

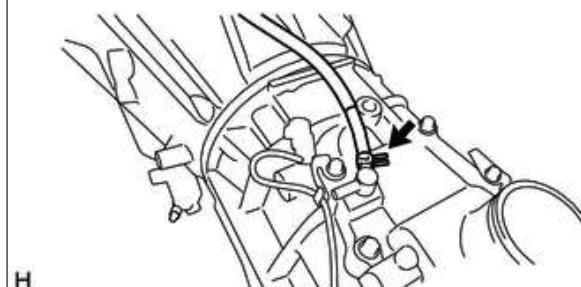
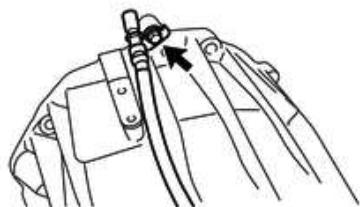
H150F MANUAL TRANSMISSION / TRANSAXLE MANUAL TRANSMISSION UNIT DISASSEMBLY

PROCEDURE

■ 1.REMOVE TRANSMISSION BREATHER SUB-ASSEMBLY (for 1GR-FE)

33019

a.



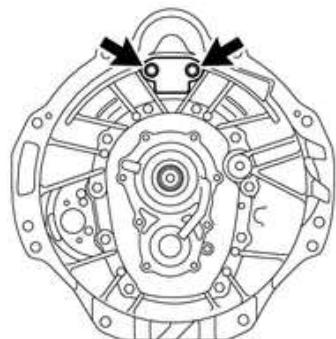
Remove the bolt and disconnect the transmission breather sub-assembly from the clutch housing.

- b. Slide the clip and disconnect the transmission breather sub-assembly from the floor shift control shift lever retainer sub-assembly.

■ 2.REMOVE BREATHER PLUG (for 1VD-FTV)

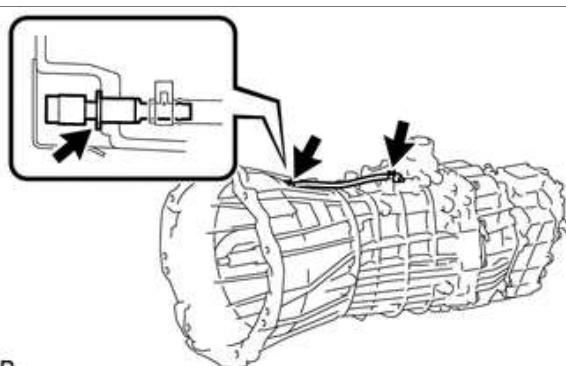
33101J

a.



Remove the 2 bolts and transmission oil baffle.

b.

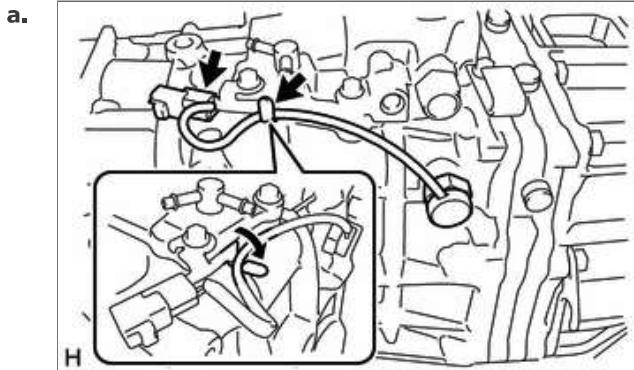


Slide the 2 clips and disconnect the transmission breather hose from the floor shift control shift lever retainer sub-assembly and breather plug.

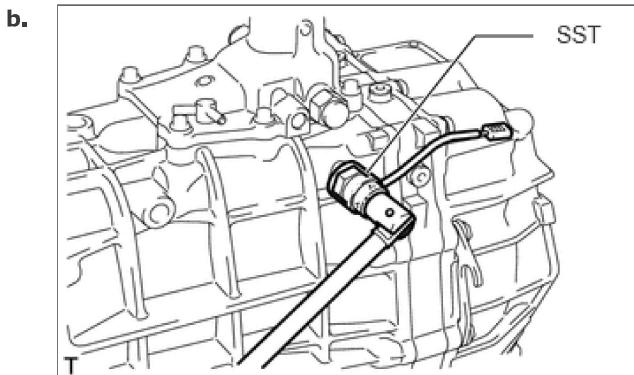
- c. Remove the breather plug from the clutch housing.

■ **3.REMOVE BACK-UP LIGHT SWITCH ASSEMBLY**

84210



Disconnect the connector and wire harness from the bracket.



