

DIFFERENTIAL SYSTEM

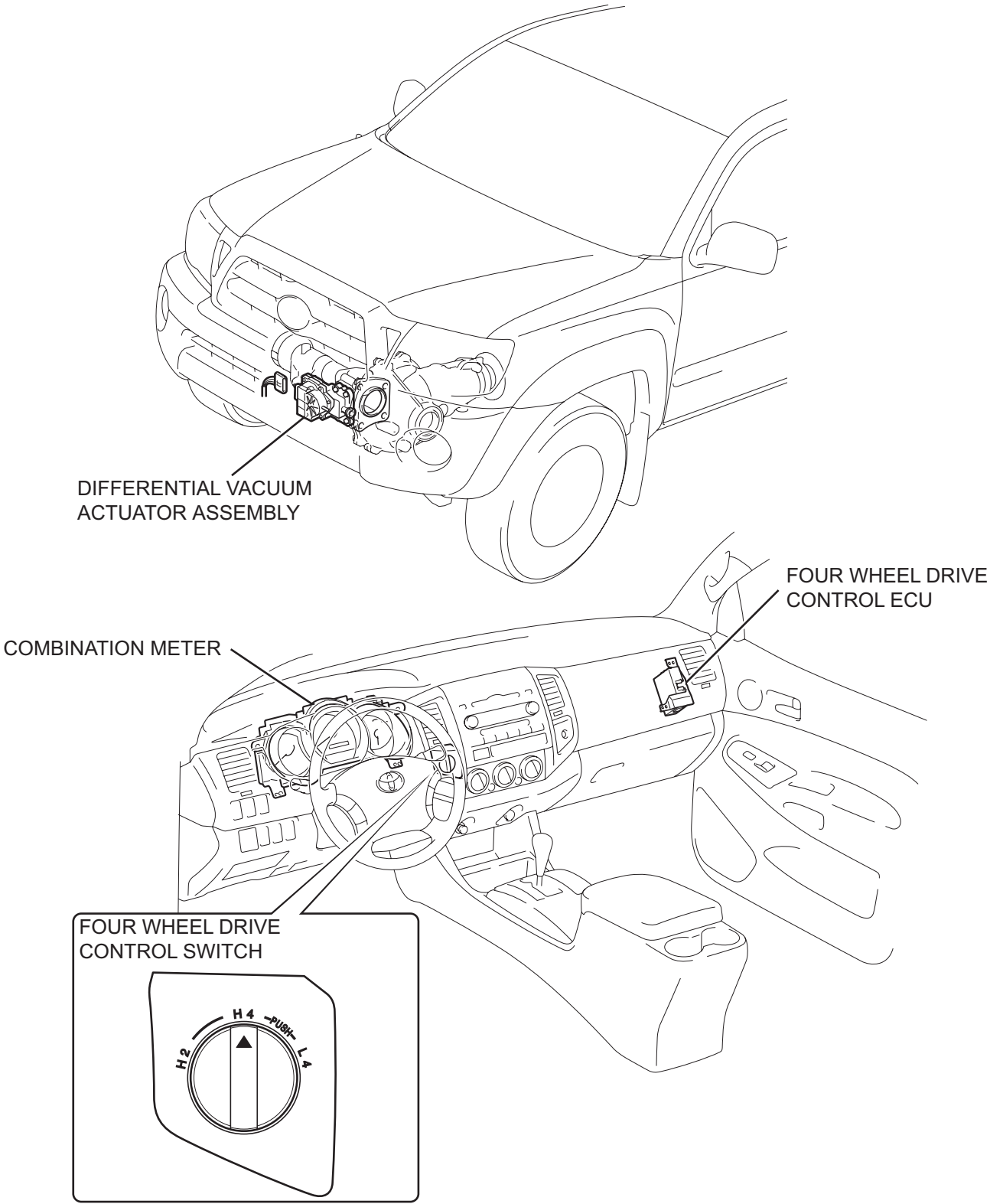
PRECAUTION

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 white gasoline.
5. Coat all sliding surfaces and rotating parts with hypoid gear oil LSD.
6. When holding components in a vice, be sure to place an aluminum sheet under the M part. Do not put them directly in the vice.
7. Be careful not to damage the contact surfaces of the case. Such damage could cause oil leakage.
8. Before applying sealant, remove any deposited oil sealant and clean the part to be sealed using white gasoline.
9. Do not supply oil immediately after installing sealed parts. 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.

DF

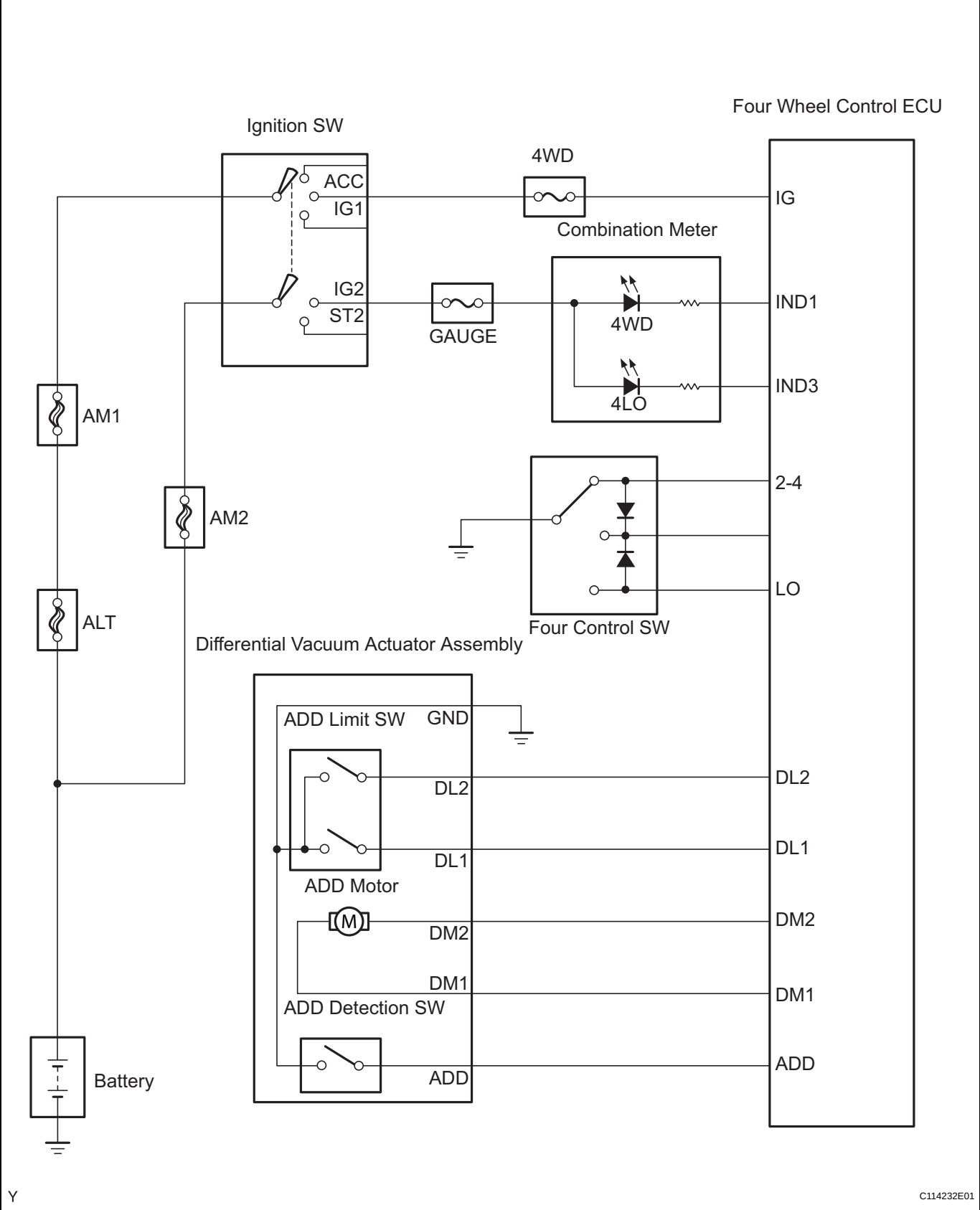
PARTS LOCATION

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SYSTEM DIAGRAM

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PROBLEM SYMPTOMS TABLE

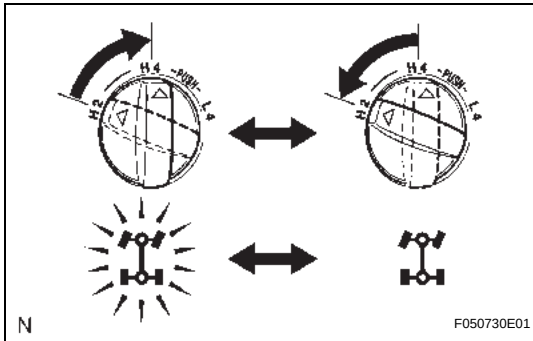
HINT:
Use the table below to help you find the cause of the problem.
The numbers indicate the ranked order of probability of each
of the possible causes. Check each part in order. If
necessary, replace these parts.

Symptom	Suspected area	See page
Oil leakage from front differential	1. Oil level (Too high or wrong grade)	DF-8
	2. Front differential rear oil seal (Worn or damaged)	DF-12
	3. Companion flange (Loose or damaged)	DF-19
Oil leakage from rear differential	1. Oil level (Too high or wrong grade)	DF-8
	2. Rear differential front oil seal (Worn or damaged)	DF-9
	3. Companion flange (Loose or damaged)	DF-43

ON-VEHICLE INSPECTION

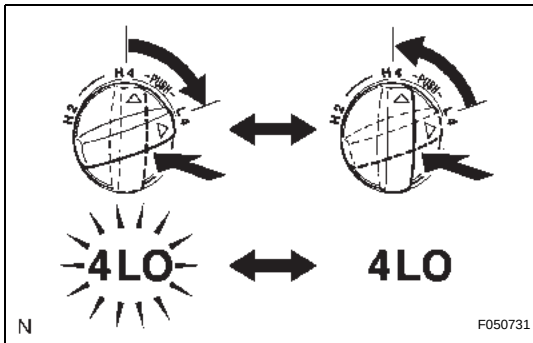
NOTICE:

- Switch the four wheel drive control switch when the A/T shift lever is in the N position and the vehicle speed is 3 mph (5km/h) or less.
- Switch the four wheel drive control switch when the clutch start switch is turned ON and the vehicle speed is 2mph (3 km/h) or less.
- Do not change from H2 to H4 when the vehicle speed is 62 mph (100 km/h) or more.



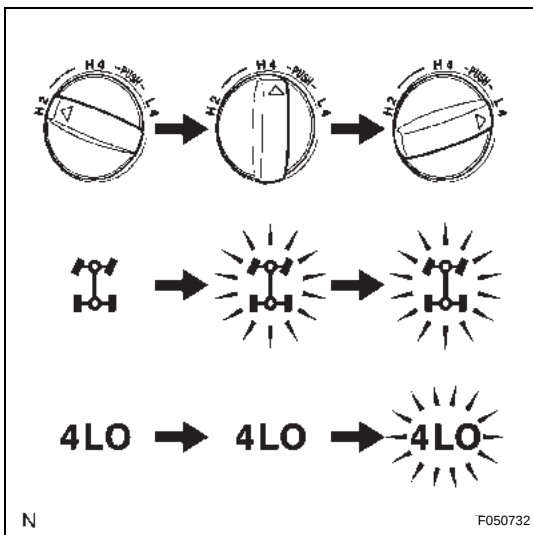
1. INSPECT H2 (2WD)-H4 (4WD) SHIFT

- Start the engine.
- Turn the four wheel drive control switch from the H2 position to the H4 position.
- Check that the 4WD indicator light blinks and then stays on.
- Turn the four wheel drive control switch from the H4 position to the H2 position.
- Check that the 4WD indicator light blinks and then goes off.



2. INSPECT H4 (4WD)-L4 (4WD) SHIFT

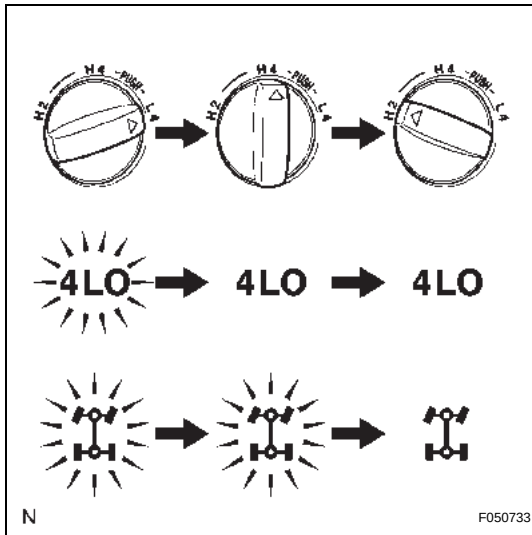
- Start the engine.
- Turn the four wheel drive control switch from the H4 position to the L4 position while pressing it.
- Check that the 4LO indicator light blinks and then stays on.
- Turn the four wheel drive control switch from the L4 position to the H4 position while pressing it.
- Check that the 4LO indicator light blinks and then goes off.



3. INSPECT H2 (2WD)-L4 (4WD) SHIFT

- Start the engine.
- Turn the four wheel drive control switch from the H2 position to the H4 position.
- Check that the 4WD indicator light blinks and then stays on.
- Turn the four wheel drive control switch from the H4 position to the L4 position while pressing it.
- Check that the 4LO indicator light blinks and then stays on.

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4. INSPECT L4 (4WD)-H2 (2WD) SHIFT

- Start the engine.
- Turn the four wheel drive control switch from the L4 position to the H4 position while pressing it.
- Check that the 4LO indicator light blinks and then goes off.
- Turn the four wheel drive control switch from the H4 position to the H2 position.
- Check that the 4WD indicator light blinks and then goes off.

INSPECTION

1. INSPECT 4 WHEEL DRIVE CONTROL SWITCH

- Using an ohmmeter, measure the resistance between the terminals.

Switch position	Tester connection	Specified condition
H2	5 (2-4) - 4 (GND)	Below 1Ω
H4	5 (2-4) → 4 (GND)	Below 1Ω
H4	5 (2-4) ← 4 (GND)	100 kΩ or higher

If the result is not as specified, replace the four wheel drive control switch or bulb.

2. INSPECT DIFFERENTIAL VACUUM ACTUATOR ASSEMBLY

- Measure the resistance between terminals 1 - 2.

Standard resistance:

0.1 to 100 Ω

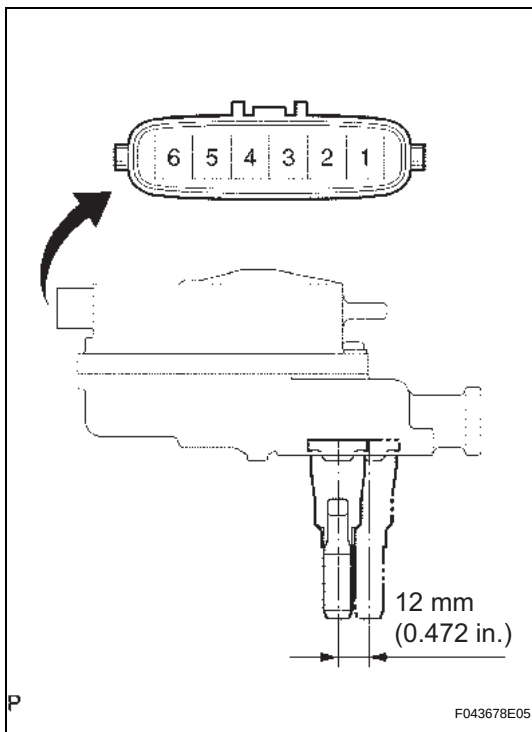
- Measure the resistance between terminals 1 or 2 and the body ground.

Standard resistance:

5 MΩ or more

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

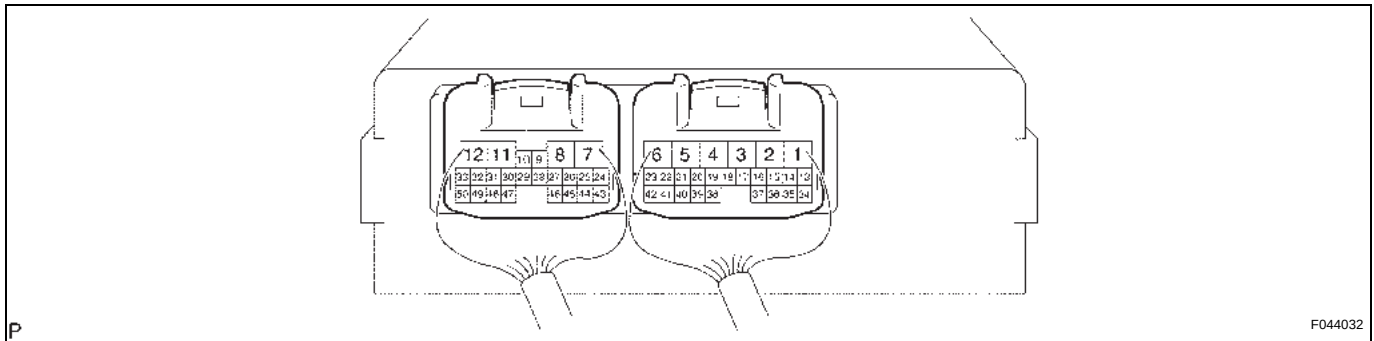
- Apply the battery positive voltage between terminals 1 - 2, and check the actuator operation by sound, actuator status and resistance between terminals 3 - 4, 5 - 4 and 6 - 4.



Battery voltage applied terminal	3 - 4 terminals resistance	5 - 4 terminals resistance	6 - 4 terminals resistance	Actuator status
1 (+) - 2 (-)	Below 1 Ω	Below 1 Ω	10 kΩ or higher	Connected
1 (-) - 2 (+)	10 kΩ or higher	10 kΩ or higher	Below 1 Ω	Disconnected

3. INSPECT FOUR WHEEL DRIVE CONTROL ECU

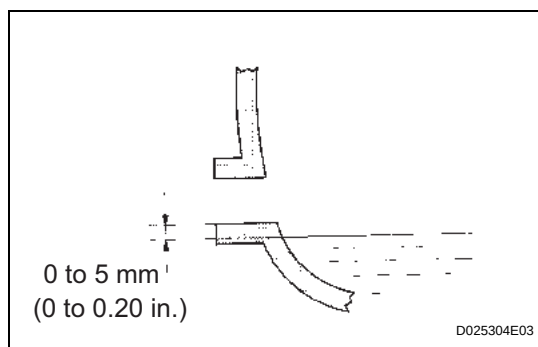
- (a) Connect the wire harness side connector to the four wheel drive control ECU and inspect the wire harness side connector from the back side, as shown.

**STANDARD VALUE OF ECU TERMINAL**

Terminals (Symbols)	Conditions	STD Voltage (V)
2 (TM1) - 1 (TM2)	- Ignition switch ON - Differential lock switch in OFF position - Four wheel drive control switch H2 position → H4 position	10 to 14
1 (TM2) - 2 (TM1)	- Ignition switch ON - Keep pressing differential lock switch for approx. 2 seconds to turn it ON - Four wheel drive control switch L4 position → H4 position	10 to 14
3 (DM1) - 4 (DM2)	- Ignition switch ON - A.D.D. FREE → LOCK	10 to 14 or 0 to 14 pulse generation then less than 0.5
4 (DM2) - 3 (DM1)	- Ignition switch ON - A.D.D. LOCK → FREE	10 to 14 or 0 to 14 pulse generation then less than 0.5
12 (GND) - Body ground	Ignition switch OFF	Below 1Ω
11 (IG) - 12 (GND)	Ignition switch ON	10 to 14
18 (DL2) - 12 (GND)	- Ignition switch ON - A.D.D. LOCK → FREE	1.5 or less → 10 to 14
19 (DL1) - 12 (GND)	- Ignition switch ON - A.D.D. FREE → LOCK	1.5 or less → 10 to 14
25 (2-4) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch L4 position → H2 position or H4 position	10 to 14 → 1.5 or less
26 (SPD) - 12 (GND)	During driving	Pulse generation
28 (IND3) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H4 position → L4 position	10 to 14 → 1.5 to 3.5
32 (LO) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H4 position → L4 position	10 to 14 → 1.5 or less
42 (ADD) - 12 (GND)	- Ignition switch ON - A.D.D. FREE → LOCK	10 to 14 → 1.5 or less
23 (L4) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position or H4 position → L4 position	10 to 14 → 1.5 or less
38 (4WD) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position → H4 position	10 to 14 → 1.5 or less
39 (TL3) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position → L4 position	10 to 14 → 0.88 or less
40 (TL2) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position → H4 position	10 to 14 → 0.88 or less
41 (TL1) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position → H4 position or L4 position	0.88 or less → 10 to 14
45 (IND1) - 12 (GND)	- Ignition switch ON - Four wheel drive control switch H2 position → H4 position or L4 position	10 to 14 → 0 to 3.5
48 (N) - 12 (GND)	- Ignition switch ON - Transmission shift lever other position → N position	1.5 or less → 10 to 14

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Terminals (Symbols)	Conditions	STD Voltage (V)
49 (MTN) - 12 (GND)	- Ignition switch ON - Clutch start switch OFF position → ON position	10 to 14 → 1.5 or less



DIFFERENTIAL OIL

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 5mm (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 rear differential carrier assembly with hypoid gear oil.

Oil grade:

Hypoid gear oil API GL-5

Recommended viscosity:

Above -18°C (0°F) SAE 90

Below -18°C (0°F) SAE 80W or 80W-90

Capacity:

Differential carrier assembly front:

1.45 to 1.55 liters

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

Rear differential carrier assembly:

2WD: 3.26 to 3.36 liters

(3.45 to 3.55 US qts, 2.87 to 2.95 Imp. qts)

Pre, 4WD: 2.75 to 2.85 liters

(2.91 to 3.01 US qts, 2.42 to 2.50 Imp. qts)

- Check for oil leakage if the oil level is low.
- Install the differential filler plug and a new gasket.

Torque: Front differential carrier assembly

39 N*m (398 kgf*cm, 29 ft.*lbf)

Rear differential carrier assembly

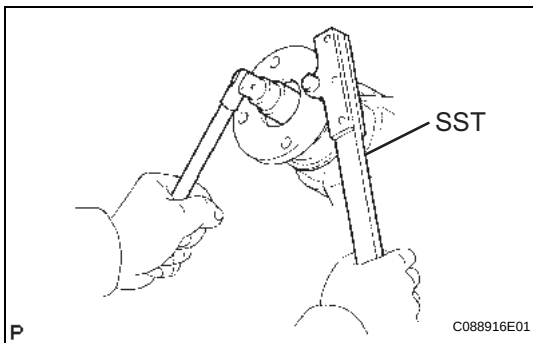
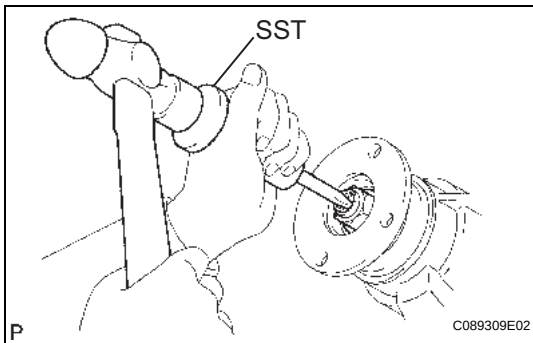
49 N*m (500 kgf*cm, 36 ft.*lbf)

REAR DIFFERENTIAL CARRIER OIL SEAL

REMOVAL

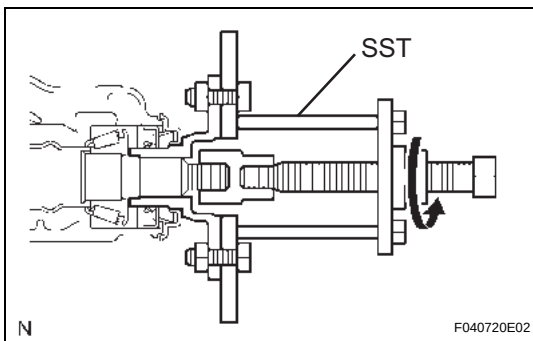
1. DRAIN DIFFERENTIAL OIL
2. REMOVE PROPELLER SHAFT ASSEMBLY (for 2WD on, Regular Cab) (See page [PR-3](#))
3. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD on, Except Regular Cab) (See page [PR-8](#))
4. REMOVE PROPELLER SHAFT ASSEMBLY (for 4WD on, Regular Cab) (See page [PR-16](#))
5. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD on, Regular Cab) (See page [PR-27](#))
6. REMOVE REAR DRIVE PINION NUT
 - (a) Using SST and a hammer, unstake the nut.
SST 09930-00010

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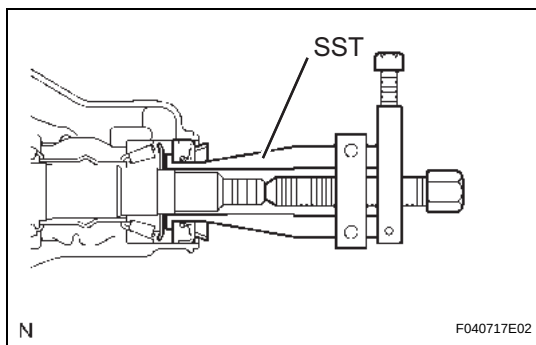
- (b) Using SST to hold the companion flange, remove the nut.

SST 09330-00021



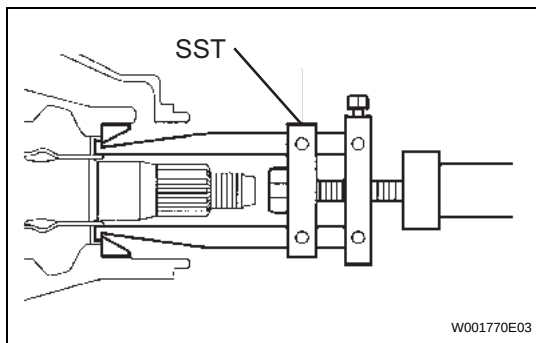
7. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

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

**8. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL**

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

SST 09308-10010

9. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER (w/ Differential Lock)**10. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

- (a) Using SST, remove the front bearing.

SST 09556-22010

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

SST 09308-00010

- (c) Using a screwdriver, bend the oil storage ring and remove it.

11. REMOVE REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

INSTALLATION

1. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

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

2. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

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

SST 09316-60011 (09316-00011, 09316-00021)

3. INSTALL REAR DIFFERENTIAL DRIVE PINION OIL SLINGER (w/ Differential Lock)

4. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

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

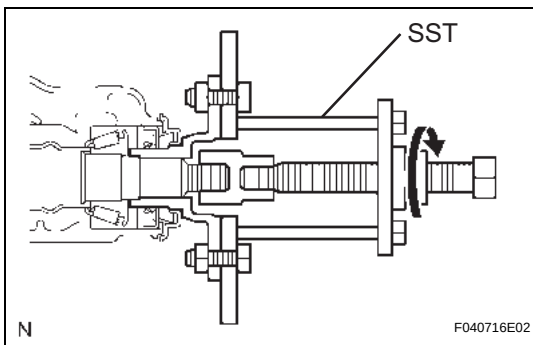
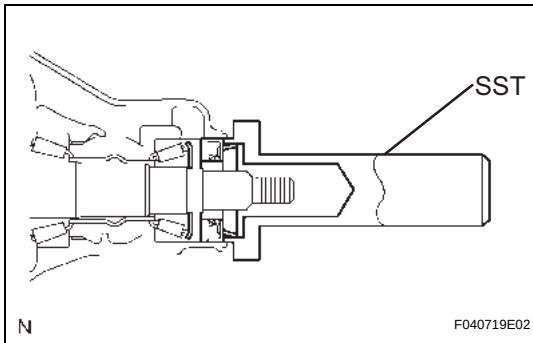
SST 09554-30011

Oil seal drive in depth:

-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

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

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5. INSTALL REAR DRIVE COMPANION FLANGE SUB-ASSEMBLY REAR

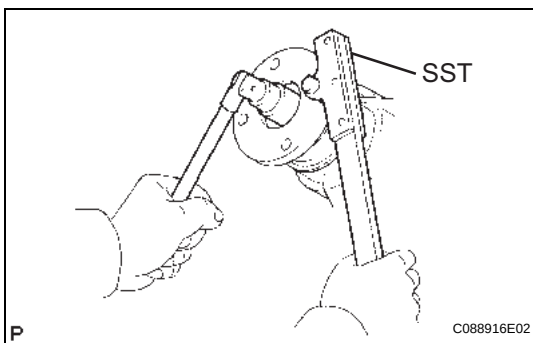
- (a) Using SST, install the companion flange.
- (b) Coat the threads of a new nut with hypoid gear oil LSD.

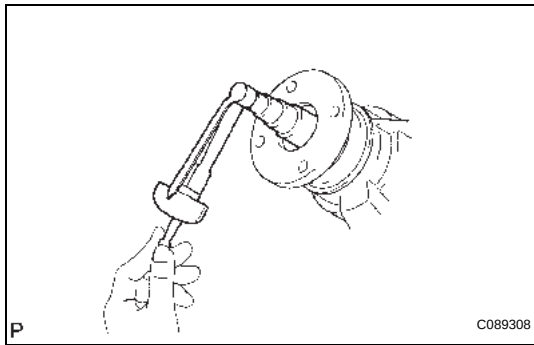
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)

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

SST 09330-00021

Torque: 451 N*m (4,599 kgf*cm, 333 ft.*lbf)



**6. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**

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

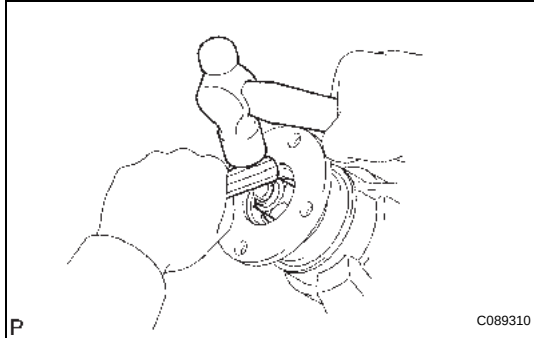
New bearing:

1.27 to 1.86 N*m (13 to 19 kgf*cm, 11 to 16 in.*lbf)

Reused bearing:

0.76 to 1.07 N*m (7.7 to 11 kgf*cm, 6.7 to 9.5 in.*lbf)

If necessary, disassemble and inspect the differential assembly.

**7. INSTALL REAR DRIVE PINION NUT**

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

8. INSTALL PROPELLER SHAFT ASSEMBLY (for 2WD Drive Type, Regular Cab) (See page [PR-6](#))**9. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD Drive Type, Except Regular Cab) (See page [PR-13](#))****10. INSTALL PROPELLER SHAFT ASSEMBLY (for 4WD Drive Type, Regular Cab) (See page [PR-25](#))****11. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (4WD Drive Type, Except Regular Cab) (See page [PR-32](#))****12. FILL UP DIFFERENTIAL OIL (See page [DF-8](#))****13. INSPECT DIFFERENTIAL OIL (See page [DF-8](#))****14. INSPECT FOR DIFFERENTIAL OIL LEAKAGE**

DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL (for 4WD)

REMOVAL

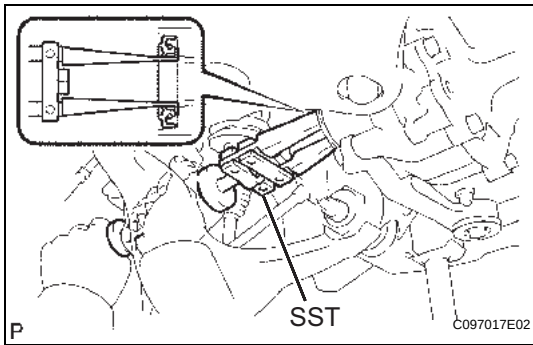
1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE FRONT WHEELS**
3. **REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY**
 - (a) Remove the 4 bolts and No. 1 engine under cover sub-assembly.
4. **REMOVE NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Engine Under Cover No, 2)**
 - (a) Remove the 4 bolts and No. 2 engine under cover sub-assembly.
5. **DRAIN DIFFERENTIAL OIL**
6. **REMOVE FRONT AXLE HUB LH NUT (See page [DS-3](#))**
7. **REMOVE FRONT AXLE HUB RH NUT**

HINT:
Use the same procedure as for the LH side.
8. **SEPARATE FRONT STABILIZER LINK ASSEMBLY LH (See page [SP-50](#))**
9. **SEPARATE FRONT STABILIZER LINK ASSEMBLY RH (See page [SP-50](#))**
10. **SEPARATE FRONT SPEED SENSOR LH (See page [BC-303](#))**
11. **SEPARATE FRONT SPEED SENSOR RH**

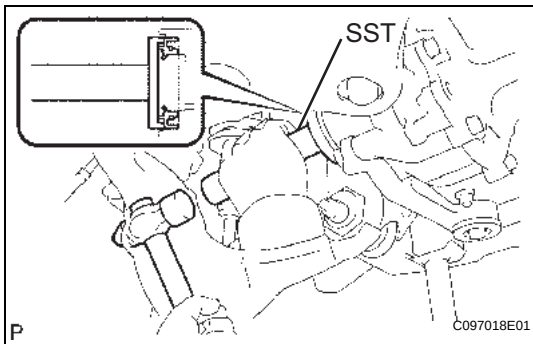
HINT:
Use the same procedure as for the LH side.
12. **SEPARATE TIE ROD END SUB-ASSEMBLY LH (See page [PS-54](#))**
13. **SEPARATE TIE ROD END SUB-ASSEMBLY RH (See page [PS-54](#))**
14. **REMOVE FRONT SUSPENSION LOWER ARM LH (See page [DS-4](#))**
15. **REMOVE FRONT SUSPENSION LOWER ARM RH**

HINT:
Use the same procedure as for the LH side.
16. **REMOVE FRONT DRIVE SHAFT ASSEMBLY LH (See page [DS-4](#))**
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

**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 (See page [DS-9](#))**
- 3. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH**

HINT:
Use the same procedure as for the LH side.
- 4. INSTALL FRONT SUSPENSION LOWER ARM LH (See page [DS-9](#))**
- 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 (See page [PS-68](#))**
- 7. INSTALL TIE ROD END SUB-ASSEMBLY RH (See page [PS-68](#))**
- 8. INSTALL FRONT SPEED SENSOR LH (See page [DS-10](#))**
- 9. INSTALL FRONT SPEED SENSOR RH**

HINT:
Use the same procedure as for the LH side.
- 10. INSTALL FRONT STABILIZER LINK ASSEMBLY LH (See page [SP-51](#))**
- 11. INSTALL FRONT STABILIZER LINK ASSEMBLY RH (See page [SP-51](#))**
- 12. INSTALL FRONT AXLE HUB LH NUT (See page [AH-20](#))**
- 13. INSTALL FRONT AXLE HUB RH NUT**

HINT:
Use the same procedure as for the LH side.
- 14. ADD DIFFERENTIAL OIL (See page [DF-8](#))**
- 15. INSPECT DIFFERENTIAL OIL (See page [DF-8](#))**

16. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

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

Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

17. INSTALL NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Engine Under Cover No, 2)

- (a) Install the No. 2 engine under cover sub-assembly with the 4 bolts.

Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)

18. INSTALL FRONT WHEELS

Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)

19. INSPECT AND ADJUST FRONT WHEEL ALIGNMENT

HINT:

(See page [SP-7](#))

20. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)

21. CHECK VSC SENSOR SIGNAL (w/ VSC)

HINT:

(See page [BC-103](#))

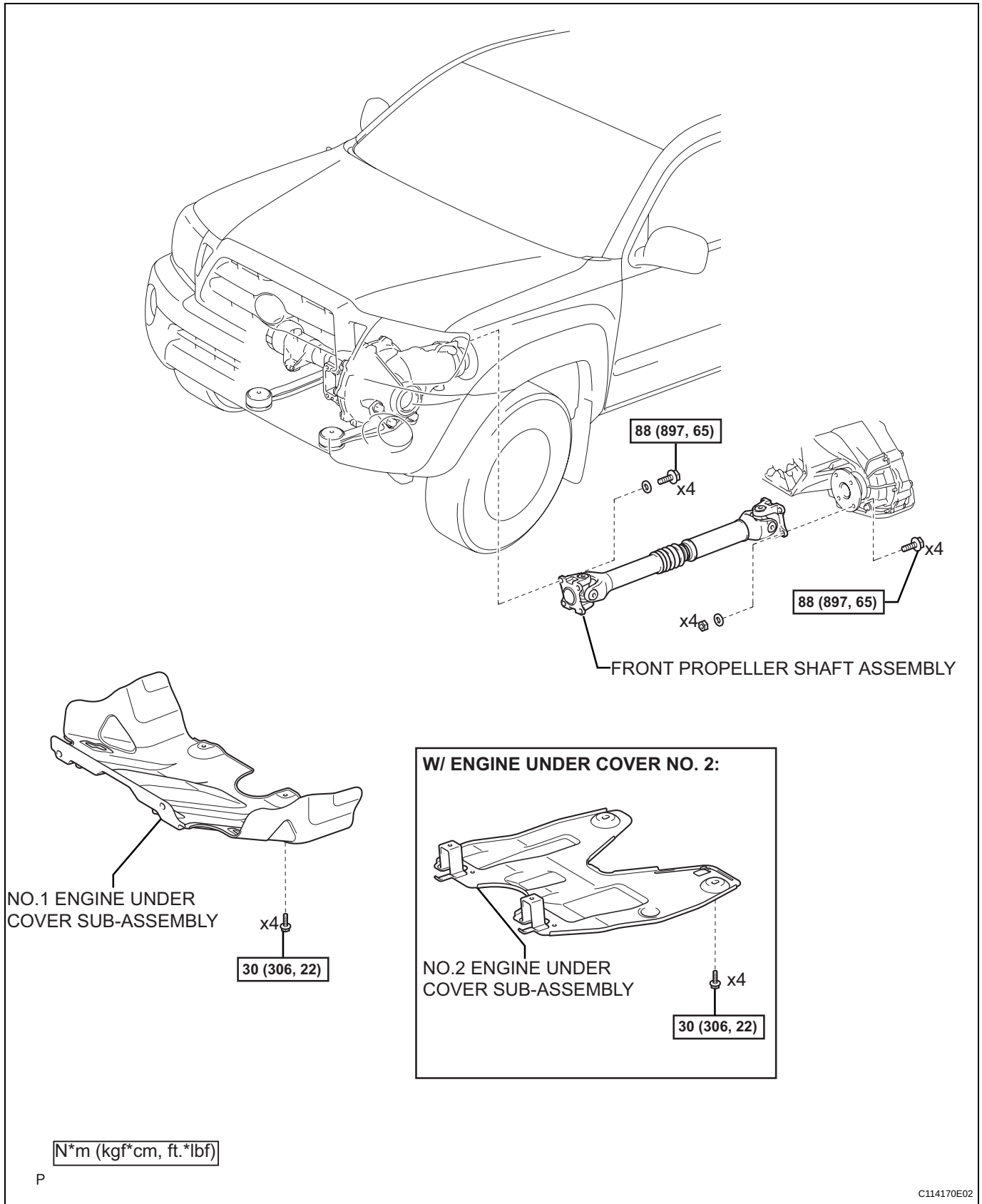
22. CHECK ABS SENSOR SIGNAL (w/o VSC)

HINT:

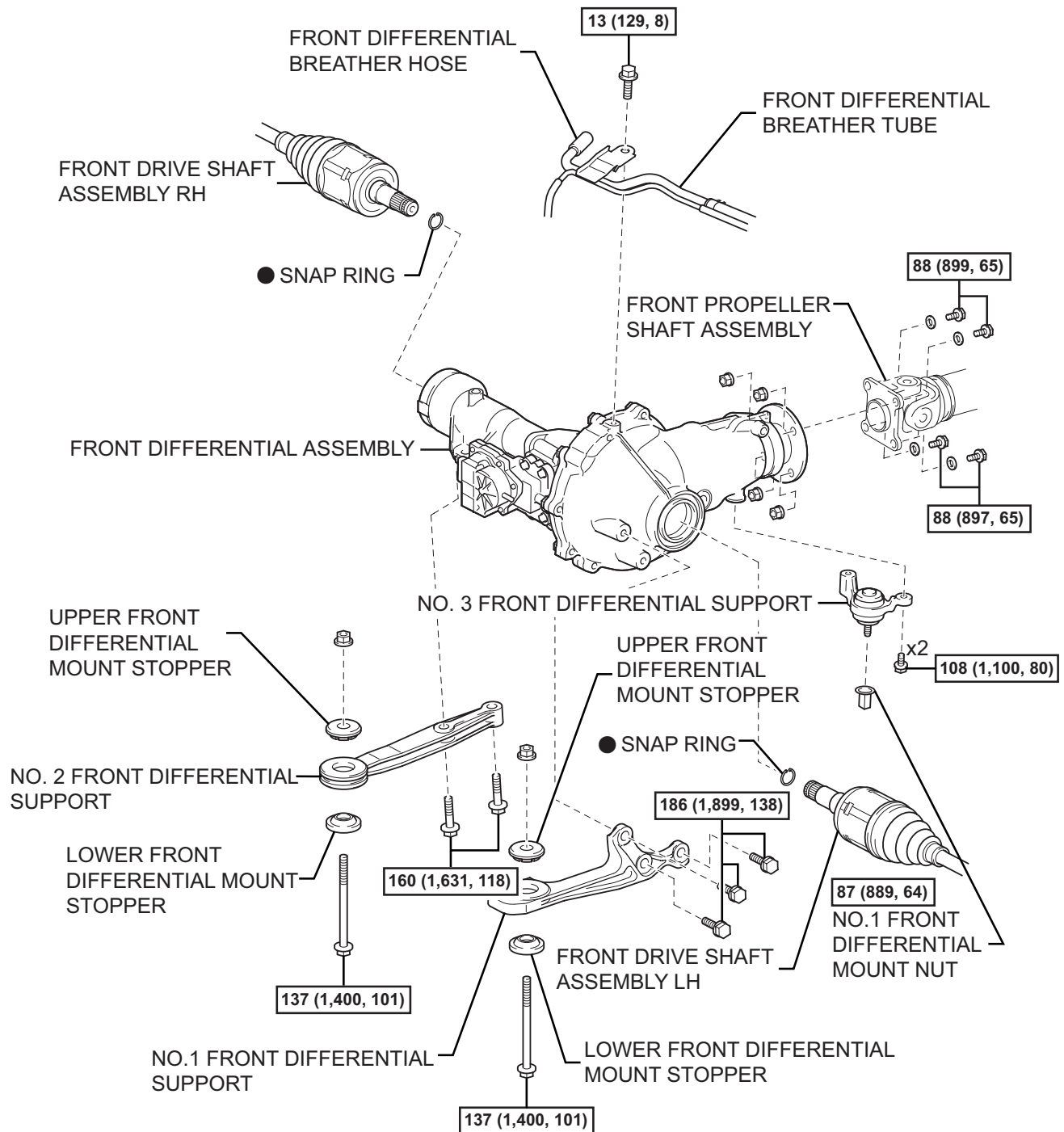
(See page [BC-7](#))

FRONT DIFFERENTIAL CARRIER ASSEMBLY (for 4WD)

COMPONENTS

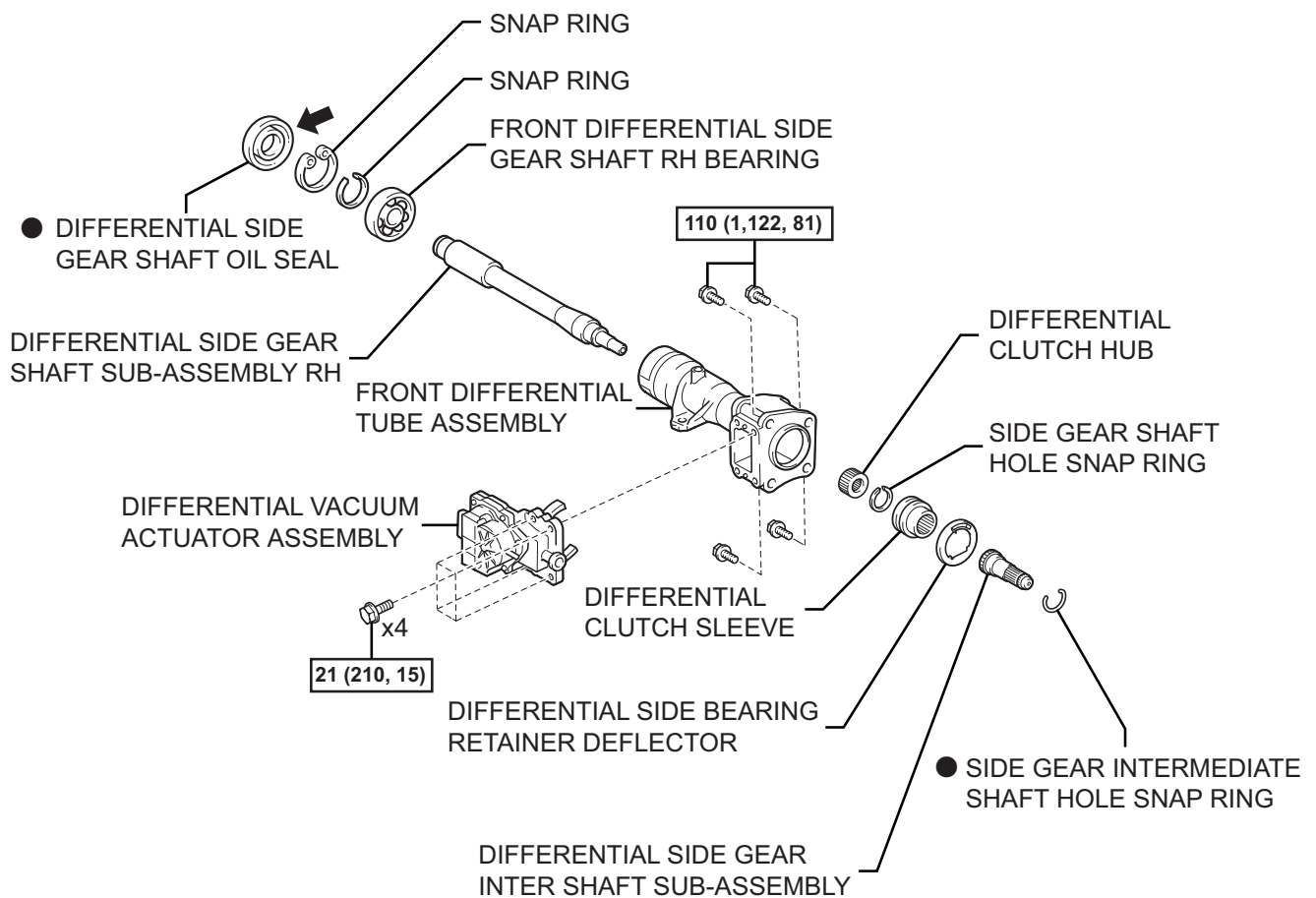


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$\text{N}\cdot\text{m}$ ($\text{kgf}\cdot\text{cm}$, $\text{ft}\cdot\text{lb}$) : Specified torque

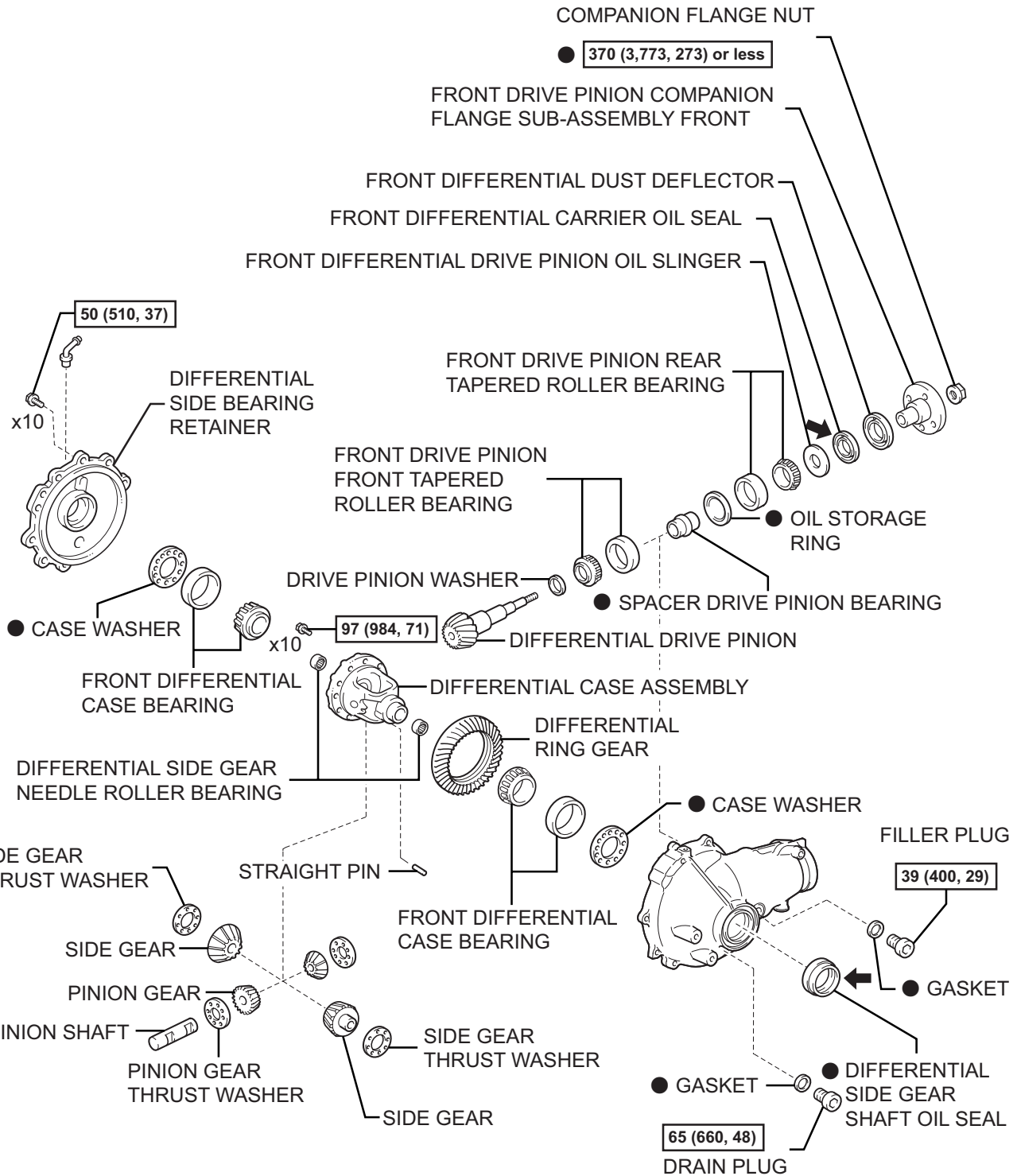
● Non-reusable part



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

● Non-reusable part

← Apply MP grease



$\text{N}\cdot\text{m}$ ($\text{kgf}\cdot\text{cm}$, $\text{ft}\cdot\text{lb}$) : Specified torque

● Non-reusable part

➡ Apply MP grease

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE FRONT WHEELS**
3. **REMOVE NO.2 ENGINE UNDER COVER SUB-ASSEMBLY**
 - (a) Remove the 4 bolts and No. 2 engine under cover sub-assembly.
4. **REMOVE NO.1 ENGINE UNDER COVER SUB-ASSEMBLY**
 - (a) Remove the 4 bolts and No. 1 engine under cover sub-assembly.
5. **DRAIN DIFFERENTIAL OIL (See page [DF-8](#))**
6. **REMOVE FRONT PROPELLER SHAFT ASSEMBLY (See page [PR-16](#))**
7. **REMOVE FRONT AXLE HUB LH NUT (See page [DS-3](#))**
8. **REMOVE FRONT AXLE HUB RH NUT**

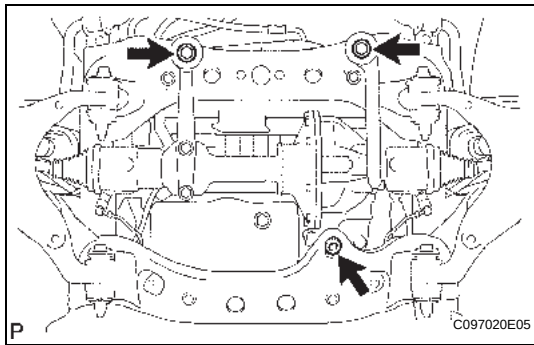
HINT:
Use the same procedure as for the LH side.
9. **SEPARATE FRONT STABILIZER LINK ASSEMBLY LH (See page [SP-50](#))**
10. **SEPARATE FRONT STABILIZER LINK ASSEMBLY RH (See page [SP-50](#))**
11. **SEPARATE FRONT SPEED SENSOR LH (See page [BC-303](#))**
12. **SEPARATE FRONT SPEED SENSOR RH**

HINT:
Use the same procedure as for the LH side.
13. **SEPARATE TIE ROD END SUB-ASSEMBLY LH (See page [PS-54](#))**
14. **SEPARATE TIE ROD END SUB-ASSEMBLY RH (See page [PS-54](#))**
15. **REMOVE FRONT SUSPENSION LOWER ARM LH (See page [DS-4](#))**
16. **REMOVE FRONT SUSPENSION LOWER ARM RH**

HINT:
Use the same procedure as for the LH side.
17. **REMOVE FRONT DRIVE SHAFT ASSEMBLY LH (See page [DS-4](#))**
18. **REMOVE FRONT DRIVE SHAFT ASSEMBLY RH**

HINT:
Use the same procedure as for the LH side.

SST 09628-62011



19. REMOVE FRONT DIFFERENTIAL CARRIER ASSEMBLY

- Remove the bolt and separate the front differential breather tube bracket.
- Support the front differential with a jack.
- Remove the front differential mount nut No. 1.
- Remove the 2 front mounting bolts and 2 nuts.
- Disconnect the actuator hose and connector.
- Lower the jack and remove the front differential assembly.
- Remove the 2 bolts and No. 3 front differential support.
- Remove the 5 bolts and 2 front differential supports.

DISASSEMBLY

1. INSPECT BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

- 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

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

Torque: 0.49 to 0.78 N*m (5 to 8 kgf*cm, 4.3 to 6.9 in.*lbf)

If necessary, disassemble and inspect the differential assembly.

3. INSPECT TOTAL PRELOAD

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

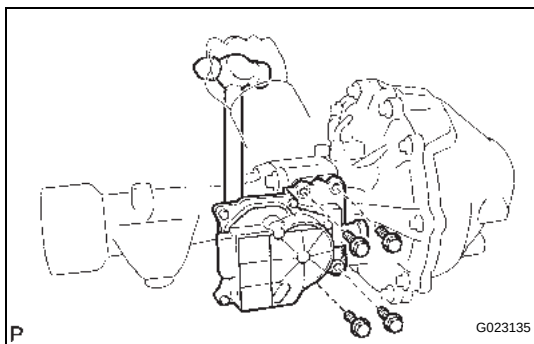
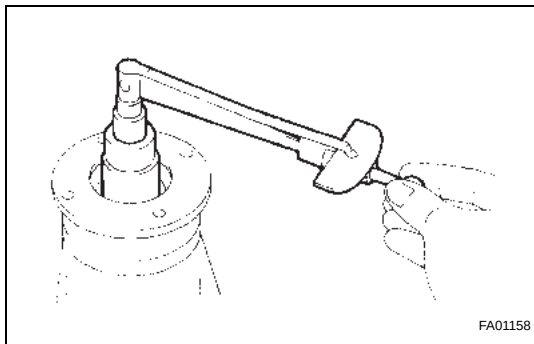
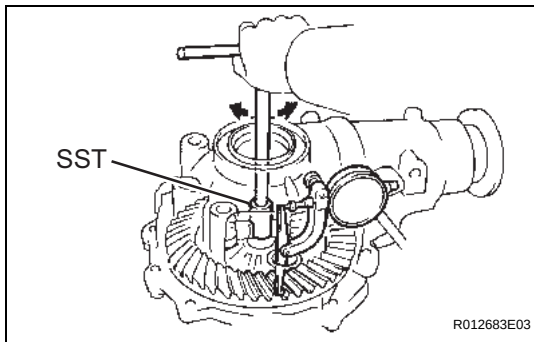
Total preload (at starting):

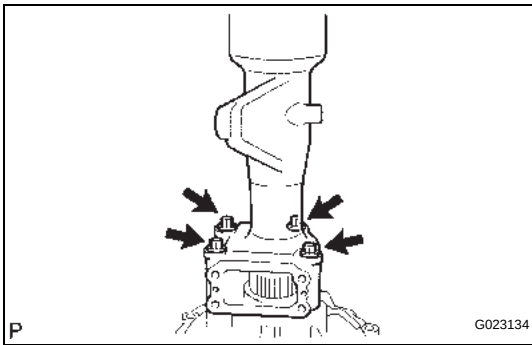
Drive pinion preload plus 0.22 to 0.88 N*m (2.2 to 8.8 kgf*cm, 2.0 to 7.8 in.*lbf)

If necessary, disassemble and inspect the differential.

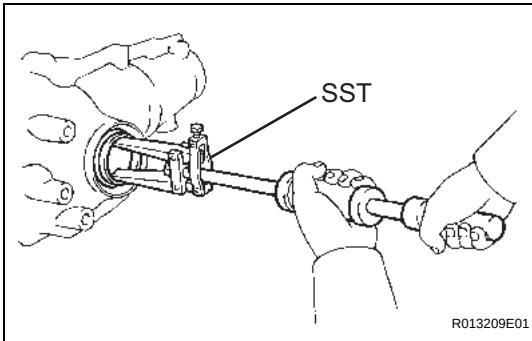
4. REMOVE DIFFERENTIAL VACUUM ACTUATOR ASSEMBLY

- Remove the 4 bolts.
- Using a hammer handle, remove the actuator assembly.

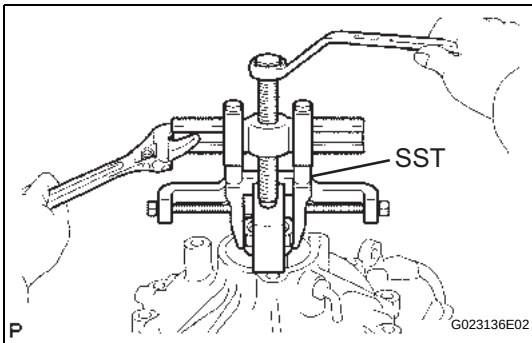


**5. REMOVE FRONT DIFFERENTIAL TUBE ASSEMBLY**

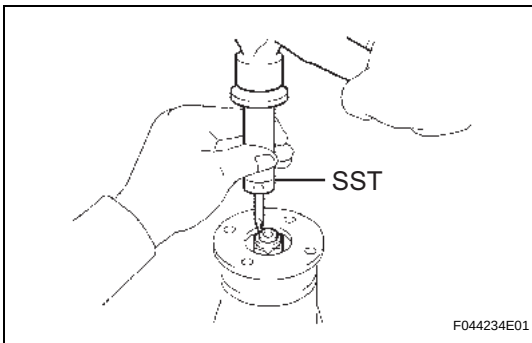
- (a) Remove the 4 bolts.
- (b) Using a plastic hammer, remove the differential tube.

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

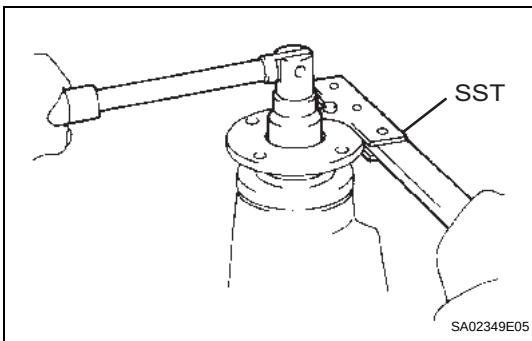
- (a) Using SST, remove the oil seal.
SST 09308-00010

**7. REMOVE DIFFERENTIAL SIDE GEAR INTER SHAFT SUB-ASSEMBLY**

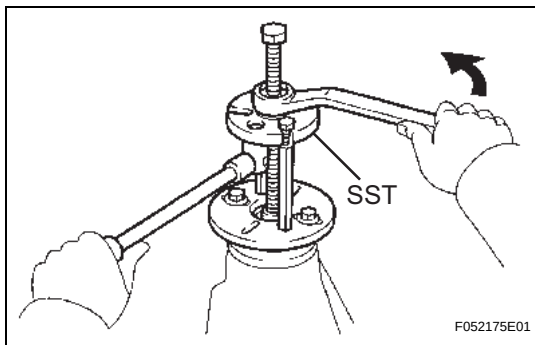
- (a) Using SST, remove the side gear inter shaft.
SST 09350-20015 (09369-20040), 09950-40011 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04011, 09957-04010, 09958-04011)
- (b) Remove the snap ring from the side gear inter shaft.

**8. REMOVE FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY**

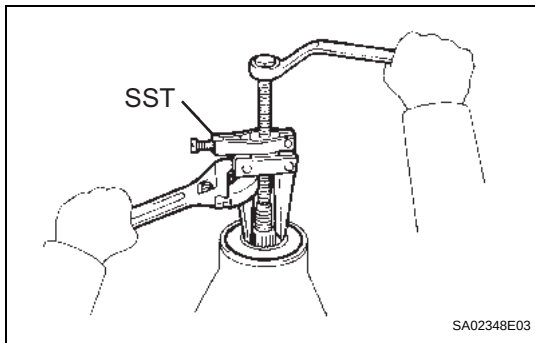
- (a) Using SST and a hammer, remove the nut.
SST 09930-00010



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



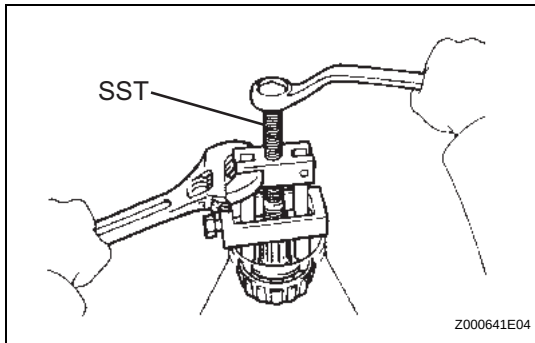
- (c) Using SST, remove the companion flange.
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)



9. REMOVE FRONT DIFFERENTIAL CARRIER OIL SEAL

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

10. REMOVE FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER



11. 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.

12. 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.

13. REMOVE DIFFERENTIAL CASE ASSEMBLY

14. REMOVE DIFFERENTIAL DRIVE PINION

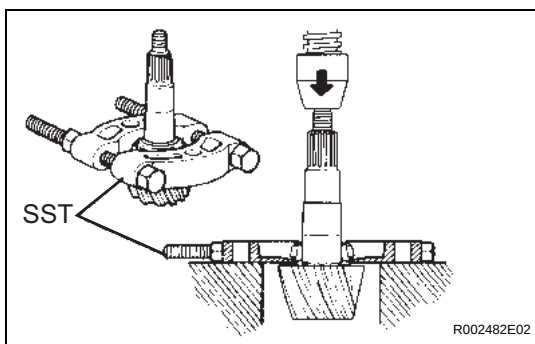
15. REMOVE FRONT DRIVE PINION FRONT TAPERED ROLLER BEARING

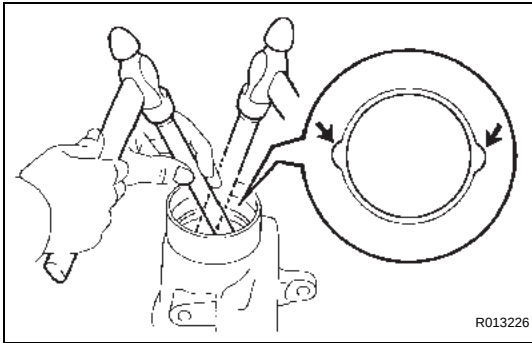
- (a) Using SST and a press, remove the front bearing and washer from the drive pinion.

SST 09950-00020

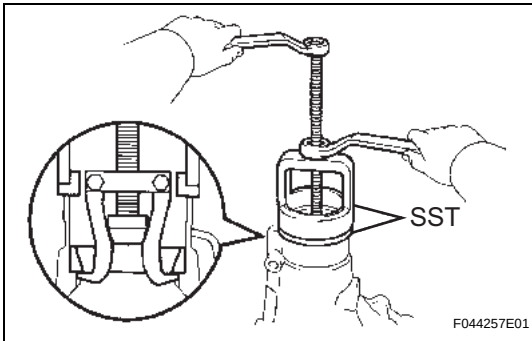
HINT:

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



**16. REMOVE FRONT BEARING OUTER RACE**

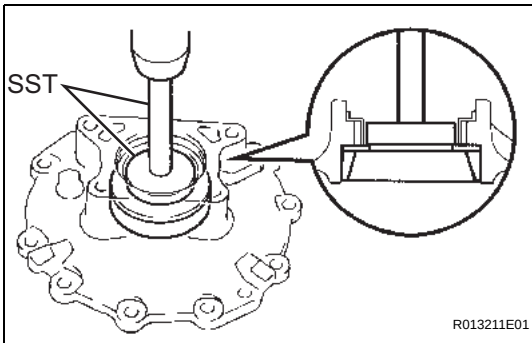
- (a) Using a brass bar and a hammer, remove the front bearing outer race.

**17. REMOVE REAR BEARING OUTER RACE**

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

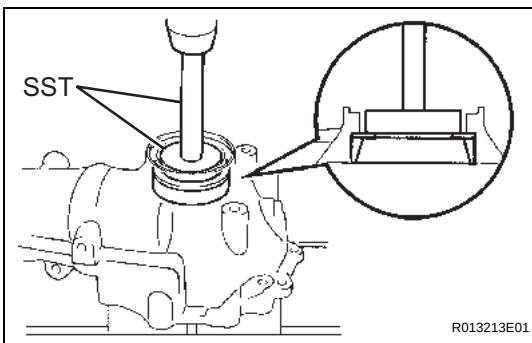
18. REMOVE FRONT DIFFERENTIAL SIDE BEARING RETAINER DEFLECTOR

- (a) Using a brass bar and hammer, remove the side bearing retainer deflector by tapping it gently.

**19. REMOVE SIDE BEARING OUTER RACE**

HINT:

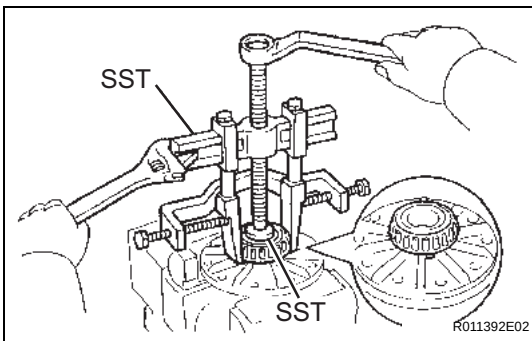
- Measure the plate washer and note its thickness.
 - Tag the bearing outer races to show the location for reassembly.
- (a) Using SST and a press, remove the outer race and plate washer from the bearing retainer.
SST 09950-60020 (09951-00680), 09950-70010 (09951-07150)



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

20. REMOVE DIFFERENTIAL RING GEAR

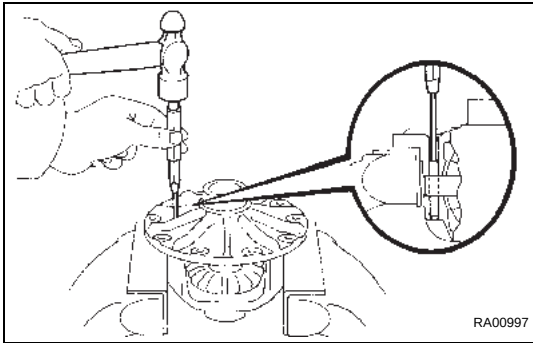
- (a) Place matchmarks on the ring gear and differential case assembly.
- (b) Remove the 10 bolts.
- (c) Using a plastic hammer, tap on the ring gear to separate it from the differential case assembly.

**21. REMOVE FRONT DIFFERENTIAL CASE BEARING**

- (a) Using SST, remove the 2 differential case bearings from the differential case assembly.
SST 09950-60010 (09951-00390), 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.

**22. 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

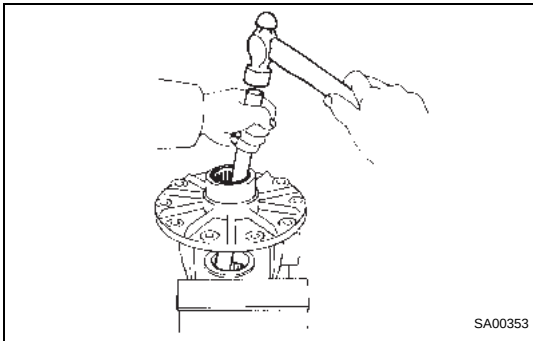
23. INSPECT DIFFERENTIAL GEAR KIT

- (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.

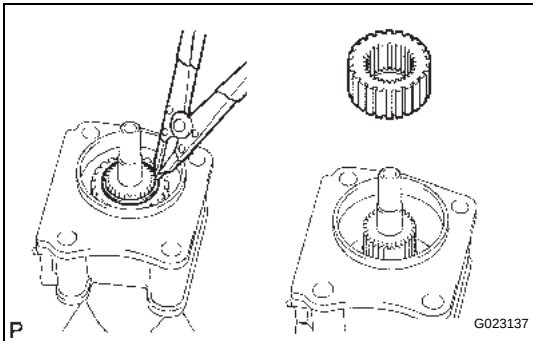
24. INSPECT FRONT DIFFERENTIAL CASE

- (a) Check that the differential case assembly is not damaged.
If the differential case assembly is damaged, replace it.

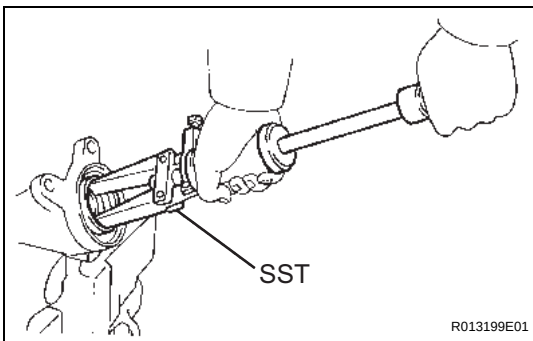
DF

**25. REMOVE FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING**

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

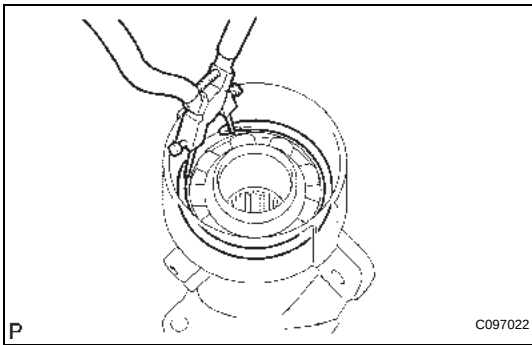
**26. REMOVE DIFFERENTIAL CLUTCH HUB**

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

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

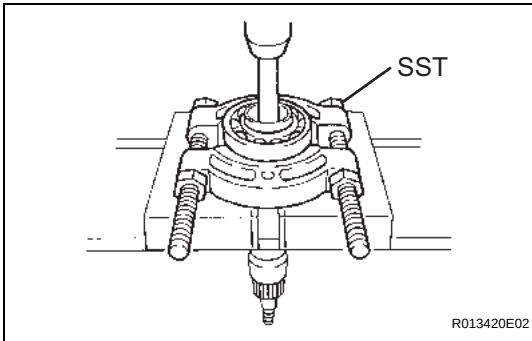
- (a) Using SST, remove the oil seal from the differential tube.

SST 09308-00010



28. REMOVE DIFFERENTIAL SIDE GEAR SHAFT SUB-ASSEMBLY RH

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



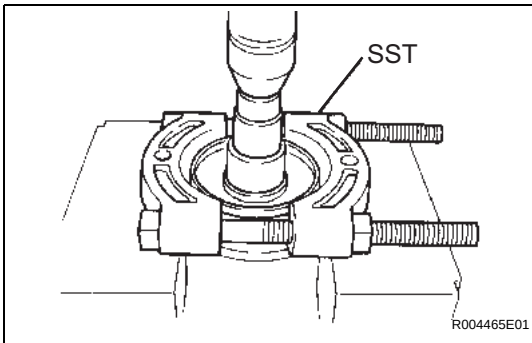
29. REMOVE FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

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

SST 09950-00020

NOTICE:

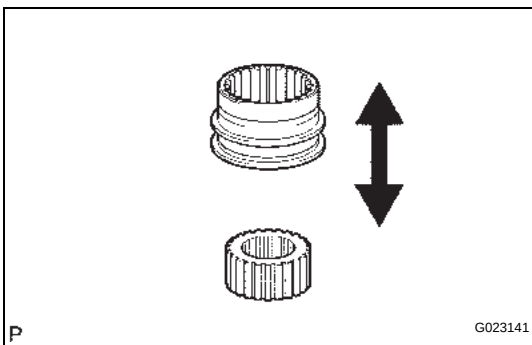
Do not damage the bearing.



30. REMOVE FRONT DIFFERENTIAL DUST DEFLECTOR

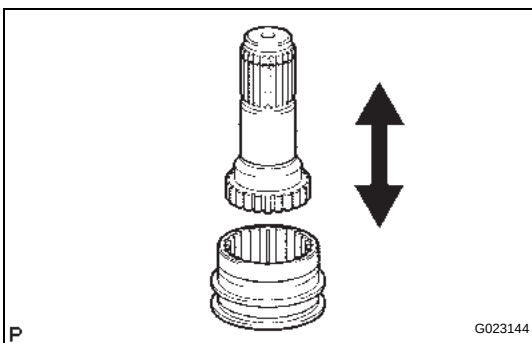
- Using SST, a socket wrench and a press, remove the dust deflector.

SST 09950-00020



31. REMOVE DIFFERENTIAL CLUTCH SLEEVE AND DIFFERENTIAL CLUTCH HUB

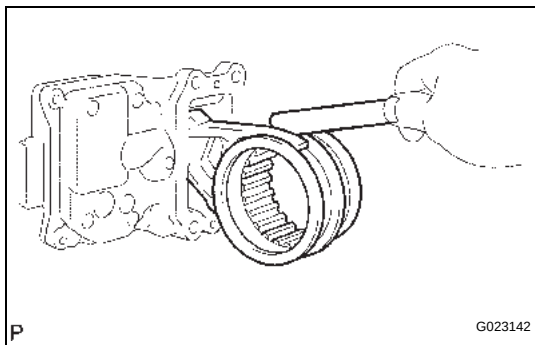
- Check for wear and damage to the clutch hub and clutch sleeve.
If necessary, replace them.
- Check that the clutch sleeve slides smoothly on the clutch hub.



32. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND CLUTCH SLEEVE FORK CLEARANCE

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

DF



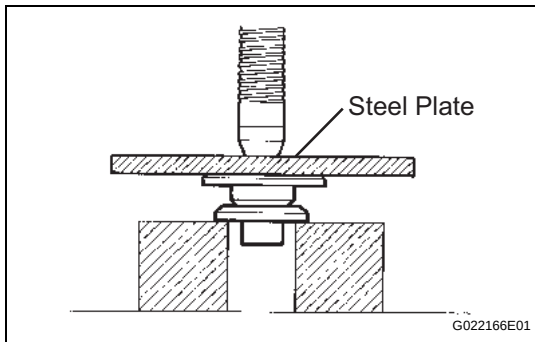
33. INSPECT DIFFERENTIAL CLUTCH SLEEVE AND CLUTCH SLEEVE FORK CLEARANCE

- (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.



REASSEMBLY

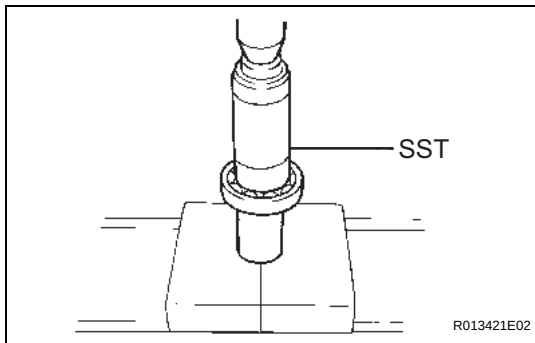
1. INSTALL FRONT DIFFERENTIAL DUST DEFLECTOR

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

NOTICE:

Do not damage the dust deflector.

DF

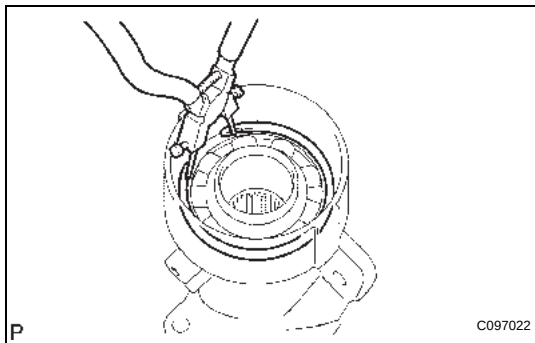


2. INSTALL FRONT DIFFERENTIAL SIDE GEAR SHAFT RH BEARING

- (a) Using SST and a press, install the bearing.

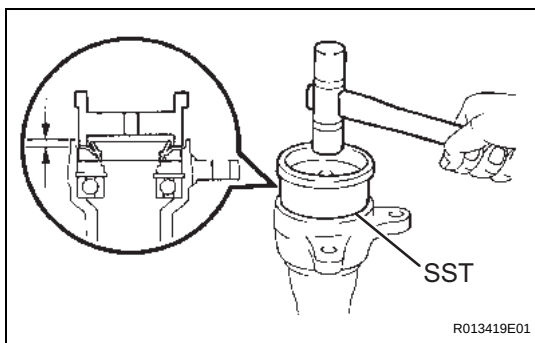
SST 09223-00010

- (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

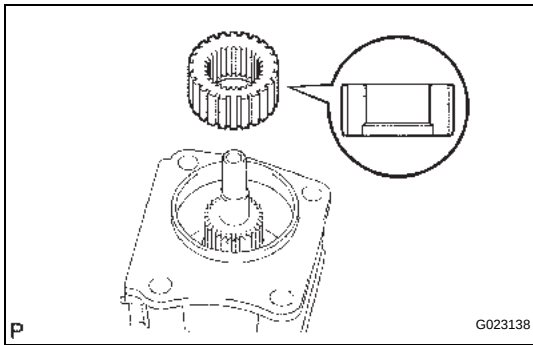
- (a) Using SST and a plastic hammer, install a new oil seal.

SST 09608-32010

Oil seal drive in depth:

4.8 to 0.58 mm (0.1890 to 0.2284 in.)

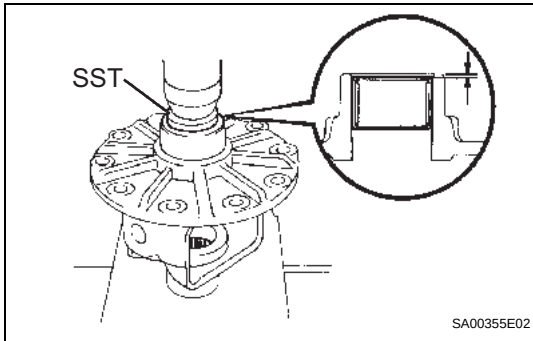
- (b) Coat the oil seal lip with MP grease.

**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.

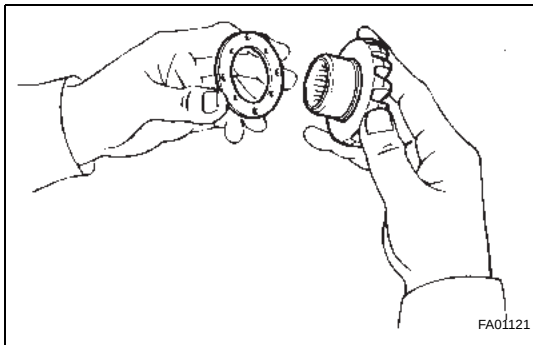
**6. INSTALL FRONT DIFFERENTIAL SIDE GEAR NEEDLE ROLLER BEARING**

- (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.

