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MANUAL TRANSAXLE SYSTEM

PROBLEM SYMPTOMS TABLE

Use the table below to help determine the cause of a problem. The likely causes of the problem are indicated in descending order. Check each suspected area in order. Repair or replace faulty parts or perform adjustments as necessary.

MANUAL TRANSAXLE SYSTEM SYMPTOMS

Symptom	Suspected Area	See
Noise	Oil (Level low)	MANUAL TRANSAXLE OIL
	Oil (Wrong)	MANUAL TRANSAXLE OIL
	Gear (Input shaft) (Worn or damaged)	INPUT SHAFT
	Gear (Output shaft) (Worn or damaged)	OUTPUT SHAFT
	Bearing (Input shaft) (Worn or damaged)	INPUT SHAFT
	Bearing (Output shaft) (Worn or damaged)	OUTPUT SHAFT
	Bearing (Differential case) (Worn or damaged)	DIFFERENTIAL CASE
Oil leakage	Oil (Level too high)	MANUAL TRANSAXLE OIL
	Gasket (Damaged)	MANUAL TRANSAXLE UNIT
	Oil seal (Worn or damaged)	MANUAL TRANSAXLE UNIT
Hard or impossible to shift	Control cable (Faulty)	TRANSMISSION CONTROL CABLE
	Shift fork (Worn)	MANUAL TRANSAXLE UNIT
	Synchronizer ring (Input shaft) (Worn or damaged)	INPUT SHAFT
	Synchronizer ring (Output shaft) (Worn or damaged)	OUTPUT SHAFT
	Shift key spring (Input shaft) (Damaged)	INPUT SHAFT
	Shift key spring (Output shaft) (Damaged)	OUTPUT SHAFT
	Gear (Input shaft) (Damaged)	INPUT SHAFT
	Gear (Output shaft) (Damaged)	OUTPUT SHAFT
	Hub sleeve (Input shaft) (Damaged)	INPUT SHAFT
	Hub sleeve (Output shaft) (Damaged)	OUTPUT SHAFT
Jumps out of gear	Shift fork (Worn)	MANUAL TRANSAXLE UNIT
	Gear (Input shaft) (Worn or damaged)	INPUT SHAFT
	Gear (Output shaft) (Worn or damaged)	OUTPUT SHAFT
	Bearing (Input shaft) (Worn or damaged)	INPUT SHAFT
	Bearing (Output shaft) (Worn or damaged)	OUTPUT SHAFT

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MANUAL TRANSAXLE OIL

ON-VEHICLE INSPECTION

1. **INSPECT TRANSAXLE OIL**
   a. Stop the vehicle in a level place.
   b. Remove the filler plug and the gasket.
   c. Check that the oil surface is within 5 mm (0.20 in.) of the bottom of the filler plug opening.

NOTE:

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

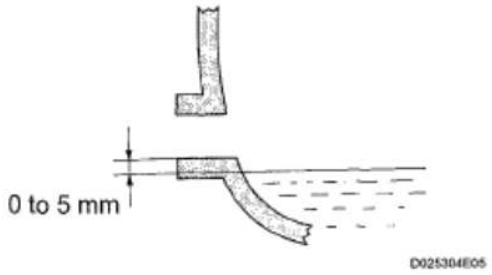


Fig. 1: Identifying Oil Surface Level
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Check for oil leakage when the oil level is low.
e. Install the filler plug and a new gasket.

Torque: 39 N*m (400 kgf*cm, 29 ft.*lbf)

DIFFERENTIAL OIL SEAL

COMPONENTS

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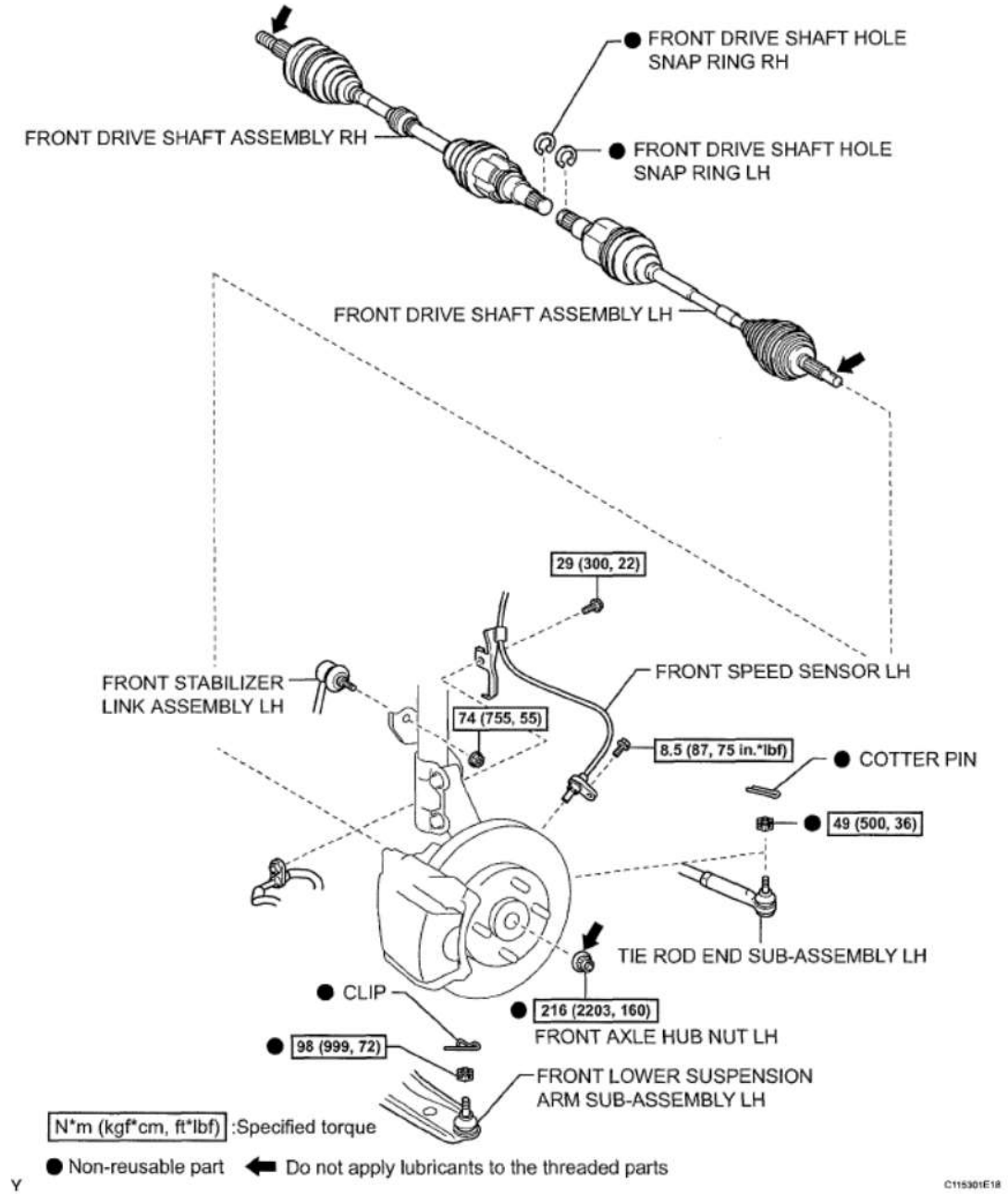


Fig. 2: Identifying Differential Oil Seal Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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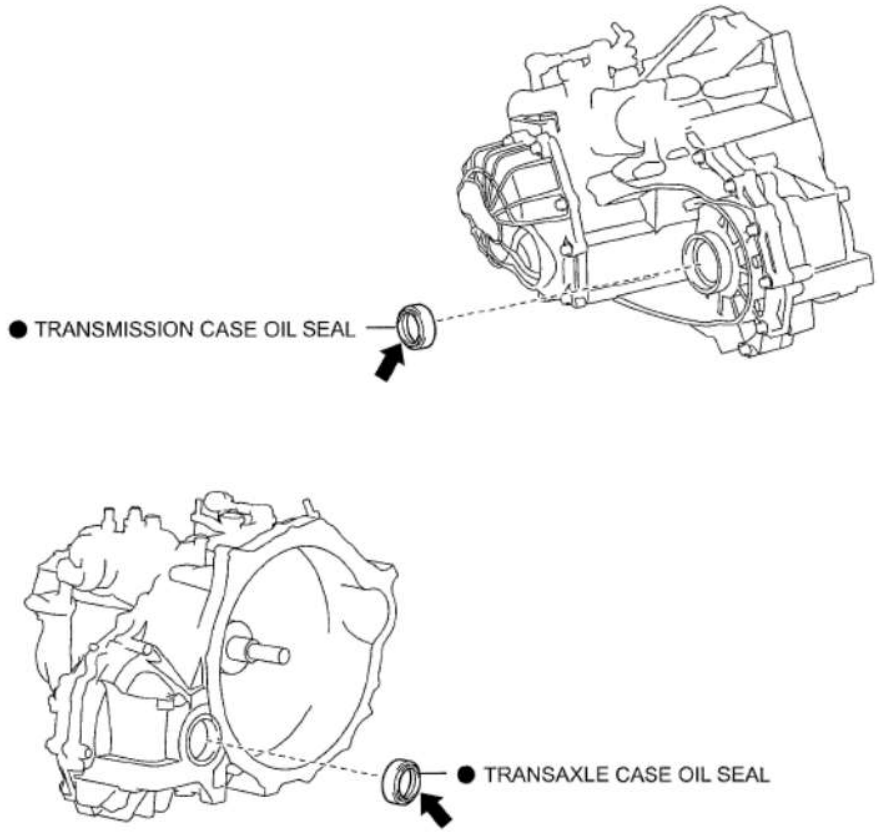


Fig. 3: Identifying Differential Oil Seal Components (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **DRAIN TRANSAXLE OIL**
   a. Remove the filler plug and the gasket.
   b. Remove the drain plug and gasket, and then drain the manual transaxle oil.
   c. Install a new gasket and the drain plug.

   Torque: 39 N*m (400 kgf*cm, 29 ft.*lbf)

2. **REMOVE FRONT WHEELS**

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3. **REMOVE FRONT AXLE HUB NUT LH** (See **REMOVAL**)
4. **REMOVE FRONT AXLE HUB NUT RH**

HINT:

The removal procedure for the RH side is the same as that for the LH side.

5. **SEPARATE FRONT SPEED SENSOR LH** (See **REMOVAL**)
6. **SEPARATE FRONT SPEED SENSOR RH**

HINT:

The separation procedure for the RH side is the same as that for the LH side.

7. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** (See **REMOVAL**)
8. **SEPARATE FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

HINT:

The separation procedure for the RH side is the same as that for the LH side.

9. **SEPARATE TIE ROD END SUB-ASSEMBLY LH** (See **REMOVAL**)
10. **SEPARATE TIE ROD END SUB-ASSEMBLY RH**

HINT:

The separation procedure for the RH side is the same as that for the LH side.

11. **SEPARATE FRONT STABILIZER LINK ASSEMBLY LH** (See **REMOVAL**)
12. **SEPARATE FRONT STABILIZER LINK ASSEMBLY RH**

HINT:

The separation procedure for the RH side is the same as that for the LH side.

13. **SEPARATE FRONT AXLE ASSEMBLY LH** (See **REMOVAL**)
14. **SEPARATE FRONT AXLE ASSEMBLY RH**

HINT:

The separation procedure for the RH side is the same as that for the LH side.

15. **REMOVE FRONT DRIVE SHAFT ASSEMBLY LH** (See **DISASSEMBLY**)
16. **REMOVE FRONT DRIVE SHAFT ASSEMBLY RH** (See **DISASSEMBLY**)

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17. **REMOVE TRANSAXLE CASE OIL SEAL**
    a. Using SST, remove the oil seal.

    SST 09308-00010

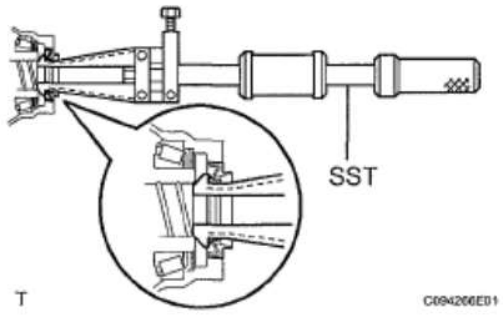


Fig. 4: Removing Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **REMOVE TRANSMISSION CASE OIL SEAL**
    a. Using SST, remove the oil seal.

    SST 09308-00010

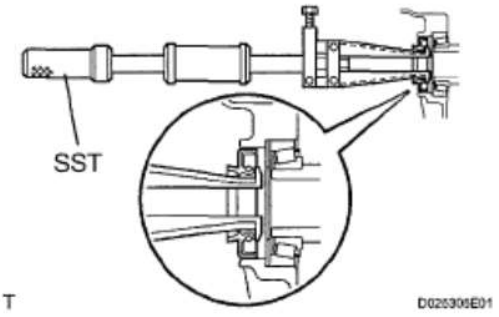


Fig. 5: Removing Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL TRANSMISSION CASE OIL SEAL**
    a. Coat the lip of a new oil seal with MP grease.
    b. Using SST and a hammer, install the new oil seal.

    SST 09309-37010

    Drive in depth:

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9.6 to 10.2 mm (0.378 to 0.402 in.)

NOTE: Do not damage the oil seal lip.

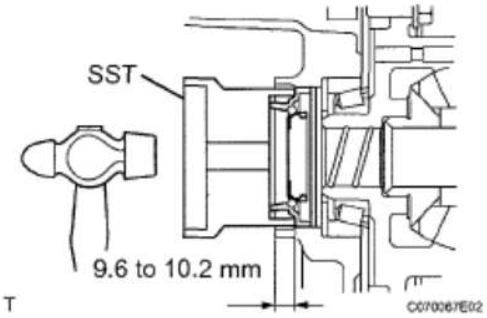


Fig. 6: Installing Transmission Case Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL TRANSAXLE CASE OIL SEAL**
   a. Coat the lip of a new oil seal with MP grease.
   b. Using SST and a hammer, install the new oil seal.

SST 09710-26011 (09710-05061)

Drive in depth:

1.6 to 2.2 mm (0.063 to 0.087 in.)

NOTE: Do not damage the oil seal lip.

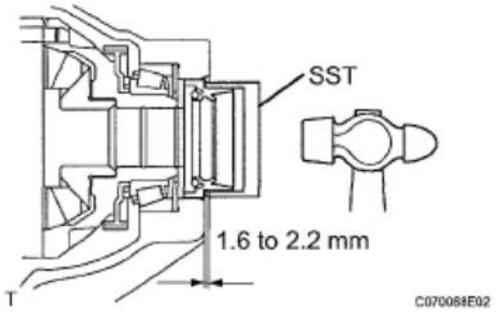


Fig. 7: Installing Transmission Case Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL FRONT DRIVE SHAFT ASSEMBLY LH** (See **INSTALLATION**)
4. **INSTALL FRONT DRIVE SHAFT ASSEMBLY RH** (See **INSTALLATION**)
5. **INSTALL FRONT AXLE ASSEMBLY LH** (See **INSTALLATION**)

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6. **INSTALL FRONT AXLE ASSEMBLY RH**

   HINT:

   The installation procedure for the RH side is the same as that for the LH side.

7. **INSTALL FRONT STABILIZER LINK ASSEMBLY LH** (See **INSTALLATION**)
8. **INSTALL FRONT STABILIZER LINK ASSEMBLY RH**

   HINT:

   The installation procedure for the RH side is the same as that for the LH side.

9. **INSTALL TIE ROD END SUB-ASSEMBLY LH** (See **INSTALLATION**)
10. **INSTALL TIE ROD END SUB-ASSEMBLY RH**

    HINT:

    The installation procedure for the RH side is the same as that for the LH side.

11. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY LH** (See **INSTALLATION**)
12. **INSTALL FRONT LOWER SUSPENSION ARM SUB-ASSEMBLY RH**

    HINT:

    The installation procedure for the RH side is the same as that for the LH side.

13. **INSTALL FRONT SPEED SENSOR LH** (See **INSTALLATION**)
14. **INSTALL FRONT SPEED SENSOR RH**

    HINT:

    The installation procedure for the RH side is the same as that for the LH side.

15. **INSTALL FRONT AXLE HUB NUT LH** (See **INSTALLATION**)
16. **INSTALL FRONT AXLE HUB NUT RH**

    HINT:

    The installation procedure for the RH side is the same as that for the LH side.

17. **INSTALL FRONT WHEELS**
18. **ADD TRANSAXLE OIL**
19. **INSPECT AND ADJUST TRANSAXLE OIL** (See **ON-VEHICLE INSPECTION**)

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20. **INSPECT ABS SPEED SENSOR SIGNAL**

    (See **TEST MODE PROCEDURE**)

21. **INSPECT AND ADJUST FRONT WHEEL ALIGNMENT**

    (See **ADJUSTMENT**)

22. **INSPECT FOR TRANSAXLE OIL LEAK**

SHIFT LEVER ASSEMBLY

COMPONENTS

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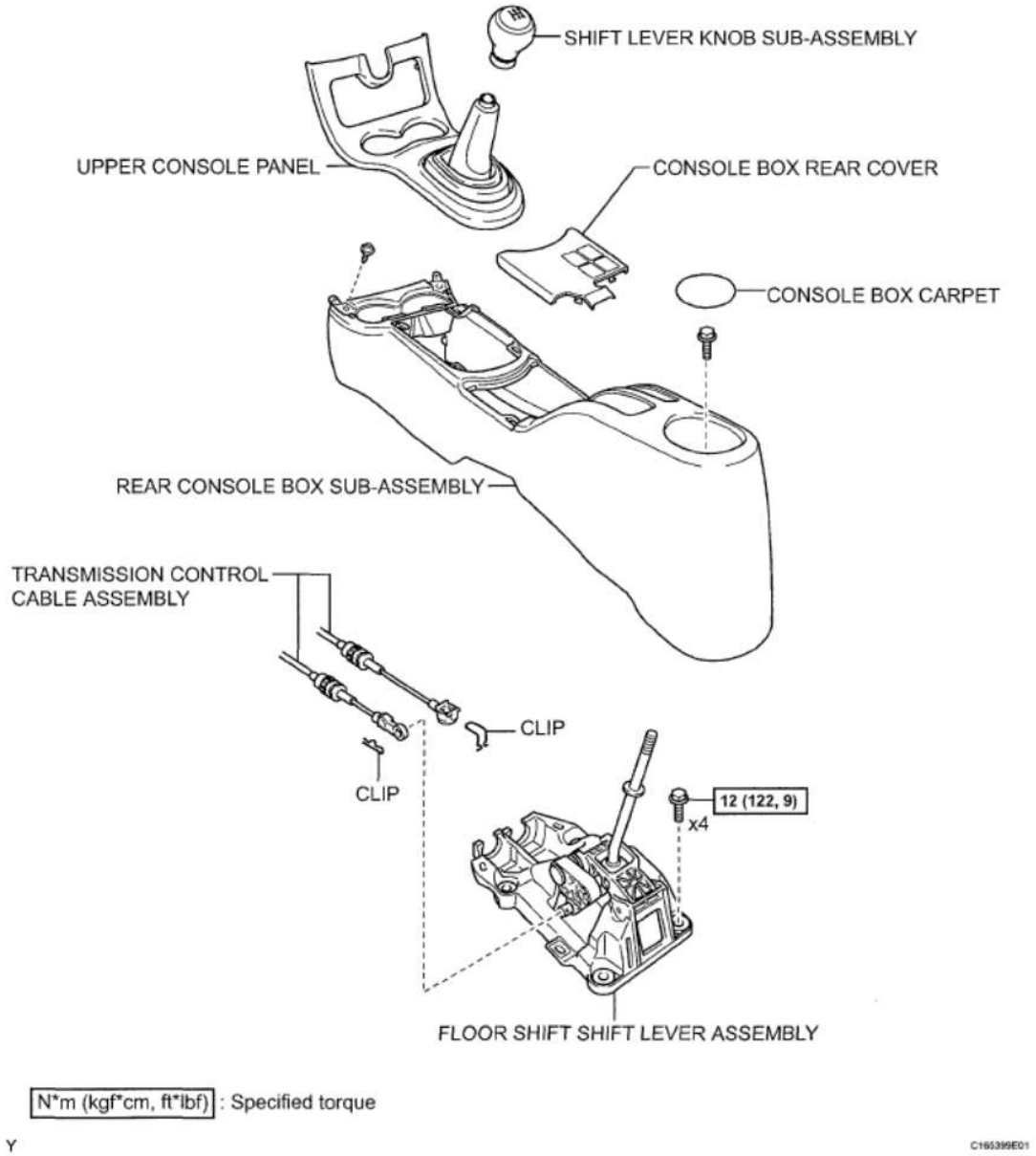


Fig. 8: Identifying Shift Lever Assembly Components With Torque Specification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY** (See **REMOVAL**)
2. **REMOVE UPPER CONSOLE PANEL** (See **REMOVAL**)
3. **REMOVE CONSOLE BOX REAR COVER** (See **REMOVAL**)
4. **REMOVE CONSOLE BOX CARPET** (See **REMOVAL**)
5. **REMOVE REAR CONSOLE BOX SUB-ASSEMBLY** (See **REMOVAL**)

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6. **DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Remove the clip and disconnect the control select cable from the shift lever.

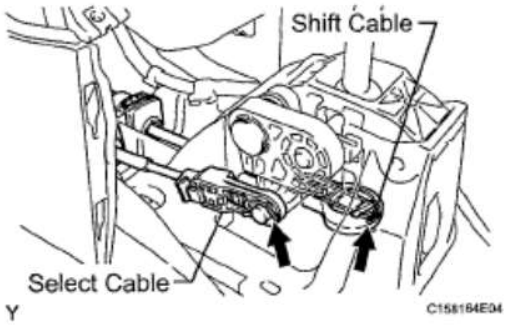


Fig. 9: Locating Shift Cable And Select Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Disconnect the control shift cable from the shift lever.
   c. Turn the adjust nut 180° clock wise. While holding the adjust nut, separate the control cable assembly.

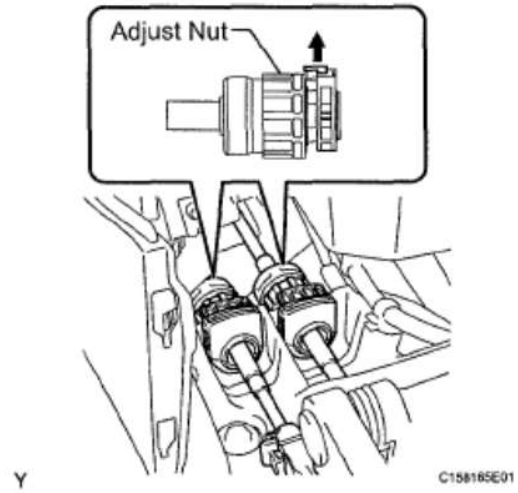


Fig. 10: Holding Adjust Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE FLOOR SHIFT SHIFT LEVER ASSEMBLY**
   a. Remove the 4 bolts and remove the shift lever.

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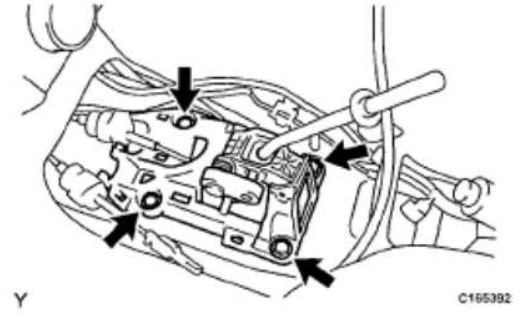


Fig. 11: Locating Shift Lever Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL FLOOR SHIFT SHIFT LEVER ASSEMBLY**
   a. Install the shift lever with the 4 bolts.

   Torque: 12 N*m (122 kgf*cm, 9 ft.*lbf)

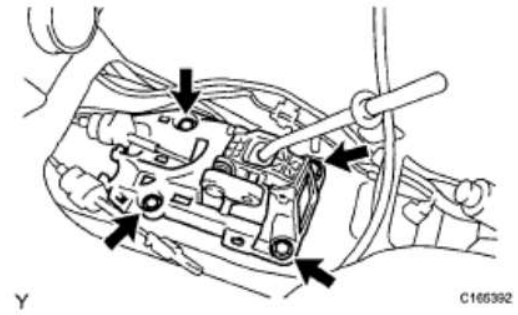


Fig. 12: Locating Shift Lever Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **CONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Install the control cable assembly onto the shift lever retainer.

NOTE:

- **Install the cable with the protruding portion of the cable outer facing upward.**
- **After installing, check that the lock of the cable outer is protruding beyond portion A, as shown in the illustration.**

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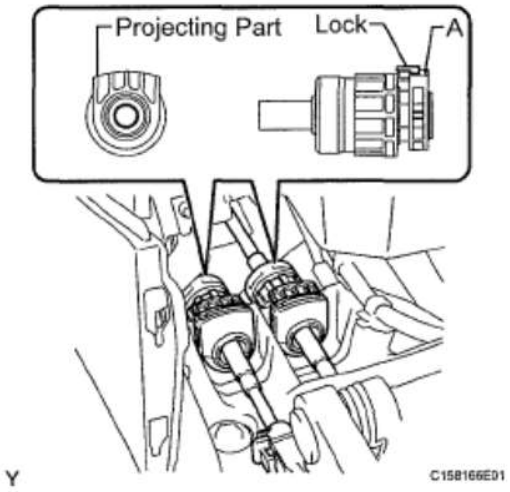


Fig. 13: Identifying Control Cable Assembly Onto Shift Lever Retainer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Connect the control shift cable to the shift lever.
c. Connect the control select cable to the shift lever with the clip.

NOTE:

- **Connect the control select cable so that the adjusting mechanism lock of the control select cable is installed on the left side of the vehicle.**
- **Insert the clip in the direction shown in the illustration.**

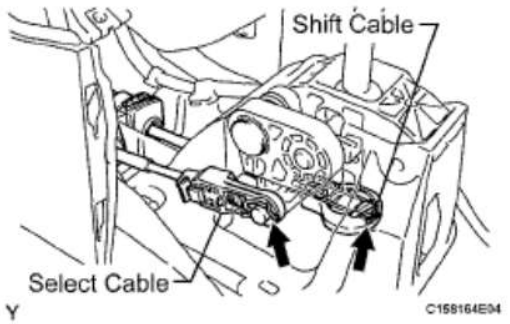


Fig. 14: Locating Shift Cable And Select Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Adjust the length of the control select cable.
   1. Slide the adjuster case cover in the direction shown in the illustration (Illustration A).
   2. Gently pull the cable rod toward the rear of the vehicle by hand to pull the cable taut.
   3. Press the lock piece into the adjuster case and lock it (Illustration B).

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4. Slide the cover in the direction shown in the illustration (Illustration C).

NOTE: Slide the cover past the protrusion of the lock piece (Illustration D).

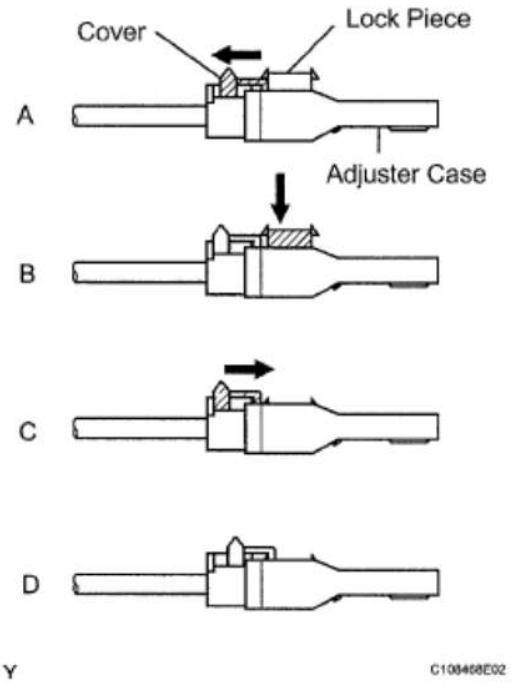


Fig. 15: Sliding Adjuster Case Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL REAR CONSOLE BOX SUB-ASSEMBLY** (See **INSTALLATION**)
4. **INSTALL CONSOLE BOX CARPET** (See **INSTALLATION**)
5. **INSTALL CONSOLE BOX REAR COVER** (See **INSTALLATION**)
6. **INSTALL UPPER CONSOLE PANEL** (See **INSTALLATION**)
7. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY** (See **INSTALLATION**)

TRANSMISSION CONTROL CABLE

COMPONENTS

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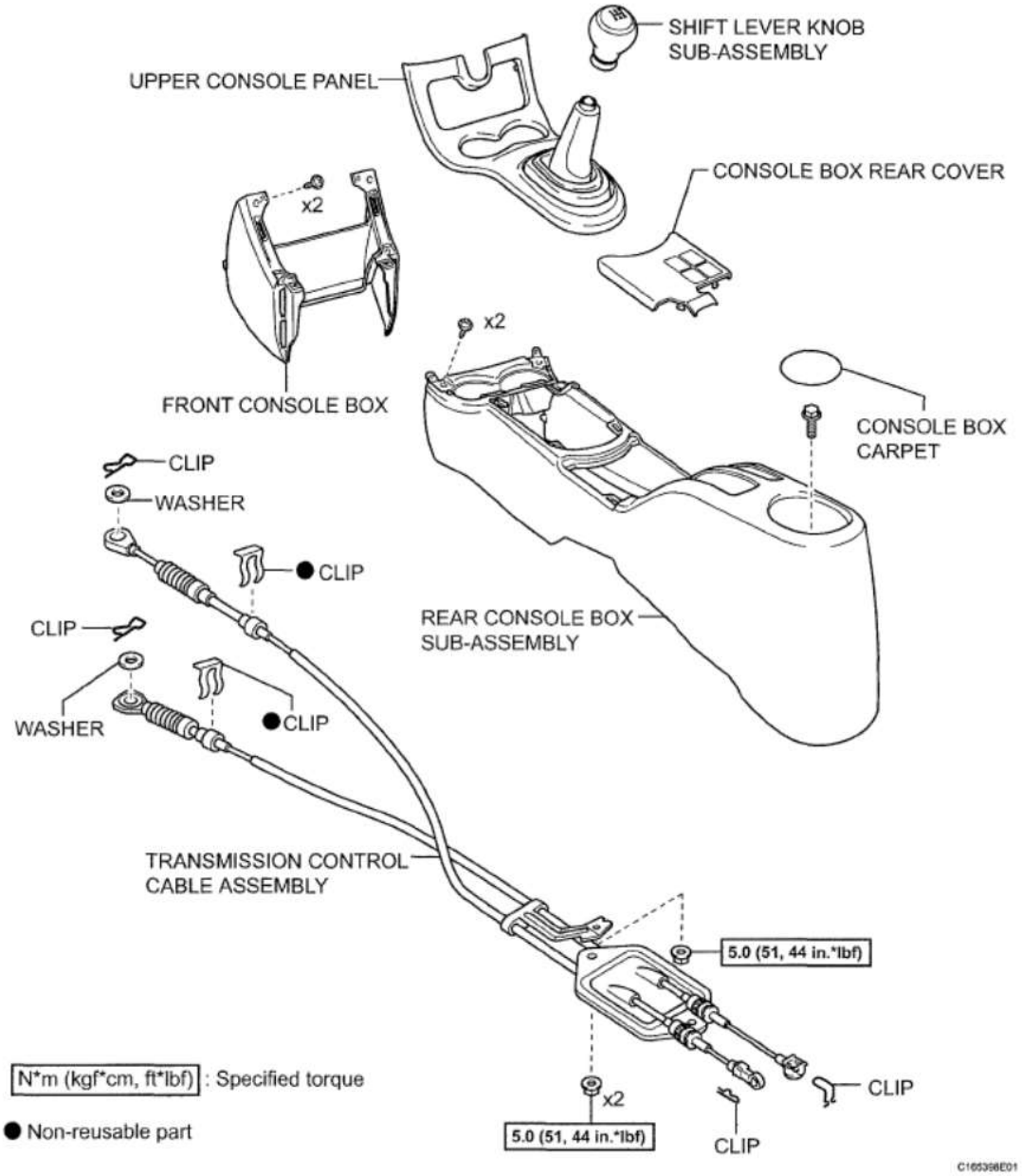


Fig. 16: Identifying Transmission Control Cable Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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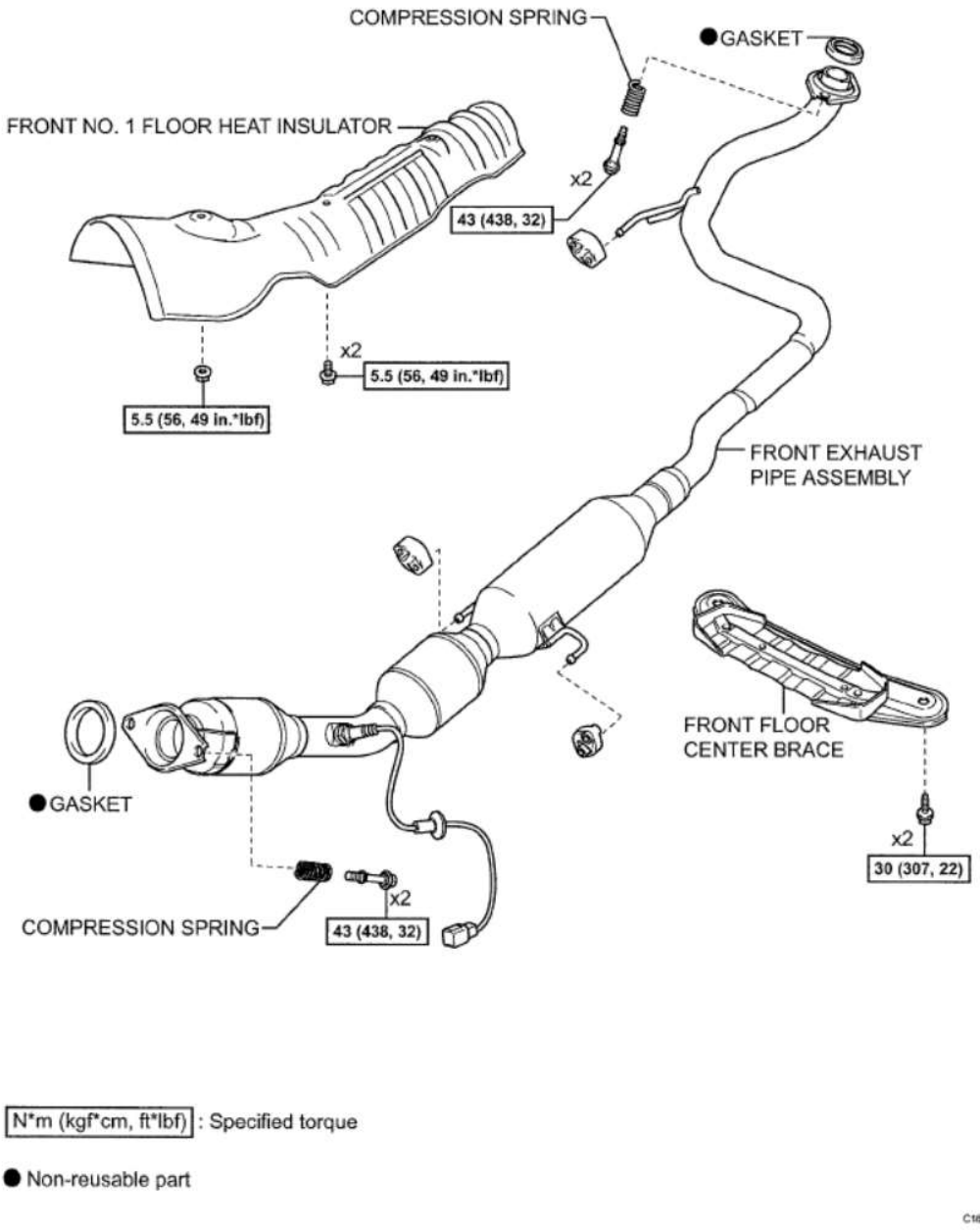


Fig. 17: Identifying Transmission Control Cable Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY** (See **REMOVAL**)
2. **REMOVE UPPER CONSOLE PANEL** (See **REMOVAL**)
3. **REMOVE CONSOLE BOX REAR COVER** (See **REMOVAL**)
4. **REMOVE CONSOLE BOX CARPET** (See **REMOVAL**)

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5. **REMOVE REAR CONSOLE BOX SUB-ASSEMBLY** (See **REMOVAL**)
6. **REMOVE FRONT CONSOLE BOX** (See **REMOVAL**)
7. **REMOVE FRONT FLOOR CENTER BRACE** (See **REMOVAL**)
8. **DISCONNECT HEATED OXYGEN SENSOR CONNECTOR**
9. **REMOVE FRONT EXHAUST PIPE ASSEMBLY** (See **REMOVAL**)
10. **REMOVE FRONT NO. 1 FLOOR HEAT INSULATOR**
    a. Remove the 2 bolts and nut and remove the front No. 1 floor heat insulator.

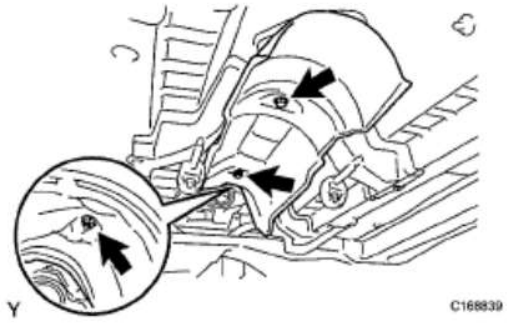


Fig. 18: Locating Front No. 1 Floor Heat Insulator Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY**
    a. Disconnect the control shift cable from the shift lever.
    b. Remove the clip and disconnect the control select cable from the shift lever.

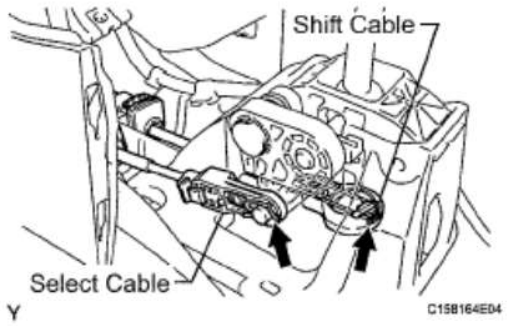


Fig. 19: Locating Shift Cable And Select Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    c. Turn the adjust nut 180° clockwise. While holding the adjust nut, separate the control cable assembly.

