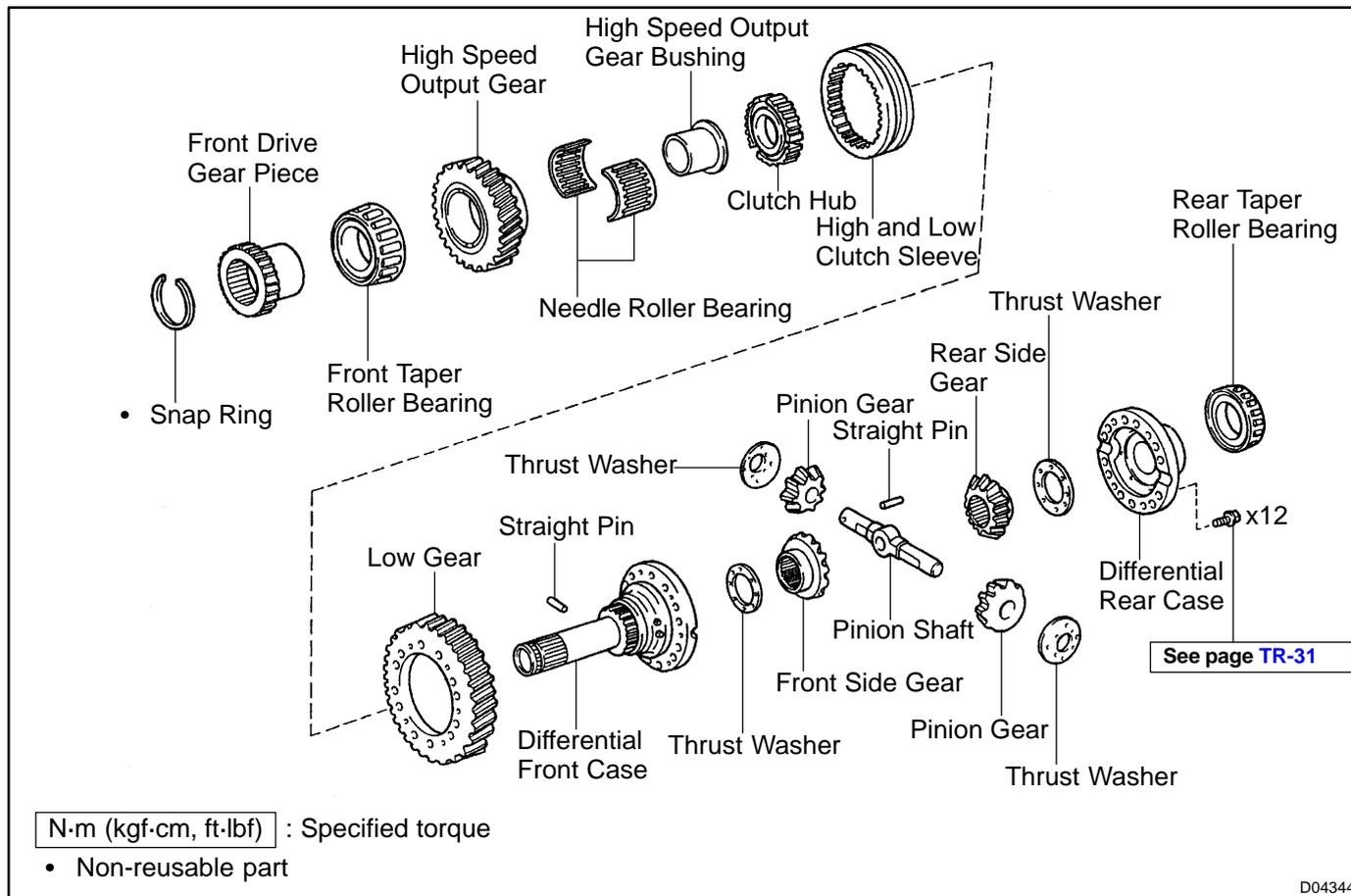
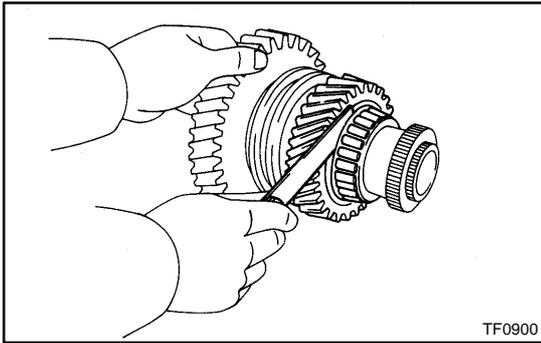


CENTER DIFFERENTIAL COMPONENTS

TR06J-02



D04344



DISASSEMBLY

1. INSPECT HIGH SPEED OUTPUT GEAR RADIAL AND THRUST CLEARANCE

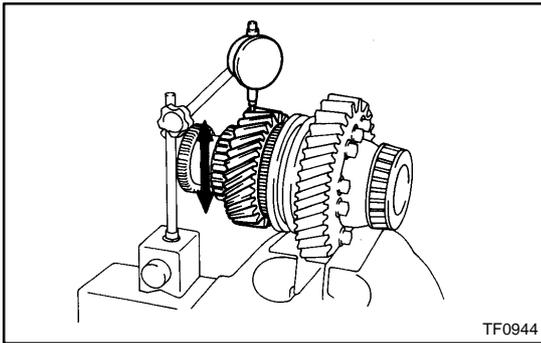
- (a) Using a feeler gauge, measure the high speed output gear thrust clearance.

Standard clearance:

0.10 - 0.25 mm (0.0039 - 0.0098 in.)

Maximum clearance:

0.25 mm (0.0098 in.)



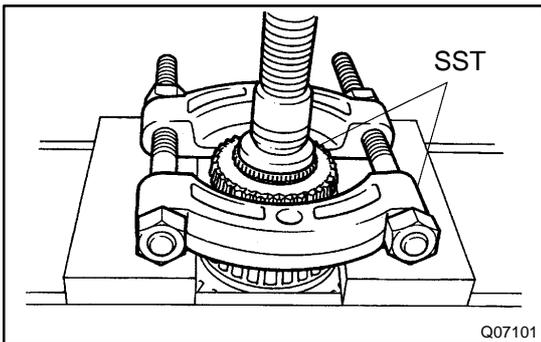
- (b) Using a dial indicator, measure the high speed output gear radial clearance.

Standard clearance:

0.035 - 0.091 mm (0.00138 - 0.00358 in.)

Maximum clearance:

0.091 mm (0.00358 in.)

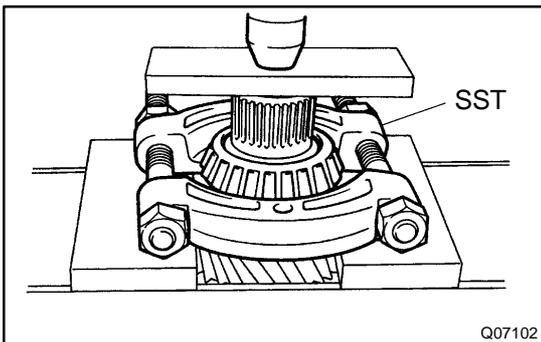


2. REMOVE FRONT DRIVE GEAR PIECE

- (a) Using a snap ring expander, remove the snap ring.
- (b) Using SST and a press, remove the front drive gear piece.
SST 09950-00020, 09950-60010 (09951-00320)

NOTICE:

Be careful not to drop the center differential assembly.

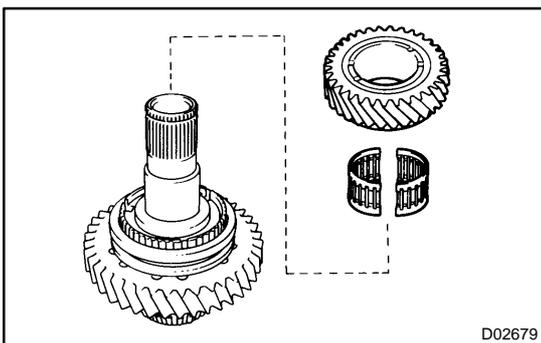


3. REMOVE FRONT TAPER ROLLER BEARING

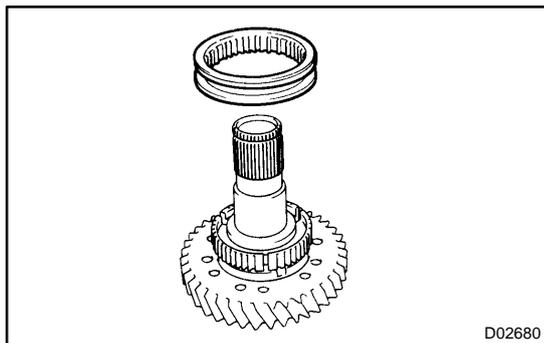
- Using SST and a press, remove the front taper roller bearing.
SST 09950-00020

NOTICE:

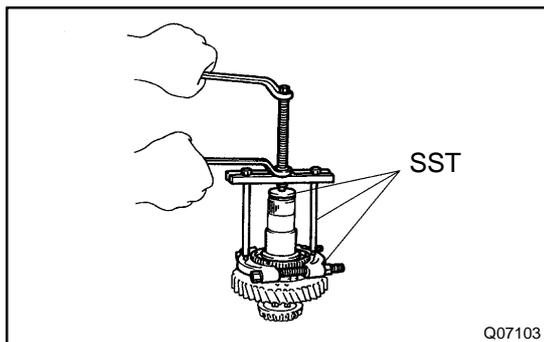
Set the claw of SST to the bearing inner race securely.



- 4. REMOVE HIGH SPEED OUTPUT GEAR
- 5. REMOVE 2 NEEDLE ROLLER BEARINGS



6. REMOVE HIGH AND LOW CLUTCH SLEEVE

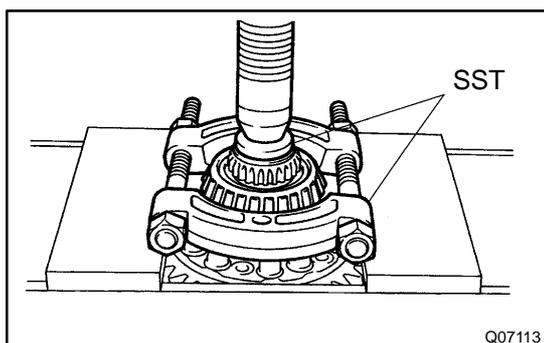


7. REMOVE HIGH SPEED OUTPUT GEAR BUSHING AND CLUTCH HUB

- (a) Using SST, remove the high speed output gear bushing and clutch hub.

SST 09950-00020, 09950-00030, 09950-60010 (09951-00320)

- (b) Using a magnetic finger, remove the straight pin from the differential front case.



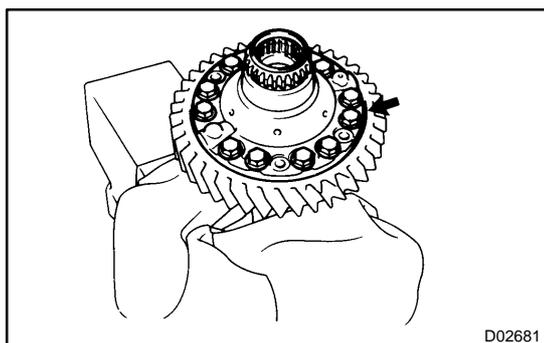
8. REMOVE REAR TAPER ROLLER BEARING

Using SST and a press, remove the rear taper roller bearing.

SST 09950-00020, 09950-60010 (09951-00320)

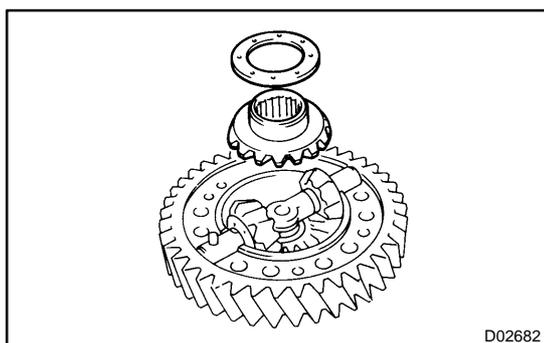
NOTICE:

Set the claw of SST to the bearing inner race securely.

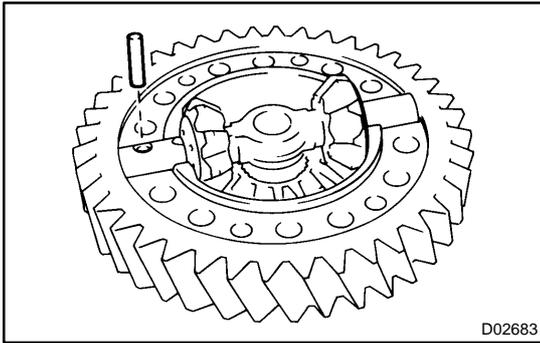


9. REMOVE DIFFERENTIAL REAR CASE

Remove the 12 bolts and differential rear case.

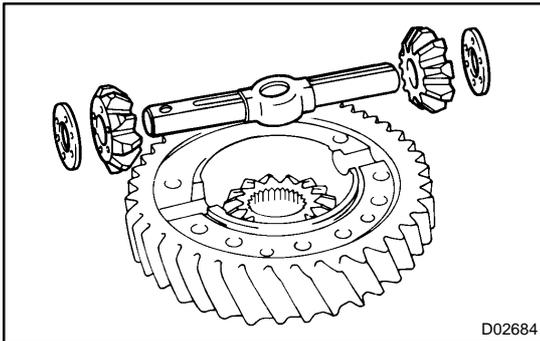


10. REMOVE THRUST WASHER AND REAR SIDE GEAR

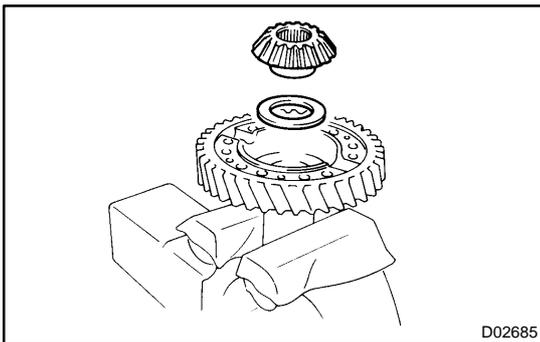


11. REMOVE PINION SHAFT, 2 PINION GEARS AND 2 THRUST WASHERS

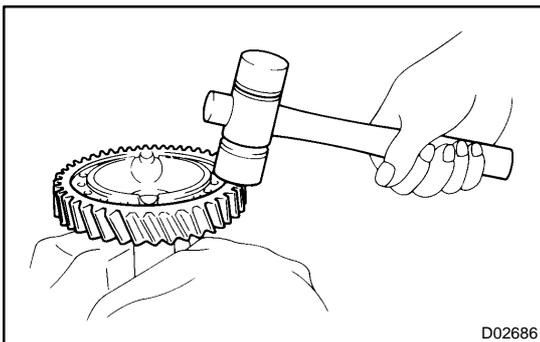
(a) Remove the straight pin from the pinion shaft.



(b) Remove the pinion shaft, 2 pinion gears and thrust washers.



(c) Remove the front side gear and thrust washer.



12. REMOVE LOW GEAR

Using a plastic hammer, tap and remove the low gear.

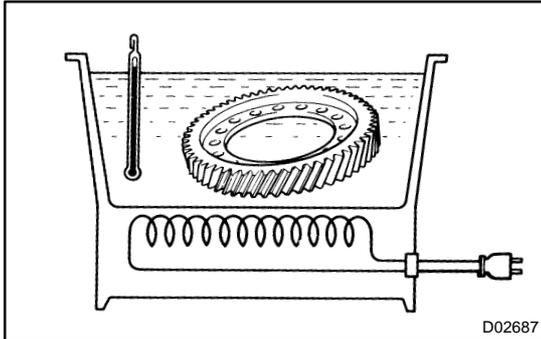
NOTICE:

Be careful not to damage the low gear.

REASSEMBLY

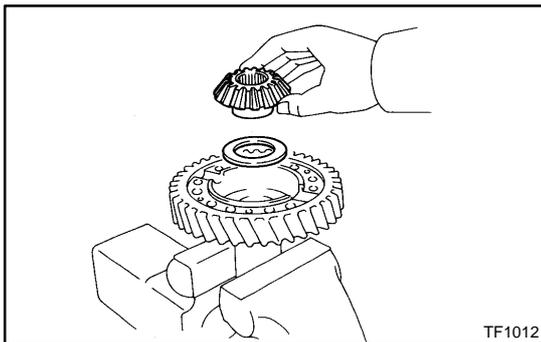
HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

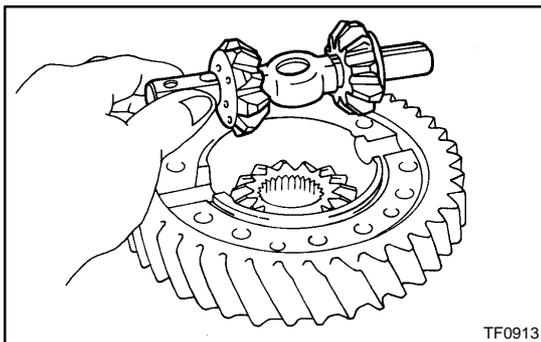


1. INSTALL LOW GEAR

- (a) Clean the contact surface of the differential case.
- (b) Heat the low gear in boiling water.
- (c) Carefully remove the low gear from the water.
- (d) After the moisture on the low gear has completely evaporated, quickly install the low gear to the differential case.

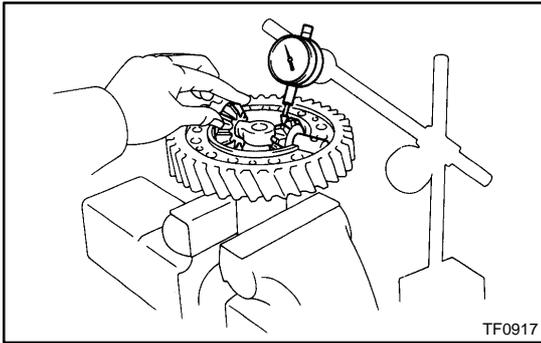


2. INSTALL THRUST WASHER AND FRONT SIDE GEAR



3. INSTALL PINION SHAFT, 2 PINION GEARS AND 2 THRUST WASHERS

- (a) Install the pinion shaft, 2 pinion gears and thrust washers to the differential front case.



(b) Using a dial indicator, measure the front case backlash.

HINT:

Push the pinion shaft.

Maximum backlash: 0.05 mm (0.0020 in.)

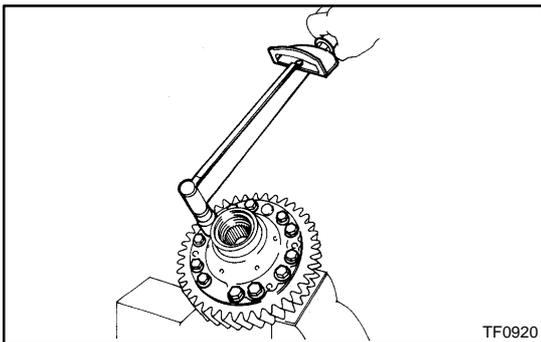
If the backlash is not within the specification, replace the thrust washer with one of the correct size and reinstall the thrust washer.

| Thickness mm (in.) | Thickness mm (in.) |
|--------------------|--------------------|
| 1.70 (0.0669) | 2.45 (0.0965) |
| 1.85 (0.0728) | 2.60 (0.1024) |
| 2.00 (0.0787) | 2.75 (0.1083) |
| 2.15 (0.0846) | 2.90 (0.1142) |
| 2.30 (0.0906) | 3.05 (0.1201) |

(c) In the same way, measure the rear case backlash.

4. INSTALL STRAIGHT PIN TO PINION SHAFT

5. INSTALL REAR SIDE GEAR AND THRUST WASHER



6. INSTALL DIFFERENTIAL REAR CASE

(a) Install the differential rear case and 12 set bolts.

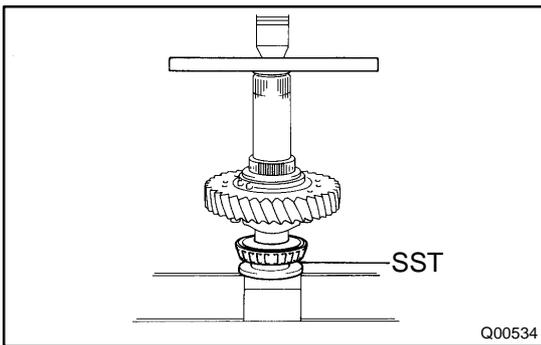
Torque: 88 N·m (900 kgf·cm, 65 ft·lbf)

(b) Turn the pinion gear.