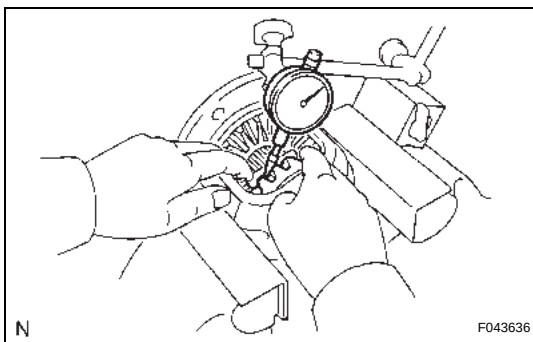
- (c) Measure the side gear backlash.

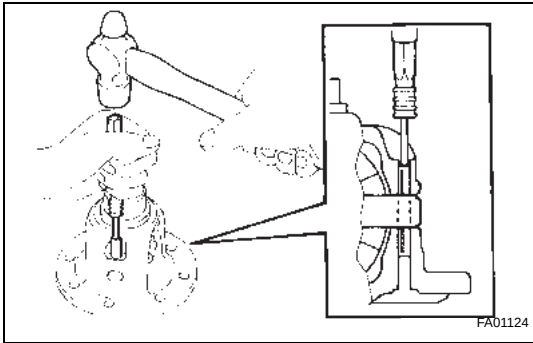
- (1) Using a dial indicator, measure the side gear backlash while holding one pinion gear toward the differential case assembly.

Backlash:

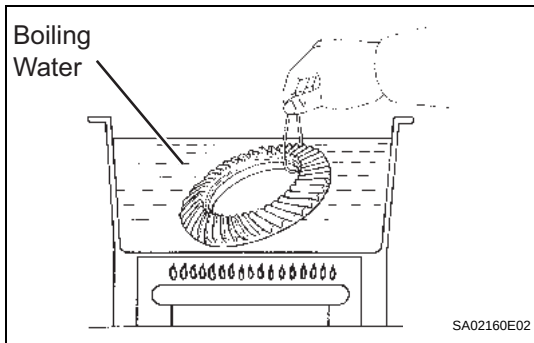
0 to 0.15 mm (0 to 0.0059 in.)

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:

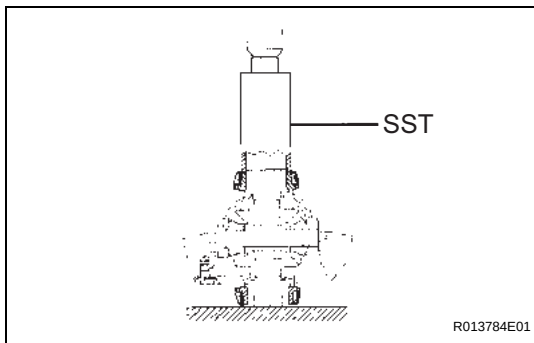
Align the matchmarks on the ring gear and differential case assembly.

- (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 thread lock has been applied.

Torque: 97 N*m (984 kgf*cm, 71 ft.*lbf)

Thread lock:

Part No. 08833-00100, 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.

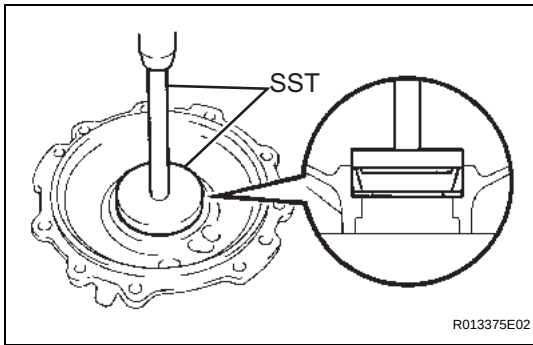
SST 09226-10010

10. INSTALL SIDE BEARING OUTER RACE

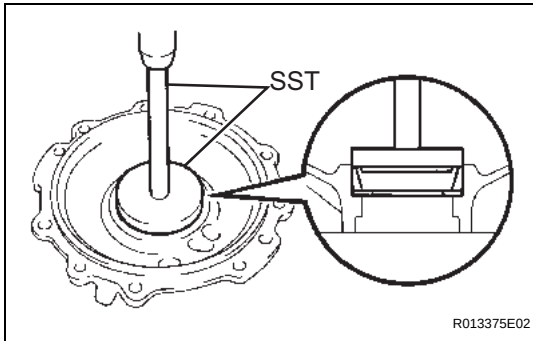
HINT:

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.

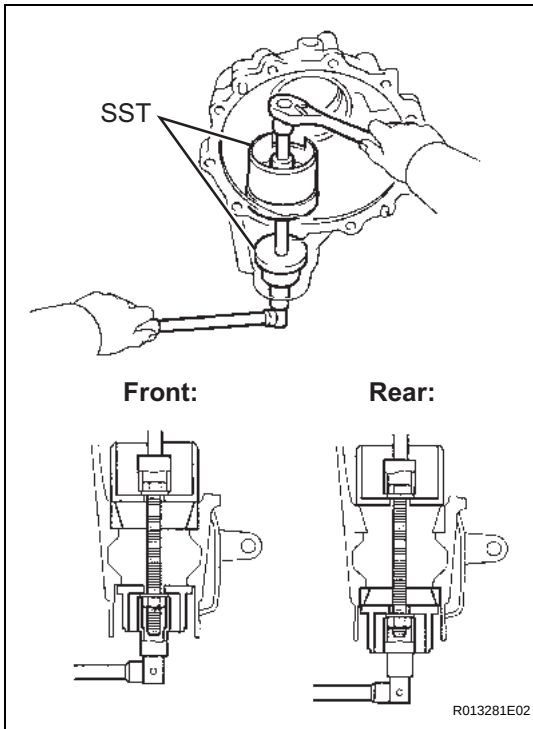
- (a) Install a new plate washer to the side bearing retainer.



- (b) Using SST and a press, install the bearing outer race onto the differential case bearing retainer assembly.
SST 09950-60020 (09951-00810), 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), 09950-70010 (09951-07150)



11. INSTALL FRONT BEARING OUTER RACE

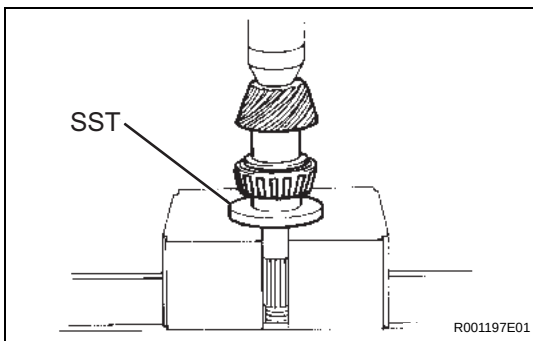
- (a) Using SST, install the outer race.
SST 09950-00020 (09951-00680, 09951-00890)

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

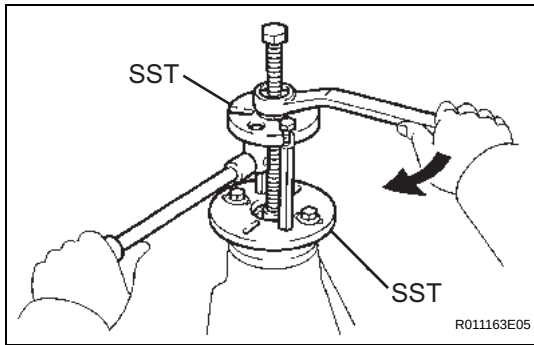
- (a) Install the washer onto the drive pinion.
HINT:
 First, fit a washer of the same thickness as the removed washer, then after checking the tooth contact pattern, replace the washer with one of a differential thickness if necessary.



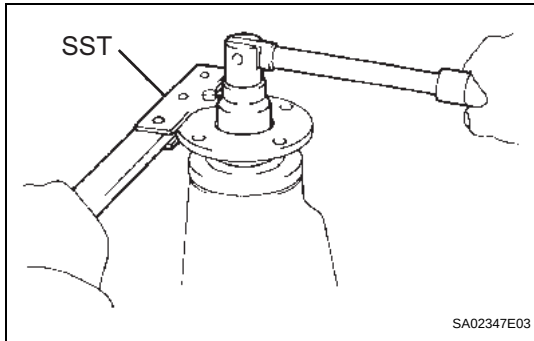
- (b) Using SST and a press, install the front bearing onto the drive pinion.
SST 09506-30012

14. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD

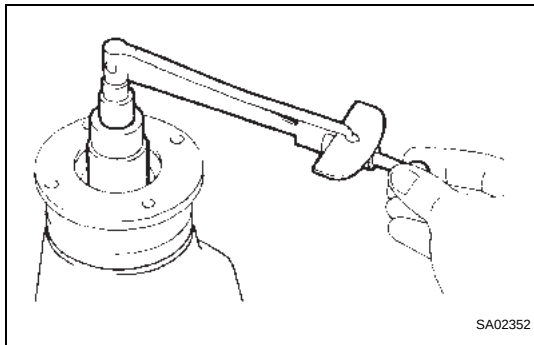
- (a) Install the drive pinion.
HINT:
 Assemble the spacer and oil seal after adjusting the ring gear tooth contact pattern.



- (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)

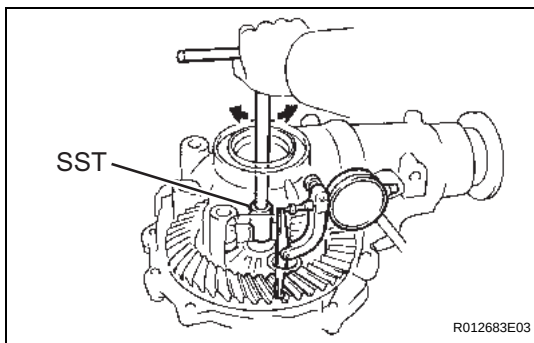
Bearing	Standard
New	0.98 to 1.57 N*m (10 to 16 kgf*cm, 8.7 to 13.9 in.*lbf)
Reused	0.49 to 0.78 N*m (5 to 8 kgf*cm, 4.3 to 6.9 in.*lbf)

If necessary, disassemble and inspect the differential assembly.

15. INSTALL DIFFERENTIAL CASE ASSEMBLY

16. ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

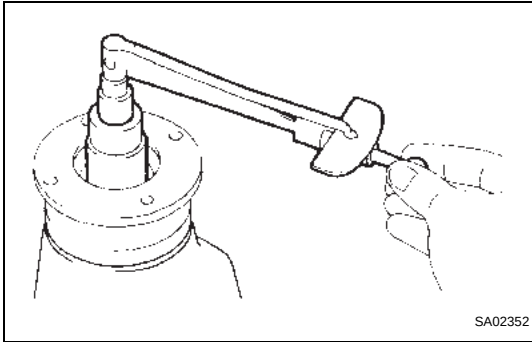
- (a) Install the side bearing retainer with the 10 bolts.
Torque: 50 N*m (510 kgf*cm, 37 ft.*lbf)
- (b) Using SST and a dial indicator, measure the ring gear backlash.
SST 09564-32011
Backlash:
0.11 to 0.21 mm (0.0043 to 0.0083 in.)
- (c) If it is not within the specification, adjust it by either increasing 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)

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
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)

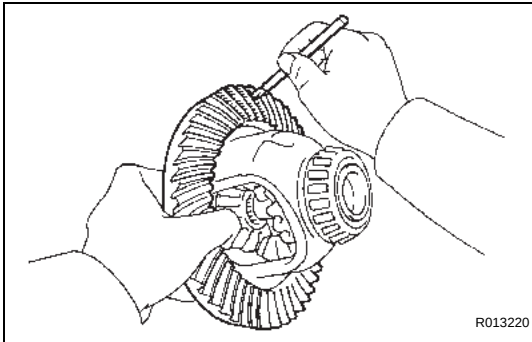
If necessary, disassemble and inspect the differential.

18. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

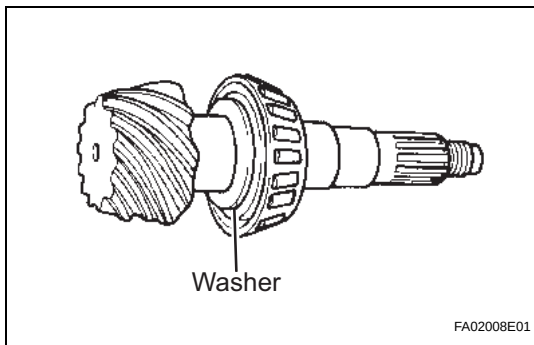
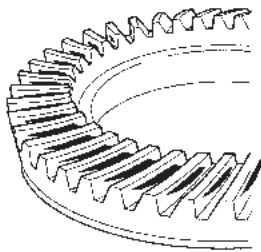
- (a) Remove the side bearing retainer and differential case assembly.
- (b) Coat 3 or 4 teeth at 3 different positions on the ring gear with red lead.
- (c) Install the differential case assembly and side bearing retainer.

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

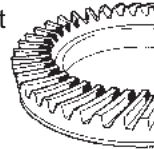
- (d) Hold the companion flange firmly and rotate the ring gear in both directions.
- (e) Remove the differential case, side bearing retainer and differential case assembly.



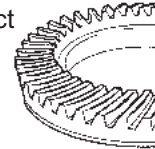
(f) Inspect the tooth contact pattern.

**Driver Side:**

Toe Contact

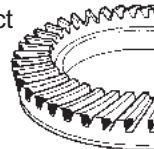


Face Contact

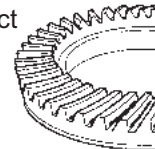


Select an adjusting washer that will bring the drive pinion closer to the ring gear.

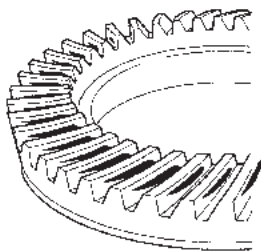
Heel Contact



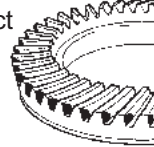
Flank Contact



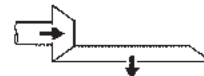
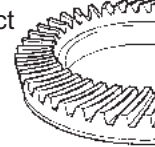
Select an adjusting washer that will shift the drive pinion away from the ring gear.

Coast Side:

Heel Contact

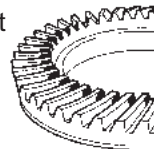


Face Contact

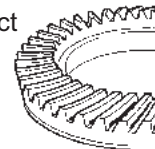


Select an adjusting washer that will shift the drive pinion closer to the ring gear.

Toe Contact



Flank Contact

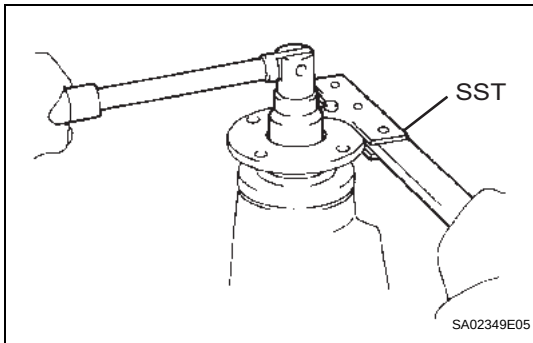


Select an adjusting washer that will bring the drive pinion away from the ring gear.

If the teeth are not engaged properly, use the following chart to select the appropriate washer for correction.

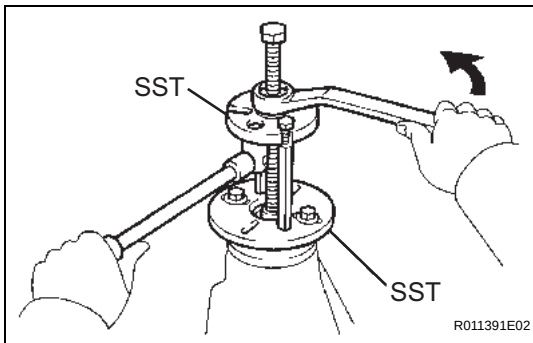
Washer thickness

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.70 (0.0669)	1.94 (0.0764)	2.18 (0.0858)
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)	-



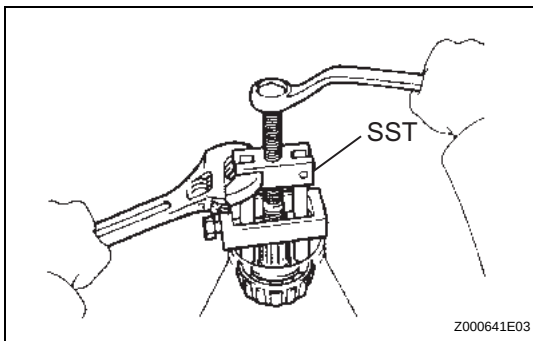
- (g) Using SST to hold the companion flange, remove the nut.

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

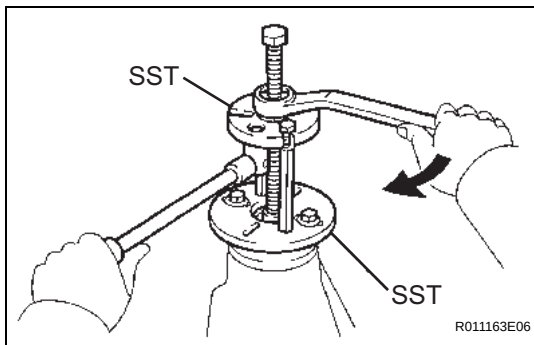
- (a) Install a new bearing spacer and oil storage ring.

20. INSTALL FRONT DRIVE PINION REAR TAPERED ROLLER BEARING

21. INSTALL FRONT DIFFERENTIAL DRIVE PINION OIL SLINGER

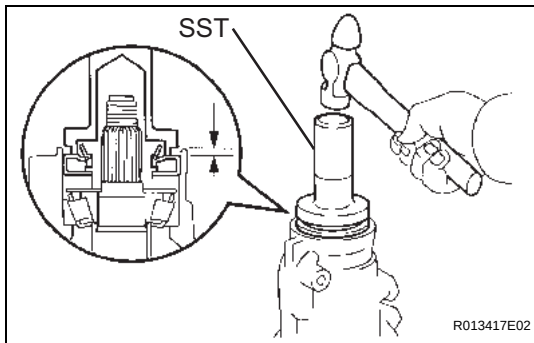
22. INSTALL FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY FRONT

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



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

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



23. INSTALL FRONT DIFFERENTIAL CARRIER OIL SEAL

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

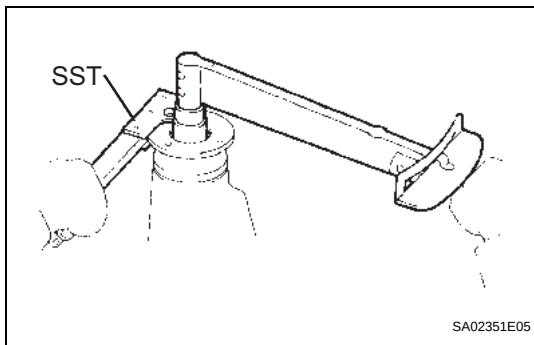
SST 09554-22010

Oil seal drive in depth:

3.9 to 4.8 mm (0.153 to 0.189 in.)

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

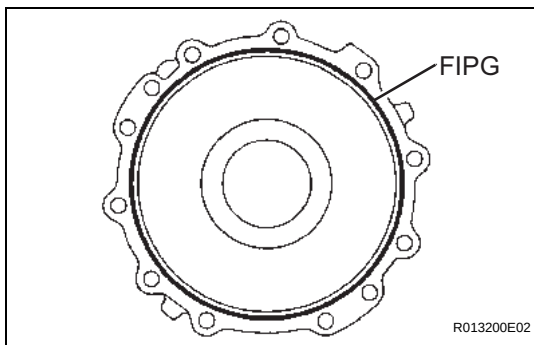
DF



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

Torque: 370 N*m (3,773 kgf*cm, 273 ft.*lbf)

SST 09330-00021



24. INSTALL DIFFERENTIAL SIDE BEARING RETAINER

- (a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential carrier and side bearing retainer.

- (b) Clean the contact surfaces of any residual FIPG material using gasoline or alcohol.

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

FIPG:

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

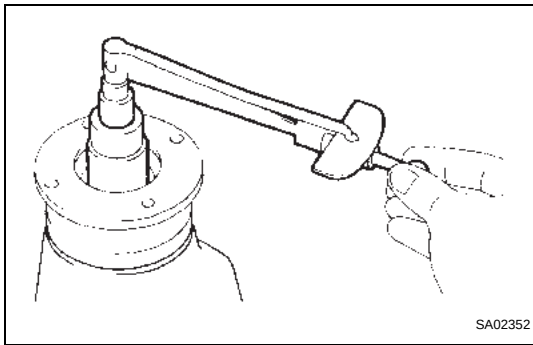
HINT:

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

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

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

- (e) 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)

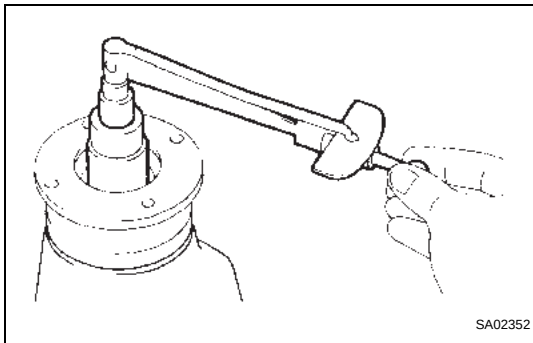
Bearing	Standard
New	0.98 to 1.57 N*m (10 to 16 kgf*cm, 8.7 to 13.9 in.*lbf)
Reused	0.49 to 0.78 N*m (5 to 8 kgf*cm, 4.3 to 6.9 in.*lbf)

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

If the preload is less than the specification, retighten the nut 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, 273 ft.*lbf) or less

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

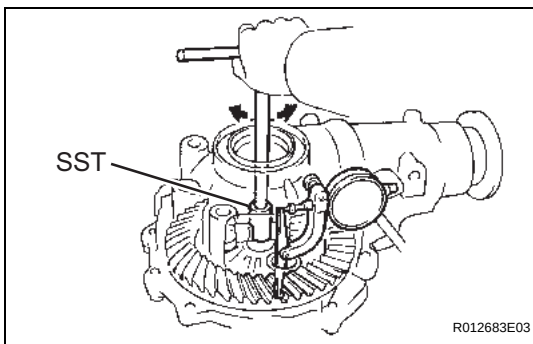
**26. INSPECT TOTAL PRELOAD**

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

Total preload (at starting):

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.

**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:

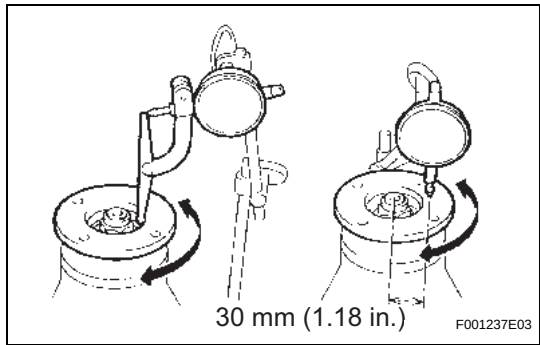
There should be no clearance between the plate washer and differential case.

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)

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.76 (0.0693)	1.96 (0.0772)	2.16 (0.0850)



28. INSPECT AND ADJUST FRONT DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY FRONT

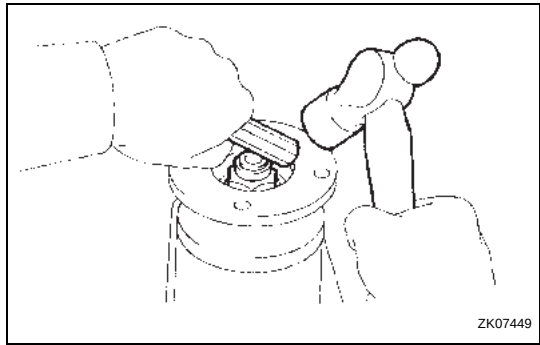
- (a) Using a dial indicator, measure the runout of the drive pinion companion flange vertically and horizontally.

Maximum runout:

Vertical runout: 0.10 mm (0.0039 in.)

Lateral runout: 0.10 mm (0.0039 in.)

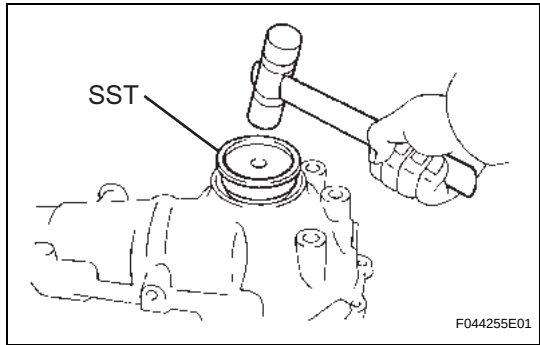
If the runouts are not within the specifications, replace the companion flange.



29. INSTALL FRONT DRIVE PINION COMPANION FLANGE FRONT NUT

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

DF



30. INSTALL DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

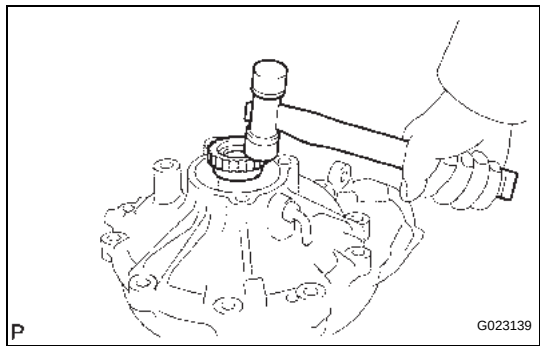
- (a) Using SST and a plastic hammer, install a new oil seal until its surface is flush with the differential carrier end.

SST 09608-32010

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

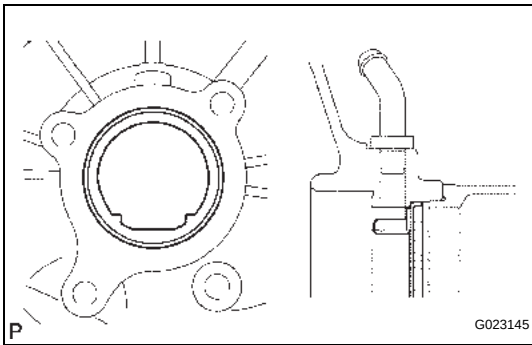
Oil seal driven in depth:

-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.

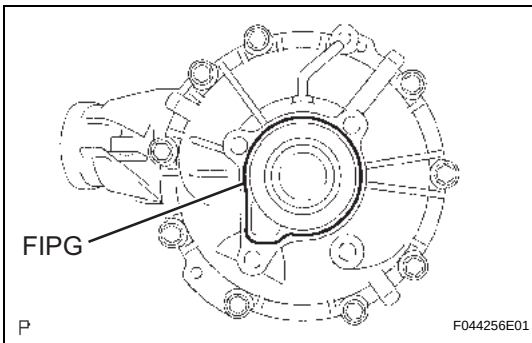


32. INSTALL FRONT DIFFERENTIAL SIDE BEARING RETAINER DEFLECTOR

- (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 FIPG 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 FIPG material using gasoline or alcohol.
- (c) Apply FIPG to the differential, as shown.

FIPG:

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

HINT:

Install the differential tube within 10 minutes of applying FIPG.

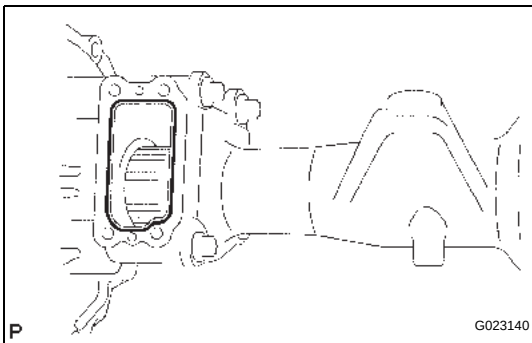
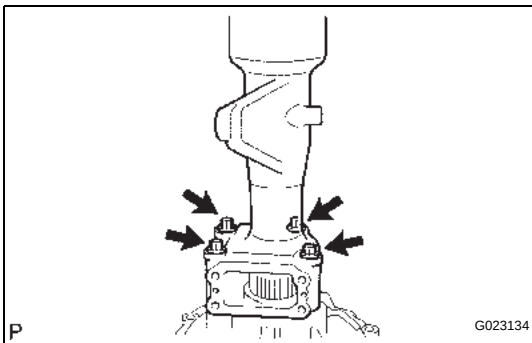
- (d) Install the differential tube into the differential carrier assembly.
- (e) Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichloroethylene.
- (f) Apply adhesive to 2 to 3 threads of each bolt end.

Adhesive:

Part No. 08833-00070, THREE BOND 1324 or equivalent

- (g) Install the 4 bolts.

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



34. INSTALL DIFFERENTIAL VACUUM ACTUATOR ASSEMBLY

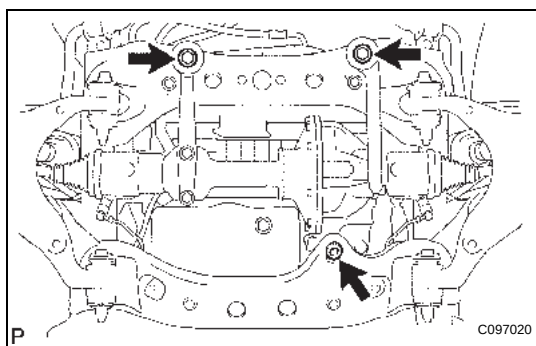
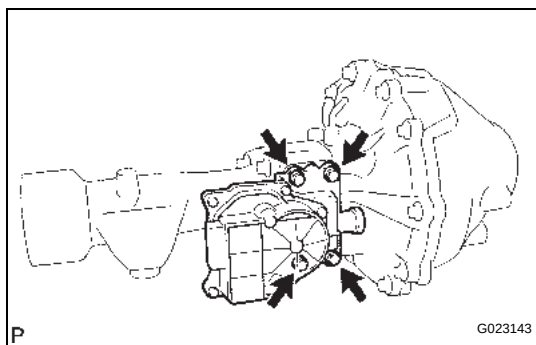
- (a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the actuator and clutch case.
- (b) Clean the contact surfaces of any residual FIPG material using gasoline or alcohol.
- (c) Apply FIPG to the differential tube, as shown.

FIPG:

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

HINT:

Install the actuator within 10 minutes of applying FIPG.



- (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) Apply adhesive to 2 to 3 threads of each bolt end.

Adhesive:

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

- (g) Install the 4 bolts.

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

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 (1,899 kgf*cm, 138 ft.*lbf)
- (c) Install the No. 2 mounting support with the 2 bolts.
Torque: 160 N*m (1,631 kgf*cm, 118 ft.*lbf)
- (d) Install the No. 3 front differential support with the 2 bolts.
Torque: 108 N*m (1,100 kgf*cm, 80 ft.*lbf)
- (e) Support the front differential with a jack.
- (f) Install the 2 front mounting bolts and nuts.
Torque: 137 N*m (1,400 kgf*cm, 101 ft.*lbf)
- (g) Install the No. 1 front differential mount nut.
Torque: 87 N*m (889 kgf*cm, 64 ft.*lbf)
- (h) Install the front differential breather tube bracket with the bolt.
Torque: 13 N*m (129 kgf*cm, 8 ft.*lbf)
- (i) Lower the jack.

2. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH (See page [DS-4](#))

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

4. INSTALL FRONT SUSPENSION LOWER ARM LH (See page [DS-9](#))

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 (See page [PS-68](#))

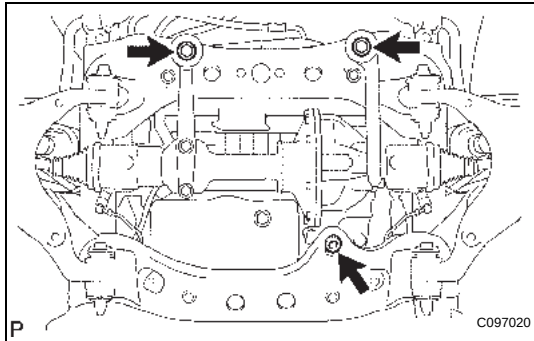
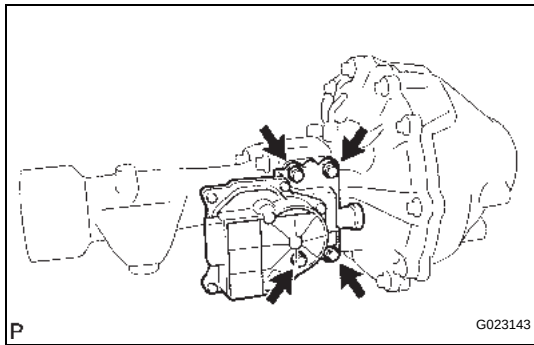
7. INSTALL TIE ROD END SUB-ASSEMBLY RH (See page [PS-68](#))

8. INSTALL FRONT SPEED SENSOR LH (See page [BC-303](#))

9. INSTALL FRONT SPEED SENSOR RH

HINT:

Use the same procedure as for the LH side.



- (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) Apply adhesive to 2 to 3 threads of each bolt end.

Adhesive:

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

- (g) Install the 4 bolts.

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

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 (1,899 kgf*cm, 138 ft.*lbf)
- (c) Install the No. 2 mounting support with the 2 bolts.
Torque: 160 N*m (1,631 kgf*cm, 118 ft.*lbf)
- (d) Install the No. 3 front differential support with the 2 bolts.
Torque: 108 N*m (1,100 kgf*cm, 80 ft.*lbf)
- (e) Support the front differential with a jack.
- (f) Install the 2 front mounting bolts and nuts.
Torque: 137 N*m (1,400 kgf*cm, 101 ft.*lbf)
- (g) Install the No. 1 front differential mount nut.
Torque: 87 N*m (889 kgf*cm, 64 ft.*lbf)
- (h) Install the front differential breather tube bracket with the bolt.
Torque: 13 N*m (129 kgf*cm, 8 ft.*lbf)
- (i) Lower the jack.

2. INSTALL FRONT DRIVE SHAFT ASSEMBLY LH (See page [DS-4](#))

3. INSTALL FRONT DRIVE SHAFT ASSEMBLY RH

HINT:

Use the same procedure as for the LH side.

4. INSTALL FRONT SUSPENSION LOWER ARM LH (See page [DS-9](#))

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 (See page [PS-68](#))

7. INSTALL TIE ROD END SUB-ASSEMBLY RH (See page [PS-68](#))

8. INSTALL FRONT SPEED SENSOR LH (See page [BC-303](#))

9. INSTALL FRONT SPEED SENSOR RH

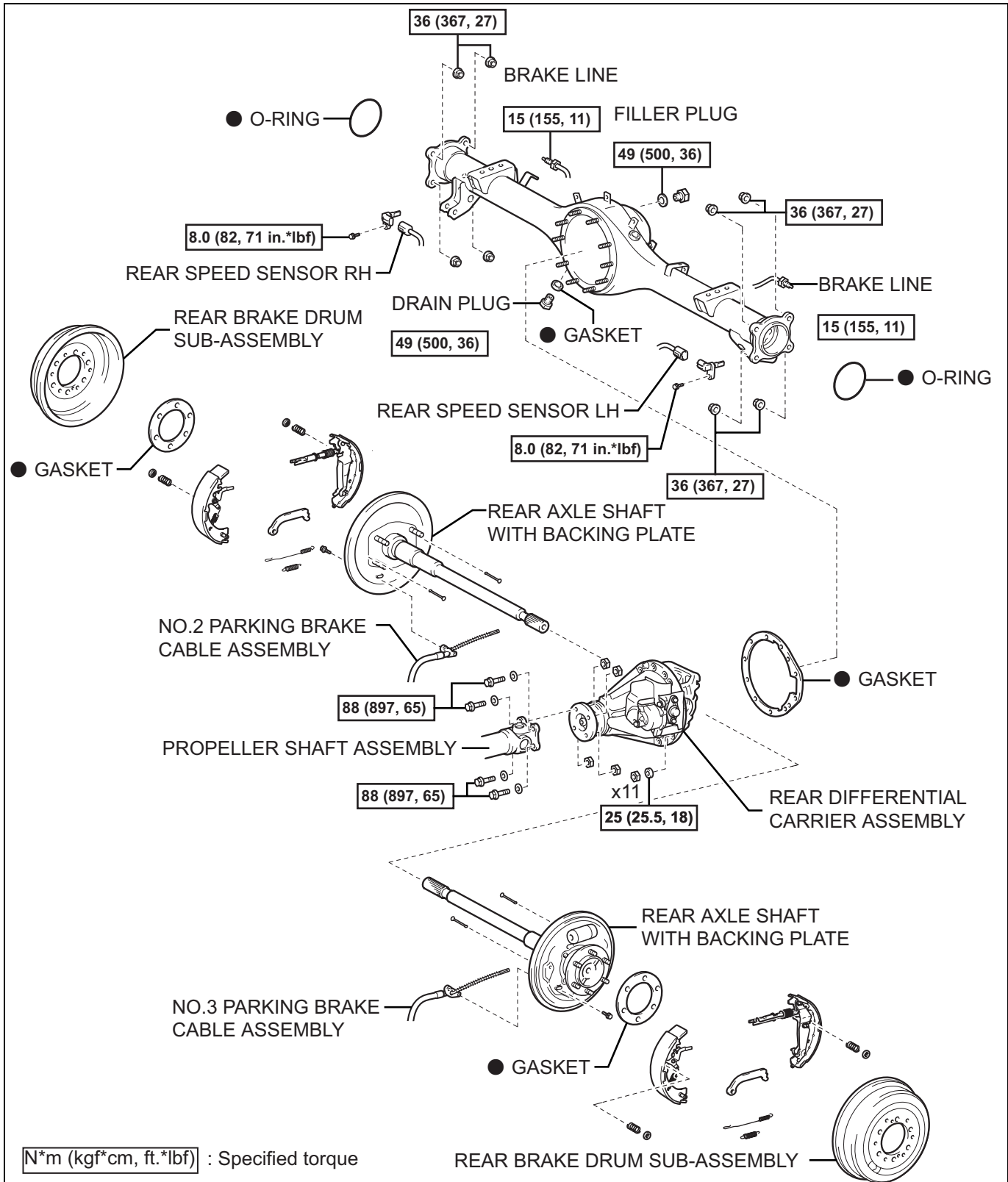
HINT:

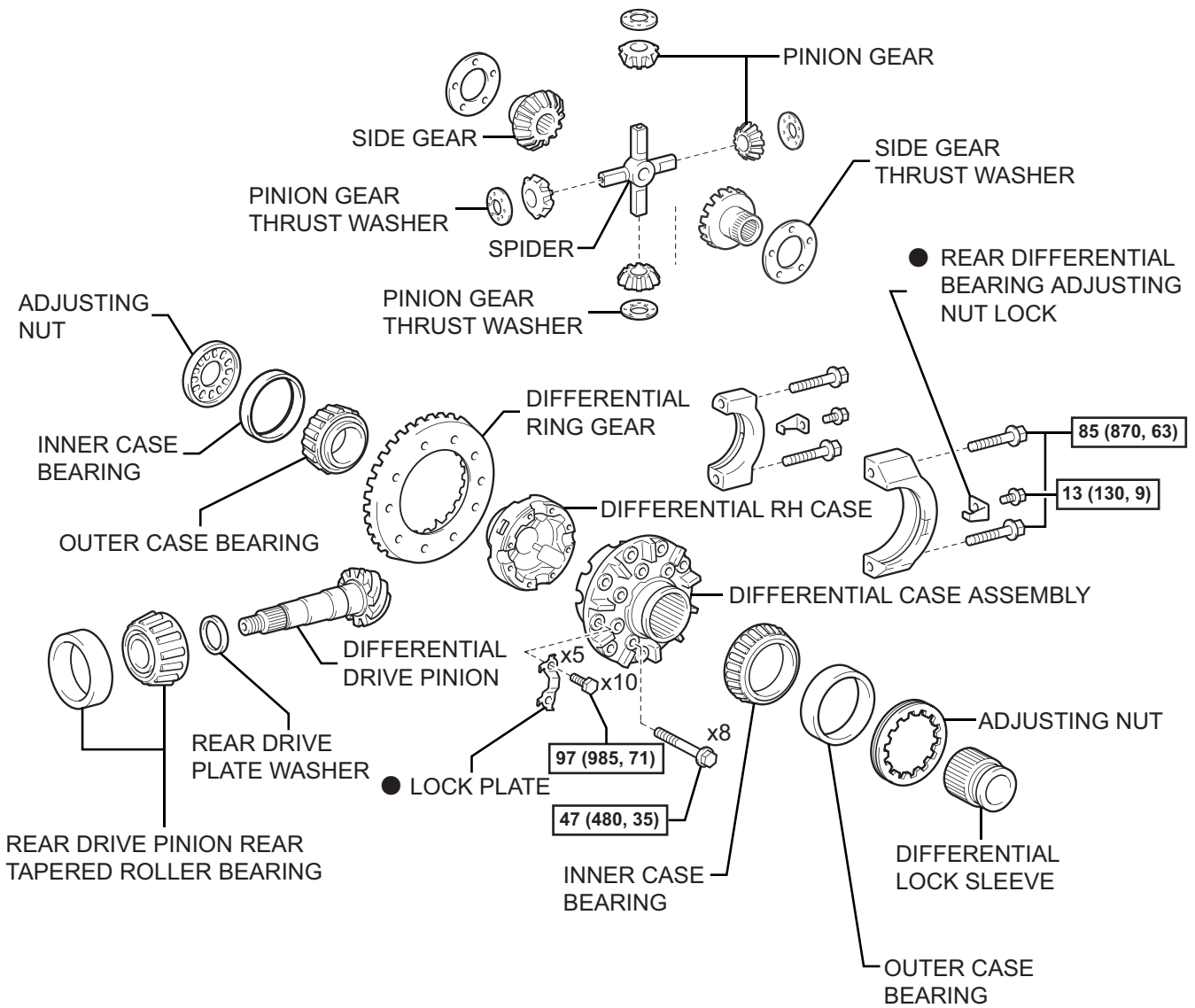
Use the same procedure as for the LH side.