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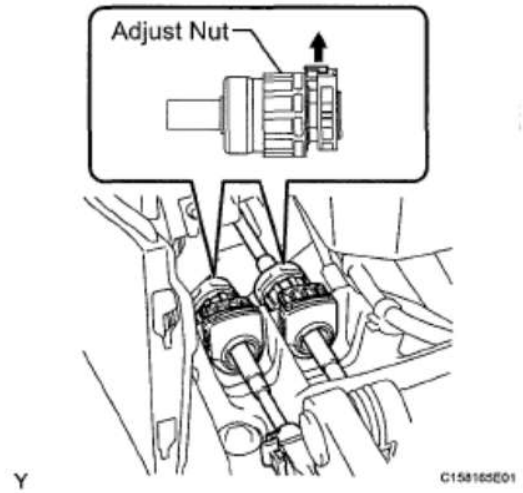


Fig. 20: Holding Adjust Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the 2 clips and the 2 washers, and disconnect the 2 cables from the transaxle.

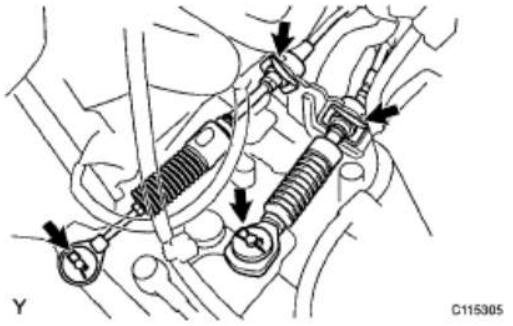
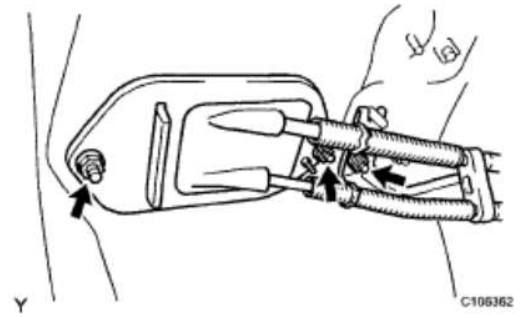


Fig. 21: Locating Transaxle Cable Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Remove the 2 clips and disconnect the 2 cables from the control cable bracket.
f. Remove the 3 nuts and remove the transmission control cable.



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Fig. 22: Locating Transmission Control Cable Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Install the control cable with the 3 nuts.

   Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)

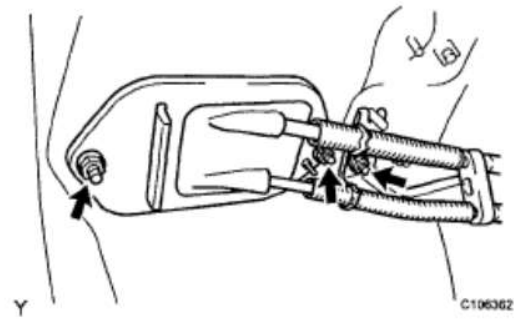


Fig. 23: Locating Transmission Control Cable Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the control cable assembly onto the control cable bracket with 2 new clips.

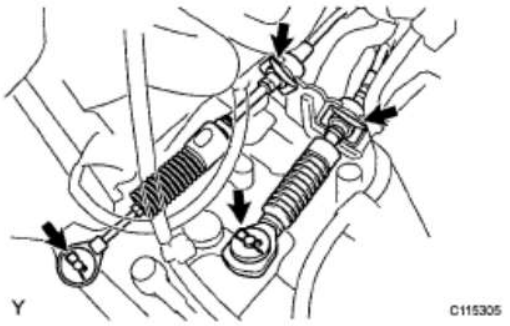


Fig. 24: Locating Transaxle Cable Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Connect the control cable assembly and install the 2 washers and 2 clips.
   d. Install the control cable assembly onto the shift lever retainer.

NOTE:

- **Install the cable with the protruding portion of the cable outer facing upward.**
- **After installing, check that the lock of the cable outer is protruding beyond portion A, as shown in the illustration.**

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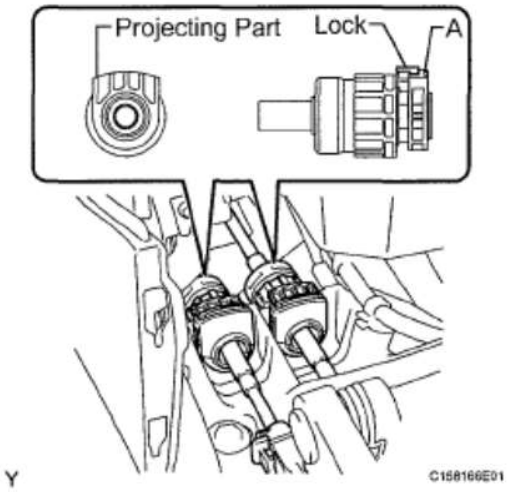


Fig. 25: Identifying Control Cable Assembly Onto Shift Lever Retainer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Connect the control shift cable to the shift lever.
f. Connect the control select cable to the shift lever with the clip.

NOTE:

- **Connect the control select cable so that the adjusting mechanism lock of the control select cable is installed on the left side of the vehicle.**
- **Insert the clip in the direction shown in the illustration.**

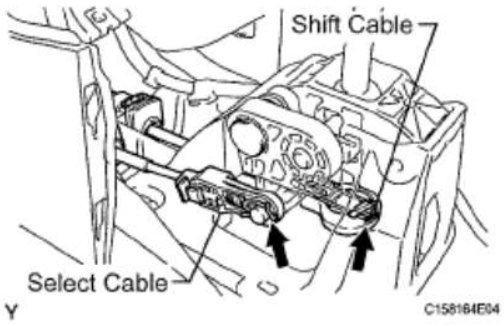


Fig. 26: Locating Shift Cable And Select Cable
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Adjust the length of the control select cable.
   1. Slide the adjuster case cover in the direction shown in the illustration (Illustration A).
   2. Gently pull the cable rod toward the rear of the vehicle by hand to pull the cable taut.
   3. Press the lock piece into the adjuster case and lock it (Illustration B).

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4. Slide the cover in the direction shown in the illustration (Illustration C).

NOTE: Slide the cover past the protrusion portion of the lock piece (Illustration D).

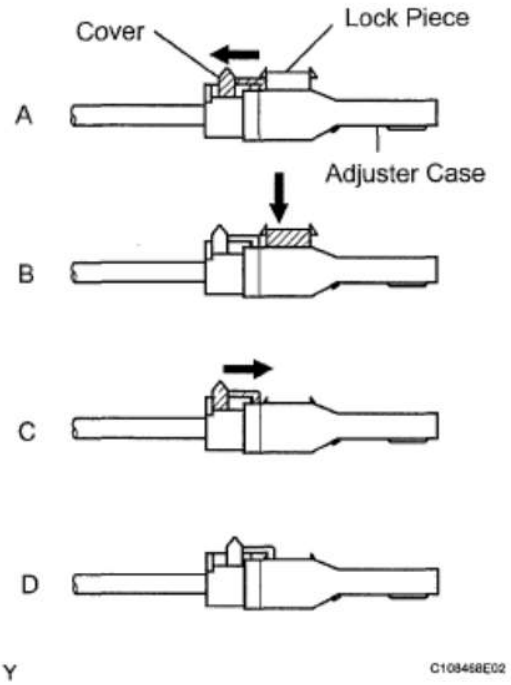


Fig. 27: Sliding Adjuster Case Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL FRONT NO. 1 FLOOR HEAT INSULATOR**
   a. Install the front No. 1 floor heat insulator with the 2 bolts and nut.

Torque: 5.5 N*m (56 kgf*cm, 49 in.*lbf)

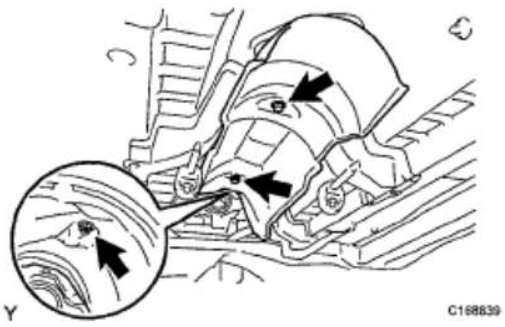


Fig. 28: Locating Front No. 1 Floor Heat Insulator Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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3. **INSTALL FRONT EXHAUST PIPE ASSEMBLY** (See **INSTALLATION**)
4. **CONNECT HEATED OXYGEN SENSOR CONNECTOR**
5. **INSTALL FRONT FLOOR CENTER BRACE** (See **INSTALLATION**)
6. **INSTALL FRONT CONSOLE BOX** (See **INSTALLATION**)
7. **INSTALL REAR CONSOLE BOX SUB-ASSEMBLY** (See **INSTALLATION**)
8. **INSTALL CONSOLE BOX CARPET** (See **INSTALLATION**)
9. **INSTALL CONSOLE BOX REAR COVER** (See **INSTALLATION**)
10. **INSTALL UPPER CONSOLE PANEL** (See **INSTALLATION**)
11. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY** (See **INSTALLATION**)

MANUAL TRANSAXLE ASSEMBLY

COMPONENTS

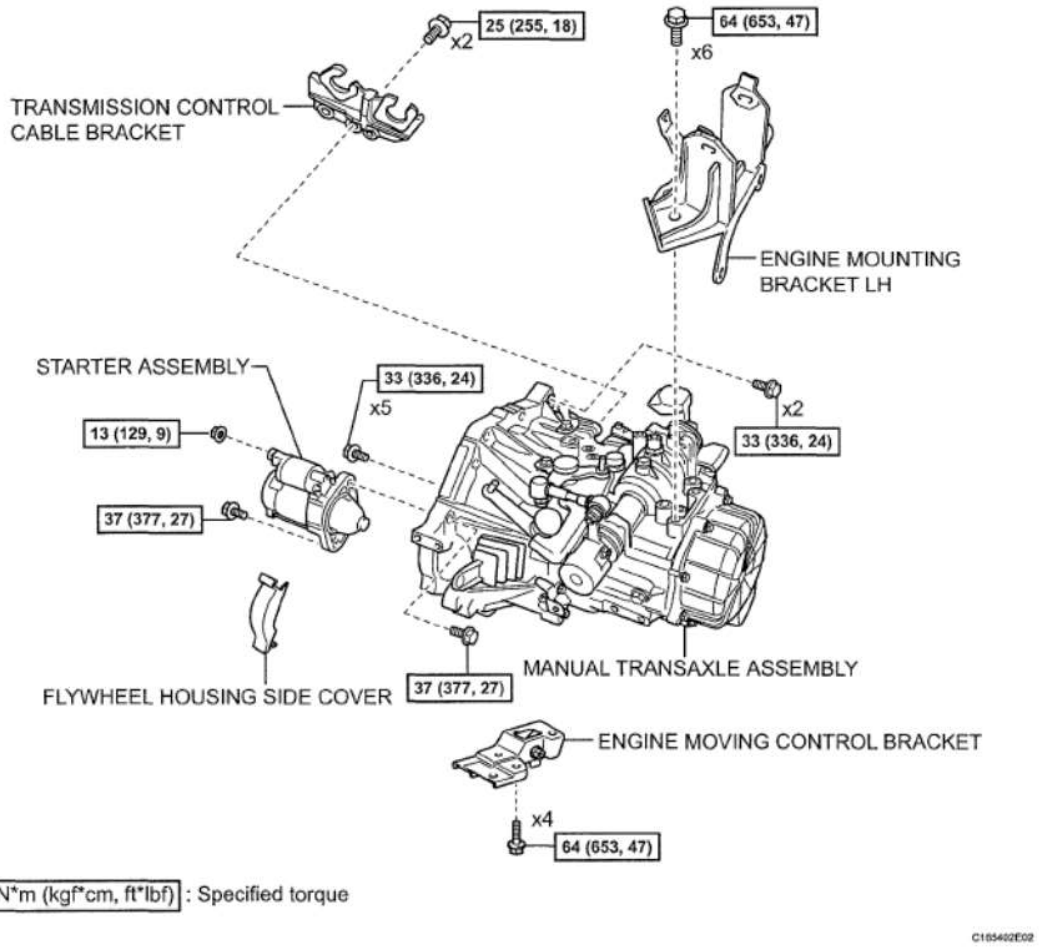


Fig. 29: Identifying Manual Transaxle Assembly Components With Torque Specifications
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REMOVAL

1. **REMOVE ENGINE AND TRANSAXLE**

   HINT:

   See the steps from "DISCHARGE FUEL SYSTEM PRESSURE" through "REMOVE FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY" (See **REMOVAL**).

2. **REMOVE ENGINE MOVING CONTROL BRACKET**
   a. Remove the 4 bolts and the engine moving control bracket.

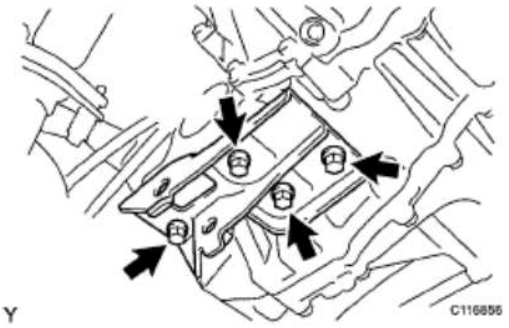


Fig. 30: Locating Engine Moving Control Bracket Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE FLYWHEEL HOUSING SIDE COVER** (See **REMOVAL**)
4. **REMOVE STARTER ASSEMBLY** (See **REMOVAL**)
5. **REMOVE TRANSMISSION CONTROL CABLE BRACKET**
   a. Remove the 2 bolts and the transmission control cable bracket.

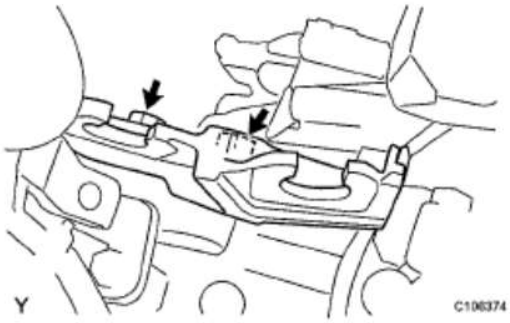


Fig. 31: Locating Transmission Control Cable Bracket Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE ENGINE MOUNTING BRACKET LH**
   a. Remove the 6 bolts and the engine mounting bracket LH.

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Fig. 32: Locating Engine Mounting Bracket LH Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE MANUAL TRANSAXLE ASSEMBLY**
   a. Remove the 7 bolts and the manual transaxle.

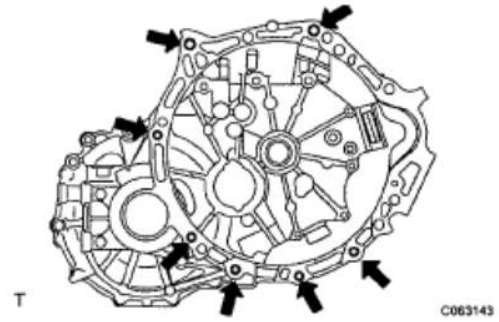


Fig. 33: Locating Manual Transaxle Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL MANUAL TRANSAXLE ASSEMBLY**
   a. Align the input shaft with the clutch disc and install the manual transaxle onto the engine.
   b. Install the 7 bolts.

   Torque: 33 N*m (336 kgf*cm, 24 ft.*lbf)

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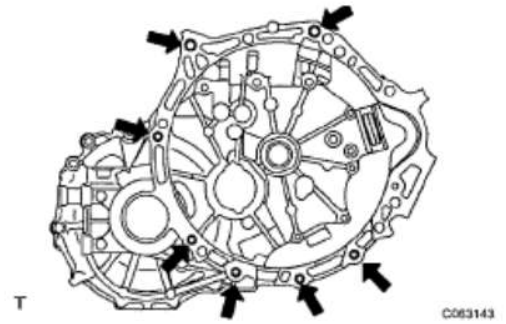


Fig. 34: Locating Manual Transaxle Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL ENGINE MOUNTING BRACKET LH**
   a. Install the engine mounting bracket LH with the 6 bolts.

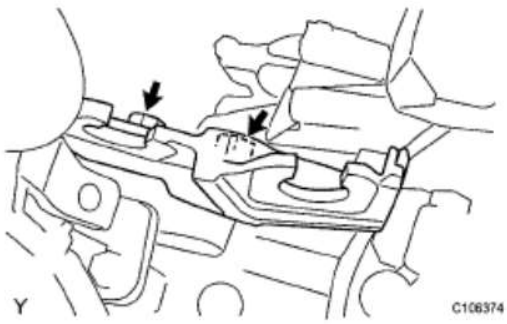
   Torque: 64 N*m (653 kgf*cm, 47 ft.*lbf)



Fig. 35: Locating Engine Mounting Bracket LH Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL TRANSMISSION CONTROL CABLE BRACKET**
   a. Install the transmission control cable bracket with the 2 bolts.

   Torque: 25 N*m (255 kgf*cm, 18 ft.*lbf)



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Fig. 36: Locating Transmission Control Cable Bracket With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL STARTER ASSEMBLY** (See **INSTALLATION**)
5. **INSTALL FLYWHEEL HOUSING SIDE COVER** (See **INSTALLATION**)
6. **INSTALL ENGINE MOVING CONTROL BRACKET**
   a. Install the engine moving control bracket with the 4 bolts.

   Torque: 64 N*m (653 kgf*cm, 47 ft.*lbf)

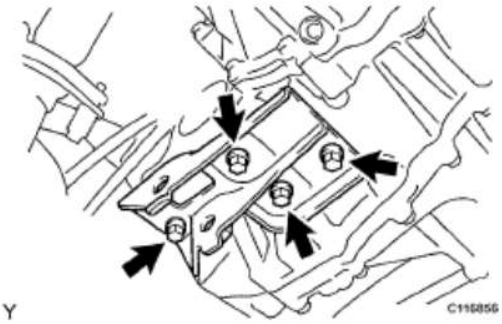


Fig. 37: Locating Engine Moving Control Bracket Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL ENGINE AND TRANSAXLE**

   HINT:

   See the steps from "INSTALL FRONT SUSPENSION CROSSMEMBER SUB-ASSEMBLY" through "INSPECT VSC SENSOR SIGNAL" (See **INSTALLATION**).

MANUAL TRANSAXLE UNIT

COMPONENTS

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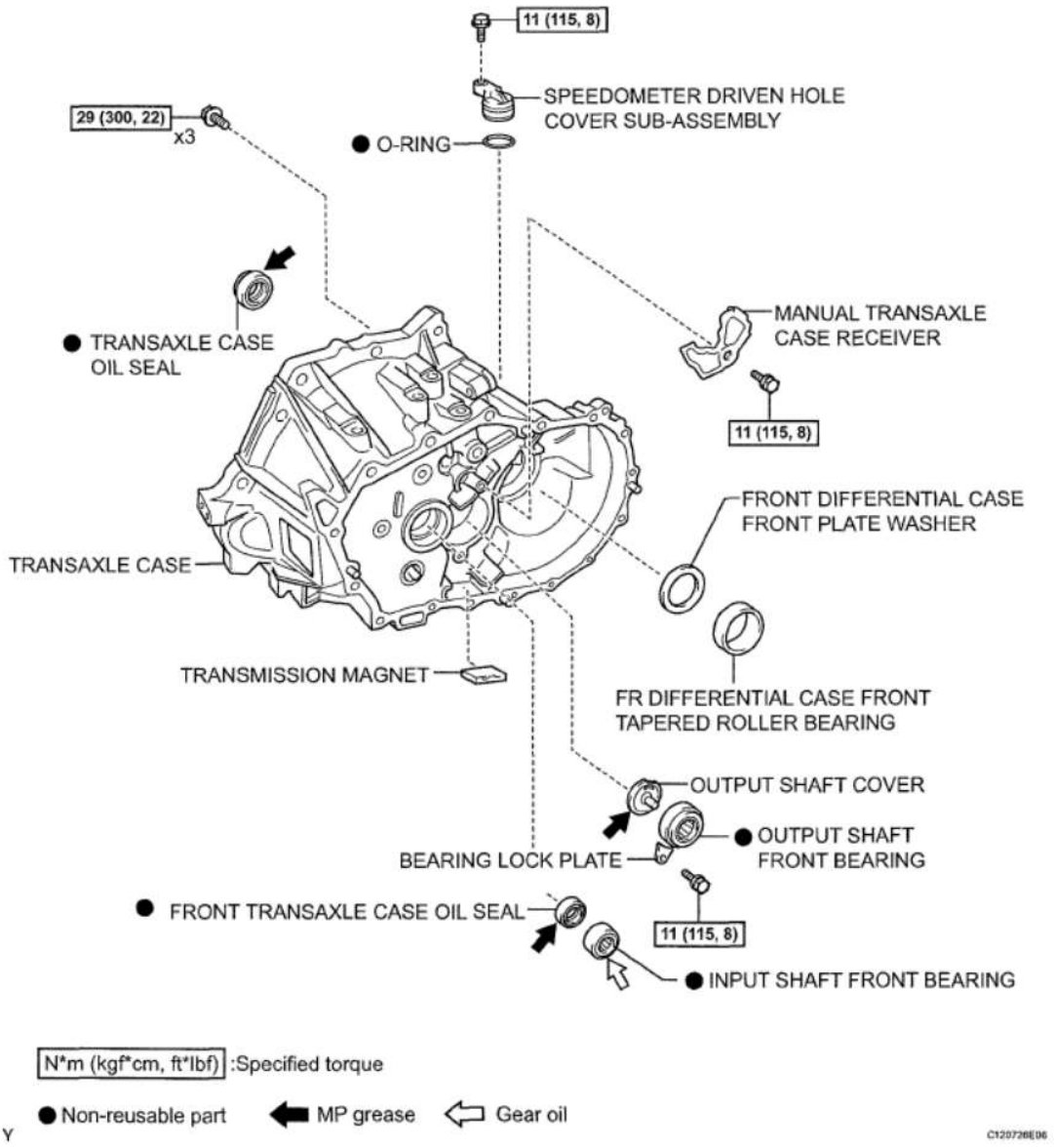


Fig. 38: Identifying Manual Transaxle Unit Components With Torque Specifications (1 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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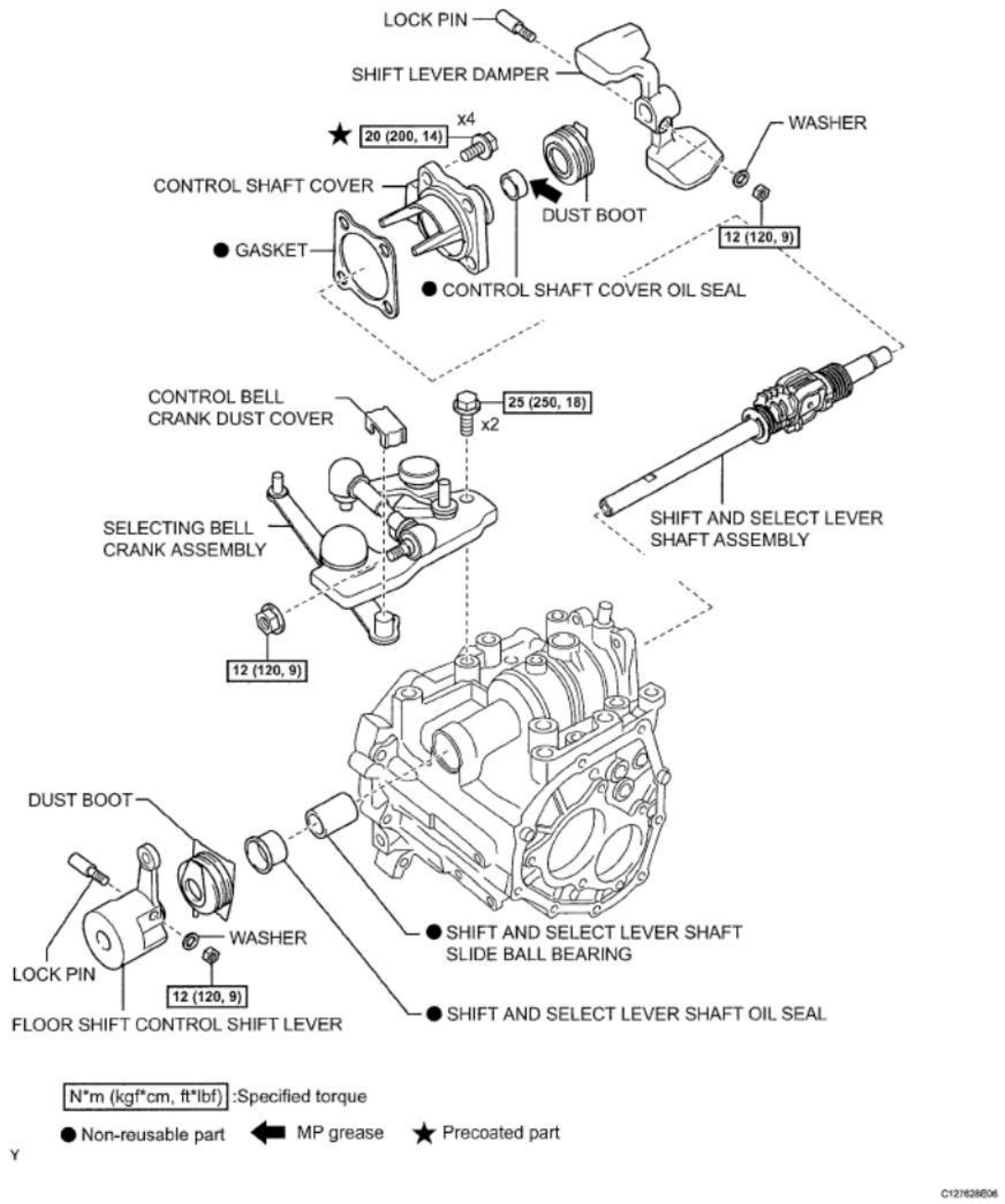


Fig. 39: Identifying Manual Transaxle Unit Components With Torque Specifications (2 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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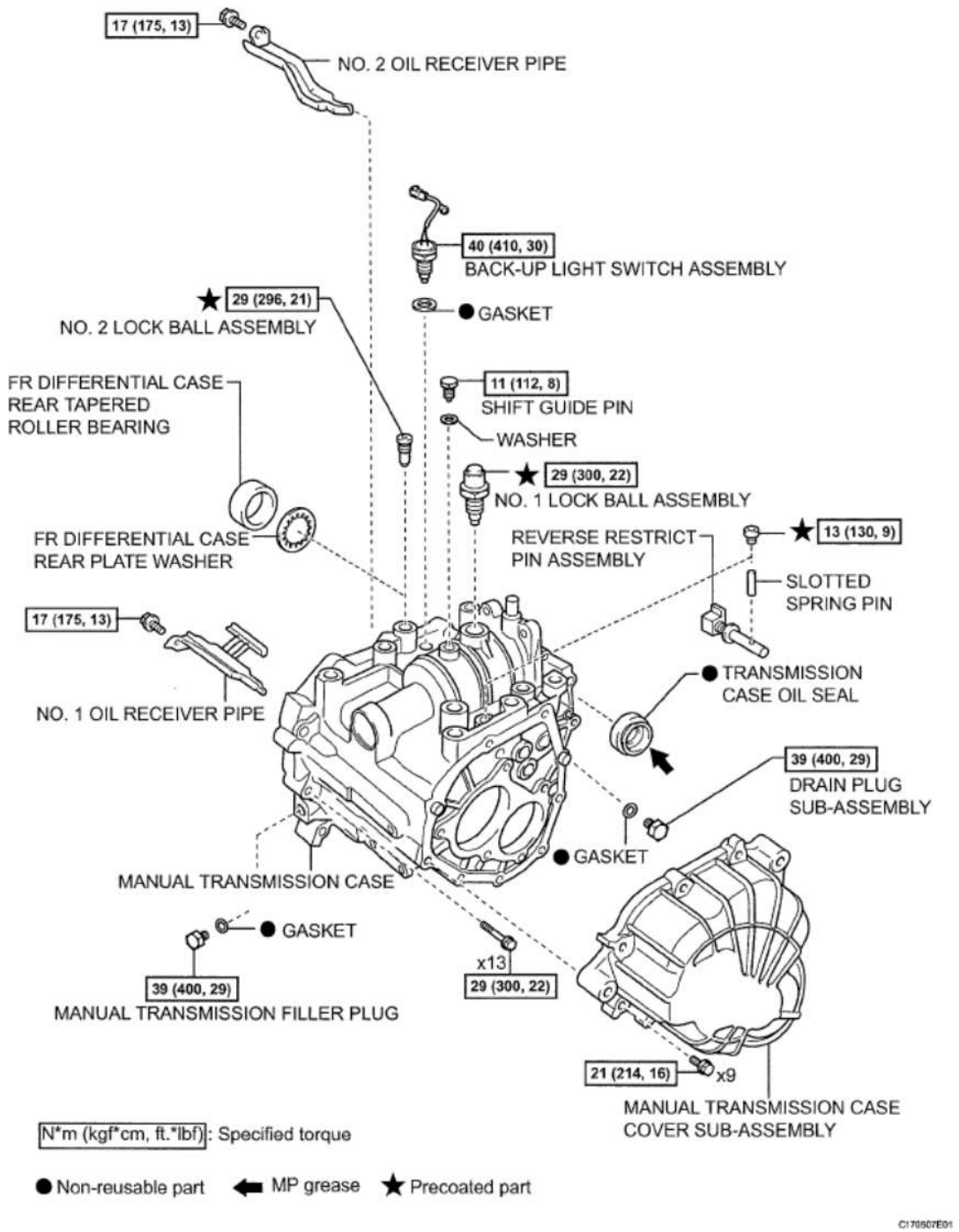


Fig. 40: Identifying Manual Transaxle Unit Components With Torque Specifications (3 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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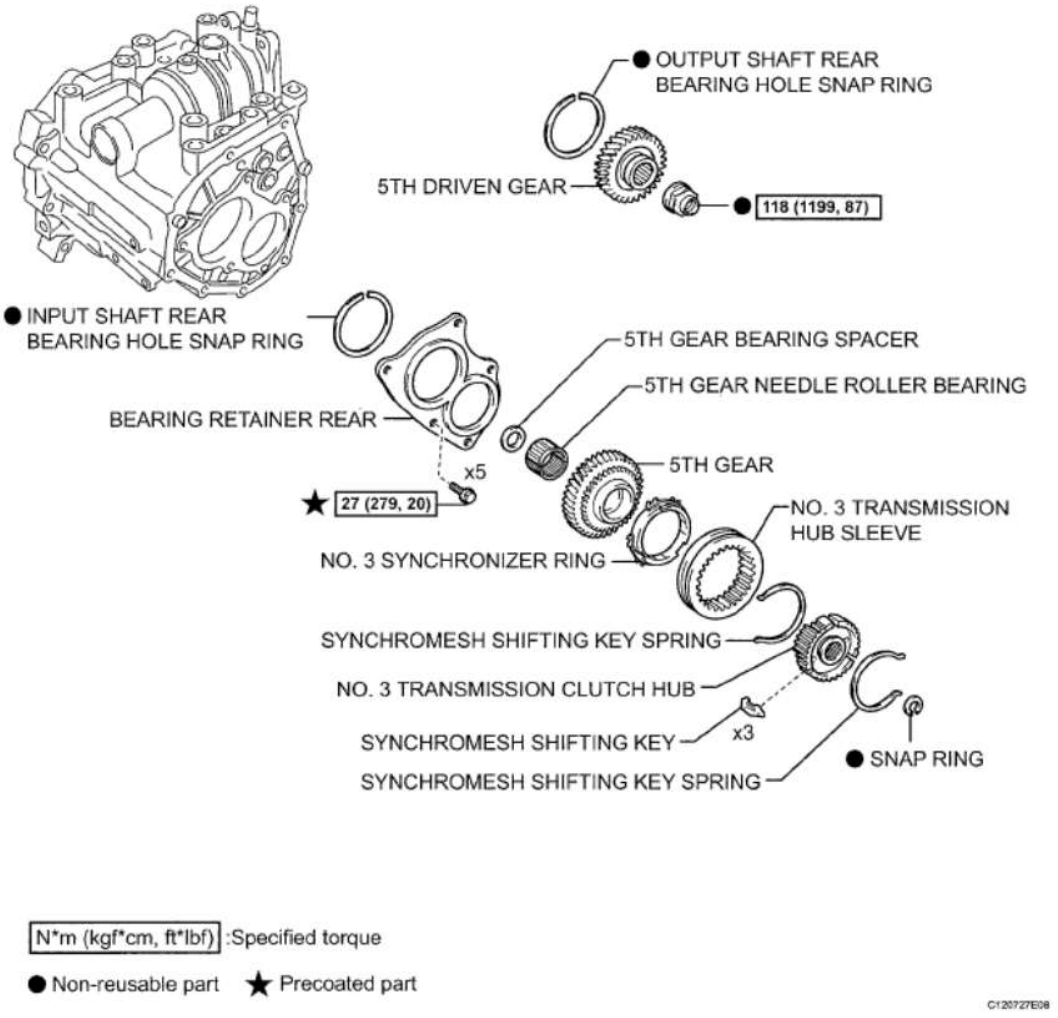


Fig. 41: Identifying Manual Transaxle Unit Components With Torque Specifications (4 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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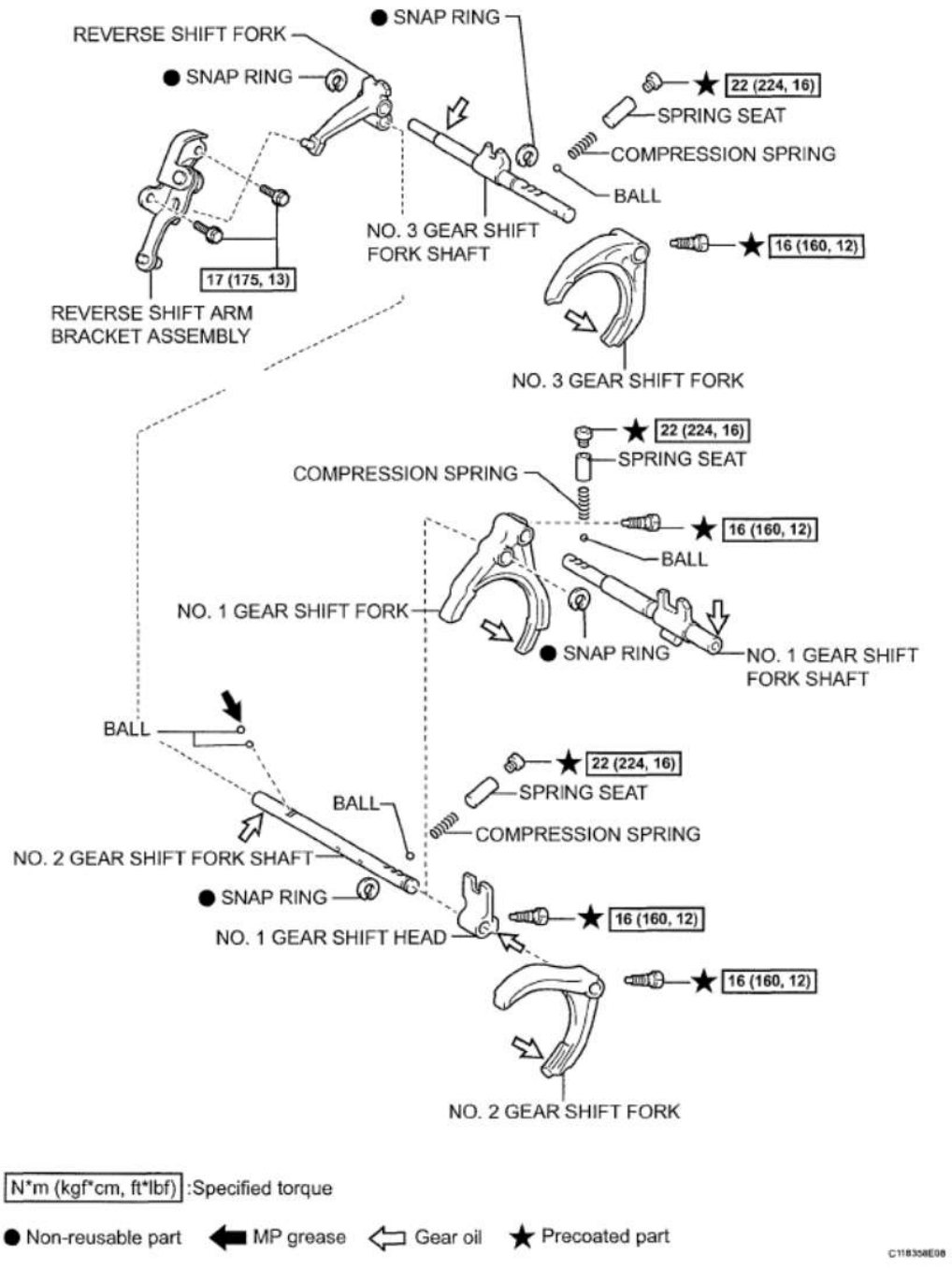


Fig. 42: Identifying Manual Transaxle Unit Components With Torque Specifications (5 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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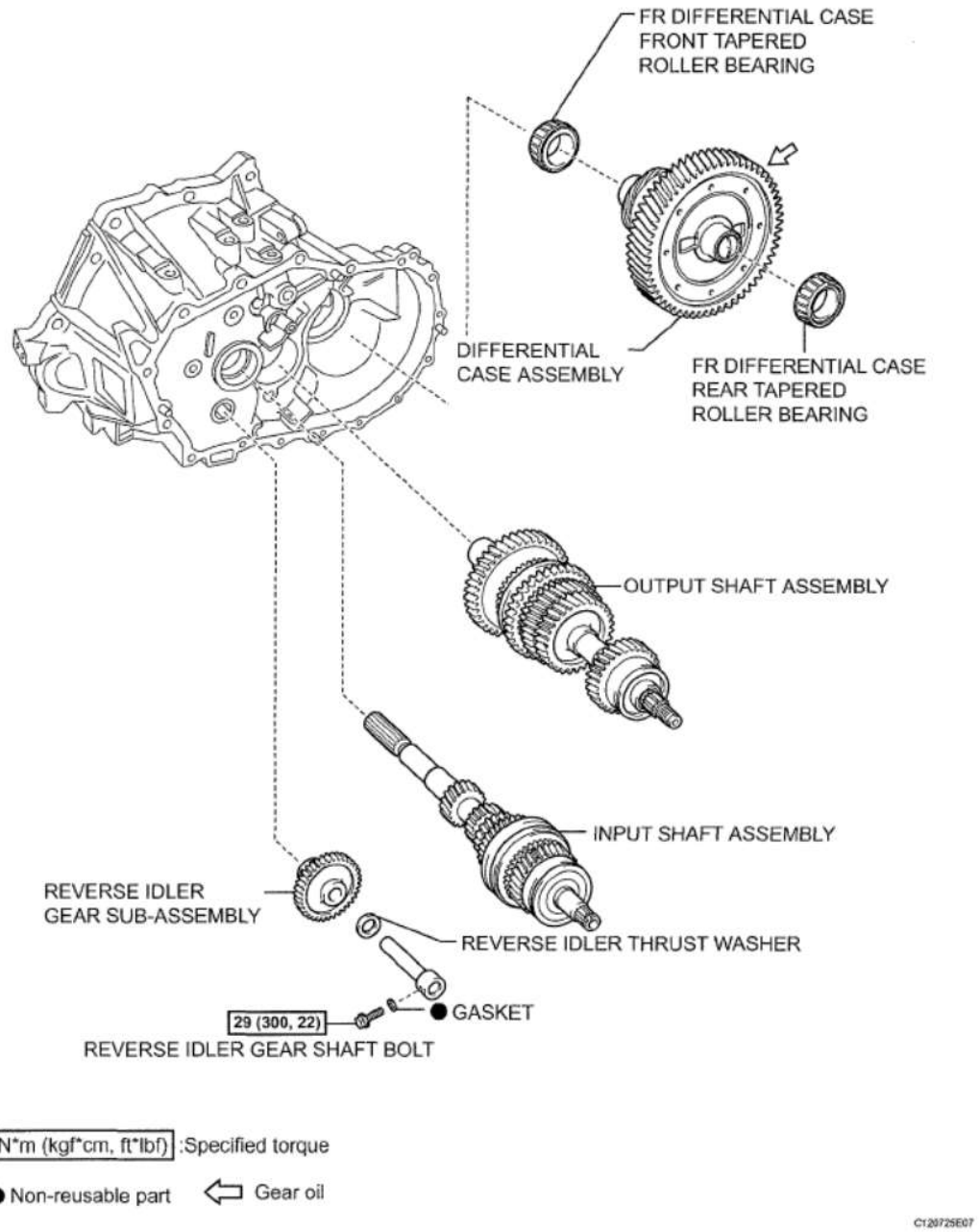


Fig. 43: Identifying Manual Transaxle Unit Components With Torque Specification (6 Of 6)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. **REMOVE MANUAL TRANSMISSION FILLER PLUG**
   a. Remove the manual transmission filler plug and gasket from the manual transmission case.