(c) Loosen the 12 rear case set bolts.

(d) Torque the 12 rear case set bolts.

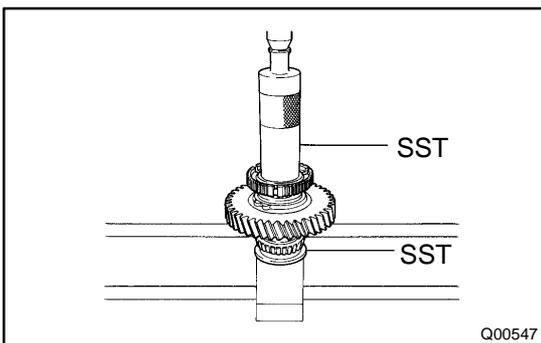
Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)



7. INSTALL REAR TAPER ROLLER BEARING

Using SST and a press, install the rear taper roller bearing.

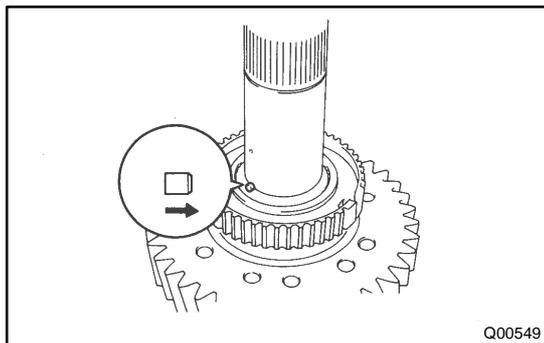
SST 09316-12010



8. INSTALL CLUTCH HUB

Using SST and a press, install the clutch hub.

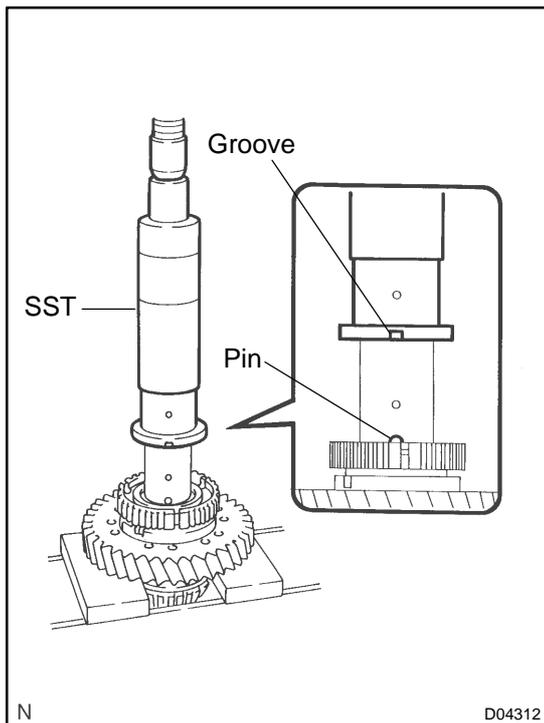
SST 09316-12010, 09316-60011 (09316-00011)



Q00549

9. INSTALL HIGH SPEED OUTPUT GEAR BUSHING

- (a) Apply MP grease to the straight pin.
- (b) Install the straight pin, as shown.



N

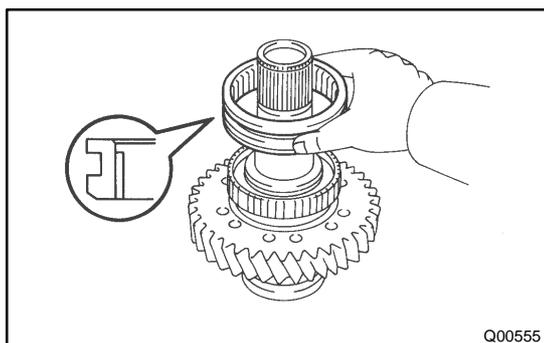
D04312

- (c) Using SST and a press, install the high speed output gear bushing.

SST 09316-12010, 09316-60011 (09316-00011)

NOTICE:

Before pressing on the differential front case, align the groove on the bushing with the pin on the shaft.



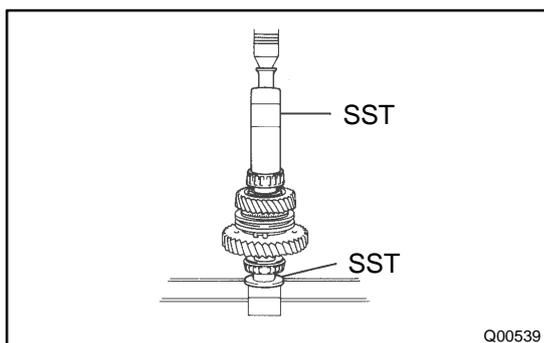
Q00555

10. INSTALL HIGH AND LOW CLUTCH SLEEVE**HINT:**

Make sure to install the high and low clutch sleeve in the correct direction.

11. INSTALL NEEDLE ROLLER BEARING AND HIGH SPEED OUTPUT GEAR

- (a) Apply gear oil to the needle roller bearing.
- (b) Install the needle roller bearing and high speed output gear.

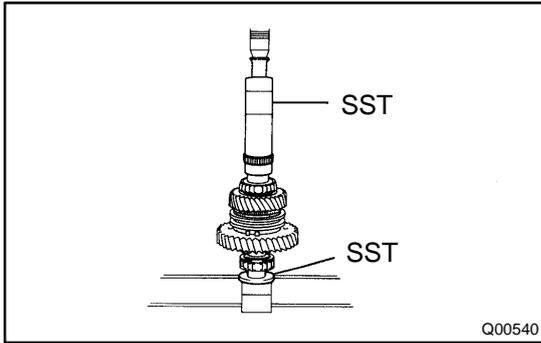


Q00539

12. INSTALL FRONT TAPER ROLLER BEARING

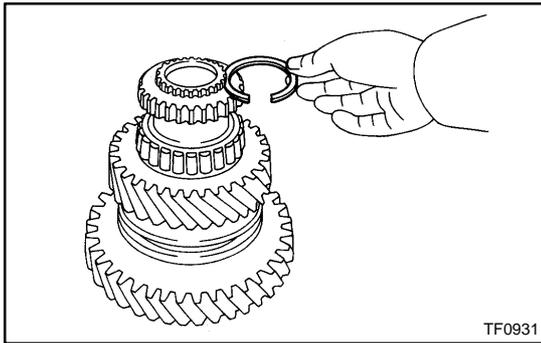
Using SST and a press, install the front taper roller bearing.

SST 09316-12010, 09316-60011 (09316-00011)



13. INSTALL FRONT DRIVE GEAR PIECE

Using SST and a press, install the front drive gear piece.
 SST 09316-12010, 09316-60011 (09316-00011)



14. INSTALL SNAP RING

(a) Select a snap ring that will allow the minimum axial play.

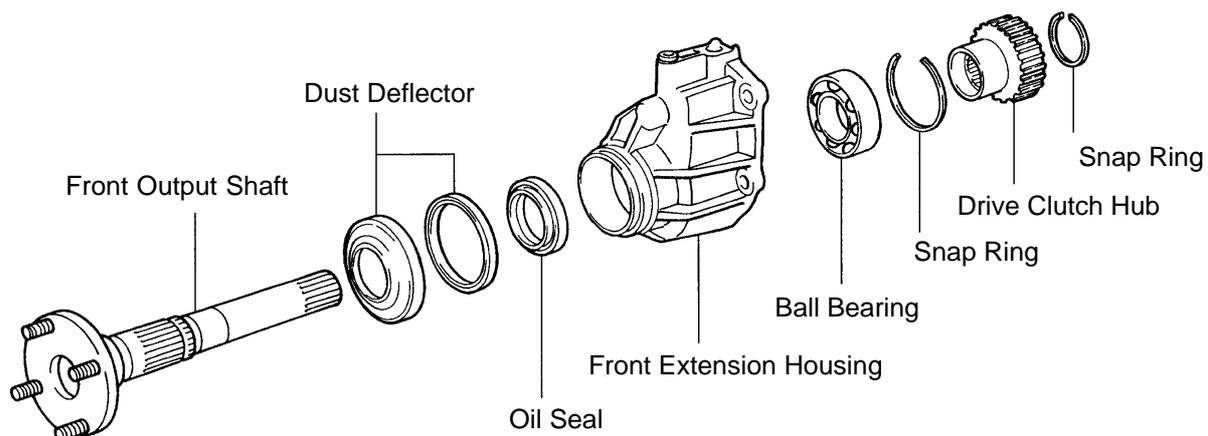
| Mark | Thickness mm (in.) | Mark | Thickness mm (in.) |
|------|--------------------|------|--------------------|
| A | 2.00 (0.0787) | G | 2.60 (0.1024) |
| B | 2.10 (0.0827) | H | 2.70 (0.1063) |
| C | 2.20 (0.0866) | J | 2.80 (0.1102) |
| D | 2.30 (0.0906) | K | 1.80 (0.0709) |
| E | 2.40 (0.0945) | L | 1.90 (0.0748) |
| F | 2.50 (0.0984) | - | - |

(b) Using a snap ring expander, install a new snap ring.

15. INSPECT HIGH SPEED OUTPUT GEAR RADIAL AND THRUST CLEARANCE (See page TR-28)

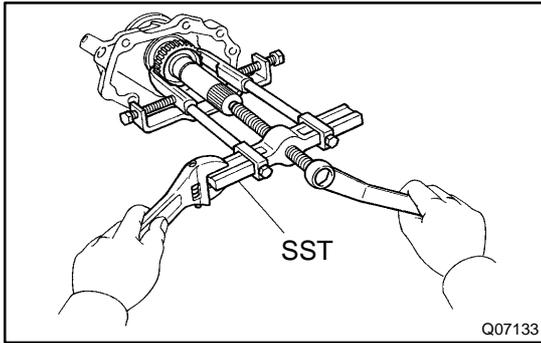
FRONT EXTENSION HOUSING COMPONENTS

TR06M-02



Non-reusable part

Z18836

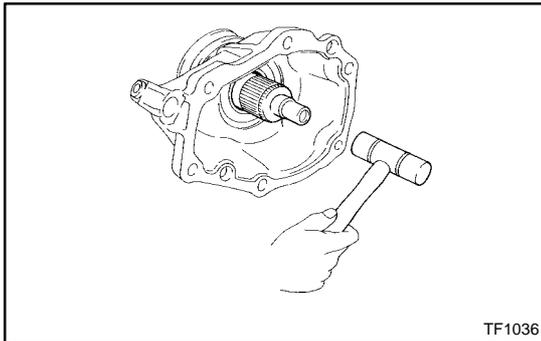


DISASSEMBLY

1. REMOVE DRIVE CLUTCH HUB

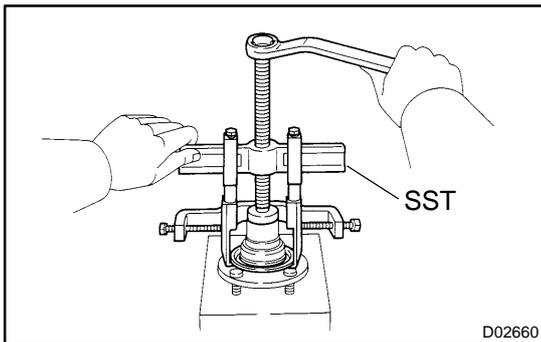
- (a) Using a snap ring expander, remove the snap ring.
- (b) Using SST, remove the drive clutch hub.

SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04020, 09955-04021, 09957-04010, 09958-04011)



2. REMOVE FRONT OUTPUT SHAFT

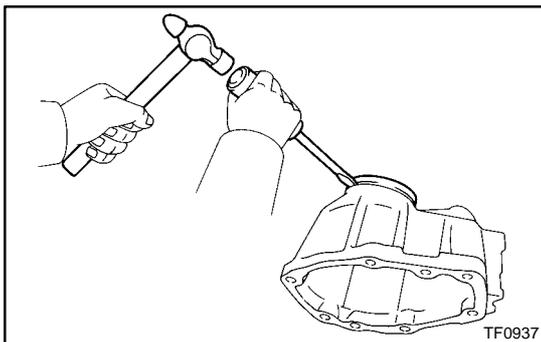
Using a plastic hammer, drive out the front output shaft.



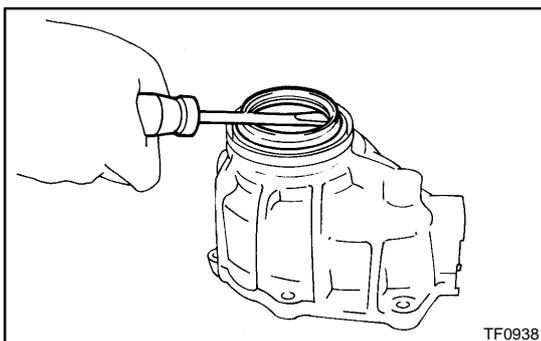
3. REMOVE DUST DEFLECTOR

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

SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04051, 09957-04010, 09958-04011)

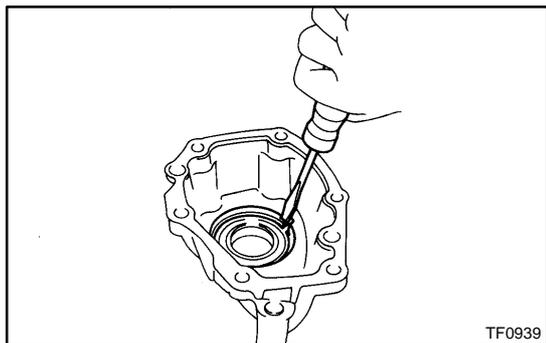


- (b) Using a screwdriver and hammer, tap the dust deflector and remove it from the extension housing.

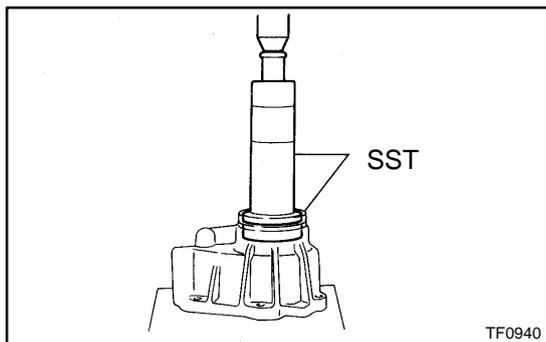


4. REMOVE OIL SEAL

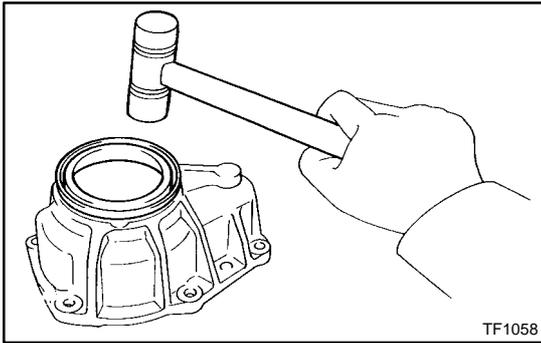
Using a screwdriver, pry out the oil seal from the front extension housing.

**5. REMOVE BALL BEARING**

- (a) Using a screwdriver, remove the snap ring.



- (b) Using SST and a press, remove the ball bearing.
SST 09316-6001 1 (09316-00011, 09316-00071)



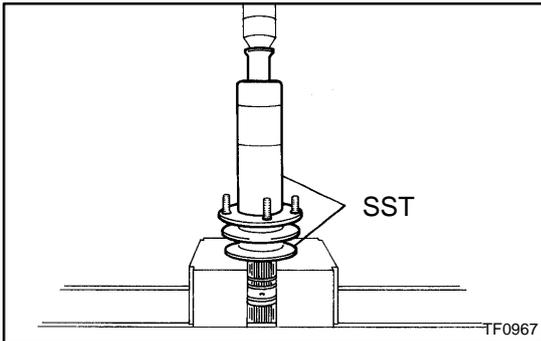
REASSEMBLY

HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

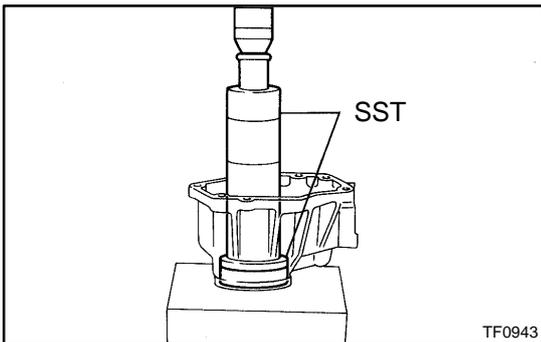
1. INSTALL DUST DEFLECTOR

- (a) Using a plastic hammer, install a new dust deflector to the front extension housing.



- (b) Using SST and a press, install a new dust deflector to the front output shaft.

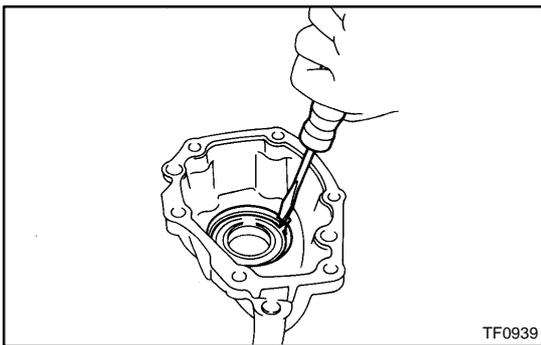
SST 09316-2001 1, 09316-60011 (09316-00011)



2. INSTALL BALL BEARING

- (a) Using SST and a press, install the ball bearing to the front extension housing.

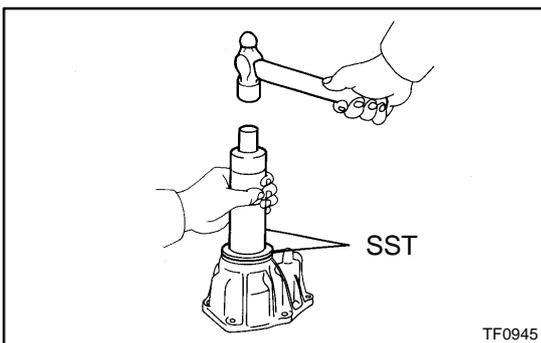
SST 09316-6001 1 (09316-00011, 09316-00031)



- (b) Select a snap ring that will allow the minimum axial play.

| Mark | Thickness mm (in.) |
|------|--------------------|
| A | 1.70 (0.0669) |
| B | 1.80 (0.0709) |

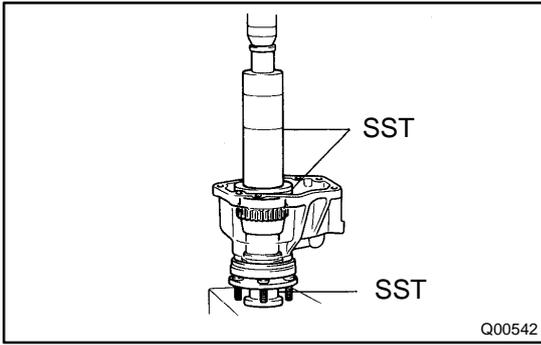
- (c) Using a screwdriver, install a new snap ring.



3. INSTALL OIL SEAL

- (a) Apply MP grease to the lip of a new oil seal.
- (b) Using SST and a hammer, drive in a new oil seal to the front extension housing.

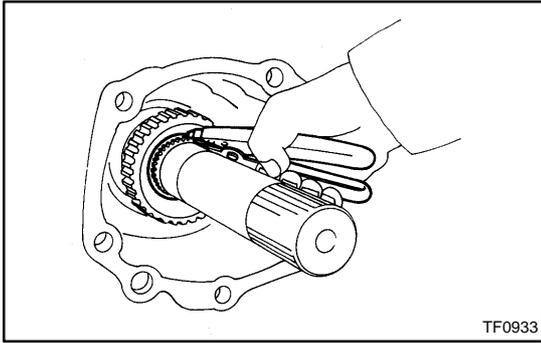
SST 09316-6001 1 (09316-00011, 09316-00061)



4. INSTALL FRONT OUTPUT SHAFT AND DRIVE CLUTCH HUB

(a) Using SST and a press, install the front output shaft and drive clutch hub.