10. **INSTALL FRONT STABILIZER LINK ASSEMBLY LH**
(See page [SP-51](#))
11. **INSTALL FRONT STABILIZER LINK ASSEMBLY RH**
HINT:
Use the same procedure as for the LH side.
12. **INSTALL FRONT AXLE HUB LH NUT** (See page [AH-20](#))
13. **INSTALL FRONT AXLE HUB RH NUT**
HINT:
Use the same procedure as for the LH side.
14. **INSTALL FRONT PROPELLER SHAFT ASSEMBLY**
(See page [PR-19](#))
15. **ADD DIFFERENTIAL OIL** (See page [DF-8](#))
16. **INSPECT DIFFERENTIAL OIL** (See page [DF-8](#))
17. **INSPECT FOR DIFFERENTIAL OIL LEAKAGE**
18. **INSTALL NO. 2 ENGINE UNDER COVER SUB-ASSEMBLY**
 - (a) Install the No. 2 engine under cover sub-assembly with the 4 bolts.
Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)
19. **INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY**
 - (a) Install the No. 1 engine under cover sub-assembly with the 4 bolts.
Torque: 30 N*m (306 kgf*cm, 22 ft.*lbf)
20. **INSTALL FRONT WHEEL**
Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)
21. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**
(See page [SP-7](#))
22. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)
23. **CHECK VSC SENSOR SIGNAL (w/ VSC)**
HINT:
(See page [BC-103](#))
24. **CHECK ABS SENSOR SIGNAL (w/o VSC)**
HINT:
(See page [BC-7](#))

REAR DIFFERENTIAL CARRIER ASSEMBLY

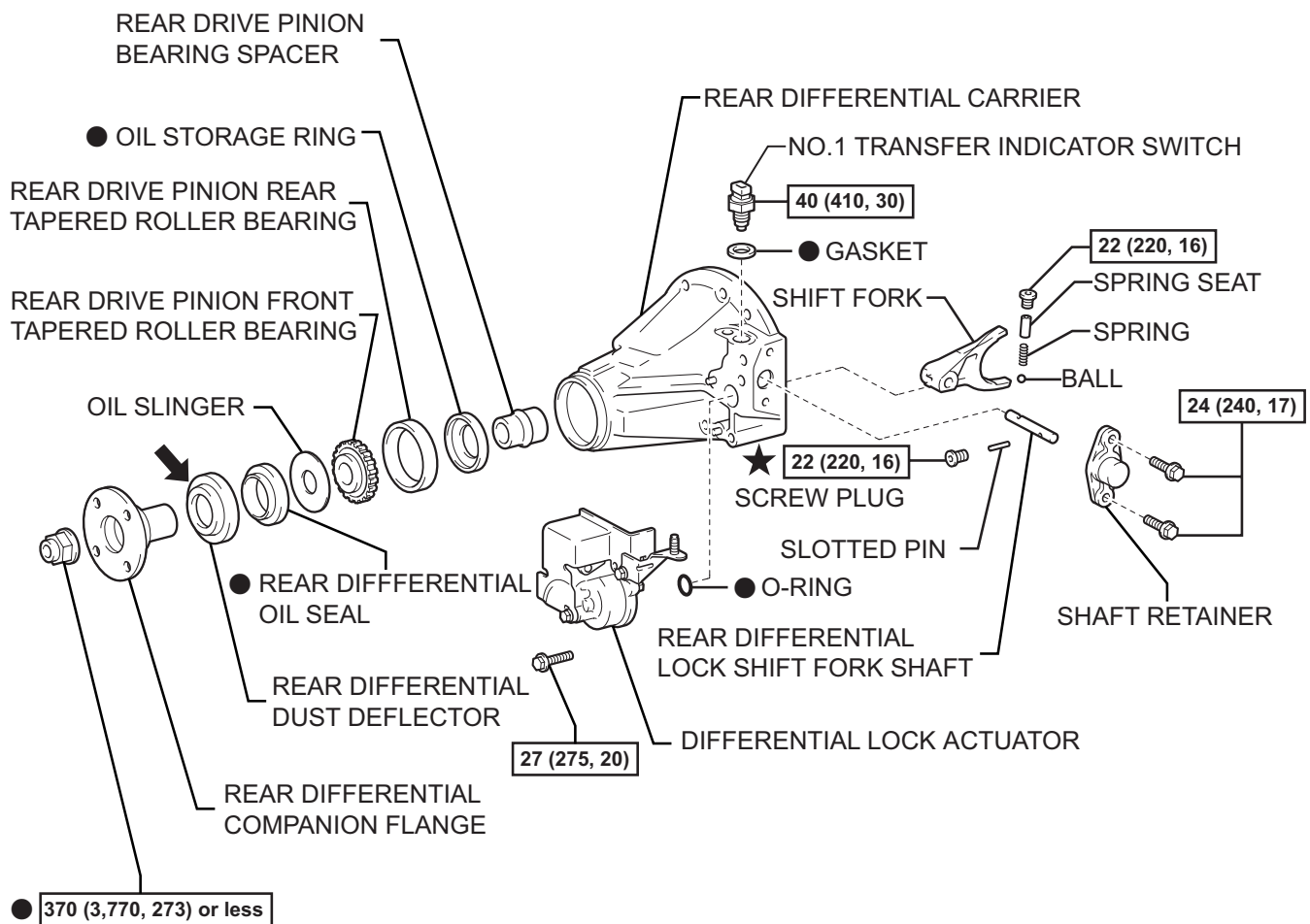
COMPONENTS





DF

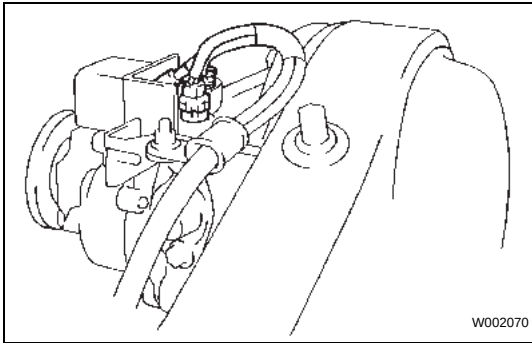
[N*m (kgf*cm, ft.*lbf)] : Specified torque ★ Precoated part ● Non-reusable part ← Apply MP grease



N*m (kgf*cm, ft.*lbf) : Specified torque ★ Precoated part ● Non-reusable part ◀ Apply MP grease

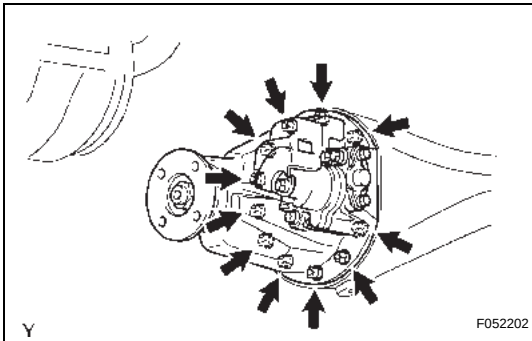
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE REAR WHEEL
3. DRAIN BRAKE FLUID
4. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY (See page [BR-68](#))
5. REMOVE FRONT BRAKE SHOE (See page [BR-68](#))
6. REMOVE REAR BRAKE SHOE (See page [BR-69](#))
7. REMOVE PROPELLER SHAFT ASSEMBLY (for 2WD Drive Type, Regular Cab) (See page [PR-3](#))
8. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD Drive Type, Except Regular Cab) (See page [PR-8](#))
9. REMOVE PROPELLER SHAFT ASSEMBLY (for 4WD Type, Regular Cab) (See page [PR-22](#))
10. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD Drive Type, Except Regular Cab) (See page [PR-8](#))
11. DRAIN DIFFERENTIAL OIL (See page [DF-8](#))
12. SEPARATE REAR SPEED SENSOR LH (See page [BC-304](#))
13. SEPARATE REAR SPEED SENSOR RH
HINT:
Use the same procedure as for the LH side.
14. SEPARATE NO.3 PARKING BRAKE CABLE ASSEMBLY (See page [PB-21](#))
15. SEPARATE NO.2 PARKING BRAKE CABLE ASSEMBLY
HINT:
Use the same procedure as for the LH side.
16. REMOVE REAR AXLE SHAFT WITH BACKING PLATE (See page [AH-29](#))
17. REMOVE REAR AXLE SHAFT WITH BACKING PLATE
HINT:
Use the same procedure as for the LH side.



18. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Disconnect the differential lock actuator connector.
- (b) Disconnect the rear differential lock actuator breather hose from the differential actuator assembly.



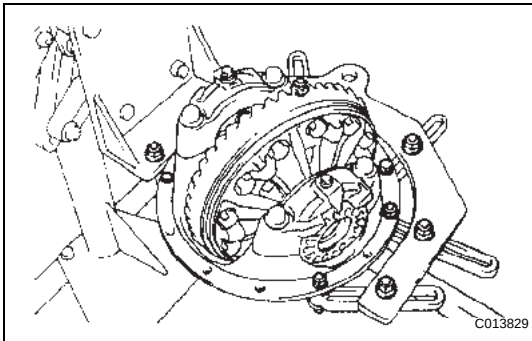
- (c) Remove the 11 nuts and differential carrier assembly.

NOTICE:

Be careful not to damage the contact surfaces of the differential carrier and rear axle housing.

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

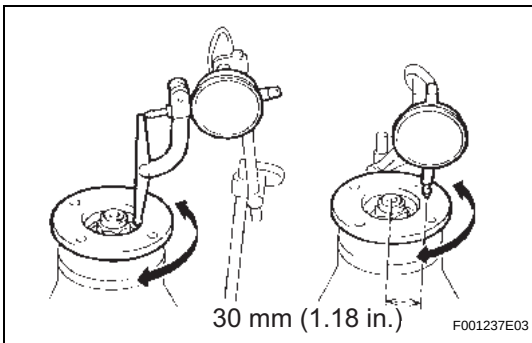
DF



DISASSEMBLY

1. FIX REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Fix the rear differential carrier assembly to the overattachment.



2. INSPECT REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

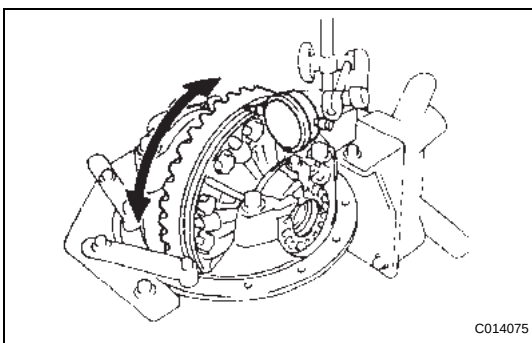
- (a) Using a dial indicator, measure the runout of the companion flange vertically and horizontally.

Maximum runout:

Vertical runout: 0.10 mm (0.0039 in.)

Lateral runout: 0.10 mm (0.0039 in.)

If the runouts are not within the specifications, replace the companion flange.



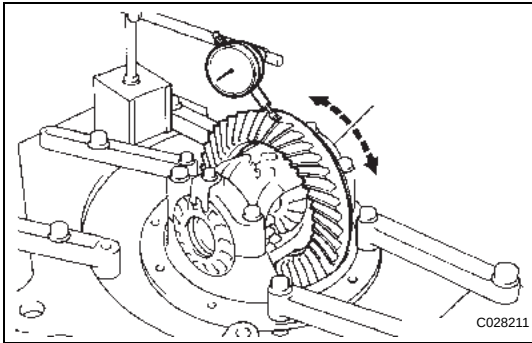
3. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR

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

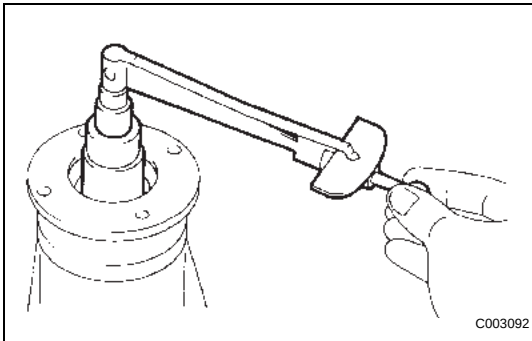
Maximum runout:

0.07 mm (0.0028 in.)

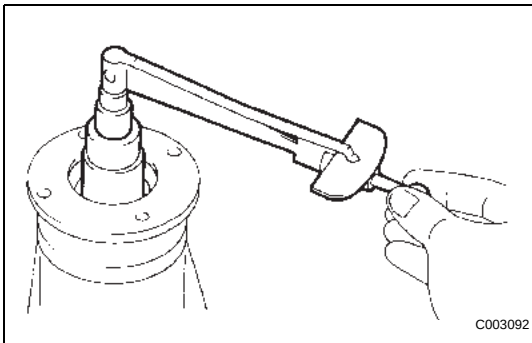
If the runout is greater than the maximum, replace the ring gear with a new one.



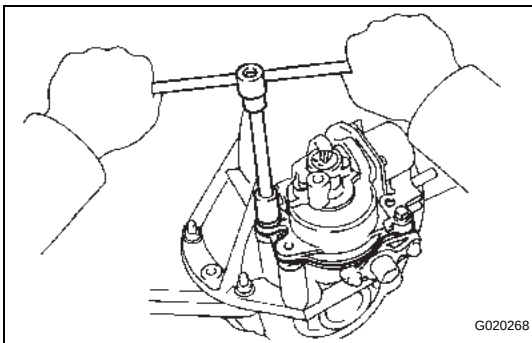
- 4. INSPECT DIFFERENTIAL RING GEAR BACKLASH**
- (a) Using a dial indicator, check the backlash of the ring gear.
- Backlash:**
0.13 to 0.18 mm (0.0051 to 0.0071 in.)
- If the backlash is not within the specification, adjust or repair the side bearing preload as necessary.



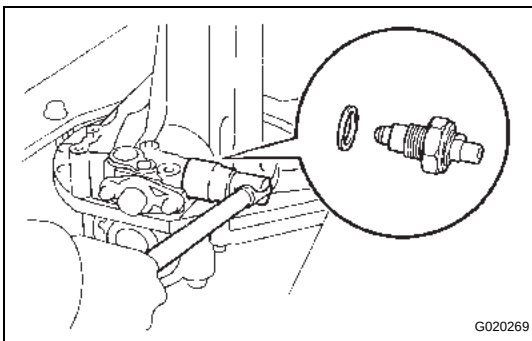
- 5. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**
- (a) Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.
- Preload (at starting):**
0.56 to 0.85 N*m (5.7 to 8.7 kgf*cm, 5.0 to 7.5 in.*lbf)
- If necessary, disassemble and inspect the differential assembly.



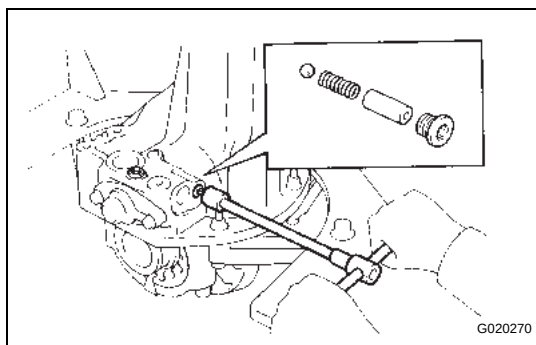
- 6. INSPECT TOTAL PRELOAD**
- (a) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.
- (b) Using a torque wrench, measure the total preload.
- Total preload (at starting):**
Drive pinion preload plus 0.39 to 0.59 N*m (4.0 to 6.0 kgf*cm, 3.5 to 5.2 in.*lbf)
- If necessary, disassemble and inspect the differential.



- 7. REMOVE DIFFERENTIAL LOCK SHIFT ACTUATOR**
- (a) Remove the 4 bolts and actuator from the differential carrier.
- (b) Remove the O-ring.

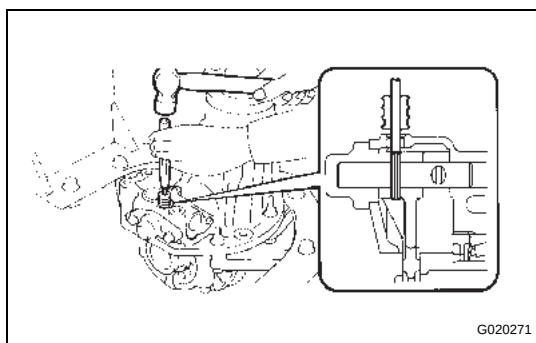


- 8. REMOVE NO.1 TRANSFER INDICATOR SWITCH**
- (a) Remove the indicator switch and gasket.

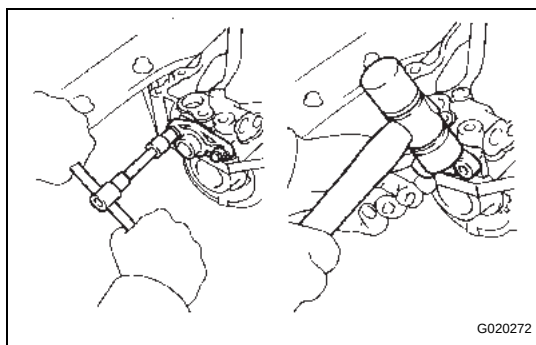


9. REMOVE REAR DIFFERENTIAL LOCK SHIFT FORK SHAFT

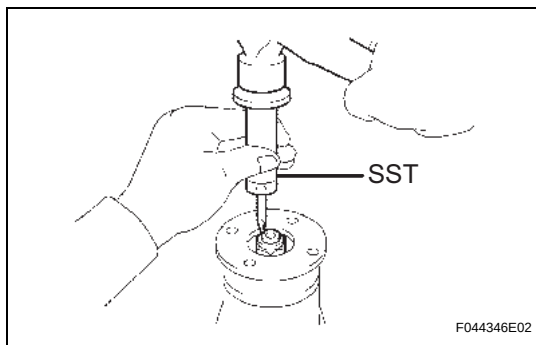
- (a) Using a 6 mm hexagon wrench, remove the 2 screw plugs.
- (b) Remove the spring seat, spring and ball.



- (c) Using a 5 mm pin punch and hammer, remove the slotted pin.



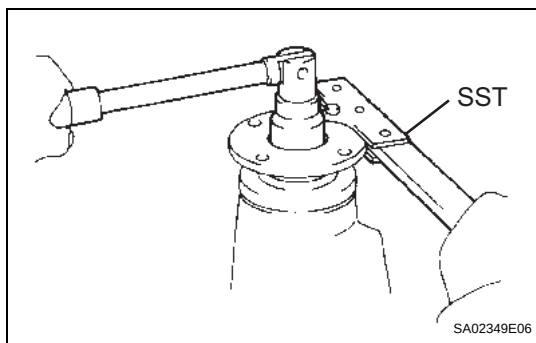
- (d) Remove the 2 bolts from the shaft retainer.
- (e) Using a plastic hammer, remove the shaft retainer.
- (f) Remove the shift fork shaft.



10. REMOVE REAR DRIVE PINION NUT

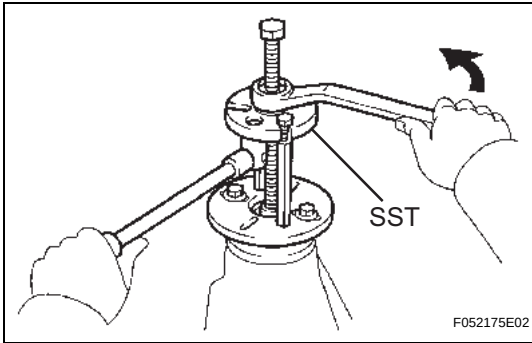
- (a) Using SST and a hammer, loosen the staked part of the nut.

SST 09930-00010



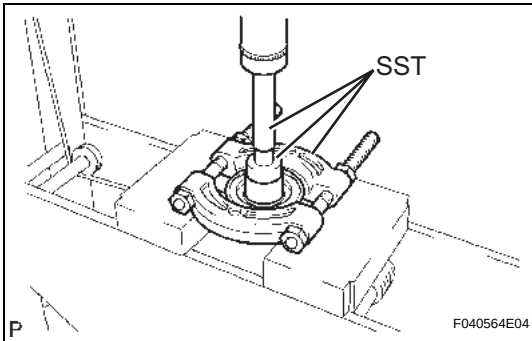
- (b) Using SST to hold the drive pinion companion flange, remove the nut.

SST 09330-00021

**11. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR**

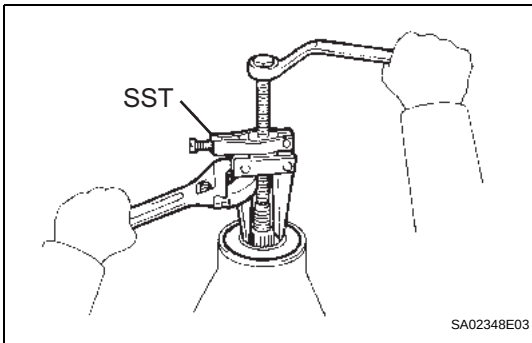
- (a) Using SST, remove the drive pinion companion flange.

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

**12. REMOVE REAR DIFFERENTIAL DUST DEFLECTOR**

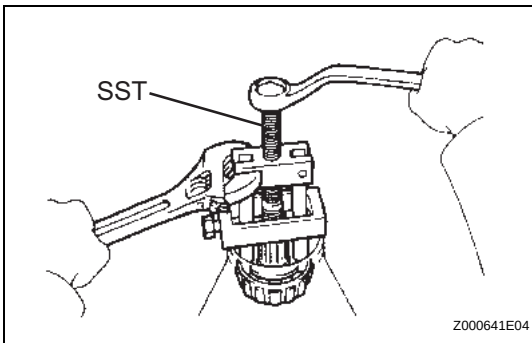
- (a) Using SST and a press, remove the dust deflector.

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

**13. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL**

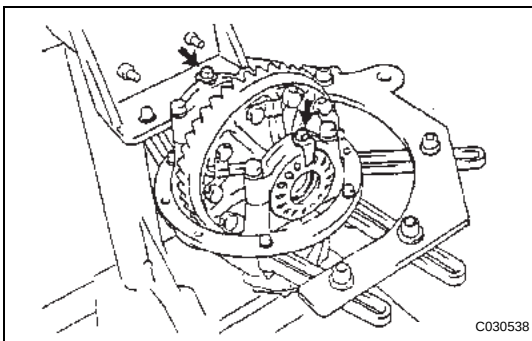
- (a) Using SST, remove the oil seal from the differential carrier.

SST 09308-10010

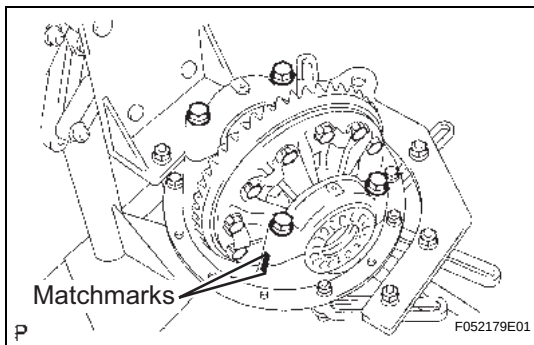
14. REMOVE REAR DIFFERENTIAL DRIVE PINION OIL SLINGER**15. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

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

SST 09556-22010

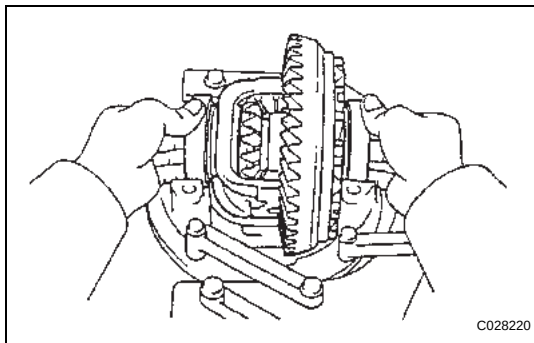
**16. REMOVE REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK**

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



17. REMOVE DIFFERENTIAL CASE ASSEMBLY

- Place matchmarks on the bearing cap and differential carrier.
- Remove the 4 bolts and 2 differential bearing caps.
- Remove the 2 adjusting nuts.

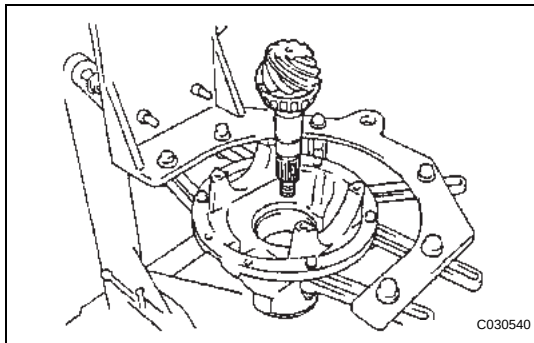


- Remove the rear differential case sub-assembly and 2 case bearings from the differential carrier.

HINT:

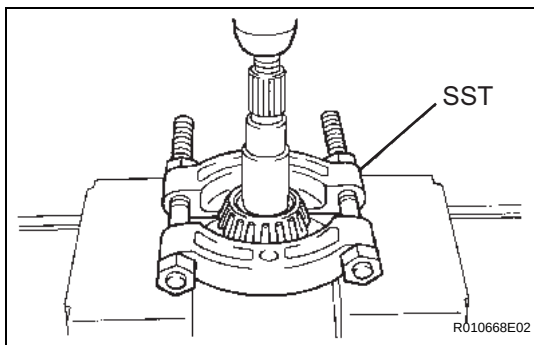
Tag the 2 case bearings outer races to show the locations for reassembly.

DF



18. REMOVE DIFFERENTIAL DRIVE PINION

- Remove the differential drive pinion and bearing spacer from the differential carrier.



19. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- Using SST and a press, remove the drive pinion tapered roller bearing from the drive pinion.

SST 09950-00020

HINT:

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

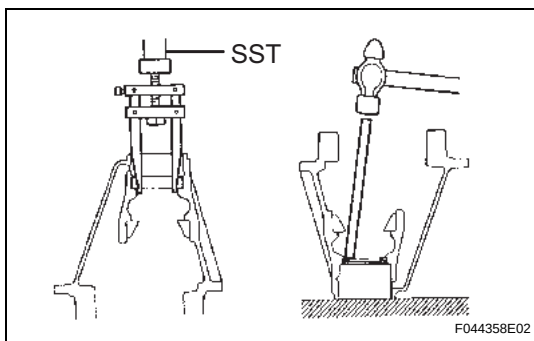
20. REMOVE REAR DIFFERENTIAL DRIVE PINION PLATE WASHER

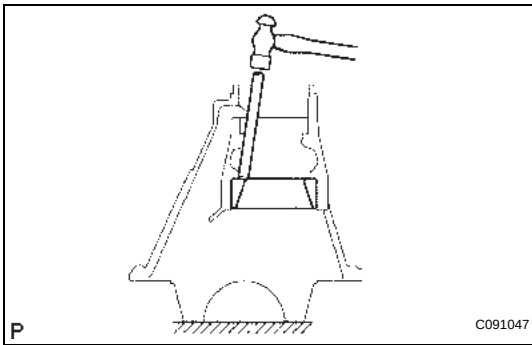
21. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- Using SST, remove the front tapered roller bearing from the carrier.

SST 09308-00010

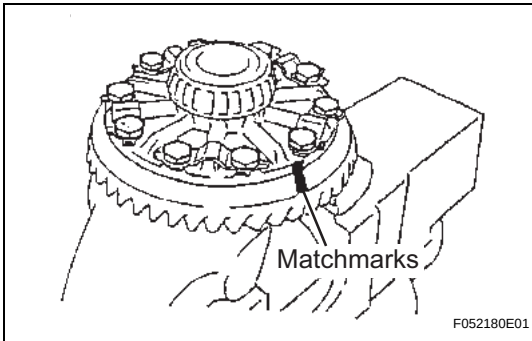
- Using a brass bar and a hammer, remove the oil storage ring from the carrier.





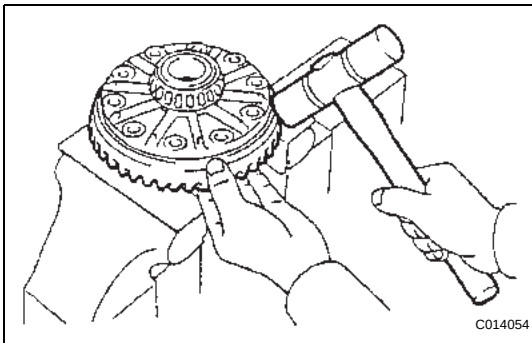
22. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using a brass bar and a hammer, remove the rear tapered roller bearing from the carrier.

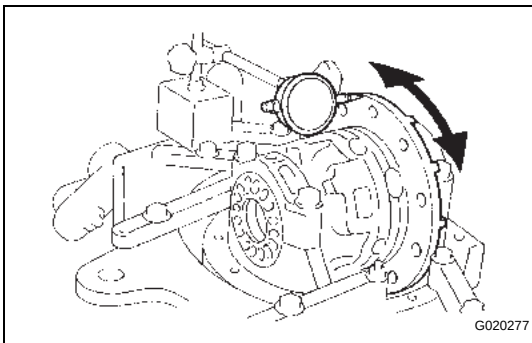


23. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the ring gear and differential case.
- (b) Using a screwdriver and a hammer, unstage the lock plates.
- (c) Remove the 10 ring gear set bolts and 5 lock plates.



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



24. INSPECT DIFFERENTIAL CASE ASSEMBLY RUNOUT

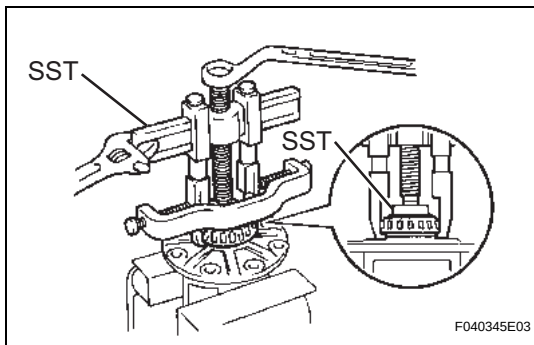
- (a) Install the rear differential case bearing onto the differential case.
- (b) Install the differential case onto the differential carrier.
- (c) Install the 2 bearing caps and 4 bolts onto the differential carrier.
- (d) Inspect the differential case runout.

Torque: 85 N*m (870 kgf*cm, 63 ft.*lbf)

Maximum runout:

0.07 mm (0.0028 in.)

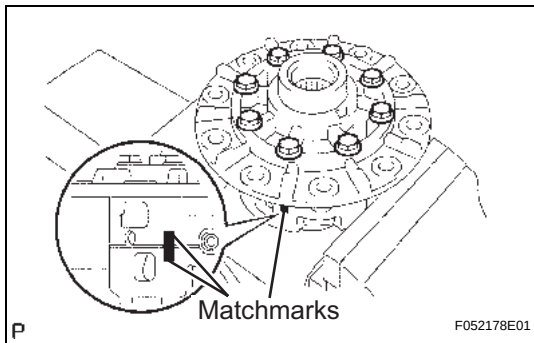
- (e) Remove the differential case.
- (f) Remove the rear differential case bearing.



25. REMOVE REAR DIFFERENTIAL CASE BEARING

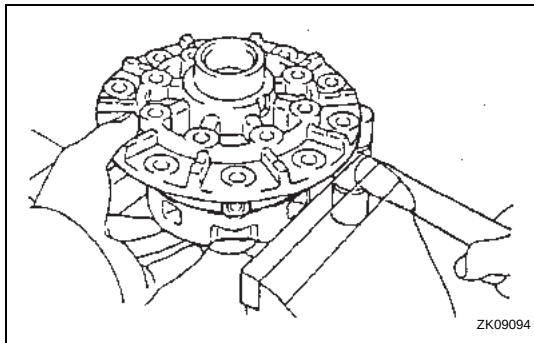
- (a) Using SST, remove the 2 rear differential case bearings from the differential case.

SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00360)

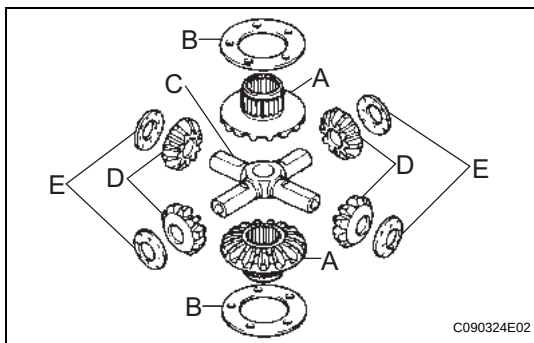


26. DISASSEMBLE DIFFERENTIAL CASE

- (a) Place matchmarks on the LH and RH cases.
(b) Remove the 8 bolts.

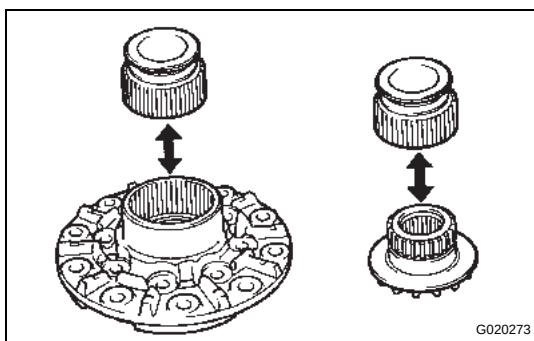


- (c) Using a plastic hammer, separate the LH and RH cases.



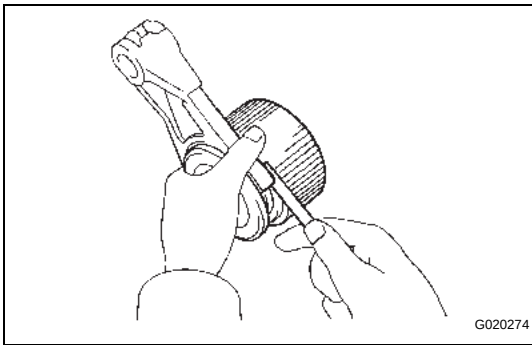
- (d) Remove these parts from the differential case.

A	Side gear
B	Side gear thrust washer
C	Spider
D	Pinion gear
E	Pinion gear thrust washer



27. INSPECT REAR DIFFERENTIAL LOCK SLEEVE

- (a) Install the sleeve onto the differential case (LH) and check that it moves smoothly.
(b) Install the side gear onto the sleeve and check that it moves smoothly.



- (c) Using a feeler gauge, measure the clearance between the shift fork and sleeve.

Maximum clearance:

0.15 to 0.35 mm (0.0059 to 0.0138 in.)

28. INSPECT DIFFERENTIAL PINION AND SIDE GEAR

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

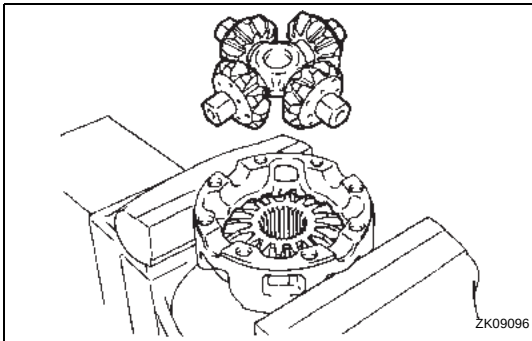
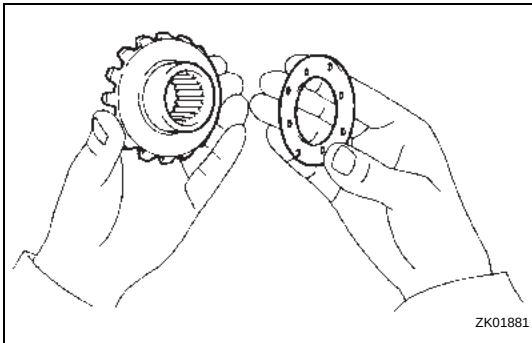
29. INSPECT DIFFERENTIAL CASE ASSEMBLY

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

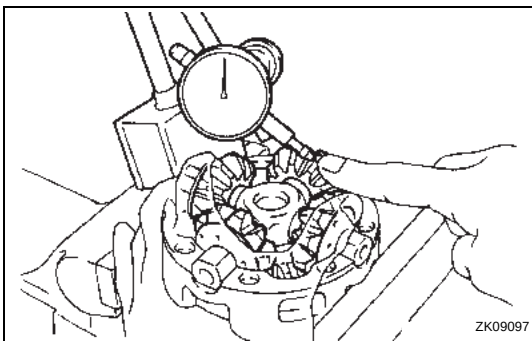
REASSEMBLY

1. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Install the rear differential side gear thrust washer onto the rear differential side gear.
(b) Install the rear differential pinion thrust washer and rear differential pinion onto the rear differential spider.
(c) Fix the differential case RH.



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

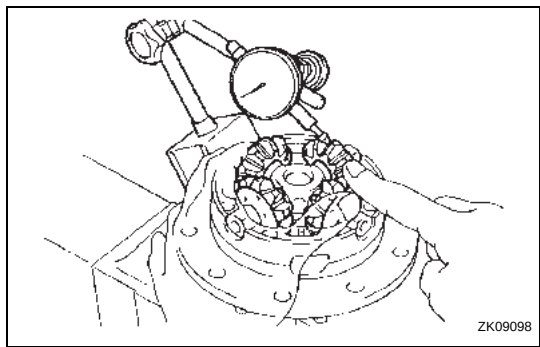


- (e) Using a dial indicator, measure the differential case RH side backlash while holding the pinion toward the case.

Backlash:

0.05 to 0.20 mm (0.002 to 0.008 in.)

- (f) Remove the rear differential spider from the differential case RH.



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

Backlash:

0.05 to 0.20 mm (0.002 to 0.008 in.)

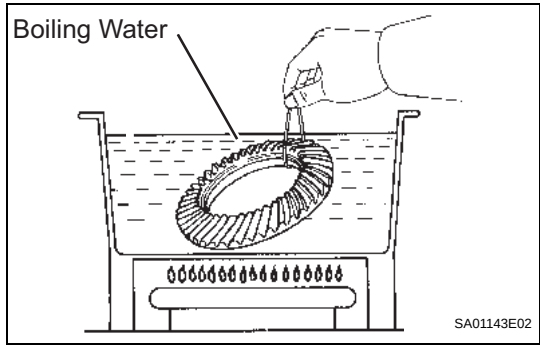
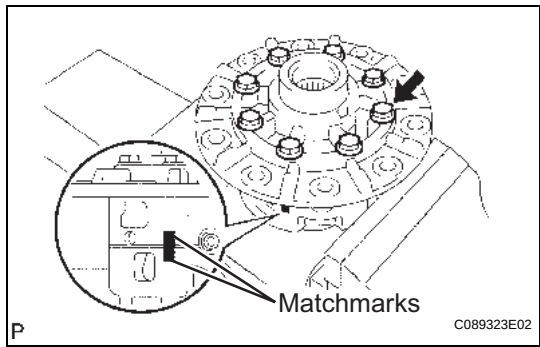
If the backlash is not within the specification, install 2 side gear thrust washers of a different thickness.