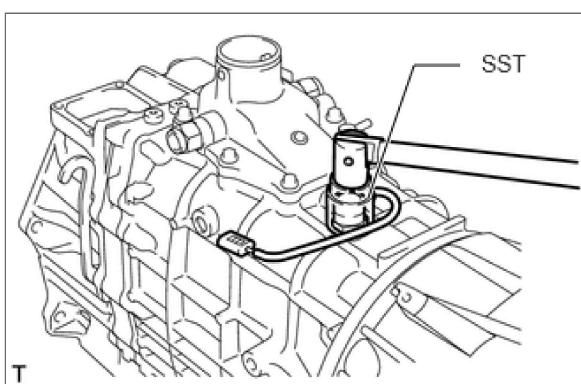
Using SST, remove the back-up light switch assembly and gasket.

SST

09817-16011

■ **4.REMOVE SHIFT POSITION SWITCH (for 1VD-FTV)**

84225A



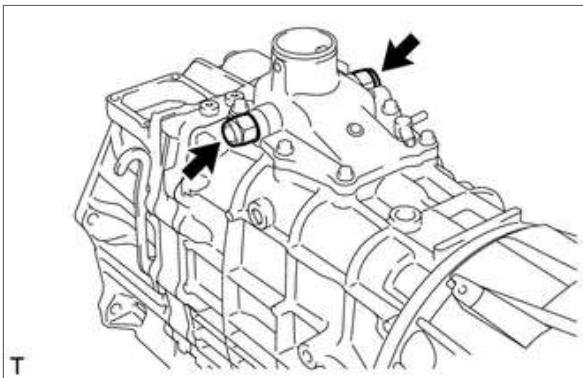
- a. Using SST, remove the shift position switch and gasket.

SST

09817-16011

■ **5.REMOVE REVERSE RESTRICT PIN ASSEMBLY**

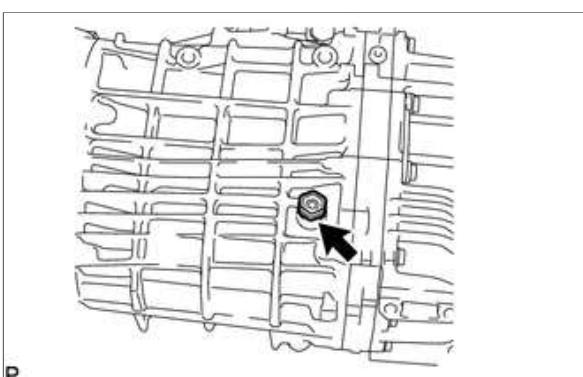
33280



- a. Remove the 2 restrict pins from the floor shift control shift lever retainer sub-assembly.

■ **6.REMOVE MANUAL TRANSMISSION CASE PLUG**

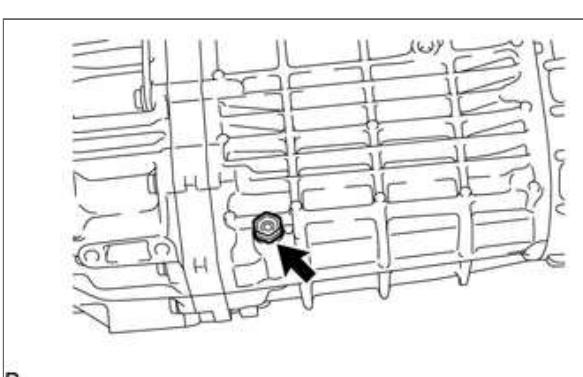
33111A



- a. Remove the manual transmission case plug and gasket.

■ **7.REMOVE DRAIN PLUG SUB-ASSEMBLY**

33104



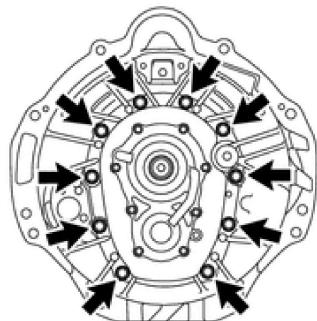
- a. Remove the drain plug sub-assembly and gasket.

■ **8.REMOVE CLUTCH HOUSING**

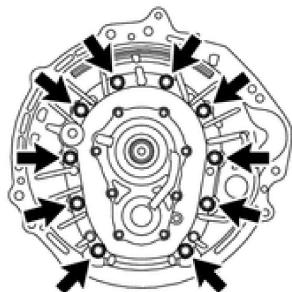
31111

a.