SST 09316-2001 1, 09316-60011 (09316-00011, 09316-00041, 09316-00071)



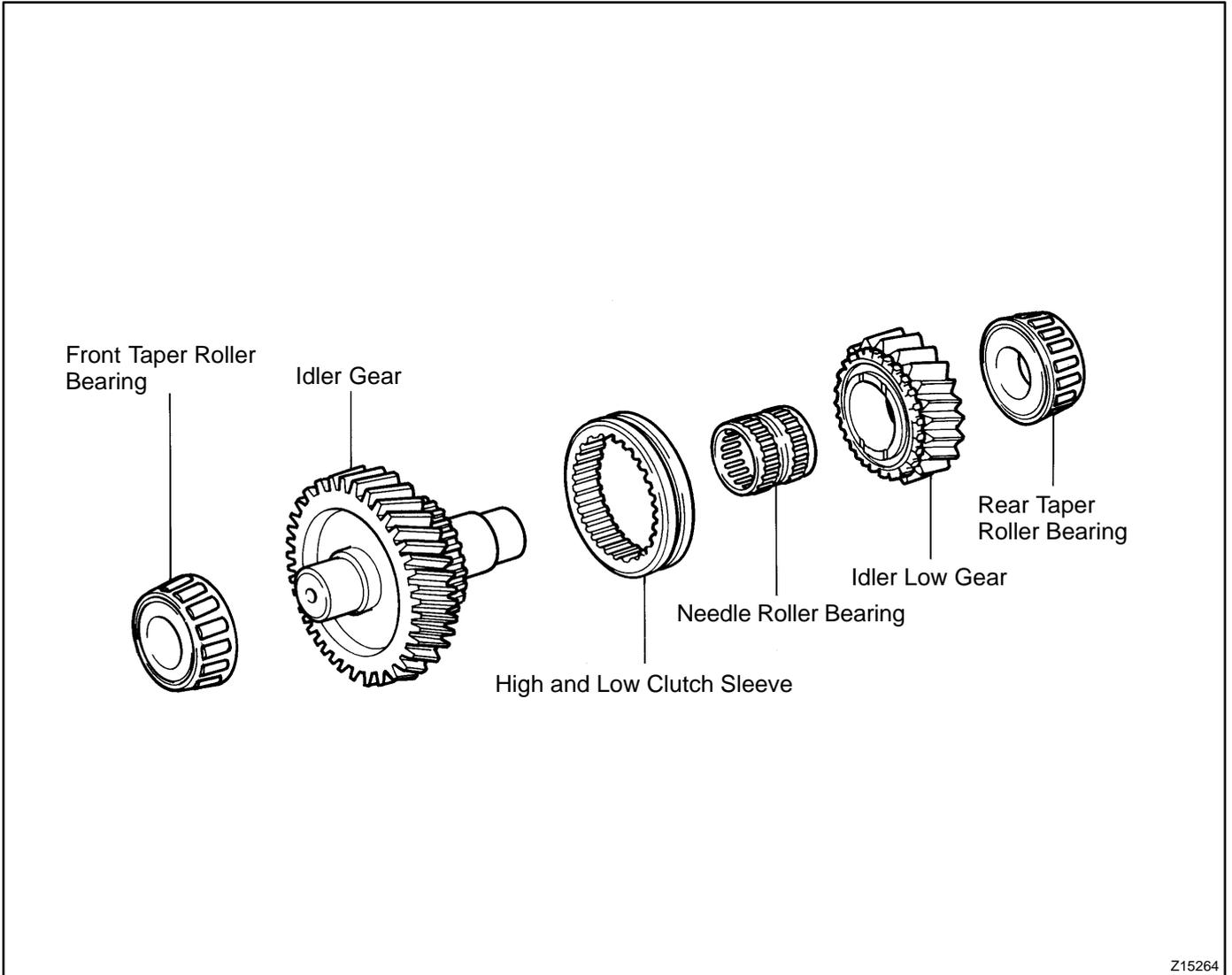
(b) Select a snap ring that will allow the minimum axial play.

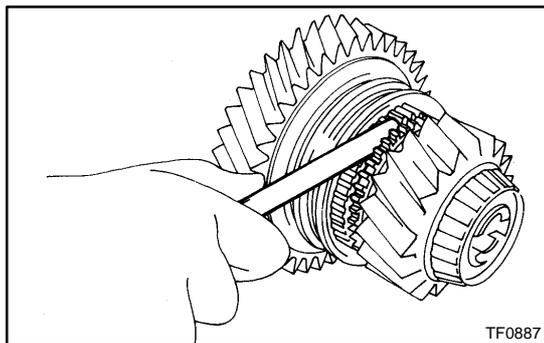
| Mark | Thickness mm (in.) |
|------|--------------------|
| A | 1.80 (0.0709) |
| B | 1.90 (0.0748) |
| C | 2.00 (0.0787) |
| D | 2.10 (0.0827) |
| E | 2.20 (0.0866) |

(c) Using a snap ring expander, install a new snap ring.

IDLER GEAR COMPONENTS

TR06F-02





DISASSEMBLY

1. INSPECT IDLER LOW GEAR RADIAL AND THRUST CLEARANCE

- (a) Using a feeler gauge, measure the idler low gear thrust clearance.

Standard clearance:

0.125 - 0.275 mm (0.00492 - 0.01083 in.)

Maximum clearance:

0.275 mm (0.01083 in.)

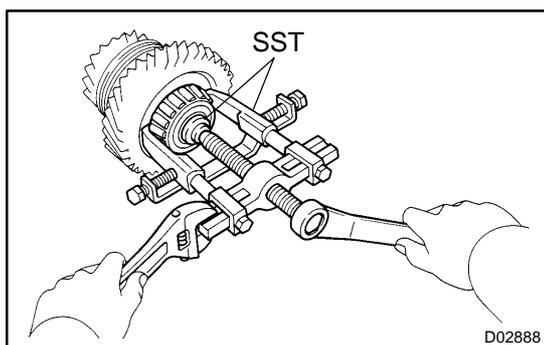
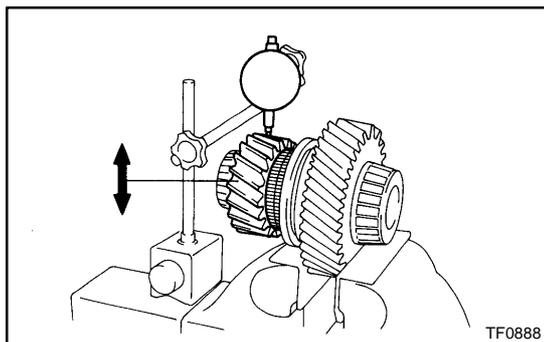
- (b) Using a dial indicator, measure the idler low gear radial clearance.

Standard clearance:

0.015 - 0.068 mm (0.00059 - 0.00268 in.)

Maximum clearance:

0.068 mm (0.00268 in.)



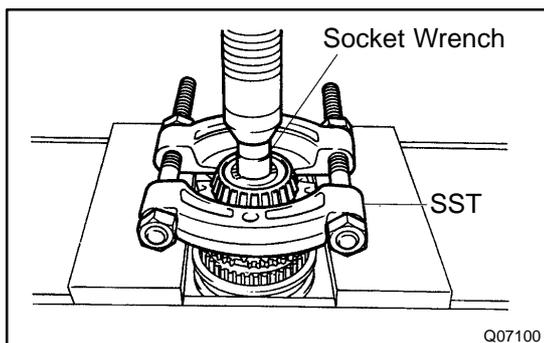
2. REMOVE FRONT TAPER ROLLER BEARING

Using SST, remove the front taper roller bearing.

SST 09950-40011 (09951-04010, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00330)

NOTICE:

Set the claw of SST to the bearing inner race securely.



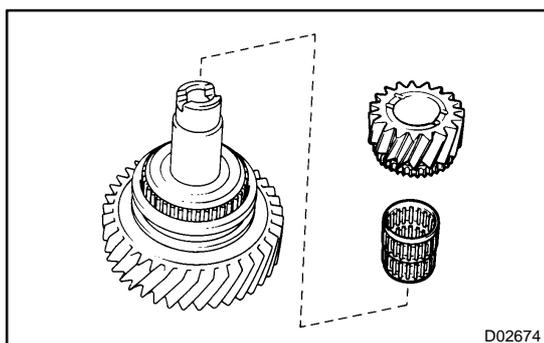
3. REMOVE REAR TAPER ROLLER BEARING

Using SST, a press and socket wrench, remove the rear taper roller bearing.

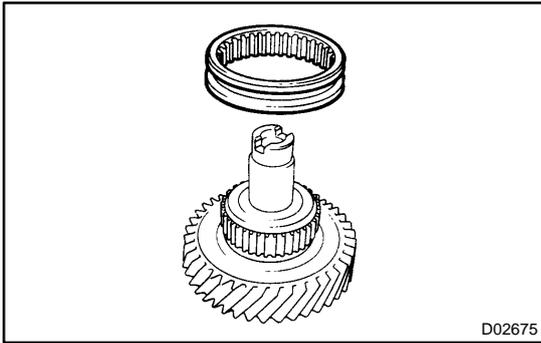
SST 09950-00020

NOTICE:

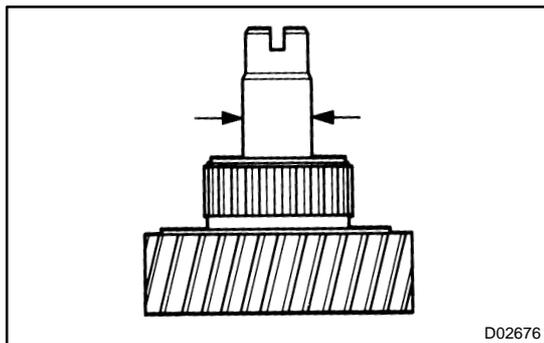
Set the claw of SST to the bearing inner race securely.



4. REMOVE IDLER LOW GEAR AND NEEDLE ROLLER BEARING FROM IDLER GEAR



5. REMOVE HIGH AND LOW CLUTCH SLEEVE FROM IDLER GEAR



INSPECTION

1. INSPECT IDLER GEAR

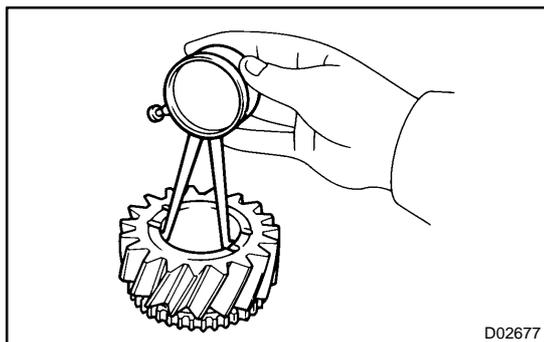
Using a micrometer, measure the idler gear diameter.

Standard diameter:

38.48 - 38.50 mm (1.5149 - 1.5157 in.)

Maximum diameter:

38.50 mm (1.5157 in.)



2. INSPECT IDLER LOW GEAR

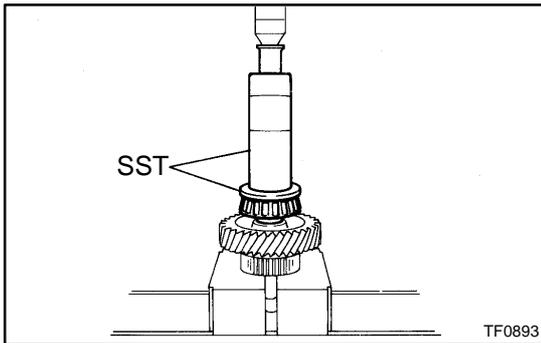
Using a cylinder gauge, measure the idler low gear diameter.

Standard diameter:

45.52 - 45.54 mm (1.7922 - 1.7930 in.)

Maximum diameter:

45.54 mm (1.7930 in.)



REASSEMBLY

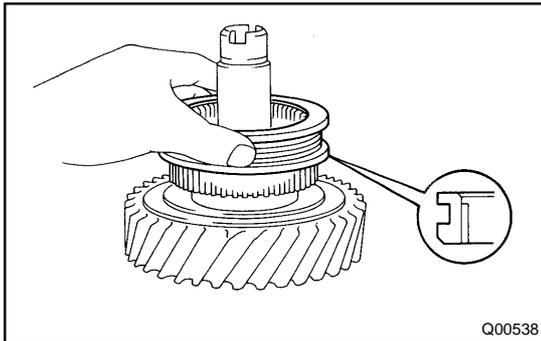
HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

1. INSTALL FRONT TAPER ROLLER BEARING

Using SST and a press, install the front taper roller bearing.

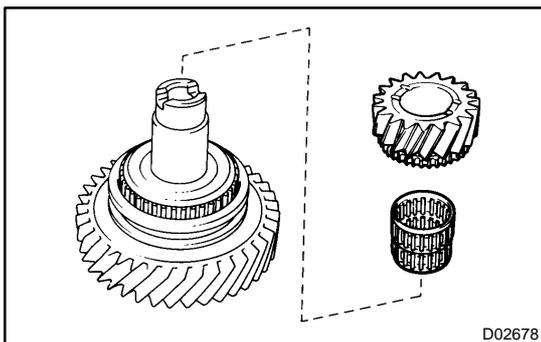
SST 09316-6001 1 (09316-00011, 09316-00031)



2. INSTALL HIGH AND LOW CLUTCH SLEEVE

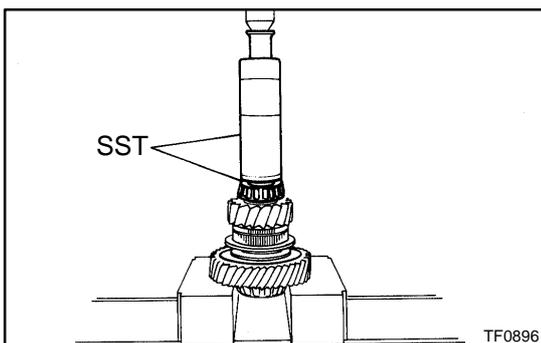
HINT:

Make sure to install the high and low clutch sleeve in the correct direction.



3. INSTALL NEEDLE ROLLER BEARING AND IDLER LOW GEAR TO IDLER GEAR

- (a) Apply gear oil to the needle roller bearing.
- (b) Install the needle roller bearing and idler low gear.



4. INSTALL REAR TAPER ROLLER BEARING

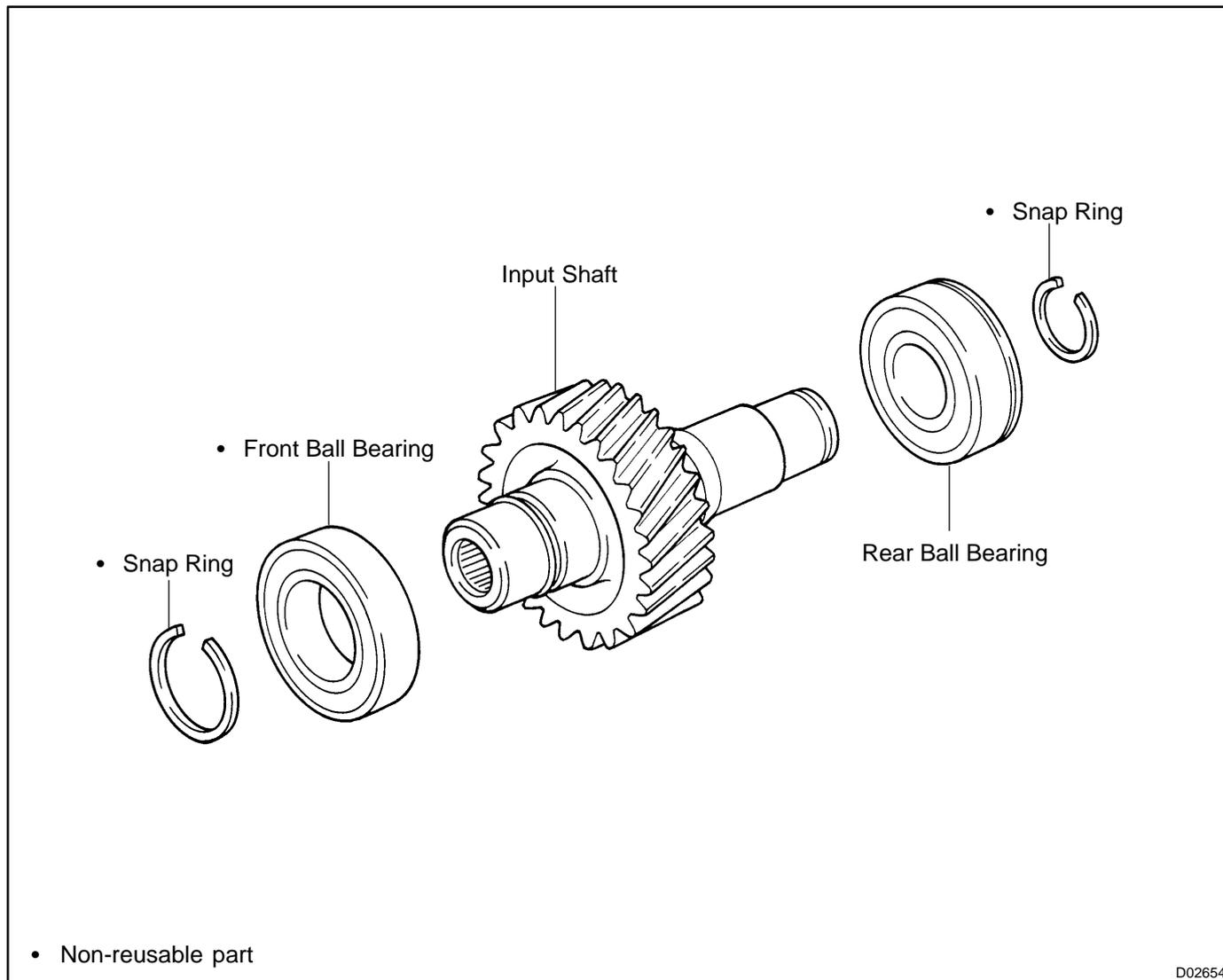
Using SST and a press, install the rear taper roller bearing.

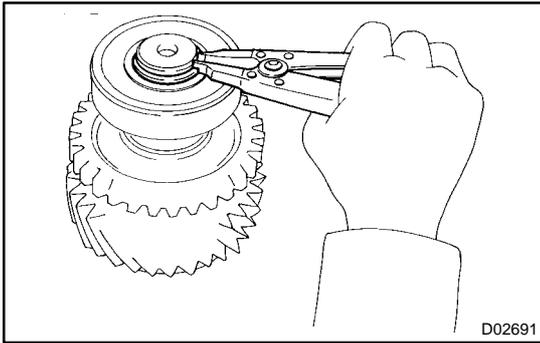
SST 09316-6001 1 (09316-00011, 09316-00071)

5. INSPECT IDLER LOW GEAR RADIAL AND THRUST CLEARANCE (See page [TR-25](#))

INPUT SHAFT COMPONENTS

TR06C-02

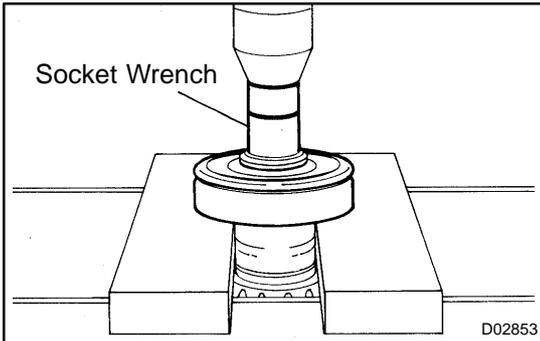




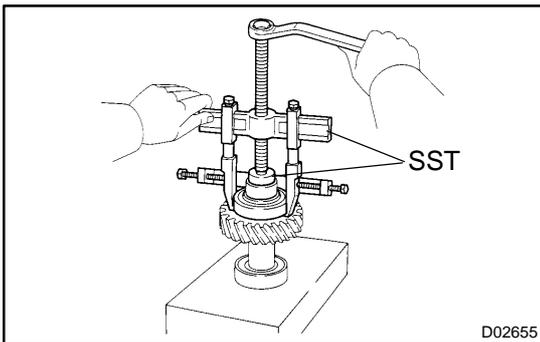
DISASSEMBLY

1. REMOVE REAR BALL BEARING

- (a) Using a snap ring expander, remove the snap ring.



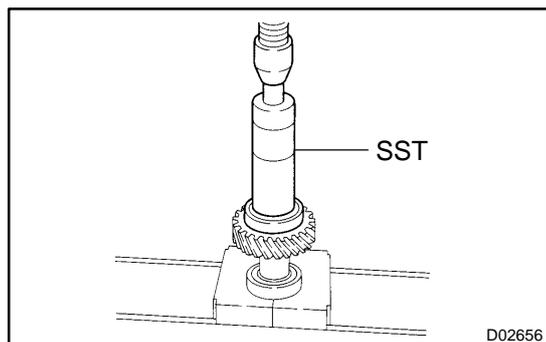
- (b) Using a socket wrench and press, remove the rear ball bearing.



2. REMOVE FRONT BALL BEARING

- (a) Using a snap ring expander, remove the snap ring.
 (b) Using SST, remove the front ball bearing.