Thrust washer thickness

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

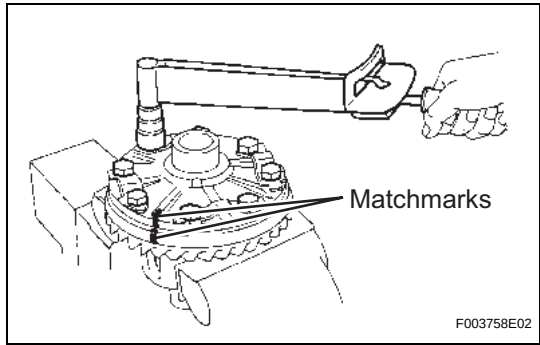
- (i) Align the matchmarks and assemble the RH and LH cases.
- (j) Using a plastic hammer, install the differential case.
- (k) Install the 8 bolts.

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



2. INSTALL DIFFERENTIAL RING GEAR

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

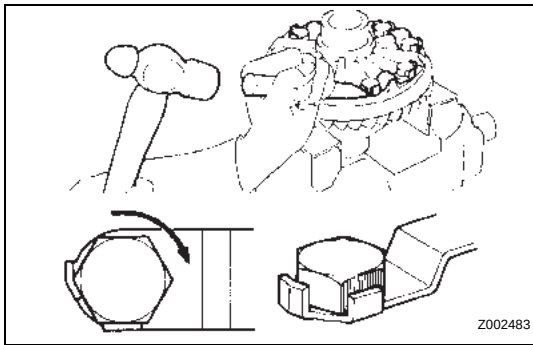


- (e) Align the matchmarks on the ring gear and differential case.
- (f) Temporarily install 5 new lock plates and 10 bolts.
- (g) After the ring gear cools down sufficiently, torque the 8 bolts uniformly.

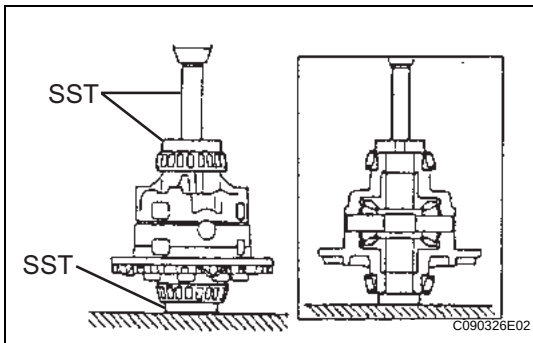
Torque: 97 N*m (985 kgf*cm, 71 ft.*lbf)

HINT:

Tighten the bolts in diagonal order little by little in several steps.

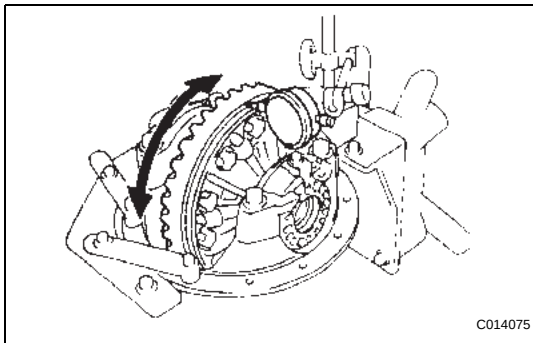


- (h) Using a chisel and a hammer, stake the 5 lock plates.
HINT:
 Stake one claw so that it is flush with the flat surface of the bolt.
 For the claw in contact with the protruding portion of the bolt, stake only the half on the tightening side.



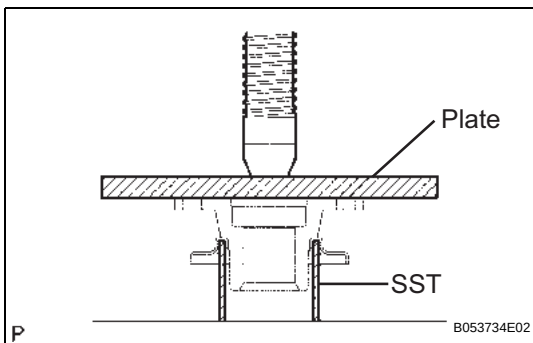
3. INSTALL REAR DIFFERENTIAL CASE BEARING

- (a) Using SST and a press, install the bearing onto the differential case.
SST 09950-60010 (09951-00560, 09951-00570), 09950-70010 (09951-07150)



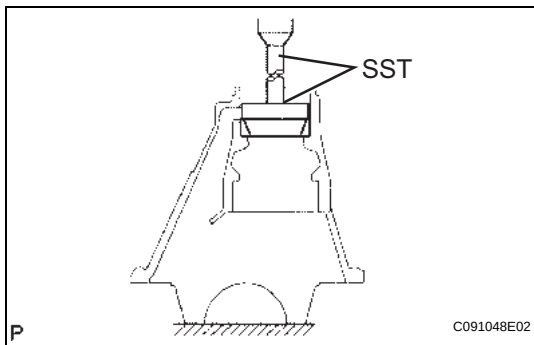
4. INSPECT DIFFERENTIAL RING GEAR RUNOUT

- (a) Install the differential case onto the carrier, and install the 2 adjusting nuts so that there is no play in the bearing.
 (b) Install the 2 bearing caps with the 4 bolts.
Torque: 85 N*m (870 kgf*cm, 63 ft.*lbf)
 (c) Using a dial indicator, measure the runout of the ring gear.
Maximum runout:
0.07 mm (0.0028 in.)
 (d) Remove the 2 bearing caps, 2 adjusting nuts and differential case.



5. INSTALL REAR DIFFERENTIAL DUST DEFLECTOR

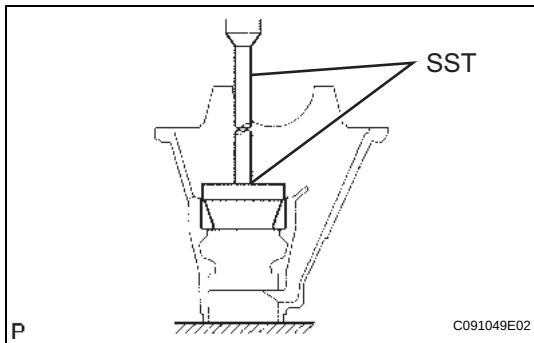
- (a) Using a press, install the dust deflector.
NOTICE:
Be careful not to damage the dust deflector.
SST 09636-20010



6. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- Using a brass bar and a hammer, install the oil storage ring.
- Using SST and a press, install the tapered roller bearing onto the carrier.

SST 09316-60011 (09316-00011, 09316-00021)

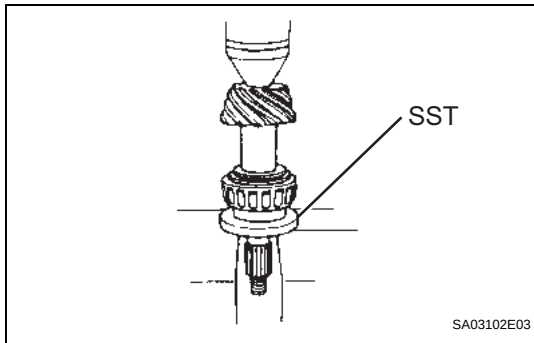


7. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- Using SST and a press, install the tapered roller bearing onto the carrier.

SST 09316-60011 (09316-00041, 09316-00011)

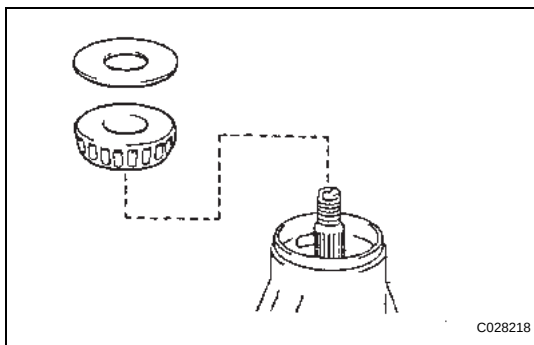
DF



8. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- Install the plate washer onto the drive pinion.
- Using SST and a press, install the tapered roller bearing onto the drive pinion.

SST 09506-30012

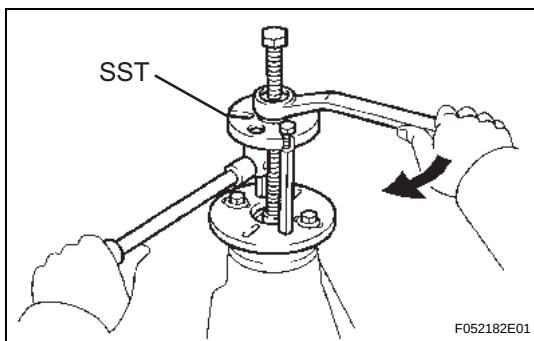


9. ADJUST DIFFERENTIAL DRIVE PINION PRELOAD

- Install the drive pinion, rear drive pinion tapered roller bearing and rear differential drive oil slinger.

HINT:

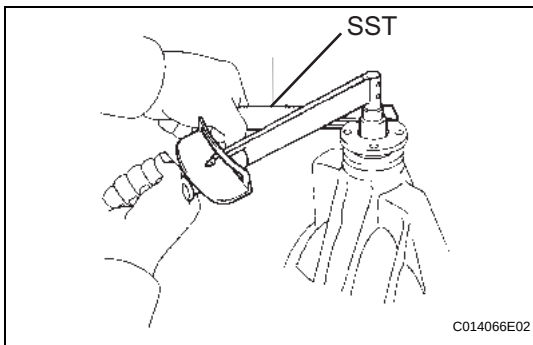
Assemble the spacer and oil seal after adjusting the gear contact pattern.



- Using SST, install the drive pinion companion flange.

- Coat the threads of the nut with hypoid gear oil LSD.

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



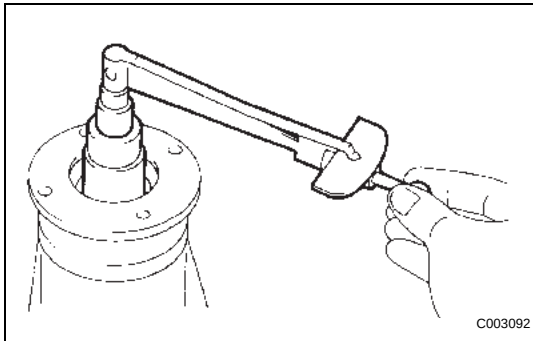
- (d) Using SST to hold the drive pinion companion flange, tighten the nut.

Torque: 370 N*m (3,770 kgf*cm, 273 ft.*lbf) or less

SST 09330-00021

NOTICE:

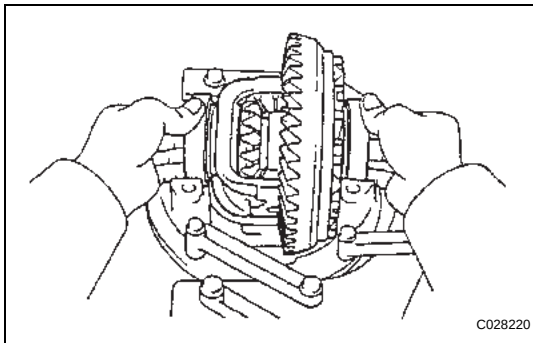
- As there is no spacer, tighten a little at a time, being careful not to overtighten it.
- Apply hypoid gear oil LSD to the nut.



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

Preload (at starting)

Bearing	Standard
New	1.05 to 1.64 N*m (10.7 to 16.7 kgf*cm, 9.3 to 14.5 in.*lbf)
Reused	0.56 to 0.85 N*m (5.7 to 8.7 kgf*cm, 4.9 to 7.5 in.*lbf)

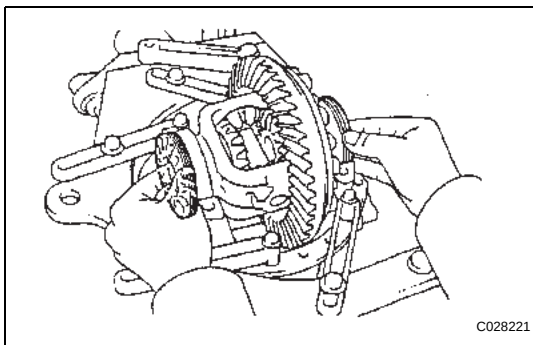


10. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Place the 2 bearing outer races on their corresponding bearings.

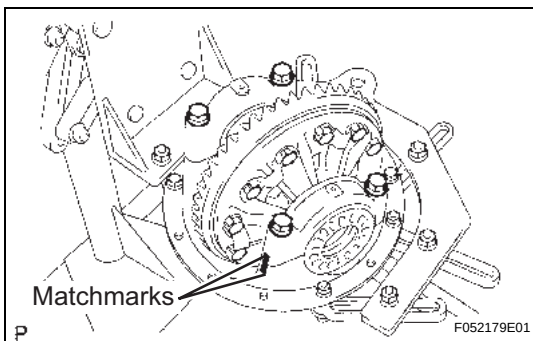
HINT:

Make sure the right and left races are not interchanged.



11. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT

- (a) Install the 2 adjusting nuts into the carrier, making sure the nuts are threaded properly.



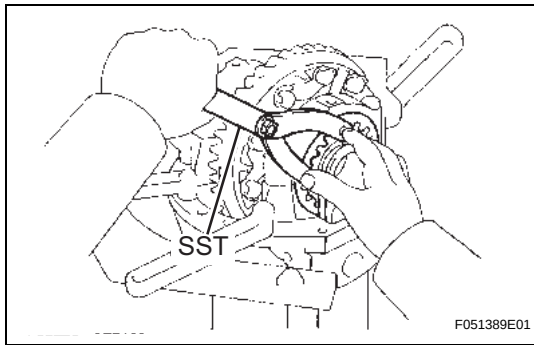
12. INSPECT AND ADJUST BACKLASH DIFFERENTIAL RING GEAR AND DIFFERENTIAL DRIVE PINION

- (a) Align the matchmarks on the cap and carrier.
 (b) Install the right and left bearing caps with the 4 bolts.

Torque: 85 N*m (870 kgf*cm, 63 ft.*lbf)

HINT:

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

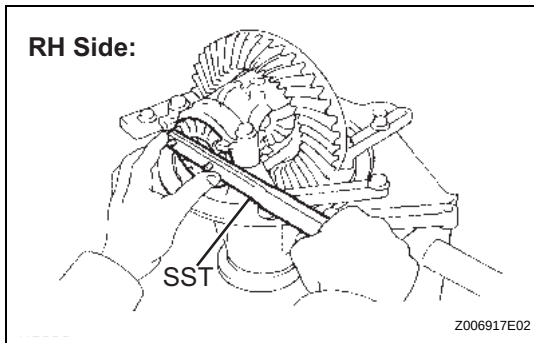


- (c) Tighten the 4 bearing cap bolts to the specified torque, then loosen them to the point where the adjusting nuts can be turned by SST.

Torque: 85 N*m (870 kgf*cm, 63 ft.*lbf)

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

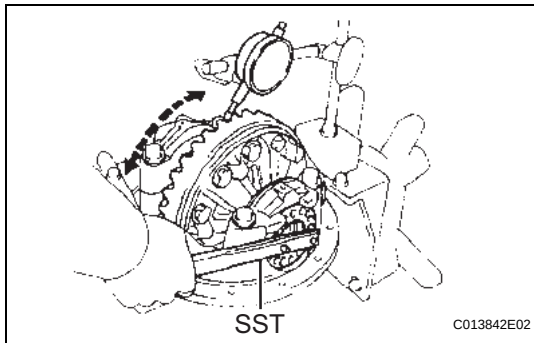
SST 09960-10010 (09962-01000, 09963-00700)



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

SST 09504-00011

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



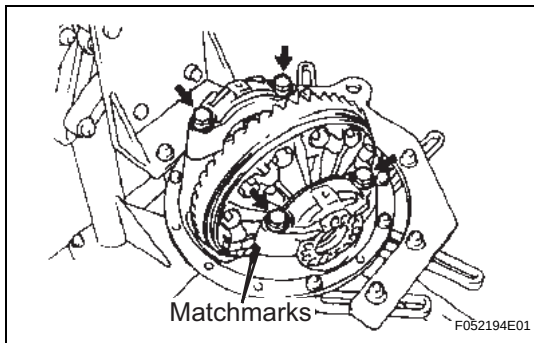
- (g) Using a dial indicator, adjust the ring gear backlash until it is within the specification.

Backlash:

0.13 to 0.18 mm (0.0051 to 0.0071 in.)

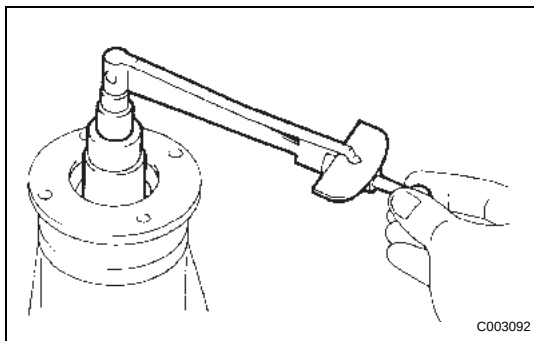
HINT:

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



- (h) Torque the bearing cap bolts.

Torque: 85 N*m (870 kgf*cm, 63 ft.*lbf)



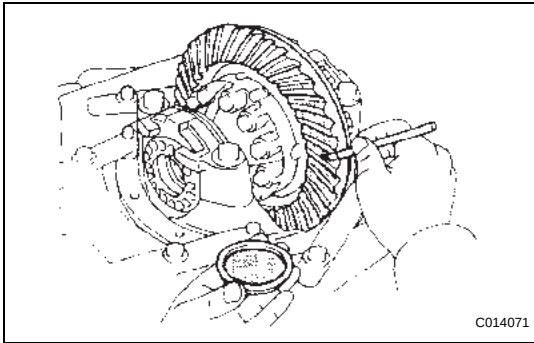
13. INSPECT TOTAL PRELOAD

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

Total preload (at starting):

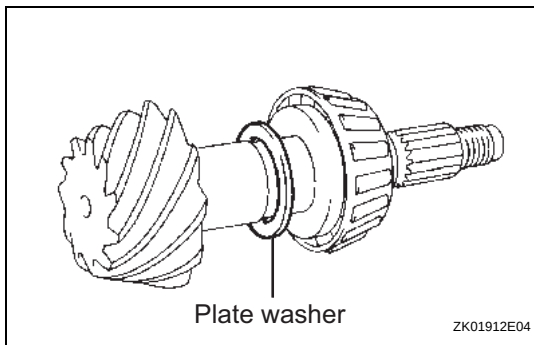
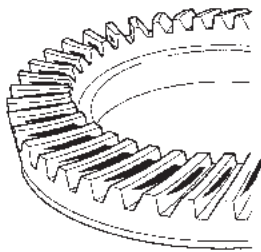
Drive pinion preload plus 0.39 to 0.59 N*m (4.0 to 6.0 kgf*cm, 3.5 to 5.2 in.*lbf)

If necessary, disassemble and inspect the differential.

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

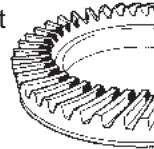
- (a) Coat 3 or 4 teeth at 3 different positions on the ring gear with red lead primer.
- (b) Hold the companion flange firmly and rotate the ring gear in both directions.

(c) Inspect the tooth contact pattern.

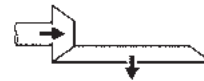
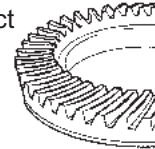
**Driver Side:**

Proper Contact

Toe Contact

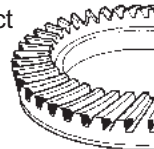


Face Contact

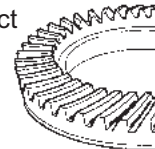


Select an adjusting washer that will bring the drive pinion closer to the ring gear.

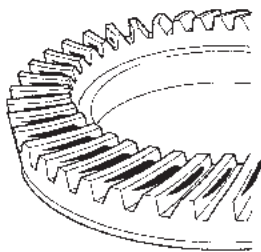
Heel Contact



Flank Contact

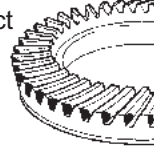


Select an adjusting washer that will shift the drive pinion away from the ring gear.

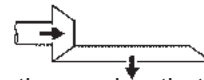
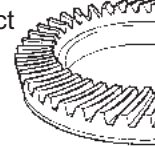
Coast Side:

Proper Contact

Heel Contact

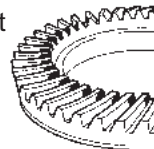


Face Contact

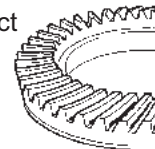


Select an adjusting washer that will shift the drive pinion closer to the ring gear.

Toe Contact



Flank Contact

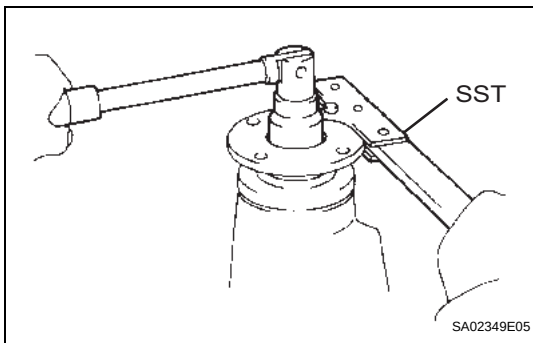


Select an adjusting washer that will bring the drive pinion away from the ring gear.

If the teeth are not engaged properly, use the following chart to select an appropriate washer for correction.

Plate Washer thickness

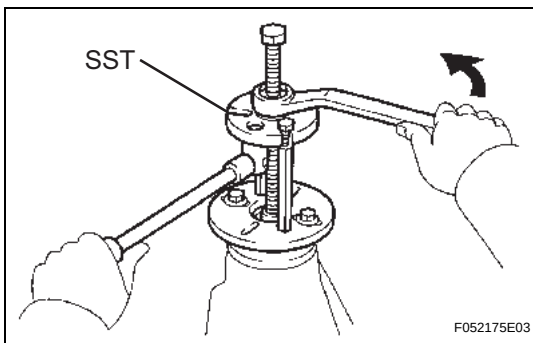
Thickness mm (in.)	Thickness mm (in.)
1.70 (0.0669)	2.03 (0.0799)
1.73 (0.0681)	2.06 (0.0811)
1.76 (0.0693)	2.09 (0.0823)
1.79 (0.0705)	2.12 (0.0835)
1.82 (0.0717)	2.15 (0.0847)
1.85 (0.0728)	2.18 (0.0853)
1.88 (0.0740)	2.21 (0.0870)
1.91 (0.0752)	2.24 (0.0882)
1.94 (0.0764)	2.27 (0.0894)
1.97 (0.0776)	2.30 (0.0906)
2.00 (0.0787)	2.33 (0.0917)



15. REMOVE REAR DRIVE PINION NUT

- (a) Using SST to hold the drive pinion companion flange, remove the nut.

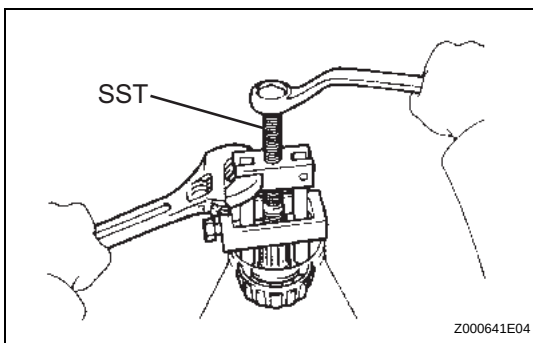
SST 09330-00021



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

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

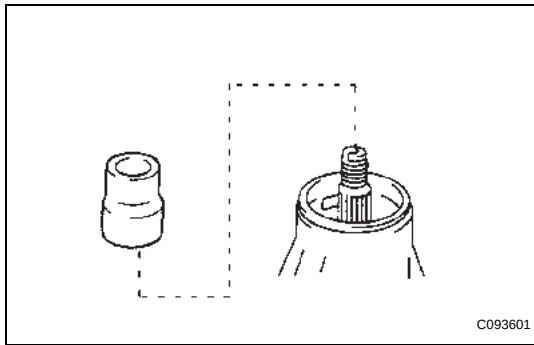
SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)



17. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

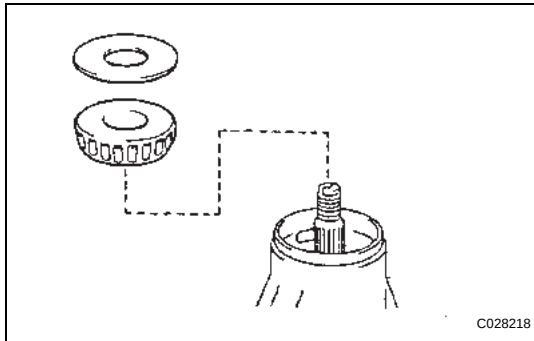
- (a) Using SST, remove the drive pinion tapered roller bearing from the drive pinion.

SST 09556-22010



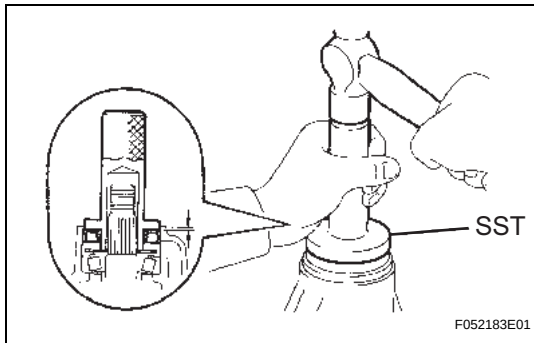
18. INSTALL REAR DIFFERENTIAL DRIVE PINION BEARING SPACER

- (a) Install a new bearing spacer onto the drive pinion.



19. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

- (a) Install the drive pinion, rear drive pinion taper roller bearing and rear differential drive oil slinger.



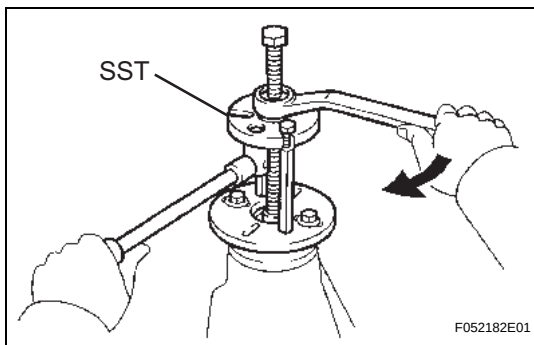
20. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL

- (a) Apply MP grease to the oil seal lip.
(b) Using SST and a hammer, install a new carrier oil seal.

SST 09554-30011

Oil seal drive in depth:

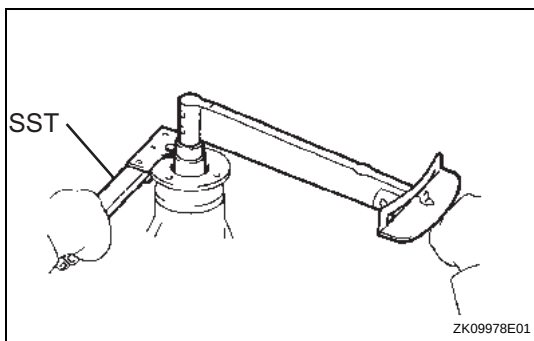
0.55 to 1.45 mm (0.021 to 0.057 in.)



21. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

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

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

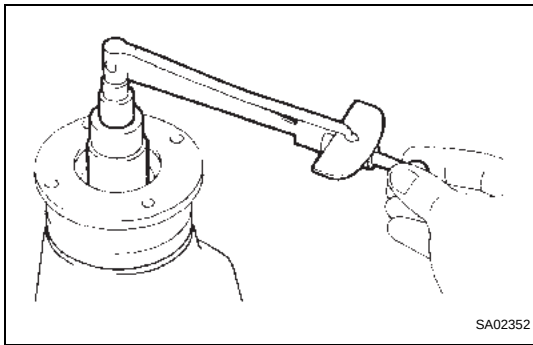


- (b) Coat the threads of a new nut with hypoid gear oil LSD.

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

Torque: 370 N*m (3,770 kgf*cm, 273 ft.*lbf) or less

SST 09330-00021

**22. INSPECT DRIVE PINION PRELOAD**

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

Preload (at starting)

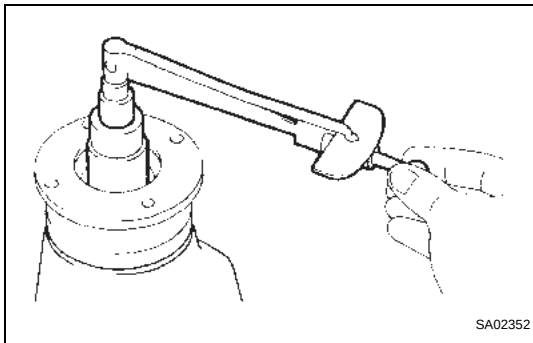
Bearing	Standard
New	1.05 to 1.64 N*m (10.7 to 16.7 kgf*cm, 9.3 to 14.5 in.*lbf)
Reused	0.56 to 0.85 N*m (5.7 to 8.7 kgf*cm, 4.9 to 7.5 in.*lbf)

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) of torque at a time until the specified preload is reached.

Torque: 370 N*m (3,770 kgf*cm, 27 ft.*lbf) or less

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

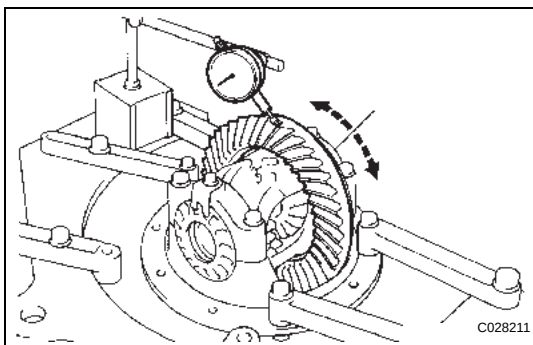
**23. INSPECT TOTAL PRELOAD**

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

Total preload (at starting):

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

If necessary, disassemble and inspect the differential.

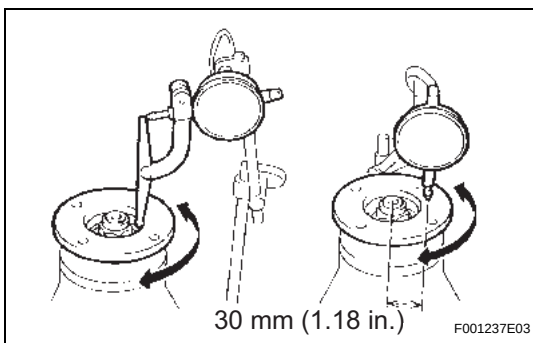
**24. INSPECT DIFFERENTIAL RING GEAR BACKLASH**

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

Backlash:

0.13 to 0.18 mm (0.0051 to 0.0071 in.)

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

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

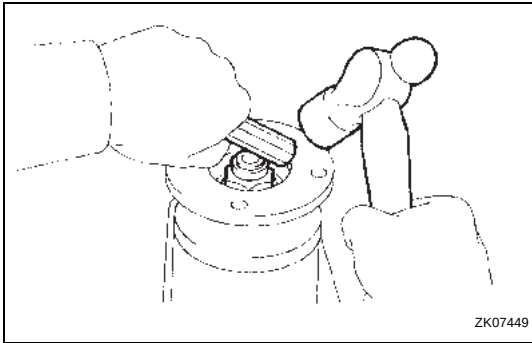
- (a) Using a dial indicator, measure the runout of the drive pinion companion flange vertically and horizontally.

Maximum runout:

Vertical runout: 0.10 mm (0.0039 in.)

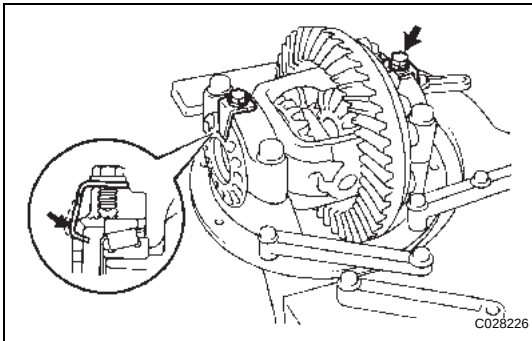
Lateral runout: 0.10 mm (0.0039 in.)

If the runouts are not within the specifications, replace the companion flange.



26. INSTALL REAR DRIVE PINION NUT

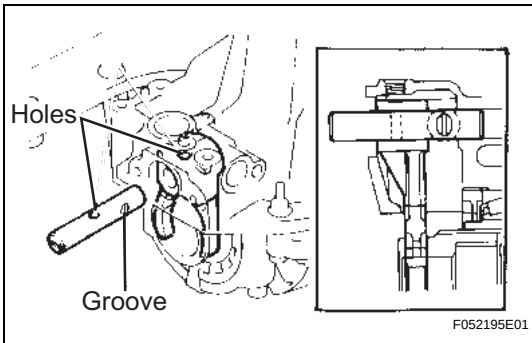
- (a) Using a chisel and hammer, stake the drive pinion nut.



27. INSTALL REAR DIFFERENTIAL BEARING ADJUSTING NUT LOCK

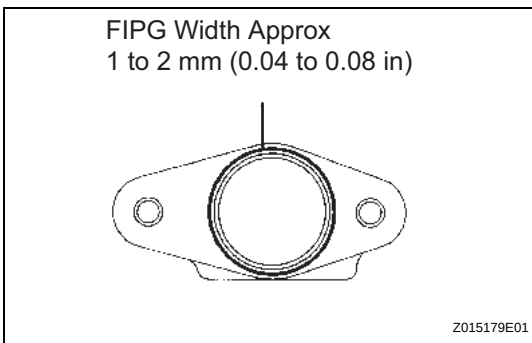
- (a) Install 2 new adjust locks onto the bearing caps.
Torque: 13 N*m (129 kgf*cm, 9 ft.*lbf)
- (b) After tightening the bolts, bend the nut locks.

DF



28. INSTALL REAR DIFFERENTIAL LOCK SHIFT FORK

- (a) Apply MP grease onto the outer circuit of the shaft.
- (b) Install the fork shaft to align the hole of the shift fork with that of the shift fork shaft.



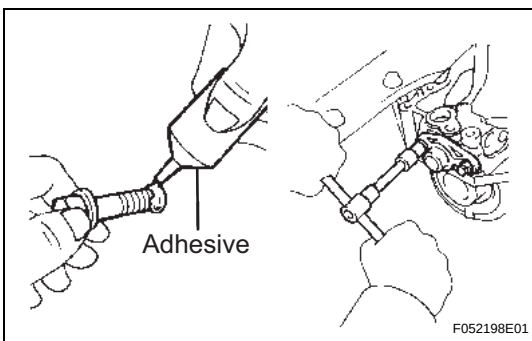
- (c) Remove any FIPG material and be careful not to drop the oil shaft retainer.
- (d) Apply FIPG to the carrier, as shown in the illustration.

FIPG:

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

HINT:

Install the shaft retainer within 10 minutes of applying FIPG.

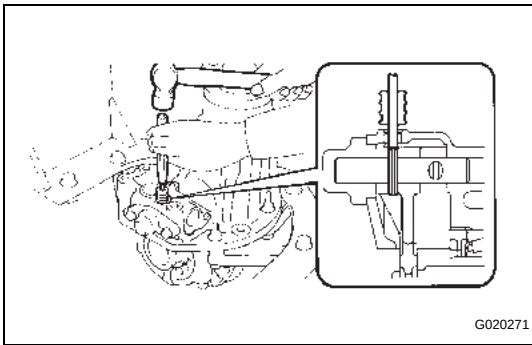


- (e) Clean the threads of the bolts and retainer bolts holes with toluene or trichorethylene.
- (f) Apply adhesive to 2 or 3 threads of each mount bolt end.

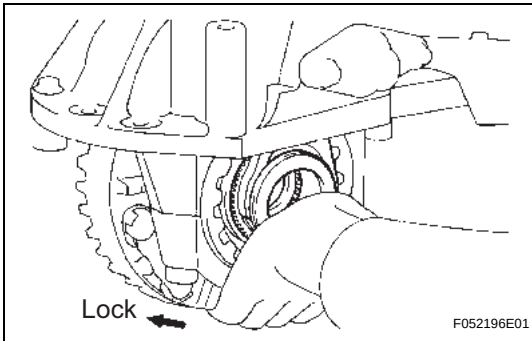
Adhesive:

Part No. 08833-00080, THREE BOND 1344, LOCTITE: 242 or equivalent

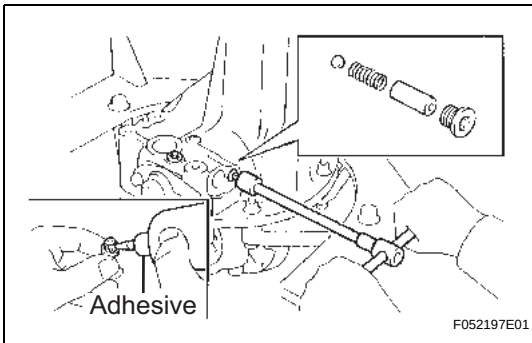
- (g) Tighten the shaft retainer with the 2 bolts.
Torque: 24 N*m (240 kgf*cm, 17 ft.*lbf)



- (h) Using a 5 mm pin punch and hammer, install the slotted spring pin onto the shift fork.
Torque: 22 N*m (220 kgf*cm, 16 ft.*lbf)



- (i) Push the differential lock sleeve in deeply and hold it in position.

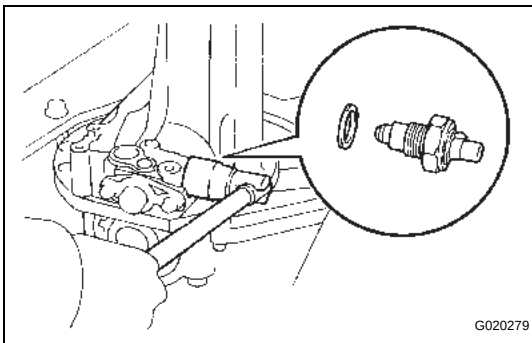


- (j) Install the ball, spring and spring seat.
 (k) Clean the threads of 2 plugs and plug holes with toluene or trichlorethylene.

Adhesive:

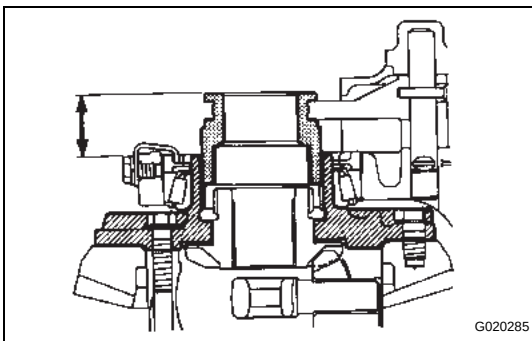
Part No. 08833-00080, THREE BOND 1344, LOCTITE: 242 or equivalent

- (l) Using a 6 mm hexagon wrench, install and tighten the screw plugs.



29. INSTALL NO.1 TRANSFER INDICATOR SWITCH

- (a) Install the indicator switch with a new gasket.
Torque: 40 N*m (410 kgf*cm, 30 ft.*lbf)



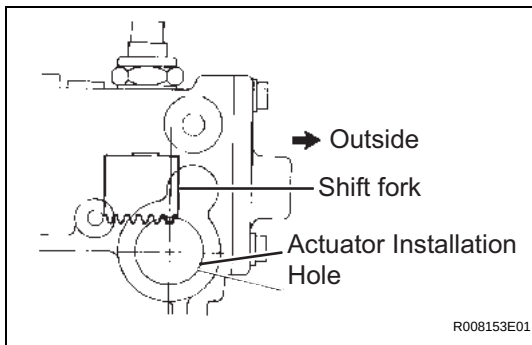
30. INSPECT REAR DIFFERENTIAL LOCK SLEEVE

- (a) Measure the distance between the sleeve and tip of the differential case when the differential is FREE and LOCKED respectively.