*A



*B



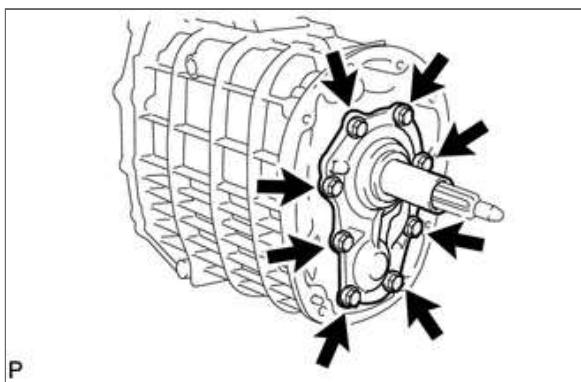
T

*A	for 1VD-FTV
*B	for 1GR-FE

Remove the 10 bolts and clutch housing.

■ **9.REMOVE FRONT BEARING RETAINER**

33131



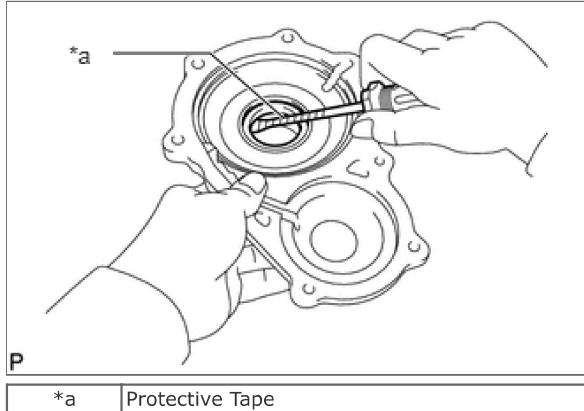
P

- a. Remove the 8 bolts and front bearing retainer.
- b. Using a brass bar and a hammer, tap the side of the front bearing retainer to remove it from the transmission case.

■ **10.REMOVE FRONT TRANSMISSION BEARING RETAINER OIL SEAL**

33131A

a.



*a Protective Tape

Using a screwdriver, pry out the front transmission bearing retainer oil seal.

NOTICE:

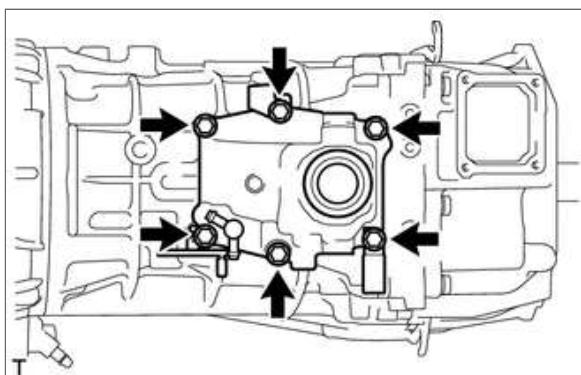
- Protect the front bearing retainer with a cloth to prevent it from being damaged
- Be careful not to damage the lip of the front transmission bearing retainer oil seal and front bearing contact surfaces.

HINT:

Tape the screwdriver tip before use.

■ **11.REMOVE FLOOR SHIFT CONTROL SHIFT LEVER RETAINER SUB-ASSEMBLY**

33506F

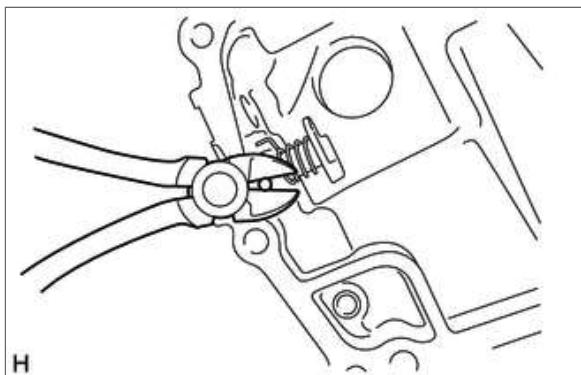


a. Remove the 6 bolts, bracket and 2 clamps.

b. Remove the floor shift control shift lever retainer and extension housing oil deflector.