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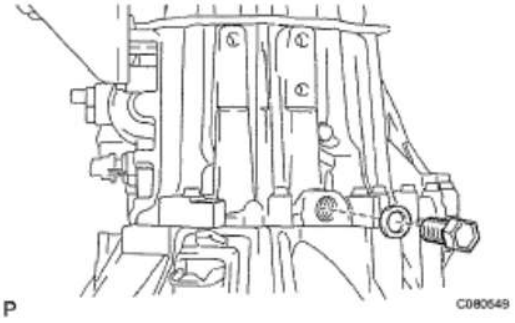


Fig. 44: Identifying Manual Transmission Filler Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE DRAIN PLUG SUB-ASSEMBLY**
   a. Remove the drain plug sub-assembly and gasket from the manual transmission case.

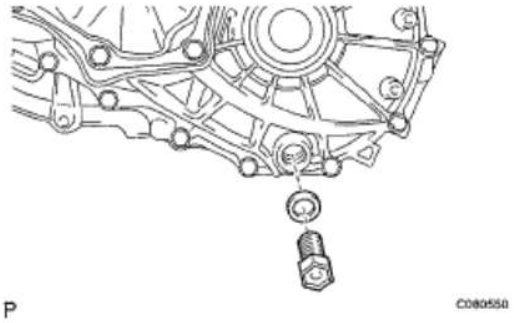


Fig. 45: Identifying Drain Plug Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
   a. Remove the bolt and speedometer driven hole cover sub-assembly from the transaxle case.
   b. Remove the O-ring from the speedometer driven hole cover sub-assembly.
4. **REMOVE BACK-UP LIGHT SWITCH ASSEMBLY**
   a. Separate the back-up light switch wire harness from the 2 clamps.
   b. Using SST, remove the back-up light switch assembly and gasket from the manual transmission case.

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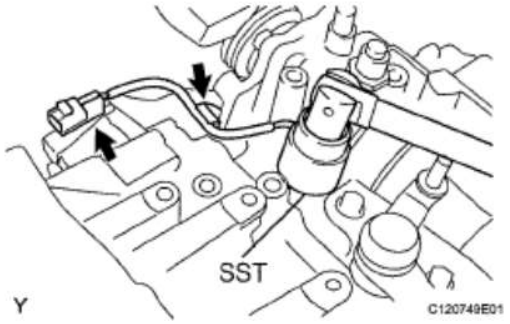


Fig. 46: Locating Back-Up Light Switch With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SELECTING BELL CRANK ASSEMBLY**
   a. Remove the 2 bolts and nut and remove the selecting bell crank assembly from the manual transmission case.

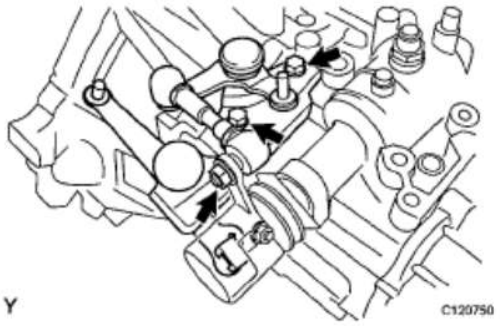


Fig. 47: Locating Selecting Bell Crank Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the control shift lever bush.
6. **REMOVE FLOOR SHIFT CONTROL SHIFT LEVER**
   a. Remove the nut and spring washer.

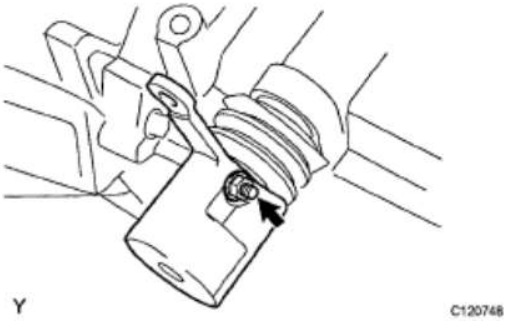


Fig. 48: Locating Floor Shift Control Shift Lever Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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b. Using a brass bar and a hammer, remove the lock pin.
c. Remove the floor shift control shift lever.

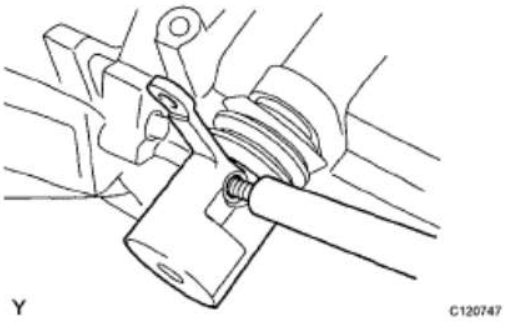


Fig. 49: Identifying Floor Shift Control Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE SHIFT LEVER DAMPER**
   a. Remove the nut and spring washer.

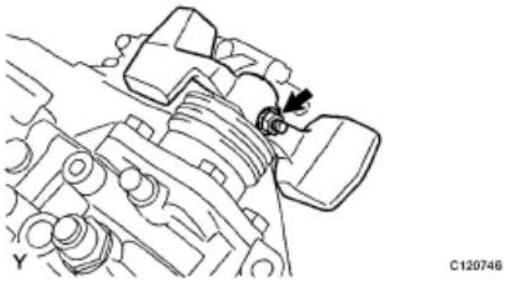


Fig. 50: Locating Spring Washer And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a brass bar and a hammer, remove the lock pin.

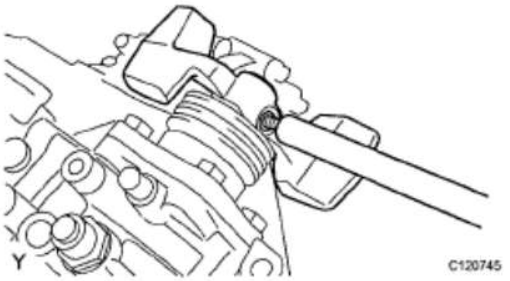


Fig. 51: Removing Lock Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Remove the shift lever damper.

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8. **FIX MANUAL TRANSAXLE ASSEMBLY**
   a. Place the manual transaxle assembly on wooden blocks.

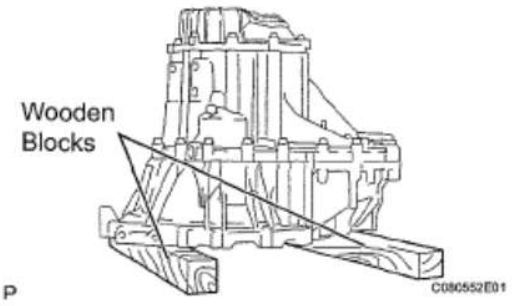


Fig. 52: Identifying Manual Transaxle Assembly On Wooden Blocks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE NO. 1 LOCK BALL ASSEMBLY**
   a. Remove the No. 1 lock ball assembly from the manual transmission case.

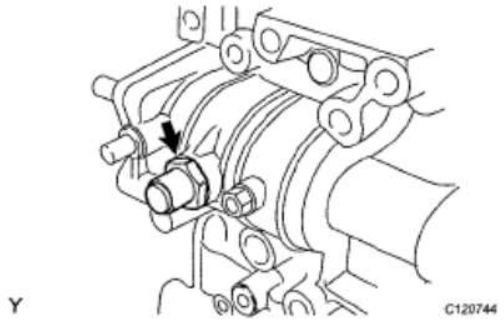


Fig. 53: Locating No. 1 Lock Ball Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **REMOVE SHIFT GUIDE PIN**
    a. Remove the shift guide pin and washer from the transmission case.

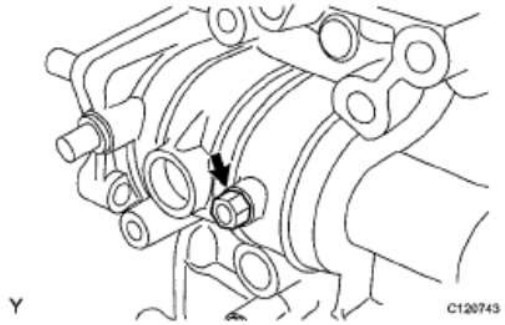


Fig. 54: Locating Shift Guide Pin

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11. **REMOVE CONTROL SHAFT COVER**
    a. Remove the 4 bolts, control shaft cover and gasket from the manual transmission case.

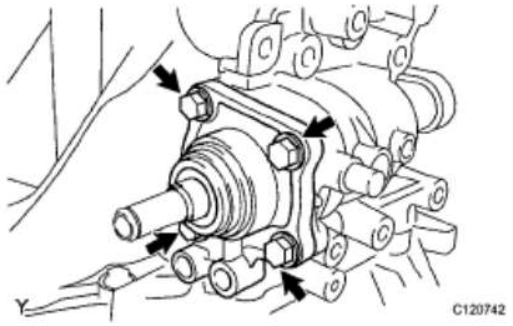


Fig. 55: Locating Control Shaft Cover Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **REMOVE CONTROL SHAFT COVER OIL SEAL**
    a. Using a screwdriver, remove the control shaft cover oil seal from the control shaft cover.

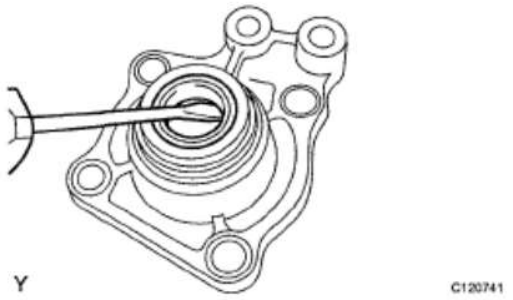
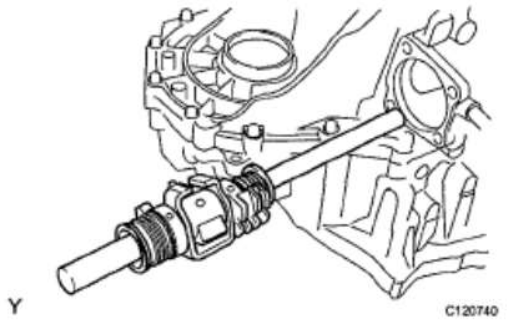


Fig. 56: Removing Control Shaft Cover Oil Seal Of Control Shaft Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY**
    a. Remove the shift and select lever shaft assembly from the transmission case.



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Fig. 57: Identifying Select Lever Shaft Assembly And Shift
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **REMOVE MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY**
    a. Remove the 9 bolts.

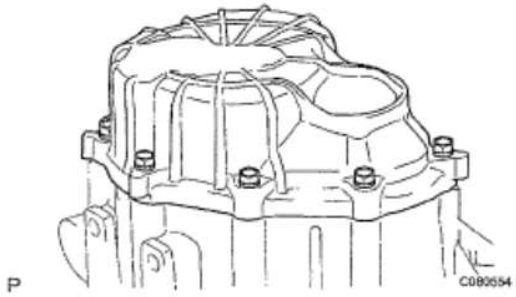


Fig. 58: Identifying Manual Transmission Case Cover Sub-Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Using a plastic hammer, carefully tap the projections of the manual transmission case cover sub-assembly to remove the manual transmission case cover from the manual transmission case.

NOTE: Do not damage the manual transmission case.

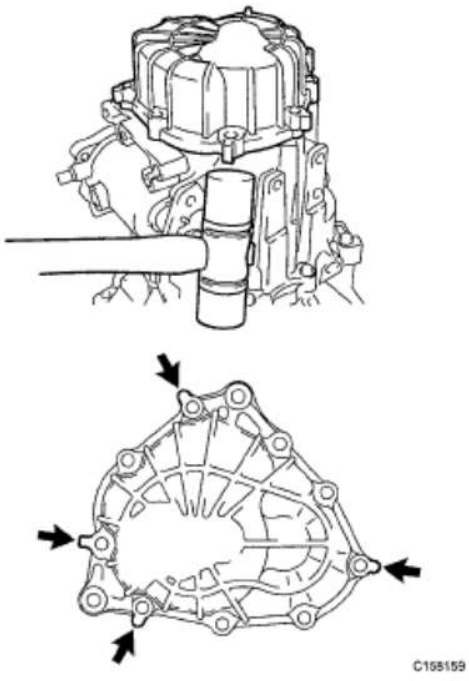


Fig. 59: Locating Manual Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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15. **REMOVE MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT**
    a. Using a chisel and a hammer, loosen the staked part of the manual transmission output shaft rear set nut.

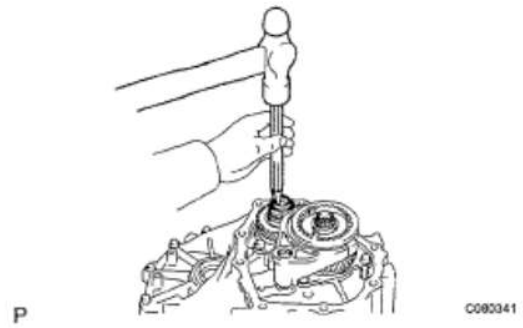


Fig. 60: Removing Manual Transmission Output Shaft Rear Set Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Engage 2 gears simultaneously to lock the transmission.
    c. Remove the manual transmission output shaft rear set nut.

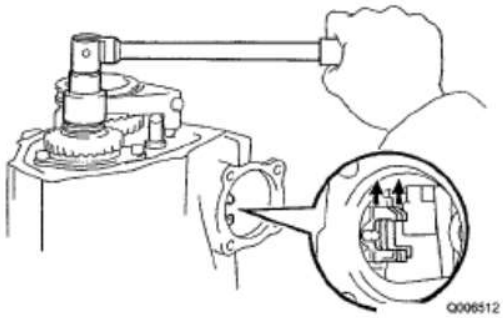


Fig. 61: Removing Manual Transmission Output Shaft Rear Set Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    d. Disengage the 2 gears.
16. **REMOVE NO. 3 GEAR SHIFT FORK**
    a. Remove the gear shift fork lock bolt from the No. 3 gear shift fork.

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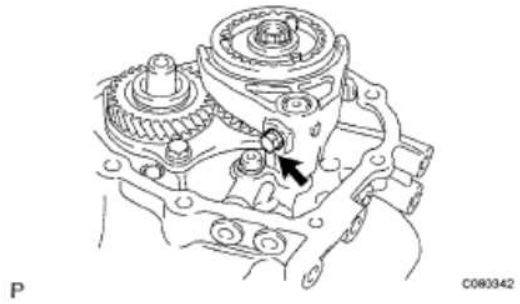


Fig. 62: Locating Gear Shift Fork Lock Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the No. 3 transmission hub sleeve with the No. 3 gear shift fork from the No. 3 transmission clutch hub.

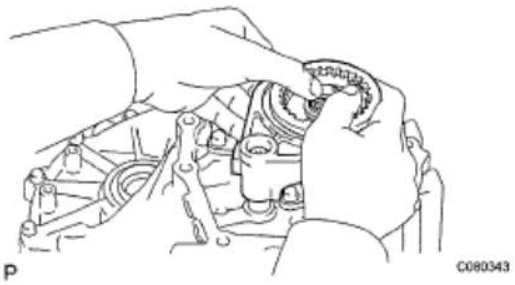


Fig. 63: Locating No. 3 Gear Shift Fork Of No. 3 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSPECT 5TH GEAR THRUST CLEARANCE**

a. Using a dial indicator, measure the 5th gear thrust clearance.

Standard clearance:

0.10 to 0.55 mm (0.0039 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 3 transmission clutch hub, 5th gear or input shaft rear radial ball bearing.

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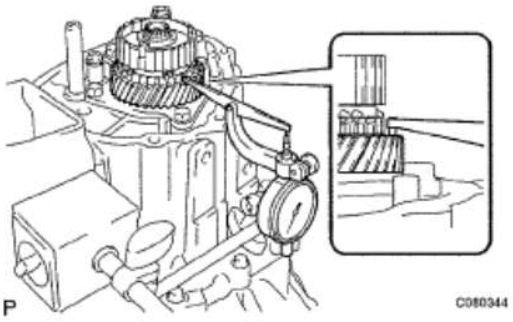


Fig. 64: Measuring 5Th Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **INSPECT 5TH GEAR RADIAL CLEARANCE**
    a. Using a dial indicator, measure the 5th gear radial clearance.

    Standard clearance:

    KOYO made:

    0.015 to 0.058 mm (0.0006 to 0.0023 in.)

    NSK made:

    0.015 to 0.056 mm (0.0006 to 0.0022 in.)

    Maximum clearance:

    KOYO made:

    0.058 mm (0.0023 in.)

    NSK made:

    0.056 mm (0.0022 in.)

    If the clearance exceeds the maximum, replace the 5th gear, 5th gear needle roller bearing or input shaft.

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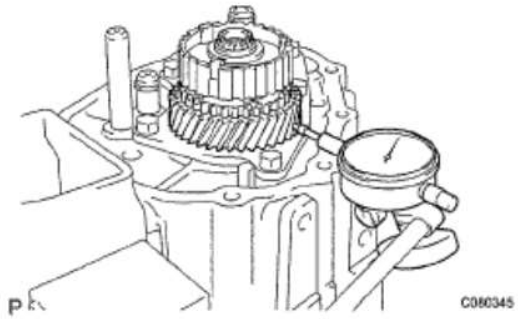


Fig. 65: Measuring 5Th Gear Radial Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **REMOVE NO. 3 TRANSMISSION CLUTCH HUB**
    a. Using 2 screwdrivers and a hammer, tap out the snap ring.

       HINT:

       Use a piece of cloth to keep the snap ring from flying off.

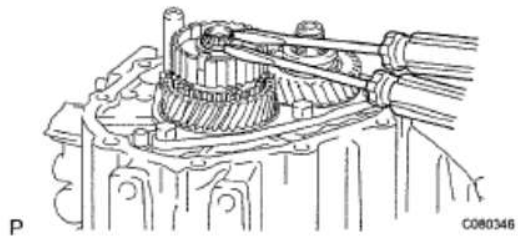
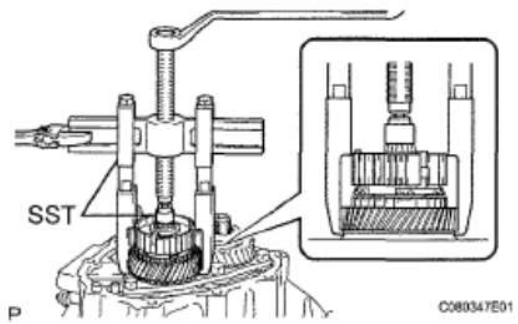


Fig. 66: Removing No. 3 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Using SST, remove the No. 3 transmission clutch hub, 5th gear and No. 3 synchronizer ring from the input shaft.

       SST 09950-40011 (09951-04020,09952-04010, 09953-04030, 09954-04010, 09955-04011), 09950-60010 (09951-00180)



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Fig. 67: Removing No. 3 Transmission Clutch Hub With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 3 synchromesh shifting keys and 2 synchromesh shifting key springs from the No. 3 transmission clutch hub.



Fig. 68: Identifying Synchromesh Shifting Keys
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. **REMOVE 5TH GEAR NEEDLE ROLLER BEARING**

a. Remove the 5th gear needle roller bearing and 5th gear bearing spacer from the input shaft.

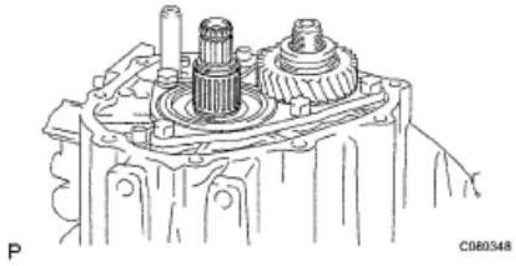


Fig. 69: Identifying 5th Gear Needle Roller Bearing And 5th Gear Bearing Spacer Of Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. **REMOVE 5TH DRIVEN GEAR**

a. Using SST, remove the 5th driven gear from the output shaft.

SST 09950-30012 (09951 -03010, 09953-03010, 09954-03010, 09955-03021), 09950-60010 (09951-00180)

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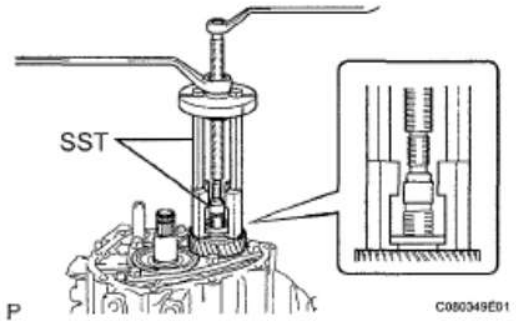


Fig. 70: Removing 5th Driven Gear Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. **REMOVE BEARING RETAINER REAR**
    a. Remove the 5 bolts and bearing retainer rear from the manual transmission case.

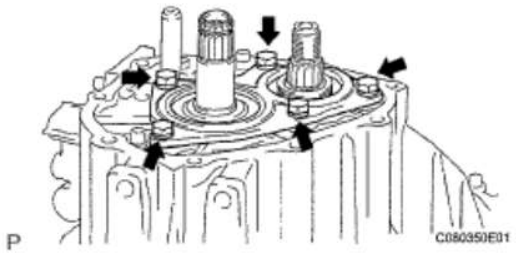


Fig. 71: Locating Bearing Retainer Rear Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. **REMOVE OUTPUT SHAFT REAR BEARING HOLE SNAP RING**
    a. Using a snap ring expander, remove the output shaft rear bearing hole snap ring from the output shaft.

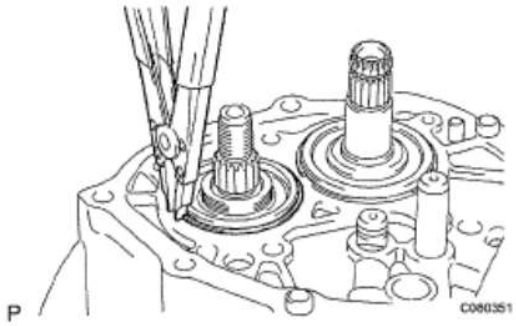


Fig. 72: Removing Output Shaft Rear Bearing Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **REMOVE INPUT SHAFT REAR BEARING HOLE SNAP RING**
    a. Using a snap ring expander, remove the input shaft rear bearing hole snap ring from the input shaft.

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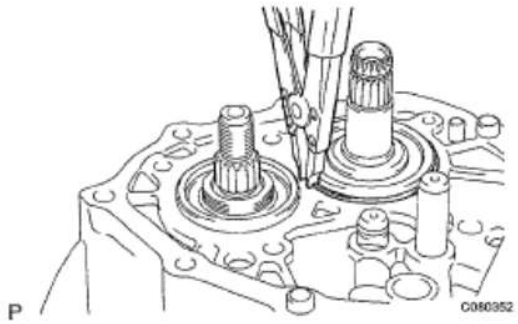


Fig. 73: Removing Input Shaft Rear Bearing Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. **REMOVE REVERSE IDLER GEAR SHAFT BOLT**

a. Remove the reverse idler gear shaft bolt and reverse idler gear shaft gasket from the manual transmission case.



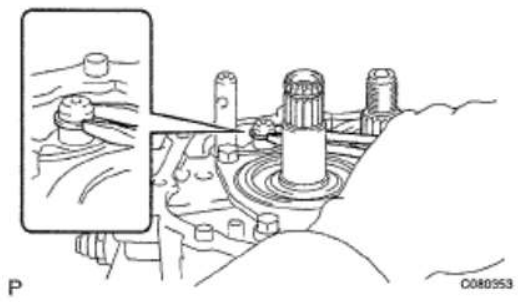
Fig. 74: Locating Idler Gear Shaft Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

26. **REMOVE SHIFT FORK SHAFT SHAFT SNAP RING**

a. Using 2 screwdrivers and a hammer, tap out the snap ring from the No. 2 gear shift fork shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying off.



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Fig. 75: Identifying No. 2 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

27. **REMOVE SHIFT DETENT BALL**

a. Using a hexagon wrench, remove the 2 shift detent ball plugs from the manual transmission case.

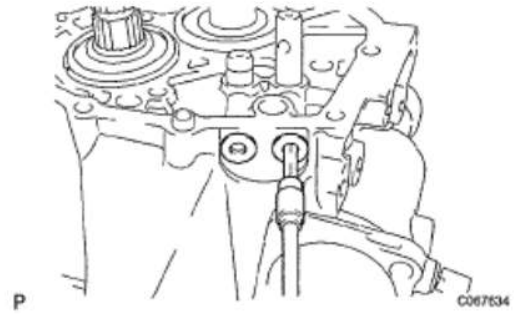


Fig. 76: Identifying Shift Detent Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a magnetic finger, remove the 2 No. 1 shift detent ball spring seats, 2 shift detent ball springs and 2 shift detent balls from the manual transmission case.

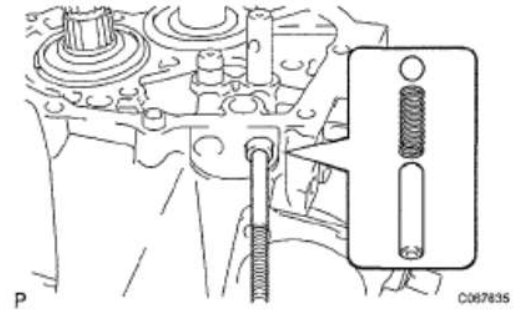
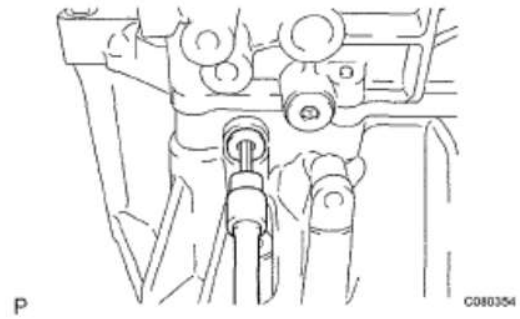


Fig. 77: Identifying 2 No. 1 Shift Detent Ball Spring Seats
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a hexagon wrench, remove the shift detent ball plug from the front transaxle case.



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Fig. 78: Identifying Shift Detent Ball Plug Of Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a magnetic finger, remove the seat, spring and ball from the front transaxle case.

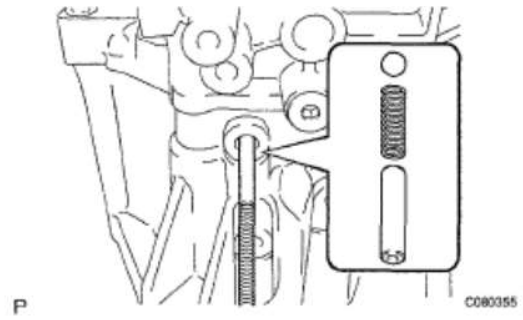


Fig. 79: Identifying Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

28. **REMOVE NO. 2 LOCK BALL ASSEMBLY**

a. Using a hexagon wrench, remove the No. 2 lock ball assembly from the manual transmission case.

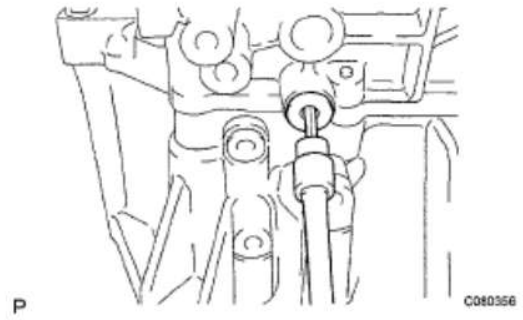


Fig. 80: Removing No. 2 Lock Ball Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

29. **REMOVE MANUAL TRANSMISSION CASE**

a. Remove the 3 bolts from the front transaxle case.



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Fig. 81: Locating Front Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 13 bolts from the manual transmission case.

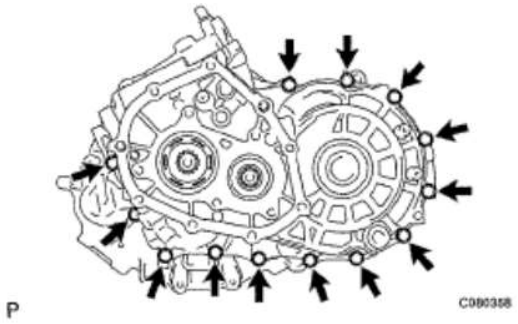


Fig. 82: Locating Manual Transmission Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a brass bar and a hammer, carefully tap the projections of the manual transmission case to remove the transmission case from the transaxle case.

NOTE: Do not damage the manual transmission case and transaxle case.



Fig. 83: Identifying Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. **REMOVE REVERSE IDLER GEAR SUB-ASSEMBLY**

a. Remove the reverse idler gear sub-assembly, thrust washer and reverse idler gear shaft from the front transaxle case.

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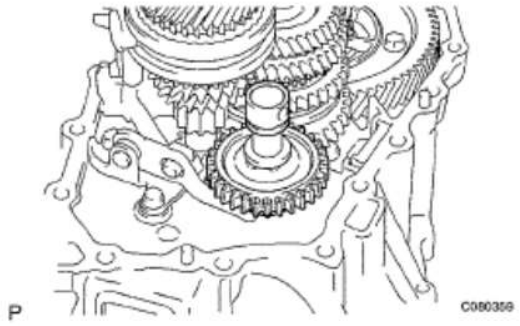


Fig. 84: Identifying Idler Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

31. **REMOVE REVERSE SHIFT ARM BRACKET ASSEMBLY**
    a. Remove the 2 bolts and reverse shift arm bracket assembly from the front transaxle case.

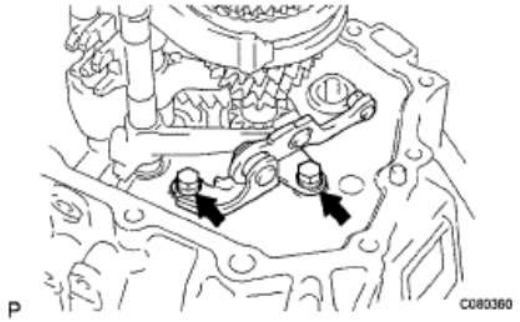


Fig. 85: Locating Shift Arm Bracket Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

32. **REMOVE NO. 2 GEAR SHIFT FORK SHAFT**
    a. Remove the 2 bolts from the No. 2 gear shift fork and No. 1 gear shift head.

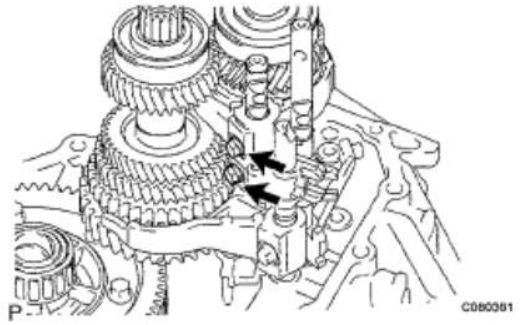


Fig. 86: Locating No. 2 Gear Shift Fork Shaft Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Remove the No. 2 gear shift fork shaft and No. 1 gear shift head from the front transaxle case.

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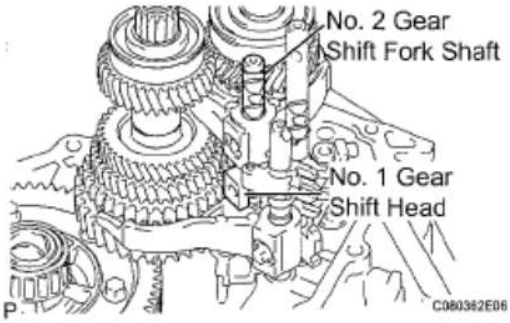


Fig. 87: Identifying No. 2 Gear Shift Fork Shaft And No. 1 Gear Shift Head
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

33. **REMOVE NO. 1 GEAR SHIFT FORK SHAFT**

a. Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

Use a piece of cloth to keep the snap ring from flying off.

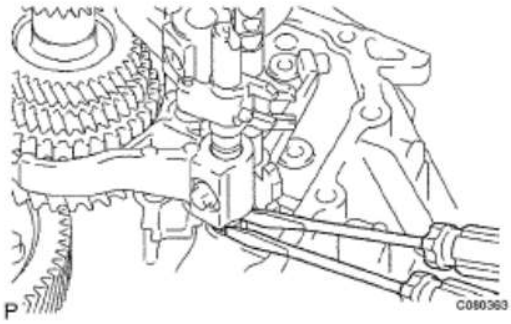


Fig. 88: Removing No. 1 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the shift fork set bolt and No. 1 gear shift fork shaft from No. 1 gear shift fork.

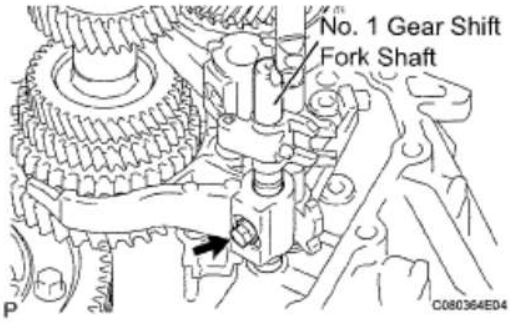


Fig. 89: Identifying No. 1 Gear Shift Fork Shaft And No. 1 Gear Shift Fork

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c. Remove the No. 1 gear shift fork.

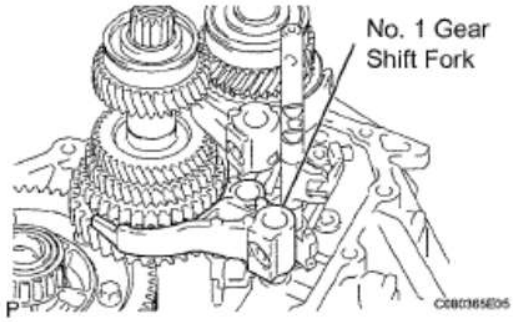


Fig. 90: Removing No. 1 Gear Shift Fork
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

34. **REMOVE NO. 3 GEAR SHIFT FORK SHAFT**

a. Using 2 screwdrivers and a hammer, tap out the snap ring from the No. 3 gear shift fork shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying off.

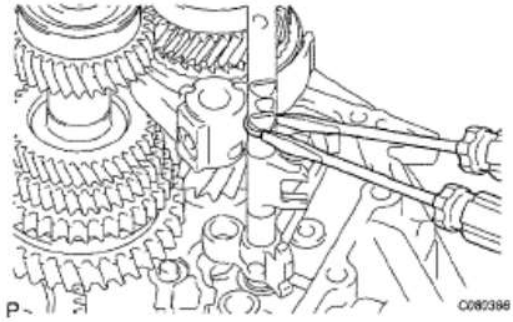


Fig. 91: Removing No. 3 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the No. 3 shift fork shaft together with the reverse shift fork and gear shift fork No. 2 from the manual transaxle case.

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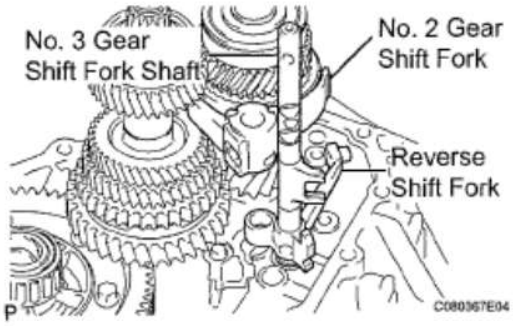


Fig. 92: Identifying No. 3 Shift Fork Shaft And Gear Shift Fork No. 2
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a magnetic finger, remove the 2 reverse shift fork balls from the reverse shift fork.

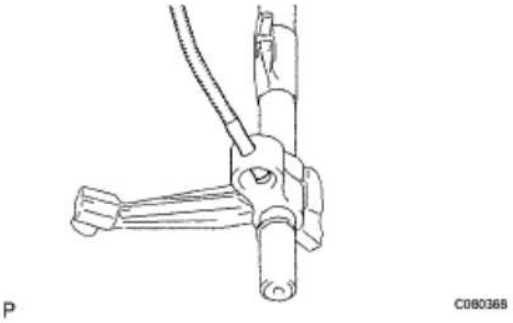


Fig. 93: Identifying Reverse Shift Fork
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using 2 screwdrivers and a hammer, tap the snap ring out of the No. 3 shift fork shaft.

HINT:

Use a shop rag or piece of cloth to keep the snap ring from flying off.



Fig. 94: Tapping Snap Ring Out Of No.3
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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e. Remove the reverse shift fork from the No. 3 gear shift fork shaft.

35. **REMOVE INPUT SHAFT ASSEMBLY**

a. Remove the input shaft assembly and output shaft assembly from the front transaxle case.

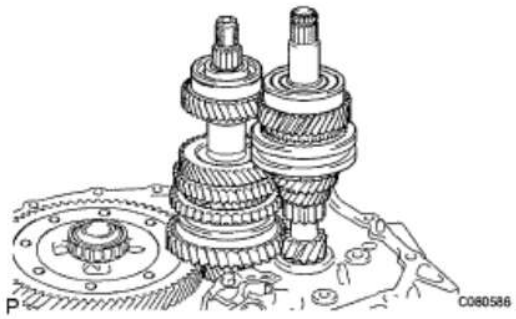


Fig. 95: Identifying Input Shaft Assembly And Output Shaft Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

36. **REMOVE DIFFERENTIAL CASE ASSEMBLY**

a. Remove the differential case assembly from the front transaxle case.