SST 09950-40011 (09951-04020, 09952-04010,
 09953-04030, 09954-04010, 09955-04011,
 09957-04010, 09958-04011), 09950-60010
 (09951-00400)



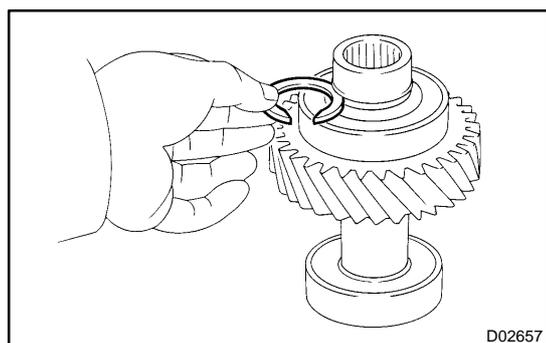
REASSEMBLY

HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

1. INSTALL FRONT BALL BEARING

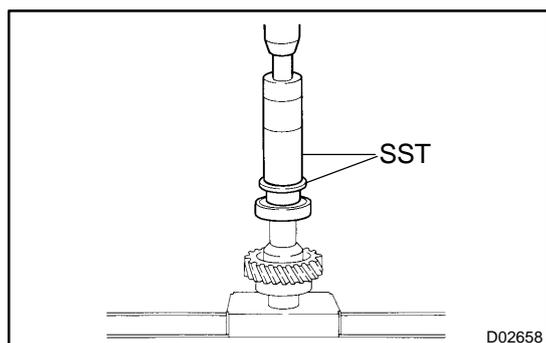
- (a) Using SST and a press, install a new front ball bearing.
SST 09316-6001 1 (09316-00011)



- (b) Select a snap ring that will allow the minimum axial play.

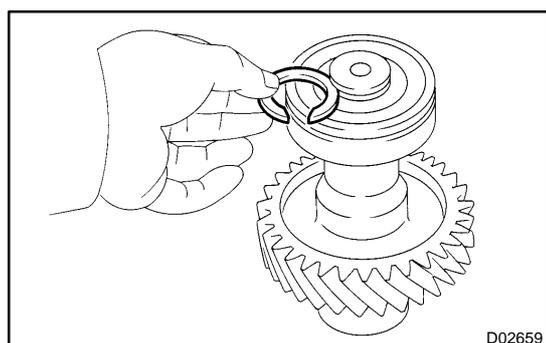
| Mark | Thickness mm (in.) | Mark | Thickness mm (in.) |
|------|--------------------|------|--------------------|
| A | 2.90 (0.1141) | D | 3.05 (0.1201) |
| B | 2.95 (0.1161) | E | 3.10 (0.1220) |
| C | 3.00 (0.1181) | F | 3.15 (0.1240) |

- (c) Using a snap ring expander, install a new snap ring.



2. INSTALL REAR BALL BEARING

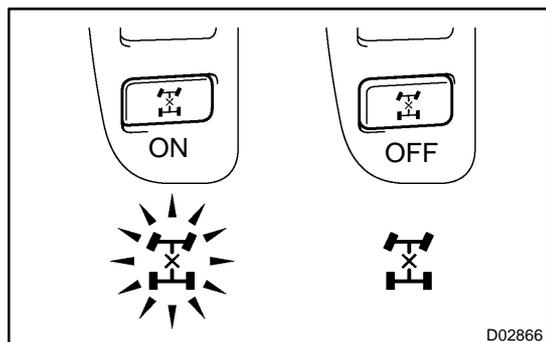
- (a) Using SST and a press, install the rear ball bearing.
SST 09316-6001 1 (09316-00011, 09316-00031)



- (b) Select a snap ring that will allow the minimum axial play.

| Mark | Thickness mm (in.) |
|------|--------------------|
| A | 2.00 (0.0787) |
| B | 2.10 (0.0827) |
| C | 2.20 (0.0866) |
| D | 2.30 (0.0906) |
| E | 2.40 (0.0945) |

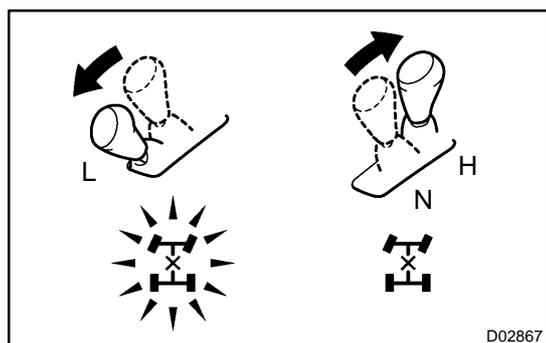
- (c) Using a snap ring expander, install a new snap ring.



INSPECTION

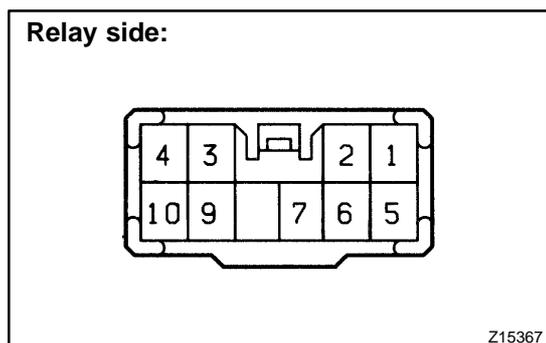
1. INSPECT SWITCH POSITION

- Start the engine, and shift the transfer shift lever to the "H" position.
- Check that the center diff. indicator light comes on when the the switch is in "ON" position. Check that the light goes off when the switch is in "OFF" position.



2. INSPECT SHIFT LEVER POSITION

- Start the engine, and turn the center diff. lock switch to OFF.
- Check that the center diff. indicator light comes on when the transfer shift lever is shifted to the "L" position. Check that the light goes off when the lever is shifted to the "N" or "H" position.



3. INSPECT CENTER DIFF. LOCK CONTROL RELAY

- Check that continuity exists between each terminal, as shown in the chart.

| Tester connected terminal number | Specified condition |
|----------------------------------|---------------------|
| 1 - 2 | Continuity |
| 2 - 4 | Continuity |
| 6 - 7 | * |

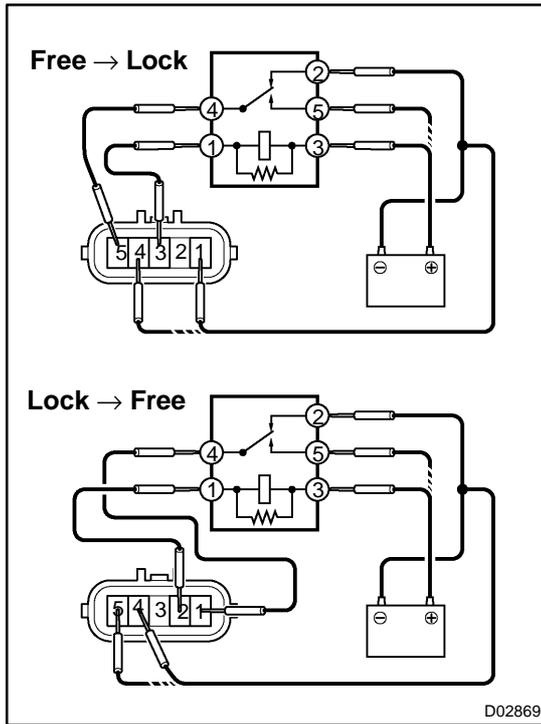
*: There is a diode between the terminals 6 and 7.

If no continuity exists, check that continuity exists when changing the position of \oplus probe for the position of negative \ominus probe of tester.

- Apply battery positive voltage between each terminal and check that continuity exists between each terminal, as shown in the chart.

| Battery voltage applied terminal | Tester connected terminal number | Specified condition |
|----------------------------------|----------------------------------|---------------------|
| 6 (+) - 5 (-) | 1 - 3 | Continuity |
| | 1 - 2 | No continuity |
| 7 (+) - 2 (-) | 9 - 10 | No continuity |
| 9 (+) - 10 (-) | 3 - 4 | Continuity |
| | 2 - 4 | No continuity |

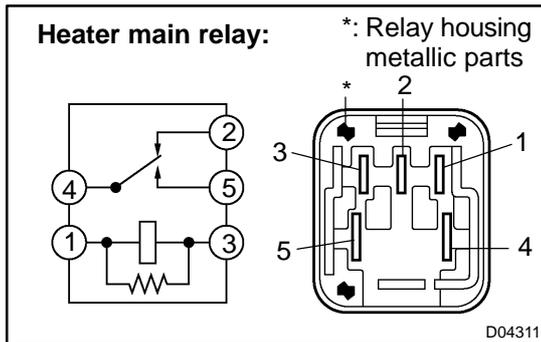
If continuity is not as specified, replace the relay.



4. INSPECT ACTUATOR OPERATION

- (a) Raise up the front wheels, place the stopper under the rear wheels to block them, and pull up the parking brake.
- (b) Disconnect the connector of the actuator and connect it to the relay using wire.
- (c) Check that the front propeller shaft can be rotated by hand.

| Inspection Item | Standard |
|-----------------------------|--|
| Center Diff. Free → Lock | Front propeller shaft cannot be rotated. |
| Center Diff. Lock → Free | Front propeller shaft can be rotated. |

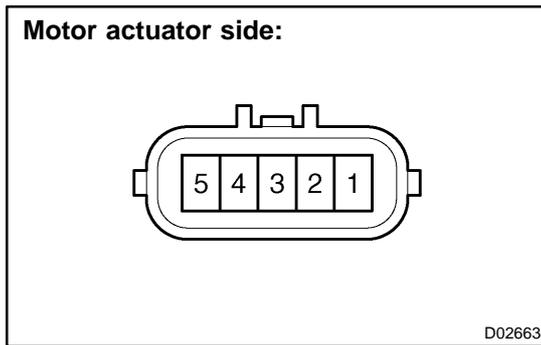


HINT:

When inspecting the operation described above, use a heater main relay.

NOTICE:

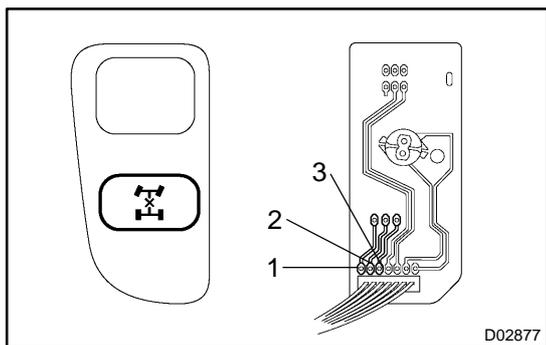
Connect the terminals being careful not to touch the neighboring terminals or metallic parts of relay housing.



5. INSPECT MOTOR ACTUATOR (MOTOR)

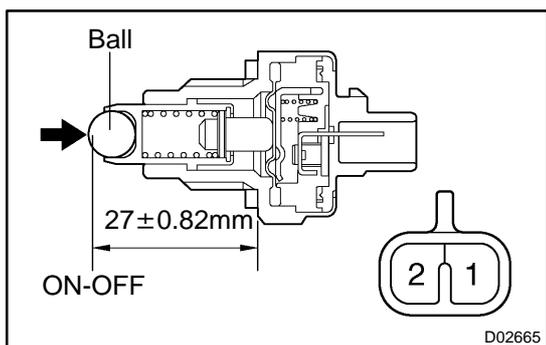
- (a) Remove the motor actuator (See page TR-8).
- (b) Measure the resistance between the terminals 1 and 5.
Standard resistance: 0.3 - 100 Ω
- (c) Measure the resistance between the terminals 1 or 5 and body ground.
Standard resistance: More than 0.5 MΩ

If the resistance value is not as specified, replace the motor actuator.



- 6. INSPECT CENTER DIFF. LOCK SWITCH CONTINUITY**
 (a) Remove the center diff. lock switch (See page [AC-102](#)).
 (b) Inspect the continuity between each terminal.

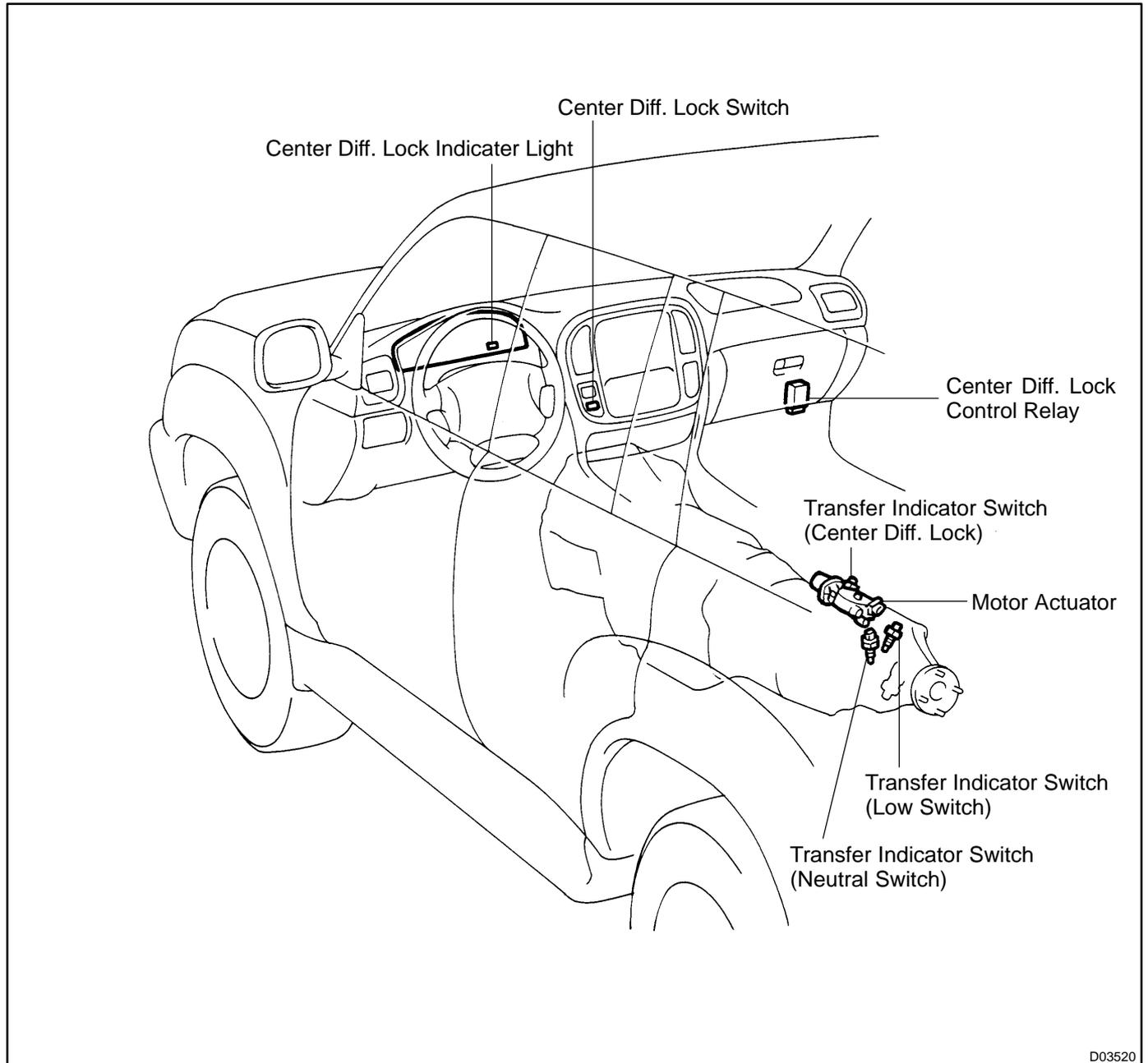
| Center diff. lock switch condition | Tester connected terminal number | Specified condition |
|------------------------------------|----------------------------------|---------------------|
| ON | 1 - 2 | No continuity |
| | 1 - 3 | No continuity |
| | 2 - 3 | Continuity |
| OFF | 1 - 2 | Continuity |
| | 1 - 3 | No continuity |
| | 2 - 3 | No continuity |



- 7. INSPECT TRANSFER INDICATOR SWITCH CONTINUITY**
 (a) Remove the 3 transfer indicator switches (See page [TR-8](#)).
 (b) Check that continuity exists between terminals 1 and 2 when pushing the ball at the tip of the switch.

MOTOR SHIFT CONTROL SYSTEM LOCATION

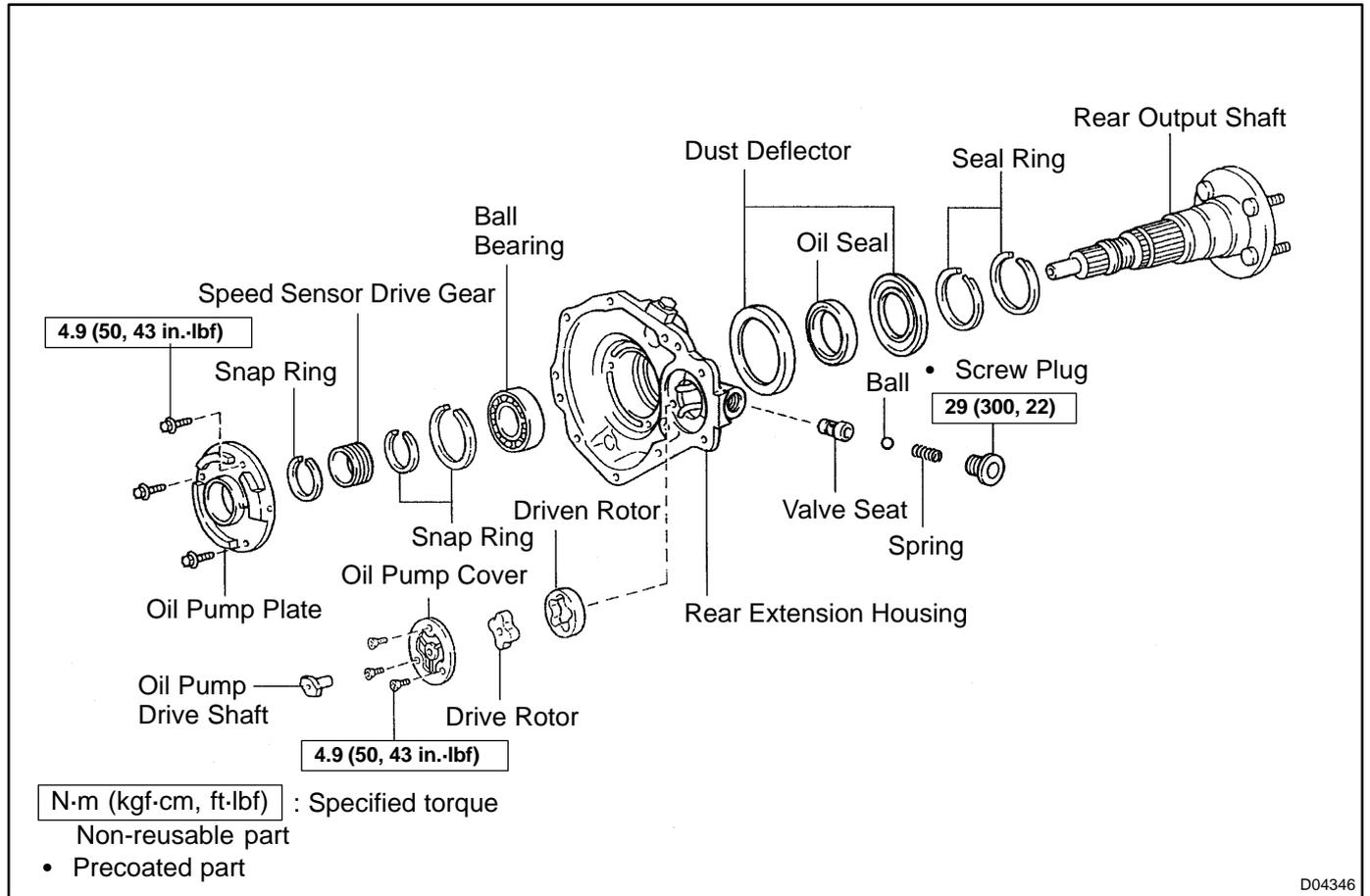
TR06U-02



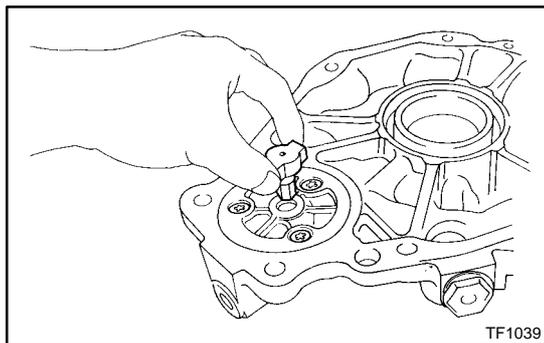
D03520

REAR EXTENSION HOUSING COMPONENTS

TR06P-02

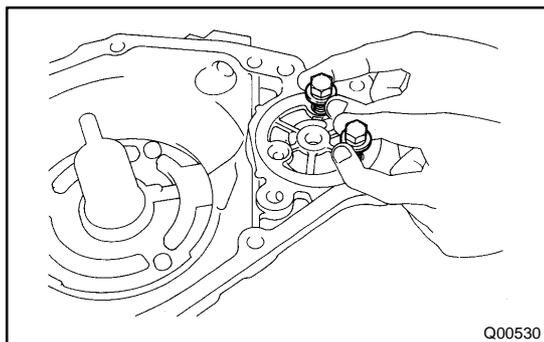


D04346



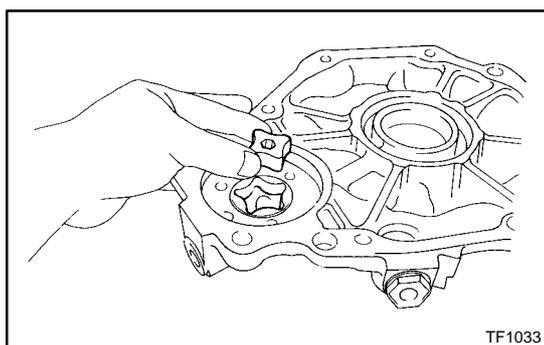
DISASSEMBLY

1. REMOVE OIL PUMP DRIVE SHAFT

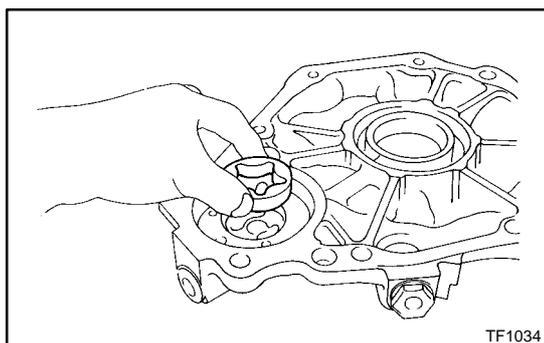


2. REMOVE OIL PUMP COVER

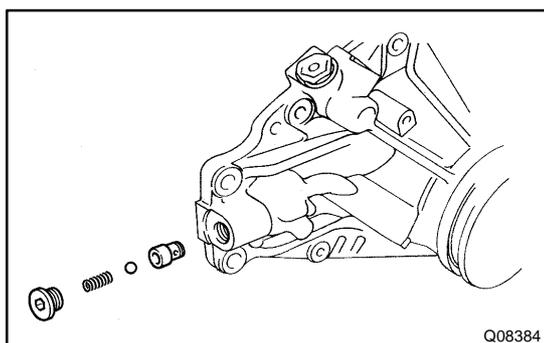
- Using a torx socket wrench (T30), remove the 3 screws.
- Install the 2 suitable bolts to the pump cover.
- Remove the pump cover from the rear extension housing.