■ **12.REMOVE NO. 1 REVERSE RESTRICT PIN**

33283



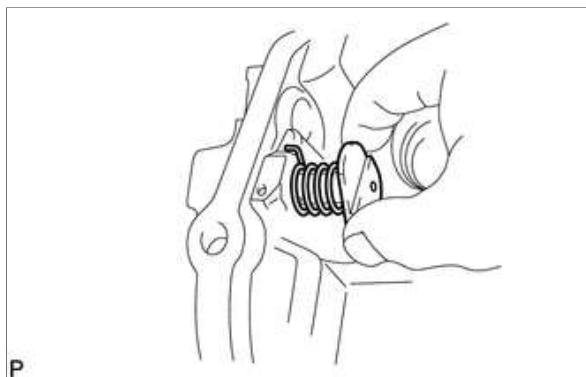
a. Using a nipper, remove the slotted pin from the floor shift control shift lever retainer.

NOTICE:

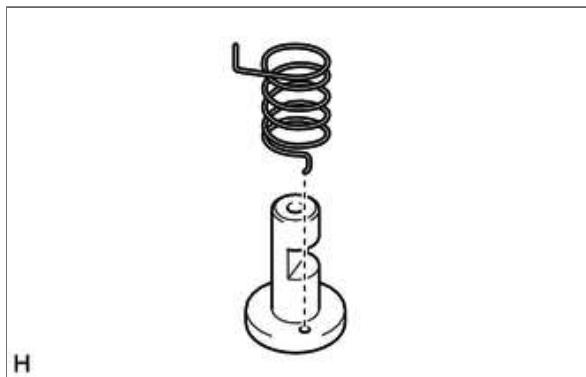
Do not damage the floor shift control shift lever retainer sub-assembly

HINT:

Use a piece of cloth to prevent the floor shift control shift lever retainer from being damaged when removing it

b.

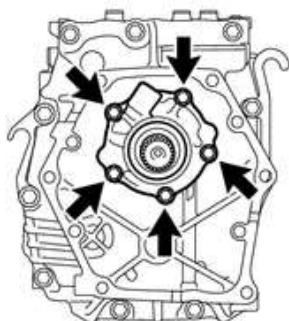
Remove the No. 1 reverse restrict pin from the floor shift control shift lever retainer.

c.

Remove the spring from the No. 1 reverse restrict pin.

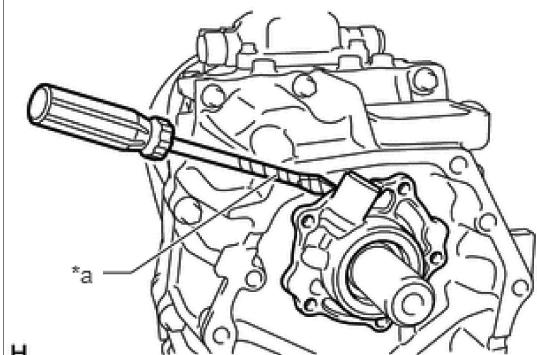
■ 13. REMOVE TRANSMISSION OIL PUMP COVER

33130G

T

- a.** Remove the 5 bolts.

b.



*a Protective Tape

Using a screwdriver with its tip wrapped in protective tape, remove the transmission oil pump cover from the transfer adapter

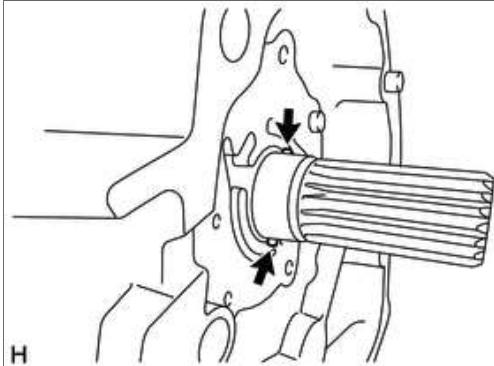
NOTICE:

Do not damage the transmission oil pump cover and transfer adapter.

HINT:

Use a piece of cloth to prevent the transfer adapter from being damaged when removing it

c.



Remove the 2 pins from the output shaft.

d. Remove the O-ring from the oil pump cover.

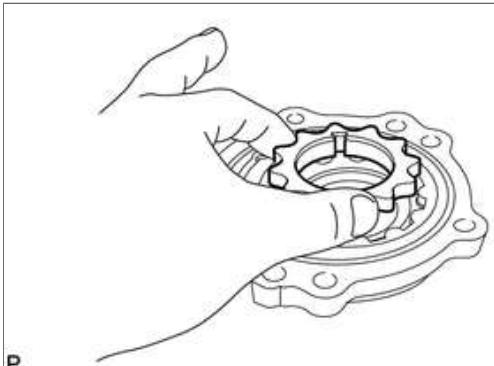
■ **14.INSPECT OIL PUMP ROTOR SET**

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■ **15.REMOVE MANUAL TRANSMISSION OIL PUMP DRIVE ROTOR**

33467A

a.