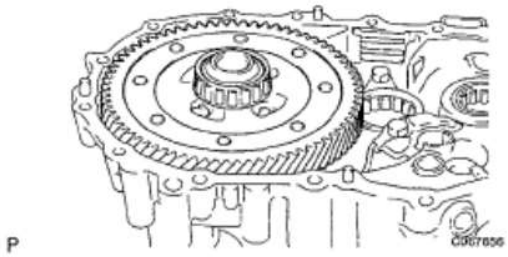


Fig. 96: Identifying Differential Case Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

37. **REMOVE MANUAL TRANSAXLE CASE RECEIVER**

a. Remove the bolt and manual transaxle case receiver from the front transaxle case.

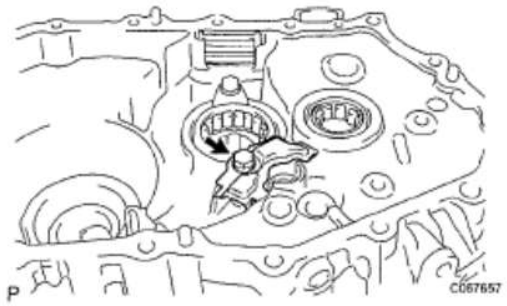


Fig. 97: Locating Manual Transaxle Case Receiver Bolts
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38. **REMOVE REVERSE RESTRICT PIN ASSEMBLY**
    a. Using a hexagon wrench, remove the reverse restrict pin plug from the manual transmission case.

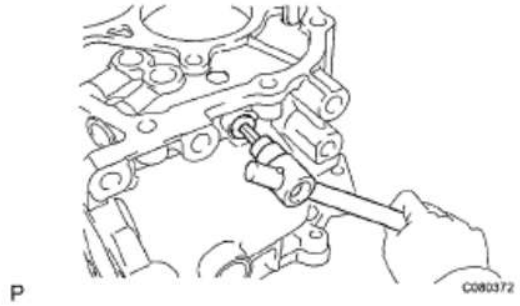


Fig. 98: Removing Reverse Restrict Pin Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Using a pin punch (5 mm) and a hammer, drive out the slotted spring pin and remove the reverse restrict pin assembly from the manual transmission case.

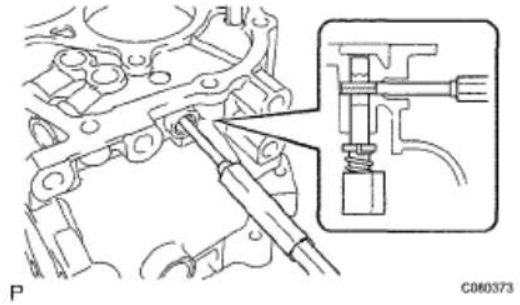


Fig. 99: Identifying Manual Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

39. **REMOVE NO. 1 OIL RECEIVER PIPE**
    a. Remove the bolt and No. 1 oil receiver pipe from the manual transmission case.

NOTE: Do not damage the No. 1 oil receiver pipe.

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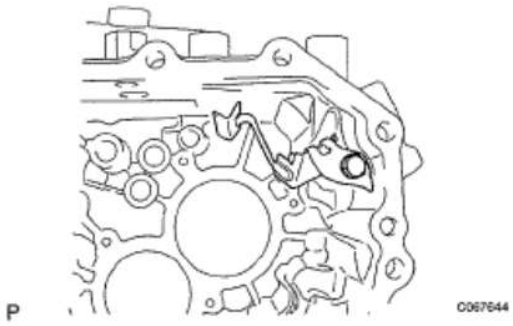


Fig. 100: Removing No. 1 Oil Receiver Pipe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

40. **REMOVE NO. 2 OIL RECEIVER PIPE**
    a. Remove the bolt and No. 2 oil receiver pipe from the manual transmission case.

NOTE: Do not damage the No. 2 oil receiver pipe.

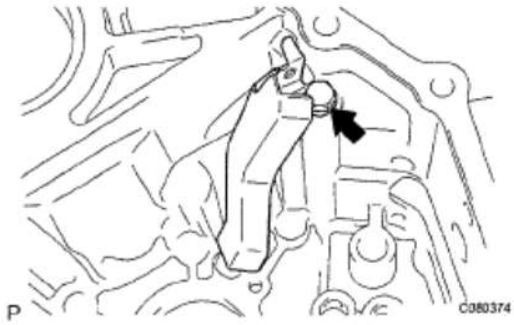


Fig. 101: Locating No. 2 Oil Receiver Pipe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

41. **REMOVE BEARING LOCK PLATE**
    a. Remove the bolt and bearing lock plate from the front transaxle case.

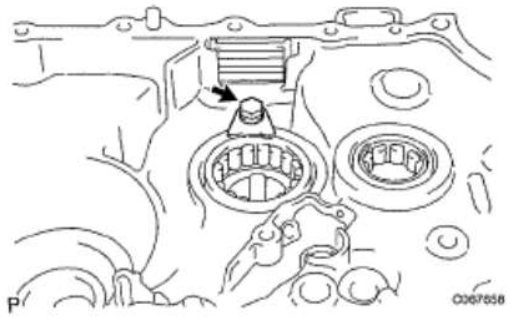


Fig. 102: Locating Bearing Lock Plate Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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42. **REMOVE TRANSMISSION MAGNET**
    a. Remove the transmission magnet from the front transaxle case.

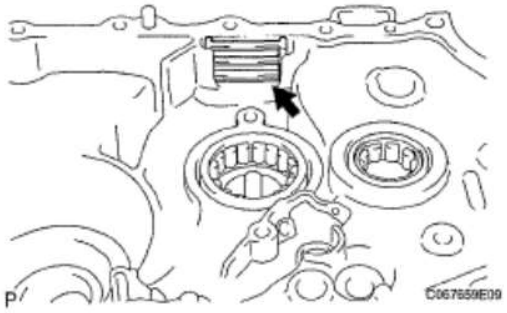


Fig. 103: Locating Transmission Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

43. **REMOVE INPUT SHAFT FRONT BEARING**
    a. Using SST, remove the input shaft front bearing from the front transaxle case.

SST 09612-65014 (09612-01050, 09612-01060)

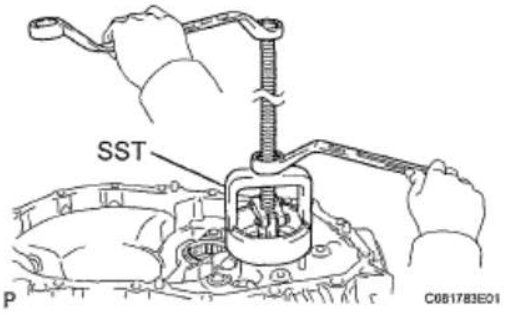


Fig. 104: Removing Input Shaft Front Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

44. **REMOVE FRONT TRANSAXLE CASE OIL SEAL**
    a. Using a screwdriver, remove the front transaxle case oil seal from the transaxle case.

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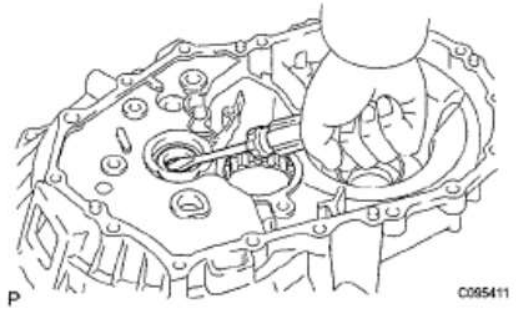


Fig. 105: Removing Front Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

45. **REMOVE OUTPUT SHAFT FRONT BEARING**
    a. Using SST, remove the output shaft front bearing from the front transaxle case.

SST 09308-00010

NOTE: Do not apply excessive force to the front transaxle case when installing SST.

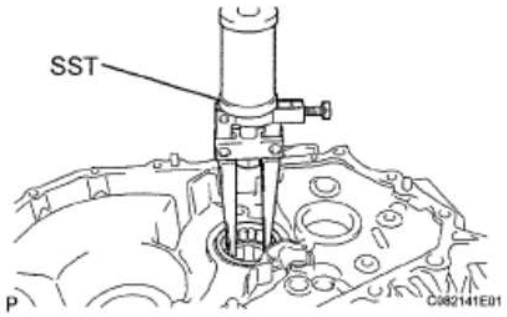
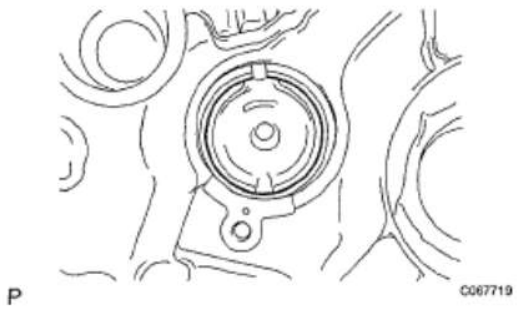


Fig. 106: Removing Output Shaft Front Bearing With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

46. **REMOVE OUTPUT SHAFT COVER**
    a. Remove the output shaft cover from the front transaxle case.



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Fig. 107: Identifying Output Shaft Cover And Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

47. **REMOVE FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**

a. Using SST, remove the front differential case front tapered roller bearing (outer race) and plate washer from the front transaxle case.

SST 09612-65014 (09612-01040, 09612-01050)

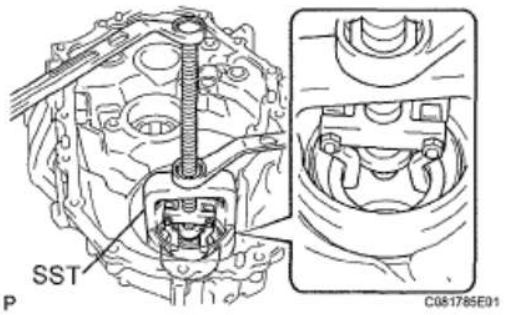


Fig. 108: Removing Front Differential Case Front Tapered Roller Bearing And Plate Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the front differential case front tapered roller bearing (inner race) from the differential case assembly.

SST 09950-00020, 09950-00030, 09950-40011 (09957-04010), 09950-60010 (09951-00360)

NOTE: Do not damage the bearing.

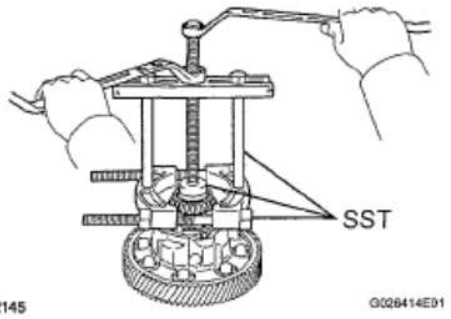


Fig. 109: Removing Front Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **REMOVE TRANSAXLE CASE OIL SEAL**

a. Using SST and a hammer, remove the transaxle case oil seal from the front transaxle case.

SST 09950-60010 (09951 -00530), 09950-70010 (09951-07150)

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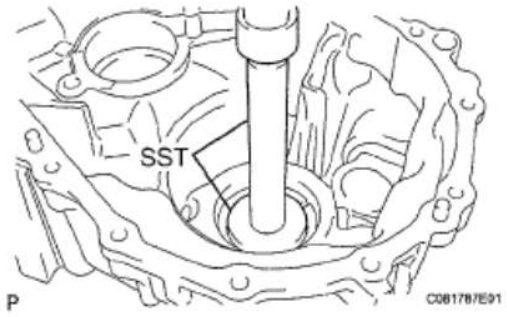


Fig. 110: Removing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

49. **REMOVE FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**

a. Using SST, remove the front differential case rear tapered roller bearing (outer race) and plate washer from the transmission case.

SST 09612-65014 (09612-01040, 09612-01050)

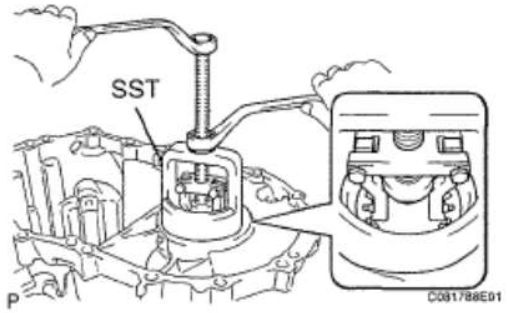


Fig. 111: Identifying Front Differential Case Rear Tapered Roller Bearing And Plate Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, remove the front differential case rear tapered roller bearing (inner race) from the front differential case.

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

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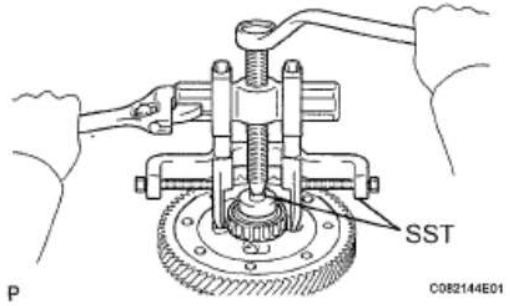


Fig. 112: Identifying Front Differential Case Rear Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

50. **REMOVE TRANSMISSION CASE OIL SEAL**
    a. Using SST and a hammer, drive out the transmission case oil seal from the manual transmission case.

SST 09950-60010 (09951 -00530), 09950-70010 (09951-07150)

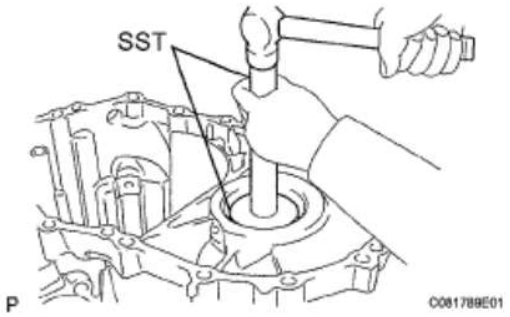


Fig. 113: Removing Transmission Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

51. **REMOVE SHIFT AND SELECT LEVER SHAFT OIL SEAL**
    a. Using a screwdriver and hammer, remove the shift and select lever shaft oil seal.

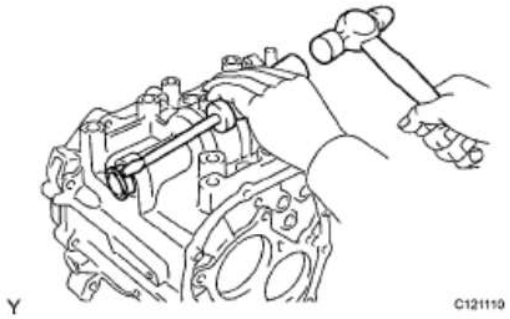


Fig. 114: Removing Shift And Select Lever Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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52. **REMOVE SHIFT AND SELECT LEVER SHAFT SLIDE BALL BEARING**
    a. Using SST and a hammer, remove the shift and select lever shaft slide ball bearing.

    SST 09950-60010 (09951 -00220), 09950-70010 (09951-07200)

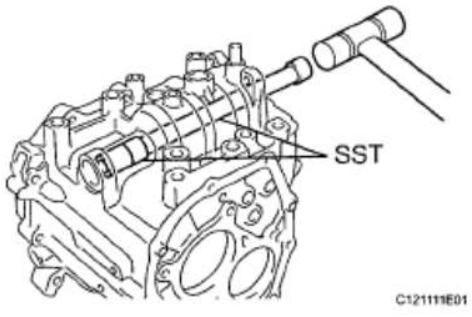


Fig. 115: Removing Shift And Select Lever Shaft Slide Ball Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT NO. 3 SYNCHRONIZER RING**
    a. Check the synchronizer ring for wear and damage.
    b. Coat the 5th gear cone with gear oil.
    c. Turn the synchronizer ring in one direction while pushing it against the 5th gear cone.

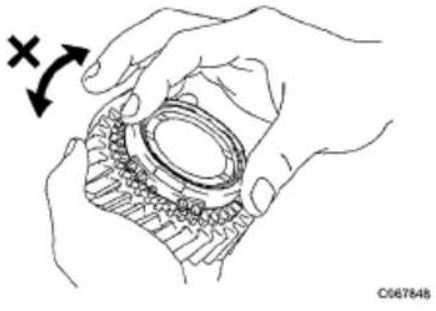


Fig. 116: Inspecting No. 3 Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    d. Check that the ring locks.

    If the synchronizer ring does not lock, replace the synchronizer ring.

    e. Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.

    Minimum clearance:

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0.75 mm (0.0295 in.)

If the clearance is less than the minimum, replace the synchronizer ring.

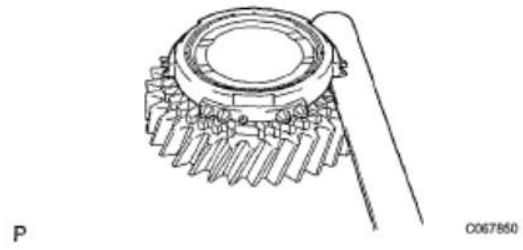


Fig. 117: Measuring Clearance Between Synchronizer Ring Back And Gear Spline End
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT NO. 3 TRANSMISSION HUB SLEEVE**
   a. Check the sliding condition between the No. 3 transmission hub sleeve and No. 3 transmission clutch hub.

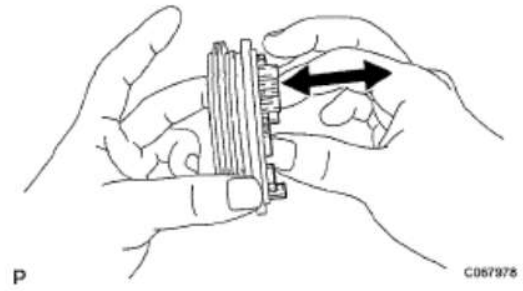


Fig. 118: Inspecting No. 3 Transmission Hub Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Check that the edges of the No. 3 transmission hub sleeve spline gear are not worn down.
   c. Using vernier calipers, measure the width of the No. 3 transmission hub sleeve groove (A) and the thickness of the claw part on the No. 3 gear shift fork (B), and calculate the clearance.

Standard clearance (A - B):

0.3 to 0.5 mm (0.012 to 0.0020 in.)

If the clearance exceeds the standard, replace the No. 3 transmission hub sleeve and No. 3 gear shift fork.

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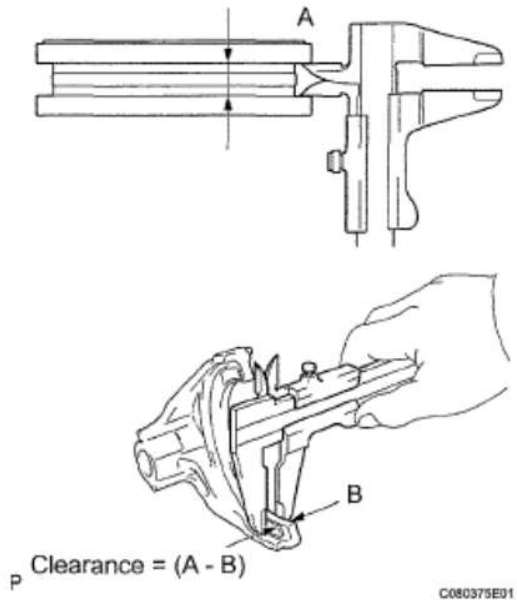


Fig. 119: Measuring Width Of No. 3 Transmission Hub Sleeve Groove
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT 5TH GEAR**
   a. Using a caliper gauge, measure the inside diameter of the 5th gear.

   Standard inside diameter:

   29.915 to 29.931 mm (1.1778 to 1.1783 in.)

   Maximum inside diameter:

   29.931 mm (1.1783 in.)

   If the inside diameter exceeds the maximum, replace the 5th gear.



Fig. 120: Measuring Inside Diameter Of 5Th Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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4. **INSPECT REVERSE IDLER GEAR SUB-ASSEMBLY**

a. Using a caliper gauge, inspect the reverse idler gear.

Standard inside diameter:

18.040 to 18.058 mm (0.7102 to 0.7109 in.)

Maximum inside diameter:

18.058 mm (0.7109 in.)

If the inside diameter exceeds the maximum, replace the reverse idler gear sub-assembly.

b. Using a micrometer, inspect the reverse idler gear shaft.

Standard outer diameter:

17.966 to 17.984 mm (0.7073 to 0.7080 in.)

Minimum outer diameter:

17.966 mm (0.7073 in.)

If the outer diameter is less than the minimum, replace the reverse idler gear shaft.

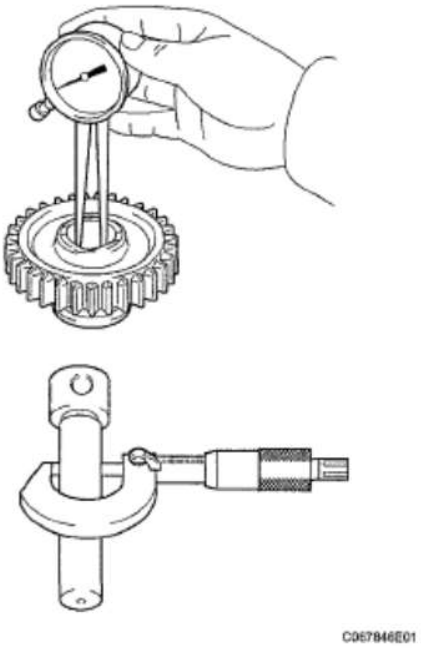


Fig. 121: Inspecting Reverse Idler Gear Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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REASSEMBLY

1. **INSTALL OUTPUT SHAFT COVER**
   a. Coat the output shaft cover with MP grease and install it onto the front transaxle case.

NOTE: Insert the output shaft cover projection into the case side hollow.

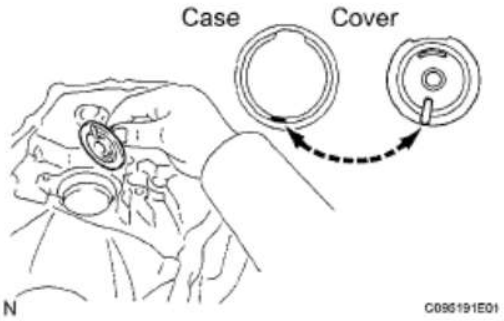


Fig. 122: Installing Output Shaft Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL OUTPUT SHAFT FRONT BEARING**
   a. Coat a new output shaft front bearing with gear oil. Using SST and a press, install it onto the front transaxle case.

SST 09950-60010 (09951 -00550), 09950-70010 (09951-07150)

NOTE: Install the new bearing in the correct direction, as shown in the illustration.

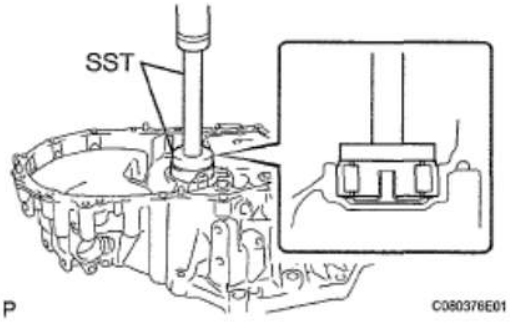


Fig. 123: Installing Output Shaft Front Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL FRONT TRANSAXLE CASE OIL SEAL**
   a. Using SST and a hammer, install a new front transaxle case oil seal onto the front transalxe case.

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SST 09950-60010 (09951 -00370), 09950-70010 (09951-07150)

Drive in depth:

15.6 to 16.0 mm (0.6141 to 0.6299 in.)

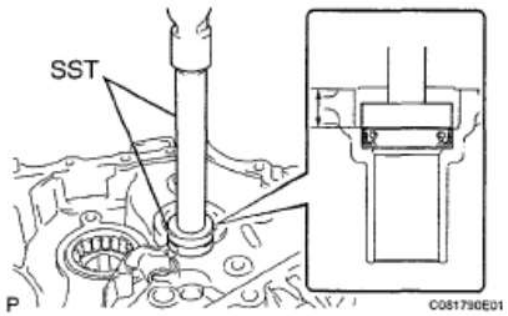


Fig. 124: Installing Front Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the lip of the front transaxle case oil seal with MP grease.

4. **INSTALL INPUT SHAFT FRONT BEARING**
   a. Coat a new input shaft front bearing with gear oil, and using SST and a press, install it onto the front transaxle case.

SST 09950-60010 (09951 -00420), 09950-70010 (09951-07150)

Drive in depth:

0 to 0.3 mm (0 to 0.0118 in.)

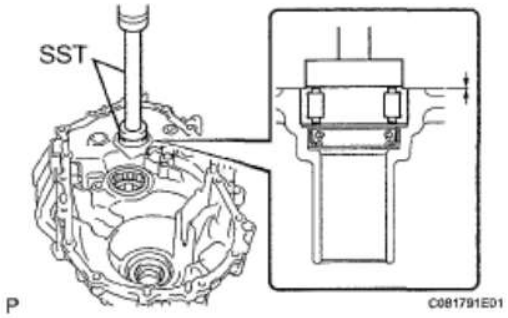


Fig. 125: Installing Input Shaft Front Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL SHIFT AND SELECT LEVER SHAFT SLIDE BALL BEARING**
   a. Using SST and a hammer, install the shift and select lever shaft slide ball bearing onto the transmission case.

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SST 09950-60010 (09951 -00220), 09950-70010 (09951-07100)

Drive in depth:

0 to 0.5 mm (0 to 0.0020 in.)

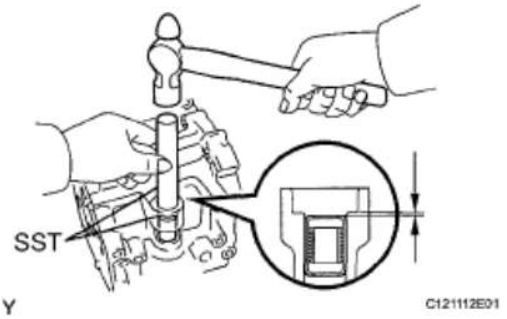


Fig. 126: Installing Shift And Select Lever Shaft Slide Ball Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL SHIFT AND SELECT LEVER SHAFT OIL SEAL**
   a. Using SST, install the shift and select lever shaft oil seal onto the transmission case.

SST 09950-70010 (09951 -07150), 09950-60010 (09951-00240)

Drive in depth:

9.7 to 10.3 mm (0.382 to 0.406 in.)

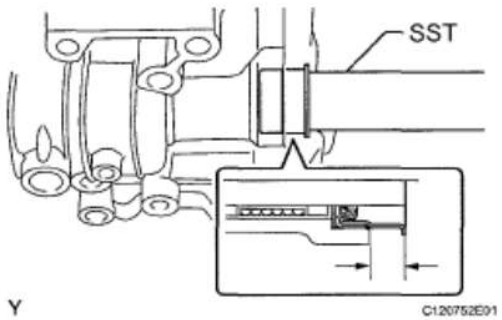


Fig. 127: Installing Shift And Select Lever Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
   a. Using SST and a press, install the front differential case front tapered roller bearing (inner race) onto the front differential case.

SST 09350-32014 (09351 -32120), 09950-60010 (09951-00530)

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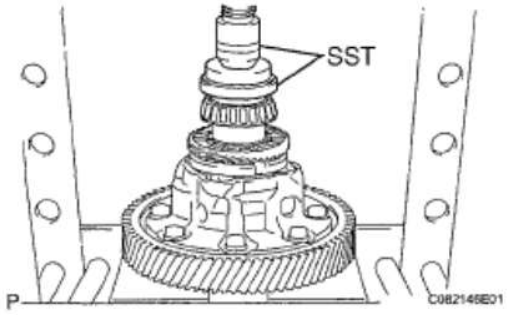


Fig. 128: Installing Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a press, install the front differential case front tapered roller bearing (outer race) together with the plate washer onto the front transaxle case.

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

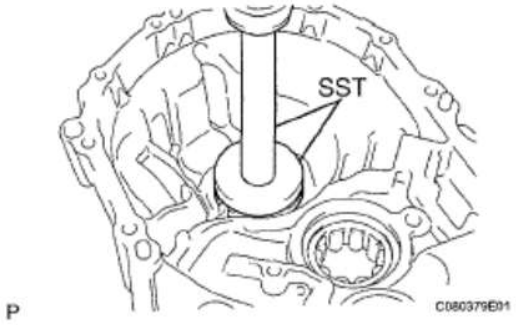
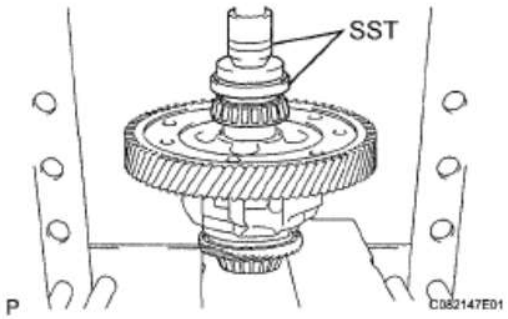


Fig. 129: Installing Front Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**

a. Using SST and a press, install the front differential case rear tapered roller bearing (inner race) onto the differential case.

SST 09350-32014 (09351-32120), 09950-60010 (09951-00530)



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Fig. 130: Installing Front Differential Case Rear Tapered Roller Bearing Onto Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a press, install the front differential case rear tapered roller bearing (outer race) with plate washer onto the transmission case.

SST 09309-36010, 09950-60020 (09951-00710), 09950-70010 (09951-07150)

HINT:

Use a plate washer of the same thickness as the removed one.

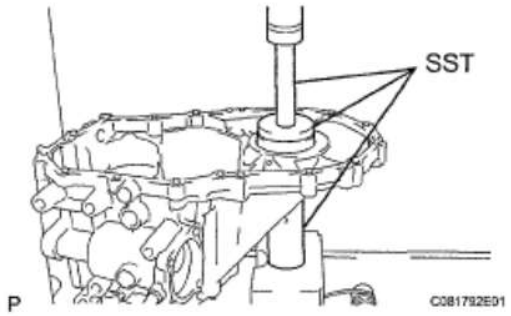


Fig. 131: Installing Front Differential Case Rear Tapered Roller Bearing With Plate Washer Onto Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **ADJUST DIFFERENTIAL SIDE BEARING PRELOAD**

a. Coat the differential case assembly with gear oil, and install it onto the front transaxle case.

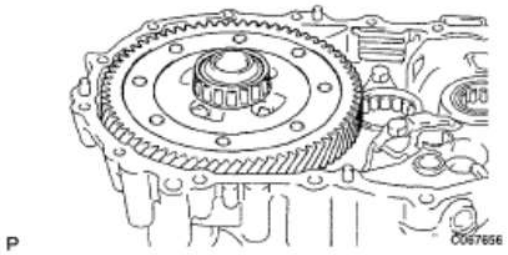


Fig. 132: Identifying Differential Case Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the manual transmission case with the 16 bolts.

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

c. Using SST and a torque wrench, turn the differential case assembly to the right and left 2 or 3 times

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to allow the bearings to settle.

SST 09564-32011

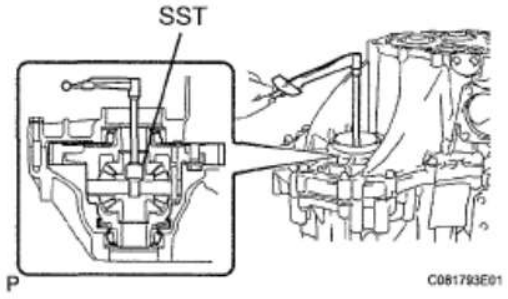


Fig. 133: Turning Differential Case Assembly With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST and a torque wrench, measure the preload.

SST 09564-32011

Preload (at starting):

New bearing:

0.78 to 1.57 N*m (7.95 to 16.0 kgf*cm, 6.9 to 13.89 in.*lbf)

Used bearing:

0.49 to 0.98 N*m (5.0 to 10.0 kgf*cm, 4.34 to 8.67 in.*lbf)

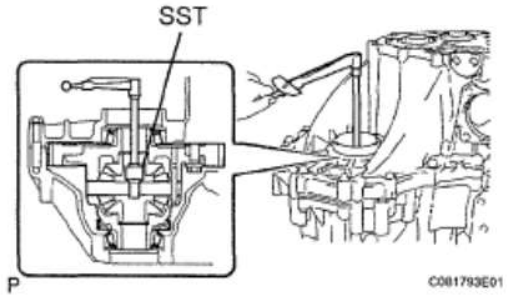


Fig. 134: Turning Differential Case Assembly With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

If the preload is outside the specifications, select another plate washer.

Plate washer thickness

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THICKNESS SPECIFICATIONS

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
AA	2.10 (0.0827)	LL	2.60 (0.1024)
BB	2.15 (0.0846)	MM	2.65 (0.1043)
CC	2.20 (0.0866)	NN	2.70 (0.1063)
DD	2.25 (0.0886)	PP	2.75 (0.1083)
EE	2.30 (0.0906)	QQ	2.80 (0.1102)
FF	2.35 (0.0925)	RR	2.85 (0.1122)
GG	2.40 (0.0945)	SS	2.90 (0.1142)
HH	2.45 (0.0965)	TT	2.95 (0.1161)
JJ	2.50 (0.0984)	UU	3.00 (0.1181)
KK	2.55 (0.1004)	-	-

HINT:

The preload changes by approximately 0.3 to 0.4 N*m (3 to 4 kgf*cm, 2.6 to 3.5 in.*lbf) per each 0.05 mm (0.0020 in.) change in plate washer thickness.

e. Remove the 16 bolts and the manual transmission case.

f. Remove the differential case assembly from the front transaxle case.

10. **INSTALL TRANSMISSION CASE OIL SEAL**

a. Using SST and a hammer, install a new transmission case oil seal onto the manual transmission case.

SST 09309-37010

Drive in depth:

9.6 to 10.2 mm (0.378 to 0.402 in.)

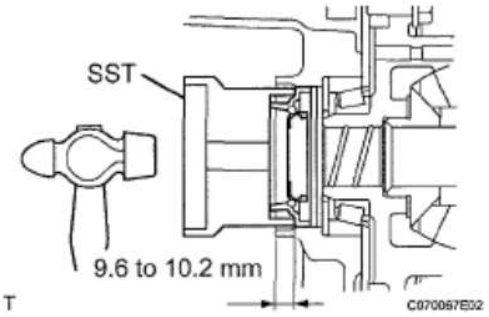


Fig. 135: Installing Transmission Case Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the lip of the front transmission case oil seal with MP grease.

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11. **INSTALL TRANSAXLE CASE OIL SEAL**
    a. Using SST and a hammer, install a new transaxle case oil seal onto the front transaxle case.

    SST 09710-26011 (09710-05061)

    Drive in depth:

    1.6 to 2.2 mm (0.063 to 0.087 in.)

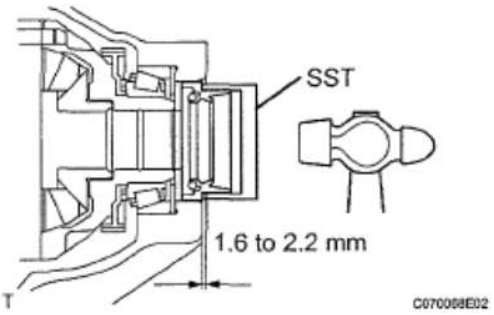


Fig. 136: Installing Transmission Case Oil Seal With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Coat the lip of the transaxle case oil seal with MP grease.

12. **INSTALL TRANSMISSION MAGNET**
    a. Clean the transmission magnet and install it onto the front transaxle case.

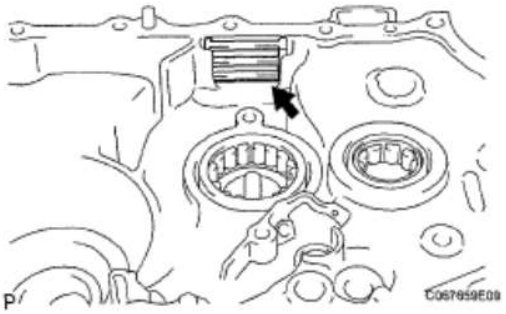


Fig. 137: Locating Transmission Magnet Of Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL BEARING LOCK PLATE**
    a. Install the bearing lock plate onto the front transaxle case with the bolt.

    Torque: 11 N*m (115 kgf*cm, 8 ft.*lbf)

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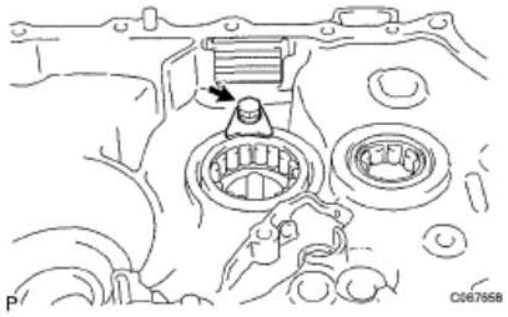


Fig. 138: Locating Bearing Lock Plate Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL NO. 1 OIL RECEIVER PIPE**
    a. Install the No. 1 oil receiver pipe onto the manual transmission case with the bolt.

    Torque: 17 N*m (175 kgf*cm, 13 ft.*lbf)

    NOTE:
    - **Do not deform the No. 1 oil receiver pipe.**
    - **Install the No. 1 oil receiver pipe while holding it against the manual transmission case, as shown in the illustration.**

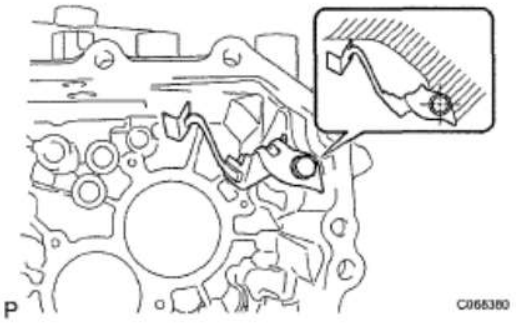


Fig. 139: Identifying No. 1 Oil Receiver Pipe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSTALL NO. 2 OIL RECEIVER PIPE**
    a. Install the No. 2 oil receiver pipe onto the manual transmission case with the bolt.

    Torque: 17 N*m (175 kgf*cm, 13 ft.*lbf)

    NOTE:
    - **Do not deform the No. 2 oil receiver pipe.**
    - **Install the No. 2 oil receiver pipe while holding it against the manual transmission case, as shown in the illustration.**

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Fig. 140: Locating No. 2 Oil Receiver Pipe
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSTALL REVERSE RESTRICT PIN ASSEMBLY**

a. Install the reverse restrict pin assembly onto the manual transmission case.

NOTE: Set the reverse restrict pin assembly in the correct orientation.

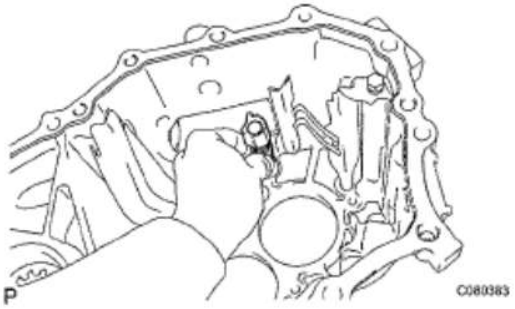


Fig. 141: Installing Reverse Restrict Pin Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a pin punch (ø5 mm) and a hammer, install the slotted pin onto the reverse restrict pin assembly.

