U660E AUTOMATIC TRANSMISSION / TRANSAXLE

SST

SST

	09223-15030	Oil Seal & Bearing Replacer	
	09308-00010	Oil Seal Puller	
	09308-14010	Replacer Pipe A	
	09316-10010	Remover & Replacer	
	09316-60011	Transmission & Transfer Bearing Replacer	
	(09316-00011)	Replacer Pipe	
	09319-60020	Output Shaft Needle Roller Bearing Remover	
	09350-32014	TOYOTA Automatic Transmission Tool Set	
	(09351-32140)	Oil Seal Replacer	
	09387-00060	Second Brake Wrench	
	09387-00070	First & Reverse Brake Wrench	
	09387-00130	Counter Drive Gear Nut Wrench	
	09495-65040	Axle Hub Oil Seal Replacer	
	09527-17011	Rear Axle Shaft Bearing Remover	
	(09951-00810)	Replacer 81	
	09564-33010	Drive Pinion Lock Nut Socket	
	09710-04081	Base	
	09843-18040	Diagnosis Check Wire No. 2	
	09930-00010	Drive Shaft Nut Chisel	
	09950-00020	Bearing Remover	
	09950-00030	Bearing Remover Attachment	
	09950-40011	Puller B Set	
	(09951-04010)	Hanger 150	
	(09952-04010)	Slide Arm	
	(09953-04020)	Center Bolt 150	
	(09954-04010)	Arm 25	
	(09955-04071)	Claw No. 7	
	(09957-04010)	Attachment	
	(09958-04011)	Holder	
	09950-60010	Replacer Set	

	(09951-00220)	Replacer 22	
	(09951-00230)	Replacer 23	
	(09951-00320)	Replacer 32	
	(09951-00400)	Replacer 40	
	(09951-00420)	Replacer 42	
	(09951-00480)	Replacer 48	
	(09951-00530)	Replacer 53	
	(09951-00580)	Replacer 58	
	(09951-00650)	Replacer 65	
	09950-60020	Replacer Set No. 2	
	(09951-00710)	Replacer 71	
	(09951-00810)	Replacer 81	
	(09951-00890)	Replacer 89	
	(09951-01030)	Replacer 103	
	09950-70010	Handle Set	
	(09951-07100)	Handle 100	
	(09951-07150)	Handle 150	
	09951-01100	Replacer 110	
	09992-00095	Automatic Transmission Oil Pressure Gauge Set	
	(09992-00231)	Adaptor C	
	(09992-00271)	Gauge Assy	

RECOMMENDED TOOLS

RECOMMENDED TOOLS

	09010-3C110	Set, Hexagon Socket Wrench	
	(09013-6C110)	Socket Hexagon 6mm	
	09010-3C120	Set, "TORX" Socket Wrench	
	(09013-1C120)	"TORX" Socket Wrench T-type T30	
	09051-1C110	Plastic Hammer	
	09051-1C300	Chisel	
	09051-1C400	Pin Punch 3	
	09080-1C110	Toyota Electrical Tester Set	
	09080-2C100	Test Lead Set	
	09905-00012	Snap Ring No. 1 Expander	
	09905-00013	Snap Ring Pliers	
	(09904-00090)	Claw Set	

EQUIPMENT

EQUIPMENT

Torque wrench	
Dial indicator	
Magnetic base	
Vernier caliper	
Straightedge	
Press	

LUBRICANT

LUBRICANT

Automatic Transaxle Fluid as Reference		
Dry fill	6.5 liters (6.9 US qts, 5.7 Imp. qts)	Toyota Genuine ATF WS

SSM

SSM

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent	
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent	
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent	

AUTOMATIC TRANSAXLE FLUID

ADJUSTMENT

ADJUSTMENT

NOTE: **Precautions and work description**

- **The U660E automatic transaxle does not have an oil filler tube and oil dipstick. When adding fluid, add fluid through the refill hole on the transaxle case. The fluid level can be adjusted by draining excess fluid (allowing excess fluid to overflow) through the No. 1 transmission oil filler tube of the oil pan.**
- **Before adjusting the fluid level, add the specified amount of fluid when the engine is cold and warm up the engine to circulate the fluid in the transaxle. Ensure that the fluid temperature is as specified and the engine is idling.**
- **The U660E automatic transaxle requires Toyota Genuine ATF WS.**
- **The adjustment should be performed according to the procedures and notes.**

HINT:

"Overflow" indicates the condition under which fluid comes out of the overflow plug hole.

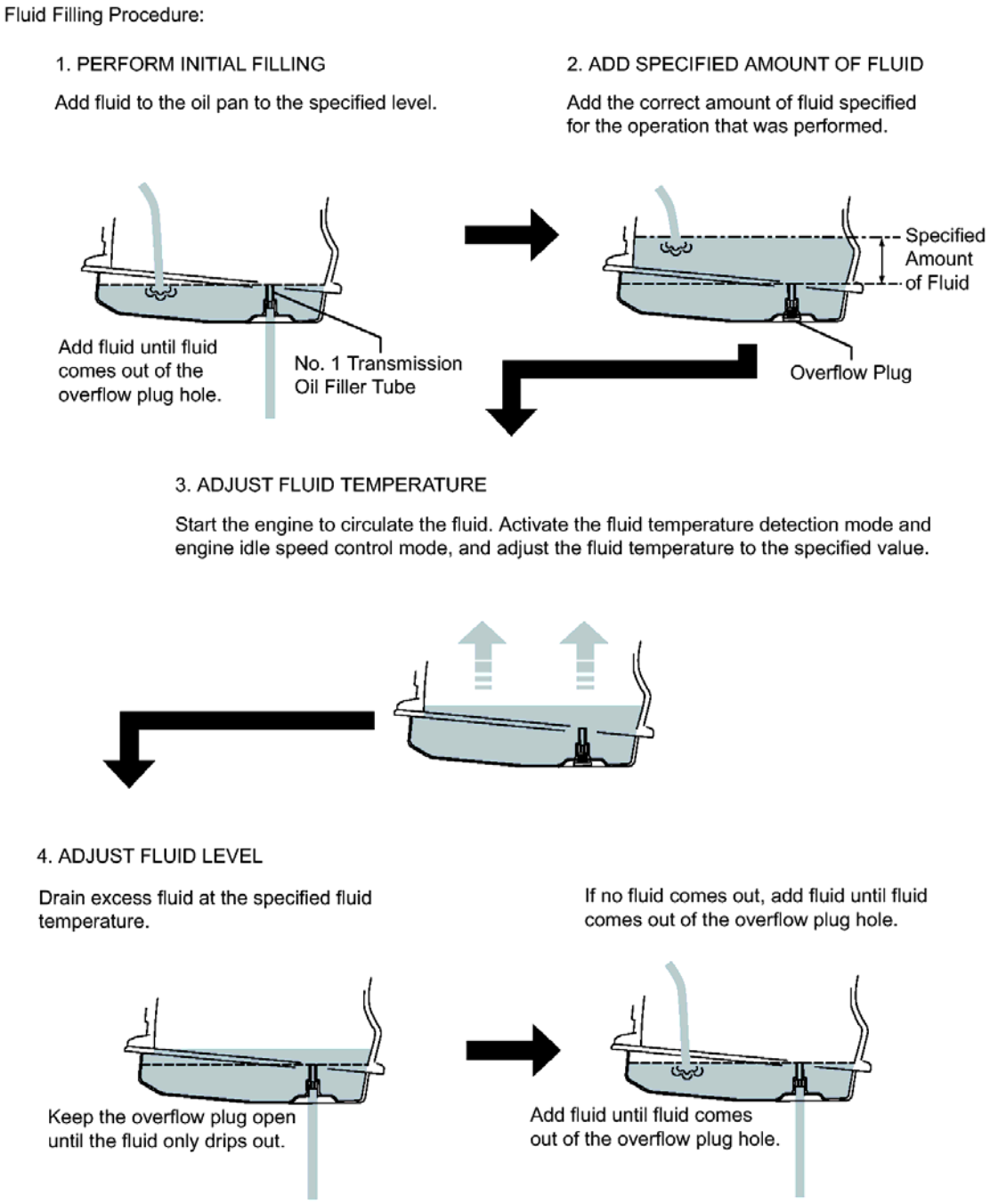


Fig. 1: Automatic Transaxle Fluid Filling Procedure
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

The adjustment should be performed according to the procedures referenced in the work flow below.

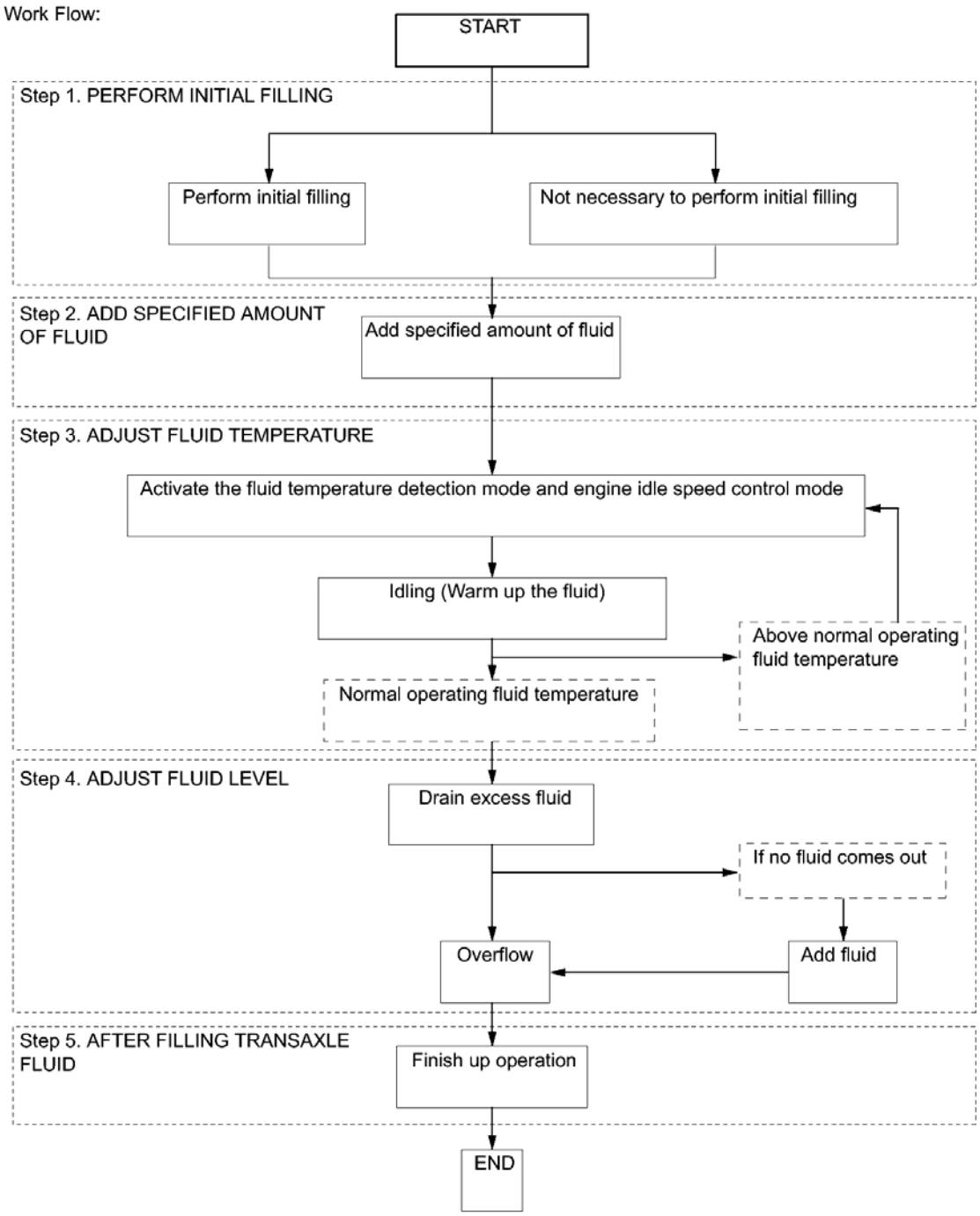


Fig. 2: Automatic Transaxle Fluid Work Flow
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ADJUSTMENT

1. **BEFORE FILLING TRANSAXLE FLUID**

NOTE: **If the transaxle is hot (ATF temperature is high), wait until the fluid**

temperature becomes the same as the ambient temperature before starting the following procedure. (Recommended ATF temperature: around 20°C [68°F])

a. Lift the vehicle.

NOTE: Set the vehicle on a lift so that the vehicle is kept level when it is lifted up.

b. Remove the 2 bolts, clip and front fender apron seal LH.

2. **PERFORM INITIAL FILLING**

NOTE: After performing any of the following operations, it is not necessary to perform the initial filling procedure. Proceed to 3.

Operations That Do Not Require Initial Filling

• Oil cooler tube or oil cooler hose removal/installation
• Repair of oil seeping or oozing

a. Remove the refill plug and gasket from the automatic transaxle.

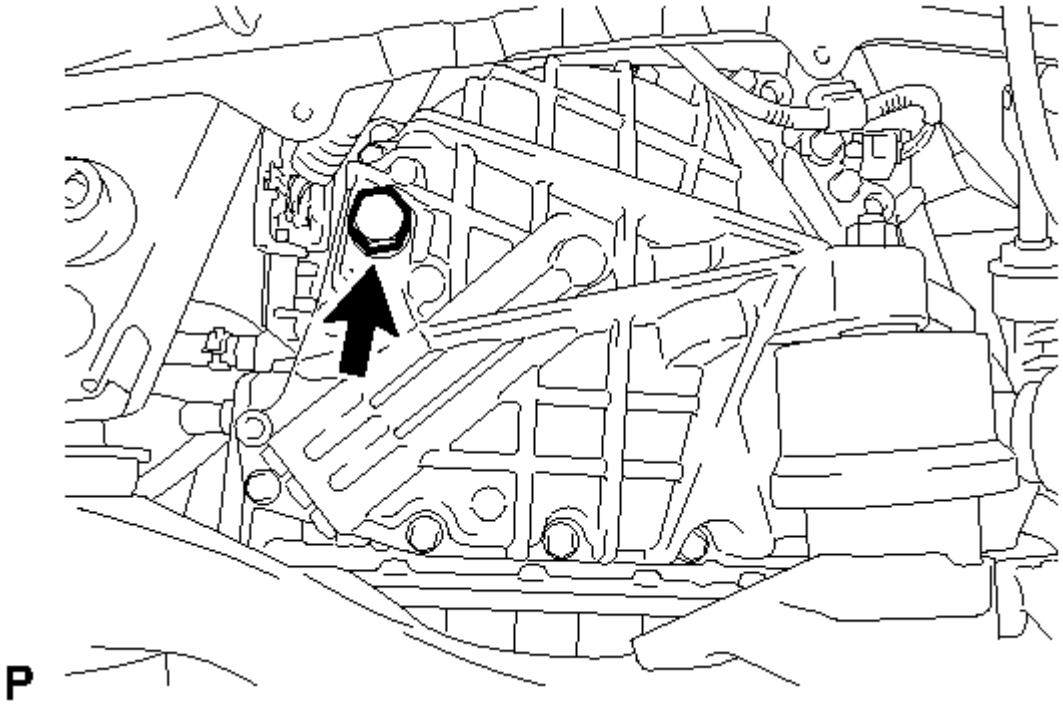


Fig. 3: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket from the automatic transaxle.

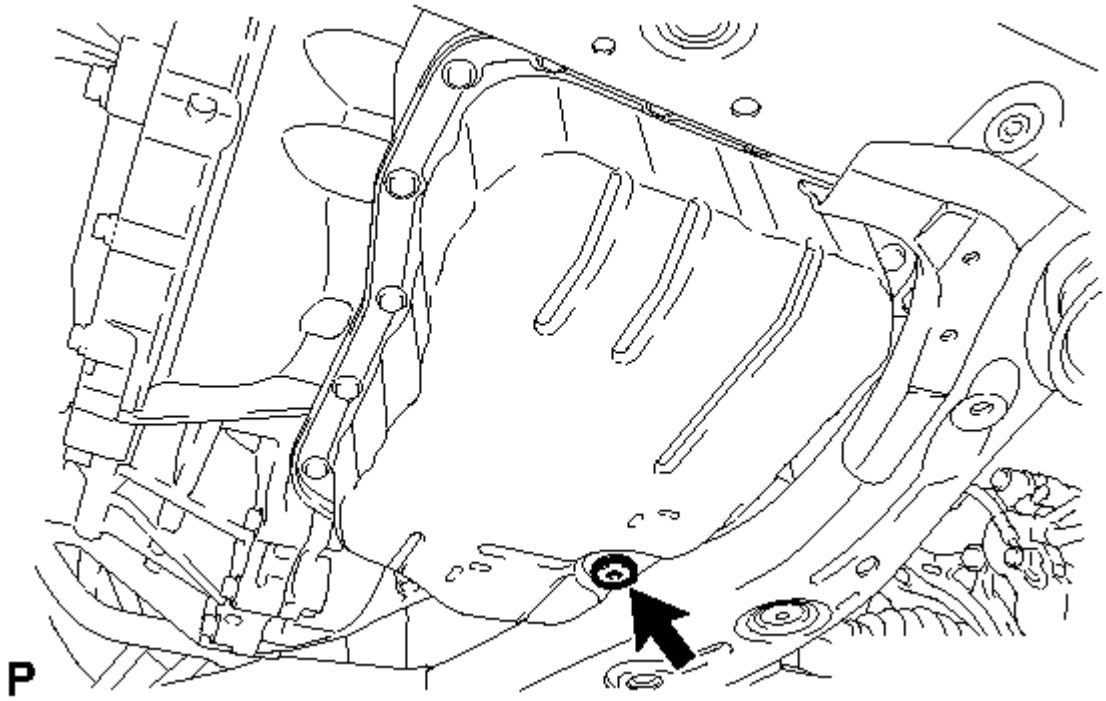


Fig. 4: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If ATF comes out after removing the overflow plug, wait until the fluid flow slows and only drips come out.**
- **If ATF comes out, it is not necessary to perform the initial filling procedure. After checking the tightening torque of the No. 1 transmission oil filler tube, temporarily tighten the overflow plug.**

c. Using a 6 mm hexagon socket wrench, check that the No. 1 transmission oil filler tube is tightened to the specified torque.

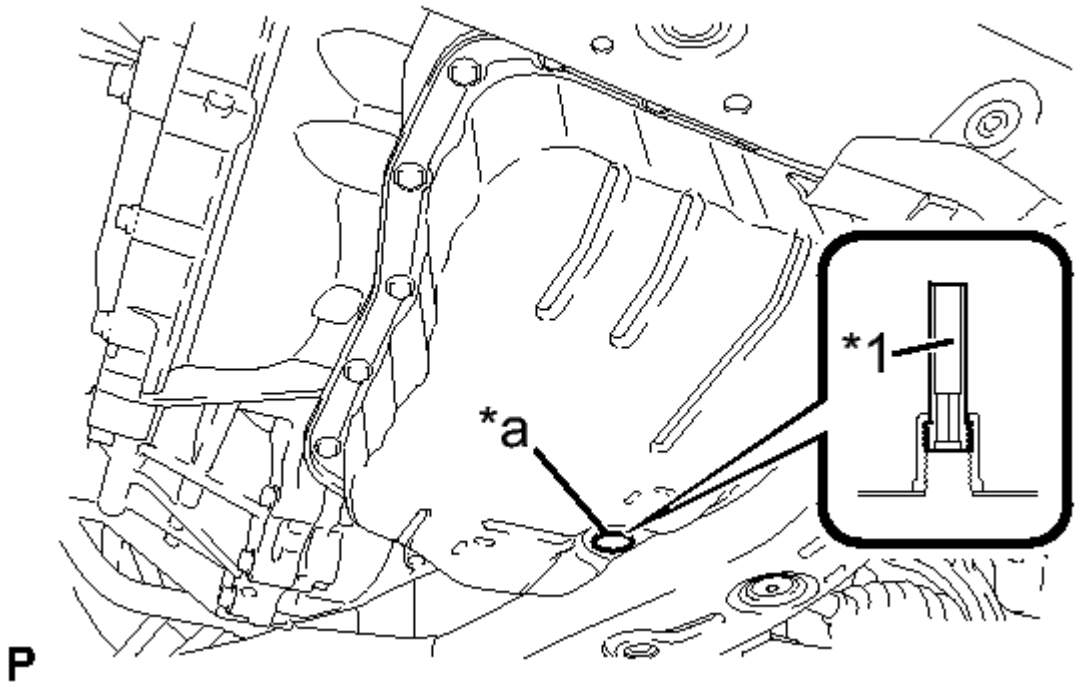


Fig. 5: Identifying No. 1 Transmission Oil Filler Tube & Overflow Plug Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube
*a	Overflow Plug Hole

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

NOTE: If the No. 1 transmission oil filler tube is not tightened to the specified torque, the amount of fluid cannot be precisely adjusted.

HINT:

To check the torque of the No. 1 transmission oil filler tube, insert the 6 mm hexagon socket wrench into the overflow plug hole.

d. Perform initial filling.
    1. Fill the transaxle through the refill hole until fluid begins to trickle out of the overflow plug hole.

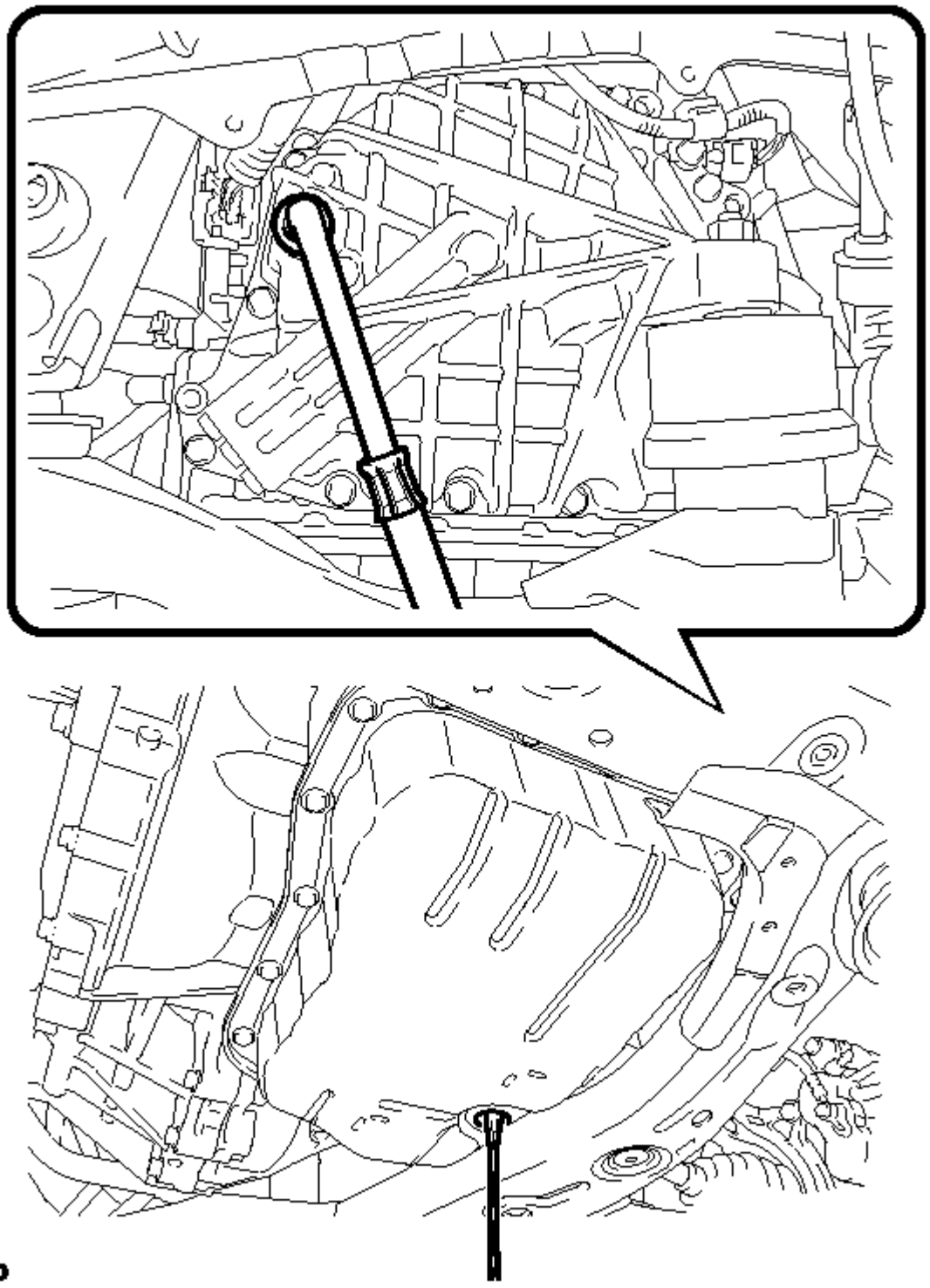


Fig. 6: Identifying Transaxle Fluid Refill & Fluid Trickle At Overflow Plug Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Wait until the fluid flow slows and only drips come out.

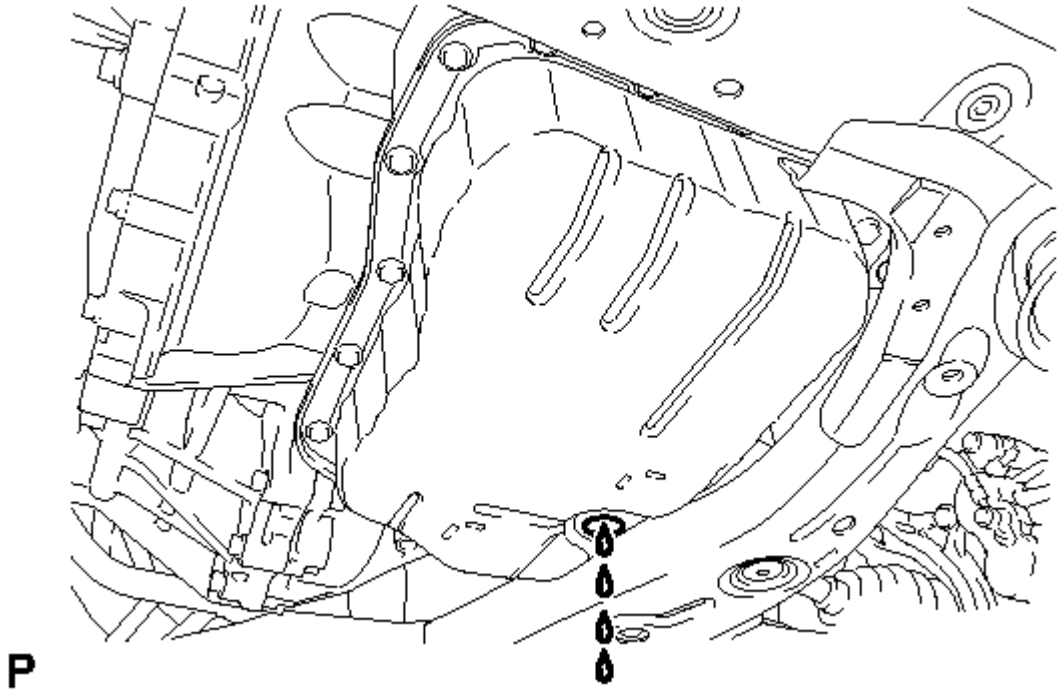


Fig. 7: Identifying Transaxle Fluid Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Using a 6 mm hexagon socket wrench, temporarily install the gasket and the overflow plug.

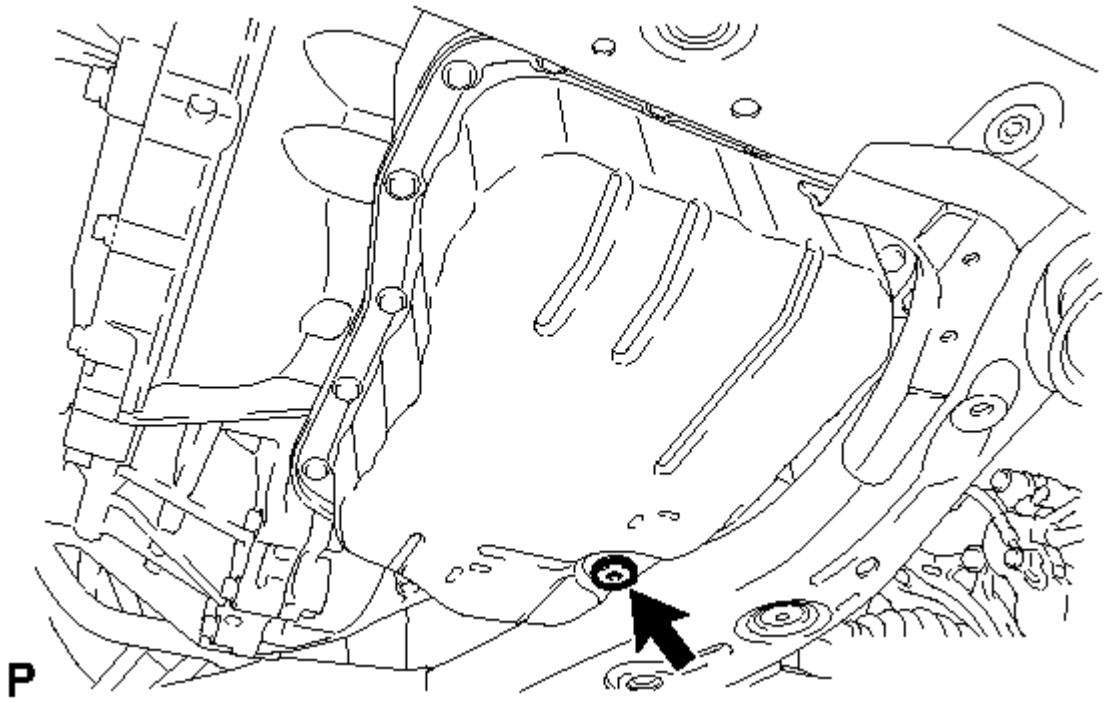


Fig. 8: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The overflow plug will be removed again to adjust the fluid level.

3. **ADD SPECIFIED AMOUNT OF FLUID**
   a. Fill the transaxle with the correct amount of fluid as listed in the table below.

NOTE: Refill amount differs depending on the operation that was performed.

Reference Capacity

Related Procedure	Fill Volume
Transaxle replacement (with a new torque converter)	5.3 liters (5.6 US qts, 4.7 Imp. qts)
Transaxle replacement (when reusing the torque converter)	3.4 liters (3.6 US qts, 3.0 Imp. qts)
Torque converter removal/installation	4.8 liters (5.1 US qts, 4.2 Imp. qts)
Transmission valve body removal/installation	3.2 liters (3.4 US qts, 2.8 Imp. qts)
Oil pan removal/installation	2.8 liters (3.0 US qts, 2.5 Imp. qts)
Drive shaft	2.8 liters (3.0 US

removal/installation	qts, 2.5 Imp. qts)
Transaxle case oil seal removal/installation	2.8 liters (3.0 US qts, 2.5 Imp. qts)
Oil cooler tube or oil cooler hose removal/installation	0.5 liters (0.5 US qts, 0.4 Imp. qts)
Repair of oil seeping or oozing	0.5 liters (0.5 US qts, 0.4 Imp. qts)

b. Temporarily install the refill plug to avoid fluid spillage.

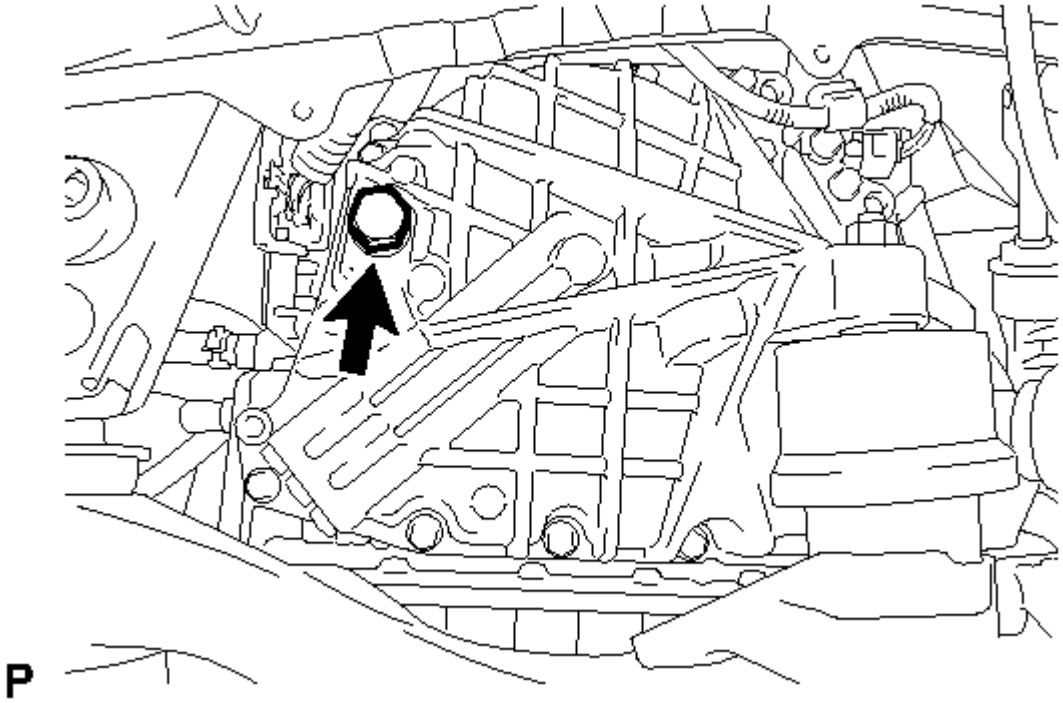


Fig. 9: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The refill plug will be removed again to adjust the fluid level.

c. Lower the vehicle.

4. **ADJUST FLUID TEMPERATURE (for Using the Techstream)**

HINT:

The actual ATF temperature can be checked on the Data List using the Techstream.

a. Connect the Techstream to the DLC3 with the ignition switch off.
b. Turn the ignition switch to ON and turn the Techstream on.

NOTE: **Check that electrical systems such as the air conditioning system, audio system and lighting system are off.**

c. Enter the following menus:

Powertrain / ECT / Active Test / Connect the TC and TE1

d. Select the Active Test menu:

Connect the TC and TE1 / ON

e. Select the Data List menu:

A/T Oil Temperature 1

f. Check the ATF temperature.

NOTE:

- **If the fluid temperature is below 45°C (113°F), proceed to the next step. (Recommended ATF temperature: 40°C [104°F] or less)**
- **If the fluid temperature is 45°C (113°F) or more, turn the ignition switch off and wait until the fluid temperature drops below 45°C (113°F).**

g. Depress and hold the brake pedal.
h. Start the engine.
i. Slowly move the shift lever from P to D, then back to P.

HINT:

Slowly move the shift lever to circulate the fluid through each part of the automatic transaxle.

j. While observing the D shift indicator on the combination meter, move the shift lever back and forth between N and D at an interval of 1.5 seconds for 6 seconds or more.

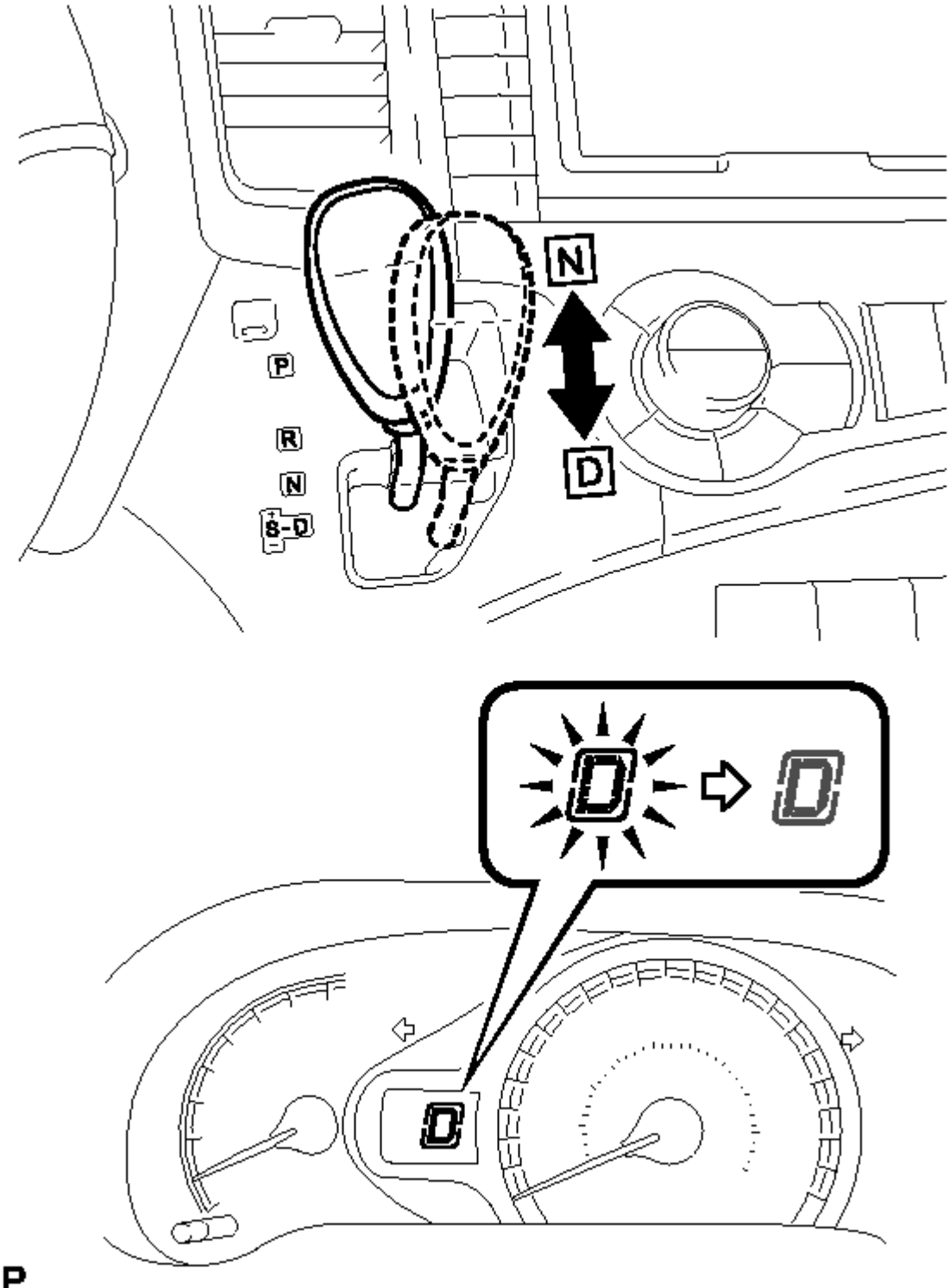


Fig. 10: Identifying D Shift Indicator At Combination Meter While Shifting Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Do not pause for more than 1.5 seconds.**

HINT:

Performing this operation will cause the vehicle to enter the fluid temperature detection mode.

k. Check that the D shift indicator comes on for 2 seconds.

HINT:

- When the fluid temperature detection mode is activated, the D shift indicator on the combination meter comes on for 2 seconds.
- If the D shift indicator does not come on for 2 seconds, return to the step where terminal TC is first connected and perform the procedure again.

l. Move the shift lever from N to P.

m. Release the brake pedal.

n. Select the Active Test menu:

Connect the TC and TE1 / OFF

NOTE: **Be sure that terminals TC and TE1 are not connected. If the terminals are connected, the fluid level cannot be precisely adjusted due to fluctuations in engine speed.**

HINT:

- Disconnecting terminals TC and TE1 activates the engine idle speed control mode.
- In the engine idle speed control mode, engine idle speed control starts when the fluid temperature becomes 35°C (95°F) or more and the engine speed is maintained at approximately 800 RPM.
- Even after terminals TC and TE1 are disconnected, the fluid temperature detection mode is active until the ignition switch off.

o. Warm up the engine with the engine idling until the fluid temperature reaches the normal operating temperature (40 to 45°C [104 to 113°F]).

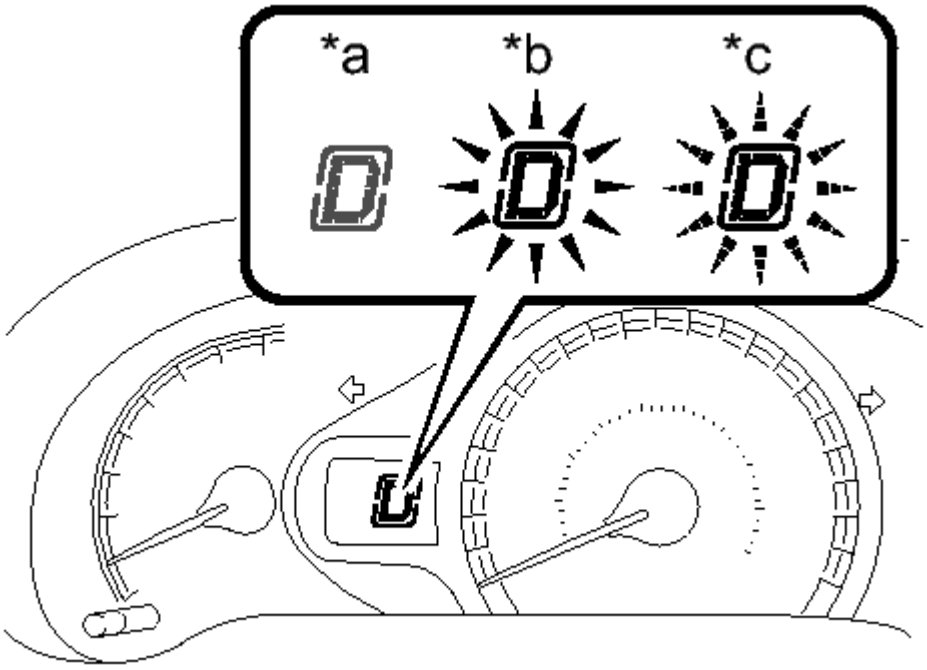


Fig. 11: Identifying Fluid Temperature Detection Mode
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn Off
*b	Turn On
*c	Blinking

Below Normal Operating Temperature	Normal Operating Temperature	Above Normal Operating Temperature
40°C or less (104°F or less)	40 to 45°C (104 to 113° F)	45°C or more (113°F or more)
Shift Indicator [D] Turn off	Shift Indicator [D] Turn on	Shift Indicator [D] Blinking

NOTE:

- **If the fluid temperature is within the normal operating temperature range, immediately proceed to 6.**
- **If the fluid temperature is 45°C (113°F) or more, stop the engine and wait until the fluid temperature drops to 40°C (104°F) or less. Then perform the "Adjust Fluid Temperature" procedure**

again from the beginning.

HINT:

In the fluid temperature detection mode, the D shift indicator comes on, goes off, or blinks depending on the fluid temperature.

5. **ADJUST FLUID TEMPERATURE (for not Using the Techstream)**
   a. Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3 with the ignition switch off.

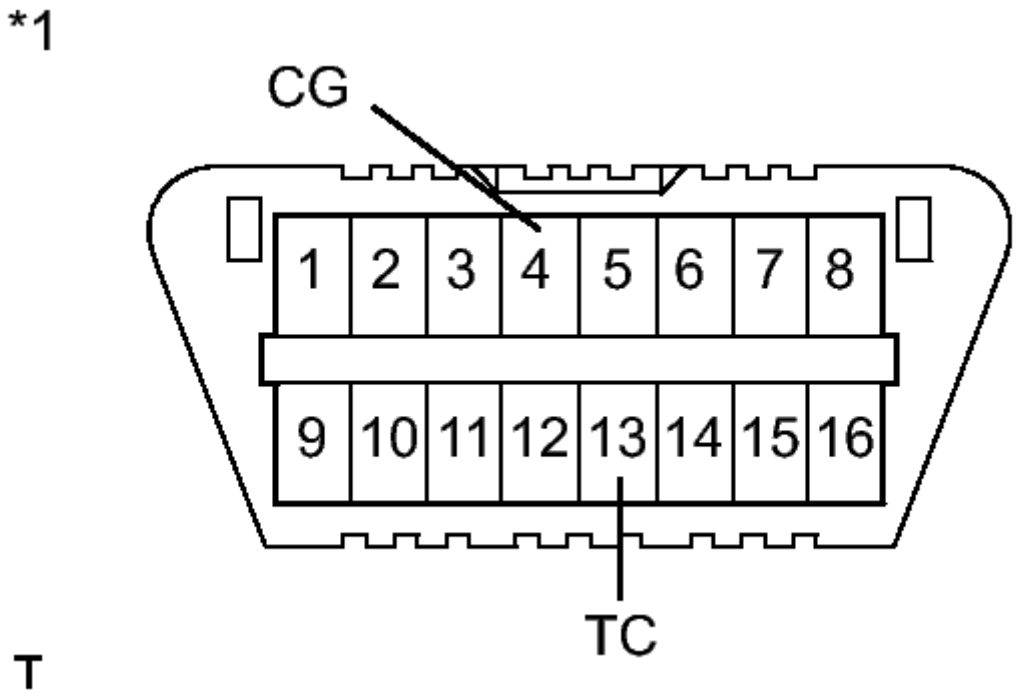


Fig. 12: DLC3 Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	DLC3

- **SST: 09843-18040**

   b. Depress and hold the brake pedal.
   c. Start the engine.

NOTE: **Check that electrical systems such as the air conditioning system, audio system and lighting system are off.**

HINT:

The indicator lights on the combination meter blink to indicate the DTC output when terminals TC

and CG are connected.

d. Slowly move the shift lever from P to D, then back to P.

HINT:

Slowly move the shift lever to circulate the fluid through each part of the automatic transaxle.

e. While observing the D shift indicator on the combination meter, move the shift lever back and forth between N and D at an interval of 1.5 seconds for 6 seconds or more.

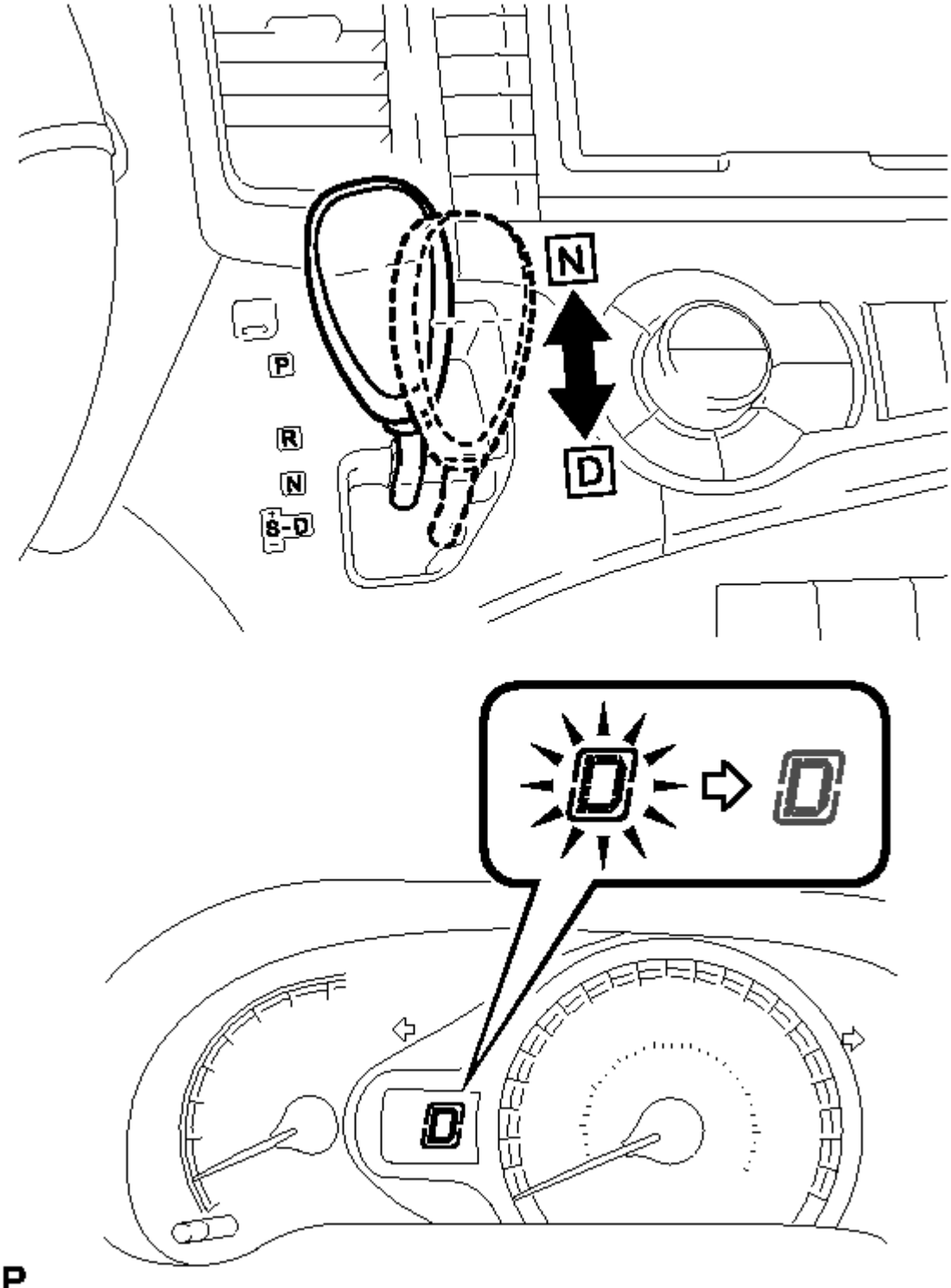


Fig. 13: Identifying D Shift Indicator At Combination Meter While Shifting Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not pause for more than 1.5 seconds.

HINT:

Performing this operation will cause the vehicle to enter the fluid temperature detection mode.

f. Check that the D shift indicator comes on for 2 seconds.

HINT:

- When the fluid temperature detection mode is activated, the D shift indicator on the combination meter comes on for 2 seconds.
- If the D shift indicator does not come on for 2 seconds, return to the step where terminal TC is first connected and perform the procedure again.

g. Move the shift lever from N to P.

h. Release the brake pedal.

i. Remove SST from terminals 13 (TC) and 4 (CG).

NOTE: Be sure that terminals TC and CG are not connected. If the terminals are connected, the fluid level cannot be precisely adjusted due to fluctuations in engine speed.

HINT:

- Disconnecting terminals TC and CG activates the engine idle control mode.
- In the engine idle speed control mode, engine idle speed control starts when the fluid temperature becomes 35°C (95°F) or more and the engine speed is maintained at approximately 800 RPM.
- Even after terminals TC and CG are disconnected, the fluid temperature detection mode is active until the ignition switch is turned off.

j. Allow the engine to idle until the D shift indicator comes on again.

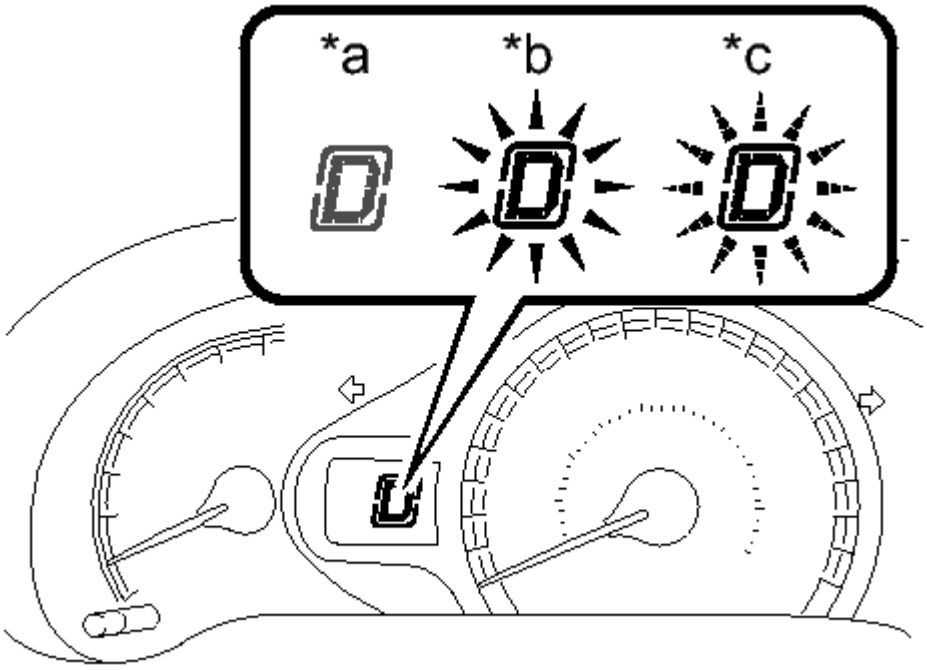


Fig. 14: Identifying Fluid Temperature Detection Mode
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn Off
*b	Turn On
*c	Blinking

Below Normal Operating Temperature	Normal Operating Temperature	Above Normal Operating Temperature
40°C or less (104°F or less)	40 to 45°C (104 to 113° F)	45°C or more (113°F or more)
Shift Indicator [D] Turn off	Shift Indicator [D] Turn on	Shift Indicator [D] Blinking

NOTE:

- **If the D shift indicator is on, immediately proceed to 6.**
- **If the D shift indicator blinks, stop the engine and wait until the fluid temperature drops to 40°C (104°F) or less (the indicator goes off). Then perform the "Adjust Fluid Temperature" procedure again from the beginning.**

HINT:

- In the fluid temperature detection mode, the D shift indicator comes on, goes off, or blinks depending on the fluid temperature.
- Fluid filling procedure should be performed when the D shift indicator is on (the fluid temperature is within the normal operating temperature range).

6. **ADJUST FLUID LEVEL**

WARNING: Use caution while the engine is idling and the radiator fan is operating.

a. Lift the vehicle.

NOTE: Set the vehicle on a lift so that the vehicle is kept level when it is lifted up.

b. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket.

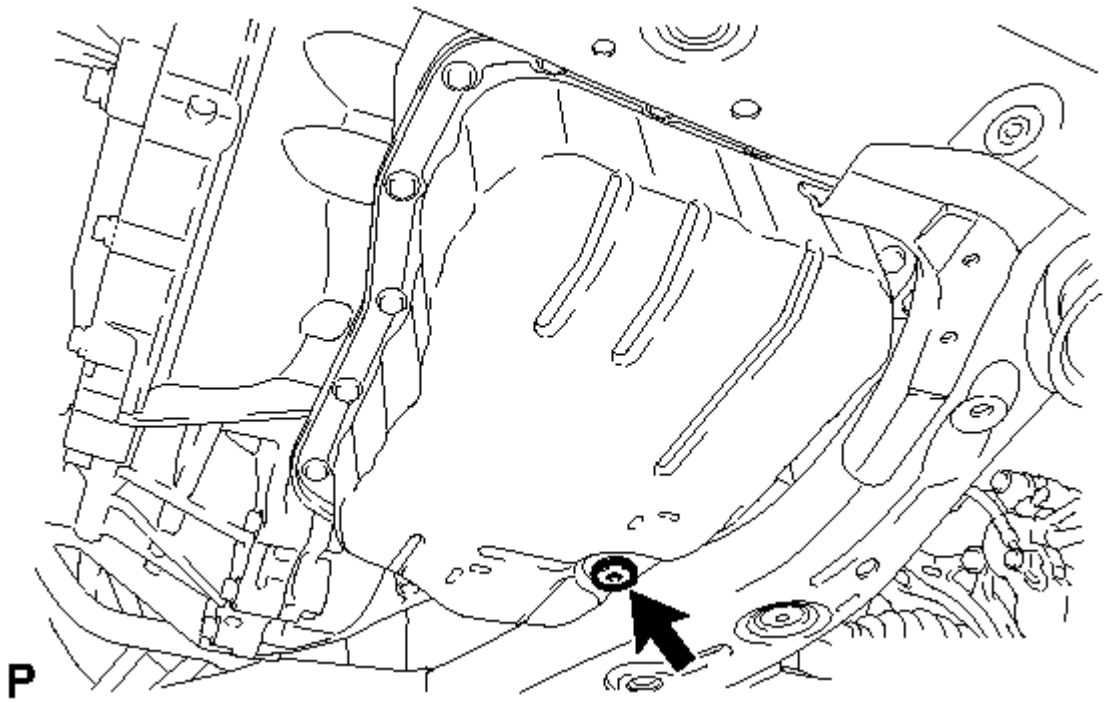


Fig. 15: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Be careful as the fluid coming out of the overflow plug hole is hot.

c. Check the amount of fluid that comes out of the overflow plug hole.

NOTE: **If only a small amount of fluid (approximately 1 cc) comes out of the overflow plug hole, then only fluid remaining in the No. 1 transmission oil filler tube has come out. This condition is not considered as overflow, so it is necessary to add fluid.**

d. If the fluid overflows.
    1. Wait until the fluid flow slows and only drips come out.

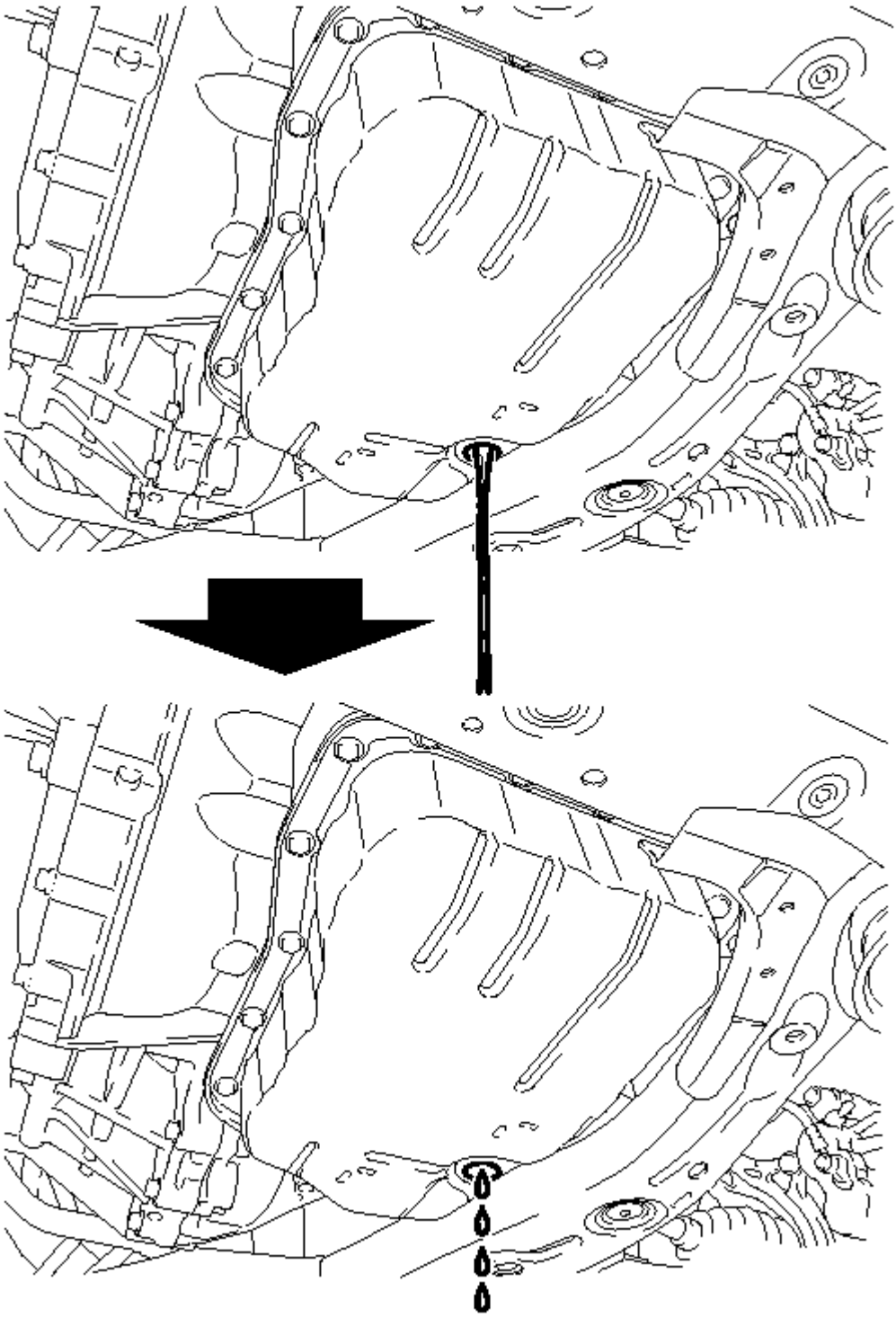


Fig. 16: Identifying Fluid Flow & Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Remove the refill plug and gasket.

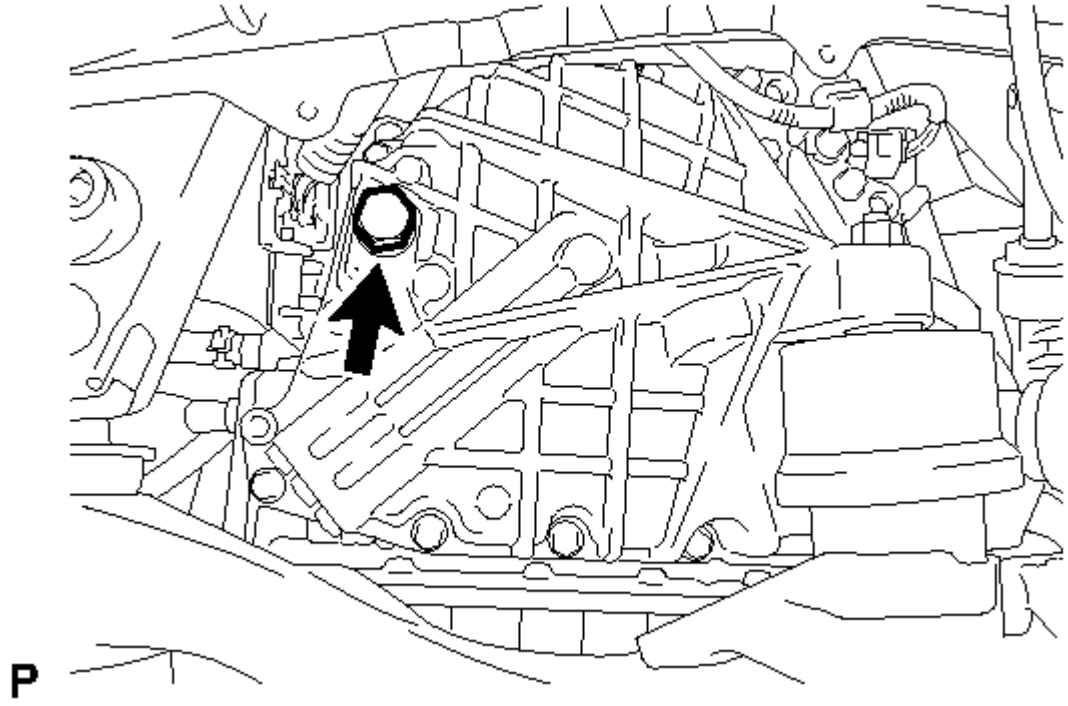


Fig. 17: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. If the fluid does not overflow.
    1. Remove the refill plug and gasket.

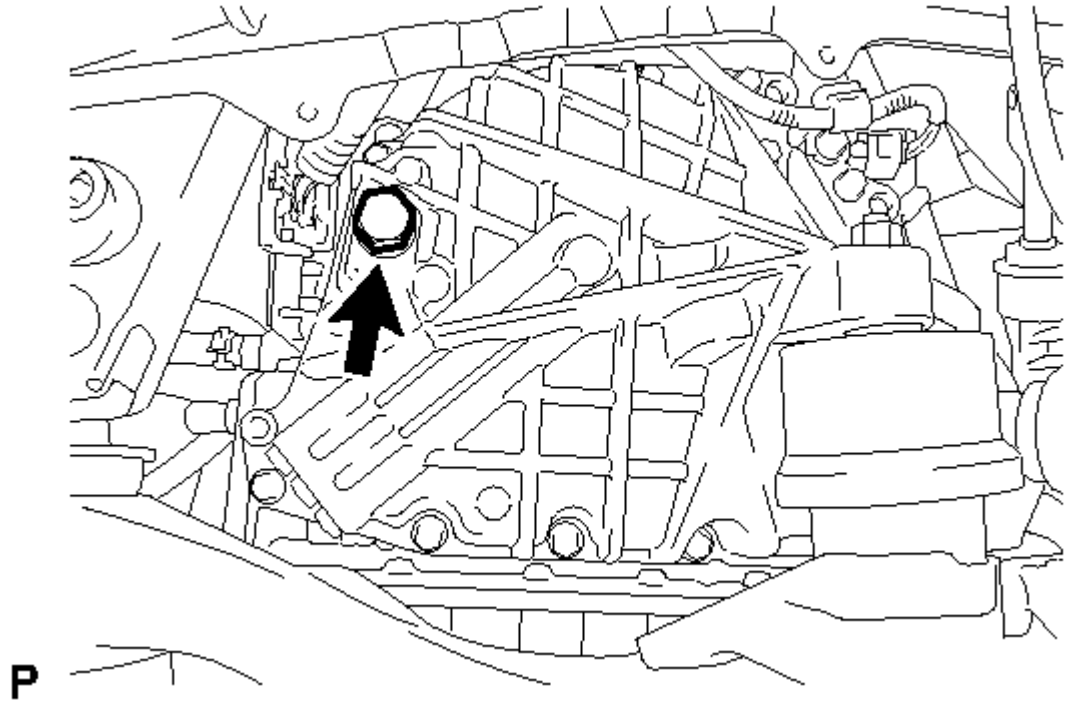


Fig. 18: Identifying Automatic Transaxle Refill Plug & Gasket

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

2. Add transaxle fluid through the refill hole until fluid comes out of the overflow plug hole.

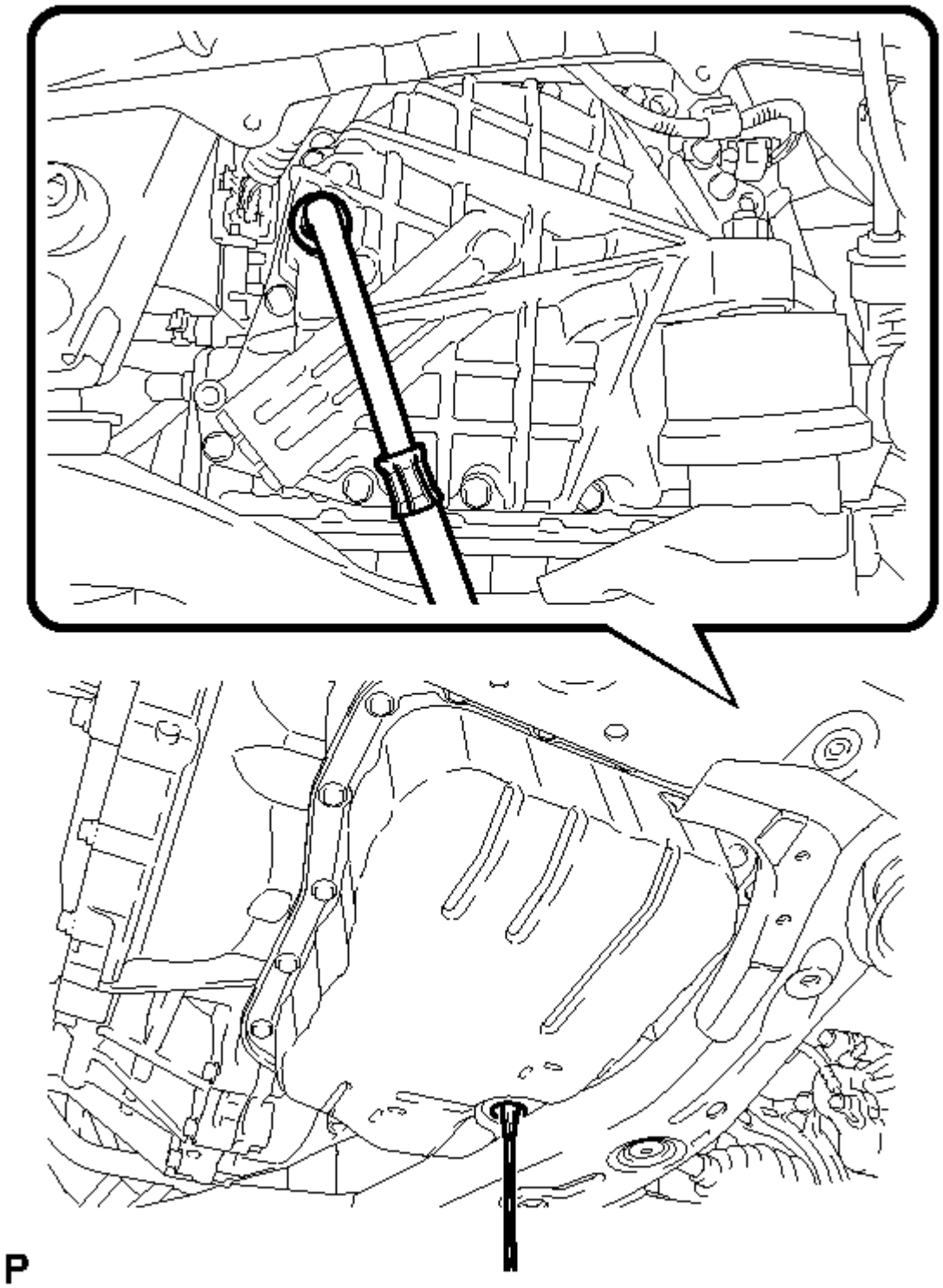


Fig. 19: Identifying Transaxle Fluid Refill & Fluid Trickle At Overflow Plug Hole

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

3. Wait until the fluid flow slows and only drips come out.

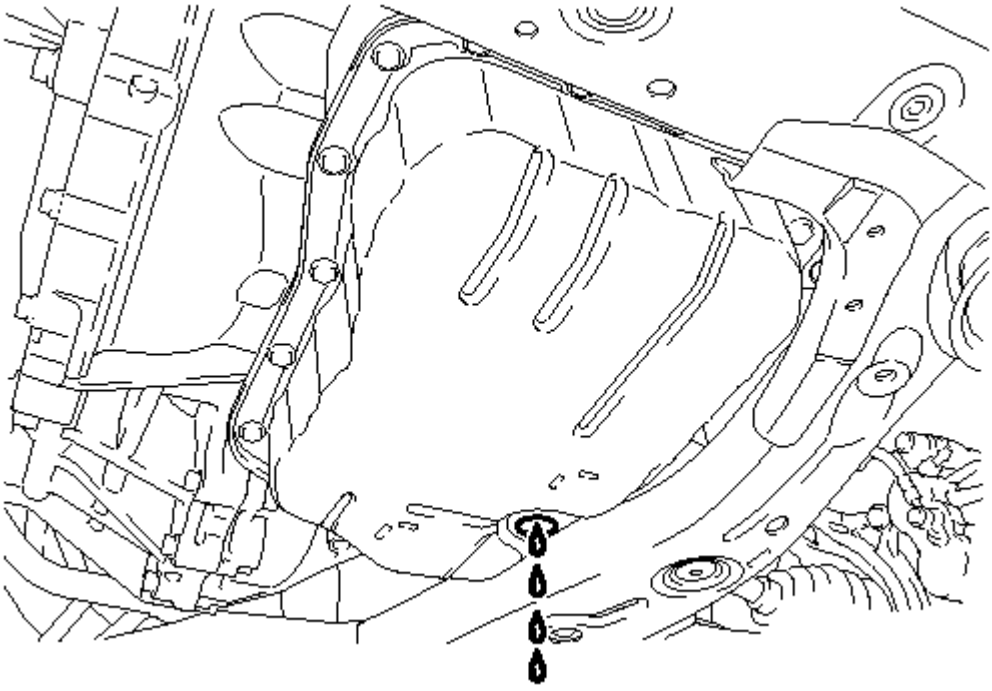


Fig. 20: Identifying Transaxle Fluid Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Install the overflow plug with a new gasket.

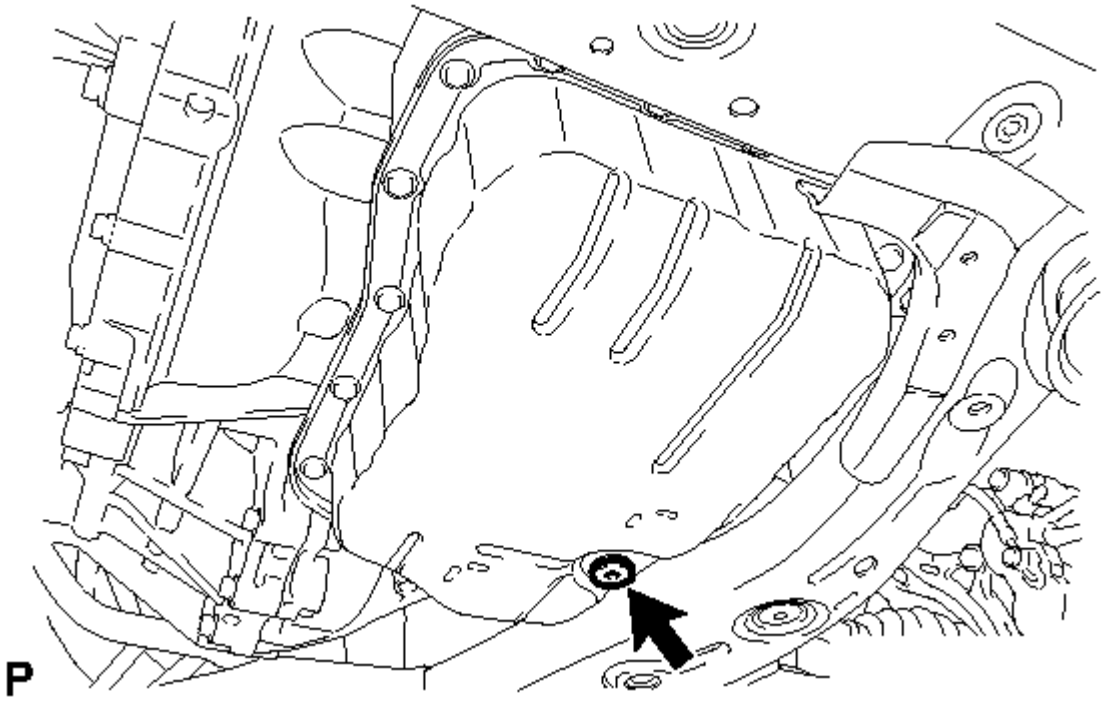


Fig. 21: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

g. Install the refill plug with a new gasket.

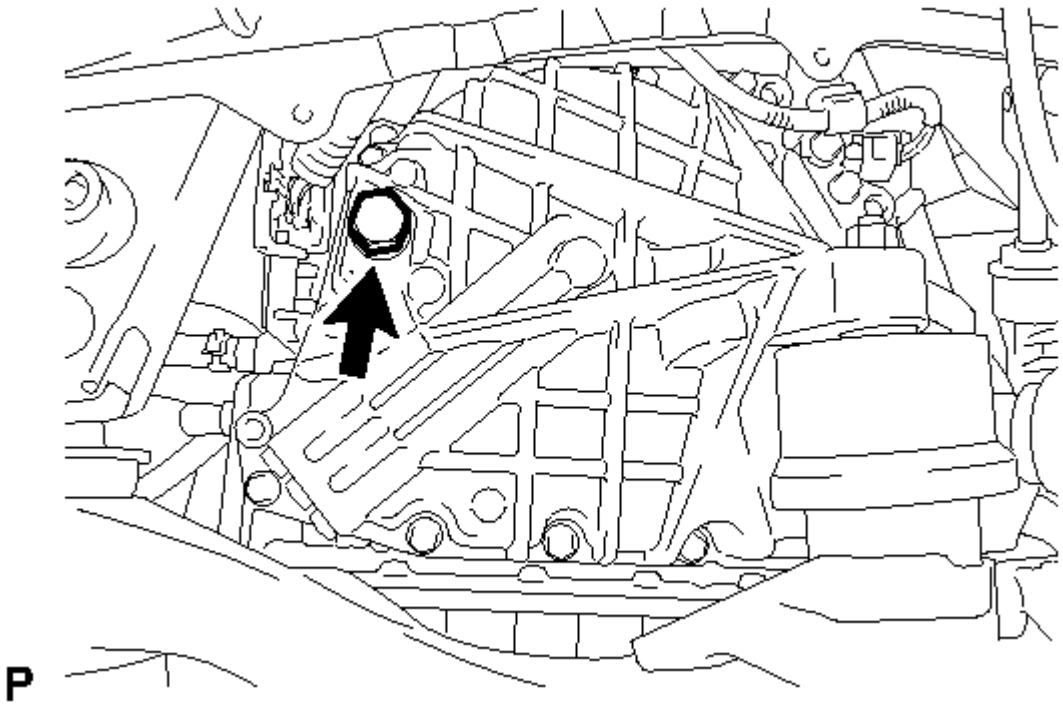


Fig. 22: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

h. Lower the vehicle.
i. Turn the ignition switch off.

HINT:

Turning the ignition switch off exits the fluid temperature detection mode.

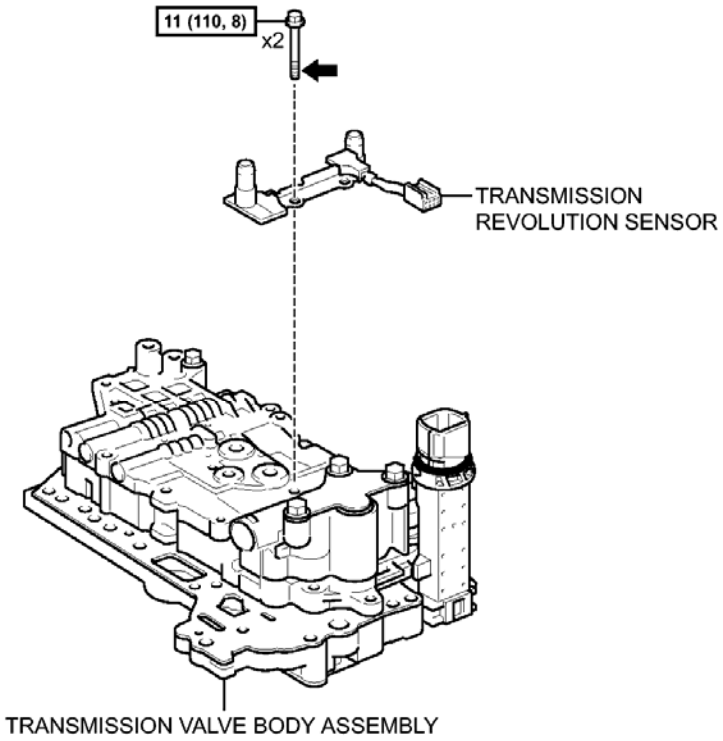
j. Remove the Techstream from the DLC3 (when using the Techstream).

7. **AFTER FILLING TRANSAXLE FLUID**
   a. Lift the vehicle.
   b. Clean each part.
   c. Check for fluid leaks.
   d. Install the front fender apron seal LH with the 2 bolts and clip.
   e. Lower the vehicle.

SPEED SENSOR

COMPONENTS

ILLUSTRATION



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

ATF WS

Fig. 23: Identifying Speed Sensor Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TRANSMISSION REVOLUTION SENSOR**
   a. Disconnect the connector.
   b. Remove the 2 bolts and transmission revolution sensor from the transmission valve body.

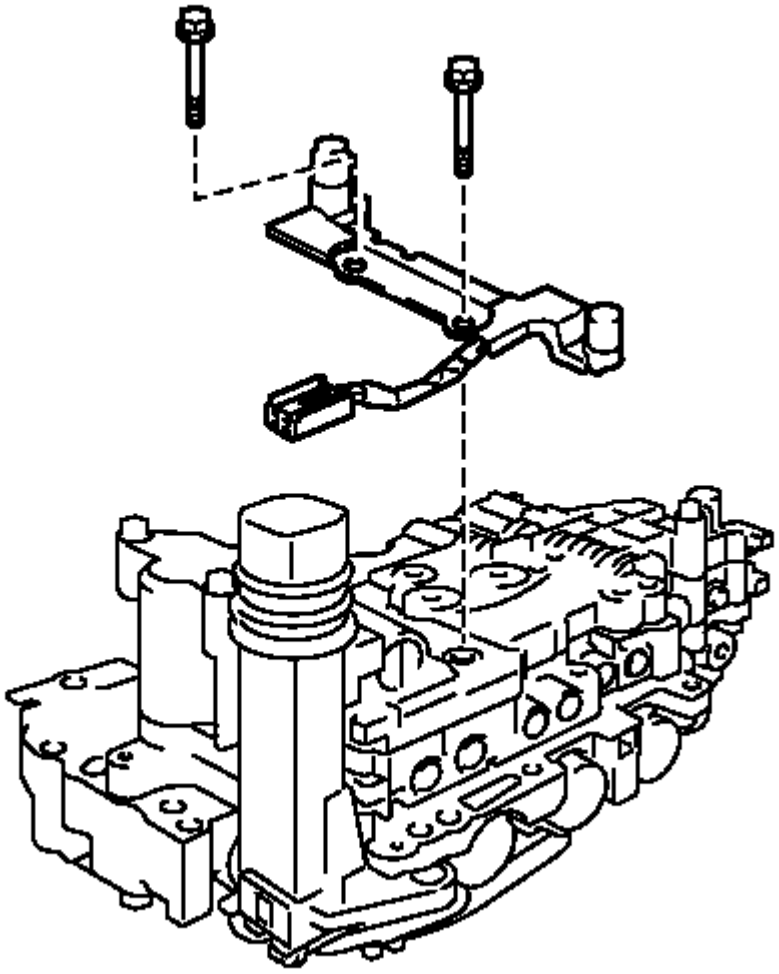


Fig. 24: Identifying Bolts And Speed Sensor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION REVOLUTION SENSOR**
   a. Coat the 2 bolts with ATF.
   b. Install the transmission revolution sensor onto the transmission valve body with the 2 bolts.

      Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

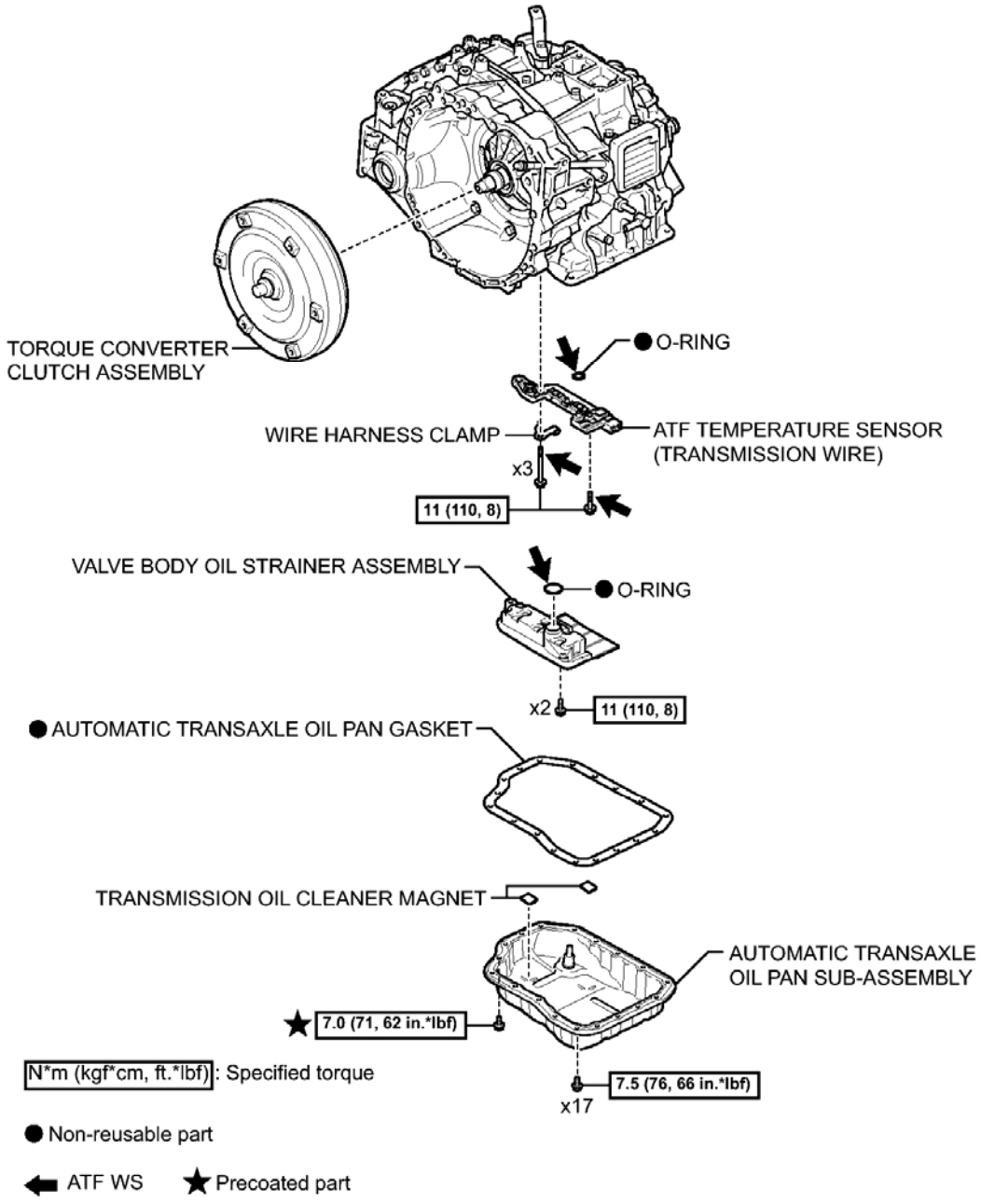
   c. Connect the connector.
2. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

Refer to **INSTALLATION**

ATF TEMPERATURE SENSOR

COMPONENTS

ILLUSTRATION



P

Fig. 25: ATF Temperature Sensor Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY** See step 7
3. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY** See step 3
4. **REMOVE AUTOMATIC TRANSAXLE OIL PAN GASKET** See step 4
5. **REMOVE TRANSMISSION OIL CLEANER MAGNET** See step 5
6. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY** See step 6
7. **REMOVE ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Disconnect the connector.

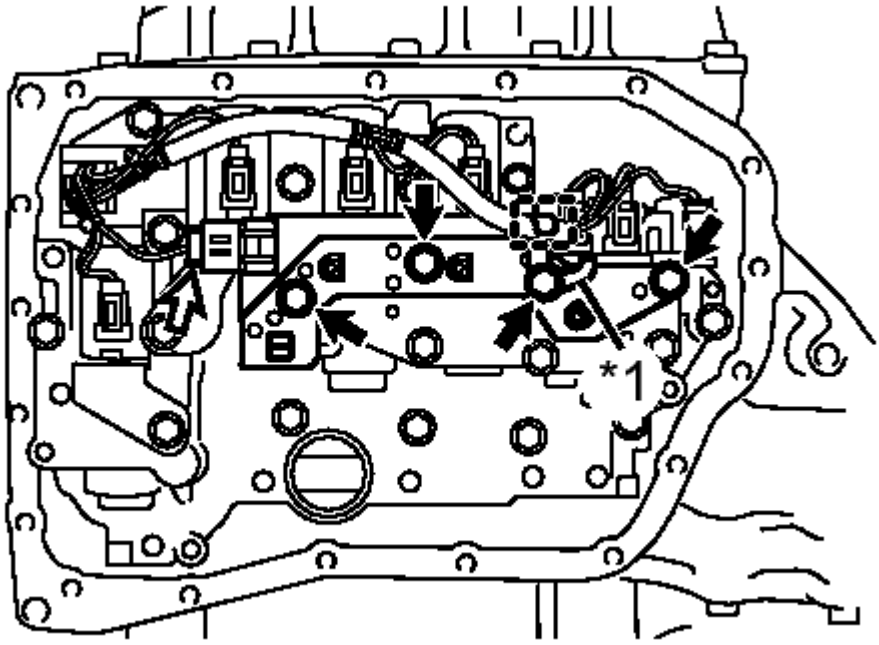
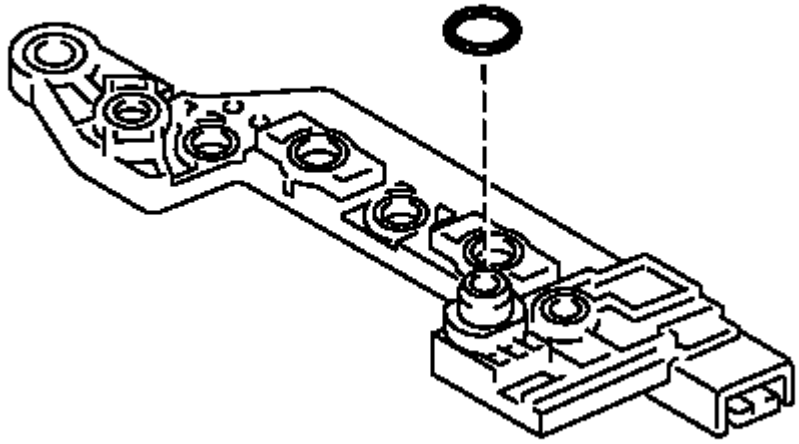


Fig. 26: Identifying ATF Temperature Sensor, Wire Harness Clamp & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

b. Disengage the clamp and disconnect the transmission wire.
c. Remove the 4 bolts, wire harness clamp and ATF temperature sensor from the transmission valve body.
d. Remove the O-ring from the ATF temperature sensor.



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Fig. 27: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Measure the resistance according to the value(s) in the table below.

*a

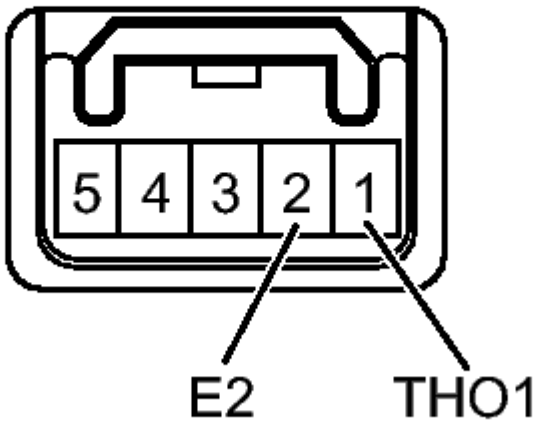


Fig. 28: ATF Temperature Sensor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (ATF Temperature Sensor)

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (THO1) - 2 (E2)	10°C (50° F)	5 to 8 kohms
	25°C (77° F)	2.5 to 4.5 kohms
	110°C (230°F)	0.22 to 0.28 kohms

If the result is not as specified, replace the ATF temperature sensor.

INSTALLATION

INSTALLATION

1. **INSTALL ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Coat a new O-ring with ATF and install it onto the ATF temperature sensor.
   b. Coat the 4 bolts with ATF.
   c. Install the ATF temperature sensor onto the transmission valve body with the 4 bolts and wire harness clamp.

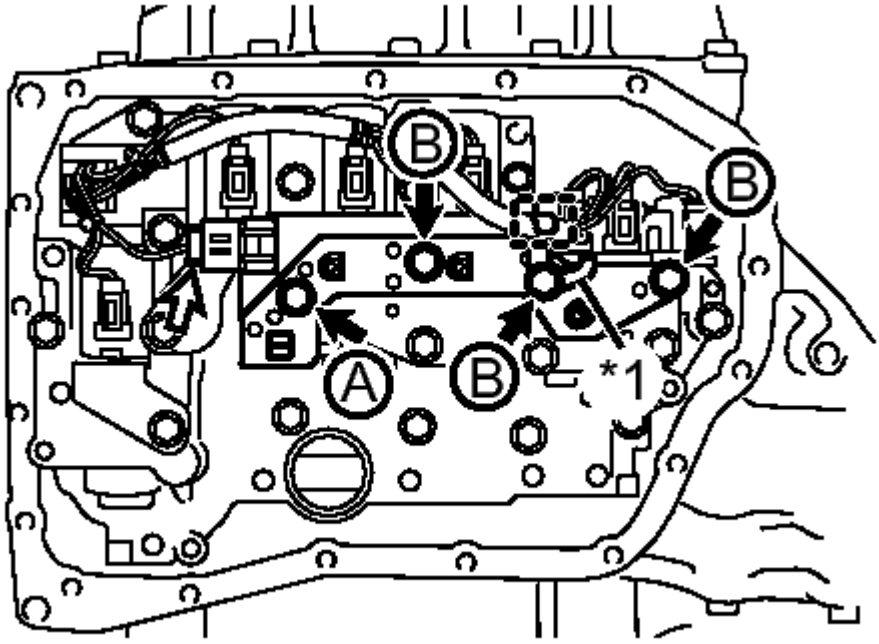


Fig. 29: Identifying ATF Temperature Sensor Connector, Bolts & Wire Harness Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

Bolt length

Bolt	Length
A	25 mm (0.984 in.)
B	85 mm (3.35

	in.)

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

d. Engage the clamp and connect the transmission wire.
e. Connect the connector.

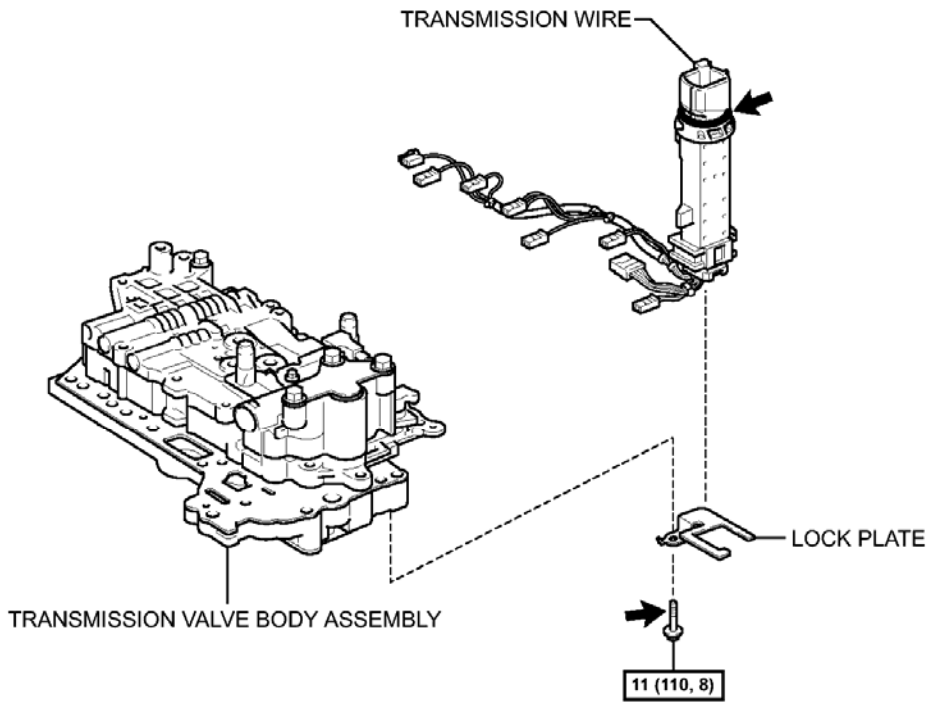
2. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY** See step 4
3. **INSTALL TRANSMISSION OIL CLEANER MAGNET** See step 5
4. **INSTALL AUTOMATIC TRANSAXLE OIL PAN GASKET** See step 6
5. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY** See step 7
6. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY** See step 9
7. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

Refer to **INSTALLATION**

TRANSMISSION WIRE

COMPONENTS

ILLUSTRATION



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

ATF WS

Fig. 30: Transmission Wire Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TRANSMISSION WIRE**
   a. Disconnect the 9 connectors.

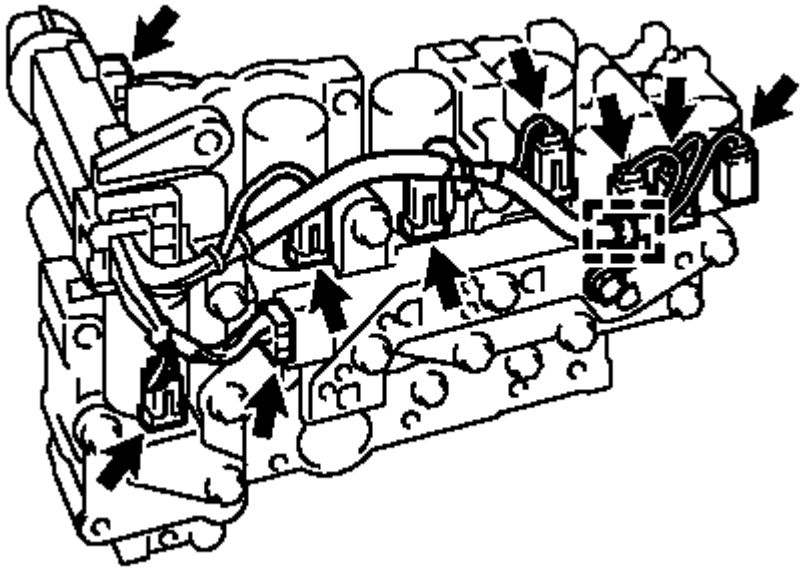
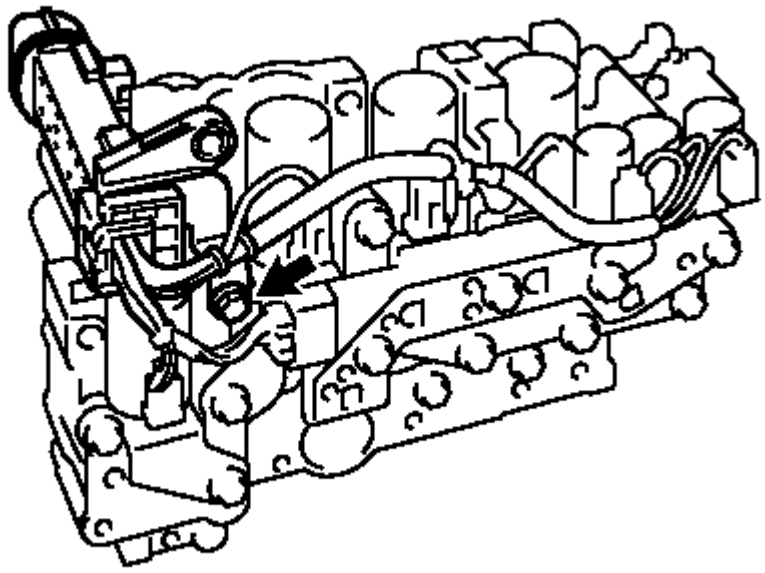


Fig. 31: Identifying Transmission Wire Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disengage the clamp and disconnect the transmission wire.
c. Remove the bolt, lock plate and transmission wire from the transmission valve body.



N

Fig. 32: Identifying Transmission Wire Bolt

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

INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION WIRE**
   a. Coat the O-ring with ATF.

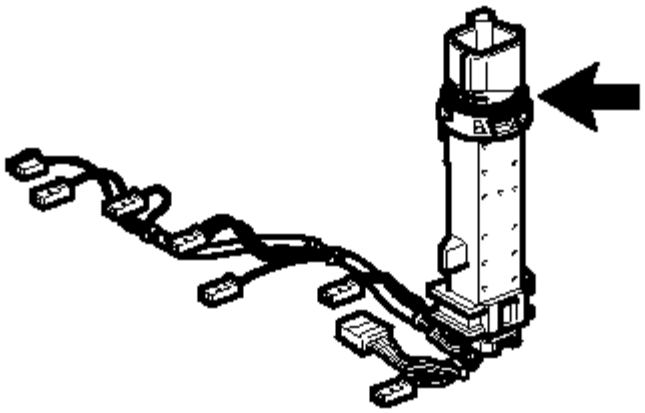


Fig. 33: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the bolt with ATF.
   c. Install the transmission wire onto the transmission valve body with the lock plate bolt and lock plate.

      Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

   d. Engage the clamp and connect the transmission wire.
   e. Connect the 9 connectors.
2. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **INSTALLATION**

VALVE BODY ASSEMBLY

COMPONENTS

ILLUSTRATION

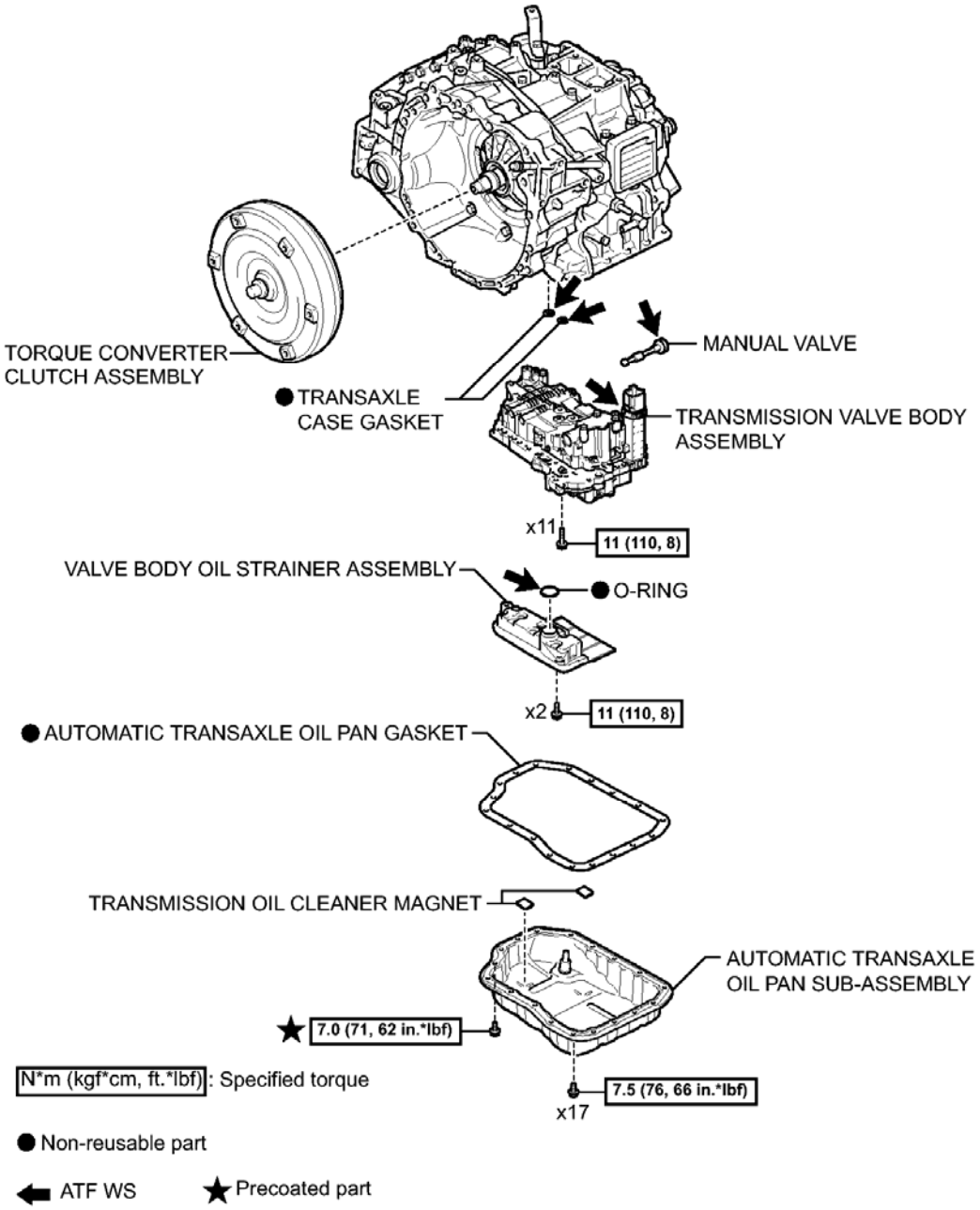
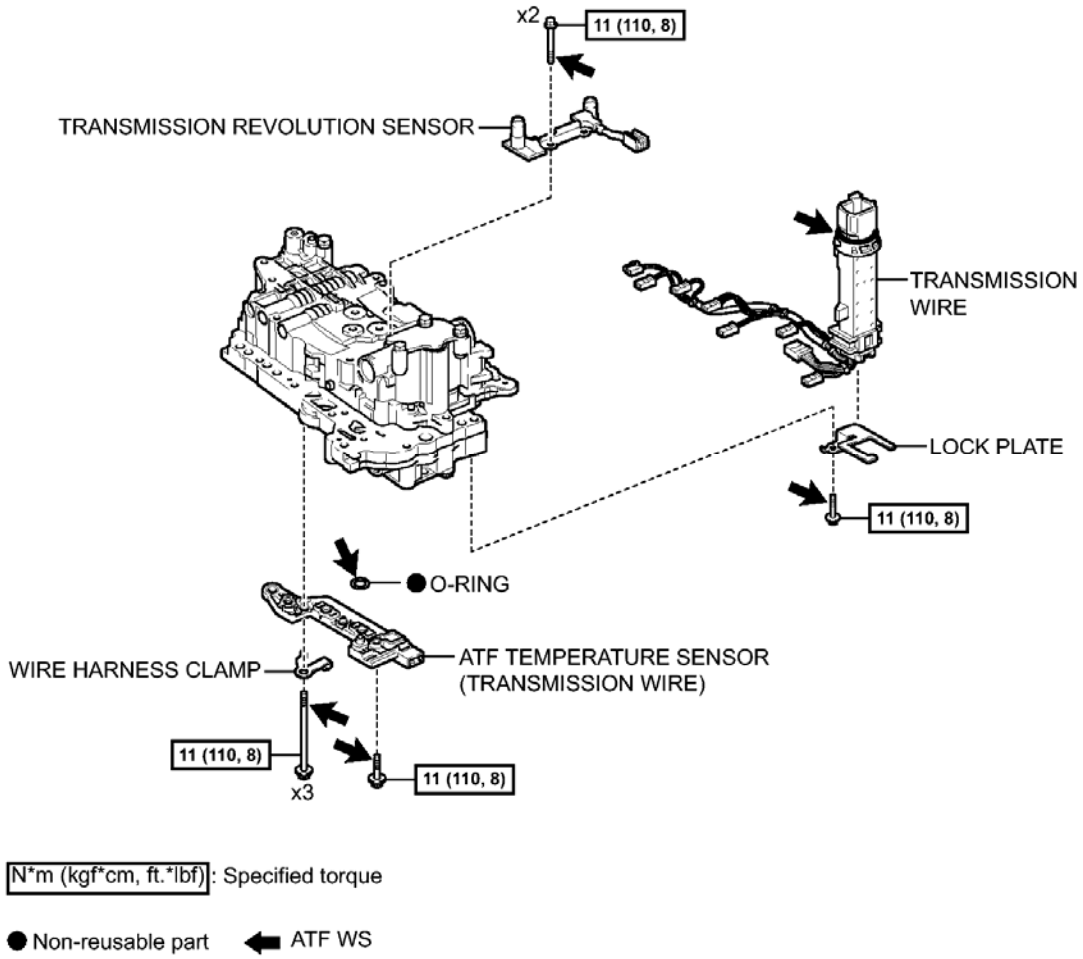


Fig. 34: Valve Body Assembly Replacement Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 35: Valve Body Assembly Replacement Components With Torque Specifications (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

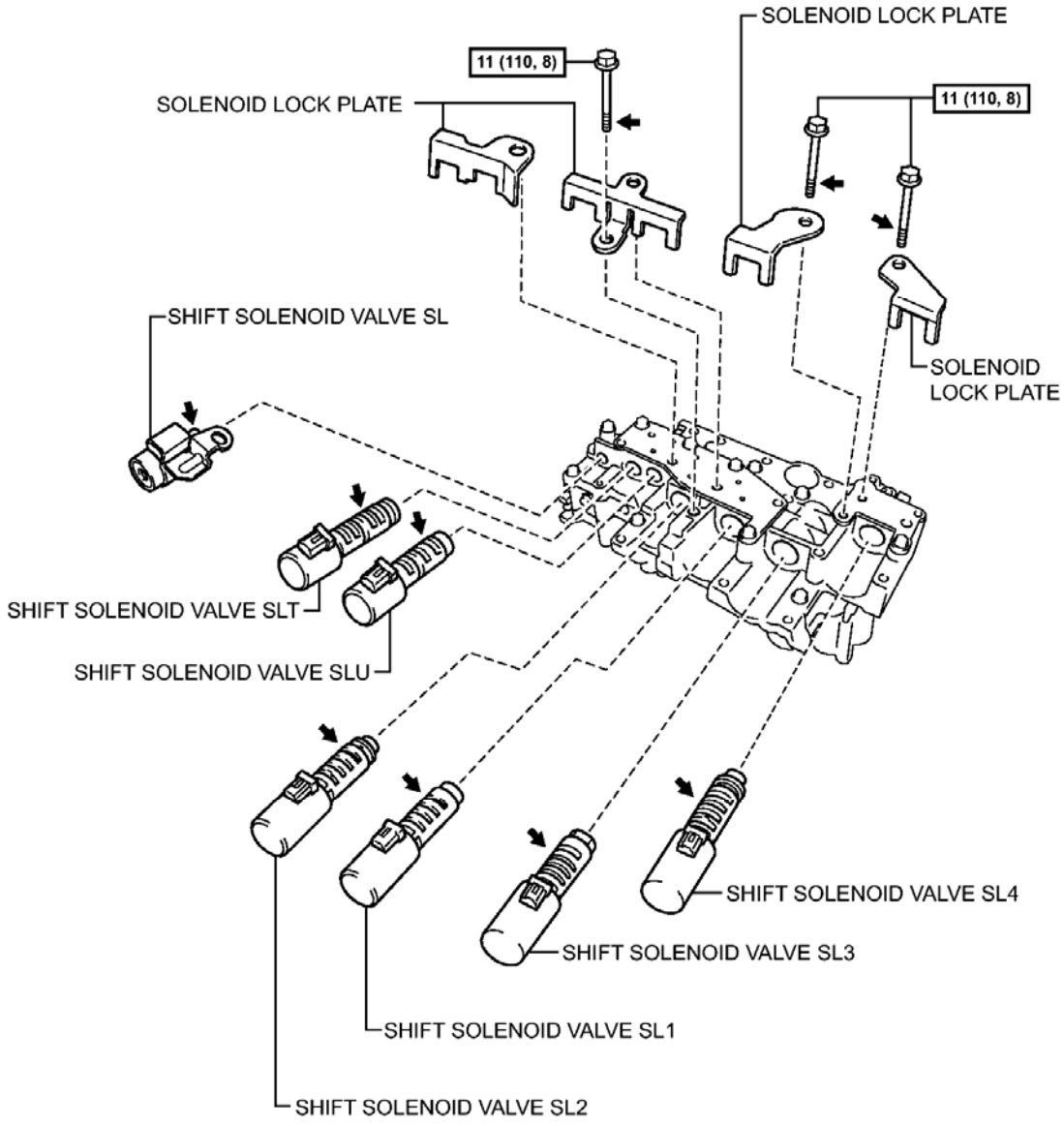


Fig. 36: Valve Body Assembly Replacement Components With Torque Specifications (3 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY** See step 7
3. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
   a. Remove the 18 bolts and automatic transaxle oil pan from the automatic transaxle.

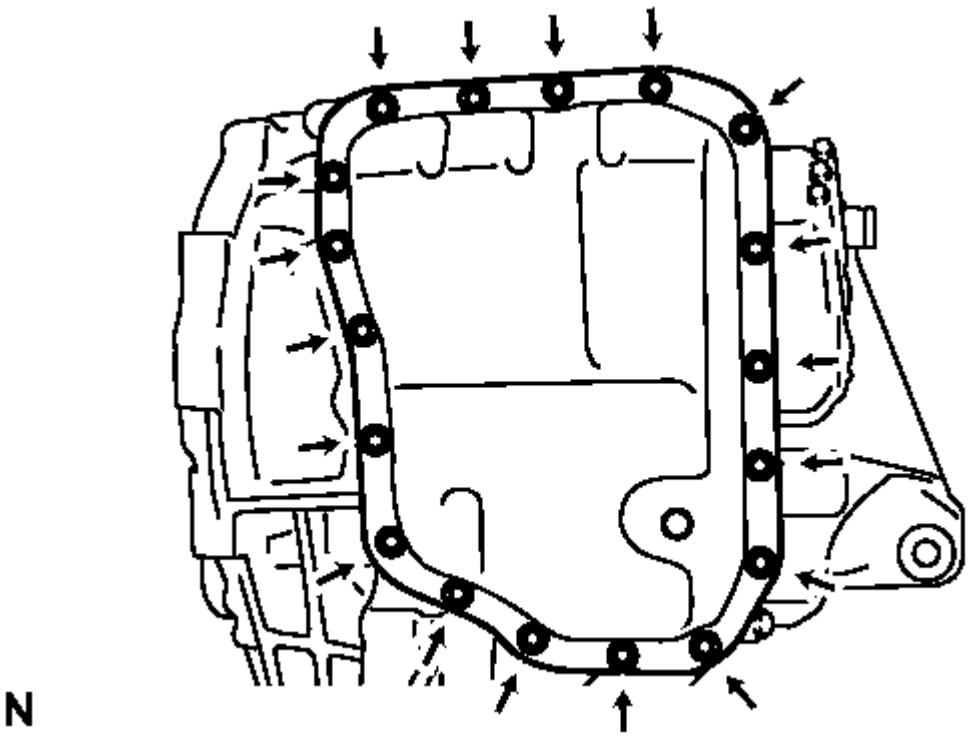


Fig. 37: Identifying Oil Pan Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Some fluid will remain in the automatic transaxle oil pan. Remove all the bolts, and carefully remove the automatic transaxle oil pan.

4. **REMOVE AUTOMATIC TRANSAXLE OIL PAN GASKET**
   a. Remove the automatic transaxle oil pan gasket.
5. **REMOVE TRANSMISSION OIL CLEANER MAGNET**
   a. Remove the 2 transmission oil cleaner magnets from the automatic transaxle oil pan.

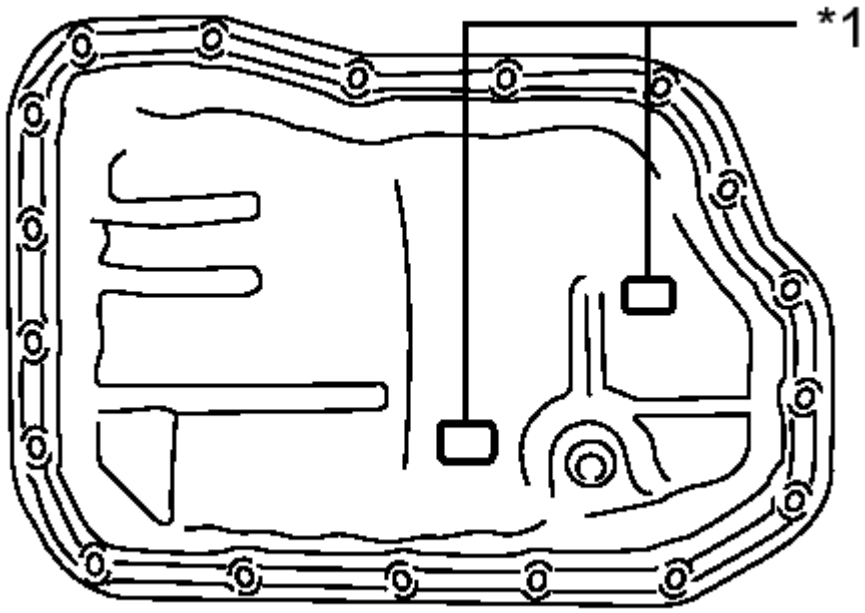


Fig. 38: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

b. Examine particles in the automatic transaxle oil pan.

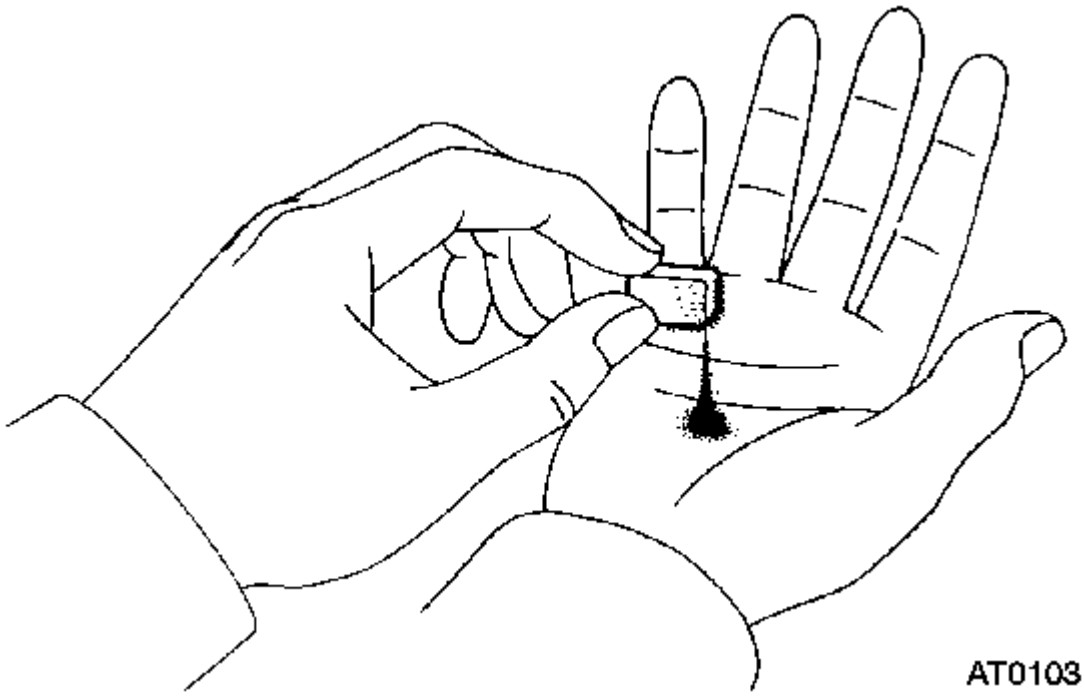


Fig. 39: Inspecting For Chips And Steel Particles In Pan
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Collect any steel chips with the removed magnets. Look carefully at the chips and particles in the automatic transaxle oil pan and on the transmission oil cleaner magnets to see the type of wear which might be found in the automatic transaxle.

   Result

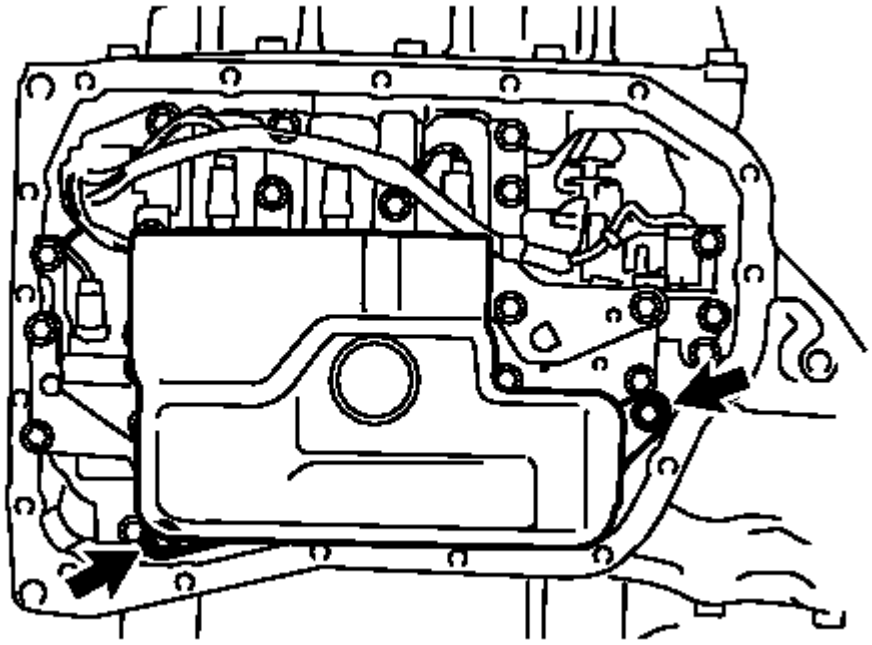
   Steel (magnetic)

   Bearing, gear and plate wear

   Brass (non-magnetic)

   Bushing wear

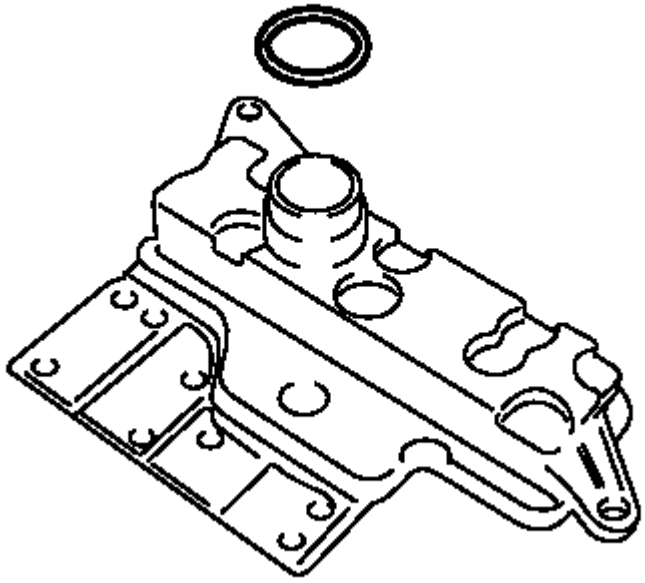
6. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY**
   a. Remove the 2 bolts and valve body oil strainer from the transmission valve body.



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Fig. 40: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

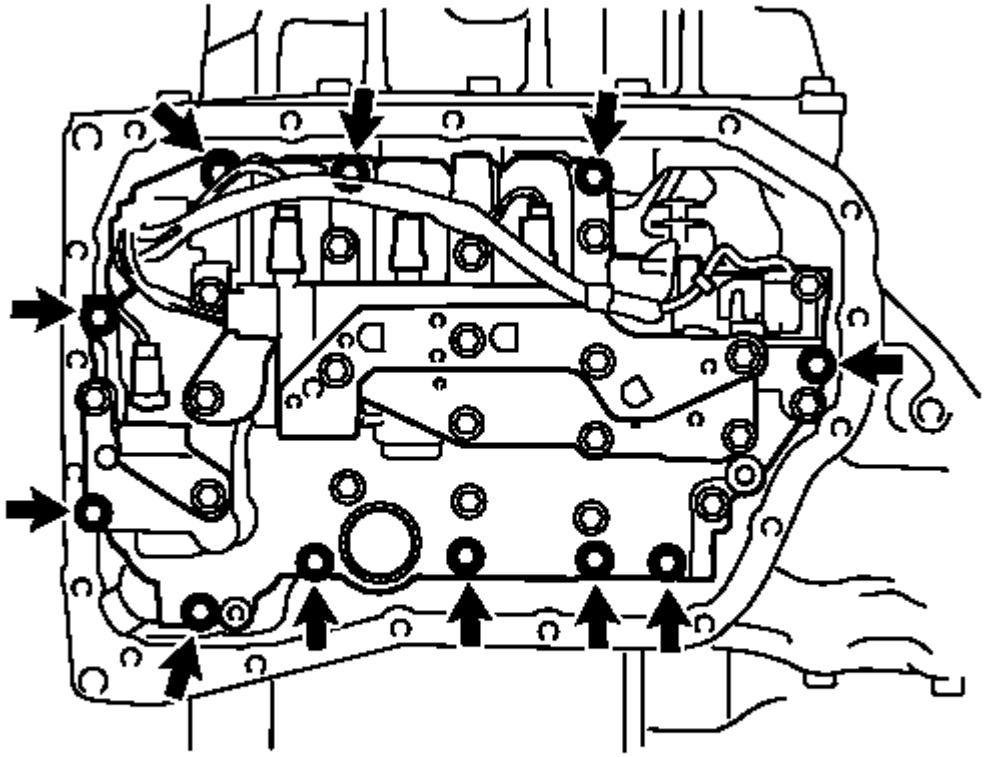
b. Remove the O-ring from the valve body oil strainer.



N

Fig. 41: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**
   a. Remove the 11 bolts and transmission valve body from the automatic transaxle.



N

Fig. 42: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When removing the transmission valve body, be careful not to allow the transmission revolution sensor and the transaxle case to interfere with each other.

8. **REMOVE TRANSAXLE CASE GASKET**
   a. Remove the 2 transaxle case gaskets from the transaxle case.

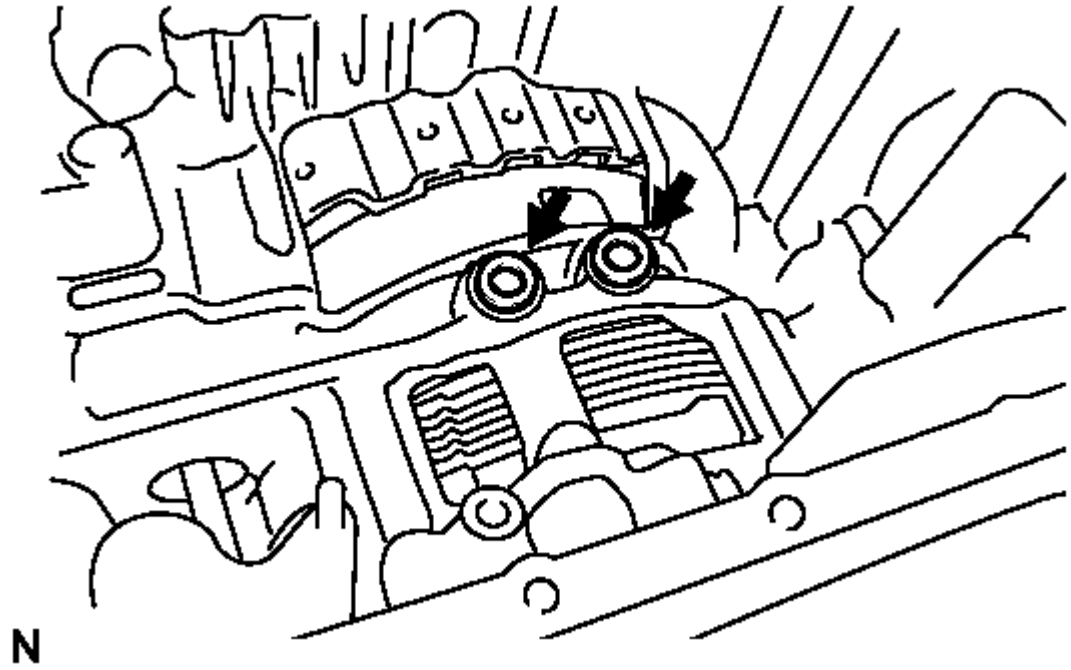


Fig. 43: Identifying Transaxle Case Gaskets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE MANUAL VALVE**
   a. Remove the manual valve from the transmission valve body.

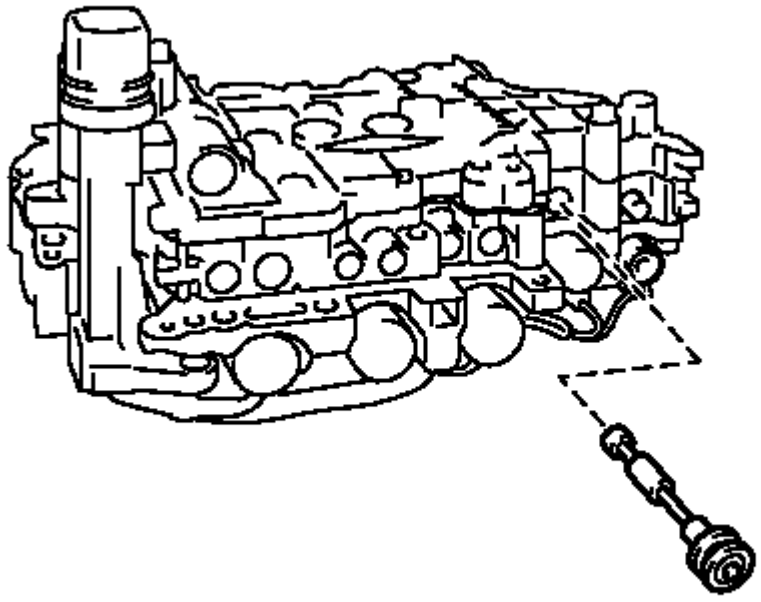


Fig. 44: Identifying Manual Valve

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

DISASSEMBLY

DISASSEMBLY

1. **REMOVE TRANSMISSION REVOLUTION SENSOR** See step 2
2. **REMOVE TRANSMISSION WIRE** See step 2
3. **REMOVE ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Remove the 4 bolts, wire harness clamp and ATF temperature sensor from the transmission valve body.

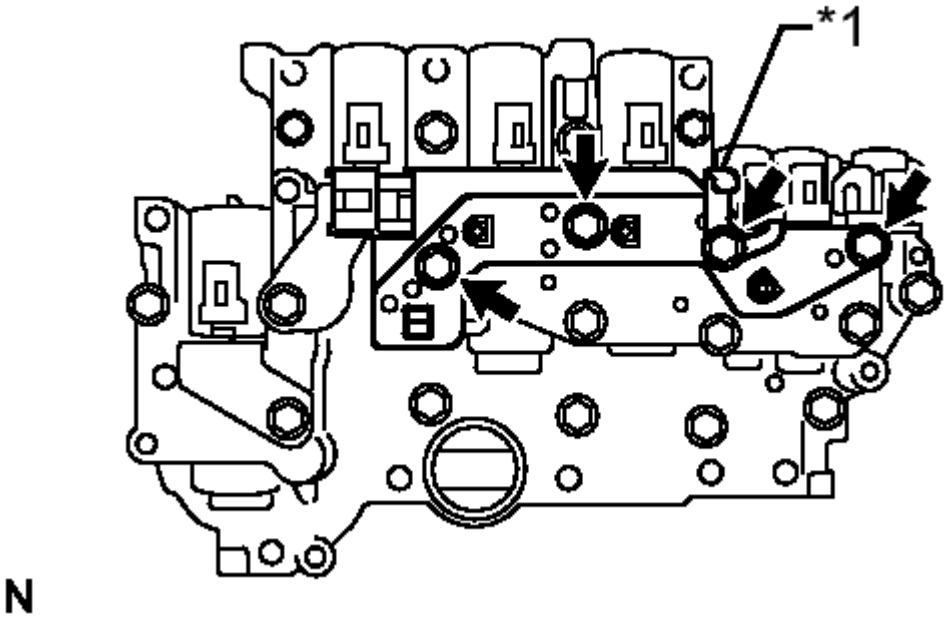
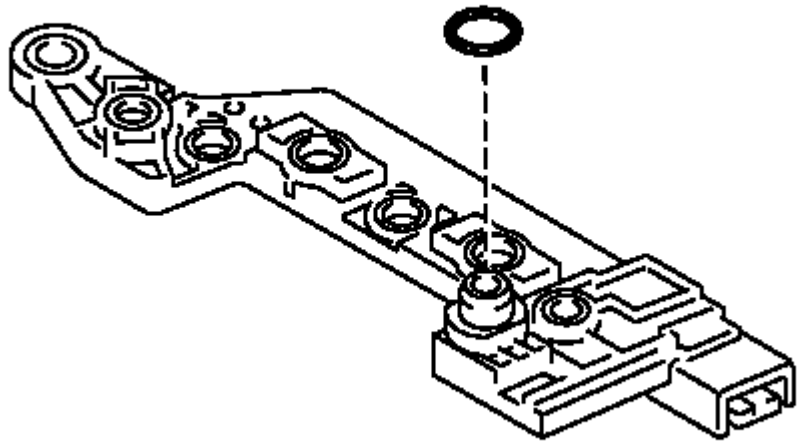


Fig. 45: Identifying ATF Temperature Sensor Assembly Bolts With Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

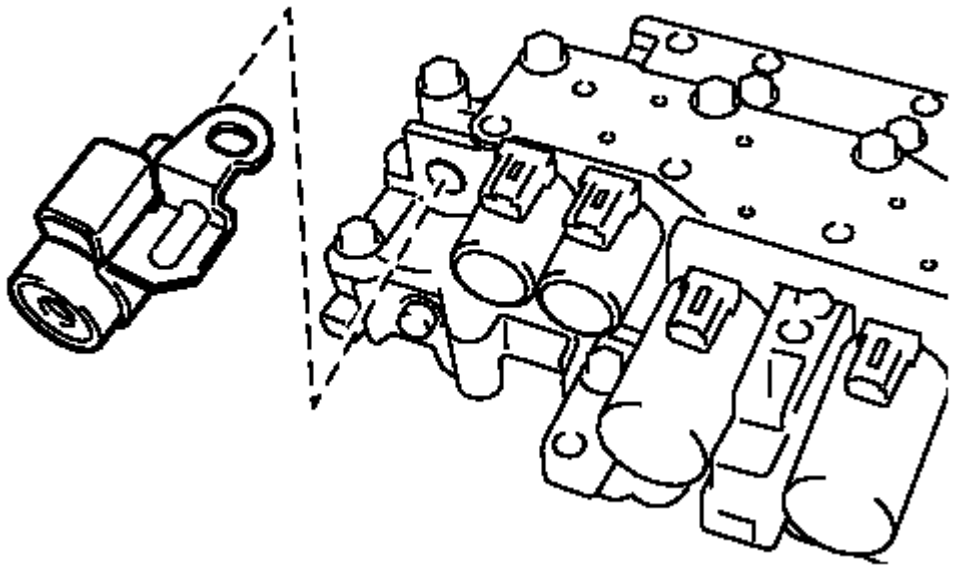
   b. Remove the O-ring from the ATF temperature sensor.



N

Fig. 46: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE SHIFT SOLENOID VALVE SL**
   a. Remove the shift solenoid valve SL from the transmission valve body.

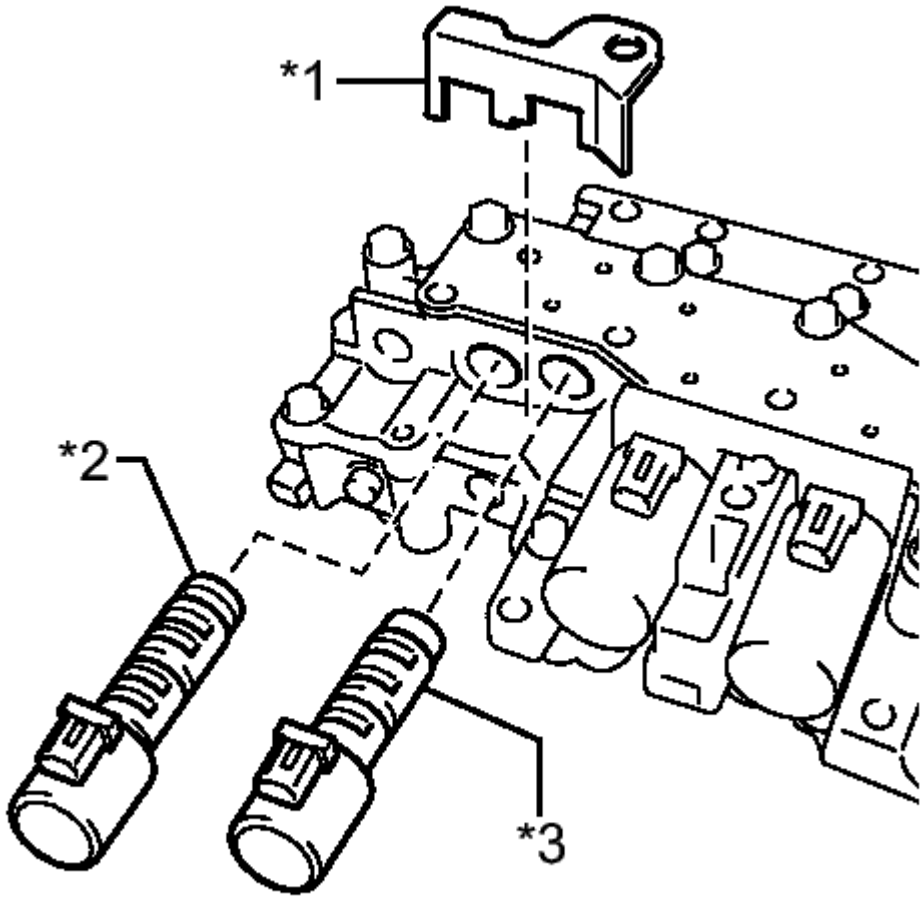


N

Fig. 47: Identifying Shift Solenoid Valve SL

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

5. **REMOVE SHIFT SOLENOID VALVE SLT**
   a. Remove the lock plate and shift solenoid valve SLT from the transmission valve body.



N

Fig. 48: Identifying Lock Plate, Shift Solenoid Valve SLT And Shift Solenoid Valve SLU
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SLT
	Solenoid

*3	Valve SLU

6. **REMOVE SHIFT SOLENOID VALVE SLU**
   a. Remove the shift solenoid valve SLU from the transmission valve body.
7. **REMOVE SHIFT SOLENOID VALVE SL2**
   a. Remove the bolt, lock plate and shift solenoid valve SL2 from the transmission valve body.

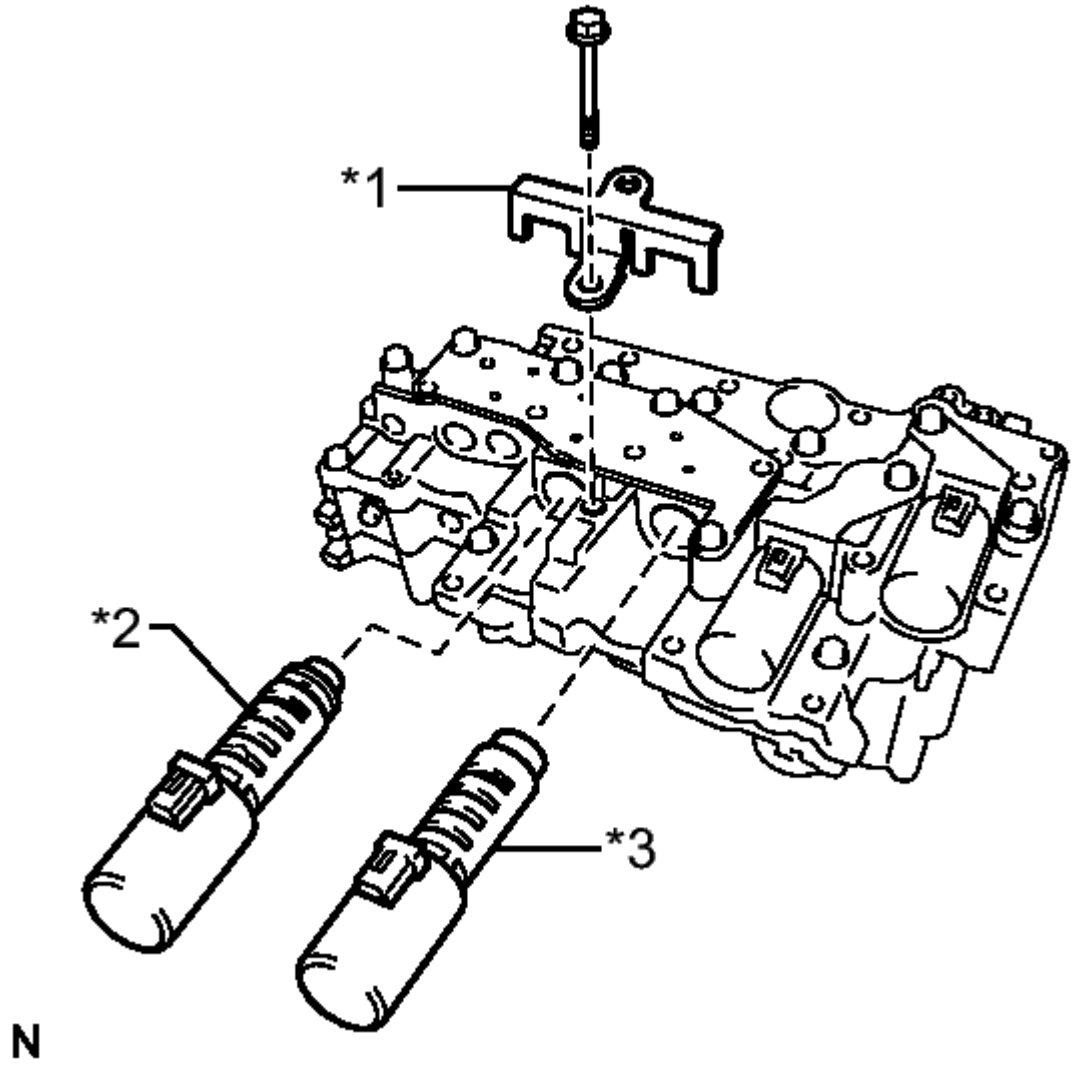


Fig. 49: Identifying Lock Plate, Shift Solenoid Valve SL2 And Shift Solenoid Valve SL1 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate

*2	Solenoid Valve SL2
*3	Solenoid Valve SL1

8. **REMOVE SHIFT SOLENOID VALVE SL1**
    a. Remove the shift solenoid valve SL1 from the transmission valve body.
9. **REMOVE SHIFT SOLENOID VALVE SL3**
    a. Remove the bolt, lock plate and shift solenoid valve SL3 from the transmission valve body.

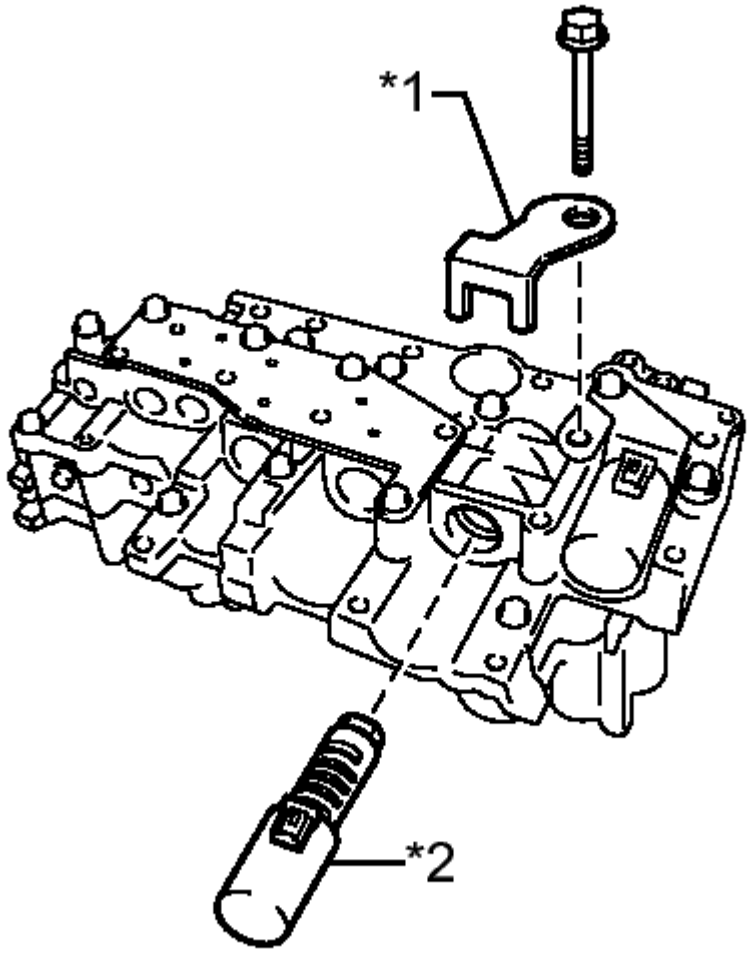


Fig. 50: Identifying Lock Plate And Shift Solenoid Valve SL3 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL3

10. **REMOVE SHIFT SOLENOID VALVE SL4**
    a. Remove the bolt, lock plate and shift solenoid valve SL4 from the transmission valve body.

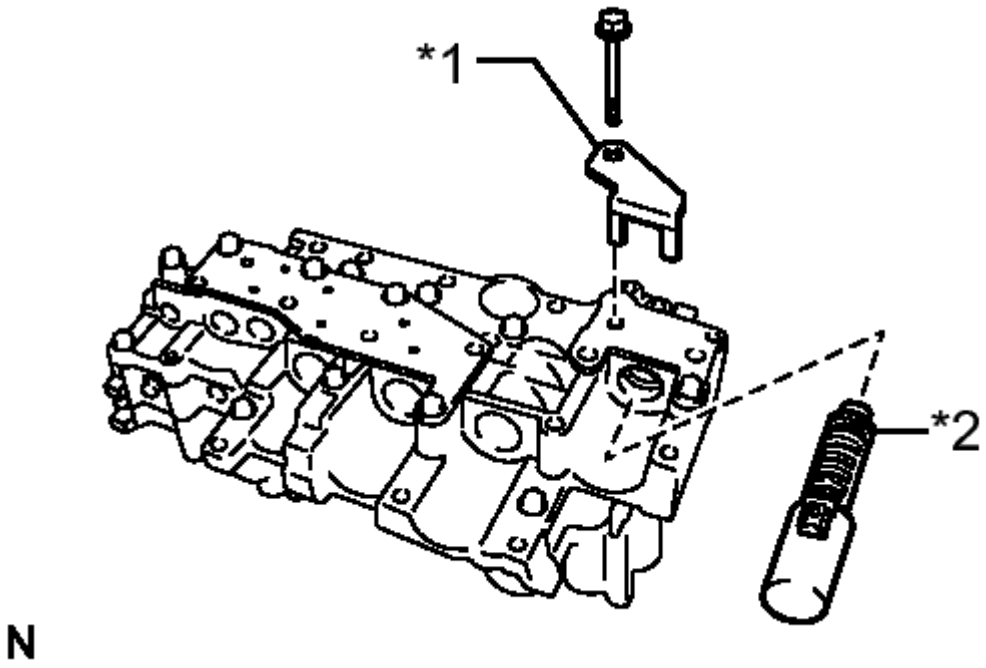


Fig. 51: Identifying Lock Plate And Shift Solenoid Valve SL4 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL4

INSPECTION

INSPECTION

1. **INSPECT SHIFT SOLENOID VALVE SL**
    a. Measure the resistance according to the value(s) in the table below.

*a

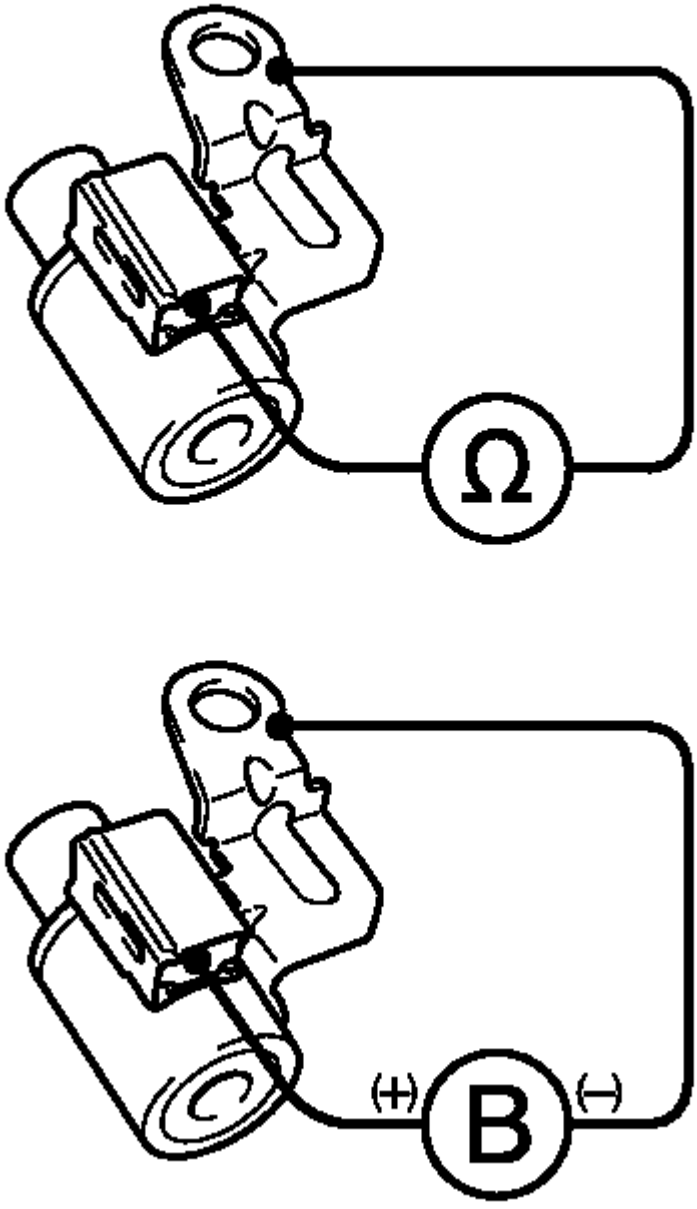


Fig. 52: Inspecting Shift Solenoid Valve SL
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Component

*a	without harness connected (Shift Solenoid Valve SL)

Standard Resistance

Tester Connection	Condition	Specified Condition
Solenoid Connector - Solenoid Body	20°C (68° F)	11 to 15 ohms

If the result is not as specified, replace the shift solenoid valve SL.

b. Connect a battery positive (+) lead to the terminal of the solenoid valve connector, and a negative (-) lead to the solenoid body. Then check that the valve moves and makes an operating sound.

NOTE: When using battery voltage during the inspection, do not bring the positive (+) and negative (-) tester probes too close to each other as a short circuit may occur.

OK

Valve moves and makes an operating sound.

If the result is not as specified, replace the shift solenoid valve SL.

2. **INSPECT SHIFT SOLENOID VALVE SLT**

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

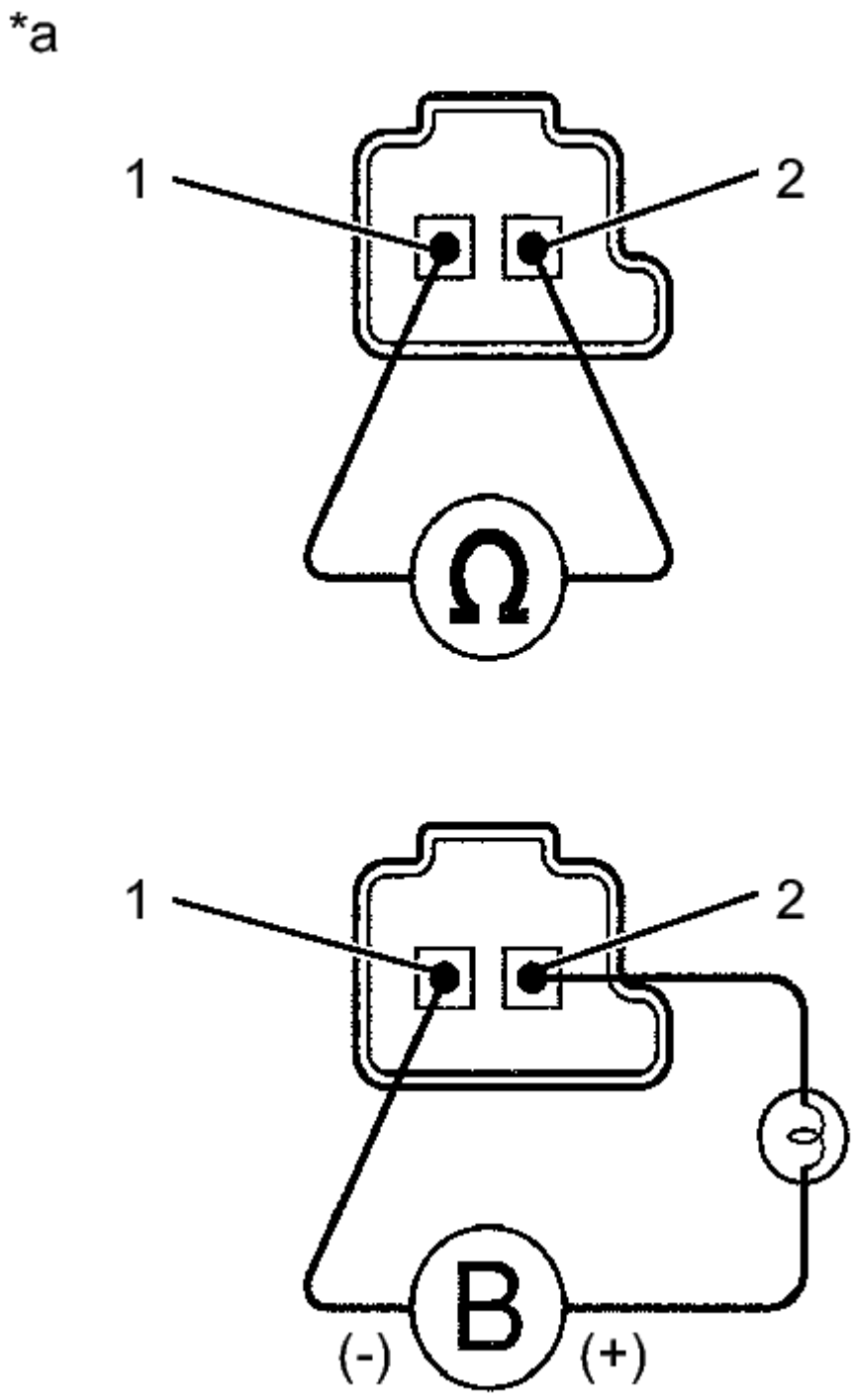


Fig. 53: Inspecting Shift Solenoid Valve SLT
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Component

*a	without harness connected (Shift Solenoid Valve SLT)

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	20°C (68° F)	5.0 to 5.6 ohms

If the result is not as specified, replace the shift solenoid valve SLT.

b. Connect a battery positive (+) lead with a 21 W bulb to terminal 2 and a negative (-) lead to terminal 1 of the solenoid valve connector. Then check that the valve moves and makes an operating sound.

NOTE: When using battery voltage during the inspection, do not bring the positive (+) and negative (-) tester probes too close to each other as a short circuit may occur.

OK

Valve moves and makes an operating sound.

If the result is not as specified, replace the shift solenoid valve SLT.

3. **INSPECT SHIFT SOLENOID VALVE SLU**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

4. **INSPECT SHIFT SOLENOID VALVE SL1**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

5. **INSPECT SHIFT SOLENOID VALVE SL2**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

6. **INSPECT SHIFT SOLENOID VALVE SL3**

   HINT:

   Refer to Inspect Shift Solenoid Valve SLT.

7. **INSPECT SHIFT SOLENOID VALVE SL4**

   HINT:

   Refer to Inspect Shift Solenoid Valve SLT.

REASSEMBLY

REASSEMBLY

1. **INSTALL SHIFT SOLENOID VALVE SL4**
   a. Coat the shift solenoid valve SL4 and bolt with ATF.

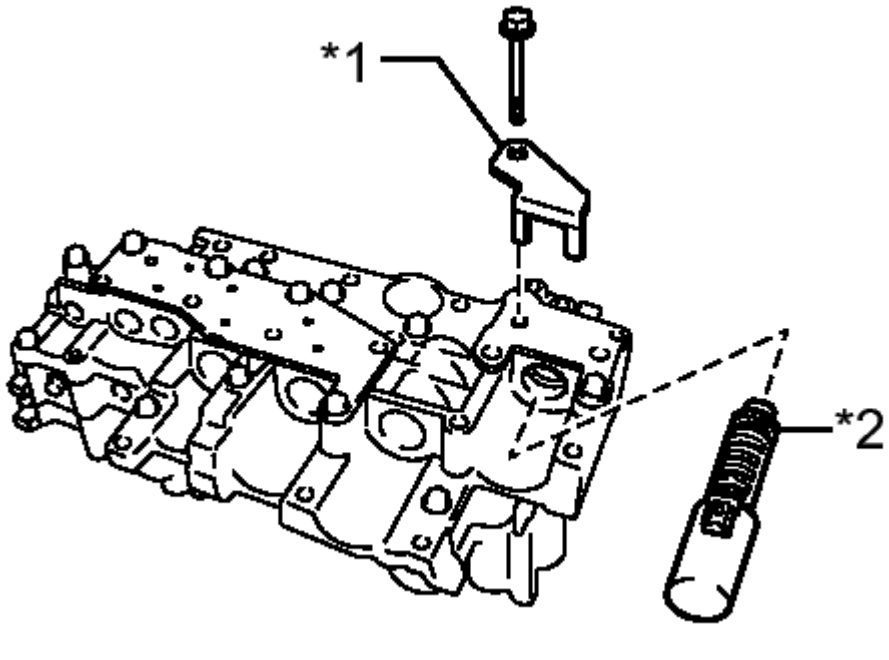


Fig. 54: Identifying Lock Plate And Shift Solenoid Valve SL4 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL4 onto the transmission valve body with the bolt and lock plate.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL4

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

2. **INSTALL SHIFT SOLENOID VALVE SL3**
   a. Coat the shift solenoid valve SL3 and bolt with ATF.

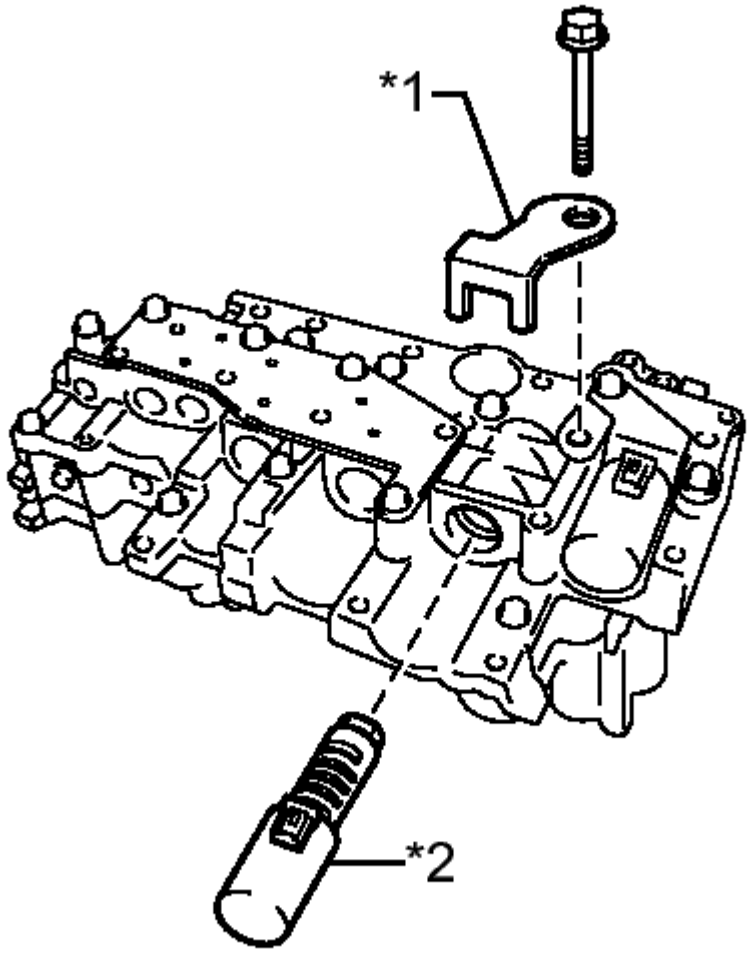


Fig. 55: Identifying Lock Plate And Shift Solenoid Valve SL3 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL3 onto the transmission valve body with the bolt and lock plate.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL3

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

3. **INSTALL SHIFT SOLENOID VALVE SL1**
   a. Coat the shift solenoid valve SL1 with ATF.

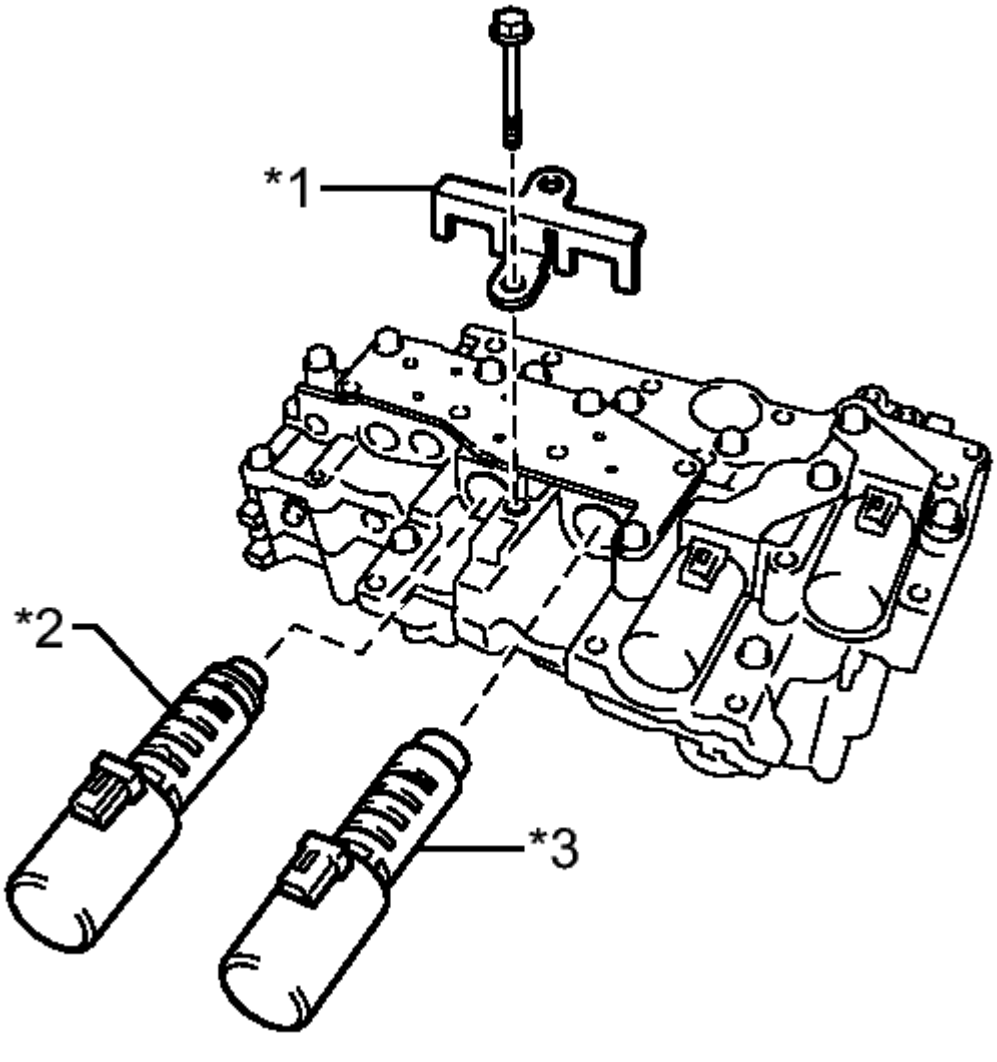


Fig. 56: Identifying Lock Plate, Shift Solenoid Valve SL2 And Shift Solenoid Valve SL1 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the shift solenoid valve SL1 onto the transmission valve body.

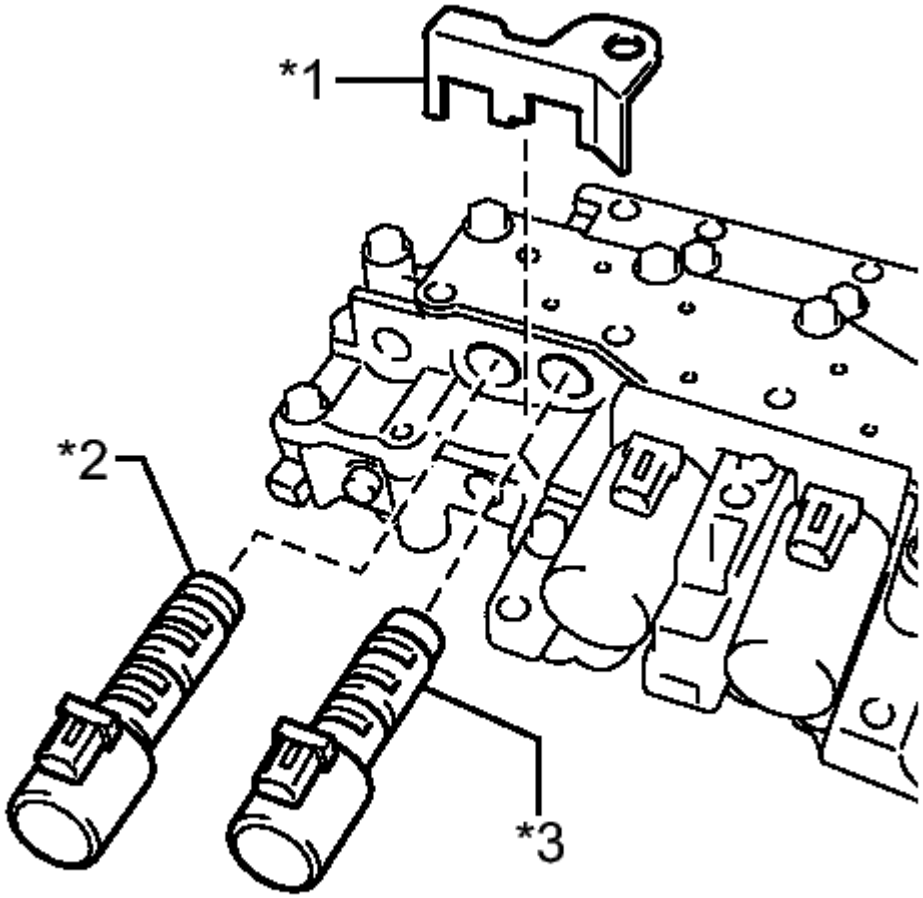
TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL2
*3	Solenoid Valve SL1

4. **INSTALL SHIFT SOLENOID VALVE SL2**
   a. Coat the shift solenoid valve SL2 and bolt with ATF.
   b. Install the shift solenoid valve SL2 onto the transmission valve body with the bolt and lock plate.

   Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

5. **INSTALL SHIFT SOLENOID VALVE SLU**
   a. Coat the shift solenoid valve SLU with ATF.



N

Fig. 57: Identifying Lock Plate, Shift Solenoid Valve SLT And Shift Solenoid Valve SLU
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the shift solenoid valve SLU onto the transmission valve body.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SLT
*3	Solenoid Valve SLU

6. **INSTALL SHIFT SOLENOID VALVE SLT**

a. Coat the shift solenoid valve SLT with ATF.
b. Install the shift solenoid valve SLT and lock plate onto the transmission valve body.

7. **INSTALL SHIFT SOLENOID VALVE SL**
   a. Coat the shift solenoid valve SL with ATF.

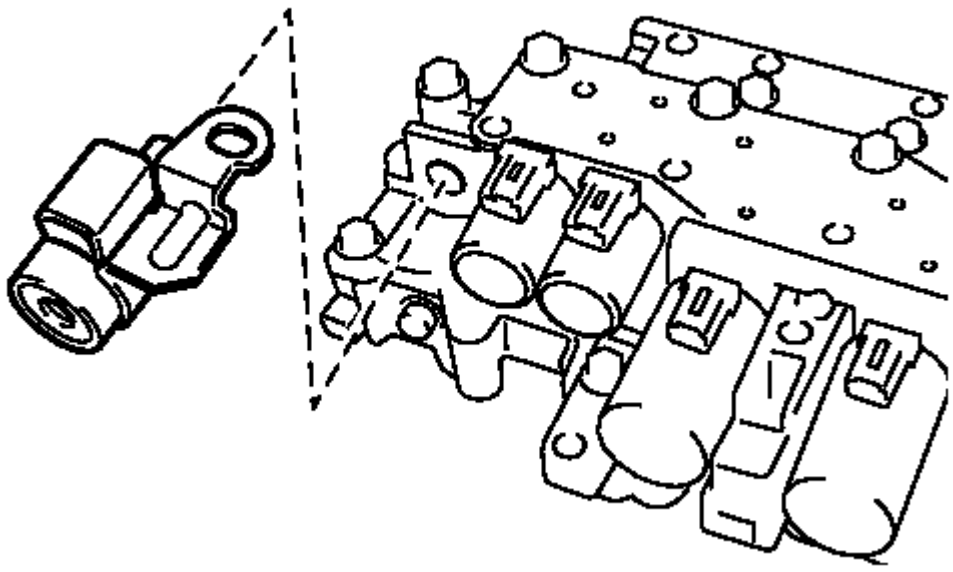
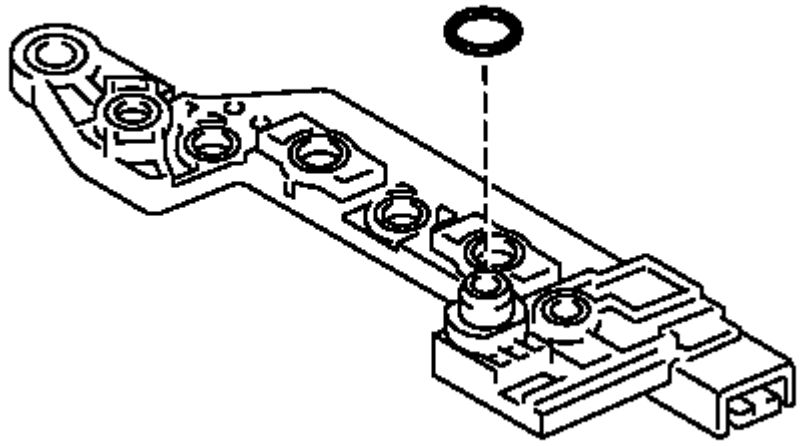


Fig. 58: Identifying Shift Solenoid Valve SL
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL onto the transmission valve body.

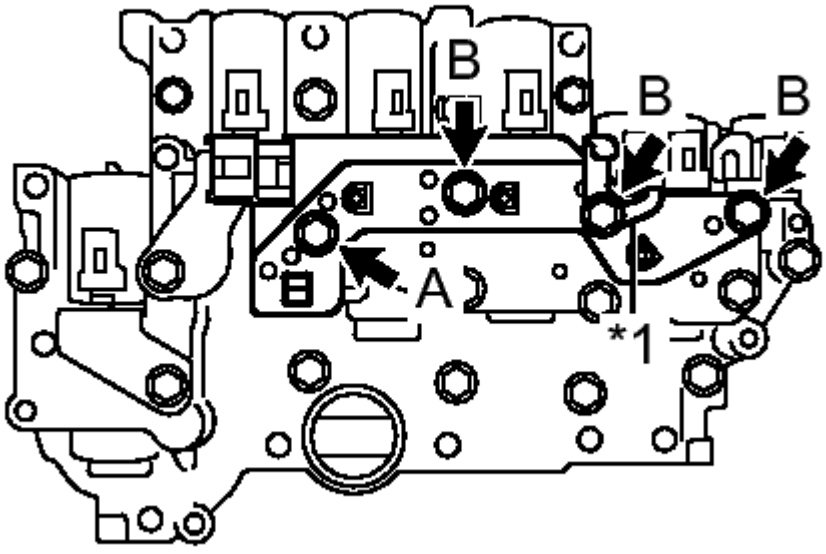
8. **INSTALL ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Coat a new O-ring with ATF and install it onto the ATF temperature sensor.



N

Fig. 59: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the 4 bolts with ATF.



N

Fig. 60: Identifying ATF Temperature Sensor Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the ATF temperature sensor onto the transmission valve body with the 4 bolts and wire harness clamp.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

BOLT LENGTH

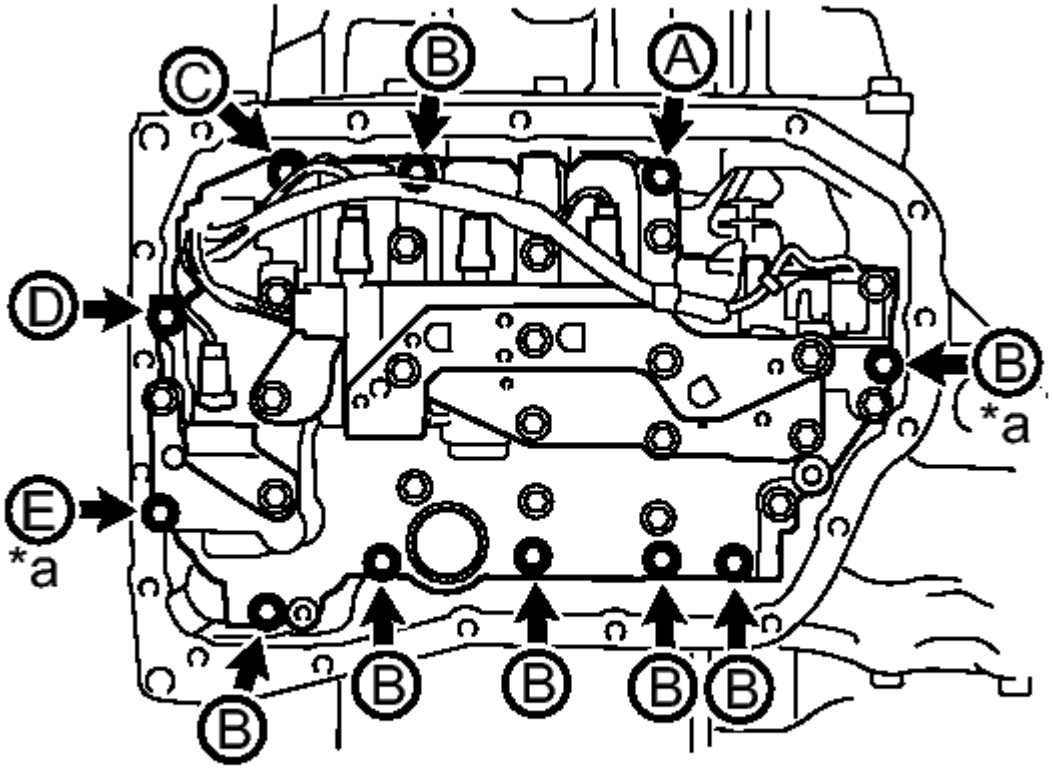
Bolt	Length mm (in.)
A	25 (0.984)
B	85 (3.35)

9. **INSTALL TRANSMISSION WIRE** See step 1
10. **INSTALL TRANSMISSION REVOLUTION SENSOR** See step 1

INSTALLATION

INSTALLATION

1. **INSTALL MANUAL VALVE**
   a. Coat the manual valve with ATF and install it into the transmission valve body.
2. **INSTALL TRANSAXLE CASE GASKET**
   a. Coat 2 new transaxle case gaskets with ATF.
   b. Install the 2 transaxle case gaskets onto the transaxle case.
3. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**
   a. Coat the O-ring of the transmission wire with ATF.
   b. Confirm that the manual valve lever is positioned as shown in the illustration and install the transmission valve body onto the automatic transaxle with the 11 bolts.



N

Fig. 61: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Positioning Bolt

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

BOLT LENGTH

Bolt	Length mm (in.)
A	25 (0.984)

B	30 (1.18)
C	35 (1.38)
D	45 (1.77)
E	55 (2.17)

NOTE:

- **When installing the transmission valve body, be careful not to allow the transmission revolution sensor and automatic transaxle to interfere with each other.**
- **Be sure to insert the pin of the manual valve lever into the groove on the end of the manual valve.**
- **First, temporarily tighten the bolts marked (*a) in the illustration because they are positioning bolts.**

4. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY**
   a. Coat a new O-ring with ATF and install it onto the valve body oil strainer.
   b. Install the valve body oil strainer onto the transmission valve body with the 2 bolts.

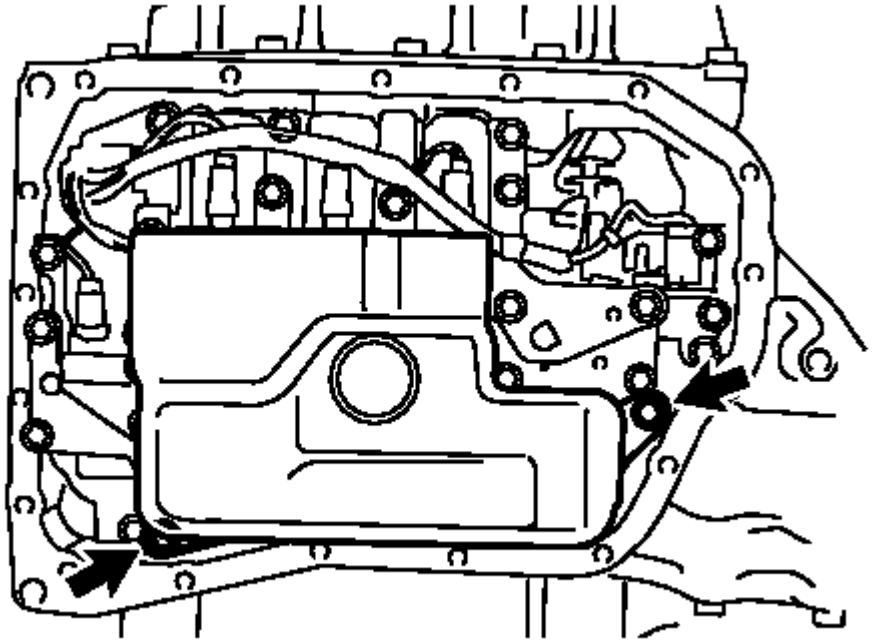


Fig. 62: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

5. **INSTALL TRANSMISSION OIL CLEANER MAGNET**
    a. Install the 2 transmission oil cleaner magnets onto the automatic transaxle oil pan as shown in the illustration.

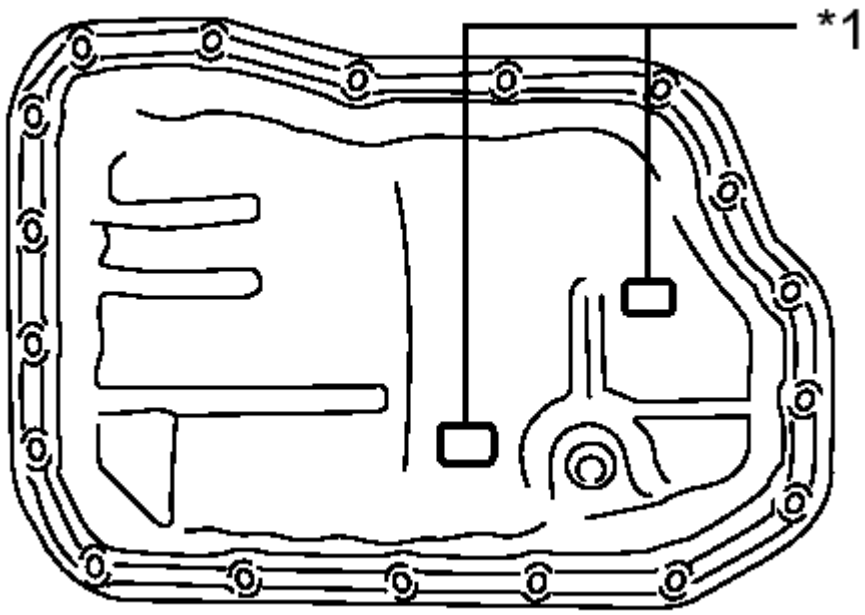


Fig. 63: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

6. **INSTALL AUTOMATIC TRANSAXLE OIL PAN GASKET**
    a. Install a new automatic transaxle oil pan gasket onto the automatic transaxle oil pan.
7. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
    a. Clean and degrease the bolt (*1) and the installation hole in the automatic transaxle.

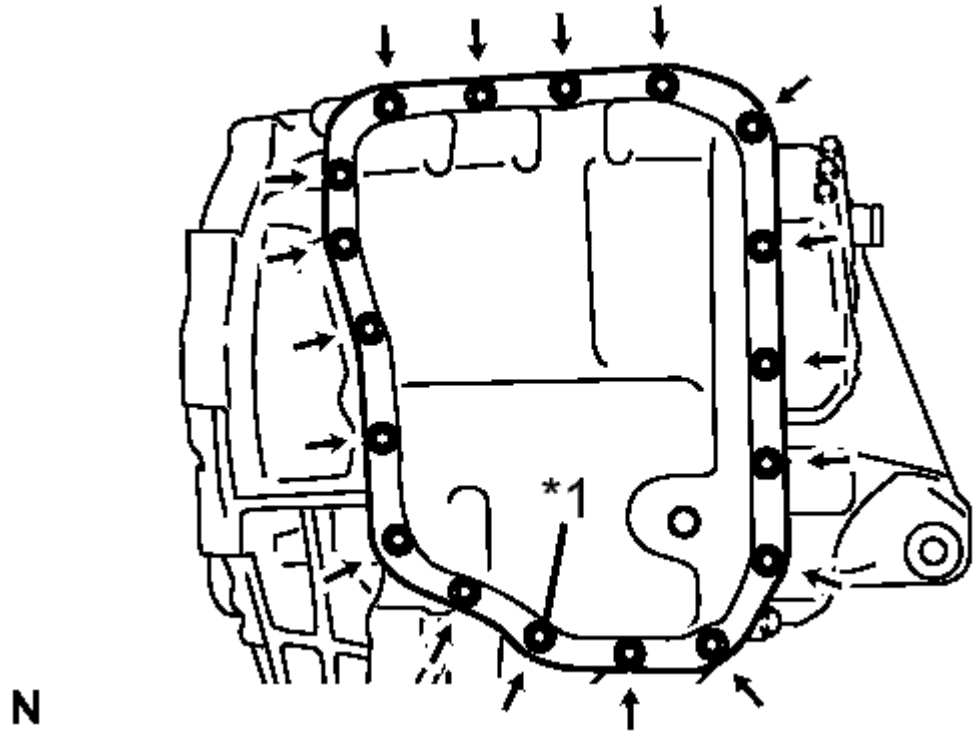


Fig. 64: Identifying Automatic Transaxle Oil Pan Bolts & Precoated Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Precoated Bolt

b. Apply adhesive to 2 or 3 threads on the ends of the bolt (*1).

Adhesive

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

c. Install the automatic transaxle oil pan with the transaxle oil pan gasket onto the automatic transaxle with the 18 bolts.

Precoated Bolt (*1)

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

except Precoated bolt

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

NOTE:

- **In order to ensure proper sealing of the bolt, apply adhesive to**

the bolt and install them within 10 minutes of adhesive application.

- **Completely remove any oil or grease from the contact surface of the automatic transaxle and automatic transaxle oil pan with the automatic transaxle oil pan gasket before installation.**

8. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY** See step 9
9. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

   Refer to **INSTALLATION**

PARK / NEUTRAL POSITION SWITCH

COMPONENTS

ILLUSTRATION

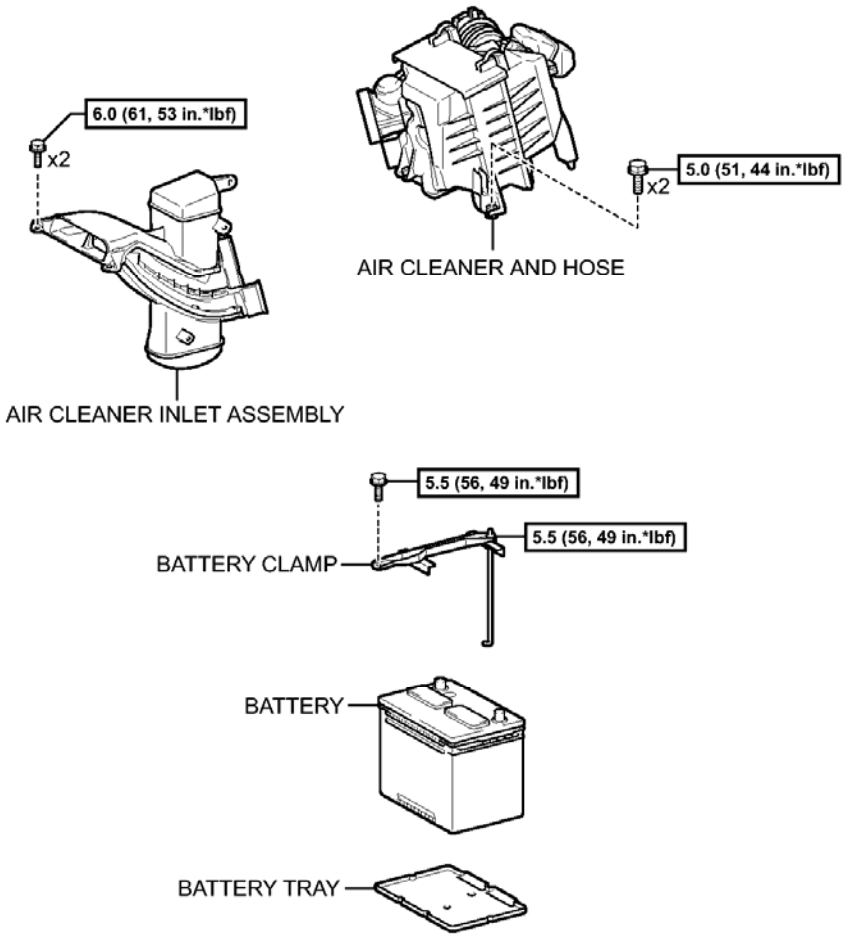


Fig. 65: Park/Neutral Position Switch Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

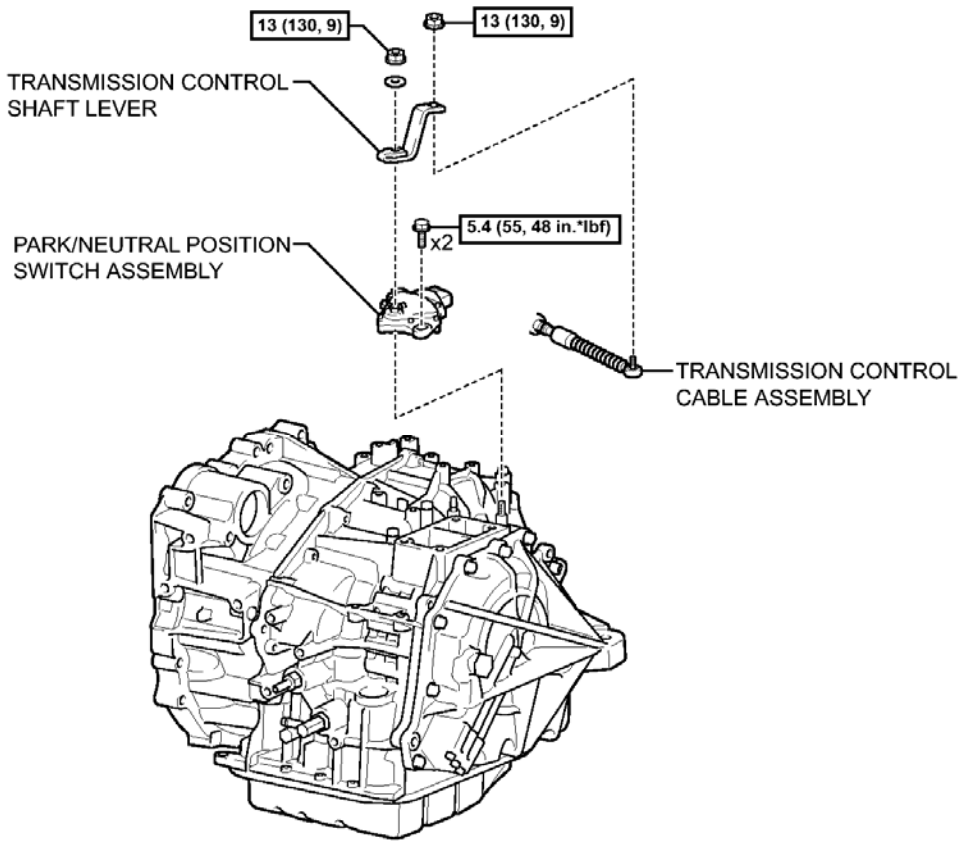


Fig. 66: Park/Neutral Position Switch Replacement Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. **INSPECT PARK/NEUTRAL POSITION SWITCH OPERATION**
    a. Apply the parking brake and turn the ignition switch to ON.
    b. Step on the brake pedal and check that the engine starts when the shift lever is in N or P, but does not start in the other positions.
    c. Check that the back-up lights illuminate when the shift lever is in R, and that they do not illuminate with the shift lever in the other positions.

REMOVAL

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **PRECAUTION** .
2. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
3. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
4. **REMOVE AIR CLEANER AND HOSE** . Refer to **REMOVAL - Step 7**
5. **SEPARATE TRANSMISSION CONTROL CABLE ASSEMBLY**
    a. Move the shift lever to N.
    b. Remove the nut and separate the transmission control cable from the transmission control shaft lever.

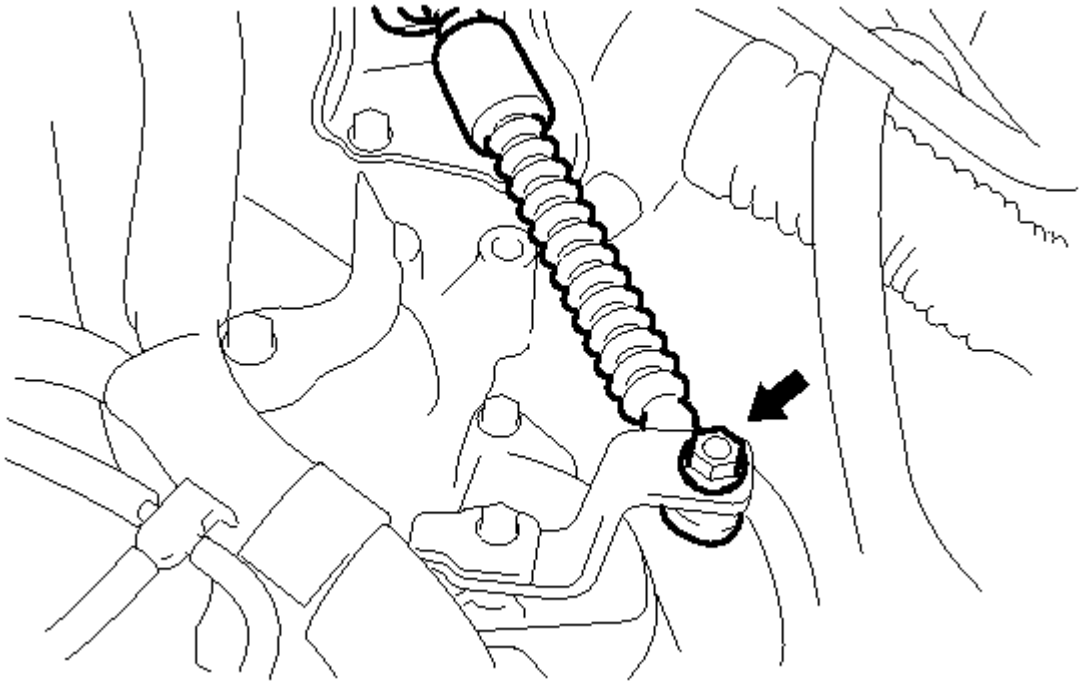


Fig. 67: Identifying Transmission Control Cable & Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
    a. Disconnect the park/neutral position switch connector.
    b. Remove the nut, the spring washer and the transmission control shaft lever.

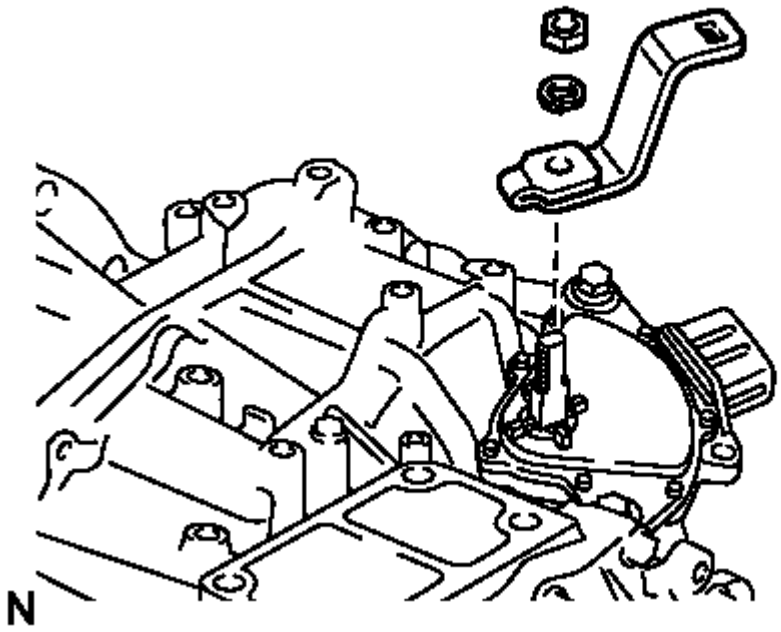


Fig. 68: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 2 bolts and the park/neutral position switch.

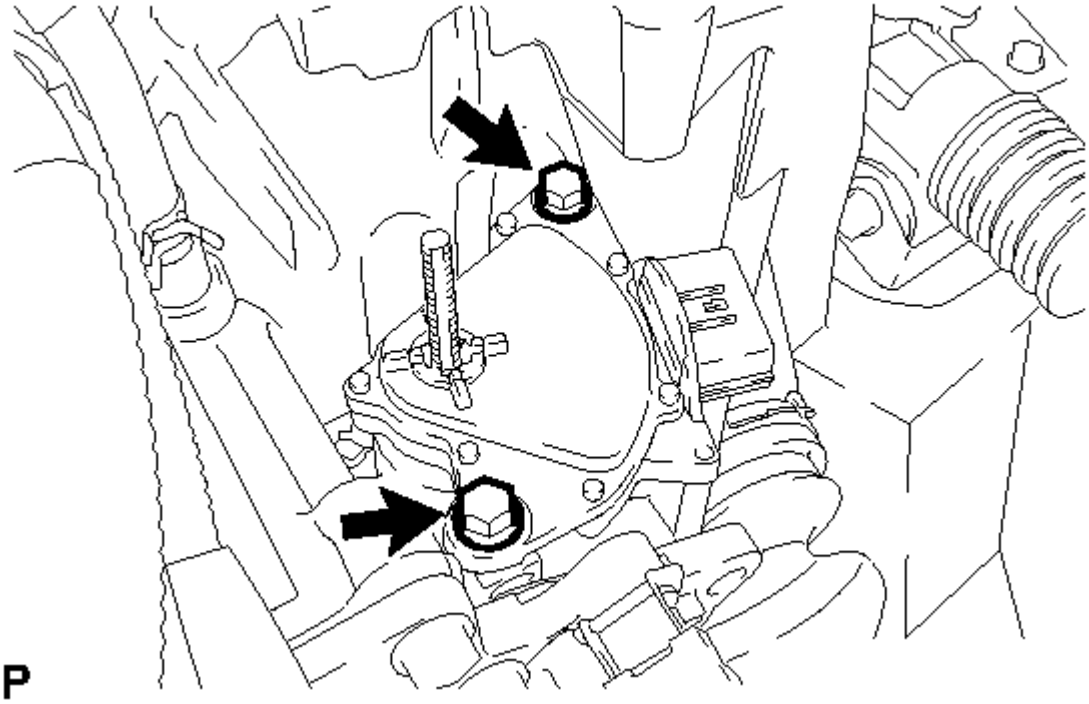


Fig. 69: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Before removing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to remove the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**

INSPECTION

INSPECTION

1. **INSPECT PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Measure the resistance according to the value(s) in the table below.

*a

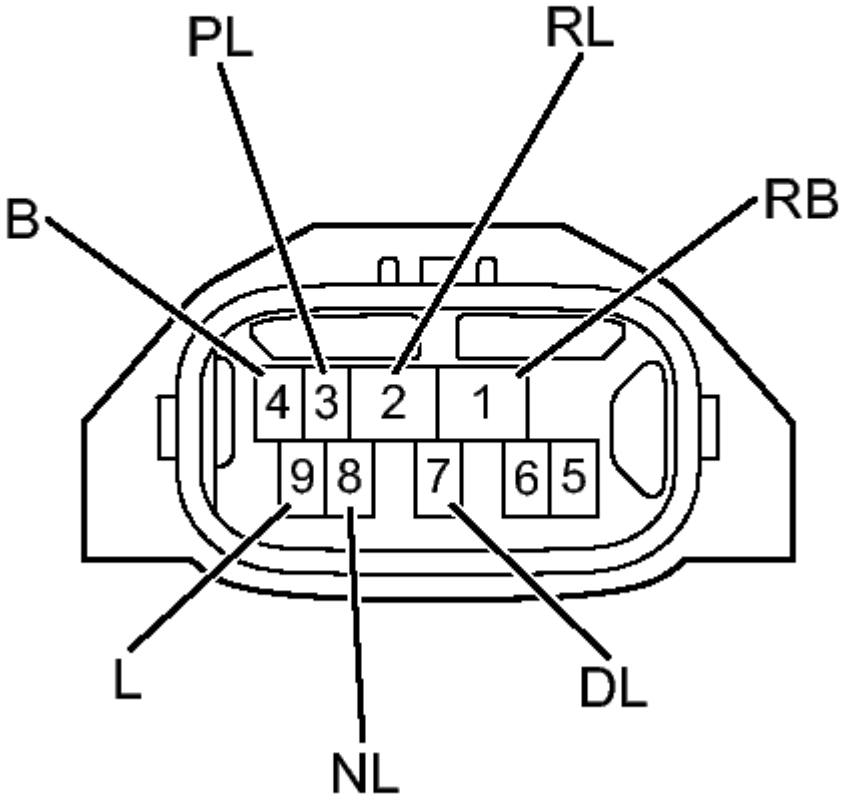


Fig. 70: Park/Neutral Position Switch Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Park/Neutral Position Switch)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
1 (RB) - 2 (RL)	R	Below 1 ohms
	Except R	10 kohms or higher
1 (RB) - 3 (PL)	P	Below 1 ohms
	Except P	10 kohms or higher
1 (RB) - 7 (DL)	D, S, "+" or "-"	Below 1 ohms
	Except D, S, "+" and "-"	10 kohms or higher
1 (RB) - 8 (NL)	N	Below 1 ohms
	Except N	10 kohms or higher
4 (B) - 9 (L)	P	Below 1 ohms
	Except P	10 kohms or higher
	N	Below 1 ohms
	Except N	10 kohms or higher

If the result is not as specified, replace the park/neutral position switch.

ADJUSTMENT

ADJUSTMENT

1. **ADJUST PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Remove the transmission control shaft lever. Refer to **REMOVAL**.
   b. Loosen the 2 bolts of the park/neutral position switch.

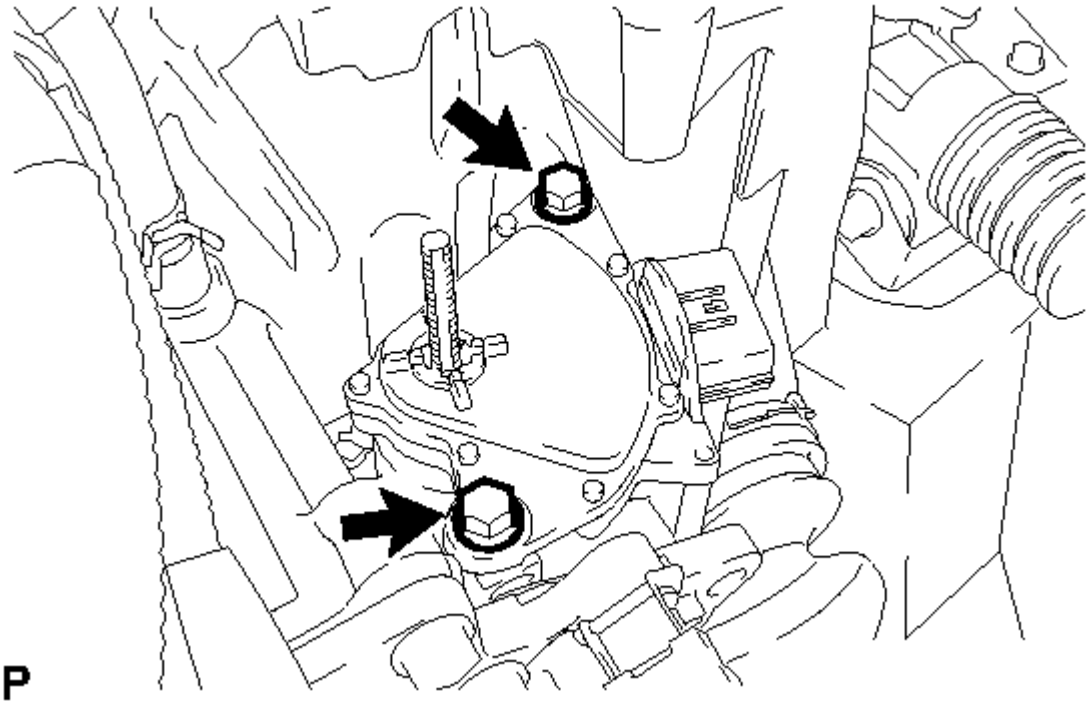


Fig. 71: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Align the protrusions of the park/neutral position switch.

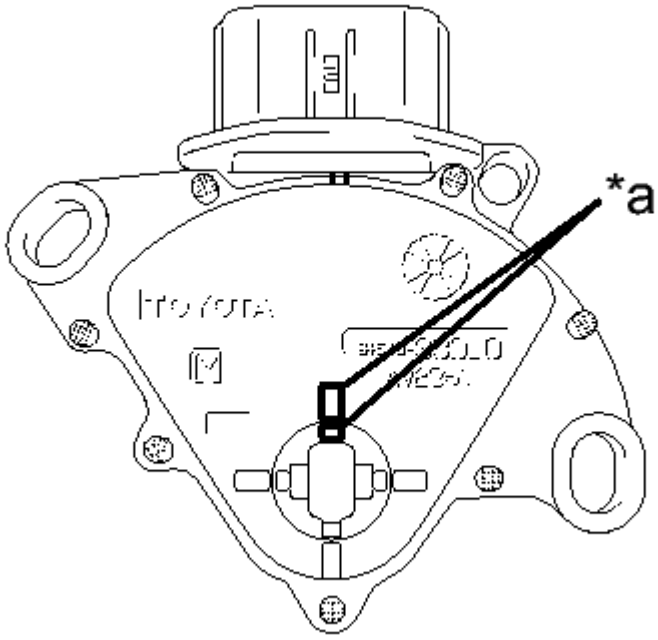


Fig. 72: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

d. Hold the park/neutral position switch in position and tighten the 2 bolts.

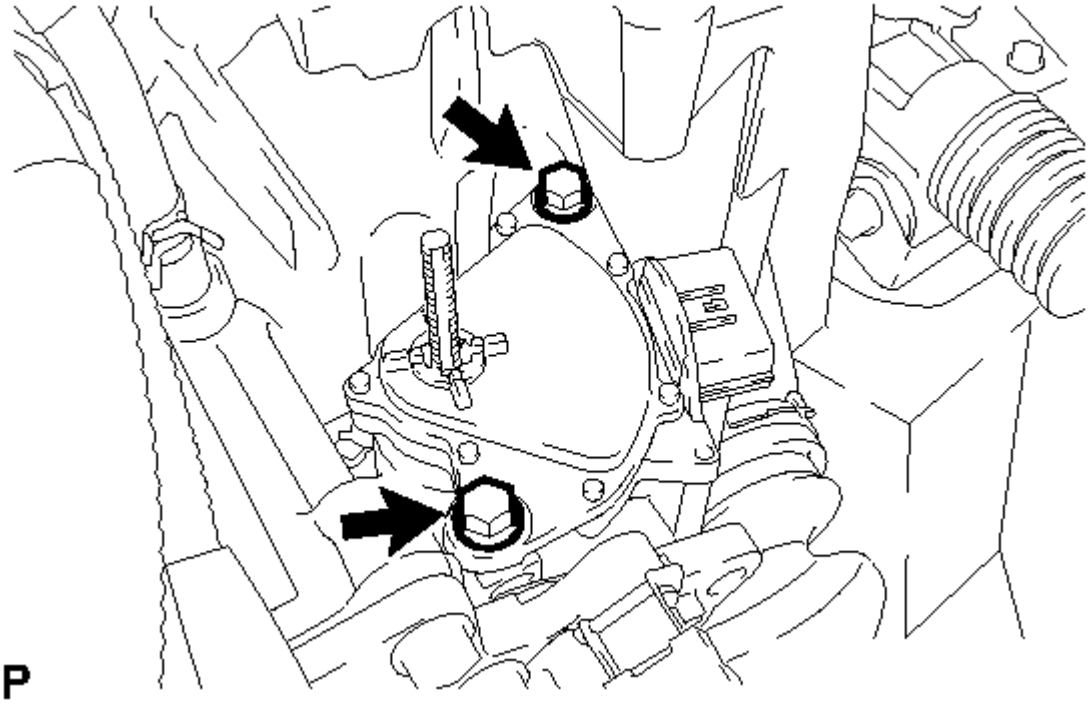


Fig. 73: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.

e. Install the transmission control shaft lever. Refer to **INSTALLATION**.
f. After the adjustment, perform the park/neutral position switch operation check See step 1.

INSTALLATION

INSTALLATION

1. **INSTALL PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Align the protrusions of the park/neutral position switch.

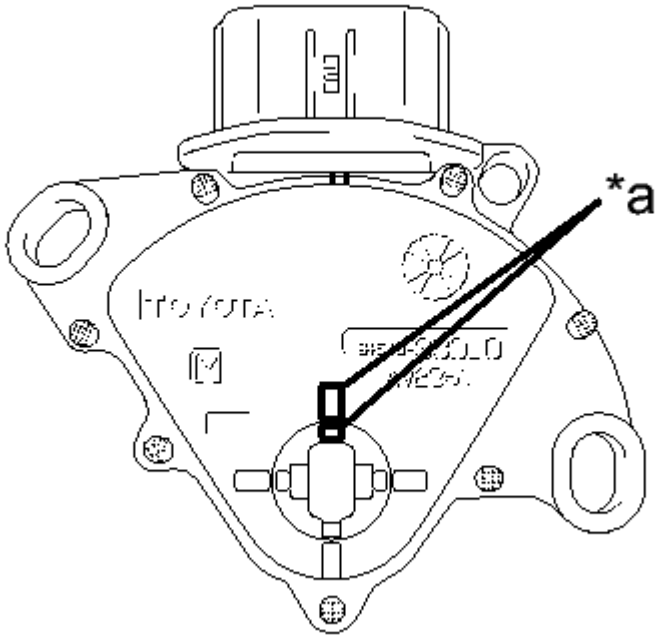


Fig. 74: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

b. Install the park/neutral position switch onto the control shaft with the 2 bolts.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE:

- **Before installing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to install the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**
- **After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.**

c. Install the transmission control shaft lever onto the control shaft with the nut and spring washer.

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

d. Connect the park/neutral position switch connector.

2. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Install the transmission control cable onto the transmission control shaft lever with the nut.

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

NOTE: **Before connecting the transmission control cable assembly, check that the park/neutral position switch and the shift lever are in N position.**

3. **INSTALL AIR CLEANER AND HOSE** . Refer to **INSTALLATION - Step 4**
4. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
5. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
6. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

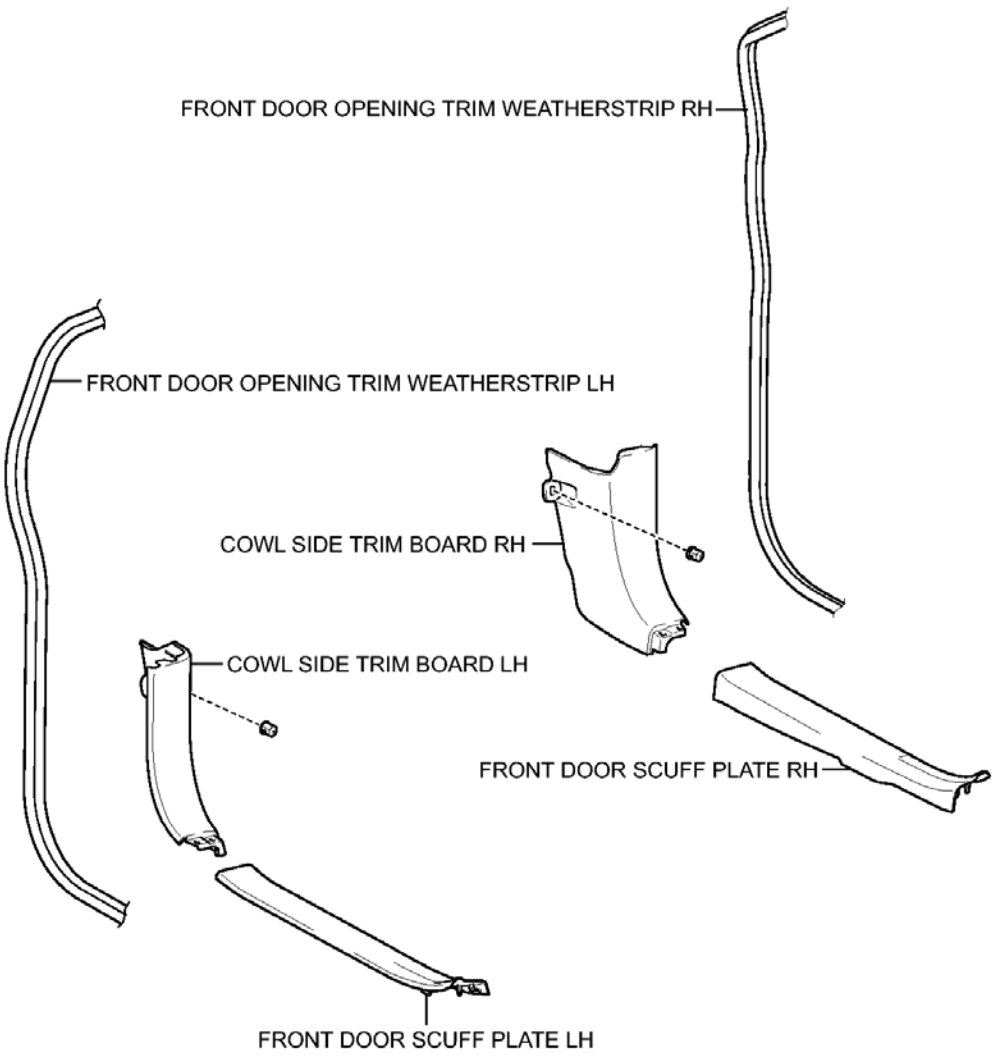
   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **PRECAUTION** .
7. **INSPECT PARK/NEUTRAL POSITION SWITCH OPERATION** See step 1
8. **INSPECT SHIFT LEVER POSITION** See step 1

SHIFT LEVER

COMPONENTS

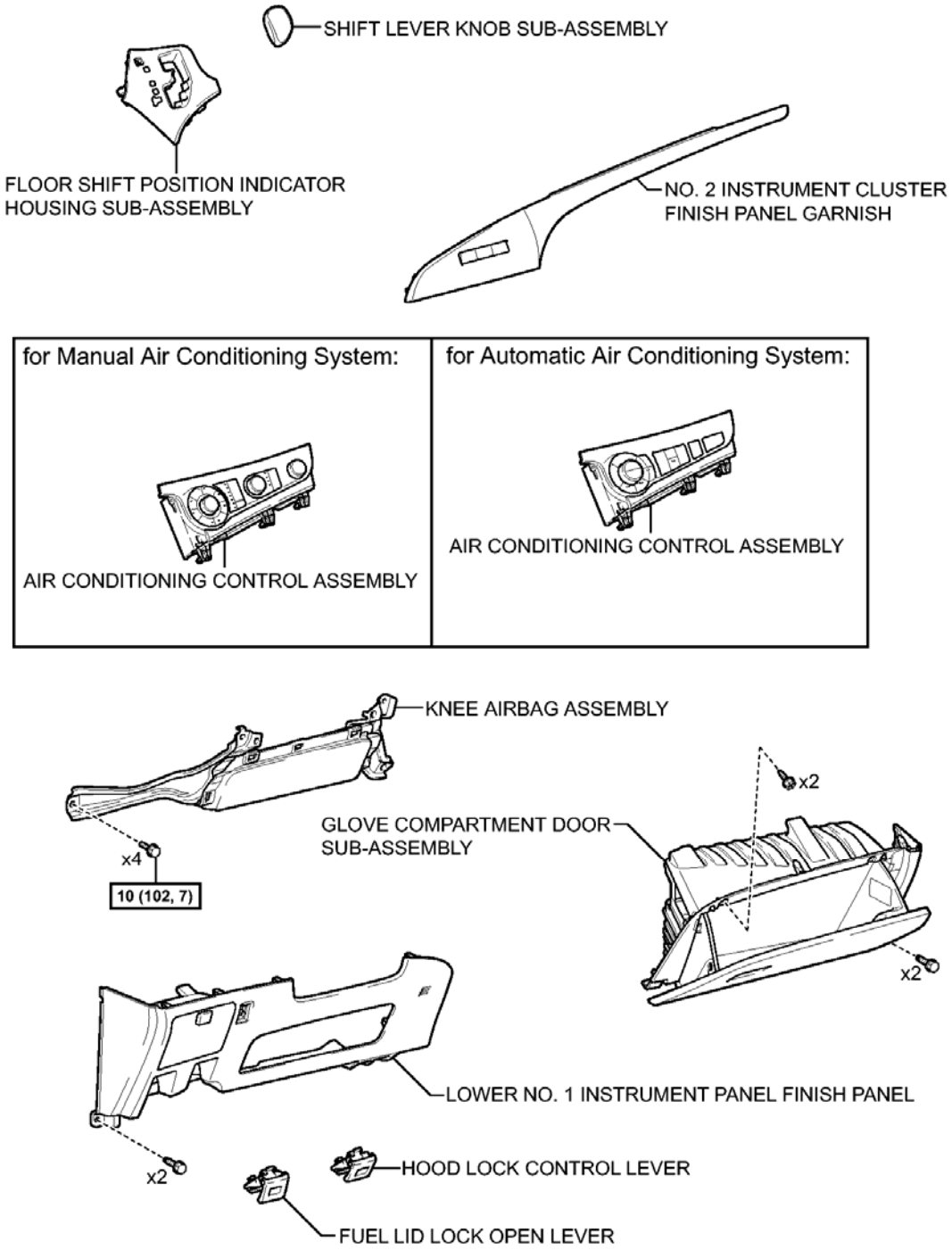
ILLUSTRATION



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Fig. 75: Shift Lever Replacement Components (1 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

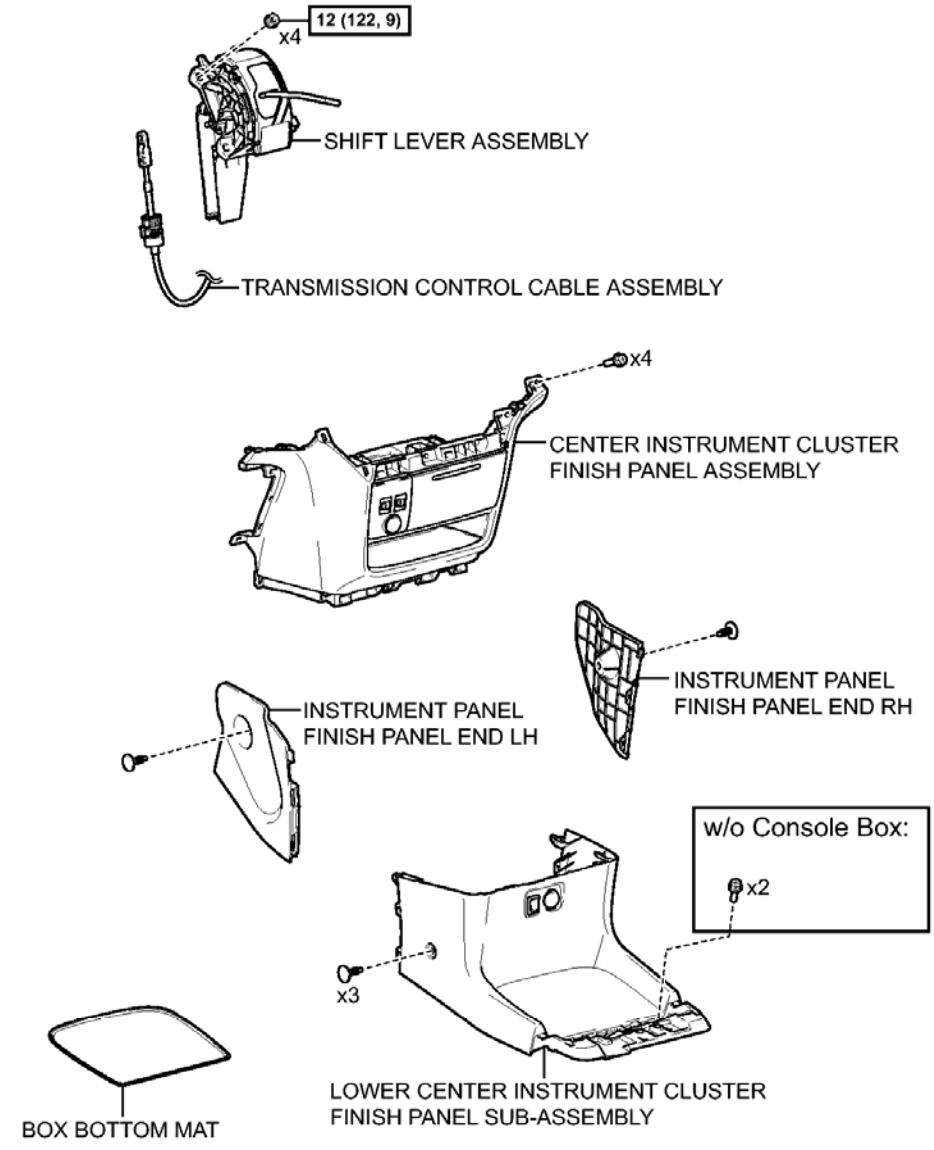
ILLUSTRATION



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Fig. 76: Shift Lever Replacement Components With Torque Specifications (2 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

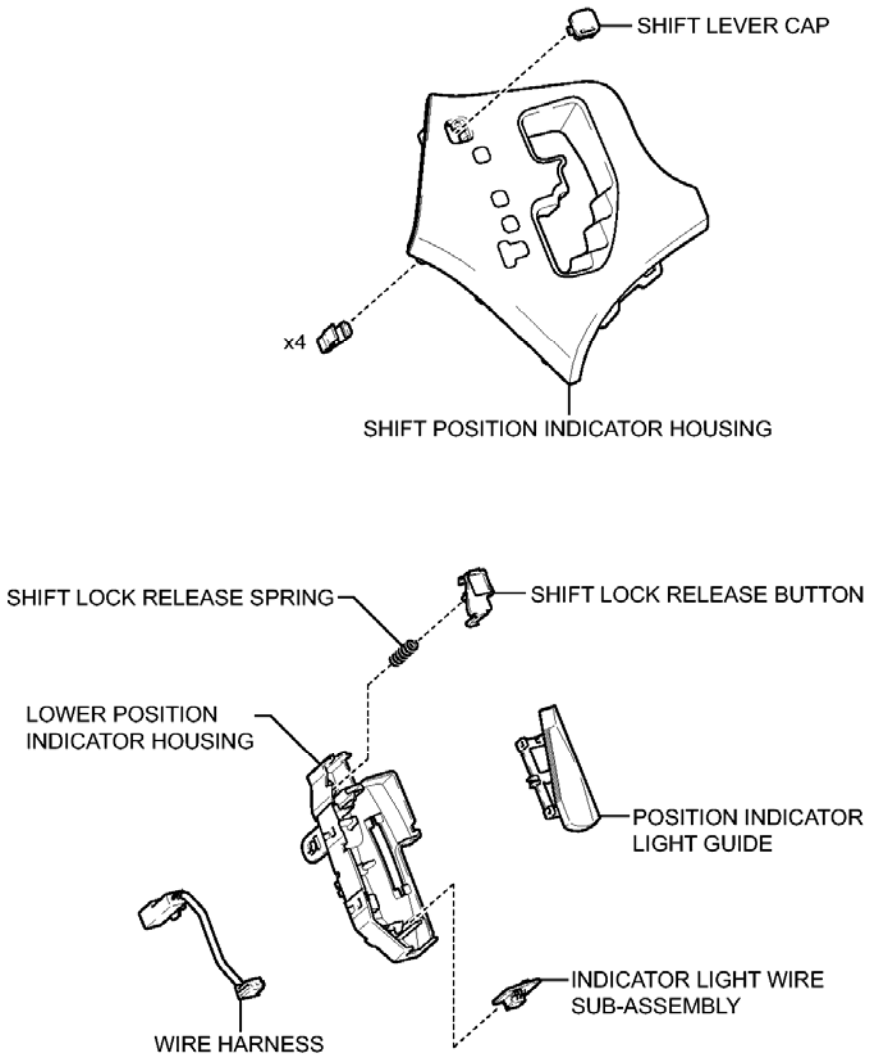
ILLUSTRATION



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Fig. 77: Shift Lever Replacement Components With Torque Specifications (3 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

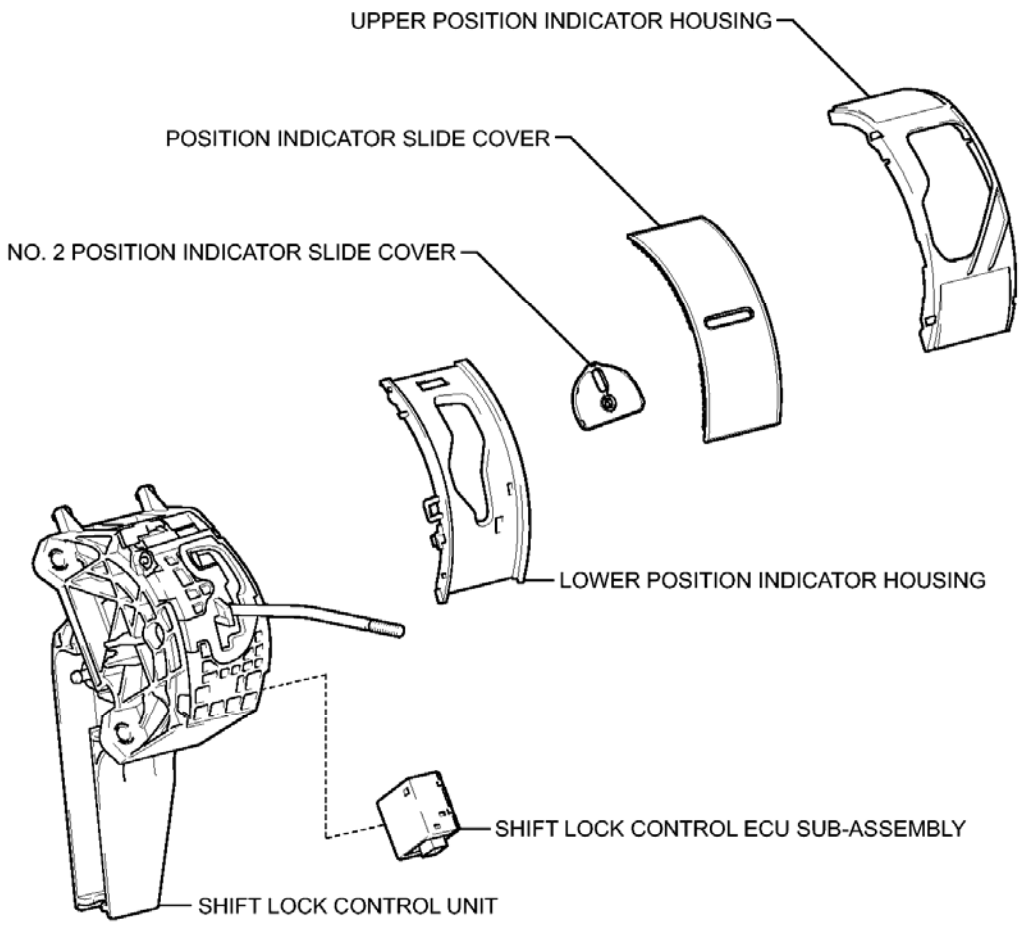
ILLUSTRATION



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Fig. 78: Shift Lever Replacement Components (4 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 79: Shift Lever Replacement Components (5 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. **INSPECT SHIFT LEVER POSITION**
    a. Turn the ignition switch to ON and step on the brake pedal.
    b. Confirm that the shift lever moves smoothly through all of the shift positions and the position indicator shows the correct shift lever position.
    c. Start the engine and confirm that the vehicle moves forward when the shift lever is moved from N

to D.

If the operation cannot be done as specified, inspect the shift lock control unit.

2. **INSPECT SHIFT LOCK OPERATION**
   a. Move the shift lever to P.
   b. Turn the ignition switch off.
   c. Check that the shift lever cannot be moved from P.
   d. Check that the shift lever can be moved from P when the ignition switch is ON and the brake pedal is depressed.

      If the operation cannot be done as specified, inspect the shift lock control unit.
3. **INSPECT SHIFT LOCK RELEASE BUTTON OPERATION**
   a. Move the shift lever to P.
   b. Turn the ignition switch off.
   c. Press the shift lock release button and check that the shift lever can be moved to any position from P.

      If the operation cannot be done as specified, inspect the shift lock control unit.
4. **INSPECT KEY INTERLOCK OPERATION (w/o Smart Key System)**
   a. Turn the ignition switch to ON.
   b. Step on the brake pedal and check that the shift lever can be moved to any other position from P.
   c. Check that the ignition switch cannot be turned to the LOCK position.
   d. Move the shift lever to P, rotate the ignition key to the LOCK position, and check that the ignition key can be removed.

      If the operation cannot be done as specified, inspect the shift lock control unit.

REMOVAL

REMOVAL

1. **REMOVE FRONT DOOR SCUFF PLATE RH** . Refer to **REMOVAL - Step 3**
2. **REMOVE FRONT DOOR SCUFF PLATE LH** . Refer to **REMOVAL - Step 4**
3. **REMOVE COWL SIDE TRIM BOARD RH** . Refer to **REMOVAL - Step 5**
4. **REMOVE COWL SIDE TRIM BOARD LH** . Refer to **REMOVAL - Step 6**
5. **SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP RH**
6. **SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP LH**
7. **REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL** . Refer to **REMOVAL - Step 19**
8. **REMOVE KNEE AIRBAG ASSEMBLY** . Refer to **REMOVAL - Step 6**
9. **REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** . Refer to **REMOVAL - Step 23**
10. **REMOVE GLOVE COMPARTMENT DOOR SUB-ASSEMBLY** . Refer to **REMOVAL - Step 34**
11. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY**

12. **REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY** . Refer to **REMOVAL - Step 25**
13. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** . Refer to **REMOVAL - Step 4**
14. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Manual Air Conditioning System)** . Refer to **REMOVAL - Step 4**
15. **REMOVE CONSOLE BOX ASSEMBLY (for Fixed Type)**

    Refer to **REMOVAL**

16. **REMOVE CONSOLE BOX ASSEMBLY (for Slide Type)**

    Refer to **REMOVAL**

17. **REMOVE LOWER CENTER INSTRUMENT COVER (w/ Console Box)** . Refer to **REMOVAL - Step 42**
18. **REMOVE LOWER CENTER INSTRUMENT COVER (w/o Console Box)** . Refer to **REMOVAL - Step 41**
19. **REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** . Refer to **REMOVAL - Step 43**
20. **REMOVE INSTRUMENT PANEL FINISH PANEL END RH** . Refer to **REMOVAL - Step 39**
21. **REMOVE INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **REMOVAL - Step 40**
22. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** . Refer to **REMOVAL - Step 45**
23. **REMOVE SHIFT LEVER ASSEMBLY**
    a. Move the shift lever to N.
    b. Disconnect the shift lock control ECU connector and transmission control switch wire connector.

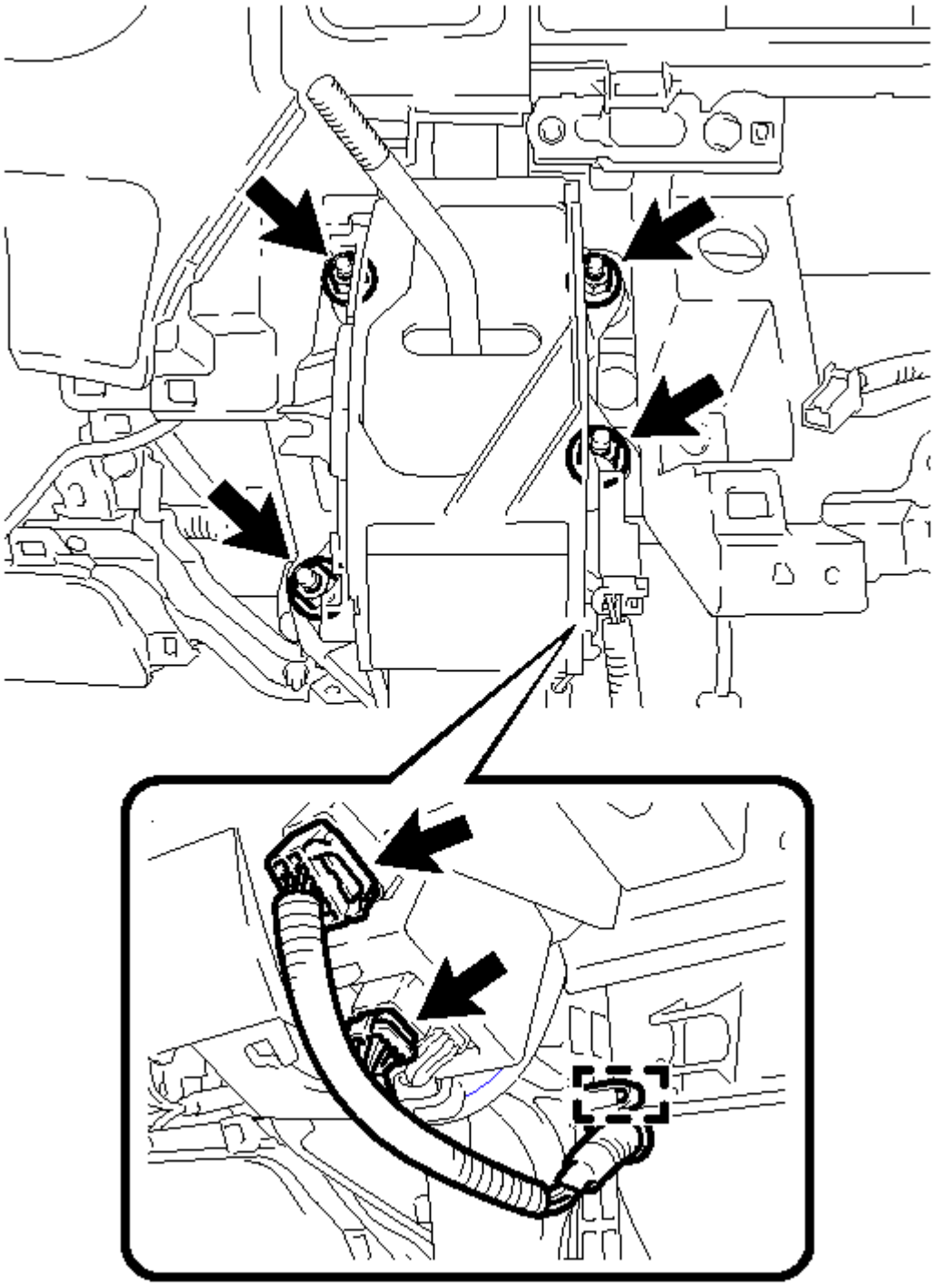


Fig. 80: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 4 nuts and shift lever.

24. **DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**

a. Disconnect the end of the transmission control cable from the shift lever.

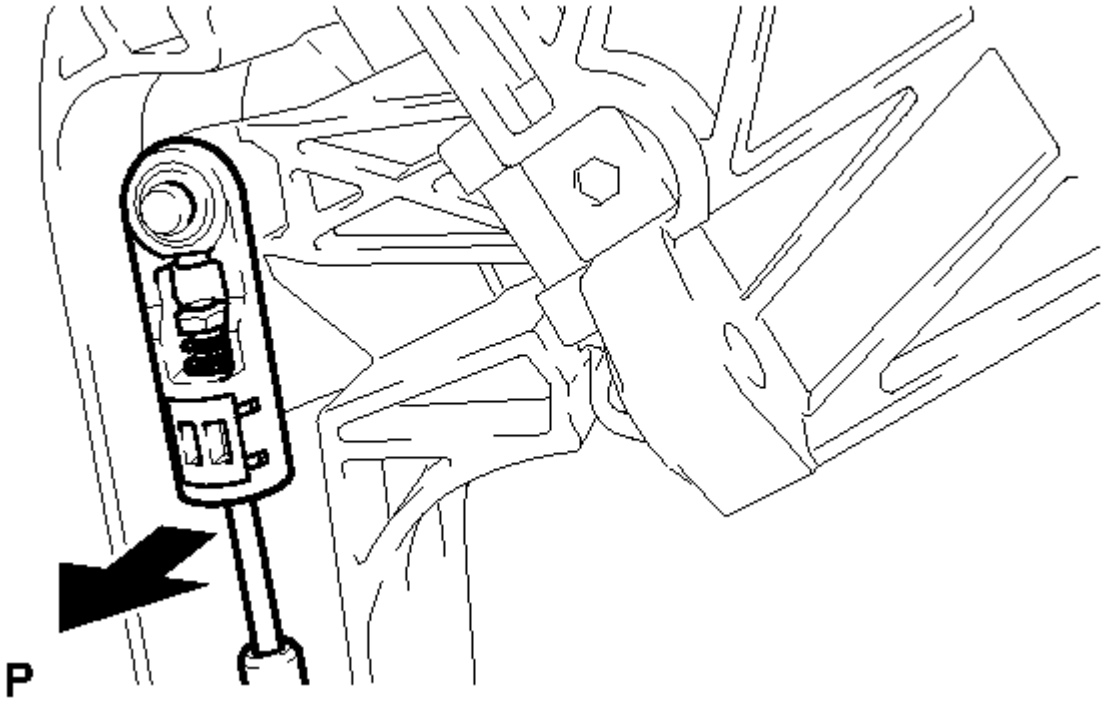


Fig. 81: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, pull out the transmission control cable stopper.

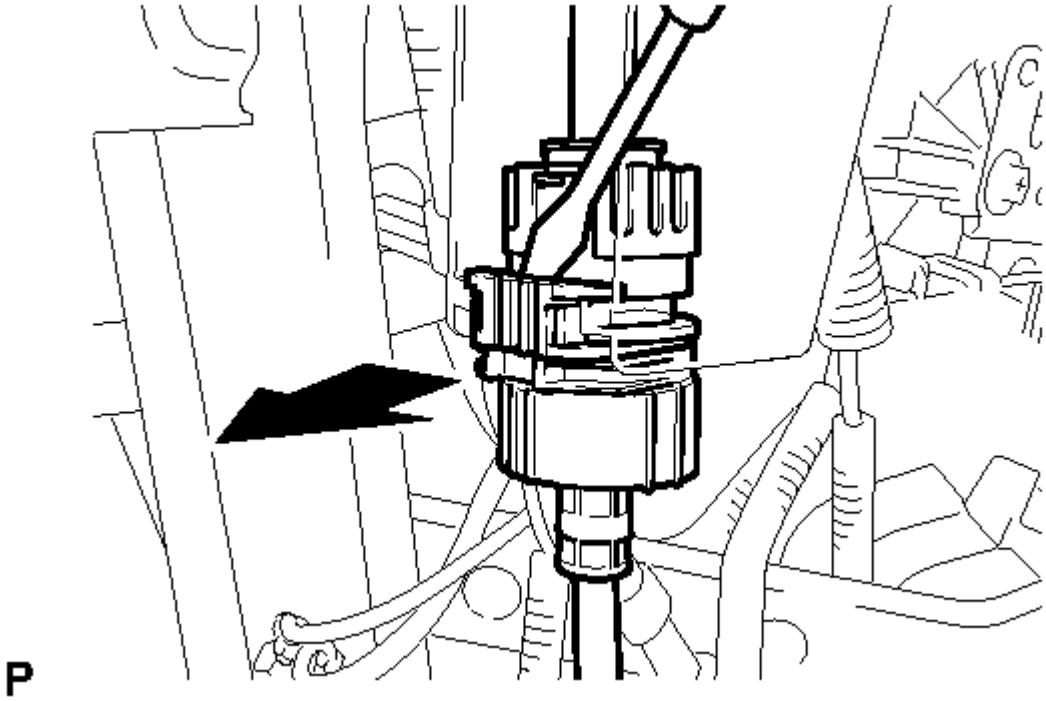
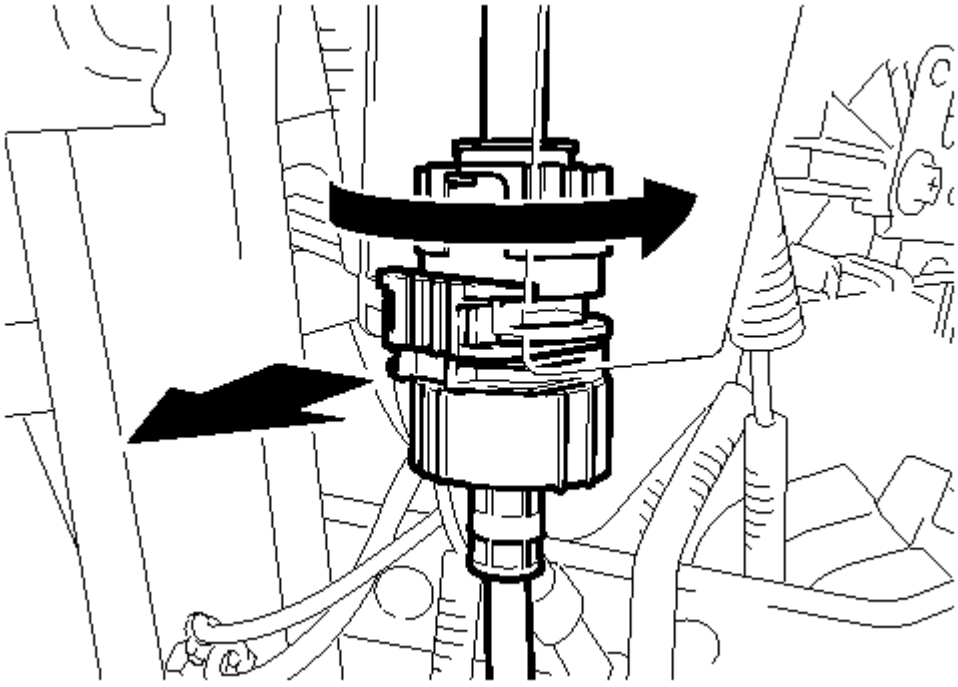


Fig. 82: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not remove the stopper. If the stopper is removed, reinstall it to its original position.

c. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.



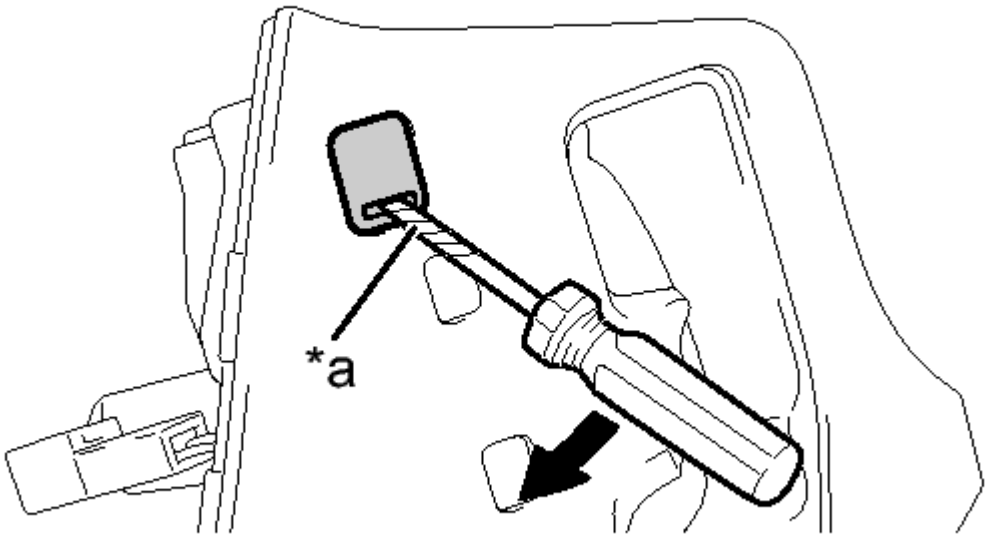
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Fig. 83: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE SHIFT LEVER CAP**
   a. Using a thin-bladed screwdriver with its tip wrapped with protective tape, remove the shift lever cap from the shift position indicator housing.



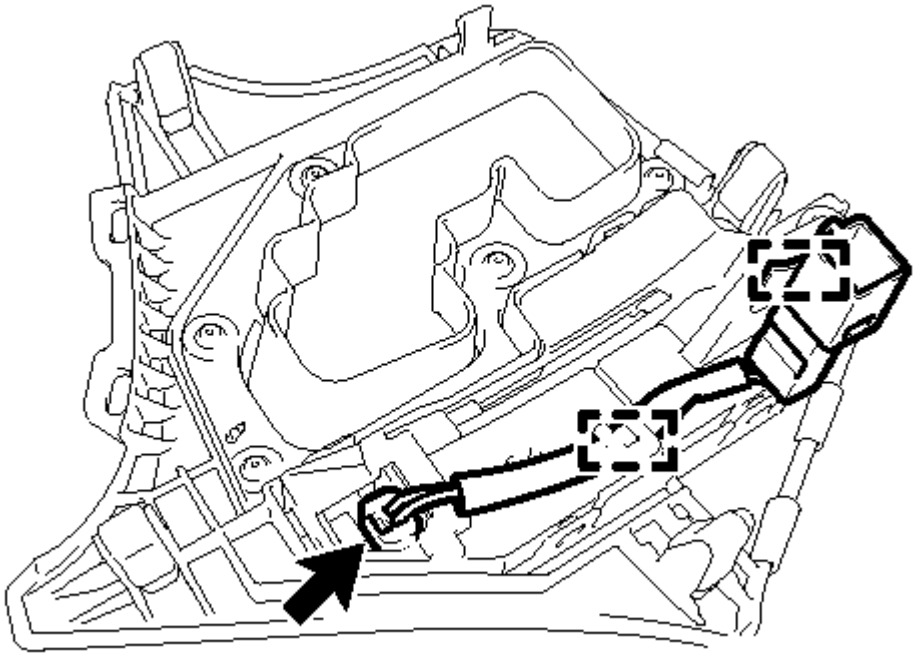
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Fig. 84: Removing Shift Lever Cap Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protective Tape

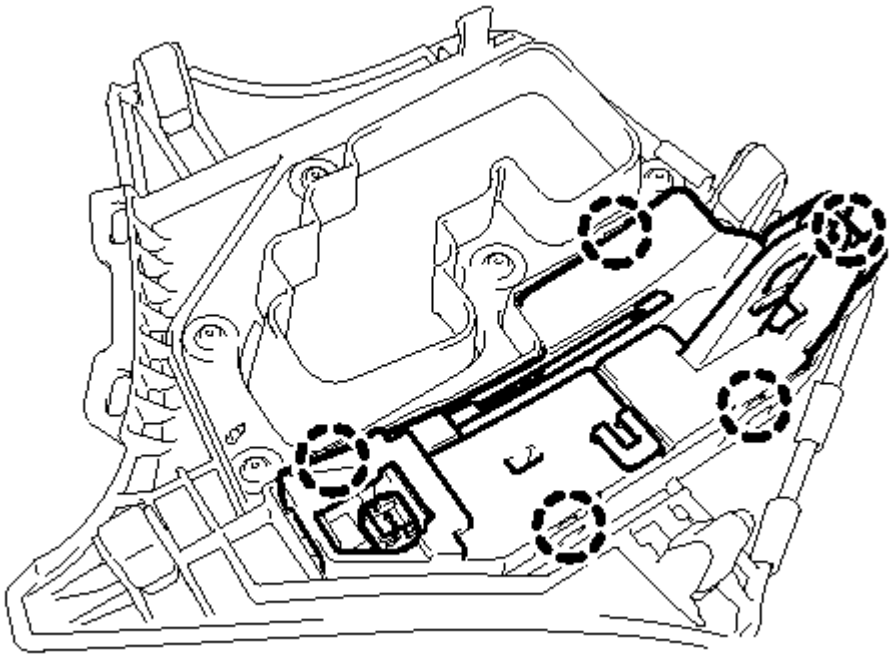
2. **REMOVE LOWER POSITION INDICATOR HOUSING**
    a. Disconnect the connector and 2 clamps and remove the wire harness from the lower position indicator housing.



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Fig. 85: Identifying Lower Position Indicator Housing Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disengage the 5 claws and remove the lower position indicator housing from the shift position indicator housing.



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Fig. 86: Identifying Lower Position Indicator Housing & Claws

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

c. Remove the 4 clips from the shift position indicator housing.

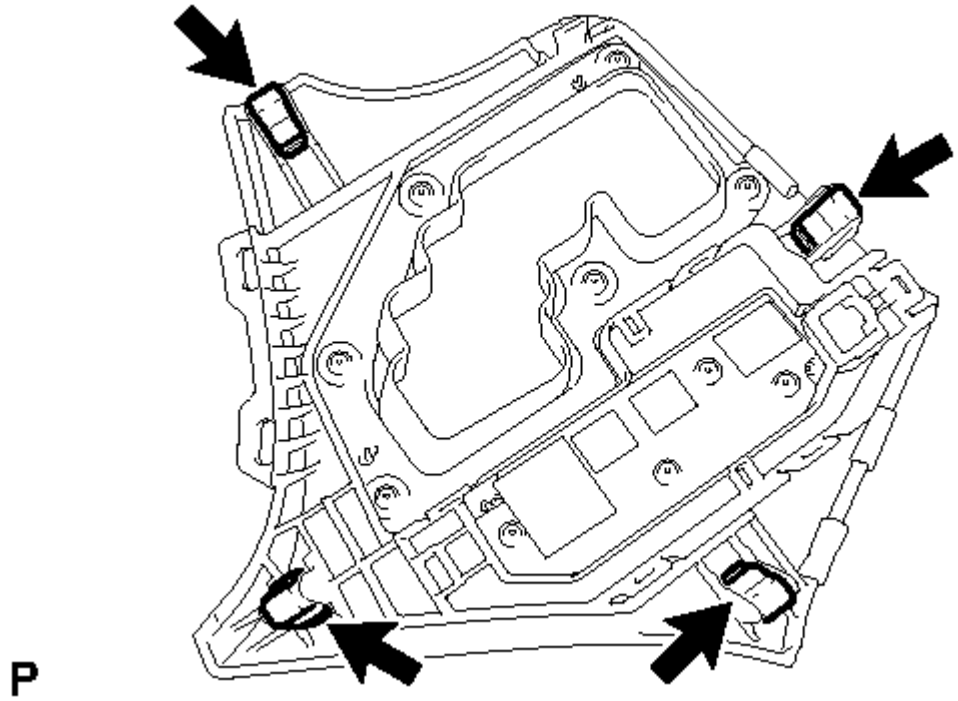


Fig. 87: Identifying Shift Position Indicator Housing & Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Disengage the 2 claws and remove the shift lock release button from the lower position indicator housing.

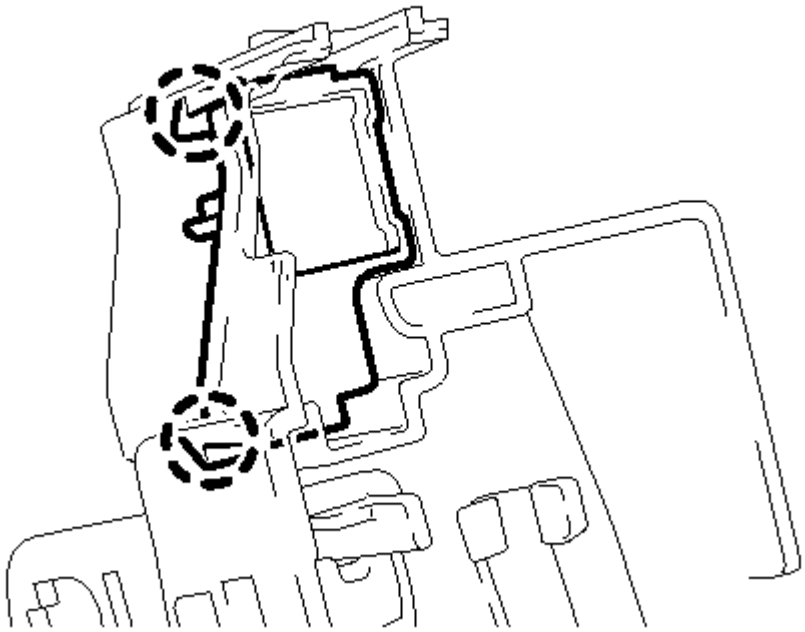


Fig. 88: Identifying Shift Lock Release Button & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Remove the shift lock release spring from the lower position indicator housing.

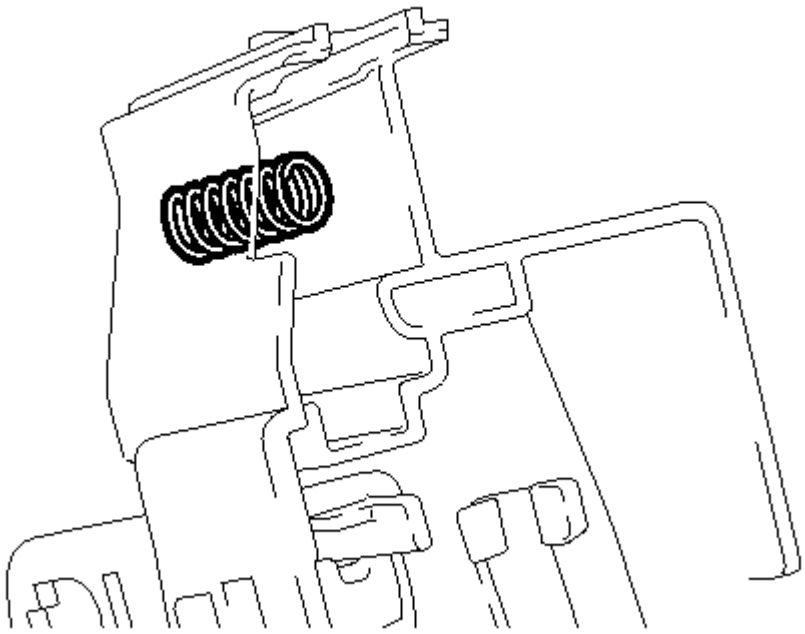
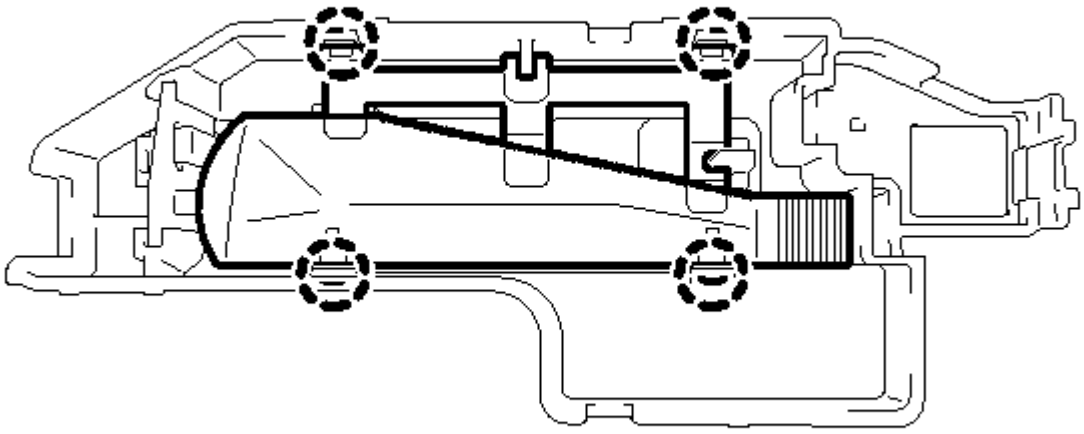


Fig. 89: Identifying Shift Lock Release Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

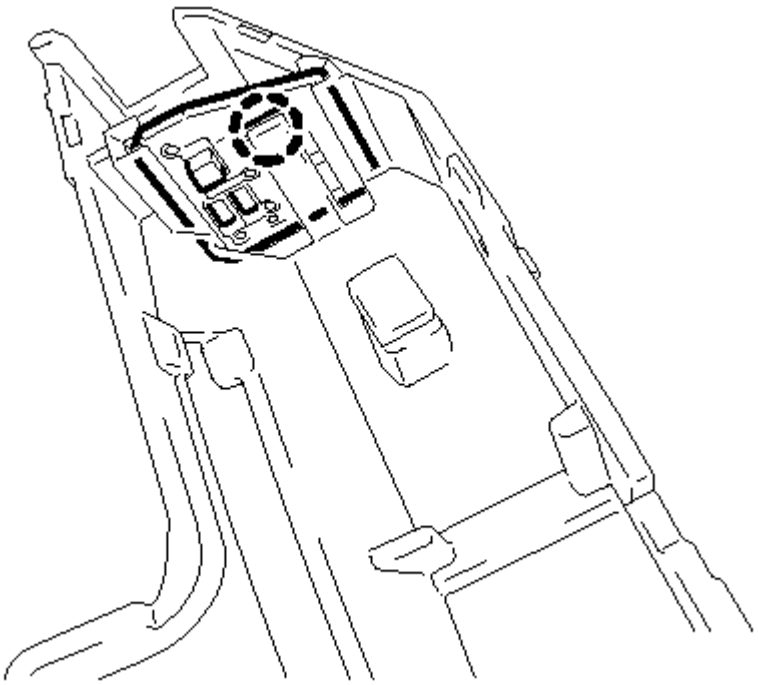
3. **REMOVE POSITION INDICATOR LIGHT GUIDE**
    a. Disengage the 4 claws and remove the position indicator light guide from the lower position indicator housing.



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Fig. 90: Identifying Position Indicator Light Guide & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

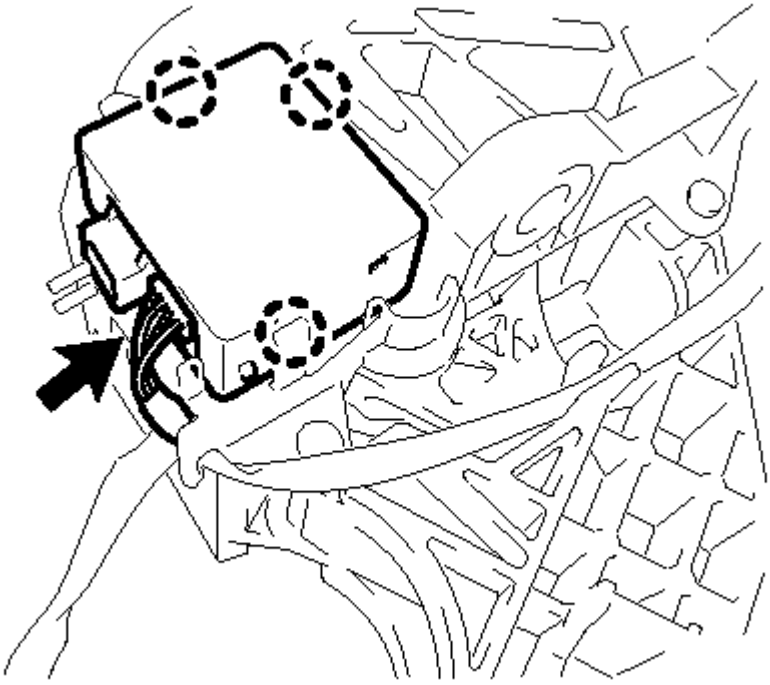
4. **REMOVE INDICATOR LIGHT WIRE SUB-ASSEMBLY**
    a. Disengage the claw and remove the indicator light wire from the lower position indicator housing.



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Fig. 91: Identifying Indicator Light Wire & Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SHIFT LOCK CONTROL ECU SUB-ASSEMBLY**
   a. Disconnect the connector.



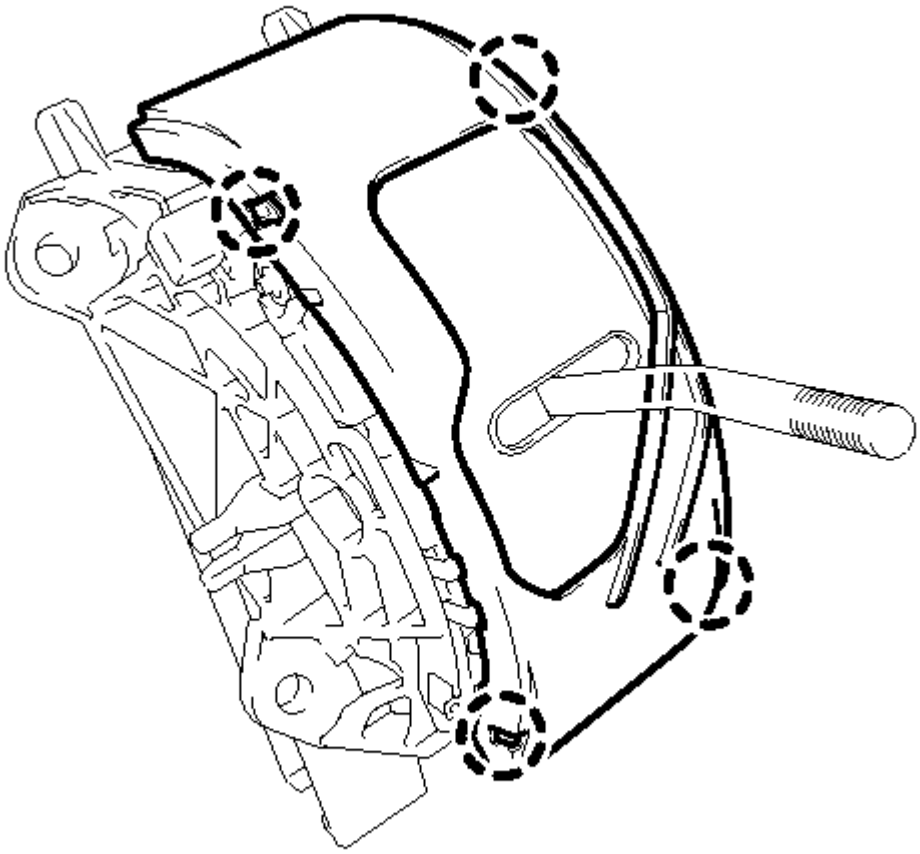
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Fig. 92: Identifying Shift Lock Control ECU, Connector & Claws

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

b. Disengage the 3 claws and remove the shift lock control ECU from the shift lock control unit.

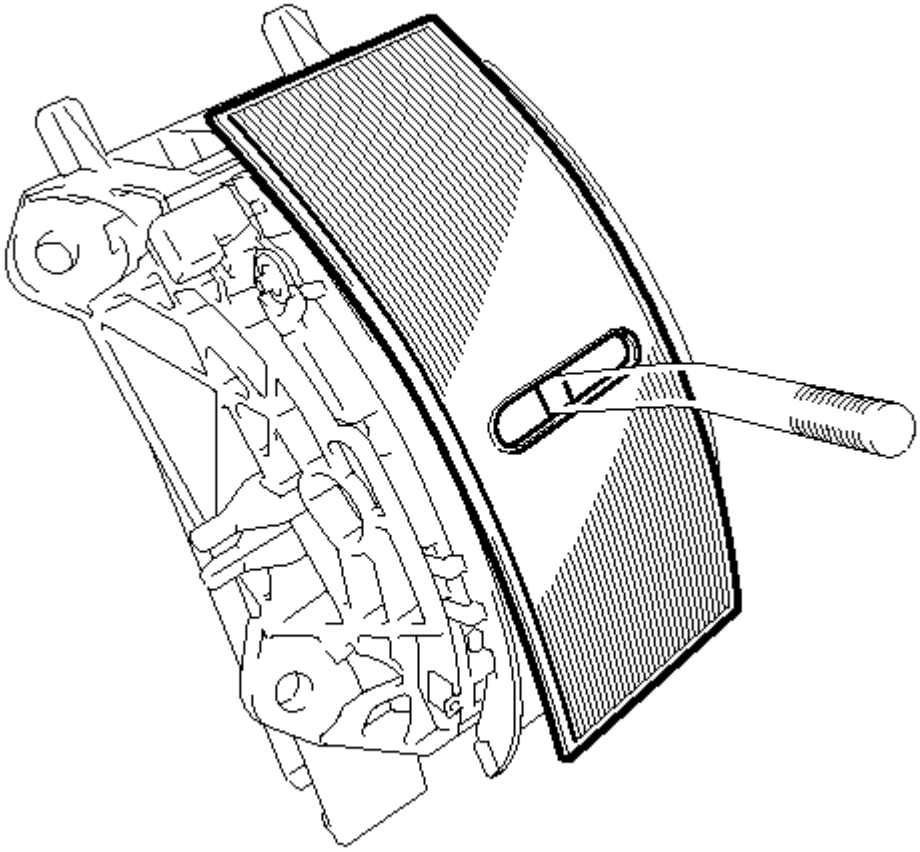
6. **REMOVE UPPER POSITION INDICATOR HOUSING**
   a. Disengage the 4 claws and remove the upper position indicator housing from the lower position indicator housing.



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Fig. 93: Identifying Upper Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

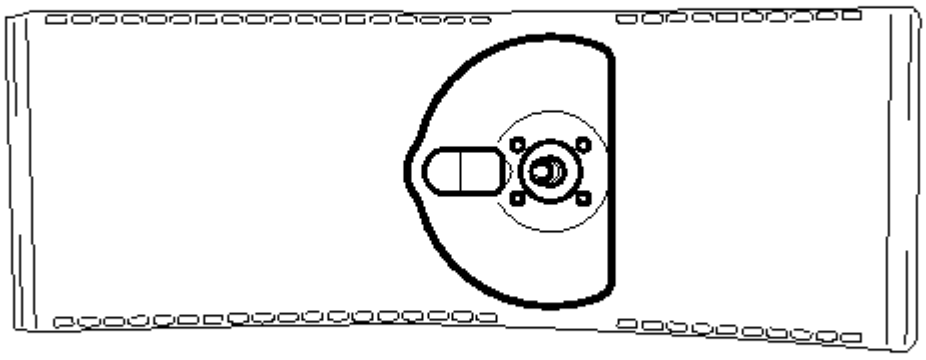
7. **REMOVE POSITION INDICATOR SLIDE COVER**
   a. Remove the position indicator slide cover from the lower position indicator housing.



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Fig. 94: Identifying Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

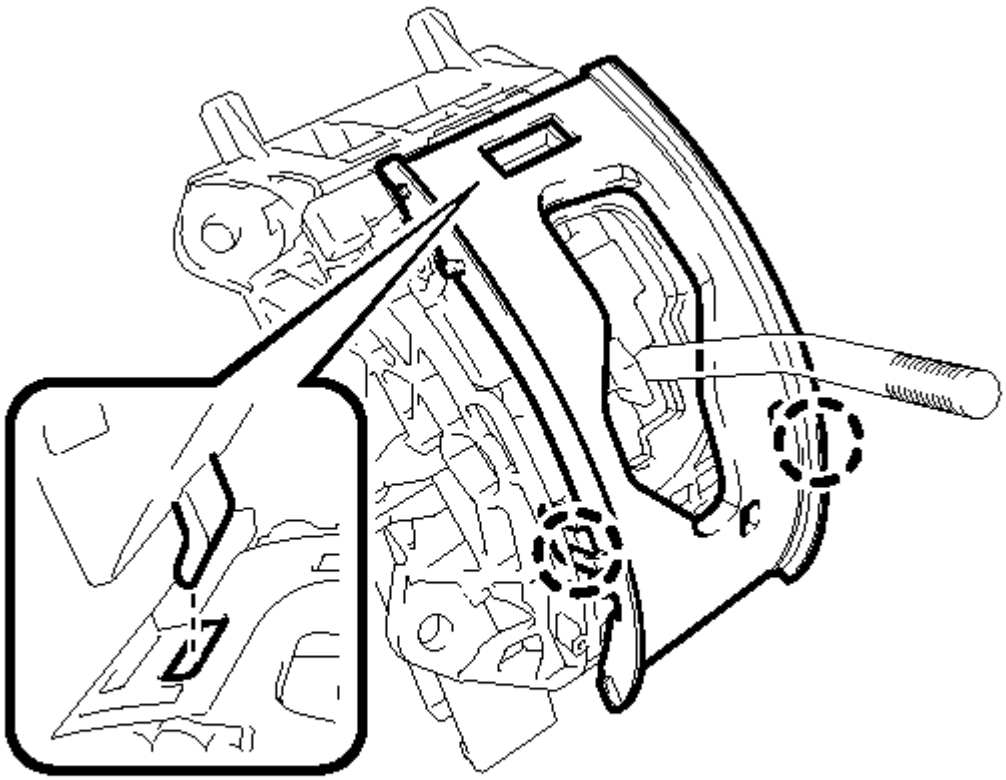
8. **REMOVE NO. 2 POSITION INDICATOR SLIDE COVER**
    a. Remove the No. 2 position indicator slide cover from the position indicator slide cover.



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Fig. 95: Identifying No. 2 Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE LOWER POSITION INDICATOR HOUSING**
    a. Disengage the 2 claws and remove the lower position indicator housing from the shift lock control unit.



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Fig. 96: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT SHIFT LOCK CONTROL ECU (w/o Smart Key System)**
    a. Measure the voltage according to the value(s) in the table below.

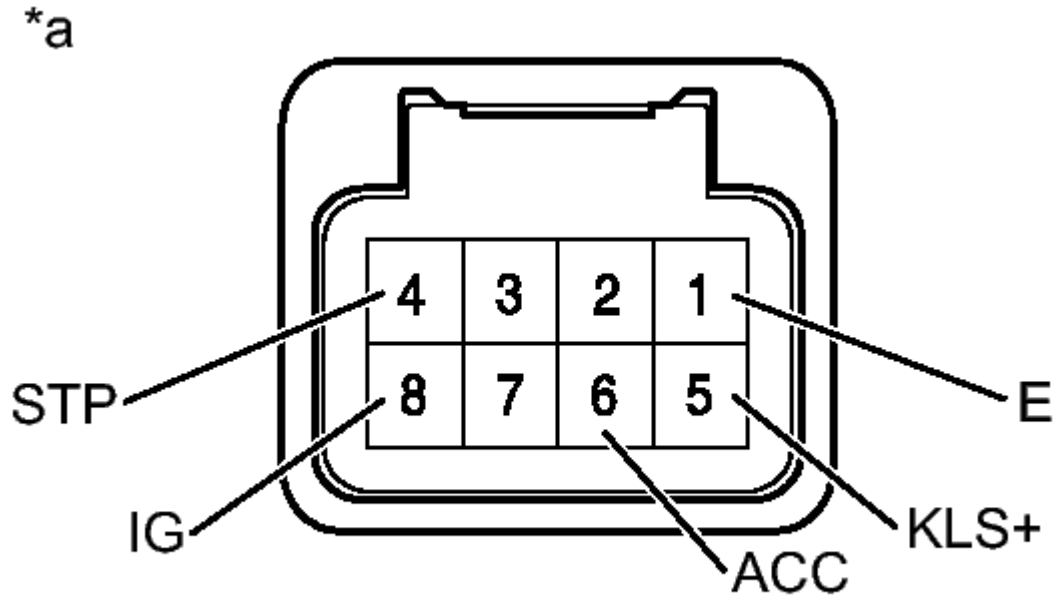


Fig. 97: Shift Lock Control ECU Connector End View (w/o Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Shift Lock Control ECU)

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
4 (STP) - 1 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
	1. Ignition switch ACC	Below 1

5 (KLS+) - 1 (E)	and shift lever in P	V
	2. Ignition switch ACC and shift lever not in P (Within approximately 1 second)	7.5 to 10.5 V
	3. Ignition switch ACC and shift lever not in P (After approximately 1 second)	6 to 9 V
6 (ACC) - 1 (E)	Ignition switch ACC	11 to 14 V
	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
8 (IG) - 1 (E)	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

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

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (E) - Body ground	Always	Below 1 ohms

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

2. **INSPECT SHIFT LOCK CONTROL ECU (w/ Smart Key System)**
   a. Measure the voltage according to the value(s) in the table below.

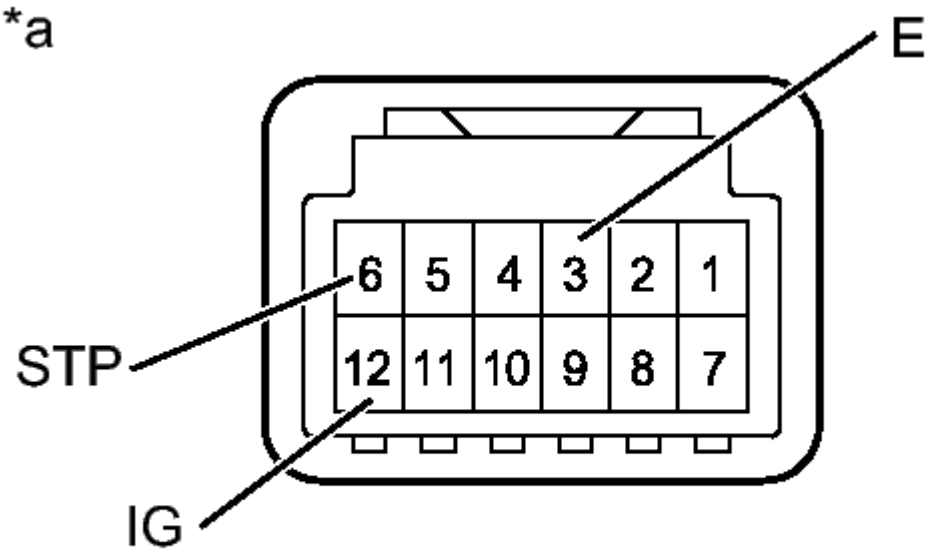


Fig. 98: Shift Lock Control ECU Connector End View (w/ Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Shift Lock Control ECU)

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
6 (STP) - 3	Brake pedal depressed	11 to 14 V

(E)	Brake pedal released	Below 1 V
12 (IG) - 3 (E)	Engine switch on (IG)	11 to 14 V
	Engine switch off	Below 1 V

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

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

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Resistance

Tester Connection	Condition	Specified Condition
3 (E) - Body ground	Always	Below 1 ohms

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

3. **INSPECT TRANSMISSION CONTROL SWITCH**

a. Measure the resistance according to the value(s) in the table below when the shift lever is moved to each position.

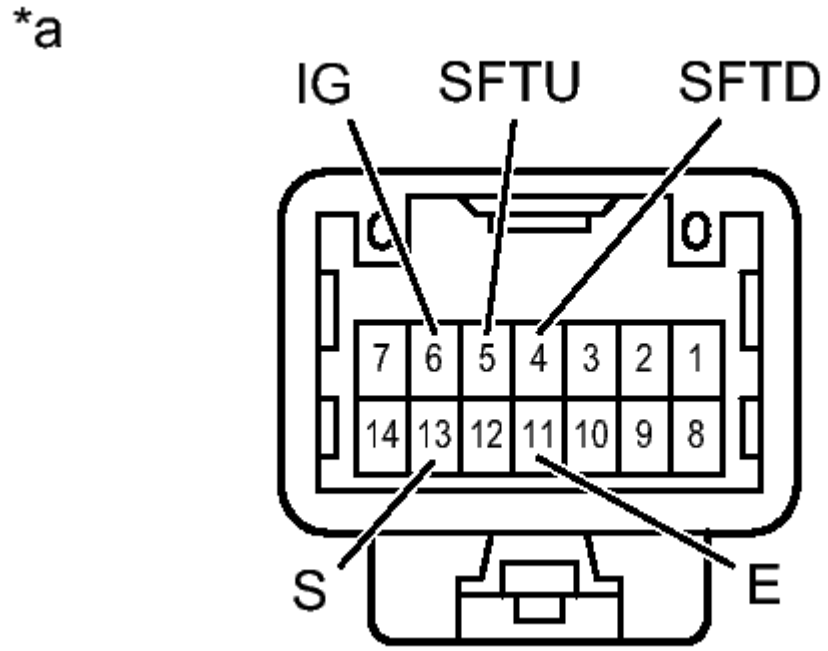


Fig. 99: Transmission Control Switch Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Transmission Control Switch)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
6 (IG) - 13 (S)	S, "+" or "-"	Below 1 ohms
	Except S, "+" and "- "	10 kohms or higher
5 (SFTU) - 11 (E)	"+" Pressed continuously (Upshift)	Below 1 ohms
	S	10 kohms or higher
	"-" Pressed	Below 1

4 (SFTD) - 11 (E)	continuously (Downshift)	ohms
	S	10 kohms or higher

If the result is not as specified, replace the shift lock control unit.

4. **INSPECT SHIFT LOCK SOLENOID**
   a. Disconnect the shift lock solenoid connector of the shift lock ECU.

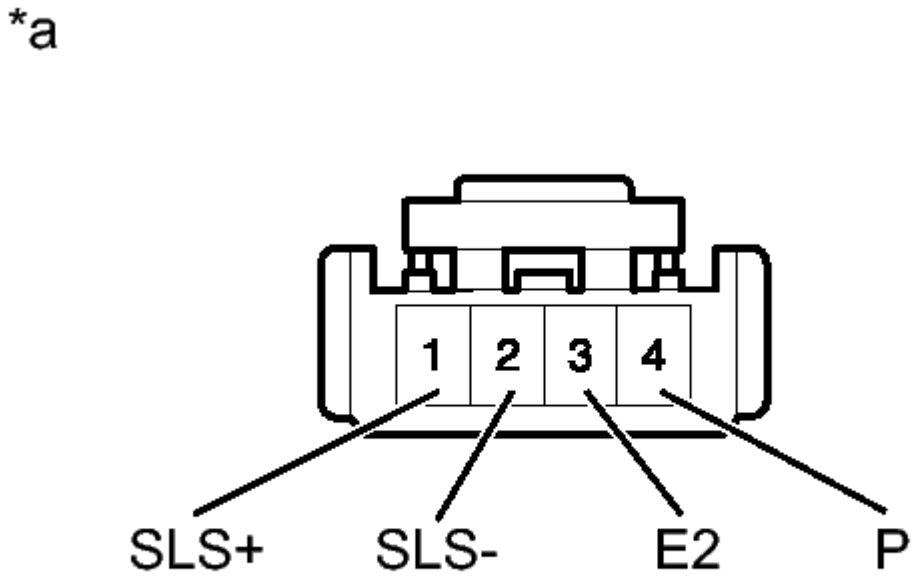


Fig. 100: Shift Lock Solenoid Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Measure the resistance according to the value(s) in the table below when the shift lever is moved to each position.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Shift Lock Solenoid)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
4 (P) - 3 (E2)	P	10 kohms or higher
	Except P	Below 1 ohms

If the result is not as specified, replace the shift lock control unit.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (SLS+) - 2 (SLS-)	Always	112 ohms

If the result is not as specified, replace the shift lock control unit.

ADJUSTMENT

ADJUSTMENT

1. **ADJUST SHIFT LEVER POSITION**
   a. Move the shift lever to N.
   b. Disconnect the shift lock control ECU connector and transmission control switch wire connector.

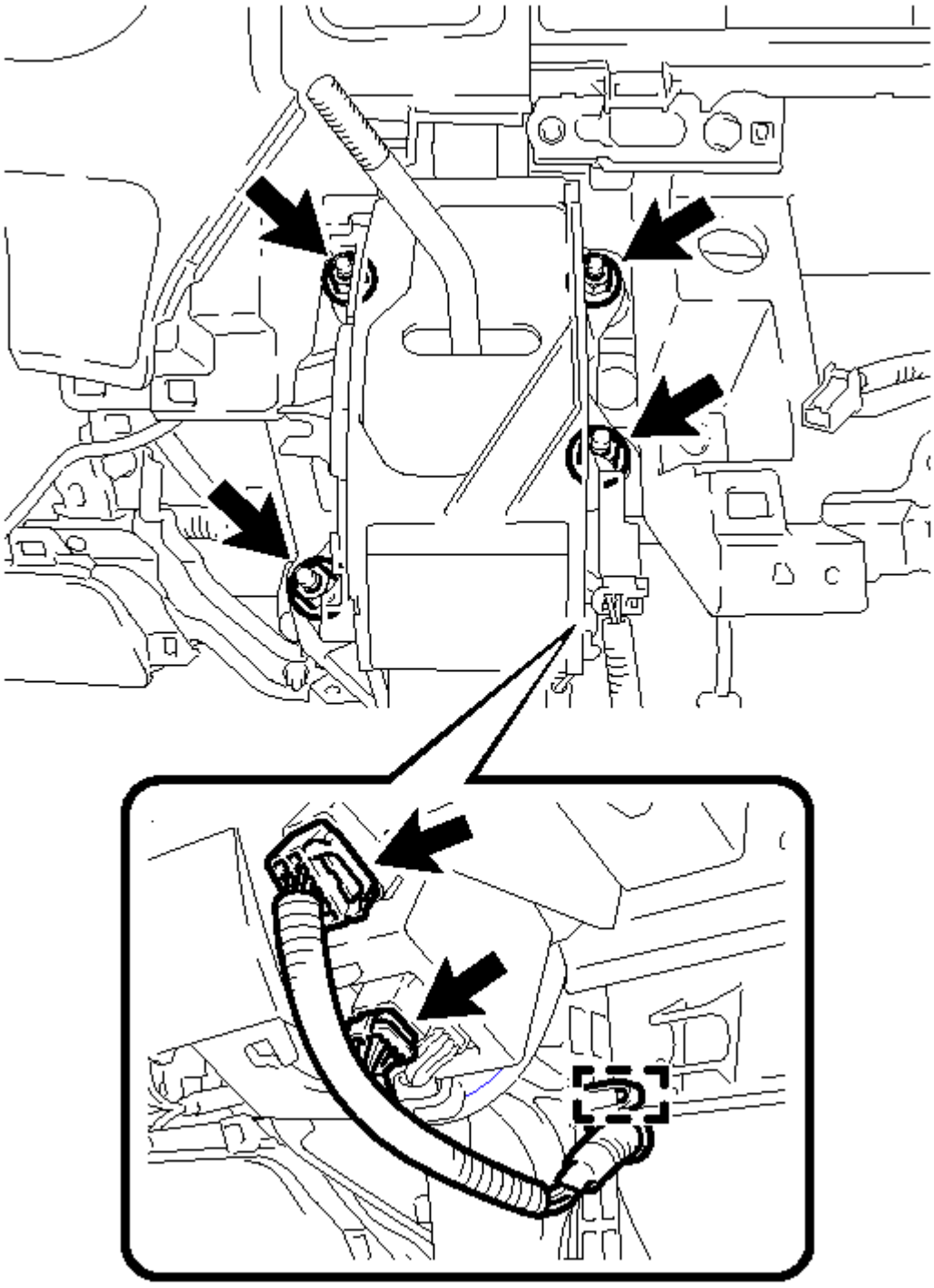


Fig. 101: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 4 nuts and shift lever.
d. Disconnect the end of the transmission control cable from the shift lever.

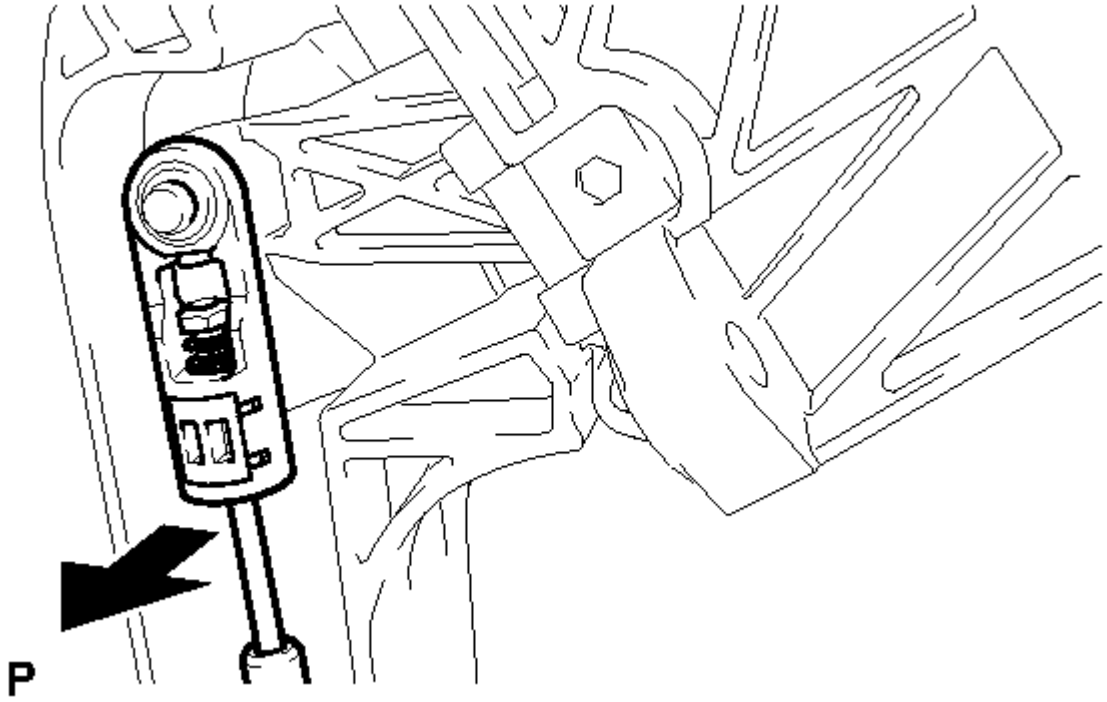


Fig. 102: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a screwdriver, pull out the transmission control cable stopper.

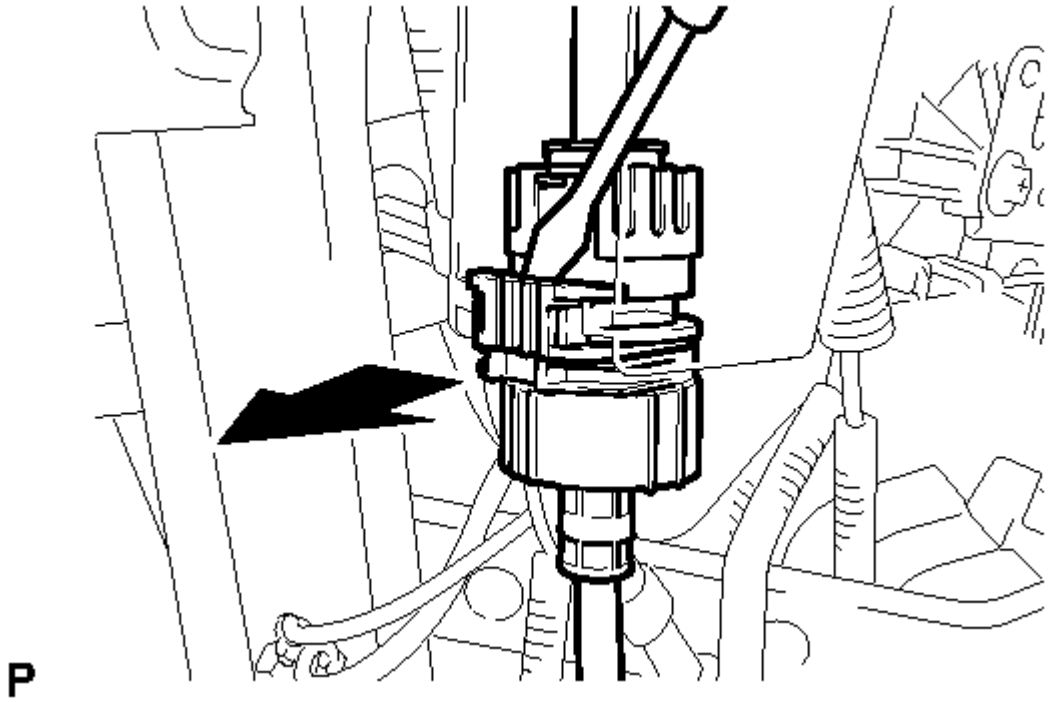


Fig. 103: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not remove the stopper. If the stopper is removed, reinstall it to its original position.

f. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

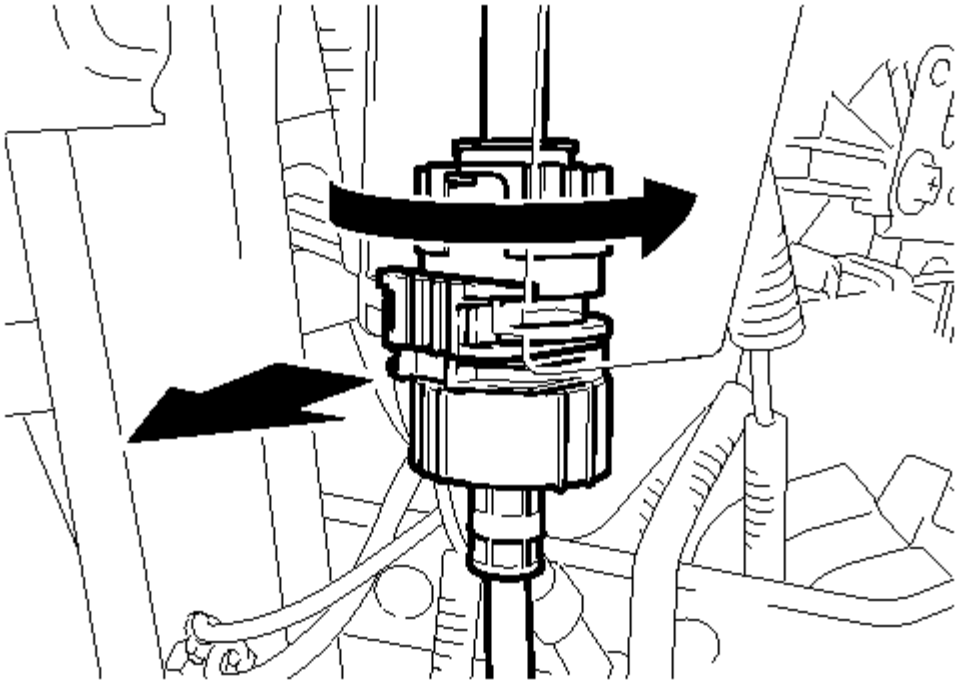
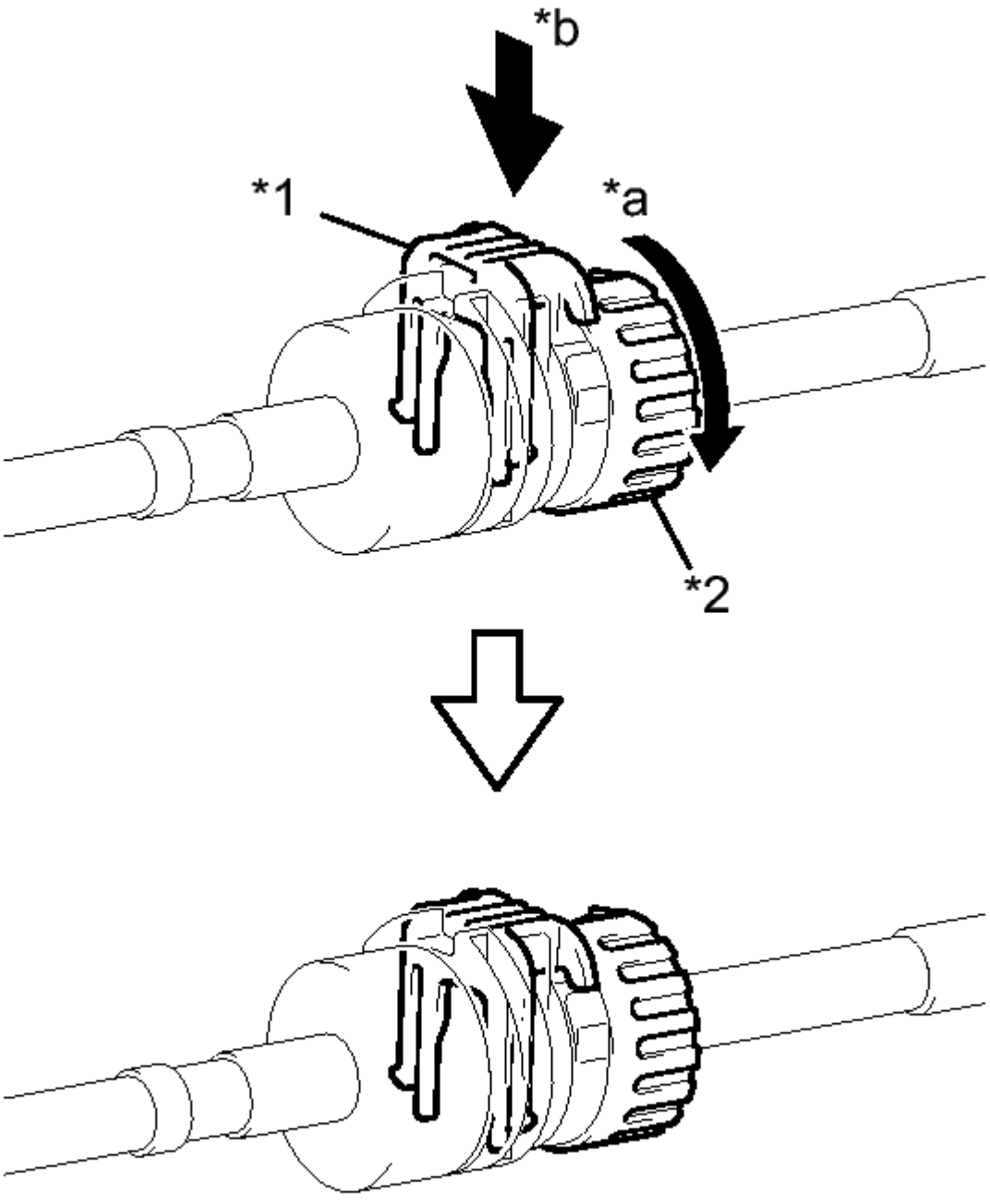


Fig. 104: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



P

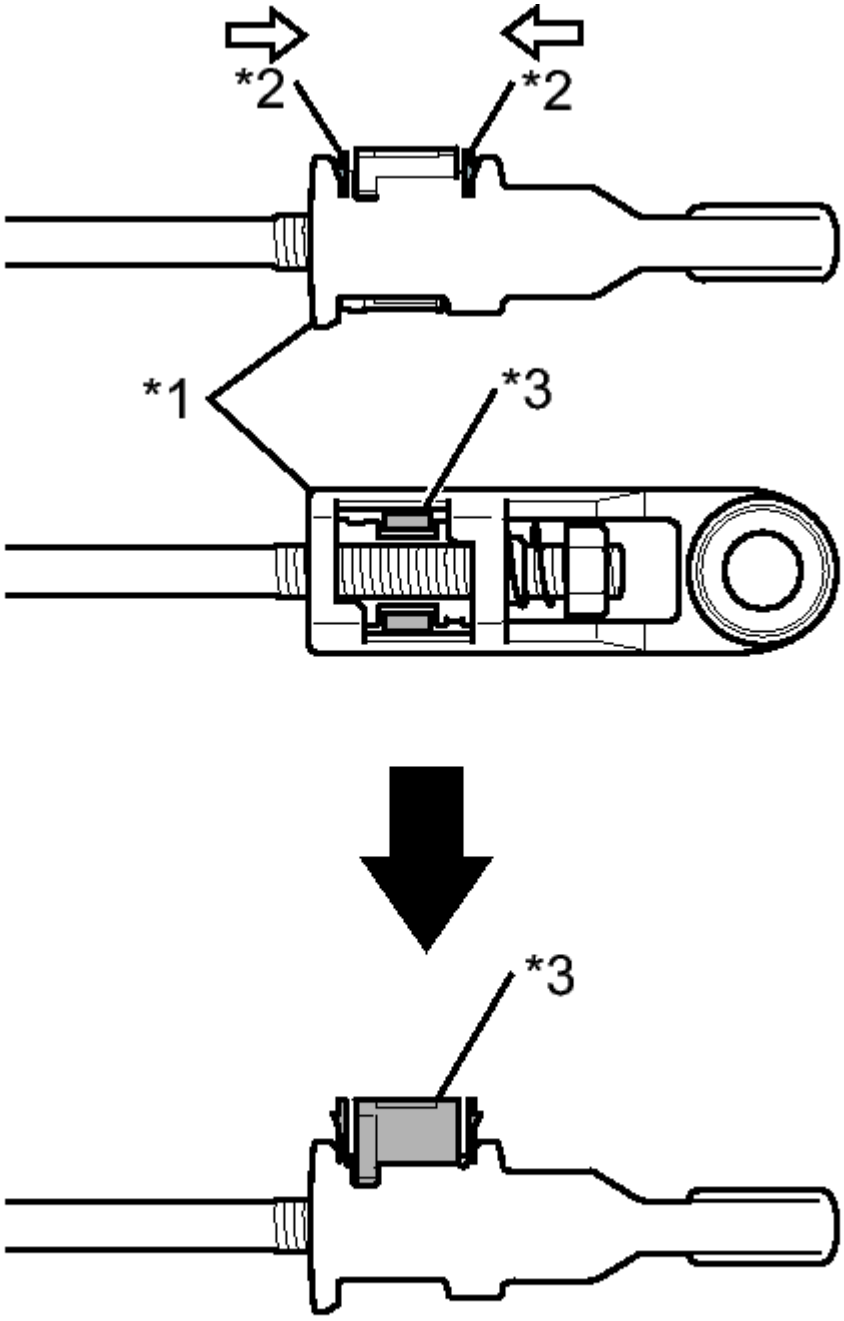
Fig. 105: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

h. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 106: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

i. Check that the park/neutral position switch and the shift lever are in N position.

j. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

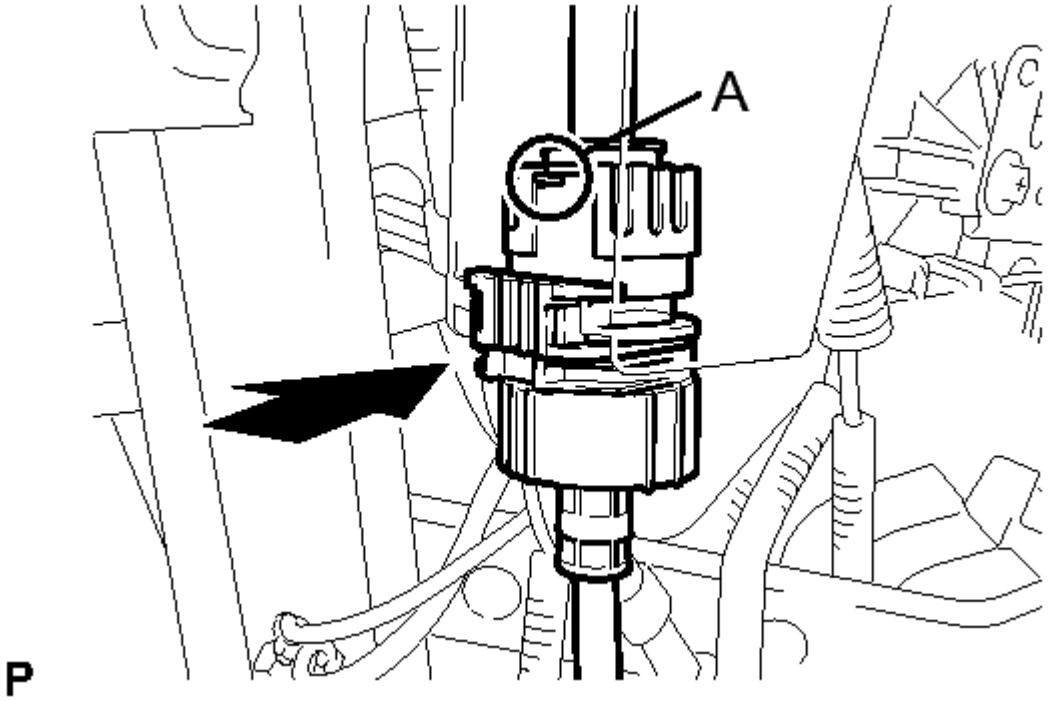


Fig. 107: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

k. Connect the transmission control cable end to the shift lever.

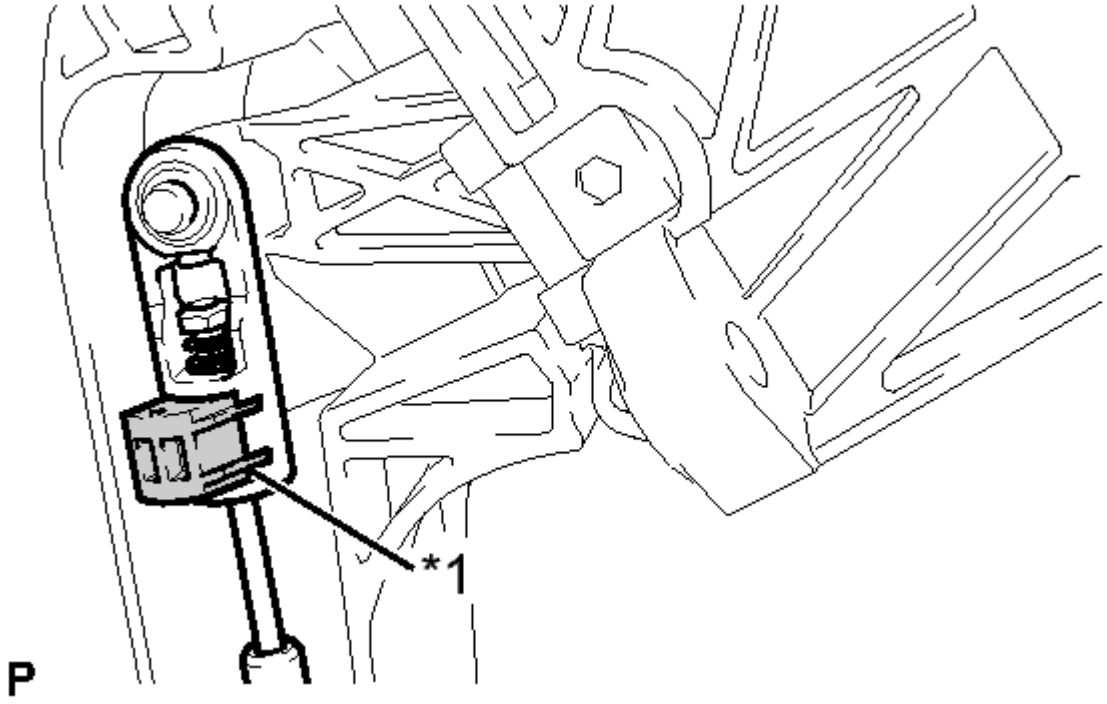


Fig. 108: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

l. Install the shift lever with the 4 nuts.

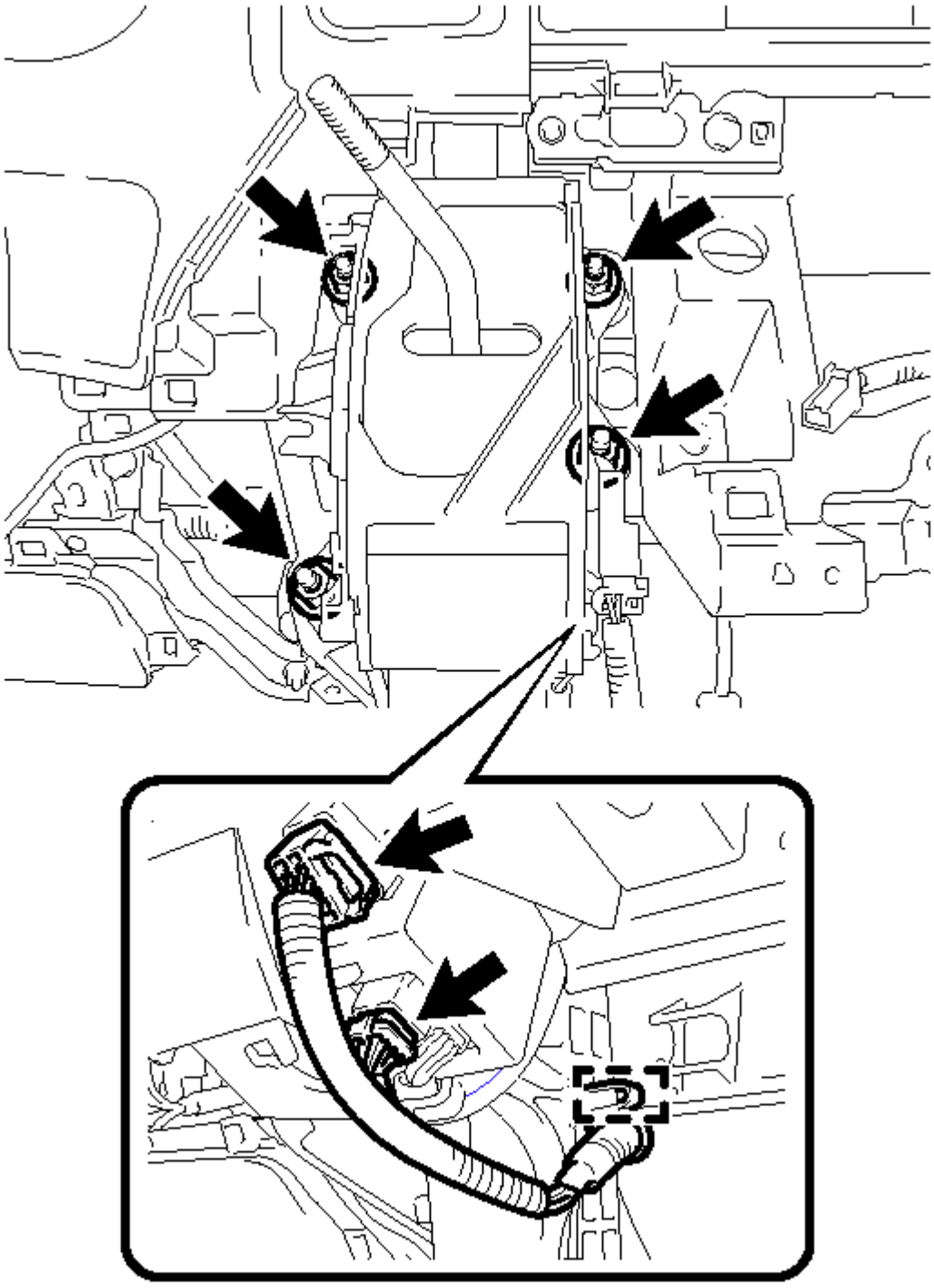
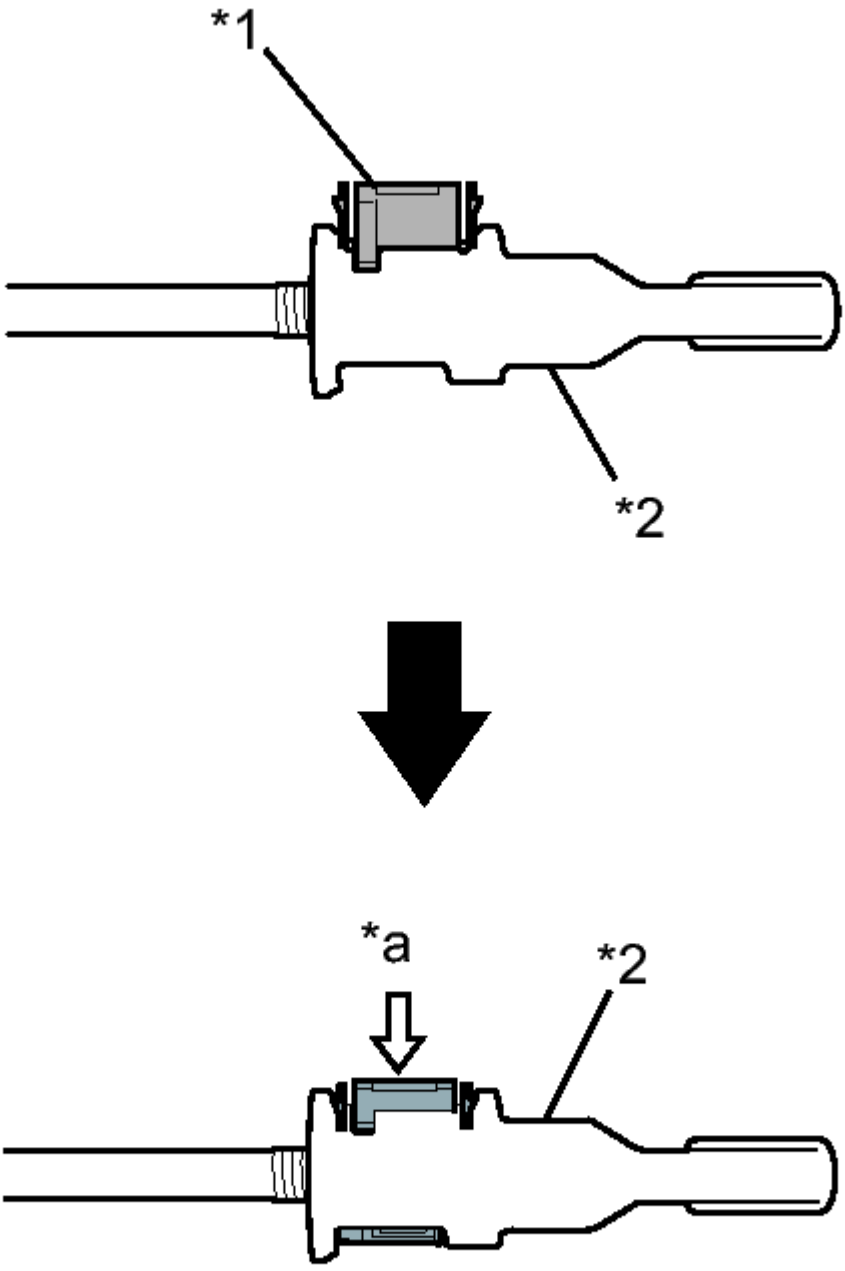


Fig. 109: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

m. Connect the shift lock control ECU connector and transmission control switch wire connector.
n. Press in and lock the lock piece to the adjuster case.



C

Fig. 110: Identifying Lock Piece At Adjuster Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece
*2	Adjuster Case
*a	Press in

NOTE:

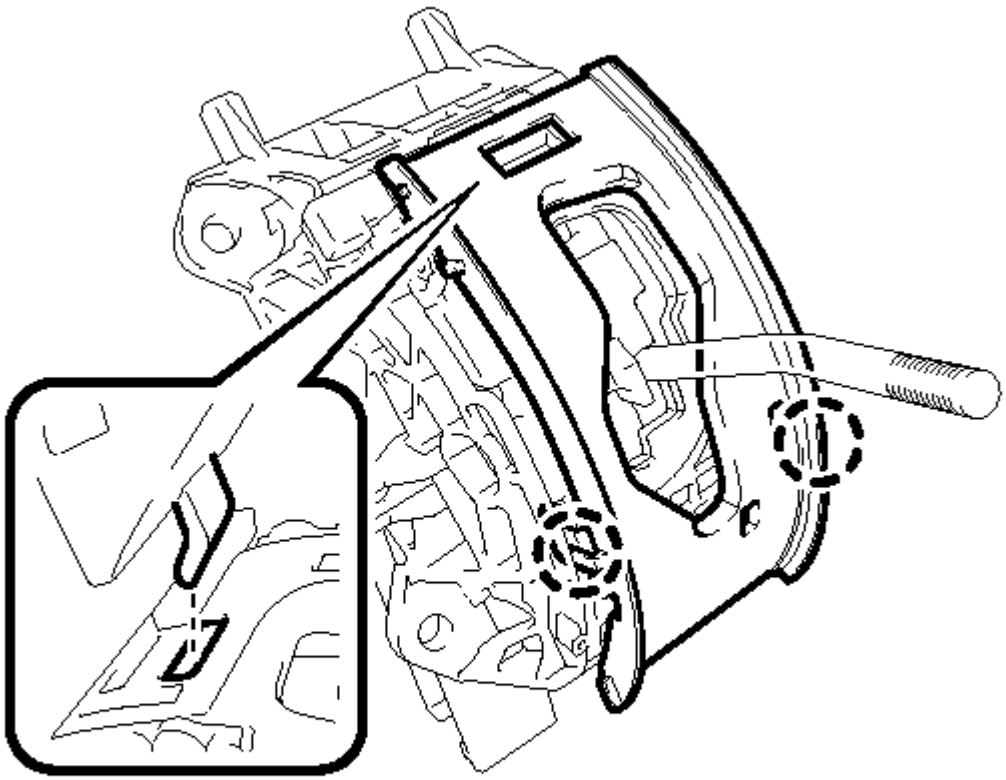
- **Check that the park/neutral position switch and the shift lever are in N position.**
- **Securely press in the lock piece until the lock engages.**

2. **INSPECT SHIFT LEVER POSITION** See step 1

REASSEMBLY

REASSEMBLY

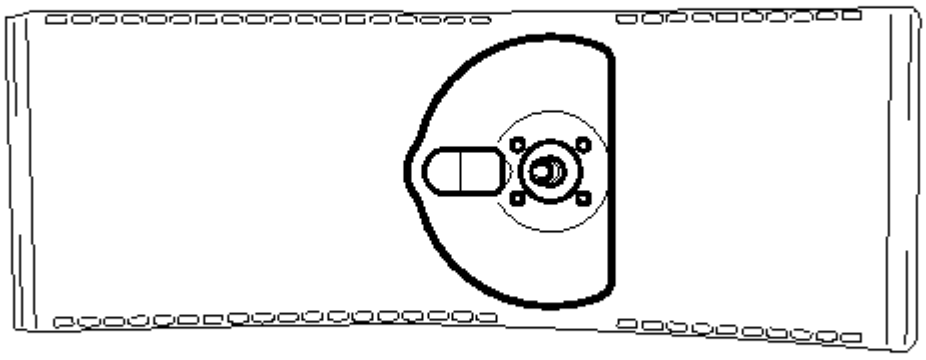
1. **INSTALL LOWER POSITION INDICATOR HOUSING**
   a. Put the guide in position and engage the 2 claws to install the lower position indicator housing onto the shift lock control unit.



P

Fig. 111: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

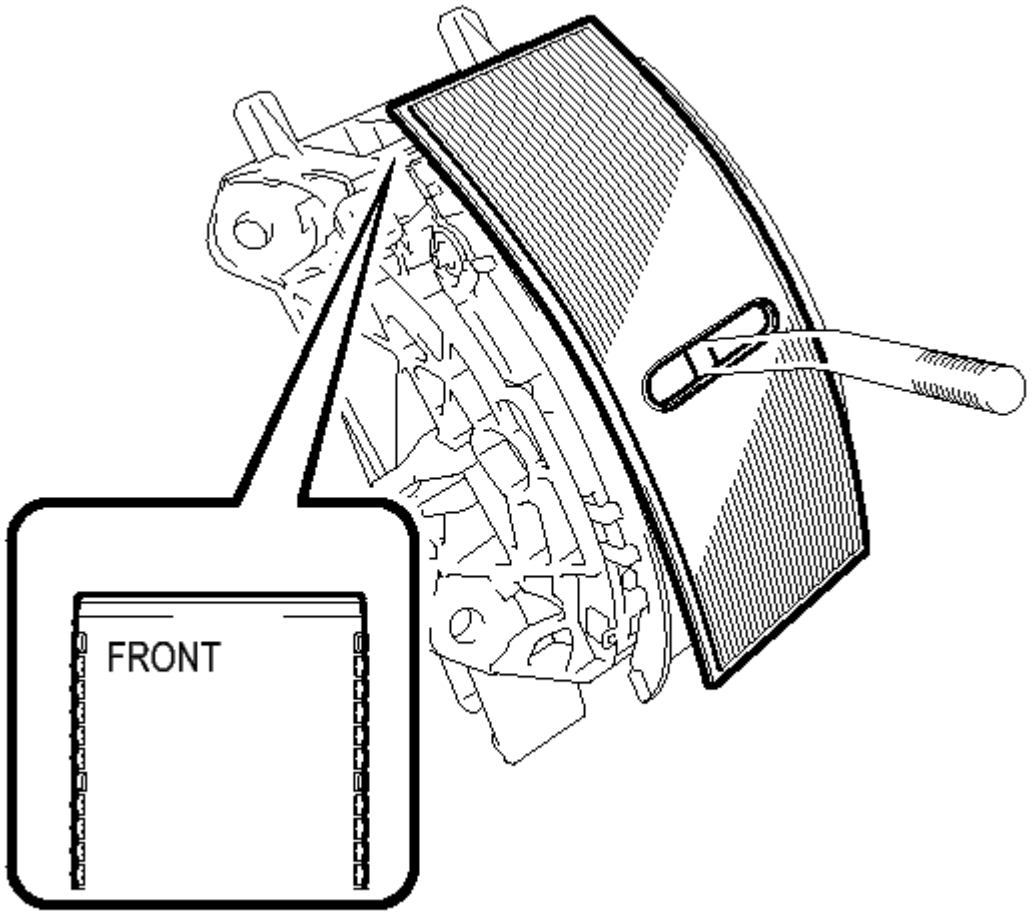
2. **INSTALL NO. 2 POSITION INDICATOR SLIDE COVER**
   a. Install the No. 2 position indicator slide cover onto the position indicator slide cover.



P

Fig. 112: Identifying No. 2 Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

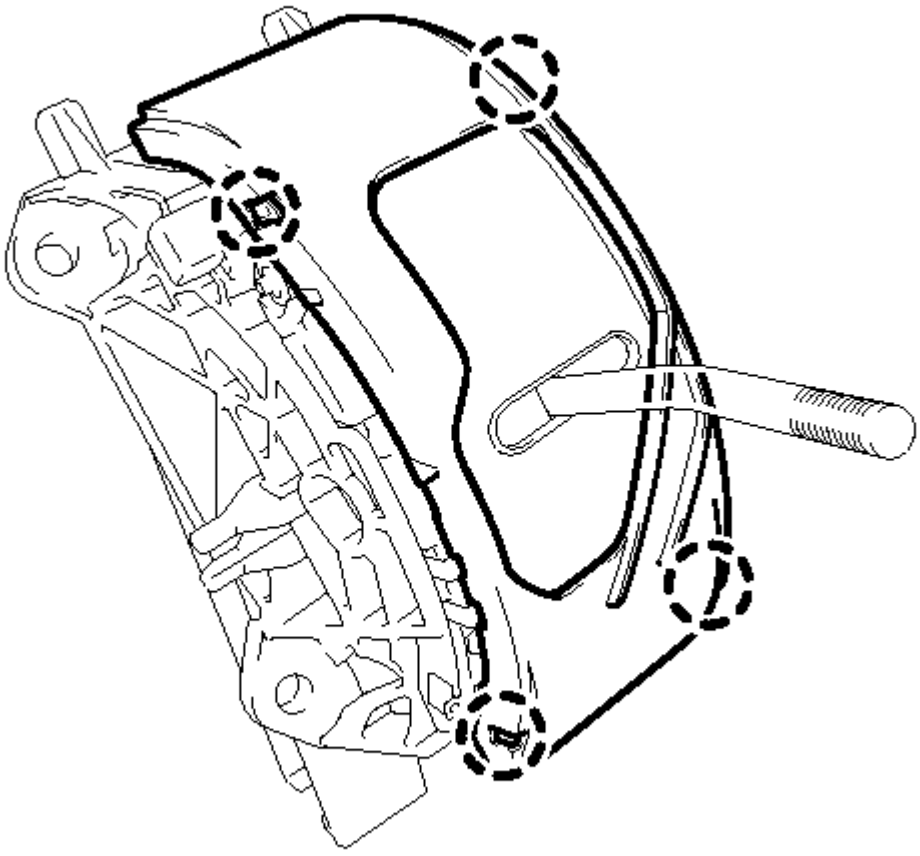
3. **INSTALL POSITION INDICATOR SLIDE COVER**
   a. Install the position indicator slide cover onto the lower position indicator housing as shown in the illustration.



