differential.

25. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

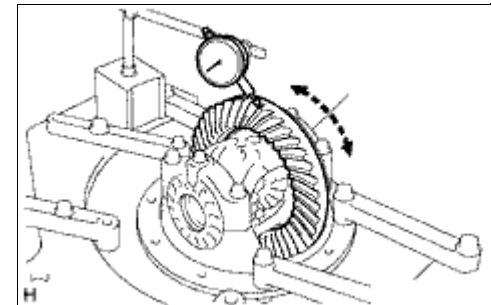
Standard backlash:

0.13 to 0.18 mm (0.00512 to 0.00708 in.)

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

HINT:

Perform the measurement at 3 or more positions around the circumference of the differential ring gear.



26. INSPECT RUNOUT OF REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

INFO

27. STAKE REAR DRIVE PINION NUT

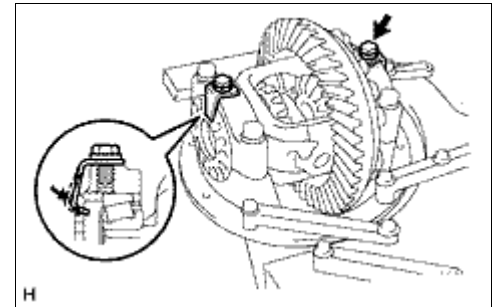
INFO

28. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK

- (a) Install 2 new rear differential bearing adjusting nut locks to the bearing caps with the 2 bolts.

Torque:

12.7 N·m {130 kgf·cm, 9ft·lbf}

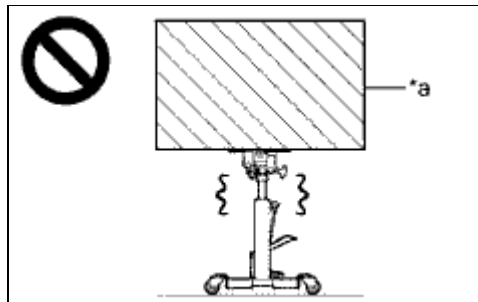


- (b) Bend the nut locks.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VK7000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER ASSEMBLY: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL



Text in Illustration

*a	Object Exceeding Weight Limit of Transmission Jack
----	--

- Be sure to perform this procedure with several people as the rear differential carrier assembly is very heavy.
- Be sure to follow the procedure described in the repair manual, or the transmission jack may suddenly drop or a part may fall.

HINT:

The following procedures are for BD20 (w/o Differential Lock).

1. REMOVE REAR WHEELS

2. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 2WD)

INFO

3. REMOVE REAR PROPELLER SHAFT ASSEMBLY (for 4WD)

INFO

4. DRAIN DIFFERENTIAL OIL

INFO

5. REMOVE REAR AXLE SHAFT WITH BACKING PLATE LH

INFO

6. REMOVE REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure described for the LH side.

7. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

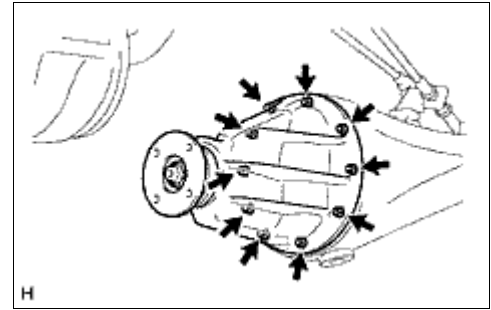
- (a) Remove the 10 nuts, 10 washers and rear differential carrier assembly.

CAUTION:

The rear differential carrier assembly is a heavy component. Make sure that it is supported securely.

NOTICE:

- Securely support the rear differential carrier assembly while performing this step to avoid excessively tilting or dropping the rear differential carrier assembly.
- The remaining oil may leak out when removing the rear differential carrier assembly.
- Do not damage the installation surface when removing the rear differential carrier assembly.
- Remove the bolts with the rear differential carrier assembly secured.



8. REMOVE REAR DIFFERENTIAL CARRIER GASKET



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GM00LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER OIL SEAL: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

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

HINT:

Make sure the front differential drive pinion bearing spacer is installed correctly.

2. INSTALL DIFFERENTIAL OIL STORAGE RING

- (a) Using a brass bar and hammer, tap in a new differential oil storage.

HINT:

Be careful not to damage the differential oil storage ring.

3. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Using SST and a hammer, install the front bearing outer race.
(b) Install the front bearing.

SST: 09316-60011

09316-00011

09316-00021

4. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

- (a) Install the rear differential drive pinion oil slinger to the differential drive pinion.

5. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

- (a) for BD20:

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

Text in Illustration

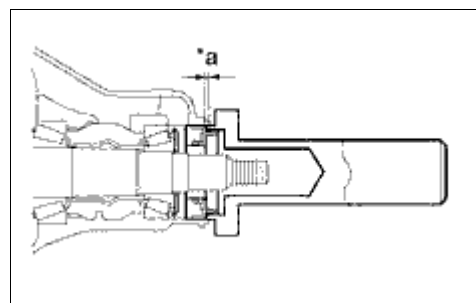
*a	Rear Differential Carrier Oil Seal Depth
----	--

SST: 09554-30011

Oil seal drive in depth:

0.4 to 1.0 mm (0.016 to 0.039 in.)

- (b) for BD22:



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

Text in Illustration

*a	Rear Differential Carrier Oil Seal Depth
----	--

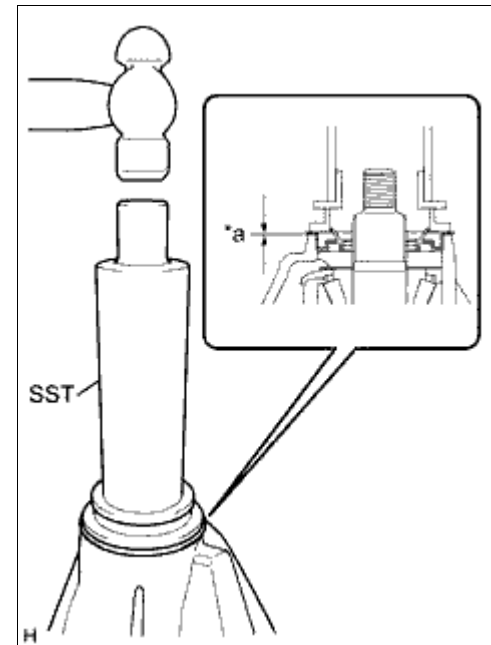
SST: 09316-60011

09316-00031

SST: 09502-12010

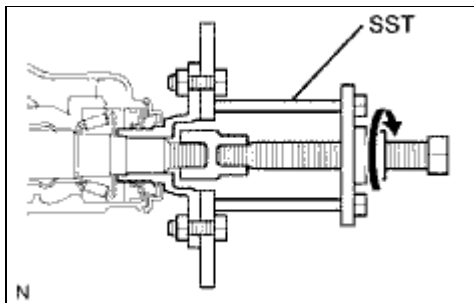
Oil seal drive in depth:

0.0 to 0.3 mm (0.000 to 0.012 in.)



(c) Coat oil seal lip with MP grease.

6. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY



(a) Using SST, install the companion flange.

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

SST: 09950-30012

09951-03010

09953-03010

09954-03010

09955-03030

09956-03030

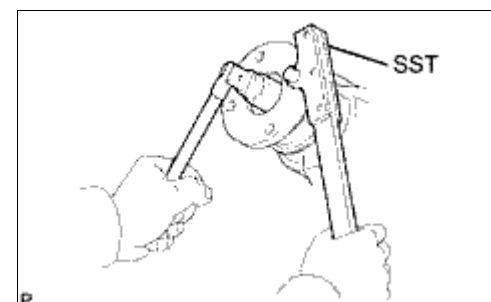
(c) for BD20:

(1) Using SST to hold the companion flange, tighten the nut.

SST: 09330-00021

Torque:

370 N·m {3773 kgf·cm, 273ft·lbf}



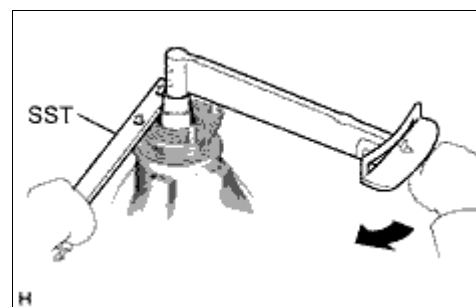
(d) for BD22:

(1) Using SST to hold the companion flange, tighten the nut.

SST: 09330-00021

Torque:

457 N·m {4660 kgf·cm, 337ft·lbf}



7. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

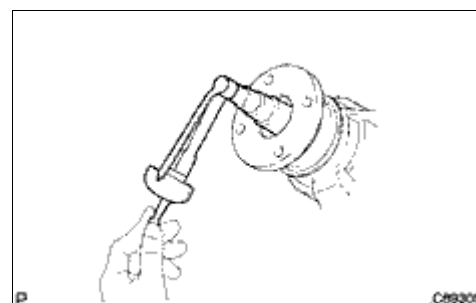
(a) Using a torque wrench, measure the preload of backlash between the drive pinion and ring rear.

Standard Total Preload (for BD20):

REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.45 to 2.73 N*m (15 to 27 kgf*cm, 13 to 24 in.*lbf)
	Reused bearing	1.45 to 2.50 N*m (15 to 25 kgf*cm, 12 to 22 in.*lbf)
4.300	New bearing	1.41 to 2.66 N*m (15 to 27 kgf*cm, 13 to 23 in.*lbf)
	Reused bearing	1.42 to 2.45 N*m (15 to 24 kgf*cm, 13 to 21 in.*lbf)

Standard Total Preload (for BD22A, BD22AN):

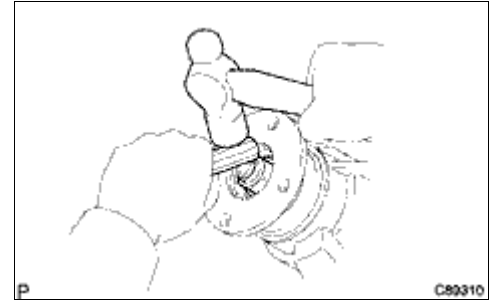
REDUCTION RATIO	BEARING	PRELOAD
3.909	New bearing	1.87 to 4.15 N*m (20 to 42 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.90 to 3.97 N*m (20 to 40 kgf*cm, 17 to 35 in.*lbf)
4.300	New bearing	1.85 to 4.10 N*m (19 to 42 kgf*cm, 17 to 36 in.*lbf)
	Reused bearing	1.88 to 3.92 N*m (20 to 39 kgf*cm, 17 to 34 in.*lbf)



If necessary, disassemble and inspect the differential assembly.

8. STAKE REAR DRIVE PINION NUT

(a) Using a chisel and a hammer, stake the nut.



9. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD)

INFO

10. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD)

INFO

11. ADD DIFFERENTIAL OIL

INFO

12. INSPECT DIFFERENTIAL OIL

INFO

13. INSPECT FOR DIFFERENTIAL OIL LEAKAGE



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GN01KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL CARRIER OIL SEAL: REMOVAL; 2016 MY Tacoma [08/2015 -]		

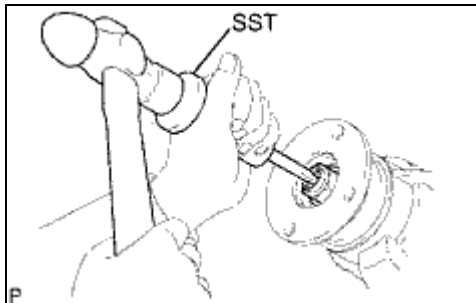
REMOVAL

1. DRAIN DIFFERENTIAL OIL

2. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD) INFO

3. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD) INFO

4. REMOVE REAR DRIVE PINION NUT



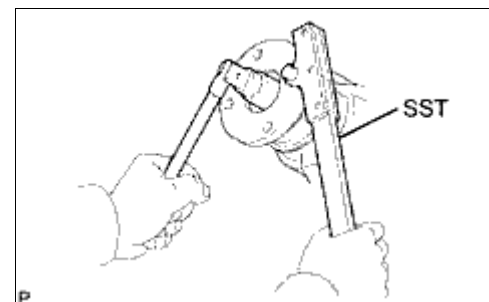
(a) Using SST and a hammer, unstake the nut.

SST: 09930-00010

(b) for BD20:

(1) Using SST to hold the companion flange, remove the nut.

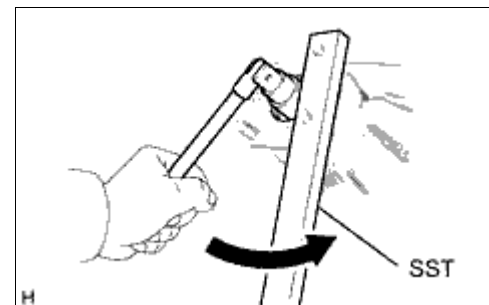
SST: 09330-00021



(c) for BD22:

(1) Using SST to hold the companion flange, remove the nut.

SST: 09330-00021



5. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

(a) Using SST, remove the companion flange.

SST: 09950-30012

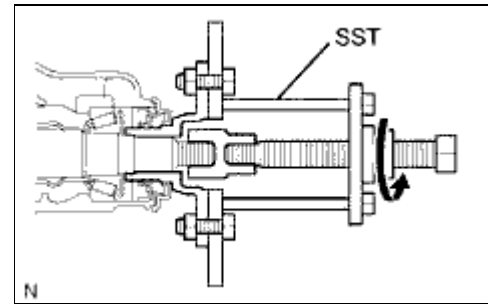
09951-03010

09953-03010

09954-03010

09955-03030

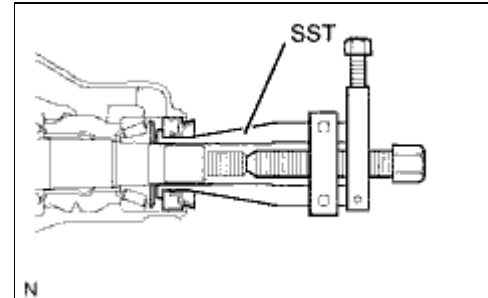
09956-03030



6. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL

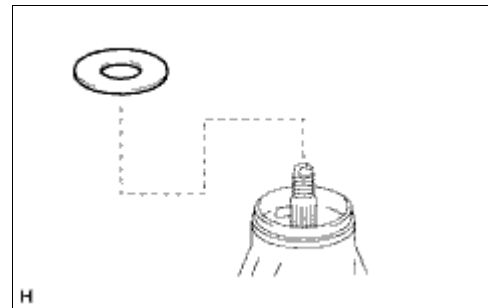
(a) Using SST, remove the oil seal.

SST: 09308-10010



7. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER

(a) Remove the rear differential drive pinion oil slinger from the differential drive pinion.



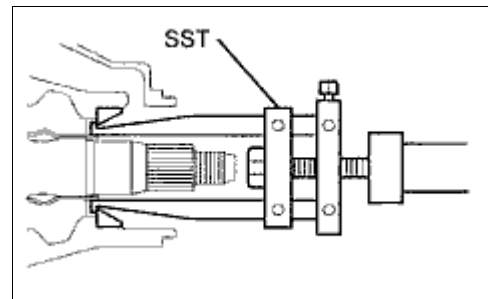
8. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

(a) Using SST, remove the front bearing.

SST: 09556-22010

(b) Using SST, remove the front bearing outer race.

SST: 09308-00010

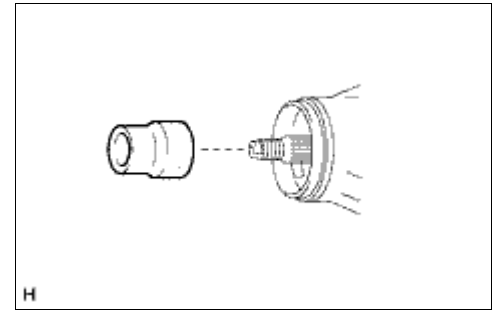


9. REMOVE DIFFERENTIAL OIL STORAGE RING

(a) Using a screwdriver and hammer, tap out the differential oil storage ring.

10. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

- (a) Remove the front differential drive pinion bearing spacer from the differential drive pinion.



Last Modified: 11-13-2015	6.6 N	Doc ID: RM0000016GA00KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL OIL: ADJUSTMENT; 2016 MY Tacoma [08/2015 -]		

ADJUSTMENT

1. INSPECT DIFFERENTIAL OIL

- Stop the vehicle on a level place.
- Remove the differential filler plug and gasket.
- Check that the oil level is within 5 mm (0 to 0.20 in.) of the bottom of the filler plug opening.

NOTICE:

- Excessively large or small quantities of oil may cause problems.
- After replacing the oil, drive the vehicle and check the oil level again.

HINT:

If necessary, fill the differential carrier assembly with differential gear oil.

Oil type and viscosity:

Toyota Genuine Differential gear oil LT APL 75W-85 GL-5 or equivalent.

Capacity:

Front differential carrier assembly:

1.45 to 1.55 liters

(1.54 to 1.64 US qts, 1.28 to 1.36 Imp. qts)

Rear differential carrier assembly (for BD20D (EX Long Wheelbase)):

2.85 to 2.95 liters

(3.01 to 3.12 US qts, 2.51 to 2.60 Imp. qts)

Rear differential carrier assembly (for BD20D (SP Long Wheelbase)):

3.00 to 3.10 liters

(3.17 to 3.28 US qts, 2.64 to 2.73 Imp. qts)

Rear differential carrier assembly (for BD22A (EX Long Wheelbase)):

3.75 to 3.85 liters

(3.96 to 4.07 US qts, 3.30 to 3.39 Imp. qts)

Rear differential carrier assembly (for BD22AN (EX Long Wheelbase)):

3.75 to 3.85 liters

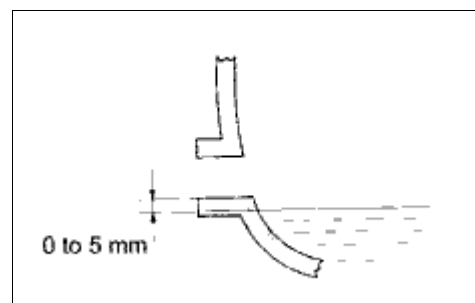
(3.96 to 4.07 US qts, 3.30 to 3.39 Imp. qts)

Rear differential carrier assembly (for BD22AN (SP Long Wheelbase)):

3.95 to 4.05 liters

(4.17 to 4.28 US qts, 3.48 to 3.56 Imp. qts)

- Check for oil leakage if the oil level is low.



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

Torque:

Front differential carrier assembly -

39 N·m {398 kgf·cm, 29ft·lbf}

Rear differential carrier assembly -

49 N·m {500 kgf·cm, 36ft·lbf}



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GE00IX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL (for 4WD): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

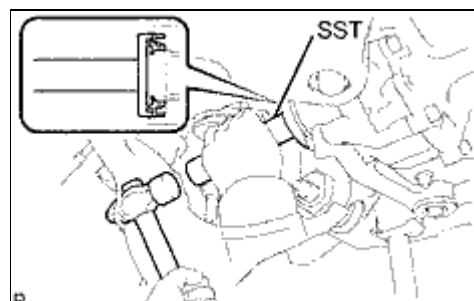
INSTALLATION

1. 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.



2. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH INFO

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

4. INSTALL FRONT SUSPENSION LOWER ARM LH INFO

5. INSTALL FRONT SUSPENSION LOWER ARM RH

HINT:

Use the same procedure as for the LH side.

6. INSTALL TIE ROD END SUB-ASSEMBLY LH INFO

7. INSTALL TIE ROD END SUB-ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

8. INSTALL FRONT SPEED SENSOR LH INFO

9. INSTALL FRONT SPEED SENSOR RH

HINT:

Use the same procedure as for the LH side.

10. INSTALL FRONT STABILIZER LINK ASSEMBLY LH INFO

11. INSTALL FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

12. INSTALL FRONT AXLE SHAFT LH NUT INFO

13. INSTALL FRONT AXLE SHAFT RH NUT

HINT:

Use the same procedure as for the LH side.

14. ADD DIFFERENTIAL OIL**INFO****15. INSPECT DIFFERENTIAL OIL****INFO****16. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY****Torque:****30 N·m {306 kgf·cm, 22ft·lbf}****17. INSTALL NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Engine Under Cover No, 2)****Torque:****30 N·m {306 kgf·cm, 22ft·lbf}****18. INSTALL FRONT WHEELS****Torque:****113 N·m {1152 kgf·cm, 83ft·lbf}****19. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT****INFO****20. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL****Torque:****5.4 N·m {55 kgf·cm, 48in·lbf}****21. CHECK VSC SENSOR SIGNAL (for Hydraulic Brake Booster)****INFO****22. CHECK VSC SENSOR SIGNAL (for Vacuum Brake Booster)****INFO**

Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GF00IX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL (for 4WD): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

- 1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
- 2. REMOVE FRONT WHEELS**
- 3. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY**
- 4. REMOVE NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Engine Under Cover No, 2)**
- 5. DRAIN DIFFERENTIAL OIL**
- 6. REMOVE FRONT AXLE SHAFT LH NUT** [INFO](#)
- 7. REMOVE FRONT AXLE SHAFT RH NUT**

HINT:

Use the same procedure as for the LH side.

- 8. SEPARATE FRONT STABILIZER LINK ASSEMBLY LH** [INFO](#)
- 9. SEPARATE FRONT STABILIZER LINK ASSEMBLY RH**

HINT:

Use the same procedure as for the LH side.

- 10. SEPARATE FRONT SPEED SENSOR LH** [INFO](#)
- 11. SEPARATE FRONT SPEED SENSOR RH**

HINT:

Use the same procedure as for the LH side.

- 12. SEPARATE TIE ROD END SUB-ASSEMBLY LH** [INFO](#)
- 13. SEPARATE TIE ROD END SUB-ASSEMBLY RH**

HINT:

Use the same procedure as for the LH side.

- 14. SEPARATE FRONT SUSPENSION LOWER ARM LH** [INFO](#)
- 15. SEPARATE FRONT SUSPENSION LOWER ARM RH**

HINT:

Use the same procedure as for the LH side.

- 16. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH** [INFO](#)
- 17. REMOVE FRONT DRIVE SHAFT ASSEMBLY RH**

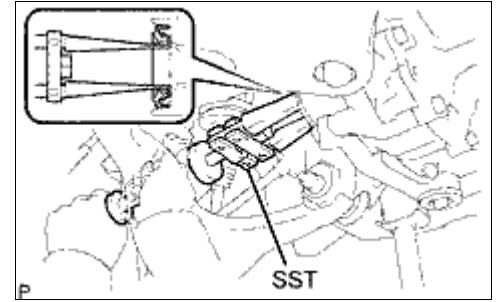
HINT:

Use the same procedure as for the LH side.

18. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

(a) Using SST, remove the oil seal.

SST: 09308-00010



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000005V8K000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

HINT:

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

1. DATA LIST OF 4 WHEEL DRIVE CONTROL ECU

- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Powertrain / Four Wheel Drive / Data List.
- According to the display on the Techstream, read the Data List.