3. REMOVE DRIVE ROTOR FROM DRIVEN ROTOR

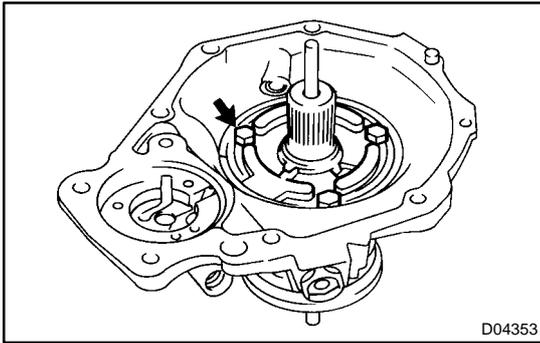


4. REMOVE DRIVEN ROTOR FROM REAR EXTENSION HOUSING



5. REMOVE SCREW PLUG, SPRING, BALL AND VALVE SEAT

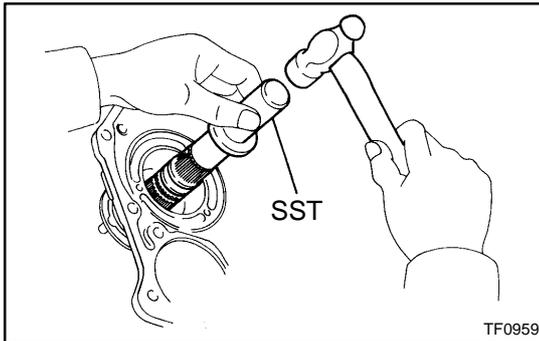
- Using a hexagon wrench, remove the screw plug.
- Using a magnetic finger, remove the spring, ball and valve seat from the rear extension housing.

**6. REMOVE OIL PUMP PLATE**

Remove the 3 bolts and oil pump plate.

7. REMOVE SPEED SENSOR DRIVE GEAR

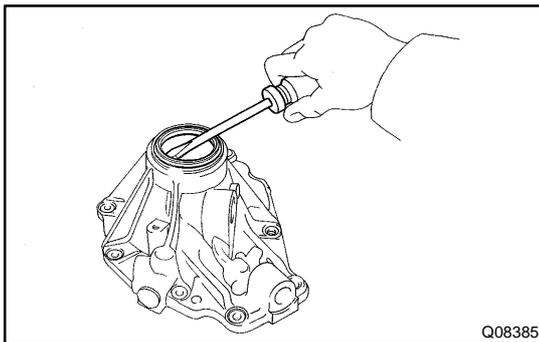
- (a) Using a snap ring expander, remove the snap ring.
- (b) Remove the speed sensor drive gear.

**8. REMOVE REAR OUTPUT SHAFT**

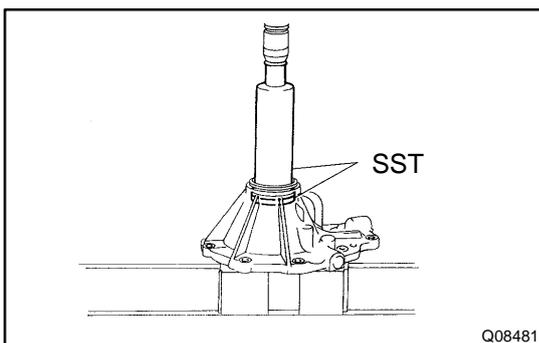
- (a) Using a snap ring expander, remove the snap ring.
- (b) Using SST and a hammer, remove the rear output shaft.
SST 09325-12010
- (c) Remove the 2 seal rings from the rear output shaft.

9. REMOVE DUST DEFLECTOR

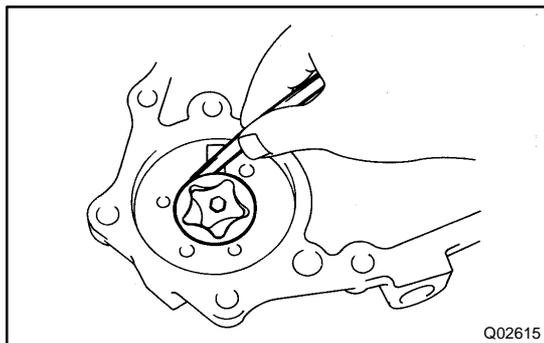
- (a) Using a screwdriver and hammer, remove the rear extension housing dust deflector.
- (b) Using a screwdriver and hammer, remove the rear output shaft dust deflector.

**10. REMOVE OIL SEAL**

Using a screwdriver, pry out the oil seal from the rear extension housing.

**11. REMOVE BALL BEARING**

- (a) Using a screwdriver, remove the snap ring.
- (b) Using SST and a press, remove the ball bearing from the rear extension housing.
SST 09316-6001 1 (09316-00011, 09316-00021)



INSPECTION

1. INSPECT DRIVEN ROTOR BODY CLEARANCE

- (a) Install the drive rotor and driven rotor to the rear extension housing.
- (b) Using a feeler gauge, measure the body clearance between the drive rotor and extension housing.

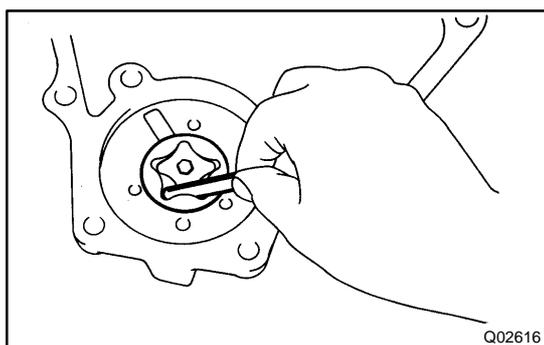
Standard clearance:

0.08 - 0.17 mm (0.0031 - 0.0067 in.)

Maximum clearance:

0.17 mm (0.0067 in.)

If the body clearance exceeds the maximum, replace the drive rotor and driven rotor.



2. INSPECT DRIVEN ROTOR TIP CLEARANCE

Using a feeler gauge, measure the tip clearance between the drive rotor and driven rotor.

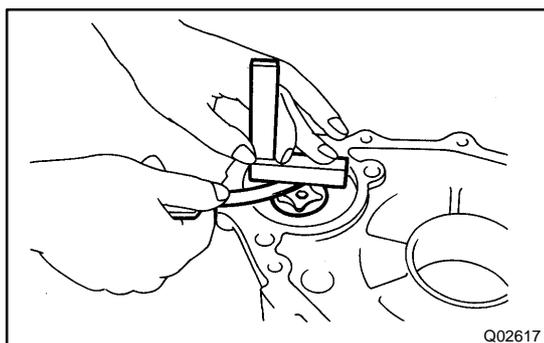
Standard clearance:

0.05 - 0.15 mm (0.0020 - 0.0059 in.)

Maximum clearance:

0.15 mm (0.0059 in.)

If the tip clearance exceeds the maximum, replace the drive rotor and driven rotor.



3. INSPECT OIL PUMP SIDE CLEARANCE

Using a steel straight edge and feeler gauge, measure the side clearance of oil pump.

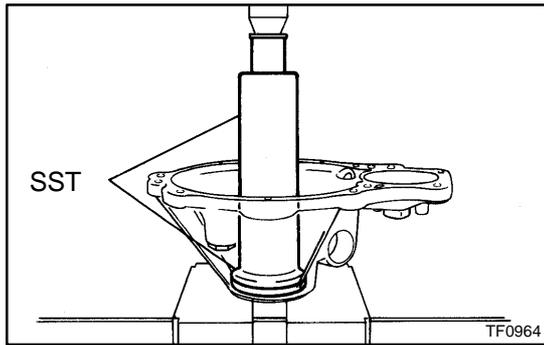
Standard clearance:

0.03 - 0.10 mm (0.0012 - 0.0039 in.)

Maximum clearance:

0.10 mm (0.0039 in.)

If the side clearance exceeds the maximum, replace the drive rotor and driven rotor.



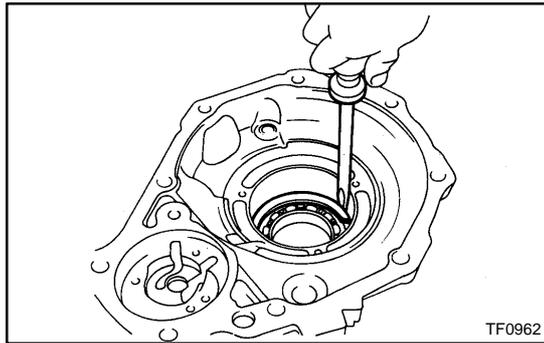
REASSEMBLY

HINT:

Coat all of the sliding and rotating surfaces with gear oil before reassembly.

1. INSTALL BALL BEARING

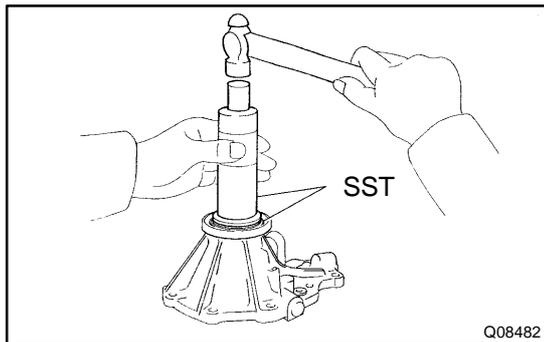
- (a) Using SST and a press, install the ball bearing.
SST 09316-6001 1 (09316-00011, 09316-00031)



- (b) Select a snap ring that will allow the minimum axial play.

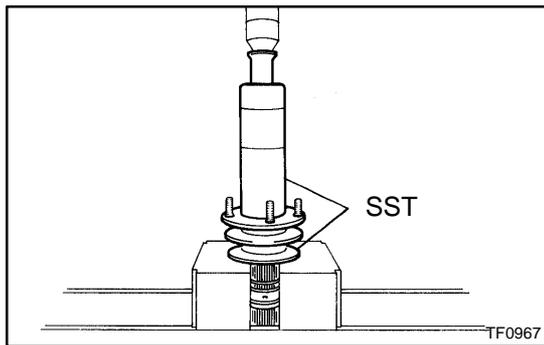
| Mark | Thickness mm (in.) |
|------|--------------------|
| A | 1.70 (0.0669) |
| B | 1.80 (0.0709) |

- (c) Using a screwdriver, install a new snap ring.

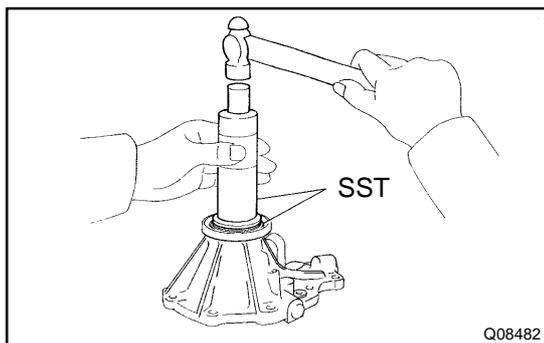


2. INSTALL DUST DEFLECTOR

- (a) Using SST and a hammer, install a new rear extension housing dust deflector.
SST 09316-6001 1 (09316-00011, 09316-00041)

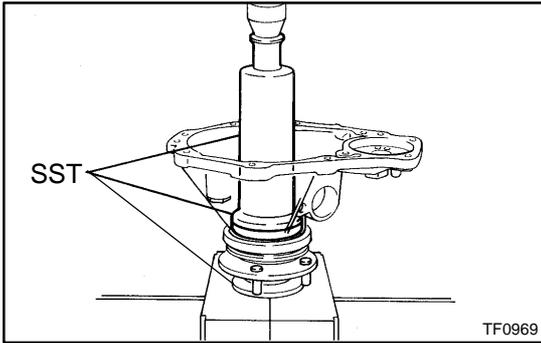


- (b) Using SST and a press, install a new rear output shaft dust deflector.
SST 09316-2001 1, 09316-60011 (09316-00011)



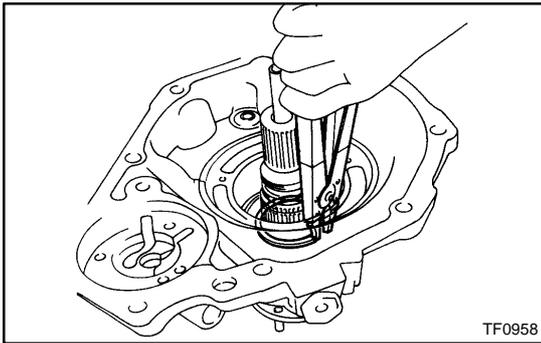
3. INSTALL OIL SEAL

- (a) Apply MP grease to the lip of a new oil seal.
- (b) Using SST and a hammer, drive in the oil seal.
SST 09316-6001 1 (09316-00011, 09316-00031)



4. INSTALL REAR OUTPUT SHAFT

- (a) Using SST and a press, install the rear output shaft.
SST 09316-20011, 09316-60011 (09316-00011, 09316-00031)
- (b) Install the 2 seal rings to the rear output shaft.



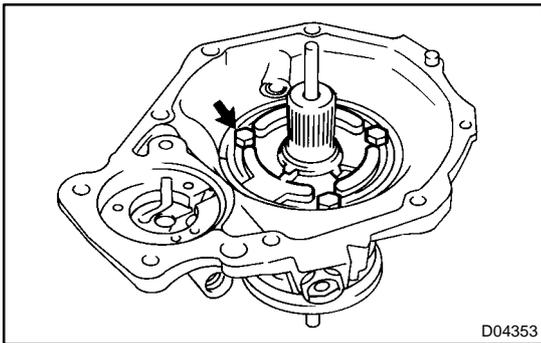
- (c) Select a snap ring that will allow the minimum axial play.

| Mark | Thickness mm (in.) |
|------|--------------------|
| 1 | 1.95 (0.0768) |
| 2 | 2.05 (0.0807) |
| 3 | 2.15 (0.0847) |
| 4 | 2.25 (0.0886) |

- (d) Using a snap ring expander, install a new snap ring.

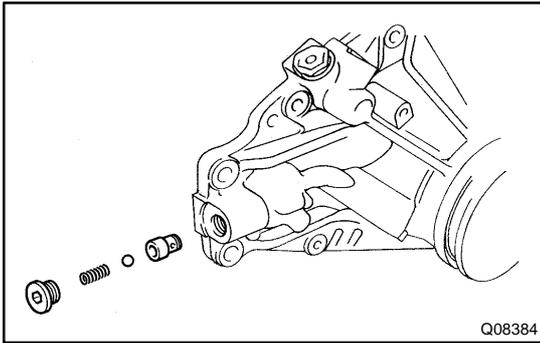
5. INSTALL SPEED SENSOR DRIVE GEAR

- (a) Install the speed sensor drive gear.
- (b) Using a snap ring expander, install the snap ring.



6. INSTALL OIL PUMP PLATE

- (a) Install the oil pump plate.
- (b) Install and torque the 3 bolts.
Torque: 4.9 N·m (50 kgf·cm, 43 in.-lbf)



7. INSTALL VALVE SEAT, BALL, SPRING AND SCREW PLUG

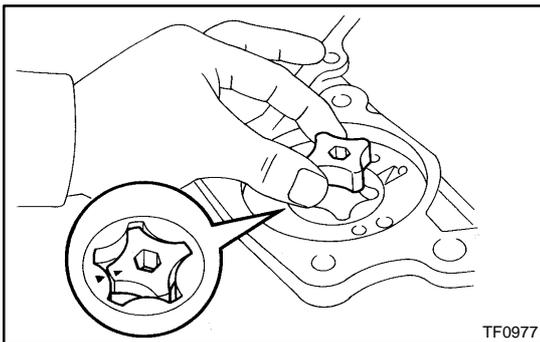
- (a) Apply gear oil to the ball.
- (b) Install the valve seat, ball and spring.
- (c) Apply liquid sealer to the screw plug threads.

Sealant:

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

- (d) Using a hexagon wrench, install and torque the screw plug.

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)



8. INSTALL DRIVEN ROTOR

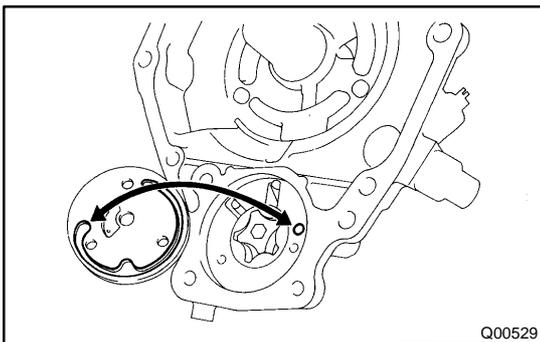
- (a) Apply gear oil to the driven rotor.
- (b) Install the driven rotor.

9. INSTALL DRIVE ROTOR

- (a) Apply gear oil to the drive rotor.
- (b) Install the drive rotor.

HINT:

Align the alignment marks.



10. INSTALL OIL PUMP COVER

- (a) Install the oil pump cover.
- (b) Using a torx socket wrench (T30), install and torque the 3 screws.