Drive in depth:

15.5 to 16.5 mm (0.6102 to 0.6496 in.)

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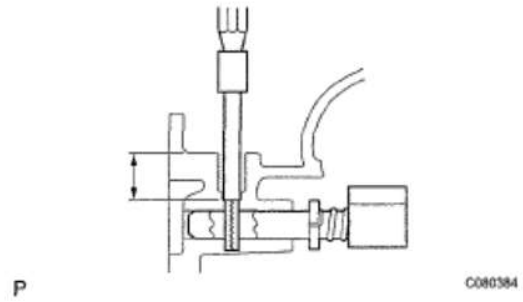


Fig. 142: Identifying Slotted Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Apply sealant to the reverse restrict pin plug.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

d. Using a hexagon wrench and a torque wrench, install the reverse restrict pin plug onto the manual transmission case.

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

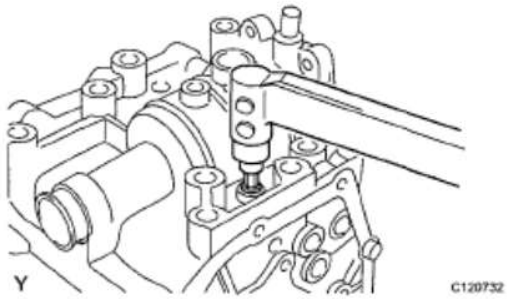


Fig. 143: Installing Reverse Restrict Pin Plug Onto Manual Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSTALL MANUAL TRANSAXLE CASE RECEIVER**
    a. Install the manual transaxle case receiver onto the front transaxle case with the bolt.

Torque: 11 N*m (115 kgf*cm, 8 ft.*lbf)

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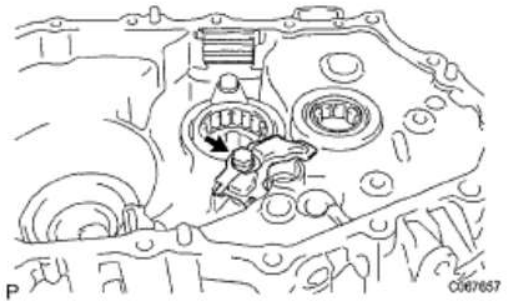


Fig. 144: Locating Manual Transaxle Case Receiver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. **INSTALL DIFFERENTIAL CASE ASSEMBLY**
    a. Coat the differential case tapered roller bearing with gear oil and install the differential case assembly onto the front transaxle case.

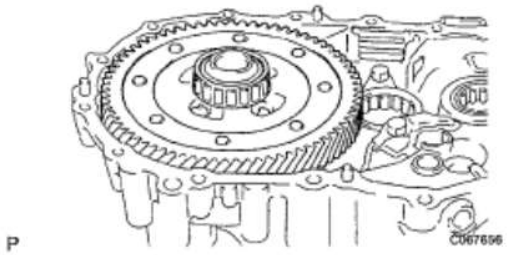


Fig. 145: Identifying Differential Case Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **INSTALL INPUT SHAFT ASSEMBLY**
    a. Coat the sliding and rotating surfaces of the input and output shafts with gear oil and install them onto the transaxle case.

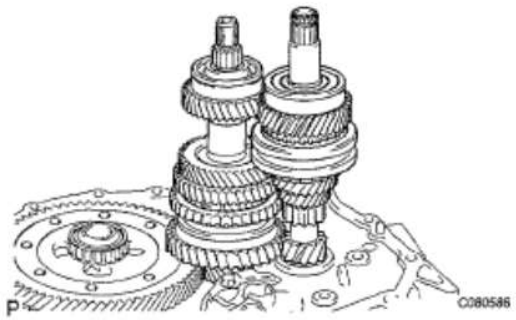


Fig. 146: Identifying Input Shaft Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

20. **INSTALL REVERSE IDLER GEAR SUB-ASSEMBLY**

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a. Coat the reverse idler gear sub-assembly, thrust washer and reverse idler gear shaft with gear oil and install them as shown in the illustration.

HINT:

Align the mark on the reverse idler gear shaft with the bolt hole as shown in the illustration.

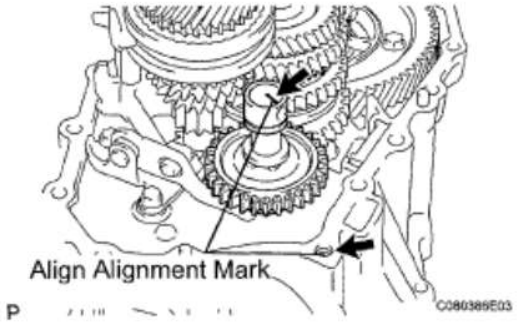


Fig. 147: Aligning Mark On Reverse Idler Gear Shaft With Bolt Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

21. **INSTALL NO. 1 GEAR SHIFT FORK SHAFT**

a. Coat the No. 1 gear shift fork and No. 2 gear shift fork with gear oil and install them.

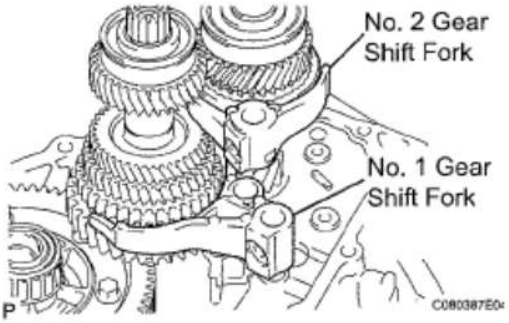


Fig. 148: Identifying No. 1 Gear Shift Fork And No. 2 Gear Shift Fork
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the No. 1 gear shift fork shaft with gear oil and install it.

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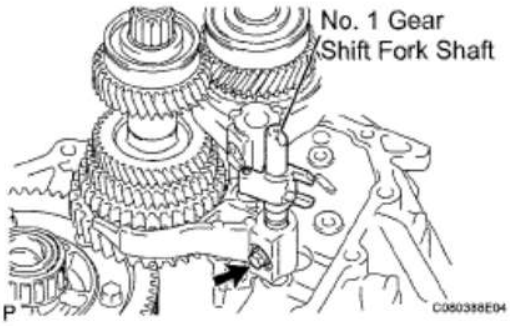


Fig. 149: Identifying No. 1 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Apply sealant to the shift fork set bolt.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

d. Install the shift fork set bolt.

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

e. Using a brass bar and a hammer, install a new shaft snap ring onto the No. 1 gear shift fork shaft.

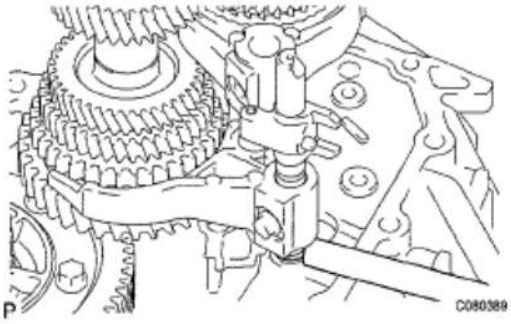


Fig. 150: Installing Shaft Snap Ring Onto No. 1 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

22. **INSTALL NO. 3 GEAR SHIFT FORK SHAFT**
    a. Coat the 2 shift fork balls with MP grease and install them onto the reverse shift fork.
    b. Install the reverse shift fork onto the No. 3 gear shift fork shaft.

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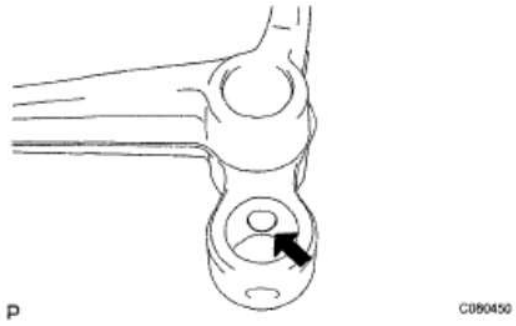


Fig. 151: Locating No. 3 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a brass bar and a hammer, install 2 new shift fork shaft snap rings onto the No. 3 shift fork shaft.

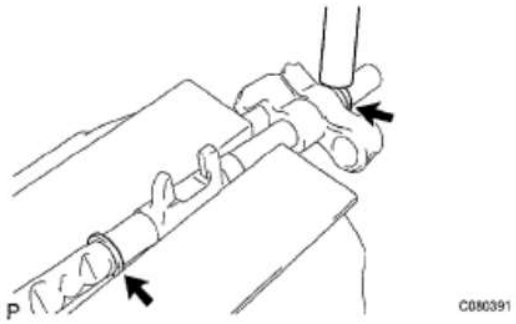


Fig. 152: Locating Shift Fork Shaft Snap Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Coat the No. 3 gear shift fork shaft with gear oil and install it.

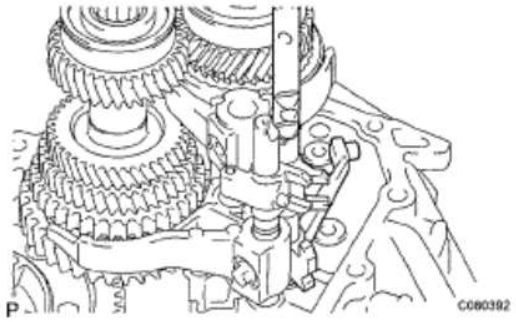


Fig. 153: Identifying No. 3 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

23. **INSTALL NO. 2 GEAR SHIFT FORK SHAFT**

a. Coat the No. 1 gear shift head and No. 2 gear shift fork shaft with gear oil and install them.

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NOTE: **To avoid interference by the 2 shift fork balls, lift up the No. 3 gear shift fork shaft to the position shown in the illustration.**

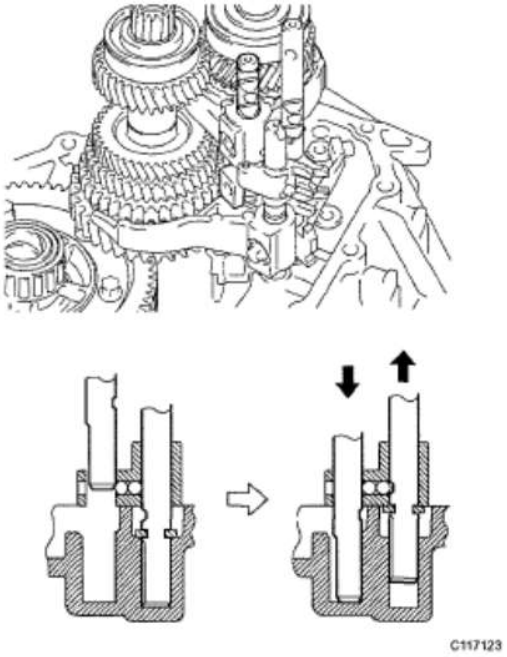


Fig. 154: Installing No. 2 Gear Shift Fork Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the 2 shift lock bolts with sealant and install them onto the No. 2 gear shift fork and No. 1 shift head.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

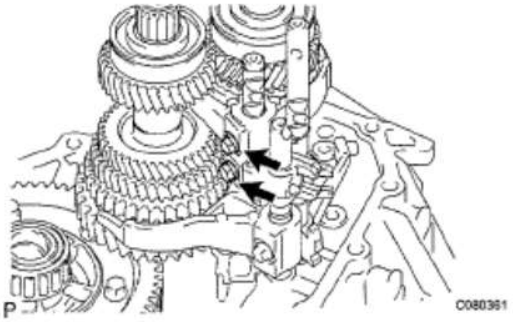


Fig. 155: Locating No. 2 Gear Shift Fork Shaft Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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24. **INSTALL REVERSE SHIFT ARM BRACKET ASSEMBLY**
    a. Install the reverse shift arm bracket assembly onto the front transaxle case with the 2 bolts.

    Torque: 17 N*m (175 kgf*cm, 13 ft.*lbf)

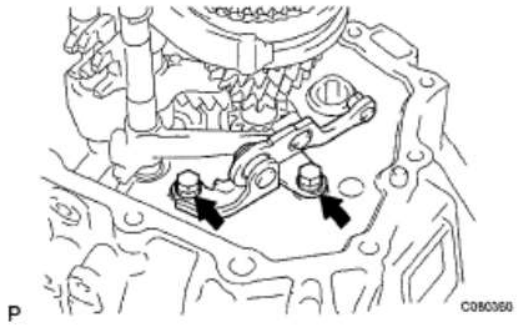


Fig. 156: Locating Shift Arm Bracket Assembly Of Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. **INSTALL MANUAL TRANSMISSION CASE**
    a. Apply FIPG to the manual transmission case, as shown in the illustration.

    FIPG:

    Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

    NOTE: Assemble the parts within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.

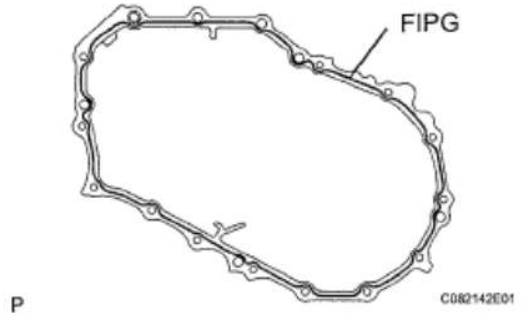


Fig. 157: Identifying FIPG To Manual Transmission Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Install the 13 bolts onto the manual transmission side.

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

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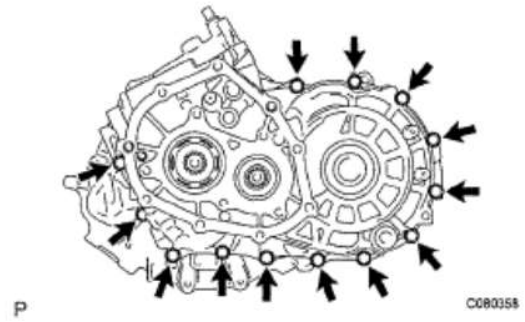


Fig. 158: Locating Manual Transmission Side Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the 3 bolts onto the manual transaxle side.

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



Fig. 159: Locating Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

26. **INSTALL REVERSE IDLER GEAR SHAFT BOLT**

a. Coat the reverse idler gear shaft bolt with sealant and install it with a new gasket.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

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

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Fig. 160: Locating Idler Gear Shaft Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

27. **INSTALL NO. 2 LOCK BALL ASSEMBLY**
    a. Coat the No. 2 lock ball assembly with sealant and install it with a hexagon wrench.

    Sealant:

    Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

    Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

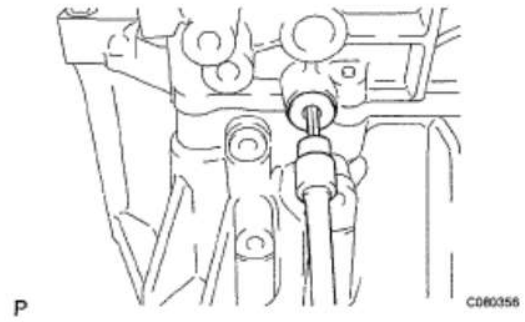


Fig. 161: Installing No. 2 Lock Ball Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

28. **INSTALL SHIFT DETENT BALL**
    a. Install the 2 shift detent balls, 2 shift detent ball springs and 2 No. 1 shift detent ball spring seats onto the manual transmission case.

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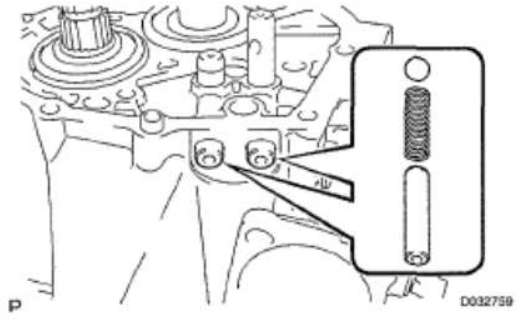


Fig. 162: Identifying Shift Detent Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the 2 shift detent ball plugs with sealant and install them using a hexagon wrench.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)

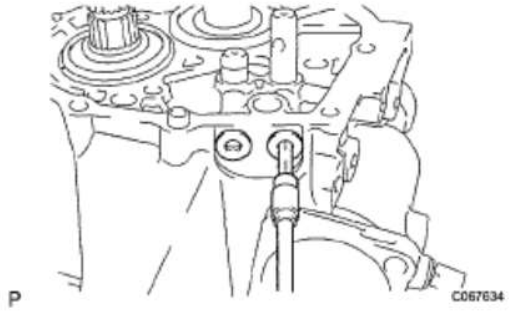
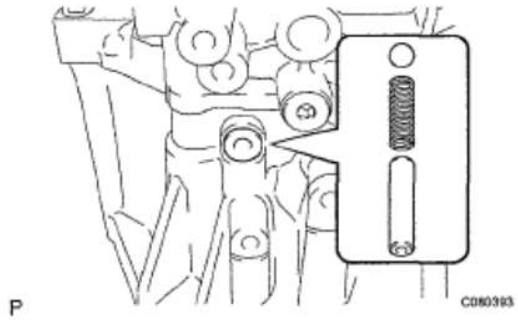


Fig. 163: Identifying Shift Detent Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the shift detent ball, shift detent ball compression spring and No. 1 shift detent ball spring seat onto the front transaxle case.



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Fig. 164: Identifying Shift Detent Ball Compression Spring And No. 1 Shift Detent Ball Spring Seat
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Coat the shift detent ball plug with sealant and install it using a hexagon wrench.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)

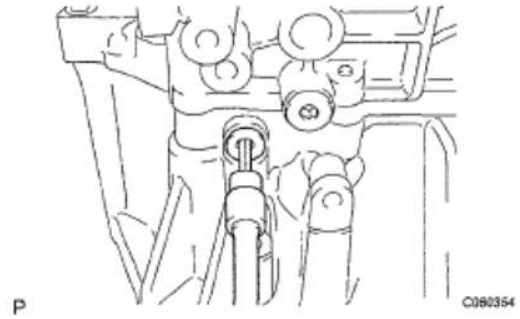


Fig. 165: Identifying Shift Detent Ball Plug Of Front Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

29. **INSTALL INPUT SHAFT REAR BEARING HOLE SNAP RING**

a. Using a snap ring expander, install a new input shaft rear bearing hole snap ring onto the input shaft.

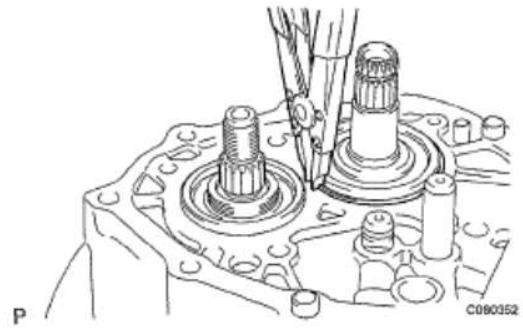


Fig. 166: Installing Input Shaft Rear Bearing Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. **INSTALL OUTPUT SHAFT REAR BEARING HOLE SNAP RING**

a. Using a snap ring expander, install a new output shaft rear bearing hole snap ring onto the output shaft.

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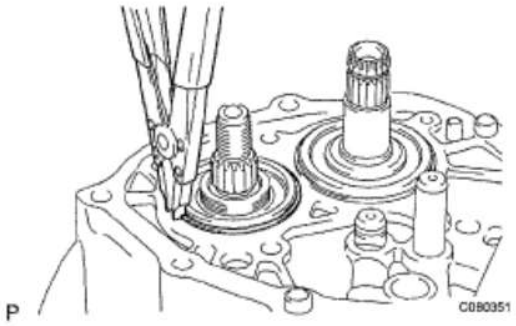


Fig. 167: Installing Output Shaft Rear Bearing Hole Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

31. **INSTALL SHIFT FORK SHAFT SHAFT SNAP RING**
    a. Using a brass bar and a hammer, install a new shift fork shaft shaft snap ring onto the No. 2 shift fork shaft.

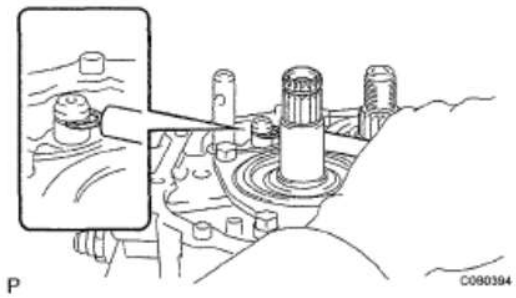


Fig. 168: Installing Shift Fork Shaft Shaft Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

32. **INSTALL BEARING RETAINER REAR**
    a. Coat the 5 bolts with sealant, and install the bearing retainer rear onto the manual transmission case with the 5 bolts.

    Torque: 27 N*m (279 kgf*cm, 20 ft.*lbf)

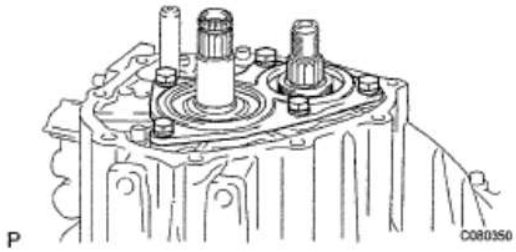


Fig. 169: Identifying Manual Transmission Case With Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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33. **INSTALL 5TH DRIVEN GEAR**
    a. Using SST, install the 5th driven gear onto the output shaft.

    SST 09309-12020

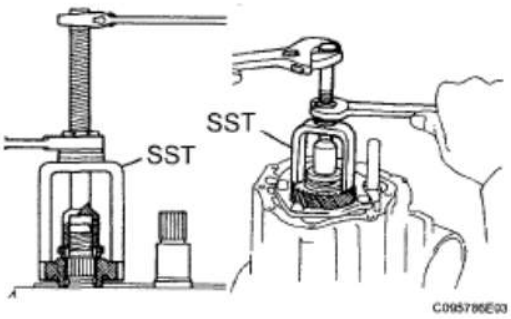


Fig. 170: Installing 5Th Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

34. **INSTALL 5TH GEAR NEEDLE ROLLER BEARING**
    a. Coat the 5th gear needle roller bearing and 5th gear bearing spacer with gear oil, and install them onto the input shaft.

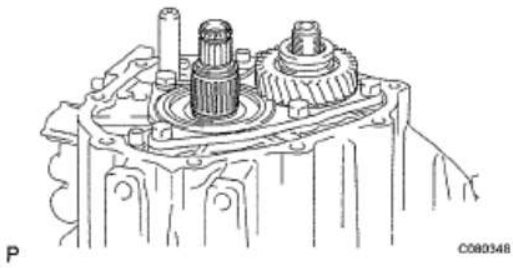
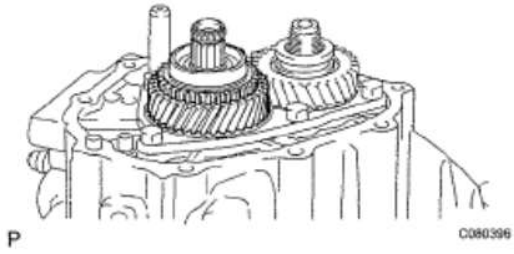


Fig. 171: Identifying 5Th Gear Needle Roller Bearing And 5Th Gear Bearing Spacer With Gear Oil
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

35. **INSTALL 5TH GEAR**
    a. Coat the 5th gear with gear oil and install it onto the input shaft.



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Fig. 172: Identifying 5Th Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

36. **INSTALL NO. 3 SYNCHRONIZER RING**
    a. Coat the No. 3 synchronizer ring with gear oil and install it onto the 5th gear.

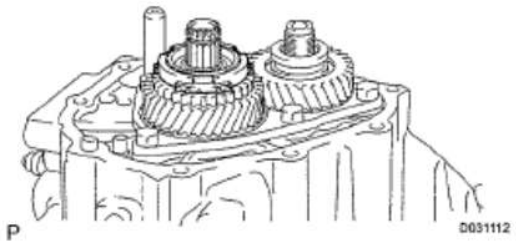


Fig. 173: Installing No. 3 Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

37. **INSTALL NO. 3 TRANSMISSION CLUTCH HUB**
    a. Install the 3 synchromesh shifting keys and 2 synchromesh shifting key springs onto the No. 3 transmission clutch hub, as shown in the illustration.

NOTE: Do not set the 2 shifting key spring openings in the same position.

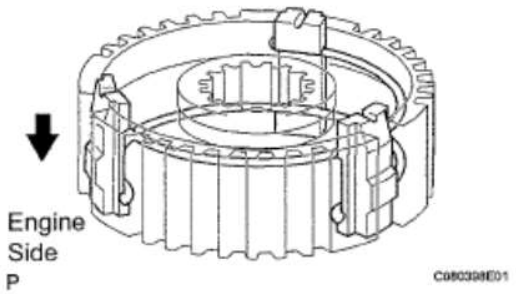


Fig. 174: Installing No. 3 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Using SST and a hammer, install the No. 3 transmission clutch hub onto the input shaft.

SST 09636-20010

NOTE:
- **Do not install the No. 3 transmission clutch hub in the wrong direction.**
- **Install the No. 3 transmission clutch hub with the No. 3 synchronizer ring key groove and No. 3 synchromesh shifting key aligned.**
- **Check that the 5th gear is rotating.**

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- **Place a suitable sized wooden block to support the input shaft.**

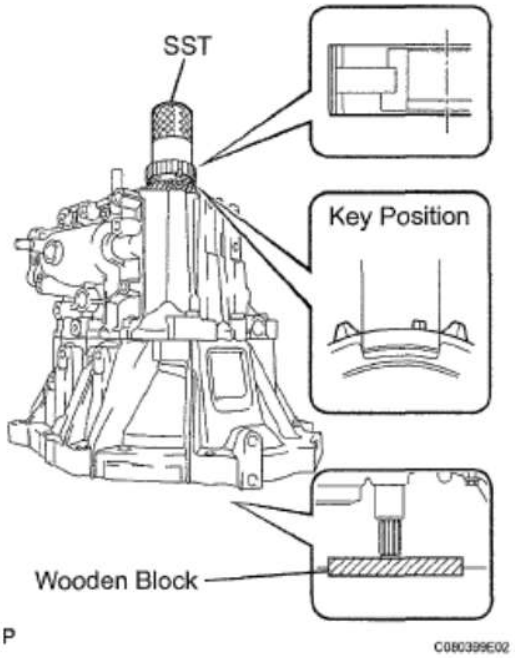


Fig. 175: Identifying No. 3 Transmission Clutch Hub Onto Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Select a clutch hub No. 3 shaft snap ring that will allow minimum axial play.

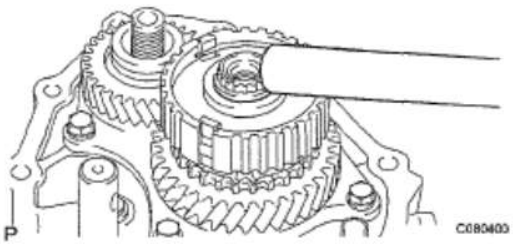


Fig. 176: Identifying Clutch Hub No. 3 Shaft Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Clearance:

0.1 mm or less

Snap ring thickness

THICKNESS SPECIFICATIONS

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Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.25 (0.0886)	E	2.49 (0.0980)
B	2.31 (0.0909)	F	2.55 (0.1004)
C	2.37 (0.0933)	G	2.61 (0.1028)
D	2.43 (0.0957)	-	-

d. Using a brass bar and a hammer, install the new snap ring onto the input shaft.

38. **INSPECT 5TH GEAR THRUST CLEARANCE**

a. Using a dial indicator, measure the 5th gear thrust clearance.

Standard clearance:

0.1 to 0.55 mm (0.0039 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 3 transmission clutch hub, 5th gear or input shaft rear radial ball bearing.

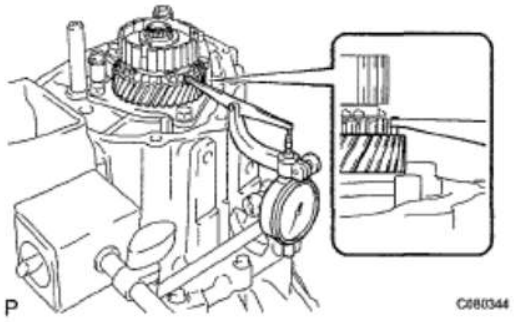


Fig. 177: Measuring 5Th Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

39. **INSPECT 5TH GEAR RADIAL CLEARANCE**

a. Using a dial indicator, measure the 5th gear radial clearance.

Standard clearance:

KOYO made:

0.015 to 0.058 mm (0.0006 to 0.0023 in.)

NSK made:

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0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance:

KOYO made:

0.058 mm (0.0023 in.)

NSK made:

0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the 5th gear, 5th gear needle roller bearing or input shaft.

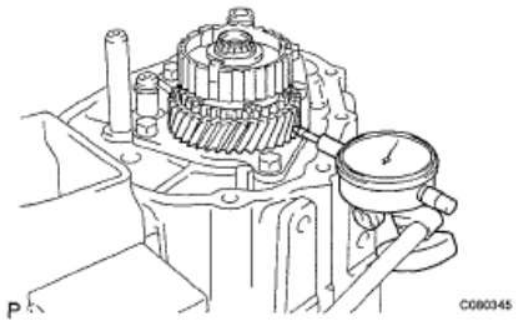


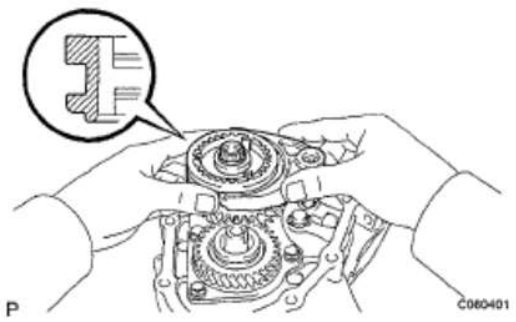
Fig. 178: Measuring 5Th Gear Radial Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

40. **INSTALL NO. 3 GEAR SHIFT FORK**

a. Coat the No. 3 transmission clutch hub sleeve with gear oil and install it together with the No. 3 gear shift fork onto the No. 3 transmission clutch hub.

HINT:

Set the No. 3 transmission clutch hub in the correct orientation.



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Fig. 179: Installing No. 3 Transmission Clutch Hub Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the gear shift fork lock bolt with sealant, and install it onto the No. 3 gear shift fork.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 16 N*m (160 kgf*cm, 12 ft.*lbf)

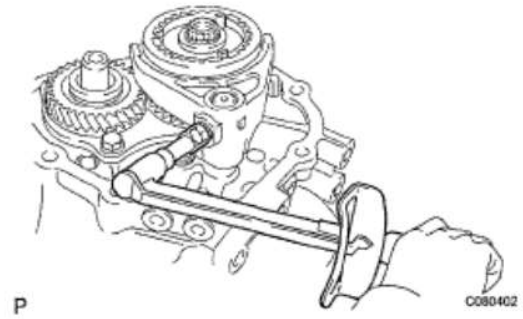


Fig. 180: Installing No. 3 Gear Shift Fork
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

41. **INSTALL MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT**
    a. Engage the 2 gears simultaneously to lock the transmission.
    b. Coat a new manual transmission output shaft rear set nut with sealant.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

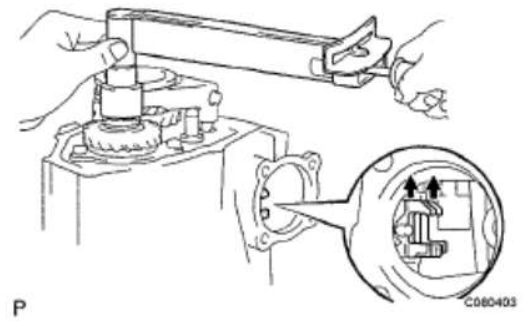


Fig. 181: Installing Manual Transmission Output Shaft Rear Set Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install a new manual transmission output shaft rear set nut.

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Torque: 118 N*m (1199 kgf*cm, 87 ft.*lbf)

d. Using a chisel and a hammer, stake the manual transmission output shaft rear set nut.

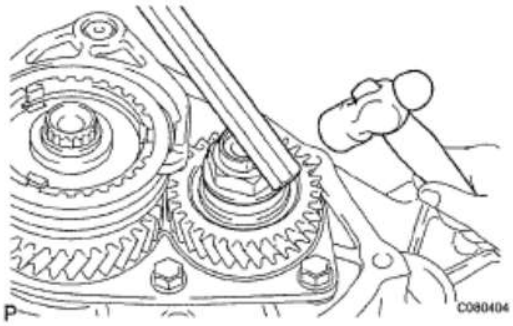


Fig. 182: Staking Manual Transmission Output Shaft Rear Set Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Disengage the 2 gears.

42. **INSTALL MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY**

a. Apply FIPG to the manual transaxle case cover sub-assembly as shown in the illustration.

FIPG:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTE: Assemble the parts within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.

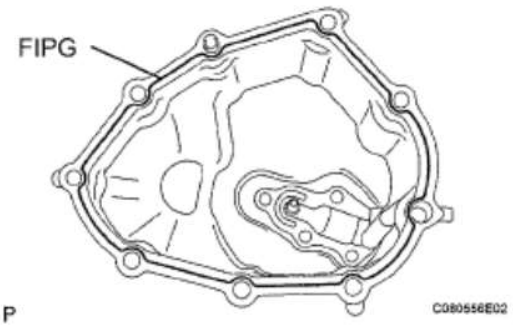


Fig. 183: Identifying FIPG To Manual Transaxle Case Cover Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the manual transmission case cover sub-assembly onto the manual transmission case with the 9 bolts.

Torque: 21 N*m (214 kgf*cm, 16 ft.*lbf)

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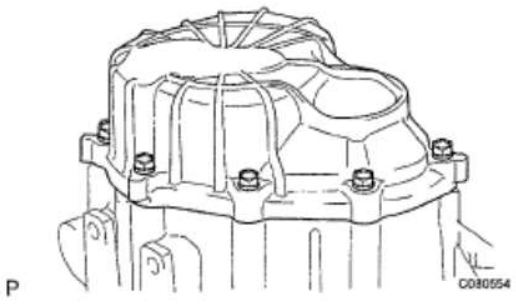


Fig. 184: Identifying Manual Transmission Case Cover Sub-Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

43. **INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY**
    a. Coat the shift and select lever shaft assembly with gear oil, and install it onto the transmission case.

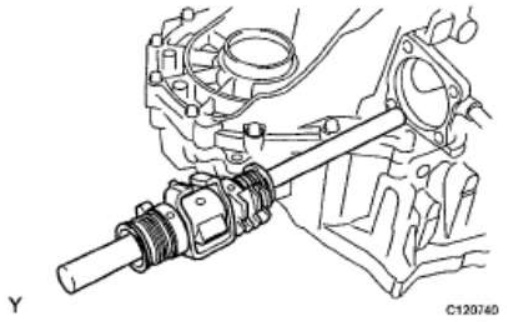


Fig. 185: Identifying Select Lever Shaft Assembly And Shift
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

44. **INSTALL CONTROL SHAFT COVER OIL SEAL**
    a. Using SST and a hammer, install a new control shaft cover oil seal onto the control shaft cover.

    Drive in depth:

    0.2 to 1.2 mm (0.0079 to 0.0472 in.)

    SST 09950-60010 (09951 -00280), 09950-70010 (09951-07150)

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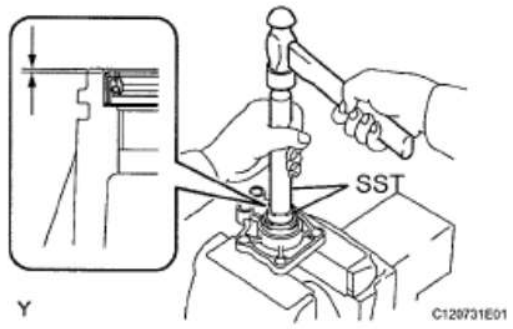


Fig. 186: Installing Control Shaft Cover Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the control shaft cover oil seal with MP grease.

45. **INSTALL CONTROL SHAFT COVER**

a. Coat the 4 bolts with sealant. Install a new gasket and control shaft cover onto the manual transmission case with the 4 bolts.

Torque: 20 N*m (200 kgf*cm, 14 ft.*lbf)

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

NOTE: Set the claws of the shift interlock plate into the shift head part of the gear shift fork shaft securely.

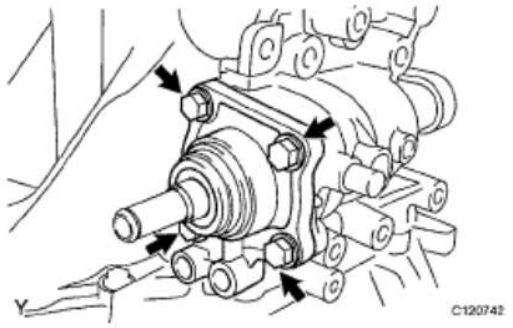


Fig. 187: Locating Control Shaft Cover Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

46. **INSTALL SHIFT GUIDE PIN**

a. Coat the shift guide pin with sealant.
b. Install the washer and shift guide pin.

Torque: 11 N*m (112 kgf*cm, 8 ft.*lbf)

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Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

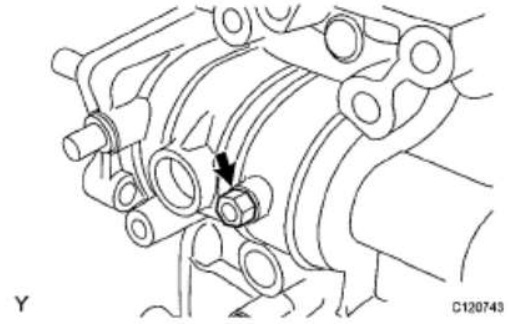


Fig. 188: Locating Shift Guide Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

47. **INSTALL NO. 1 LOCK BALL ASSEMBLY**
    a. Coat the No. 1 lock ball assembly with sealant and install it onto the manual transmission case.

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

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

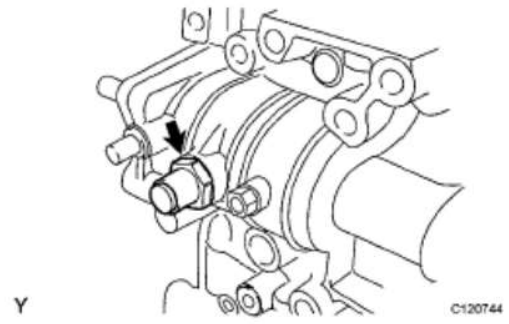


Fig. 189: Locating No. 1 Lock Ball Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **INSTALL SHIFT LEVER DAMPER**
    a. Install the dust boot onto the control shaft cover.
    b. Install the shift lever damper with the lock pin onto the shift and select lever shaft assembly.
    c. Install the spring washer with the nut.

Torque: 12 N*m (120 kgf*cm, 9 ft.*lbf)

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Fig. 190: Locating Spring Washer And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

49. **INSTALL FLOOR SHIFT CONTROL SHIFT LEVER**
    a. Install the dust boot onto the shift and select lever shaft oil seal.
    b. Install the floor shift control shift lever with the lock pin onto the shift and select lever shaft assembly.
    c. Install the spring washer with the nut.