P

Fig. 113: Identifying Front Position Of Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

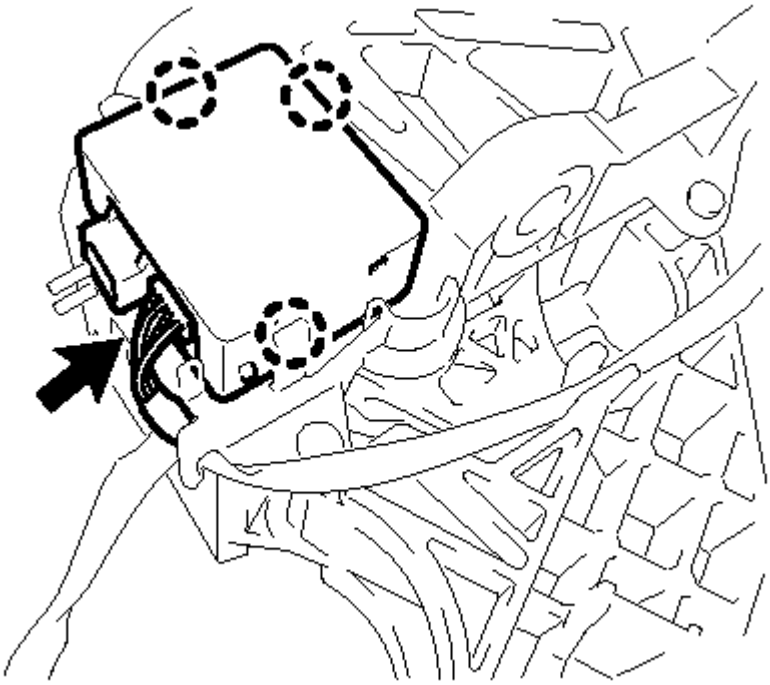
4. **INSTALL UPPER POSITION INDICATOR HOUSING**
    a. Engage the 4 claws to install the upper position indicator housing onto the lower position indicator housing.



P

Fig. 114: Identifying Upper Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL SHIFT LOCK CONTROL ECU SUB-ASSEMBLY**
    a. Engage the 3 claws to install the shift lock control ECU onto the shift lock control unit.



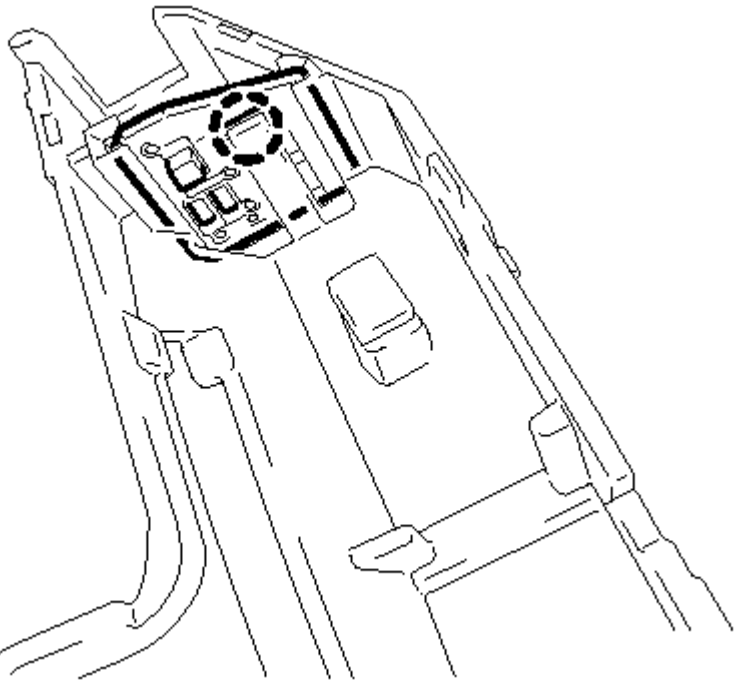
P

Fig. 115: Identifying Shift Lock Control ECU, Connector & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Connect the connector.

6. **INSTALL INDICATOR LIGHT WIRE SUB-ASSEMBLY**

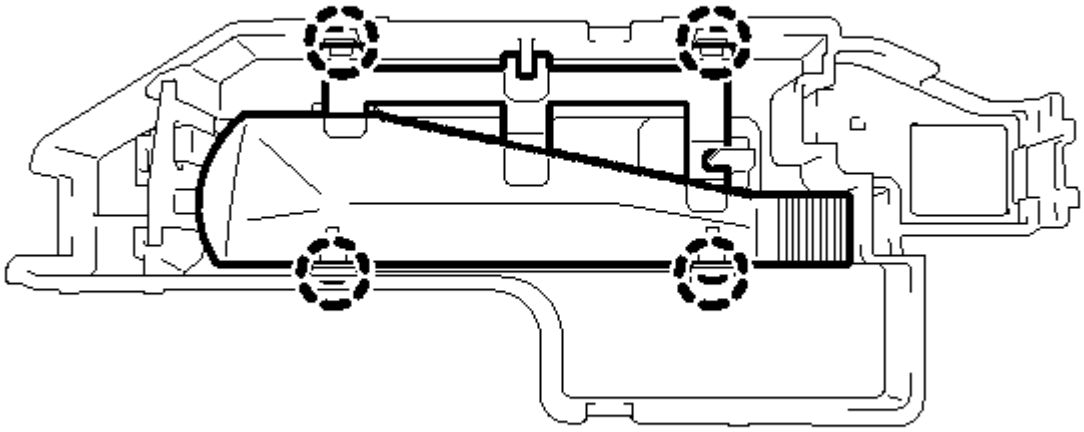
a. Engage the claw to install the indicator light wire onto the lower position indicator housing.



P

Fig. 116: Identifying Indicator Light Wire & Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL POSITION INDICATOR LIGHT GUIDE**
    a. Engage the 4 claws to install the position indicator light guide onto the lower position indicator housing.



P

Fig. 117: Identifying Position Indicator Light Guide & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL LOWER POSITION INDICATOR HOUSING**
    a. Install the shift lock release spring onto the lower position indicator housing.

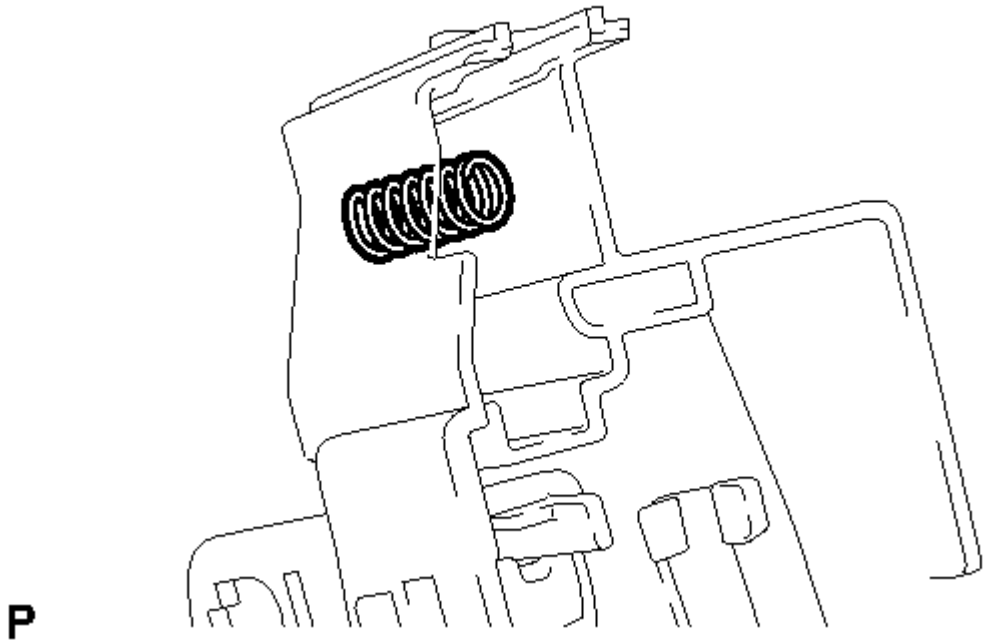


Fig. 118: Identifying Shift Lock Release Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Engage the 2 claws to install the shift lock release button onto the lower position indicator housing.

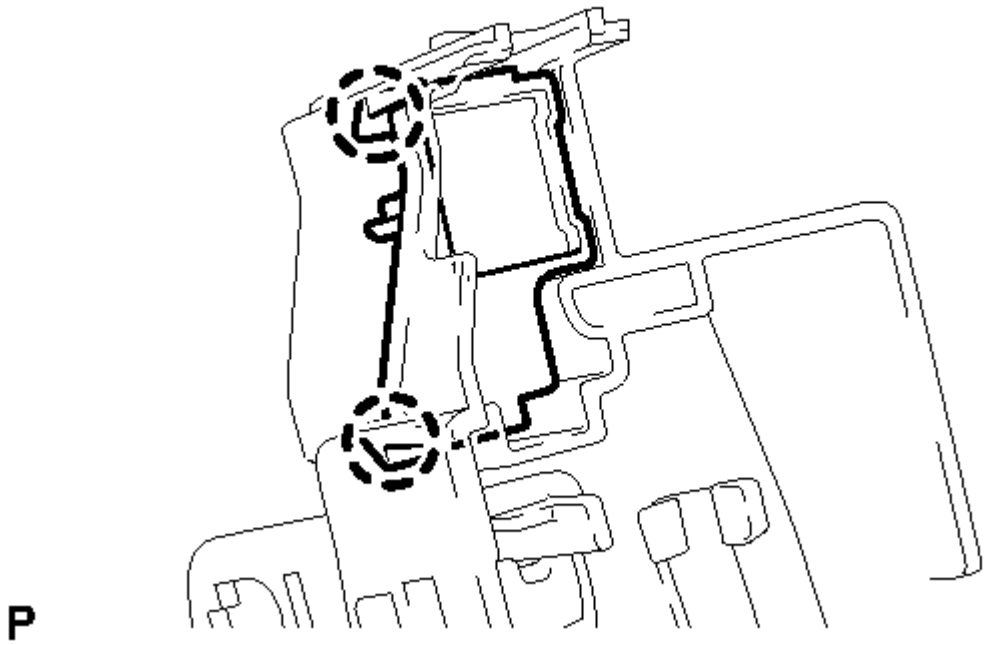


Fig. 119: Identifying Shift Lock Release Button & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the 4 clips onto the shift position indicator housing.

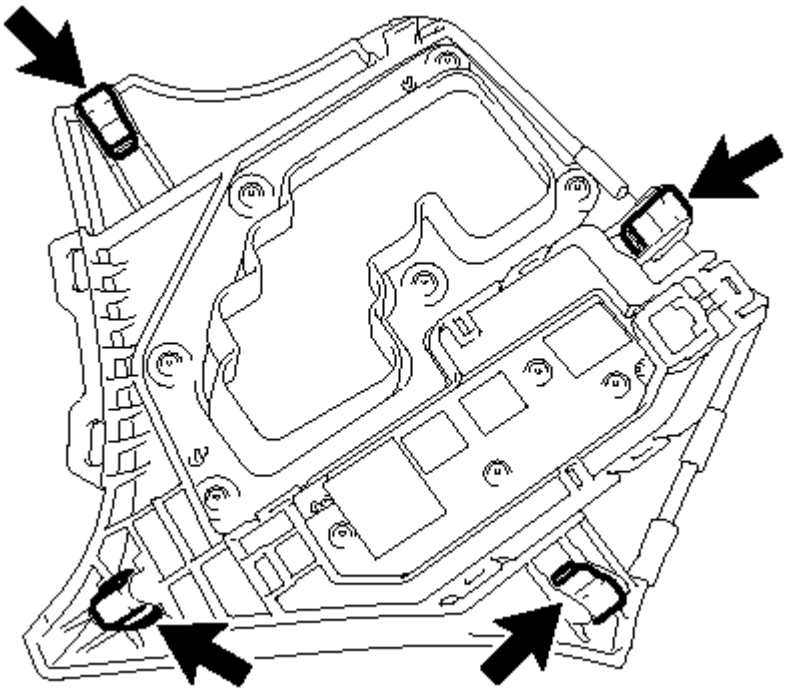
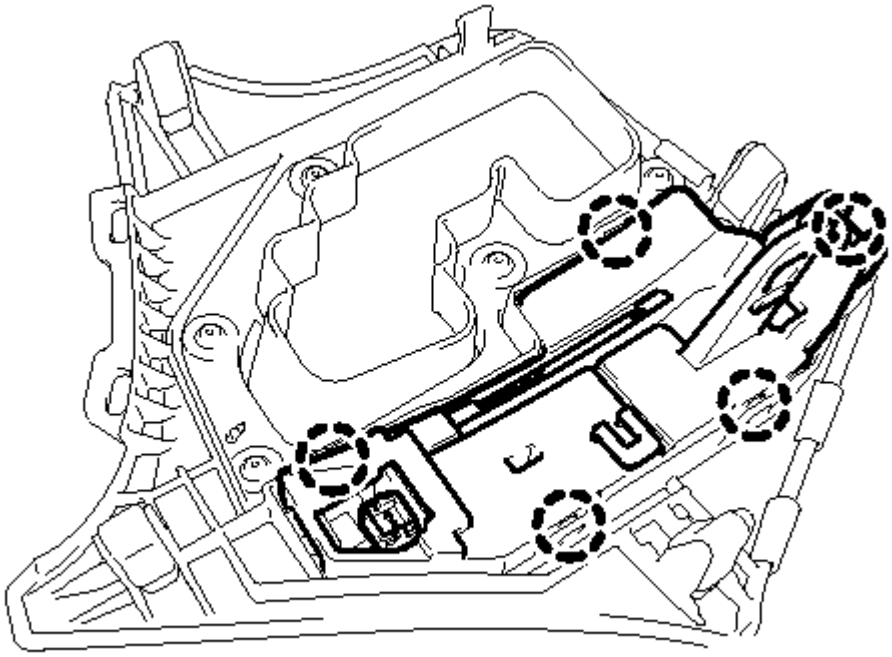


Fig. 120: Identifying Shift Position Indicator Housing & Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

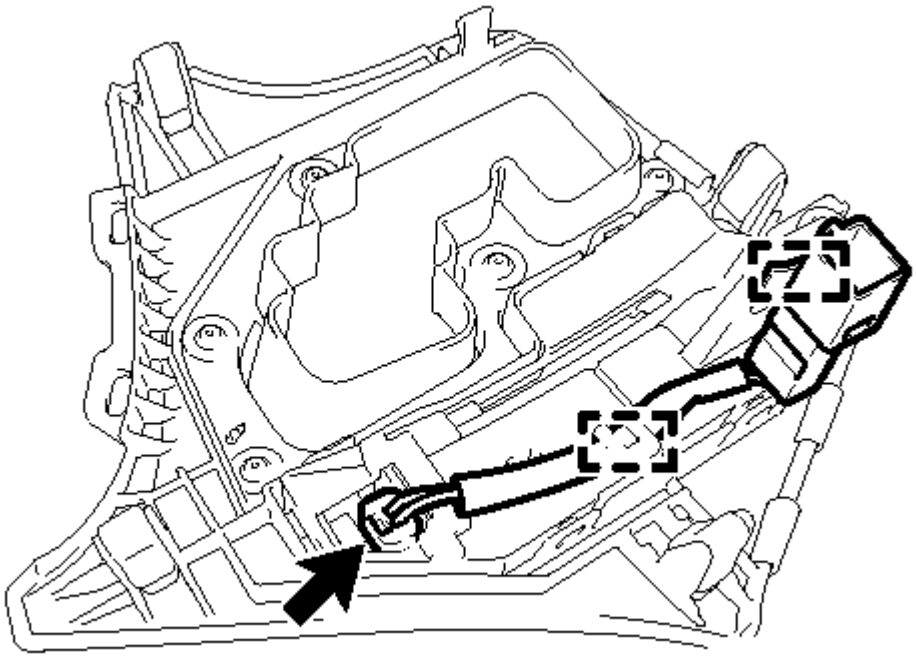
d. Engage the 5 claws to install the lower position indicator housing onto the shift position indicator housing.



P

Fig. 121: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Connect the connector and 2 clamps to install the wire harness onto the lower position indicator housing.



P

Fig. 122: Identifying Lower Position Indicator Housing Connector & Clamps

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

9. **INSTALL SHIFT LEVER CAP**
    a. Install the shift lever cap onto the shift position indicator housing.

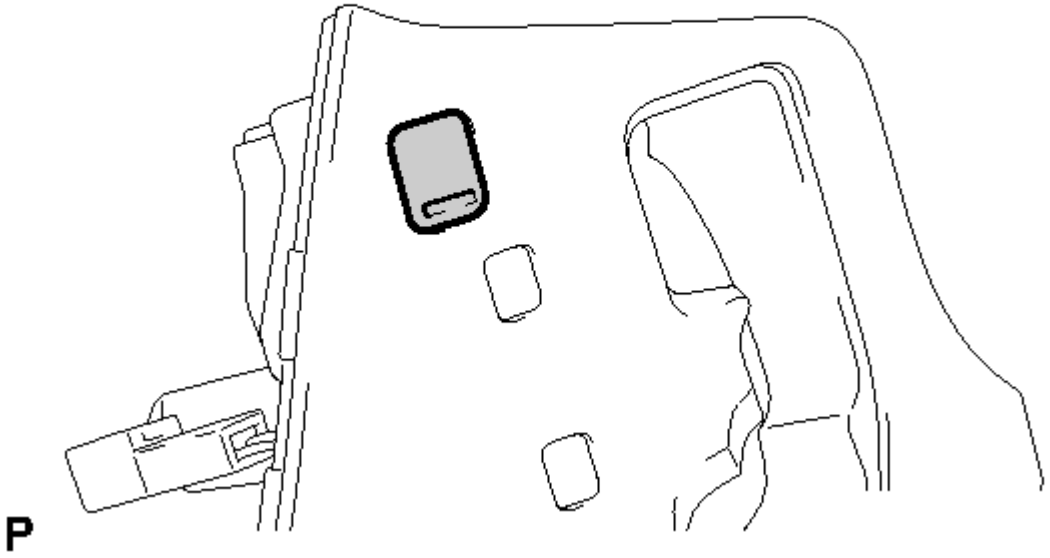
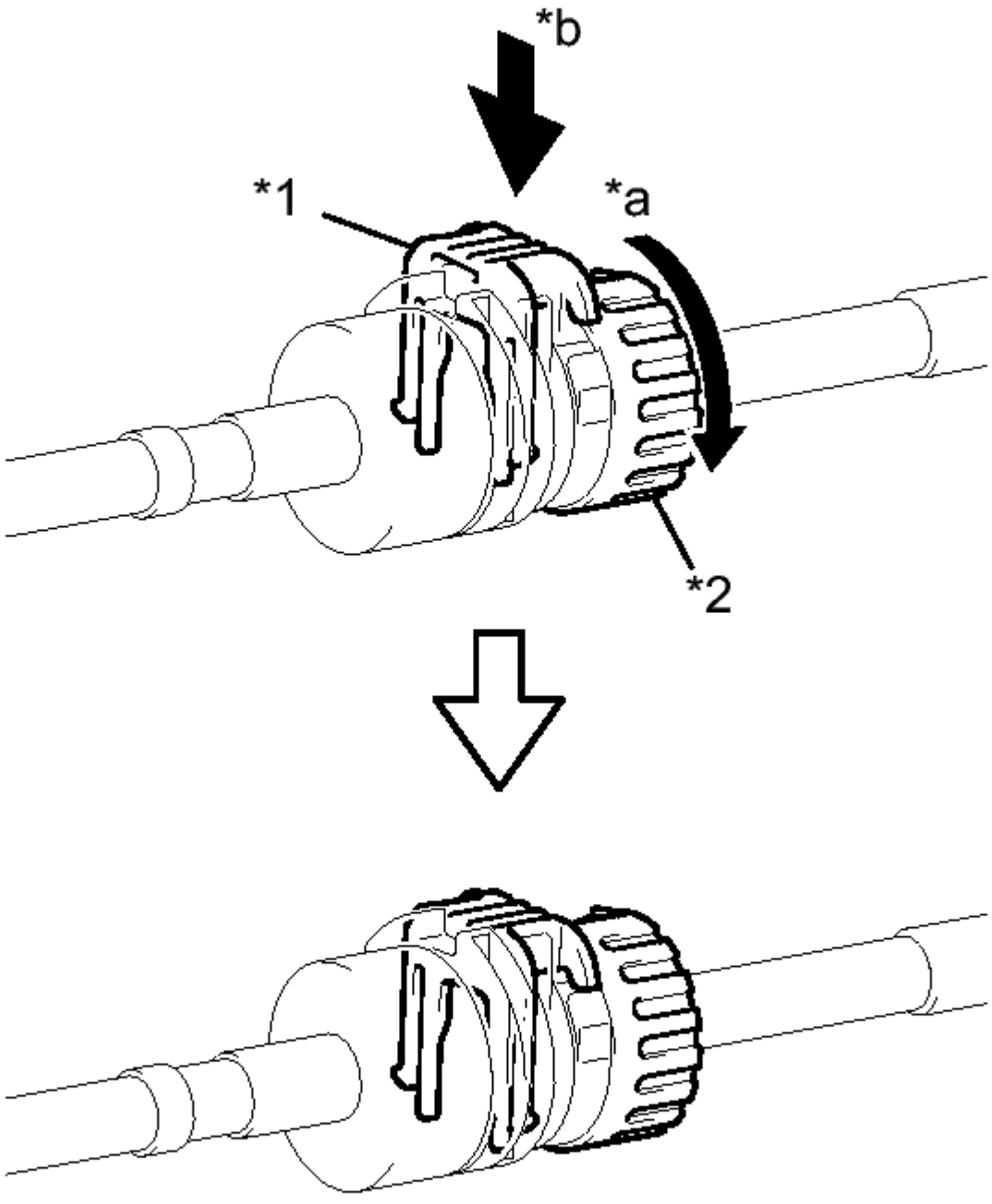


Fig. 123: Identifying Shift Lever Cap At Shift Position Indicator Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **CONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**
    a. Check that the park/neutral position switch and the shift lever are in N position.
    b. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



P

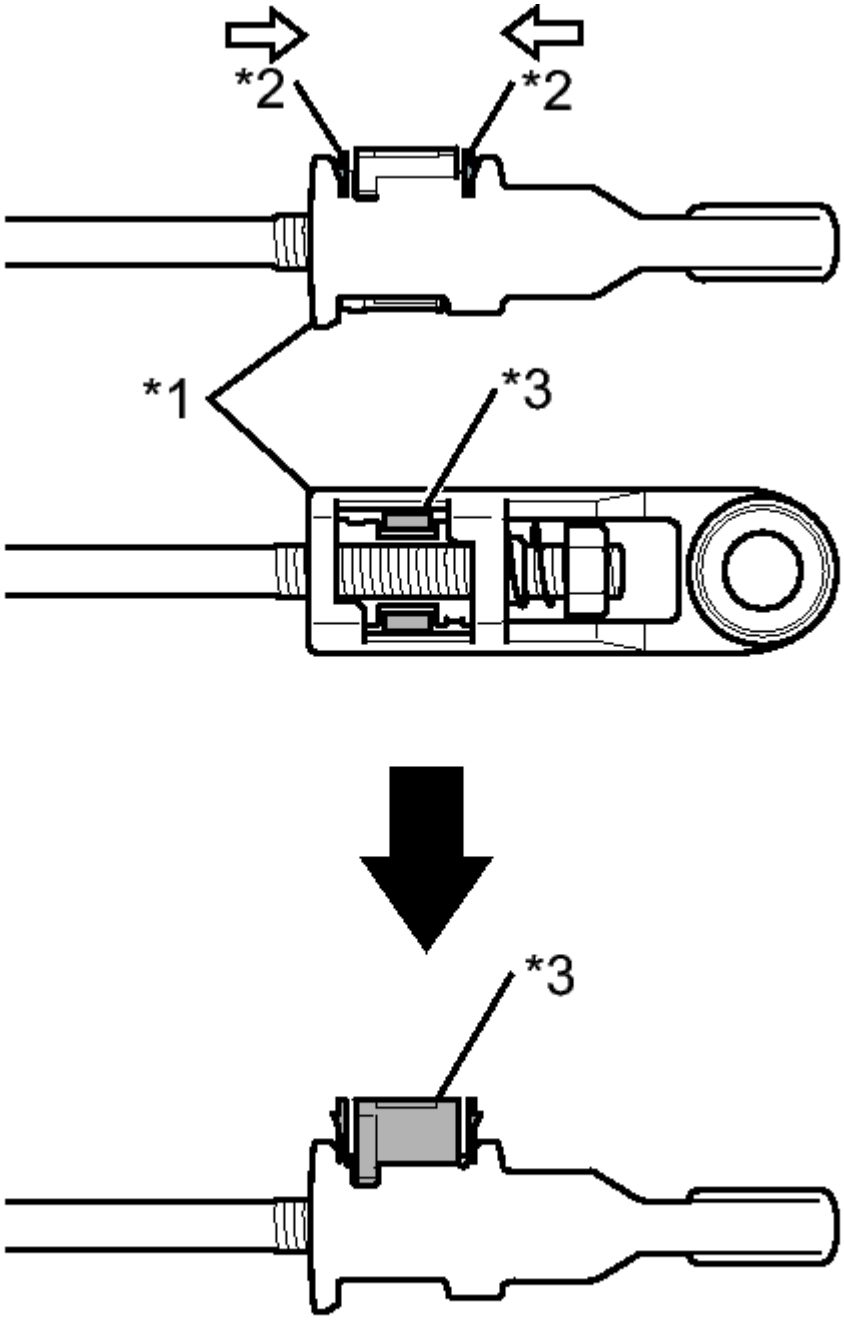
Fig. 124: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

c. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 125: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

d. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

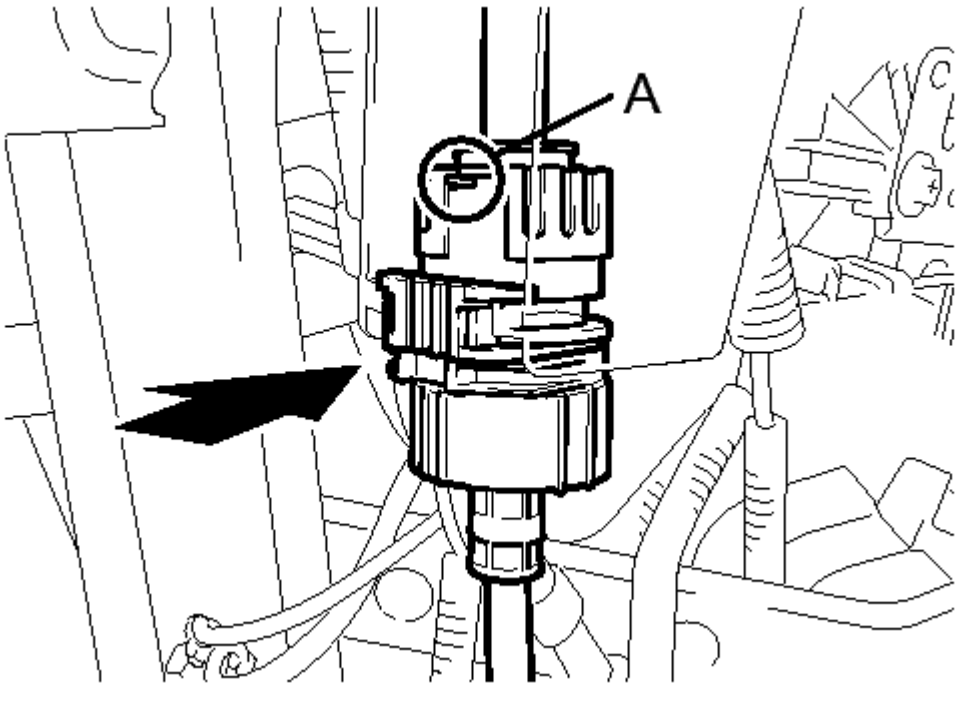


Fig. 126: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

e. Connect the transmission control cable end to the shift lever.

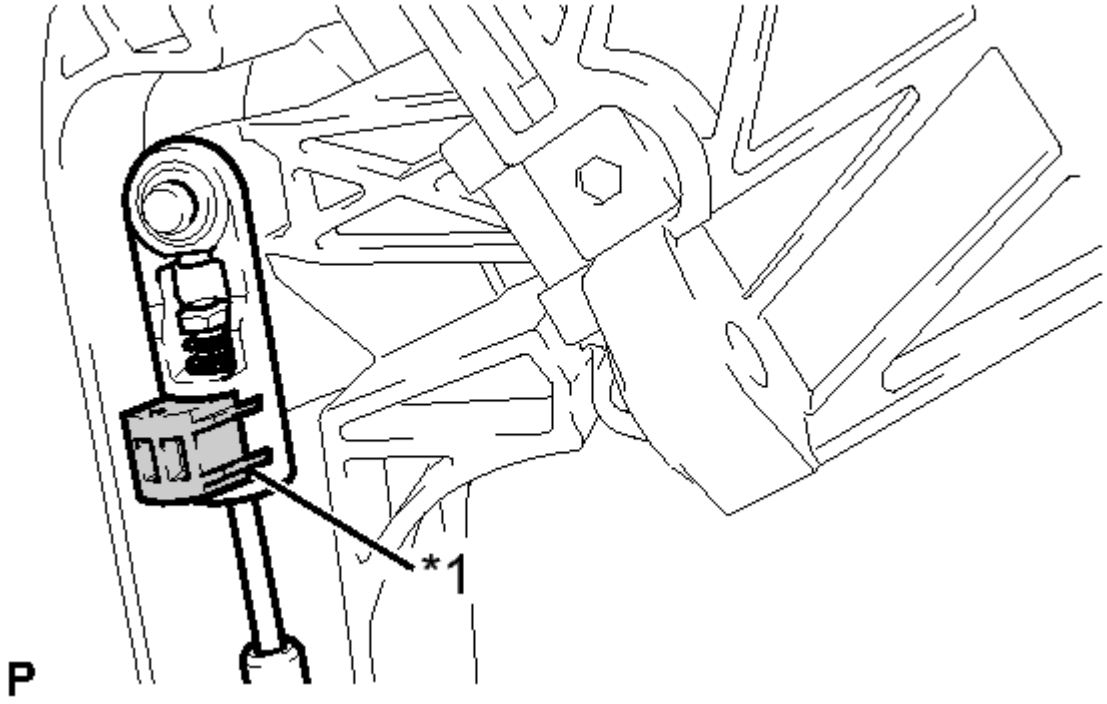


Fig. 127: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

2. **INSTALL SHIFT LEVER ASSEMBLY**
   a. Install the shift lever with the 4 nuts.

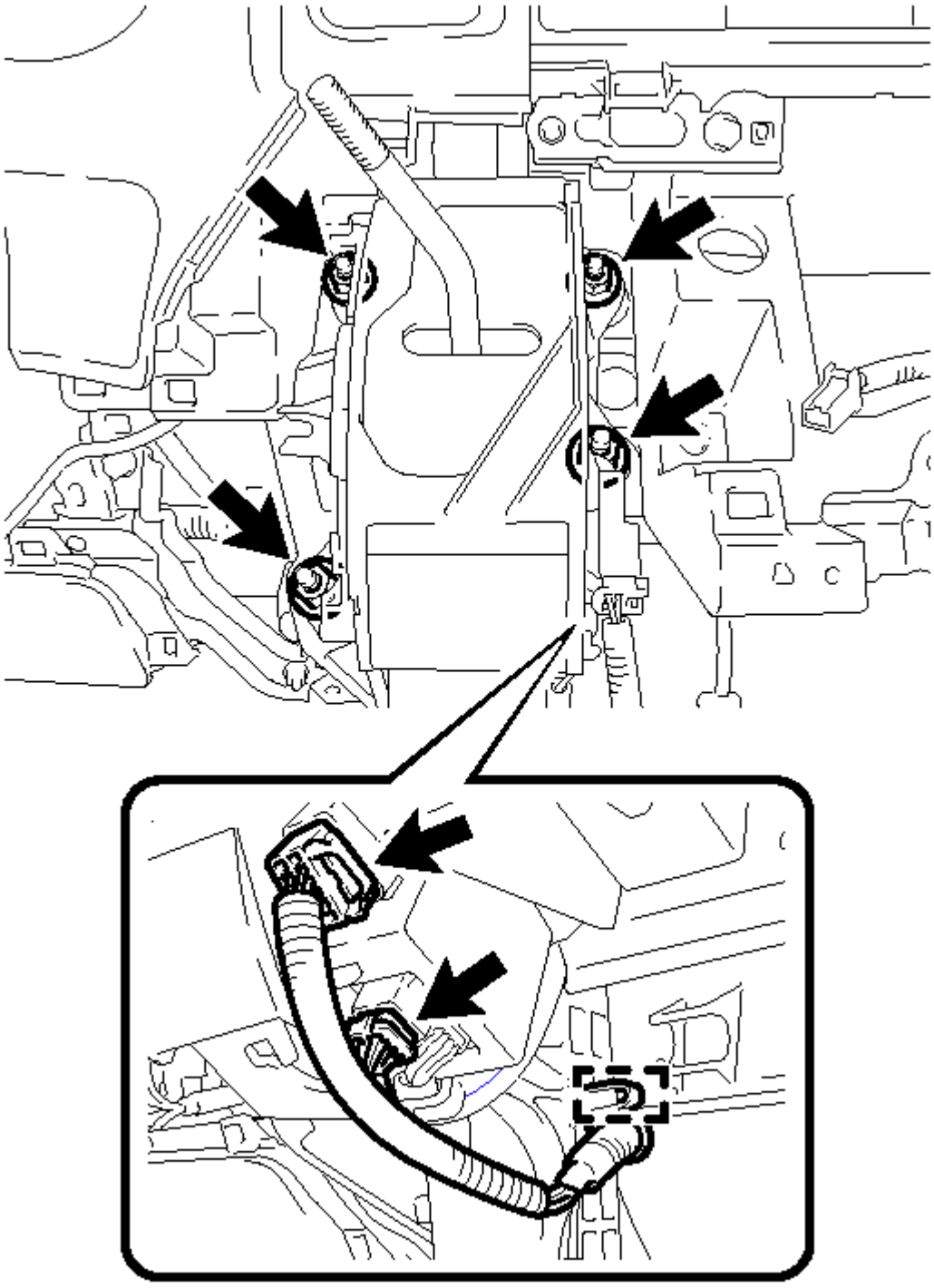


Fig. 128: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

b. Connect the shift lock control ECU connector and transmission control switch wire connector.
c. Press in and lock the lock piece to the adjuster case.

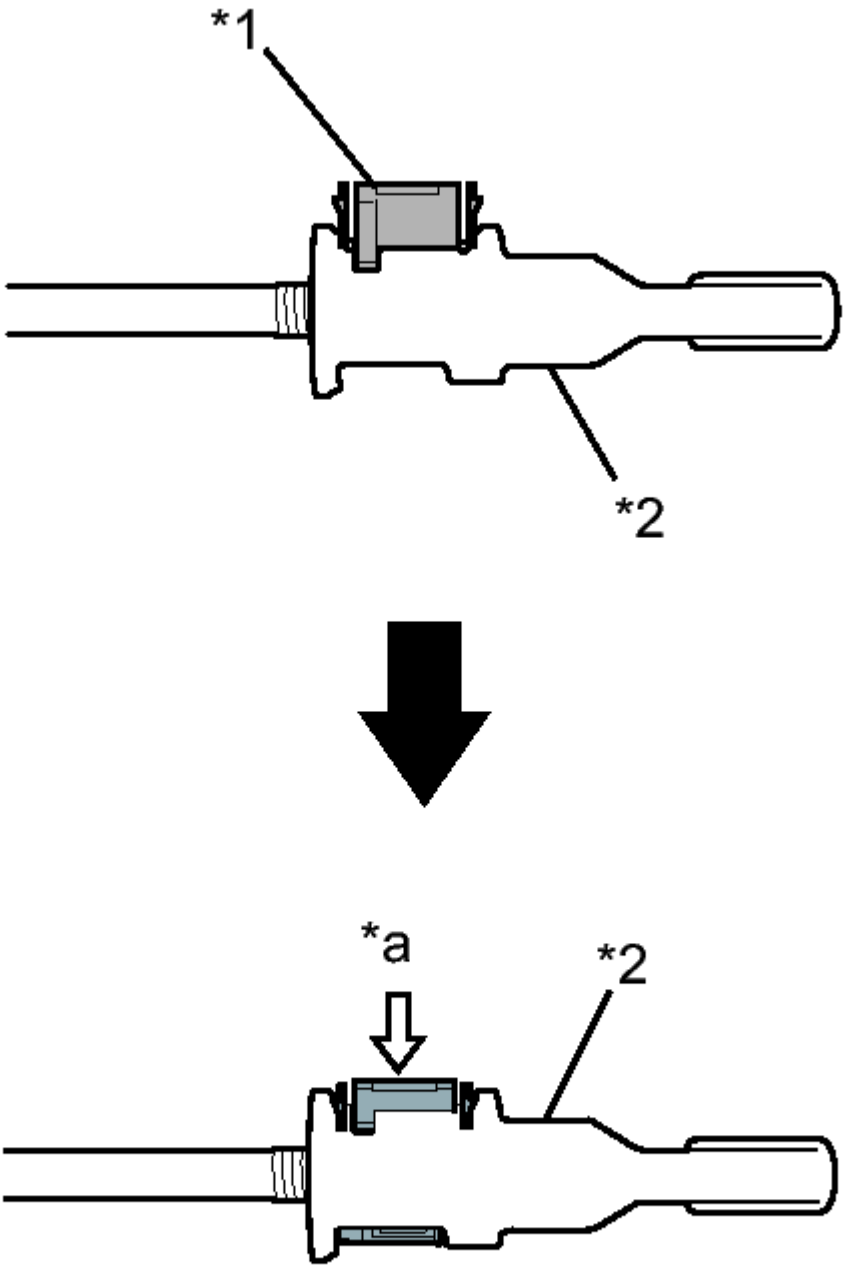


Fig. 129: Identifying Lock Piece At Adjuster Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece
*2	Adjuster Case
*a	Press in

NOTE:

- **Check that the park/neutral position switch and the shift lever are in N position.**
- **Securely press in the lock piece until the lock engages.**

3. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** . Refer to **INSTALLATION - Step 13**
4. **INSTALL INSTRUMENT PANEL FINISH PANEL END RH** . Refer to **INSTALLATION - Step 18**
5. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **INSTALLATION - Step 19**
6. **INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 15**
7. **INSTALL LOWER CENTER INSTRUMENT COVER (w/ Console Box)** . Refer to **INSTALLATION - Step 17**
8. **INSTALL LOWER CENTER INSTRUMENT COVER (w/o Console Box)** . Refer to **INSTALLATION - Step 16**
9. **INSTALL CONSOLE BOX ASSEMBLY (for Fixed Type)**

   Refer to **INSTALLATION**

10. **INSTALL CONSOLE BOX ASSEMBLY (for Slide Type)**

    Refer to **INSTALLATION**

11. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** . Refer to **INSTALLATION - Step 1**
12. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Manual Air Conditioning System)** . Refer to **INSTALLATION - Step 1**
13. **INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 33**
14. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY**
15. **INSTALL GLOVE COMPARTMENT DOOR SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 24**
16. **INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** . Refer to **INSTALLATION - Step 35**
17. **INSTALL KNEE AIRBAG ASSEMBLY** . Refer to **INSTALLATION - Step 1**
18. **INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL** . Refer to **INSTALLATION - Step 39**

19. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH**
20. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH**
21. **INSTALL COWL SIDE TRIM BOARD RH** . Refer to **INSTALLATION - Step 35**
22. **INSTALL COWL SIDE TRIM BOARD LH** . Refer to **INSTALLATION - Step 36**
23. **INSTALL FRONT DOOR SCUFF PLATE RH** . Refer to **INSTALLATION - Step 37**
24. **INSTALL FRONT DOOR SCUFF PLATE LH** . Refer to **INSTALLATION - Step 38**
25. **INSPECT SHIFT LEVER OPERATION**

    Refer to **ON-VEHICLE INSPECTION**

TRANSMISSION CONTROL CABLE

COMPONENTS

ILLUSTRATION

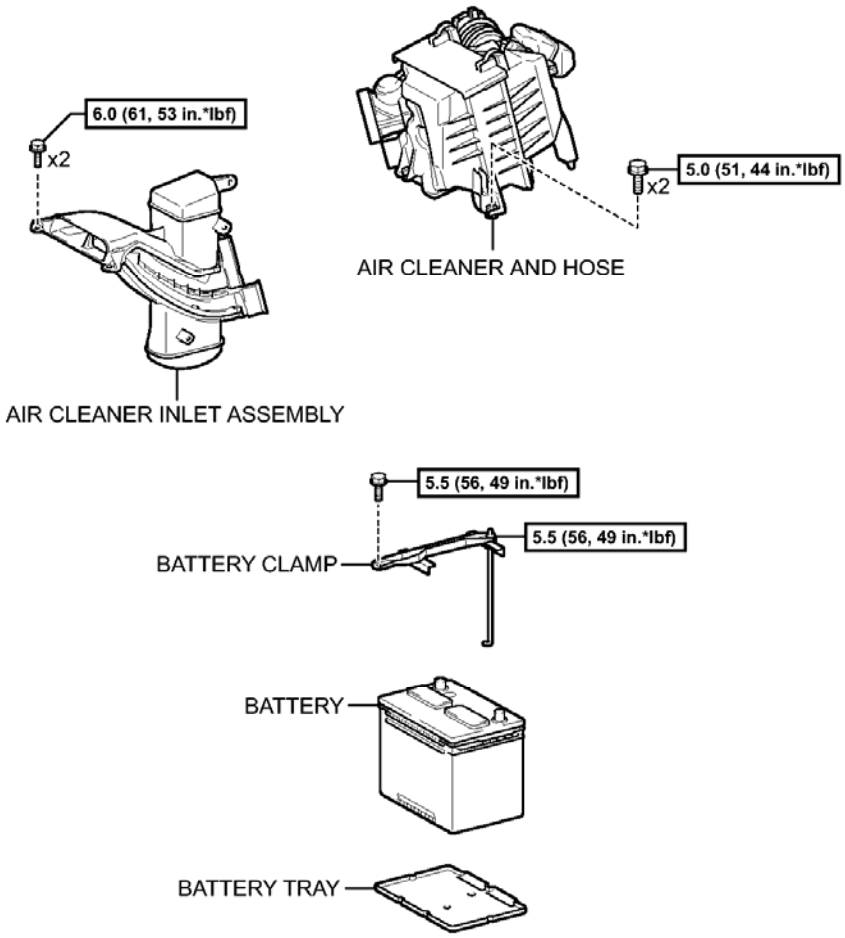
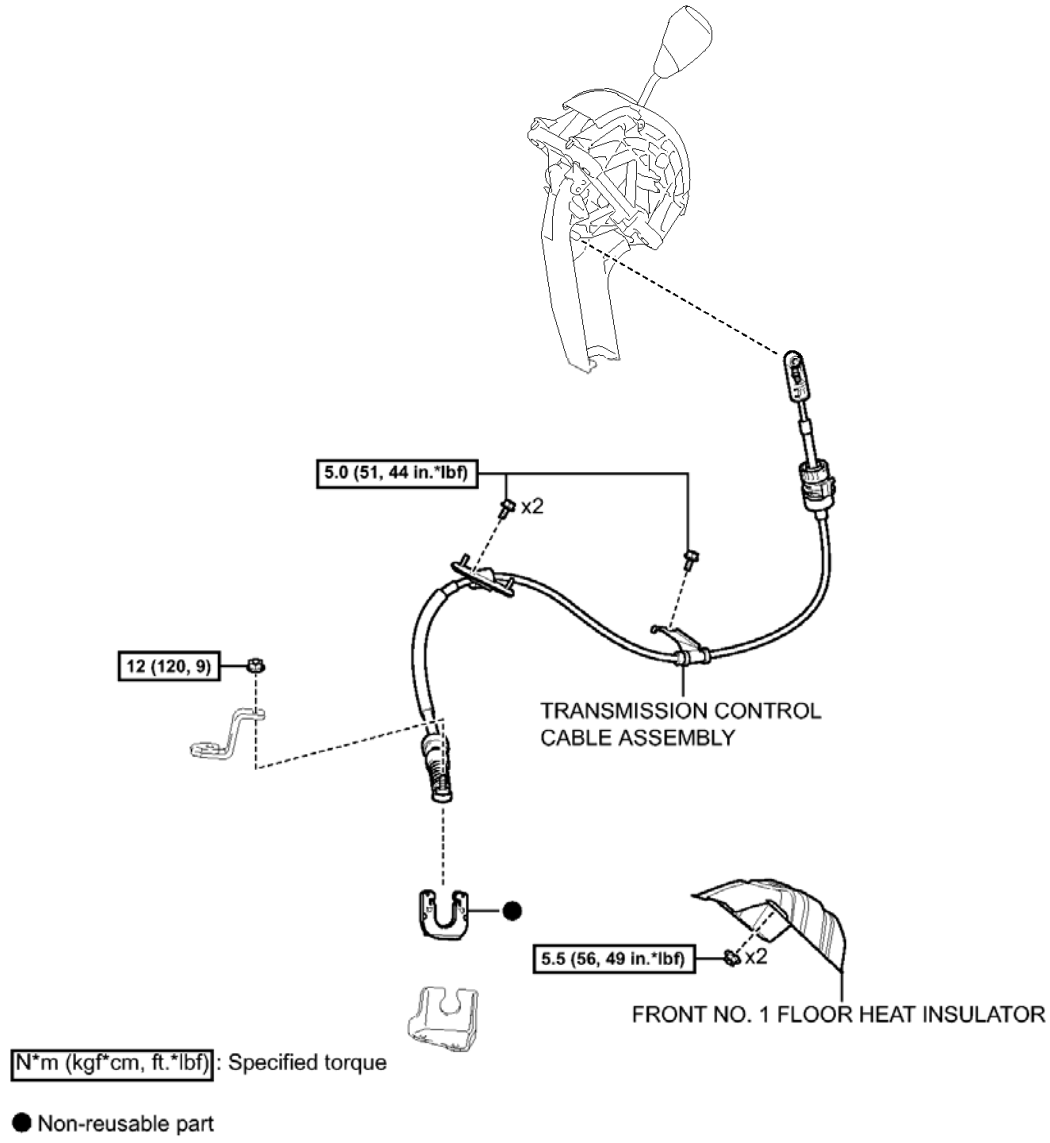


Fig. 130: Transmission Control Cable Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 131: Identifying Transmission Control Cable Replacement Components With Torque Specifications (2 Of 2)

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

REMOVAL

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
2. **REMOVE FRONT AIR CONDITIONING UNIT**

Refer to **REMOVAL**

3. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
4. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
5. **REMOVE AIR CLEANER ASSEMBLY** . Refer to **REMOVAL - Step 7**
6. **REMOVE EXHAUST MANIFOLD ASSEMBLY RH**

   Refer to **REMOVAL**

7. **REMOVE FRONT NO. 1 FLOOR HEAT INSULATOR**
   a. Remove the 2 nuts and front No. 1 floor heat insulator.

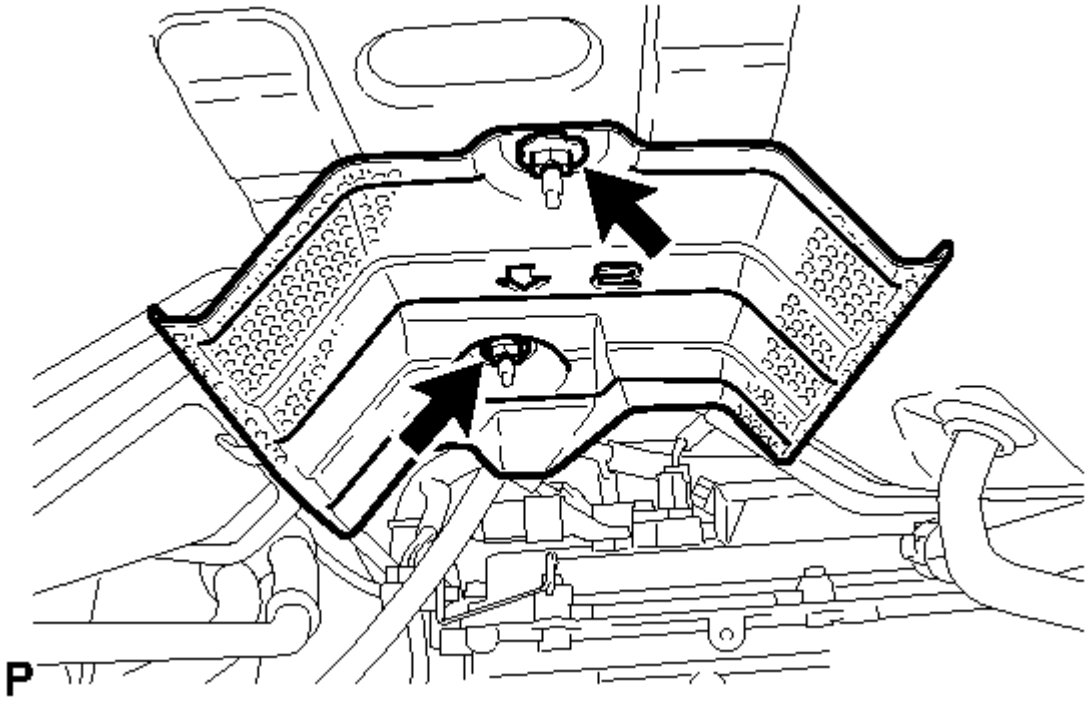


Fig. 132: Identifying Front No. 1 Floor Heat Insulator & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Remove the nut from the control shaft lever.

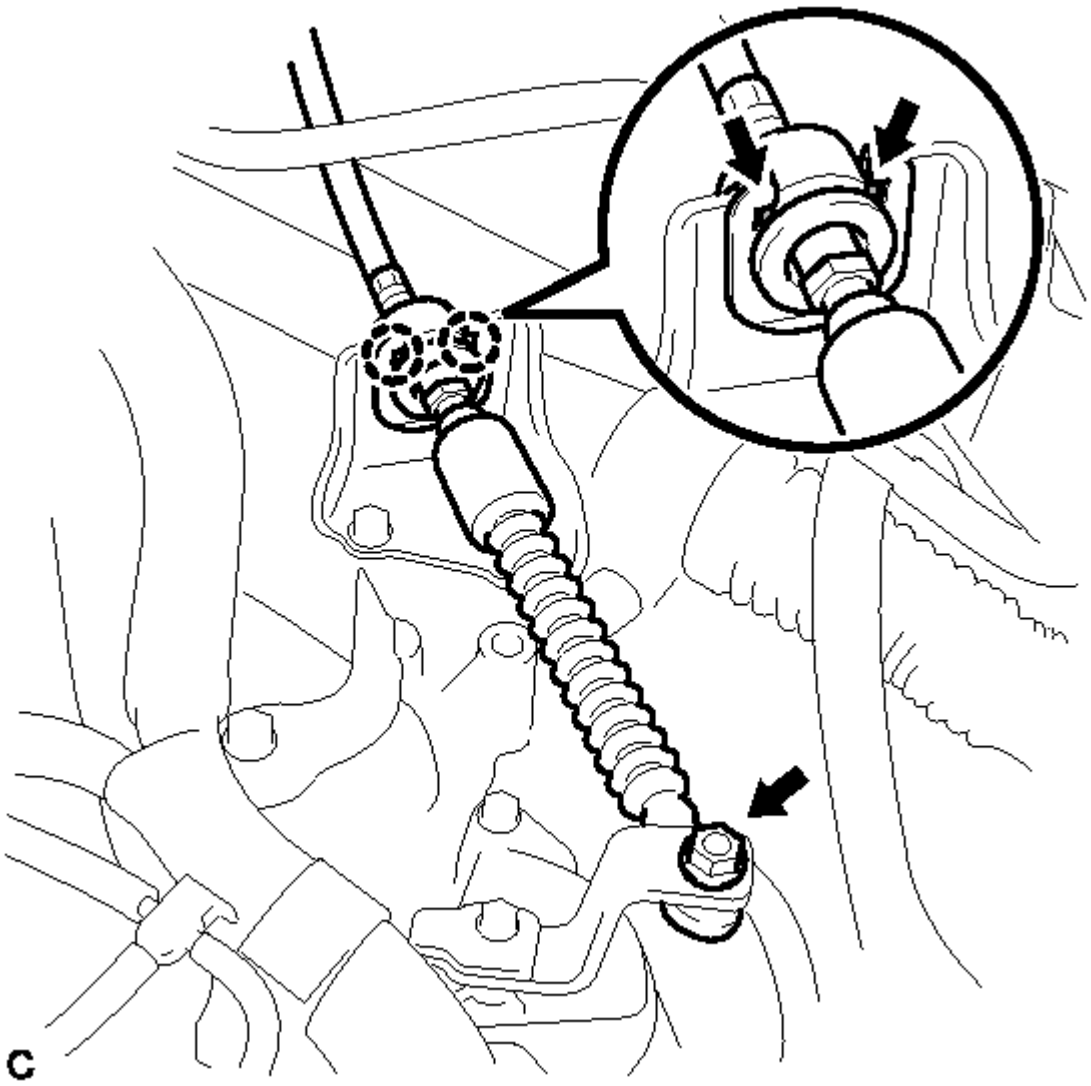


Fig. 133: Identifying Control Shaft Lever Nut And Control Cable Bracket Clip With Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, disengage the 4 claws, disconnect the transmission control cable with clip from the transmission control cable bracket.
c. Remove the clip from the transmission control cable.
d. Disconnect the end of the transmission control cable from the shift lever.

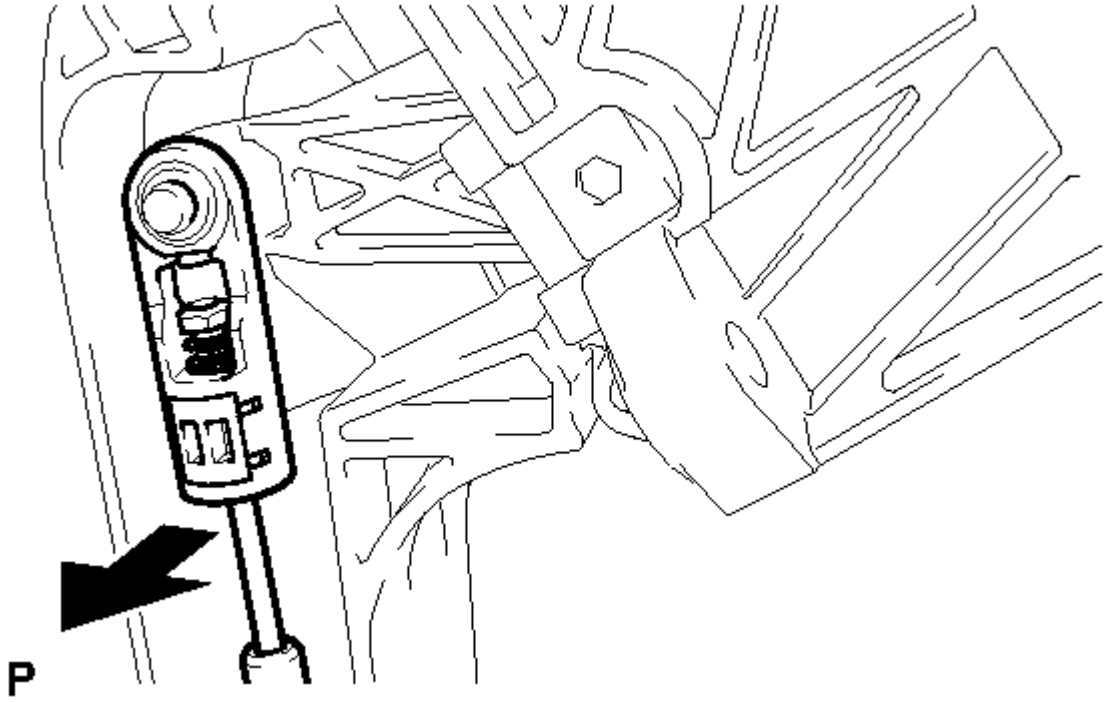


Fig. 134: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a screwdriver, pull out the transmission control cable stopper.

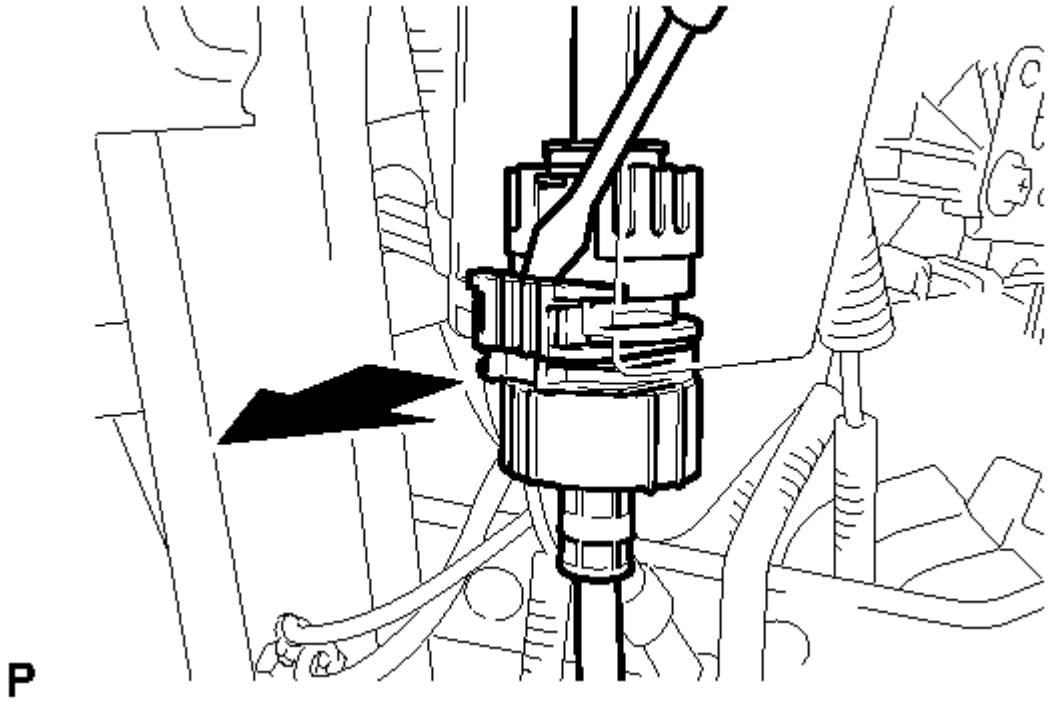


Fig. 135: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Do not remove the stopper. If the stopper is removed, reinstall it to its original position.**

f. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

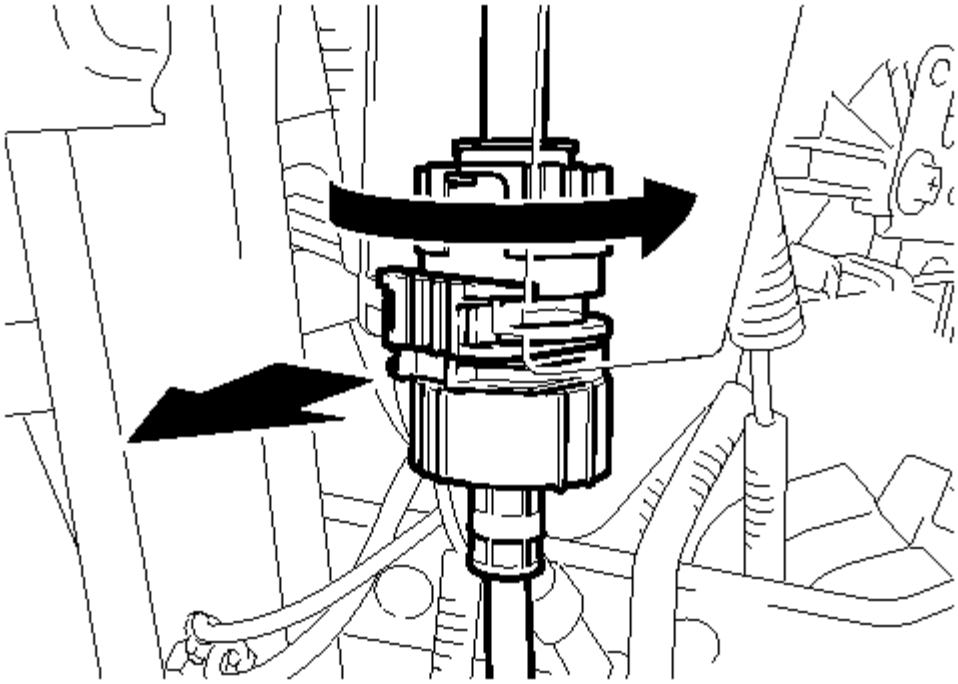


Fig. 136: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Remove the 3 bolts and pull out the transmission control cable from the body.

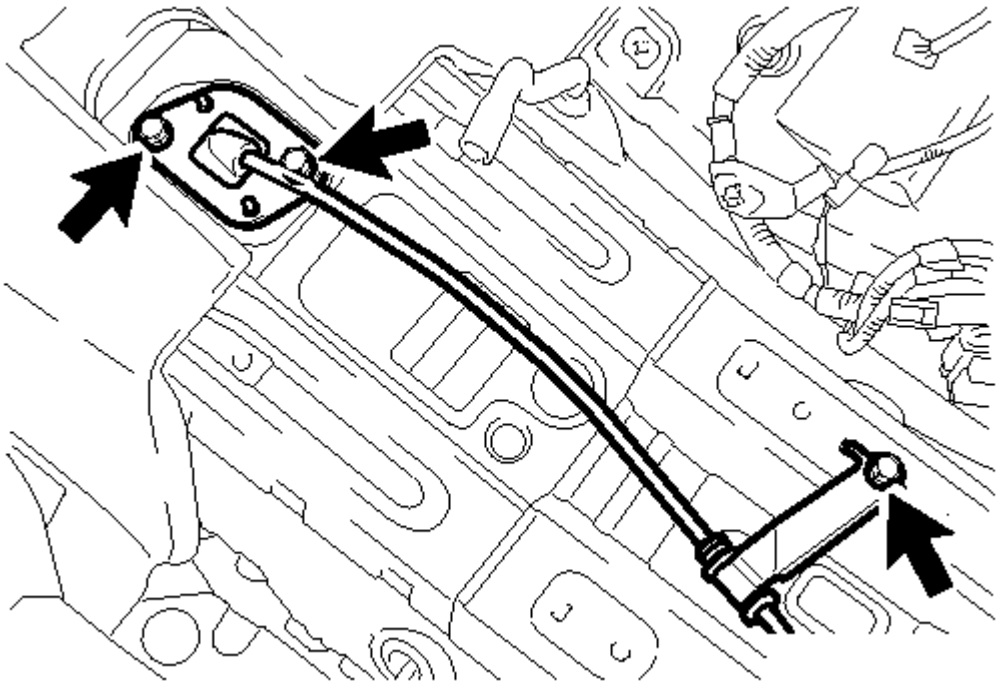


Fig. 137: Identifying Transmission Cable & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

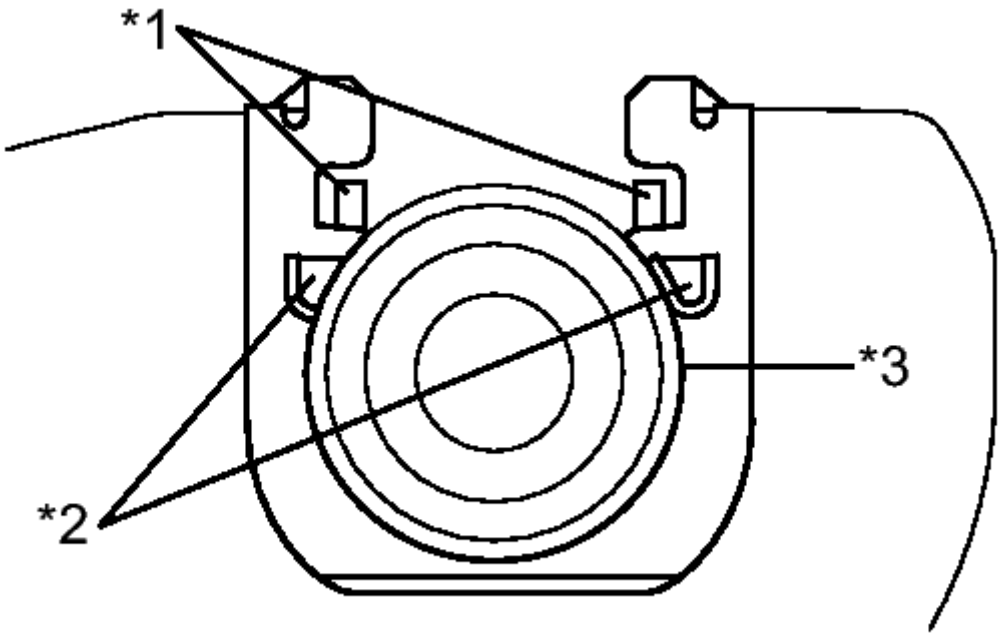
INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Pass the transmission control cable from the cabin into the engine compartment.
   b. Install the transmission control cable with the 3 bolts.

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

   c. Install a new clip onto the control cable bracket.



T

Fig. 138: Identifying Transmission Control Cable Assembly, Clip & Cable Bracket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Claw A
*2	Claw B
*3	Transmission Control Cable

d. Install the transmission control cable onto the transmission control cable bracket.

NOTE:

- **Make sure that the claws A (*1) on the clip are securely fit into the bracket holes.**
- **Make sure that the cable is securely installed inside of the claws B (*2) of the clip.**
- **After installation, lightly jiggle the transmission control cable and make sure that it does not come loose from the transmission control cable bracket.**

e. Check that the park/neutral position switch is in the N position.

f. Connect the transmission control cable onto the transmission control shaft lever with the nut.

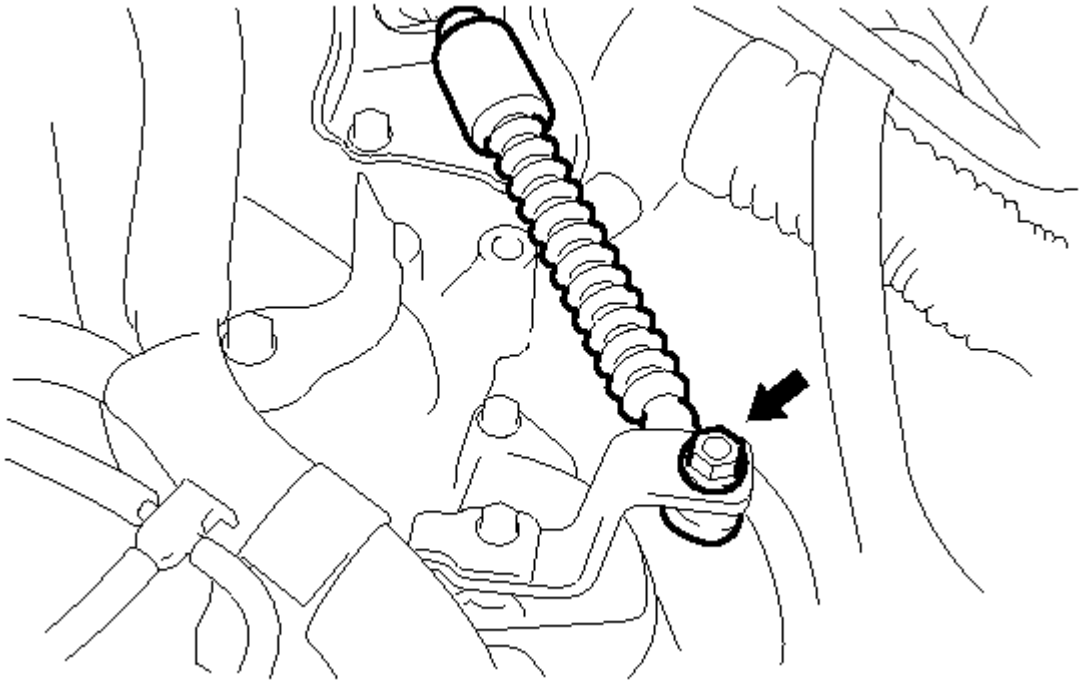
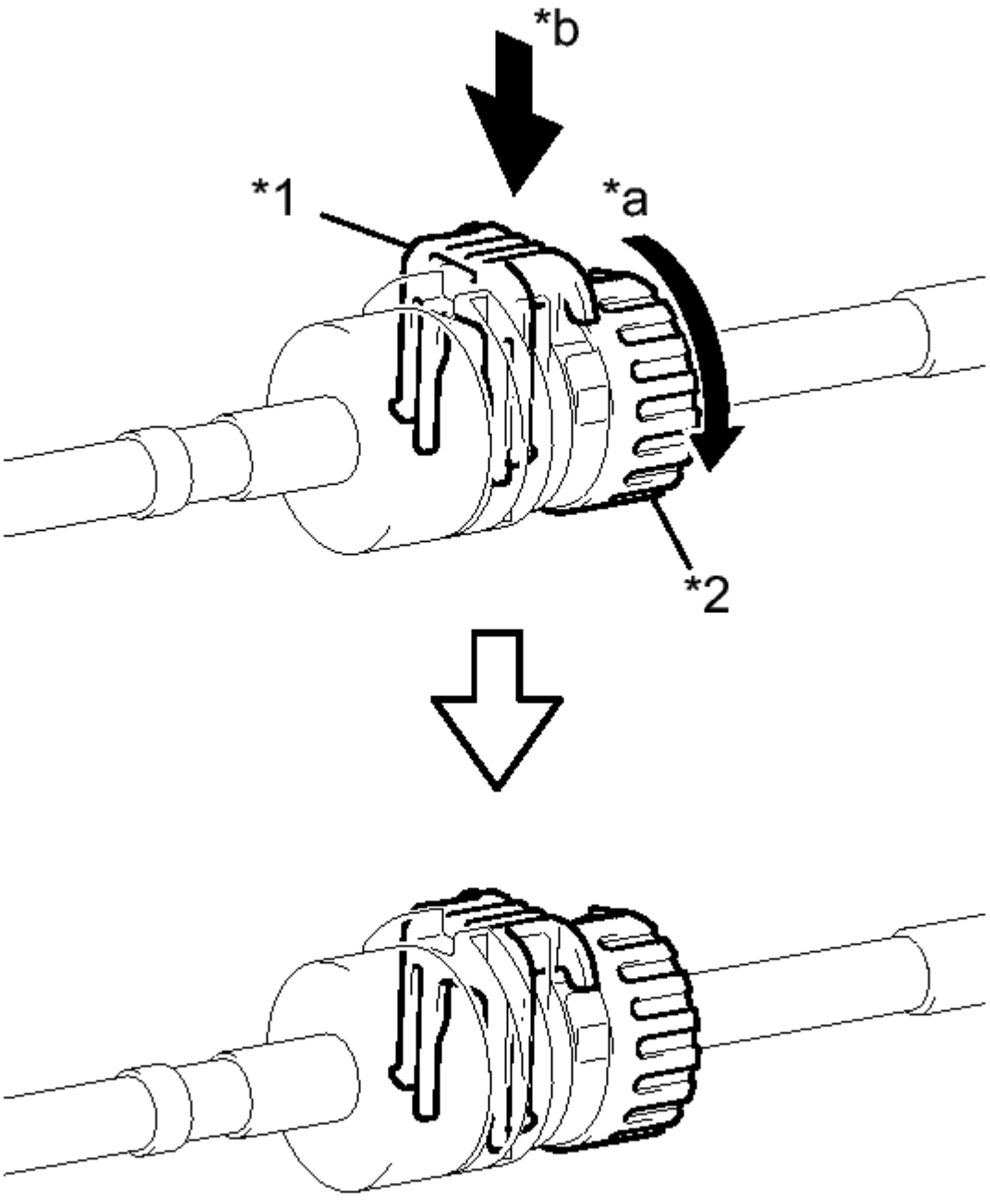


Fig. 139: Identifying Control Shaft Lever Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

g. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



P

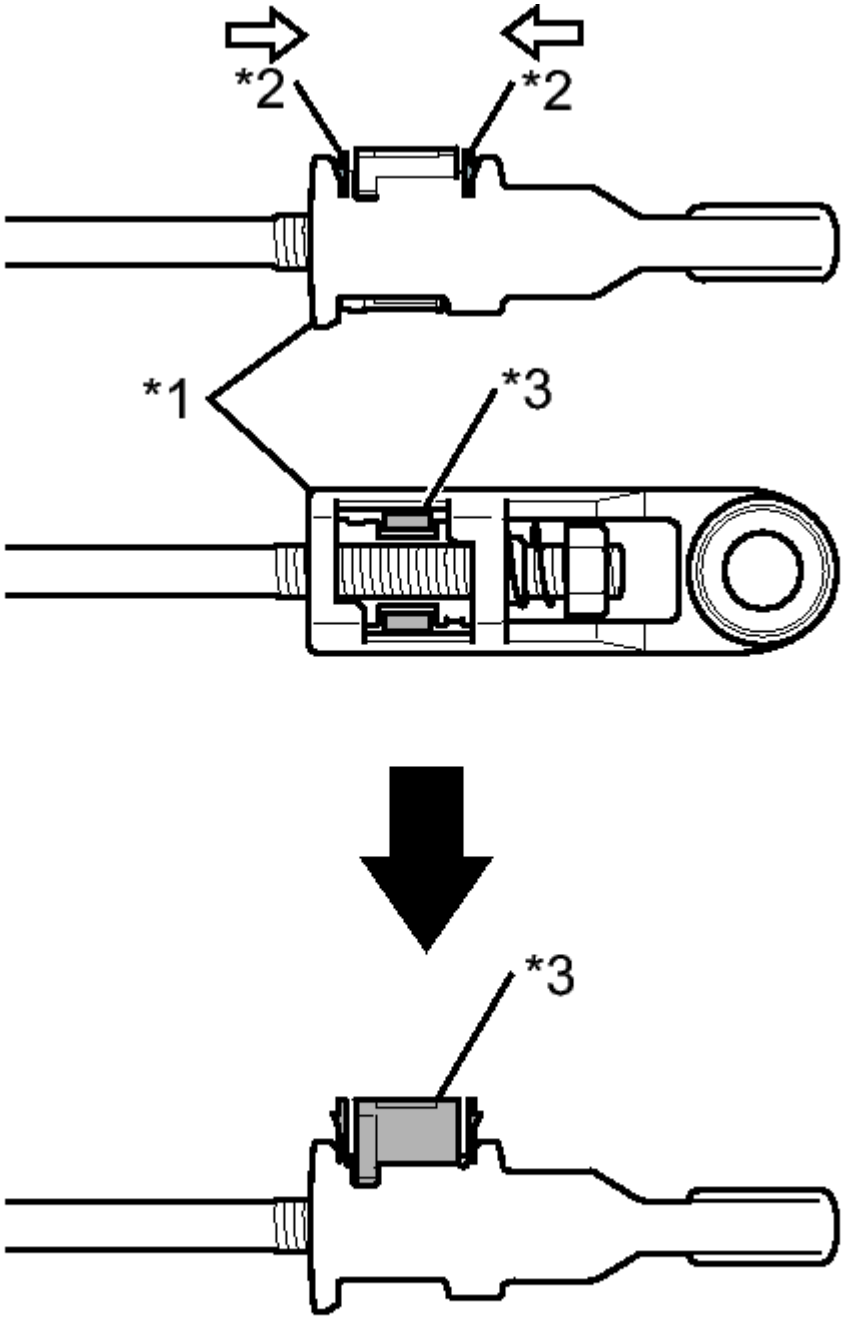
Fig. 140: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

h. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 141: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

i. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

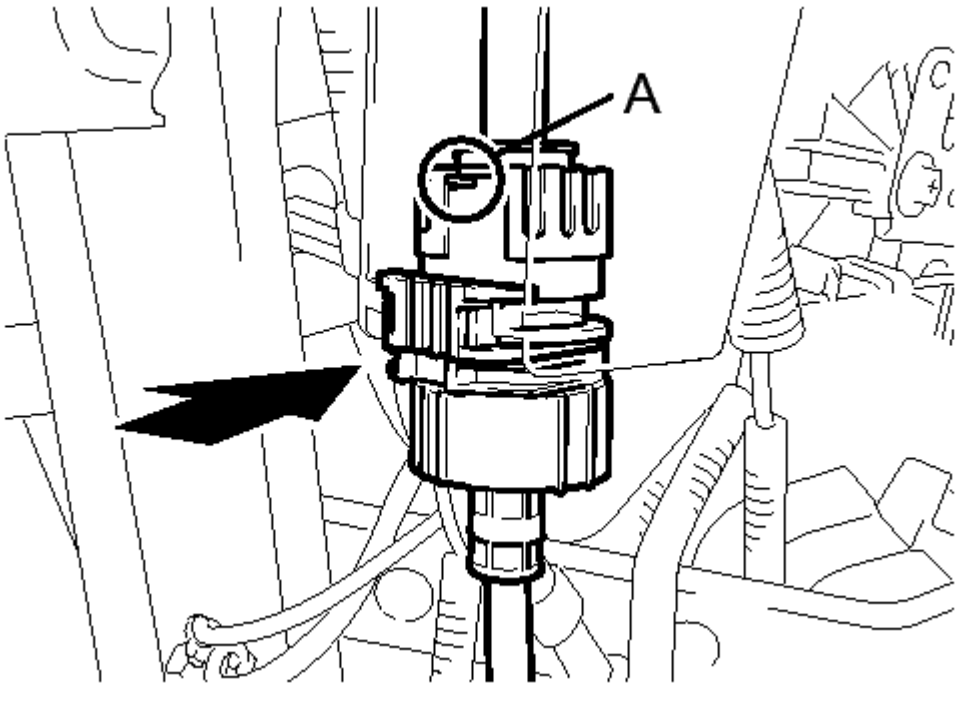


Fig. 142: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

j. Connect the transmission control cable end to the shift lever.

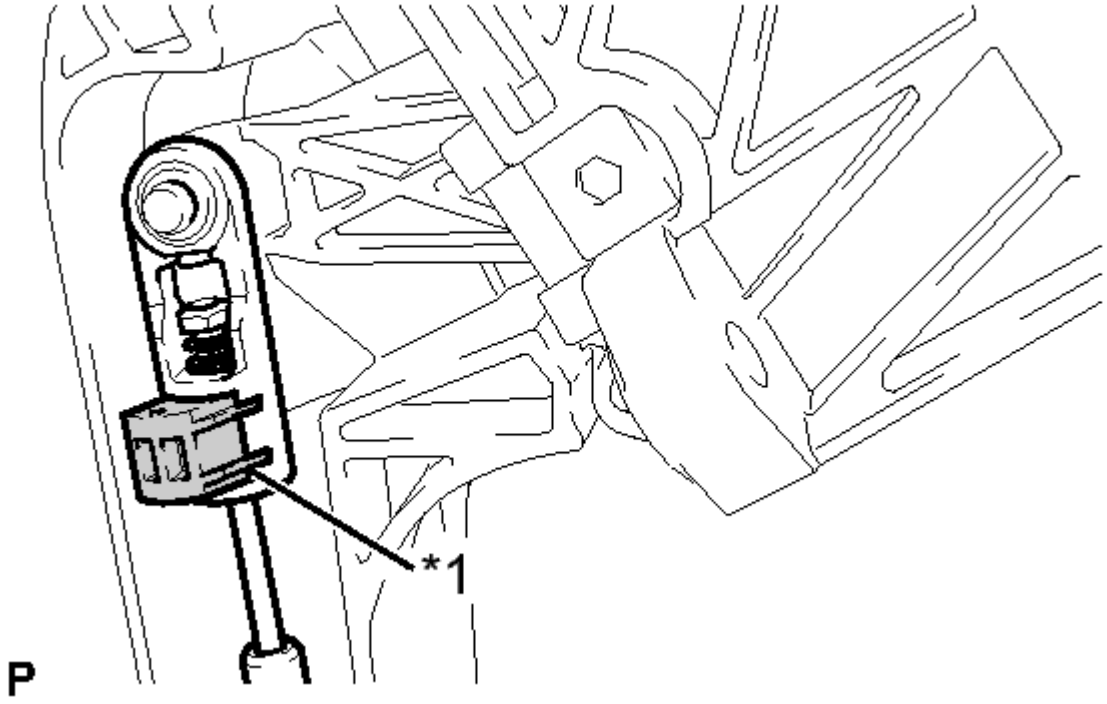


Fig. 143: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

2. **INSTALL FRONT NO. 1 FLOOR HEAT INSULATOR**
   a. Install the front No. 1 floor heat insulator to the body with the 2 nuts.

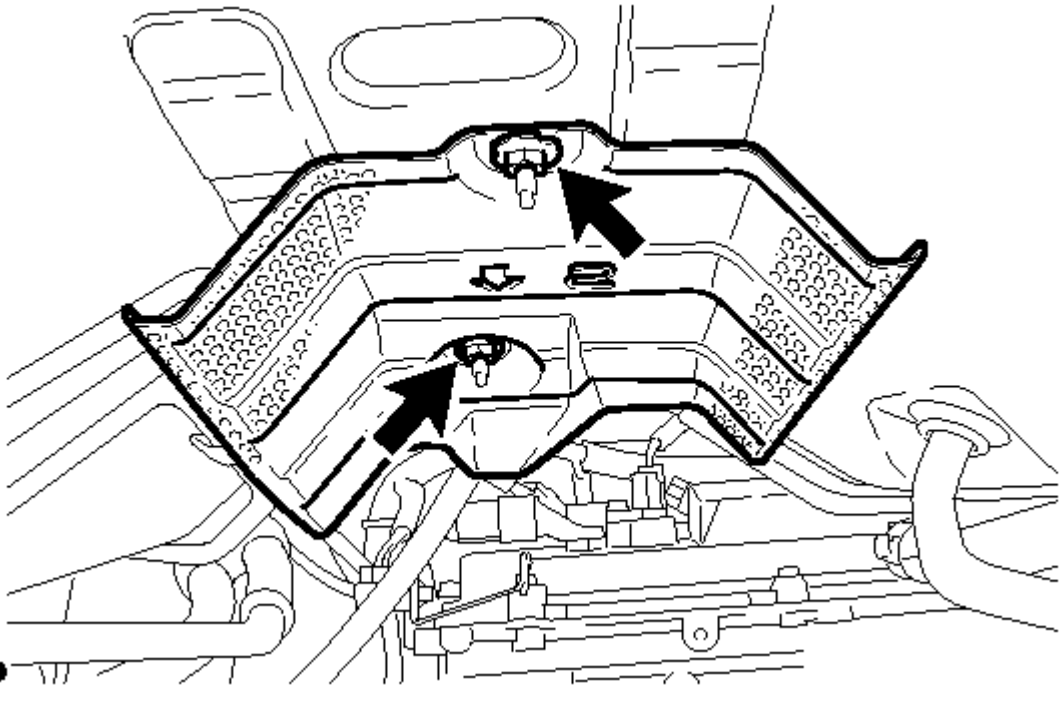


Fig. 144: Identifying Front No. 1 Floor Heat Insulator & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

3. **INSTALL EXHAUST MANIFOLD ASSEMBLY RH**

   Refer to **INSTALLATION**

4. **INSTALL AIR CLEANER ASSEMBLY** . Refer to **INSTALLATION - Step 4**
5. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
6. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
7. **INSTALL FRONT AIR CONDITIONING UNIT**

   Refer to **INSTALLATION**

8. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
9. **INSPECT SHIFT LEVER POSITION** See step 1

DIFFERENTIAL OIL SEAL

COMPONENTS

ILLUSTRATION

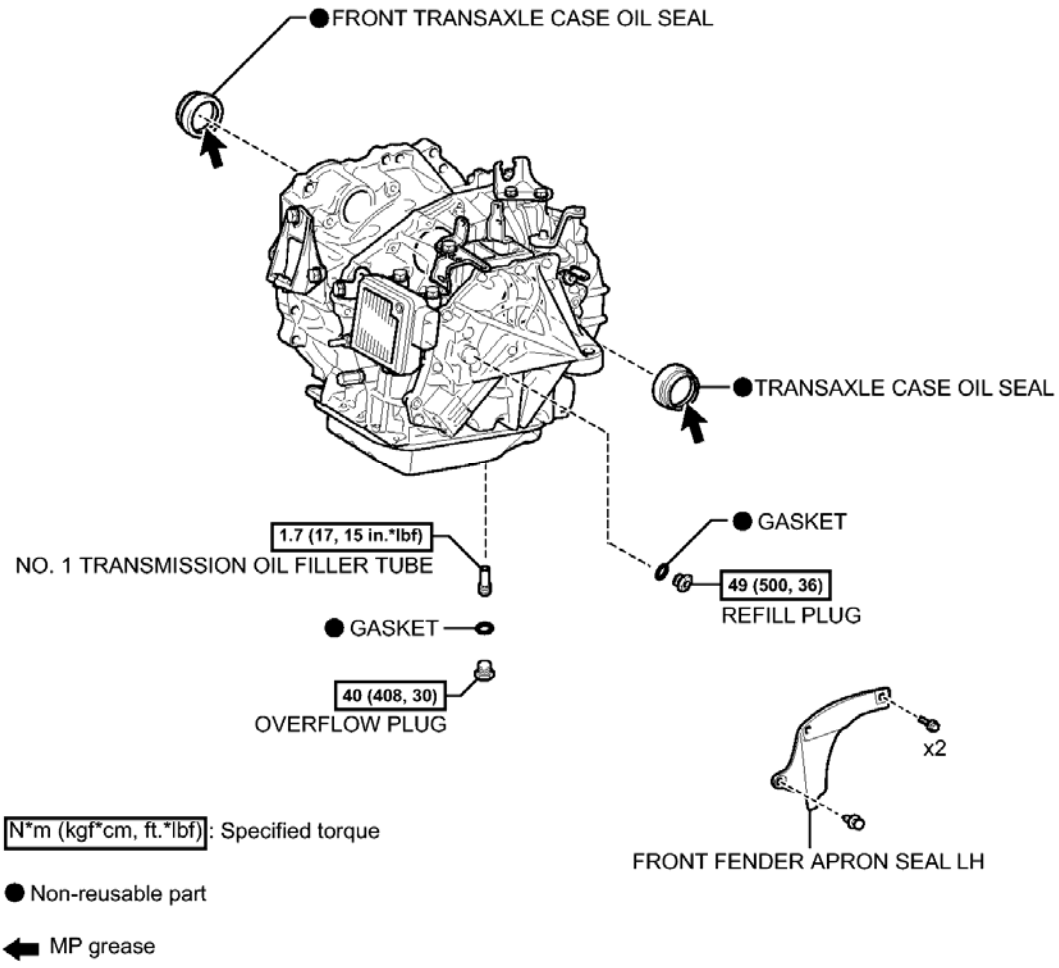


Fig. 145: Differential Oil Seal Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

REPLACEMENT

1. **DRAIN AUTOMATIC TRANSAXLE FLUID**
    a. Remove the 2 bolts, clip and front fender apron seal LH.
    b. Remove the refill plug and gasket from the automatic transaxle.

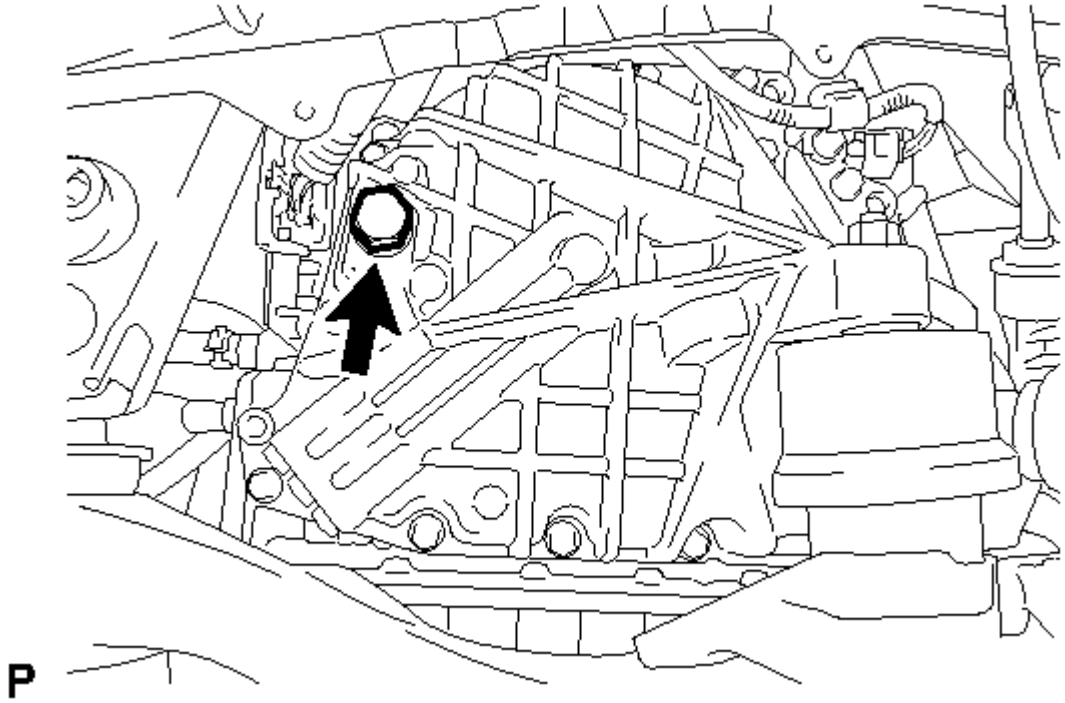


Fig. 146: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket from the automatic transaxle.

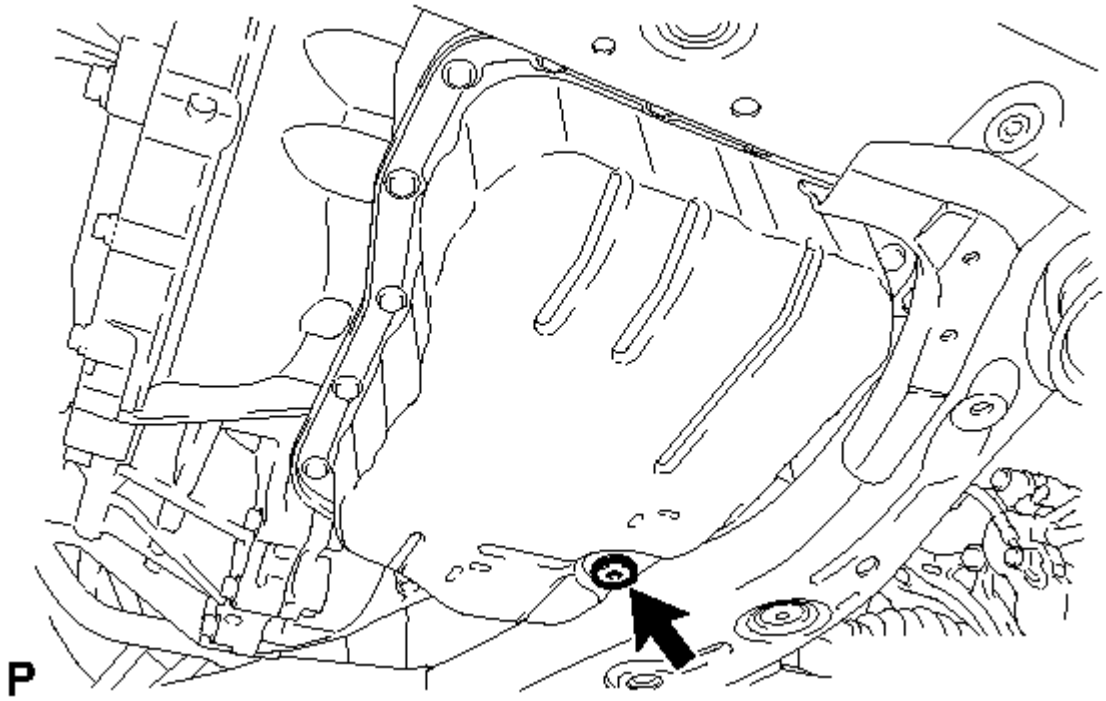


Fig. 147: Identifying Automatic Transaxle Overflow Plug & Gasket

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

d. Using a 6 mm hexagon socket wrench, remove the No. 1 transmission oil filler tube from the automatic transaxle.

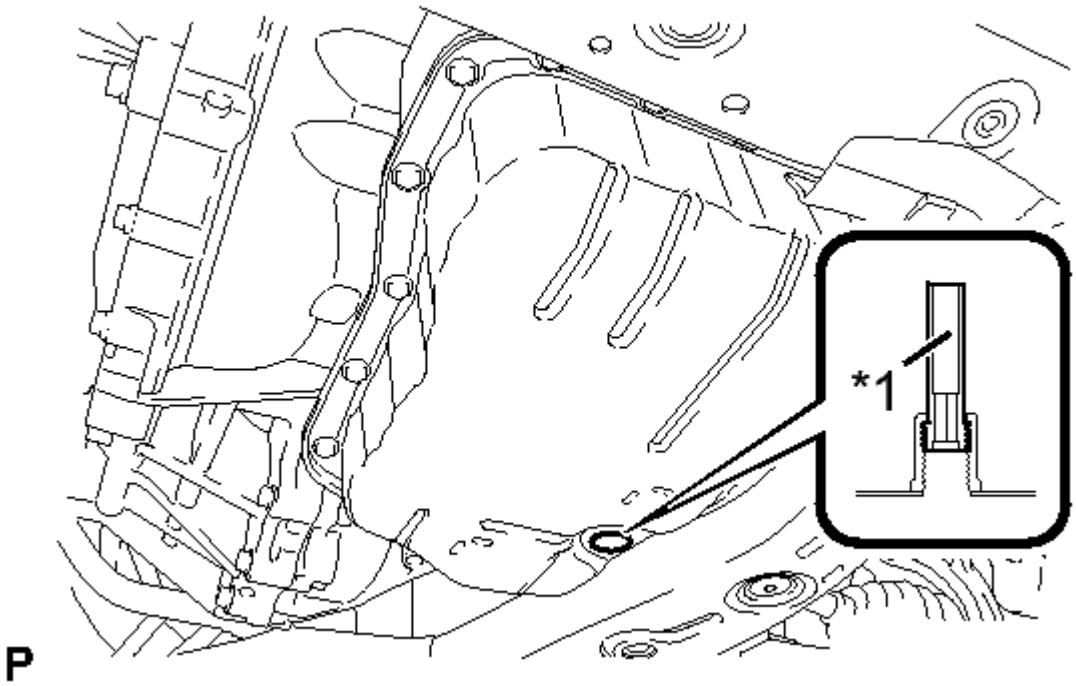


Fig. 148: Identifying No. 1 Transmission Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube

e. Drain automatic transaxle fluid from the automatic transaxle.

f. Using a 6 mm hexagon socket wrench, install the No. 1 transmission oil filler tube into the automatic transaxle.

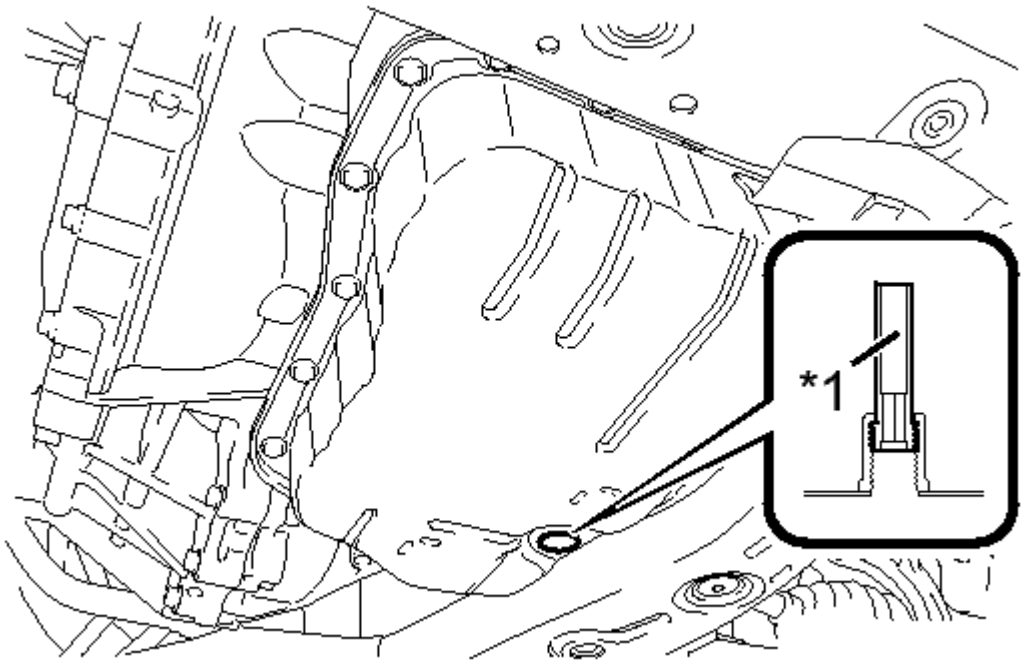


Fig. 149: Identifying No. 1 Transmission Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

g. Using a 6 mm hexagon socket wrench, temporarily install the gasket and the overflow plug into the automatic transaxle.

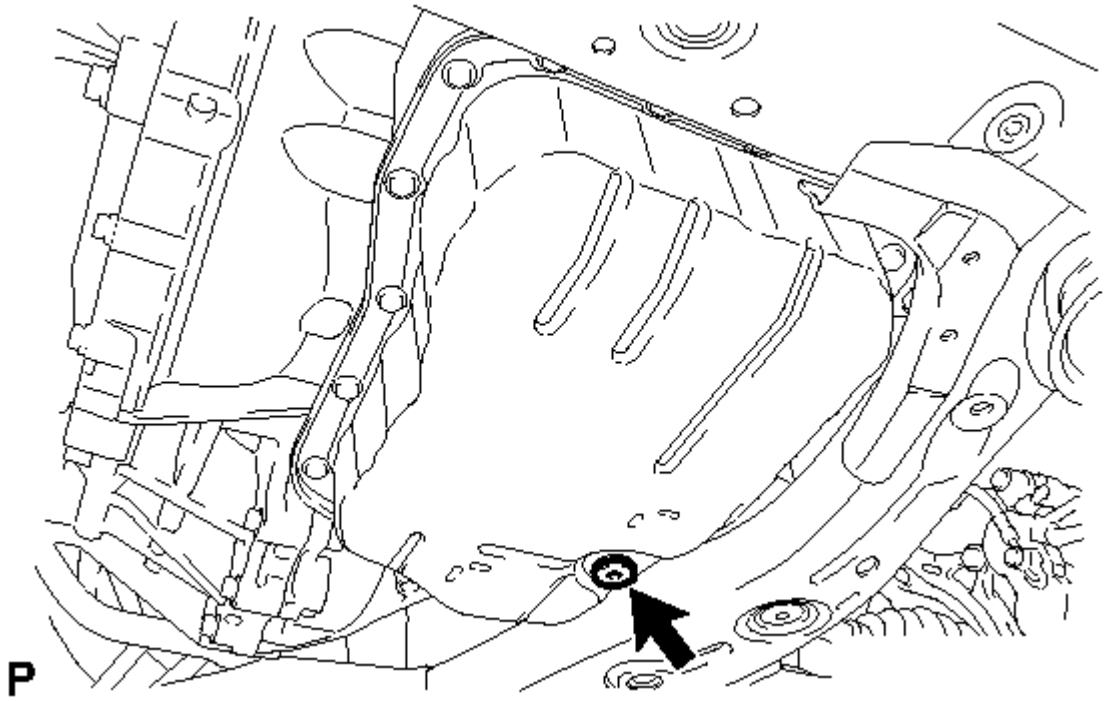


Fig. 150: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The overflow plug will be removed again to adjust the fluid level.

h. Temporarily install the gasket and the refill plug into the automatic transaxle.

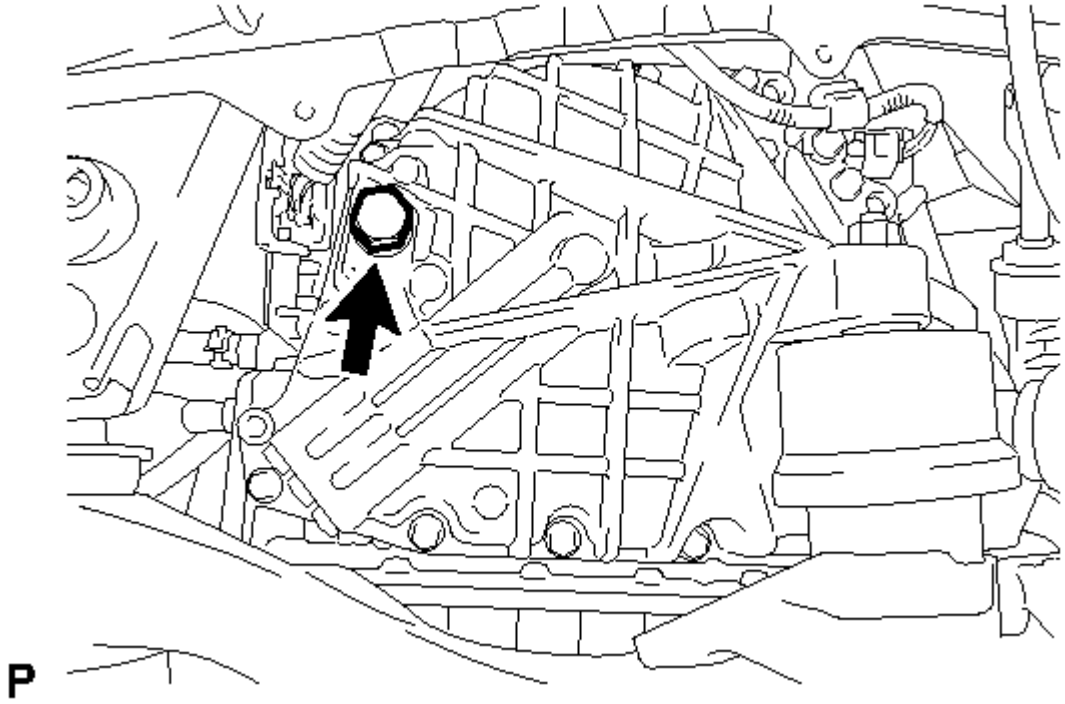


Fig. 151: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The refill plug will be removed again to adjust the fluid level.

2. **REMOVE FRONT DRIVE SHAFT ASSEMBLY**

   Refer to **REMOVAL**

3. **REMOVE TRANSAXLE CASE OIL SEAL**
   a. Using SST, tap out the transaxle case oil seal.

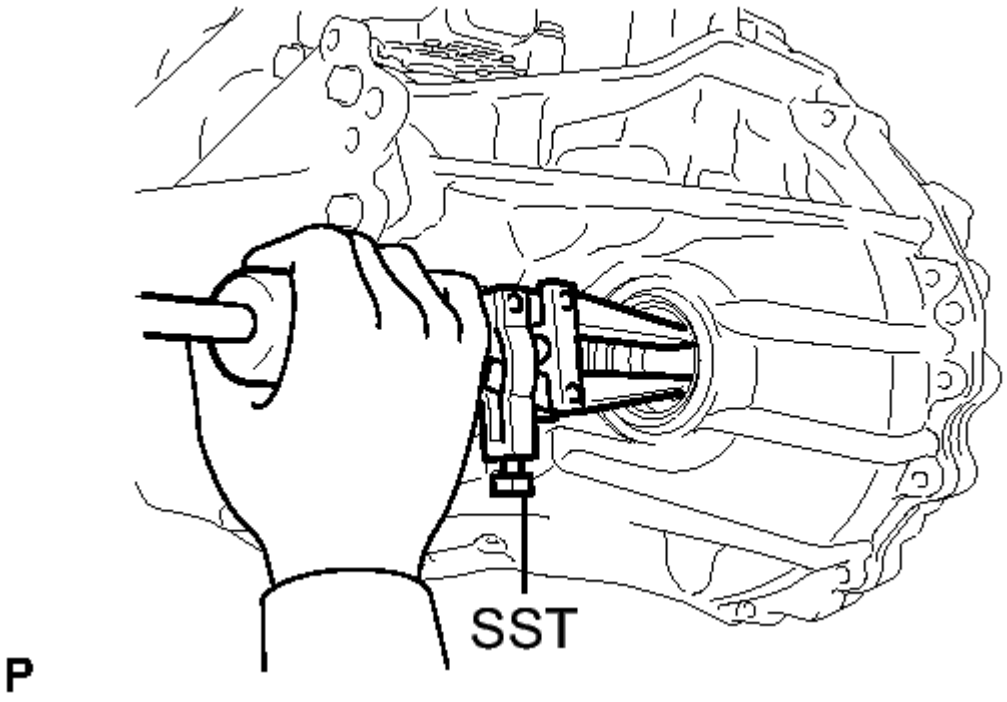


Fig. 152: Removing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

4. **REMOVE FRONT TRANSAXLE CASE OIL SEAL**
   a. Using SST, tap out the front transaxle case oil seal.

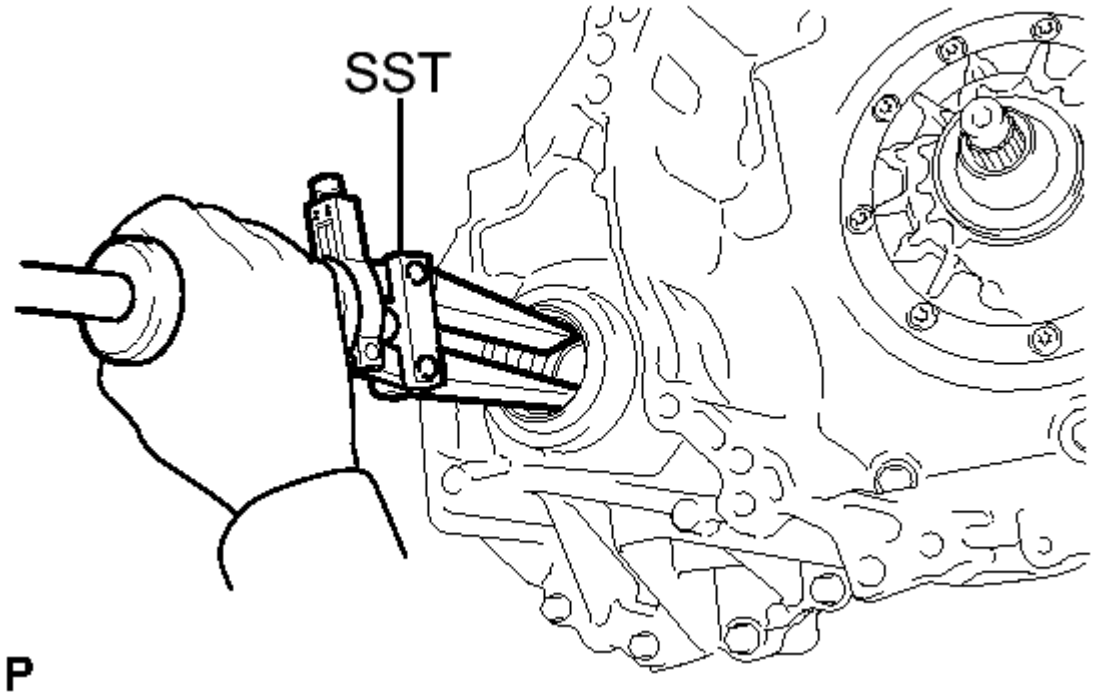


Fig. 153: Tapping Out Front Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

5. **INSTALL TRANSAXLE CASE OIL SEAL**
   a. Using SST and a hammer, tap in a new transaxle case oil seal.

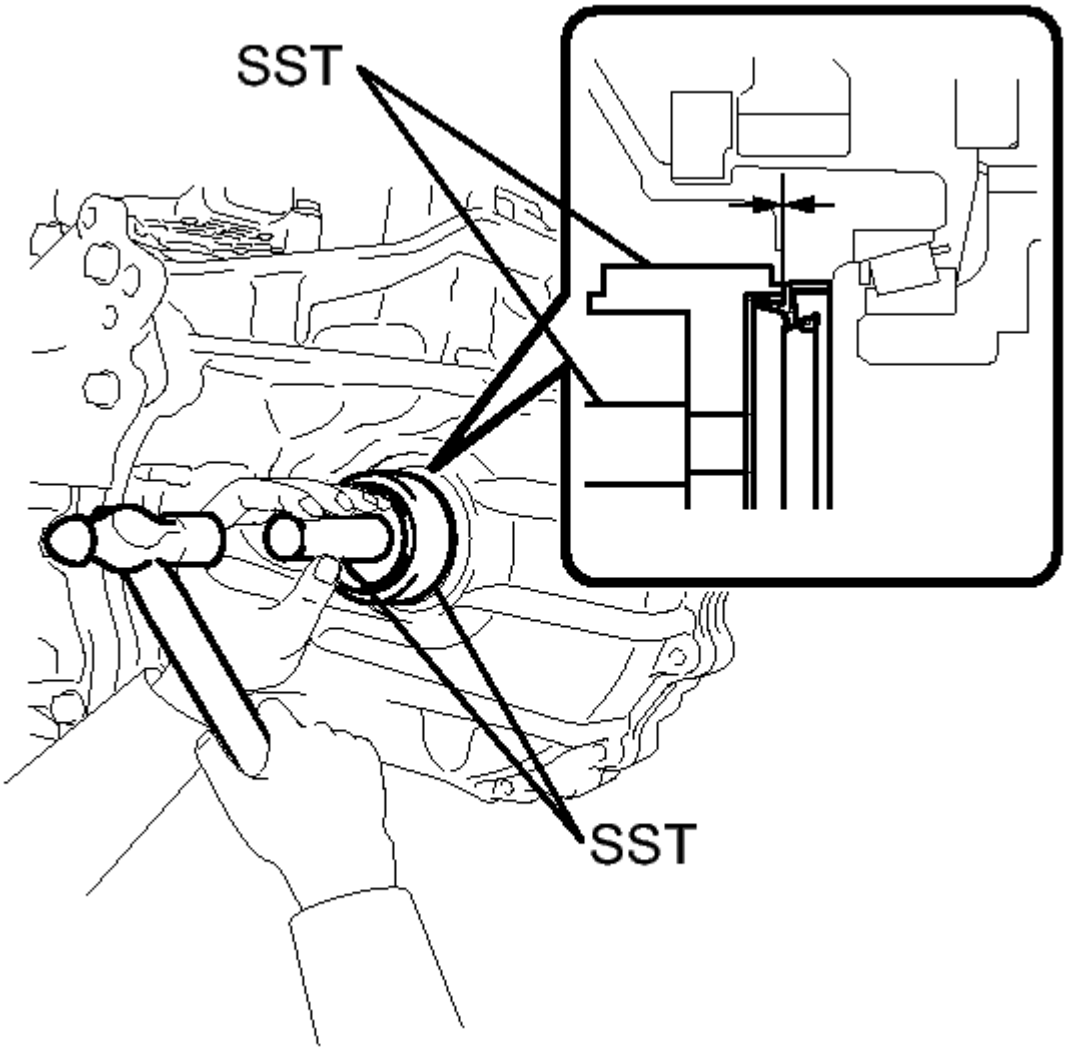


Fig. 154: Installing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-10010**
- **SST: 09950-70010**
  09951-07100

Oil seal driven in depth

-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

NOTE: Check that the oil seal is installed in the correct direction.

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

6. **INSTALL FRONT TRANSAXLE CASE OIL SEAL**

a. Using SST and a hammer, tap in a new front transaxle case oil seal.

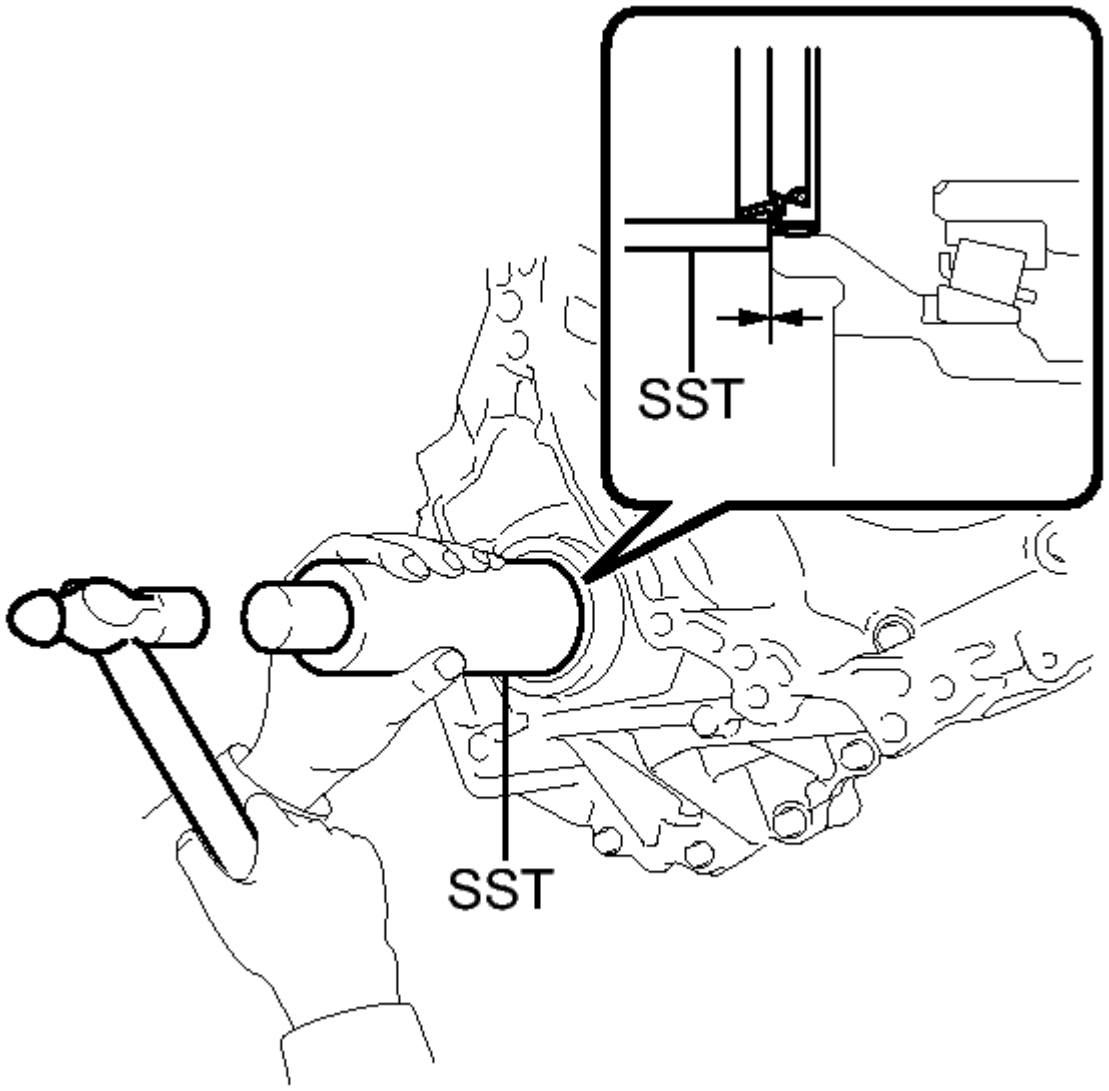


Fig. 155: Tapping Front Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-60011**
  09316-00011

Oil seal driven in depth

-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

NOTE: Check that the oil seal is installed in the correct direction.

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

7. **INSTALL FRONT DRIVE SHAFT ASSEMBLY**

Refer to **INSTALLATION**

AUTOMATIC TRANSAXLE ASSEMBLY

COMPONENTS

ILLUSTRATION

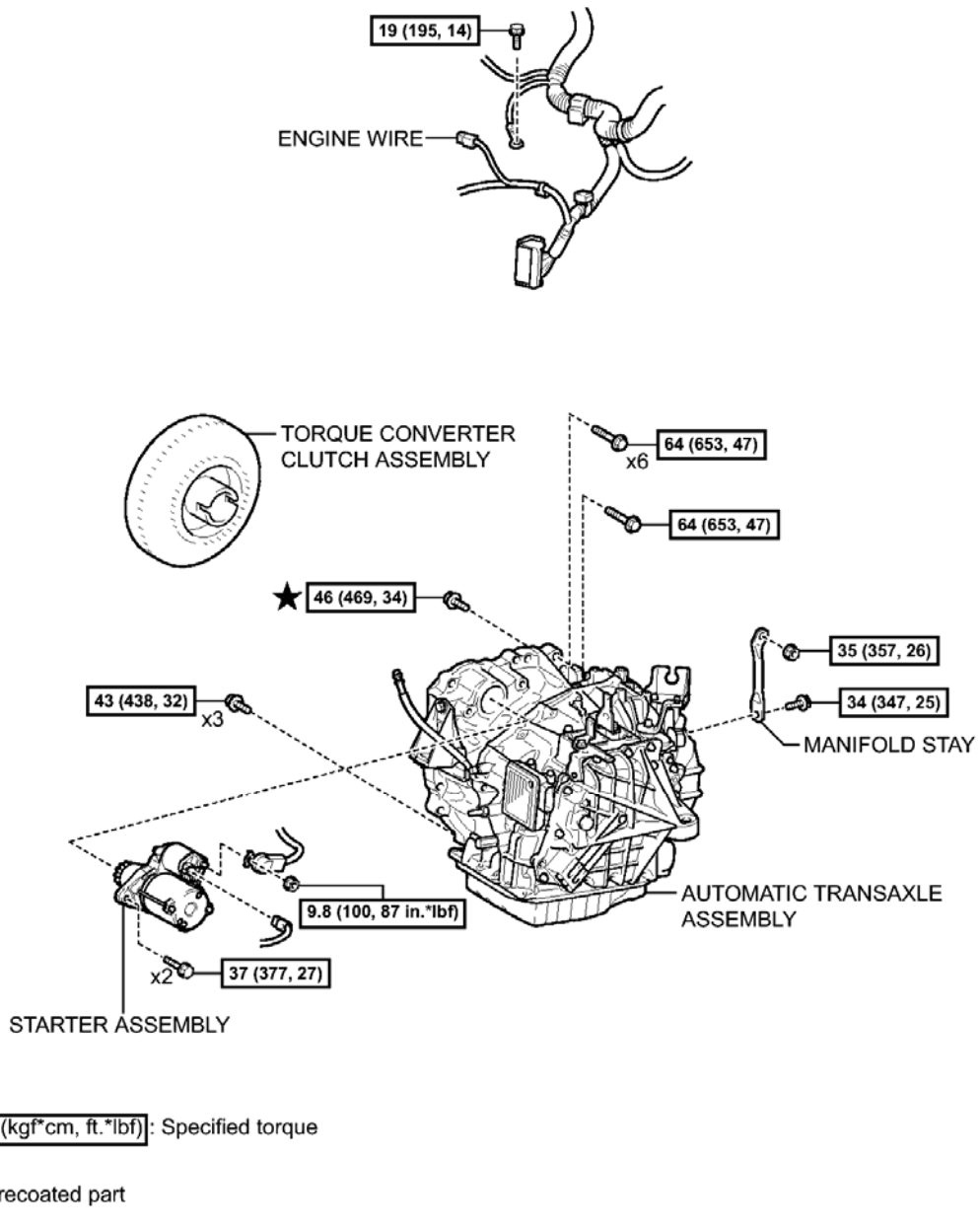
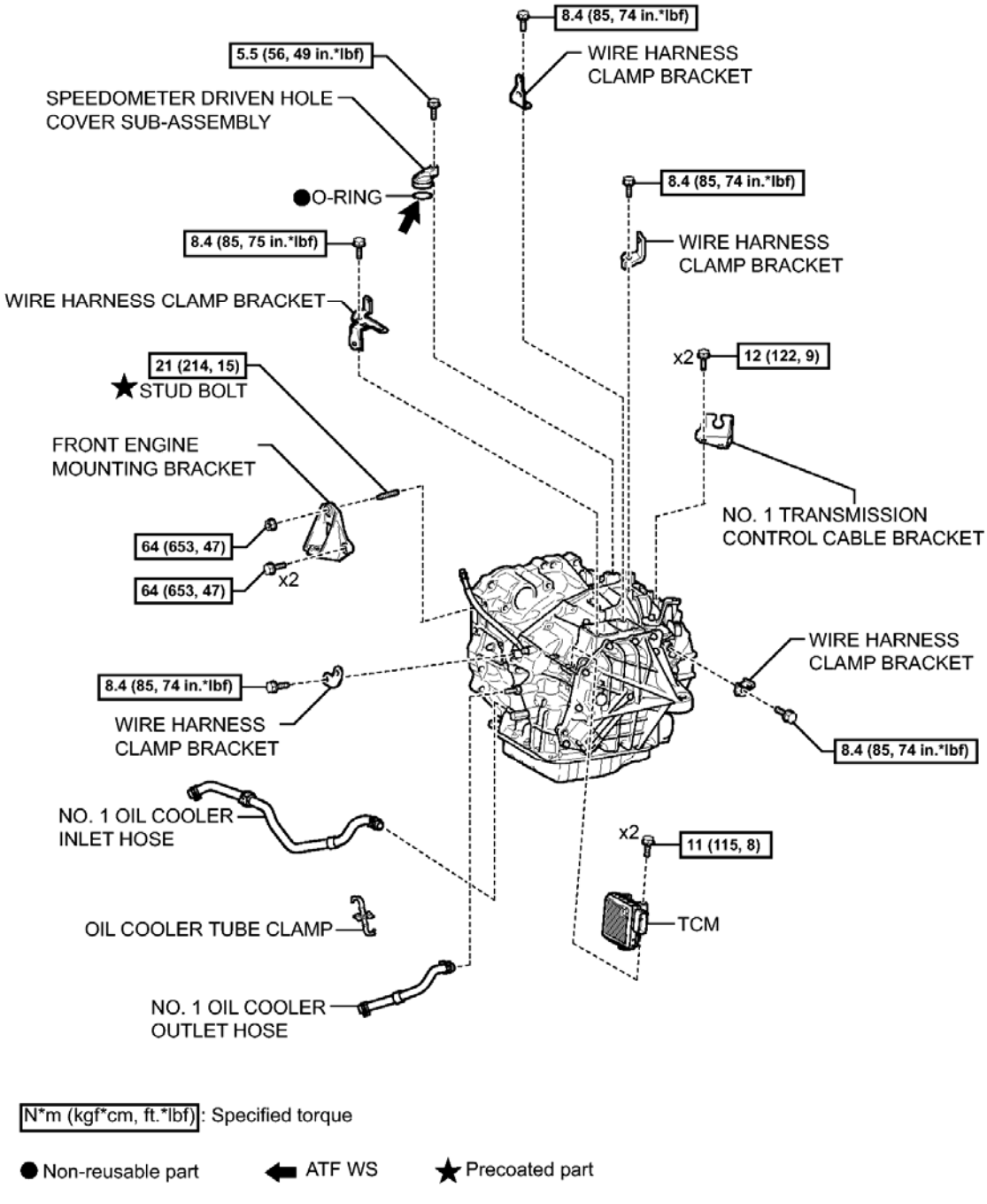


Fig. 156: Automatic Transaxle Assembly Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 157: Automatic Transaxle Assembly Replacement Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

NOTE: If automatic transaxle parts are replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .

1. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE**

   Refer to **REMOVAL**

2. **REMOVE STARTER ASSEMBLY** . Refer to **REMOVAL - Step 5**
3. **REMOVE MANIFOLD STAY** . Refer to **REMOVAL - Step 10**
4. **DISCONNECT BREATHER PLUG HOSE**
   a. Disengage the clamp and disconnect the breather plug hose from the hose clamp.

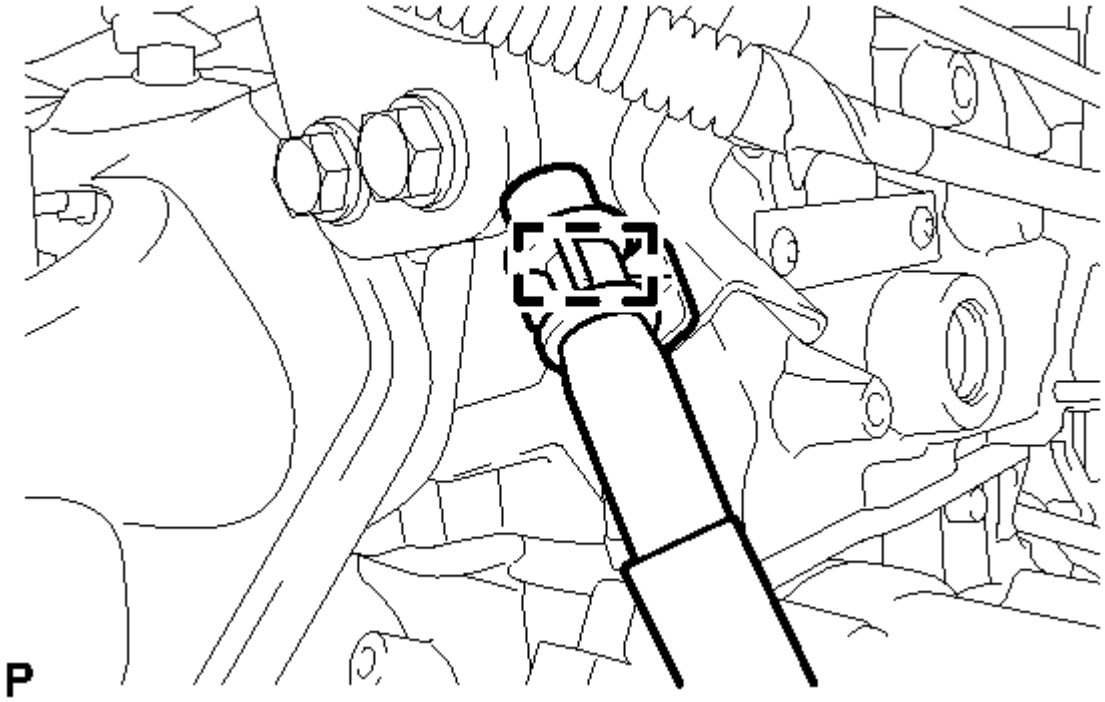


Fig. 158: Identifying Breather Plug Hose & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **DISCONNECT ENGINE WIRE**
   a. Disconnect the park/neutral position switch connector.

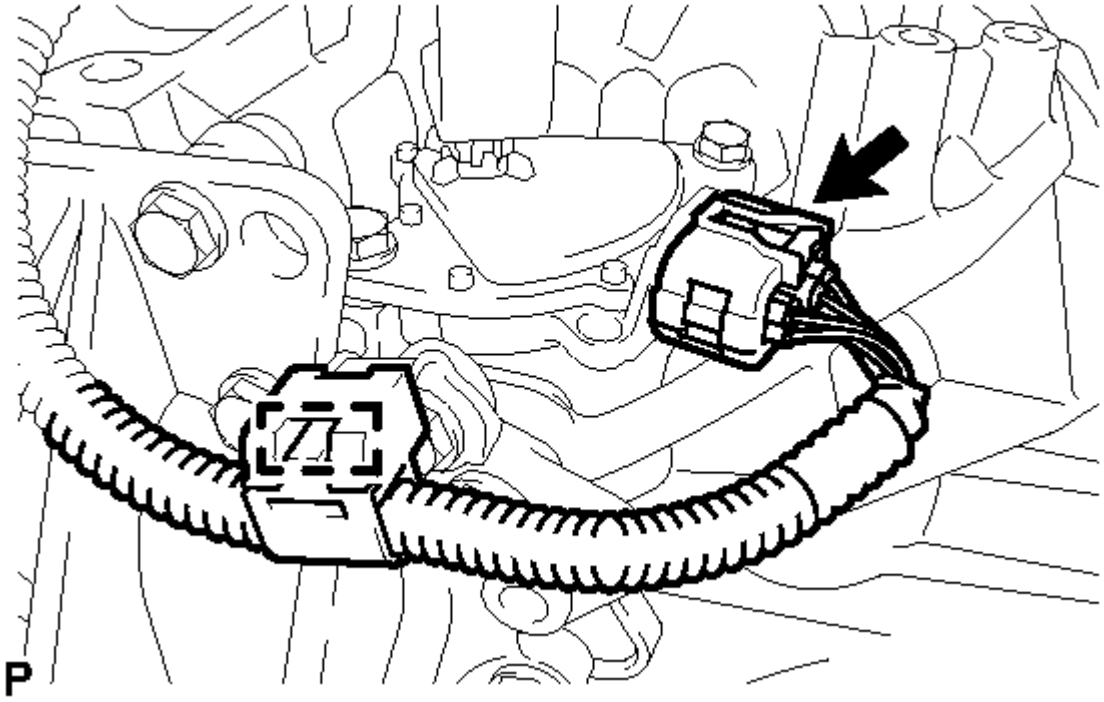
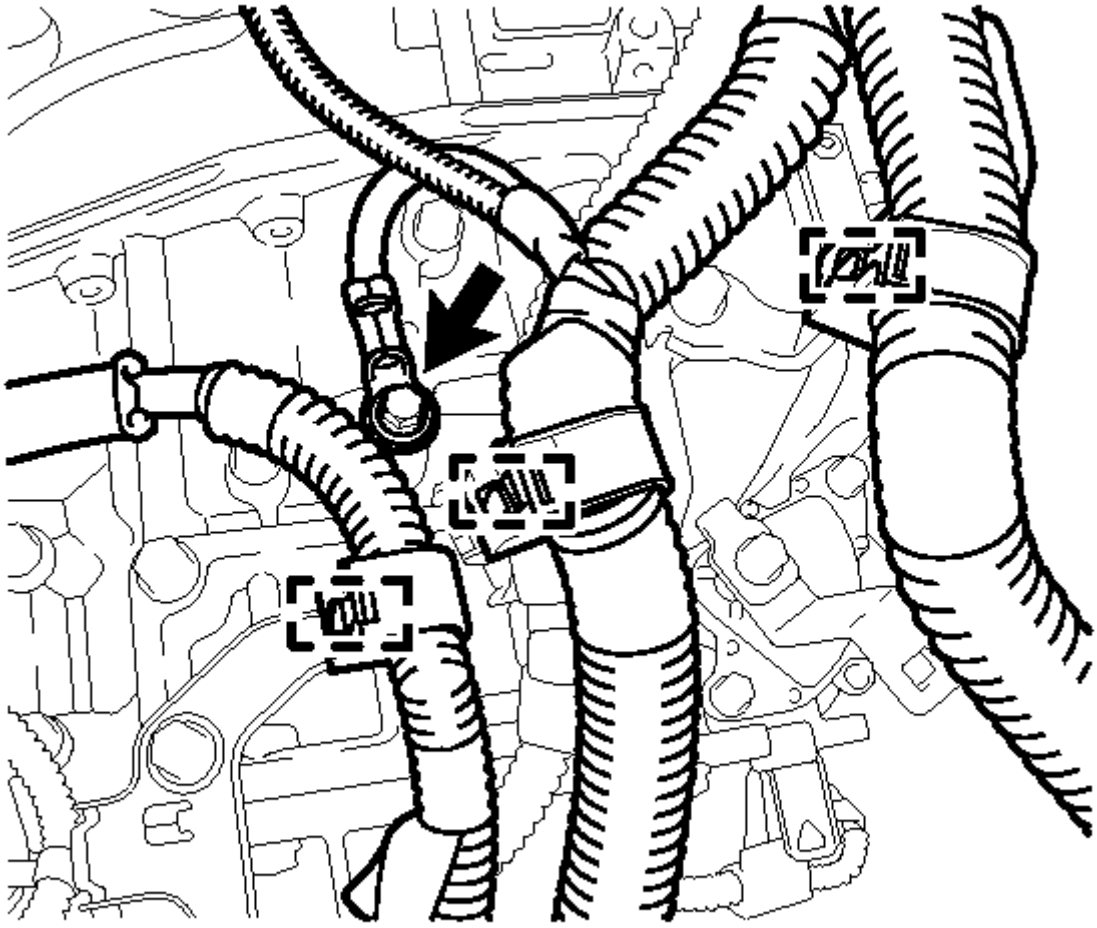


Fig. 159: Identifying Park/Neutral Position Switch Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

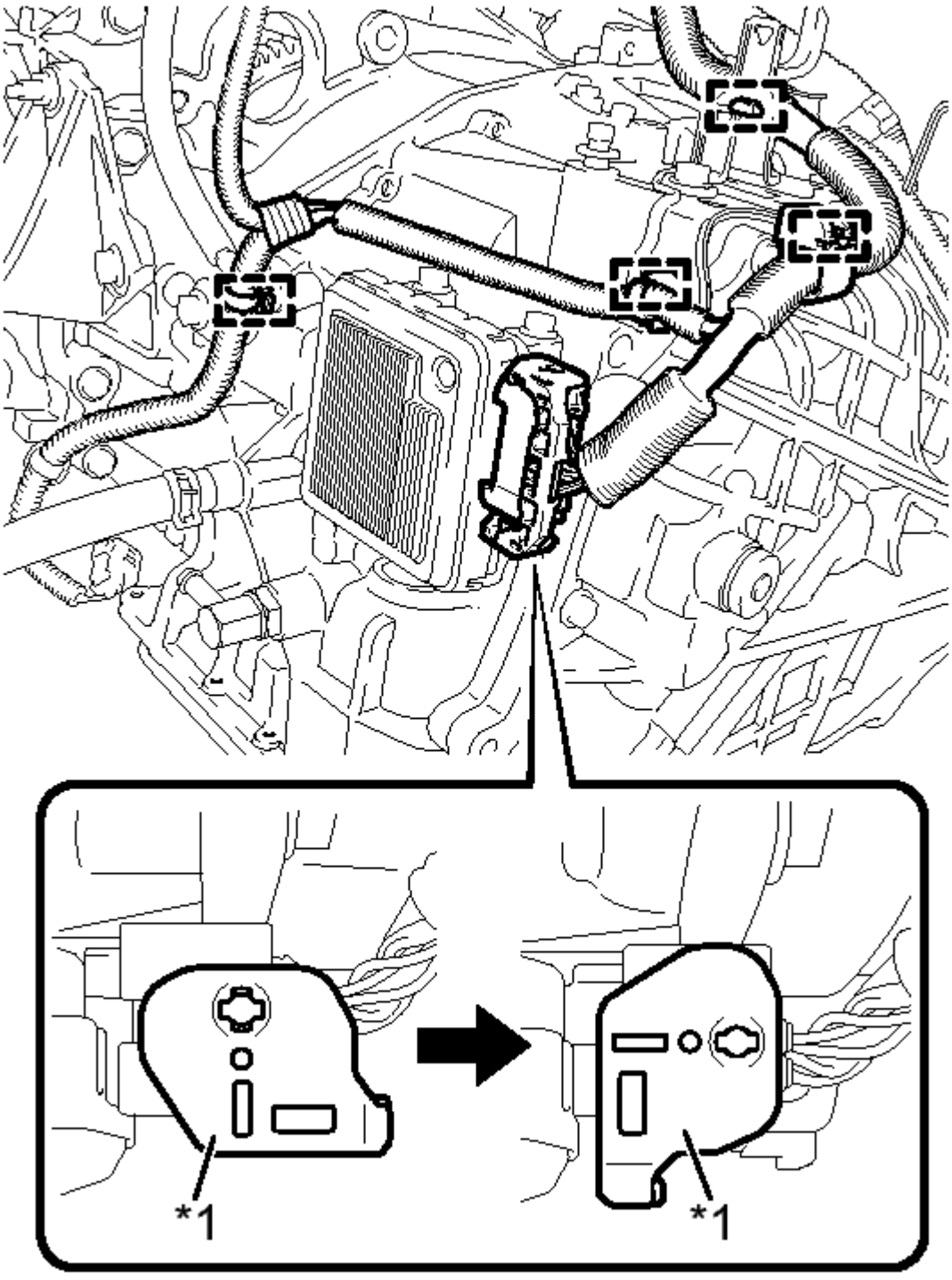
b. Disengage the clamp and disconnect the engine wire.
c. Remove the bolt and separate the ground wire.



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Fig. 160: Identifying Ground Wire With Bolt & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Disengage the 3 clamps and disconnect the engine wire.
e. Turn the lock lever and disconnect the connector from the TCM.



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Fig. 161: Disconnecting TCM Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

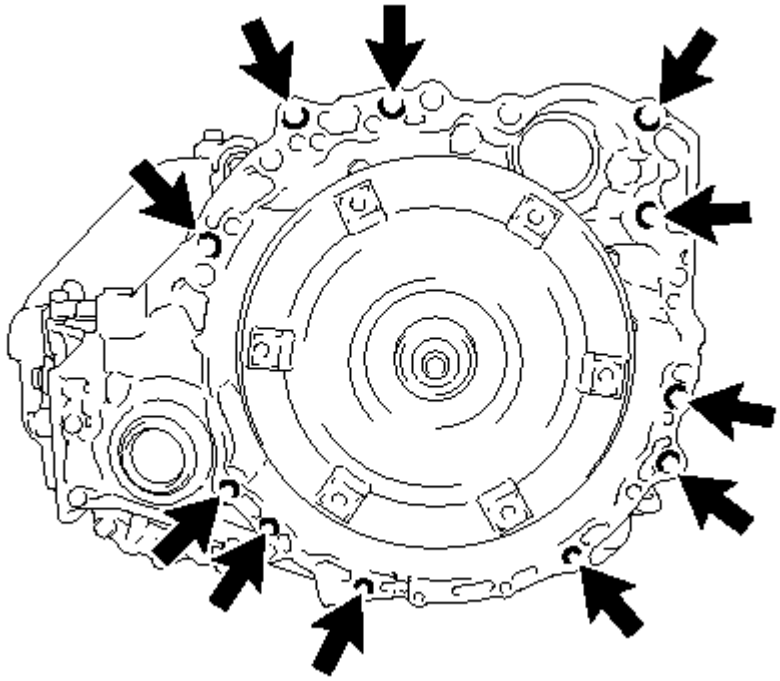
	Lock

*1	Lever

f. Disengage the 4 clamps and disconnect the engine wire.

6. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**

a. Remove the 11 bolts and transaxle.



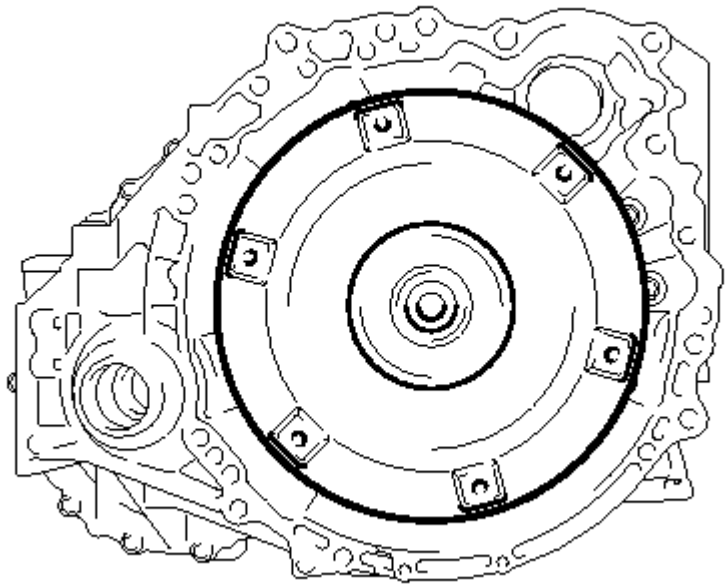
P

Fig. 162: Identifying Automatic Transaxle Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: To prevent damage to the knock pins, do not pry between the transaxle and engine.

7. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY**

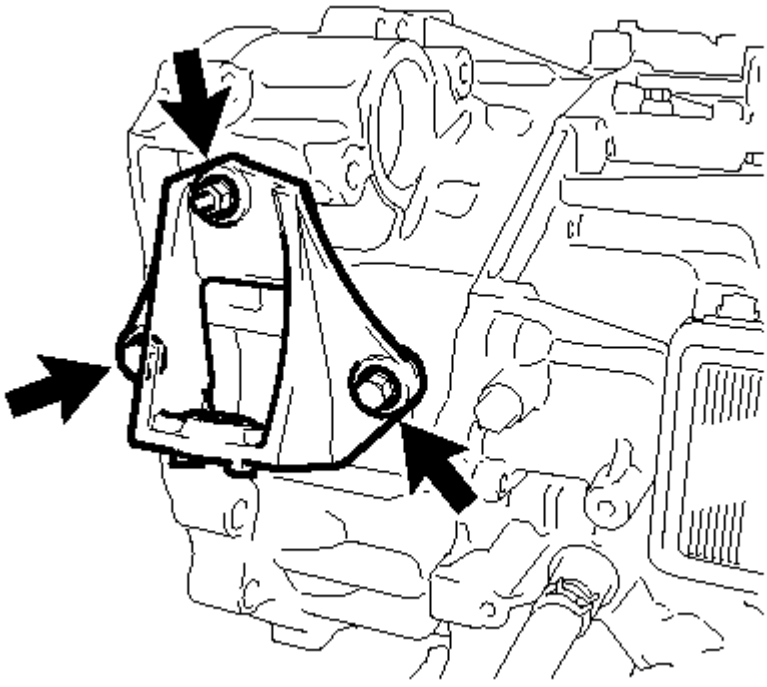
a. Remove the torque converter from the automatic transaxle.



P

Fig. 163: Identifying Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE FRONT ENGINE MOUNTING BRACKET**
   a. Remove the 2 bolts, nut and front engine mounting bracket from the automatic transaxle.

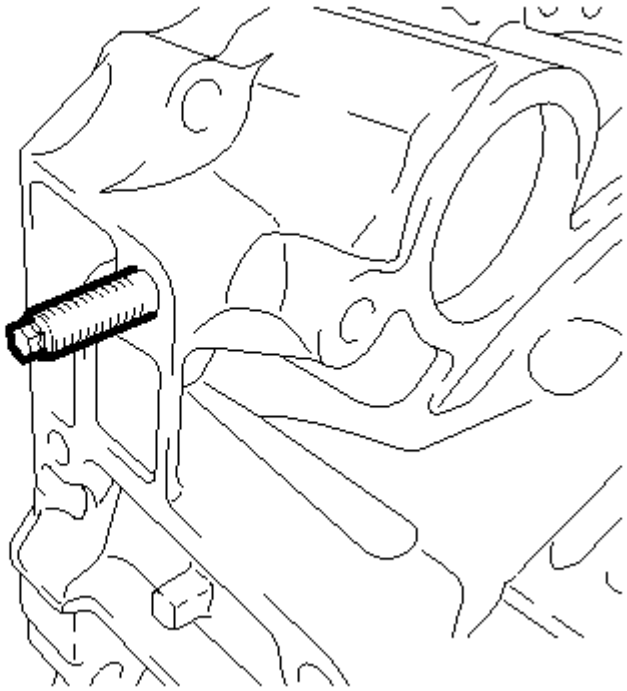


C

Fig. 164: Identifying Front Engine Mounting Bracket & Fasteners

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

b. Using an E8 "TORX" socket wrench, remove the stud bolt from the automatic transaxle.



P

Fig. 165: Identifying Front Engine Mounting Bracket Stud Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE TCM**
   a. Remove the 2 bolts and TCM from the automatic transaxle.

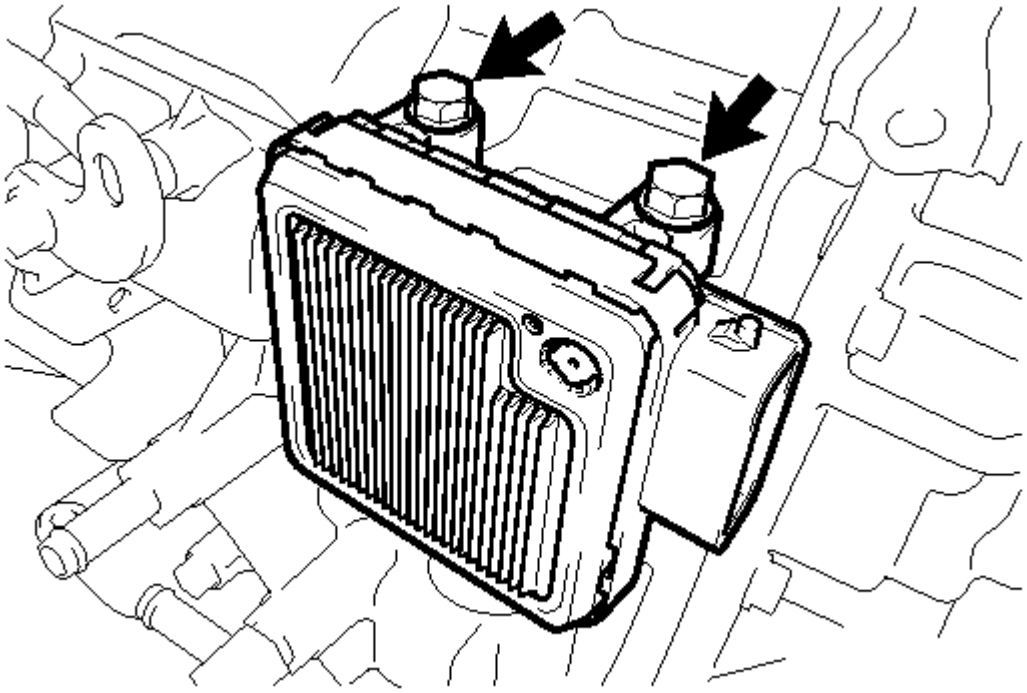


Fig. 166: Identifying TCM Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. **REMOVE OIL COOLER TUBE CLAMP**
    a. Disengage the 2 clamps and remove the oil cooler tube clamp.

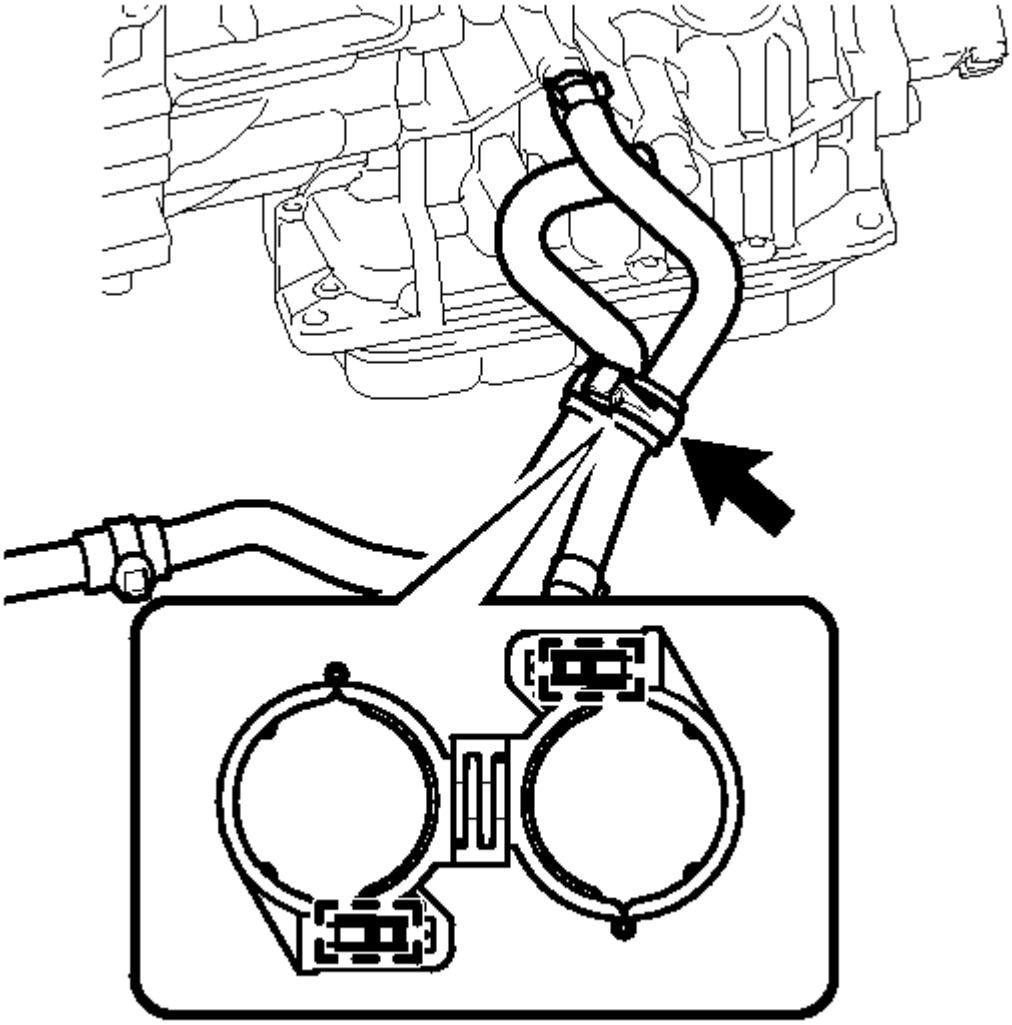
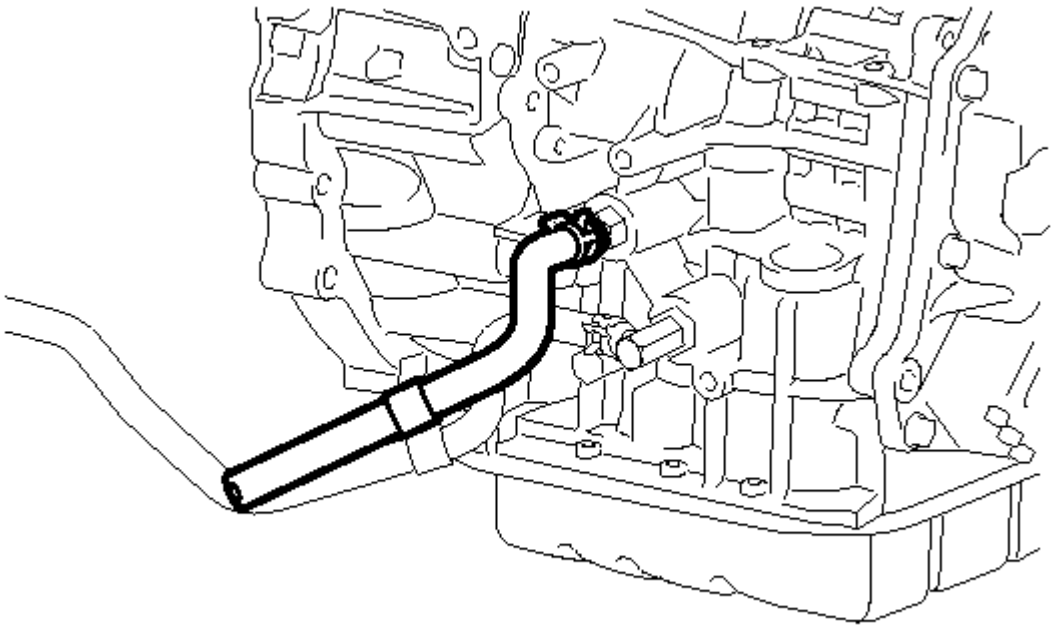


Fig. 167: Identifying Oil Cooler Tube Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

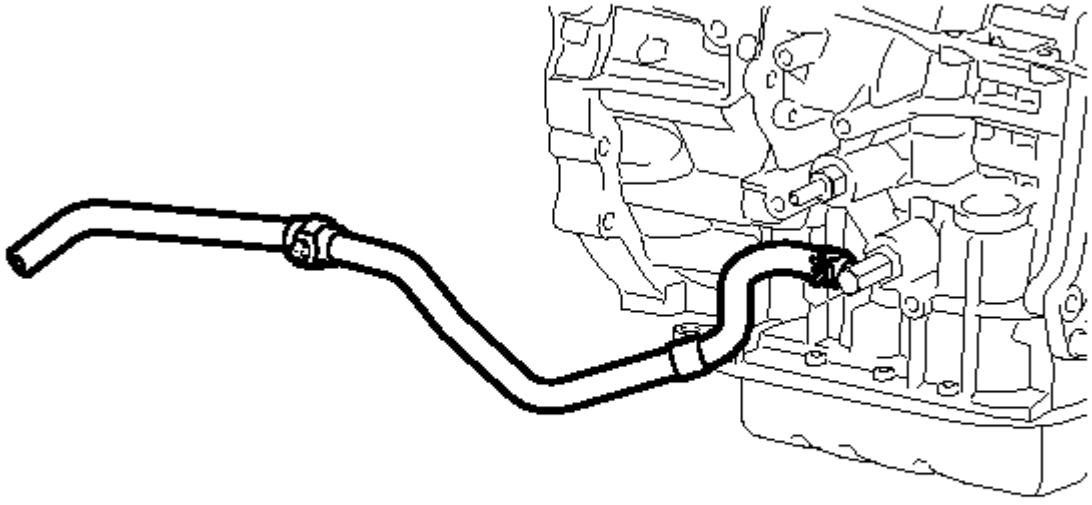
11. **REMOVE NO. 1 OIL COOLER OUTLET HOSE**
    a. Slide the hose clip and disconnect the No. 1 oil cooler outlet hose from the oil cooler tube union.



P

Fig. 168: Identifying No. 1 Oil Cooler Outlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **REMOVE NO. 1 OIL COOLER INLET HOSE**
    a. Slide the hose clip and disconnect the No. 1 oil cooler inlet hose from the oil cooler tube union.



P

Fig. 169: Identifying No. 1 Oil Cooler Inlet Hose & Clip

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

13. **REMOVE WIRE HARNESS CLAMP BRACKET**
    a. Remove the 5 bolts and 5 clamp brackets from the automatic transaxle.

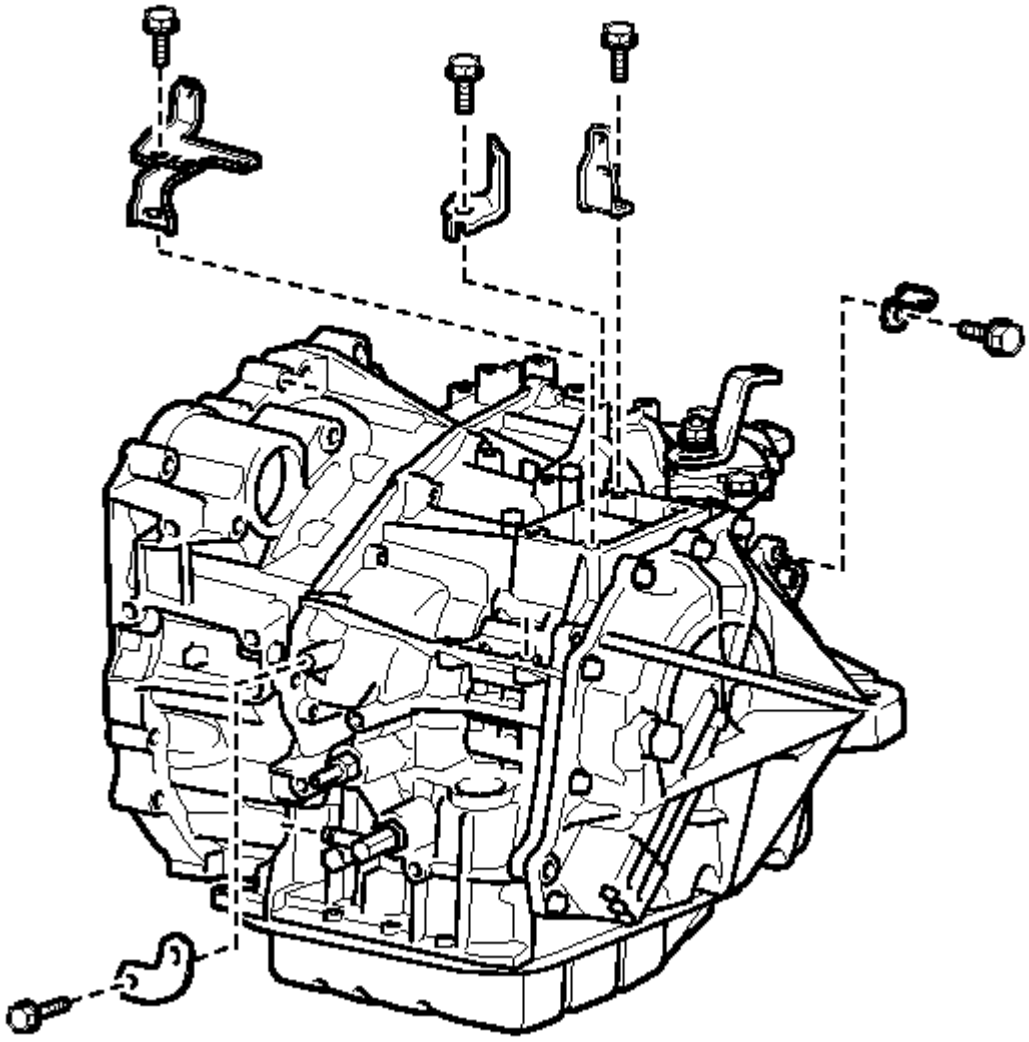


Fig. 170: Identifying Wire Harness Clamp Brackets & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **REMOVE NO. 1 TRANSMISSION CONTROL CABLE BRACKET**
    a. Remove the 2 bolts and No. 1 transmission control cable bracket from the automatic transaxle.

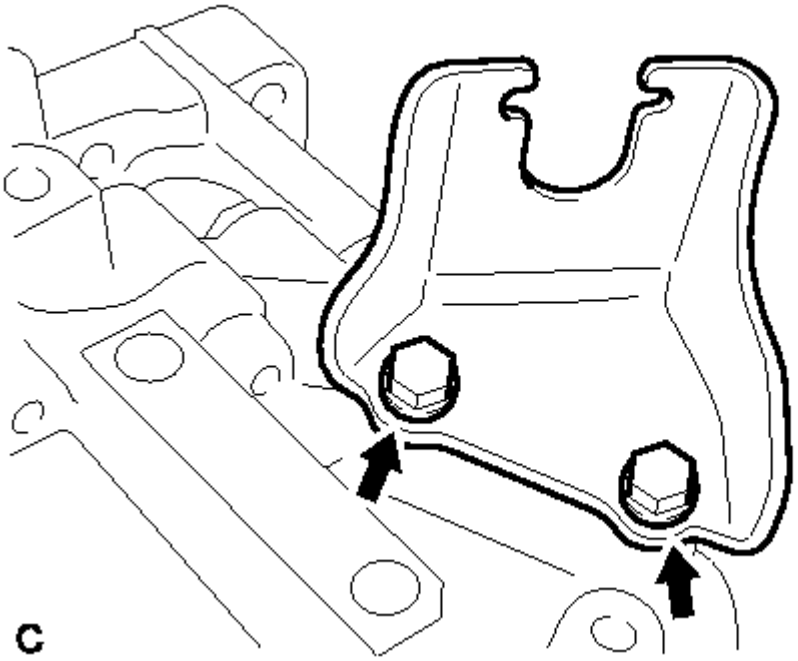


Fig. 171: Identifying No. 1 Transmission Control Cable Bracket & Bolts At Automatic Transaxle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
    a. Remove the bolt and speedometer driven hole cover from the automatic transaxle.

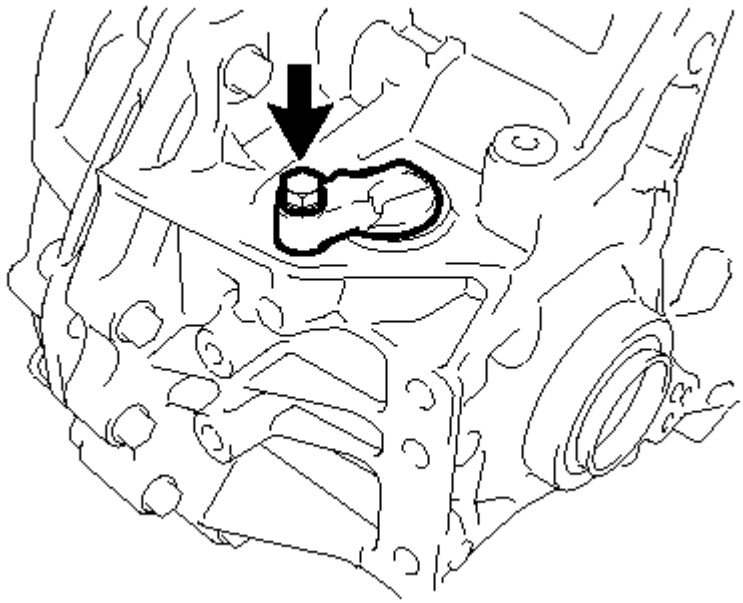


Fig. 172: Identifying Speedometer Driven Hole Cover & Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the O-ring from the speedometer driven hole cover.

16. **INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY** See step 1

INSTALLATION

INSTALLATION

1. **INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
   a. Apply ATF to a new O-ring and install it onto the speedometer driven hole cover.
   b. Install the speedometer driven hole cover onto the automatic transaxle with the bolt.

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

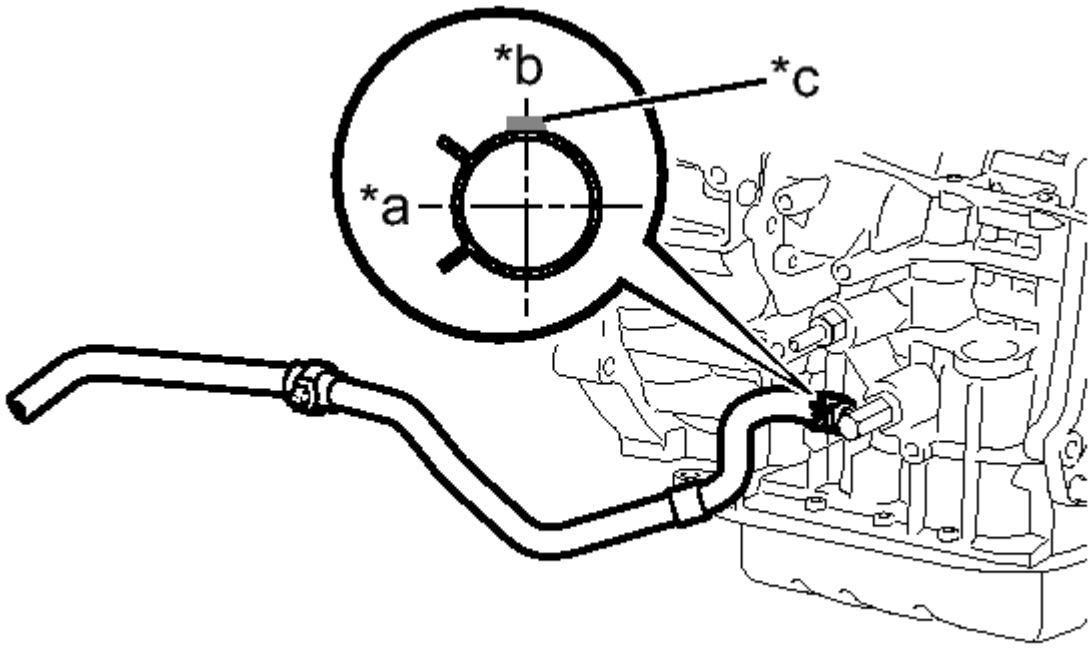
2. **INSTALL NO. 1 TRANSMISSION CONTROL CABLE BRACKET**
   a. Install the No. 1 transmission control cable bracket onto the automatic transaxle with the 2 bolts.

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

3. **INSTALL WIRE HARNESS CLAMP BRACKET**
   a. Install the 5 wire harness clamp brackets onto the automatic transaxle with the 5 bolts.

      Torque: 8.4 N*m (85 kgf*cm, 74 in.*lbf)

4. **CONNECT NO. 1 OIL COOLER INLET HOSE**
   a. Connect the No. 1 oil cooler inlet hose onto the oil cooler tube union with the hose clip shown in the illustration.



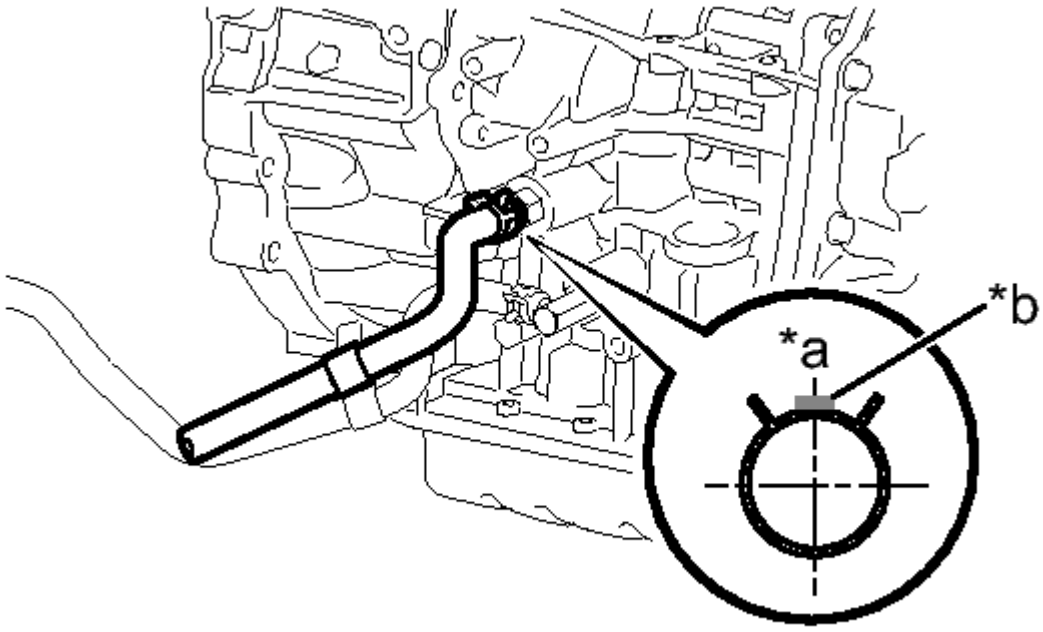
P

Fig. 173: Identifying No. 1 Oil Cooler Inlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Front of Vehicle
*b	Top of Vehicle
*c	Pink Painted Mark on Hose

5. **CONNECT NO. 1 OIL COOLER OUTLET HOSE**
   a. Connect the No. 1 oil cooler outlet hose onto the oil cooler tube union with the hose clip shown in the illustration.



P

Fig. 174: Identifying No. 1 Oil Cooler Outlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Top of Vehicle
*b	Yellow Painted Mark on Hose

6. **INSTALL OIL COOLER TUBE CLAMP**
    a. Engage the 2 clamps and install the oil cooler tube clamp onto the 2 oil cooler hoses.
7. **INSTALL TCM**
    a. Install the TCM onto the automatic transaxle.

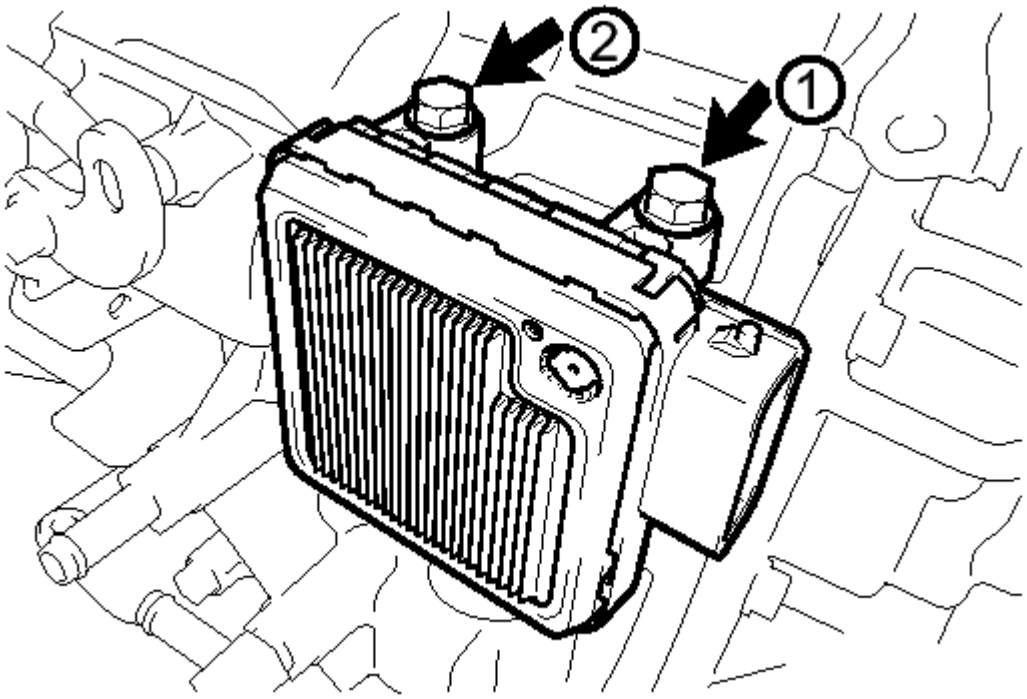


Fig. 175: Identifying TCM Bolts With Tightening Sequence
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install and tighten the 2 bolts in the order shown in the illustration.

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

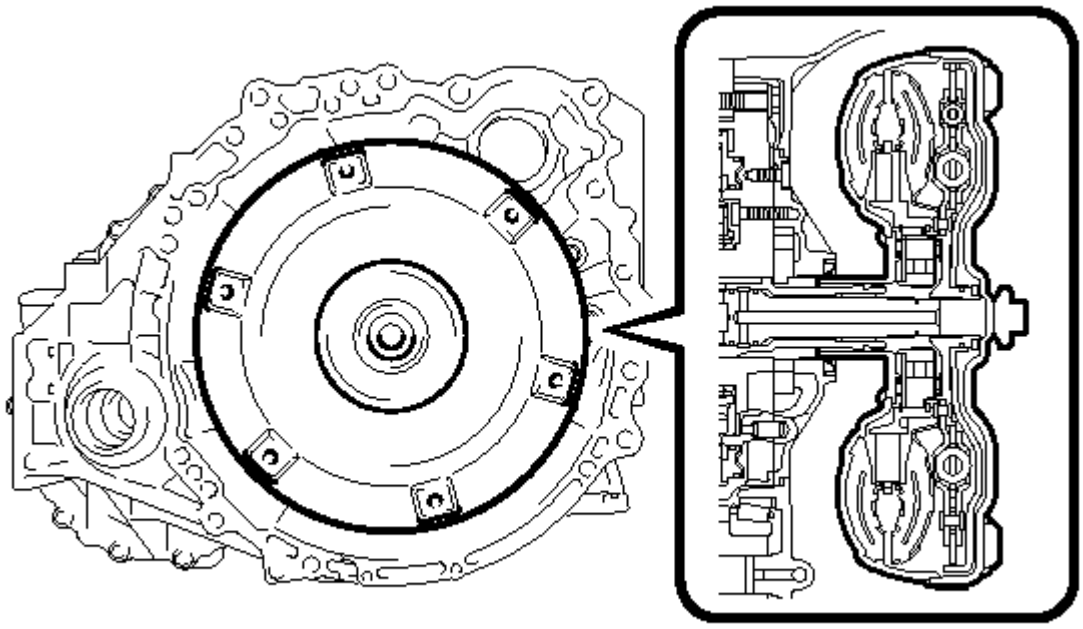
8. **INSTALL FRONT ENGINE MOUNTING BRACKET**
   a. Clean and degrease the stud bolt and the installation hole in the automatic transaxle.
   b. Apply adhesive to 2 or 3 threads on the ends of the stud bolt.
   c. Using an E8 "TORX" socket wrench, install the stud bolt onto the automatic transaxle.

      Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)

   d. Install the front engine mounting bracket onto the automatic transaxle with the 2 bolts and nut.

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

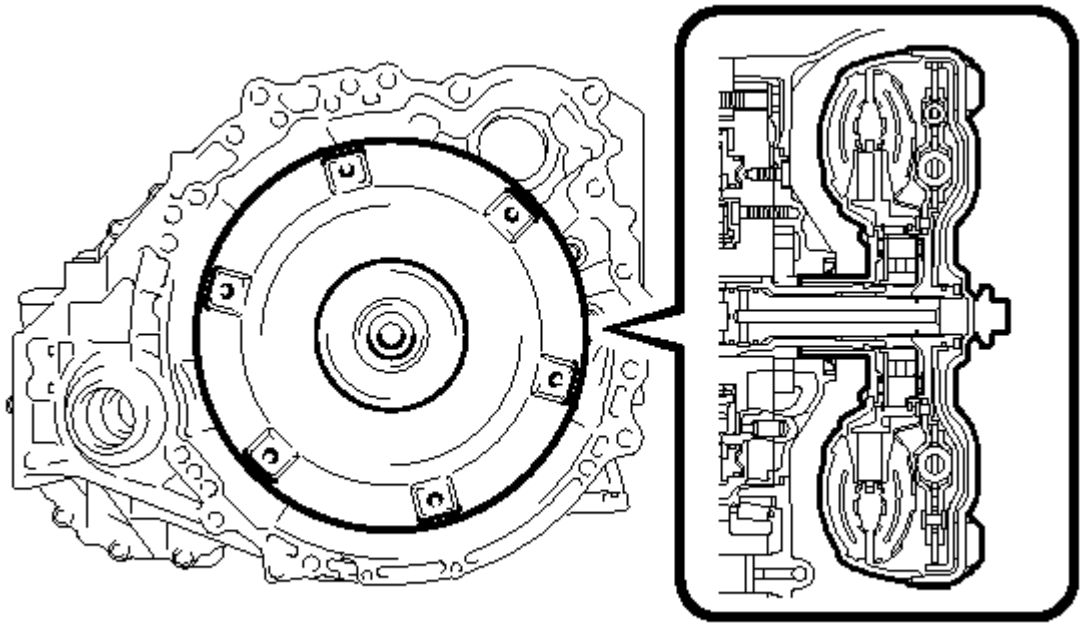
9. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY**
   a. Engage the splines of the input shaft and turbine runner.



P

Fig. 176: Engaging Splines Of Input Shaft And Turbine Runner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Engage the splines of the stator shaft and the stator while turning the torque converter.



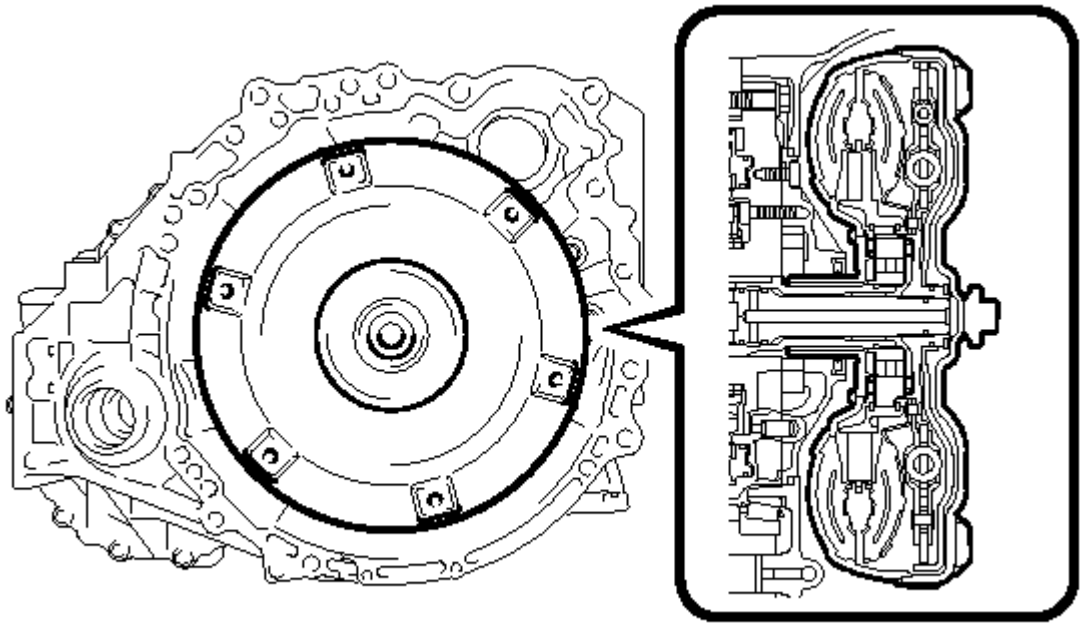
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Fig. 177: Identifying Splines Of Stator Shaft And Stator
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stator shaft splines are difficult to engage with the stator splines, move the torque converter back approximately 10 mm (0.393 in.) and engage the splines while rotating the torque converter.

c. Turn the torque converter to engage the key of the oil pump drive gear into the slot on the torque converter.



P

Fig. 178: Identifying Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a vernier caliper and a straightedge, measure dimension A between the transaxle fitting surface of the engine (*a) and the torque converter fitting surface of the drive plate (*b). [#1]

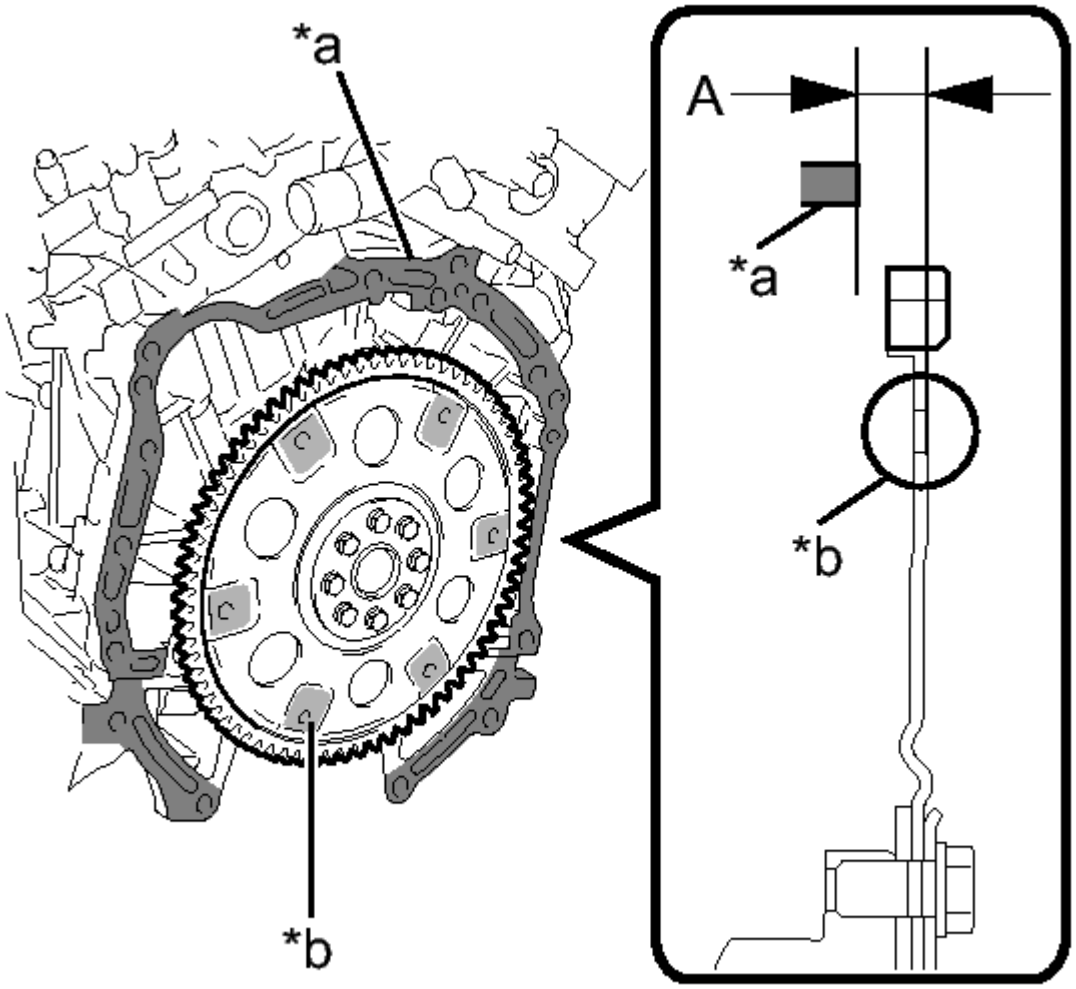


Fig. 179: Measuring Transaxle & Torque Converter Fitting Surface Of Drive Plate Using A Vernier Caliper & Straightedge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Transaxle Fitting Surface
*b	Torque Converter Fitting Surface

NOTE: Make sure to deduct the thickness of the straightedge.

e. Using a vernier caliper and a straightedge, measure dimension B shown in the illustration and

check that dimension B is greater than dimension A, which was measured in step [#1].

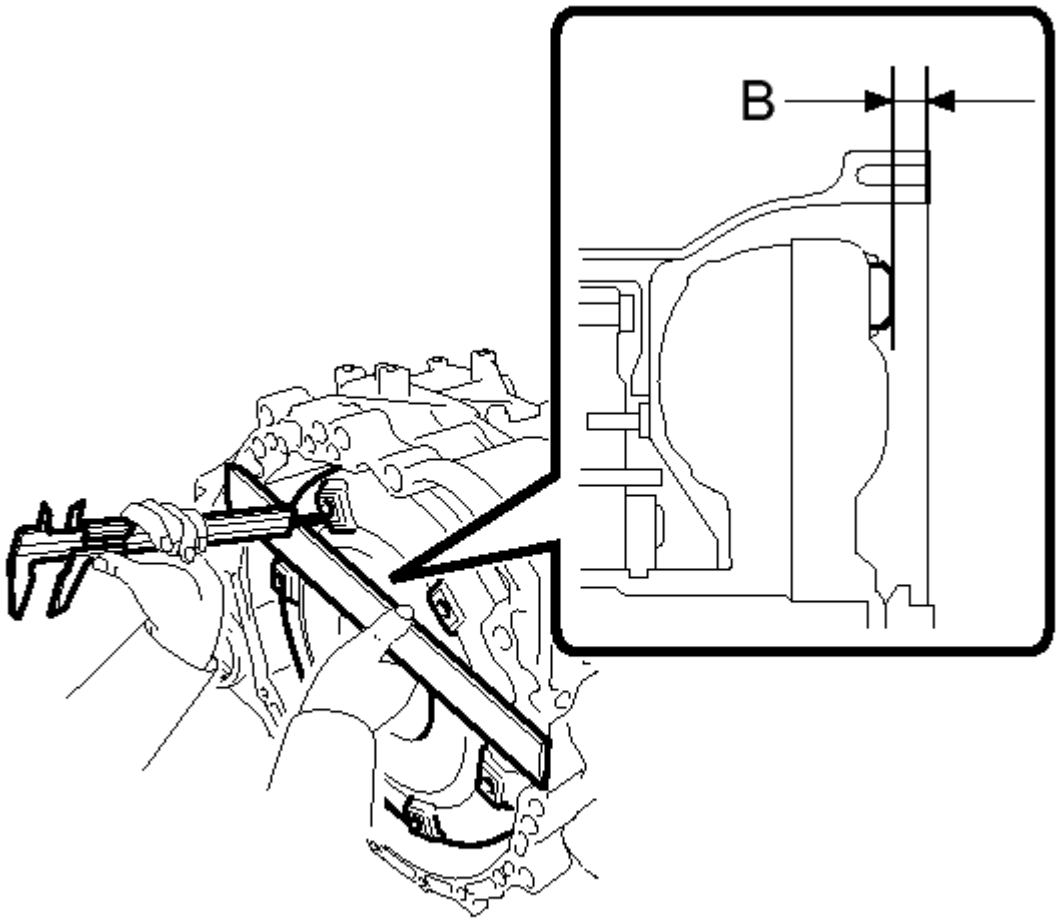


Fig. 180: Identifying Dimension "B"
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard

B = A + 1 mm (0.0394 in.) or more

NOTE:

- **Make sure to deduct the thickness of the straightedge.**
- **If the transaxle is installed to the engine with the torque converter not sufficiently inserted, the torque converter may be damaged.**

10. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

a. Confirm that the 2 knock pins are on the automatic transaxle contact surface of the engine cylinder block before automatic transaxle installation.

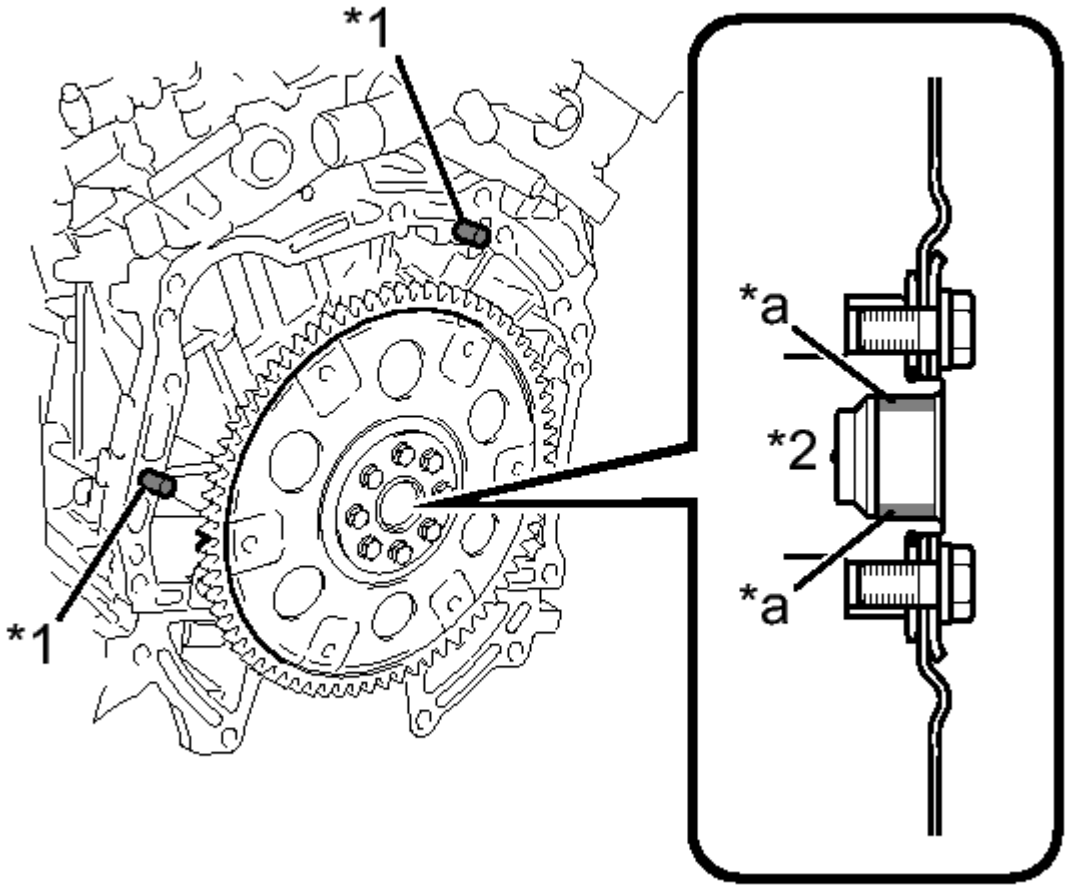


Fig. 181: Identifying Automatic Transaxle Assembly Knock Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Knock Pin

b. Apply clutch spline grease to the round of the crankshaft contact surface (*a) with the torque converter centerpiece.

TEXT IN ILLUSTRATION

*2	Crankshaft

*a	Crankshaft Contact Surface

Clutch spline grease

Toyota Genuine Clutch Spline Grease or equivalent

Maximum spread

Approximately 1 g (0.0353 oz)

c. Clean and degrease the bolt (C) and the installation hole in the engine.

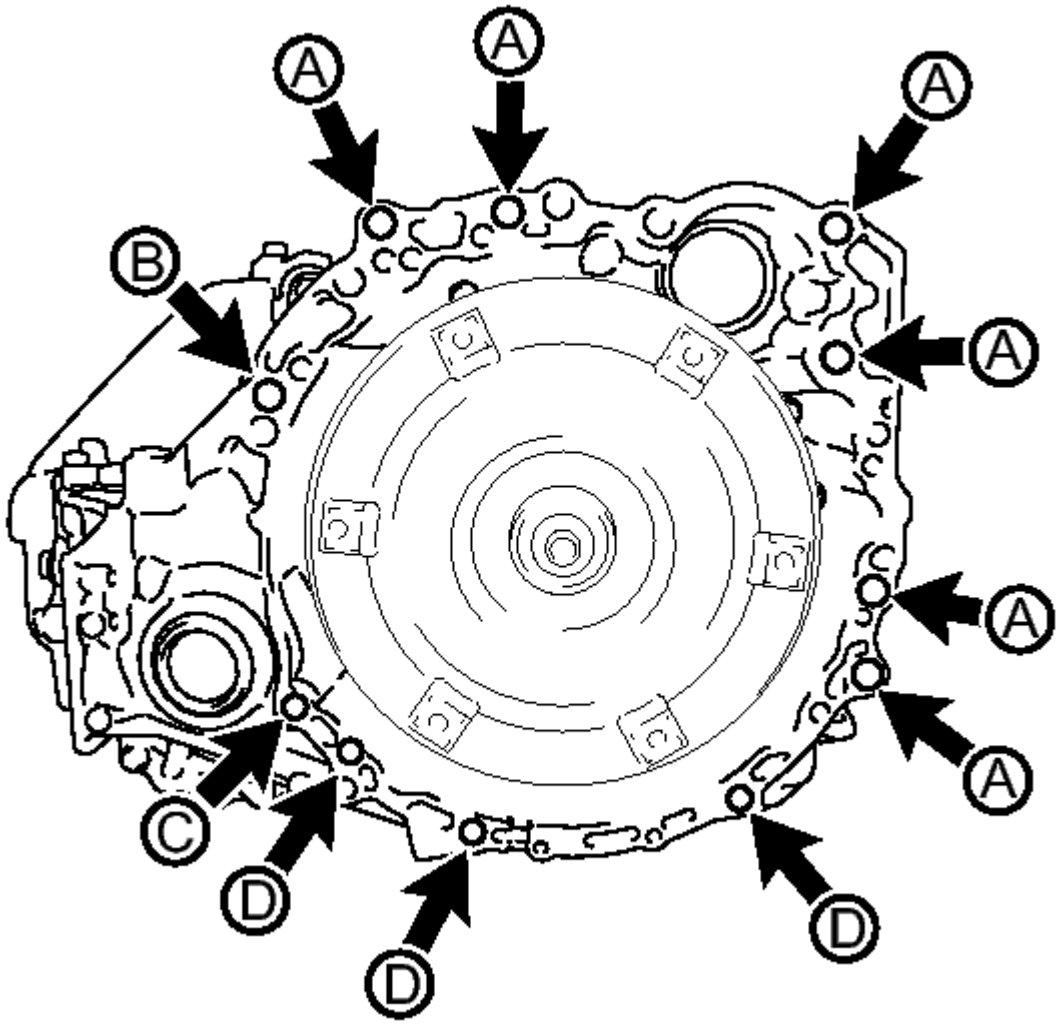


Fig. 182: Identifying Automatic Transaxle Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Apply adhesive to 2 or 3 threads on the ends of the bolt (C).

Adhesive

Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

e. Keeping the engine and automatic transaxle in a horizontal position, align the knock pins with each hole on the automatic transaxle and tighten the 11 bolts shown in the illustration.

Bolt A

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

Bolt B

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

Bolt C

Torque: 46 N*m (469 kgf*cm, 34 ft.*lbf)

Bolt D

Torque: 43 N*m (439 kgf*cm, 32 ft.*lbf)

Bolt Length

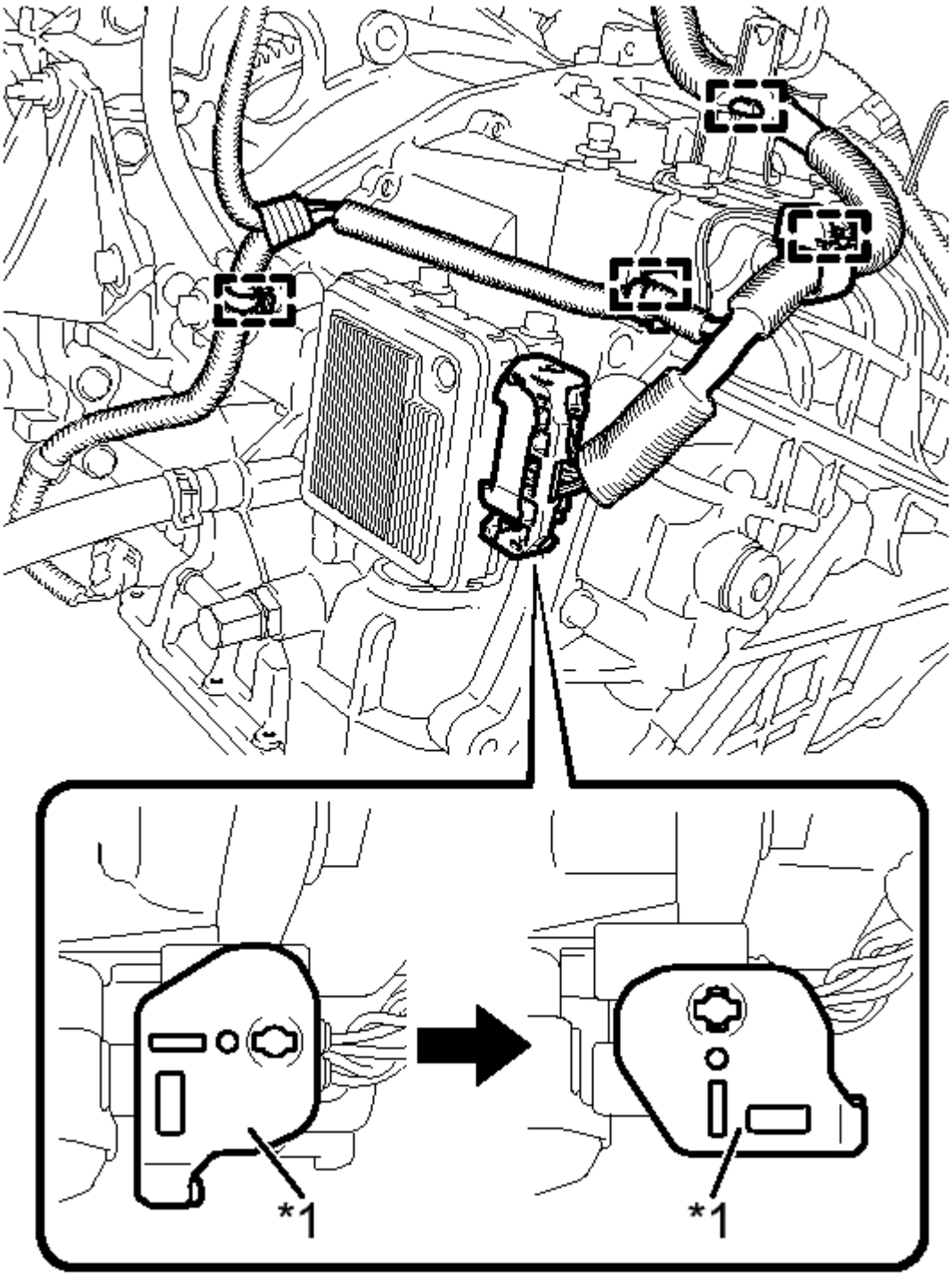
Bolt	Length mm (in.)
A	55 (2.17)
B	50 (1.97)
C	41 (1.61)
D	33 (1.30)

NOTE:

- **Do not twist or apply excessive force to the automatic transaxle.**
- **Check that the torque converter rotates smoothly after installation of the automatic transaxle.**

11. **CONNECT ENGINE WIRE**

a. Engage the 4 clamps and connect the engine wire.



P

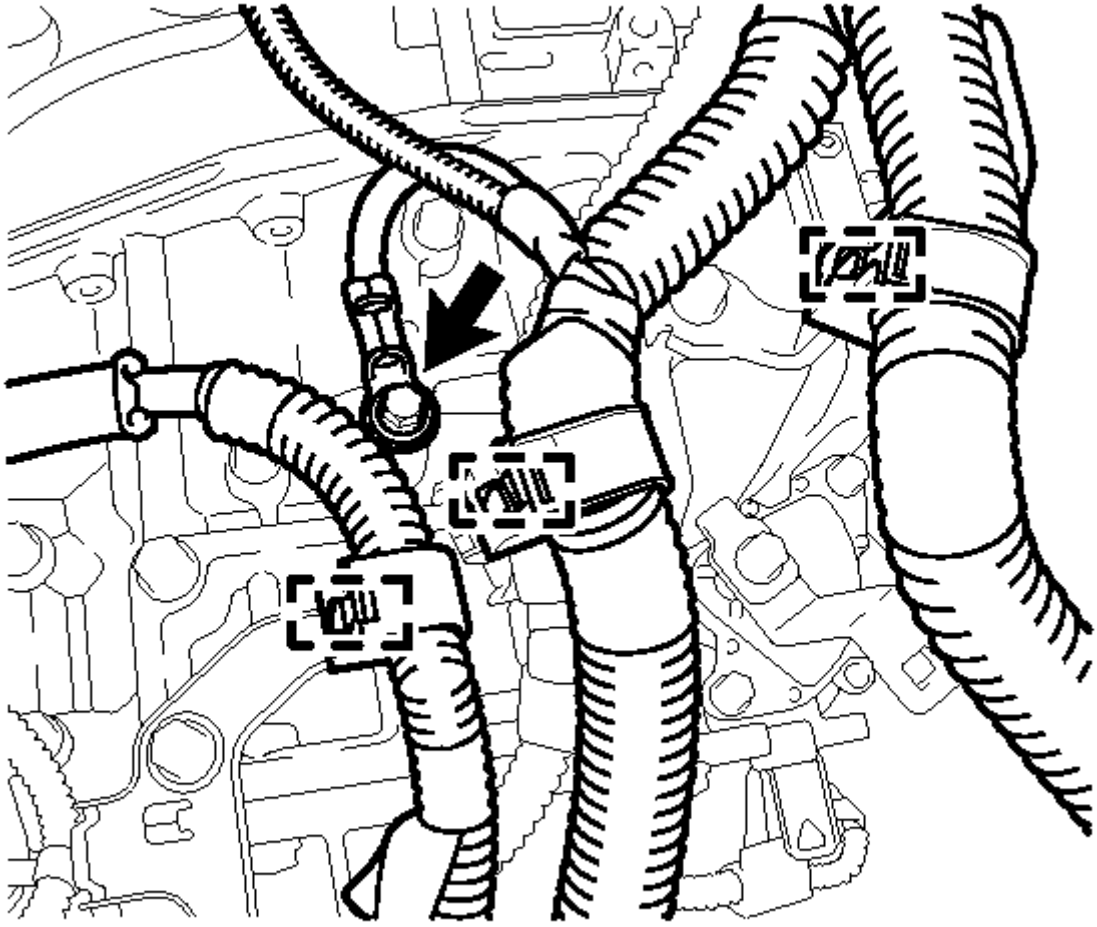
Fig. 183: Connecting TCM Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Lock

*1	Lever

b. Connect the TCM connector.
c. Turn the lock lever and secure the connector with the lock lever.
d. Engage the 3 clamps and connect the engine wire.



P

Fig. 184: Identifying Ground Wire With Bolt & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Install the ground wire onto the automatic transaxle with the bolt.

Torque: 19 N*m (195 kgf*cm, 14 ft.*lbf)

f. Engage the clamp and connect the engine wire.

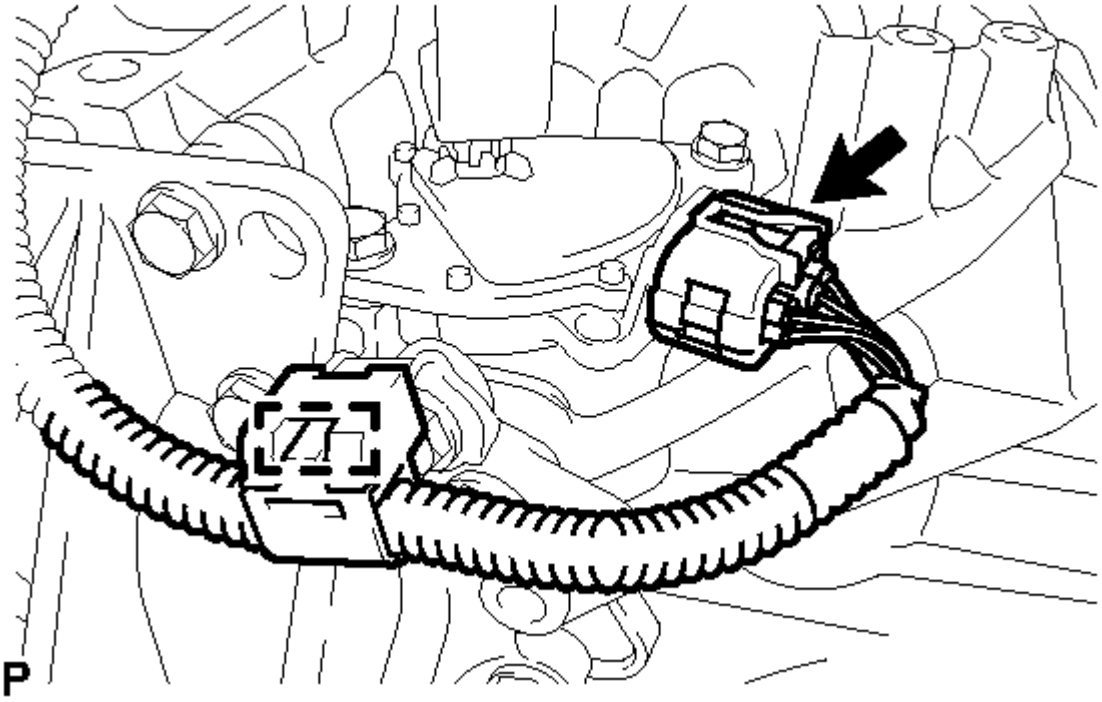


Fig. 185: Identifying Park/Neutral Position Switch Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Connect the park/neutral position switch connector.

12. **CONNECT BREATHER PLUG HOSE**
    a. Engage the clamp and connect the transmission breather hose onto the hose clamp.
13. **INSTALL MANIFOLD STAY** . Refer to **INSTALLATION - Step 10**
14. **INSTALL STARTER ASSEMBLY** . Refer to **INSTALLATION - Step 1**
15. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE**

    Refer to **INSTALLATION**

16. **CHECK AUTOMATIC TRANSAXLE SYSTEM**

NOTE: **If automatic transmission parts have been replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .**

AUTOMATIC TRANSAXLE UNIT

COMPONENTS

ILLUSTRATION

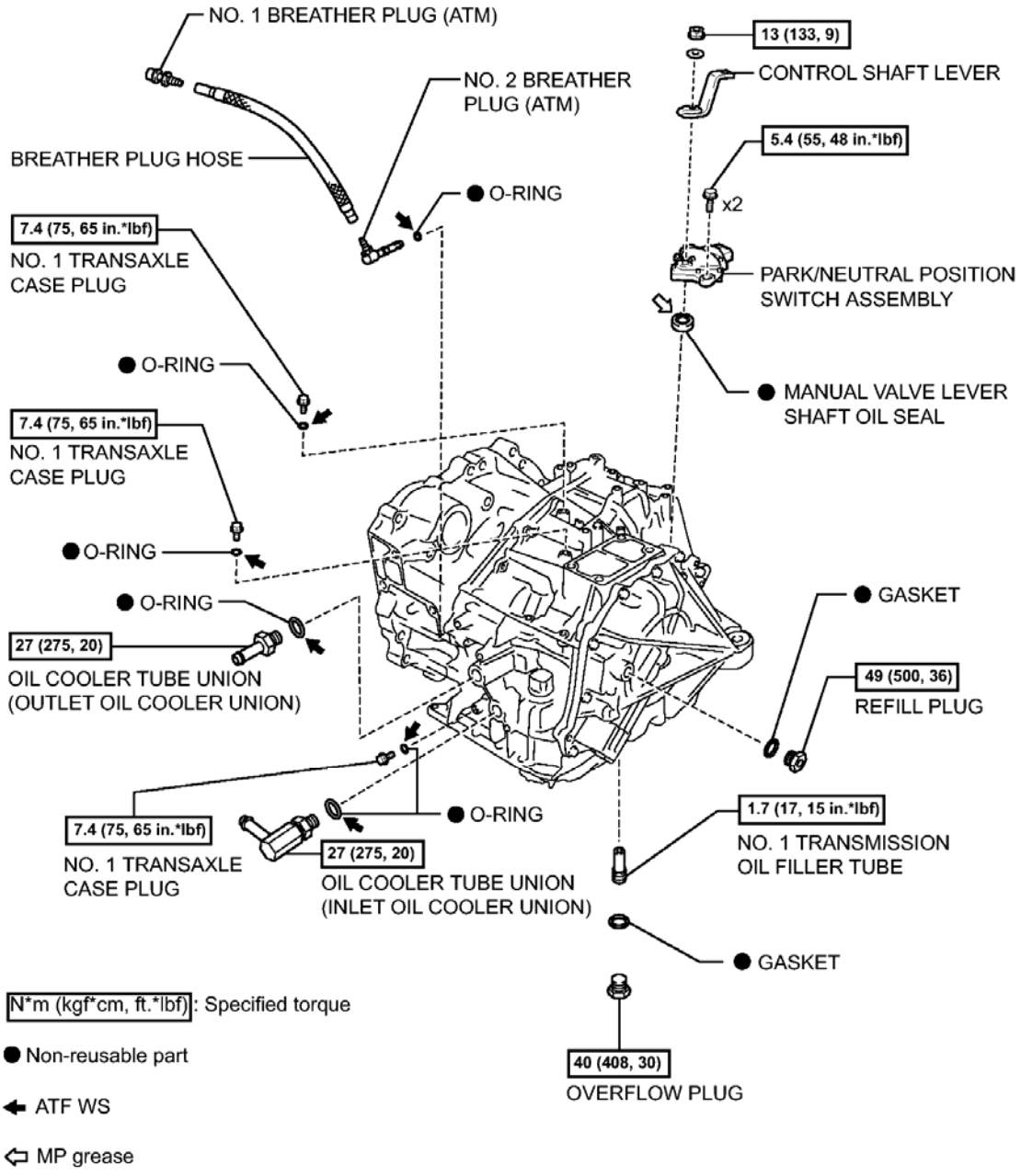
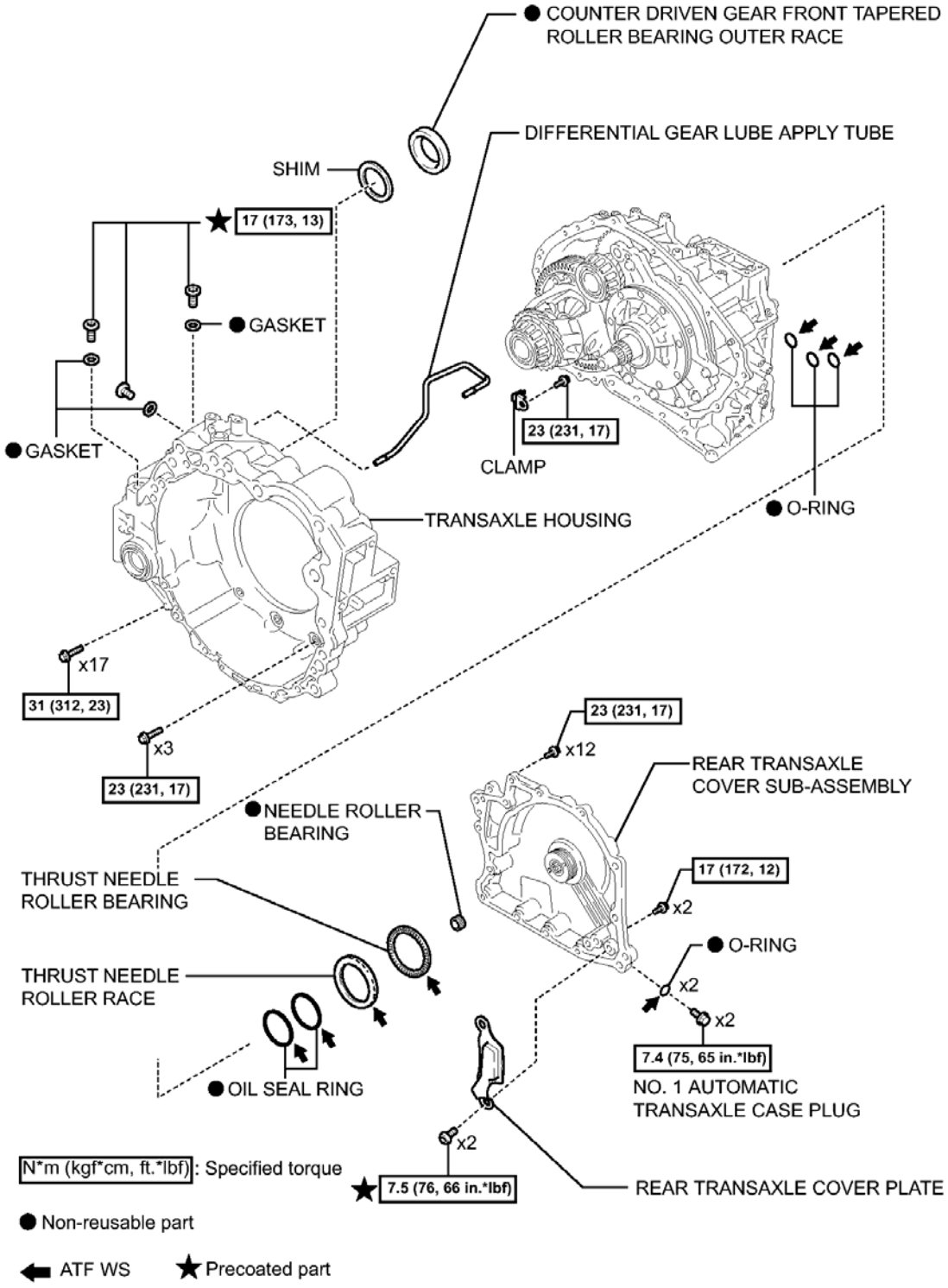


Fig. 186: Automatic Transaxle Unit Replacement Components With Torque Specifications (1 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



c

Fig. 187: Automatic Transaxle Unit Replacement Components With Torque Specifications (2 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

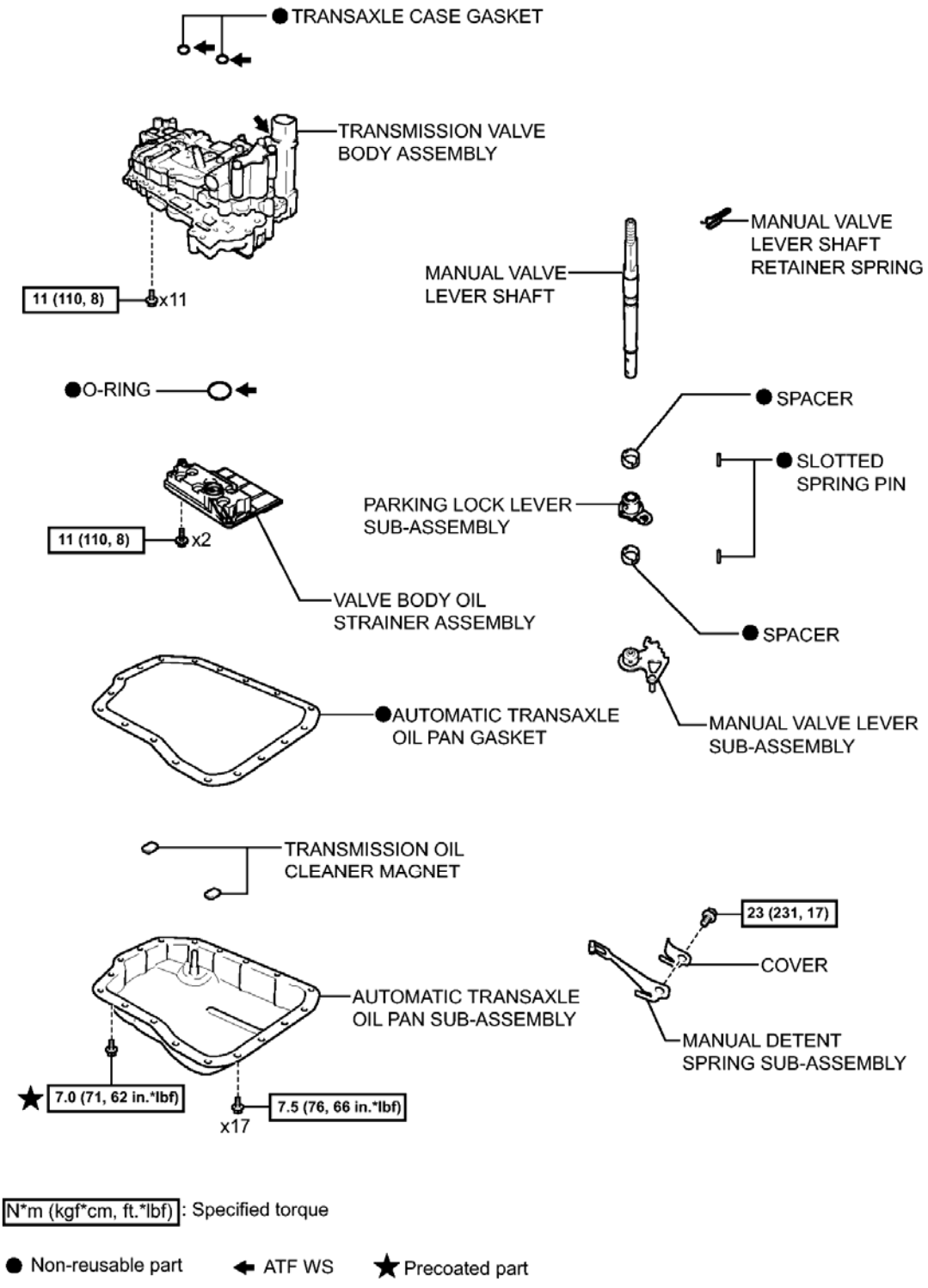


Fig. 188: Automatic Transaxle Unit Replacement Components With Torque Specifications (3 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

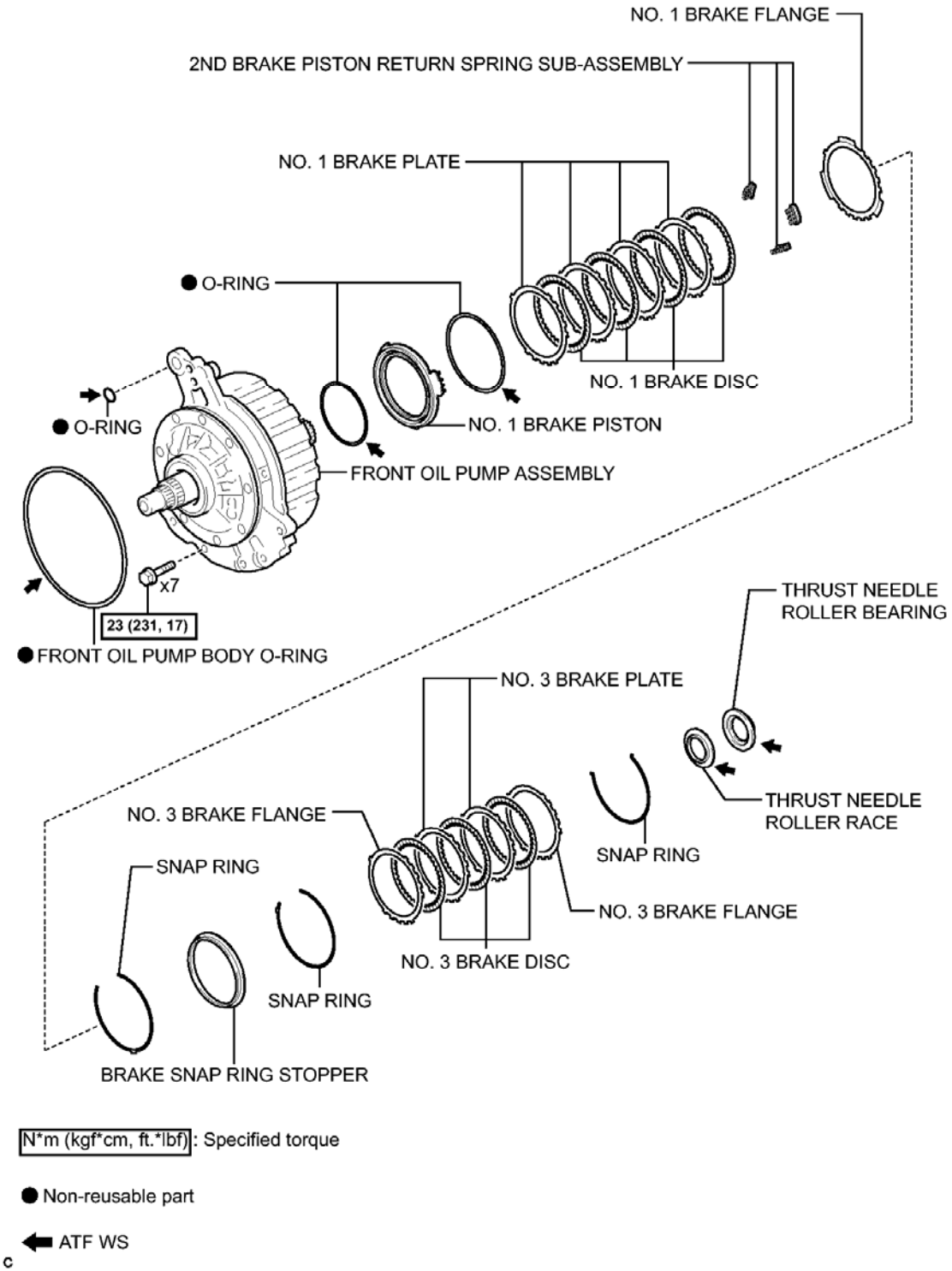


Fig. 189: Automatic Transaxle Unit Replacement Components With Torque Specifications (4 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

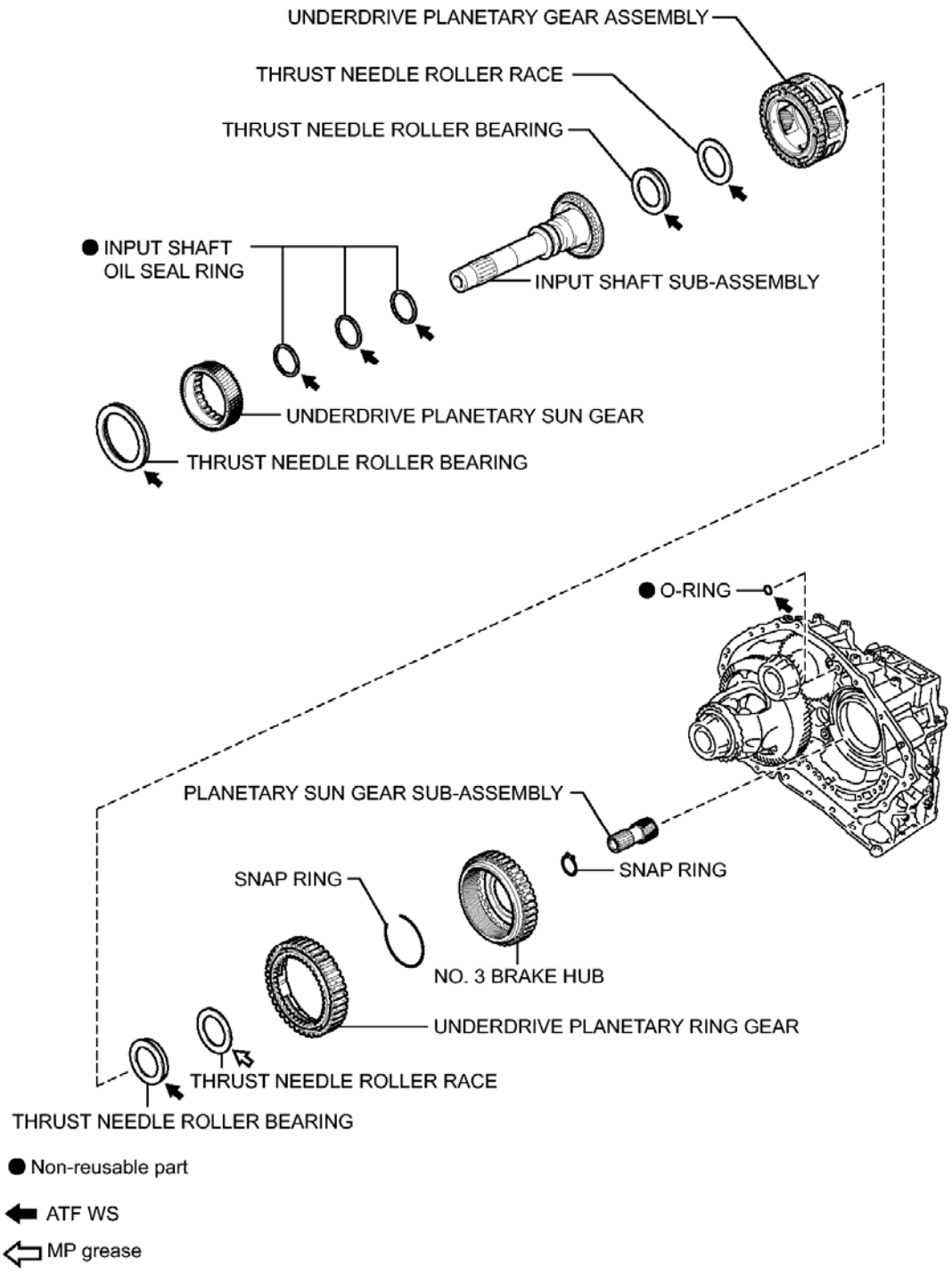
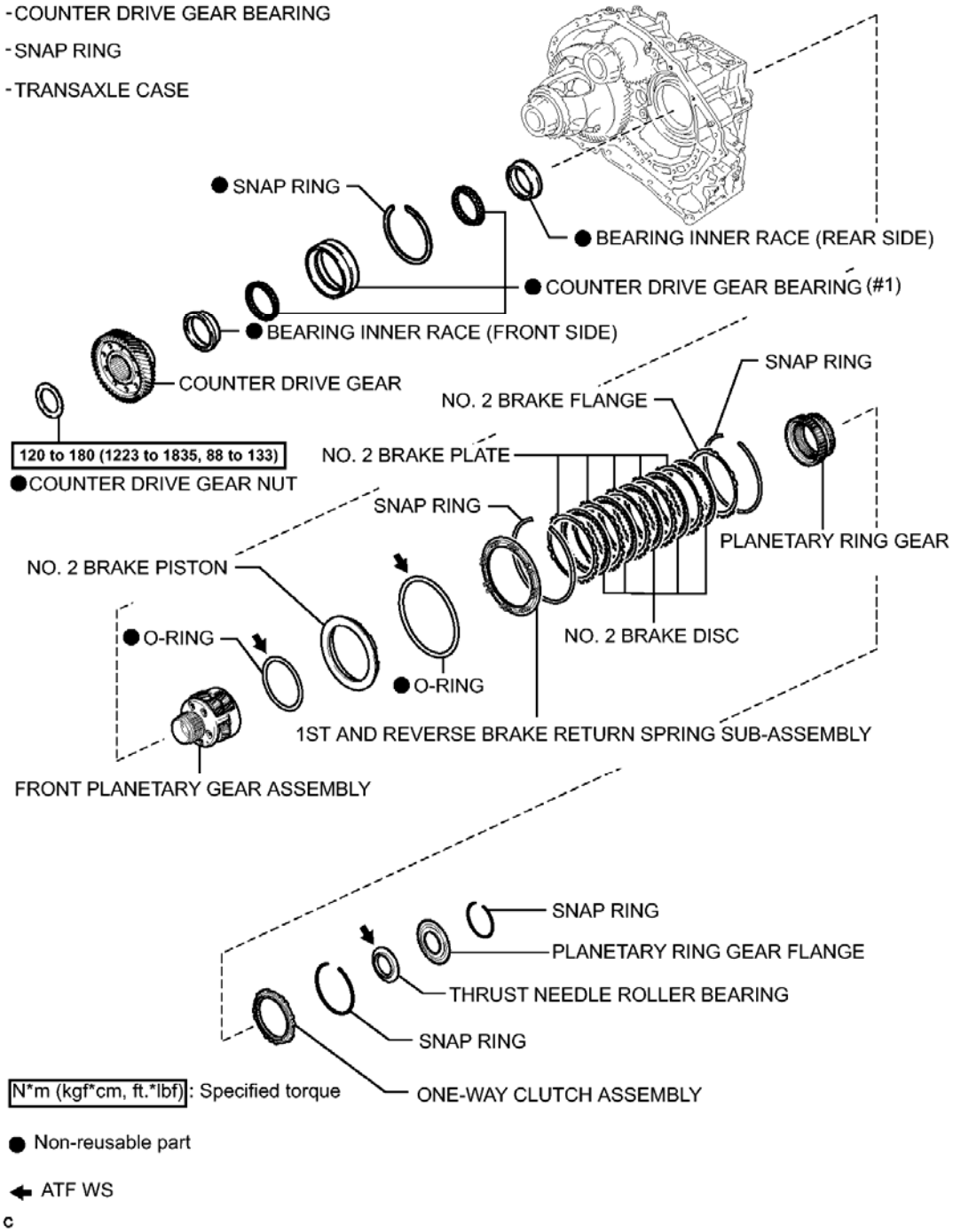


Fig. 190: Automatic Transaxle Unit Replacement Components With Torque Specifications (5 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

(#1) The counter drive gear bearing cannot be separated from the transaxle case. When the counter drive gear bearing or transaxle case is replaced, prepare the following:

- COUNTER DRIVE GEAR BEARING
- SNAP RING
- TRANSAXLE CASE



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

● Non-reusable part

← ATF WS

c

Fig. 191: Automatic Transaxle Unit Replacement Components With Torque Specifications (6 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

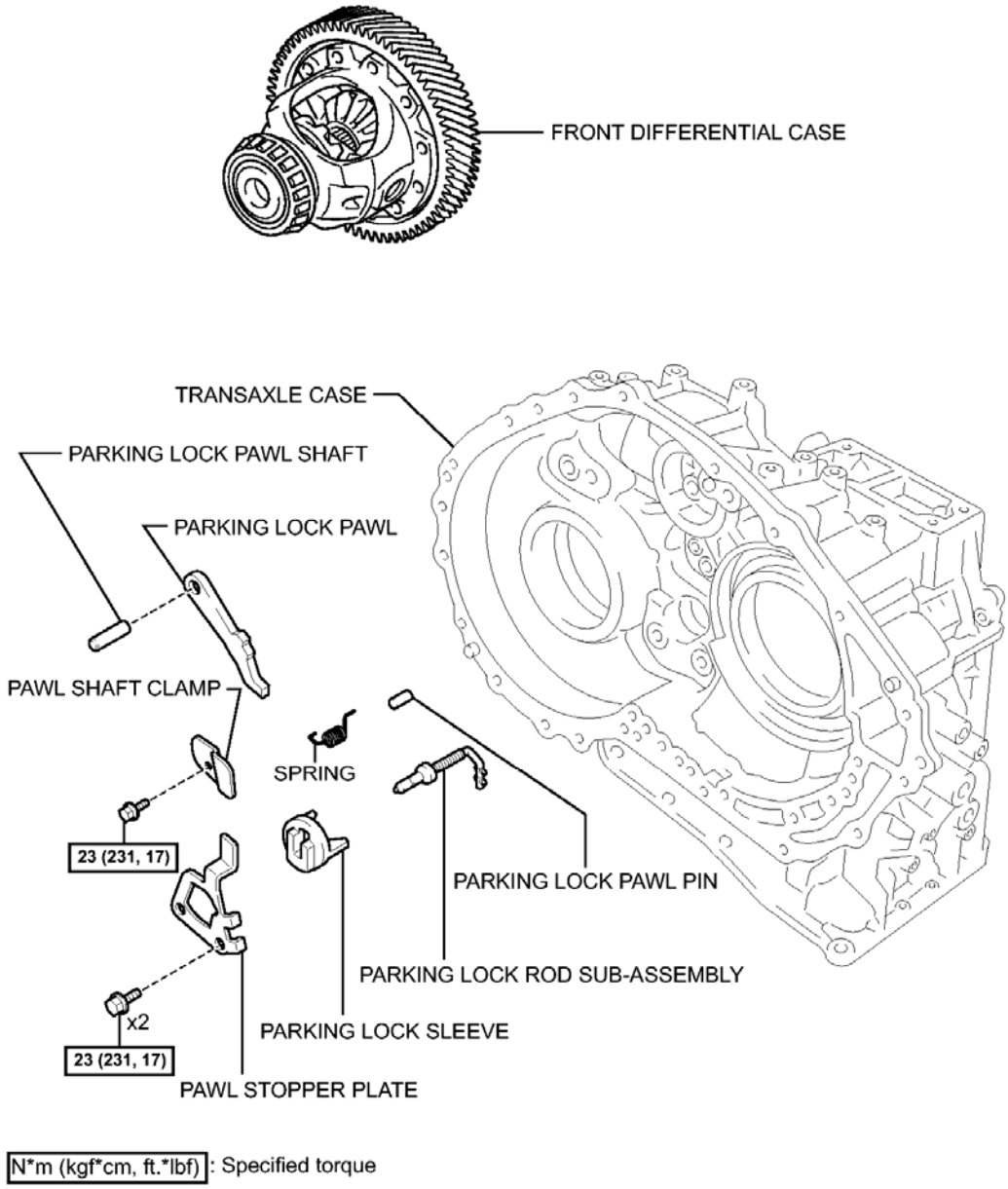


Fig. 192: Automatic Transaxle Unit Replacement Components With Torque Specifications (7 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

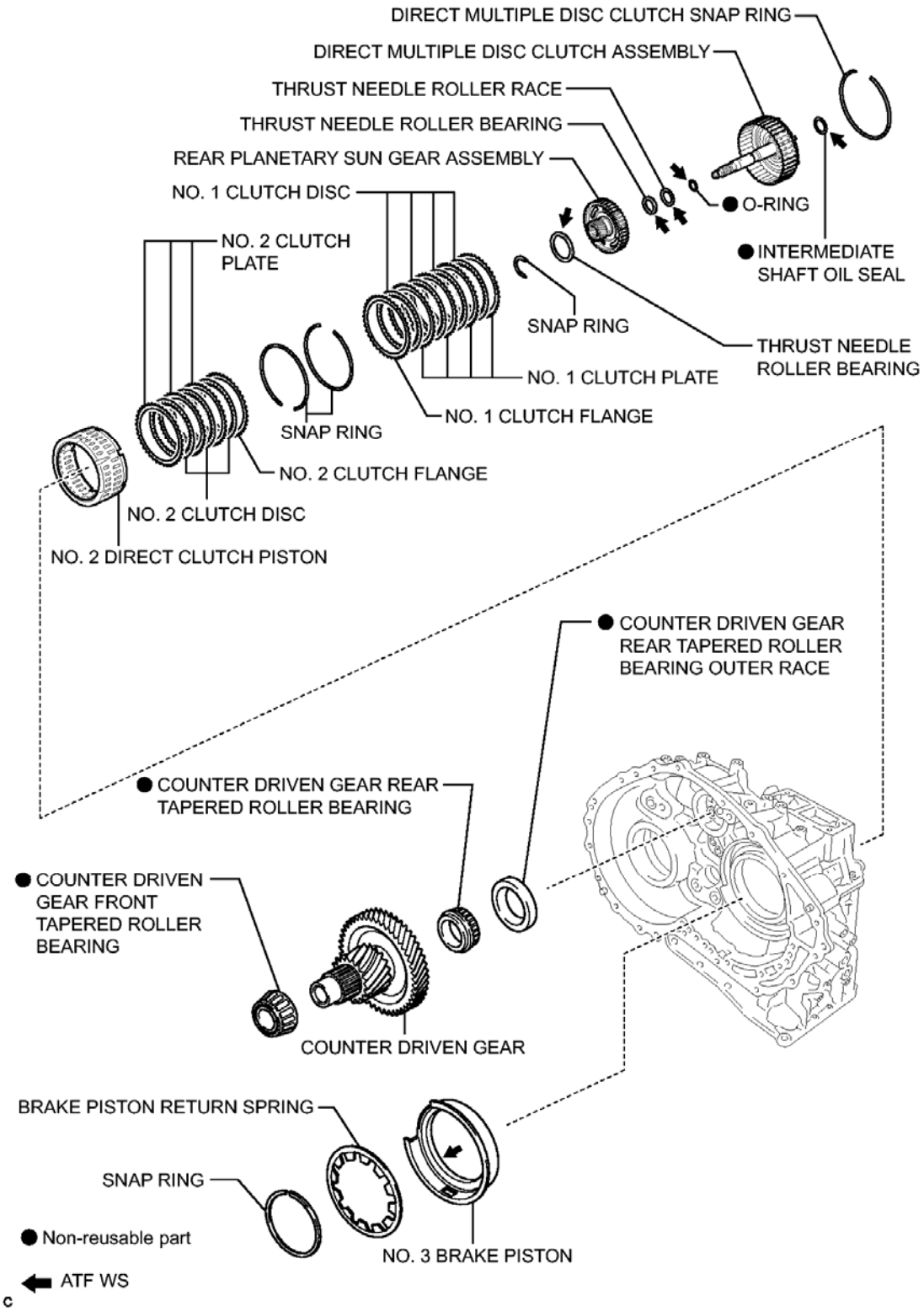


Fig. 193: Automatic Transaxle Unit Replacement Components With Torque Specifications (8 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE BREATHER PLUG HOSE**
   a. Using a screwdriver, remove the breather plug hose from the transaxle case.

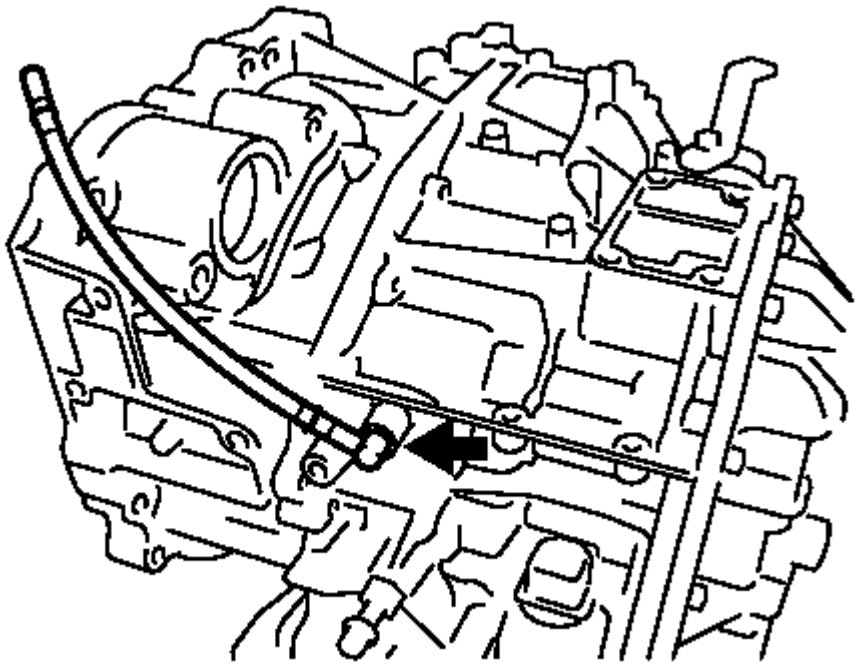
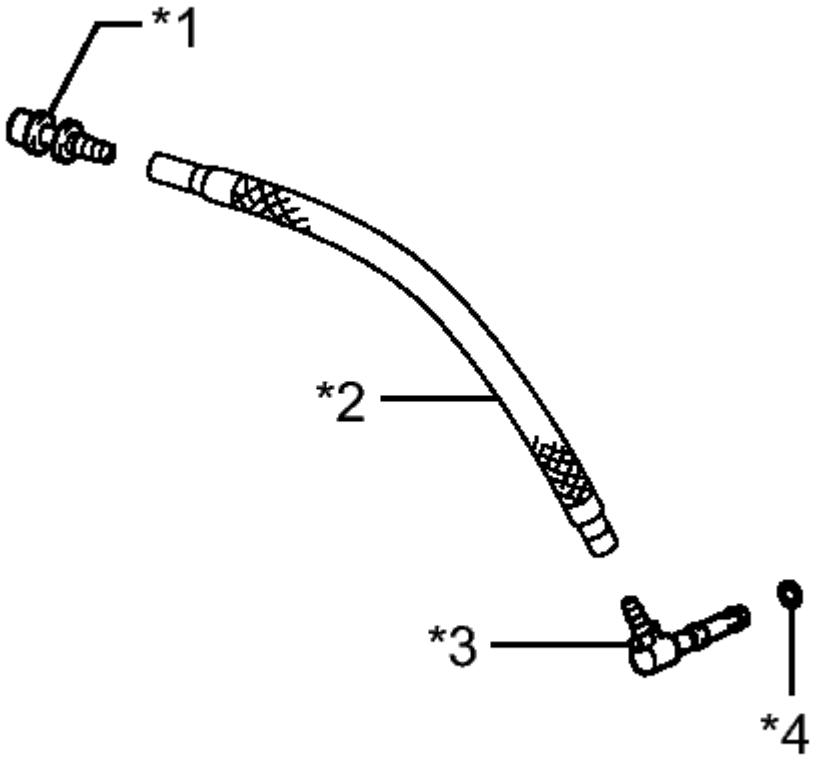


Fig. 194: Identifying Breather Plug Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a screwdriver, remove the No. 1 breather plug and No. 2 breather plug from the breather plug hose.



N

Fig. 195: Identifying Breather Plug Hose Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Breather Plug
*2	Breather Plug Hose
*3	No. 2 Breather Plug
*4	O-ring

c. Using a screwdriver, remove the O-ring from the No. 2 breather plug.

2. **REMOVE PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Remove the nut, washer and control shaft lever from the control shaft.

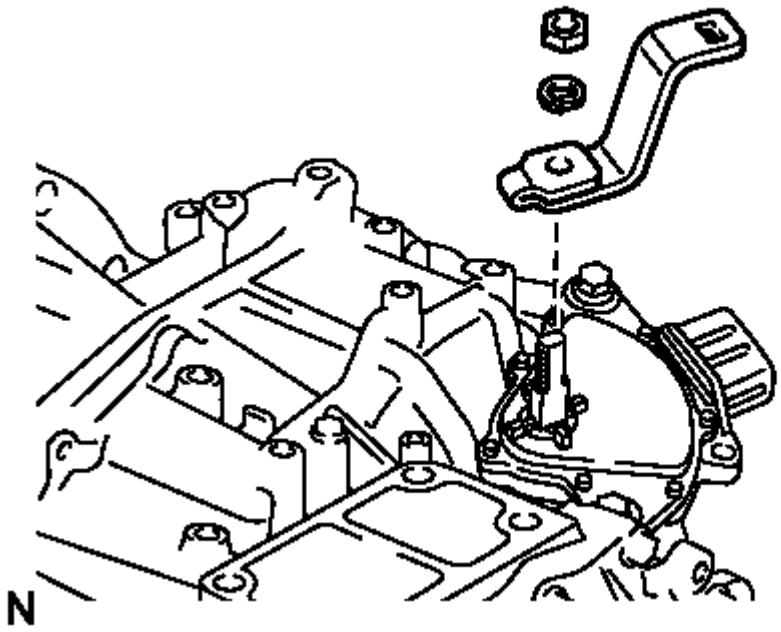


Fig. 196: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the 2 bolts and park/neutral position switch assembly from the transaxle case.

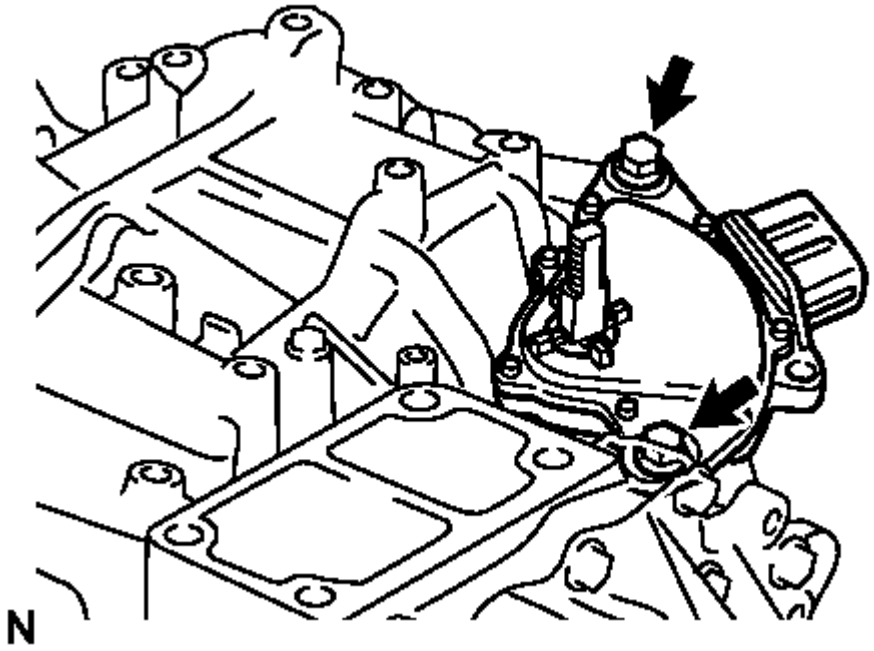


Fig. 197: Identifying Park/Neutral Position Switch Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Before removing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to remove the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.

3. **REMOVE OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
   a. Remove the oil cooler tube union (outlet oil cooler union) from the transaxle case.

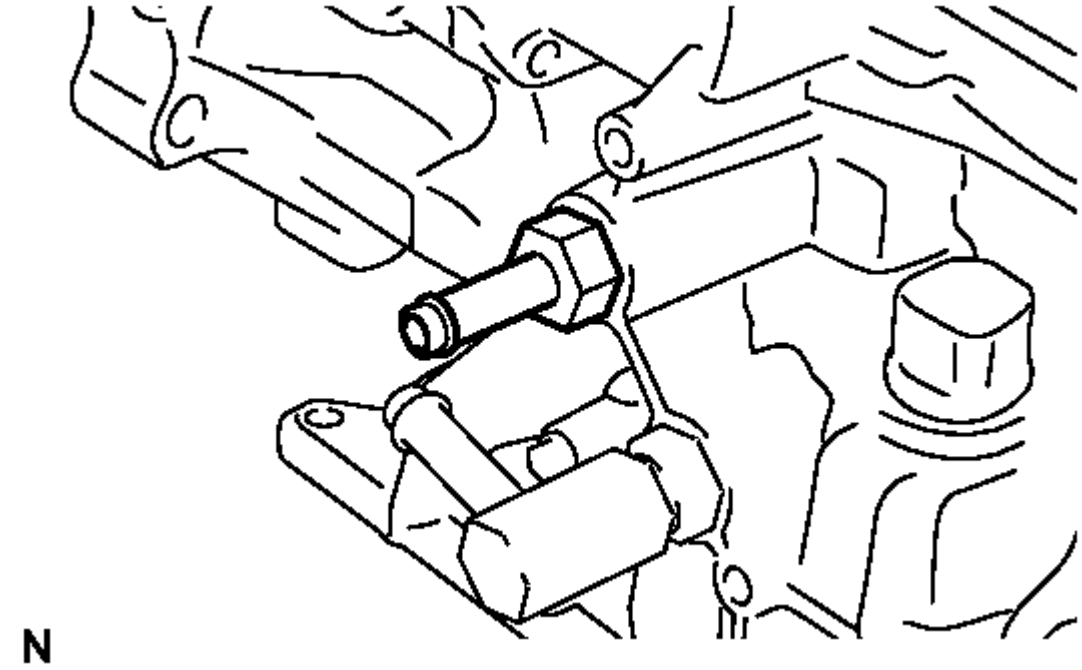


Fig. 198: Identifying Oil Cooler Tube Union (Outlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the O-ring from the oil cooler tube union (outlet oil cooler union).

4. **REMOVE OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**

a. Loosen the nut while holding the oil cooler tube union (inlet oil cooler union).

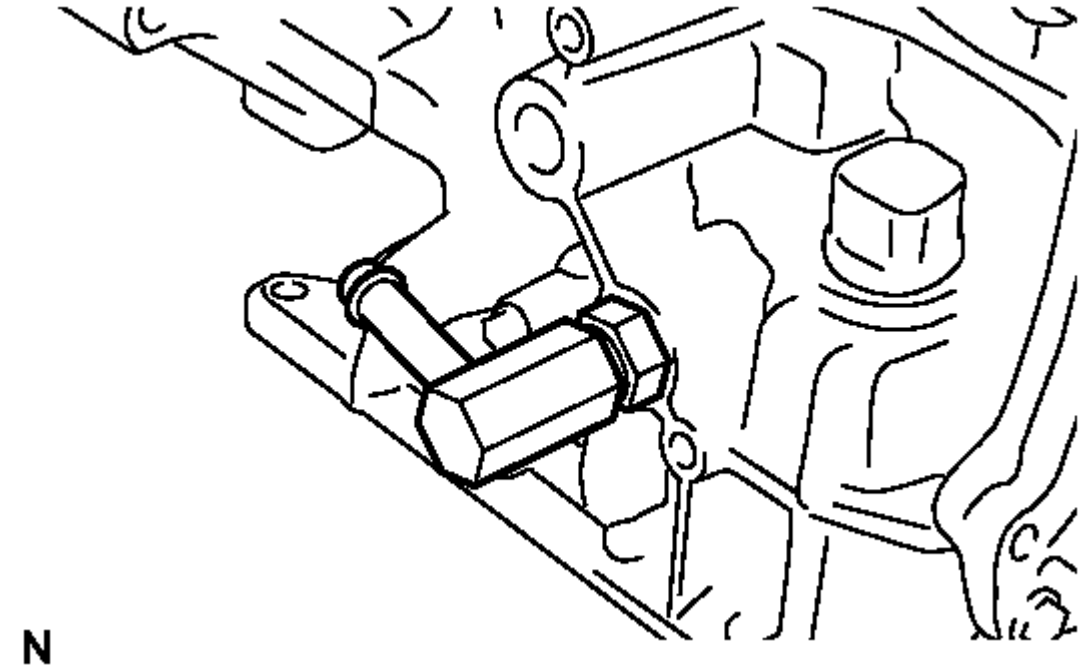


Fig. 199: Identifying Oil Cooler Tube Union (Inlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the oil cooler tube union (inlet oil cooler union) from the transaxle case.
c. Remove the O-ring from the oil cooler tube union (inlet oil cooler union).

5. **REMOVE NO. 1 TRANSAXLE CASE PLUG**
   a. Remove the 3 No. 1 transaxle case plugs from the transaxle case.

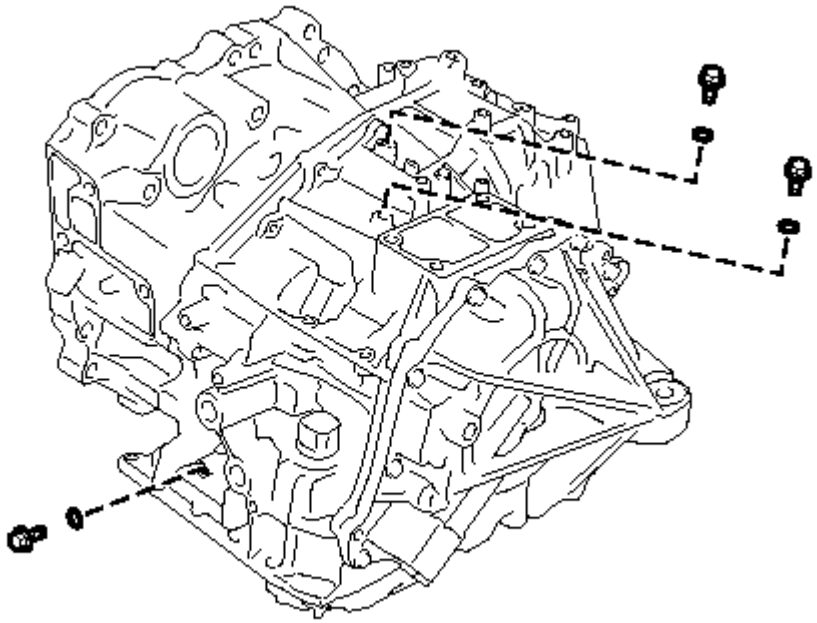


Fig. 200: Identifying 3 No. 1 Transaxle Case Plugs Of Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 3 O-rings from the 3 No. 1 transaxle case plugs.
c. Using a 6 mm hexagon socket wrench, remove the 3 hexagon bolts from the transaxle housing.

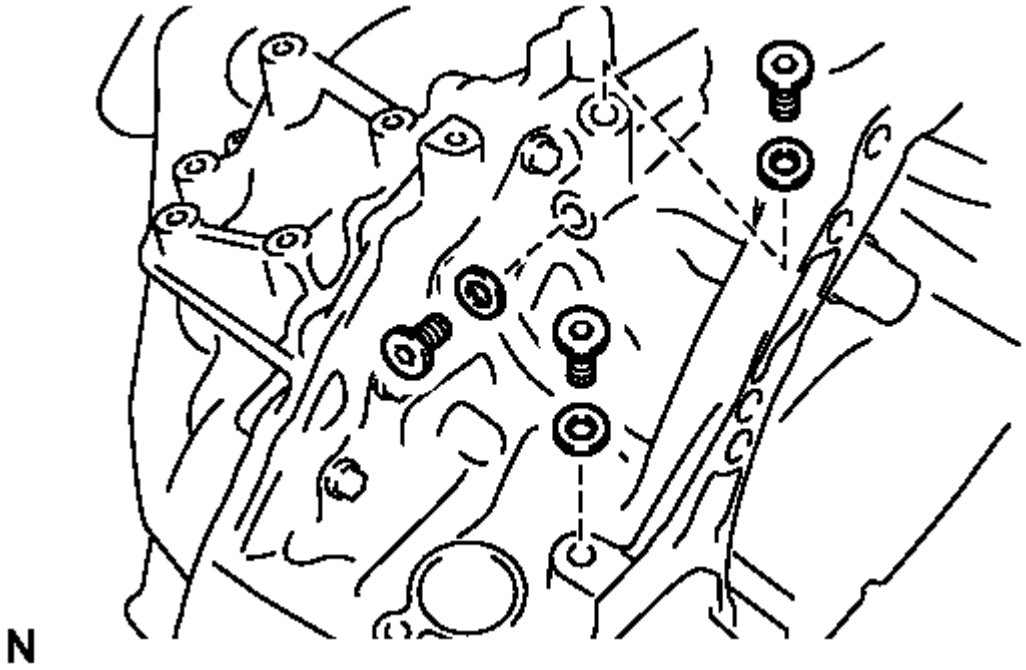


Fig. 201: Identifying Gaskets And Hexagon Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the gasket from each of the 3 hexagon bolts.

6. **SUPPORT AUTOMATIC TRANSAXLE ASSEMBLY**

a. Support the transaxle assembly on wooden blocks.

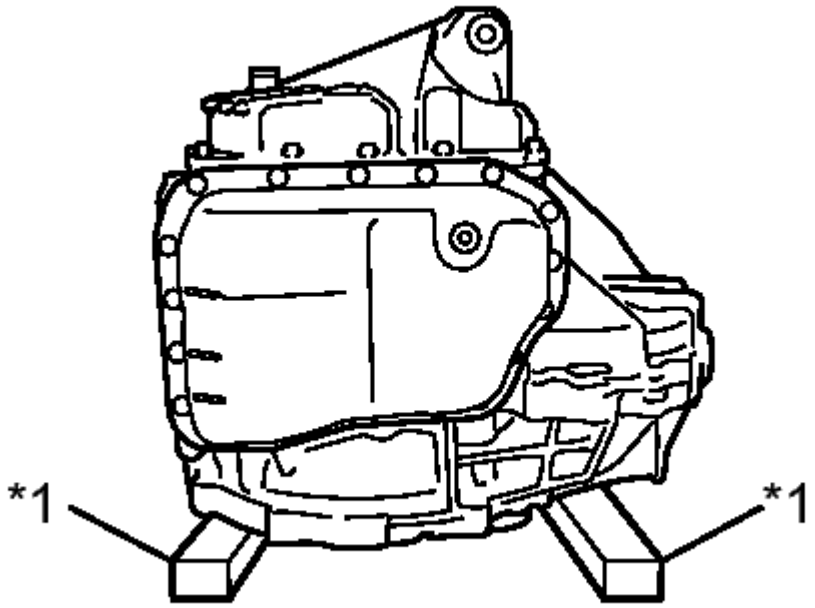


Fig. 202: Identifying Automatic Transaxle Assembly Wooden Block Supports
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	*Wooden Block

7. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
   a. Using a 6 mm hexagon socket wrench, remove the overflow plug from the automatic transaxle oil pan subassembly.

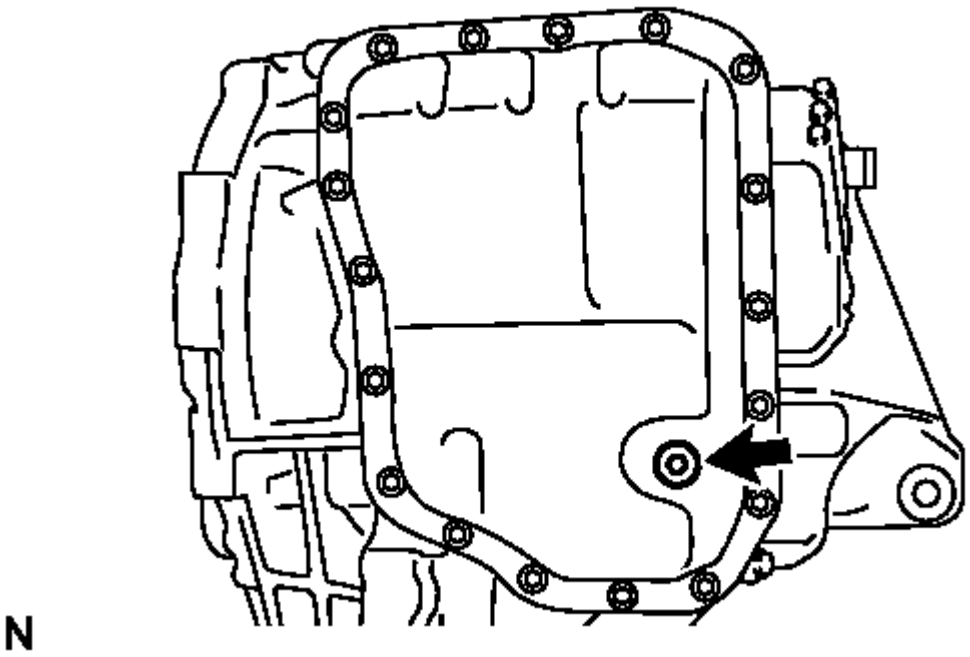


Fig. 203: Identifying Overflow Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the gasket from the overflow plug.
   c. Using a 6 mm hexagon socket wrench, remove the No. 1 transmission oil filler tube from the automatic transaxle assembly.

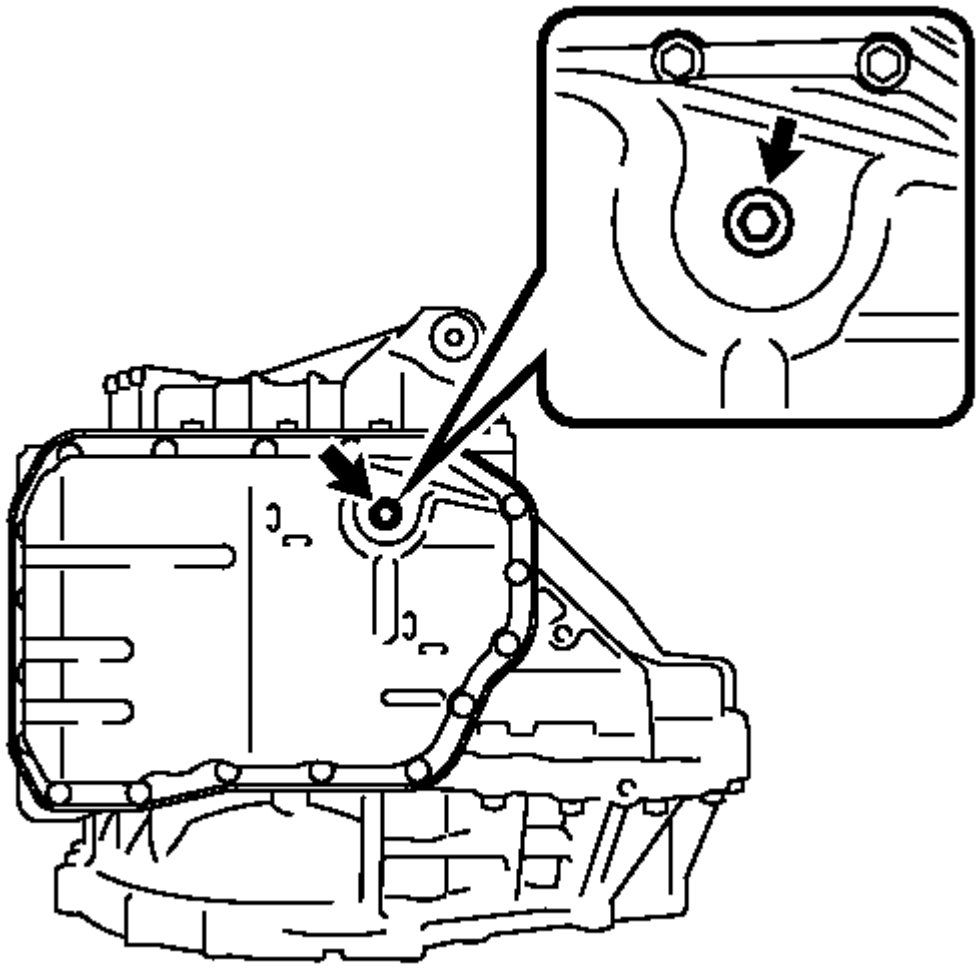
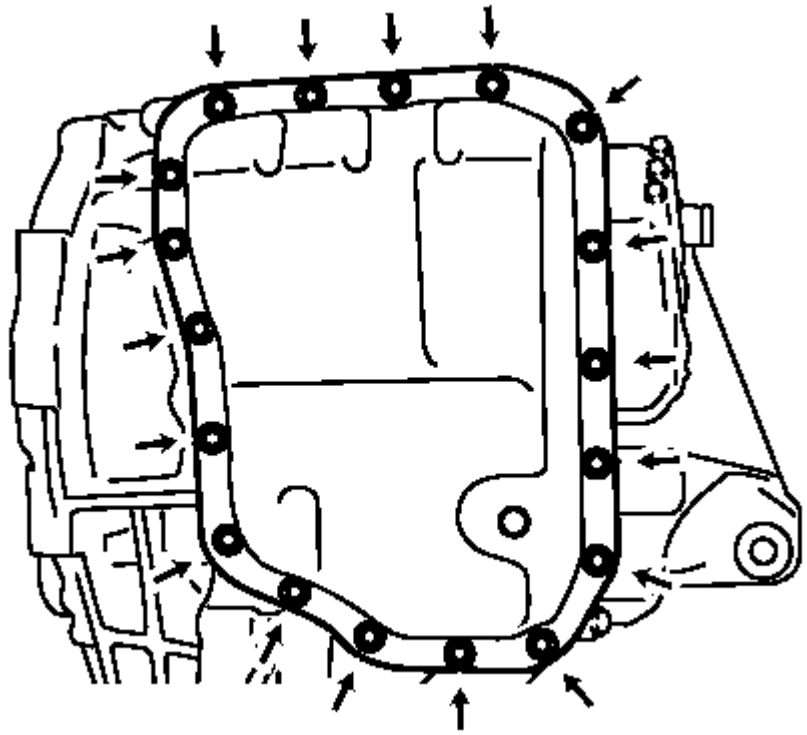


Fig. 204: Identifying No. 1 Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

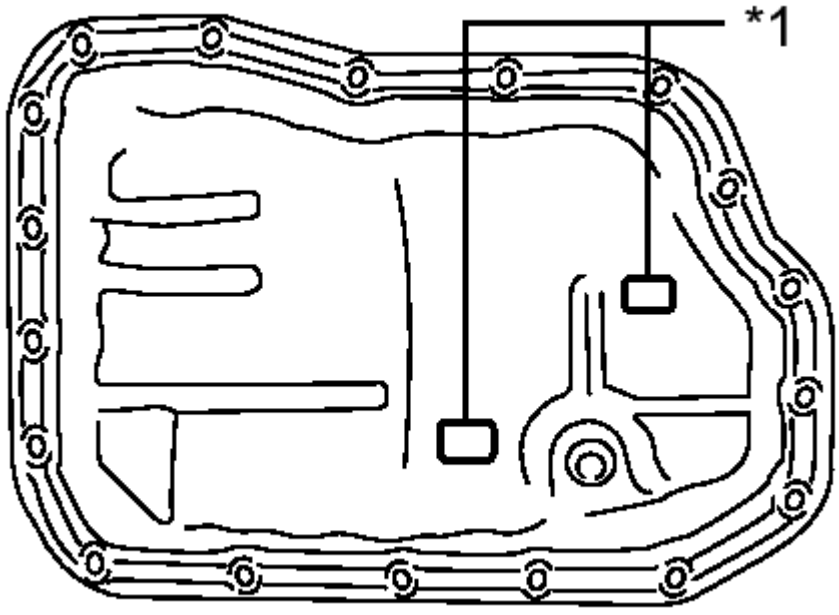
d. Remove the 18 bolts, automatic transaxle oil pan subassembly and automatic transaxle oil pan gasket from the automatic transaxle assembly.



N

Fig. 205: Identifying Oil Pan Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Remove the 2 transmission oil cleaner magnets from the automatic transaxle oil pan subassembly.



N

Fig. 206: Identifying Oil Pan Magnet

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

TEXT IN ILLUSTRATION

*1	Transmission Oil Cleaner Magnet

8. **INSPECT TRANSMISSION OIL CLEANER MAGNET** See step 1
9. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY**
   a. Remove the 2 bolts and oil strainer assembly from the valve body assembly.

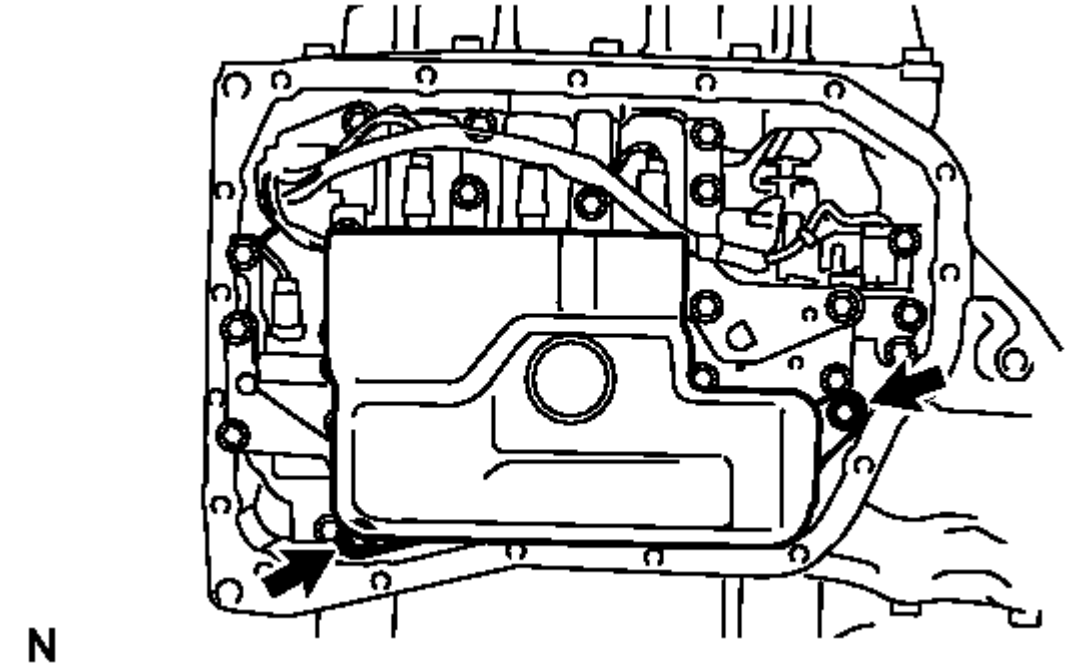


Fig. 207: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the O-ring from the oil strainer assembly.

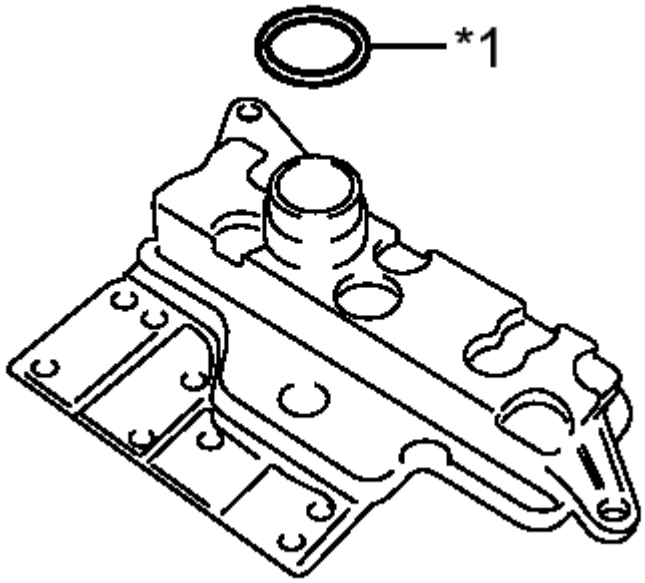
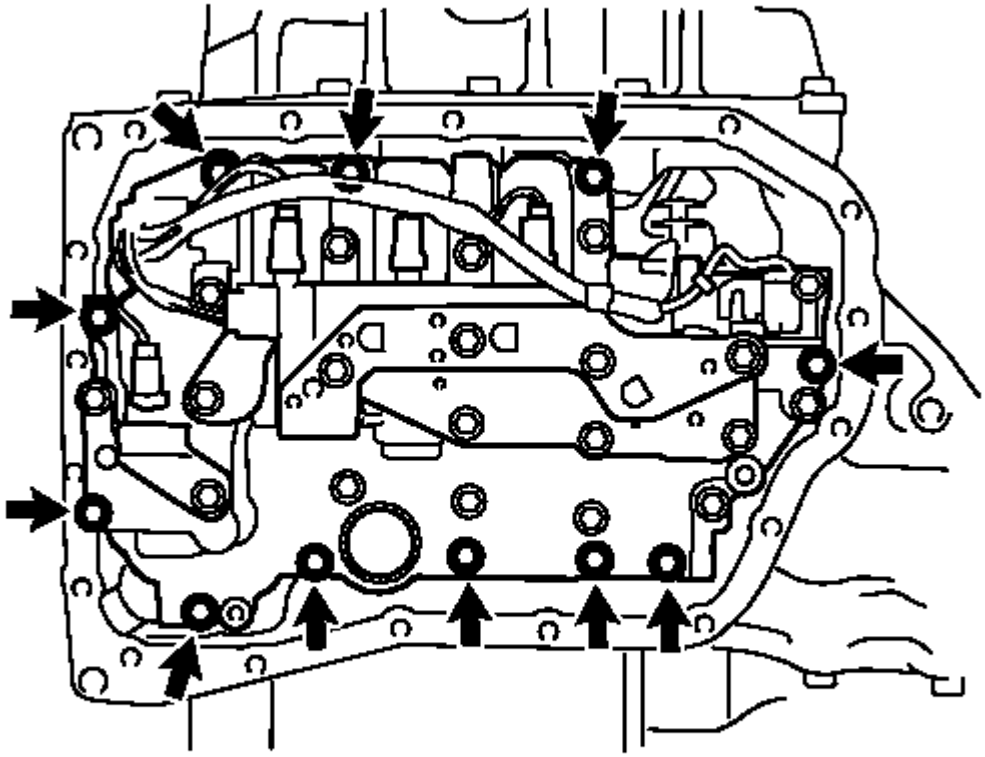


Fig. 208: Identifying Oil Strainer Assembly O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

10. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**
    a. Remove the 11 bolts and valve body assembly from the transaxle case.



N

Fig. 209: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When removing the transmission valve body assembly, be careful not to allow the transmission revolution sensor and the transaxle case to interfere with each other.

11. **REMOVE TRANSAXLE CASE GASKET**
    a. Remove the 2 gaskets from the transaxle case.

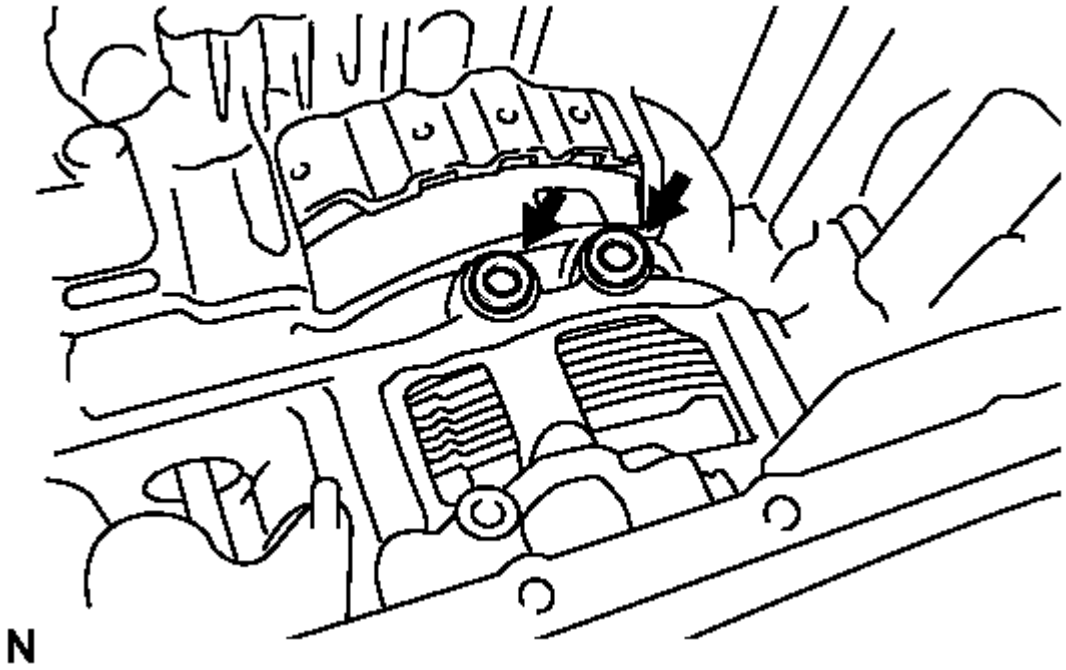


Fig. 210: Identifying Transaxle Case Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSPECT INPUT SHAFT SUB-ASSEMBLY** See step 2
13. **REMOVE REAR TRANSAXLE COVER SUB-ASSEMBLY**
    a. Remove the refill plug from the rear transaxle cover subassembly.

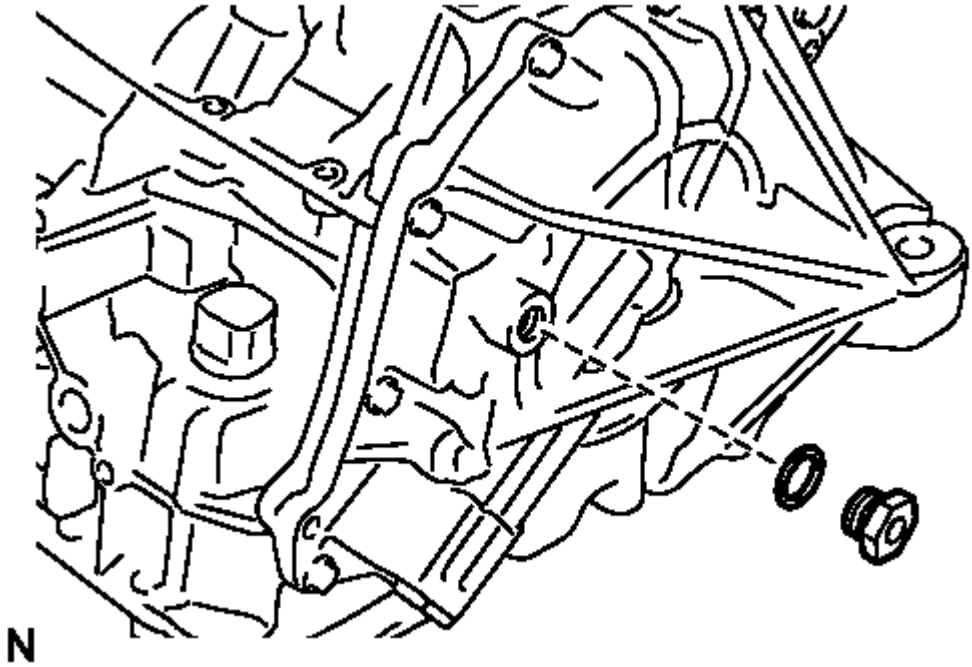


Fig. 211: Identifying Gasket And Refill Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the gasket from the refill plug.
c. Remove the 2 No. 1 automatic transaxle case plugs from the rear transaxle cover subassembly.

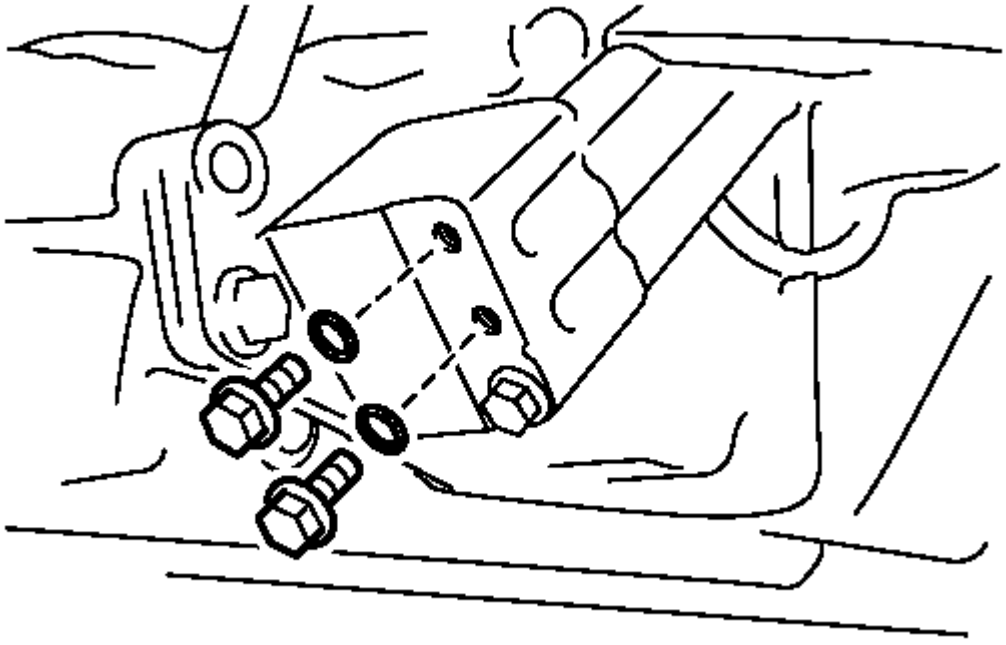


Fig. 212: Identifying No. 1 Automatic Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a screwdriver, remove the 2 O-rings from the 2 No. 1 automatic transaxle case plugs.
e. Remove the 14 bolts from the rear transaxle cover subassembly.

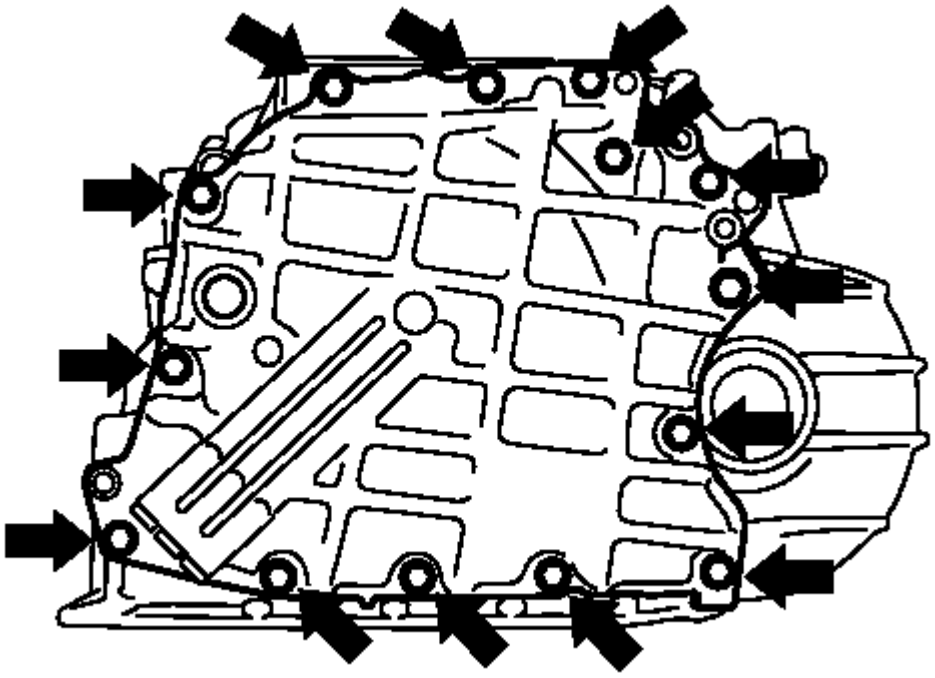


Fig. 213: Identifying Rear Transaxle Cover Sub-Assembly & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Using a brass bar and a hammer, tap on the circumference of the rear transaxle cover subassembly to remove the rear transaxle cover subassembly from the transaxle case.

g. Using a screwdriver, remove the 3 O-rings from the transaxle case.

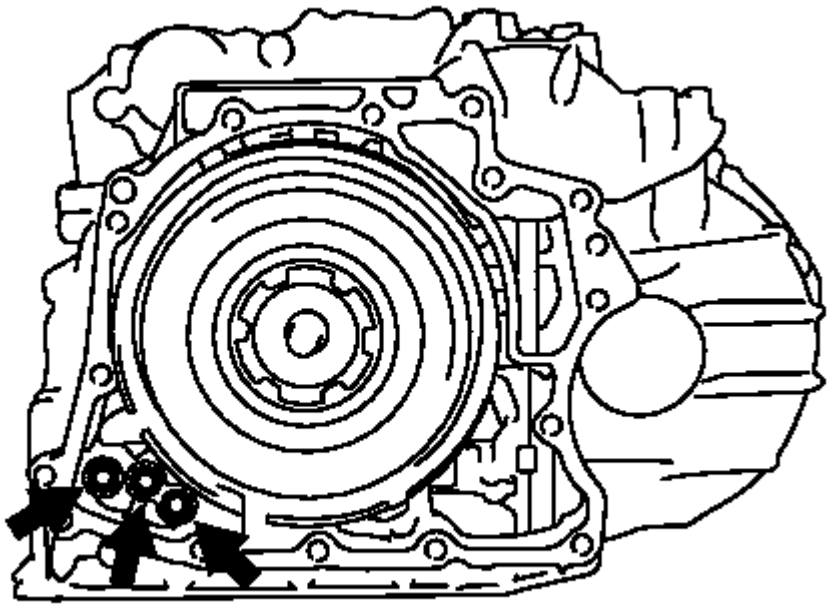
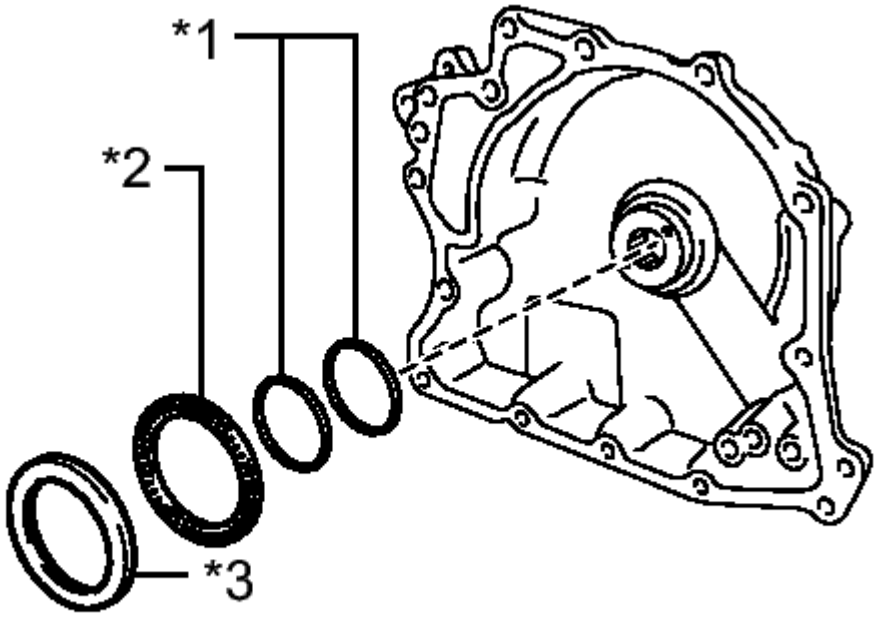


Fig. 214: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

h. Using a screwdriver, remove the 2 oil seal rings from the rear transaxle cover subassembly.



N

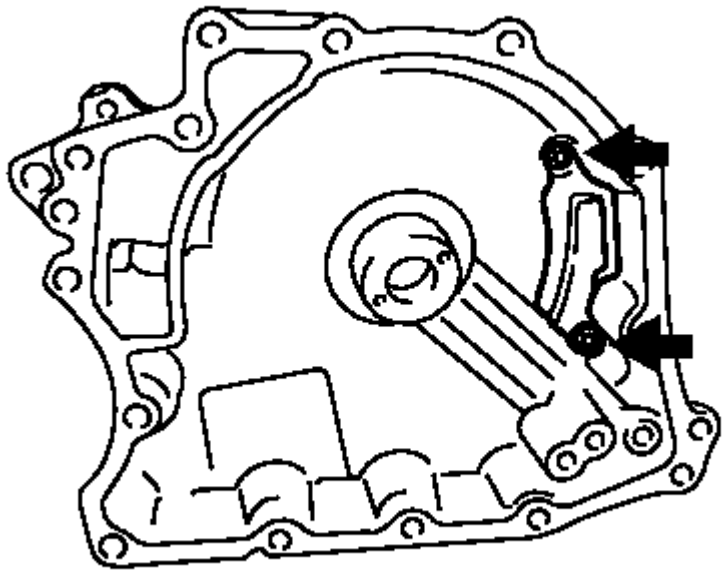
Fig. 215: Identifying Oil Seal Ring, Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Seal Ring
*2	Thrust Needle Roller Bearing
*3	Thrust Needle Roller Race

i. Remove the thrust needle roller bearing and thrust needle roller race from the rear transaxle cover subassembly.

j. Using a T30 "TORX" socket wrench, remove the 2 "TORX" screws and rear transaxle cover plate from the rear transaxle cover subassembly.



N

Fig. 216: Identifying Rear Transaxle Cover Plate Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

k. Using SST, remove the needle roller bearing from the rear transaxle cover subassembly.

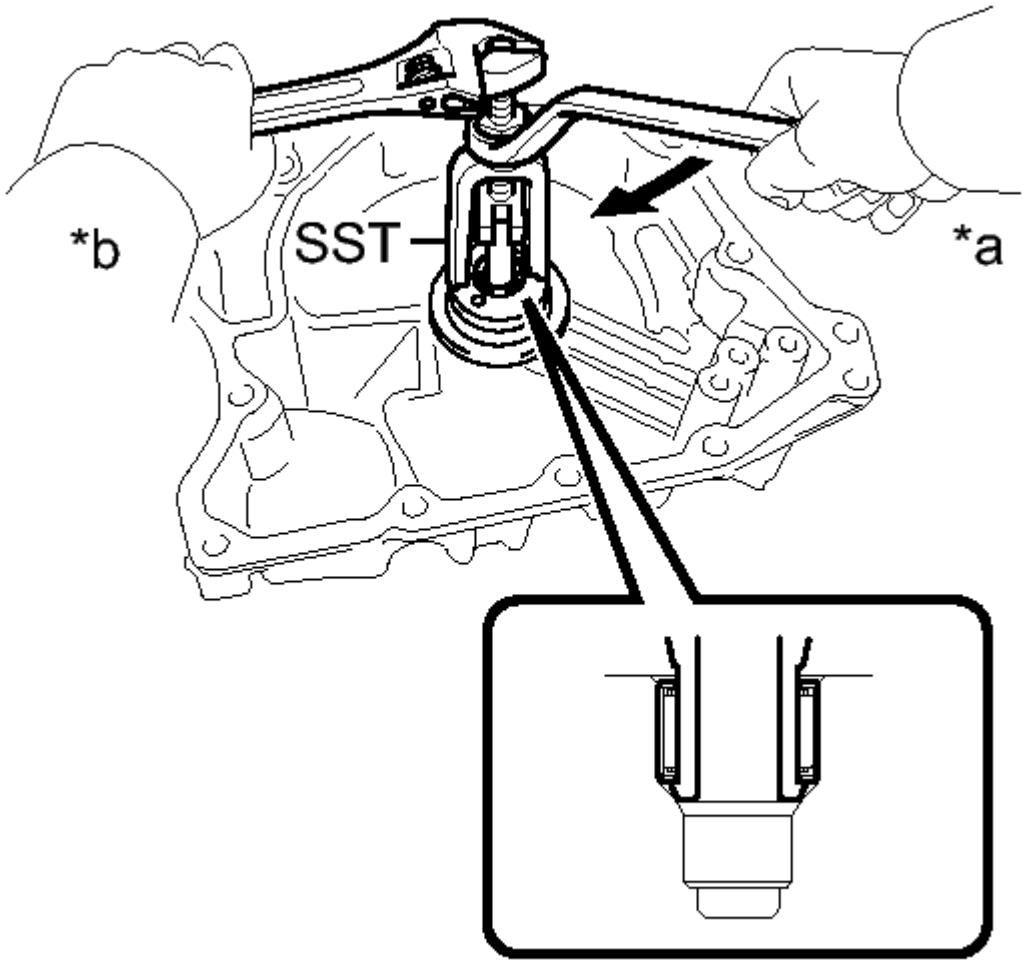


Fig. 217: Removing Needle Roller Bearing At Rear Transaxle Cover Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09319-60020**

14. **REMOVE DIRECT MULTIPLE DISC CLUTCH ASSEMBLY**
    a. Remove the direct multiple disc clutch assembly from the transaxle case.

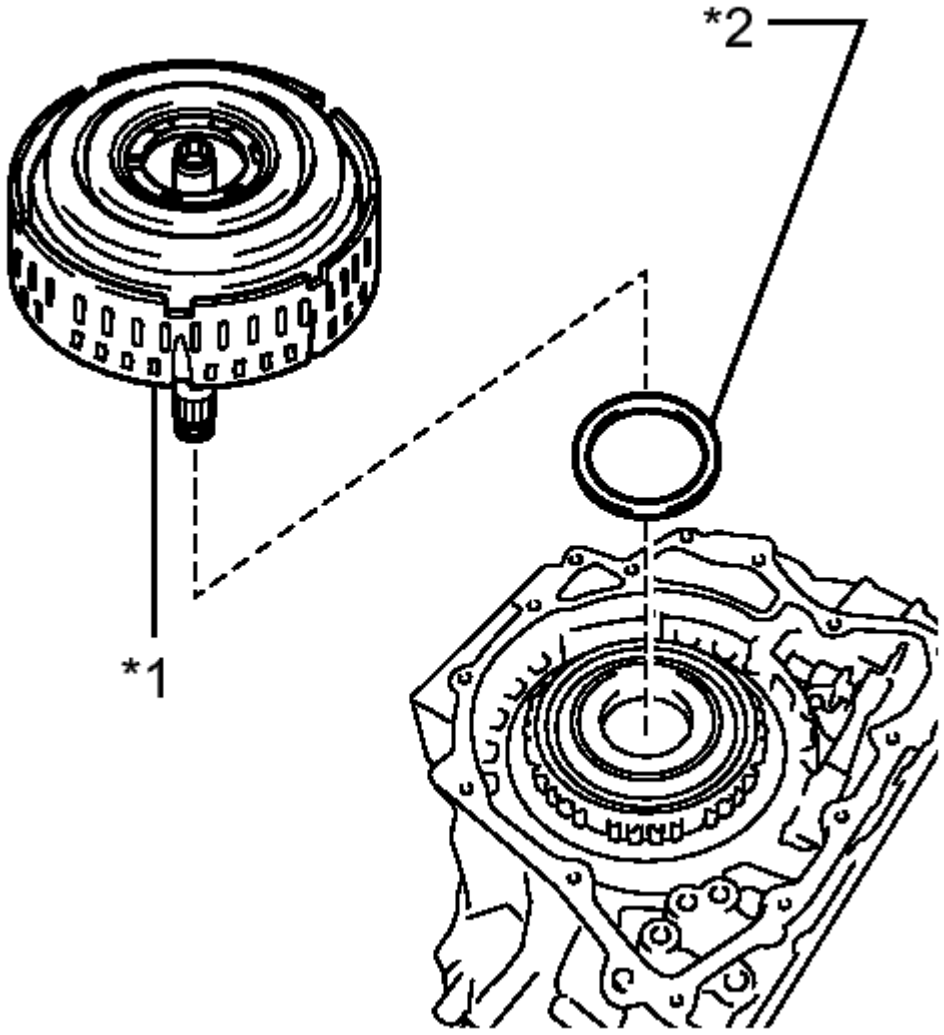


Fig. 218: Identifying Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

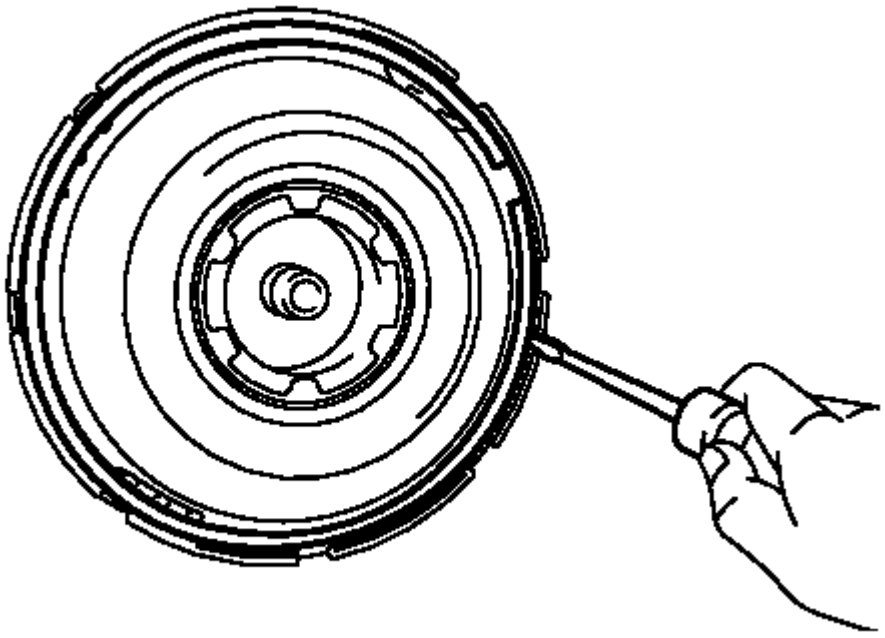
TEXT IN ILLUSTRATION

*1	Direct Multiple Disc Clutch Assembly
*2	Thrust Needle Roller Bearing

b. Remove the thrust needle roller bearing from the direct multiple disc clutch assembly.

15. **REMOVE DIRECT MULTIPLE DISC CLUTCH SNAP RING**

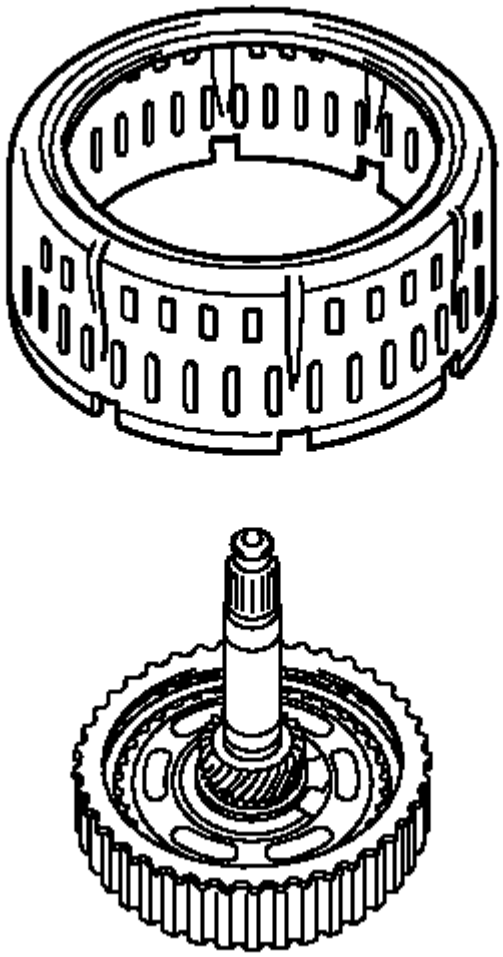
a. Using a screwdriver, remove the snap ring from the direct multiple disc clutch assembly.



N

Fig. 219: Removing Snap Ring From Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the No. 2 direct clutch piston from the direct multiple disc clutch assembly.



N

Fig. 220: Identifying No. 2 Direct Clutch Piston And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, remove the intermediate shaft oil seal from the direct multiple disc clutch assembly.

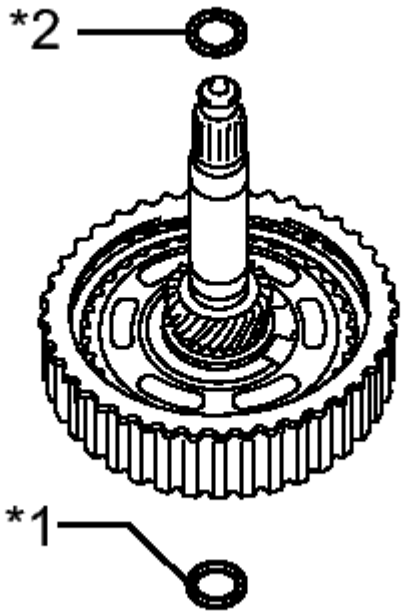


Fig. 221: Identifying Intermediate Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Intermediate Shaft Oil Seal

d. Using a screwdriver, remove the O-ring from the direct multiple disc clutch assembly.

TEXT IN ILLUSTRATION

*2	O-ring

16. **REMOVE NO. 2 CLUTCH DISC**
    a. Remove the clutch flange, 3 clutch discs and 3 clutch plates from the direct multiple disc clutch assembly.

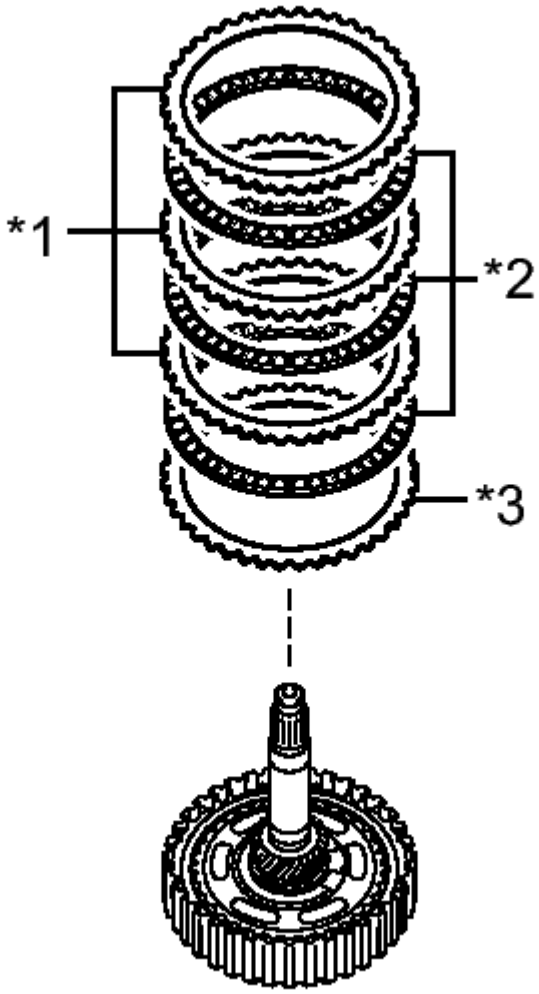
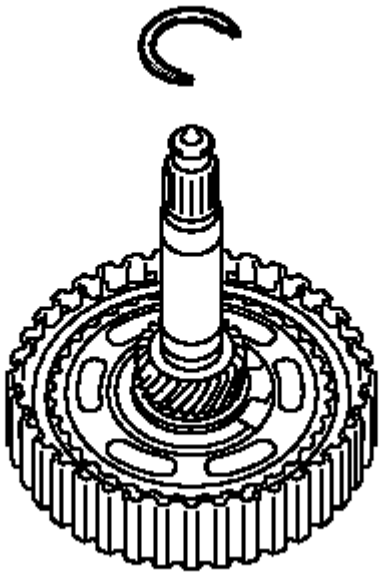


Fig. 222: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Plate
*2	Clutch Disc
*3	Clutch Flange

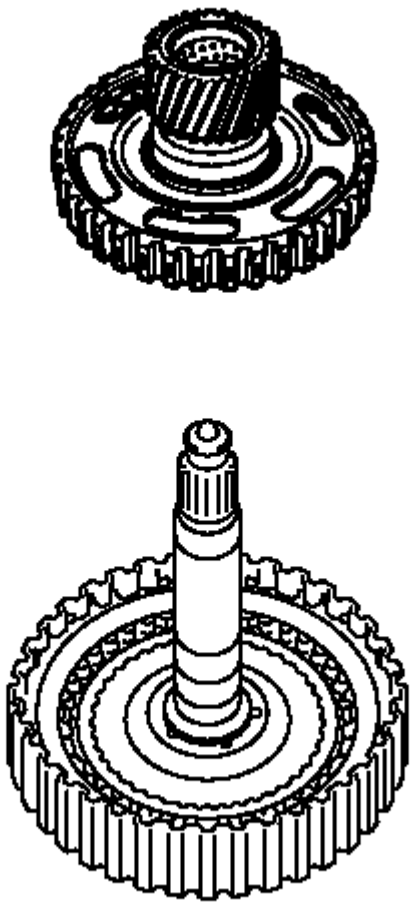
17. **INSPECT NO. 2 CLUTCH DISC** See step 3
18. **REMOVE REAR PLANETARY SUN GEAR ASSEMBLY**
    a. Using a snap ring expander, remove the snap ring from the direct multiple disc clutch assembly.



N

Fig. 223: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the rear planetary sun gear assembly from the direct multiple disc clutch assembly.



N

Fig. 224: Identifying Rear Planetary Sun Gear And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the thrust needle roller bearing and thrust needle roller race from the direct multiple disc clutch assembly.

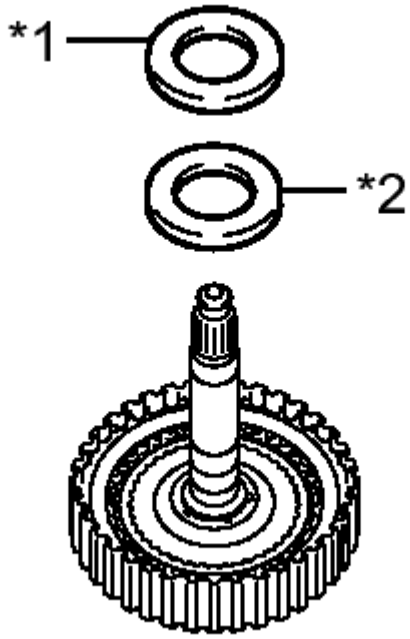
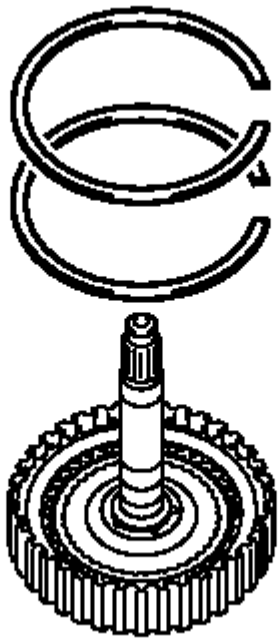


Fig. 225: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race

19. **INSPECT REAR PLANETARY SUN GEAR ASSEMBLY** See step 8
20. **REMOVE NO. 1 CLUTCH DISC**
    a. Using 2 screwdrivers, remove the 2 snap rings from the direct multiple disc clutch assembly.



N

Fig. 226: Identifying Snap Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the clutch flange, 4 clutch discs and 4 clutch plates from the direct multiple disc clutch assembly.

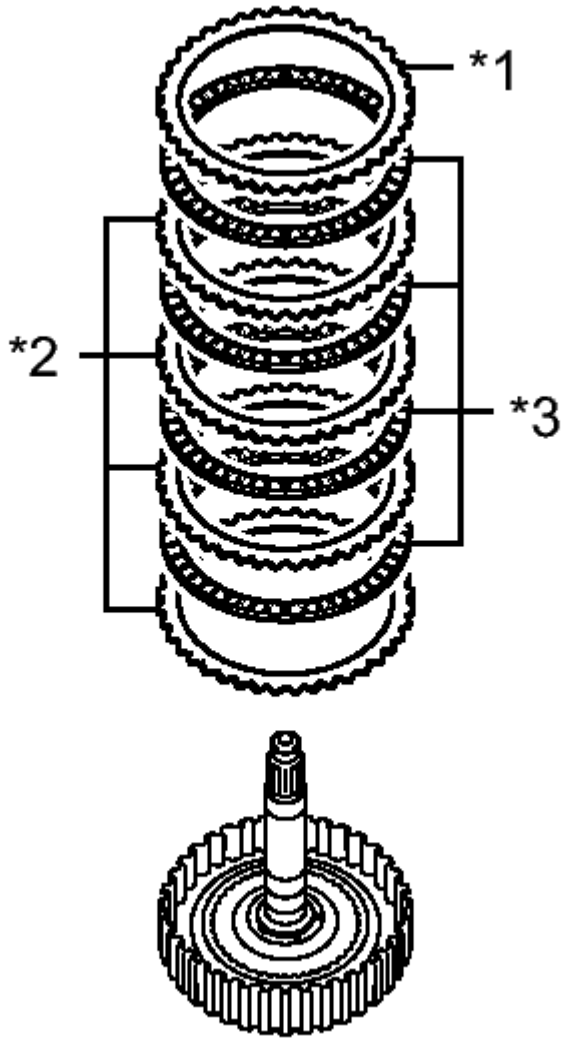


Fig. 227: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Flange
*2	Clutch Plate
*3	Clutch Disc

21. **INSPECT NO. 1 CLUTCH DISC** See step 5
22. **REMOVE TRANSAXLE HOUSING**
    a. Remove the 20 bolts from the transaxle housing.

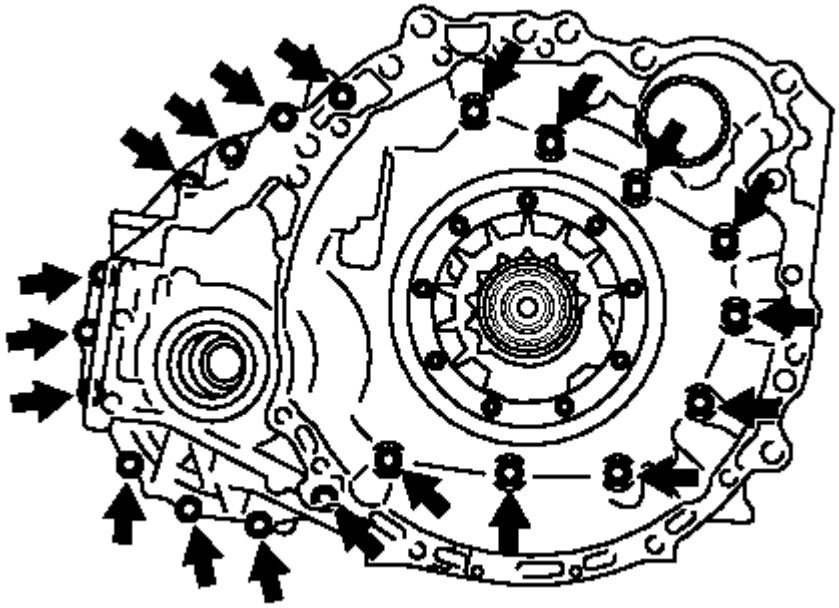


Fig. 228: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a brass bar and a hammer, tap on the circumference of the transaxle housing to remove the transaxle housing from the transaxle case.

23. **REMOVE COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING OUTER RACE**

a. Using SST, remove the counter driven gear front tapered roller bearing outer race and shim from the transaxle housing.

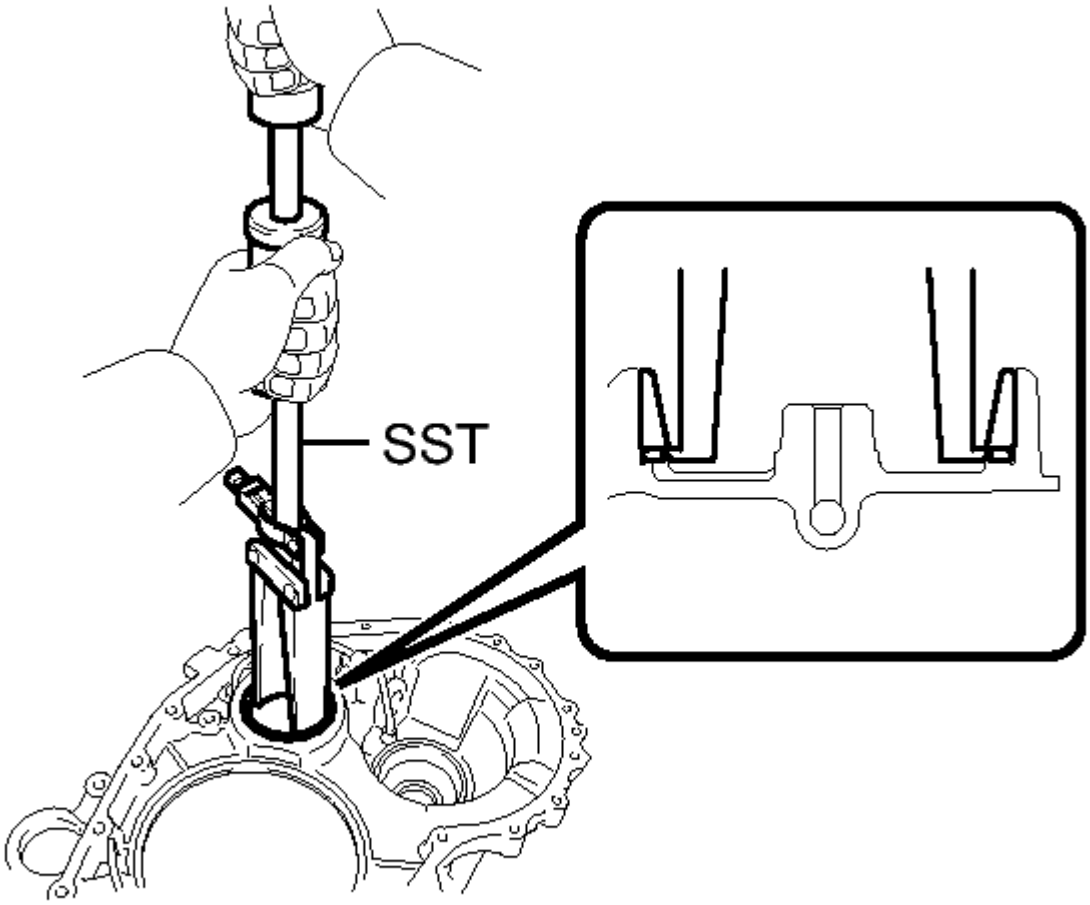


Fig. 229: Removing Counter Driven Gear Front Tapered Roller Bearing Outer Race & Shim Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

24. **REMOVE DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Remove the bolt, clamp and differential gear lube apply tube from the transaxle housing.

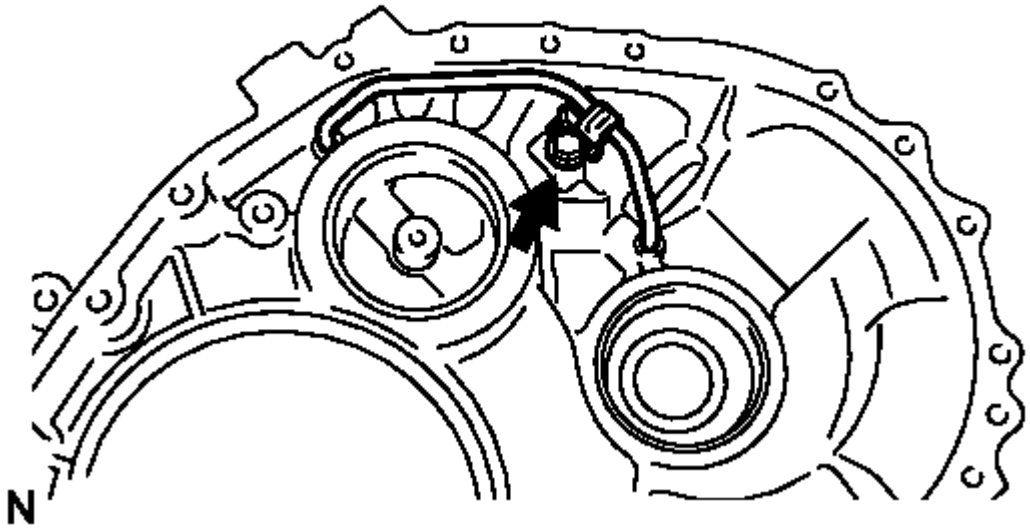


Fig. 230: Identifying Differential Gear Lube Apply Tube Clamp And Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. **REMOVE FRONT OIL PUMP ASSEMBLY**
    a. Remove the 7 bolts and front oil pump from the transaxle case.

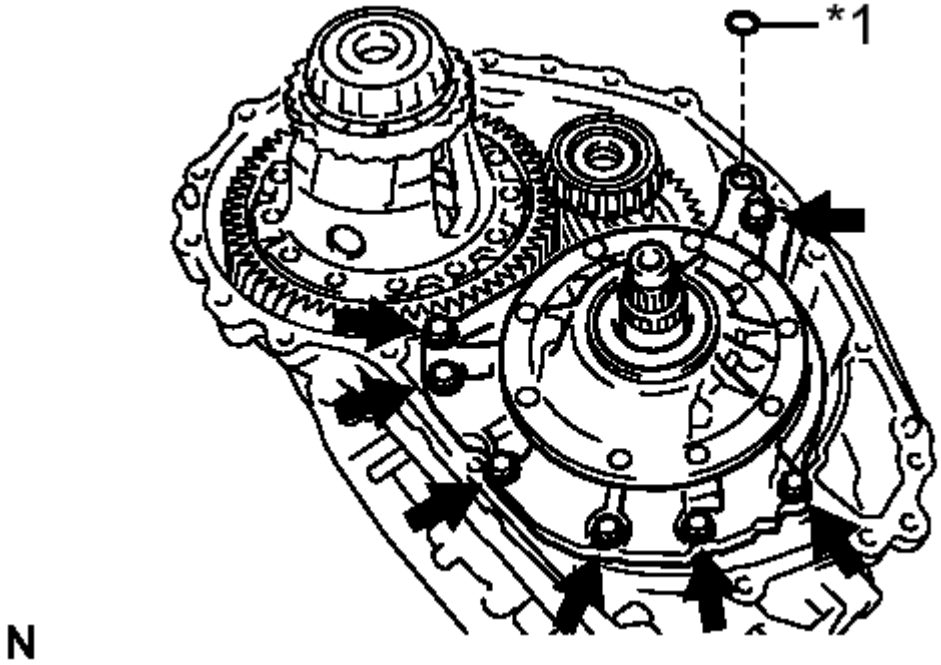


Fig. 231: Identifying Front Oil Pump And Gear Body Sub-Assembly Bolts And O-Ring

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

b. Remove the O-ring from the front oil pump assembly.

TEXT IN ILLUSTRATION

*1	O-ring

c. Remove the thrust needle roller bearing and thrust needle roller race from the carrier lock nut.