Four Wheel Drive

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
Rear Differential Lock Control	Differential lock switch status (differential lock switch input signal of R terminal on ECU side)/	ON: Switch pressed and held OFF: Switch not pressed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
SW (R)	ON or OFF		
Rear Differential Lock Detection SW (SLS)	Differential lock indicator switch status (differential lock indicator switch input signal of SLS terminal on ECU side)/ ON or OFF	ON: Rear differential locked condition OFF: Rear differential free condition	-
IG SW	Ignition switch status/ ON or OFF	ON: Ignition switch ON	-
Rear Differential Lock Solenoid Target Current	Differential lock coil drive circuit target current value/ Min.: 0.0 A Max.: 25.5 A	Rear differential locked: 1.0 to 8.0 A Rear differential free: 0.1 A or less	-
Rear Differential Lock Solenoid Actual Current	Differential lock coil drive circuit actual current value/ Min.: 0.0 A Max.: 25.5 A	Rear differential locked: 1.0 to 8.0 A Rear differential free: 0.1 A or less	-
Motor Energization Status Signal	Motor power signal status/ ON or OFF	ON: Power supplied to motor OFF: Power not supplied to motor	-
C/C Cancel Request	Cruise control cancellation signal status/ ON or OFF	ON: Cruise control cancellation requested OFF: Cruise control cancellation not requested	-
Rear Differential Lock Status Signal	Rear differential LOCK status signal/ ON or OFF	ON: Rear differential locked condition OFF: Rear differential free condition	-
Buzzer Request	Buzzer sounding request/ NO Sound, Sound(3 times) or Sound	• NO Sound: Does not sound • Sound(3 times): Sounds 3 times • Sound: Sounds intermittently	• Sounds 3 times: Sounds 3 times at 0.5 second intervals (0.5 seconds on and 0.5 seconds off) • Sounds intermittently: 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
Rear Differential	Rear differential lock indicator light request/	• Blink3: Indicator light	• Blinking: 0.5 second intervals

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Lock Indicator Request	Blink4*1, Blink3, Blink2, Blink1, ON or OFF	rapidly blinks • Blink2: Indicator light blinks 3 times • Blink1: Indicator light blinks • ON: Indicator light illuminates • OFF: Indicator light turns off	(0.5 seconds on and 0.5 seconds off) • Rapidly blinking: 0.25 second intervals (0.25 seconds on and 0.25 seconds off)
Rear Differential Lock Solenoid Energization Request	Differential lock coil power command/ ON or OFF	ON: Power supplied to differential lock coil OFF: Power not supplied to differential lock coil	-
IG Voltage	IG monitor voltage/ Min.: 0.0 V Max.: 25.5 V	11 to 14 V: Ignition switch ON	-
Rear Differential Lock Solenoid Voltage	Differential lock coil drive circuit monitor voltage/ Min.: 0.0 V Max.: 25.5 V	Rear differential locked: Higher than 3.5 V Rear differential free: 3.5 V or less	-
Rear Differential Lock Solenoid Duty	Differential lock coil drive circuit duty/ Min.: 0% Max.: 255%	Rear differential locked: 0 to 100% Rear differential free: 0%	-
Mode Status	Mode transition condition/ Initial Control, Particular Control at Start-Up, Shift Settling Control at Start-Up, H2, H2->H4L(T/F Activating), H2->H4L(ADD Activating), H4L->H2(T/F Activating), H4L->H2(ADD Activating), H4L, H4L->L4L, L4L->H4L, L4L Rr Diff. Free, H4F->L4F, L4F->H4F, H4F, H4F->H4L, H4L->H4F, L4F, L4L Rr Diff. Free->Lock, L4L Rr Diff. Lock->Free, L4L Rr Diff. Lock, K1, K2, K3, K4, K5, K6, K7, K8, K9, K10, S01, S02, S03, S04, S05, S06, S07, S08, S09, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, B1, B2, B3, B4, B5, B6, 2WD Rr Diff. Free, 2WD Rr Diff. Free->Lock, 2WD Rr Diff. Lock->Free or 2WD Rr Diff. Lock	Displays transfer shift actuator, A.D.D. actuator*2 and differential lock coil transition condition	HINT: • K1 to K10: Control while switching prohibited • S01 to S24: Control while switching limited • B1 to B6: Control while switching again

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Rear Differential Lock Solenoid	Differential lock coil ECU internal power status/ ON or OFF	ON: Power supplied OFF: Power not supplied	-
CAN Signal Invalid Status by IG Voltage Low	Whether CAN communication data is invalid due to IG voltage drop/ Valid or Inval	Valid: IG voltage 9.5 V or higher	Inval: IG voltage below 9.5 V
SW Input Invalid Status by IG Voltage Low	Whether actuator switch input is invalid due to IG voltage drop/ Valid or Inval	Valid: IG voltage 7.1 V or higher	Inval: IG voltage below 7.1 V
Transfer Shift Invalid Status by IG Voltage Low	Whether transfer shift actuator switching operation is invalid due to IG voltage drop/ Valid or Inval	Valid or Inval	Inval: IG voltage below 9.5 V
Number of DTC	Number of DTCs stored/ Min.: 0 Max.: 255	0	-

*1: Item not supported, therefore not displayed

*2: w/ A.D.D. Actuator



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005V8H000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

The 4 wheel drive control ECU records DTCs when the ECU detects a malfunction in the ECU itself or in system circuits.

The DTCs can be read through the DLC3 of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform troubleshooting.

2. CHECK DLC3

- (a) Inspect the battery voltage.

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge the battery before proceeding.

- (b) Check the DLC3 INFO.

3. FUNCTION OF INDICATOR LIGHT

- (a) When a problem occurs in the differential system (w/ Differential Lock), the rear differential lock indicator light on the combination meter assembly rapidly blinks* to inform the driver of the problem.

*: 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

- (b) Indicator light (illuminated or blinking) or multi-information display status when DTC is output.

(1) for 4WD w/o Multi-information Display

DIFFERENTIAL SYSTEM (w/ Differential Lock)

DTC NO.	REAR DIFFERENTIAL LOCK INDICATOR LIGHT	4WD INDICATOR LIGHT (GREEN / AMBER)	4LO INDICATOR LIGHT
U0122	Rear differential locked: Illuminated Rear differential free: Not illuminated	Rapidly blinking (amber)	Rapidly blinking
U0416			
P163B		Rapidly blinking (amber)	Status displayed*
P17BB	Rapidly blinking	Not illuminated	Not illuminated
P17BC			
P17C0	Rapidly blinking	Status displayed*	Status displayed*
P17C1			
P17CC	Rapidly blinking	Not illuminated	Not illuminated

*: Displays the 2WD/4WD mode status during a malfunction

Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

(2) for 4WD w/ Multi-information Display

DIFFERENTIAL SYSTEM (w/ Differential Lock)

DTC NO.	REAR DIFFERENTIAL LOCK INDICATOR LIGHT	4WD INDICATOR LIGHT (GREEN)	4LO INDICATOR LIGHT	MULTI-INFORMATION DISPLAY MESSAGE
U0122	Rear differential locked: Illuminated	Not illuminated	Rapidly blinking	2WD-4WD mode change malfunction visit your dealer
U0416				
P163B	Rear differential free: Not illuminated	Not illuminated	Status displayed*	
P17BB	Rapidly blinking	Not illuminated	Not illuminated	-
P17BC				
P17C0	Rapidly blinking	Status displayed*	Status displayed*	-
P17C1				
P17CC	Rapidly blinking	Not illuminated	Not illuminated	-

*: Displays the 2WD/4WD mode status during a malfunction

Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

(3) for 2WD:

DIFFERENTIAL SYSTEM (w/ Differential Lock)

DTC NO.	REAR DIFFERENTIAL LOCK INDICATOR LIGHT
U0122	Rapidly blinking
U0416	
P163B	
P17BB	
P17BC	
P17C0	
P17C1	
P17CC	

Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

4. CHECK INDICATOR LIGHT

(a) for 4WD:

With the ignition switch turned to ON and the transfer in 2WD, press the differential lock switch and check that the rear differential lock indicator light blinks* 3 times.

*: 0.5 second intervals (0.5 seconds on and 0.5 seconds off)

for 2WD:

With the ignition switch turned to ON, press the differential lock switch and check that the rear differential lock indicator light blinks* 3 times.

*: 0.5 second intervals (0.5 seconds on and 0.5 seconds off)



Last Modified: 11-13-2015	6.6 S	Doc ID: RM000005V8A000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

Differential System (w/ Differential Lock)

DTC CODE	DETECTION ITEM	SEE PAGE
P163B	4WD ECU Malfunction	INFO
P17BB	Rear Differential Lock Position SW Stuck OFF	INFO
P17BC	Rear Differential Lock Position SW Stuck ON	INFO
P17C0	Rear Differential Lock Solenoid Circuit Low	INFO
P17C1	Rear Differential Lock Solenoid Circuit High	INFO
P17CC	Rear Differential Lock Control SW Stuck ON	INFO
U0122	Lost Communication with Vehicle Dynamics Control Module	INFO
U0416	Invalid Data Received from Vehicle Dynamics Control Module	INFO



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005V8I000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. CHECK DTC

(a) Check the DTCs.

- (1) Turn the ignition switch off.
- (2) Connect the Techstream to the DLC3.
- (3) Turn the ignition switch to ON.
- (4) Turn the Techstream on.
- (5) Read the DTCs following the prompts on the Techstream screen. Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.
- (6) Check the details of the DTCs  .

2. CLEAR DTC

(a) Clear the DTCs.

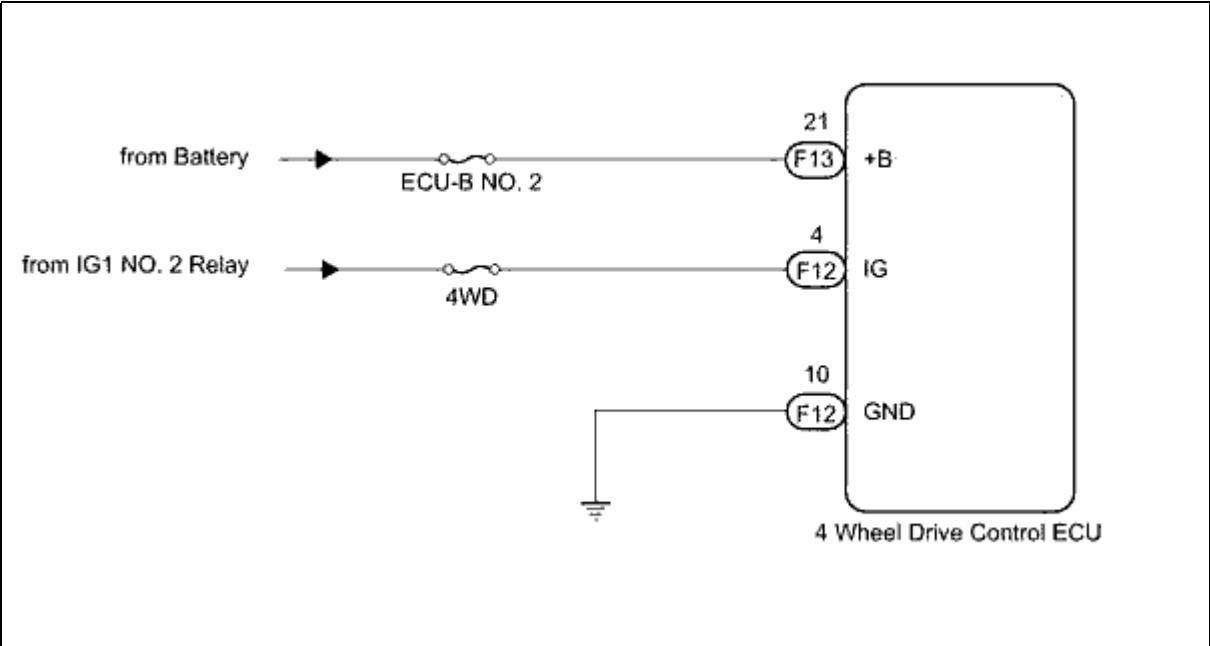
- (1) Turn the ignition switch off.
- (2) Connect the Techstream to the DLC3.
- (3) Turn the ignition switch to ON.
- (4) Turn the Techstream on.
- (5) Operate the Techstream to clear the DTCs. Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.
- (6) According to the display on the Techstream, select the trouble code data display with the clear button.



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000005V8E000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): ECU Power Source Circuit; 2016 MY Tacoma [08/2015 -]		

ECU Power Source Circuit

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:
 Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	INSPECT BATTERY
----	------------------------

- (a) Check the battery voltage.
- Standard voltage:
- 11 to 14 V

NG

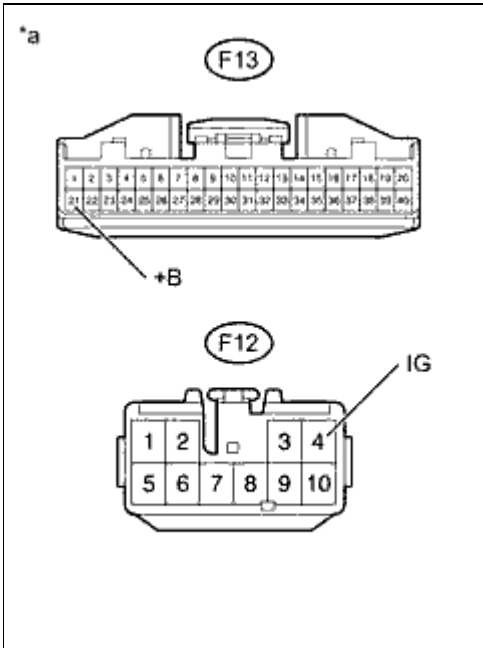
▶

CHECK OR REPLACE CHARGING SYSTEM OR BATTERY

OK
▼

2.	CHECK HARNESS AND CONNECTOR (+B AND IG TERMINAL)
----	--

(a) Turn the ignition switch off.



(b) Disconnect the 4 wheel drive control ECU connector.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F13-21 (+B) - Body ground	Always	11 to 14 V
F12-4 (IG) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to 4 Wheel Drive Control ECU)
----	--

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
(+B OR IG CIRCUIT)

OK
▼

3. CHECK HARNESS AND CONNECTOR (GND TERMINAL)

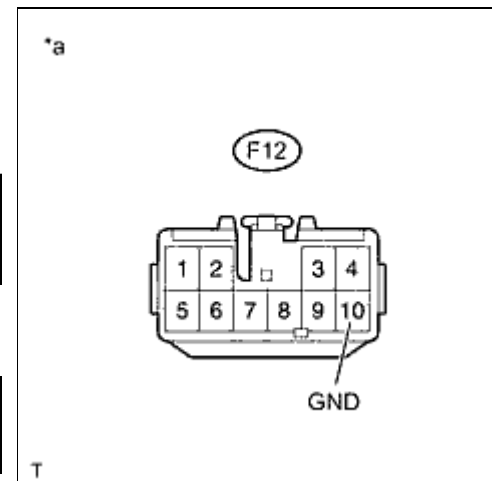
- (a) Turn the ignition switch off.
- (b) Disconnect the 4 wheel drive control ECU connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F12-10 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to 4 Wheel Drive Control ECU)
----	--



NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
(GND CIRCUIT)

OK ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN
PROBLEM SYMPTOMS TABLE



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000005V8L000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): FAIL-SAFE CHART; 2016 MY Tacoma [08/2015 -]		

FAIL-SAFE CHART

1. FAIL-SAFE OPERATION AND DEACTIVATION CONDITION

DIFFERENTIAL SYSTEM (w/ Differential Lock)

DTC NO.	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
U0122	All switching prohibited When rear differential is locked, rear differential switches to free	CAN communication signal from skid control ECU is received and ignition switch is turned from off to ON
U0416	for 4WD: Switching from 2WD to H4 and rear differential free to locked prohibited When rear differential is locked, rear differential switches to free for 2WD: Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Wheel speed sensor malfunction signals from skid control ECU return to normal and ignition switch is turned from off to ON
P163B	for 4WD: Switching from 2WD to H4 and rear differential free to locked prohibited When rear differential is locked, rear differential switches to free for 2WD: Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	4 wheel drive control ECU internal circuit returns to normal and ignition switch is turned from off to ON
P17BB	Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Differential lock indicator switch signal returns to normal and ignition switch is turned from off to ON
P17BC	Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Differential lock indicator switch signal returns to normal and ignition switch is turned from off to ON
P17C0	Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Differential lock coil drive circuit of rear differential recovers from ground short and ignition switch is turned from off to ON

DTC NO.	FAIL-SAFE OPERATION	FAIL-SAFE DEACTIVATION CONDITION
P17C1	Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Differential lock coil drive circuit of rear differential recovers from battery short and ignition switch is turned from off to ON
P17CC	Switching from rear differential free to locked prohibited When rear differential is locked, rear differential switches to free	Differential lock switch signal returns to normal and ignition switch is turned from off to ON



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005V8M000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): FREEZE FRAME DATA; 2016 MY Tacoma [08/2015 -]		

FREEZE FRAME DATA

1. FREEZE FRAME DATA

- (a) When a DTC is stored, the 4 wheel drive control ECU stores the current vehicle state as Freeze Frame Data.

HINT:

Freeze Frame Data at the time a DTC is stored:

When the 4 wheel drive control ECU stores data at the time a DTC is stored, no updates will be performed until the data is cleared.

2. CHECK FREEZE FRAME DATA

- (a) Turn the ignition switch off.
- (b) Connect the Techstream to the DLC3.
- (c) Turn the ignition switch to ON.
- (d) Turn the Techstream on.
- (e) Enter the following menus: Powertrain / Four Wheel Drive / Trouble Codes.
- (f) According to the display on the Techstream, select the trouble code data display with Freeze Frame Data.

Four Wheel Drive

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Front wheel speed sensor RH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
FL Wheel Speed	Front wheel speed sensor LH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
RR Wheel Speed	Rear wheel speed sensor RH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
RL Wheel Speed	Rear wheel speed sensor LH reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0.00 km/h (0.00 mph) Max.: 327.67 km/h (203.61 mph)	Vehicle stopped: 0.00 km/h (0.00 mph)	No large fluctuations when driving at a constant speed.
Rear Differential Lock Control	Differential lock switch status (differential lock switch input signal of R terminal on ECU side)/	ON: Switch pressed and held OFF: Switch not pressed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
SW (R)	ON or OFF		
Rear Differential Lock Detection SW (SLS)	Differential lock indicator switch status (differential lock indicator switch input signal of SLS terminal on ECU side)/ ON or OFF	ON: Rear differential locked condition OFF: Rear differential free condition	-
IG SW	Ignition switch status/ ON or OFF	ON: Ignition switch ON	-
Rear Differential Lock Solenoid Target Current	Differential lock coil drive circuit target current value/ Min.: 0.0 A Max.: 25.5 A	Rear differential locked: 1.0 to 8.0 A Rear differential free: 0.1 A or less	-
Rear Differential Lock Solenoid Actual Current	Differential lock coil drive circuit actual current value/ Min.: 0.0 A Max.: 25.5 A	Rear differential locked: 1.0 to 8.0 A Rear differential free: 0.1 A or less	-
Motor Energization Status Signal	Motor power signal status/ ON or OFF	ON: Power supplied to motor OFF: Power not supplied to motor	-
C/C Cancel Request	Cruise control cancellation signal status/ ON or OFF	ON: Cruise control cancellation requested OFF: Cruise control cancellation not requested	-
Rear Differential Lock Status Signal	Rear differential LOCK status signal/ ON or OFF	ON: Rear differential locked condition OFF: Rear differential free condition	-
Buzzer Request	Buzzer sounding request/ NO Sound, Sound(3 times) or Sound	• NO Sound: Does not sound • Sound(3 times): Sounds 3 times • Sound: Sounds intermittently	• Sounds 3 times: Sounds 3 times at 0.5 second intervals (0.5 seconds on and 0.5 seconds off) • Sounds intermittently: 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
Rear Differential	Rear differential lock indicator light request/	• Blink3: Indicator light	• Blinking: 0.5 second intervals

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Lock Indicator Request	Blink4*1, Blink3, Blink2, Blink1, ON or OFF	rapidly blinks • Blink2: Indicator light blinks 3 times • Blink1: Indicator light blinks • ON: Indicator light illuminates • OFF: Indicator light turns off	(0.5 seconds on and 0.5 seconds off) • Rapidly blinking: 0.25 second intervals (0.25 seconds on and 0.25 seconds off)
Rear Differential Lock Solenoid Energization Request	Differential lock coil power command/ ON or OFF	ON: Power supplied to differential lock coil OFF: Power not supplied to differential lock coil	-
IG Voltage	IG monitor voltage/ Min.: 0.0 V Max.: 25.5 V	11 to 14 V: Ignition switch ON	-
Rear Differential Lock Solenoid Voltage	Differential lock coil drive circuit monitor voltage/ Min.: 0.0 V Max.: 25.5 V	Rear differential locked: Higher than 3.5 V Rear differential free: 3.5 V or less	-
Rear Differential Lock Solenoid Duty	Differential lock coil drive circuit duty/ Min.: 0% Max.: 255%	Rear differential locked: 0 to 100% Rear differential free: 0%	-
Mode Status	Mode transition condition/ Initial Control, Particular Control at Start-Up, Shift Settling Control at Start-Up, H2, H2->H4L(T/F Activating), H2->H4L(ADD Activating), H4L->H2(T/F Activating), H4L->H2(ADD Activating), H4L, H4L->L4L, L4L->H4L, L4L Rr Diff. Free, H4F->L4F, L4F->H4F, H4F, H4F->H4L, H4L->H4F, L4F, L4L Rr Diff. Free->Lock, L4L Rr Diff. Lock->Free, L4L Rr Diff. Lock, K1, K2, K3, K4, K5, K6, K7, K8, K9, K10, S01, S02, S03, S04, S05, S06, S07, S08, S09, S10, S11, S12, S13, S14, S15, S16, S17, S18, S19, S20, S21, S22, S23, S24, B1, B2, B3, B4, B5, B6, 2WD Rr Diff. Free, 2WD Rr Diff. Free->Lock, 2WD Rr Diff. Lock->Free or 2WD Rr Diff. Lock	Displays transfer shift actuator, A.D.D. actuator*2 and differential lock coil transition condition	HINT: • K1 to K10: Control while switching prohibited • S01 to S24: Control while switching limited • B1 to B6: Control while switching again

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Rear Differential Lock Solenoid	Differential lock coil ECU internal power status/ ON or OFF	ON: Power supplied OFF: Power not supplied	-
CAN Signal Invalid Status by IG Voltage Low	Whether CAN communication data is invalid due to IG voltage drop/ Valid or Inval	Valid: IG voltage 9.5 V or higher	Inval: IG voltage below 9.5 V
SW Input Invalid Status by IG Voltage Low	Whether actuator switch input is invalid due to IG voltage drop/ Valid or Inval	Valid: IG voltage 7.1 V or higher	Inval: IG voltage below 7.1 V
Transfer Shift Invalid Status by IG Voltage Low	Whether transfer shift actuator switching operation is invalid due to IG voltage drop/ Valid or Inval	Valid: IG voltage 9.5 V or higher	Inval: IG voltage below 9.5 V
Number of DTC	Number of DTCs stored/ Min.: 0 Max.: 255	0	-

*1: Item not supported, therefore not displayed

*2: w/ A.D.D. Actuator



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005V89000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedure listed to troubleshoot the differential system (w/ Differential Lock).
- *: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	CUSTOMER PROBLEM ANALYSIS
-----------	----------------------------------

NEXT



3.	INSPECT BATTERY VOLTAGE
-----------	--------------------------------

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT



4.	CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM*
-----------	--

(a) Use the Techstream to check if the CAN communication system is functioning normally [INFO](#) .

HINT:

The ECU of this system is connected to the CAN communication system.

Therefore, before starting troubleshooting, make sure to check that there is no trouble in the CAN communication system.

Result

RESULT	PROCEED TO
CAN DTCs are not output	A
CAN DTCs are output	B

B ► CHECK CAN COMMUNICATION SYSTEM

A



5.	CHECK DTC AND FREEZE FRAME DATA*
-----------	---

(a) Check for DTCs [INFO](#) .

(b) Check for freeze frame data.

HINT:

Record or print DTCs and freeze frame data if necessary.

(c) Clear the DTCs and freeze frame data [INFO](#) .

(d) Recheck for DTCs [INFO](#) .

(1) Simulate the malfunction condition and check if the DTCs are output again.

Result

RESULT	PROCEED TO
DTCs are not output	A
DTCs are output	B

B ► GO TO STEP 10

A



6.	PROBLEM SYMPTOMS TABLE
-----------	-------------------------------

(a) Refer to Problem Symptoms Table [INFO](#) .

Result

RESULT	PROCEED TO
Fault not listed in problem symptoms table	A
Fault listed in problem symptoms table	B

B ► **GO TO STEP 8**

A



7.	OVERALL ANALYSIS AND TROUBLESHOOTING*
-----------	--

(a) Terminals of ECU [INFO](#) .

(b) Data List / Active Test [INFO](#) .