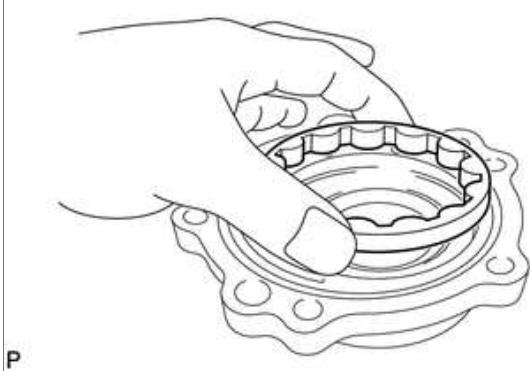


Remove the manual transmission oil pump drive rotor.

■ **16.REMOVE MANUAL TRANSMISSION OIL PUMP DRIVEN ROTOR**

33468A

a.

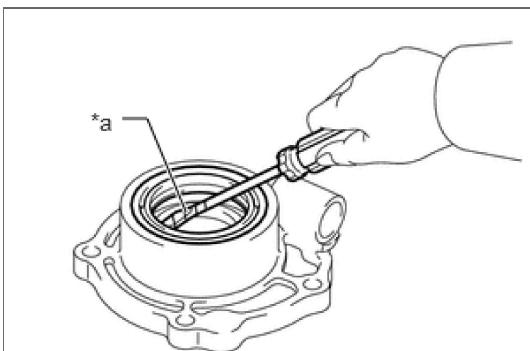


P
Remove the manual transmission oil pump driven rotor.

■ **17.REMOVE TRANSMISSION OIL PUMP COVER OIL SEAL**

33130H

a.



P
*a Protective Tape

Using a screwdriver, pry out the transmission oil pump cover oil seal.

NOTICE:

Be careful not to damage the oil pump cover.

HINT:

- Tape the screwdriver tip before use.
- Use a piece of cloth to prevent the transmission oil pump cover from being damaged when removing it

■ **18.REMOVE MANUAL TRANSMISSION OIL PUMP COVER O-RING**

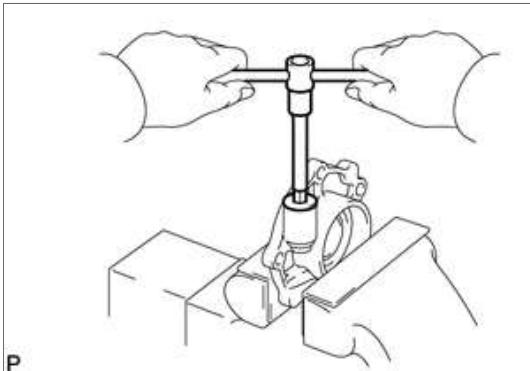
33130N

- a. Mount the transmission oil pump cover in a vise between aluminum plates.

NOTICE:

Do not overtighten the vise.

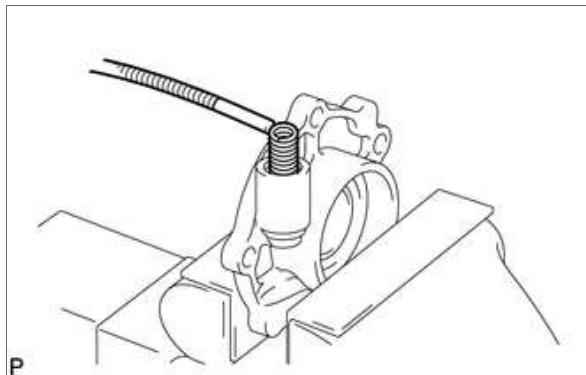
b.



P

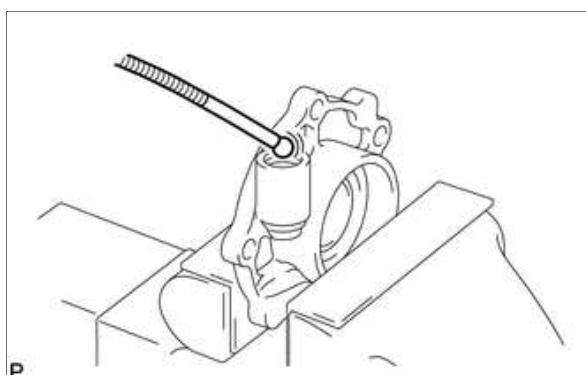
Using a 10 mm hexagon wrench, remove the No. 1 transmission oil pump cover plug from the transmission oil pump cover.

c.