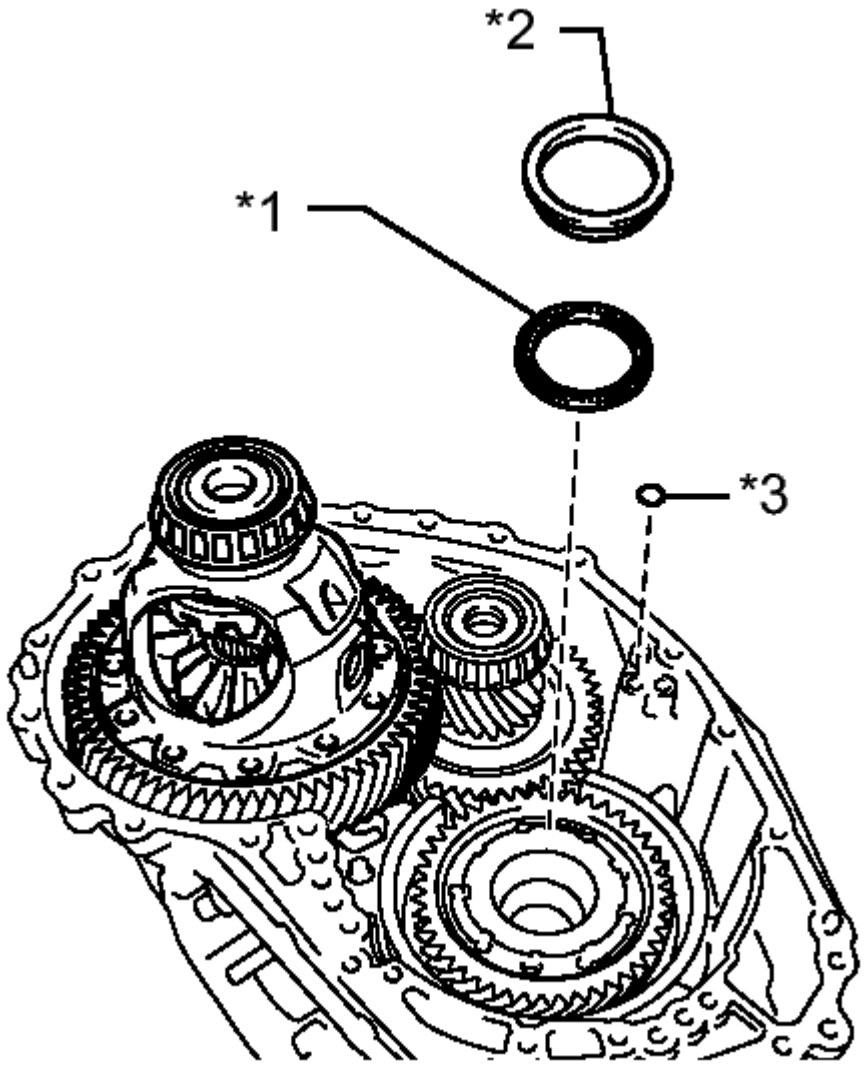


Fig. 232: Identifying Thrust Needle Roller Bearing, Thrust Needle Roller Race And O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the O-ring from the transaxle case.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race
*3	O-ring

26. **REMOVE FRONT OIL PUMP BODY O-RING**
27. **REMOVE NO. 3 BRAKE DISC**
    a. Using a screwdriver, remove the snap ring from the oil pump assembly.

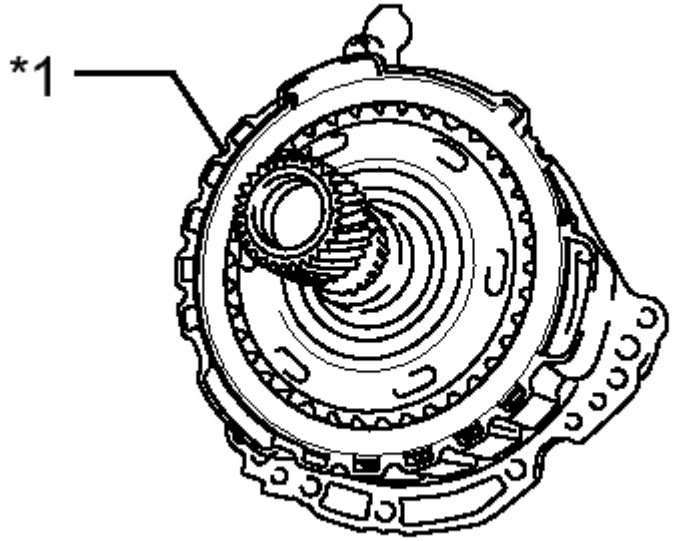


Fig. 233: Identifying No. 3 Brake Disc Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

    b. Remove the 2 No. 3 brake flanges, 3 No. 3 brake discs and 2 No. 3 brake plates from the oil pump assembly.

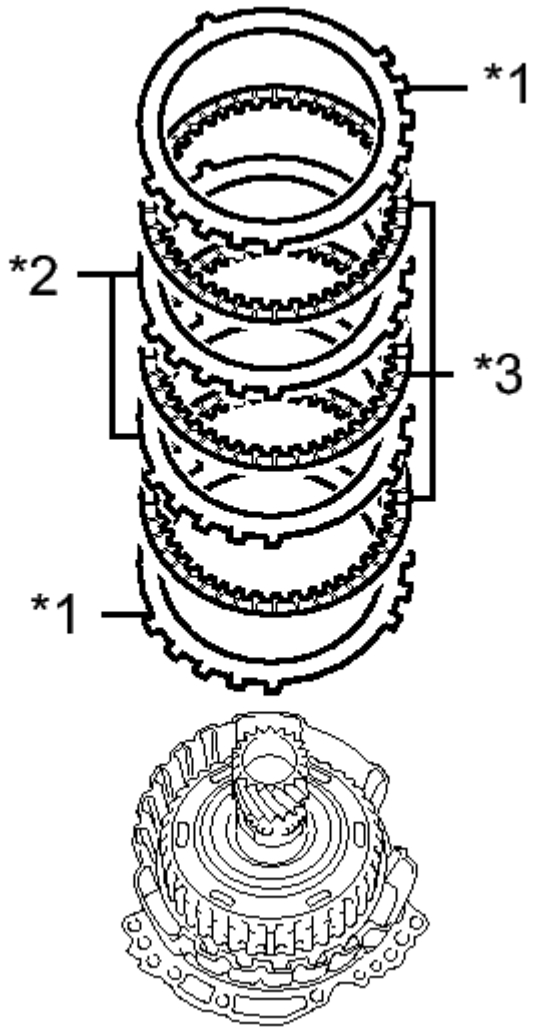


Fig. 234: Identifying Brake Flanges, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

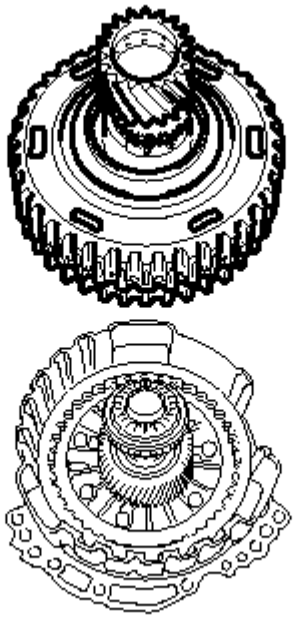
TEXT IN ILLUSTRATION

*1	No. 3 Brake Flange
*2	No. 3 Brake Plate
*3	No. 3 Brake Disc

28. **INSPECT NO. 3 BRAKE DISC** See step 6

29. **REMOVE UNDERDRIVE PLANETARY GEAR ASSEMBLY**

a. Remove the underdrive planetary gear assembly from the front oil pump assembly.

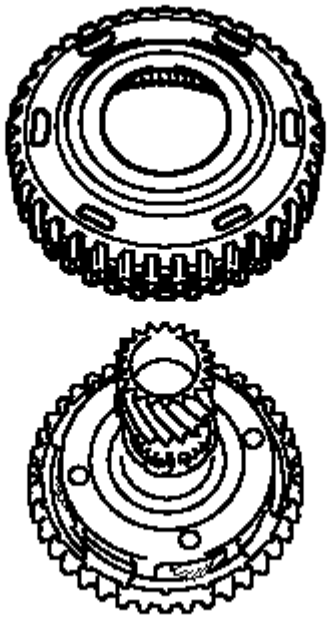


N

Fig. 235: Identifying Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. **REMOVE NO. 3 BRAKE HUB**

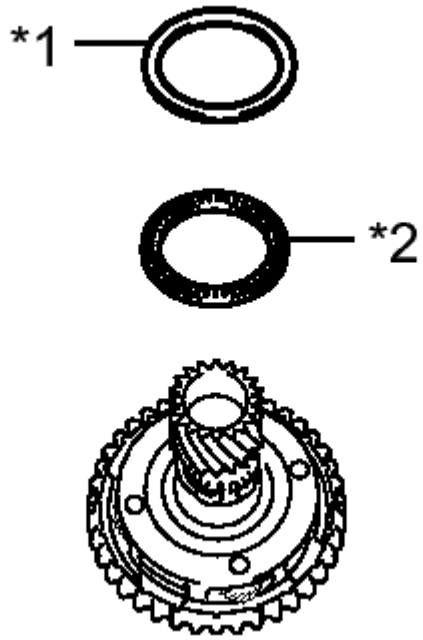
a. Remove the No. 3 brake hub from the underdrive planetary gear assembly.



N

Fig. 236: Identifying No. 3 Brake Hub And Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the thrust needle roller bearing and thrust needle roller race from the underdrive planetary gear assembly.



N

Fig. 237: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race

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

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing

31. **REMOVE UNDERDRIVE PLANETARY RING GEAR**
    a. Using needle-nose pliers, remove the snap ring from the underdrive planetary ring gear.

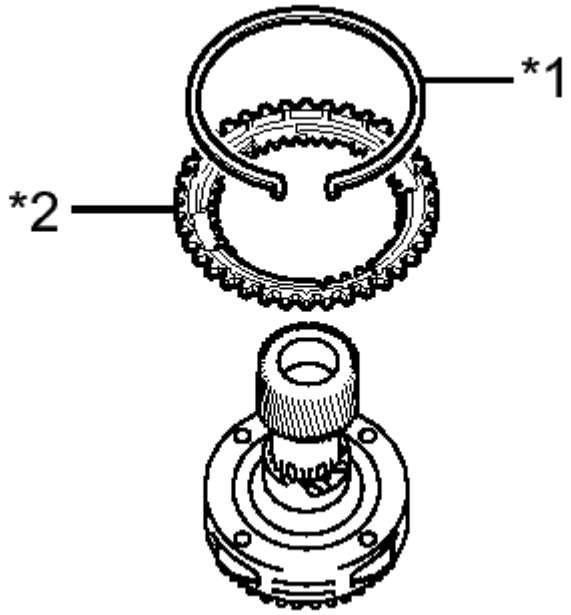


Fig. 238: Identifying Underdrive Planetary Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

    b. Remove the underdrive planetary ring gear from the underdrive planetary gear assembly.

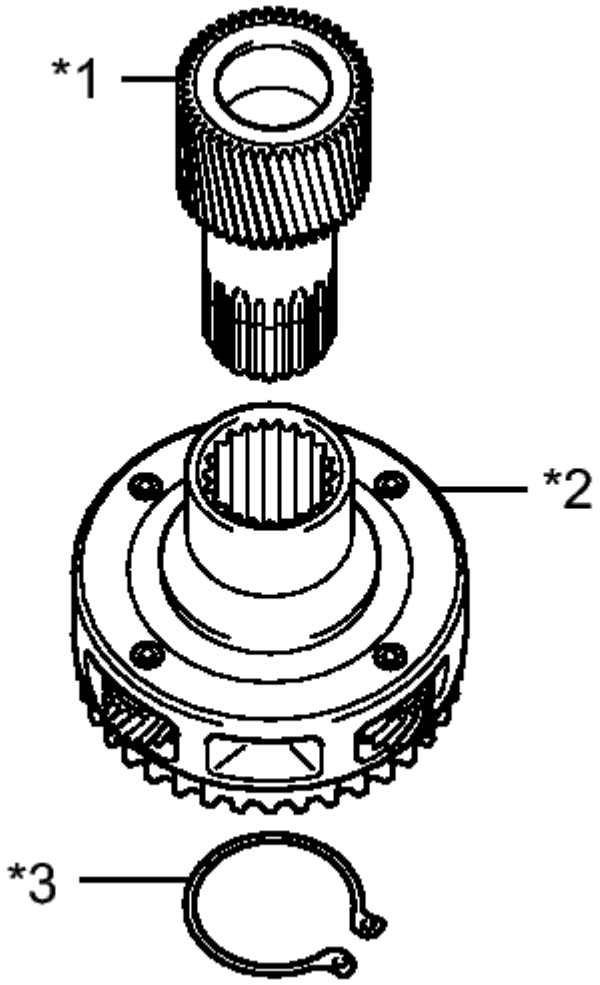
TEXT IN ILLUSTRATION

	Underdrive

*2	Planetary Ring Gear

32. **REMOVE PLANETARY SUN GEAR SUB-ASSEMBLY**

a. While expanding the snap ring with snap ring pliers, remove the planetary sun gear from the underdrive planetary gear assembly.



N

Fig. 239: Identifying Front Planetary Sun Gear, Underdrive Planetary Gear Assembly And Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Planetary Sun Gear Sub-

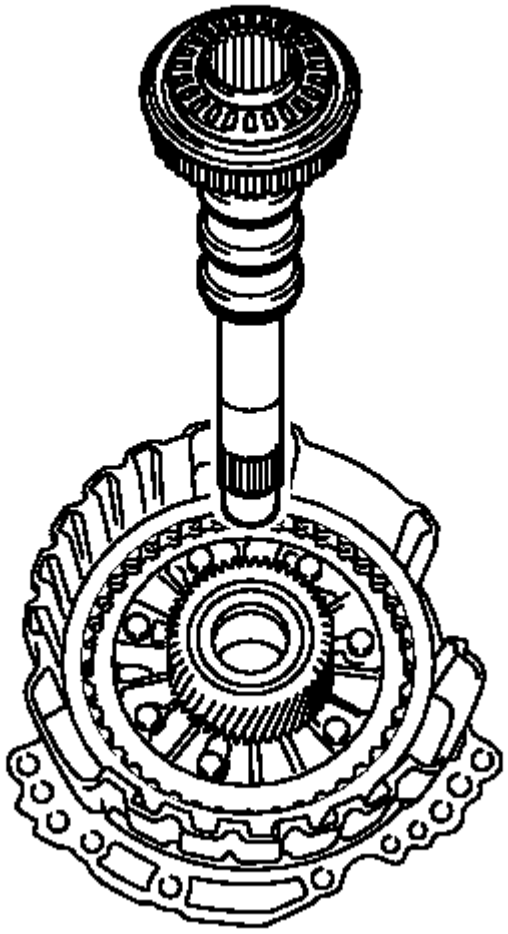
	assembly

b. Remove the snap ring from the underdrive planetary gear assembly.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Gear Assembly
*3	Snap Ring

33. **INSPECT UNDERDRIVE PLANETARY GEAR ASSEMBLY** See step 7
34. **INSPECT PLANETARY SUN GEAR SUB-ASSEMBLY** See step 4
35. **REMOVE INPUT SHAFT SUB-ASSEMBLY**
    a. Remove the input shaft subassembly from the front oil pump assembly.



N

Fig. 240: Identifying Input Shaft And Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the thrust needle roller bearing and thrust needle roller race from the input shaft.

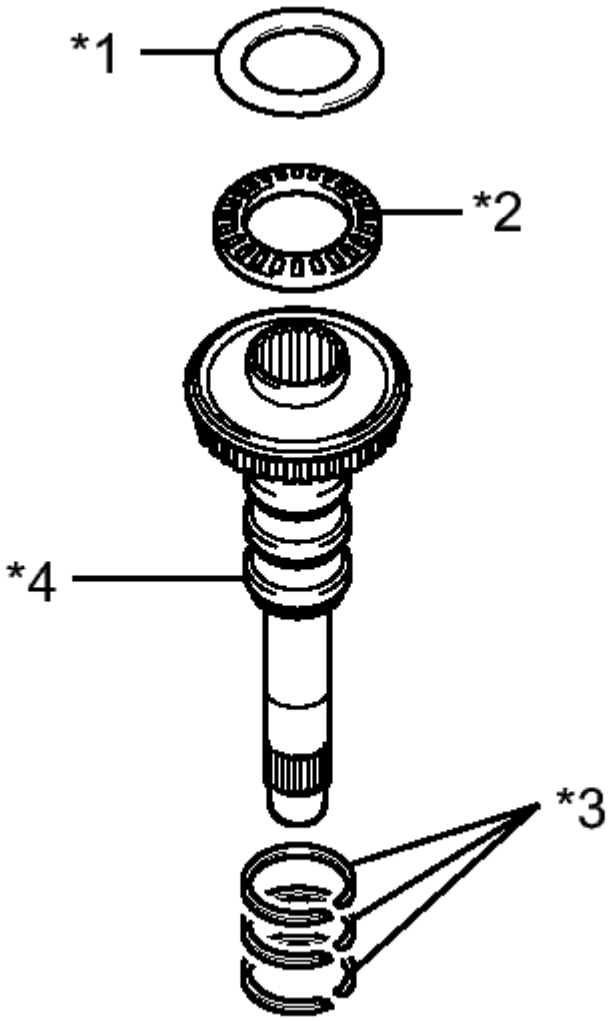


Fig. 241: Identifying Input Shaft Oil Seal Rings And Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing

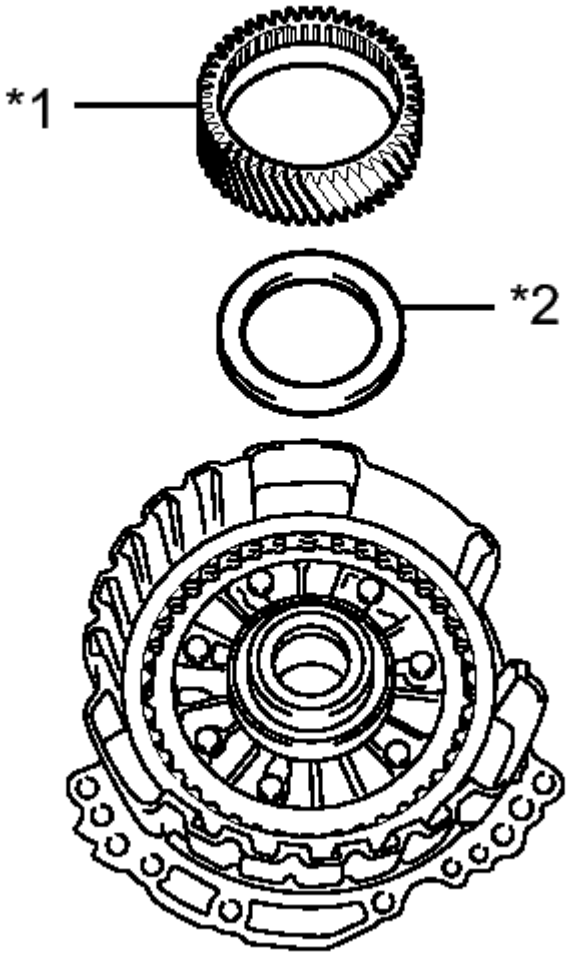
c. Using a screwdriver, remove the 3 input shaft oil seal rings from the input shaft.

TEXT IN ILLUSTRATION

*3	Input Shaft Oil Seal Ring
*4	Input Shaft

36. **REMOVE UNDERDRIVE PLANETARY SUN GEAR**

a. Remove the underdrive planetary sun gear from the oil pump assembly.



N

Fig. 242: Identifying Thrust Needle Roller Bearing And Underdrive Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Underdrive Planetary Sun Gear

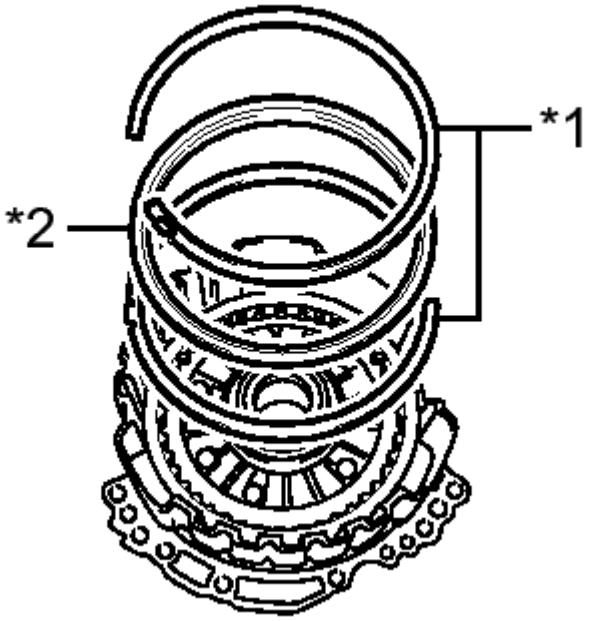
b. Remove the thrust needle roller bearing from the oil pump assembly.

TEXT IN ILLUSTRATION

*2	Thrust Needle Roller Bearing

37. **REMOVE NO. 1 BRAKE DISC**

a. Using a screwdriver, remove the 2 snap rings and brake snap ring stopper from the oil pump assembly.



N

Fig. 243: Identifying Snap Rings And Brake Snap Ring Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring
*2	Brake Snap Ring Stopper

b. Remove the No. 1 brake flange, 4 No. 1 brake discs and 4 No. 1 brake plates from the oil pump assembly.

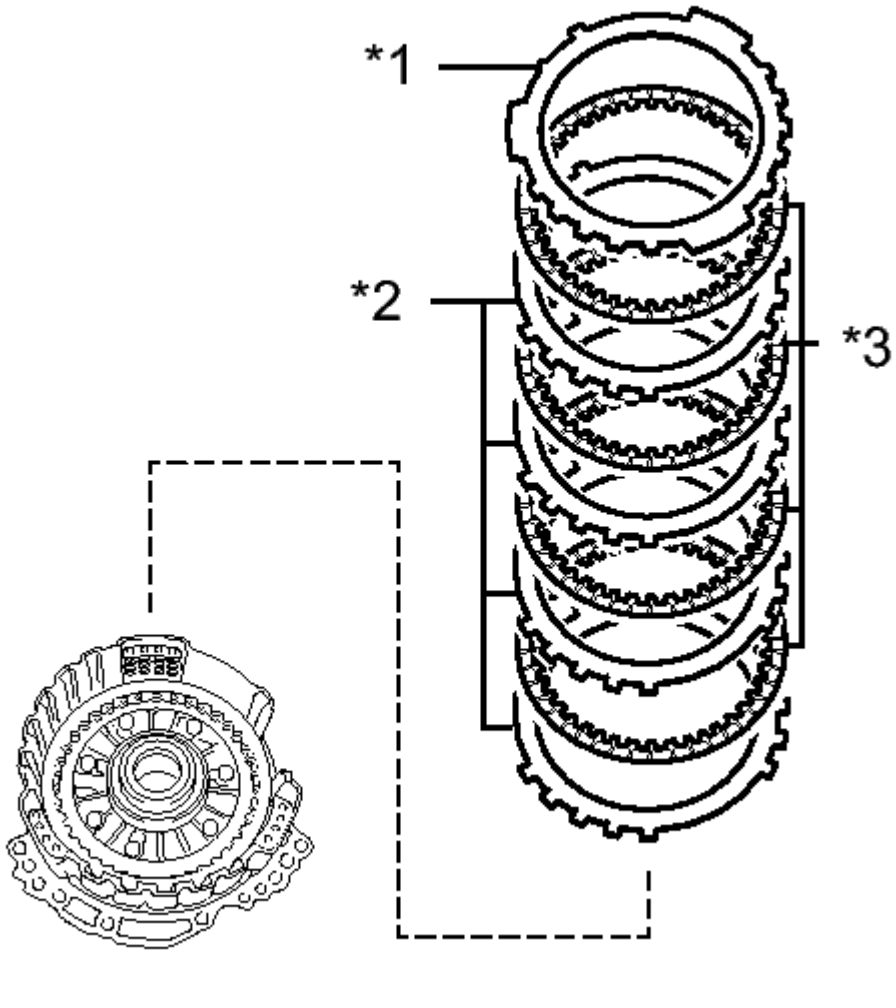


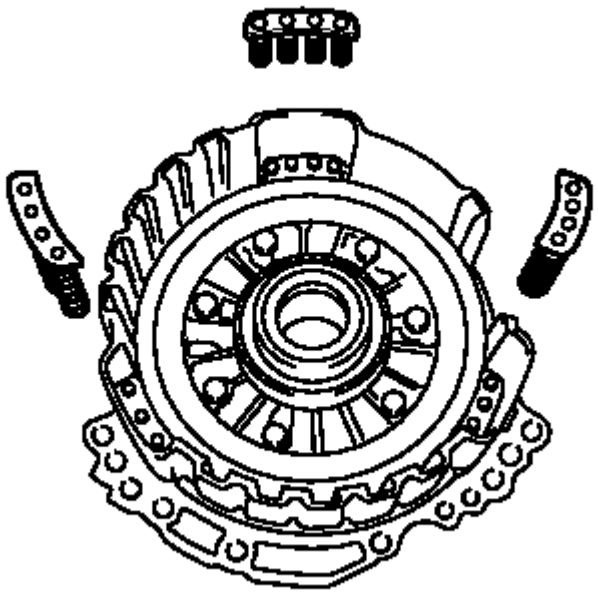
Fig. 244: Identifying Brake Flange, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Brake Flange
*2	No. 1 Brake Plate
*3	No. 1 Brake

Disc

38. **INSPECT NO. 1 BRAKE DISC** See step 9
39. **REMOVE 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Remove the 3 2nd brake piston return springs from the oil pump assembly.



N

Fig. 245: Identifying 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

40. **INSPECT 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY** See step 10
41. **REMOVE NO. 1 BRAKE PISTON**
    a. Holding the oil pump assembly by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the oil pump assembly to remove the No. 1 brake piston.

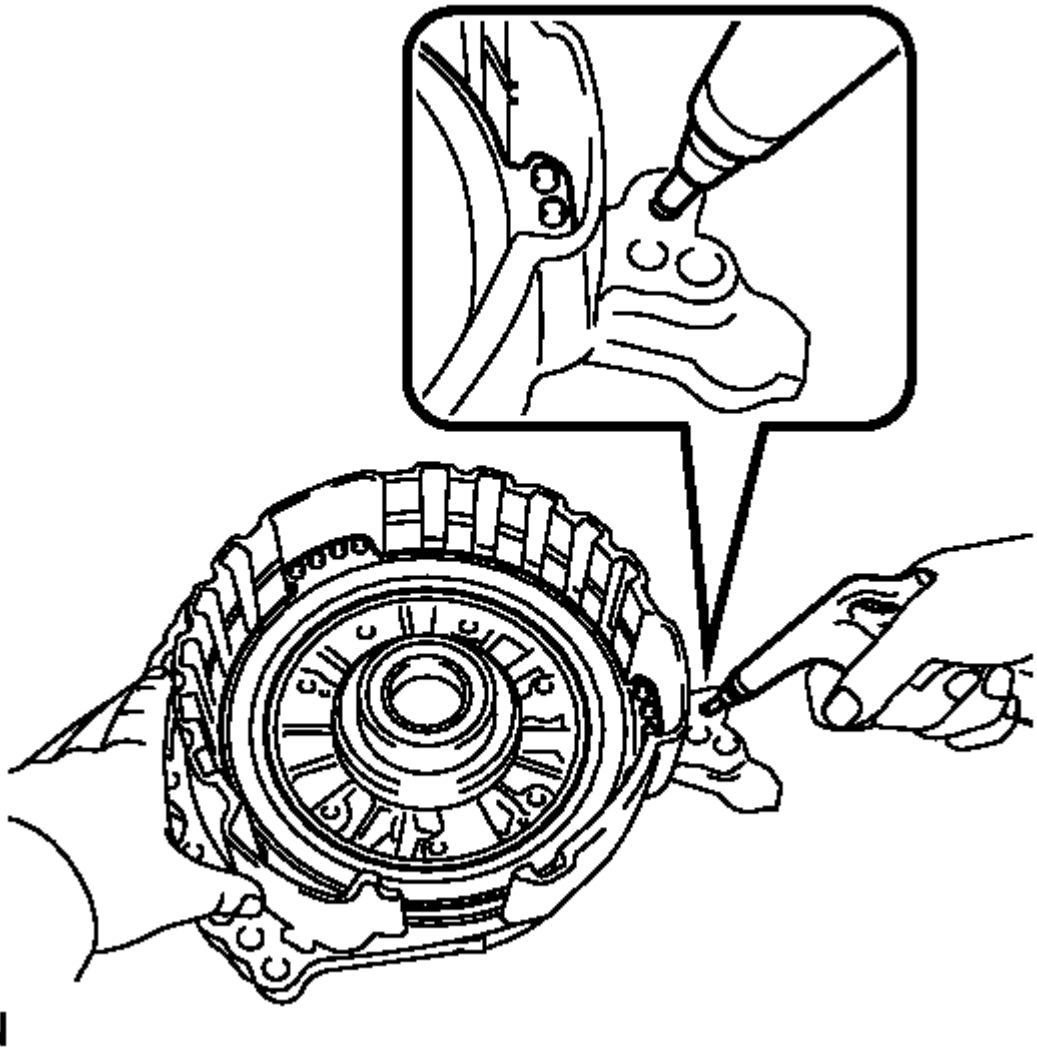
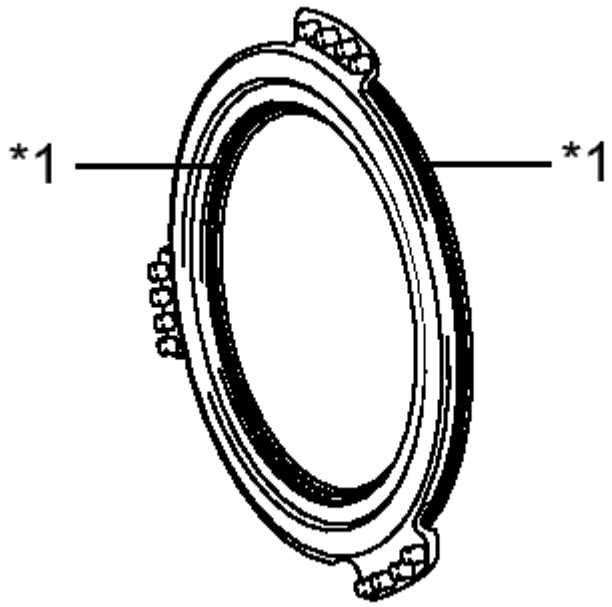


Fig. 246: Applying Compressed Air To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 2 O-rings from the No. 1 brake piston.



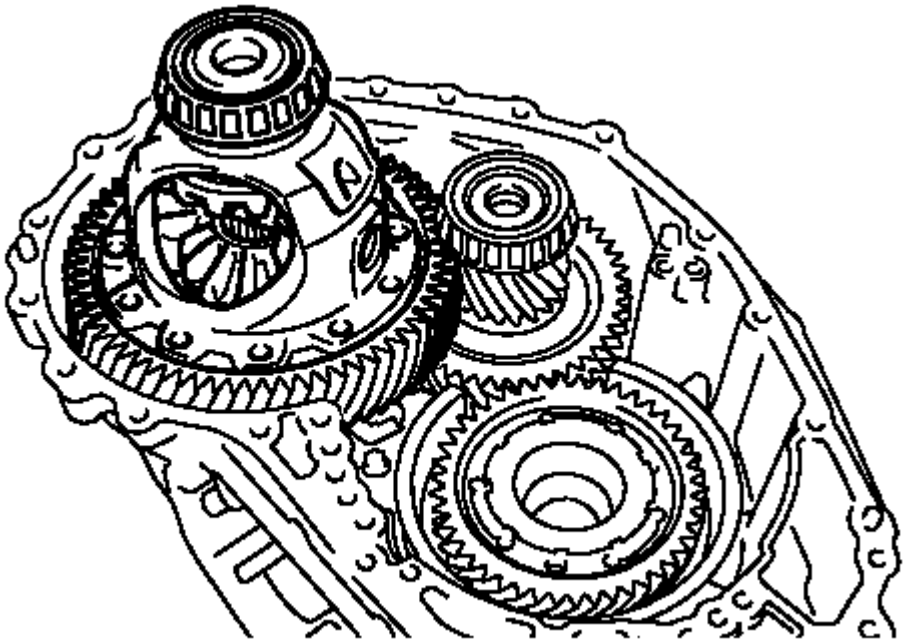
N

Fig. 247: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

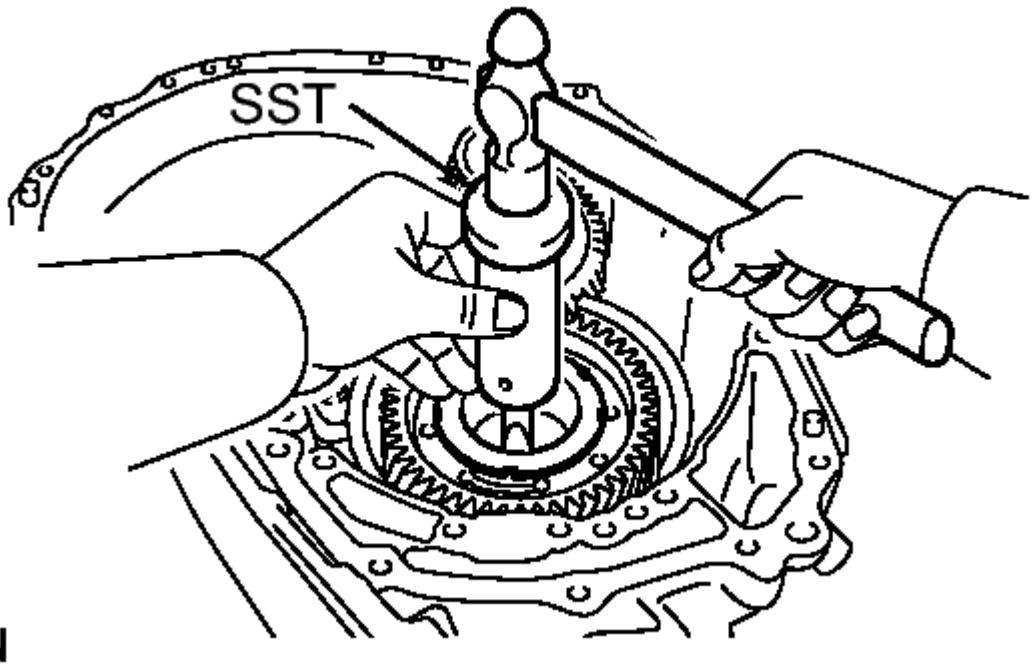
42. **REMOVE FRONT DIFFERENTIAL CASE**
    a. Remove the front differential case from the transaxle case.



N

Fig. 248: Identifying Differential Case Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

43. **REMOVE COUNTER DRIVE GEAR NUT**
    a. Using SST and a hammer, unstake the counter drive gear nut.



N

Fig. 249: Identifying Planetary Gear Assembly And SST

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

- **SST: 09930-00010**

b. Turn the manual valve lever 2 notches counterclockwise to set it to the P position as shown in the illustration.

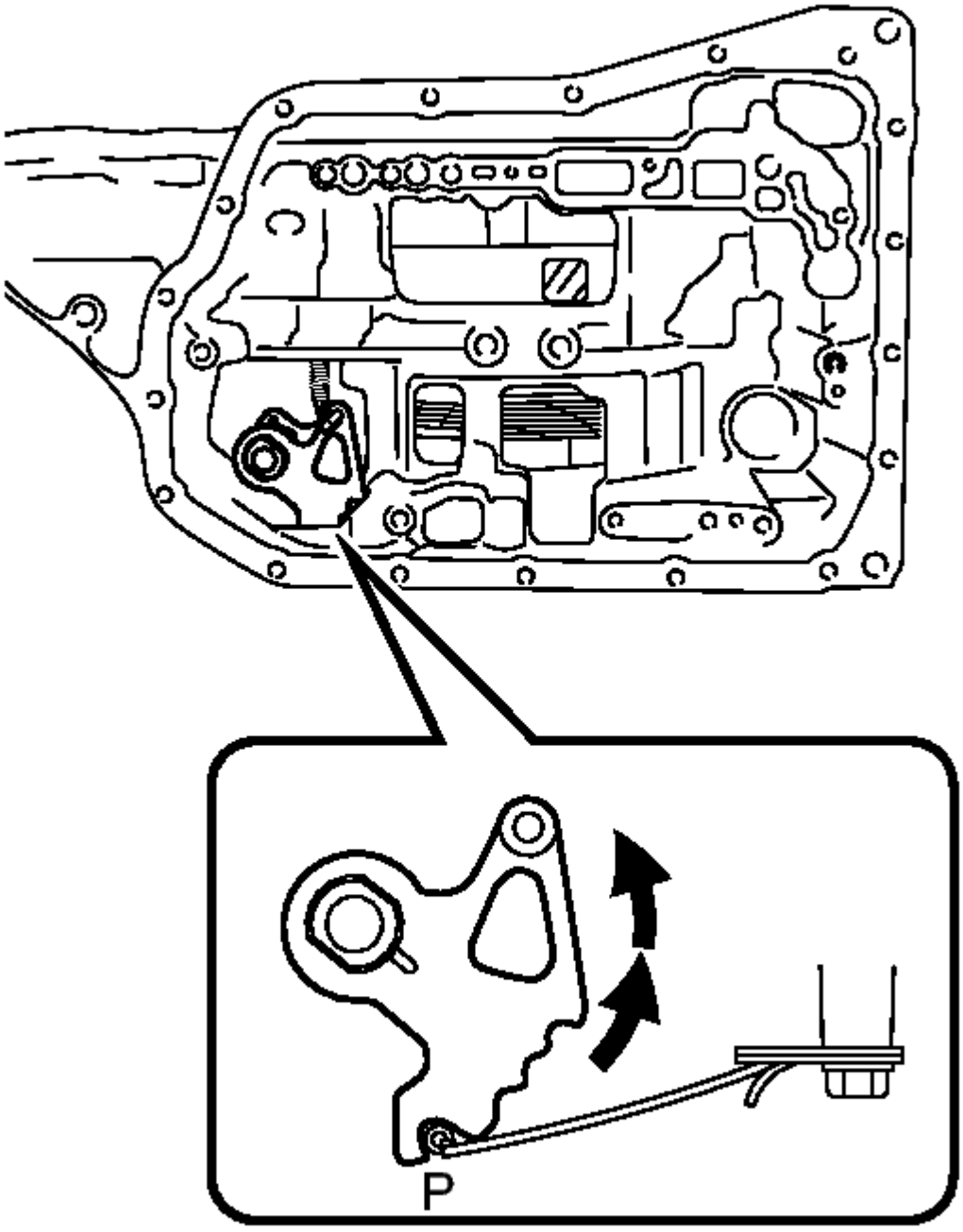


Fig. 250: Turning Manual Valve Lever Notches Counterclockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST, remove the counter drive gear nut from the planetary gear assembly.

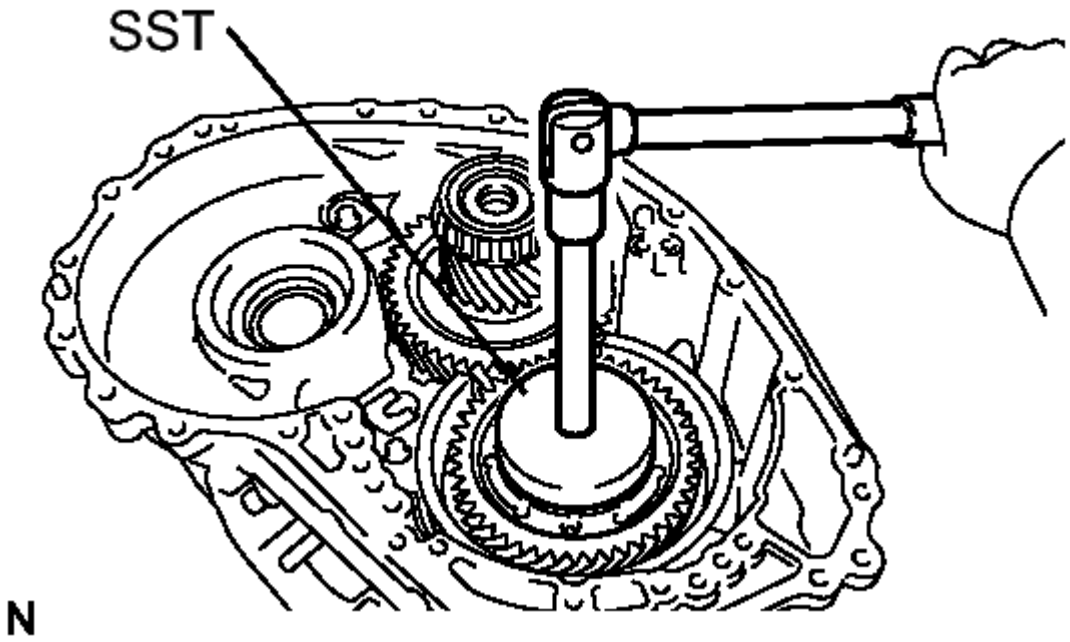
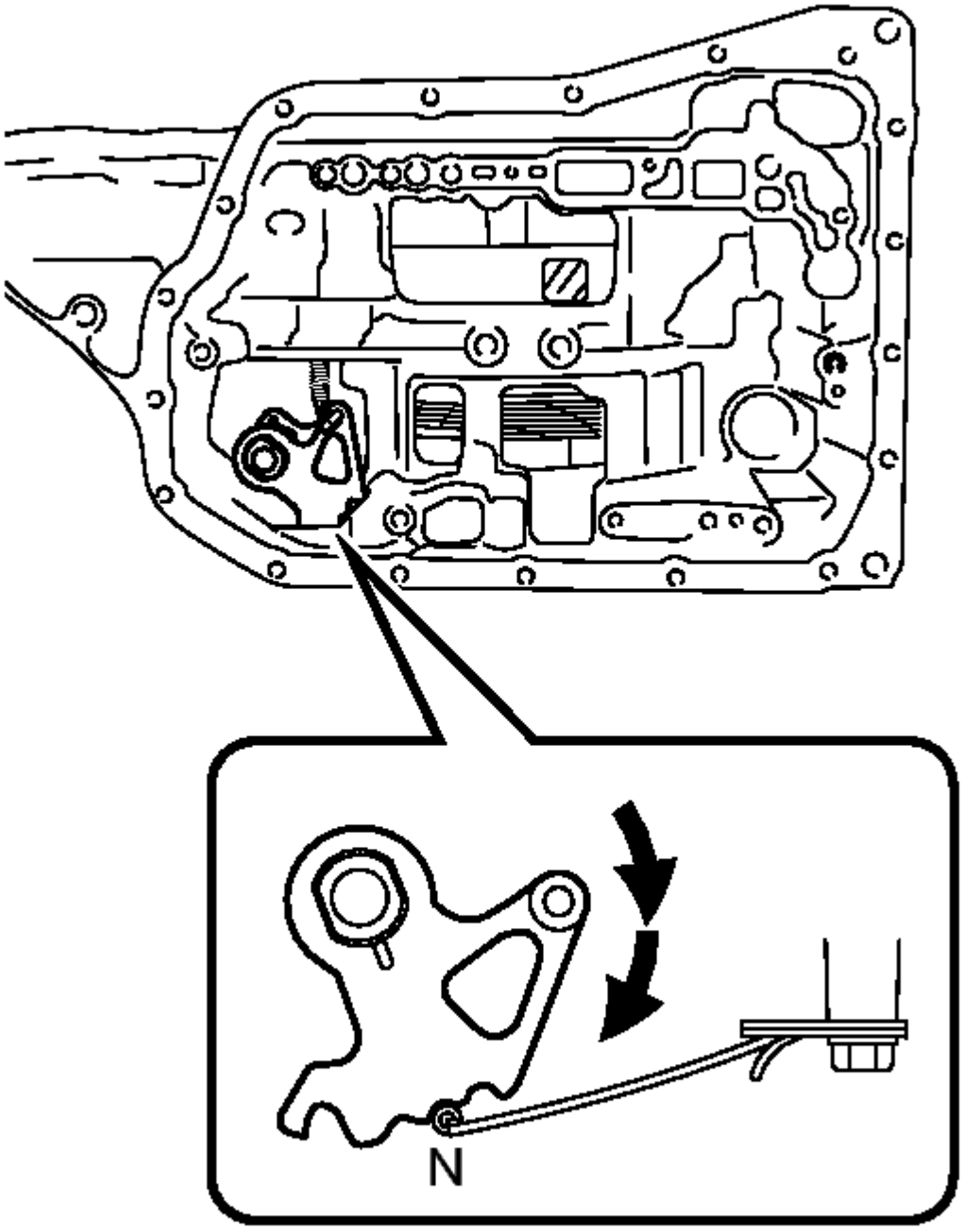


Fig. 251: Removing Nut From Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

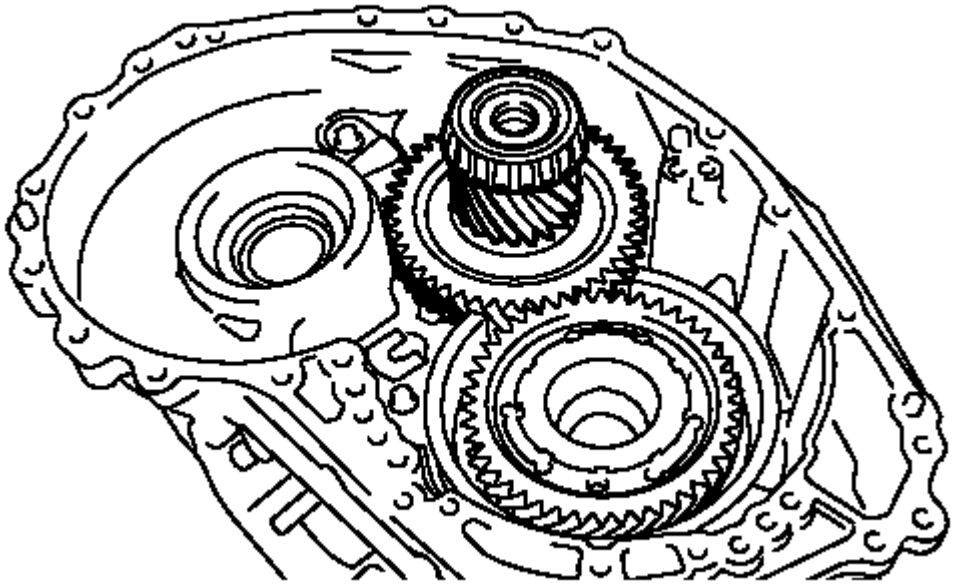
44. **REMOVE COUNTER DRIVEN GEAR**
    a. Turn the manual valve lever 2 notches clockwise to set it to the N position as shown in the illustration.



N

Fig. 252: Turning Manual Valve Lever Notches Clockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the counter driven gear from the transaxle case.

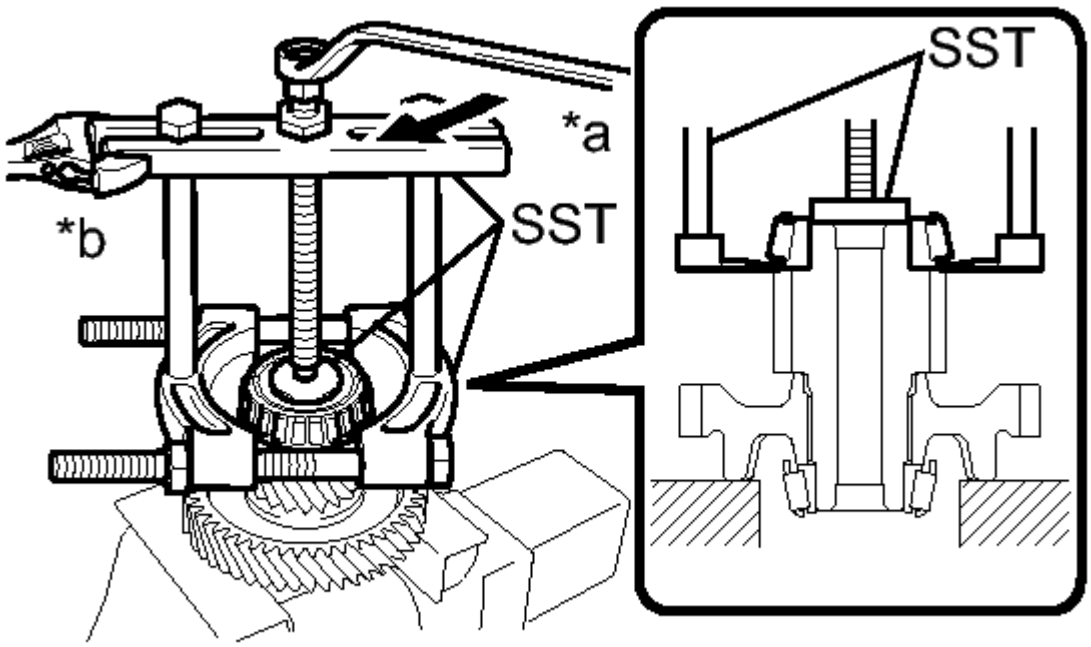


N

Fig. 253: Identifying Counter Driven Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

45. **REMOVE COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING**

a. Using SST, remove the counter driven gear front tapered roller bearing from the counter driven gear.



C

Fig. 254: Removing Counter Driven Gear Front Tapered Roller Bearing From Counter Driven Gear Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00400

46. **REMOVE COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING**
    a. Using SST, remove the counter driven gear rear tapered roller bearing and differential drive pinion from the counter driven gear.

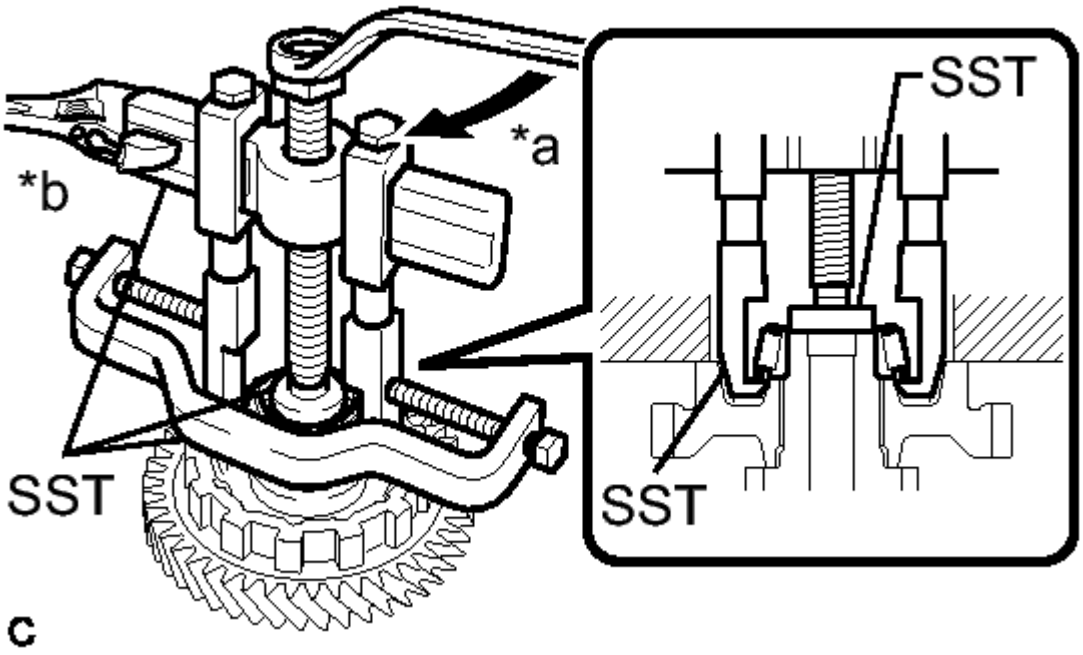


Fig. 255: Removing Counter Driven Gear Rear Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-40011**

  09951-04010

09952-04010
09953-04020
09954-04010
09955-04071
09957-04010
09958-04011

- **SST: 09950-60010**

09951-00320

47. **REMOVE PAWL SHAFT CLAMP**
    a. Remove the bolt and pawl shaft clamp from the transaxle case.

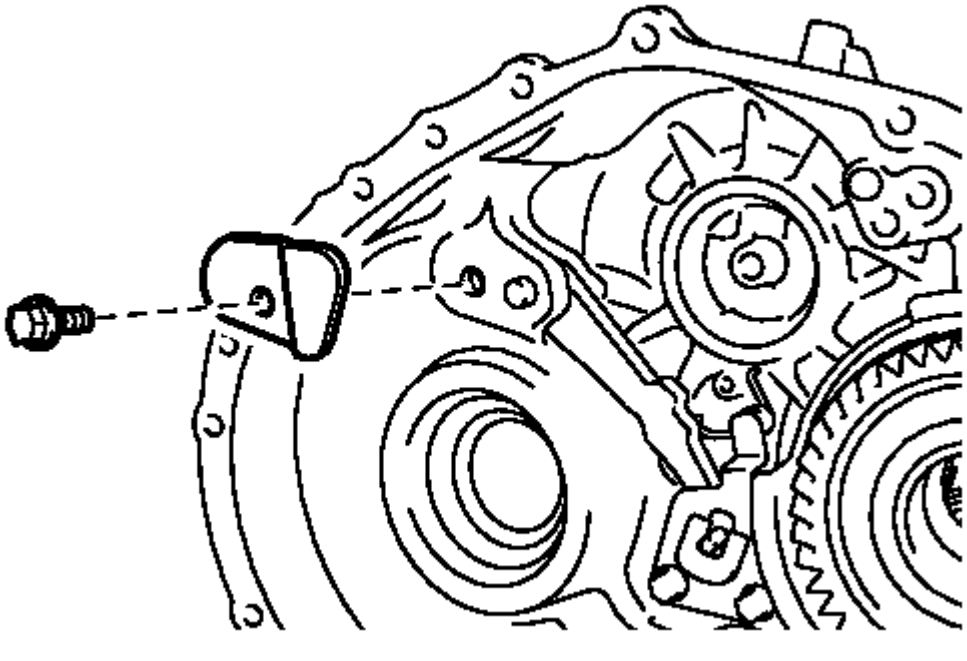


Fig. 256: Identifying Bolt And Pawl Shaft Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **REMOVE PAWL STOPPER PLATE**
    a. Remove the 2 bolts and pawl stopper plate from the transaxle case.

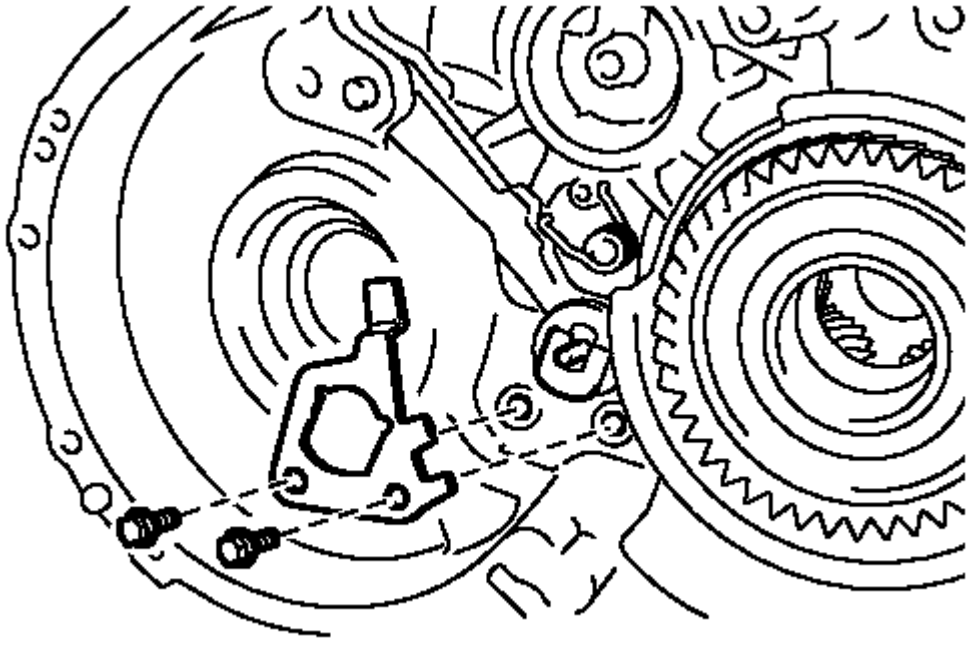


Fig. 257: Identifying Bolts And Pawl Stopper Plate
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

49. **REMOVE PARKING LOCK SLEEVE**
    a. Remove the parking lock sleeve from the transaxle case.

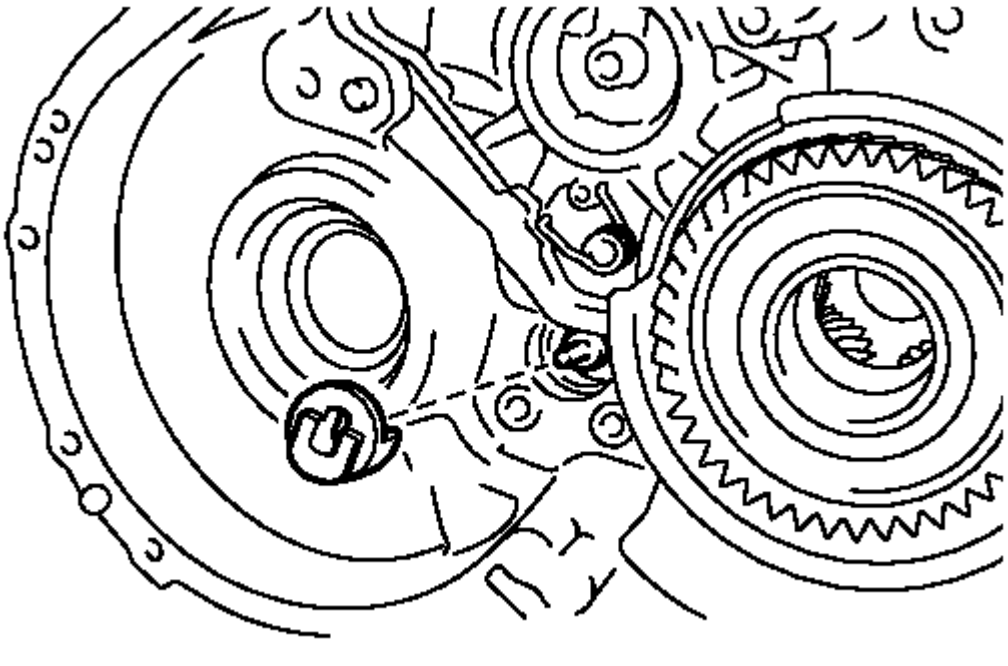


Fig. 258: Identifying Parking Lock Sleeve

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

50. **REMOVE PARKING LOCK PAWL**

a. Remove the spring, parking lock pawl pin, parking lock pawl shaft and parking lock pawl from the transaxle case.

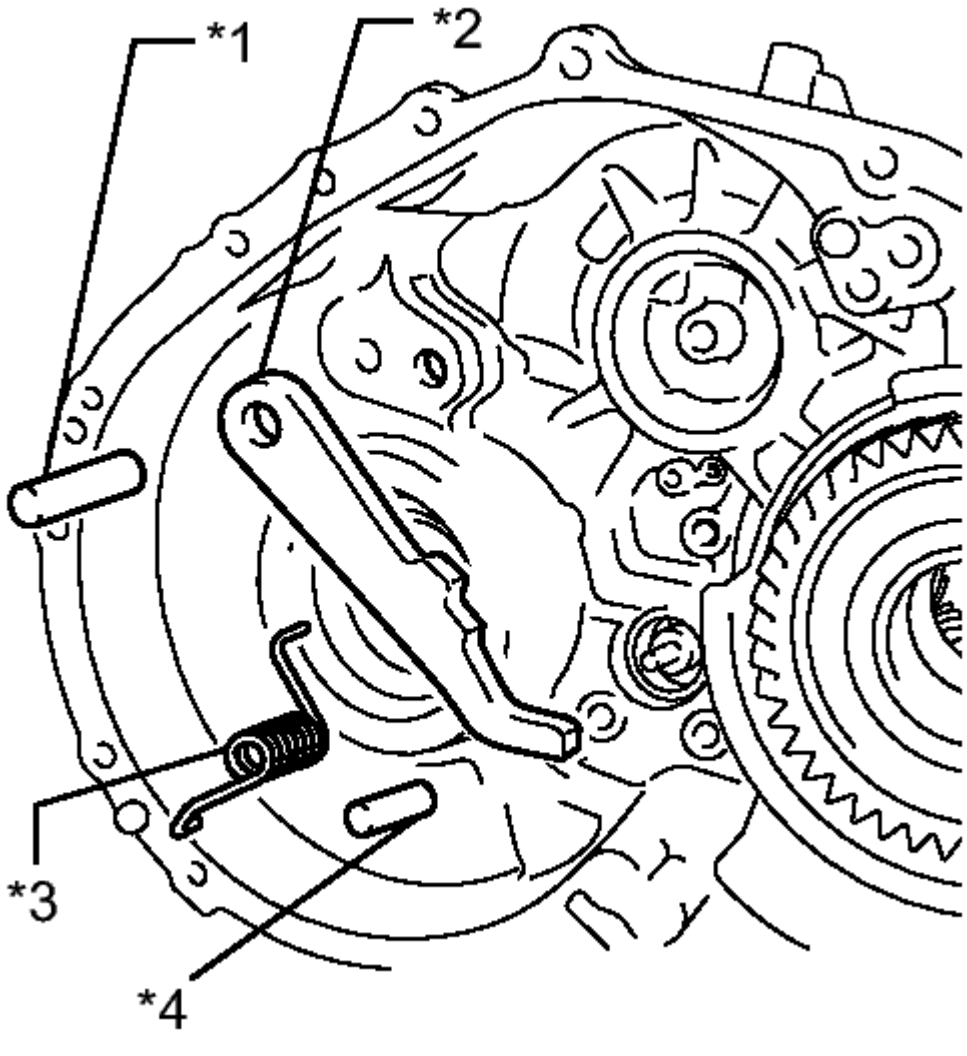


Fig. 259: Identifying Spring, Parking Lock Pawl Pin, Parking Lock Pawl Shaft & Parking Lock Pawl At Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Parking Lock Pawl Shaft
	Parking

*2	Lock Pawl
*3	Spring
*4	Parking Lock Pawl Pin

51. **REMOVE COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING OUTER RACE**
    a. Using SST, remove the counter driven gear rear tapered roller bearing outer race from the transaxle case.

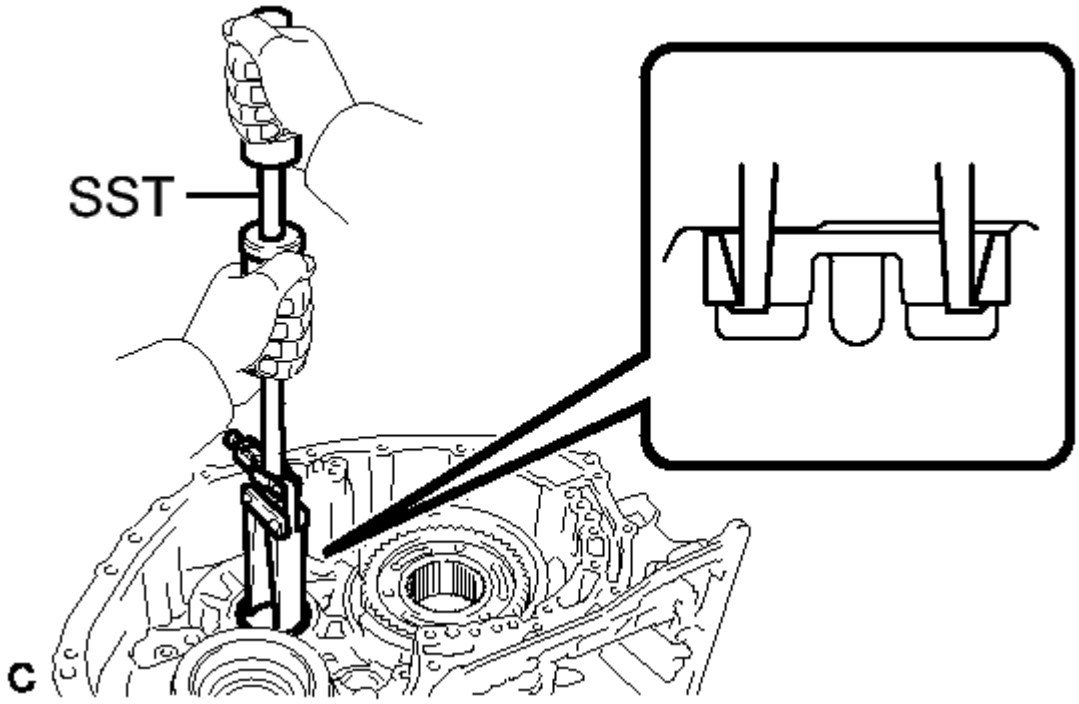


Fig. 260: Removing Counter Driven Gear Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

52. **REMOVE ONE-WAY CLUTCH ASSEMBLY**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

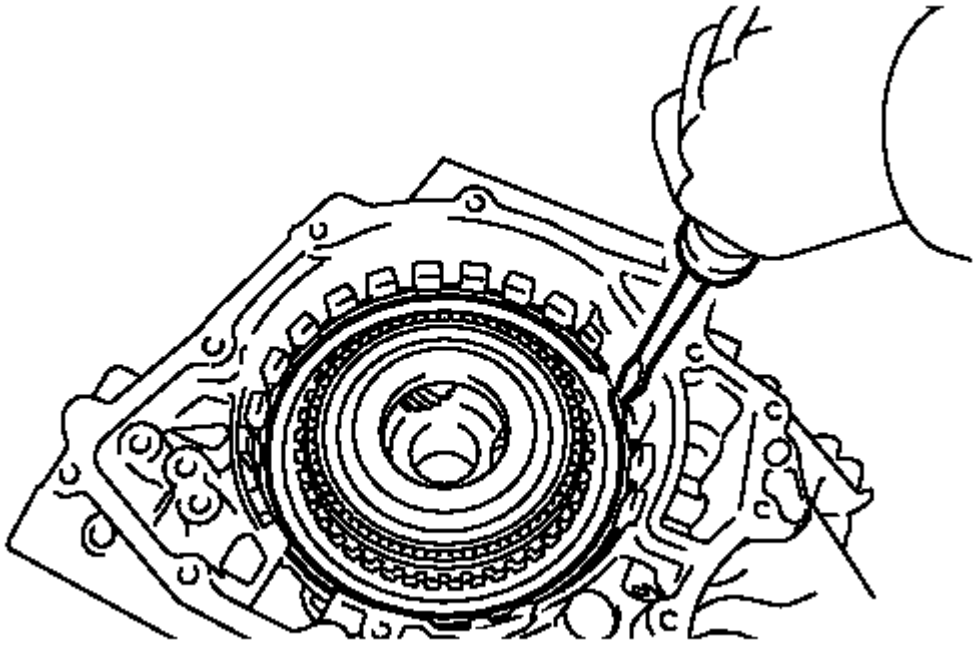


Fig. 261: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the one-way clutch assembly with the planetary ring gear from the transaxle case.

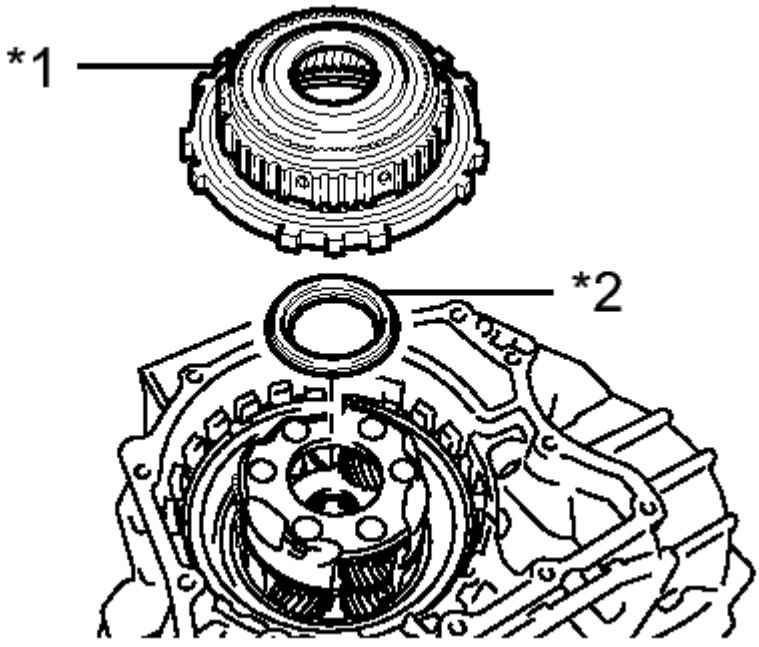


Fig. 262: Identifying One-Way Clutch Assembly And Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly

c. Remove the thrust needle roller bearing from the planetary gear assembly.

TEXT IN ILLUSTRATION

*2	Thrust Needle Roller Bearing

53. **INSPECT ONE-WAY CLUTCH ASSEMBLY** See step 11
54. **REMOVE PLANETARY RING GEAR**
    a. Remove the planetary ring gear from the one-way clutch assembly.

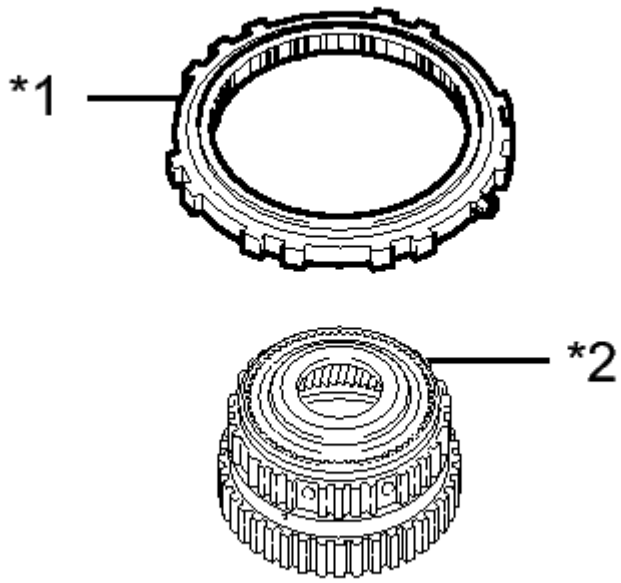


Fig. 263: Identifying Planetary Ring Gear And One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Planetary Ring

	Gear

55. **REMOVE PLANETARY RING GEAR FLANGE**

a. Using a screwdriver, remove the snap ring from the planetary ring gear.

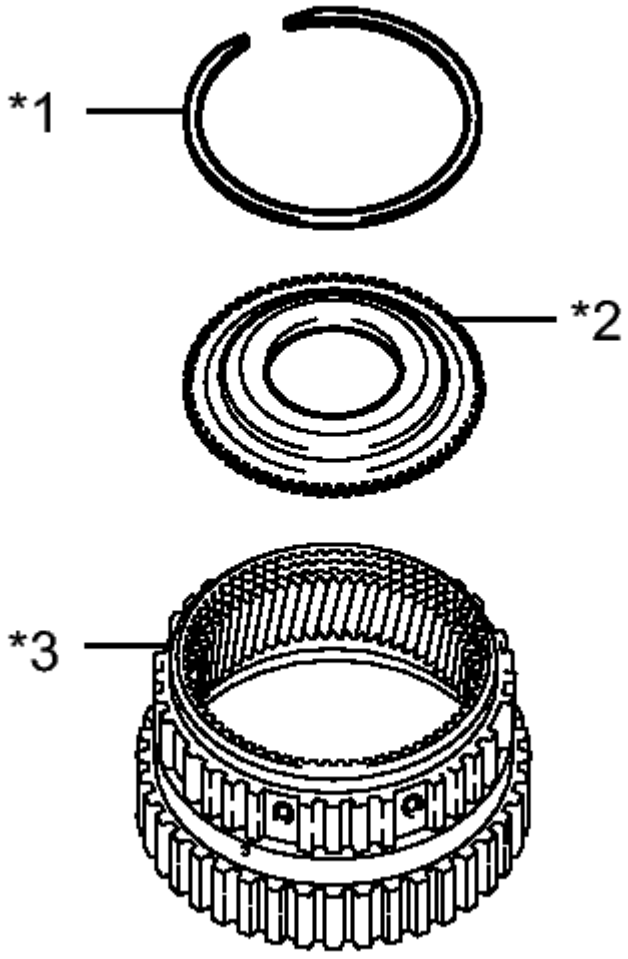


Fig. 264: Identifying Planetary Ring Gear Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

b. Remove the planetary ring gear flange from the planetary ring gear.

TEXT IN ILLUSTRATION

*2	Planetary Ring Gear Flange
*3	Planetary Ring Gear

56. **REMOVE NO. 2 BRAKE DISC**

a. Using a screwdriver, remove the snap ring from the transaxle case.

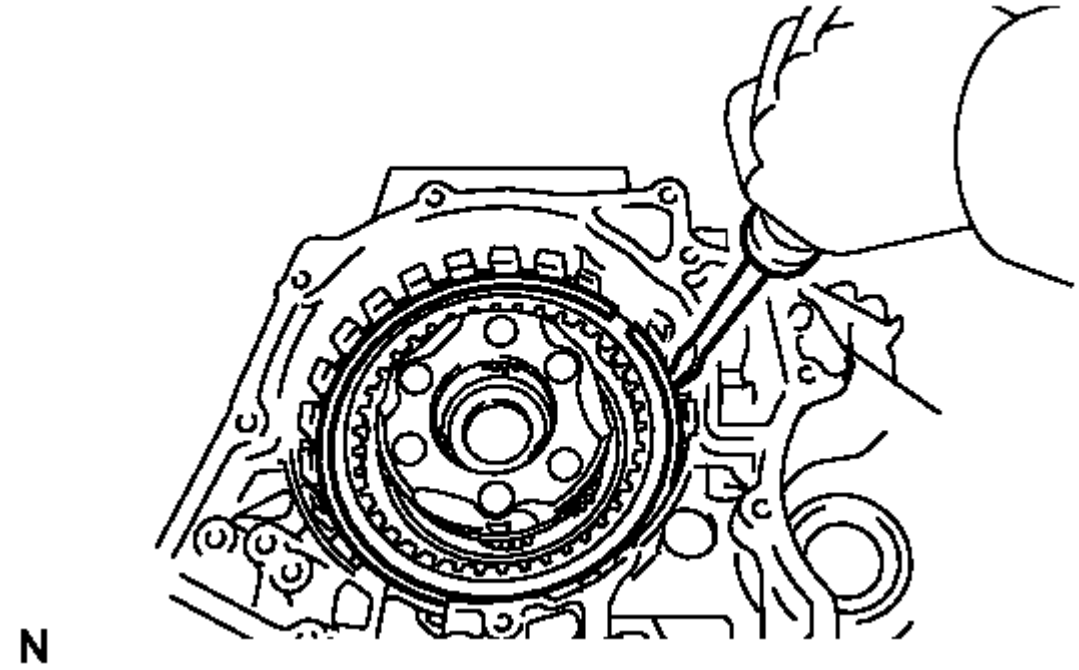


Fig. 265: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the brake flange, 5 brake discs and 5 brake plates from the transaxle case.

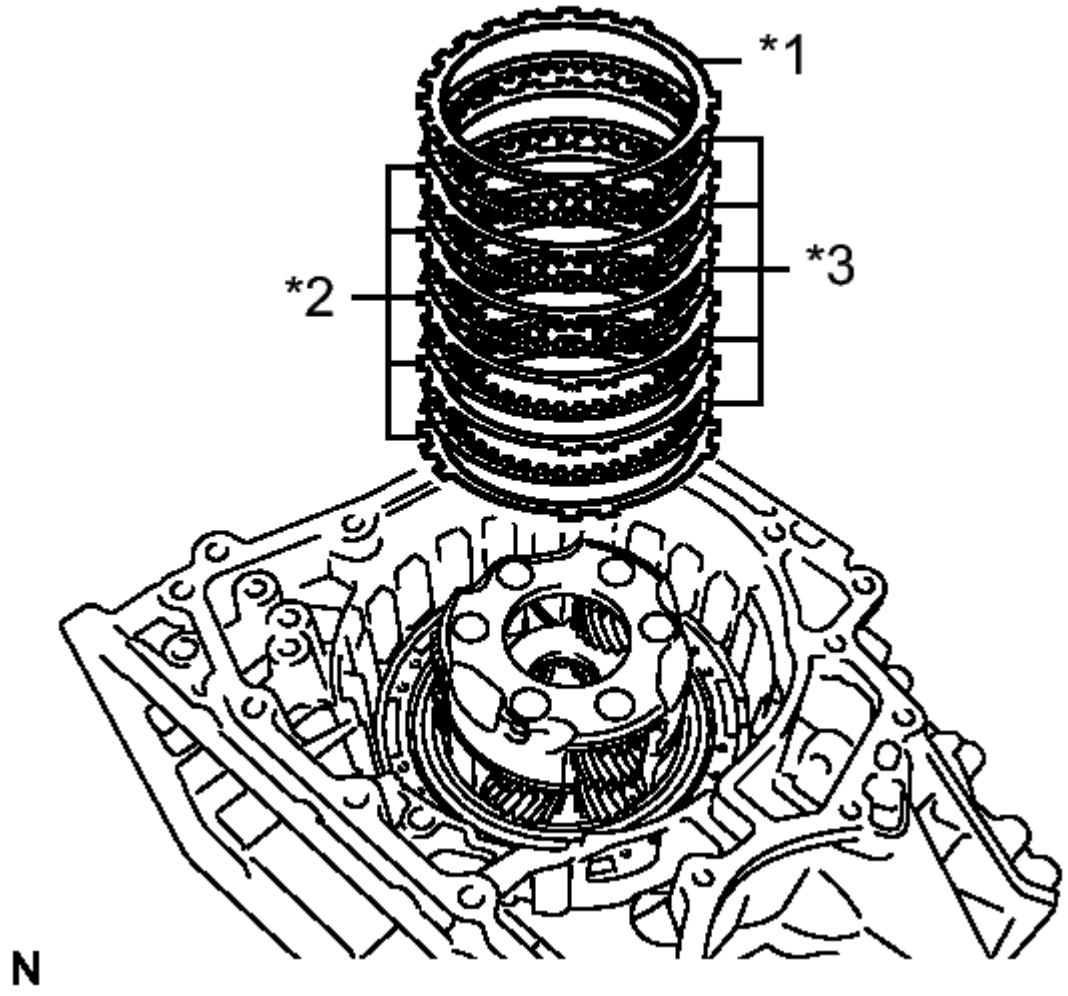


Fig. 266: Identifying Brake Flange, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Flange
*2	Brake Plate
*3	Brake Disc

57. **INSPECT NO. 2 BRAKE DISC** See step 13
58. **REMOVE 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

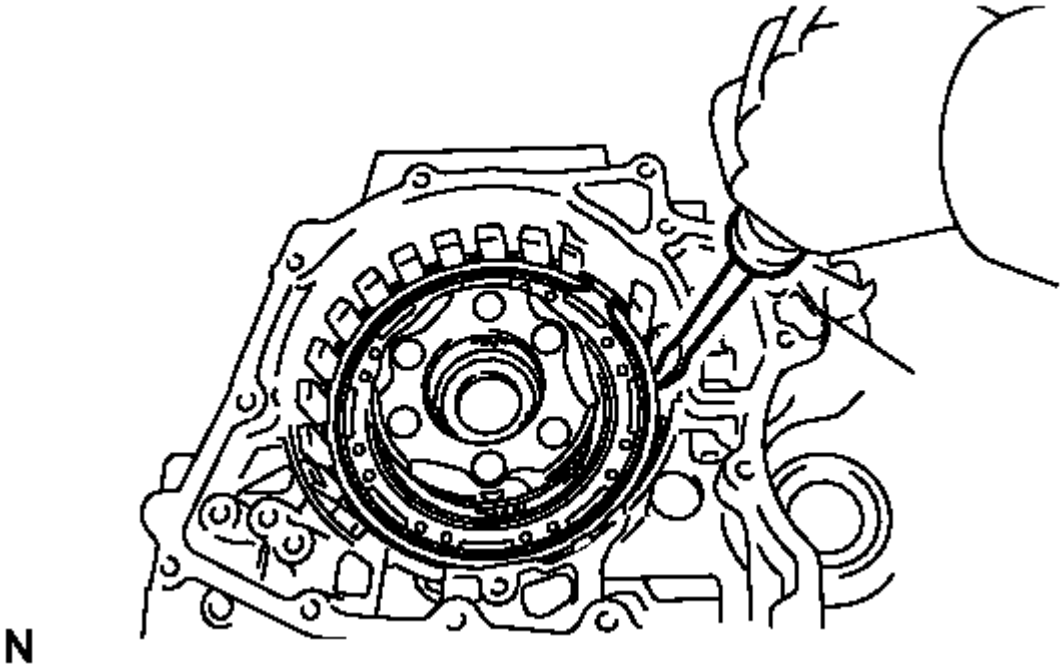


Fig. 267: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 1st and reverse brake return spring from the transaxle case.

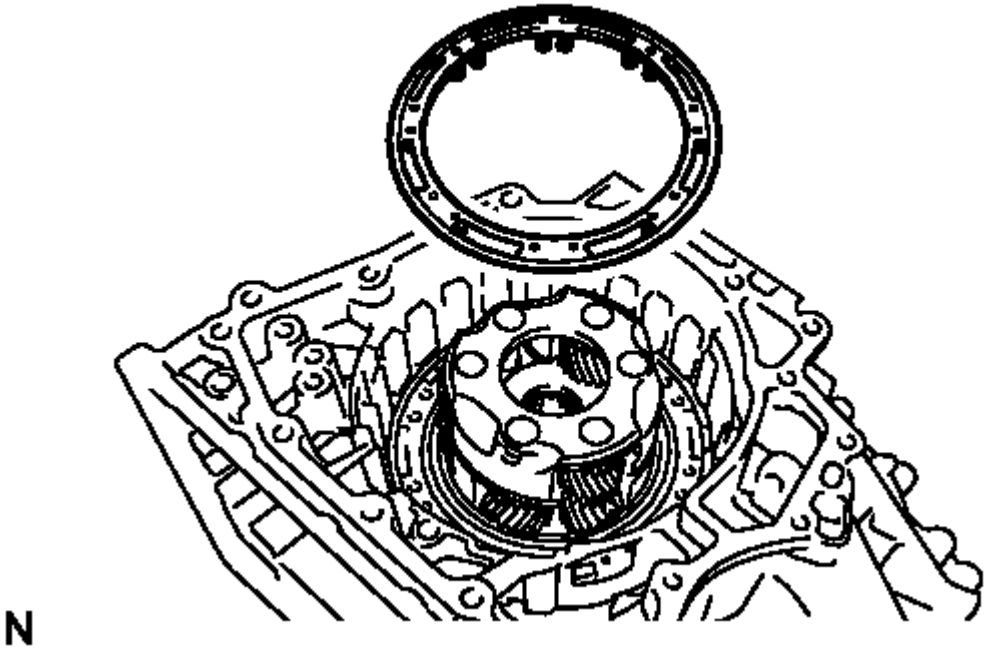


Fig. 268: Identifying 1st And Reverse Brake Return Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

59. **INSPECT 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY** See step 14

60. **REMOVE NO. 2 BRAKE PISTON**

    a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the ATF hole to remove the No. 2 brake piston from the transaxle case.

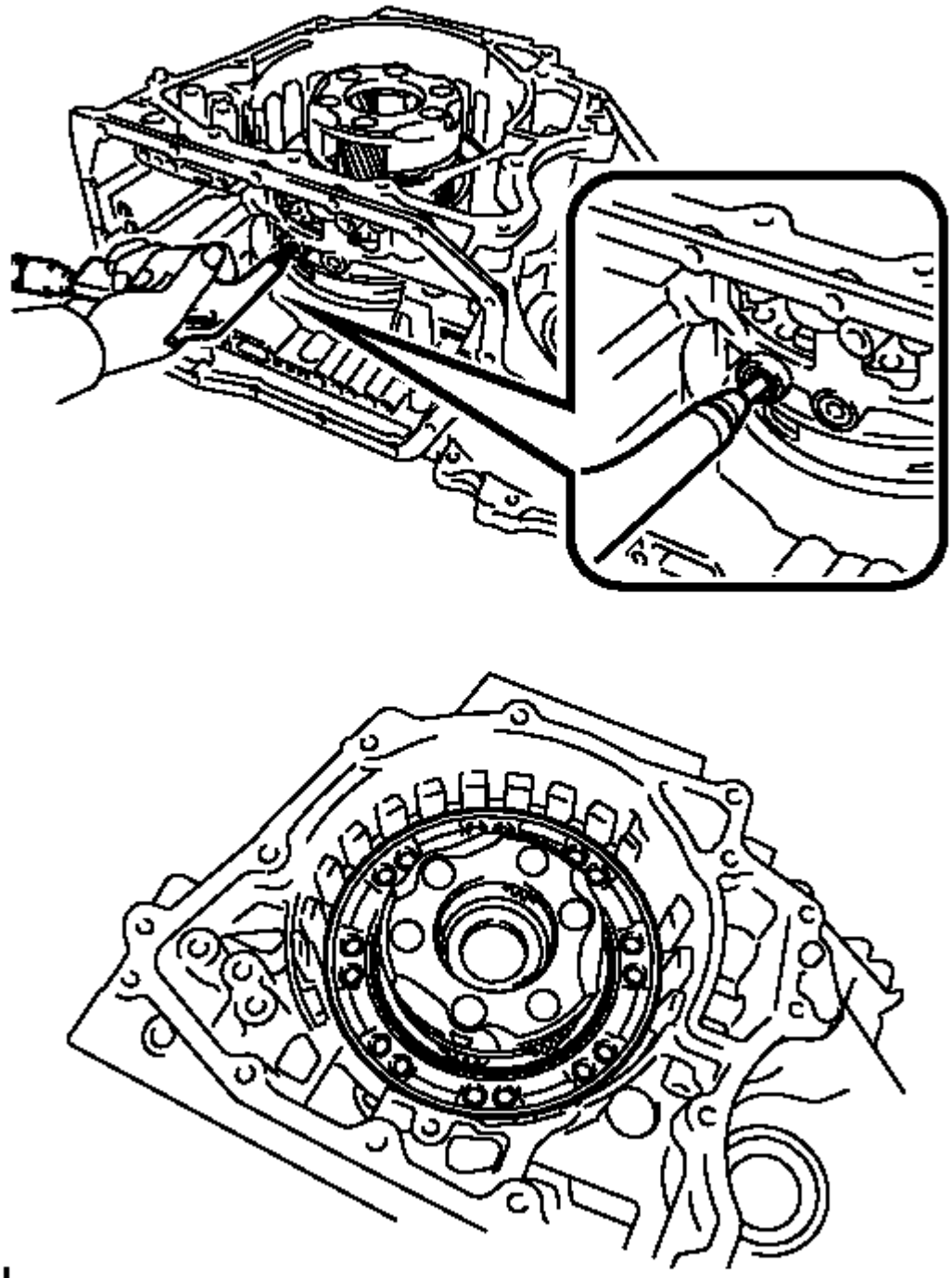
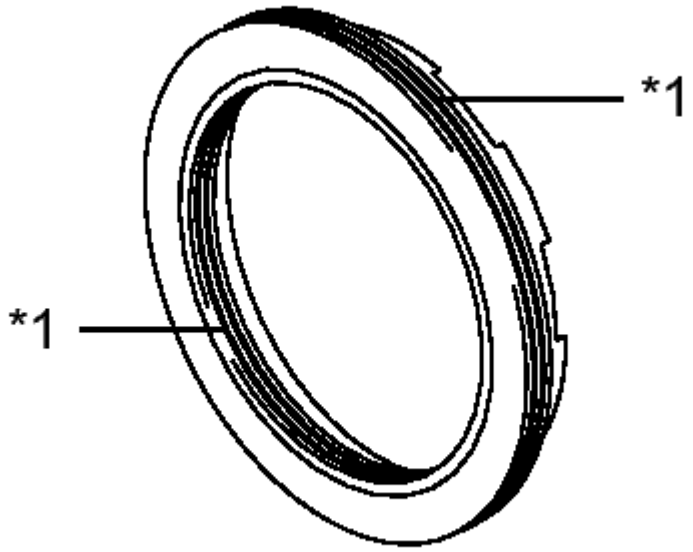


Fig. 269: Applying Compressed Air To ATF Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 2 O-rings from the No. 2 brake piston.



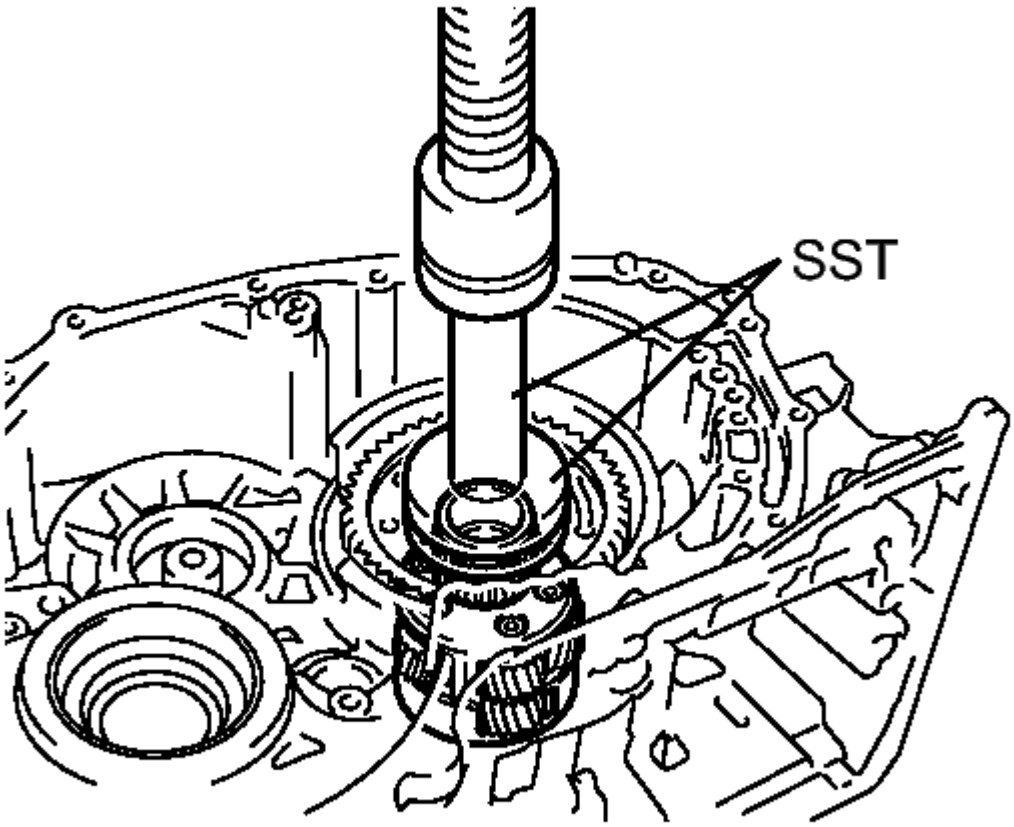
N

Fig. 270: Identifying No. 2 Brake Piston O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

61. **REMOVE FRONT PLANETARY GEAR ASSEMBLY**
    a. Using SST and a press, remove the planetary gear assembly from the transaxle case.



N

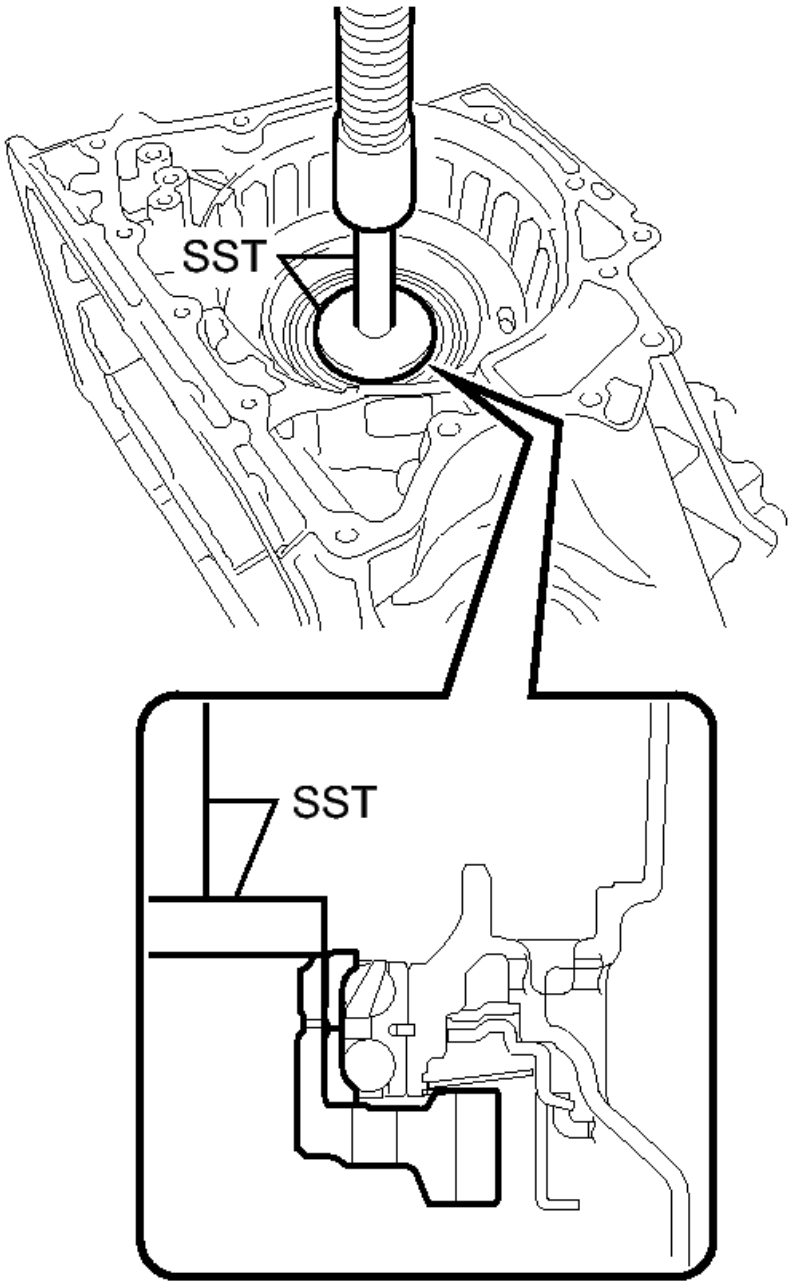
Fig. 271: Removing Planetary Gear Assembly From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00580
- **SST: 09950-70010**
  09951-07100

62. **REMOVE COUNTER DRIVE GEAR**

NOTE: Perform this procedure only when the counter drive gear bearing or transaxle case is replaced.

a. Using SST and a press, remove the counter drive gear and bearing inner race (rear side) from the transaxle case.



C

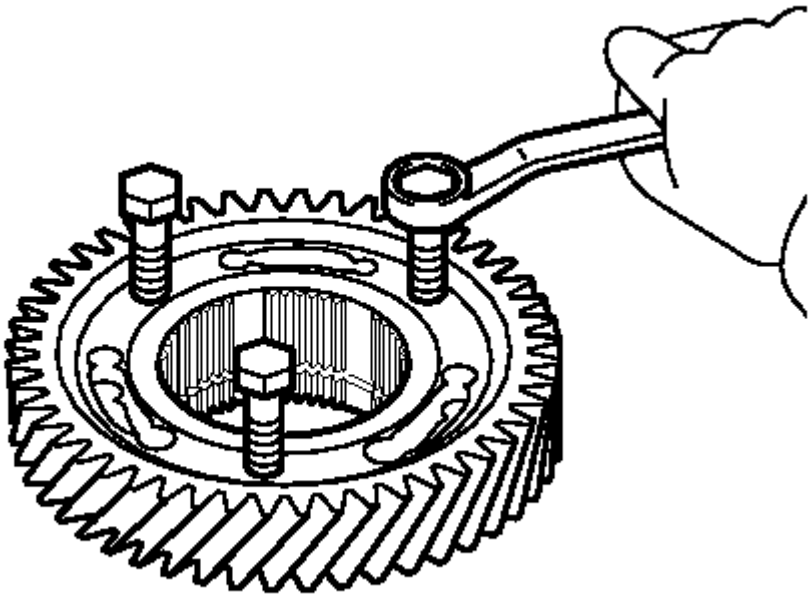
Fig. 272: Removing Counter Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60020**
  09951-00710

- **SST: 09950-70010**

  09951-07100

b. As shown in the illustration, tighten the 3 bolts evenly and leave a clearance of approximately 20.0 mm (0.787 in.) between the counter drive gear and bearing inner race (front side).



N

Fig. 273: Tightening Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST, remove the bearing inner race (front side) from the counter drive gear.

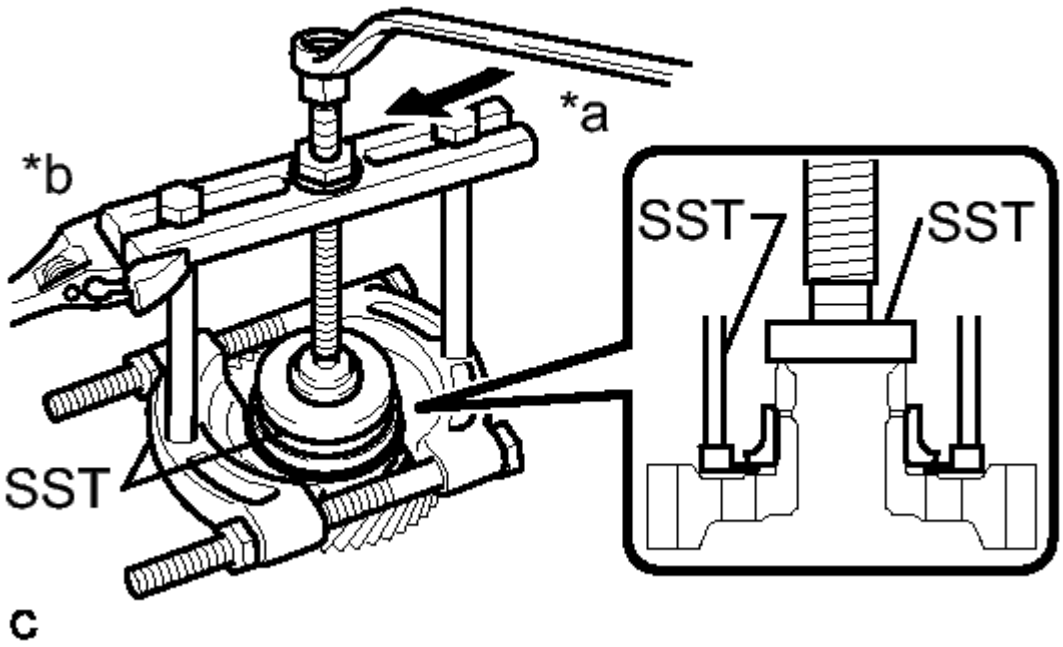


Fig. 274: Removing Bearing Inner Race (Front Side) At Counter Drive Gear Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60020**

  09951-00710

63. **REMOVE NO. 3 BRAKE PISTON**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

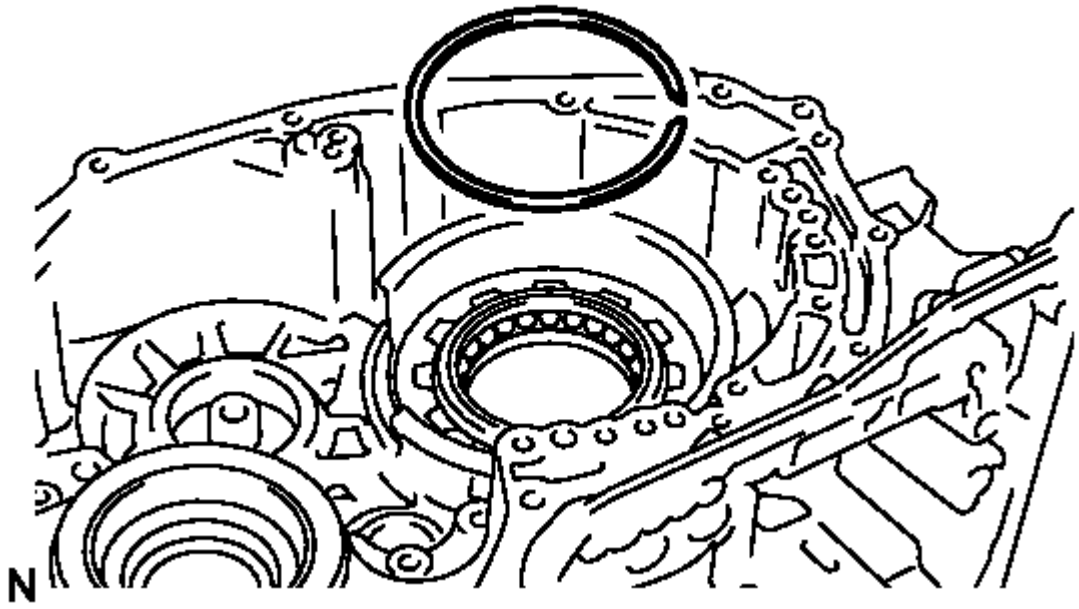


Fig. 275: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the brake piston return spring from the transaxle case.

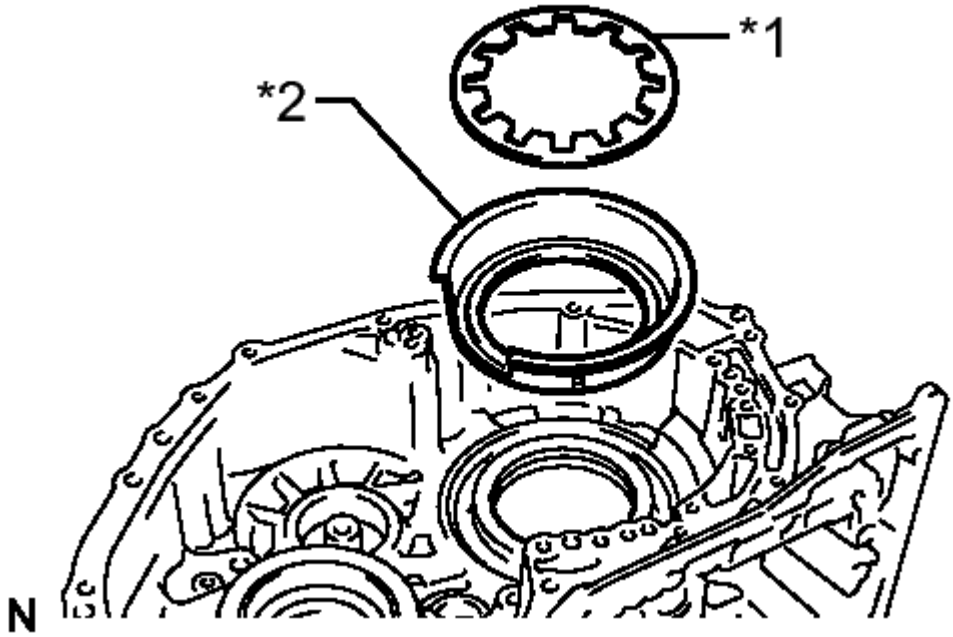


Fig. 276: Identifying Brake Piston Return Spring And No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Piston Return Spring

c. Remove the No. 3 brake piston from the transaxle case.

TEXT IN ILLUSTRATION

*2	No. 3 Brake Piston

64. **REMOVE MANUAL DETENT SPRING SUB-ASSEMBLY**

a. Remove the bolt, cover and manual detent spring subassembly from the transaxle case.

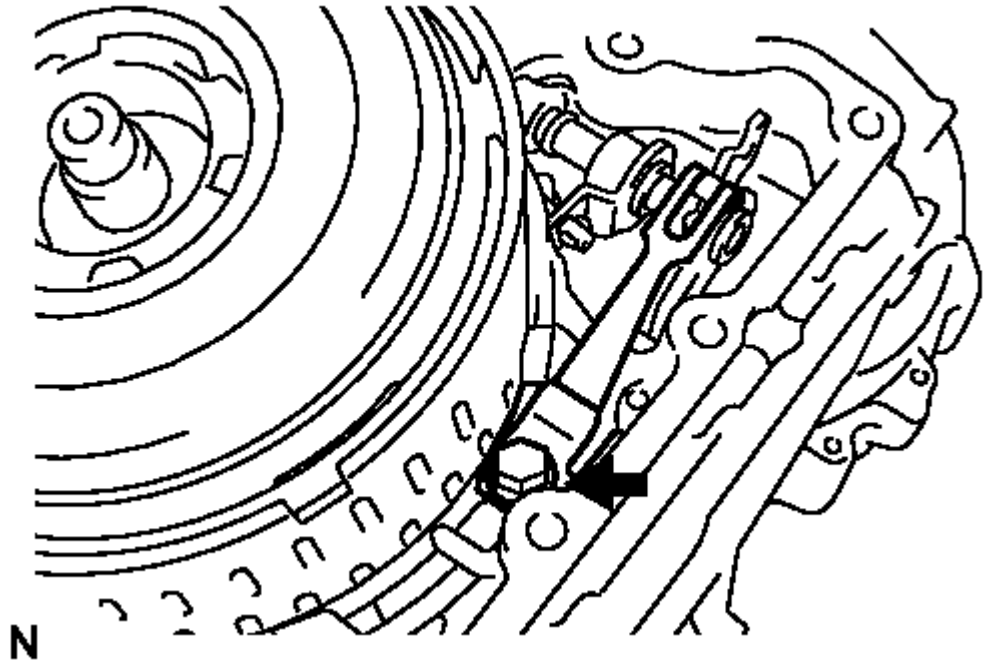
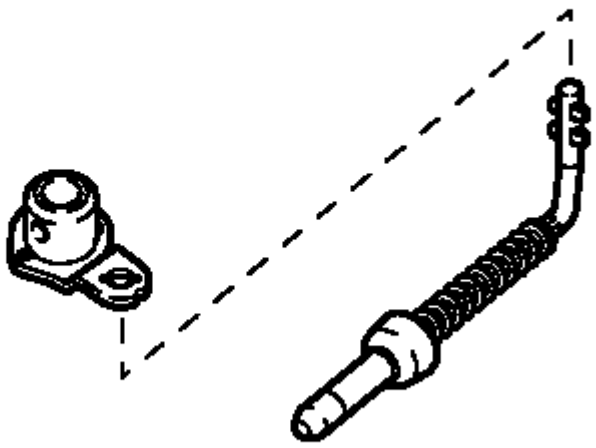


Fig. 277: Identifying Manual Detent Spring Sub-Assembly Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

65. **REMOVE PARKING LOCK ROD SUB-ASSEMBLY**

a. Remove the parking lock rod subassembly from the parking lock lever subassembly.



N

Fig. 278: Identifying Parking Lock Rod Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Align the slot with the notches on the parking lock lever subassembly to remove the parking lock rod subassembly.

66. **REMOVE MANUAL VALVE LEVER SHAFT**
    a. Using needle-nose pliers, remove the manual valve lever shaft retainer spring from the transaxle case.

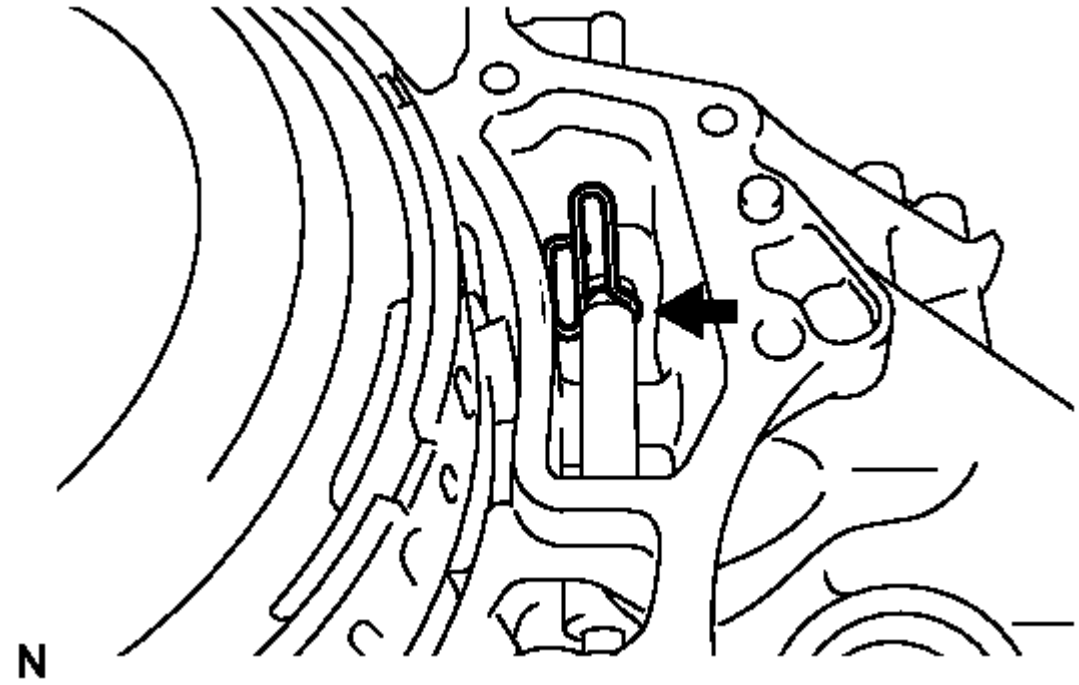


Fig. 279: Identifying Manual Valve Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, slide the spacer of the manual valve lever subassembly.

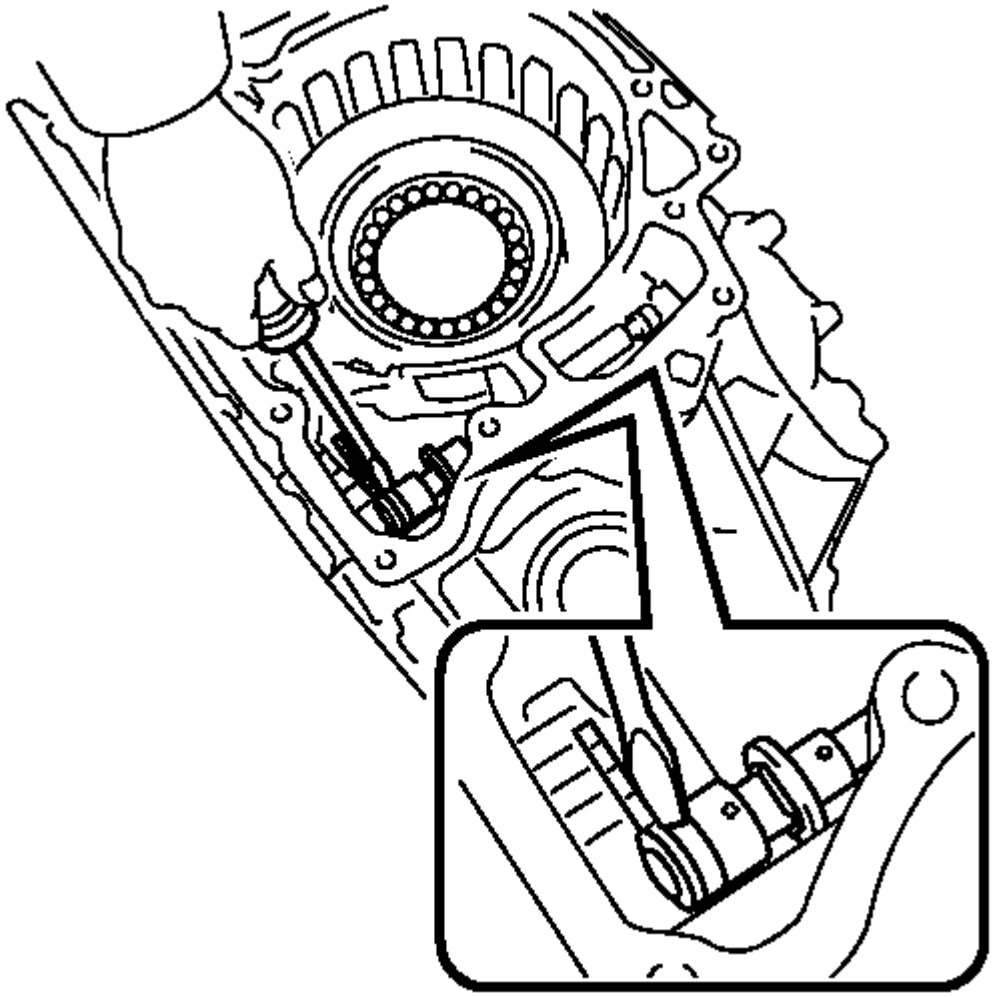


Fig. 280: Sliding Spacer Of Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a pin punch (3 mm) and hammer, drive out the slotted spring pin from the manual valve lever subassembly.

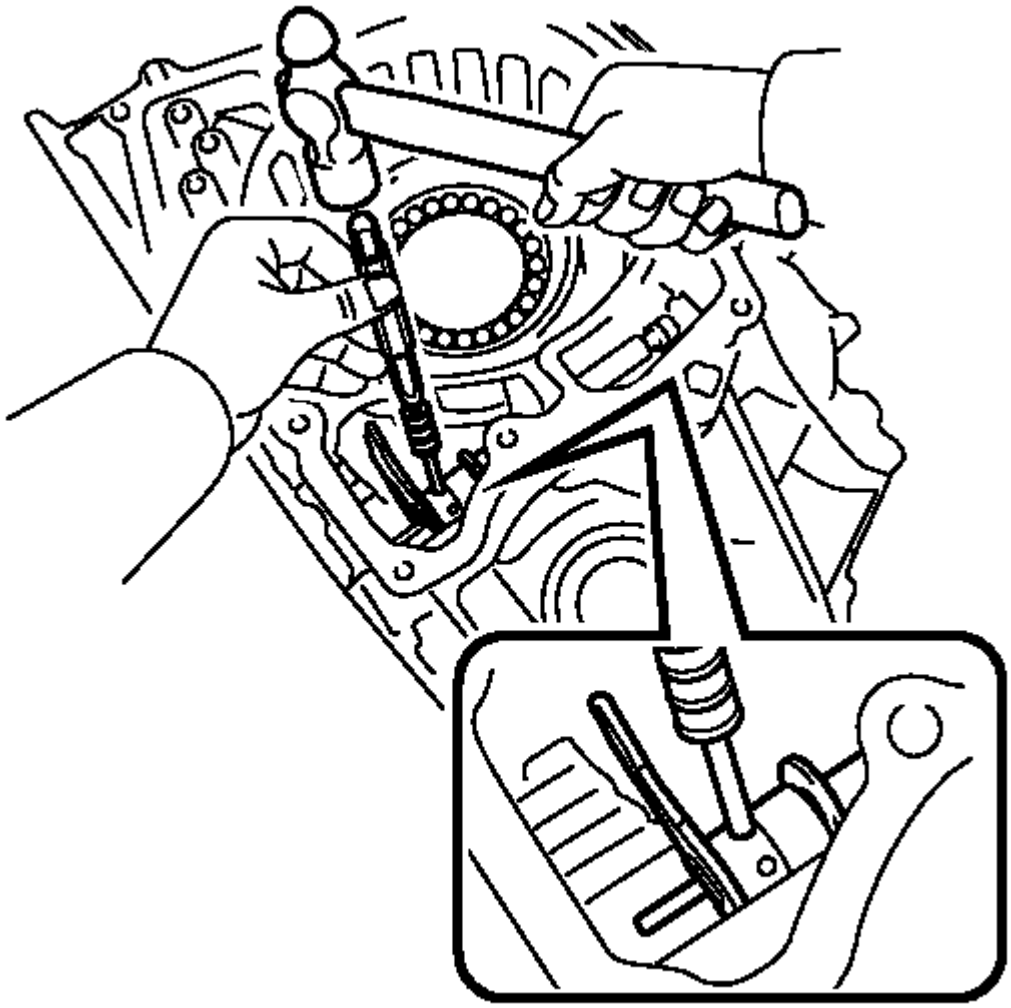
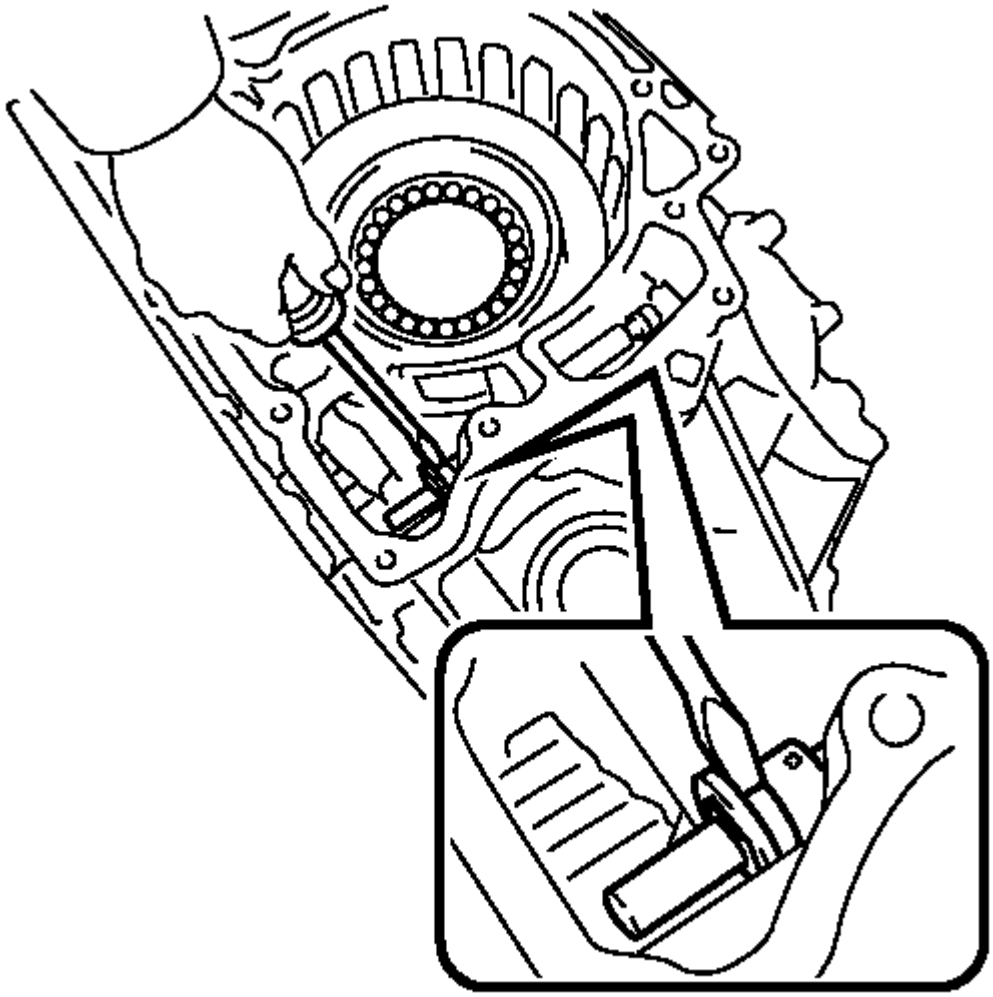


Fig. 281: Driving Out Slotted Spring Pin From Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

To prevent the pin from falling into the case, drive the pin until it has cleared the manual valve lever shaft.

d. Using a screwdriver, slide the spacer of the parking lock lever subassembly.



N

Fig. 282: Sliding Spacer Of Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a pin punch (3 mm) and hammer, drive out the slotted spring pin from the parking lock lever subassembly.

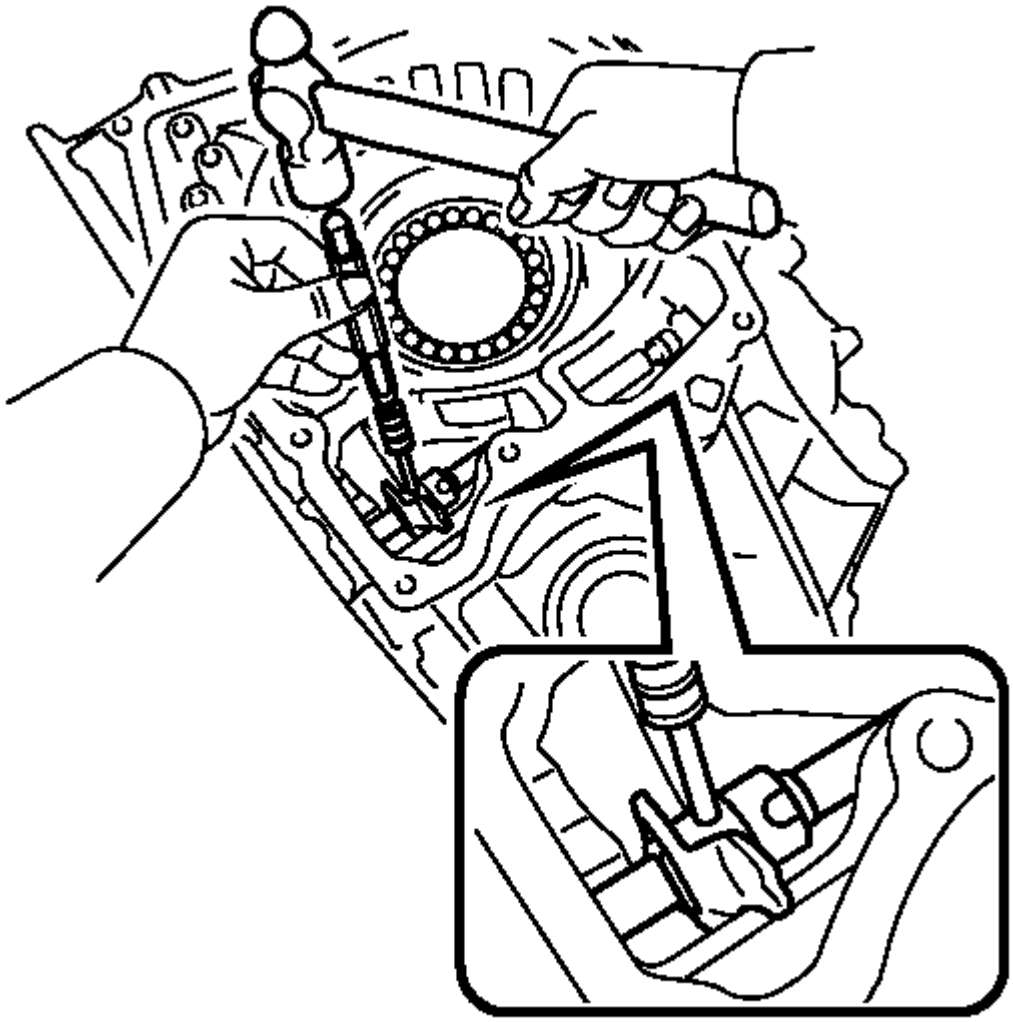
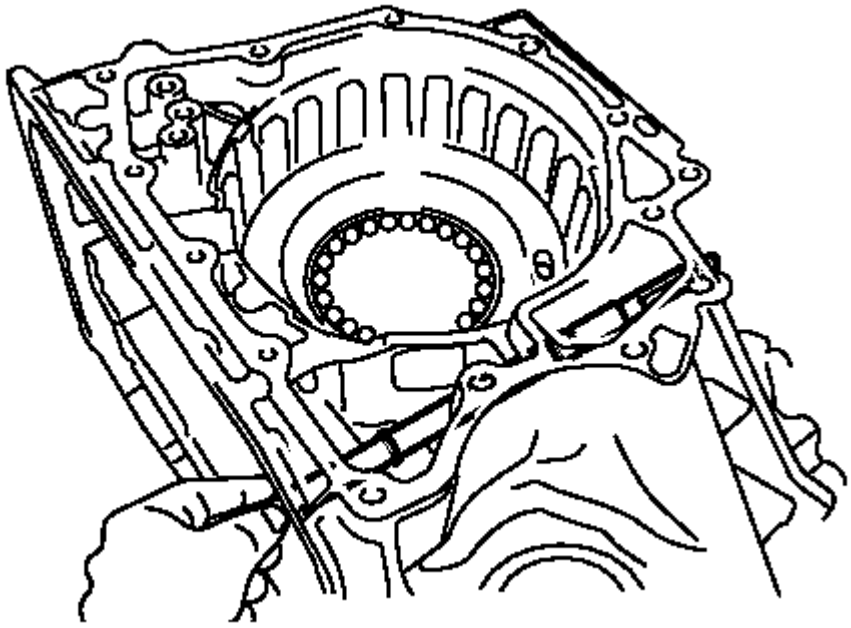


Fig. 283: Driving Out Slotted Spring Pin From Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

To prevent the pin from falling into the case, drive the pin until it has cleared the manual valve lever shaft.

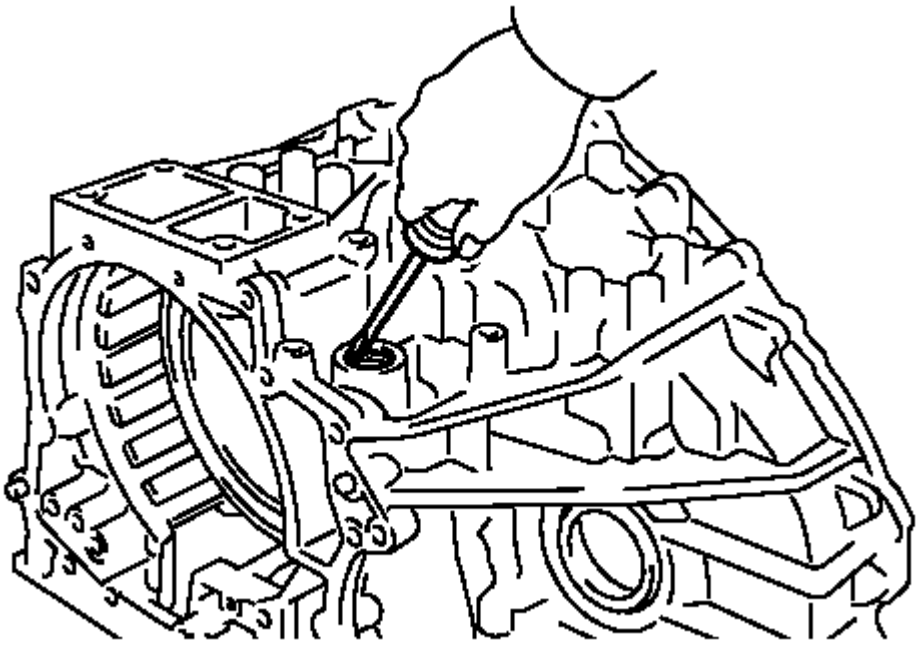
f. Remove the manual valve lever shaft, manual valve lever subassembly, parking lock lever subassembly and 2 spacers from the transaxle case.



N

Fig. 284: Identifying Manual Valve Lever Shaft, Manual Valve Lever Sub-Assembly And Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

67. **REMOVE MANUAL VALVE LEVER SHAFT OIL SEAL**
    a. Using a screwdriver, remove the manual valve lever shaft oil seal from the transaxle case.



N

Fig. 285: Removing Manual Valve Lever Shaft Oil Seal From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT TRANSMISSION OIL CLEANER MAGNET**
   a. Use the removed magnets to collect any steel chips. Examine the chips and particles in the pan and on the magnets to determine what type of wear has occurred in the transaxle:

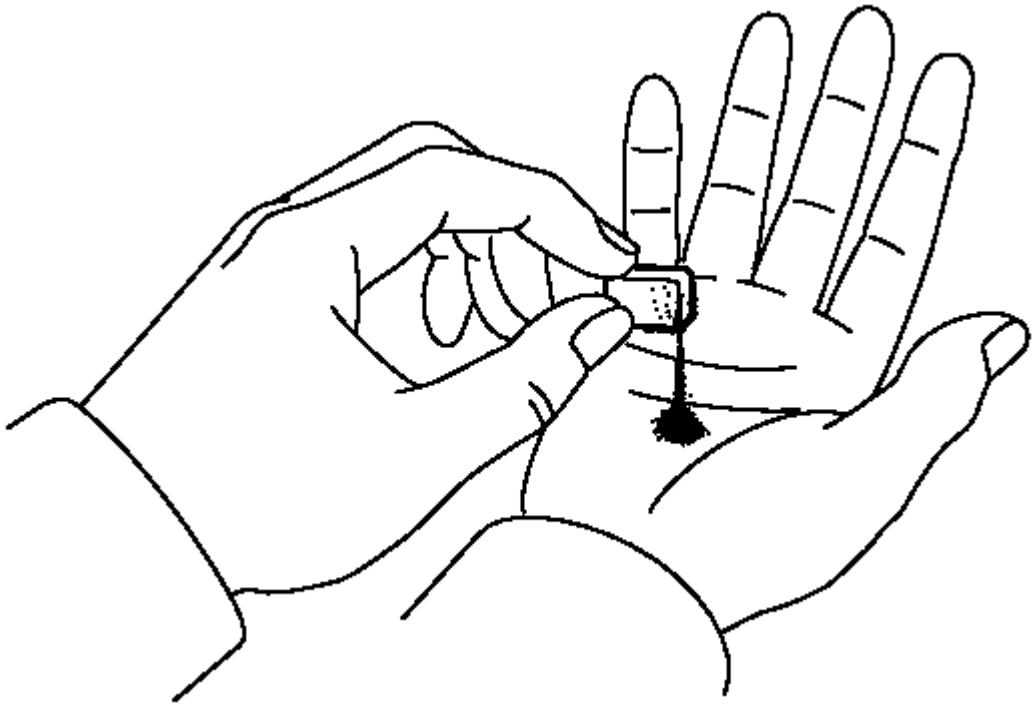


Fig. 286: Inspecting Transmission Oil Cleaner Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Result

Steel (magnetic)

Bearing, gear and plate wear

Brass (non-magnetic)

Bushing wear

2. **INSPECT INPUT SHAFT SUB-ASSEMBLY**
   a. Using a dial indicator, measure the input shaft end play.

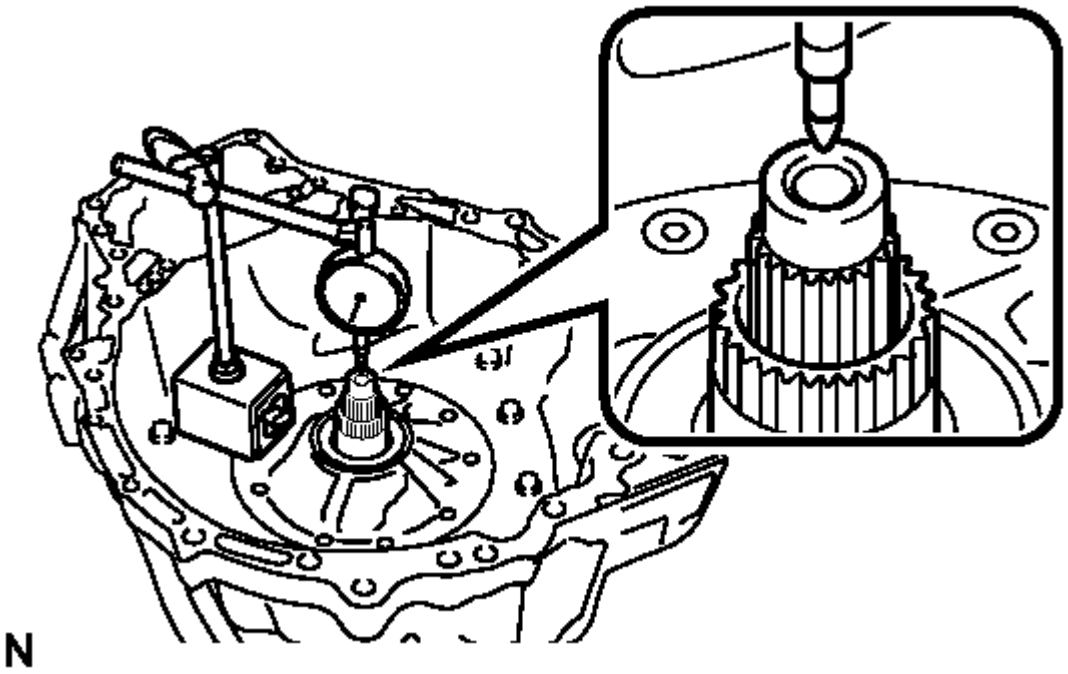
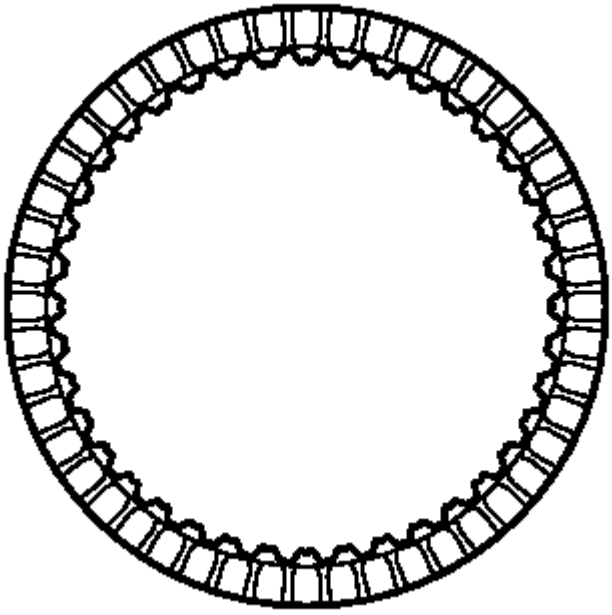


Fig. 287: Measuring Input Shaft End Play
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

End play

0.012 to 1.250 mm (0.000473 to 0.0492 in.)

3. **INSPECT NO. 2 CLUTCH DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

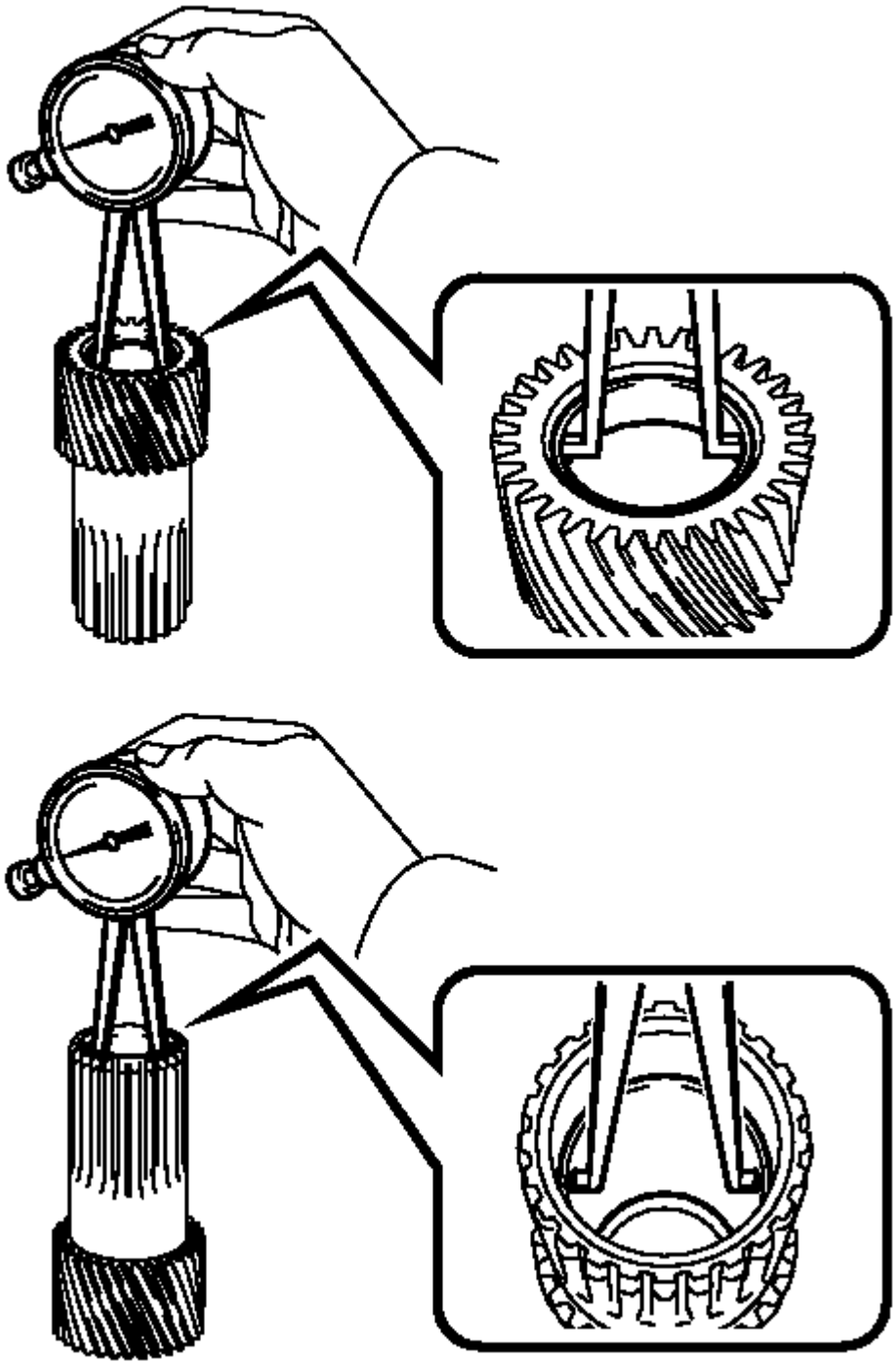
Fig. 288: Identifying No. 2 Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

4. **INSPECT PLANETARY SUN GEAR SUB-ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the bushings of the planetary sun gear.



N

Fig. 289: Measuring Inside Diameter Of Bushings Of Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

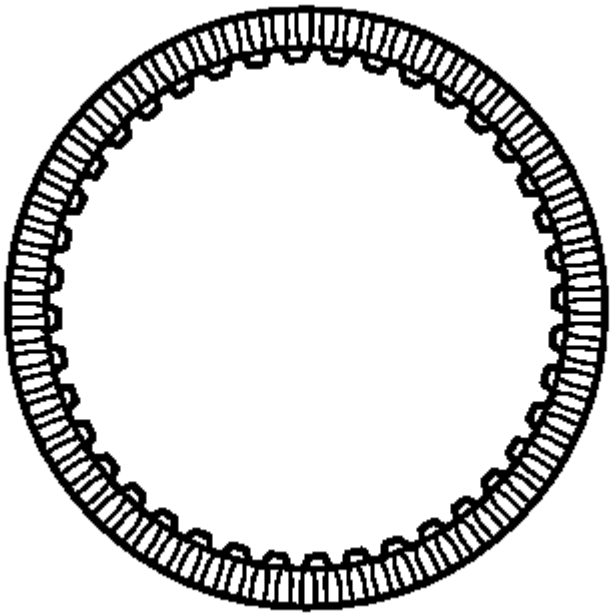
25.525 to 25.546 mm (1.0049 to 1.0057 in.)

Maximum inside diameter

25.546 mm (1.0057 in.)

If the inside diameter is greater than the maximum, replace the planetary sun gear.

5. **INSPECT NO. 1 CLUTCH DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

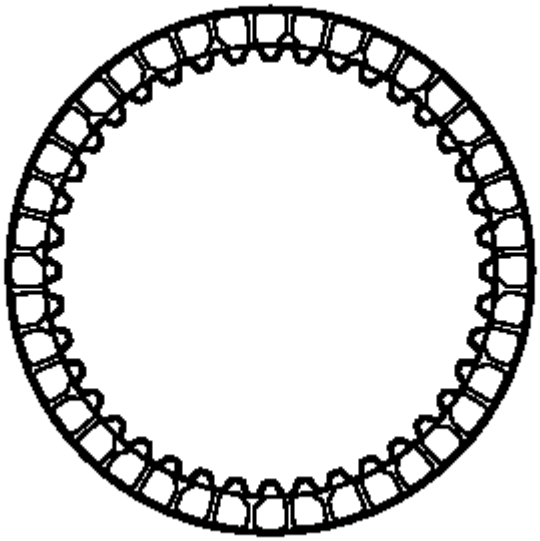
Fig. 290: Identifying No. 1 Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

6. **INSPECT NO. 3 BRAKE DISC**
   a. Check if the contact surfaces of the discs, plates and flanges are worn or burnt.



N

Fig. 291: Identifying No. 3 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

7. **INSPECT UNDERDRIVE PLANETARY GEAR ASSEMBLY**
   a. Using a feeler gauge, measure the clearance between the underdrive planetary gear and the pinion gear at 4 points.

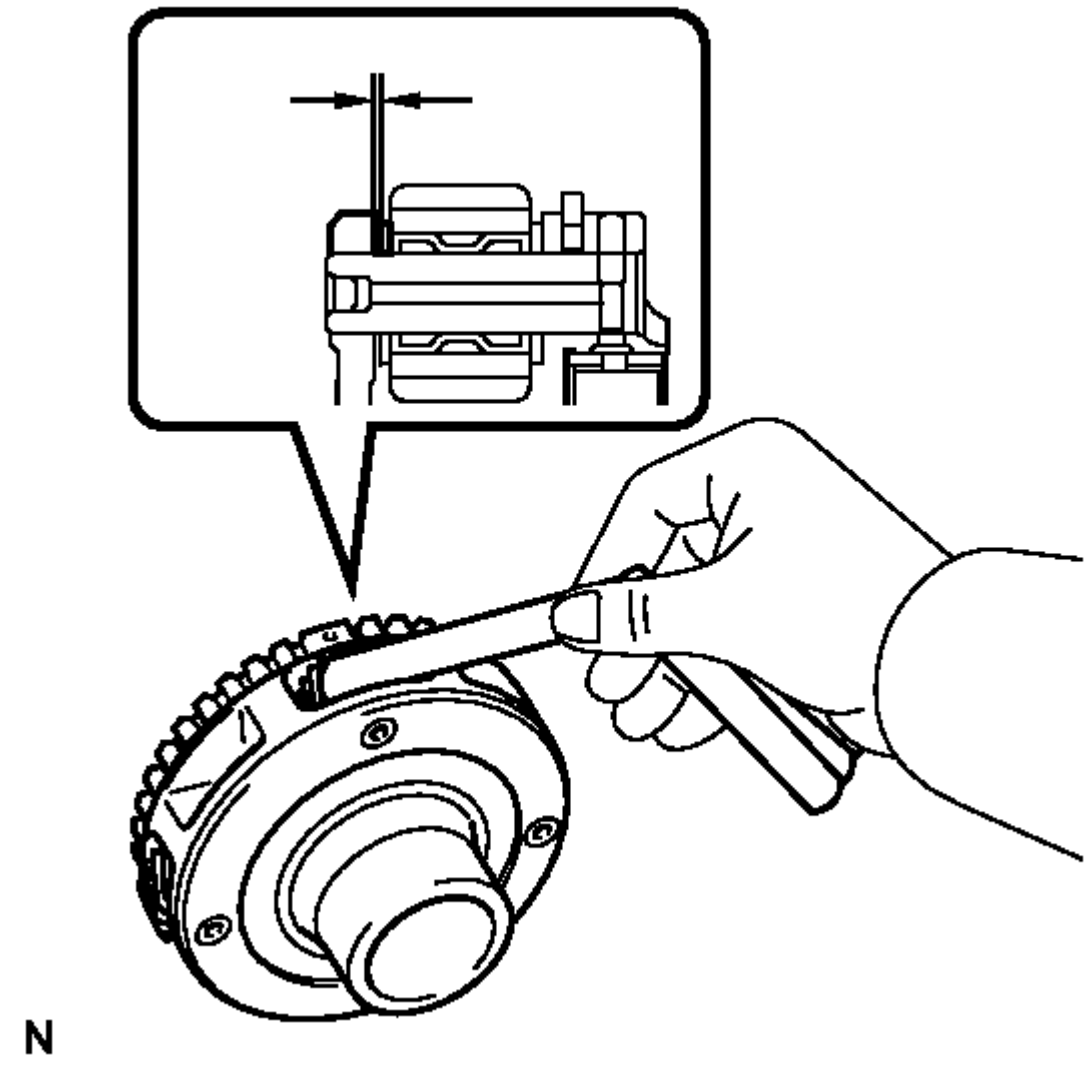


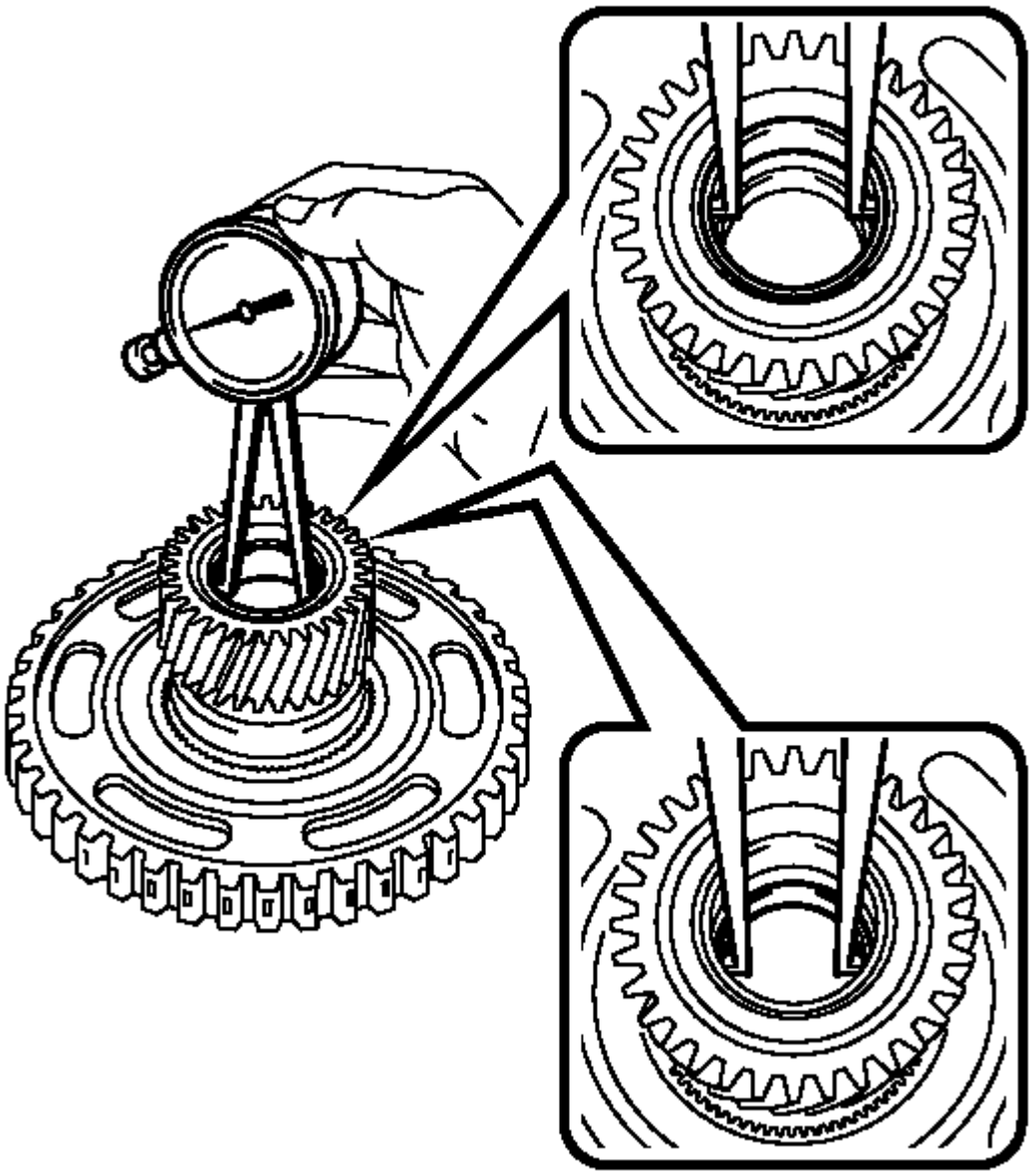
Fig. 292: Measuring Clearance Between Underdrive Planetary Gear And Pinion Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.18 to 0.54 mm (0.00709 to 0.0213 in.)

If the clearance is greater than the standard clearance, replace the underdrive planetary gear.

8. **INSPECT REAR PLANETARY SUN GEAR ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the bushing of the rear planetary sun gear subassembly.



N

Fig. 293: Measuring Inside Diameter Of Bushing Of Rear Planetary Sun Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

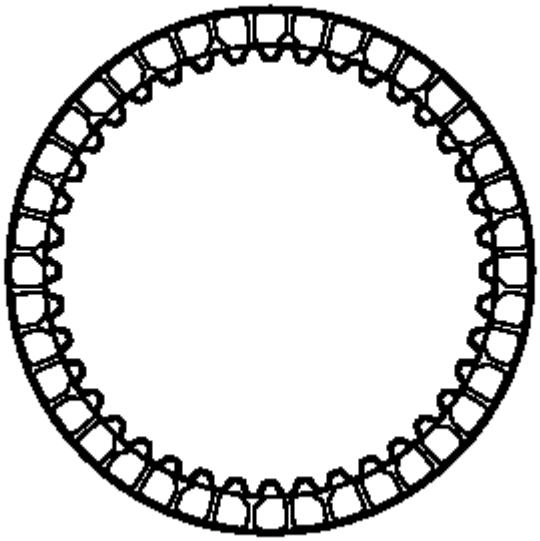
25.580 to 25.601 mm (1.0071 to 1.0079 in.)

Maximum inside diameter

25.601 mm (1.0079 in.)

If the inside diameter is greater than the maximum, replace the rear planetary sun gear assembly.

9. **INSPECT NO. 1 BRAKE DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

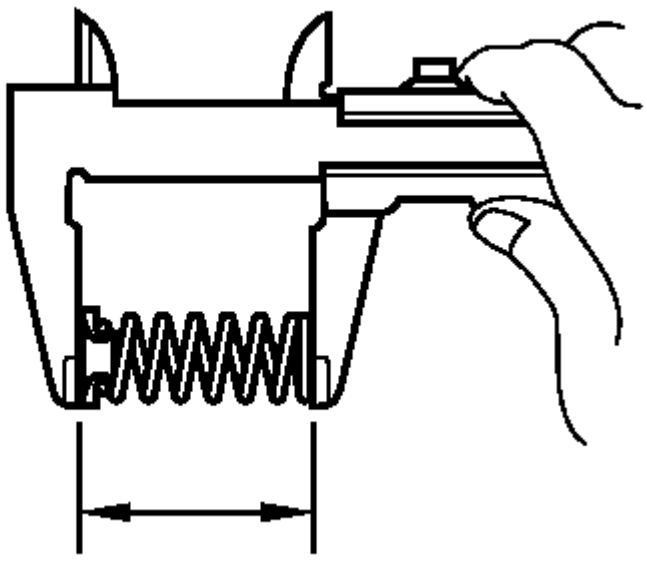
Fig. 294: Identifying No. 3 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

10. **INSPECT 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Using a vernier caliper, measure the free length of the 3 2nd brake piston return springs including the spring seats.



N

Fig. 295: Measuring Free Length Of 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard free length

23.85 mm (0.939 in.)

If the free length is shorter than the standard free length, replace the 2nd brake piston return spring.

11. **INSPECT ONE-WAY CLUTCH ASSEMBLY**
    a. Temporarily install the one-way clutch assembly to the planetary ring gear.

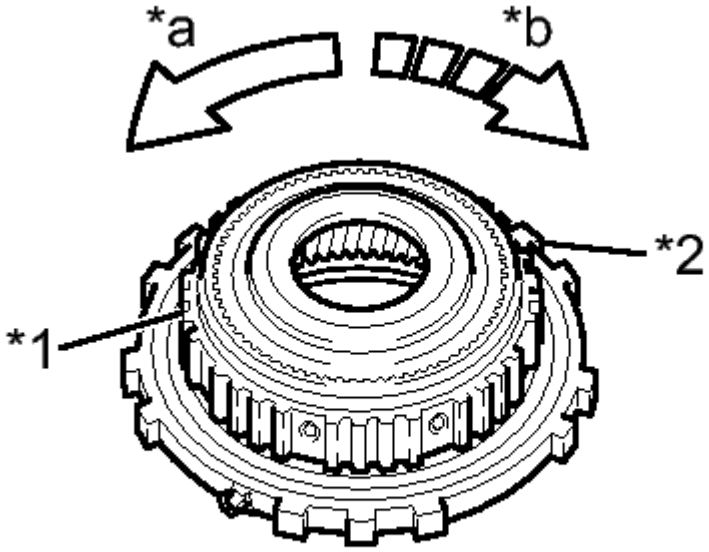


Fig. 296: Inspecting One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Planetary Ring Gear
*2	One-way Clutch Assembly
*a	Free
*b	Lock

b. Make sure that the one-way clutch assembly turns freely counterclockwise and locks when turned clockwise.

If the one-way clutch assembly does not operate normally, replace it.

12. **INSPECT PLANETARY GEAR ASSEMBLY**

a. Using a feeler gauge, measure the clearance between the planetary gear case and each pinion gear at points A and B.

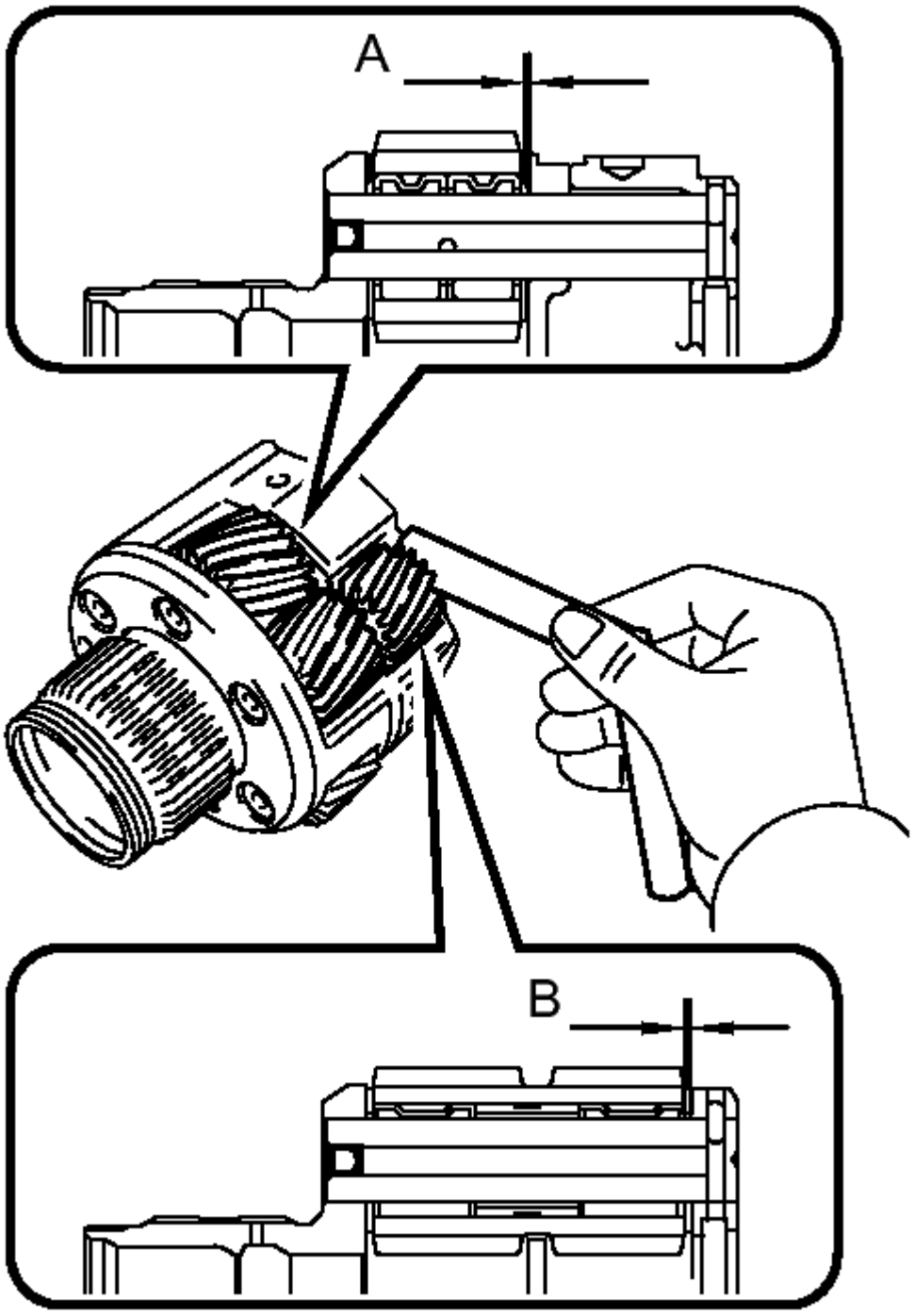


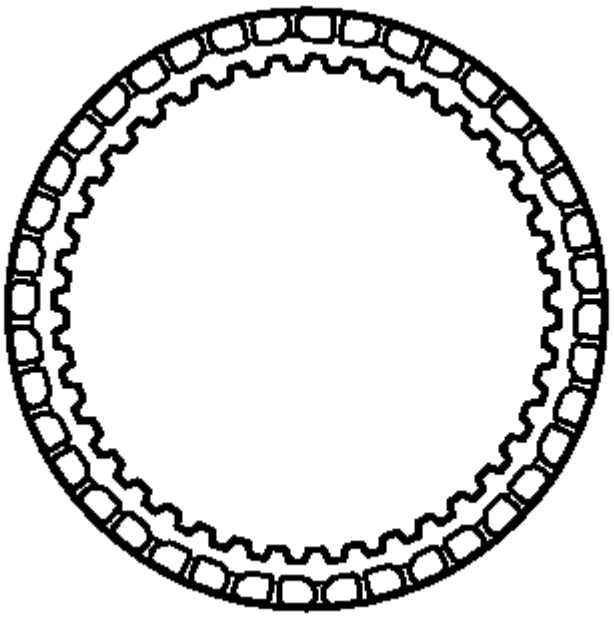
Fig. 297: Measuring Clearance Between Planetary Gear Case And Pinion Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Clearance

Point	Standard Clearance mm (in.)
A	0.23 to 0.59 (0.00906 to 0.0232)
B	0.16 to 0.66 (0.00630 to 0.0259)

If the clearance is greater than the standard clearance, replace the planetary gear assembly.

13. **INSPECT NO. 2 BRAKE DISC**
    a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

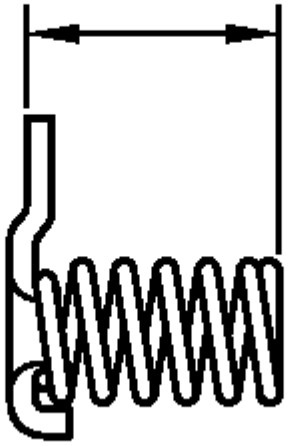
Fig. 298: Identifying No. 2 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

14. **INSPECT 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**



N

Fig. 299: Identifying Free Length Of 1st And Reverse Brake Return Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Using a vernier caliper, measure the free length of the 1st and reverse brake return spring together with the spring seat.

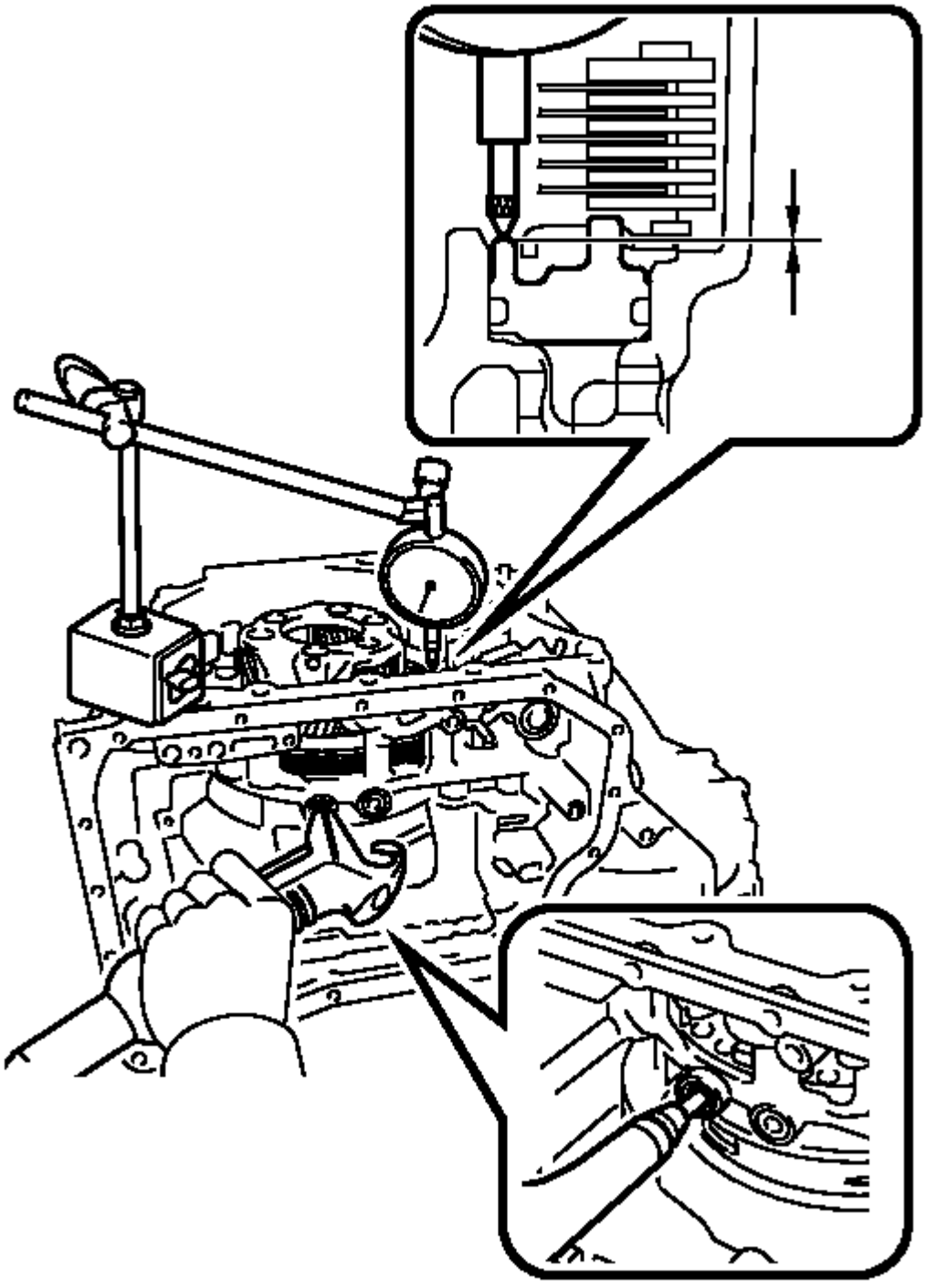
Standard free length

15.79 mm (0.621 in.)

If the free length is shorter than the standard free length, replace the 1st and reverse brake return spring.

15. **INSPECT CLEARANCE OF NO. 2 BRAKE**

a. Using a dial indicator, measure the clearance of the No. 2 brake while applying compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).



N

Fig. 300: Measuring Clearance Of No. 2 Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.884 to 1.196 mm (0.0348 to 0.0471 in.)

HINT:

Measure the clearance at 3 points where the brake piston diameter is approximately 140 mm (5.51 in.) and calculate the average.

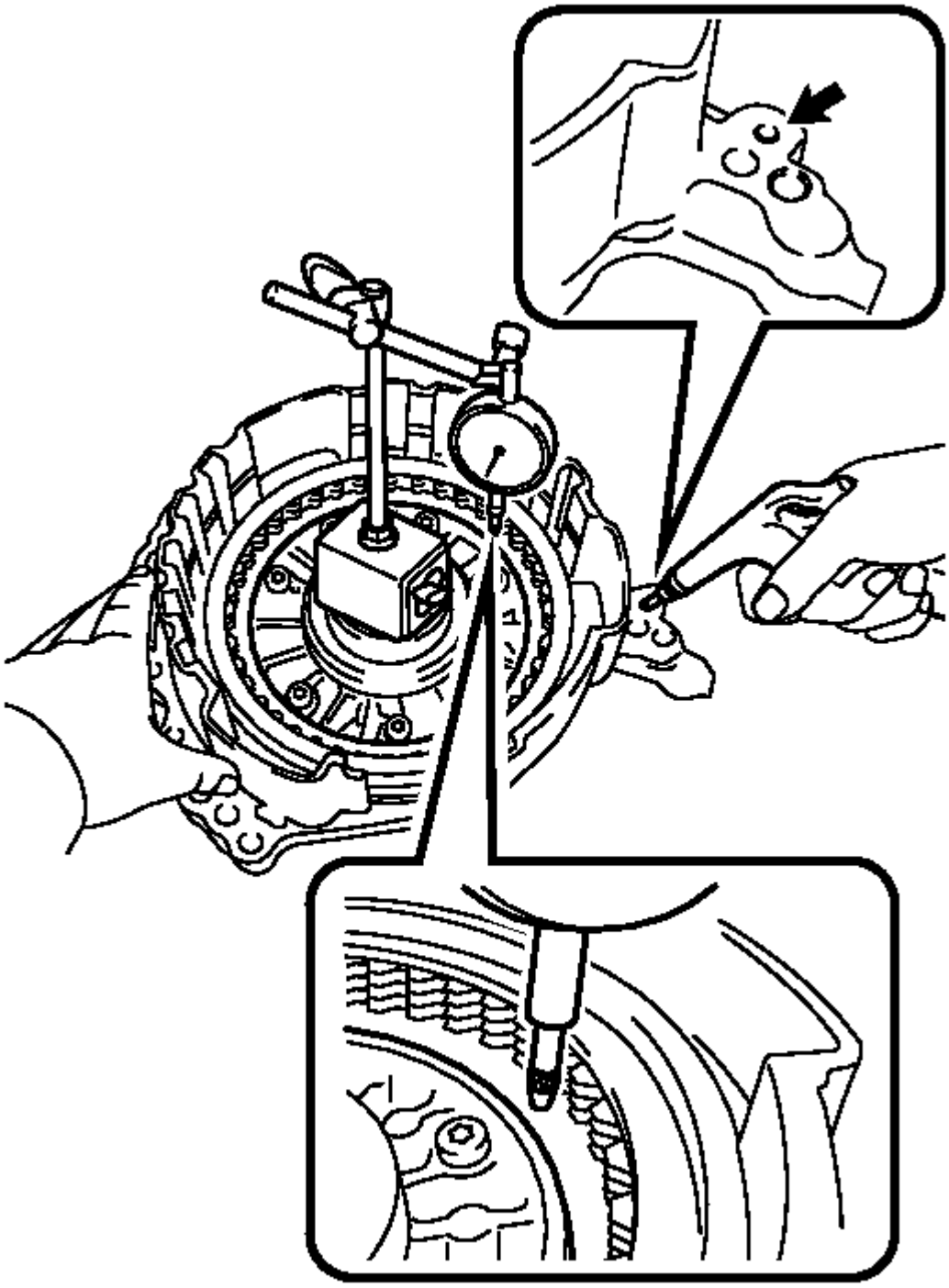
If the clearance is not as specified, select an appropriate No. 2 brake flange so that the clearance will be within the specified range.

NO. 2 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35678-07010	4.0 (0.157)	40
35678-07020	4.1 (0.161)	41
35678-07030	4.2 (0.165)	42
35678-07040	4.3 (0.169)	43
35678-07050	4.4 (0.173)	44

16. **INSPECT CLEARANCE OF NO. 1 BRAKE**

a. Using a dial indicator, measure the clearance of the No. 1 brake while applying compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).



N

Fig. 301: Measuring Clearance Of No. 1 Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.807 to 0.974 mm (0.0318 to 0.0383 in.)

HINT:

Measure the clearance at 3 points where the brake piston diameter is approximately 140 mm (5.51 in.) and calculate the average.

If the clearance is not as specified, select an appropriate No. 1 brake flange so that the clearance will be within the specified range.

NO. 1 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35676-07010	3.0 (0.118)	30
35676-07020	3.1 (0.122)	31
35676-07030	3.2 (0.126)	32
35676-07040	3.3 (0.130)	33
35676-07050	3.4 (0.134)	34
35676-07060	3.5 (0.138)	35

17. **INSPECT CLEARANCE OF NO. 3 BRAKE**

a. Using a vernier caliper and a straightedge, measure the distance shown in the illustration (Dimension A) while a load of 500 N (51 kgf, 112.4 lbf) is being applied to the flange.

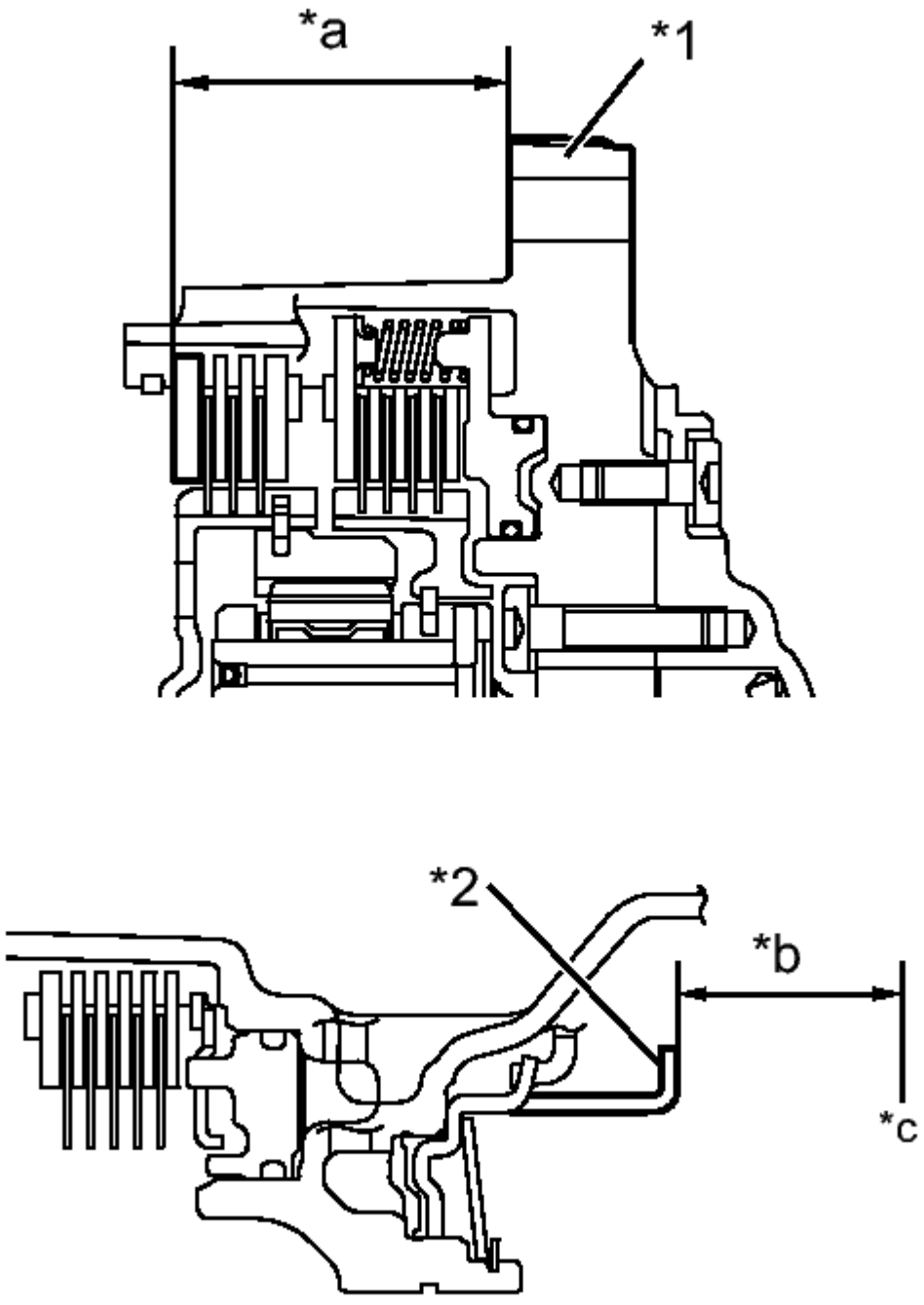


Fig. 302: Inspecting No. 3 Brake Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Oil

*1	Pump Assembly
*2	No. 3 Brake
*a	Dimension A
*b	Dimension B
*c	Contact Surface of Front Oil Pump Assembly

HINT:

Measure dimension A at 3 points where the flange diameter is approximately 166 mm (6.54 in.) and calculate the average.

b. Using a vernier caliper and a straightedge, measure the distance shown in the illustration (Dimension B).

HINT:

Measure dimension B at 3 points where the No. 3 brake diameter is approximately 166 mm (6.54 in.) and calculate the average.

c. Calculate the clearance value using the following formula:

Clearance = Dimension B - Dimension A

Standard clearance

0.599 to 0.761 mm (0.0236 to 0.0300 in.)

If the clearance is not as specified, select an appropriate brake flange so that the clearance will be within the specified range.

NO. 3 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35679-07020	3.80 (0.150)	38
35679-07030	3.90 (0.154)	39
35679-	4.00	

07040	(0.157)	40
35679-07050	4.10 (0.161)	41
35679-07060	4.20 (0.165)	42
35679-07070	4.30 (0.169)	43

18. **INSPECT CLEARANCE OF NO. 1 CLUTCH DISC**

NOTE: **There are two different types of rear multiple disc clutch assembly. Refer to the illustration below and visually inspect the rear multiple disc clutch assembly to determine if it is Type A or Type B.**

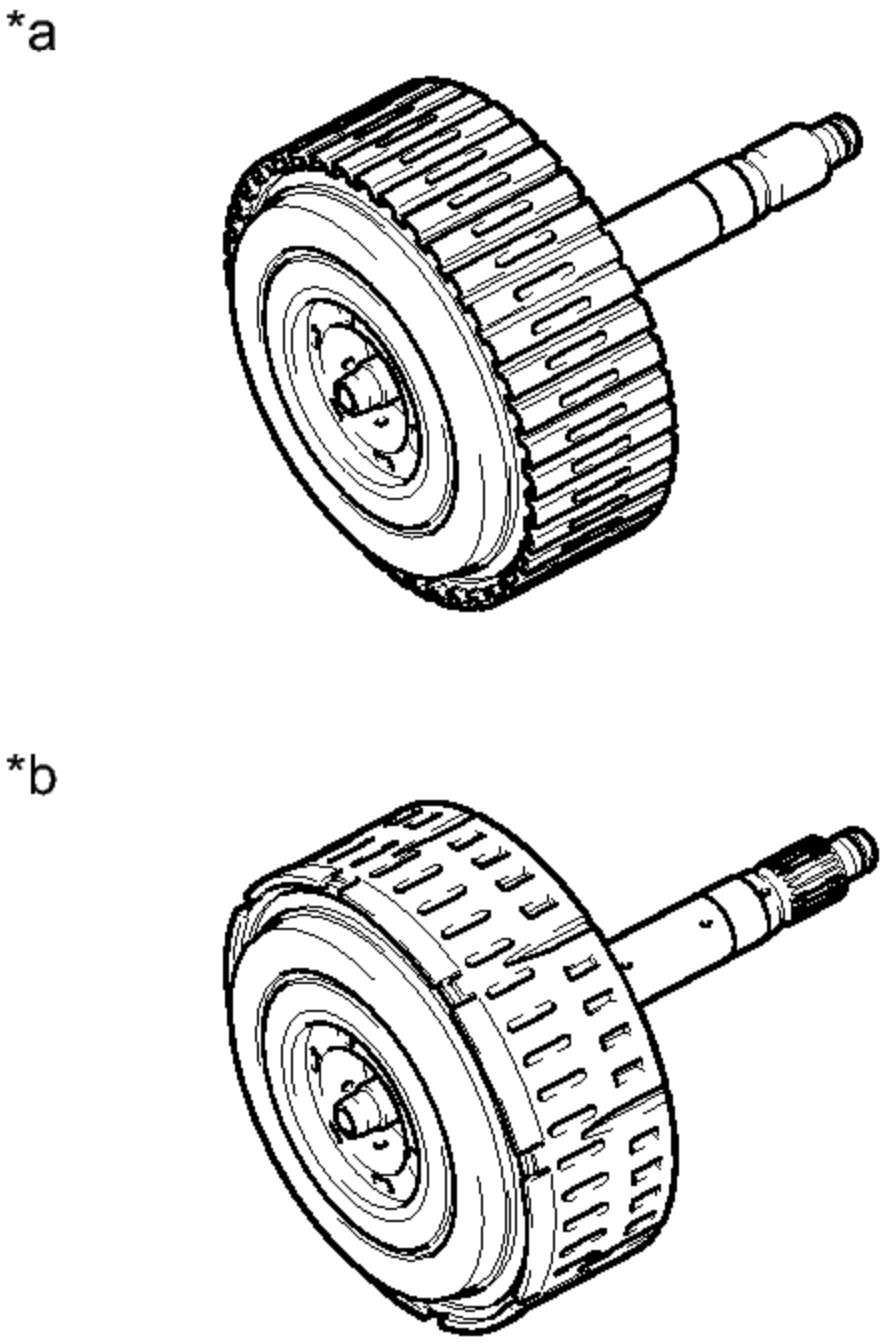


Fig. 303: Inspecting No. 1 Clutch Disc Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Type A
*b	Type B

a. Install the direct multiple disc clutch assembly onto the rear transaxle cover subassembly.

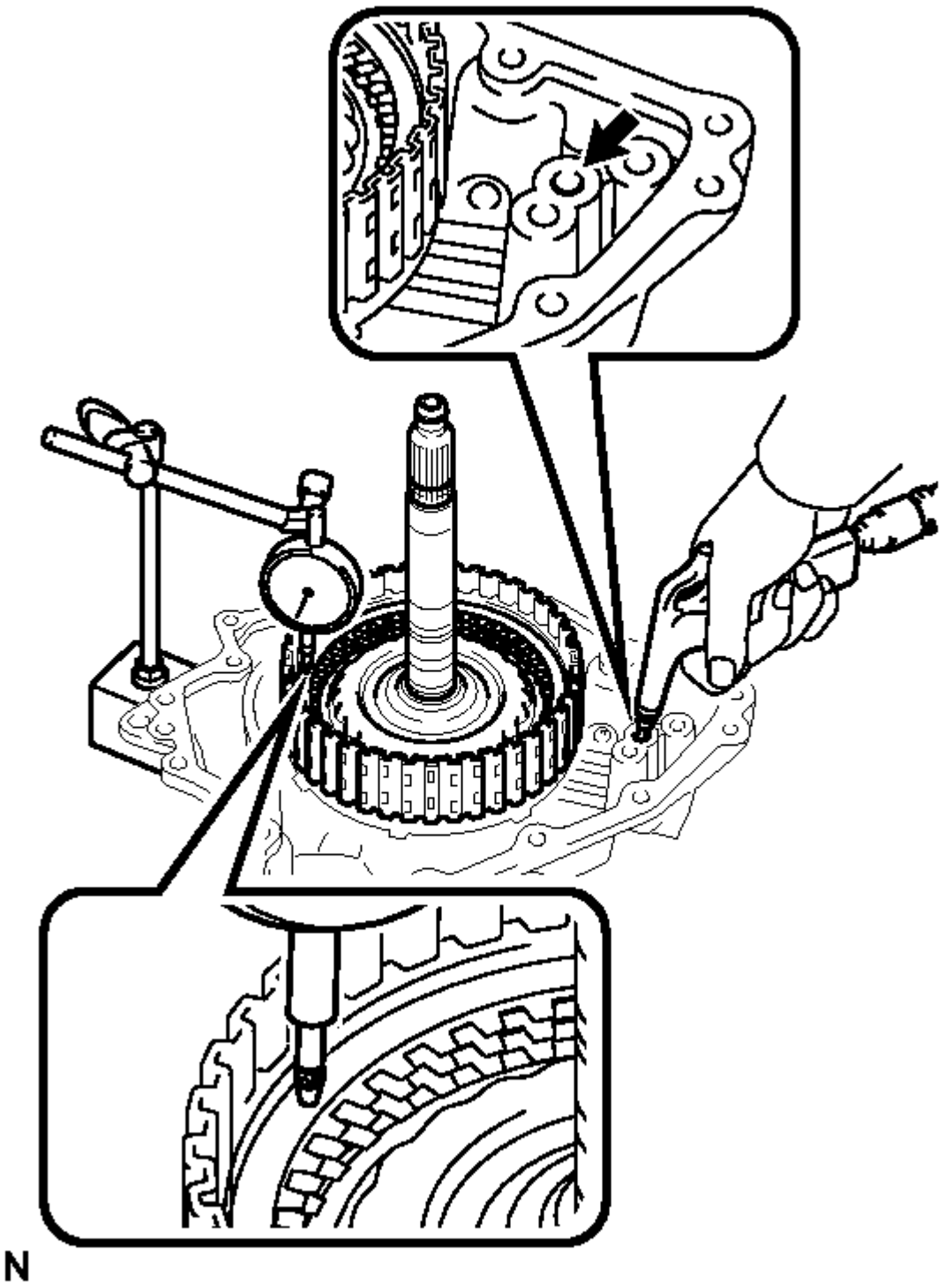


Fig. 304: Measuring No. 1 Clutch Pack Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a dial indicator, measure the No. 1 clutch pack clearance while applying and releasing compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).

HINT:

Measure the clearance at 3 points where the flange diameter is approximately 152 mm (5.98 in.) and calculate the average.

Pack clearance

Type A

0.606 to 0.774 mm (0.0238 to 0.0305 in.)

Type B

0.806 to 0.974 mm (0.0317 to 0.0383 in.)

If the pack clearance is not as specified, select an appropriate No. 1 clutch flange so that the pack clearance will be within the specified range.

NO. 1 CLUTCH FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35635-08060	3.0 (0.118)	30
35635-08070	3.1 (0.122)	31
35635-08080	3.2 (0.126)	32
35635-08090	3.3 (0.130)	33
35635-08100	3.4 (0.134)	34
35635-08110	3.5 (0.138)	35
35635-08120	3.6 (0.142)	36

19. **INSPECT CLEARANCE OF NO. 2 CLUTCH DISC**

a. Install the direct multiple disc clutch assembly onto the rear transaxle cover subassembly.

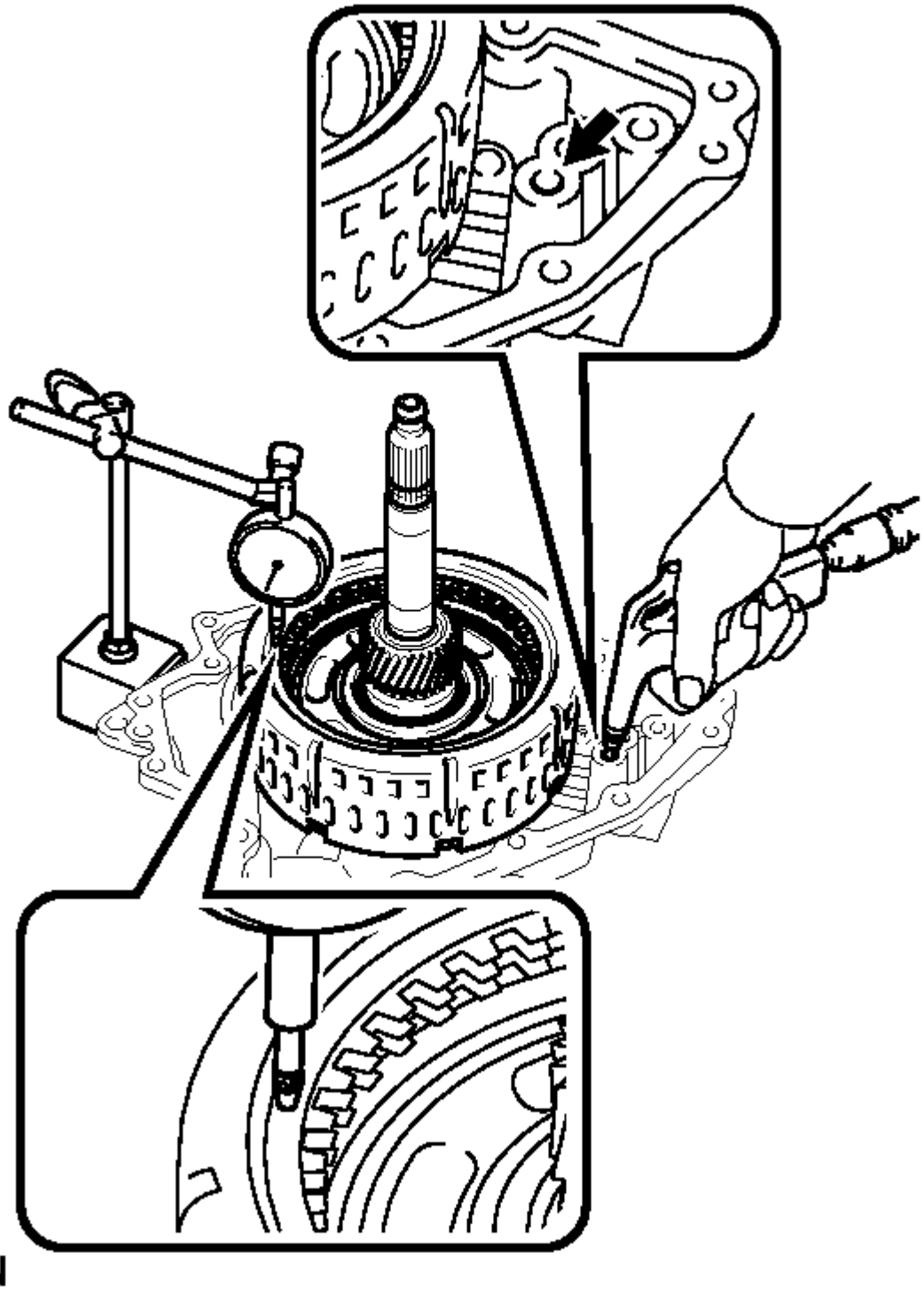


Fig. 305: Measuring No. 2 Clutch Pack Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a dial indicator, measure the No. 2 clutch pack clearance while applying and releasing compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).

HINT:

Measure the clearance at 3 points where the diameter of the No. 2 direct multiple clutch piston is approximately 152 mm (5.98 in.) and calculate the average.

Pack clearance

0.544 to 0.744 mm (0.0214 to 0.0293 in.)

If the pack clearance is not as specified, select an appropriate No. 2 clutch flange so that the pack clearance will be within the specified range.

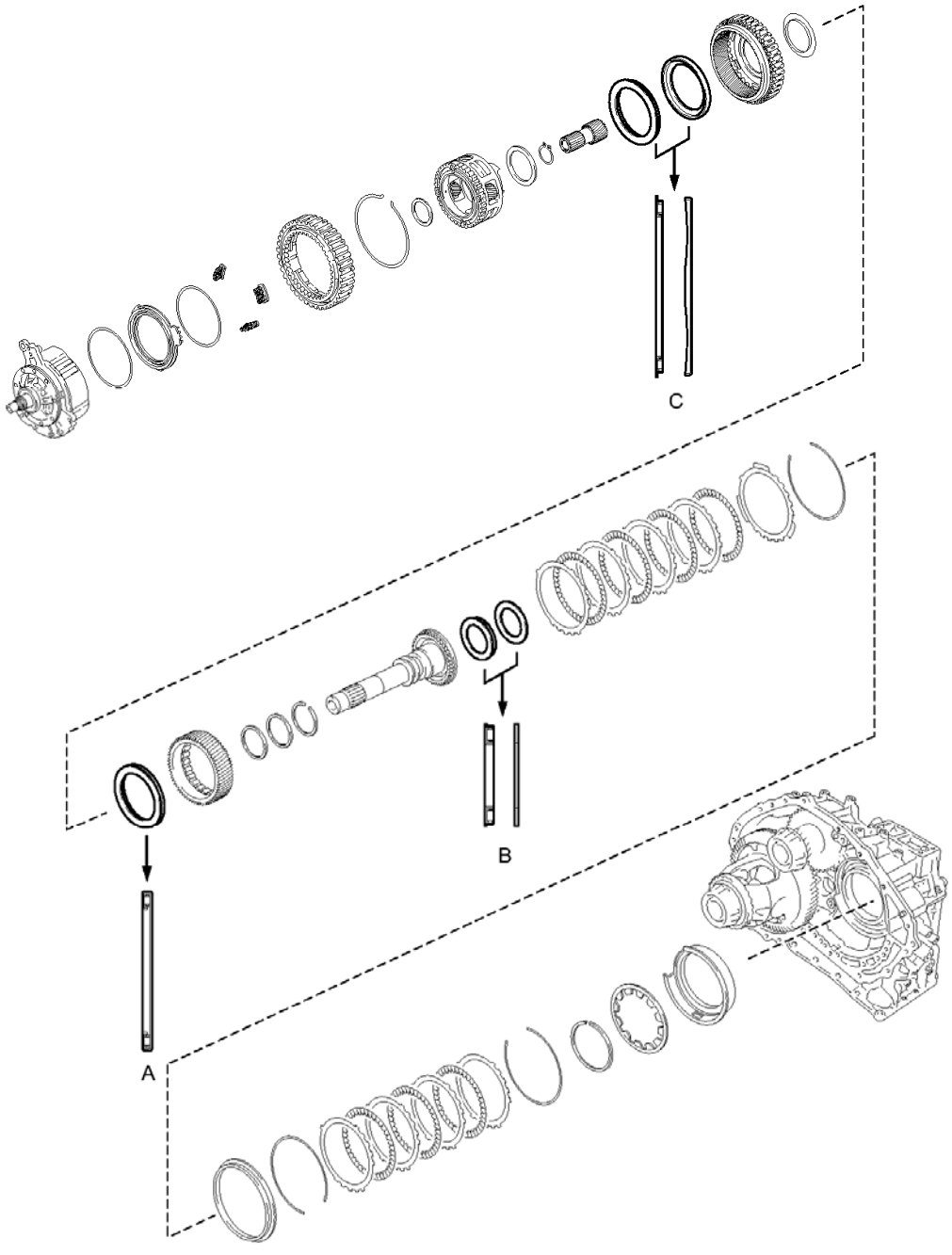
NO. 2 CLUTCH FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35635-08060	3.0 (0.118)	30
35635-08070	3.1 (0.122)	31
35635-08080	3.2 (0.126)	32
35635-08090	3.3 (0.130)	33
35635-08100	3.4 (0.134)	34
35635-08110	3.5 (0.138)	35
35635-08120	3.6 (0.142)	36

REASSEMBLY

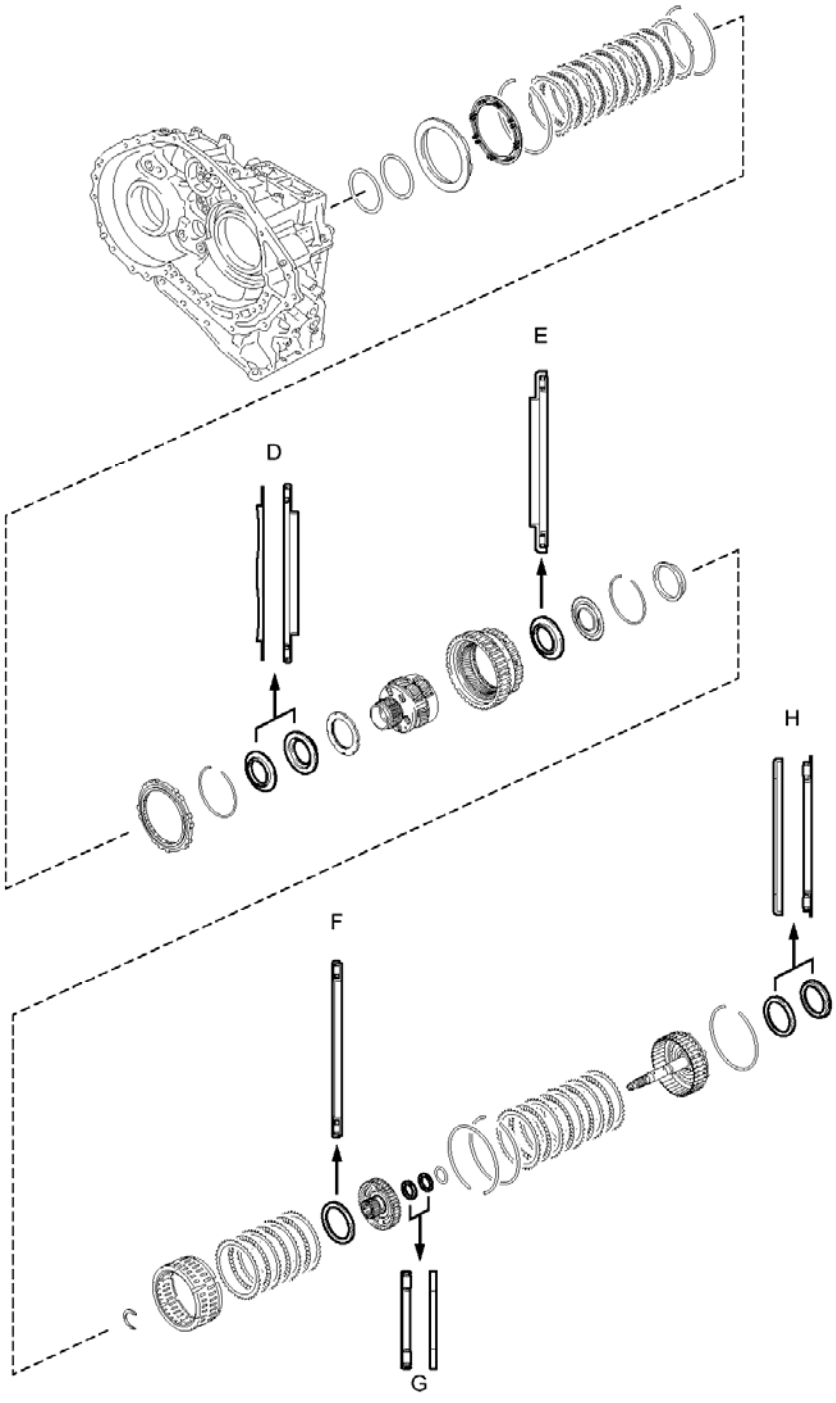
REASSEMBLY

1. **BEARING POSITION**
    a. Check bearing position and installation direction.



N

Fig. 306: Exploded View Of Bearing Position (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



N

Fig. 307: Exploded View Of Bearing Position (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

Mark	Front Race Diameter Inside / Outside mm (in.)	Thrust Bearing Diameter Inside / Outside mm (in.)	Rear Race Diameter Inside / Outside mm (in.)
A	-	57.7 (2.27) / 75.2 (2.96)	-
B	-	29.1 (1.15) / 48.6 (1.91)	30.7 (1.21) / 48.3 (1.90)
C	65.9 (2.59) / 80.3 (3.16)	62.6 (2.47) / 82.4 (3.24)	-
D	59.4 (2.34) / 77 (3.03)	53.1 (2.09) / 79 (3.11)	-
E	-	56.1 (2.21) / 80.9 (3.19)	-
F	-	61.2 (2.41) / 79 (3.11)	-
G	-	28 (1.10) / 47.1 (1.85)	26.1 (1.03) / 44 (1.73)
H	52.2 (2.06) / 70.4 (2.77)	48.9 (1.93) / 72.0 (2.84)	-

2. **INSTALL MANUAL VALVE LEVER SHAFT OIL SEAL**
    a. Coat the lip of a new manual valve lever shaft oil seal with MP grease.

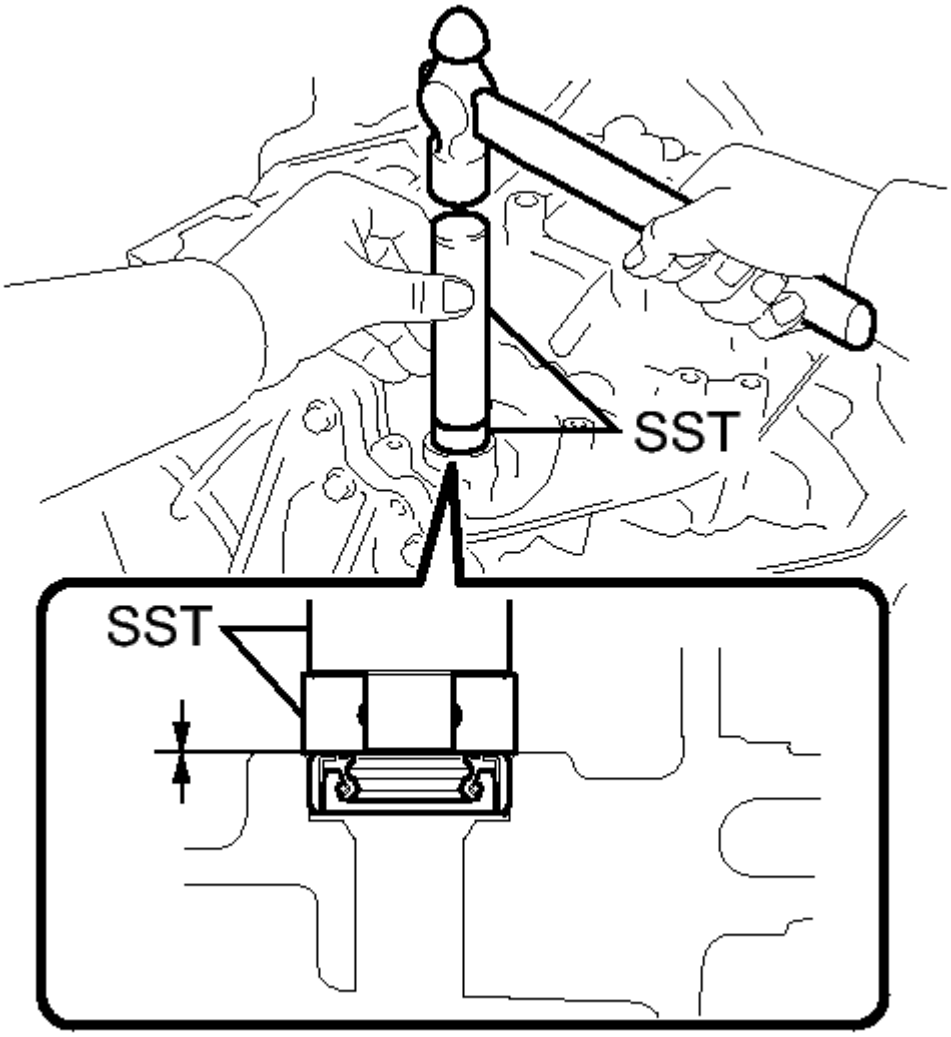


Fig. 308: Installing Manual Valve Lever Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

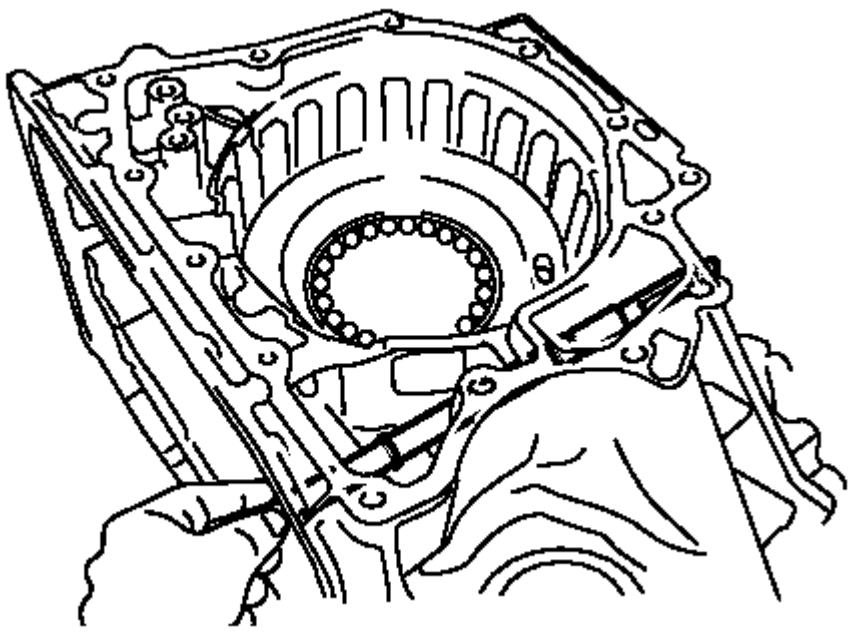
b. Using SST and a hammer, install the manual valve lever shaft oil seal to the transaxle case.
   - **SST: 09950-60010**
     09951-00230
   - **SST: 09950-70010**
     09951-07100

   Oil seal driven in depth

   -0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

3. **INSTALL MANUAL VALVE LEVER SHAFT**
   a. Install a new spacer to the parking lock lever subassembly.

b. Install the parking lock lever subassembly to the manual valve lever shaft.
c. Install a new spacer to the manual valve lever subassembly.
d. Install the manual valve lever subassembly to the manual valve lever shaft.
e. Install the manual valve lever shaft to the transaxle case.



N

Fig. 309: Identifying Manual Valve Lever Shaft, Manual Valve Lever Sub-Assembly And Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not damage the manual valve lever shaft oil seal while installing the manual valve lever shaft to the transaxle case.

f. Using a pin punch (3 mm) and hammer, install a new slotted spring pin into the parking lock lever subassembly.

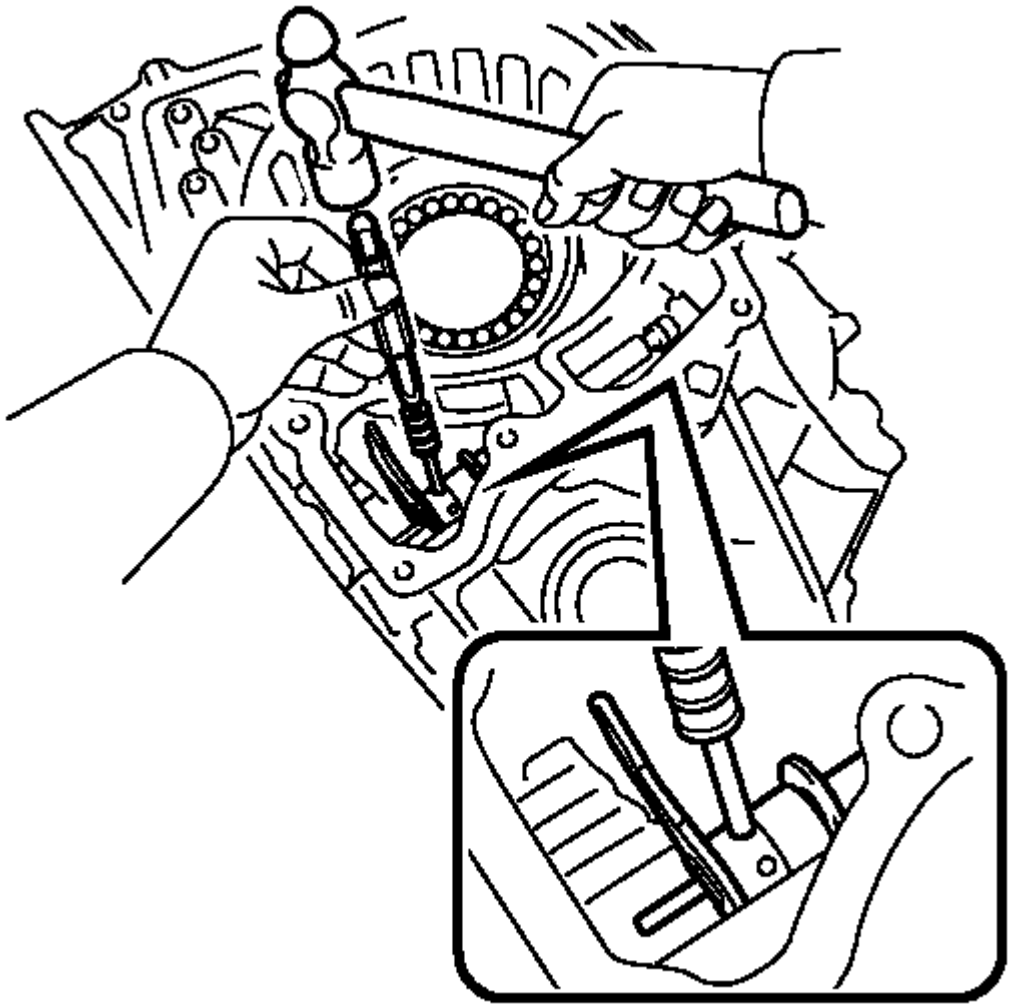


Fig. 310: Driving Out Slotted Spring Pin From Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Turn the spacer and the lever shaft to align the smaller hole of the spacer with the staking position mark on the lever shaft.

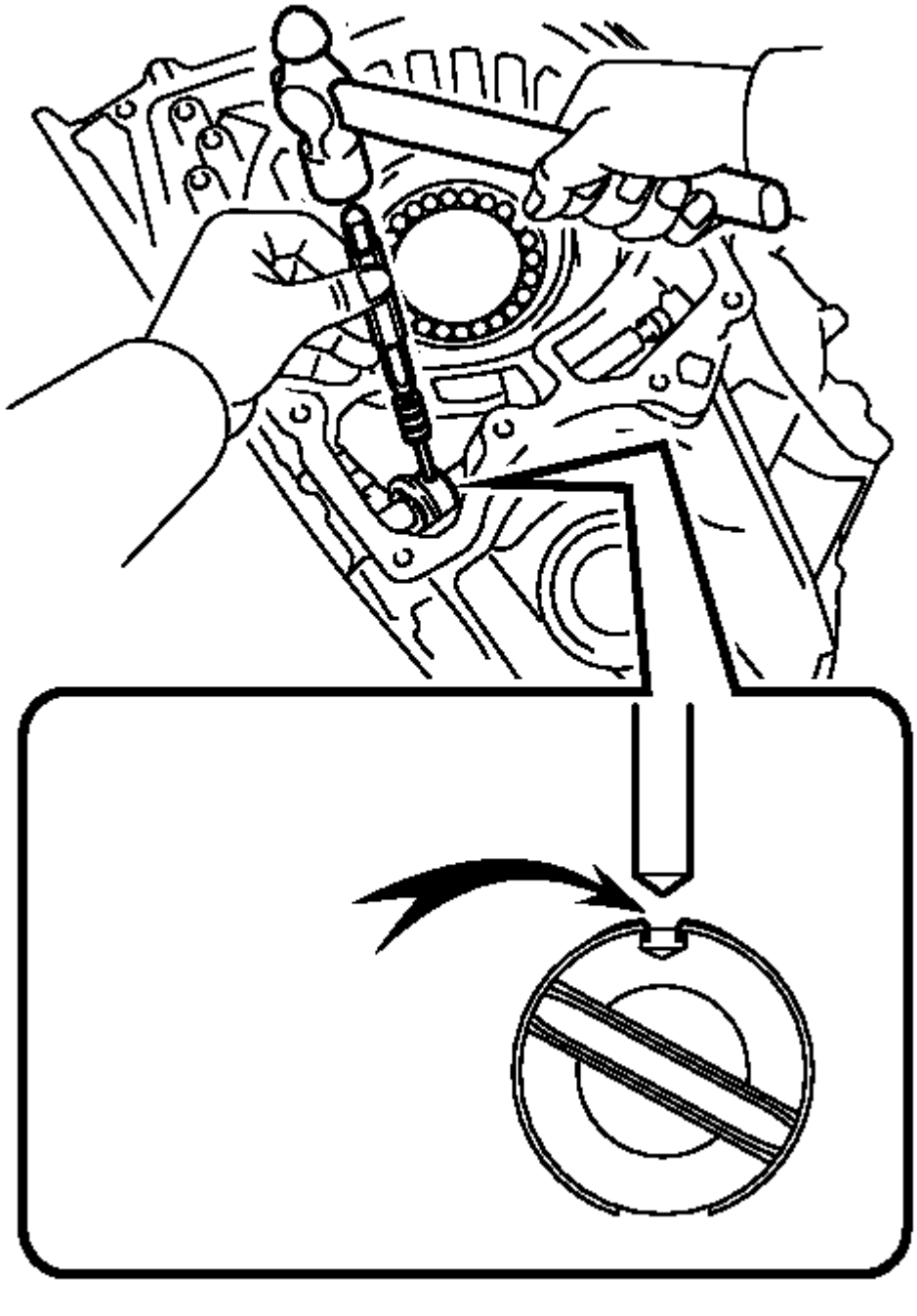


Fig. 311: Staking Spacer Through Small Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

h. Using a pin punch, stake the spacer through the small hole.
i. Check that the spacer does not turn.

j. Using a pin punch (3 mm) and hammer, install a new slotted spring pin into the manual valve lever subassembly.

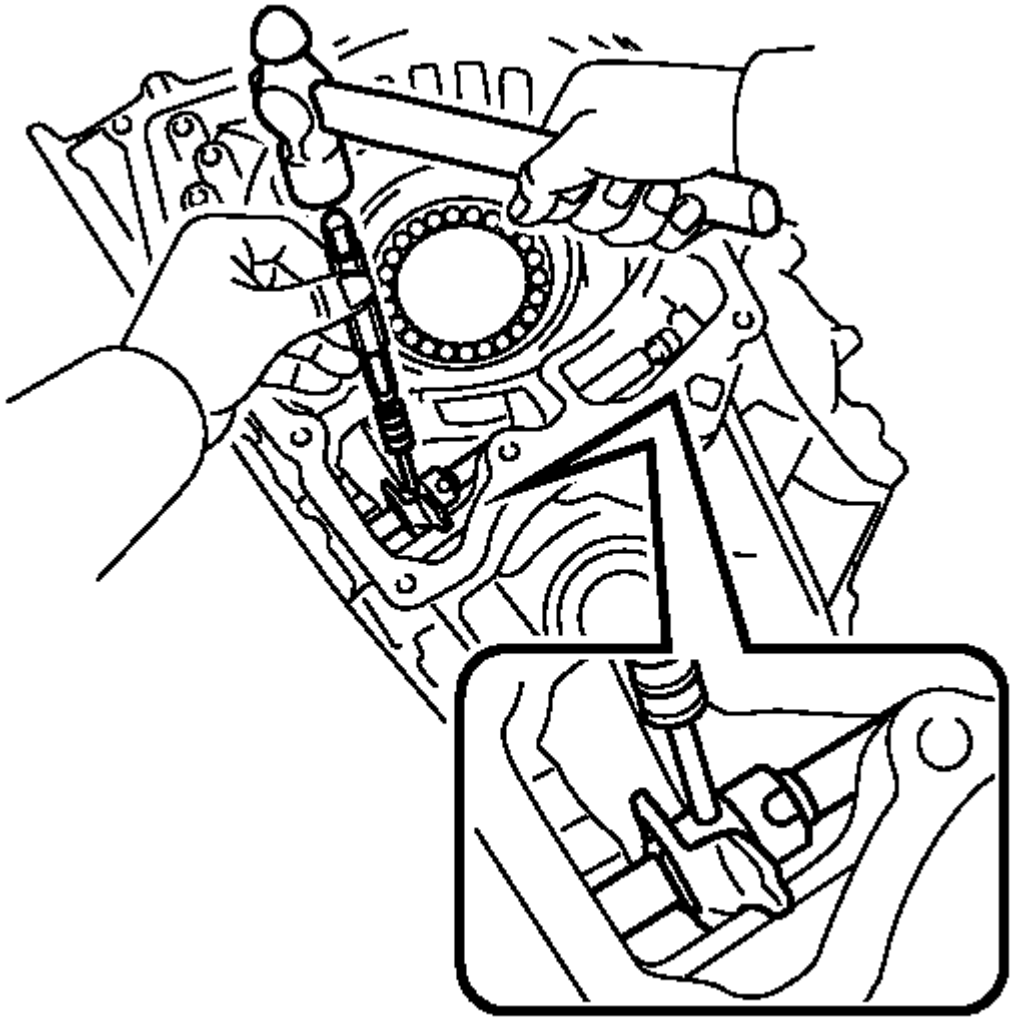


Fig. 312: Driving Out Slotted Spring Pin From Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

k. Turn the spacer and the lever shaft to align the smaller hole of the spacer with the staking position mark on the lever shaft.

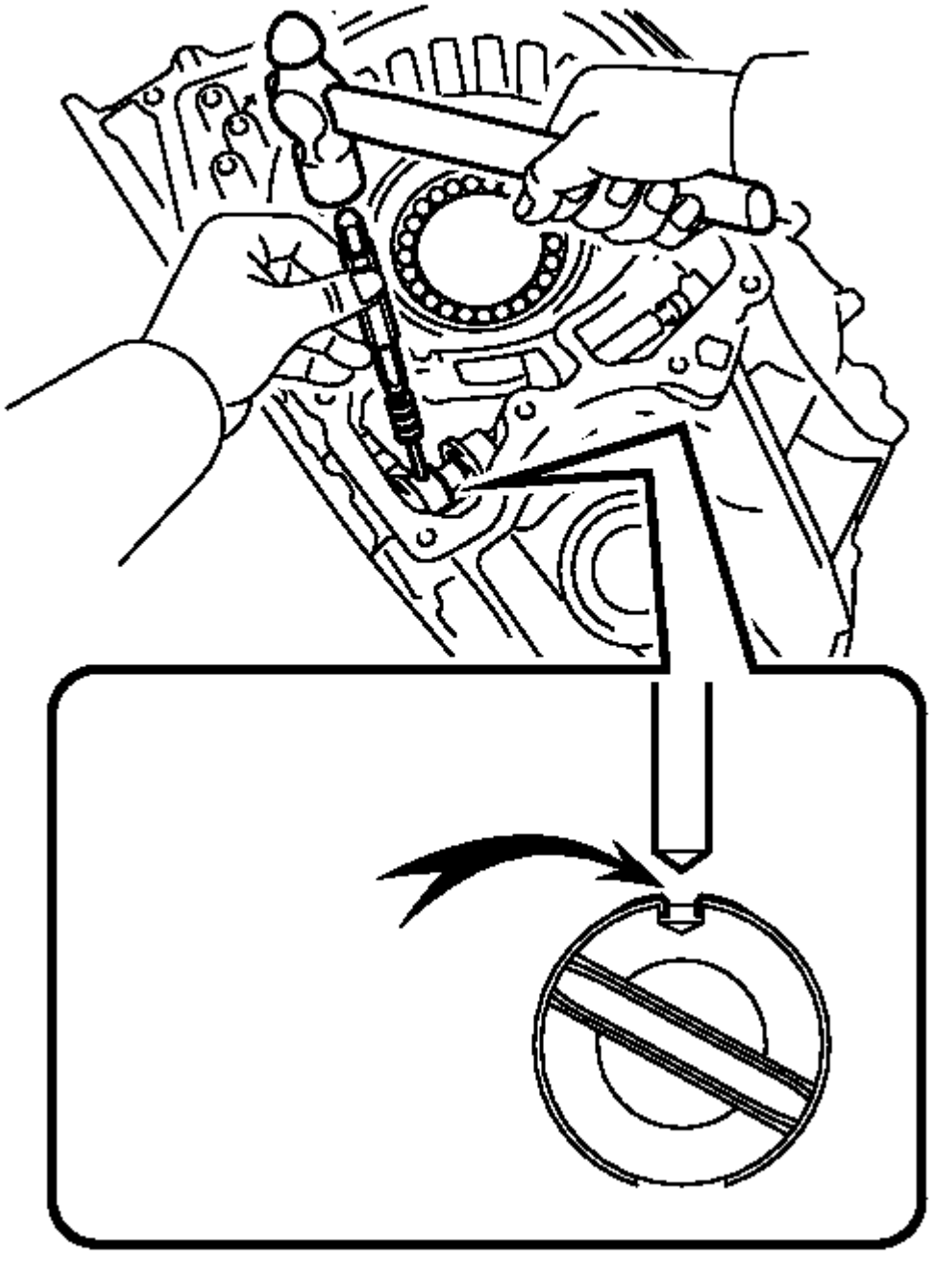


Fig. 313: Staking Spacer Through Small Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

l. Using a pin punch, stake the spacer through the small hole.
m. Check that the spacer does not turn.

n. Using needle-nose pliers, install the manual valve shaft retainer spring to the transaxle case.

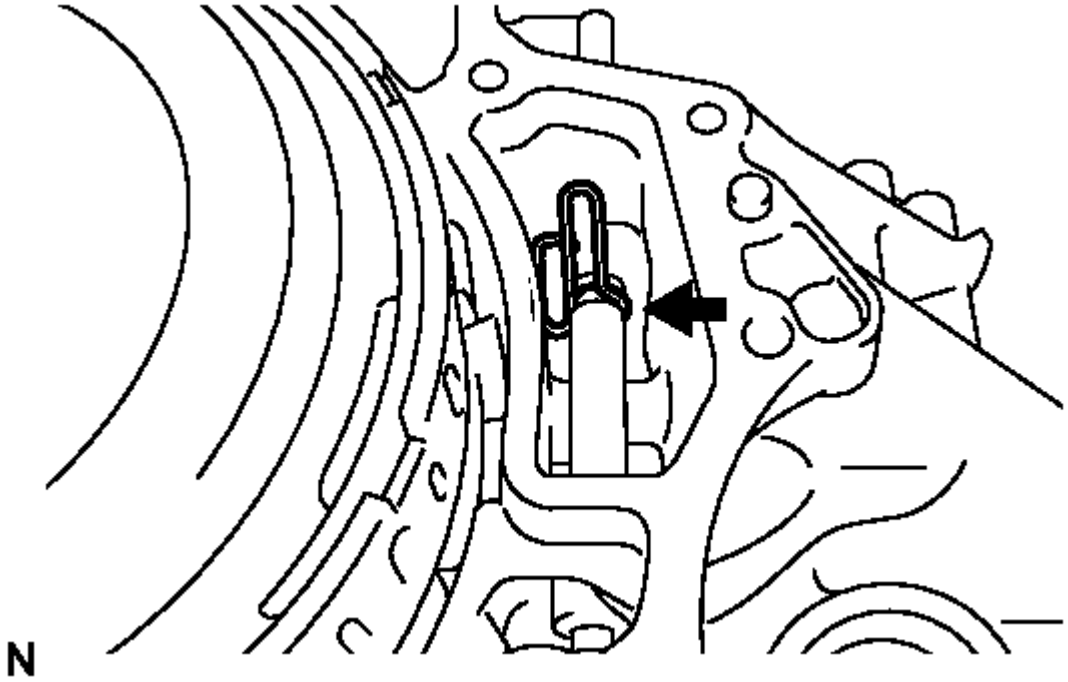


Fig. 314: Identifying Manual Valve Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL PARKING LOCK ROD SUB-ASSEMBLY**
   a. Align the slot with the notches on the parking lock lever subassembly and install the parking lock rod subassembly.

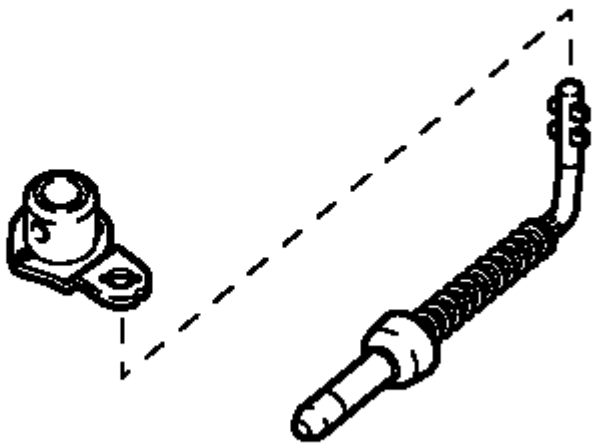


Fig. 315: Identifying Parking Lock Rod Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL MANUAL DETENT SPRING SUB-ASSEMBLY**
   a. Install the manual detent spring subassembly and cover to the transaxle case with the bolt.

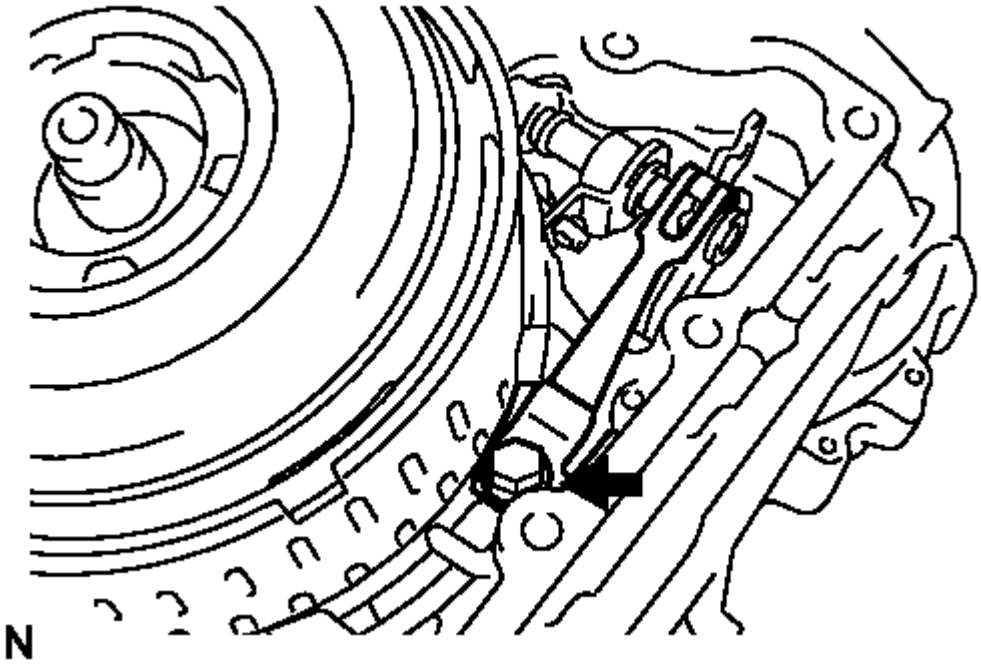


Fig. 316: Identifying Manual Detent Spring Sub-Assembly Bolt

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

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

NOTE: Make sure to install the manual detent spring first and then the cover.

6. **INSTALL NO. 3 BRAKE PISTON**
   a. Coat the contact surface of the transaxle case with ATF.

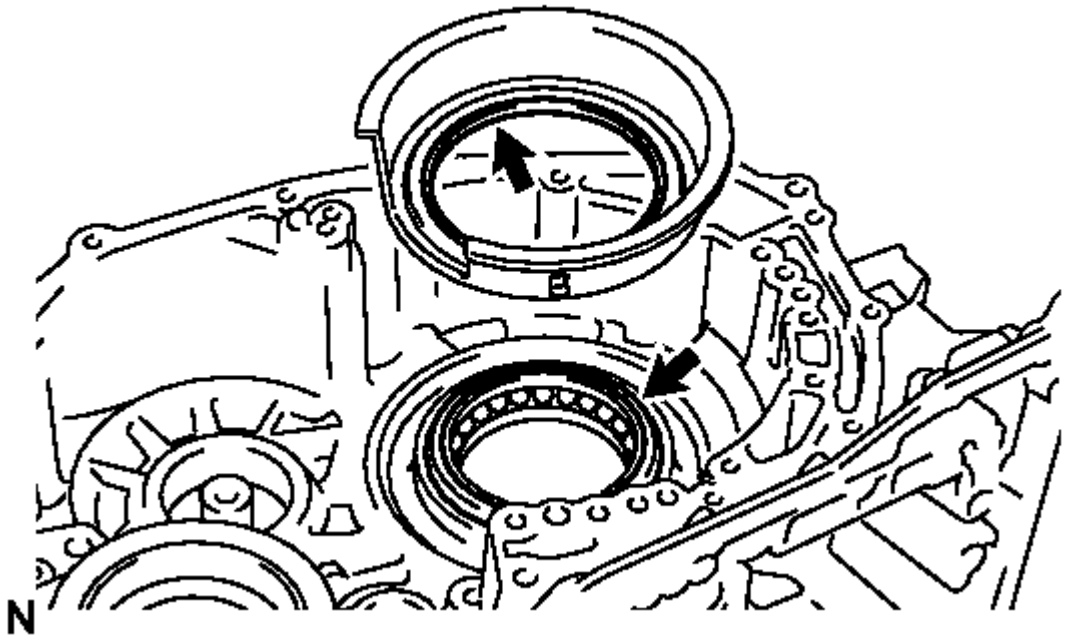


Fig. 317: Identifying Lip Seal Of No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the lip of the No. 3 brake piston with ATF.
   c. Temporarily install the pawl stopper plate to the transaxle case with the 2 bolts.

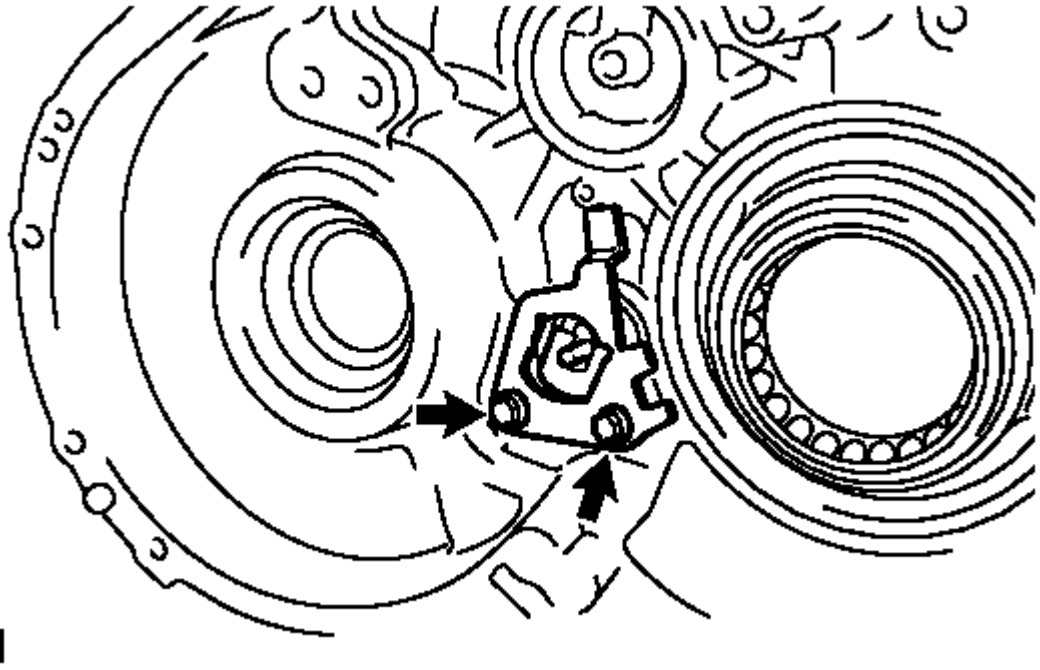
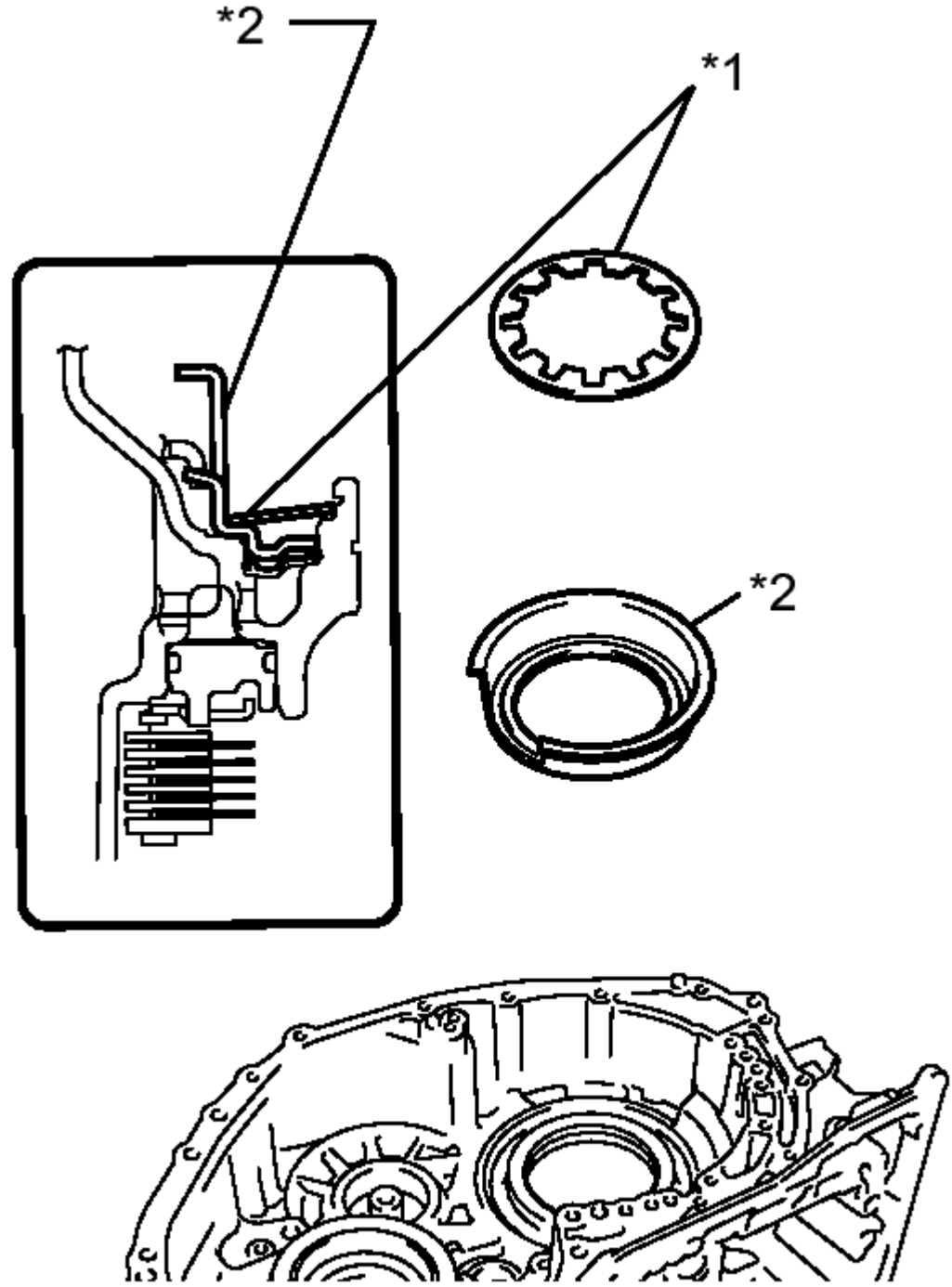


Fig. 318: Identifying Pawl Stopper Plate Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Press the No. 3 brake piston into the transaxle case.



N

Fig. 319: Identifying Brake Piston Return Spring And No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Brake

*1	Piston Return Spring
*2	No. 3 Brake Piston

NOTE:

- **Make sure that the lip of the No. 3 brake piston is not twisted and does not get caught in the transaxle case.**
- **After installation, make sure that the protrusions on the No. 3 brake piston and the grooves on the pawl stopper plate are aligned.**

HINT:

Use the installation surface of the return spring to press the piston into the transaxle case.

e. Install the return spring to the transaxle case.
f. Remove the 2 bolts and pawl stopper plate from the transaxle case.

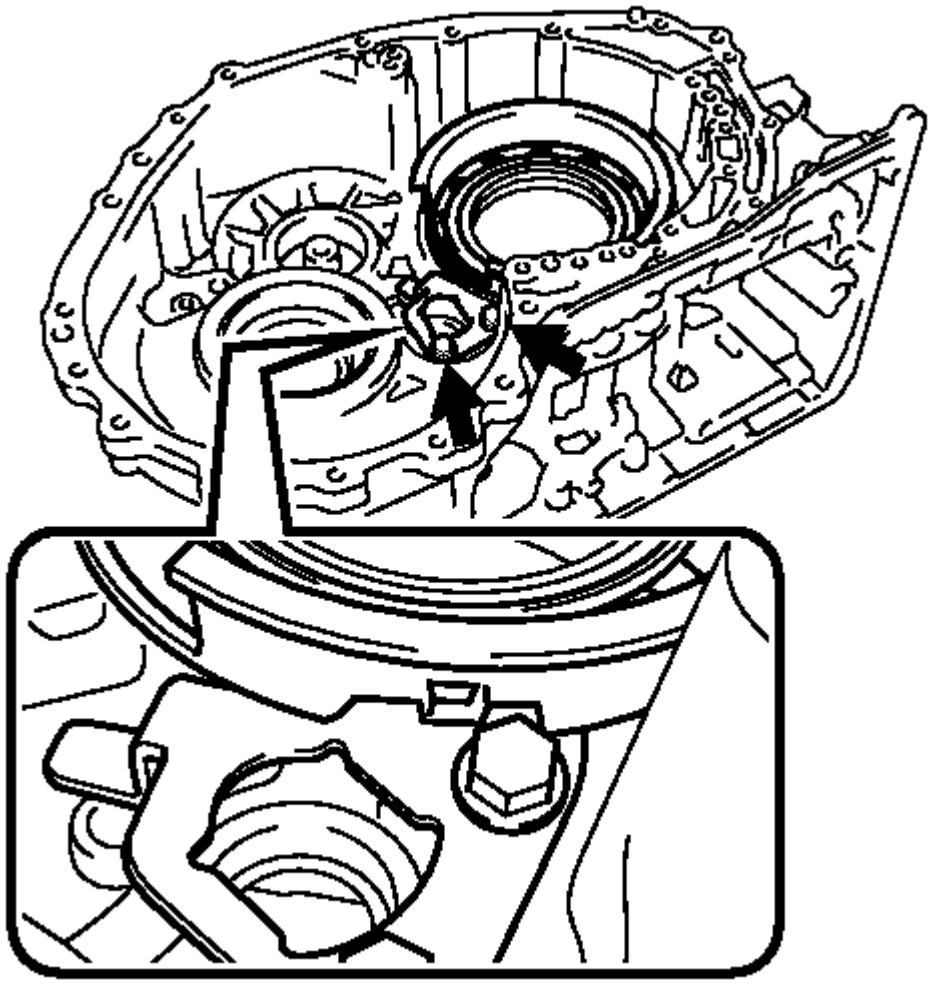


Fig. 320: Identifying Pawl Stopper Plate Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Place SST on the brake piston return spring and compress the brake piston return spring using a press.

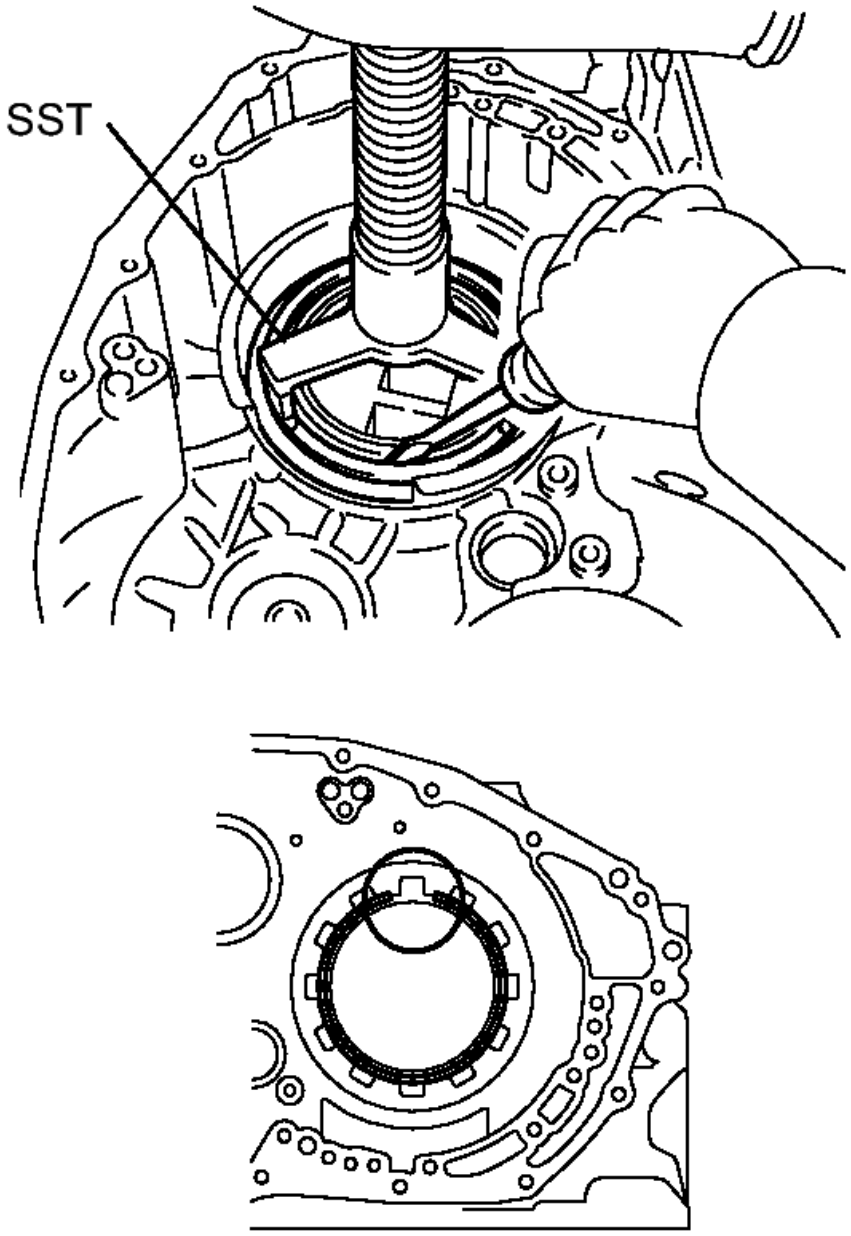


Fig. 321: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00070**

NOTE: **Stop the press when the brake piston return spring is flush with the snap ring groove. This prevents the brake piston return spring from being deformed.**

h. Using a screwdriver, install the snap ring to the transaxle case as shown in the illustration.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**
- **Be sure to align the opening of the snap ring with one of the protrusions on the brake piston return spring as shown in the illustration.**

7. **INSTALL COUNTER DRIVE GEAR**

NOTE: **Perform this procedure only when the counter drive gear bearing or transaxle case is replaced.**

a. Using SST and a press, install a new counter drive gear bearing and snap ring to the transaxle case.

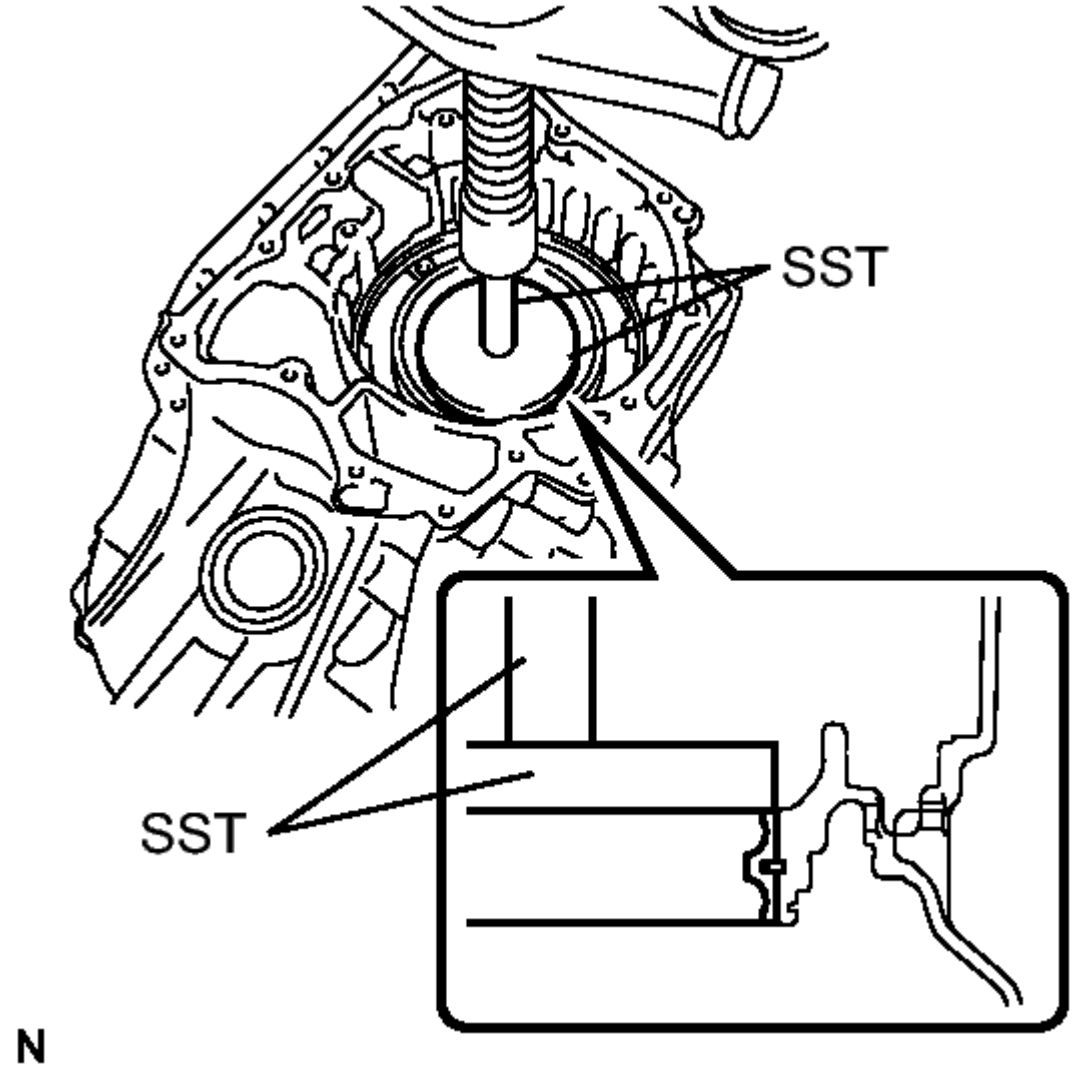


Fig. 322: Installing Counter Drive Gear Bearing And Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60020**
  09951-01030
- **SST: 09950-70010**
  09951-07100

b. Using SST, install a new bearing inner race (rear side) and counter drive gear to the transaxle case.

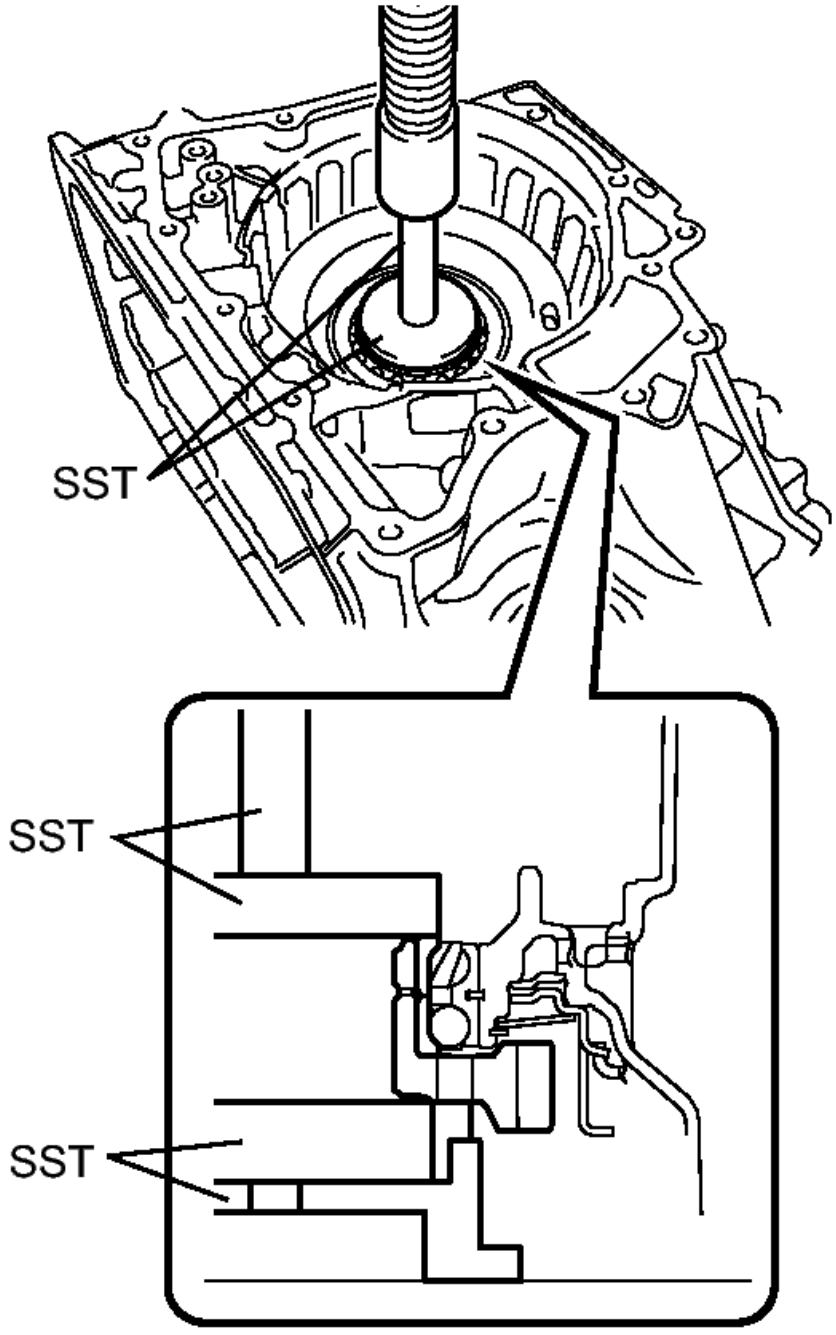


Fig. 323: Installing Bearing Inner Race (Rear Side) And Counter Drive Gear To Transaxle Case

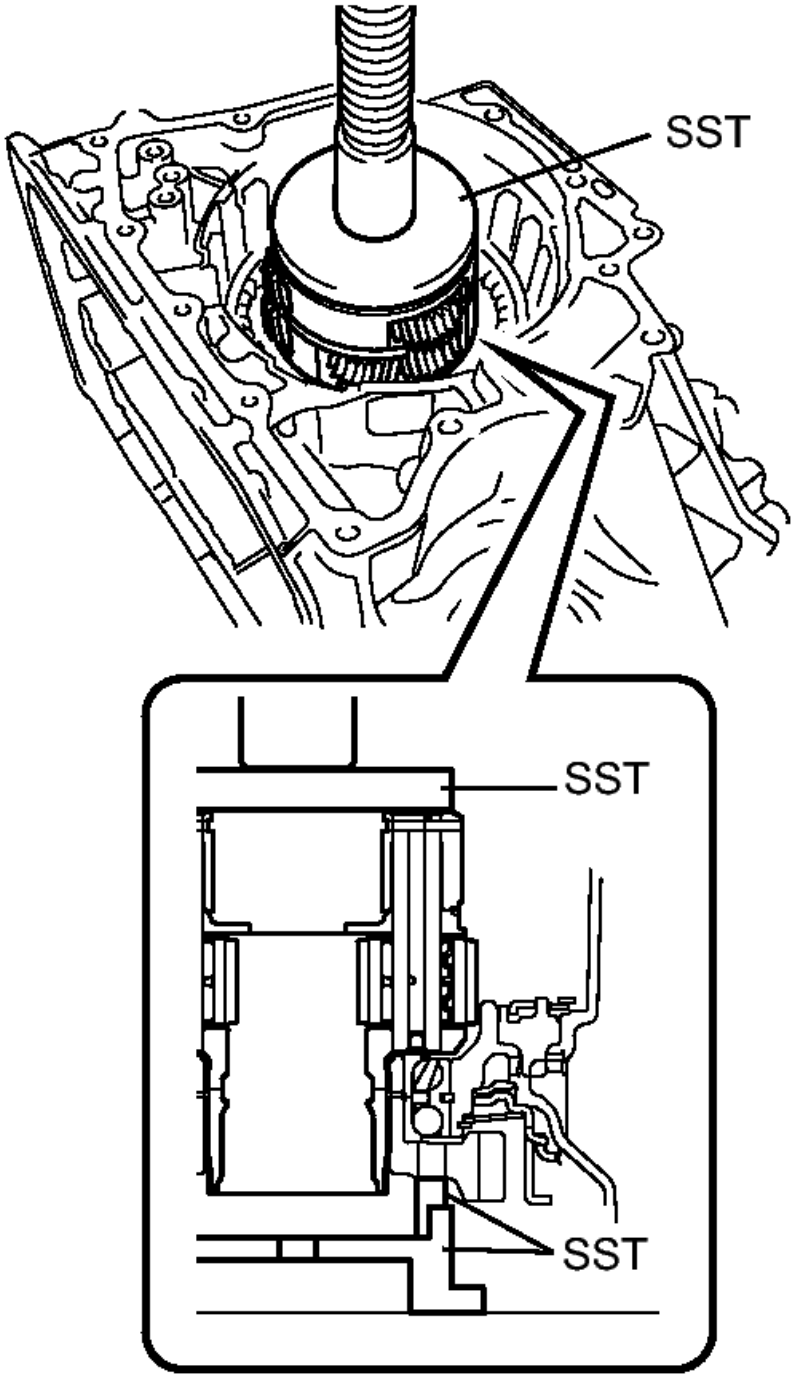
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09223-15030**

- **SST: 09527-1701109950-60020**
  09951-00810
- **SST: 09950-70010**
  09951-07100

NOTE: There should not be any clearance between the bearing inner race (front side) and counter drive gear.

8. **INSTALL FRONT PLANETARY GEAR ASSEMBLY**
   a. Using SST and a press, press the planetary gear assembly onto the transaxle case.



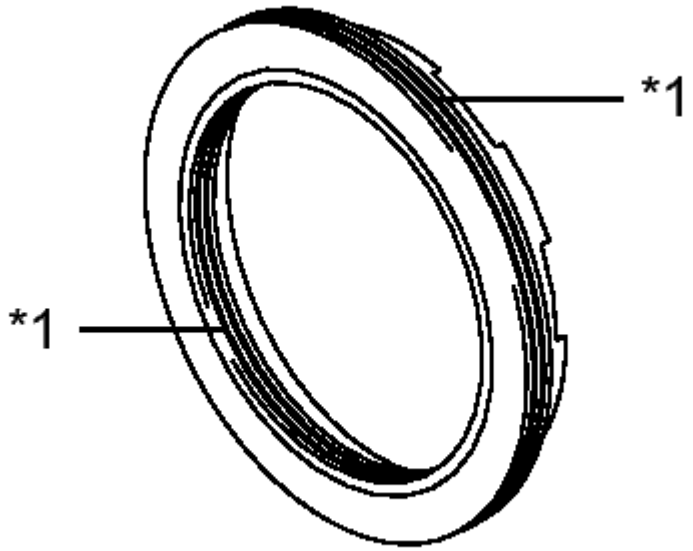
N

Fig. 324: Installing Planetary Gear Assembly To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09223-15030**
- **SST: 09527-17011**

- **SST: 09951-01100**

9. **INSTALL NO. 2 BRAKE PISTON**
   a. Coat 2 new O-rings with ATF and install them to the No. 2 brake piston.



N

Fig. 325: Identifying No. 2 Brake Piston O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

NOTE: Ensure that the 2 O-rings are not twisted.

   b. Install the No. 2 brake piston to the transaxle case.

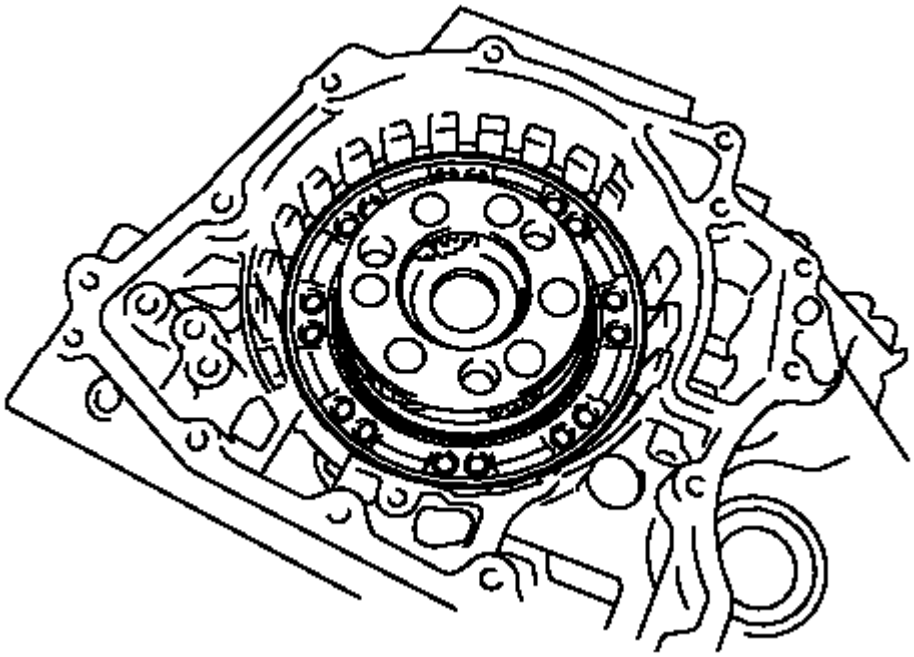
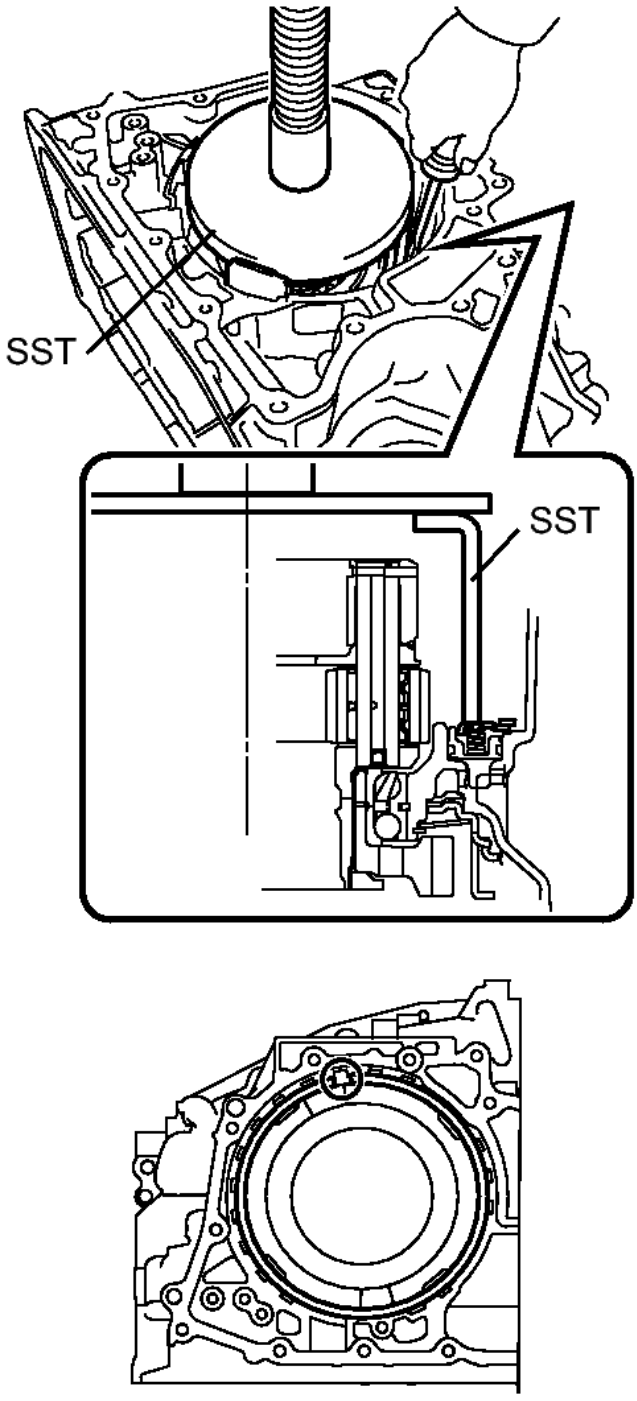


Fig. 326: Identifying No. 2 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the O-rings.

10. **INSTALL 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**
    a. Install the 1st and reverse brake return spring to the transaxle case.
    b. Place SST on the 1st and reverse brake return spring and compress the 1st and reverse brake return spring using a press.



N

Fig. 327: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00060**

NOTE: **Stop the press when the 1st and reverse brake return spring is flush with the snap ring groove. This prevents the 1st and reverse brake return spring from being deformed.**

c. Using a screwdriver, install the snap ring to the transaxle case as shown in the illustration.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**
- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

11. **INSTALL NO. 2 BRAKE DISC**

a. Install the 5 brake discs, 5 brake plates and brake flange to the transaxle case.

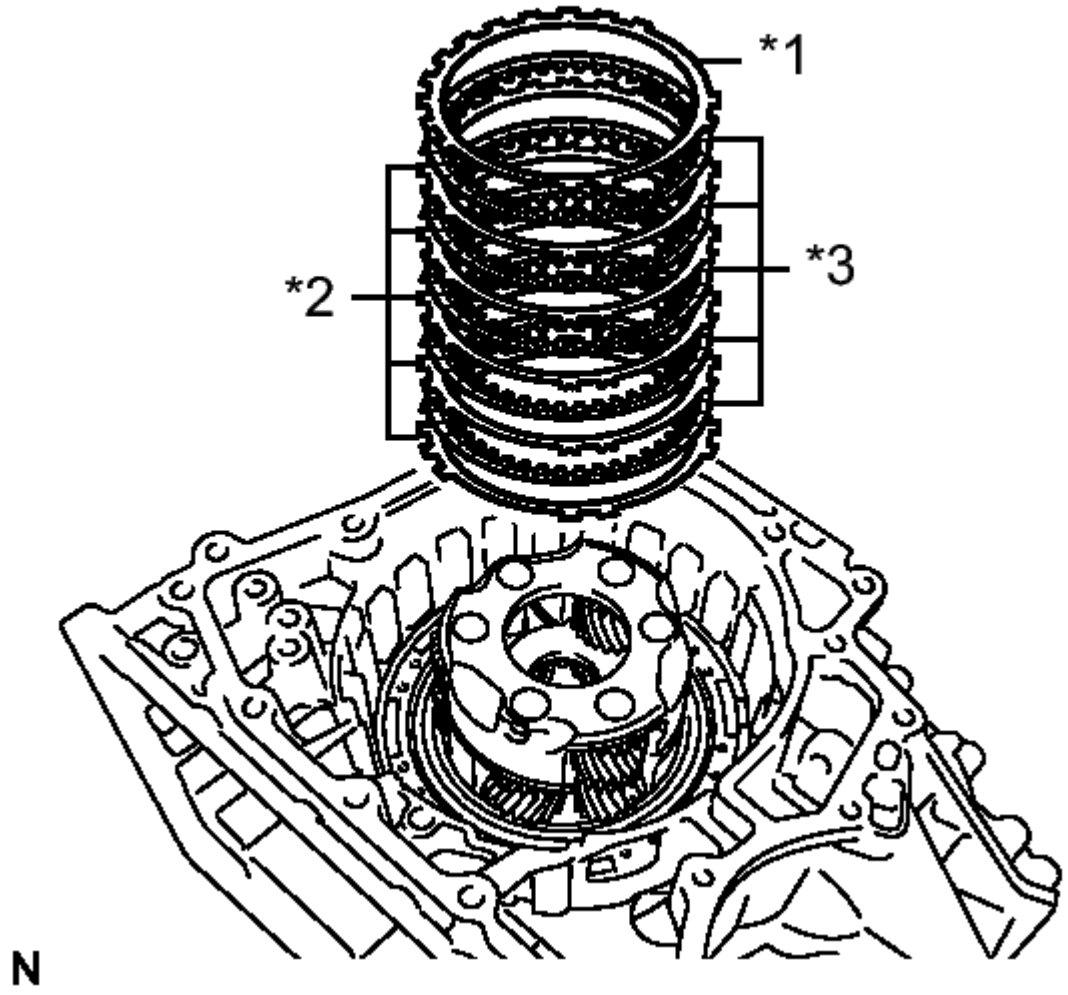


Fig. 328: Identifying Brake Flange, Brake Discs And Brake Plates

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

TEXT IN ILLUSTRATION

*1	Brake Flange
*2	Brake Plate
*3	Brake Disc

NOTE: **Make sure that the discs, plates and flange are installed in the correct order.**

b. Using a screwdriver, install the snap ring to the transaxle case.

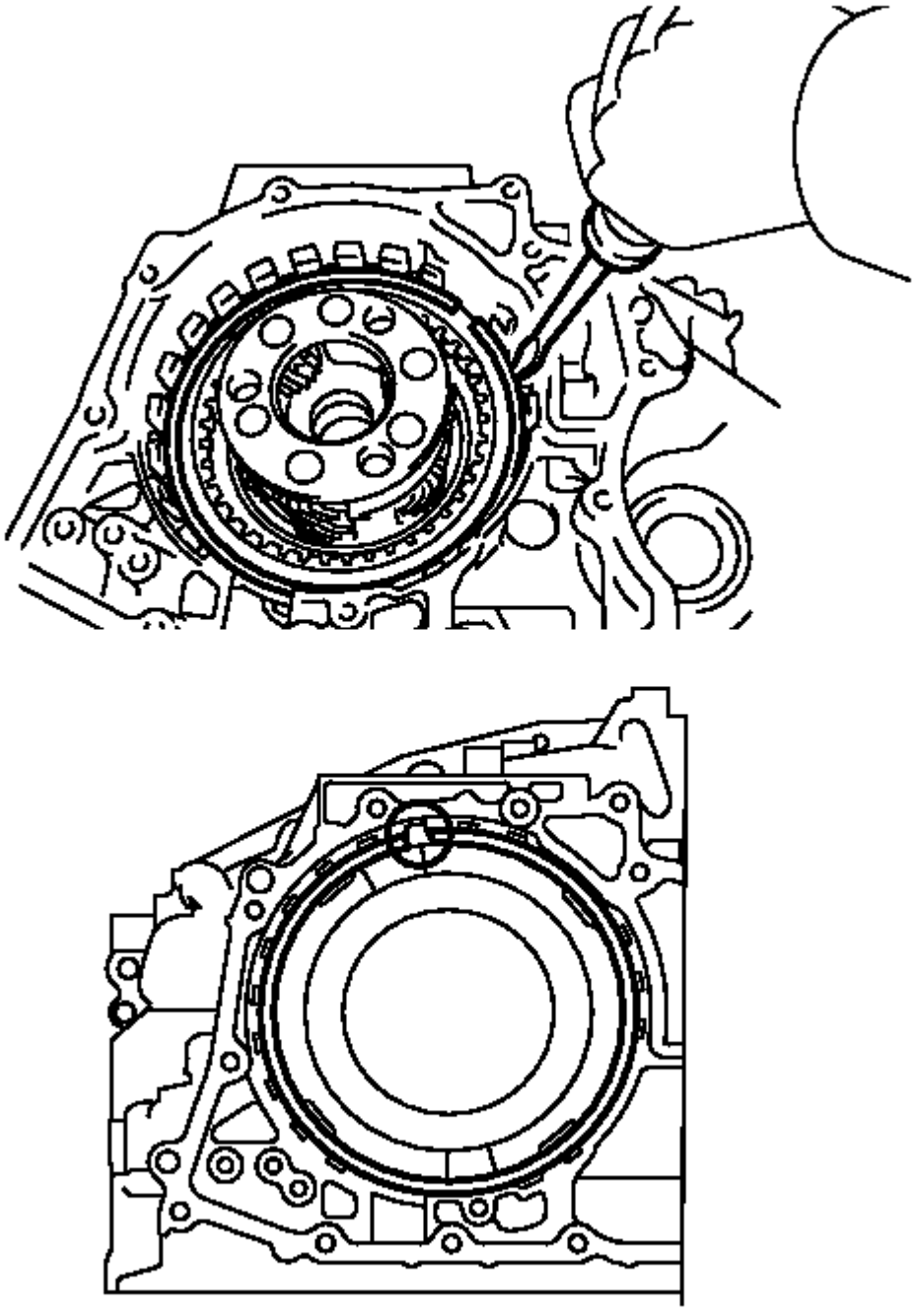


Fig. 329: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**

- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

12. **INSPECT CLEARANCE OF NO. 2 BRAKE** See step 15
13. **INSTALL PLANETARY RING GEAR FLANGE**
    a. Install the planetary ring gear flange to the planetary ring gear.

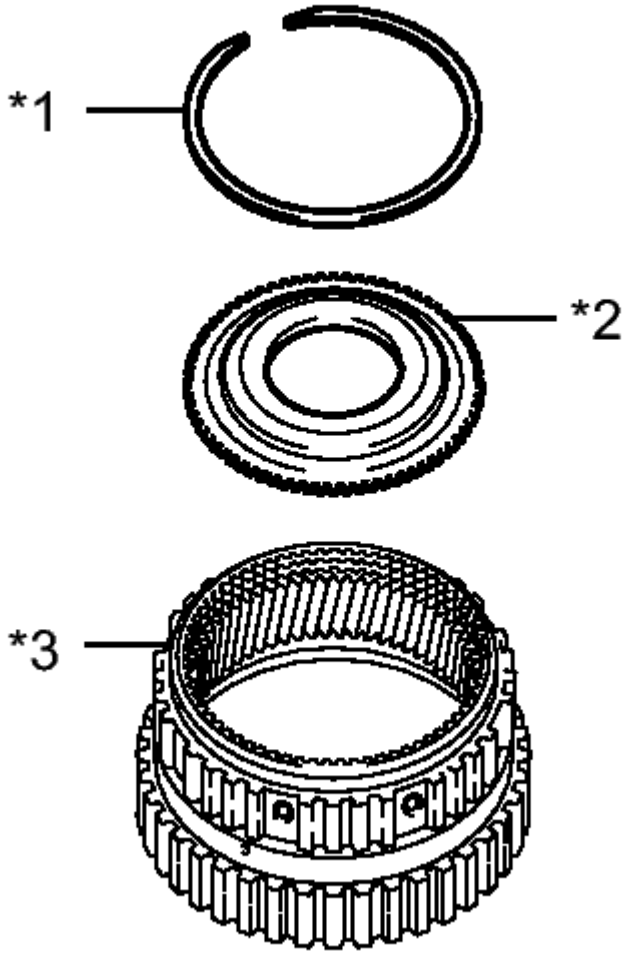


Fig. 330: Identifying Planetary Ring Gear Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*2	Planetary Ring Gear Flange

*3	Planetary Ring Gear

b. Using a screwdriver, install the snap ring to the planetary ring gear.

TEXT IN ILLUSTRATION

*1	Snap Ring

NOTE: Confirm that the snap ring is correctly located in the groove of the planetary ring gear.

14. **INSTALL PLANETARY RING GEAR**

a. Install the planetary ring gear to the one-way clutch assembly.

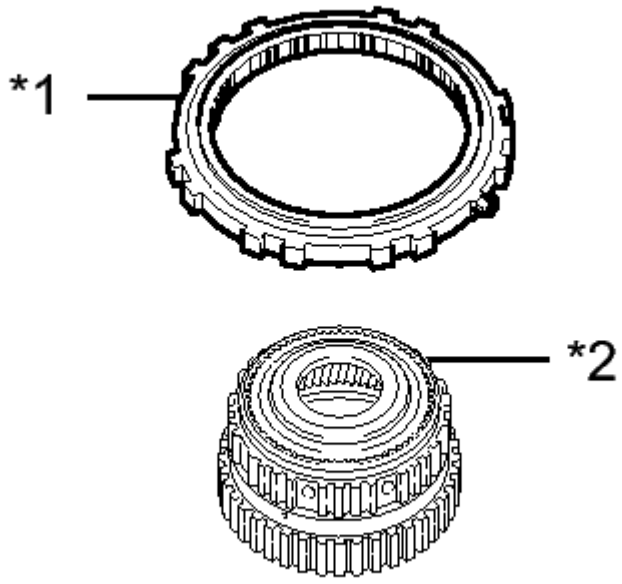


Fig. 331: Identifying Planetary Ring Gear And One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Planetary Ring Gear

NOTE: **Make sure that the one-way clutch assembly is positioned in the correct direction as shown in the illustration.**

15. **INSTALL ONE-WAY CLUTCH ASSEMBLY**
    a. Coat the thrust needle roller bearing with ATF, and install it onto the planetary gear assembly.

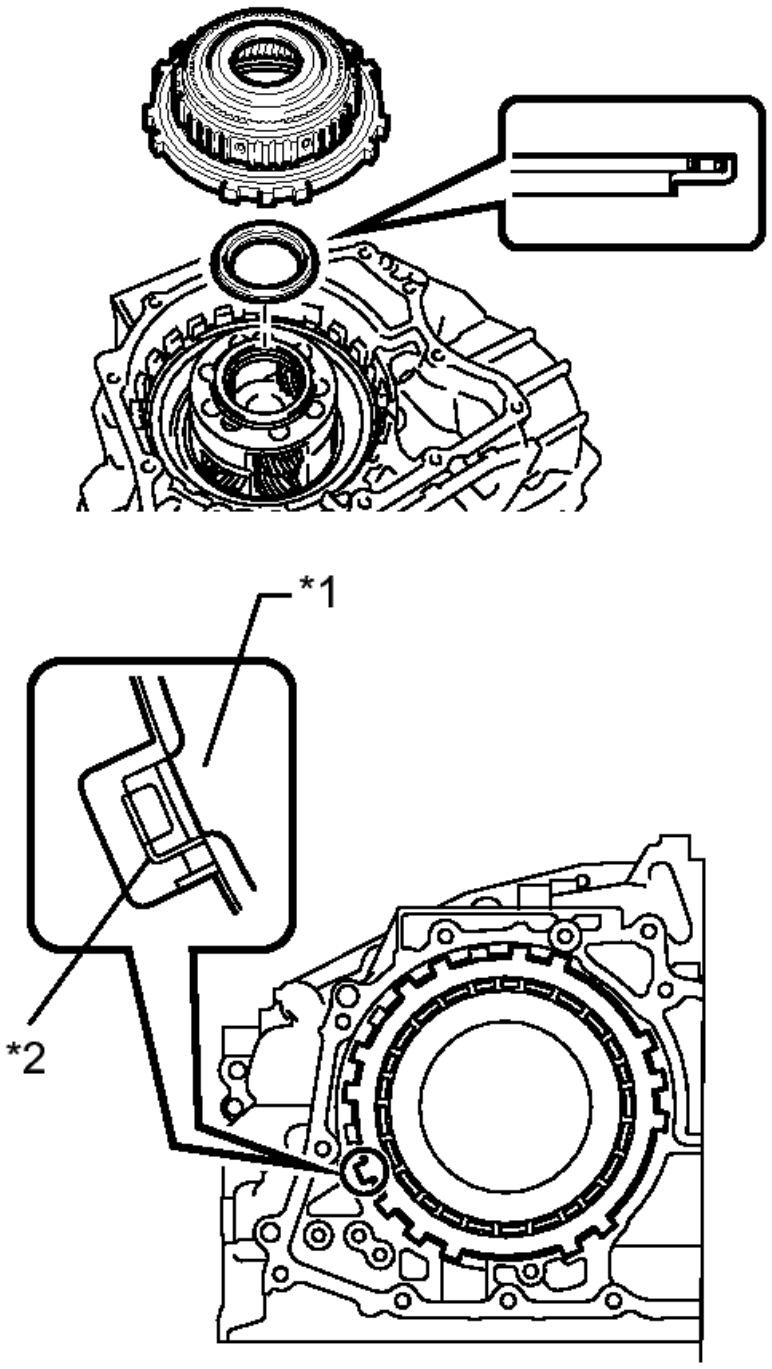


Fig. 332: Identifying One-Way Clutch Assembly, Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

-	Inside mm (in.)	Outside mm (in.)
Bearing	56.1 (2.21)	80.9 (3.19)

NOTE: **Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.**

b. Install the one-way clutch assembly to the transaxle case.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Thrust Needle Roller Bearing

NOTE: **Make sure that there is no clearance between the retainer and the claw on the one-way clutch assembly. If there is any clearance, the spring of the retainer will be deformed.**

c. Using a screwdriver, install the snap ring to the transaxle case.

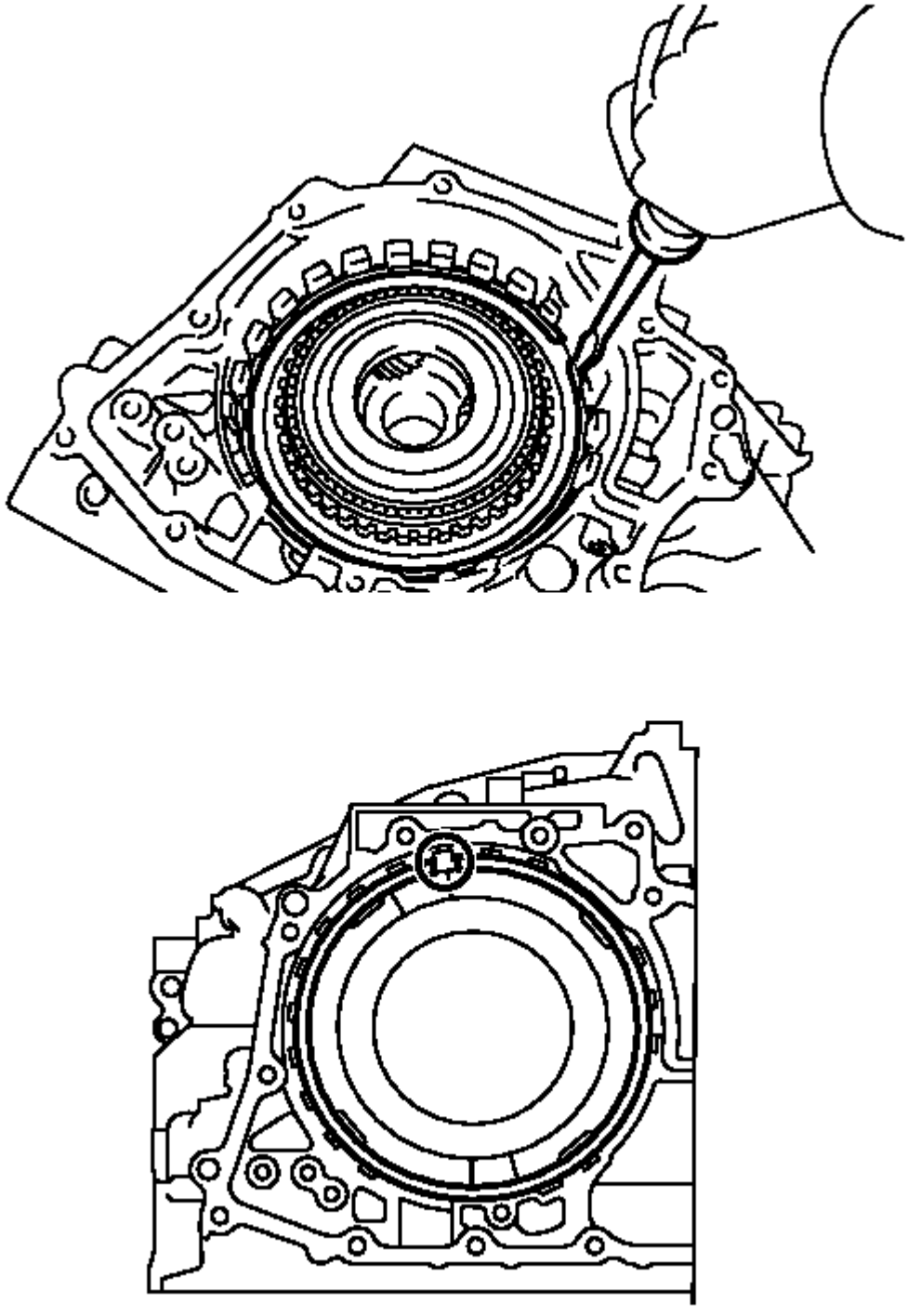


Fig. 333: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**

- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

16. **INSTALL COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING OUTER RACE**
    a. Using SST and a hammer, install a new counter driven gear rear tapered roller bearing outer race to the transaxle case.

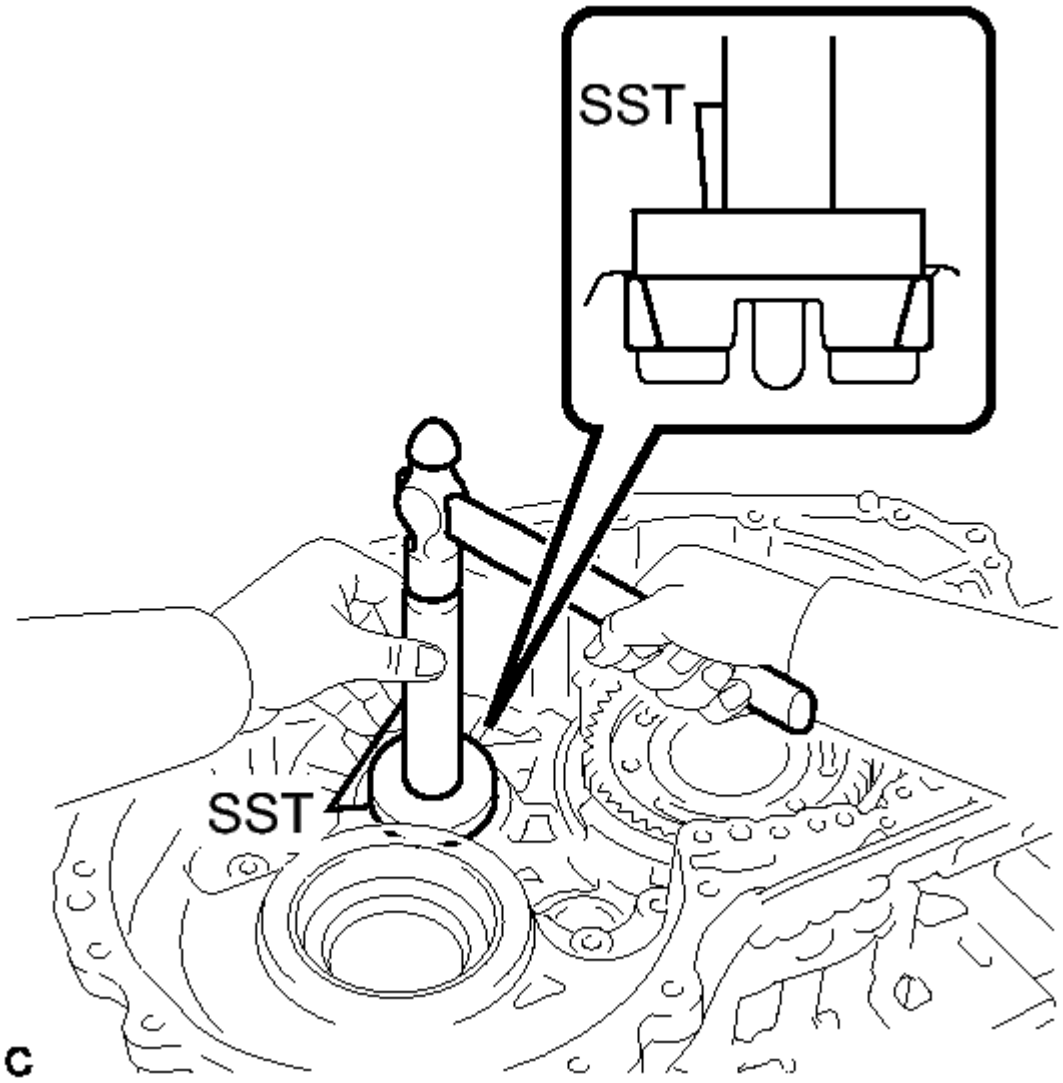


Fig. 334: Installing Counter Driven Gear Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00650
- **SST: 09950-70010**
  09951-07100

NOTE: **Be sure to install the counter driven gear rear tapered roller bearing outer race so that there is no clearance between the bearing outer race and the transaxle case. If there is any clearance, the turning torque of the counter drive gear cannot be measured correctly.**

17. **INSTALL PARKING LOCK PAWL**
    a. Install the parking lock pawl to the transaxle case with the parking lock pawl shaft.

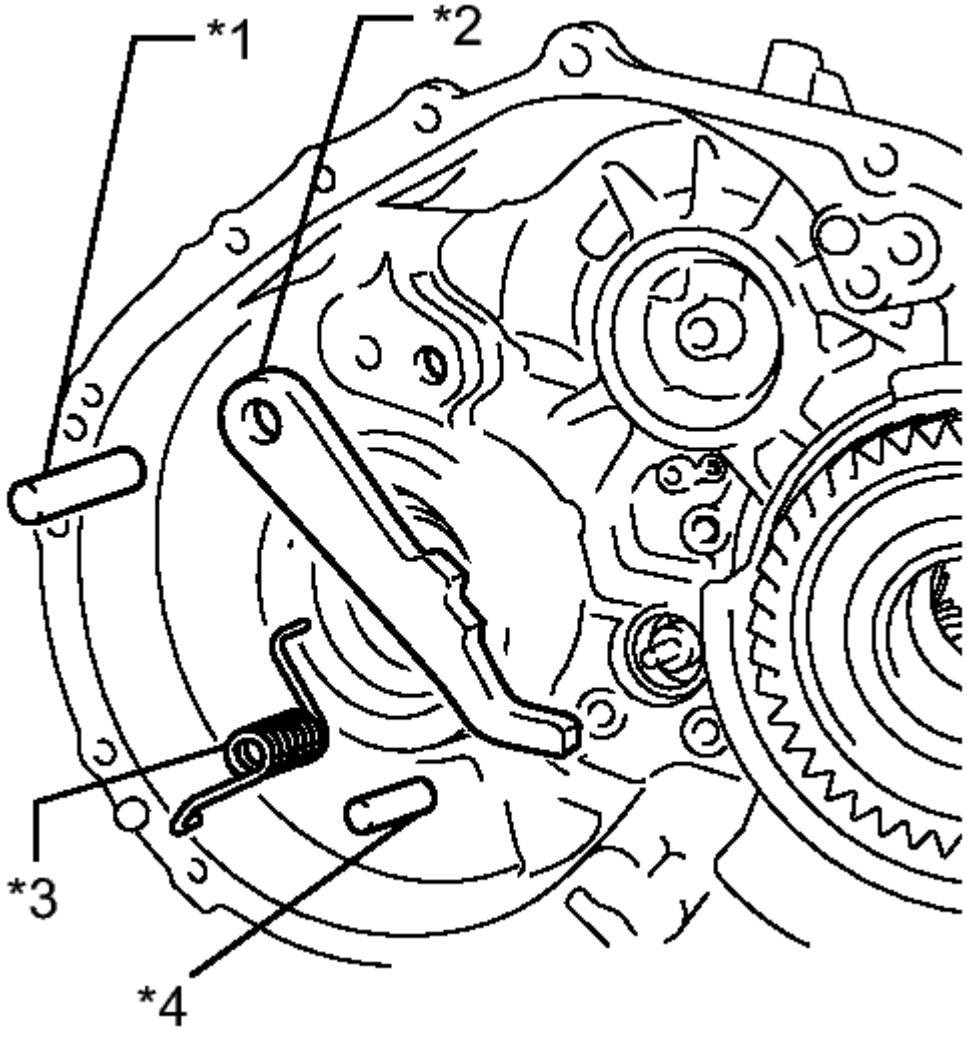


Fig. 335: Identifying Spring, Parking Lock Pawl Pin, Parking Lock Pawl Shaft & Parking Lock Pawl At Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Parking Lock

	Pawl Shaft
*2	Parking Lock Pawl
*3	Spring

b. Install the parking lock pawl pin to the transaxle case.

TEXT IN ILLUSTRATION

*4	Parking Lock Pawl Pin

c. Install the spring to the parking lock pawl.

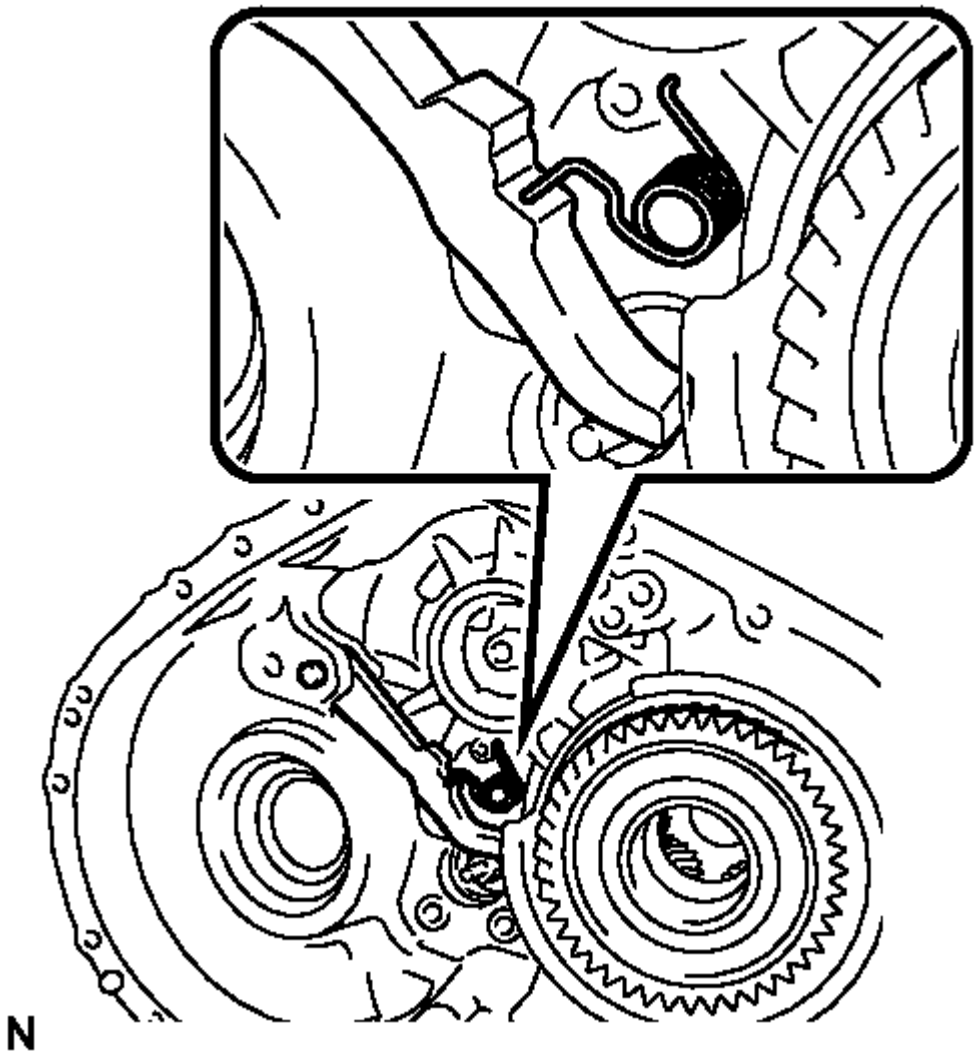


Fig. 336: Identifying Torsion Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that one end of the spring is set in the hole of the transaxle case and the other end is positioned on the parking lock pawl as shown in the illustration.

18. **INSTALL PAWL STOPPER PLATE**
    a. Install the parking lock sleeve to the transaxle case.

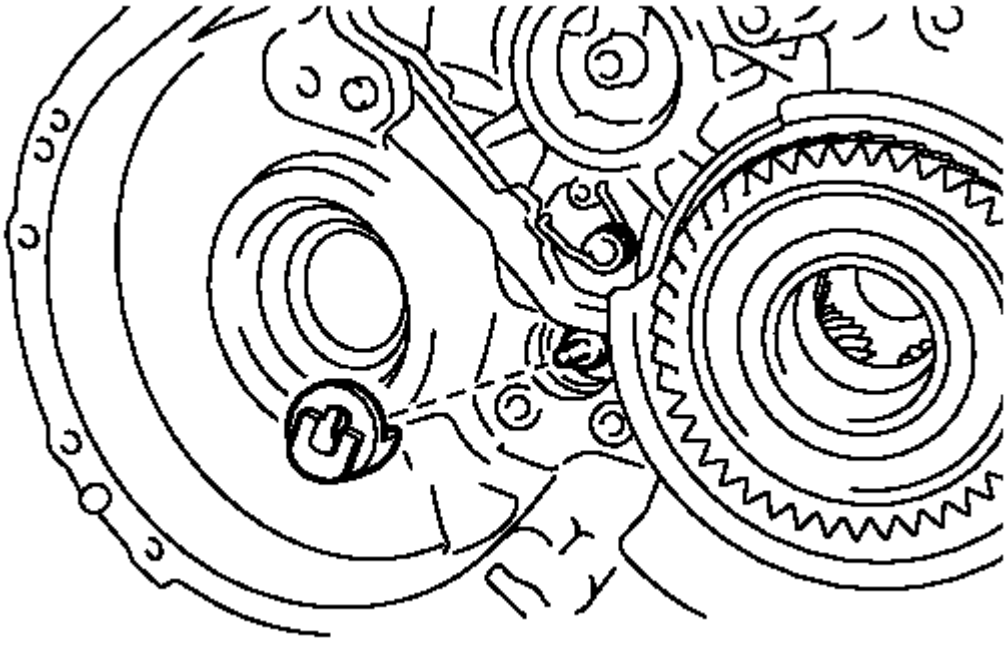


Fig. 337: Identifying Parking Lock Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **INSTALL PAWL STOPPER PLATE**
    a. Install the pawl stopper plate to the transaxle case with the 2 bolts.

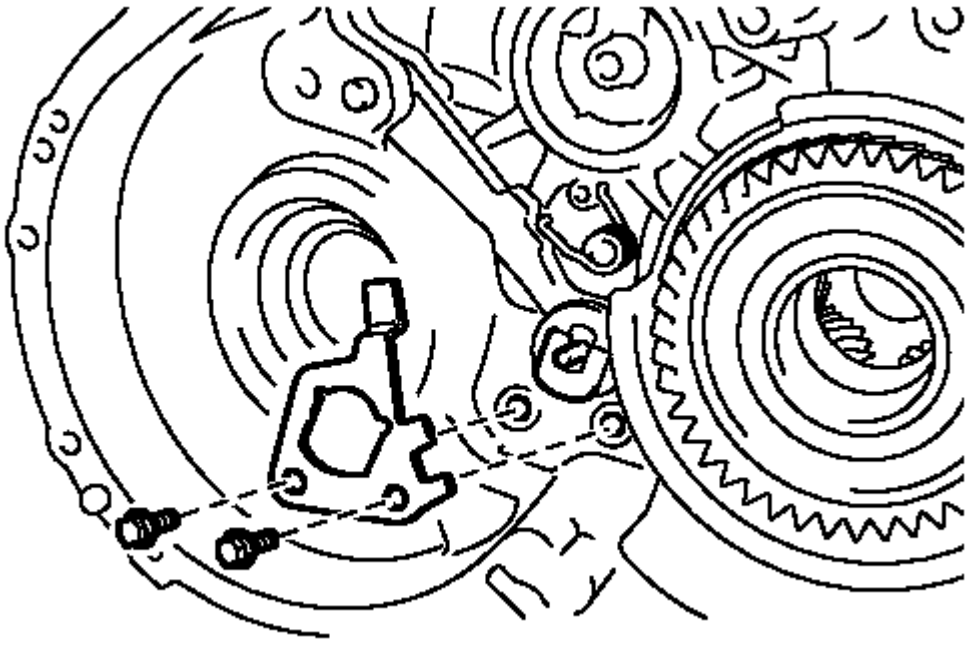


Fig. 338: Identifying Bolts And Pawl Stopper Plate

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

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

20. **INSTALL PAWL SHAFT CLAMP**
    a. Install the pawl shaft clamp to the transaxle case with the bolt.

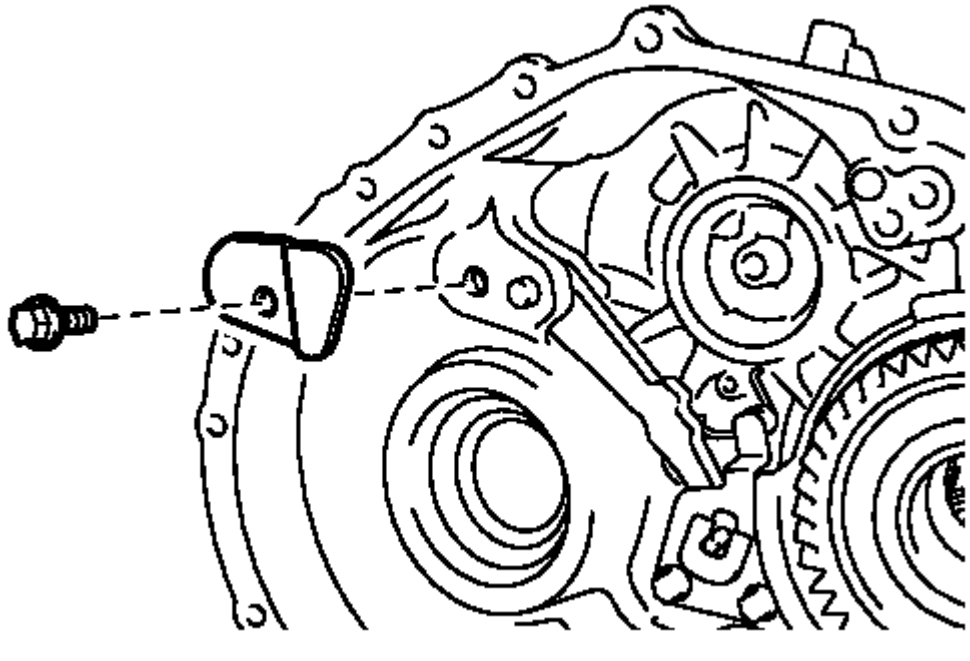


Fig. 339: Identifying Bolt And Pawl Shaft Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

21. **INSTALL COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING**
    a. Using SST and a press, install a new counter driven gear rear tapered roller bearing to the counter driven gear subassembly.

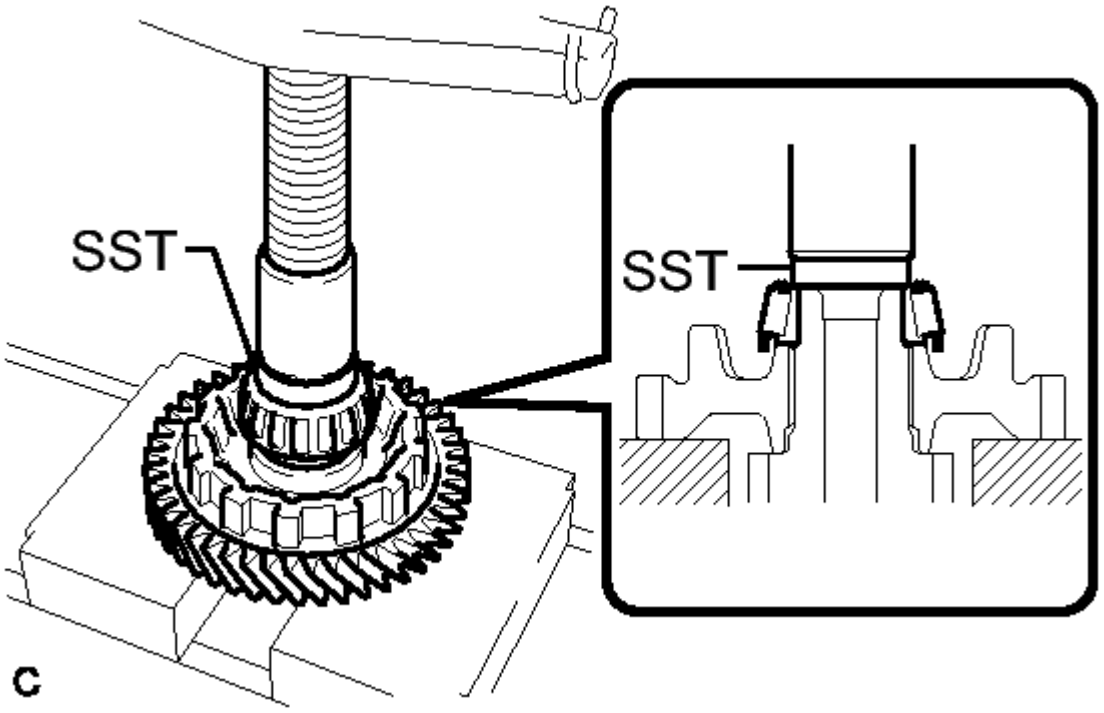


Fig. 340: Installing Counter Driven Gear Rear Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00420

NOTE: **Be sure to install the counter driven gear rear tapered roller bearing and the differential drive pinion so that there is no clearance between each of them and the counter driven gear.**

22. **INSTALL COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING**
    a. Using SST and a press, install a new counter driven gear front tapered roller bearing to the counter driven gear subassembly.

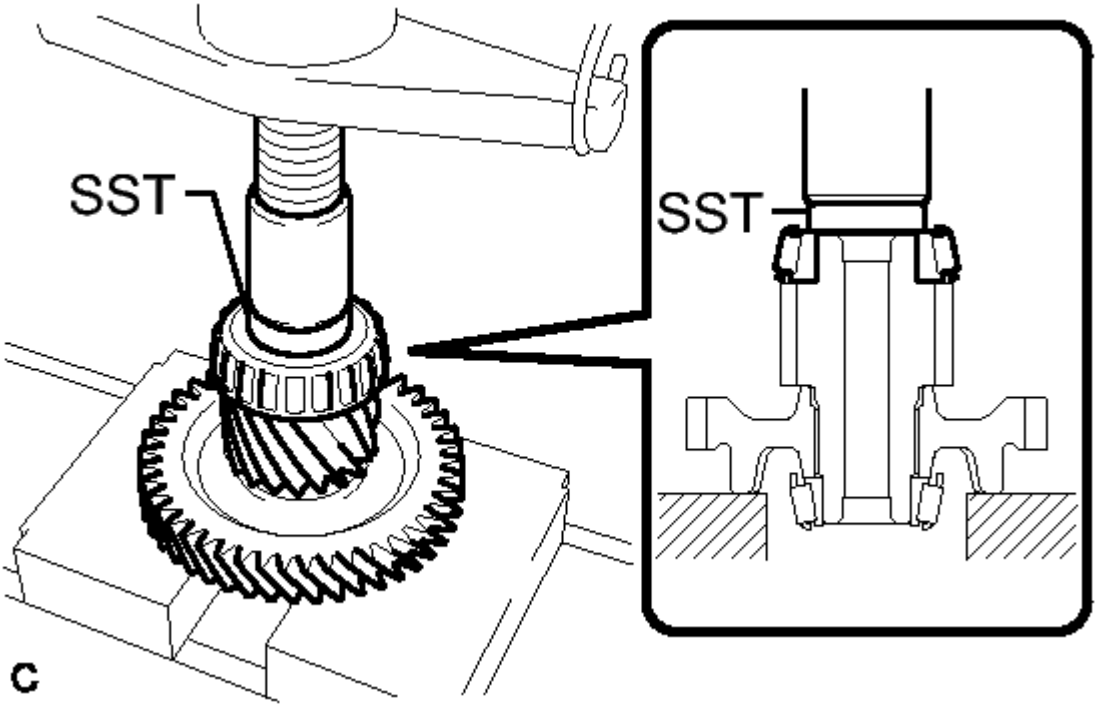


Fig. 341: Installing Counter Driven Gear Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00530

NOTE: **Be sure to install the counter driven gear front tapered roller bearing so that there is no clearance between the bearing and the counter driven gear. If there is any clearance, the turning torque of the counter drive gear cannot be measured correctly.**

23. **INSTALL COUNTER DRIVEN GEAR**
    a. Install the counter driven gear subassembly to the transaxle case.

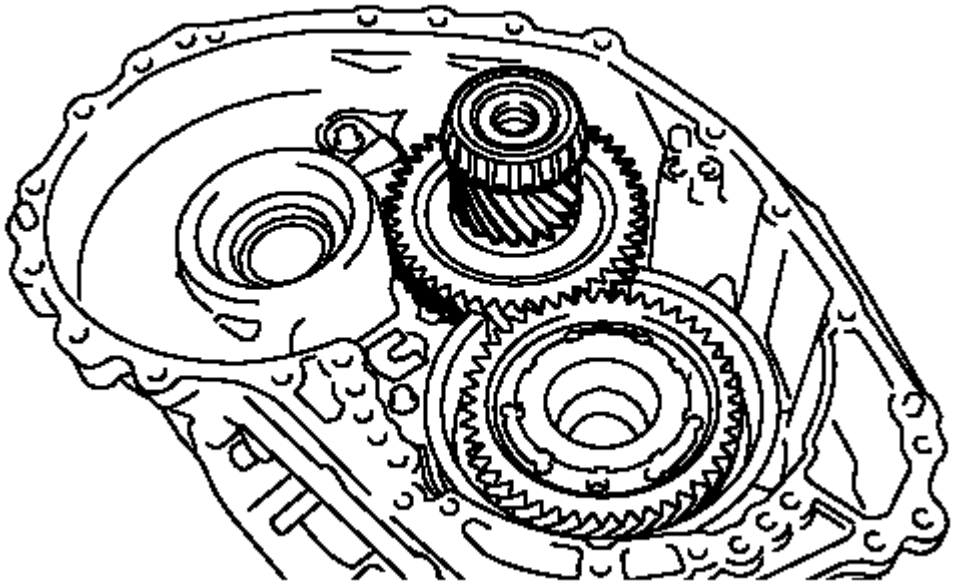


Fig. 342: Identifying Counter Driven Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **INSTALL COUNTER DRIVE GEAR NUT**
    a. Turn the manual valve lever 2 notches counterclockwise to set it to the P position as shown in the illustration.

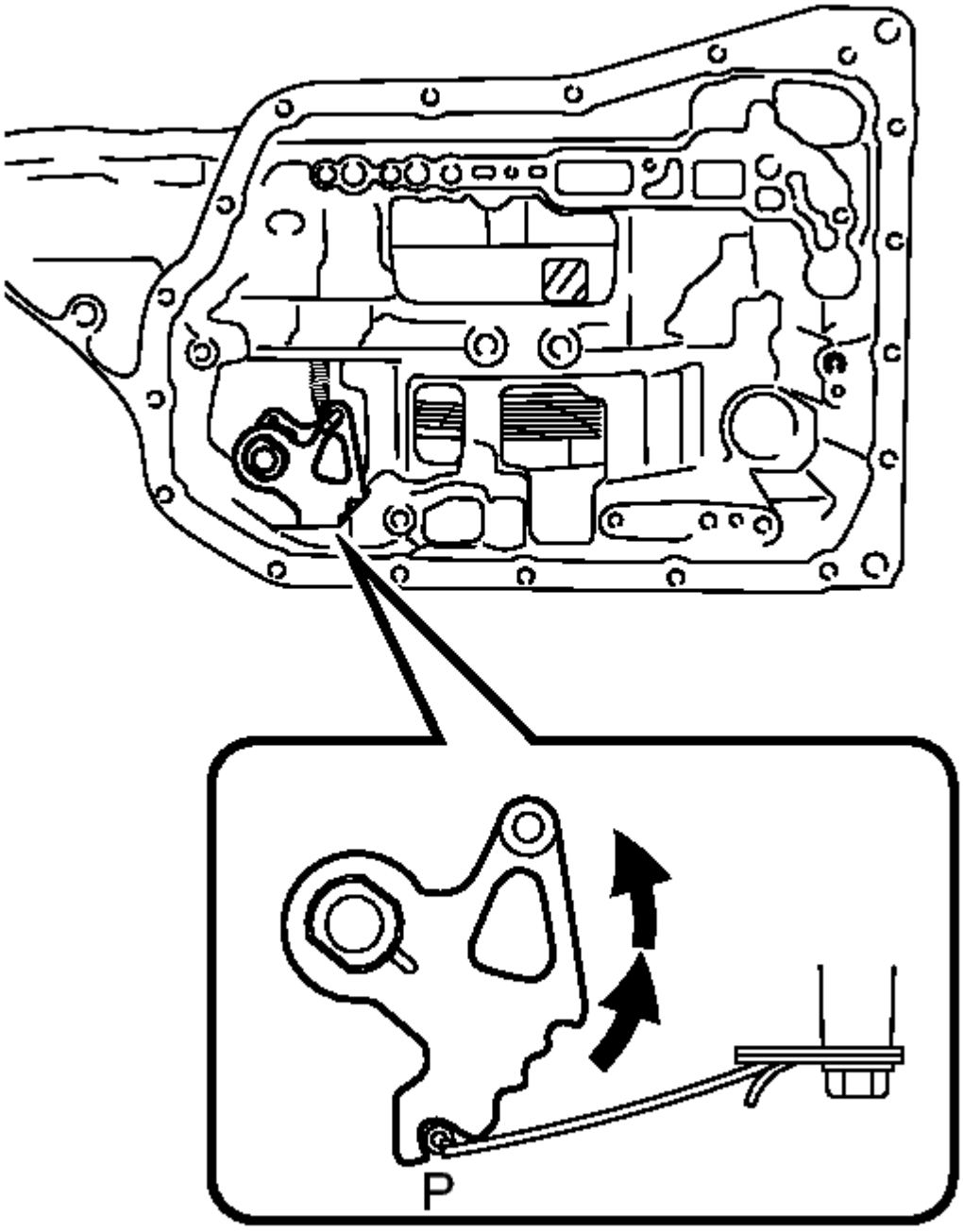
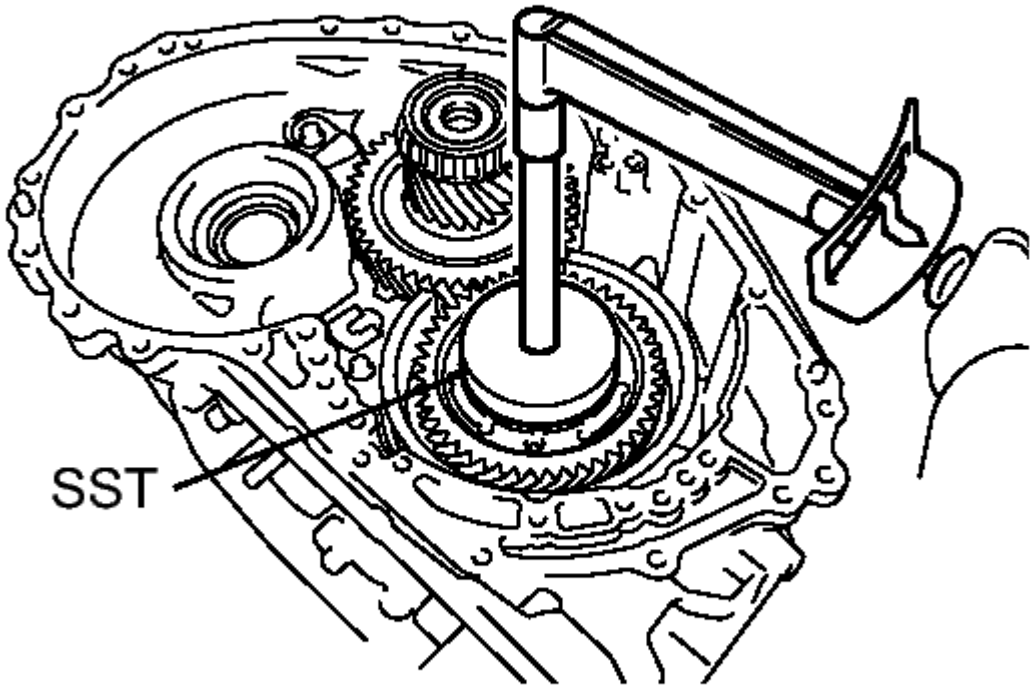


Fig. 343: Turning Manual Valve Lever Notches Counterclockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, install a new counter drive gear nut.



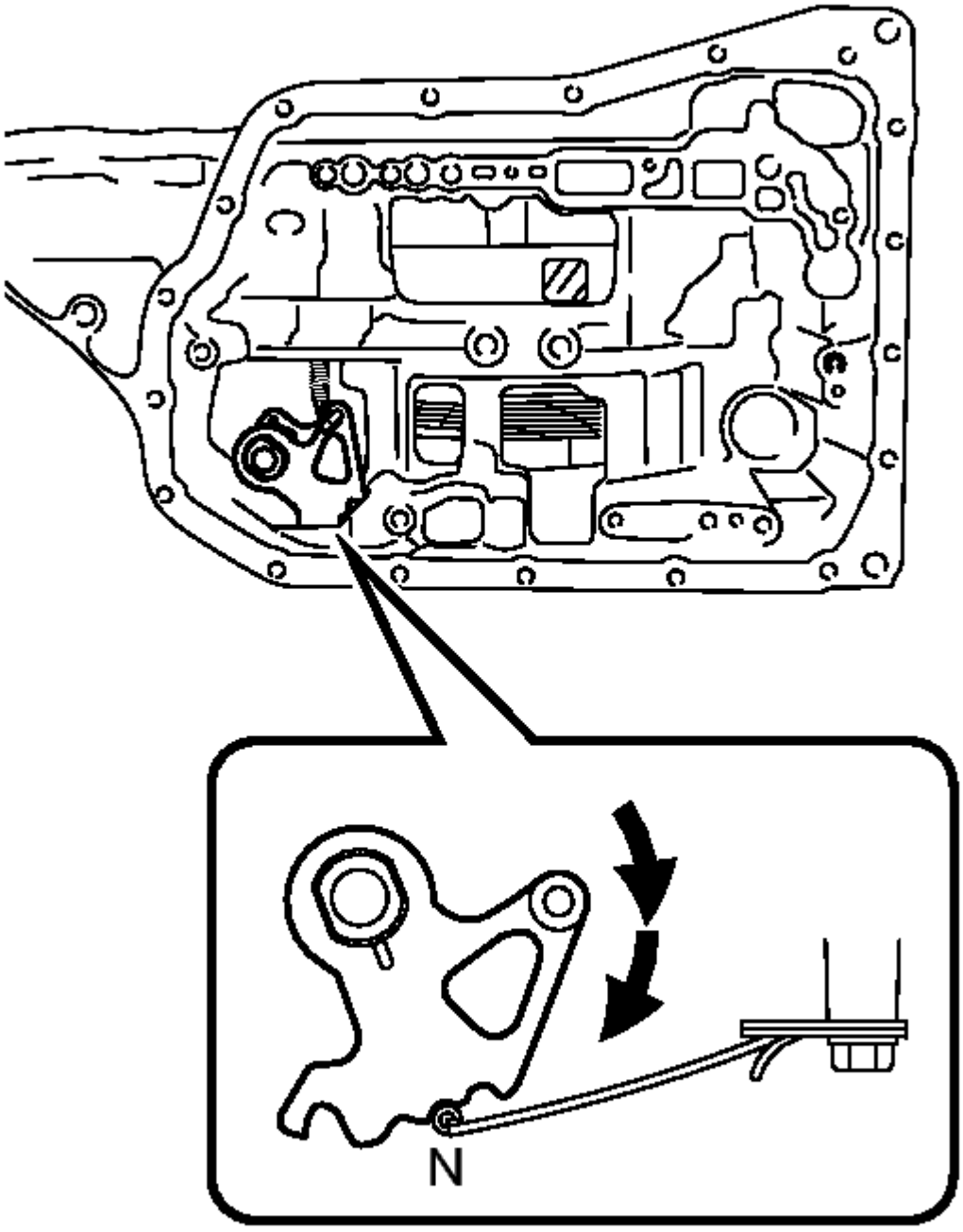
N

Fig. 344: Measuring Turning Torque Of Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

Torque: 120 N*m (1223 kgf*cm, 88 ft.*lbf)

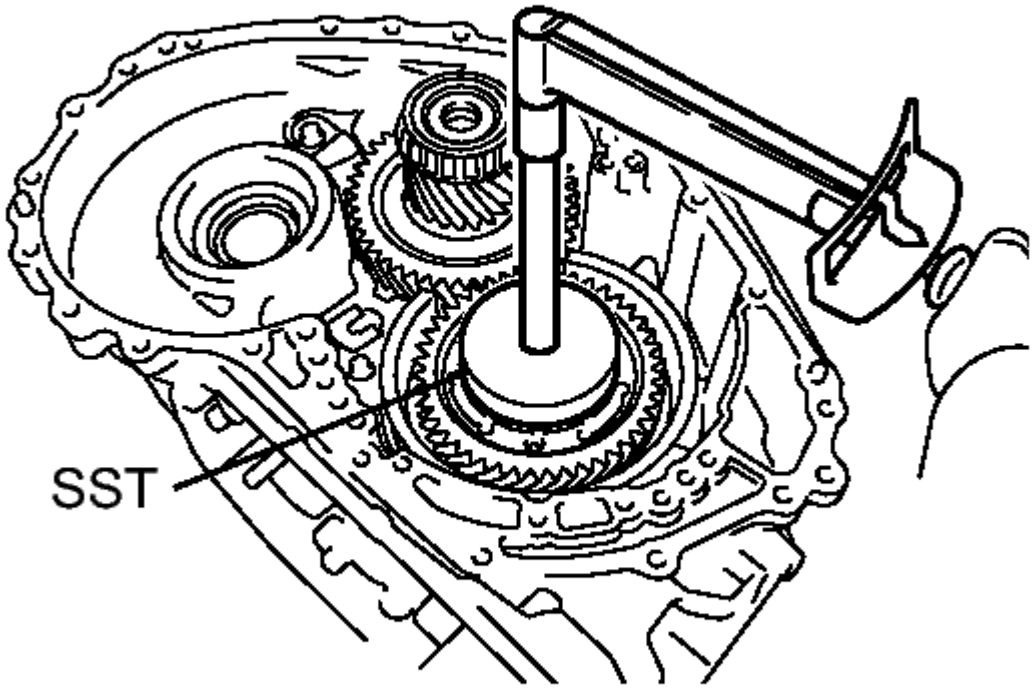
c. Turn the manual valve lever 2 notches clockwise to set it to the N position as shown in the illustration.



N

Fig. 345: Turning Manual Valve Lever Notches Clockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST and a torque wrench, measure the turning torque of the bearing while rotating SST at 60 RPM.



N

Fig. 346: Measuring Turning Torque Of Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

Turning torque

0.1 to 0.2 N*m (1 to 2 kgf*cm, 0.9 to 1.9 in.*lbf)

If the measured value is not within the specified range, gradually tighten the nut until the turning torque falls within the specified range.

Maximum torque

180 N*m (1835 kgf*cm, 133 ft.*lbf)

e. Using SST and a hammer, stake the planetary gear assembly.