NEXT



8.	REPAIR OR REPLACE
-----------	--------------------------

NEXT



9.	CONFIRM TEST
-----------	---------------------

NEXT ► **END**

10.	GO TO DTC CHART
------------	------------------------

NEXT



11.	REPAIR OR REPLACE
------------	--------------------------

NEXT
▼

12.	CONFIRM TEST
-----	--------------

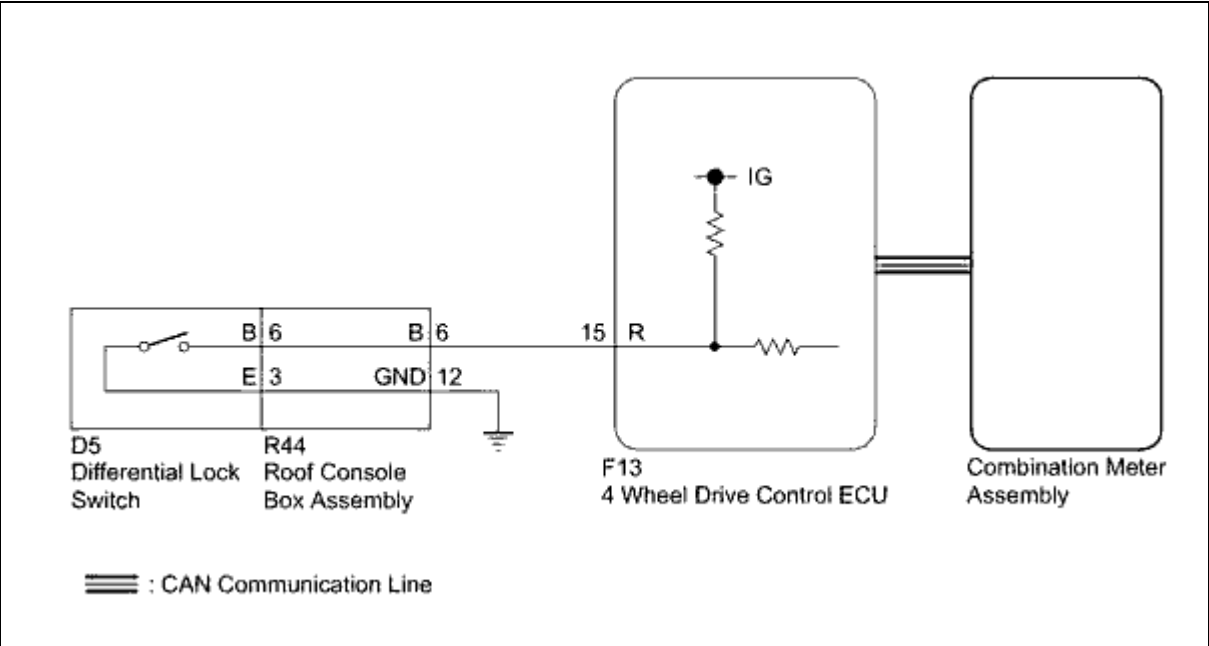
NEXT ► **END**



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000005V8N000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): Lock Switch Circuit; 2016 MY Tacoma [08/2015 -]		

Lock Switch Circuit

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK REAR DIFFERENTIAL LOCK INDICATOR LIGHT
----	--

- (a) Turn the ignition switch to ON.

(b) for 4WD:
Finish switching to L4.

(c) Check the rear differential lock indicator light.

(d) Press the differential lock switch.

(e) After 60 seconds, check the rear differential lock indicator light.

Result

RESULT	PROCEED TO
--------	------------

RESULT	PROCEED TO
Rear differential lock indicator light blinks or illuminates	A
Rear differential lock indicator light remains off regardless of switch operation	B
Rear differential lock indicator light remains illuminated regardless of switch operation	C
Rear differential lock indicator light rapidly blinks	D

- Blinking: Blinks at 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
- Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

B ► **GO TO STEP 2**

C ► **GO TO STEP 8**

D ► **GO TO DTC P17CC**

A ► **END**

2.	CHECK CAN COMMUNICATION LINE
-----------	-------------------------------------

(a) Select "Bus Check" from the System Selection Menu screen, and follow the prompts on the screen to inspect the CAN Bus .

OK:

"Bus Check" indicates no malfunctions in CAN communication.

NG ► **CHECK CAN COMMUNICATION SYSTEM**

OK



3.	READ VALUE USING TECHSTREAM (REAR DIFFERENTIAL LOCK SWITCH CONTROL SW (R))
-----------	---

(a) Turn the ignition switch off.

(b) Connect the Techstream to the DLC3.

(c) Turn the Techstream on.

(d) Turn the ignition switch to ON.

(e) Enter the following menus: Powertrain / Four Wheel Drive / Data List.

(f) According to the display on the Techstream, read the Data List.

Four Wheel Drive

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Rear Differential Lock Control SW (R)	Differential lock switch status (differential lock switch input signal of R terminal on ECU side)/ ON or OFF	ON: Switch pressed and held OFF: Switch not pressed	-

OK:

Display changes according to differential lock switch operation.

NG ► **GO TO STEP 5**

OK



4.	INSPECT COMBINATION METER ASSEMBLY
-----------	---

(a) Turn the ignition switch off.

(b) Perform Active Test of the combination meter assembly using the Techstream.

(c) Check the combination meter assembly.

OK:

The rear differential lock indicator light turns on or off in accordance with the Techstream.

NG ► **CHECK METER / GAUGE SYSTEM**

OK ► **REPLACE 4 WHEEL DRIVE CONTROL ECU**

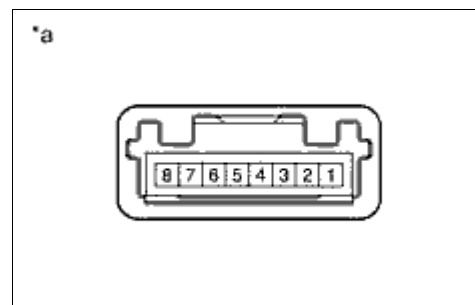
5.	INSPECT DIFFERENTIAL LOCK SWITCH
-----------	---

(a) Disconnect the G13 differential lock switch connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
6 - 3	Switch not pressed	10 kΩ or higher
6 - 3	Switch pressed	Below 1 Ω



Text in Illustration

*a	Component without harness connected (Differential Lock Switch)
----	---

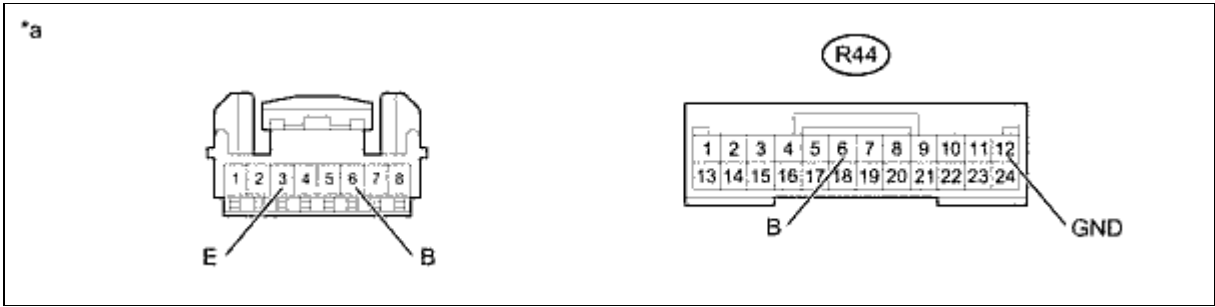
NG  **REPLACE DIFFERENTIAL LOCK SWITCH**

OK


6.	INSPECT ROOF CONSOLE BOX ASSEMBLY
-----------	--

(a) Remove the roof console box assembly.

for Double Cab: 
for Access Cab: 



Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-
----	--	---	---

(b) Measure the resistance according the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-6 (B) - 6 (B)	Always	Below 1 Ω
R44-12 (GND) - 3 (E)	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ► REPLACE ROOF CONSOLE BOX ASSEMBLY

C ► REPLACE ROOF CONSOLE BOX ASSEMBLY

A



7.

CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - ROOF CONSOLE BOX ASSEMBLY)

- (a) Disconnect the F13 4 wheel drive control ECU connector.
- (b) Disconnect the R44 roof console box assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F13-15 (R) - R44-6 (B)	Always	Below 1 Ω
R44-12 (GND) - Body ground	Always	Below 1 Ω

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE 4 WHEEL DRIVE CONTROL ECU

8.

CHECK CAN COMMUNICATION LINE

- (a) Select "Bus Check" from the System Selection Menu screen, and follow the prompts on the screen to inspect the CAN Bus  .

OK:

"Bus Check" indicates no malfunctions in CAN communication.

NG ► CHECK CAN COMMUNICATION SYSTEM

OK



9.

READ VALUE USING TECHSTREAM (REAR DIFFERENTIAL LOCK INDICATOR REQUEST)

- (a) Turn the ignition switch off.
- (b) Connect the Techstream to the DLC3.
- (c) Turn the Techstream on.
- (d) Turn the ignition switch to ON.
- (e) Enter the following menus: Powertrain / Four Wheel Drive / Data List.
- (f) According to the display on the Techstream, read the Data List.

Four Wheel Drive

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Rear Differential Lock Indicator Request	Rear differential lock indicator light request/ Blink4*, Blink3, Blink2, Blink1, ON or OFF	• Blink3: Indicator light rapidly blinks • Blink2: Indicator light blinks 3 times • Blink1: Indicator light blinks • ON: Indicator light illuminates • OFF: Indicator light turns off	• Blinking: 0.5 second intervals (0.5 seconds on and 0.5 seconds off) • Rapidly blinking: 0.25 second intervals (0.25 seconds on and 0.25 seconds off) *: Item not supported, therefore not displayed

(g) for 4WD:

Finish switching to L4.

(h) Turn the differential lock switch on and off several times and check the Techstream display condition of the rear differential lock indicator light.

Result

RESULT	PROCEED TO
Data List continues to display ON even when differential lock switch is operated	A
Data List display changes according to differential lock switch operation	B

B ► CHECK METER / GAUGE SYSTEM

A ► REPLACE 4 WHEEL DRIVE CONTROL ECU



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8U000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P163B; 4WD ECU Malfunction; 2016 MY Tacoma [08/2015 -]		

DTC	P163B	4WD ECU Malfunction
------------	--------------	----------------------------

DESCRIPTION

This DTC is output when a malfunction is detected in the 4 wheel drive control ECU internal circuit.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P163B	4WD ECU Malfunction	• Diagnosis Condition: Directly after ignition switch is turned to ON, or when switching operations are performed with ignition switch turned to ON • Malfunction Status: 4 wheel drive control ECU internal circuit malfunction • Malfunction Time: 0.5 seconds or more (directly after the ignition switch is turned to ON, 0.05 seconds or more) • Other: 1 trip detection logic	4 wheel drive control ECU

INSPECTION PROCEDURE

PROCEDURE

1.	CHECK FOR DTC
-----------	----------------------

(a) Check whether DTCs other than C163B are output [INFO](#) .

Result

RESULT	PROCEED TO
Only DTC C163B is output.	A
DTCs (Touch Select 2-4 and High-Low System) other than DTC C163B are output.	B
DTCs (Differential System (w/ Differential Lock)) other than DTC C163B are output.	C

B ► REPAIR CIRCUITS INDICATED BY OUTPUT DTCS

C ► REPAIR CIRCUITS INDICATED BY OUTPUT DTCS

A ► REPLACE 4 WHEEL DRIVE CONTROL ECU



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8S000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P17BB; Rear Differential Lock Position SW Stuck OFF; 2016 MY Tacoma [08/2015 -]		

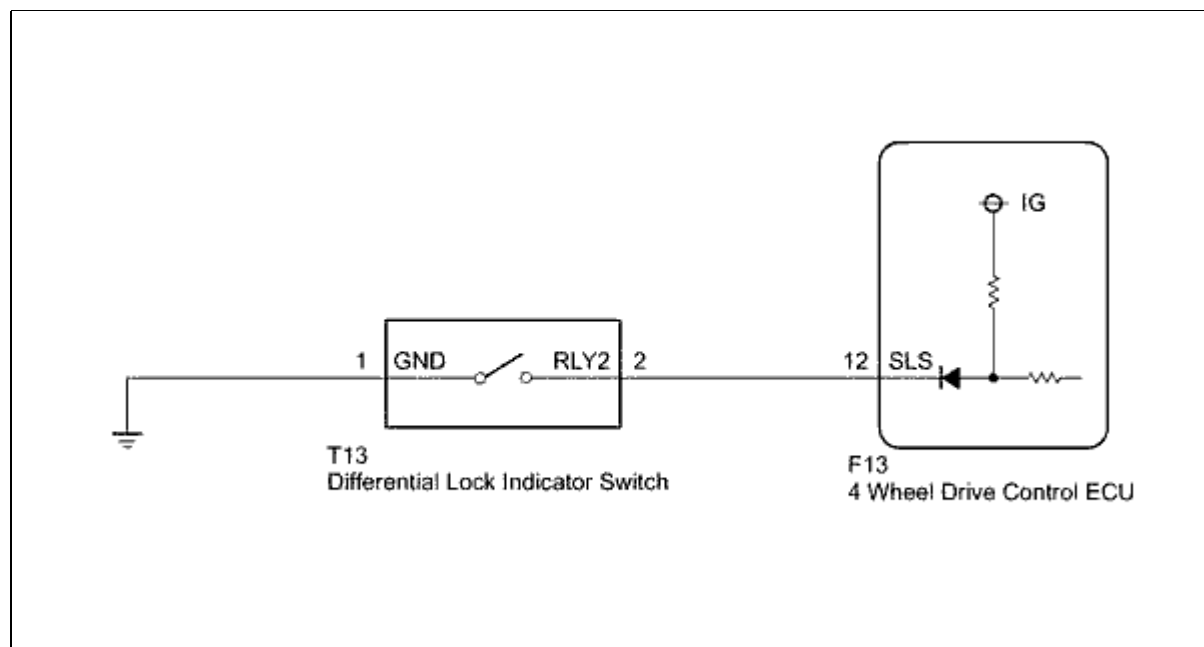
DTC	P17BB	Rear Differential Lock Position SW Stuck OFF
------------	--------------	---

DESCRIPTION

This DTC is output when an OFF malfunction of the differential lock indicator switch is detected.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P17BB	Rear Differential Lock Position SW Stuck OFF	• Diagnosis Condition: With ignition switch turned to ON, rear differential is locked (differential lock coil operating) • Malfunction Status: With vehicle speed 5 km/h or higher, differential lock indicator switch is stuck OFF • Malfunction Time: 3 seconds or more • Other: 1 trip detection logic	• Wire harness and connector • 4 wheel drive control ECU • Differential lock indicator switch

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

for 4WD:

When the rear differential lock position switch (transfer indicator switch) is stuck OFF, if the transfer is set to 2WD, the vehicle is stopped and the ignition switch is turned from off to ON, the system returns to normal and this DTC is stored as a past DTC.

If the transfer is set to L4 again, the rear differential is locked and the vehicle is driven at 5 km/h or more, this DTC is output again.

for 2WD:

When the rear differential lock position switch (transfer indicator switch) is stuck OFF, the vehicle is stopped and the ignition switch is turned from off to ON, the system returns to normal and this DTC is stored as a past DTC.

If the rear differential is locked and the vehicle is driven at 5 km/h or more, this DTC is output again.

PROCEDURE

1.

CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - DIFFERENTIAL LOCK INDICATOR SWITCH)

- (a) Disconnect the F13 4 wheel drive control ECU connector.
- (b) Disconnect the T13 differential lock indicator switch connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F13-12 (SLS) - T13-2 (RLY2)	Always	Below 1 Ω
T13-1 (GND) - Body ground	Always	Below 1 Ω

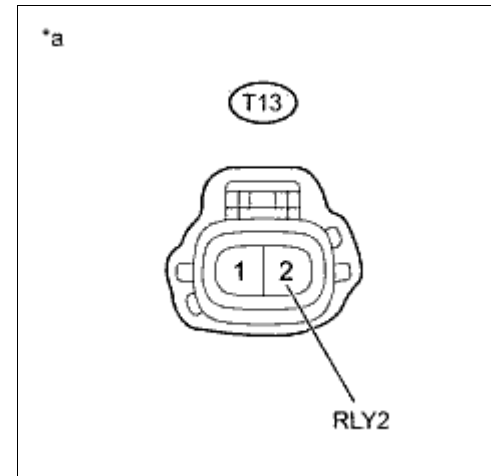
NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



2.

CHECK 4 WHEEL DRIVE CONTROL ECU (ECU OUTPUT VOLTAGE)



(a) Disconnect the differential lock indicator switch connector.

(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
T13-2 (RLY2) - Body ground	Ignition switch ON	10 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Differential Lock Indicator Switch)
----	---

NG **REPLACE 4 WHEEL DRIVE CONTROL ECU**

OK



3.	CHECK DIFFERENTIAL LOCK INDICATOR SWITCH
-----------	---

(a) for Automatic Transmission:

Move the shift lever to N.

for Manual Transmission:

Move the shift lever to neutral.

(b) for 4WD:

Switch the transfer position switch to L4.

(c) Lift up the vehicle until all four wheels are off the ground.

(d) Release the parking brake.

(e) Operate the differential lock switch to switch to locked.

HINT:

The rear differential lock indicator light continues to blink.

(f) Rotate one rear wheel in both directions and set the rear differential to the locked condition.

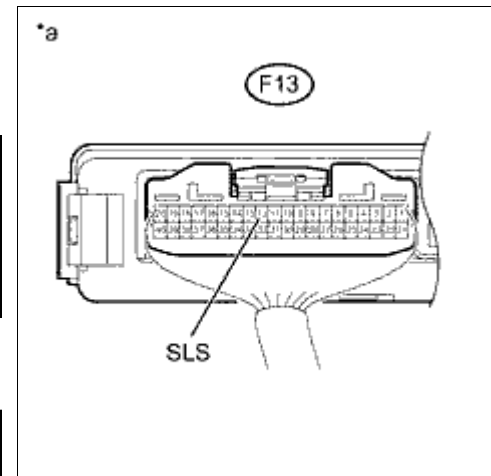
HINT:

When the rear differential is locked, rotating one rear wheel causes the other rear wheel to rotate in the same direction.

(g) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F13-12 (SLS) - Body ground	Rear differential in locked condition	Below 1.5 V



Text in Illustration

*a	Component with harness connected (4 Wheel Drive Control ECU)
----	---

NG ► REPLACE DIFFERENTIAL LOCK INDICATOR SWITCH

OK ► REPLACE 4 WHEEL DRIVE CONTROL ECU



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8R000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P17BC; Rear Differential Lock Position SW Stuck ON; 2016 MY Tacoma [08/2015 -]		

DTC	P17BC	Rear Differential Lock Position SW Stuck ON
------------	--------------	--

DESCRIPTION

This DTC is output when an ON malfunction of the differential lock indicator switch is detected.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P17BC	Rear Differential Lock Position SW Stuck ON	• Diagnosis Condition: Ignition switch turned to ON • Malfunction Status: Differential lock indicator switch is stuck ON • Malfunction Time: 2 seconds or more • Other: 1 trip detection logic	• Wire harness and connector • 4 wheel drive control ECU • Differential lock indicator switch

WIRING DIAGRAM

Refer to DTC P17BB INFO.

INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - DIFFERENTIAL LOCK INDICATOR SWITCH)
-----------	---

(a) Disconnect the F13 4 wheel drive control ECU connector.

(b) Disconnect the T13 differential lock indicator switch connector.

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F13-12 (SLS) or T13-2 (RLY2) - Body ground	Always	10 kΩ or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



2. INSPECT DIFFERENTIAL LOCK INDICATOR SWITCH

(a) for Automatic Transmission:

Move the shift lever to N.

for Manual Transmission:

Move the shift lever to neutral.

(b) for 4WD:

Switch the transfer position switch to L4.

(c) Lift up the vehicle until all four wheels are off the ground.

(d) Release the parking brake.

(e) Rotate one rear wheel and set the rear differential to the free condition.

(f) Disconnect the T13 differential lock indicator switch connector.

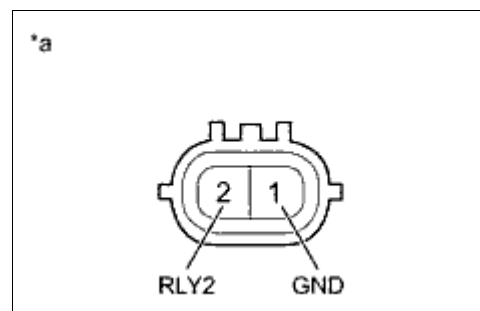
(g) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (RLY2) - 1 (GND)	Rear differential free	10 kΩ or higher

Text in Illustration

*a	Component without harness connected (Differential Lock Indicator Switch)
----	---



NG **REPLACE DIFFERENTIAL LOCK INDICATOR SWITCH**

OK **REPLACE 4 WHEEL DRIVE CONTROL ECU**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8Q000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P17C0; Rear Differential Lock Solenoid Circuit Low; 2016 MY Tacoma [08/2015 -]		

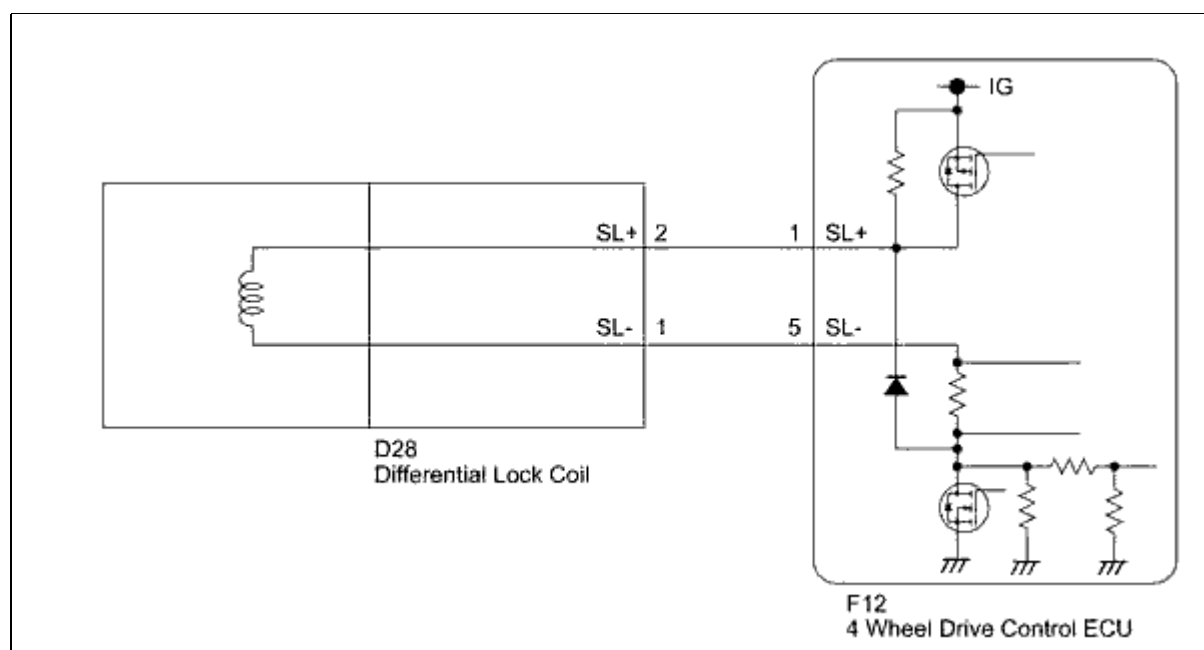
DTC	P17C0	Rear Differential Lock Solenoid Circuit Low
------------	--------------	--

DESCRIPTION

This DTC is output when a malfunction is detected due to a short to ground occurring in the differential lock coil drive circuit of the rear differential.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P17C0	Rear Differential Lock Solenoid Circuit Low	• Diagnosis Condition: Directly after ignition switch is turned to ON, or when rear differential is switched between free and locked (differential lock coil operating) with ignition switch turned to ON • Malfunction Status: Short to ground in differential lock coil drive circuit • Malfunction Time: 0.05 seconds or more • Other: 1 trip detection logic	• Wire harness and connector • 4 wheel drive control ECU • Differential lock coil

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. CHECK DIFFERENTIAL LOCK COIL

(a) Disconnect the 4 wheel drive control ECU connector.