Torque: 4.9 N·m (50 kgf·cm, 43 in.-lbf)

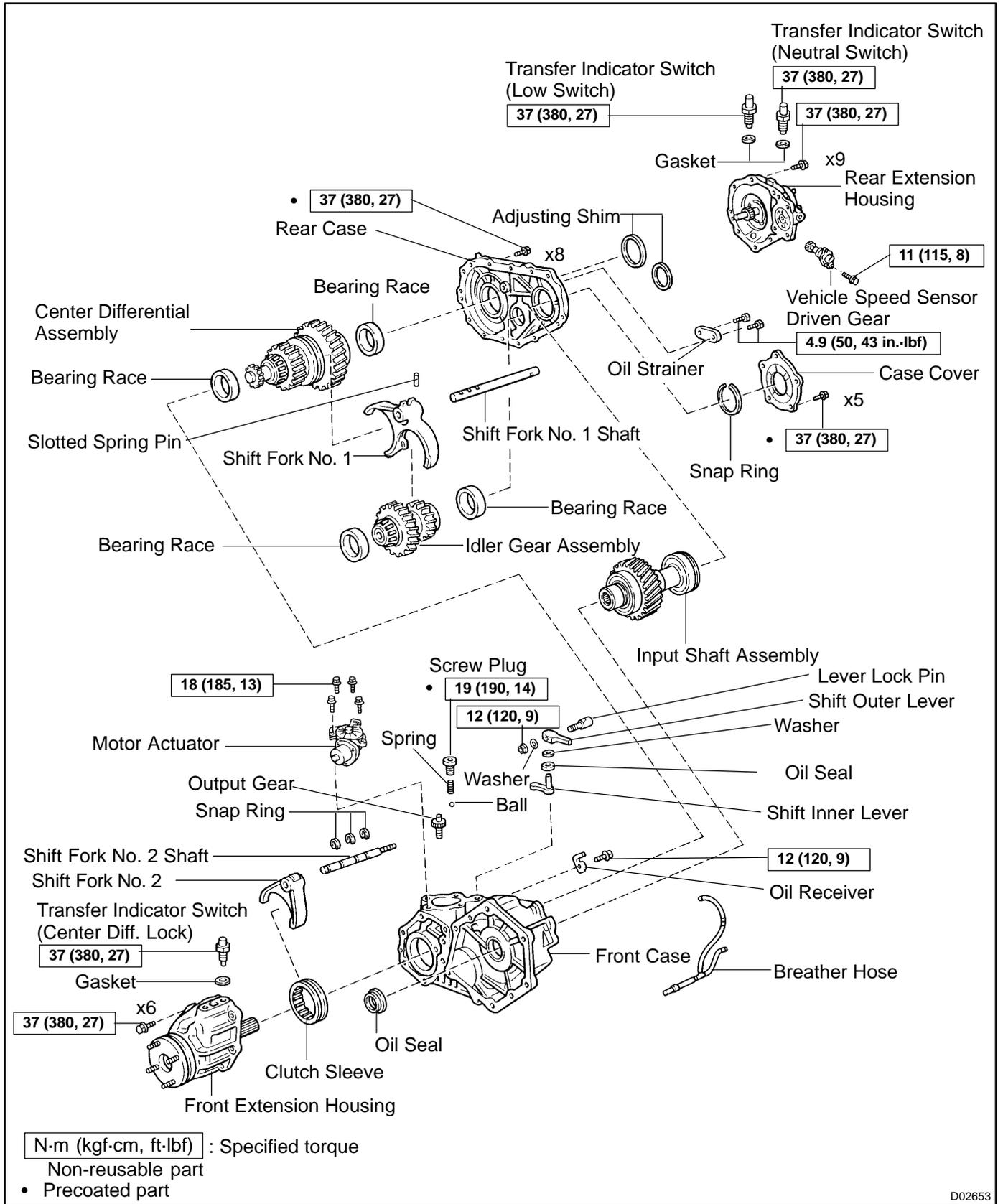
NOTICE:

Align the oil hole of the rear extension housing and oil groove end of the oil pump cover.

11. INSTALL OIL PUMP DRIVE SHAFT

TRANSFER ASSEMBLY COMPONENTS

TR069-02

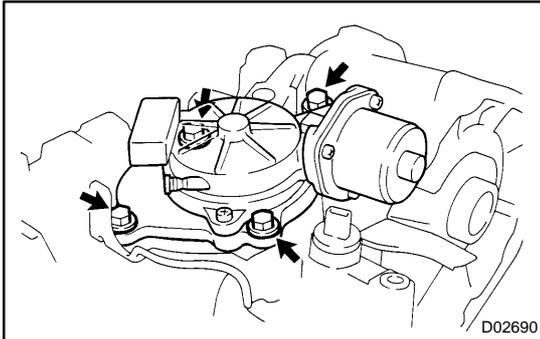


D02653

DISASSEMBLY

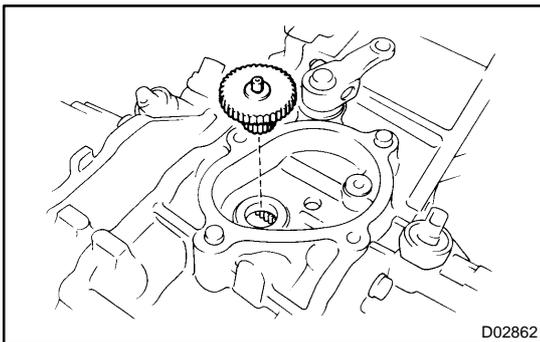
1. REMOVE BREATHER HOSE
2. REMOVE VEHICLE SPEED SENSOR DRIVEN GEAR

Remove the bolt and driven gear.

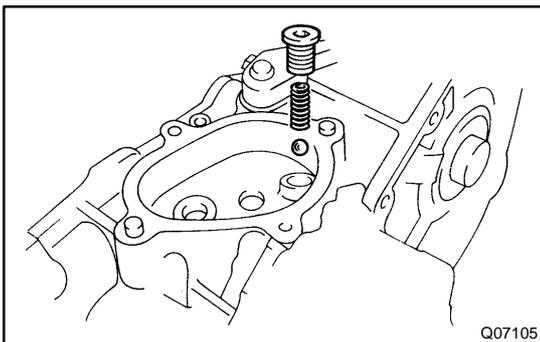


3. REMOVE MOTOR ACTUATOR

Remove the 4 bolts and motor actuator.



4. REMOVE OUTPUT GEAR FROM FRONT CASE

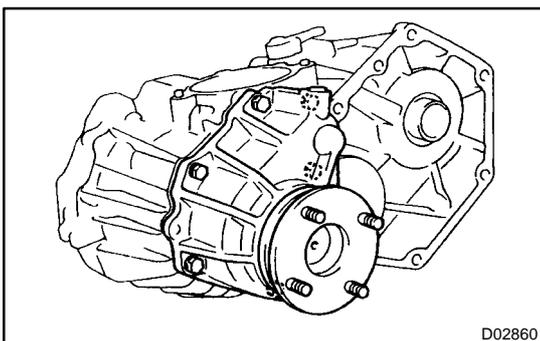


5. REMOVE SCREW PLUG, SPRING AND BALL

- (a) Using a torx socket wrench (T40), remove the screw plug.
- (b) Using a magnetic finger, remove the spring and ball.

6. REMOVE TRANSFER INDICATOR SWITCH

Remove the 3 transfer indicator switches and 3 gaskets.

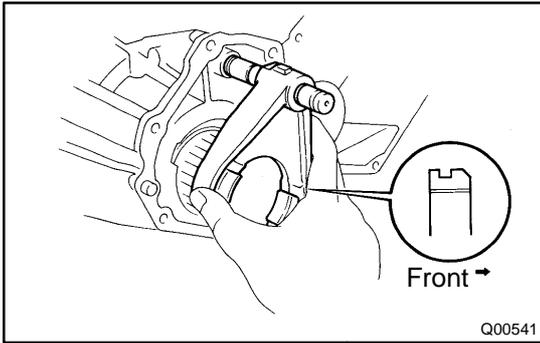


7. REMOVE FRONT EXTENSION HOUSING

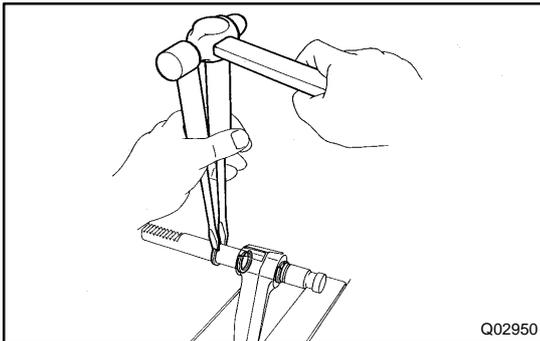
Remove the 6 bolts and front extension housing.

HINT:

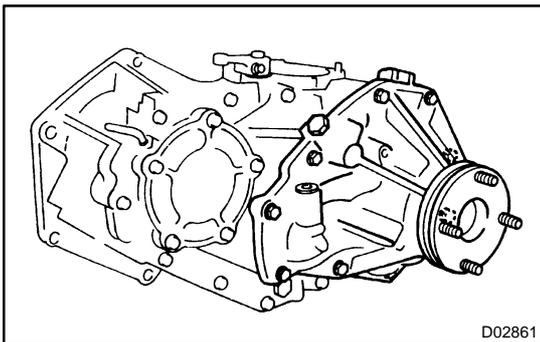
If necessary, tap the front extension housing lightly with a plastic hammer.



- 8. REMOVE CLUTCH SLEEVE WITH SHIFT FORK NO. 2 SHAFT AND SHIFT FORK NO. 2**



- 9. SEPARATE SHIFT FORK NO. 2 SHAFT AND SHIFT FORK NO. 2**
- Using 2 screwdrivers and a hammer, tap out the 3 snap rings from the shift fork No. 2 shaft.
 - Separate the shift fork No. 2 shaft and shift fork No. 2.



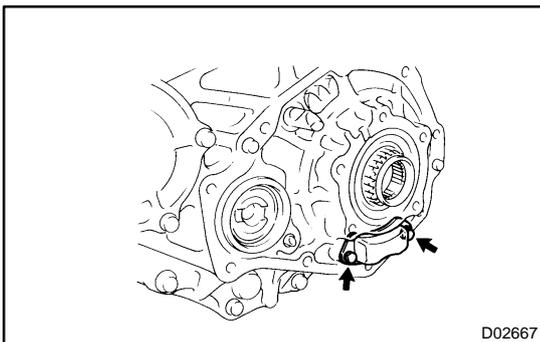
10. REMOVE REAR EXTENSION HOUSING

Remove the 9 bolts and rear extension housing.

HINT:

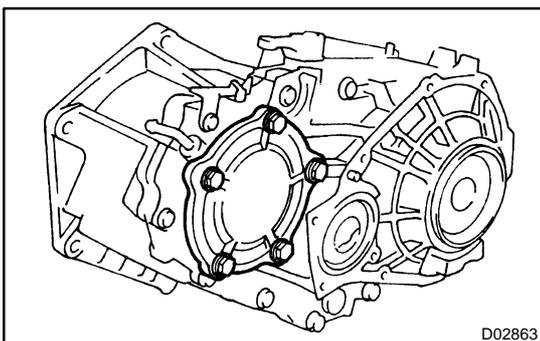
If necessary, tap the rear extension housing lightly with a plastic hammer.

11. REMOVE ADJUSTING SHIMS



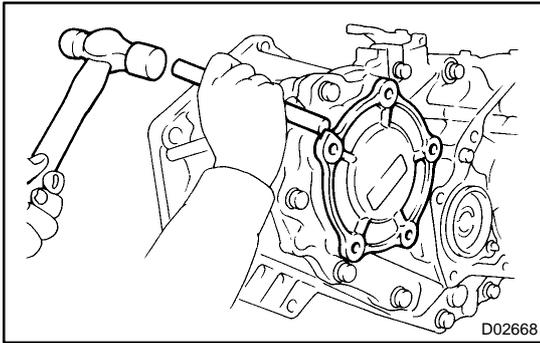
12. REMOVE OIL STRAINER FROM REAR CASE

Remove the 2 bolts and oil strainer.

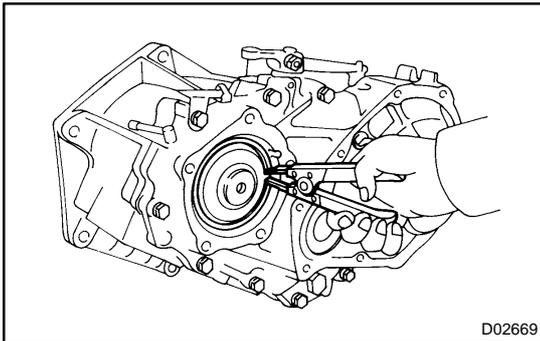


13. REMOVE CASE COVER

- Remove the 5 bolts.

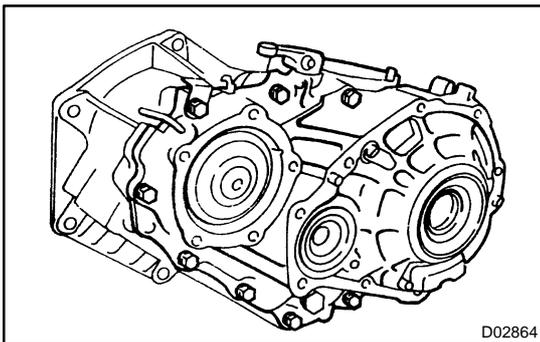


- (b) Using a brass bar and hammer, tap the case cover and remove it.

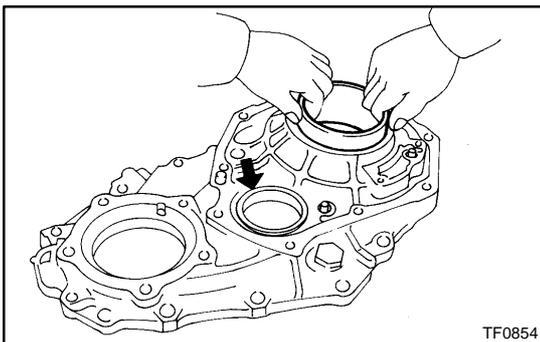


14. SEPARATE FRONT CASE AND REAR CASE

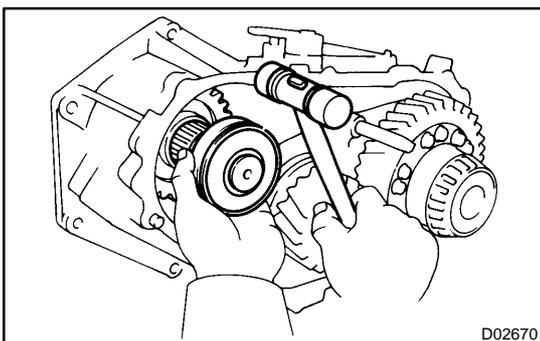
- (a) Using a snap ring expander, remove the snap ring from the rear case.



- (b) Remove the 8 bolts.
 (c) Using a brass bar and hammer, tap the rear case and separate it.

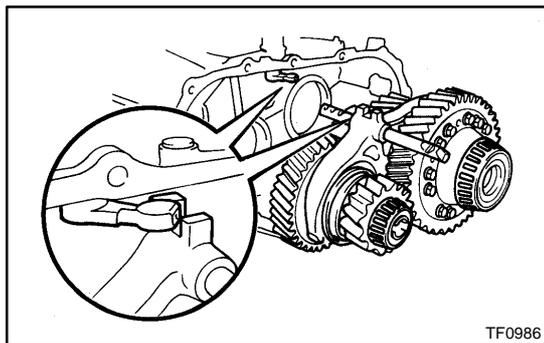


15. REMOVE 2 BEARING RACES FROM REAR CASE



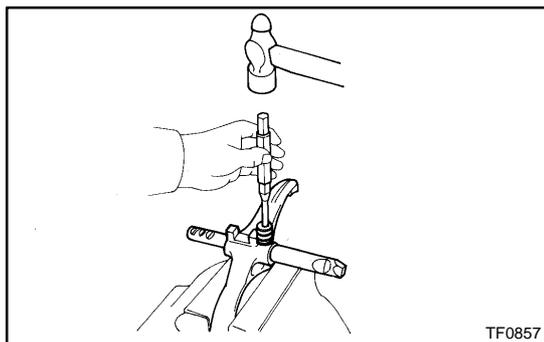
16. REMOVE INPUT SHAFT ASSEMBLY

- Using a plastic hammer, remove the input shaft assembly from the front case.



TF0986

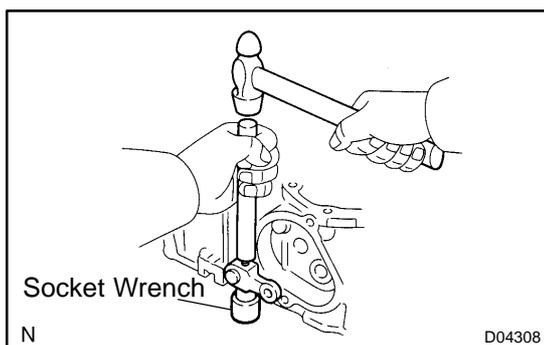
- 17. REMOVE IDLER GEAR ASSEMBLY WITH CENTER DIFFERENTIAL ASSEMBLY, SHIFT FORK NO. 1 AND SHIFT FORK NO. 1 SHAFT FROM FRONT CASE**



TF0857

- 18. SEPARATE SHIFT FORK NO. 1 AND SHIFT FORK NO. 1 SHAFT**

- (a) Using a pin punch and hammer, drive out the slotted spring pin.
- (b) Separate the shift fork No. 1 and shift fork No. 1 shaft.



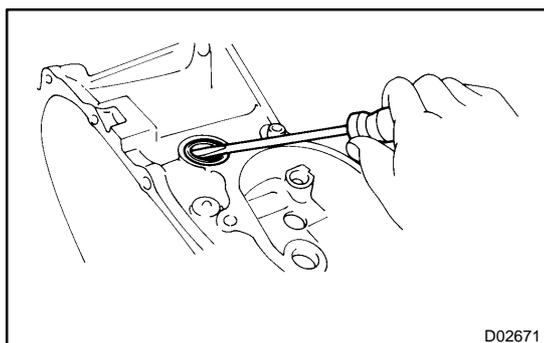
Socket Wrench

N

D04308

- 19. REMOVE SHIFT OUTER LEVER AND INNER LEVER**

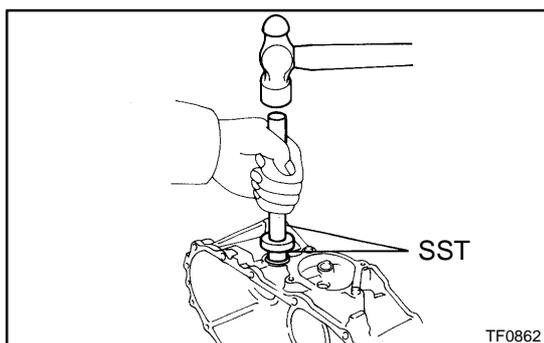
- (a) Remove the nut and washer from the shift outer lever.
- (b) Using a brass bar, hammer and socket wrench, tap out the lever lock pin.
- (c) Remove the shift outer lever, washer and inner lever from the front case.



D02671

- 20. IF NECESSARY, REPLACE INNER SHIFT LEVER OIL SEAL**

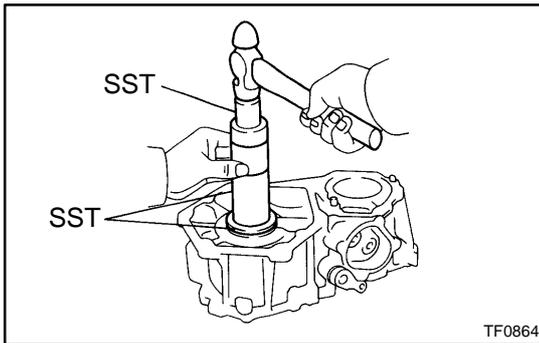
- (a) Using a screwdriver, pry out the oil seal from the front case.