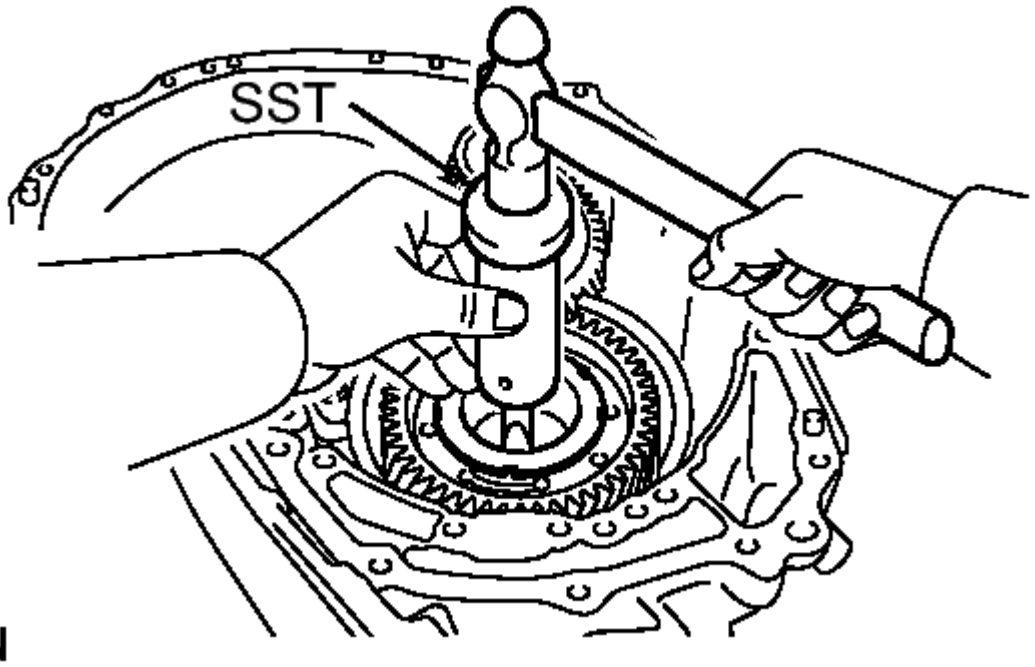
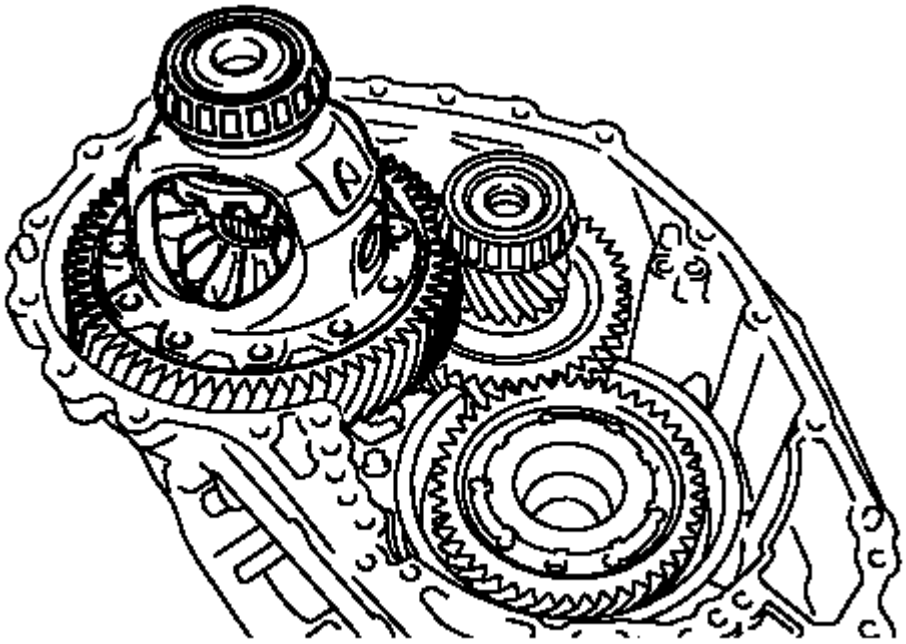


Fig. 347: Identifying Planetary Gear Assembly And SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09930-00010**

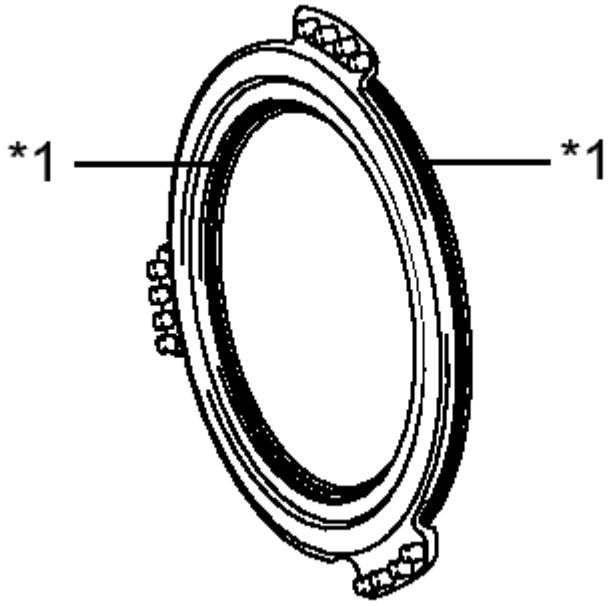
25. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH** See step 1
26. **INSTALL FRONT DIFFERENTIAL CASE**
    a. Install the front differential case to the transaxle case.



N

Fig. 348: Identifying Differential Case Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

27. **INSTALL NO. 1 BRAKE PISTON**
    a. Coat 2 new O-rings with ATF and install them to the No. 1 brake piston.



N

Fig. 349: Identifying O-Ring

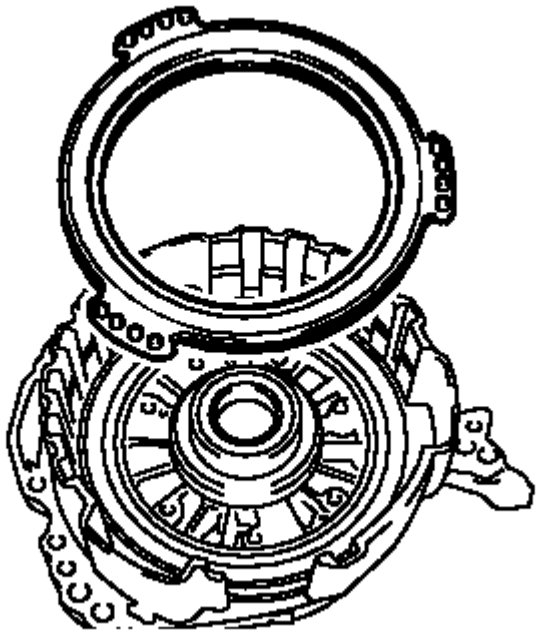
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

NOTE: Ensure that the O-rings are not twisted.

b. Install the No. 1 brake piston to the oil pump assembly.

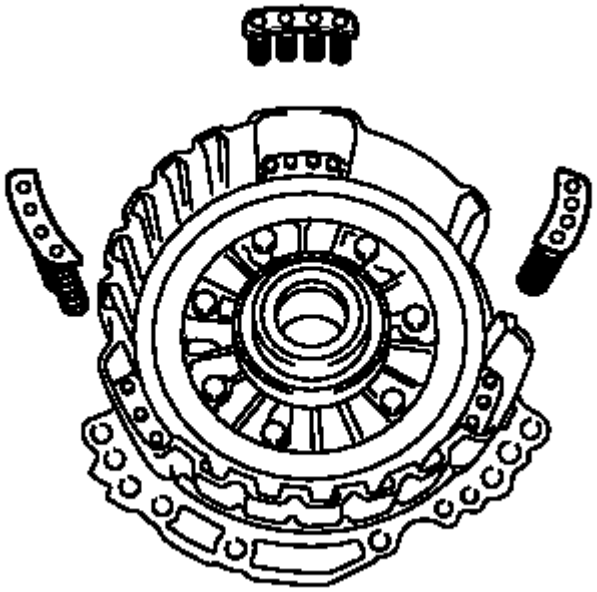


N

Fig. 350: Identifying No. 1 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the O-rings.

28. **INSTALL 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Install the 3 2nd brake piston return springs to the oil pump assembly.



N

Fig. 351: Identifying 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that the 3 2nd brake piston return springs are installed onto the protrusions on the oil pump assembly.

29. **INSTALL NO. 1 BRAKE DISC**
    a. Install the 4 No. 1 brake discs, 4 No. 1 brake plates and No. 1 brake flange to the oil pump assembly.

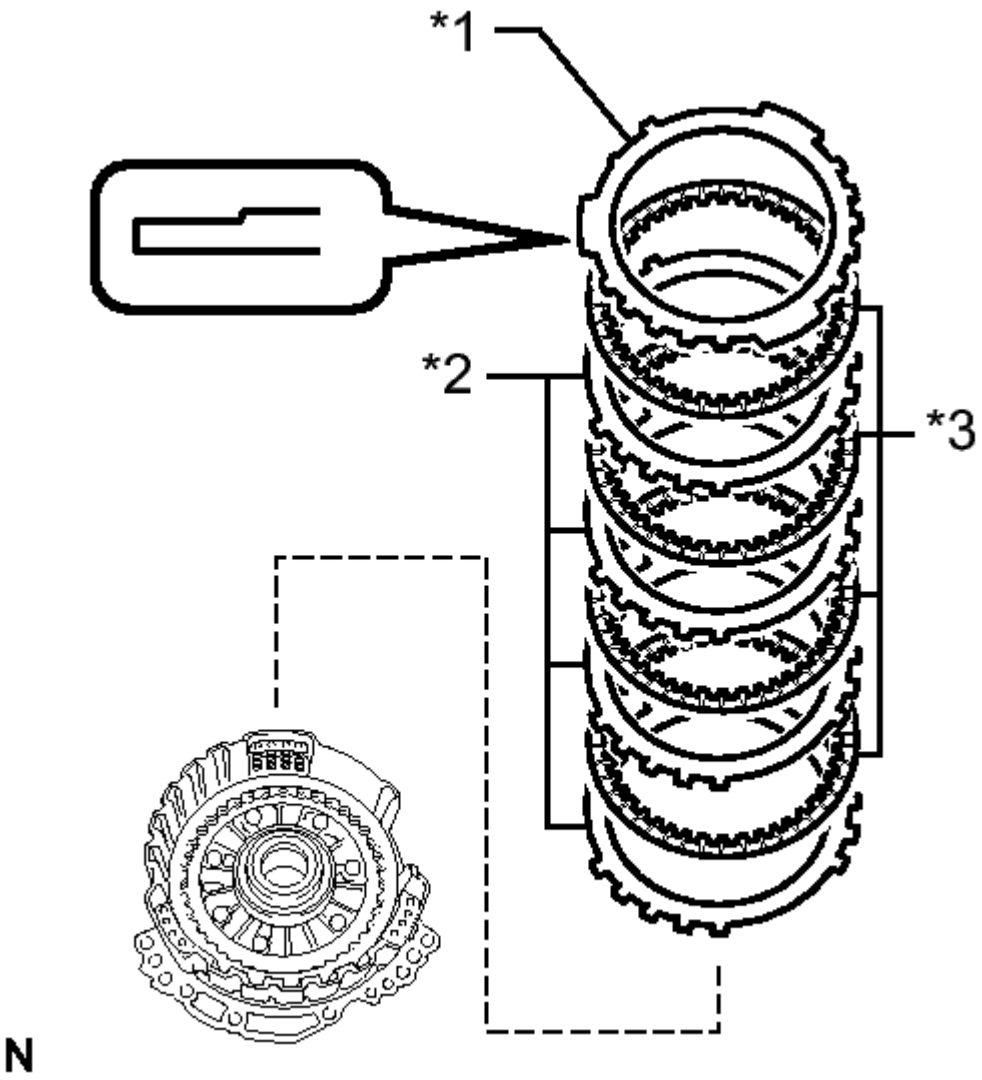


Fig. 352: Identifying Brake Discs, Brake Plates And Brake Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Brake Flange
*2	No. 1 Brake Plate
*3	No. 1 Brake Disc

NOTE:

- **Make sure that the discs, plates, and flange are installed in the**

correct order.

- **Be sure to install the flange in the correct direction.**

b. Place SST on the flange and compress the flange using a press.

- **SST: 09387-00070**
- **SST: 09495-65040**

NOTE: **Stop the press when the brake piston return spring is flush with the snap ring groove. This prevents the brake piston return spring from being deformed.**

c. Using a screwdriver, install the snap ring to the oil pump assembly as shown in the illustration (#1).

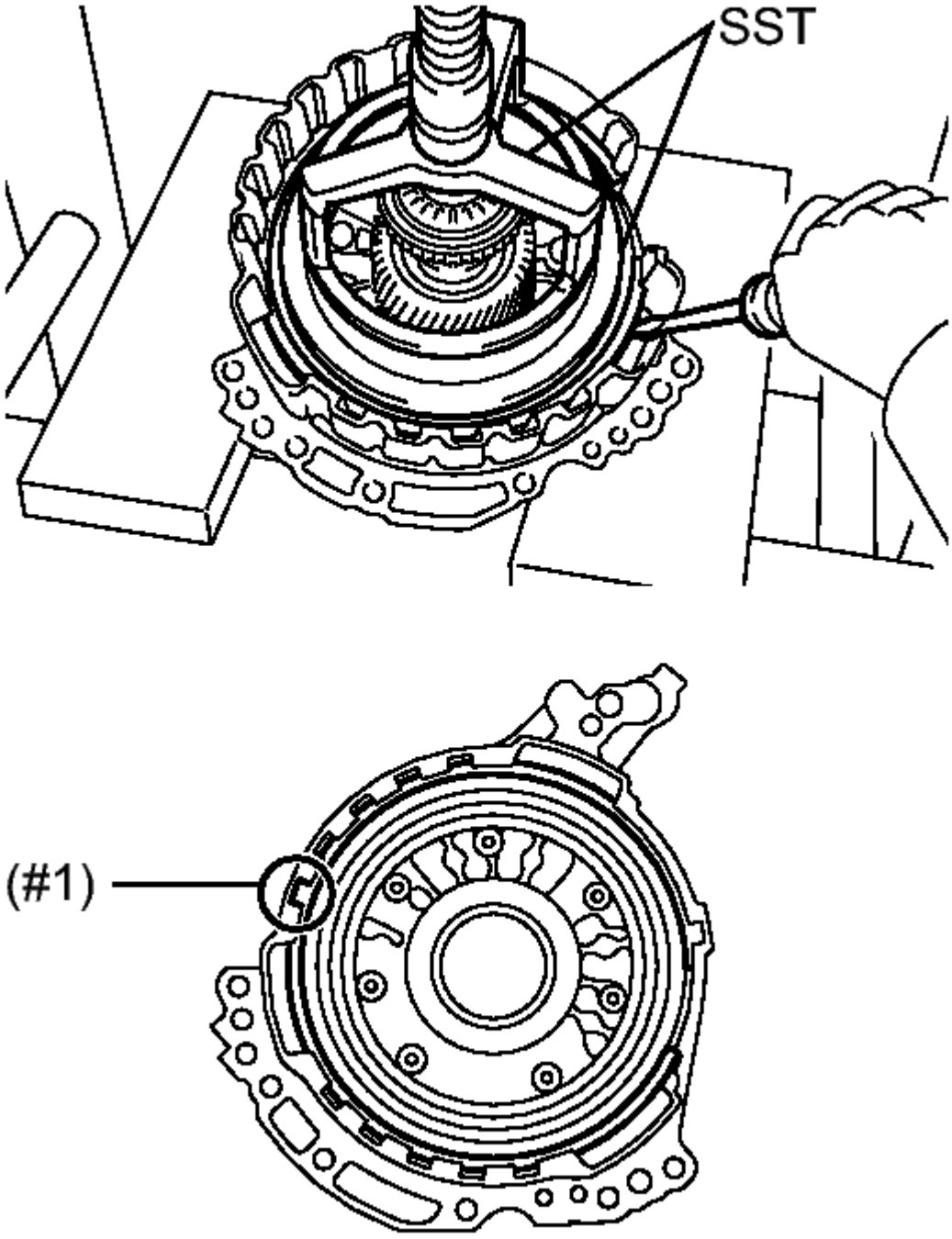


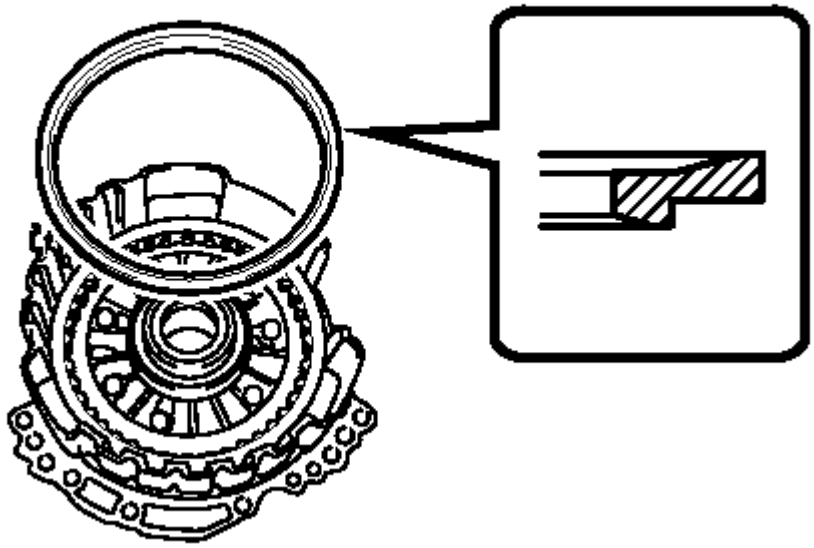
Fig. 353: Installing Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**

- **Make sure to align the protruding part of the snap ring with the indented part (#1) of the front oil pump assembly shown in the illustration to install the snap ring.**

d. Install the brake snap ring stopper to the oil pump assembly.



N

Fig. 354: Identifying Brake Snap Ring Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be sure to install the brake snap ring stopper in the correct direction.

e. Using a screwdriver, install the snap ring to the oil pump assembly as shown in the illustration (#2).

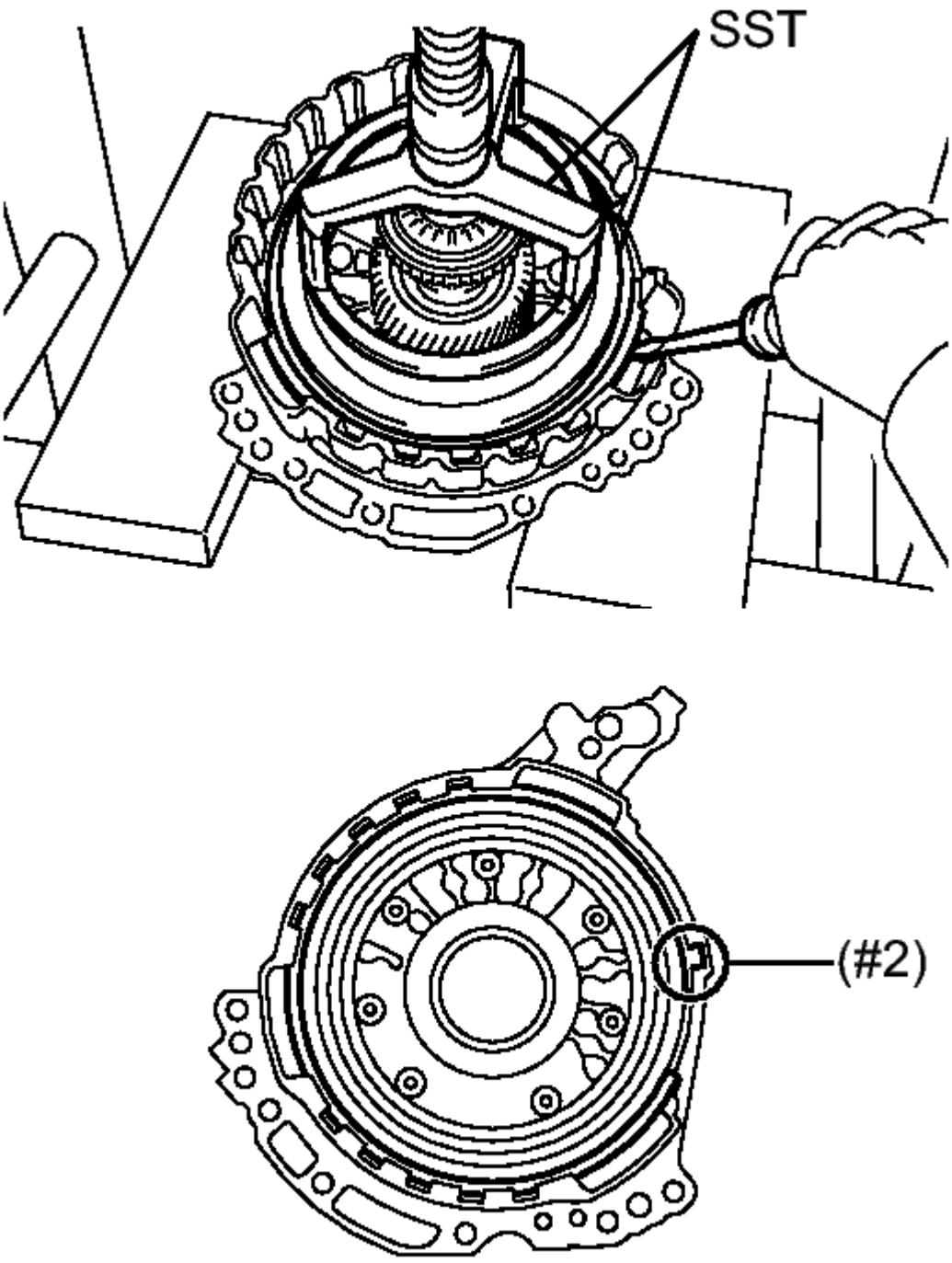


Fig. 355: Installing Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**

- **Make sure to align the protruding part of the snap ring with the indented part (#2) of the front oil pump assembly shown in the illustration to install the snap ring.**

f. Check that the brake snap ring stopper can be turned by hand.

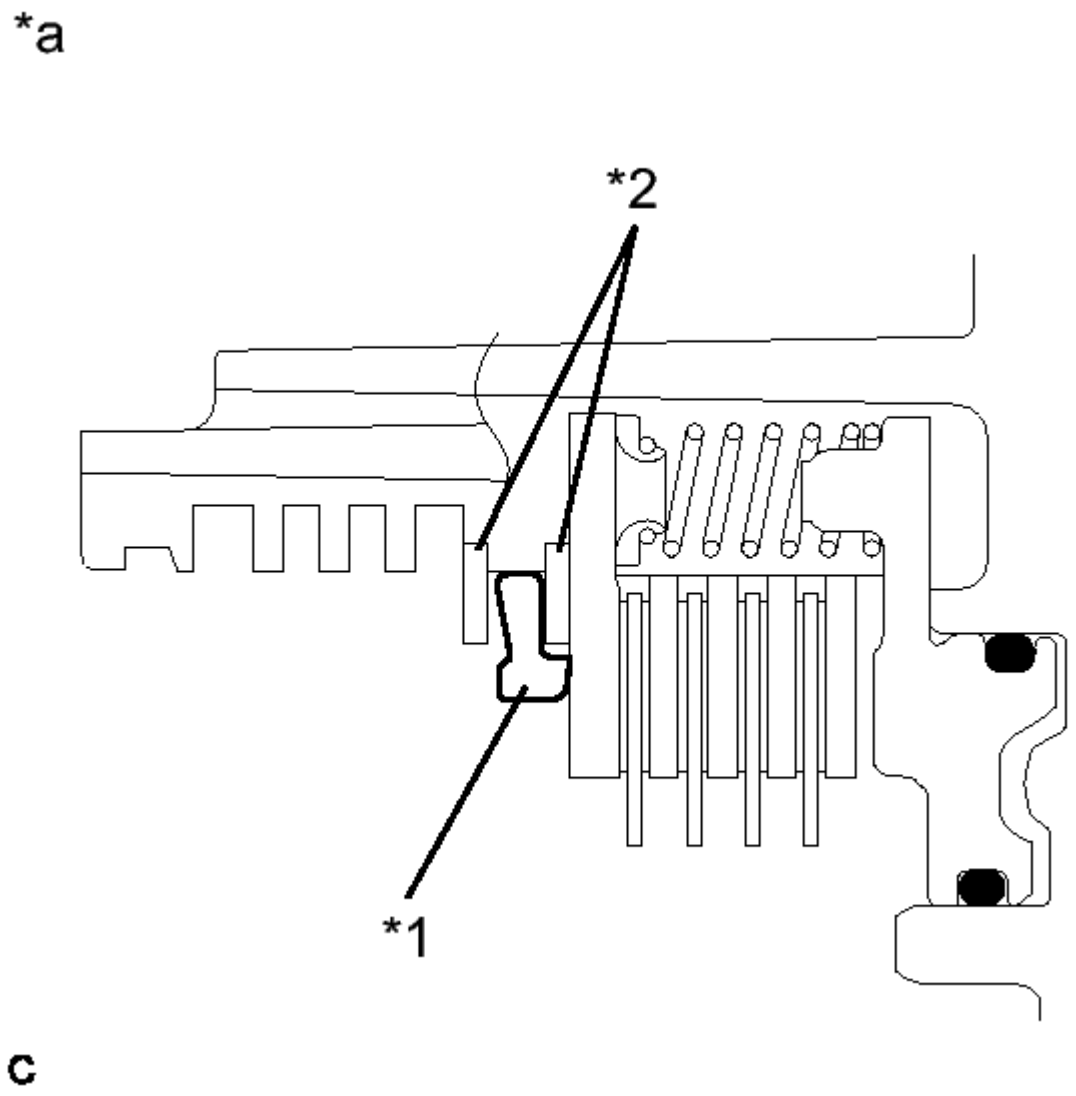


Fig. 356: Identifying Brake Snap Ring & Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Snap Ring Stopper
*2	Snap

	Ring
*a	Correctly Installed

NOTE: **If the brake snap ring stopper cannot be turned by hand, the brake snap ring stopper may have been installed upside down, or the snap ring may not have been completely located in the groove on the oil pump. Remove and reinstall the snap ring and the brake snap ring stopper.**

30. **INSPECT CLEARANCE OF NO. 1 BRAKE** See step 16
31. **INSTALL UNDERDRIVE PLANETARY SUN GEAR**
    a. Coat the thrust needle roller bearing with ATF, and install it to the oil pump assembly.

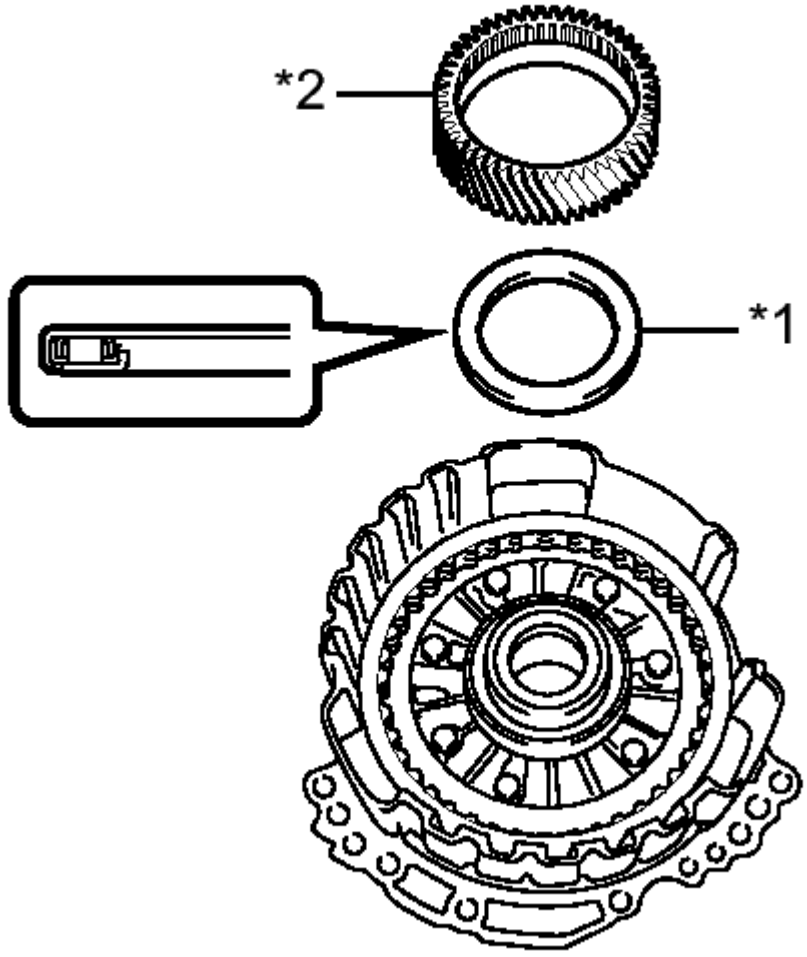


Fig. 357: Identifying Thrust Needle Roller Bearing

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

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	57.7 (2.27)	75.2 (2.96)

NOTE: **Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.**

b. Install the underdrive planetary sun gear to the oil pump assembly.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Sun Gear

32. **INSTALL INPUT SHAFT SUB-ASSEMBLY**

a. Coat 3 new input shaft oil seal rings with ATF and install them to the input shaft.

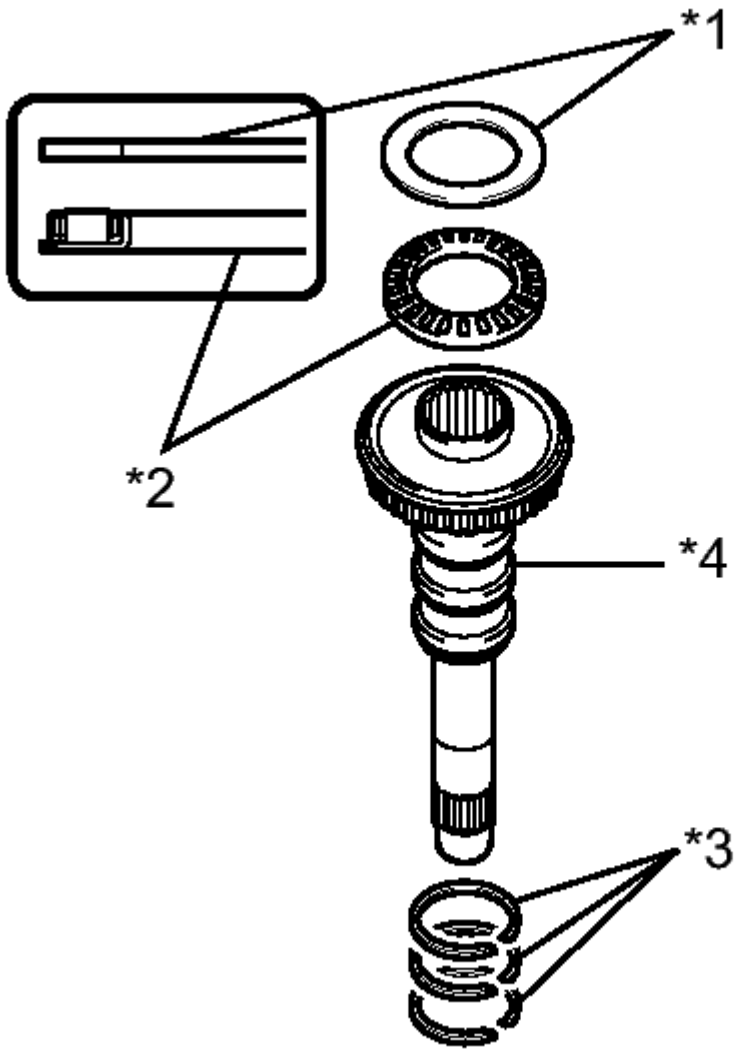


Fig. 358: Identifying Input Shaft Oil Seal Ring And Underdrive Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*3	Input Shaft Oil Seal Ring

NOTE: Do not expand the gap of the oil seal ring excessively.

b. Coat the thrust needle roller bearing and thrust needle roller race with ATF, and install them on the oil pump assembly.

TEXT IN ILLUSTRATION

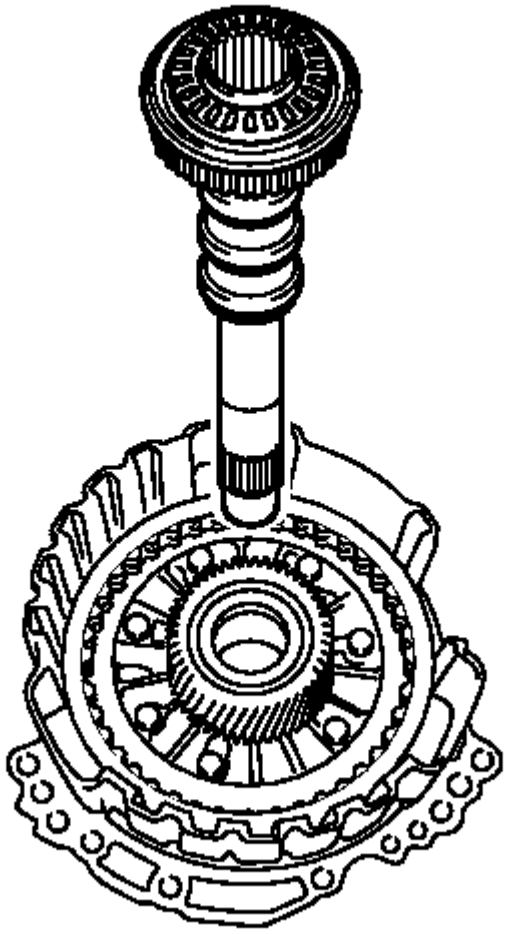
*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing
*4	Input Shaft

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	29.1 (1.15)	48.6 (1.91)
Race	30.7 (1.21)	48.3 (1.90)

NOTE: Be sure to install the thrust needle roller bearing in the correct direction.

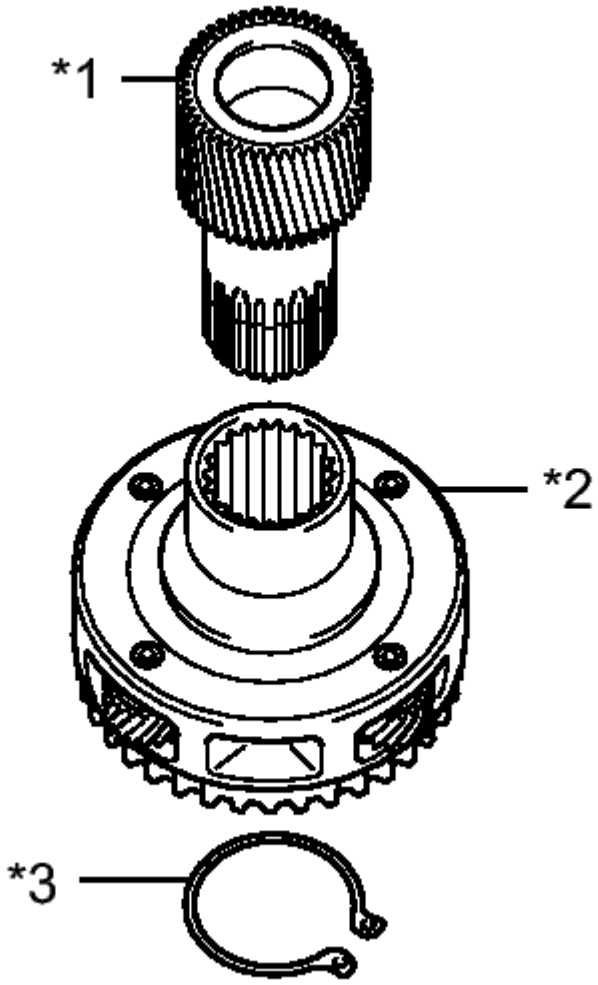
c. Install the input shaft to the oil pump assembly.



N

Fig. 359: Identifying Input Shaft And Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

33. **INSTALL PLANETARY SUN GEAR SUB-ASSEMBLY**
    a. Using a snap ring expander, install the snap ring to the underdrive planetary gear assembly.



N

Fig. 360: Identifying Front Planetary Sun Gear, Underdrive Planetary Gear Assembly And Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*3	Snap Ring

b. Using a snap ring expander, install the planetary sun gear subassembly to the underdrive planetary gear assembly with the snap ring expanded.

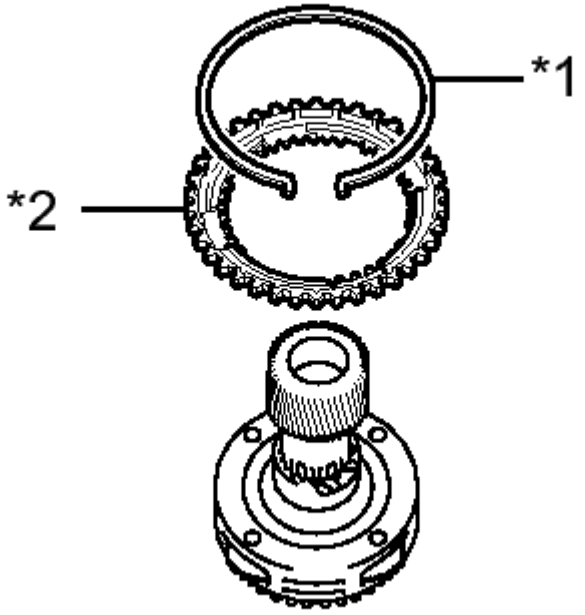
TEXT IN ILLUSTRATION

*1	Planetary Sun Gear Sub-assembly

*2	Underdrive Planetary Gear Assembly

34. **INSTALL UNDERDRIVE PLANETARY RING GEAR**

a. Install the underdrive planetary ring gear to the underdrive planetary gear assembly.



N

Fig. 361: Identifying Underdrive Planetary Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Ring Gear

b. Using needle-nose pliers, install the snap ring to the underdrive planetary ring gear.

TEXT IN ILLUSTRATION

*1	Snap Ring

NOTE: Confirm that the snap ring is correctly located in the groove of the underdrive planetary ring gear.

35. **INSTALL NO. 3 BRAKE HUB**

a. Coat the thrust needle roller bearing with ATF and install it on the underdrive planetary gear assembly.

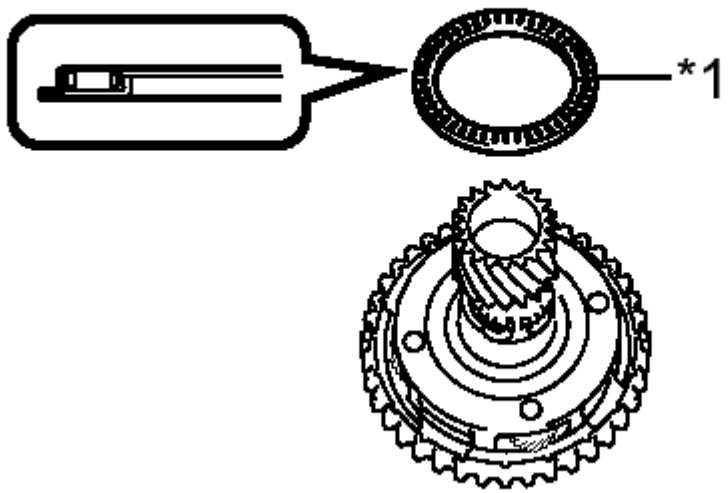


Fig. 362: Identifying No. 3 Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	62.6 (2.46)	82.9 (3.26)
Race	65.9 (2.59)	80.3 (3.16)

NOTE: Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

b. Coat the thrust needle roller race with MP grease and install it to the No. 3 brake hub.

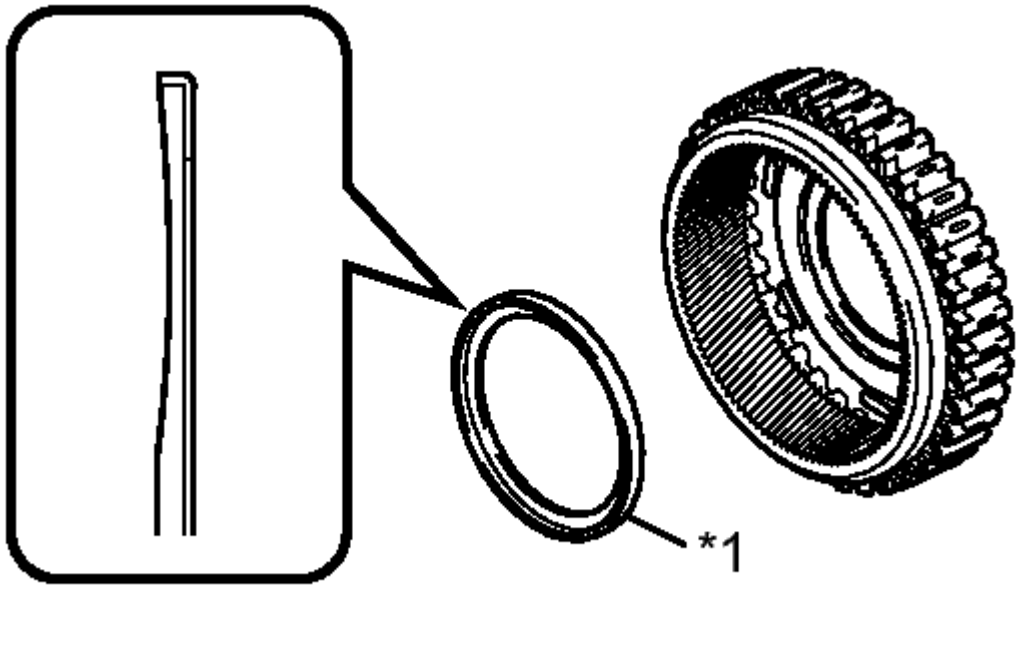
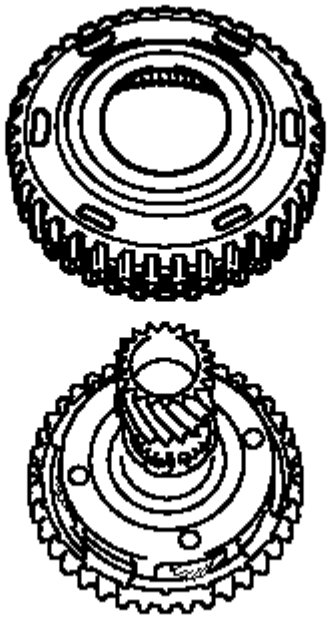


Fig. 363: Identifying Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race

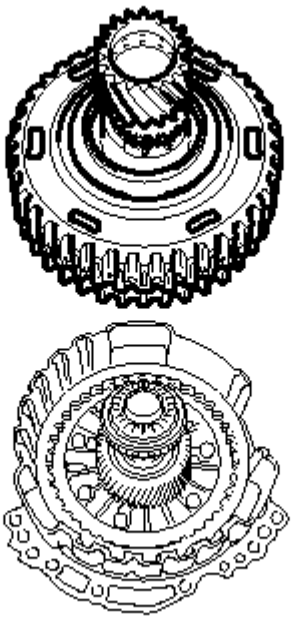
c. Install the No. 3 brake hub to the underdrive planetary gear assembly.



N

Fig. 364: Identifying No. 3 Brake Hub And Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

36. **INSTALL UNDERDRIVE PLANETARY GEAR ASSEMBLY**
    a. Install the underdrive planetary gear assembly to the oil pump assembly.



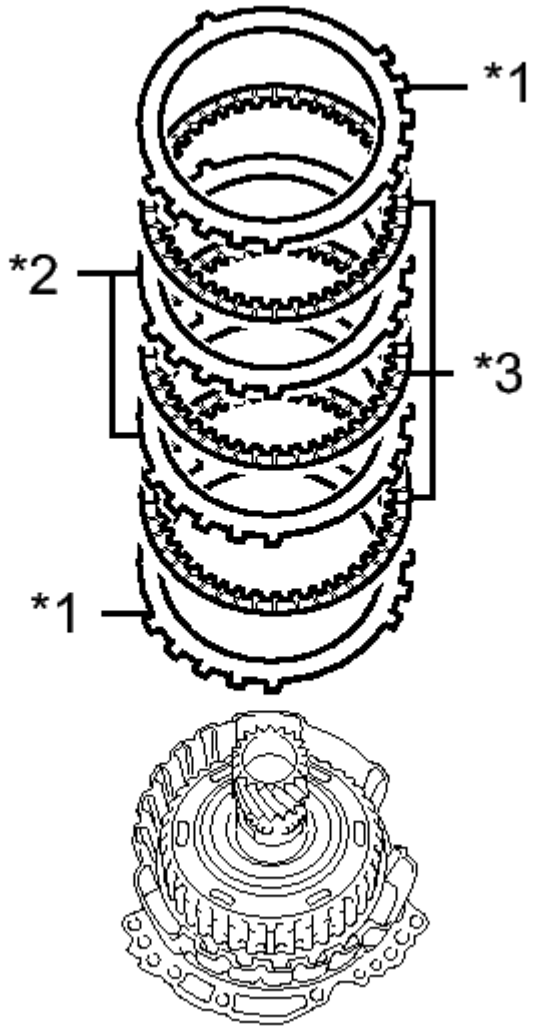
N

Fig. 365: Identifying Underdrive Planetary Gear Assembly

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

37. **INSTALL NO. 3 BRAKE DISC**

a. Install the 2 No. 3 brake flanges, 3 No. 3 brake discs and 2 No. 3 brake plates to the oil pump assembly.



N

Fig. 366: Identifying Brake Flanges, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

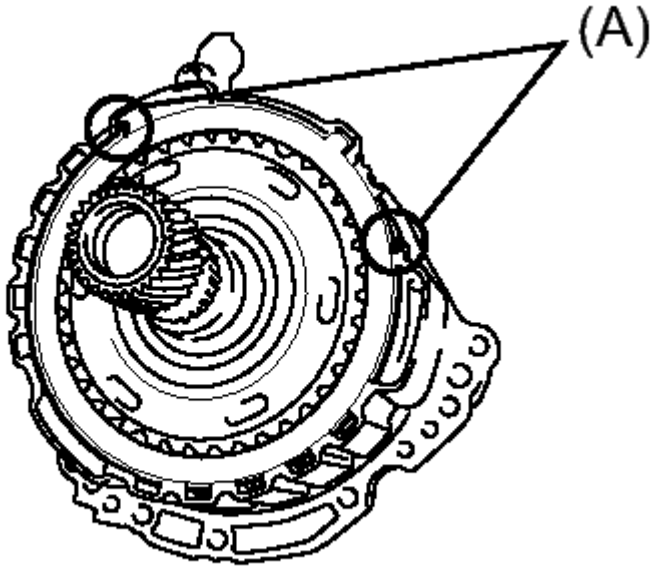
TEXT IN ILLUSTRATION

*1	No. 3 Brake Flange
*2	No. 3 Brake Plate

*3	No. 3 Brake Disc

NOTE: **Make sure that the discs, plates and flanges are installed in the correct order.**

b. Using a screwdriver, install the snap ring to the oil pump assembly.



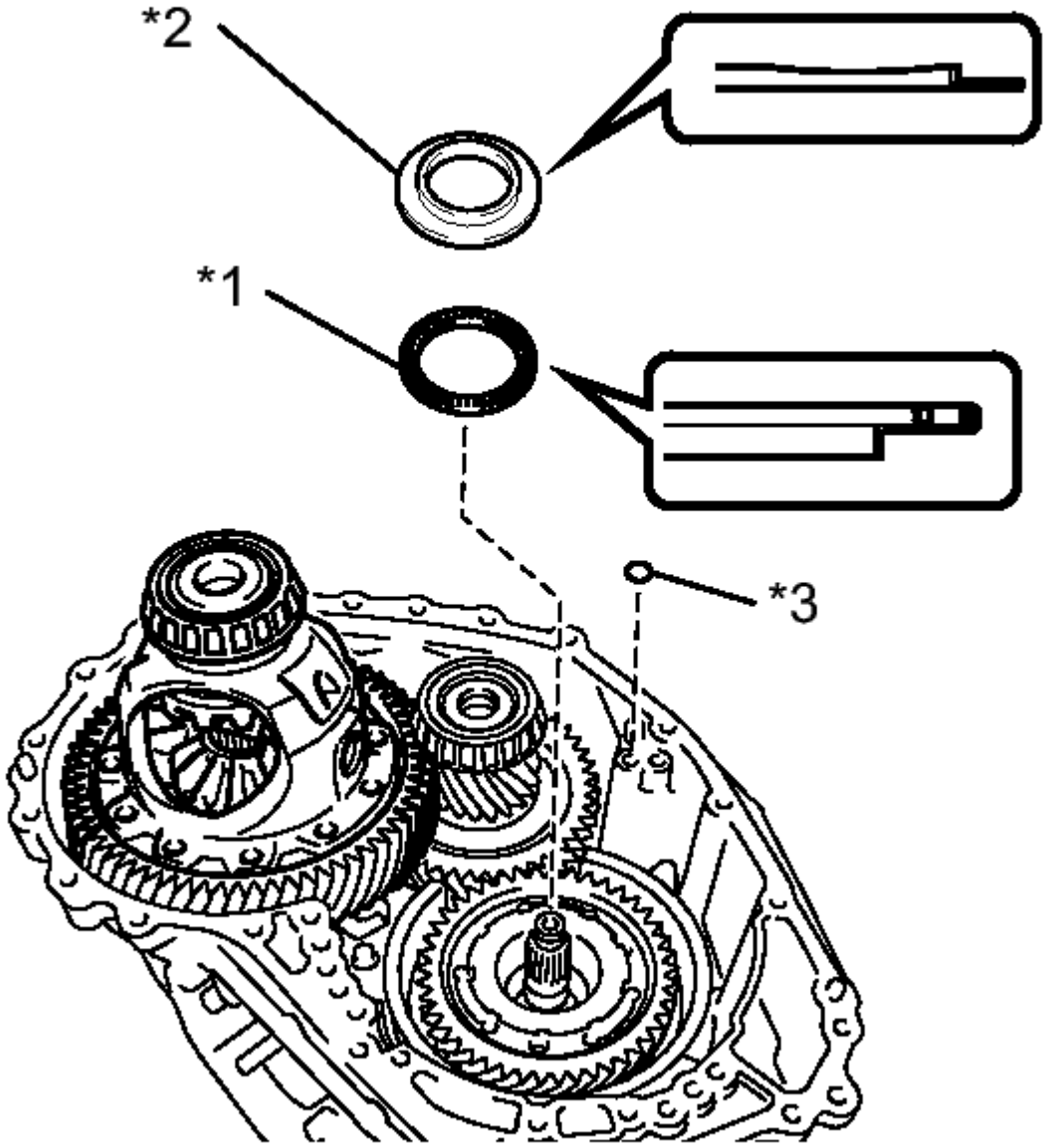
N

Fig. 367: Identifying Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**
- **Make sure that the snap ring ends are positioned as shown in the illustration (A).**

38. **INSPECT CLEARANCE OF NO. 3 BRAKE** See step 17
39. **INSTALL FRONT OIL PUMP ASSEMBLY**
    a. Coat a new O-ring with ATF and install it to the transaxle case.



N

Fig. 368: Identifying Thrust Needle Roller Bearing, Race & O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	O-

*3	ring

b. Coat the thrust needle roller bearing and thrust needle roller race with ATF and install them on the underdrive planetary gear assembly.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	53.1 (2.09)	79 (3.11)
Race	59.4 (2.34)	77 (3.03)

NOTE: Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

c. Coat a new O-ring with ATF and install it to the oil pump.

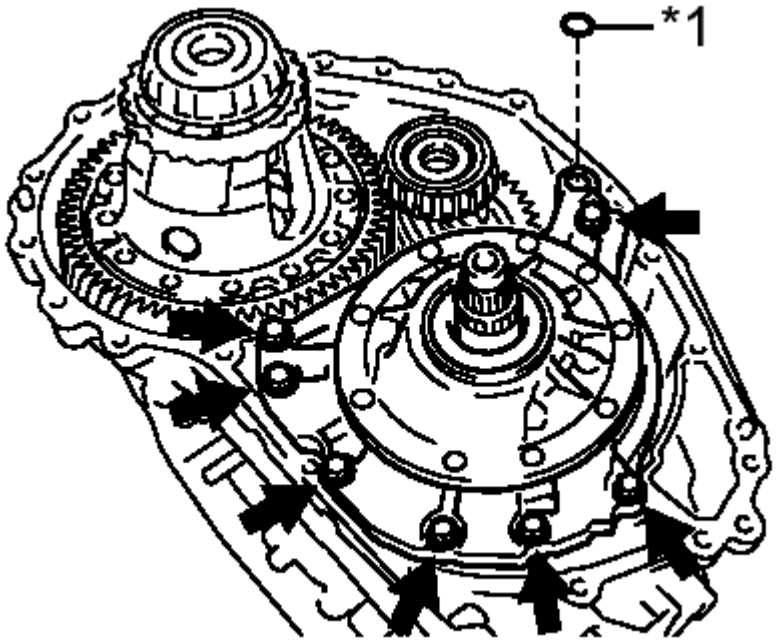


Fig. 369: Identifying Front Oil Pump And Gear Body Sub-Assembly Bolts And O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

d. Install the oil pump assembly to the transaxle case with the 7 bolts.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

40. **INSTALL FRONT OIL PUMP BODY O-RING**
41. **INSTALL DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Install the differential gear lube apply tube to the transaxle housing.

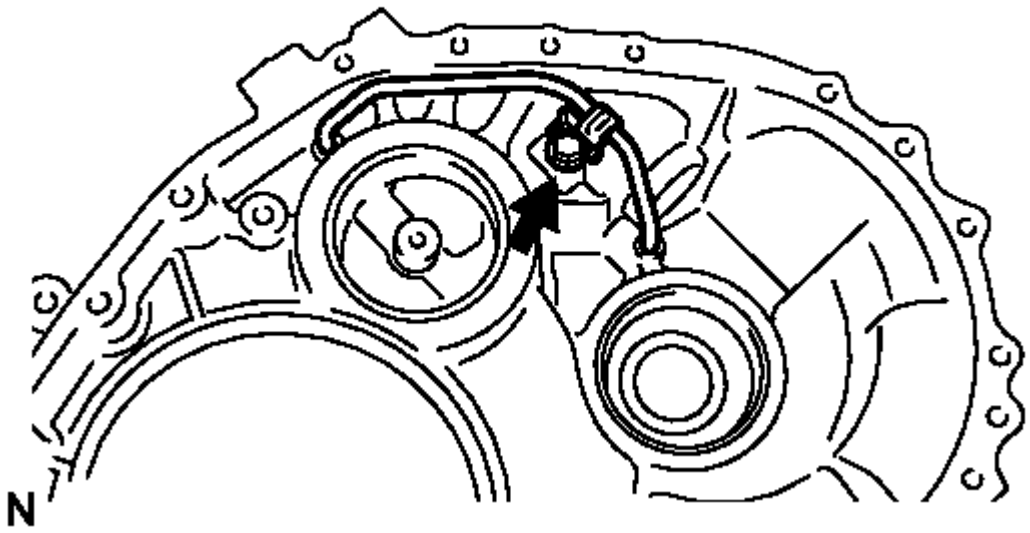


Fig. 370: Identifying Differential Gear Lube Apply Tube Clamp And Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Insert the differential gear lube apply tube into the transaxle case until it makes contact with the stopper.

b. Install the apply tube clamp to the differential gear lube apply tube with the bolt.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

NOTE: There should be clearance between the differential lube apply tube and apply tube clamp.

42. **INSTALL COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING OUTER RACE**

a. Install the shim to the transaxle housing.

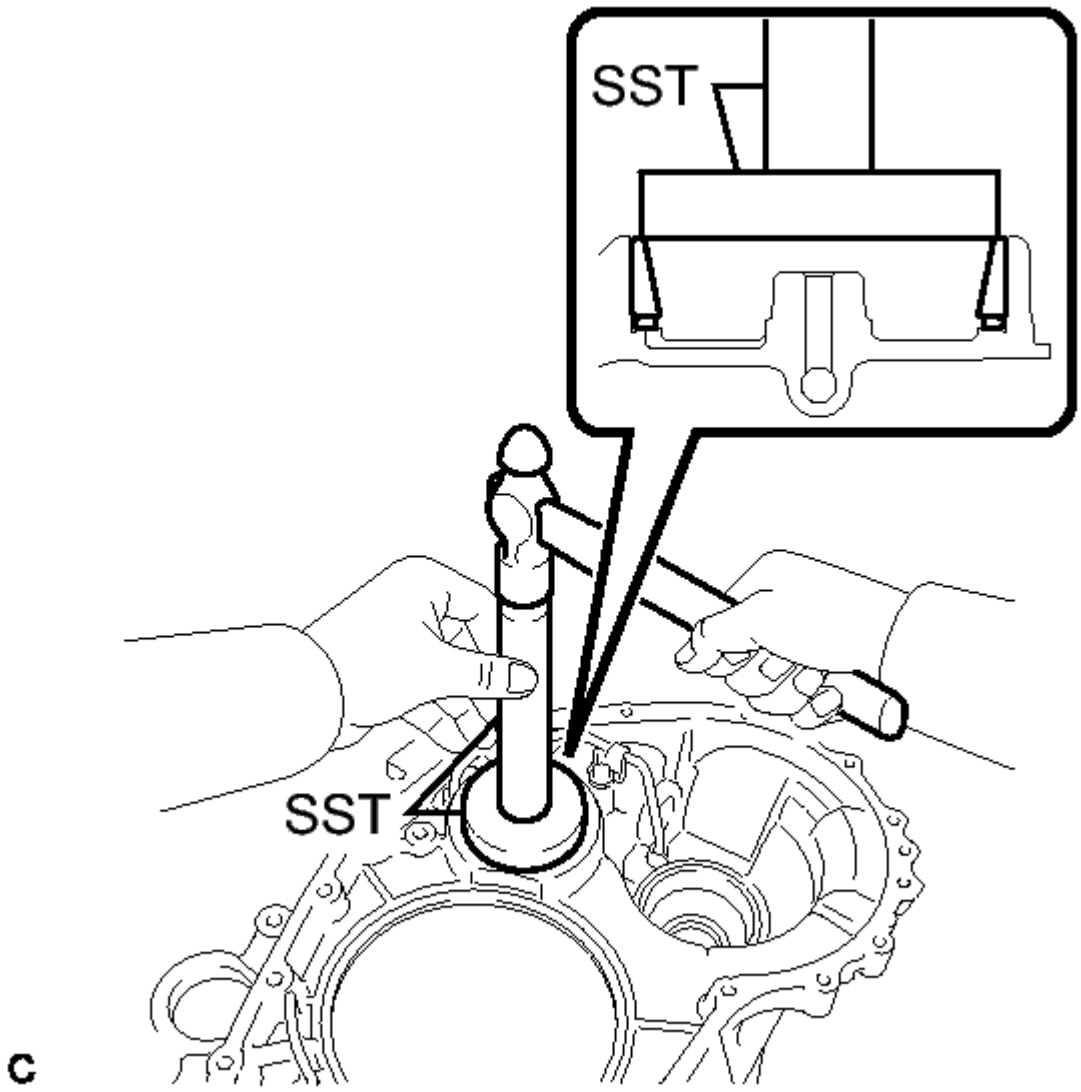


Fig. 371: Installing Counter Driven Gear Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, install a new counter driven gear front tapered roller bearing outer race to the transaxle housing.
   - **SST: 09950-60020**
     09951-00810
   - **SST: 09950-70010**
     09951-07100

NOTE: Be sure to install the counter driven gear front tapered roller bearing outer race so that there is no clearance between the shim and the transaxle housing.

43. **INSTALL TRANSAXLE HOUSING**

a. Remove packing material from the contact surfaces between the transaxle housing and case.

NOTE: Make sure that there is no ATF on the contact surfaces.

b. Apply FIPG to the transaxle case.

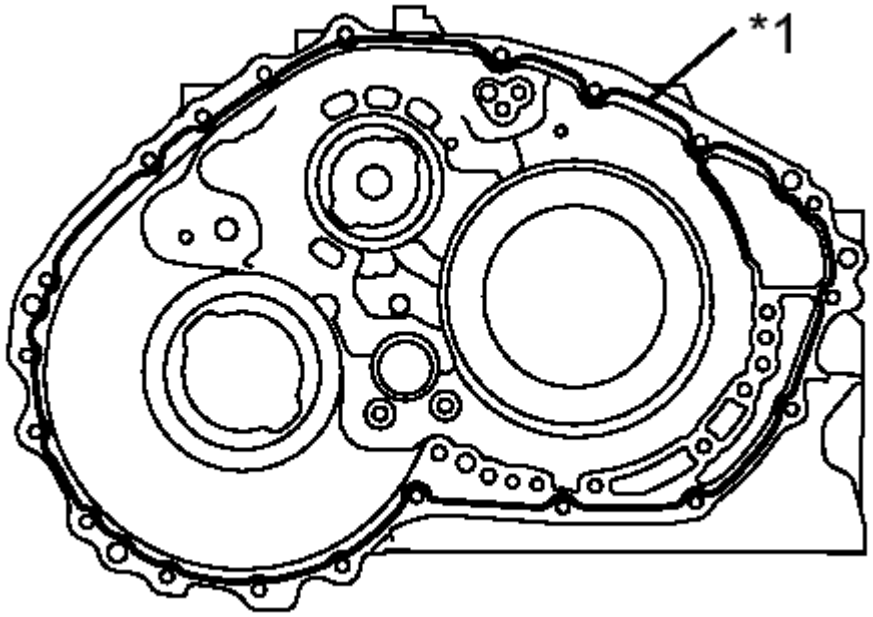


Fig. 372: Applying FIPG To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	FIPG

FIPG

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTE: Apply FIPG in a continuous line (width 1.2 mm (0.0472 in.)) along the sealing surface.

c. Install the transaxle housing to the transaxle case with the 20 bolts.

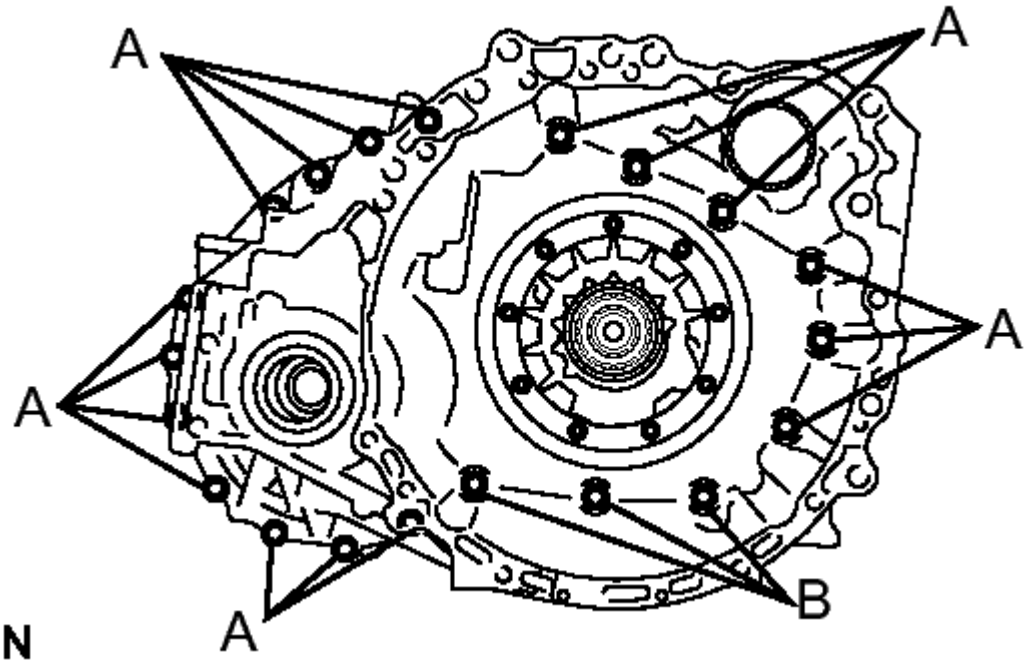


Fig. 373: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

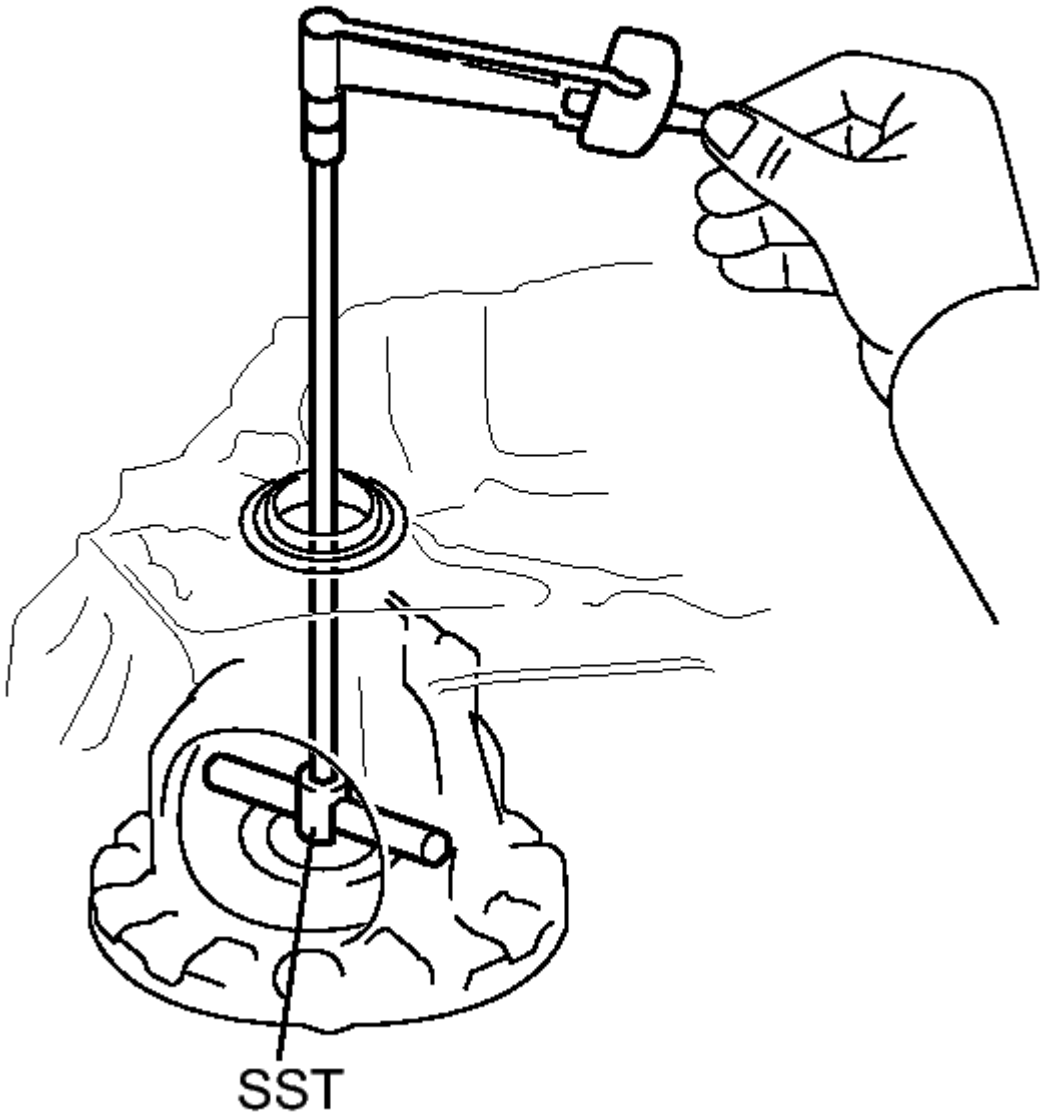
Bolt A

Torque: 31 N*m (312 kgf*cm, 23 ft.*lbf)

Bolt B

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

44. **ADJUST COUNTER DRIVEN GEAR PRELOAD**
    a. Using SST and a torque wrench, measure the turning torque of the counter driven gear while rotating SST at 10 RPM.



N

Fig. 374: Measuring Turning Torque Of Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09564-33010**

Turning torque

Differential side bearing preload 3.3 to 6.0 N*m (34 to 61 kgf*cm, 29 to 53 in.*lbf)

If the turning torque is not within the specified range, refer to the table below to select a shim of the counter driven gear front tapered roller bearing outer race so that the turning torque is within the specified range.

SHIM THICKNESS

Para No.	Thickness mm (in.)
90564-A0142	2.000 (0.0787)
90564-A0143	2.025 (0.0797)
90564-A0144	2.050 (0.0807)
90564-A0145	2.075 (0.0817)
90564-A0146	2.100 (0.0827)
90564-A0147	2.125 (0.0837)
90564-A0148	2.150 (0.0846)
90564-A0149	2.175 (0.0856)
90564-A0150	2.200 (0.0866)
90564-A0151	2.225 (0.0876)
90564-A0152	2.250 (0.0886)
90564-A0153	2.275 (0.0896)
90564-A0154	2.300 (0.0906)
90564-A0155	2.325 (0.0915)
90564-A0156	2.350 (0.0925)
90564-A0157	2.375 (0.0935)
90564-A0158	2.400 (0.0945)

90564-A0159	2.425 (0.0955)
90564-A0160	2.450 (0.0965)
90564-A0161	2.475 (0.0974)
90564-A0162	2.500 (0.0984)
90564-A0163	2.525 (0.0994)
90564-A0164	2.550 (0.100)
90564-A0165	2.575 (0.101)
90564-A0166	2.600 (0.102)
90564-A0167	2.625 (0.103)
90564-A0168	2.650 (0.104)
90564-A0169	2.675 (0.105)
90564-A0170	2.700 (0.106)
90564-A0171	2.725 (0.107)
90564-A0172	2.750 (0.108)
90564-A0173	2.775 (0.109)
90564-A0174	2.800 (0.110)
90564-A0175	2.825 (0.111)
90564-A0176	2.850 (0.112)
90564-A0177	2.875 (0.113)
90564-A0178	2.900 (0.114)
90564-A0179	2.925 (0.115)
90564-A0180	2.950 (0.116)

A0181	2.975 (0.117)
90564-A0182	3.000 (0.118)

45. **INSTALL NO. 1 CLUTCH DISC**

a. Install the clutch flange, 4 clutch discs and 4 clutch plates to the direct multiple disc clutch assembly.

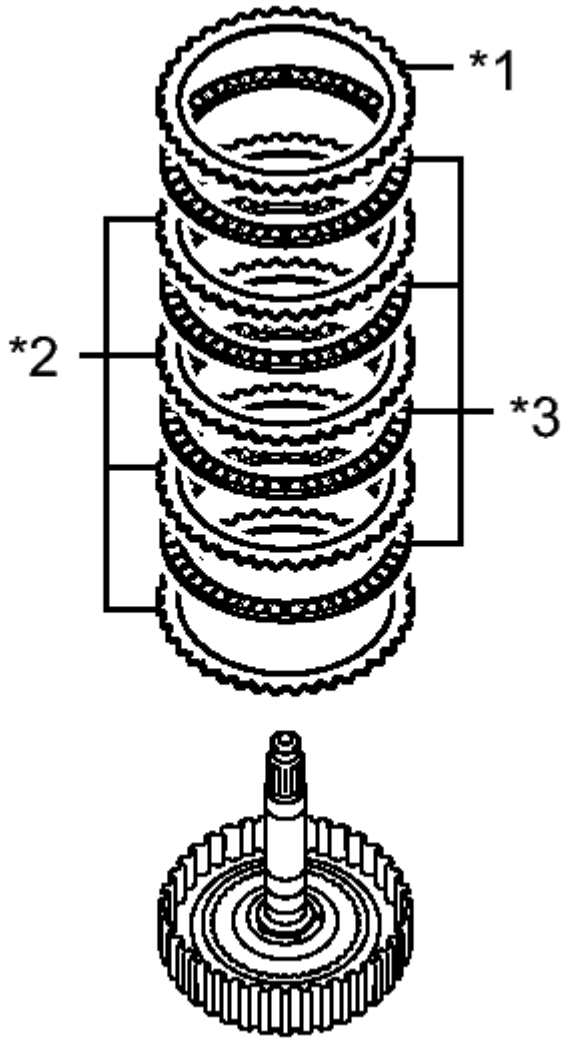


Fig. 375: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

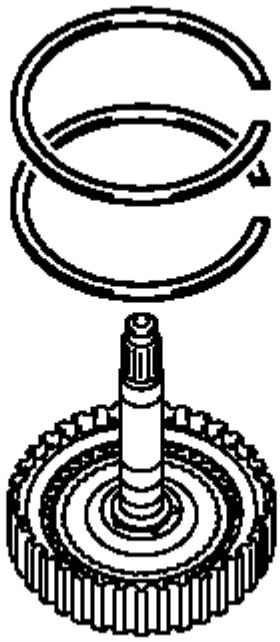
TEXT IN ILLUSTRATION

*1	Clutch Flange

*2	Clutch Plate
*3	Clutch Disc

NOTE: Make sure that the flange, discs and plates are installed in the correct order.

b. Using a screwdriver, install the 2 snap rings to the direct multiple disc clutch assembly.



N

Fig. 376: Identifying Snap Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Confirm that the snap rings are correctly located in the groove of the direct multiple disc clutch assembly.

46. **INSPECT CLEARANCE OF NO. 1 CLUTCH DISC** See step 18
47. **INSTALL REAR PLANETARY SUN GEAR ASSEMBLY**
    a. Coat the thrust needle roller bearing and thrust needle roller race with ATF, and install them to the direct multiple disc clutch assembly.

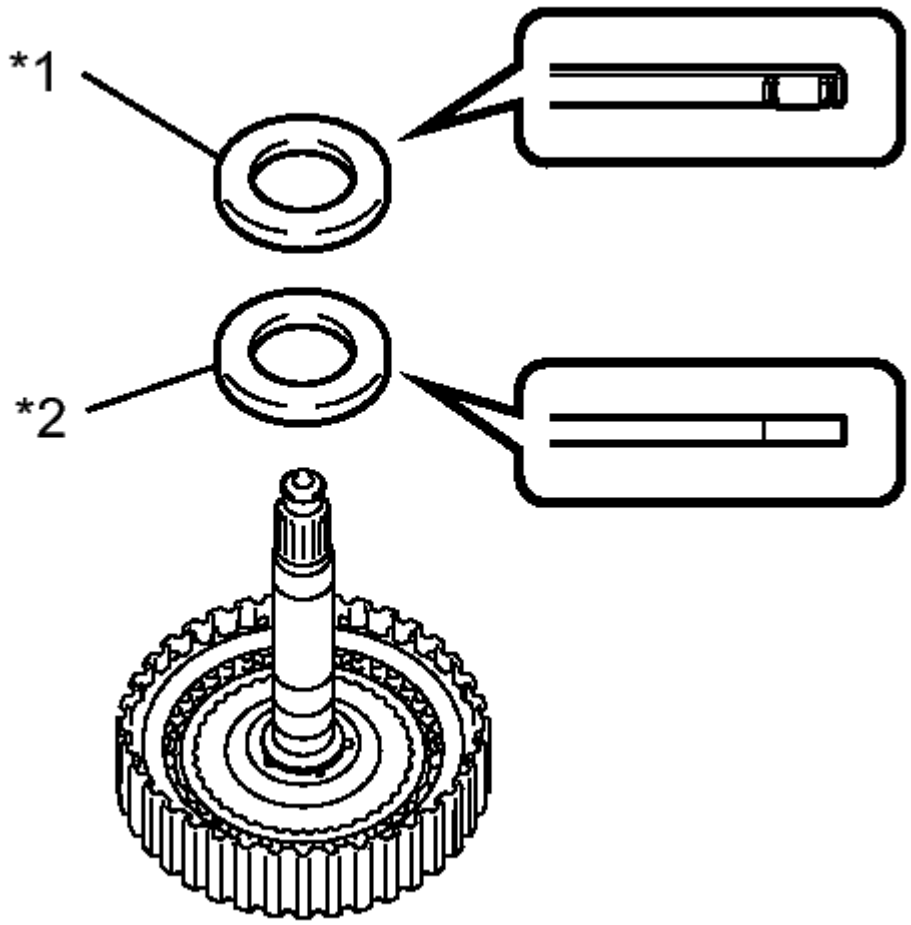


Fig. 377: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race

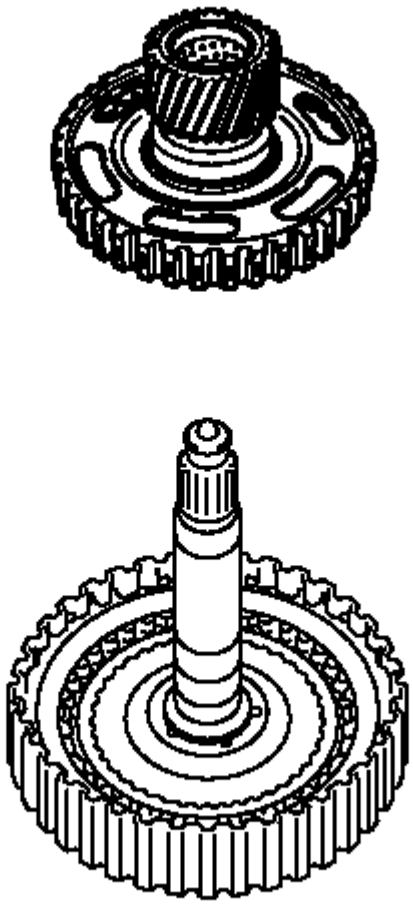
BEARING DIAMETER

-	**Inside mm**	**Outside mm**

	(in.)	(in.)
Bearing	28 (1.10)	47.1 (1.85)
Race	26.1 (1.03)	44 (1.73)

NOTE: Install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

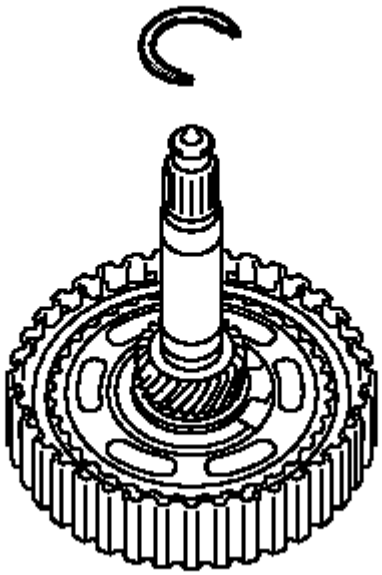
b. Install the rear planetary sun gear assembly to the direct multiple disc clutch assembly.



N

Fig. 378: Identifying Rear Planetary Sun Gear And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a snap ring expander, install the snap ring to the direct multiple disc clutch assembly.



N

Fig. 379: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **INSTALL NO. 2 CLUTCH DISC**
    a. Install the clutch flange, 3 clutch discs and 3 clutch plates to the direct multiple disc clutch assembly.

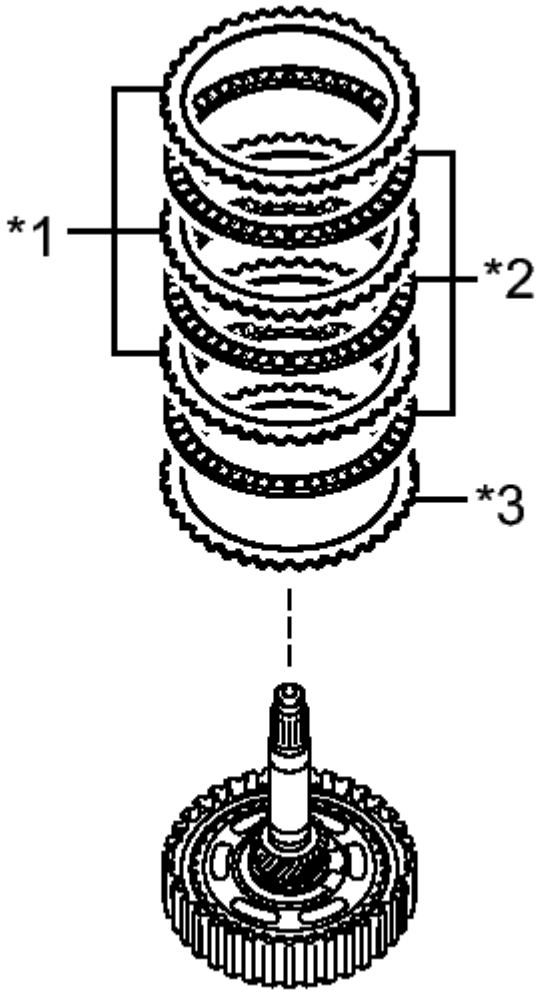


Fig. 380: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Plate
*2	Clutch Disc
*3	Clutch Flange

NOTE: **Make sure that the flange, discs and plates are installed in the correct order.**

49. **INSTALL DIRECT MULTIPLE DISC CLUTCH SNAP RING**

a. Coat a new O-ring with ATF and install it to the direct multiple disc clutch assembly.

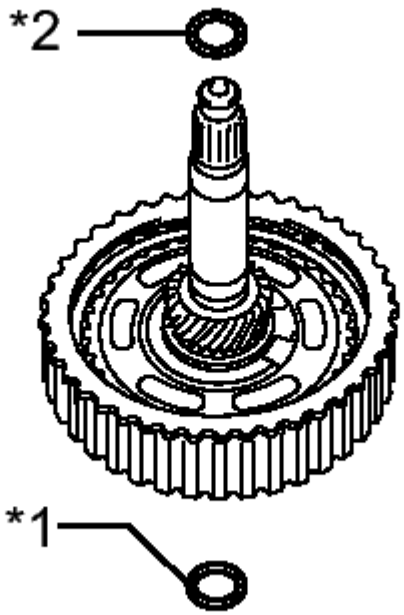


Fig. 381: Identifying Intermediate Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

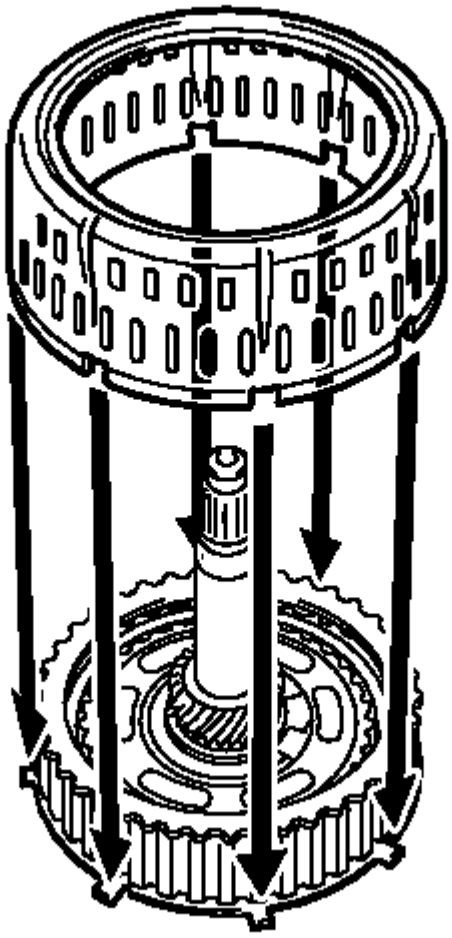
*2	O-ring

b. Coat a new intermediate shaft oil seal with ATF and install it to the direct multiple disc clutch assembly.

TEXT IN ILLUSTRATION

*1	Intermediate Shaft Oil Seal

c. Install the No. 2 direct clutch piston to the direct multiple disc clutch assembly.

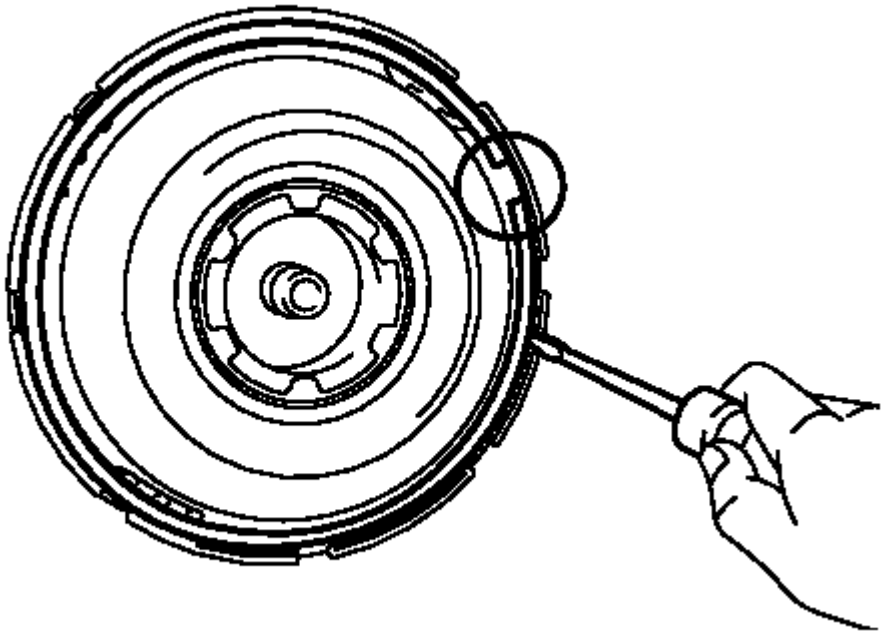


N

Fig. 382: Installing No. 2 Direct Clutch Piston To Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be sure to engage the claws on the direct multiple disc clutch assembly in the grooves on the No. 2 direct clutch piston.

d. Using a screwdriver, install the snap ring to the direct multiple disc clutch assembly.



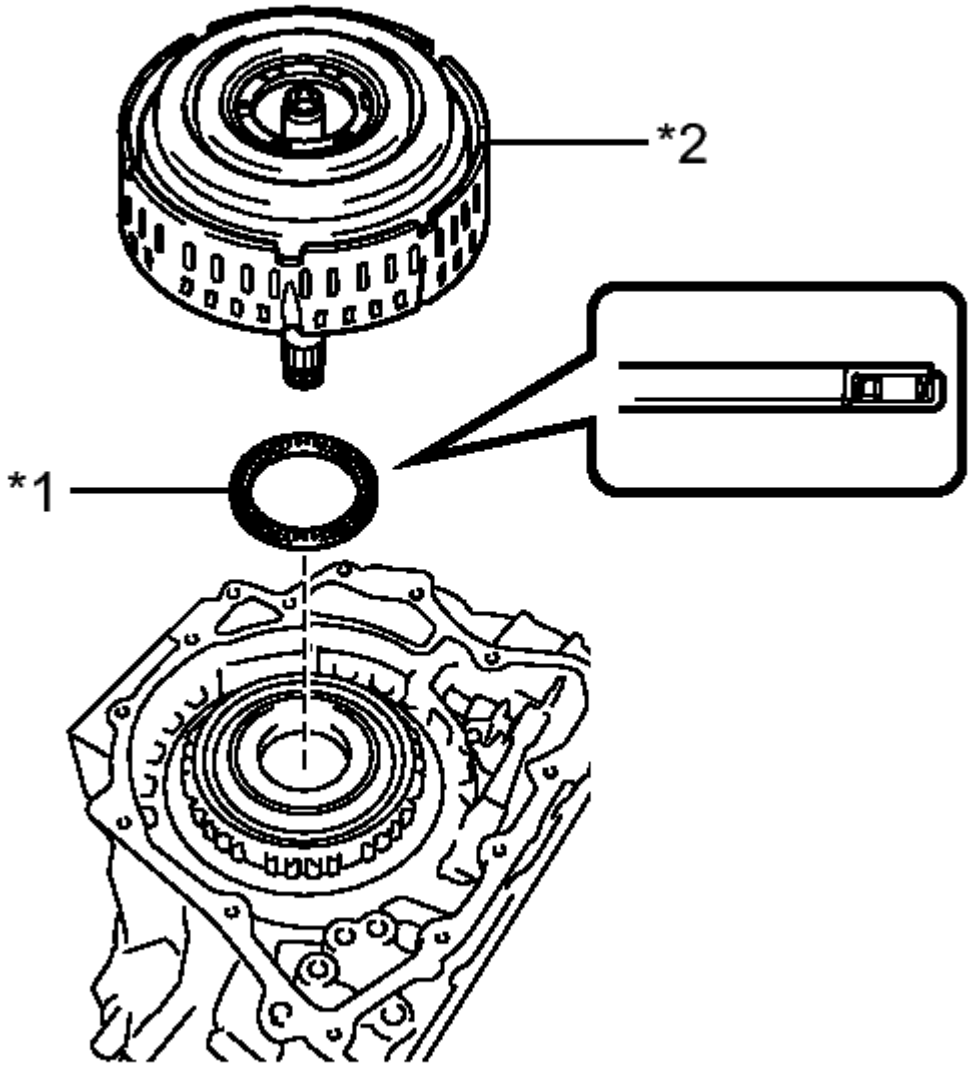
N

Fig. 383: Installing Snap Ring To Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Position the opening of the snap ring as shown in the illustration.**
- **Confirm that the snap ring is correctly located in the groove of the direct multiple disc clutch assembly.**

50. **INSPECT CLEARANCE OF NO. 2 CLUTCH DISC** See step 19
51. **INSTALL DIRECT MULTIPLE DISC CLUTCH ASSEMBLY**
    a. Coat the thrust needle roller bearing with ATF and install it on the transaxle case.



N

Fig. 384: Identifying Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Thrust

*1	Needle Roller Bearing

BEARING DIAMETER

-	Inside mm (in.)	Outside mm (in.)
Bearing	61.2 (2.41)	79 (3.11)

b. Install the direct multiple disc clutch assembly to the transaxle case.

TEXT IN ILLUSTRATION

*2	Direct Multiple Disc Clutch Assembly

c. Clean the contact surfaces of the transaxle case and rear transaxle cover subassembly.

d. As shown in the illustration, place a straightedge on the multiple direct clutch drum and measure the distance between the transaxle case and the straightedge using a vernier caliper (Dimension A).

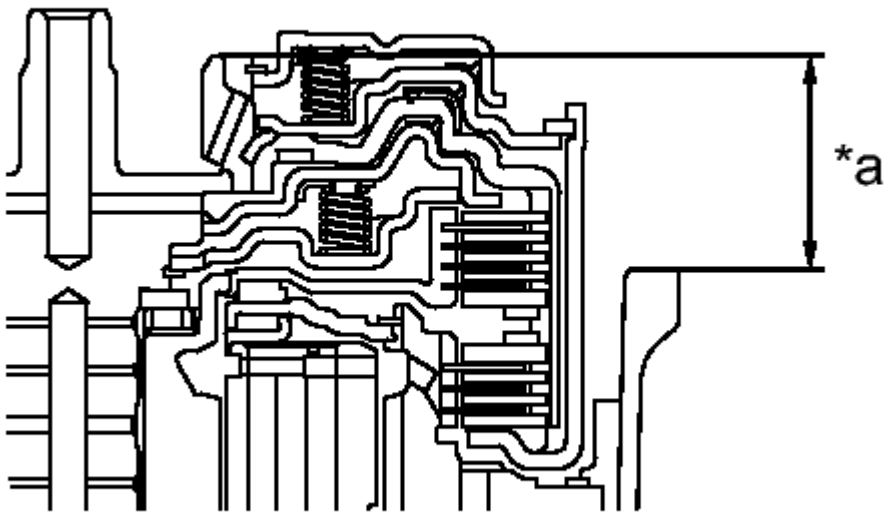


Fig. 385: Inspecting Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Dimension A

e. Using a vernier caliper and a straightedge, measure the distance shown in the illustration (Dimension B).

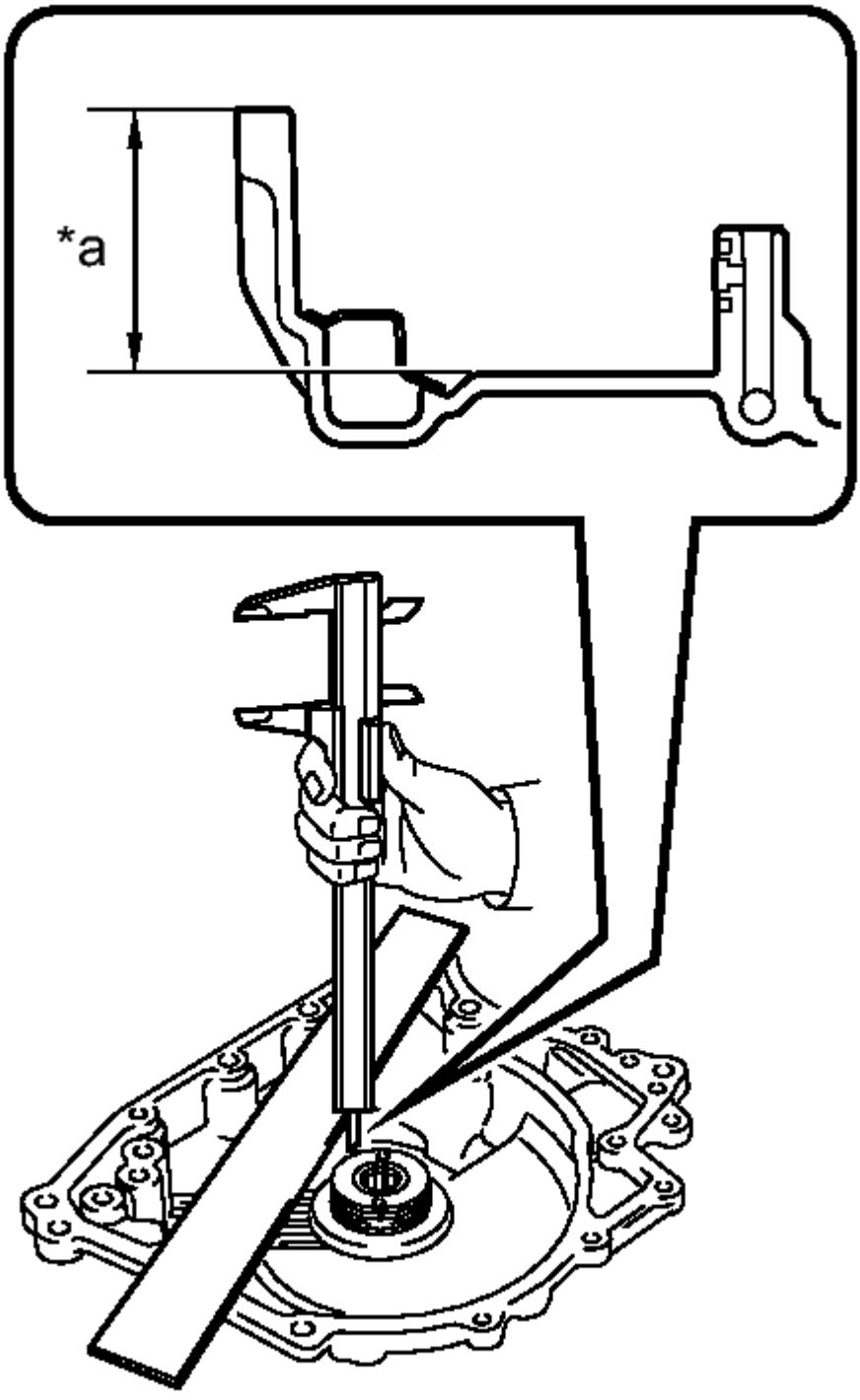


Fig. 386: Measuring Direct Multiple Disc Clutch Assembly Using A Vernier Caliper & Straightedge

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

TEXT IN ILLUSTRATION

*a	Dimension B

f. Calculate the end play value using the following formula:

End play = Dimension B - Dimension A

End play

0.007 to 1.113 mm (0.000275 to 0.0438 in.)

52. **INSTALL REAR TRANSAXLE COVER SUB-ASSEMBLY**

a. Using SST and a hammer, install a new needle roller bearing into the rear transaxle cover subassembly.

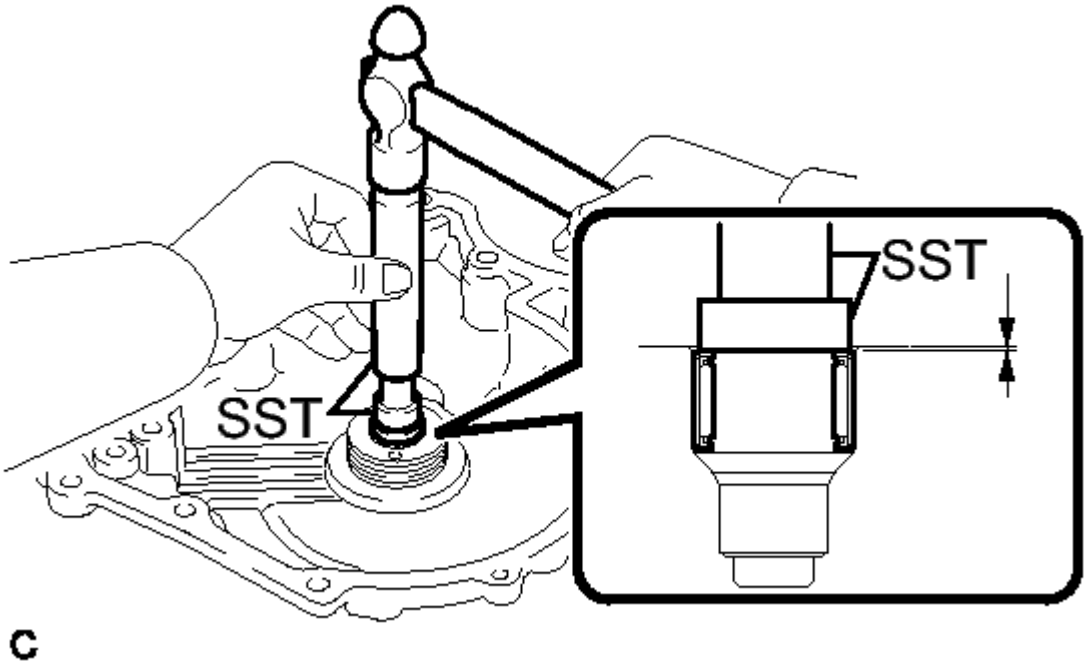


Fig. 387: Installing Needle Roller Bearing Into Rear Transaxle Cover Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00220
- **SST: 09950-70010**
  09951-07100

Installation depth

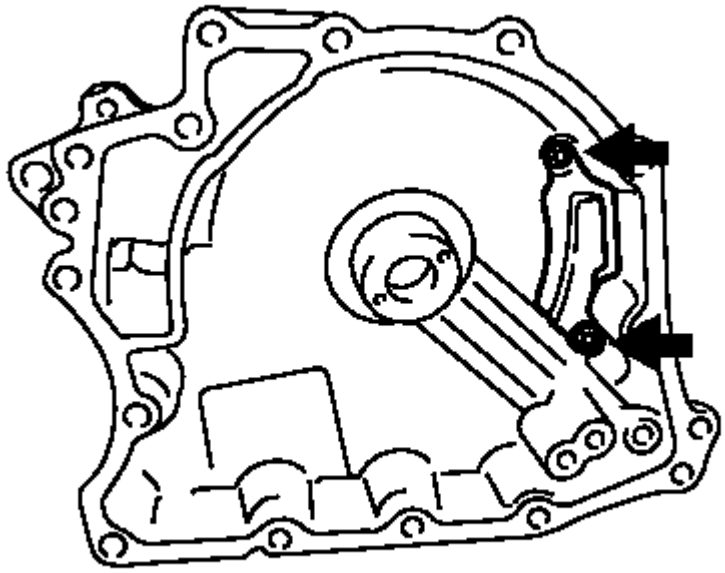
21.5 to 21.9 mm (0.846 to 0862 in.)

b. Apply adhesive to the 2 "TORX" screws.

Adhesive

Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

c. Using a T30 "TORX" socket wrench, install the rear transaxle cover plate to the rear transaxle cover subassembly with the 2 "TORX" screws.



N

Fig. 388: Identifying Rear Transaxle Cover Plate Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

d. Coat the thrust needle roller bearing and thrust needle roller race with ATF and install them on the transaxle case.

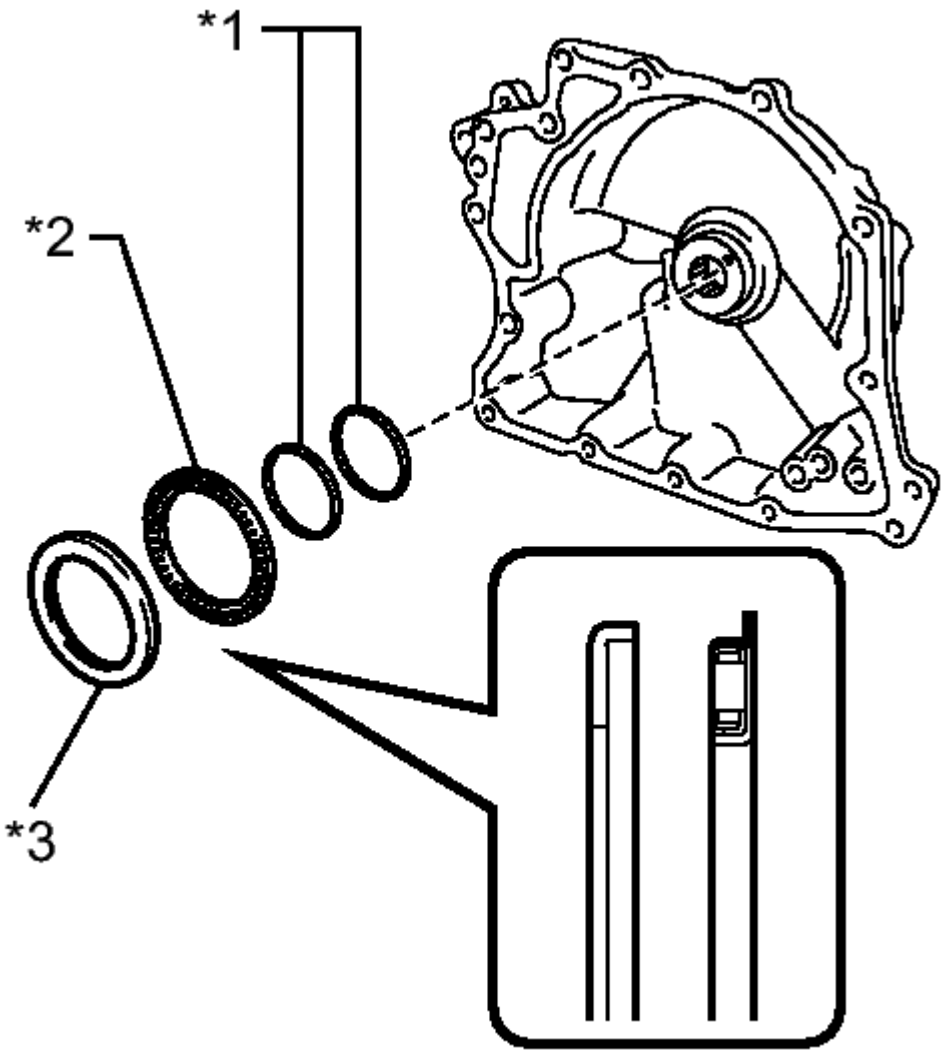


Fig. 389: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	48.9 (1.93)	72.0 (2.84)
Race	52.2 (2.06)	70.4 (2.77)

TEXT IN ILLUSTRATION

*2	Thrust Needle

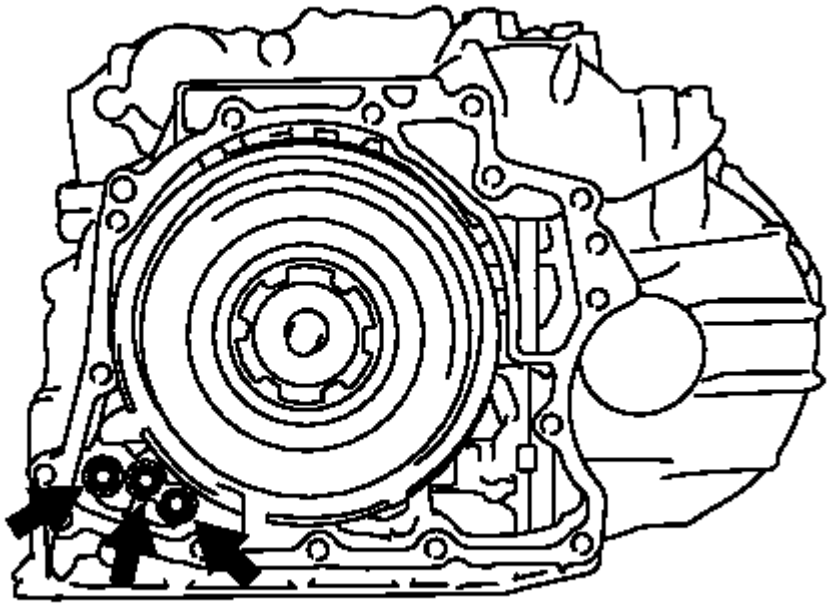
	Roller Bearing
*3	Thrust Needle Roller Race

e. Coat 2 new oil seal rings with ATF and install them to the rear transaxle cover subassembly.

TEXT IN ILLUSTRATION

*1	Oil Seal Ring

f. Coat 3 new O-rings with ATF and install them to the transaxle case.

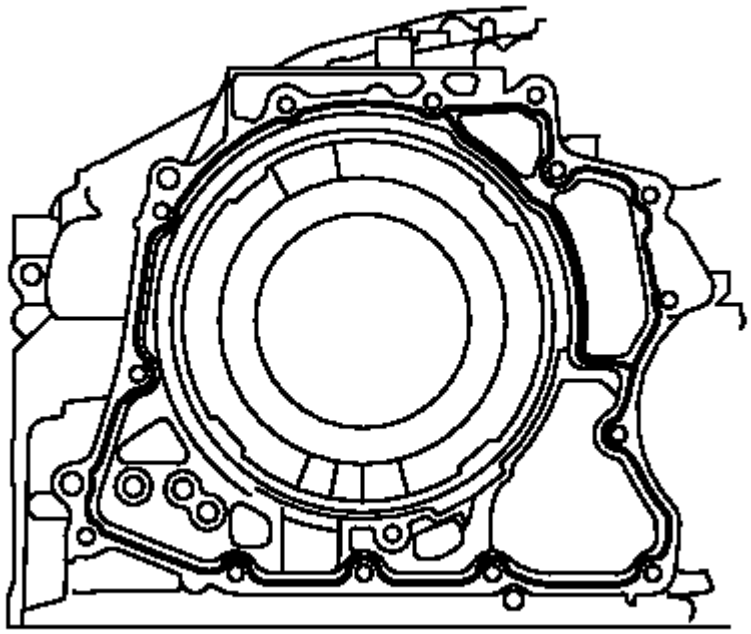


N

Fig. 390: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Ensure that the O-rings are not twisted.

g. Remove packing material from the contact surfaces between the rear transaxle cover subassembly and transaxle case.



N

Fig. 391: Identifying Packing Material
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that there is no ATF on the contact surfaces.

FIPG

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

h. Install the rear transaxle cover subassembly to the transaxle case with the 14 bolts.

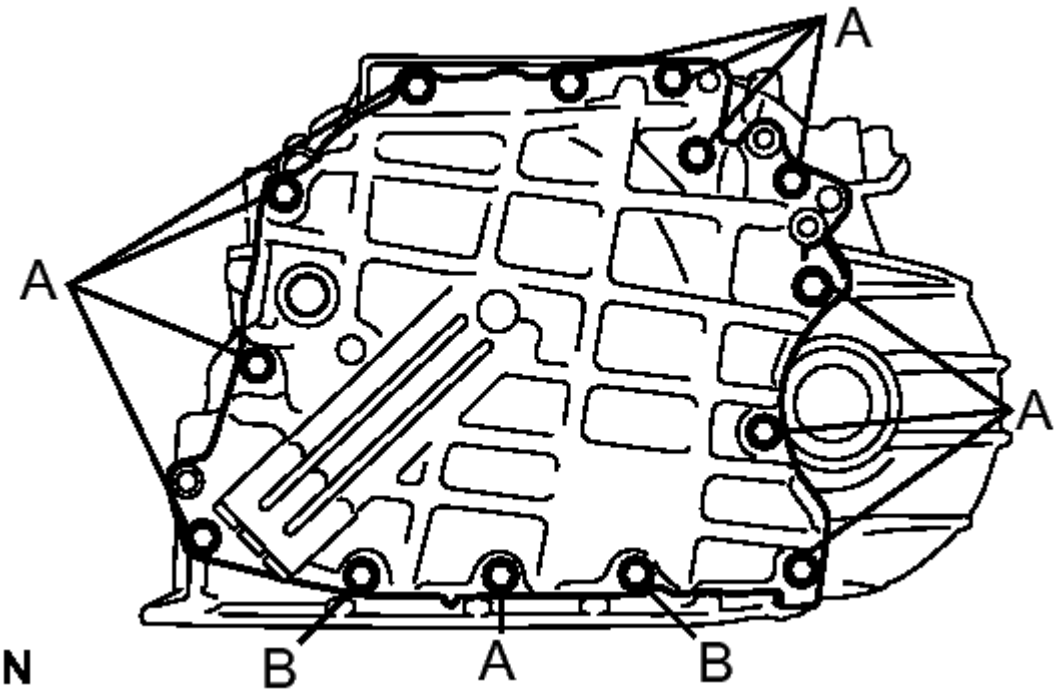


Fig. 392: Identifying Rear Transaxle Cover Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bolt A

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

Bolt B

Torque: 17 N*m (172 kgf*cm, 12 ft.*lbf)

i. Install a new gasket to the refill plug.

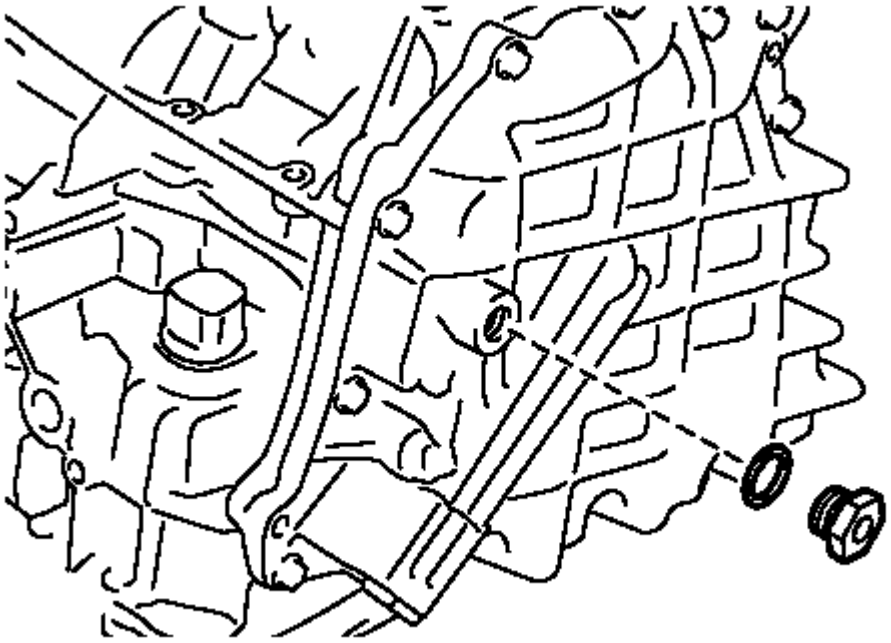


Fig. 393: Identifying Refill Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

j. Install the refill plug to the rear transaxle cover subassembly.

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

k. Coat 2 new O-rings with ATF and install them to the 2 No. 1 automatic transaxle case plugs.

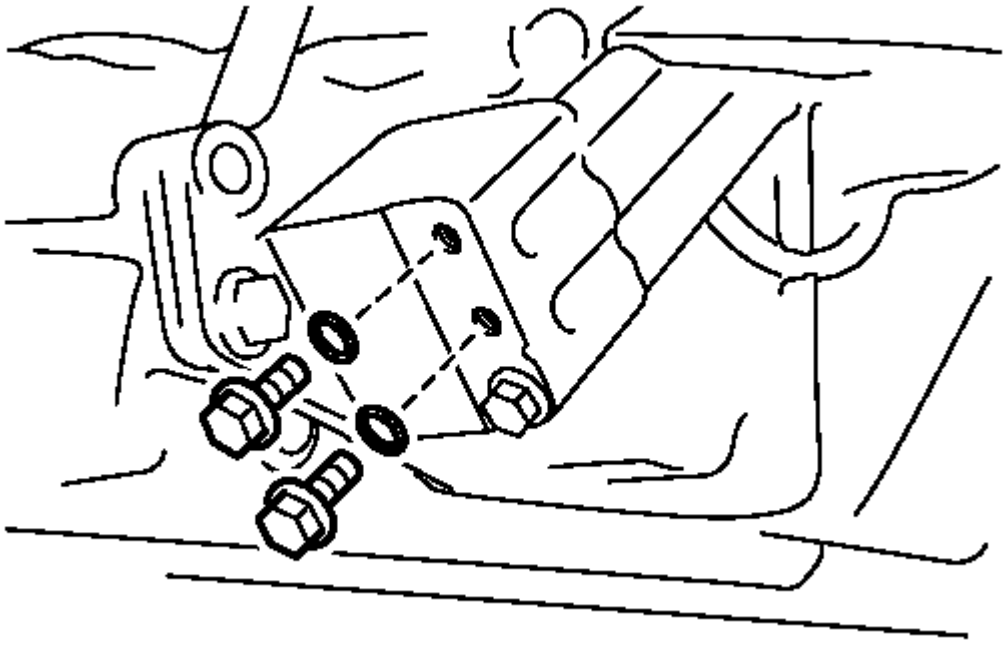


Fig. 394: Identifying No. 1 Automatic Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

l. Install the 2 No. 1 automatic transaxle case plugs to the rear transaxle cover subassembly.

Torque: 7.4 N*m (75 kgf*cm, 65 in.*lbf)

53. **INSPECT INPUT SHAFT END PLAY** See step 2
54. **INSTALL TRANSAXLE CASE GASKET**
    a. Coat 2 new transaxle case gasket with ATF.

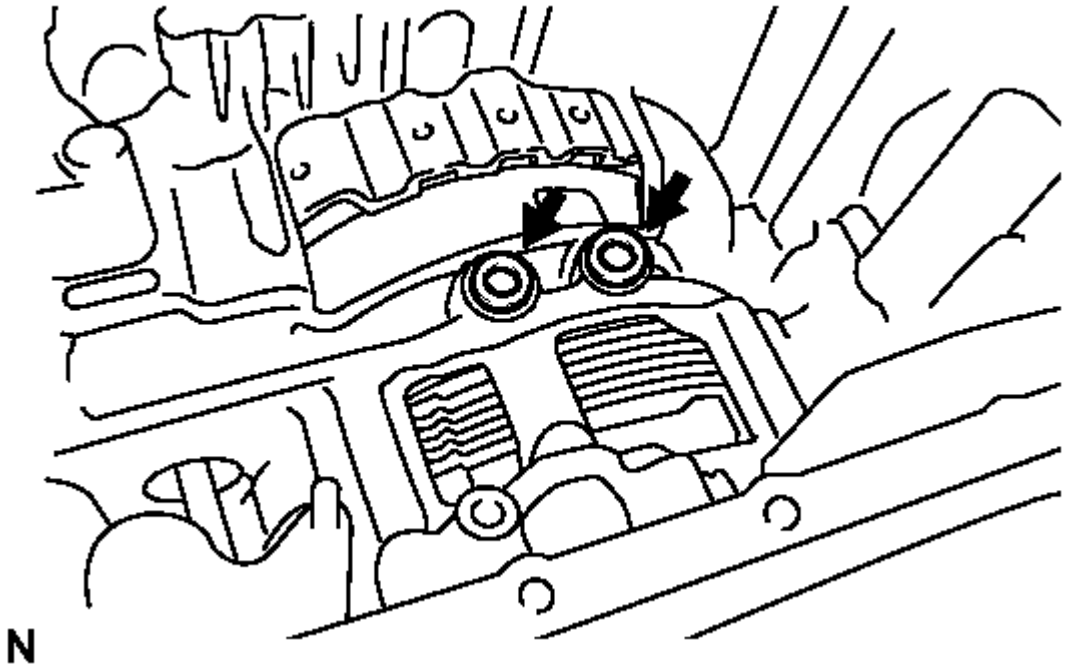


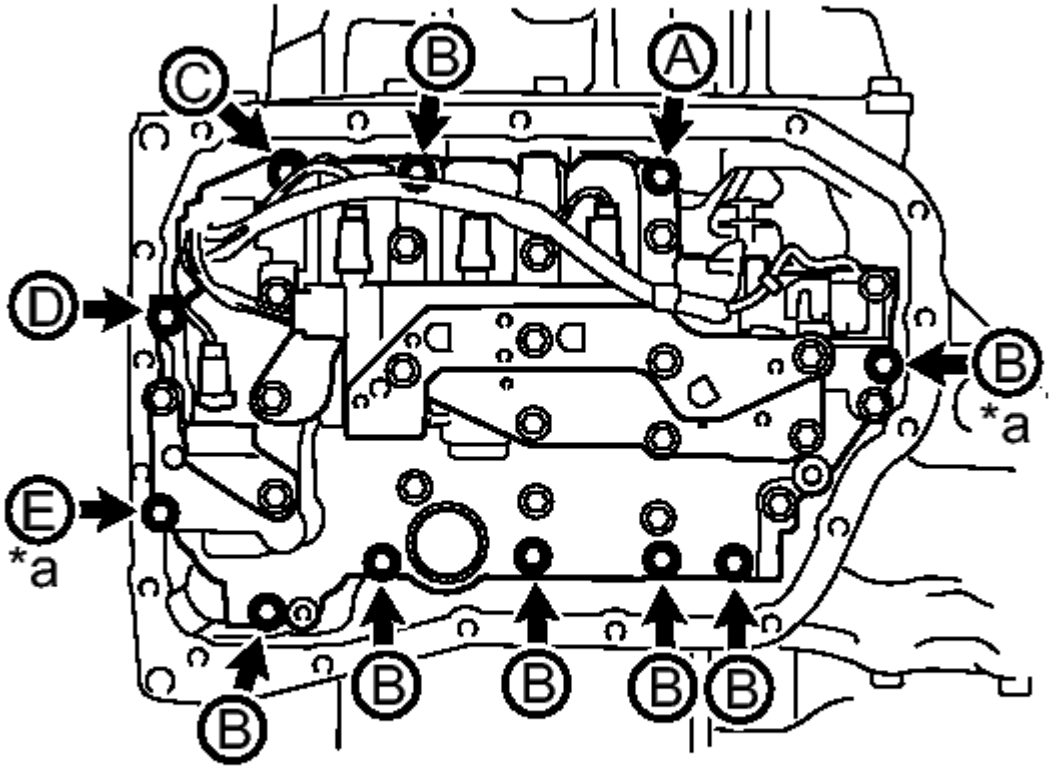
Fig. 395: Identifying Transaxle Case Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the 2 transaxle case gasket onto the transaxle case.

55. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

a. Coat the O-ring of the transmission wire with ATF.

b. Confirm that the manual valve lever is positioned as shown in the illustration and install the transmission valve body onto the automatic transaxle with the 11 bolts.



N

Fig. 396: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Positioning Bolt

BOLT LENGTH

Bolt	Length mm (in.)
A	25 (0.984)
B	30 (1.18)

C	35 (1.38)
D	45 (1.77)
E	55 (2.17)

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

NOTE:

- **When installing the transmission valve body, be careful not to allow the transmission revolution sensor and automatic transaxle to interfere with each other.**
- **Be sure to insert the pin of the manual valve lever into the groove on the end of the manual valve.**
- **First, temporarily tighten the bolts marked (*a) in the illustration because they are positioning bolts.**

56. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY**

a. Coat a new O-ring with ATF and install it onto the valve body oil strainer.

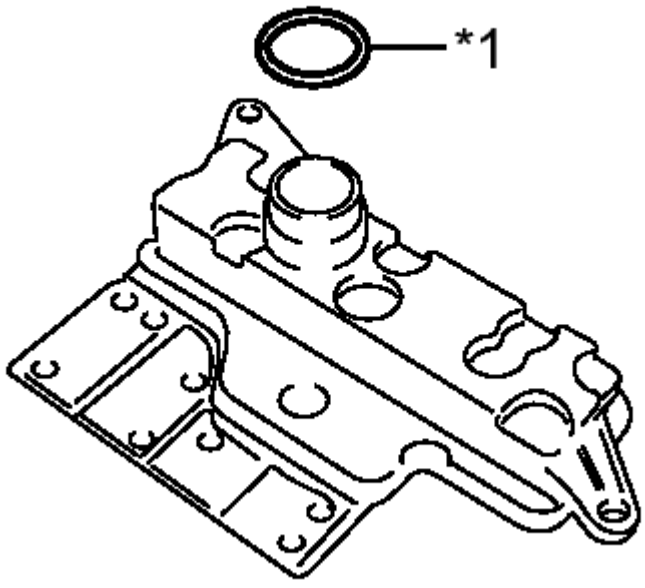


Fig. 397: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

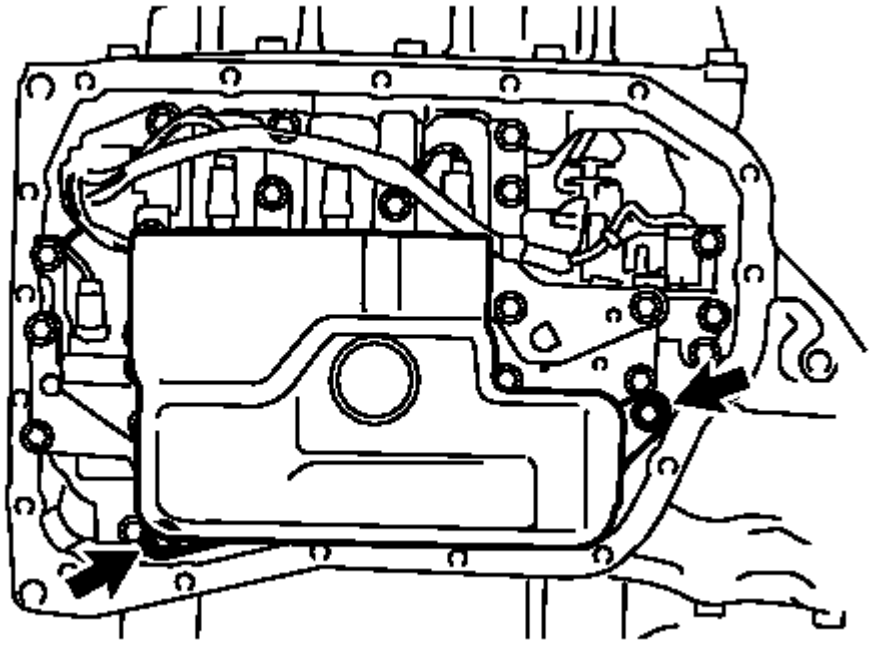
TEXT IN ILLUSTRATION

*1	O-

ring

NOTE: Ensure that the O-ring is not twisted or pinched.

b. Install the valve body oil strainer onto the transmission valve body with the 2 bolts.



N

Fig. 398: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

57. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**

a. Install the 2 transmission oil cleaner magnets onto the automatic transaxle oil pan as shown in the illustration.

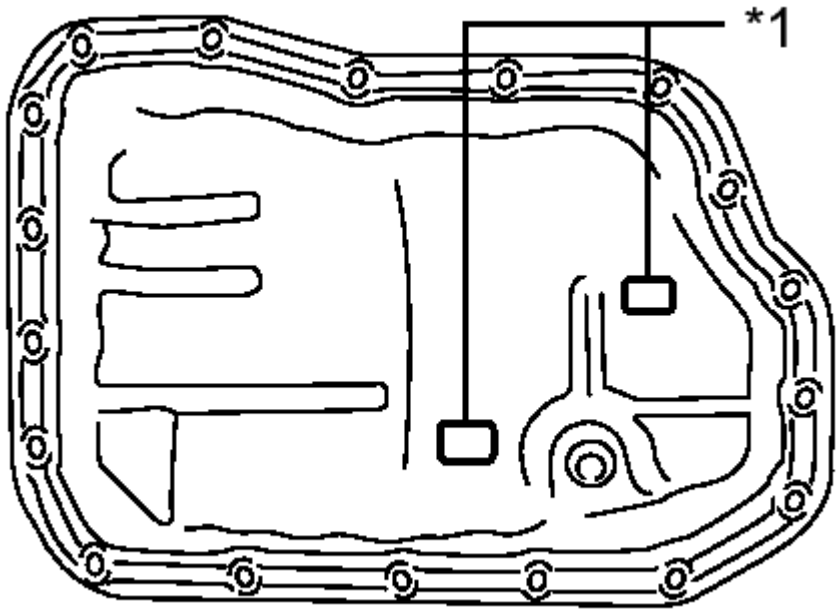


Fig. 399: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

b. Install a new automatic transaxle oil pan gasket onto the automatic transaxle oil pan.
c. Clean and degrease the bolt (*1) and the installation hole in the automatic transaxle.

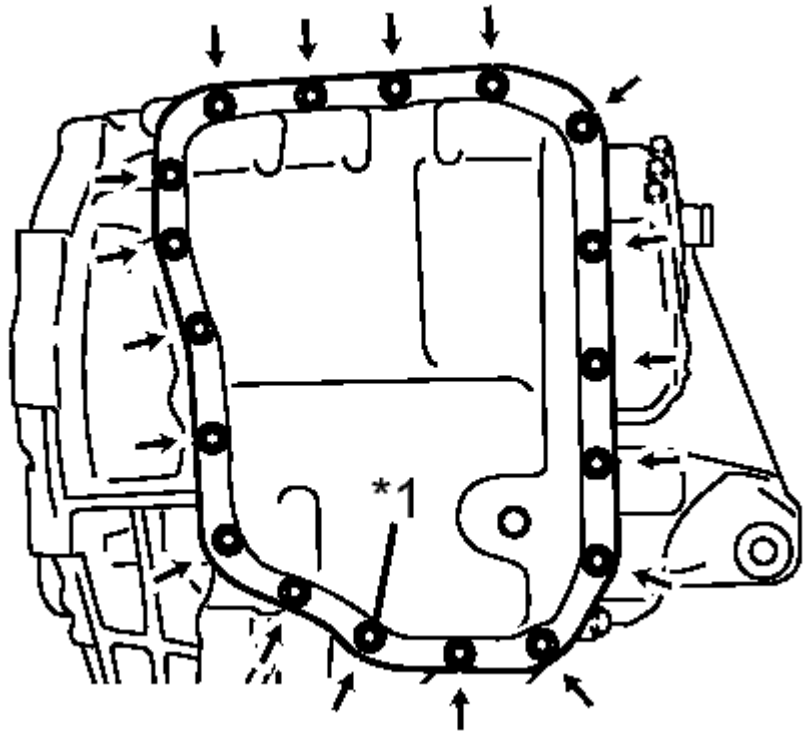


Fig. 400: Identifying Automatic Transaxle Oil Pan Bolts & Precoated Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Precoated Bolt

d. Apply adhesive to 2 or 3 threads on the ends of the bolt (*1).

Adhesive

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

e. Install the automatic transaxle oil pan with the transaxle oil pan gasket onto the automatic transaxle with the 18 bolts.

Precoated Bolt (*1)

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

except Precoated bolt

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

NOTE: Completely remove any oil or grease from the contact surface of the

automatic transaxle and automatic transaxle oil pan with the automatic transaxle oil pan gasket before installation.

f. Using a 6 mm hexagon socket wrench, install the No. 1 oil filler tube to the automatic transaxle assembly.

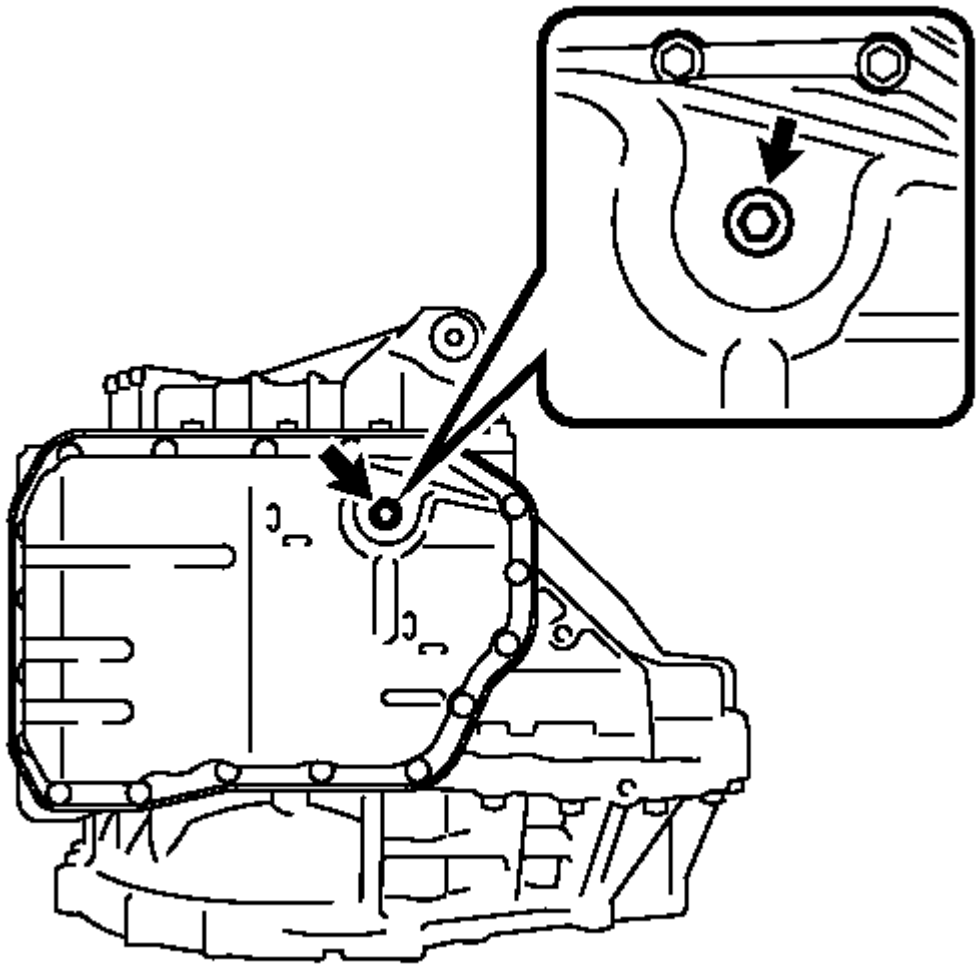


Fig. 401: Identifying No. 1 Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

g. Using a 6 mm hexagon socket wrench, install the overflow plug and a new gasket to the oil pan subassembly.

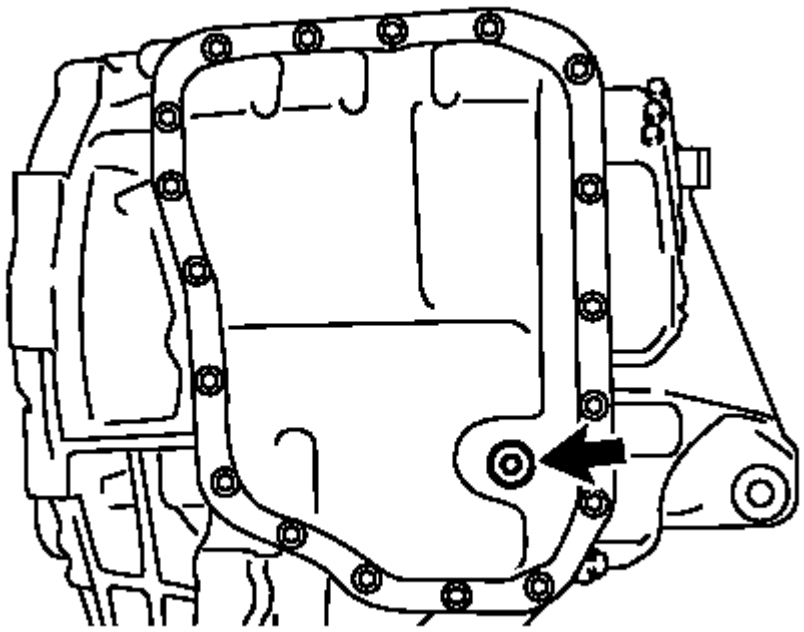


Fig. 402: Identifying Overflow Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

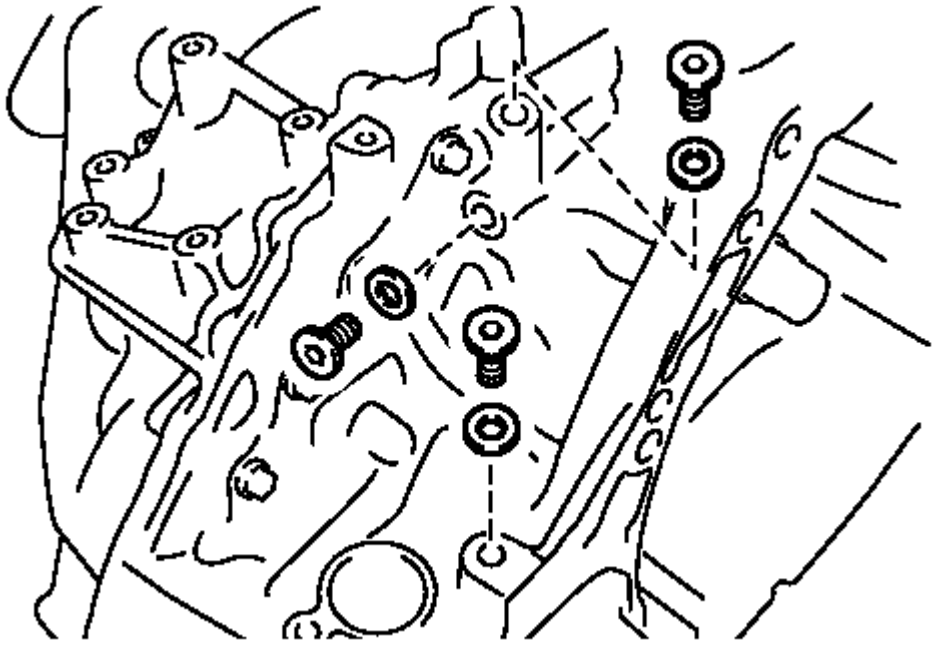
58. **INSTALL NO. 1 TRANSAXLE CASE PLUG**
    a. Install 3 new gaskets to the 3 hexagon bolts.
    b. Apply adhesive to the 3 hexagon bolts.

       Adhesive

       Toyota Genuine Seal Packing 1344, Three Bond 1344 or equivalent

       NOTE: In order to ensure proper sealing of the hexagon bolts, apply adhesive to the bolts and install them within 10 minutes of adhesive application.

    c. Using a 6 mm hexagon socket wrench, install the 3 hexagon bolts to the transaxle housing with the gaskets.

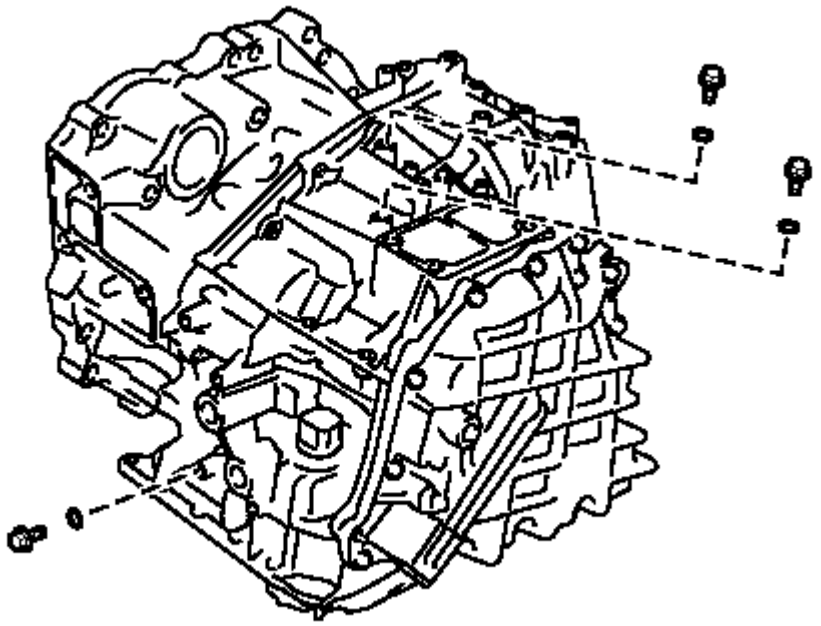


N

Fig. 403: Identifying Gaskets And Hexagon Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

d. Coat 3 new O-rings with ATF and install them to the 3 No. 1 transaxle case plugs.



N

Fig. 404: Identifying No. 1 Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Install the 3 No. 1 transaxle case plugs to the transaxle case.

Torque: 7.4 N*m (75 kgf*cm, 65 in.*lbf)

59. **INSTALL OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**
    a. Coat a new O-ring with ATF and install it to the oil cooler tube union (inlet oil cooler union).

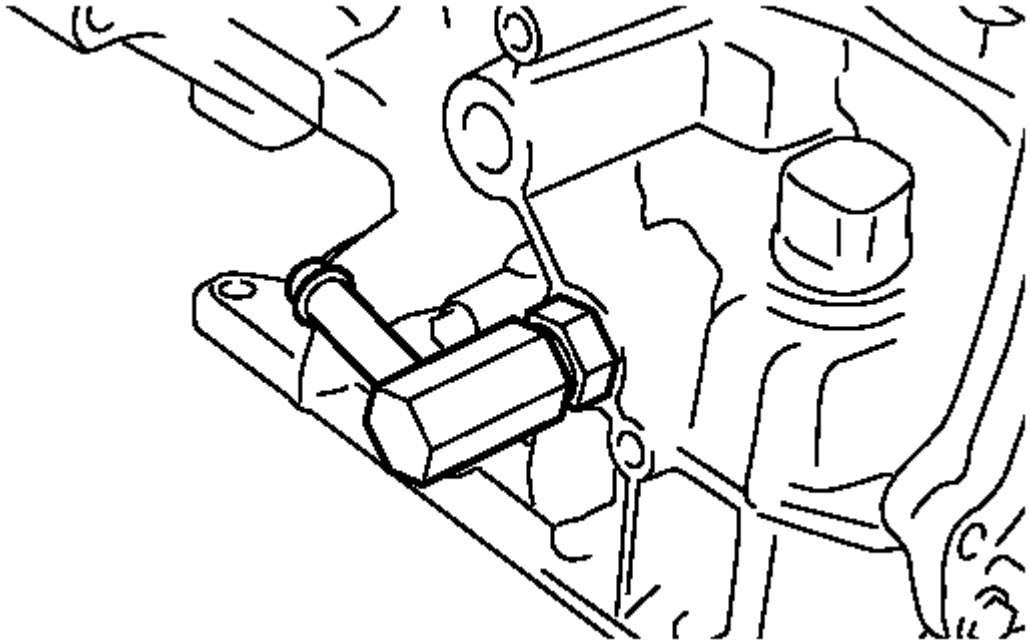


Fig. 405: Identifying Oil Cooler Tube Union (Inlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the oil cooler tube union (inlet oil cooler union) to the transaxle case as shown in the illustration.

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

60. **INSTALL OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
    a. Coat a new O-ring with ATF and install it to the oil cooler tube union (outlet oil cooler union).

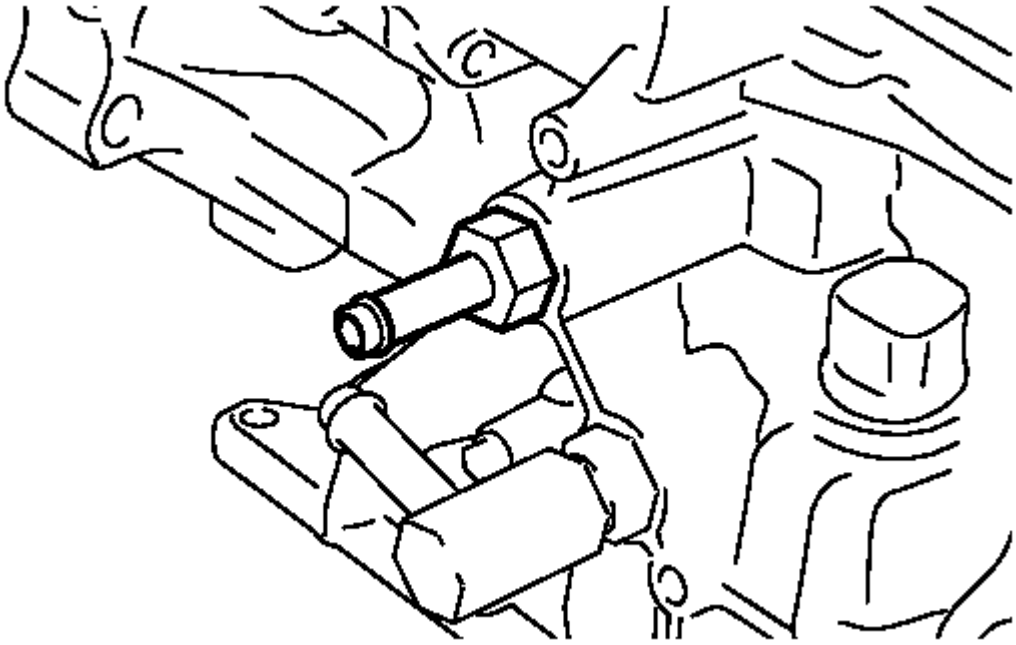


Fig. 406: Identifying Oil Cooler Tube Union (Outlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the oil cooler tube union (outlet oil cooler union) to the transaxle case.

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

61. **INSTALL PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
    a. Align the protrusions of the park/neutral position switch.

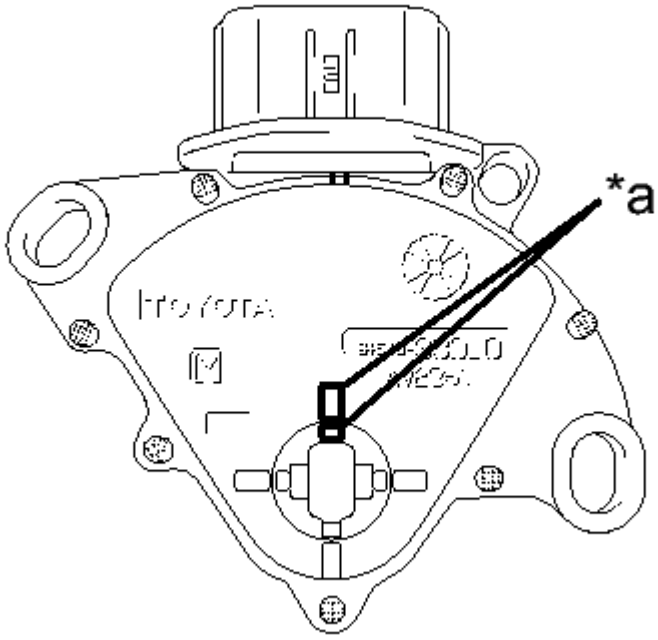


Fig. 407: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

b. Install the park/neutral position switch to the control shaft with the 2 bolts.

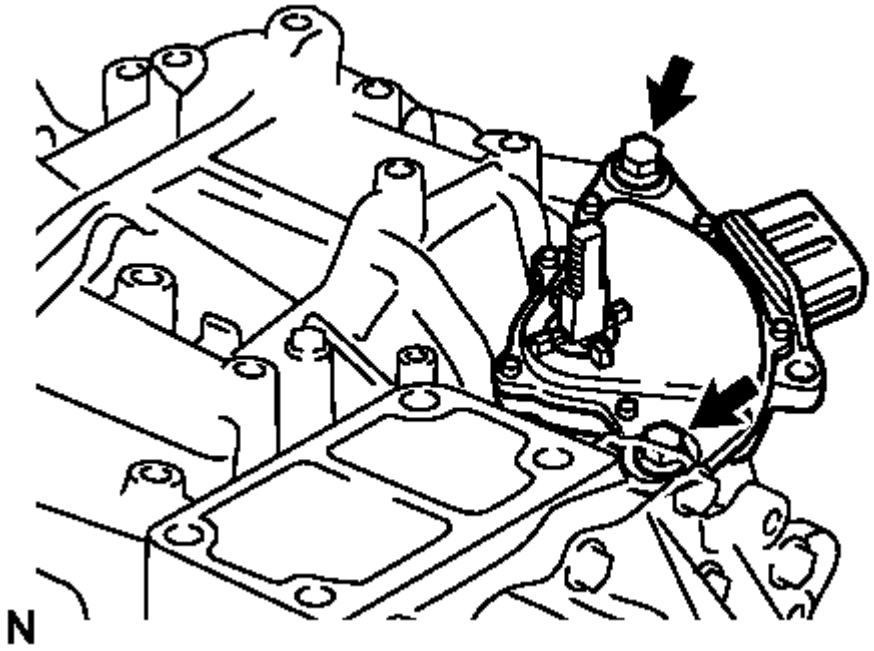


Fig. 408: Identifying Park/Neutral Position Switch Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE:

- **Before installing the park/neutral position switch, remove any dirt or rust on the control shaft. Be sure to install the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**
- **After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.**

c. Install the control shaft lever to the control shaft with the washer and nut.

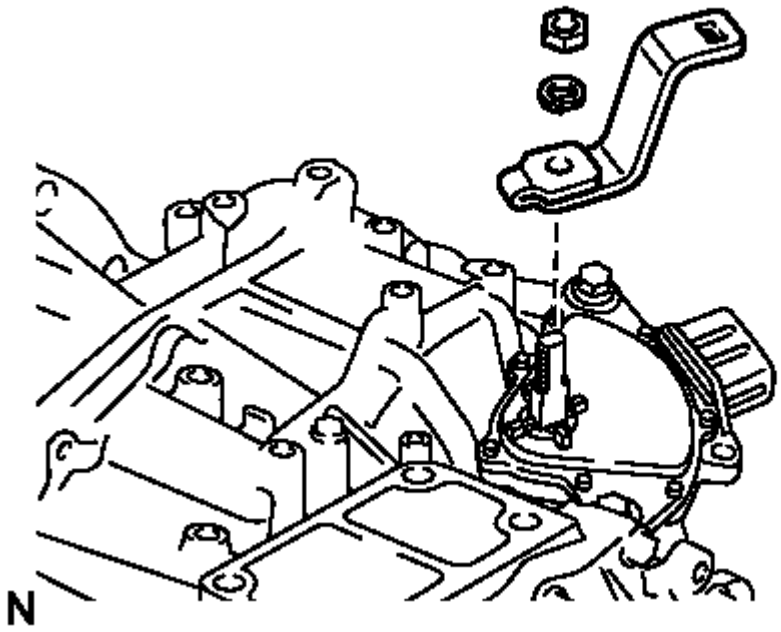
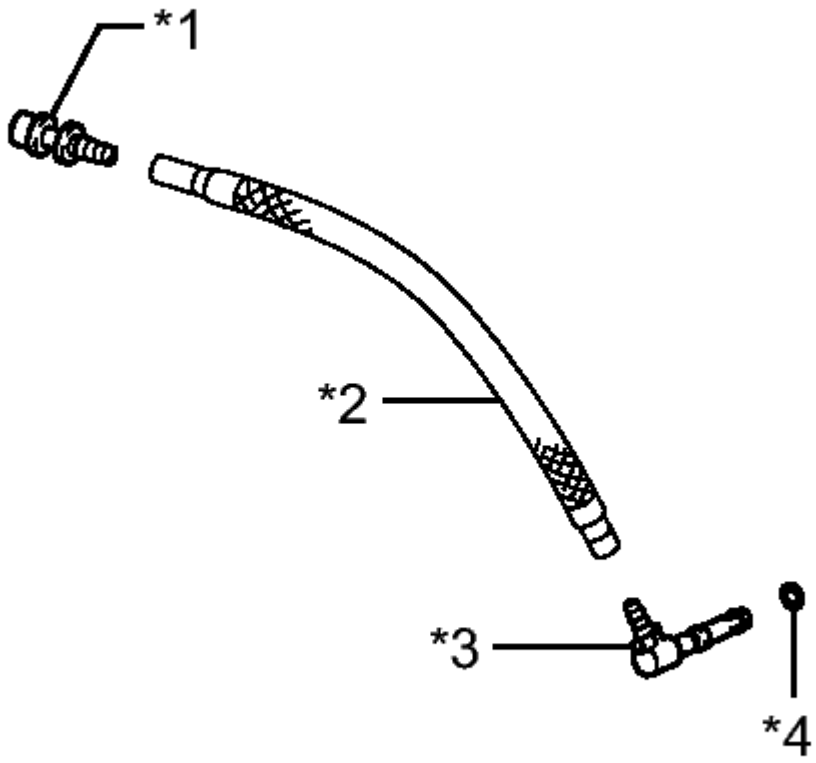


Fig. 409: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 13 N*m (133 kgf*cm, 9 ft.*lbf)

62. **INSTALL BREATHER PLUG HOSE**
    a. Coat a new O-ring with ATF and install it to the No. 2 breather plug (ATM).



N

Fig. 410: Identifying Breather Plug Hose Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Breather Plug (ATM)
*2	Breather Plug Hose
*3	No. 2 Breather Plug (ATM)
*4	O-ring

b. Install the No. 1 breather plug (ATM) and No. 2 breather plug (ATM) to the breather plug hose.
c. Install the breather plug hose to the transaxle case.

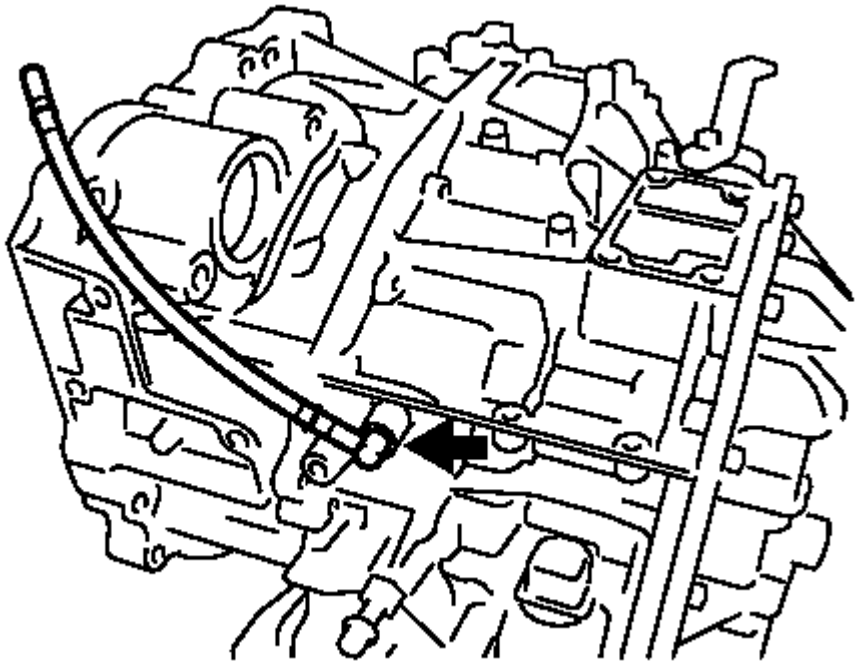


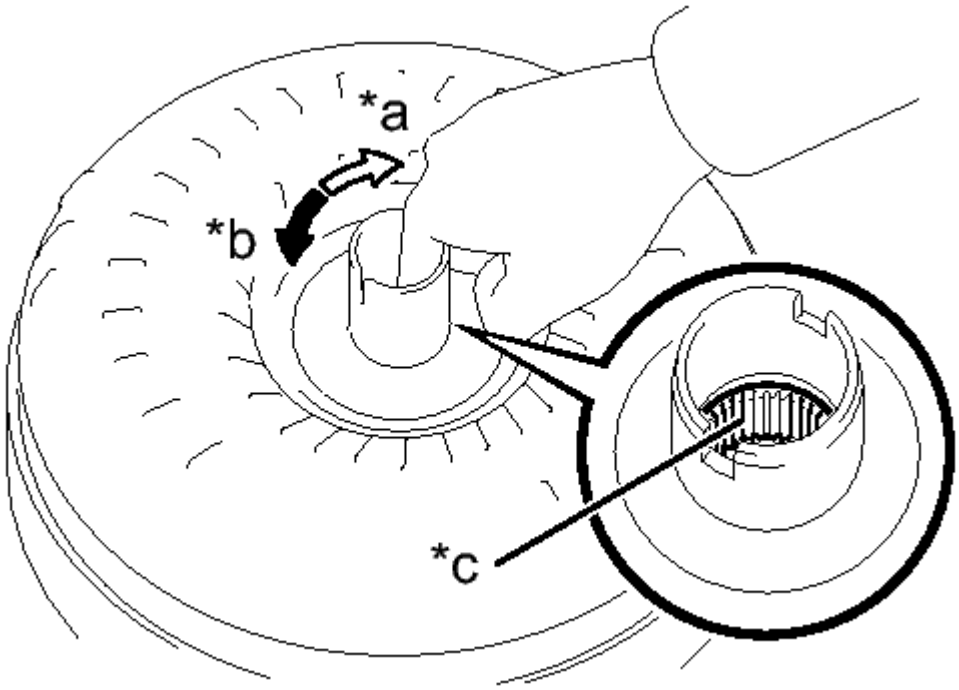
Fig. 411: Identifying Breather Plug Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE CONVERTER CLUTCH AND DRIVE PLATE

INSPECTION

INSPECTION

1. **INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY**
   a. Inspect the one-way clutch.



P

Fig. 412: Inspecting Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Press on the spline of the stator with a finger and rotate it. Check that it rotates smoothly when turned clockwise and locks when turned counterclockwise.

   TEXT IN ILLUSTRATION

*a	Free
*b	Lock
*c	Spline

   If necessary, clean the converter and recheck the one-way clutch.

   Replace the torque converter if the one-way clutch still fails the check.

b. Determine the condition of the torque converter.

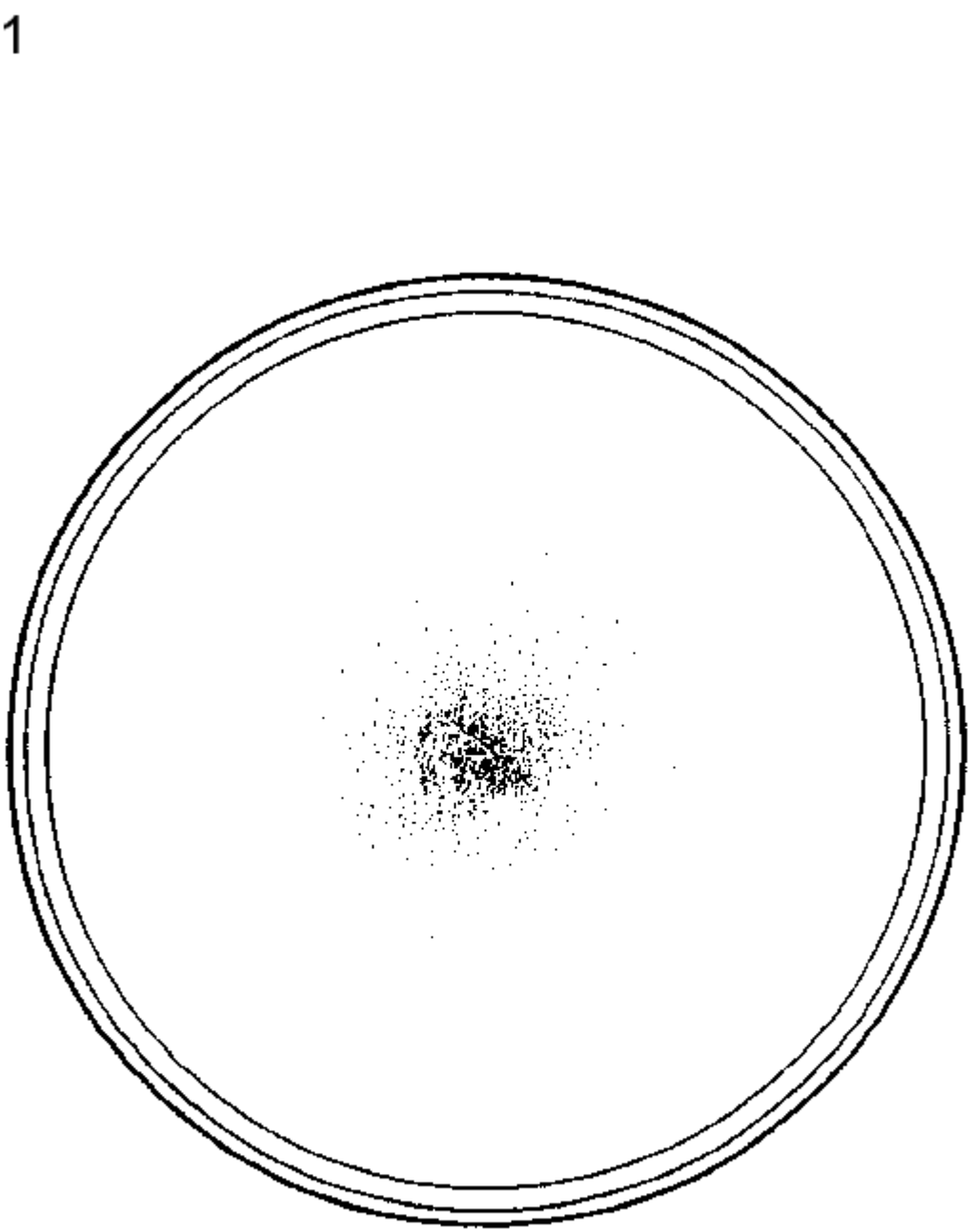


Fig. 413: Identifying Powder In ATF
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. If the inspection result of the torque converter satisfies the following conditions, replace the torque converter.

Malfunction

- Any metallic sound is emitted from the torque converter during the stall test or when the shift lever is moved to N.

- The one-way clutch is free or looks in both directions.

- The amount of powder in the ATF is greater than the sample shown in the illustration above.

TEXT IN ILLUSTRATION

*a	Sample showing maximum allowable amount of powder in ATF

HINT:

The sample shows approximately 0.025 liters (0.026 US qts, 0.022 Imp. qts) of ATF that is taken out from the removed torque converter.

c. Replace the ATF in the torque converter.
    1. If the ATF is discolored and/or has foul odor, stir the ATF in the torque converter and drain it.

d. Clean and check the oil cooler and oil pipe line.

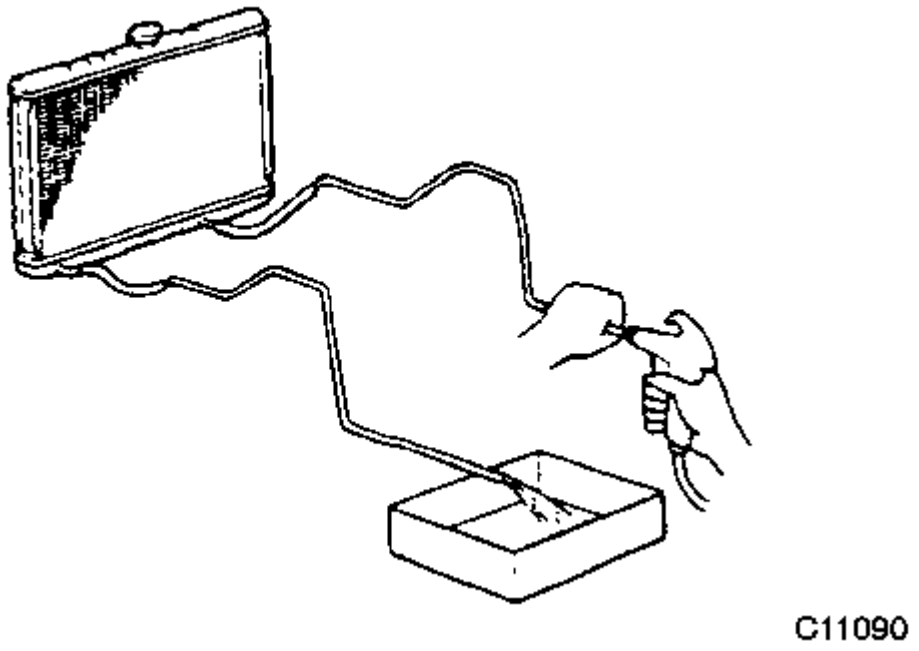


Fig. 414: Checking Oil Cooler And Oil Pipe Line
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. If the torque converter is inspected or the ATF is replaced, clean the oil cooler and oil pipe line.

   HINT:

   - Apply compressed air of 196 kPa (2.0 kgf/ cm^2 , 28 psi) into the inlet hose.
   - If a large amount of powder is found in the ATF, add new ATF using a bucket pump and clean the oil cooler and oil pipe line again.

2. If the ATF is cloudy, inspect the oil cooler (radiator).

e. Prevent deformation of the torque converter and damage to the oil pump gear.

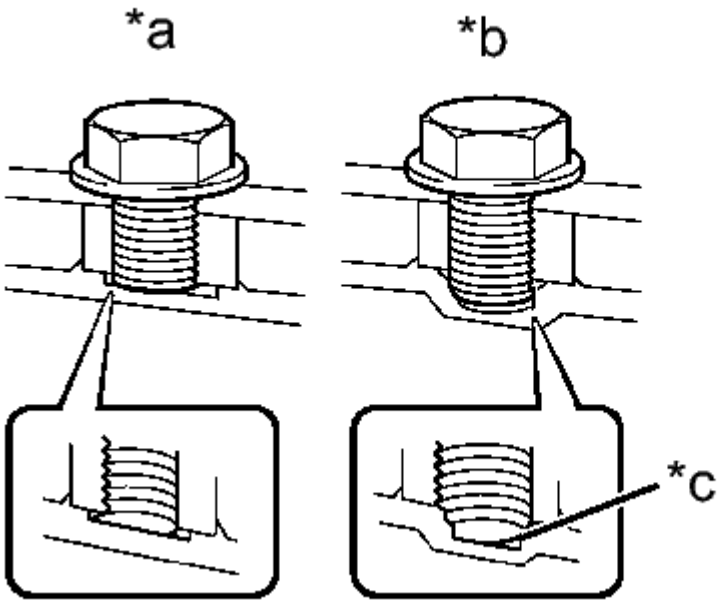


Fig. 415: Identifying Torque Converter Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. When there is any damage due to the end of the bolt for the torque converter and to the bottom of the bolt hole, replace the bolt and the torque converter.

   TEXT IN ILLUSTRATION

*a	Correct
*b	Incorrect
*c	The bottom is damaged.

2. All of the bolts should be the same length.
3. Bolts with washers must be used.

2. **INSPECT DRIVE PLATE AND RING GEAR SUB-ASSEMBLY**

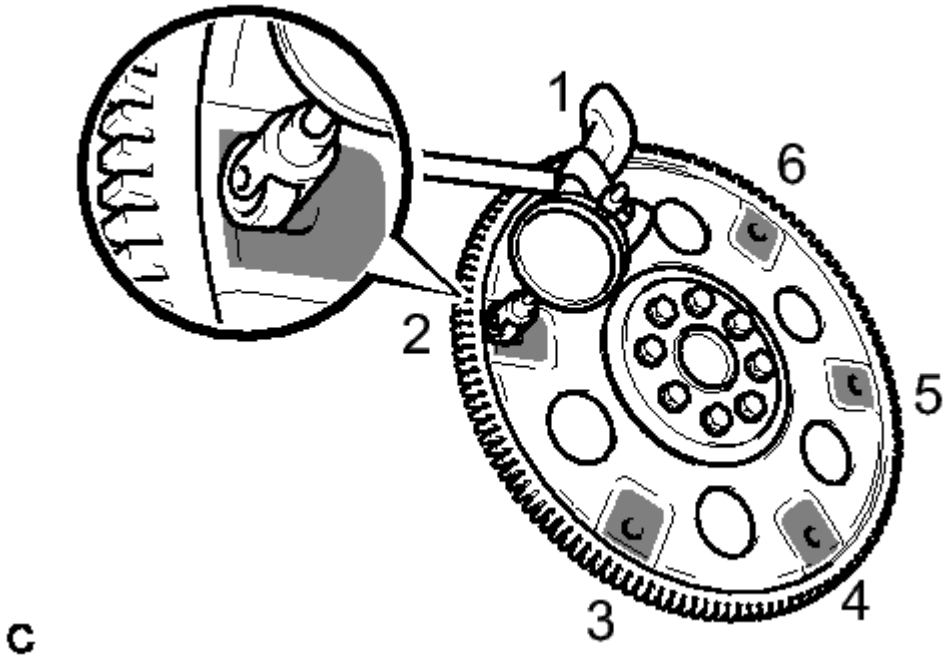


Fig. 416: Inspecting Drive Plate & Ring Gear Sub-Assembly Using A Dial Indicator
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Check the drive plate and ring gear for damage.
b. Set up a dial indicator and measure the runout of the 6 portions around the torque converter contact surfaces.

TEXT IN ILLUSTRATION

C	Measurement Point

Maximum runout

0.30 mm (0.0118 in.)

If the runout is not within the specification or the drive plate and ring gear is damaged, replace the drive plate and ring gear.

- Removal: Refer to **REMOVAL - Step 3**
- Installation: Refer to **INSTALLATION - Step 2**

TCM

COMPONENTS

ILLUSTRATION

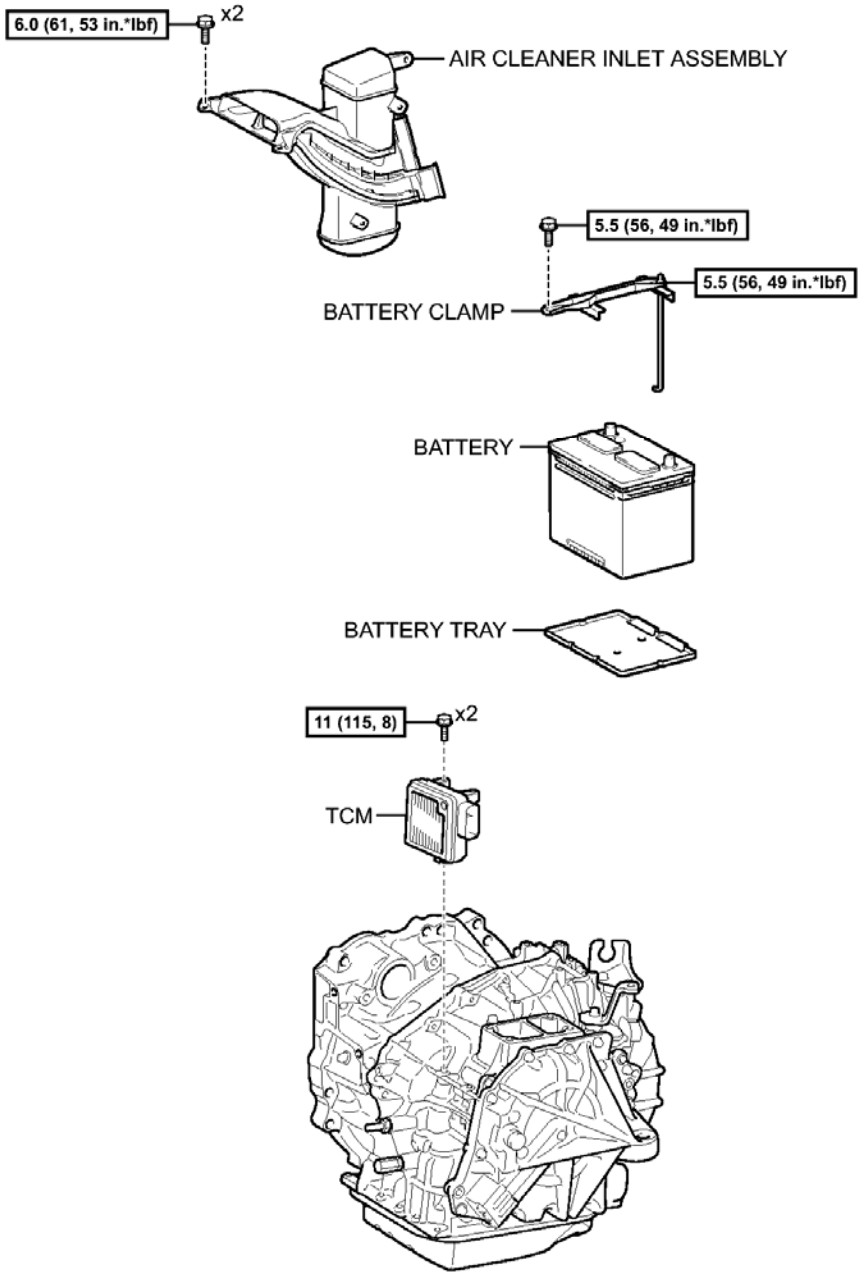


Fig. 417: TCM Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

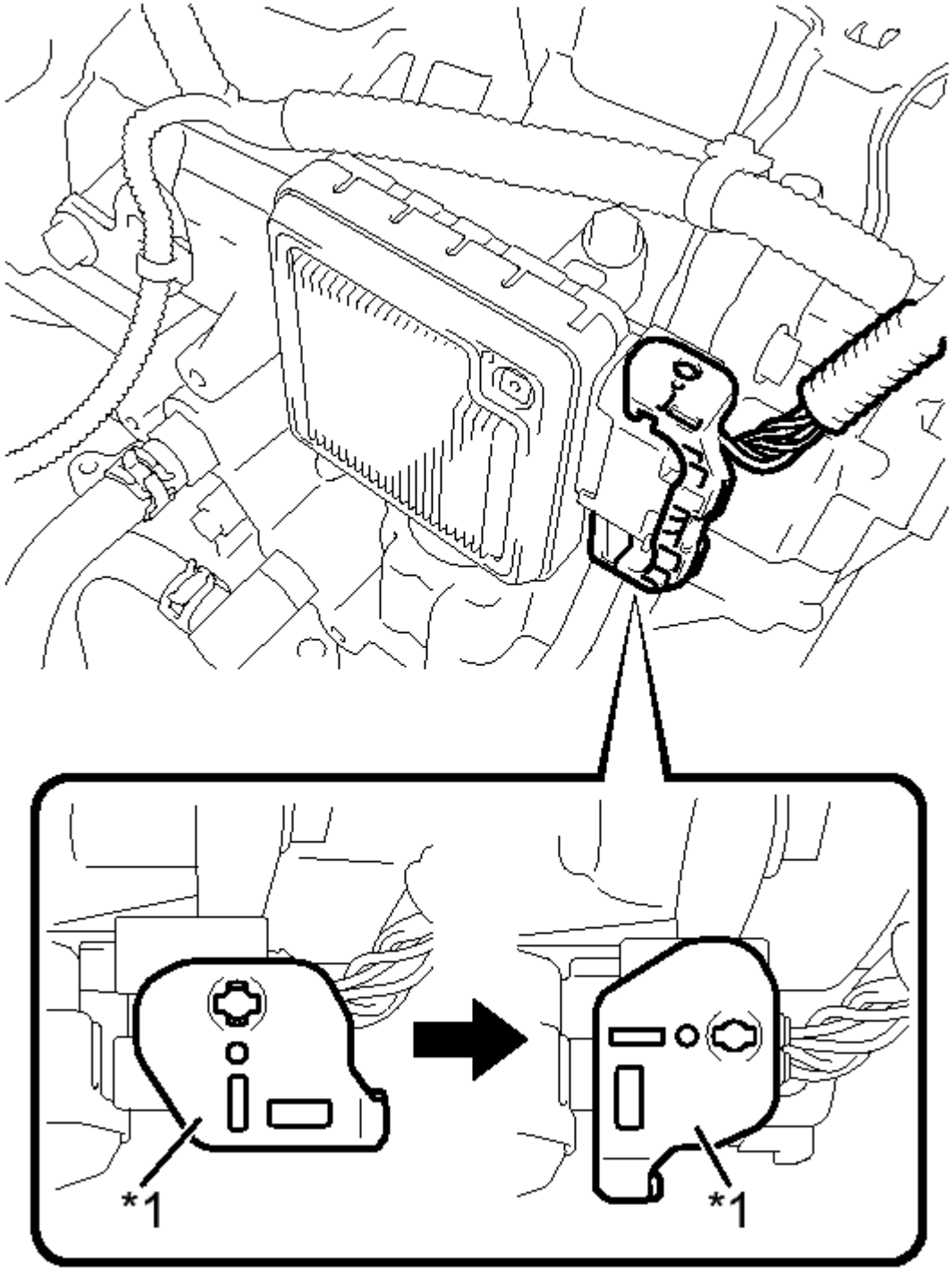
REMOVAL

REMOVAL

NOTE: **If automatic transaxle parts are replaced, refer to Parts Replacement**

Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
2. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
3. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
4. **REMOVE TCM**
    a. Turn the lock lever and disconnect the connector from the TCM.



P

Fig. 418: Identifying TCM Connector Lock Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Lock

*1	Lever

b. Remove the 2 bolts and TCM from the automatic transaxle.

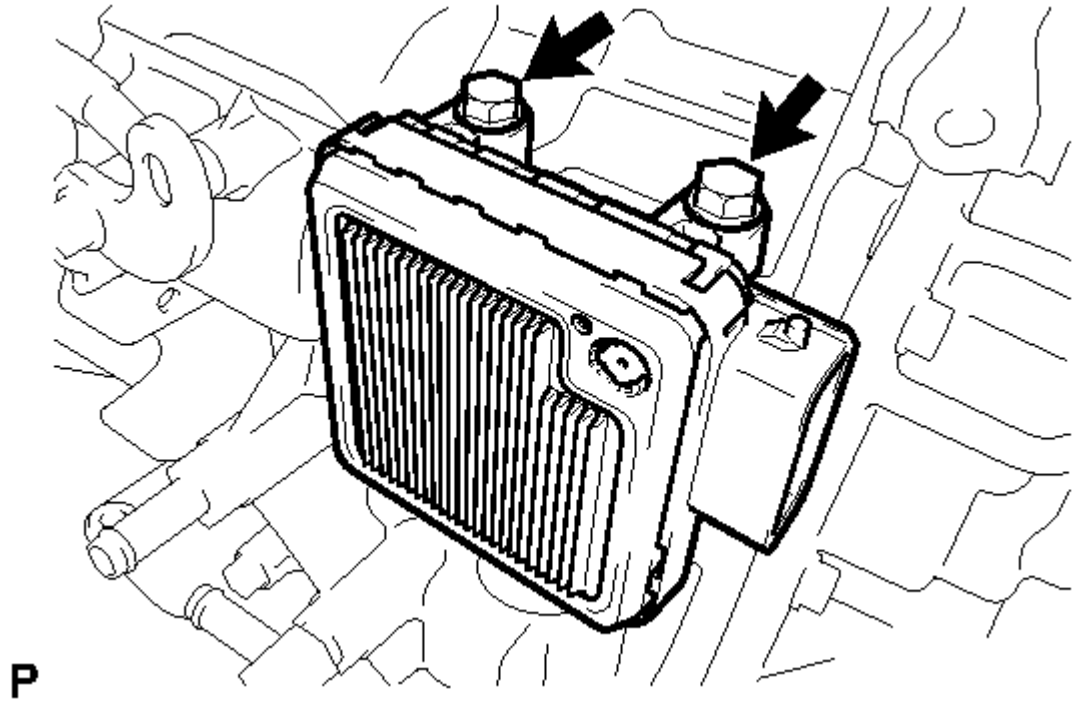


Fig. 419: Identifying TCM Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **INSTALL TCM**
   a. Install the TCM onto the automatic transaxle.

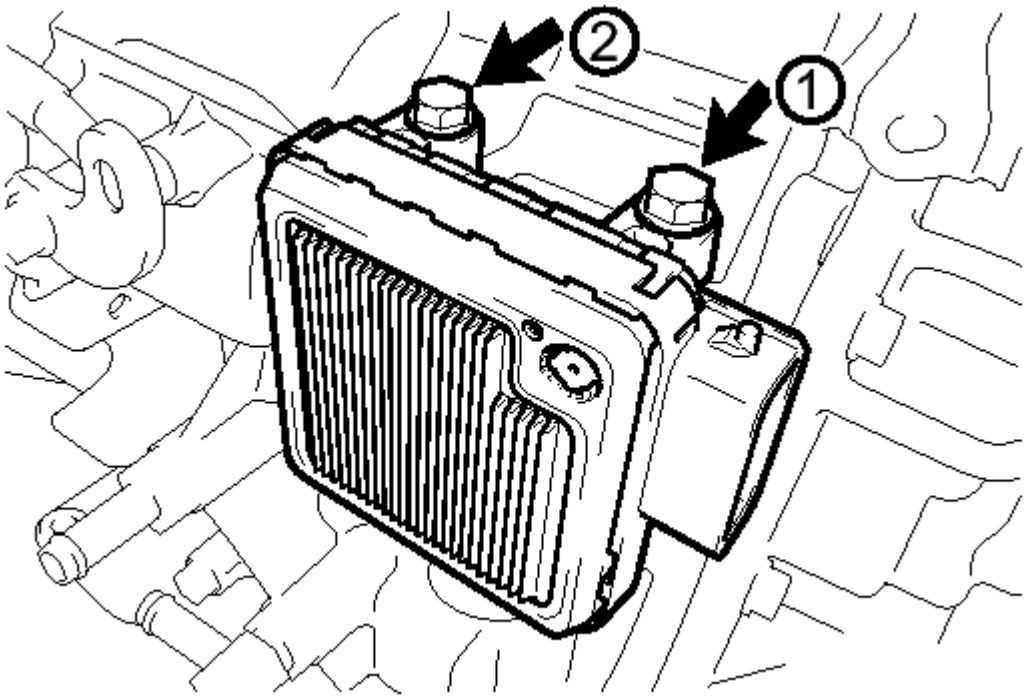
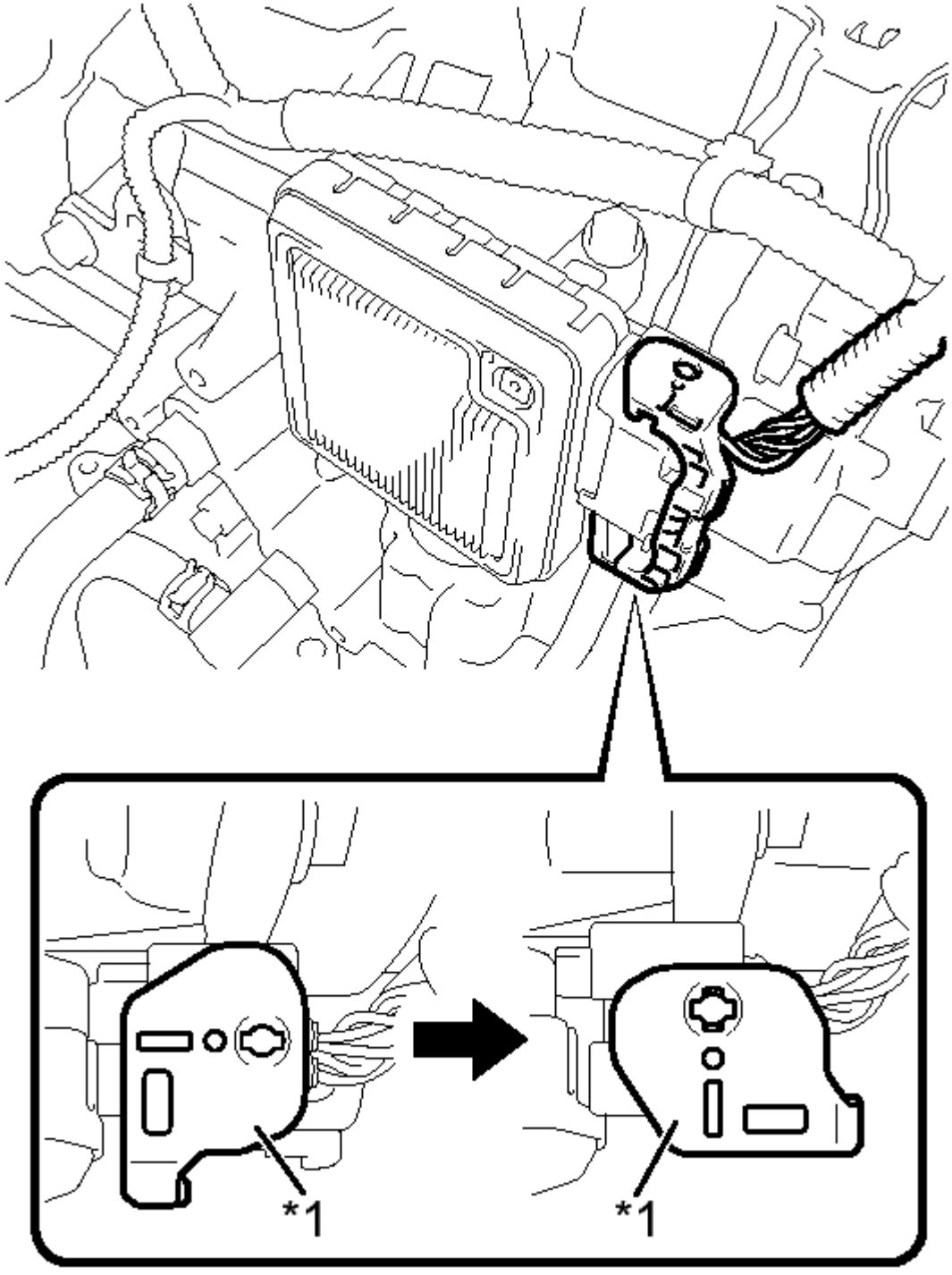


Fig. 420: Identifying TCM Bolts With Tightening Sequence
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install and tighten the 2 bolts in the order shown in the illustration.

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

c. Connect the connector.



P

Fig. 421: Identifying TCM Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Lock

*1	Lever

d. Turn the lock lever and secure the connector with the lock lever.

2. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
3. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

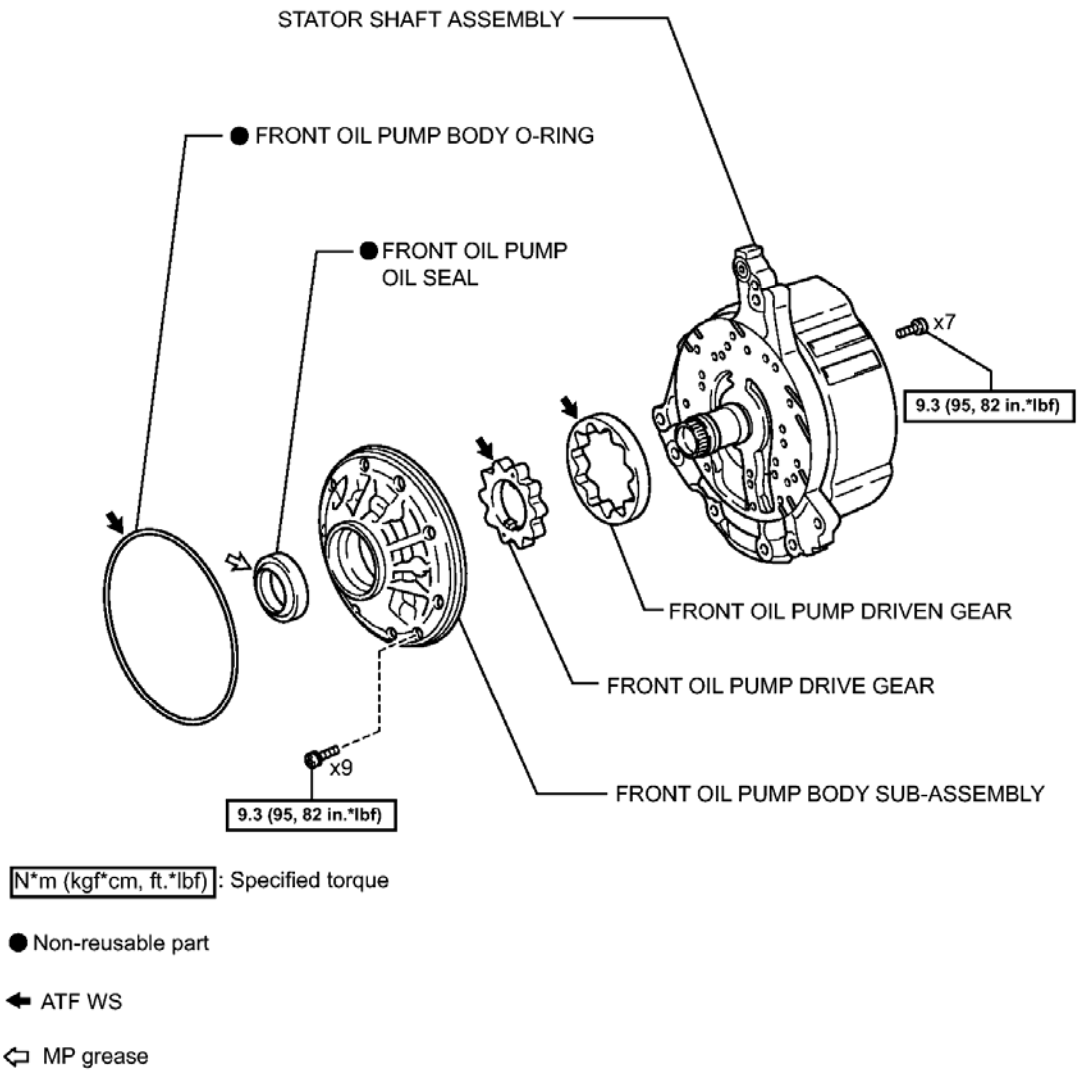
   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
5. **CHECK AUTOMATIC TRANSAXLE SYSTEM**

NOTE: **If automatic transaxle parts are replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .**

OIL PUMP

COMPONENTS

ILLUSTRATION



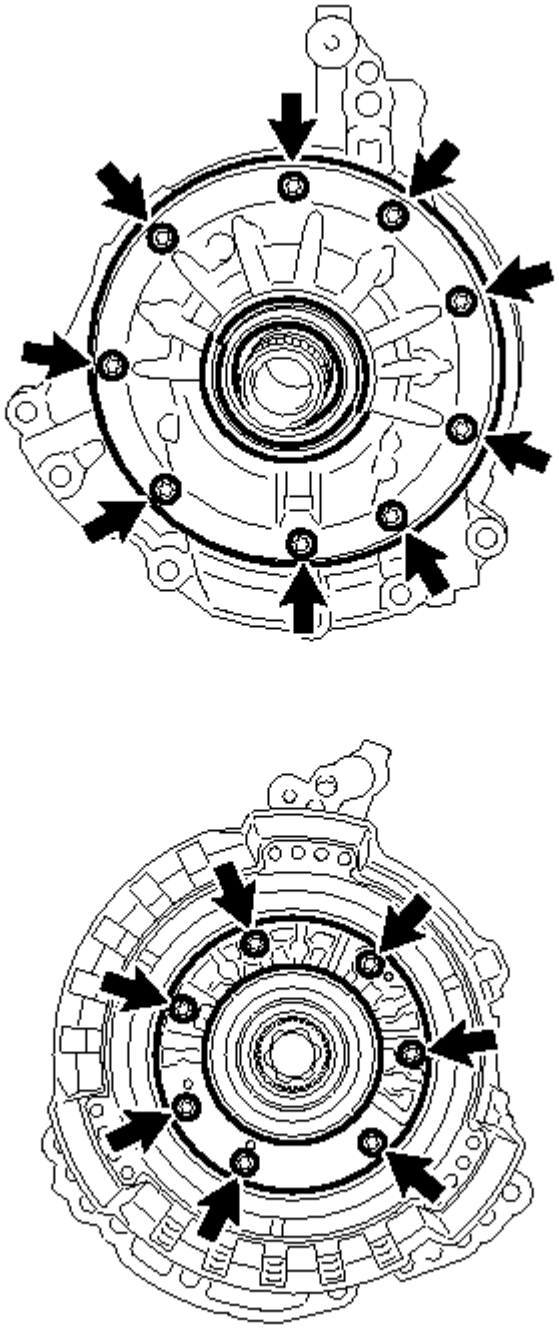
N

Fig. 422: Exploded View Of Oil Pump Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY** See step 1
2. **REMOVE STATOR SHAFT ASSEMBLY**
   a. Using a T30 "TORX" socket wrench, remove the 16 "TORX" screws and stator shaft assembly from the oil pump body.

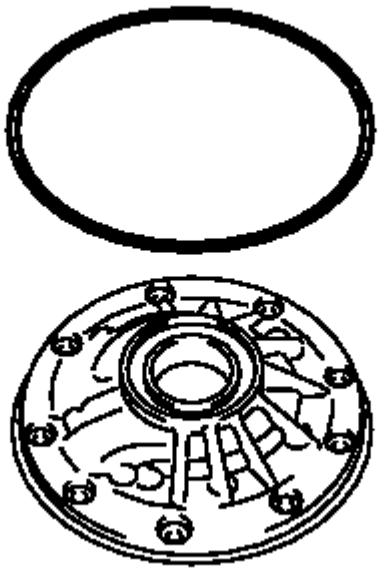


N

Fig. 423: Identifying Stator Shaft Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Keep the gears in the order they were removed.**

3. **INSPECT CLEARANCE OF FRONT OIL PUMP AND GEAR BODY SUB-ASSEMBLY** See step 2
4. **REMOVE FRONT OIL PUMP BODY O-RING**
    a. Remove the O-ring from the oil pump body.



N

Fig. 424: Identifying O-Ring And Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE FRONT OIL PUMP DRIVE GEAR**
    a. Remove the front oil pump drive gear from the oil pump body.



N

Fig. 425: Identifying Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FRONT OIL PUMP DRIVEN GEAR**
   a. Remove the front oil pump driven gear from the oil pump body.



N

Fig. 426: Identifying Front Oil Pump Driven Gear

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

7. **REMOVE FRONT OIL PUMP OIL SEAL**
   a. Mount the oil pump in a soft jaw vise.

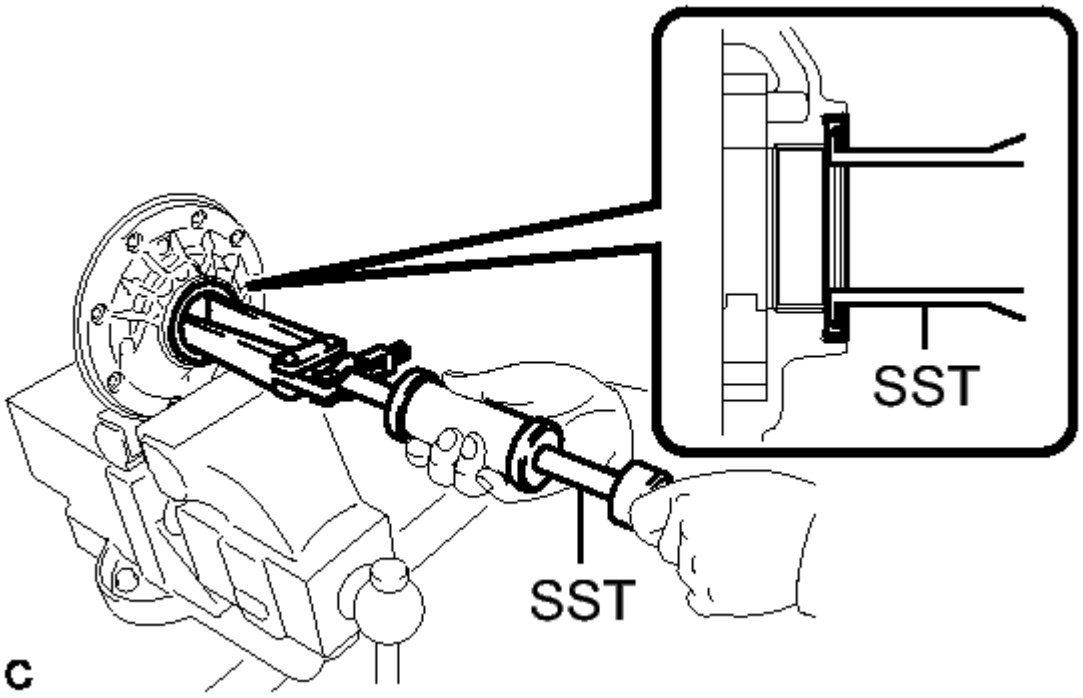


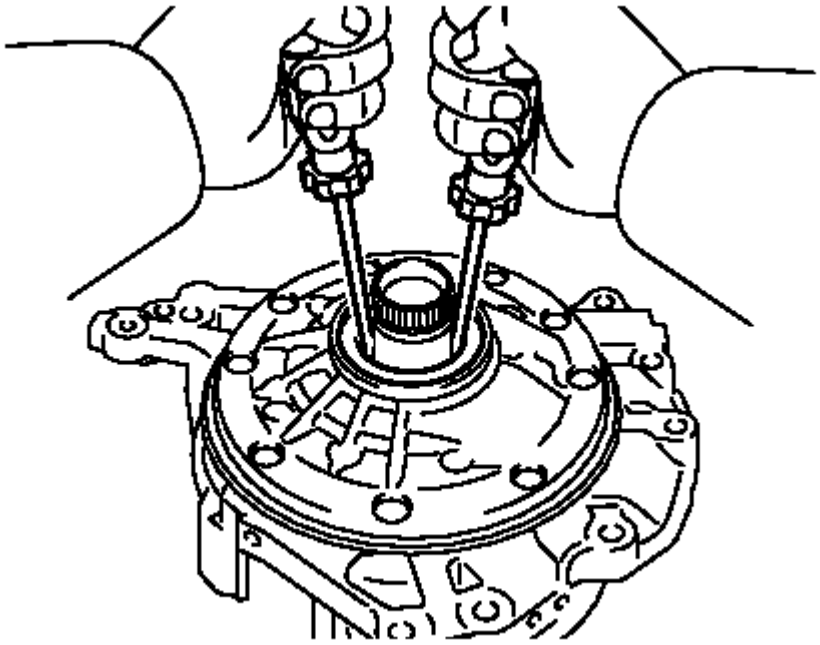
Fig. 427: Removing Front Oil Pump Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using SST, remove the oil seal from the oil pump body.
      - **SST: 09308-00010**

INSPECTION

INSPECTION

1. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY**
   a. Turn the drive gear with 2 screwdrivers and make sure that it rotates smoothly.



N

Fig. 428: Turning Drive Gear With Screwdrivers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the oil seal lip.

2. **INSPECT CLEARANCE OF FRONT OIL PUMP AND GEAR BODY SUB-ASSEMBLY**
   a. Push the driven gear to one side of the body.

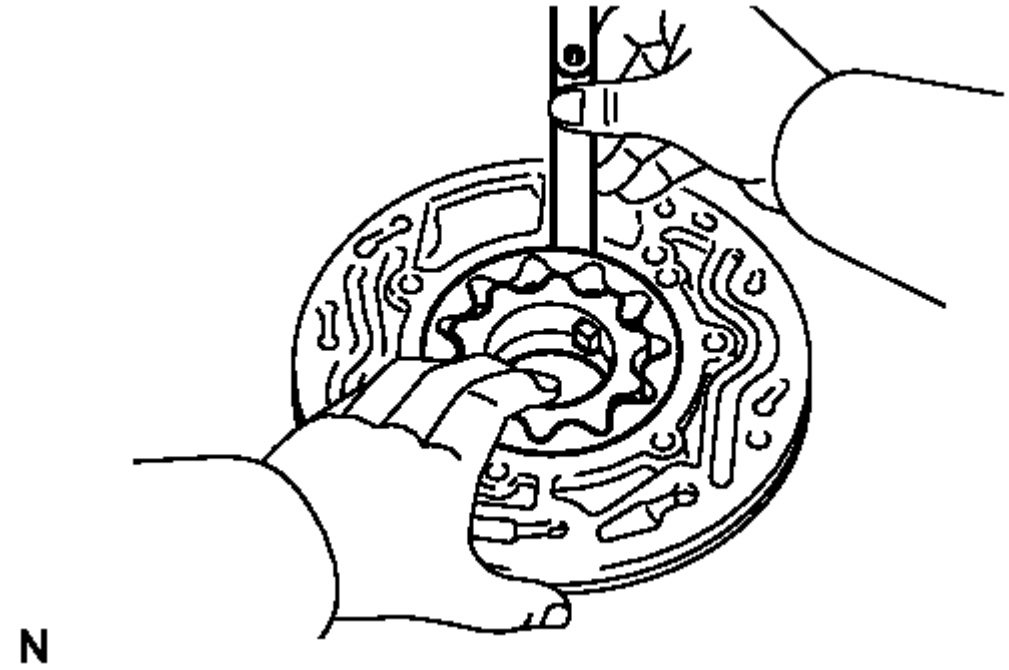


Fig. 429: Inspecting Clearance Of Front Oil Pump And Gear Body Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a feeler gauge, measure the clearance.

   Standard clearance

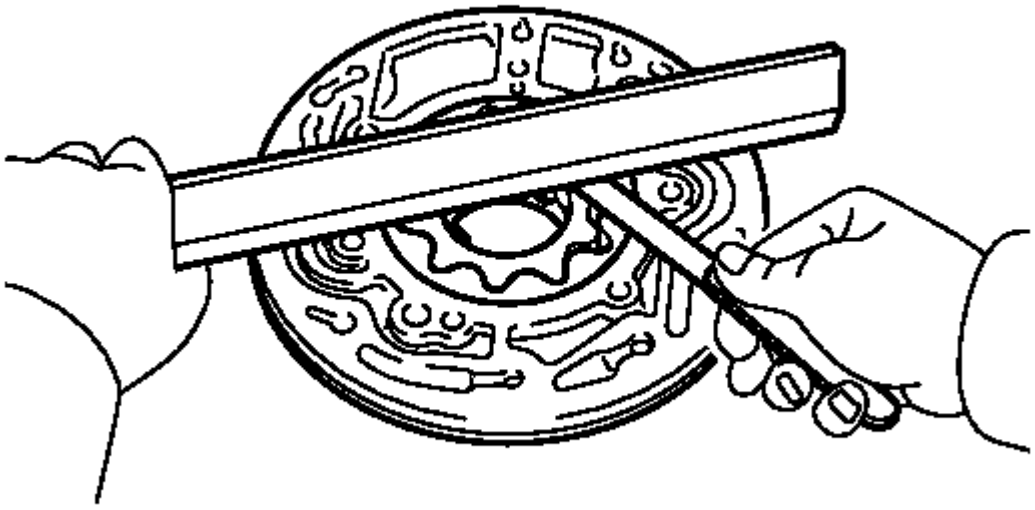
   0.08 to 0.15 mm (0.00315 to 0.00590 in.)

   Maximum clearance

   0.15 mm (0.00590 in.)

   If the clearance is greater than the maximum, replace the oil pump body subassembly.

c. Using a straightedge and feeler gauge, measure the side clearance of both gears.



N

Fig. 430: Measuring Side Clearance Of Both Gears
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard side clearance

0.025 to 0.04 mm (0.000984 to 0.00157 in.)

Maximum side clearance

0.04 mm (0.00157 in.)

DRIVE GEAR THICKNESS

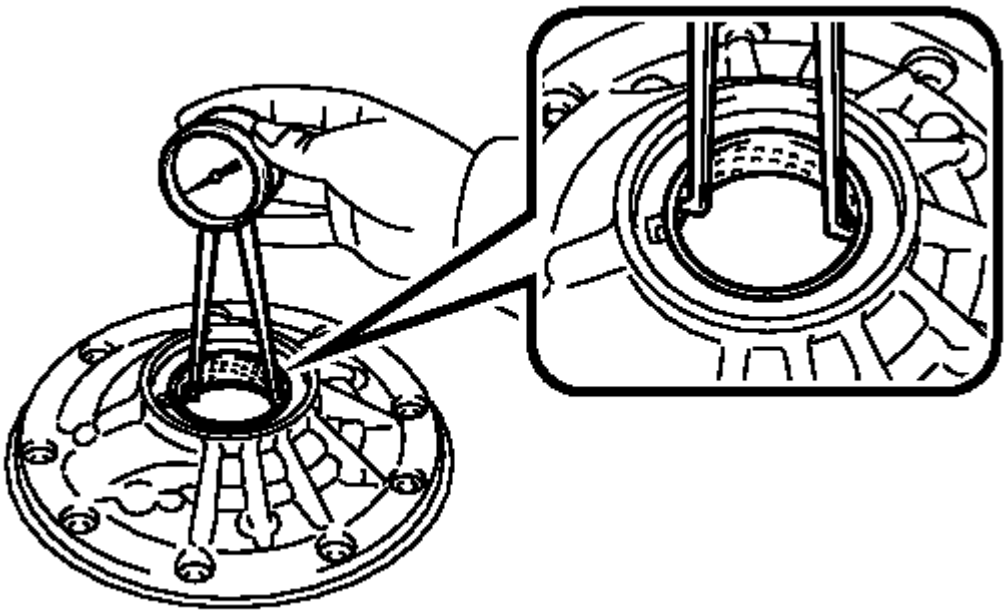
Part No.	Thickness mm (in.)	Mark
35321-07010	11.547 to 11.555 (0.4546 to 0.4549)	1
35321-07020	11.555 to 11.563 (0.4549 to 0.4552)	2
35321-07030	11.564 to 11.571 (0.4553 to 0.4556)	3
	11.572 to	

35321-07040	11.579 (0.4556 to 0.4559)	4
35321-07050	11.580 to 11.587 (0.4559 to 0.4562)	5

DRIVEN GEAR THICKNESS

Part No.	Thickness mm (in.)	Mark
35322-07010	11.547 to 11.555 (0.4546 to 0.4549)	1
35322-07020	11.555 to 11.563 (0.4549 to 0.4552)	2
35322-07030	11.564 to 11.571 (0.4553 to 0.4556)	3
35322-07040	11.572 to 11.579 (0.4556 to 0.4559)	4
35322-07050	11.580 to 11.587 (0.4559 to 0.4562)	5

3. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the oil pump body bushing.



N

Fig. 431: Measuring Inside Diameter Of Oil Pump Body Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

43.113 to 43.138 mm (1.6974 to 1.6983 in.)

Maximum inside diameter

43.188 mm (1.7003 in.)

If the inside diameter is greater than the maximum, replace the front oil pump body subassembly.

4. **INSPECT STATOR SHAFT ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the oil pump body bushing.

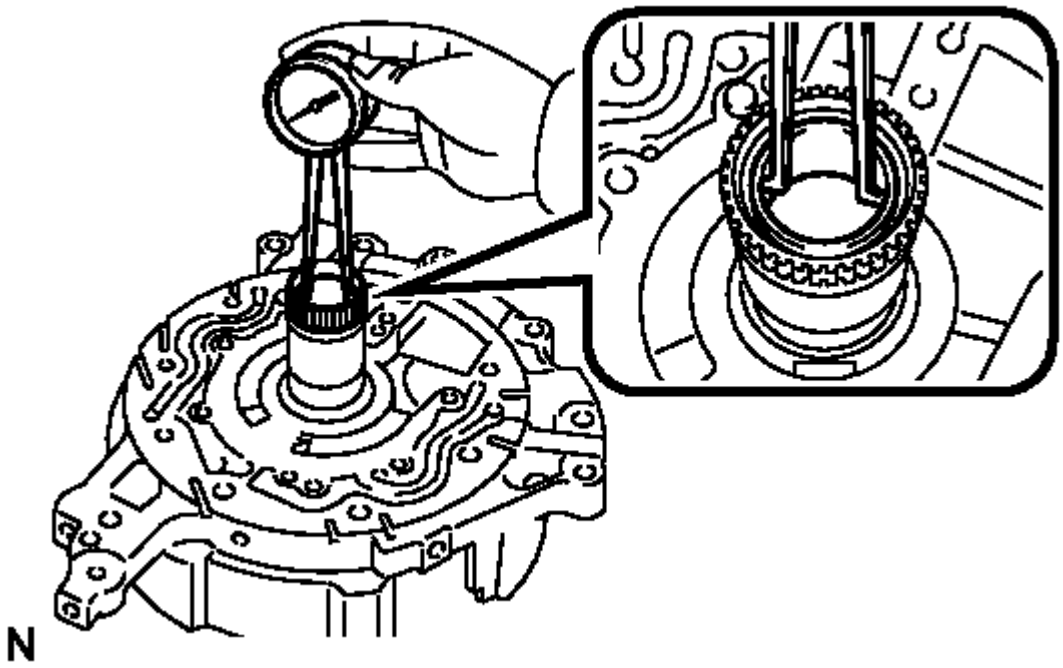


Fig. 432: Measuring Inside Diameter Of Oil Pump Body Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

22.500 to 22.526 mm (0.8858 to 0.8868 in.)

Maximum inside diameter

22.570 mm (0.8886 in.)

If the inside diameter is greater than the maximum, replace the front oil pump body subassembly.

REASSEMBLY

REASSEMBLY

1. **INSTALL FRONT OIL PUMP OIL SEAL**
    a. Using SST and a hammer, install a new oil seal to the front oil pump body.

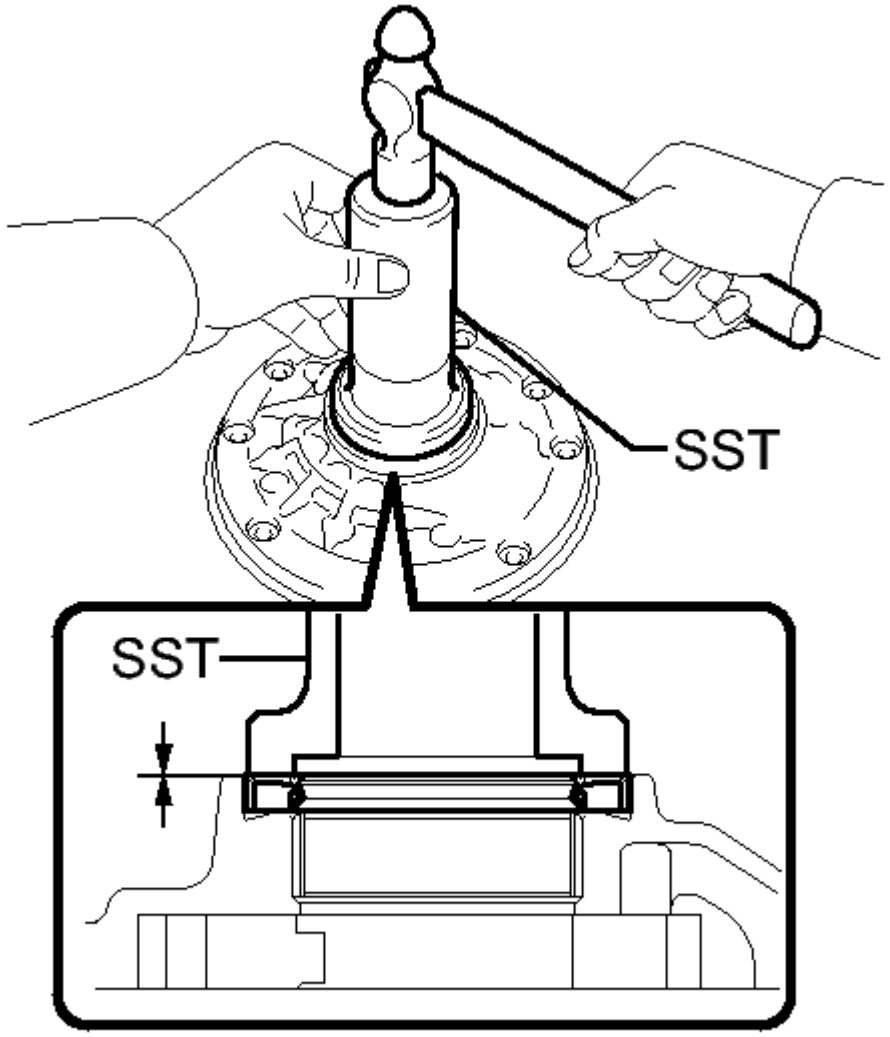


Fig. 433: Installing Front Oil Pump Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

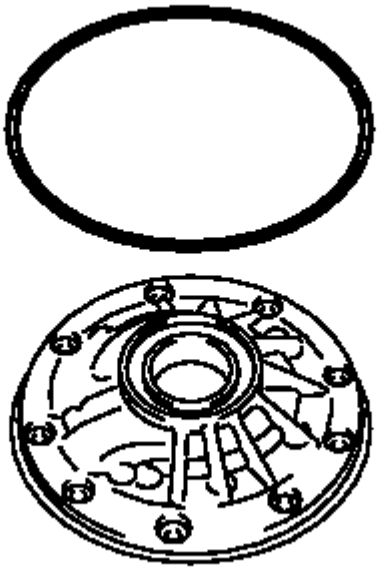
- **SST: 09350-32014**
  09351-32140

Oil seal driven in depth

-0.25 to 0.25 mm (-0.00984 to 0.00984 in.)

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

2. **INSTALL FRONT OIL PUMP BODY O-RING**
   a. Coat a new O-ring with ATF and install it to the front oil pump body.



N

Fig. 434: Identifying O-Ring And Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Ensure that the O-ring is not twisted.

3. **INSTALL FRONT OIL PUMP DRIVEN GEAR**
   a. Coat the front oil pump driven gear with ATF and install it to the front oil pump body with the marked side up.



N

Fig. 435: Identifying Front Oil Pump Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL FRONT OIL PUMP DRIVE GEAR**
   a. Coat the front oil pump drive gear with ATF, and install it to the front oil pump body with the marked side up.



N

Fig. 436: Identifying Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL STATOR SHAFT ASSEMBLY**
    a. Align each knock pin of the stator shaft with the holes in the front oil pump body and install the stator shaft to the front oil pump body.

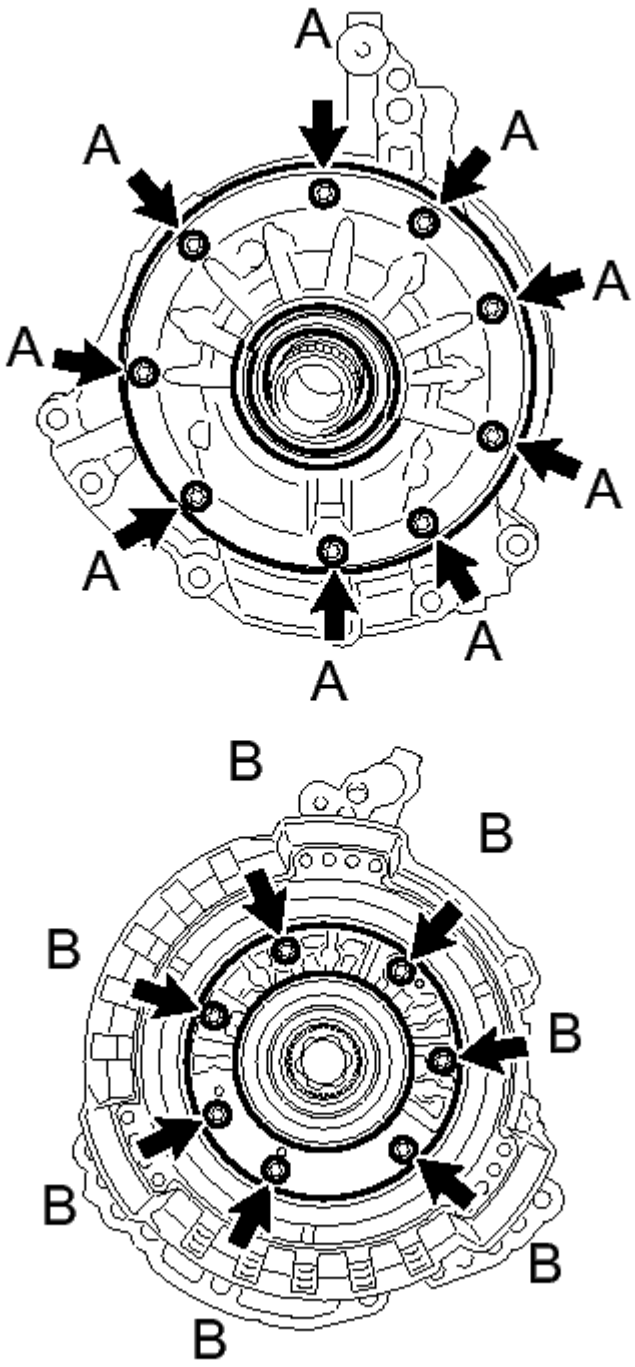


Fig. 437: Identifying Stator Shaft Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a T30 "TORX" socket wrench, install the 16 "TORX" screws.

Torque: 9.3 N*m (95 kgf*cm, 82 in.*lbf)

BOLT LENGTH

Bolt	Length mm (in.)
A	14 (0.551)
B	26 (1.02)

6. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY** See step 1

DIFFERENTIAL CASE

COMPONENTS

ILLUSTRATION

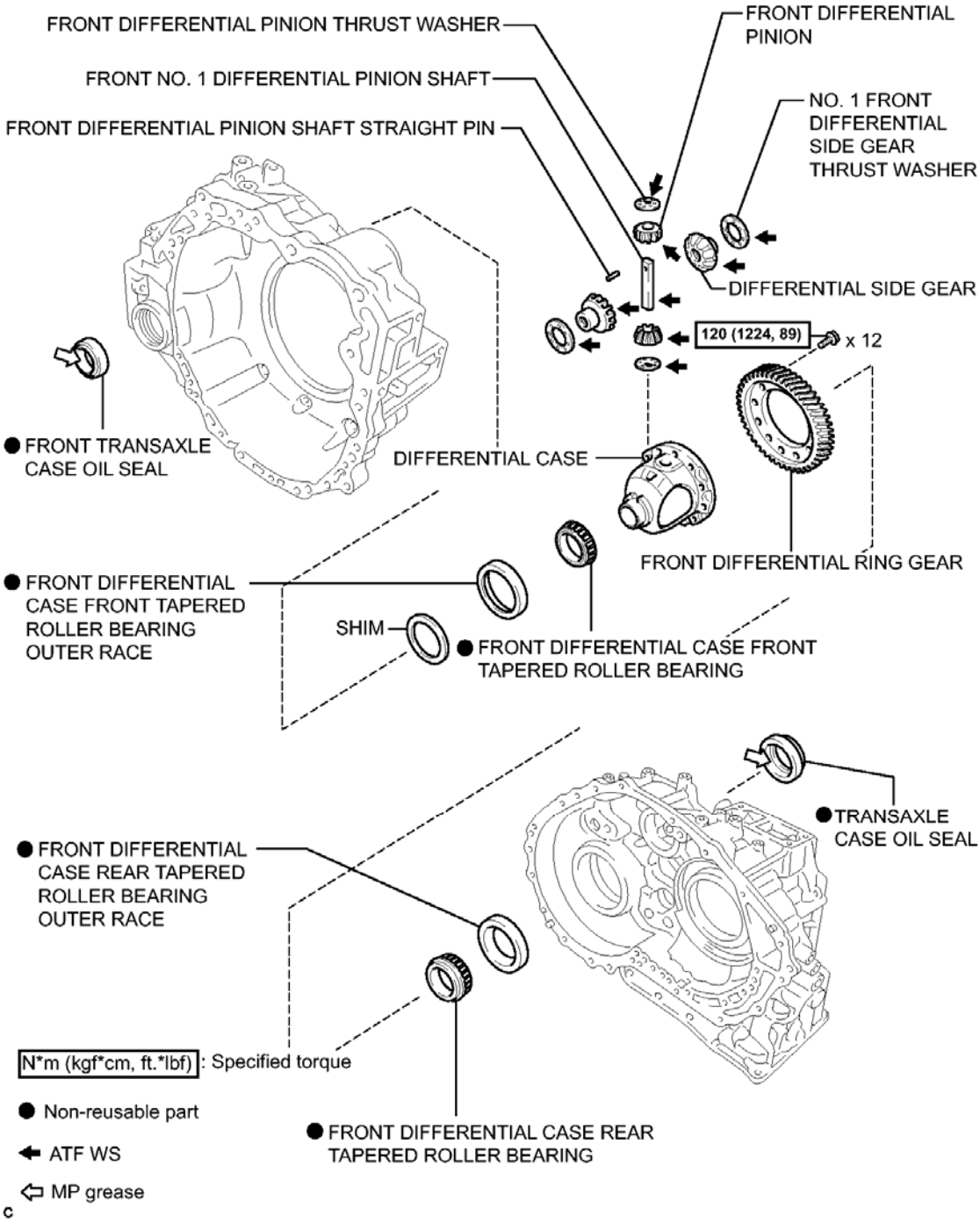


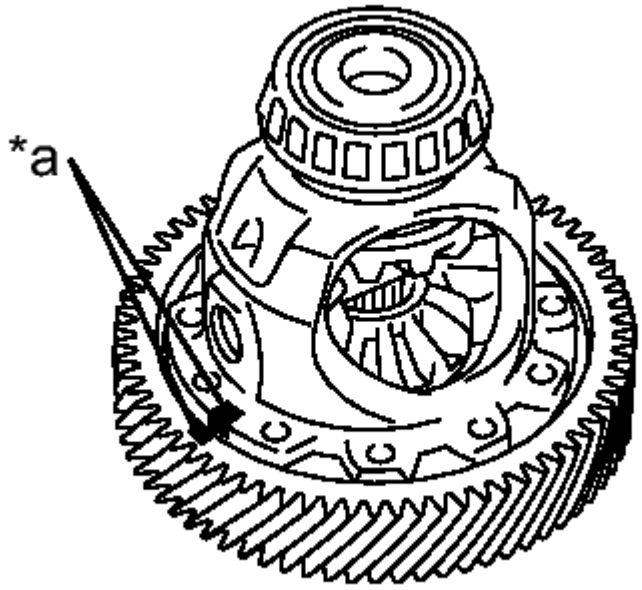
Fig. 438: Differential Case Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE FRONT DIFFERENTIAL RING GEAR**

a. Put matchmarks on the front differential ring gear and differential case.



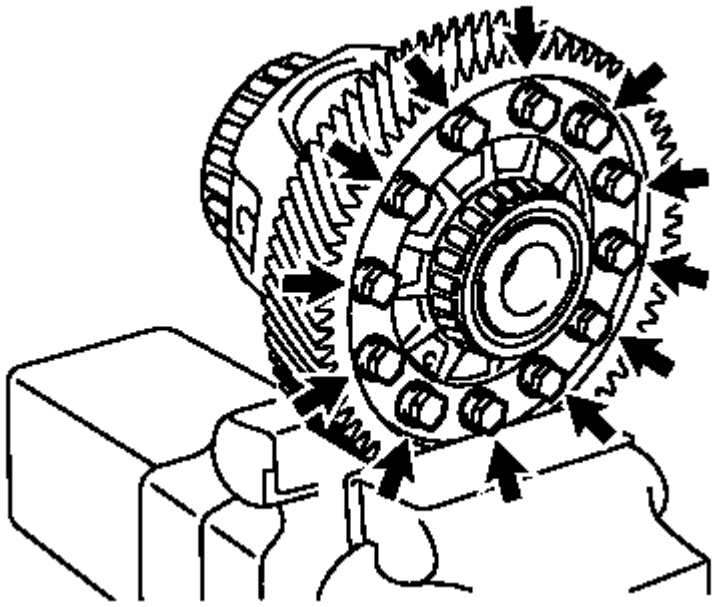
N

Fig. 439: Identifying Front Differential Ring Gear & Front Differential Case Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Matchmark

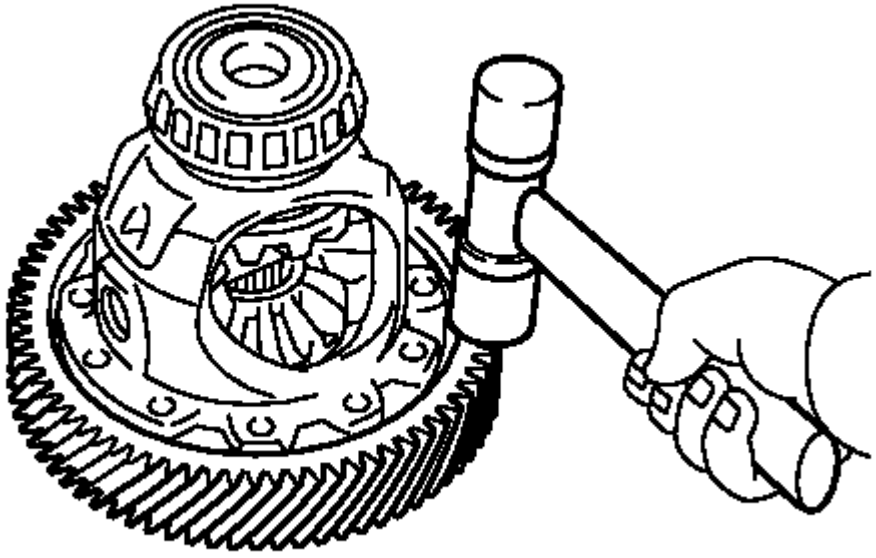
b. Remove the 12 bolts.



N

Fig. 440: Identifying Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a plastic hammer, tap on the front differential ring gear to remove it from the case.



N

Fig. 441: Tapping On Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
   a. Using SST, remove the front differential case front tapered roller bearing from the differential case.

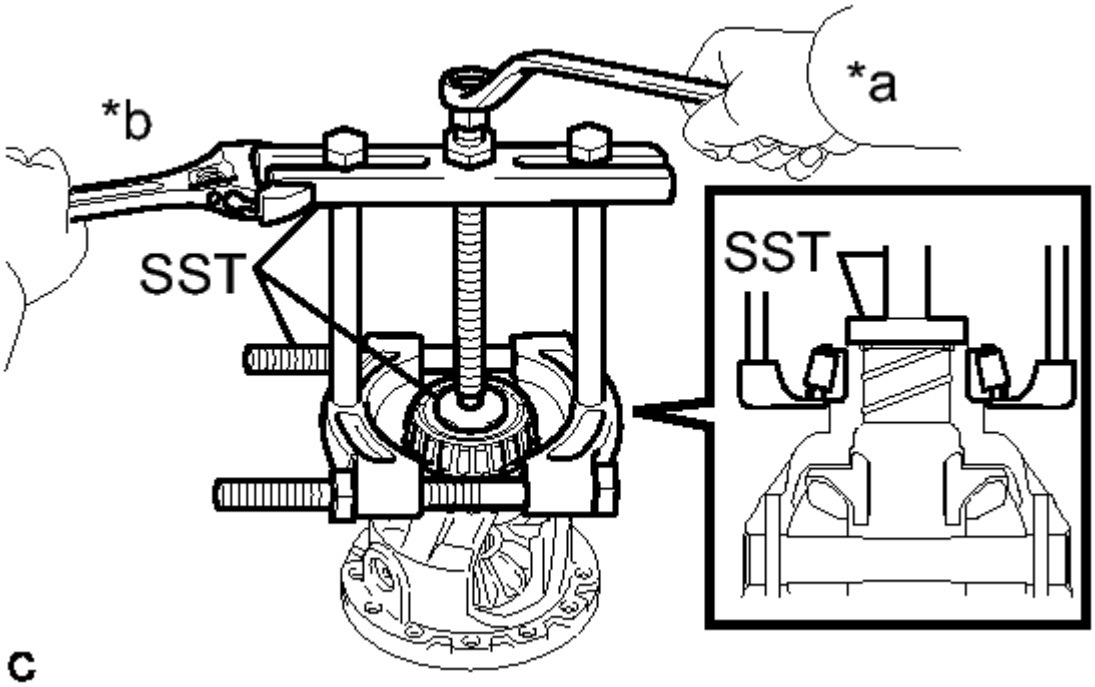


Fig. 442: Removing Front Differential Case Front Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00480

   b. Using SST, remove the front differential case front tapered roller bearing outer race and shim from the transaxle housing.

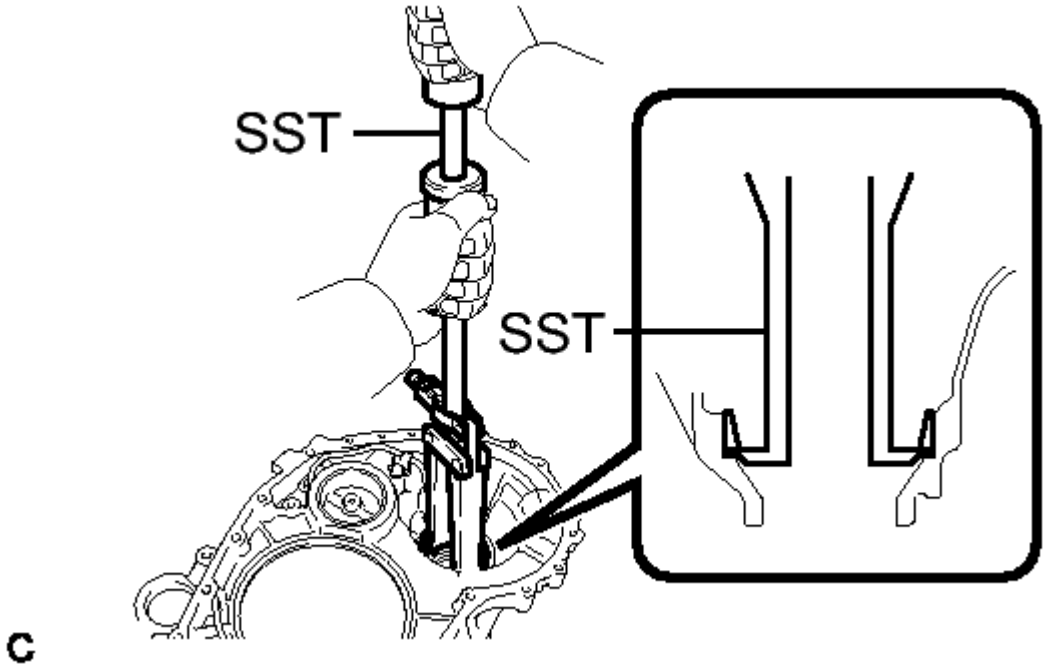
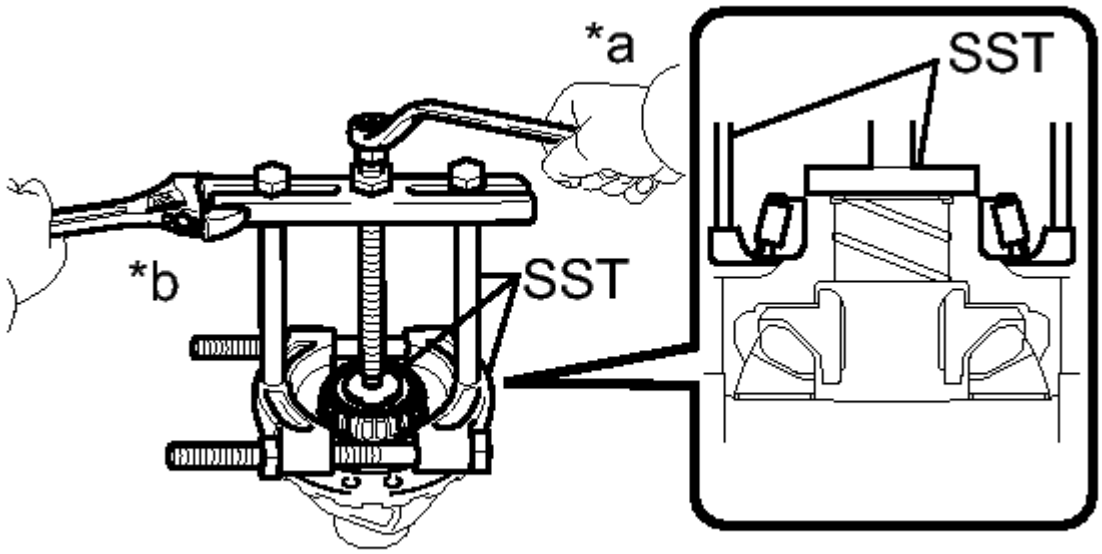


Fig. 443: Removing Front Differential Case Front Tapered Roller Bearing Outer Race And Shim From Transaxle Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

3. **REMOVE FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
   a. Using SST, remove the front differential case rear tapered roller bearing from the differential case.



C

Fig. 444: Removing Front Differential Case Rear Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

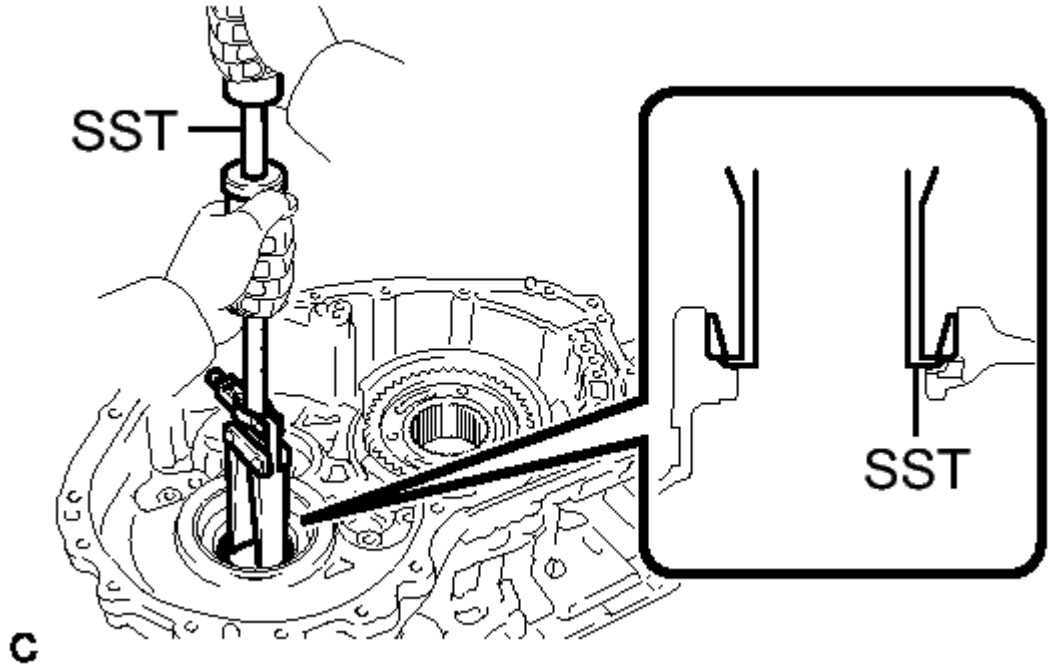
TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00480

b. Using SST, remove the front differential case rear tapered roller bearing outer race from the transaxle case.

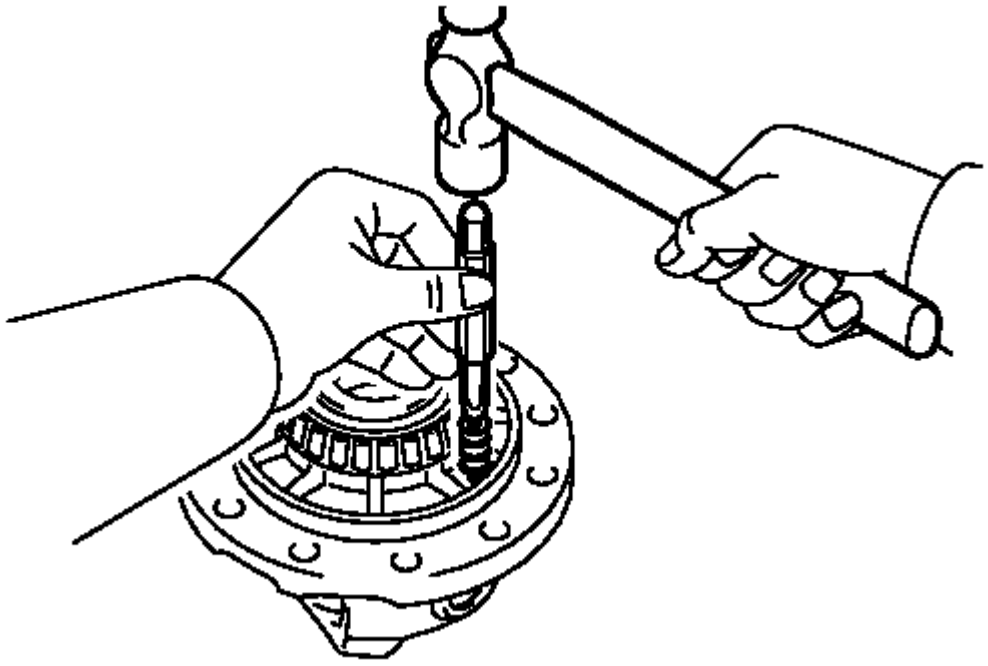


C

Fig. 445: Removing Front Differential Case Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

4. **REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
   a. Using a pin punch (3 mm) and hammer, remove the straight pin.



N

Fig. 446: Removing Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Before removing the straight pin, unstake it with a pin punch.

5. **REMOVE FRONT NO. 1 DIFFERENTIAL PINION SHAFT**
   a. Remove the front No. 1 differential pinion shaft from the differential case.

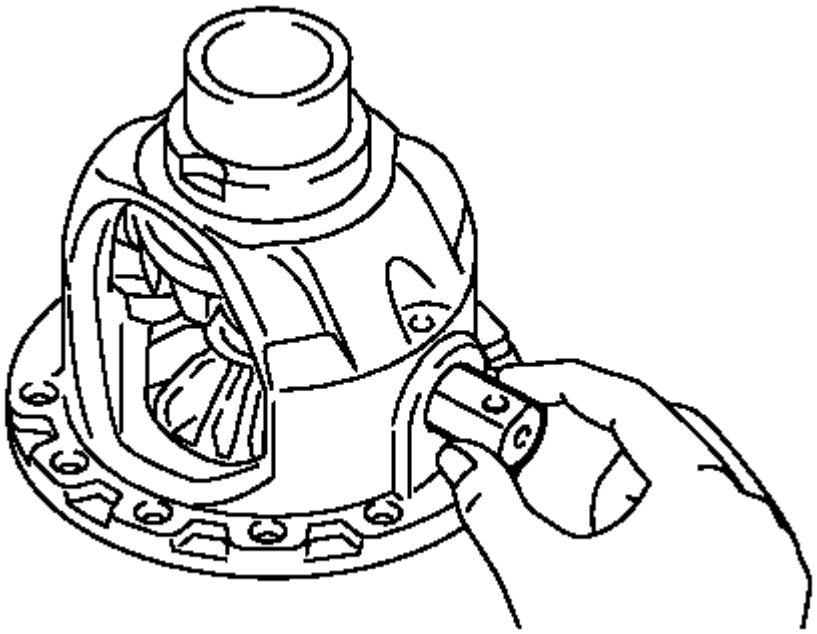


Fig. 447: Identifying Front No. 1 Differential Pinion Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE DIFFERENTIAL SIDE GEAR**
   a. Remove the 2 front differential pinions, 2 pinion thrust washers, 2 front differential side gears and 2 side gear thrust washers from the differential case.

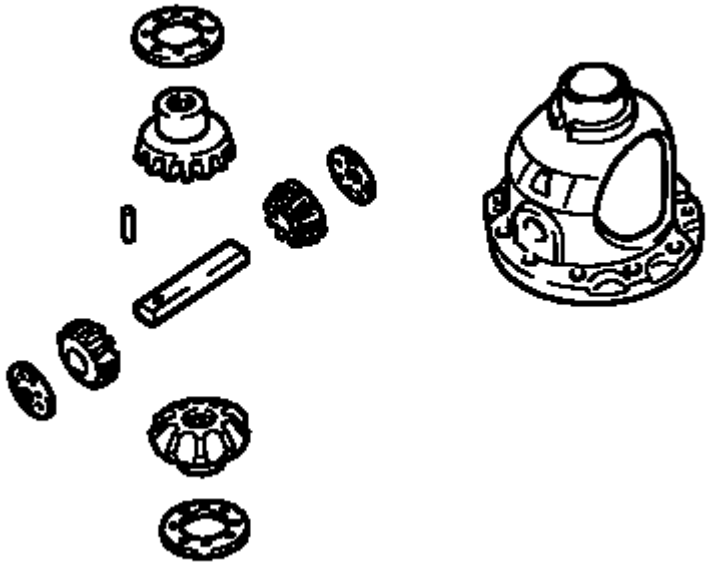
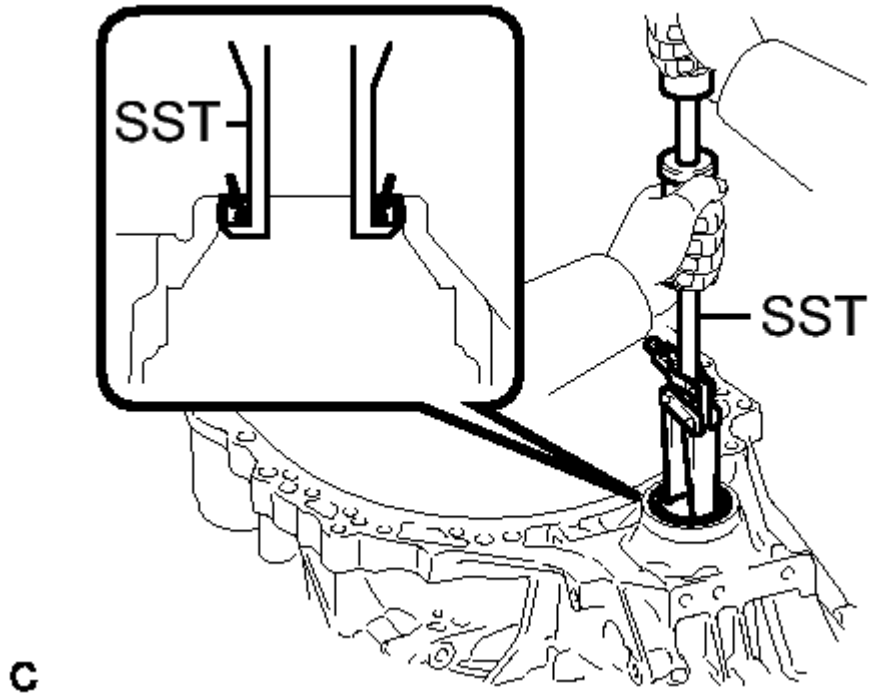


Fig. 448: Identifying Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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



C

Fig. 449: Removing Front Transaxle Case Oil Seal From Transaxle Housing

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

- **SST: 09308-00010**

8. **REMOVE TRANSAXLE CASE OIL SEAL**
    a. Using SST, remove the transaxle case oil seal from the transaxle case.

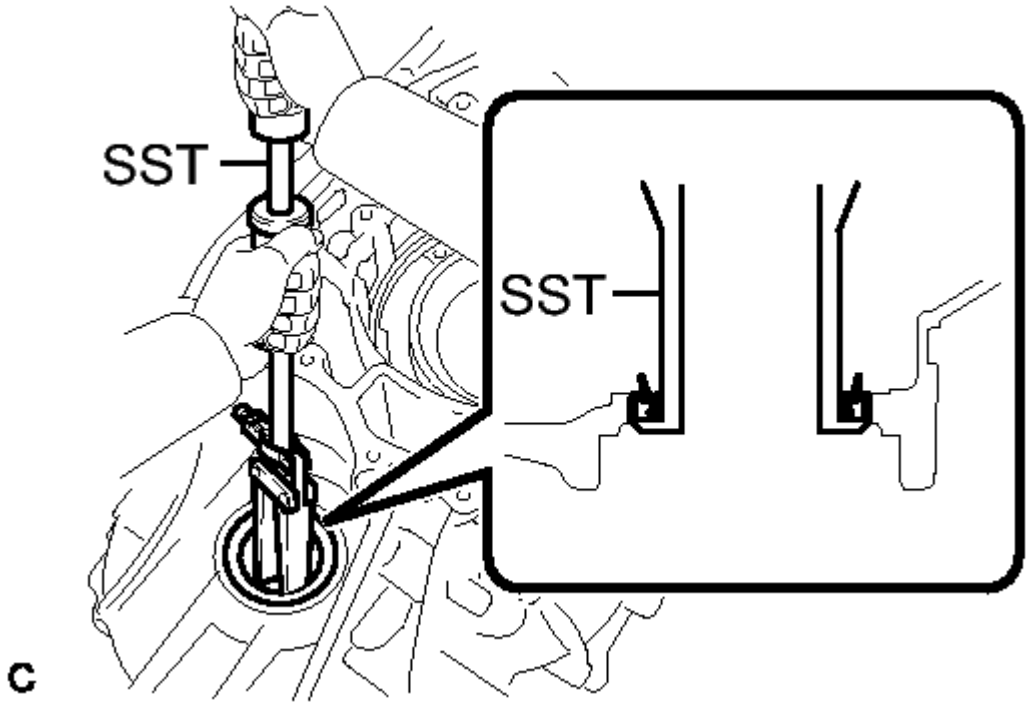


Fig. 450: Removing Transaxle Case Oil Seal From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

INSPECTION

INSPECTION

1. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH**
    a. Hold the differential case in a vise between aluminum plates.

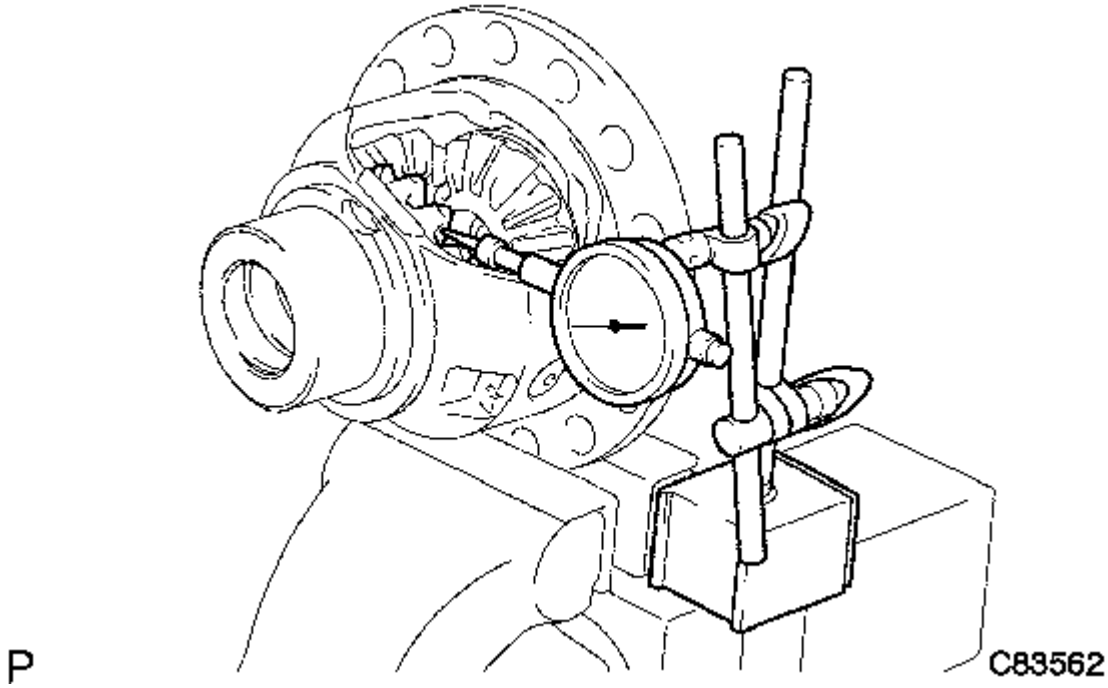


Fig. 451: Measuring Front Differential Side Gear Backlash
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not overtighten the vise.

b. Place a dial indicator at a right angle to one of the side gear teeth.
c. Hold the pinion gear in the differential case and measure the backlash of the side gear.

Standard backlash

0.05 to 0.15 mm (0.00197 to 0.00591 in.)

THRUST WASHER THICKNESS

Part No.	Thickness mm (in.)
41361-33020	1.50 (0.0591)
41361-33030	1.55 (0.0610)
41361-33040	1.60 (0.0630)
41361-33050	1.65 (0.0650)
41361-33060	1.70 (0.0669)
41361-	1.75

33070	(0.0689)
41361-33080	1.80 (0.0709)
41361-33090	1.85 (0.0728)
41361-33100	1.90 (0.0748)

If the backlash is not within the standard range, select another side gear thrust washer.

REASSEMBLY

REASSEMBLY

1. **INSTALL DIFFERENTIAL SIDE GEAR**
   a. Coat the 2 front differential side gears, 2 side gear thrust washers, 2 front differential pinions and 2 pinion thrust washers with ATF and install them to the differential case.

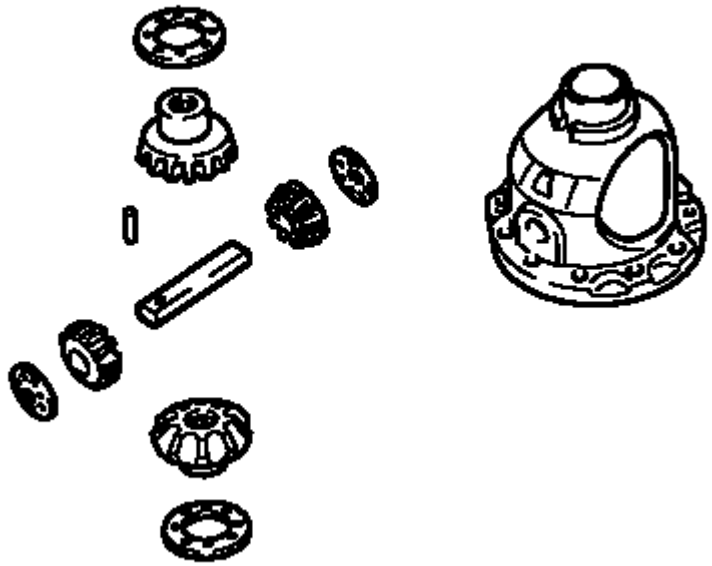
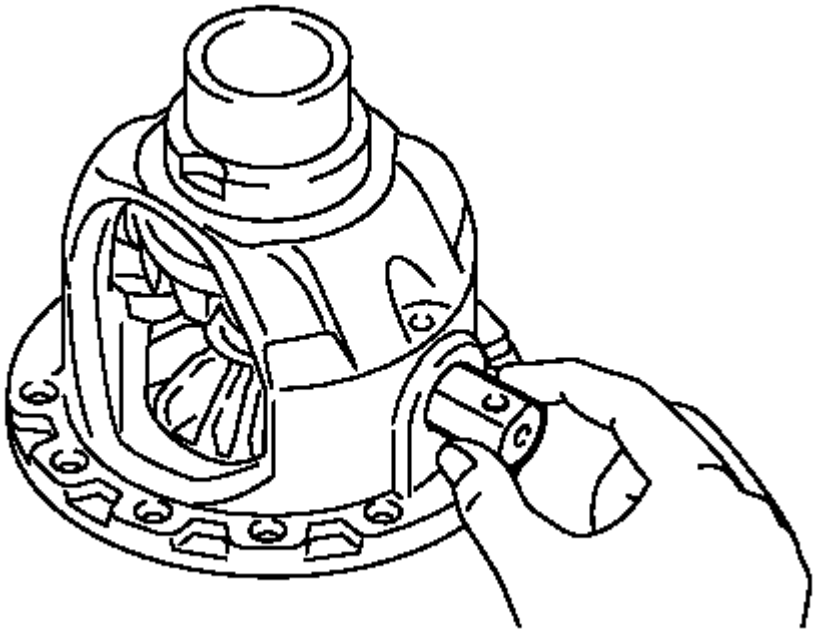


Fig. 452: Identifying Differential Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

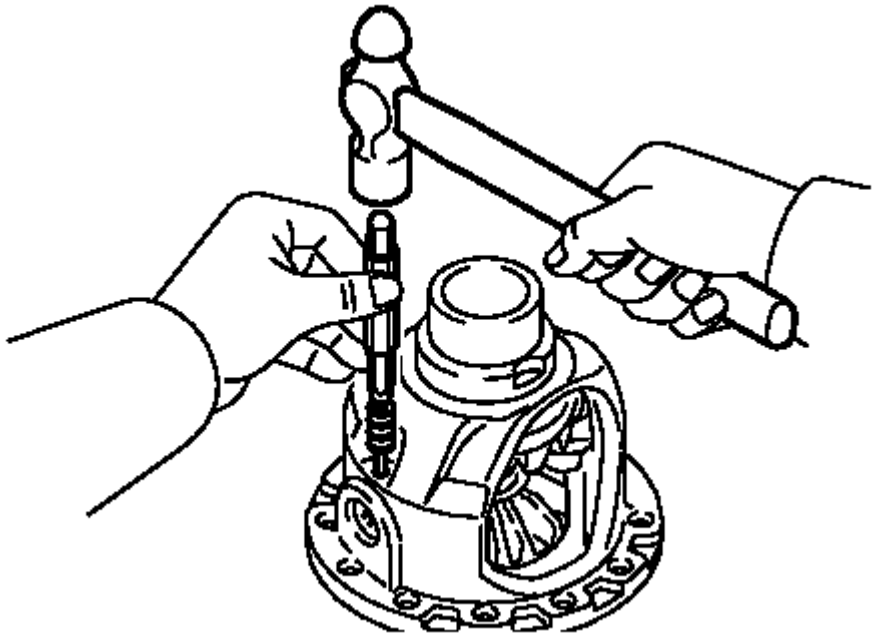
2. **INSTALL FRONT NO. 1 DIFFERENTIAL PINION SHAFT**
   a. Coat the front No. 1 differential pinion shaft with ATF, and install it to the differential case.



N

Fig. 453: Identifying Front No. 1 Differential Pinion Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH** See step 1
4. **INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
    a. Using a pin punch (3 mm) and hammer, install the pinion shaft straight pin.



N

Fig. 454: Installing Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Align the holes, and install the pinion shaft straight pin.

b. Using a chisel and hammer, stake the differential case.

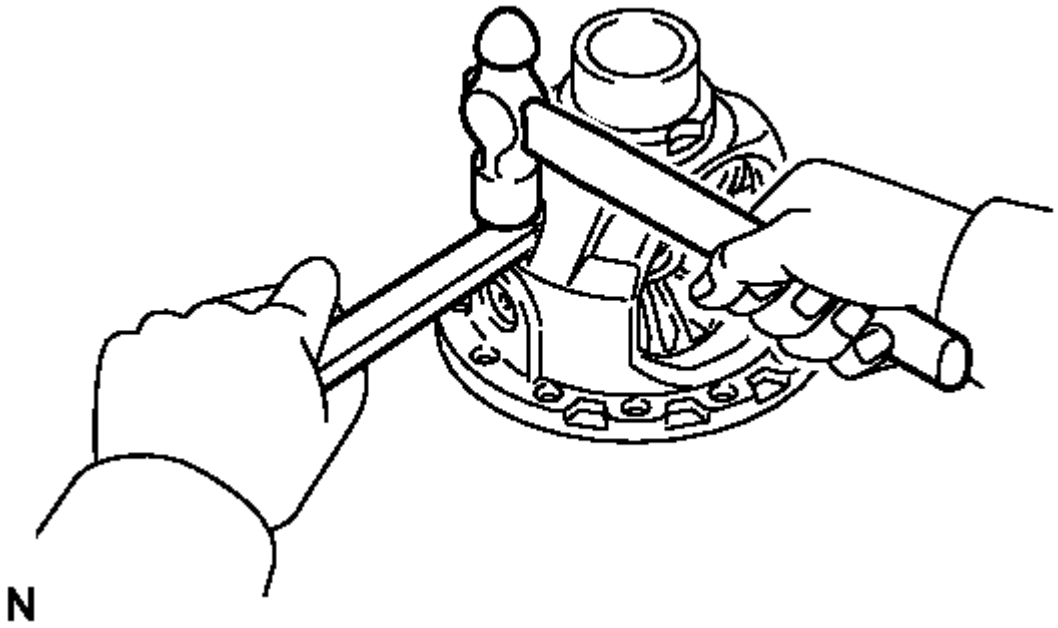


Fig. 455: Staking Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Stake the differential case after adjusting the backlash.

5. **INSTALL FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
   a. Using SST and a press, install a new front differential case rear tapered roller bearing to the differential case.

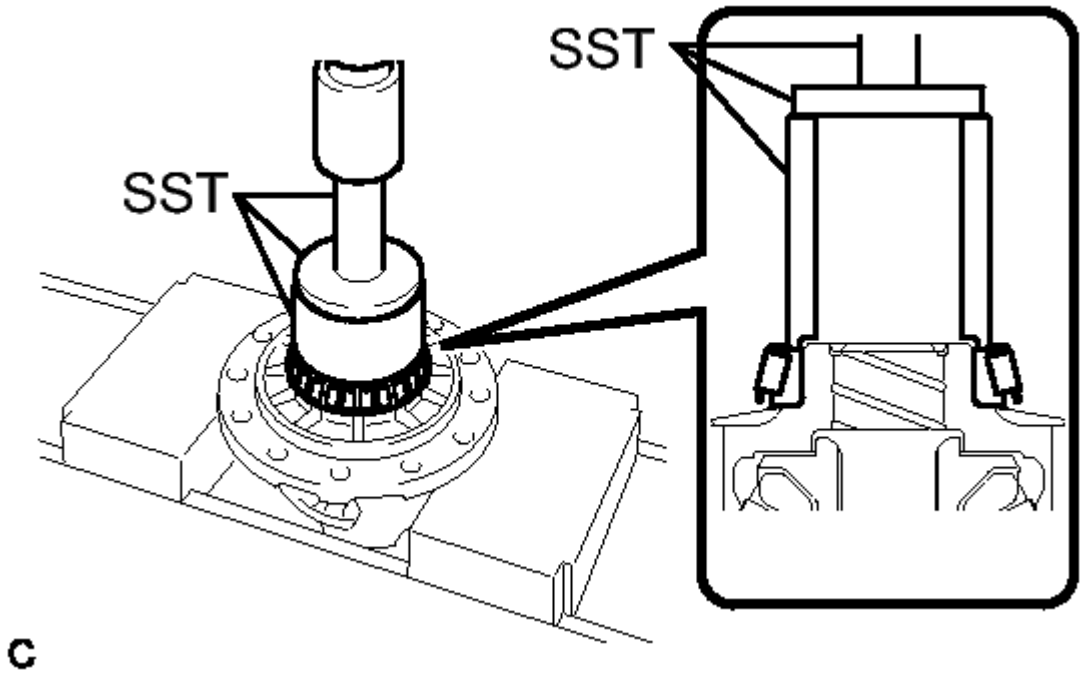
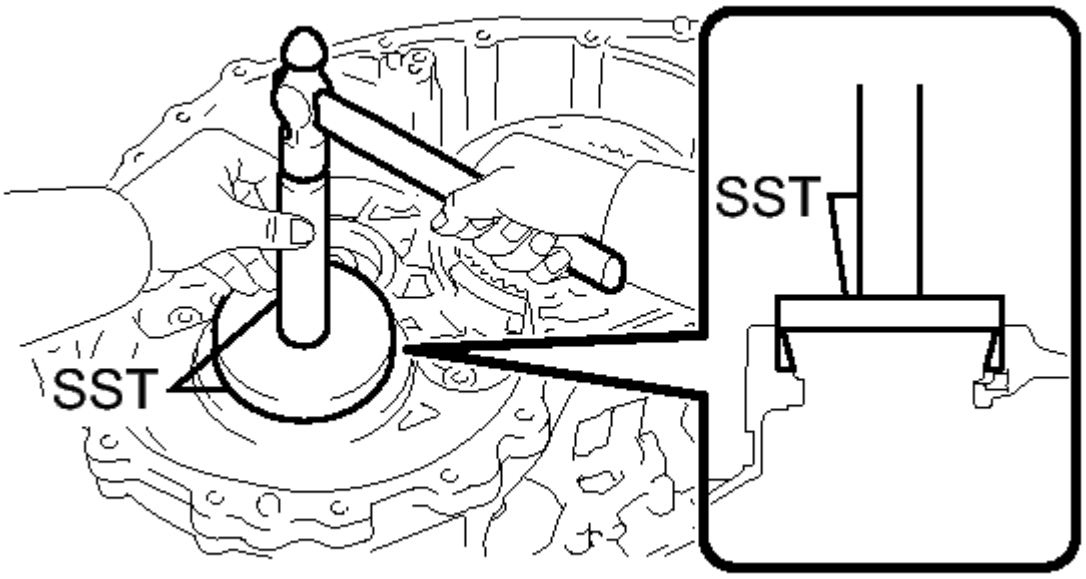


Fig. 456: Installing Front Differential Case Rear Tapered Roller Bearing To Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09710-30012**
  09710-04081
- **SST: 09950-60010**
  09951-00480
- **SST: 09950-70010**
  09951-07100

NOTE: Do not damage the bearing cage during bearing inner race installation.

b. Using SST and a hammer, install a new front differential case rear tapered roller bearing outer race to the transaxle case.



C

Fig. 457: Installing Front Differential Case Rear Tapered Roller Bearing Outer Race To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60020**
  09951-00890
- **SST: 09950-70010**
  09951-07150

NOTE: Ensure that there is no clearance between the bearing and transaxle case.

6. **INSTALL FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
   a. Using SST and a press, install a new front differential case front tapered roller bearing to the differential case.

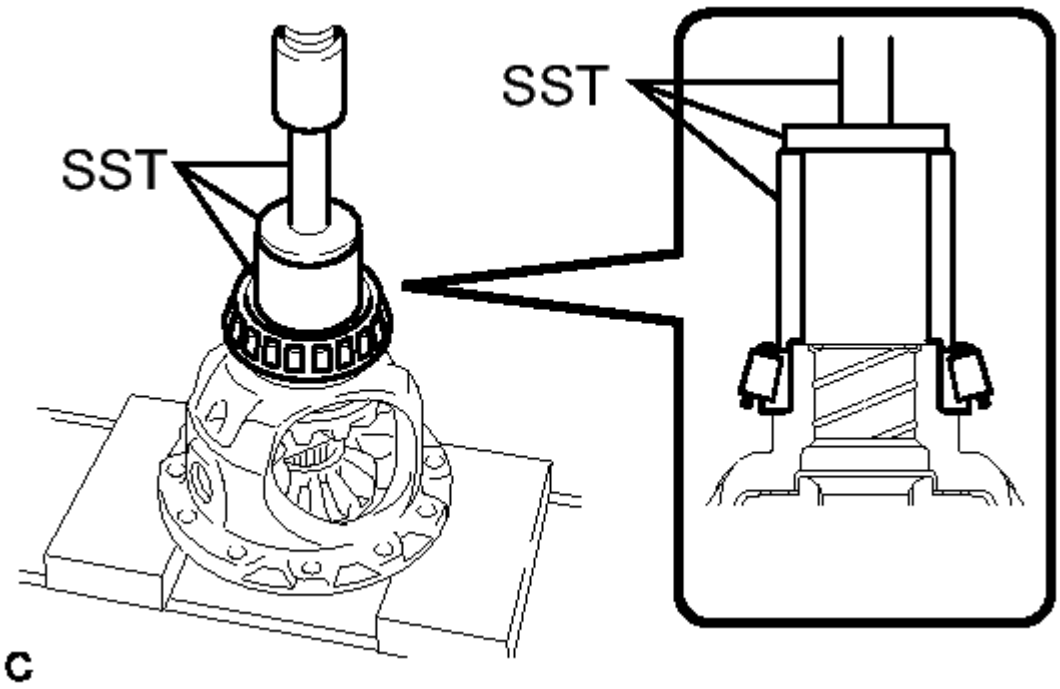


Fig. 458: Installing Front Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09710-30012**
  09710-04081
- **SST: 09950-60010**
  09951-00480
- **SST: 09950-70010**
  09951-07100

NOTE: Do not damage the bearing cage during bearing inner race installation.

b. Install the shim to the transaxle housing.
c. Using SST and a hammer, install a new front differential case front tapered roller bearing outer race to the transaxle housing.

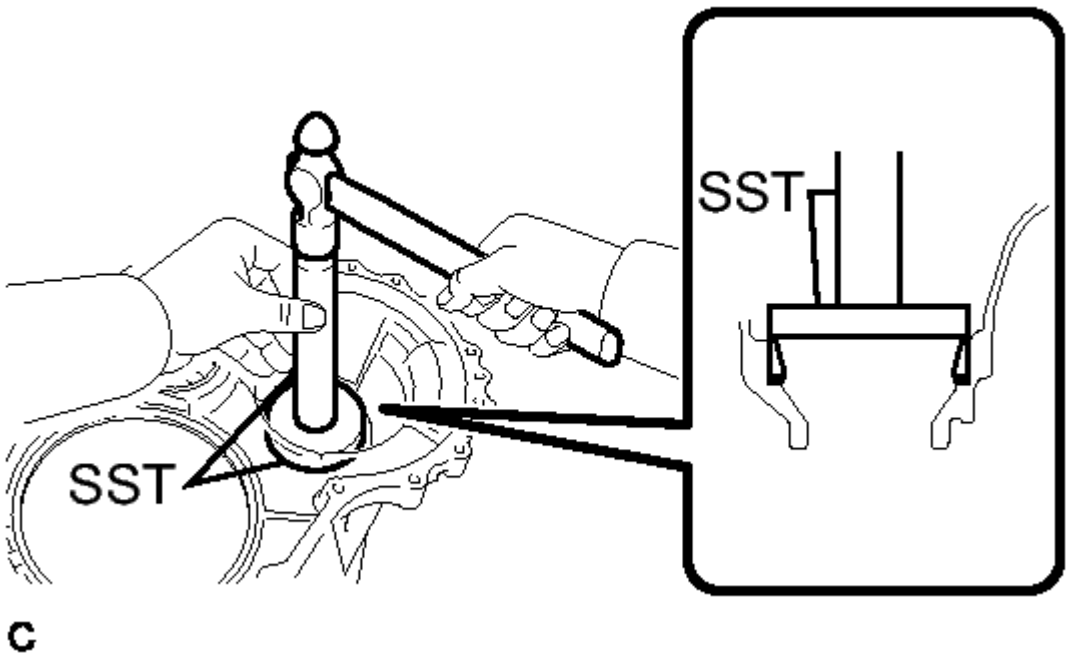


Fig. 459: Installing Front Differential Case Front Tapered Roller Bearing Outer Race To Transaxle Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00480
- **SST: 09950-70010**
  09951-07150

NOTE: Ensure that there is no clearance between the bearing and transaxle housing.

7. **ADJUST DIFFERENTIAL SIDE BEARING PRELOAD**
   a. Install the differential assembly to the transaxle case.

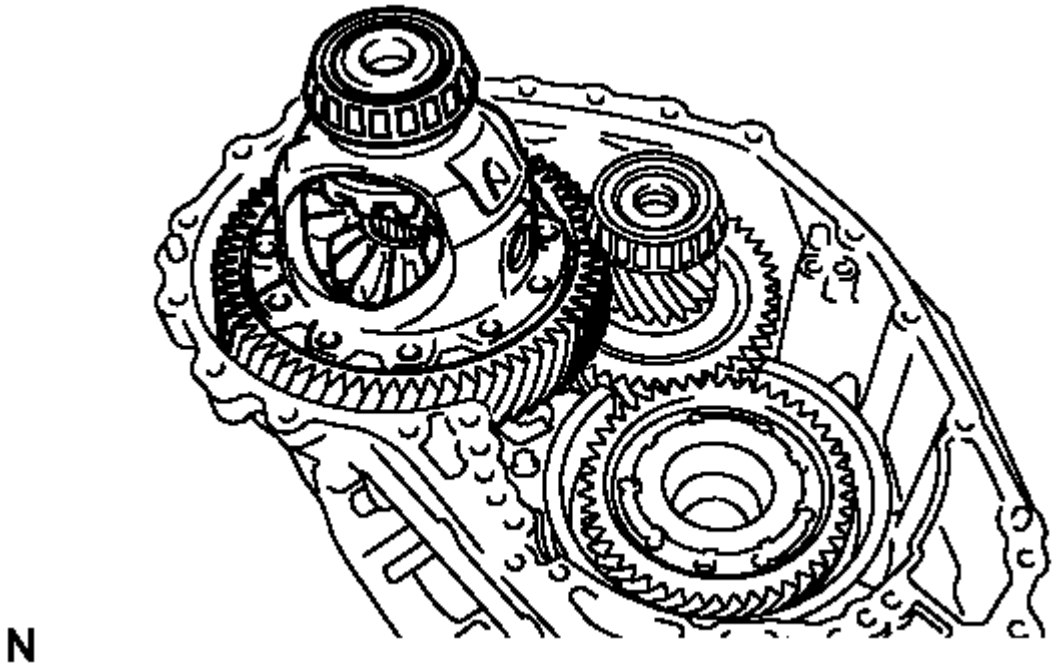


Fig. 460: Identifying Differential Case Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Clean the contact surfaces of the transaxle case and transaxle housing.
c. Install the transaxle housing to the transaxle case with the 20 bolts.

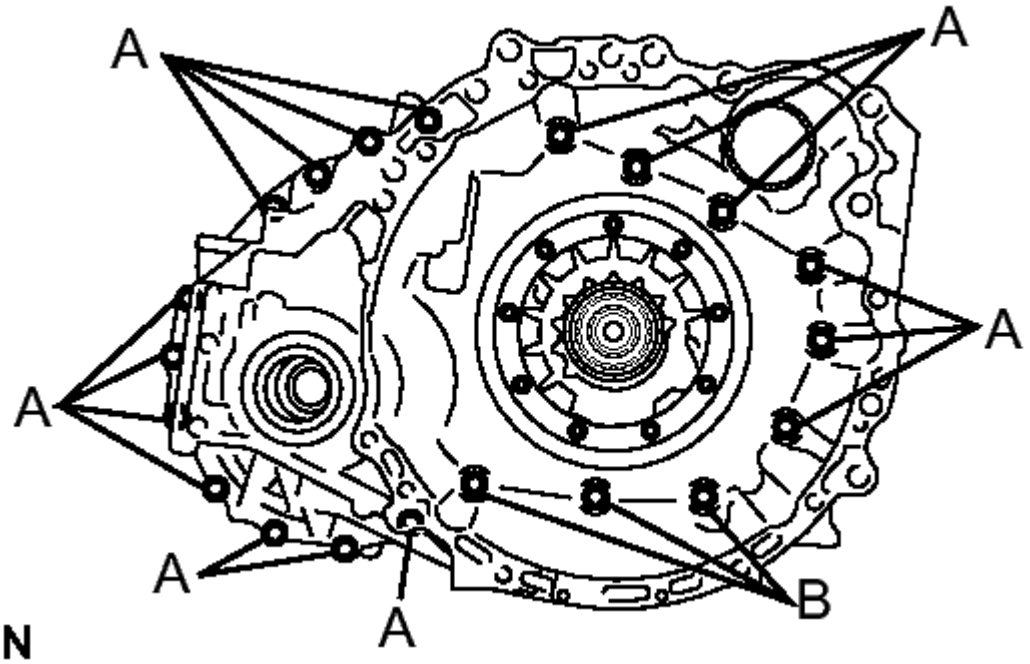


Fig. 461: Identifying Transaxle Case Bolts

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

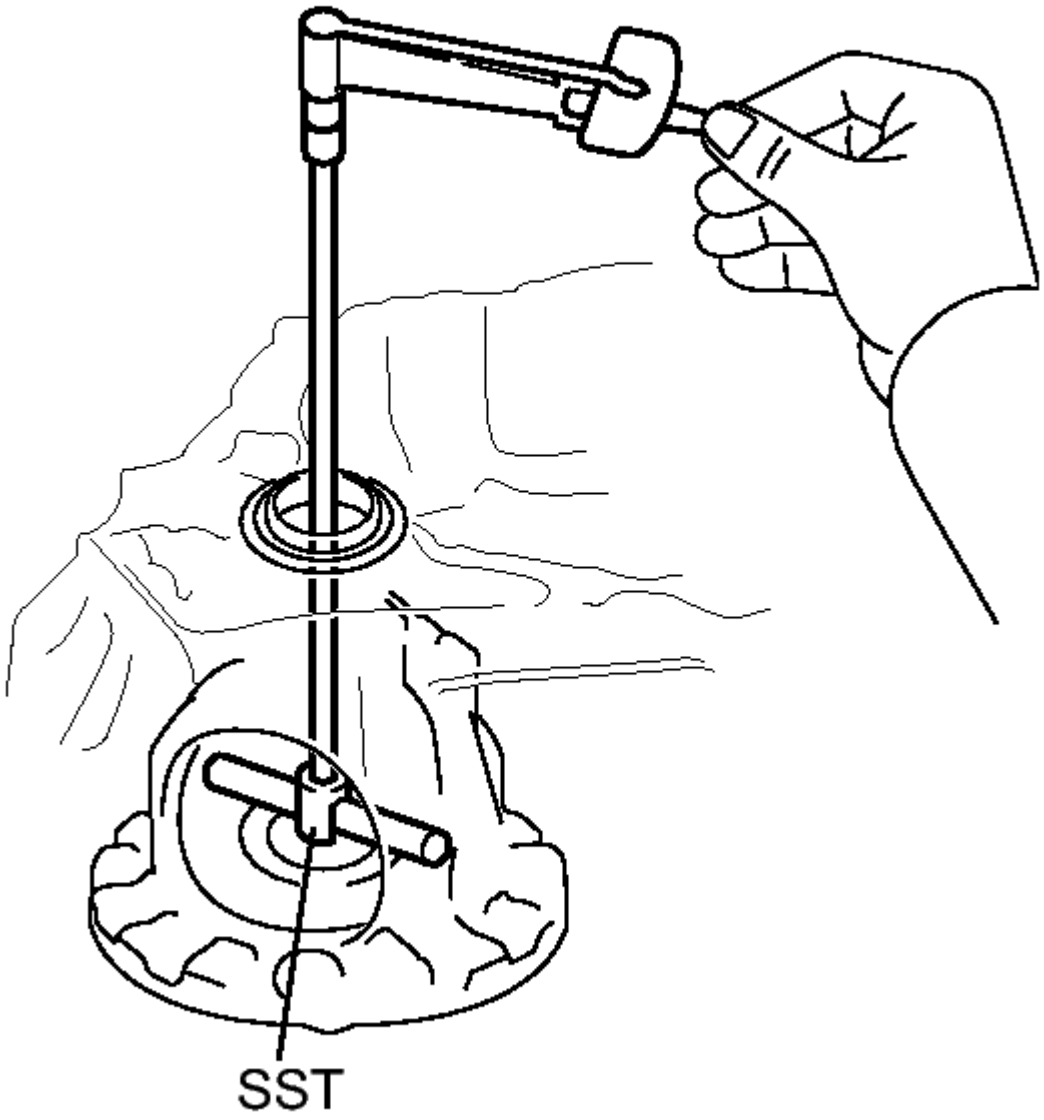
Bolt A

Torque: 31 N*m (312 kgf*cm, 23 ft.*lbf)

Bolt B

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

d. Using SST, turn the differential assembly right and left 2 or 3 times to settle the bearing.



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Fig. 462: Measuring Turning Torque Of Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09564-33010**

e. Using SST and a torque wrench, measure the turning torque of the differential side bearing while

rotating SST at 10 RPM.

- **SST: 09564-33010**

Turning torque

1.1 to 1.9 N*m (11 to 19 kgf*cm, 10 to 17 in.*lbf)

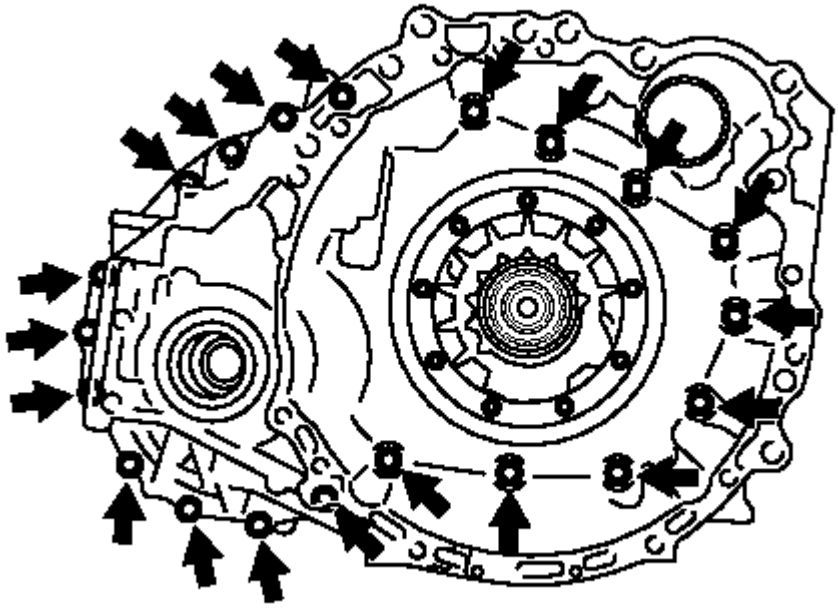
If the turning torque is not within the specified range, refer to the table below to select a shim so that the turning torque is within the specified range.

SHIM THICKNESS

Part No.	Thickness mm (in.)
90564-A0106	2.000 (0.0787)
90564-A0107	2.025 (0.0797)
90564-A0108	2.050 (0.0807)
90564-A0109	2.075 (0.0817)
90564-A0110	2.100 (0.0827)
90564-A0111	2.125 (0.0837)
90564-A0112	2.150 (0.0846)
90564-A0113	2.175 (0.0856)
90564-A0114	2.200 (0.0866)
90564-A0115	2.225 (0.0876)
90564-A0116	2.250 (0.0886)
90564-A0117	2.275 (0.0896)
90564-A0118	2.300 (0.0906)
90564-A0119	2.325 (0.0915)
90564-A0120	2.350 (0.0925)
90564-A0121	2.375 (0.0935)

90564-A0122	2.400 (0.0945)
90564-A0123	2.425 (0.0955)
90564-A0124	2.450 (0.0965)
90564-A0125	2.475 (0.0974)
90564-A0126	2.500 (0.0984)
90564-A0127	2.525 (0.0994)
90564-A0128	2.550 (0.100)
90564-A0129	2.575 (0.101)
90564-A0130	2.600 (0.102)
90564-A0131	2.625 (0.103)
90564-A0132	2.650 (0.104)
90564-A0133	2.675 (0.105)
90564-A0134	2.700 (0.106)
90564-A0135	2.725 (0.107)
90564-A0136	2.750 (0.108)
90564-A0137	2.775 (0.109)
90564-A0138	2.800 (0.110)
90564-A0139	2.825 (0.111)
90564-A0140	2.850 (0.112)
90564-A0141	2.875 (0.113)

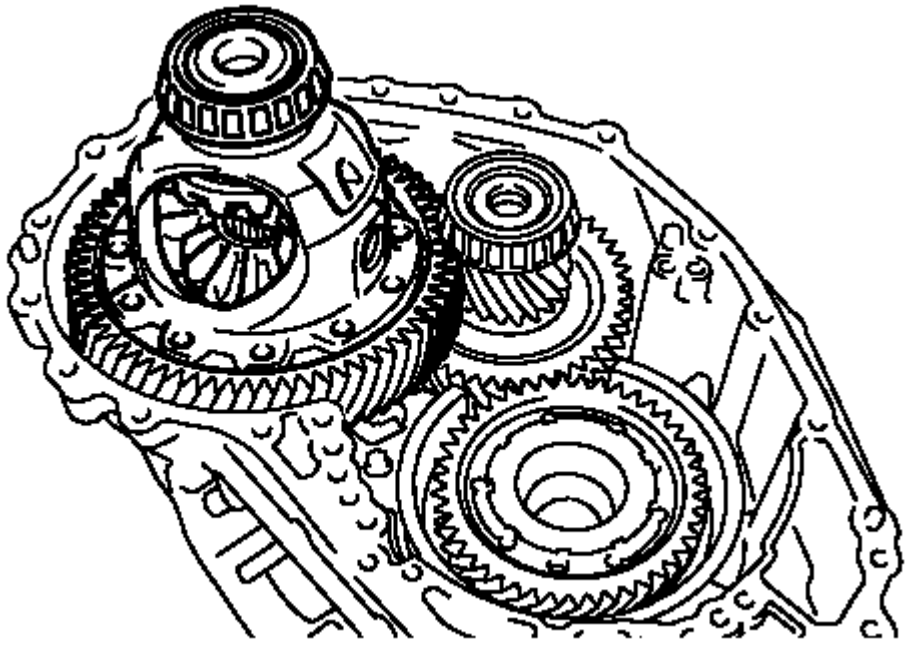
f. Remove the 20 bolts and transaxle housing from the transaxle case.



N

Fig. 463: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Remove the differential assembly from the transaxle case.



N

Fig. 464: Identifying Differential Case Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL FRONT DIFFERENTIAL RING GEAR**

a. Using ATF and a heater, heat the front differential ring gear to 90 to 110°C (194 to 230°F).

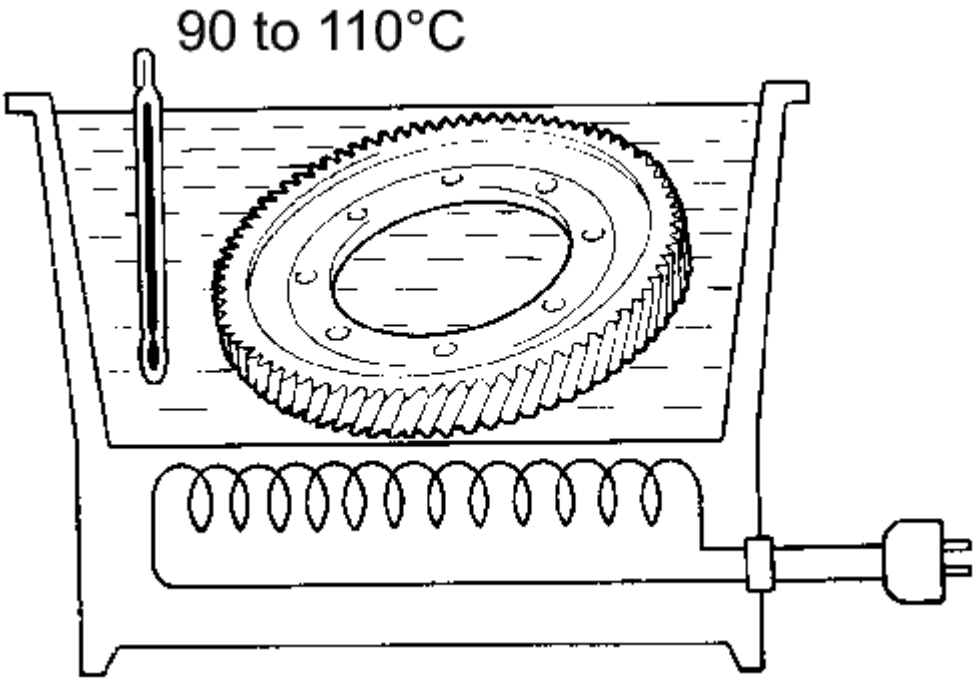
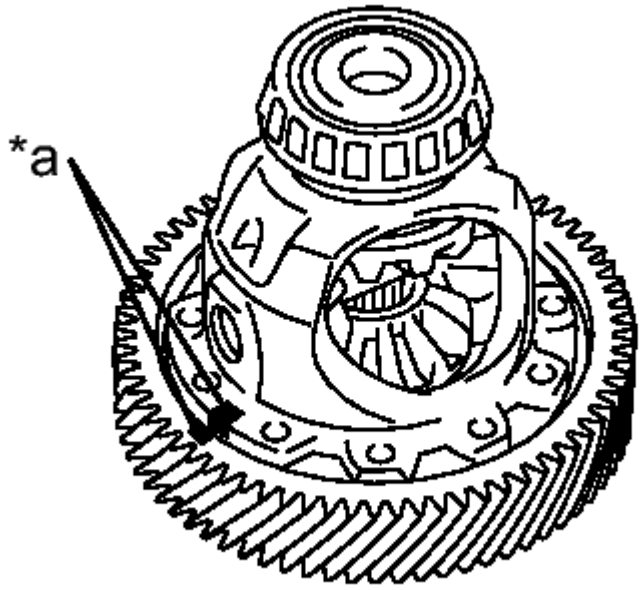


Fig. 465: Heating Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not heat the ring gear to more than 110°C (230°F).

b. Clean the contact surface of the front differential case.

c. Align the matchmarks, and install the front differential ring gear case quickly.



N

Fig. 466: Identifying Front Differential Ring Gear & Front Differential Case Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Matchmark

NOTE: Do not install the bolts while the ring gear is hot.

d. Install and tighten the 12 bolts.

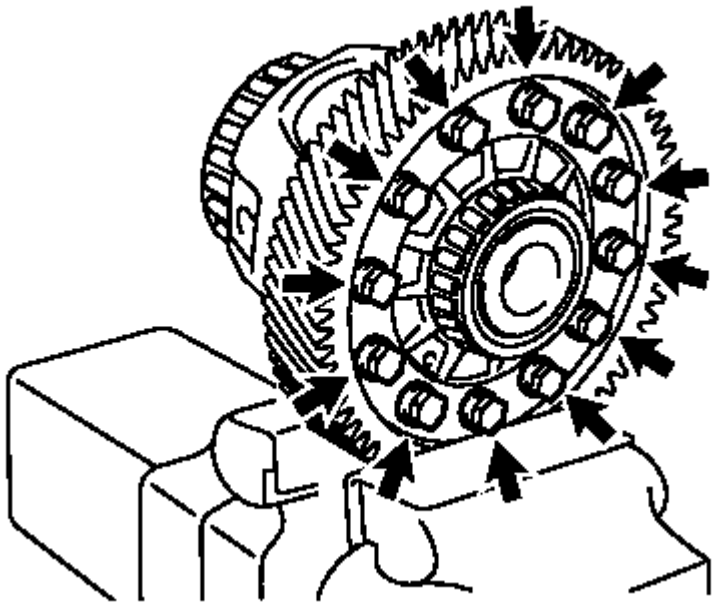


Fig. 467: Identifying Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 120 N*m (1224 kgf*cm, 89 ft.*lbf)

NOTE: Tighten the bolts a little at a time in a diagonal sequence.

9. **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 oil seal.

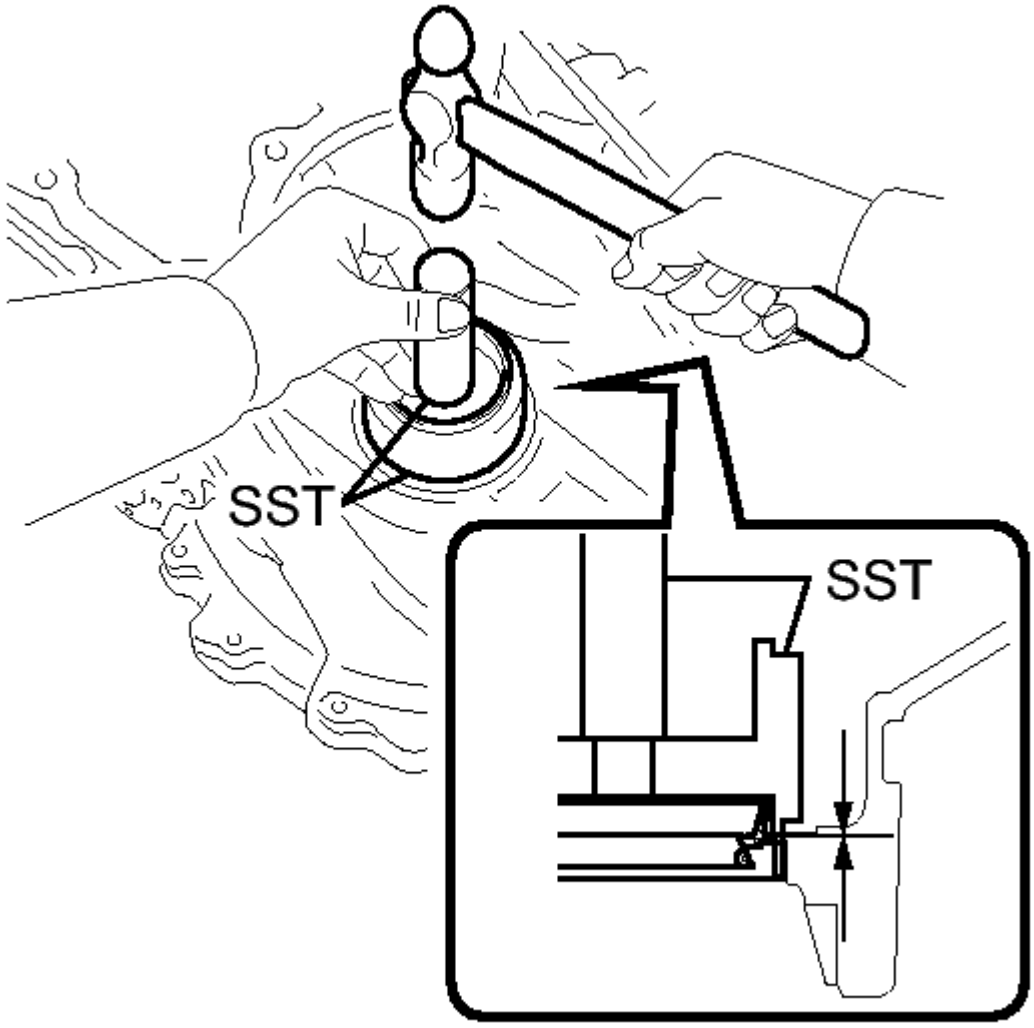


Fig. 468: Installing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-10010**
- **SST: 09950-70010**
  09951-07100

Oil seal driven in depth

-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

NOTE: Check that the oil seal is installed in the correct direction.

10. **INSTALL FRONT TRANSAXLE CASE OIL SEAL**
    a. Coat the lip of a new oil seal with MP grease.

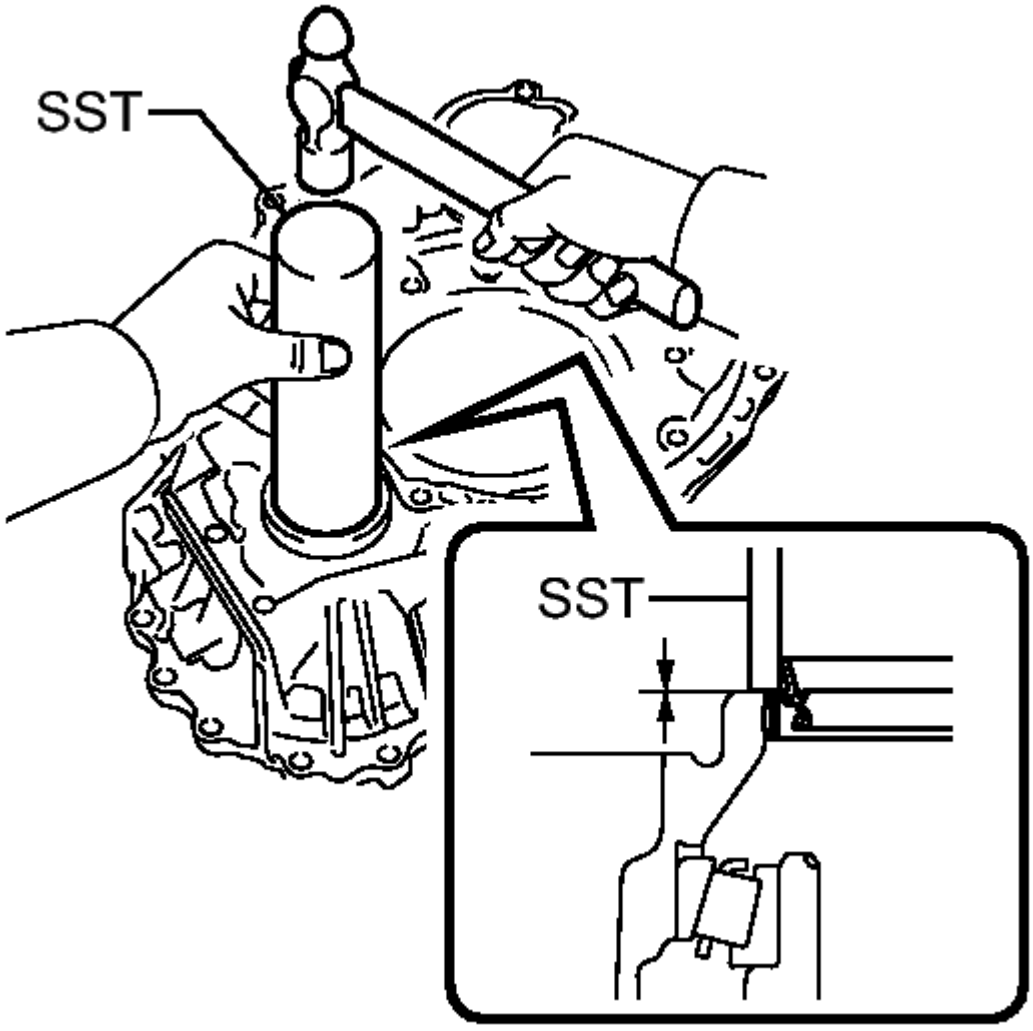


Fig. 469: Installing Front Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a hammer, install the oil seal.
   - **SST: 09308-14010**

   Oil seal driven in depth

   -0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

   NOTE: Check that the oil seal is installed in the correct direction.

U660E AUTOMATIC TRANSMISSION / TRANSAXLE

SERVICE DATA

SERVICE DATA

Line pressure (Wheel locked)		
Engine idling	D position	360 to 430 kPa (3.7 to 4.4 kgf/cm^2 , 52 to 62 psi)
	R position	800 to 950 kPa (8.2 to 9.7 kgf/cm^2 , 116 to 138 psi)
At stall speed (Throttle valve fully open)	D position	1160 to 1350 kPa (11.8 to 13.8 kgf/cm^2 , 168 to 196 psi)
	R position	1900 to 2200 kPa (19.4 to 22.4 kgf/cm^2 , 276 to 319 psi)
Engine stall speed	D position	2230 to 2920 RPM
Time lag	N --> D position	Less than 1.2 seconds
	N --> R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	550 to 800 RPM
Shift schedule		
D position		
Throttle valve fully open (Normal)	1 --> 2	49 to 57 km/h (30 to 35 mph)
	2 --> 3	91 to 101 km/h (57 to 63 mph)
	3 --> 4	125 to 140 km/h (78 to 87 mph)
	4 --> 5	171 to 189 km/h (106 to 117 mph)
	5 --> 6	256 to 278 km/h (159 to 172 mph)
Throttle valve opening 6% (Normal)	1 --> 2	9 to 15 km/h (6 to 9 mph)
	2 --> 3	16 to 22 km/h (10 to 14 mph)
	3 --> 4	26 to 44 km/h (16 to 27 mph)
	4 --> 5	44 to 61 km/h (27 to 38 mph)
	5 --> 6	63 to 81 km/h (39 to 50 mph)
5, 4, 3, 2, 1 gear range		
Manual downshift speed	--> 5	249 to 271 km/h (155 to 168 mph)
	--> 4	166 to 183 km/h (103 to 113 mph)
	--> 3	118 to 133 km/h (73 to 83 mph)
	--> 2	84 to 93 km/h (52 to 58 mph)
	--> 1	37 to 43 km/h (23 to 27 mph)

ATF temperature sensor		
Tester Connection	Condition	Specified Condition
1 (THO1) - 2 (E2)	10°C (50°F)	5 to 8 kohms
	25°C (77°F)	2.5 to 4.5 kohms
	110°C (230°F)	0.22 to 0.28 kohms
Shift solenoid valve SL		
Tester Connection	Condition	Specified Condition
Solenoid connector - Solenoid body	20°C (68°F)	11 to 15 ohms
Shift solenoid valve SLT		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SLU		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL1		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL2		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL3		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL4		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Park/Neutral position switch		
Tester Connection	Shift Lever Position	Specified Condition
1 (RB) - 2 (RL)	R	Below 1 ohms
	Except R	10 kohms or higher
1 (RB) - 3 (PL)	P	Below 1 ohms
	Except P	10 kohms or higher
1 (RB) - 7 (DL)	D, S, "+" or "-"	Below 1 ohms
	Except D, S, "+" and "-"	10 kohms or higher
1 (RB) - 8 (NL)	N	Below 1 ohms
	Except N	10 kohms or higher
4 (B) - 9 (L)	P	Below 1 ohms
	Except P	10 kohms or higher
	N	Below 1 ohms
	Except N	10 kohms or higher

Shift lock control ECU (w/o Smart Key System)		
Tester Connection	Switch Condition	Specified Condition
4 (STP) - 1 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
5 (KLS+) - 1 (E)	1. Ignition switch ACC and shift lever in P	Below 1 V
	2. Ignition switch ACC and shift lever not in P (Within approximately 1 second)	7.5 to 10.5 V
	3. Ignition switch ACC and shift lever not in P (After approximately 1 second)	6 to 9 V
6 (ACC) - 1 (E)	Ignition switch ACC	11 to 14 V
	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
8 (IG) - 1 (E)	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
Tester Connection	Condition	Specified Condition
1 (E) - Body ground	Always	Below 1 ohms
Shift lock control ECU (w/ Smart Key System)		
Tester Connection	Switch Condition	Specified Condition
6 (STP) - 3 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
12 (IG) - 3 (E)	Engine switch on (IG)	11 to 14 V
	Engine switch off	Below 1 V
Tester Connection	Condition	Specified Condition
3 (E) - Body ground	Always	Below 1 ohms
Transmission control switch		
Tester Connection	Shift Lever Position	Specified Condition
6 (IG) - 13 (S)	S, "+" or "-"	Below 1 ohms
	Other than S, "+" or "-"	10 kohms or higher
5 (SFTU) - 11 (E)	"+" Pressed continuously (Upshift)	Below 1 ohms
	S	10 kohms or higher
4 (SFTD) - 11 (E)	"-" Pressed continuously (Downshift)	Below 1 ohms
	S	10 kohms or higher
Shift lock solenoid		
Tester Connection	Shift Lever Position	Specified Condition
4 (P) - 3 (E2)	P	10 kohms or higher
	Except P	Below 1 ohms
Tester Connection	Condition	Specified Condition
1 (SLS+) - 2 (SLS-)	Always	112 ohms
Transaxle case oil seal driven in depth	Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)
Front transaxle case oil seal driven in depth	Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

Drive plate runout		Maximum	0.30 mm (0.0118 in.)
Input shaft end play		Standard	0.012 to 1.250 mm (0.000473 to 0.0492 in.)
Planetary sun gear inside diameter		Standard	25.525 to 25.546 mm (1.0049 to 1.0057 in.)
		Maximum	25.546 mm (1.0057 in.)
Under drive planetary gear clearance		Standard	0.18 to 0.54 mm (0.00709 to 0.0213 in.)
Rear planetary sun gear inside diameter		Standard	25.580 to 25.601 mm (1.0071 to 1.0079 in.)
		Maximum	25.601 mm (1.0079 in.)
2nd brake piston return spring free length		Standard	23.85 mm (0.939 in.)
Planetary gear clearance	A point	Standard	0.23 to 0.59 mm (0.00906 to 0.0232 in.)
	B point	Standard	0.16 to 0.66 mm (0.00630 to 0.0259 in.)
1st and reverse brake return spring free length		Standard	15.79 mm (0.621 in.)
No. 2 brake clearance		Standard	0.884 to 1.196 mm (0.0348 to 0.0471 in.)
No. 2 brake flange thickness			
Part No.		Thickness	Mark
35678-07010		4.0 mm (0.157 in.)	Mark 40
35678-07020		4.1 mm (0.161 in.)	Mark 41
35678-07030		4.2 mm (0.165 in.)	Mark 42
35678-07040		4.3 mm (0.169 in.)	Mark 43
35678-07050		4.4 mm (0.173 in.)	Mark 44
No. 1 brake clearance		Standard	0.807 to 0.974 mm (0.0318 to 0.0383 in.)
No. 1 brake flange thickness			
Part No.		Thickness	Mark
35676-07010		3.0 mm (0.118 in.)	Mark 30
35676-07020		3.1 mm (0.122 in.)	Mark 31
35676-07030		3.2 mm (0.126 in.)	Mark 32
35676-07040		3.3 mm (0.130 in.)	Mark 33
35676-07050		3.4 mm (0.134 in.)	Mark 34
35676-07060		3.5 mm (0.138 in.)	Mark 35
No. 3 brake clearance		Standard	0.599 to 0.761 mm (0.0236 to 0.0300 in.)
No. 3 brake flange thickness			
Part No.		Thickness	Mark
35679-07020		3.8 mm (0.150 in.)	Mark 38
35679-07030		3.9 mm (0.154 in.)	Mark 39

35679-07040	4.0 mm (0.157 in.)		Mark 40
35679-07050	4.1 mm (0.161 in.)		Mark 41
35679-07060	4.2 mm (0.165 in.)		Mark 42
35679-07070	4.3 mm (0.169 in.)		Mark 43
No. 1 clutch disc clearance	Type A	Standard	0.606 to 0.774 mm (0.0238 to 0.0305 in.)
	Type B	Standard	0.806 to 0.974 mm (0.0317 to 0.0383 in.)
No. 1 clutch flange thickness			
Part No.	Thickness		Mark
35635-08060	3.0 mm (0.118 in.)		Mark 30
35635-08070	3.1 mm (0.122 in.)		Mark 31
35635-08080	3.2 mm (0.126 in.)		Mark 32
35635-08090	3.3 mm (0.130 in.)		Mark 33
35635-08100	3.4 mm (0.134 in.)		Mark 34
35635-08110	3.5 mm (0.138 in.)		Mark 35
35635-08120	3.6 mm (0.142 in.)		Mark 36
No. 2 clutch disc clearance		Standard	0.544 to 0.744 mm (0.0214 to 0.0293 in.)
No. 2 clutch flange thickness			
Part No.	Thickness		Mark
35635-08060	3.0 mm (0.118 in.)		Mark 30
35635-08070	3.1 mm (0.122 in.)		Mark 31
35635-08080	3.2 mm (0.126 in.)		Mark 32
35635-08090	3.3 mm (0.130 in.)		Mark 33
35635-08100	3.4 mm (0.134 in.)		Mark 34
35635-08110	3.5 mm (0.138 in.)		Mark 35
35635-08120	3.6 mm (0.142 in.)		Mark 36
Manual valve lever shaft oil seal driven in depth		Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)
Counter drive gear Preload		Standard	0.1 to 0.2 N*m (1 to 2 kgf*cm, 0.9 to 1.9 in.*lbf)
Counter driven gear Preload		Standard	3.3 to 6.0 N*m (34 to 61 kgf*cm, 29 to 53 in.*lbf)
Adjust shim thickness			
Part No.	Thickness		Mark
90564-A0142	2.000 mm (0.0787 in.)		-
90564-A0143	2.025 mm (0.0797 in.)		-
90564-A0144	2.050 mm (0.0807 in.)		-
90564-A0145	2.075 mm (0.0817 in.)		-
90564-A0146	2.100 mm (0.0827 in.)		-
90564-A0147	2.125 mm (0.0837 in.)		-

90564-A0148	2.150 mm (0.0846 in.)	-
90564-A0149	2.175 mm (0.0856 in.)	-
90564-A0150	2.200 mm (0.0866 in.)	-
90564-A0151	2.225 mm (0.0876 in.)	-
90564-A0152	2.250 mm (0.0886 in.)	-
90564-A0153	2.275 mm (0.0896 in.)	-
90564-A0154	2.300 mm (0.0906 in.)	-
90564-A0155	2.325 mm (0.0915 in.)	-
90564-A0156	2.350 mm (0.0925 in.)	-
90564-A0157	2.375 mm (0.0935 in.)	-
90564-A0158	2.400 mm (0.0945 in.)	-
90564-A0159	2.425 mm (0.0955 in.)	-
90564-A0160	2.450 mm (0.0965 in.)	-
90564-A0161	2.475 mm (0.0974 in.)	-
90564-A0162	2.500 mm (0.0984 in.)	-
90564-A0163	2.525 mm (0.0994 in.)	-
90564-A0164	2.550 mm (0.100 in.)	-
90564-A0165	2.575 mm (0.101 in.)	-
90564-A0166	2.600 mm (0.102 in.)	-
90564-A0167	2.625 mm (0.103 in.)	-
90564-A0168	2.650 mm (0.104 in.)	-
90564-A0169	2.675 mm (0.105 in.)	-
90564-A0170	2.700 mm (0.106 in.)	-
90564-A0171	2.725 mm (0.107 in.)	-
90564-A0172	2.750 mm (0.108 in.)	-
90564-A0173	2.775 mm (0.109 in.)	-
90564-A0174	2.800 mm (0.110 in.)	-
90564-A0175	2.825 mm (0.111 in.)	-
90564-A0176	2.850 mm (0.112 in.)	-
90564-A0177	2.875 mm (0.113 in.)	-
90564-A0178	2.900 mm (0.114 in.)	-
90564-A0179	2.925 mm (0.115 in.)	-
90564-A0180	2.950 mm (0.116 in.)	-
90564-A0181	2.975 mm (0.117 in.)	-
90564-A0182	3.000 mm (0.118 in.)	-
Intermediate shaft end play	Standard	0.007 to 1.113 mm (0.000275 to 0.0438 in.)
Transaxle rear cover bearing installation depth	Standard	21.5 to 21.9 mm (0.846 to 0862 in.)
Oil pump body clearance	Standard	0.08 to 0.15 mm (0.00315 to 0.00590 in.)
	Maximum	0.15 mm (0.00590 in.)

Oil pump side clearance	Standard	0.025 to 0.04 mm (0.000984 to 0.00157 in.)
	Maximum	0.04 mm (0.00157 in.)

Drive gear thickness

Part No.	Thickness	Mark
35321-07010	11.547 to 11.555 mm (0.4546 to 0.4549 in.)	Mark 1
35321-07020	11.555 to 11.563 mm (0.4549 to 0.4552 in.)	Mark 2
35321-07030	11.564 to 11.571 mm (0.4553 to 0.4556 in.)	Mark 3
35321-07040	11.572 to 11.579 mm (0.4556 to 0.4559 in.)	Mark 4
35321-07050	11.580 to 11.587 mm (0.4559 to 0.4562 in.)	Mark 5

Driven gear thickness

Part No.	Thickness	Mark
35322-07010	11.547 to 11.555 mm (0.4546 to 0.4549 in.)	Mark 1
35322-07020	11.555 to 11.563 mm (0.4549 to 0.4552 in.)	Mark 2
35322-07030	11.564 to 11.571 mm (0.4553 to 0.4556 in.)	Mark 3
35322-07040	11.572 to 11.579 mm (0.4556 to 0.4559 in.)	Mark 4
35322-07050	11.580 to 11.587 mm (0.4559 to 0.4562 in.)	Mark 5

Oil pump body bushing inside diameter	Standard	43.113 to 43.138 mm (1.6974 to 1.6983 in.)
	Maximum	43.188 mm (1.7003 in.)
Stator shaft bushing inside diameter	Standard	22.500 to 22.526 mm (0.8858 to 0.8868 in.)
	Maximum	22.570 mm (0.8886 in.)
Front oil pump oil seal driven in depth	Standard	-0.25 to 0.25 mm (-0.00984 to 0.00984 in.)
Differential side gear backlash	Standard	0.05 to 0.15 mm (0.00196 to 0.00591 in.)

Thrust washer thickness

Part No.	Thickness	Mark
41361-33020	1.50 mm (0.0591 in.)	-
41361-33030	1.55 mm (0.0610 in.)	-
41361-33040	1.60 mm (0.0630 in.)	-
41361-33050	1.65 mm (0.0650 in.)	-
41361-33060	1.70 mm (0.0669 in.)	-
41361-33070	1.75 mm (0.0689 in.)	-
41361-33080	1.80 mm (0.0709 in.)	-
41361-33090	1.85 mm (0.0728 in.)	-
41361-33100	1.90 mm (0.0748 in.)	-

Differential side bearing Preload	Standard	1.1 to 1.9 N*m (11 to 19 kgf*cm, 10 to 17 in.*lbf)

Adjust shim thickness

Part No.	Thickness	Mark

90564-A0106	2.000 mm (0.0787 in.)	-
90564-A0107	2.025 mm (0.0797 in.)	-
90564-A0108	2.050 mm (0.0807 in.)	-
90564-A0109	2.075 mm (0.0817 in.)	-
90564-A0110	2.100 mm (0.0827 in.)	-
90564-A0111	2.125 mm (0.0837 in.)	-
90564-A0112	2.150 mm (0.0846 in.)	-
90564-A0113	2.175 mm (0.0856 in.)	-
90564-A0114	2.200 mm (0.0866 in.)	-
90564-A0115	2.225 mm (0.0876 in.)	-
90564-A0116	2.250 mm (0.0886 in.)	-
90564-A0117	2.275 mm (0.0896 in.)	-
90564-A0118	2.300 mm (0.0906 in.)	-
90564-A0119	2.325 mm (0.0915 in.)	-
90564-A0120	2.350 mm (0.0925 in.)	-
90564-A0121	2.375 mm (0.0935 in.)	-
90564-A0122	2.400 mm (0.0945 in.)	-
90564-A0123	2.425 mm (0.0955 in.)	-
90564-A0124	2.450 mm (0.0965 in.)	-
90564-A0125	2.475 mm (0.0974 in.)	-
90564-A0126	2.500 mm (0.0984 in.)	-
90564-A0127	2.525 mm (0.0994 in.)	-
90564-A0128	2.550 mm (0.100 in.)	-
90564-A0129	2.575 mm (0.101 in.)	-
90564-A0130	2.600 mm (0.102 in.)	-
90564-A0131	2.625 mm (0.103 in.)	-
90564-A0132	2.650 mm (0.104 in.)	-
90564-A0133	2.675 mm (0.105 in.)	-
90564-A0134	2.700 mm (0.106 in.)	-
90564-A0135	2.725 mm (0.107 in.)	-
90564-A0136	2.750 mm (0.108 in.)	-
90564-A0137	2.775 mm (0.109 in.)	-
90564-A0138	2.800 mm (0.110 in.)	-
90564-A0139	2.825 mm (0.111 in.)	-
90564-A0140	2.850 mm (0.112 in.)	-
90564-A0141	2.875 mm (0.113 in.)	-

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Part Tightened	N*m	kgf*cm	ft.*lbf

No. 1 transmission oil filler tube	1.7	17	15 in.*lbf
Overflow plug	40	408	30
Refill plug	49	500	36
Transmission revolution sensor x Transmission valve body	11	110	8
ATF temperature sensor x Transmission valve body	11	110	8
Transmission wire lock plate x Transmission valve body	11	110	8
Shift solenoid valve SL4 x Transmission valve body	11	110	8
Shift solenoid valve SL3 x Transmission valve body	11	110	8
Shift solenoid valve SL1, SL2 x Transmission valve body	11	110	8
Transmission valve body x Transaxle case	11	110	8
Valve body oil strainer x Transmission valve body	11	110	8
Automatic transaxle oil pan x Transaxle case (Precoated bolt)	7.0	71	62 in.*lbf
Automatic transaxle oil pan x Transaxle case (except Precoated bolt)	7.5	76	66 in.*lbf
Park/neutral position switch x Transaxle case	5.4	55	48 in.*lbf
Control shaft lever x Control shaft	13	130	9
Transmission control cable x Control shaft lever	13	130	9
Shift lever x Instrument panel brace	12	122	9
Transmission control cable x Body	5.0	51	44 in.*lbf
Front No. 1 floor heat insulator x Body	5.5	56	49 in.*lbf
Speedometer driven hole cover x Transaxle case	5.5	56	49 in.*lbf
No. 1 transmission control cable bracket x Transaxle case	12	122	9
Wire harness clamp bracket x Automatic transaxle	8.4	86	74 in.*lbf

TCM x Transaxle case		11	115	8
Front engine mounting bracket setting stud bolt		21	214	15
Front engine mounting bracket x Automatic transaxle		64	653	47
Automatic transaxle assembly x Engine assembly	Bolt A	64	653	47
	Bolt B	64	653	47
	Bolt C	46	469	34
	Bolt D	43	439	32
Ground wire x Automatic transaxle		19	195	14
Manual detent spring and cover x Transaxle case		23	231	17
Pawl stopper plate x Transaxle case		23	231	17
Pawl shaft clamp x Transaxle case		23	231	17
Counter drive gear nut		120	1223	88
Front oil pump and gear body x Transaxle case		23	231	17
Differential gear lube apply tube x Transaxle housing		23	231	17
Transaxle housing x Transaxle case	Bolt A	31	312	23
	Bolt B	23	231	17
Rear transaxle cover plate x Rear transaxle cover sub-assembly		7.5	76	66 in.*lbf
Rear transaxle cover x Transaxle case	Bolt A	23	231	17
	Bolt B	17	172	12
No. 1 automatic transaxle case plug x Rear transaxle cover		7.4	75	65 in.*lbf
Hexagon bolt x Transaxle case		17	173	13
No. 1 transaxle case plug x Transaxle housing		7.4	75	65 in.*lbf
Oil cooler tube union (outlet oil cooler union) x Transaxle case		27	275	20
Oil cooler tube union (inlet oil cooler union) x Transaxle case		27	275	20
Front oil pump and gear body x				

Stator shaft	9.3	95	82 in.*lbf
Differential case x Front differential ring gear	120	1224	89

U660F AUTOMATIC TRANSMISSION / TRANSAXLE

SST

SST

	09223-15030	Oil Seal & Bearing Replacer	
	09308-00010	Oil Seal Puller	
	09316-10010	Remover & Replacer	
	09316-12010	Transfer Bearing Replacer	
	09319-60020	Output Shaft Needle Roller Bearing Remover	
	09350-32014	TOYOTA Automatic Transmission Tool Set	
	(09351-32140)	Oil Seal Replacer	
	09387-00060	Second Brake Wrench	
	09387-00070	First & Reverse Brake Wrench	
	09387-00130	Counter Drive Gear Nut Wrench	
	09495-65040	Axle Hub Oil Seal Replacer	
	09527-17011	Rear Axle Shaft Bearing Remover	
	09564-33010	Drive Pinion Lock Nut Socket	
	09649-17010	Steering Knuckle Tool	
	09710-04081	Base	
	09843-18040	Diagnosis Check Wire No. 2	
	09930-00010	Drive Shaft Nut Chisel	
	09950-00020	Bearing Remover	
	09950-00030	Bearing Remover Attachment	
	09950-40011	Puller B Set	
	(09951-04010)	Hanger 150	
	(09952-04010)	Slide Arm	
	(09953-04020)	Center Bolt 150	
	(09954-04010)	Arm 25	
	(09955-04071)	Claw No. 7	
	(09957-04010)	Attachment	
	(09958-04011)	Holder	
	09950-60010	Replacer Set	
	(09951-00220)	Replacer 22	
	(09951-00230)	Replacer 23	

	(09951-00320)	Replacer 32	
	(09951-00400)	Replacer 40	
	(09951-00410)	Replacer 41	
	(09951-00420)	Replacer 42	
	(09951-00480)	Replacer 48	
	(09951-00530)	Replacer 53	
	(09951-00580)	Replacer 58	
	(09951-00650)	Replacer 65	
	09950-60020	Replacer Set No. 2	
	(09951-00710)	Replacer 71	
	(09951-00810)	Replacer 81	
	(09951-00890)	Replacer 89	
	(09951-01030)	Replacer 103	
	09950-70010	Handle Set	
	(09951-07100)	Handle 100	
	(09951-07150)	Handle 150	
	(09951-07200)	Handle 200	
	09951-01100	Replacer 110	
	09992-00095	Automatic Transmission Oil Pressure Gauge Set	
	(09992-00231)	Adaptor C	
	(09992-00271)	Gauge Assy	

RECOMMENDED TOOLS

RECOMMENDED TOOLS

	09010-3C110	Set, Hexagon Socket Wrench	
	(09013-6C110)	Socket Hexagon 6mm	
	09010-3C120	Set, "TORX" Socket Wrench	
	(09013-1C120)	"TORX" Socket Wrench T-type T30	
	09051-1C110	Plastic Hammer	
	09051-1C300	Chisel	
	09051-1C400	Pin Punch 3	
	09080-1C110	Toyota Electrical Tester Set	
	09080-2C100	Test Lead Set	
	09905-00012	Snap Ring No. 1 Expander	
	09905-00013	Snap Ring Pliers	
	(09904-00090)	Claw Set	

EQUIPMENT

EQUIPMENT

Torque wrench	
Dial indicator	
Magnetic base	
Vernier caliper	
Straightedge	
Press	

LUBRICANT

LUBRICANT

Automatic Transaxle Fluid as Reference		
Dry fill	6.7 liters (7.1 US qts, 5.9 Imp. qts)	Toyota Genuine ATF WS

SSM

SSM

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent	
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent	
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent	

AUTOMATIC TRANSAXLE FLUID

ADJUSTMENT

ADJUSTMENT

NOTE: Precautions and work description

- **The U660F automatic transaxle does not have an oil filler tube and oil dipstick. When adding fluid, add fluid through the refill hole on the transaxle case. The fluid level can be adjusted by draining excess fluid (allowing excess fluid to overflow) through the No. 1 transmission oil filler tube of the oil pan.**
- **Before adjusting the fluid level, add the specified amount of fluid when the engine is cold and warm up the engine to circulate the fluid in the transaxle. Ensure that the fluid temperature is as specified and the engine is idling.**
- **The U660F automatic transaxle requires Toyota Genuine ATF WS.**
- **The adjustment should be performed according to the procedures and notes.**

HINT:

"Overflow" indicates the condition under which fluid comes out of the overflow plug hole.

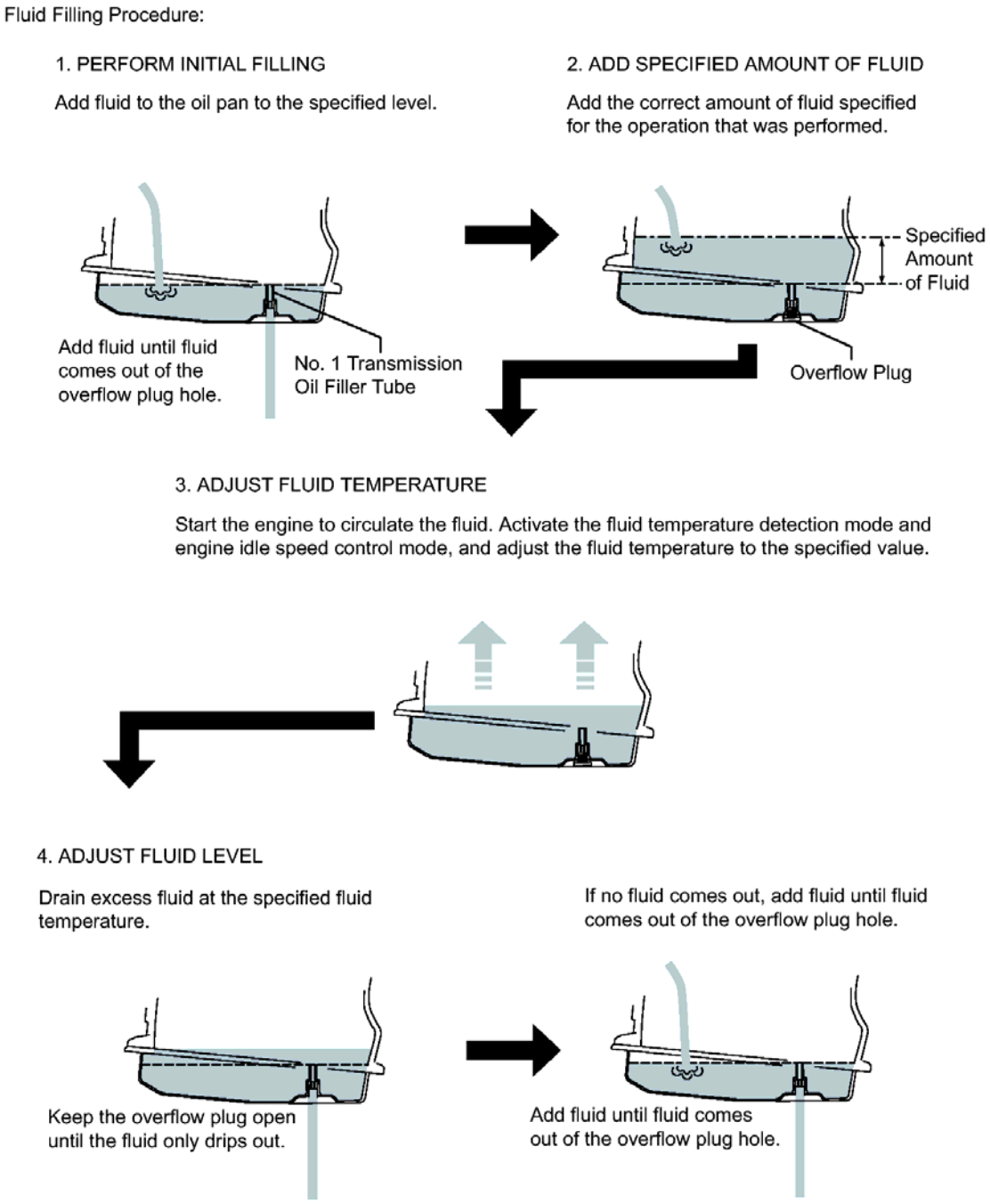


Fig. 1: Automatic Transaxle Fluid Filling Procedure
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

The adjustment should be performed according to the procedures referenced in the work flow below.