    Torque: 12 N*m (120 kgf*cm, 9 ft.*lbf)

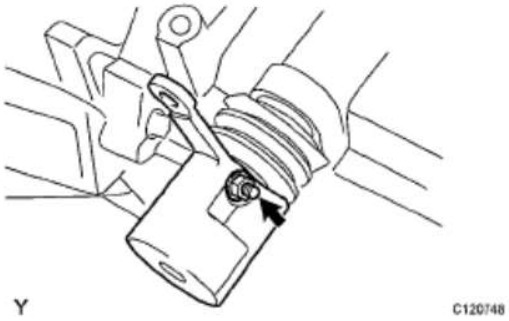


Fig. 191: Locating Floor Shift Control Shift Lever Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

50. **INSTALL SELECTING BELL CRANK ASSEMBLY**
    a. Install the selecting bell crank assembly together with the control shift lever bush onto the manual transmission case with the 2 bolts and nut.

    Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf) for bolt

    12 N*m (120 kgf*cm, 9 ft.*lbf) for nut

    NOTE: Apply MP grease to the inside circumferential surface of the control shift lever bush.

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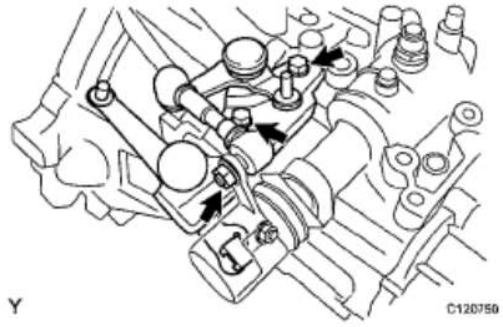


Fig. 192: Locating Selecting Bell Crank Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

51. **INSTALL BACK-UP LIGHT SWITCH ASSEMBLY**
    a. Using SST, install the back-up light switch assembly onto the manual transmission case with a new gasket.

    SST 09817-16011

    Torque: 40 N*m (410 kgf*cm, 30 ft.*lbf)

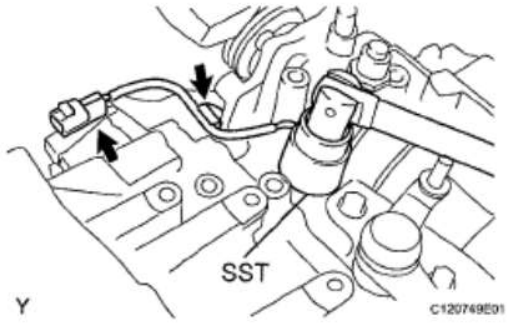


Fig. 193: Locating Back-Up Light Switch With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

    b. Install the back-up light switch wire harness into the 2 clamps.

52. **INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
    a. Install a new O-ring onto the speedometer driven hole cover sub-assembly.
    b. Install the speedometer driven hole cover sub-assembly onto the manual transaxle case with the bolt.

    Torque: 11 N*m (115 kgf*cm, 8 ft.*lbf)

53. **INSTALL MANUAL TRANSMISSION FILLER PLUG**
    a. Install the manual transmission filler plug onto the manual transmission case with a new gasket.

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Torque: 39 N*m (400 kgf*cm, 29 ft.*lbf)

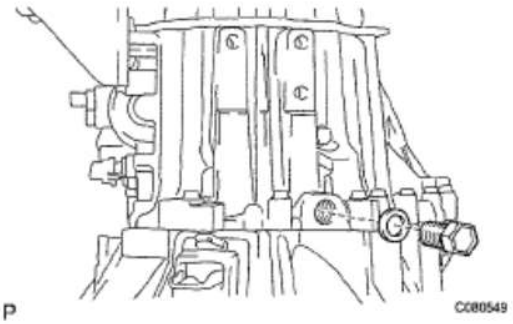


Fig. 194: Identifying Manual Transmission Filler Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

54. **INSTALL DRAIN PLUG SUB-ASSEMBLY**
    a. Install the drain plug onto the manual transmission case with a new gasket.

Torque: 39 N*m (400 kgf*cm, 29 ft.*lbf)

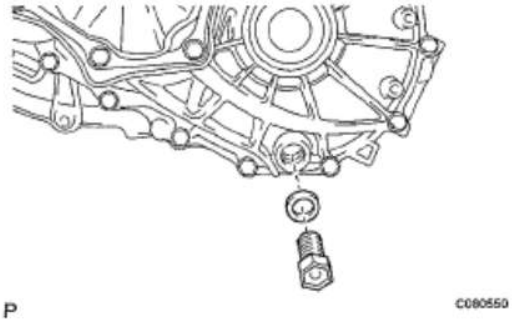


Fig. 195: Identifying Drain Plug Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INPUT SHAFT

COMPONENTS

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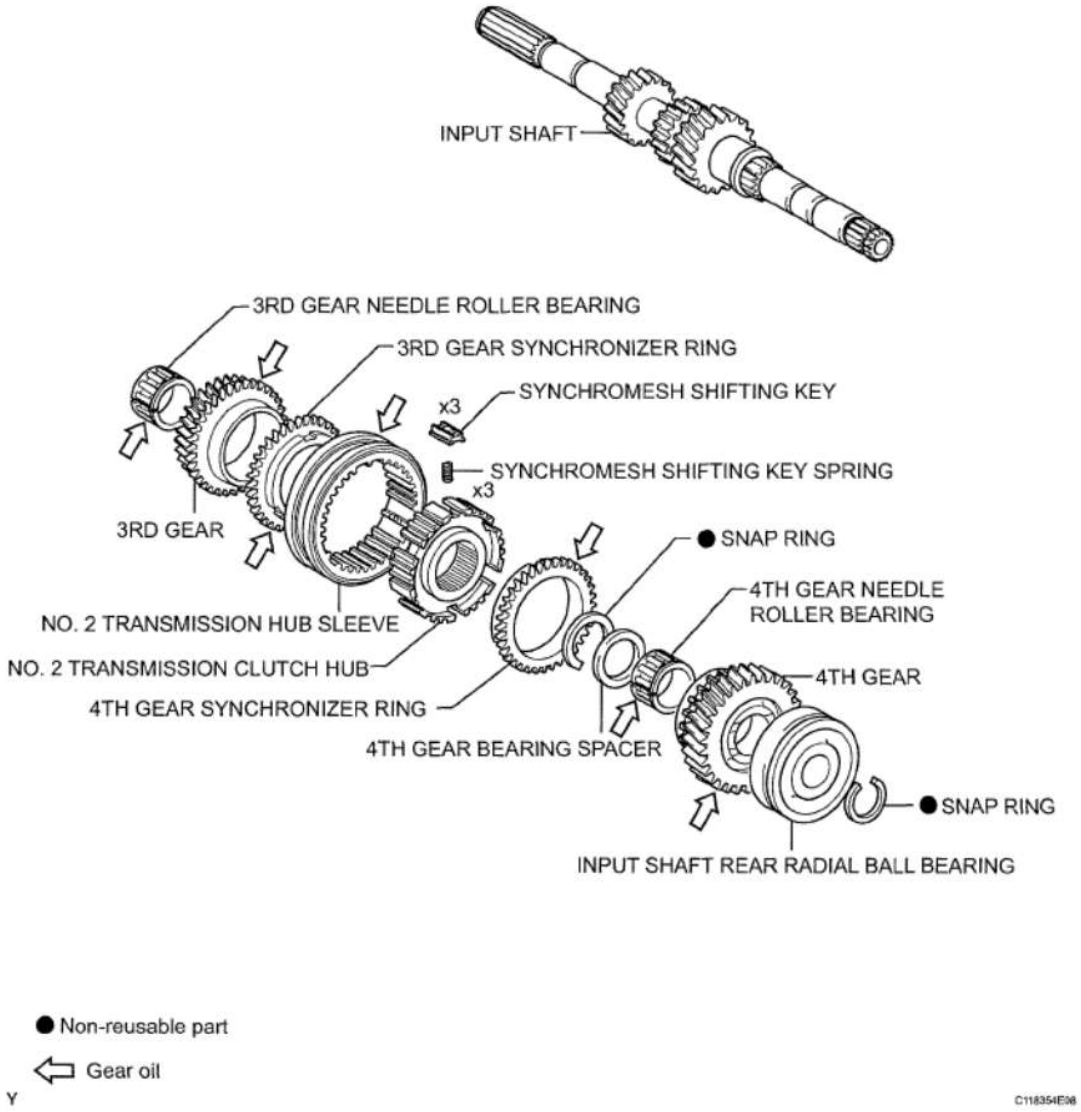


Fig. 196: Identifying Input Shaft Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. **INSPECT 4TH GEAR THRUST CLEARANCE**
   a. Using a feeler gauge, measure the 4th gear thrust clearance.

      Standard clearance:

      0.1 to 0.55 mm (0.0039 to 0.0217 in.)

      Maximum clearance:

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0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 4th gear or input shaft rear radial ball bearing.

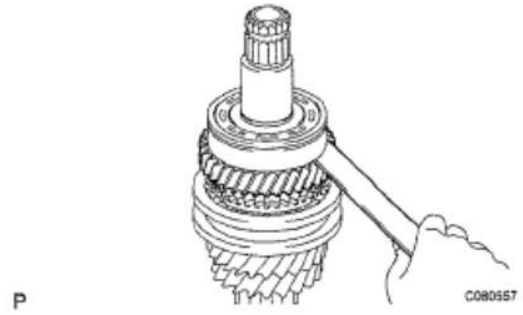


Fig. 197: Measuring 4Th Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT 3RD GEAR THRUST CLEARANCE**
   a. Using a dial gauge, measure the 3rd gear thrust clearance.

Standard clearance:

0.1 to 0.35 mm (0.0039 to 0.0138 in.)

Maximum clearance:

0.35 mm (0.0138 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 3rd gear or input shaft.

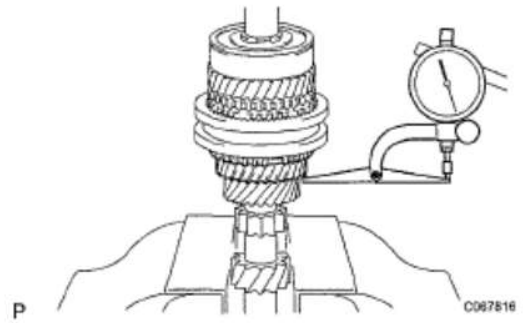


Fig. 198: Measuring 3Rd Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT 4TH GEAR RADIAL CLEARANCE**

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a. Using a dial indicator, measure the 4th gear radial clearance between the gear and shaft.

Standard clearance:

0.009 to 0.050 mm (0.0004 to 0.0020 in.)

Maximum clearance:

0.050 mm (0.0020 in.)

If the clearance exceeds the maximum, replace the 4th gear, 4th gear needle roller bearing or input shaft.

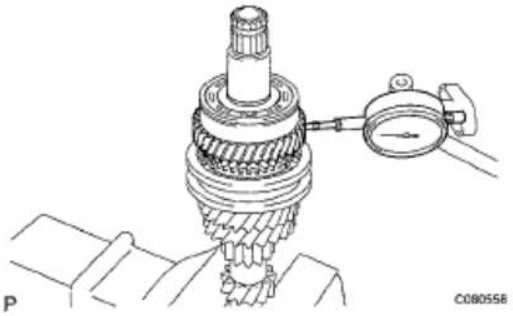


Fig. 199: Measuring 4Th Gear Radial Clearance Between Gear And Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT 3RD GEAR RADIAL CLEARANCE**

a. Using a dial gauge, measure the 3rd gear radial clearance between the gear and shaft.

Standard clearance:

KOYO made bearing:

0.015 to 0.058 mm (0.0006 to 0.0023 in.)

NSK made bearing:

0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance:

KOYO made:

0.058 mm (0.0023 in.)

NSK made:

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0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the 3rd gear, 3rd gear needle roller bearing or input shaft.

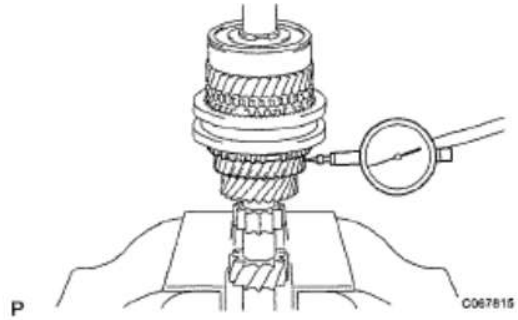


Fig. 200: Measuring 3Rd Gear Radial Clearance Between Gear And Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE 4TH GEAR**
   a. Using 2 screwdrivers and a hammer, remove the input shaft rear bearing shaft snap ring from the input shaft.

      HINT:

      Use a piece of cloth to keep the snap ring from flying off.

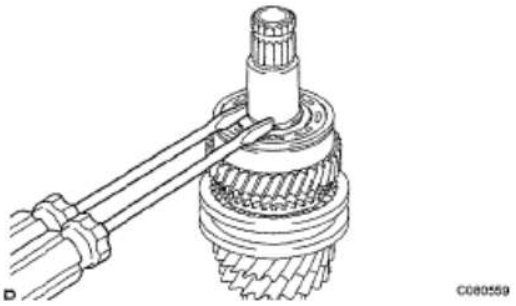


Fig. 201: Removing Input Shaft Rear Bearing Shaft Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using SST and a press, remove the input shaft rear radial ball bearing and 4th gear from the input shaft.

      SST 09950-00020

      HINT:

      - Do not tighten SST excessively.

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- Support the input shaft assembly by hand to prevent it from dropping off.

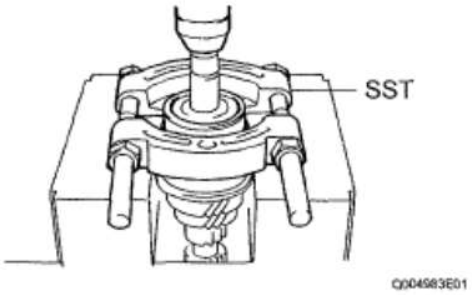


Fig. 202: Identifying Input Shaft Rear Radial Ball Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE 4TH GEAR NEEDLE ROLLER BEARING**
   a. Remove the 4th gear needle roller bearing and 4th gear bearing spacer from the input shaft.

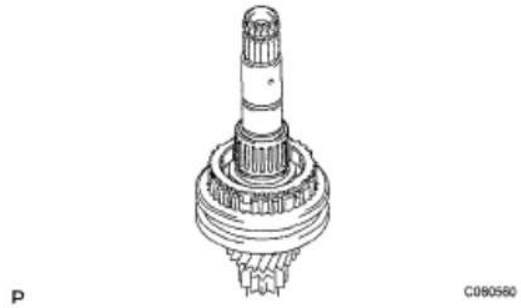


Fig. 203: Identifying 4Th Gear Needle Roller Bearing And 4Th Gear Bearing Spacer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE 4TH GEAR SYNCHRONIZER RING**
   a. Remove the No. 2 synchronizer ring from the No. 2 transmission clutch hub.

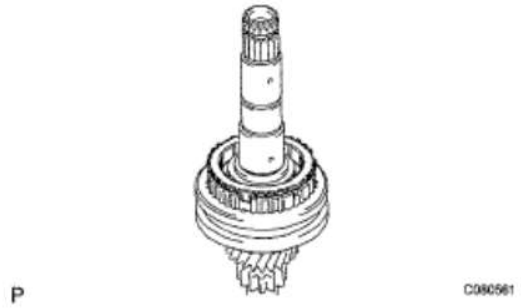


Fig. 204: Identifying No. 2 Synchronizer Ring And No. 2 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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8. **REMOVE 3RD GEAR**
   a. Using 2 screwdrivers and a hammer, remove the clutch hub No. 2 setting shaft snap ring from the input shaft.

      HINT:

      Use a piece of cloth to keep the snap ring from flying off.

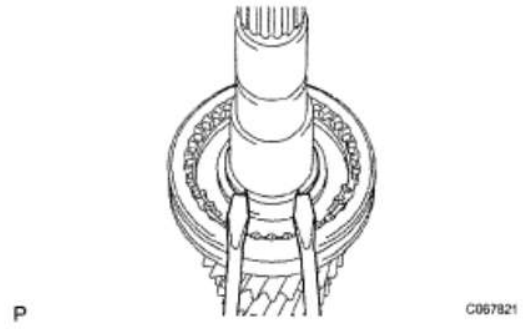


Fig. 205: Removing 3Rd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using SST and a press, remove the No. 2 transmission clutch hub and the 3rd gear from the input shaft.

      SST 09950-00020

NOTE:
- **Do not tighten SST excessively.**
- **Support the input shaft by hand to prevent it from dropping off.**

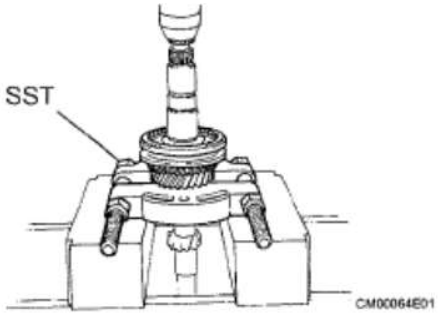


Fig. 206: Removing No. 2 Transmission Clutch Hub With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE 3RD GEAR SYNCHRONIZER RING**
   a. Remove the No. 2 synchronizer ring from the 3rd gear.

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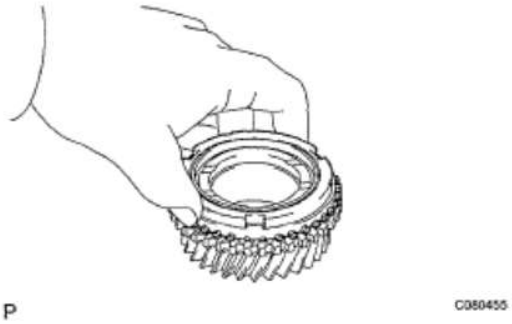


Fig. 207: Removing 3Rd Gear Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

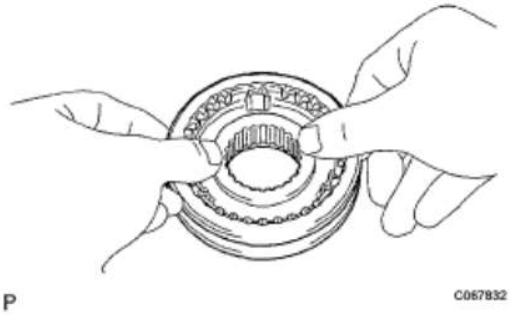
10. **REMOVE 3RD GEAR NEEDLE ROLLER BEARING**
    a. Remove the 3rd gear needle roller bearing from the input shaft.



Fig. 208: Identifying 3Rd Gear Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **REMOVE NO. 2 TRANSMISSION HUB SLEEVE**
    a. Remove the No. 2 transmission hub sleeve, the 3 shifting keys and 3 shifting key springs from the No. 2 transmission clutch hub.

NOTE: Use a shop rag or piece of cloth to keep the shifting key and shifting key spring from flying off.



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Fig. 209: Removing No. 2 Transmission Hub Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT INPUT SHAFT**
   a. Using a dial gauge, check the input shaft runout.

      Maximum runout:

      0.015 mm (0.0006 in.)

      If the runout exceeds the maximum, replace the input shaft.

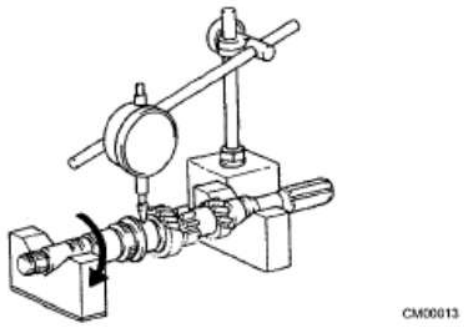


Fig. 210: Checking Input Shaft Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a micrometer, measure the outer diameter of the input shaft journal surface, at the locations indicated.

      Standard outer diameter:

      Part A:

      24.885 to 24.900 mm (0.9797 to 0.9803 in.)

      Part B:

      28.991 to 29.006 mm (1.1414 to 1.1420 in.)

      Part C:

      30.985 to 31.000 mm (1.2198 to 1.2204 in.)

      Part D:

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24.985 to 25.000 mm (0.9836 to 0.9842 in.)

Minimum outer diameter:

Part A:

24.885 mm (0.9797 in.)

Part B:

28.991 mm (1.1414 in.)

Part C:

30.985 mm (1.2198 in.)

Part D:

24.985 mm (0.9836 in.)

If either outer diameters are less than the minimums, replace the input shaft.

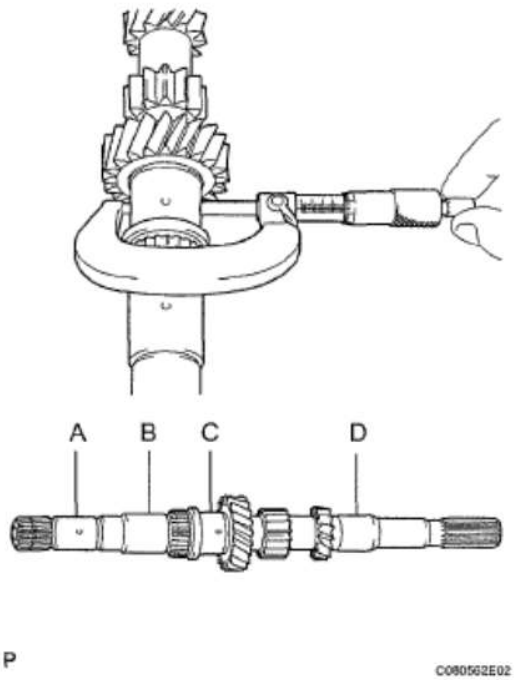


Fig. 211: Measuring Outer Diameter Of Input Shaft Journal Surface
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT 4TH GEAR**

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a. Using a cylinder gauge, measure the inside diameter of the 4th gear.

Standard inside diameter:

34.015 to 34.031 mm (1.3391 to 1.3398 in.)

Maximum inside diameter:

34.031 mm (1.3398 in.)

If the inside diameter exceeds the maximum, replace the 4th gear.

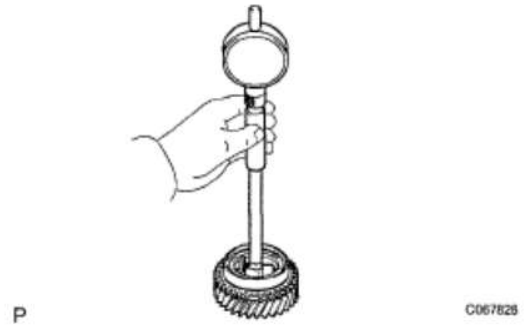


Fig. 212: Measuring Inside Diameter Of 4Th Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT 3RD GEAR**

a. Using a cylinder gauge, measure the inside diameter of the 3rd gear.

Standard inside diameter:

36.015 to 36.031 mm (1.4179 to 1.4185 in.)

Maximum inside diameter:

36.031 mm (1.4185 in.)

If the inside diameter exceeds the maximum, replace the 3rd gear.

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Fig. 213: Measuring Inside Diameter Of 3Rd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT 4TH GEAR SYNCHRONIZER RING**
   a. Check the synchronizer ring for wear and damage.
   b. Coat the 4th gear cone with gear oil.
   c. Turn the synchronizer ring in one direction while pushing it against the 4th gear cone.



Fig. 214: Identifying 4Th Gear Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   d. Check that the ring locks.

      If the synchronizer ring does not lock, replace the synchronizer ring.

   e. Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.

      Standard clearance:

      0.75 to 1.65 mm (0.0295 to 0.0650 in.)

      Minimum clearance:

      0.75 mm (0.0295 in.)

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If the clearance is less than the minimum, replace the synchronizer ring.

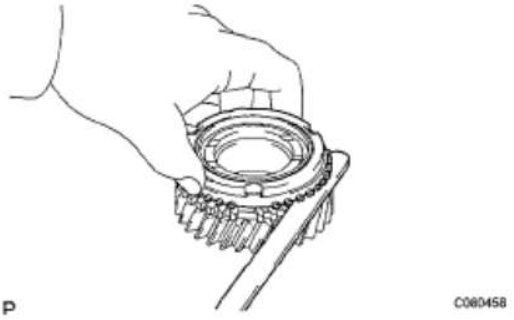


Fig. 215: Measuring Clearance Between Synchronizer Ring Back And Gear Spline End
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSPECT 3RD GEAR SYNCHRONIZER RING**
   a. Check the synchronizer ring for wear and damage.
   b. Coat the 3rd gear cone with gear oil.
   c. Turn the synchronizer ring in one direction while pushing it against the 3rd gear cone.



Fig. 216: Inspecting 3RD Gear Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   d. Check that the ring locks.

      If the synchronizer ring does not lock, replace the synchronizer ring.

   e. Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.

      Standard clearance:

      0.65 to 1.75 mm (0.0256 to 0.0689 in.)

      Minimum clearance:

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0.65 mm (0.0256 in.)

If the clearance is less than the minimum, replace the synchronizer ring.

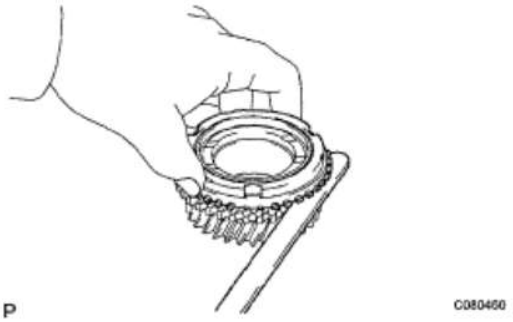


Fig. 217: Measuring Clearance Between Synchronizer Ring Back And Gear Spline End
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSPECT NO. 2 TRANSMISSION HUB SLEEVE**
   a. Check the sliding condition between the No. 2 transmission hub sleeve and No. 2 transmission clutch hub.

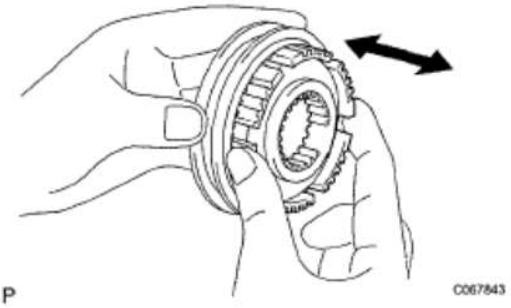


Fig. 218: Checking Sliding Condition Between No. 2 Transmission Hub Sleeve And No. 2 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Check that the edges of the No. 2 transmission hub sleeve spline gear are not worn down.
   c. Using vernier calipers, measure the width of the No. 2 transmission hub sleeve groove (A) and the thickness of the claw part on the No. 2 gear shift fork (B), and calculate the clearance.

Standard clearance (A - B):

0.15 to 0.35 mm (0.0059 to 0.0137 in.)

If the clearance is outside the specifications, replace the No. 2 transmission hub sleeve and No. 2 gear shift fork.

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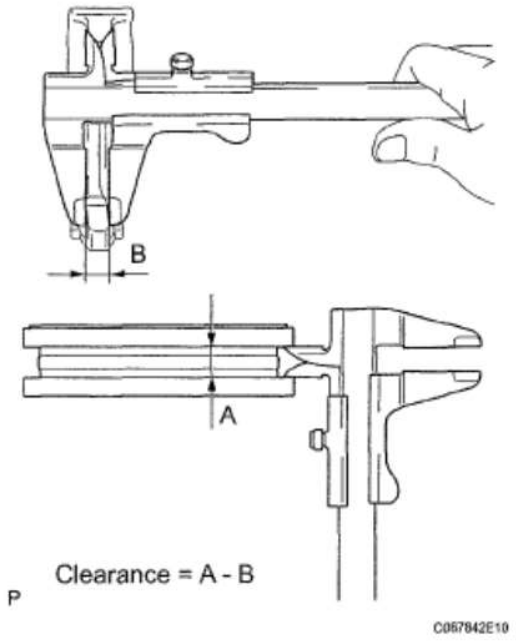


Fig. 219: Measuring Width Of No. 2 Transmission Hub Sleeve Groove And Thickness Of Claw Part
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REASSEMBLY

1. **INSTALL NO. 2 TRANSMISSION HUB SLEEVE**
   a. Coat the No. 2 transmission hub sleeve with gear oil, and install it onto the No. 2 transmission clutch hub.

NOTE: Orient the No. 2 transmission hub sleeve and No. 2 transmission clutch hub correctly.

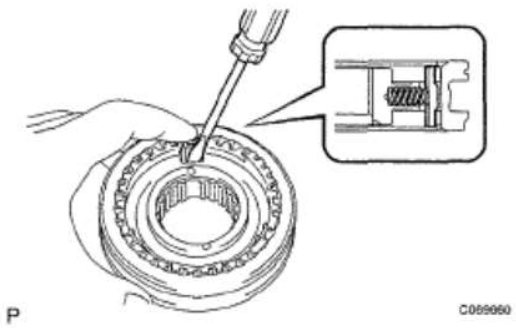


Fig. 220: Installing No. 2 Transmission Hub Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a screwdriver, install the 3 synchromesh key springs with 3 synchromesh shifting keys onto

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the No. 2 transmission clutch hub.

2. **INSTALL 3RD GEAR NEEDLE ROLLER BEARING**
   a. Coat the 3rd gear needle roller bearing with gear oil and install it onto the input shaft.

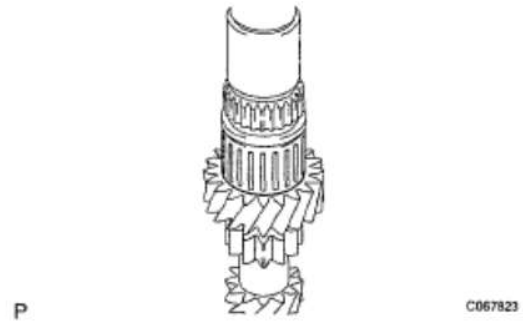


Fig. 221: Identifying 3Rd Gear Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL 3RD GEAR**
   a. Coat the 3rd gear with gear oil and install it onto the input shaft.

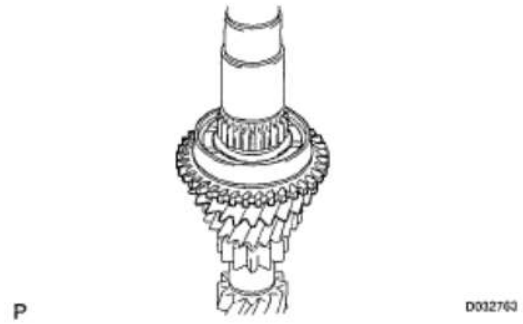
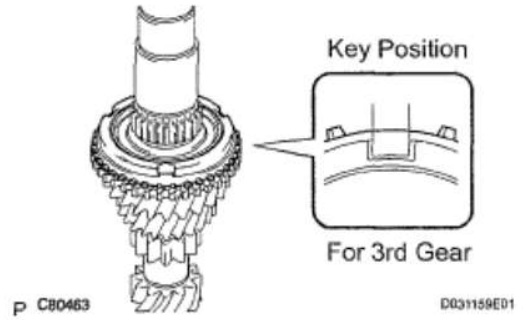


Fig. 222: Identifying 3Rd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL 3RD GEAR SYNCHRONIZER RING**
   a. Coat the 3rd gear synchronizer ring with gear oil and install it onto the 3rd gear.



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Fig. 223: Identifying 3Rd Gear Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL NO. 2 TRANSMISSION CLUTCH HUB**
   a. Using SST and a press, install the No. 2 transmission clutch hub onto the input shaft.

SST 09316-60011 (09316-00021)

NOTE: Fit the synchromesh shifting key into the groove of the synchronizer ring correctly.

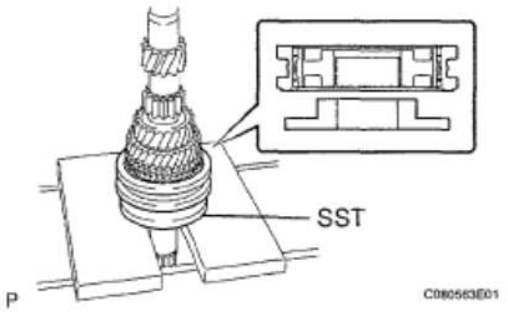


Fig. 224: Installing No. 2 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

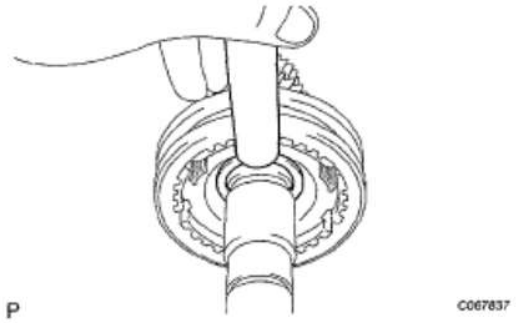


Fig. 225: Checking Snap Ring Axle Play
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance:

0.1 mm (0.0039 in.) or less

Snap ring thickness

THICKNESS SPECIFICATIONS

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Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	2.30 (0.0906)	3	2.48 (0.0976)
1	2.36 (0.0929)	4	2.54(0.1000)
2	2.42 (0.0953)	5	2.60(0.1024)

c. Using a brass bar and a hammer, install the snap ring onto the input shaft.

6. **INSTALL 4TH GEAR SYNCHRONIZER RING**

a. Coat the 4th gear synchronizer ring with gear oil and install it onto the No. 2 transmission clutch hub.

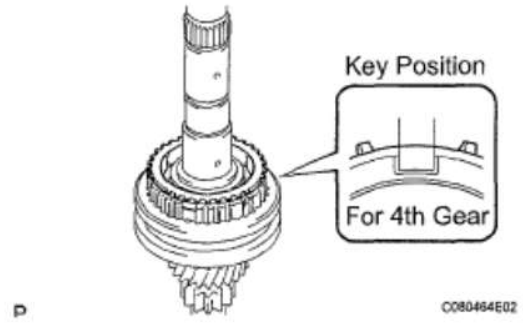


Fig. 226: Identifying 4Th Gear Synchronizer Ring And No. 2 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL 4TH GEAR NEEDLE ROLLER BEARING**

a. Coat the 4th gear needle roller bearing and 4th gear bearing spacer with gear oil and install them onto the No. 2 transmission clutch hub.

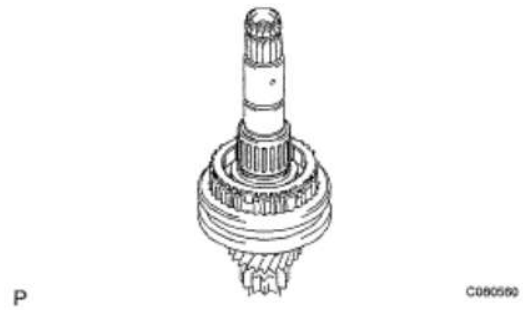


Fig. 227: Identifying 4Th Gear Needle Roller Bearing And 4Th Gear Bearing Spacer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL 4TH GEAR**

a. Coat the 4th gear with gear oil and install it onto the input shaft.

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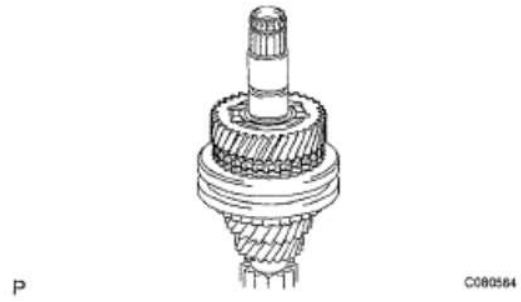


Fig. 228: Identifying 4Th Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSTALL INPUT SHAFT REAR RADIAL BALL BEARING**
   a. Using SST and a press, install the input shaft rear radial ball bearing onto the input shaft.

   SST 09608-04031

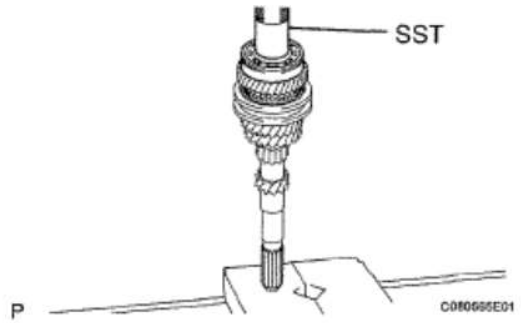


Fig. 229: Installing Input Shaft Rear Radial Ball Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

   Standard clearance:

   0.1 mm (0.0039 in.) or less

   Snap ring thickness

THICKNESS SPECIFICATIONS

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.29 (0.0901)	D	2.47 (0.0972)
B	2.35 (0.0925)	E	2.53 (0.0996)
C	2.41 (0.0948)	F	2.59(0.1019)

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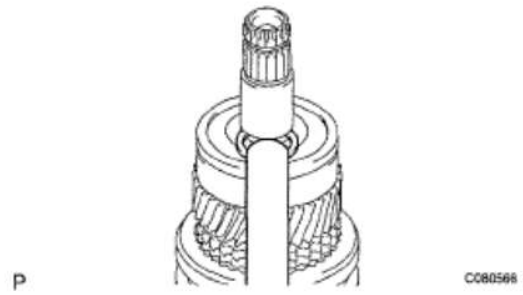


Fig. 230: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a brass bar and a hammer, install the snap ring onto the input shaft.

NOTE: Do not damage the journal surface of the snap ring.

10. **INSPECT 3RD GEAR RADIAL CLEARANCE**

a. Using a dial gauge, measure the 3rd gear radial clearance.

Standard clearance:

KOYO made:

0.015 to 0.058 mm (0.0006 to 0.0023 in.)

NSK made:

0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance:

KOYO made:

0.058 mm (0.0023 in.)

NSK made:

0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the 3rd gear, 3rd gear needle roller bearing or input shaft.

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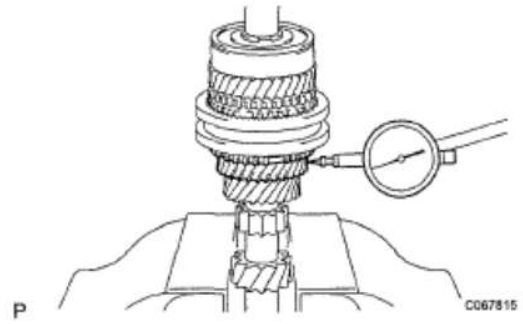


Fig. 231: Measuring 3Rd Gear Radial Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSPECT 4TH GEAR RADIAL CLEARANCE**
    a. Using a dial gauge, measure the 4th gear radial clearance.

    Standard clearance:

    0.009 to 0.050 mm (0.0004 to 0.0020 in.)

    Maximum clearance:

    0.050 mm (0.0020 in.)

    If the clearance exceeds the maximum, replace the 4th gear, 4th gear needle roller bearing or input shaft.