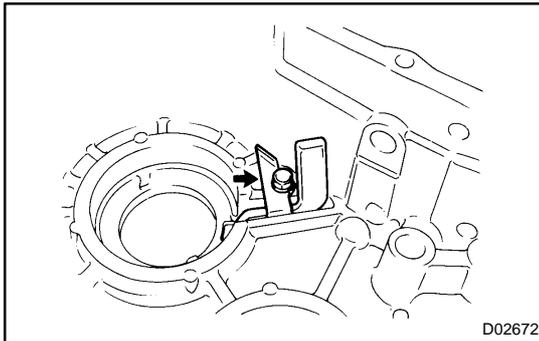
SST

TF0862

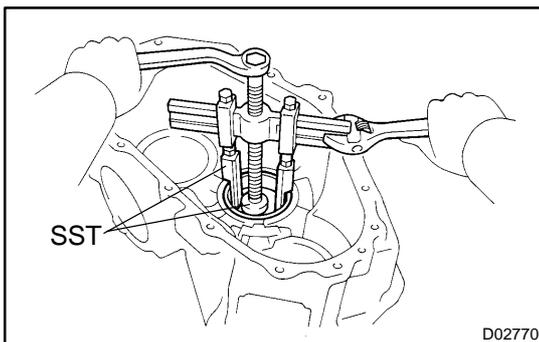
- (b) Apply MP grease to the lip of a new oil seal.
- (c) Using SST and a hammer, drive in a new oil seal.
SST 09950-60010 (09951-00270), 09950-70010 (09951-07150)

**21. IF NECESSARY, REPLACE INPUT SHAFT OIL SEAL**

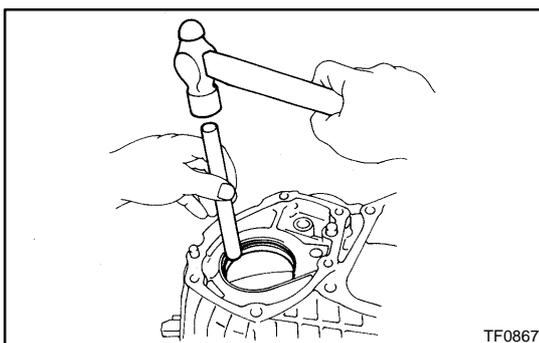
- (a) Using SST and a hammer, drive out the oil seal.
SST 09316-6001 1 (09316-00011)
- (b) Apply MP grease to the lip of a new oil seal.
- (c) Using SST and a hammer, drive in a new oil seal.
SST 09316-6001 1 (09316-00011, 09316-00031)

**22. REMOVE OIL RECEIVER FROM FRONT CASE**

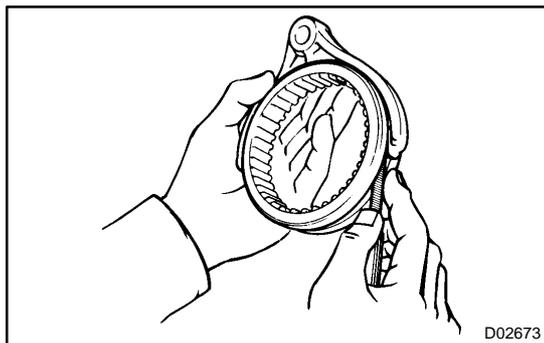
Remove the bolt and oil receiver.

**23. REMOVE 2 BEARING RACES FROM FRONT CASE**

- (a) Using SST, remove the bearing race (for the idler gear).
SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010), 09950-60010 (09951-00320)



- (b) Using a brass bar and hammer, remove the bearing race (for the output shaft).



REASSEMBLY

1. INSPECT SHIFT FORK NO. 2 AND CLUTCH SLEEVE CLEARANCE

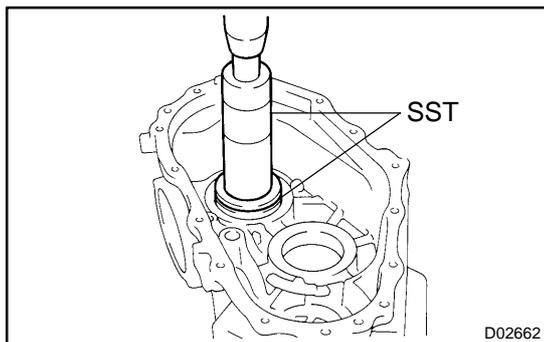
Using a feeler gauge, measure the clearance between the shift fork No. 2 and clutch sleeve.

Standard clearance:

0.10 - 0.40 mm (0.0039 - 0.0157 in.)

Maximum clearance:

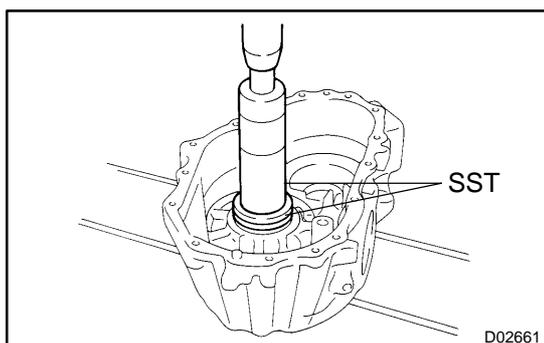
0.40 mm (0.0157 in.)



2. INSTALL THE BEARING RACE (FOR THE OUTPUT SHAFT)

Using SST and a press, install the bearing race.

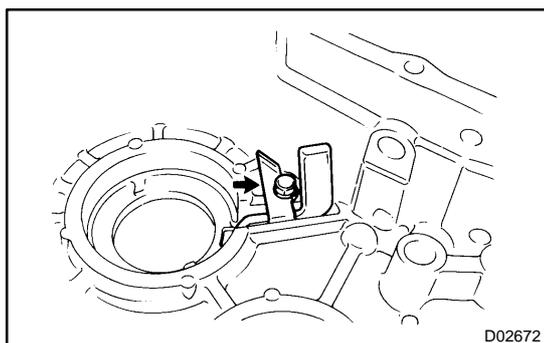
SST 09316-6001 1 (09316-00011, 09316-00031),
09950-60020 (09951-00890)



3. INSTALL THE BEARING RACE (FOR THE IDLER GEAR)

Using SST and a press, install the bearing race.

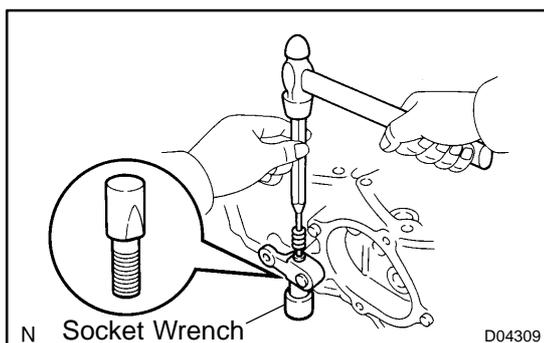
SST 09316-6001 1 (09316-00011, 09316-00031),
09950-60020 (09951-00790)



4. INSTALL OIL RECEIVER TO FRONT CASE

Install the oil receiver and bolt.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



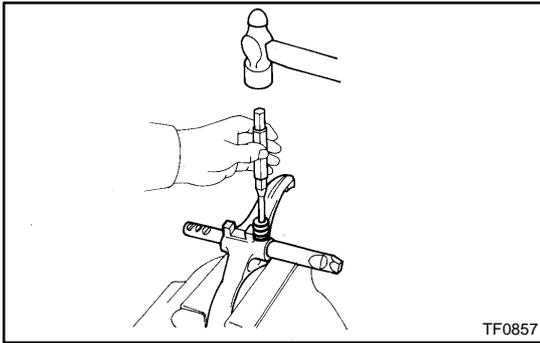
5. INSTALL SHIFT OUTER LEVER AND INNER LEVER

(a) Install the shift inner lever, washer and outer lever to the front case.

(b) Using a pin punch, hammer and socket wrench, tap in the lever lock pin.

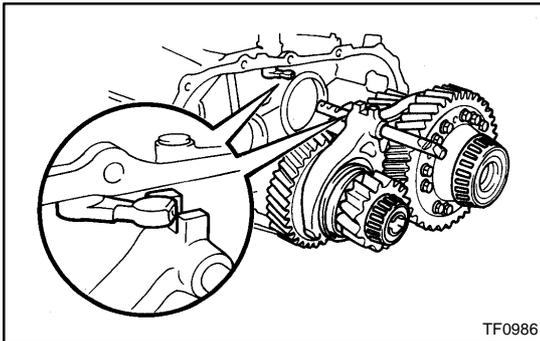
(c) Install the washer and nut to the shift outer lever.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



6. ASSEMBLE SHIFT FORK NO. 1 AND SHIFT FORK NO. 1 SHAFT

- (a) Assemble the shift fork No. 1 and shift fork No. 1 shaft.
- (b) Using a pin punch and hammer, drive in the slotted spring pin.

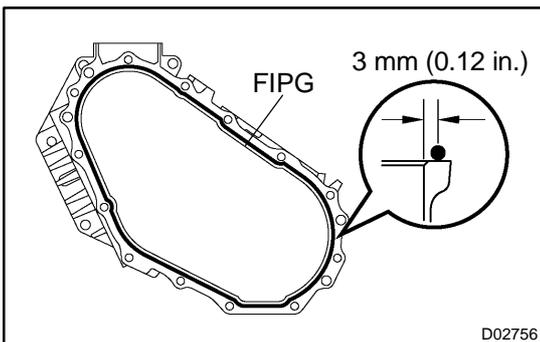


7. INSTALL IDLER GEAR ASSEMBLY WITH CENTER DIFFERENTIAL ASSEMBLY, SHIFT FORK NO. 1 AND SHIFT FORK NO. 1 SHAFT TO FRONT CASE

NOTICE:

Set the shift inner lever into the fork head part of the shift fork No. 1 securely.

8. INSTALL INPUT SHAFT ASSEMBLY
9. INSTALL 2 BEARING RACES TO REAR CASE



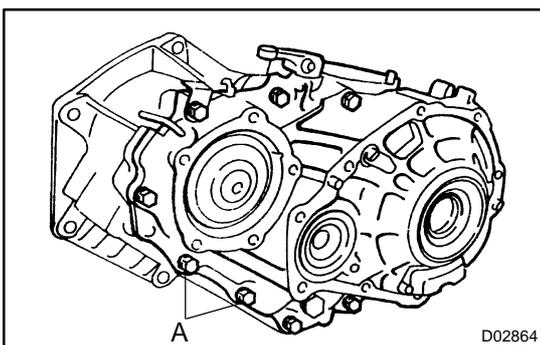
10. ASSEMBLY FRONT CASE AND REAR CASE

- (a) Apply FIPG to the front case.

FIPG:

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

- (b) Assemble the front case and rear case.



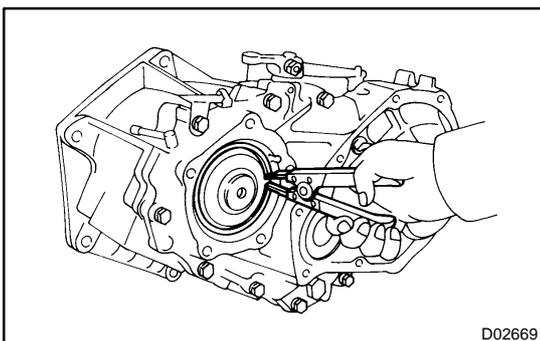
- (c) Apply liquid sealer to the "A" bolt threads.

Sealant:

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

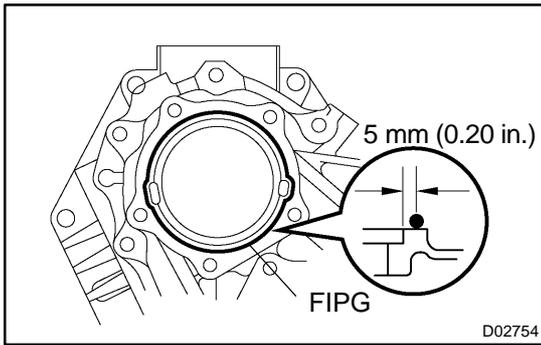
- (d) Install the 8 bolts.

Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



11. ASSEMBLE FRONT CASE AND REAR CASE

Using a snap ring expander, install the snap ring to the rear case.

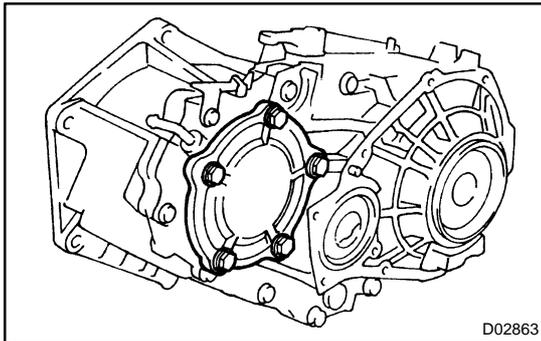
**12. INSTALL CASE COVER**

- (a) Apply FIPG to the rear case.

FIPG:

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

- (b) Install the case cover.



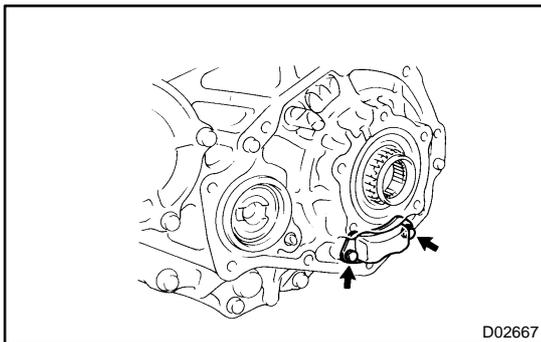
- (c) Apply liquid sealer to the bolt threads.

Sealant:

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

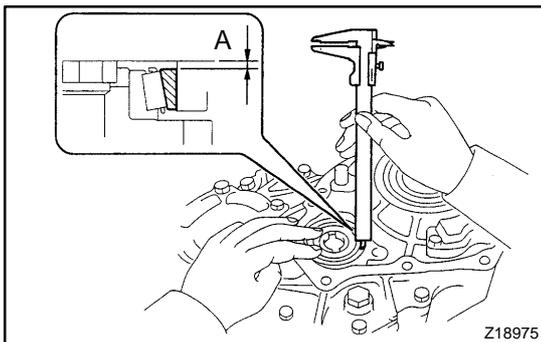
- (d) Install the 5 bolts.

Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

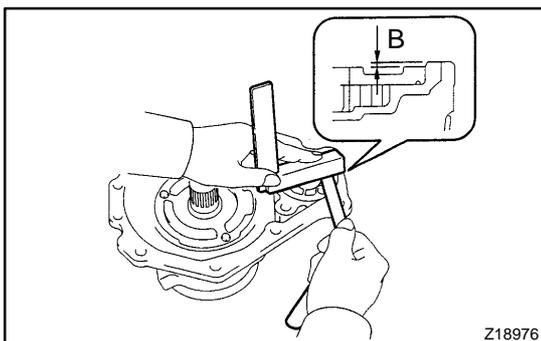
**13. INSTALL OIL STRAINER TO REAR CASE**

Install the oil strainer and 2 bolts.

Torque: 4.9 N·m (50 kgf·cm, 43 in.-lbf)

**14. SELECT ADJUSTING SHIM FOR IDLER GEAR REAR TAPER ROLLER BEARING**

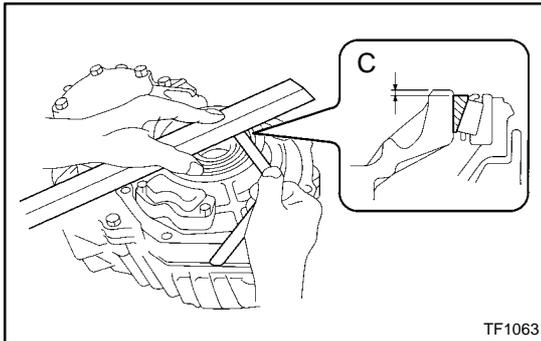
- (a) Using vernier calipers, measure dimension "A".
 (b) Lightly hole down the bearing outer race in the thrust direction to eliminate any looseness before making the measurement.



- (c) Using a steel straight edge and feeler gauge, measure the clearance of dimension "B".
 (d) Calculate the required thickness of the adjusting shim.
Thickness: Dimension "A" + Dimension "B" + [0.022 - 0.049 mm, (0.0009 - 0.0019 in.)]

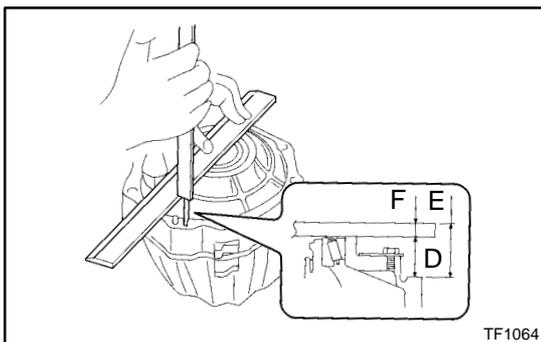
- (e) From the following table, select a shim so that its thickness is within the range of the calculation.

| Mark | Thickness mm (in.) | Mark | Thickness mm (in.) |
|------|--------------------|------|--------------------|
| 2 | 0.30 (0.0118) | 8 | 3.20 (0.1260) |
| 3 | 0.45 (0.0177) | 9 | 3.40 (0.1339) |
| 4 | 2.40 (0.0945) | 10 | 3.60 (0.1417) |
| 5 | 2.60 (0.1024) | 11 | 3.80 (0.1496) |
| 6 | 2.80 (0.1102) | 12 | 4.00 (0.1575) |
| 7 | 3.00 (0.1181) | 13 | 0.55 (0.0216) |



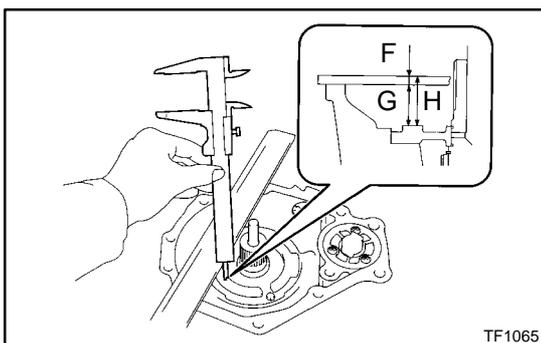
15. SELECT ADJUSTING SHIM FOR OUTPUT SHAFT TAPER ROLLER BEARING

- (a) Using a steel straight edge and feeler gauge, measure the clearance of dimension "C".
 (b) Lightly hold down the bearing outer race in the thrust direction to eliminate any looseness before making the measurement.



- (c) Using a steel straight edge and vernier calipers with depth gauge, measure dimension "D".
 (d) Dimension "D" is the straight edge thickness (Dimension "F") subtracted from dimension "E" in the illustration to the left.

Dimension "D": Dimension "E" - Dimension "F"

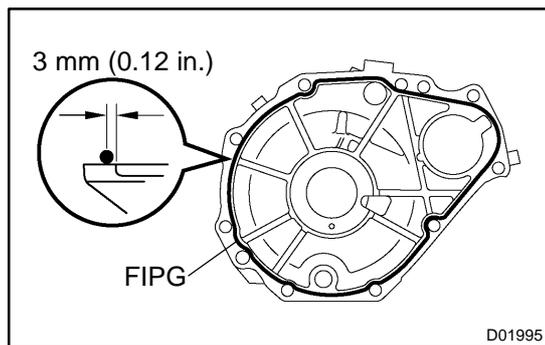


- (e) Using a steel straight edge and vernier calipers with depth gauge, measure dimension "G".
 (f) Dimension "G" is the straight edge thickness (Dimension "F") subtracted from Dimension "H".

Dimension "G": Dimension "H" - Dimension "F"

- (g) Calculate the required thickness of the adjusting shim.
Thickness: Dimension "G" - (Dimension "D" - Dimension "C") + [0.014 ~ 0.039 mm, (0.0006 ~ 0.0015 in.)]
 (h) From the following table, select a shim so that its thickness is within the range of the calculation.

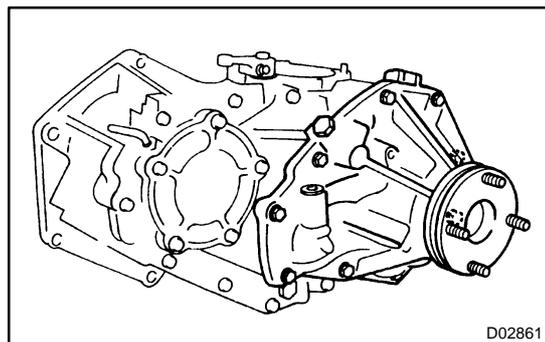
| Mark | Thickness mm (in.) | Mark | Thickness mm (in.) |
|------|--------------------|------|--------------------|
| B | 0.30 (0.0118) | H | 1.80 (0.0709) |
| C | 0.45 (0.0177) | J | 2.00 (0.0787) |
| D | 1.00 (0.0394) | K | 2.20 (0.0866) |
| E | 1.20 (0.0472) | L | 2.40 (0.0945) |
| F | 1.40 (0.0551) | M | 2.60 (0.1024) |
| G | 1.60 (0.0630) | N | 0.55 (0.0216) |

**16. INSTALL REAR EXTENSION HOUSING**

- (a) Apply FIPG to the rear extension housing.

FIPG:

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

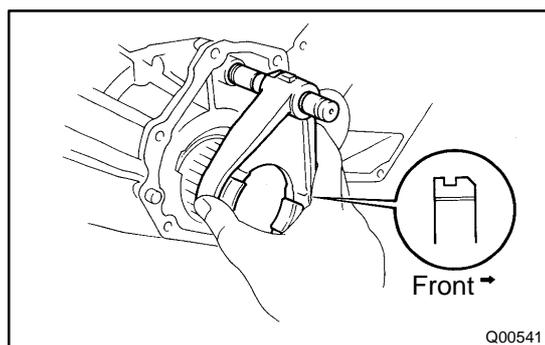


- (b) Install the rear extension housing and 9 bolts.