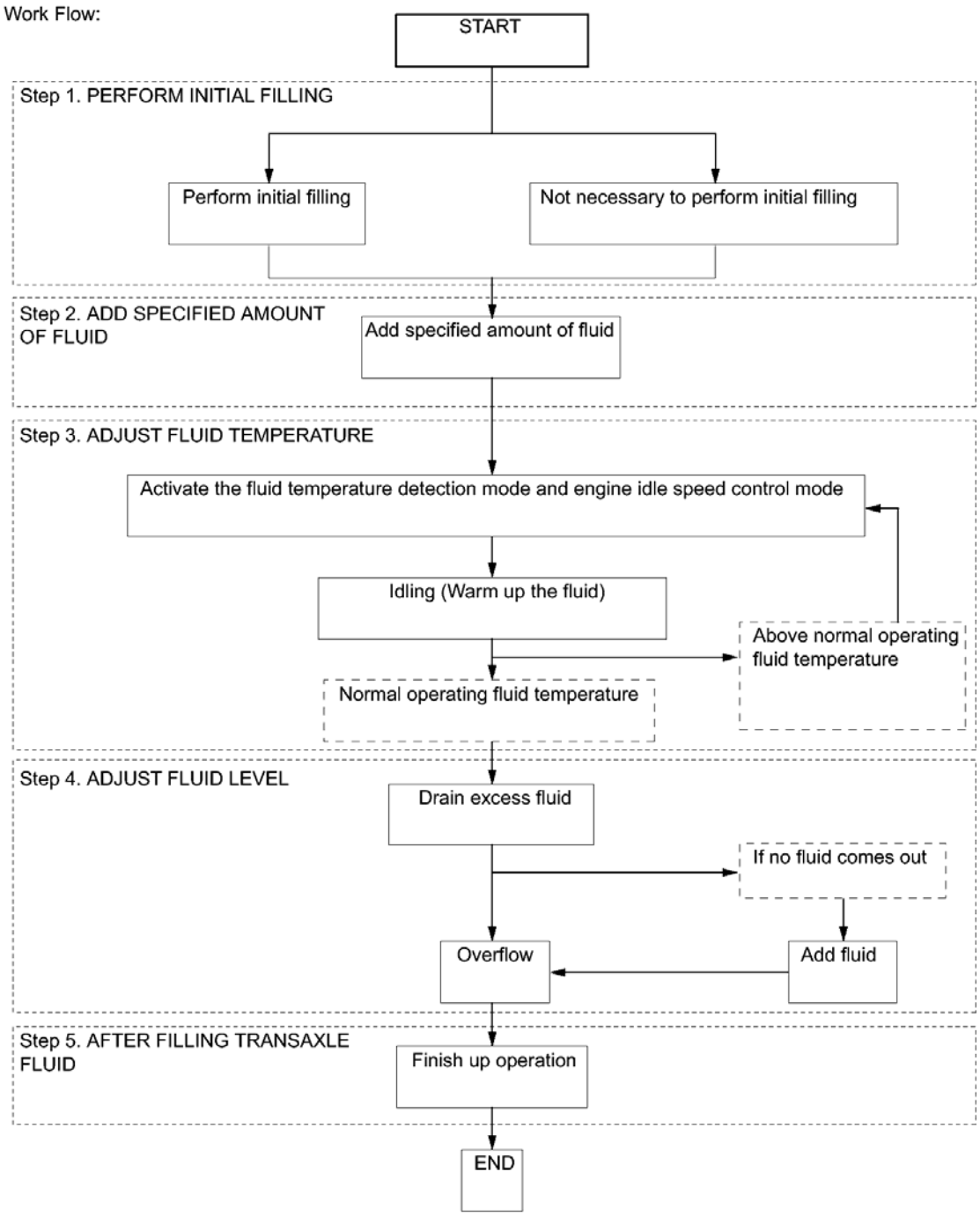


Fig. 2: Automatic Transaxle Fluid Work Flow
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ADJUSTMENT

1. **BEFORE FILLING TRANSAXLE FLUID**

NOTE: **If the transaxle is hot (ATF temperature is high), wait until the fluid**

temperature becomes the same as the ambient temperature before starting the following procedure. (Recommended ATF temperature: around 20°C [68°F])

a. Lift the vehicle.

NOTE: Set the vehicle on a lift so that the vehicle is kept level when it is lifted up.

b. Remove the 2 bolts, clip and front fender apron seal LH.

2. **PERFORM INITIAL FILLING**

NOTE: After performing any of the following operations, it is not necessary to perform the initial filling procedure. Proceed to 3.

Operations That Do Not Require Initial Filling

• Oil cooler tube or oil cooler hose removal/installation
• Repair of oil seeping or oozing

a. Remove the refill plug and gasket from the automatic transaxle.

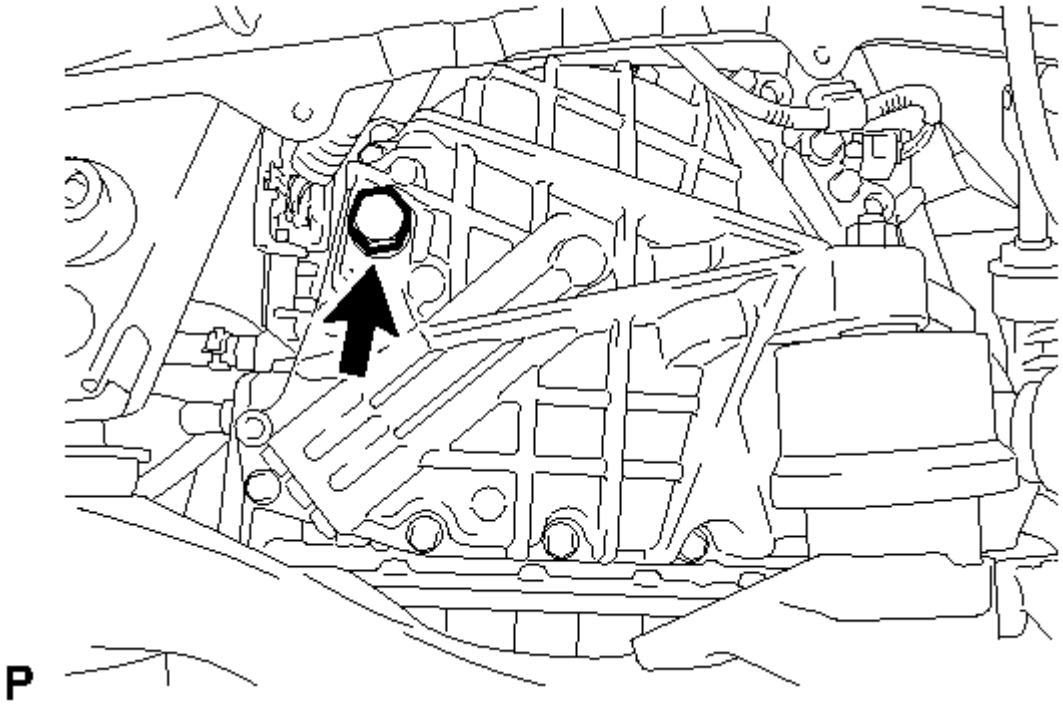


Fig. 3: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket from the automatic transaxle.

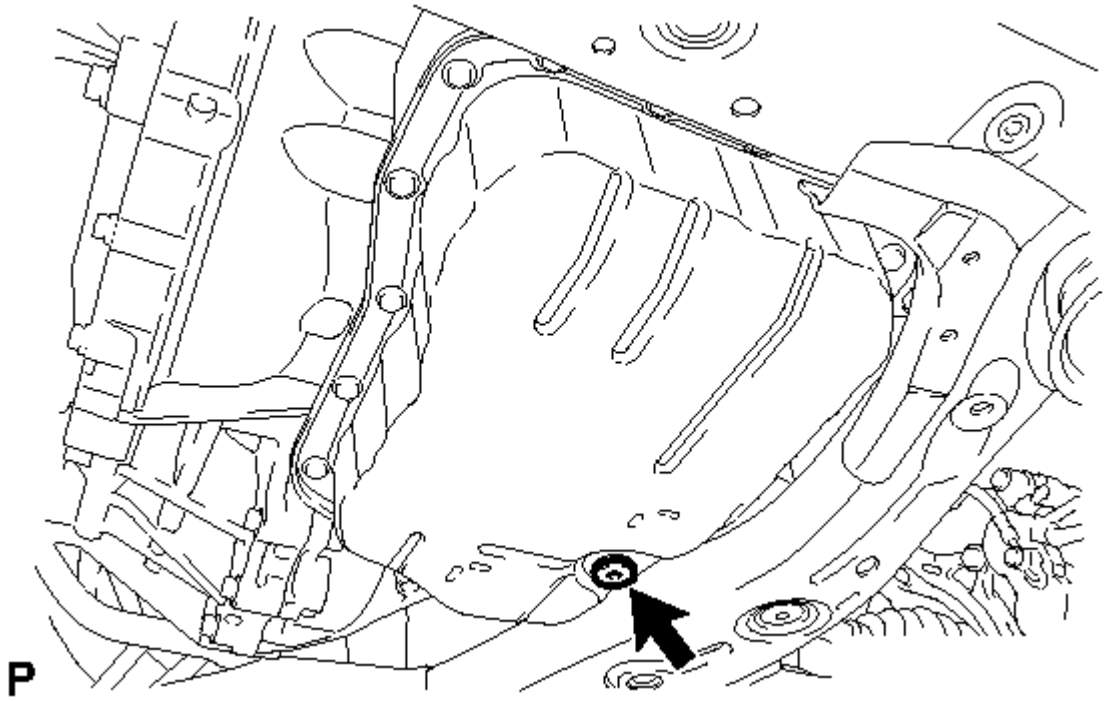


Fig. 4: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If ATF comes out after removing the overflow plug, wait until the fluid flow slows and only drips come out.**
- **If ATF comes out, it is not necessary to perform the initial filling procedure. After checking the tightening torque of the No. 1 transmission oil filler tube, temporarily tighten the overflow plug.**

c. Using a 6 mm hexagon socket wrench, check that the No. 1 transmission oil filler tube is tightened to the specified torque.

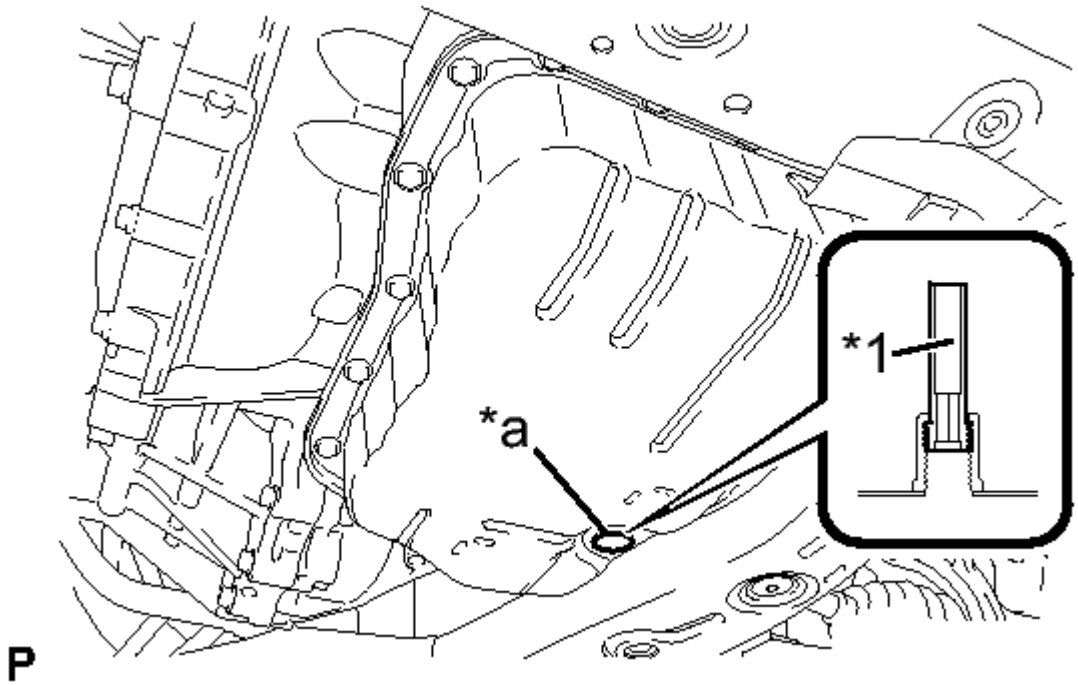


Fig. 5: Identifying No. 1 Transmission Oil Filler Tube & Overflow Plug Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube
*a	Overflow Plug Hole

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

NOTE: If the No. 1 transmission oil filler tube is not tightened to the specified torque, the amount of fluid cannot be precisely adjusted.

HINT:

To check the torque of the No. 1 transmission oil filler tube, insert the 6 mm hexagon socket wrench into the overflow plug hole.

d. Perform initial filling.
    1. Fill the transaxle through the refill hole until fluid begins to trickle out of the overflow plug hole.

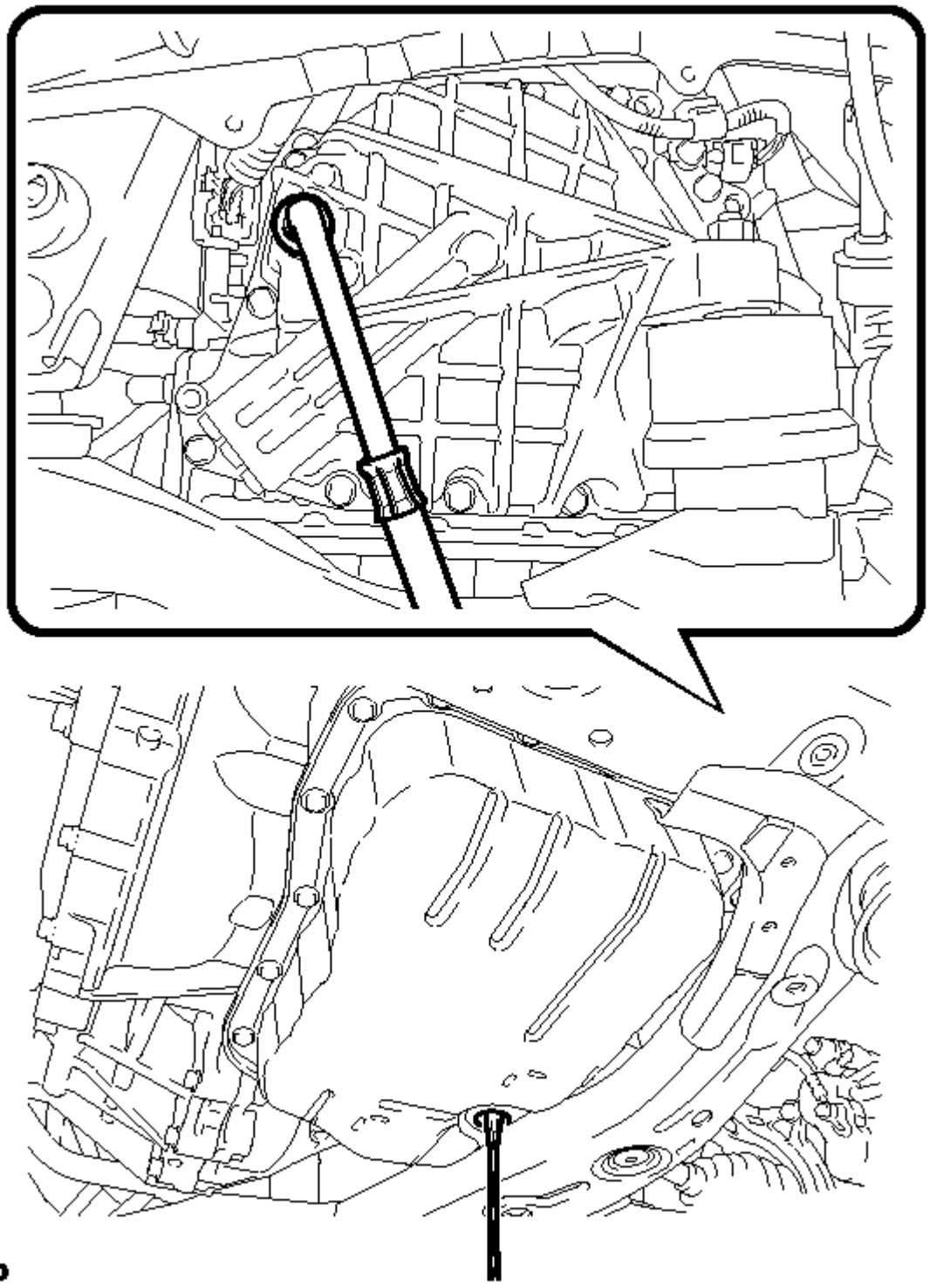


Fig. 6: Identifying Transaxle Fluid Refill & Fluid Trickle At Overflow Plug Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Wait until the fluid flow slows and only drips come out.

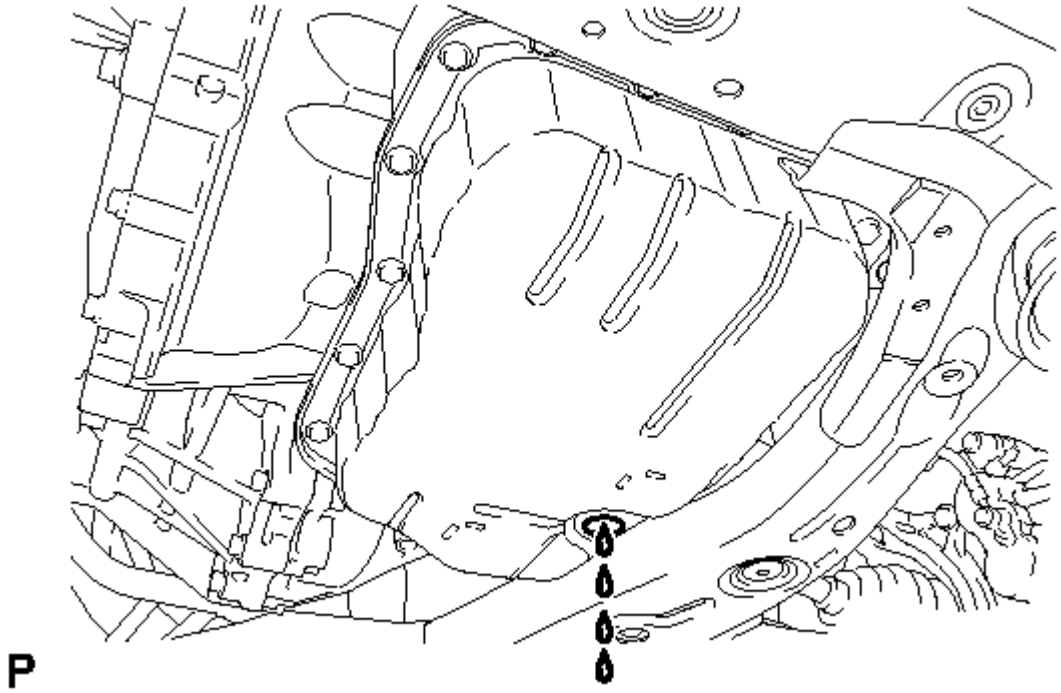


Fig. 7: Identifying Transaxle Fluid Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Using a 6 mm hexagon socket wrench, temporarily install the gasket and the overflow plug.

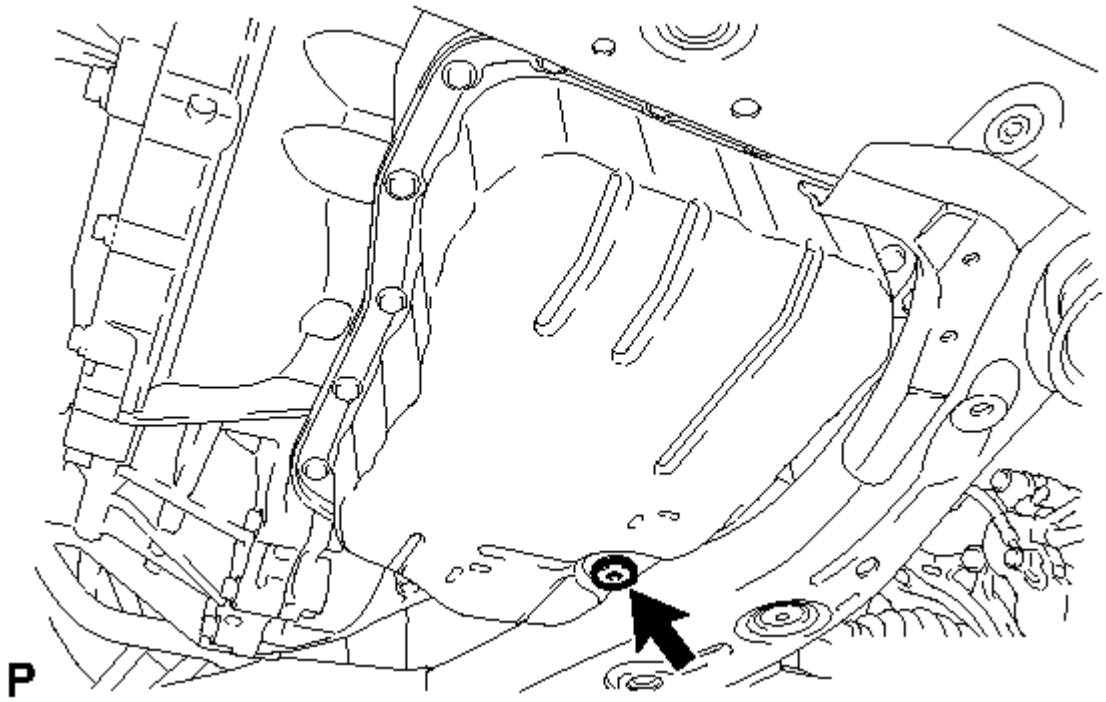


Fig. 8: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The overflow plug will be removed again to adjust the fluid level.

3. **ADD SPECIFIED AMOUNT OF FLUID**
   a. Fill the transaxle with the correct amount of fluid as listed in the table below.

NOTE: Refill amount differs depending on the operation that was performed.

Reference Capacity

Related Procedure	Fill Volume
Transaxle replacement (with a new torque converter)	5.3 liters (5.6 US qts, 4.7 Imp. qts)
Transaxle replacement (when reusing the torque converter)	3.4 liters (3.6 US qts, 3.0 Imp. qts)
Torque converter removal/installation	4.8 liters (5.1 US qts, 4.2 Imp. qts)
Transmission valve body removal/installation	3.2 liters (3.4 US qts, 2.8 Imp. qts)
Oil pan removal/installation	2.8 liters (3.0 US qts, 2.5 Imp. qts)
Drive shaft	2.8 liters (3.0 US

removal/installation	qts, 2.5 Imp. qts)
Transaxle case oil seal removal/installation	2.8 liters (3.0 US qts, 2.5 Imp. qts)
Oil cooler tube or oil cooler hose removal/installation	0.5 liters (0.5 US qts, 0.4 Imp. qts)
Repair of oil seeping or oozing	0.5 liters (0.5 US qts, 0.4 Imp. qts)

b. Temporarily install the refill plug to avoid fluid spillage.

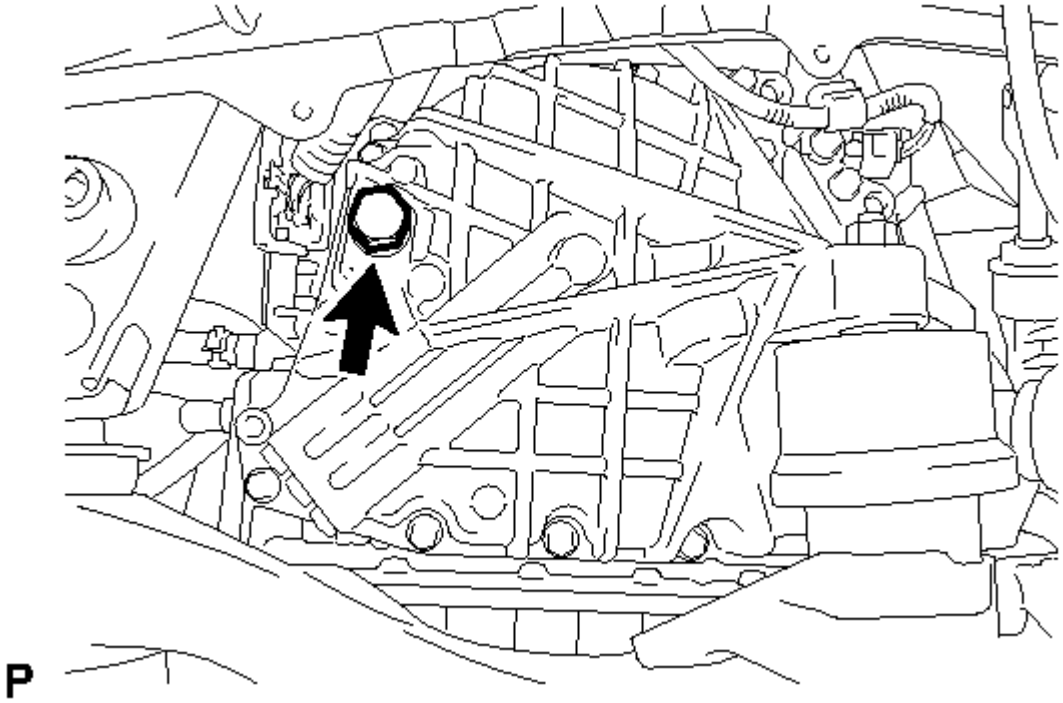


Fig. 9: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The refill plug will be removed again to adjust the fluid level.

c. Lower the vehicle.

4. **ADJUST FLUID TEMPERATURE (for Using the Techstream)**

HINT:

The actual ATF temperature can be checked on the Data List using the Techstream.

a. Connect the Techstream to the DLC3 with the ignition switch off.
b. Turn the ignition switch to ON and turn the Techstream on.

NOTE: **Check that electrical systems such as the air conditioning system, audio system and lighting system are off.**

c. Enter the following menus:

Powertrain / ECT / Active Test / Connect the TC and TE1

d. Select the Active Test menu:

Connect the TC and TE1 / ON

e. Select the Data List menu:

A/T Oil Temperature 1

f. Check the ATF temperature.

NOTE:

- **If the fluid temperature is below 45°C (113°F), proceed to the next step. (Recommended ATF temperature: 40°C [104°F] or less)**
- **If the fluid temperature is 45°C (113°F) or more, turn the ignition switch off and wait until the fluid temperature drops below 45°C (113°F).**

g. Depress and hold the brake pedal.
h. Start the engine.
i. Slowly move the shift lever from P to D, then back to P.

HINT:

Slowly move the shift lever to circulate the fluid through each part of the automatic transaxle.

j. While observing the D shift indicator on the combination meter, move the shift lever back and forth between N and D at an interval of 1.5 seconds for 6 seconds or more.

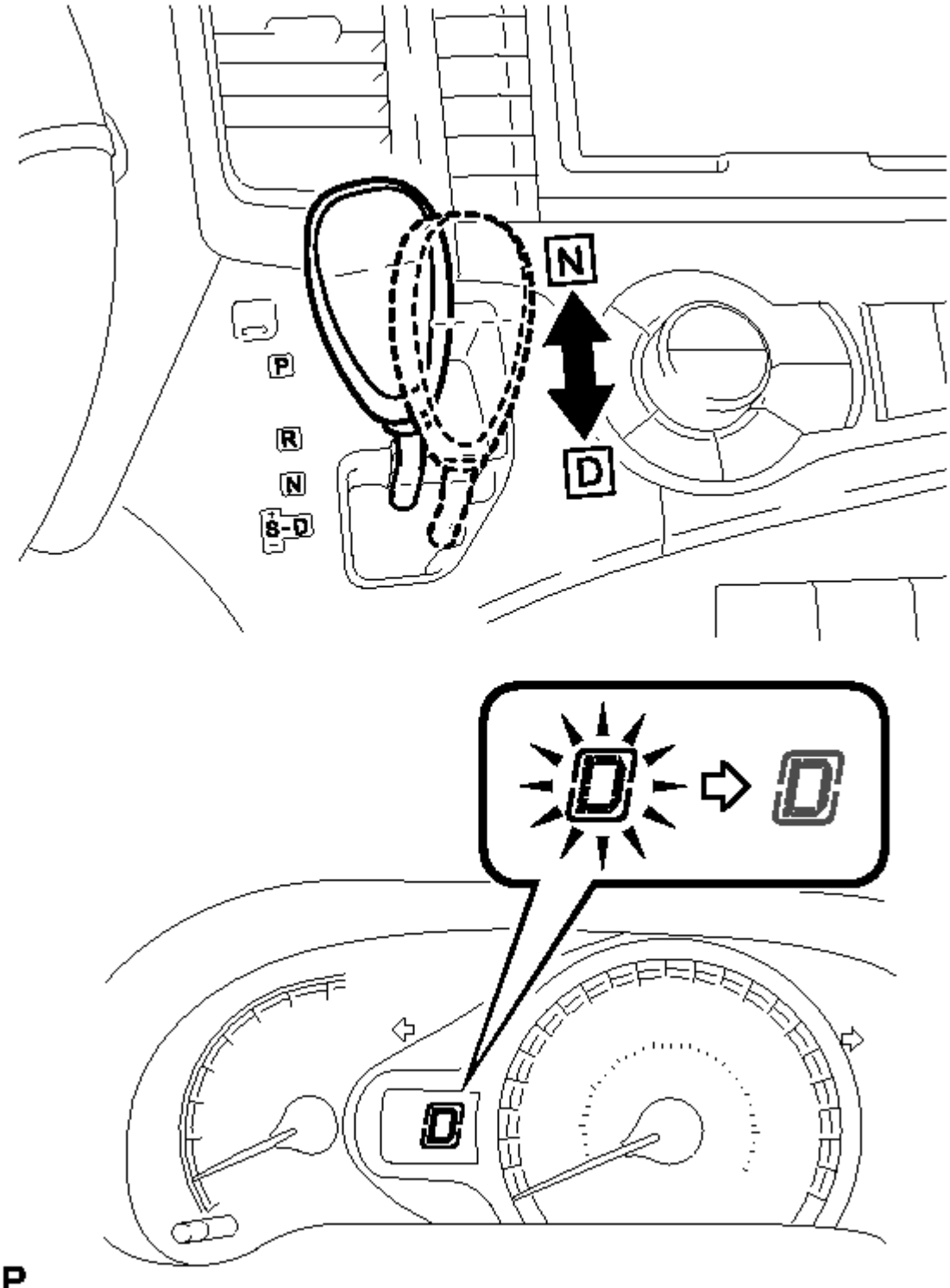


Fig. 10: Identifying D Shift Indicator At Combination Meter While Shifting Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Do not pause for more than 1.5 seconds.**

HINT:

Performing this operation will cause the vehicle to enter the fluid temperature detection mode.

k. Check that the D shift indicator comes on for 2 seconds.

HINT:

- When the fluid temperature detection mode is activated, the D shift indicator on the combination meter comes on for 2 seconds.
- If the D shift indicator does not come on for 2 seconds, return to the step where terminal TC is first connected and perform the procedure again.

l. Move the shift lever from N to P.

m. Release the brake pedal.

n. Select the Active Test menu:

Connect the TC and TE1 / OFF

NOTE: **Be sure that terminals TC and TE1 are not connected. If the terminals are connected, the fluid level cannot be precisely adjusted due to fluctuations in engine speed.**

HINT:

- Disconnecting terminals TC and TE1 activates the engine idle speed control mode.
- In the engine idle speed control mode, engine idle speed control starts when the fluid temperature becomes 35°C (95°F) or more and the engine speed is maintained at approximately 800 RPM.
- Even after terminals TC and TE1 are disconnected, the fluid temperature detection mode is active until the ignition switch off.

o. Warm up the engine with the engine idling until the fluid temperature reaches the normal operating temperature (40 to 45°C [104 to 113°F]).

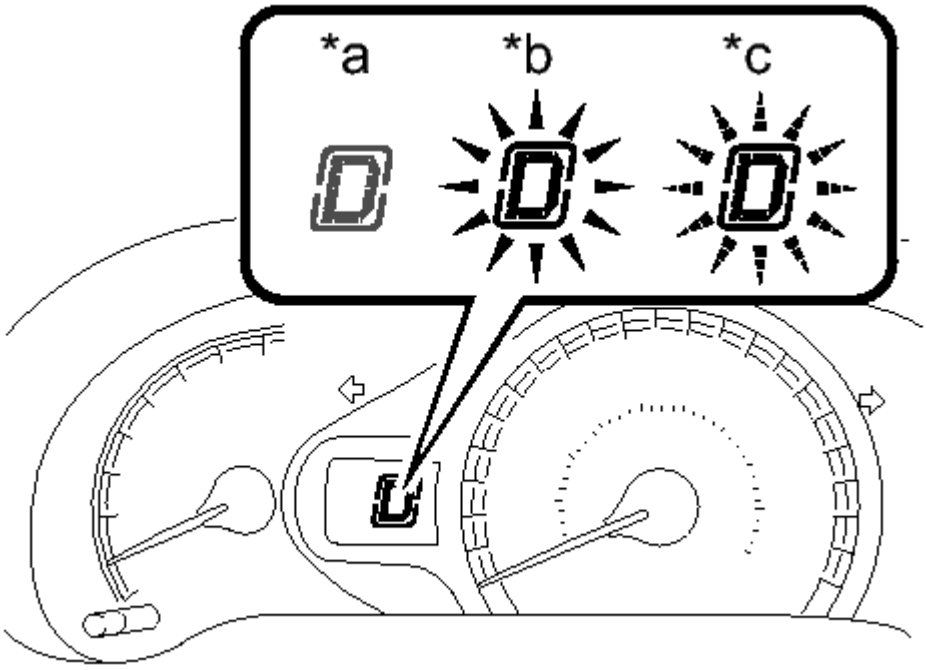


Fig. 11: Identifying Fluid Temperature Detection Mode
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn Off
*b	Turn On
*c	Blinking

Below Normal Operating Temperature	Normal Operating Temperature	Above Normal Operating Temperature
40°C or less (104°F or less)	40 to 45°C (104 to 113° F)	45°C or more (113°F or more)
Shift Indicator [D] Turn off	Shift Indicator [D] Turn on	Shift Indicator [D] Blinking

NOTE:

- **If the fluid temperature is within the normal operating temperature range, immediately proceed to 6.**
- **If the fluid temperature is 45°C (113°F) or more, stop the engine and wait until the fluid temperature drops to 40°C (104°F) or less. Then perform the "Adjust Fluid Temperature" procedure**

again from the beginning.

HINT:

In the fluid temperature detection mode, the D shift indicator comes on, goes off, or blinks depending on the fluid temperature.

5. **ADJUST FLUID TEMPERATURE (for not Using the Techstream)**
   a. Using SST, connect terminals 13 (TC) and 4 (CG) of the DLC3 with the ignition switch off.

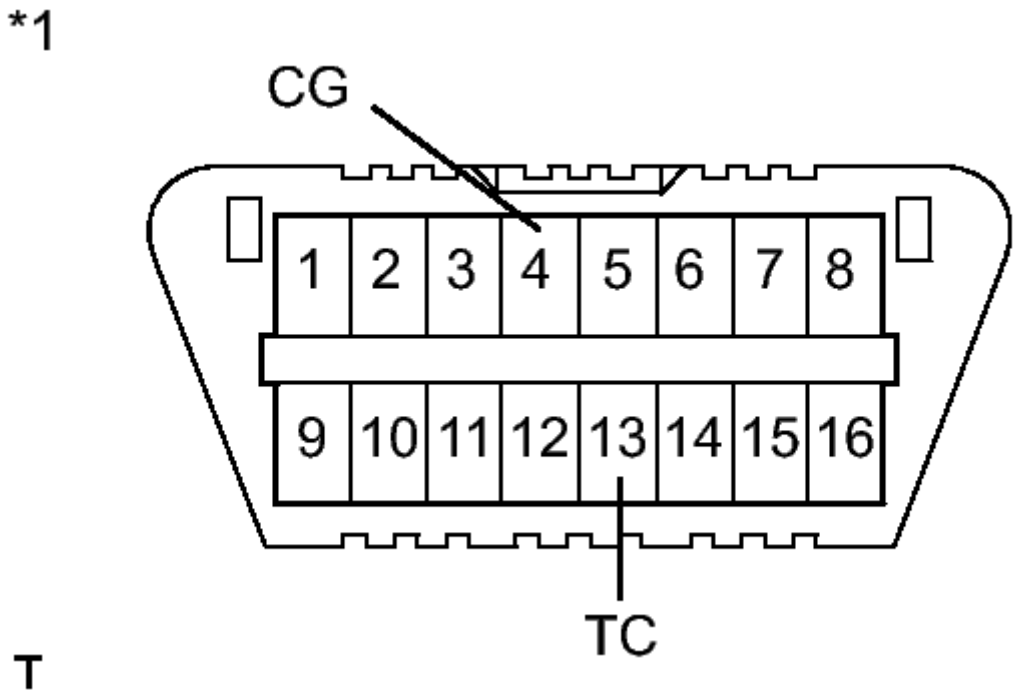


Fig. 12: DLC3 Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	DLC3

- **SST: 09843-18040**

   b. Depress and hold the brake pedal.
   c. Start the engine.

NOTE: **Check that electrical systems such as the air conditioning system, audio system and lighting system are off.**

HINT:

The indicator lights on the combination meter blink to indicate the DTC output when terminals TC

and CG are connected.

d. Slowly move the shift lever from P to D, then back to P.

HINT:

Slowly move the shift lever to circulate the fluid through each part of the automatic transaxle.

e. While observing the D shift indicator on the combination meter, move the shift lever back and forth between N and D at an interval of 1.5 seconds for 6 seconds or more.

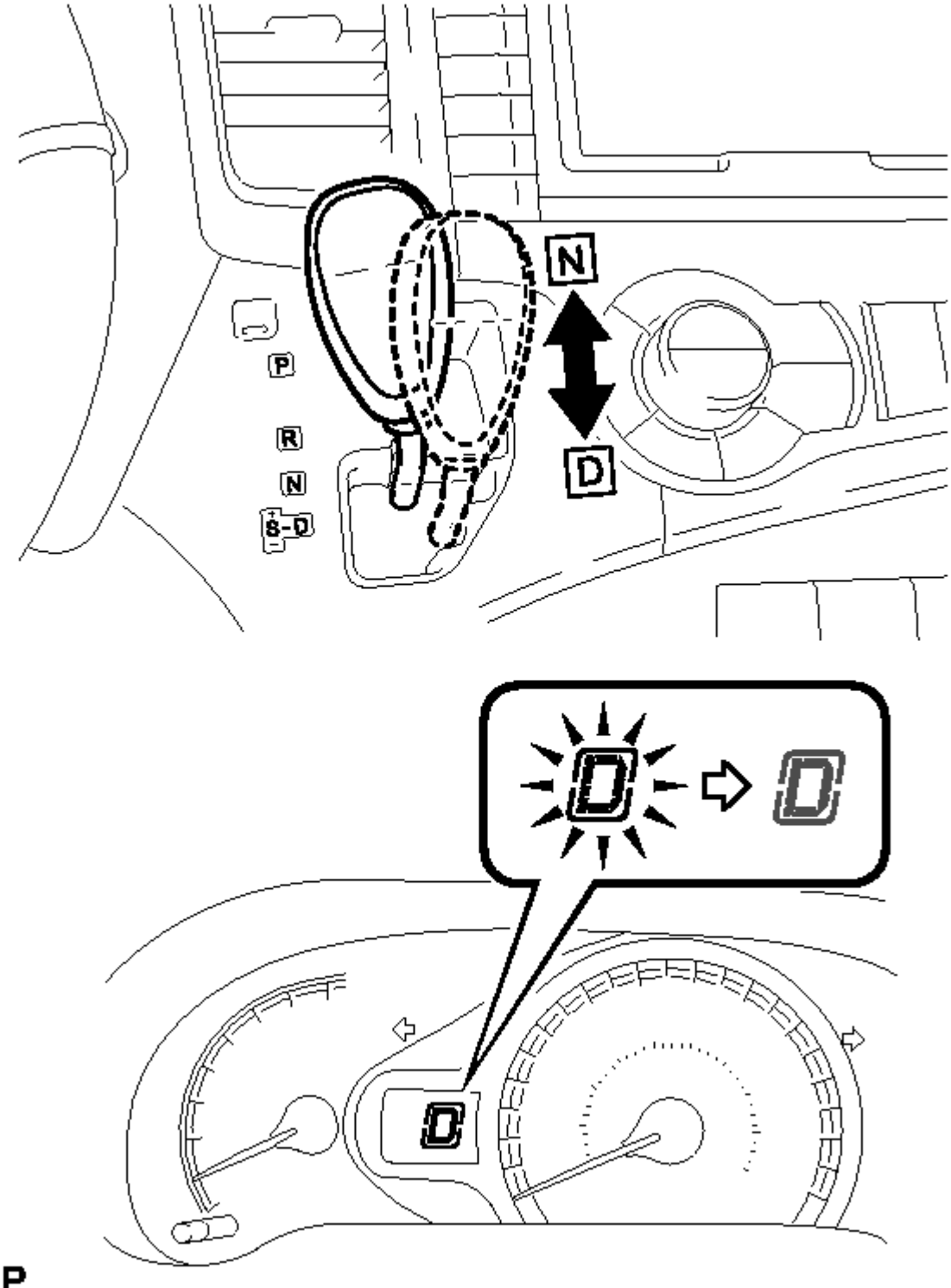


Fig. 13: Identifying D Shift Indicator At Combination Meter While Shifting Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not pause for more than 1.5 seconds.

HINT:

Performing this operation will cause the vehicle to enter the fluid temperature detection mode.

f. Check that the D shift indicator comes on for 2 seconds.

HINT:

- When the fluid temperature detection mode is activated, the D shift indicator on the combination meter comes on for 2 seconds.
- If the D shift indicator does not come on for 2 seconds, return to the step where terminal TC is first connected and perform the procedure again.

g. Move the shift lever from N to P.

h. Release the brake pedal.

i. Remove SST from terminals 13 (TC) and 4 (CG).

NOTE: Be sure that terminals TC and CG are not connected. If the terminals are connected, the fluid level cannot be precisely adjusted due to fluctuations in engine speed.

HINT:

- Disconnecting terminals TC and CG activates the engine idle control mode.
- In the engine idle speed control mode, engine idle speed control starts when the fluid temperature becomes 35°C (95°F) or more and the engine speed is maintained at approximately 800 RPM.
- Even after terminals TC and CG are disconnected, the fluid temperature detection mode is active until the ignition switch is turned off.

j. Allow the engine to idle until the D shift indicator comes on again.

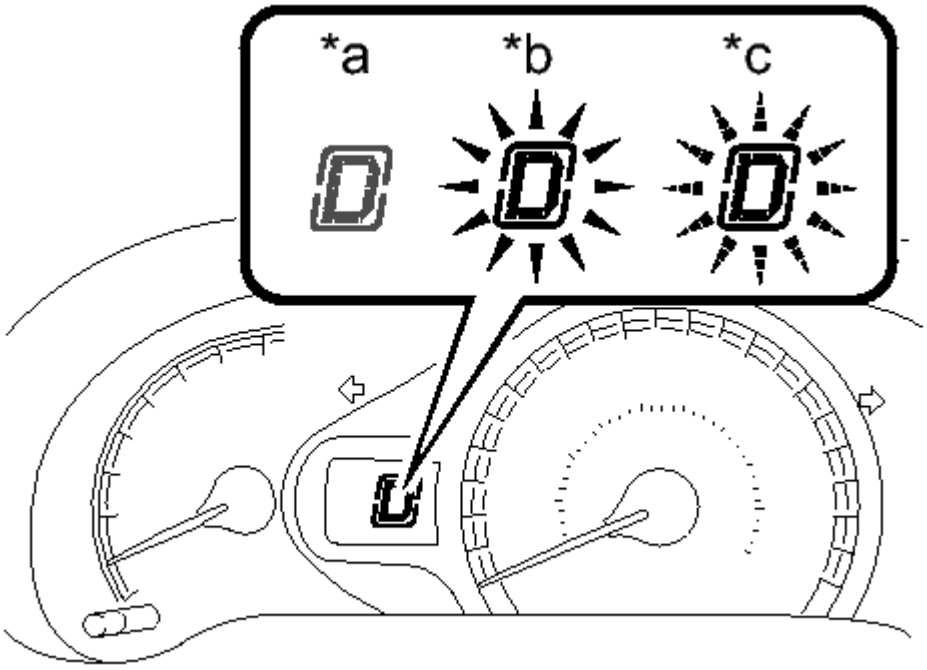


Fig. 14: Identifying Fluid Temperature Detection Mode
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn Off
*b	Turn On
*c	Blinking

Below Normal Operating Temperature	Normal Operating Temperature	Above Normal Operating Temperature
40°C or less (104°F or less)	40 to 45°C (104 to 113° F)	45°C or more (113°F or more)
Shift Indicator [D] Turn off	Shift Indicator [D] Turn on	Shift Indicator [D] Blinking

NOTE:

- **If the D shift indicator is on, immediately proceed to 6.**
- **If the D shift indicator blinks, stop the engine and wait until the fluid temperature drops to 40°C (104°F) or less (the indicator goes off). Then perform the "Adjust Fluid Temperature" procedure again from the beginning.**

HINT:

- In the fluid temperature detection mode, the D shift indicator comes on, goes off, or blinks depending on the fluid temperature.
- Fluid filling procedure should be performed when the D shift indicator is on (the fluid temperature is within the normal operating temperature range).

6. **ADJUST FLUID LEVEL**

WARNING: Use caution while the engine is idling and the radiator fan is operating.

a. Lift the vehicle.

NOTE: Set the vehicle on a lift so that the vehicle is kept level when it is lifted up.

b. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket.

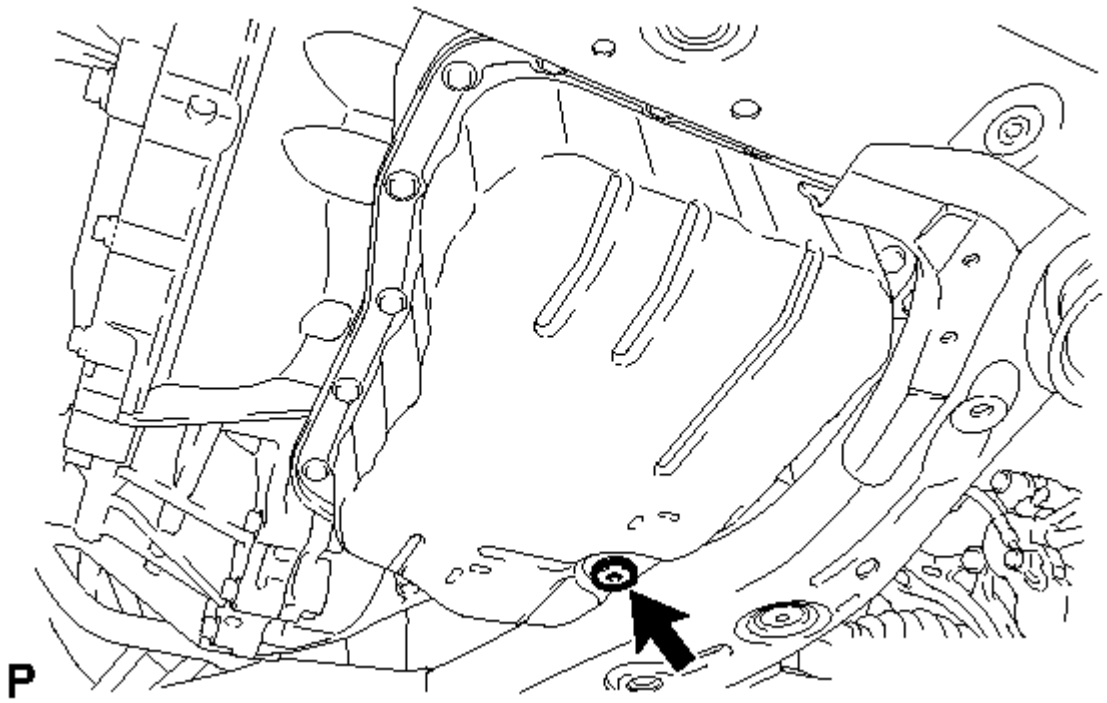


Fig. 15: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

WARNING: Be careful as the fluid coming out of the overflow plug hole is hot.

c. Check the amount of fluid that comes out of the overflow plug hole.

NOTE: **If only a small amount of fluid (approximately 1 cc) comes out of the overflow plug hole, then only fluid remaining in the No. 1 transmission oil filler tube has come out. This condition is not considered as overflow, so it is necessary to add fluid.**

d. If the fluid overflows.
    1. Wait until the fluid flow slows and only drips come out.

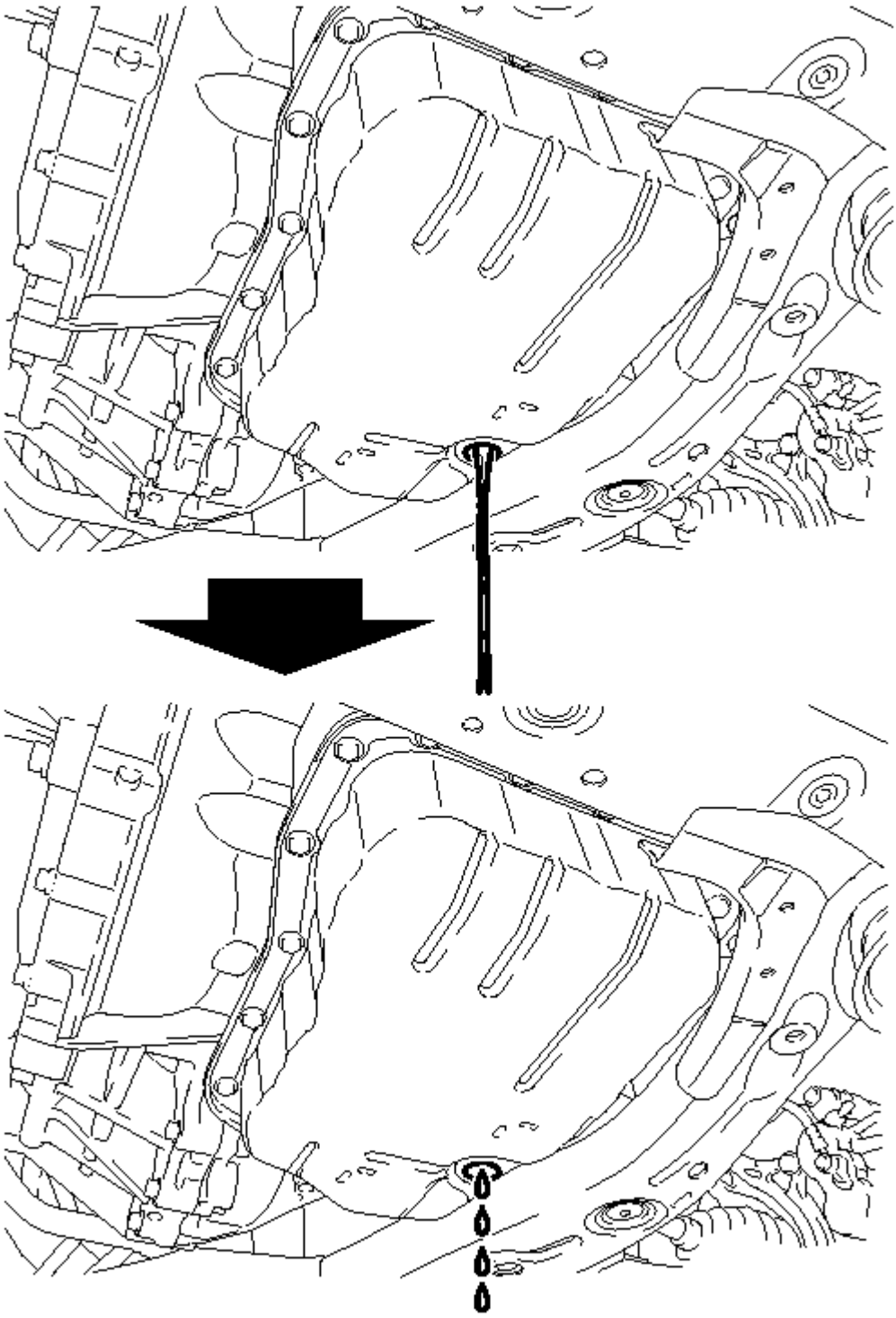


Fig. 16: Identifying Fluid Flow & Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Remove the refill plug and gasket.

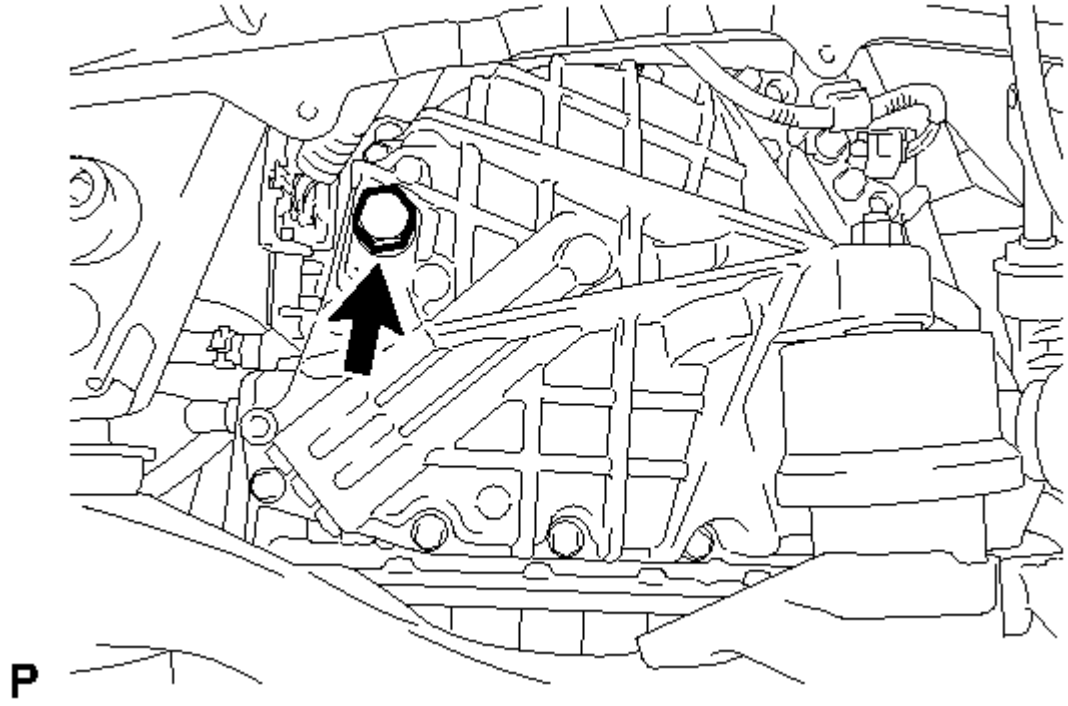


Fig. 17: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. If the fluid does not overflow.
    1. Remove the refill plug and gasket.

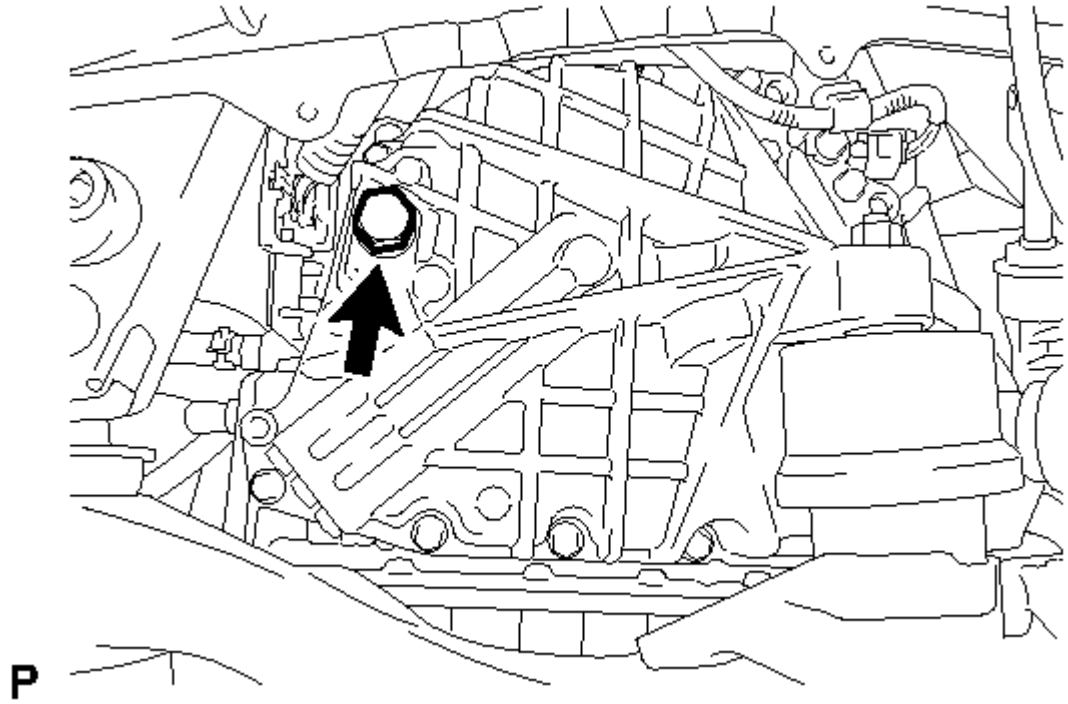


Fig. 18: Identifying Automatic Transaxle Refill Plug & Gasket

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

2. Add transaxle fluid through the refill hole until fluid comes out of the overflow plug hole.

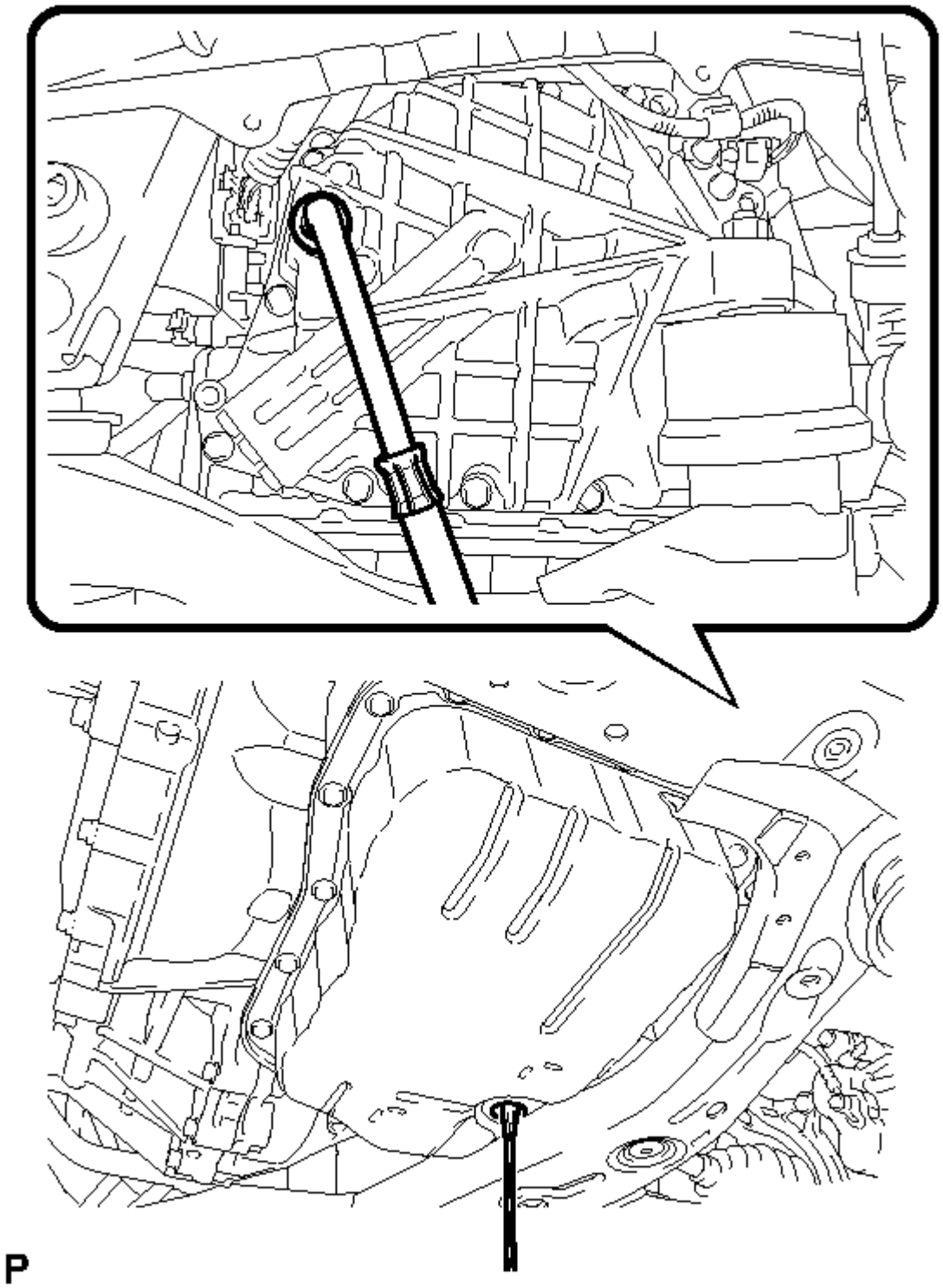


Fig. 19: Identifying Transaxle Fluid Refill & Fluid Trickle At Overflow Plug Hole

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

3. Wait until the fluid flow slows and only drips come out.

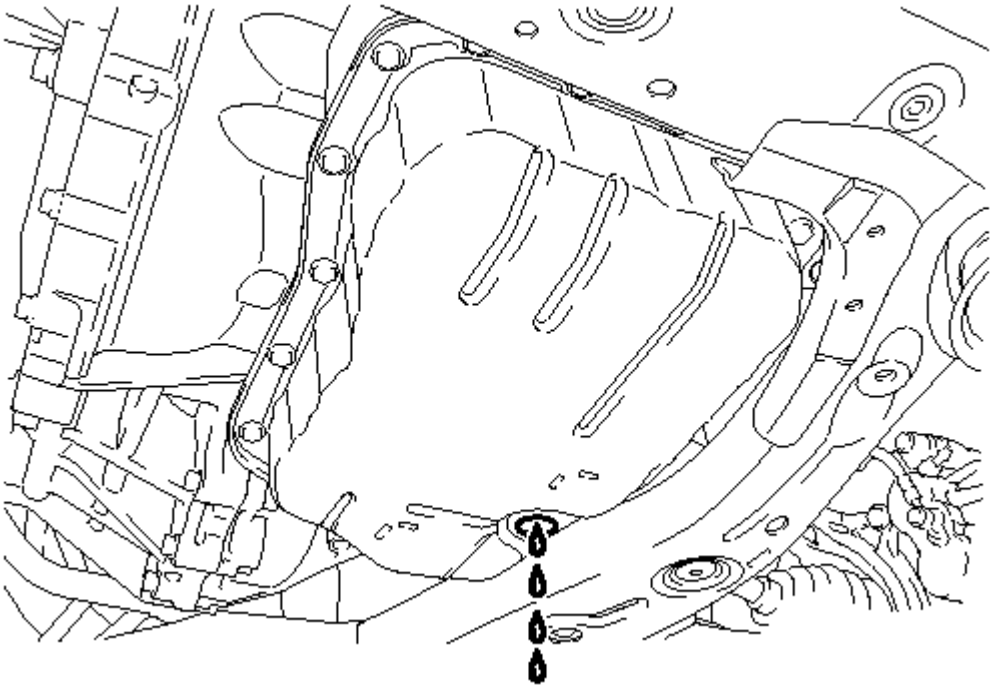


Fig. 20: Identifying Transaxle Fluid Drips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Install the overflow plug with a new gasket.

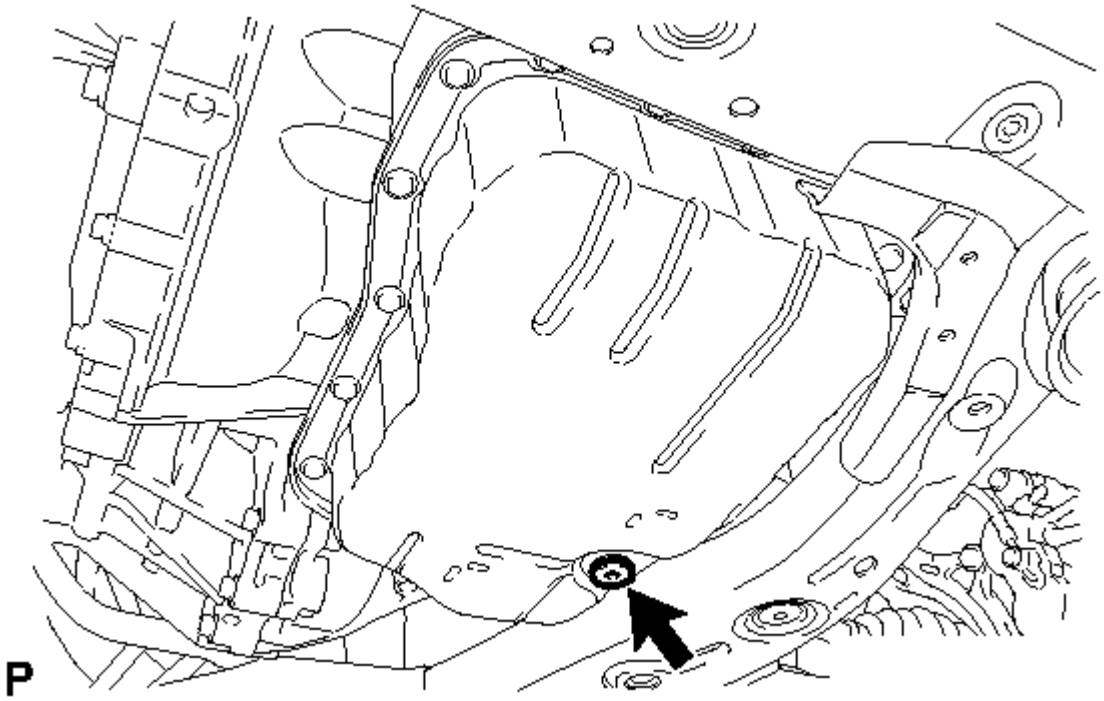


Fig. 21: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

g. Install the refill plug with a new gasket.

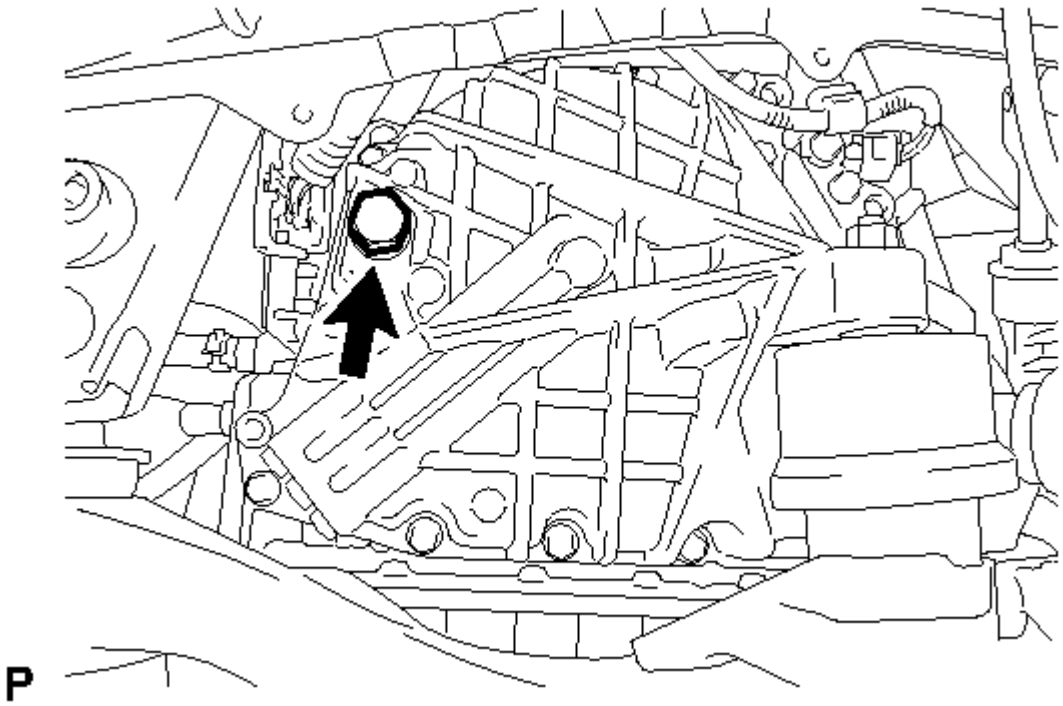


Fig. 22: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

h. Lower the vehicle.
i. Turn the ignition switch off.

HINT:

Turning the ignition switch off exits the fluid temperature detection mode.

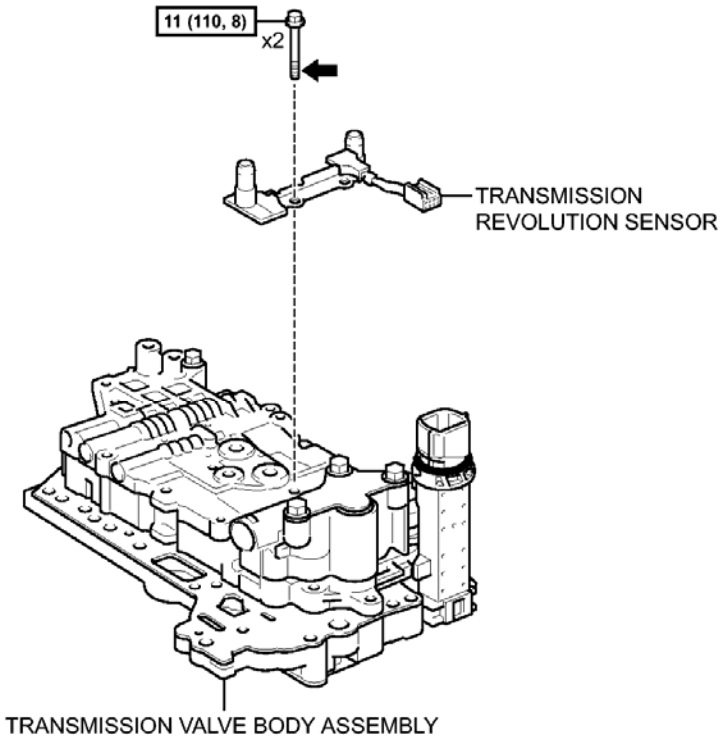
j. Remove the Techstream from the DLC3 (when using the Techstream).

7. **AFTER FILLING TRANSAXLE FLUID**
   a. Lift the vehicle.
   b. Clean each part.
   c. Check for fluid leaks.
   d. Install the front fender apron seal LH with the 2 bolts and clip.
   e. Lower the vehicle.

SPEED SENSOR

COMPONENTS

ILLUSTRATION



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

ATF WS

Fig. 23: Speed Sensor Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TRANSMISSION REVOLUTION SENSOR**
   a. Disconnect the connector.
   b. Remove the 2 bolts and transmission revolution sensor from the transmission valve body.

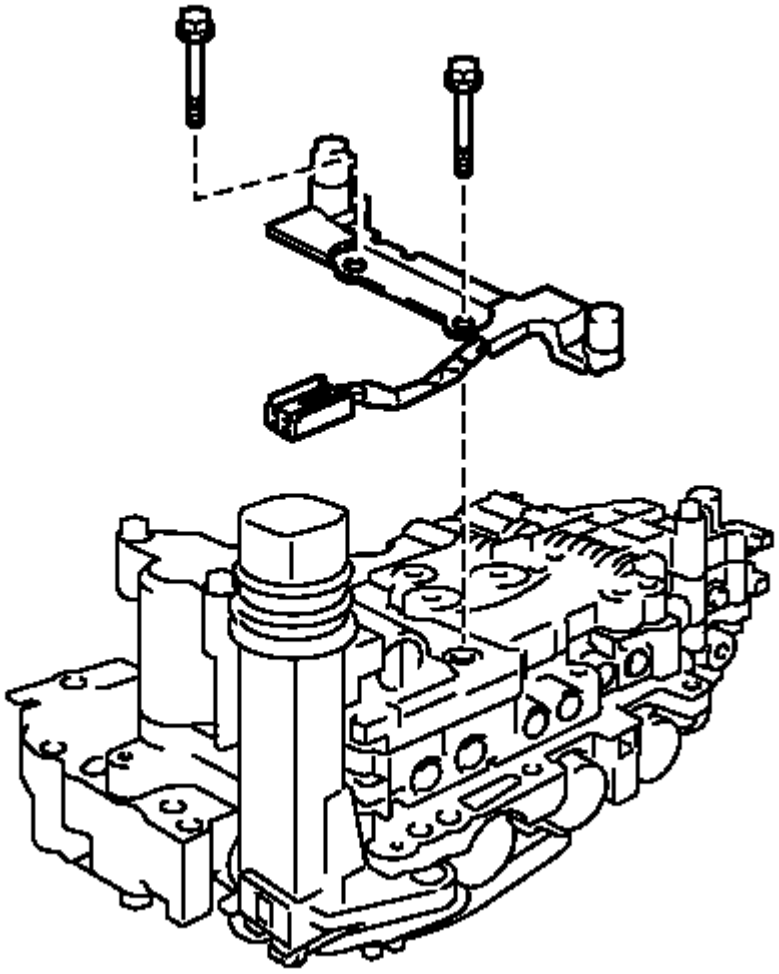


Fig. 24: Identifying Bolts And Speed Sensor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION REVOLUTION SENSOR**
   a. Coat the 2 bolts with ATF.
   b. Install the transmission revolution sensor onto the transmission valve body with the 2 bolts.

      Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

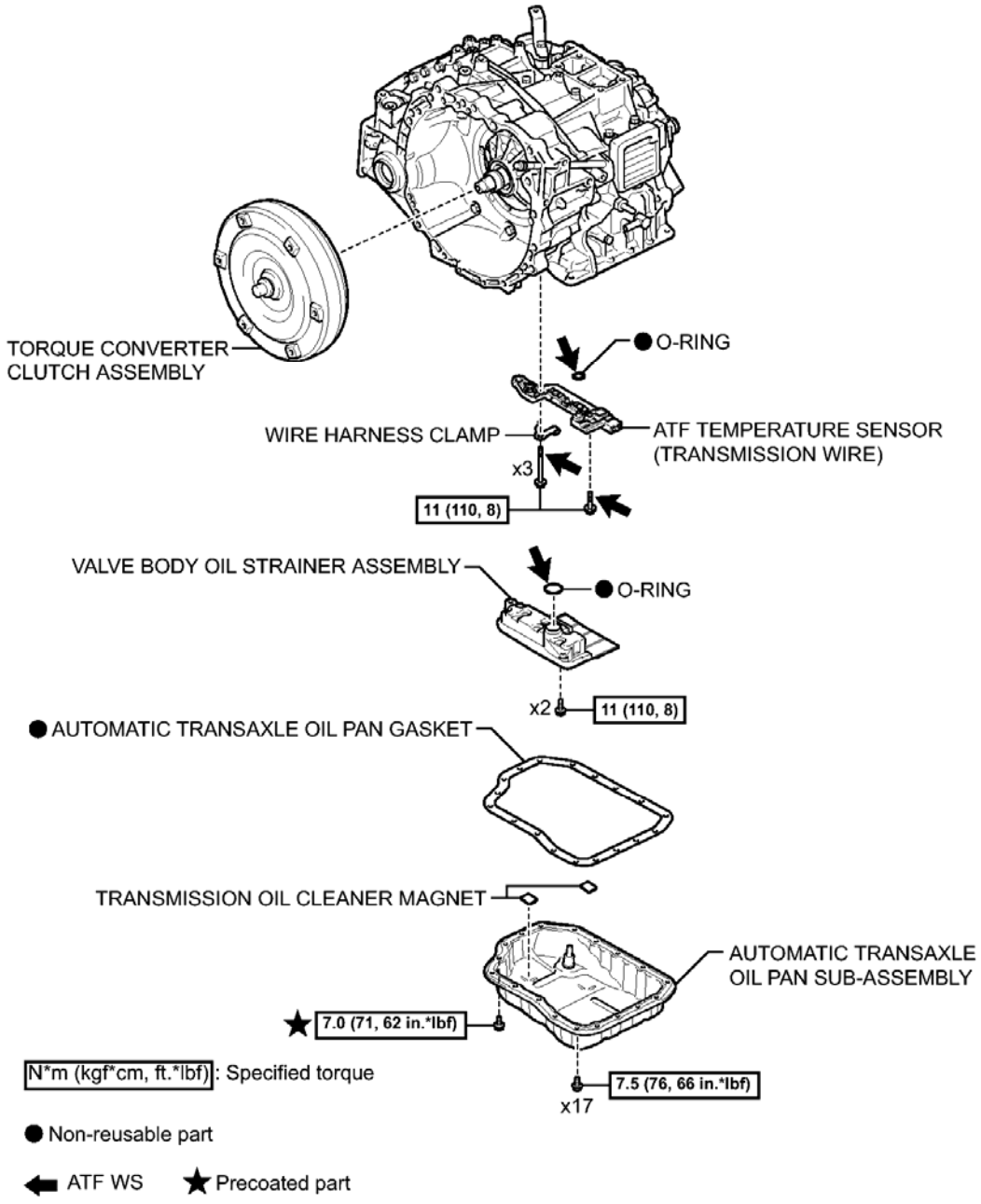
   c. Connect the connector.
2. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

Refer to **INSTALLATION**

ATF TEMPERATURE SENSOR

COMPONENTS

ILLUSTRATION



P

Fig. 25: ATF Temperature Sensor Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY** See step 8
3. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY** See step 3
4. **REMOVE AUTOMATIC TRANSAXLE OIL PAN GASKET** See step 4
5. **REMOVE TRANSMISSION OIL CLEANER MAGNET** See step 5
6. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY** See step 6
7. **REMOVE ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Disconnect the connector.

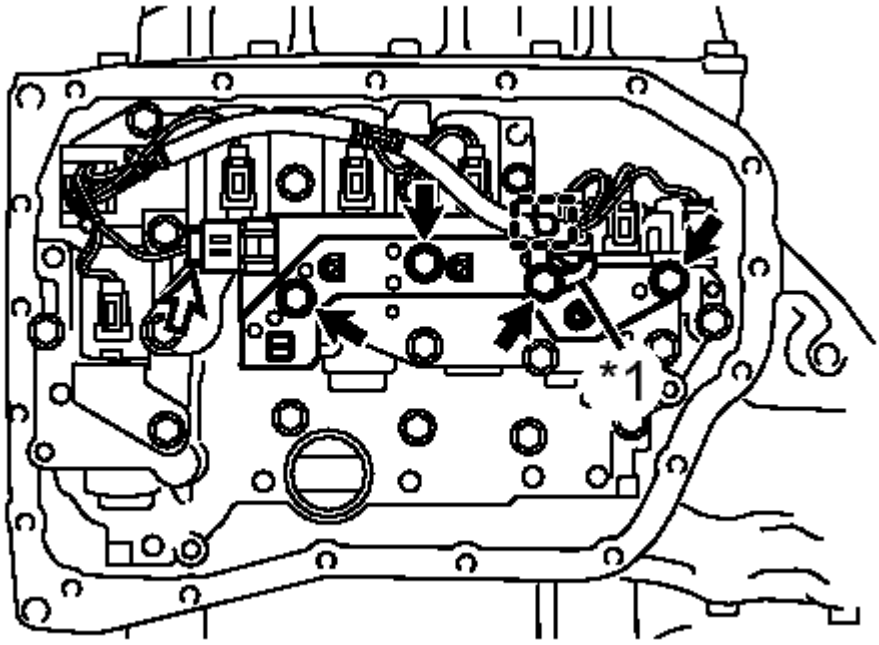
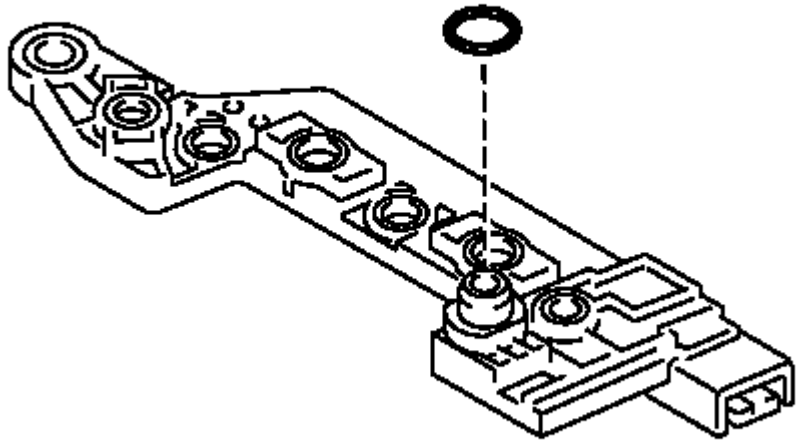


Fig. 26: Identifying ATF Temperature Sensor, Wire Harness Clamp & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

b. Disengage the clamp and disconnect the transmission wire.
c. Remove the 4 bolts, wire harness clamp and ATF temperature sensor from the transmission valve body.
d. Remove the O-ring from the ATF temperature sensor.



N

Fig. 27: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Measure the resistance according to the value(s) in the table below.

*a

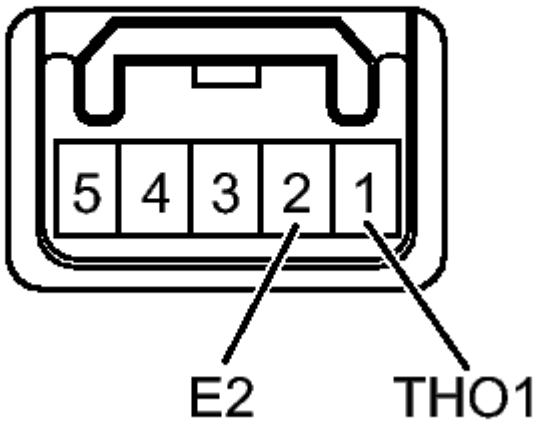


Fig. 28: ATF Temperature Sensor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (ATF Temperature Sensor)

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (THO1) - 2 (E2)	10°C (50° F)	5 to 8 kohms
	25°C (77° F)	2.5 to 4.5 kohms
	110°C (230°F)	0.22 to 0.28 kohms

If the result is not as specified, replace the ATF temperature sensor.

INSTALLATION

INSTALLATION

1. **INSTALL ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Coat a new O-ring with ATF and install it onto the ATF temperature sensor.
   b. Coat the 4 bolts with ATF.
   c. Install the ATF temperature sensor onto the transmission valve body with the 4 bolts and wire harness clamp.

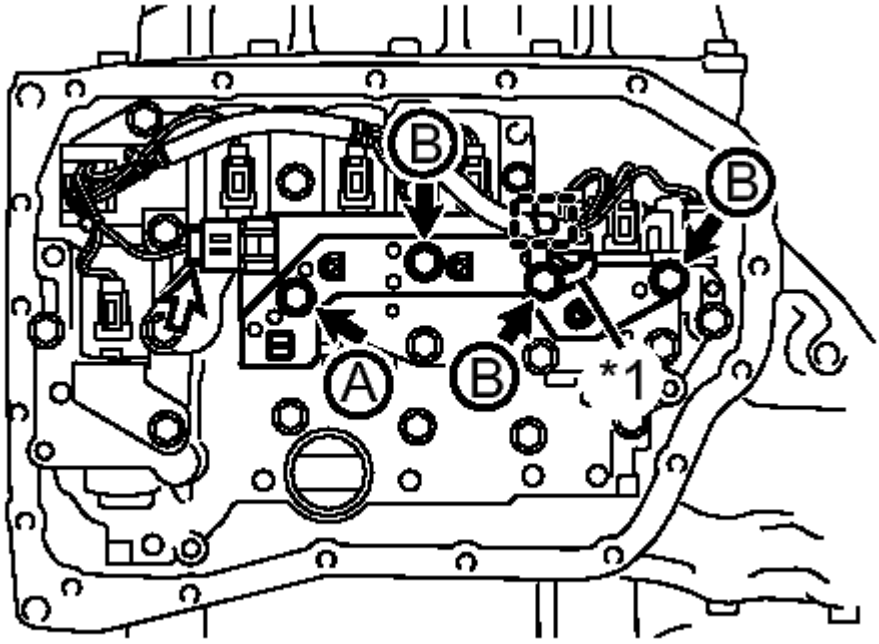


Fig. 29: Identifying ATF Temperature Sensor Connector, Bolts & Wire Harness Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

Bolt length

Bolt	Length
A	25 mm (0.984 in.)
B	85 mm (3.35

	in.)

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

d. Engage the clamp and connect the transmission wire.
e. Connect the connector.

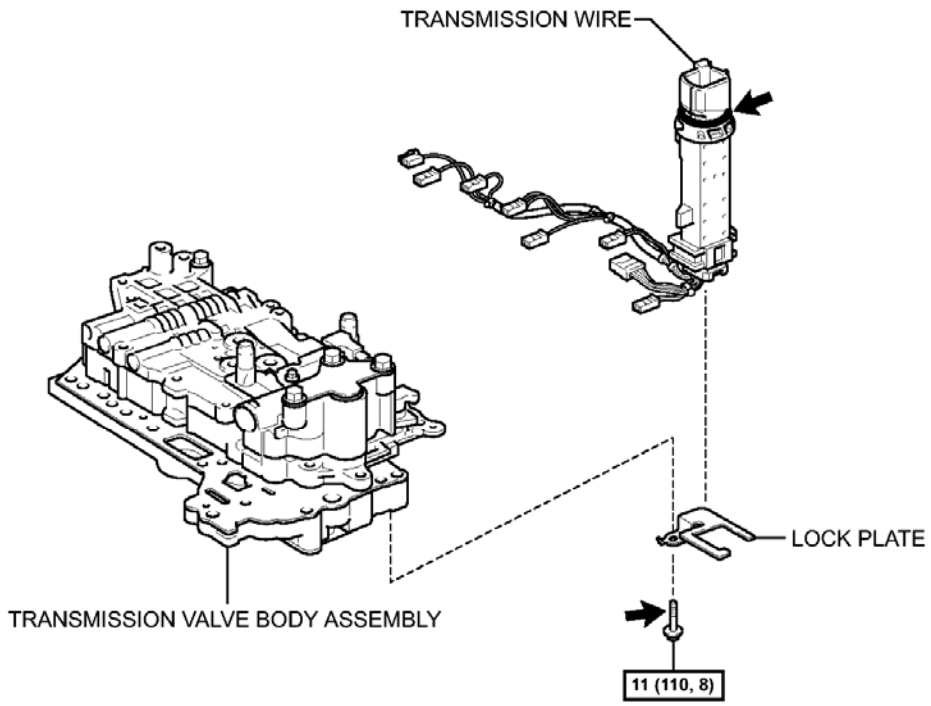
2. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY** See step 4
3. **INSTALL TRANSMISSION OIL CLEANER MAGNET** See step 5
4. **INSTALL AUTOMATIC TRANSAXLE OIL PAN GASKET** See step 6
5. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY** See step 7
6. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY** See step 10
7. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

Refer to **INSTALLATION**

TRANSMISSION WIRE

COMPONENTS

ILLUSTRATION



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

ATF WS

Fig. 30: Transmission Wire Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **REMOVAL**

2. **REMOVE TRANSMISSION WIRE**
   a. Disconnect the 9 connectors.

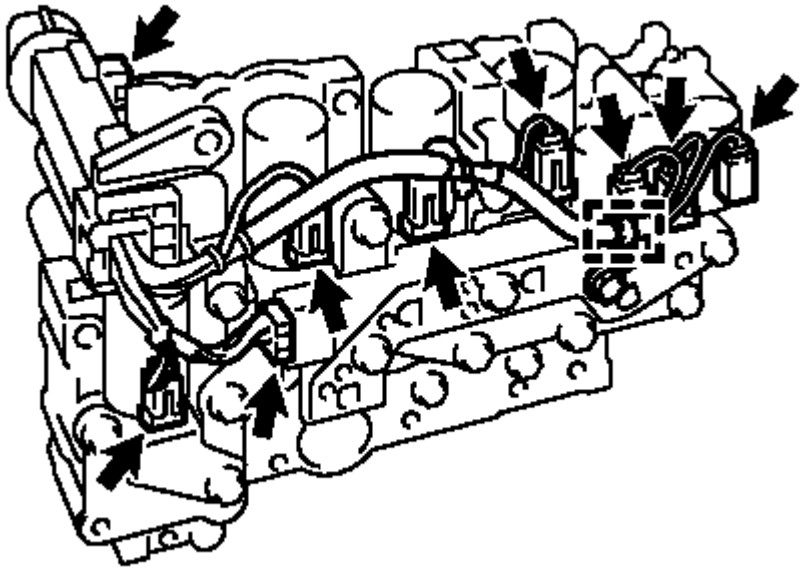
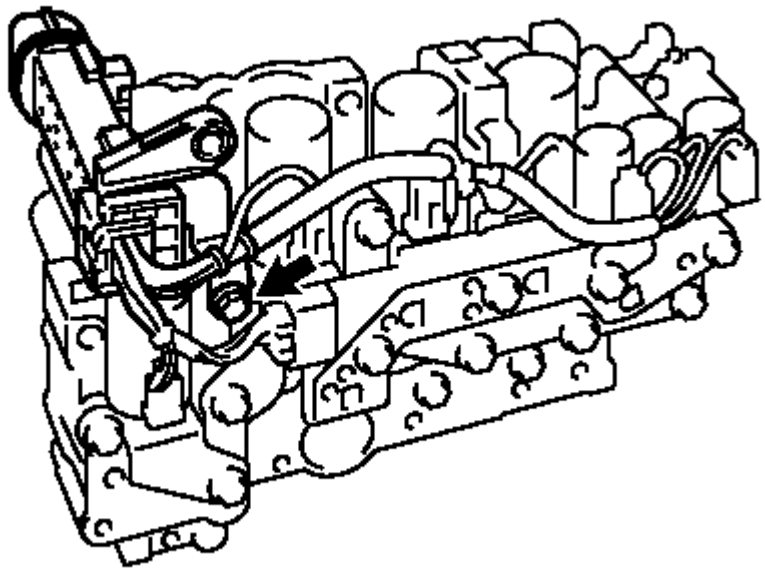


Fig. 31: Identifying Transmission Wire Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disengage the clamp and disconnect the transmission wire.
c. Remove the bolt, lock plate and transmission wire from the transmission valve body.



N

Fig. 32: Identifying Transmission Wire Bolt

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

INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION WIRE**
   a. Coat the O-ring with ATF.

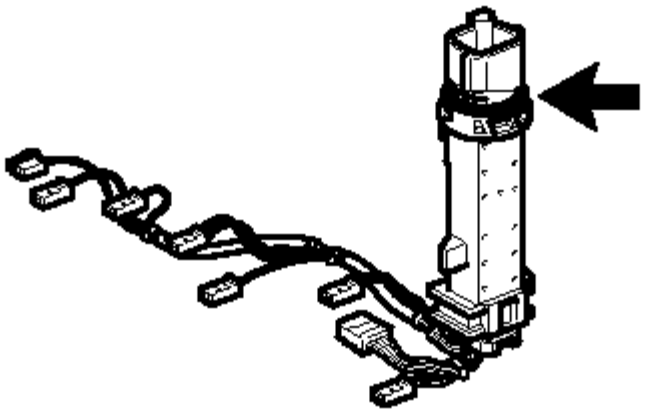


Fig. 33: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the bolt with ATF.
   c. Install the transmission wire onto the transmission valve body with the lock plate bolt and lock plate.

      Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

   d. Engage the clamp and connect the transmission wire.
   e. Connect the 9 connectors.
2. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

   Refer to **INSTALLATION**

VALVE BODY ASSEMBLY

COMPONENTS

ILLUSTRATION

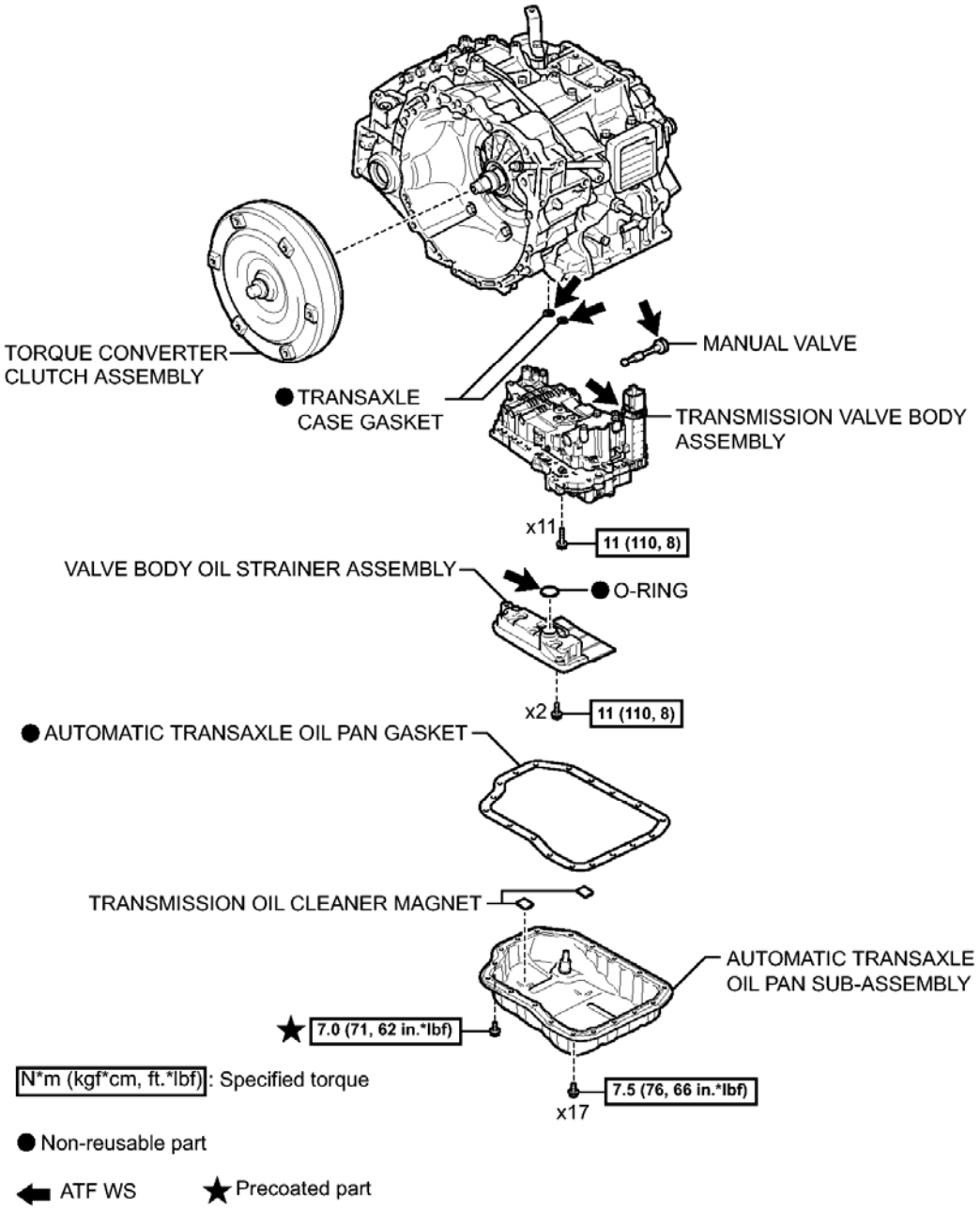
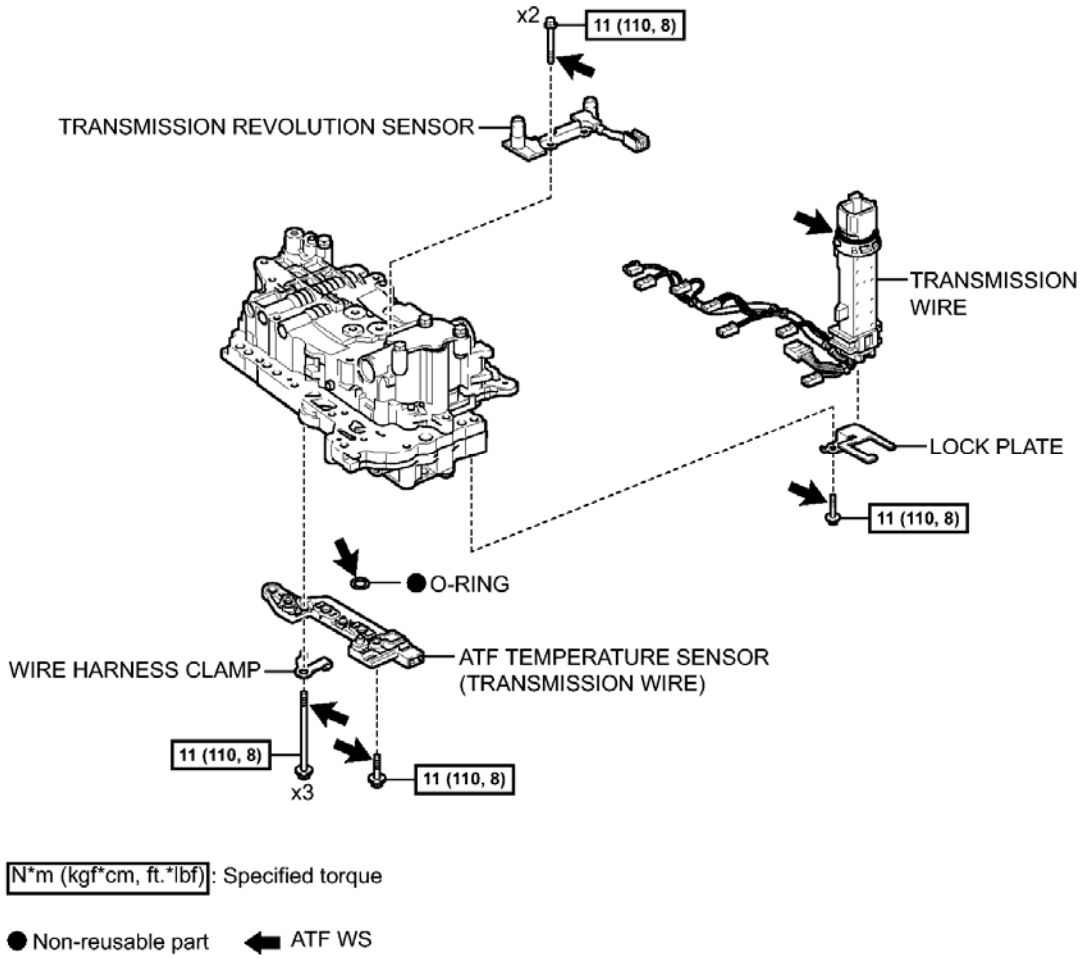


Fig. 34: Valve Body Assembly Replacement Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 35: Valve Body Assembly Replacement Components With Torque Specifications (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

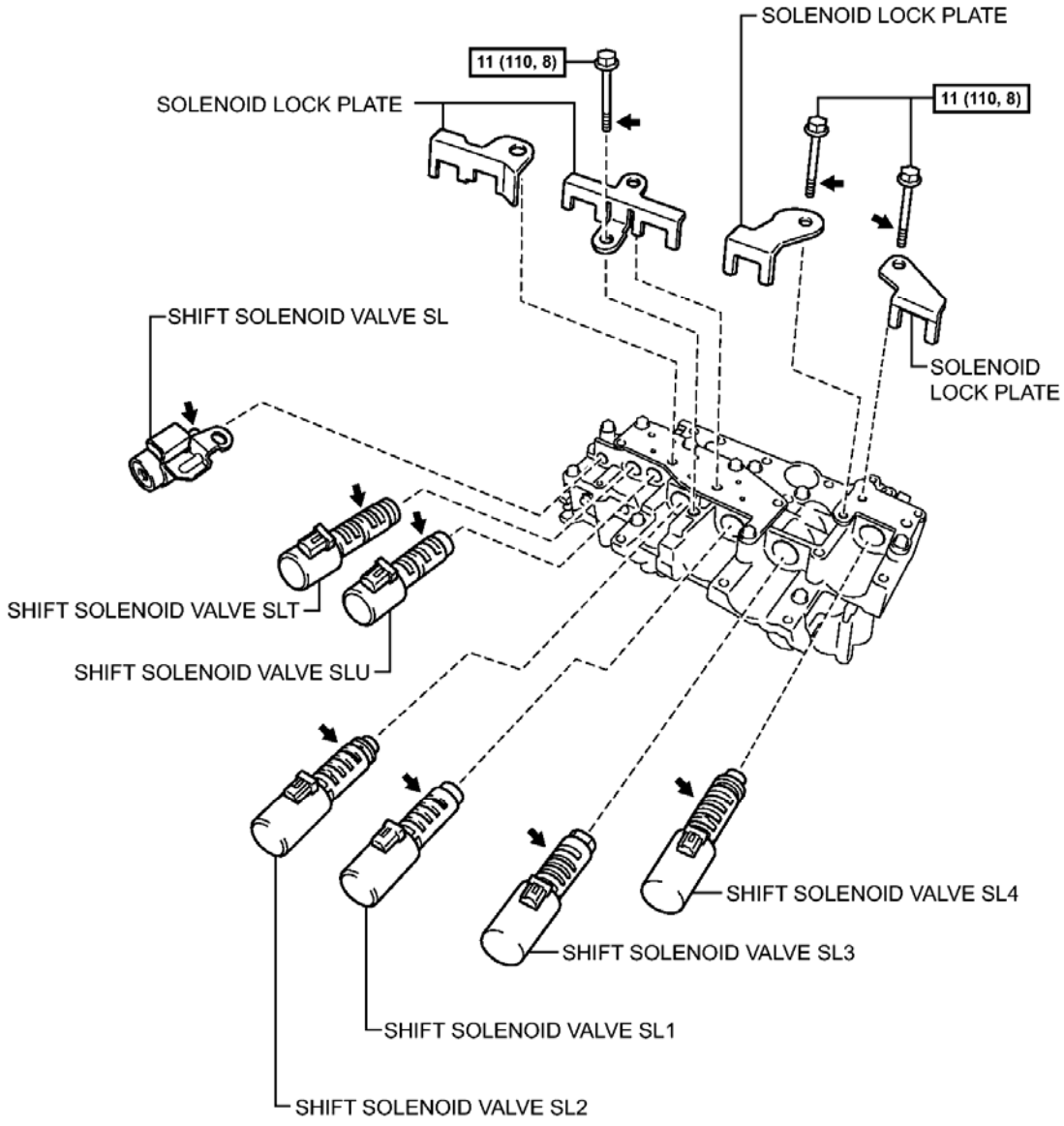


Fig. 36: Valve Body Assembly Replacement Components With Torque Specifications (3 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**
   a. Refer to **REMOVAL**
2. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY** See step 8
3. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
   a. Remove the 18 bolts and automatic transaxle oil pan from the automatic transaxle.

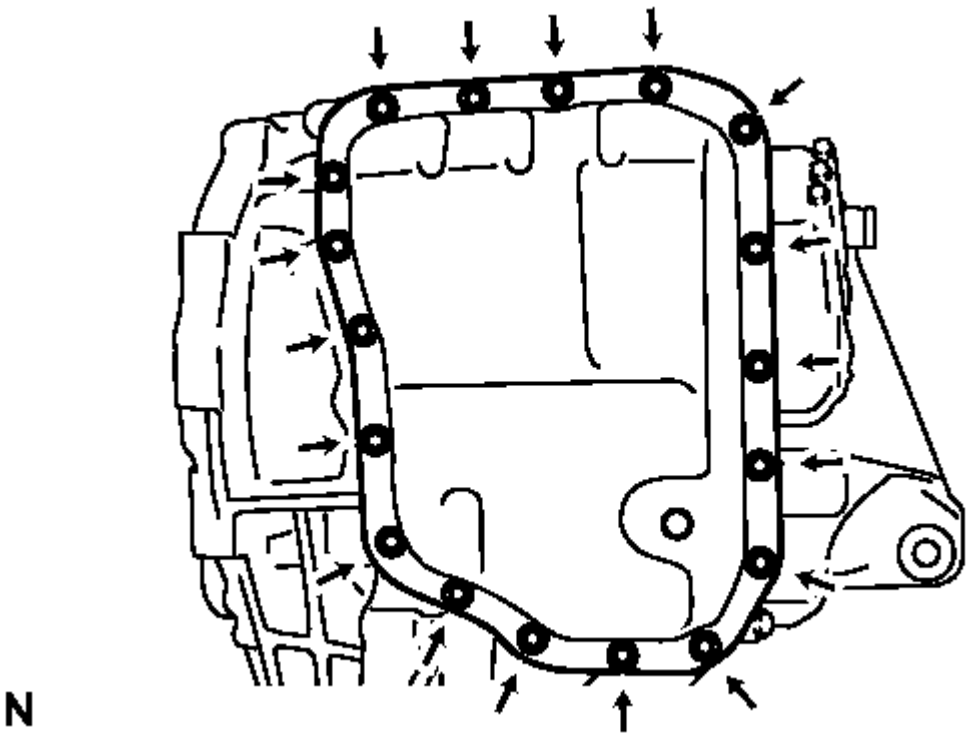


Fig. 37: Identifying Oil Pan Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Some fluid will remain in the automatic transaxle oil pan. Remove all the bolts, and carefully remove the automatic transaxle oil pan.

4. **REMOVE AUTOMATIC TRANSAXLE OIL PAN GASKET**
   a. Remove the automatic transaxle oil pan gasket.
5. **REMOVE TRANSMISSION OIL CLEANER MAGNET**
   a. Remove the 2 transmission oil cleaner magnets from the automatic transaxle oil pan.

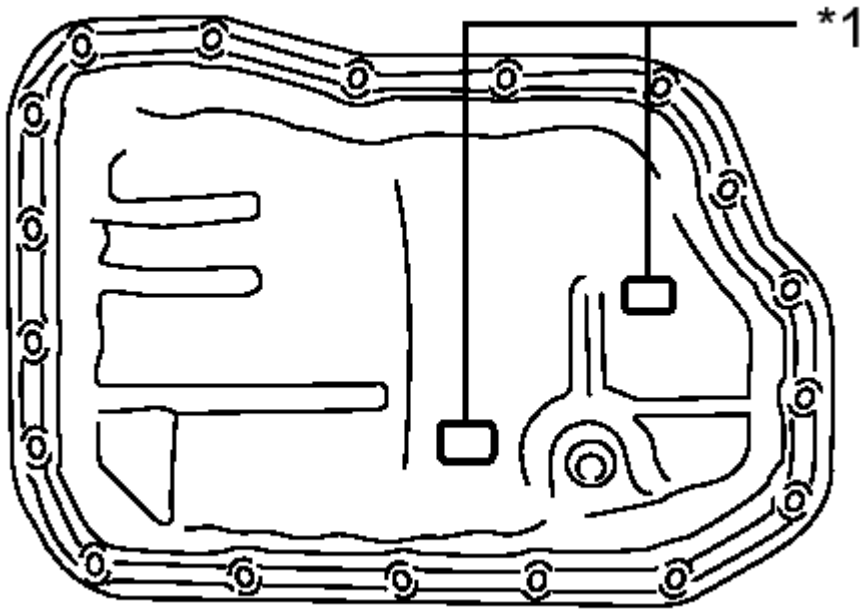


Fig. 38: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

b. Examine particles in the automatic transaxle oil pan.

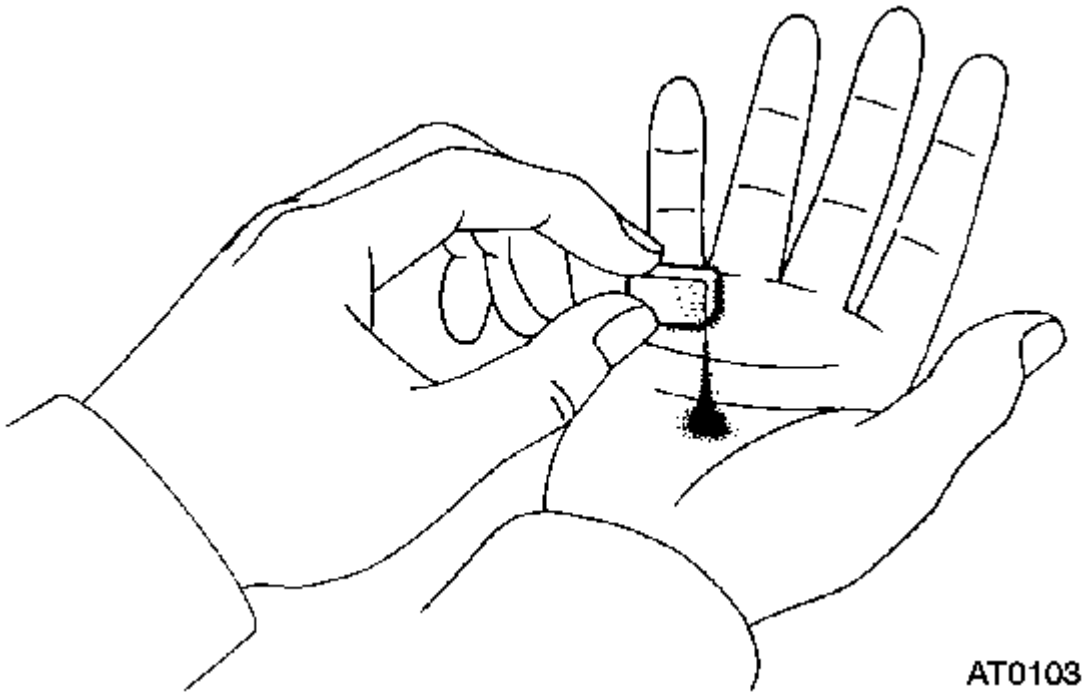


Fig. 39: Inspecting For Chips And Steel Particles In Pan
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Collect any steel chips with the removed magnets. Look carefully at the chips and particles in the automatic transaxle oil pan and on the transmission oil cleaner magnets to see the type of wear which might be found in the automatic transaxle.

   Result

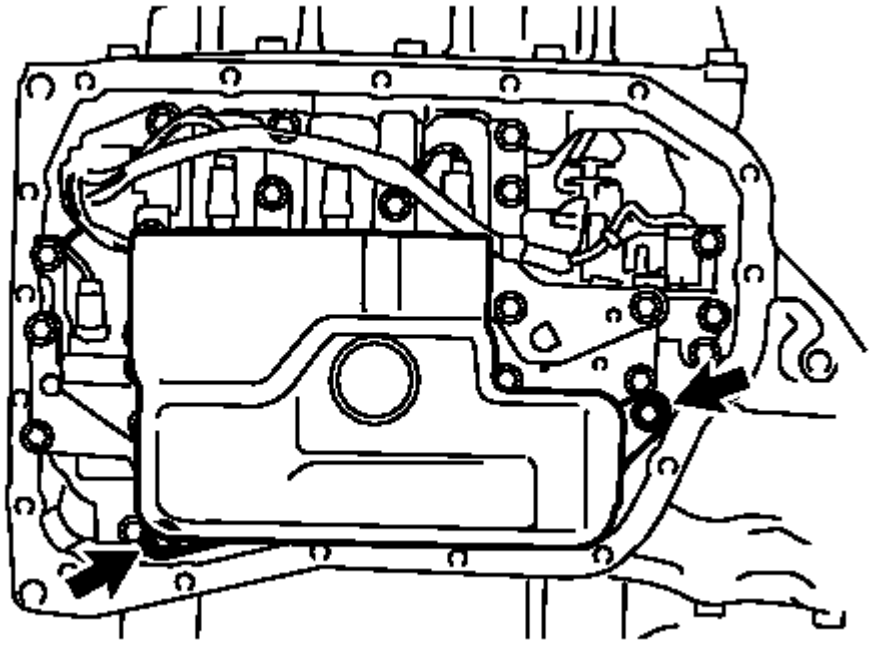
   Steel (magnetic)

   Bearing, gear and plate wear

   Brass (non-magnetic)

   Bushing wear

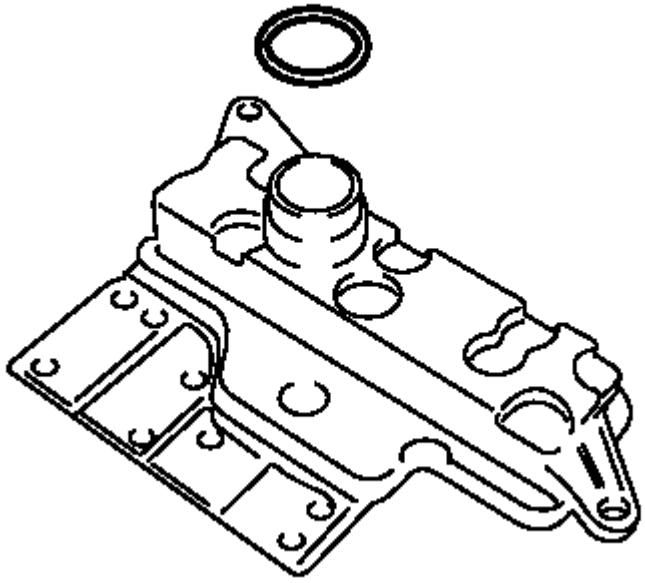
6. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY**
   a. Remove the 2 bolts and valve body oil strainer from the transmission valve body.



N

Fig. 40: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

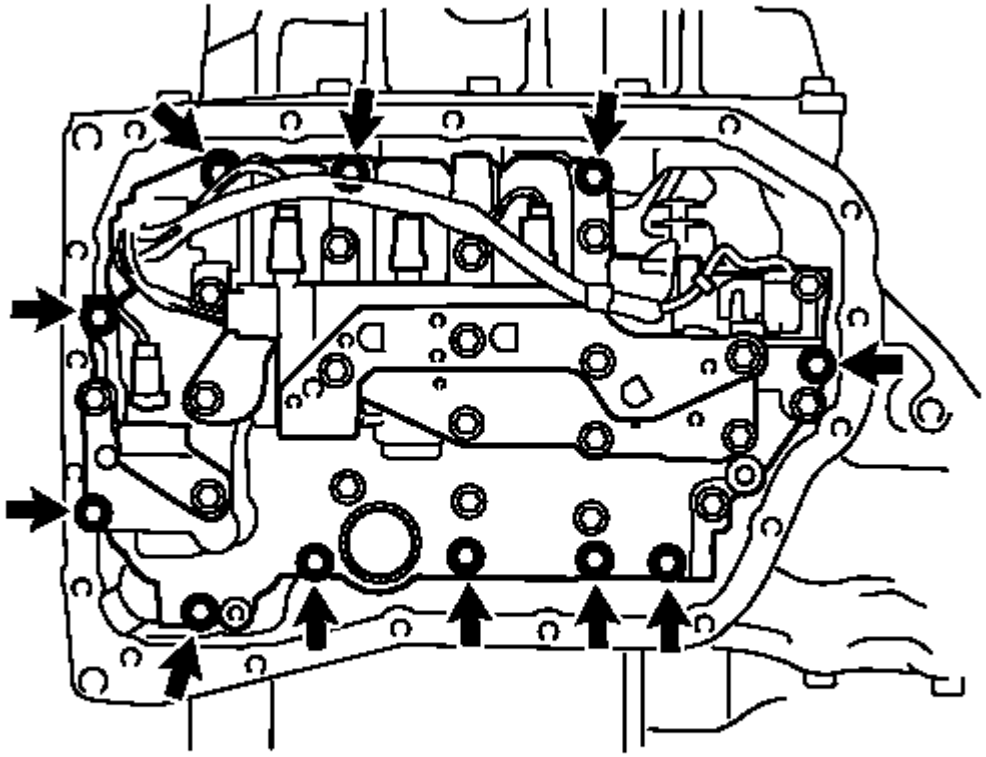
b. Remove the O-ring from the valve body oil strainer.



N

Fig. 41: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**
   a. Remove the 11 bolts and transmission valve body from the automatic transaxle.



N

Fig. 42: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When removing the transmission valve body, be careful not to allow the transmission revolution sensor and the transaxle case to interfere with each other.

8. **REMOVE TRANSAXLE CASE GASKET**
   a. Remove the 2 transaxle case gaskets from the transaxle case.

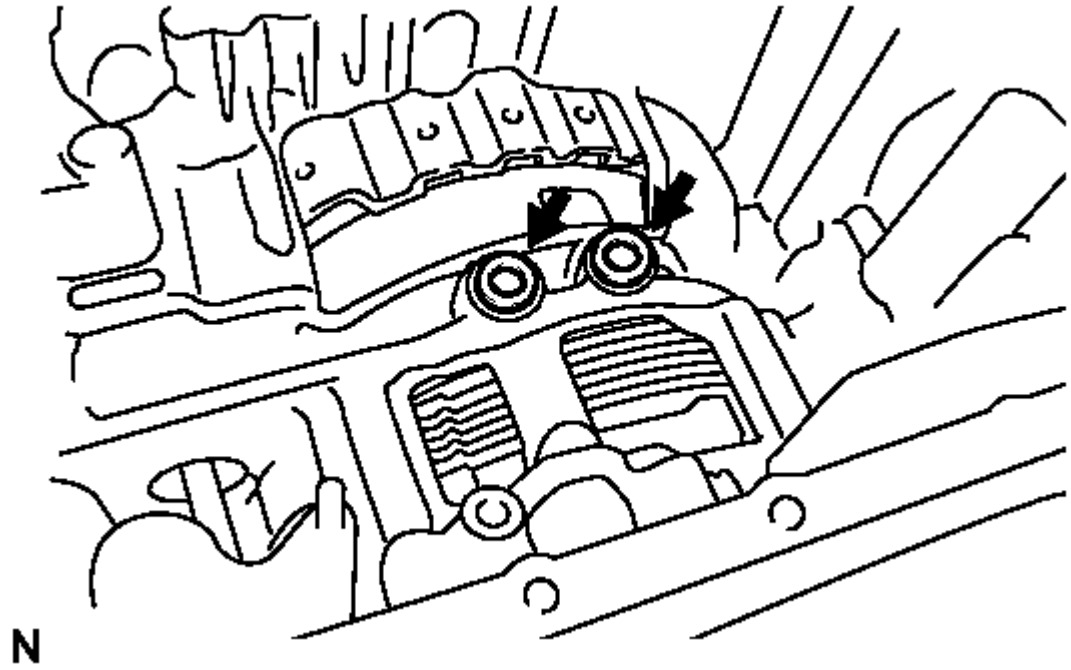


Fig. 43: Identifying Transaxle Case Gaskets
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE MANUAL VALVE**
   a. Remove the manual valve from the transmission valve body.

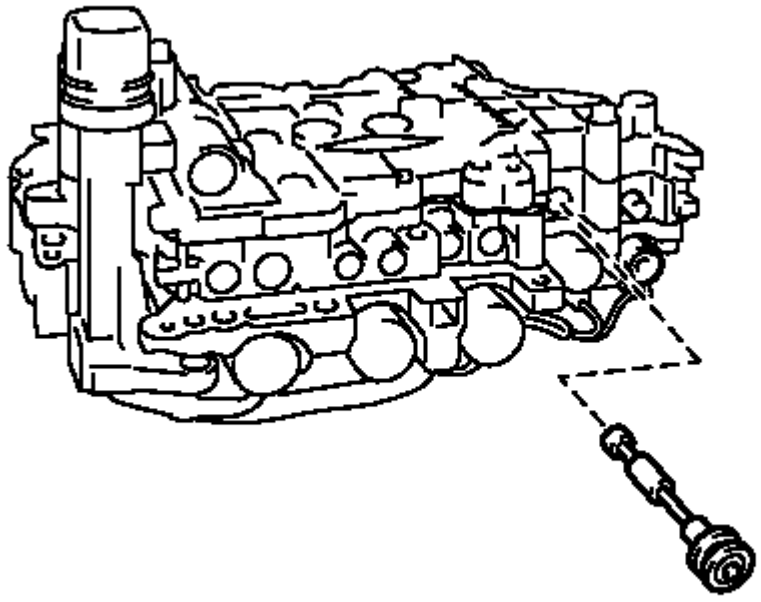


Fig. 44: Identifying Manual Valve

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

DISASSEMBLY

DISASSEMBLY

1. **REMOVE TRANSMISSION REVOLUTION SENSOR** . Refer to **REMOVAL - Step 2**
2. **REMOVE TRANSMISSION WIRE** . Refer to **REMOVAL - Step 2**
3. **REMOVE ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Remove the 4 bolts, wire harness clamp and ATF temperature sensor from the transmission valve body.

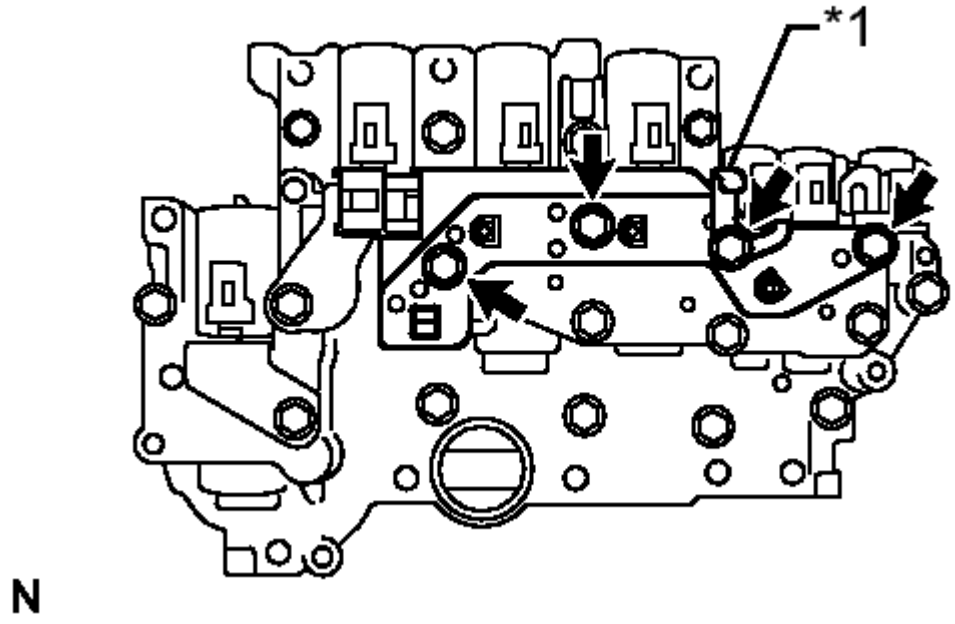
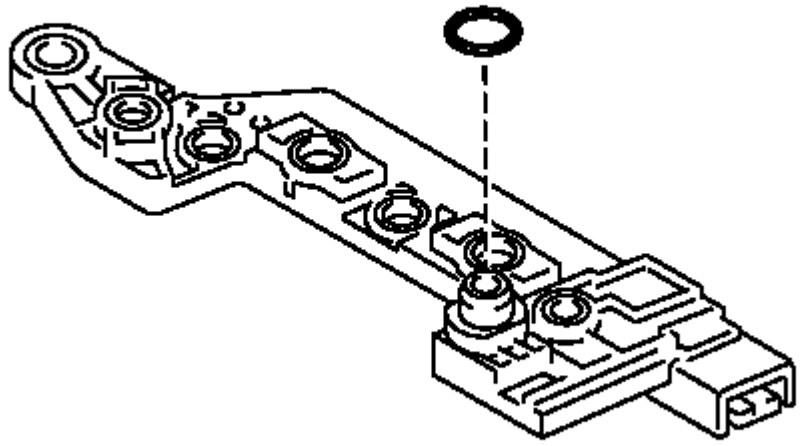


Fig. 45: Identifying ATF Temperature Sensor Assembly Bolts With Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

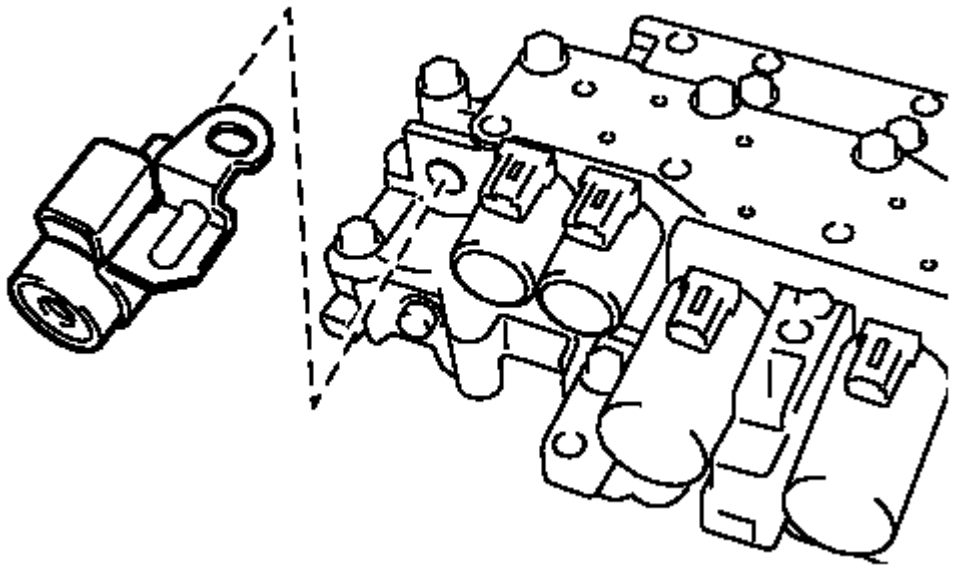
   b. Remove the O-ring from the ATF temperature sensor.



N

Fig. 46: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **REMOVE SHIFT SOLENOID VALVE SL**
   a. Remove the shift solenoid valve SL from the transmission valve body.

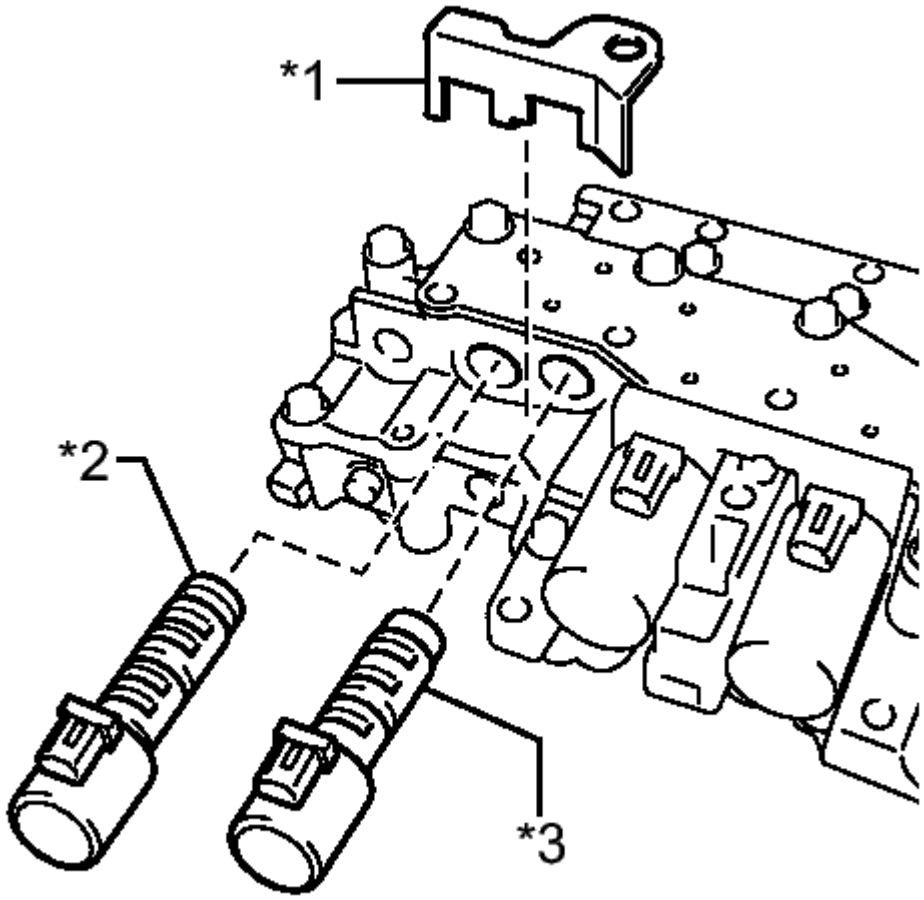


N

Fig. 47: Identifying Shift Solenoid Valve SL

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

5. **REMOVE SHIFT SOLENOID VALVE SLT**
   a. Remove the lock plate and shift solenoid valve SLT from the transmission valve body.



N

Fig. 48: Identifying Lock Plate, Shift Solenoid Valve SLT And Shift Solenoid Valve SLU
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SLT
	Solenoid

*3	Valve SLU

6. **REMOVE SHIFT SOLENOID VALVE SLU**
   a. Remove the shift solenoid valve SLU from the transmission valve body.
7. **REMOVE SHIFT SOLENOID VALVE SL2**
   a. Remove the bolt, lock plate and shift solenoid valve SL2 from the transmission valve body.

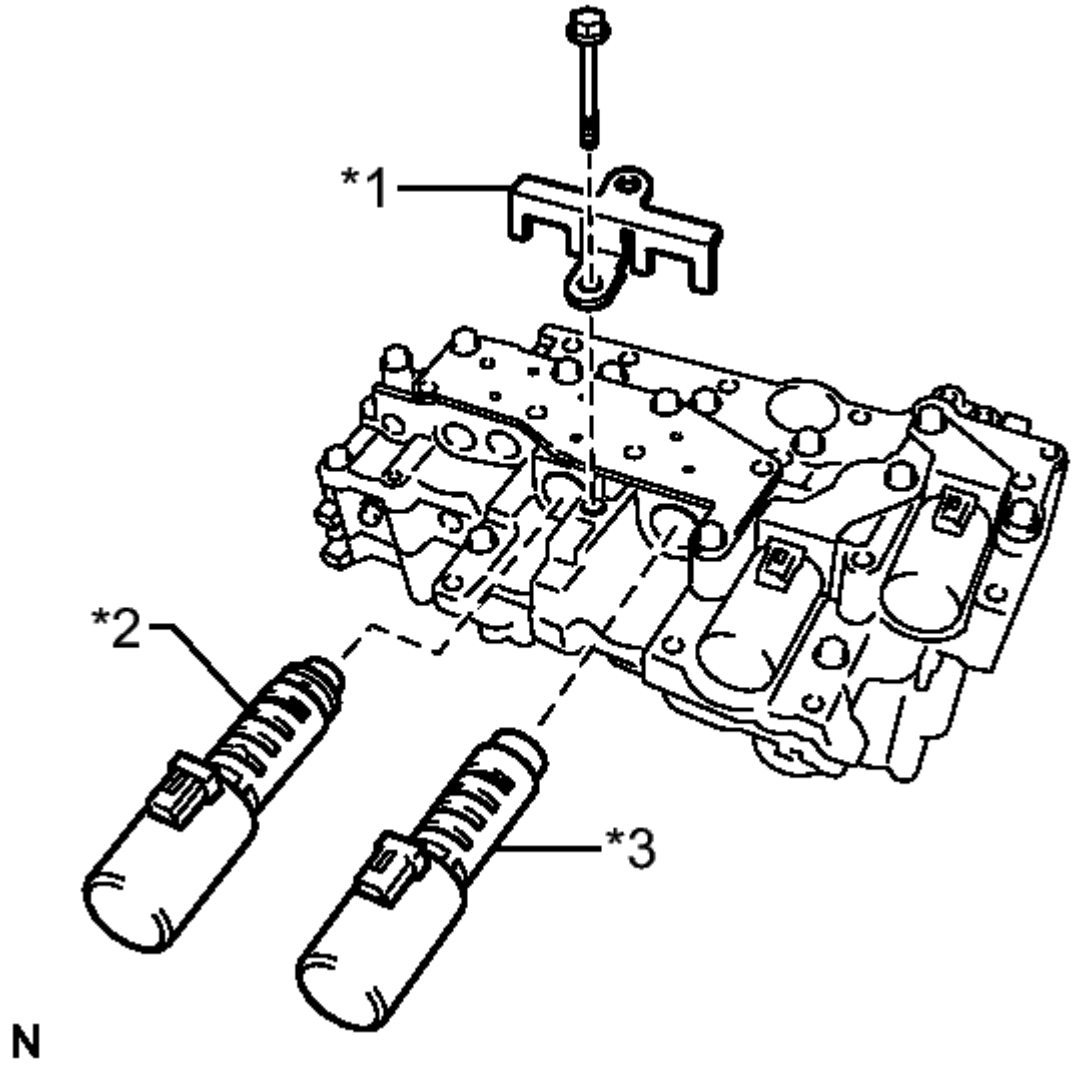


Fig. 49: Identifying Lock Plate, Shift Solenoid Valve SL2 And Shift Solenoid Valve SL1 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate

*2	Solenoid Valve SL2
*3	Solenoid Valve SL1

8. **REMOVE SHIFT SOLENOID VALVE SL1**
    a. Remove the shift solenoid valve SL1 from the transmission valve body.
9. **REMOVE SHIFT SOLENOID VALVE SL3**
    a. Remove the bolt, lock plate and shift solenoid valve SL3 from the transmission valve body.

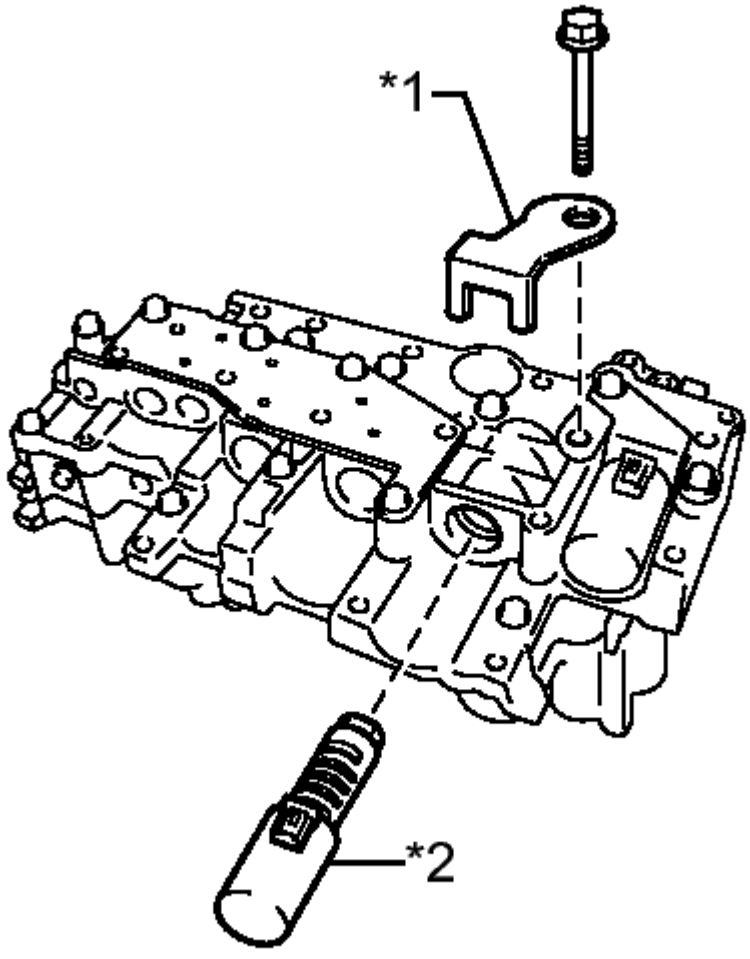


Fig. 50: Identifying Lock Plate And Shift Solenoid Valve SL3 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL3

10. **REMOVE SHIFT SOLENOID VALVE SL4**
    a. Remove the bolt, lock plate and shift solenoid valve SL4 from the transmission valve body.

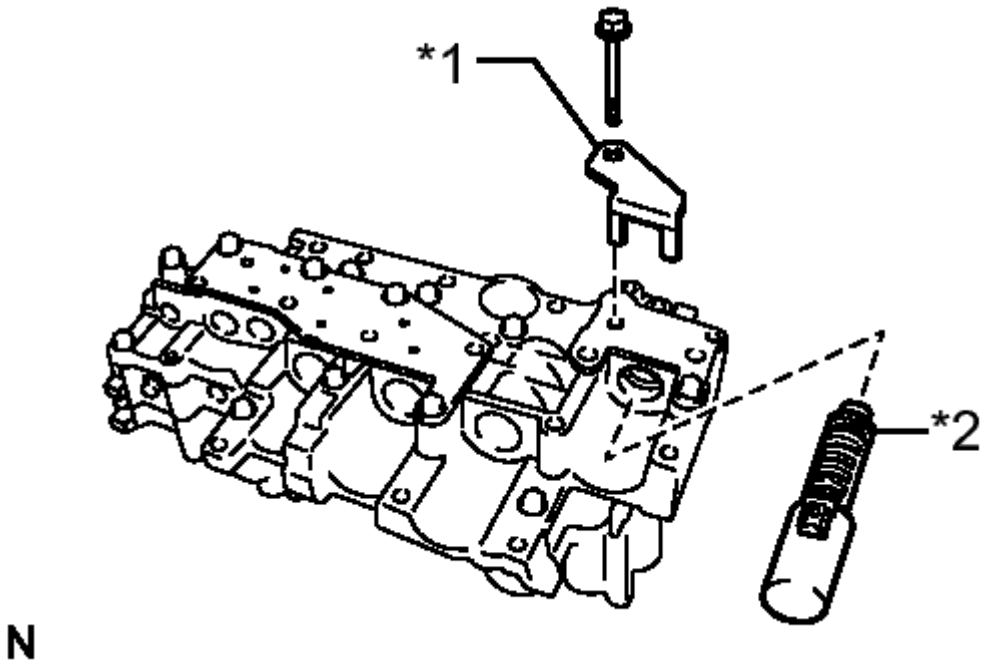


Fig. 51: Identifying Lock Plate And Shift Solenoid Valve SL4 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL4

INSPECTION

INSPECTION

1. **INSPECT SHIFT SOLENOID VALVE SL**
    a. Measure the resistance according to the value(s) in the table below.

*a

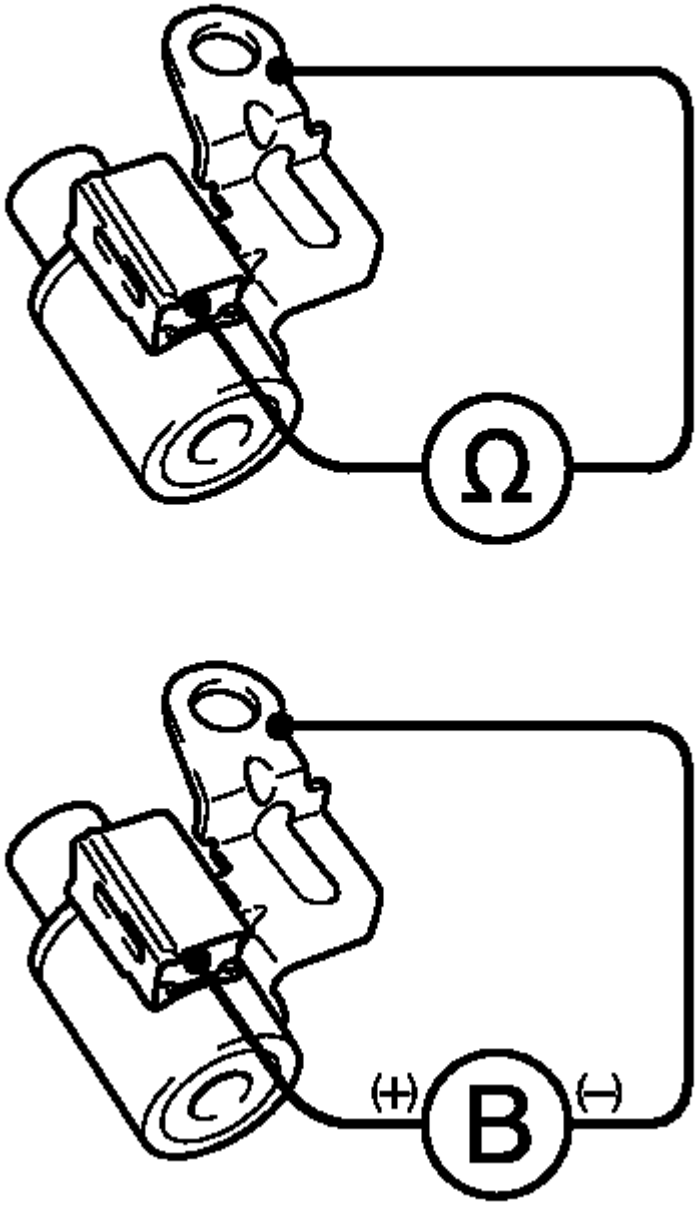


Fig. 52: Inspecting Shift Solenoid Valve SL
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Component

*a	without harness connected (Shift Solenoid Valve SL)

Standard Resistance

Tester Connection	Condition	Specified Condition
Solenoid Connector - Solenoid Body	20°C (68° F)	11 to 15 ohms

If the result is not as specified, replace the shift solenoid valve SL.

b. Connect a battery positive (+) lead to the terminal of the solenoid valve connector, and a negative (-) lead to the solenoid body. Then check that the valve moves and makes an operating sound.

NOTE: When using battery voltage during the inspection, do not bring the positive (+) and negative (-) tester probes too close to each other as a short circuit may occur.

OK

Valve moves and makes an operating sound.

If the result is not as specified, replace the shift solenoid valve SL.

2. **INSPECT SHIFT SOLENOID VALVE SLT**

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

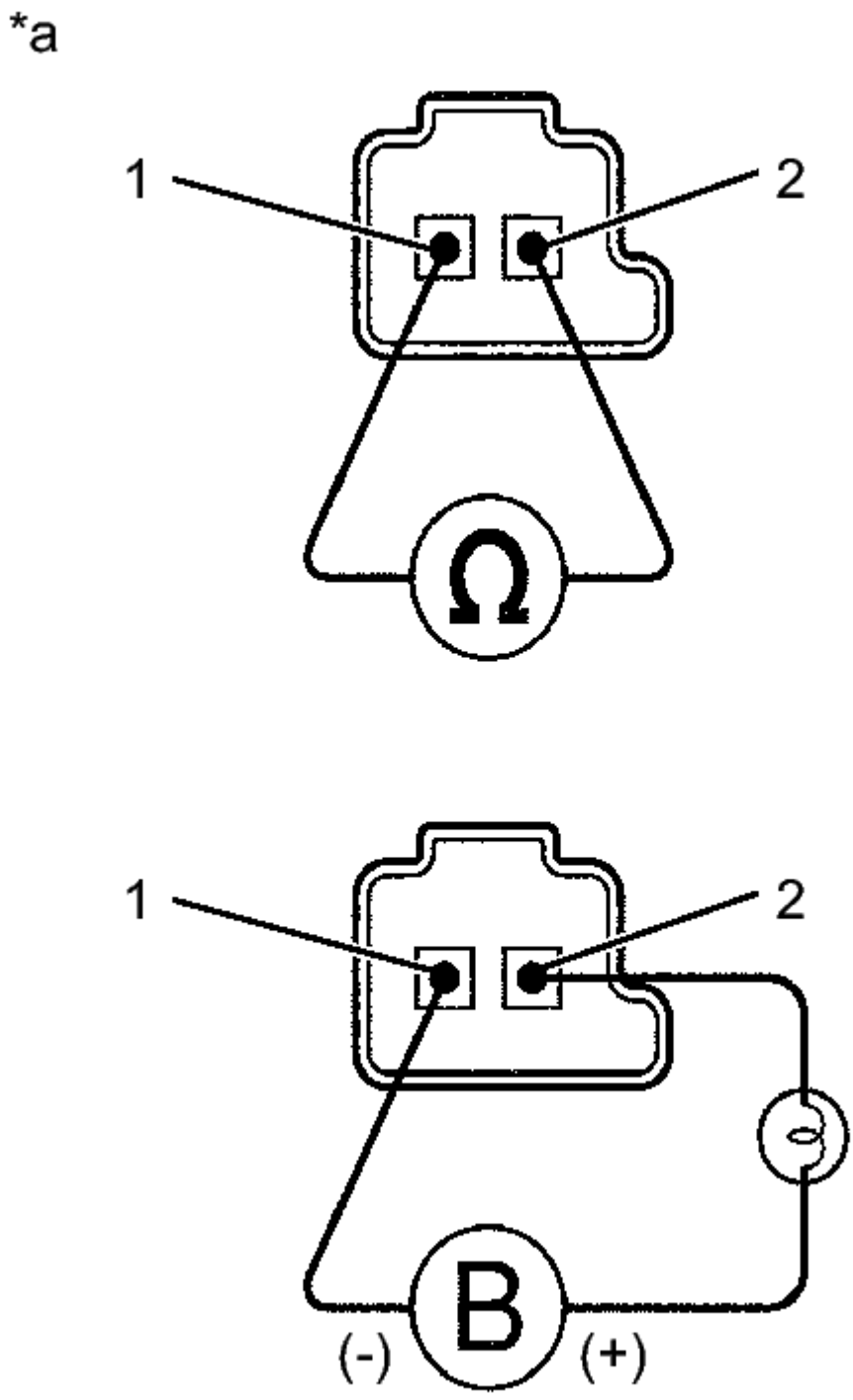


Fig. 53: Inspecting Shift Solenoid Valve SLT
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Component

*a	without harness connected (Shift Solenoid Valve SLT)

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	20°C (68° F)	5.0 to 5.6 ohms

If the result is not as specified, replace the shift solenoid valve SLT.

b. Connect a battery positive (+) lead with a 21 W bulb to terminal 2 and a negative (-) lead to terminal 1 of the solenoid valve connector. Then check that the valve moves and makes an operating sound.

NOTE: When using battery voltage during the inspection, do not bring the positive (+) and negative (-) tester probes too close to each other as a short circuit may occur.

OK

Valve moves and makes an operating sound.

If the result is not as specified, replace the shift solenoid valve SLT.

3. **INSPECT SHIFT SOLENOID VALVE SLU**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

4. **INSPECT SHIFT SOLENOID VALVE SL1**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

5. **INSPECT SHIFT SOLENOID VALVE SL2**

HINT:

Refer to Inspect Shift Solenoid Valve SLT.

6. **INSPECT SHIFT SOLENOID VALVE SL3**

   HINT:

   Refer to Inspect Shift Solenoid Valve SLT.

7. **INSPECT SHIFT SOLENOID VALVE SL4**

   HINT:

   Refer to Inspect Shift Solenoid Valve SLT.

REASSEMBLY

REASSEMBLY

1. **INSTALL SHIFT SOLENOID VALVE SL4**
   a. Coat the shift solenoid valve SL4 and bolt with ATF.

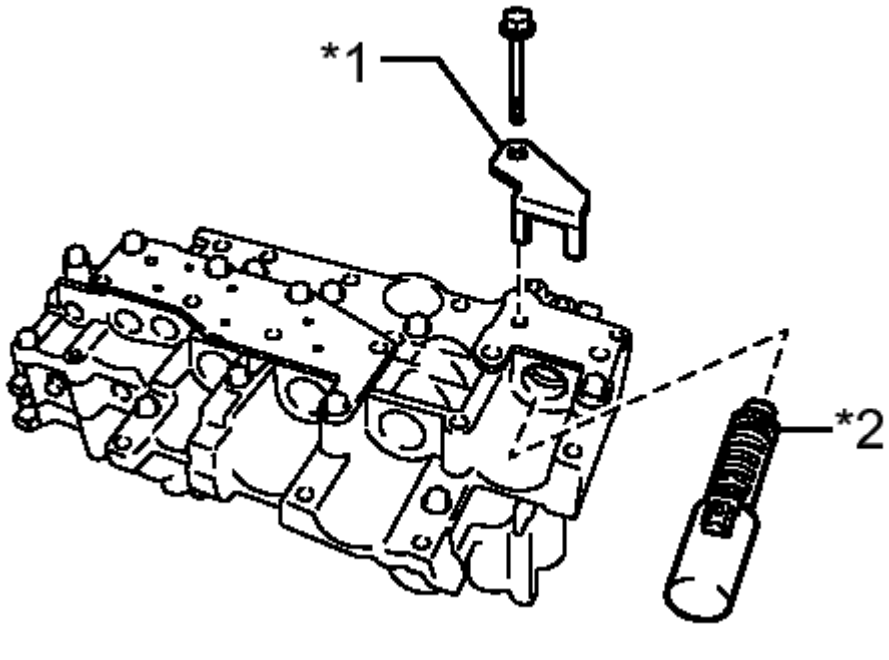


Fig. 54: Identifying Lock Plate And Shift Solenoid Valve SL4 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL4 onto the transmission valve body with the bolt and lock plate.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL4

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

2. **INSTALL SHIFT SOLENOID VALVE SL3**
   a. Coat the shift solenoid valve SL3 and bolt with ATF.

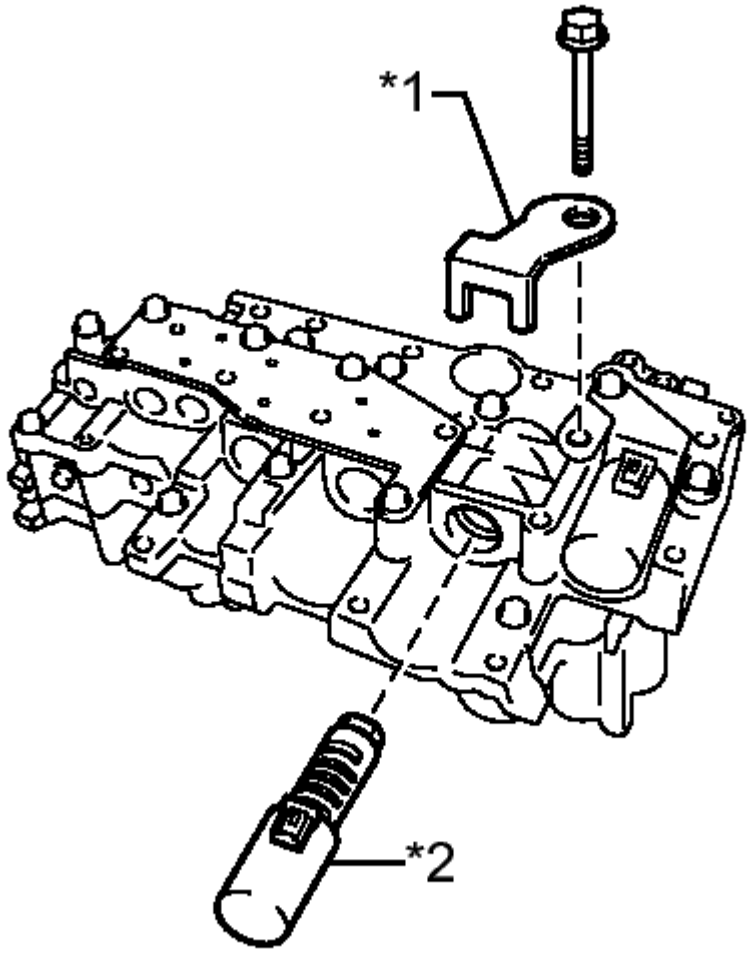


Fig. 55: Identifying Lock Plate And Shift Solenoid Valve SL3 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL3 onto the transmission valve body with the bolt and lock plate.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL3

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

3. **INSTALL SHIFT SOLENOID VALVE SL1**
   a. Coat the shift solenoid valve SL1 with ATF.

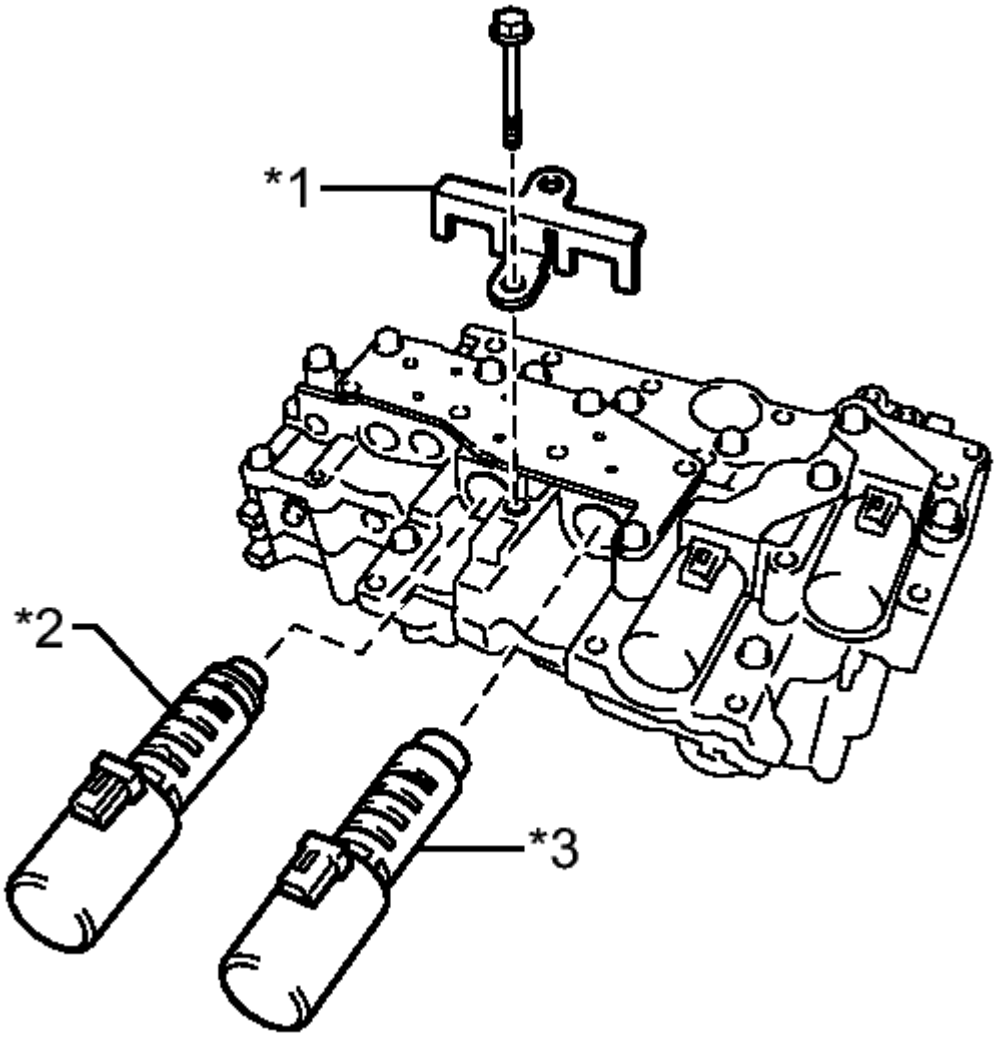


Fig. 56: Identifying Lock Plate, Shift Solenoid Valve SL2 And Shift Solenoid Valve SL1 With Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the shift solenoid valve SL1 onto the transmission valve body.

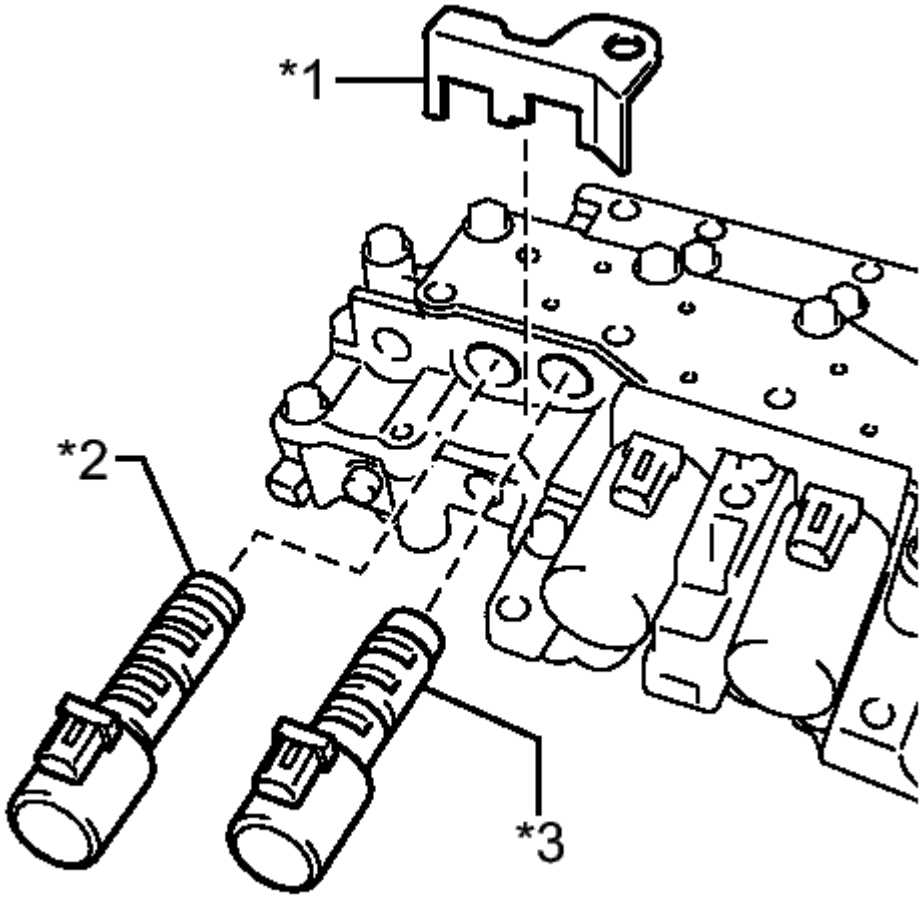
TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SL2
*3	Solenoid Valve SL1

4. **INSTALL SHIFT SOLENOID VALVE SL2**
   a. Coat the shift solenoid valve SL2 and bolt with ATF.
   b. Install the shift solenoid valve SL2 onto the transmission valve body with the bolt and lock plate.

   Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

5. **INSTALL SHIFT SOLENOID VALVE SLU**
   a. Coat the shift solenoid valve SLU with ATF.



N

Fig. 57: Identifying Lock Plate, Shift Solenoid Valve SLT And Shift Solenoid Valve SLU
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the shift solenoid valve SLU onto the transmission valve body.

TEXT IN ILLUSTRATION

*1	Lock Plate
*2	Solenoid Valve SLT
*3	Solenoid Valve SLU

6. **INSTALL SHIFT SOLENOID VALVE SLT**

a. Coat the shift solenoid valve SLT with ATF.
b. Install the shift solenoid valve SLT and lock plate onto the transmission valve body.

7. **INSTALL SHIFT SOLENOID VALVE SL**
   a. Coat the shift solenoid valve SL with ATF.

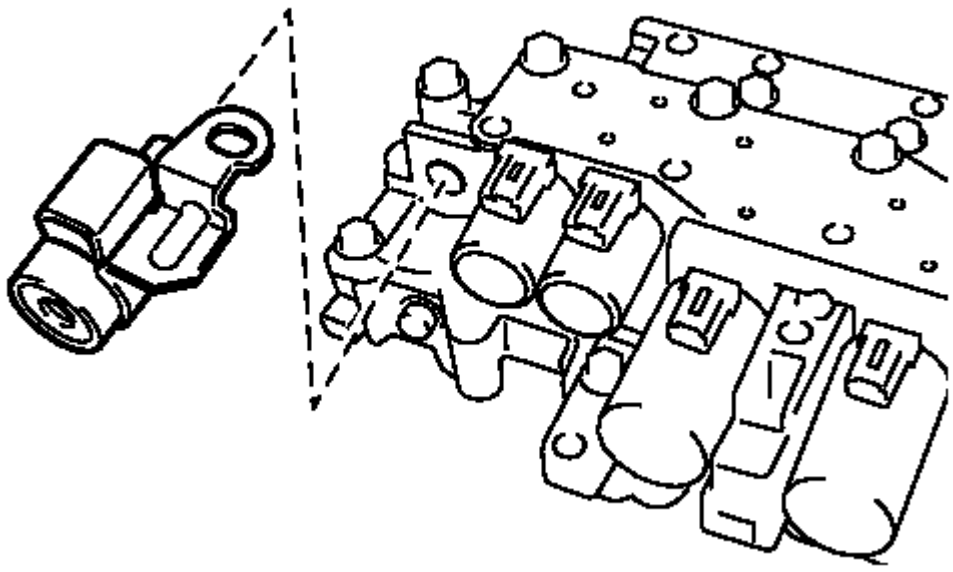
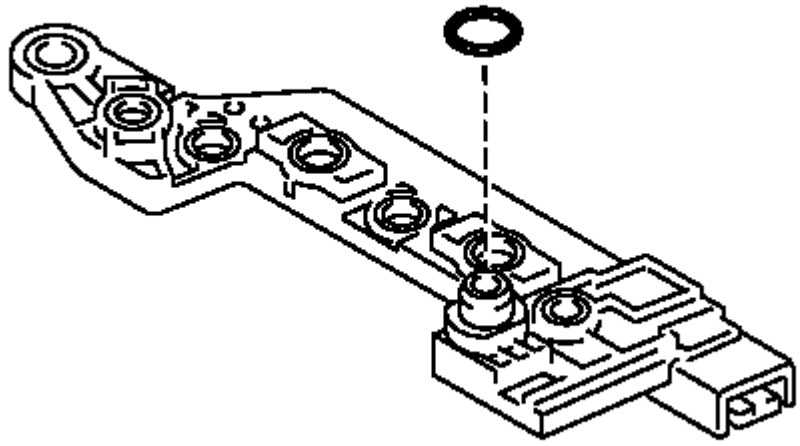


Fig. 58: Identifying Shift Solenoid Valve SL
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Install the shift solenoid valve SL onto the transmission valve body.

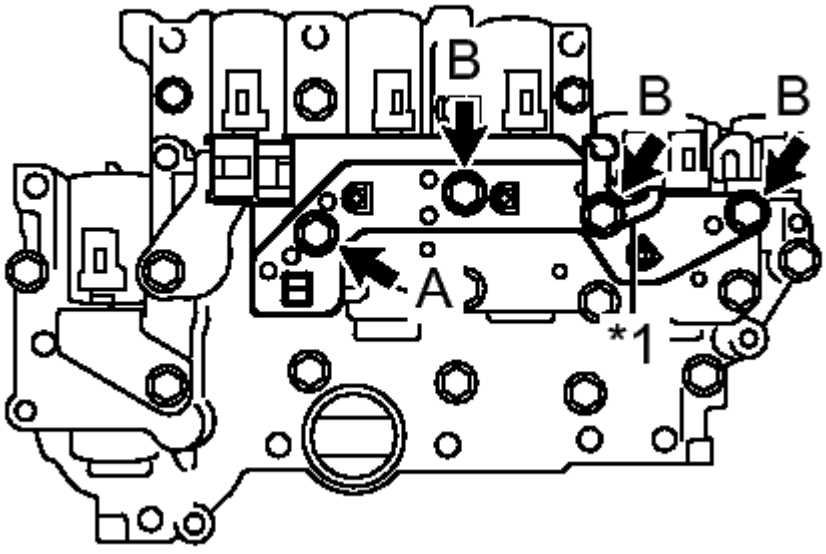
8. **INSTALL ATF TEMPERATURE SENSOR (TRANSMISSION WIRE)**
   a. Coat a new O-ring with ATF and install it onto the ATF temperature sensor.



N

Fig. 59: Identifying ATF Temperature Sensor O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Coat the 4 bolts with ATF.



N

Fig. 60: Identifying ATF Temperature Sensor Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the ATF temperature sensor onto the transmission valve body with the 4 bolts and wire harness clamp.

TEXT IN ILLUSTRATION

*1	Wire Harness Clamp

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

BOLT LENGTH

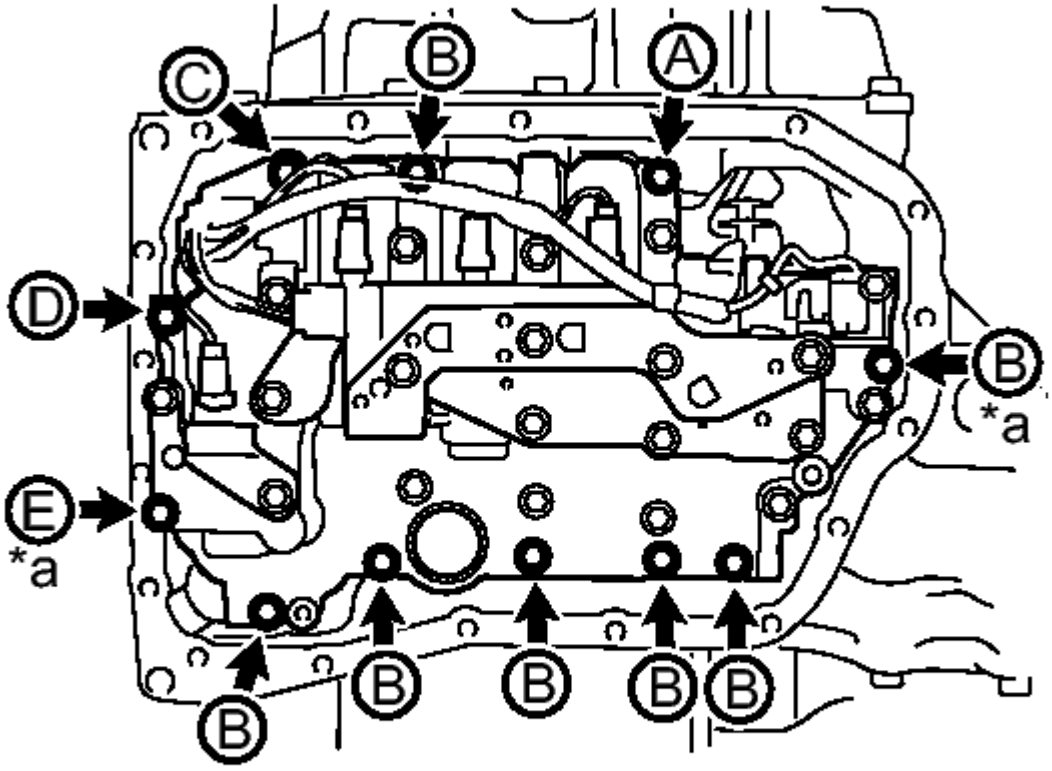
Bolt	Length mm (in.)
A	25 (0.984)
B	85 (3.35)

9. **INSTALL TRANSMISSION WIRE** . Refer to **INSTALLATION - Step 1**
10. **INSTALL TRANSMISSION REVOLUTION SENSOR** . Refer to **INSTALLATION - Step 1**

INSTALLATION

INSTALLATION

1. **INSTALL MANUAL VALVE**
   a. Coat the manual valve with ATF and install it into the transmission valve body.
2. **INSTALL TRANSAXLE CASE GASKET**
   a. Coat 2 new transaxle case gaskets with ATF.
   b. Install the 2 transaxle case gaskets onto the transaxle case.
3. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**
   a. Coat the O-ring of the transmission wire with ATF.
   b. Confirm that the manual valve lever is positioned as shown in the illustration and install the transmission valve body onto the automatic transaxle with the 11 bolts.



N

Fig. 61: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Positioning Bolt

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

BOLT LENGTH

Bolt	Length mm (in.)
A	25 (0.984)

B	30 (1.18)
C	35 (1.38)
D	45 (1.77)
E	55 (2.17)

NOTE:

- **When installing the transmission valve body, be careful not to allow the transmission revolution sensor and automatic transaxle to interfere with each other.**
- **Be sure to insert the pin of the manual valve lever into the groove on the end of the manual valve.**
- **First, temporarily tighten the bolts marked (*a) in the illustration because they are positioning bolts.**

4. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY**
   a. Coat a new O-ring with ATF and install it onto the valve body oil strainer.
   b. Install the valve body oil strainer onto the transmission valve body with the 2 bolts.

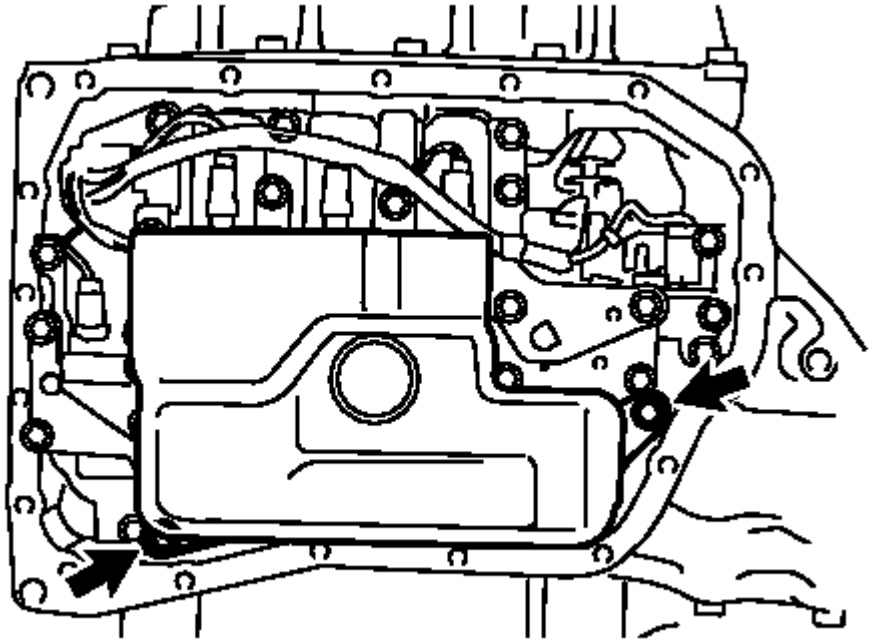


Fig. 62: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

5. **INSTALL TRANSMISSION OIL CLEANER MAGNET**
    a. Install the 2 transmission oil cleaner magnets onto the automatic transaxle oil pan as shown in the illustration.

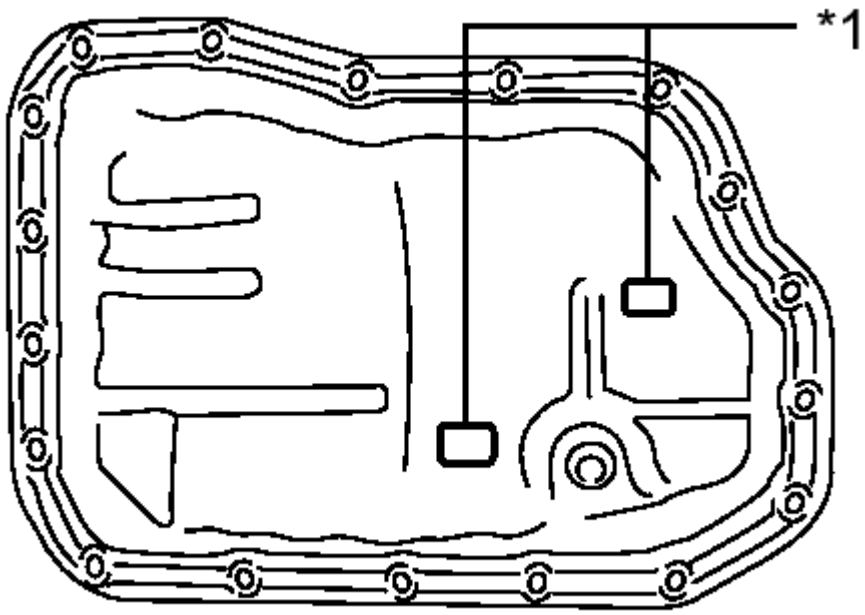


Fig. 63: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

6. **INSTALL AUTOMATIC TRANSAXLE OIL PAN GASKET**
    a. Install a new automatic transaxle oil pan gasket onto the automatic transaxle oil pan.
7. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
    a. Clean and degrease the bolt (*1) and the installation hole in the automatic transaxle.

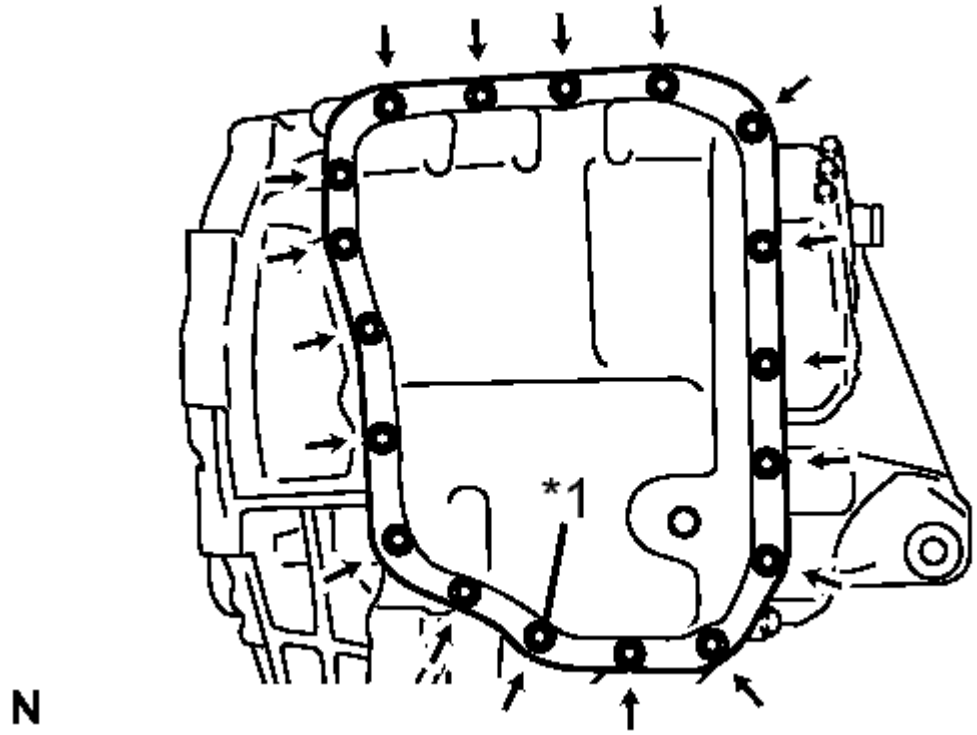


Fig. 64: Identifying Automatic Transaxle Oil Pan Bolts & Precoated Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Precoated Bolt

b. Apply adhesive to 2 or 3 threads on the ends of the bolt (*1).

Adhesive

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

c. Install the automatic transaxle oil pan with the transaxle oil pan gasket onto the automatic transaxle with the 18 bolts.

Precoated Bolt (*1)

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

except Precoated bolt

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

NOTE:

- **In order to ensure proper sealing of the bolt, apply adhesive to**

the bolt and install them within 10 minutes of adhesive application.

- **Completely remove any oil or grease from the contact surface of the automatic transaxle and automatic transaxle oil pan with the automatic transaxle oil pan gasket before installation.**

8. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY** . Refer to **INSTALLATION - Step 9**
9. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

   Refer to **INSTALLATION**

PARK / NEUTRAL POSITION SWITCH

COMPONENTS

ILLUSTRATION

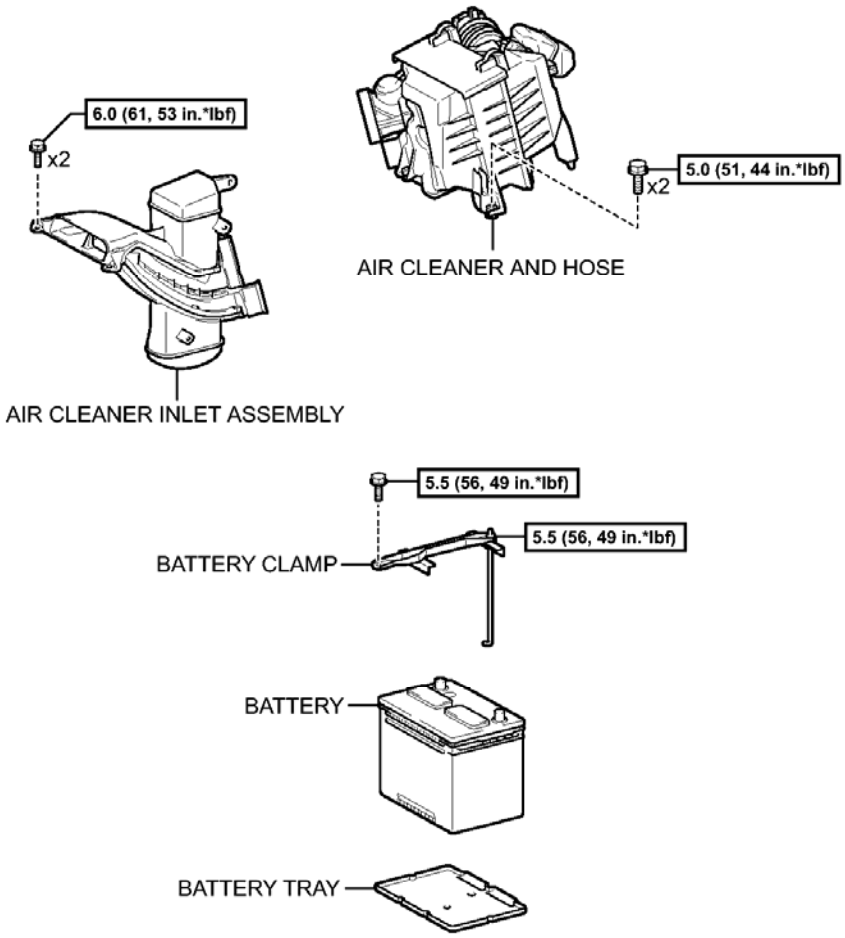


Fig. 65: Park/Neutral Position Switch Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

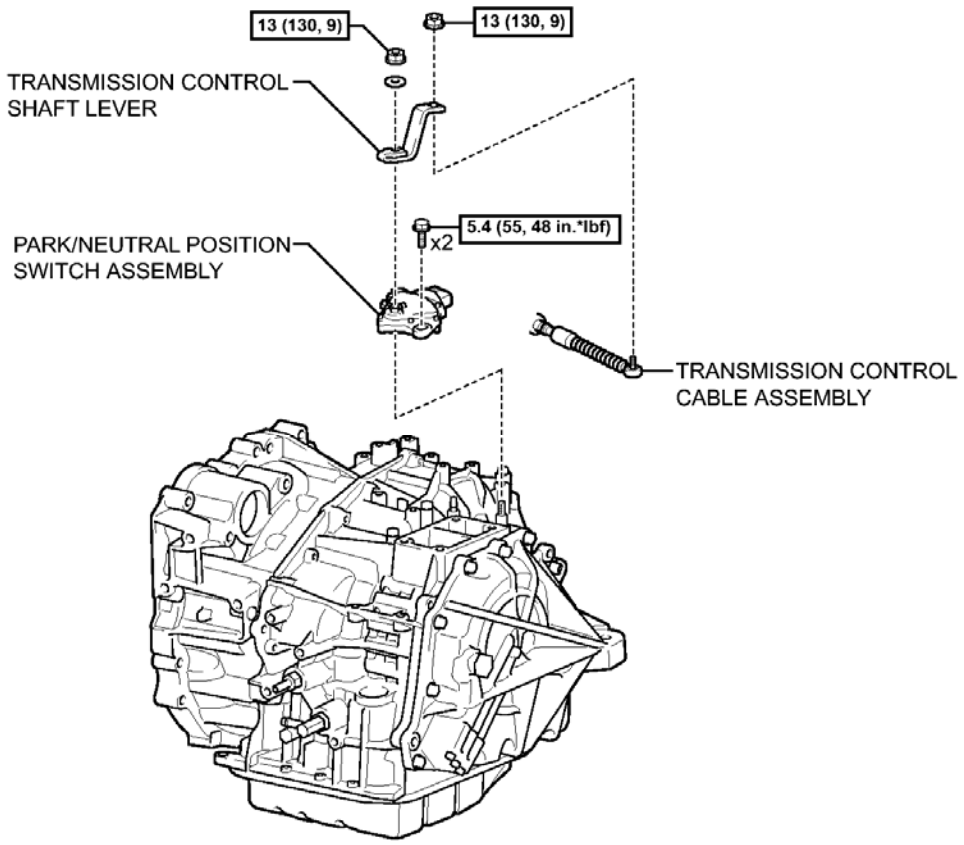


Fig. 66: Park/Neutral Position Switch Replacement Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. **INSPECT PARK/NEUTRAL POSITION SWITCH OPERATION**
    a. Apply the parking brake and turn the ignition switch to ON.
    b. Step on the brake pedal and check that the engine starts when the shift lever is in N or P, but does not start in the other positions.
    c. Check that the back-up lights illuminate when the shift lever is in R, and that they do not illuminate with the shift lever in the other positions.

REMOVAL

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **PRECAUTION** .
2. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
3. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
4. **REMOVE AIR CLEANER AND HOSE** . Refer to **REMOVAL - Step 7**
5. **SEPARATE TRANSMISSION CONTROL CABLE ASSEMBLY**
    a. Move the shift lever to N.
    b. Remove the nut and separate the transmission control cable from the transmission control shaft lever.

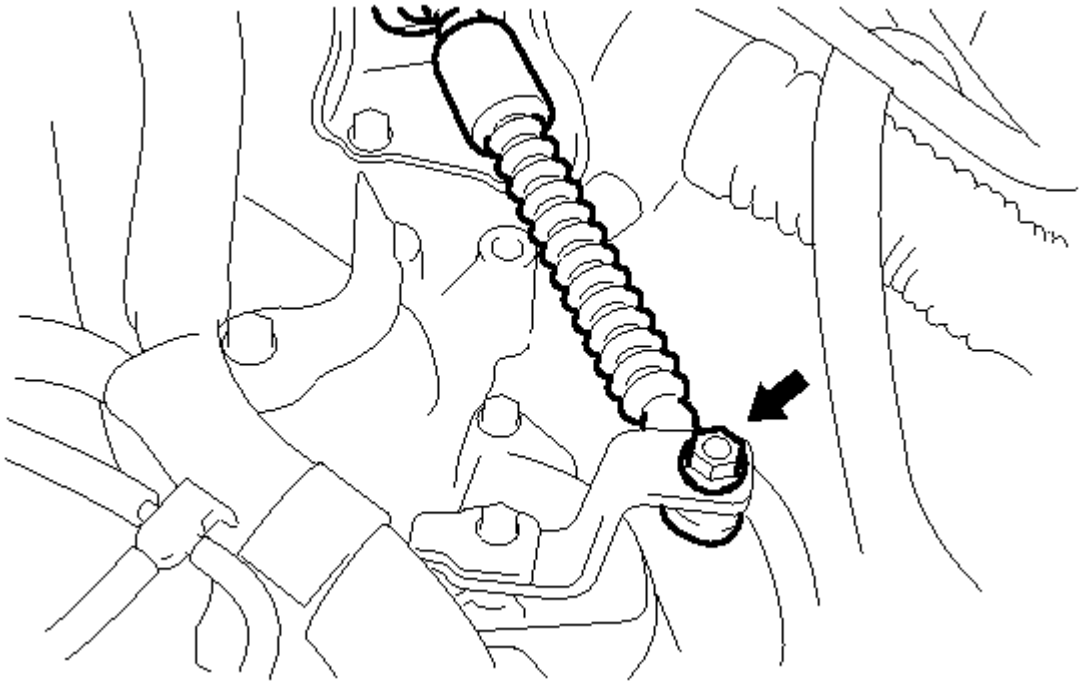


Fig. 67: Identifying Transmission Control Cable & Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
    a. Disconnect the park/neutral position switch connector.
    b. Remove the nut, the spring washer and the transmission control shaft lever.

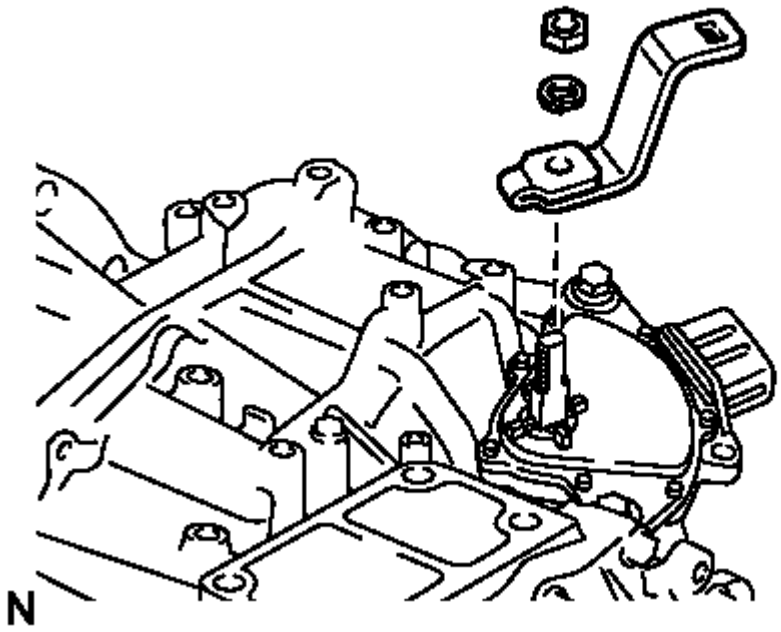


Fig. 68: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 2 bolts and the park/neutral position switch.

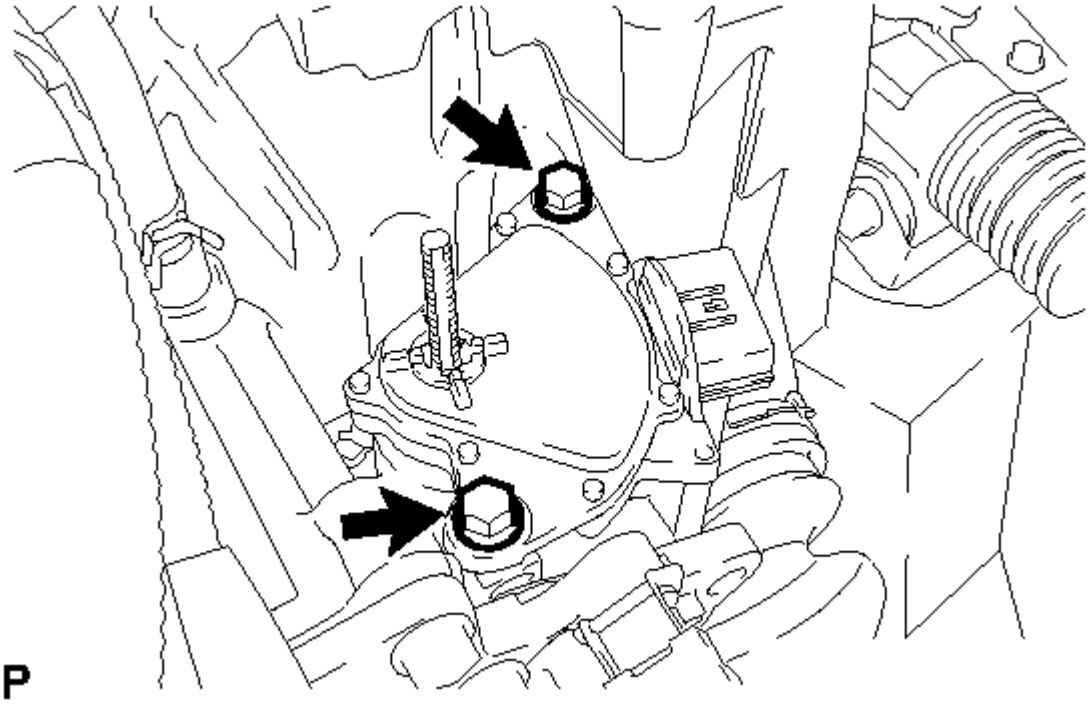


Fig. 69: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Before removing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to remove the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**

INSPECTION

INSPECTION

1. **INSPECT PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Measure the resistance according to the value(s) in the table below.

*a

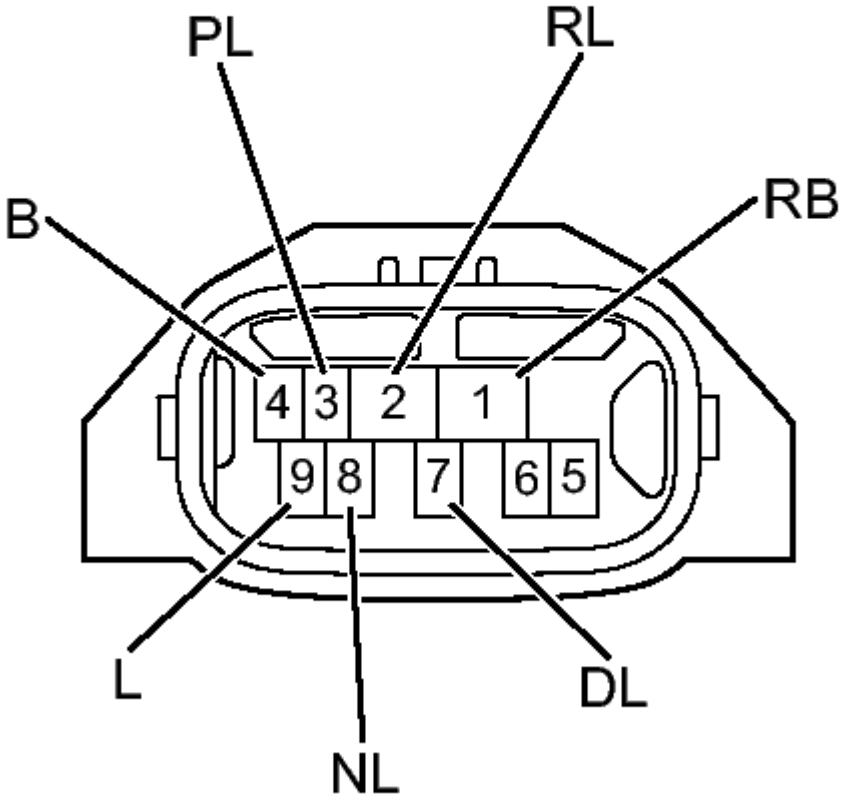


Fig. 70: Identifying Park/Neutral Position Switch Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Park/Neutral Position Switch)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
1 (RB) - 2 (RL)	R	Below 1 ohms
	Except R	10 kohms or higher
1 (RB) - 3 (PL)	P	Below 1 ohms
	Except P	10 kohms or higher
1 (RB) - 7 (DL)	D, S, "+" or "-"	Below 1 ohms
	Except D, S, "+" and "-"	10 kohms or higher
1 (RB) - 8 (NL)	N	Below 1 ohms
	Except N	10 kohms or higher
4 (B) - 9 (L)	P	Below 1 ohms
	Except P	10 kohms or higher
	N	Below 1 ohms
	Except N	10 kohms or higher

If the result is not as specified, replace the park/neutral position switch.

ADJUSTMENT

ADJUSTMENT

1. **ADJUST PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Remove the transmission control shaft lever. Refer to **REMOVAL**.
   b. Loosen the 2 bolts of the park/neutral position switch.

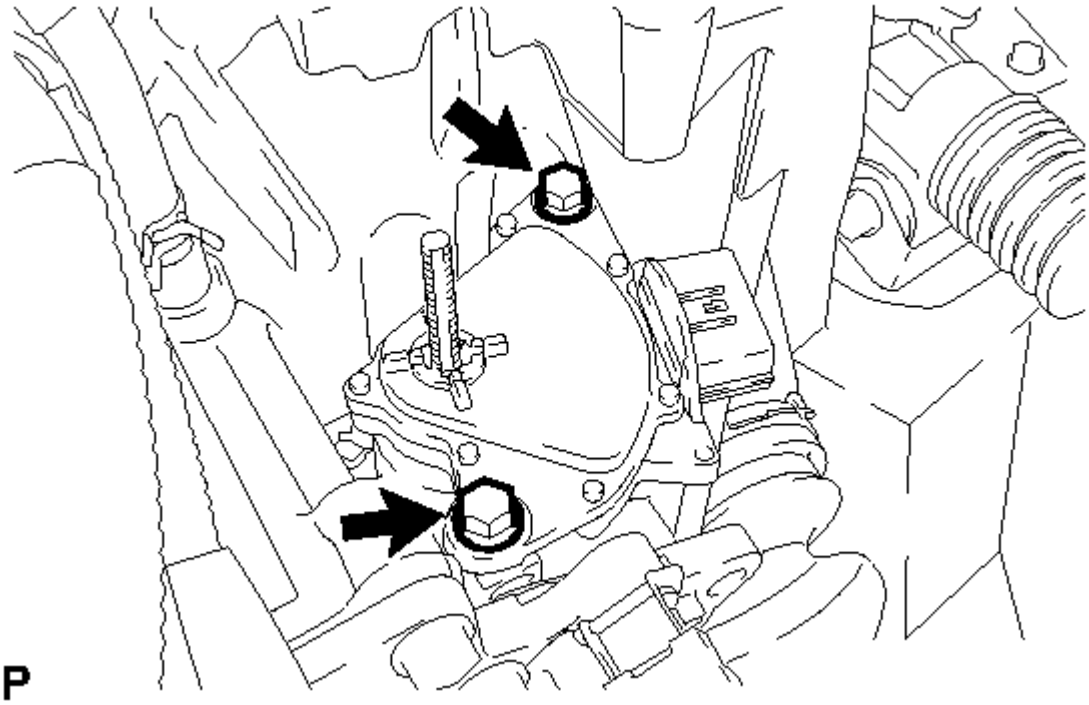


Fig. 71: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   c. Align the protrusions of the park/neutral position switch.

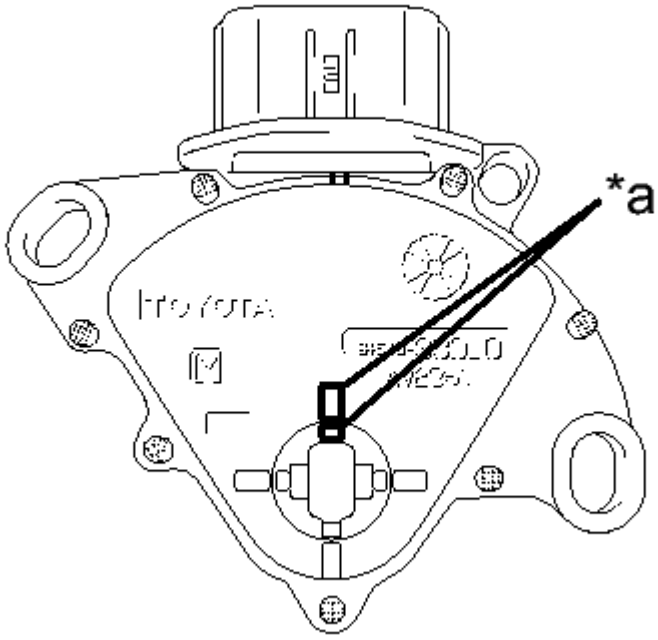


Fig. 72: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

d. Hold the park/neutral position switch in position and tighten the 2 bolts.

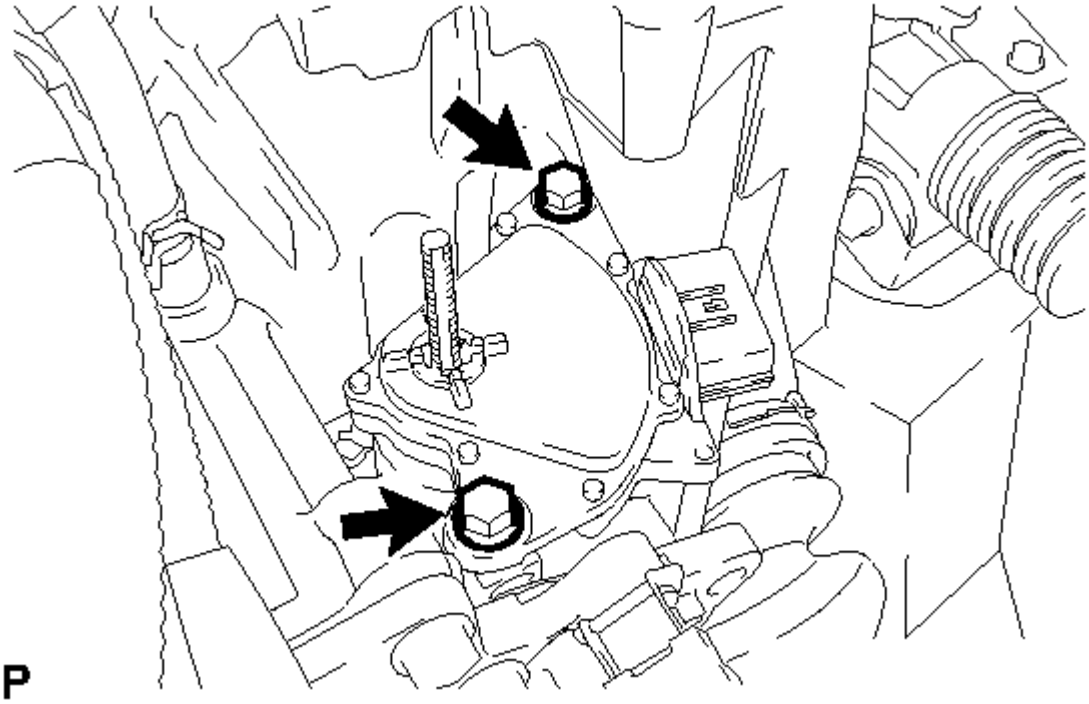


Fig. 73: Identifying Park/Neutral Position Switch Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.

e. Install the transmission control shaft lever. Refer to **INSTALLATION**.
f. After the adjustment, perform the park/neutral position switch operation check See step 1.

INSTALLATION

INSTALLATION

1. **INSTALL PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
   a. Align the protrusions of the park/neutral position switch.

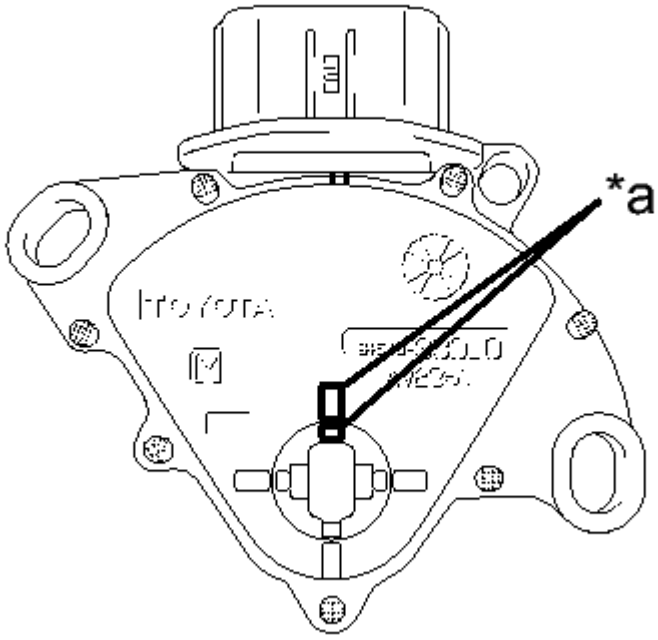


Fig. 74: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

b. Install the park/neutral position switch onto the control shaft with the 2 bolts.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE:

- **Before installing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to install the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**
- **After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.**

c. Install the transmission control shaft lever onto the control shaft with the nut and spring washer.

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

d. Connect the park/neutral position switch connector.

2. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Install the transmission control cable onto the transmission control shaft lever with the nut.

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

NOTE: Before connecting the transmission control cable assembly, check that the park/neutral position switch and the shift lever are in N position.

3. **INSTALL AIR CLEANER AND HOSE** . Refer to **INSTALLATION - Step 4**
4. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
5. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
6. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

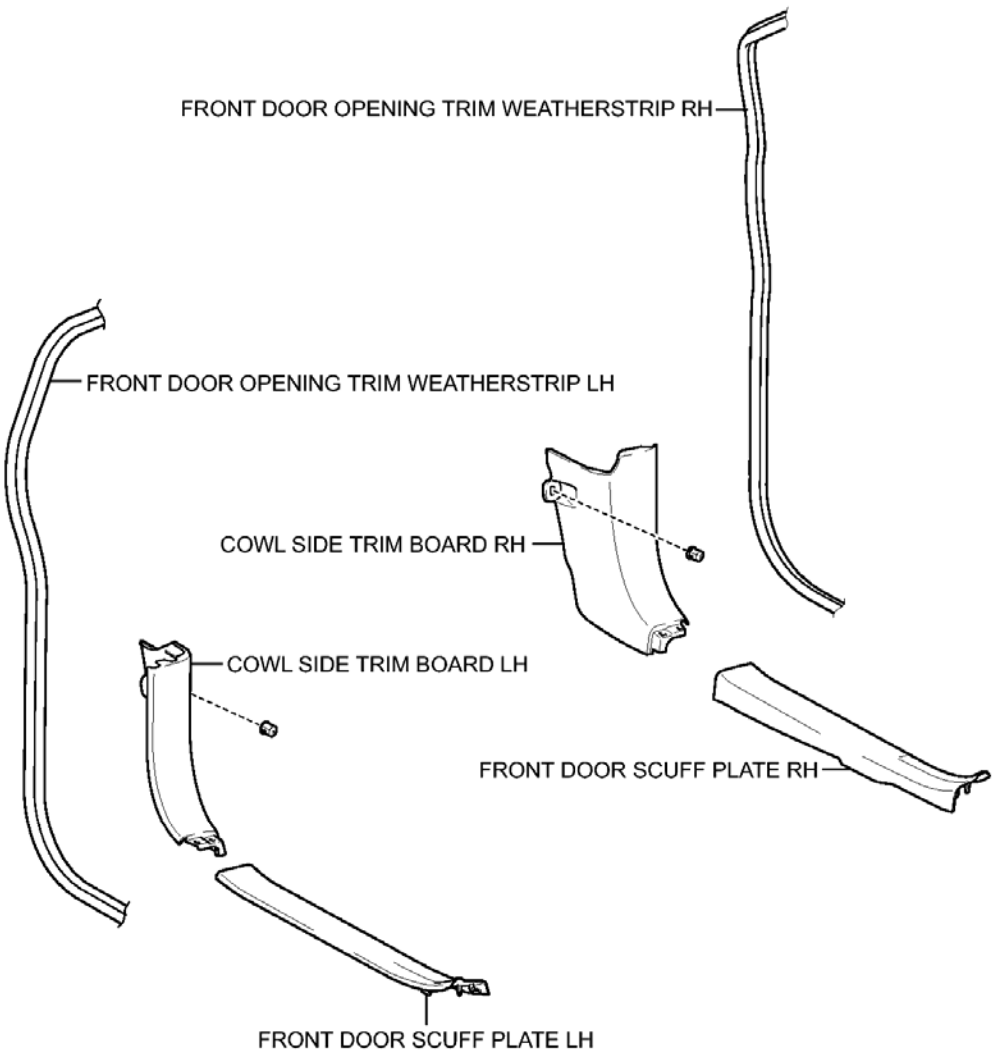
   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **PRECAUTION** .
7. **INSPECT PARK/NEUTRAL POSITION SWITCH OPERATION** See step 1
8. **INSPECT SHIFT LEVER POSITION** . Refer to **ON-VEHICLE INSPECTION - Step 1**

SHIFT LEVER

COMPONENTS

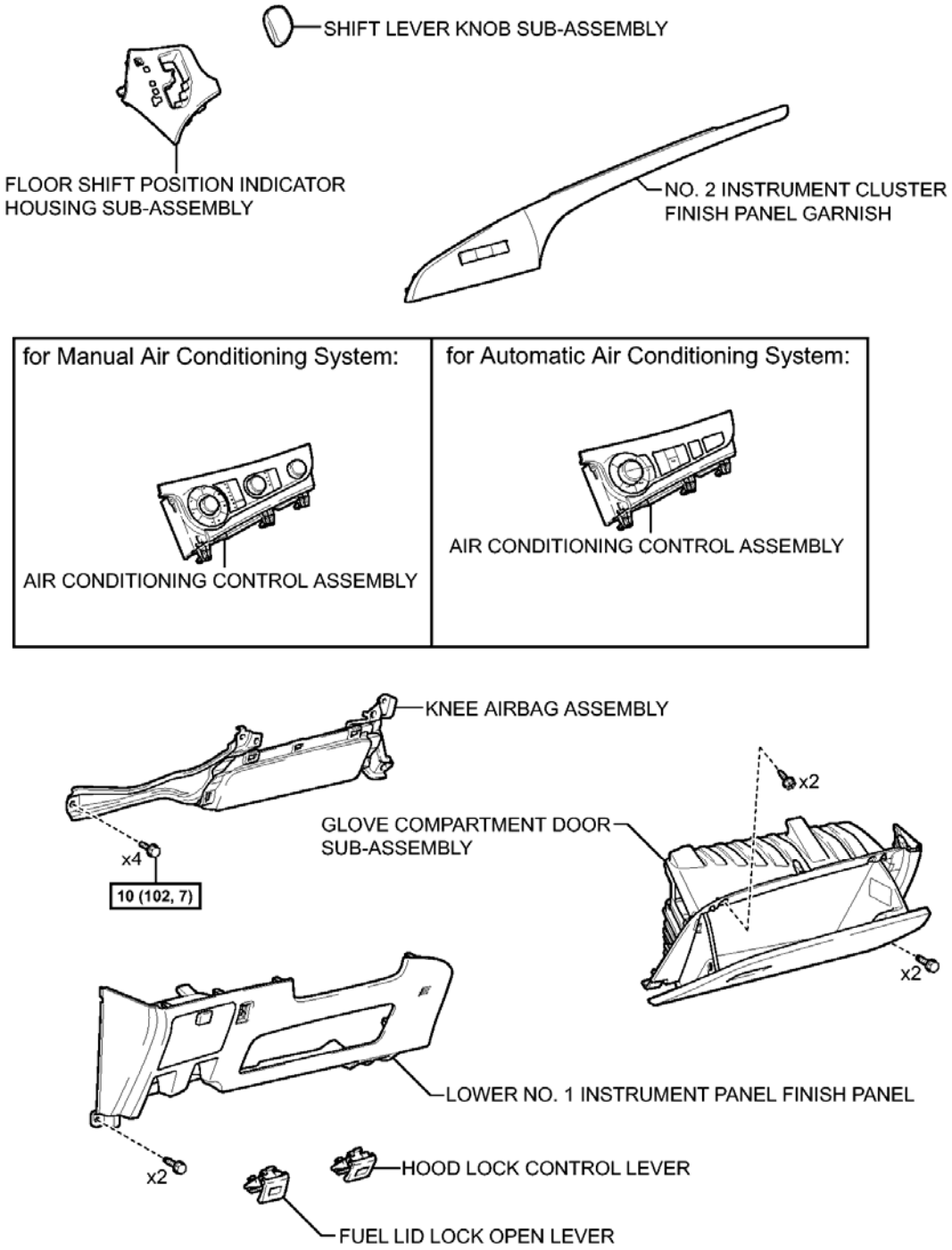
ILLUSTRATION



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Fig. 75: Shift Lever Replacement Components (1 of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

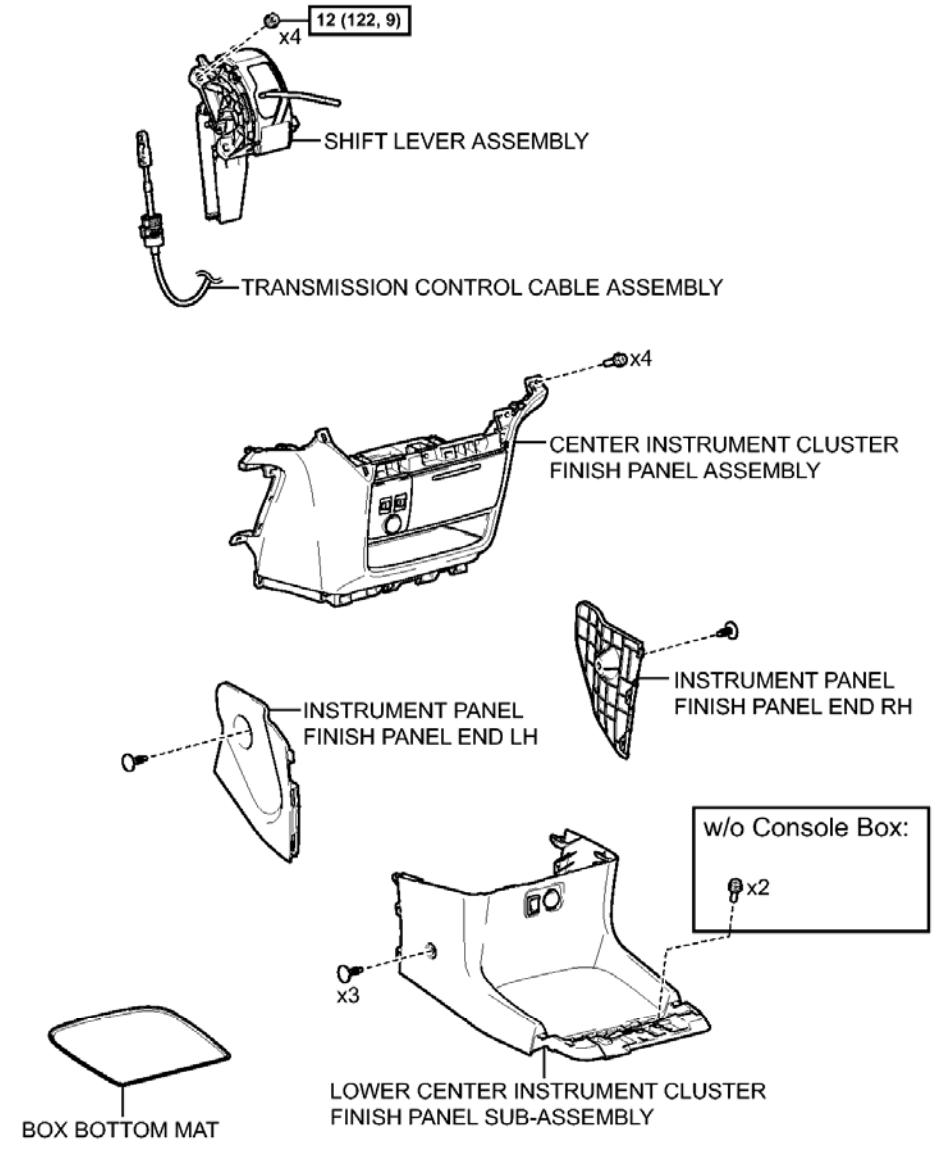
ILLUSTRATION



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Fig. 76: Shift Lever Replacement Components With Torque Specifications (2 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

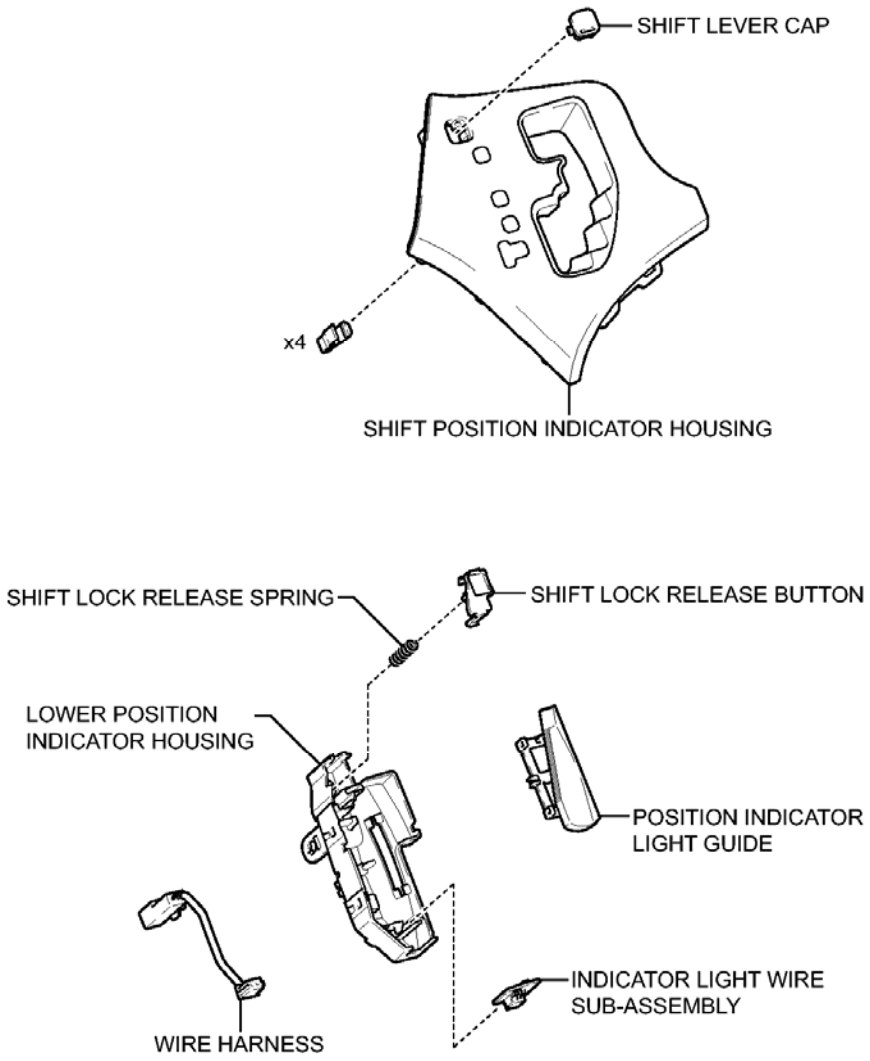
ILLUSTRATION



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Fig. 77: Shift Lever Replacement Components With Torque Specifications (3 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

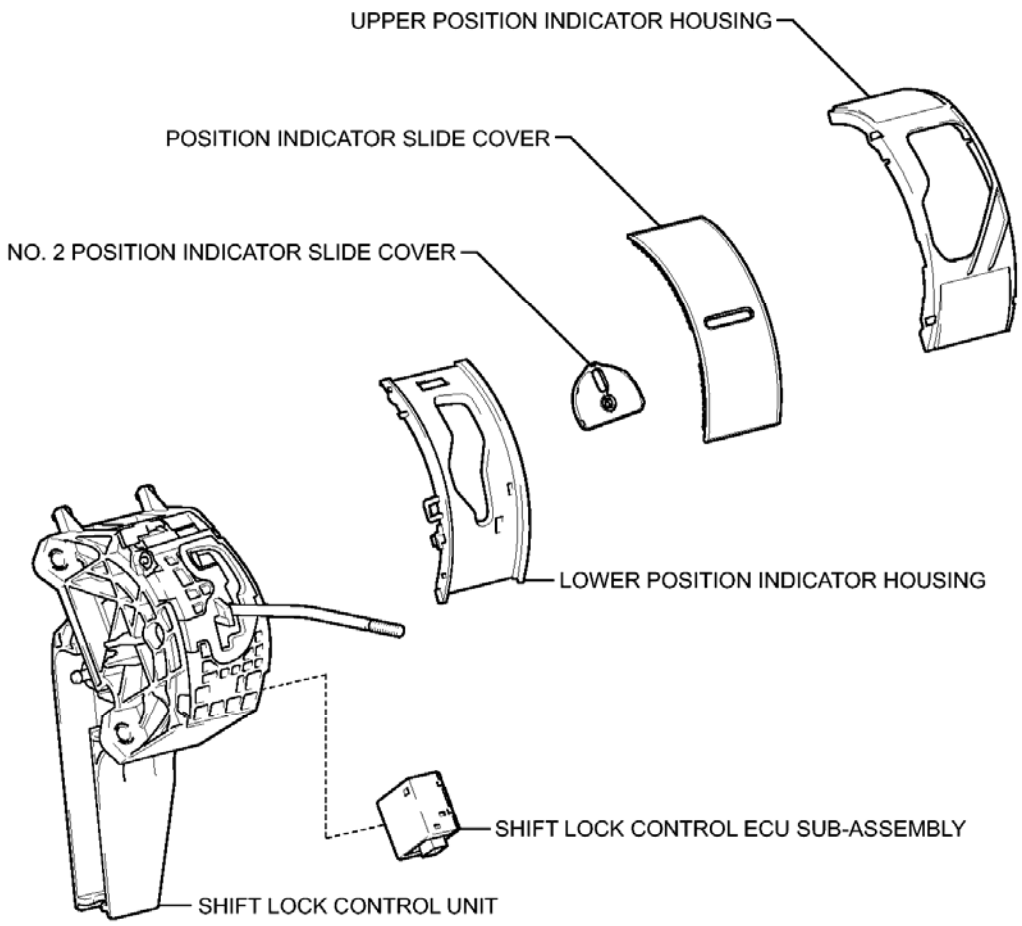
ILLUSTRATION



P

Fig. 78: Shift Lever Replacement Components (4 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 79: Shift Lever Replacement Components (5 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. **INSPECT SHIFT LEVER POSITION**
    a. Turn the ignition switch to ON and step on the brake pedal.
    b. Confirm that the shift lever moves smoothly through all of the shift positions and the position indicator shows the correct shift lever position.
    c. Start the engine and confirm that the vehicle moves forward when the shift lever is moved from N

to D.

If the operation cannot be done as specified, inspect the shift lock control unit.

2. **INSPECT SHIFT LOCK OPERATION**
   a. Move the shift lever to P.
   b. Turn the ignition switch off.
   c. Check that the shift lever cannot be moved from P.
   d. Check that the shift lever can be moved from P when the ignition switch is ON and the brake pedal is depressed.

      If the operation cannot be done as specified, inspect the shift lock control unit.
3. **INSPECT SHIFT LOCK RELEASE BUTTON OPERATION**
   a. Move the shift lever to P.
   b. Turn the ignition switch off.
   c. Press the shift lock release button and check that the shift lever can be moved to any position from P.

      If the operation cannot be done as specified, inspect the shift lock control unit.
4. **INSPECT KEY INTERLOCK OPERATION (w/o Smart Key System)**
   a. Turn the ignition switch to ON.
   b. Step on the brake pedal and check that the shift lever can be moved to any other position from P.
   c. Check that the ignition switch cannot be turned to the LOCK position.
   d. Move the shift lever to P, rotate the ignition key to the LOCK position, and check that the ignition key can be removed.

      If the operation cannot be done as specified, inspect the shift lock control unit.

REMOVAL

REMOVAL

1. **REMOVE FRONT DOOR SCUFF PLATE RH** . Refer to **REMOVAL - Step 3**
2. **REMOVE FRONT DOOR SCUFF PLATE LH** . Refer to **REMOVAL - Step 4**
3. **REMOVE COWL SIDE TRIM BOARD RH** . Refer to **REMOVAL - Step 5**
4. **REMOVE COWL SIDE TRIM BOARD LH** . Refer to **REMOVAL - Step 6**
5. **SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP RH**
6. **SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP LH**
7. **REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL** . Refer to **REMOVAL - Step 19**
8. **REMOVE KNEE AIRBAG ASSEMBLY** . Refer to **REMOVAL - Step 6**
9. **REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** . Refer to **REMOVAL - Step 23**
10. **REMOVE GLOVE COMPARTMENT DOOR SUB-ASSEMBLY** . Refer to **REMOVAL - Step 34**
11. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY**

12. **REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY** . Refer to **REMOVAL - Step 25**
13. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** . Refer to **REMOVAL - Step 4**
14. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Manual Air Conditioning System)** . Refer to **REMOVAL - Step 4**
15. **REMOVE CONSOLE BOX ASSEMBLY (for Fixed Type)**

    Refer to **REMOVAL**

16. **REMOVE CONSOLE BOX ASSEMBLY (for Slide Type)**

    Refer to **REMOVAL**

17. **REMOVE LOWER CENTER INSTRUMENT COVER (w/ Console Box)** . Refer to **REMOVAL - Step 42**
18. **REMOVE LOWER CENTER INSTRUMENT COVER (w/o Console Box)** . Refer to **REMOVAL - Step 41**
19. **REMOVE LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** . Refer to **REMOVAL - Step 43**
20. **REMOVE INSTRUMENT PANEL FINISH PANEL END RH** . Refer to **REMOVAL - Step 39**
21. **REMOVE INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **REMOVAL - Step 40**
22. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** . Refer to **REMOVAL - Step 45**
23. **REMOVE SHIFT LEVER ASSEMBLY**
    a. Move the shift lever to N.
    b. Disconnect the shift lock control ECU connector and transmission control switch wire connector.

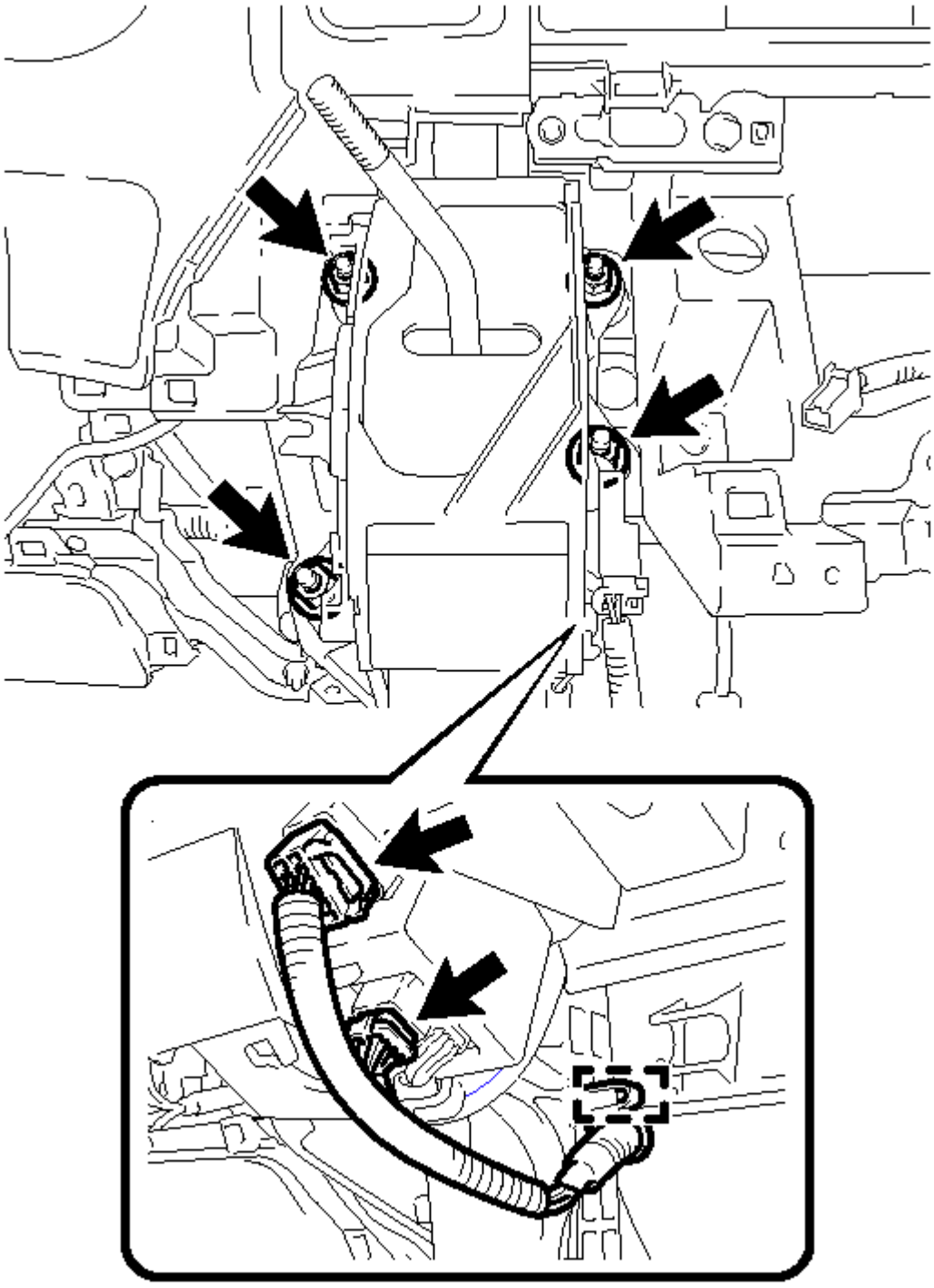


Fig. 80: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 4 nuts and shift lever.

24. **DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**

a. Disconnect the end of the transmission control cable from the shift lever.

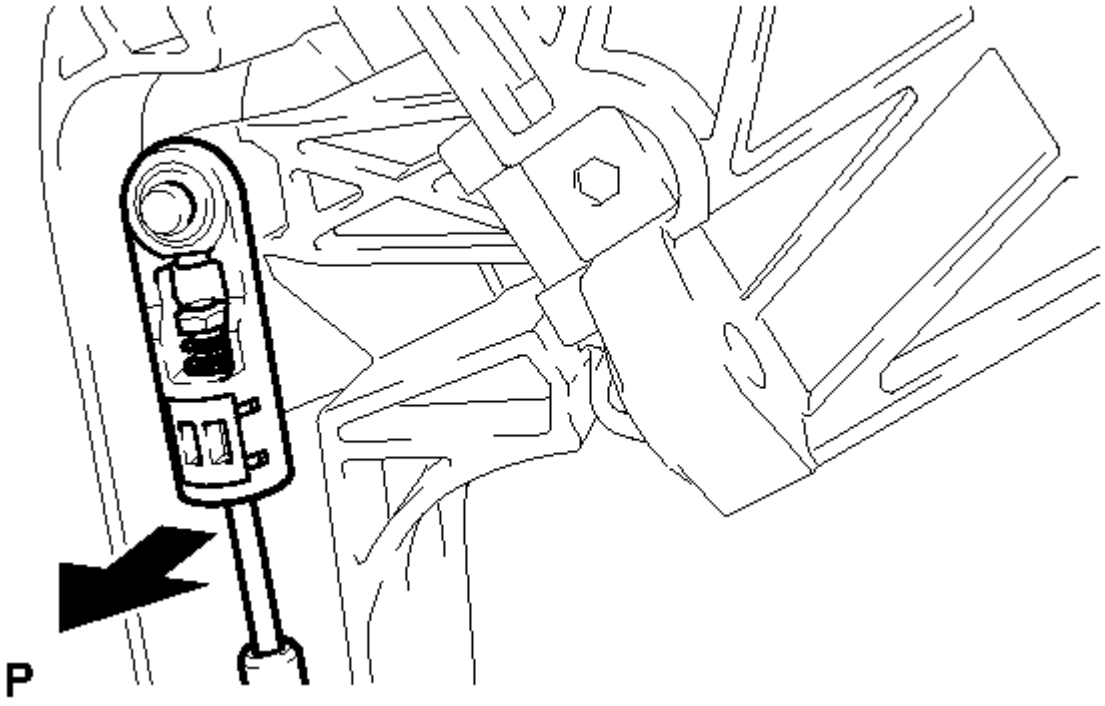


Fig. 81: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, pull out the transmission control cable stopper.

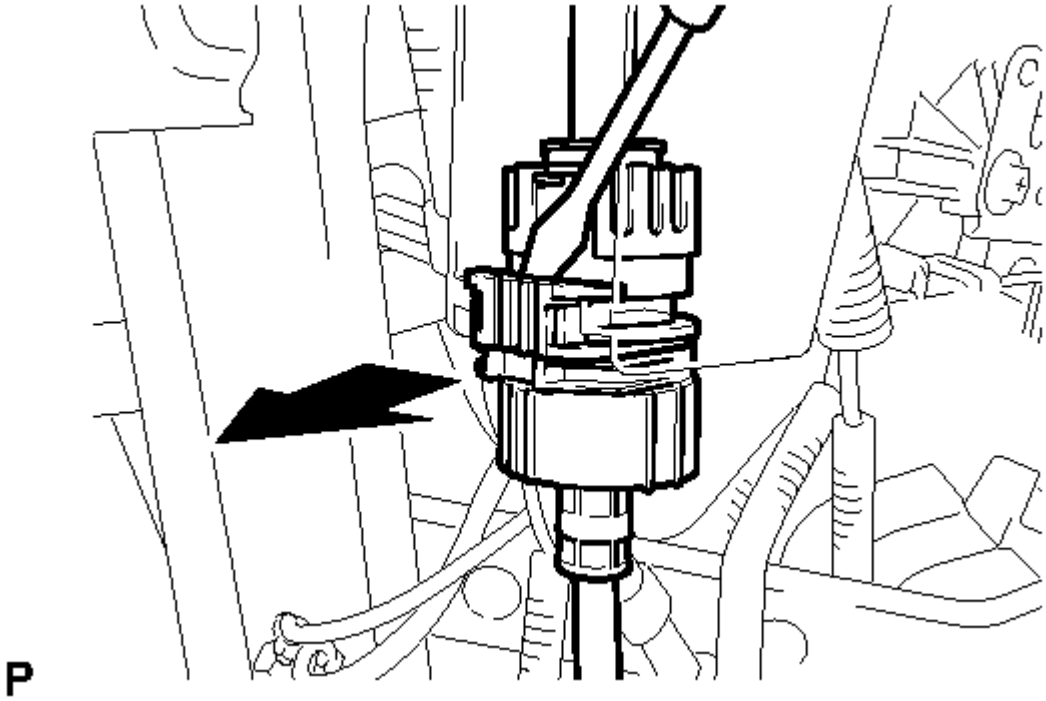
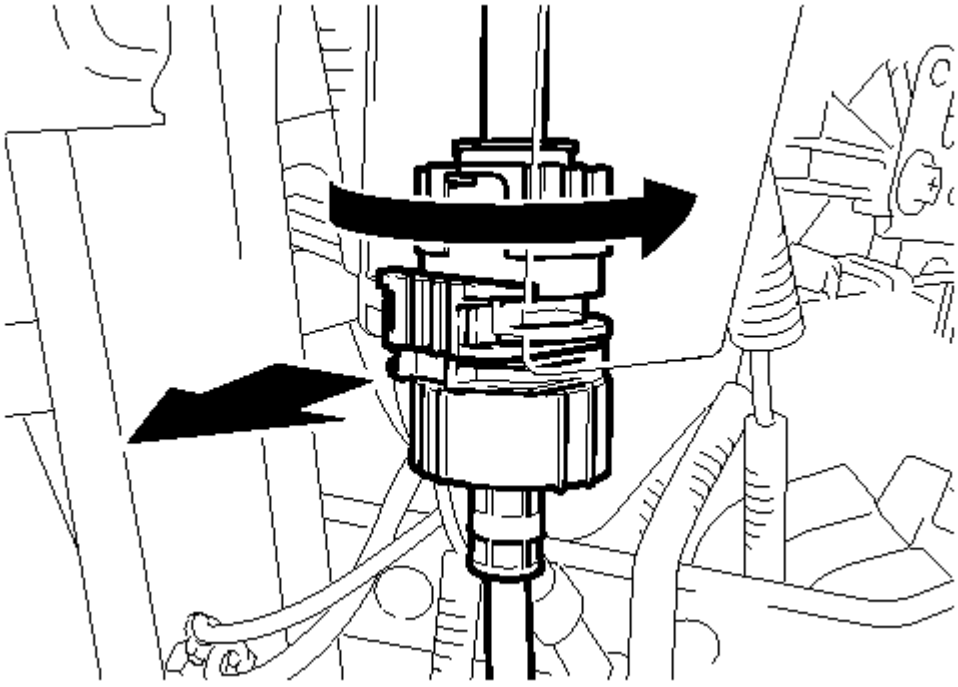


Fig. 82: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not remove the stopper. If the stopper is removed, reinstall it to its original position.

c. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.



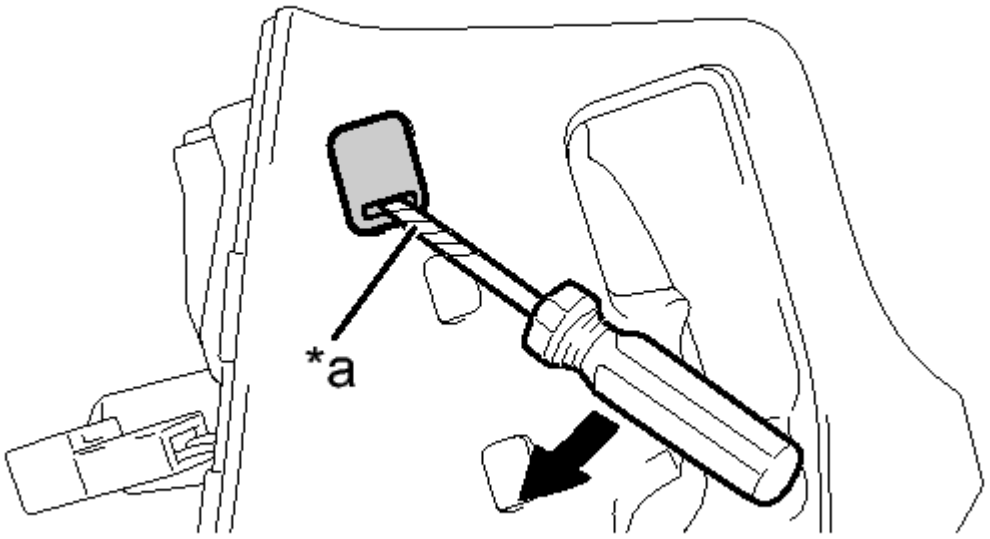
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Fig. 83: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE SHIFT LEVER CAP**
   a. Using a thin-bladed screwdriver with its tip wrapped with protective tape, remove the shift lever cap from the shift position indicator housing.



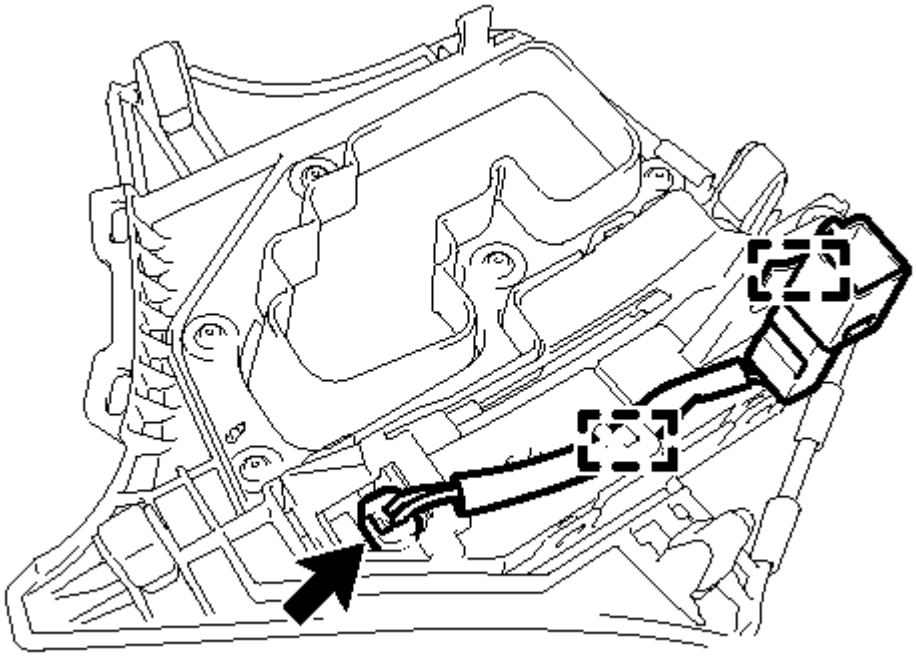
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Fig. 84: Removing Shift Lever Cap Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protective Tape

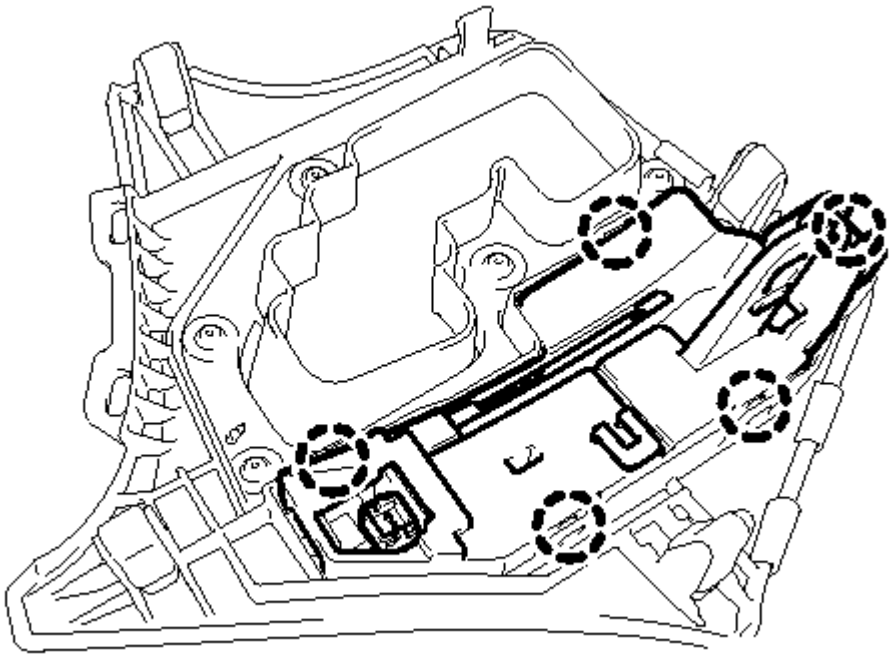
2. **REMOVE LOWER POSITION INDICATOR HOUSING**
    a. Disconnect the connector and 2 clamps and remove the wire harness from the lower position indicator housing.



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Fig. 85: Identifying Lower Position Indicator Housing Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Disengage the 5 claws and remove the lower position indicator housing from the shift position indicator housing.



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Fig. 86: Identifying Lower Position Indicator Housing & Claws

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

c. Remove the 4 clips from the shift position indicator housing.

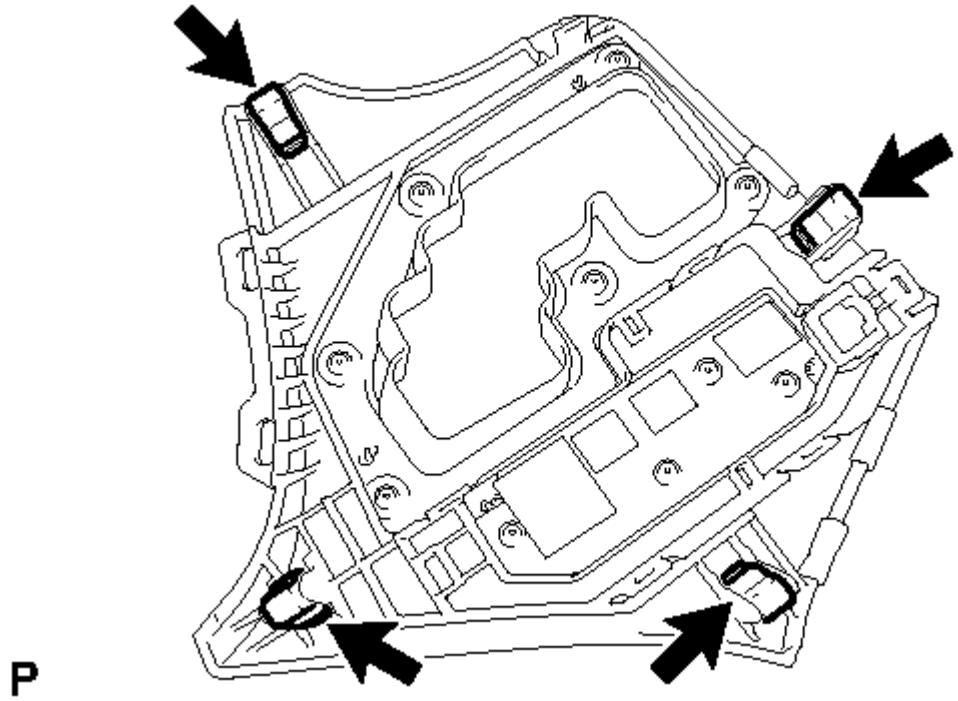


Fig. 87: Identifying Shift Position Indicator Housing & Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Disengage the 2 claws and remove the shift lock release button from the lower position indicator housing.

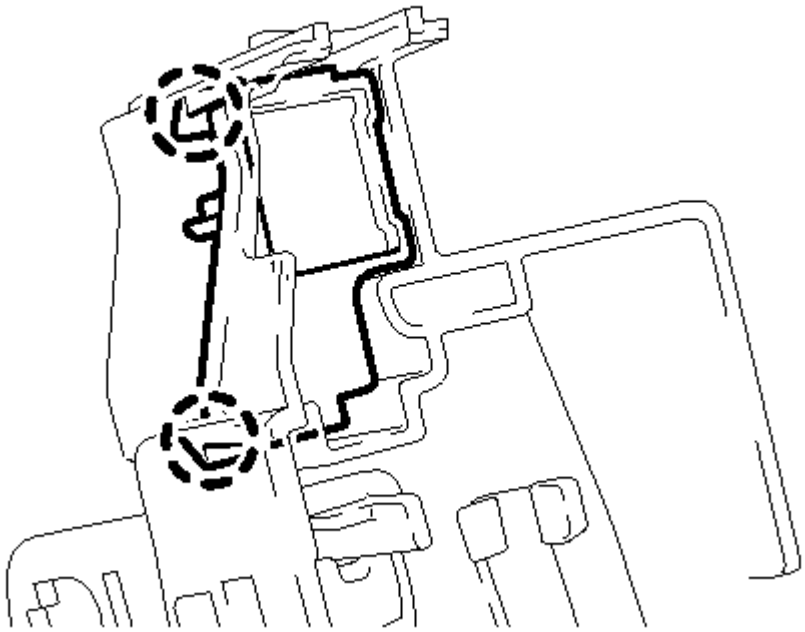


Fig. 88: Identifying Shift Lock Release Button & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Remove the shift lock release spring from the lower position indicator housing.

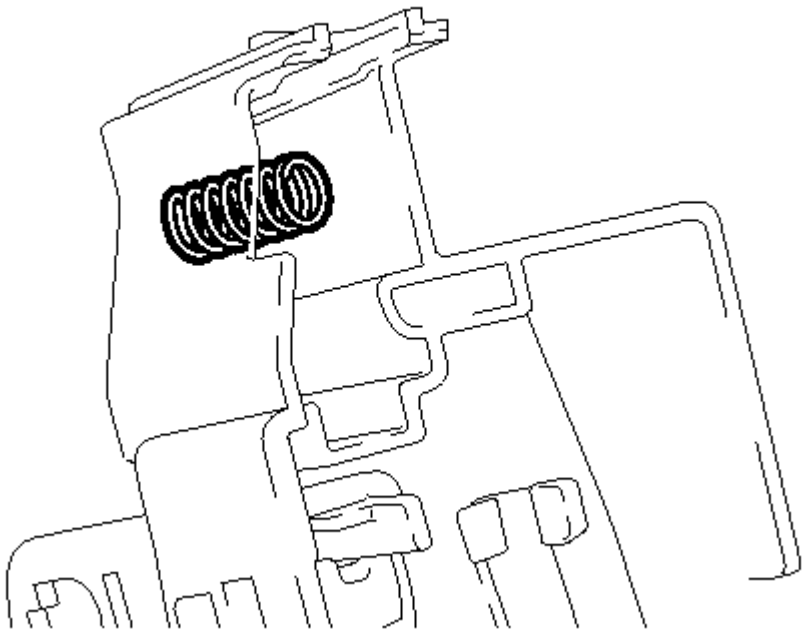
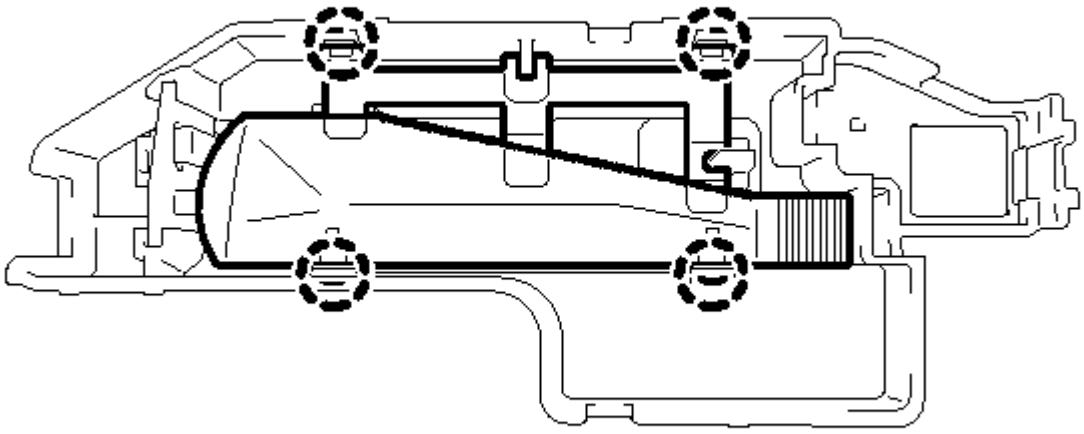


Fig. 89: Identifying Shift Lock Release Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

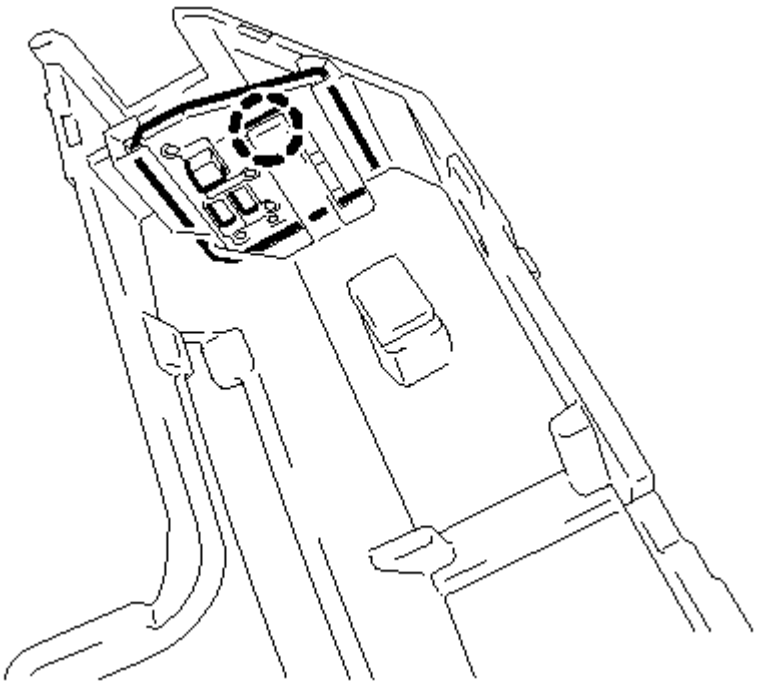
3. **REMOVE POSITION INDICATOR LIGHT GUIDE**
    a. Disengage the 4 claws and remove the position indicator light guide from the lower position indicator housing.



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Fig. 90: Identifying Position Indicator Light Guide & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

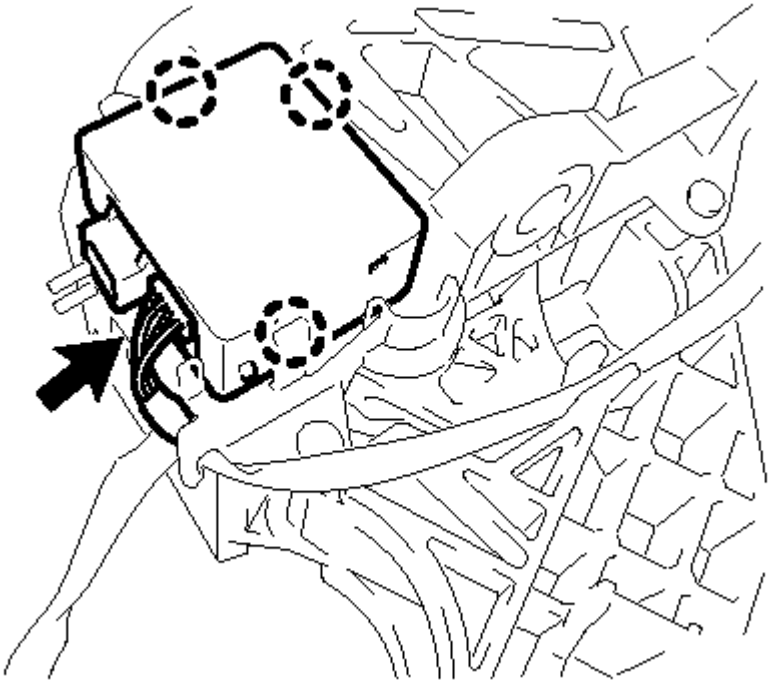
4. **REMOVE INDICATOR LIGHT WIRE SUB-ASSEMBLY**
    a. Disengage the claw and remove the indicator light wire from the lower position indicator housing.



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Fig. 91: Identifying Indicator Light Wire & Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE SHIFT LOCK CONTROL ECU SUB-ASSEMBLY**
   a. Disconnect the connector.



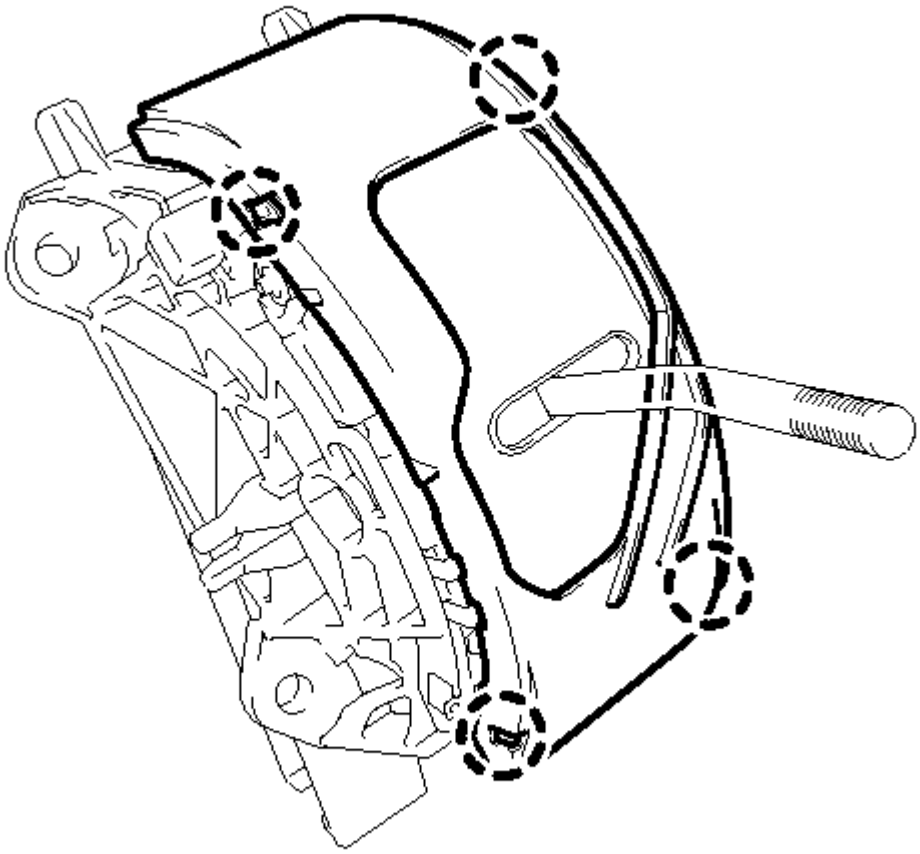
P

Fig. 92: Identifying Shift Lock Control ECU, Connector & Claws

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

b. Disengage the 3 claws and remove the shift lock control ECU from the shift lock control unit.

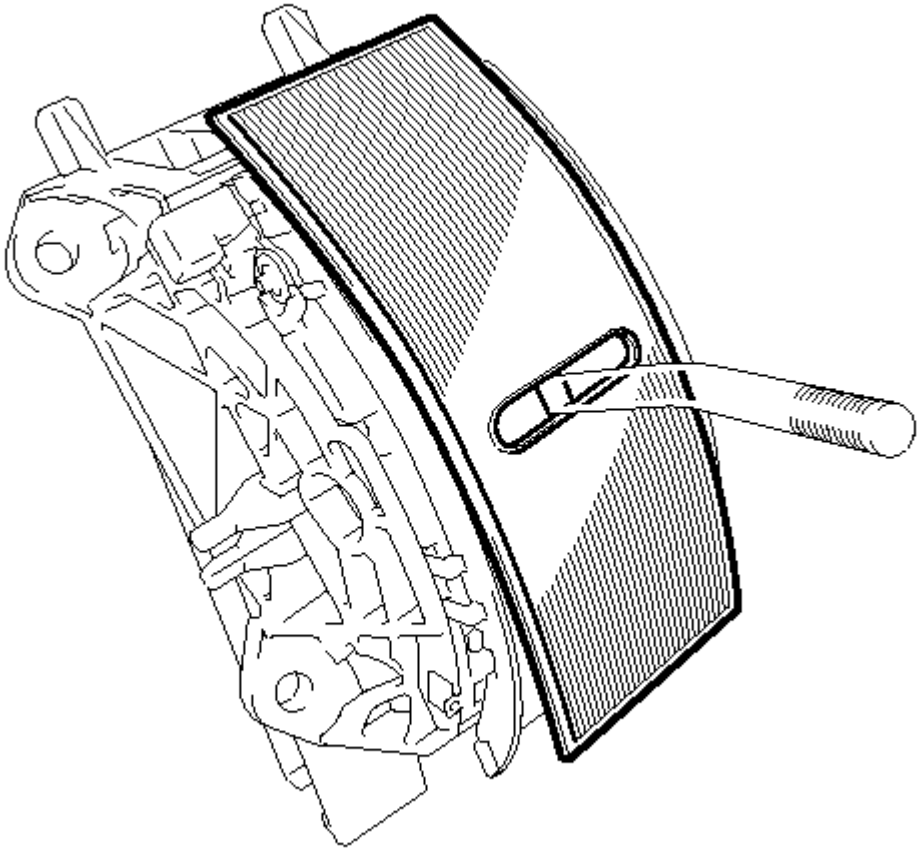
6. **REMOVE UPPER POSITION INDICATOR HOUSING**
   a. Disengage the 4 claws and remove the upper position indicator housing from the lower position indicator housing.



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Fig. 93: Identifying Upper Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

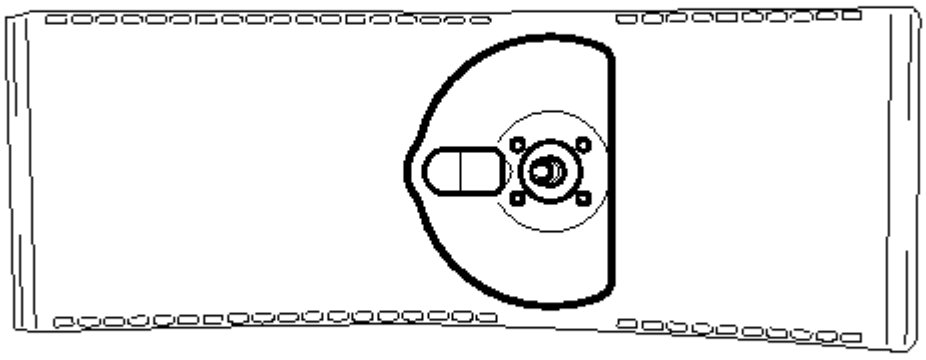
7. **REMOVE POSITION INDICATOR SLIDE COVER**
   a. Remove the position indicator slide cover from the lower position indicator housing.



P

Fig. 94: Identifying Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

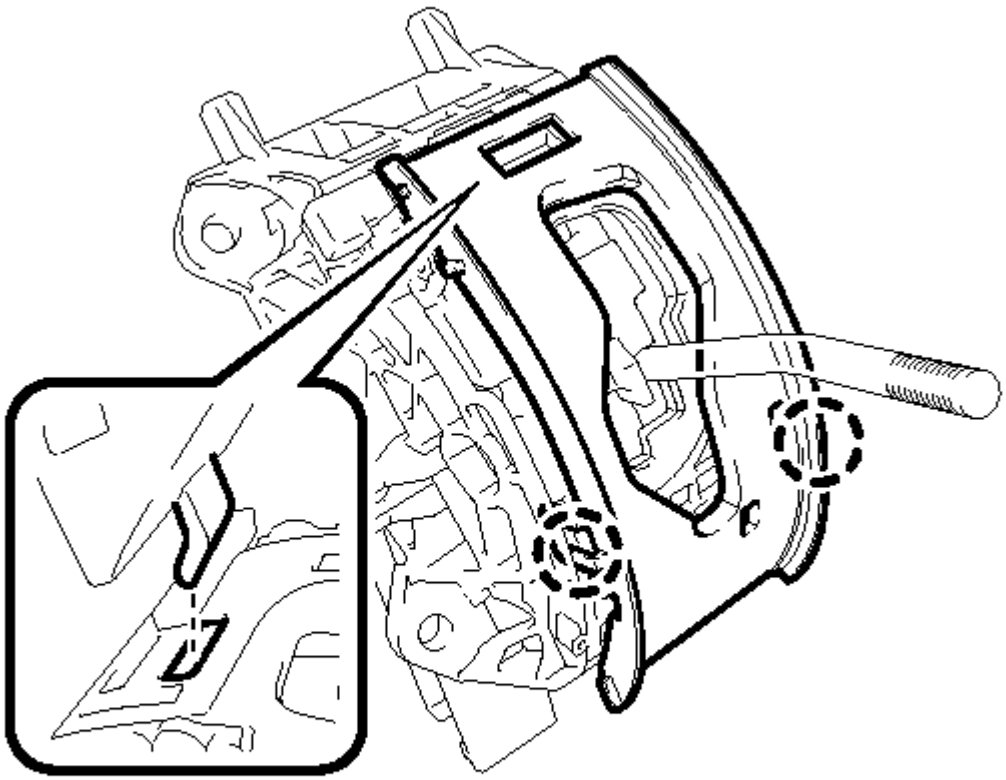
8. **REMOVE NO. 2 POSITION INDICATOR SLIDE COVER**
    a. Remove the No. 2 position indicator slide cover from the position indicator slide cover.



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Fig. 95: Identifying No. 2 Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE LOWER POSITION INDICATOR HOUSING**
    a. Disengage the 2 claws and remove the lower position indicator housing from the shift lock control unit.



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Fig. 96: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT SHIFT LOCK CONTROL ECU (w/o Smart Key System)**
    a. Measure the voltage according to the value(s) in the table below.

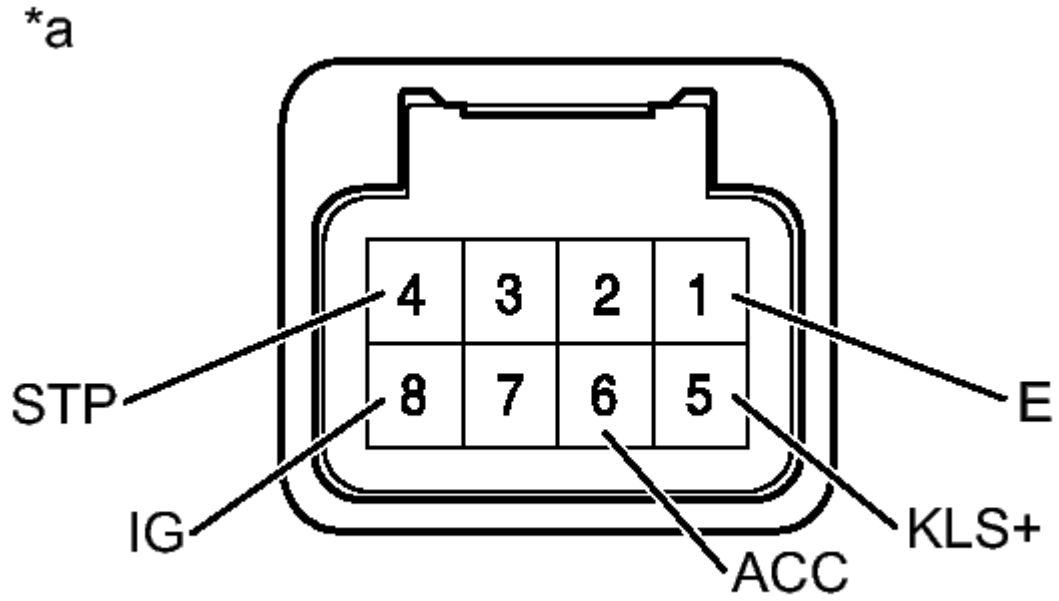


Fig. 97: Shift Lock Control ECU Connector End View (w/o Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Shift Lock Control ECU)

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
4 (STP) - 1 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
	1. Ignition switch ACC	Below 1

5 (KLS+) - 1 (E)	and shift lever in P	V
	2. Ignition switch ACC and shift lever not in P (Within approximately 1 second)	7.5 to 10.5 V
	3. Ignition switch ACC and shift lever not in P (After approximately 1 second)	6 to 9 V
6 (ACC) - 1 (E)	Ignition switch ACC	11 to 14 V
	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
8 (IG) - 1 (E)	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

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

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (E) - Body ground	Always	Below 1 ohms

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

2. **INSPECT SHIFT LOCK CONTROL ECU (w/ Smart Key System)**
   a. Measure the voltage according to the value(s) in the table below.

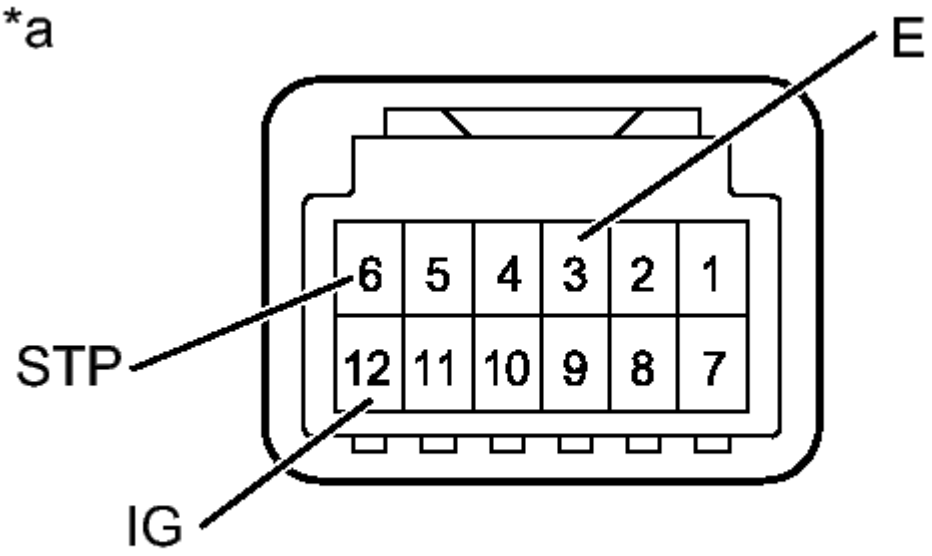


Fig. 98: Shift Lock Control ECU Connector End View (w/ Smart Key System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Shift Lock Control ECU)

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
6 (STP) - 3	Brake pedal depressed	11 to 14 V

(E)	Brake pedal released	Below 1 V
12 (IG) - 3 (E)	Engine switch on (IG)	11 to 14 V
	Engine switch off	Below 1 V

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

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

HINT:

Do not disconnect the shift lock control ECU connector.

Standard Resistance

Tester Connection	Condition	Specified Condition
3 (E) - Body ground	Always	Below 1 ohms

If the result is not as specified and there are no problems with the wire harness, replace the shift lock control ECU.

3. **INSPECT TRANSMISSION CONTROL SWITCH**

a. Measure the resistance according to the value(s) in the table below when the shift lever is moved to each position.

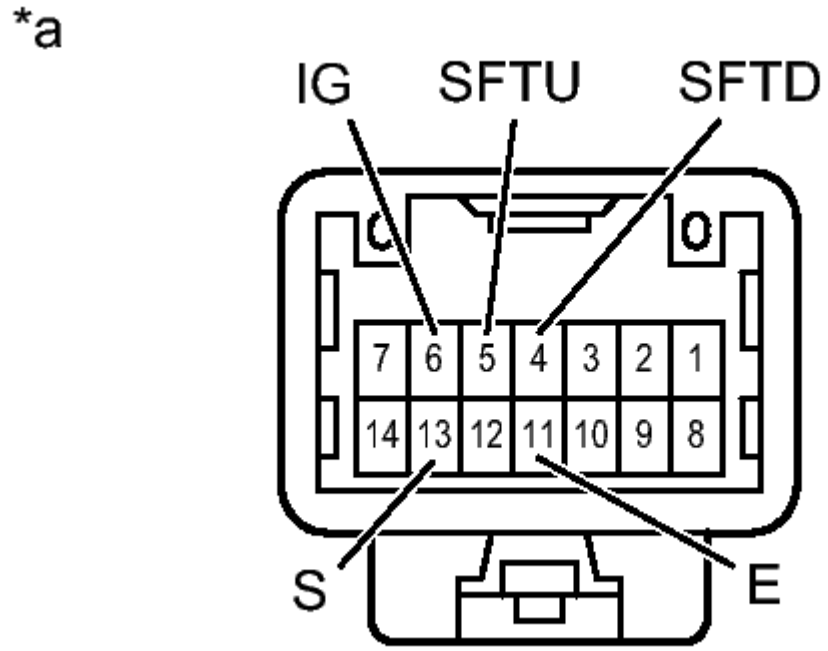


Fig. 99: Transmission Control Switch Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Transmission Control Switch)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
6 (IG) - 13 (S)	S, "+" or "-"	Below 1 ohms
	Except S, "+" and "- "	10 kohms or higher
5 (SFTU) - 11 (E)	"+" Pressed continuously (Upshift)	Below 1 ohms
	S	10 kohms or higher
	"-" Pressed	Below 1

4 (SFTD) - 11 (E)	continuously (Downshift)	ohms
	S	10 kohms or higher

If the result is not as specified, replace the shift lock control unit.

4. **INSPECT SHIFT LOCK SOLENOID**
   a. Disconnect the shift lock solenoid connector of the shift lock ECU.

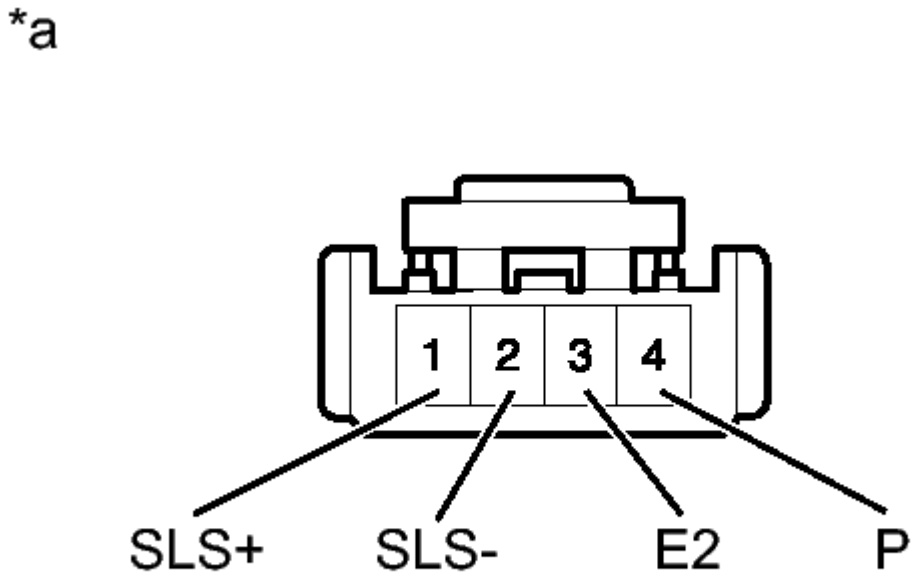


Fig. 100: Shift Lock Solenoid Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Measure the resistance according to the value(s) in the table below when the shift lever is moved to each position.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Shift Lock Solenoid)

Standard Resistance

Tester Connection	Shift Lever Position	Specified Condition
4 (P) - 3 (E2)	P	10 kohms or higher
	Except P	Below 1 ohms

If the result is not as specified, replace the shift lock control unit.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
1 (SLS+) - 2 (SLS-)	Always	112 ohms

If the result is not as specified, replace the shift lock control unit.

ADJUSTMENT

ADJUSTMENT

1. **ADJUST SHIFT LEVER POSITION**
   a. Move the shift lever to N.
   b. Disconnect the shift lock control ECU connector and transmission control switch wire connector.

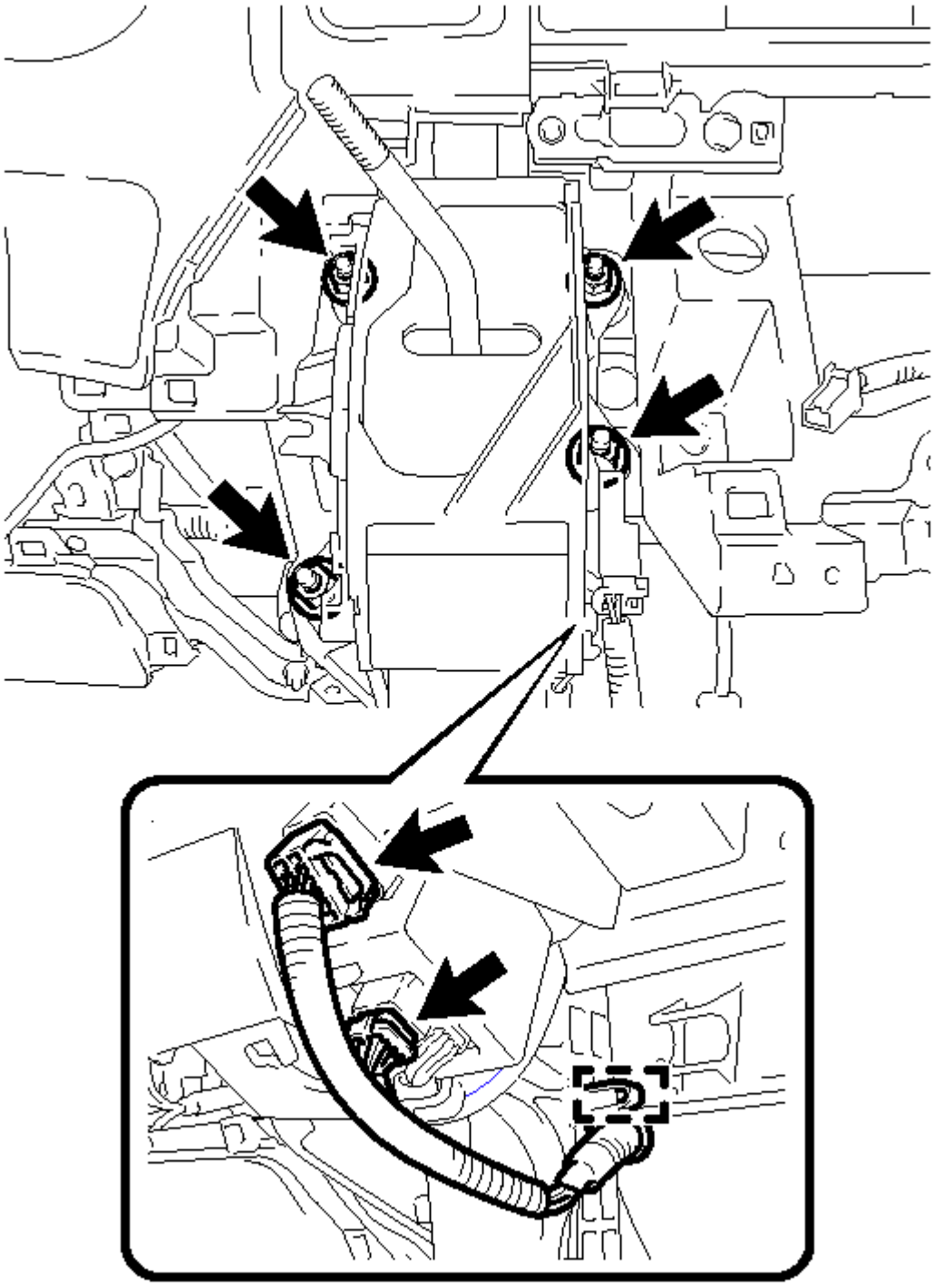


Fig. 101: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the 4 nuts and shift lever.
d. Disconnect the end of the transmission control cable from the shift lever.

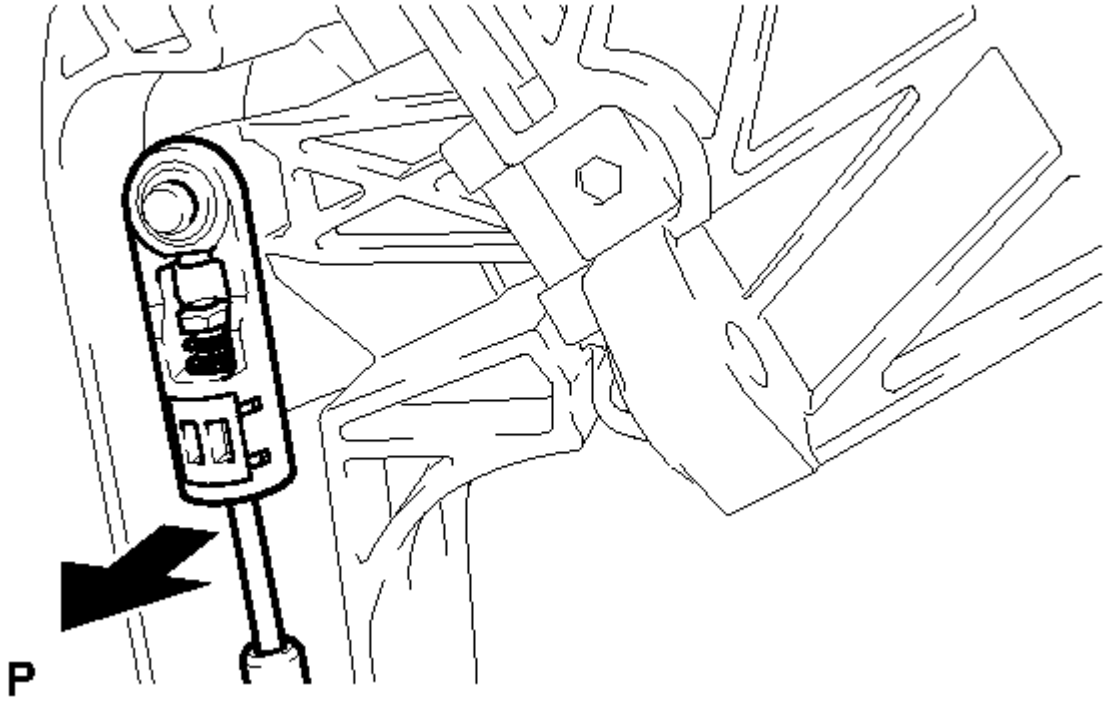


Fig. 102: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a screwdriver, pull out the transmission control cable stopper.

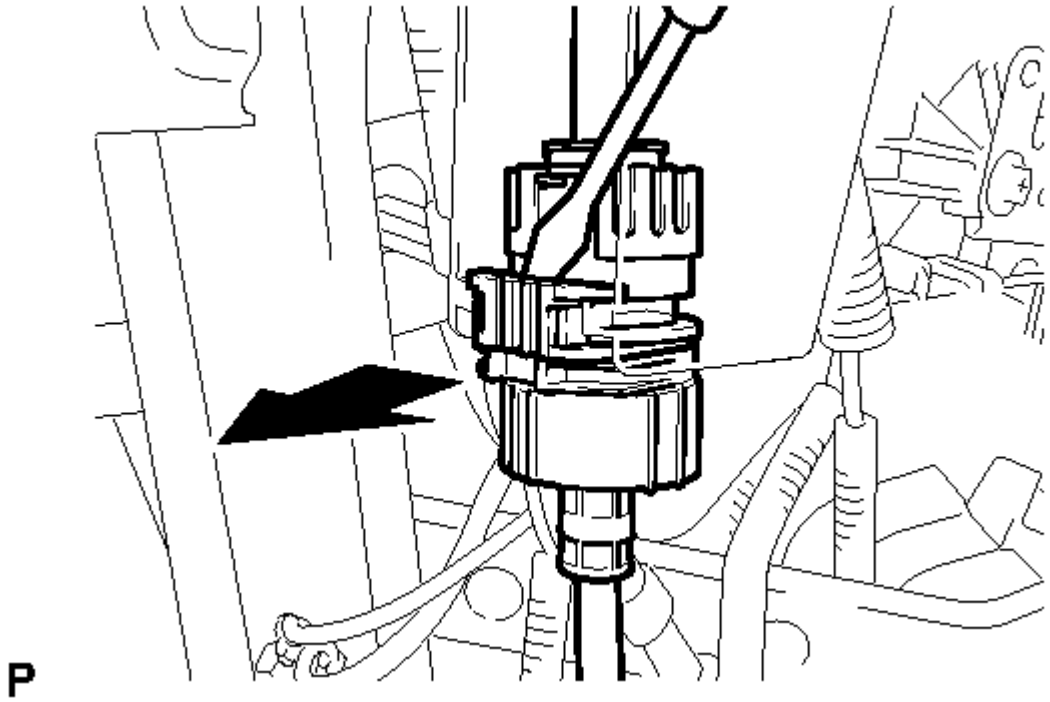


Fig. 103: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not remove the stopper. If the stopper is removed, reinstall it to its original position.

f. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

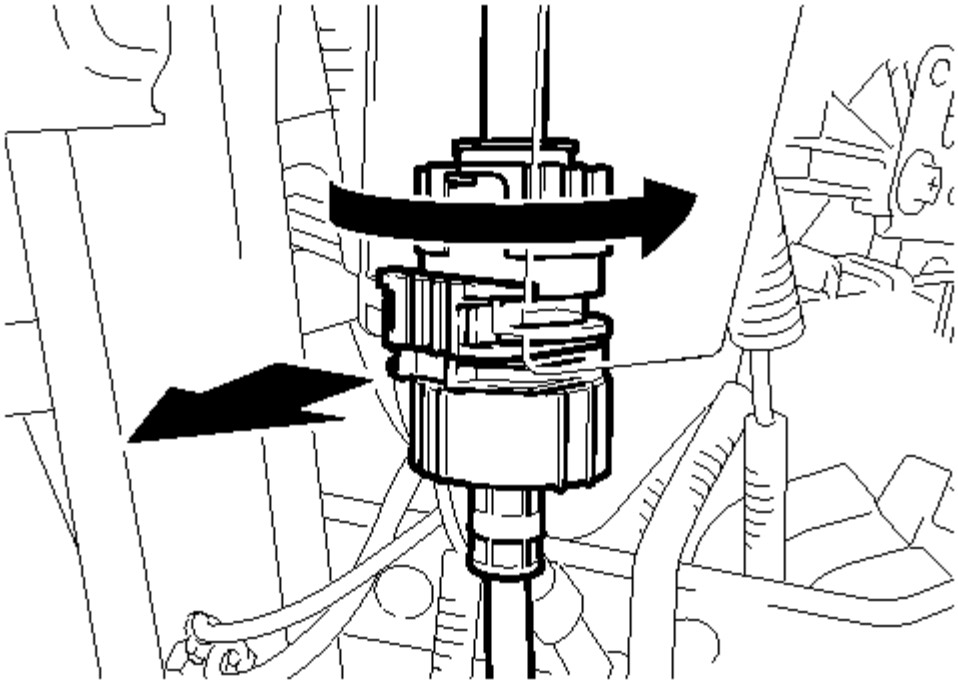
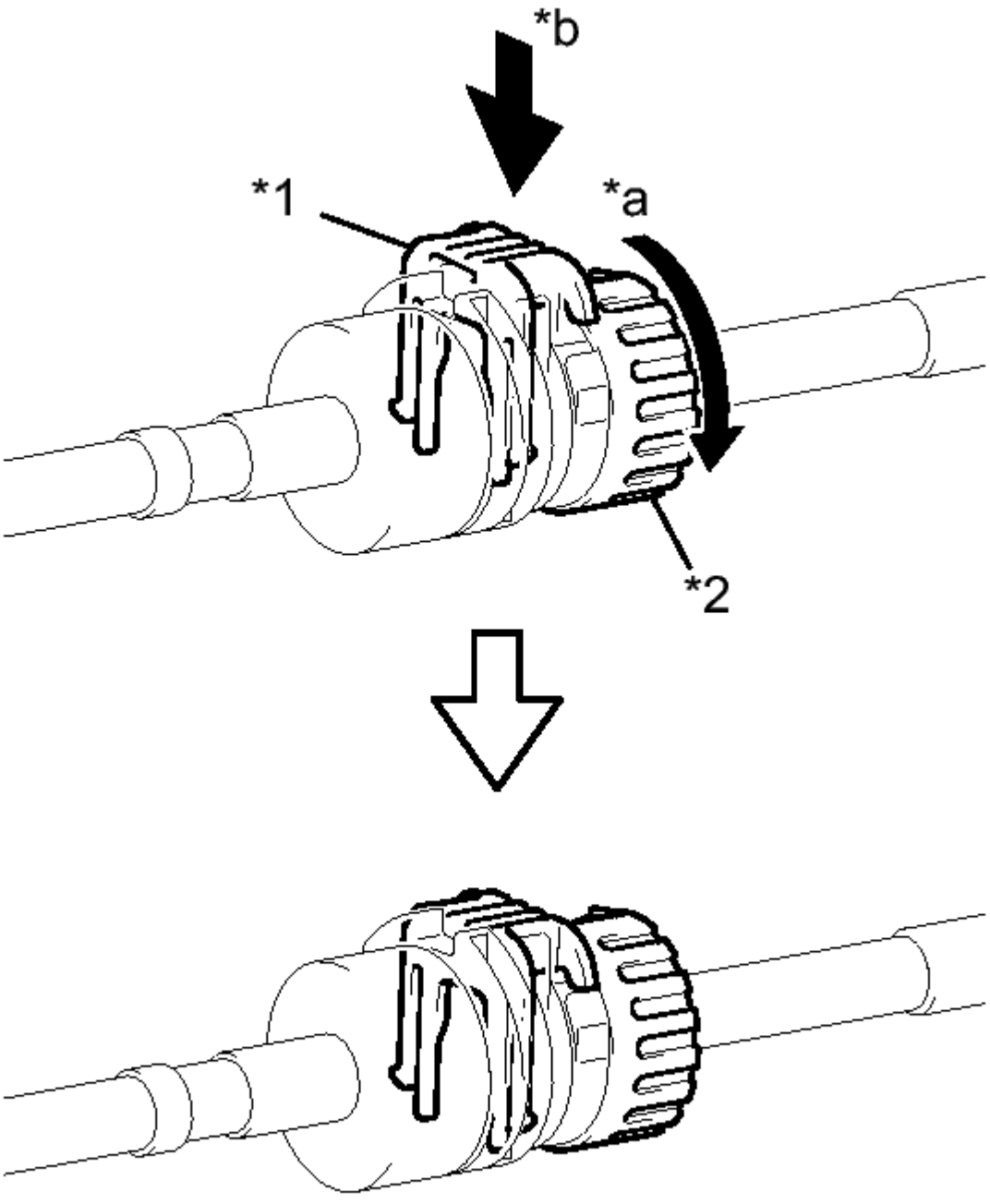


Fig. 104: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



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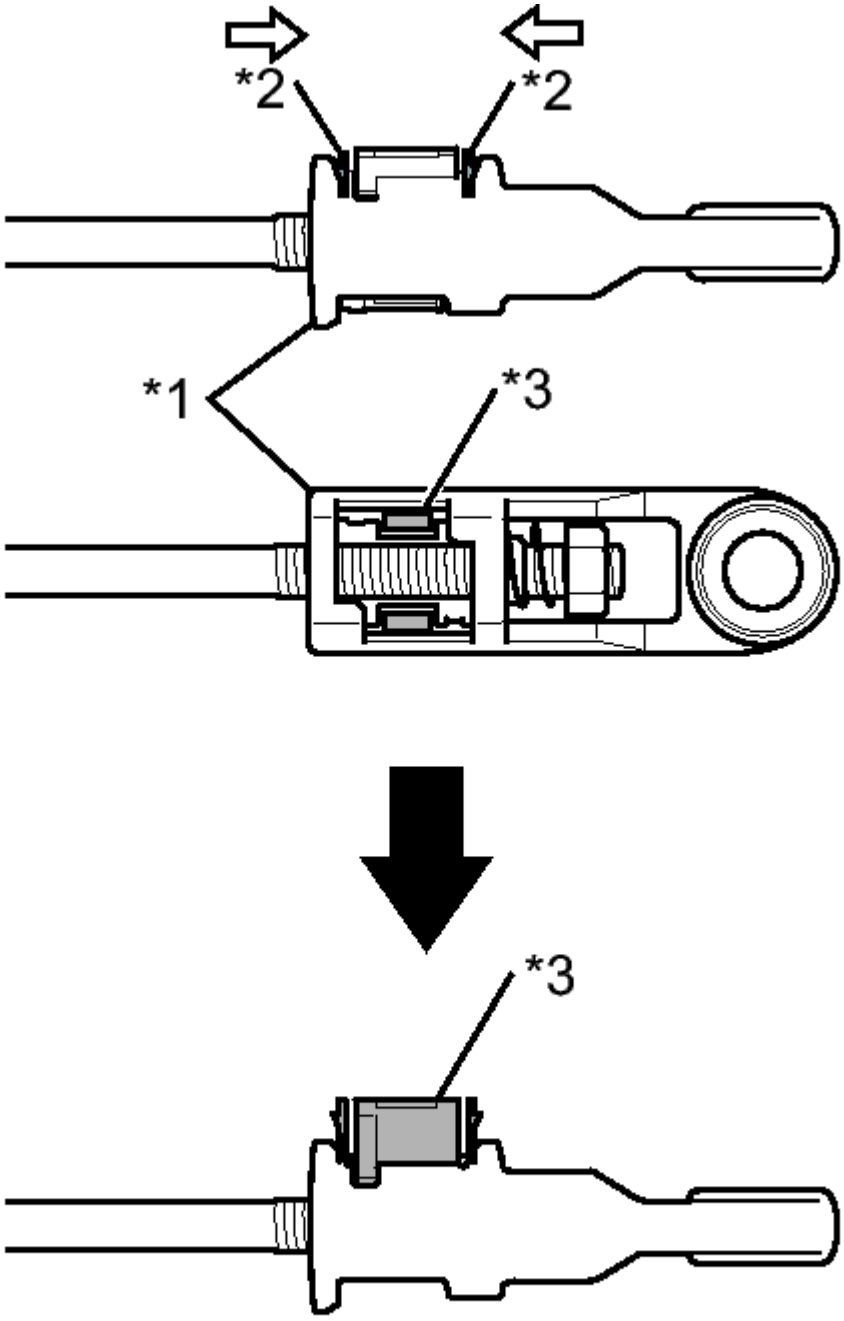
Fig. 105: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

h. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 106: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

i. Check that the park/neutral position switch and the shift lever are in N position.

j. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

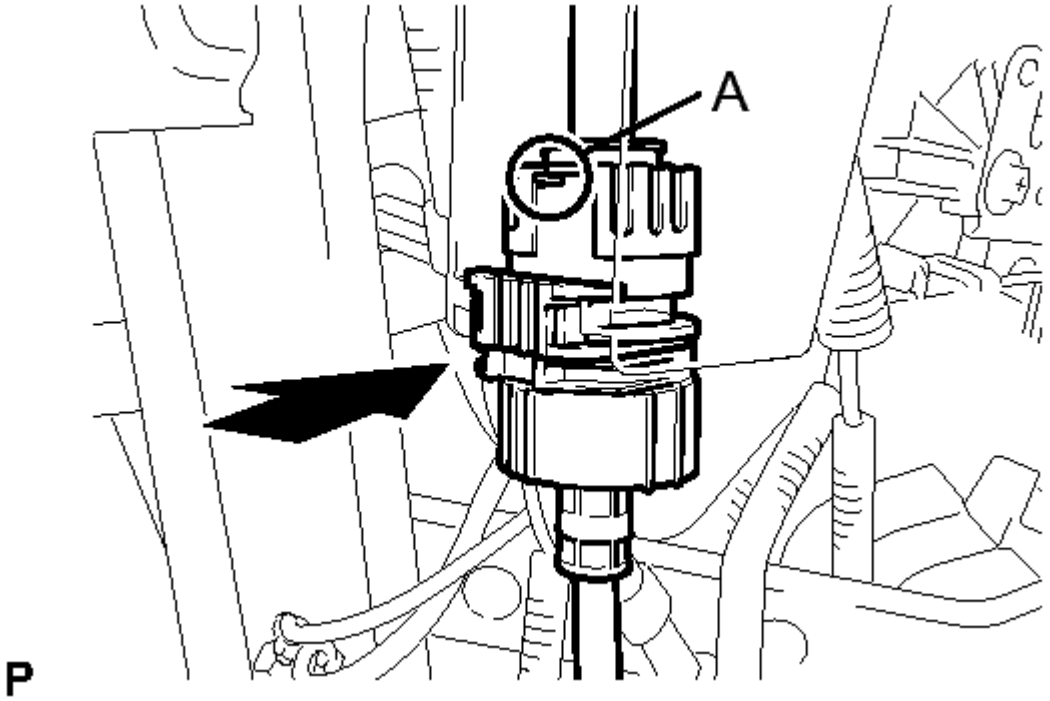


Fig. 107: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

k. Connect the transmission control cable end to the shift lever.

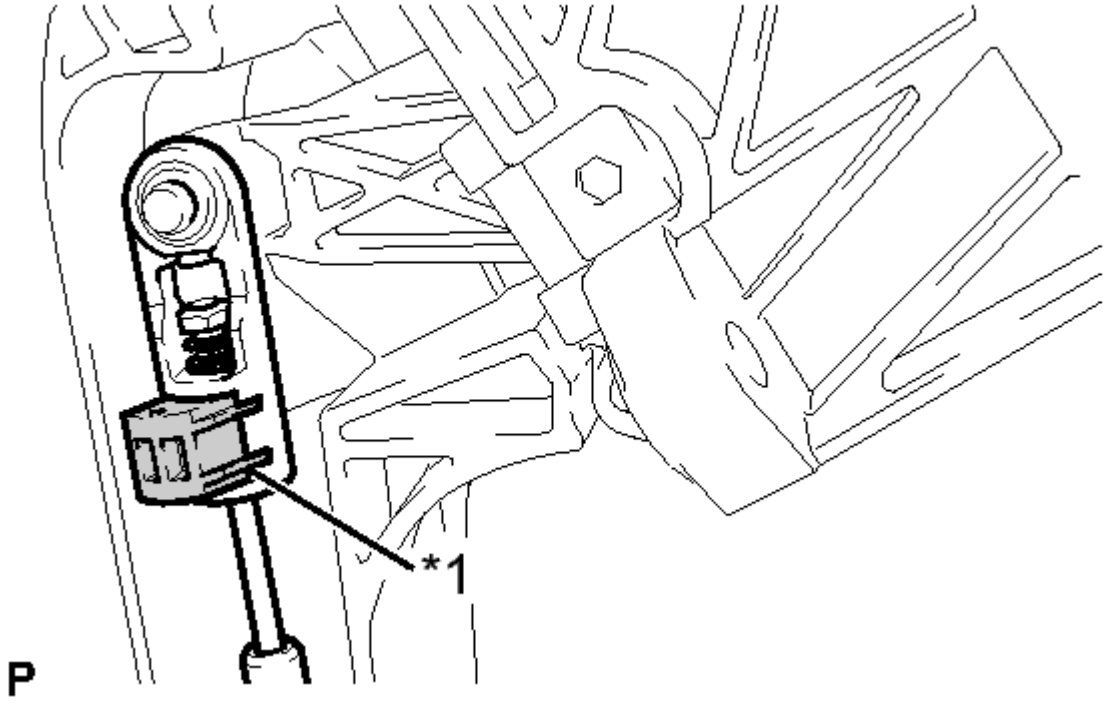


Fig. 108: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

l. Install the shift lever with the 4 nuts.

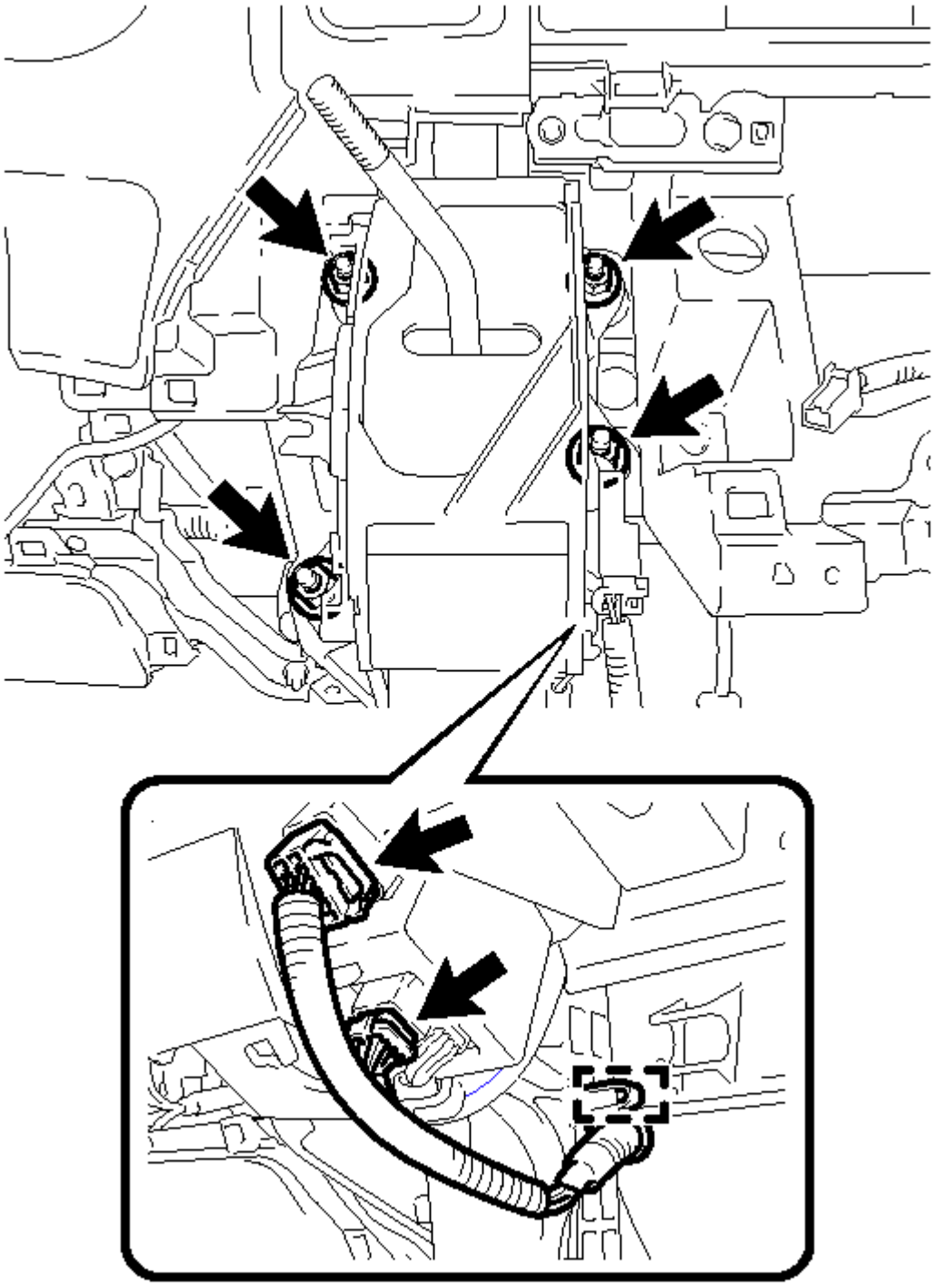


Fig. 109: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

m. Connect the shift lock control ECU connector and transmission control switch wire connector.
n. Press in and lock the lock piece to the adjuster case.

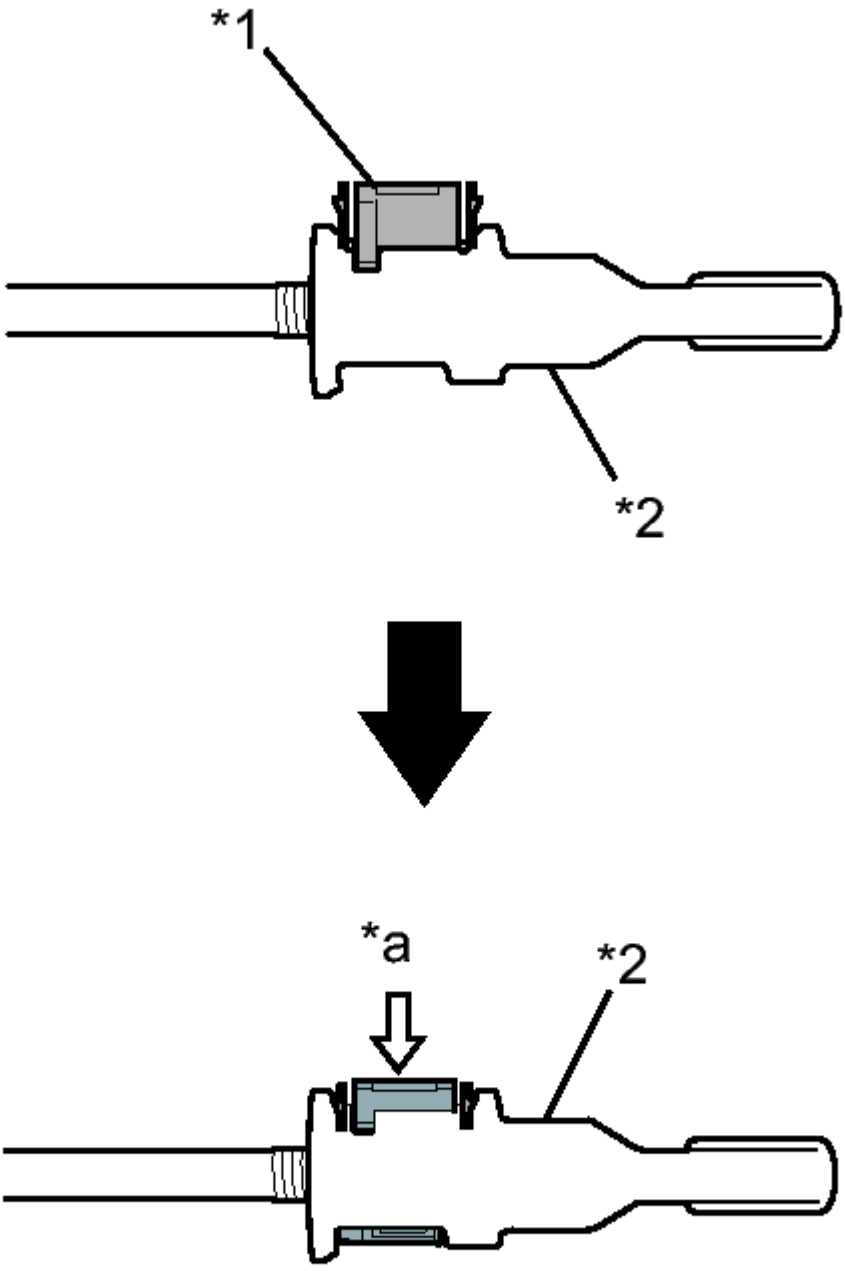


Fig. 110: Pressing Lock Piece At Adjuster Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece
*2	Adjuster Case
*a	Press in

NOTE:

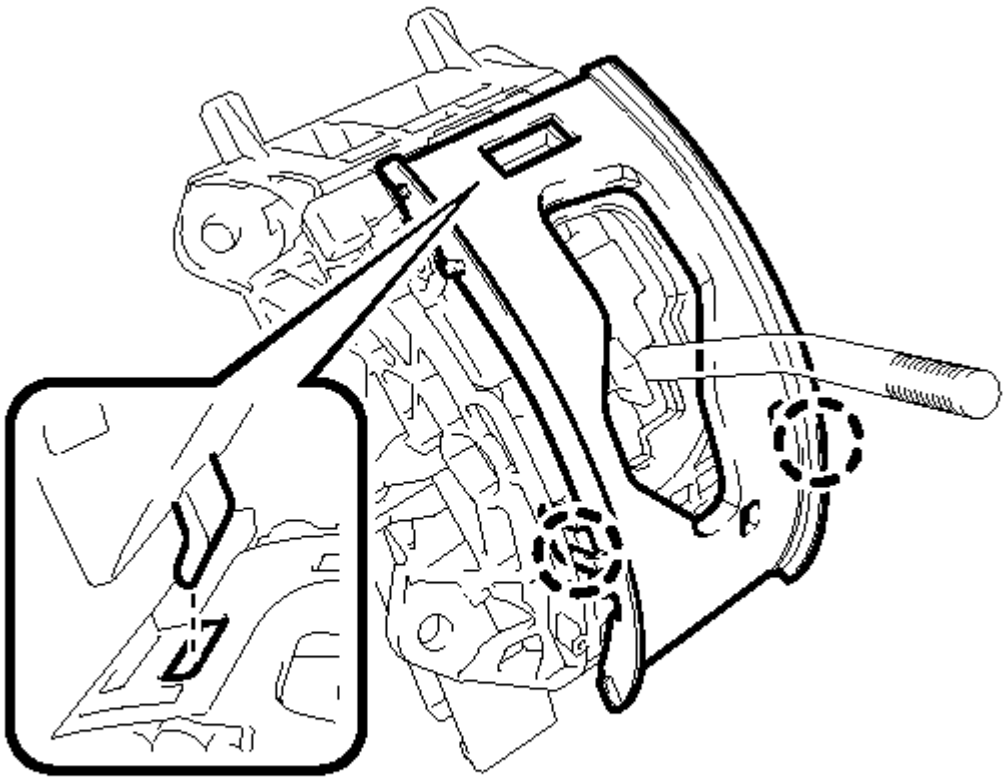
- **Check that the park/neutral position switch and the shift lever are in N position.**
- **Securely press in the lock piece until the lock engages.**

2. **INSPECT SHIFT LEVER POSITION** See step 1

REASSEMBLY

REASSEMBLY

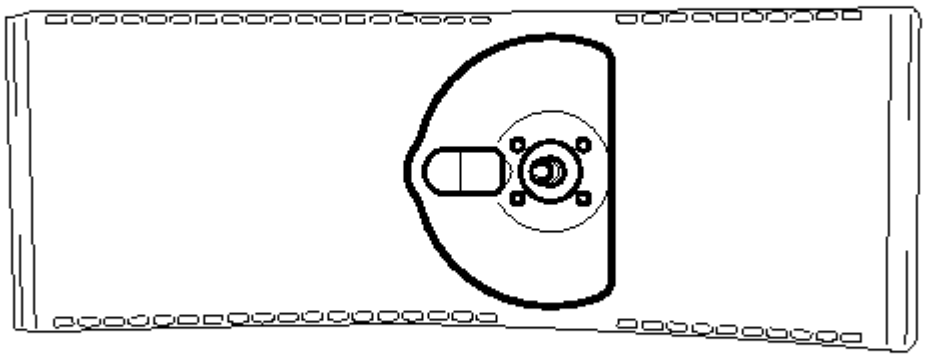
1. **INSTALL LOWER POSITION INDICATOR HOUSING**
   a. Put the guide in position and engage the 2 claws to install the lower position indicator housing onto the shift lock control unit.



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Fig. 111: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

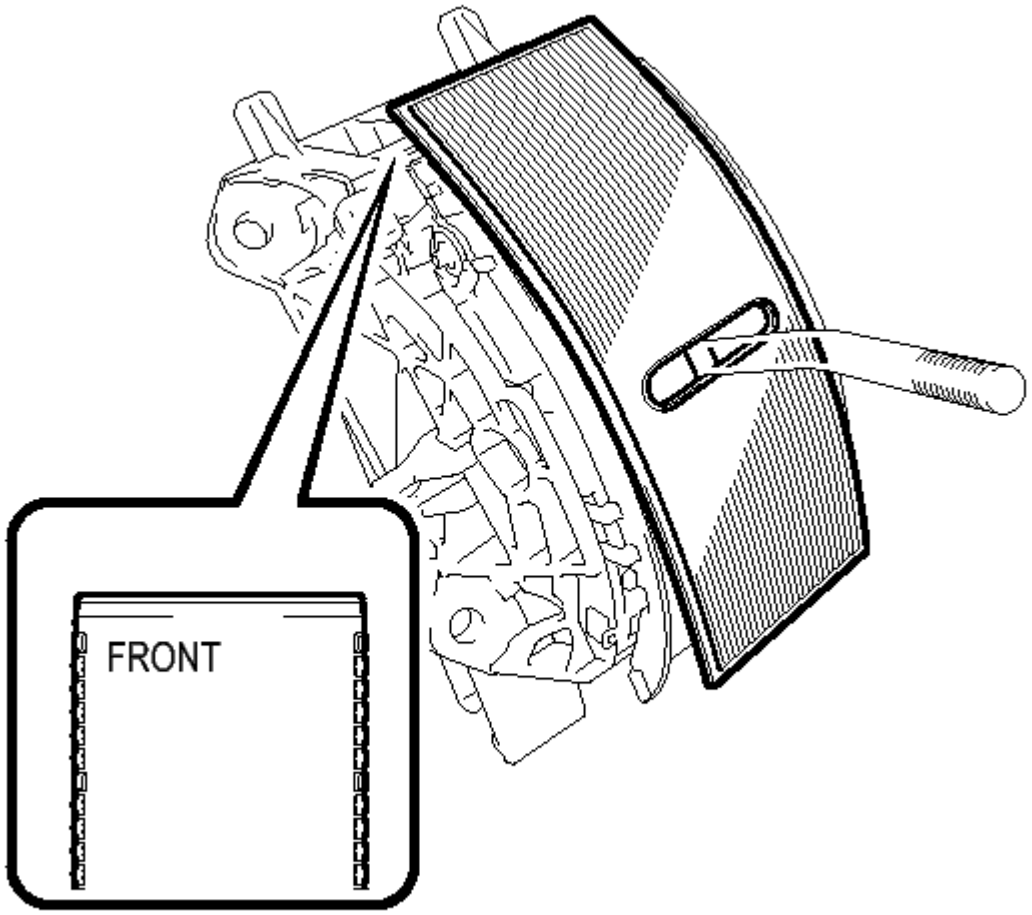
2. **INSTALL NO. 2 POSITION INDICATOR SLIDE COVER**
   a. Install the No. 2 position indicator slide cover onto the position indicator slide cover.



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Fig. 112: Identifying No. 2 Position Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

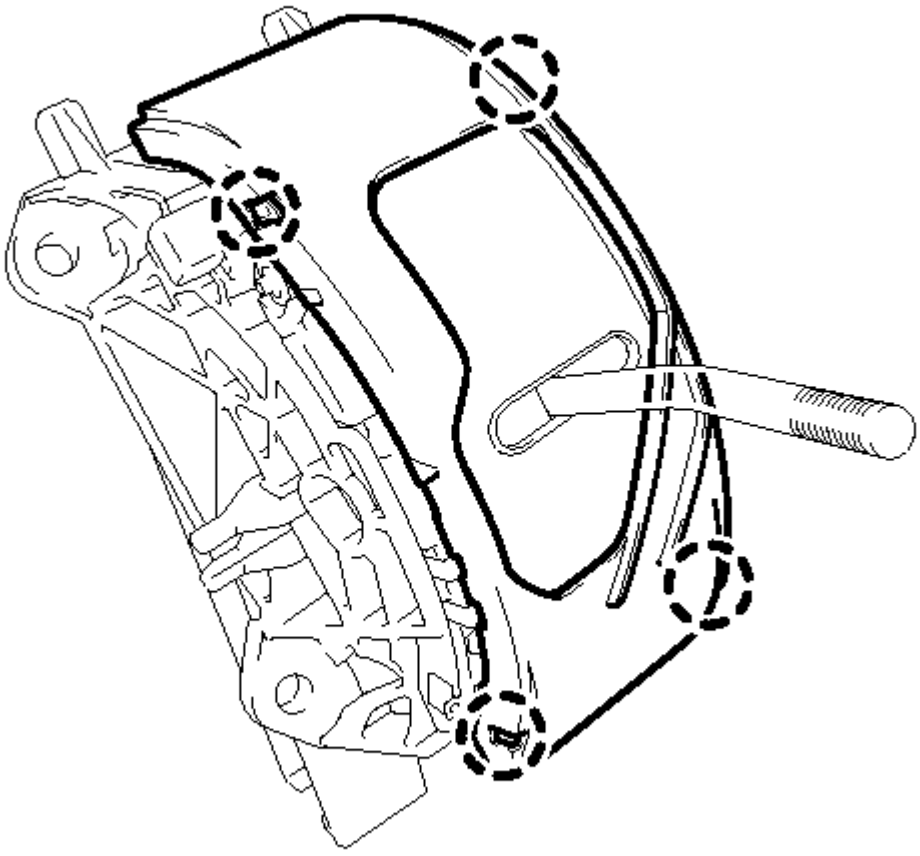
3. **INSTALL POSITION INDICATOR SLIDE COVER**
   a. Install the position indicator slide cover onto the lower position indicator housing as shown in the illustration.



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Fig. 113: Identifying Front Position Of Indicator Slide Cover
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

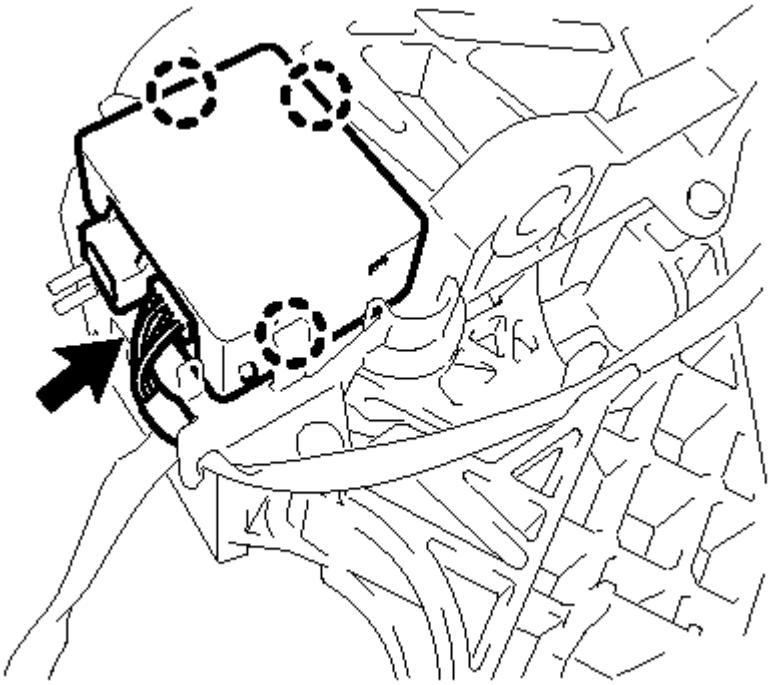
4. **INSTALL UPPER POSITION INDICATOR HOUSING**
    a. Engage the 4 claws to install the upper position indicator housing onto the lower position indicator housing.



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Fig. 114: Identifying Upper Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL SHIFT LOCK CONTROL ECU SUB-ASSEMBLY**
    a. Engage the 3 claws to install the shift lock control ECU onto the shift lock control unit.



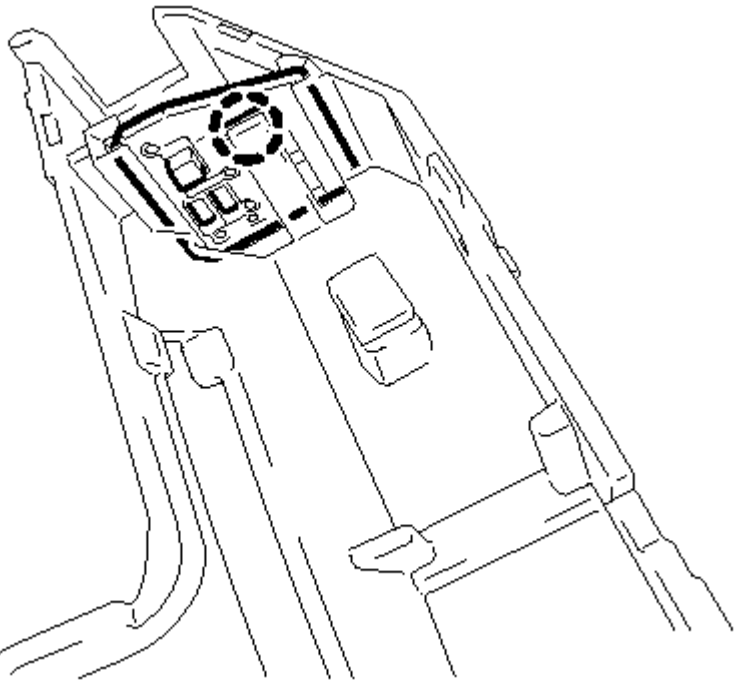
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Fig. 115: Identifying Shift Lock Control ECU, Connector & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Connect the connector.

6. **INSTALL INDICATOR LIGHT WIRE SUB-ASSEMBLY**

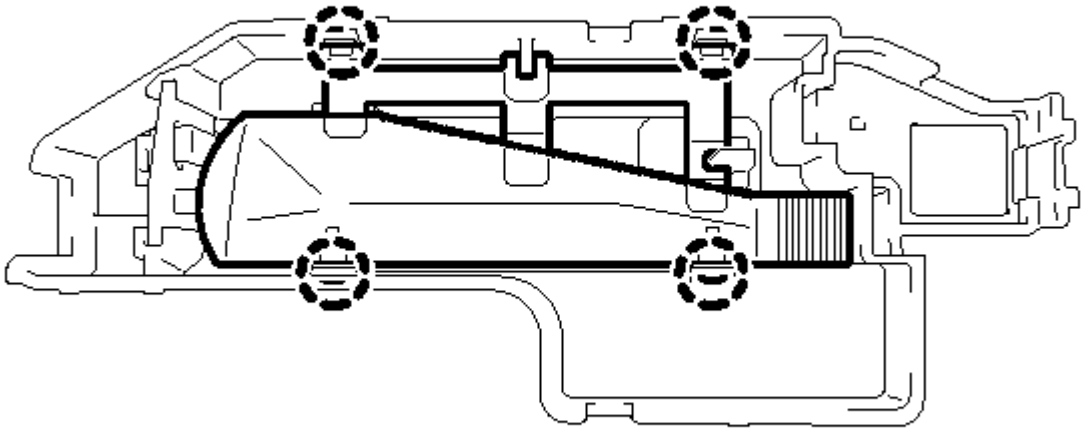
a. Engage the claw to install the indicator light wire onto the lower position indicator housing.