Standard distance:

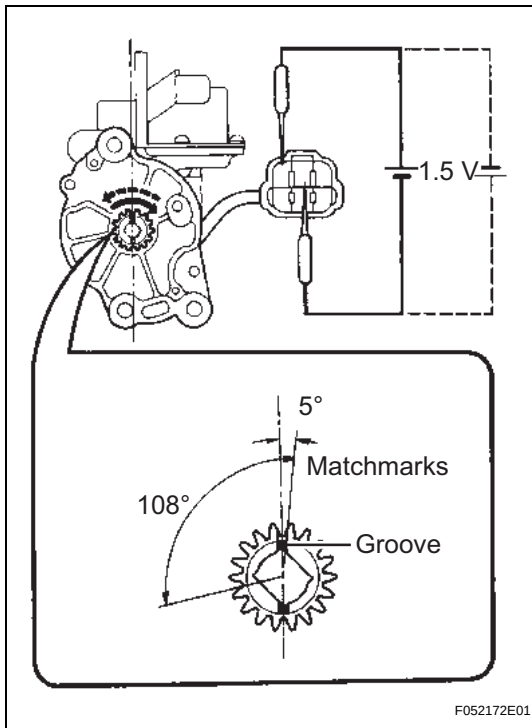
LOCKED: 17.44 to 18.86 mm (0.6866 to 0.7425 in.)

FREE: 32.40 to 33.90 mm (1.2756 to 1.3346 in.)



31. INSTALL DIFFERENTIAL LOCK SHIFT ACTUATOR

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

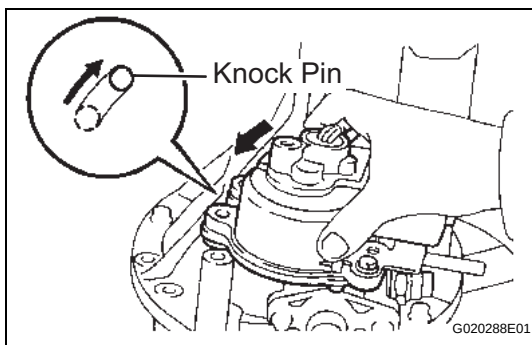


- (b) Ensure that the matchmarks on the pinion of the actuator are in the range between 0 and 5 degrees clockwise above the center line of the actuator.

NOTICE:

- If the matchmarks are not within this range, rotate the pinion.
- Don't supply the battery positive voltage directly between terminals.
- If the matchmarks come to the limit of rotation, don't apply the electric current.

- (c) Install a new O-ring onto the actuator.
 (d) Apply a light coat of gear oil to the O-ring.
 (e) Apply MP grease to the gear part.



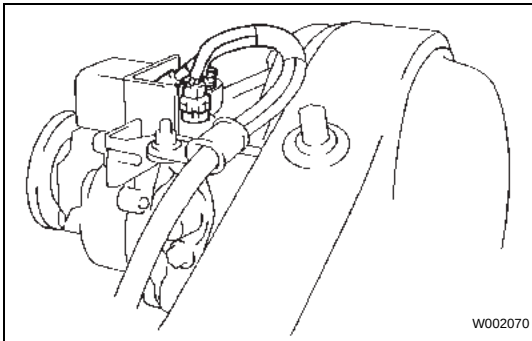
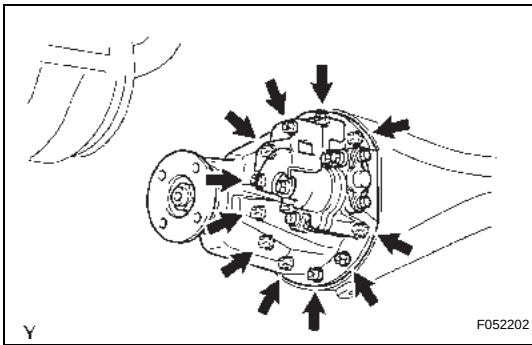
- (f) Ensure that the outermost rack tooth of the shift fork fits the matchmarks on the pinion of the actuator.
 (g) Install the actuator so that the long hole on the actuator side fits into the knock pin on the carrier side.

HINT:

Don't damage the O-ring of the actuator.

- (h) Align the actuator with the long hole and rotate the actuator counterclockwise when the knock pin is set to the right-hand side.
 (i) Install and tighten the bolts.

Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)



INSTALLATION

1. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

- Remove any dust and oil from the differential carrier assembly and the contact surface of the axle housing.
- Install the new rear differential carrier gasket and the differential carrier assembly with the 11 nuts and washers.
- Connect the differential lock actuator connector.
- Connect the rear differential lock actuator breather hose to the differential actuator assembly.

2. INSTALL REAR AXLE SHAFT WITH BACKING PLATE LH (See page [AH-33](#))

3. INSTALL REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Install the RH side by following the same procedures as the LH side.

4. INSTALL NO.3 PARKING BRAKE CABLE ASSEMBLY (See page [PB-22](#))

5. INSTALL NO.2 PARKING BRAKE CABLE ASSEMBLY

HINT:

Install the RH side by following the same procedures as the LH side.

6. INSTALL REAR SPEED SENSOR LH (See page [BC-304](#))

7. INSTALL REAR SPEED SENSOR RH

HINT:

Install the RH side by following the same procedures as the LH side.

8. INSTALL PROPELLER SHAFT ASSEMBLY (for 2WD Drive Type, Regular Cab) (See page [PR-6](#))

9. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD Drive Type, Except Regular Cab) (See page [PR-13](#))

10. INSTALL PROPELLER SHAFT ASSEMBLY (for 4WD Drive Type, Regular Cab) (See page [PR-19](#))

11. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD Drive Type, Except Regular Cab) (See page [PR-32](#))

12. INSTALL REAR BRAKE SHOE (See page [BR-71](#))

13. INSTALL FRONT BRAKE SHOE (See page [BR-72](#))

14. CHECK REAR BRAKE DRUM INSTALLATION (See page [BR-73](#))

15. INSTALL REAR BRAKE DRUM SUB-ASSEMBLY (See page [BR-73](#))
16. ADJUST REAR DRUM BRAKE SHOE CLEARANCE (See page [BR-74](#))
17. FILL RESERVOIR WITH BRAKE FLUID (w/ VSC) (See page [BR-4](#))
18. FILL RESERVOIR WITH BRAKE FLUID (w/o VSC) (See page [BR-7](#))
19. BLEED MASTER CYLINDER (w/o VSC) (See page [BR-7](#))
20. BLEED BRAKE LINE (w/ VSC) (See page [BR-4](#))
21. BLEED BRAKE LINE (w/o VSC) (See page [BR-7](#))
22. CHECK FLUID LEVEL IN RESERVOIR (w/ VSC) (See page [BR-6](#))
23. CHECK FLUID LEVEL IN RESERVOIR (w/o VSC) (See page [BR-8](#))
24. CHECK FOR BRAKE FLUID LEAKAGE
25. ADD DIFFERENTIAL OIL (See page [DF-8](#))
26. INSPECT DIFFERENTIAL OIL (See page [DF-8](#))
27. INSPECT FOR DIFFERENTIAL OIL LEAKAGE
28. INSTALL REAR WHEEL
Torque: 113 N*m (1,152 kgf*cm, 83 in.*lbf)
29. INSPECT PARKING BRAKE PEDAL TRAVEL (for Automatic Transaxle) (See page [PB-1](#))
30. INSPECT PARKING BRAKE LEVER TRAVEL (for Manual Transaxle) (See page [PB-1](#))
31. ADJUST PARKING BRAKE PEDAL TRAVEL (for Automatic Transaxle) (See page [PB-2](#))
32. ADJUST PARKING BRAKE LEVER TRAVEL (for Manual Transaxle) (See page [PB-2](#))
33. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)
34. CHECK VSC SENSOR SIGNAL (w/ VSC)
HINT:
(See page [BC-103](#))
35. CHECK ABS SENSOR SIGNAL (w/o VSC)
HINT:
(See page [BC-7](#))

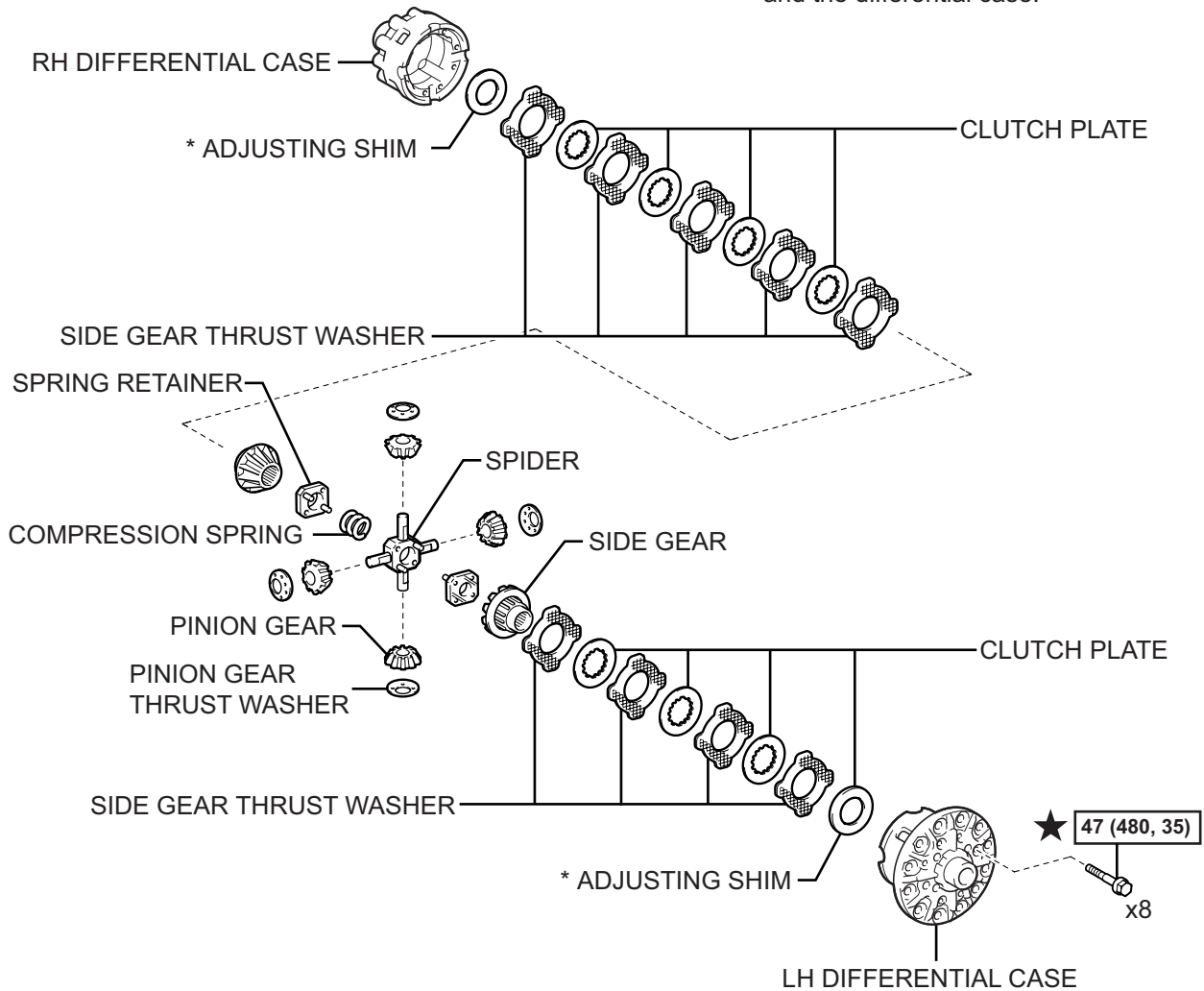


← Apply MP grease



← Apply MP grease

*: If the side gear backlash has been adjusted by a TOYOTA dealer, adjusting shims are installed between the side gear thrust washer and the differential case.

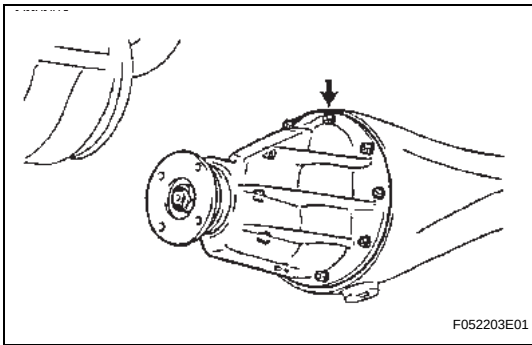


[N*m (kgf*cm, ft.*lbf)] : Specified torque

★ Precoated part

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE REAR WHEEL
3. DRAIN BRAKE FLUID
4. REMOVE REAR BRAKE DRUM SUB-ASSEMBLY (See page [BR-68](#))
5. REMOVE FRONT BRAKE SHOE (See page [BR-68](#))
6. REMOVE REAR BRAKE SHOE (See page [BR-69](#))
7. REMOVE PROPELLER SHAFT ASSEMBLY (for 2WD Driver Type, Regular Cab) (See page [PR-3](#))
8. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD Drive Type, Except Regular Cab) (See page [PR-8](#))
9. REMOVE PROPELLER SHAFT ASSEMBLY (for 4WD Drive Type, Regular Cab) (See page [PR-22](#))
10. REMOVE PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD Drive Type, Except Regular Cab) (See page [PR-27](#))
11. DRAIN DIFFERENTIAL OIL (See page [DF-8](#))
12. SEPARATE REAR SPEED SENSOR LH (See page [BC-304](#))
13. SEPARATE REAR SPEED SENSOR RH
HINT:
Use the same procedure as for the LH side.
14. SEPARATE NO.3 PARKING BRAKE CABLE ASSEMBLY (See page [PB-21](#))
15. SEPARATE NO.2 PARKING BRAKE CABLE ASSEMBLY
HINT:
Use the same procedure as for the LH side.
16. REMOVE REAR AXLE SHAFT WITH BACKING PLATE (See page [AH-29](#))
17. REMOVE REAR AXLE SHAFT WITH BACKING PLATE
HINT:
Use the same procedure as for the LH side.



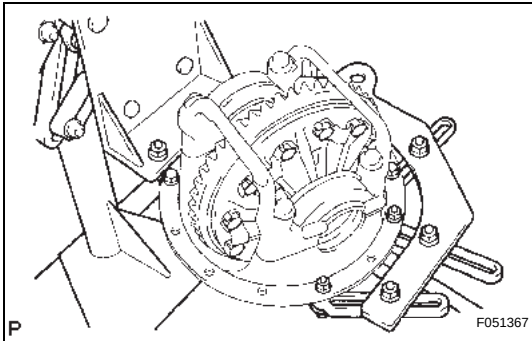
18. REMOVE REAR DIFFERENTIAL CARRIER ASSEMBLY

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

NOTICE:

Be careful not to damage the removal surface.

- (b) Remove the rear differential carrier gasket from the differential carrier assembly.

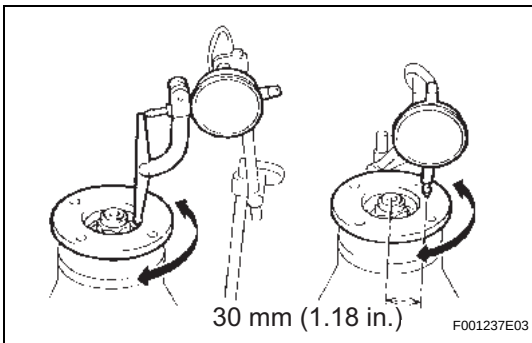


DISASSEMBLY

1. FIX REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Fix the rear differential carrier to the overattachment.

DF



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

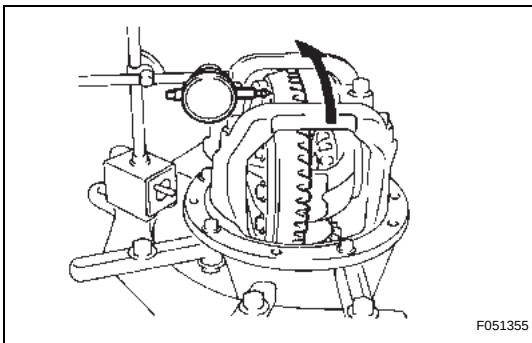
- (a) Using a dial indicator, measure the vertical and horizontal runout of the companion flange.

Maximum runout:

Vertical runout: 0.10 mm (0.0039 in.)

Lateral runout: 0.10 mm (0.0039 in.)

If the runouts are not within the specifications, replace the companion flange.



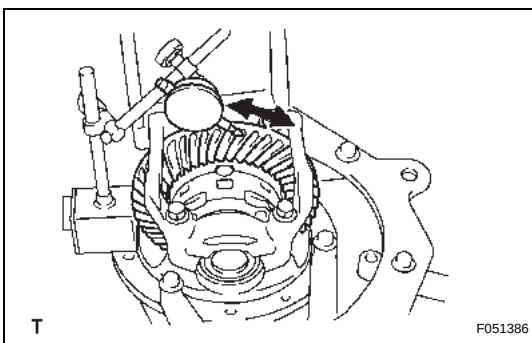
3. INSPECT RUNOUT OF DIFFERENTIAL RING GEAR

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

Maximum runout:

0.05 mm (0.0020 in.)

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



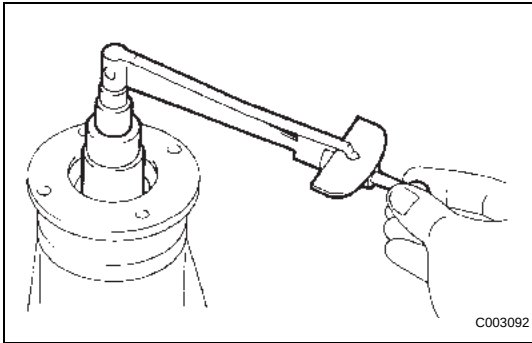
4. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

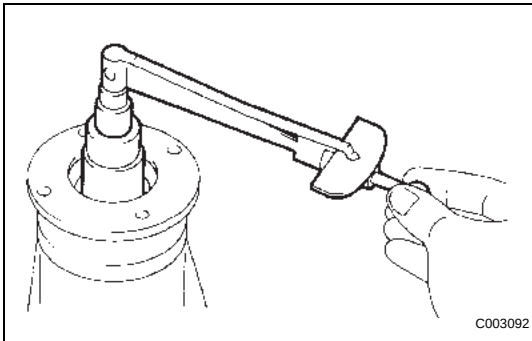
Backlash:

0.13 to 0.18 mm (0.0051 to 0.0071 in.)

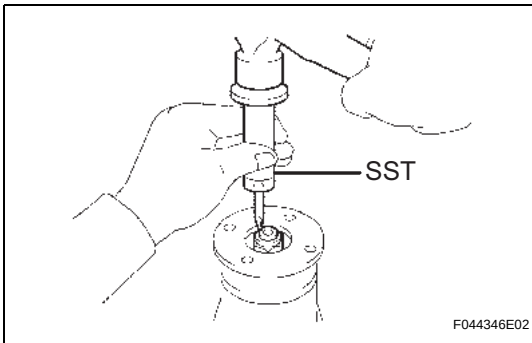
If the backlash is not within the specification, adjust or repair the side bearing preload as necessary.



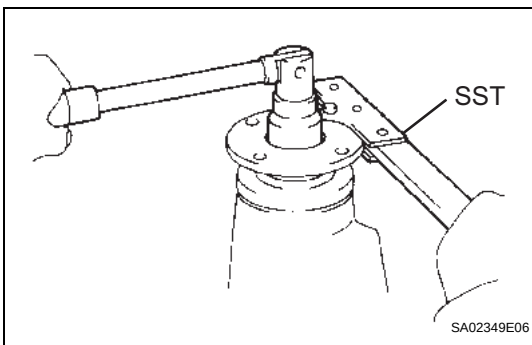
- 5. INSPECT DIFFERENTIAL DRIVE PINION PRELOAD**
- (a) Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.
- Preload (at starting):**
 0.78 to 1.05 N*m (8.0 to 11 kgf*cm, 6.9 to 9.3 in.*lbf)



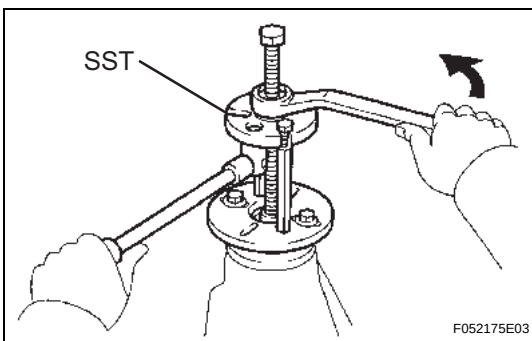
- 6. INSPECT TOTAL PRELOAD**
- (a) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.
- (b) Using a torque wrench, measure the total preload.
- Total preload (at starting):**
 Drive pinion preload plus 0.39 to 0.59 N*m (4.0 to 6.0 kgf*cm, 3.5 to 5.2 in.*lbf)
- If necessary, disassemble and inspect the differential.



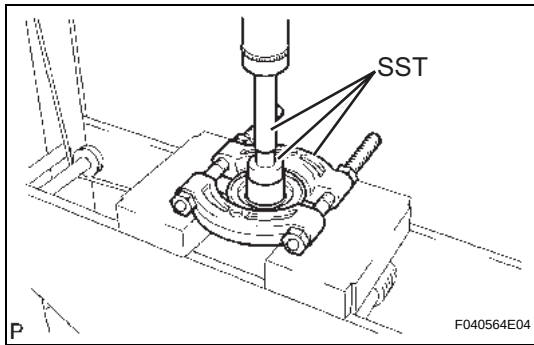
- 7. REMOVE REAR DRIVE PINION NUT**
- (a) Using SST and a hammer, loosen the staked part of the nut.
- SST 09930-00010**



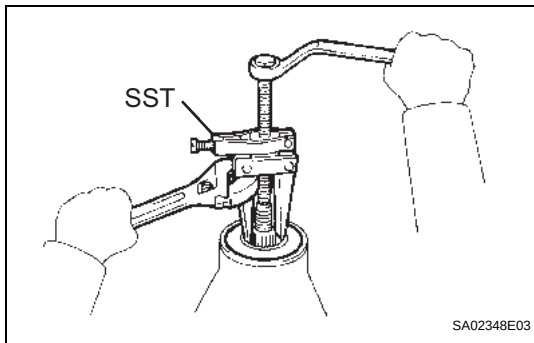
- (b) Using SST to hold the drive pinion companion flange, remove the nut.
- SST 09330-00021**



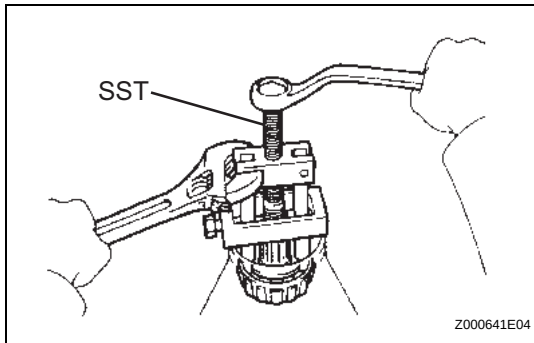
- 8. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR**
- (a) Using SST, remove the drive pinion companion flange.
- SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)**

**9. REMOVE REAR DIFFERENTIAL DUST DEFLECTOR**

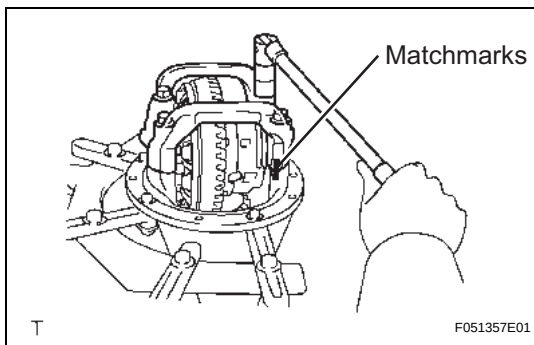
- (a) Using SST and a press, remove the dust deflector.
SST 09950-60010 (09951-00380), 09950-70010 (09951-07150), 09950-00020

**10. REMOVE REAR DIFFERENTIAL CARRIER OIL SEAL**

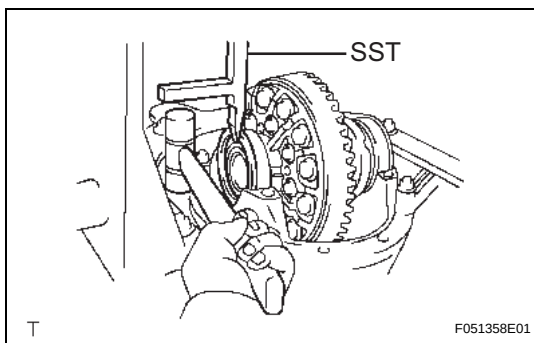
- (a) Using SST, remove the oil seal from the differential carrier.
SST 09308-10010

**11. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

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

**12. REMOVE DIFFERENTIAL CASE ASSEMBLY**

- (a) Place matchmarks on the bearing cap and differential carrier.
 (b) Remove the 4 bolts and bearing cap.



- (c) Using SST and a plastic hammer, remove the 2 side bearing plate washers.

HINT:

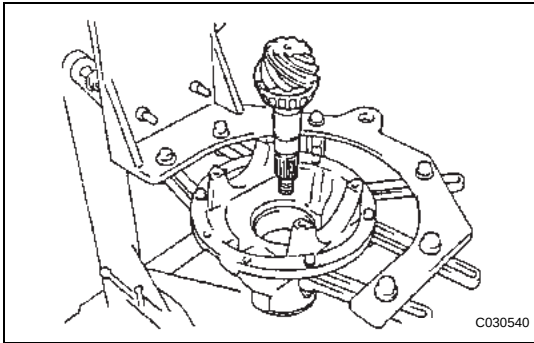
Measure the plate washer thickness and note it down.

SST 09504-22011

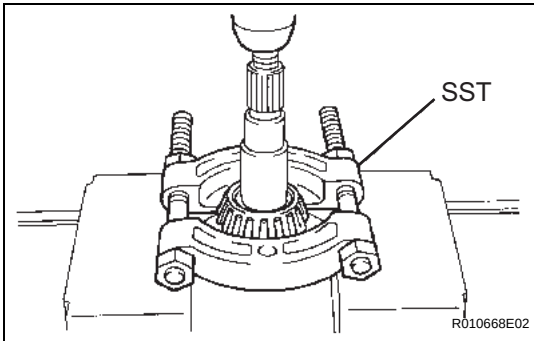
- (d) Remove the differential case with the bearing outer races from the carrier.

HINT:

Tag the disassembled parts to show the locations for reassembly.

**13. REMOVE DIFFERENTIAL DRIVE PINION**

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

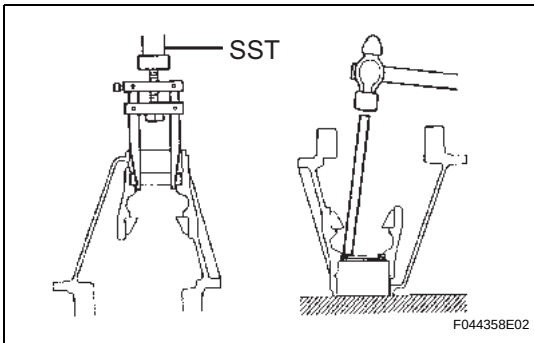
**14. REMOVE REAR DRIVE PINION REAR TAPERED ROLLER BEARING**

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

SST 09950-00020

HINT:

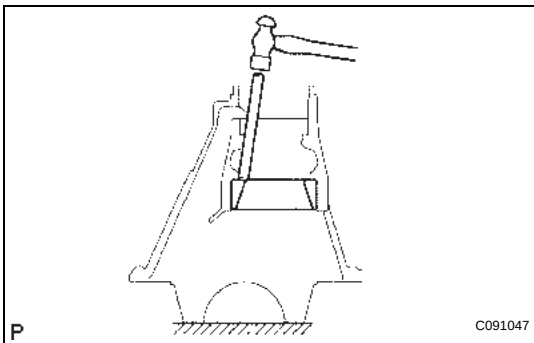
If either the drive pinion or ring gear are damaged, replace them as a set.

15. REMOVE REAR DIFFERENTIAL DRIVE PINION PLATE WASHER**16. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

- (a) Using SST, remove the front tapered roller bearing from the carrier.

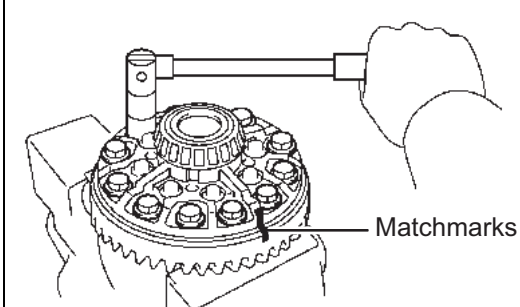
SST 09308-00010

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

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

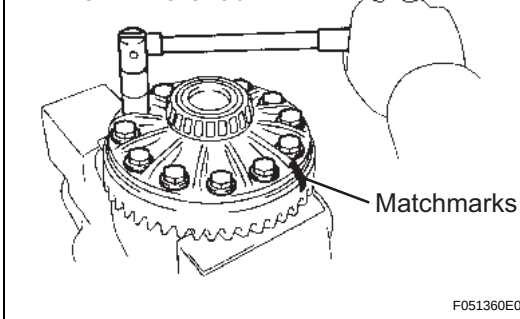
- (a) Using a brass bar and a hammer, remove the rear tapered roller bearing from the carrier.

LSD:



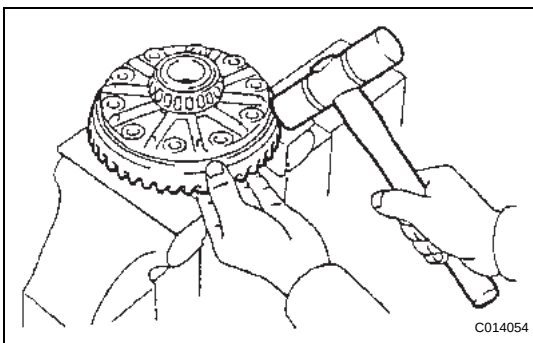
T

2 Pinion Differential:

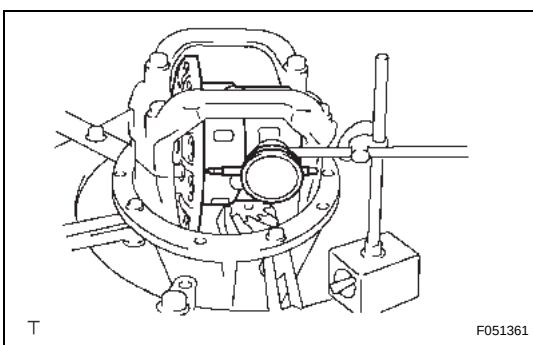


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DF



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T

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18. REMOVE DIFFERENTIAL RING GEAR

- (a) Place matchmarks on the ring gear and differential case.
- (b) Remove the 12 ring gear set bolts.

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

19. INSPECT DIFFERENTIAL CASE ASSEMBLY RUNOUT

- (a) Install the rear differential case bearing onto the differential case.
- (b) Install the differential case onto the differential carrier.
- (c) Using a dial indicator, measure the differential case runout.

Maximum case runout:**0.05 mm (0.0020 in.)**

- (d) Remove the differential case.

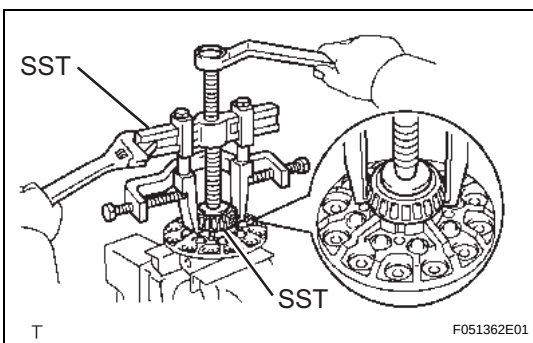
20. REMOVE REAR DIFFERENTIAL CASE BEARING

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

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

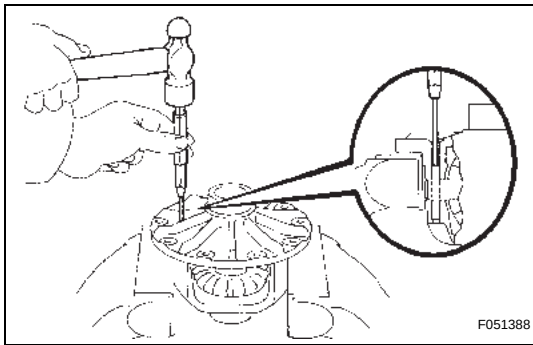
HINT:

Fix the claws of SST into the notch in the differential case.



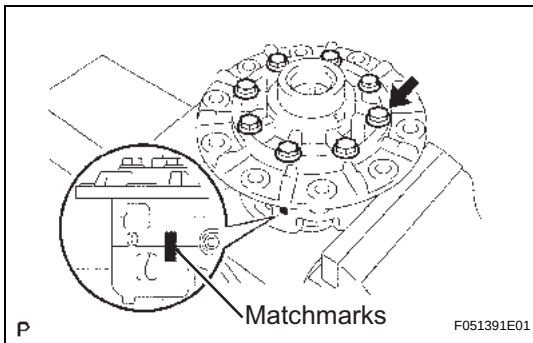
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F051362E01



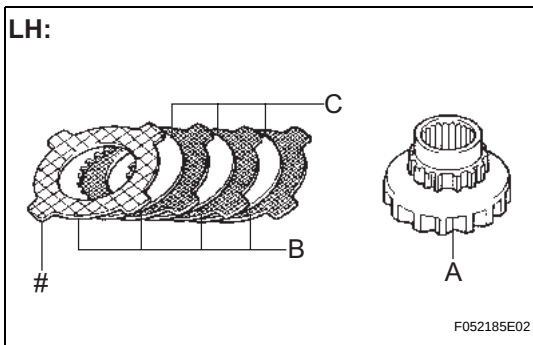
21. DISASSEMBLE DIFFERENTIAL CASE (2 PINION DIFFERENTIAL)

- Using a pin punch and hammer, remove the straight pin.
- Remove the pinion shaft, 2 pinion gears, pinion gear thrust washers, side gears and side gear thrust washers from the differential case.



22. DISASSEMBLE DIFFERENTIAL CASE (W/ LSD DIFFERENTIAL)

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

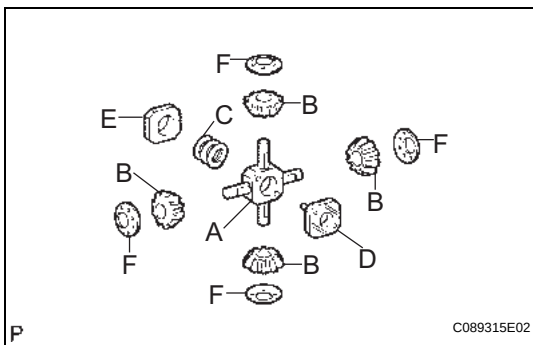


- Remove these parts from the LH case.

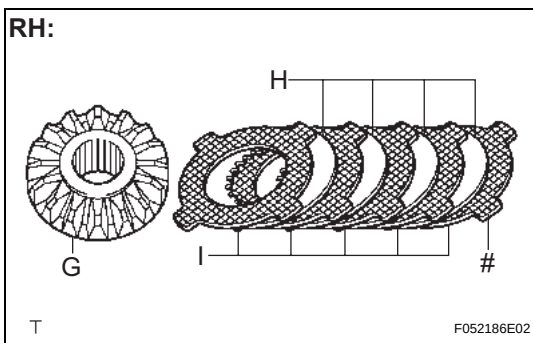
A	side gear
B	side gear thrust washer
C	clutch plates

HINT:

- Keep the disassembled parts in order.
- Face the rough side of the thrust washer marked by # to the differential case.



- Remove these parts from the RH case.



A	Spider
B	Differential pinion gear
C	Compression spring
D	Spring LH retainer
E	Spring RH retainer
F	Pinion gear thrust washer
G	Side gear
H	side gear thrust washer
I	clutch plate

DF

HINT:

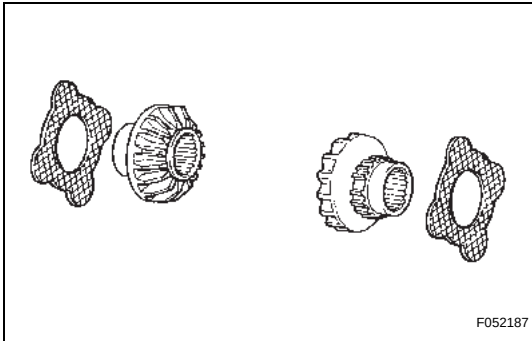
Face the rough side of the thrust washer marked by # to the differential case.

INSPECTION**1. DIFFERENTIAL SIDE GEAR (w/ LSD Differential)**

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

If the side gear is damaged or worn, replace the side gear.

If replacing the side gear, also replace the thrust washer that contacts with it.



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2. INSPECT REAR DIFFERENTIAL SIDE GEAR THRUST NO.1 WASHER (w/ LSD Differential)

- (a) Using a micrometer, confirm that the contact surface of the thrust washer is even and check that no bare metal is showing.

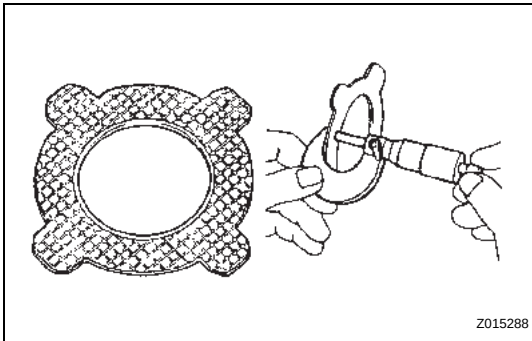
Standard thickness:

1.77 to 1.86 mm (0.0697 to 0.0732 in.)

If necessary, replace the thrust washers.

HINT:

When replacing the thrust washer, also replace the clutch plate that comes into contact with it.



Z015288

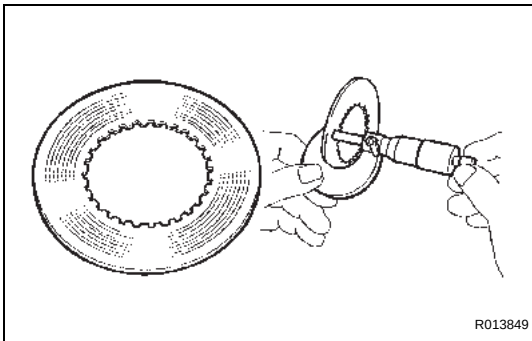
3. INSPECT CLUTCH PLATE (w/ LSD Differential)

- (a) Using a micrometer, measure the contact surface of the clutch plate and check that there is no abnormal wear.

Standard thickness:

1.57 to 1.63 mm (0.0618 to 0.0642 in.)

If necessary, replace the clutch plate.



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4. INSPECT REAR DIFFERENTIAL LOCK RETAINER COMPRESSION SPRING (w/ LSD Differential)

- (a) Using a vernier calipers, measure the free length of the spring.

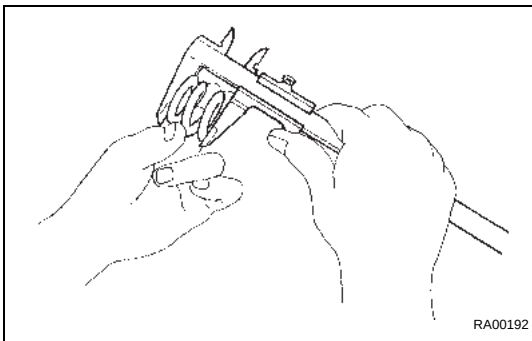
Free length:

26.35 mm (1.037 in.)

5. INSPECT DIFFERENTIAL PINION AND SIDE GEAR

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

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



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6. INSPECT DIFFERENTIAL CASE

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

If the differential case is damaged, replace it.