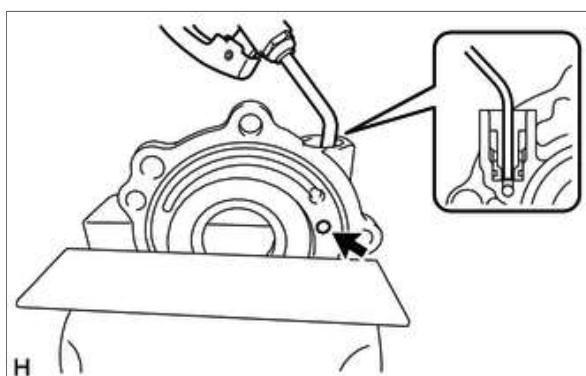
Using a magnet hand, remove the compression spring.

d.



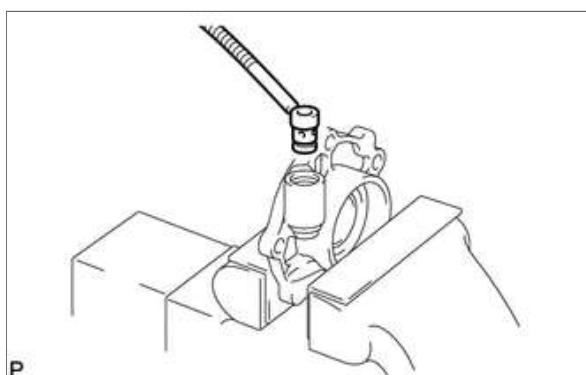
Using a magnet hand, remove the transmission oil pump cover ball.

e.



Hold the hole with your finger in the position shown in the illustration, and using an air gun, blow air into the transmission oil cover gradually to raise the oil pump relief valve seat from the transmission oil pump cover

f.



Using a magnet hand, remove the oil pump relief valve seat.

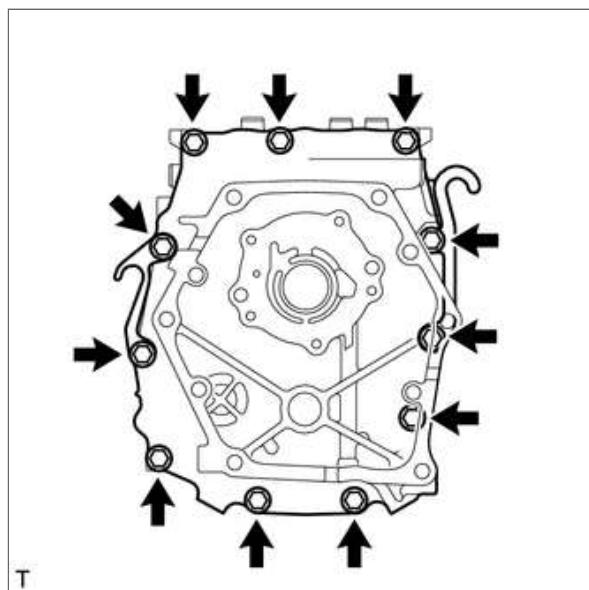
- g.** Remove the No. 2 transmission oil pump cover O-ring from the oil pump relief valve seat.

■ 19.INSPECT OIL PUMP RELIEF VALVE

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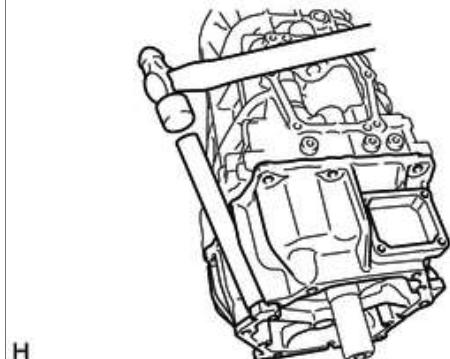
■ 20.REMOVE TRANSFER ADAPTER SUB-ASSEMBLY

36107A



- a.** Remove the 11 bolts, No. 1 transmission case hanger and No. 2 transmission case hanger.

b.



Using a brass bar and hammer, carefully tap the transfer adapter.

NOTICE:

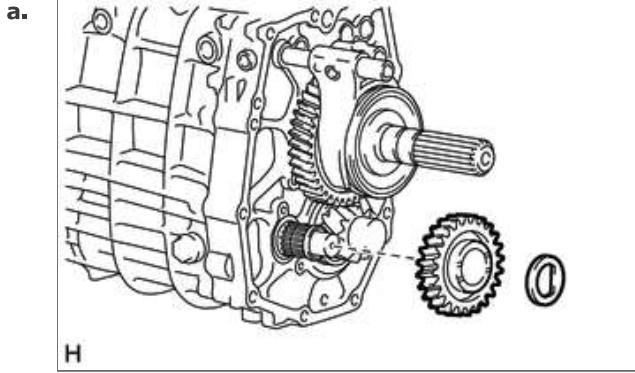
Do not drop the internal parts.