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Fig. 116: Identifying Indicator Light Wire & Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **INSTALL POSITION INDICATOR LIGHT GUIDE**
    a. Engage the 4 claws to install the position indicator light guide onto the lower position indicator housing.



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Fig. 117: Identifying Position Indicator Light Guide & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL LOWER POSITION INDICATOR HOUSING**
    a. Install the shift lock release spring onto the lower position indicator housing.

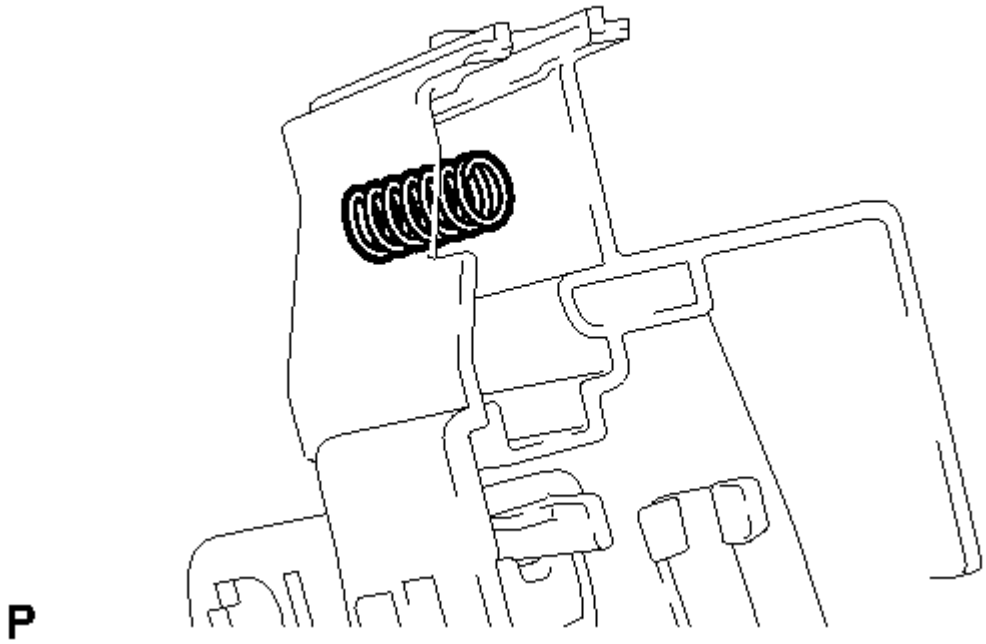


Fig. 118: Identifying Shift Lock Release Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Engage the 2 claws to install the shift lock release button onto the lower position indicator housing.

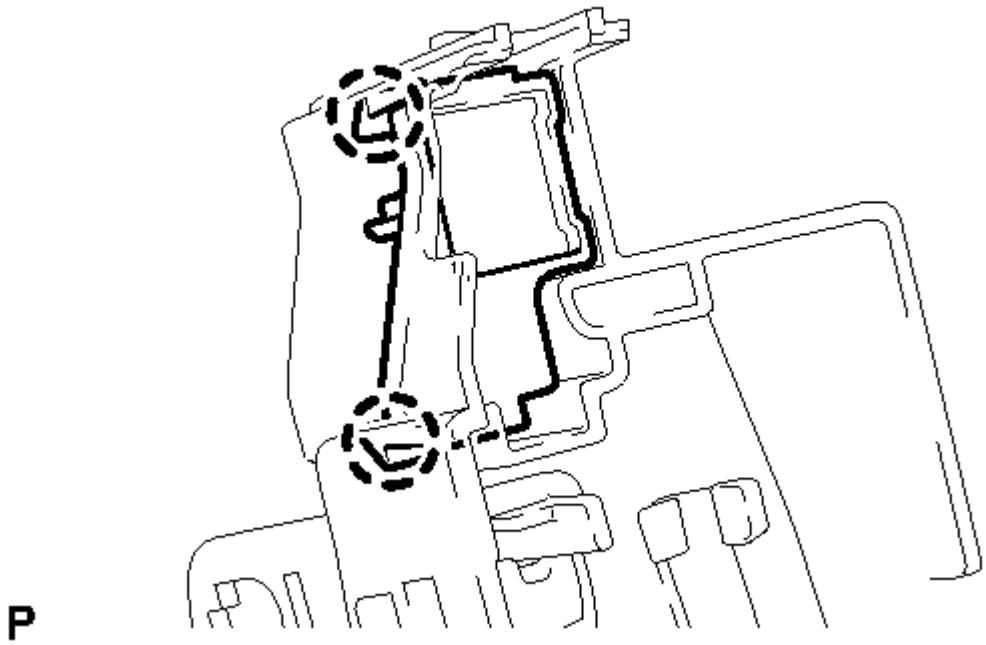


Fig. 119: Identifying Shift Lock Release Button & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Install the 4 clips onto the shift position indicator housing.

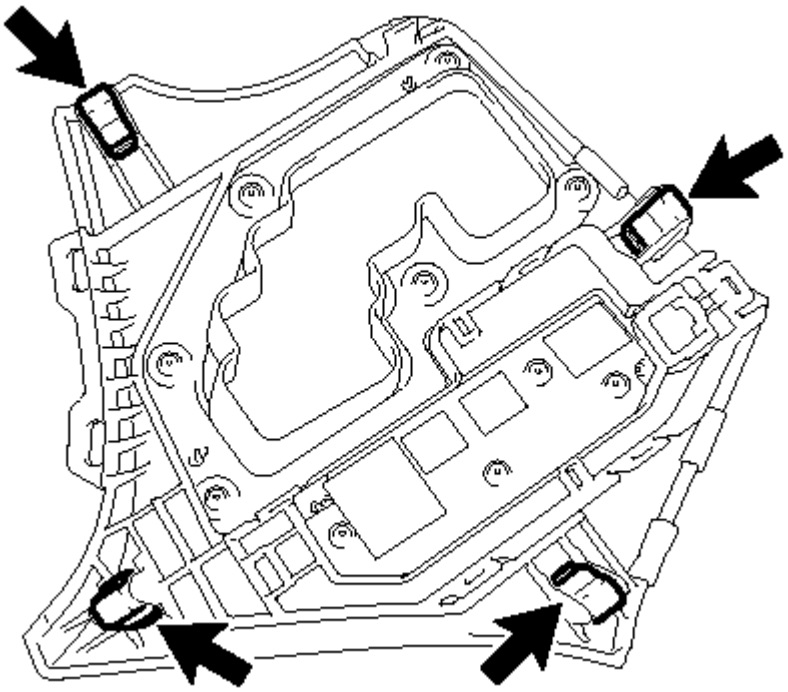
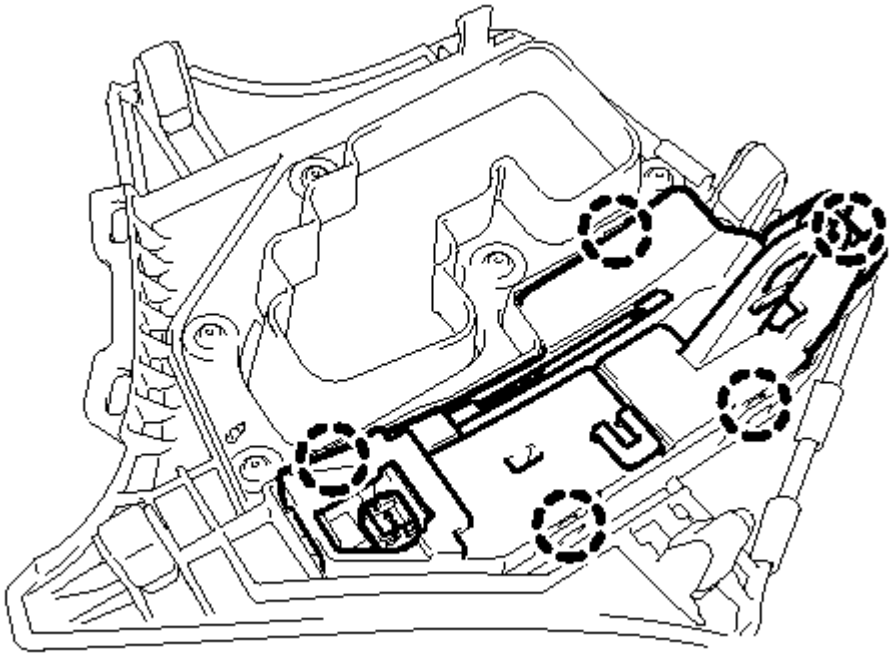


Fig. 120: Identifying Shift Position Indicator Housing & Clips
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

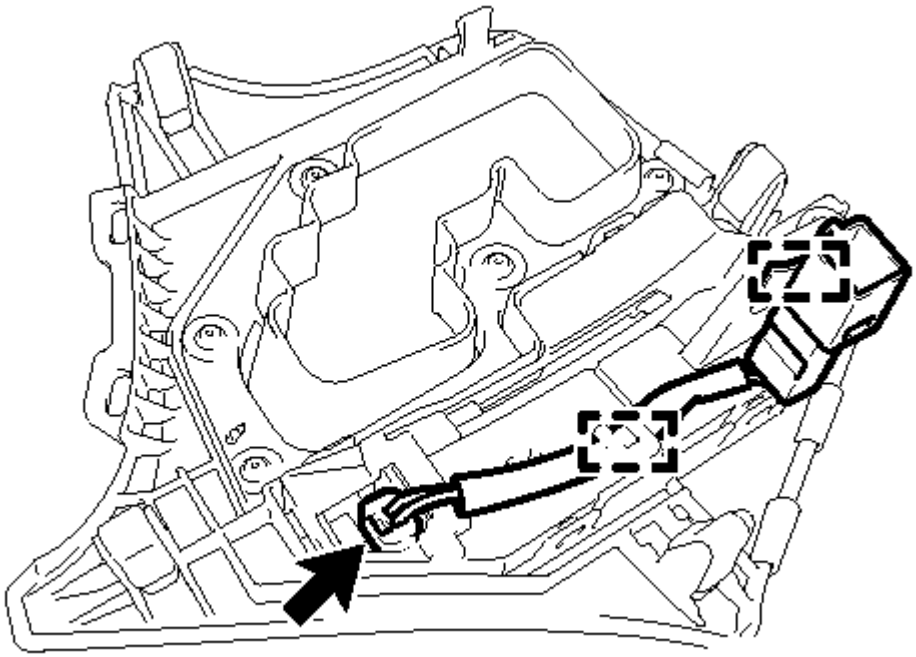
d. Engage the 5 claws to install the lower position indicator housing onto the shift position indicator housing.



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Fig. 121: Identifying Lower Position Indicator Housing & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Connect the connector and 2 clamps to install the wire harness onto the lower position indicator housing.



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Fig. 122: Identifying Lower Position Indicator Housing Connector & Clamps

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

9. **INSTALL SHIFT LEVER CAP**
    a. Install the shift lever cap onto the shift position indicator housing.

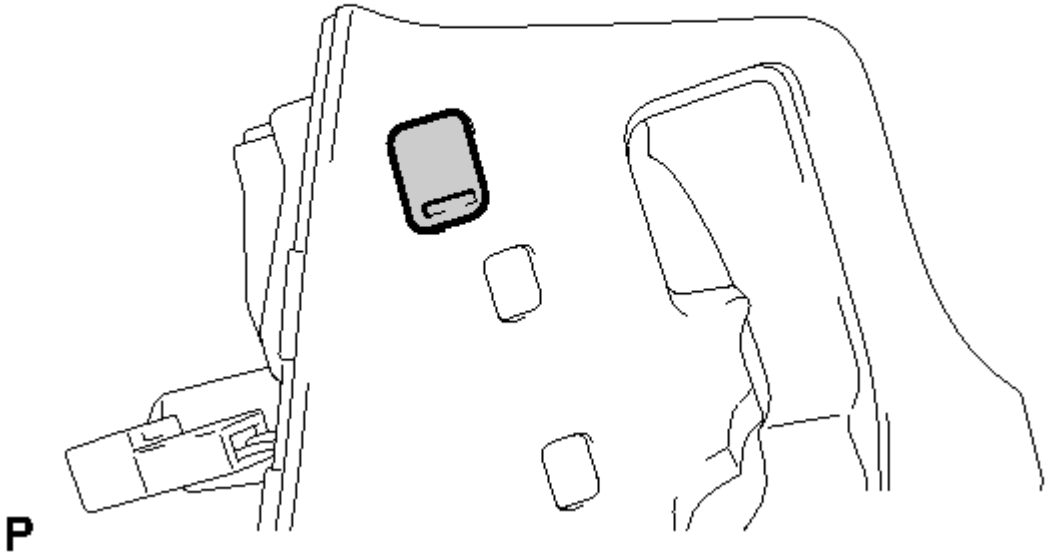
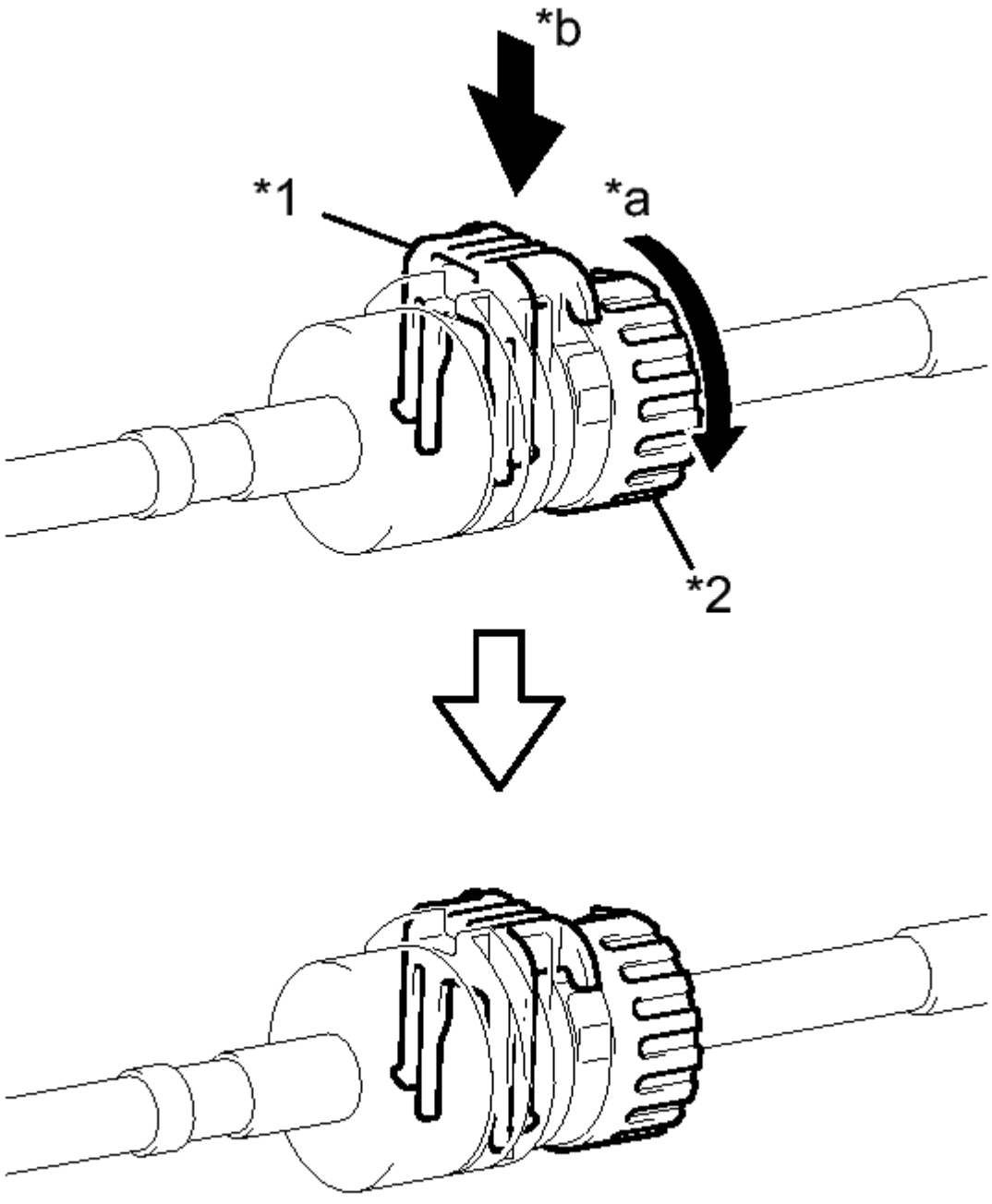


Fig. 123: Identifying Shift Lever Cap At Shift Position Indicator Housing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **CONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**
    a. Check that the park/neutral position switch and the shift lever are in N position.
    b. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



P

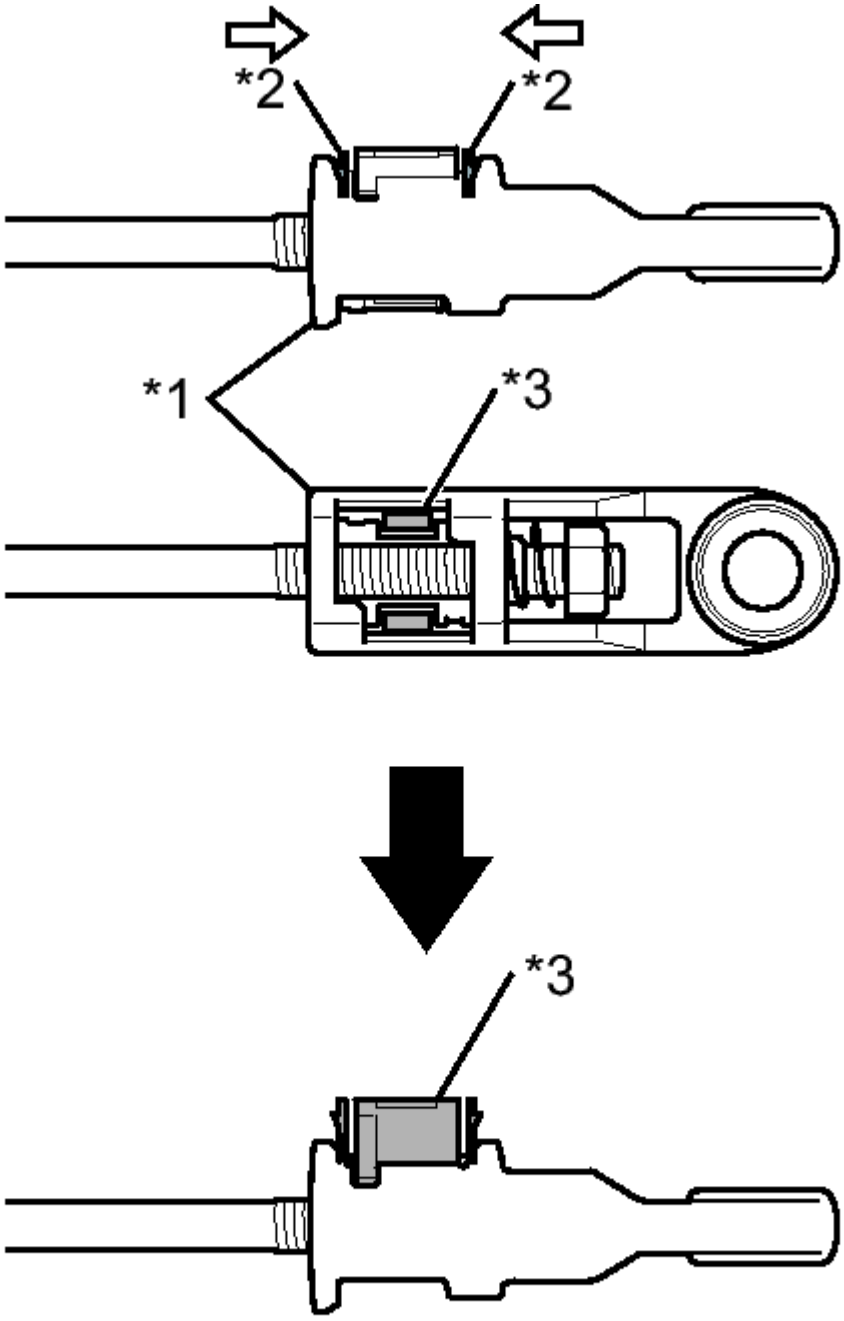
Fig. 124: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

c. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 125: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

d. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

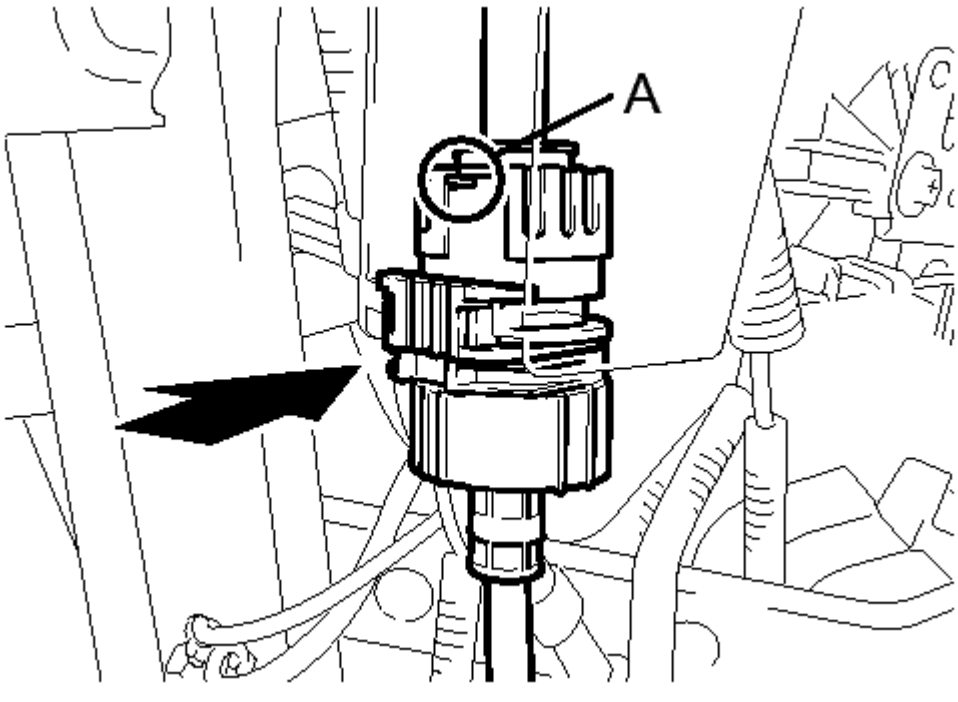


Fig. 126: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

e. Connect the transmission control cable end to the shift lever.

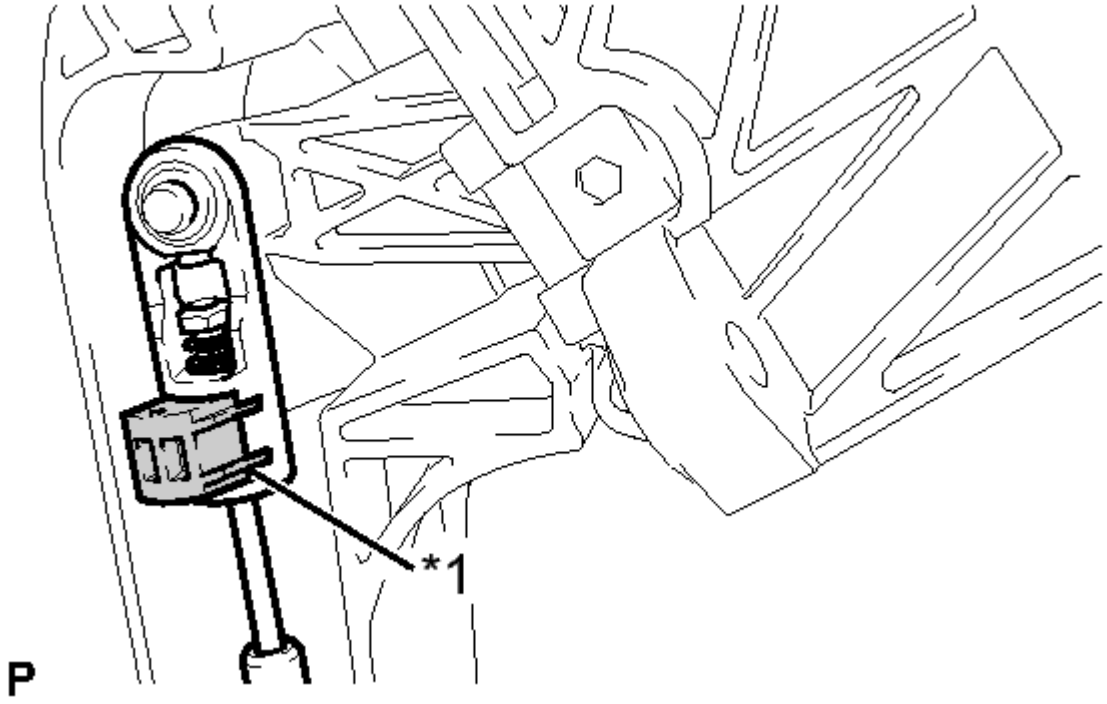


Fig. 127: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

2. **INSTALL SHIFT LEVER ASSEMBLY**
   a. Install the shift lever with the 4 nuts.

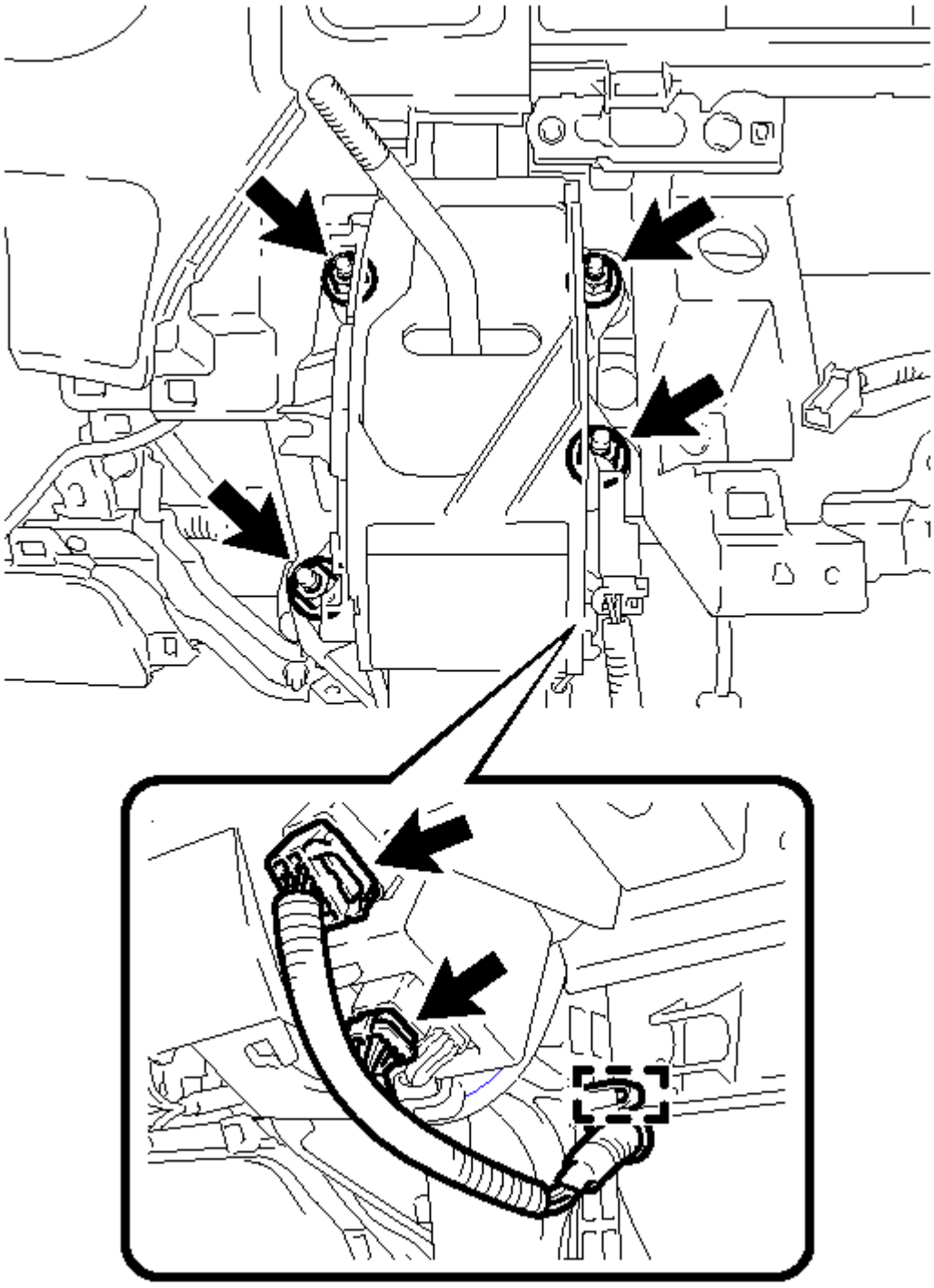


Fig. 128: Identifying Shift Lever Assembly, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

b. Connect the shift lock control ECU connector and transmission control switch wire connector.
c. Press in and lock the lock piece to the adjuster case.

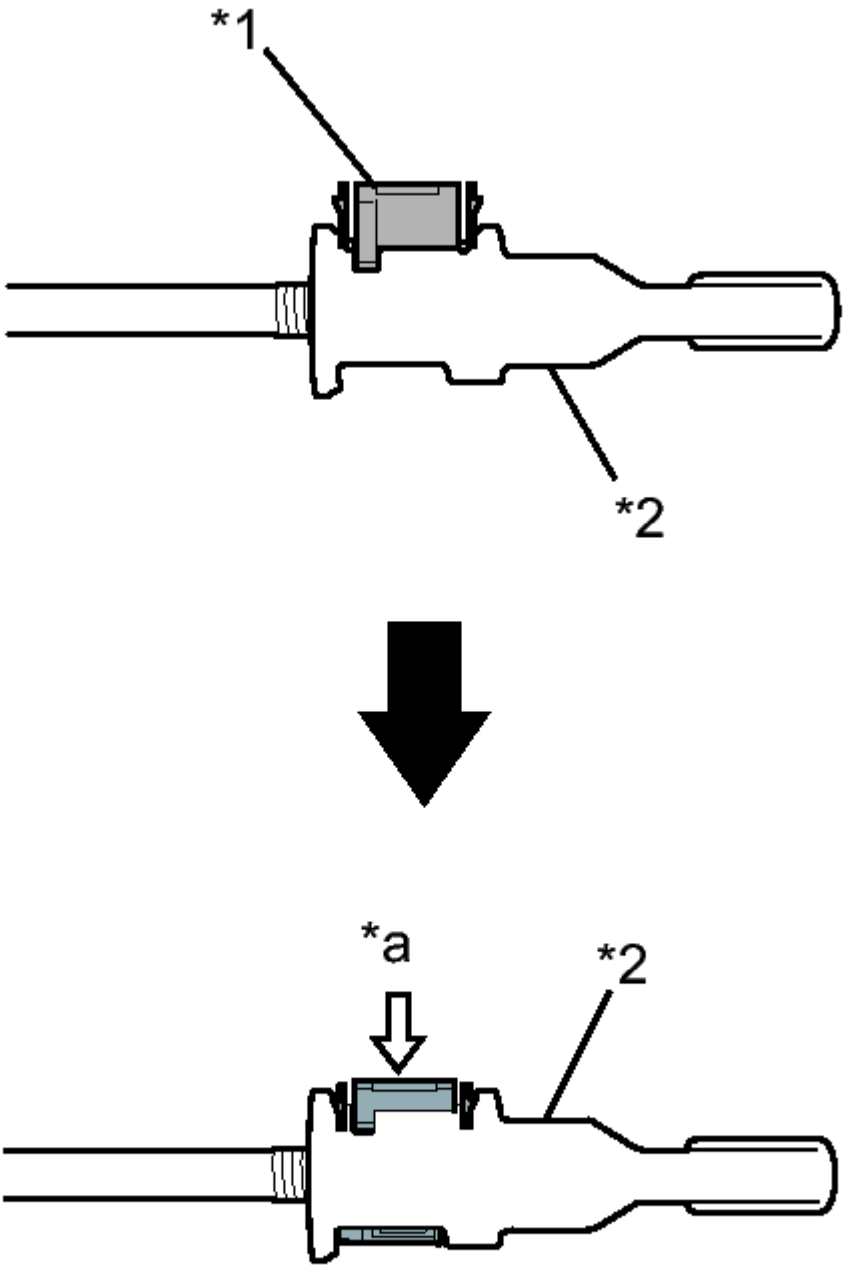


Fig. 129: Pressing Lock Piece At Adjuster Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece
*2	Adjuster Case
*a	Press in

NOTE:

- **Check that the park/neutral position switch and the shift lever are in N position.**
- **Securely press in the lock piece until the lock engages.**

3. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** . Refer to **INSTALLATION - Step 13**
4. **INSTALL INSTRUMENT PANEL FINISH PANEL END RH** . Refer to **INSTALLATION - Step 18**
5. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** . Refer to **INSTALLATION - Step 19**
6. **INSTALL LOWER CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 15**
7. **INSTALL LOWER CENTER INSTRUMENT COVER (w/ Console Box)** . Refer to **INSTALLATION - Step 17**
8. **INSTALL LOWER CENTER INSTRUMENT COVER (w/o Console Box)** . Refer to **INSTALLATION - Step 16**
9. **INSTALL CONSOLE BOX ASSEMBLY (for Fixed Type)**

   Refer to **INSTALLATION**

10. **INSTALL CONSOLE BOX ASSEMBLY (for Slide Type)**

    Refer to **INSTALLATION**

11. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** . Refer to **INSTALLATION - Step 1**
12. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Manual Air Conditioning System)** . Refer to **INSTALLATION - Step 1**
13. **INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 33**
14. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY**
15. **INSTALL GLOVE COMPARTMENT DOOR SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 24**
16. **INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** . Refer to **INSTALLATION - Step 35**
17. **INSTALL KNEE AIRBAG ASSEMBLY** . Refer to **INSTALLATION - Step 1**
18. **INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL** . Refer to **INSTALLATION - Step 39**

19. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH**
20. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH**
21. **INSTALL COWL SIDE TRIM BOARD RH** . Refer to **INSTALLATION - Step 35**
22. **INSTALL COWL SIDE TRIM BOARD LH** . Refer to **INSTALLATION - Step 36**
23. **INSTALL FRONT DOOR SCUFF PLATE RH** . Refer to **INSTALLATION - Step 37**
24. **INSTALL FRONT DOOR SCUFF PLATE LH** . Refer to **INSTALLATION - Step 38**
25. **INSPECT SHIFT LEVER OPERATION**

    Refer to **ON-VEHICLE INSPECTION**

TRANSMISSION CONTROL CABLE

COMPONENTS

ILLUSTRATION

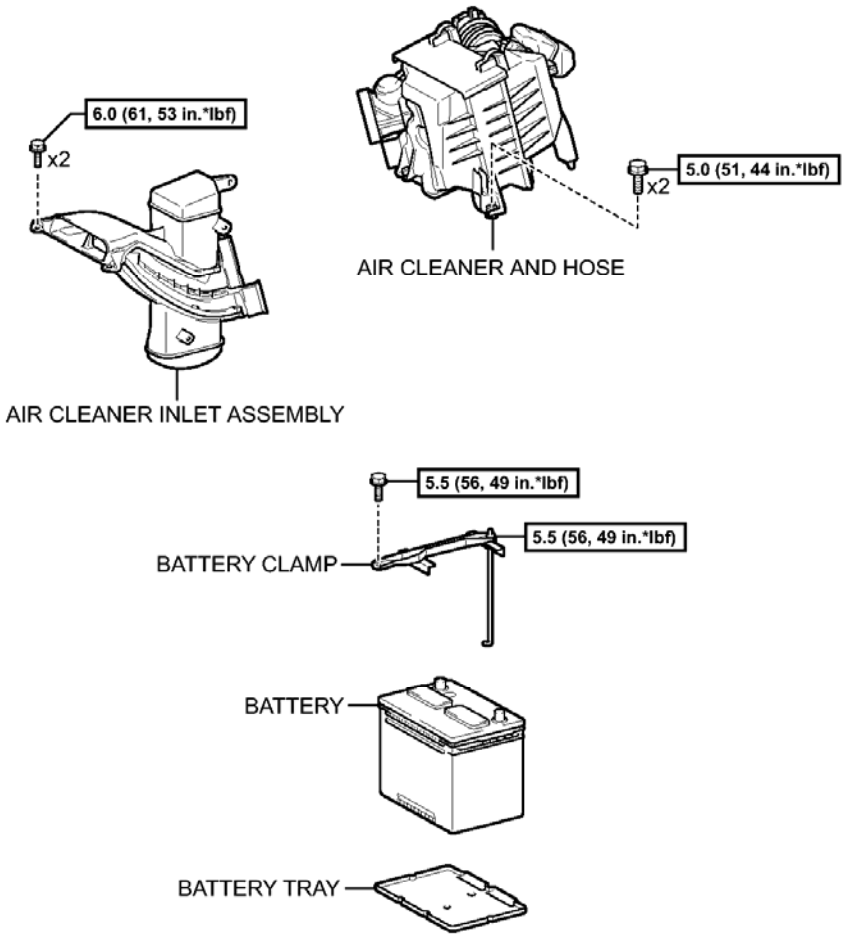
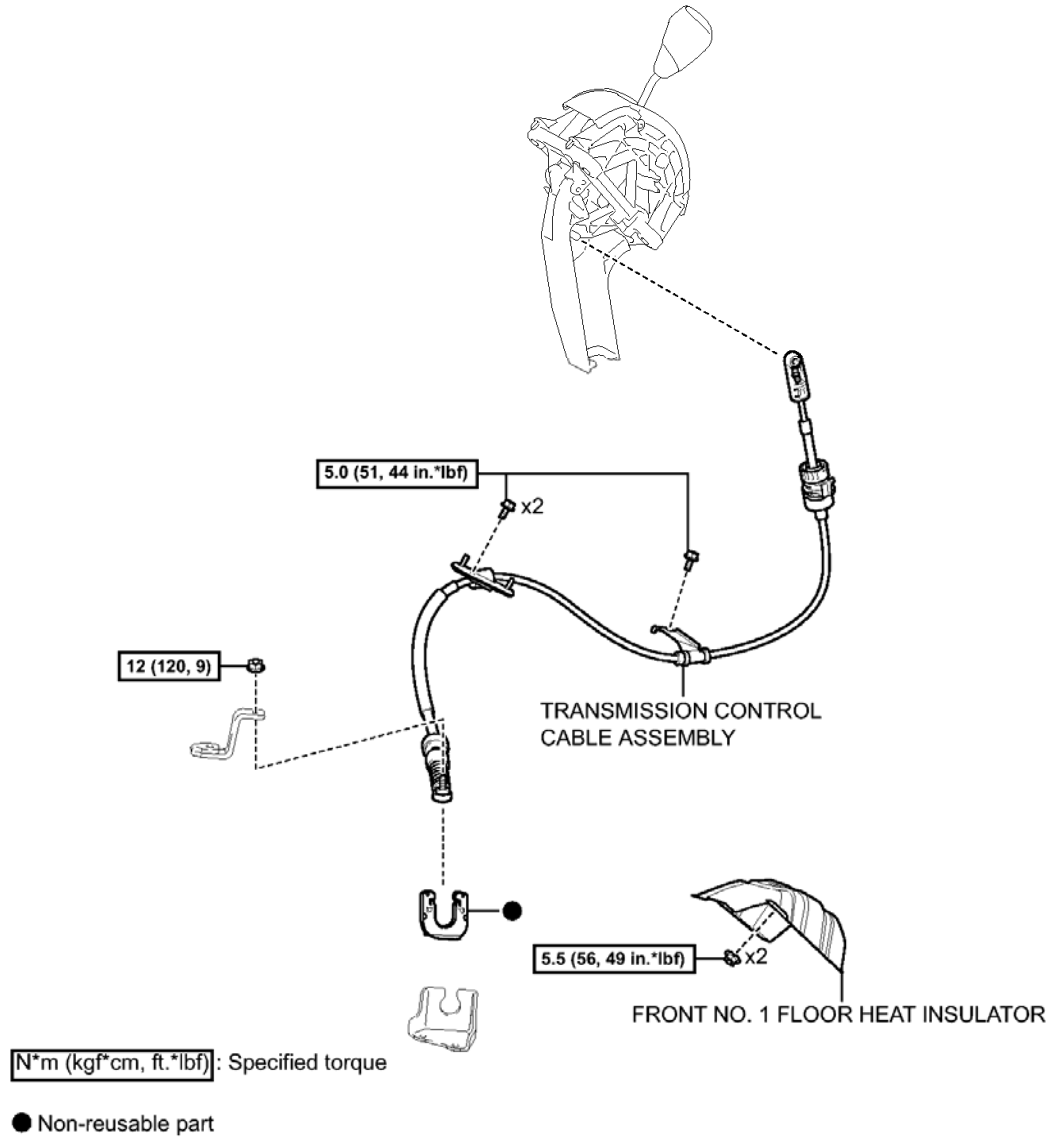


Fig. 130: Transmission Control Cable Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 131: Transmission Control Cable Replacement Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
2. **REMOVE FRONT AIR CONDITIONING UNIT**

Refer to **REMOVAL**

3. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
4. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
5. **REMOVE AIR CLEANER AND HOSE** . Refer to **REMOVAL - Step 7**
6. **REMOVE EXHAUST MANIFOLD ASSEMBLY RH**

   Refer to **REMOVAL**

7. **REMOVE FRONT NO. 1 FLOOR HEAT INSULATOR**
   a. Remove the 2 nuts and front No. 1 floor heat insulator.

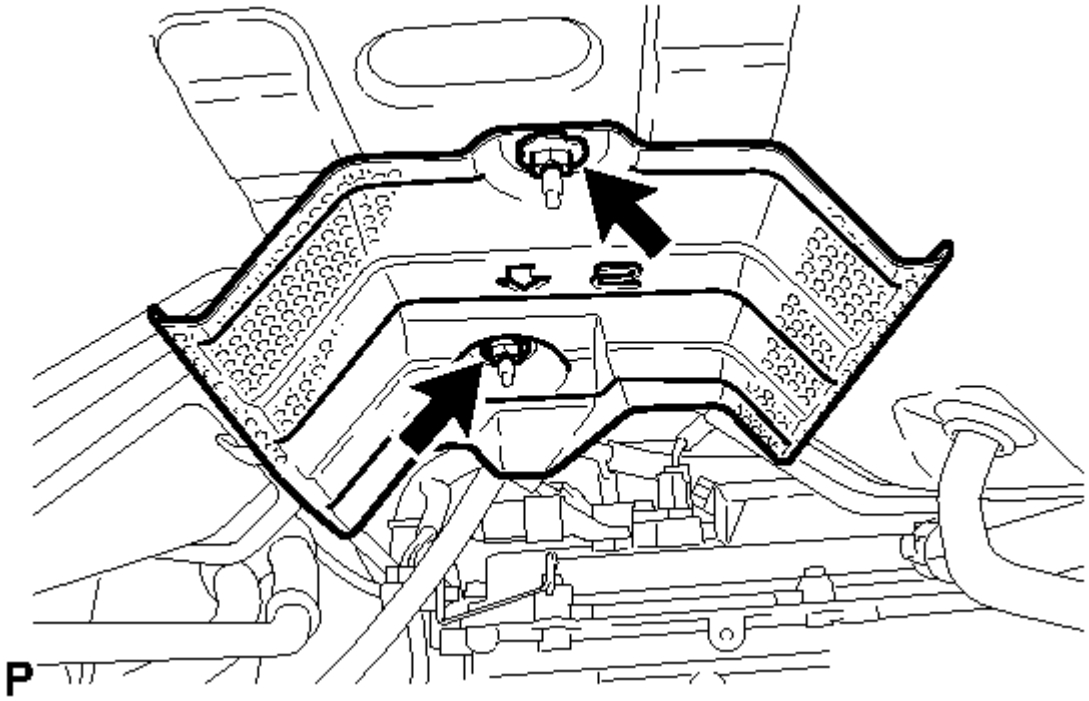


Fig. 132: Identifying Front No. 1 Floor Heat Insulator & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Remove the nut from the control shaft lever.

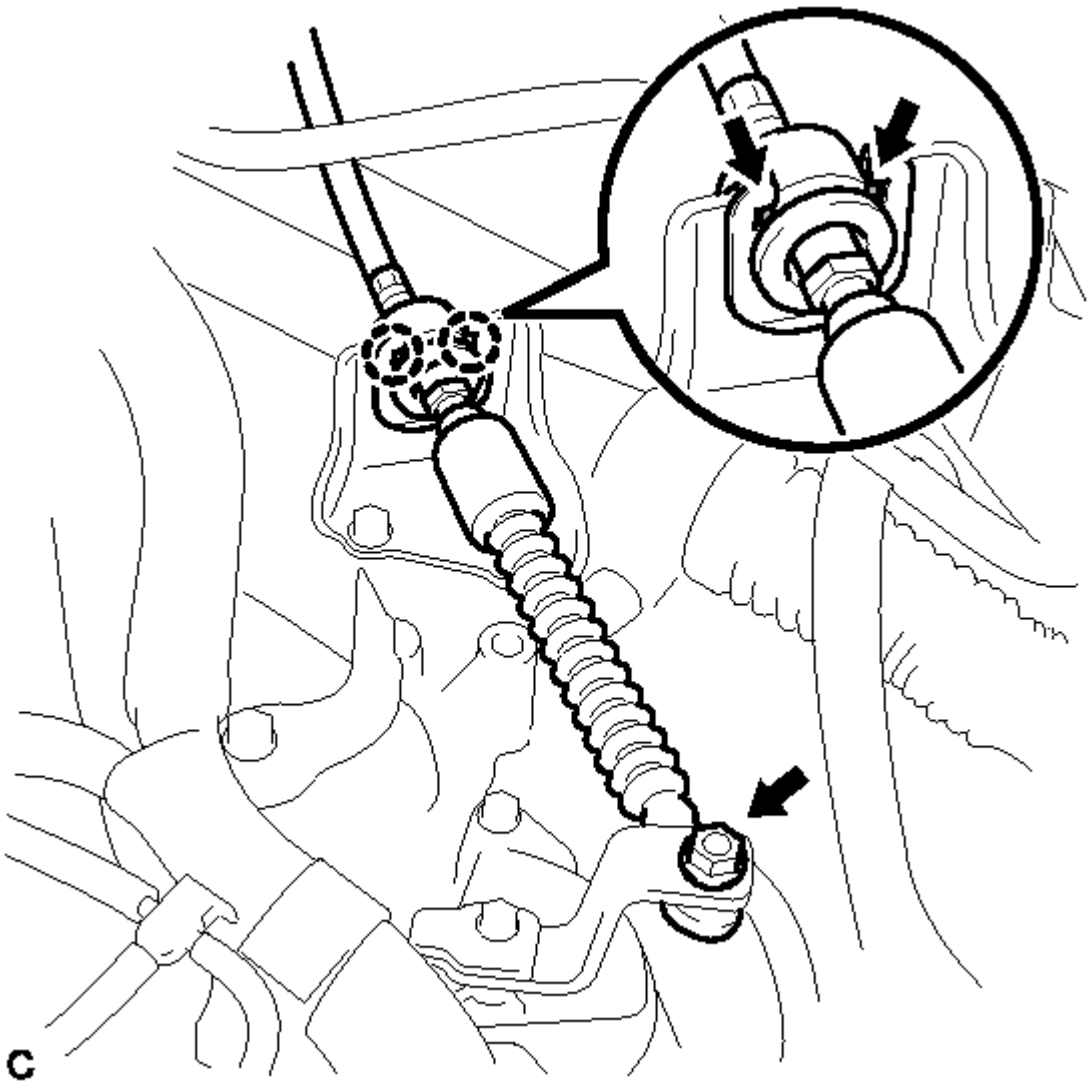


Fig. 133: Identifying Control Shaft Lever Nut And Control Cable Bracket Clip With Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, disengage the 4 claws, disconnect the transmission control cable with clip from the transmission control cable bracket.
c. Remove the clip from the transmission control cable.
d. Disconnect the end of the transmission control cable from the shift lever.

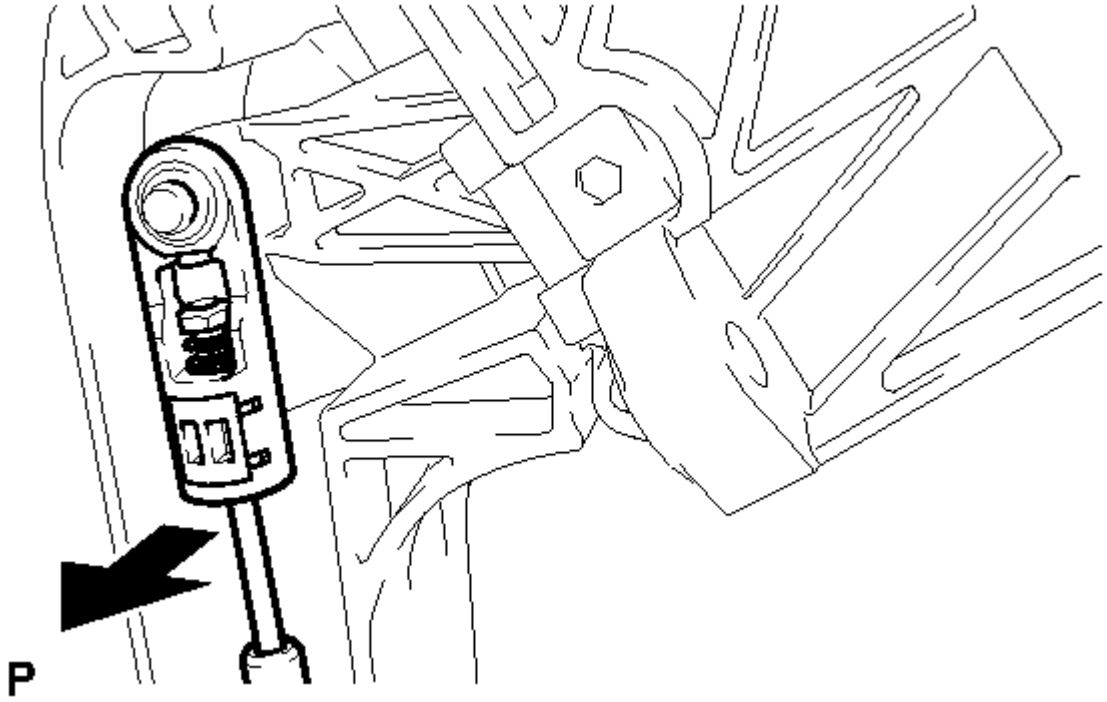


Fig. 134: Identifying Transmission Control Cable At Shift Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a screwdriver, pull out the transmission control cable stopper.

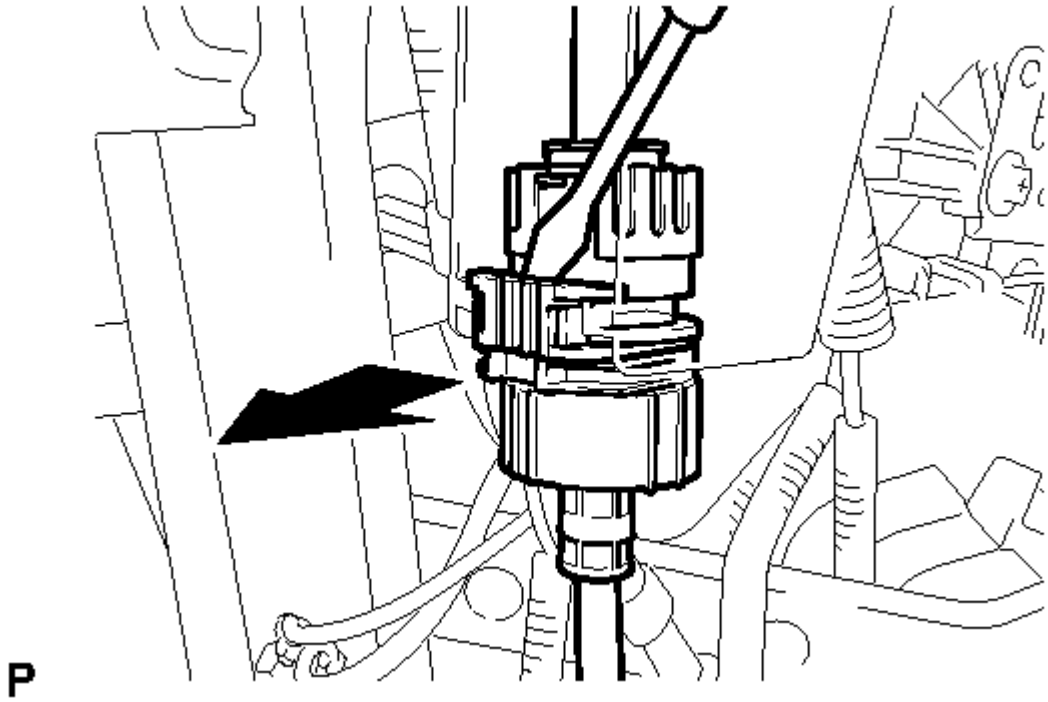


Fig. 135: Pulling Out Transmission Control Cable Stopper Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Do not remove the stopper. If the stopper is removed, reinstall it to its original position.**

f. Rotate the nut counterclockwise approximately 270° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

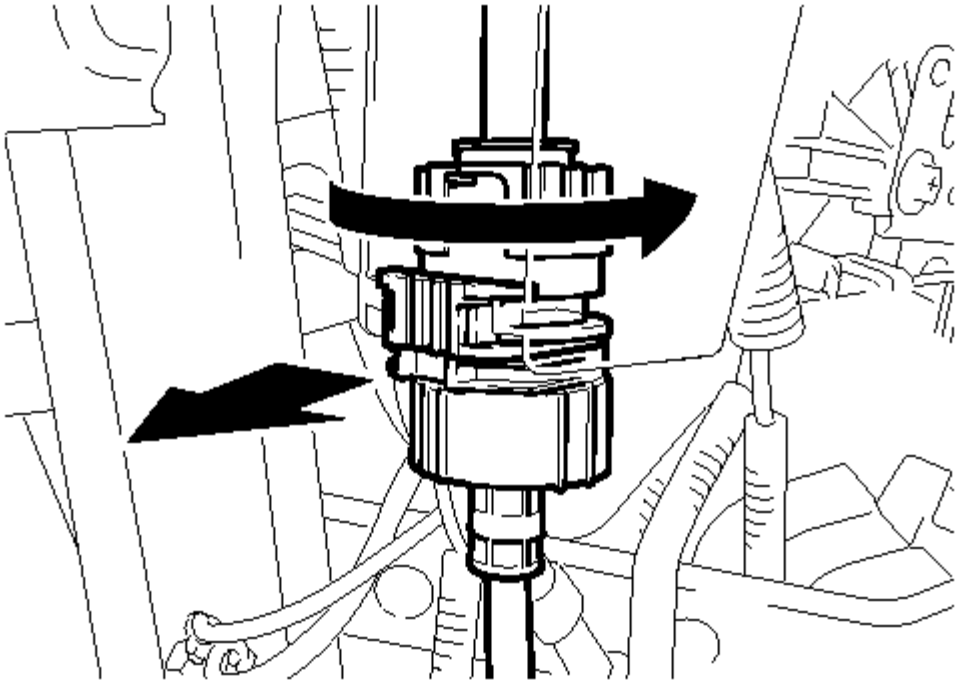


Fig. 136: Disconnecting Transmission Control Cable At Shift Lever Retainer While Rotating Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Remove the 3 bolts and pull out the transmission control cable from the body.

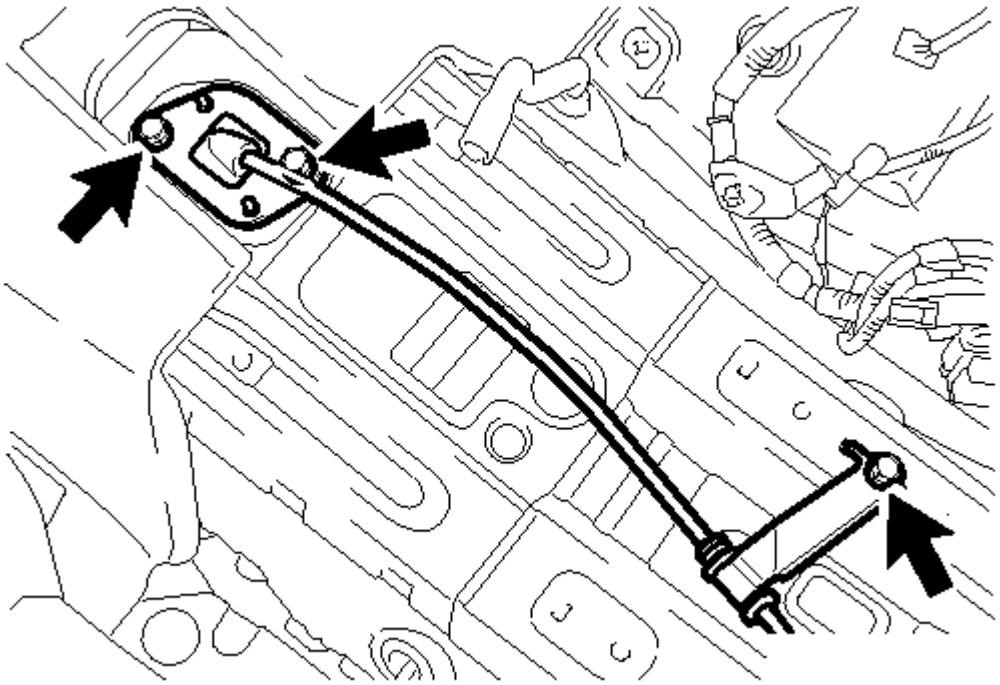


Fig. 137: Identifying Transmission Cable & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

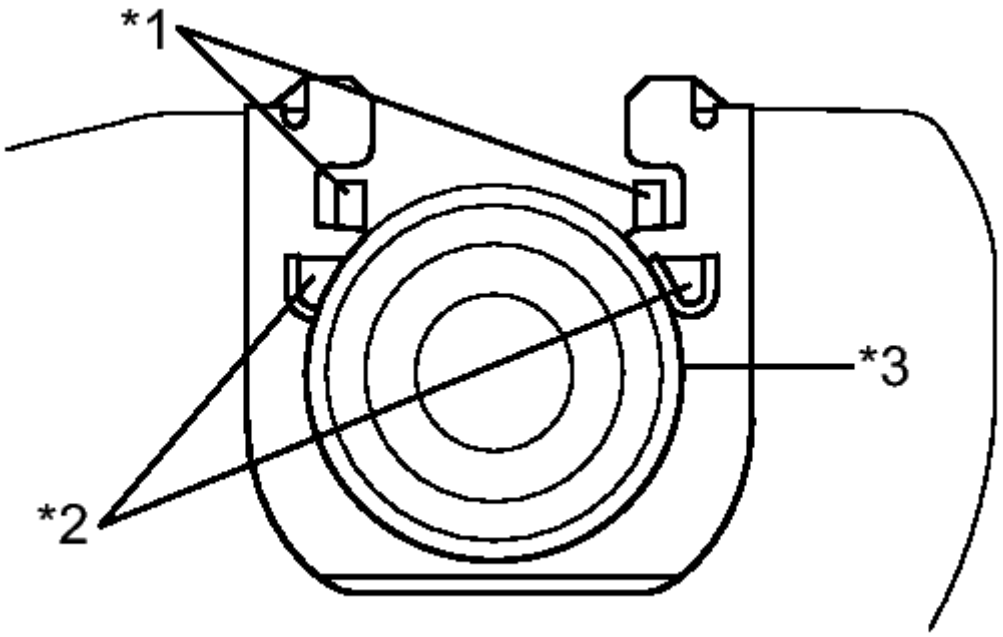
INSTALLATION

INSTALLATION

1. **INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY**
   a. Pass the transmission control cable from the cabin into the engine compartment.
   b. Install the transmission control cable with the 3 bolts.

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

   c. Install a new clip onto the control cable bracket.



T

Fig. 138: Identifying Transmission Control Cable Assembly, Clip & Cable Bracket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Claw A
*2	Claw B
*3	Transmission Control Cable

d. Install the transmission control cable onto the transmission control cable bracket.

NOTE:

- **Make sure that the claws A (*1) on the clip are securely fit into the bracket holes.**
- **Make sure that the cable is securely installed inside of the claws B (*2) of the clip.**
- **After installation, lightly jiggle the transmission control cable and make sure that it does not come loose from the transmission control cable bracket.**

e. Check that the park/neutral position switch is in the N position.

f. Connect the transmission control cable onto the transmission control shaft lever with the nut.

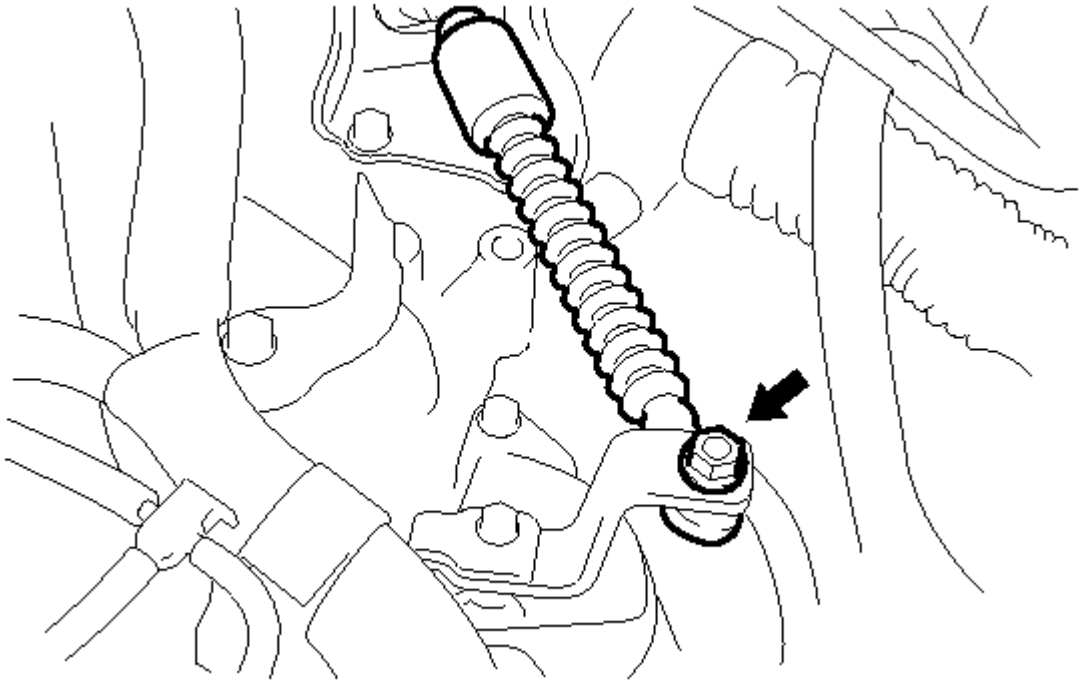
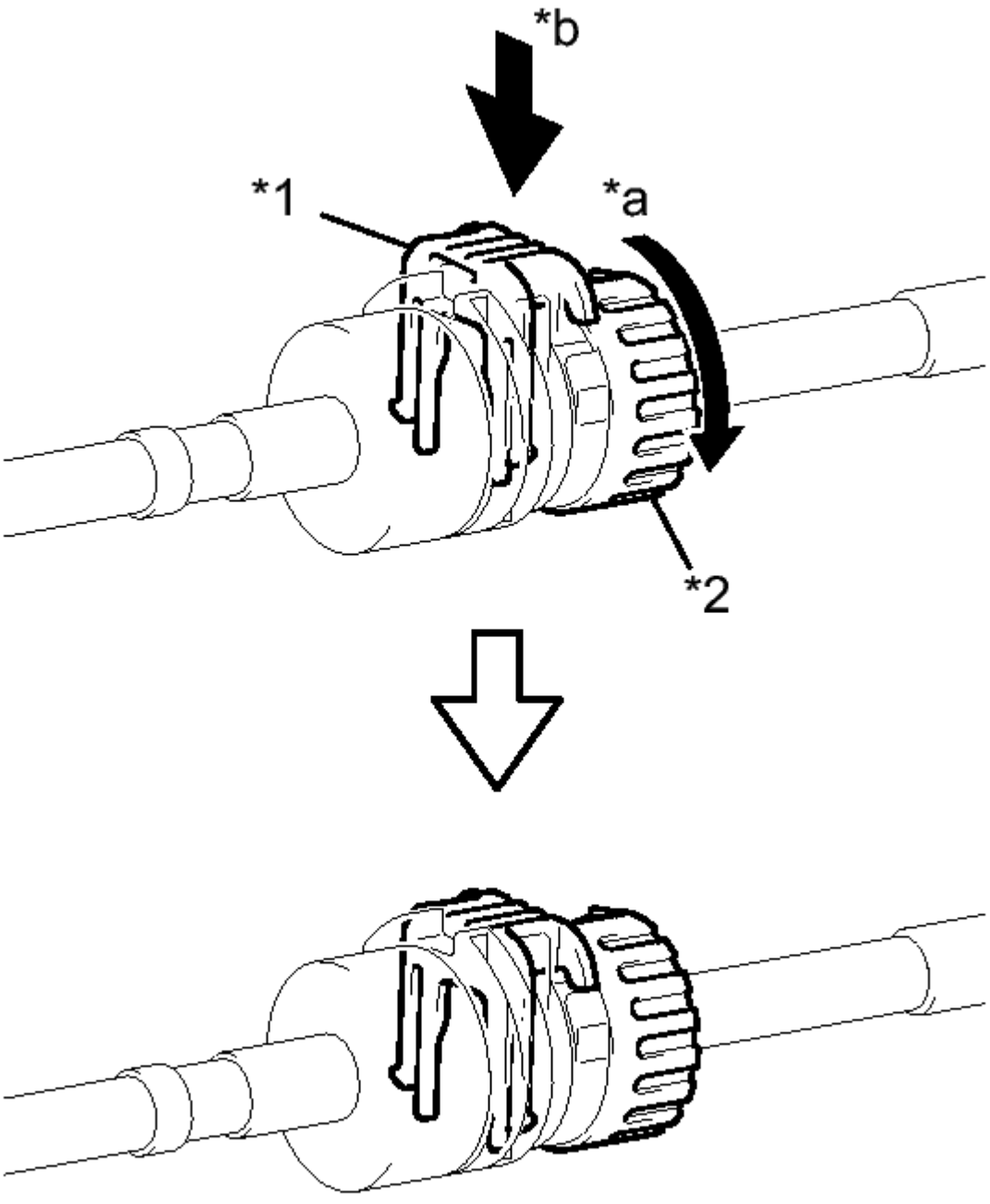


Fig. 139: Identifying Control Shaft Lever Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

g. Rotate the transmission control cable nut counterclockwise approximately 270° and, while holding the nut in that position, press in the stopper until it makes 2 "click" sounds.



P

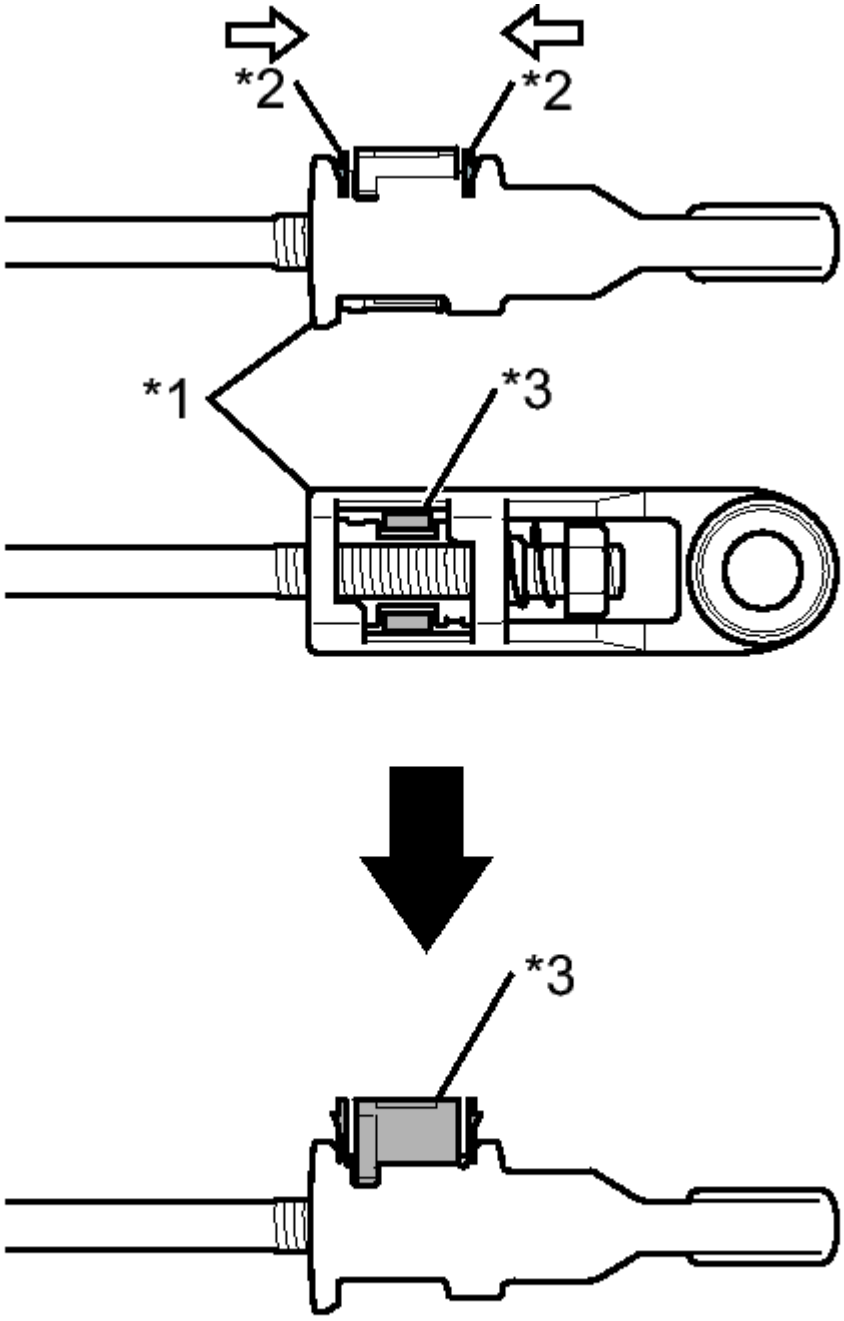
Fig. 140: Pressing Transmission Control Cable Stopper While Rotating Cable Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Stopper

*2	Nut
*a	Turn
*b	Push

h. Push the lock piece up from the back side of the adjuster case while pinching the claws on the lock piece.



C

Fig. 141: Pushing Transmission Control Cable Lock Piece Up While Pinching Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Adjuster

*1	Case
*2	Claw
*3	Lock Piece

i. Connect the cable outer of the transmission control cable onto the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and press in the stopper.

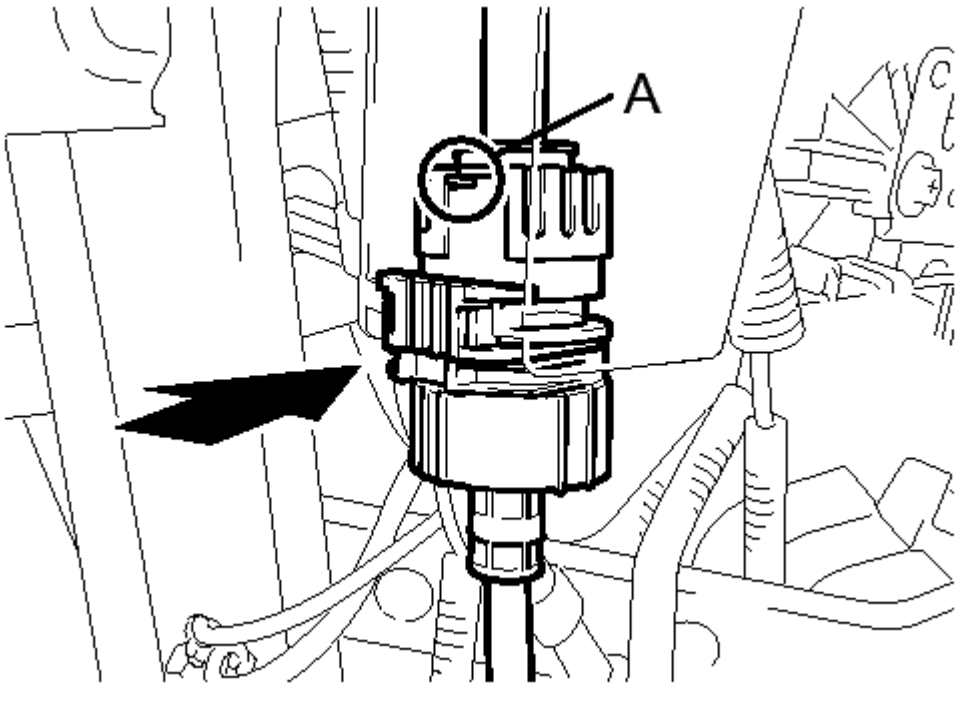


Fig. 142: Identifying Transmission Control Cable Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stopper cannot be pressed in, slightly rotate the nut clockwise and then press in the stopper.

j. Connect the transmission control cable end to the shift lever.

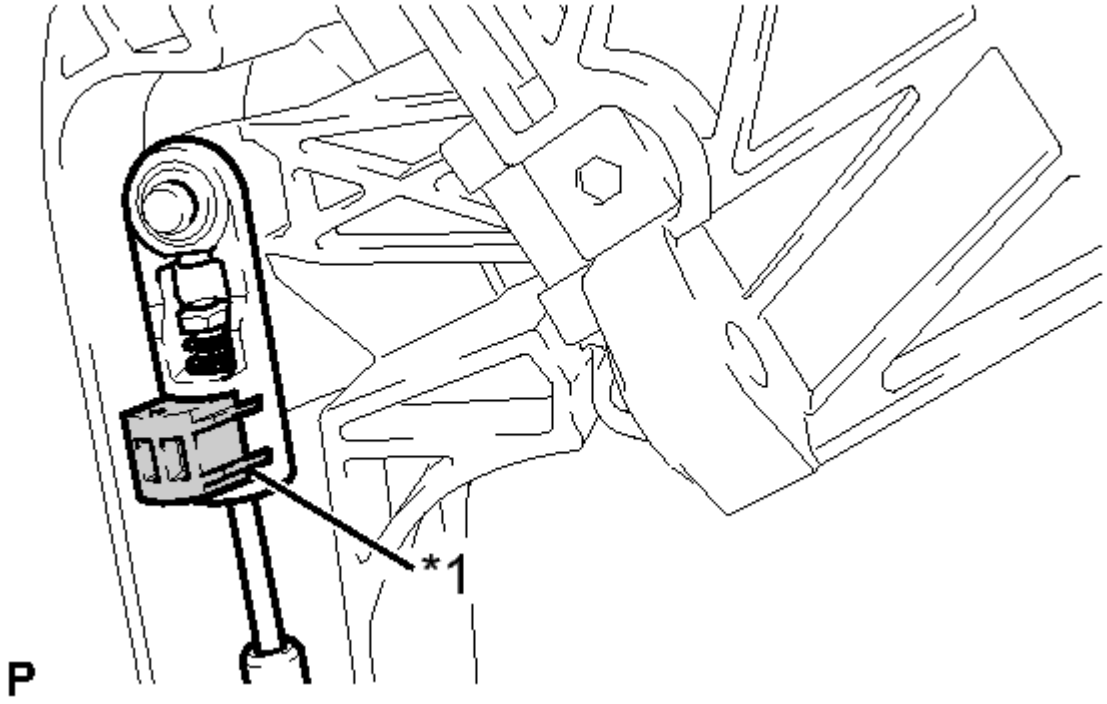


Fig. 143: Identifying Lock Piece Up Position
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Piece

NOTE: Check that the lock piece is pulled up.

2. **INSTALL FRONT NO. 1 FLOOR HEAT INSULATOR**
   a. Install the front No. 1 floor heat insulator to the body with the 2 nuts.

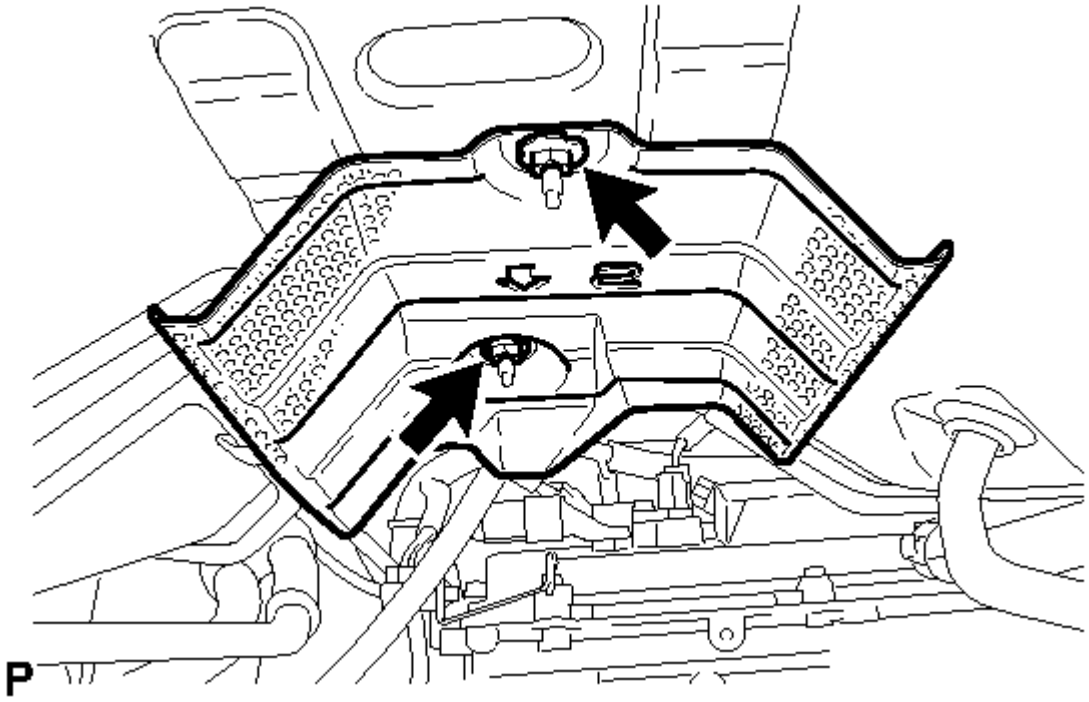


Fig. 144: Identifying Front No. 1 Floor Heat Insulator & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

3. **INSTALL EXHAUST MANIFOLD ASSEMBLY RH**

   Refer to **INSTALLATION**

4. **INSTALL AIR CLEANER AND HOSE** . Refer to **INSTALLATION - Step 4**
5. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
6. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
7. **INSTALL FRONT AIR CONDITIONING UNIT**

   Refer to **INSTALLATION**

8. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
9. **INSPECT SHIFT LEVER POSITION** . Refer to **ON-VEHICLE INSPECTION - Step 1**

DIFFERENTIAL OIL SEAL (FOR LH SIDE)

COMPONENTS

ILLUSTRATION

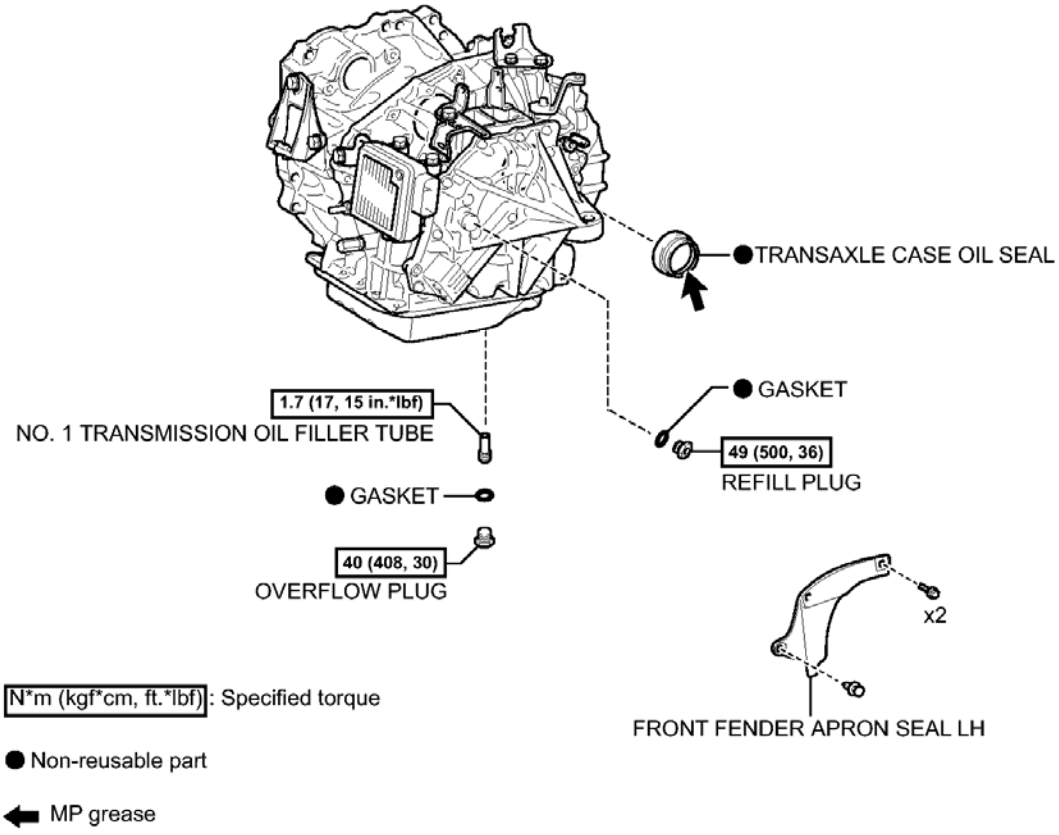


Fig. 145: LH Differential Oil Seal Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

REPLACEMENT

1. **DRAIN AUTOMATIC TRANSAXLE FLUID**
    a. Remove the 2 bolts, clip and front fender apron seal LH.
    b. Remove the refill plug and gasket from the automatic transaxle.

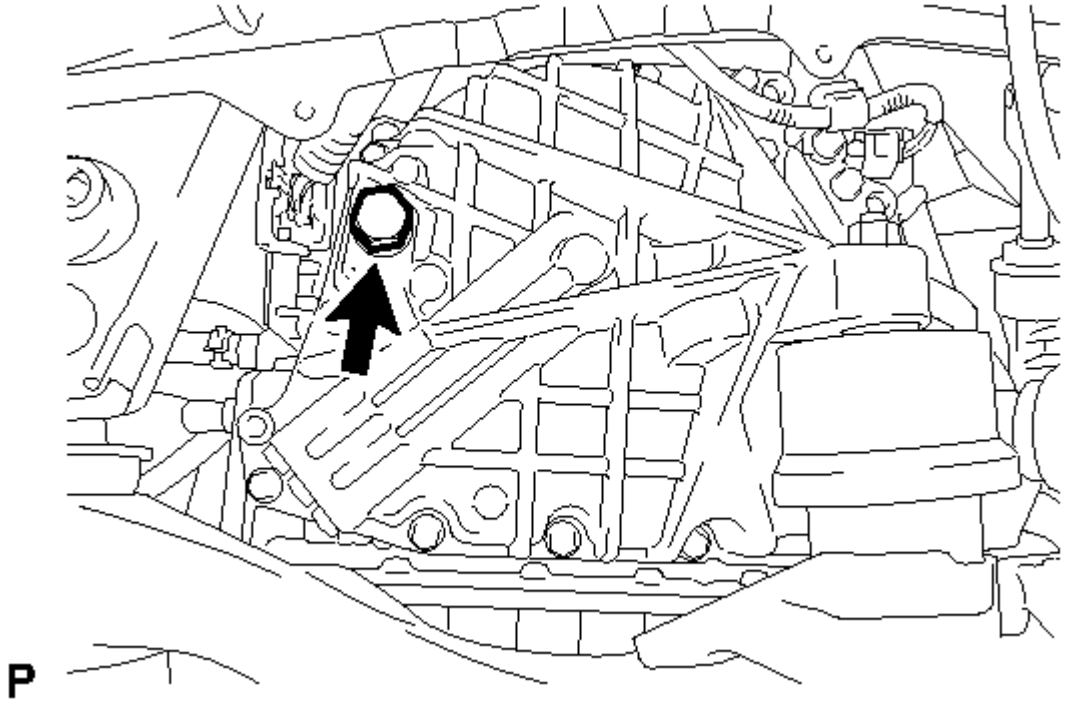


Fig. 146: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a 6 mm hexagon socket wrench, remove the overflow plug and gasket from the automatic transaxle.

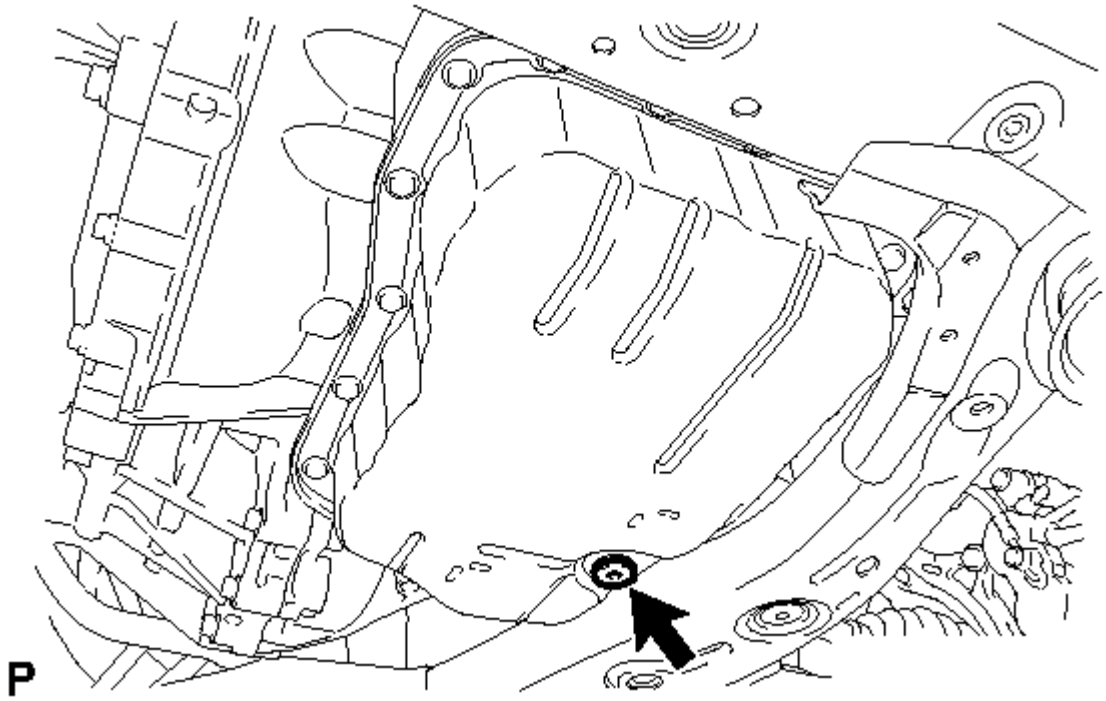


Fig. 147: Identifying Automatic Transaxle Overflow Plug & Gasket

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

d. Using a 6 mm hexagon socket wrench, remove the No. 1 transmission oil filler tube from the automatic transaxle.

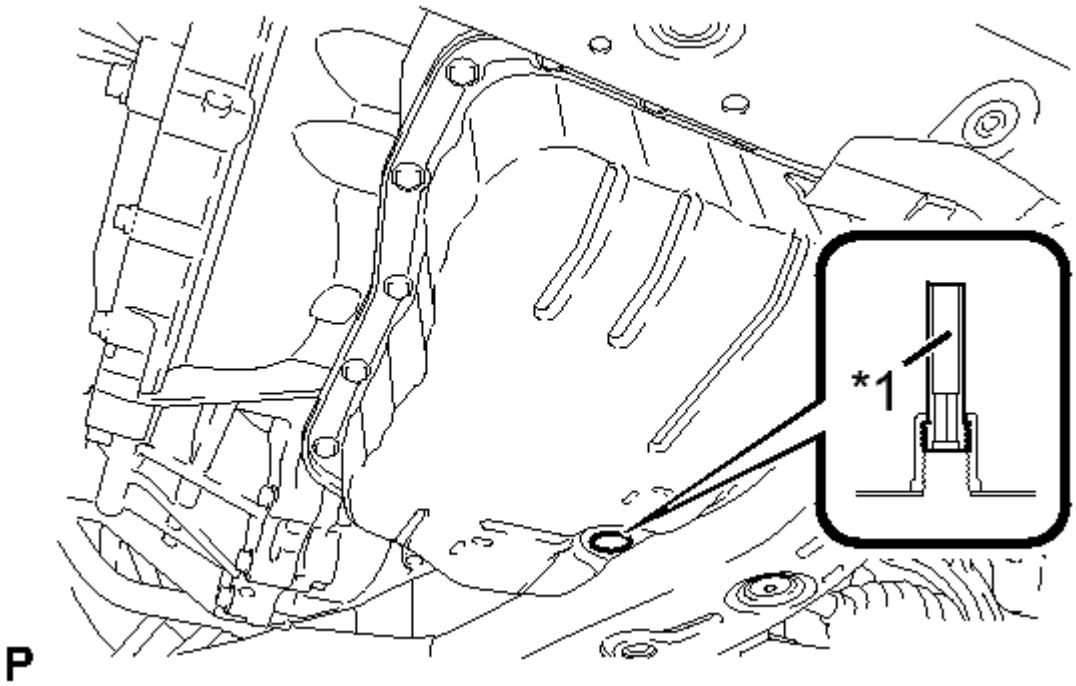


Fig. 148: Identifying No. 1 Transmission Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube

e. Drain automatic transaxle fluid from the automatic transaxle.

f. Using a 6 mm hexagon socket wrench, install the No. 1 transmission oil filler tube into the automatic transaxle.

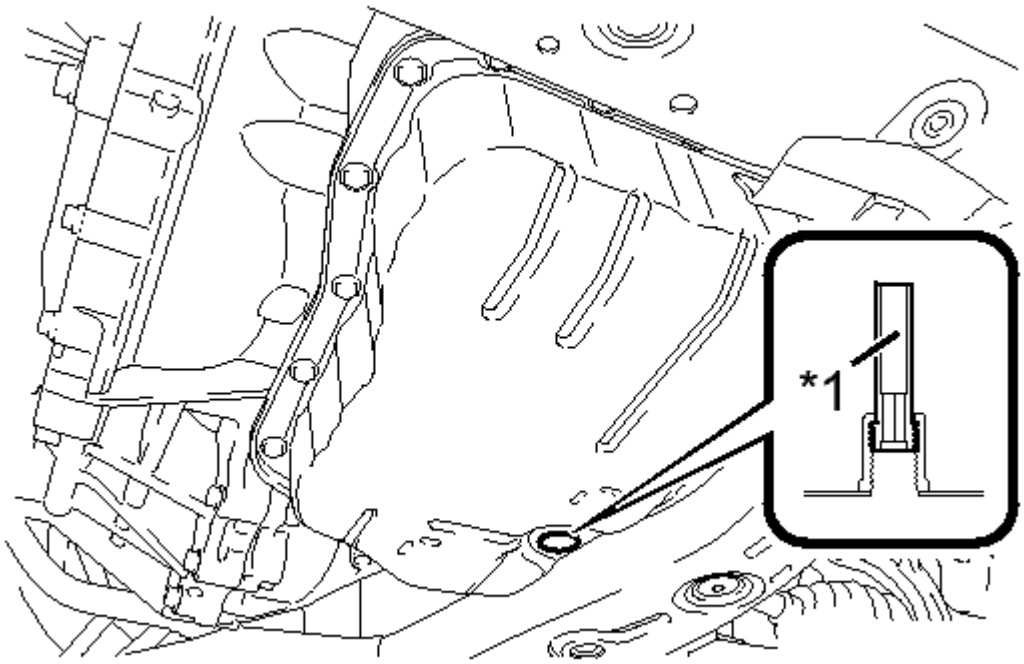


Fig. 149: Identifying No. 1 Transmission Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Transmission Oil Filler Tube

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

g. Using a 6 mm hexagon socket wrench, temporarily install the gasket and the overflow plug into the automatic transaxle.

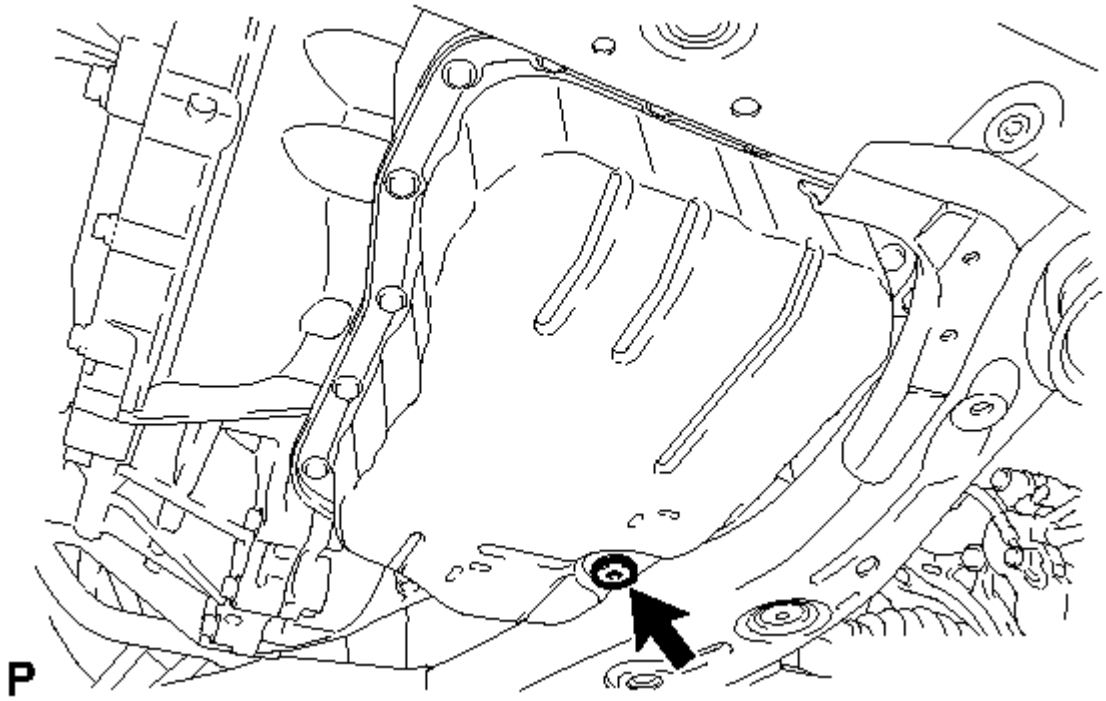


Fig. 150: Identifying Automatic Transaxle Overflow Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The overflow plug will be removed again to adjust the fluid level.

h. Temporarily install the gasket and the refill plug into the automatic transaxle.

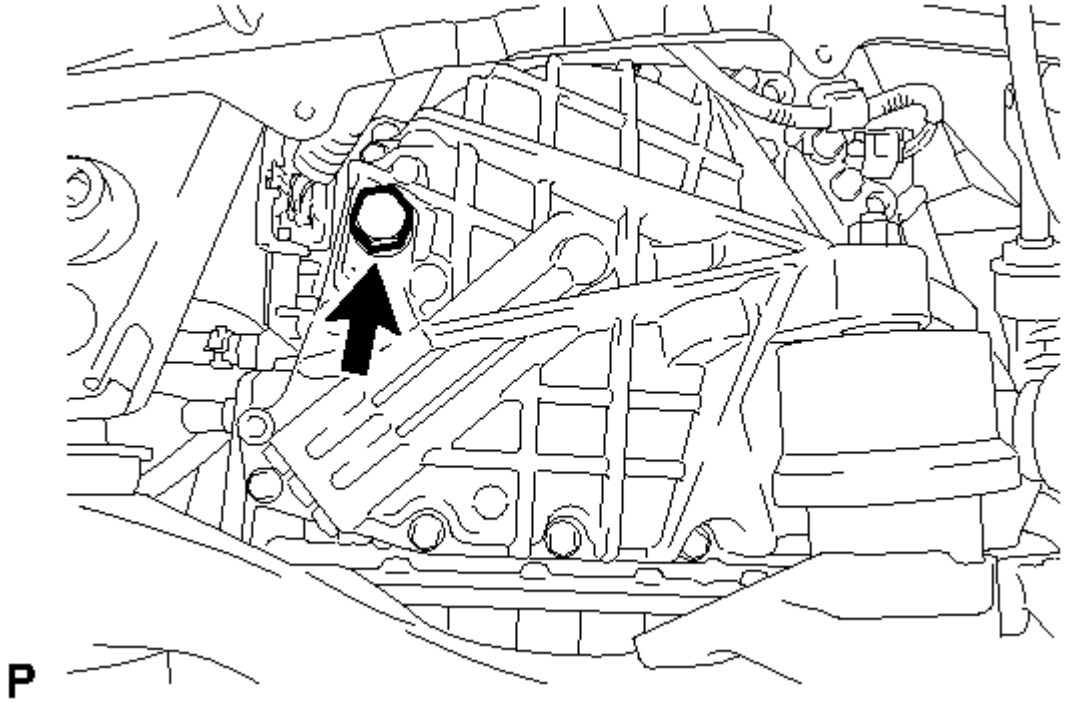


Fig. 151: Identifying Automatic Transaxle Refill Plug & Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Reuse the old gasket. The refill plug will be removed again to adjust the fluid level.

2. **REMOVE FRONT DRIVE SHAFT ASSEMBLY LH**

   Refer to **REMOVAL**

3. **REMOVE TRANSAXLE CASE OIL SEAL**
   a. Using SST, tap out the transaxle case oil seal.

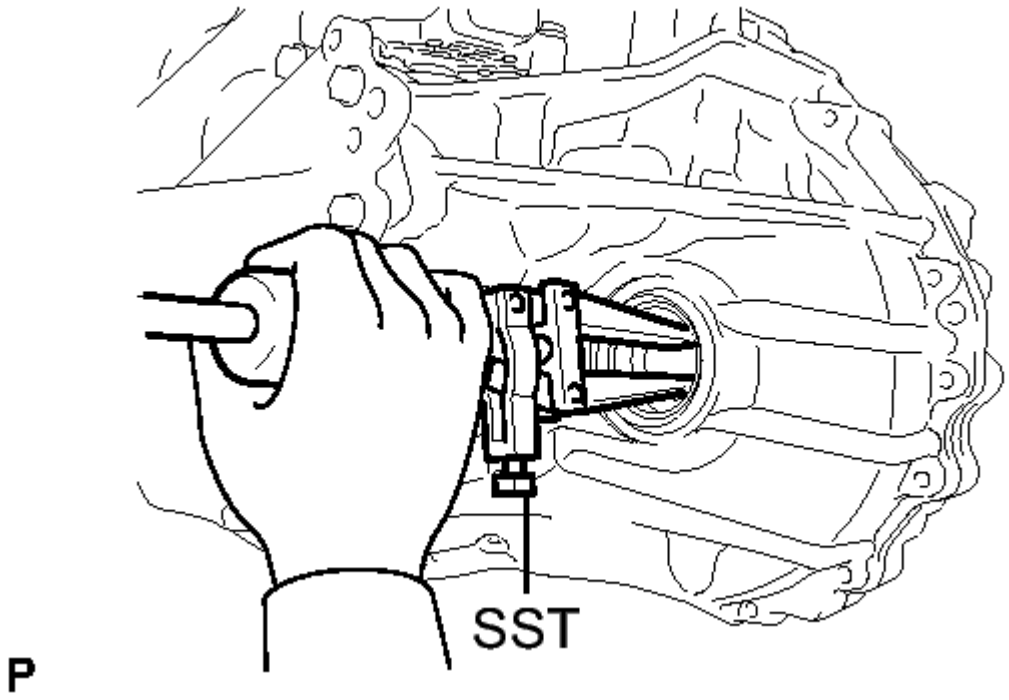


Fig. 152: Removing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

4. **INSTALL TRANSAXLE CASE OIL SEAL**
    a. Using SST and a hammer, tap in a new transaxle case oil seal.

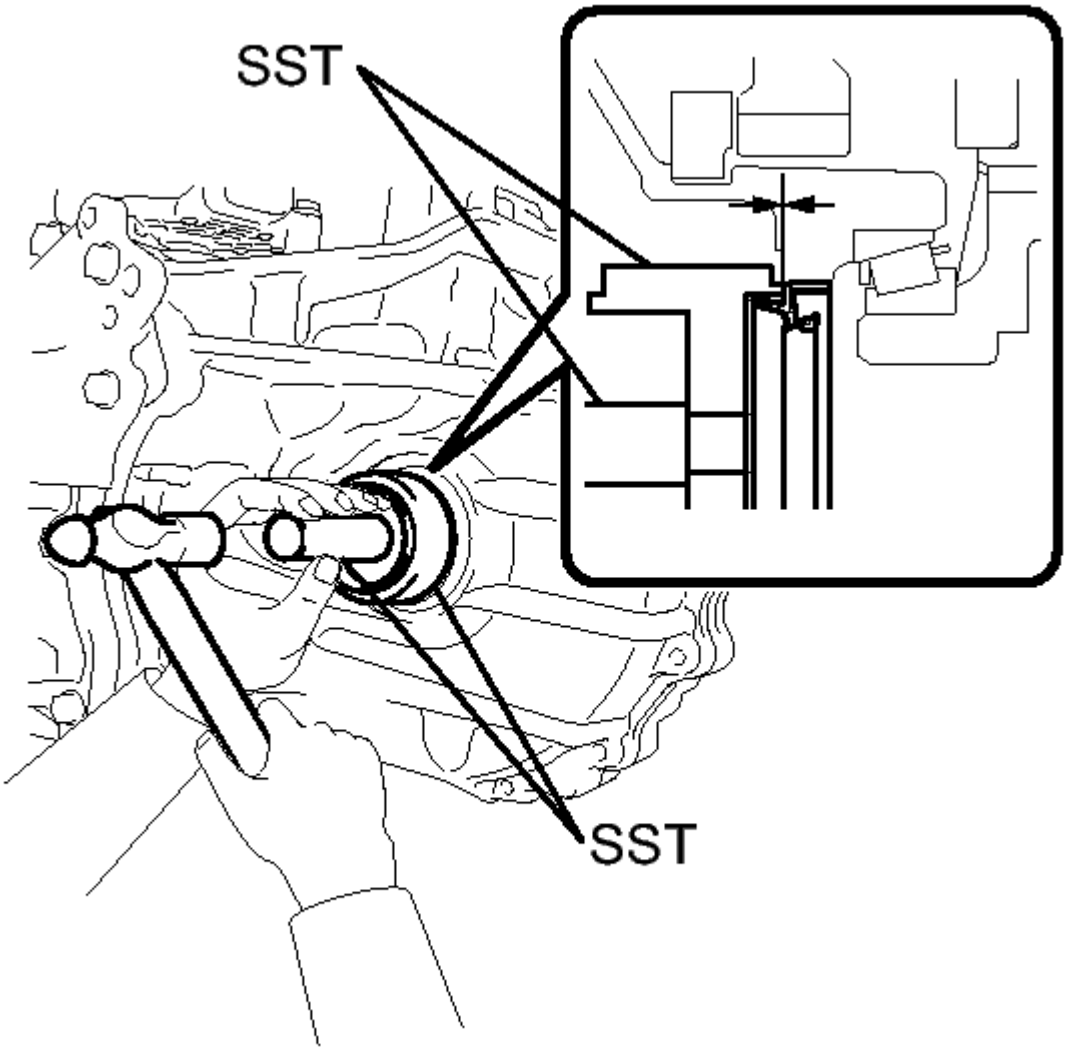


Fig. 153: Installing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-10010**
- **SST: 09950-70010**
  09951-07100

Oil seal driven in depth

-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

NOTE: Check that the oil seal is installed in the correct direction.

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

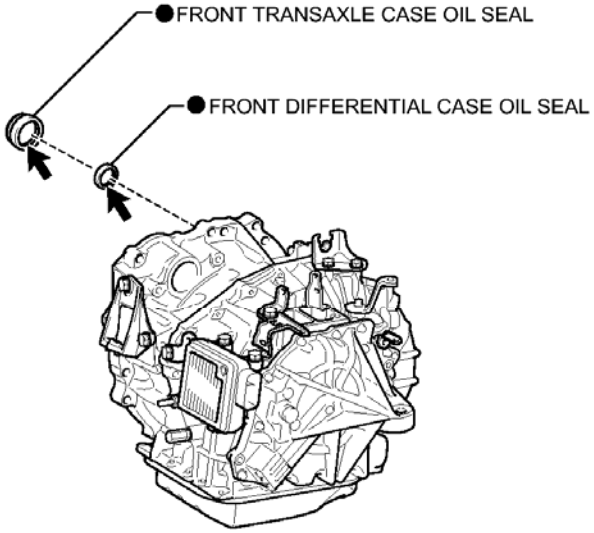
5. **INSTALL FRONT DRIVE SHAFT ASSEMBLY LH**

   Refer to **INSTALLATION**

DIFFERENTIAL OIL SEAL (FOR RH SIDE)

COMPONENTS

ILLUSTRATION



● Non-reusable part

⬅ MP Grease

Fig. 154: RH Differential Oil Seal Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REPLACEMENT

REPLACEMENT

1. **REMOVE TRANSFER ASSEMBLY**

Refer to **REMOVAL**

2. **REMOVE FRONT TRANSAXLE CASE OIL SEAL**
   a. Using a screwdriver with its tip wrapped with protective tape, remove the front transaxle case oil seal.

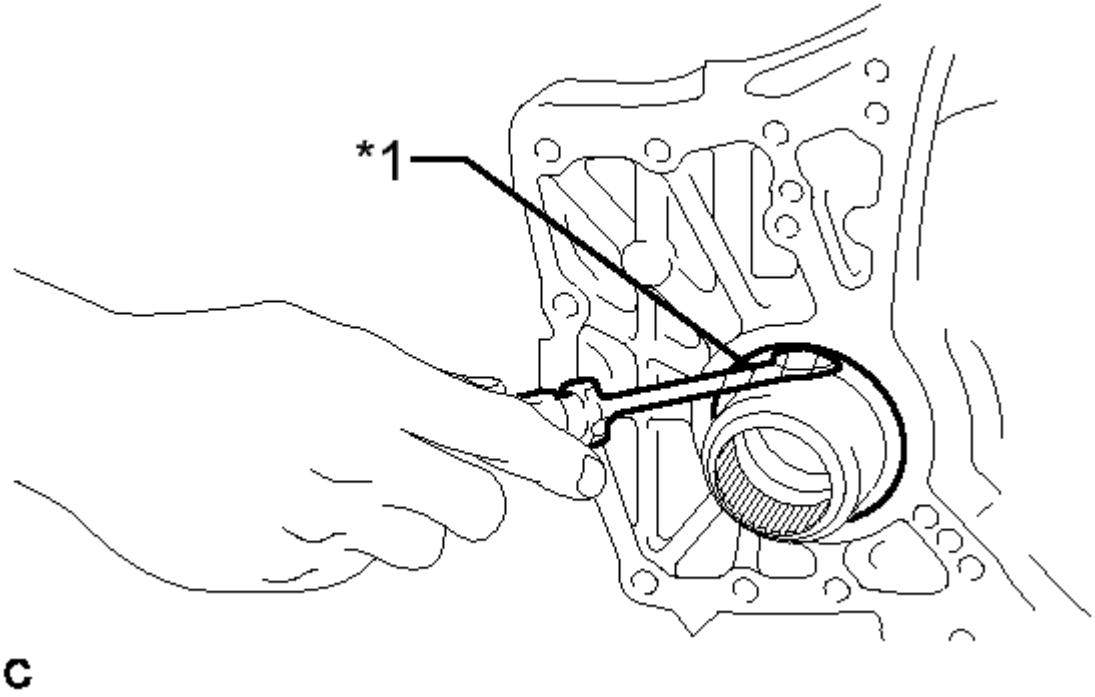


Fig. 155: Removing Front Transaxle Case Oil Seal (Outside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Protective Tape

3. **REMOVE FRONT DIFFERENTIAL CASE OIL SEAL**
   a. Using SST, tap out the front differential case oil seal.

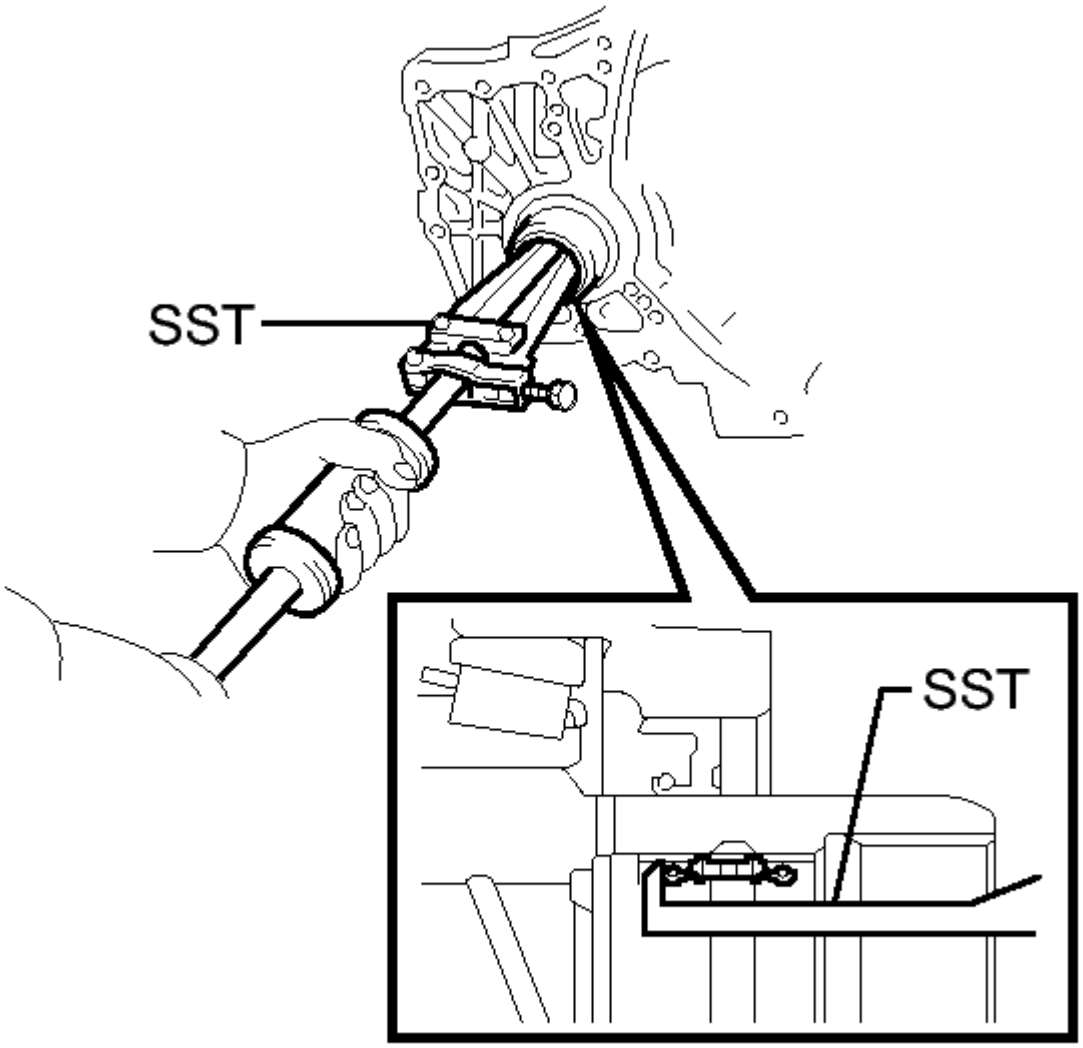
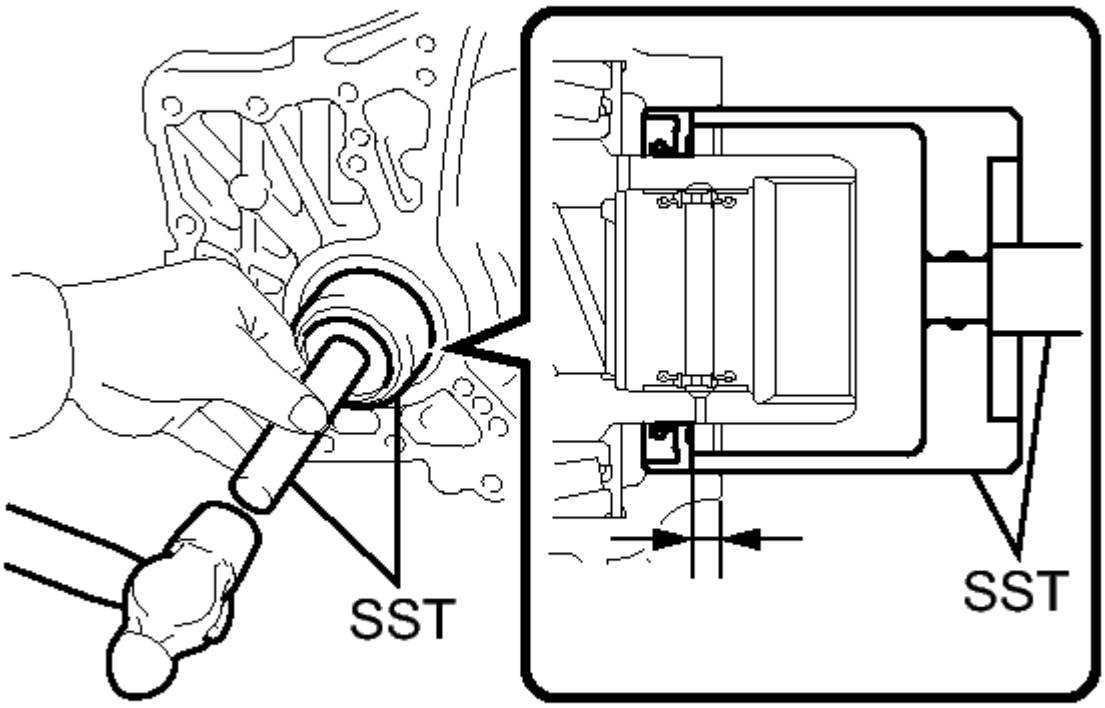


Fig. 156: Removing Front Transaxle Case Oil Seal (Inside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

4. **INSTALL FRONT TRANSAXLE CASE OIL SEAL**
   a. Coat the lip of the front transaxle case oil seal with MP grease.



C

Fig. 157: Installing Front Transaxle Case Oil Seal (Outside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST and a hammer, tap in a new front transaxle case oil seal.
   - **SST: 09649-17010**
   - **SST: 09950-70010**
     09951-07200

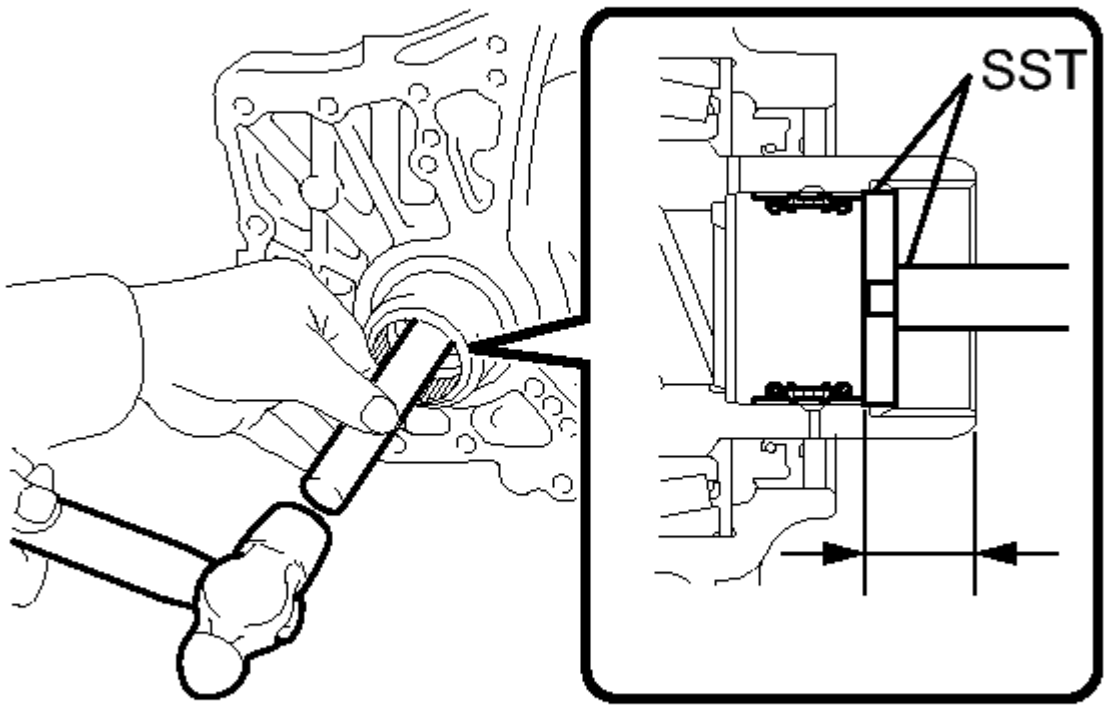
   Oil seal driven in depth

   5.5 to 6.5 mm (0.217 to 0.255 in.)

   NOTE: Check that the oil seal is installed in the correct direction.

5. **INSTALL FRONT DIFFERENTIAL CASE OIL SEAL**

a. Coat the lip of the front transaxle case oil seal with MP grease.
b. Using SST and a hammer, tap in the front transaxle case oil seal.



C

Fig. 158: Installing Front Transaxle Case Oil Seal (Inside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00410
- **SST: 09950-70010**
  09951-07200

Oil seal driven in depth

21.5 to 22.5 mm (0.847 to 0.885 in.)

NOTE: **Check that the oil seal is installed in the correct direction.**

6. **INSTALL TRANSFER ASSEMBLY**

   Refer to **INSTALLATION**

AUTOMATIC TRANSAXLE ASSEMBLY

COMPONENTS

ILLUSTRATION

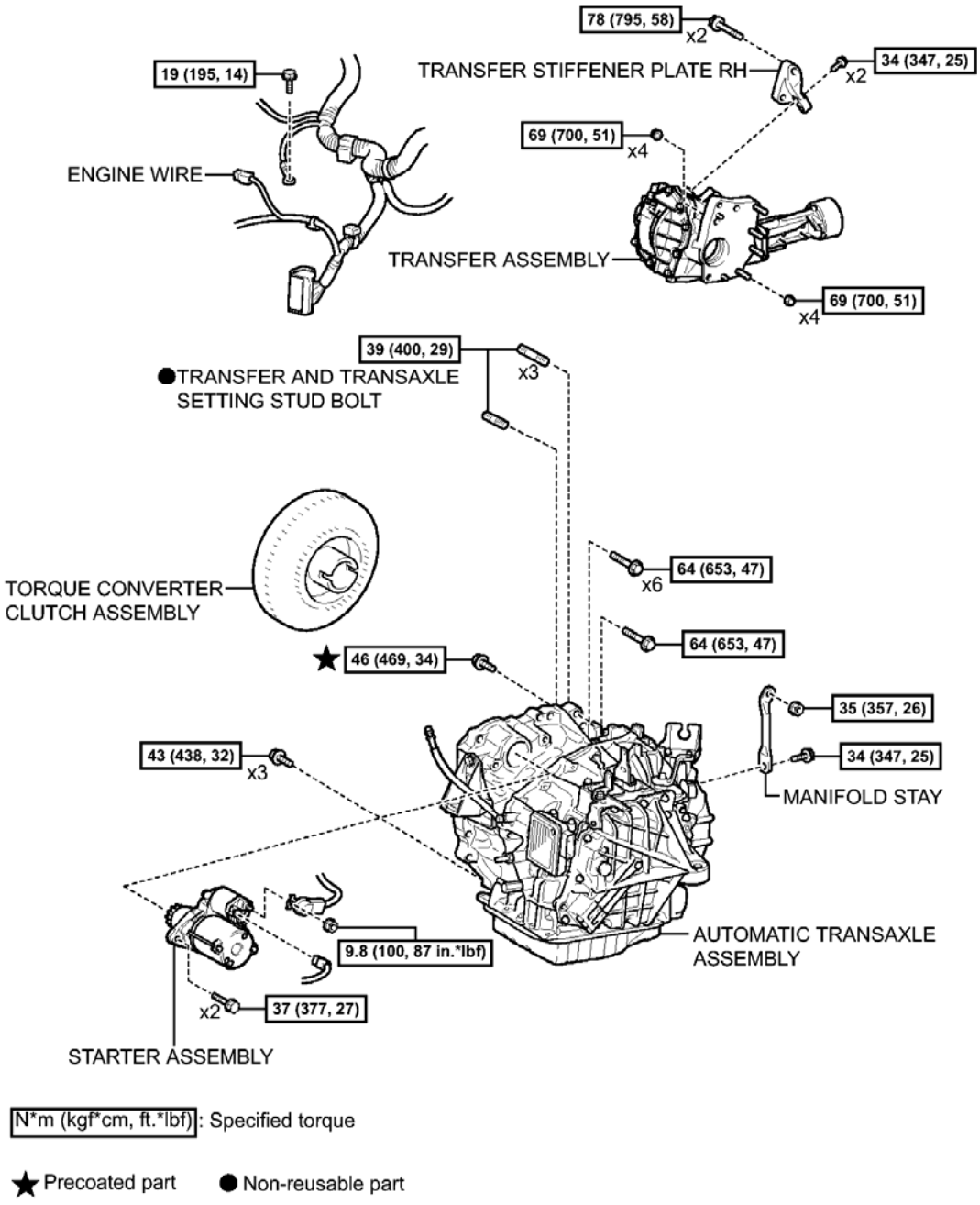
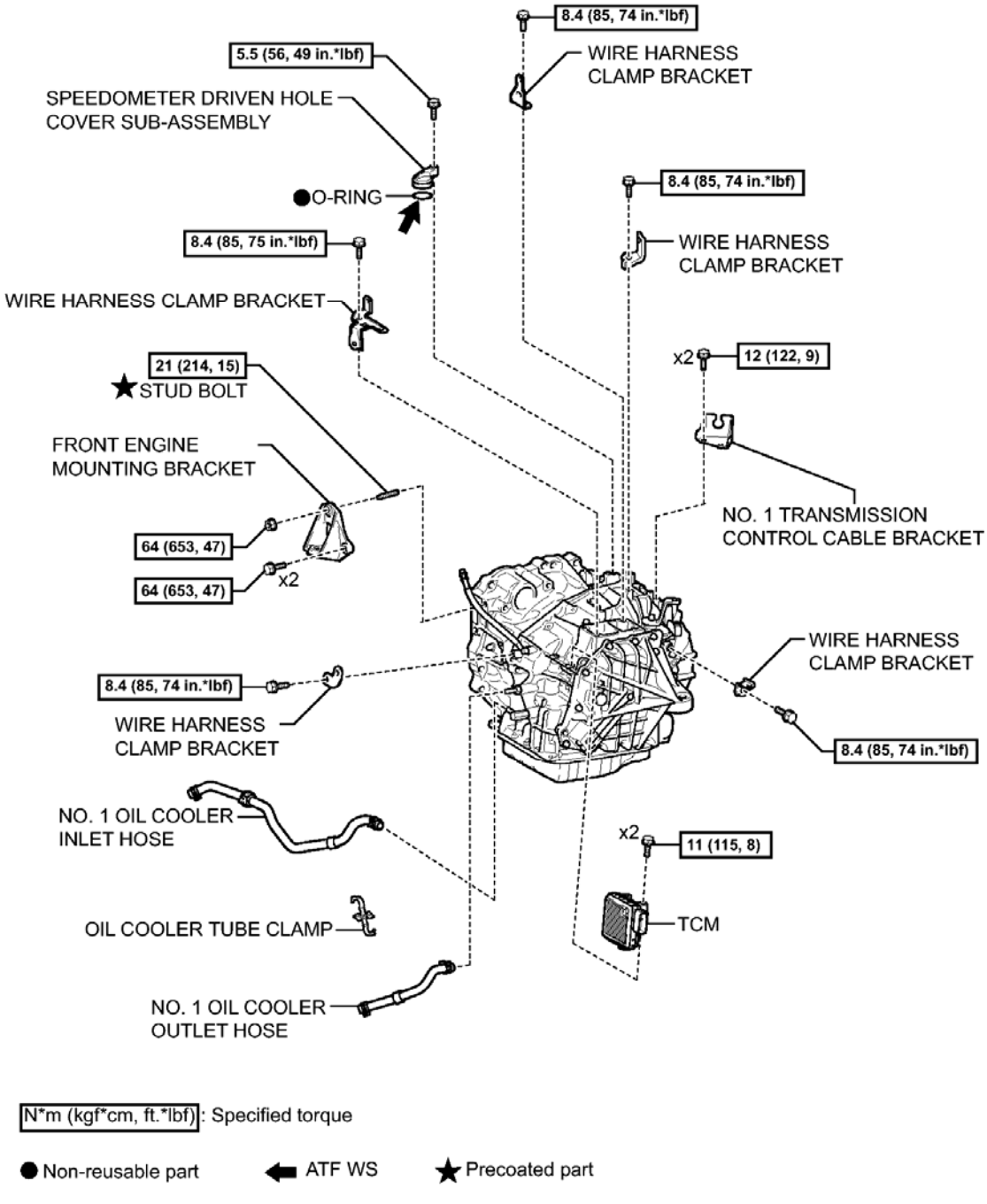


Fig. 159: Automatic Transaxle Assembly Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 160: Automatic Transaxle Assembly Replacement Components With Torque Specifications (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

NOTE: If automatic transaxle parts are replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .

1. **REMOVE ENGINE ASSEMBLY WITH TRANSAXLE**

   Refer to **REMOVAL**

2. **REMOVE STARTER ASSEMBLY** . Refer to **REMOVAL - Step 5**
3. **REMOVE MANIFOLD STAY** . Refer to **REMOVAL - Step 10**
4. **DISCONNECT BREATHER PLUG HOSE**
   a. Disengage the clamp and disconnect the breather plug hose from the hose clamp.

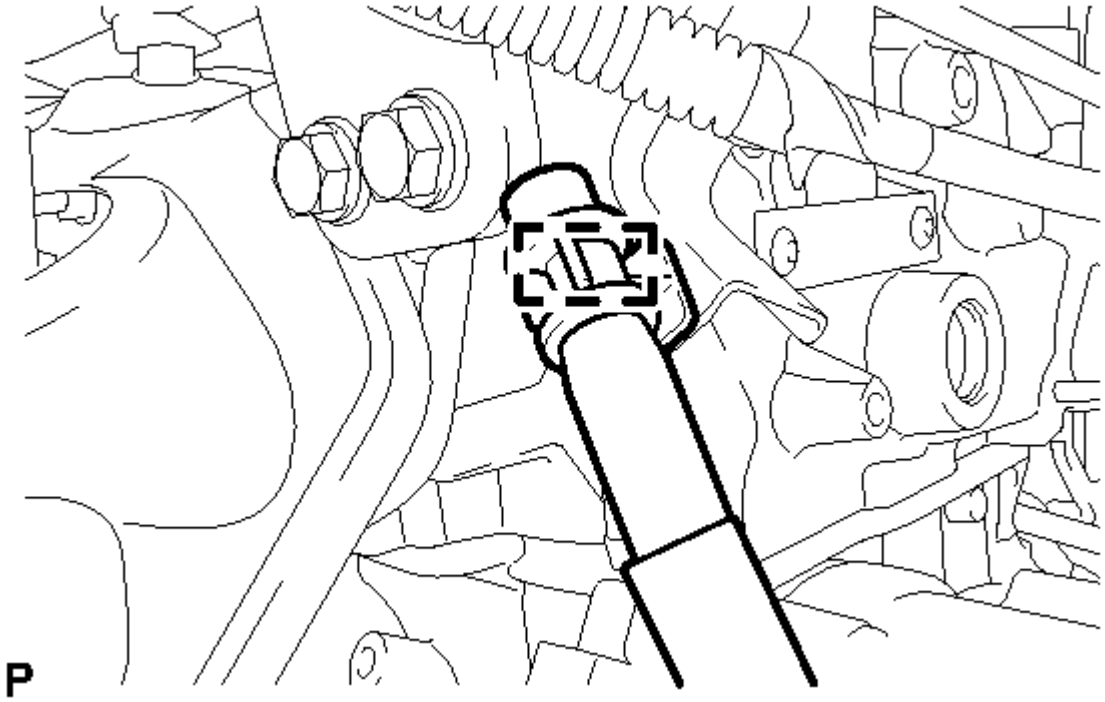


Fig. 161: Identifying Breather Plug Hose & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **DISCONNECT ENGINE WIRE**
   a. Disconnect the park/neutral position switch connector.

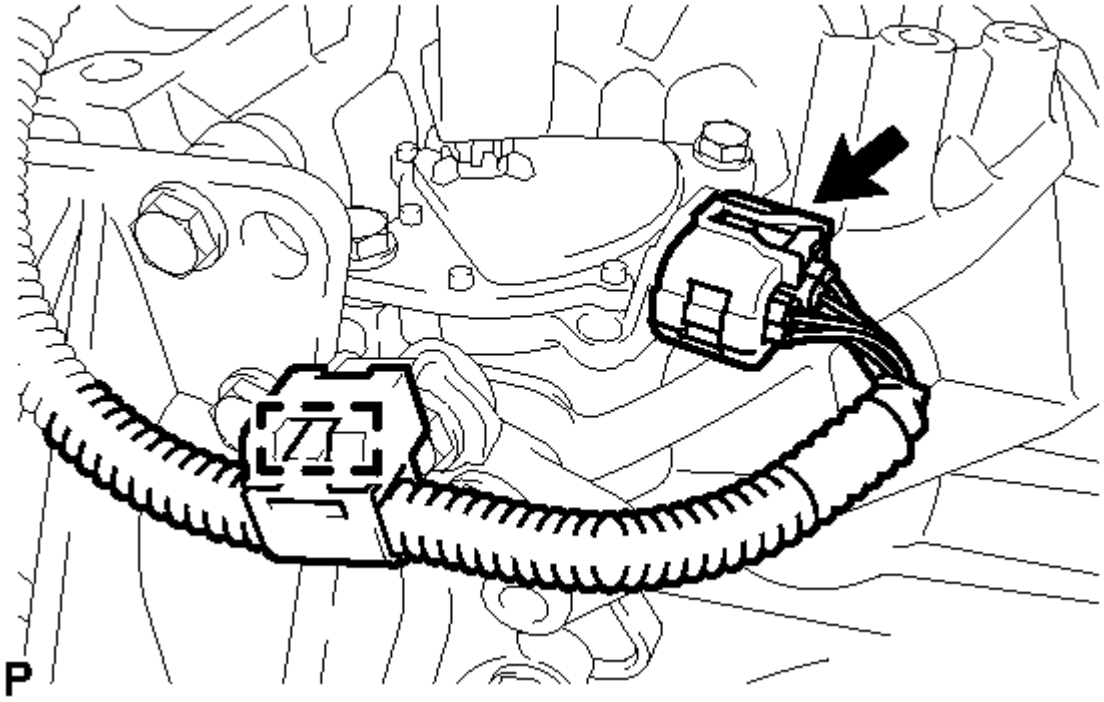
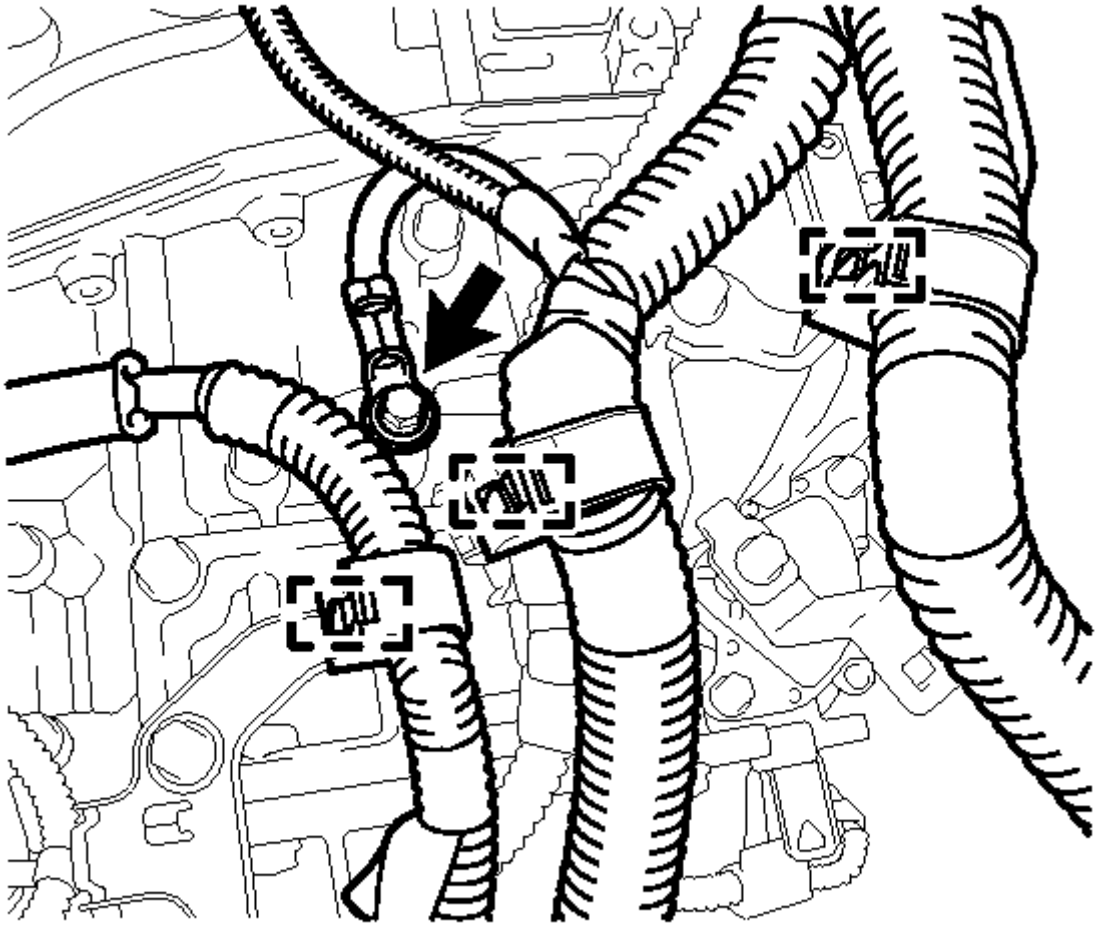


Fig. 162: Identifying Park/Neutral Position Switch Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

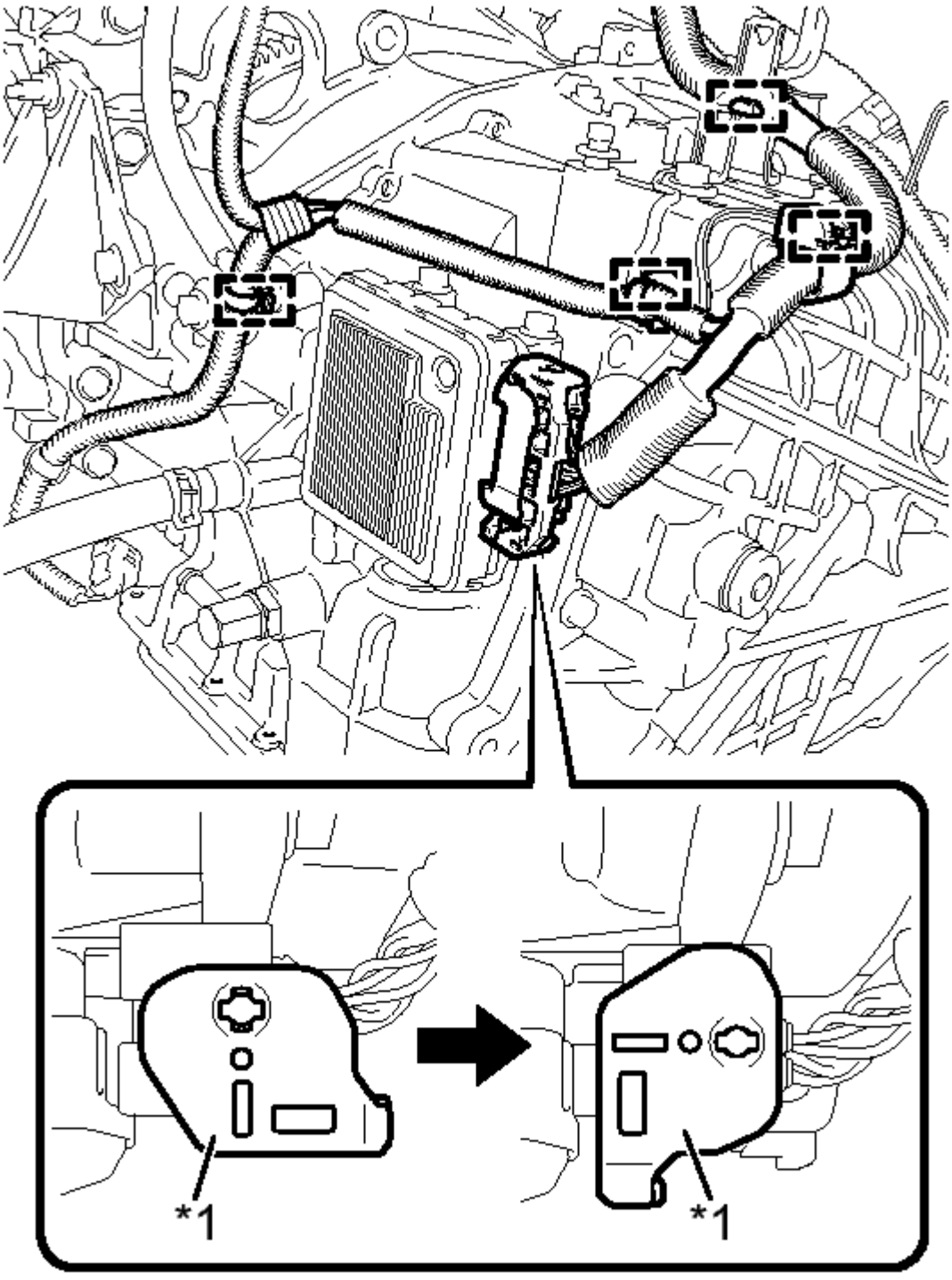
b. Disengage the clamp and disconnect the engine wire.
c. Remove the bolt and separate the ground wire.



P

Fig. 163: Identifying Ground Wire With Bolt & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Disengage the 3 clamps and disconnect the engine wire.
e. Turn the lock lever and disconnect the connector from the TCM.



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Fig. 164: Disconnecting TCM Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

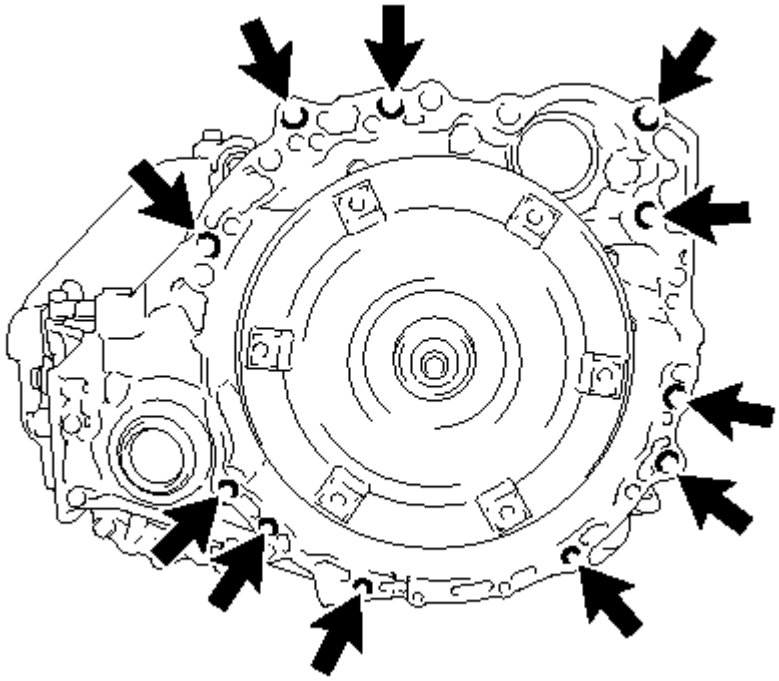
TEXT IN ILLUSTRATION

	Lock

*1	Lever

f. Disengage the 4 clamps and disconnect the engine wire.

6. **REMOVE TRANSFER STIFFENER PLATE RH** . Refer to **REMOVAL - Step 6**
7. **REMOVE AUTOMATIC TRANSAXLE ASSEMBLY**
   a. Remove the 11 bolts and transaxle.

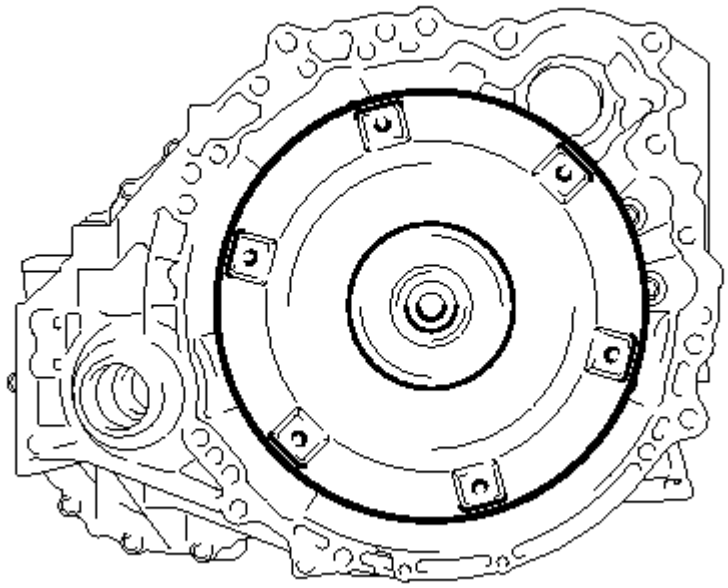


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Fig. 165: Identifying Automatic Transaxle Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: To prevent damage to the knock pins, do not pry between the transaxle and engine.

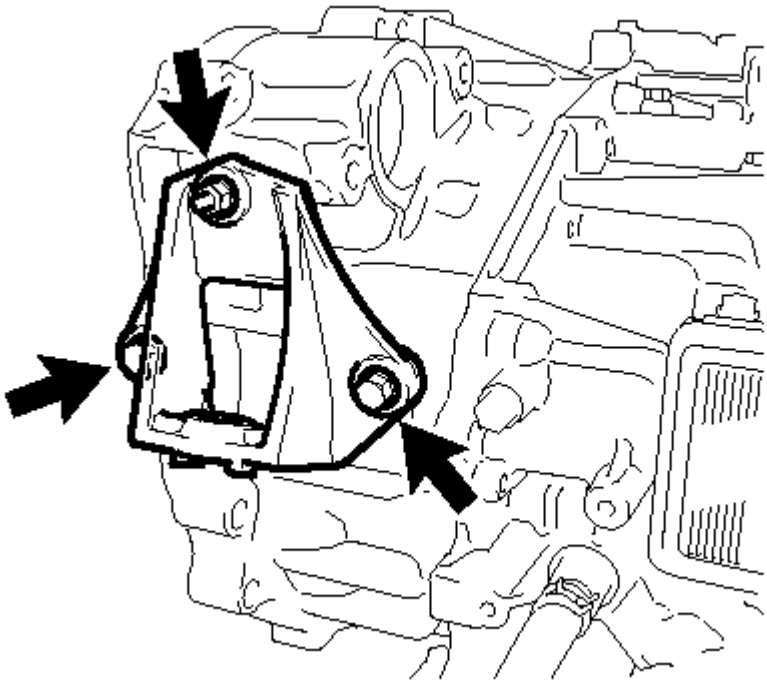
8. **REMOVE TORQUE CONVERTER CLUTCH ASSEMBLY**
   a. Remove the torque converter from the automatic transaxle.



P

Fig. 166: Identifying Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

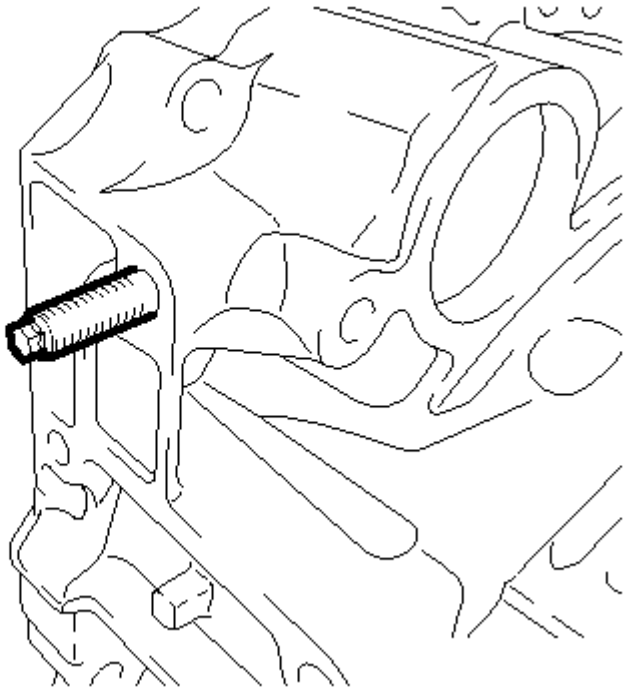
9. **REMOVE TRANSFER ASSEMBLY** . Refer to **REMOVAL - Step 9**
10. **REMOVE FRONT ENGINE MOUNTING BRACKET**
    a. Remove the 2 bolts, nut and front engine mounting bracket from the automatic transaxle.



C

Fig. 167: Identifying Front Engine Mounting Bracket & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

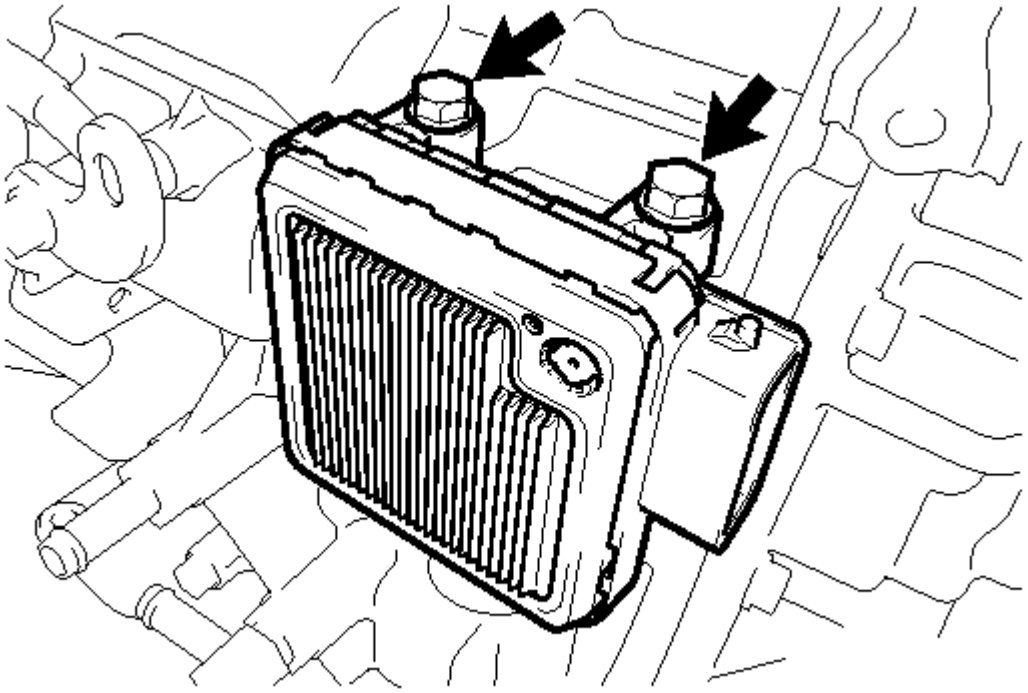
b. Using an E8 "TORX" socket wrench, remove the stud bolt from the automatic transaxle.



P

Fig. 168: Identifying Front Engine Mounting Bracket Stud Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

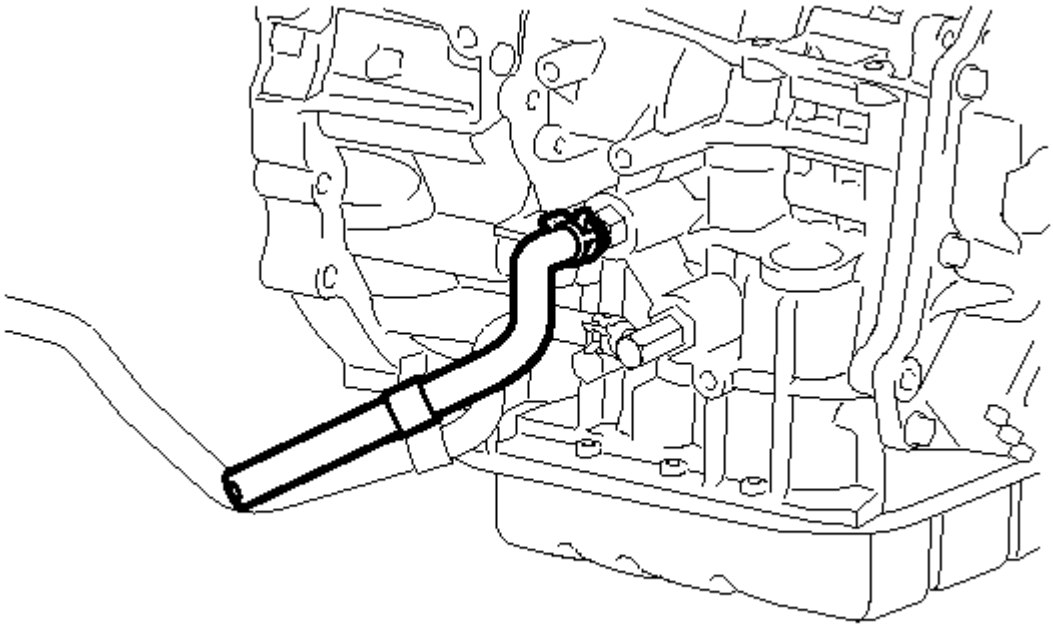
11. **REMOVE TCM**
    a. Remove the 2 bolts and TCM from the automatic transaxle.



P

Fig. 169: Identifying TCM Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

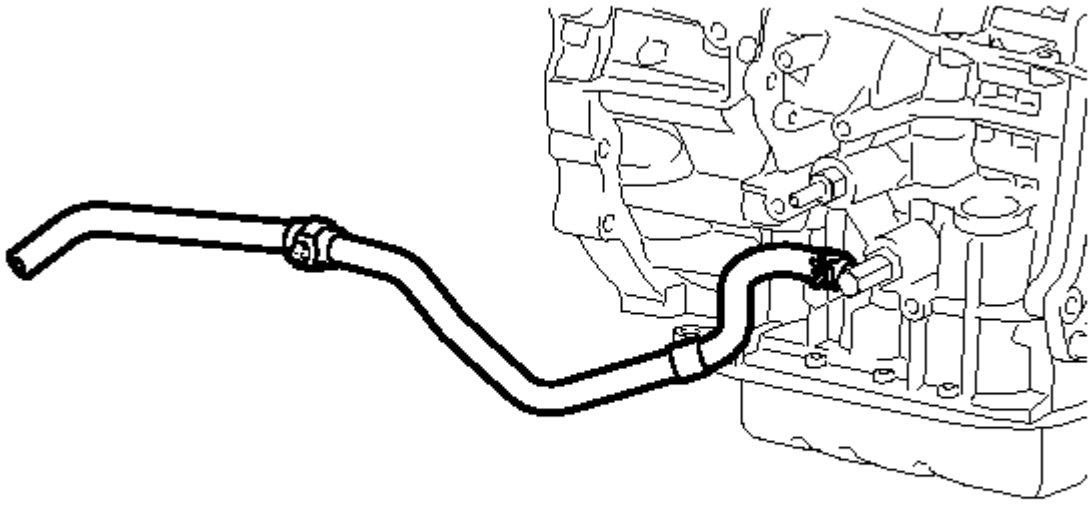
12. **REMOVE OIL COOLER TUBE CLAMP**
13. **REMOVE NO. 1 OIL COOLER OUTLET HOSE**
    a. Slide the hose clip and disconnect the No. 1 oil cooler outlet hose from the oil cooler tube union.



P

Fig. 170: Identifying No. 1 Oil Cooler Outlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

14. **REMOVE NO. 1 OIL COOLER INLET HOSE**
    a. Slide the hose clip and disconnect the No. 1 oil cooler inlet hose from the oil cooler tube union.



P

Fig. 171: Identifying No. 1 Oil Cooler Inlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

15. **REMOVE WIRE HARNESS CLAMP BRACKET**
    a. Remove the 5 bolts and 5 clamp brackets from the automatic transaxle.

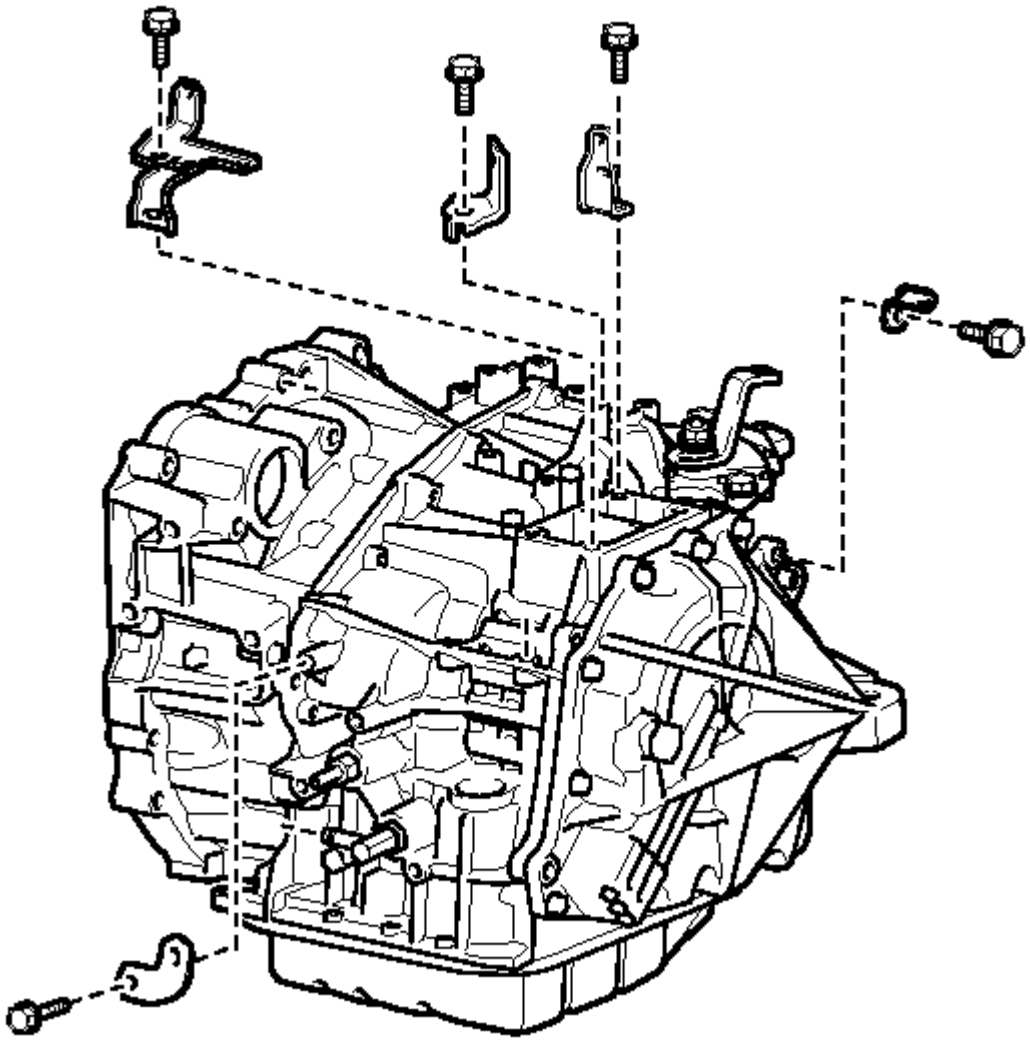


Fig. 172: Identifying Wire Harness Clamp Brackets & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

16. **REMOVE NO. 1 TRANSMISSION CONTROL CABLE BRACKET**
    a. Remove the 2 bolts and No. 1 transmission control cable bracket from the automatic transaxle.

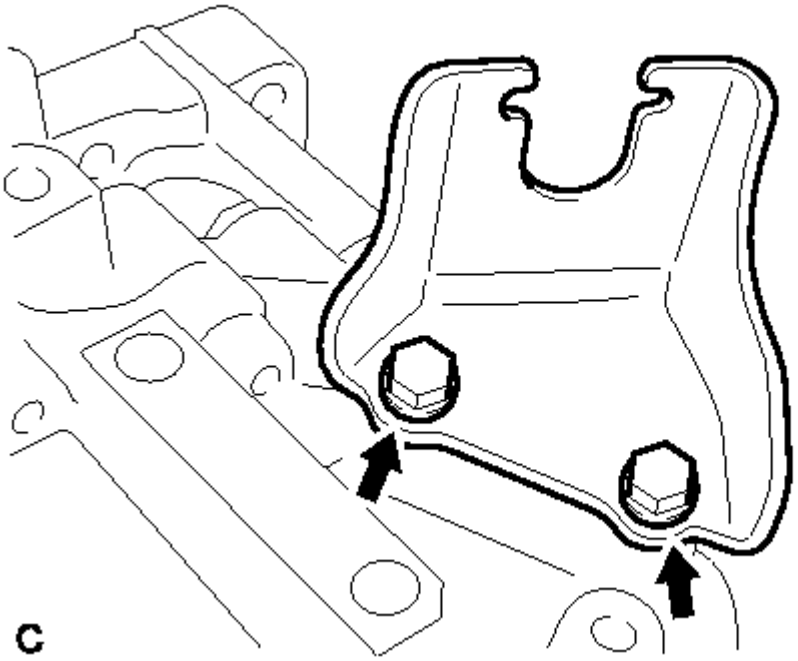


Fig. 173: Identifying No. 1 Transmission Control Cable Bracket & Bolts At Automatic Transaxle
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

17. **REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
    a. Remove the bolt and speedometer driven hole cover from the automatic transaxle.

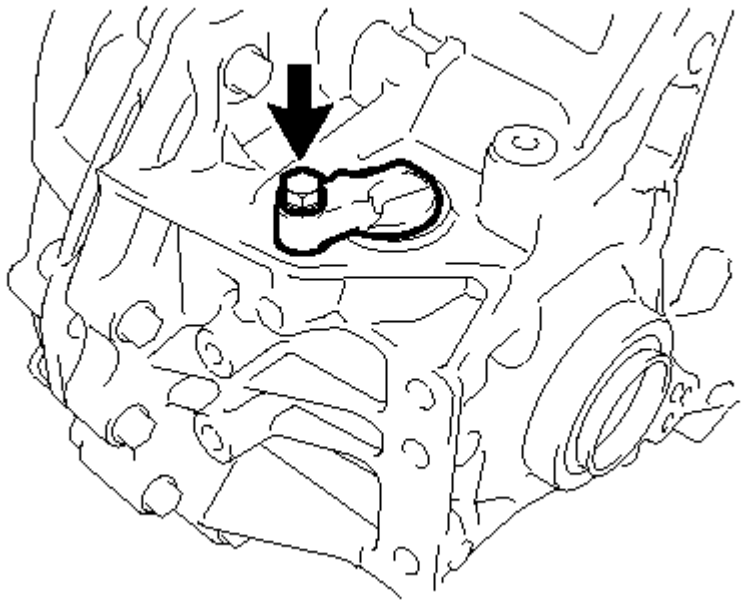


Fig. 174: Identifying Speedometer Driven Hole Cover & Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the O-ring from the speedometer driven hole cover.

18. **INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY** . Refer to **INSPECTION - Step 1**

INSTALLATION

INSTALLATION

1. **INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY**
   a. Apply ATF to a new O-ring and install it onto the speedometer driven hole cover.
   b. Install the speedometer driven hole cover onto the automatic transaxle with the bolt.

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

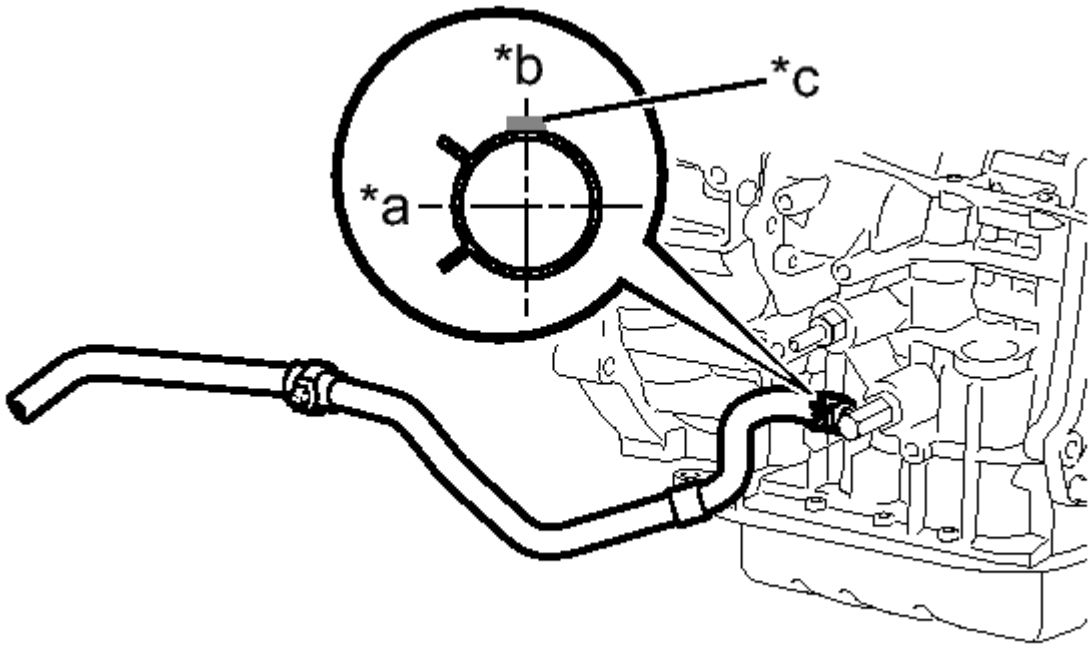
2. **INSTALL NO. 1 TRANSMISSION CONTROL CABLE BRACKET**
   a. Install the No. 1 transmission control cable bracket onto the automatic transaxle with the 2 bolts.

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

3. **INSTALL WIRE HARNESS CLAMP BRACKET**
   a. Install the 5 wire harness clamp brackets onto the automatic transaxle with the 5 bolts.

      Torque: 8.4 N*m (85 kgf*cm, 74 in.*lbf)

4. **CONNECT NO. 1 OIL COOLER INLET HOSE**
   a. Connect the No. 1 oil cooler inlet hose onto the oil cooler tube union with the hose clip shown in the illustration.



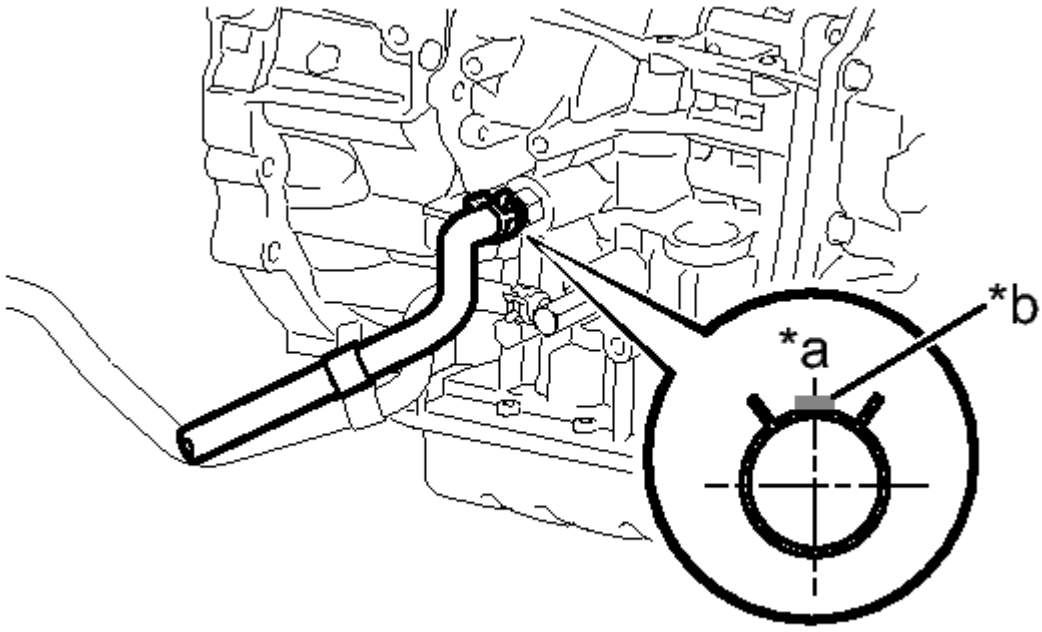
P

Fig. 175: Identifying No. 1 Oil Cooler Inlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Front of Vehicle
*b	Top of Vehicle
*c	Pink Painted Mark on Hose

5. **CONNECT NO. 1 OIL COOLER OUTLET HOSE**
   a. Connect the No. 1 oil cooler outlet hose onto the oil cooler tube union with the hose clip shown in the illustration.



P

Fig. 176: Identifying No. 1 Oil Cooler Outlet Hose & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Top of Vehicle
*b	Yellow Painted Mark on Hose

6. **INSTALL OIL COOLER TUBE CLAMP**
7. **INSTALL TCM**
    a. Install the TCM onto the automatic transaxle.

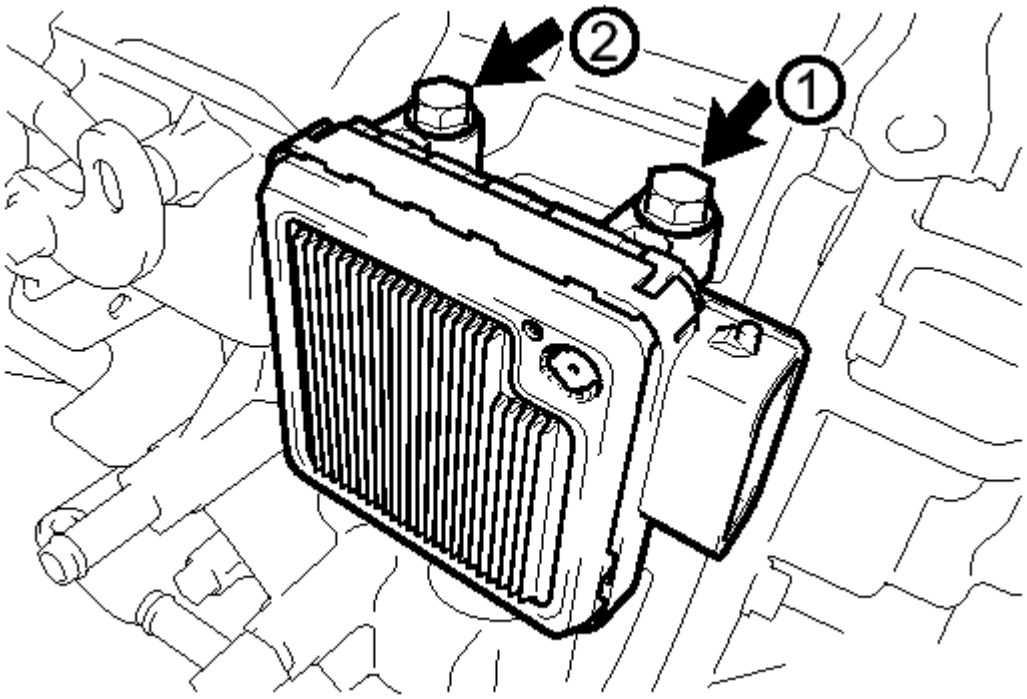


Fig. 177: Identifying TCM Bolts With Tightening Sequence
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install and tighten the 2 bolts in the order shown in the illustration.

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

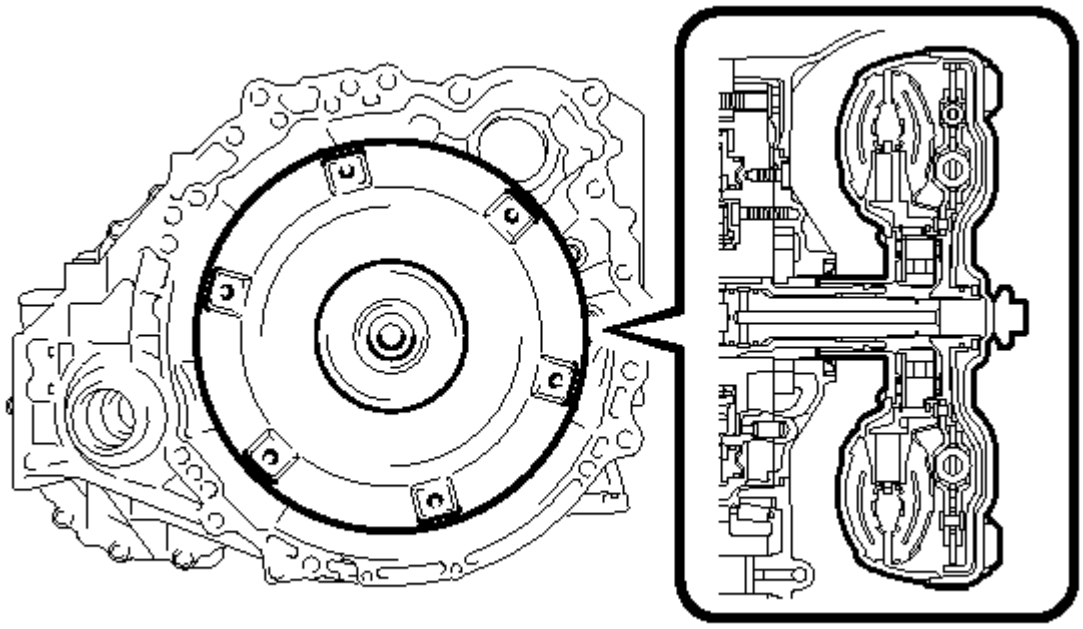
8. **INSTALL FRONT ENGINE MOUNTING BRACKET**
   a. Clean and degrease the stud bolt and the installation hole in the automatic transaxle.
   b. Apply adhesive to 2 or 3 threads on the ends of the stud bolt.
   c. Using an E8 "TORX" socket wrench, install the stud bolt onto the automatic transaxle.

      Torque: 21 N*m (214 kgf*cm, 15 ft.*lbf)

   d. Install the front engine mounting bracket onto the automatic transaxle with the 2 bolts and nut.

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

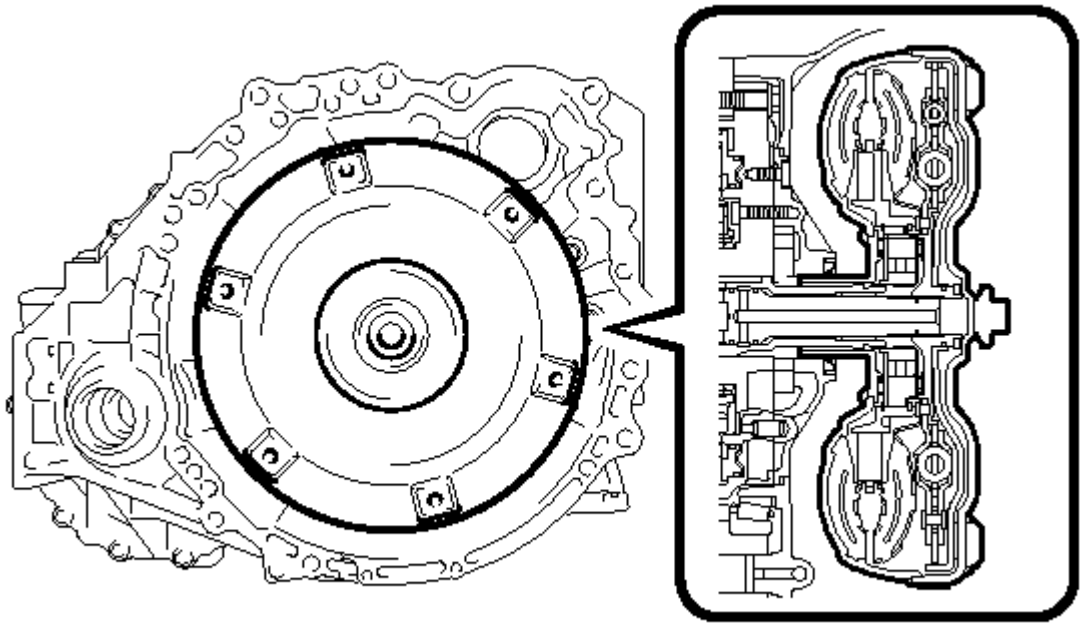
9. **INSTALL TRANSFER ASSEMBLY** . Refer to **INSTALLATION - Step 1**
10. **INSTALL TORQUE CONVERTER CLUTCH ASSEMBLY**
    a. Engage the splines of the input shaft and turbine runner.



P

Fig. 178: Engaging Splines Of Input Shaft And Turbine Runner
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Engage the splines of the stator shaft and the stator while turning the torque converter.



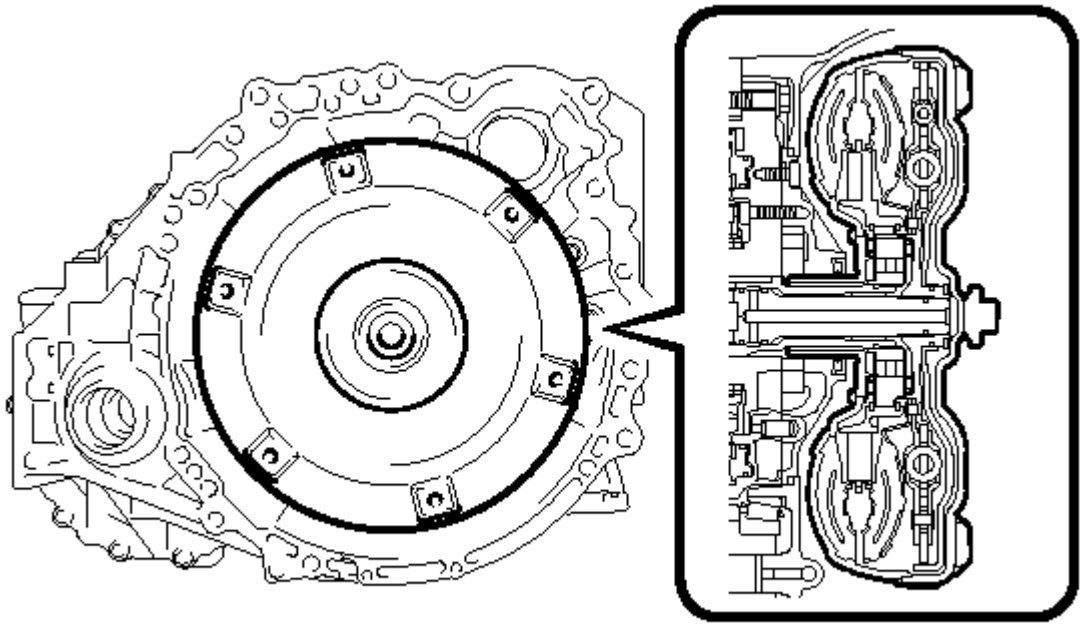
P

Fig. 179: Identifying Splines Of Stator Shaft And Stator
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

If the stator shaft splines are difficult to engage with the stator splines, move the torque converter back approximately 10 mm (0.393 in.) and engage the splines while rotating the torque converter.

c. Turn the torque converter to engage the key of the oil pump drive gear into the slot on the torque converter.



P

Fig. 180: Identifying Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a vernier caliper and a straightedge, measure dimension A between the transaxle fitting surface of the engine (*a) and the torque converter fitting surface of the drive plate (*b). [#1]

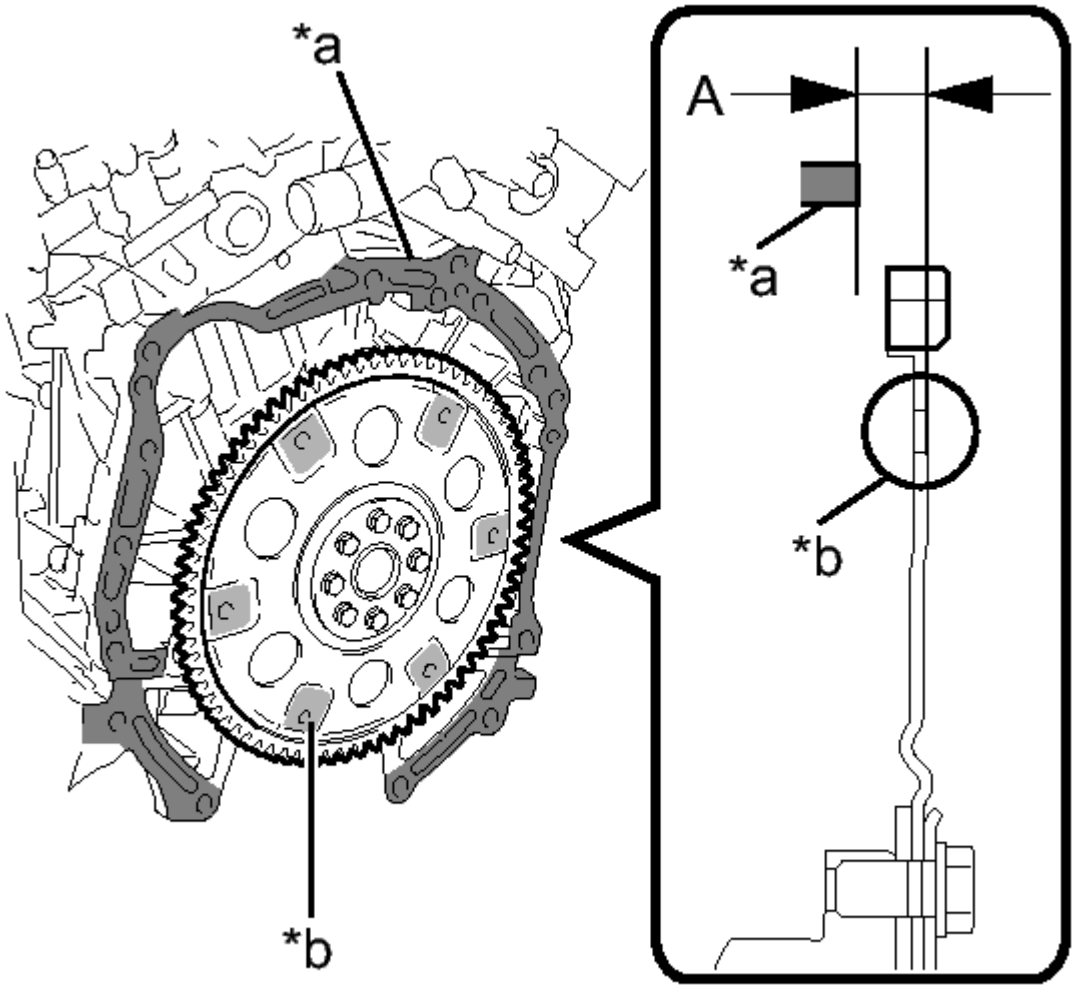


Fig. 181: Measuring Transaxle & Torque Converter Fitting Surface Of Drive Plate Using A Vernier Caliper & Straightedge
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Transaxle Fitting Surface
*b	Torque Converter Fitting Surface

NOTE: Make sure to deduct the thickness of the straightedge.

e. Using a vernier caliper and a straightedge, measure dimension B shown in the illustration and

check that dimension B is greater than dimension A, which was measured in step [#1].

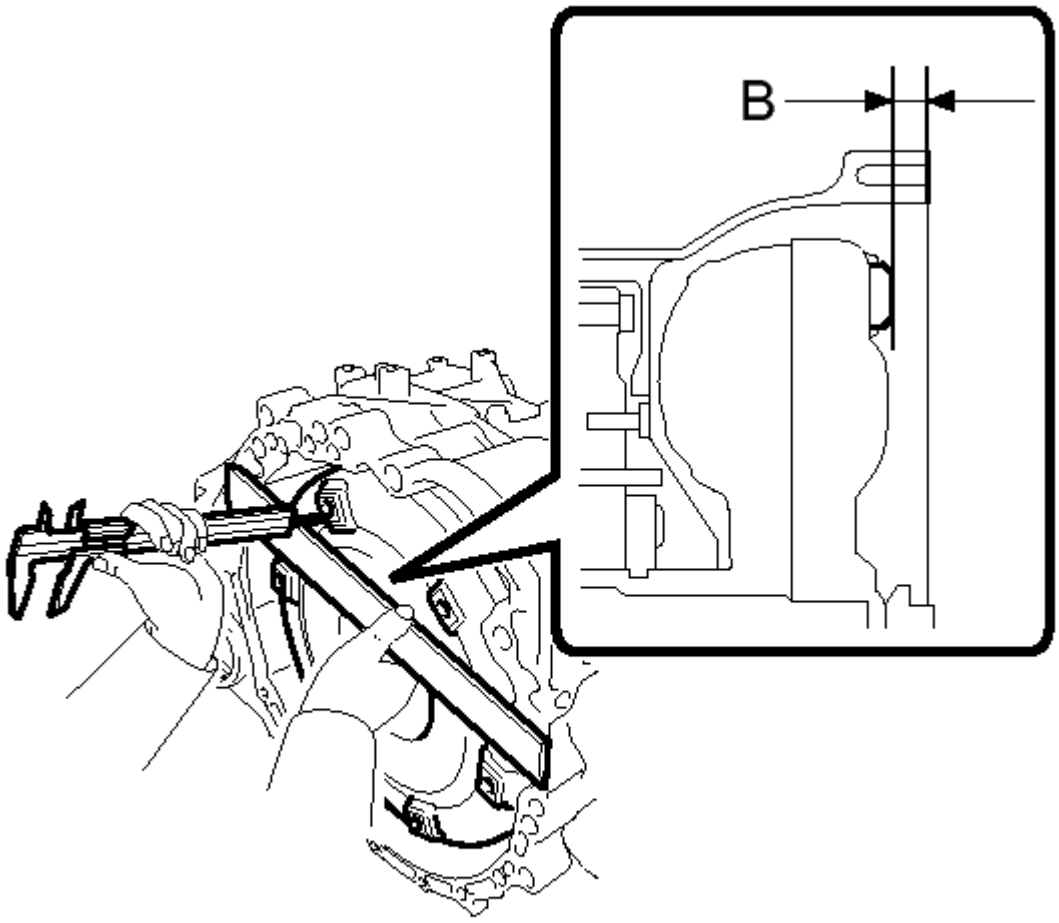


Fig. 182: Identifying Dimension "B"
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard

B = A + 1 mm (0.0394 in.) or more

NOTE:

- **Make sure to deduct the thickness of the straightedge.**
- **If the transaxle is installed to the engine with the torque converter not sufficiently inserted, the torque converter may be damaged.**

11. **INSTALL AUTOMATIC TRANSAXLE ASSEMBLY**

a. Confirm that the 2 knock pins are on the automatic transaxle contact surface of the engine cylinder block before automatic transaxle installation.

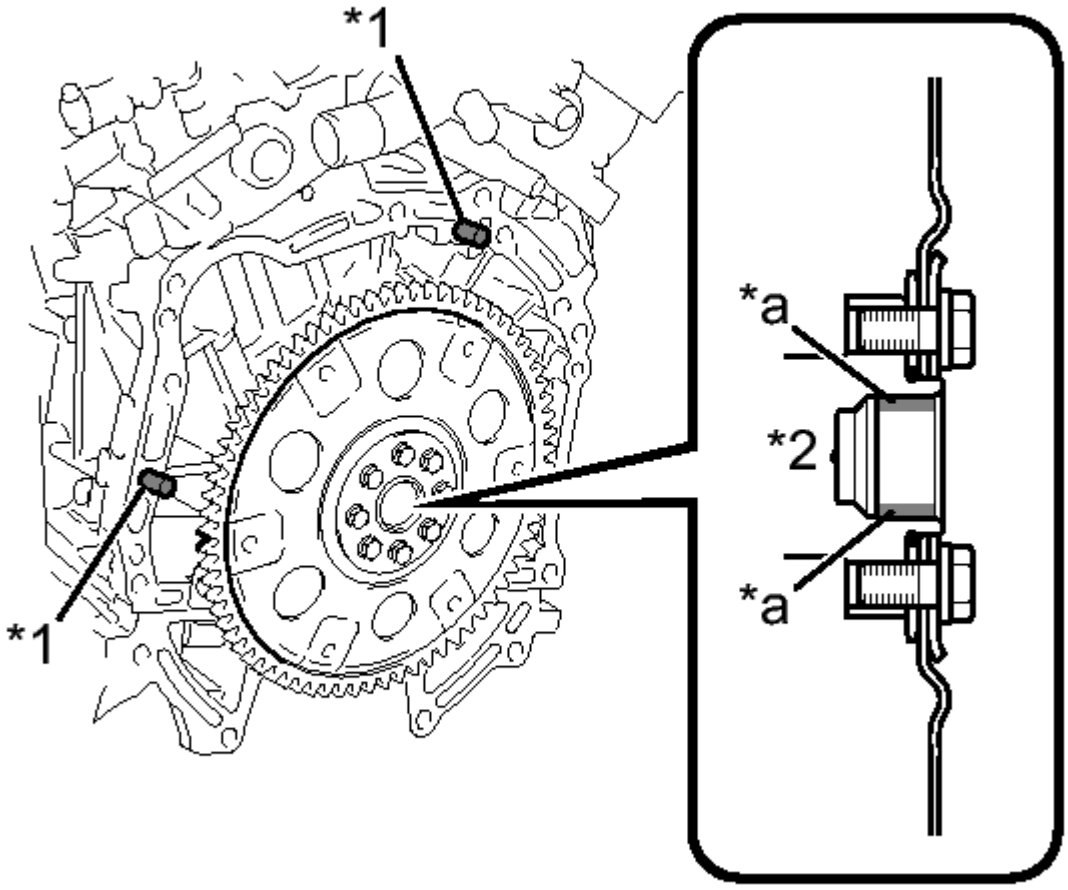


Fig. 183: Identifying Automatic Transaxle Assembly Knock Pins
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Knock Pin

b. Apply clutch spline grease to the round of the crankshaft contact surface (*a) with the torque converter centerpiece.

TEXT IN ILLUSTRATION

*1	Crankshaft

*a	Crankshaft Contact Surface

Clutch spline grease

Toyota Genuine Clutch Spline Grease or equivalent

Maximum spread

Approximately 1 g (0.0353 oz)

c. Clean and degrease the bolt (C) and the installation hole in the engine.

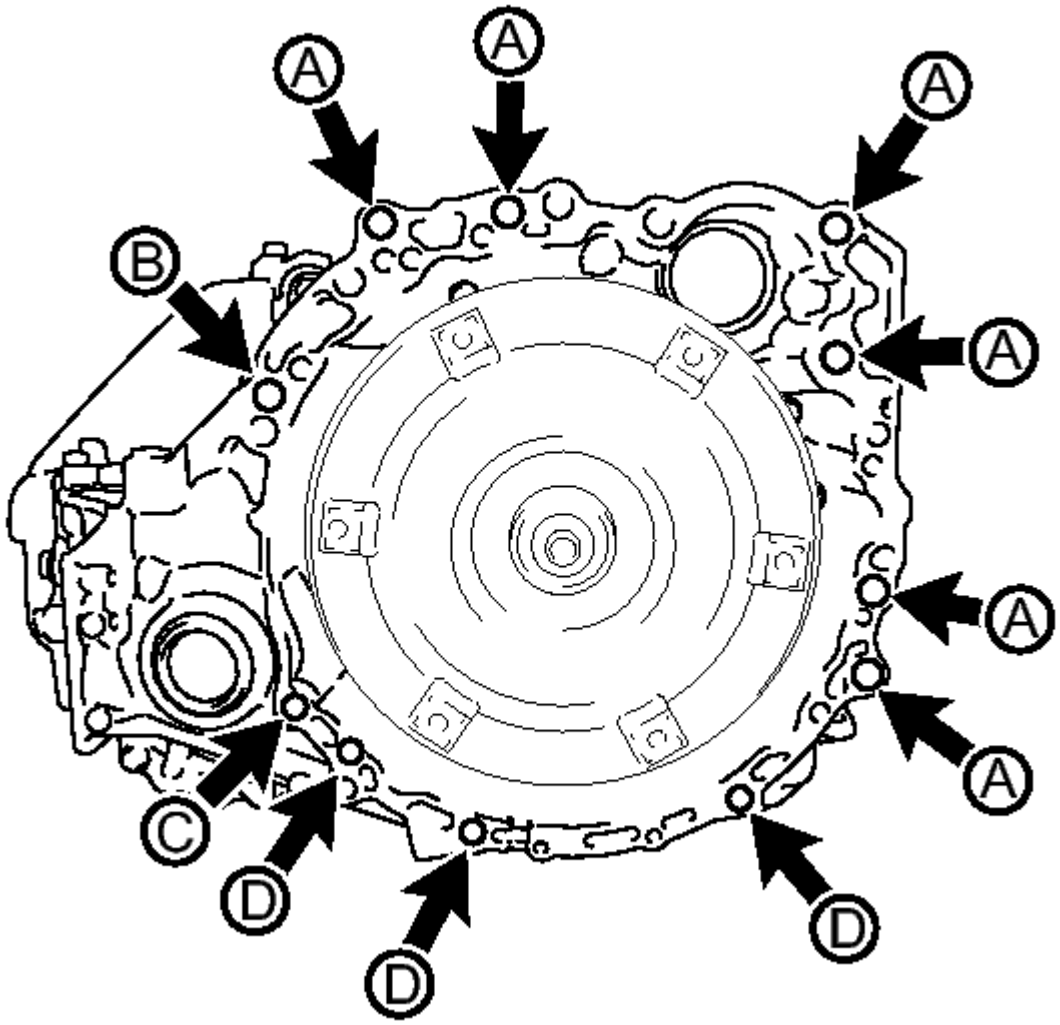


Fig. 184: Identifying Automatic Transaxle Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Apply adhesive to 2 or 3 threads on the ends of the bolt (C).

Adhesive

Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

e. Keeping the engine and automatic transaxle in a horizontal position, align the knock pins with each hole on the automatic transaxle and tighten the 11 bolts shown in the illustration.

Bolt A

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

Bolt B

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

Bolt C

Torque: 46 N*m (469 kgf*cm, 34 ft.*lbf)

Bolt D

Torque: 43 N*m (439 kgf*cm, 32 ft.*lbf)

Bolt Length

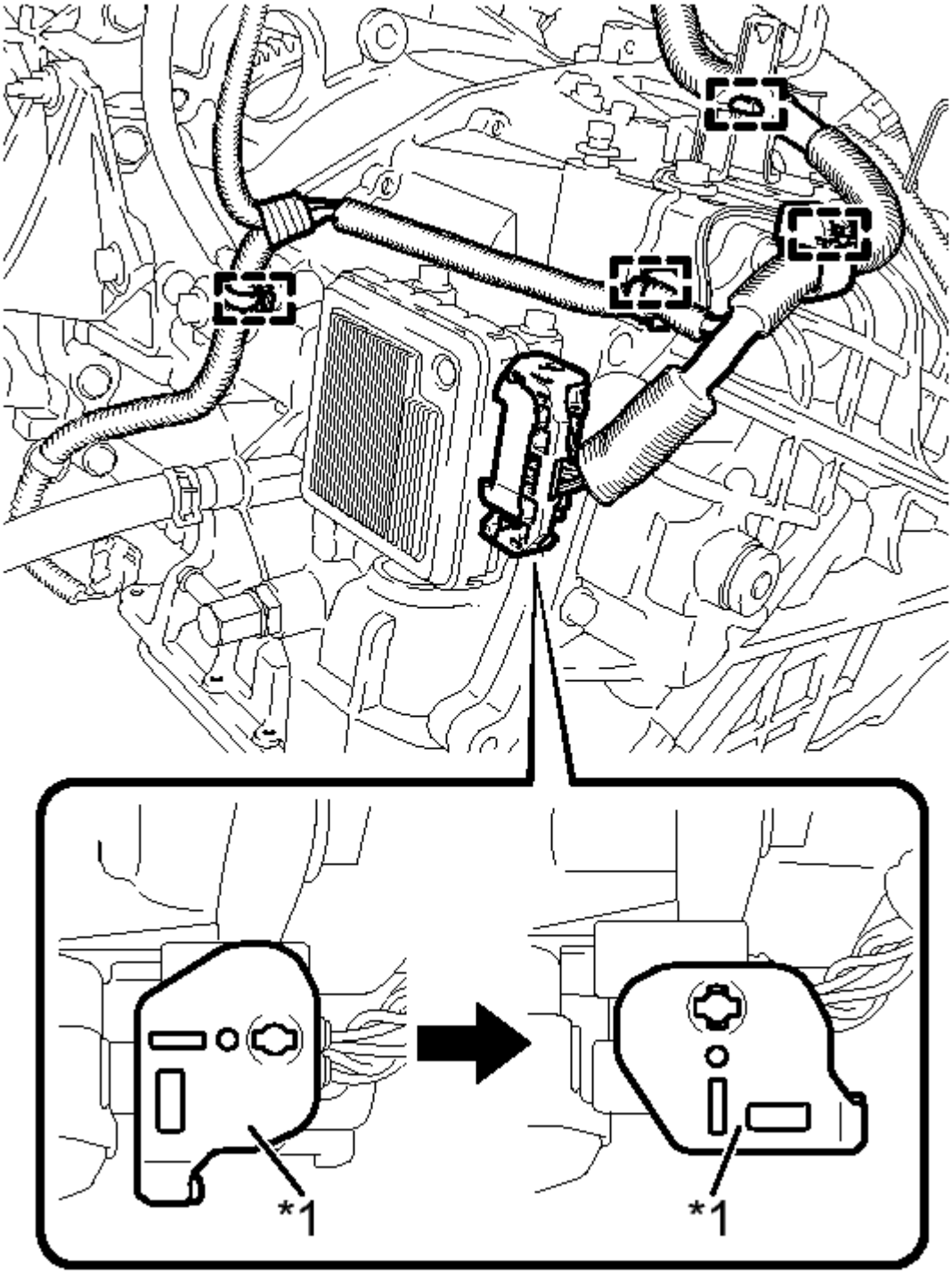
Bolt	Length mm (in.)
A	55 (2.17)
B	50 (1.97)
C	41 (1.61)
D	33 (1.30)

NOTE:

- **Do not twist or apply excessive force to the automatic transaxle.**
- **Check that the torque converter rotates smoothly after installation of the automatic transaxle.**

12. **INSTALL TRANSFER STIFFENER PLATE RH** . Refer to **INSTALLATION - Step 4**
13. **CONNECT ENGINE WIRE**

a. Engage the 4 clamps and connect the engine wire.



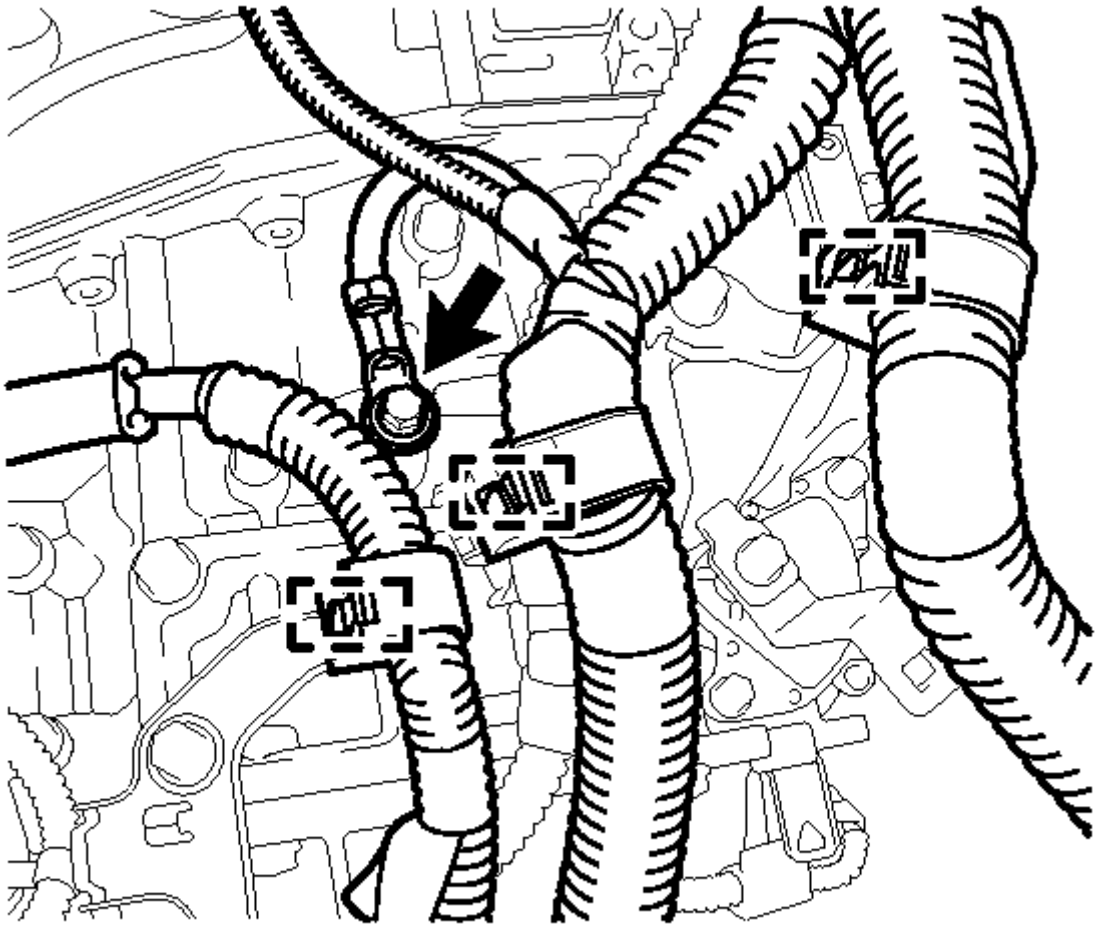
P

Fig. 185: Connecting TCM Connector & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Lock Lever

b. Connect the TCM connector.
c. Turn the lock lever and secure the connector with the lock lever.
d. Engage the 3 clamps and connect the engine wire.



P

Fig. 186: Identifying Ground Wire With Bolt & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Install the ground wire onto the automatic transaxle with the bolt.

Torque: 19 N*m (195 kgf*cm, 14 ft.*lbf)

f. Engage the clamp and connect the engine wire.

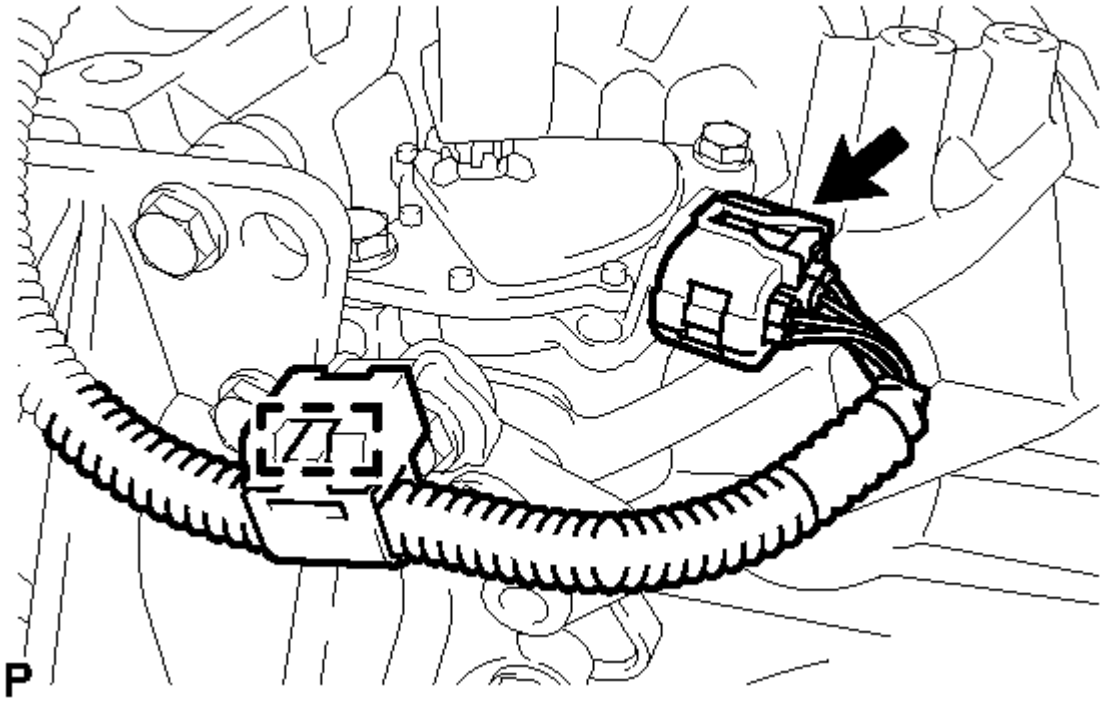


Fig. 187: Identifying Park/Neutral Position Switch Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Connect the park/neutral position switch connector.

14. **CONNECT BREATHER PLUG HOSE**
    a. Engage the clamp and connect the transmission breather hose onto the hose clamp.
15. **INSTALL MANIFOLD STAY** . Refer to **INSTALLATION - Step 10**
16. **INSTALL STARTER ASSEMBLY** . Refer to **INSTALLATION - Step 1**
17. **INSTALL ENGINE ASSEMBLY WITH TRANSAXLE**

    Refer to **INSTALLATION**

18. **CHECK AUTOMATIC TRANSAXLE SYSTEM**

NOTE: **If automatic transmission parts have been replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .**

AUTOMATIC TRANSAXLE UNIT

COMPONENTS

ILLUSTRATION

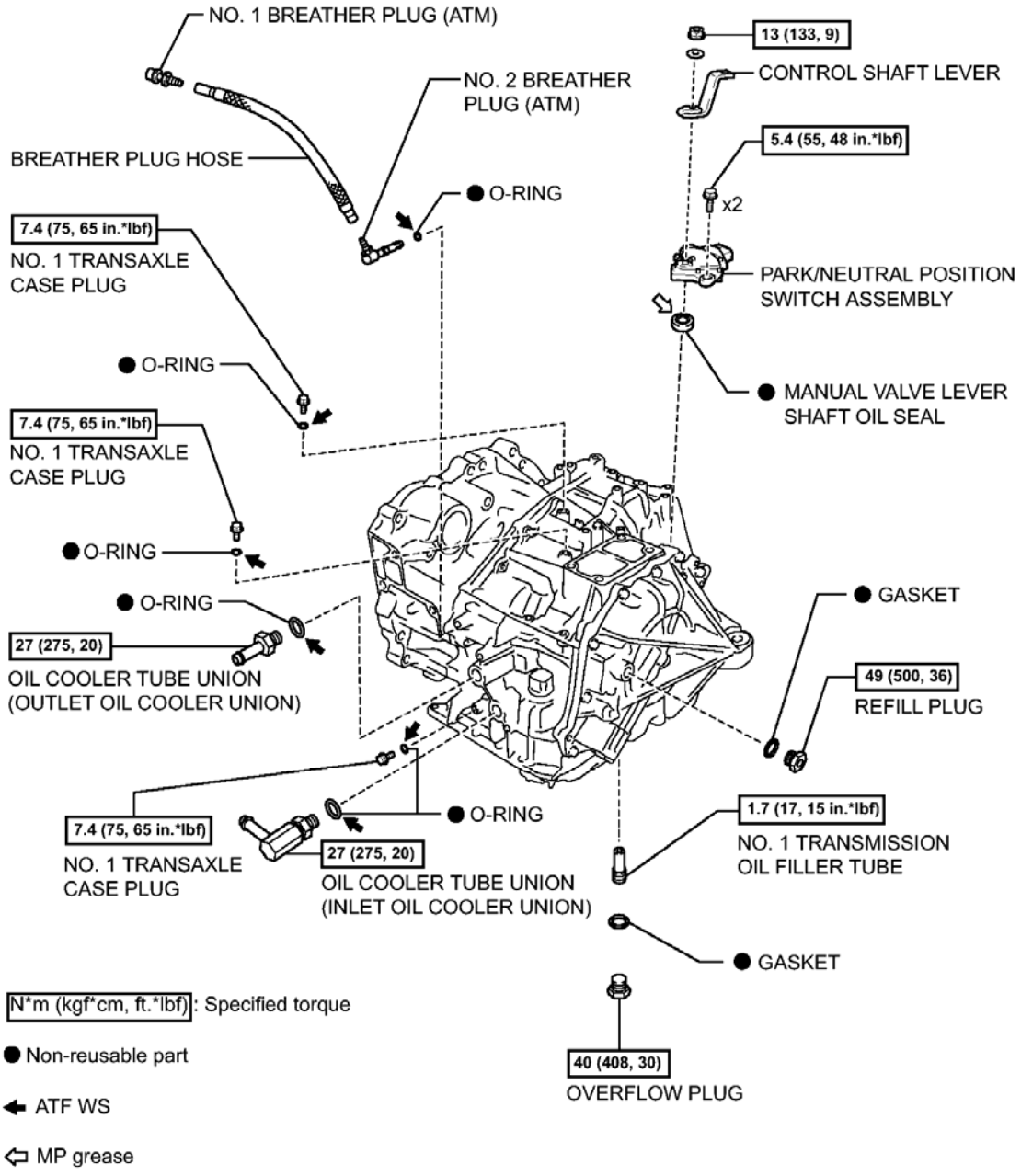


Fig. 188: Automatic Transaxle Unit Replacement Components With Torque Specifications (1 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

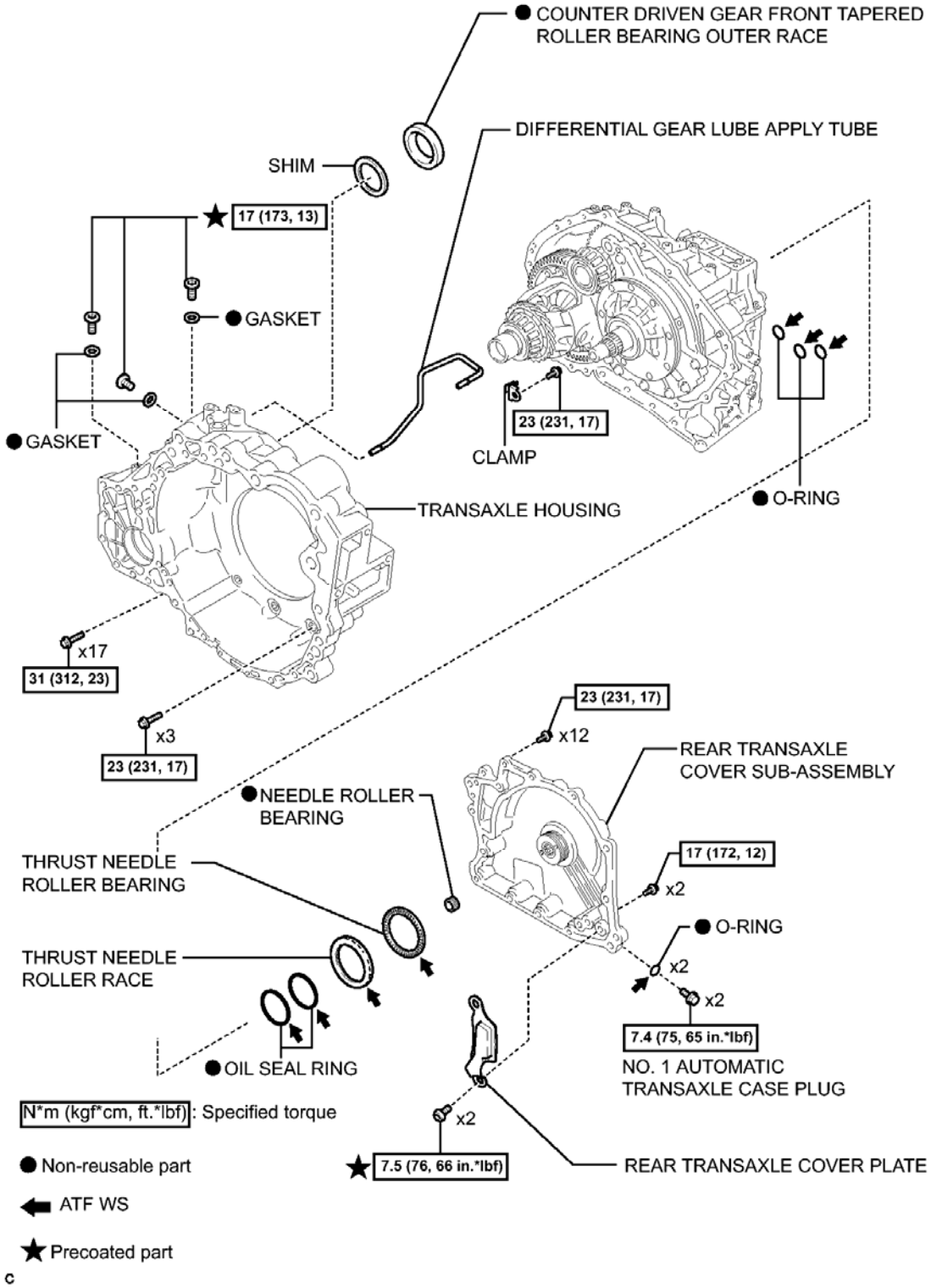


Fig. 189: Automatic Transaxle Unit Replacement Components With Torque Specifications (2 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

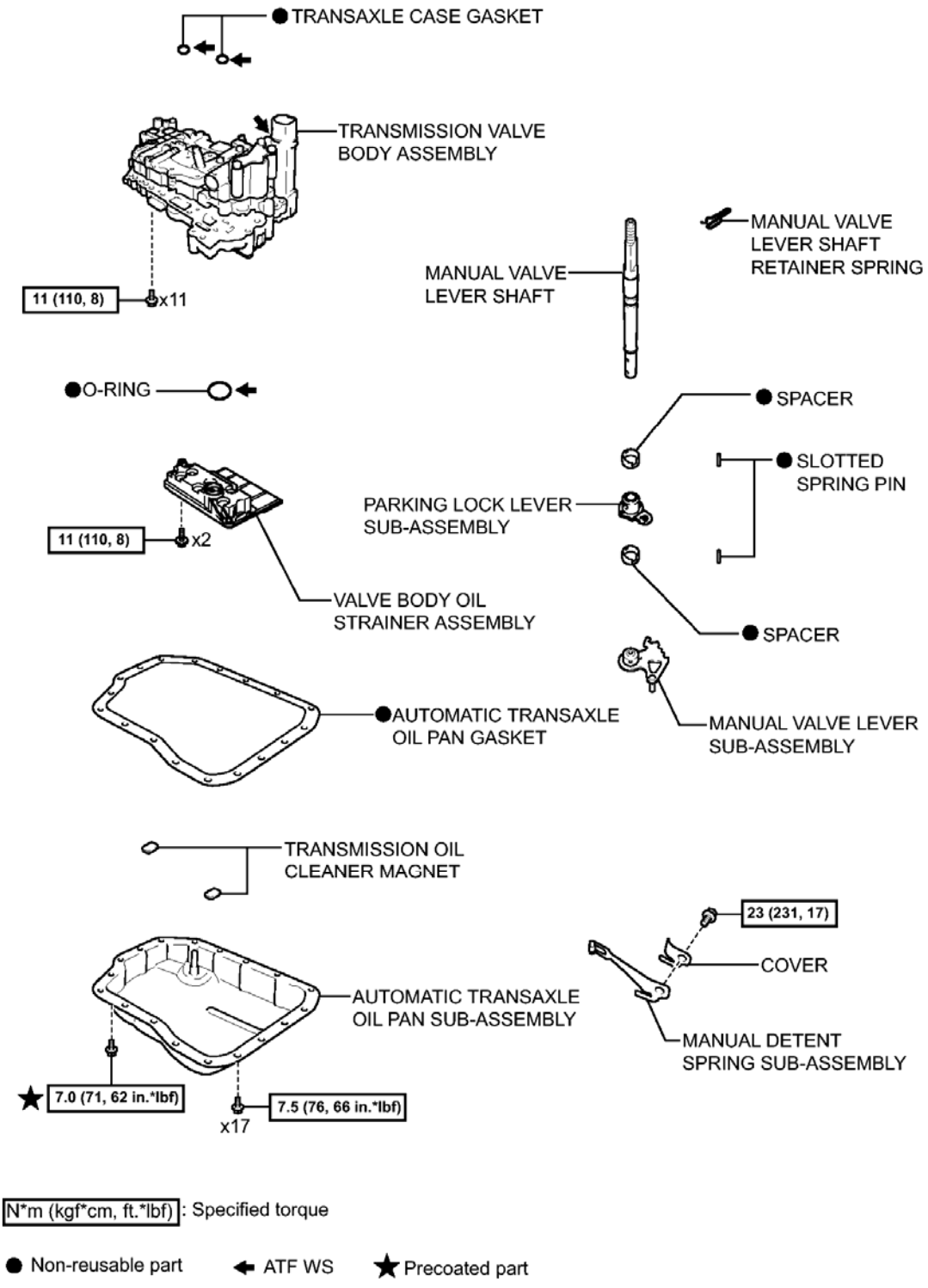


Fig. 190: Automatic Transaxle Unit Replacement Components With Torque Specifications (3 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

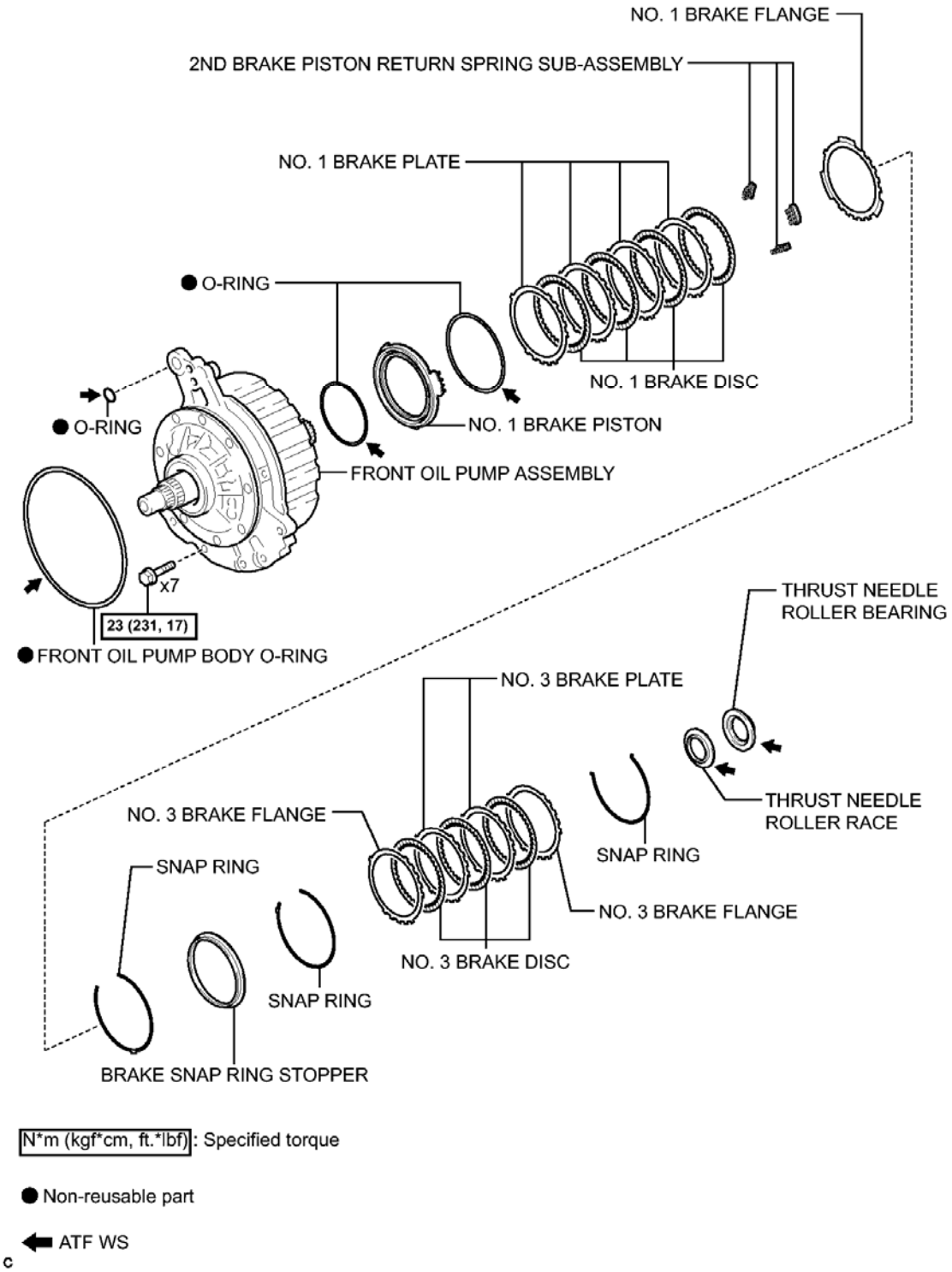


Fig. 191: Automatic Transaxle Unit Replacement Components With Torque Specifications (4 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

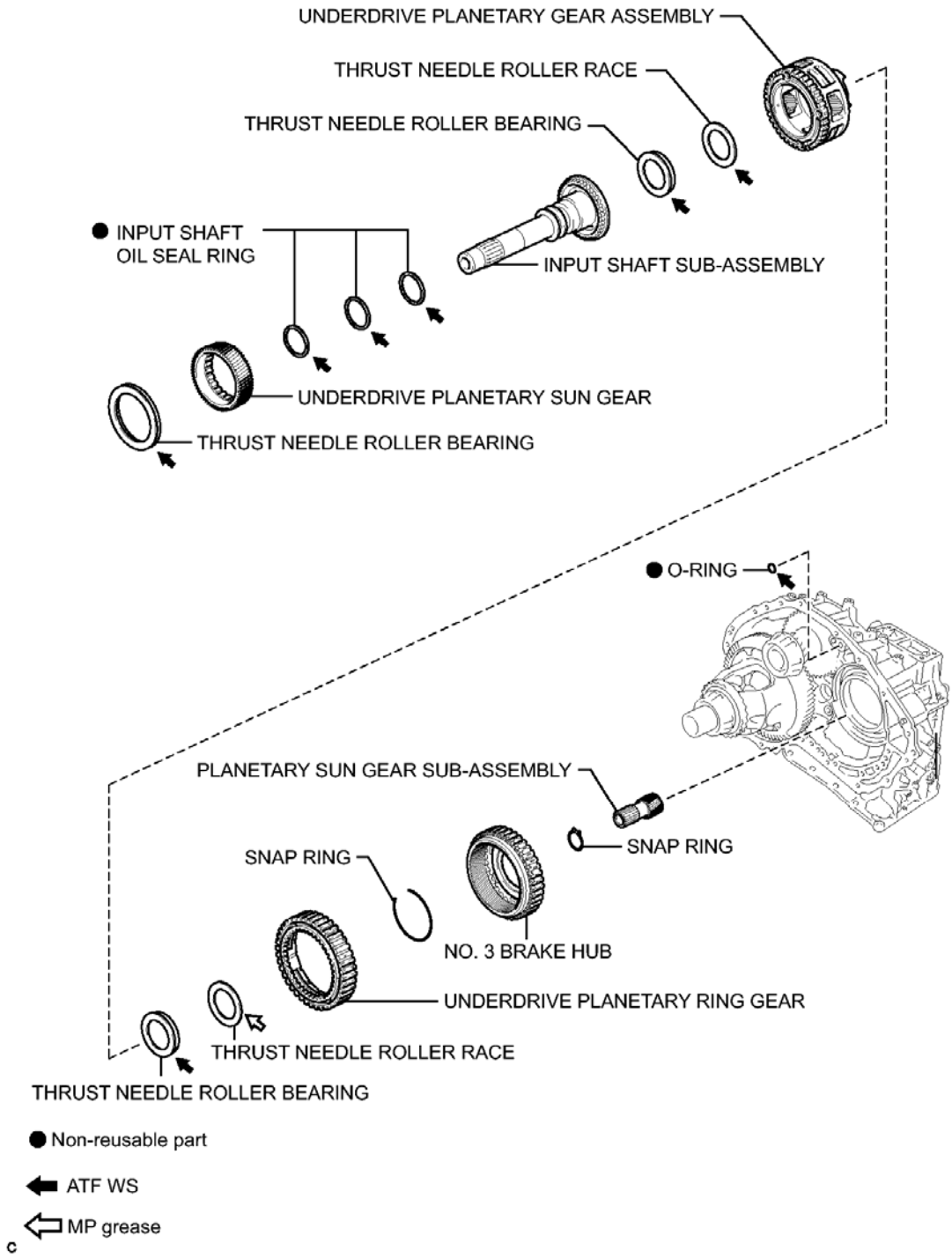


Fig. 192: Automatic Transaxle Unit Replacement Components With Torque Specifications (5 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

(#1) The counter drive gear bearing cannot be separated from the transaxle case. When the counter drive gear bearing or transaxle case is replaced, prepare the following:

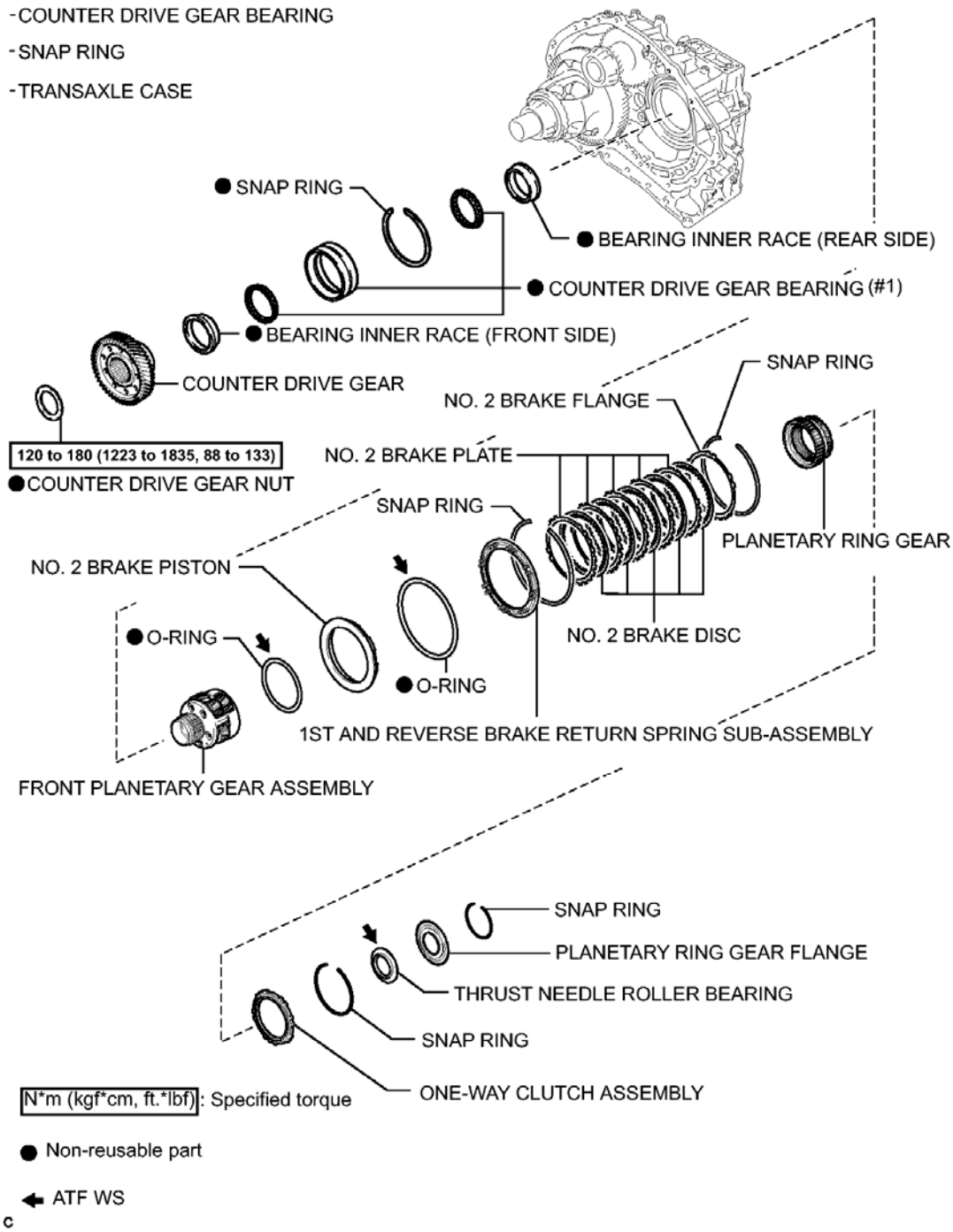


Fig. 193: Automatic Transaxle Unit Replacement Components With Torque Specifications (6 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

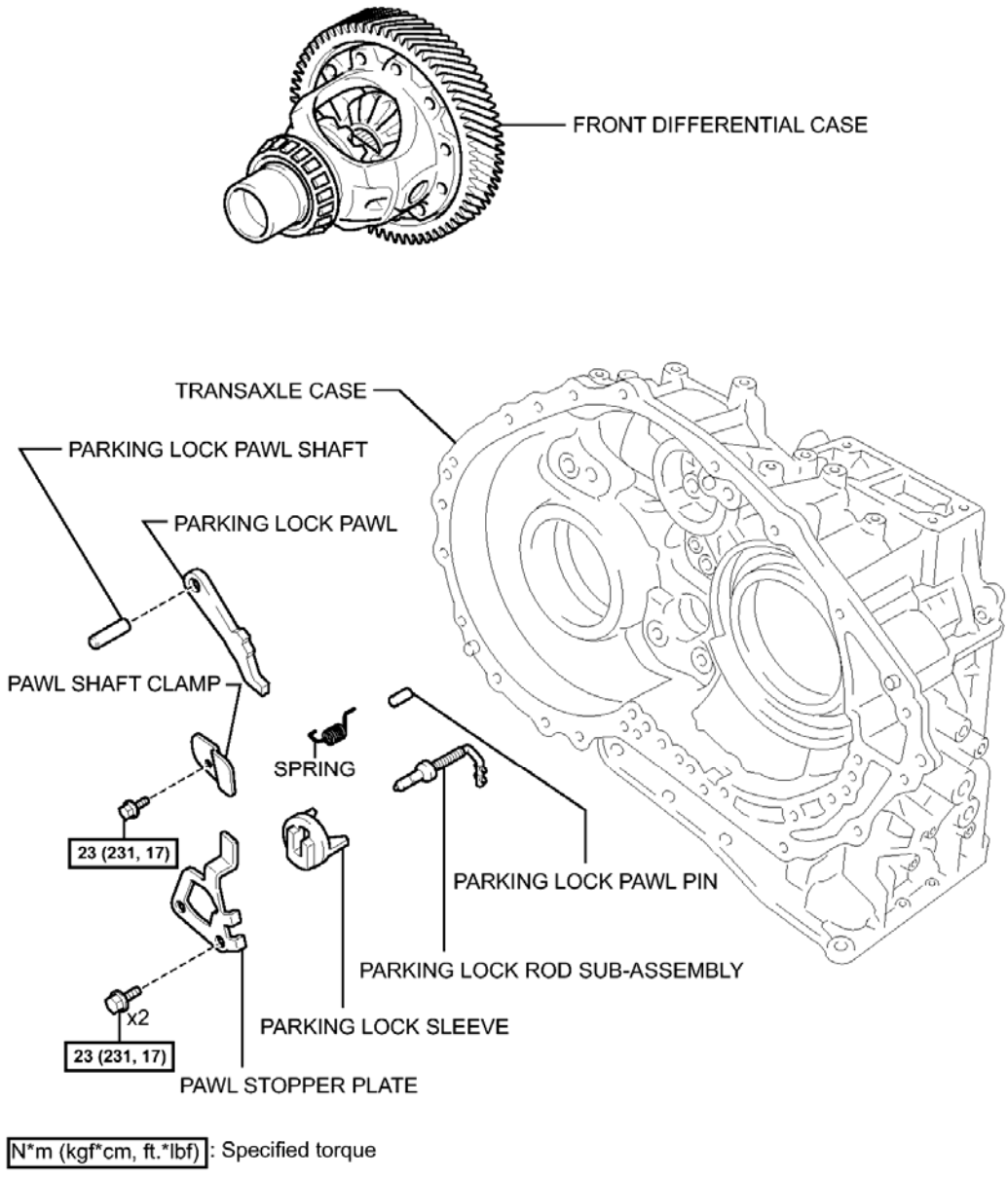


Fig. 194: Automatic Transaxle Unit Replacement Components With Torque Specifications (7 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

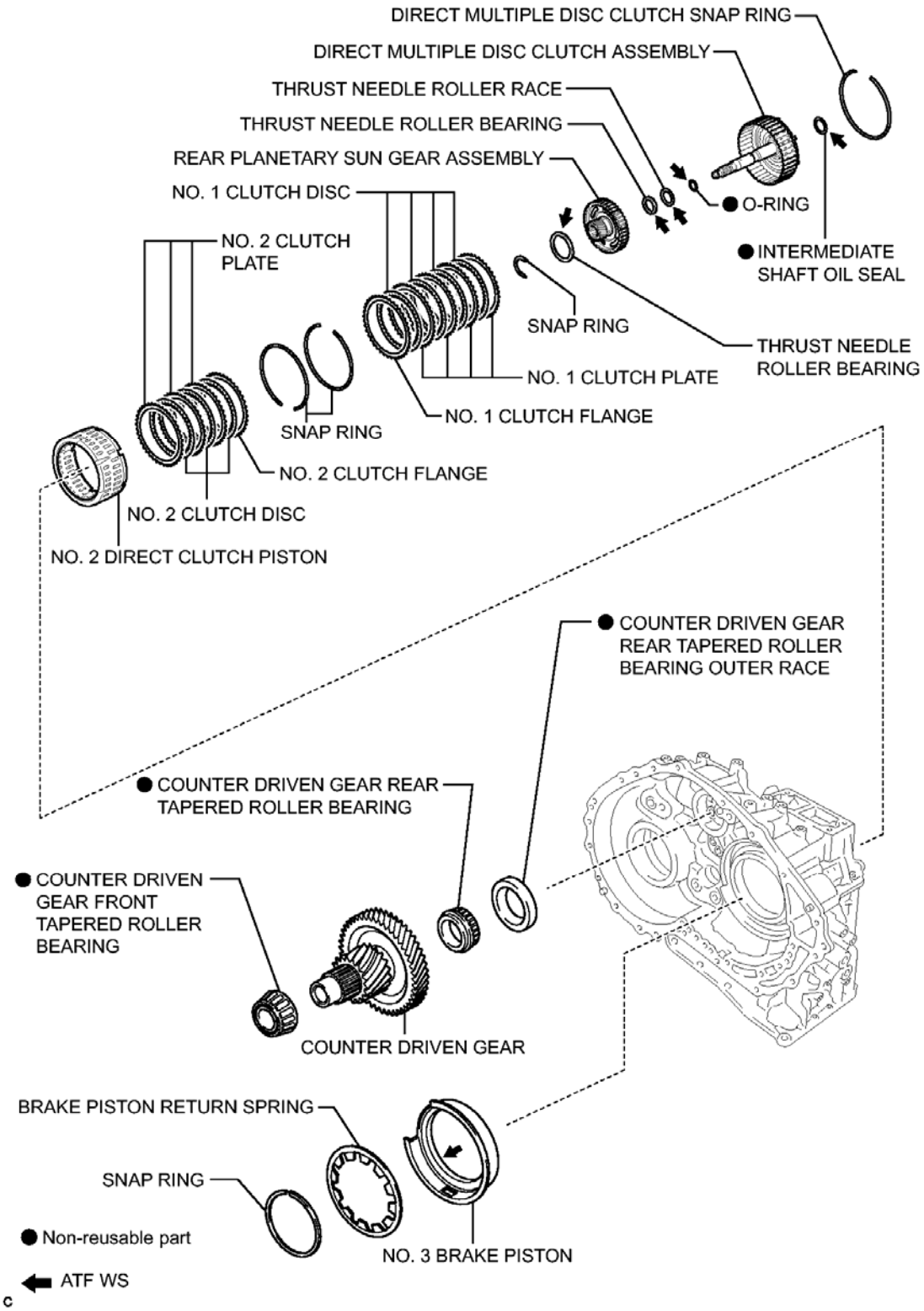


Fig. 195: Automatic Transaxle Unit Replacement Components With Torque Specifications (8 Of 8)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE BREATHER PLUG HOSE**
   a. Using a screwdriver, remove the breather plug hose from the transaxle case.

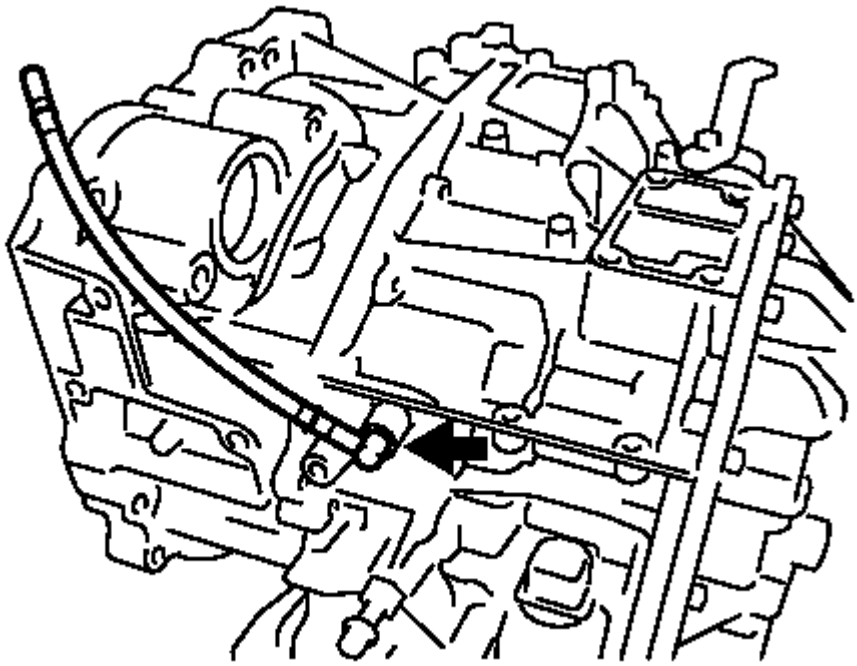
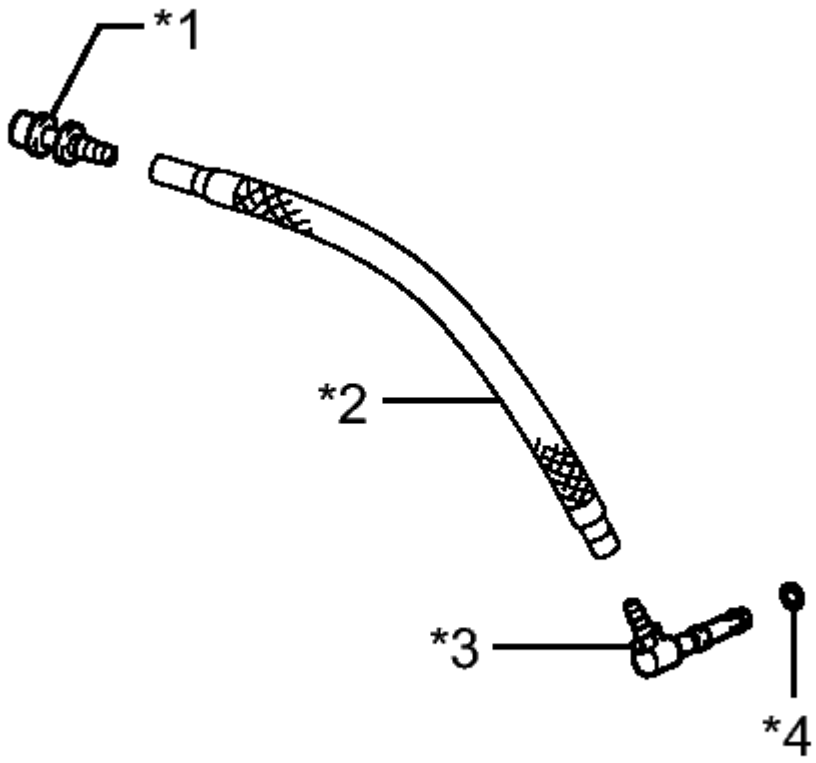


Fig. 196: Identifying Breather Plug Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using a screwdriver, remove the No. 1 breather plug (ATM) and No. 2 breather plug (ATM) from the breather plug hose.



N

Fig. 197: Identifying Breather Plug Hose Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Breather Plug (ATM)
*2	Breather Plug Hose
*3	No. 2 Breather Plug (ATM)
*4	O-ring

c. Using a screwdriver, remove the O-ring from the No. 2 breather plug (ATM).

2. **REMOVE PARK/NEUTRAL POSITION SWITCH ASSEMBLY**

a. Remove the nut, washer and control shaft lever from the control shaft.

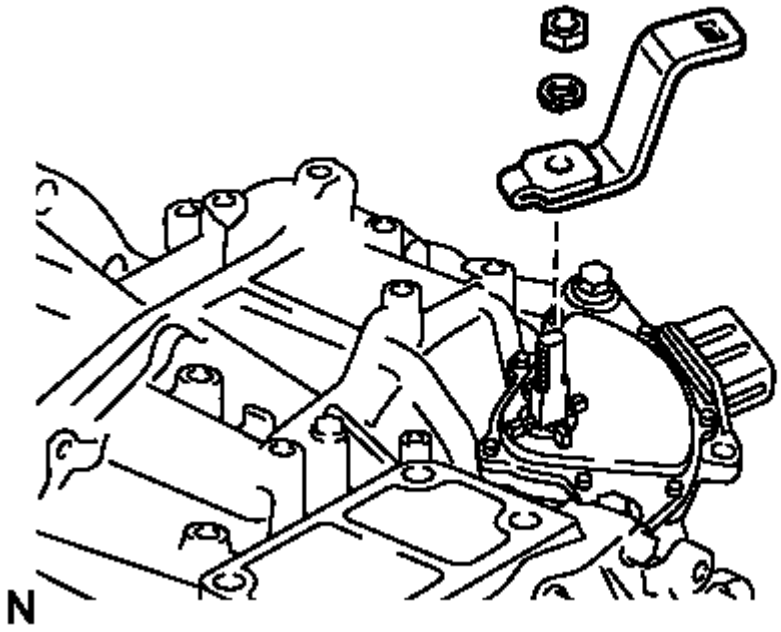


Fig. 198: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 2 bolts and park/neutral position switch assembly from the transaxle case.

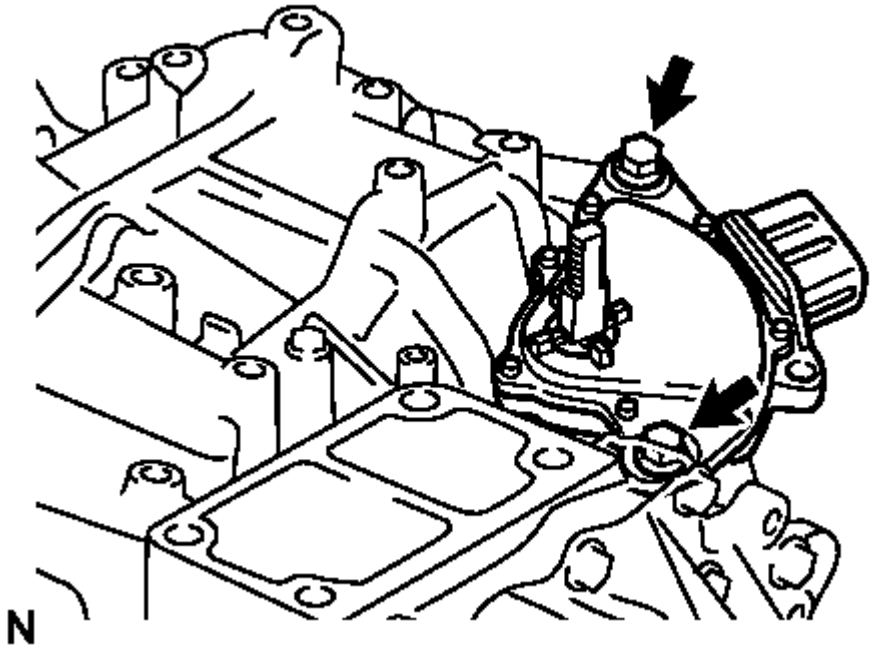


Fig. 199: Identifying Park/Neutral Position Switch Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Before removing the park/neutral position switch, remove any dirt or rust on the installation portion of the control shaft. Be sure to remove the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.

3. **REMOVE OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
   a. Remove the oil cooler tube union (outlet oil cooler union) from the transaxle case.

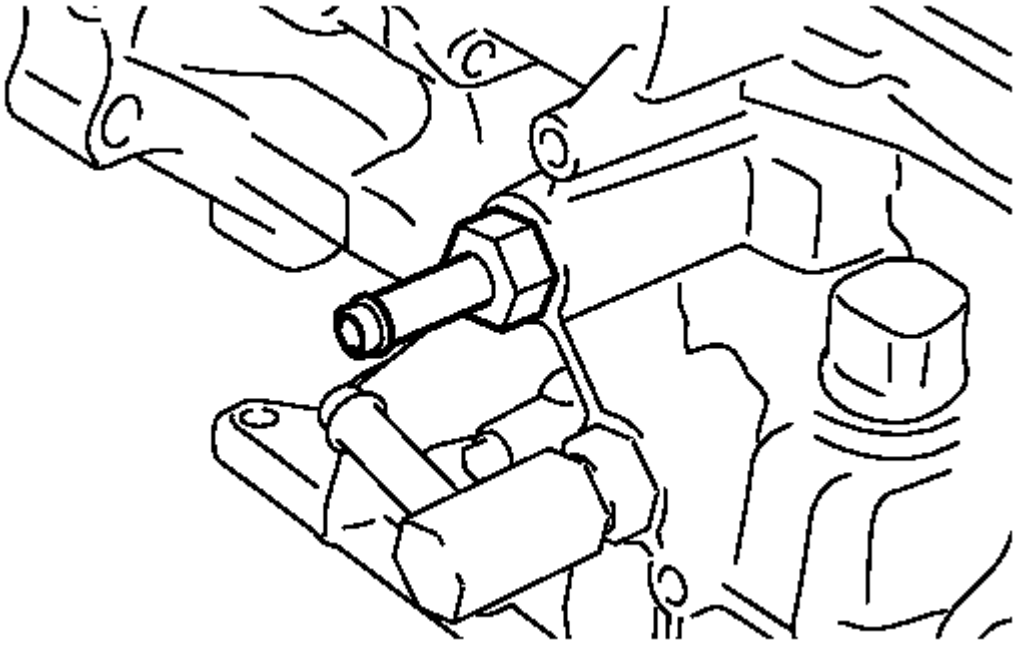


Fig. 200: Identifying Oil Cooler Tube Union (Outlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the O-ring from the oil cooler tube union (outlet oil cooler union).

4. **REMOVE OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**

a. Loosen the nut while holding the oil cooler tube union (inlet oil cooler union).

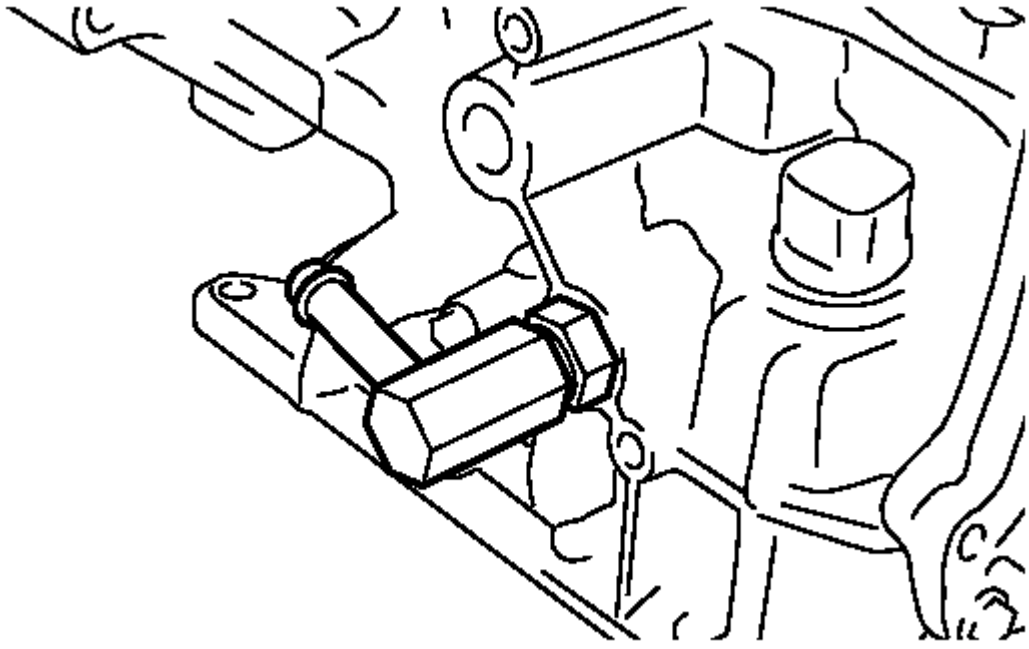


Fig. 201: Identifying Oil Cooler Tube Union (Inlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the oil cooler tube union (inlet oil cooler union) from the transaxle case.
c. Remove the O-ring from the oil cooler tube union (inlet oil cooler union).

5. **REMOVE NO. 1 TRANSAXLE CASE PLUG**
   a. Remove the 3 No. 1 transaxle case plugs from the transaxle case.

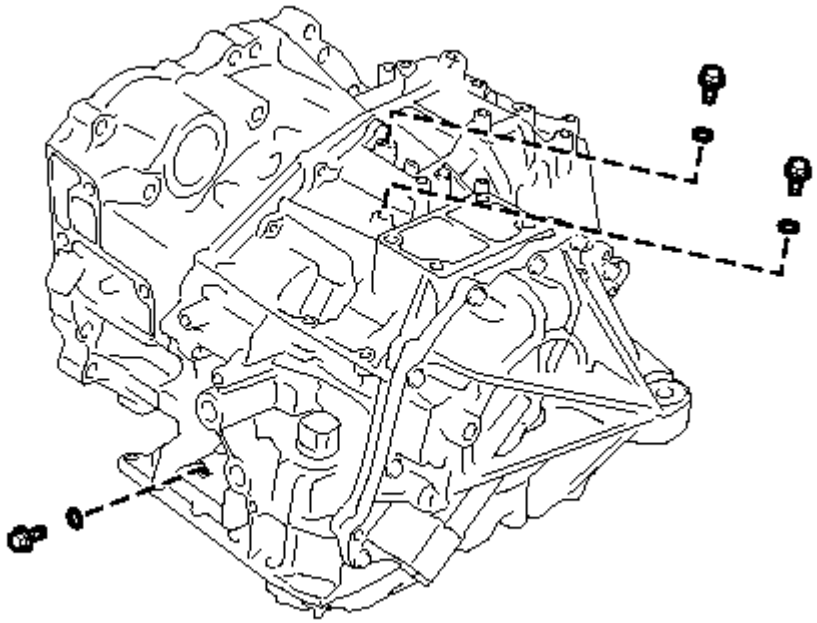


Fig. 202: Identifying 3 No. 1 Transaxle Case Plugs Of Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 3 O-rings from the 3 No. 1 transaxle case plugs.
c. Using a 6 mm hexagon socket wrench, remove the 3 hexagon bolts from the transaxle housing.

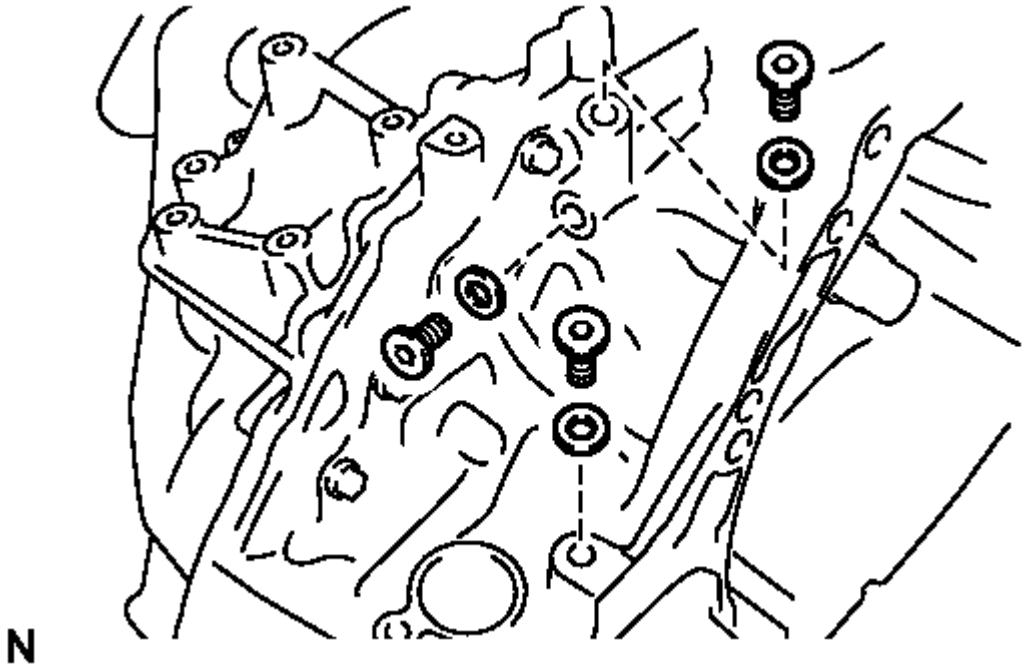


Fig. 203: Identifying Gaskets And Hexagon Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the gasket from each of the 3 hexagon bolts.

6. **SUPPORT AUTOMATIC TRANSAXLE ASSEMBLY**

a. Support the transaxle assembly on wooden blocks.

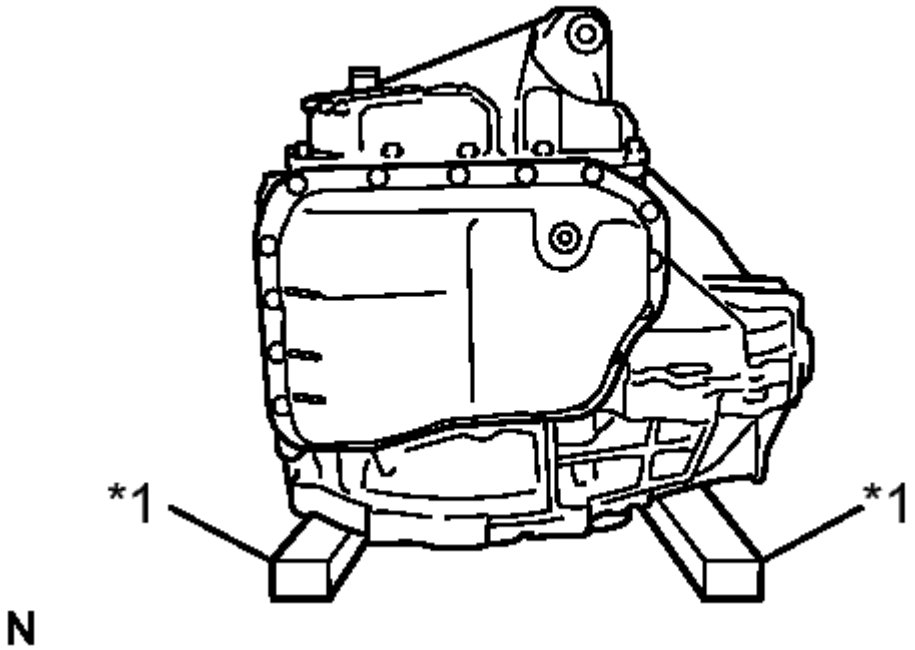


Fig. 204: Identifying Automatic Transaxle Assembly Wooden Block Supports
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Wooden Block

7. **REMOVE AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**
   a. Using a 6 mm hexagon socket wrench, remove the overflow plug from the automatic transaxle oil pan subassembly.

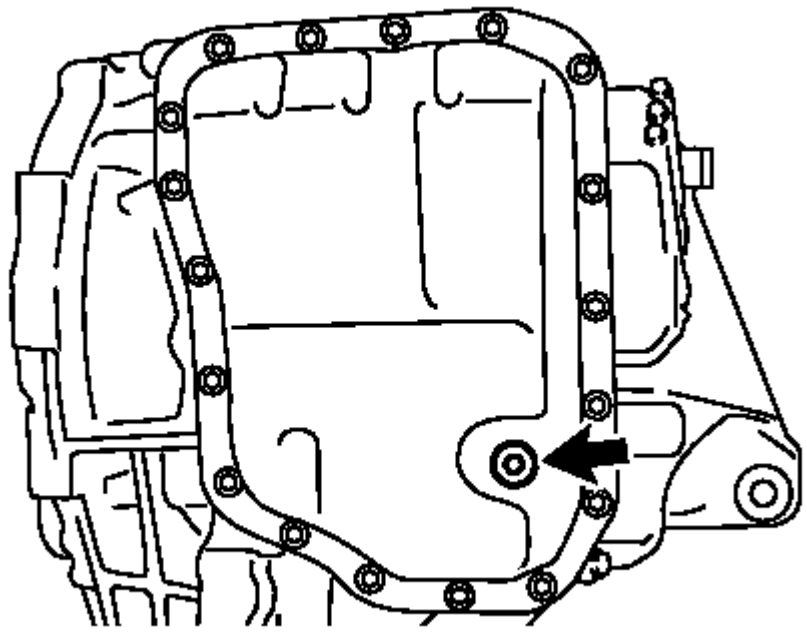


Fig. 205: Identifying Overflow Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the gasket from the overflow plug.
   c. Using a 6 mm hexagon socket wrench, remove the No. 1 transmission oil filler tube from the automatic transaxle assembly.

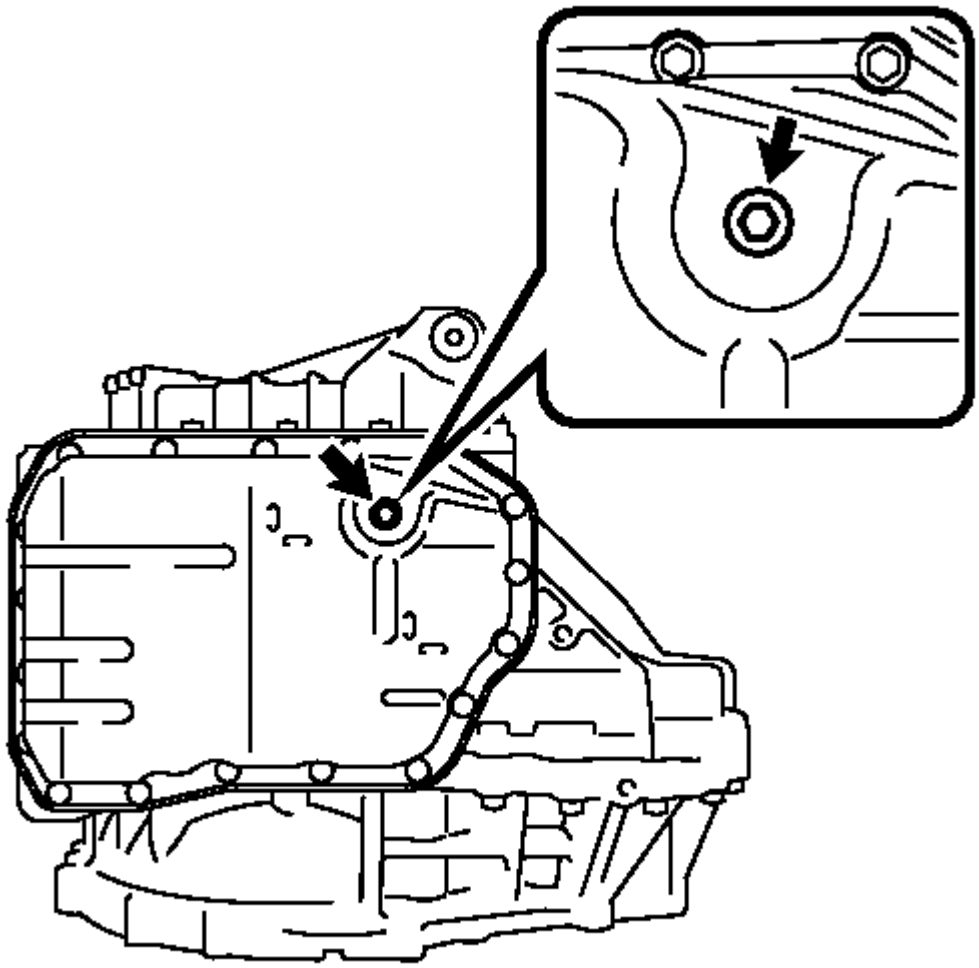
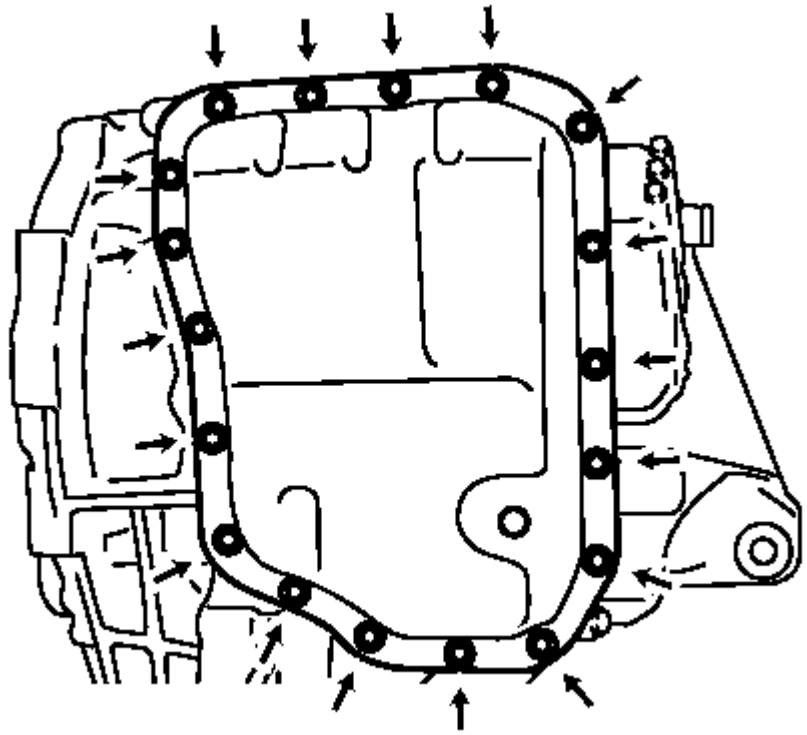


Fig. 206: Identifying No. 1 Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

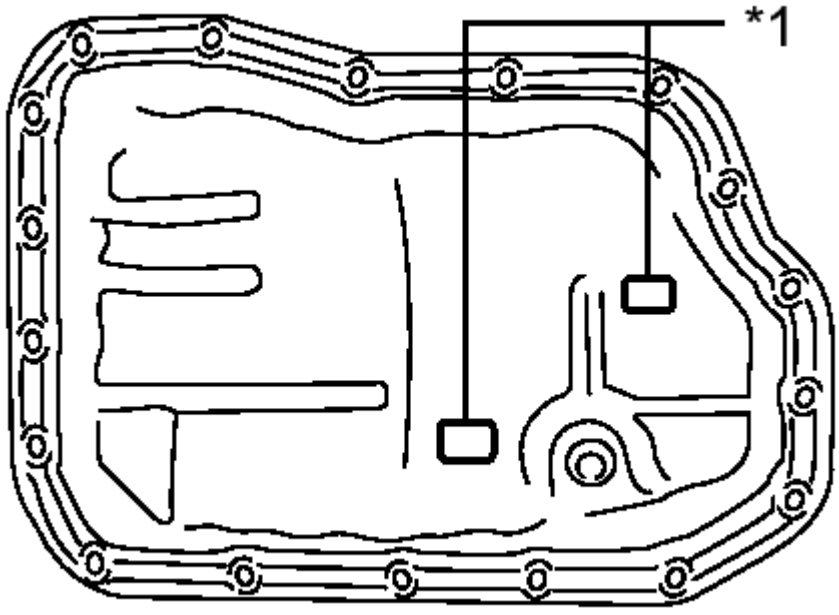
d. Remove the 18 bolts, automatic transaxle oil pan subassembly and automatic transaxle oil pan gasket from the automatic transaxle assembly.



N

Fig. 207: Identifying Oil Pan Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Remove the 2 transmission oil cleaner magnets from the automatic transaxle oil pan subassembly.



N

Fig. 208: Identifying Oil Pan Magnet

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

TEXT IN ILLUSTRATION

*1	Magnet

8. **INSPECT TRANSMISSION OIL CLEANER MAGNET** See step 1
9. **REMOVE VALVE BODY OIL STRAINER ASSEMBLY**
   a. Remove the 2 bolts and oil strainer assembly from the valve body assembly.

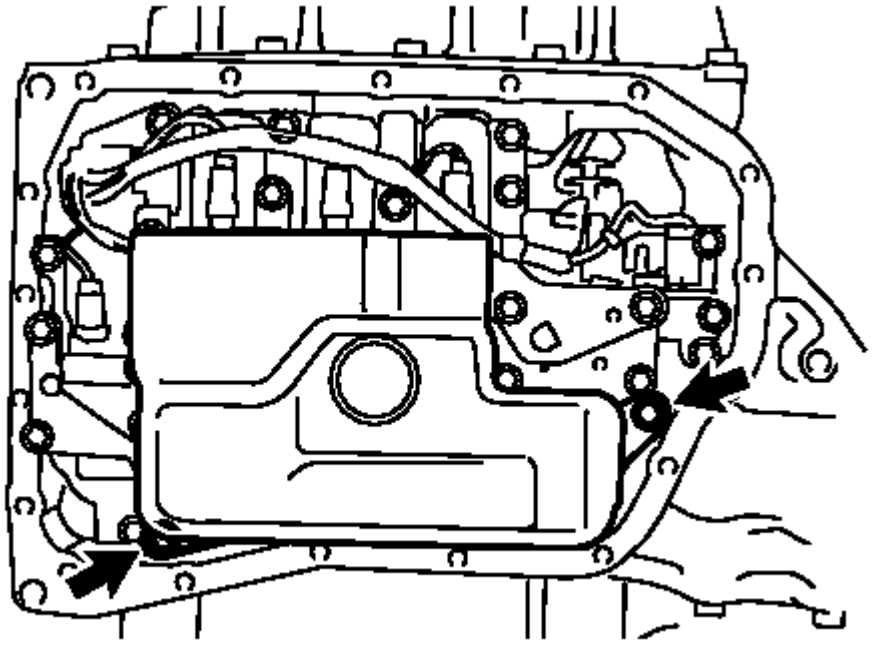


Fig. 209: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Remove the O-ring from the oil strainer assembly.

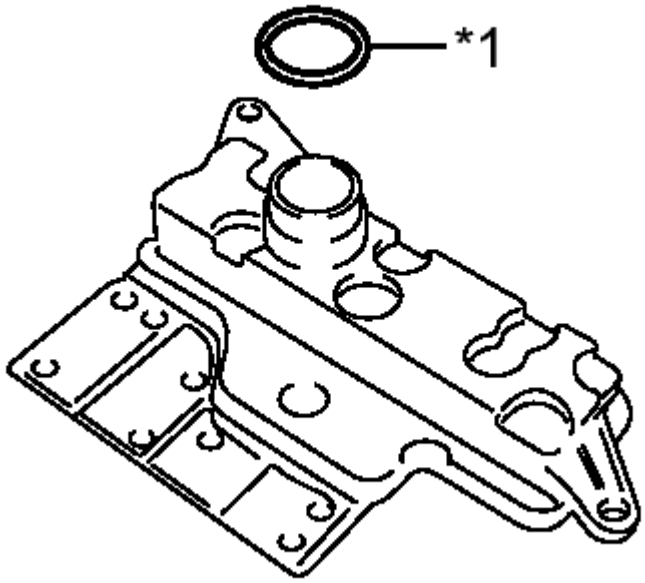
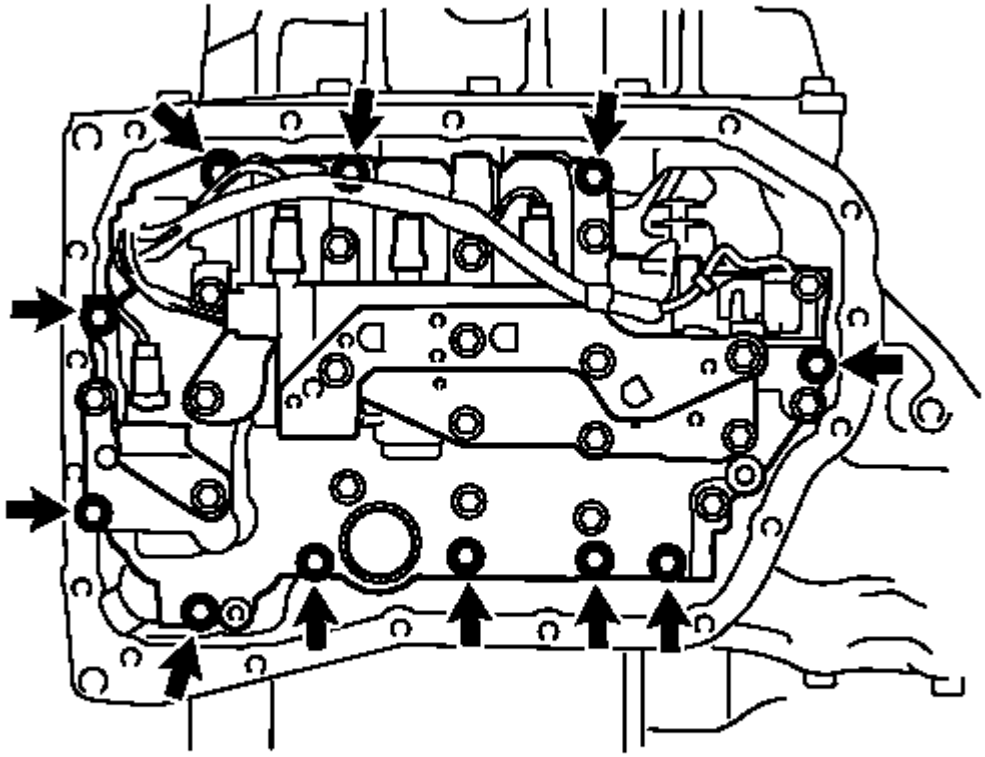


Fig. 210: Identifying Oil Strainer Assembly O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

10. **REMOVE TRANSMISSION VALVE BODY ASSEMBLY**
    a. Remove the 11 bolts and valve body assembly from the transaxle case.



N

Fig. 211: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: When removing the transmission valve body assembly, be careful not to allow the transmission revolution sensor and the transaxle case to interfere with each other.

11. **REMOVE TRANSAXLE CASE GASKET**
    a. Remove the 2 gaskets from the transaxle case.

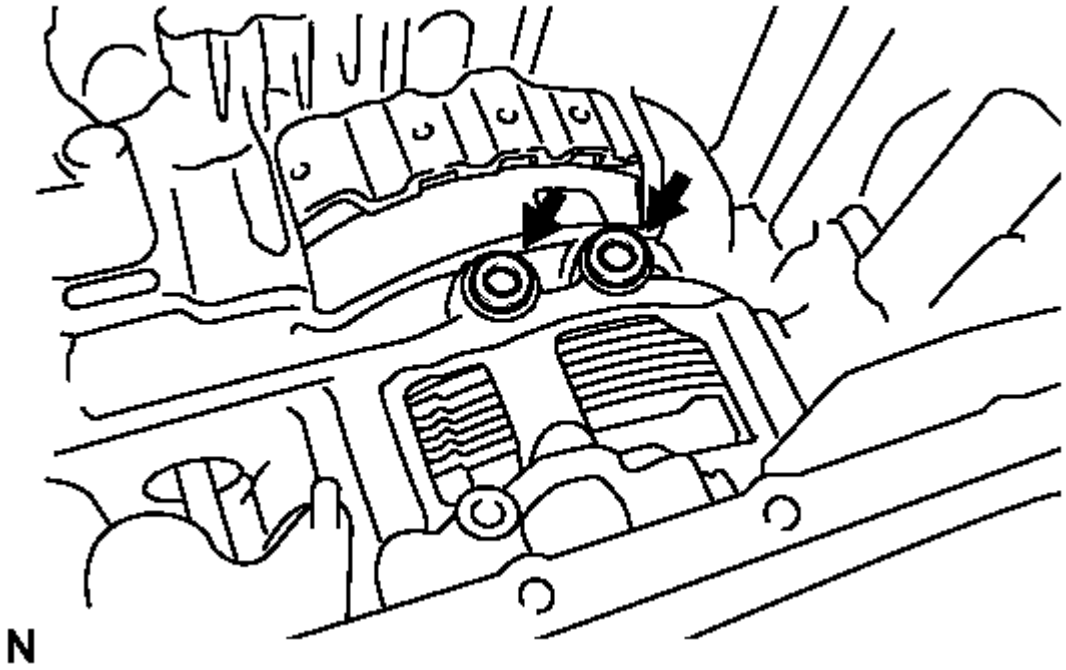


Fig. 212: Identifying Transaxle Case Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. **INSPECT INPUT SHAFT SUB-ASSEMBLY** See step 2
13. **REMOVE REAR TRANSAXLE COVER SUB-ASSEMBLY**
    a. Remove the refill plug from the rear transaxle cover subassembly.

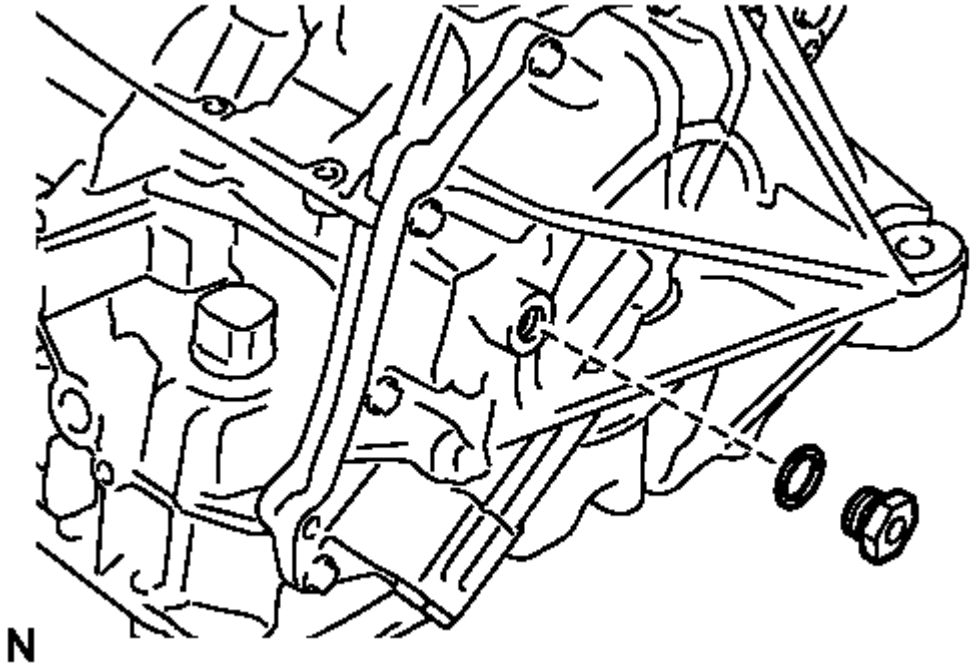


Fig. 213: Identifying Gasket And Refill Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the gasket from the refill plug.
c. Remove the 2 No. 1 automatic transaxle case plugs from the rear transaxle cover subassembly.

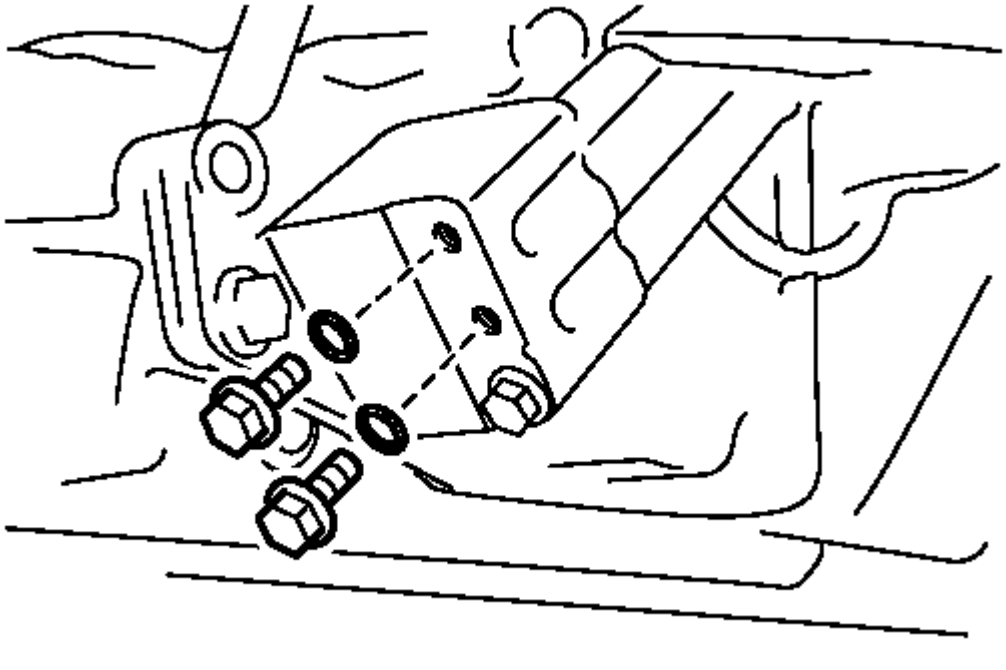


Fig. 214: Identifying No. 1 Automatic Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using a screwdriver, remove the 2 O-rings from the 2 No. 1 automatic transaxle case plugs.
e. Remove the 14 bolts from the rear transaxle cover subassembly.

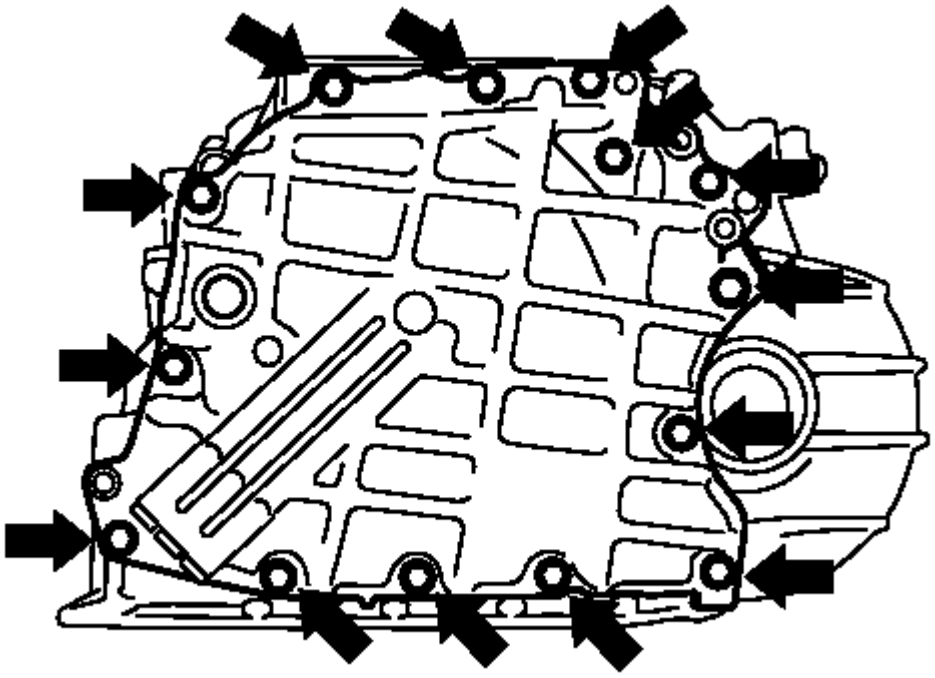


Fig. 215: Identifying Rear Transaxle Cover Sub-Assembly & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

f. Using a brass bar and a hammer, tap on the circumference of the rear transaxle cover subassembly to remove the rear transaxle cover subassembly from the transaxle case.

g. Using a screwdriver, remove the 3 O-rings from the transaxle case.

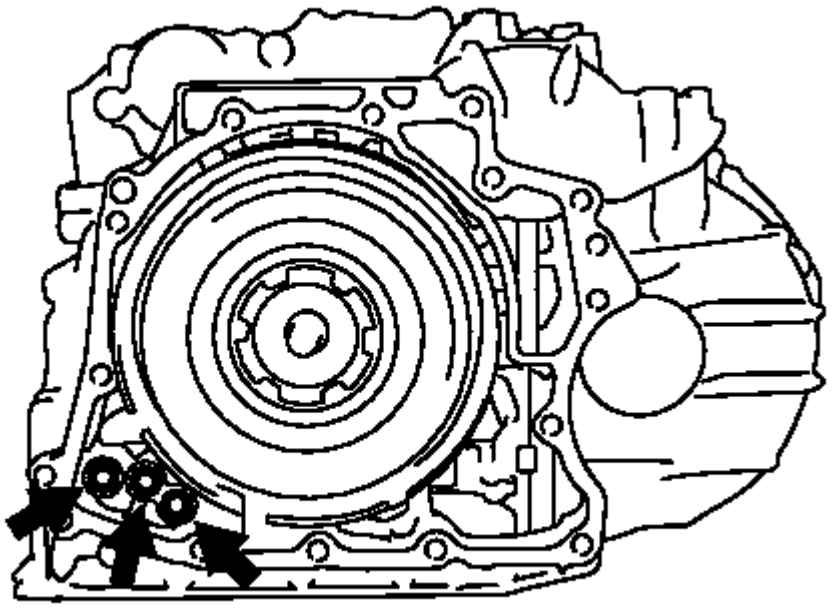
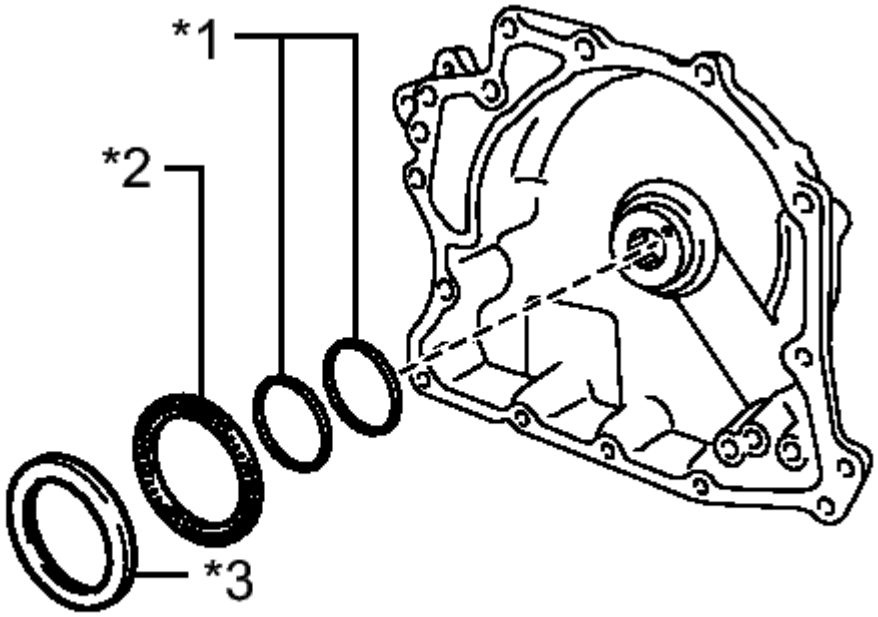


Fig. 216: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

h. Using a screwdriver, remove the 2 oil seal rings from the rear transaxle cover subassembly.



N

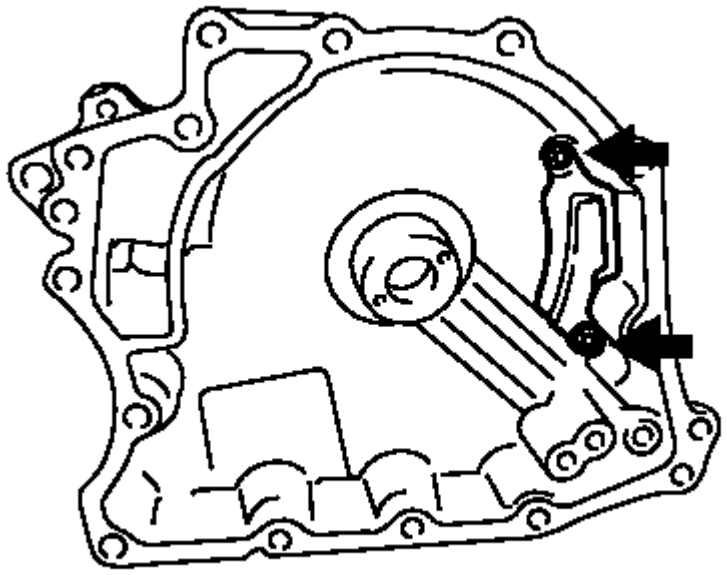
Fig. 217: Identifying Oil Seal Ring, Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Seal Ring
*2	Thrust Needle Roller Bearing
*3	Thrust Needle Roller Race

i. Remove the thrust needle roller bearing and thrust needle roller race from the rear transaxle cover subassembly.

j. Using a T30 "TORX" socket wrench, remove the 2 "TORX" screws and rear transaxle cover plate from the rear transaxle cover subassembly.



N

Fig. 218: Identifying Rear Transaxle Cover Plate Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

k. Using SST, remove the needle roller bearing from the rear transaxle cover subassembly.

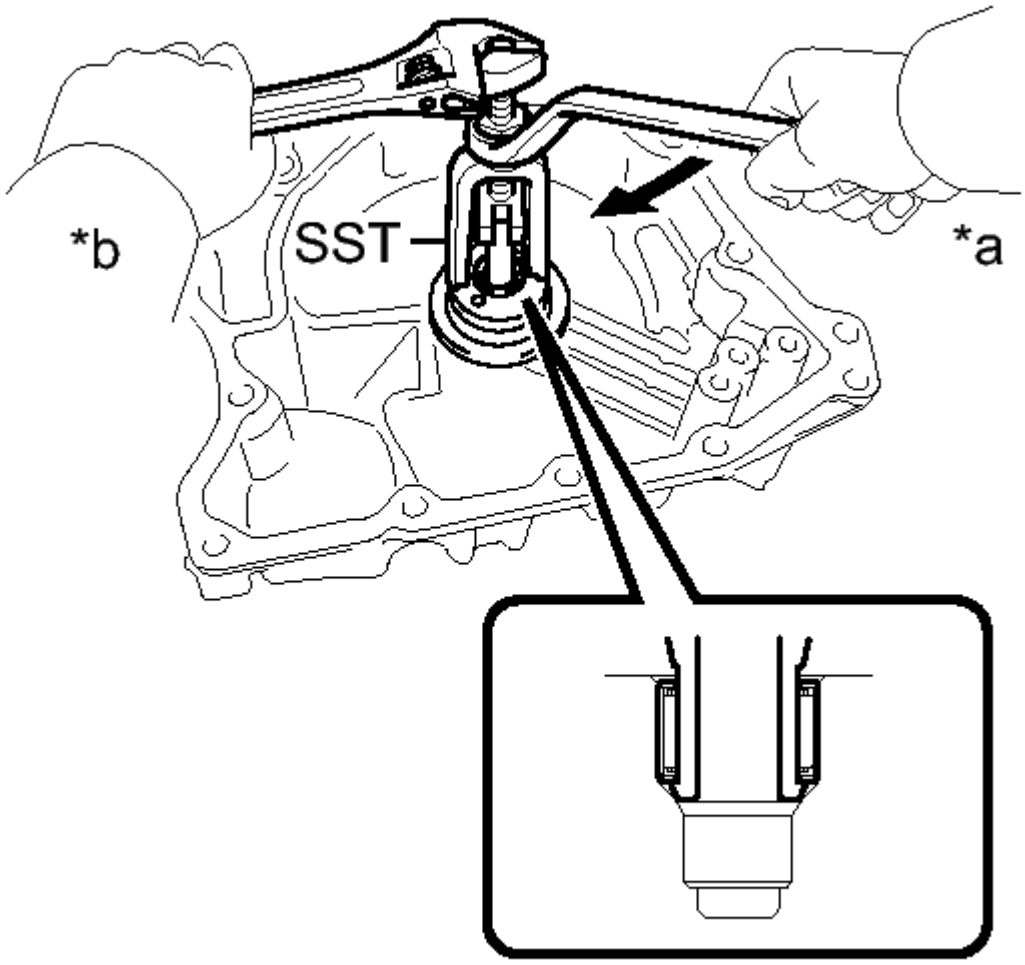


Fig. 219: Removing Needle Roller Bearing At Rear Transaxle Cover Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09319-60020**

14. **REMOVE DIRECT MULTIPLE DISC CLUTCH ASSEMBLY**
    a. Remove the direct multiple disc clutch assembly from the transaxle case.

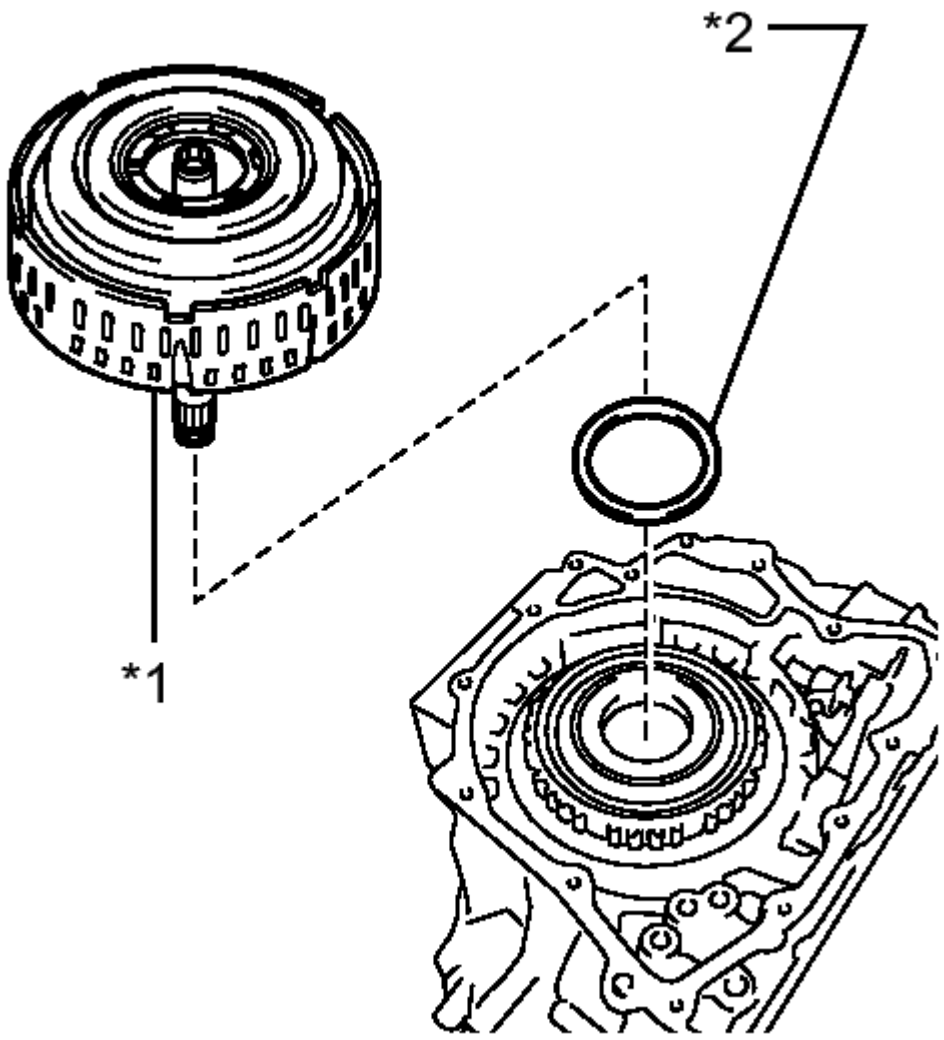


Fig. 220: Identifying Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

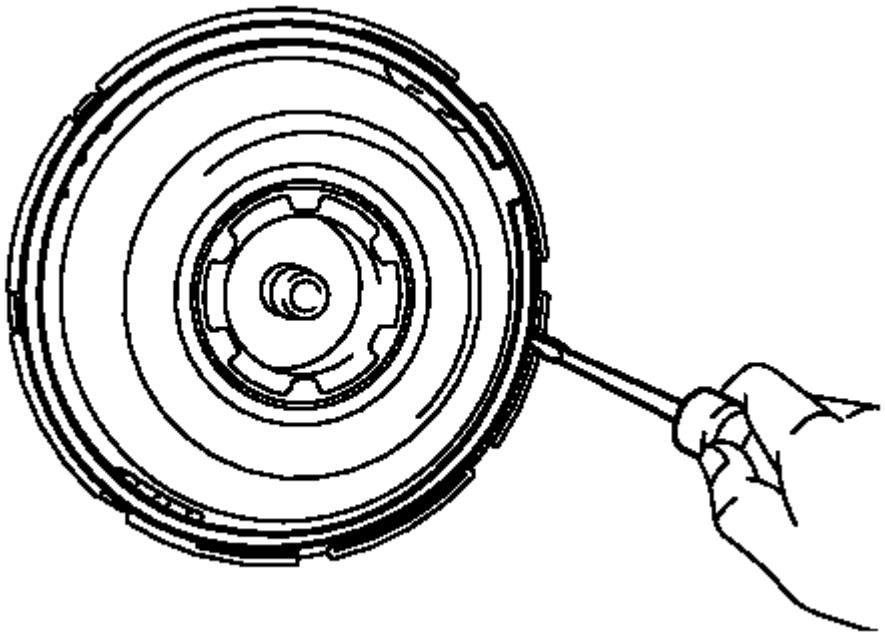
TEXT IN ILLUSTRATION

*1	Direct Multiple Disc Clutch Assembly
*2	Thrust Needle Roller Bearing

b. Remove the thrust needle roller bearing from the direct multiple disc clutch assembly.

15. **REMOVE DIRECT MULTIPLE DISC CLUTCH SNAP RING**

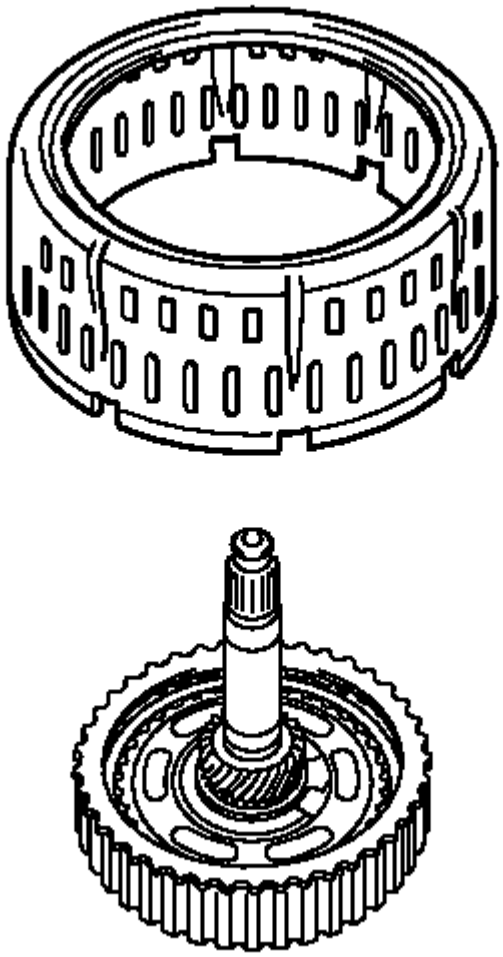
a. Using a screwdriver, remove the snap ring from the direct multiple disc clutch assembly.



N

Fig. 221: Removing Snap Ring From Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the No. 2 direct clutch piston from the direct multiple disc clutch assembly.



N

Fig. 222: Identifying No. 2 Direct Clutch Piston And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a screwdriver, remove the intermediate shaft oil seal from the direct multiple disc clutch assembly.

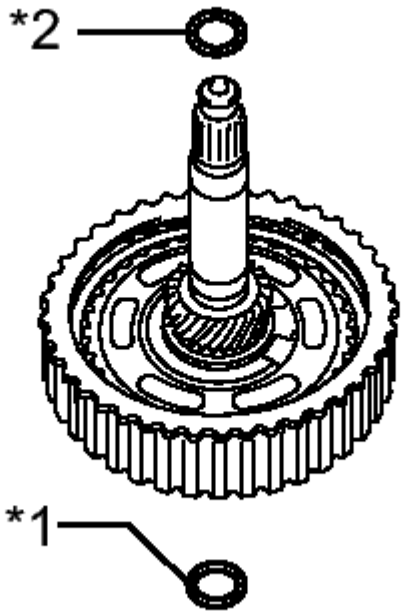


Fig. 223: Identifying Intermediate Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Intermediate Shaft Oil Seal

d. Using a screwdriver, remove the O-ring from the direct multiple disc clutch assembly.

TEXT IN ILLUSTRATION

*2	O-ring

16. **REMOVE NO. 2 CLUTCH DISC**
    a. Remove the clutch flange, 3 clutch discs and 3 clutch plates from the direct multiple disc clutch assembly.

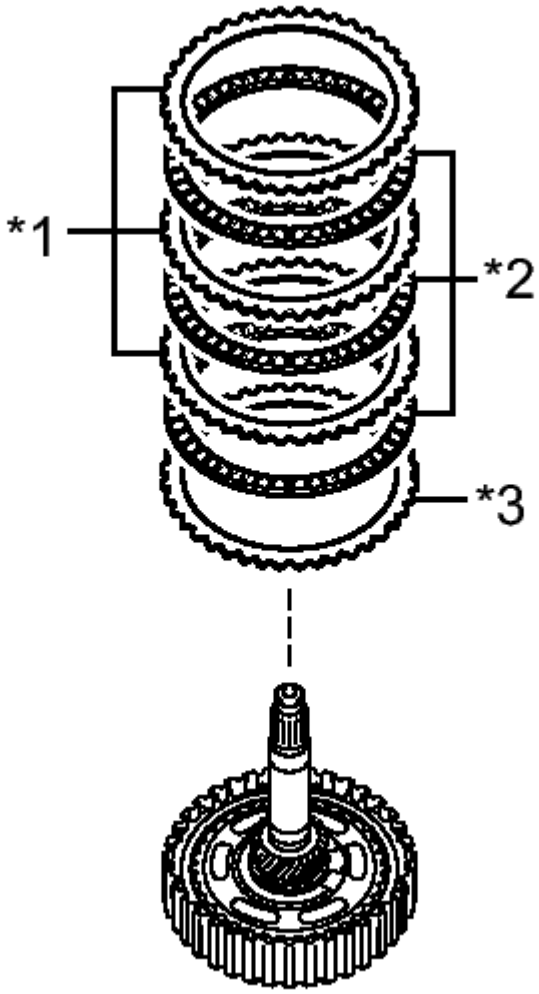
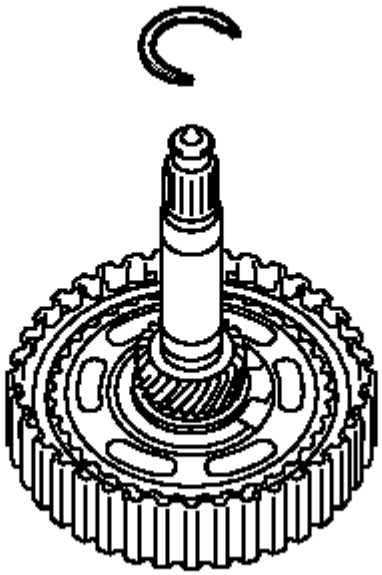


Fig. 224: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Plate
*2	Clutch Disc
*3	Clutch Flange

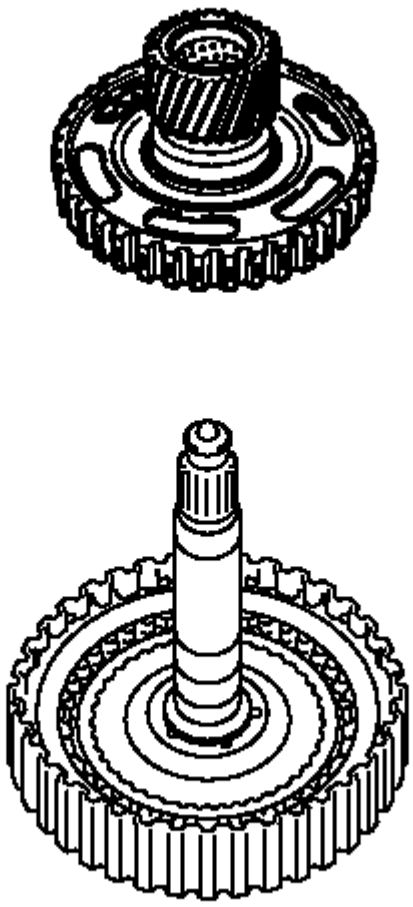
17. **INSPECT NO. 2 CLUTCH DISC** See step 3
18. **REMOVE REAR PLANETARY SUN GEAR ASSEMBLY**
    a. Using a snap ring expander, remove the snap ring from the direct multiple disc clutch assembly.



N

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

b. Remove the rear planetary sun gear assembly from the direct multiple disc clutch assembly.



N

Fig. 226: Identifying Rear Planetary Sun Gear And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Remove the thrust needle roller bearing and thrust needle roller race from the direct multiple disc clutch assembly.

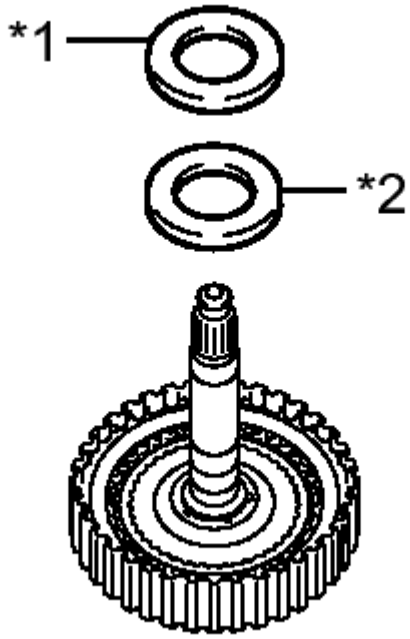
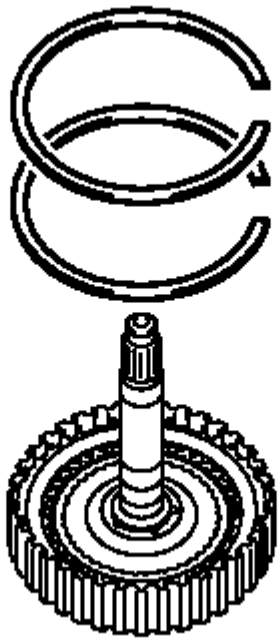


Fig. 227: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race

19. **INSPECT REAR PLANETARY SUN GEAR ASSEMBLY** See step 8
20. **REMOVE NO. 1 CLUTCH DISC**
    a. Using 2 screwdrivers, remove the 2 snap rings from the direct multiple disc clutch assembly.



N

Fig. 228: Identifying Snap Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the clutch flange, 4 clutch discs and 4 clutch plates from the direct multiple disc clutch assembly.

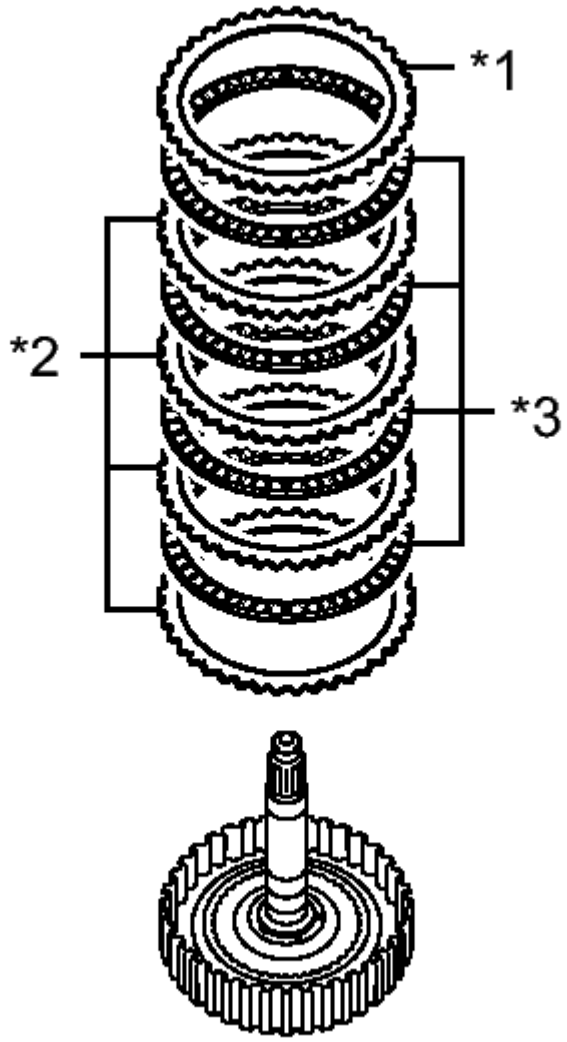


Fig. 229: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Flange
*2	Clutch Plate
*3	Clutch Disc

21. **INSPECT NO. 1 CLUTCH DISC** See step 5
22. **REMOVE TRANSAXLE HOUSING**
    a. Remove the 20 bolts from the transaxle housing.

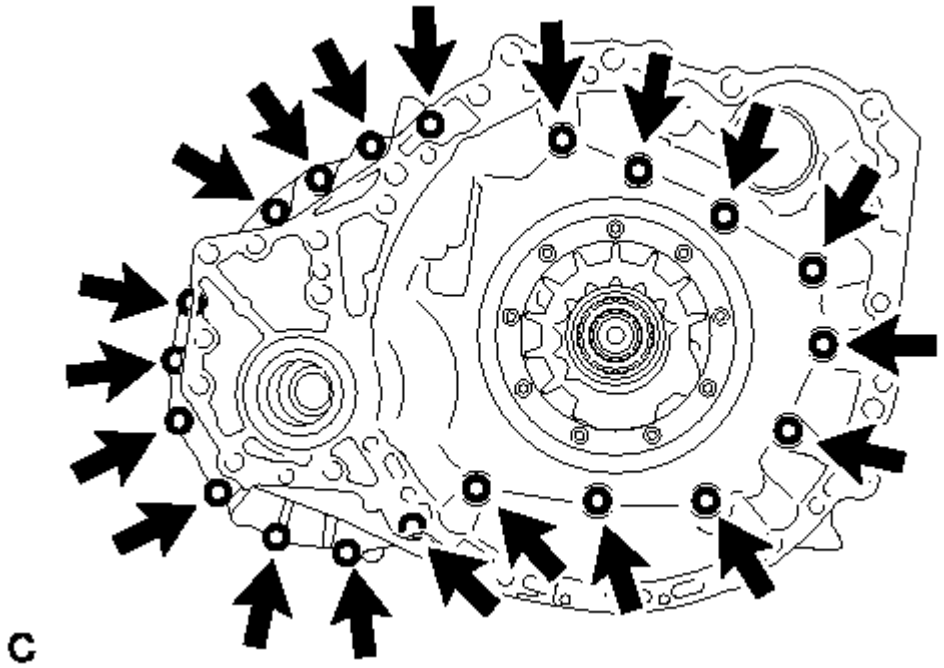


Fig. 230: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a brass bar and a hammer, tap on the circumference of the transaxle housing to remove the transaxle housing from the transaxle case.

23. **REMOVE COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING OUTER RACE**

a. Using SST, remove the counter driven gear front tapered roller bearing outer race and shim from the transaxle housing.

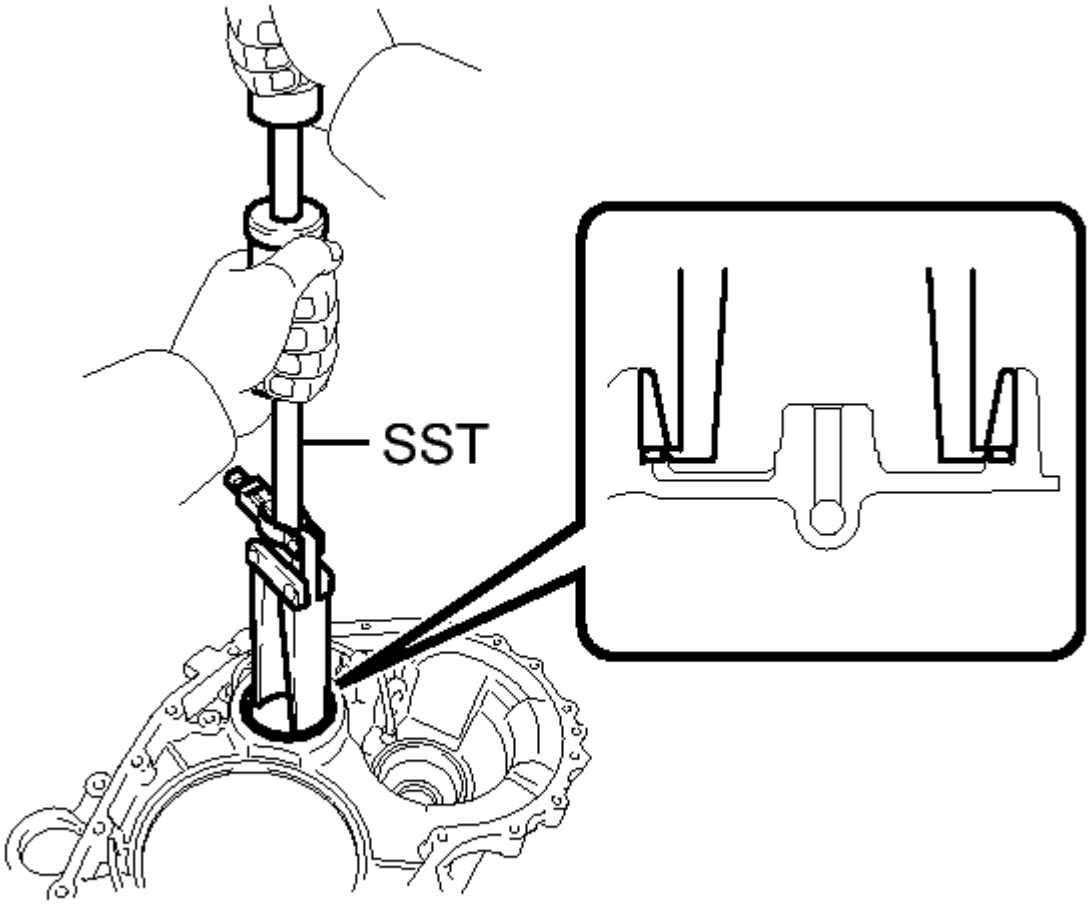


Fig. 231: Removing Counter Driven Gear Front Tapered Roller Bearing Outer Race & Shim Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

24. **REMOVE DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Remove the bolt, clamp and differential gear lube apply tube from the transaxle housing.

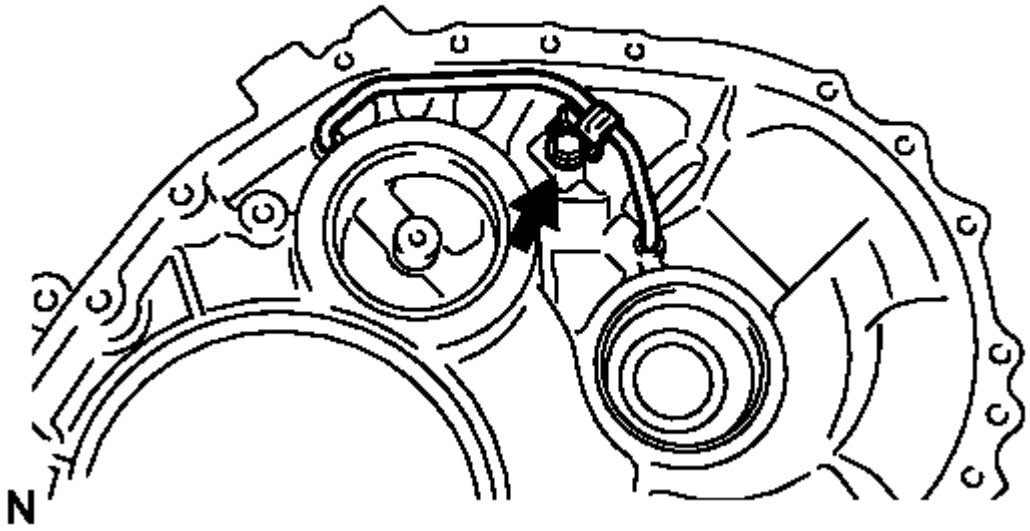


Fig. 232: Identifying Differential Gear Lube Apply Tube Clamp And Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

25. **REMOVE FRONT OIL PUMP ASSEMBLY**
    a. Remove the 7 bolts and front oil pump from the transaxle case.

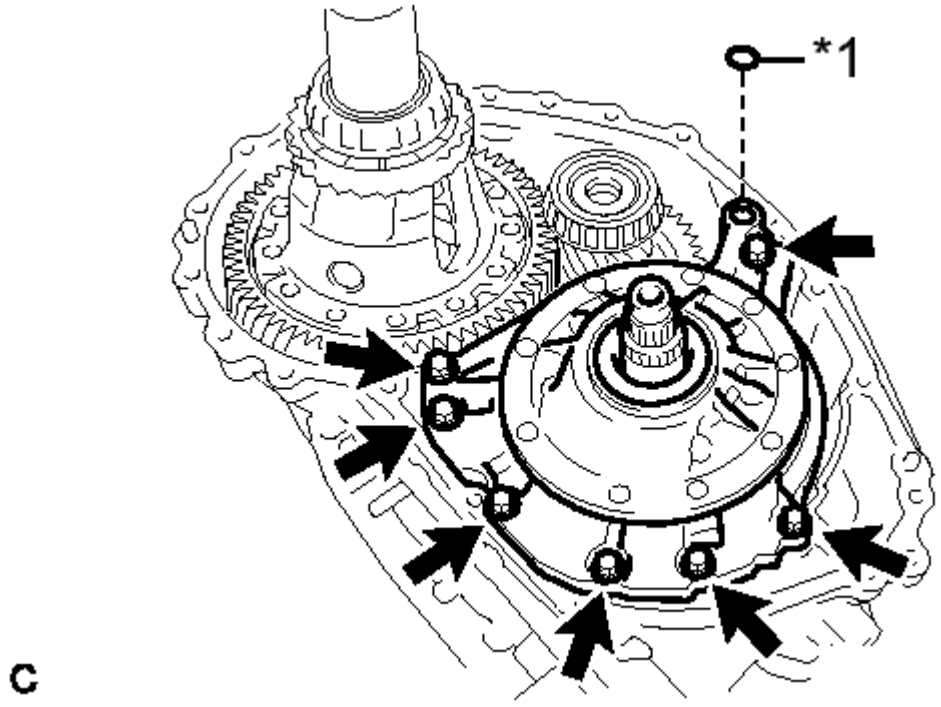


Fig. 233: Identifying Front Oil Pump Bolts

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

b. Remove the O-ring from the front oil pump assembly.

TEXT IN ILLUSTRATION

*1	O-ring

c. Remove the thrust needle roller bearing and thrust needle roller race from the carrier lock nut.