HINT:

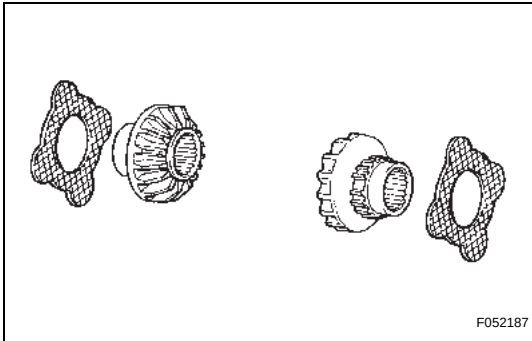
Face the rough side of the thrust washer marked by # to the differential case.

INSPECTION**1. DIFFERENTIAL SIDE GEAR (w/ LSD Differential)**

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

If the side gear is damaged or worn, replace the side gear.

If replacing the side gear, also replace the thrust washer that contacts with it.

**2. INSPECT REAR DIFFERENTIAL SIDE GEAR THRUST NO.1 WASHER (w/ LSD Differential)**

- (a) Using a micrometer, confirm that the contact surface of the thrust washer is even and check that no bare metal is showing.

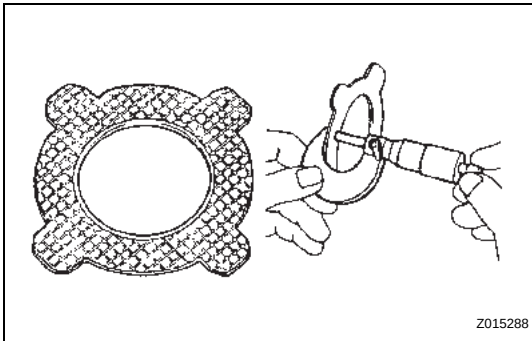
Standard thickness:

1.77 to 1.86 mm (0.0697 to 0.0732 in.)

If necessary, replace the thrust washers.

HINT:

When replacing the thrust washer, also replace the clutch plate that comes into contact with it.

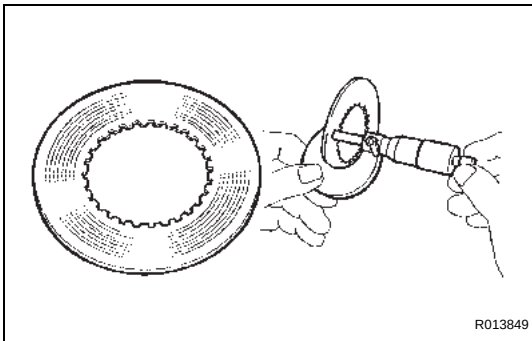
**3. INSPECT CLUTCH PLATE (w/ LSD Differential)**

- (a) Using a micrometer, measure the contact surface of the clutch plate and check that there is no abnormal wear.

Standard thickness:

1.57 to 1.63 mm (0.0618 to 0.0642 in.)

If necessary, replace the clutch plate.

**4. INSPECT REAR DIFFERENTIAL LOCK RETAINER COMPRESSION SPRING (w/ LSD Differential)**

- (a) Using a vernier calipers, measure the free length of the spring.

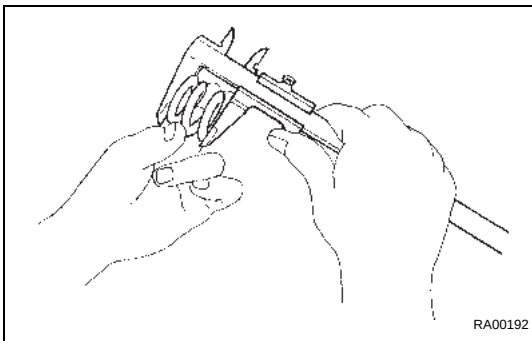
Free length:

26.35 mm (1.037 in.)

5. INSPECT DIFFERENTIAL PINION AND SIDE GEAR

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

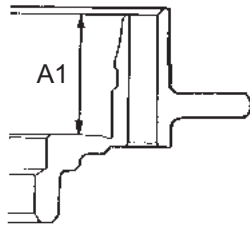
If the differential pinion and/or differential side gear is damaged, replace the differential.

**6. INSPECT DIFFERENTIAL CASE**

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

If the differential case is damaged, replace it.

LH Case:



F052188E01

REASSEMBLY

1. INSTALL DIFFERENTIAL CASE ASSEMBLY (w/ LSD Differential)

(a) LH side:

- (1) Measure dimension A1 of the differential case, as shown in the illustration.
- (2) Install the thrust washers with their fine side facing to the side gear, and clutch plates onto the side gear.

HINT:

Install the new thrust washer (Mark N) instead of the thrust washers (Mark A - M) onto the differential case side.

- (3) Using SST to press down the thrust washers and clutch plates with pressure of about 10 kgf (22 lbf), measure dimension B1 as shown in the illustration.

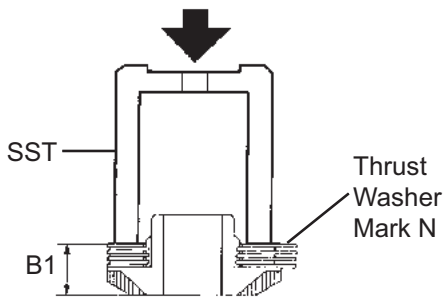
SST 09649-17010

- (4) Refer to the following table and select the proper adjusting shim(s).

Adjusting shim thickness:

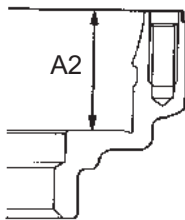
A1 - B1 - 16.175 mm (0.63681 in.)

DF



F052189E01

RH Case:



F052190E01

(b) RH side:

- (1) Measure the differential case dimension A2, as shown in the illustration.
- (2) Install the thrust washers with their fine side facing to the side gear, and clutch plates on the side gear.

HINT:

Install the new thrust washer (Mark N) instead of the thrust washers (Mark A - M) onto the differential case side.

- (3) Using SST to press down the thrust washers and clutch plates with pressure of about 10 kgf (22 lbf), measure dimension B1 as shown in the illustration.

SST 09649-17010

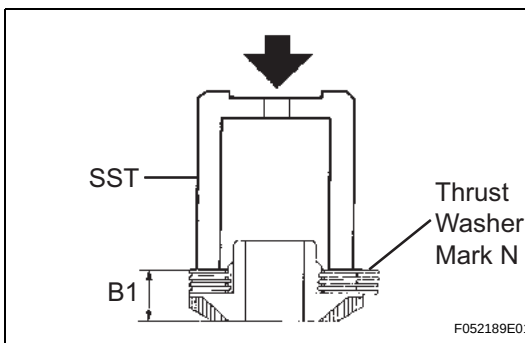
- (4) Refer to the following table and select the proper adjusting shim(s).

Adjusting shim thickness:

A2 - B2 - 16.175 mm (0.63681 in.)

Adjust washer thickness

Thrust Washer Mark	Thickness mm (in.)
A	0.13 to 0.17 (0.0051 to 0.0067)
B	0.18 to 0.22 (0.0071 to 0.0087)
C	0.23 to 0.27 (0.0091 to 0.0106)
D	0.28 to 0.32 (0.0110 to 0.0126)
E	0.33 to 0.37 (0.0130 to 0.0146)



F052189E01

LH Side

A1mm \ B1mm	41.48	41.50	41.52	41.54	41.56	41.58	41.60	41.62	41.64	41.66	41.68	41.70	41.72
24.66													
24.68											C+C+E		
24.70													
24.72											C+C+D		
24.74													
24.76											C+C+C		
24.78													
24.80											E+E		
24.82											D+E		
24.84													
24.86								D+D					
24.88													
24.90								C+D					
24.92													
24.94								C+C					
24.96													
24.98						B+C							
25.00					B+B								
25.02													
25.04					E								
25.06													
25.08					D								
25.10													
25.12				C									
25.14			B										
25.16													
25.18		A											
25.20													
25.22	#												
25.24													

Reassemble another type shim or check the backlash after assembling A shim.

HINT:

Three or two adjusting shims can be used together if the total of their thickness meets the one of the above combinations, even if the combination does not exist in the above table.

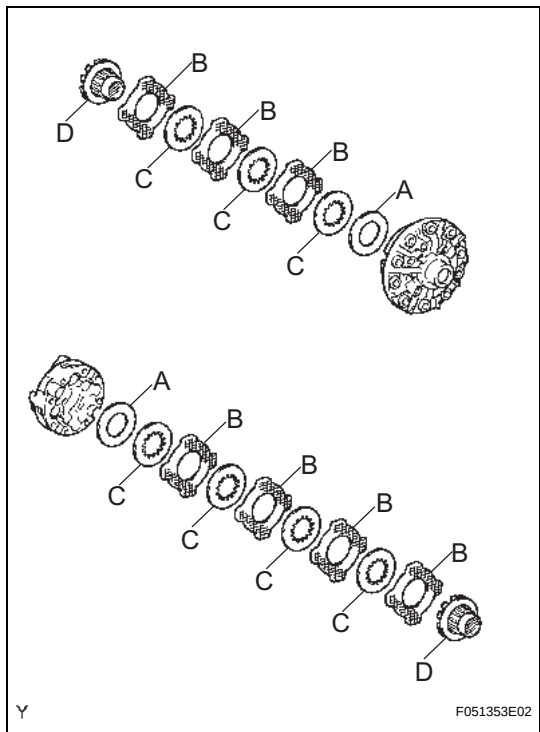
RH Side

A2mm B2mm	44.88	44.90	44.92	44.94	44.96	44.98	45.00	45.02	45.04	45.06	45.08	45.10	45.12
28.00											D+D+D		
28.02													
28.04													
28.06											C+C+E		
28.08													
28.10										C+C+D			
28.12													
28.14									C+C+C				
28.16													
28.18									E+E				
28.20								D+E					
28.22													
28.24								D+D					
28.26													
28.28							C+D						
28.30						C+C							
28.32													
28.34					B+C								
28.36													
28.38					B+B								
28.40													
28.42													
28.44					E								
28.46				D									
28.48			C										
28.50													
28.52			B										
28.54													
28.56		A											
28.58													
28.60													
28.62													
28.64													
28.66		#											
28.68													
28.70													
28.72	Less												

Reassemble another type shim or check the backlash after assembling A shim.

HINT:

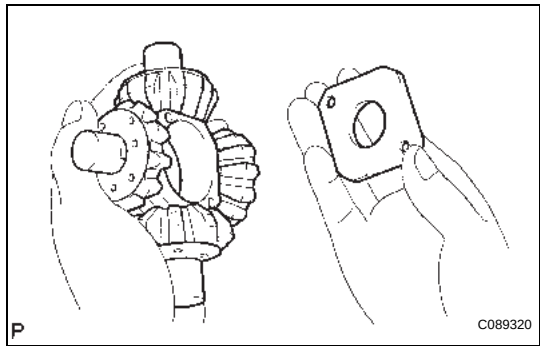
Three or two adjusting shims can be used together if the total of their thickness meets the one of the above combinations, even if the combination does not exist in the above table.



(5) Side gear thrust shim

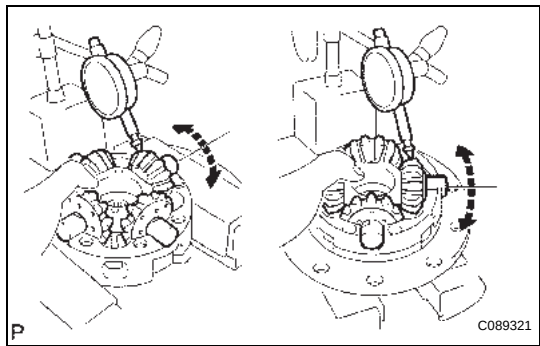
A	Side gear thrust washer No. 1
B	Clutch plate
C	Side gear

DF



- (c) Install the 4 pinion gears and thrust washers onto the spider.
- (d) Align the spring RH retainer holes with the spider knock pins and install the RH retainer.
- (e) Install the pinion gear and spider onto the differential RH case.

HINT:
Install the spider tightly onto the RH case while holding the spring retainer.



- (f) Using a dial indicator, measure the side gear backlash while holding the side gear and spider.

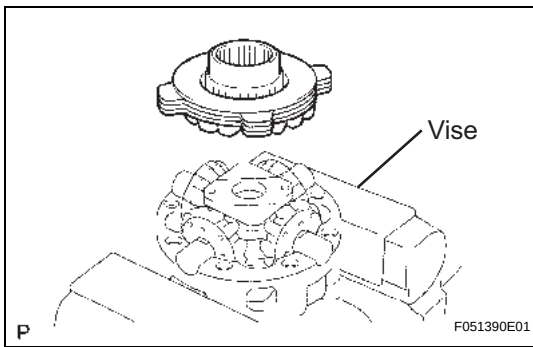
Backlash:
0.05 to 0.20 mm (0.0020 to 0.0079 in.)

HINT:
• Measure the backlash at all 4 locations.
• Measure the backlash at the LH and RH cases.
If the backlash is not within the specification, install a adjusting shim of a different thickness.

- (g) Reinstall the spider and spring RH retainer onto the differential RH case.

HINT:
Install the spider tightly onto the RH case while holding the spring retainer.

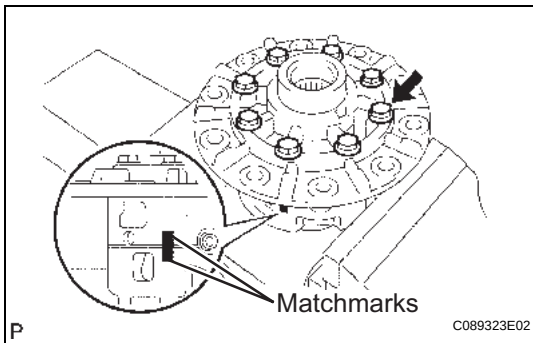
- (h) Install the compression spring and spring LH retainer.



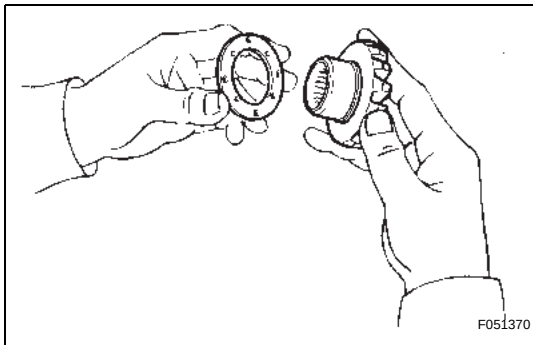
- (i) Install the side gear, thrust washers and clutch plates.
- (j) Align the matchmarks and assemble the RH and LH cases.

HINT:

Be careful not to drop the side gear and check the pinion and side gear alignment.



- (k) Tighten the 8 bolts uniformly, a little at a time.
Torque: 47 N*m (480 kgf*cm, 35 ft.*lbf)

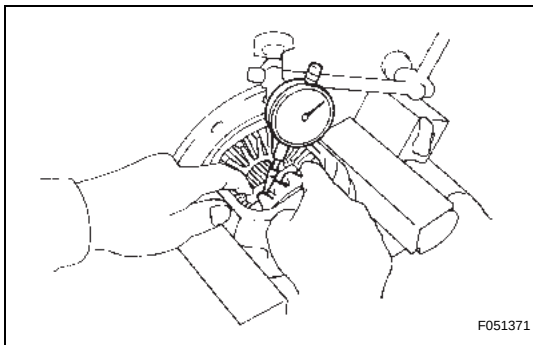


2. INSTALL DIFFERENTIAL CASE ASSEMBLY (2 Pinion Differential)

- (a) Install the 2 thrust washers onto the side gears.
- (b) Install the 2 side gears with the thrust washers, 2 pinion gears, 2 pinion gear thrust washers and pinion shaft.

HINT:

Align the holes for the straight pin in the differential case and pinion shaft.



- (c) 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 (0.0020 to 0.0079 in.)

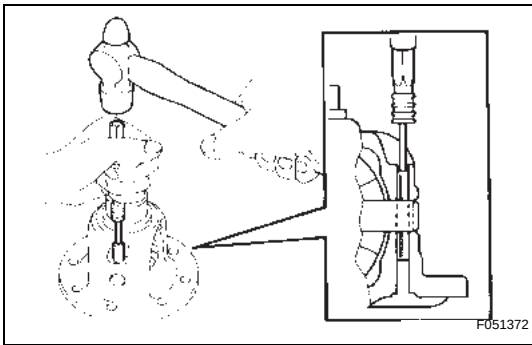
If the backlash is not within the specified value, replace the side gear thrust washer with one of an appropriate thickness.

HINT:

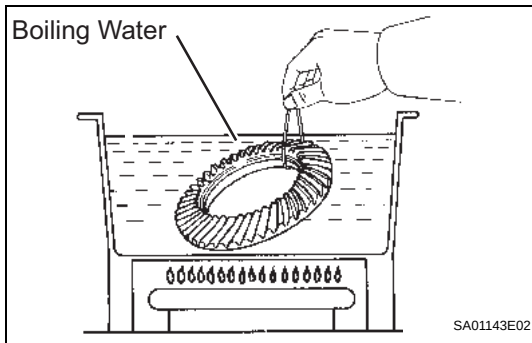
Refer to the following table to select thrust washers so that the backlash is within the specified value.

Washer thickness

Thickness mm (in.)	Thickness mm (in.)
1.50 (0.0590)	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)	-



- (d) Using a pin punch and hammer, install the straight pin through the holes in the differential case and pinion shaft.
- (e) Using a chisel and hammer, stake the outside of the differential case pin hole.



3. INSTALL DIFFERENTIAL RING GEAR

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

HINT:

Align the matchmarks on the ring gear and differential case.

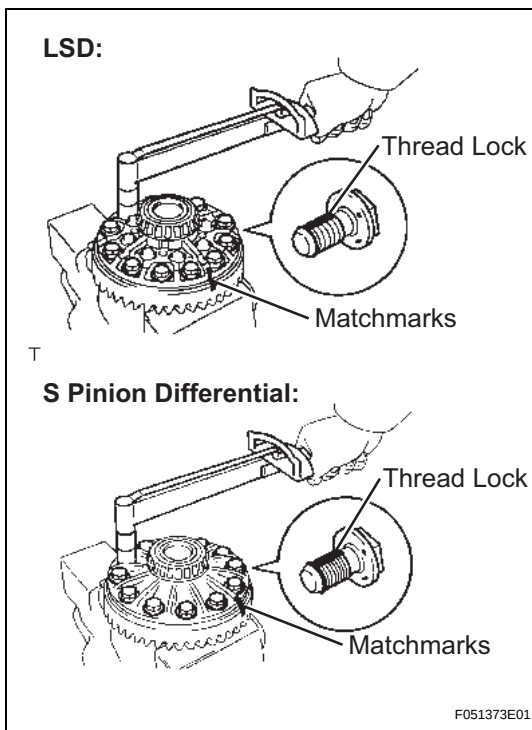
- (e) After the ring gear has cooled sufficiently, torque the set bolts to which the thread lock has been applied.

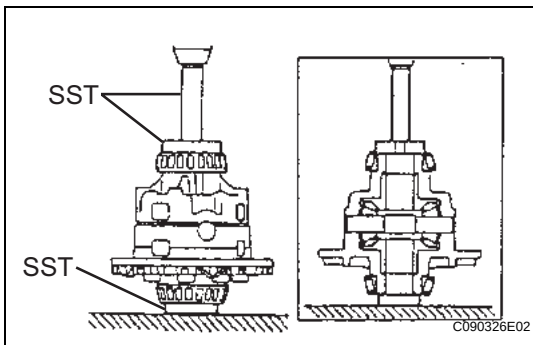
Thread lock:

Part No. 08833-00100, THREE BOND 1360K or equivalent.

Torque: 125 N*m (1,270 kgf*cm, 92 ft.*lbf)

DF

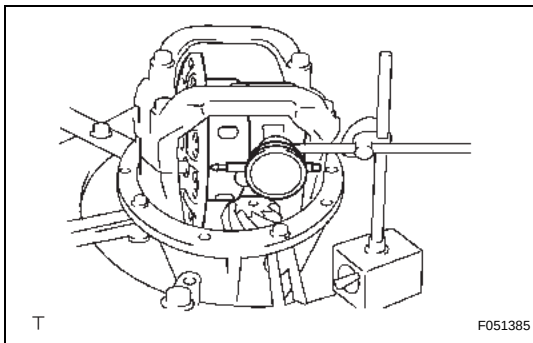




4. INSTALL REAR DIFFERENTIAL CASE BEARING

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

SST 09950-60010 (09951-00480, 09951-00640), 09950-70010 (09951-07150)



5. INSPECT DIFFERENTIAL RING GEAR RUNOUT

- (a) Install the differential case onto the carrier, and install the 2 adjusting nuts so that there is no play in the bearing.

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

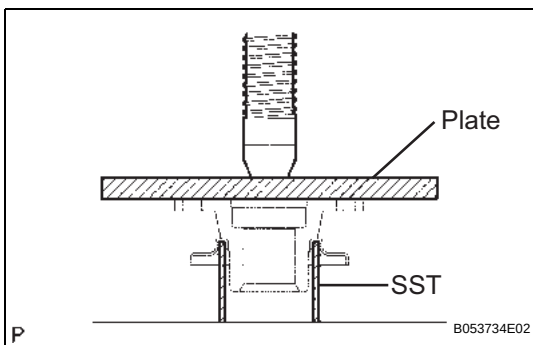
Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)

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

Maximum runout:

0.05 mm (0.0020 in.)

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



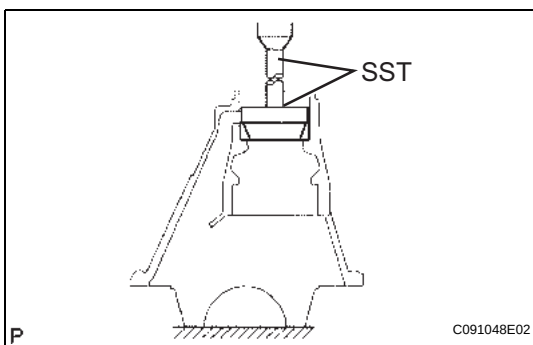
6. INSTALL REAR DIFFERENTIAL DUST DEFLECTOR

- (a) Using a press, install the dust deflector.

SST 09636-20010

NOTICE:

Be careful not to damage the dust deflector.



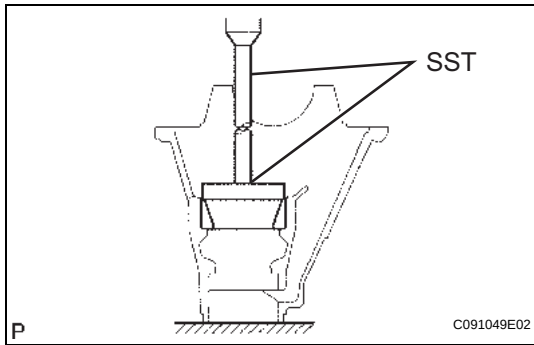
7. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING

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

- (b) Using SST and a press, install the tapered roller bearing onto the carrier.

SST 09316-60011 (09316-00011, 09316-00021)

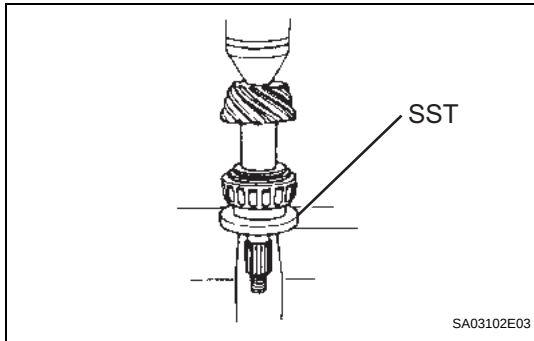
DF



8. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Using SST and a press, install the tapered roller bearing onto the carrier.

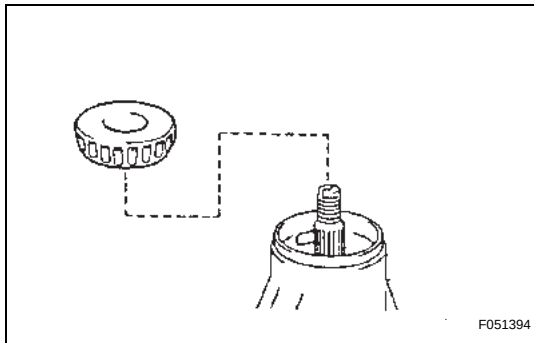
SST 09316-60011 (09316-00041, 09316-00011)



9. INSTALL REAR DRIVE PINION REAR TAPERED ROLLER BEARING

- (a) Install the plate washer onto the drive pinion.
(b) Using SST and a press, install the tapered roller bearing onto the drive pinion.

SST 09506-30012

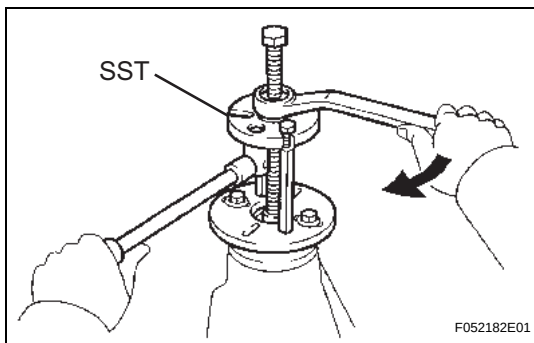


10. ADJUST DIFFERENTIAL DRIVE PINION PRELOAD

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

HINT:

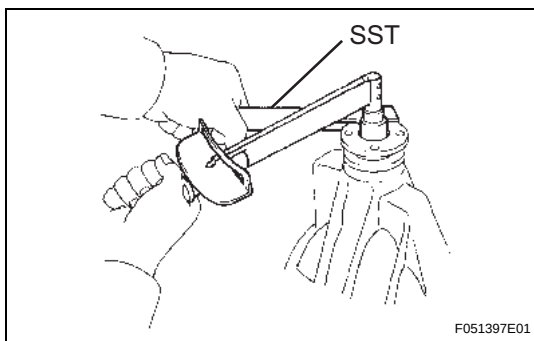
Assemble the spacer and oil seal after adjusting the gear contact pattern.



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

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

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



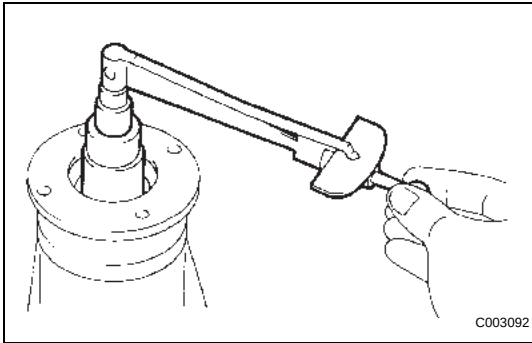
- (d) Using SST to hold the drive pinion companion flange, tighten the nut.

Torque: 451 N*m (4,600 kgf*cm, 333 ft.*lbf) or less

NOTICE:

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

SST 09330-00021

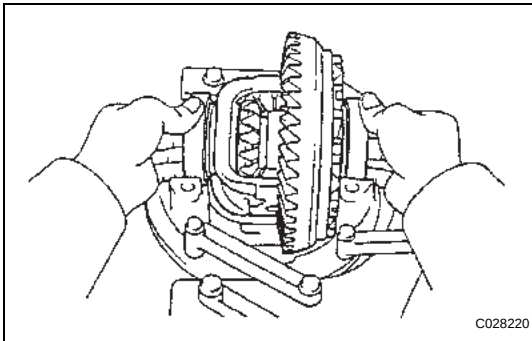


- (e) Using a torque wrench, measure the preload.

Preload (at starting)

Bearing	Standard
New	1.27 to 1.86 N*m (13 to 20 kgf*cm, 11 to 16 in.*lbf)
Reused	0.78 to 1.07 N*m (8.0 to 11 kgf*cm, 6.9 to 9.5 in.*lbf)

If necessary, disassemble and inspect the differential assembly.



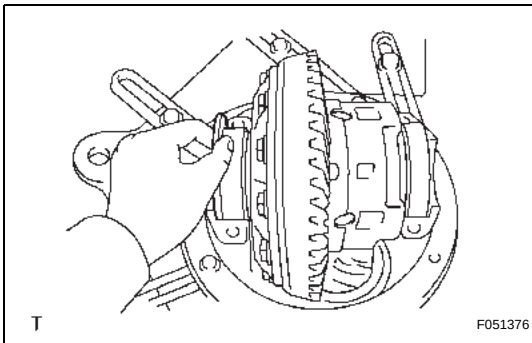
11. INSTALL DIFFERENTIAL CASE ASSEMBLY

- (a) Place the 2 bearing outer races on their corresponding bearings.

HINT:

Make sure the right and left races are not interchanged.

- (b) Install the differential case into the carrier.

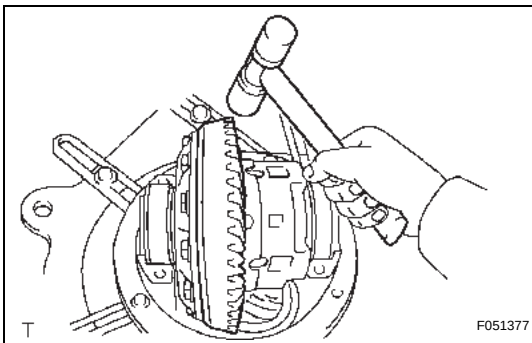


12. ADJUST DIFFERENTIAL RING GEAR BACKLASH

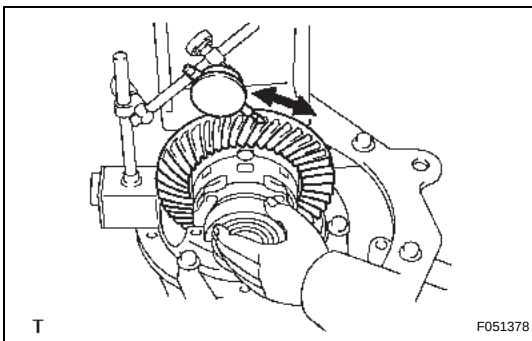
- (a) Install the plate washer onto the ring gear back side.

HINT:

Make sure that the ring gear has backlash.



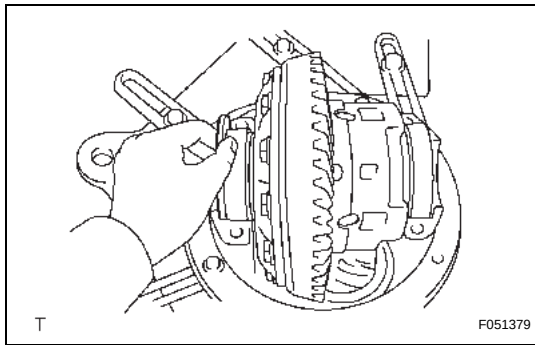
- (b) Tap on the ring gear with a plastic hammer so that the washer fits into the bearing.



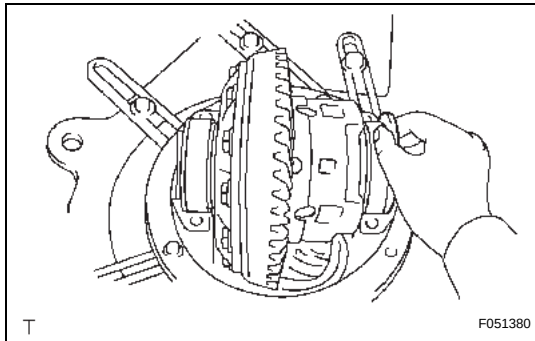
- (c) Using a dial indicator, measure the ring gear backlash while holding the companion flange.

Backlash (reference):

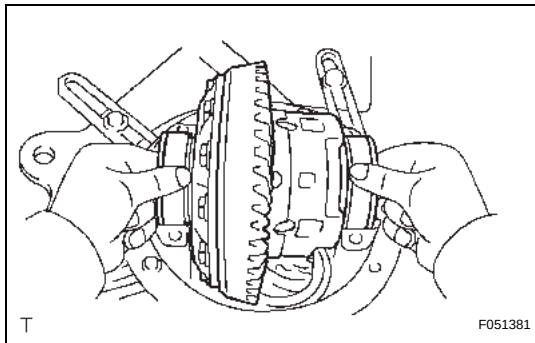
0.13 to 0.18 mm (0.0051 to 0.0071 in.)



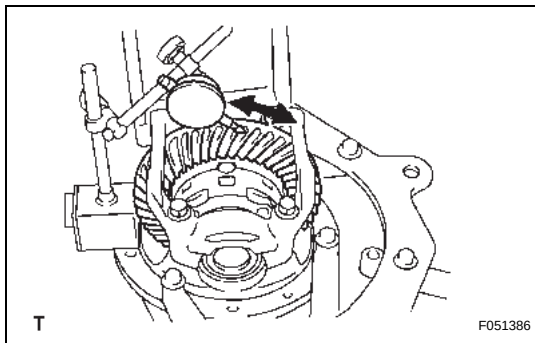
- (d) Select a plate washer for the back side ring gear using the backlash as a reference.



- (e) Select a ring gear teeth side plate washer so that there is no clearance between the outer race and the case.
- (f) Remove the 2 plate washers and differential case.
- (g) Install the plate washer into the ring gear back side of the carrier.



- (h) Place the other plate washer onto the differential case together with the outer race, and install the differential case with the outer race into the carrier.
- (i) Tap on the ring gear with a plastic hammer so that the washers fit into the bearing.



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

Backlash:

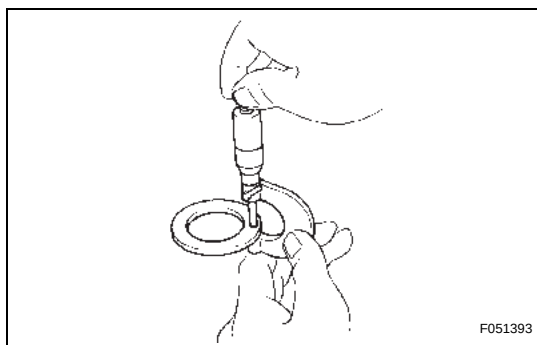
0.13 to 0.18 mm (0.0051 to 0.0071 in.)

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

HINT:

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

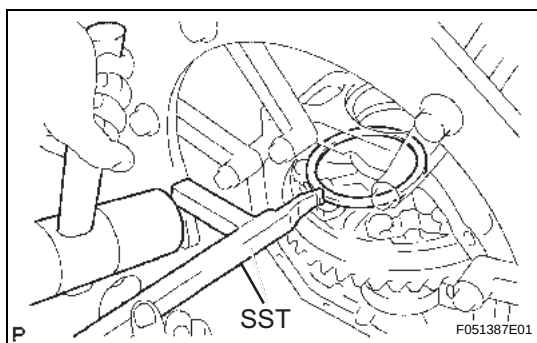
Make sure that there is a ring gear backlash.

**13. INSPECT SIDE BEARING PRELOAD**

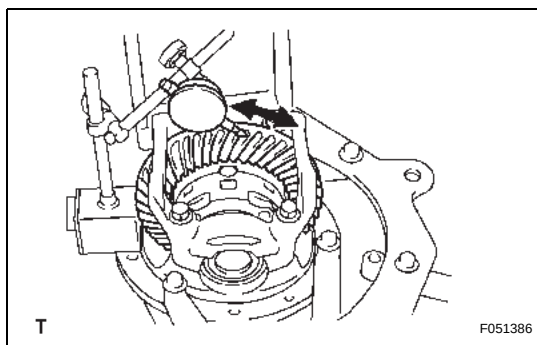
- (a) Remove the ring gear teeth side plate washer and using a micrometer, measure the thickness.
- (b) Using the backlash as a reference, install a new washer 0.06 to 0.09 mm (0.0024 to 0.0035 in.) thicker than the removed one.

HINT:

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



- (c) Using SST and a plastic hammer, install the plate washer.



- (d) Recheck the ring gear backlash.

Backlash:

0.13 to 0.18 mm (0.0051 to 0.0071 in.)

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

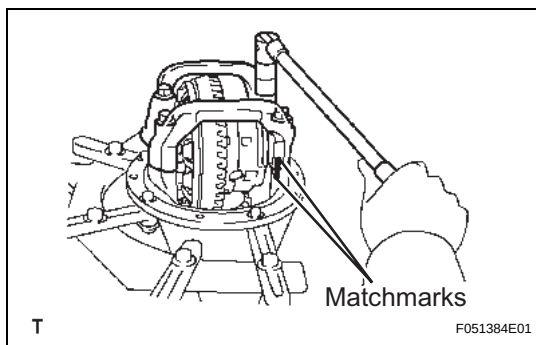
HINT:

The backlash will change by about 0.02 mm (0.0008 in.) corresponding to 0.03 mm (0.0012 in.) change in the plate washer.

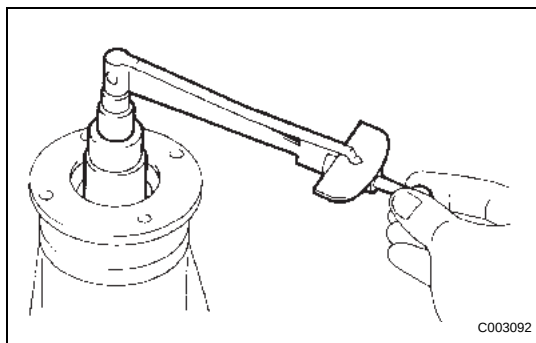
DF

Washer thickness

Thickness		Thickness		Thickness	
Mark	mm (in.)	Mark	mm (in.)	Mark	mm (in.)
58	2.58 (0.1016)	90	2.90 (0.1142)	22	3.22 (0.1268)
60	2.60 (0.1024)	92	2.92 (0.1150)	24	3.24 (0.1276)
62	2.62 (0.1032)	94	2.94 (0.1158)	26	3.26 (0.1284)
64	2.64 (0.1039)	96	2.96 (0.1165)	28	3.28 (0.1291)
66	2.66 (0.1047)	98	2.98 (0.1173)	30	3.30 (0.1299)
68	2.68 (0.1055)	00	3.00 (0.1181)	32	3.32 (0.1307)
70	2.70 (0.1063)	02	3.02 (0.1189)	34	3.34 (0.1315)
72	2.72 (0.1071)	04	3.04 (0.1197)	36	3.36 (0.1323)
74	2.74 (0.1079)	06	3.06 (0.1205)	38	3.38 (0.1331)
76	2.76 (0.1087)	08	3.08 (0.1213)	40	3.40 (0.1339)
78	2.78 (0.1095)	10	3.10 (0.1221)	42	3.42 (0.1347)
80	2.80 (0.1102)	12	3.12 (0.1228)	44	3.44 (0.1354)
82	2.82 (0.1110)	14	3.14 (0.1236)	46	3.46 (0.1362)
84	2.84 (0.1118)	16	3.16 (0.1244)	48	3.48 (0.1370)
86	2.86 (0.1126)	18	3.18 (0.1257)	-	-
88	2.88 (0.1134)	20	3.20 (0.1260)	-	-



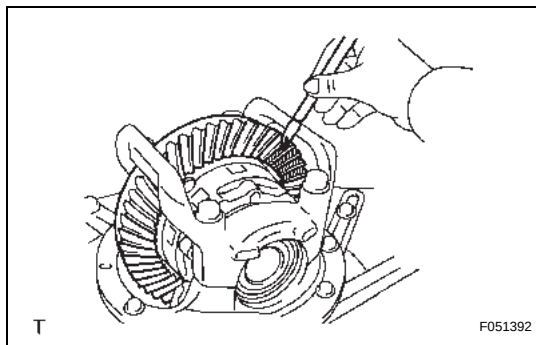
- (e) Tighten the bearing cap bolts.
Torque: 113 N*m (1,152 kgf*cm, 83 ft.*lbf)



14. INSPECT TOTAL PRELOAD

- (a) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.
Total Preload (at starting):
Drive pinion preload plus 0.39 to 0.59 N*m (4.0 to 6.0 kgf*cm, 3.5 to 5.2 in.*lbf)
 If necessary, disassemble and inspect the differential.

DF

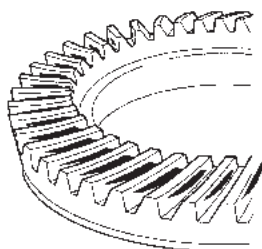


15. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at 3 different positions on the ring gear with red lead primer.
 (b) Hold the companion flange firmly and rotate the ring gear in both directions.

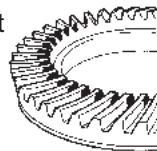
(c) Inspect the tooth contact pattern.