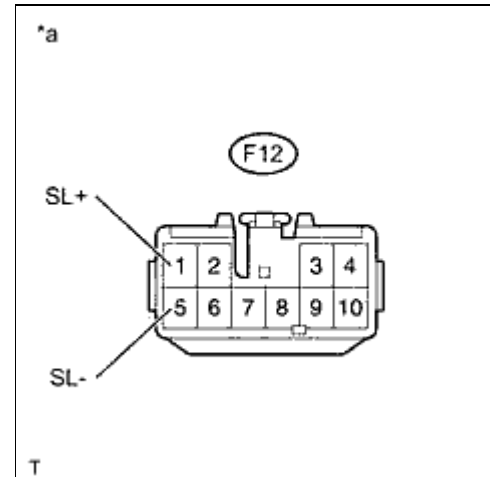
(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F12-1 (SL+) or F12-5 (SL-) - Body ground	Always	10 kΩ or higher

Text in Illustration

*a Front view of wire harness connector
(to 4 Wheel Drive Control ECU)



NG ► GO TO STEP 2

OK ► REPLACE 4 WHEEL DRIVE CONTROL ECU

2. CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - DIFFERENTIAL LOCK COIL)

(a) Disconnect the F12 4 wheel drive control ECU connector.

(b) Disconnect the D28 differential lock coil connector.

(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F12-1 (SL+) or D28-2 (SL+) - Body ground	Always	10 kΩ or higher
F12-5 (SL-) or D28-1 (SL-) - Body ground	Always	10 kΩ or higher

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE DIFFERENTIAL LOCK COIL



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8P000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P17C1; Rear Differential Lock Solenoid Circuit High; 2016 MY Tacoma [08/2015 -]		

DTC	P17C1	Rear Differential Lock Solenoid Circuit High
------------	--------------	---

DESCRIPTION

This DTC is output when a malfunction is detected due to a battery short occurring in the differential lock coil drive circuit of the rear differential.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P17C1	Rear Differential Lock Solenoid Circuit High	• Diagnosis Condition: Directly after ignition switch is turned to ON, or when rear differential is switched between free and locked (differential lock coil operating) with ignition switch turned to ON • Malfunction Status: Battery short in differential lock coil drive circuit • Malfunction Time: 0.05 seconds or more • Other: 1 trip detection logic	• Wire harness and connector • 4 wheel drive control ECU • Differential lock coil

WIRING DIAGRAM

Refer to DTC P17C0 [INFO](#) .

INSPECTION PROCEDURE

PROCEDURE

1.	CHECK DIFFERENTIAL LOCK COIL
-----------	-------------------------------------

(a) Disconnect the 4 wheel drive control ECU connector.

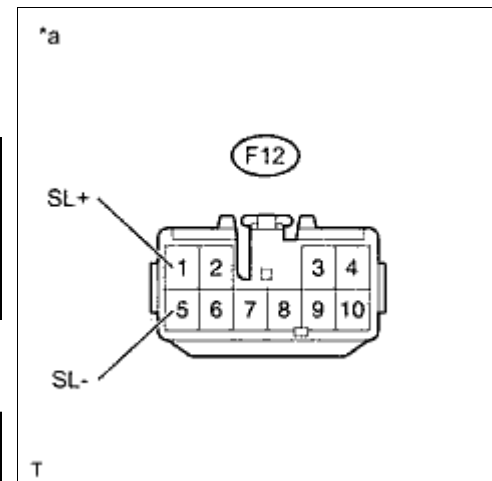
(b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F12-1 (SL+) or F12-5 (SL-) - Body ground	Ignition switch ON	Below 1 V

Text in Illustration

*a	Front view of wire harness connector (to 4 Wheel Drive Control ECU)
----	--



NG ► **GO TO STEP 2**

OK ► **REPLACE 4 WHEEL DRIVE CONTROL ECU**

2.	CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - DIFFERENTIAL LOCK COIL)
-----------	---

(a) Disconnect the F12 4 wheel drive control ECU connector.

(b) Disconnect the D28 differential lock coil connector.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F12-1 (SL+) or D28-2 (SL+) - Body ground	Ignition switch ON	Below 1 V
F12-5 (SL-) or D28-1 (SL-) - Body ground	Ignition switch ON	Below 1 V

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE DIFFERENTIAL LOCK COIL**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8T000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): P17CC; Rear Differential Lock Control SW Stuck ON; 2016 MY Tacoma [08/2015 -]		

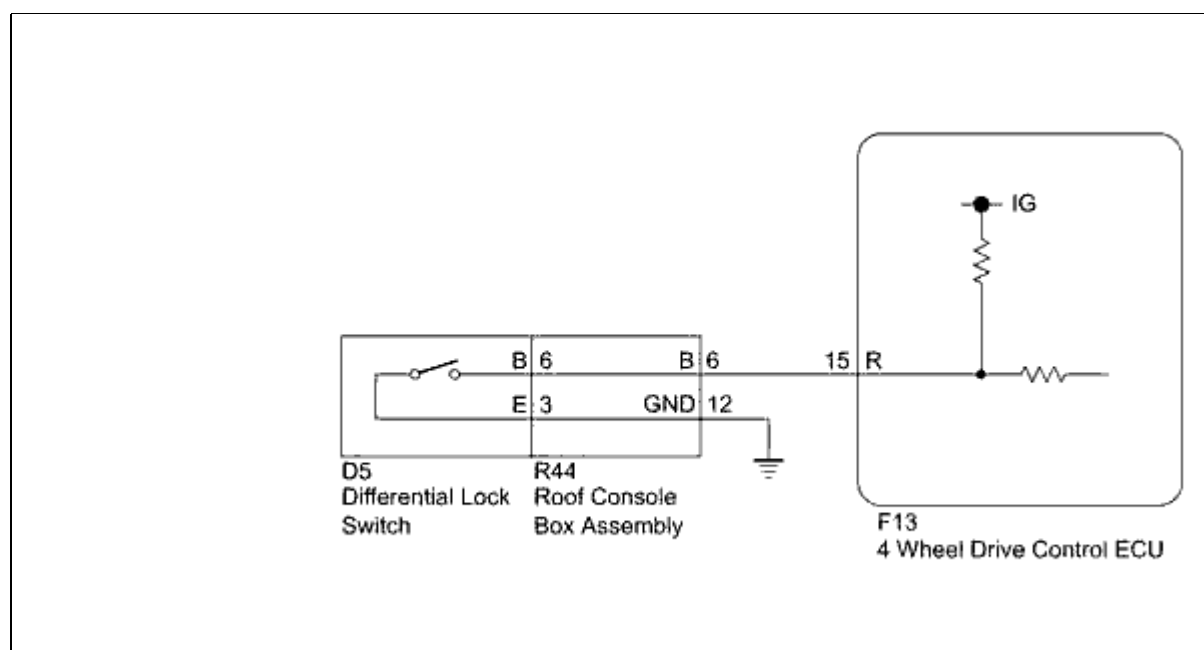
DTC	P17CC	Rear Differential Lock Control SW Stuck ON
------------	--------------	---

DESCRIPTION

This DTC is output when a malfunction of the differential lock switch is detected.

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
P17CC	Rear Differential Lock Control SW Stuck ON	• Diagnosis Condition: Directly after the ignition switch is turned to ON, or when the ignition switch is ON • Malfunction Status: Differential lock switch stuck ON • Malfunction Time: 0.3 seconds or more when the ignition switch is turned to ON, or 60 seconds or more with the ignition switch ON • Other: 1 trip detection logic	• Wire harness and connector • 4 wheel drive control ECU • Differential lock switch

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.

CHECK HARNESS AND CONNECTOR (4 WHEEL DRIVE CONTROL ECU - DIFFERENTIAL LOCK SWITCH)

- (a) Disconnect the F13 4 wheel drive control ECU connector.
- (b) Disconnect the D5 differential lock switch connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F13-15 (R) or D5-6 (B) - Body ground	Always	10 k Ω or higher

NG  REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



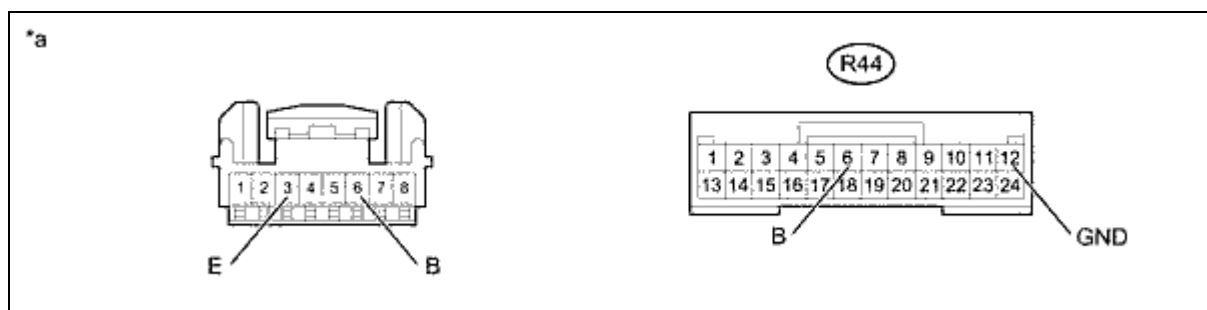
2.

INSPECT ROOF CONSOLE BOX ASSEMBLY

- (a) Remove the roof console box assembly.

for Double Cab:  .

for Access Cab:  .



Text in Illustration

*a	Component without harness connected (Roof Console Box Assembly)	-	-
----	--	---	---

- (b) Measure the resistance according the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
-------------------	-----------	---------------------

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R44-6 (B) - 6 (B)	Always	Below 1 Ω
R44-12 (GND)- 3 (E)	Always	Below 1 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for Double Cab)	B
NG (for Access Cab)	C

B ► REPLACE ROOF CONSOLE BOX ASSEMBLY

C ► REPLACE ROOF CONSOLE BOX ASSEMBLY

A

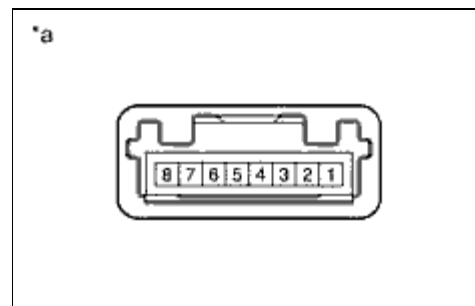
3.	INSPECT DIFFERENTIAL LOCK SWITCH
-----------	---

(a) Disconnect the D5 differential lock switch connector.

(b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
6 - 3	Switch not pressed	10 k Ω or higher



Text in Illustration

*a	Component without harness connected (Differential Lock Switch)
----	---

NG ► REPLACE DIFFERENTIAL LOCK SWITCH

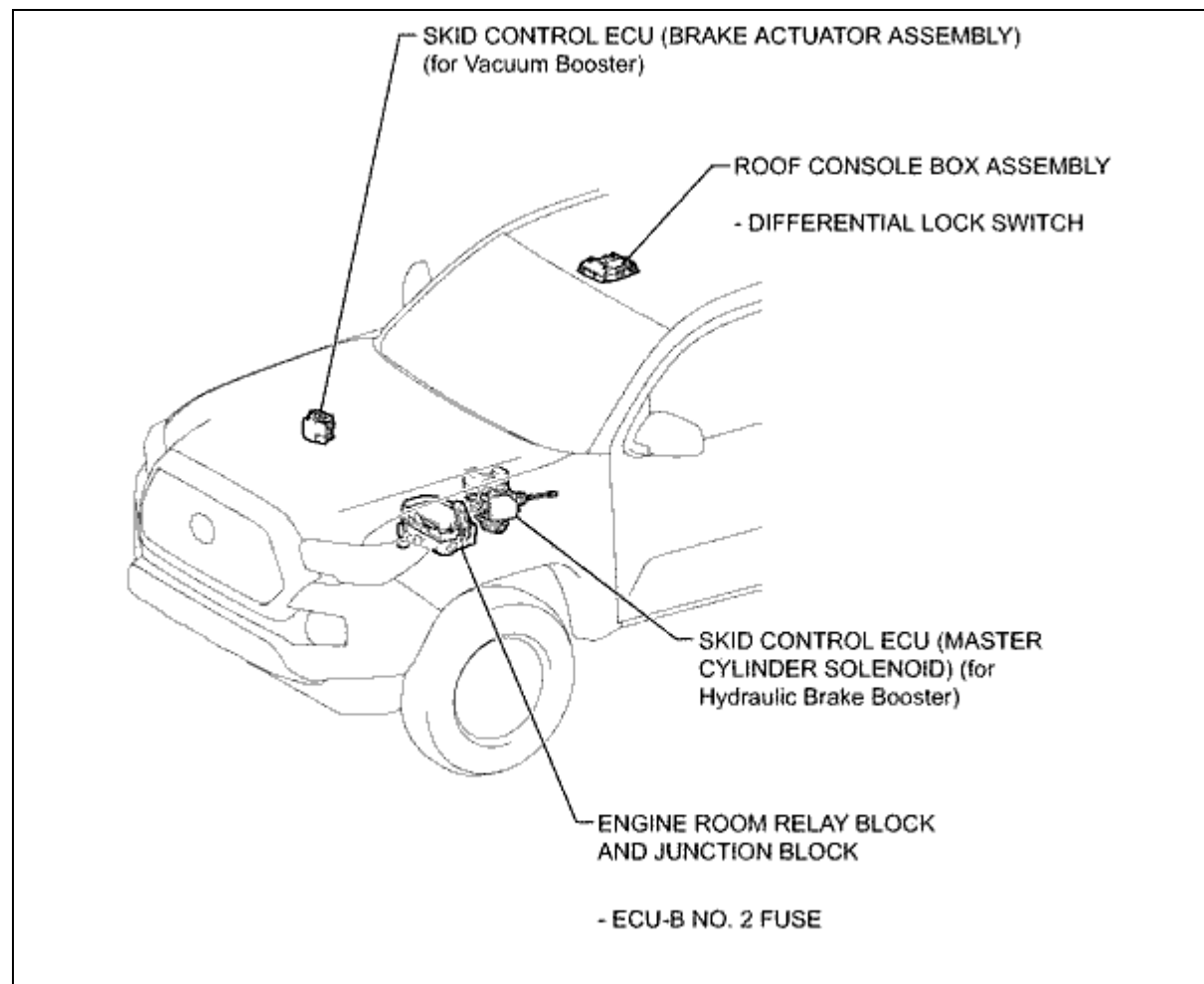
OK ► REPLACE 4 WHEEL DRIVE CONTROL ECU



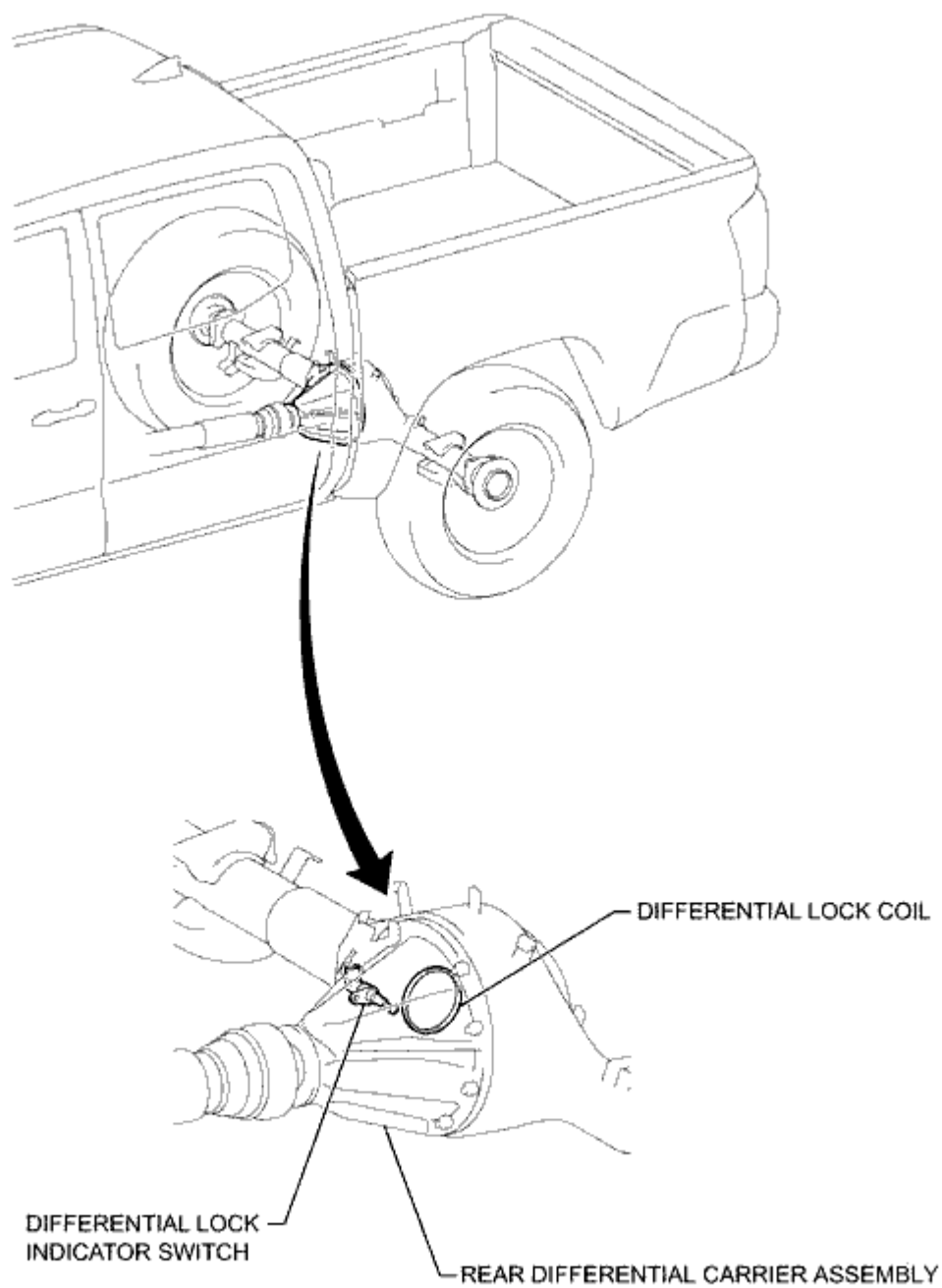
Last Modified: 11-13-2015	6.6 R	Doc ID: RM000005V8B000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

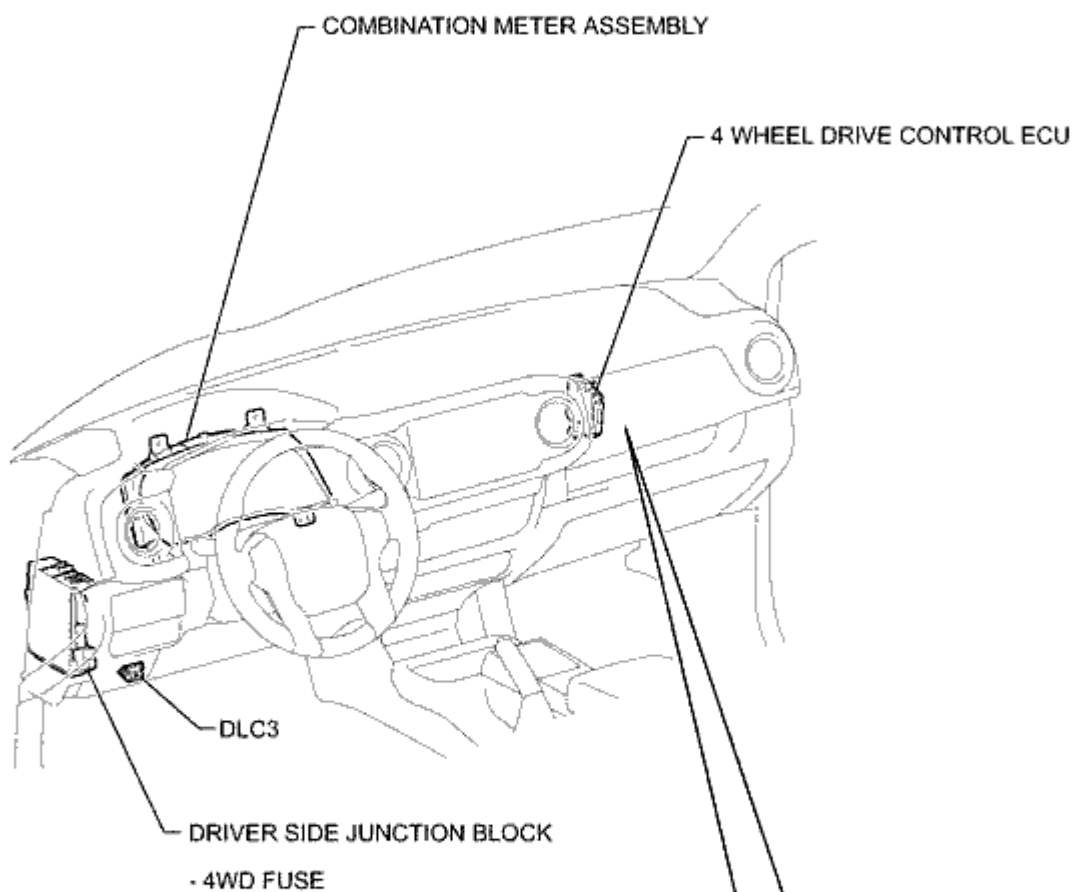
ILLUSTRATION



ILLUSTRATION

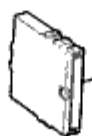


ILLUSTRATION



*1: for 2GR-FKS

*2: for 2TR-FE



ECM*2



ECM*1



Last Modified: 11-13-2015	6.6 L	Doc ID: RM000005V88000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. IGNITION SWITCH EXPRESSION

(a) The type of ignition switch used on this model differs depending on the specifications of the vehicle. The expressions listed in the table below are used in this section.

Expression	Ignition Switch (Position)	Engine Switch (Condition)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	On (Start)

2. PRECAUTION

- (a) Before disassembling the differential assembly, thoroughly clean it by removing any sand, mud or foreign matter. This will help prevent contamination during disassembly and reassembly.
- (b) When removing the rear differential carrier cover or any other light alloy part, do not pry it off with a screwdriver or other tool that may cause damage. Instead, tap the part with a plastic-faced hammer.
- (c) Always arrange disassembled parts in the order they were removed and protect them from foreign matter.
- (d) Before installation of each part, thoroughly clean and dry it. Then apply hypoid gear oil LSD to it. Do not use alkaline chemicals to clean aluminum parts, rubber parts or ring gear set bolts. Also, do not use non-residue solvent or other cleaning oils to clean O-rings, oil seals or rubber parts.
- (e) Coat sliding surfaces and rotating parts with hypoid gear oil LSD.
- (f) Do not directly fix a part in a vise. Place aluminum plates between the part and vise.
- (g) Be careful not to damage the contact surfaces of the case. Such damage may cause oil leakage.
- (h) Before applying sealant, remove deposited oil sealant and clean the part to be sealed using non-residue solvent.
- (i) After sealing parts, do not allow oil to contact the seal for at least an hour.
- (j) Do not allow scratches on a part's contact surface with an oil seal, O-ring or gasket. Scratches may lead to oil leakage.
- (k) When press-fitting an oil seal, be careful not to damage the lip of the oil seal and its outside periphery.
- (l) When replacing a bearing, replace the inner and outer races as a set.

3. TROUBLESHOOTING PRECAUTION

- (a) When there is a malfunction in the contact point of the terminals or installation problems with parts, removal and installation of the suspected problem parts may return the system to the normal condition either completely or temporarily.
- (b) In order to determine the malfunctioning area, be sure to check the conditions at the time the malfunction occurred, such as by DTC output and record them before disconnecting each connector or removing and installing parts.

- (c) Since the Differential System (w/ Differential Lock) may be influenced by a malfunction in other systems, be sure to check for DTCs in the other systems.