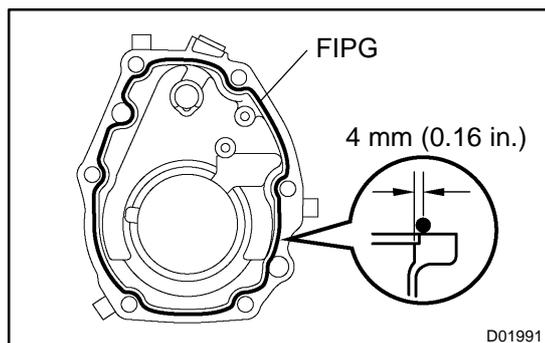
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

17. ASSEMBLE SHIFT FORK NO. 2 SHAFT AND SHIFT FORK NO. 2

- (a) Install the shift fork No. 2 to the shift fork No. 2 shaft.
 (b) Install the 3 snap rings to the shift fork No. 2 shaft.

**18. INSTALL CLUTCH SLEEVE WITH SHIFT FORK NO. 2 SHAFT AND SHIFT FORK NO. 2****HINT:**

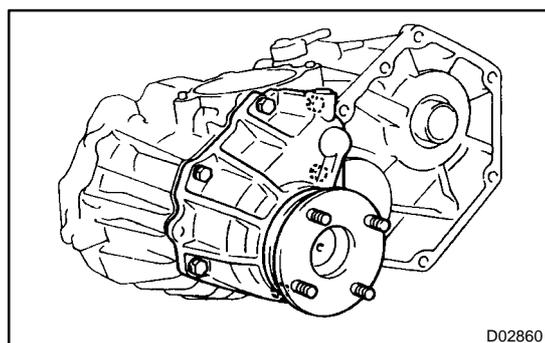
Make sure to install the clutch sleeve in the correct direction.

**19. INSTALL FRONT EXTENSION HOUSING**

- (a) Apply FIPG to the front extension housing.

FIPG:

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



- (b) Install the front extension housing and 6 bolts.

Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

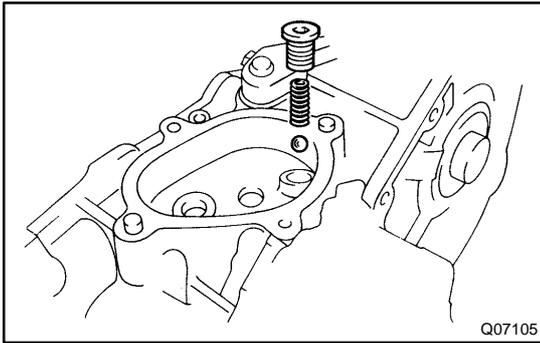
HINT:

Set the clutch sleeve in differential lock condition.

20. INSTALL TRANSFER INDICATOR SWITCH

Install the 3 transfer indicator switches with 3 new gaskets.

Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

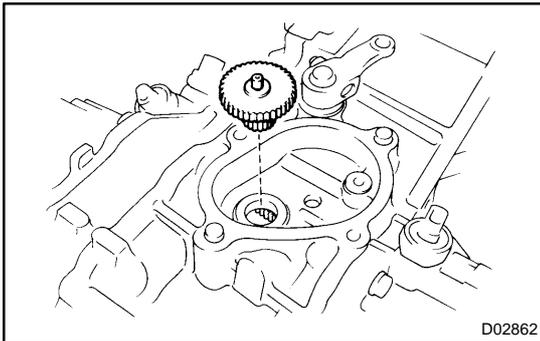
**21. INSTALL BALL, SPRING AND SCREW**

- (a) Install the ball and spring.
- (b) Apply liquid sealer to the screw plug threads.

Sealant:

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

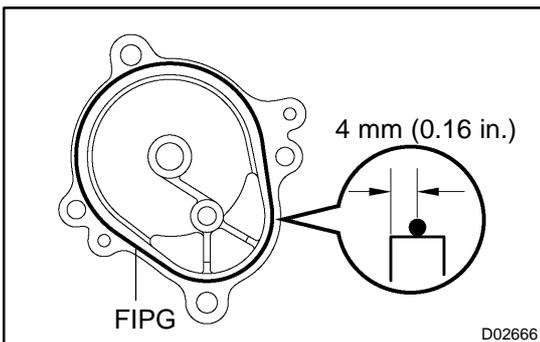
- (c) Using a torx socket wrench (T40), install the screw plug.
Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)

**22. INSTALL OUTPUT GEAR TO FRONT CASE****HINT:**

Apply gear oil to the output gear.

NOTICE:

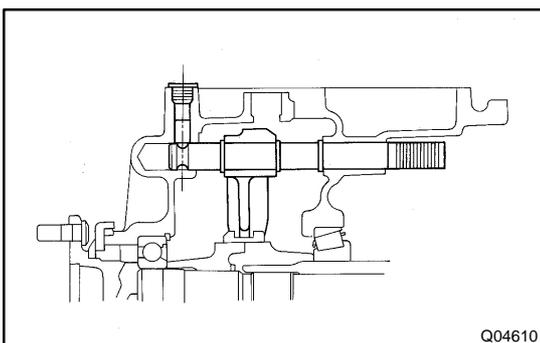
Do not turn the output gear.

**23. INSTALL MOTOR ACTUATOR**

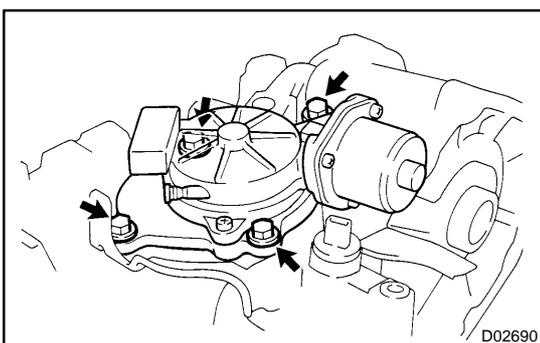
- (a) Apply FIPG to the motor actuator.

FIPG:

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

**HINT:**

Set the motor actuator in differential lock condition.



- (b) Install the motor actuator and 4 bolts.
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

24. INSTALL SPEED SENSOR DRIVE GEAR

Install the driven gear and bolt.

Torque: 11 N·m (115 kgf·cm, 8 ft·lbf)

25. INSTALL BREATHER HOSE

TRANSFER SYSTEM

TR064-02

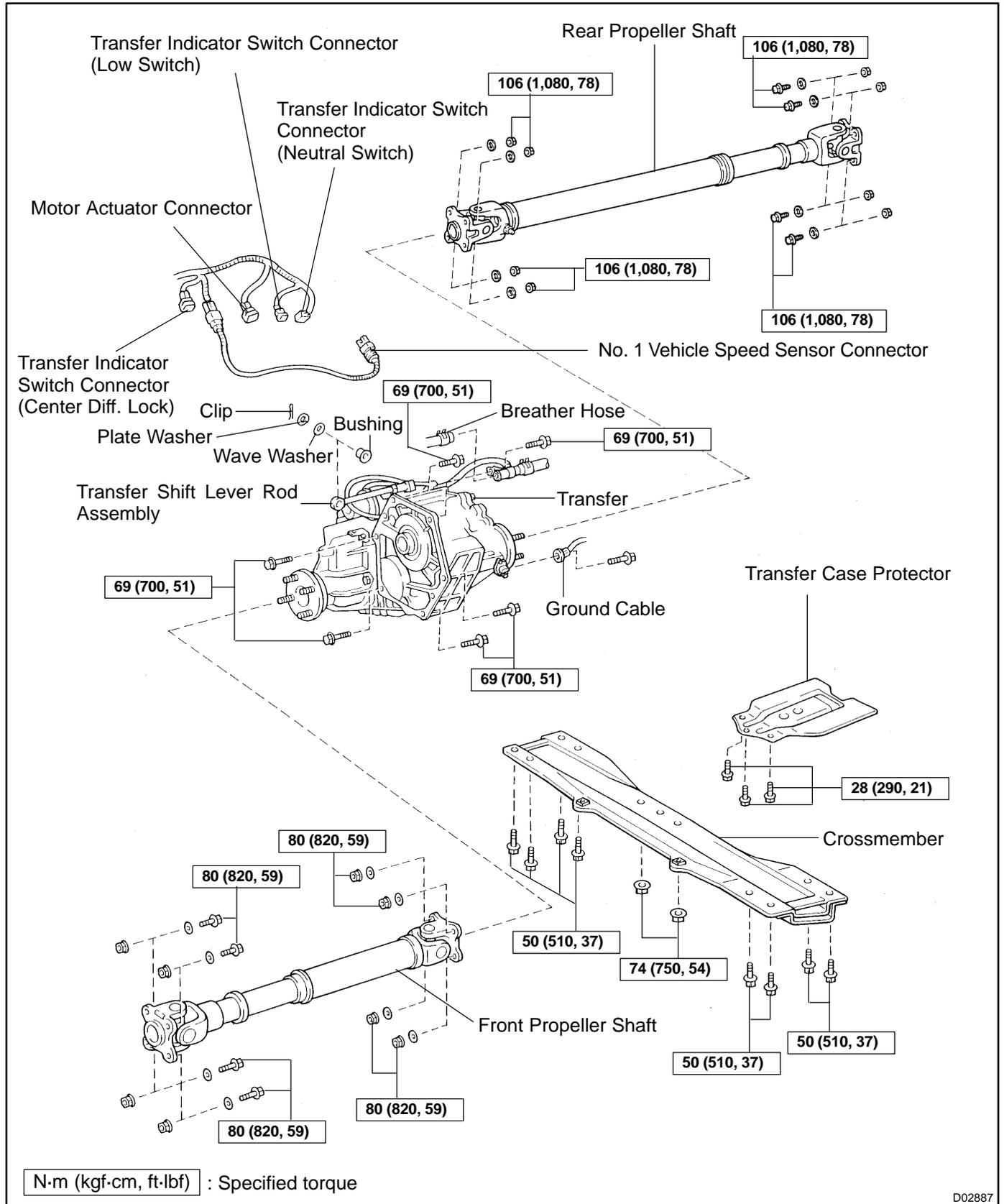
PRECAUTION

When working with FIPG material, you must observe the following.

- Using a razor blade and gasket scraper, remove all the old FIPG material from the gasket surfaces.
- Thoroughly clean all components to remove all the loose material.
- Clean both sealing surfaces with a non-residue solvent.
- Apply FIPG in an approx. 1.2 mm (0.047 in.) wide bead along the sealing surface.
- Parts must be assembled within 10 minutes of application. Otherwise, the FIPG material must be removed and reapplied.

TRANSFER UNIT COMPONENTS

TR066-02



D02887

INSTALLATION

Installation is in the reverse order of removal (See page [TR-4](#)).

HINT:

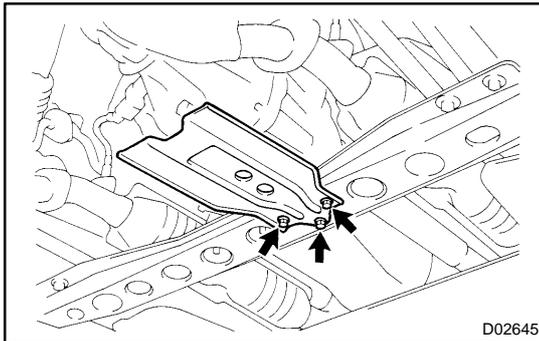
- Apply MP grease to the transfer adaptor oil seal.
- After install, do the road test.

REMOVAL

1. RAISE VEHICLE

NOTICE:

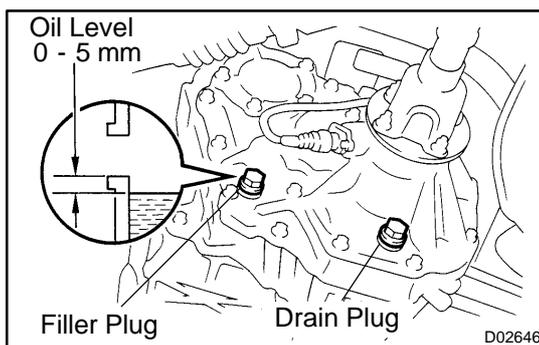
Make sure that the vehicle is securely supported.



2. REMOVE TRANSFER CASE PROTECTOR

Remove the 3 bolts and transfer case protector.

Torque: 28 N·m (290 kgf·cm, 21 ft·lbf)



3. DRAIN TRANSFER OIL

Oil grade: API GL-4 or GL-5

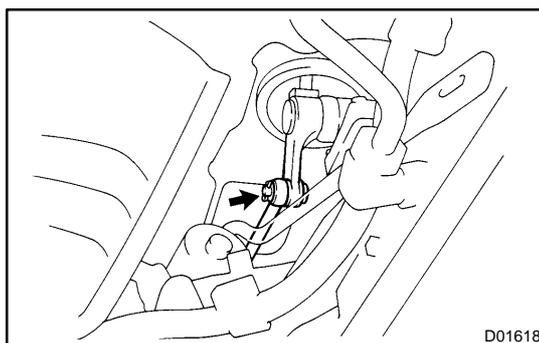
Viscosity: SAE 75 W-90

Capacity: 1.3 liters (1.4 US qts, 1.1 Imp. qts)

Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

4. REMOVE FRONT AND REAR PROPELLER SHAFTS

(See page [PR-4](#))

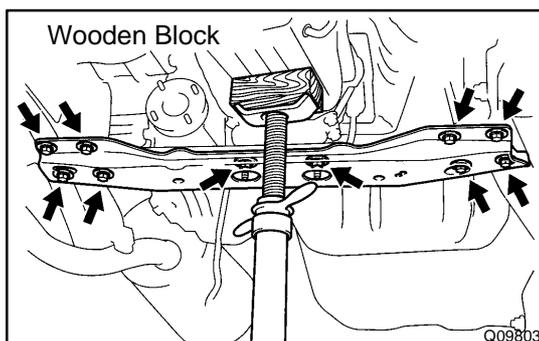


5. DISCONNECT TRANSFER SHIFT LEVER ROD ASSEMBLY

Remove the clip, plate washer, wave washer and bushing, and disconnect the transfer shift lever rod assembly.

6. DISCONNECT GROUND CABLE

Remove the bolt and disconnect the ground cable from the transfer.



7. REMOVE CROSSMEMBER

(a) Support the transmission, as shown.

NOTICE:

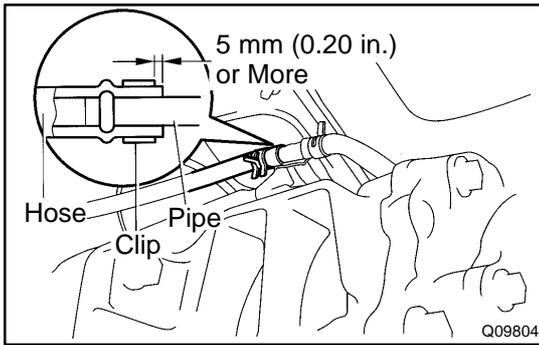
Use a wooden block so not to damage the transmission oil pan.

(b) Remove the 8 bolts, 2 nuts and crossmember.

Torque:

Bolt: 50 N·m (510 kgf·cm, 37 ft·lbf)

Nut: 74 N·m (750 kgf·cm, 54 ft·lbf)



8. DISCONNECT BREATHER HOSE

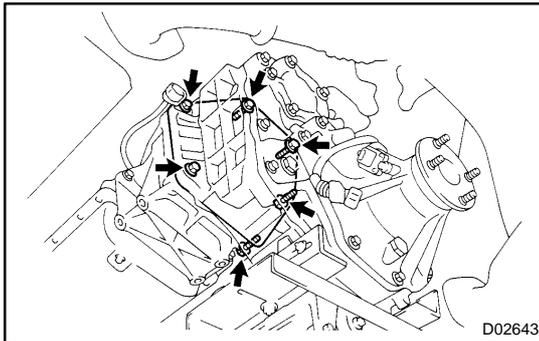
HINT:

At the time of installation, assemble the clip to the position shown in the illustration.

9. DISCONNECT NO. 1 VEHICLE SPEED SENSOR, 3 TRANSFER INDICATOR SWITCH AND MOTOR ACTUATOR CONNECTORS

10. JACK UP TRANSFER SLIGHTLY

Using a transmission jack, support the transfer.



11. REMOVE TRANSFER FROM TRANSMISSION

- (a) Disconnect the wire harness from the transfer.
- (b) Remove the 6 transfer adaptor rear mounting bolts.

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

- (c) Pull out the transfer down and toward the rear.

TROUBLESHOOTING

TR065-02

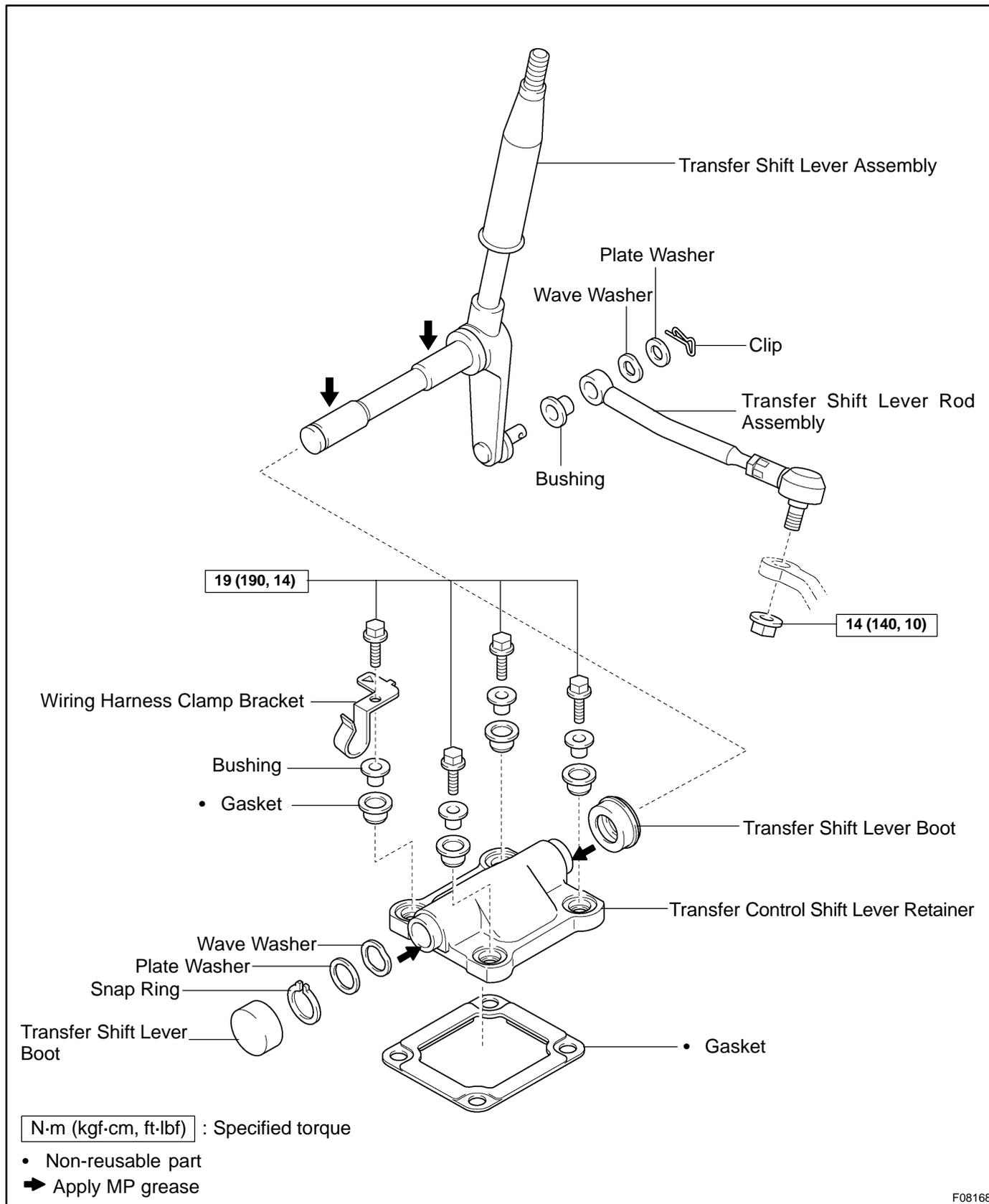
PROBLEM SYMPTOMS TABLE

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

| Symptom | Suspect Area | See page |
|-------------------------|--|---------------------------|
| Noise | 6. Oil (Level low) 7. Oil (Wrong) 8. Transfer faulty | TR-4 TR-4 TR-7 |
| Oil leakage | 1. Oil (Level too high) 2. Gasket (Damaged) 3. Oil seal (Worn or damaged) 4. O-ring (Worn or damaged) | TR-4 TR-7 TR-7 - |
| Transfer corner braking | Center differential or transfer faulty | TR-7 |

TRANSFER SHIFT LEVER ASSEMBLY COMPONENTS

TR06Z-02



F08168