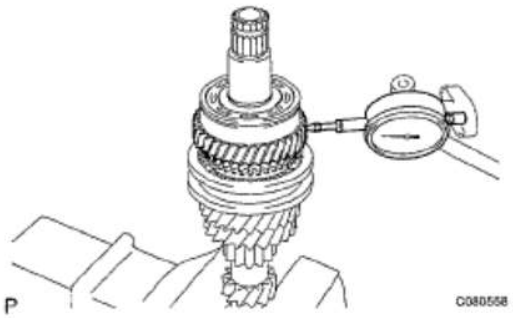


Fig. 232: Measuring 4Th Gear Radial Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSPECT 3RD GEAR THRUST CLEARANCE**
    a. Using a dial gauge, measure the 3rd gear thrust clearance.

    Standard clearance:

    0.1 to 0.35 mm (0.0039 to 0.0138 in.)

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Maximum clearance:

0.35 mm (0.0138 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 3rd gear or input shaft.

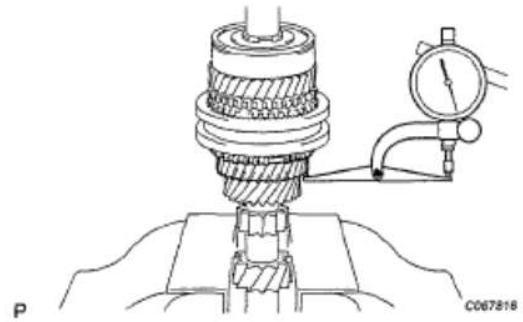


Fig. 233: Measuring 3Rd Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSPECT 4TH GEAR THRUST CLEARANCE**
    a. Using a feeler gauge, measure the 4th gear thrust clearance.

Standard clearance:

0.1 to 0.55 mm (0.0039 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 4th gear or input shaft rear radial ball bearing.

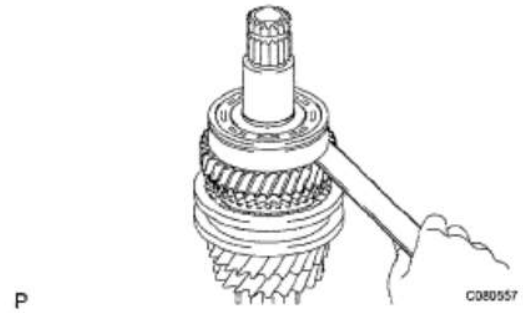


Fig. 234: Measuring 4Th Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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OUTPUT SHAFT

COMPONENTS

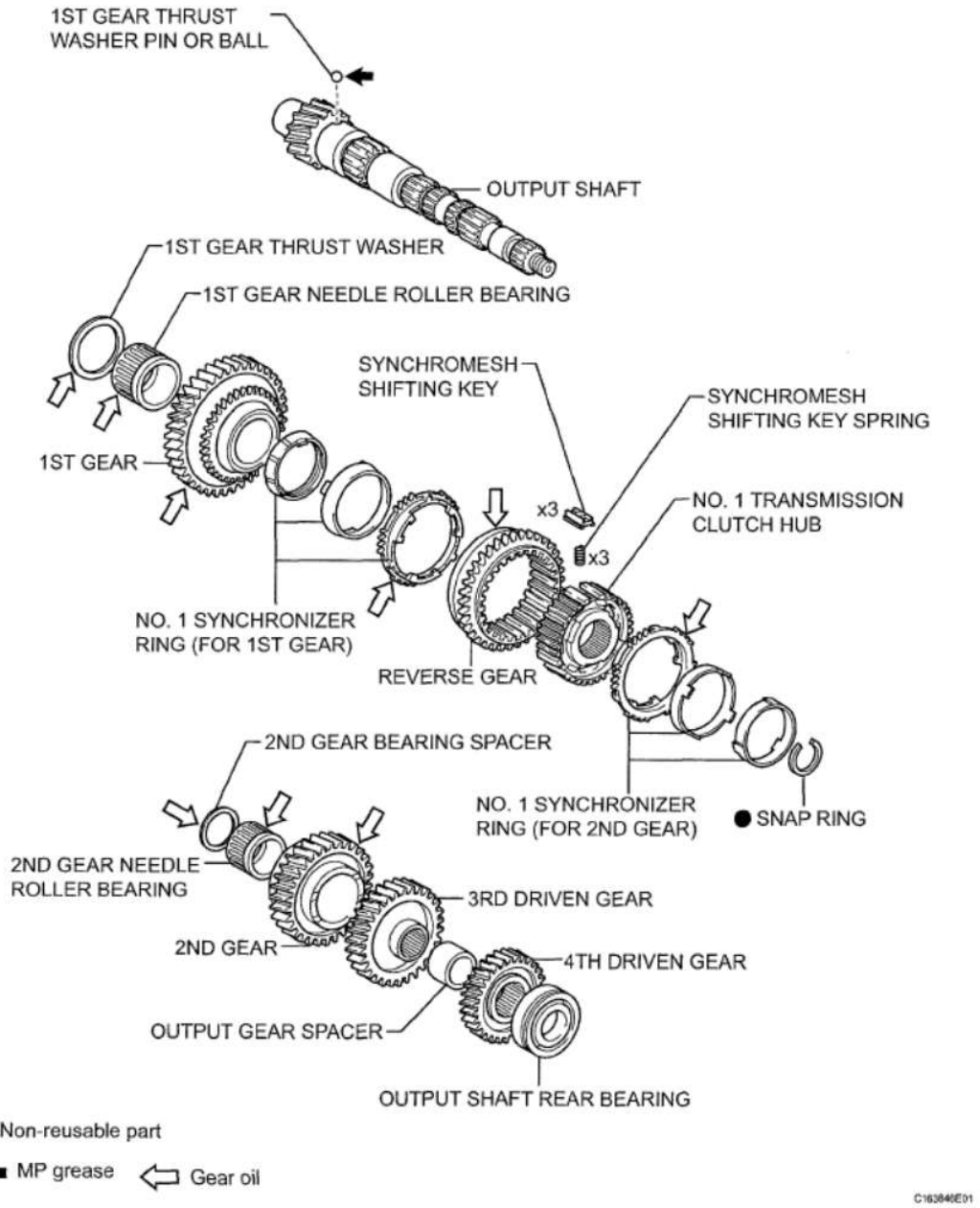


Fig. 235: Identifying Output Shaft Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. **INSPECT 1ST GEAR THRUST CLEARANCE**

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a. Using a feeler gauge, measure the 1st gear thrust clearance.

Standard clearance:

0.10 to 0.40 mm (0.0039 to 0.0157 in.)

Maximum clearance:

0.40 mm (0.0157 in.)

If the clearance exceeds the maximum, replace the 1st gear thrust washer, 1st gear or No. 1 transmission clutch hub.

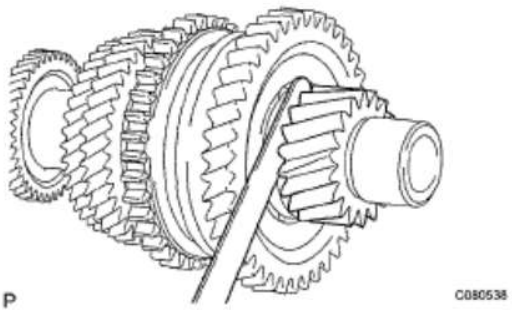


Fig. 236: Measuring 1St Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT 2ND GEAR THRUST CLEARANCE**

a. Using a dial gauge, measure the 2nd gear thrust clearance.

Standard clearance:

0.10 to 0.55 mm (0.0039 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 1 transmission clutch hub, 2nd gear or 3rd driven gear.

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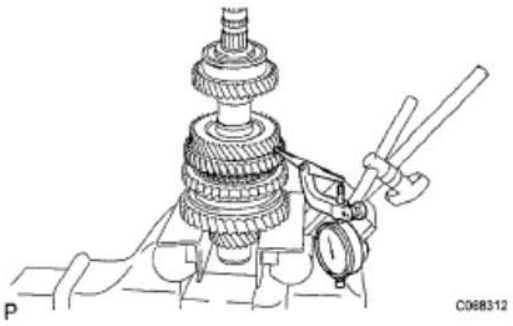


Fig. 237: Measuring 2Nd Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT 1ST GEAR RADIAL CLEARANCE**
   a. Using a dial gauge, measure the 1st gear radial clearance between the gear and shaft.

   Standard clearance:

   KOYO made bearing:

   0.015 to 0.058 mm (0.0006 to 0.0023 in.)

   NSK made bearing:

   0.015 to 0.056 mm (0.0006 to 0.0022 in.)

   Maximum clearance:

   KOYO made:

   0.058 mm (0.0023 in.)

   NSK made:

   0.056 mm (0.0022 in.)

   If the clearance exceeds the maximum, replace the 1st gear or 1st gear needle roller bearing.

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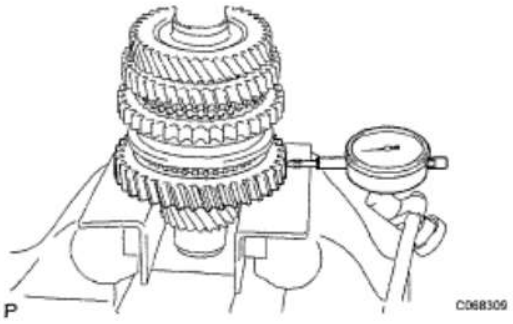


Fig. 238: Measuring 1St Gear Radial Clearance Between Gear And Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT 2ND GEAR RADIAL CLEARANCE**
   a. Using a dial gauge, measure the 2nd gear radial clearance between the gear and shaft.

   Standard clearance:

   KOYO made:

   0.015 to 0.058 mm (0.0006 to 0.0023 in.)

   NSK made:

   0.015 to 0.056 mm (0.0006 to 0.0022 in.)

   Maximum clearance:

   KOYO made:

   0.058 mm (0.0023 in.)

   NSK made:

   0.056 mm (0.0022 in.)

   If the clearance exceeds the maximum, replace the 2nd gear or 2nd gear needle roller bearing.

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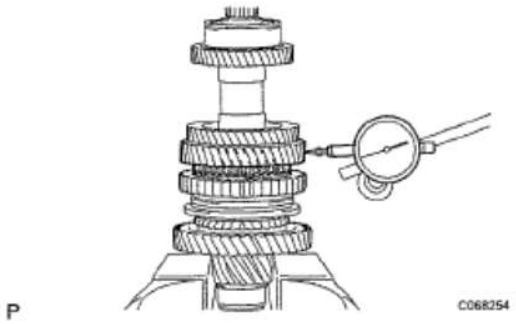


Fig. 239: Measuring 2Nd Gear Radial Clearance Between Gear And Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE 4TH DRIVEN GEAR**
   a. Using SST and a press, remove the output shaft rear bearing and 4th driven gear from the output shaft.

   SST 09950-00020

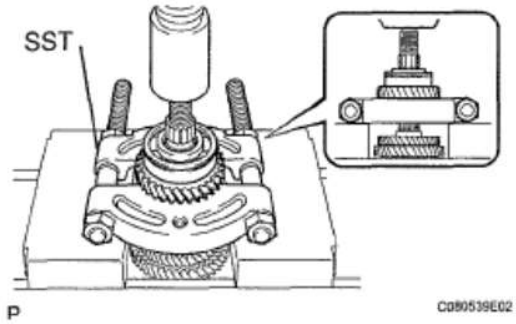


Fig. 240: Removing 4Th Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE OUTPUT GEAR SPACER**
   a. Remove the output gear spacer from the output shaft.

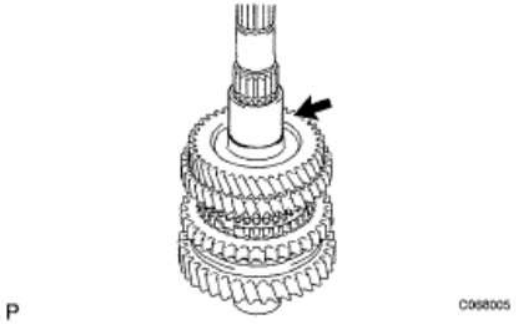


Fig. 241: Locating Output Gear Spacer And Output Shaft

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE 2ND GEAR**
   a. Using SST and a press, remove the 3rd driven gear with 2nd gear from the output shaft.

   SST 09950-00020

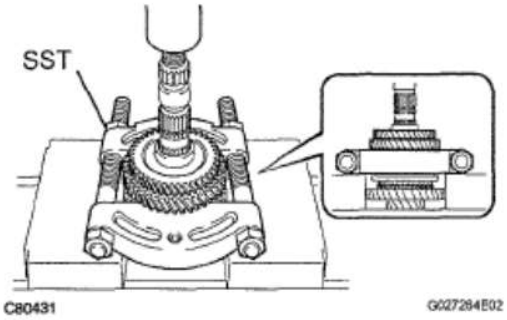


Fig. 242: Removing 3Rd Driven Gear And 2Nd Gear Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE 2ND GEAR NEEDLE ROLLER BEARING**
   a. Remove the 2nd gear needle roller bearing and 2nd gear bearing spacer from the output shaft.

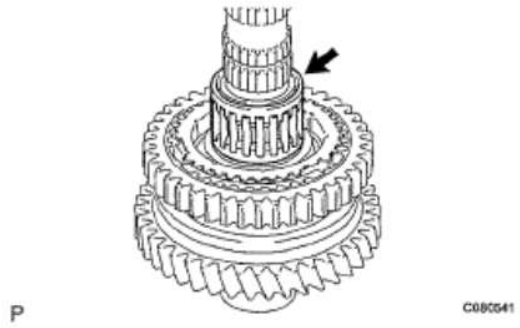


Fig. 243: Locating 2Nd Gear Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE NO. 1 SYNCHRONIZER RING (FOR 2ND GEAR)**
   a. Remove the No. 1 synchronizer ring from the output shaft.

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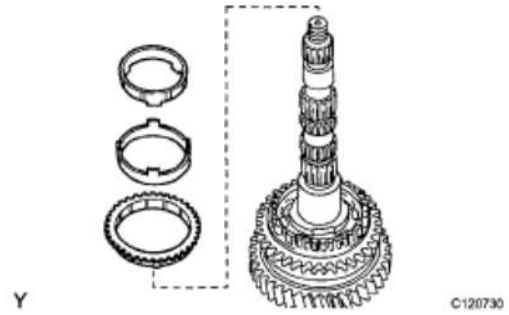


Fig. 244: Identifying No. 1 Synchronizer Ring Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **REMOVE 1ST GEAR**

a. Using 2 screwdrivers and a hammer, remove the clutch hub No. 1 shaft snap ring from the output shaft.

HINT:

Use a piece of cloth to keep the shaft snap ring from flying off.

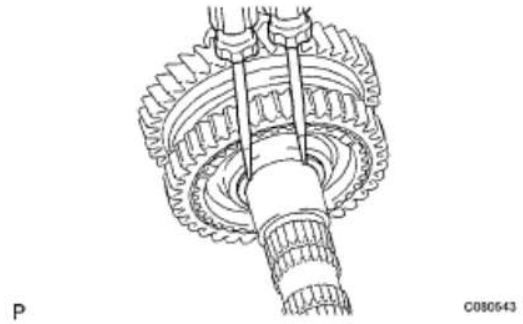


Fig. 245: Identifying Clutch Hub No. 1 Shaft Snap Ring And Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a press, remove the No. 1 clutch hub assembly and 1st gear from the output shaft.

SST 09950-00020

NOTE:

- **Do not tighten SST excessively.**
- **Support the input shaft by hand to prevent it from dropping off.**

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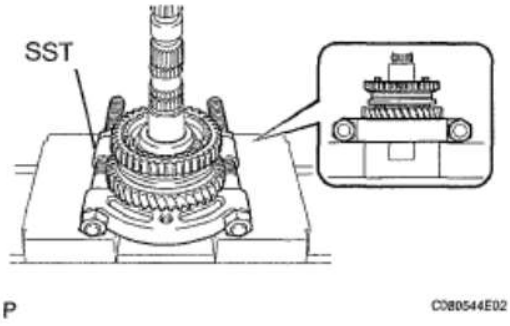


Fig. 246: Identifying No. 1 Clutch Hub Assembly And 1St Gear Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **REMOVE NO. 1 SYNCHRONIZER RING (FOR 1ST GEAR)**
    a. Remove the No. 1 synchronizer ring from the 1st gear.

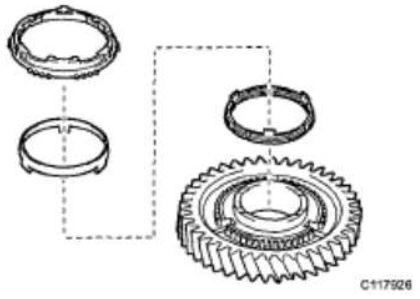


Fig. 247: Identifying No. 1 Synchronizer Ring Of 1St Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **REMOVE 1ST GEAR NEEDLE ROLLER BEARING**
    a. Remove the 1st gear needle roller bearing from the output shaft.

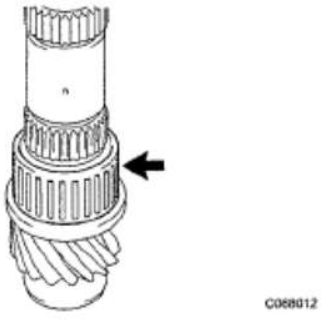


Fig. 248: Locating 1St Gear Needle Roller Bearing Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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13. **REMOVE 1ST GEAR THRUST WASHER**
    a. Remove the 1st gear thrust washer from the output shaft.

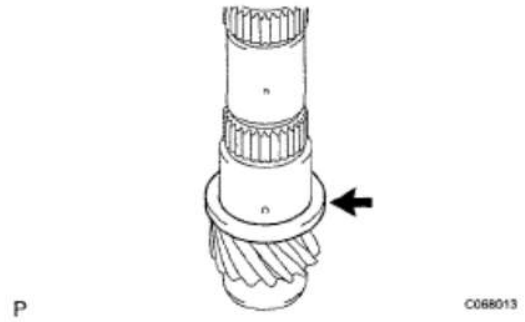


Fig. 249: Locating 1St Gear Thrust Washer Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **REMOVE 1ST GEAR THRUST WASHER PIN OR BALL**
    a. Remove the 1st gear thrust washer pin or ball from the output shaft.

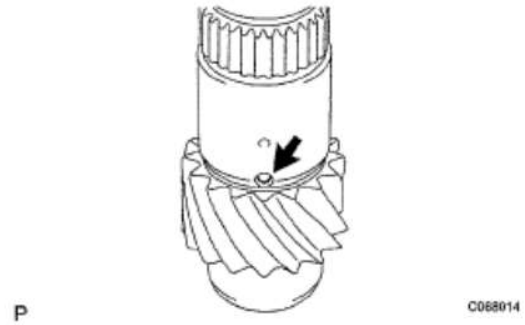


Fig. 250: Locating 1St Gear Thrust Washer Pin Or Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE REVERSE GEAR**
    a. Remove the reverse gear, 3 synchromesh shifting keys and 3 synchromesh shifting key springs from the No. 1 transmission clutch hub.

NOTE: Use a piece of cloth to keep the shifting key and shifting key spring from flying off.

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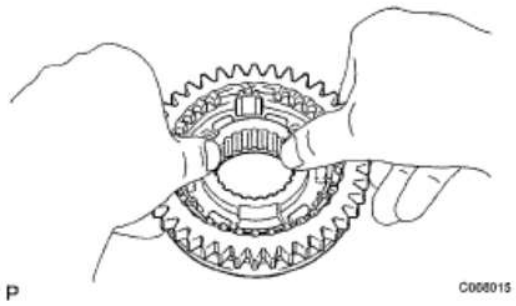


Fig. 251: Removing Reverse Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT OUTPUT SHAFT**
   a. Using a dial gauge and 2 V-blocks, check the output shaft runout.

      Maximum runout:

      0.015 mm (0.0006 in.)

      If the runout exceeds the maximum, replace the output shaft.

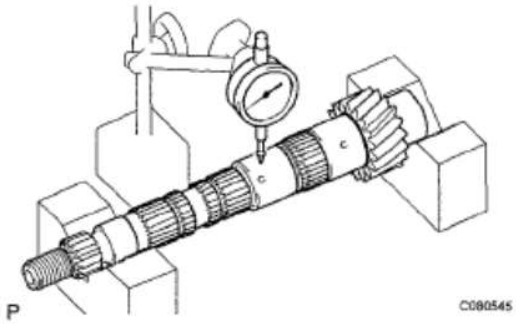


Fig. 252: Checking Output Shaft Runout
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a micrometer, measure the outer diameter of the output shaft journal surface, at the locations indicated.

      Standard outer diameter:

      Part A:

      31.985 to 32.000 mm (1.2592 to 1.2598 in.)

      Part B:

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37.985 to 38.000 mm (1.4955 to 1.4961 in.)

Part C:

32.985 to 33.000 mm (1.2986 to 1.2992 in.)

If either outer diameters are less than the minimums, replace the output shaft.

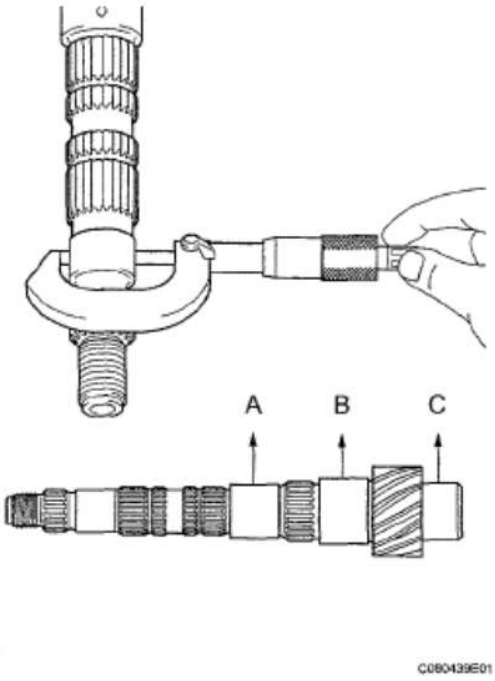


Fig. 253: Measuring Outer Diameter Of Output Shaft Journal Surface
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT 2ND GEAR**
   a. Using a cylinder gauge, measure the inside diameter of the 2nd gear.

Standard inside diameter:

38.015 to 38.031 mm (1.4967 to 1.4972 in.)

Maximum inside diameter:

38.031 mm (1.4972 in.)

If the inside diameter exceeds the maximum, replace the 2nd gear.

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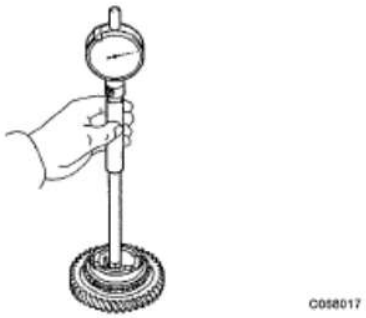


Fig. 254: Measuring Inside Diameter Of 2Nd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT 1ST GEAR**
   a. Using a cylinder gauge, measure the inside diameter of the 1st gear.

   Standard inside diameter:

   44.015 to 44.031 mm (1.7328 to 1.7335 in.)

   Maximum inside diameter:

   44.031 mm (1.7335 in.)

   If the inside diameter exceeds the maximum, replace the 1st gear.

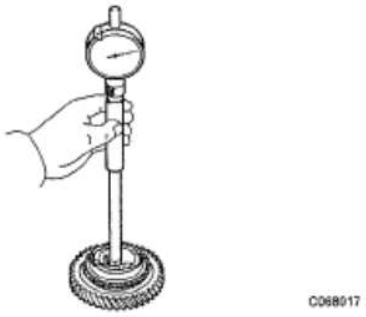


Fig. 255: Measuring Inside Diameter Of 2Nd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSPECT 1ST GEAR THRUST WASHER**
   a. Using a micrometer, measure the 1st gear thrust washer.

   Standard thickness:

   5.975 to 6.025 mm (0.2352 to 0.2372 in.)

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Minimum thickness:

5.975 mm (0.2352 in.)

If the thickness is less than the minimum, replace the 1st gear thrust washer.

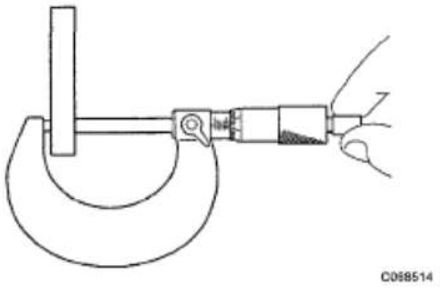


Fig. 256: Measuring 1St Gear Thrust Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSPECT NO. 1 SYNCHRONIZER RING (FOR 2ND GEAR)**
   a. Check the synchronizer ring for wear and damage.

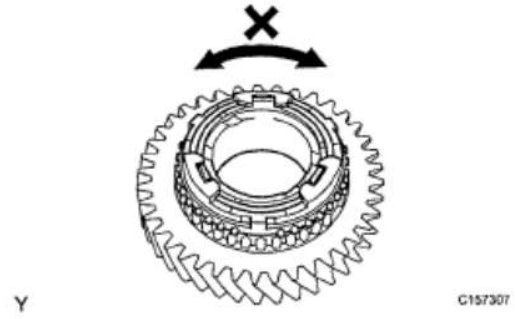


Fig. 257: Checking Synchronizer Ring For Wear And Damage
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the 2nd gear cone with gear oil.
   c. Turn the synchronizer ring in one direction while pushing it against the 2nd gear cone.
   d. Check that the ring locks.

   If the synchronizer ring does not lock, replace the synchronizer ring.

   e. Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.

   Standard clearance:

   0.60 to 1.4 mm (0.0236 to 0.0551 in.)

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Minimum clearance:

0.60 mm (0.0236 in.)

If the clearance is less than the minimum, replace the synchronizer ring.

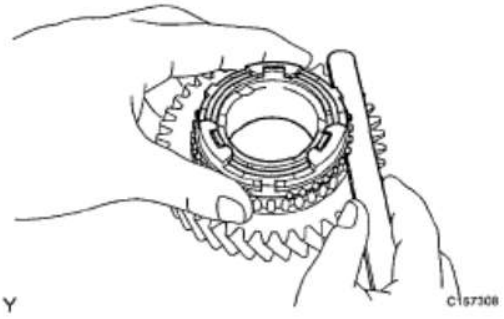


Fig. 258: Measuring Clearance Between Synchronizer Ring Back And Gear Spline End
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSPECT NO. 1 SYNCHRONIZER RING (FOR 1ST GEAR)**
   a. Check the synchronizer ring for wear and damage.

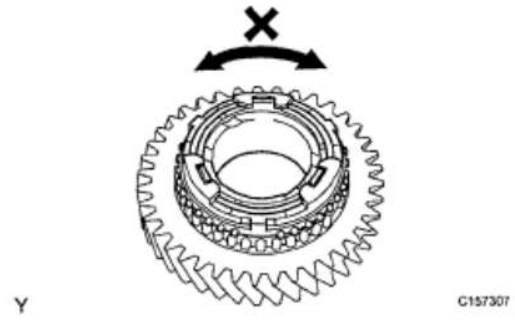


Fig. 259: Checking Synchronizer Ring For Wear And Damage
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the 1st gear cone with gear oil.
   c. Turn the synchronizer ring in one direction while pushing it against the 1st gear cone.
   d. Check that the ring locks.

      If the synchronizer ring does not lock, replace the synchronizer ring.

   e. Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end.

      Standard clearance:

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0.60 to 1.4 mm (0.0236 to 0.0551 in.)

Minimum clearance:

0.60 mm (0.0236 in.)

If the clearance is less than the minimum, replace the synchronizer ring.

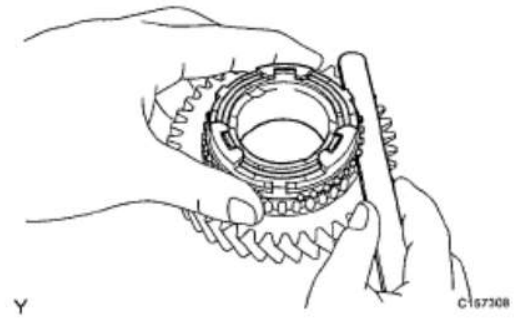


Fig. 260: Measuring Clearance Between Synchronizer Ring Back And Gear Spline End
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSPECT REVERSE GEAR**
   a. Using vernier calipers, measure the width of the reverse gear groove (A) and the thickness of the claw part on the reverse shift fork (B), and calculate the clearance.

   Standard clearance (A - B):

   0.15 to 0.35 mm (0.0059 to 0.0138 in.)

   If the clearance is outside the specifications, replace the reverse gear and reverse shift fork.

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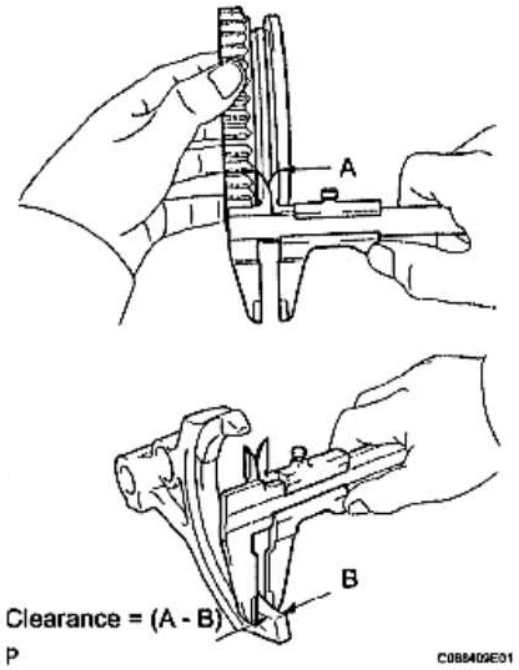


Fig. 261: Measuring Width Of Reverse Gear Groove
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSPECT NO. 1 TRANSMISSION CLUTCH HUB**
   a. Check that the No. 1 transmission clutch hub and the reverse gear slide smoothly.

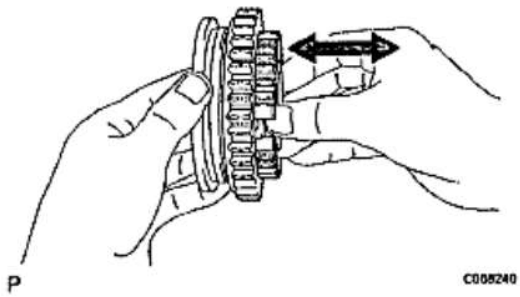


Fig. 262: Checking No. 1 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Check that the edges of the reverse gear spline gear are not worn down.

REASSEMBLY

1. **INSTALL REVERSE GEAR**
   a. Coat the reverse gear with gear oil and install it onto the No. 1 transmission clutch hub.

NOTE: Orient the reverse gear and No. 1 transmission clutch hub correctly.

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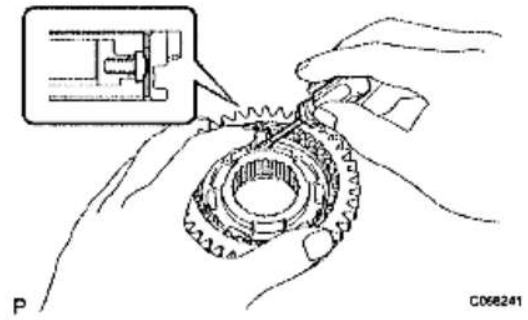


Fig. 263: Coating Reverse Gear With Gear Oil
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the 3 synchromesh shifting key springs and 3 synchromesh keys onto the No. 1 transmission clutch hub.

2. **INSTALL 1ST GEAR THRUST WASHER PIN OR BALL**
   a. Coat the 1st gear thrust washer pin or ball with MP grease, and install it onto the output shaft.

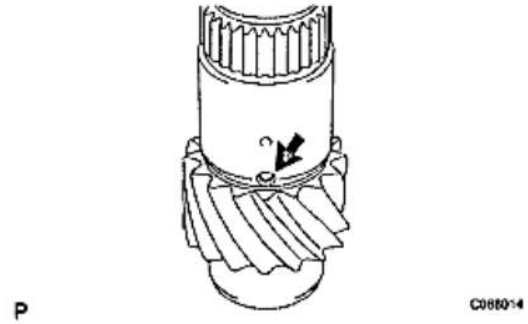


Fig. 264: Locating 1St Gear Thrust Washer Pin Or Ball
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL 1ST GEAR THRUST WASHER**
   a. Coat the 1st gear thrust washer with gear oil and install it onto the output shaft.

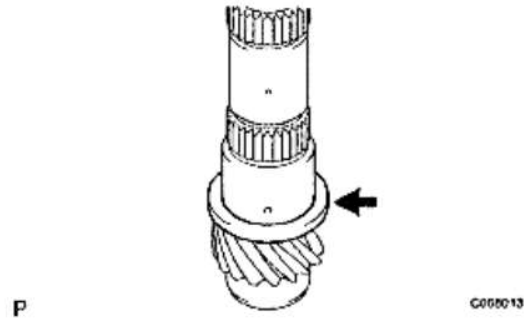


Fig. 265: Locating 1St Gear Thrust Washer Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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4. **INSTALL 1ST GEAR NEEDLE ROLLER BEARING**
   a. Coat the 1st gear needle roller bearing with gear oil and install it onto the output shaft.

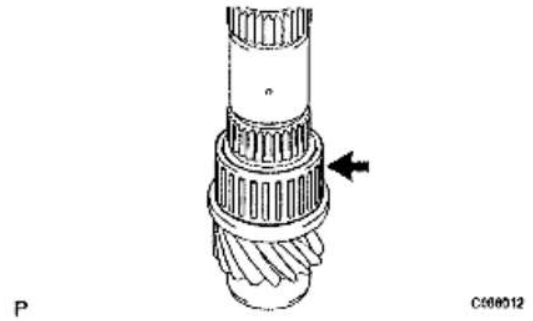


Fig. 266: Locating 1St Gear Needle Roller Bearing Of Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL 1ST GEAR**
   a. Coat the 1st gear with gear oil and install it onto the output shaft.

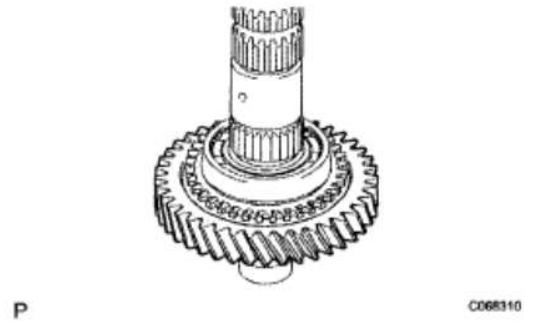
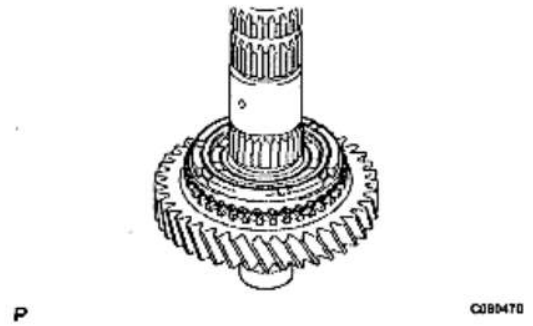


Fig. 267: Identifying 1St Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **INSTALL NO. 1 SYNCHRONIZER RING (FOR 1ST GEAR)**
   a. Coat the No. 1 synchronizer ring with gear oil and install it onto the 1st gear.



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Fig. 268: Identifying No. 1 Synchronizer Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL NO. 1 TRANSMISSION CLUTCH HUB**
   a. Using SST and a press, install the No. 1 transmission clutch hub onto the output shaft.

      SST 09316-60011 (09316-00031)

      HINT:

      - The 1st gear can be turned.
      - While checking that the 1st gear thrust washer pin or ball is inserted into the groove of the 1st gear thrust washer, press and fit the No. 1 clutch hub.

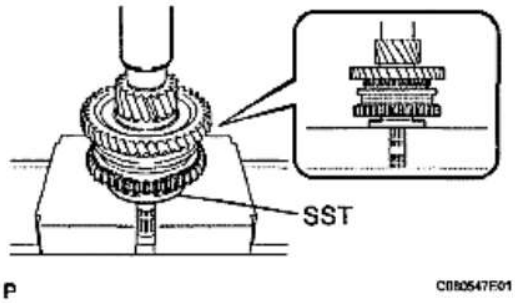


Fig. 269: Installing No. 1 Transmission Clutch Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

      Standard clearance:

      0.1 mm (0.039 in.) or less

      Snap ring thickness

      THICKNESS SPECIFICATIONS

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.50 (0.0984)	D	2.68 (0.1055)
B	2.56(0.1008)	E	2.74(0.1079)
C	2.62(0.1031)	F	2.80(0.1102)

   c. Using a brass bar and a hammer, install the snap ring onto the output shaft.

      NOTE: Do not damage the journal surface of the output shaft.

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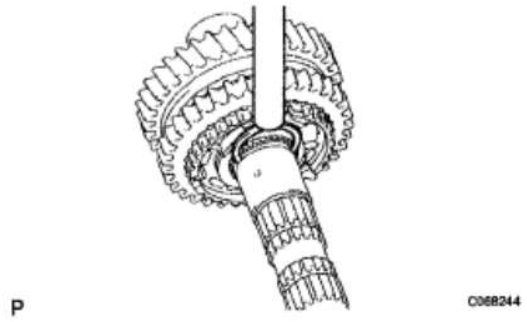


Fig. 270: Identifying Transmission Clutch Hub Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL 2ND GEAR NEEDLE ROLLER BEARING**
   a. Coat the 2nd gear needle roller bearing and 2nd gear bearing spacer with gear oil, and install them onto the output shaft.

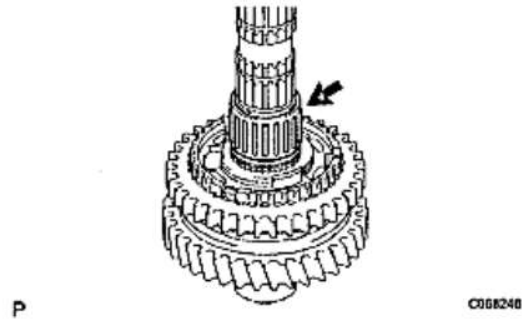


Fig. 271: Locating 2Nd Gear Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **INSTALL NO. 1 SYNCHRONIZER RING (FOR 2ND GEAR)**
   a. Coat the No. 1 synchronizer ring with gear oil and install it onto the 2nd gear.

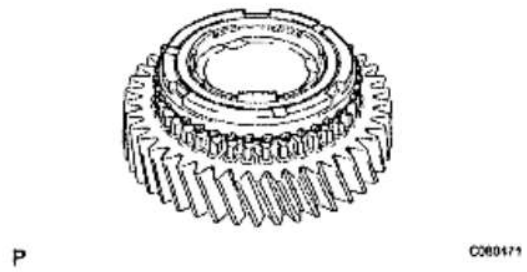


Fig. 272: Identifying No. 1 Synchronizer Ring And 2Nd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **INSTALL 2ND GEAR**

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a. Coat the 2nd gear with gear oil and install it onto the output shaft.