4. CAN COMMUNICATION SYSTEM PRECAUTION

- (a) The CAN communication system is used for data communication between each of the ECUs and sensors. If there is trouble in the CAN communication line, the DTC of the communication line is output.
- (b) If the DTC of the CAN communication line is output, repair the malfunction in the communication line and troubleshoot the Differential System (w/ Differential Lock).
- (c) Since the CAN communication line has its own length and route, it cannot be repaired temporarily with the bypass wire, etc.



Last Modified: 11-13-2015	6.6 T	Doc ID: RM000005V8D000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Differential System (w/ Differential Lock)

SYMPTOM	SUSPECTED AREA	SEE PAGE
Oil leak from front differential	Oil (level too high or wrong grade)	INFO
	Front differential side gear shaft oil seal (worn or damaged)	INFO
	Companion flange (loose or damaged)	INFO
Oil leak from rear differential	Oil (level too high or wrong grade)	INFO
	Rear differential carrier oil seal (worn or damaged)	INFO
	Companion flange (loose or damaged)	INFO
Oil leak from front drive pinion shaft	Oil (level too high or wrong grade)	INFO
	Front differential carrier oil seal (worn or damaged)	INFO
	Companion flange (loose or damaged)	INFO
Oil leak from rear drive pinion shaft	Oil (level too high or wrong grade)	INFO
	Rear differential carrier oil seal (worn or damaged)	INFO
	Companion flange (loose or damaged)	INFO
After differential lock switch is operated, rear differential lock indicator light remains off or illuminated	ECU power source circuit	INFO
	Differential lock switch	INFO
	4 wheel drive control ECU	
	CAN communication system	
	Combination meter assembly	



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005V8G000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. DESCRIPTION

- The differential system (w/ Differential Lock) directly connects the rear left and right wheels so that even if one wheel slips while driving where drive torque transmission is difficult (such as on sand), the drive torque of the other wheel is ensured and traction is provided in emergencies.
- for 4WD:

When the transfer is in L4 and the differential lock switch is operated, the 4 wheel drive control ECU supplies power to the solenoid to switch the rear differential from free to locked, and cuts power to switch the rear differential from locked to free.

for 2WD:

When the differential lock switch is operated, the 4 wheel drive control ECU supplies power to the solenoid to switch the rear differential from free to locked, and cuts power to switch the rear differential from locked to free.

2. INDICATOR LIGHT AND BUZZER OPERATING CONDITIONS

(a) for 4WD:

MODE	2WD/4WD MODE STATUS	REAR DIFFERENTIAL LOCK INDICATOR LIGHT	4WD INDICATOR LIGHT (GREEN) AND 4LO INDICATOR LIGHT	BUZZER
Rear differential free	2WD or H4	Not illuminated	Turned off or illuminated to display 2WD or H4 mode status	Not sounding
Rear differential free	L4	Not illuminated	Illuminated	Not sounding
Rear differential switching between free and locked	L4	Blinking	Illuminated	Not sounding
Rear differential locked	L4	Illuminated	Illuminated	Not sounding
Rear differential lock malfunction	2WD, H4 or L4	Rapidly blinking	Illuminated	Not sounding

- Blinking: Blinks at 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
- Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

(b) for 2WD:

MODE	REAR DIFFERENTIAL LOCK INDICATOR LIGHT	BUZZER
------	---	--------

MODE	REAR DIFFERENTIAL LOCK INDICATOR LIGHT	BUZZER
Rear differential free	Not illuminated	Not sounding
Rear differential switching between free and locked	Blinking	Not sounding
Rear differential locked	Illuminated	Not sounding
Rear differential lock malfunction	Rapidly blinking	Not sounding

- Blinking: Blinks at 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
- Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)

3. FUNCTION OF COMPONENTS

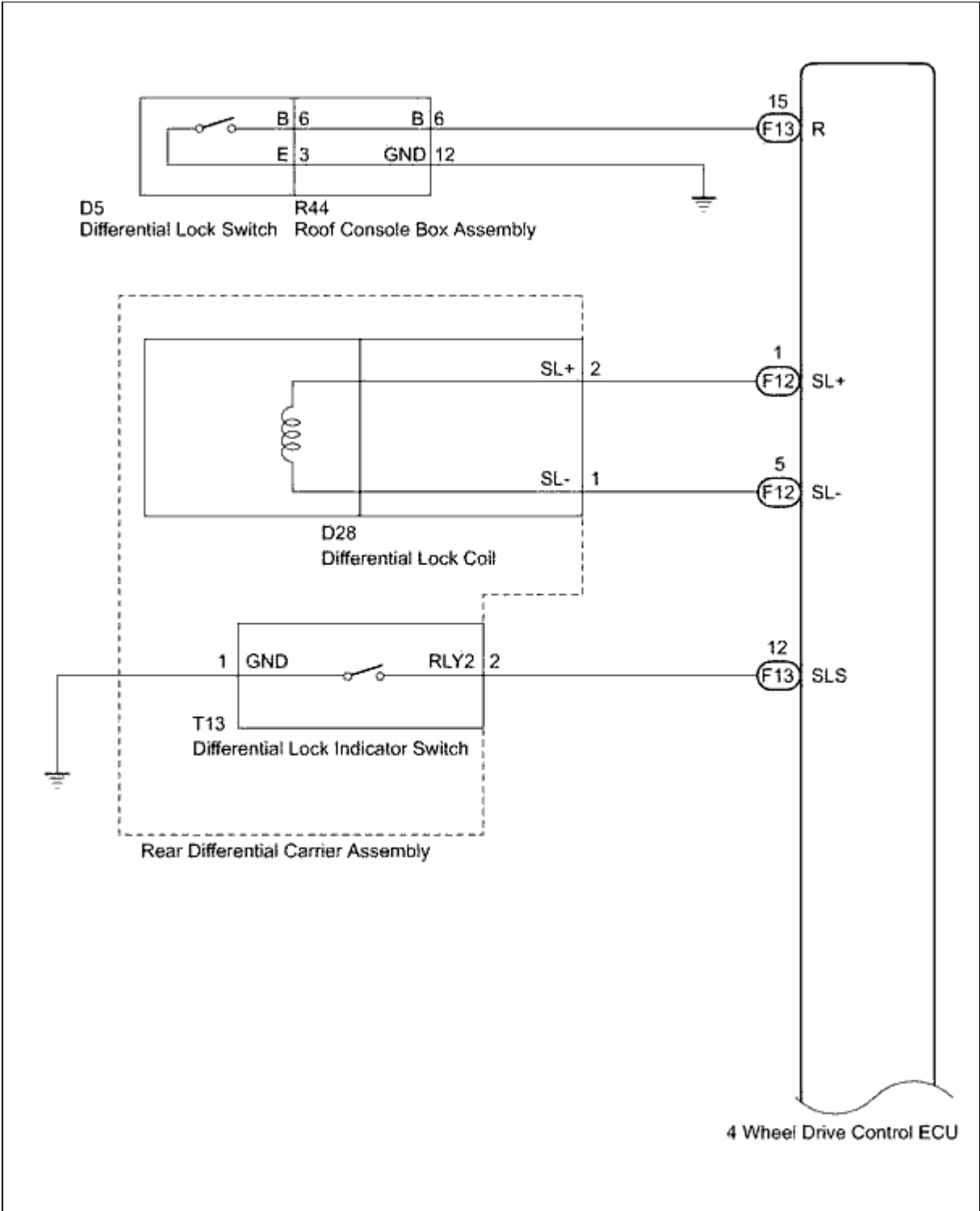
COMPONENTS		FUNCTIONS
Differential lock coil		Switches the rear differential between free and locked according to commands from the 4 wheel drive control ECU.
Differential Lock Indicator Switch		Detects the rear differential locked condition and sends that information to the 4 wheel drive control ECU.
Combination meter assembly	• Rear differential lock indicator light • Buzzer	Illuminates to inform the user of the locked condition. Blinks to inform the user of switching between free and locked. Rapidly blinks to inform the user of a system malfunction. for 4WD: When the differential lock switch is pressed while not in L4, the indicator light blinks 3 times and the buzzer sounds 3 times. HINT: When the rear differential is in the locked condition, ABS, VSC and TRAC are prohibited.
Differential lock switch		Selects free or locked for the rear differential.
Skid control ECU (brake actuator assembly)		Outputs wheel speed signals to the 4 wheel drive control ECU via CAN communication.
4 wheel drive control ECU		Detects the vehicle status according to signals such as the wheel and vehicle speed signals received via CAN communication, and operates or stops the differential lock coil and switches the rear differential between locked and free according to the differential lock switch signal.

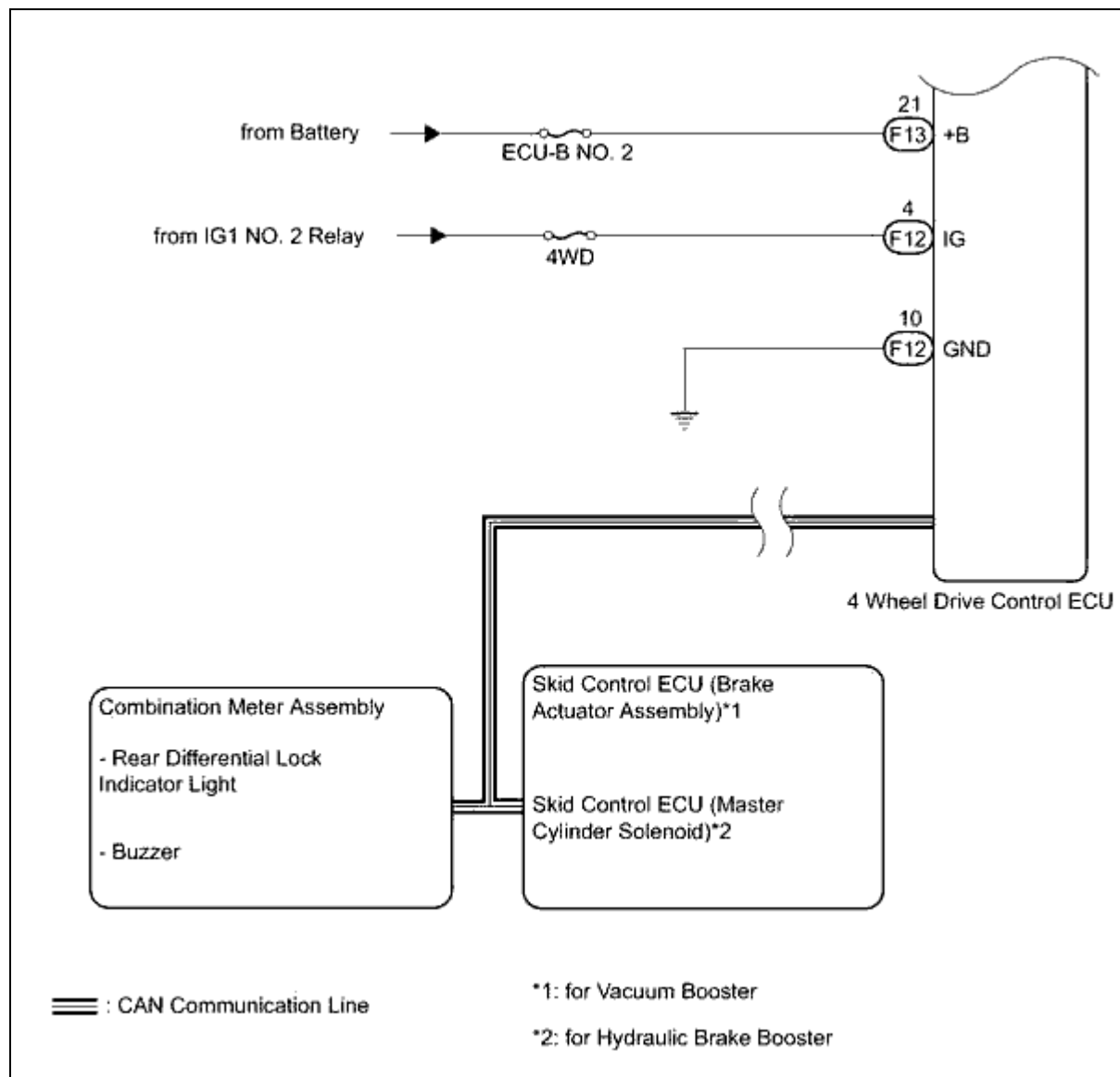
- Blinking: Blinks at 0.5 second intervals (0.5 seconds on and 0.5 seconds off)
- Rapidly blinking: Blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000005V8J000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM





TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNAL	COMMUNICATION METHOD
4 wheel drive control ECU	Skid control ECU (Brake actuator assembly)	• Rear differential lock status signal • High-Low actuator fail* • 4WD status signal* • L4 status signal*	CAN communication system
Skid control ECU (Brake actuator assembly)	4 wheel drive control ECU	• Wheel speed sensor error signal • Wheel speed signal • Vehicle speed signal • Vehicle speed status flag	CAN communication system
4 wheel drive control ECU	Combination meter assembly	• Rear differential lock indicator light signal	CAN communication system

TRANSMITTING ECU (TRANSMITTER)	RECEIVING ECU	SIGNAL	COMMUNICATION METHOD
		• Buzzer signal	

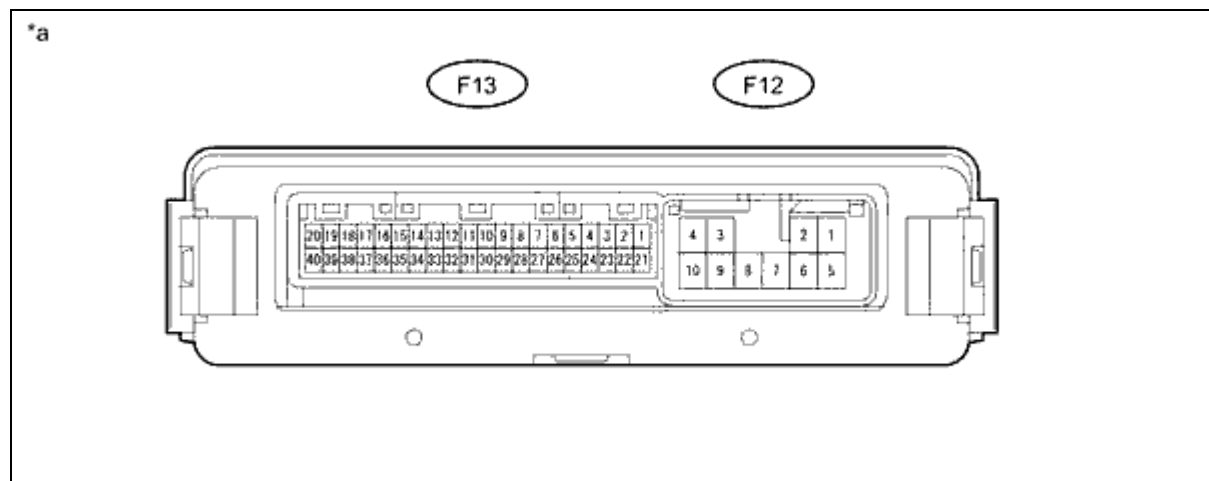
*: for 4WD



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000005V8C000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. CHECK 4 WHEEL DRIVE CONTROL ECU



Text in Illustration

*a	Component with harness connected (4 Wheel Drive Control ECU)	-	-
----	---	---	---

(a) Measure the resistance and voltage according to the value(s) in the table below.

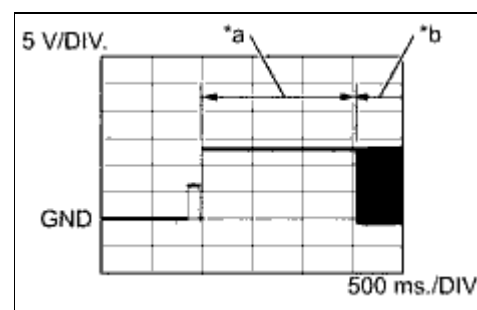
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F13-12 (SLS) - F12-10 (GND)	L - W-B	Differential lock indicator switch	Ignition switch ON Rear differential FREE	10 to 14 V
			Ignition switch ON Rear differential LOCK	Below 1.5 V
F13-15 (R) - F12-10 (GND)	R - W-B	Differential lock switch input	Ignition switch ON Differential lock switch not pressed	11 to 14 V
			Ignition switch ON Differential lock switch pressed and held	Below 1.5 V
F13-20 (CANH) - F13-40 (CANL)	BE - W	HIGH-level CAN bus wire - LOW-level CAN bus wire	Ignition switch off Cable disconnected from negative (-) battery terminal	54 to 69 Ω
F13-21 (+B) - F12-10 (GND)	W - W-B	ECU power supply	Always	10 to 14 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F12-1 (SL+) - F12-10 (GND)	B - W-B	Differential lock coil drive output (continuity with IG when operating)	Ignition switch ON Rear differential free	Below 1.5 V
			Ignition switch ON Switching between free and locked (Condition: A or C)	Pulse generation (See waveform 1)
			Ignition switch ON Rear differential locked (Condition B)	Pulse generation (See waveform 1)
F12-4 (IG) - F12-10 (GND)	Y - W-B	ECU and actuator power supply	Ignition switch ON	11 to 14 V
F12-5 (SL-) - F12-10 (GND)	W - W-B	Differential lock coil drive output (continuity with GND when operating)	Ignition switch ON Rear differential free	Below 1.5 V
			Ignition switch ON Rear differential switching between free and locked (Condition: A or C)	Pulse generation (See waveform 2)
			Ignition switch ON Rear differential locked (Condition B)	Pulse generation (See waveform 2)
F12-10 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

(b) Waveform 1

(1) Rear differential in locked condition

ITEM	CONTENT
Tester Connection	F12-1 (SL+) - F12-10 (GND)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition: A	Ignition switch ON Switching between free and locked
Condition: B	Ignition switch ON Rear differential locked

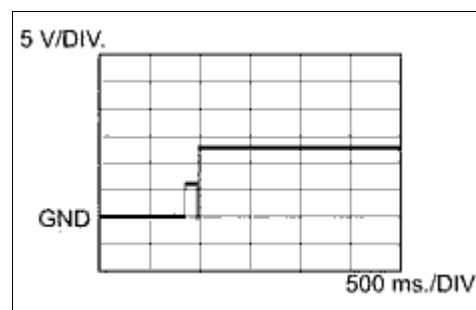


Text in Illustration

*a	Condition: A
*b	Condition: B

(2) Rear differential not in locked condition (switching between free and locked)

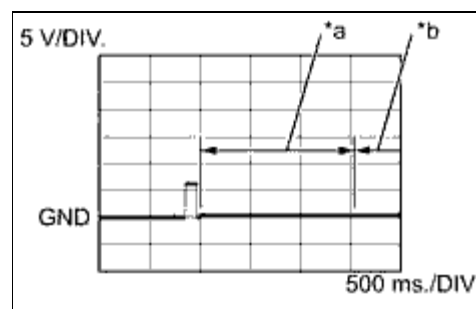
ITEM	CONTENT
Tester Connection	F12-1 (SL+) - F12-10 (GND)
Tool Setting	.5 V/DIV., 500 ms./DIV.
Condition: C	Ignition switch ON Switching between free and locked



(c) Waveform 2

(1) Rear differential in locked condition

ITEM	CONTENT
Tester Connection	F12-5 (SL-) - F12-10 (GND)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition: A	Ignition switch ON Switching between free and locked
Condition: B	Ignition switch ON Rear differential locked

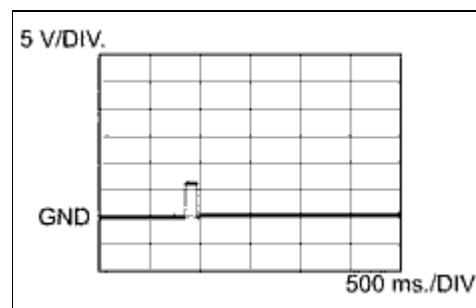


Text in Illustration

*a	Condition: A
*b	Condition: B

(2) Rear differential not in locked condition (switching between free and locked)

ITEM	CONTENT
Tester Connection	F12-5 (SL-) - F12-10 (GND)
Tool Setting	5 V/DIV., 500 ms./DIV.
Condition: C	Ignition switch ON Switching between free and locked



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8F000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): U0122; Lost Communication with Vehicle Dynamics Control Module; 2016 MY Tacoma [08/2015 -]		

DTC	U0122	Lost Communication with Vehicle Dynamics Control Module
------------	--------------	--

DESCRIPTION

This DTC is detected if communication is lost with the skid control ECU (brake actuator assembly).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
U0122	Lost Communication with Vehicle Dynamics Control Module	• Diagnosis Condition: Ignition switch turned to ON (3 seconds elapse after ignition switch is turned to ON) • Malfunction Status: Communication is lost between skid control ECU and 4 wheel drive control ECU • Malfunction Time: 0.72 seconds or more • Other: 1 trip detection logic	CAN communication system

INSPECTION PROCEDURE

HINT:

- for 4WD w/o Multi-information Display:

When the data in the skid control ECU (brake actuator assembly) is being overwritten, the 4WD indicator light and 4LO indicator light may rapidly blink due to the 4 wheel drive control ECU detecting a communication malfunction (blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)), but this is not a malfunction.

for 4WD w/ Multi-information Display:

When the data in the skid control ECU (brake actuator assembly) is being overwritten, a message is displayed on the multi-information display and the 4LO indicator light rapidly blinks due to the 4 wheel drive control ECU detecting a communication malfunction (blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)), but this is not a malfunction.

for 2WD:

When the data in the skid control ECU (brake actuator assembly) is being overwritten, the rear differential lock indicator light may rapidly blink due to the 4 wheel drive control ECU detecting a communication malfunction (blinks at 0.25 second intervals (0.25 seconds on and 0.25 seconds off)), but this is not a malfunction.

- Clear all DTCs, since DTCs are stored after the data in the skid control ECU (brake actuator assembly) is overwritten.

PROCEDURE

1.	PERFORM DTC
-----------	--------------------

(a) Clear the DTCs **INFO** .

(b) Check if the same DTCs are output **INFO** .

Result

RESULT	PROCEED TO
DTC is output	A
DTC is not output	B

B ► USE SIMULATION METHOD TO CHECK

A ► CHECK CAN COMMUNICATION SYSTEM



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005V8O000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/ Rear Differential Lock): U0416; Invalid Data Received from Vehicle Dynamics Control Module; 2016 MY Tacoma [08/2015 -]		

DTC	U0416	Invalid Data Received from Vehicle Dynamics Control Module
------------	--------------	---

DESCRIPTION

This DTC is detected if a wheel speed malfunction signal is sent from the skid control ECU (brake actuator assembly).

DTC NO.	DETECTION ITEM	DTC DETECTION CONDITION	TROUBLE AREA
U0416	Invalid Data Received From Vehicle Dynamics Control Module	• Diagnosis Condition: Ignition switch turned to ON (3 seconds elapse after ignition switch is turned to ON) • Malfunction Status: Wheel speed sensor malfunction signals from skid control ECU are received • Malfunction Time: 0.06 seconds or more (malfunction signal received 1 or more times) • Other: 1 trip detection logic	• CAN communication system • Anti-lock brake system (w/o VSC) • Vehicle stability control system (w/ VSC)

INSPECTION PROCEDURE

PROCEDURE

1.	RECONFIRM DTC
-----------	----------------------

(a) Clear the DTCs. INFO

(b) Check if the same DTCs are output INFO.