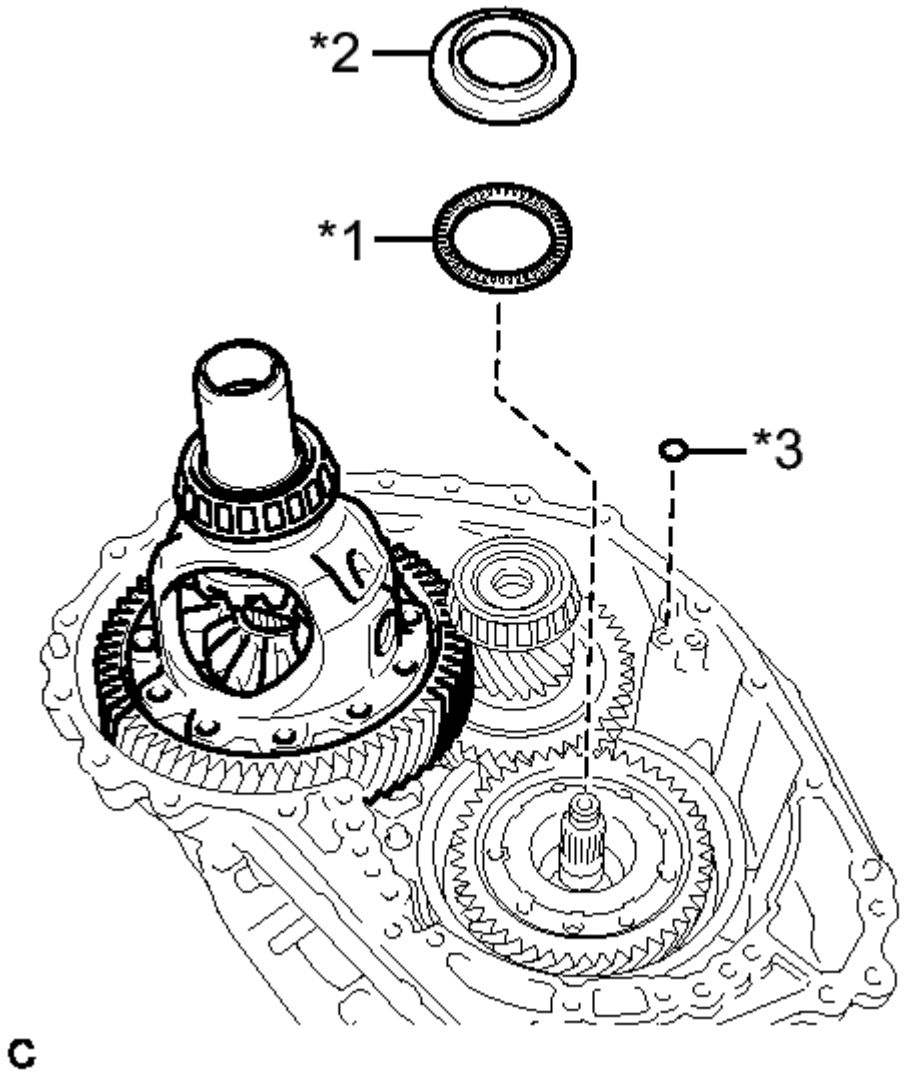


Fig. 234: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Remove the O-ring from the transaxle case.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
*2	Thrust Needle Roller Race
*3	O-ring

26. **REMOVE FRONT OIL PUMP BODY O-RING**
27. **REMOVE NO. 3 BRAKE DISC**
    a. Using a screwdriver, remove the snap ring from the oil pump assembly.

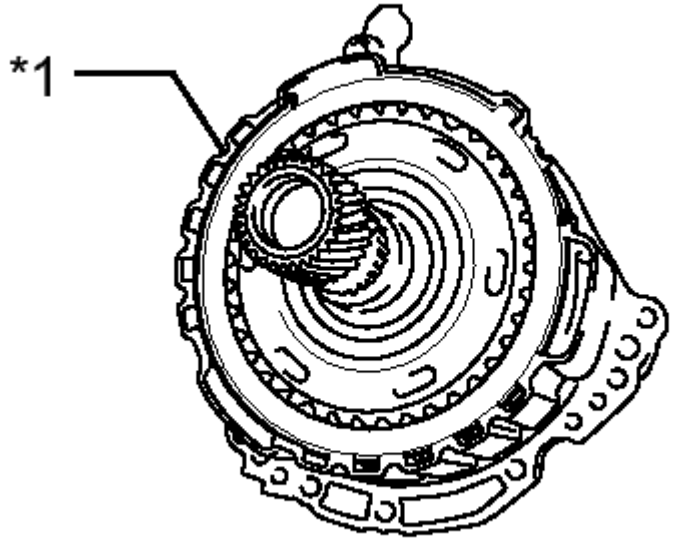


Fig. 235: Identifying No. 3 Brake Disc Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

    b. Remove the 2 No. 3 brake flanges, 3 No. 3 brake discs and 2 No. 3 brake plates from the oil pump assembly.

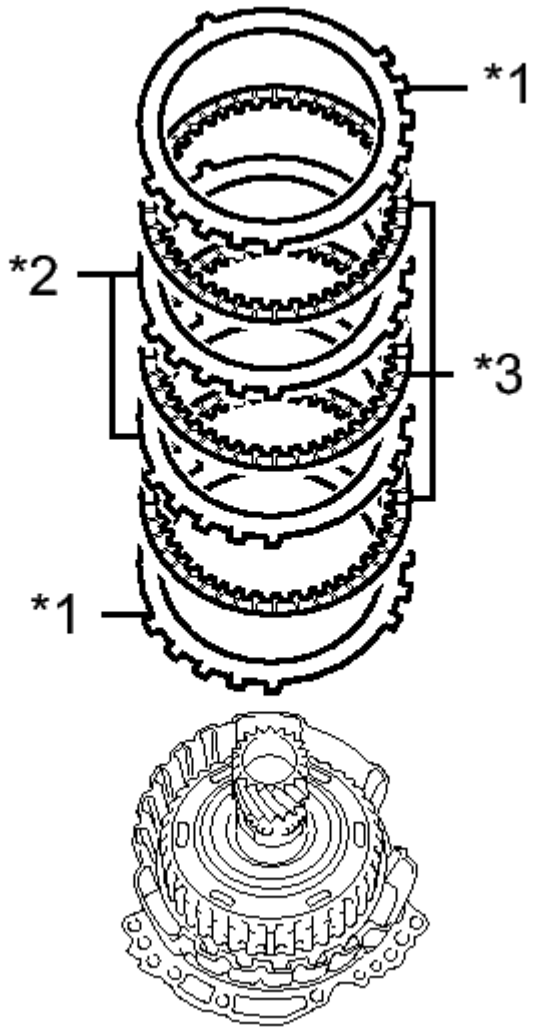


Fig. 236: Identifying Brake Flanges, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

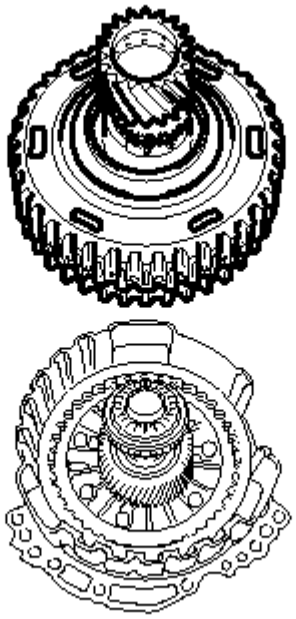
TEXT IN ILLUSTRATION

*1	No. 3 Brake Flange
*2	No. 3 Brake Plate
*3	No. 3 Brake Disc

28. **INSPECT NO. 3 BRAKE DISC** See step 6

29. **REMOVE UNDERDRIVE PLANETARY GEAR ASSEMBLY**

a. Remove the underdrive planetary gear assembly from the front oil pump assembly.

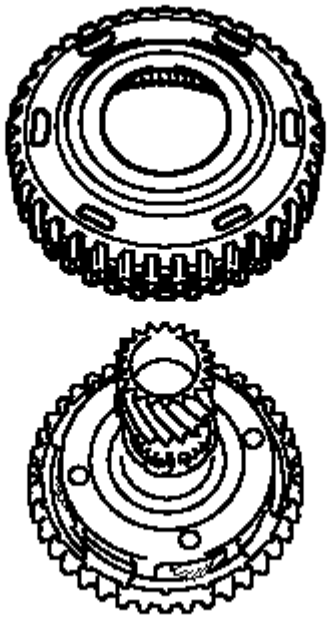


N

Fig. 237: Identifying Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. **REMOVE NO. 3 BRAKE HUB**

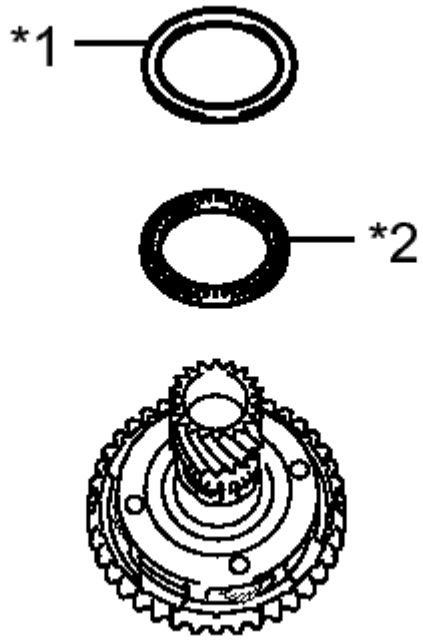
a. Remove the No. 3 brake hub from the underdrive planetary gear assembly.



N

Fig. 238: Identifying No. 3 Brake Hub And Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the thrust needle roller bearing and thrust needle roller race from the underdrive planetary gear assembly.



N

Fig. 239: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race

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

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing

31. **REMOVE UNDERDRIVE PLANETARY RING GEAR**
    a. Using needle-nose pliers, remove the snap ring from the underdrive planetary ring gear.

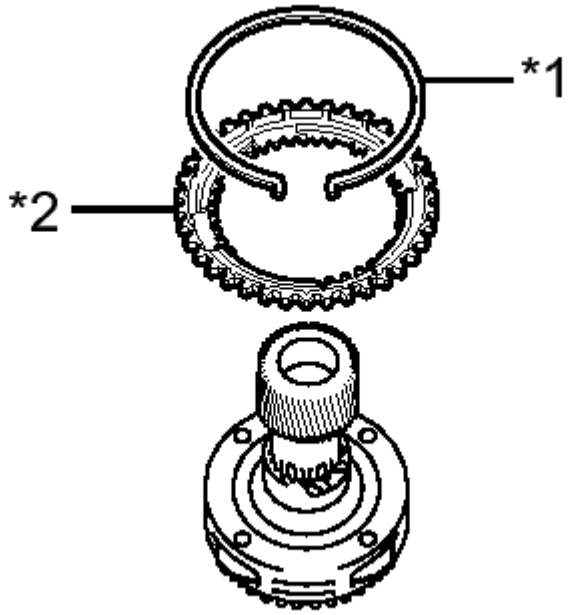


Fig. 240: Identifying Underdrive Planetary Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

    b. Remove the underdrive planetary ring gear from the underdrive planetary gear assembly.

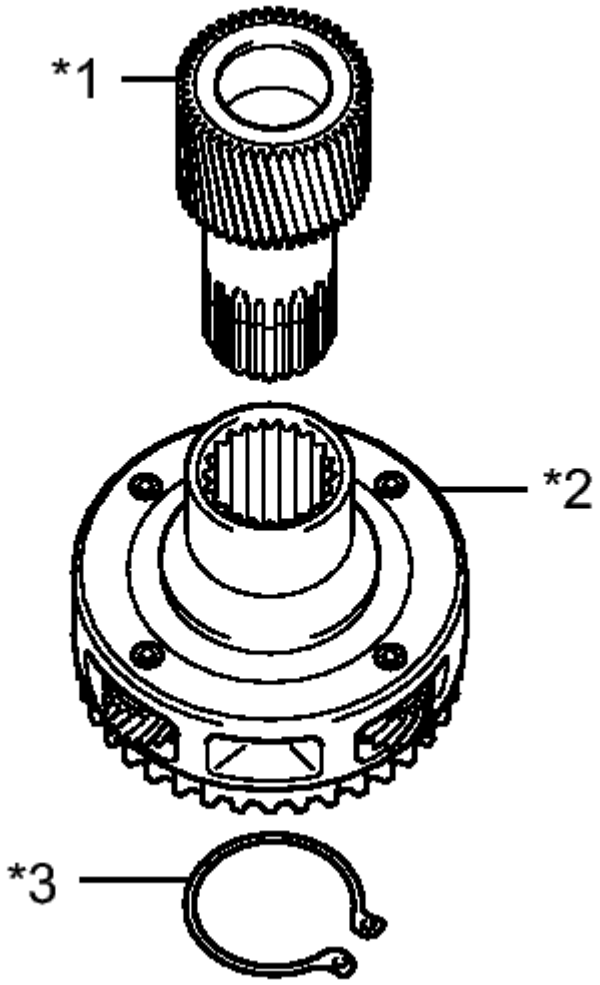
TEXT IN ILLUSTRATION

	Underdrive

*2	Planetary Ring Gear

32. **REMOVE PLANETARY SUN GEAR SUB-ASSEMBLY**

a. While expanding the snap ring with snap ring pliers, remove the planetary sun gear from the underdrive planetary gear assembly.



N

Fig. 241: Identifying Front Planetary Sun Gear, Underdrive Planetary Gear Assembly And Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

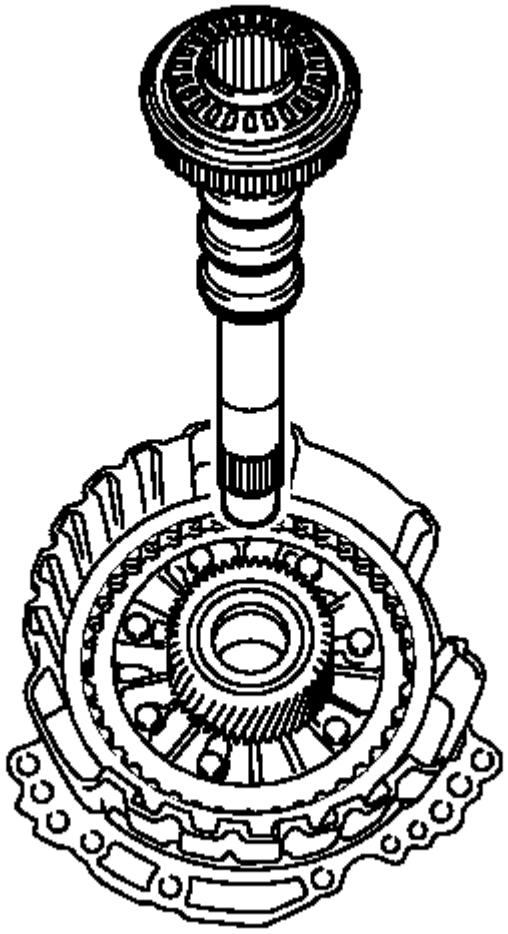
*1	Planetary Sun Gear Subassembly

b. Remove the snap ring from the underdrive planetary gear assembly.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Gear Assembly
*3	Snap Ring

33. **INSPECT UNDERDRIVE PLANETARY GEAR ASSEMBLY** See step 7
34. **INSPECT PLANETARY SUN GEAR SUB-ASSEMBLY** See step 4
35. **REMOVE INPUT SHAFT SUB-ASSEMBLY**
    a. Remove the input shaft subassembly from the front oil pump assembly.

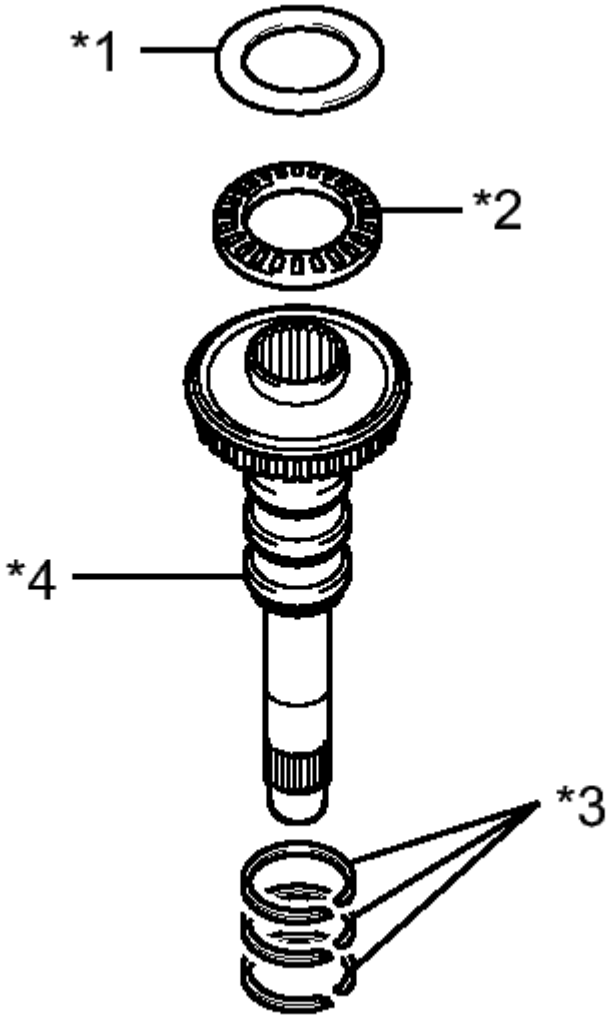


N

Fig. 242: Identifying Input Shaft And Oil Pump Assembly

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

b. Remove the thrust needle roller bearing and thrust needle roller race from the input shaft.



N

Fig. 243: Identifying Input Shaft Oil Seal Rings And Input Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing

c. Using a screwdriver, remove the 3 input shaft oil seal rings from the input shaft.

TEXT IN ILLUSTRATION

*3	Input Shaft Oil Seal Ring
*4	Input Shaft

36. **REMOVE UNDERDRIVE PLANETARY SUN GEAR**

a. Remove the underdrive planetary sun gear from the oil pump assembly.

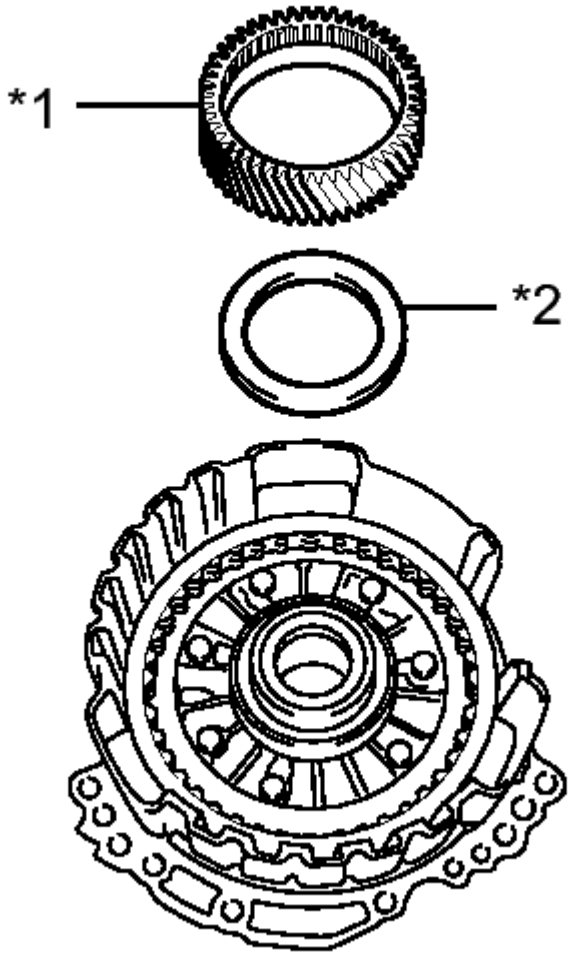


Fig. 244: Identifying Thrust Needle Roller Bearing And Underdrive Planetary Sun Gear

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

TEXT IN ILLUSTRATION

*1	Underdrive Planetary Sun Gear

b. Remove the thrust needle roller bearing from the oil pump assembly.

TEXT IN ILLUSTRATION

*2	Thrust Needle Roller Bearing

37. **REMOVE NO. 1 BRAKE DISC**

a. Using a screwdriver, remove the 2 snap rings and brake snap ring stopper from the oil pump assembly.

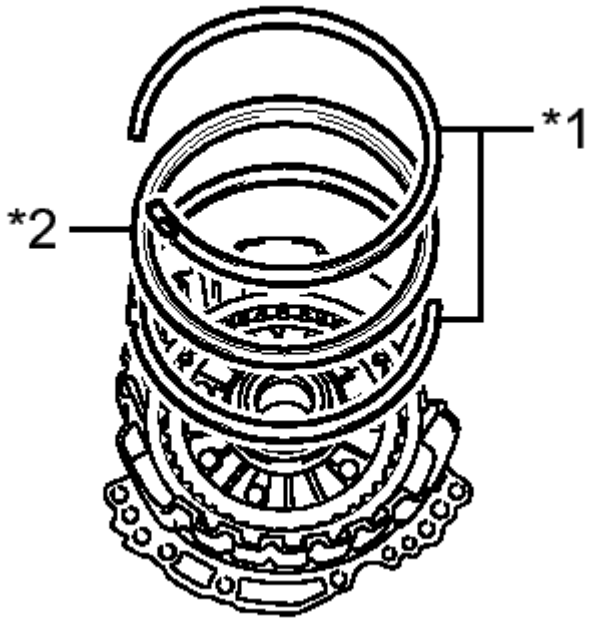


Fig. 245: Identifying Snap Rings And Brake Snap Ring Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring
	Brake

*2	Snap Ring Stopper

b. Remove the No. 1 brake flange, 4 No. 1 brake discs, and 4 No. 1 brake plates from the oil pump assembly.

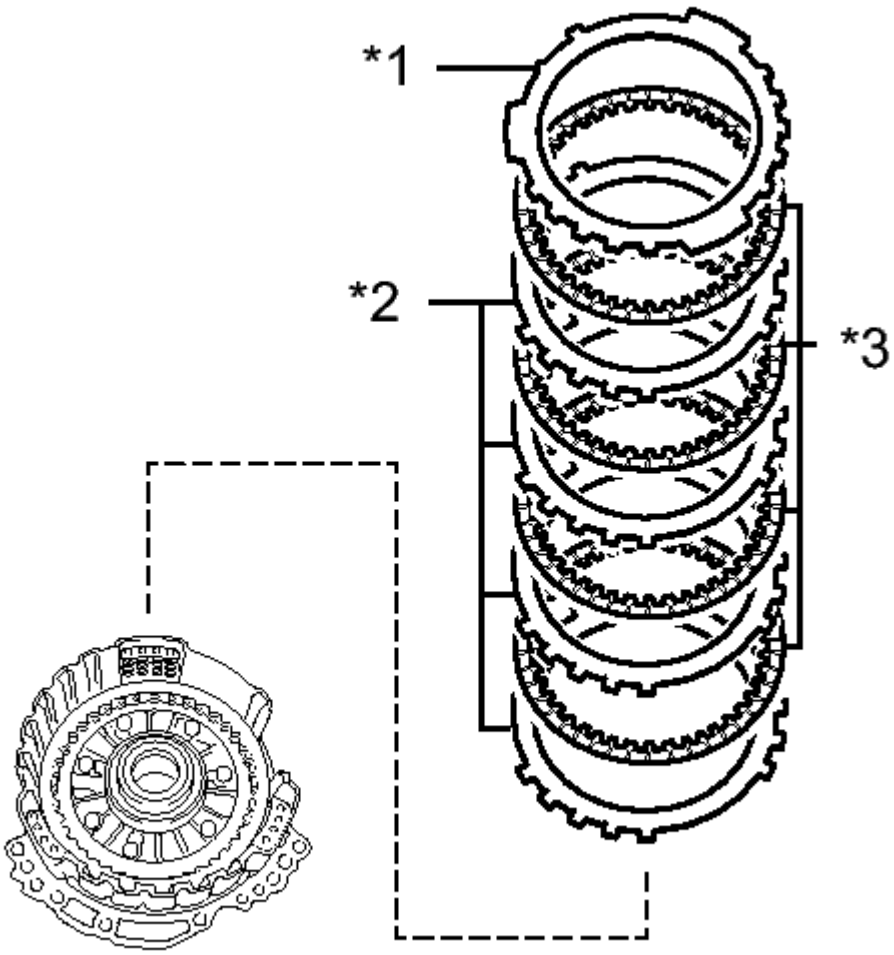


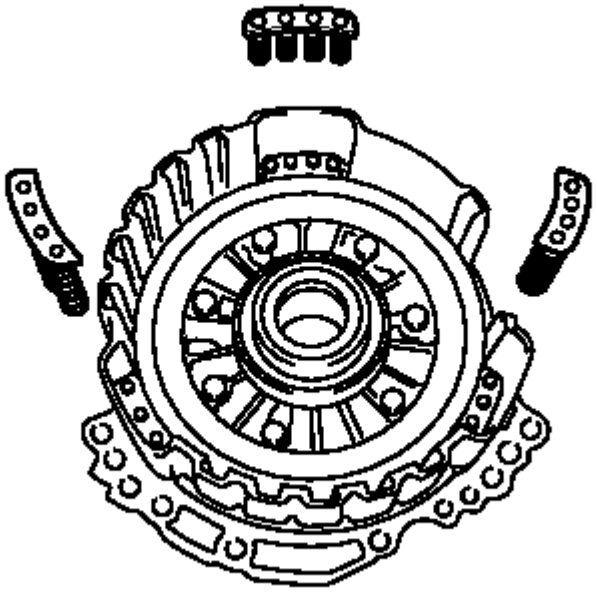
Fig. 246: Identifying Brake Flange, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Brake Flange
*2	No. 1 Brake

	Plate
*3	No. 1 Brake Disc

38. **INSPECT NO. 1 BRAKE DISC** See step 9
39. **REMOVE 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Remove the 3 2nd brake piston return springs from the oil pump assembly.



N

Fig. 247: Identifying 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

40. **INSPECT 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY** See step 10
41. **REMOVE NO. 1 BRAKE PISTON**
    a. Holding the oil pump assembly by hand, apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the oil pump assembly to remove the No. 1 brake piston.

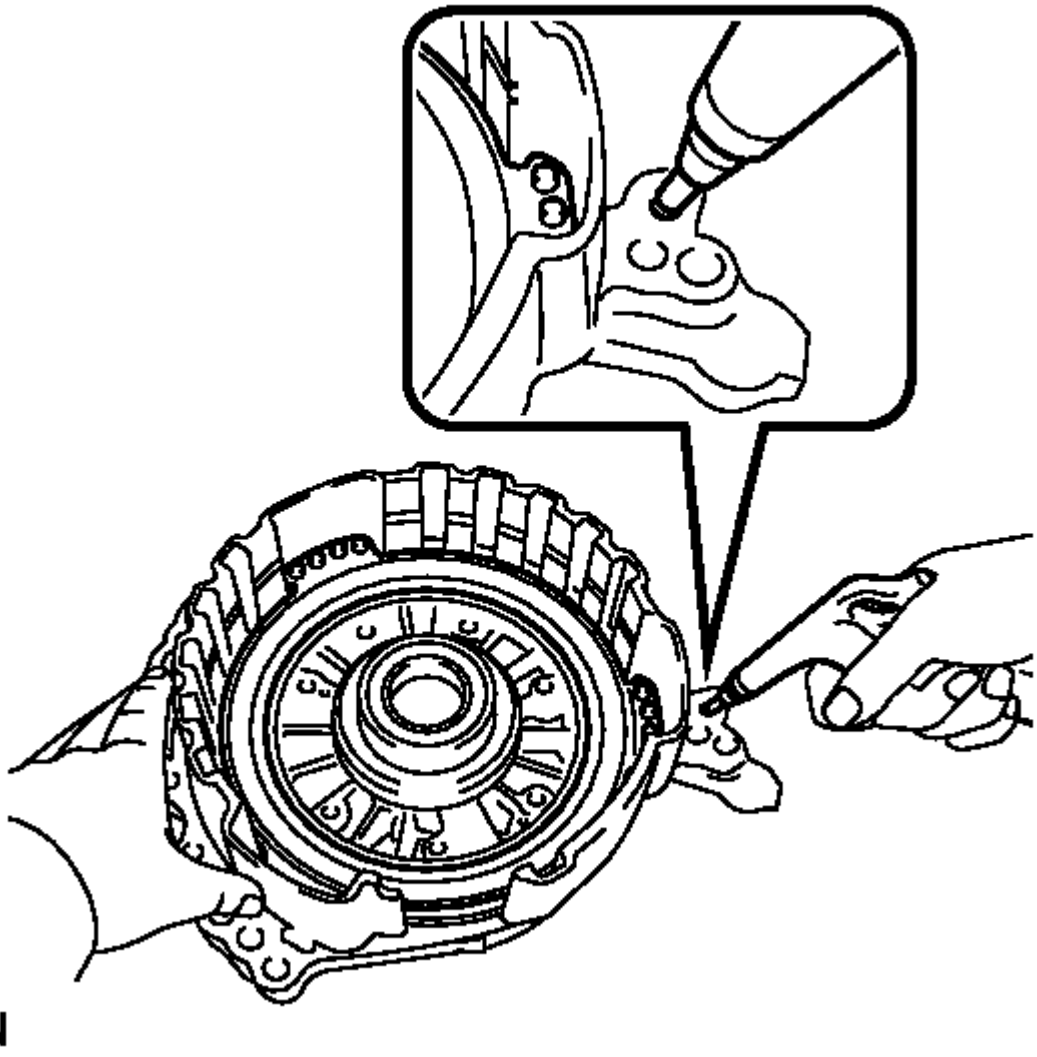
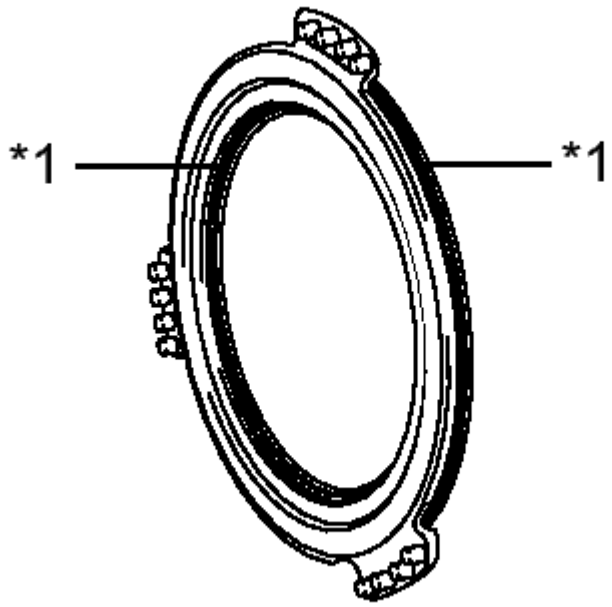


Fig. 248: Applying Compressed Air To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 2 O-rings from the No. 1 brake piston.



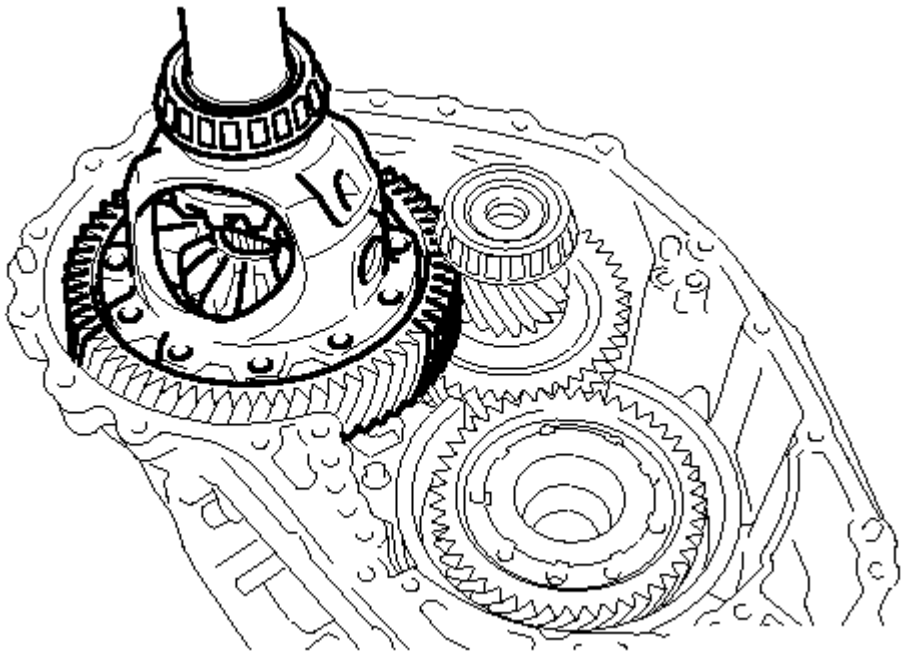
N

Fig. 249: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

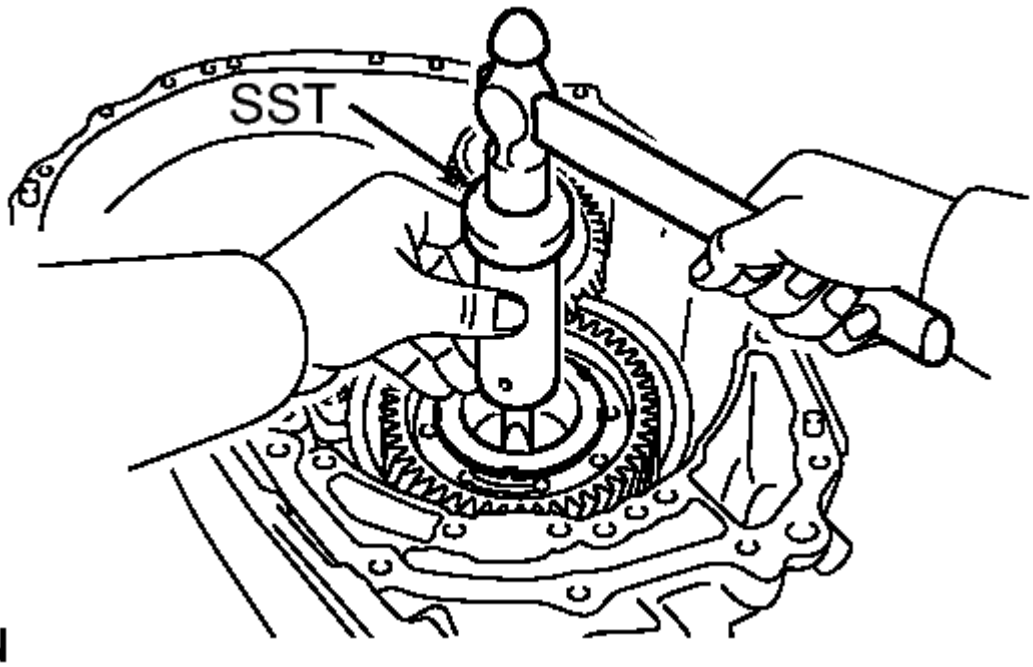
42. **REMOVE FRONT DIFFERENTIAL CASE**
    a. Remove the front differential case from the transaxle case.



C

Fig. 250: Identifying Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

43. **REMOVE COUNTER DRIVE GEAR NUT**
    a. Using SST and a hammer, unstake the counter drive gear nut.



N

Fig. 251: Identifying Planetary Gear Assembly With SST

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

- **SST: 09930-00010**

b. Turn the manual valve lever 2 notches counterclockwise to set it to the P position as shown in the illustration.

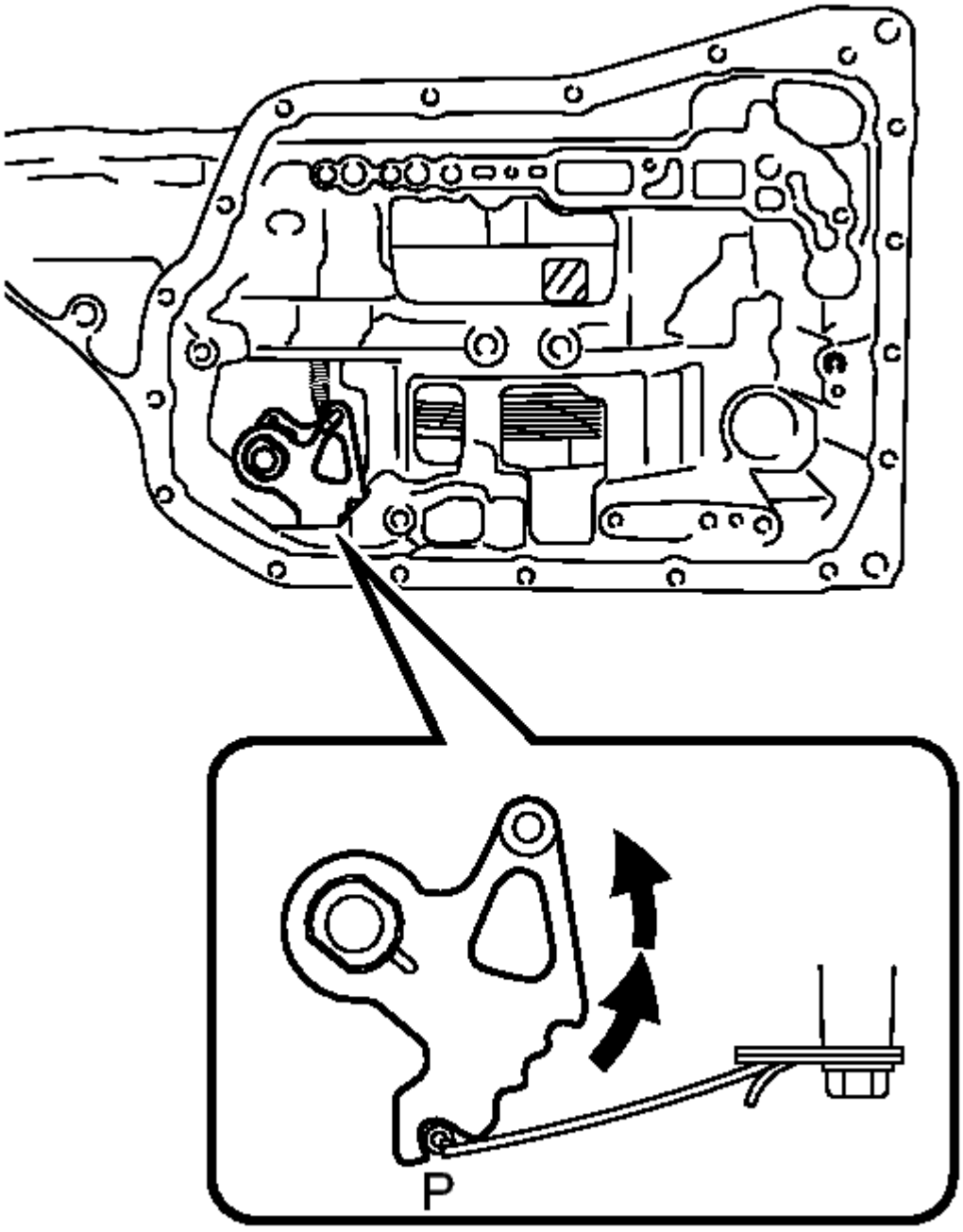


Fig. 252: Turning Manual Valve Lever Notches Counterclockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST, remove the counter drive gear nut from the planetary gear assembly.

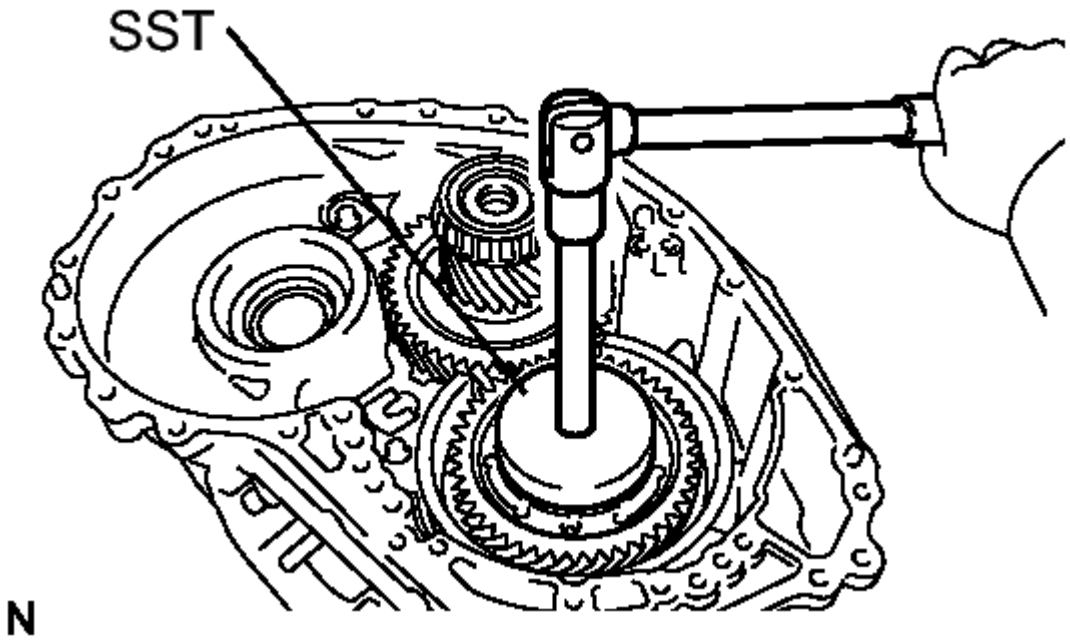
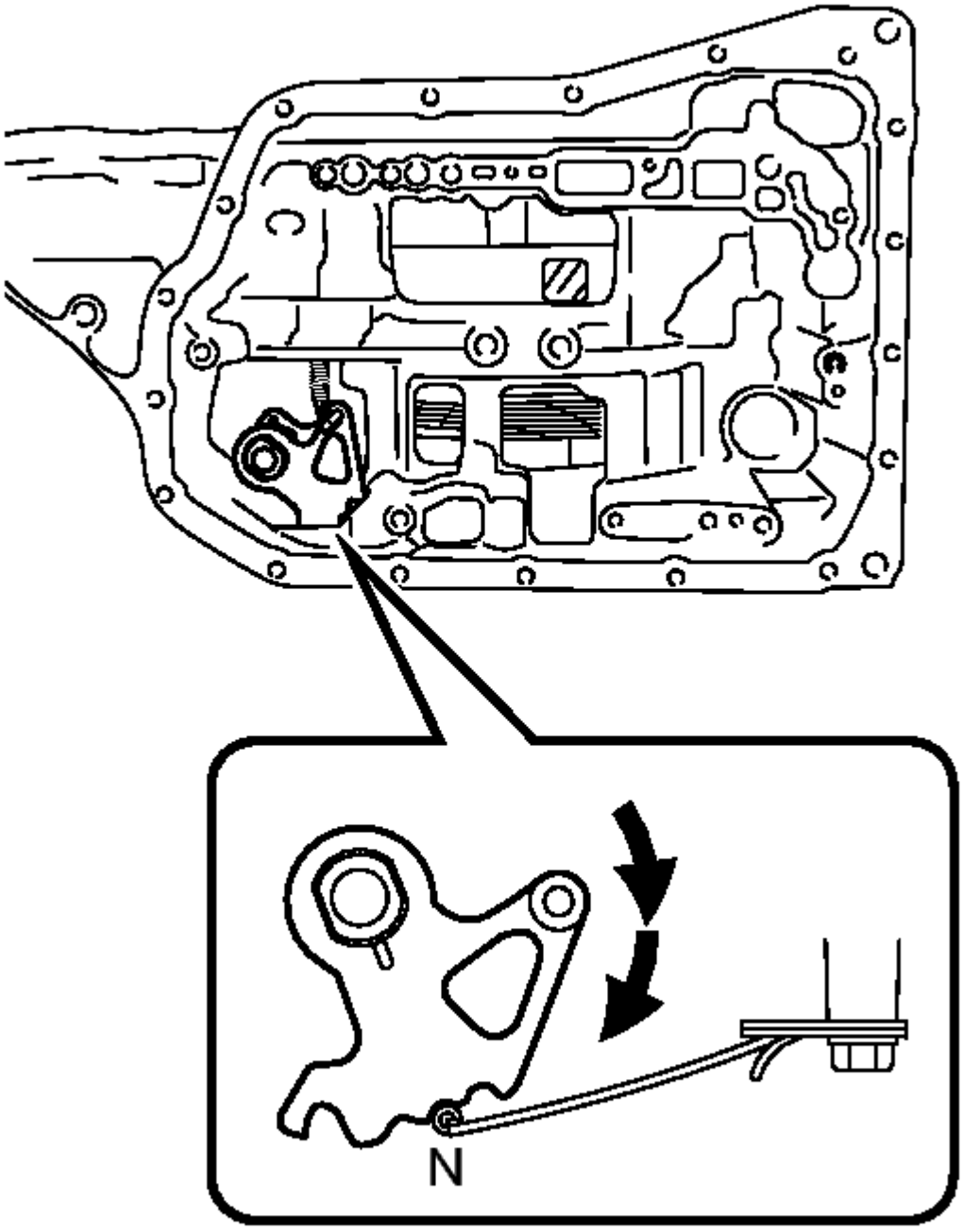


Fig. 253: Removing Nut From Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

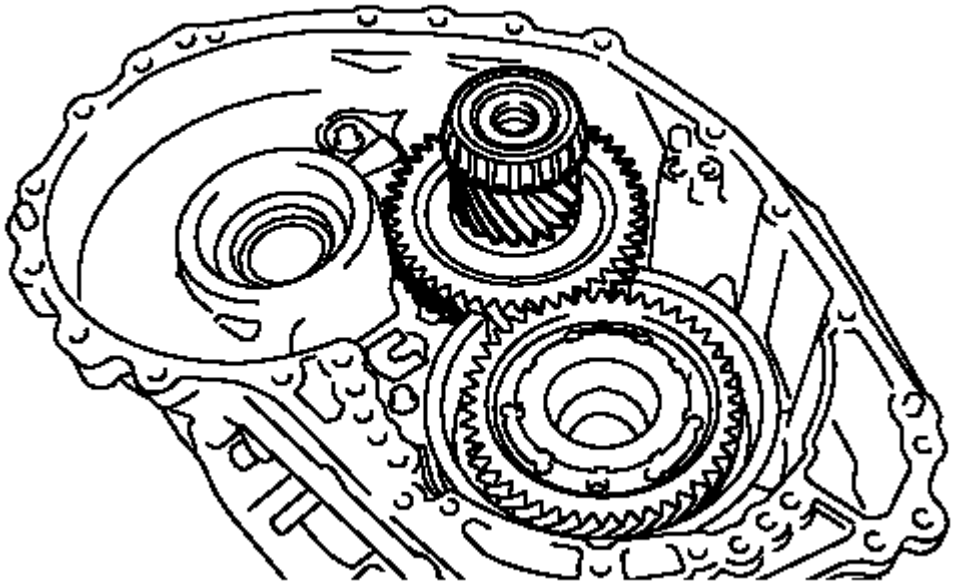
44. **REMOVE COUNTER DRIVEN GEAR**
    a. Turn the manual valve lever 2 notches clockwise to set it to the N position as shown in the illustration.



N

Fig. 254: Turning Manual Valve Lever Notches Clockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the counter driven gear from the transaxle case.

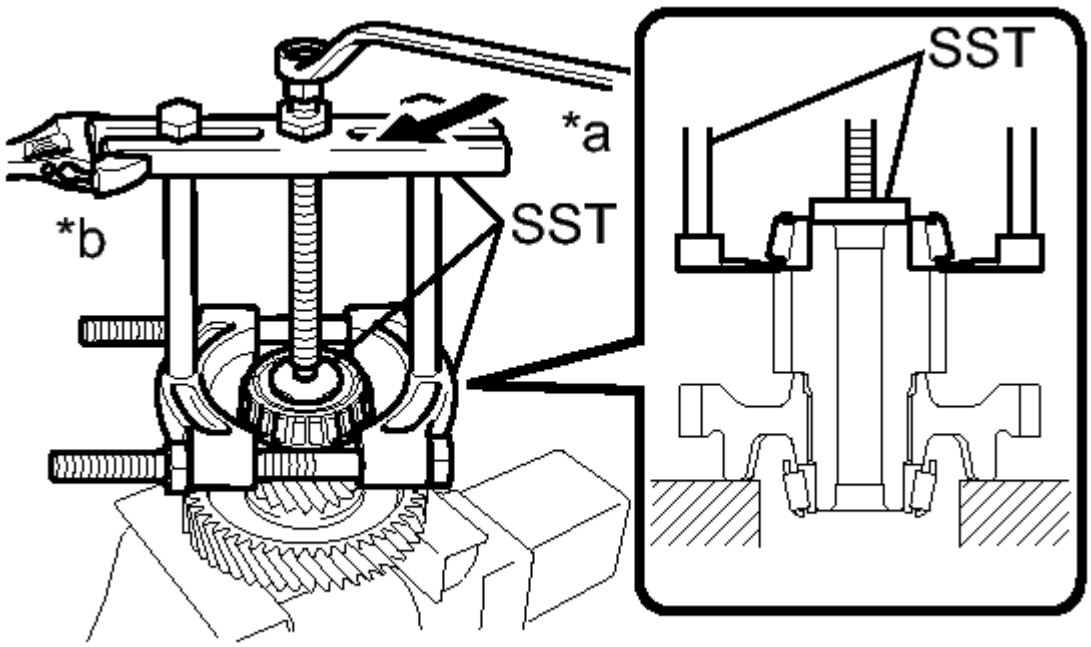


N

Fig. 255: Identifying Counter Driven Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

45. **REMOVE COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING**

a. Using SST, remove the counter driven gear front tapered roller bearing from the counter driven gear.



C

Fig. 256: Removing Counter Driven Gear Front Tapered Roller Bearing From Counter Driven Gear Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00400

46. **REMOVE COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING**
    a. Using SST, remove the counter driven gear rear tapered roller bearing and differential drive pinion from the counter driven gear.

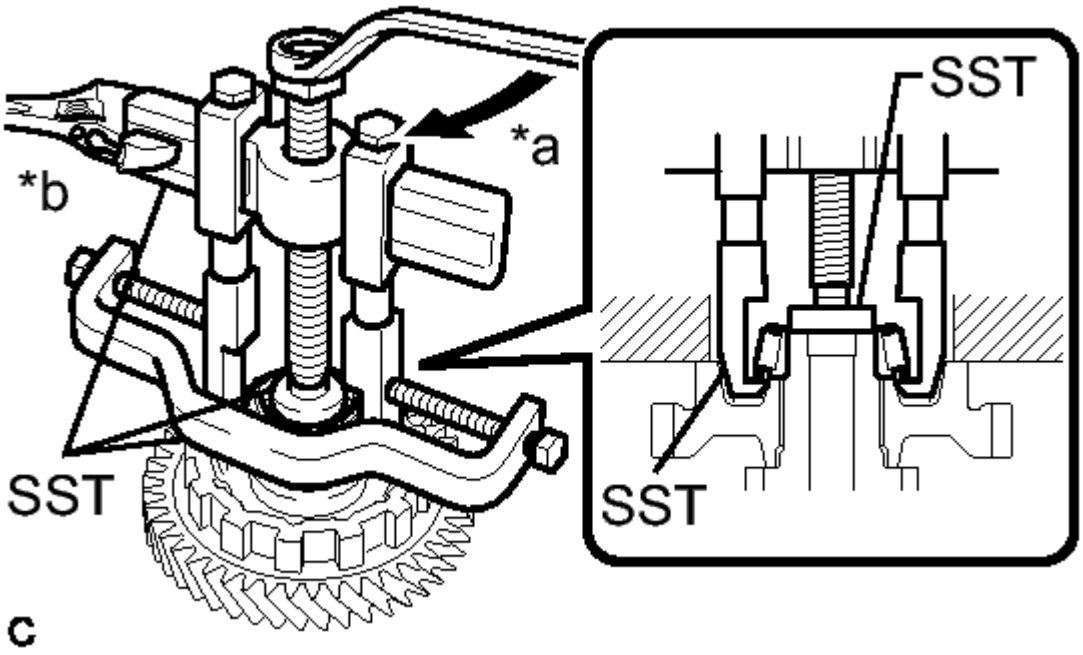


Fig. 257: Removing Counter Driven Gear Rear Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-40011**

  09951-04010

09952-04010
09953-04020
09954-04010
09955-04071
09957-04010
09958-04011

- **SST: 09950-60010**

09951-00320

47. **REMOVE PAWL SHAFT CLAMP**
    a. Remove the bolt and pawl shaft clamp from the transaxle case.

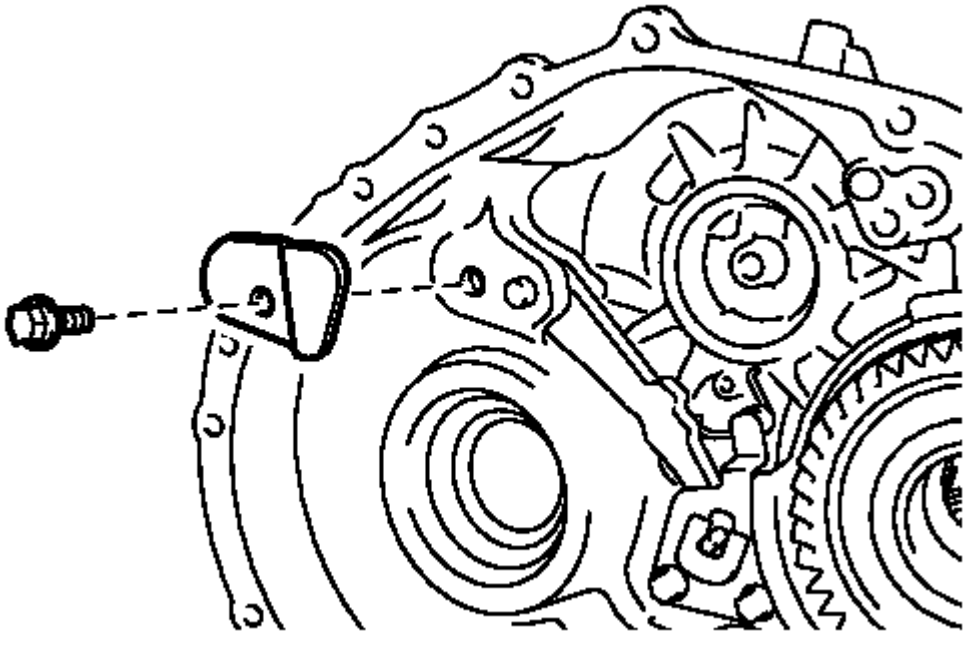


Fig. 258: Identifying Bolt And Pawl Shaft Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **REMOVE PAWL STOPPER PLATE**
    a. Remove the 2 bolts and pawl stopper plate from the transaxle case.

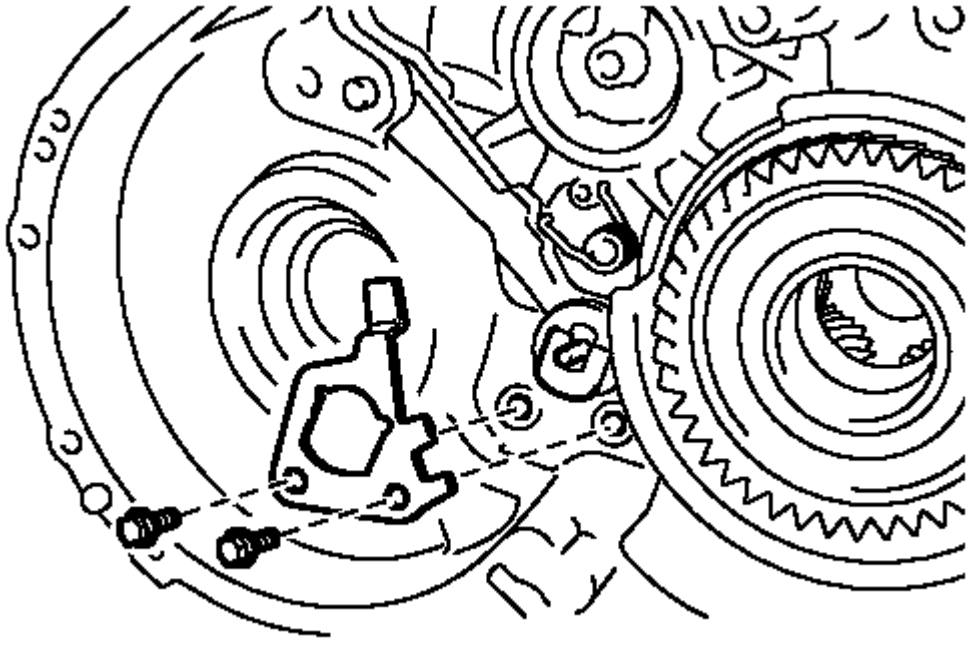


Fig. 259: Identifying Bolts And Pawl Stopper Plate
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

49. **REMOVE PARKING LOCK SLEEVE**
    a. Remove the parking lock sleeve from the transaxle case.

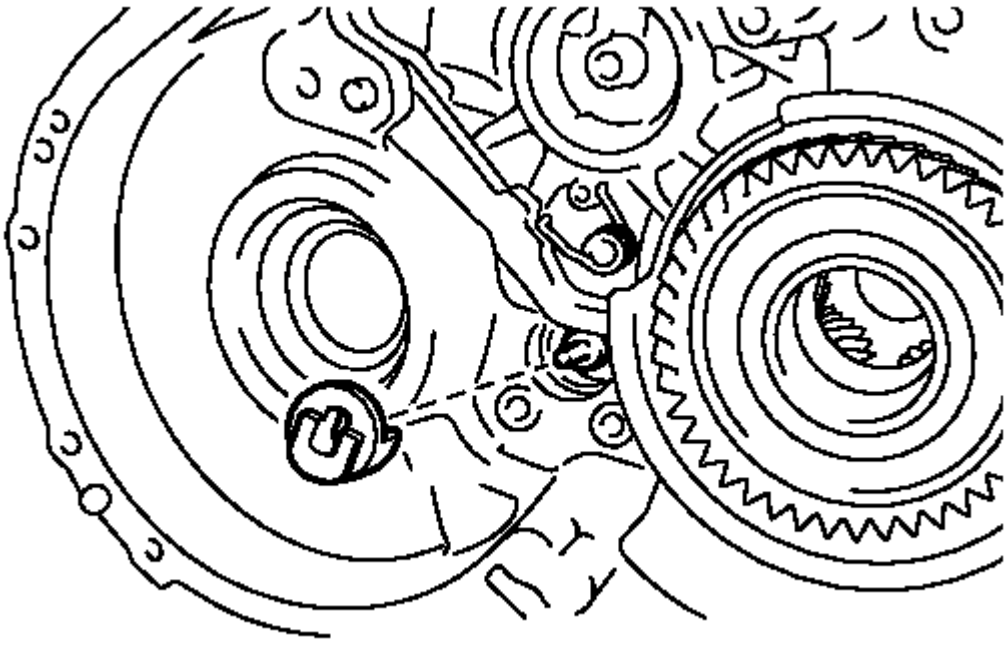


Fig. 260: Identifying Parking Lock Sleeve

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

50. **REMOVE PARKING LOCK PAWL**

a. Remove the spring, parking lock pawl pin, parking lock pawl shaft and parking lock pawl from the transaxle case.

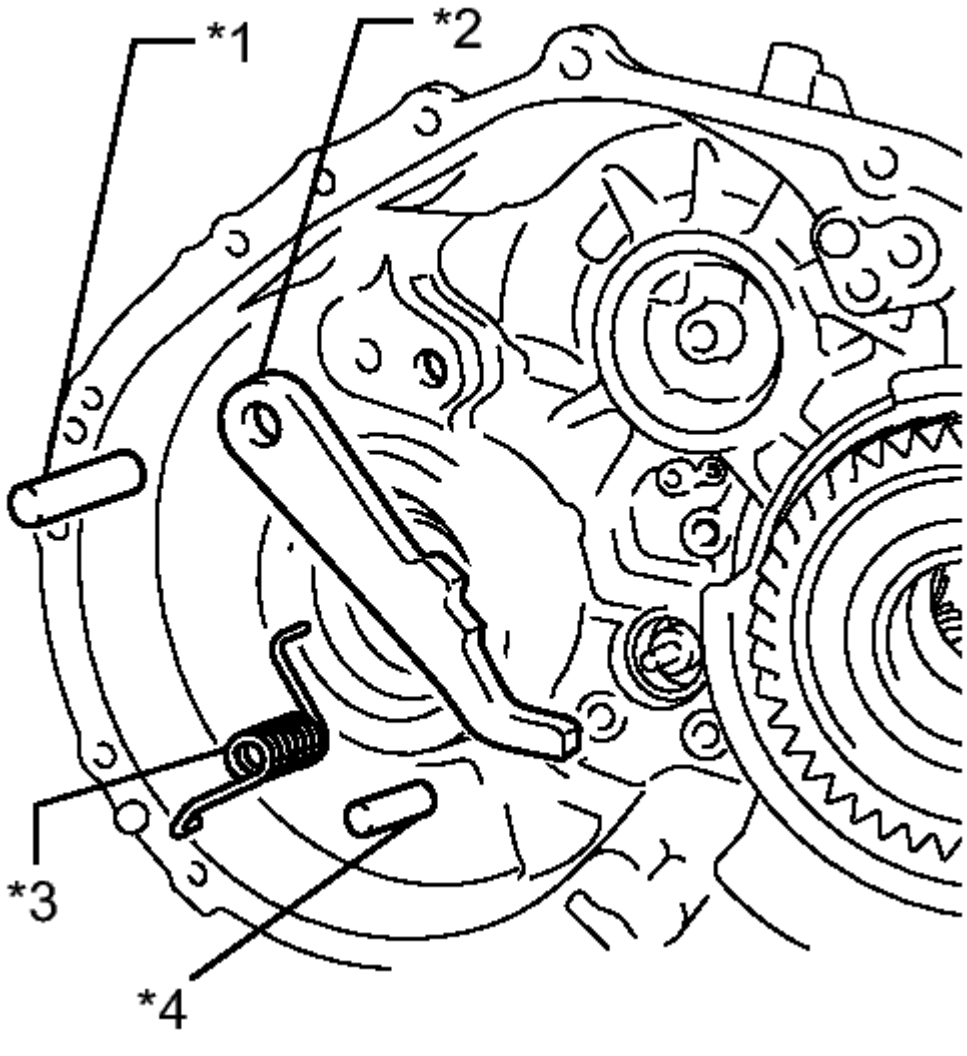


Fig. 261: Identifying Spring, Parking Lock Pawl Pin, Parking Lock Pawl Shaft & Parking Lock Pawl At Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Parking Lock Pawl Shaft
	Parking

*2	Lock Pawl
*3	Spring
*4	Parking Lock Pawl Pin

51. **REMOVE COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING OUTER RACE**
    a. Using SST, remove the counter driven gear rear tapered roller bearing outer race from the transaxle case.

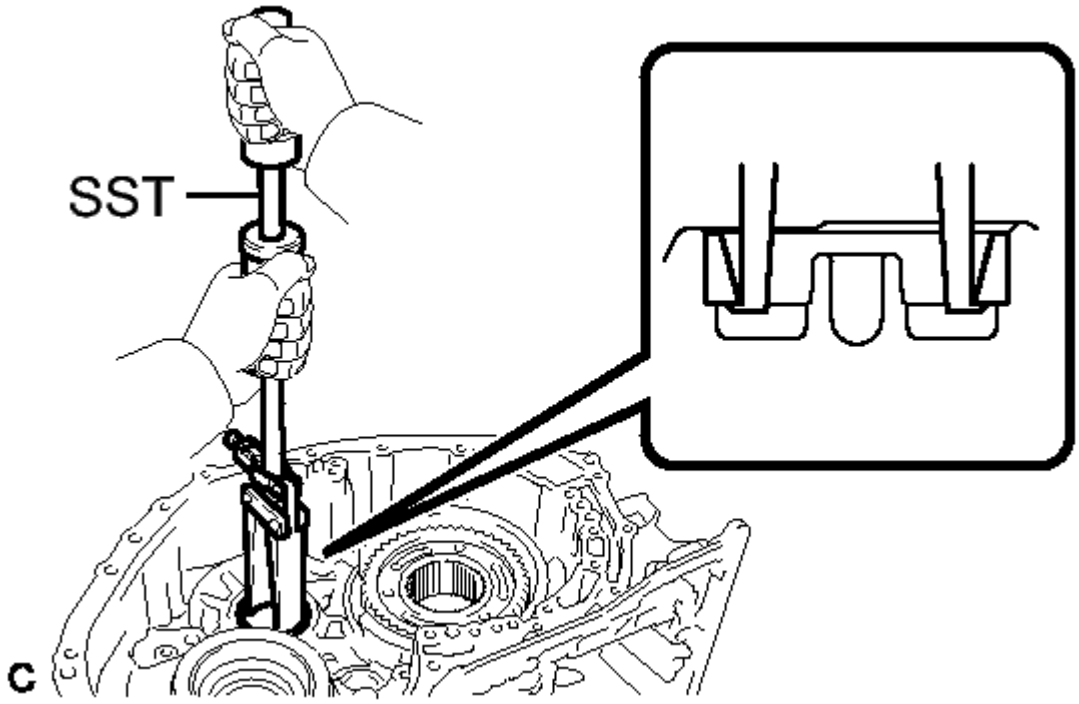


Fig. 262: Removing Counter Driven Gear Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

52. **REMOVE ONE-WAY CLUTCH ASSEMBLY**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

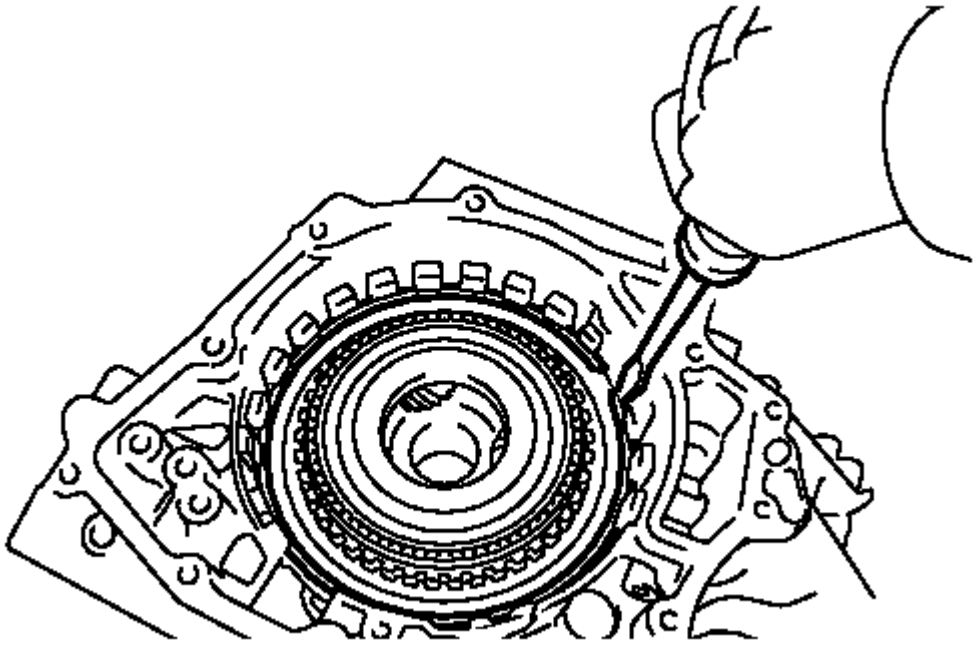


Fig. 263: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the one-way clutch assembly with the planetary ring gear from the transaxle case.

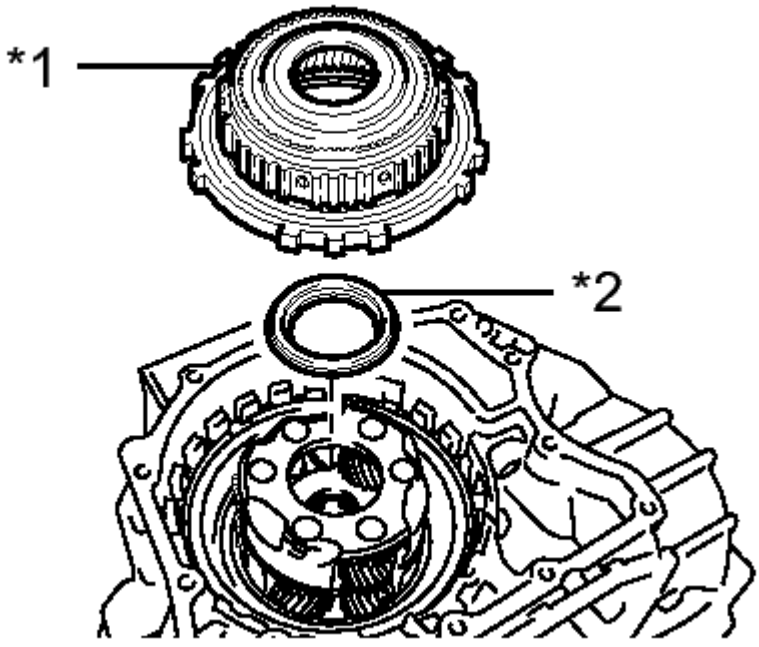


Fig. 264: Identifying One-Way Clutch Assembly And Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly

c. Remove the thrust needle roller bearing from the planetary gear assembly.

TEXT IN ILLUSTRATION

*2	Thrust Needle Roller Bearing

53. **INSPECT ONE-WAY CLUTCH ASSEMBLY** See step 11
54. **REMOVE PLANETARY RING GEAR**
    a. Remove the planetary ring gear from the one-way clutch assembly.

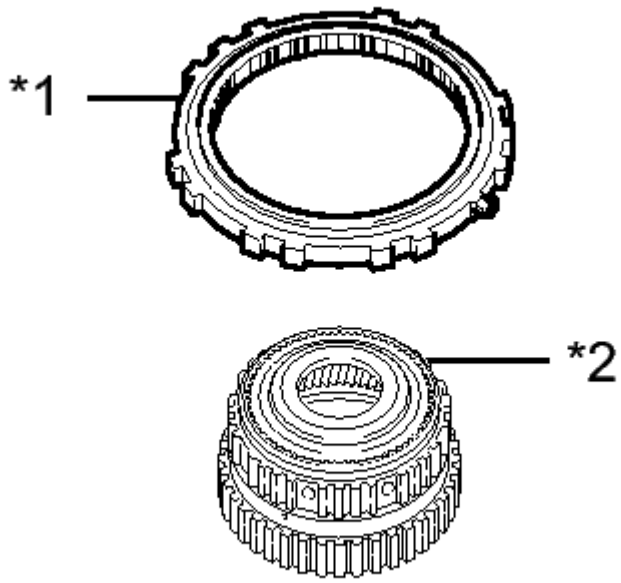


Fig. 265: Identifying Planetary Ring Gear And One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Planetary Ring

	Gear

55. **REMOVE PLANETARY RING GEAR FLANGE**

a. Using a screwdriver, remove the snap ring from the planetary ring gear.

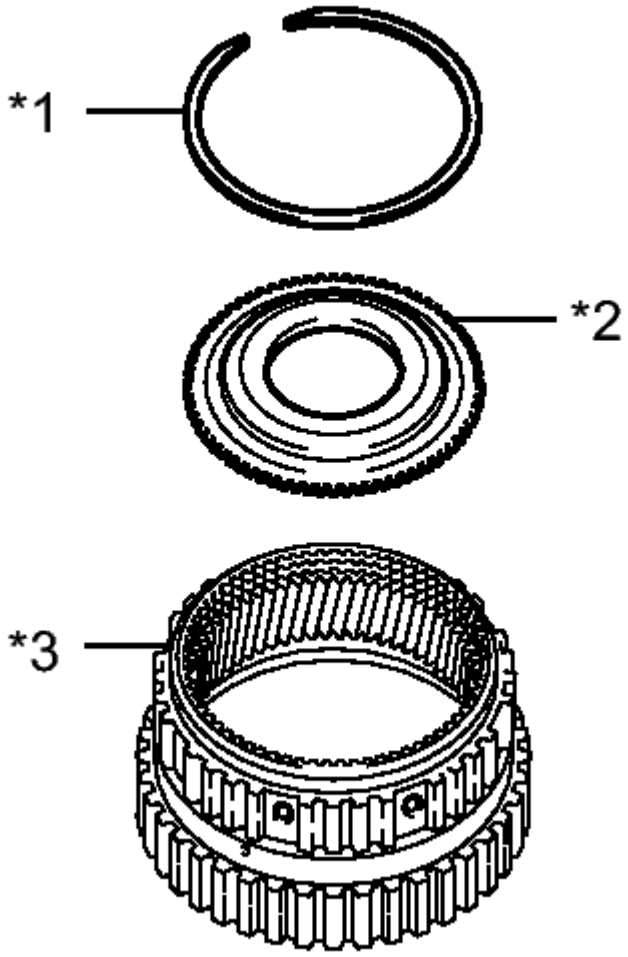


Fig. 266: Identifying Planetary Ring Gear Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Snap Ring

b. Remove the planetary ring gear flange from the planetary ring gear.

TEXT IN ILLUSTRATION

*2	Planetary Ring Gear Flange
*3	Planetary Ring Gear

56. **REMOVE NO. 2 BRAKE DISC**

a. Using a screwdriver, remove the snap ring from the transaxle case.

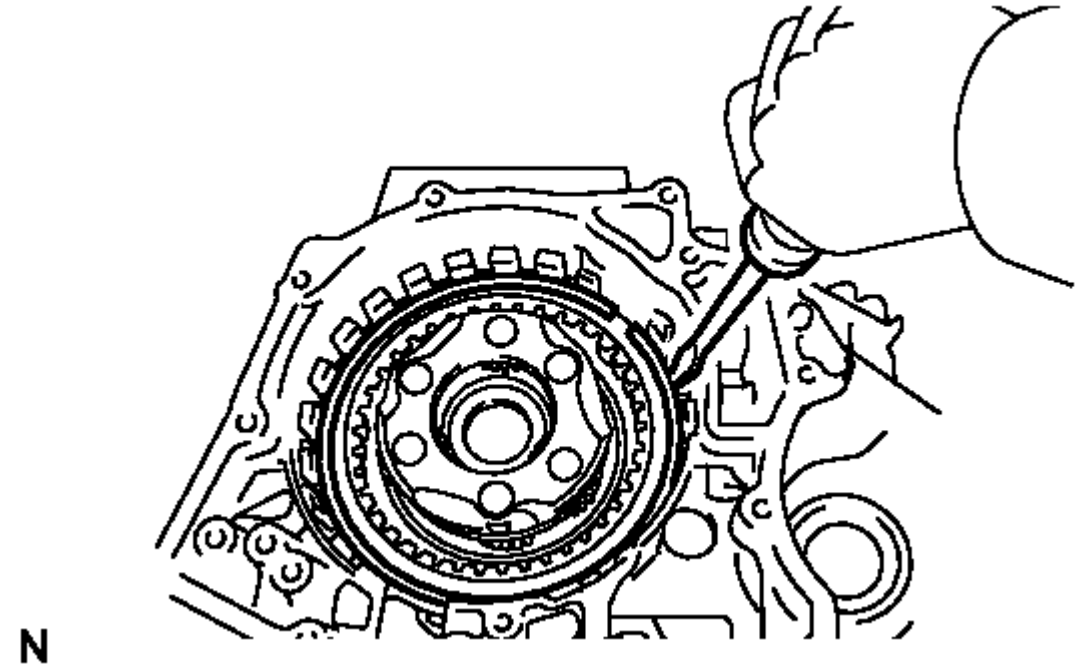


Fig. 267: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the brake flange, 5 brake discs and 5 brake plates from the transaxle case.

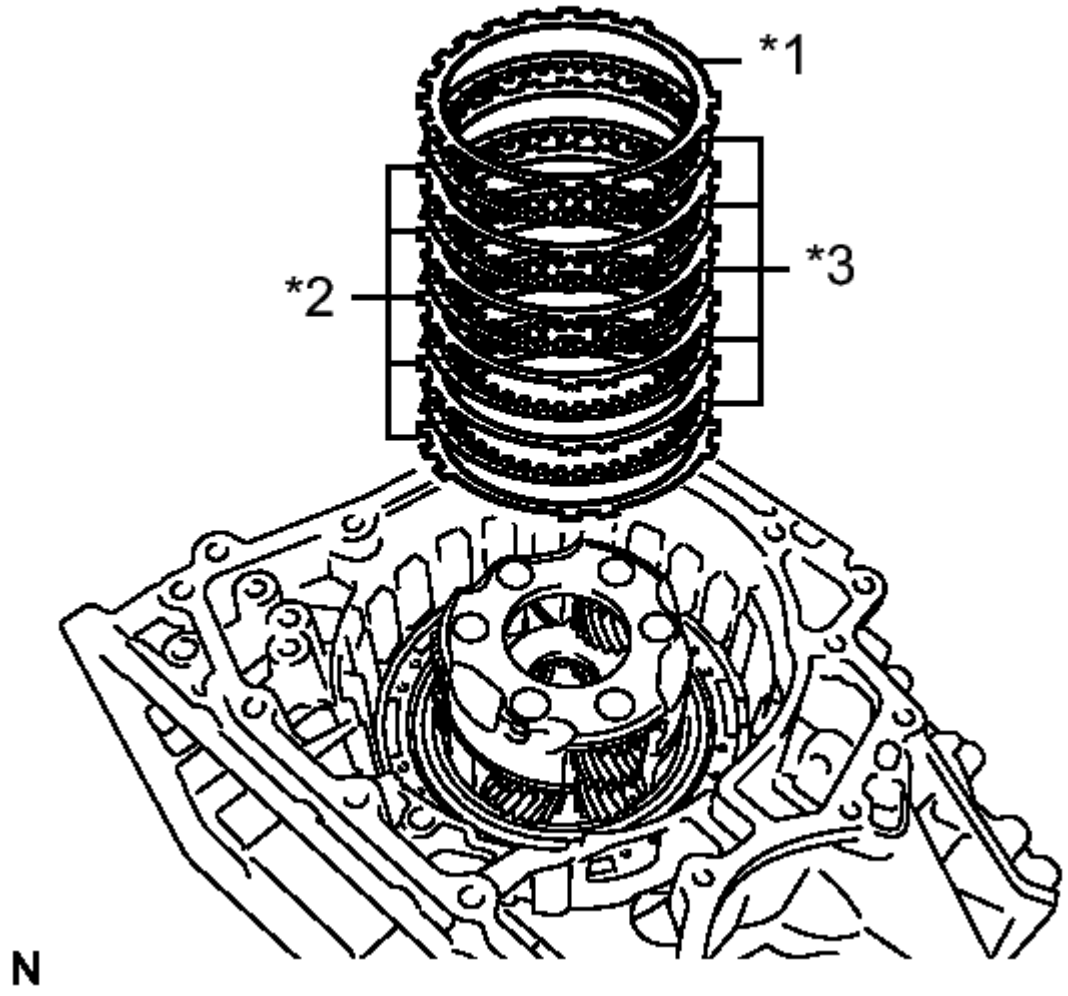


Fig. 268: Identifying Brake Flange, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Flange
*2	Brake Plate
*3	Brake Disc

57. **INSPECT NO. 2 BRAKE DISC** See step 13
58. **REMOVE 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

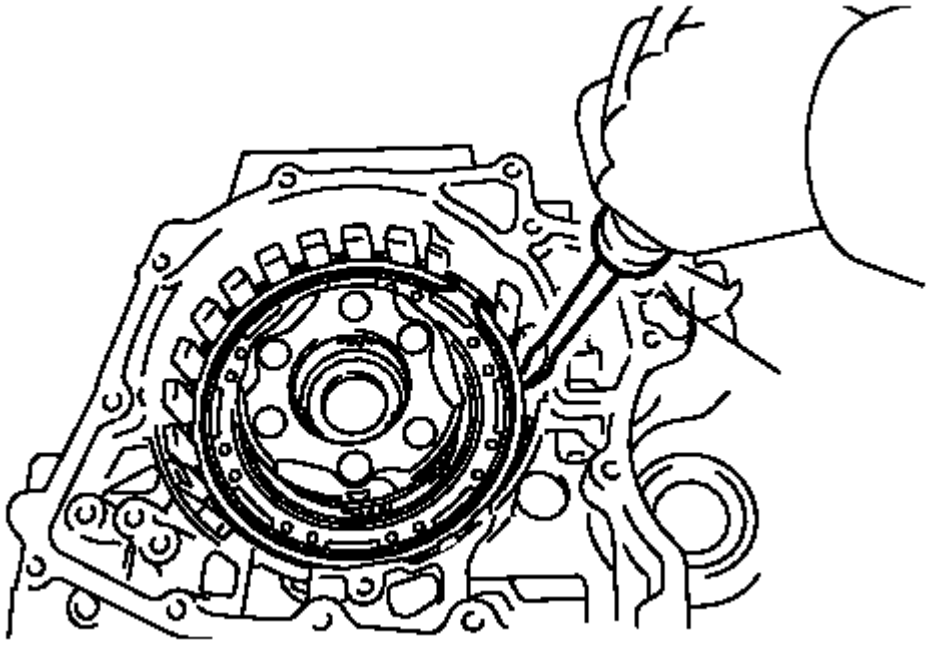


Fig. 269: Removing Snap Ring From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the 1st and reverse brake return spring from the transaxle case.

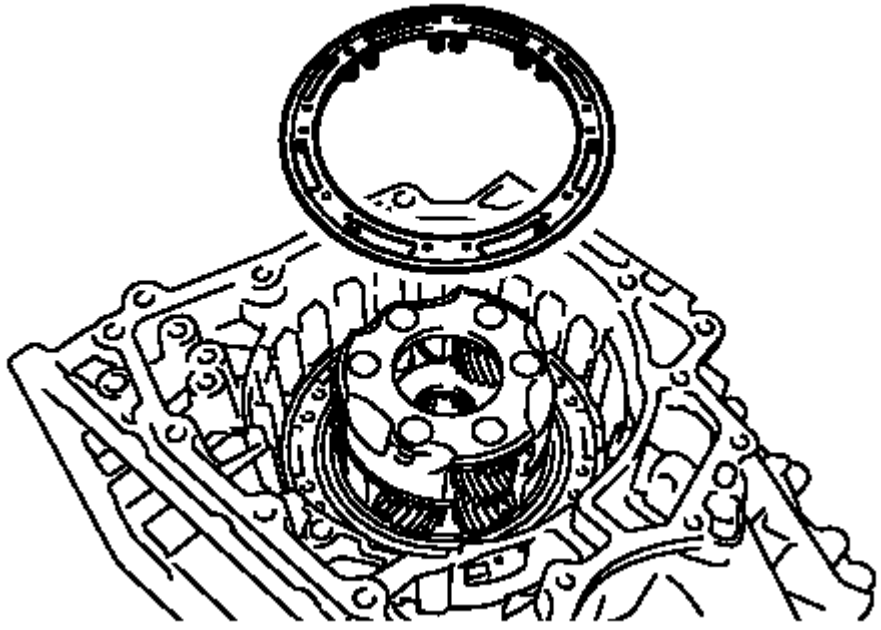


Fig. 270: Identifying 1st And Reverse Brake Return Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

59. **INSPECT 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY** See step 14

60. **REMOVE NO. 2 BRAKE PISTON**

    a. Apply compressed air (392 kPa, 4.0 kgf/cm^2 , 57 psi) to the ATF hole to remove the No. 2 brake piston from the transaxle case.

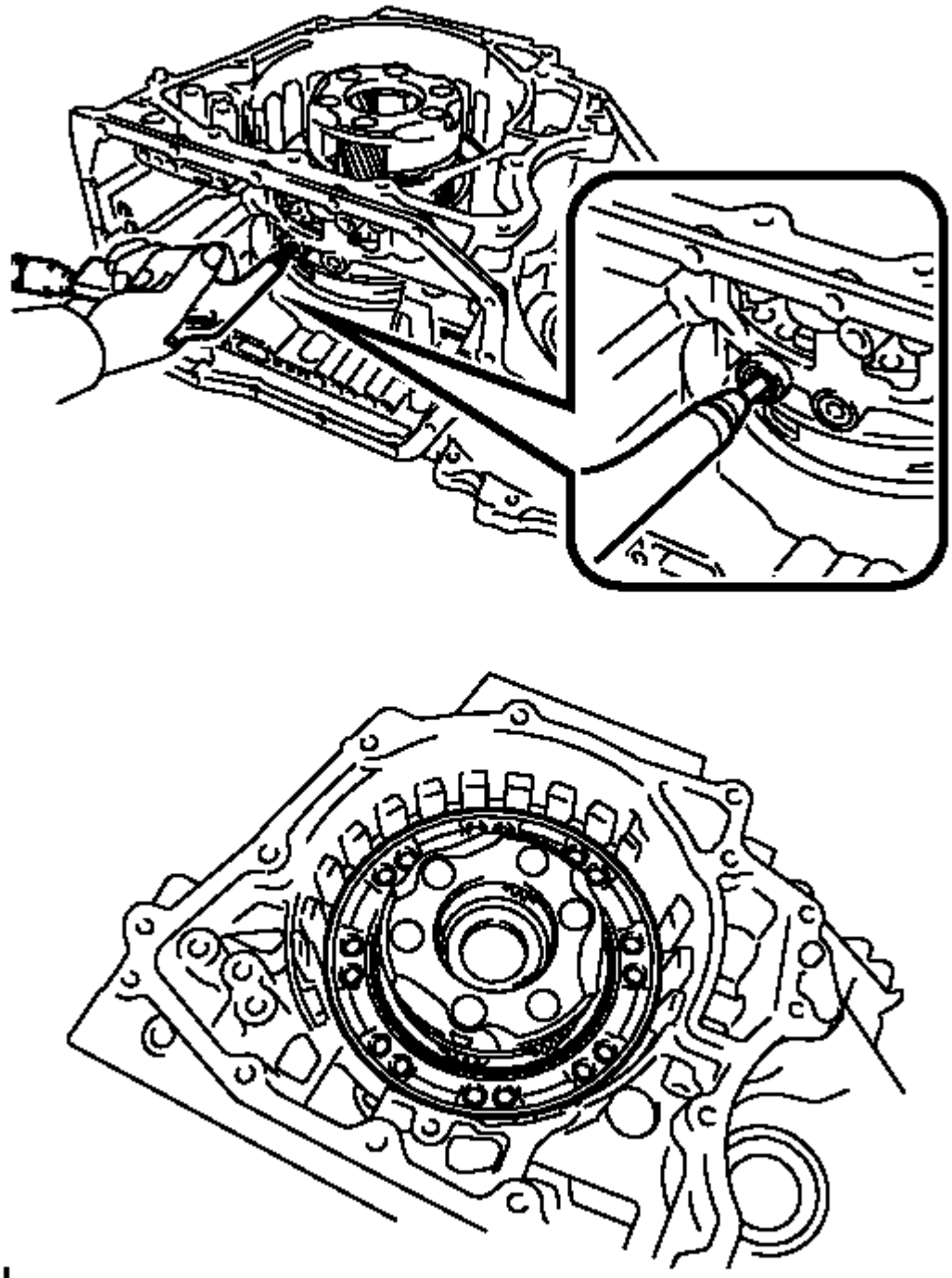
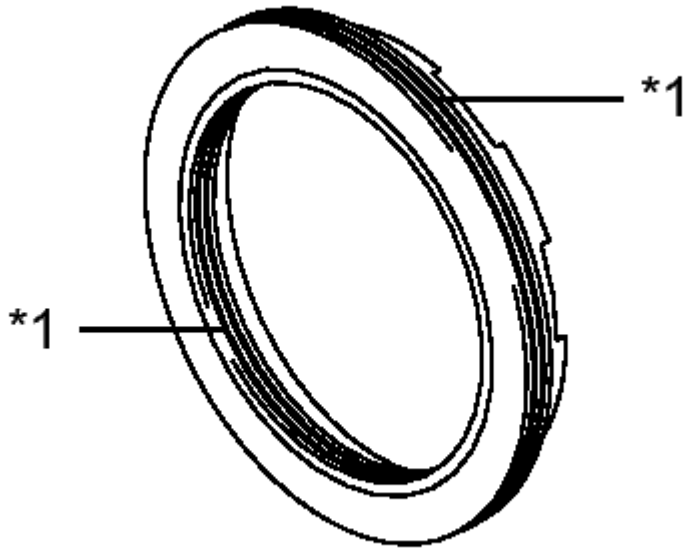


Fig. 271: Applying Compressed Air To ATF Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, remove the 2 O-rings from the No. 2 brake piston.



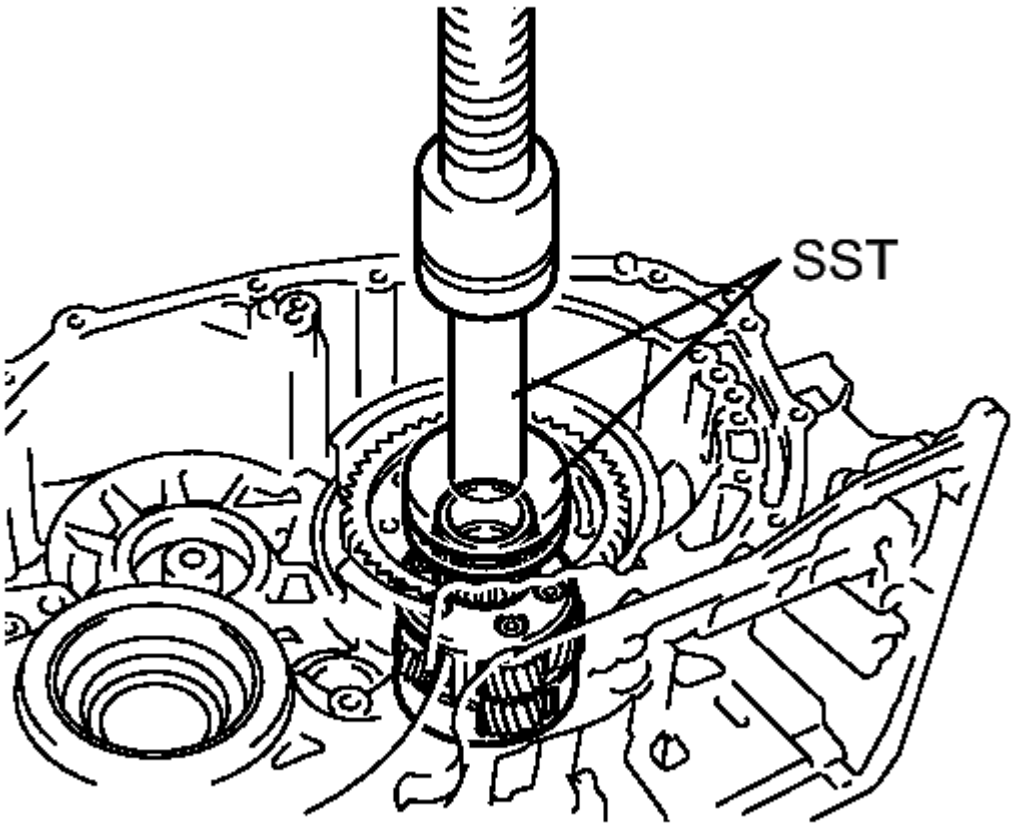
N

Fig. 272: Identifying No. 2 Brake Piston O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

61. **REMOVE FRONT PLANETARY GEAR ASSEMBLY**
    a. Using SST and a press, remove the planetary gear assembly from the transaxle case.



N

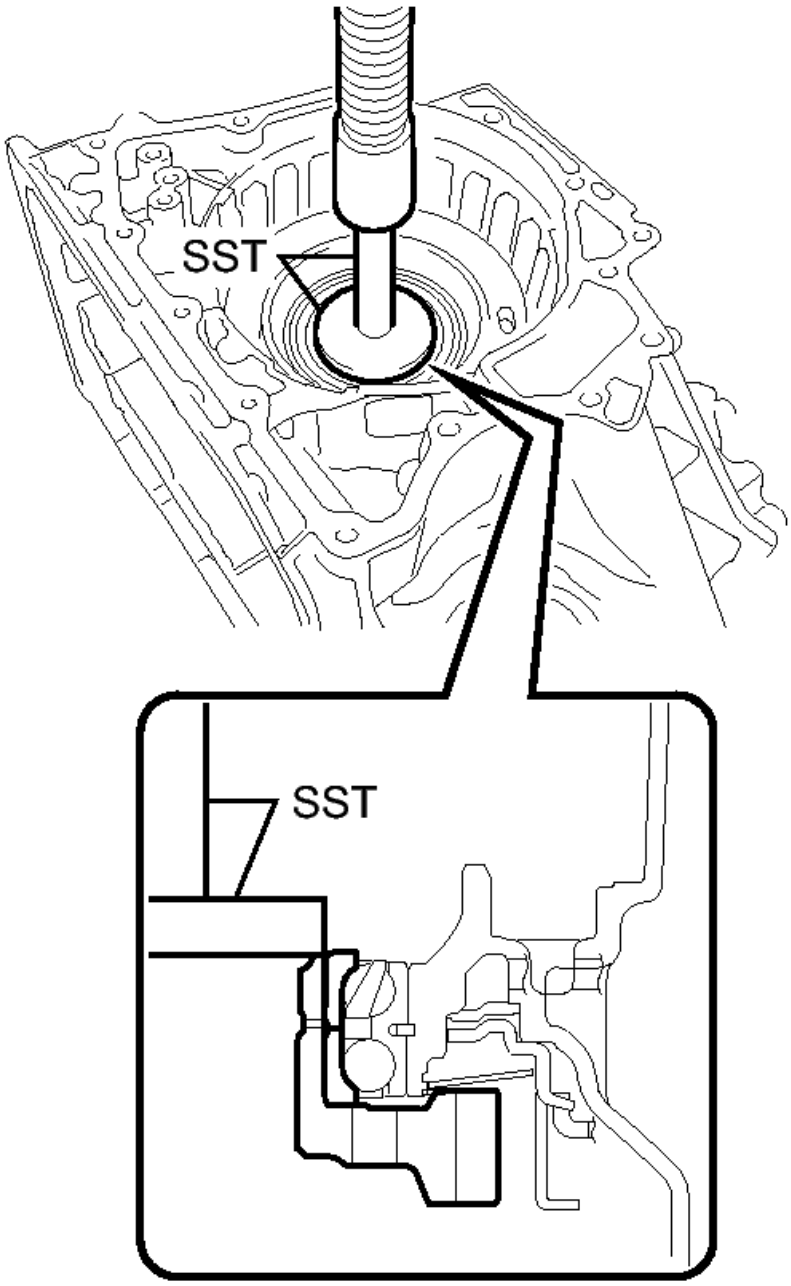
Fig. 273: Removing Planetary Gear Assembly From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00580
- **SST: 09950-70010**
  09951-07100

62. **REMOVE COUNTER DRIVE GEAR**

NOTE: Perform this procedure only when the counter drive gear bearing or transaxle case is replaced.

a. Using SST and a press, remove the counter drive gear and bearing inner race (rear side) from the transaxle case.



C

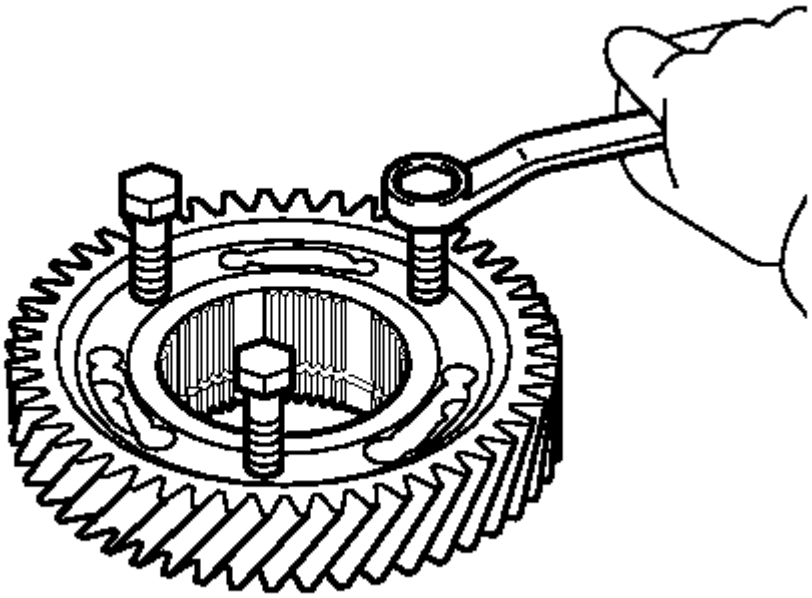
Fig. 274: Removing Counter Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60020**
  09951-00710

- **SST: 09950-70010**

  09951-07100

b. As shown in the illustration, tighten the 3 bolts evenly and leave a clearance of approximately 20.0 mm (0.787 in.) between the counter drive gear and bearing inner race (front side).



N

Fig. 275: Tightening Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using SST, remove the bearing inner race (front side) from the counter drive gear.

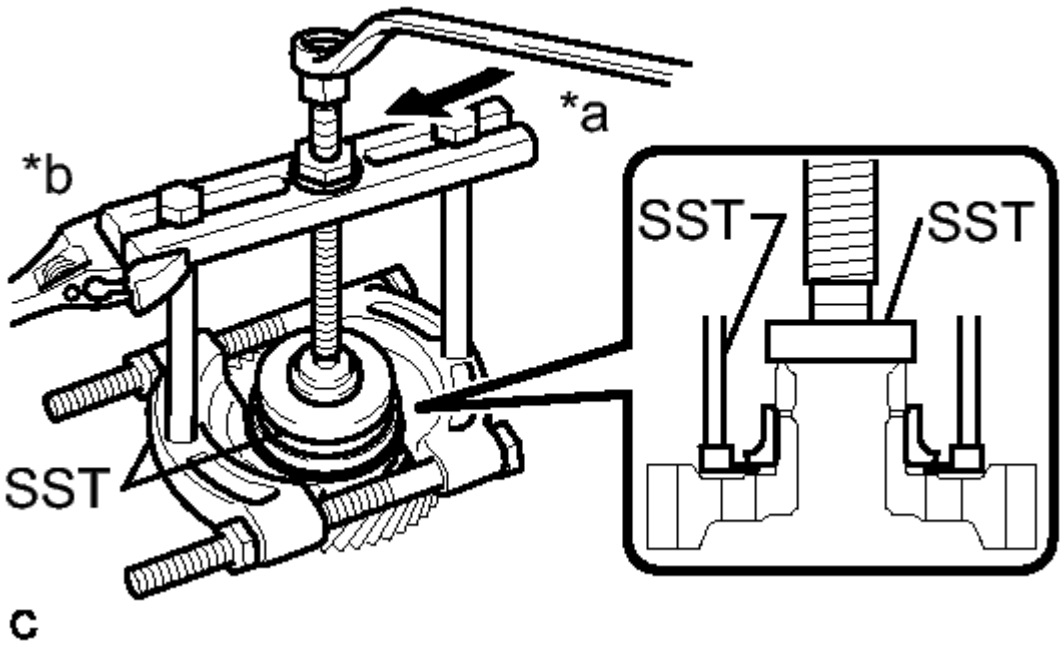


Fig. 276: Removing Bearing Inner Race (Front Side) At Counter Drive Gear Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60020**

  09951-00710

63. **REMOVE NO. 3 BRAKE PISTON**
    a. Using a screwdriver, remove the snap ring from the transaxle case.

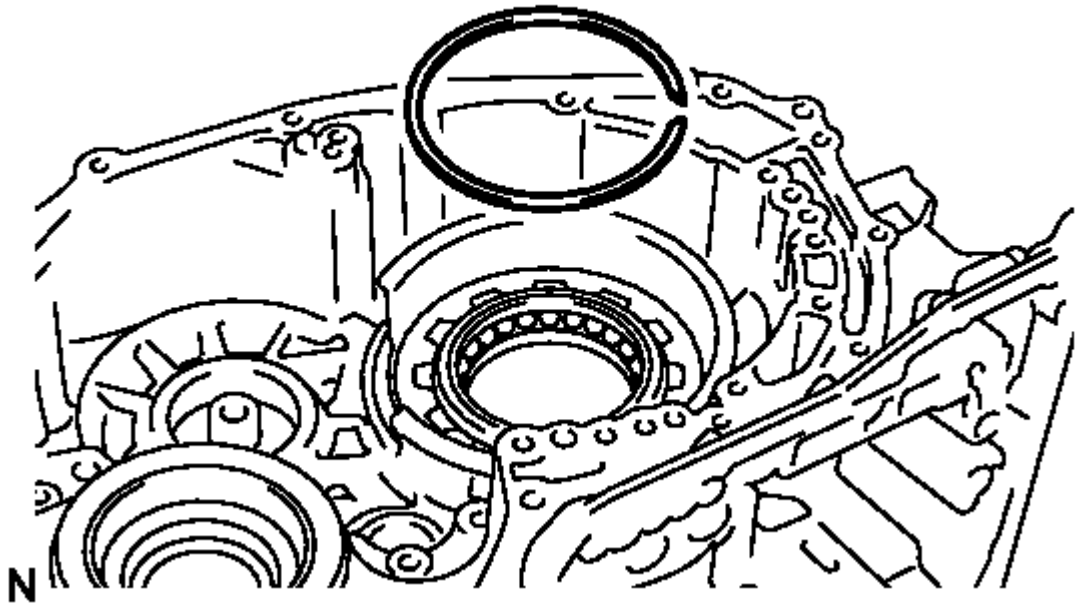


Fig. 277: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Remove the brake piston return spring from the transaxle case.

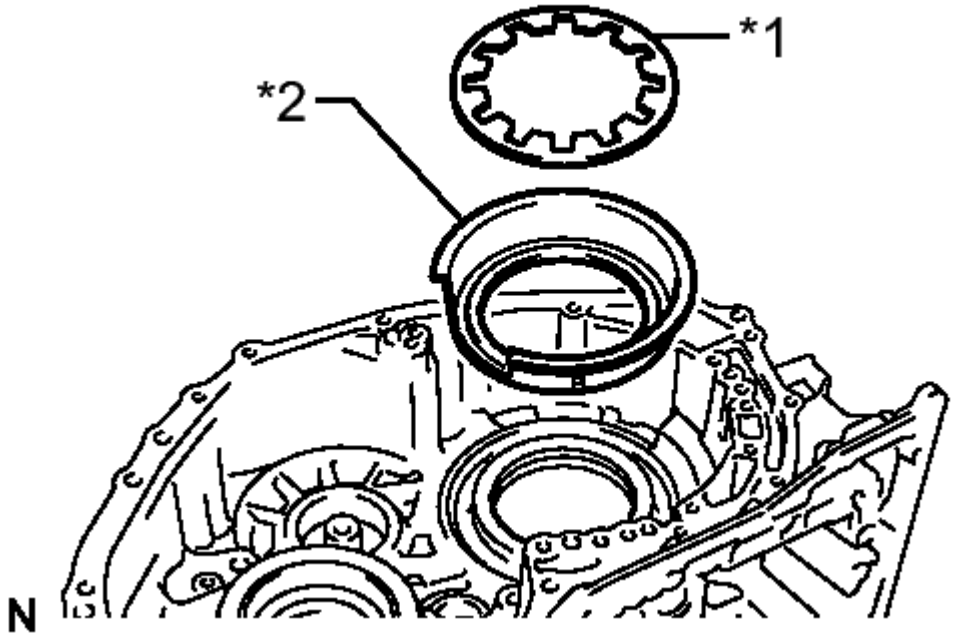


Fig. 278: Identifying Brake Piston Return Spring And No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Piston Return Spring

c. Remove the No. 3 brake piston from the transaxle case.

TEXT IN ILLUSTRATION

*2	No. 3 Brake Piston

64. **REMOVE MANUAL DETENT SPRING SUB-ASSEMBLY**

a. Remove the bolt, cover and manual detent spring subassembly from the transaxle case.

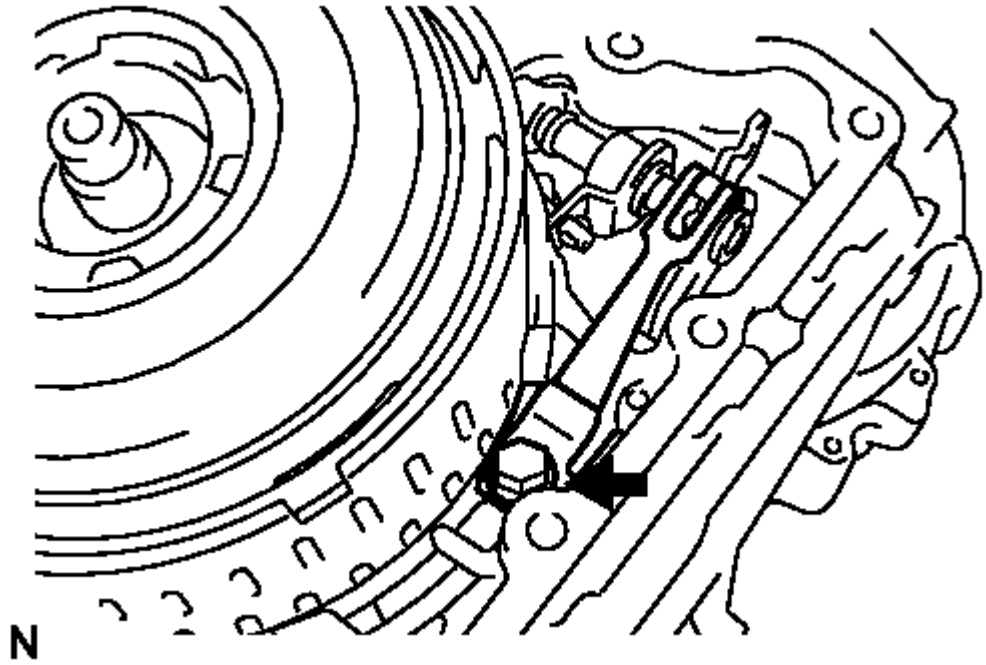
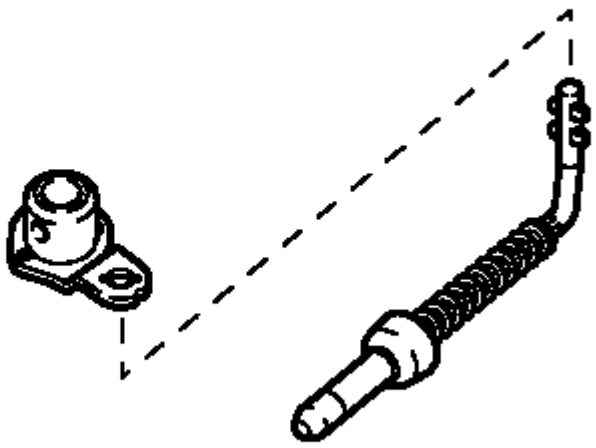


Fig. 279: Identifying Manual Detent Spring Sub-Assembly Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

65. **REMOVE PARKING LOCK ROD SUB-ASSEMBLY**

a. Remove the parking lock rod subassembly from the parking lock lever subassembly.



N

Fig. 280: Identifying Parking Lock Rod Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Align the slot with the notches on the parking lock lever subassembly to remove the parking lock rod subassembly.

66. **REMOVE MANUAL VALVE LEVER SHAFT**
    a. Using needle-nose pliers, remove the manual valve lever shaft retainer spring from the transaxle case.

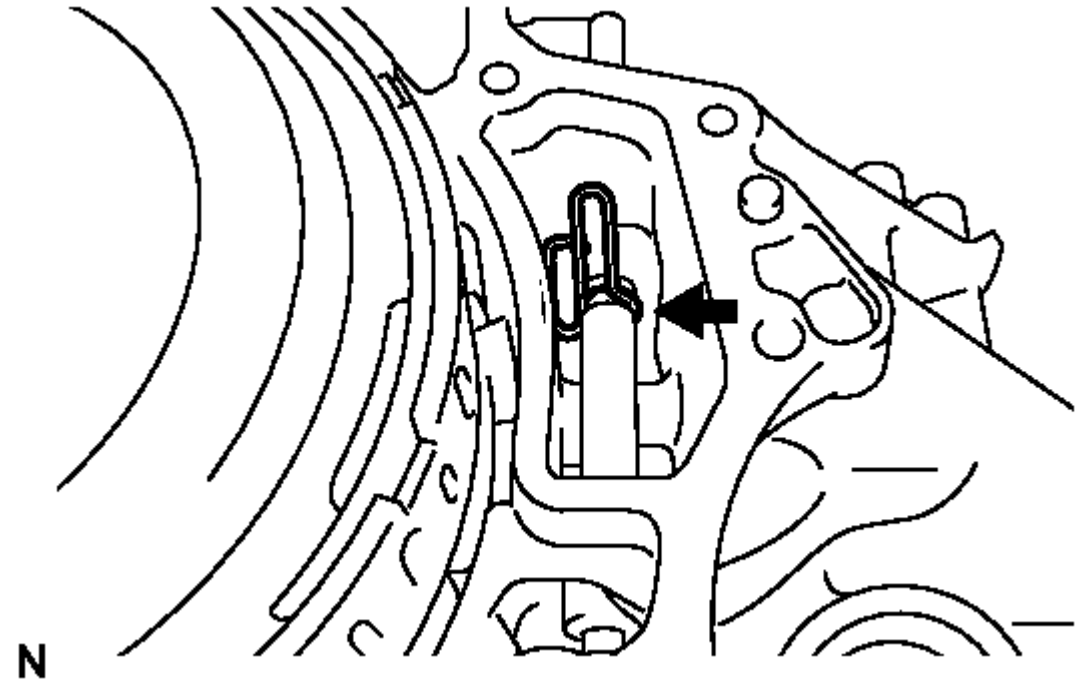


Fig. 281: Identifying Manual Valve Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a screwdriver, slide the spacer of the manual valve lever subassembly.

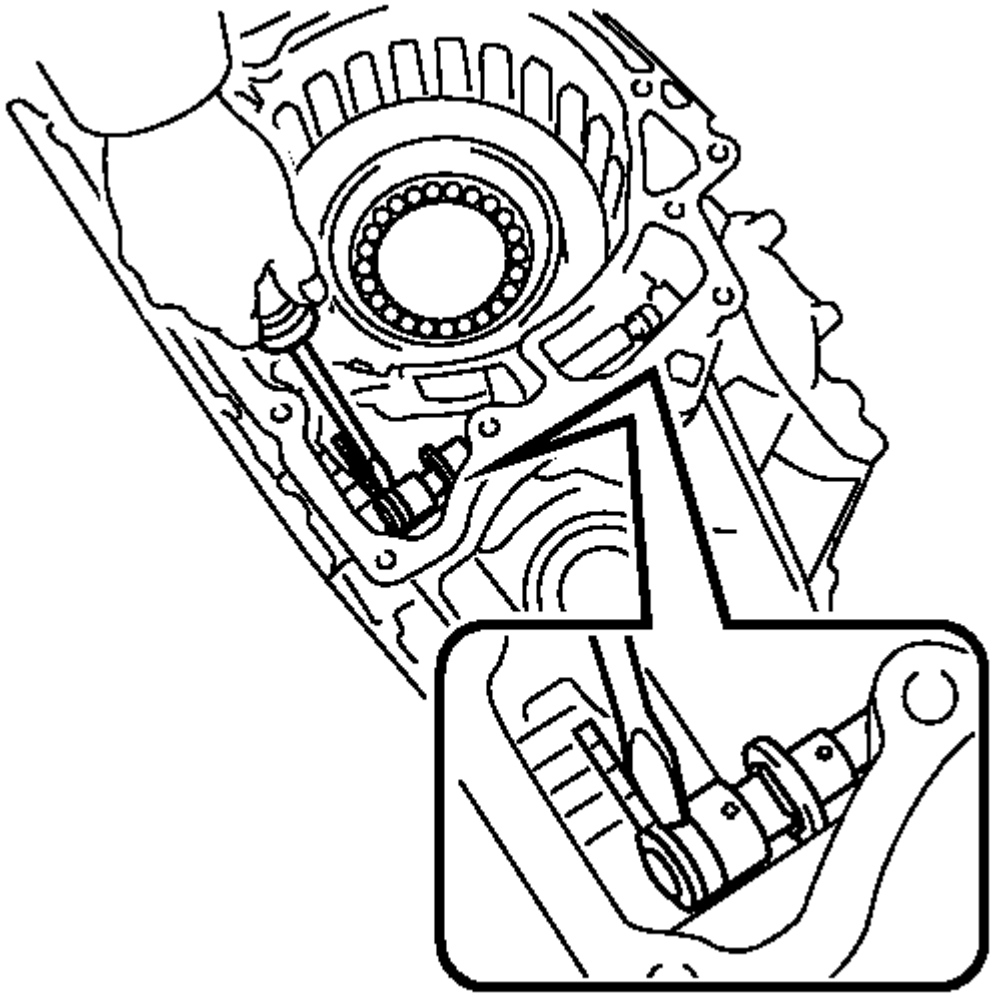
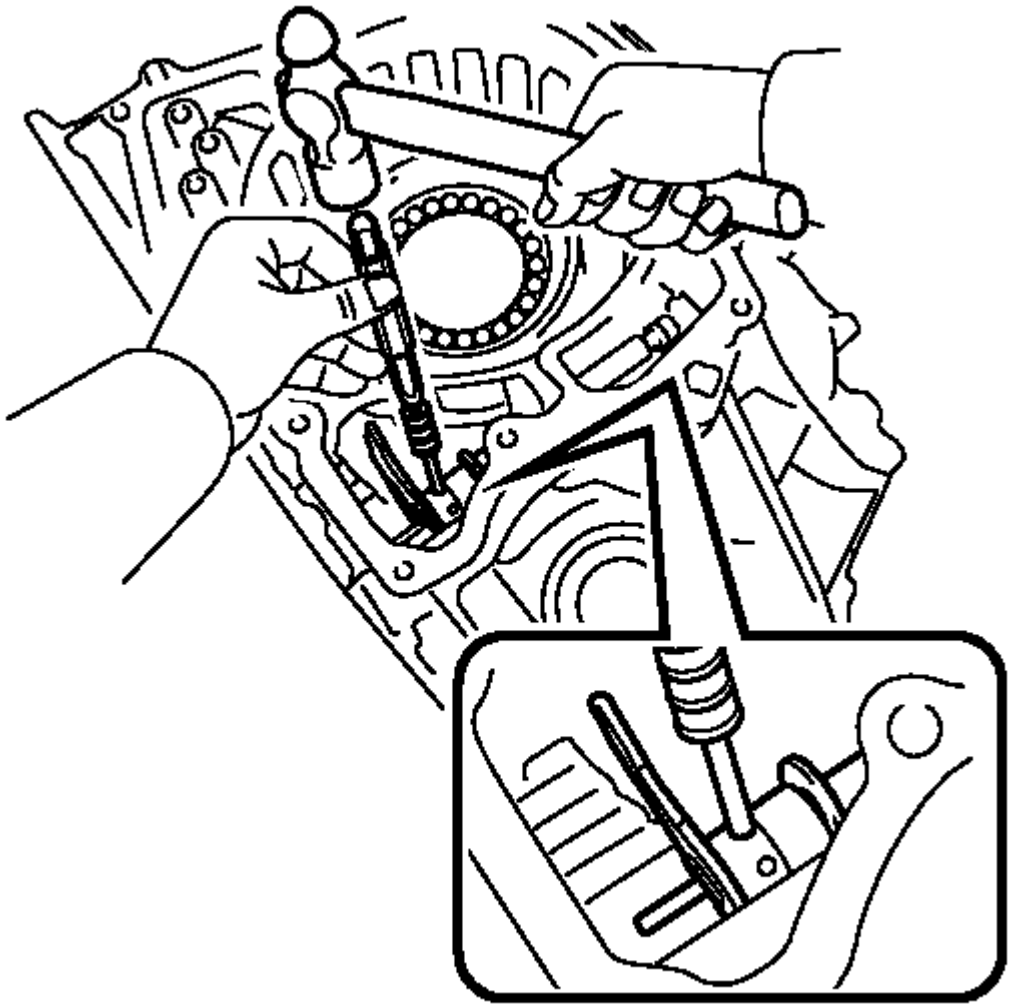


Fig. 282: Sliding Spacer Of Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a pin punch (3 mm) and hammer, drive out the slotted spring pin from the manual valve lever subassembly.



N

Fig. 283: Driving Out Slotted Spring Pin From Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

To prevent the pin from falling into the case, drive the pin until it has cleared the manual valve lever shaft.

d. Using a screwdriver, slide the spacer of the parking lock lever subassembly.

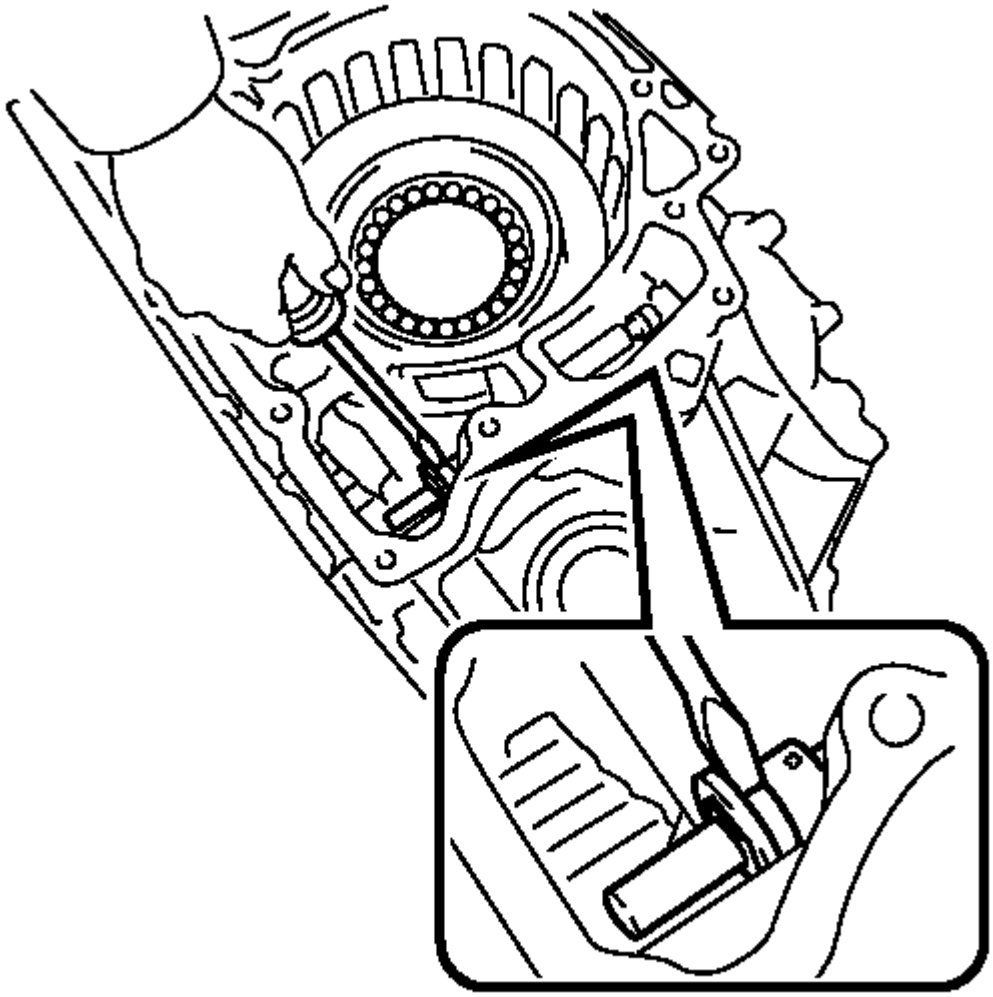


Fig. 284: Sliding Spacer Of Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Using a pin punch (3 mm) and hammer, drive out the slotted spring pin from the parking lock lever subassembly.

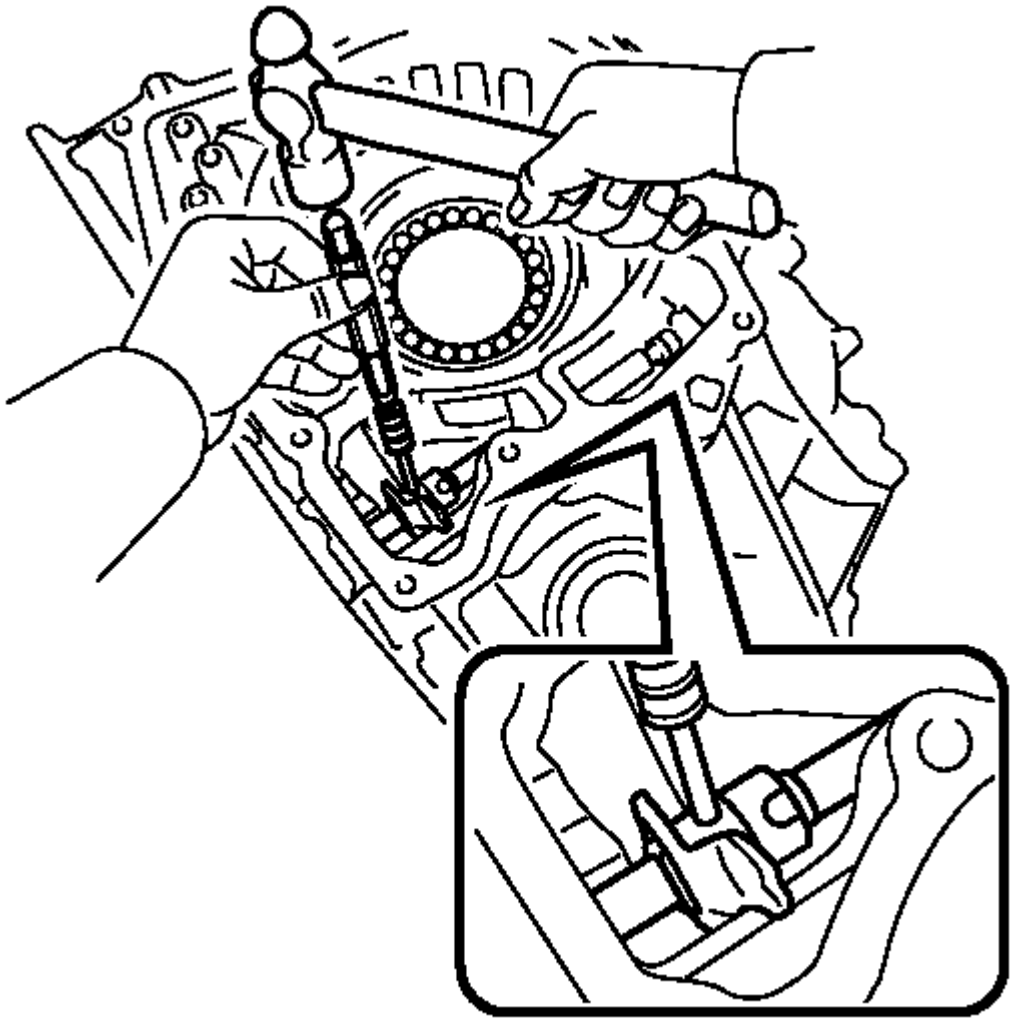
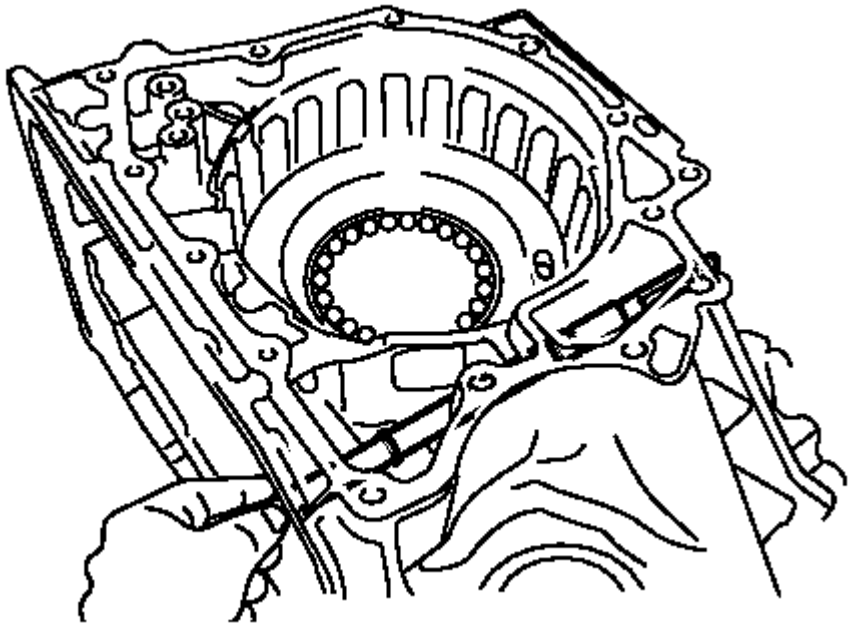


Fig. 285: Driving Out Slotted Spring Pin From Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

To prevent the pin from falling into the case, drive the pin until it has cleared the manual valve lever shaft.

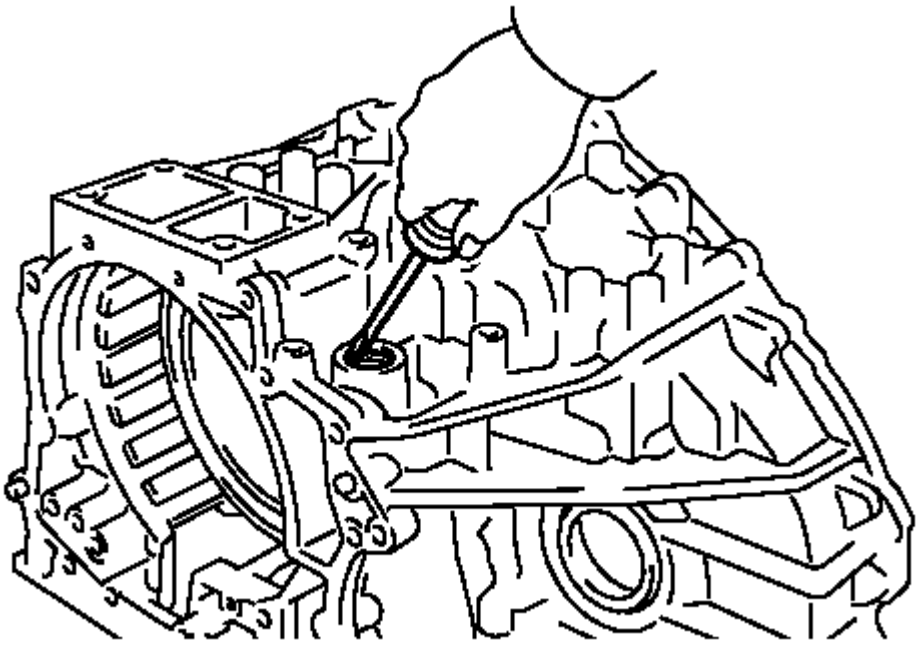
f. Remove the manual valve lever shaft, manual valve lever subassembly, parking lock lever subassembly and 2 spacers from the transaxle case.



N

Fig. 286: Identifying Manual Valve Lever Shaft, Manual Valve Lever Sub-Assembly And Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

67. **REMOVE MANUAL VALVE LEVER SHAFT OIL SEAL**
    a. Using a screwdriver, remove the manual valve lever shaft oil seal from the transaxle case.



N

Fig. 287: Removing Manual Valve Lever Shaft Oil Seal From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT TRANSMISSION OIL CLEANER MAGNET**
   a. Use the removed magnets to collect any steel chips. Examine the chips and particles in the pan and on the magnets to determine what type of wear has occurred in the transaxle:

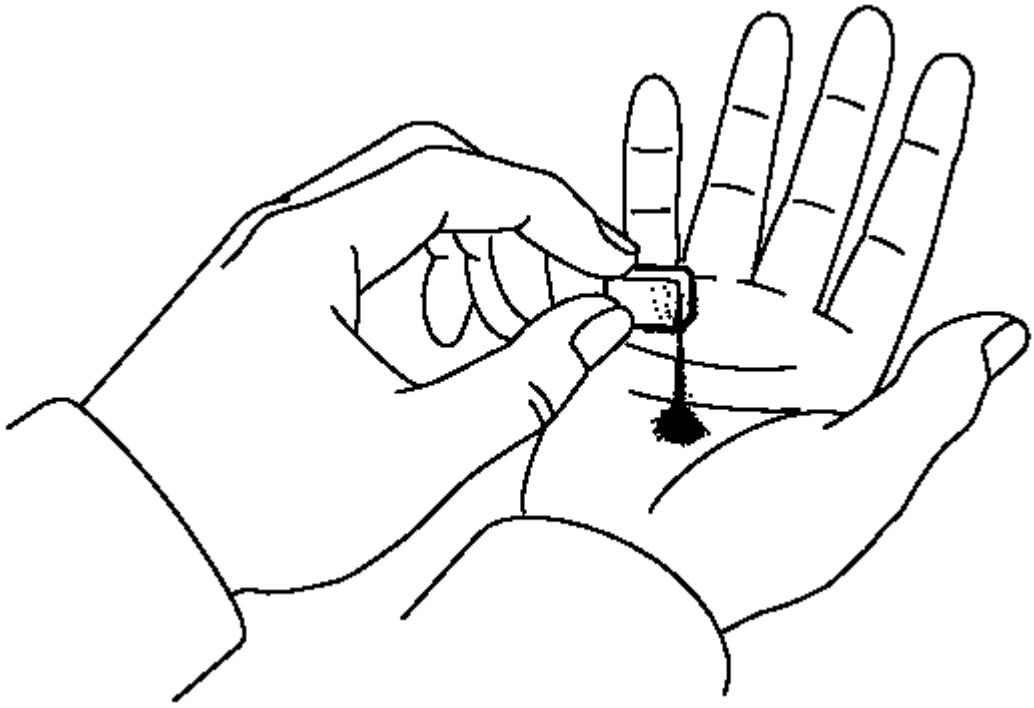


Fig. 288: Inspecting Transmission Oil Cleaner Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Result

Steel (magnetic)

Bearing, gear and plate wear

Brass (non-magnetic)

Bushing wear

2. **INSPECT INPUT SHAFT SUB-ASSEMBLY**
   a. Using a dial indicator, measure the input shaft end play.

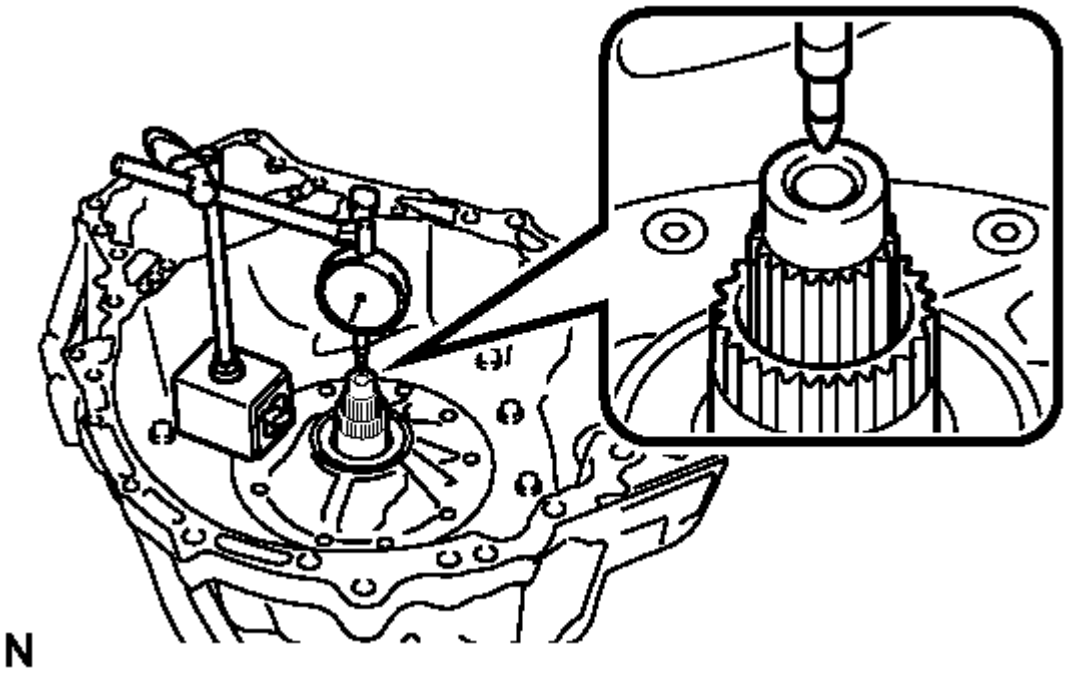
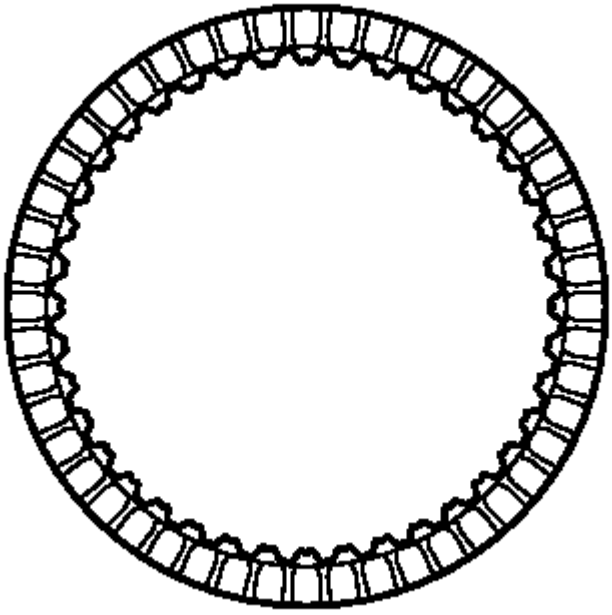


Fig. 289: Measuring Input Shaft End Play
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

End play

0.012 to 1.250 mm (0.000473 to 0.0492 in.)

3. **INSPECT NO. 2 CLUTCH DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

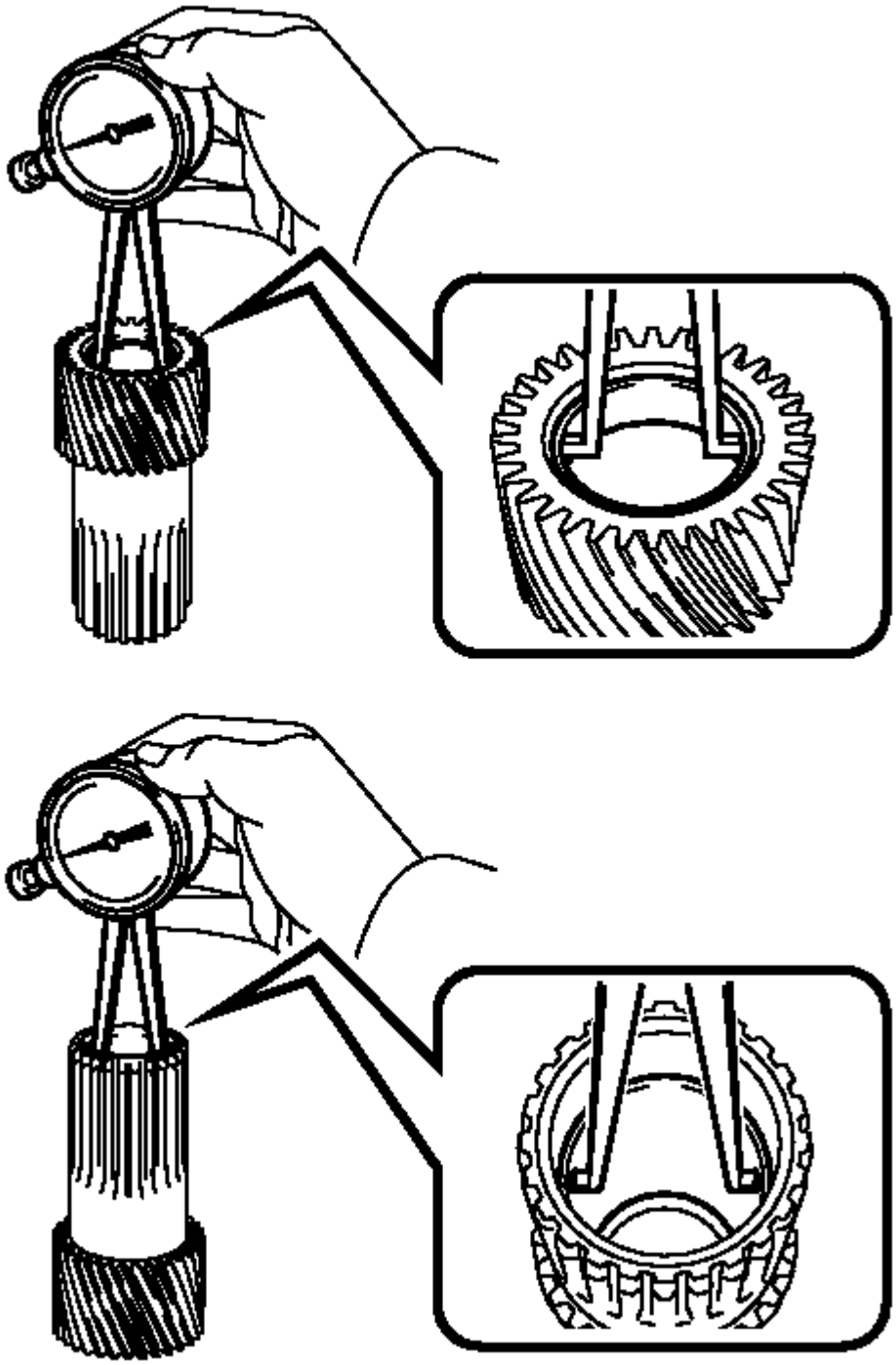
Fig. 290: Identifying No. 2 Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

4. **INSPECT PLANETARY SUN GEAR SUB-ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the bushings of the planetary sun gear.



N

Fig. 291: Measuring Inside Diameter Of Bushings Of Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

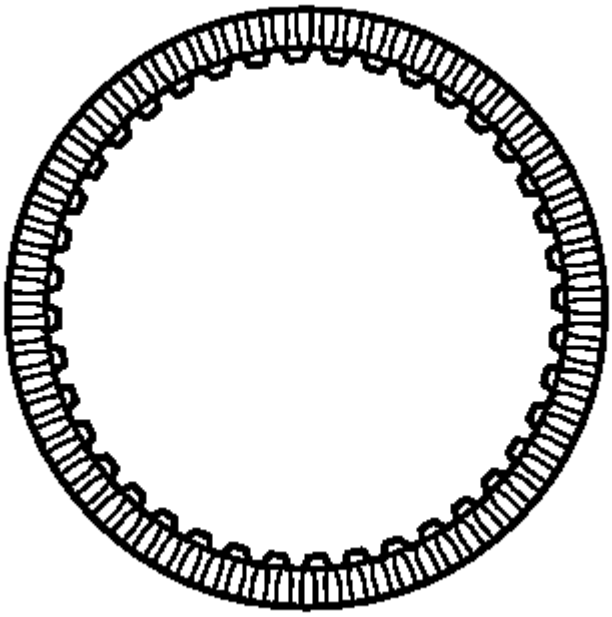
25.525 to 25.546 mm (1.0049 to 1.0057 in.)

Maximum inside diameter

25.546 mm (1.0057 in.)

If the inside diameter is greater than the maximum, replace the planetary sun gear.

5. **INSPECT NO. 1 CLUTCH DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

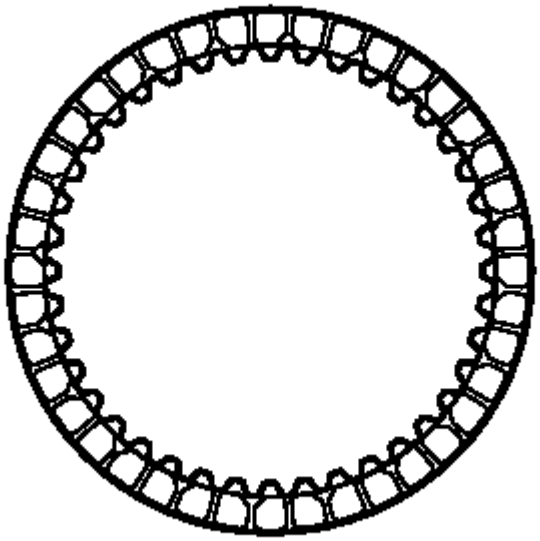
Fig. 292: Identifying No. 1 Clutch Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

6. **INSPECT NO. 3 BRAKE DISC**
   a. Check if the contact surfaces of the discs, plates and flanges are worn or burnt.



N

Fig. 293: Identifying No. 3 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

7. **INSPECT UNDERDRIVE PLANETARY GEAR ASSEMBLY**
   a. Using a feeler gauge, measure the clearance between the underdrive planetary gear and the pinion gear at 4 points.

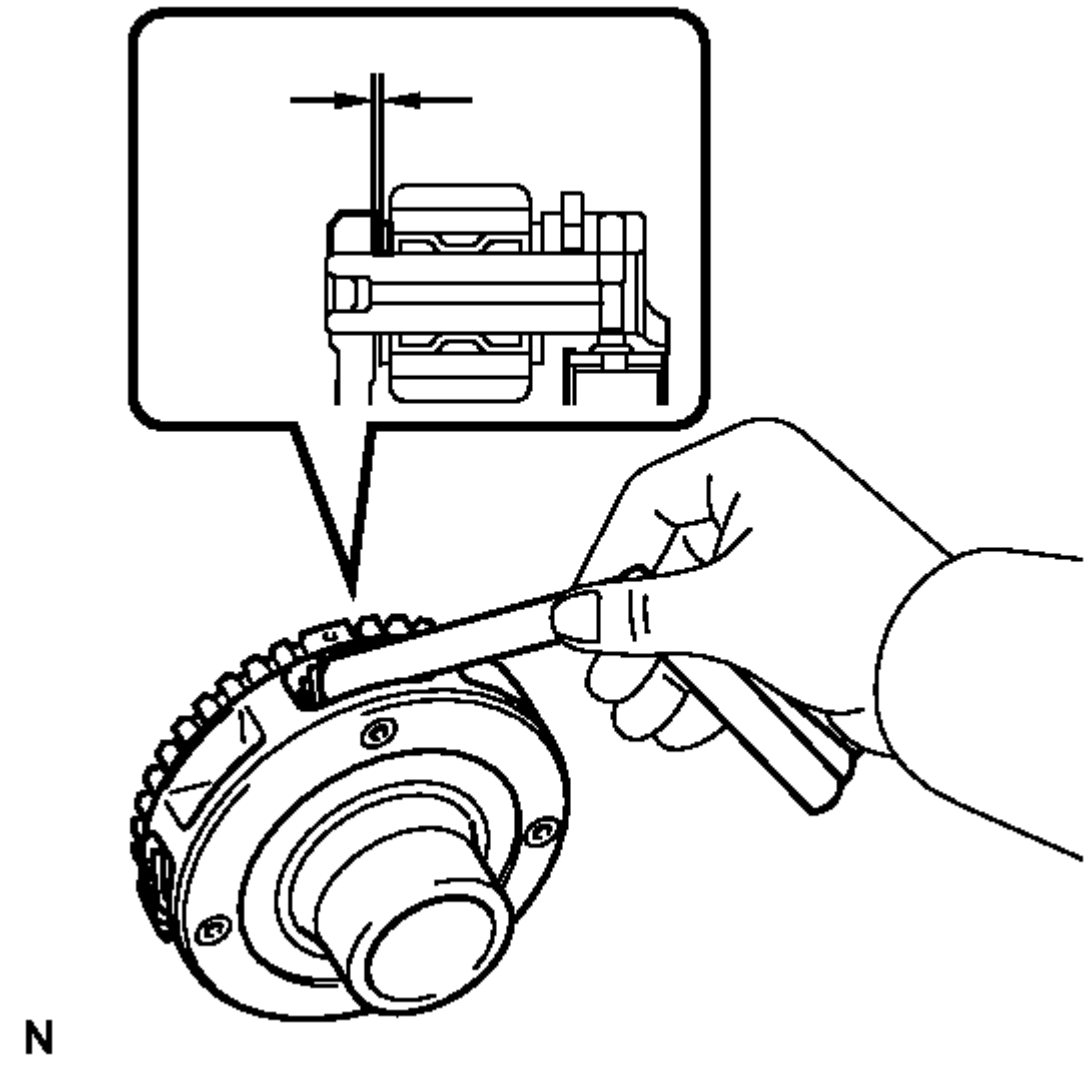


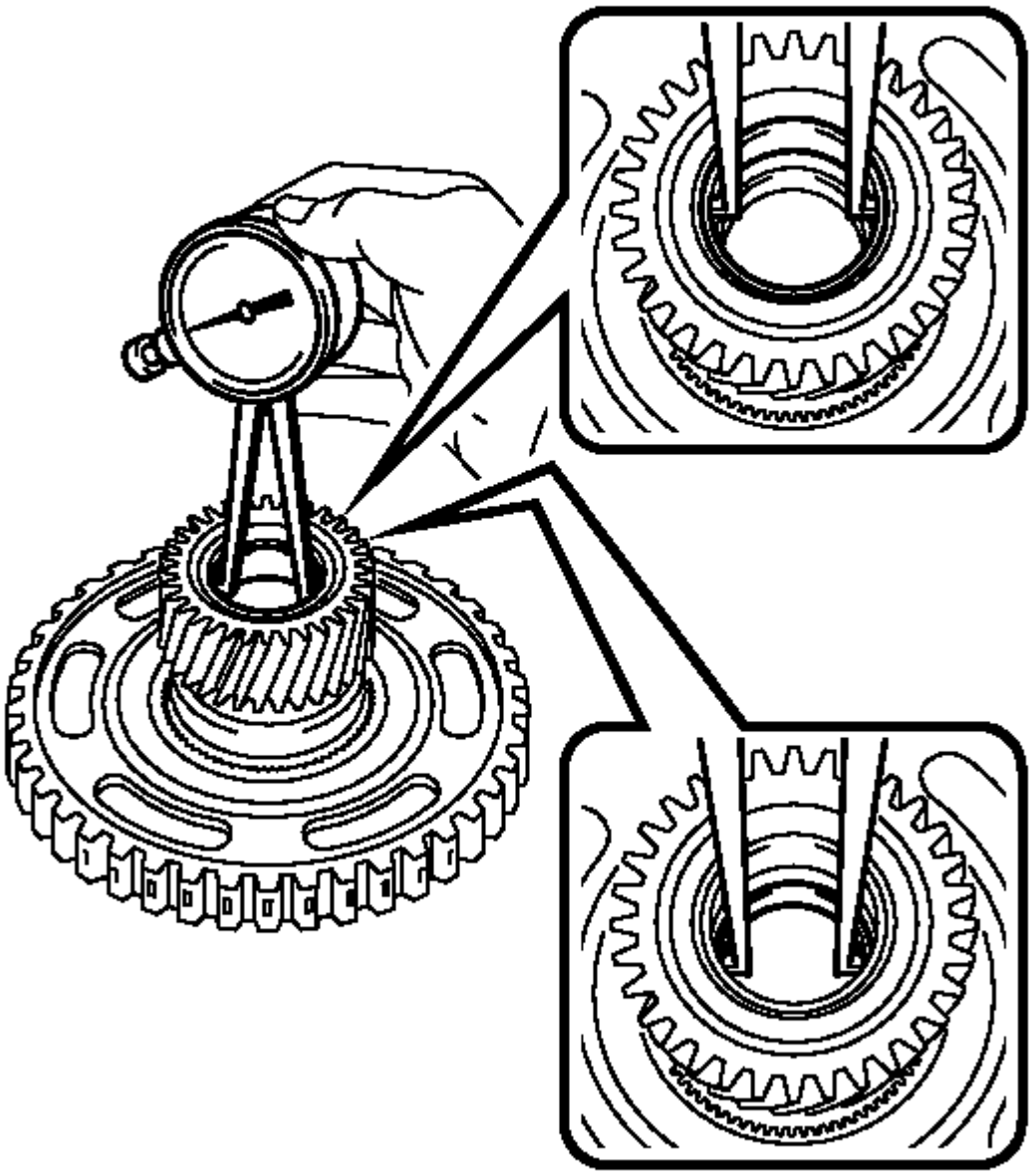
Fig. 294: Measuring Clearance Between Underdrive Planetary Gear And Pinion Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.18 to 0.54 mm (0.00709 to 0.0213 in.)

If the clearance is greater than the standard clearance, replace the underdrive planetary gear.

8. **INSPECT REAR PLANETARY SUN GEAR ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the bushing of the rear planetary sun gear subassembly.



N

Fig. 295: Measuring Inside Diameter Of Bushing Of Rear Planetary Sun Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

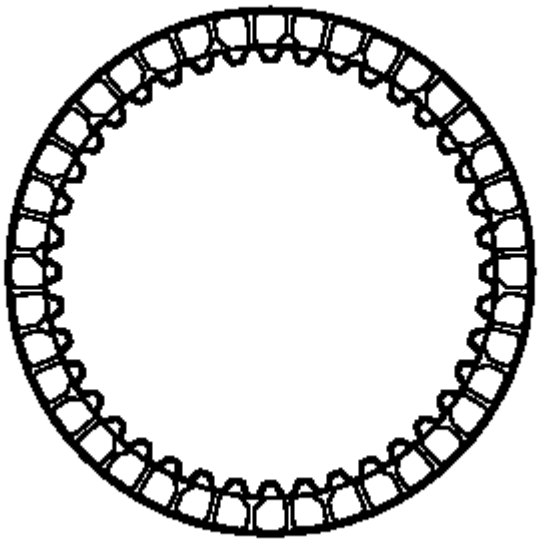
25.580 to 25.601 mm (1.0071 to 1.0079 in.)

Maximum inside diameter

25.601 mm (1.0079 in.)

If the inside diameter is greater than the maximum, replace the rear planetary sun gear assembly.

9. **INSPECT NO. 1 BRAKE DISC**
   a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

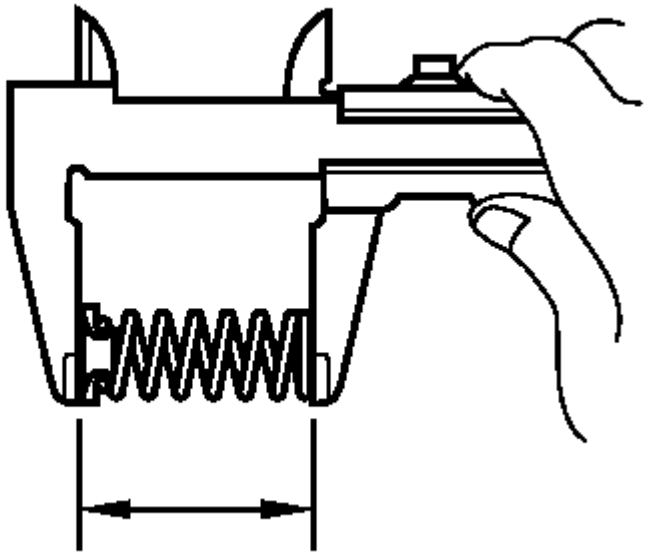
Fig. 296: Identifying No. 3 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

10. **INSPECT 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Using a vernier caliper, measure the free length of the 3 2nd brake piston return springs including the spring seats.



N

Fig. 297: Measuring Free Length Of 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard free length

23.85 mm (0.939 in.)

If the free length is shorter than the standard free length, replace the 2nd brake piston return spring.

11. **INSPECT ONE-WAY CLUTCH ASSEMBLY**
    a. Temporarily install the one-way clutch assembly to the planetary ring gear.

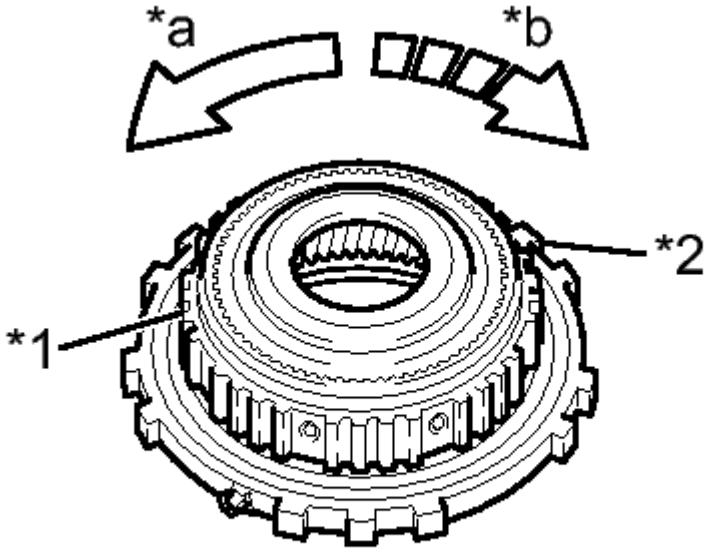


Fig. 298: Inspecting One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Planetary Ring Gear
*2	One-way Clutch Assembly
*a	Free
*b	Lock

b. Make sure that the one-way clutch assembly turns freely counterclockwise and locks when turned clockwise.

If the one-way clutch assembly does not operate normally, replace it.

12. **INSPECT PLANETARY GEAR ASSEMBLY**

a. Using a feeler gauge, measure the clearance between the planetary gear case and each pinion gear at points A and B.

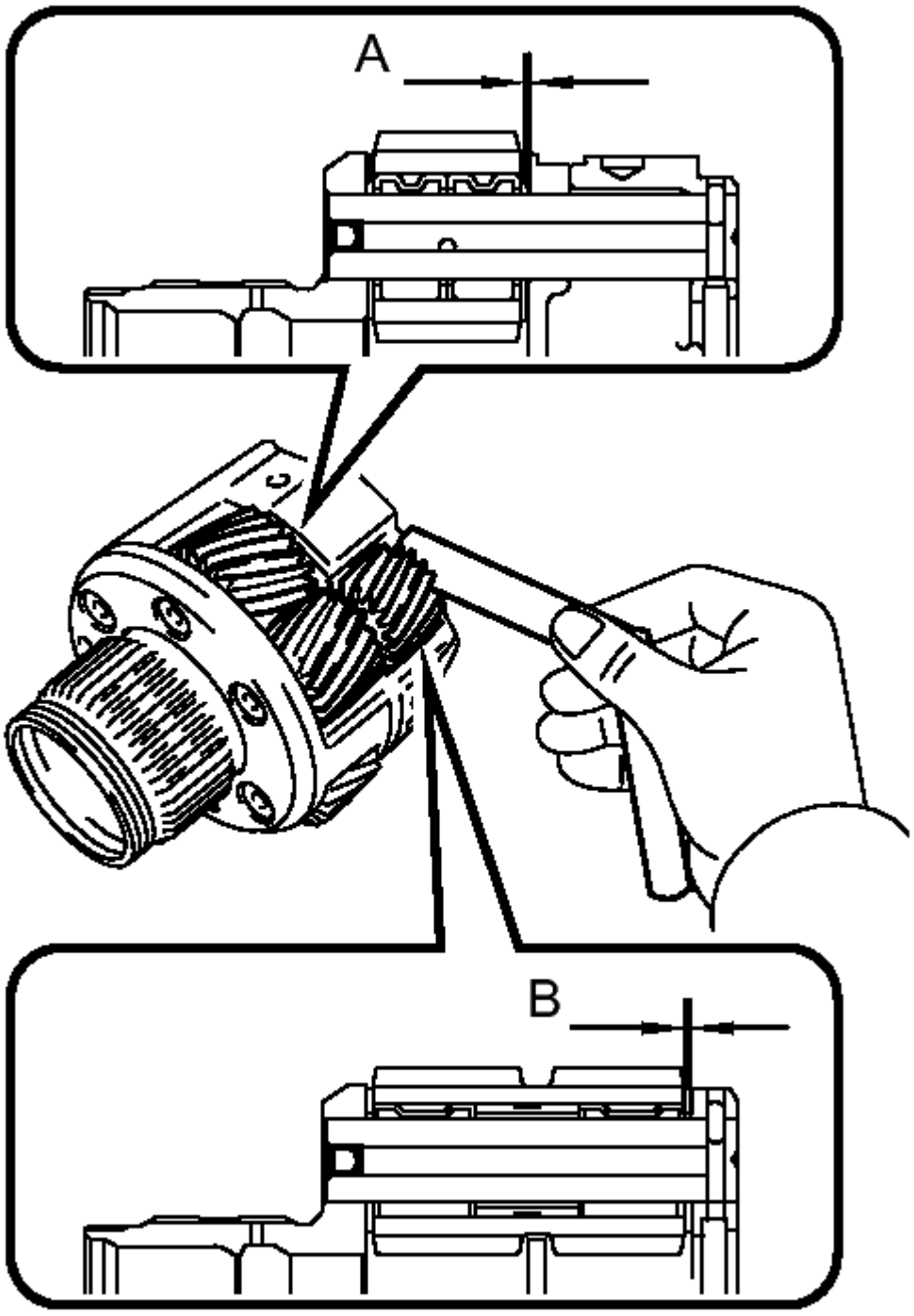


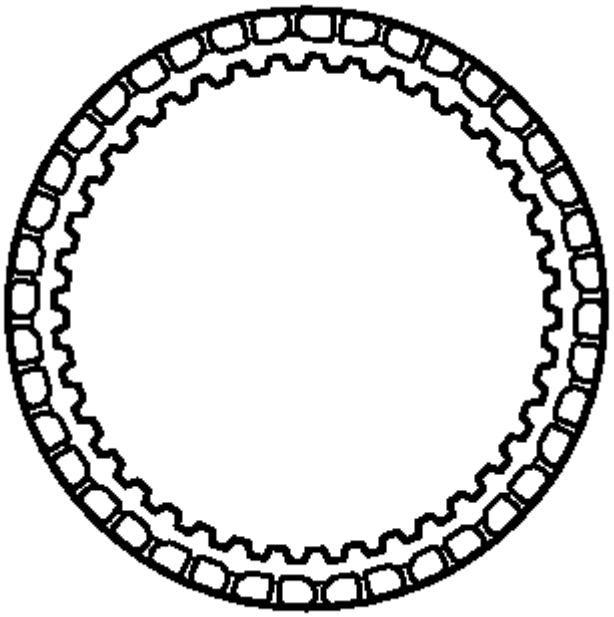
Fig. 299: Measuring Clearance Between Planetary Gear Case And Pinion Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Clearance

Point	Standard Clearance mm (in.)
A	0.23 to 0.59 (0.00906 to 0.0232)
B	0.16 to 0.66 (0.00630 to 0.0259)

If the clearance is greater than the standard clearance, replace the planetary gear assembly.

13. **INSPECT NO. 2 BRAKE DISC**
    a. Check if the contact surfaces of the discs, plates and flange are worn or burnt.



N

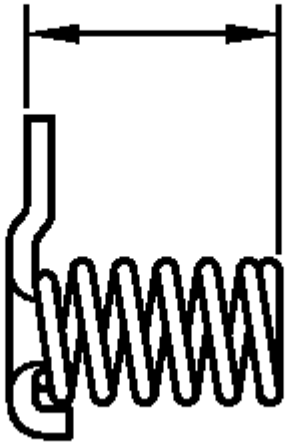
Fig. 300: Identifying No. 2 Brake Disc
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **If the lining of any disc is peeled off or discolored, or even if part of the groove is damaged, replace all discs.**
- **Before assembling new discs, soak them in ATF for at least 15 minutes.**

If necessary, replace them.

14. **INSPECT 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**



N

Fig. 301: Identifying Free Length Of 1st And Reverse Brake Return Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Using a vernier caliper, measure the free length of the 1st and reverse brake return spring together with the spring seat.

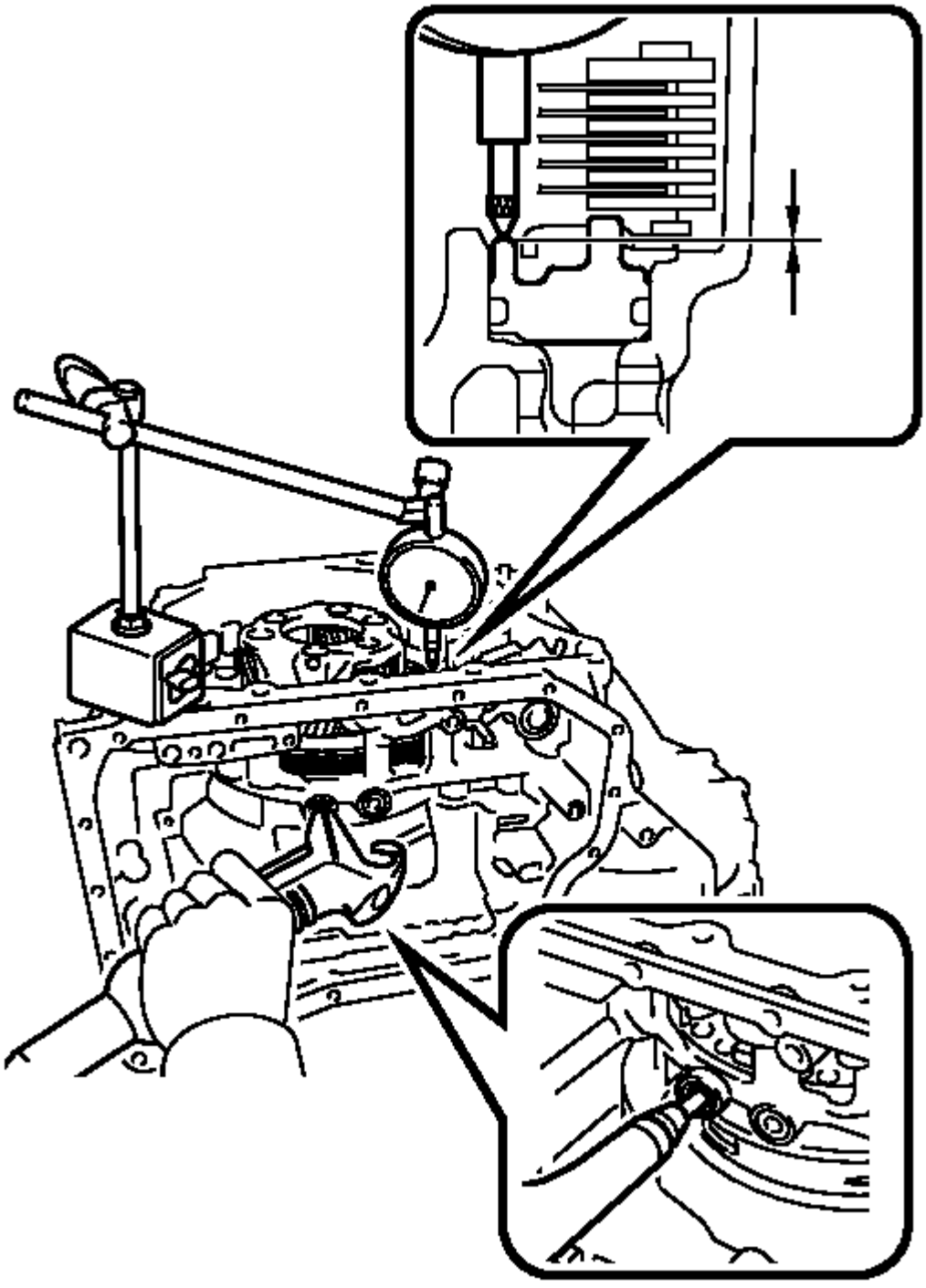
   Standard free length

   15.79 mm (0.621 in.)

   If the free length is shorter than the standard free length, replace the 1st and reverse brake return spring.

15. **INSPECT CLEARANCE OF NO. 2 BRAKE**

a. Using a dial indicator, measure the clearance of the No. 2 brake while applying compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).



N

Fig. 302: Measuring Clearance Of No. 2 Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.884 to 1.196 mm (0.0348 to 0.0471 in.)

HINT:

Measure the clearance at 3 points where the brake piston diameter is approximately 140 mm (5.51 in.) and calculate the average.

If the clearance is not as specified, select an appropriate No. 2 brake flange so that the clearance will be within the specified range.

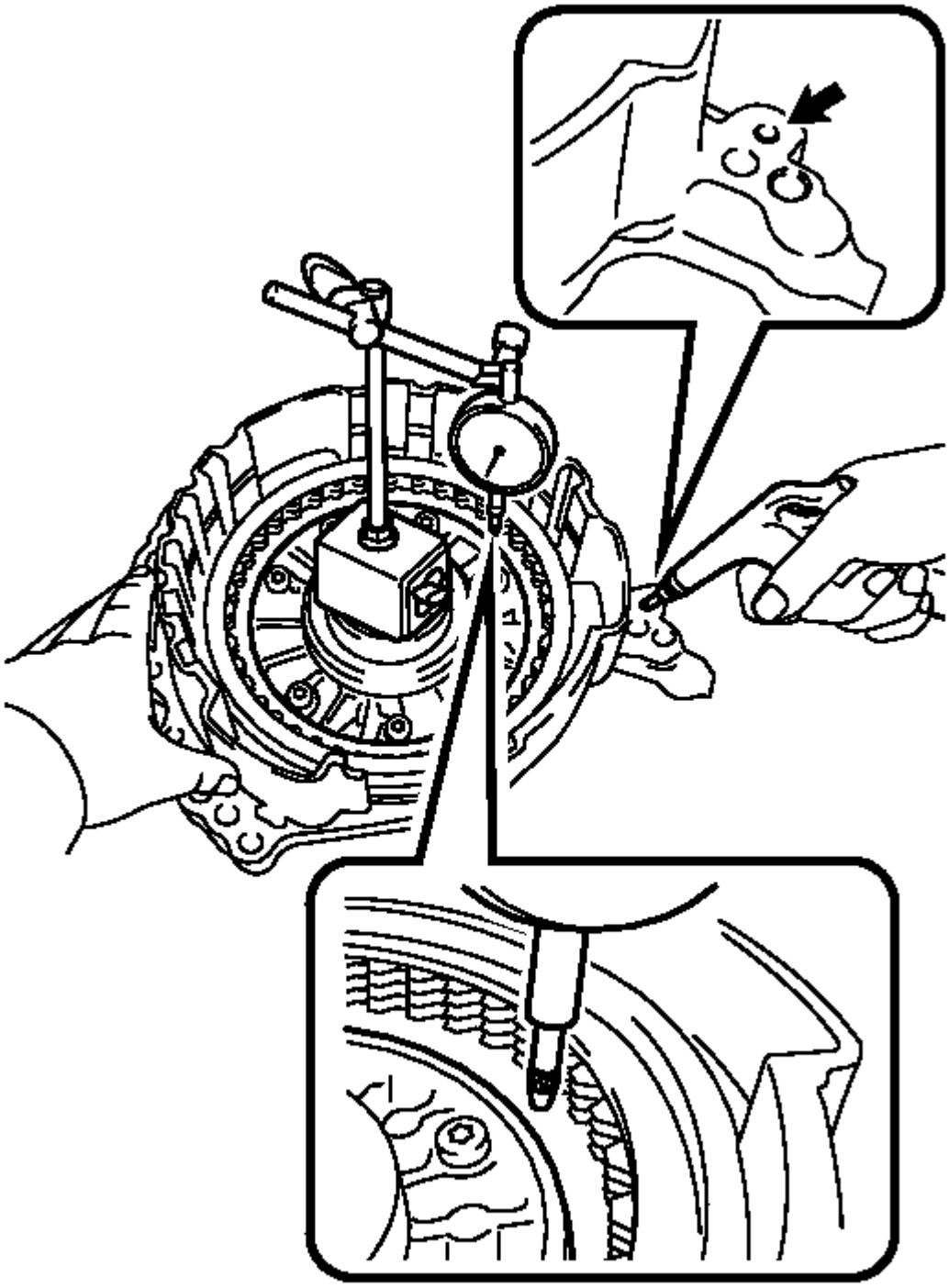
HINT:

There are 5 flanges of different thicknesses.

NO. 2 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35678-73010	4.0 (0.157)	40
35678-73020	4.1 (0.161)	41
35678-73030	4.2 (0.165)	42
35678-73040	4.3 (0.169)	43
35678-73050	4.4 (0.173)	44

16. **INSPECT CLEARANCE OF NO. 1 BRAKE**
    a. Using a dial indicator, measure the clearance of the No. 1 brake while applying compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).



N

Fig. 303: Measuring Clearance Of No. 1 Brake
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard clearance

0.807 to 0.974 mm (0.0318 to 0.0383 in.)

HINT:

Measure the clearance at 3 points where the brake piston diameter is approximately 140 mm (5.51 in.) and calculate the average.

If the clearance is not as specified, select an appropriate No. 1 brake flange so that the clearance will be within the specified range.

HINT:

There are 6 flanges of different thicknesses.

NO. 1 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35676-33020	3.0 (0.118)	30
35676-33030	3.1 (0.122)	31
35676-33040	3.2 (0.126)	32
35676-33050	3.3 (0.130)	33
35676-33060	3.4 (0.134)	34
35676-33070	3.5 (0.138)	35

17. **INSPECT CLEARANCE OF NO. 3 BRAKE**

    a. Using a vernier caliper and a straightedge, measure the distance shown in the illustration (Dimension A) while a load of 500 N (51 kgf, 112.4 lbf) is being applied to the flange.

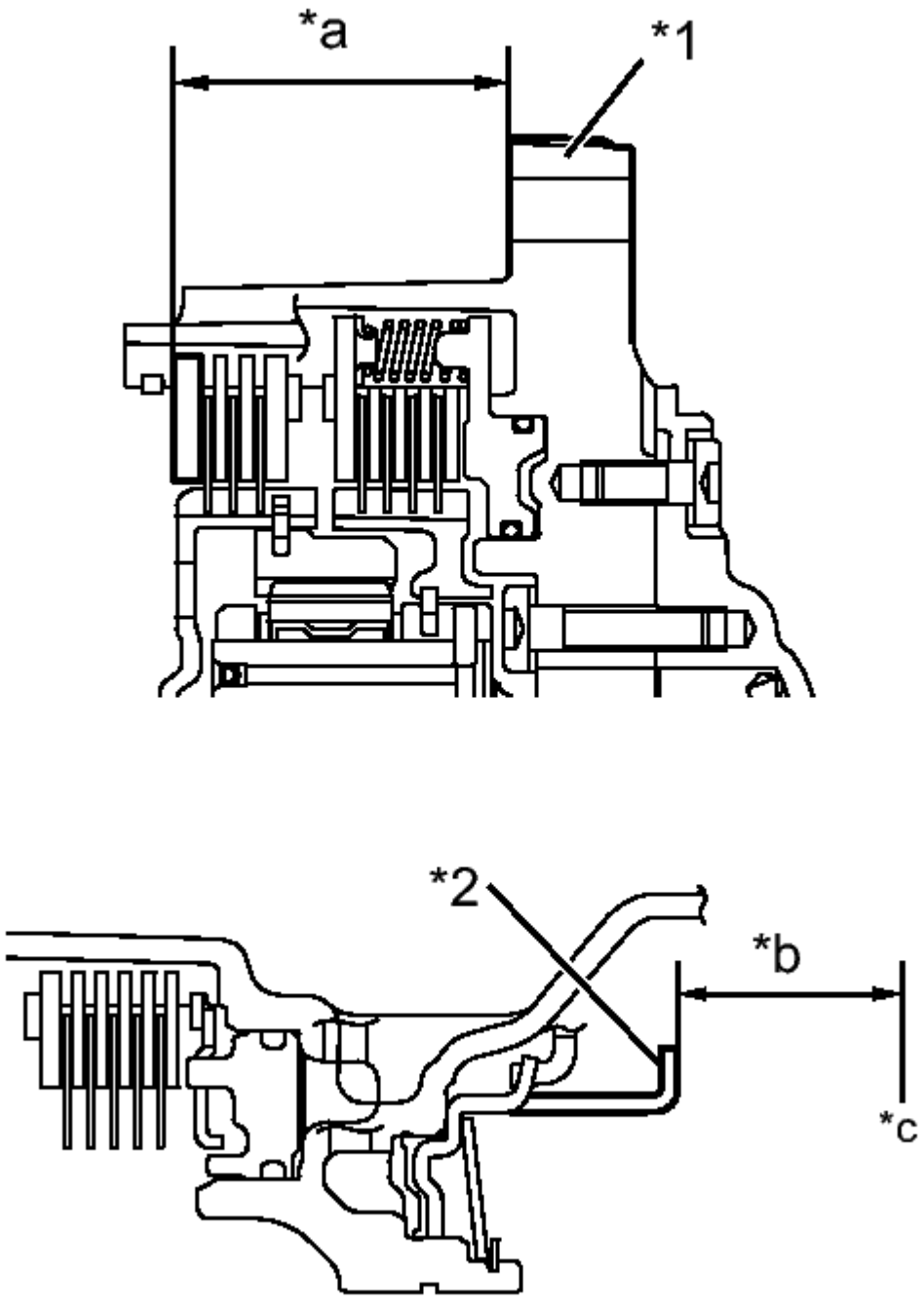


Fig. 304: Inspecting No. 3 Brake Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Front Oil

*1	Pump Assembly
*2	No. 3 Brake
*a	Dimension A
*b	Dimension B
*c	Contact Surface of Front Oil Pump Assembly

HINT:

Measure dimension A at 3 points where the flange diameter is approximately 166 mm (6.54 in.) and calculate the average.

b. Using a vernier caliper and a straightedge, measure the distance shown in the illustration (Dimension B).

HINT:

Measure dimension B at 3 points where the No. 3 brake diameter is approximately 166 mm (6.54 in.) and calculate the average.

c. Calculate the clearance value using the following formula:

Clearance = Dimension B - Dimension A

Standard clearance

0.599 to 0.761 mm (0.0236 to 0.0300 in.)

If the clearance is not as specified, select an appropriate brake flange so that the clearance will be within the specified range.

HINT:

There are 6 flanges of different thicknesses.

NO. 3 BRAKE FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35679-	3.80	38

73020	(0.150)	
35679-73030	3.90 (0.154)	39
35679-73040	4.00 (0.157)	40
35679-73050	4.10 (0.161)	41
35679-73060	4.20 (0.165)	42
35679-73070	4.30 (0.169)	43

18. **INSPECT CLEARANCE OF NO. 1 CLUTCH DISC**

    a. Install the direct multiple disc clutch assembly onto the rear transaxle cover subassembly.

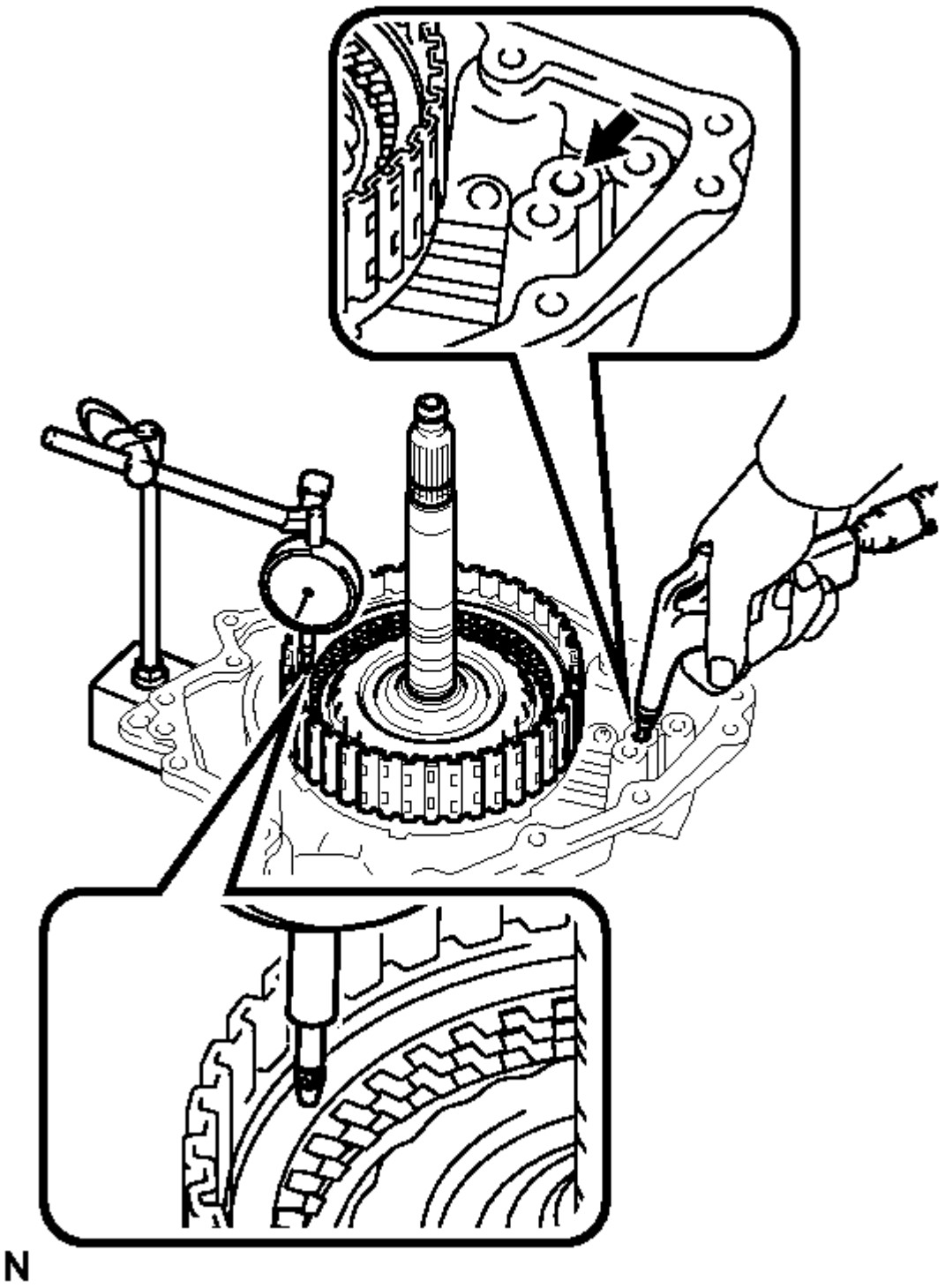


Fig. 305: Measuring No. 1 Clutch Pack Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a dial indicator, measure the No. 1 clutch pack clearance while applying and releasing compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).

HINT:

Measure the clearance at 3 points where the flange diameter is approximately 152 mm (5.98 in.) and calculate the average.

Pack clearance

0.806 to 0.974 mm (0.0317 to 0.0383 in.)

If the pack clearance is not as specified, select an appropriate No. 1 clutch flange so that the pack clearance will be within the specified range.

HINT:

There are 6 flanges of different thicknesses.

NO. 1 CLUTCH FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35635-73010	3.0 (0.118)	30
35635-73020	3.1 (0.122)	31
35635-73030	3.2 (0.126)	32
35635-73040	3.3 (0.130)	33
35635-73050	3.4 (0.134)	34
35635-73060	3.5 (0.138)	35

19. **INSPECT CLEARANCE OF NO. 2 CLUTCH DISC**
    a. Install the direct multiple disc clutch assembly onto the rear transaxle cover subassembly.

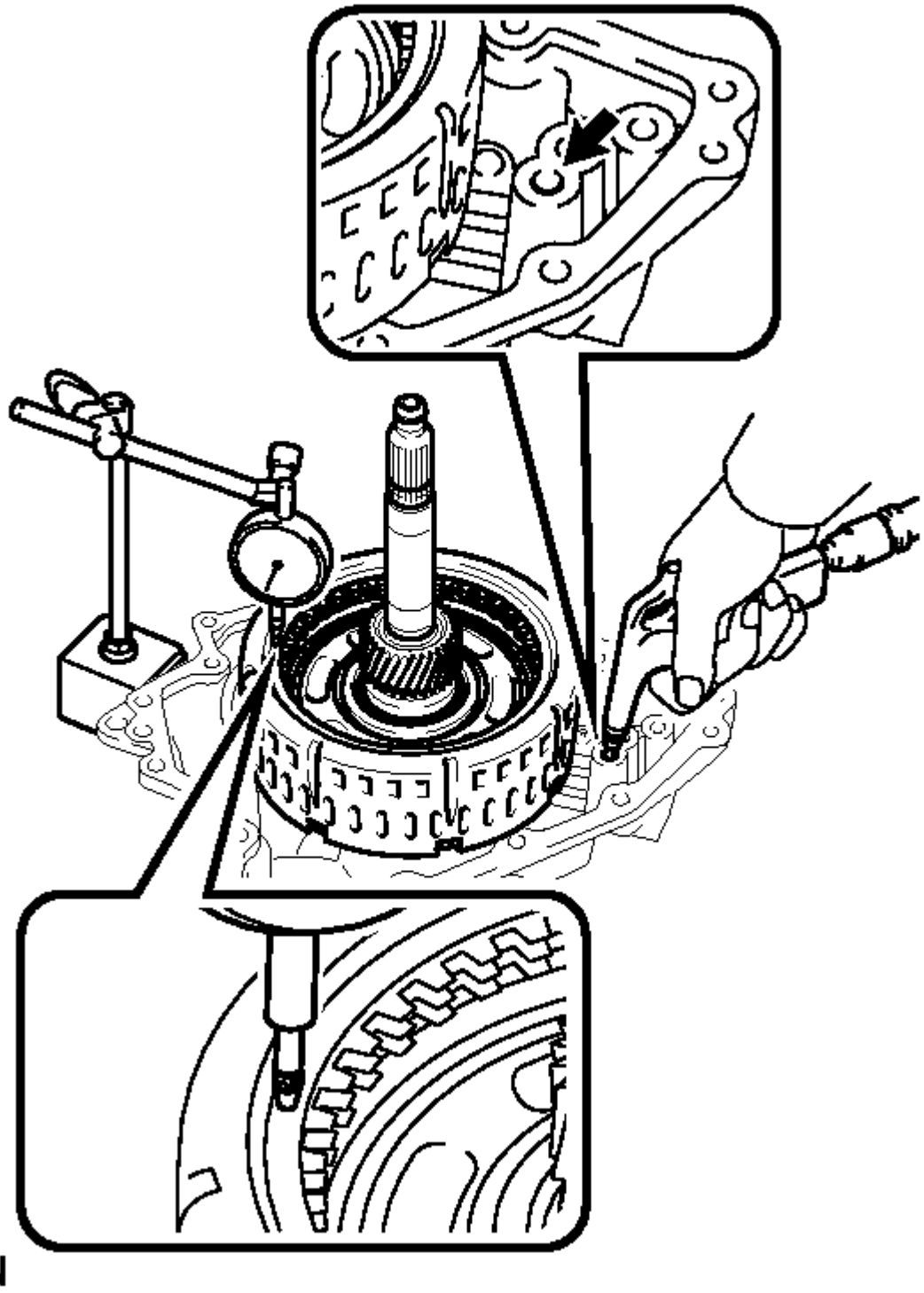


Fig. 306: Measuring No. 2 Clutch Pack Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a dial indicator, measure the No. 2 clutch pack clearance while applying and releasing compressed air (200 kPa, 2.0 kgf/cm^2 , 29 psi).

HINT:

Measure the clearance at 3 points where the diameter of the No. 2 direct multiple clutch piston is approximately 152 mm (5.98 in.) and calculate the average.

Pack clearance

0.544 to 0.744 mm (0.0214 to 0.0293 in.)

If the pack clearance is not as specified, select an appropriate No. 2 clutch flange so that the pack clearance will be within the specified range.

HINT:

There are 6 flanges of different thicknesses.

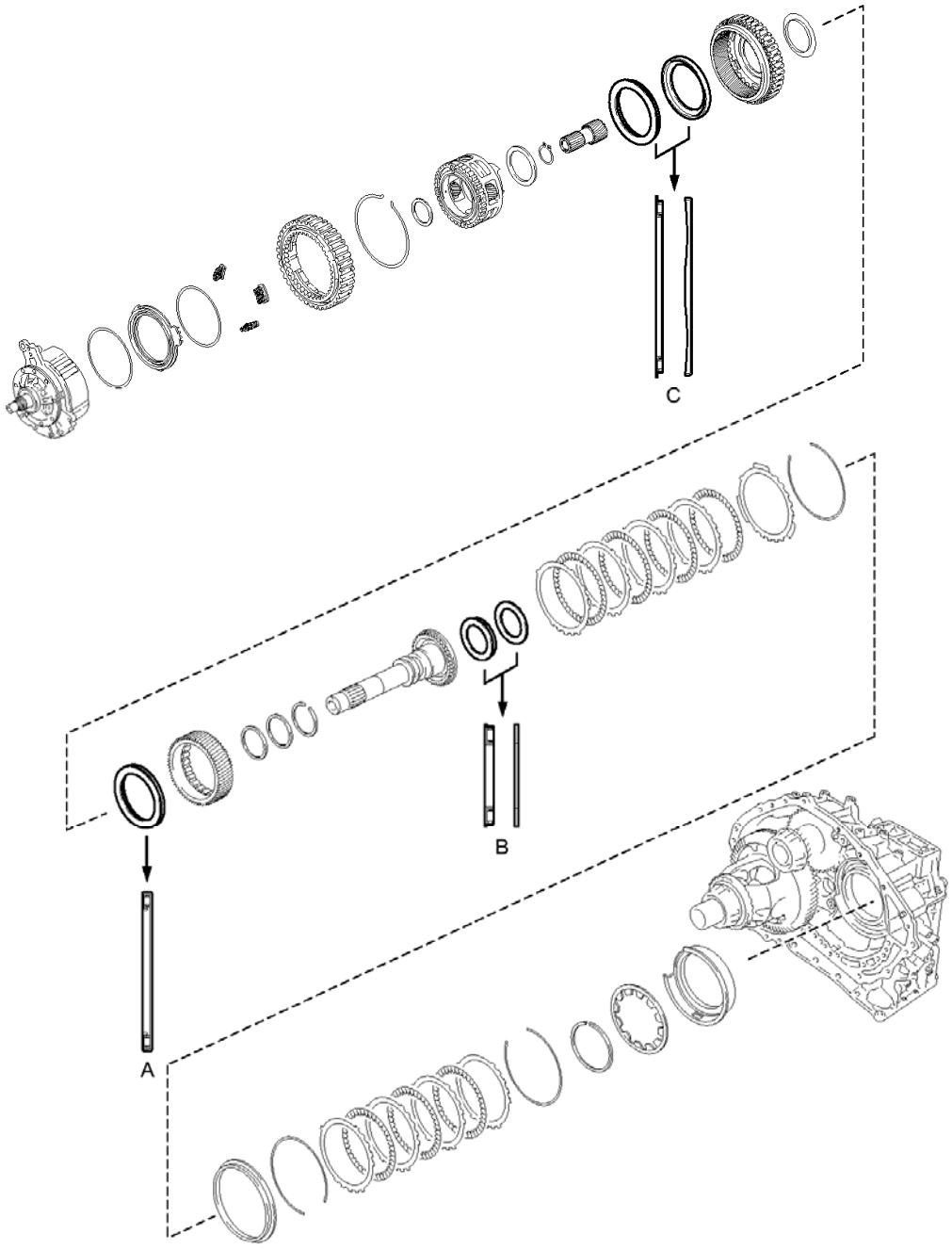
NO. 2 CLUTCH FLANGE THICKNESS

Part No.	Thickness mm (in.)	Mark
35635-73010	3.0 (0.118)	30
35635-73020	3.1 (0.122)	31
35635-73030	3.2 (0.126)	32
35635-73040	3.3 (0.130)	33
35635-73050	3.4 (0.134)	34
35635-73060	3.5 (0.138)	35

REASSEMBLY

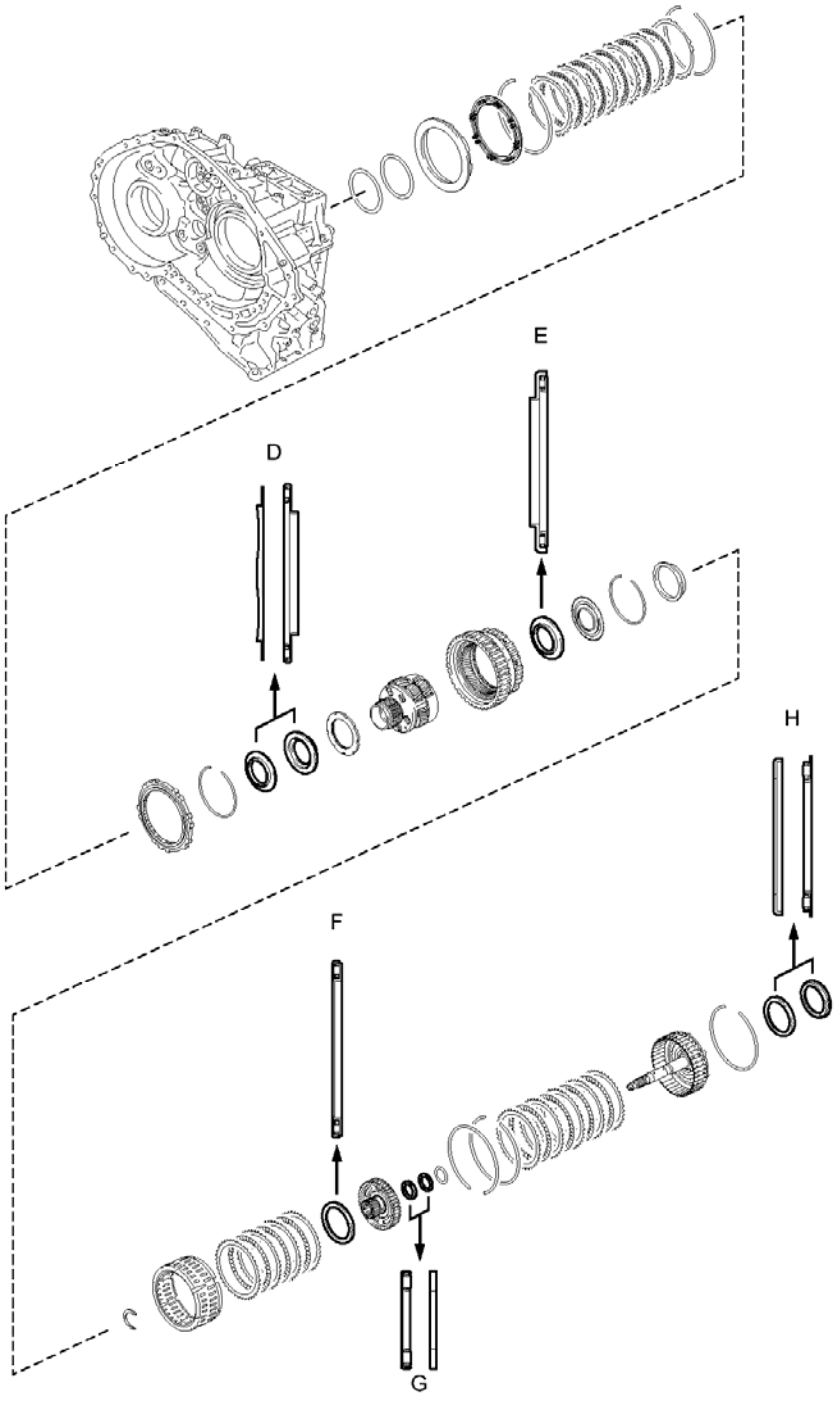
REASSEMBLY

1. **BEARING POSITION**
    a. Check bearing position and installation direction.



c

Fig. 307: Exploded View Of Bearing Position (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.



N

Fig. 308: Exploded View Of Bearing Position (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

	Front	Thrust	Rear

Mark	Race Diameter Inside / Outside mm (in.)	Bearing Diameter Inside / Outside mm (in.)	Race Diameter Inside / Outside mm (in.)
A	-	57.7 (2.27) / 75.2 (2.96)	-
B	-	29.1 (1.15) / 48.6 (1.91)	30.7 (1.21) / 48.3 (1.90)
C	65.9 (2.59) / 80.3 (3.16)	62.6 (2.47) / 82.4 (3.24)	-
D	59.4 (2.34) / 77 (3.03)	53.1 (2.09) / 79 (3.11)	-
E	-	56.1 (2.21) / 80.9 (3.19)	-
F	-	61.2 (2.41) / 79 (3.11)	-
G	-	28 (1.10) / 47.1 (1.85)	26.1 (1.03) / 44 (1.73)
H	52.2 (2.06) / 70.4 (2.77)	48.9 (1.93) / 72.0 (2.84)	-

2. **INSTALL MANUAL VALVE LEVER SHAFT OIL SEAL**
    a. Coat the lip of a new manual valve lever shaft oil seal with MP grease.

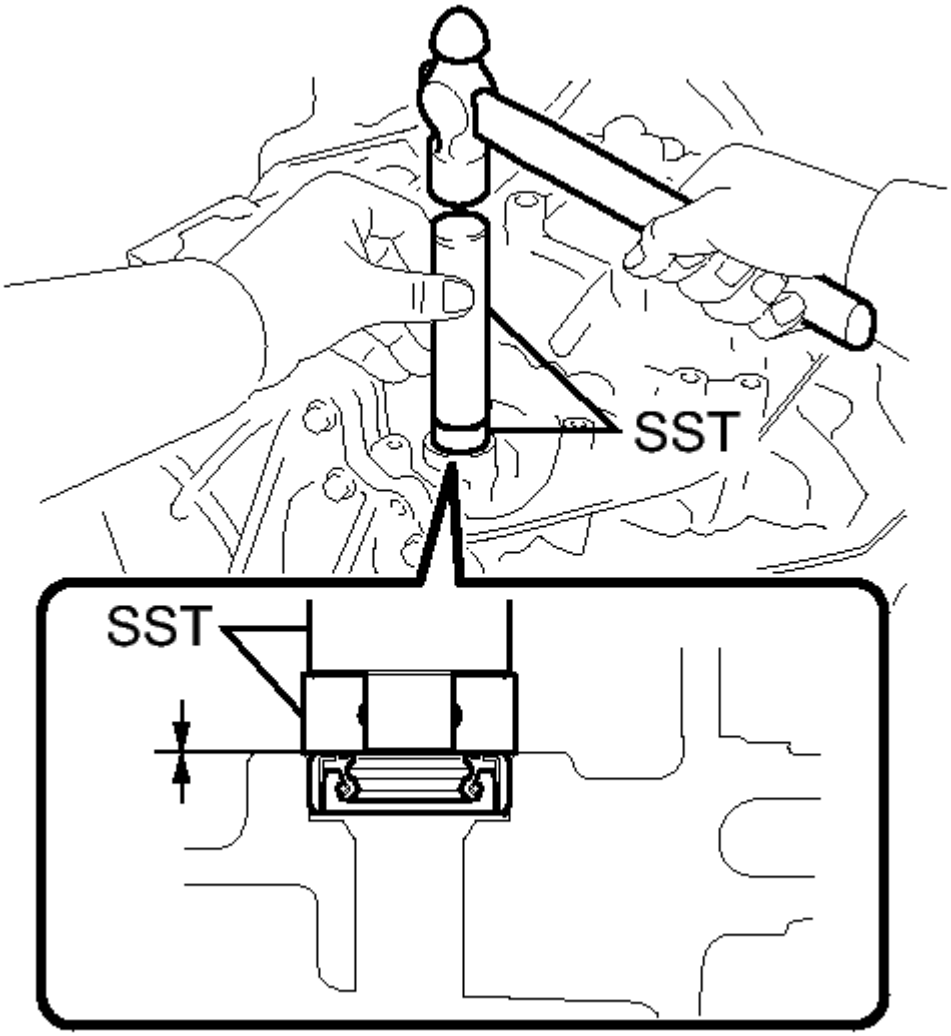


Fig. 309: Installing Manual Valve Lever Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

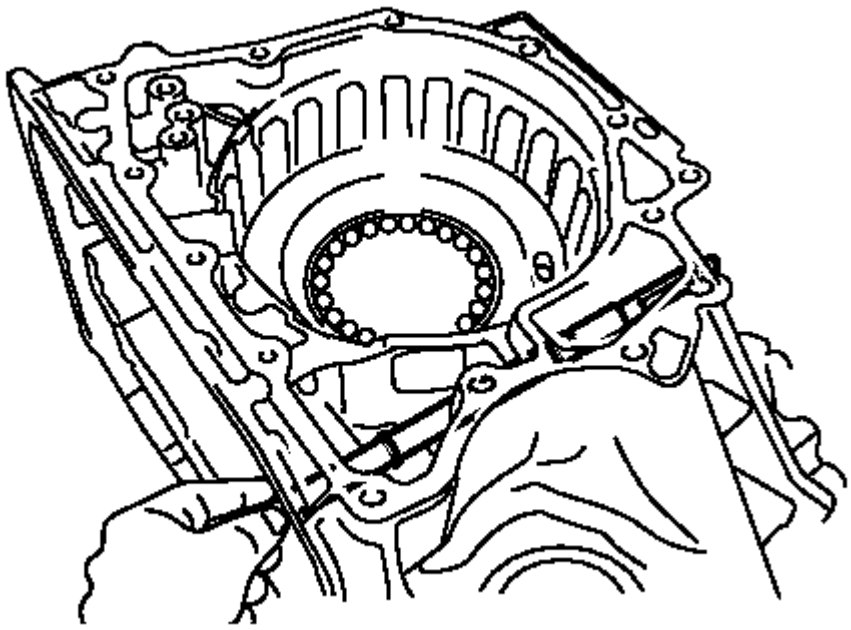
b. Using SST and a hammer, install the manual valve lever shaft oil seal to the transaxle case.
   - **SST: 09950-60010**
     09951-00230
   - **SST: 09950-70010**
     09951-07100

   Oil seal driven in depth

   -0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

3. **INSTALL MANUAL VALVE LEVER SHAFT**
   a. Install a new spacer to the parking lock lever subassembly.

b. Install the parking lock lever subassembly to the manual valve lever shaft.
c. Install a new spacer to the manual valve lever subassembly.
d. Install the manual valve lever subassembly to the manual valve lever shaft.
e. Install the manual valve lever shaft to the transaxle case.



N

Fig. 310: Identifying Manual Valve Lever Shaft, Manual Valve Lever Sub-Assembly And Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not damage the manual valve lever shaft oil seal while installing the manual valve lever shaft to the transaxle case.

f. Using a pin punch (3 mm) and hammer, install a new slotted spring pin into the parking lock lever subassembly.

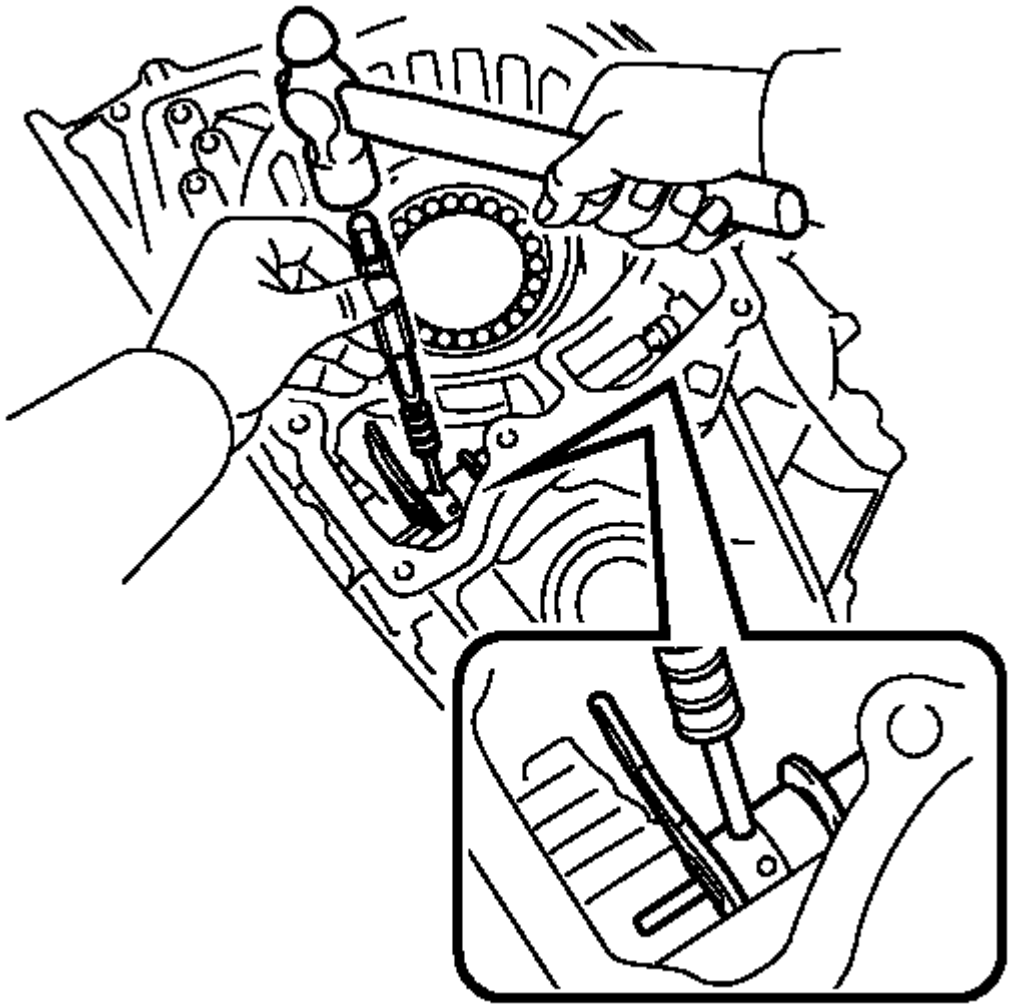


Fig. 311: Driving Out Slotted Spring Pin From Manual Valve Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Turn the spacer and the lever shaft to align the smaller hole of the spacer with the staking position mark on the lever shaft.

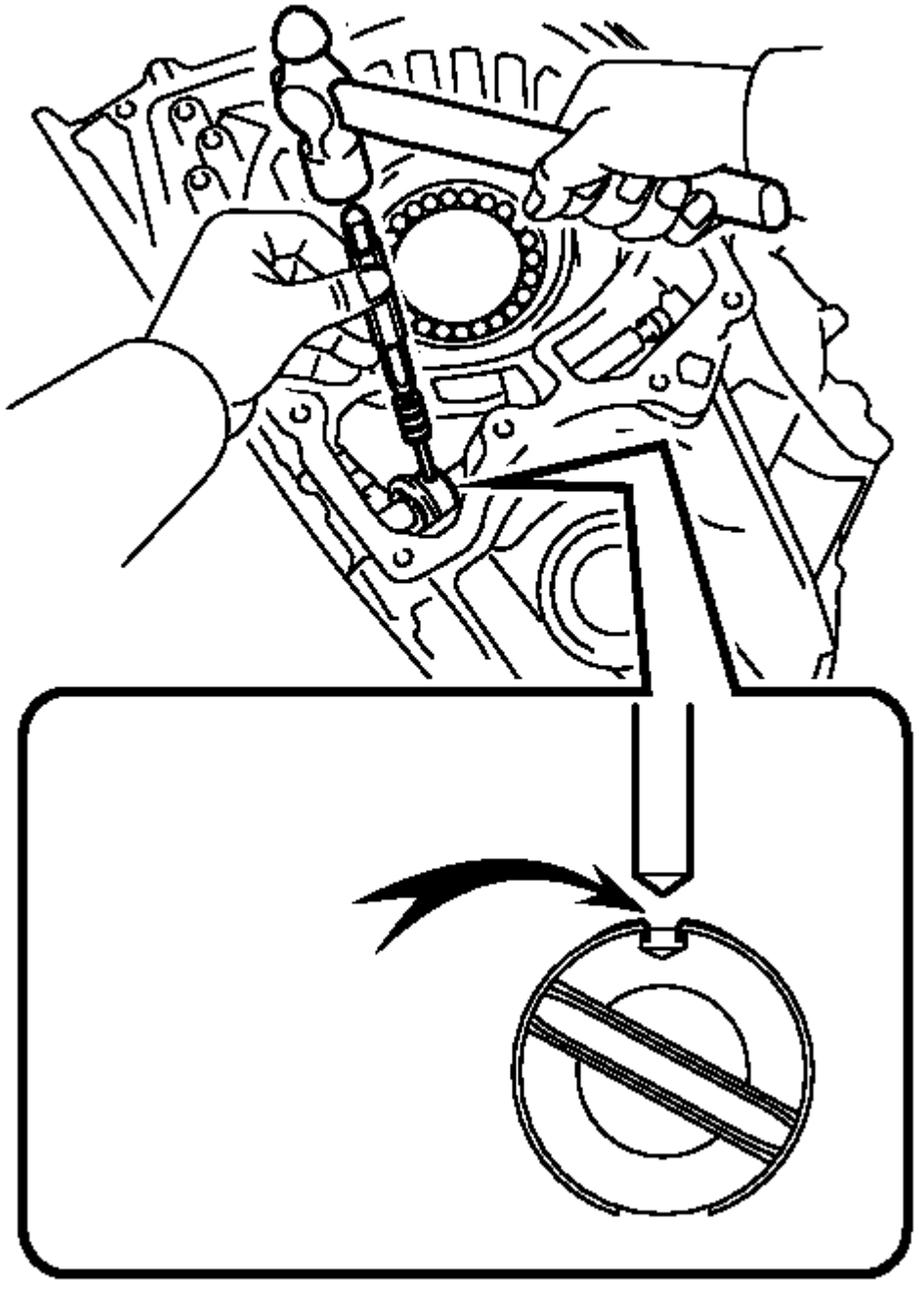


Fig. 312: Staking Spacer Through Small Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

h. Using a pin punch, stake the spacer through the small hole.
i. Check that the spacer does not turn.

j. Using a pin punch (3 mm) and hammer, install a new slotted spring pin into the manual valve lever subassembly.

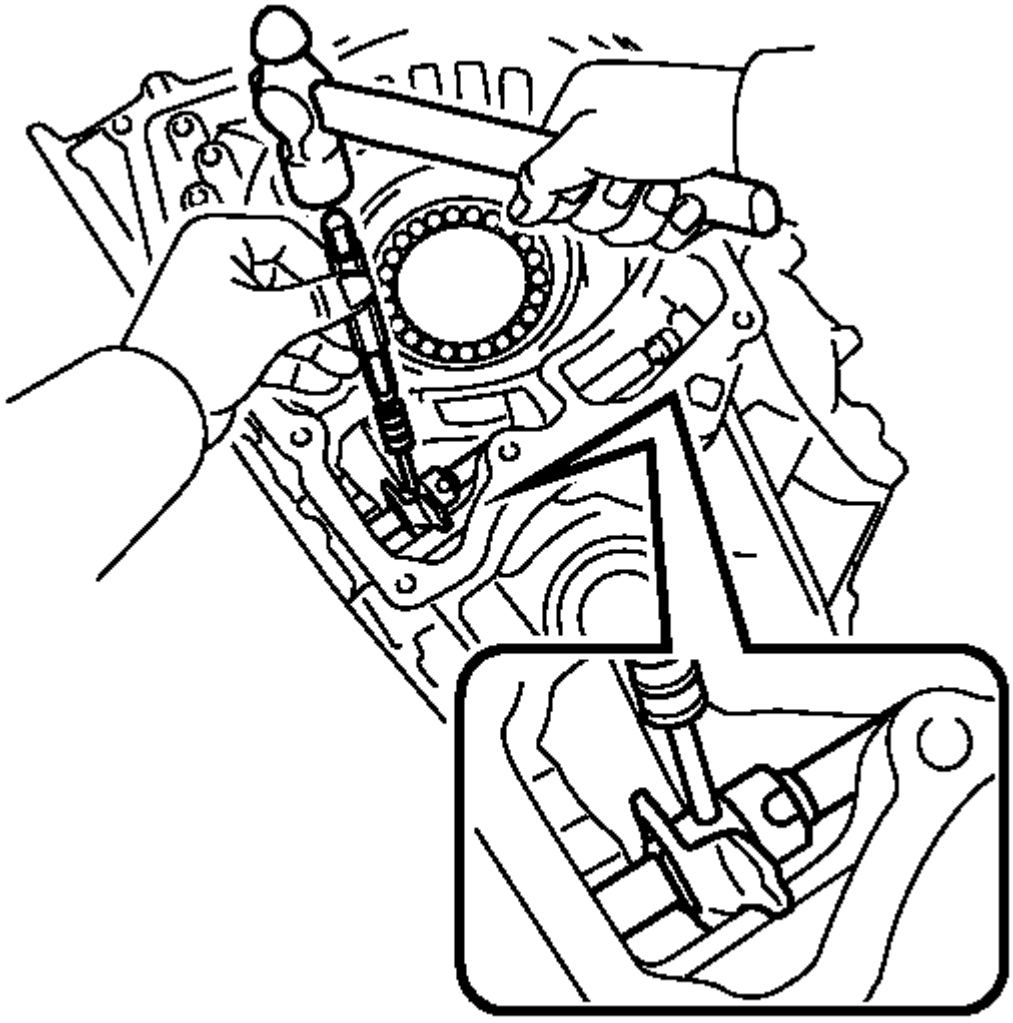


Fig. 313: Driving Out Slotted Spring Pin From Parking Lock Lever Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

k. Turn the spacer and the lever shaft to align the smaller hole of the spacer with the staking position mark on the lever shaft.

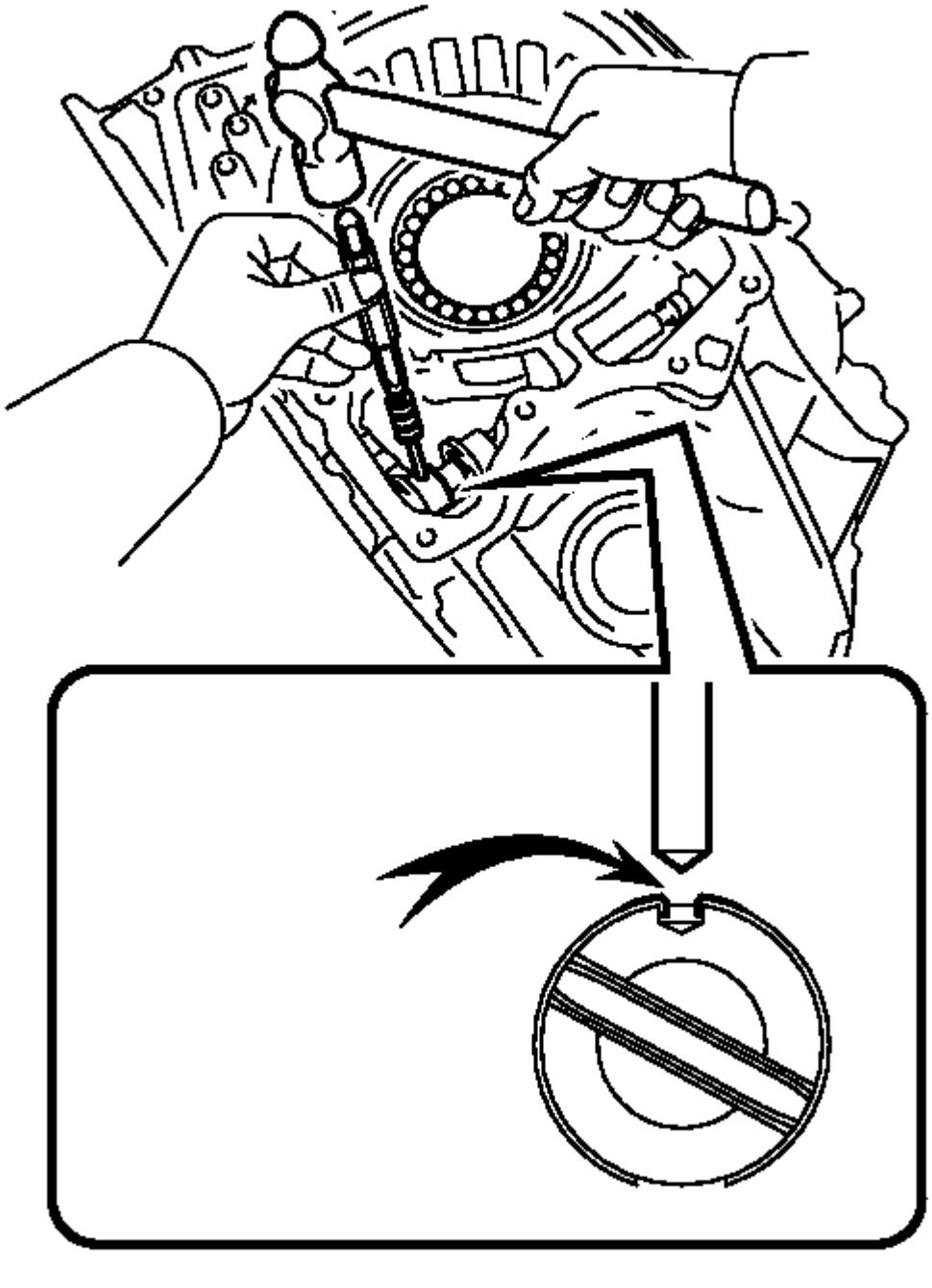


Fig. 314: Staking Spacer Through Small Hole
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

l. Using a pin punch, stake the spacer through the small hole.
m. Check that the spacer does not turn.

n. Using needle-nose pliers, install the manual valve shaft retainer spring to the transaxle case.

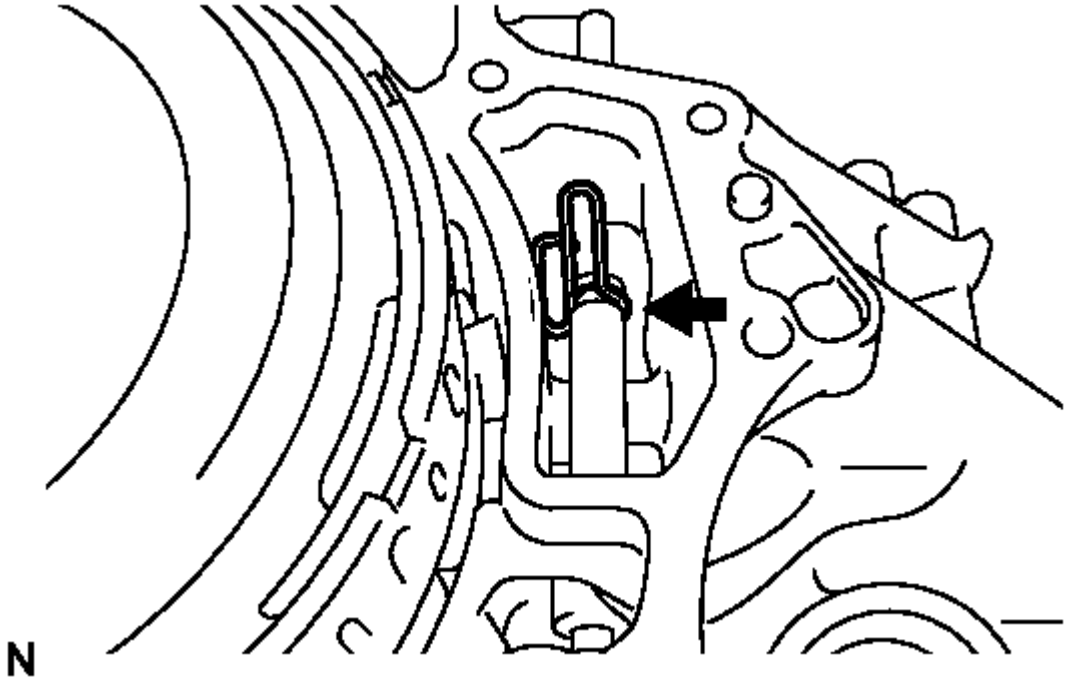


Fig. 315: Identifying Manual Valve Lever Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL PARKING LOCK ROD SUB-ASSEMBLY**
   a. Align the slot with the notches on the parking lock lever subassembly and install the parking lock rod subassembly.

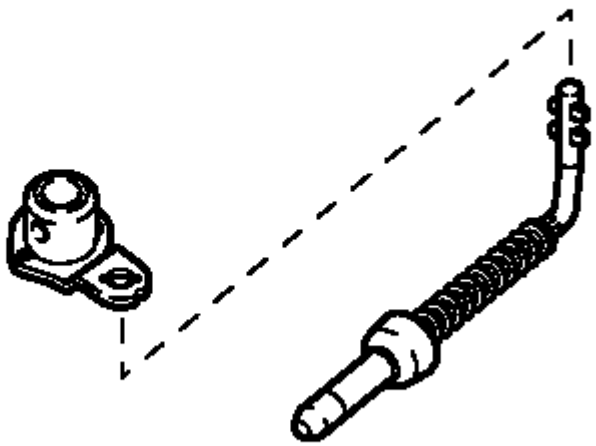


Fig. 316: Identifying Parking Lock Rod Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL MANUAL DETENT SPRING SUB-ASSEMBLY**
   a. Install the manual detent spring subassembly and cover to the transaxle case with the bolt.

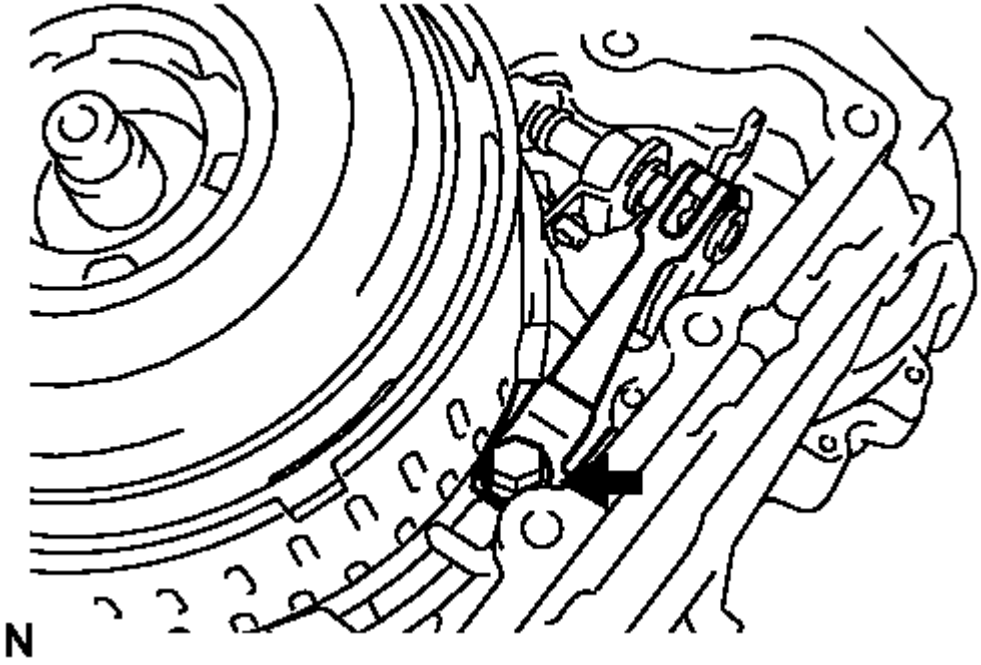


Fig. 317: Identifying Manual Detent Spring Sub-Assembly Bolt

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

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

NOTE: Make sure to install the manual detent spring first and then the cover.

6. **INSTALL NO. 3 BRAKE PISTON**
   a. Coat the contact surface of the transaxle case with ATF.

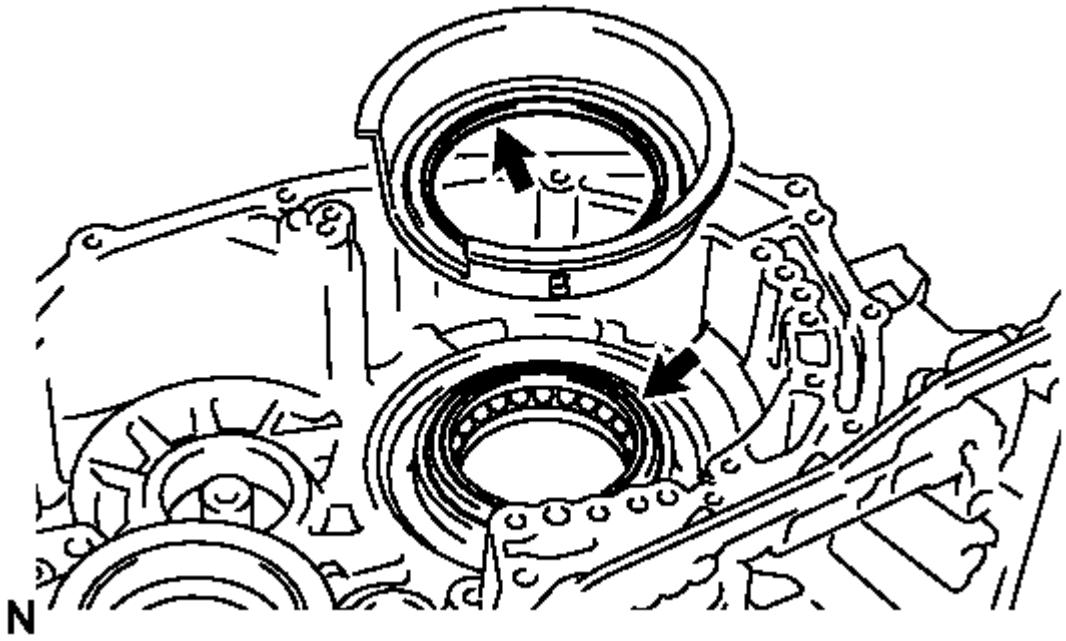


Fig. 318: Identifying Lip Seal Of No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Coat the lip of the No. 3 brake piston with ATF.
   c. Temporarily install the pawl stopper plate to the transaxle case with the 2 bolts.

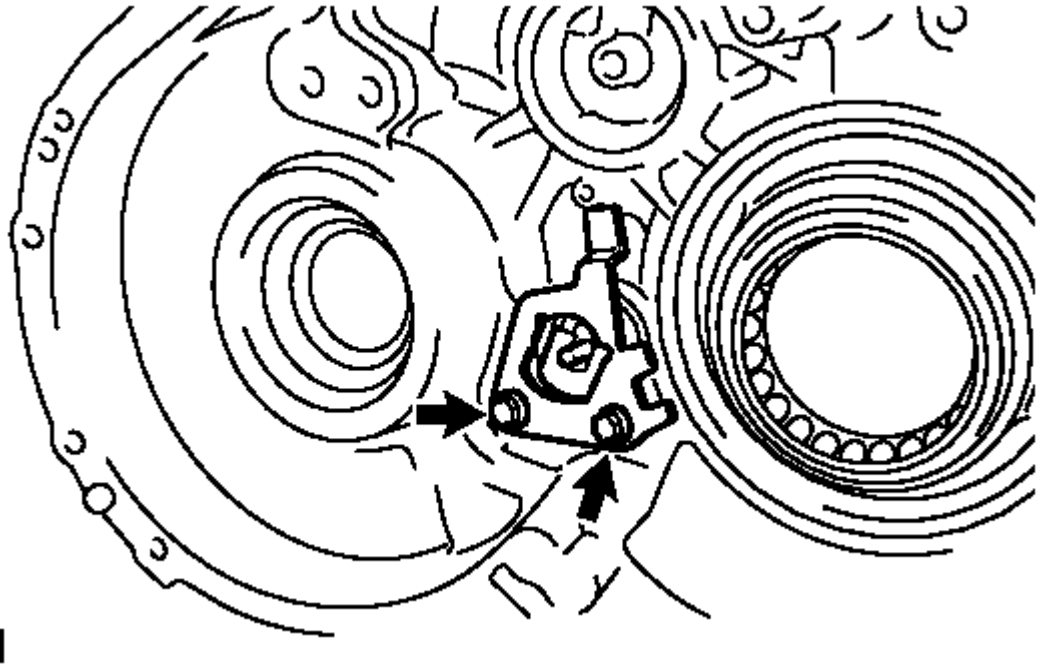
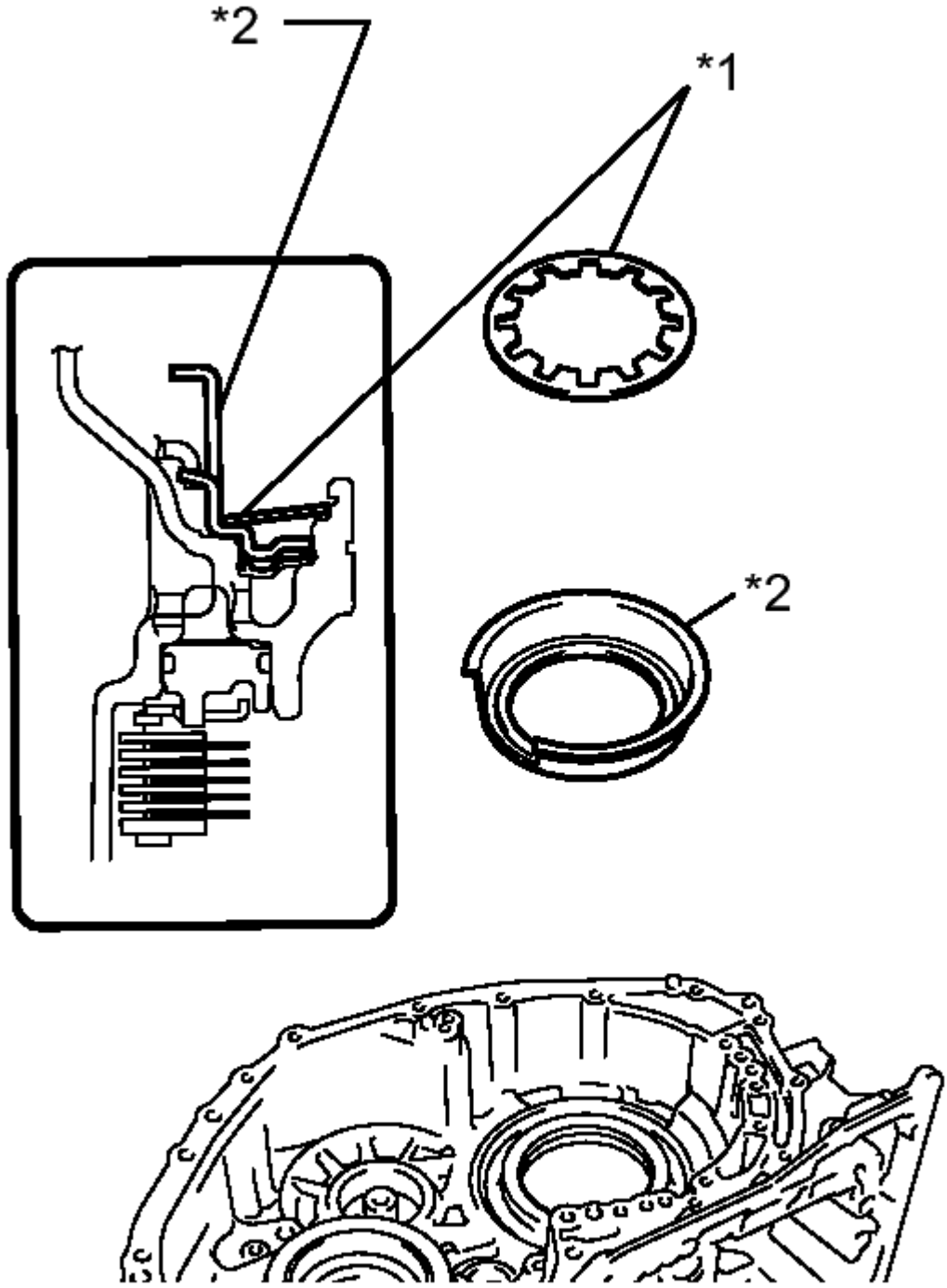


Fig. 319: Identifying Pawl Stopper Plate Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Press the No. 3 brake piston into the transaxle case.



N

Fig. 320: Identifying Brake Piston Return Spring And No. 3 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Brake

*1	Piston Return Spring
*2	No. 3 Brake Piston

NOTE:

- **Make sure that the lip of the No. 3 brake piston is not twisted and does not get caught in the transaxle case.**
- **After installation, make sure that the protrusions on the No. 3 brake piston and the grooves on the pawl stopper plate are aligned.**

HINT:

Use the installation surface of the return spring to press the piston into the transaxle case.

e. Install the return spring to the transaxle case.
f. Remove the 2 bolts and pawl stopper plate from the transaxle case.

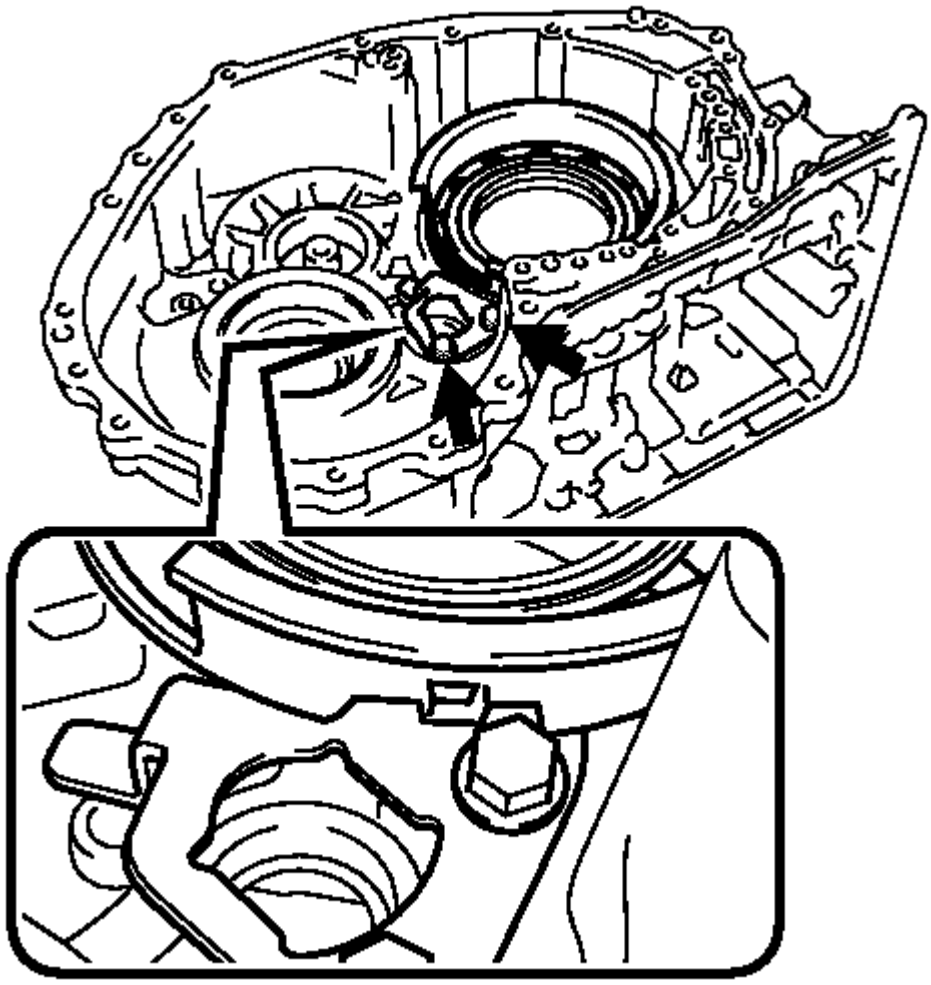


Fig. 321: Identifying Pawl Stopper Plate Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Place SST on the brake piston return spring and compress the brake piston return spring using a press.

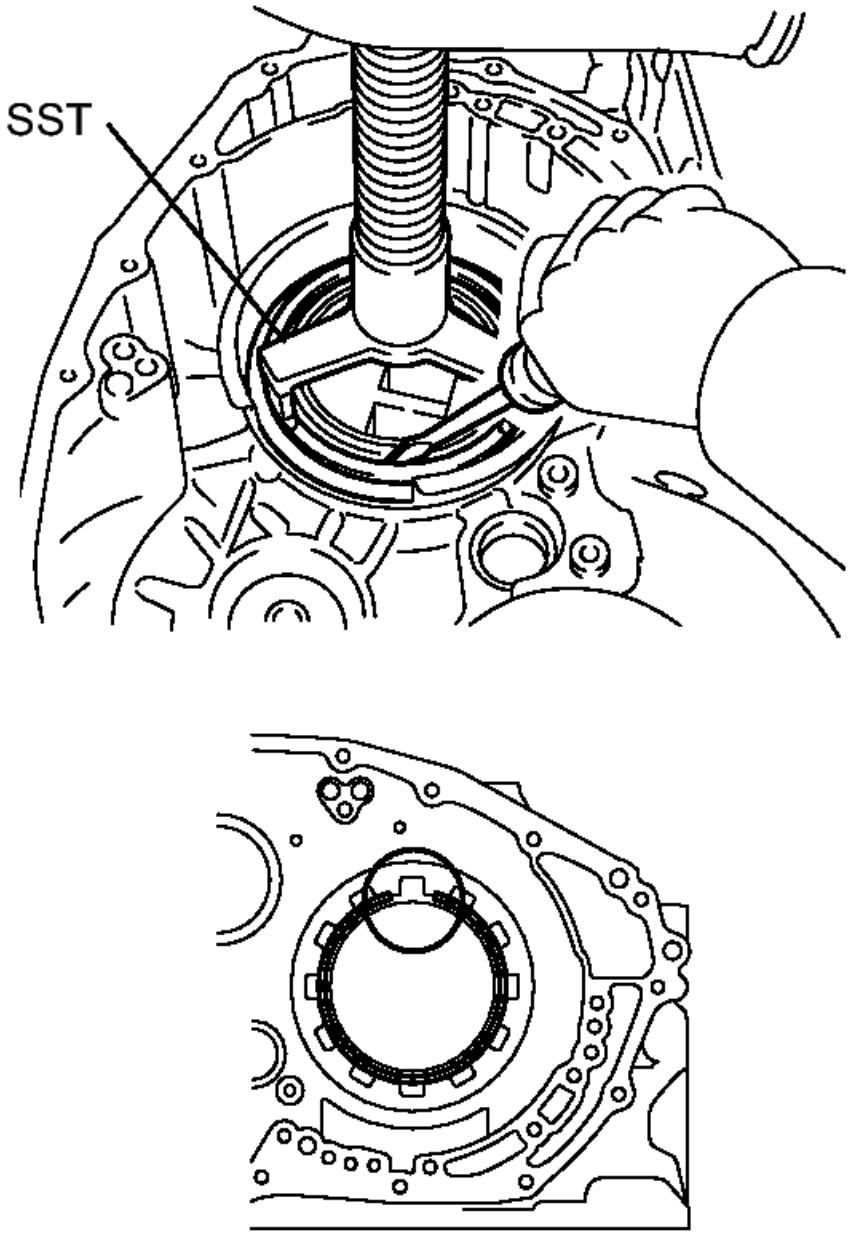


Fig. 322: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00070**

NOTE: **Stop the press when the brake piston return spring is flush with the snap ring groove. This prevents the brake piston return spring from being deformed.**

h. Using a screwdriver, install the snap ring to the transaxle case as shown in the illustration.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**
- **Be sure to align the opening of the snap ring with one of the protrusions on the brake piston return spring as shown in the illustration.**

7. **INSTALL COUNTER DRIVE GEAR**

NOTE: **Perform this procedure only when the counter drive gear bearing or transaxle case is replaced.**

a. Using SST and a press, install a new counter drive gear bearing and snap ring to the transaxle case.

- **SST: 09950-60020**
  09951-01030
- **SST: 09950-70010**
  09951-07100

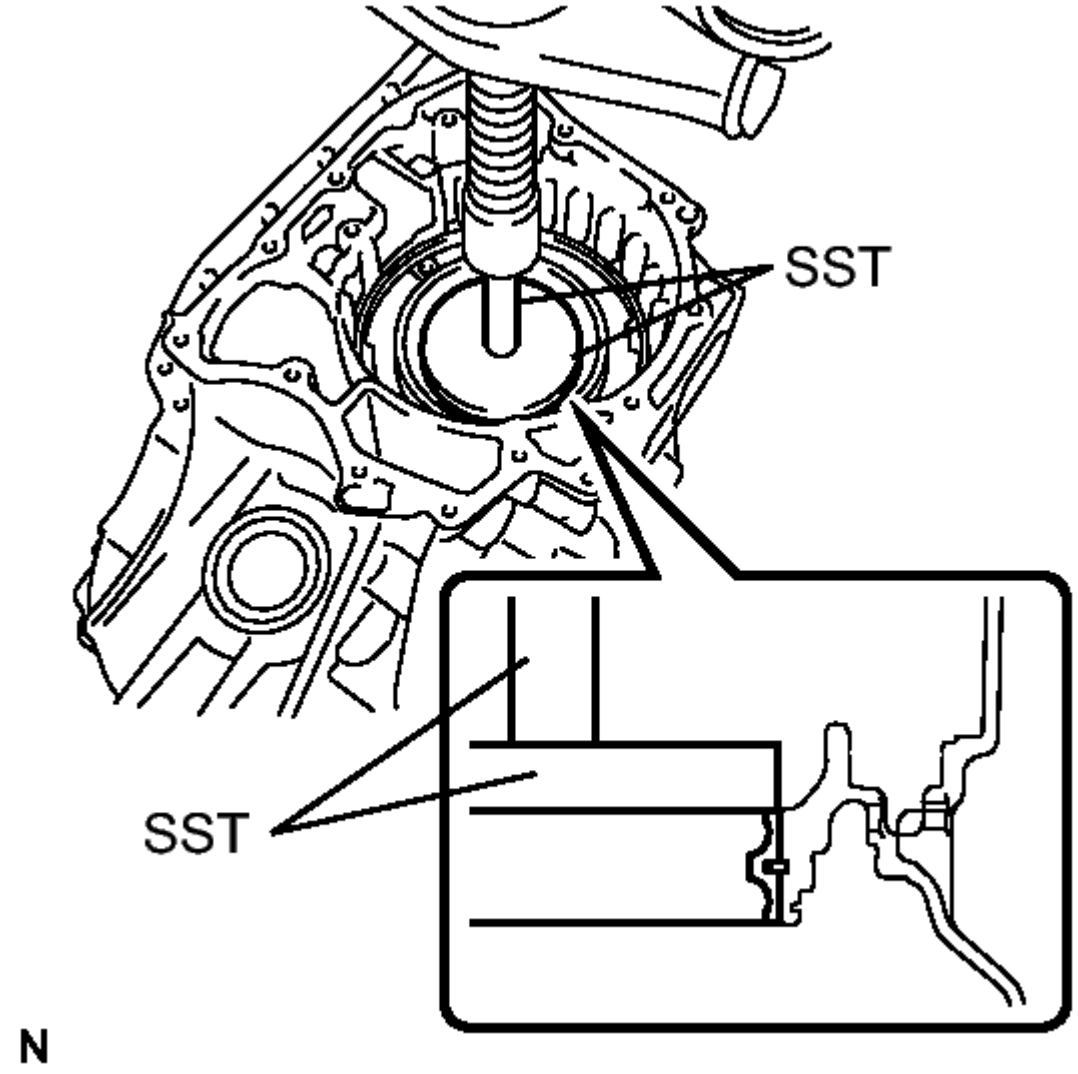


Fig. 323: Installing Counter Drive Gear Bearing And Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, install a new bearing inner race (rear side) and counter drive gear to the transaxle case.
   - **SST: 09223-15030**
   - **SST: 09527-17011**
   - **SST: 09950-60020**
     09951-00810
   - **SST: 09950-70010**
     09951-07100

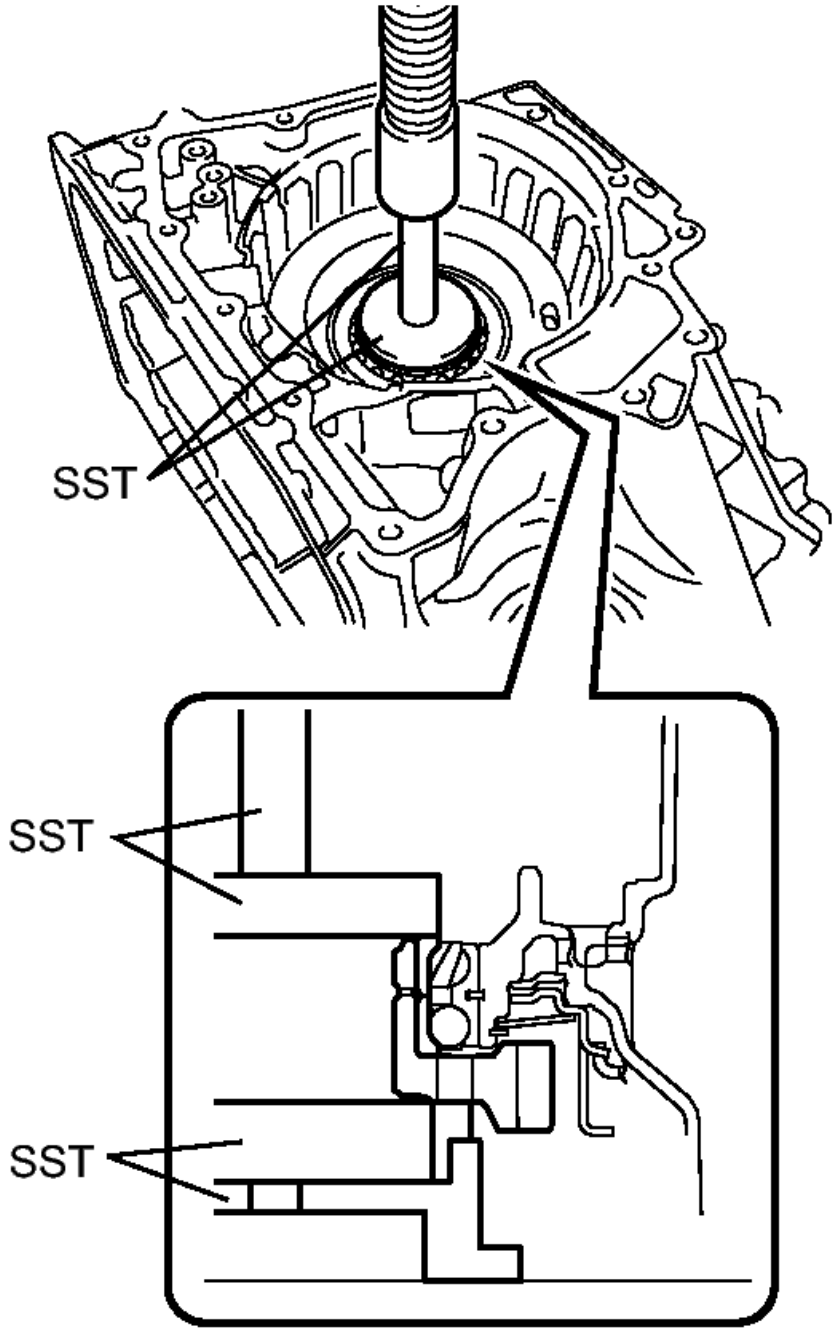


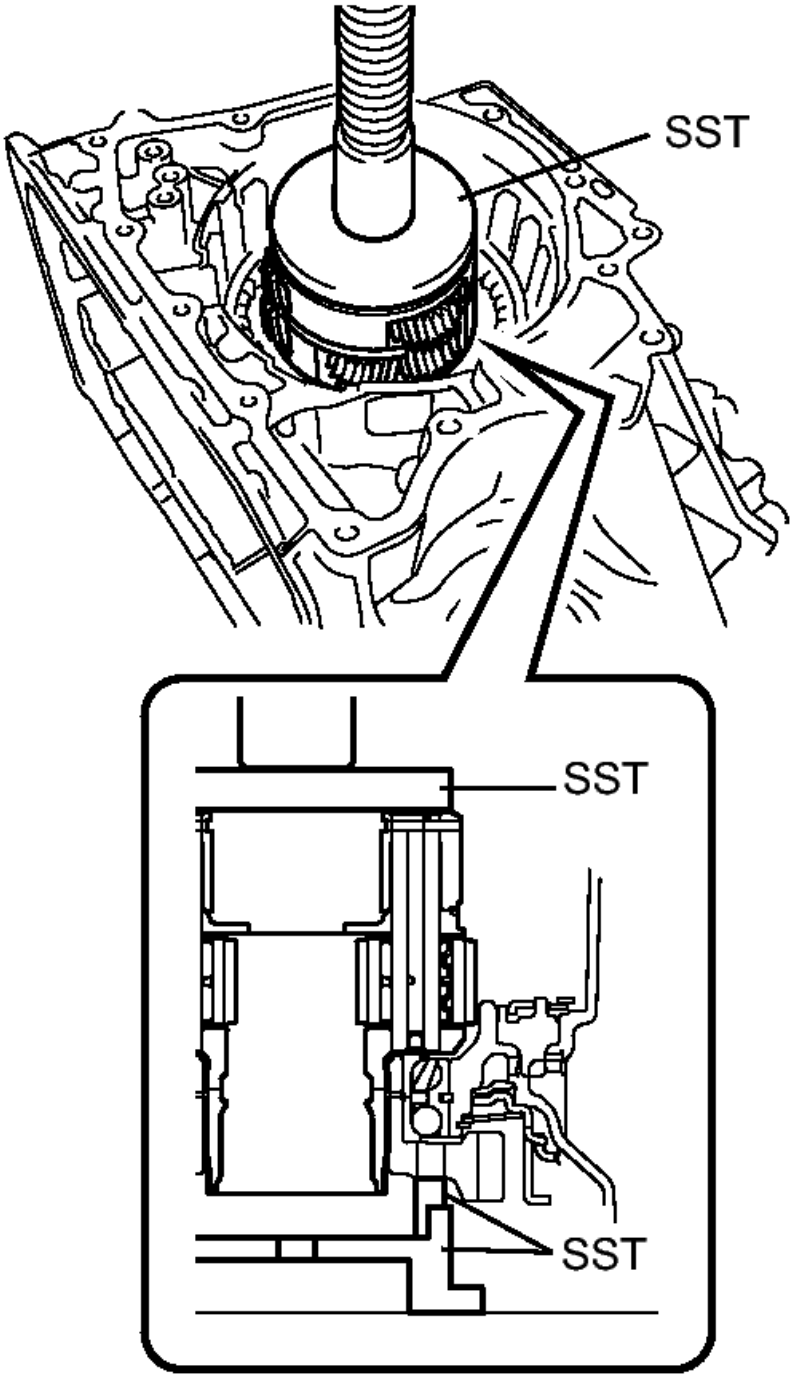
Fig. 324: Installing Bearing Inner Race (Rear Side) And Counter Drive Gear To Transaxle Case

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

NOTE: **There should not be any clearance between the bearing inner race (front side) and counter drive gear.**

8. **INSTALL FRONT PLANETARY GEAR ASSEMBLY**

   a. Using SST and a press, press the planetary gear assembly onto the transaxle case.



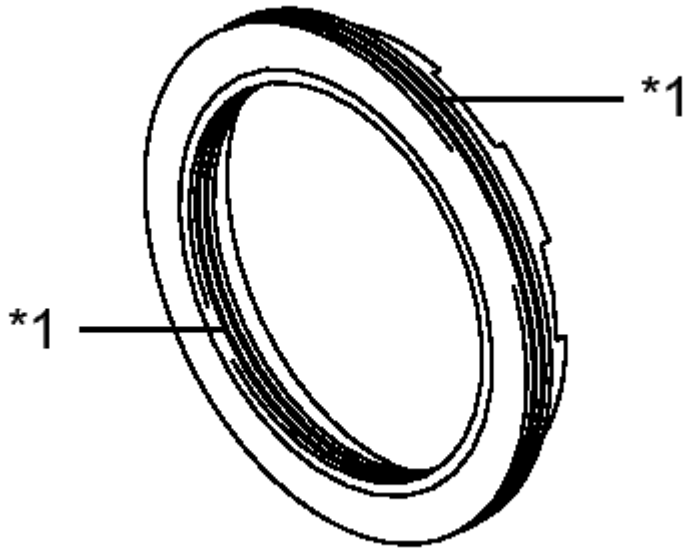
N

Fig. 325: Installing Planetary Gear Assembly To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09223-15030**
- **SST: 09527-17011**

- **SST: 09951-01100**

9. **INSTALL NO. 2 BRAKE PISTON**
   a. Coat 2 new O-rings with ATF and install them to the No. 2 brake piston.



N

Fig. 326: Identifying No. 2 Brake Piston O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

NOTE: Ensure that the 2 O-rings are not twisted.

   b. Install the No. 2 brake piston to the transaxle case.

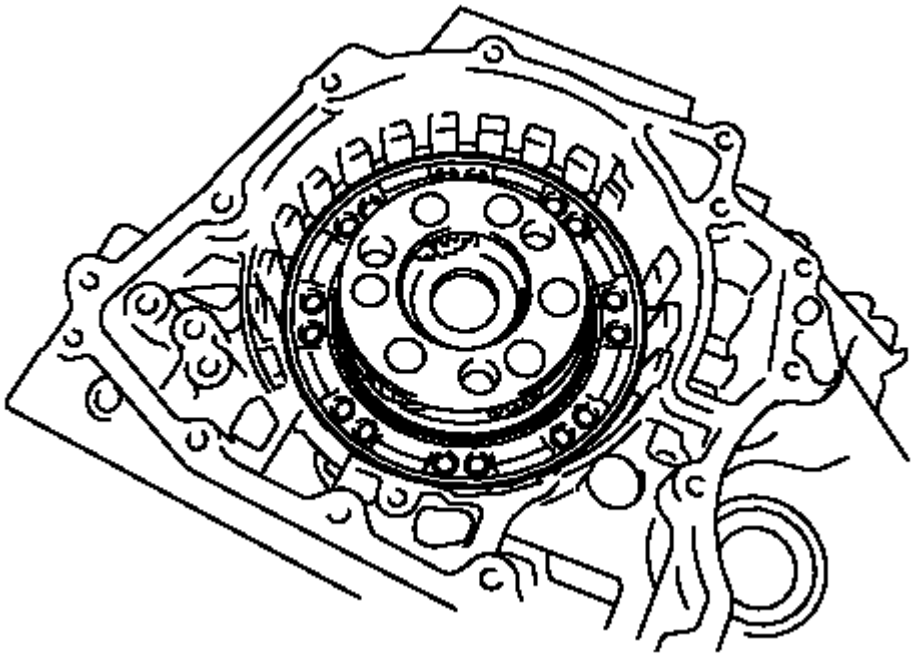
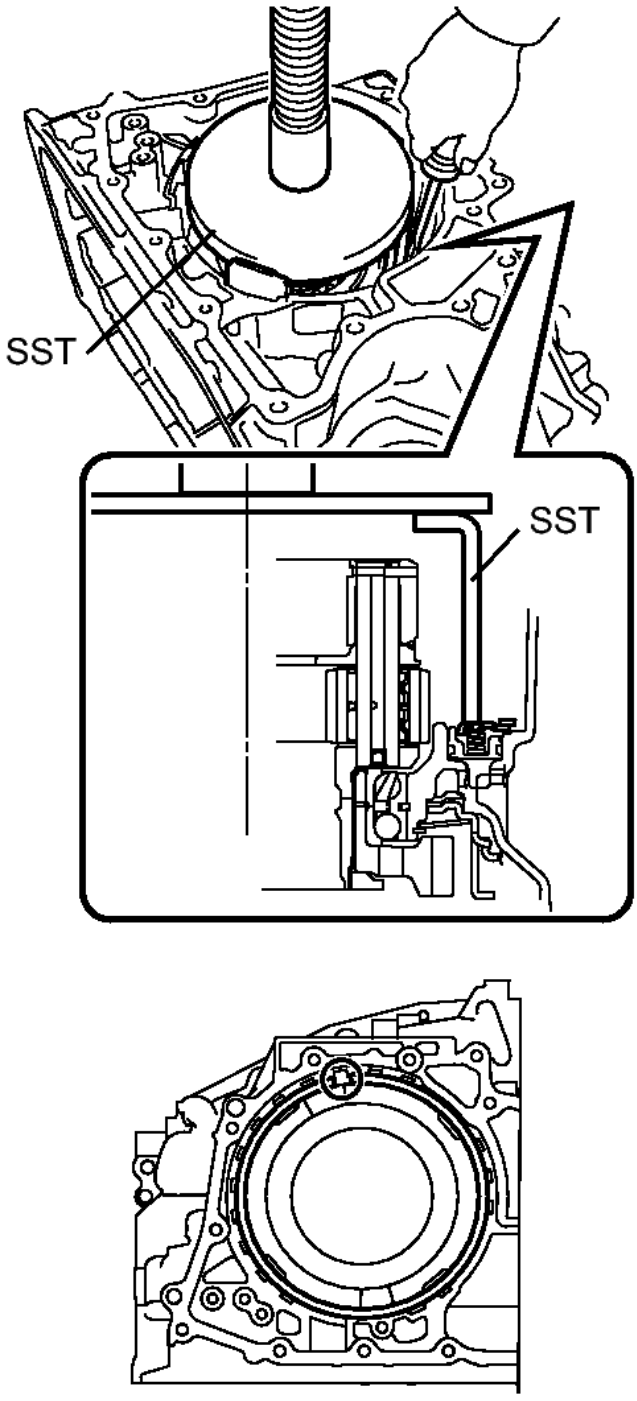


Fig. 327: Identifying No. 2 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the O-rings.

10. **INSTALL 1ST AND REVERSE BRAKE RETURN SPRING SUB-ASSEMBLY**
    a. Install the 1st and reverse brake return spring to the transaxle case.
    b. Place SST on the 1st and reverse brake return spring and compress the 1st and reverse brake return spring using a press.



N

Fig. 328: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00060**

NOTE: **Stop the press when the 1st and reverse brake return spring is flush with the snap ring groove. This prevents the 1st and reverse brake return spring from being deformed.**

c. Using a screwdriver, install the snap ring to the transaxle case as shown in the illustration.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**
- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

11. **INSTALL NO. 2 BRAKE DISC**

a. Install the 5 brake discs, 5 brake plates and brake flange to the transaxle case.

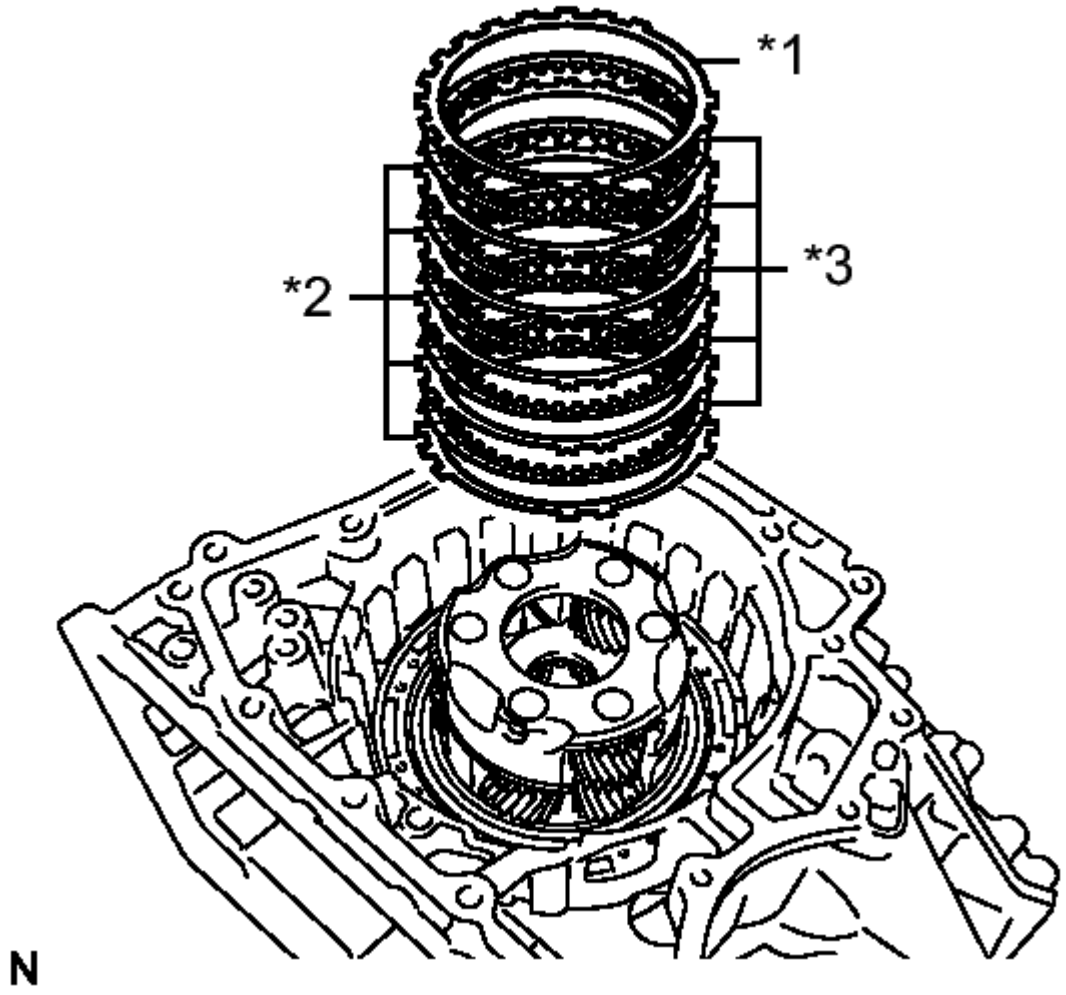


Fig. 329: Identifying Brake Flange, Brake Discs And Brake Plates

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

TEXT IN ILLUSTRATION

*1	Brake Flange
*2	Brake Plate
*3	Brake Disc

NOTE: **Make sure that the discs, plates and flange are installed in the correct order.**

b. Using a screwdriver, install the snap ring to the transaxle case.

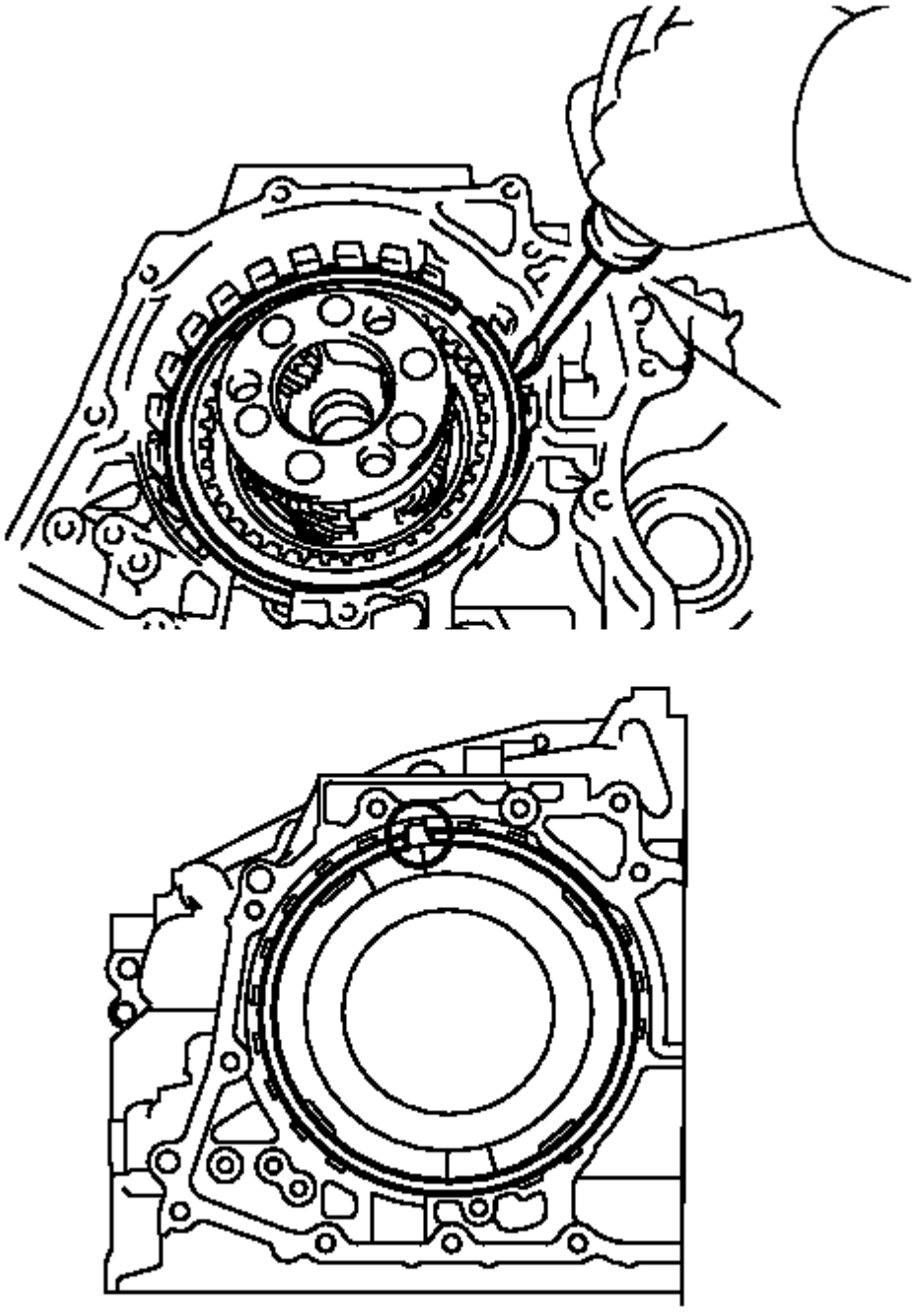


Fig. 330: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**

- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

12. **INSPECT CLEARANCE OF NO. 2 BRAKE** See step 15
13. **INSTALL PLANETARY RING GEAR FLANGE**
    a. Install the planetary ring gear flange to the planetary ring gear.

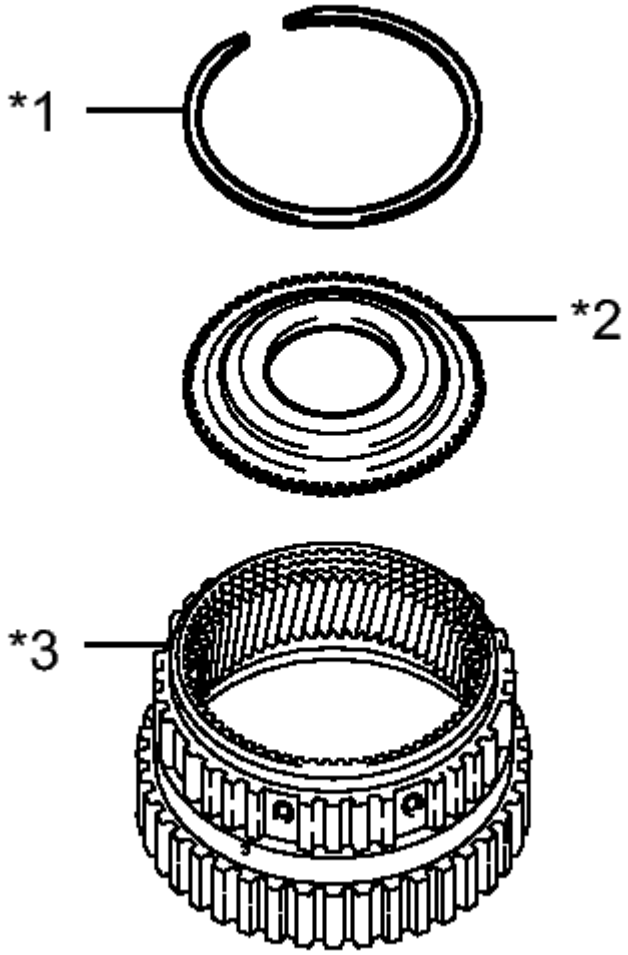


Fig. 331: Identifying Planetary Ring Gear Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*2	Planetary Ring Gear Flange

*3	Planetary Ring Gear

b. Using a screwdriver, install the snap ring to the planetary ring gear.

TEXT IN ILLUSTRATION

*1	Snap Ring

NOTE: Confirm that the snap ring is correctly located in the groove of the planetary ring gear.

14. **INSTALL PLANETARY RING GEAR**

a. Install the planetary ring gear to the one-way clutch assembly.

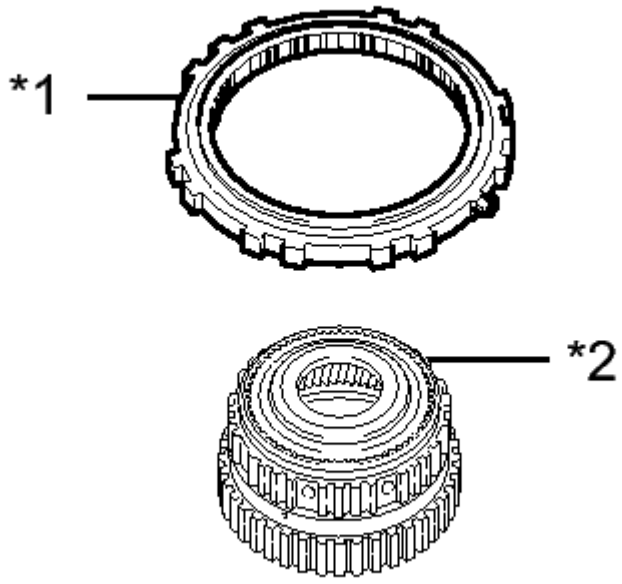


Fig. 332: Identifying Planetary Ring Gear And One-Way Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Planetary Ring Gear

NOTE: **Make sure that the one-way clutch assembly is positioned in the correct direction as shown in the illustration.**

15. **INSTALL ONE-WAY CLUTCH ASSEMBLY**
    a. Coat the thrust needle roller bearing with ATF, and install it onto the planetary gear assembly.

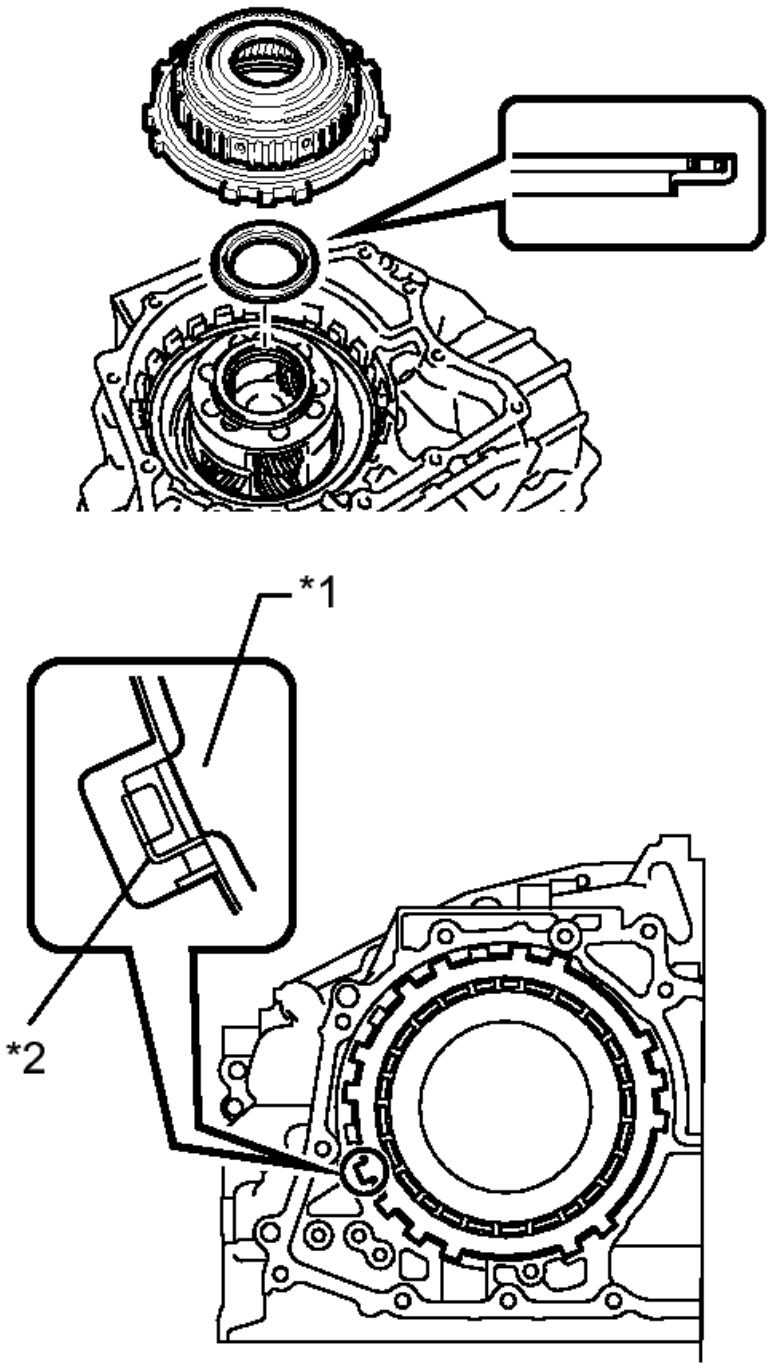


Fig. 333: Identifying One-Way Clutch Assembly, Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

-	Inside mm (in.)	Outside mm (in.)
Bearing	56.1 (2.21)	80.9 (3.19)

NOTE: **Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.**

b. Install the one-way clutch assembly to the transaxle case.

TEXT IN ILLUSTRATION

*1	One-way Clutch Assembly
*2	Thrust Needle Roller Bearing

NOTE: **Make sure that there is no clearance between the retainer and the claw on the one-way clutch assembly. If there is any clearance, the spring of the retainer will be deformed.**

c. Using a screwdriver, install the snap ring to the transaxle case.

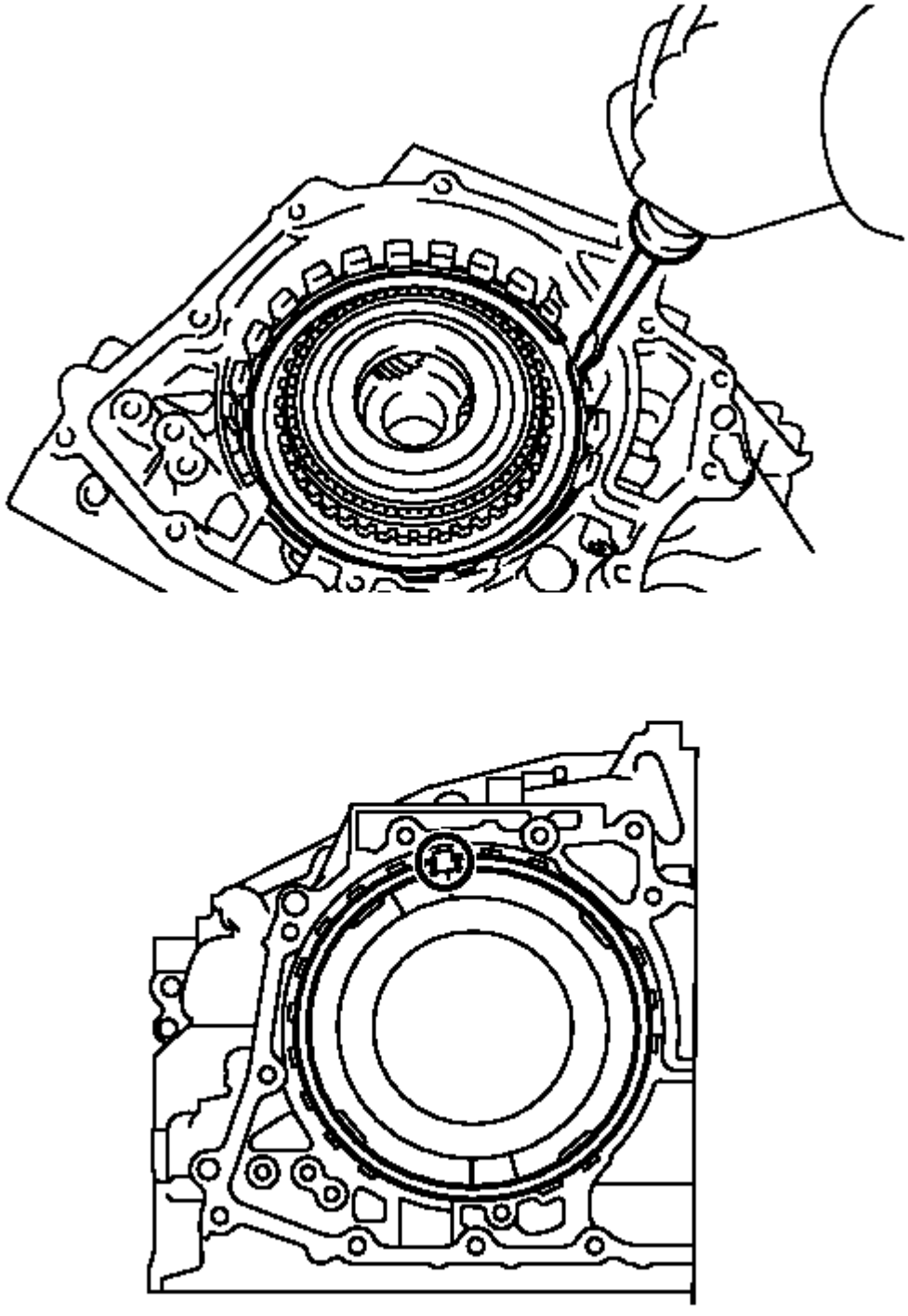


Fig. 334: Installing Snap Ring To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the transaxle case.**

- **Be sure to align the opening of the snap ring with one of the protrusions on the transaxle case as shown in the illustration.**

16. **INSTALL COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING OUTER RACE**
    a. Using SST and a hammer, install a new counter driven gear rear tapered roller bearing outer race to the transaxle case.

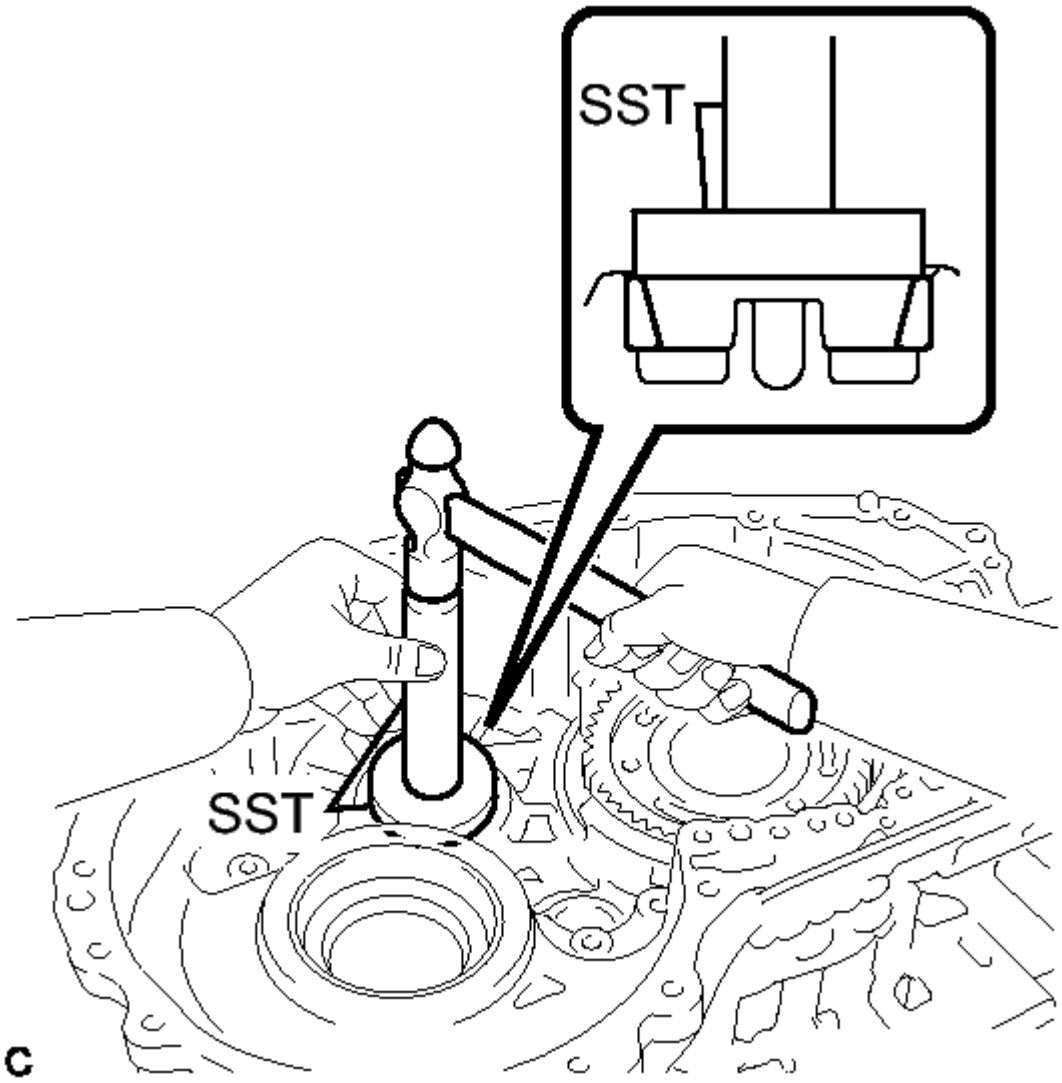


Fig. 335: Installing Counter Driven Gear Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00650
- **SST: 09950-70010**
  09951-07100

NOTE: **Be sure to install the counter driven gear rear tapered roller bearing outer race so that there is no clearance between the bearing outer race and the transaxle case. If there is any clearance, the turning torque of the counter drive gear cannot be measured correctly.**

17. **INSTALL PARKING LOCK PAWL**
    a. Install the parking lock pawl to the transaxle case with the parking lock pawl shaft.

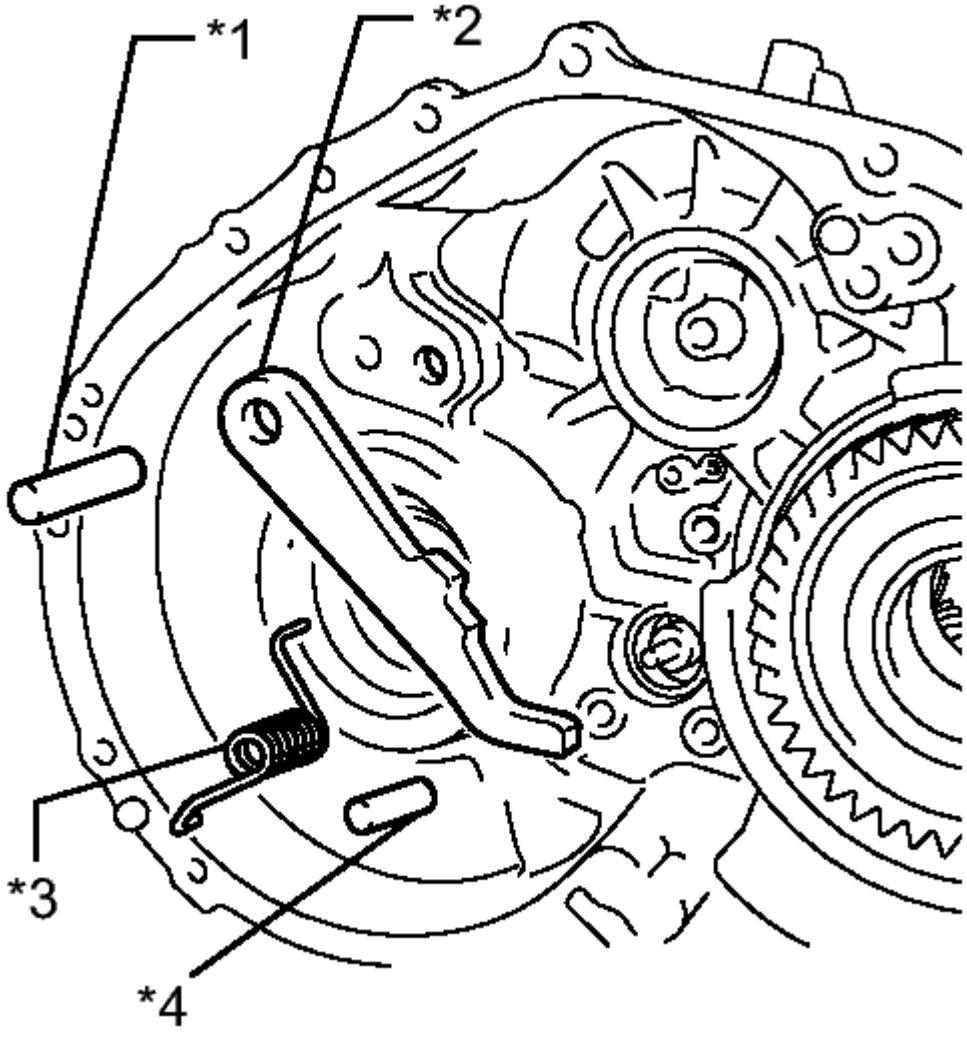


Fig. 336: Identifying Spring, Parking Lock Pawl Pin, Parking Lock Pawl Shaft & Parking Lock Pawl At Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Parking Lock

	Pawl Shaft
*2	Parking Lock Pawl
*3	Spring

b. Install the parking lock pawl pin to the transaxle case.

TEXT IN ILLUSTRATION

*4	Parking Lock Pawl Pin

c. Install the torsion spring to the parking lock pawl.

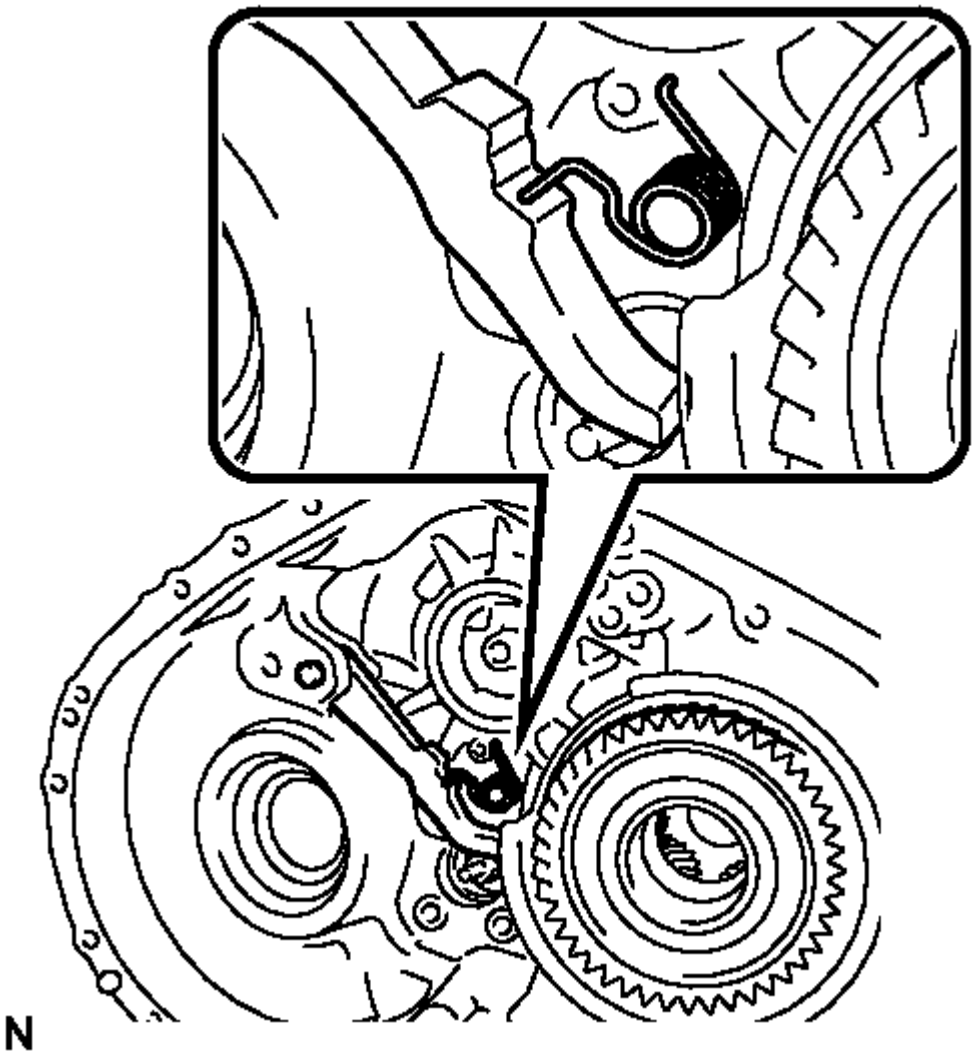


Fig. 337: Identifying Torsion Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that one end of the spring is set in the hole of the transaxle case and the other end is positioned on the parking lock pawl as shown in the illustration.

18. **INSTALL PARKING LOCK SLEEVE**
    a. Install the parking lock sleeve to the transaxle case.

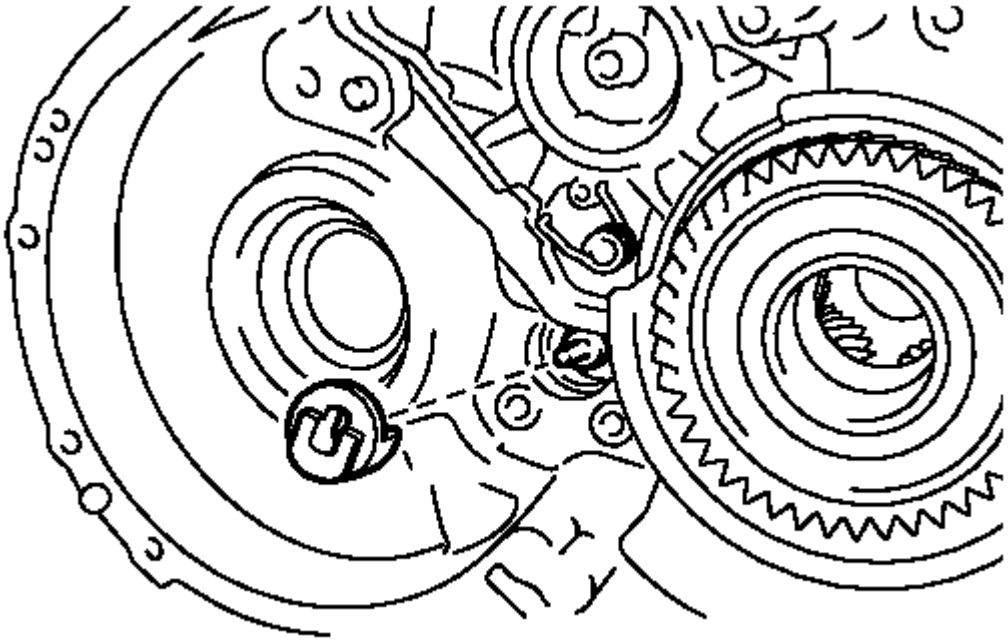


Fig. 338: Identifying Parking Lock Sleeve
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

19. **INSTALL PAWL STOPPER PLATE**
    a. Install the pawl stopper plate to the transaxle case with the 2 bolts.

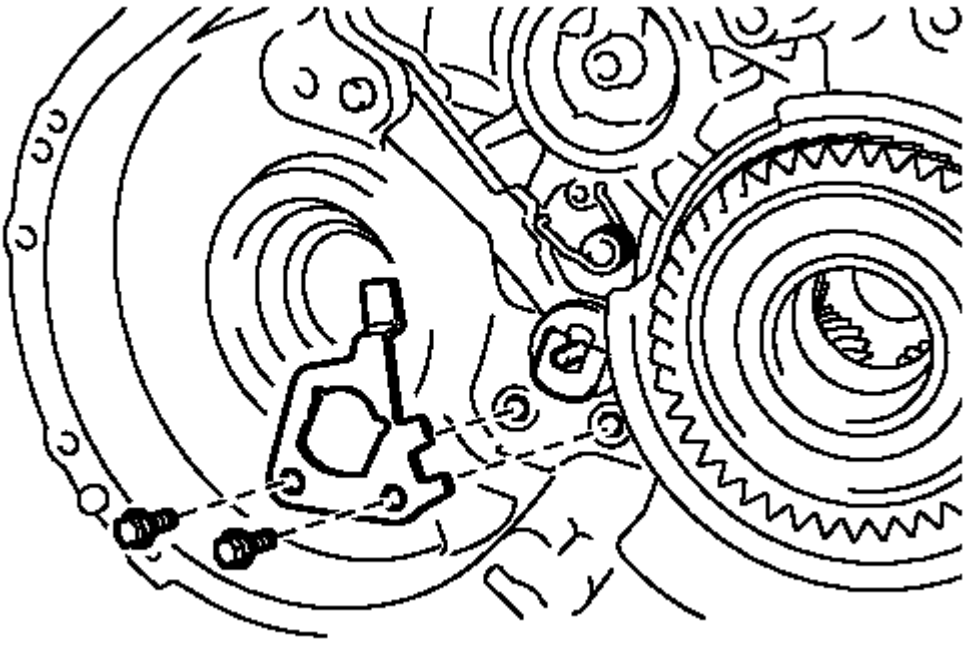


Fig. 339: Identifying Bolts And Pawl Stopper Plate

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

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

20. **INSTALL PAWL SHAFT CLAMP**
    a. Install the pawl shaft clamp to the transaxle case with the bolt.

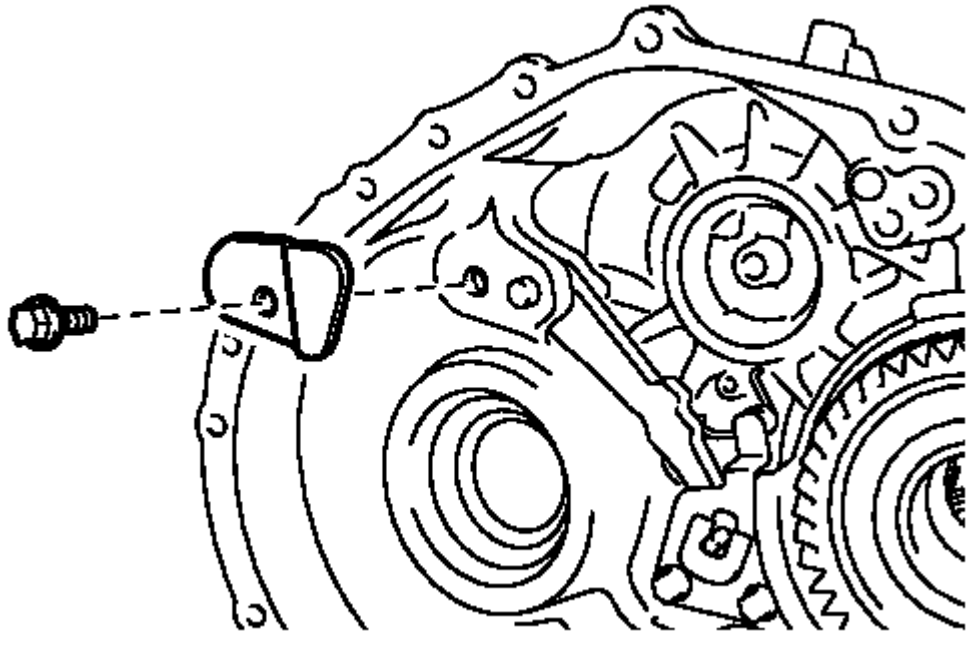


Fig. 340: Identifying Bolt And Pawl Shaft Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

21. **INSTALL COUNTER DRIVEN GEAR REAR TAPERED ROLLER BEARING**
    a. Using SST and a press, install a new counter driven gear rear tapered roller bearing to the counter driven gear subassembly.

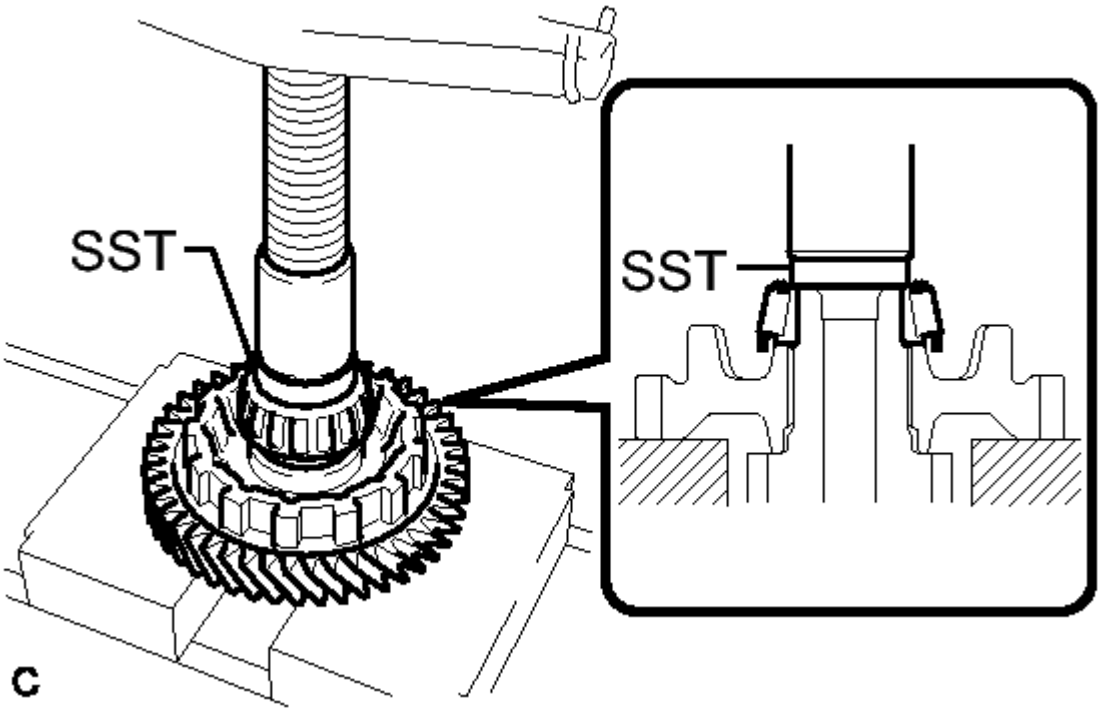


Fig. 341: Installing Counter Driven Gear Rear Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00420

NOTE: **Be sure to install the counter driven gear rear tapered roller bearing and the differential drive pinion so that there is no clearance between each of them and the counter driven gear.**

22. **INSTALL COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING**
    a. Using SST and a press, install a new counter driven gear front tapered roller bearing to the counter driven gear subassembly.

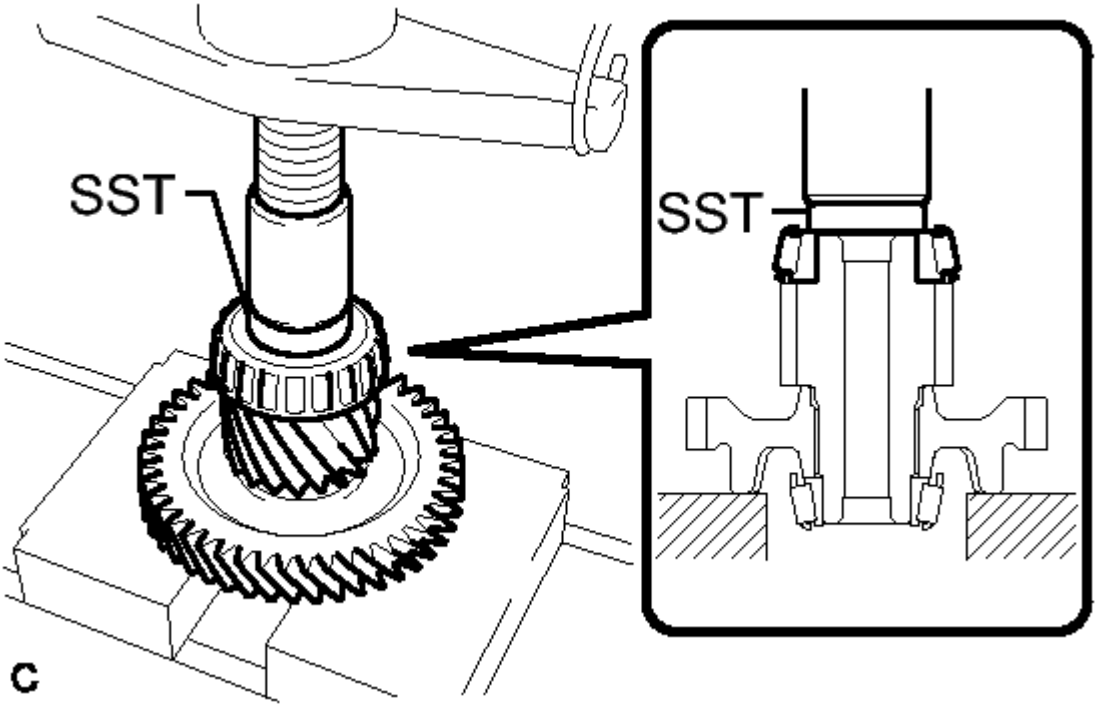


Fig. 342: Installing Counter Driven Gear Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00530

NOTE: **Be sure to install the counter driven gear front tapered roller bearing so that there is no clearance between the bearing and the counter driven gear. If there is any clearance, the turning torque of the counter drive gear cannot be measured correctly.**

23. **INSTALL COUNTER DRIVEN GEAR**
    a. Install the counter driven gear subassembly to the transaxle case.

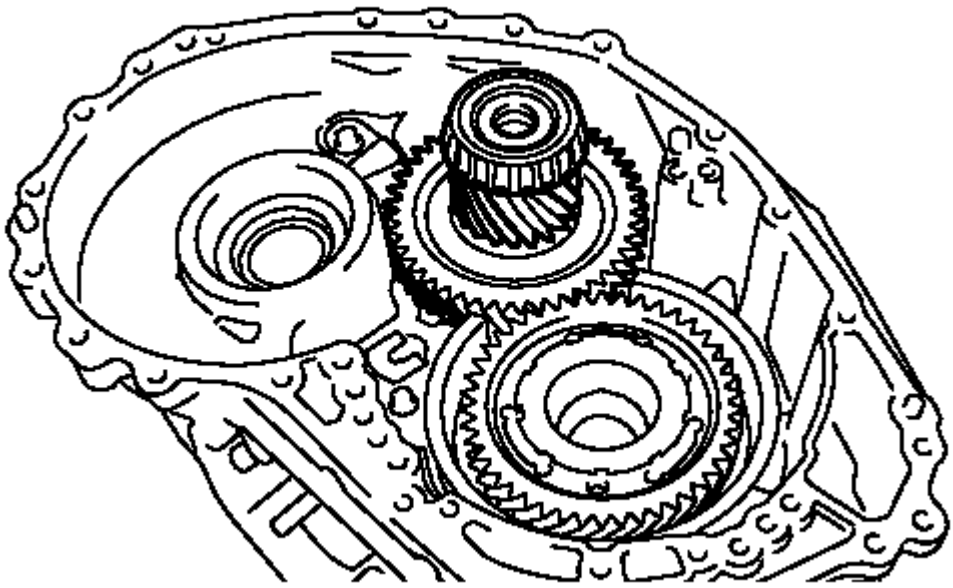


Fig. 343: Identifying Counter Driven Gear Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

24. **INSTALL COUNTER DRIVE GEAR NUT**
    a. Turn the manual valve lever 2 notches counterclockwise to set it to the P position as shown in the illustration.

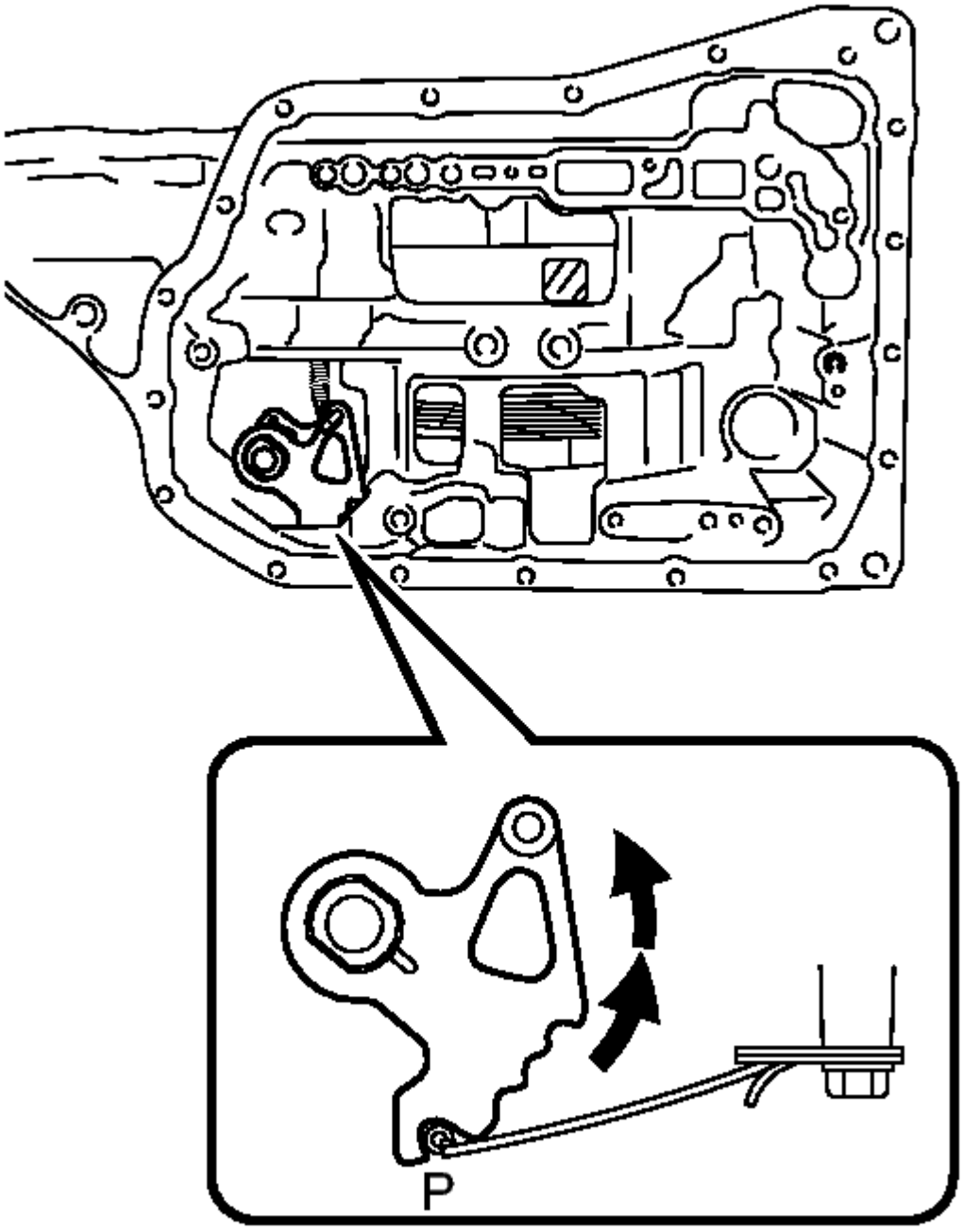
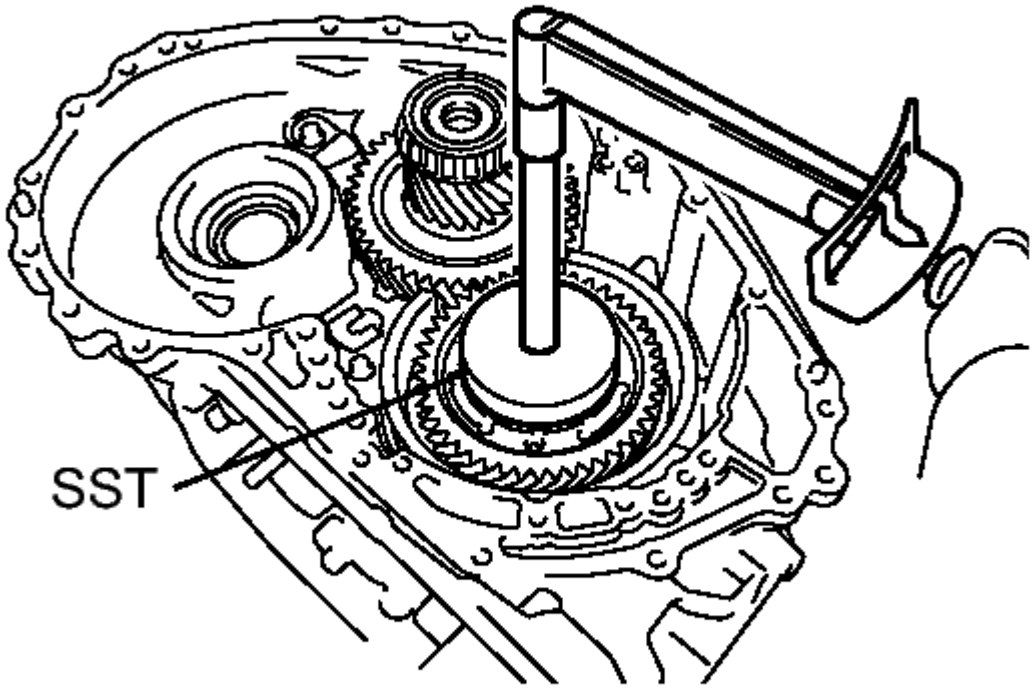


Fig. 344: Turning Manual Valve Lever Notches Counterclockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, install a new counter drive gear nut.



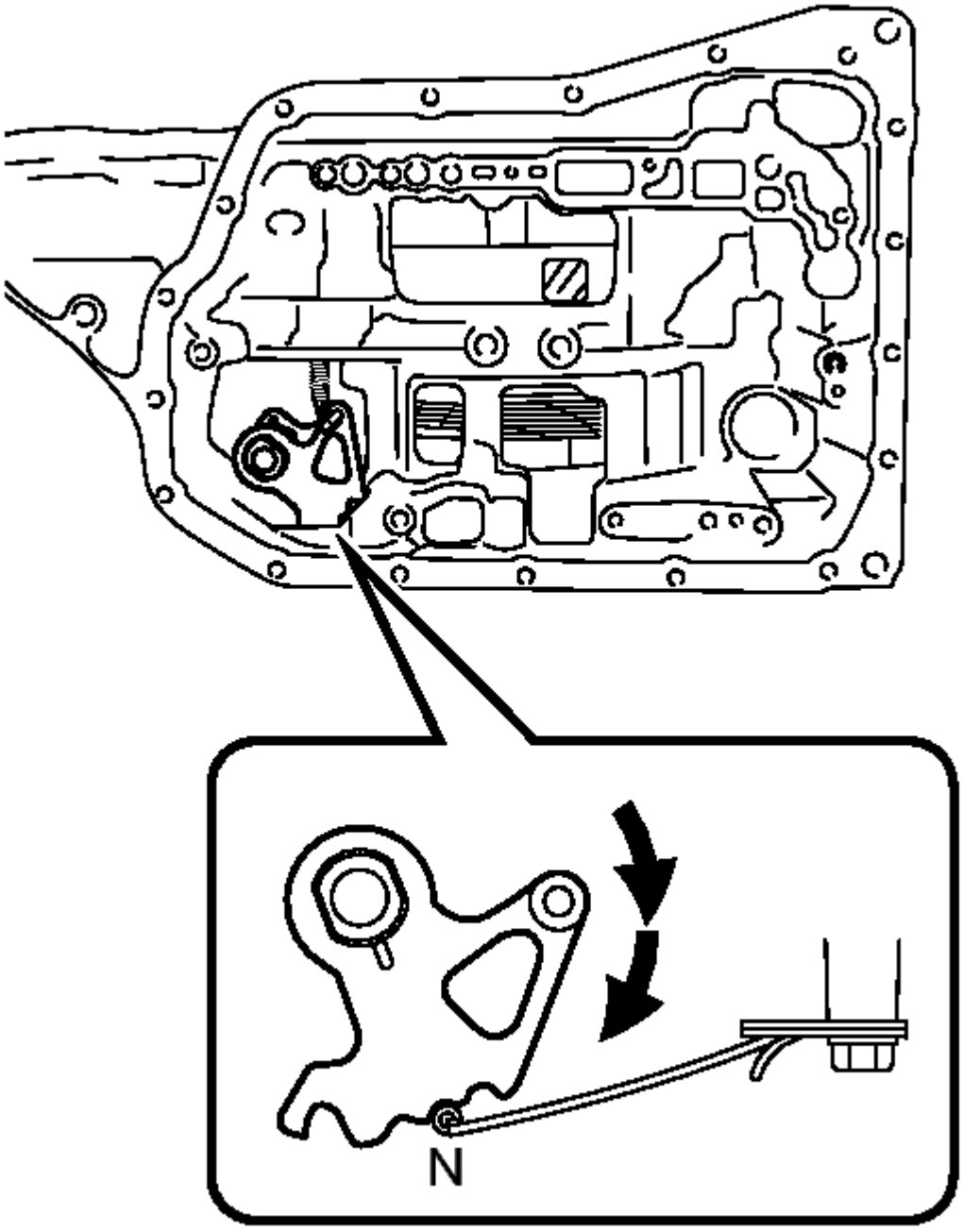
N

Fig. 345: Measuring Turning Torque Of Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

Torque: 120 N*m (1223 kgf*cm, 88 ft.*lbf)

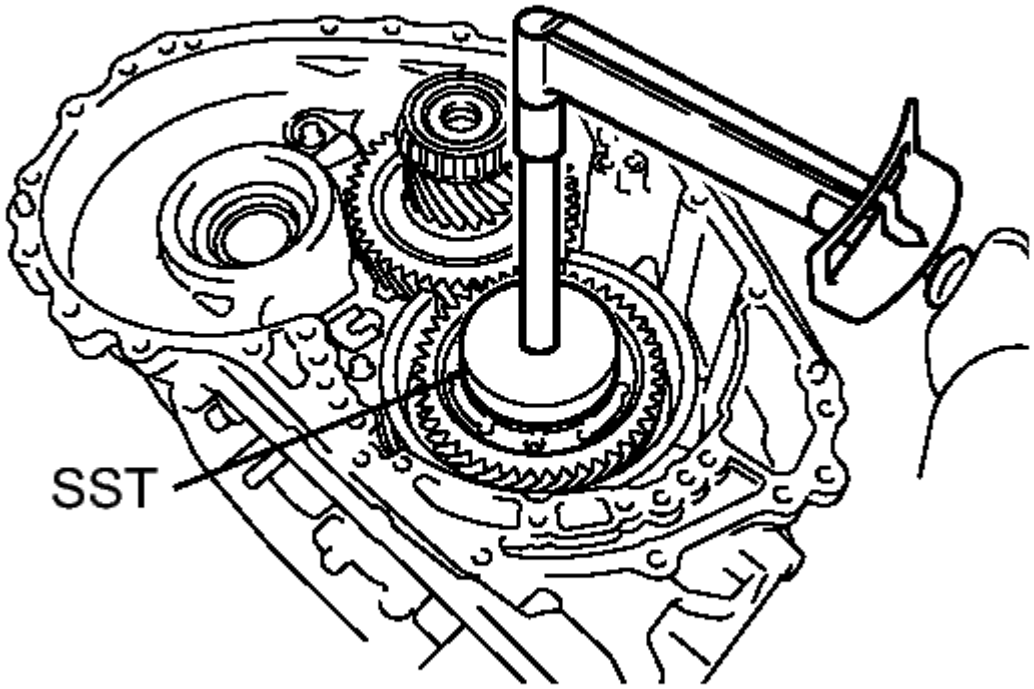
c. Turn the manual valve lever 2 notches clockwise to set it to the N position as shown in the illustration.



N

Fig. 346: Turning Manual Valve Lever Notches Clockwise
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

d. Using SST and a torque wrench, measure the turning torque of the bearing while rotating SST at 60 RPM.



N

Fig. 347: Measuring Turning Torque Of Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09387-00130**

Turning torque

0.1 to 0.2 N*m (1 to 2 kgf*cm, 0.9 to 1.9 in.*lbf)

If the measured value is not within the specified range, gradually tighten the nut until the turning toque falls within the specified range.

Maximum torque

180 N*m (1835 kgf*cm, 133 ft.*lbf)

e. Using SST and a hammer, stake the planetary gear assembly.

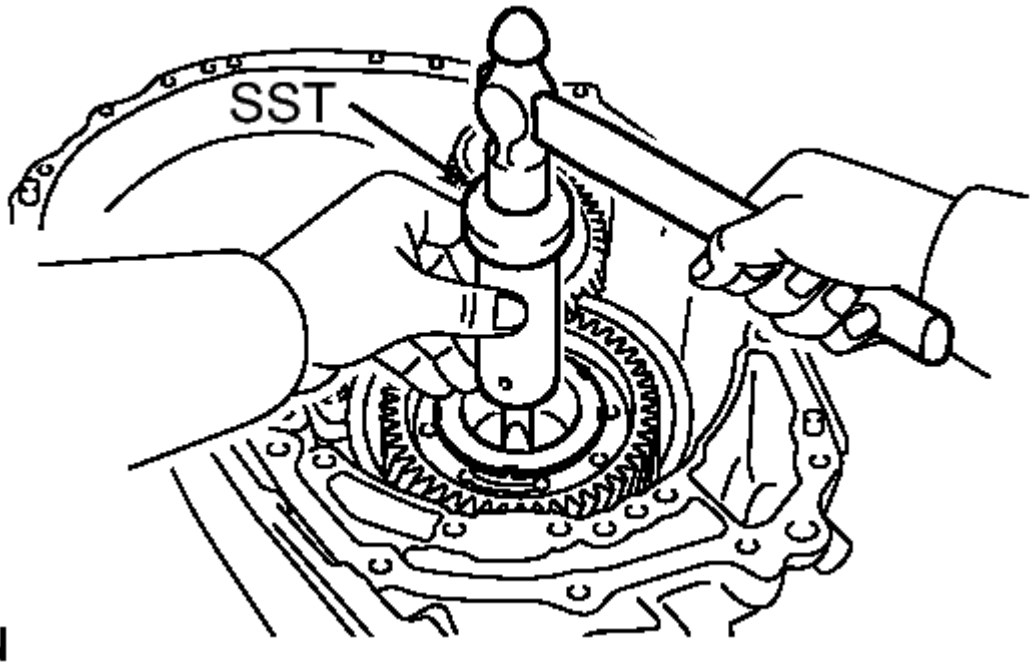
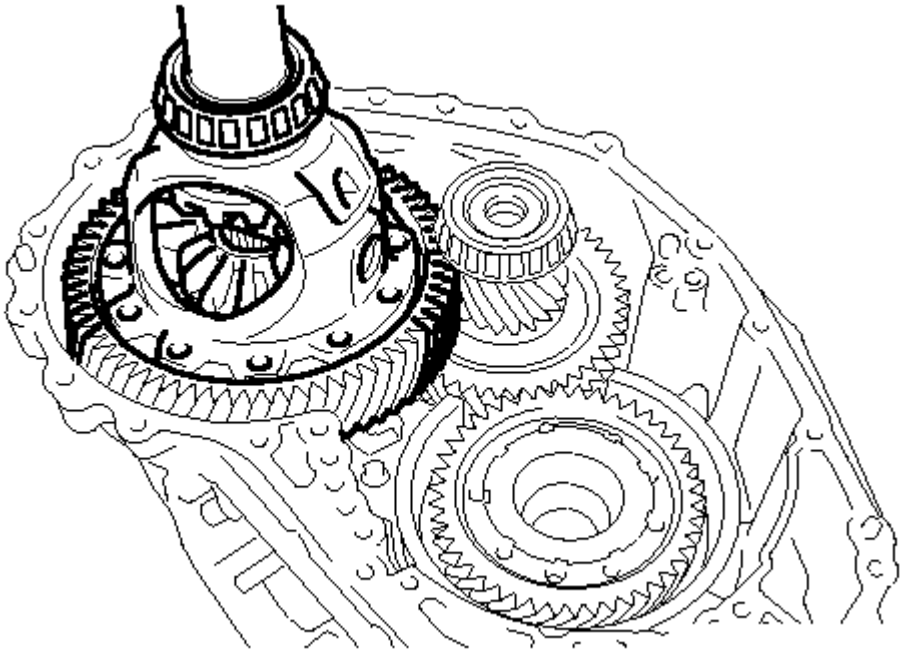


Fig. 348: Identifying Planetary Gear Assembly With SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09930-00010**

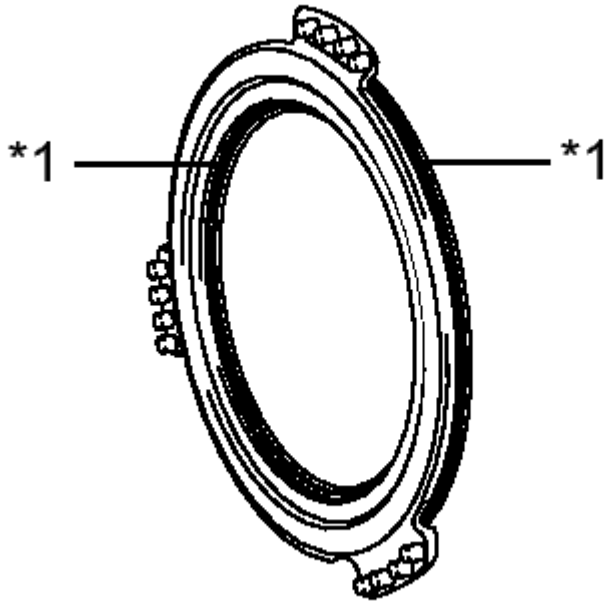
25. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH** See step 1
26. **INSTALL FRONT DIFFERENTIAL CASE**
    a. Install the front differential case to the transaxle case.