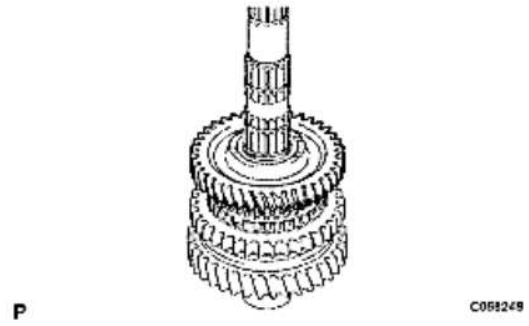


Fig. 273: Identifying 2Nd Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. **INSTALL 3RD DRIVEN GEAR**
    a. Using SST and a press, install the 3rd driven gear onto the output shaft.

    SST 09316-60011 (09316-00031)

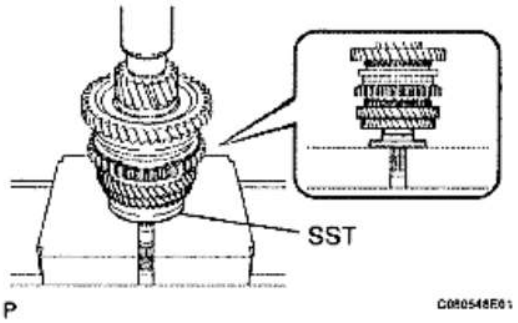
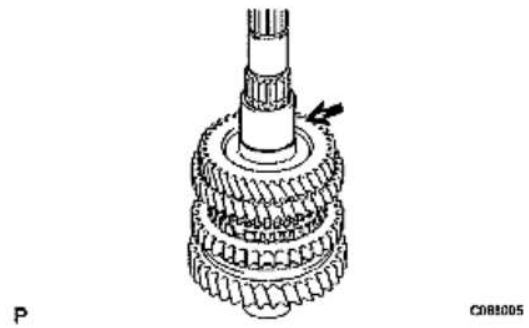


Fig. 274: Identifying 3Rd Driven Gear Onto Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSTALL OUTPUT GEAR SPACER**
    a. Install the output gear spacer onto the output shaft.



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Fig. 275: Locating Output Gear Spacer And Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **INSTALL 4TH DRIVEN GEAR**
    a. Using SST and a press, install the 4th driven gear onto the output shaft.

    SST 09612-22011

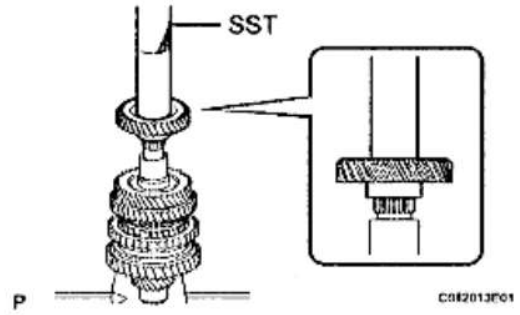


Fig. 276: Identifying 4Th Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **INSTALL OUTPUT SHAFT REAR BEARING**
    a. Using SST and a press, install the output shaft rear bearing onto the output shaft.

    SST 09612-22011

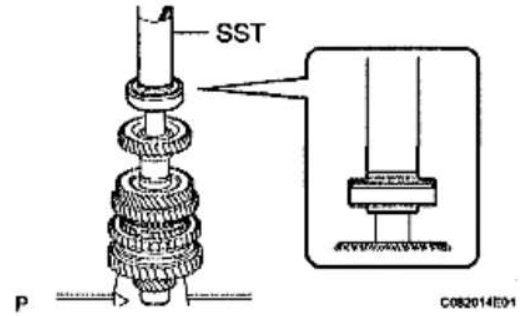


Fig. 277: Installing Output Shaft Rear Bearing Onto Output Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **INSPECT 2ND GEAR RADIAL CLEARANCE**
    a. Using a dial gauge, measure the 2nd gear radial clearance between the gear and shaft.

    Standard clearance: KOYO made:

    0.015 to 0.058 mm (0.0006 to 0.0023 in.)

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NSK made:

0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance:

KOYO made:

0.058 mm (0.0023 in.)

NSK made:

0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the 2nd gear or 2nd gear needle roller bearing.

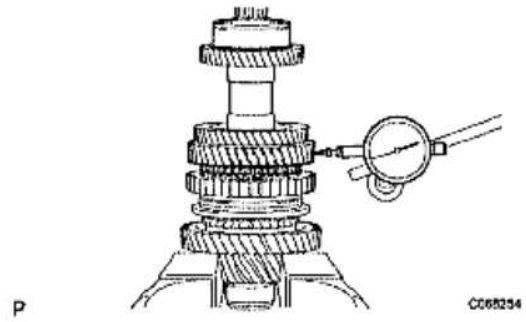


Fig. 278: Identifying 2Nd Gear Radial Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **INSPECT 1ST GEAR RADIAL CLEARANCE**
    a. Using a dial gauge, measure the 1st gear radial clearance between the gear and shaft.

Standard clearance:

KOYO made:

0.015 to 0.058 mm (0.0006 to 0.0023 in.)

NSK made:

0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance:

KOYO made:

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0.058 mm (0.0023 in.)

NSK made:

0.056 mm (0.0022 in.)

If the clearance exceeds the maximum, replace the 1st gear or 1st gear needle roller bearing.

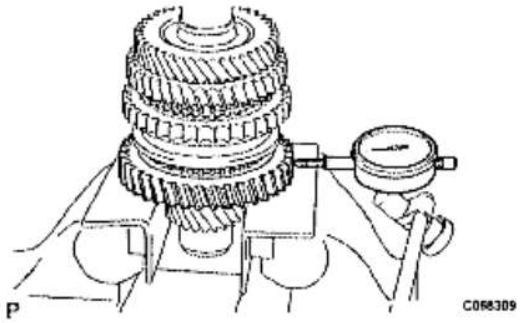


Fig. 279: Measuring 1St Gear Radial Clearance Between Gear And Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **INSPECT 2ND GEAR THRUST CLEARANCE**
    a. Using a dial gauge, measure the 2nd gear thrust clearance.

Standard clearance:

0.10 to 0.55 mm (0.0039 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 1 transmission clutch hub, 2nd gear or 3rd driven gear.

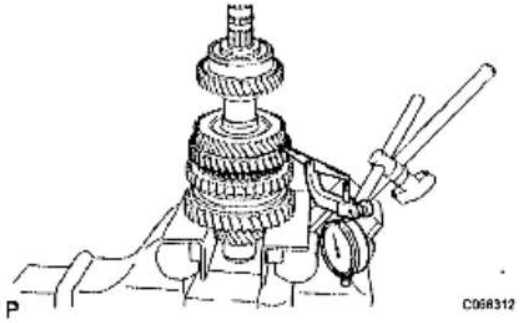


Fig. 280: Measuring 2Nd Gear Thrust Clearance

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18. **INSPECT 1ST GEAR THRUST CLEARANCE**
    a. Using a feeler gauge, measure the 1st gear thrust clearance.

    Standard clearance:

    0.10 to 0.40 mm (0.0039 to 0.0157 in.)

    Maximum clearance:

    0.40 mm (0.0157 in.)

    If the clearance exceeds the maximum, replace the 1st gear thrust washer, 1st gear or No. 1 transmission clutch hub.

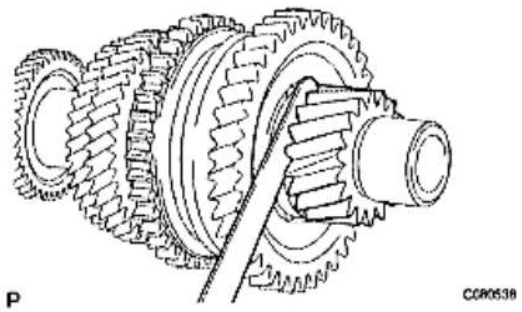


Fig. 281: Measuring 1St Gear Thrust Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

SHIFT AND SELECT LEVER SHAFT

COMPONENTS

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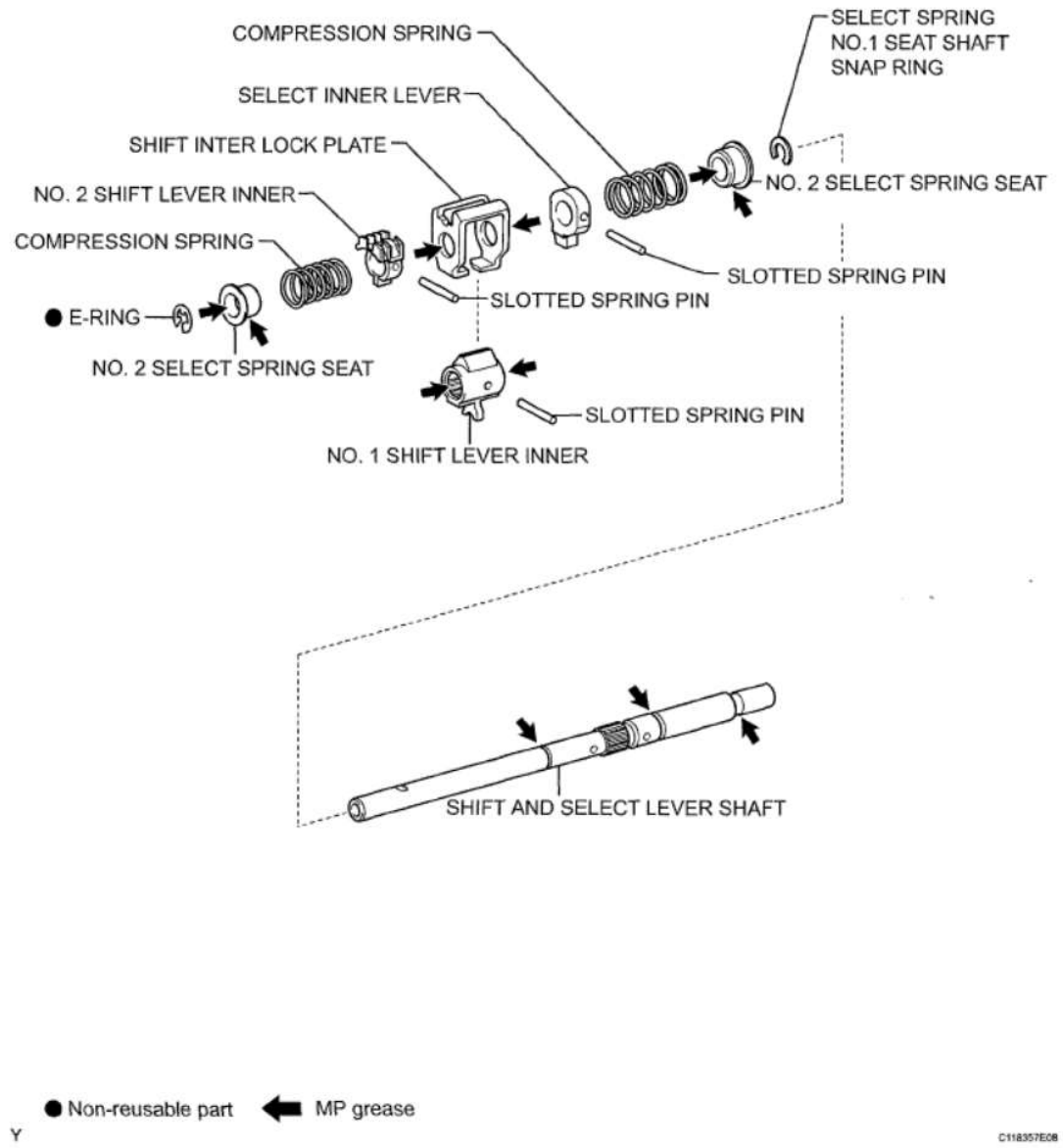


Fig. 282: Identifying Shift And Select Lever Shaft Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. **REMOVE NO. 2 SELECT SPRING SEAT**
   a. Using a screwdriver, remove the select spring No. 2 seat E-ring, No. 2 select spring seat and No. 2 select return compression spring from the shift and select lever shaft.

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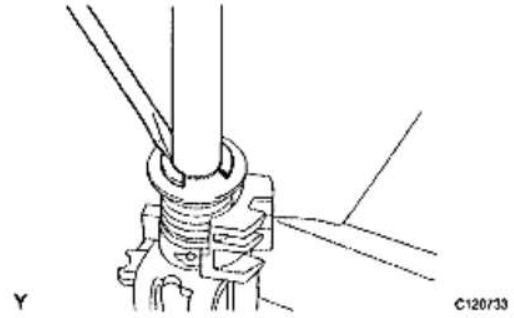


Fig. 283: Identifying No. 2 Select Spring Seat
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE NO. 2 SHIFT LEVER INNER**
   a. Using a pin punch (5 mm) and a hammer, remove the shift inner lever slotted spring pin and No. 2 shift lever inner from the shift and select lever shaft.

      HINT:

      Check the orientation of the No. 2 shift lever inner.

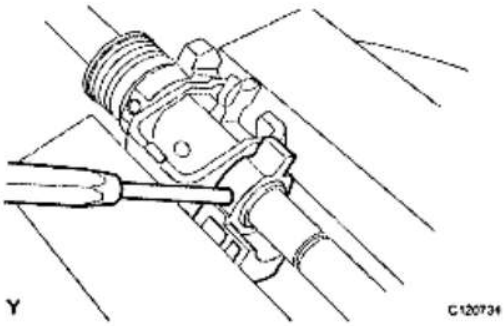


Fig. 284: Identifying No. 2 Shift Lever Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE NO. 1 SHIFT LEVER INNER**
   a. Using a pin punch (5 mm) and a hammer, remove the shift inner lever slotted spring pin, No. 1 shift lever inner and shift inter lock plate from the shift and select lever shaft.

      HINT:

      Check the orientation of the No. 1 shift lever inner.

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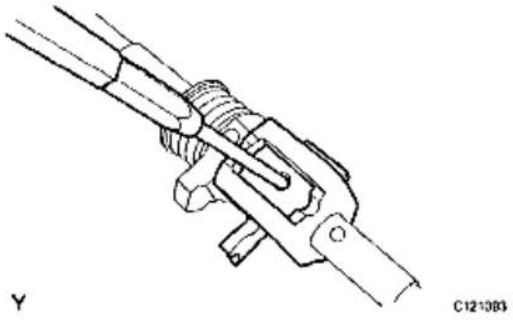


Fig. 285: Identifying No. 1 Shift Lever Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE SELECT INNER LEVER**
   a. Using a pin punch (5 mm) and a hammer, remove the select inner lever slotted spring pin, select inner lever, No. 1 select return compression spring and No. 1 select spring seat from the shift and select lever shaft.

      HINT:

      Check the orientation of the select inner lever.

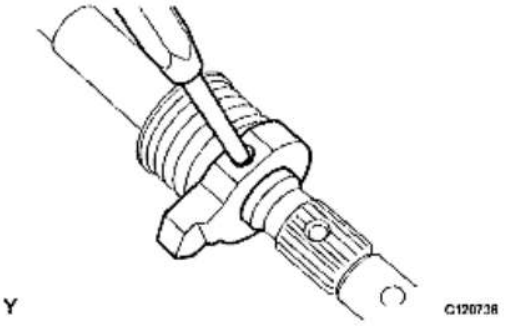


Fig. 286: Removing Select Inner Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SELECT SPRING NO.1 SEAT SHAFT SNAP RING**
   a. Using 2 screwdrivers and a hammer, remove the select spring No. 1 seat shaft snap ring.

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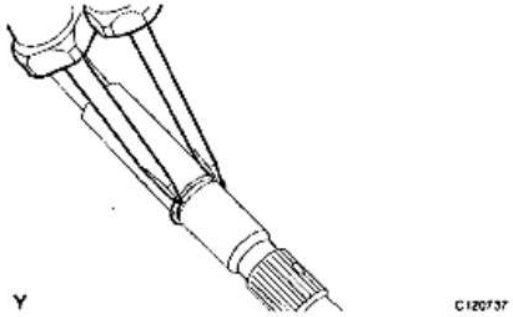


Fig. 287: Identifying Spring No. 1 Seat Shaft Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REASSEMBLY

1. **INSTALL SELECT SPRING N0.1 SEAT SHAFT SNAP RING**
   a. Coat the shift and select lever shaft with MP grease, and install a snap ring onto the shift and select lever shaft using a brass bar and a hammer.

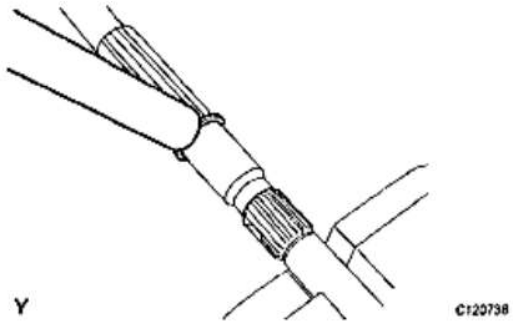


Fig. 288: Identifying Shift And Select Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL SELECT INNER LEVER**
   a. Coat the No. 1 select spring seat with MP grease.
   b. Using a pin punch (ø5 mm) and a hammer, install the No. 1 select spring seat, No. 1 select return compression spring, select inner lever and select inner lever slotted spring pin onto the shift and select lever.

   Drive in depth:

   3.0 to 4.0 mm (0.1181 to 0.1575 in)

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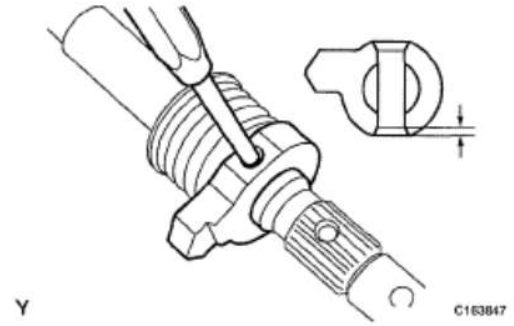


Fig. 289: Installing Select Inner Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSTALL NO. 1 SHIFT LEVER INNER**
   a. Coat the shift inter lock plate and No. 1 shift lever inner with MP grease.
   b. Using a pin punch (ø5 mm) and a hammer, install the shift inter lock plate, No. 1 shift lever inner and shift inner lever slotted spring pin onto the shift and select lever shaft.

      Drive in depth:

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

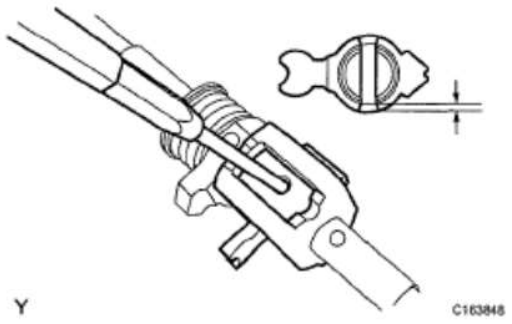


Fig. 290: Installing No. 1 Shift Lever Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL NO. 2 SHIFT LEVER INNER**
   a. Coat the No. 2 shift lever inner with MP grease.
   b. Using a pin punch (ø5 mm) and a hammer, install the No. 2 shift lever inner and shift inner lever slotted spring pin onto the shift and select lever shaft.

      Drive in depth:

      1.0 to 2.0 mm (0.0394 to 0.0787 in.)

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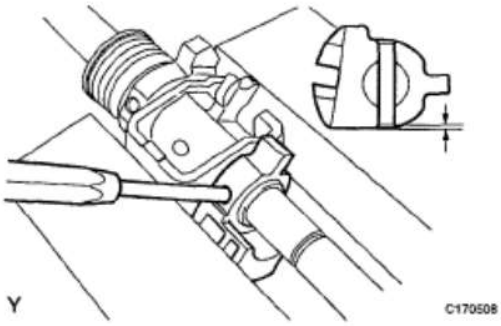


Fig. 291: Installing No. 2 Shift Lever Inner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL NO. 2 SELECT SPRING SEAT**
   a. Coat the No. 2 select spring seat with MP grease.

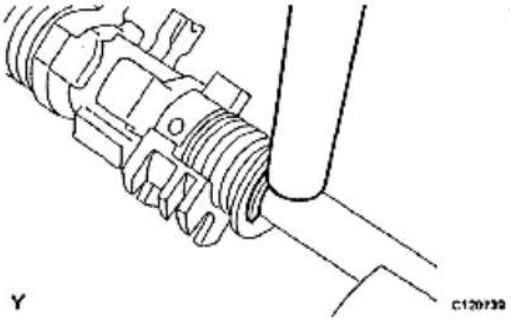


Fig. 292: Identifying No. 2 Select Spring Seat
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the No. 2 select spring seat and No. 2 select return compression spring. Using pliers, install a new select spring seat No. 2 E-ring onto the shift and select lever shaft.

DIFFERENTIAL CASE

COMPONENTS

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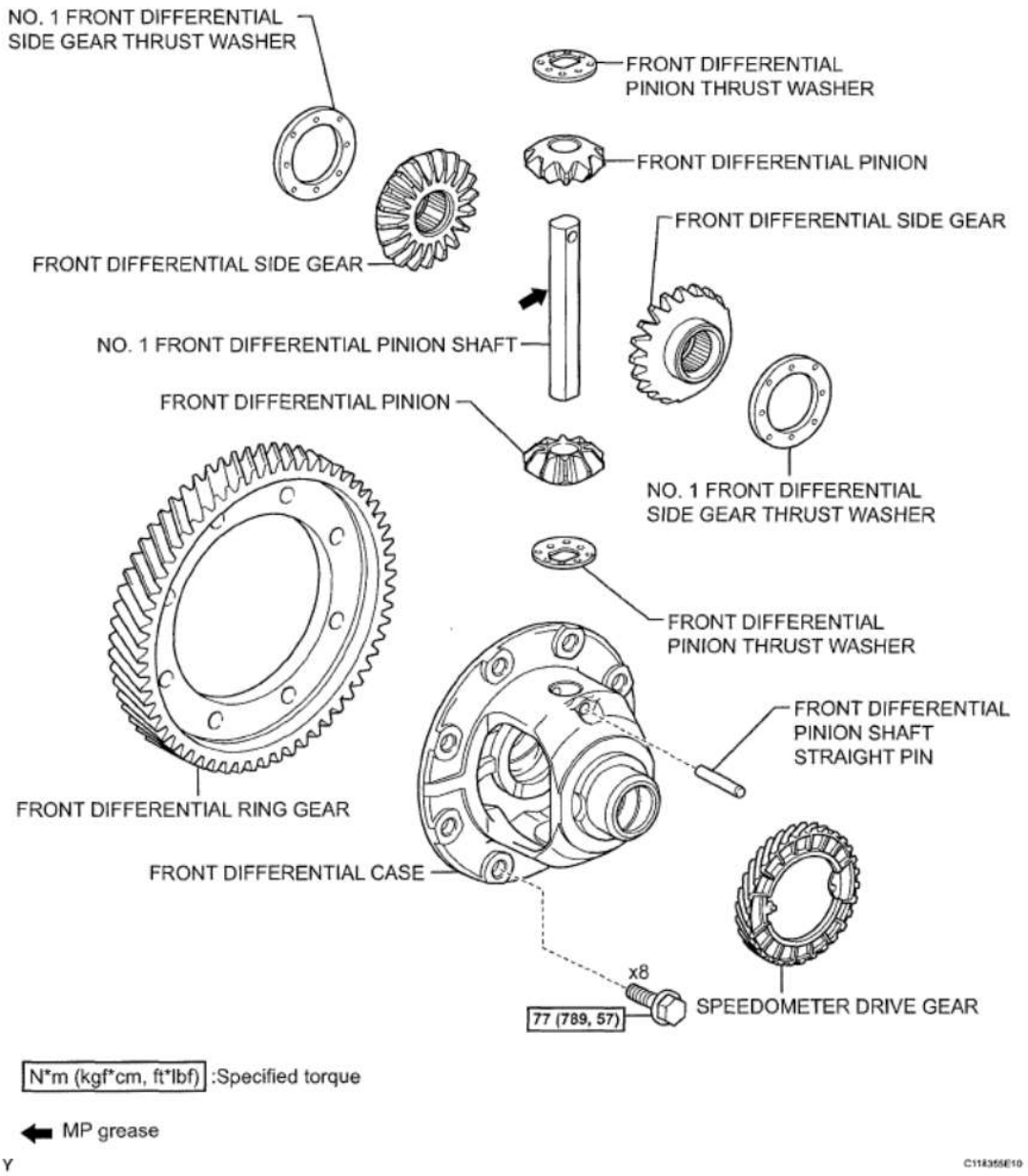


Fig. 293: Identifying Differential Case Components With Torque Specification
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

1. **REMOVE SPEEDOMETER DRIVE GEAR**
   a. Remove the speedometer drive gear from the front differential case.

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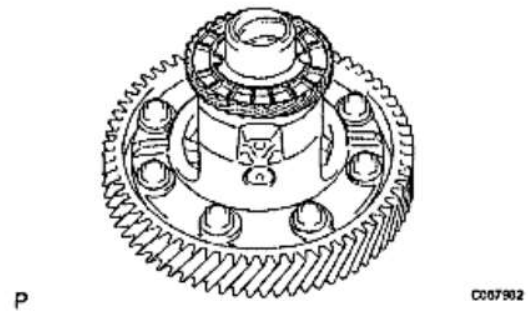


Fig. 294: Identifying Speedometer Drive Gear And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FRONT DIFFERENTIAL RING GEAR**
   a. Place matchmarks on the front differential ring gear and the front differential case.

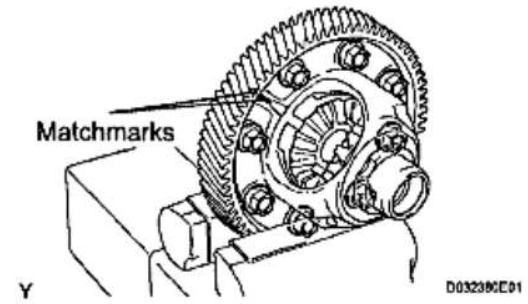


Fig. 295: Identifying Matchmarks On Front Differential Ring Gear And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the 8 bolts.
   c. Using a plastic hammer, remove the front differential ring gear from the front differential case.

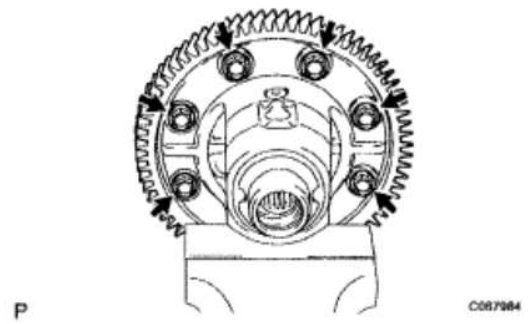


Fig. 296: Locating Front Differential Ring Gear And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT FRONT DIFFERENTIAL SIDE GEAR BACKLASH**

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a. Fix the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

Standard backlash:

0.05 to 0.20 mm (0.0020 to 0.0079 in.)

If the backlash is outside the specifications, replace the side gear thrust washers.

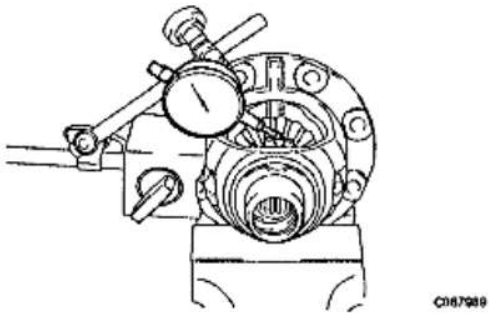


Fig. 297: Measuring Front Differential Side Gear Backlash
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**

a. Using a chisel and a hammer, loosen the staked part of the front differential case.

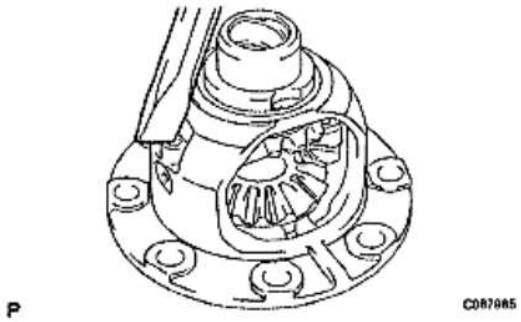


Fig. 298: Identifying Front Differential Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a pin punch (ø3 mm) and a hammer, remove the front differential pinion shaft straight pin from the front differential case.

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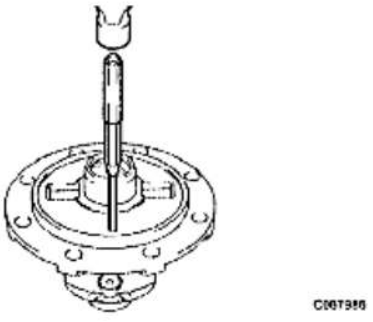


Fig. 299: Removing Front Differential Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE NO. 1 FRONT DIFFERENTIAL PINION SHAFT**
   a. Remove the No. 1 front differential pinion shaft from the front differential case.

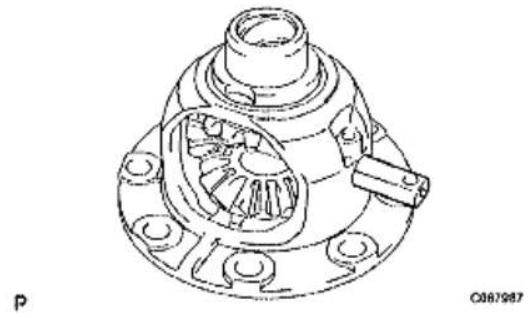


Fig. 300: Identifying No. 1 Front Differential Pinion Shaft And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FRONT DIFFERENTIAL SIDE GEAR**
   a. Remove the 2 front differential pinions, 2 front differential pinion thrust washers, 2 No. 1 front differential side gear thrust washers and 2 front differential side gears from the front differential case.

   HINT:

   Revolving the front differential pinion, remove the 2 pinions and 2 side gears.

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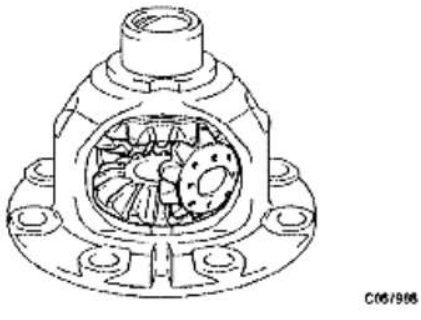


Fig. 301: Identifying Front Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. **INSPECT FRONT DIFFERENTIAL PINION THRUST WASHER**
   a. Using a micrometer, measure the thickness of the front differential pinion thrust washer.

      Minimum thickness:

      0.92 mm (0.0362 in.)

      If the thickness is less than the minimum, replace the front differential pinion thrust washer.

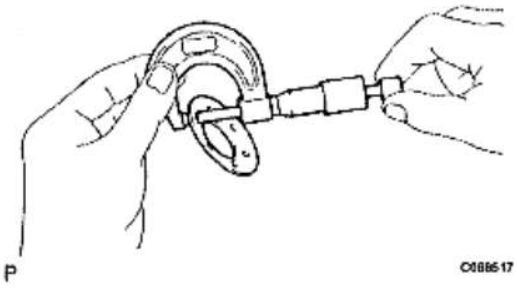


Fig. 302: Measuring Thickness Of Front Differential Pinion Thrust Washer
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSPECT NO. 1 FRONT DIFFERENTIAL PINION SHAFT**
   a. Using a micrometer, measure the outer diameter of No. 1 front differential pinion shaft.

      Minimum outer diameter:

      16.982 mm (0.6685 in.)

      If the outer diameter is less than the minimum, replace the No. 1 front differential pinion shaft.

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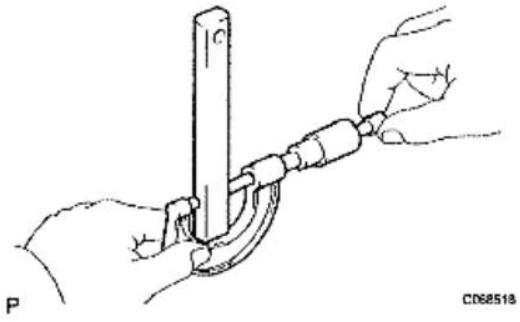


Fig. 303: Measuring Outer Diameter Of No. 1 Front Differential Pinion Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REASSEMBLY

1. **INSTALL FRONT DIFFERENTIAL SIDE GEAR**
   a. Coat the sliding and rotating surfaces of the front differential side gear with gear oil.

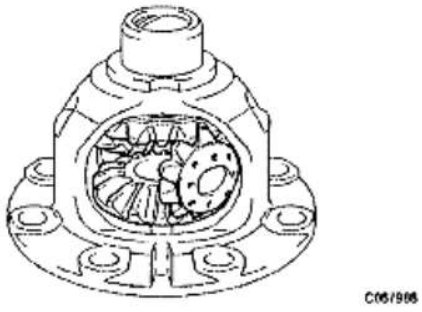


Fig. 304: Identifying Front Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the 2 No. 1 front differential side gear thrust washers onto the 2 front differential side gears.
   c. Install the 2 front differential side gears, 2 front differential pinions and 2 front differential pinion thrust washers onto the front differential case.

   HINT:

   Revolving the front differential side gear, install the 2 front differential pinions and 2 front differential pinion thrust washers.

2. **INSTALL NO. 1 FRONT DIFFERENTIAL PINION SHAFT**
   a. Coat the No. 1 front differential pinion shaft with MP grease.
   b. Install the No. 1 front differential pinion shaft onto the front differential case so that the hole for the front differential pinion shaft straight pin is aligned with the hole in the front differential case.

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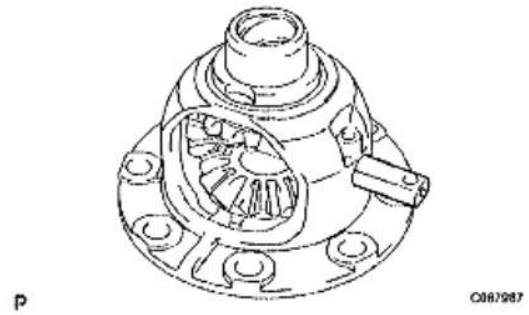


Fig. 305: Identifying No. 1 Front Differential Pinion Shaft And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **ADJUST FRONT DIFFERENTIAL SIDE GEAR BACKLASH**
   a. Fix the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

   Standard backlash:

   0.05 to 0.20 mm (0.0020 to 0.0079 in.)

   If the backlash is outside the specifications, replace the side gear thrust washer.

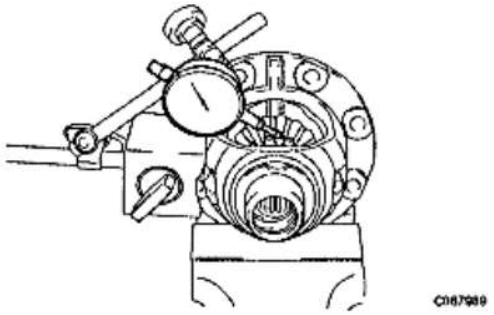


Fig. 306: Measuring Front Differential Side Gear Backlash
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Thrust washer thickness

THICKNESS SPECIFICATIONS

Parts No.	Thickness mm (in.)
41361 - 22140	0.95 (0.0374 in.)
41361 - 22020	1.00 (0.0394 in.)
41361 - 22150	1.05 (0.0413 in.)
41361 - 22030	1.10 (0.0433 in.)
41361 - 22160	1.15 (0.0452 in.)

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41361 - 22040	1.20 (0.0472 in.)

HINT:

- Because the thrust washer does not have any marks for distinction, measure the thickness with a micrometer to select a proper thrust washer.
- Select washers of the same thickness for both the right and left.

4. **INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
   a. Using a pin punch (ø3 mm) and a hammer, install the front differential pinion shaft straight pin onto the front differential case.

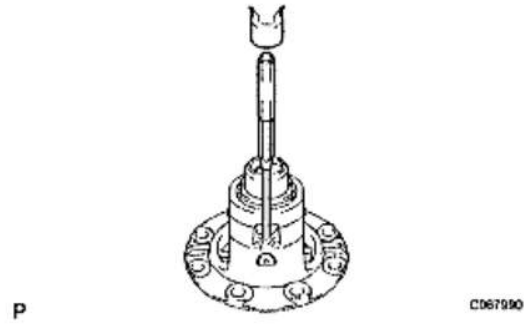


Fig. 307: Identifying Front Differential Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a chisel and a hammer, stake the front differential case hole.

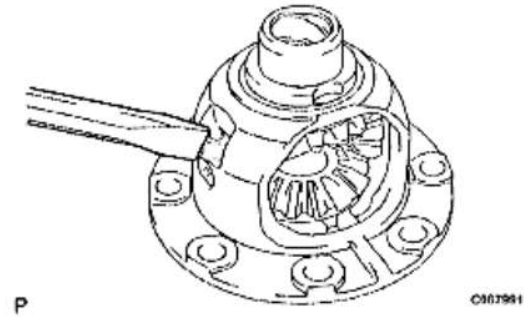


Fig. 308: Identifying Front Differential Case Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL FRONT DIFFERENTIAL RING GEAR**
   a. Clean the contact surfaces of the front differential case and ring gear.
   b. Using a heater, heat the front differential ring gear to 90 to 110°C (194.0 to 230.0°F).

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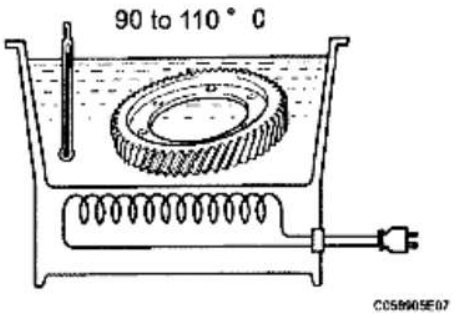


Fig. 309: Heating Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. After the moisture on the ring gear has completely evaporated, quickly install the ring gear onto the differential case.

d. Aligning the 2 matchmarks, quickly install the front differential ring gear onto the front differential case.

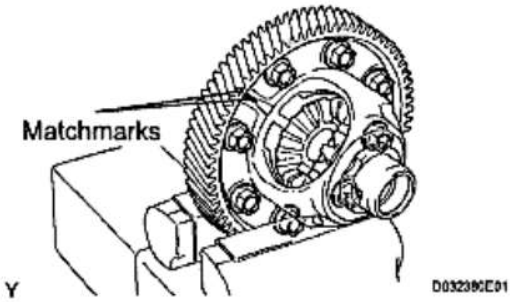


Fig. 310: Identifying Matchmarks On Front Differential Ring Gear And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Install the 8 bolts.

Torque: 77 N*m (789 kgf*cm, 57 ft.*lbf)

6. **INSTALL SPEEDOMETER DRIVE GEAR**

a. Install the speedometer drive gear onto the front differential case.

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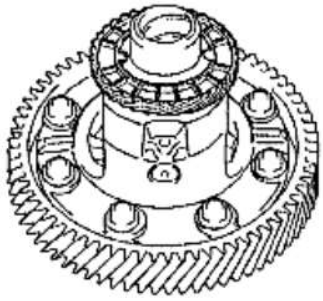


Fig. 311: Identifying Speedometer Drive Gear And Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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