Result

RESULT	PROCEED TO
DTC U0122 and U0416 are output	A
Only DTC U0416 is output	B
DTC is not output	C

C ▶ USE SIMULATION METHOD TO CHECK

A ▶ GO TO DTC U0122



Last Modified: 11-13-2015	6.6 L	Doc ID: RM0000016G4018X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/o Differential Lock): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

- 1. Before disassembly, clean the outside of the front and rear differential assembly and remove any sand and mud to prevent it from entering the assembly during disassembly and installation.**
- 2. When removing connected parts made of a light alloy, such as front and rear differential carrier covers, tap them off with a plastic hammer. Do not attempt to pry them 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 non-residue solvent.**
- 5. Coat all sliding surfaces and rotating parts with hypoid gear oil LSD.**
- 6. When holding components in a vise, be sure to place an aluminum sheet under the M part. Do not put them directly in the vise.**
- 7. Be careful not to damage the contact surfaces of the case. Such damage could cause oil leakage.**
- 8. Before applying adhesive, remove any remaining adhesive and clean the contact surfaces using non-residue solvent.**
- 9. Do not supply oil immediately after installing parts with adhesive. Leave them for at least an hour.**
- 10. Damage to the surfaces in direct contact with oil seals, O-rings or gaskets could cause oil leakage. Special attention should be paid.**
- 11. When press-fitting an 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.**



Last Modified: 11-13-2015	6.6 T	Doc ID: RM0000016G601YX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: DIFFERENTIAL SYSTEM (w/o Differential Lock): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

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

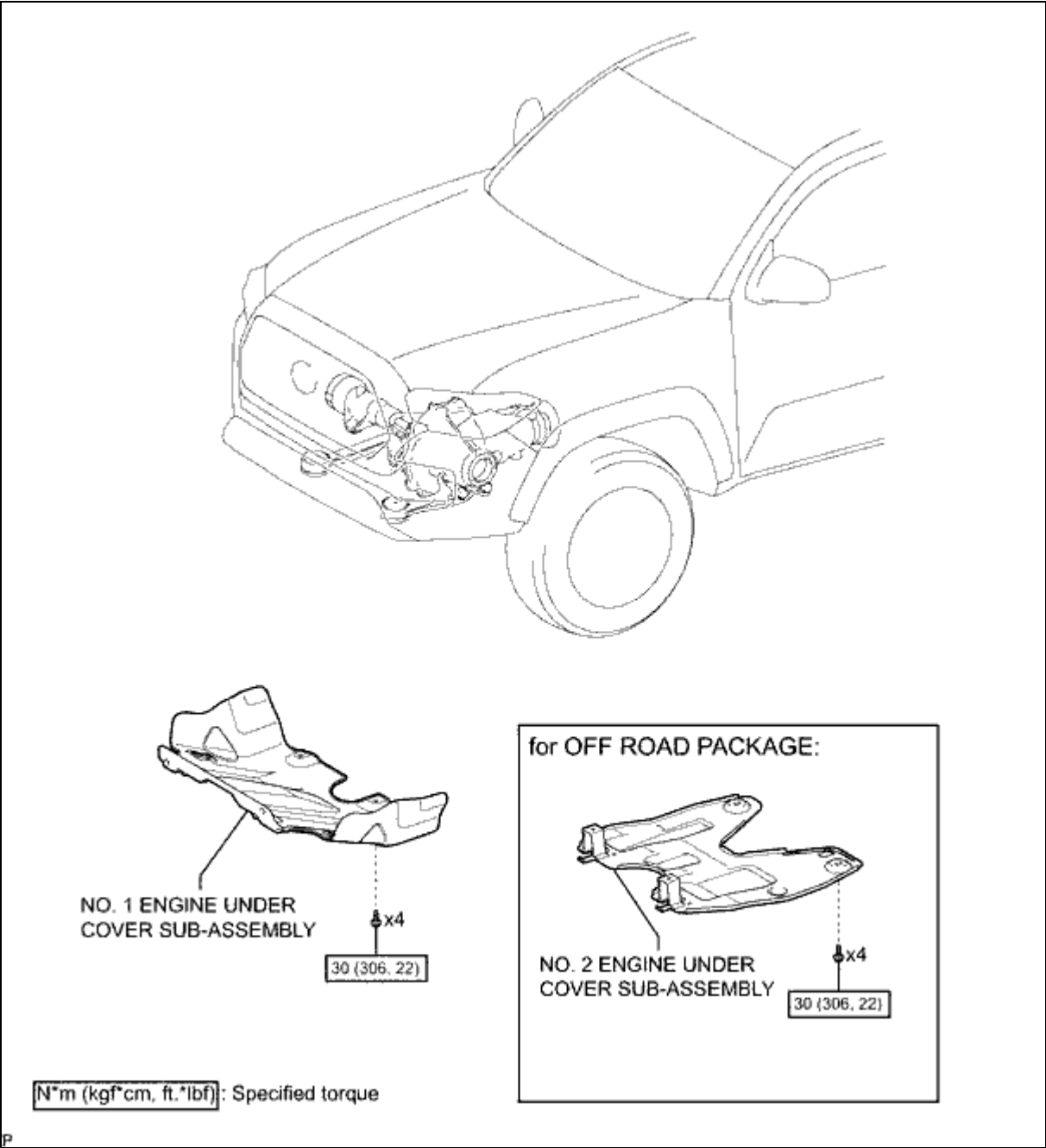
SYMPTOM	SUSPECTED AREA	SEE PAGE
Oil leakage from front differential	Oil level (Too high or wrong grade)	INFO
	Front differential rear oil seal (Worn or damaged)	INFO
	Companion flange (Loose or damaged)	INFO
Oil leakage from rear differential	Oil level (Too high or wrong grade)	INFO
	Rear differential front oil seal (Worn or damaged)	INFO
	Companion flange (Loose or damaged)	INFO



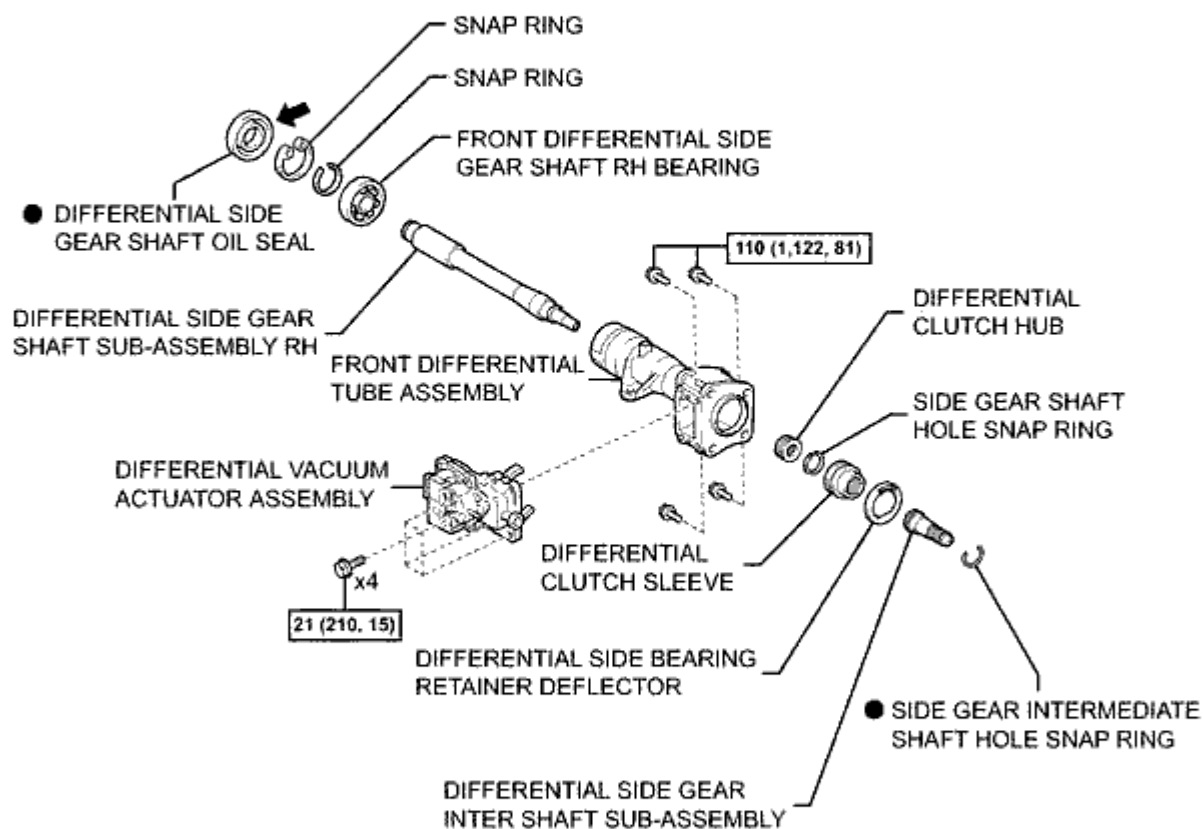
Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016GB02RX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



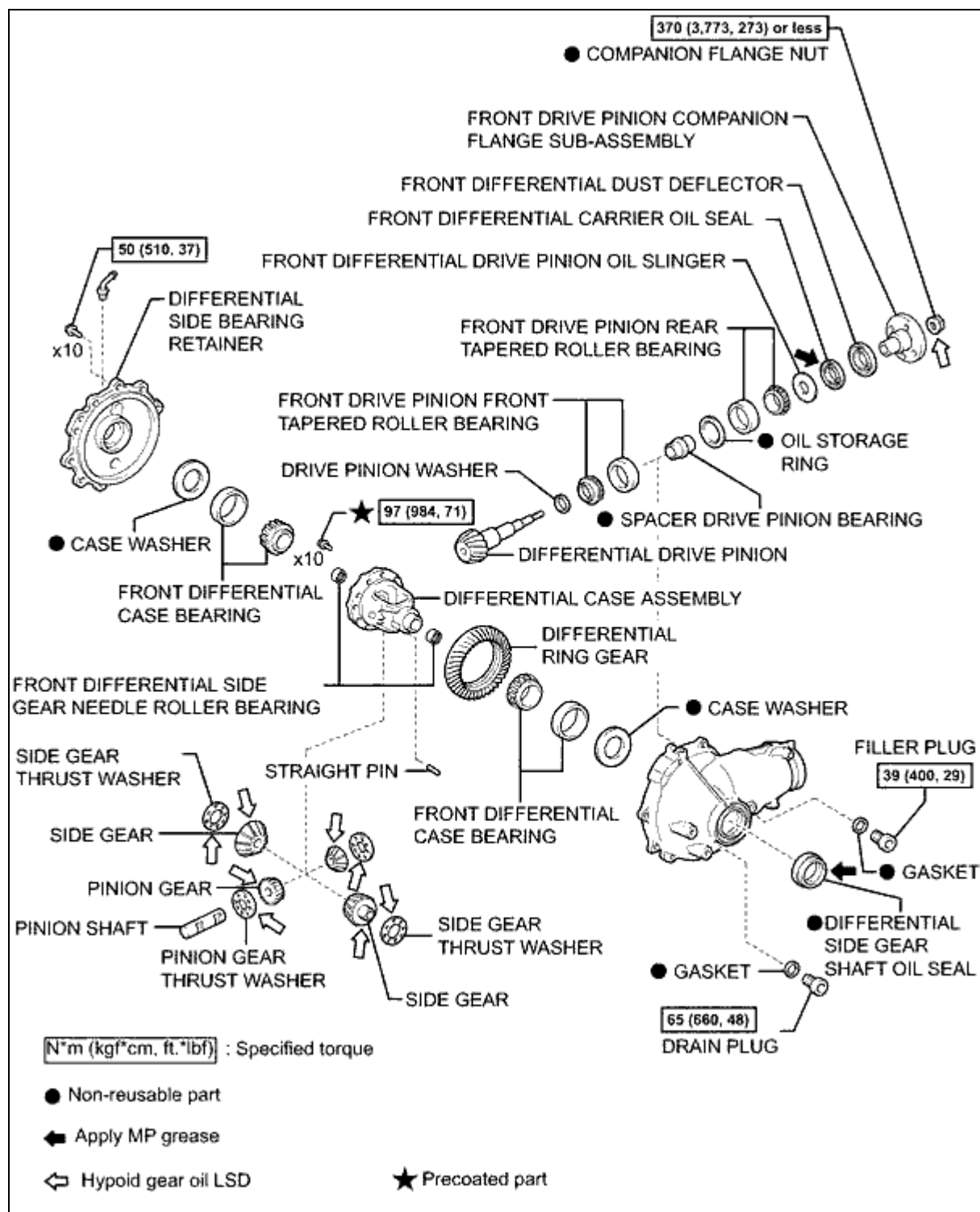
[N*m (kgf*cm, ft.*lbf)] : Specified torque

● Non-reusable part

➡ Apply MP grease

P

ILLUSTRATION



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GC036X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD): DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

1. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

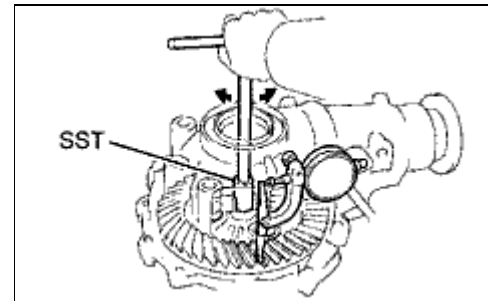
- (a) Using SST and a dial indicator, measure the ring gear backlash.

SST: 09564-32011

Backlash:

0.11 to 0.21 mm (0.0043 to 0.0083 in.)

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



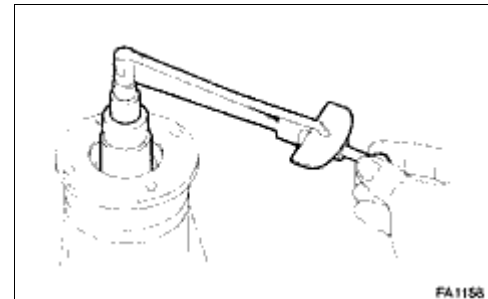
2. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

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

Torque:

1.07 to 1.91 N·m {11 to 19 kgf·cm, 9.5 to 16.9 in·lbf}

If necessary, disassemble and inspect the differential assembly.



3. 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):

1.29 to 2.79 N·m (14 to 29 kgf·cm, 11 to 24 in·lbf)

If necessary, disassemble and inspect the differential.

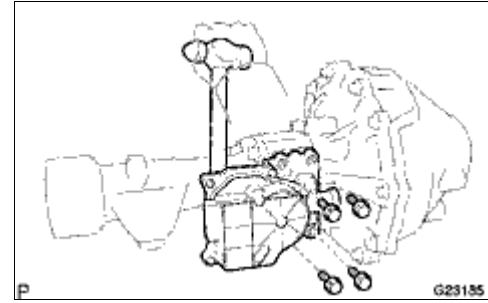
4. REMOVE OIL TEMPERATURE SENSOR

- (a) Remove the oil temperature sensor from the front differential carrier assembly.



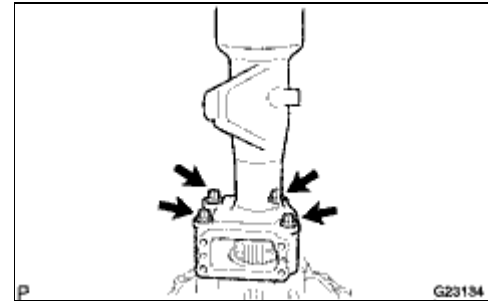
5. REMOVE DIFFERENTIAL VACUUM ACTUATOR ASSEMBLY

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



6. REMOVE FRONT DIFFERENTIAL TUBE ASSEMBLY

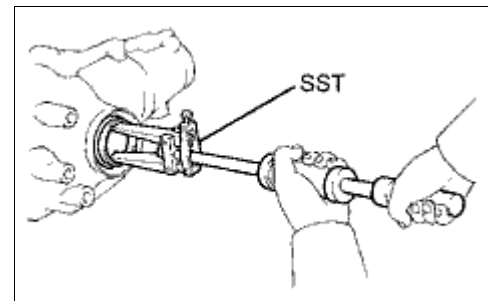
- (a) Remove the 4 bolts.
- (b) Using a plastic hammer, remove the differential tube.



7. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

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

SST: 09308-00010



8. REMOVE DIFFERENTIAL SIDE GEAR INTER SHAFT SUB-ASSEMBLY

- (a) Using SST, remove the side gear inter shaft.

SST: 09350-20015

09369-20040

SST: 09950-40011

09951-04010

09952-04010

09953-04020

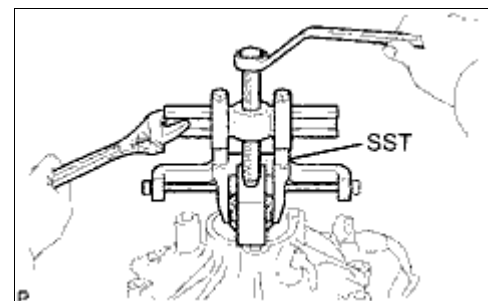
09954-04010

09955-04011

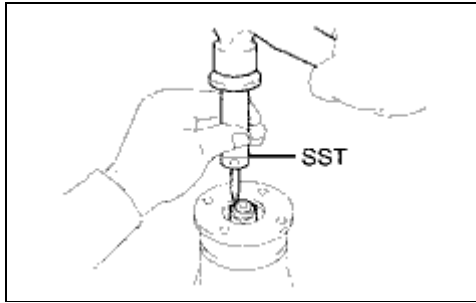
09957-04010

09958-04011

- (b) Remove the snap ring from the side gear inter shaft.



9. REMOVE FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

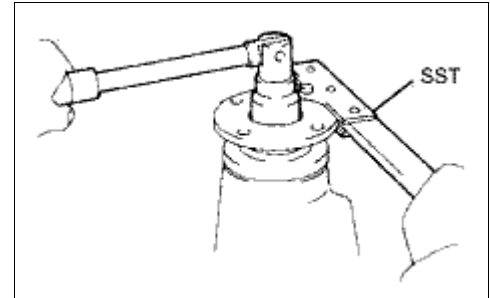


(a) Using SST and a hammer, remove the nut.

SST: 09930-00010

(b) Using SST to hold the companion flange, remove the nut.

SST: 09330-00021



(c) Using SST, remove the companion flange.

SST: 09950-30012

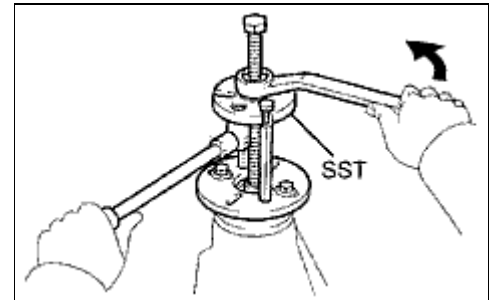
09951-03010

09953-03010

09954-03010

09955-03030

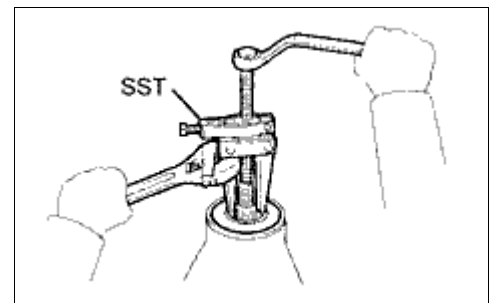
09956-03020



10. REMOVE FRONT DIFFERENTIAL CARRIER OIL SEAL

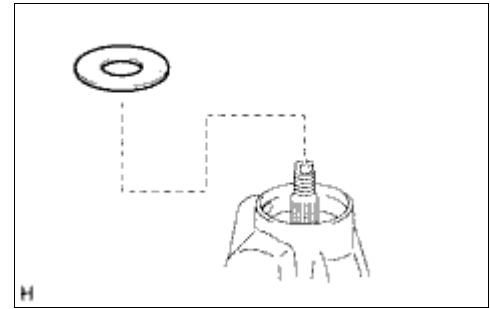
(a) Using SST, remove the oil seal from the differential carrier assembly.

SST: 09308-10010



11. REMOVE FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER

- (a) Remove the front differential drive pinion oil slinger from the differential drive pinion.

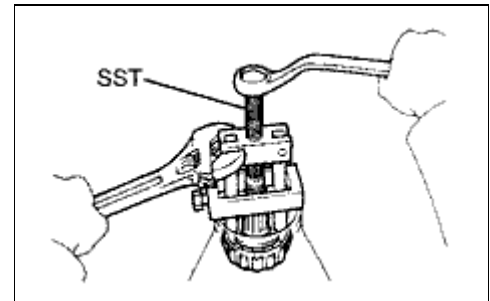


12. REMOVE FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

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

SST: 09556-22010

- (b) Remove the bearing spacer.



13. 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.

14. REMOVE DIFFERENTIAL CASE ASSEMBLY

15. REMOVE DIFFERENTIAL DRIVE PINION

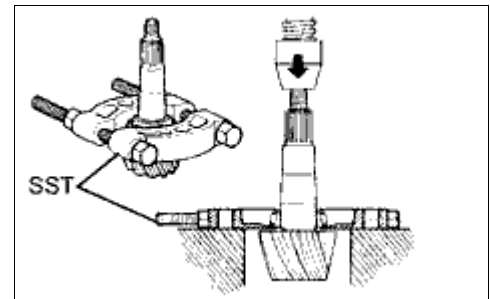
16. REMOVE FRONT DRIVE PINION FRONT TAPERED ROLLER BEARING

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

SST: 09950-00020

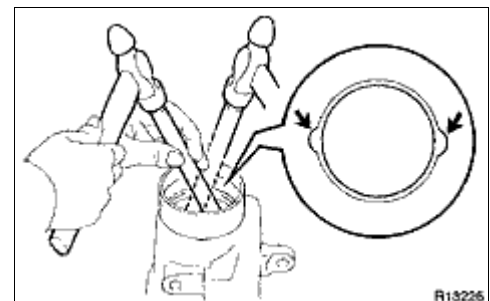
HINT:

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



17. REMOVE FRONT BEARING OUTER RACE

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



18. REMOVE REAR BEARING OUTER RACE

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

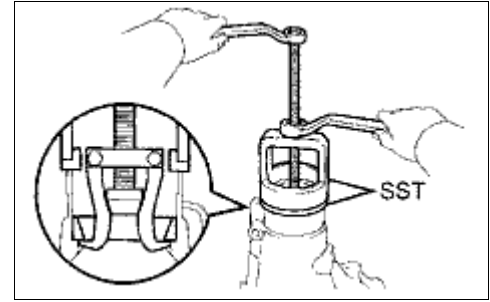
SST: 09502-12010

SST: 09612-65014

09612-01020

09612-01050

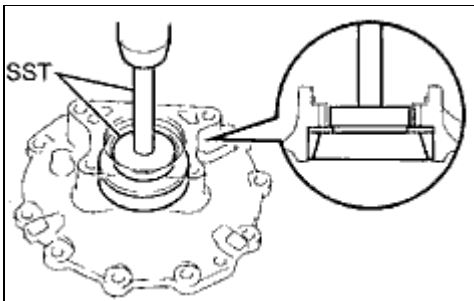
(b) Using a brass bar and a hammer, remove the oil storage ring.



19. REMOVE FRONT DIFFERENTIAL SIDE BEARING RETAINER DEFLECTOR

(a) Using a brass bar and hammer, remove the side bearing retainer deflector by tapping it gently.

20. REMOVE SIDE BEARING OUTER RACE



HINT:

- Measure the plate washer and note its 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

SST: 09950-70010

09951-07150

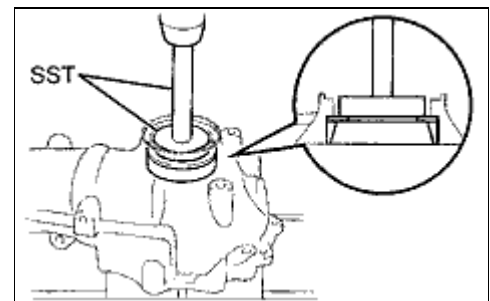
(b) Using SST and a press, remove the outer race and plate washer from the differential carrier assembly.

SST: 09950-60020

09951-00680

SST: 09950-70010

09951-07150



21. REMOVE DIFFERENTIAL RING GEAR

(a) Place matchmarks on the ring gear and differential case assembly.

(b) Remove the 10 bolts.

(c) Using a plastic hammer, tap on the ring gear to separate it from the differential case assembly.