Driver Side:

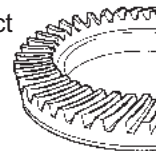


Proper Contact

Toe Contact

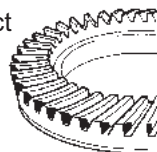


Face Contact

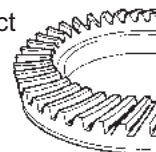


Select an adjusting washer that will bring the drive pinion closer to the ring gear.

Heel Contact

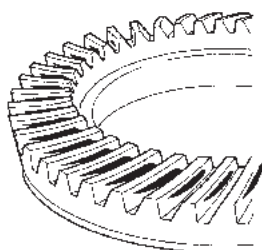


Flank Contact



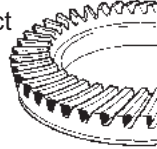
Select an adjusting washer that will shift the drive pinion away from the ring gear.

Coast Side:

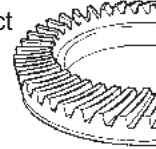


Proper Contact

Heel Contact

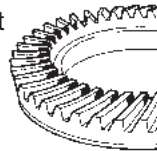


Face Contact

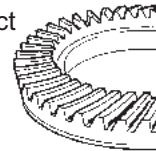


Select an adjusting washer that will shift the drive pinion closer to the ring gear.

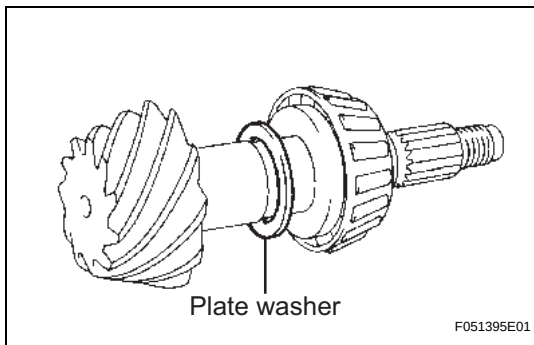
Toe Contact



Flank Contact



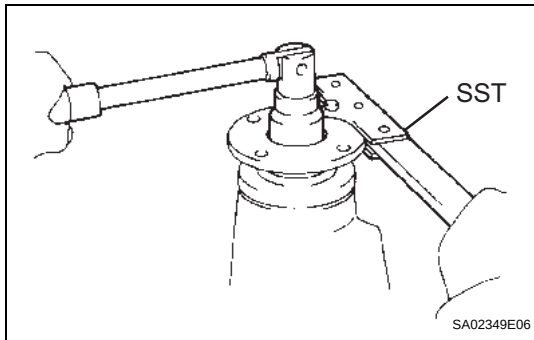
Select an adjusting washer that will bring the drive pinion away from the ring gear.



- (d) If the teeth are not properly in contact, use the following chart to select an appropriate washer for correction.

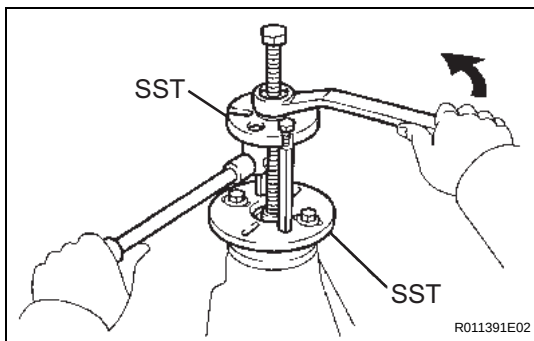
Washer thickness

Thickness		Thickness		Thickness	
Mark	mm (in.)	Mark	mm (in.)	Mark	mm (in.)
87	1.87 (0.0736)	03	2.03 (0.0799)	19	2.19 (0.0862)
88	1.88 (0.0740)	04	2.04 (0.0803)	20	2.20 (0.0866)
89	1.89 (0.0744)	05	2.05 (0.0807)	21	2.21 (0.0870)
90	1.90 (0.0748)	06	2.06 (0.0811)	22	2.22 (0.0874)
91	1.91 (0.0752)	07	2.07 (0.0815)	23	2.23 (0.0878)
92	1.92 (0.0756)	08	2.08 (0.0819)	24	2.24 (0.0882)
93	1.93 (0.0760)	09	2.09 (0.0823)	25	2.25 (0.0886)
94	1.94 (0.0764)	10	2.10 (0.0827)	26	2.26 (0.0890)
95	1.95 (0.0768)	11	2.11 (0.0831)	27	2.27 (0.0894)
96	1.96 (0.0772)	12	2.12 (0.0835)	28	2.28 (0.0898)
97	1.97 (0.0776)	13	2.13 (0.0839)	-	-
98	1.98 (0.0780)	14	2.14 (0.0843)	-	-
99	1.99 (0.0784)	15	2.15 (0.0847)	-	-
00	2.00 (0.0787)	16	2.16 (0.0850)	-	-
01	2.01 (0.0791)	17	2.17 (0.0854)	-	-
02	2.02 (0.0795)	18	2.18 (0.0858)	-	-



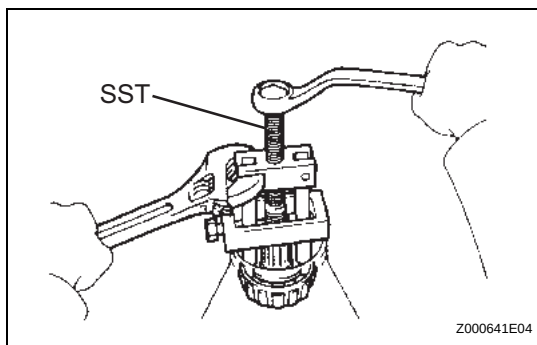
16. REMOVE REAR DRIVE PINION NUT

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



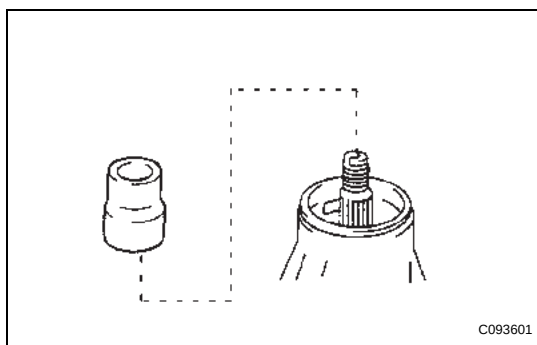
17. REMOVE REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

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

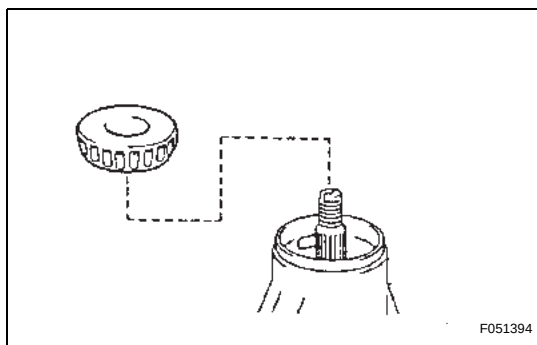
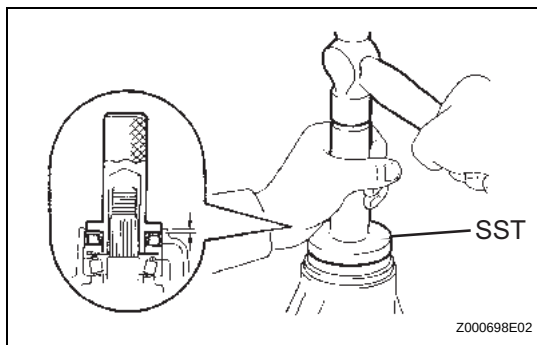
**18. REMOVE REAR DRIVE PINION FRONT TAPERED ROLLER BEARING**

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

SST 09556-22010

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

- (a) Install a new bearing spacer onto the drive pinion.

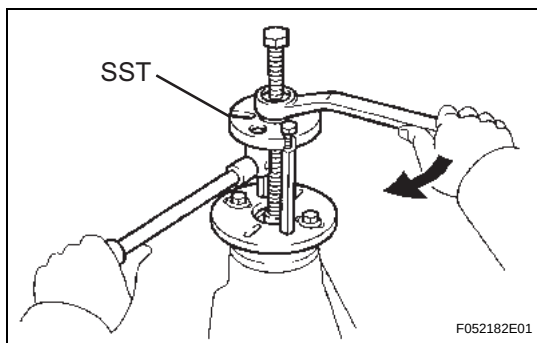
**20. INSTALL REAR DRIVE PINION FRONT TAPERED ROLLER BEARING****21. INSTALL REAR DIFFERENTIAL CARRIER OIL SEAL**

- (a) Apply MP grease to the oil seal lip.
(b) Using SST and a hammer, install a new carrier oil seal.

SST 09554-30011

Oil seal drive in depth:

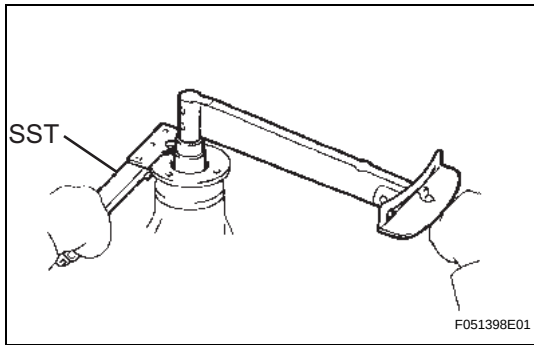
-0.5 to 0.5 mm (-0.0197 to 0.0197 in)

**22. INSTALL REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR**

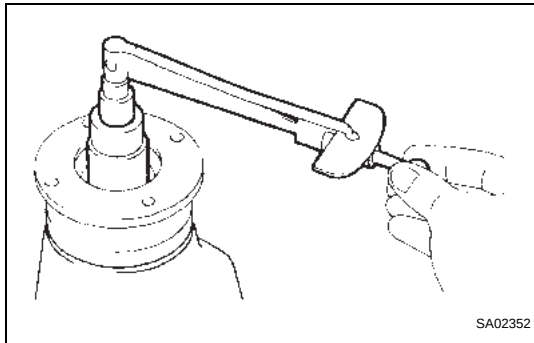
- (a) Using SST, install the drive pinion companion flange onto the drive pinion.

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

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- (b) Coat the threads of a new nut with hypoid gear oil LSD.
- (c) Using SST to hold the flange, torque the nut.
SST 09330-00021
Torque: 451 N*m (4,600 kgf*cm, 333 ft.*lbf) or less



23. INSPECT DRIVE PINION PRELOAD

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

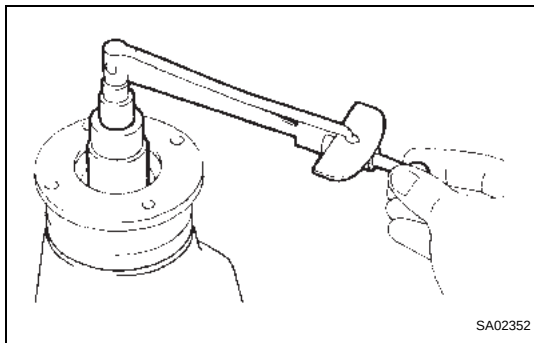
Preload (at starting)

Bearing	Standard
New	1.27 to 1.86 N*m (13 to 19 kgf*cm, 11 to 16 in.*lbf)
Reused	0.78 to 1.07 N*m (8.0 to 11 kgf*cm, 6.9 to 9.5 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) of torque at a time until the specified preload is reached.

Torque: 451 N*m (4,600 kgf*cm, 333 ft.*lbf) or less

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



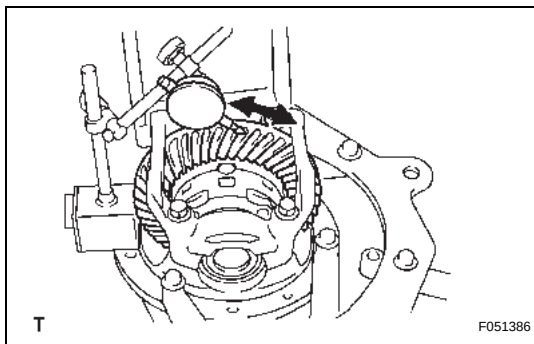
24. INSPECT TOTAL PRELOAD

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

Total Preload (at starting):

Drive pinion preload plus 0.39 to 0.59 N*m (4 to 6 kgf*cm, 4.0 to 5.2 in.*lbf)

If the necessary, disassemble and inspect the differential.



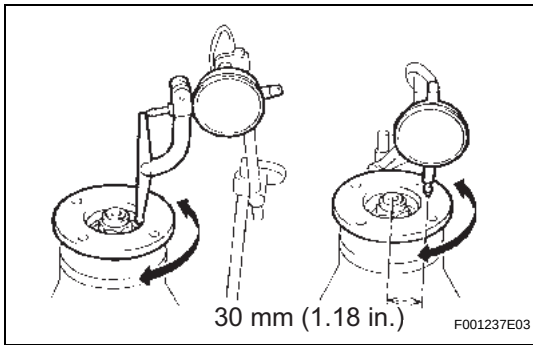
25. INSPECT DIFFERENTIAL RING GEAR BACKLASH

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

Backlash:

0.13 to 0.18 mm (0.0051 to 0.0071 in.)

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



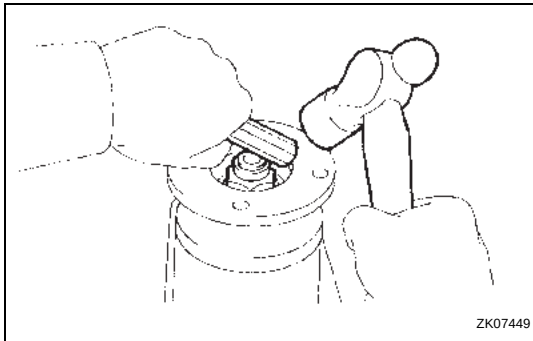
26. INSPECT RUNOUT OF REAR DRIVE PINION COMPANION FLANGE SUB-ASSEMBLY REAR

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

Maximum runout:

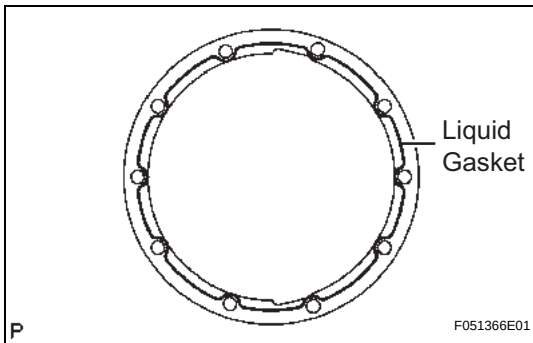
Vertical runout: 0.10 mm (0.0039 in.)

Lateral runout: 0.10 mm (0.0039 in.)



27. INSTALL REAR DRIVE PINION NUT

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



INSTALLATION

1. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

- (a) Remove any dust and oil from the differential carrier assembly and contact surface of the axle housing.
- (b) Apply liquid gasket to both sides of the gasket.

NOTICE:

Do not put the liquid gasket on the stud bolt.

- (c) Install a new gasket and the differential carrier assembly with the 10 nuts and 10 washers.

Torque: 45 N*m (459 kgf*cm, 33 ft.*lbf)

2. INSTALL REAR AXLE SHAFT WITH BACKING PLATE LH (See page [AH-33](#))

3. INSTALL REAR AXLE SHAFT WITH BACKING PLATE RH

HINT:

Use the same procedure as for the LH side.

4. INSTALL NO.3 PARKING BRAKE CABLE ASSEMBLY (See page [PB-22](#))

5. INSTALL NO.2 PARKING BRAKE CABLE ASSEMBLY

HINT:

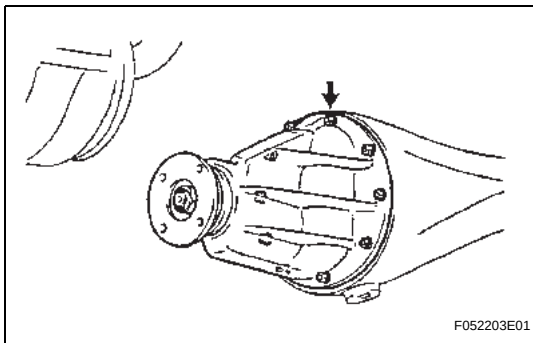
Use the same procedure as for the LH side.

6. INSTALL REAR SPEED SENSOR LH (See page [BC-304](#))

7. INSTALL REAR SPEED SENSOR RH

HINT:

Use the same procedure as for the LH side.



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8. INSTALL PROPELLER SHAFT ASSEMBLY (for 2WD Drive Type, Regular Cab) (See page [PR-6](#))
9. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 2WD Drive Type, Except Regular Cab) (See page [PR-13](#))
10. INSTALL PROPELLER SHAFT ASSEMBLY (for 4WD Driver Type, Regular Cab) (See page [PR-25](#))
11. INSTALL PROPELLER WITH CENTER BEARING SHAFT ASSEMBLY (for 4WD Driver Type, Except Regular Cab) (See page [PR-32](#))
12. INSTALL REAR BRAKE SHOE (See page [BR-71](#))
13. INSTALL FRONT BRAKE SHOE (See page [BR-72](#))
14. INSPECT REAR BRAKE DRUM INSTALLATION (See page [BR-73](#))
15. INSTALL REAR BRAKE DRUM SUB-ASSEMBLY (See page [BR-73](#))
16. ADJUST REAR DRUM BRAKE SHOE CLEARANCE (See page [BR-74](#))
17. FILL RESERVOIR WITH BRAKE FLUID (w/ VSC) (See page [BR-4](#))
18. FILL RESERVOIR WITH BRAKE FLUID (w/o VSC) (See page [BR-7](#))
19. BLEED MASTER CYLINDER (w/o VSC) (See page [BR-7](#))
20. BLEED BRAKE LINE (w/ VSC) (See page [BR-4](#))
21. BLEED BRAKE LINE (w/o VSC) (See page [BR-7](#))
22. CHECK FLUID LEVEL IN RESERVOIR (w/ VSC) (See page [BR-6](#))
23. CHECK FLUID LEVEL IN RESERVOIR (w/o VSC) (See page [BR-8](#))
24. CHECK FOR BRAKE FLUID LEAKAGE
25. ADD DIFFERENTIAL OIL (See page [DF-8](#))
26. INSPECT DIFFERENTIAL OIL (See page [DF-8](#))
27. INSPECT FOR DIFFERENTIAL OIL LEAKAGE
28. INSTALL REAR WHEEL
Torque: 113 N*m (1,152 kgf*cm, 83 in.*lbf)
29. INSPECT PARKING BRAKE PEDAL TRAVEL (for Automatic Transaxle) (See page [PB-1](#))
30. INSPECT PARKING BRAKE LEVER TRAVEL (for Manual Transaxle) (See page [PB-1](#))
31. ADJUST PARKING BRAKE PEDAL TRAVEL (for Automatic Transaxle) (See page [PB-2](#))

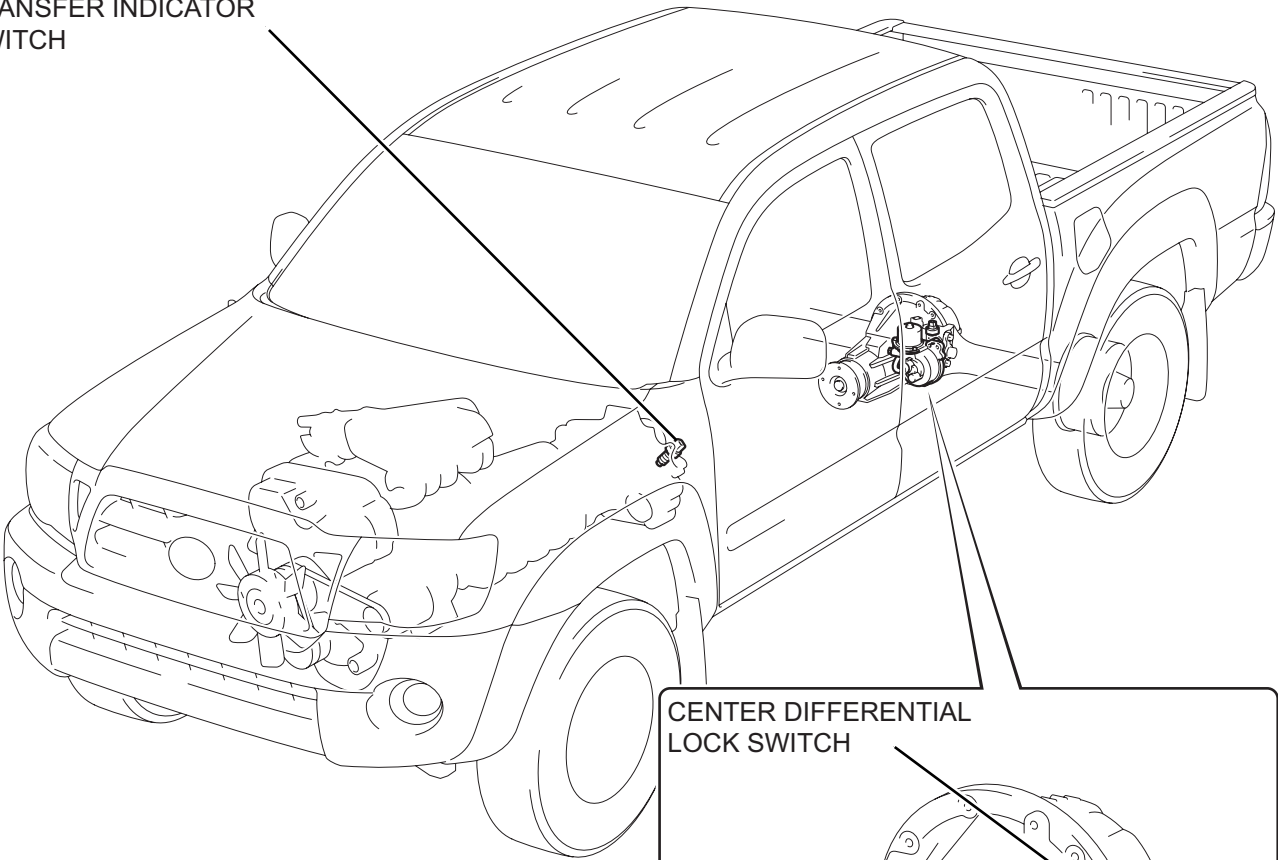
32. **ADJUST PARKING BRAKE LEVER TRAVEL (for Manual Transaxle) (See page [PB-2](#))**
33. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)
34. **CHECK VSC SENSOR SIGNAL (w/ VSC)**
HINT:
(See page [BC-103](#))
35. **CHECK ABS SENSOR SIGNAL (w/o VSC)**
HINT:
(See page [BC-7](#))

DIFFERENTIAL LOCK SYSTEM

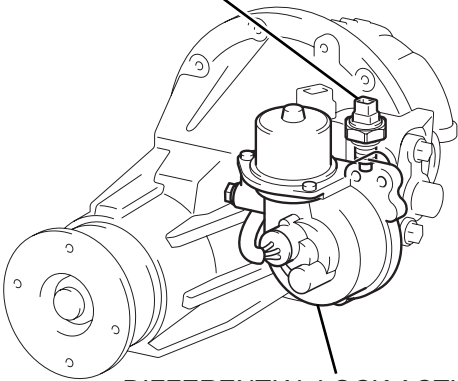
PARTS LOCATION

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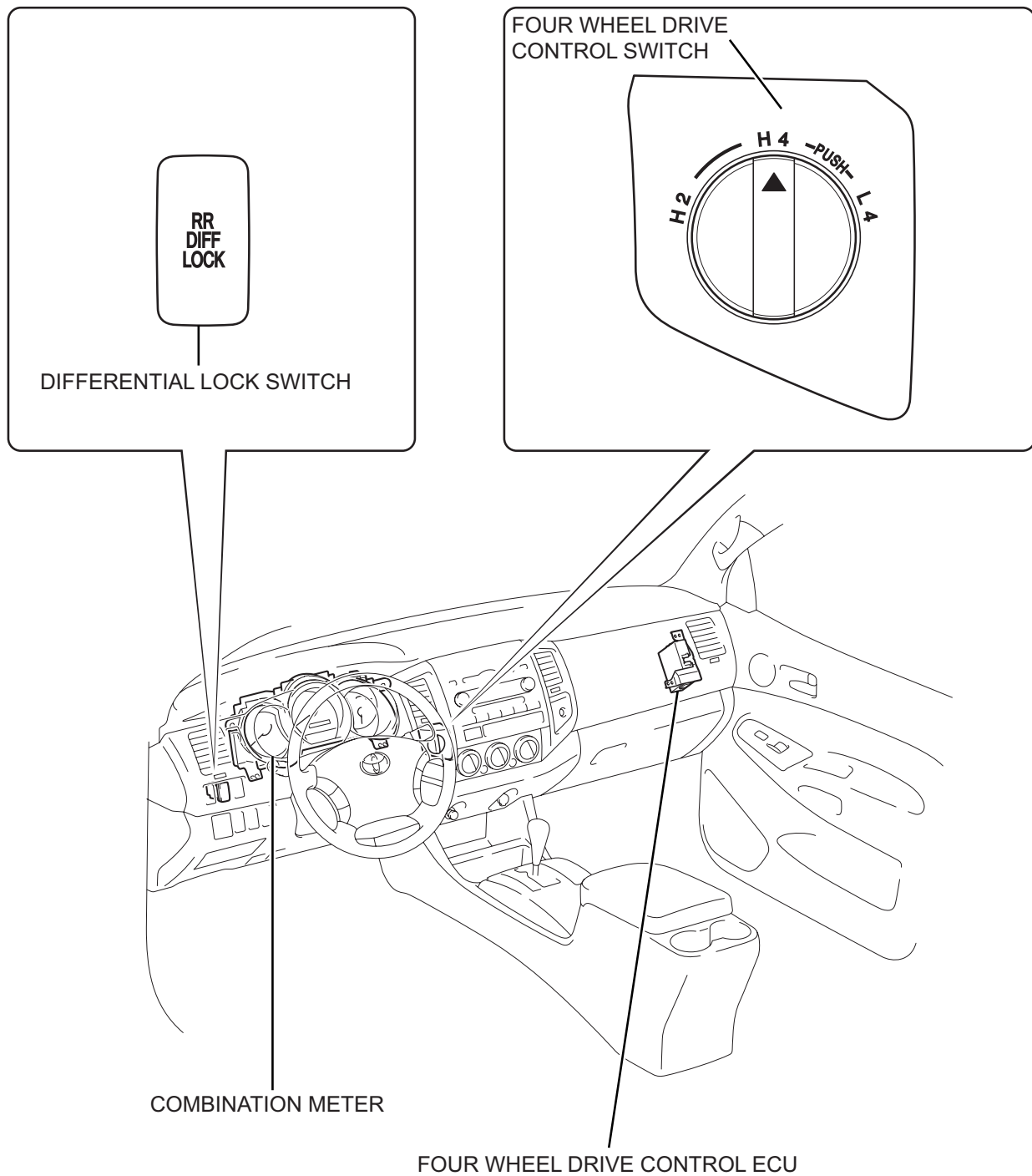
TRANSFER INDICATOR
SWITCH



CENTER DIFFERENTIAL
LOCK SWITCH

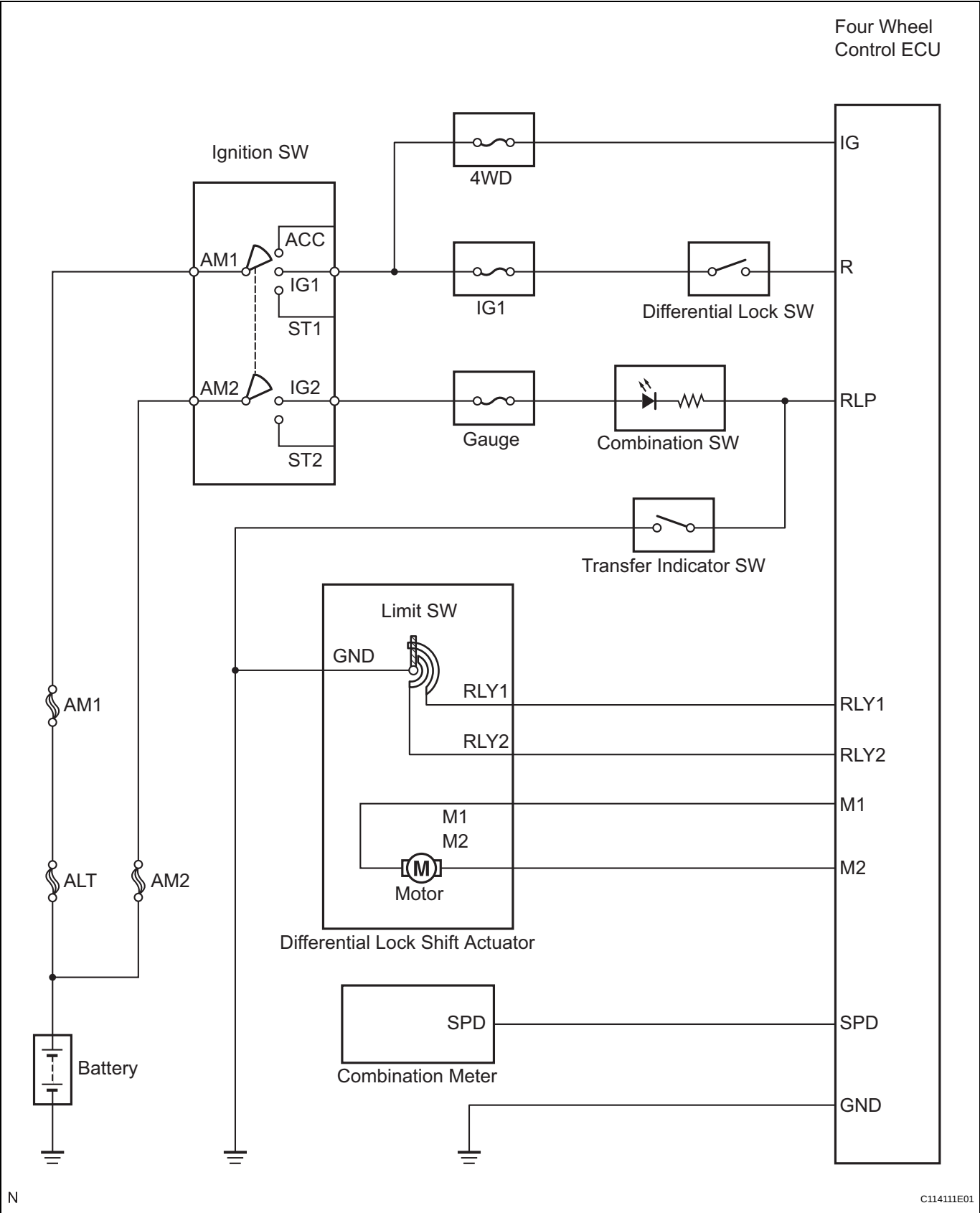


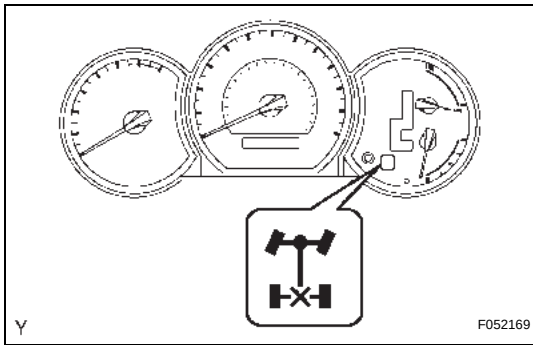
DIFFERENTIAL LOCK ACTUATOR



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SYSTEM DIAGRAM



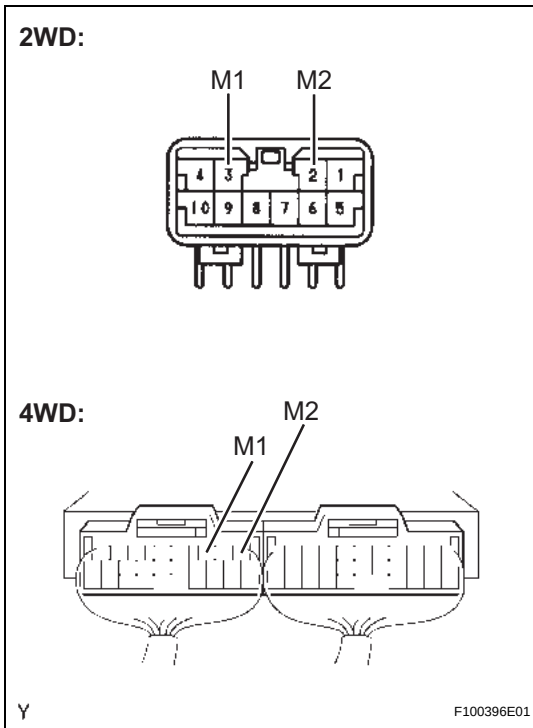


ON-VEHICLE INSPECTION

1. INSPECT REAR DIFFERENTIAL LOCK SYSTEM

- (a) Inspect the indicator light.
 - (1) Check that the indicator light illuminates for approx. 1 second when the ignition switch is turned ON.
- (b) Inspect the differential lock operation.
 - (1) Jack up the vehicle and start the engine.
 - (2) When the differential lock control switch is ON the indicator light blinks.

HINT:
If the gears of the differential lock system are not engaged, the indicator light continues blinking, so rotate the tires to engage the gear.
 - (3) When the differential lock control switch is in the OFF position, the indicator light goes off. The differential lock is released for the rear wheel at this time.
 - (4) Check the voltage between the terminals of the rear differential lock control ECU when switching the rear differential lock control ON, with the speedometer registering at approximately 7 mph (11 km/h) or more.

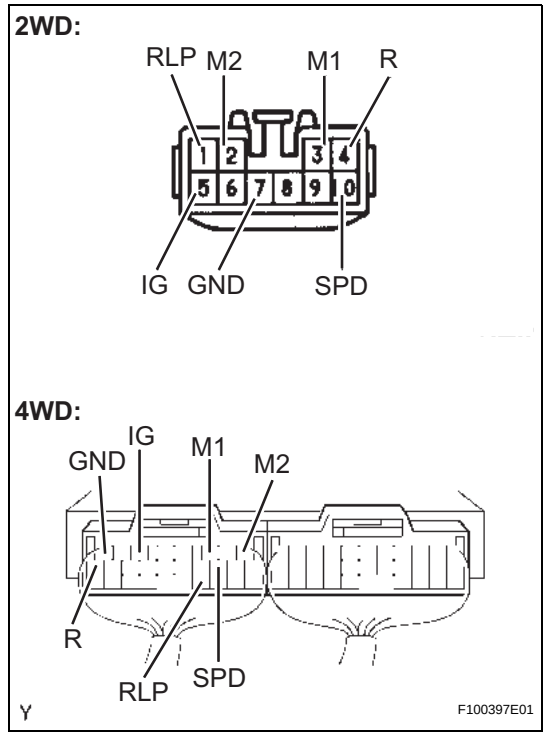


Switch position	Terminal	Specified condition
ON	M1 - M2	0.5 V or less (No change)

- (5) Return the differential lock control switch to OFF.
 - (6) Stop the engine and lower the vehicle.
- ### 2. INSPECT DIFFERENTIAL LOCK SYSTEM CIRCUIT
- (a) Inspect the battery positive voltage.

Battery positive voltage:
10 to 14 V

DF

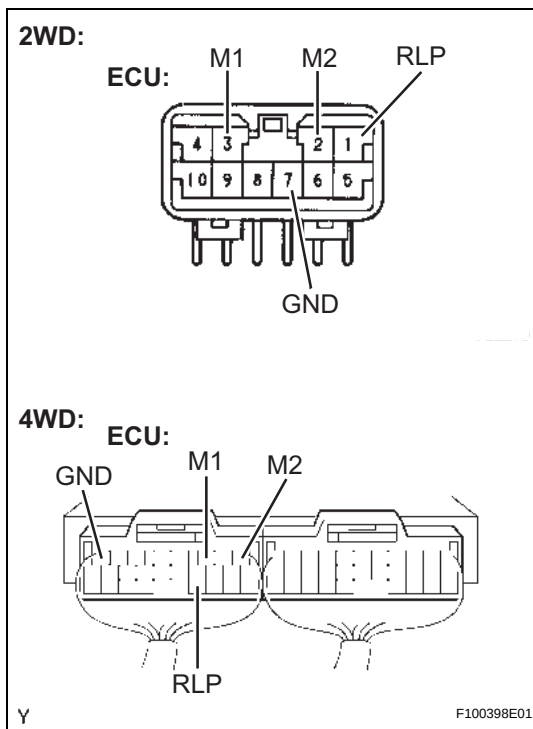


- (b) Inspect the system circuit with the connector disconnected.
Disconnect the connector from the rear differential lock control ECU and inspect the connector on the wire harness side, as shown in the table.

DF Standard

Symbols (Terminals No.)	Trouble part	Condition	Specified value
M1 - M2	RR Differential Lock Actuator	-	Less than 100 Ω
GND - Body ground	Body Ground	-	Below 1 Ω
SPD - Body ground	Speed Sensor	Vehicle moves slowly	1 pulse each 40 cm (15.75 in.)
IG - Body ground	DIFF Fuse	Ignition switch ON	10 to 14 V
RLP - Body ground	Rear Differential Lock Indicator Switch	Ignition switch ON with indicator light ON	About 0 V
		Ignition switch ON with indicator light OFF	10 to 14 V
R - Body ground	Differential Lock Control Switch	Ignition switch ON with differential lock control switch RR	10 to 14 V
		Ignition switch ON with differential lock control switch OFF	About 0 V

If the result is not as specified value, check and repair or replace the malfunctioning part shown in the table above.



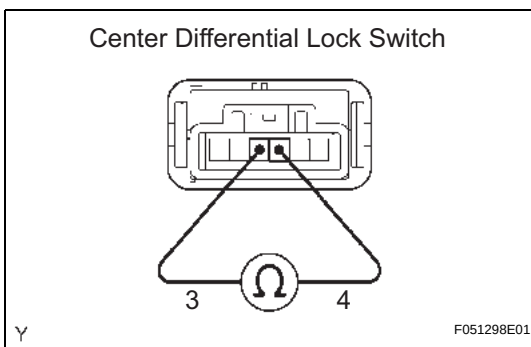
- (c) Inspect the system circuit with the connector connected.
- (1) Turn the ignition switch to the ON position.
 - (2) Using a voltmeter, measure the voltage when the differential lock control switch is in the positions shown in the table.

Tester Connection + -	Switch position	Specified condition
RLP - GND	RR*	0.5 V or less
M1 - M2	OFF → RR	0.5 V or less → 10 - 14 V (Approx. 1 sec.) → 0.5 V or less
M2 - M1	RR → OFF	

HINT:

*: The rear differential should be locked mechanically. If the result is not as specified, replace the ECU.

- (3) Install the ECU



INSPECTION

1. INSPECT CENTER DIFFERENTIAL LOCK SWITCH

- (a) Check the resistance.
- (1) Measure the resistance using an ohmmeter.
- Standard**

Tester Connection	Switch Condition	Specified Condition
3 - 4	Released	10 kΩ or higher
3 - 4	Pushed in	Below 1 Ω

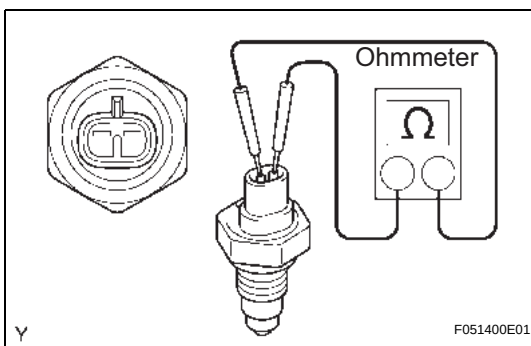
If the result is not as specified, replace the center differential lock switch.

2. INSPECT NO. 1 TRANSFER INDICATOR SWITCH

- (a) Check the resistance.
- (1) Measure the resistance using an ohmmeter.
- Standard**

Tester Connection	Switch Condition	Specified Condition
1 - 2	Released	10 kΩ or higher
1 - 2	Pushed in	Below 1 Ω

If the result is not as specified, replace the No. 1 transfer indicator switch.



DF