HINT:

Hold the brass bar against the rib of the transfer adapter.

■ 21.REMOVE REVERSE IDLER GEAR

33461



Remove the No. 2 reverse idler thrust washer and reverse idler gear.

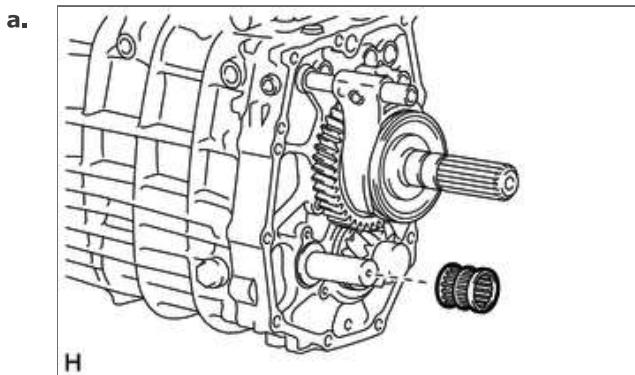
■ **22.INSPECT REVERSE IDLER GEAR**

33461

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■ **23.REMOVE REVERSE IDLER GEAR BUSH OR BEARING**

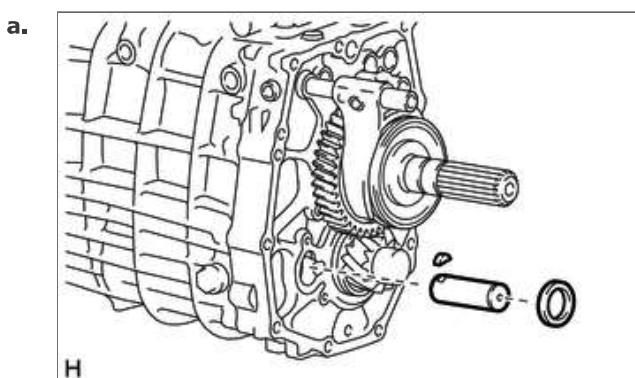
33402A



Remove the reverse idler gear bush or bearing.

■ **24.REMOVE REVERSE IDLER GEAR SHAFT**

33451



Remove the reverse idler thrust washer from the reverse idler gear shaft.

- b. Remove the reverse idler gear shaft woodruff key and reverse idler gear shaft from the transmission intermediate plate.
- c. Remove the reverse idler gear shaft woodruff key from the reverse idler gear shaft.

■ **25.INSPECT REVERSE IDLER GEAR SHAFT**

33451

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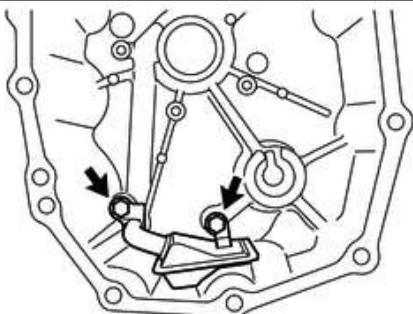
■ **26.INSPECT REVERSE IDLER GEAR RADIAL CLEARANCE**

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■ **27.REMOVE MANUAL TRANSMISSION OIL STRAINER SUB-ASSEMBLY**

33408

a.



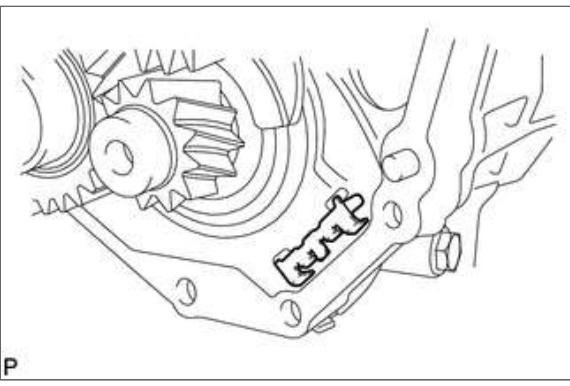
H

Remove the 2 bolts and manual transmission oil strainer sub-assembly from the transfer adapter.

- b. Remove the O-ring from the manual transmission oil strainer sub-assembly.