22. REMOVE FRONT DIFFERENTIAL CASE BEARING

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

SST: 09950-60010

09951-00390

SST: 09950-40011

09951-04020

09952-04010

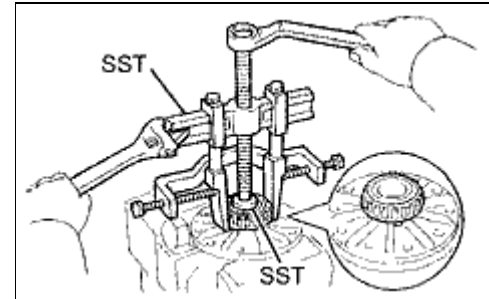
09953-04030

09954-04010

09955-04061

09957-04010

09958-04011

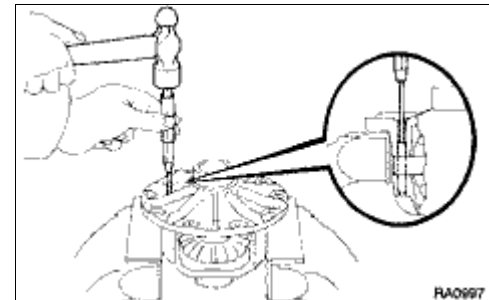


HINT:

Fix the claws of SST into the notch in the differential case assembly.

23. DISASSEMBLE DIFFERENTIAL CASE

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



24. INSPECT DIFFERENTIAL GEAR KIT

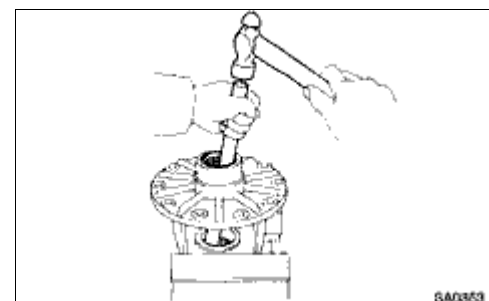
- (a) Check that there is no damage to the pinion gear and side gear.
- If the pinion gear and/or side gear is damaged, replace the differential gear kit.

25. INSPECT FRONT DIFFERENTIAL CASE

- (a) Check that the differential case assembly is not damaged.
- If the differential case assembly is damaged, replace it.

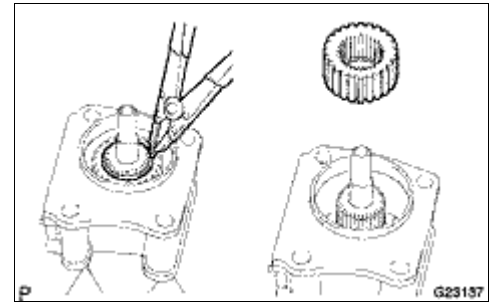
26. REMOVE FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING

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



27. REMOVE DIFFERENTIAL CLUTCH HUB

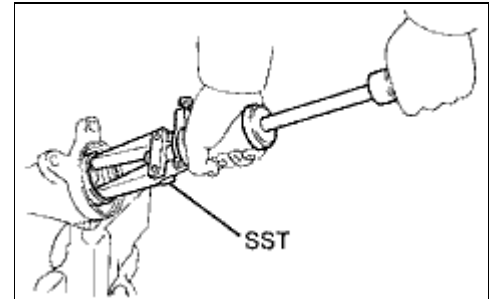
- (a) Using a snap ring expander, remove the snap ring.
- (b) Remove the differential clutch hub.



28. REMOVE DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

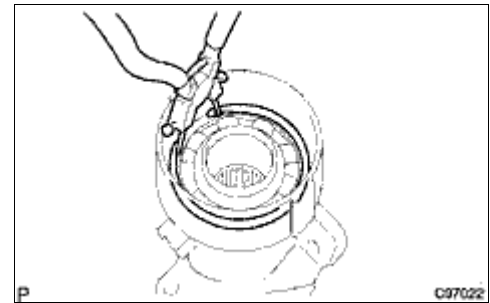
- (a) Using SST, remove the oil seal from the differential tube.

SST: 09308-00010



29. REMOVE DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSEMBLY RH

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



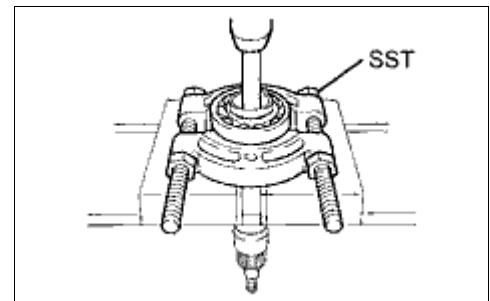
30. REMOVE FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- (a) Using a snap ring expander, remove the snap ring.
- (b) Using SST, a brass bar and a press, remove the bearing.

SST: 09950-00020

NOTICE:

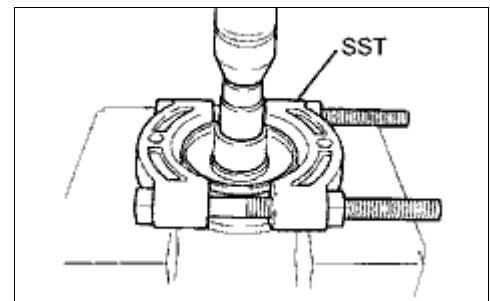
Do not damage the bearing.



31. REMOVE FRONT DIFFERENTIAL DUST DEFLECTOR

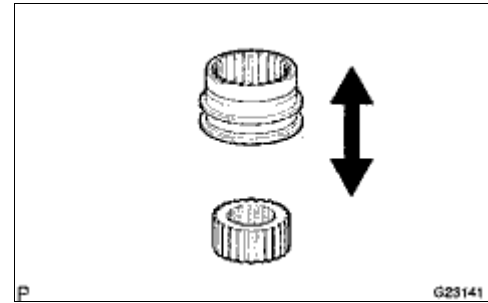
- (a) Using SST, a socket wrench and a press, remove the dust deflector.

SST: 09950-00020



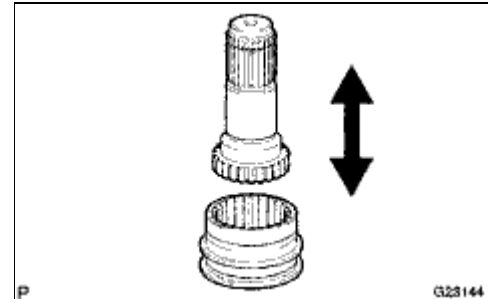
32. REMOVE DIFFERENTIAL CLUTCH SLEEVE AND DIFFERENTIAL CLUTCH HUB

- (a) Check for wear and damage to the clutch hub and clutch sleeve.
If necessary, replace them.
- (b) Check that the clutch sleeve slides smoothly on the clutch hub.



33. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND CLUTCH SLEEVE FORK CLEARANCE

- (a) Check for wear and damage to the clutch hub and side gear inter shaft.
- (b) Check that the clutch sleeve slides smoothly on the side gear inter shaft.



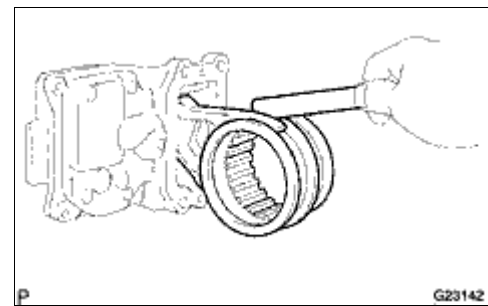
34. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND CLUTCH SLEEVE FORK CLEARANCE

- (a) 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.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000017BL02HX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL FRONT DIFFERENTIAL CARRIER ASSEMBLY

- (a) Connect the actuator hose and connector.
- (b) Install the No. 1 mounting support with the 3 bolts.

Torque:

186 N·m {1899 kgf·cm, 138ft·lbf}

- (c) Install the No. 2 mounting support with the 2 bolts.

Torque:

160 N·m {1631 kgf·cm, 118ft·lbf}

- (d) Install the No. 3 front differential support with the 2 bolts.

Torque:

108 N·m {1100 kgf·cm, 80ft·lbf}

- (e) Support the front differential with a jack.
- (f) Install the bolt and connect the bracket
- (g) Connect the differential oil temperature sensor connector and clip.
- (h) Install the 2 front mounting bolts and nuts.

for TMMTX Made:

129 N·m (1310 kgf·cm, 95 ft·lbf)

Except TMMTX Made:

137 N·m (1400 kgf·cm, 101 ft·lbf)

- (i) Install the No. 1 front differential mount nut.

for TMMTX Made:

82 N·m (831 kgf·cm, 60 ft·lbf)

Except TMMTX Made:

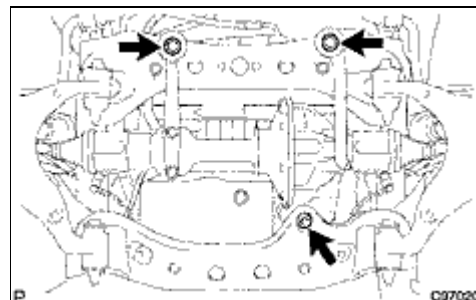
87 N·m (889 kgf·cm, 64 ft·lbf)

- (j) Install the front differential breather tube bracket with the bolt.

Torque:

13 N·m {129 kgf·cm, 8ft·lbf}

- (k) Lower the jack.



2. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH INFO

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

4. INSTALL FRONT SUSPENSION LOWER ARM LH INFO

5. INSTALL FRONT SUSPENSION LOWER ARM RH

HINT:

Use the same procedure as for the LH side.

6. INSTALL TIE ROD END SUB-ASSEMBLY LH INFO

7. INSTALL TIE ROD END SUB-ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

8. INSTALL FRONT SPEED SENSOR LH INFO

9. INSTALL FRONT SPEED SENSOR RH

HINT:

Use the same procedure as for the LH side.

10. INSTALL FRONT STABILIZER LINK ASSEMBLY LH INFO

11. INSTALL FRONT STABILIZER LINK ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

12. INSTALL FRONT AXLE SHAFT LH NUT INFO

13. INSTALL FRONT AXLE SHAFT RH NUT

HINT:

Use the same procedure as for the LH side.

14. INSTALL FRONT PROPELLER SHAFT ASSEMBLY INFO

15. ADD DIFFERENTIAL OIL INFO

16. INSPECT DIFFERENTIAL OIL INFO

17. INSPECT DIFFERENTIAL OIL LEAK

18. INSTALL NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Off Road Package)

Torque:

30 N·m {306 kgf·cm, 22ft·lbf}

19. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

Torque:

30 N·m {306 kgf·cm, 22ft·lbf}

20. INSTALL FRONT WHEELS

Torque:

113 N·m {1,152 kgf·cm, 83ft·lbf}

21. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

INFO

22. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

23. CHECK VSC SENSOR SIGNAL (for Hydraulic Brake Booster)

INFO

24. CHECK VSC SENSOR SIGNAL (for Vacuum Brake Booster)

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016GD02KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD): REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

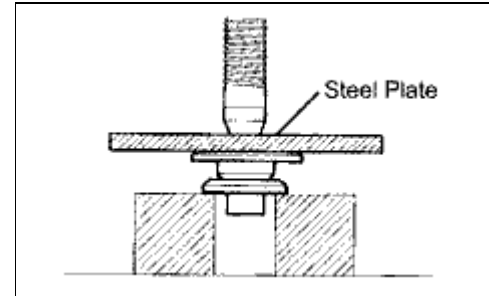
REASSEMBLY

1. 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.

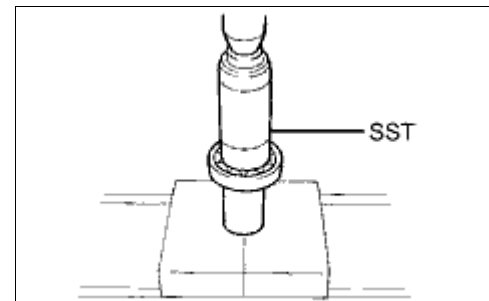


2. INSTALL FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- (a) Using SST and a press, install the bearing.

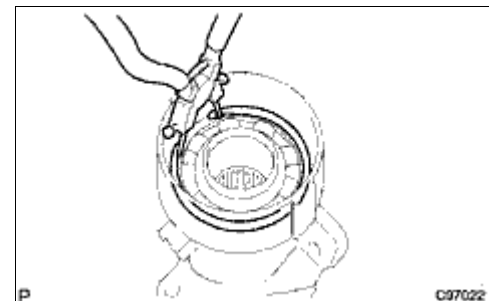
SST: 09223-00010

- (b) Using a snap ring expander, install the snap ring.



3. INSTALL DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSEMBLY RH

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



4. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

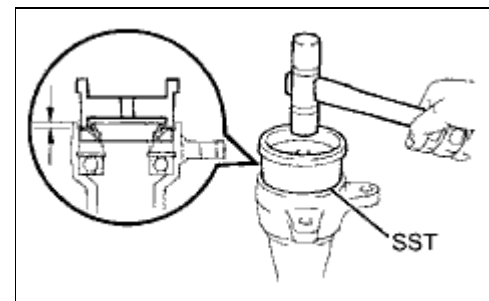
- (a) Using SST and a plastic hammer, install a new oil seal.

SST: 09608-32010

Oil seal drive in depth:

4.85 to 5.75 mm (0.1909 to 0.2264 in.)

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

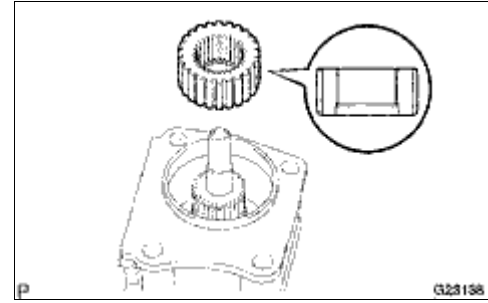


5. INSTALL DIFFERENTIAL CLUTCH HUB

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

NOTICE:

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



6. INSTALL FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING

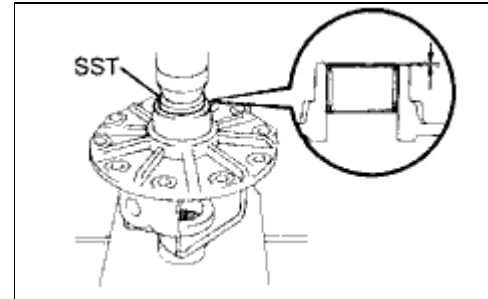
- (a) Using SST and a press, install 2 new bearings.

SST: 09950-60010

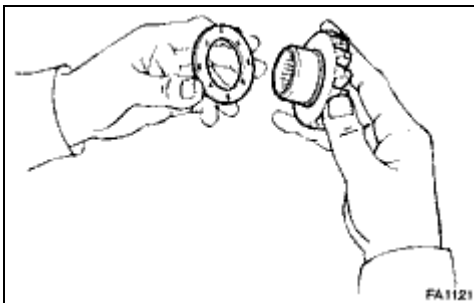
09951-00380

Bearing press in depth:

1.4 to 2.0 mm (0.055 to 0.079 in.)



7. INSTALL FRONT DIFFERENTIAL CASE



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

HINT:

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

Washer thickness:

THICKNESS MM (IN.)	THICKNESS MM (IN.)
1.50 (0.0591)	1.75 (0.0689)
1.55 (0.0610)	1.80 (0.0709)
1.60 (0.0630)	1.85 (0.0728)
1.65 (0.0650)	1.90 (0.0748)
1.70 (0.0669)	-

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

HINT:

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

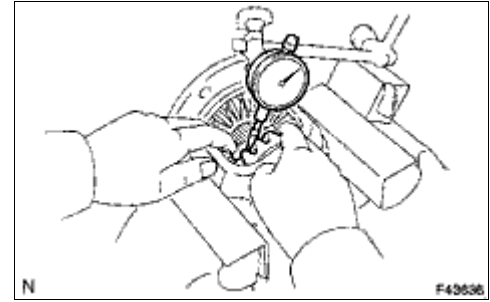
(c) Measure the side gear backlash.

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

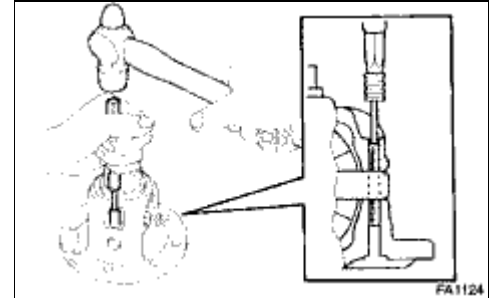
Backlash:

0 to 0.15 mm (0 to 0.0059 in.)

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



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



(e) Stake the differential case assembly.

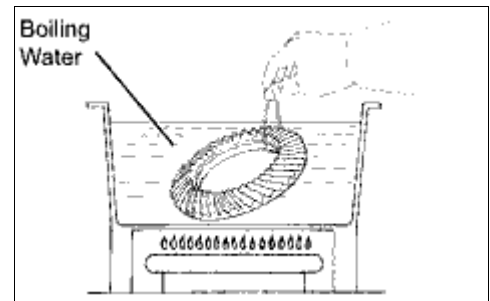
8. INSTALL DIFFERENTIAL RING GEAR

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

HINT:

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

- (e) Temporarily install 10 bolts so that the bolt holes in the ring gear and differential case assembly are aligned.
- (f) After the ring gear has cooled sufficiently, tighten the ring gear set bolts to which adhesive has been applied.



Torque:

97 N·m {984 kgf·cm, 71ft·lbf}

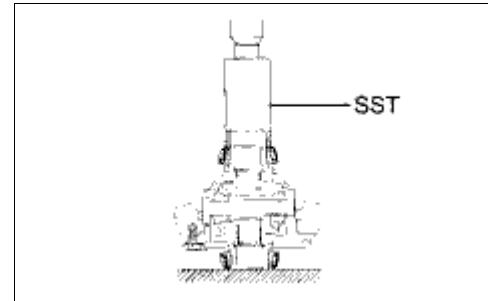
Adhesive:

Toyota Genuine Adhesive 1360K, Three Bond 1360K or equivalent

9. INSTALL FRONT DIFFERENTIAL CASE BEARING

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

SST: 09226-10010



10. INSTALL SIDE BEARING OUTER RACE

HINT:

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

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

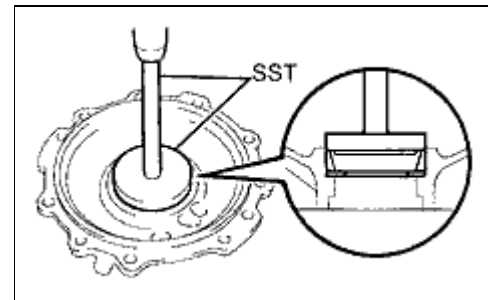
- (b) Using SST and a press, install the bearing outer race onto the differential case bearing retainer assembly.

SST: 09950-60020

09951-00810

SST: 09950-70010

09951-07150



- (c) Install a new plate washer onto the differential carrier assembly.

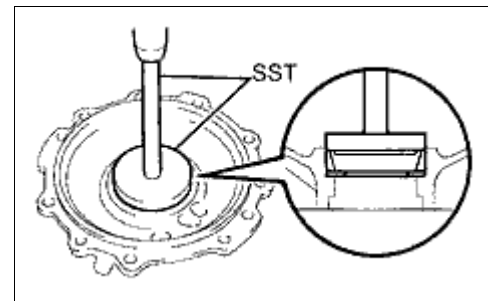
- (d) Using SST and a press, install the bearing outer race onto the differential carrier assembly.

SST: 09950-60020

09951-00810

SST: 09950-70010

09951-07150



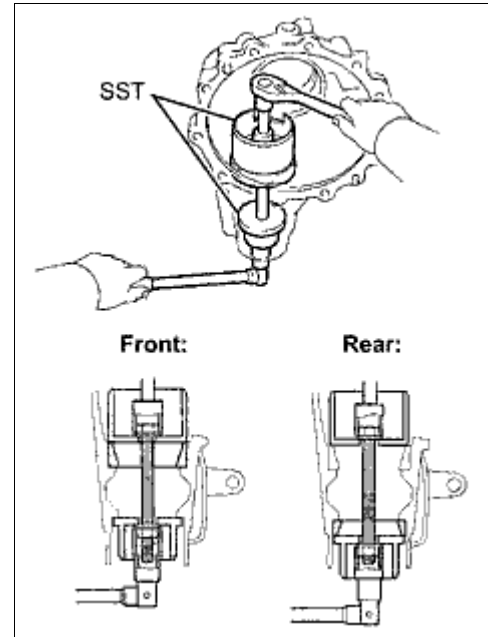
11. INSTALL FRONT BEARING OUTER RACE

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

SST: 09950-00020

09951-00680

09951-00890



12. INSTALL REAR BEARING OUTER RACE

- (a) Install the oil storage ring.
(b) Using SST, install the outer race.

SST: 09950-00020

09951-00680

09951-00890

13. INSTALL FRONT DRIVE PINION FRONT TAPERED ROLLER BEARING

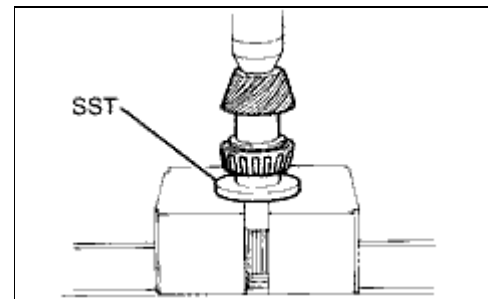
- (a) Install the washer onto the drive pinion.

HINT:

First, fit a washer of the same thickness as 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



14. 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

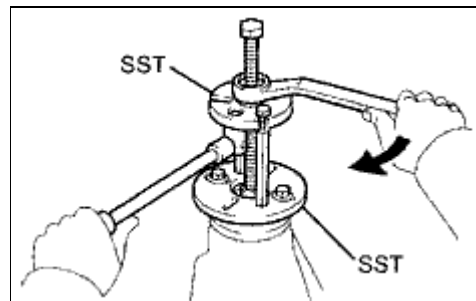
09951-03010

09953-03010

09954-03010

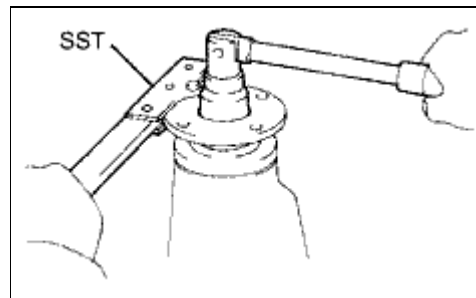
09955-03030

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

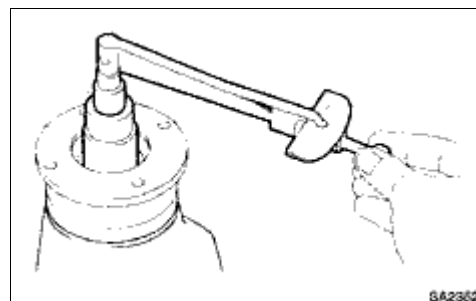
NOTICE:

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 the backlash between the drive pinion and ring gear.

Preload (at starting):

BEARING	STANDARD
New	0.98 to 1.92 N*m (10 to 19 kgf*cm, 9 to 16 in.*lbf)
Reused	0.97 to 1.81 N*m (10 to 18 kgf*cm, 9 to 16 in.*lbf)



If necessary, disassemble and inspect the differential assembly.

15. INSTALL DIFFERENTIAL CASE ASSEMBLY

16. ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

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

Torque:

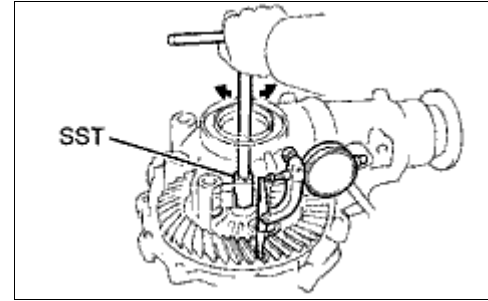
50 N·m {510 kgf·cm, 37ft·lbf}

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

SST: 09564-32011

Backlash:

0.11 to 0.21 mm (0.0043 to 0.0083 in.)