C

Fig. 349: Identifying Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

27. **INSTALL NO. 1 BRAKE PISTON**
    a. Coat 2 new O-rings with ATF and install them to the No. 1 brake piston.



N

Fig. 350: Identifying O-Ring

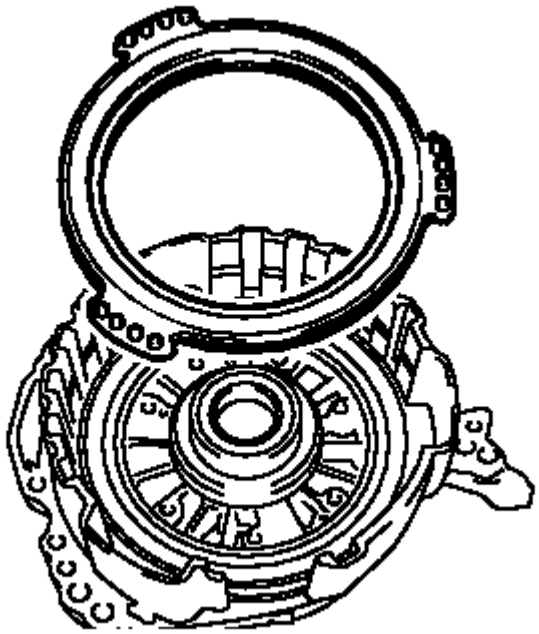
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

NOTE: Ensure that the O-rings are not twisted.

b. Install the No. 1 brake piston to the oil pump assembly.

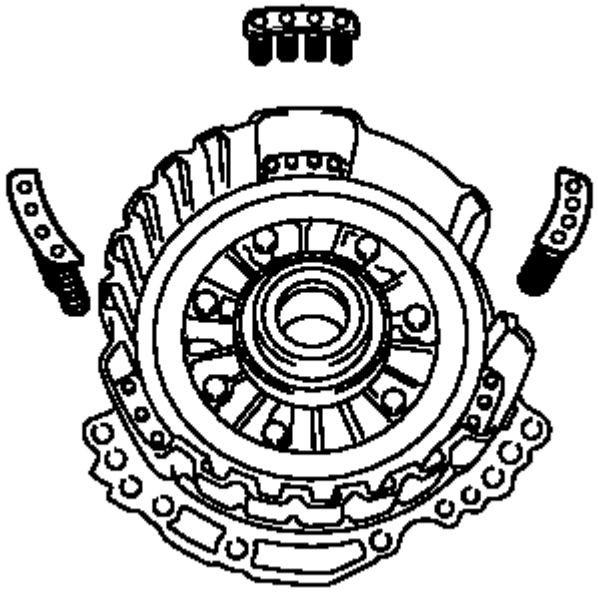


N

Fig. 351: Identifying No. 1 Brake Piston
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the O-rings.

28. **INSTALL 2ND BRAKE PISTON RETURN SPRING SUB-ASSEMBLY**
    a. Install the 3 2nd brake piston return springs to the oil pump assembly.



N

Fig. 352: Identifying 2nd Brake Piston Return Springs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that the 3 2nd brake piston return springs are installed onto the protrusions on the oil pump assembly.

29. **INSTALL NO. 1 BRAKE DISC**
    a. Install the 4 No. 1 brake discs, 4 No. 1 brake plates and No. 1 brake flange to the oil pump assembly.

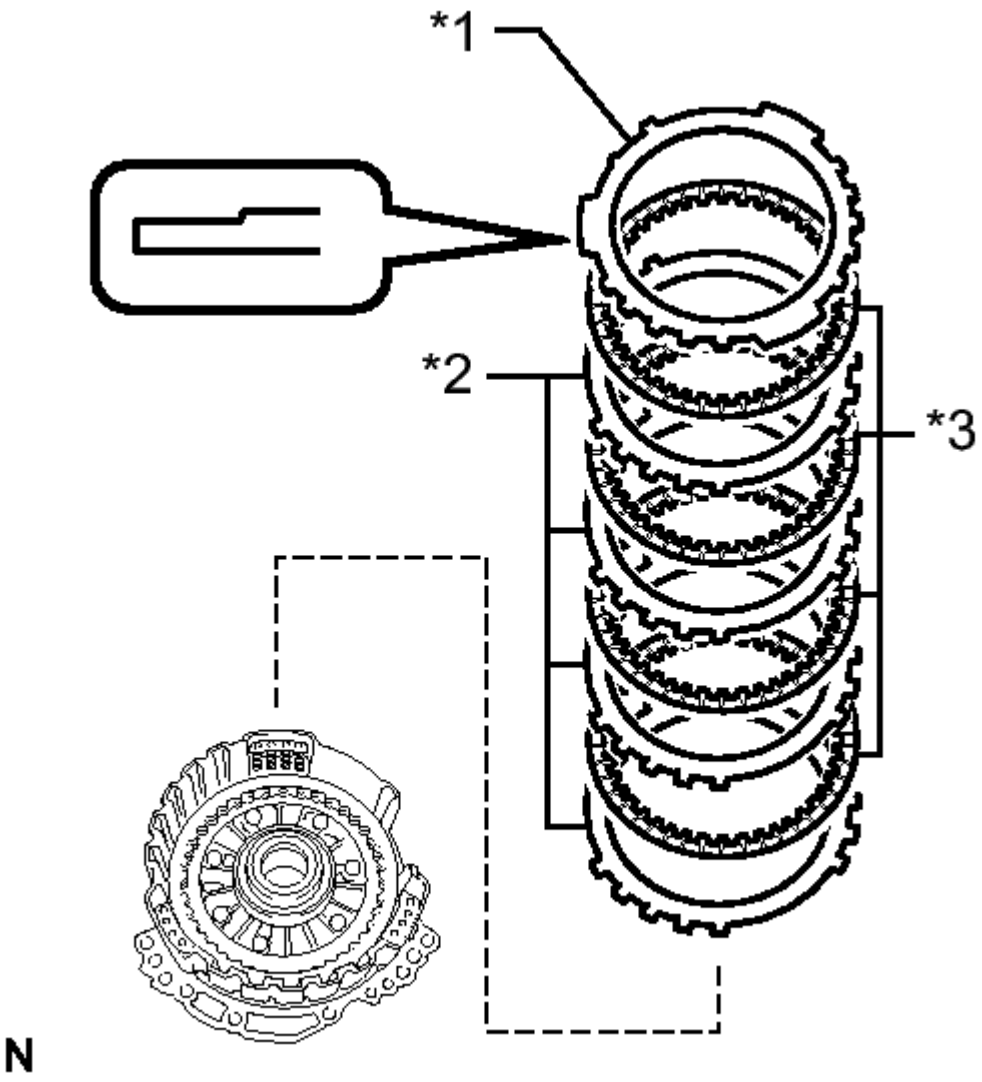


Fig. 353: Identifying Brake Discs, Brake Plates And Brake Flange
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Brake Flange
*2	No. 1 Brake Plate
*3	No. 1 Brake Disc

NOTE:

- **Make sure that the discs, plates, and flange are installed in the**

correct order.

- **Be sure to install the flange in the correct direction.**

b. Place SST on the flange and compress the flange using a press.

- **SST: 09387-00070**
- **SST: 09495-65040**

NOTE: **Stop the press when the brake piston return spring is flush with the snap ring groove. This prevents the brake piston return spring from being deformed.**

c. Using a screwdriver, install the snap ring to the oil pump assembly as shown in the illustration (#1).

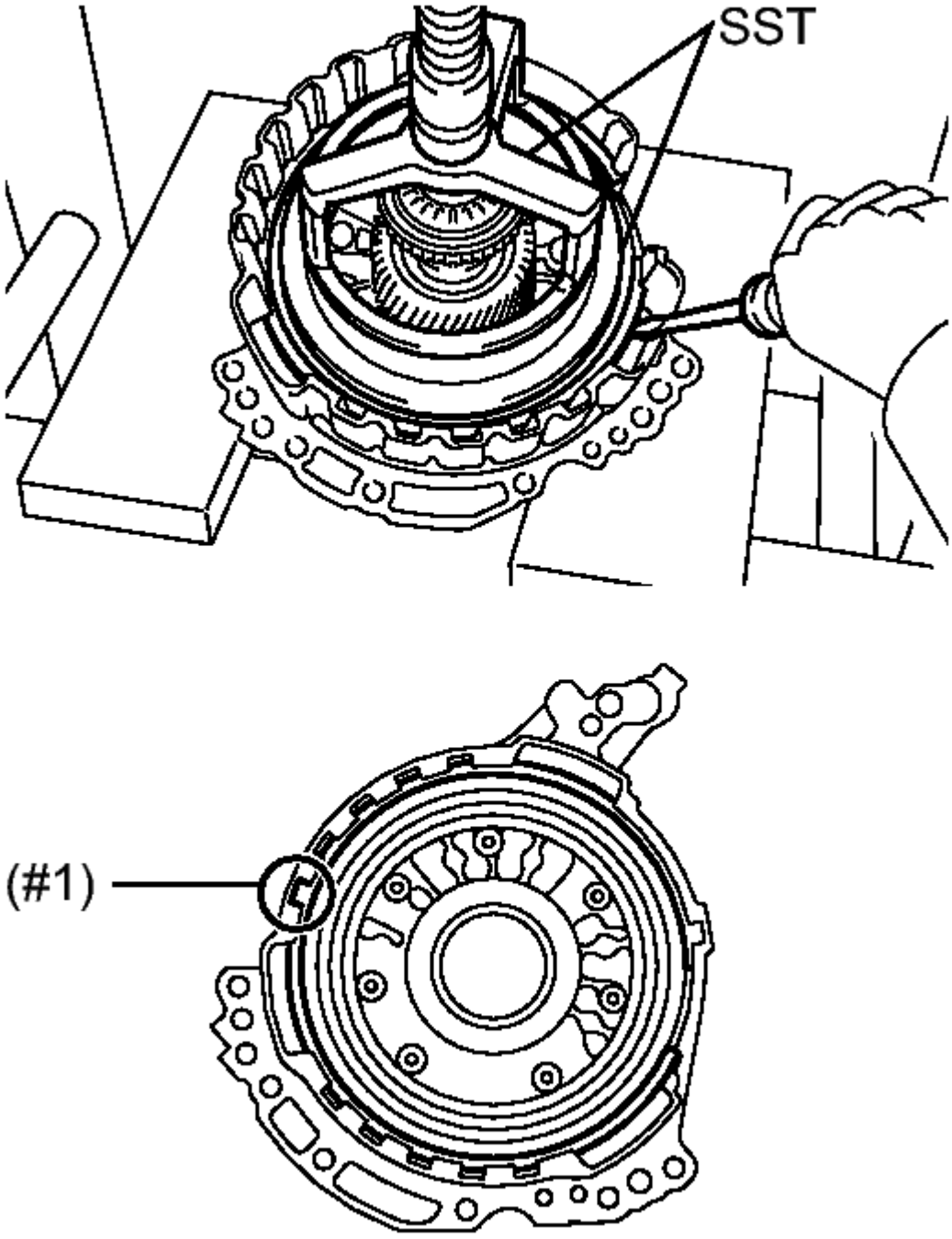


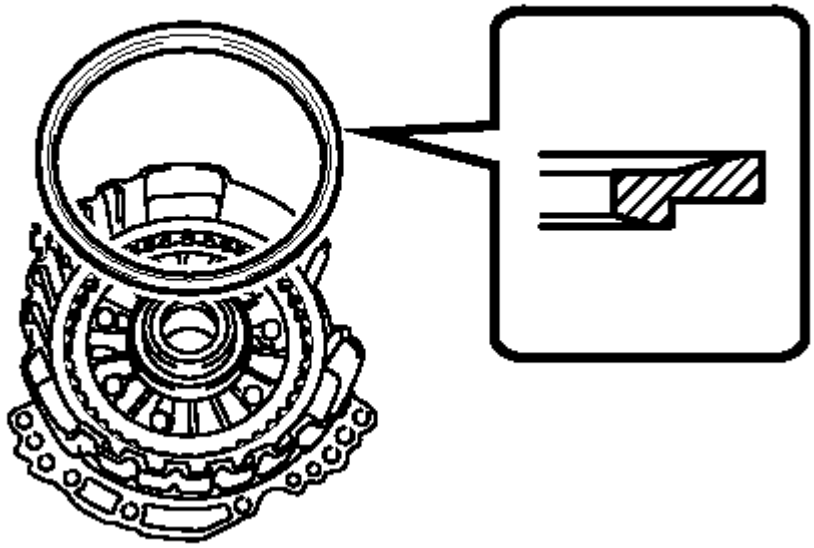
Fig. 354: Installing Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**

- **Make sure to align the protruding part of the snap ring with the indented part (#1) of the front oil pump assembly shown in the illustration to install the snap ring.**

d. Install the brake snap ring stopper to the oil pump assembly.



N

Fig. 355: Identifying Brake Snap Ring Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be sure to install the brake snap ring stopper in the correct direction.

e. Using a screwdriver, install the snap ring to the oil pump assembly as shown in the illustration (#2).

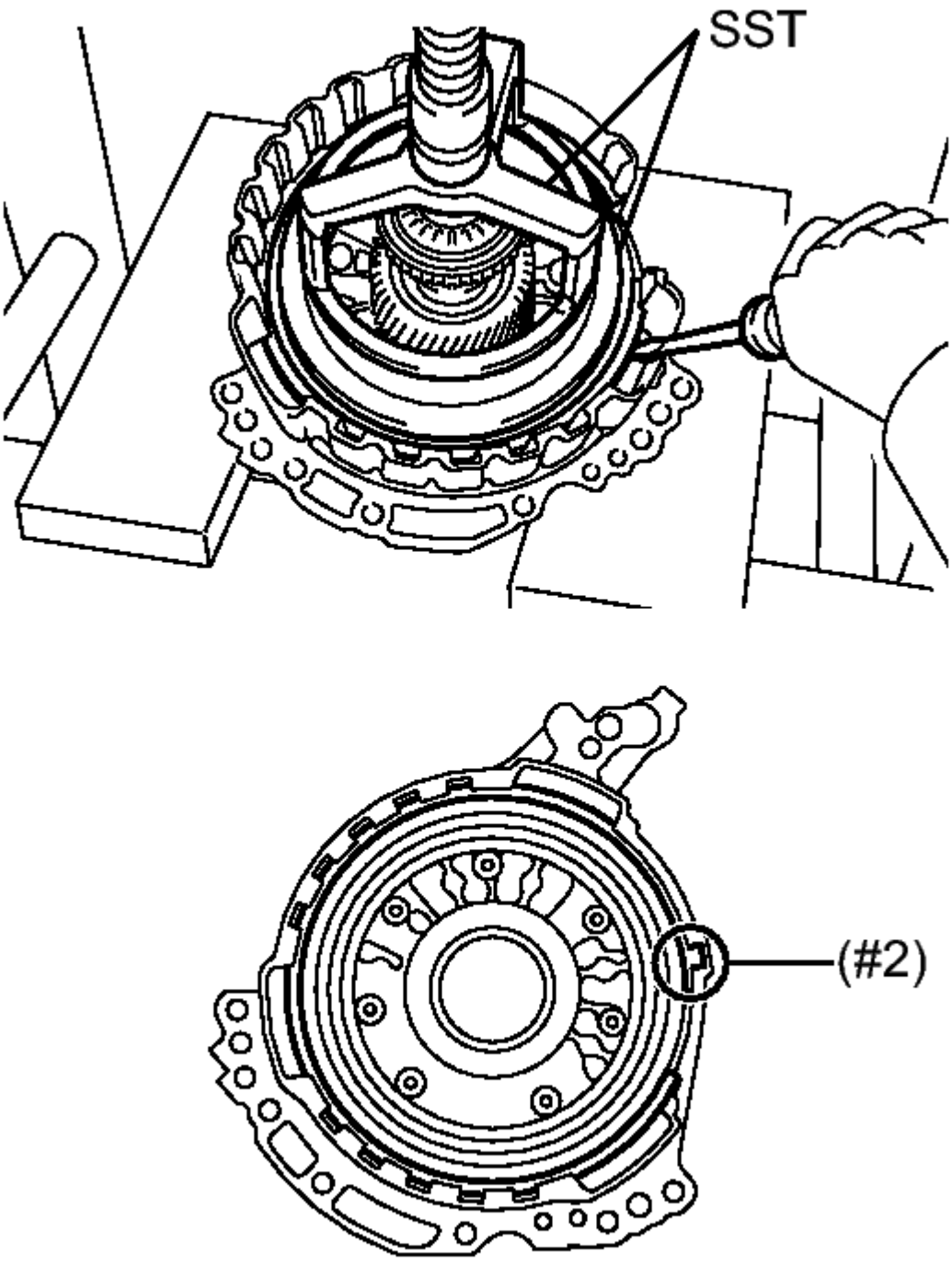


Fig. 356: Installing Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**

- **Make sure to align the protruding part of the snap ring with the indented part (#2) of the front oil pump assembly shown in the illustration to install the snap ring.**

f. Check that the brake snap ring stopper can be turned by hand.

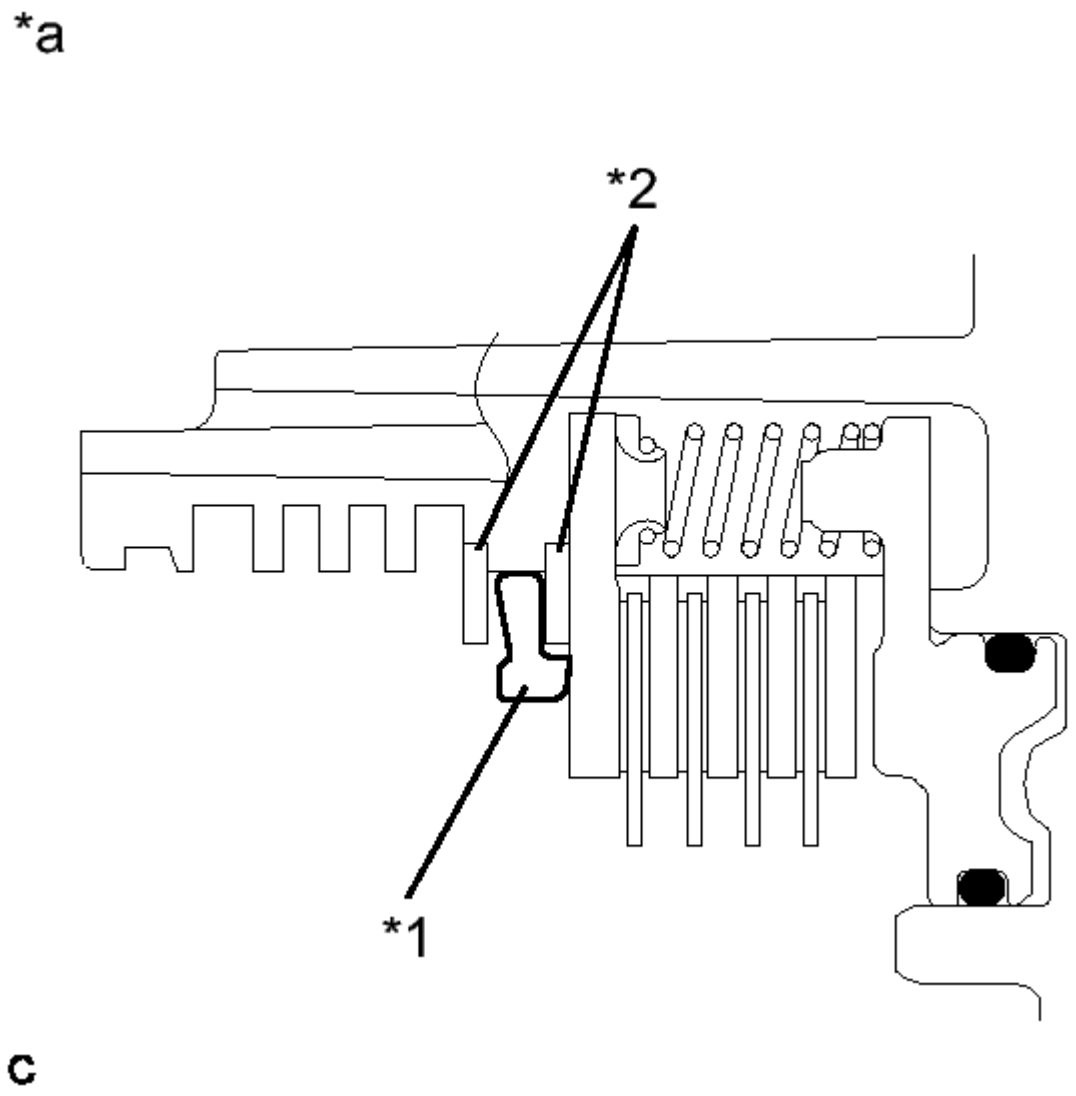


Fig. 357: Identifying Brake Snap Ring & Stopper
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Snap Ring Stopper
*2	Snap

	Ring
*a	Correctly Installed

NOTE: **If the brake snap ring stopper cannot be turned by hand, the brake snap ring stopper may have been installed upside down, or the snap ring may not have been completely located in the groove on the oil pump. Remove and reinstall the snap ring and the brake snap ring stopper.**

30. **INSPECT CLEARANCE OF NO. 1 BRAKE** See step 16
31. **INSTALL UNDERDRIVE PLANETARY SUN GEAR**
    a. Coat the thrust needle roller bearing with ATF, and install it to the oil pump assembly.

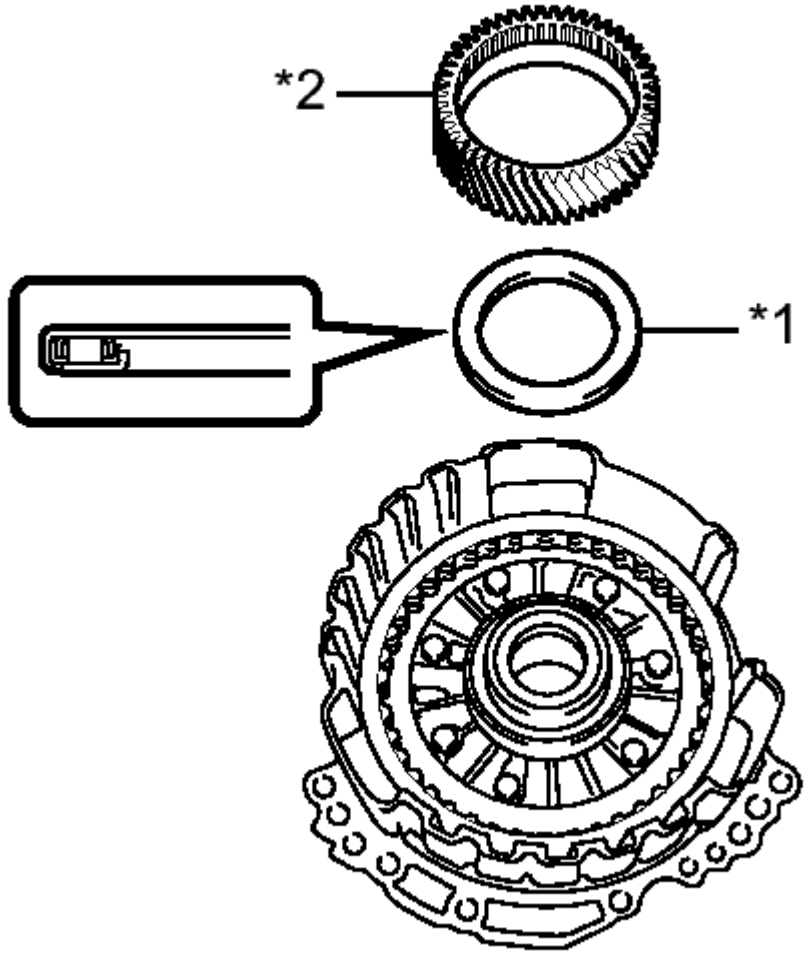


Fig. 358: Identifying Thrust Needle Roller Bearing

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

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	57.7 (2.27)	75.2 (2.96)

NOTE: **Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.**

b. Install the underdrive planetary sun gear to the oil pump assembly.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Sun Gear

32. **INSTALL INPUT SHAFT SUB-ASSEMBLY**

a. Coat 3 new input shaft oil seal rings with ATF and install them to the input shaft.

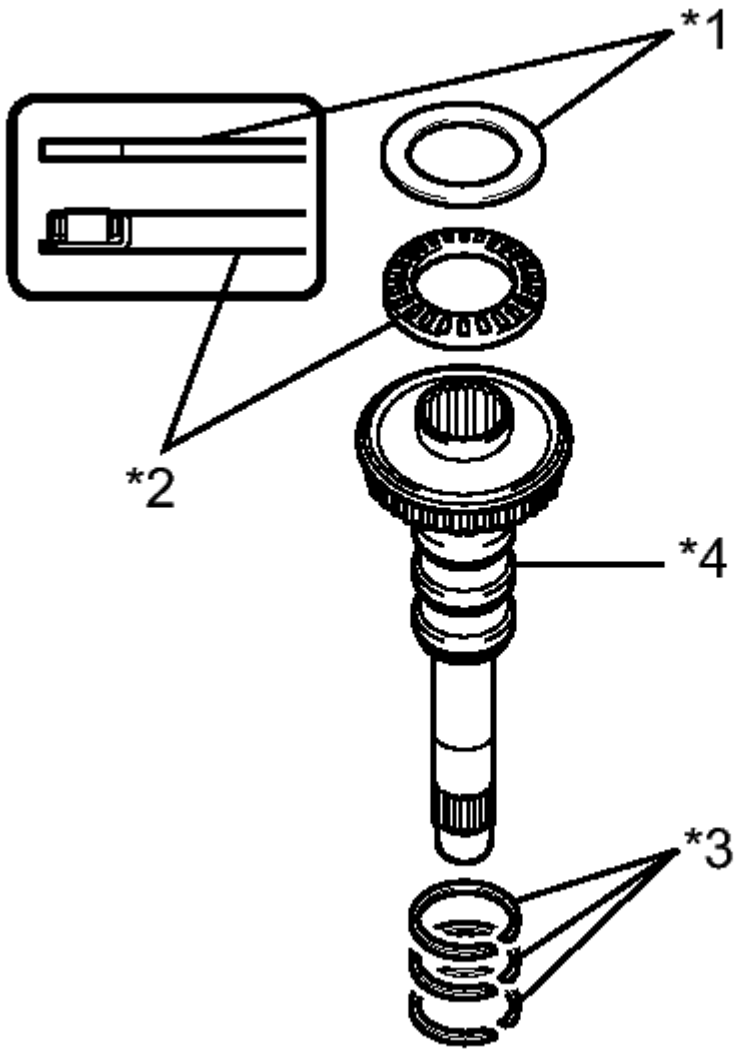


Fig. 359: Identifying Input Shaft Oil Seal Ring And Underdrive Planetary Sun Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*3	Input Shaft Oil Seal Ring

NOTE: Do not expand the gap of the oil seal ring excessively.

b. Coat the thrust needle roller bearing and thrust needle roller race with ATF, and install them on the oil pump assembly.

TEXT IN ILLUSTRATION

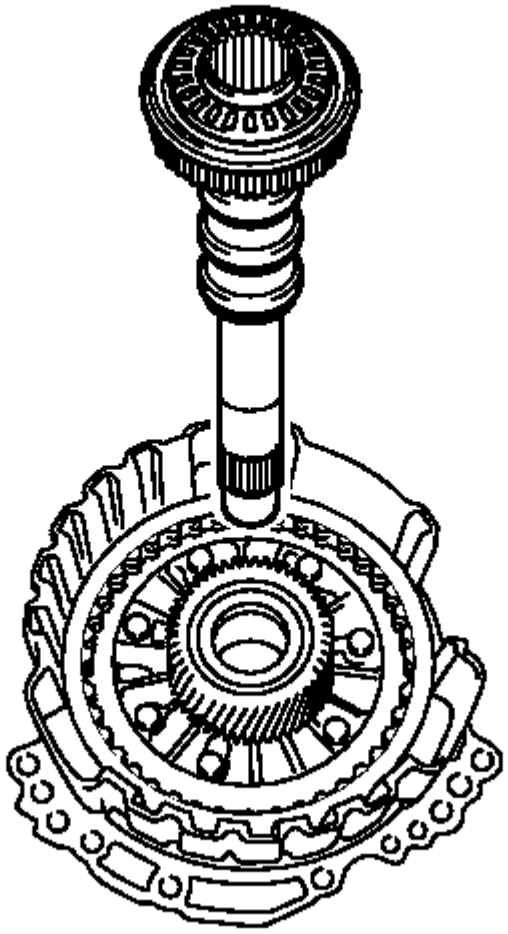
*1	Thrust Needle Roller Race
*2	Thrust Needle Roller Bearing
*4	Input Shaft

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	29.1 (1.15)	48.6 (1.91)
Race	30.7 (1.21)	48.3 (1.90)

NOTE: Be sure to install the thrust needle roller bearing in the correct direction.

c. Install the input shaft to the oil pump assembly.



N

Fig. 360: Identifying Input Shaft And Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

33. **INSTALL PLANETARY SUN GEAR SUB-ASSEMBLY**
    a. Using a snap ring expander, install the snap ring to the underdrive planetary gear assembly.

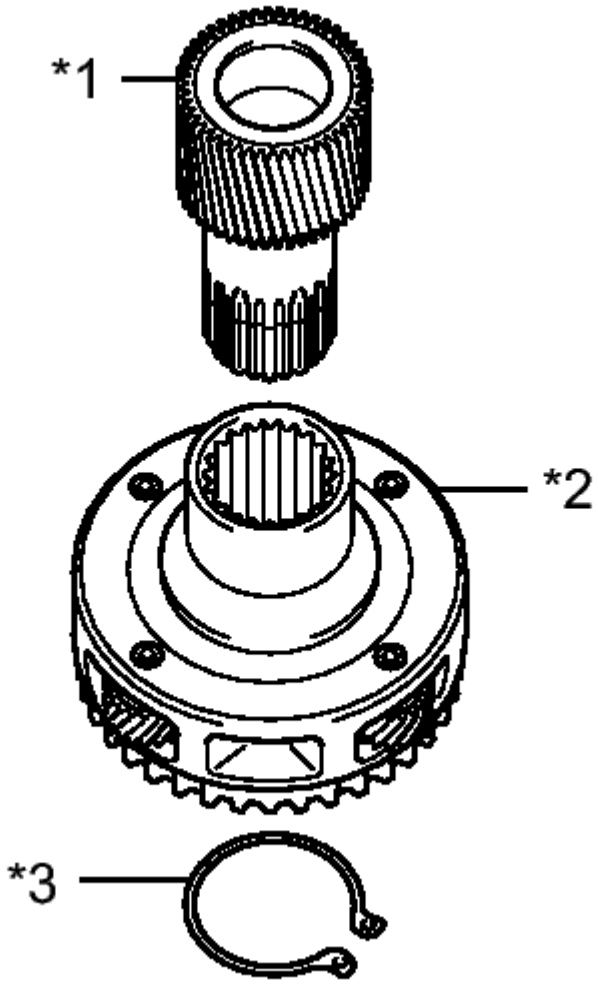


Fig. 361: Identifying Front Planetary Sun Gear, Underdrive Planetary Gear Assembly And Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*3	Snap Ring

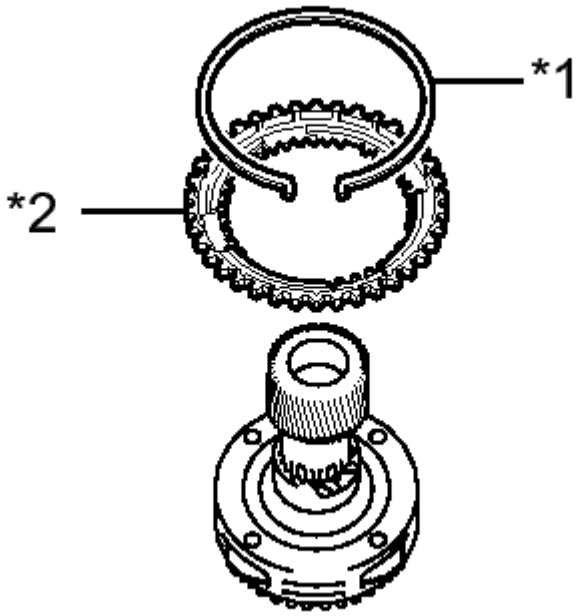
b. Using a snap ring expander, install the planetary sun gear subassembly to the underdrive planetary gear assembly with the snap ring expanded.

TEXT IN ILLUSTRATION

*1	Planetary Sun Gear Subassembly
	Underdrive

*2	Planetary Gear Assembly

34. **INSTALL UNDERDRIVE PLANETARY RING GEAR**
    a. Install the underdrive planetary ring gear to the underdrive planetary gear assembly.



N

Fig. 362: Identifying Underdrive Planetary Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*2	Underdrive Planetary Ring Gear

    b. Using needle-nose pliers, install the snap ring to the underdrive planetary ring gear.

TEXT IN ILLUSTRATION

*1	Snap Ring

NOTE: Confirm that the snap ring is correctly located in the groove of the underdrive planetary ring gear.

35. **INSTALL NO. 3 BRAKE HUB**
    a. Coat the thrust needle roller bearing with ATF and install it on the underdrive planetary gear

assembly.

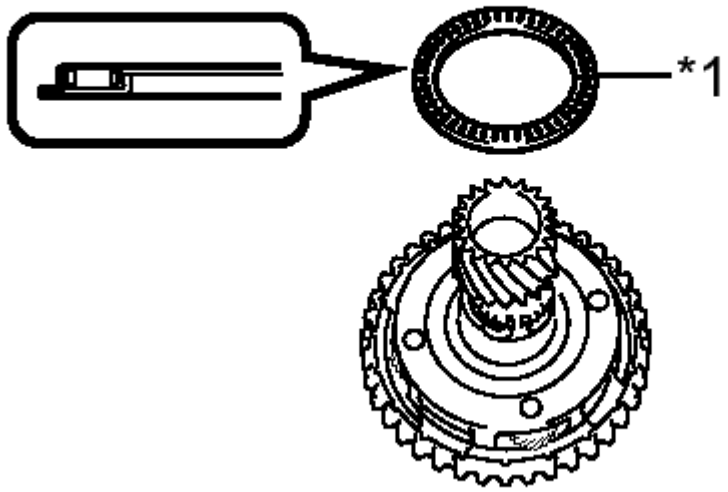


Fig. 363: Identifying No. 3 Brake Hub
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	62.6 (2.46)	82.9 (3.26)
Race	65.9 (2.59)	80.3 (3.16)

NOTE: Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

b. Coat the thrust needle roller race with MP grease and install it to the No. 3 brake hub.

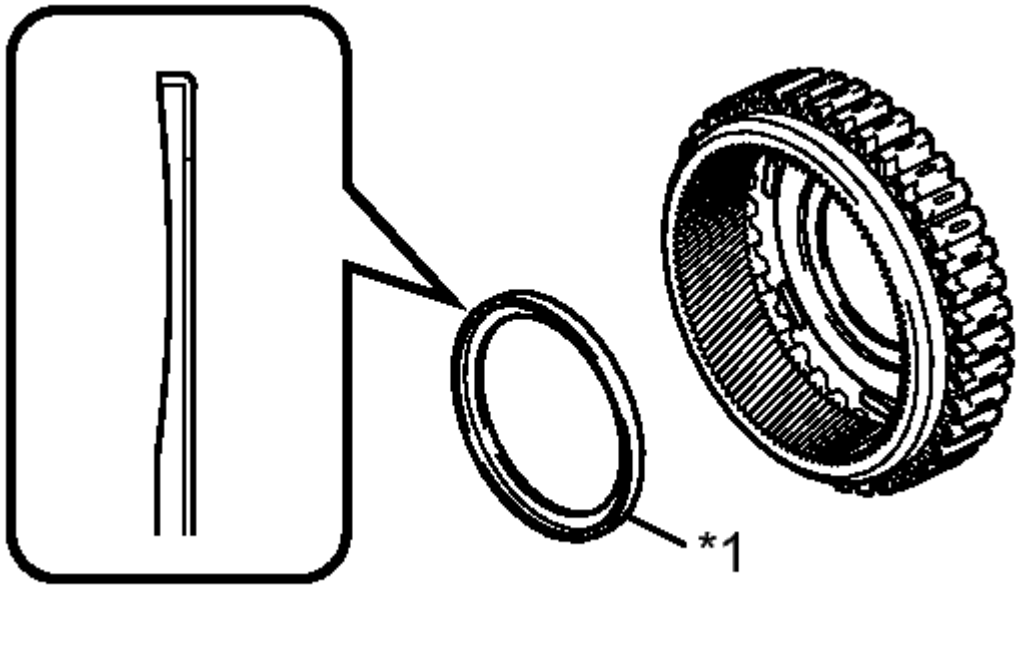
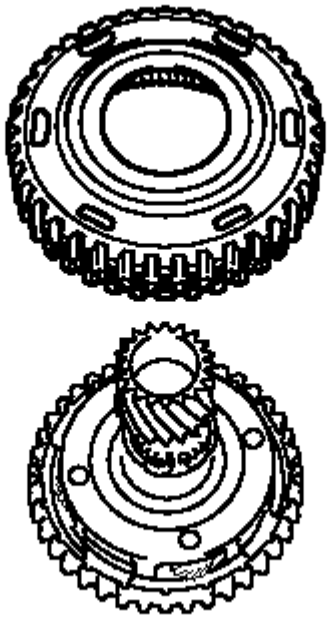


Fig. 364: Identifying Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Race

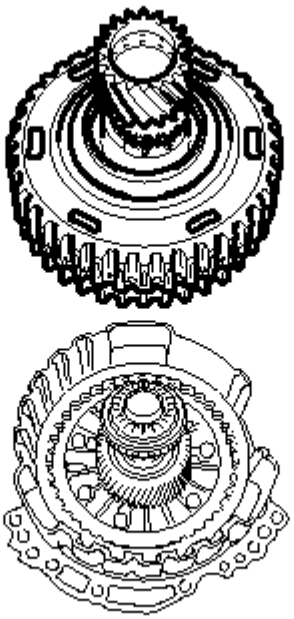
c. Install the No. 3 brake hub to the underdrive planetary gear assembly.



N

Fig. 365: Identifying No. 3 Brake Hub And Underdrive Planetary Gear Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

36. **INSTALL UNDERDRIVE PLANETARY GEAR ASSEMBLY**
    a. Install the underdrive planetary gear assembly to the oil pump assembly.



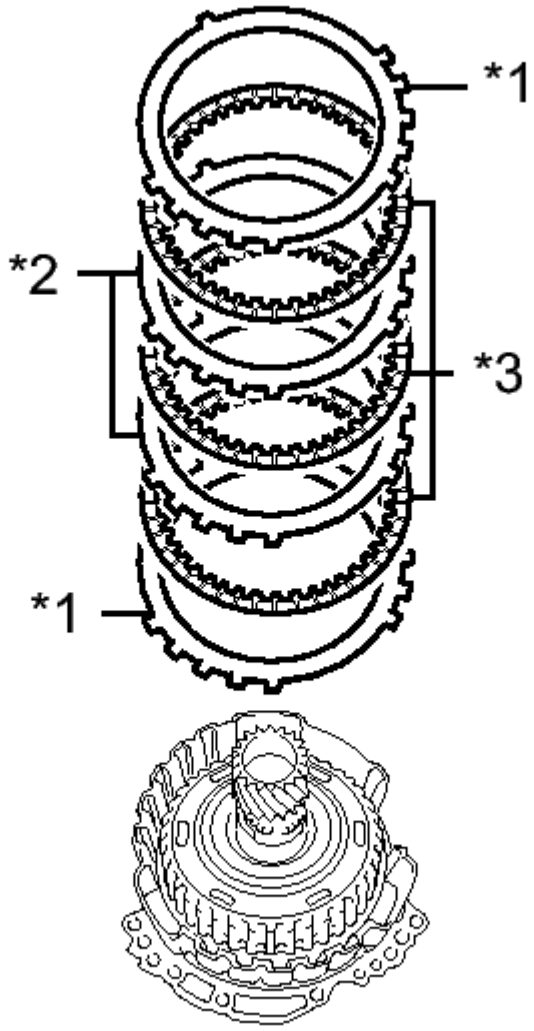
N

Fig. 366: Identifying Underdrive Planetary Gear Assembly

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

37. **INSTALL NO. 3 BRAKE DISC**

a. Install the 2 No. 3 brake flanges, 3 No. 3 brake discs and 2 No. 3 brake plates to the oil pump assembly.



N

Fig. 367: Identifying Brake Flanges, Brake Discs And Brake Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

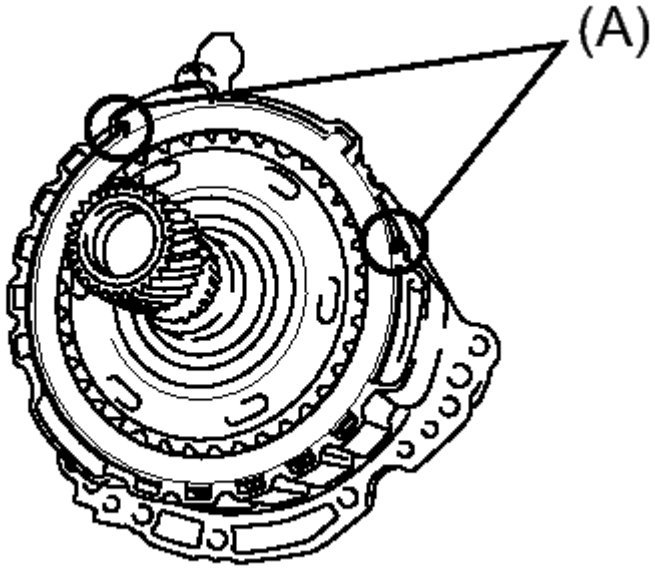
TEXT IN ILLUSTRATION

*1	No. 3 Brake Flange
*2	No. 3 Brake Plate

*3	No. 3 Brake Disc

NOTE: **Make sure that the discs, plates and flanges are installed in the correct order.**

b. Using a screwdriver, install the snap ring to the oil pump assembly.



N

Fig. 368: Identifying Snap Ring To Oil Pump Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Confirm that the snap ring is correctly located in the groove of the oil pump.**
- **Make sure that the snap ring ends are positioned as shown in the illustration (A).**

38. **INSPECT CLEARANCE OF NO. 3 BRAKE** See step 17
39. **INSTALL FRONT OIL PUMP ASSEMBLY**
    a. Coat a new O-ring with ATF and install it to the transaxle case.

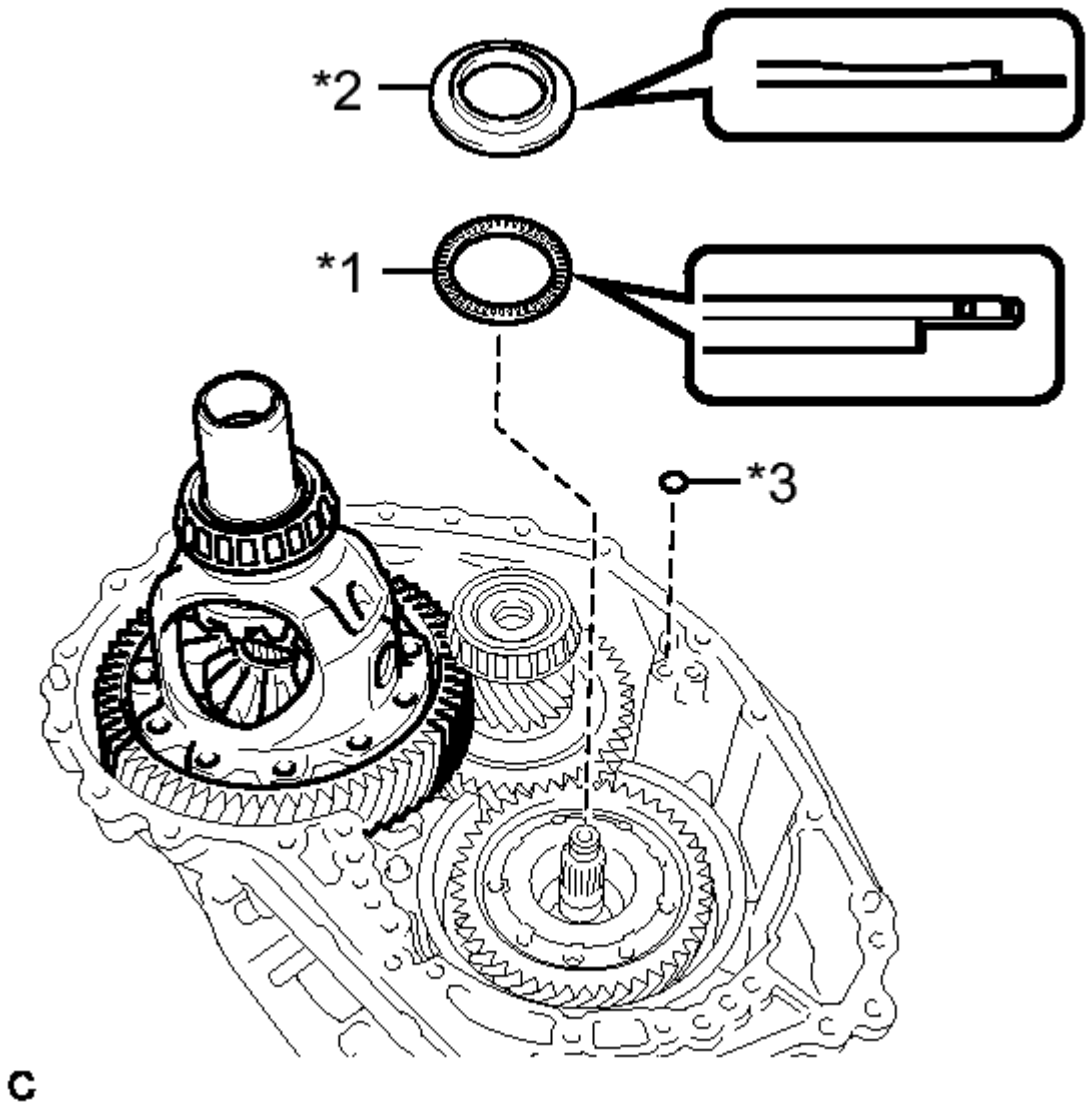


Fig. 369: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*3	O-ring

b. Coat the thrust needle roller bearing and thrust needle roller race with ATF and install them on the underdrive planetary gear assembly.

TEXT IN ILLUSTRATION

*1	Thrust Needle Roller Bearing
	Thrust

*2	Needle Roller Race

BEARING DIAMETER

-	Inside mm (in.)	Outside mm (in.)
Bearing	53.1 (2.09)	79 (3.11)
Race	59.4 (2.34)	77 (3.03)

NOTE: Be sure to install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

c. Coat a new O-ring with ATF and install it to the oil pump.

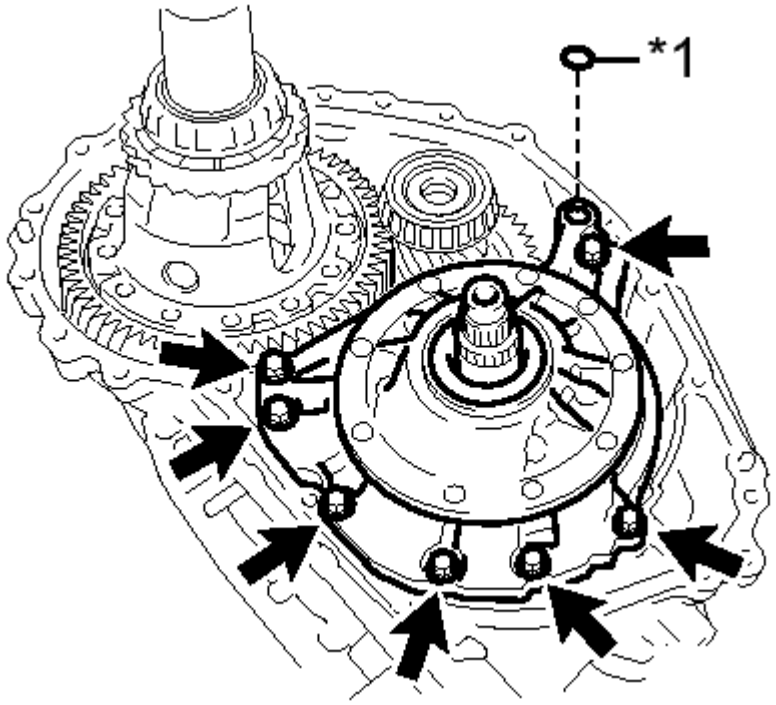


Fig. 370: Identifying Front Oil Pump Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

d. Install the oil pump assembly to the transaxle case with the 7 bolts.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

40. **INSTALL FRONT OIL PUMP BODY O-RING**
41. **INSTALL DIFFERENTIAL GEAR LUBE APPLY TUBE**
    a. Install the differential gear lube apply tube to the transaxle housing.

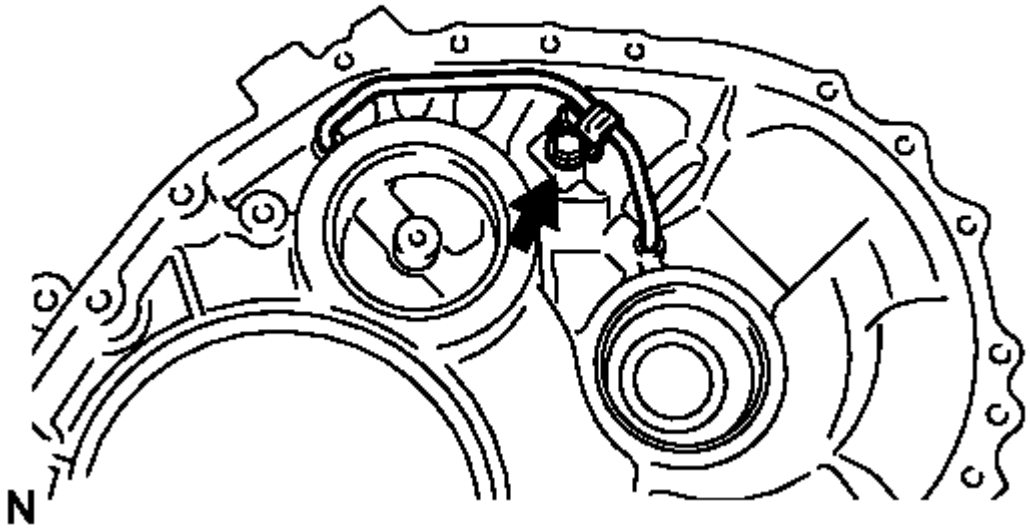


Fig. 371: Identifying Differential Gear Lube Apply Tube Clamp And Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Insert the differential gear lube apply tube into the transaxle case until it makes contact with the stopper.

    b. Install the apply tube clamp to the differential gear lube apply tube with the bolt.

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

NOTE: There should be clearance between the differential lube apply tube and apply tube clamp.

42. **INSTALL COUNTER DRIVEN GEAR FRONT TAPERED ROLLER BEARING OUTER RACE**
    a. Install the shim to the transaxle housing.

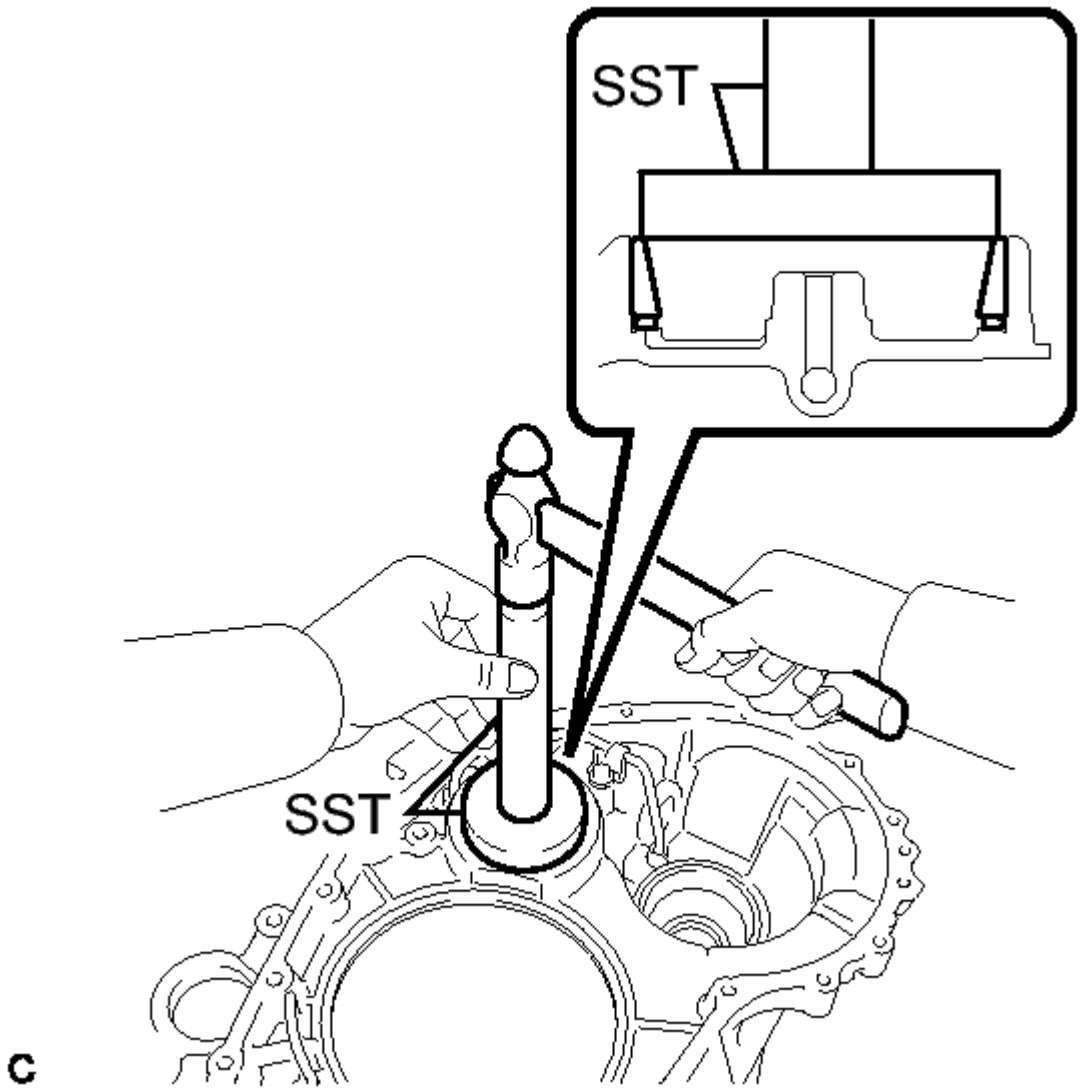


Fig. 372: Installing Counter Driven Gear Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using SST, install a new counter driven gear front tapered roller bearing outer race to the transaxle housing.
   - **SST: 09950-60020**
     09951-00810
   - **SST: 09950-70010**
     09951-07100

NOTE: Be sure to install the counter driven gear front tapered roller bearing outer race so that there is no clearance between the shim and the transaxle housing.

43. **INSTALL TRANSAXLE HOUSING**

a. Remove packing material from the contact surfaces between the transaxle housing and case.

NOTE: Make sure that there is no ATF on the contact surfaces.

b. Apply FIPG to the transaxle case.

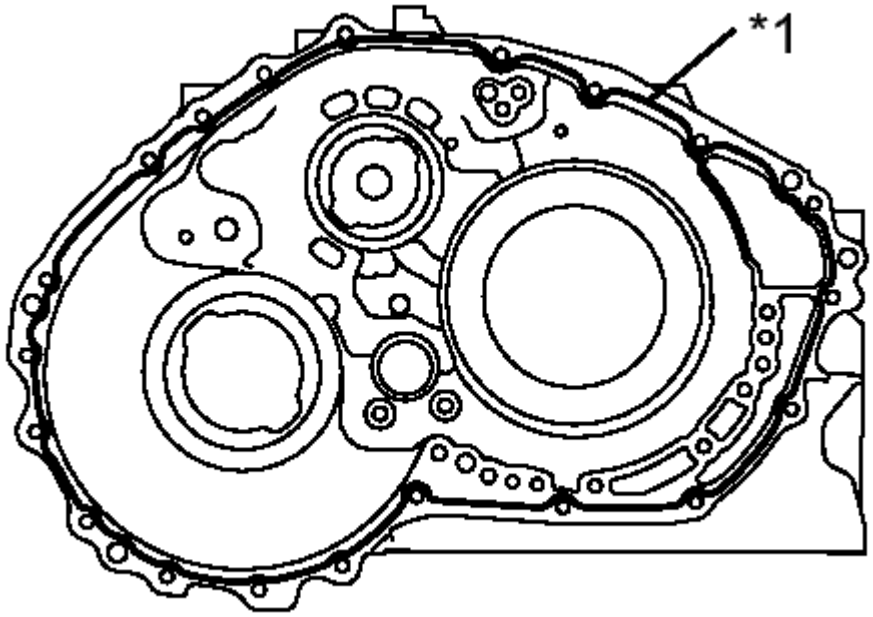


Fig. 373: Applying FIPG To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	FIPG

FIPG

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTE: Apply FIPG in a continuous line (width 1.2 mm (0.0472 in.)) along the sealing surface.

c. Install the transaxle housing to the transaxle case with the 20 bolts.

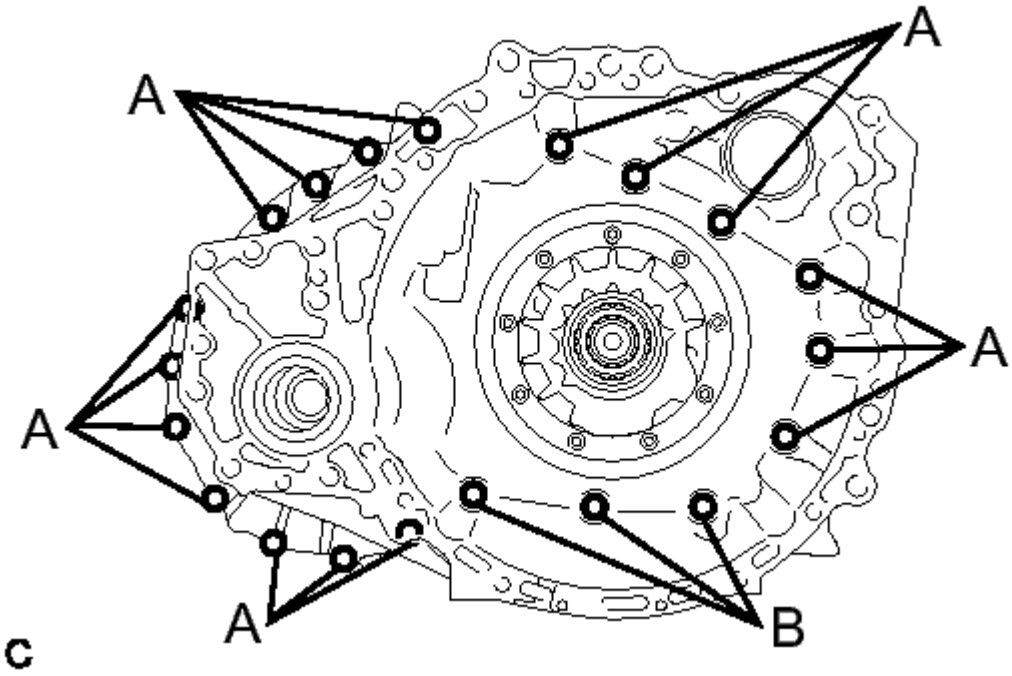


Fig. 374: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

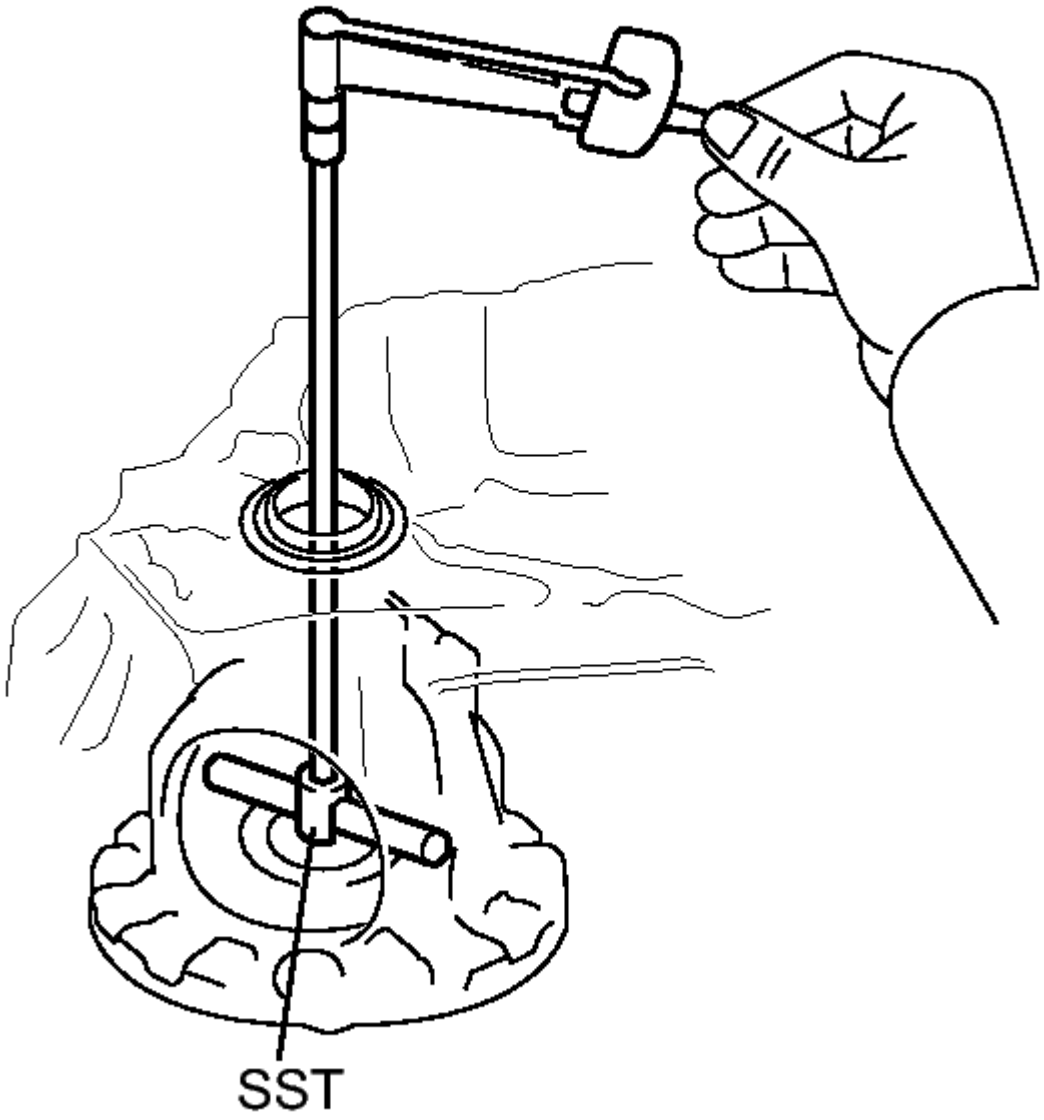
Bolt A

Torque: 31 N*m (312 kgf*cm, 23 ft.*lbf)

Bolt B

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

44. **ADJUST COUNTER DRIVEN GEAR PRELOAD**
    a. Using SST and a torque wrench, measure the turning torque of the counter driven gear while rotating SST at 10 RPM.



N

Fig. 375: Measuring Turning Torque Of Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09564-33010**

Turning torque

Differential side bearing preload 3.3 to 6.0 N*m (34 to 61 kgf*cm, 29 to 53 in.*lbf)

If the turning torque is not within the specified range, refer to the table below to select a shim of the counter driven gear front tapered roller bearing outer race so that the turning torque is within the specified range.

SHIM THICKNESS

Para No.	Thickness mm (in.)
90564-71014	2.000 (0.0787)
90564-71015	2.025 (0.0797)
90564-71016	2.050 (0.0807)
90564-71017	2.075 (0.0817)
90564-71018	2.100 (0.0827)
90564-71019	2.125 (0.0837)
90564-71020	2.150 (0.0846)
90564-71021	2.175 (0.0856)
90564-71022	2.200 (0.0866)
90564-71023	2.225 (0.0876)
90564-71024	2.250 (0.0886)
90564-71025	2.275 (0.0896)
90564-71026	2.300 (0.0906)
90564-71027	2.325 (0.0915)
90564-71028	2.350 (0.0925)
90564-71029	2.375 (0.0935)
90564-71030	2.400 (0.0945)

90564-71031	2.425 (0.0955)
90564-71032	2.450 (0.0965)
90564-71033	2.475 (0.0974)
90564-71034	2.500 (0.0984)
90564-71035	2.525 (0.0994)
90564-71036	2.550 (0.100)
90564-71037	2.575 (0.101)
90564-71038	2.600 (0.102)
90564-71039	2.625 (0.103)
90564-71040	2.650 (0.104)
90564-71041	2.675 (0.105)
90564-71042	2.700 (0.106)
90564-71043	2.725 (0.107)
90564-71044	2.750 (0.108)
90564-71045	2.775 (0.109)
90564-71046	2.800 (0.110)
90564-71047	2.825 (0.111)
90564-71048	2.850 (0.112)
90564-71049	2.875 (0.113)
90564-71050	2.900 (0.114)
90564-71051	2.925 (0.115)
90564-71052	2.950 (0.116)

71053	2.975 (0.117)
90564-71054	3.000 (0.118)

45. **INSTALL NO. 1 CLUTCH DISC**

a. Install the clutch flange, 4 clutch discs and 4 clutch plates to the direct multiple disc clutch assembly.

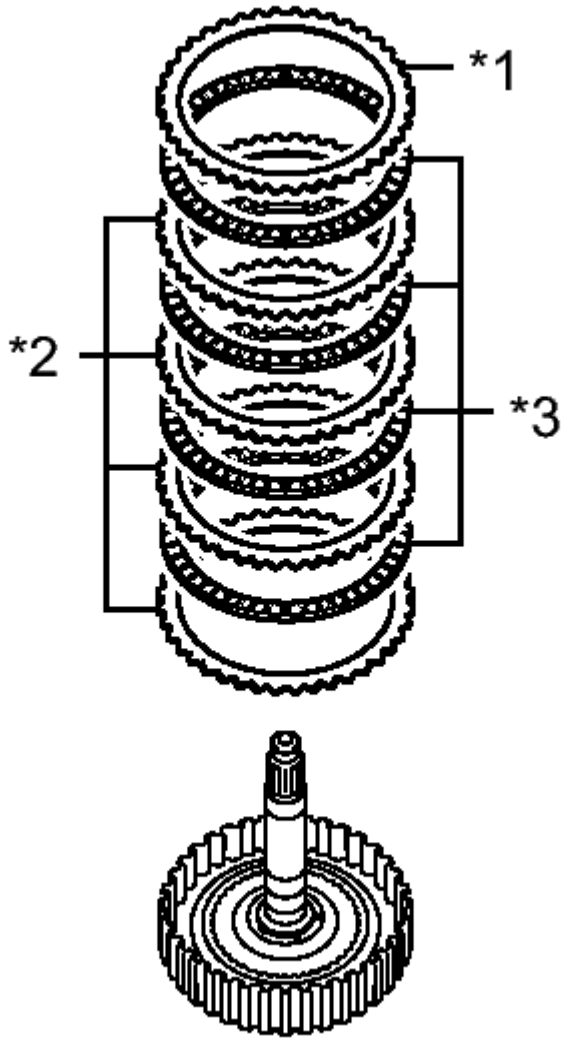


Fig. 376: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

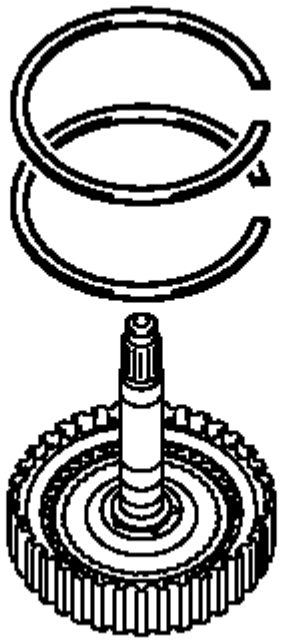
TEXT IN ILLUSTRATION

*1	Clutch Flange

*2	Clutch Plate
*3	Clutch Disc

NOTE: Make sure that the flange, discs and plates are installed in the correct order.

b. Using a screwdriver, install the 2 snap rings to the direct multiple disc clutch assembly.



N

Fig. 377: Identifying Snap Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Confirm that the snap rings are correctly located in the groove of the direct multiple disc clutch assembly.

46. **INSPECT CLEARANCE OF NO. 1 CLUTCH DISC** See step 18
47. **INSTALL REAR PLANETARY SUN GEAR ASSEMBLY**
    a. Coat the thrust needle roller bearing and thrust needle roller race with ATF, and install them to the direct multiple disc clutch assembly.

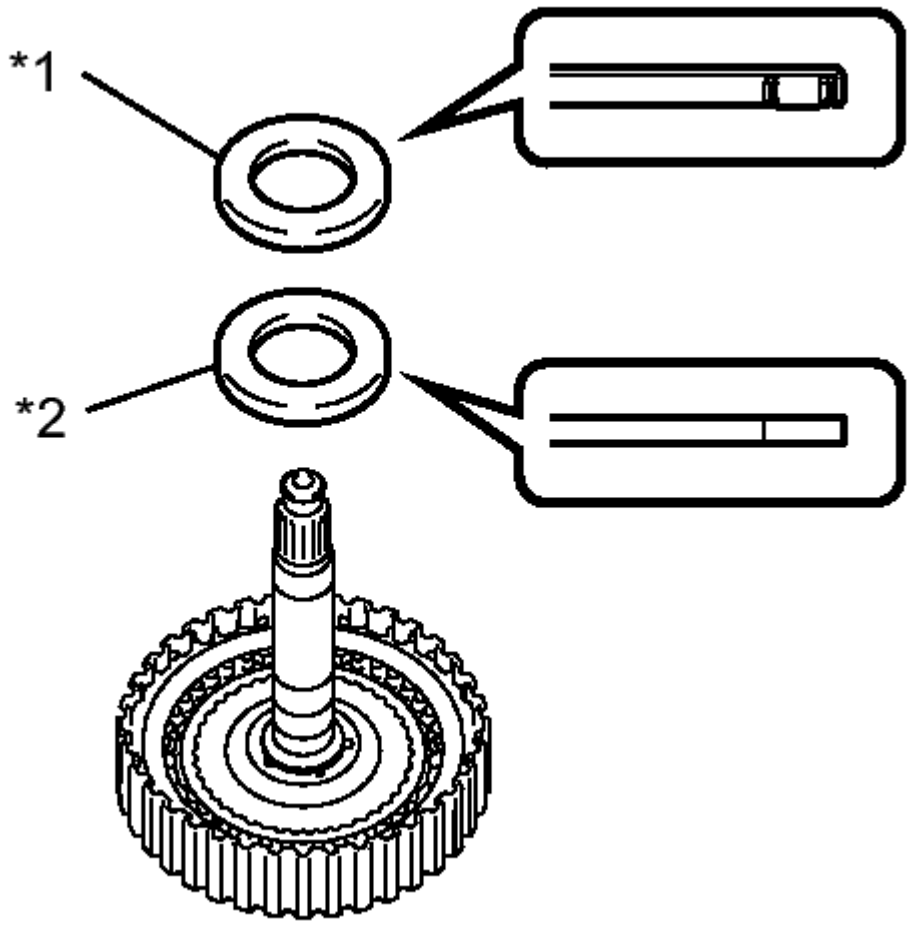


Fig. 378: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	28 (1.10)	47.1 (1.85)
Race	26.1 (1.03)	44 (1.73)

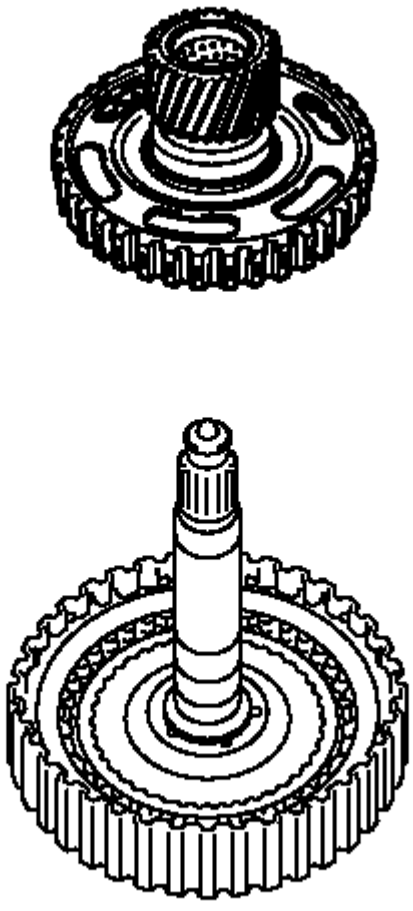
TEXT IN ILLUSTRATION

*1	Thrust Needle

	Roller Bearing
*2	Thrust Needle Roller Race

NOTE: Install the thrust needle roller bearing properly so that the temper colored side of the race will be visible.

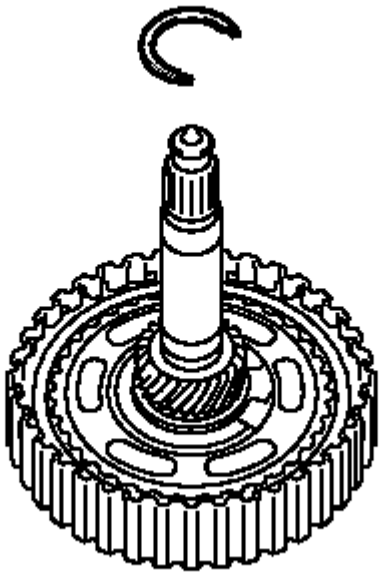
b. Install the rear planetary sun gear assembly to the direct multiple disc clutch assembly.



N

Fig. 379: Identifying Rear Planetary Sun Gear And Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a snap ring expander, install the snap ring to the direct multiple disc clutch assembly.



N

Fig. 380: Identifying Snap Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

48. **INSTALL NO. 2 CLUTCH DISC**
    a. Install the clutch flange, 3 clutch discs and 3 clutch plates to the direct multiple disc clutch assembly.

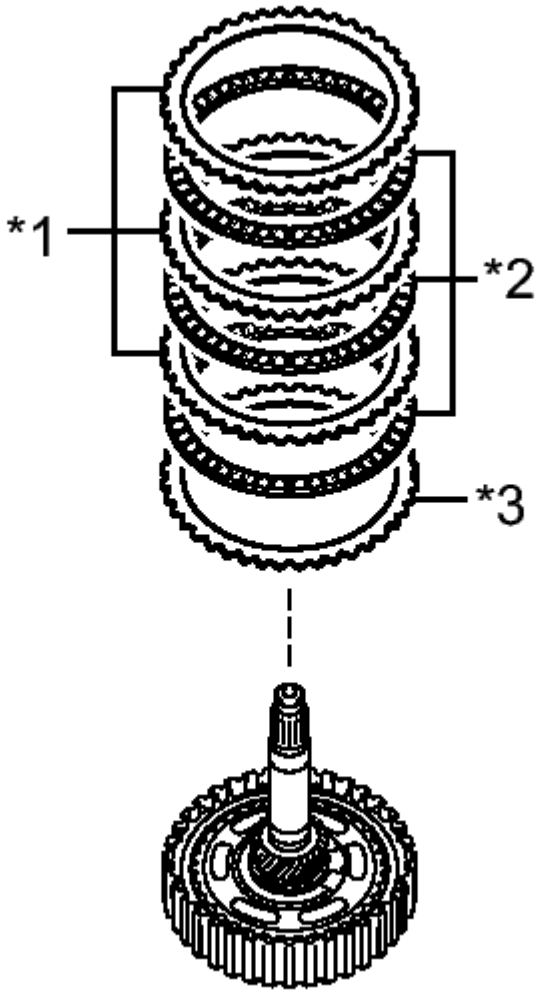


Fig. 381: Identifying Clutch Flange, Clutch Discs And Clutch Plates
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Clutch Plate
*2	Clutch Disc
*3	Clutch Flange

NOTE: **Make sure that the flange, discs and plates are installed in the correct order.**

49. **INSTALL DIRECT MULTIPLE DISC CLUTCH SNAP RING**

a. Coat a new O-ring with ATF and install it to the direct multiple disc clutch assembly.

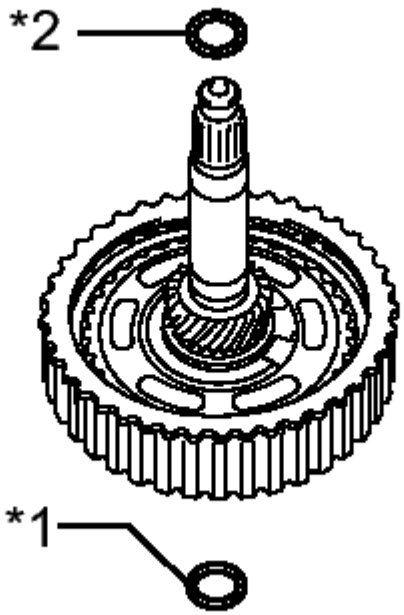


Fig. 382: Identifying Intermediate Shaft Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

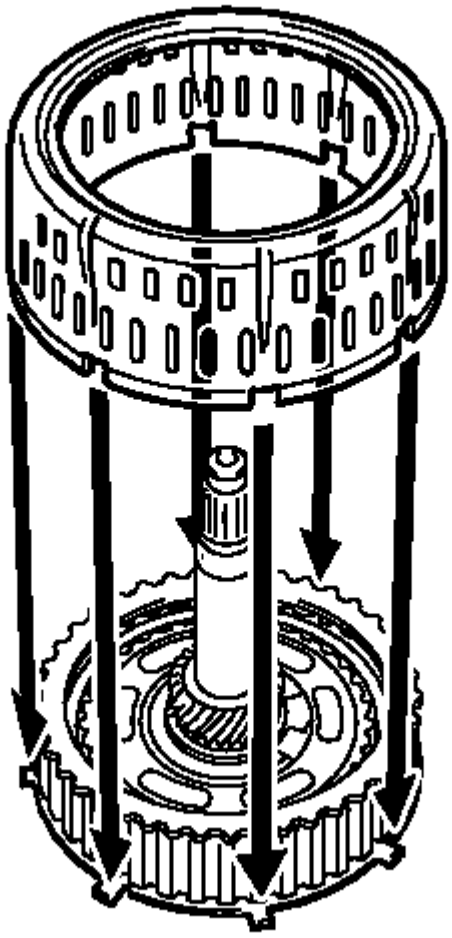
*2	O-ring

b. Coat a new intermediate shaft oil seal with ATF and install it to the direct multiple disc clutch assembly.

TEXT IN ILLUSTRATION

*1	Intermediate Shaft Oil Seal

c. Install the No. 2 direct clutch piston to the direct multiple disc clutch assembly.

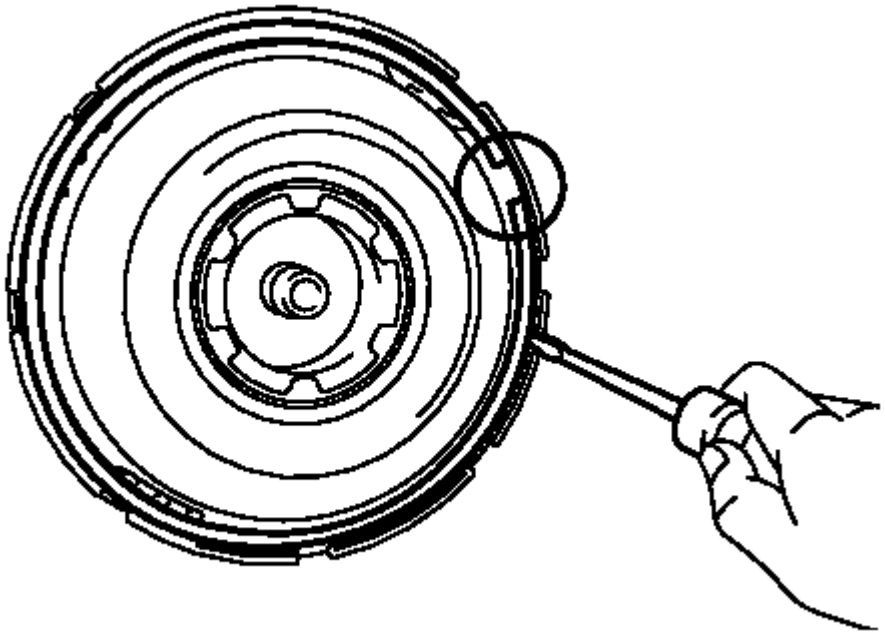


N

Fig. 383: Installing No. 2 Direct Clutch Piston To Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be sure to engage the claws on the direct multiple disc clutch assembly in the grooves on the No. 2 direct clutch piston.

d. Using a screwdriver, install the snap ring to the direct multiple disc clutch assembly.



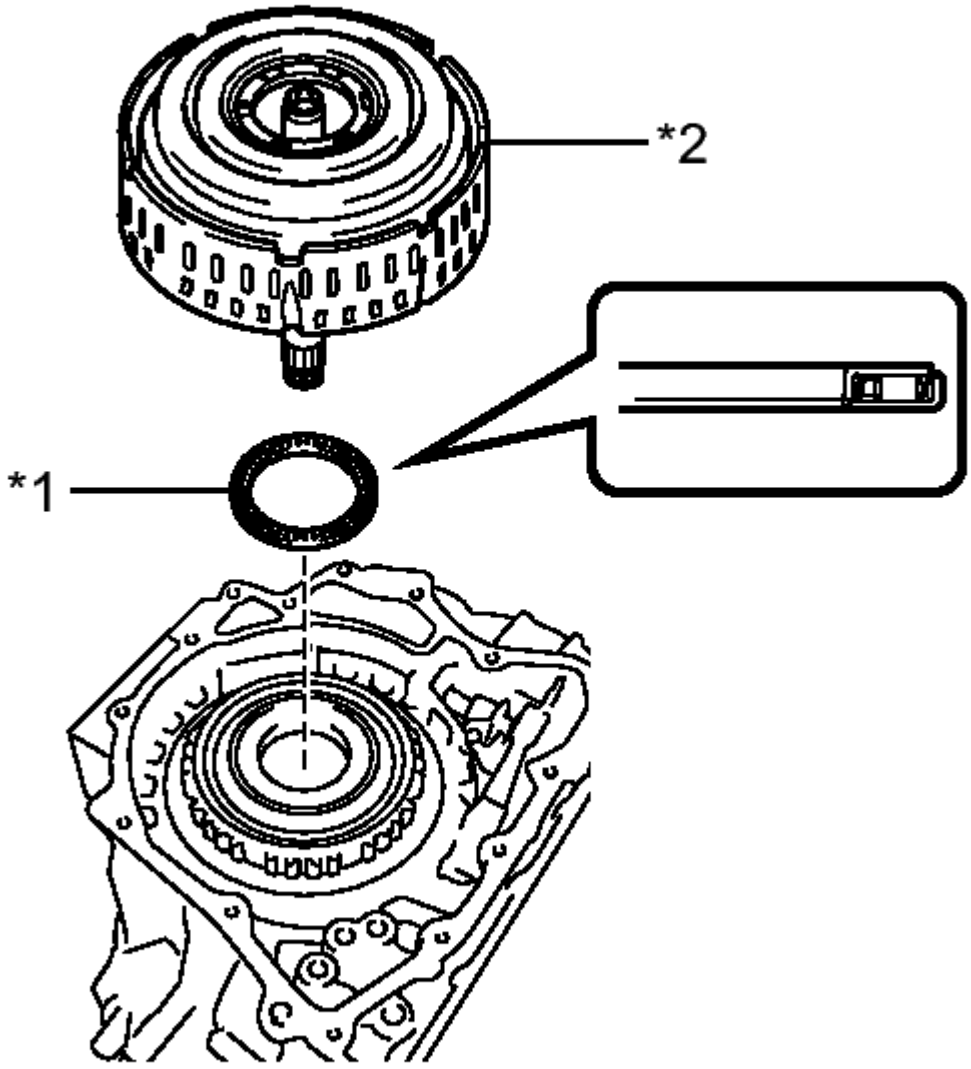
N

Fig. 384: Installing Snap Ring To Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- **Position the opening of the snap ring as shown in the illustration.**
- **Confirm that the snap ring is correctly located in the groove of the direct multiple disc clutch assembly.**

50. **INSPECT CLEARANCE OF NO. 2 CLUTCH DISC** See step 19
51. **INSTALL DIRECT MULTIPLE DISC CLUTCH ASSEMBLY**
    a. Coat the thrust needle roller bearing with ATF and install it on the transaxle case.



N

Fig. 385: Identifying Thrust Needle Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Thrust

*1	Needle Roller Bearing

BEARING DIAMETER

-	Inside mm (in.)	Outside mm (in.)
Bearing	61.2 (2.41)	79 (3.11)

b. Install the direct multiple disc clutch assembly to the transaxle case.

TEXT IN ILLUSTRATION

*2	Direct Multiple Disc Clutch Assembly

c. Clean the contact surfaces of the transaxle case and rear transaxle cover subassembly.

d. As shown in the illustration, place a straightedge on the multiple direct clutch drum and measure the distance between the transaxle case and the straightedge using a vernier caliper (Dimension A).

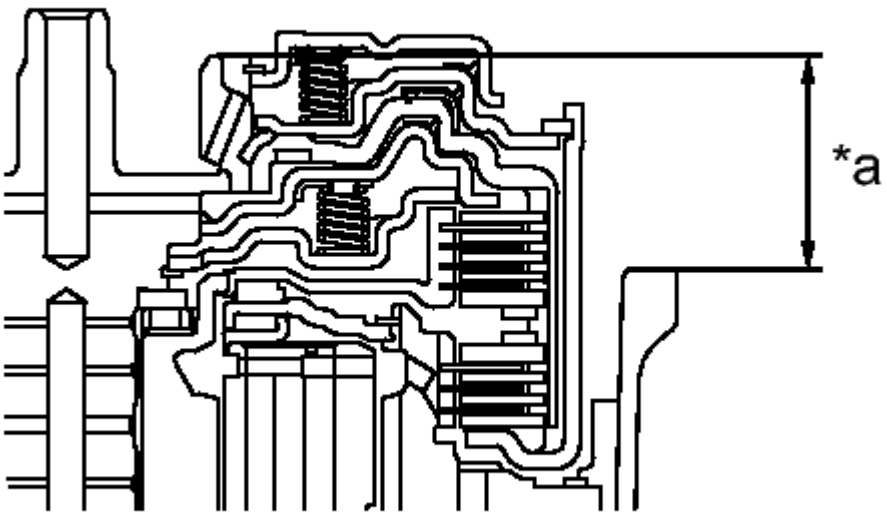


Fig. 386: Inspecting Direct Multiple Disc Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Dimension A

e. Using a vernier caliper and a straightedge, measure the distance shown in the illustration. (Dimension B)

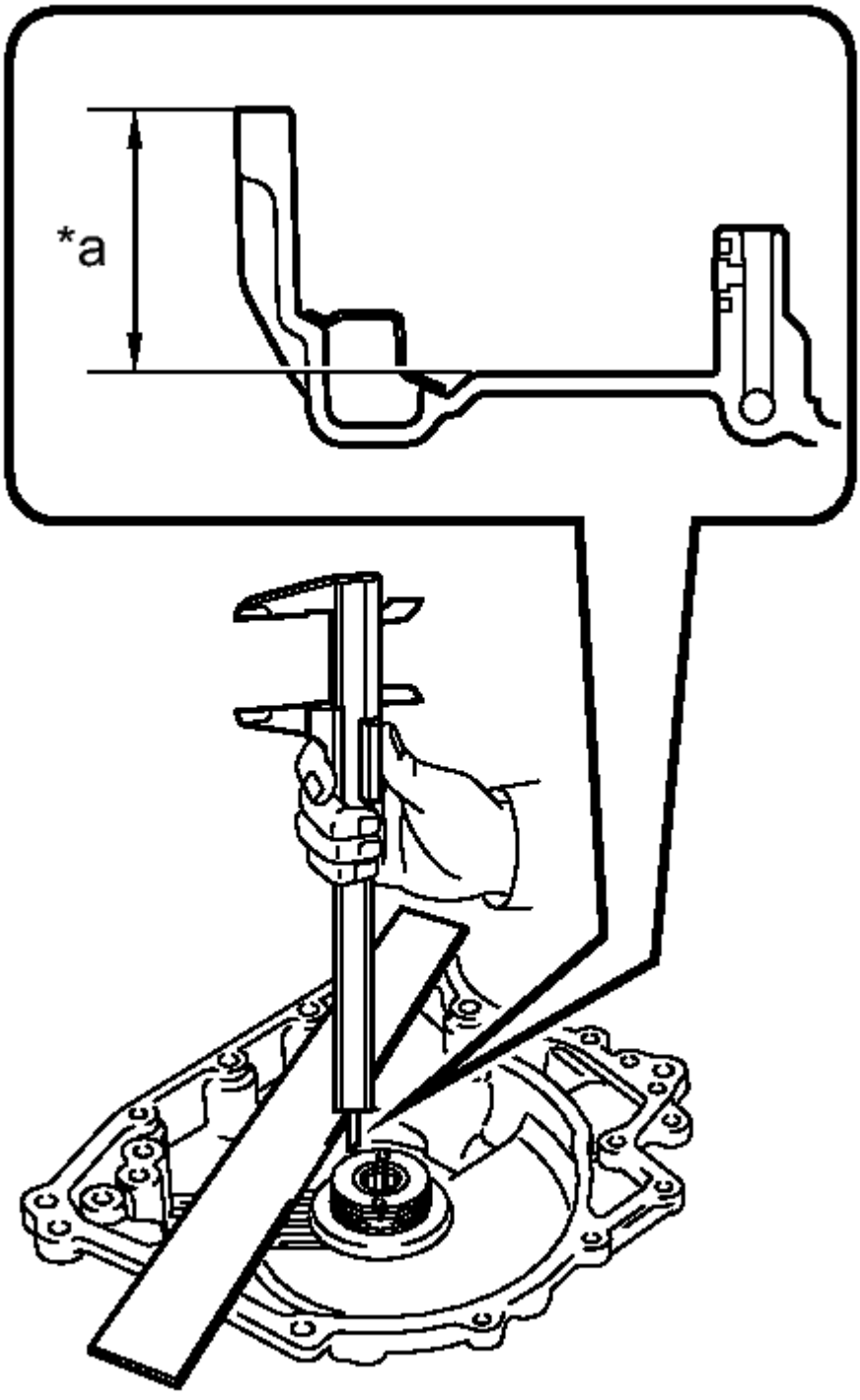


Fig. 387: Measuring Direct Multiple Disc Clutch Assembly Using A Vernier Caliper & Straightedge

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

TEXT IN ILLUSTRATION

*a	Dimension B

f. Calculate the end play value using the following formula:

End play = Dimension B - Dimension A

End play

0.007 to 1.113 mm (0.000275 to 0.0438 in.)

52. **INSTALL REAR TRANSAXLE COVER SUB-ASSEMBLY**

a. Using SST and a hammer, install a new needle roller bearing into the rear transaxle cover subassembly.

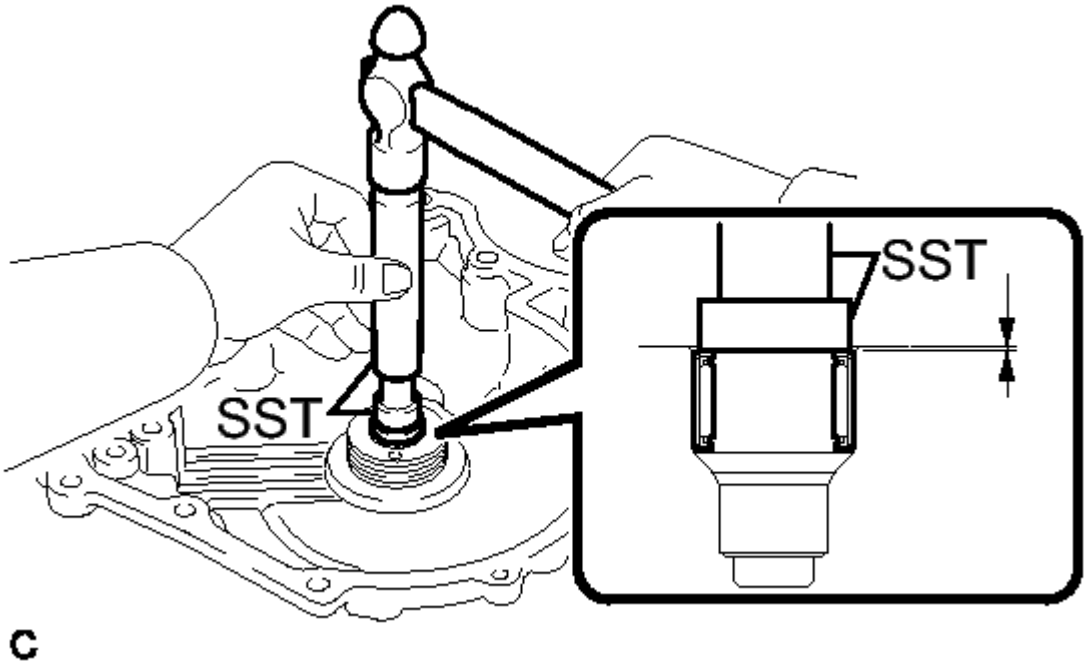


Fig. 388: Installing Needle Roller Bearing Into Rear Transaxle Cover Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00220
- **SST: 09950-70010**
  09951-07100

Installation depth

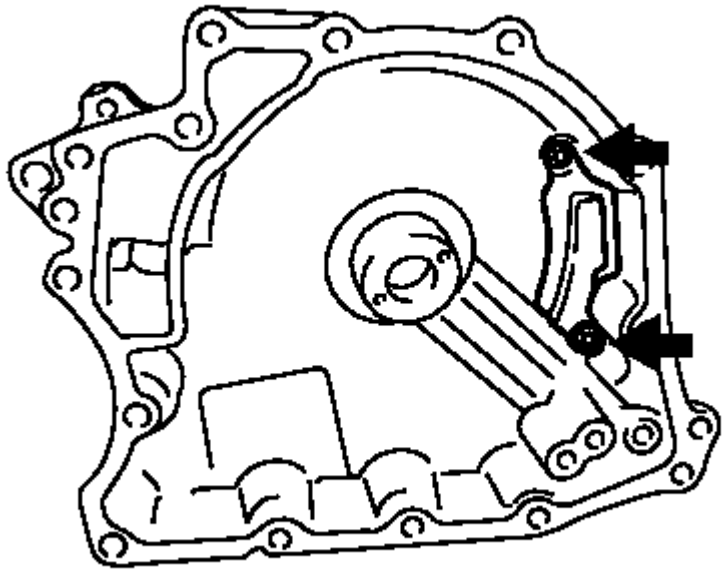
21.5 to 21.9 mm (0.846 to 0862 in.)

b. Apply adhesive to the 2 "TORX" screws.

Adhesive

Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

c. Using a T30 "TORX" socket wrench, install the rear transaxle cover plate to the rear transaxle cover subassembly with the 2 "TORX" screws.



N

Fig. 389: Identifying Rear Transaxle Cover Plate Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

d. Coat the thrust needle roller bearing and thrust needle roller race with ATF and install them on the transaxle case.

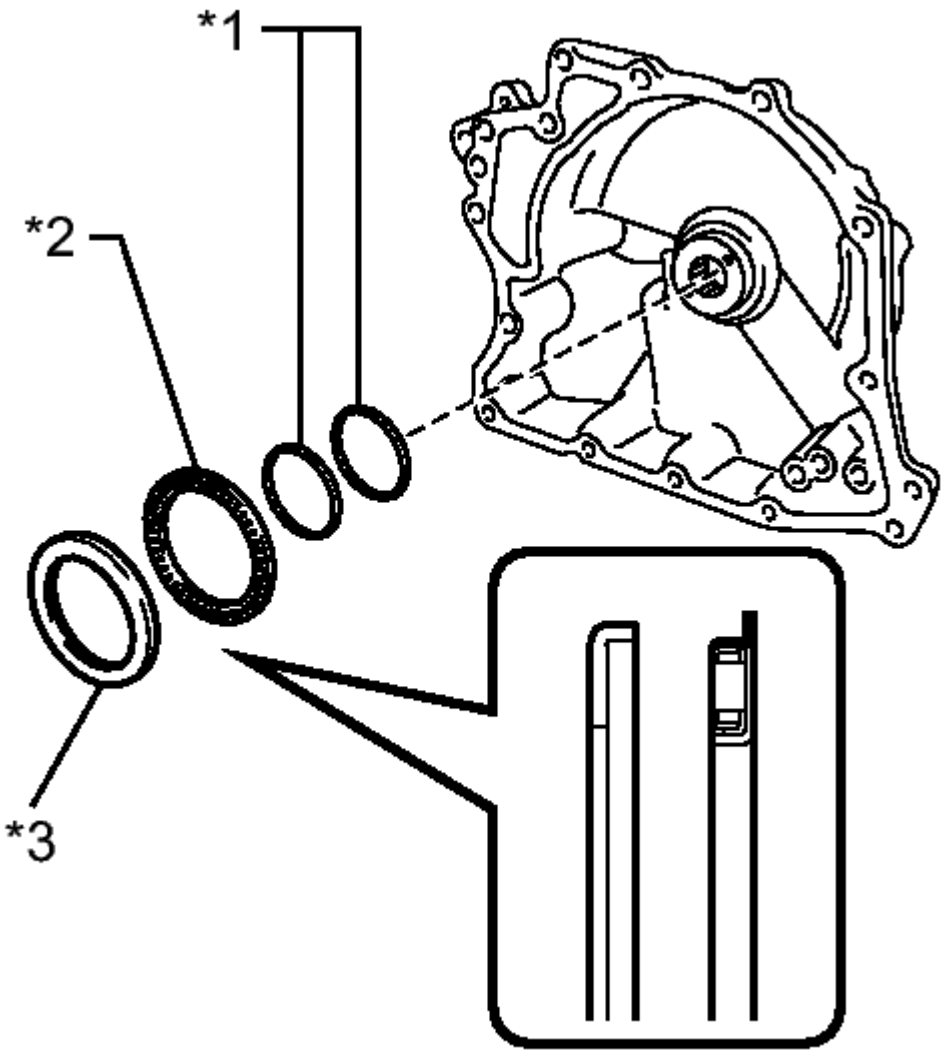


Fig. 390: Identifying Thrust Needle Roller Bearing And Thrust Needle Roller Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

BEARING DIAMETER

-	**Inside mm (in.)**	**Outside mm (in.)**
Bearing	48.9 (1.93)	72.0 (2.84)
Race	52.2 (2.06)	70.4 (2.77)

TEXT IN ILLUSTRATION

*2	Thrust Needle

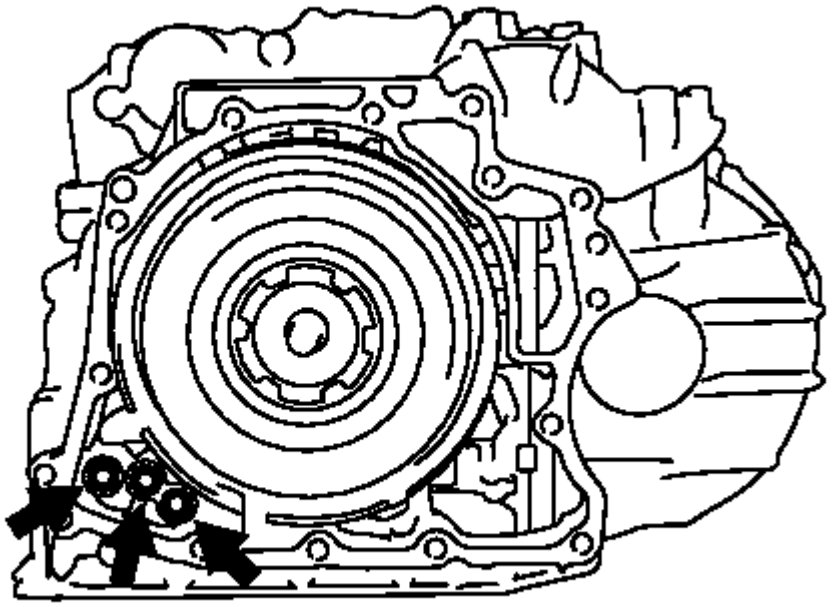
	Roller Bearing
*3	Thrust Needle Roller Race

e. Coat 2 new oil seal rings with ATF and install them to the rear transaxle cover subassembly.

TEXT IN ILLUSTRATION

*1	Oil Seal Ring

f. Coat 3 new O-rings with ATF and install them to the transaxle case.

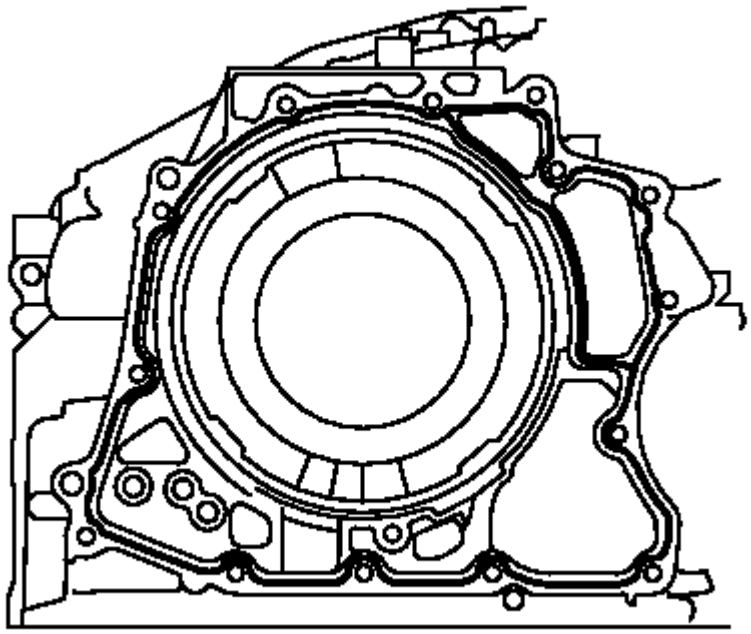


N

Fig. 391: Identifying Transaxle Case Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Ensure that the O-rings are not twisted.

g. Remove packing material from the contact surfaces between the rear transaxle cover subassembly and transaxle case.



N

Fig. 392: Identifying Packing Material
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Make sure that there is no ATF on the contact surfaces.

FIPG

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

h. Install the rear transaxle cover subassembly to the transaxle case with the 14 bolts.

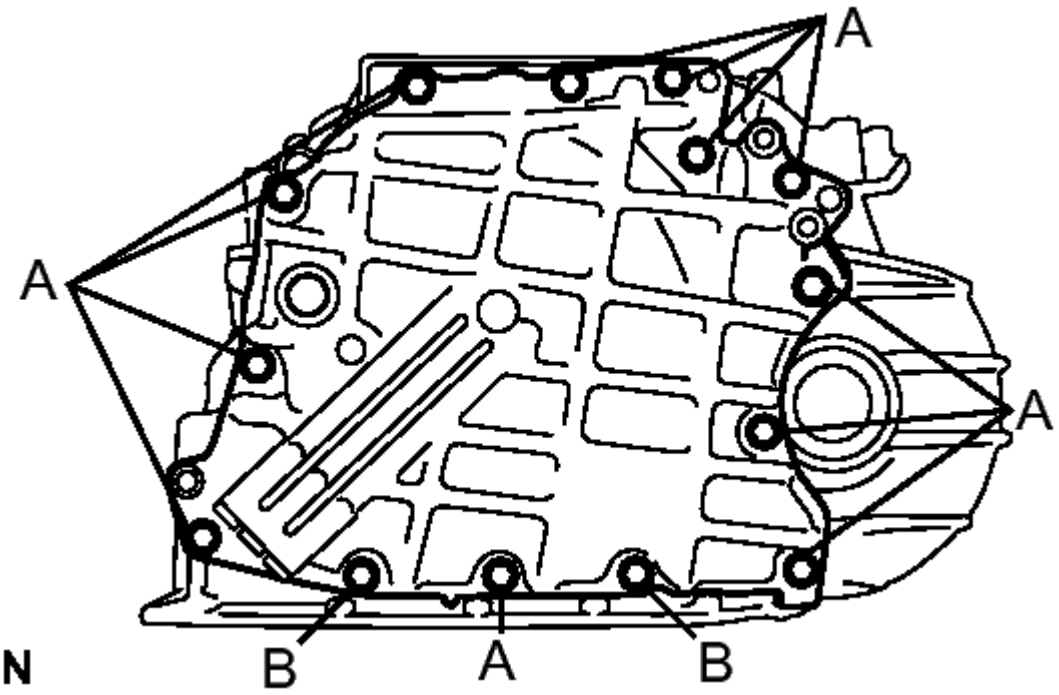


Fig. 393: Identifying Rear Transaxle Cover Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Bolt A

Torque: 23 N*m (231 kgf*cm, 17 ft.*lbf)

Bolt B

Torque: 17 N*m (172 kgf*cm, 12 ft.*lbf)

i. Install a new gasket to the refill plug.

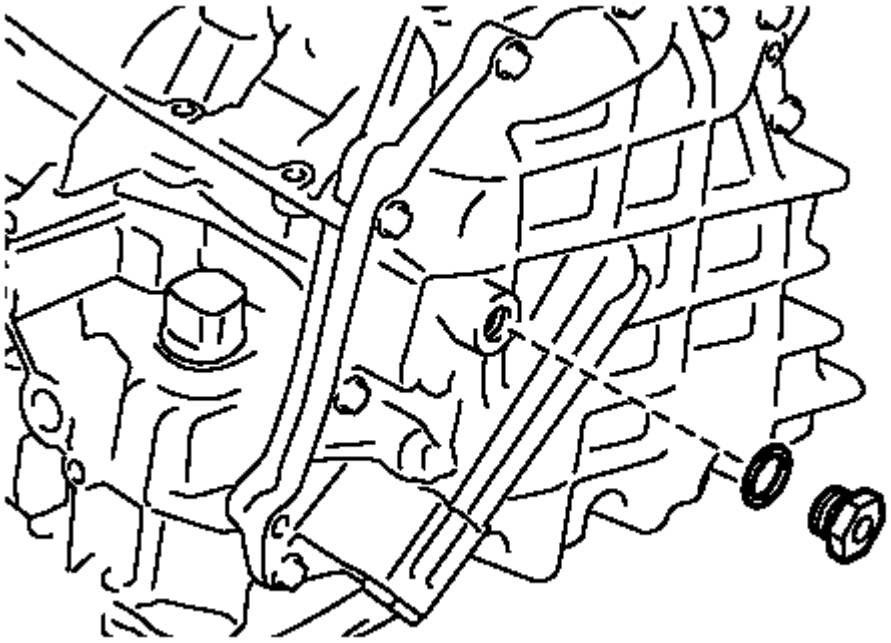


Fig. 394: Identifying Refill Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

j. Install the refill plug to the rear transaxle cover subassembly.

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

k. Coat 2 new O-rings with ATF and install them to the 2 No. 1 automatic transaxle case plugs.

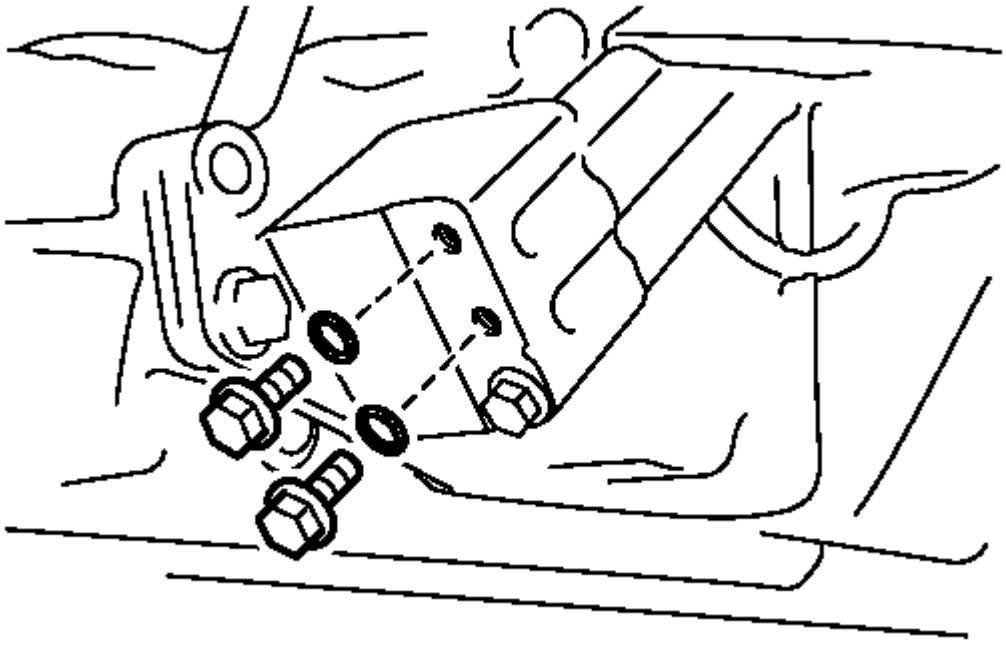


Fig. 395: Identifying No. 1 Automatic Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

l. Install the 2 No. 1 automatic transaxle case plugs to the rear transaxle cover subassembly.

Torque: 7.4 N*m (75 kgf*cm, 65 in.*lbf)

53. **INSPECT INPUT SHAFT END PLAY** See step 2
54. **INSTALL TRANSAXLE CASE GASKET**
    a. Coat 2 new transaxle case gasket with ATF.

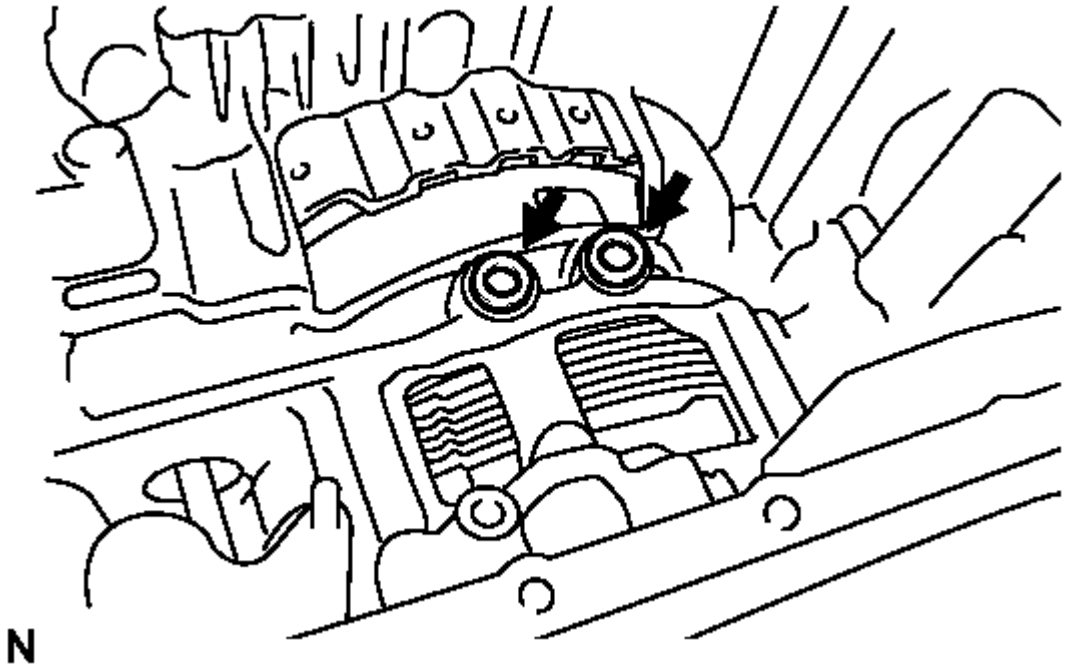
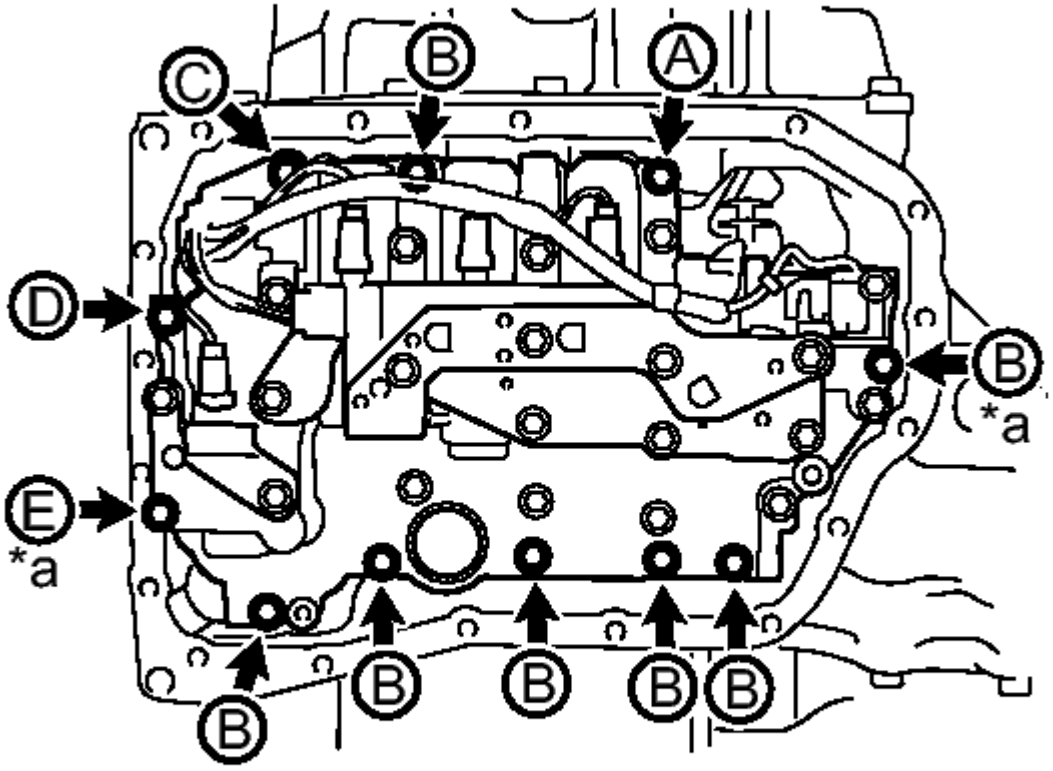


Fig. 396: Identifying Transaxle Case Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the 2 transaxle case gasket onto the transaxle case.

55. **INSTALL TRANSMISSION VALVE BODY ASSEMBLY**

a. Coat the O-ring of the transmission wire with ATF.



N

Fig. 397: Identifying Transmission Valve Body Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Confirm that the manual valve lever is positioned as shown in the illustration and install the transmission valve body onto the automatic transaxle with the 11 bolts.

TEXT IN ILLUSTRATION

*a	Positioning Bolt

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

BOLT LENGTH

Bolt	Length mm (in.)

A	25 (0.984)
B	30 (1.18)
C	35 (1.38)
D	45 (1.77)
E	55 (2.17)

NOTE:

- **When installing the transmission valve body, be careful not to allow the transmission revolution sensor and automatic transaxle to interfere with each other.**
- **Be sure to insert the pin of the manual valve lever into the groove on the end of the manual valve.**
- **First, temporarily tighten the bolts marked (*a) in the illustration because they are positioning bolts.**

56. **INSTALL VALVE BODY OIL STRAINER ASSEMBLY**

a. Coat a new O-ring with ATF and install it onto the valve body oil strainer.

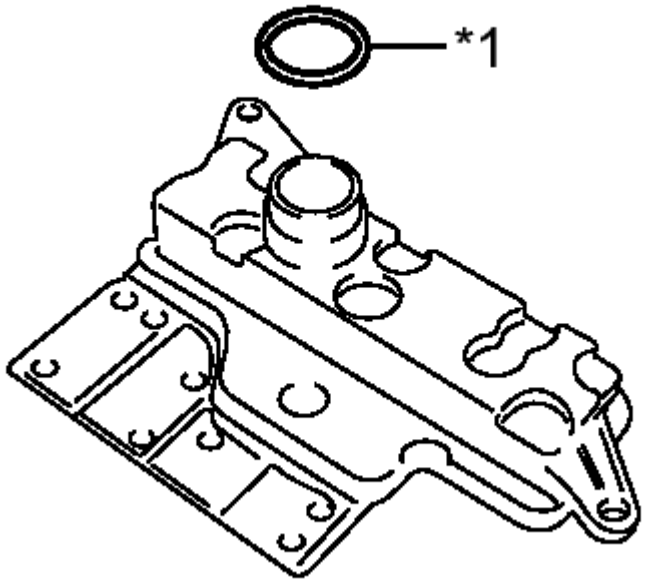


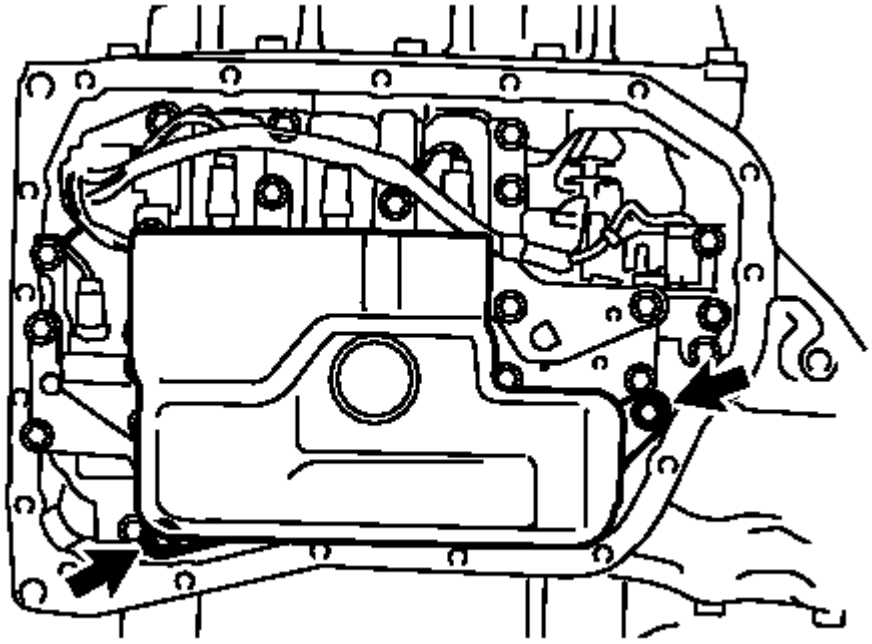
Fig. 398: Identifying O-Ring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	O-ring

NOTE: Ensure that the O-ring is not twisted or pinched.

b. Install the valve body oil strainer onto the transmission valve body with the 2 bolts.



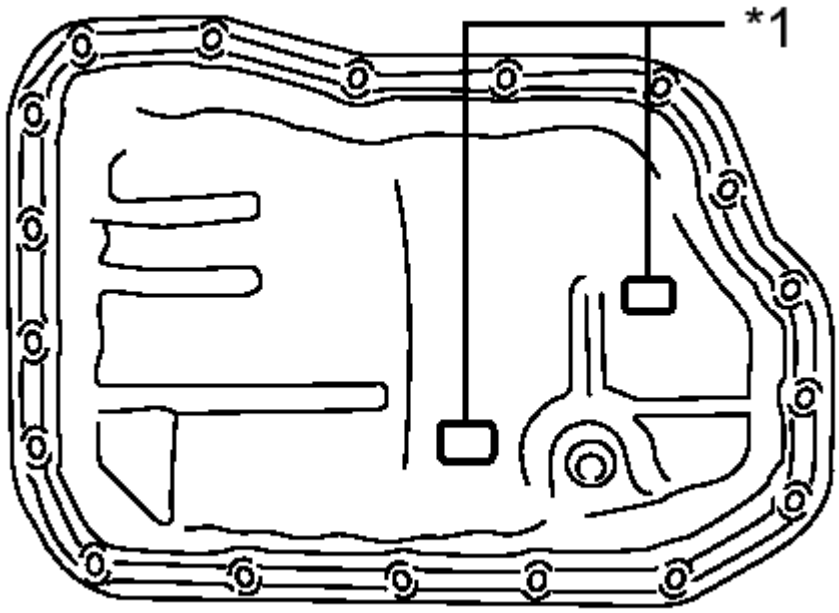
N

Fig. 399: Identifying Oil Strainer Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

57. **INSTALL AUTOMATIC TRANSAXLE OIL PAN SUB-ASSEMBLY**

a. Install the 2 transmission oil cleaner magnets onto the automatic transaxle oil pan as shown in the illustration.



N

Fig. 400: Identifying Oil Pan Magnet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Oil Cleaner Magnet

b. Install a new automatic transaxle oil pan gasket onto the automatic transaxle oil pan.
c. Clean and degrease the bolt (*1) and the installation hole in the automatic transaxle.

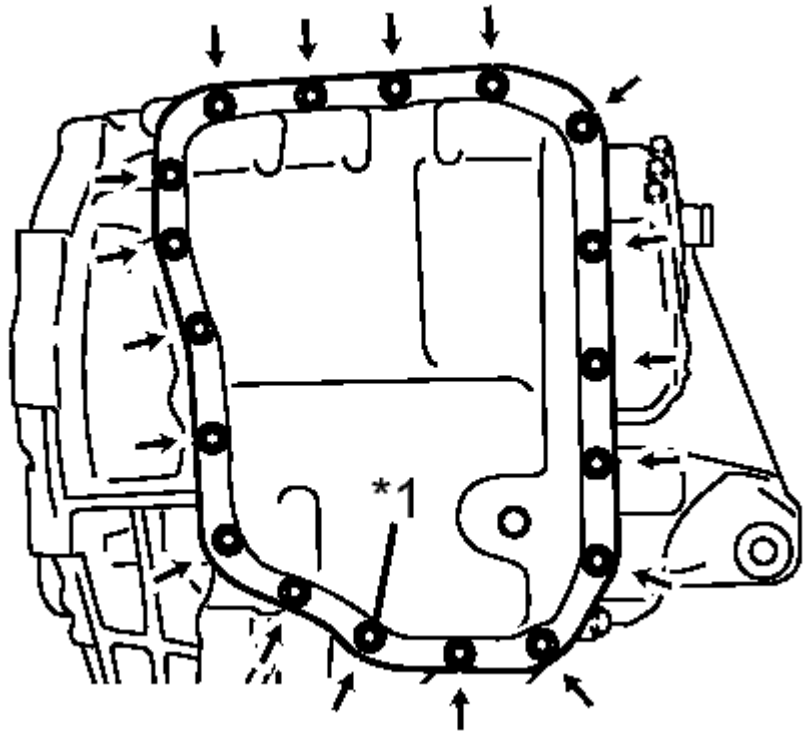


Fig. 401: Identifying Automatic Transaxle Oil Pan Bolts & Precoated Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Precoated Bolt

d. Apply adhesive to 2 or 3 threads on the ends of the bolt (*1).

Adhesive

Toyota Genuine Seal Packing 1344, Three Bond 1344 or equivalent

e. Install the automatic transaxle oil pan with the transaxle oil pan gasket onto the automatic transaxle with the 18 bolts.

Precoated Bolt (*1)

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

except Precoated bolt

Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)

NOTE: Completely remove any oil or grease from the contact surface of the

automatic transaxle and automatic transaxle oil pan with the automatic transaxle oil pan gasket before installation.

f. Using a 6 mm hexagon socket wrench, install the No. 1 oil filler tube to the automatic transaxle assembly.

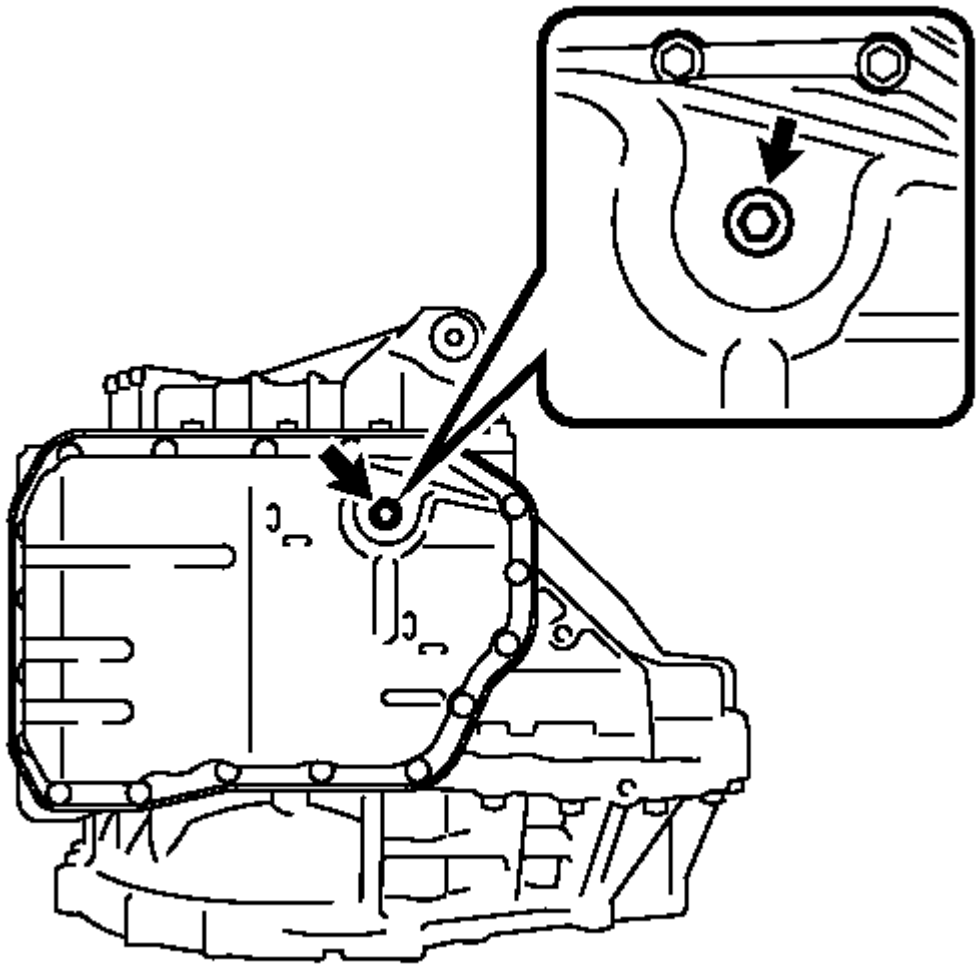


Fig. 402: Identifying No. 1 Oil Filler Tube
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 1.7 N*m (17 kgf*cm, 15 in.*lbf)

g. Using a 6 mm hexagon socket wrench, install the overflow plug and a new gasket to the oil pan subassembly.

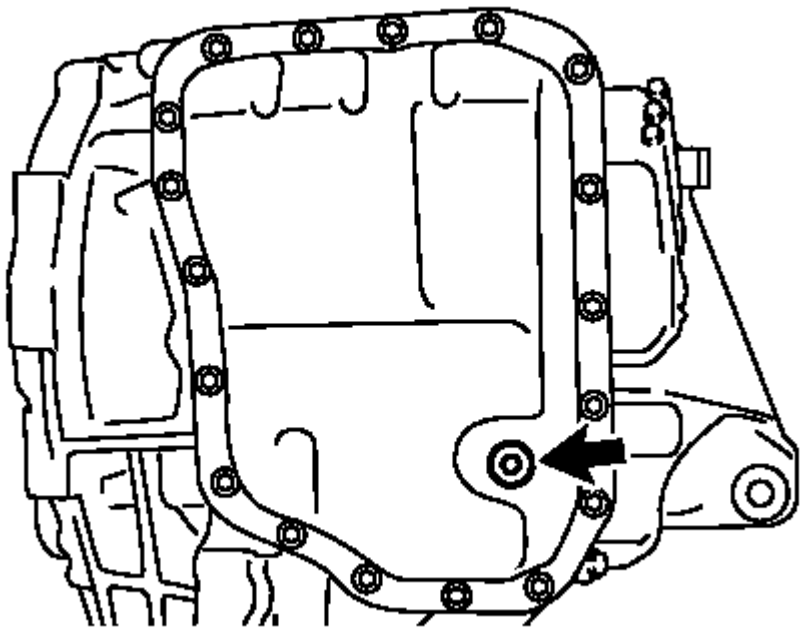


Fig. 403: Identifying Overflow Plug
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

58. **INSTALL NO. 1 TRANSAXLE CASE PLUG**
    a. Install 3 new gaskets to the 3 hexagon bolts.
    b. Apply adhesive to the 3 hexagon bolts.

    Adhesive

    Toyota Genuine Seal Packing 1344, Three Bond 1344 or equivalent

    NOTE: In order to ensure proper sealing of the hexagon bolts, apply adhesive to the bolts and install them within 10 minutes of adhesive application.

    c. Using a 6 mm hexagon socket wrench, install the 3 hexagon bolts to the transaxle housing with the gaskets.

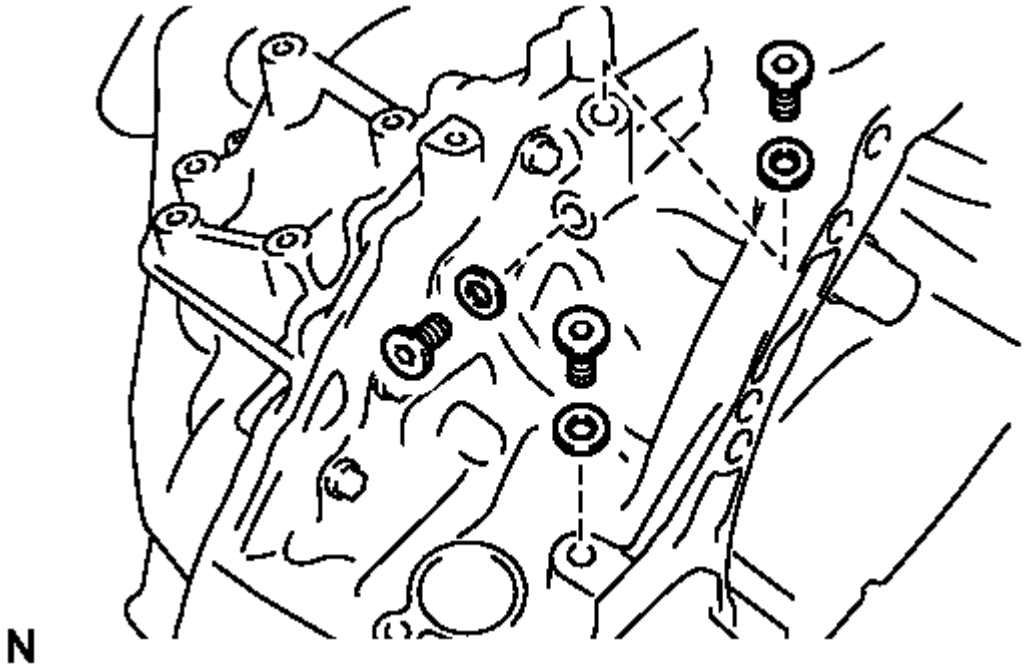


Fig. 404: Identifying Gaskets And Hexagon Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

d. Coat 3 new O-rings with ATF and install them to the 3 No. 1 transaxle case plugs.

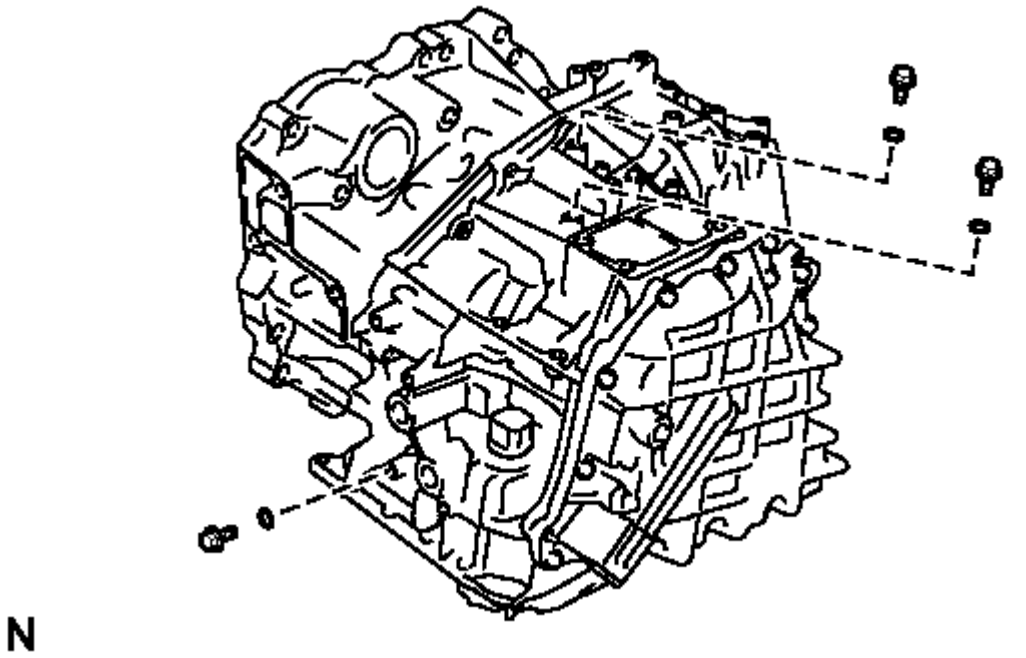


Fig. 405: Identifying No. 1 Transaxle Case Plugs
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

e. Install the 3 No. 1 transaxle case plugs to the transaxle case.

Torque: 7.4 N*m (75 kgf*cm, 65 in.*lbf)

59. **INSTALL OIL COOLER TUBE UNION (INLET OIL COOLER UNION)**
    a. Coat a new O-ring with ATF and install it to the oil cooler tube union (inlet oil cooler union).

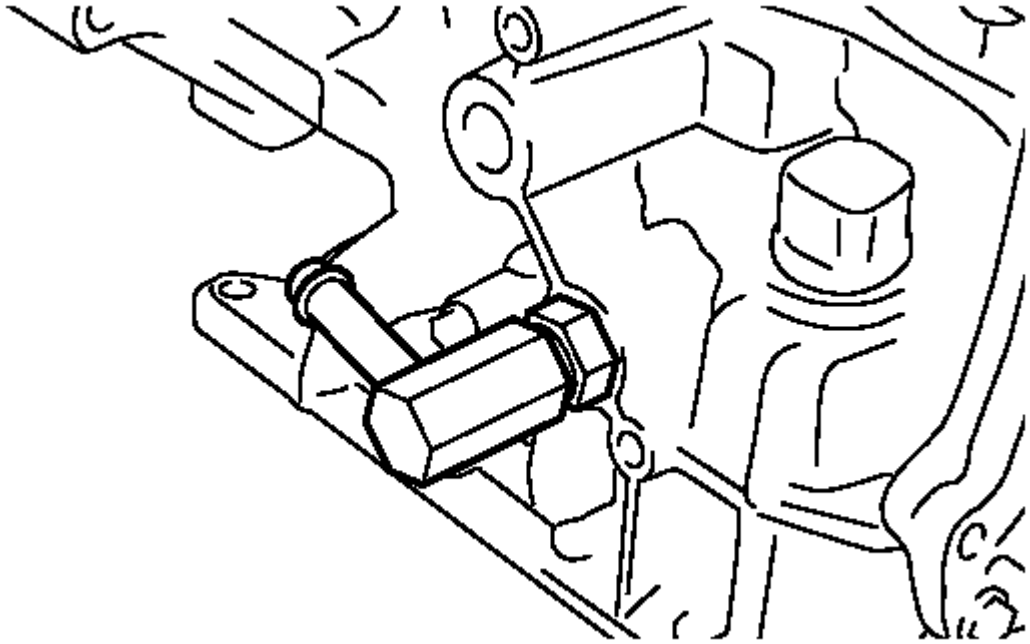


Fig. 406: Identifying Oil Cooler Tube Union (Inlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the oil cooler tube union (inlet oil cooler union) to the transaxle case as shown in the illustration.

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

60. **INSTALL OIL COOLER TUBE UNION (OUTLET OIL COOLER UNION)**
    a. Coat a new O-ring with ATF and install it to the oil cooler tube union (outlet oil cooler union).

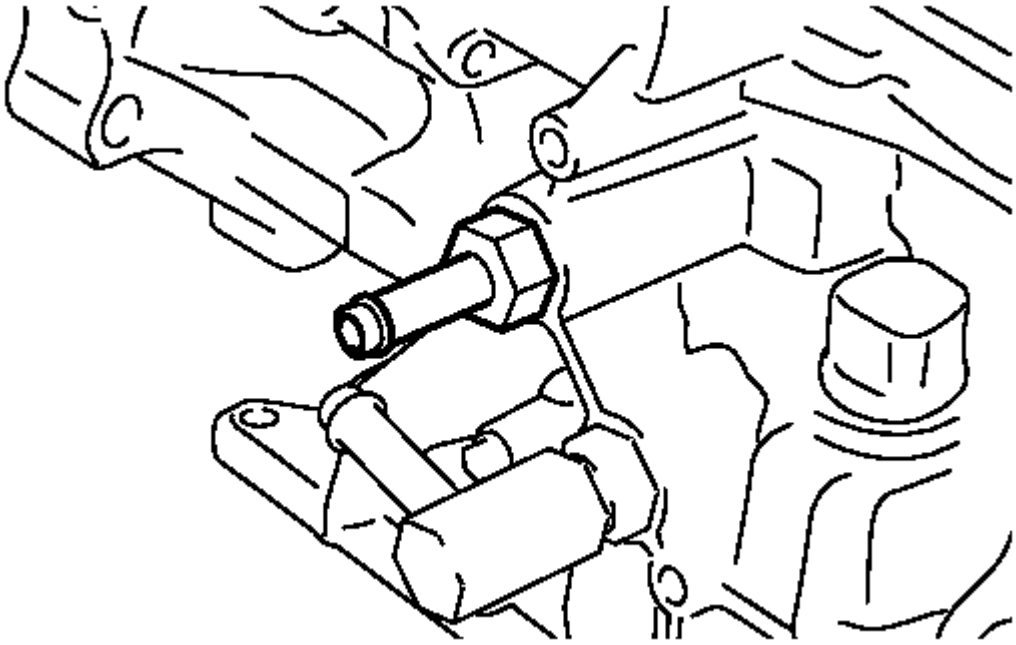


Fig. 407: Identifying Oil Cooler Tube Union (Outlet Oil Cooler Union)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install the oil cooler tube union (outlet oil cooler union) to the transaxle case.

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

61. **INSTALL PARK/NEUTRAL POSITION SWITCH ASSEMBLY**
    a. Align the protrusions of the park/neutral position switch.

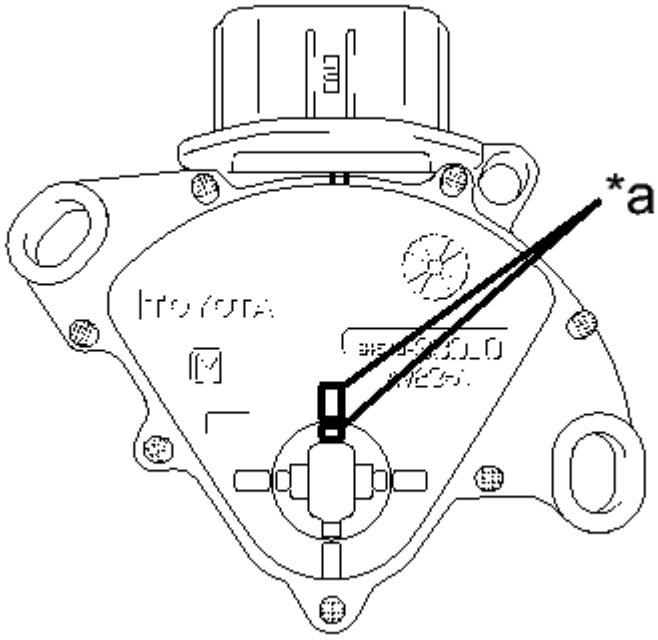


Fig. 408: Park/Neutral Position Switch Protrusion
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Protrusion

b. Install the park/neutral position switch to the control shaft with the 2 bolts.

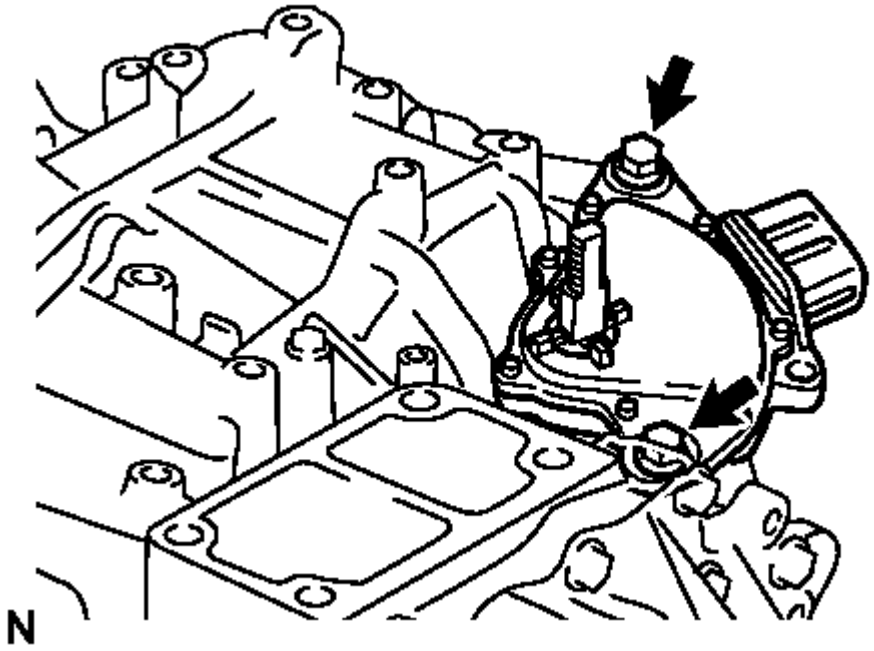


Fig. 409: Identifying Park/Neutral Position Switch Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE:

- **Before installing the park/neutral position switch, remove any dirt or rust on the control shaft. Be sure to install the switch straight along the shaft while being careful not to deform the plate spring that supports the shaft. If the plate spring is deformed, the park/neutral position switch cannot be reinstalled correctly.**
- **After installing the park/neutral position switch, confirm that the 2 protrusions on the switch are aligned.**

c. Install the control shaft lever to the control shaft with the washer and nut.

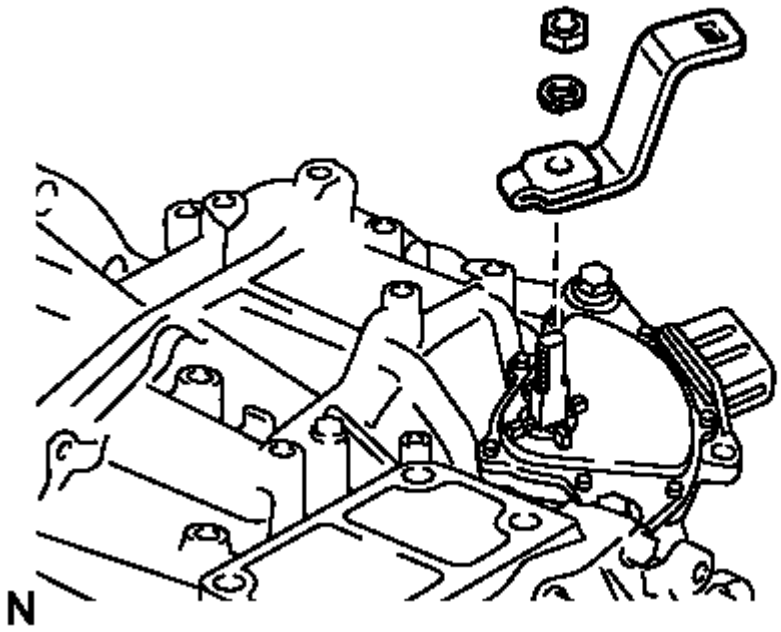
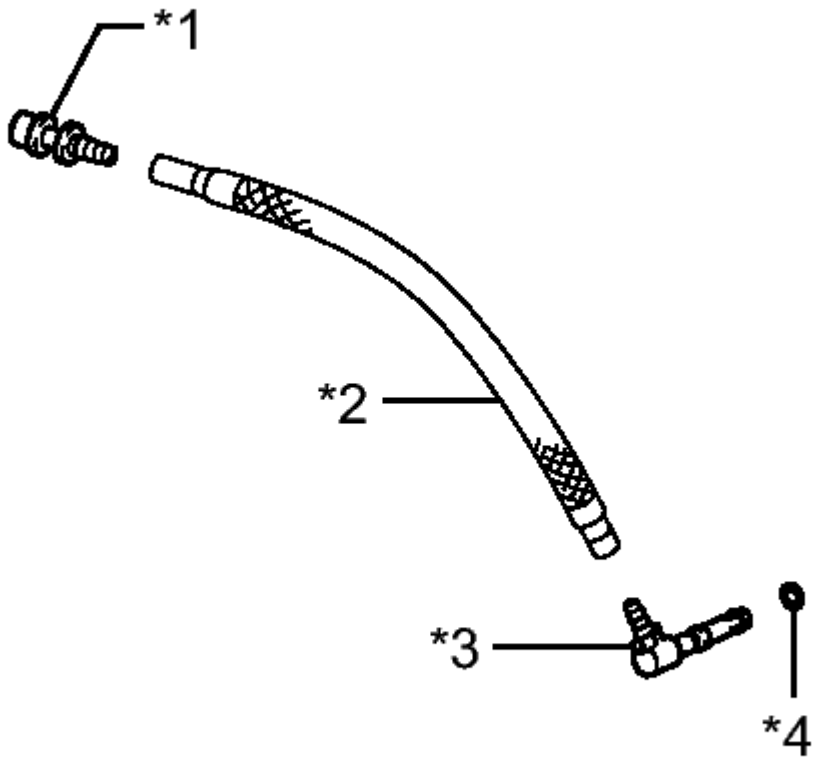


Fig. 410: Identifying Nut, Washer And Control Shaft Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 13 N*m (133 kgf*cm, 9 ft.*lbf)

62. **INSTALL BREATHER PLUG HOSE**
    a. Coat a new O-ring with ATF and install it to the No. 2 breather plug (ATM).



N

Fig. 411: Identifying Breather Plug Hose Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	No. 1 Breather Plug (ATM)
*2	Breather Plug Hose
*3	No. 2 Breather Plug (ATM)
*4	O-ring

b. Install the No. 1 breather plug (ATM) and No. 2 breather plug (ATM) to the breather plug hose.
c. Install the breather plug hose to the transaxle case.

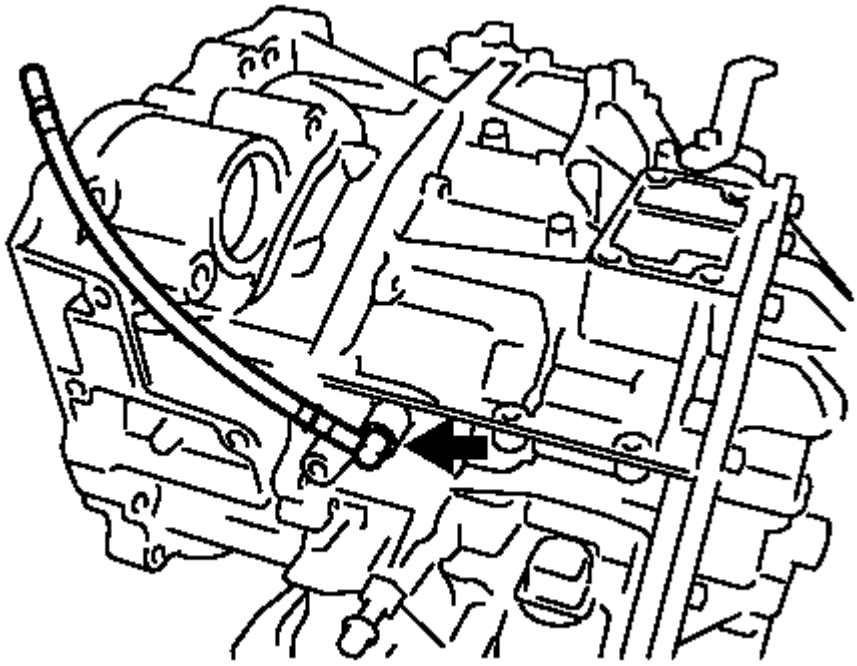


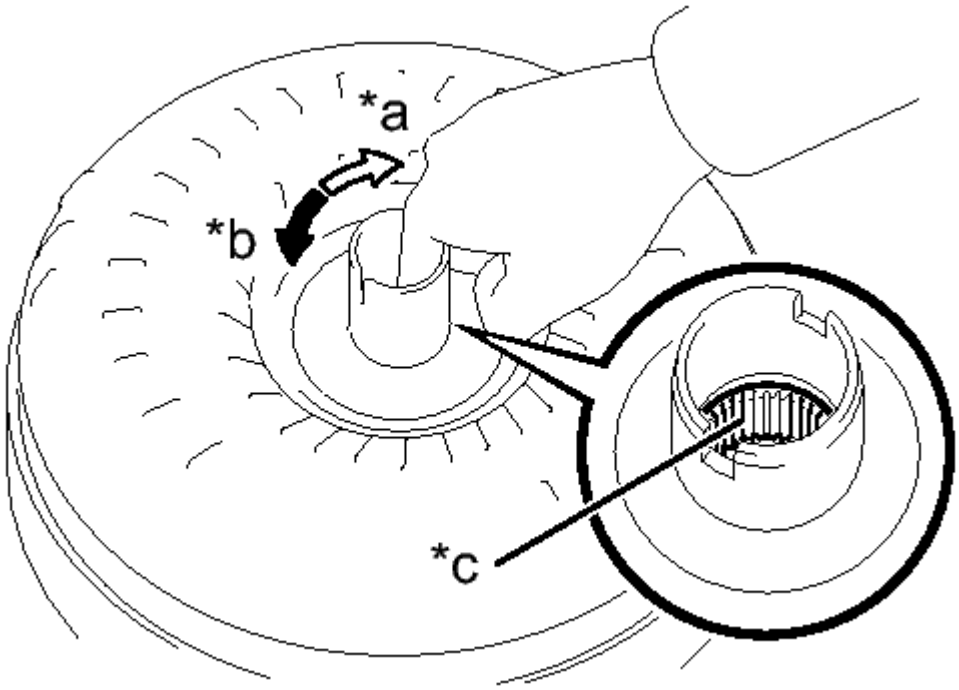
Fig. 412: Identifying Breather Plug Hose
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TORQUE CONVERTER CLUTCH AND DRIVE PLATE

INSPECTION

INSPECTION

1. **INSPECT TORQUE CONVERTER CLUTCH ASSEMBLY**
   a. Inspect the one-way clutch.



P

Fig. 413: Inspecting Torque Converter Clutch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Press on the spline of the stator with a finger and rotate it. Check that it rotates smoothly when turned clockwise and locks when turned counterclockwise.

   TEXT IN ILLUSTRATION

*a	Free
*b	Lock
*c	Spline

   If necessary, clean the converter and recheck the one-way clutch.

   Replace the torque converter if the one-way clutch still fails the check.

b. Determine the condition of the torque converter.

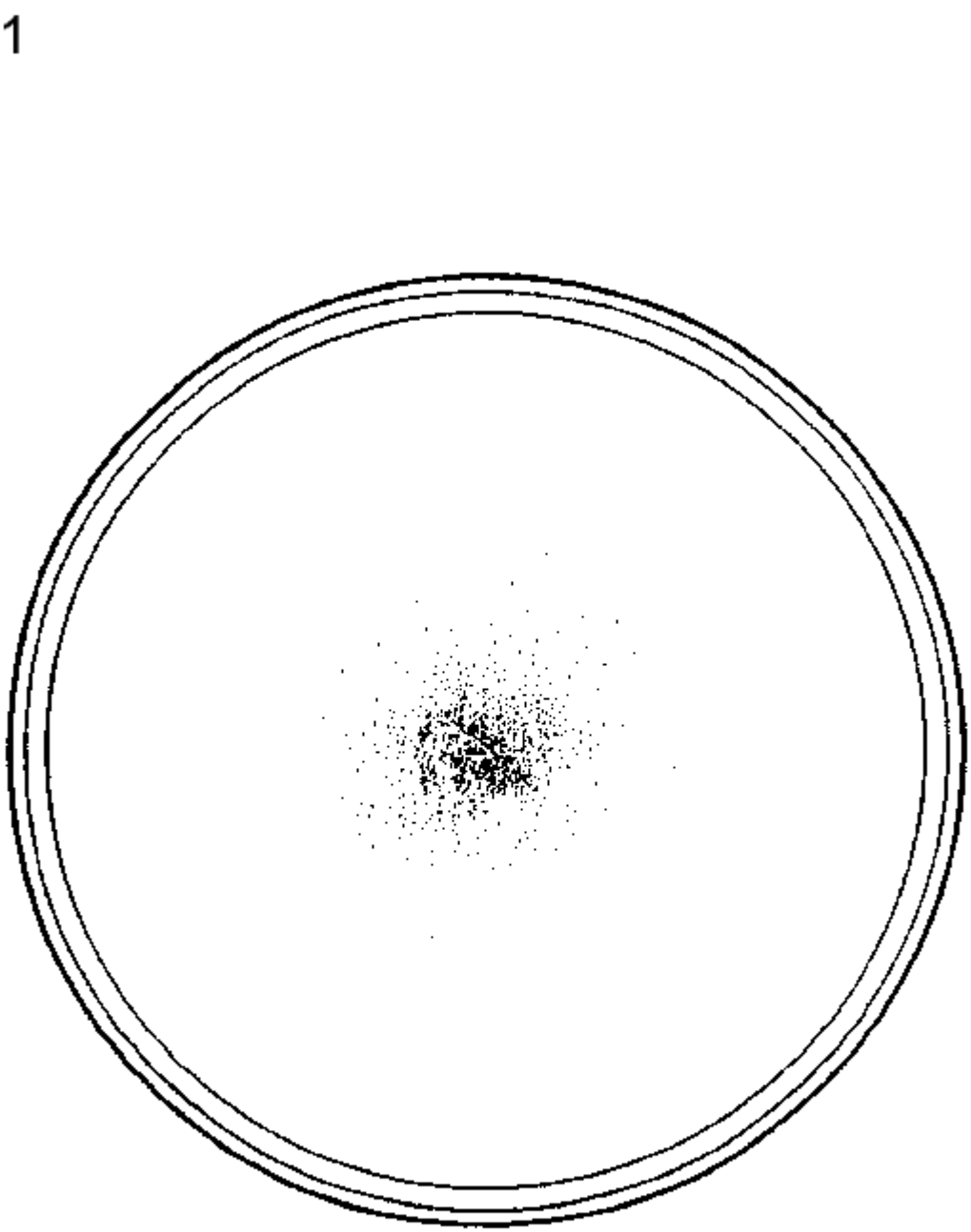


Fig. 414: Identifying Powder In ATF
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. If the inspection result of the torque converter satisfies the following conditions, replace the torque converter.

Malfunction

- Any metallic sound is emitted from the torque converter during the stall test or when the shift lever is moved to N.

- The one-way clutch is free or looks in both directions.

- The amount of powder in the ATF is greater than the sample shown in the illustration above.

TEXT IN ILLUSTRATION

*a	Sample showing maximum allowable amount of powder in ATF

HINT:

The sample shows approximately 0.025 liters (0.026 US qts, 0.022 Imp. qts) of ATF that is taken out from the removed torque converter.

c. Replace the ATF in the torque converter.
    1. If the ATF is discolored and/or has foul odor, stir the ATF in the torque converter and drain it.

d. Clean and check the oil cooler and oil pipe line.

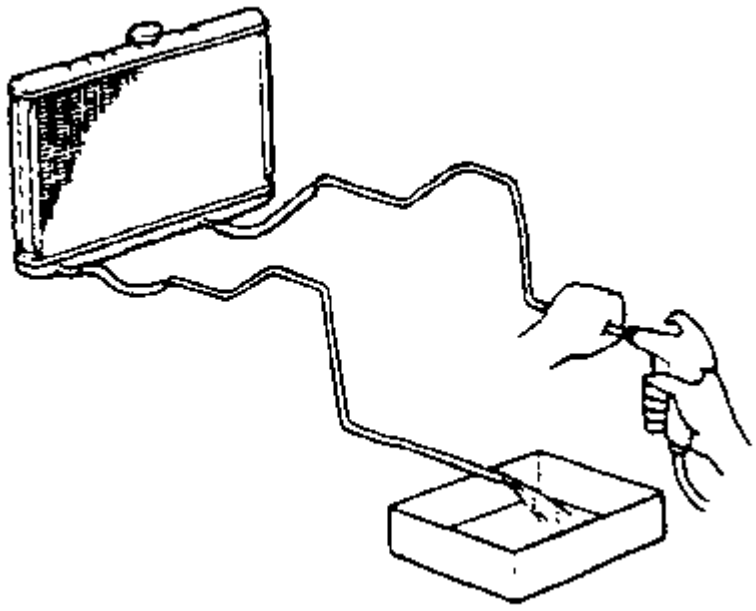


Fig. 415: Checking Oil Cooler And Oil Pipe Line
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. If the torque converter is inspected or the ATF is replaced, clean the oil cooler and oil pipe line.

   HINT:

   - Apply compressed air of 196 kPa (2.0 kgf/ cm^2 , 28 psi) into the inlet hose.
   - If a large amount of powder is found in the ATF, add new ATF using a bucket pump and clean the oil cooler and oil pipe line again.

2. If the ATF is cloudy, inspect the oil cooler (radiator).

e. Prevent deformation of the torque converter and damage to the oil pump gear.

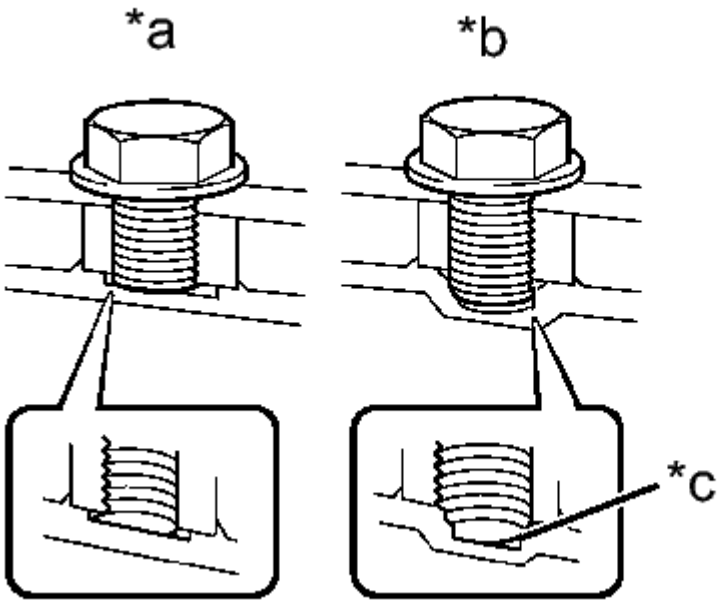


Fig. 416: Identifying Torque Converter Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. When there is any damage due to the end of the bolt for the torque converter and to the bottom of the bolt hole, replace the bolt and the torque converter.

TEXT IN ILLUSTRATION

*a	Correct
*b	Incorrect
*c	The bottom is damaged.

2. All of the bolts should be the same length.
3. Bolts with washers must be used.

2. **INSPECT DRIVE PLATE AND RING GEAR SUB-ASSEMBLY**

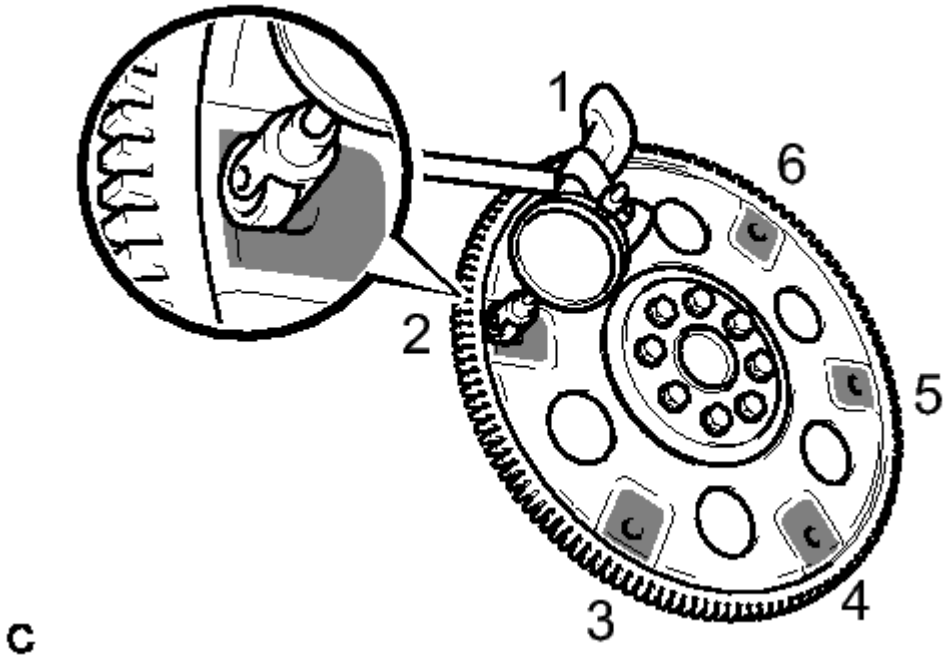


Fig. 417: Inspecting Drive Plate & Ring Gear Sub-Assembly Using A Dial Indicator
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

a. Check the drive plate and ring gear for damage.
b. Set up a dial indicator and measure the runout of the 6 portions around the torque converter contact surfaces.

TEXT IN ILLUSTRATION

C	Measurement Point

Maximum runout

0.30 mm (0.0118 in.)

If the runout is not within the specification or the drive plate and ring gear is damaged, replace the drive plate and ring gear.

- Removal: Refer to **REMOVAL - Step 3**
- Installation: Refer to **INSTALLATION - Step 2**

TCM

COMPONENTS

ILLUSTRATION

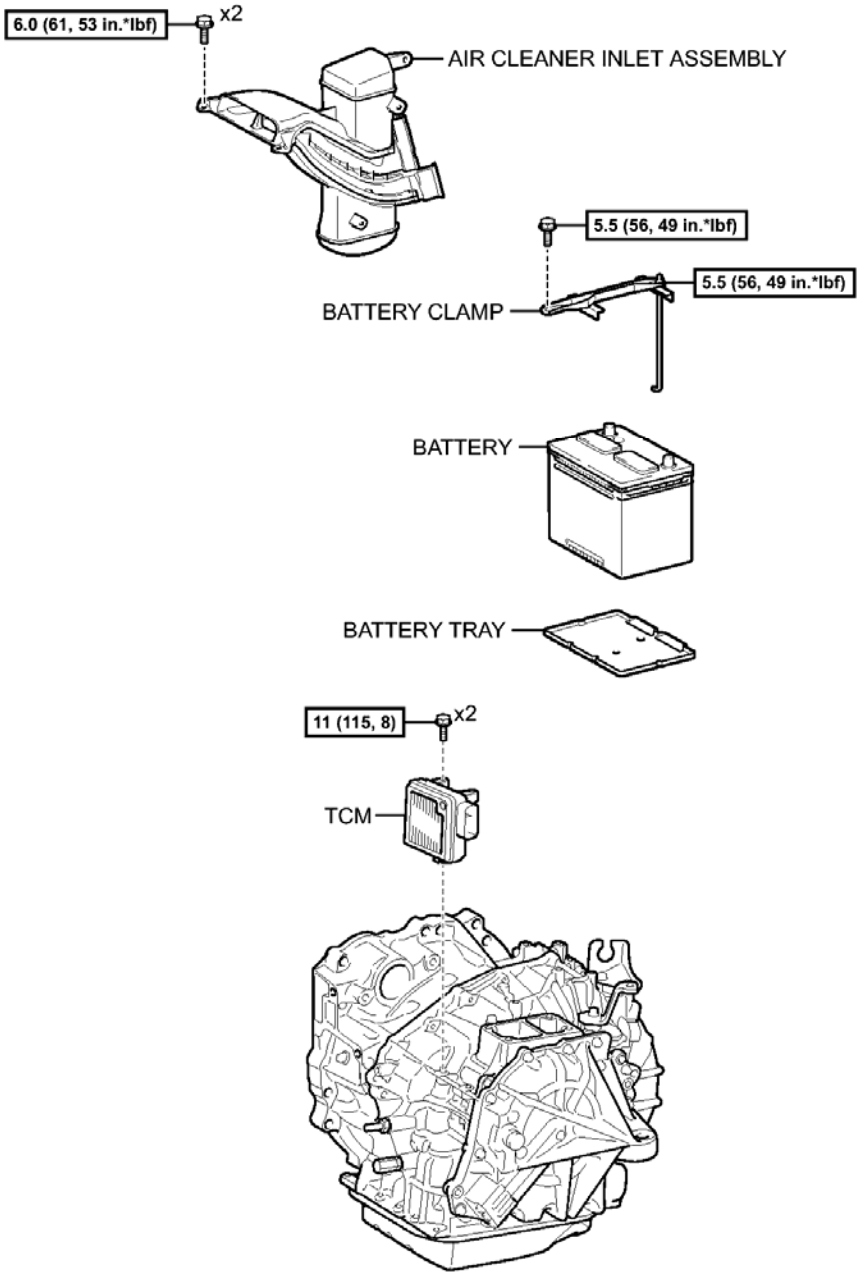


Fig. 418: TCM Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

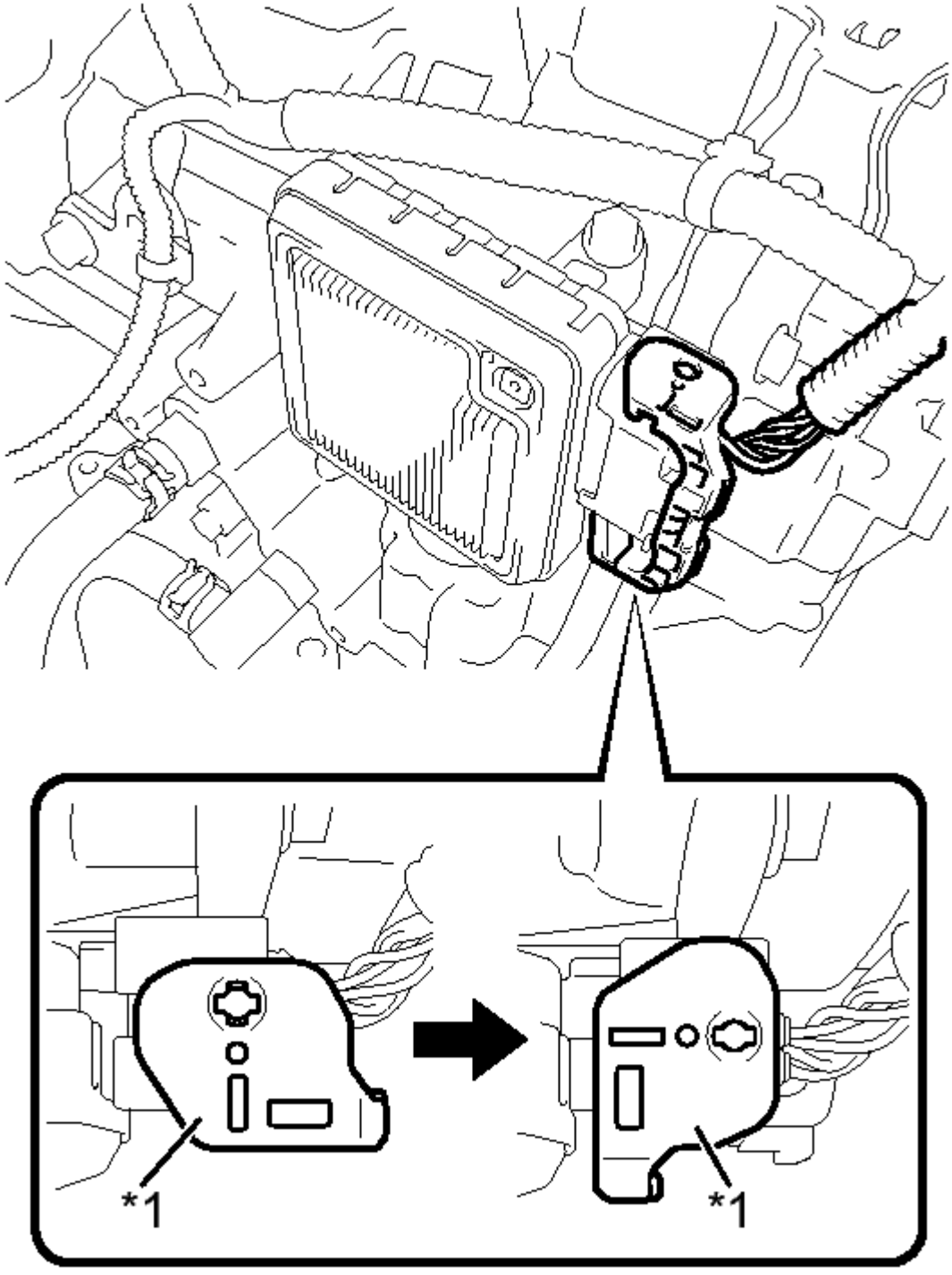
REMOVAL

REMOVAL

NOTE: **If automatic transaxle parts are replaced, refer to Parts Replacement**

Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
    a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
2. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 25**
3. **REMOVE BATTERY** . Refer to **REMOVAL - Step 26**
4. **REMOVE TCM**
    a. Turn the lock lever and disconnect the connector from the TCM.



P

Fig. 419: Identifying TCM Connector Lock Lever
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Lock

*1	Lever

b. Remove the 2 bolts and TCM from the automatic transaxle.

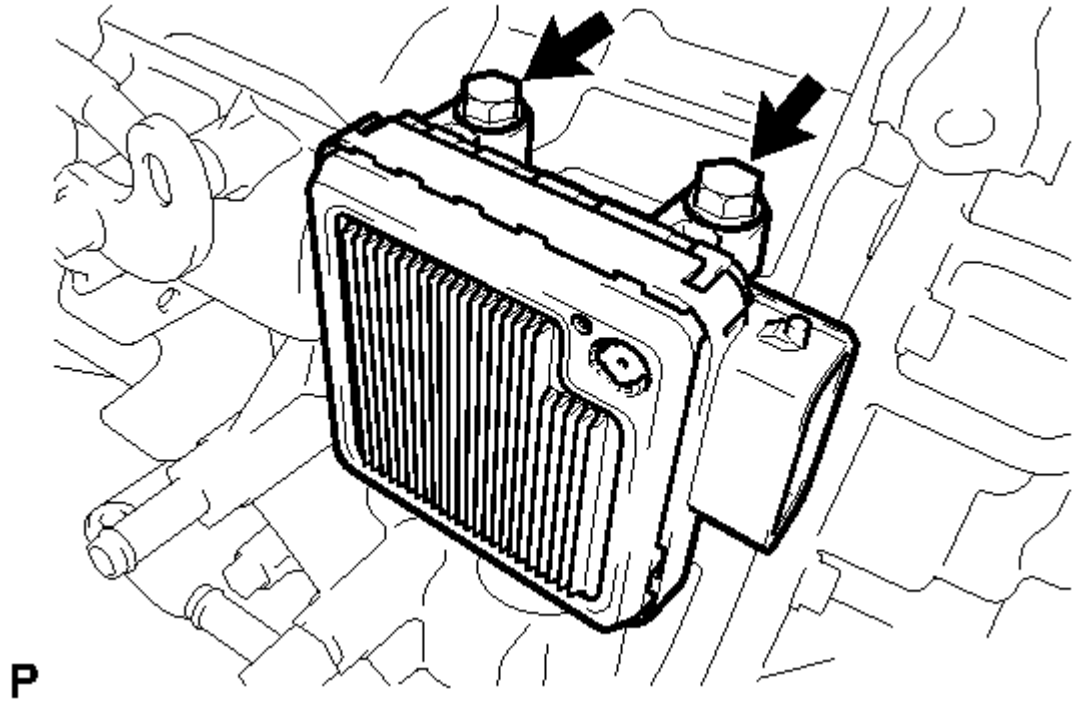


Fig. 420: Identifying TCM Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

INSTALLATION

1. **INSTALL TCM**
   a. Install the TCM onto the automatic transaxle.

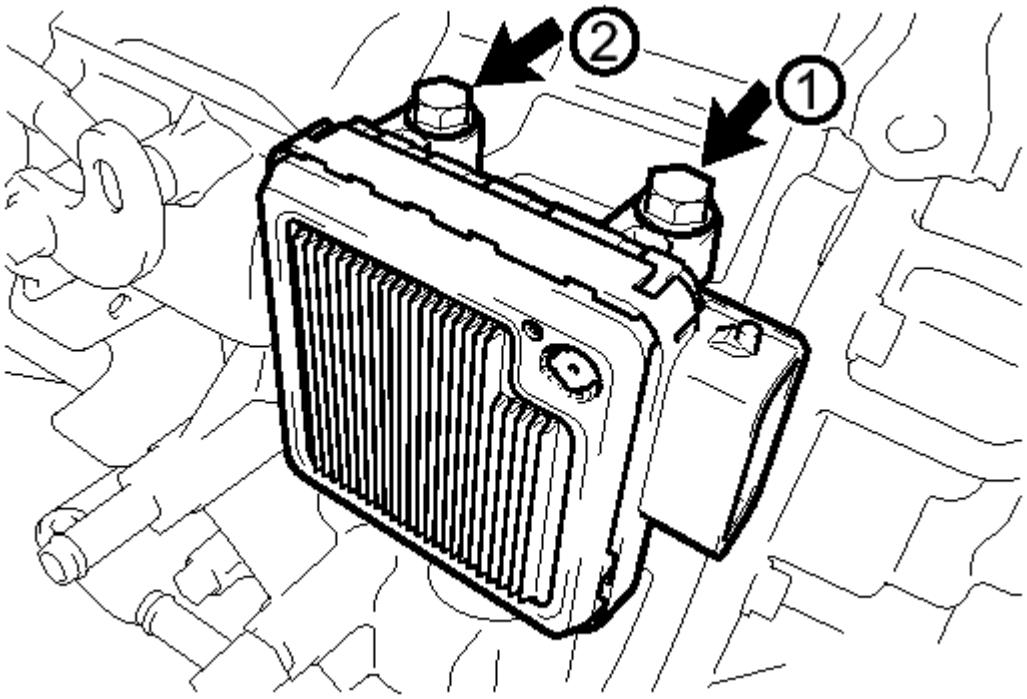
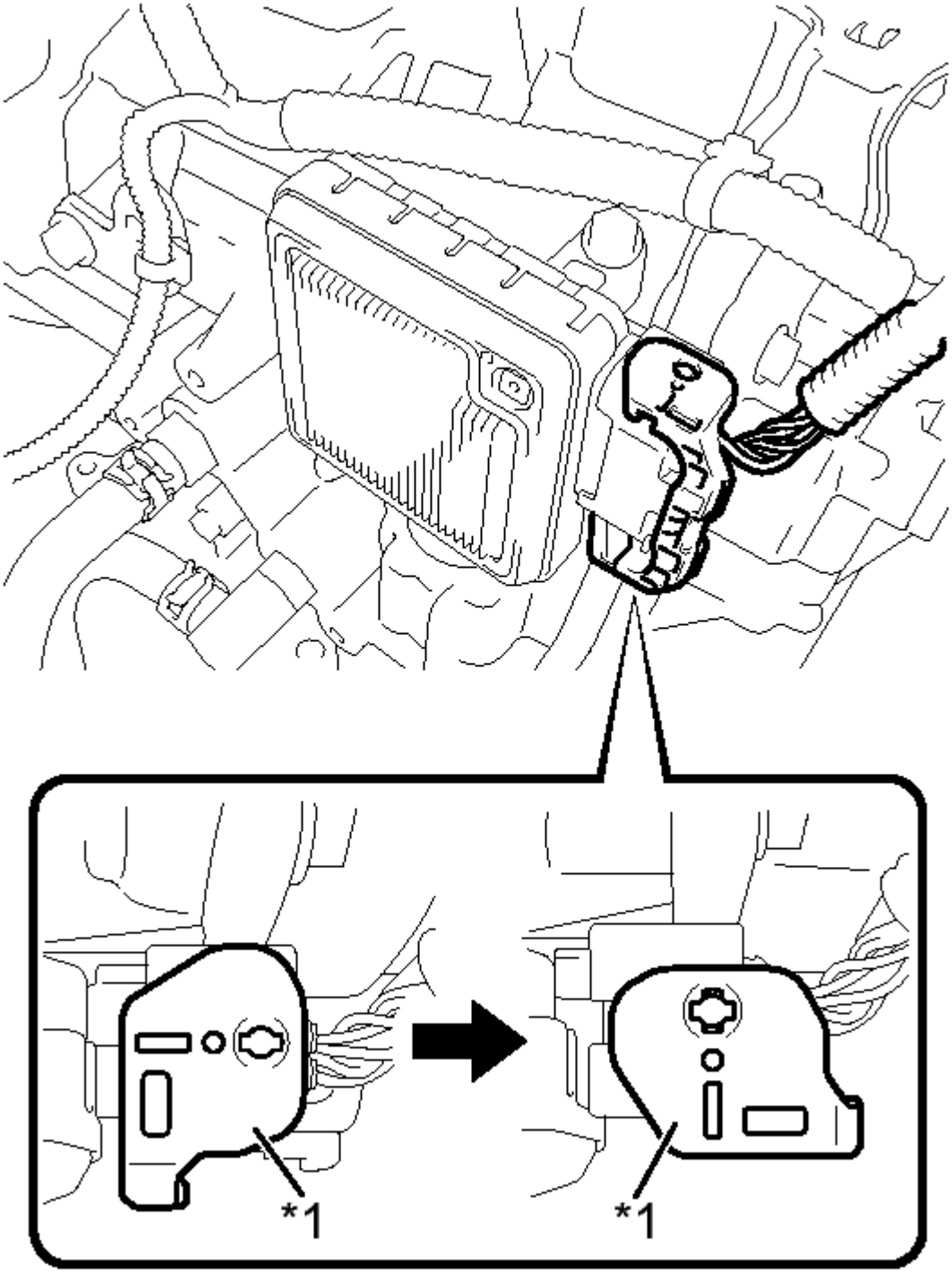


Fig. 421: Identifying TCM Bolts With Tightening Sequence
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Install and tighten the 2 bolts in the order shown in the illustration.

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

c. Connect the connector.



P

Fig. 422: Identifying TCM Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Lock

*1	Lever

d. Turn the lock lever and secure the connector with the lock lever.

2. **INSTALL BATTERY** . Refer to **INSTALLATION - Step 61**
3. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 62**
4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

   a. When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .
5. **CHECK AUTOMATIC TRANSAXLE SYSTEM**

NOTE: **If automatic transaxle parts are replaced, refer to Parts Replacement Compensation Table to determine if any additional operations are necessary. Refer to PRECAUTION .**

OIL PUMP

COMPONENTS

ILLUSTRATION

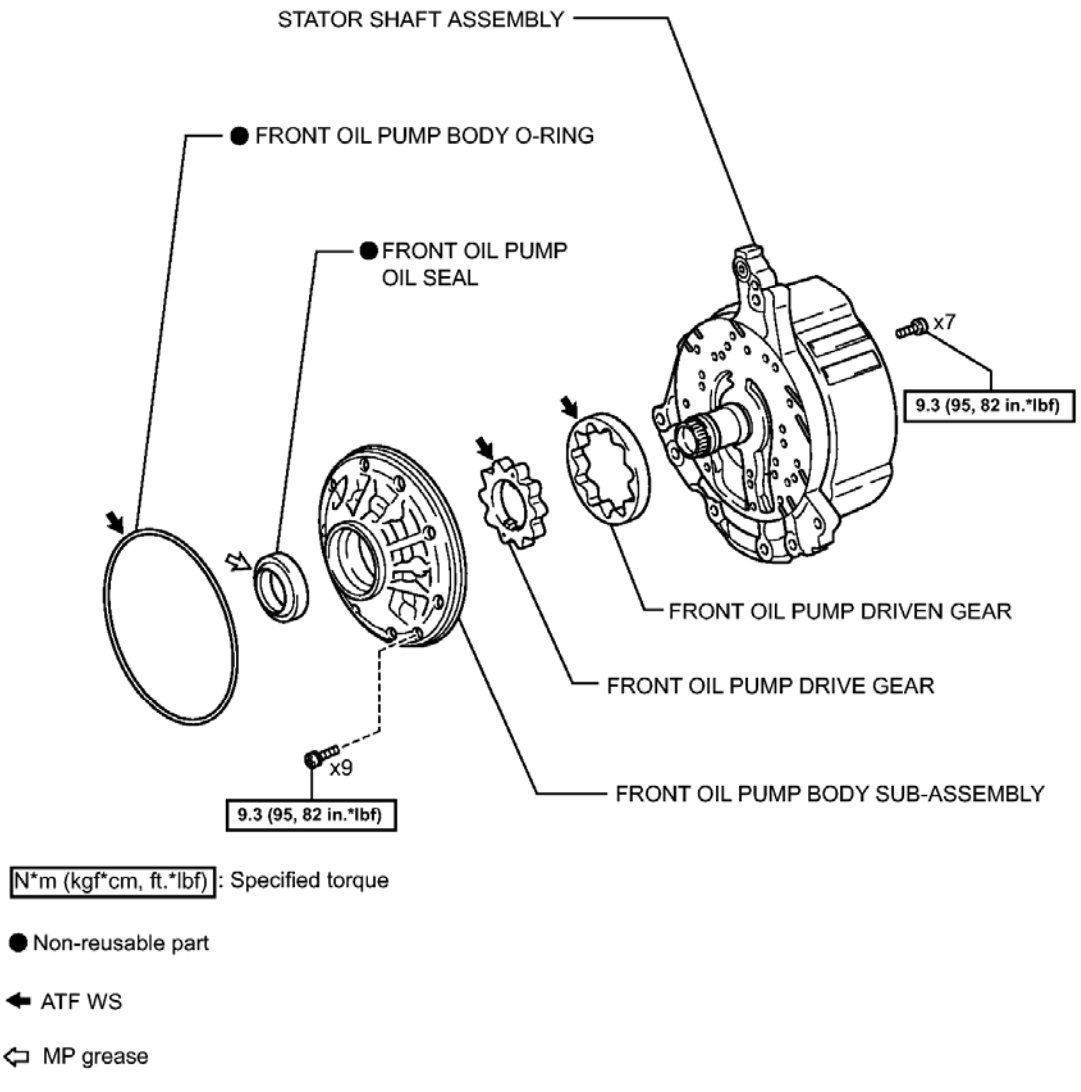
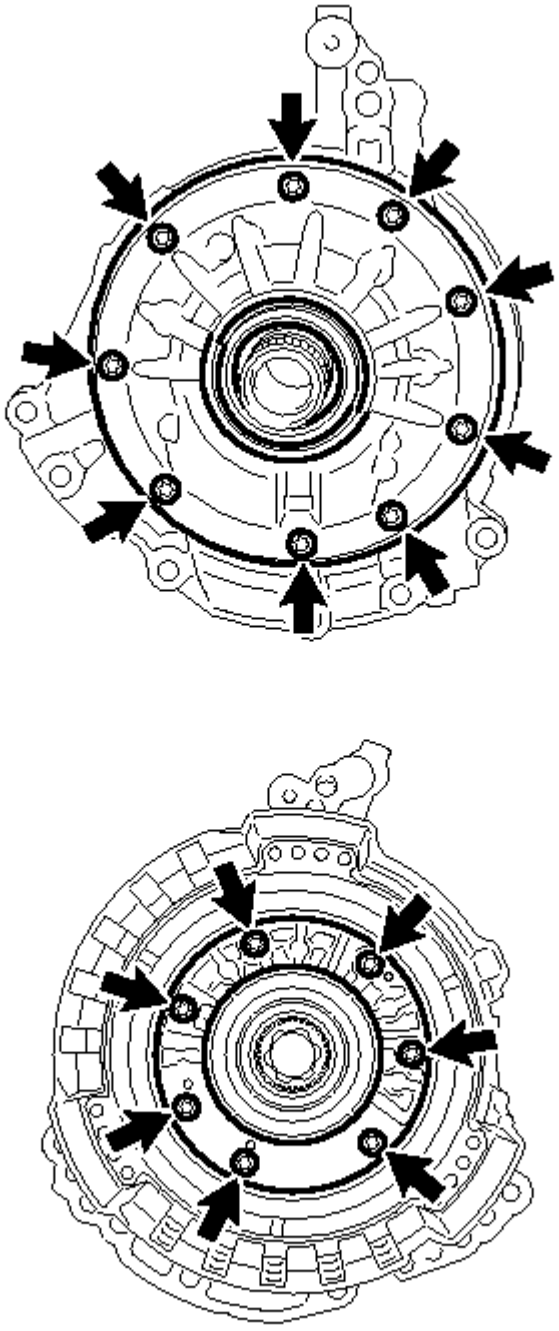


Fig. 423: Exploded View Of Oil Pump Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY** See step 1
2. **REMOVE STATOR SHAFT ASSEMBLY**
   a. Using a T30 "TORX" socket wrench, remove the 16 "TORX" screws and stator shaft assembly from the oil pump body.

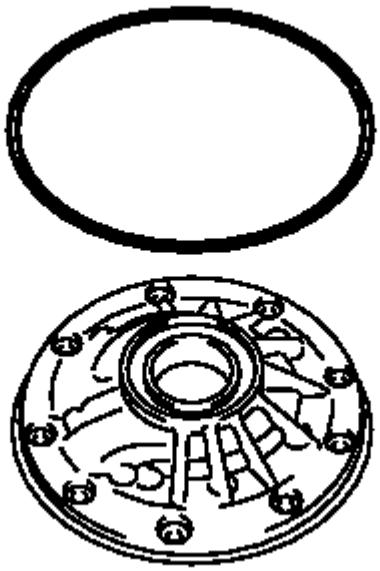


N

Fig. 424: Identifying Stator Shaft Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: **Keep the gears in the order they were removed.**

3. **INSPECT CLEARANCE OF FRONT OIL PUMP AND GEAR BODY SUB-ASSEMBLY** See step 2
4. **REMOVE FRONT OIL PUMP BODY O-RING**
    a. Remove the O-ring from the oil pump body.



N

Fig. 425: Identifying O-Ring And Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **REMOVE FRONT OIL PUMP DRIVE GEAR**
    a. Remove the front oil pump drive gear from the oil pump body.



N

Fig. 426: Identifying Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE FRONT OIL PUMP DRIVEN GEAR**
   a. Remove the front oil pump driven gear from the oil pump body.



N

Fig. 427: Identifying Front Oil Pump Driven Gear

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

7. **REMOVE FRONT OIL PUMP OIL SEAL**
   a. Mount the oil pump in a soft jaw vise.

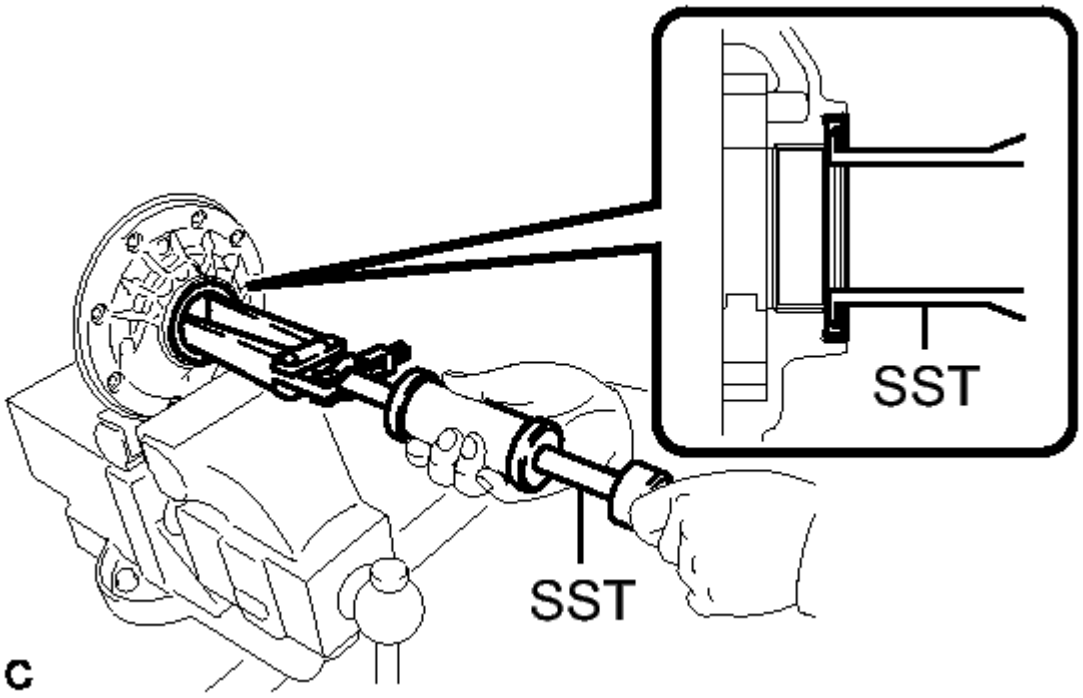


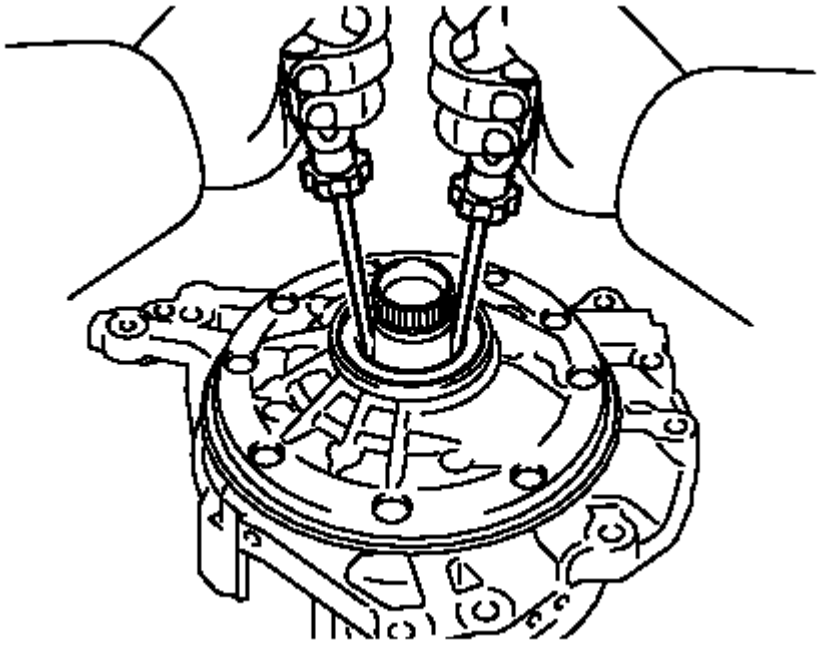
Fig. 428: Removing Front Oil Pump Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

   b. Using SST, remove the oil seal from the oil pump body.
      - **SST: 09308-00010**

INSPECTION

INSPECTION

1. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY**
   a. Turn the drive gear with 2 screwdrivers and make sure that it rotates smoothly.



N

Fig. 429: Turning Drive Gear With Screwdrivers
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Be careful not to damage the oil seal lip.

2. **INSPECT CLEARANCE OF FRONT OIL PUMP AND GEAR BODY SUB-ASSEMBLY**
   a. Push the driven gear to one side of the body.

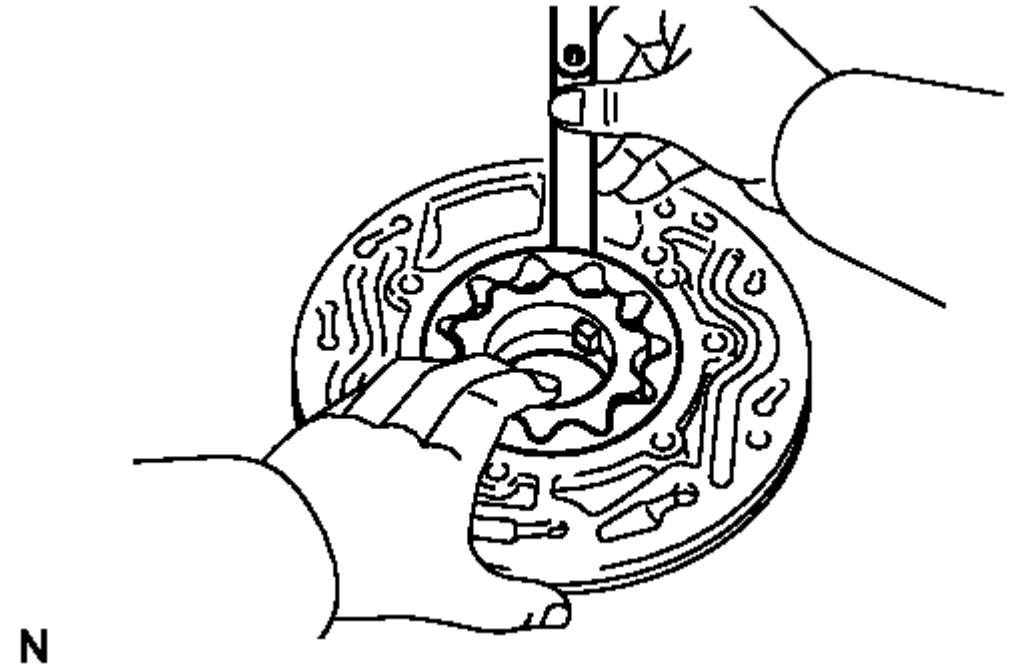


Fig. 430: Inspecting Clearance Of Front Oil Pump And Gear Body Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a feeler gauge, measure the clearance.

   Standard clearance

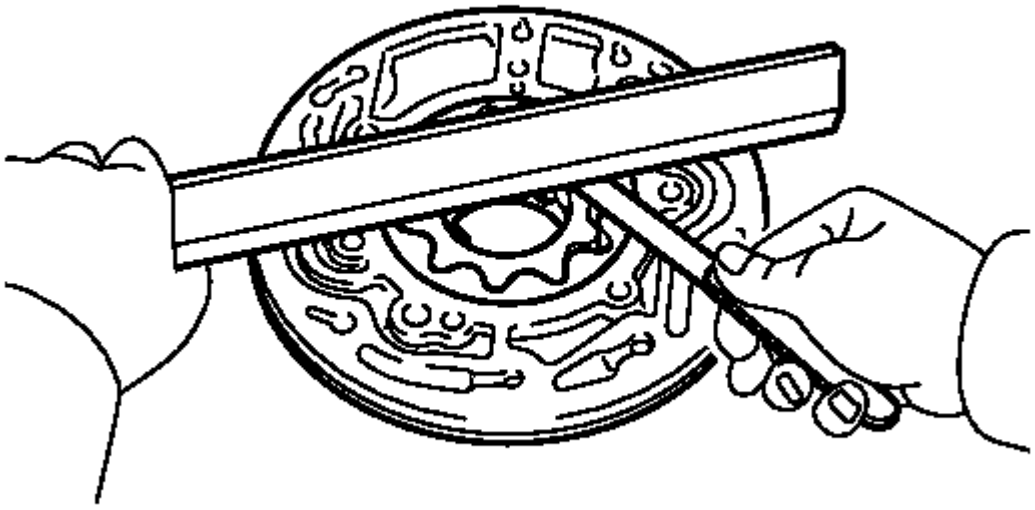
   0.08 to 0.15 mm (0.00315 to 0.00590 in.)

   Maximum clearance

   0.15 mm (0.00590 in.)

   If the clearance is greater than the maximum, replace the oil pump body subassembly.

c. Using a straightedge and feeler gauge, measure the side clearance of both gears.



N

Fig. 431: Measuring Side Clearance Of Both Gears
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard side clearance

0.025 to 0.04 mm (0.000984 to 0.00157 in.)

Maximum side clearance

0.04 mm (0.00157 in.)

DRIVE GEAR THICKNESS

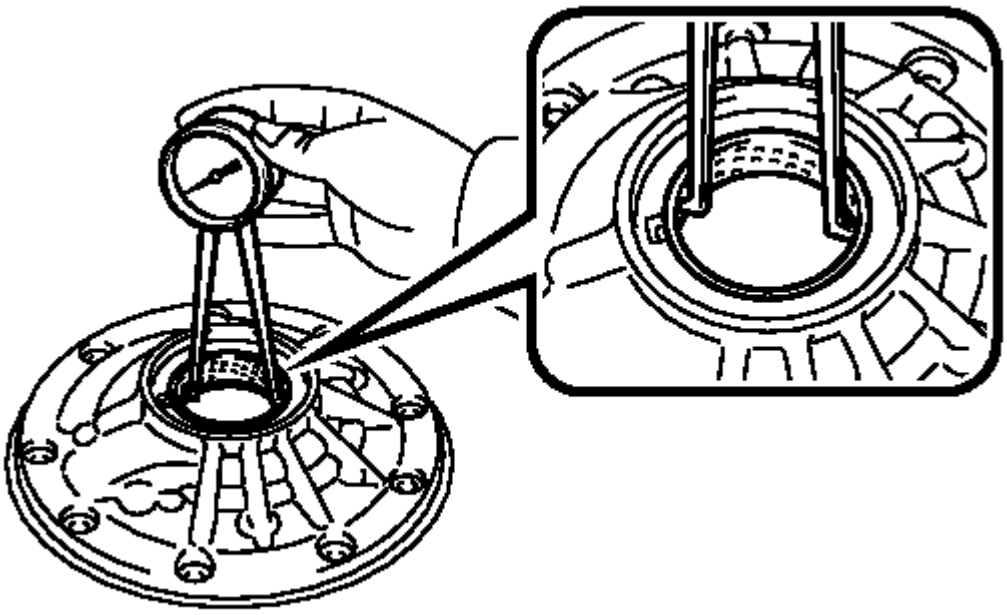
Part No.	Thickness mm (in.)	Mark
35321-33110	11.547 to 11.555 (0.4546 to 0.4549)	1
35321-33120	11.555 to 11.563 (0.4549 to 0.4552)	2
35321-33130	11.564 to 11.571 (0.4553 to 0.4556)	3
	11.572 to	

35321-33140	11.579 (0.4556 to 0.4559)	4
35321-33150	11.580 to 11.587 (0.4559 to 0.4562)	5

DRIVEN GEAR THICKNESS

Part No.	Thickness mm (in.)	Mark
35322-33110	11.547 to 11.555 (0.4546 to 0.4549)	1
35322-33120	11.555 to 11.563 (0.4549 to 0.4552)	2
35322-33130	11.564 to 11.571 (0.4553 to 0.4556)	3
35322-33140	11.572 to 11.579 (0.4556 to 0.4559)	4
35322-33150	11.580 to 11.587 (0.4559 to 0.4562)	5

3. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the oil pump body bushing.



N

Fig. 432: Measuring Inside Diameter Of Oil Pump Body Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

43.113 to 43.138 mm (1.6974 to 1.6983 in.)

Maximum inside diameter

43.188 mm (1.7003 in.)

If the inside diameter is greater than the maximum, replace the front oil pump body subassembly.

4. **INSPECT STATOR SHAFT ASSEMBLY**
   a. Using a caliper gauge, measure the inside diameter of the oil pump body bushing.

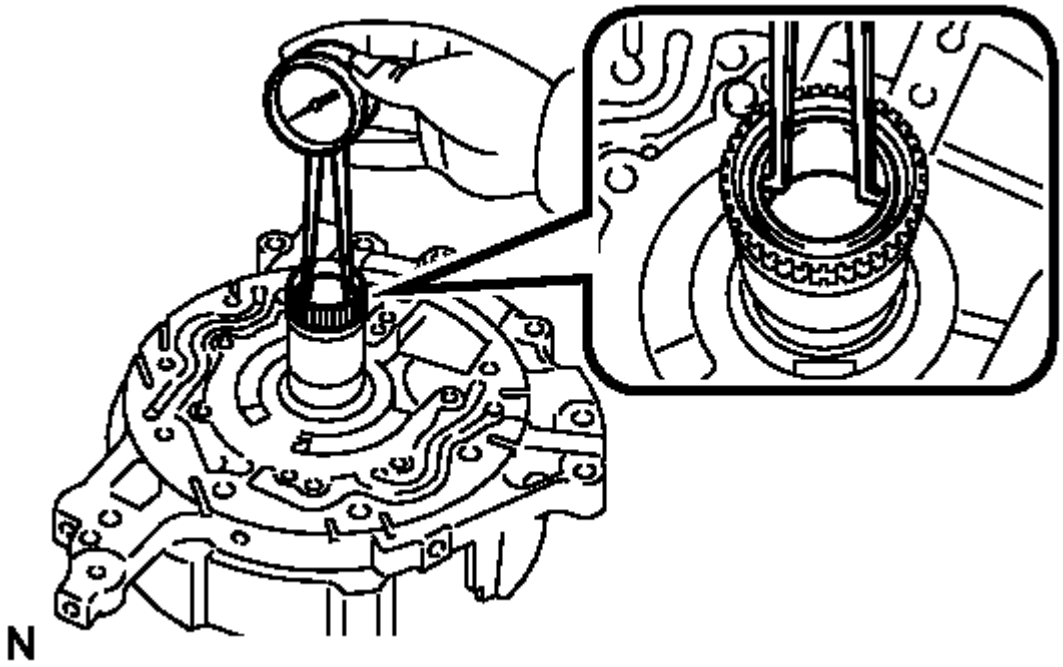


Fig. 433: Measuring Inside Diameter Of Oil Pump Body Bushing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard inside diameter

22.500 to 22.526 mm (0.8858 to 0.8868 in.)

Maximum inside diameter

22.570 mm (0.8886 in.)

If the inside diameter is greater than the maximum, replace the front oil pump body subassembly.

REASSEMBLY

REASSEMBLY

1. **INSTALL FRONT OIL PUMP OIL SEAL**
    a. Using SST and a hammer, install a new oil seal to the front oil pump body.

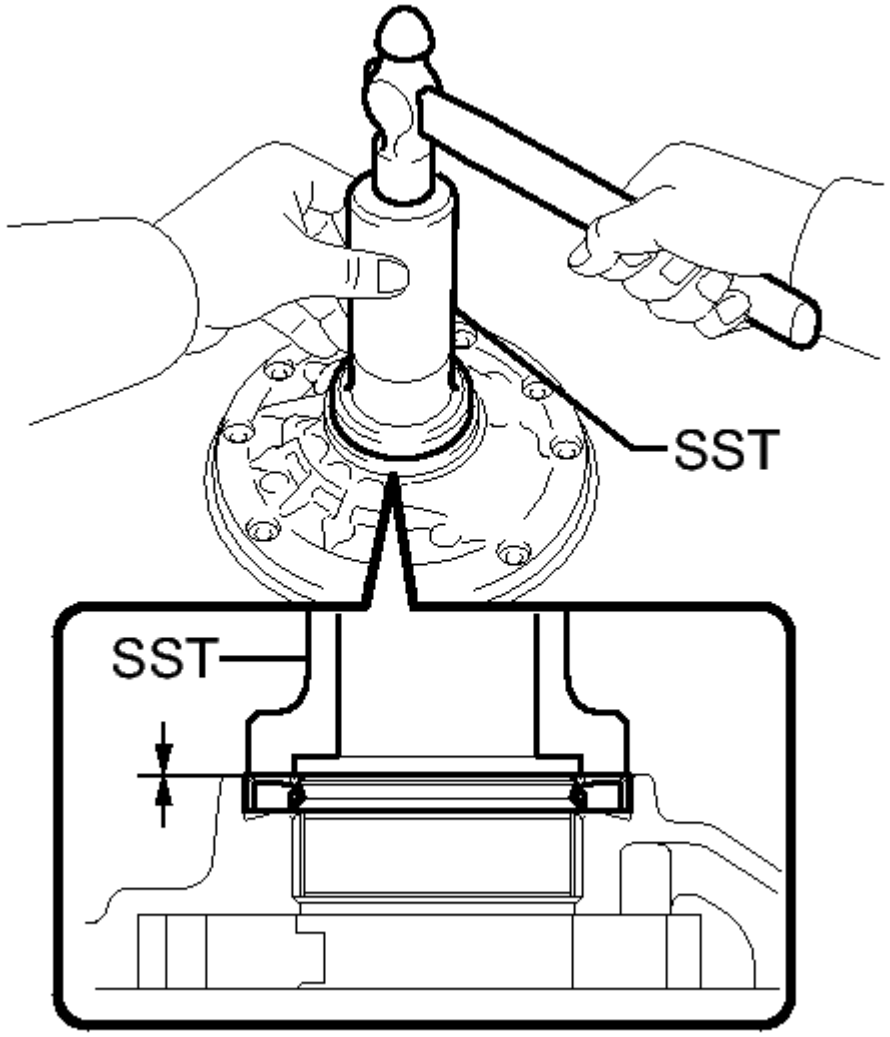


Fig. 434: Installing Front Oil Pump Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

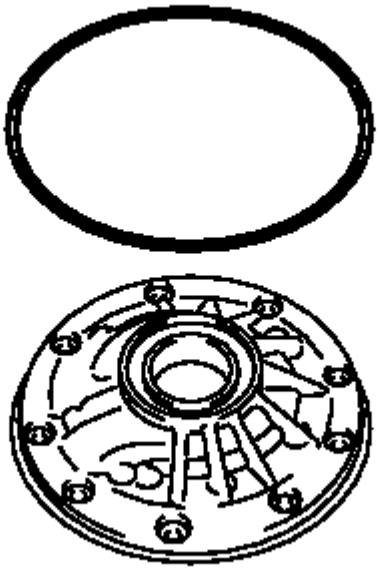
- **SST: 09350-32014**
  09351-32140

Oil seal driven in depth

-0.25 to 0.25 mm (-0.00984 to 0.00984 in.)

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

2. **INSTALL FRONT OIL PUMP BODY O-RING**
   a. Coat a new O-ring with ATF and install it to the front oil pump body.



N

Fig. 435: Identifying O-Ring And Oil Pump Body
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Ensure that the O-ring is not twisted.

3. **INSTALL FRONT OIL PUMP DRIVEN GEAR**
   a. Coat the front oil pump driven gear with ATF and install it to the front oil pump body with the marked side up.



N

Fig. 436: Identifying Front Oil Pump Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. **INSTALL FRONT OIL PUMP DRIVE GEAR**
   a. Coat the front oil pump drive gear with ATF, and install it to the front oil pump body with the marked side up.



N

Fig. 437: Identifying Front Oil Pump Drive Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. **INSTALL STATOR SHAFT ASSEMBLY**
    a. Align each knock pin of the stator shaft with the holes in the front oil pump body and install the stator shaft to the front oil pump body.

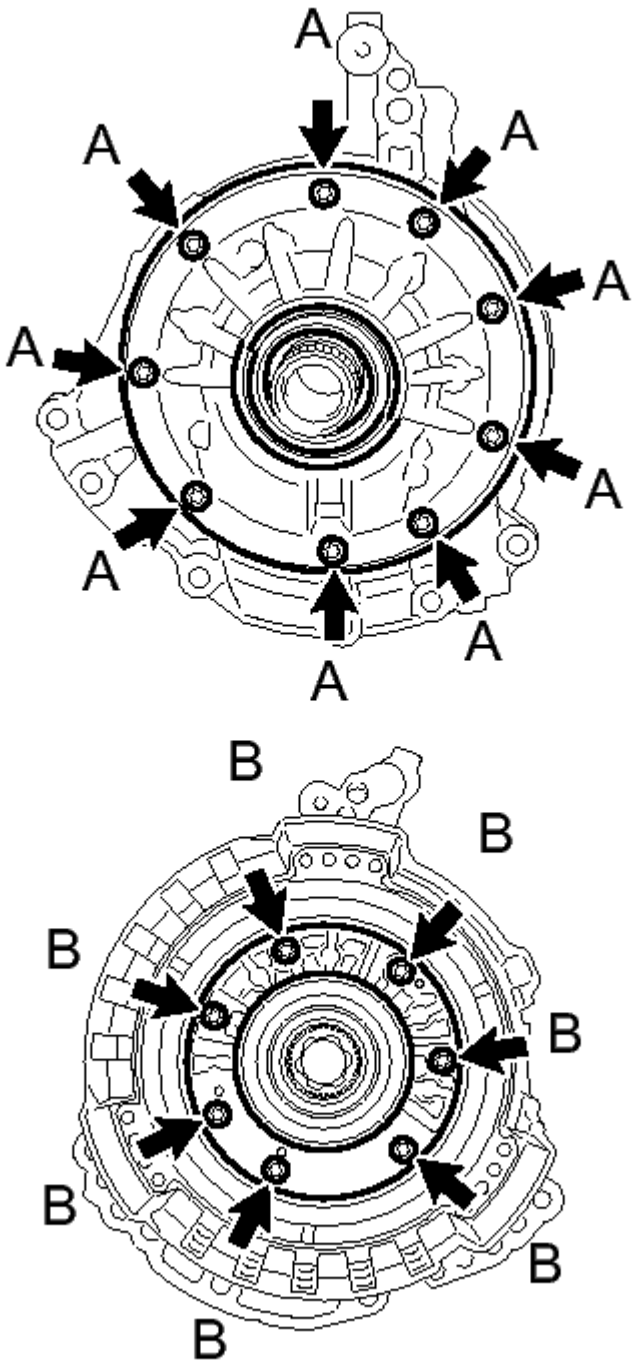


Fig. 438: Identifying Stator Shaft Assembly Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Using a T30 "TORX" socket wrench, install the 16 "TORX" screws.

Torque: 9.3 N*m (95 kgf*cm, 82 in.*lbf)

BOLT LENGTH

Bolt	Length mm (in.)
A	14 (0.551)
B	26 (1.02)

6. **INSPECT FRONT OIL PUMP BODY SUB-ASSEMBLY** See step 1

DIFFERENTIAL CASE

COMPONENTS

ILLUSTRATION

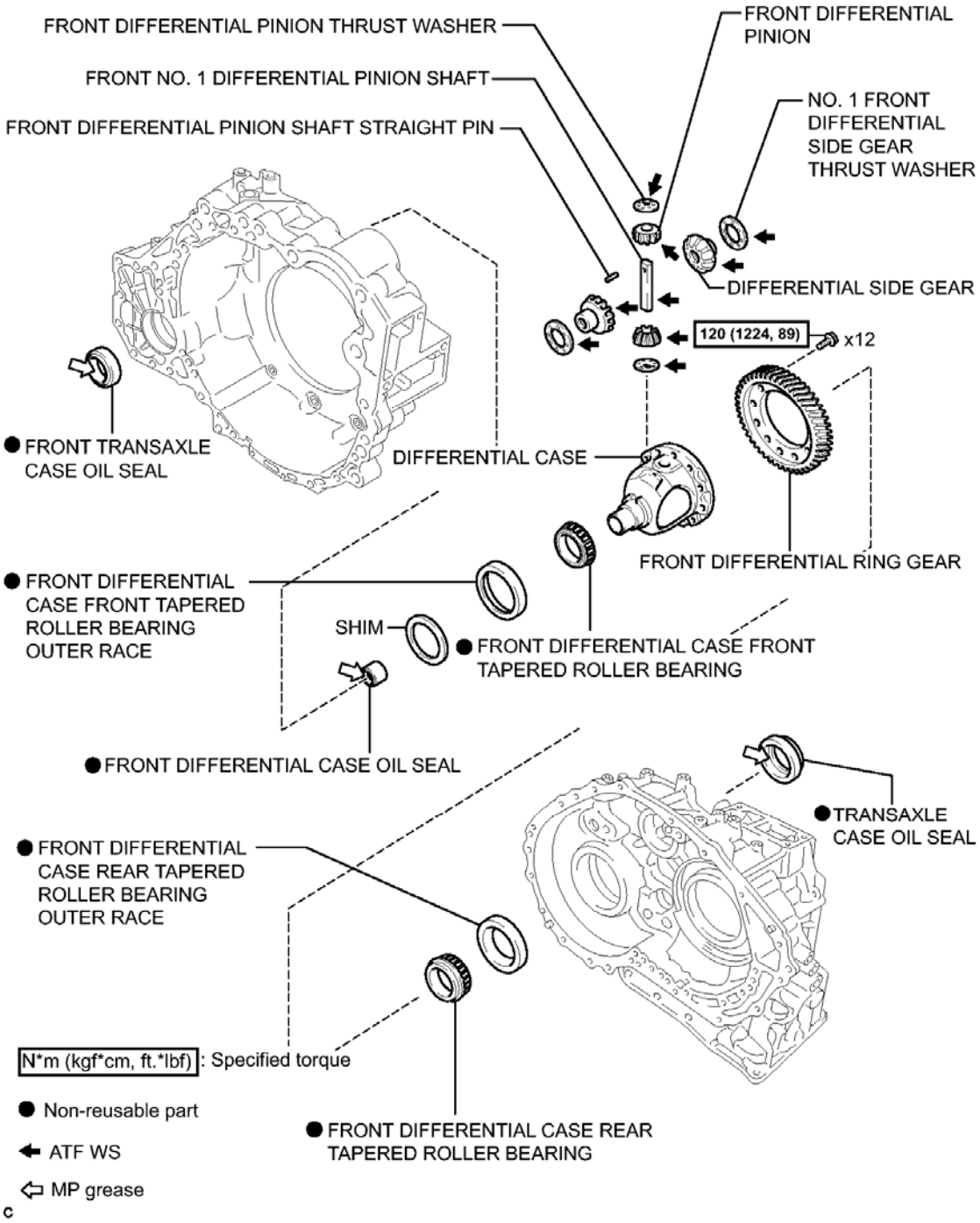


Fig. 439: Differential Case Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE FRONT DIFFERENTIAL RING GEAR**

a. Put matchmarks on the front differential ring gear and differential case.

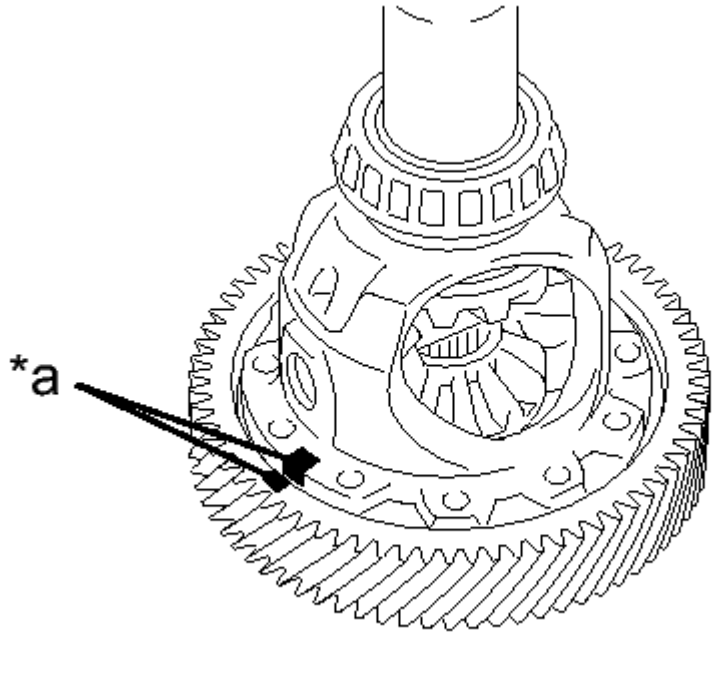
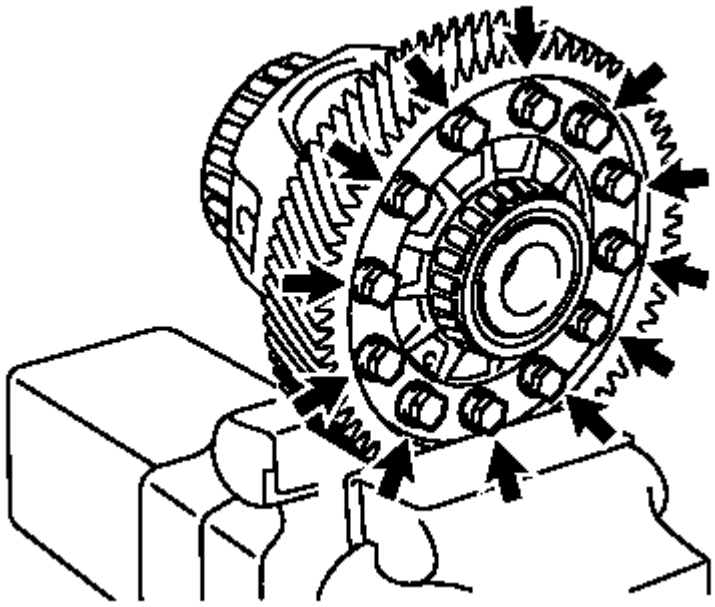


Fig. 440: Identifying Front Differential Ring Gear & Front Differential Case Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Matchmark

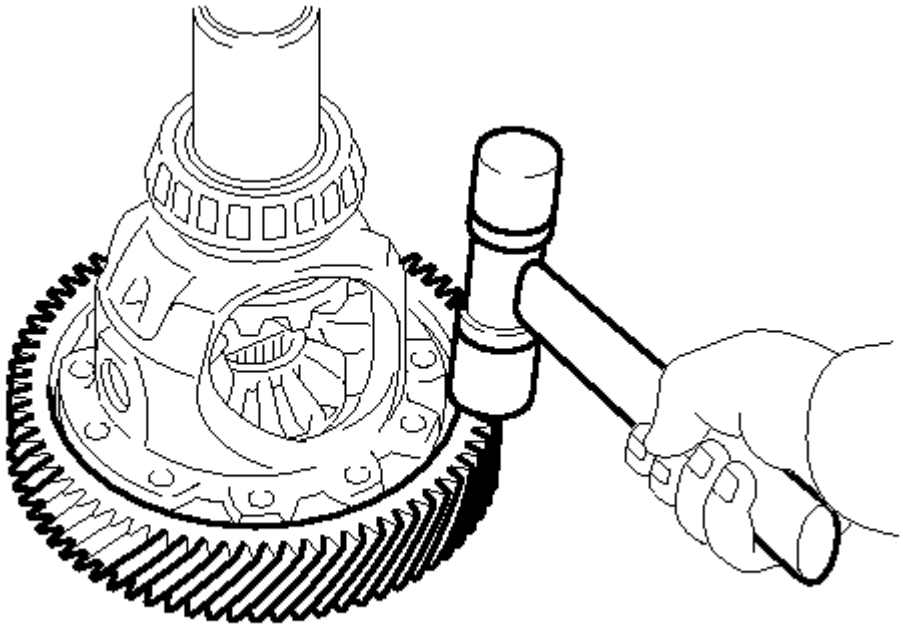
b. Remove the 12 bolts.



N

Fig. 441: Identifying Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

c. Using a plastic hammer, tap on the front differential ring gear to remove it from the case.



C

Fig. 442: Removing Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **REMOVE FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**

a. Using SST, remove the front differential case front tapered roller bearing from the differential case.

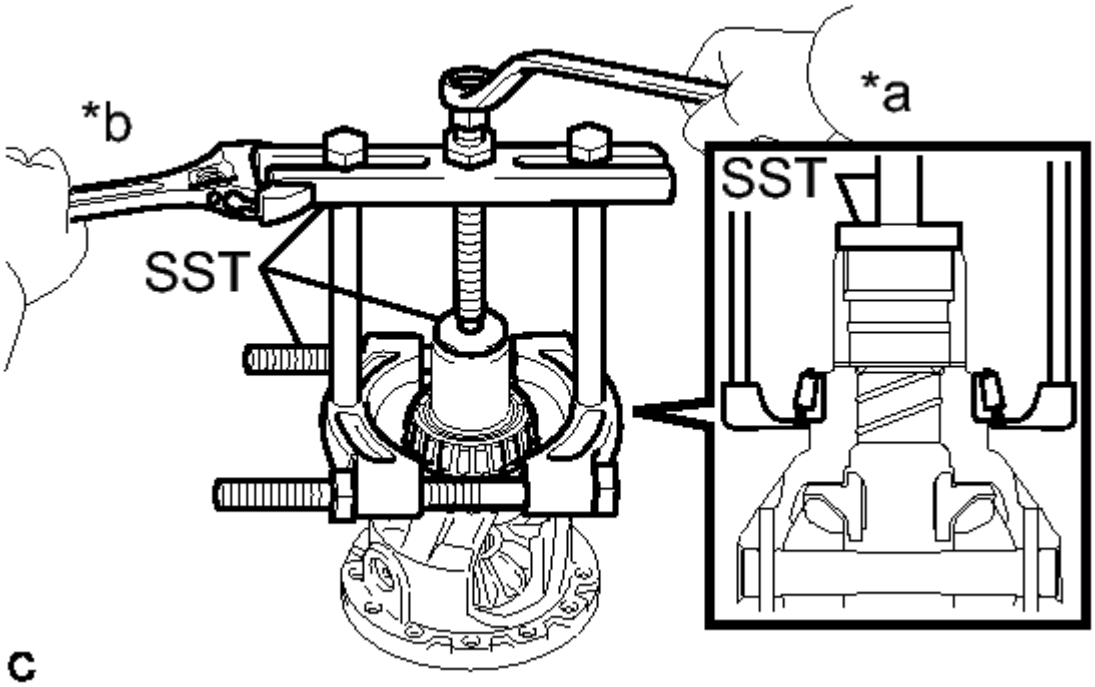


Fig. 443: Removing Front Differential Case Front Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00480

b. Using SST, remove the front differential case front tapered roller bearing outer race and shim from the transaxle housing.

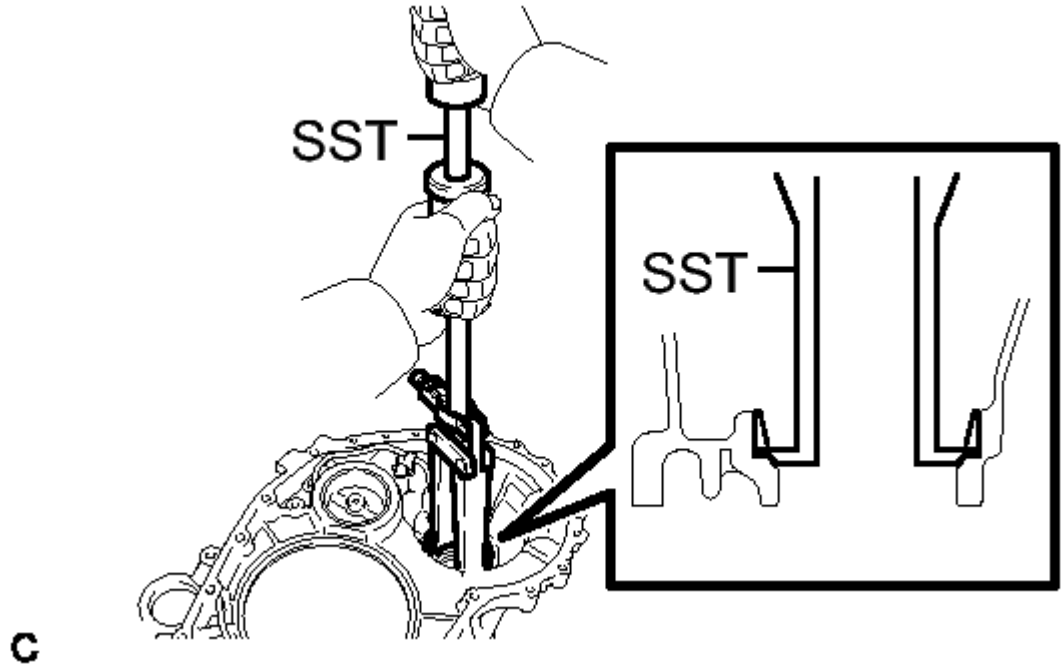


Fig. 444: Removing Front Differential Case Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

3. **REMOVE FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
   a. Using SST, remove the front differential case rear tapered roller bearing from the differential case.

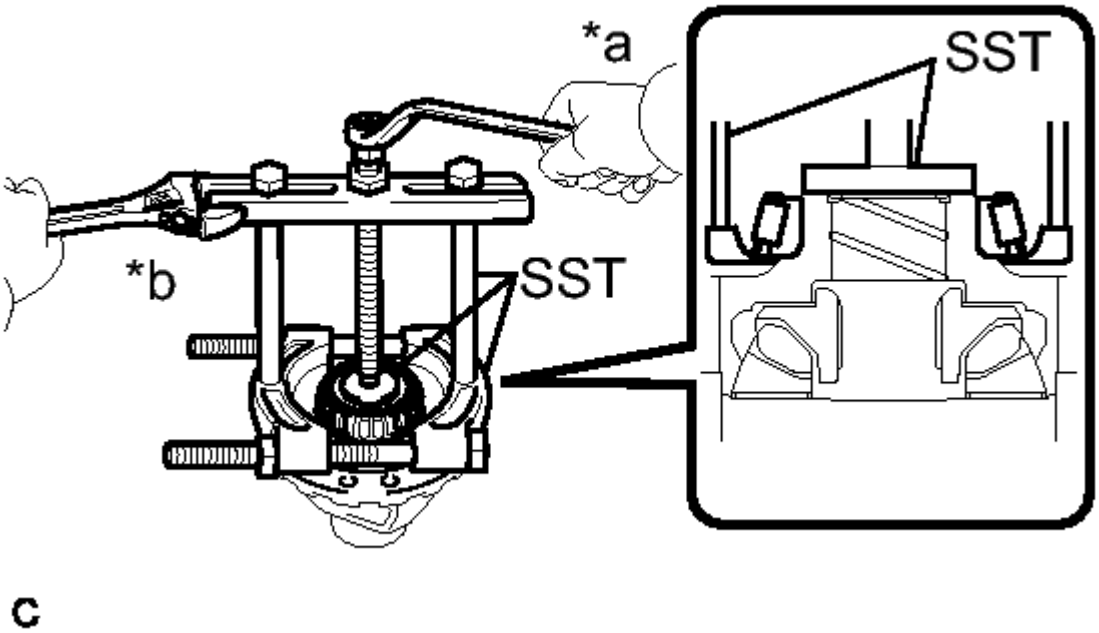


Fig. 445: Removing Front Differential Case Rear Tapered Roller Bearing Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Turn
*b	Hold

- **SST: 09950-00020**
- **SST: 09950-00030**
- **SST: 09950-60010**

  09951-00480

b. Using SST, remove the front differential case rear tapered roller bearing outer race from the transaxle case.

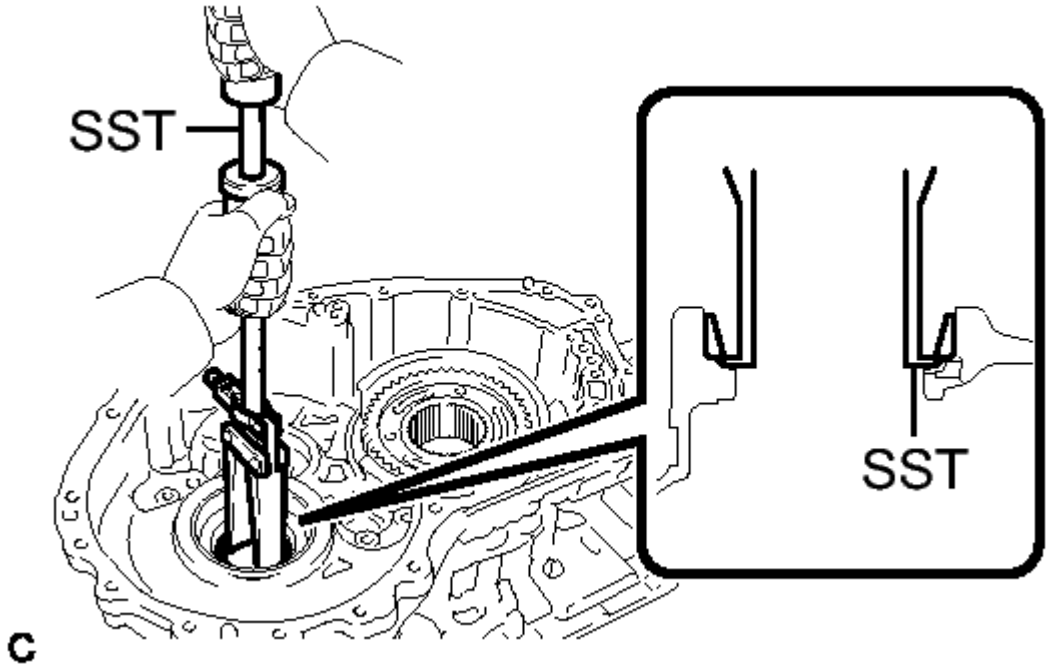


Fig. 446: Removing Front Differential Case Rear Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

4. **REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
   a. Using a pin punch (3 mm) and hammer, remove the straight pin.

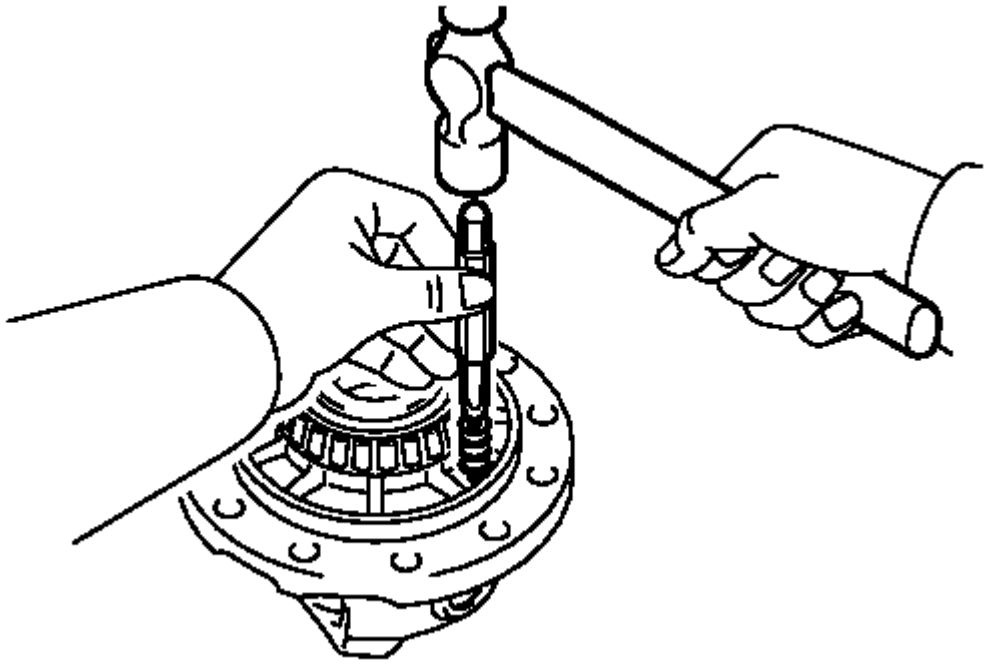
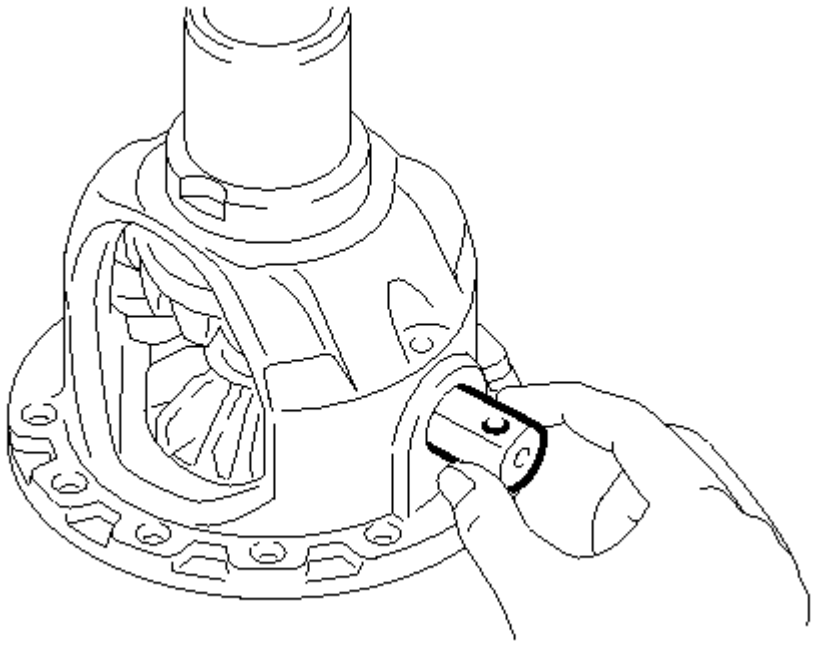


Fig. 447: Removing Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Before removing the straight pin, unstake it with a pin punch.

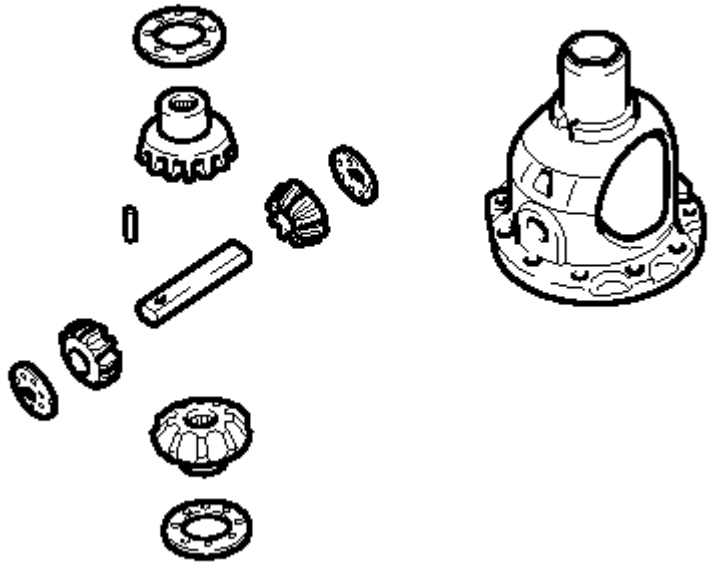
5. **REMOVE FRONT NO. 1 DIFFERENTIAL PINION SHAFT**
   a. Remove the front No. 1 differential pinion shaft from the differential case.



C

Fig. 448: Identifying No. 1 Differential Pinion Shaft
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. **REMOVE DIFFERENTIAL SIDE GEAR**
   a. Remove the 2 front differential pinions, 2 pinion thrust washers, 2 front differential side gears and 2 side gear thrust washers from the differential case.



C

Fig. 449: Identifying Differential Side Gear With Related Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. **REMOVE FRONT TRANSAXLE CASE OIL SEAL**
   a. Using SST, remove the front transaxle case oil seal.

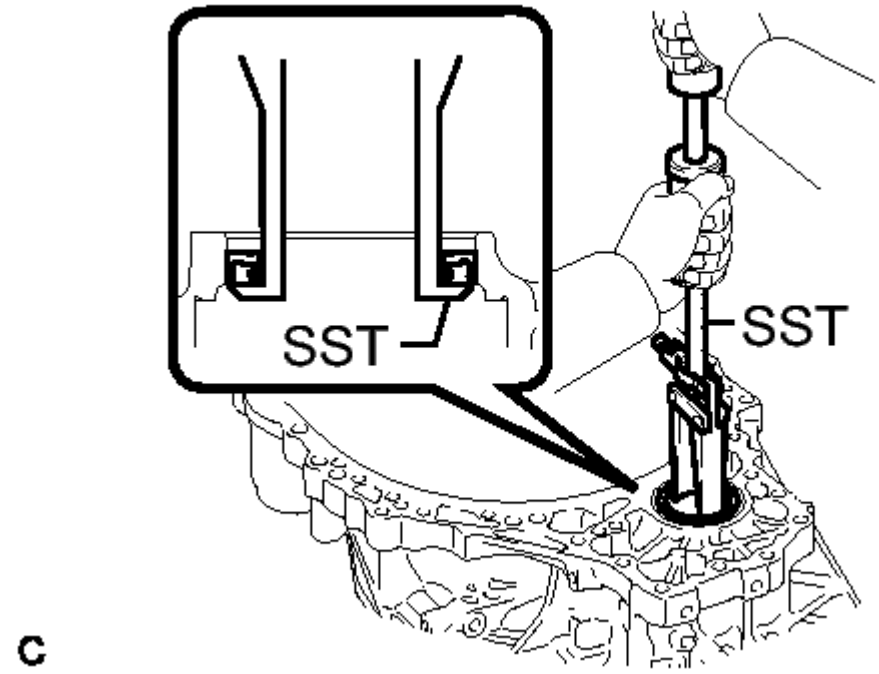


Fig. 450: Removing Front Transaxle Case Oil Seal From Transaxle Housing (Outside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

8. **REMOVE FRONT DIFFERENTIAL CASE OIL SEAL**
   a. Using SST, remove the front differential case oil seal.

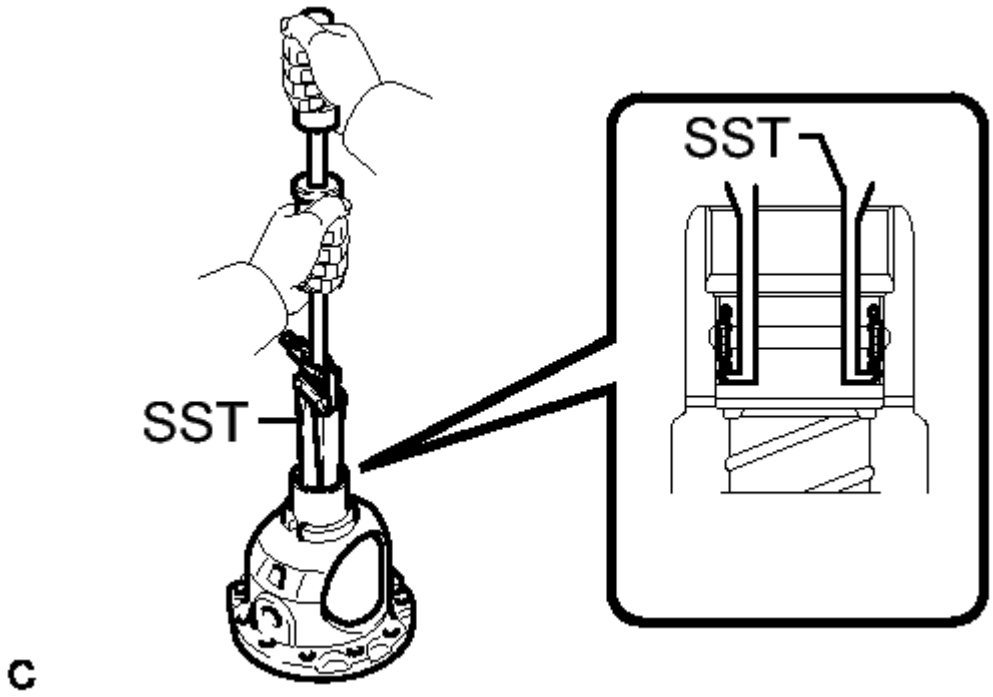


Fig. 451: Removing Front Transaxle Case Oil Seal (Inside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

9. **REMOVE TRANSAXLE CASE OIL SEAL**
   a. Using SST, remove the transaxle case oil seal.

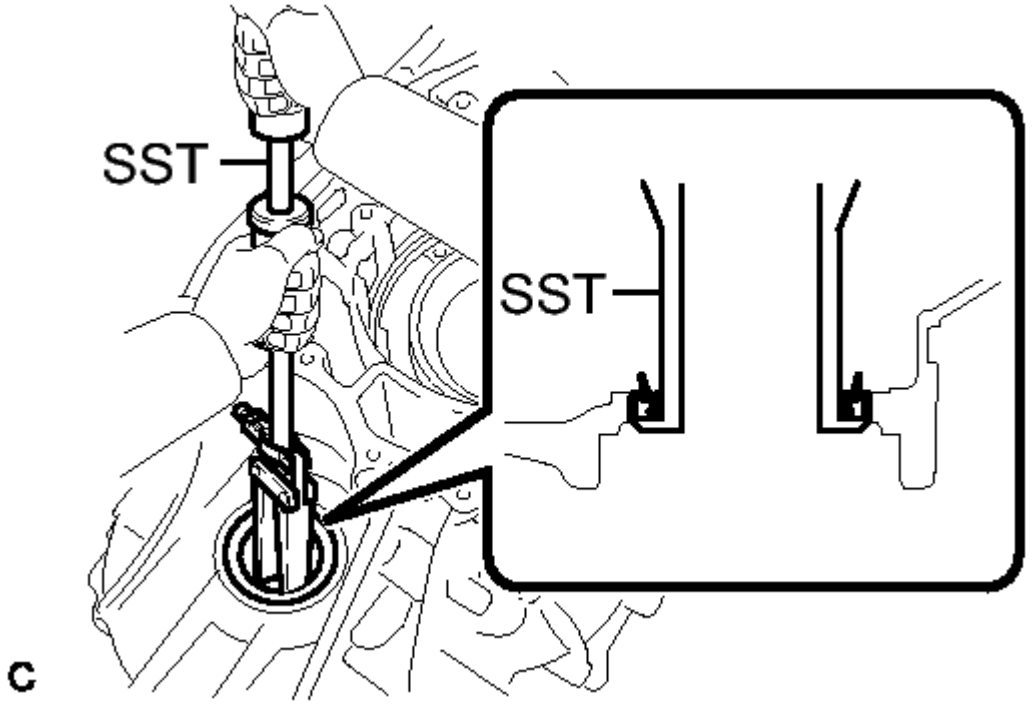


Fig. 452: Removing Transaxle Case Oil Seal From Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09308-00010**

INSPECTION

INSPECTION

1. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH**
   a. Hold the differential case in a vise between aluminum plates.

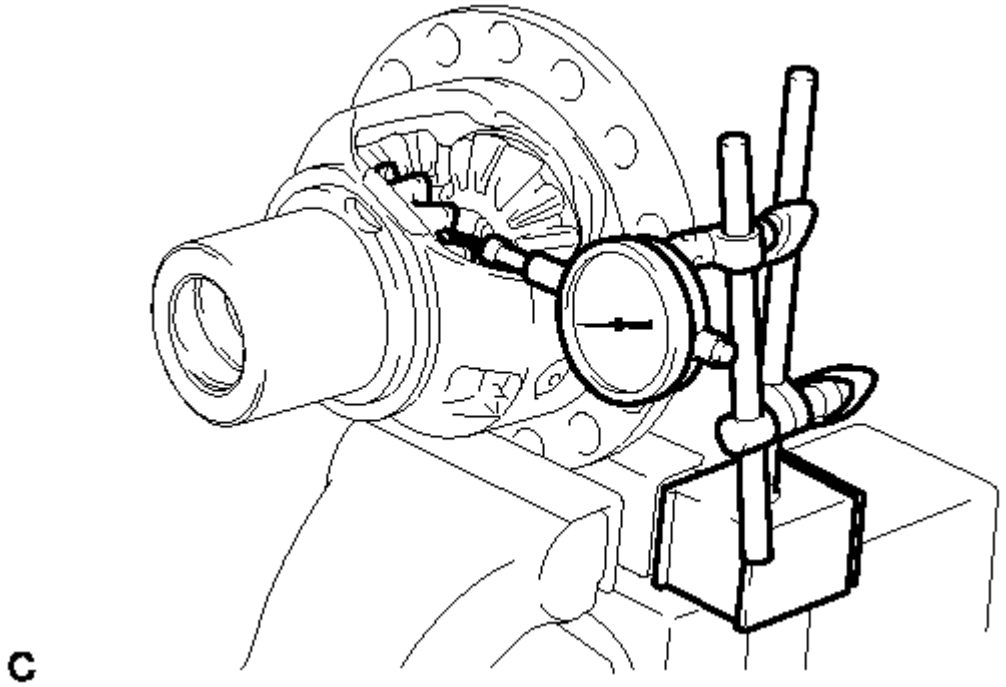


Fig. 453: Measuring Backlash Of Side Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not overtighten the vise.

   b. Place a dial indicator at a right angle to one of the side gear teeth.
   c. Hold the pinion gear in the differential case and measure the backlash of the side gear.

   Standard backlash

   0.05 to 0.15 mm (0.00197 to 0.00591 in.)

THRUST WASHER THICKNESS

Part	Thickness

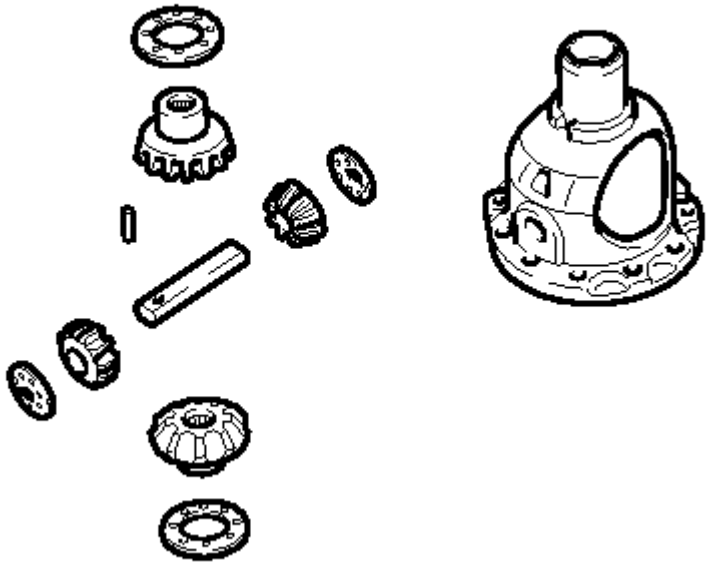
No.	mm (in.)
41361-33020	1.50 (0.0591)
41361-33030	1.55 (0.0610)
41361-33040	1.60 (0.0630)
41361-33050	1.65 (0.0650)
41361-33060	1.70 (0.0669)
41361-33070	1.75 (0.0689)
41361-33080	1.80 (0.0709)
41361-33090	1.85 (0.0728)
41361-33100	1.90 (0.0748)

If the backlash is not within the standard range, select another side gear thrust washer.

REASSEMBLY

REASSEMBLY

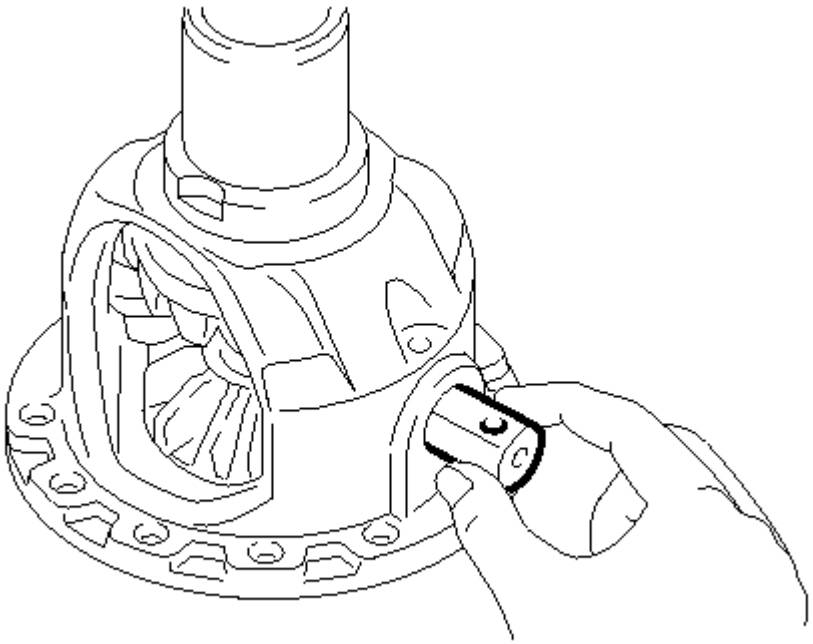
1. **INSTALL DIFFERENTIAL SIDE GEAR**
   a. Coat the 2 front differential side gears, 2 side gear thrust washers, 2 front differential pinions and 2 pinion thrust washers with ATF and install them to the differential case.



C

Fig. 454: Identifying Differential Side Gear With Related Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL FRONT NO. 1 DIFFERENTIAL PINION SHAFT**
   a. Coat the front No. 1 differential pinion shaft with ATF, and install it to the differential case.

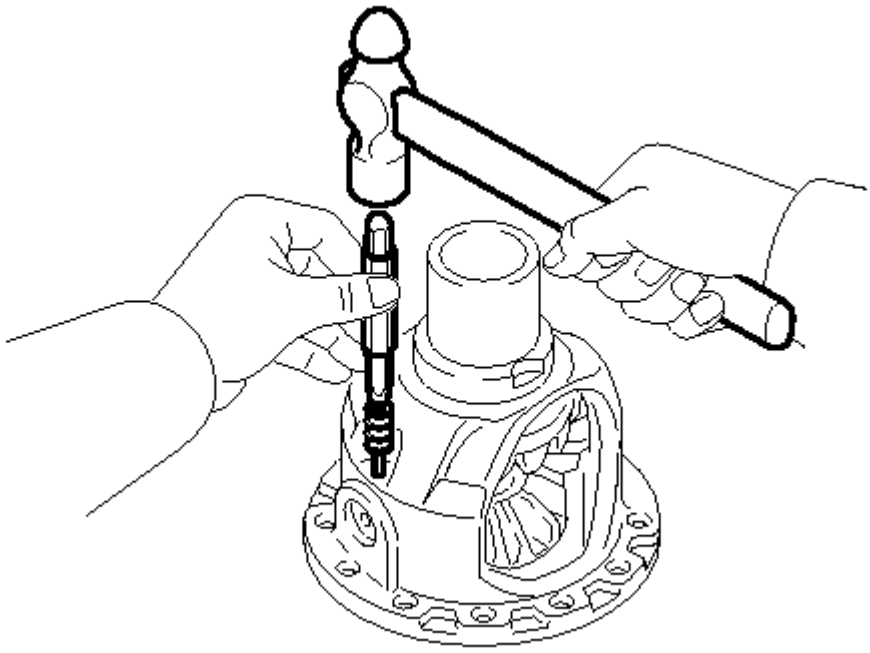


C

Fig. 455: Identifying No. 1 Differential Pinion Shaft

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

3. **INSPECT DIFFERENTIAL SIDE GEAR BACKLASH** See step 1
4. **INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN**
   a. Using a pin punch (3 mm) and hammer, install the pinion shaft straight pin.



C

Fig. 456: Installing Front Differential Pinion Shaft Straight Pin
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Align the holes, and install the pinion shaft straight pin.

   b. Using a chisel and hammer, stake the differential case.

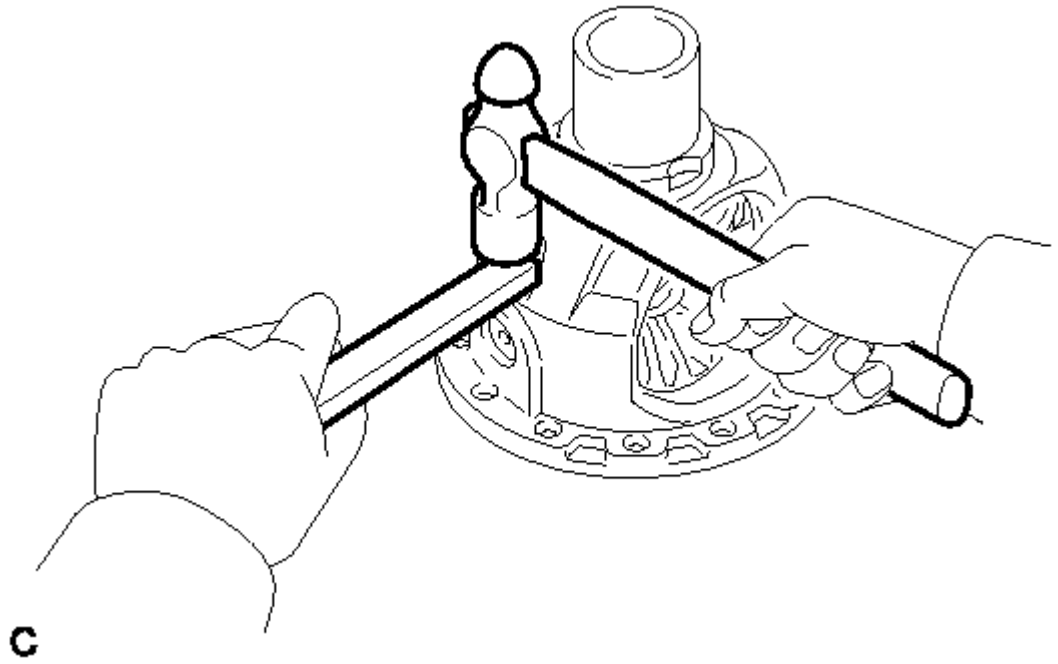


Fig. 457: Staking Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Stake the differential case after adjusting the backlash.

5. **INSTALL FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING**
   a. Using SST and a press, install a new front differential case rear tapered roller bearing to the differential case.

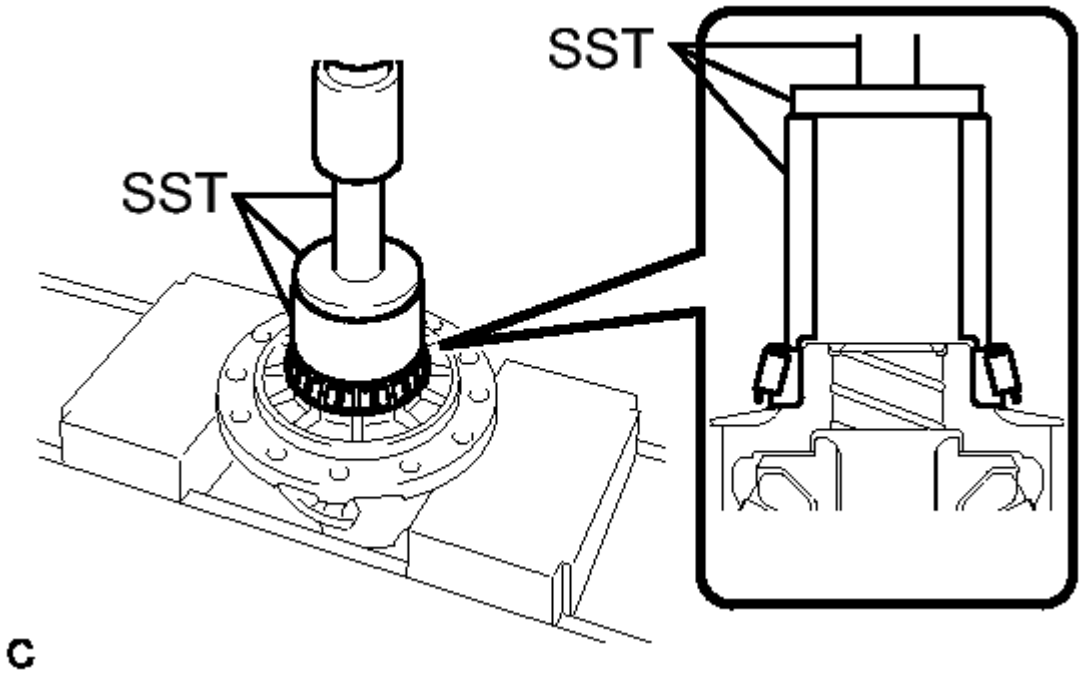


Fig. 458: Installing Front Differential Case Rear Tapered Roller Bearing To Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09710-30012**
  09710-04081
- **SST: 09950-60010**
  09951-00480
- **SST: 09950-70010**
  09951-07100

NOTE: Do not damage the bearing cage during bearing inner race installation.

b. Using SST and a hammer, install a new front differential case rear tapered roller bearing outer race to the transaxle case.

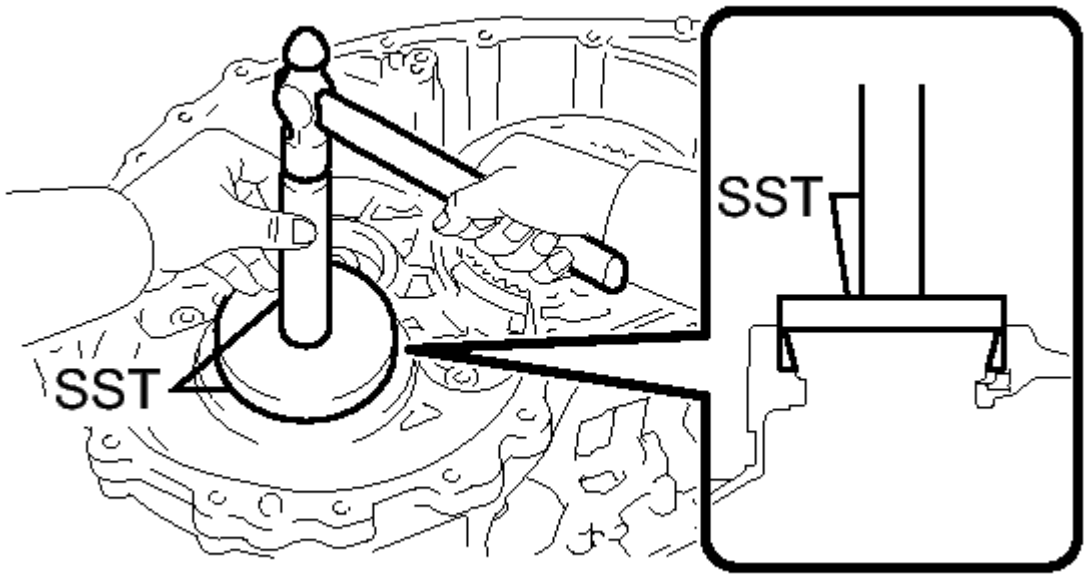


Fig. 459: Installing Front Differential Case Rear Tapered Roller Bearing Outer Race To Transaxle Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60020**
  09951-00890
- **SST: 09950-70010**
  09951-07150

NOTE: Ensure that there is no clearance between the bearing and transaxle case.

6. **INSTALL FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING**
   a. Using SST and a press, install a new front differential case front tapered roller bearing to the differential case.

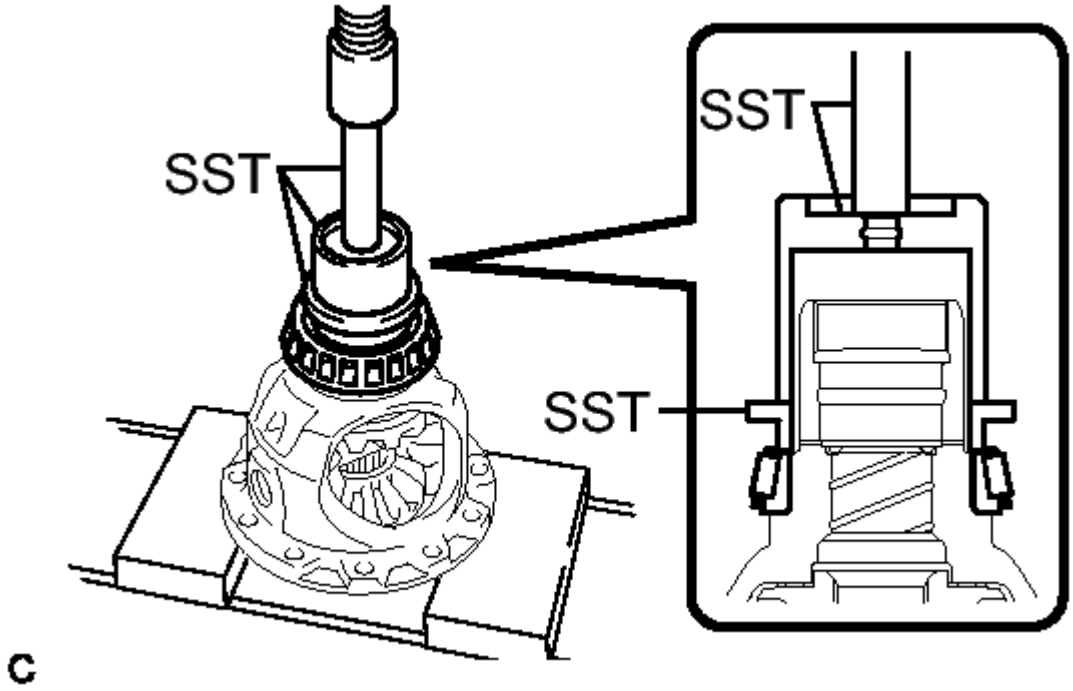


Fig. 460: Installing Front Differential Case Front Tapered Roller Bearing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-12010**
- **SST: 09649-17010**
- **SST: 09950-70010**
  09951-07100

NOTE: Do not damage the bearing cage during bearing inner race installation.

b. Install the shim to the transaxle housing.
c. Using SST and a hammer, install a new front differential case front tapered roller bearing outer race to the transaxle housing.

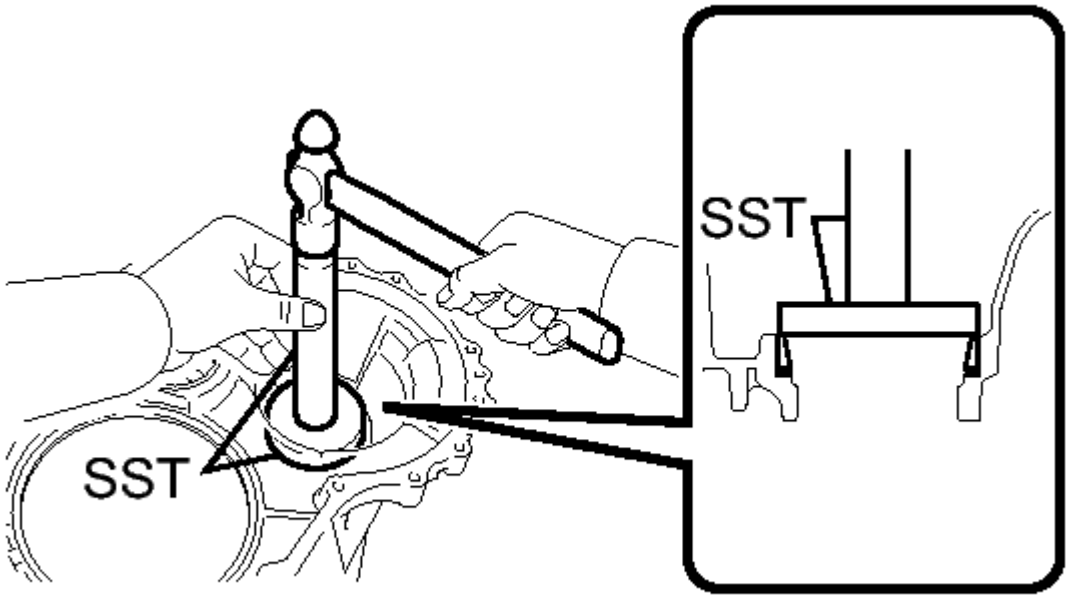


Fig. 461: Tapping Front Differential Case Front Tapered Roller Bearing Outer Race
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09950-60010**
  09951-00480
- **SST: 09950-70010**
  09951-07150

NOTE: Ensure that there is no clearance between the bearing and transaxle housing.

7. **ADJUST DIFFERENTIAL SIDE BEARING PRELOAD**
   a. Install the differential assembly to the transaxle case.

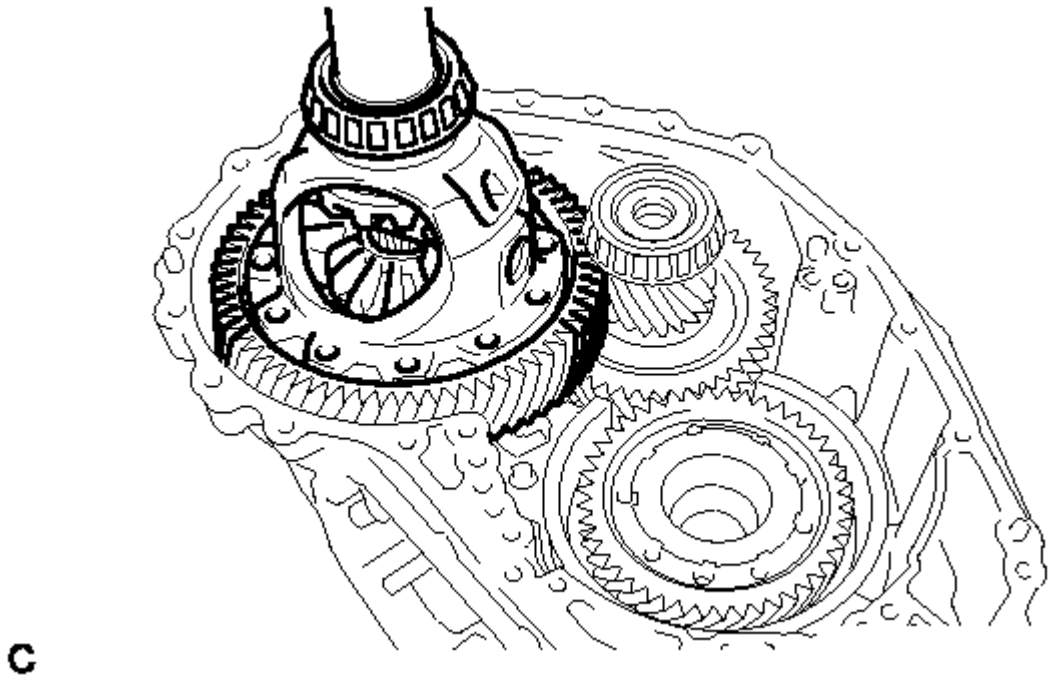


Fig. 462: Identifying Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. Clean the contact surfaces of the transaxle case and transaxle housing.
c. Install the transaxle housing to the transaxle case with the 20 bolts.

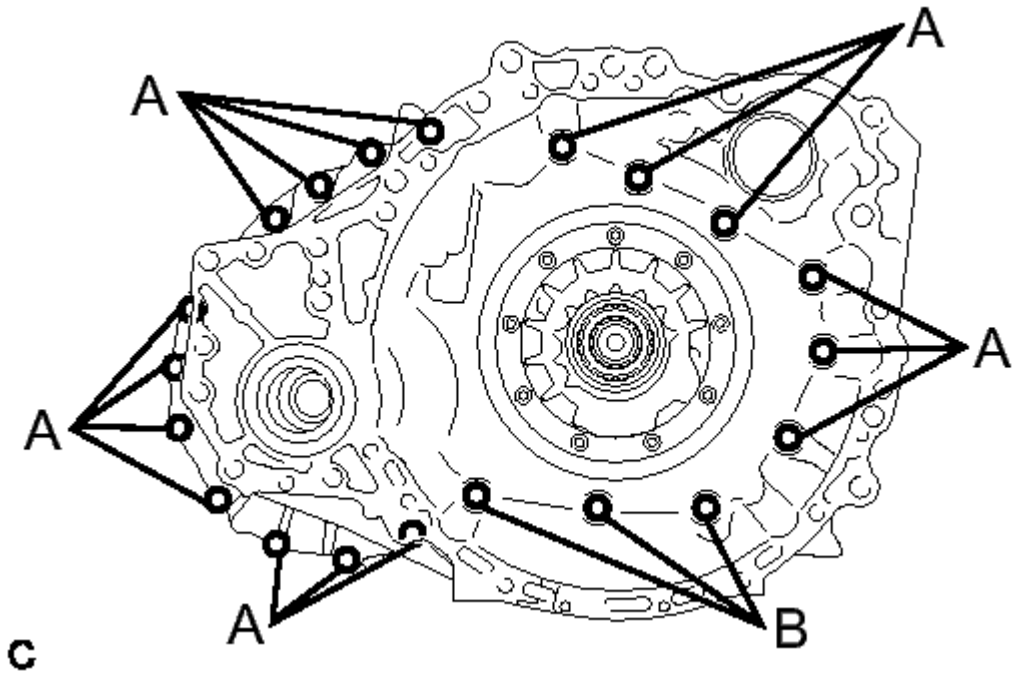


Fig. 463: Identifying Transaxle Housing Bolts

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

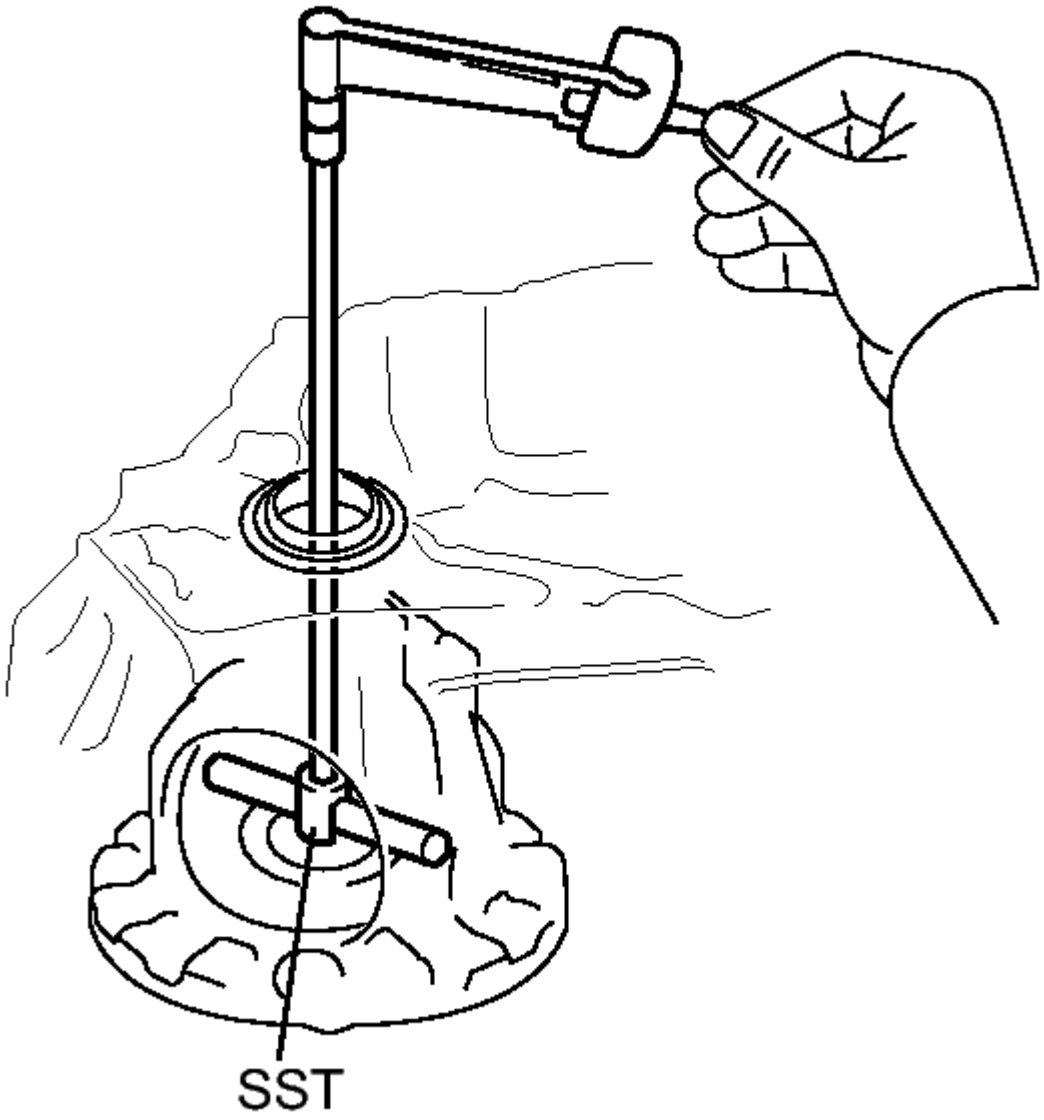
Bolt A

Torque: 31 N*m (316 kgf*cm, 23 ft.*lbf)

Bolt B

Torque: 23 N*m (234 kgf*cm, 17 ft.*lbf)

d. Using SST, turn the differential assembly right and left 2 or 3 times to settle the bearing.



N

Fig. 464: Measuring Turning Torque Of Counter Driven Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09564-33010**

e. Using SST and a torque wrench, measure the turning torque of the differential side bearing while

rotating SST at 10 RPM.

- **SST: 09564-33010**

Turning torque

1.1 to 1.9 N*m (11 to 19 kgf*cm, 10 to 17 in.*lbf)

If the turning torque is not within the specified range, refer to the table below to select a shim so that the turning torque is within the specified range.

SHIM THICKNESS

Part No.	Thickness mm (in.)
90564-82009	2.000 (0.0787)
90564-82010	2.025 (0.0797)
90564-82011	2.050 (0.0807)
90564-82012	2.075 (0.0817)
90564-82013	2.100 (0.0827)
90564-82014	2.125 (0.0837)
90564-82015	2.150 (0.0846)
90564-82016	2.175 (0.0856)
90564-82017	2.200 (0.0866)
90564-82018	2.225 (0.0876)
90564-82019	2.250 (0.0886)
90564-82020	2.275 (0.0896)
90564-82021	2.300 (0.0906)
90564-82022	2.325 (0.0915)
90564-82023	2.350 (0.0925)
90564-82024	2.375 (0.0935)

90564-82025	2.400 (0.0945)
90564-82026	2.425 (0.0955)
90564-82027	2.450 (0.0965)
90564-82028	2.475 (0.0974)
90564-82029	2.500 (0.0984)
90564-82030	2.525 (0.0994)
90564-82031	2.550 (0.100)
90564-82032	2.575 (0.101)
90564-82033	2.600 (0.102)
90564-82034	2.625 (0.103)
90564-82035	2.650 (0.104)
90564-82036	2.675 (0.105)
90564-82037	2.700 (0.106)
90564-82038	2.725 (0.107)
90564-82039	2.750 (0.108)
90564-82040	2.775 (0.109)
90564-82041	2.800 (0.110)
90564-82042	2.825 (0.111)
90564-82043	2.850 (0.112)
90564-82044	2.875 (0.113)

f. Remove the 20 bolts and transaxle housing from the transaxle case.

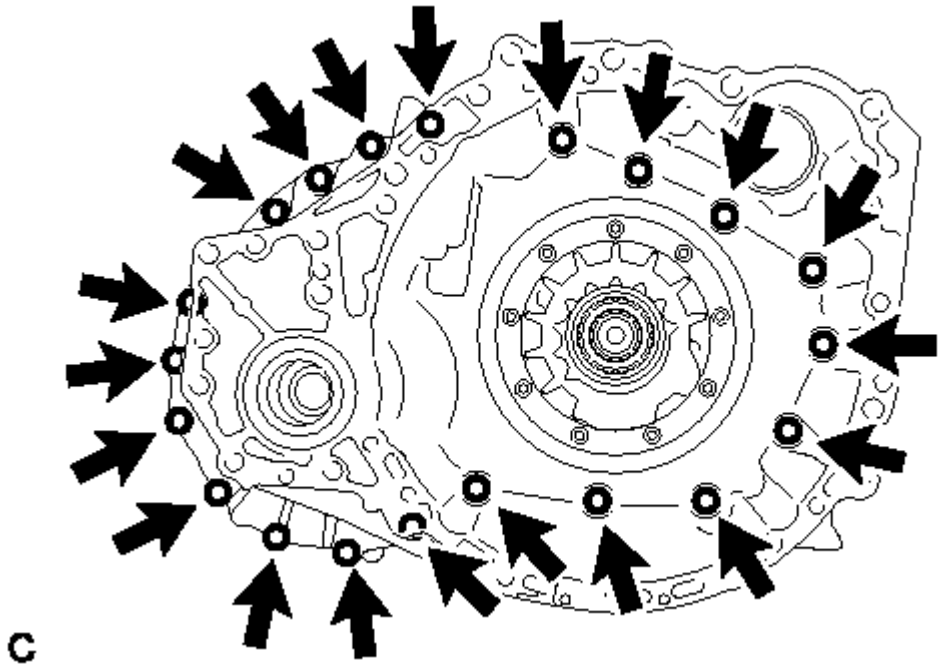


Fig. 465: Identifying Transaxle Housing Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

g. Remove the differential assembly from the transaxle case.

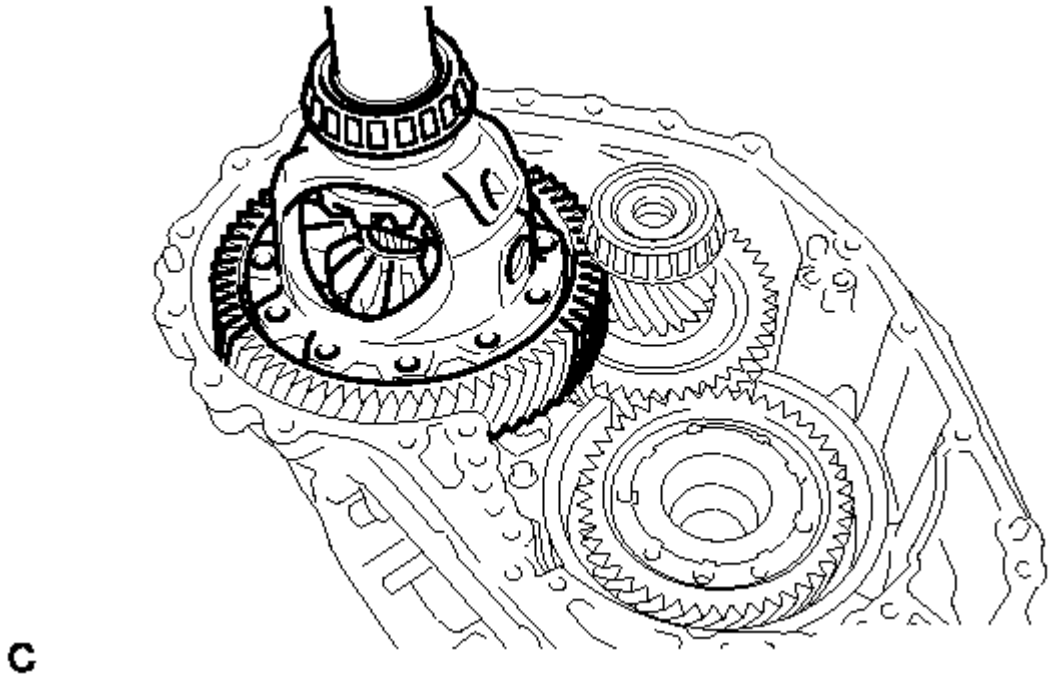


Fig. 466: Identifying Front Differential Case
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. **INSTALL FRONT DIFFERENTIAL RING GEAR**

a. Using ATF and a heater, heat the front differential ring gear to 90 to 110°C (194 to 230°F).

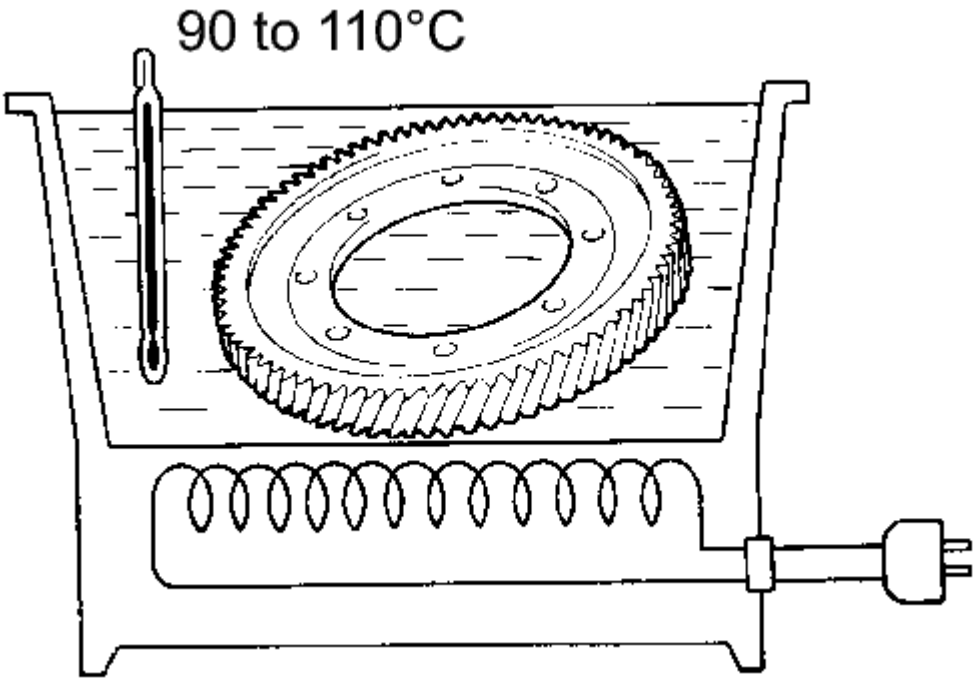


Fig. 467: Heating Front Differential Ring Gear
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not heat the ring gear to more than 110°C (230°F).

b. Clean the contact surface of the front differential case.

c. Align the matchmarks, and install the front differential ring gear case quickly.

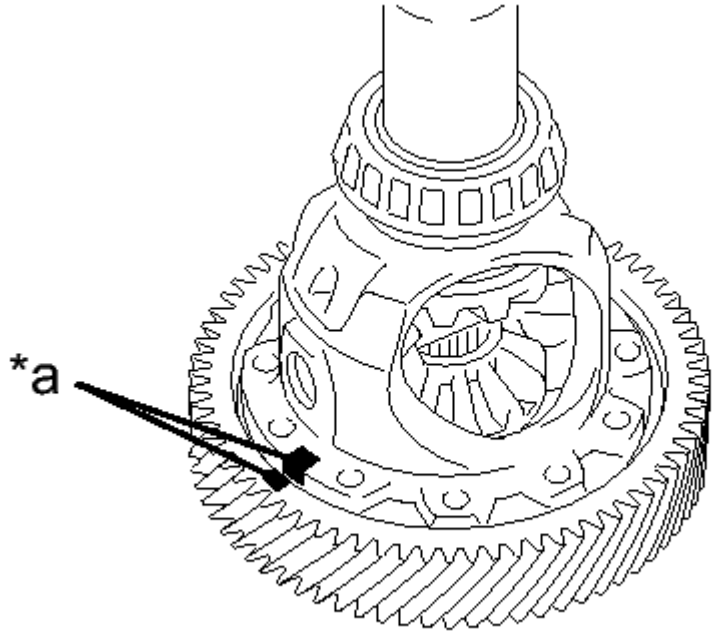


Fig. 468: Identifying Front Differential Ring Gear & Front Differential Case Matchmarks
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Matchmark

NOTE: Do not install the bolts while the ring gear is hot.

d. Install and tighten the 12 bolts.

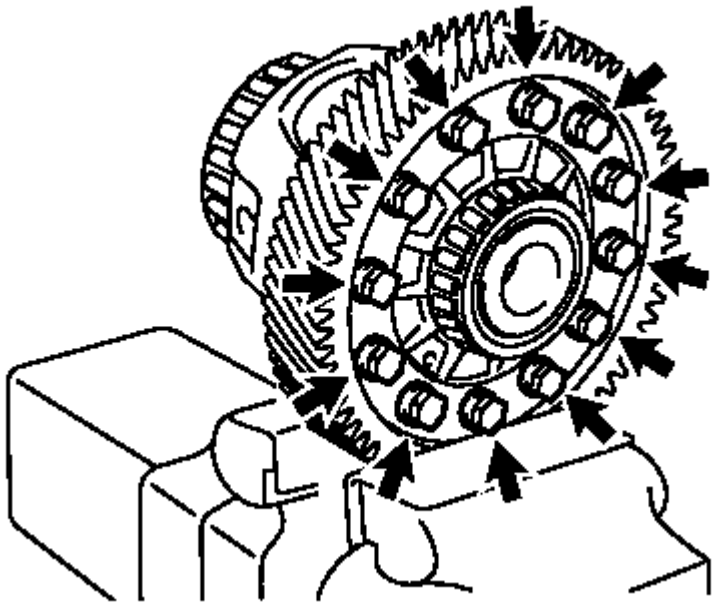


Fig. 469: Identifying Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 120 N*m (1224 kgf*cm, 89 ft.*lbf)

NOTE: Tighten the bolts a little at a time in a diagonal sequence.

9. **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 transaxle case oil seal.

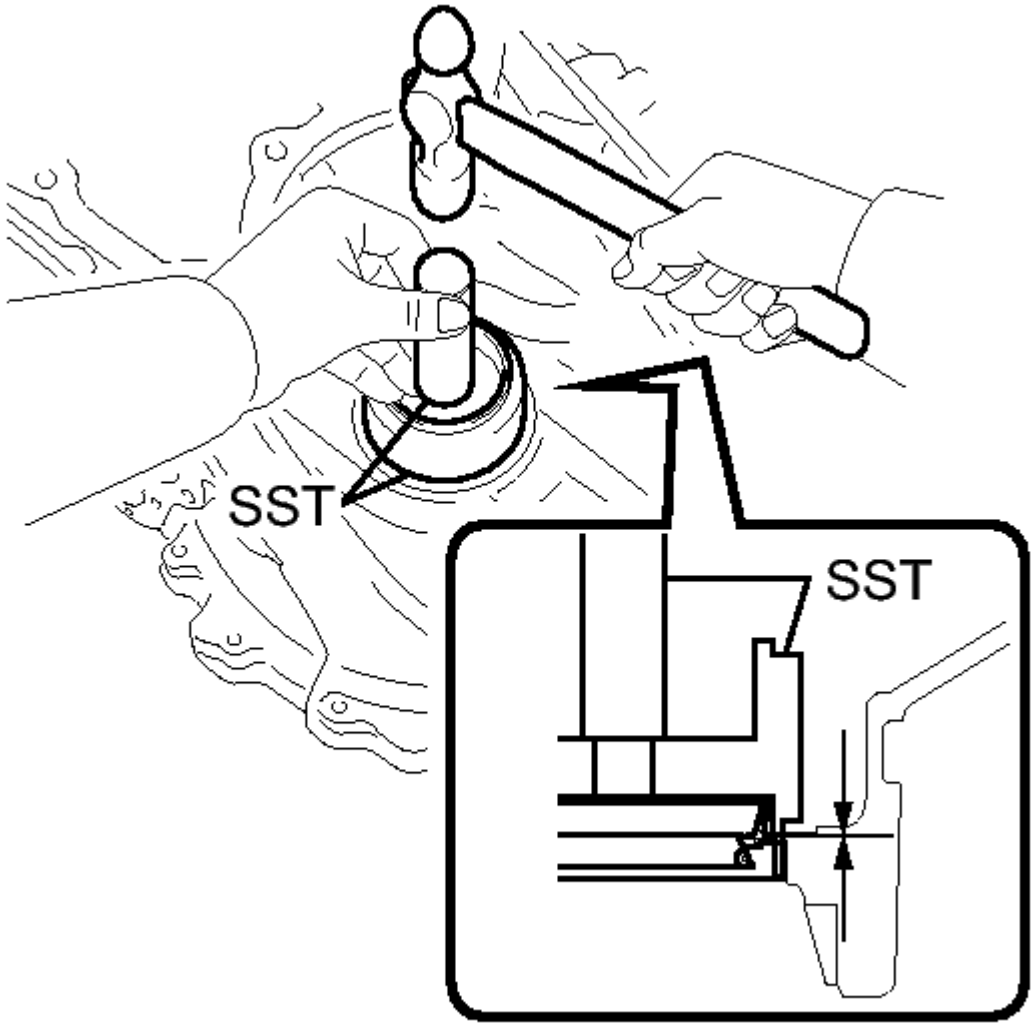


Fig. 470: Installing Transaxle Case Oil Seal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09316-10010**
- **SST: 09950-70010**
  09951-07100

Oil seal driven in depth

-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

NOTE: Check that the oil seal is installed in the correct direction.

10. **INSTALL FRONT DIFFERENTIAL CASE OIL SEAL**
    a. Coat the lip of a new front differential case oil seal with MP grease.

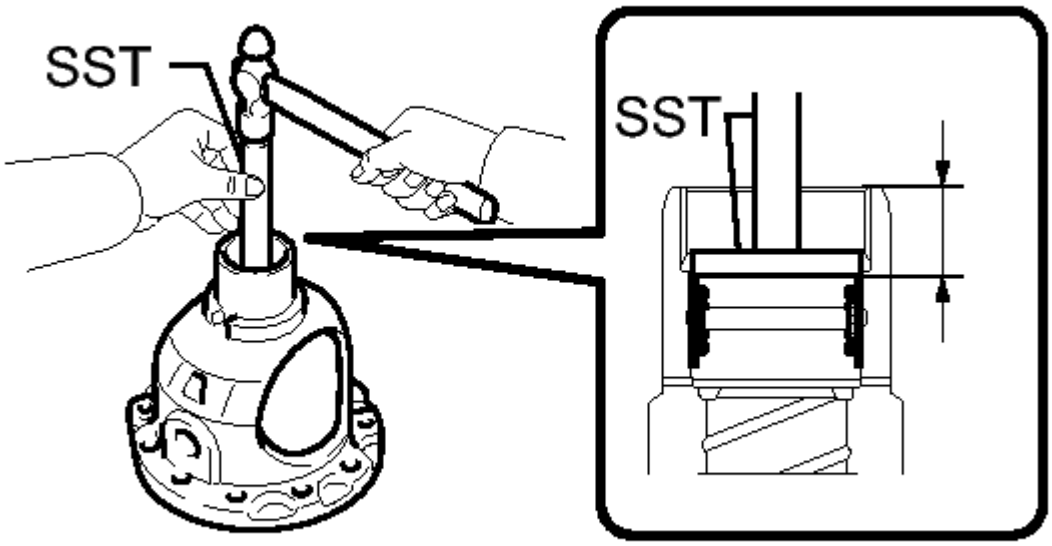


Fig. 471: Installing Front Transaxle Case Oil Seal Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

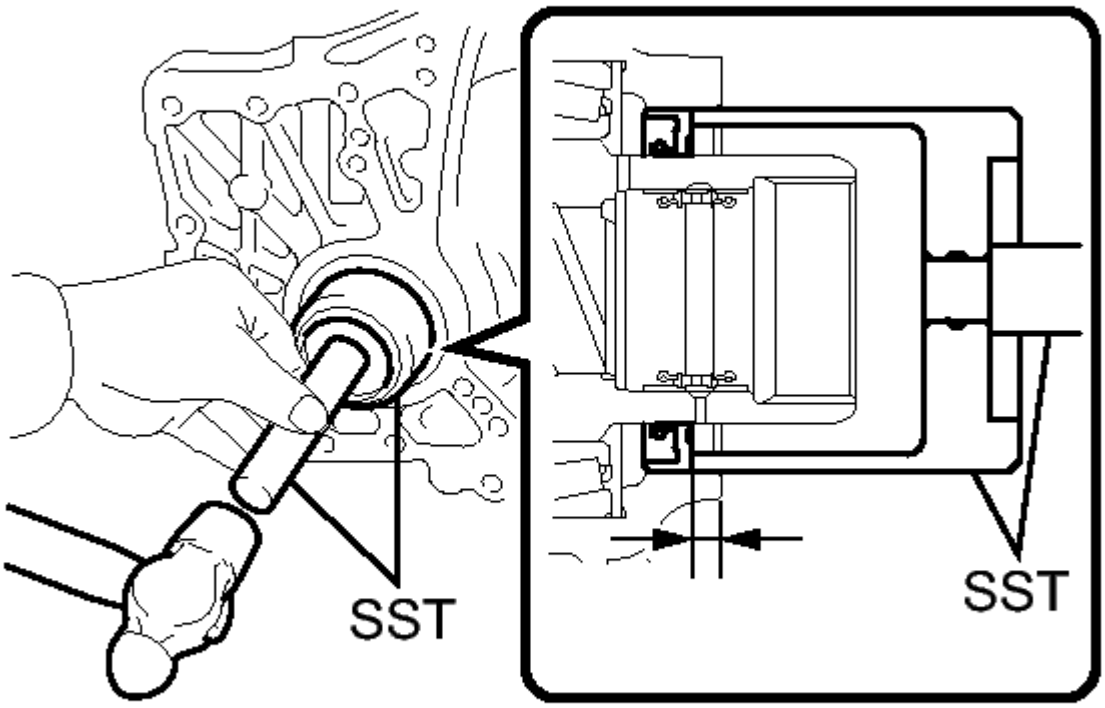
b. Using SST and a hammer, tap in the front differential case oil seal.
   - **SST: 09950-60010**
     09951-00410
   - **SST: 09950-70010**
     09951-07200

   Oil seal driven in depth

   21.5 to 22.5 mm (0.847 to 0.885 in.)

   NOTE: Check that the oil seal is installed in the correct direction.

11. **INSTALL FRONT TRANSAXLE CASE OIL SEAL**
    a. Coat the lip of a new front transaxle case oil seal with MP grease.
    b. Using SST and a hammer, tap in the front transaxle case oil seal.



C

Fig. 472: Installing Front Transaxle Case Oil Seal (Outside)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- **SST: 09649-17010**
- **SST: 09950-70010**
  09951-07200

Oil seal driven in depth

5.5 to 6.5 mm (0.217 to 0.255 in.)

NOTE: Check that the oil seal is installed in the correct direction.

U660F AUTOMATIC TRANSMISSION / TRANSAXLE

SERVICE DATA

SERVICE DATA

Line pressure (Wheel locked)		
Engine idling	D position	360 to 430 kPa (3.7 to 4.4 kgf/cm^2 , 52 to 62 psi)
	R position	800 to 950 kPa (8.2 to 9.7 kgf/cm^2 , 116 to 138 psi)
At stall speed (Throttle valve fully open)	D position	1160 to 1350 kPa (11.8 to 13.8 kgf/cm^2 , 168 to 196 psi)
	R position	1900 to 2200 kPa (19.4 to 22.4 kgf/cm^2 , 276 to 319 psi)
Engine stall speed	D position	2230 to 2920 RPM
Time lag	N --> D position	Less than 1.2 seconds
	N --> R position	Less than 1.5 seconds
Engine idle speed (A/C OFF)	N position	550 to 800 RPM
Shift schedule		
D position		
Throttle valve fully open (Normal)	1 --> 2	49 to 57 km/h (30 to 35 mph)
	2 --> 3	91 to 101 km/h (57 to 63 mph)
	3 --> 4	125 to 140 km/h (78 to 87 mph)
	4 --> 5	171 to 189 km/h (106 to 117 mph)
	5 --> 6	256 to 278 km/h (159 to 172 mph)
Throttle valve opening 6% (Normal)	1 --> 2	9 to 15 km/h (6 to 9 mph)
	2 --> 3	16 to 22 km/h (10 to 14 mph)
	3 --> 4	26 to 44 km/h (16 to 27 mph)
	4 --> 5	44 to 61 km/h (27 to 38 mph)
	5 --> 6	63 to 81 km/h (39 to 50 mph)
5, 4, 3, 2, 1 gear range		
Manual downshift speed	--> 5	249 to 271 km/h (155 to 168 mph)
	--> 4	166 to 183 km/h (103 to 113 mph)
	--> 3	118 to 133 km/h (73 to 83 mph)
	--> 2	84 to 93 km/h (52 to 58 mph)
	--> 1	37 to 43 km/h (23 to 27 mph)

ATF temperature sensor		
Tester Connection	Condition	Specified Condition
1 (THO1) - 2 (E2)	10°C (50°F)	5 to 8 kohms
	25°C (77°F)	2.5 to 4.5 kohms
	110°C (230°F)	0.22 to 0.28 kohms
Shift solenoid valve SL		
Tester Connection	Condition	Specified Condition
Solenoid connector - Solenoid body	20°C (68°F)	11 to 15 ohms
Shift solenoid valve SLT		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SLU		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL1		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL2		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL3		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Shift solenoid valve SL4		
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	5.0 to 5.6 ohms
Park/Neutral position switch		
Tester Connection	Shift Lever Position	Specified Condition
1 (RB) - 2 (RL)	R	Below 1 ohms
	Except R	10 kohms or higher
1 (RB) - 3 (PL)	P	Below 1 ohms
	Except P	10 kohms or higher
1 (RB) - 7 (DL)	D, S, "+" or "-"	Below 1 ohms
	Except D, S, "+" and "-"	10 kohms or higher
1 (RB) - 8 (NL)	N	Below 1 ohms
	Except N	10 kohms or higher
4 (B) - 9 (L)	P	Below 1 ohms
	Except P	10 kohms or higher
	N	Below 1 ohms
	Except N	10 kohms or higher

Shift lock control ECU (w/o Smart Key System)		
Tester Connection	Switch Condition	Specified Condition
4 (STP) - 1 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
5 (KLS+) - 1 (E)	1. Ignition switch ACC and shift lever in P	Below 1 V
	2. Ignition switch ACC and shift lever not in P (Within approximately 1 second)	7.5 to 10.5 V
	3. Ignition switch ACC and shift lever not in P (After approximately 1 second)	6 to 9 V
6 (ACC) - 1 (E)	Ignition switch ACC	11 to 14 V
	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
8 (IG) - 1 (E)	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
Tester Connection	Condition	Specified Condition
1 (E) - Body ground	Always	Below 1 ohms
Shift lock control ECU (w/ Smart Key System)		
Tester Connection	Switch Condition	Specified Condition
6 (STP) - 3 (E)	Brake pedal depressed	11 to 14 V
	Brake pedal released	Below 1 V
12 (IG) - 3 (E)	Engine switch on (IG)	11 to 14 V
	Engine switch off	Below 1 V
Tester Connection	Condition	Specified Condition
3 (E) - Body ground	Always	Below 1 ohms
Transmission control switch		
Tester Connection	Shift Lever Position	Specified Condition
6 (IG) - 13 (S)	S, "+" or "-"	Below 1 ohms
	Other than S, "+" or "-"	10 kohms or higher
5 (SFTU) - 11 (E)	"+" Pressed continuously (Upshift)	Below 1 ohms
	S	10 kohms or higher
4 (SFTD) - 11 (E)	"-" Pressed continuously (Downshift)	Below 1 ohms
	S	10 kohms or higher
Shift lock solenoid		
Tester Connection	Shift Lever Position	Specified Condition
4 (P) - 3 (E2)	P	10 kohms or higher
	Except P	Below 1 ohms
Tester Connection	Condition	Specified Condition
1 (SLS+) - 2 (SLS-)	Always	112 ohms
Transaxle case oil seal driven in depth	Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)
Front transaxle case oil seal driven in depth	Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)

Drive plate runout		Maximum	0.30 mm (0.0118 in.)
Input shaft end play		Standard	0.012 to 1.250 mm (0.000473 to 0.0492 in.)
Planetary sun gear inside diameter		Standard	25.525 to 25.546 mm (1.0049 to 1.0057 in.)
		Maximum	25.546 mm (1.0057 in.)
Under drive planetary gear clearance		Standard	0.18 to 0.54 mm (0.00709 to 0.0213 in.)
Rear planetary sun gear inside diameter		Standard	25.580 to 25.601 mm (1.0071 to 1.0079 in.)
		Maximum	25.601 mm (1.0079 in.)
2nd brake piston return spring free length		Standard	23.85 mm (0.939 in.)
Planetary gear clearance	A point	Standard	0.23 to 0.59 mm (0.00906 to 0.0232 in.)
	B point	Standard	0.16 to 0.66 mm (0.00630 to 0.0259 in.)
1st and reverse brake return spring free length		Standard	15.79 mm (0.621 in.)
No. 2 brake clearance		Standard	0.884 to 1.196 mm (0.0348 to 0.0471 in.)

No. 2 brake flange thickness

Part No.	Thickness	Mark
35678-73010	4.0 mm (0.157 in.)	Mark 40
35678-73020	4.1 mm (0.161 in.)	Mark 41
35678-73030	4.2 mm (0.165 in.)	Mark 42
35678-73040	4.3 mm (0.169 in.)	Mark 43
35678-73050	4.4 mm (0.173 in.)	Mark 44

No. 1 brake clearance	Standard	0.807 to 0.974 mm (0.0318 to 0.0383 in.)

No. 1 brake flange thickness

Part No.	Thickness	Mark
35676-33020	3.0 mm (0.118 in.)	Mark 30
35676-33030	3.1 mm (0.122 in.)	Mark 31
35676-33040	3.2 mm (0.126 in.)	Mark 32
35676-33050	3.3 mm (0.130 in.)	Mark 33
35676-33060	3.4 mm (0.134 in.)	Mark 34
35676-33070	3.5 mm (0.138 in.)	Mark 35

No. 3 brake clearance	Standard	0.599 to 0.761 mm (0.0236 to 0.0300 in.)

No. 3 brake flange thickness

Part No.	Thickness	Mark
35679-73020	3.8 mm (0.150 in.)	Mark 38
35679-73030	3.9 mm (0.154 in.)	Mark 39

35679-73040	4.0 mm (0.157 in.)	Mark 40
35679-73050	4.1 mm (0.161 in.)	Mark 41
35679-73060	4.2 mm (0.165 in.)	Mark 42
35679-73070	4.3 mm (0.169 in.)	Mark 43
No. 1 clutch disc clearance	Standard	0.806 to 0.974 mm (0.0317 to 0.0383 in.)
No. 1 clutch flange thickness		
Part No.	Thickness	Mark
35635-73010	3.0 mm (0.118 in.)	Mark 30
35635-73020	3.1 mm (0.122 in.)	Mark 31
35635-73030	3.2 mm (0.126 in.)	Mark 32
35635-73040	3.3 mm (0.130 in.)	Mark 33
35635-73050	3.4 mm (0.134 in.)	Mark 34
35635-73060	3.5 mm (0.138 in.)	Mark 35
No. 2 clutch disc clearance	Standard	0.544 to 0.744 mm (0.0214 to 0.0293 in.)
No. 2 clutch flange thickness		
Part No.	Thickness	Mark
35635-73010	3.0 mm (0.118 in.)	Mark 30
35635-73020	3.1 mm (0.122 in.)	Mark 31
35635-73030	3.2 mm (0.126 in.)	Mark 32
35635-73040	3.3 mm (0.130 in.)	Mark 33
35635-73050	3.4 mm (0.134 in.)	Mark 34
35635-73060	3.5 mm (0.138 in.)	Mark 35
Manual valve lever shaft oil seal driven in depth	Standard	-0.5 to 0.5 mm (-0.0197 to 0.0196 in.)
Counter drive gear Preload	Standard	0.1 to 0.2 N*m (1 to 2 kgf*cm, 0.9 to 1.9 in.*lbf)
Counter driven gear Preload	Standard	3.3 to 6.0 N*m (34 to 61 kgf*cm, 29 to 53 in.*lbf)
Adjust shim thickness		
Part No.	Thickness	Mark
90564-71014	2.000 mm (0.0787 in.)	-
90564-71015	2.025 mm (0.0797 in.)	-
90564-71016	2.050 mm (0.0807 in.)	-
90564-71017	2.075 mm (0.0817 in.)	-
90564-71018	2.100 mm (0.0827 in.)	-
90564-71019	2.125 mm (0.0837 in.)	-
90564-71020	2.150 mm (0.0846 in.)	-
90564-71021	2.175 mm (0.0856 in.)	-
90564-71022	2.200 mm (0.0866 in.)	-
90564-71023	2.225 mm (0.0876 in.)	-

90564-71024	2.250 mm (0.0886 in.)	-
90564-71025	2.275 mm (0.0896 in.)	-
90564-71026	2.300 mm (0.0906 in.)	-
90564-71027	2.325 mm (0.0915 in.)	-
90564-71028	2.350 mm (0.0925 in.)	-
90564-71029	2.375 mm (0.0935 in.)	-
90564-71030	2.400 mm (0.0945 in.)	-
90564-71031	2.425 mm (0.0955 in.)	-
90564-71032	2.450 mm (0.0965 in.)	-
90564-71033	2.475 mm (0.0974 in.)	-
90564-71034	2.500 mm (0.0984 in.)	-
90564-71035	2.525 mm (0.0994 in.)	-
90564-71036	2.550 mm (0.100 in.)	-
90564-71037	2.575 mm (0.101 in.)	-
90564-71038	2.600 mm (0.102 in.)	-
90564-71039	2.625 mm (0.103 in.)	-
90564-71040	2.650 mm (0.104 in.)	-
90564-71041	2.675 mm (0.105 in.)	-
90564-71042	2.700 mm (0.106 in.)	-
90564-71043	2.725 mm (0.107 in.)	-
90564-71044	2.750 mm (0.108 in.)	-
90564-71045	2.775 mm (0.109 in.)	-
90564-71046	2.800 mm (0.110 in.)	-
90564-71047	2.825 mm (0.111 in.)	-
90564-71048	2.850 mm (0.112 in.)	-
90564-71049	2.875 mm (0.113 in.)	-
90564-71050	2.900 mm (0.114 in.)	-
90564-71051	2.925 mm (0.115 in.)	-
90564-71052	2.950 mm (0.116 in.)	-
90564-71053	2.975 mm (0.117 in.)	-
90564-71054	3.000 mm (0.118 in.)	-

Intermediate shaft end play	Standard	0.007 to 1.113 mm (0.000275 to 0.0438 in.)
Transaxle rear cover bearing installation depth	Standard	21.5 to 21.9 mm (0.846 to 0862 in.)
Oil pump body clearance	Standard	0.08 to 0.15 mm (0.00315 to 0.00590 in.)
	Maximum	0.15 mm (0.00590 in.)
Oil pump side clearance	Standard	0.025 to 0.04 mm (0.000984 to 0.00157 in.)
	Maximum	0.04 mm (0.00157 in.)
Drive gear thickness		

Part No.	Thickness	Mark
35321-33110	11.547 to 11.555 mm (0.4546 to 0.4549 in.)	Mark 1
35321-33120	11.555 to 11.563 mm (0.4549 to 0.4552 in.)	Mark 2
35321-33130	11.564 to 11.571 mm (0.4553 to 0.4556 in.)	Mark 3
35321-33140	11.572 to 11.579 mm (0.4556 to 0.4559 in.)	Mark 4
35321-33150	11.580 to 11.587 mm (0.4559 to 0.4562 in.)	Mark 5
Driven gear thickness		
Part No.	Thickness	Mark
35322-33110	11.547 to 11.555 mm (0.4546 to 0.4549 in.)	Mark 1
35322-33120	11.555 to 11.563 mm (0.4549 to 0.4552 in.)	Mark 2
35322-33130	11.564 to 11.571 mm (0.4553 to 0.4556 in.)	Mark 3
35322-33140	11.572 to 11.579 mm (0.4556 to 0.4559 in.)	Mark 4
35322-33150	11.580 to 11.587 mm (0.4559 to 0.4562 in.)	Mark 5
Oil pump body bushing inside diameter	Standard	43.113 to 43.138 mm (1.6974 to 1.6983 in.)
	Maximum	43.188 mm (1.7003 in.)
Stator shaft bushing inside diameter	Standard	22.500 to 22.526 mm (0.8858 to 0.8868 in.)
	Maximum	22.570 mm (0.8886 in.)
Front oil pump oil seal driven in depth	Standard	-0.25 to 0.25 mm (-0.00984 to 0.00984 in.)
Differential side gear backlash	Standard	0.05 to 0.15 mm (0.00196 to 0.00591 in.)
Thrust washer thickness		
Part No.	Thickness	Mark
41361-33020	1.50 mm (0.0591 in.)	-
41361-33030	1.55 mm (0.0610 in.)	-
41361-33040	1.60 mm (0.0630 in.)	-
41361-33050	1.65 mm (0.0650 in.)	-
41361-33060	1.70 mm (0.0669 in.)	-
41361-33070	1.75 mm (0.0689 in.)	-
41361-33080	1.80 mm (0.0709 in.)	-
41361-33090	1.85 mm (0.0728 in.)	-
41361-33100	1.90 mm (0.0748 in.)	-
Differential side bearing Preload	Standard	1.1 to 1.9 N*m (11 to 19 kgf*cm, 10 to 17 in.*lbf)
Adjust shim thickness		
Part No.	Thickness	Mark
90564-82009	2.000 mm (0.0787 in.)	-
90564-82010	2.025 mm (0.0797 in.)	-
90564-82011	2.050 mm (0.0807 in.)	-
90564-82012	2.075 mm (0.0817 in.)	-

90564-82013	2.100 mm (0.0827 in.)	-
90564-82014	2.125 mm (0.0837 in.)	-
90564-82015	2.150 mm (0.0846 in.)	-
90564-82016	2.175 mm (0.0856 in.)	-
90564-82017	2.200 mm (0.0866 in.)	-
90564-82018	2.225 mm (0.0876 in.)	-
90564-82019	2.250 mm (0.0886 in.)	-
90564-82020	2.275 mm (0.0896 in.)	-
90564-82021	2.300 mm (0.0906 in.)	-
90564-82022	2.325 mm (0.0915 in.)	-
90564-82023	2.350 mm (0.0925 in.)	-
90564-82024	2.375 mm (0.0935 in.)	-
90564-82025	2.400 mm (0.0945 in.)	-
90564-82026	2.425 mm (0.0955 in.)	-
90564-82027	2.450 mm (0.0965 in.)	-
90564-82028	2.475 mm (0.0974 in.)	-
90564-82029	2.500 mm (0.0984 in.)	-
90564-82030	2.525 mm (0.0994 in.)	-
90564-82031	2.550 mm (0.100 in.)	-
90564-82032	2.575 mm (0.101 in.)	-
90564-82033	2.600 mm (0.102 in.)	-
90564-82034	2.625 mm (0.103 in.)	-
90564-82035	2.650 mm (0.104 in.)	-
90564-82036	2.675 mm (0.105 in.)	-
90564-82037	2.700 mm (0.106 in.)	-
90564-82038	2.725 mm (0.107 in.)	-
90564-82039	2.750 mm (0.108 in.)	-
90564-82040	2.775 mm (0.109 in.)	-
90564-82041	2.800 mm (0.110 in.)	-
90564-82042	2.825 mm (0.111 in.)	-
90564-82043	2.850 mm (0.112 in.)	-
90564-82044	2.875 mm (0.113 in.)	-

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Part Tightened	N*m	kgf*cm	ft.*lbf
No. 1 transmission oil filler tube	1.7	17	15 in.*lbf
Overflow plug	40	408	30
Refill plug	49	500	36

Transmission revolution sensor x Transmission valve body	11	110	8
ATF temperature sensor x Transmission valve body	11	110	8
Transmission wire lock plate x Transmission valve body	11	110	8
Shift solenoid valve SL4 x Transmission valve body	11	110	8
Shift solenoid valve SL3 x Transmission valve body	11	110	8
Shift solenoid valve SL1, SL2 x Transmission valve body	11	110	8
Transmission valve body x Transaxle case	11	110	8
Valve body oil strainer x Transmission valve body	11	110	8
Automatic transaxle oil pan x Transaxle case (Precoated bolt)	7.0	71	62 in.*lbf
Automatic transaxle oil pan x Transaxle case (except Precoated bolt)	7.5	76	66 in.*lbf
Park/neutral position switch x Transaxle case	5.4	55	48 in.*lbf
Control shaft lever x Control shaft	13	130	9
Transmission control cable x Control shaft lever	13	130	9
Shift lever x Instrument panel brace	12	122	9
Transmission control cable x Body	5.0	51	44 in.*lbf
Front No. 1 floor heat insulator x Body	5.5	56	49 in.*lbf
Speedometer driven hole cover x Transaxle case	5.5	56	49 in.*lbf
No. 1 transmission control cable bracket x Transaxle case	12	122	9
Wire harness clamp bracket x Automatic transaxle	8.4	86	74 in.*lbf
TCM x Transaxle case	11	115	8
Front engine mounting bracket setting stud bolt	21	214	15
Front engine mounting bracket	64	653	47

x Automatic transaxle				
Automatic transaxle assembly x Engine assembly	Bolt A	64	653	47
	Bolt B	64	653	47
	Bolt C	46	469	34
	Bolt D	43	439	32
Ground wire x Automatic transaxle		19	195	14
Manual detent spring and cover x Transaxle case		23	231	17
Pawl stopper plate x Transaxle case		23	231	17
Pawl shaft clamp x Transaxle case		23	231	17
Counter drive gear nut		120	1223	88
Front oil pump and gear body x Transaxle case		23	231	17
Differential gear lube apply tube x Transaxle housing		23	231	17
Transaxle housing x Transaxle case	Bolt A	31	312	23
	Bolt B	23	231	17
Rear transaxle cover plate x Rear transaxle cover sub-assembly		7.5	76	66 in.*lbf
Rear transaxle cover x Transaxle case	Bolt A	23	231	17
	Bolt B	17	172	12
No. 1 automatic transaxle case plug x Rear transaxle cover		7.4	75	65 in.*lbf
Hexagon bolt x Transaxle case		17	173	13
No. 1 transaxle case plug x Transaxle housing		7.4	75	65 in.*lbf
Oil cooler tube union (outlet oil cooler union) x Transaxle case		27	275	20
Oil cooler tube union (inlet oil cooler union) x Transaxle case		27	275	20
Front oil pump and gear body x Stator shaft		9.3	95	82 in.*lbf
Differential case x Front differential ring gear		120	1224	89