(c) If it is not within the specification, adjust it by either increasing or decreasing the thickness of 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.)
1.58 (0.0622)	1.78 (0.0701)	1.98 (0.0780)
1.60 (0.0630)	1.80 (0.0709)	2.00 (0.0787)
1.62 (0.0638)	1.82 (0.0717)	2.02 (0.0800)
1.64 (0.0646)	1.84 (0.0724)	2.04 (0.0803)
1.66 (0.0654)	1.86 (0.0732)	2.06 (0.0811)
1.68 (0.0661)	1.88 (0.0740)	2.08 (0.0819)
1.70 (0.0669)	1.90 (0.0748)	2.10 (0.0827)
1.72 (0.0677)	1.92 (0.0756)	2.12 (0.0835)
1.74 (0.0685)	1.94 (0.0764)	2.14 (0.0843)
1.76 (0.0693)	1.96 (0.0772)	2.16 (0.0850)

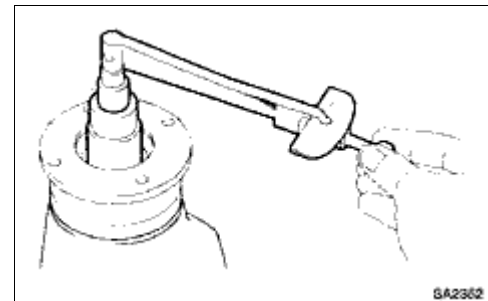
17. INSPECT TOTAL PRELOAD

(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 0.22 to 0.88 N*m (2.2 to 8.8 kgf*cm, 2.0 to 7.8 in.*lbf)

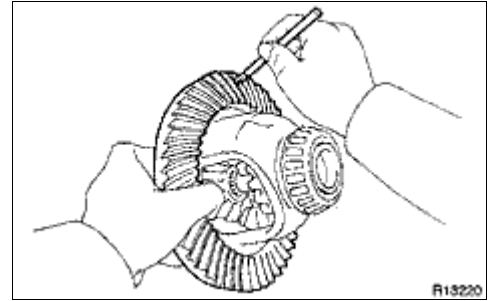
If necessary, disassemble and inspect the differential.



18. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

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

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



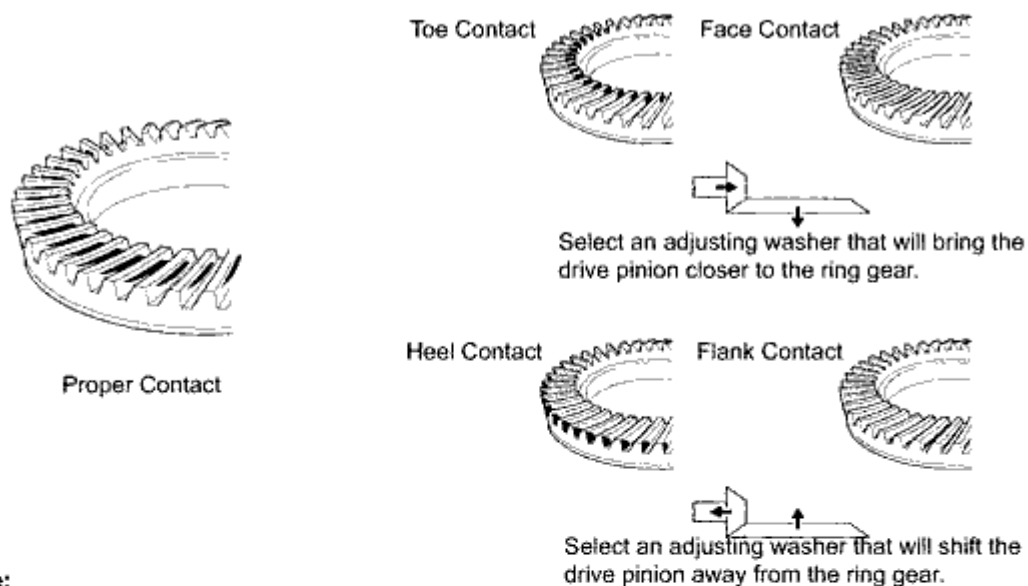
- (c) Install the differential case assembly and side bearing retainer.

Torque:

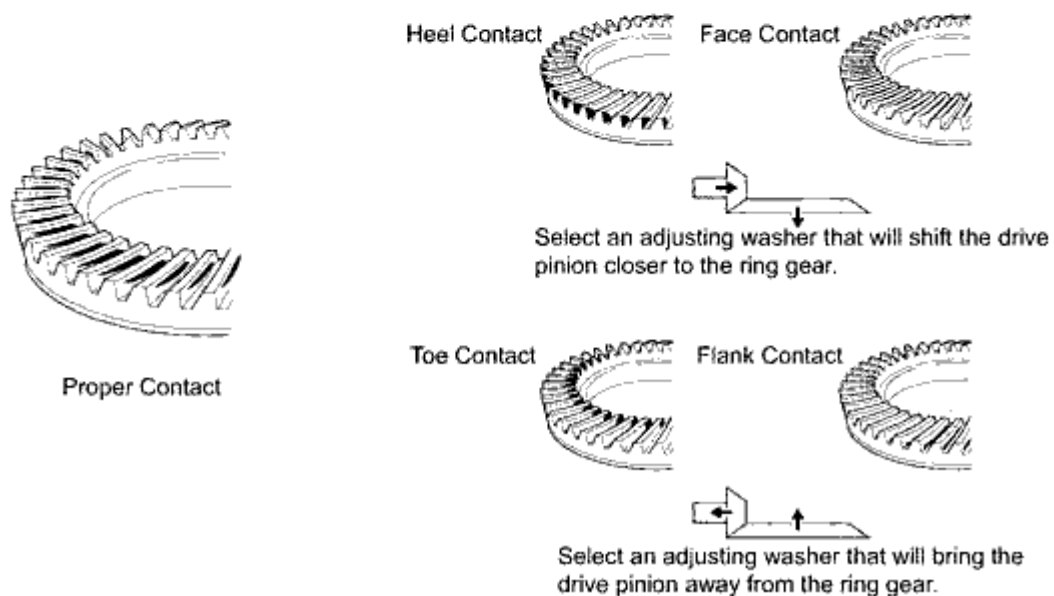
50 N·m {510 kgf·cm, 37ft·lbf}

- (d) Hold the companion flange firmly and rotate the ring gear in both directions.
- (e) Remove the differential case, side bearing retainer and differential case assembly.
- (f) Inspect the tooth contact pattern.

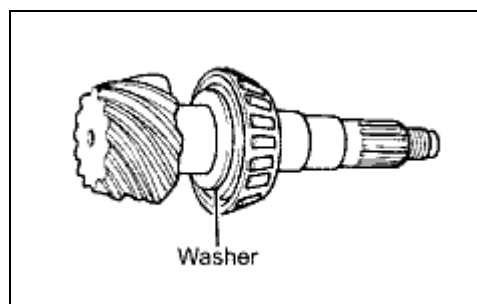
Driver Side:



Coast Side:



If the teeth are not engaged properly, use the following chart to select the appropriate washer for



correction.

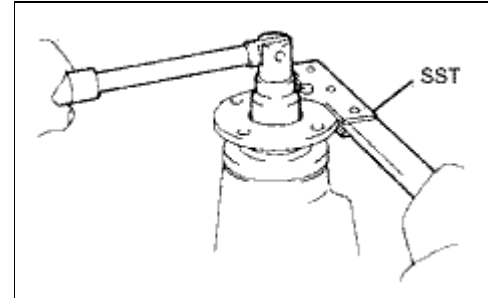
Washer thickness:

THICKNESS MM (IN.)	THICKNESS MM (IN.)	THICKNESS MM (IN.)
1.70 (0.0669)	1.94 (0.0764)	2.18 (0.0858)

THICKNESS MM (IN.)	THICKNESS MM (IN.)	THICKNESS MM (IN.)
1.73 (0.0681)	1.97 (0.0776)	2.21 (0.0870)
1.76 (0.0693)	2.00 (0.0787)	2.24 (0.0882)
1.79 (0.0705)	2.03 (0.0799)	2.27 (0.0894)
1.82 (0.0717)	2.06 (0.0811)	2.30 (0.0906)
1.85 (0.0728)	2.09 (0.0823)	2.33 (0.0917)
1.88 (0.0740)	2.12 (0.0835)	-
1.91 (0.0752)	2.15 (0.0847)	-

(g) Using SST to hold the companion flange, remove the nut.

SST: 09330-00021



(h) Using SST, remove the companion flange.

SST: 09950-30012

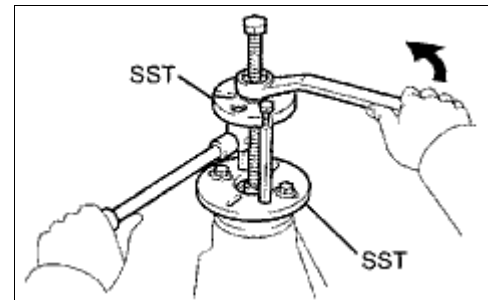
09951-03010

09953-03010

09954-03010

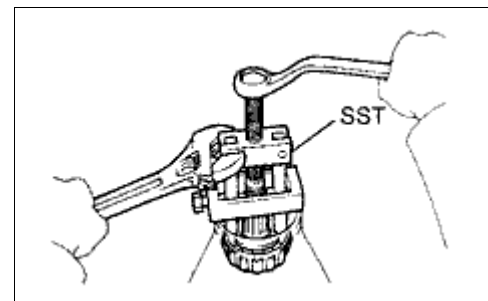
09955-03030

09956-03020



(i) Using SST, remove the rear bearing from the drive pinion.

SST: 09556-22010



19. INSTALL FRONT DIFFERENTIAL DRIVE PINION BEARING SPACER

(a) Install a new bearing spacer and oil storage ring.

20. INSTALL FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

21. INSTALL FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER

22. INSTALL FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

(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

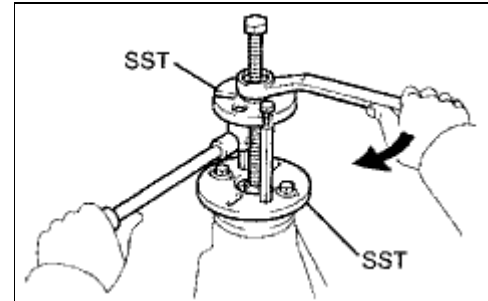
09951-03010

09953-03010

09954-03010

09955-03030

09956-03020



23. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

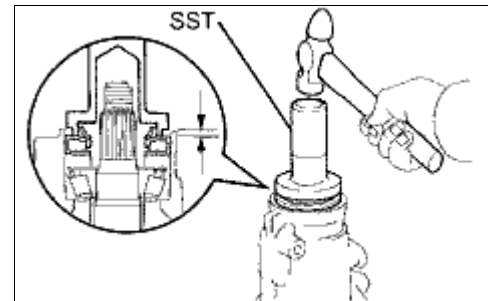
- (a) Using SST and a hammer, install the oil seal.

SST: 09554-22010

Oil seal drive in depth:

2.7 to 3.3 mm (0.106 to 0.130 in.)

- (b) Coat the oil seal lip with MP grease.
(c) Temporarily install companion flange nut.

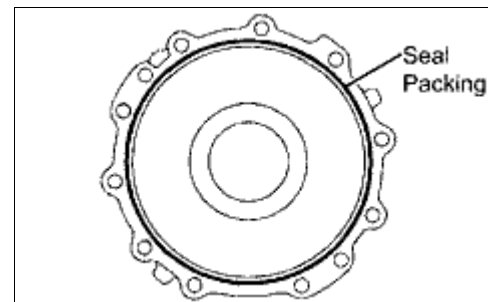


24. INSTALL DIFFERENTIAL SIDE BEARING RETAINER

- (a) Remove any old seal packing material and be careful not to drop oil on the contact surfaces of the differential carrier and side bearing retainer.
(b) Clean and degrease the 10 side bearing retainer installation bolts and the 10 bolt holes of the front differential carrier assembly.
(c) Clean the contact surfaces of any residual seal packing material using gasoline or alcohol.
(d) Apply seal packing to the side bearing retainer, as shown.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent



HINT:

Install the side bearing retainer within 10 minutes of applying seal packing.

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

Torque:

50 N·m {510 kgf·cm, 37ft·lbf}

- (f) Install the union.

25. 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):

BEARING	STANDARD
New	1.08 to 2.02 N*m (11 to 21 kgf*cm, 9.6 to 17.9 in.*lbf)
Reused	1.07 to 1.91 N*m (11 to 19 kgf*cm, 9.5 to 16.9 in.*lbf)

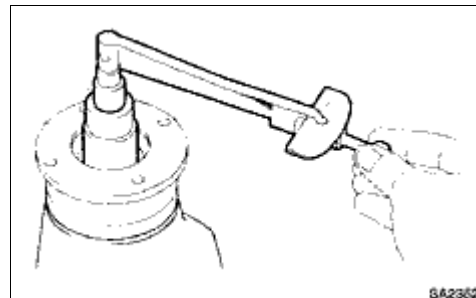
If the preload is greater than the specification, replace the bearing spacer.

If the preload is less than the specification, retighten the nut to 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, 273ft*lbf} or less

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

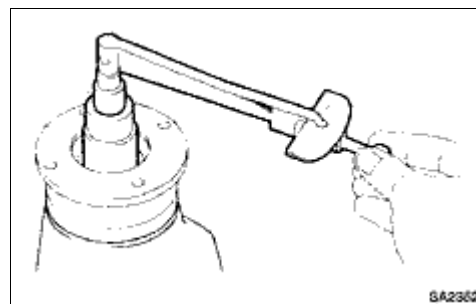


26. INSPECT TOTAL PRELOAD

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

Total preload (at starting):

BEARING	STANDARD
New	1.3 to 2.90 N*m (14 to 29 kgf*cm, 12 to 25 in.*lbf)
Reused	1.29 to 2.79 N*m (14 to 29 kgf*cm, 12 to 24 in.*lbf)



If necessary, disassemble and inspect the differential.

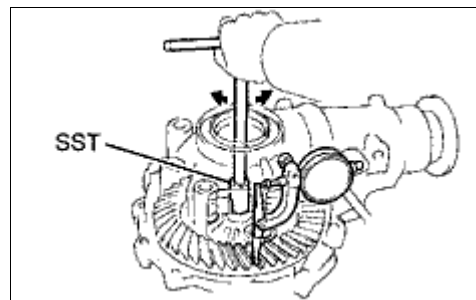
27. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

SST: 09564-32011

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

Backlash:

0.11 to 0.21 mm (0.0043 to 0.0083 in.)



- (b) If it is not within the specification, adjust it by either increasing or decreasing the thickness of 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.)
1.58 (0.0622)	1.78 (0.0701)	1.98 (0.0780)
1.60 (0.0630)	1.80 (0.0709)	2.00 (0.0787)
1.62 (0.0638)	1.82 (0.0717)	2.02 (0.0800)
1.64 (0.0646)	1.84 (0.0724)	2.04 (0.0803)
1.66 (0.0654)	1.86 (0.0732)	2.06 (0.0811)
1.68 (0.0661)	1.88 (0.0740)	2.08 (0.0819)
1.70 (0.0669)	1.90 (0.0748)	2.10 (0.0827)
1.72 (0.0677)	1.92 (0.0756)	2.12 (0.0835)
1.74 (0.0685)	1.94 (0.0764)	2.14 (0.0843)
1.76 (0.0693)	1.96 (0.0772)	2.16 (0.0850)

28. INSPECT AND ADJUST FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY

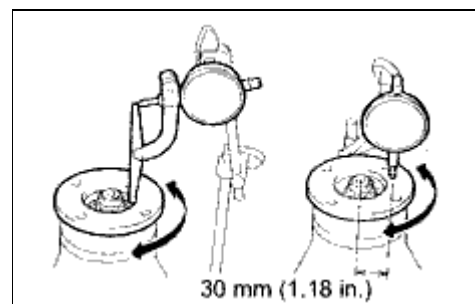
- (a) Using a dial indicator, measure the runout of the drive pinion companion flange vertically and horizontally.

Maximum runout:

Vertical runout: 0.10 mm (0.00394 in.)

Lateral runout: 0.10 mm (0.00394 in.)

If the runouts are not within the specifications, replace the companion flange.

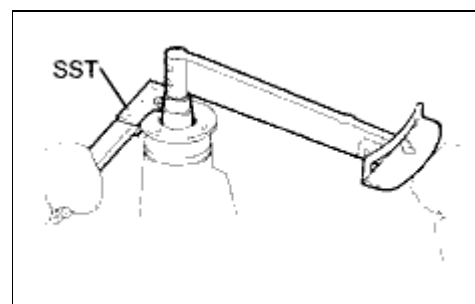


29. INSTALL FRONT DRIVE PINION COMPANION FLANGE FRONT NUT

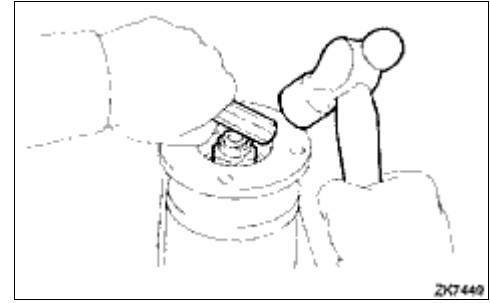
- (a) Using SST to hold the flange, tighten the nut.

Torque:

370 N·m {3,773 kgf·cm, 273ft·lbf}



- (b) Using a chisel and hammer, stake the drive pinion nut.



30. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

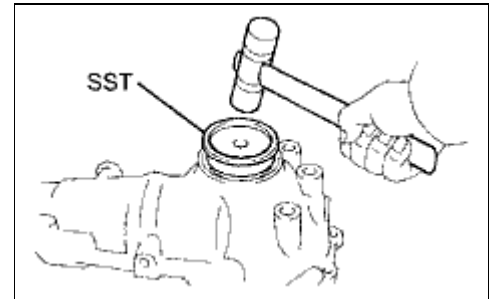
- (a) Using SST and a plastic hammer, install a new oil seal until its surface is flush with the differential carrier end.

SST: 09608-32010

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

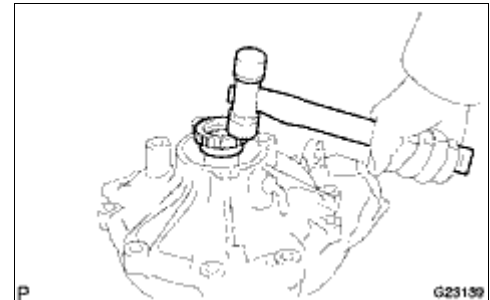
Oil seal driven in depth:

-0.45 to 0.45 mm (-0.0177 to 0.0177 in.)



31. INSTALL DIFFERENTIAL SIDE GEAR INTER SHAFT SUB-ASSEMBLY

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

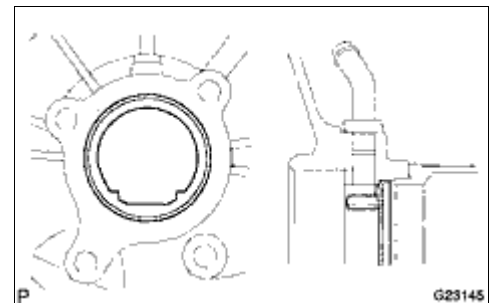


32. INSTALL FRONT DIFFERENTIAL SIDE BEARING RETAINER DEFLECTOR

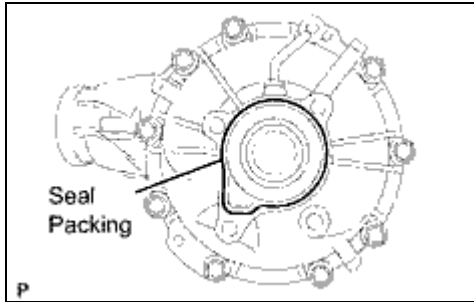
- (a) Using a brass bar and a hammer, install the side bearing retainer deflector.

NOTICE:

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



33. INSTALL FRONT DIFFERENTIAL TUBE ASSEMBLY



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

Seal packing:

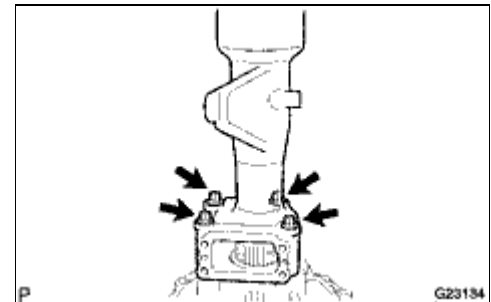
Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

HINT:

Install the differential tube within 10 minutes of applying seal packing.

- (d) Install the differential tube into the differential carrier assembly.

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

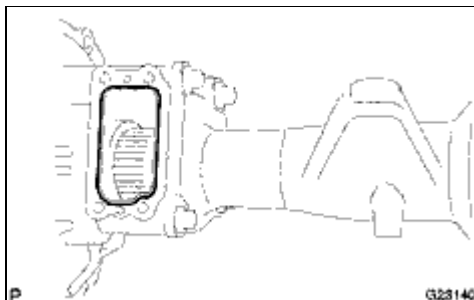


- (f) Install the 4 bolts.

Torque:

110 N·m {1,122 kgf·cm, 81ft·lbf} or less

34. INSTALL DIFFERENTIAL VACUUM ACTUATOR ASSEMBLY



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

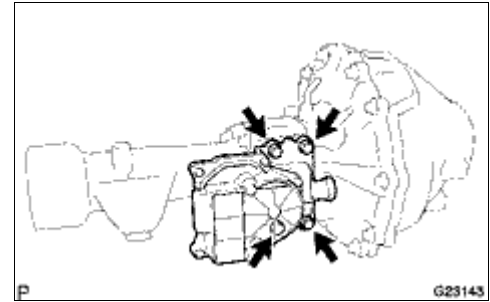
Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

HINT:

Install the actuator within 10 minutes of applying seal packing.

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



- (e) Install the actuator assembly onto the differential tube.

- (f) Install the 4 bolts.

Torque:

21 N·m {210 kgf·cm, 15ft·lbf}

35. INSTALL OIL TEMPERATURE SENSOR

- (a) Install the oil temperature sensor to the front differential carrier assembly.

Torque:

30 N·m {306 kgf·cm, 22ft·lbf}



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000017BM034X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: DIFFERENTIAL: FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

- 1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
- 2. REMOVE FRONT WHEELS**
- 3. REMOVE NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Off Road Package)**
- 4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY**
- 5. DRAIN DIFFERENTIAL OIL** [INFO](#)
- 6. REMOVE FRONT PROPELLER SHAFT ASSEMBLY** [INFO](#)
- 7. REMOVE FRONT AXLE SHAFT LH NUT** [INFO](#)
- 8. REMOVE FRONT AXLE SHAFT RH NUT**

HINT:
Use the same procedure as for the LH side.
- 9. SEPARATE FRONT STABILIZER LINK ASSEMBLY LH** [INFO](#)
- 10. SEPARATE FRONT STABILIZER LINK ASSEMBLY RH**

HINT:
Use the same procedure as for the LH side.
- 11. SEPARATE FRONT SPEED SENSOR LH** [INFO](#)
- 12. SEPARATE FRONT SPEED SENSOR RH**

HINT:
Use the same procedure as for the LH side.
- 13. SEPARATE TIE ROD END SUB-ASSEMBLY LH** [INFO](#)
- 14. SEPARATE TIE ROD END SUB-ASSEMBLY RH**

HINT:
Use the same procedure as for the LH side.
- 15. SEPARATE FRONT SUSPENSION LOWER ARM LH** [INFO](#)
- 16. SEPARATE FRONT SUSPENSION LOWER ARM RH**

HINT:
Use the same procedure as for the LH side.
- 17. REMOVE FRONT DRIVE SHAFT ASSEMBLY LH** [INFO](#)
- 18. REMOVE FRONT DRIVE SHAFT ASSEMBLY RH**

HINT:

Use the same procedure as for the LH side.

19. REMOVE FRONT DIFFERENTIAL CARRIER ASSEMBLY

- (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) Disconnect the differential oil temperature sensor connector and clip.
- (g) Remove the bolt and disconnect the bracket.
- (h) Lower the jack and remove the front differential assembly.
- (i) Remove the 2 bolts and No. 3 front differential support.
- (j) Remove the 5 bolts and 2 front differential supports.