■ **28.REMOVE TRANSMISSION MAGNET**

33449B



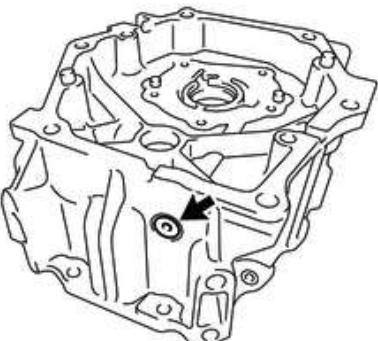
P

- a. Remove the transmission magnet.

■ **29.REMOVE TRANSFER ADAPTER WITH HEAD STRAIGHT SCREW PLUG**

33112E

a.

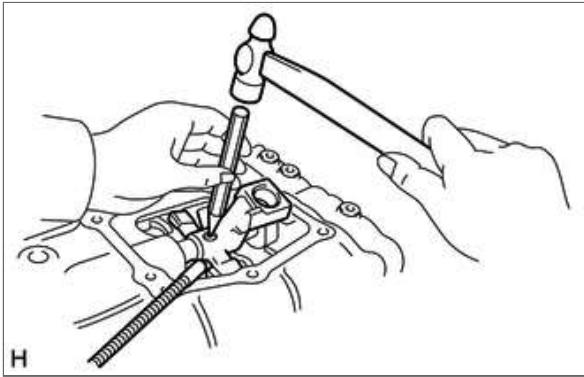


H

Using a T40 "TORX" socket wrench, remove the transfer adapter with head straight screw plug.

■ **30.REMOVE SHIFT AND SELECT LEVER SHAFT**

33261C

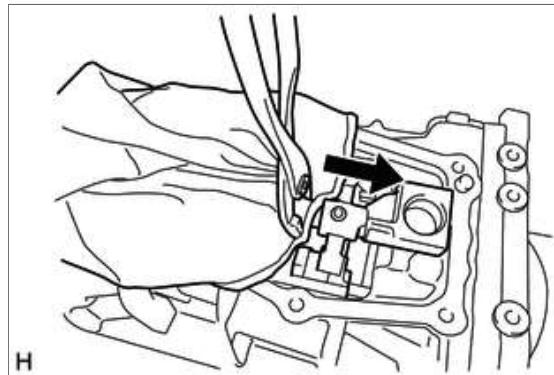


- a. Using a pin punch and hammer, drive out the slotted spring pin from the shift lever housing.

NOTICE:

Using a magnet hand as shown in the illustration, do not drop the slotted pin inside.

b.



Using pliers, move the shift and select lever shaft to the rear side and remove the shift lever housing from the shift and select lever shaft.

NOTICE:

Do not damage the shift and select lever shaft.

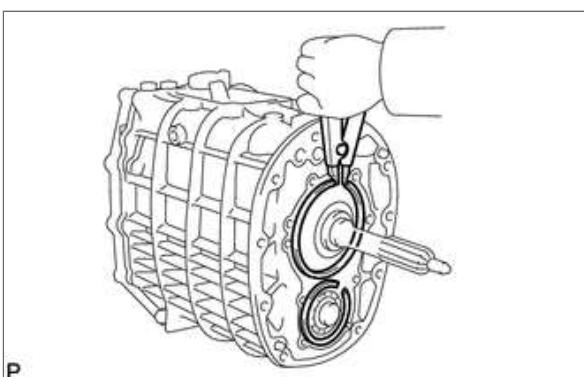
HINT:

Use a piece of cloth to prevent the shift and select lever shaft from being damaged when moving it.

- c. Remove the shift and select lever shaft from the transmission intermediate plate.

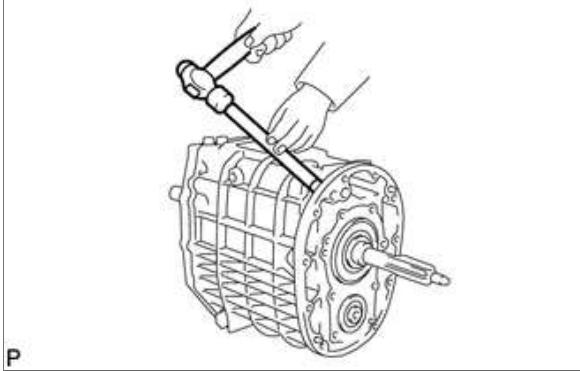
■ **31.REMOVE MANUAL TRANSMISSION CASE SUB-ASSEMBLY**

33101



- a. Using a snap ring expander, remove the 2 snap rings from the input shaft and counter gear.

b.



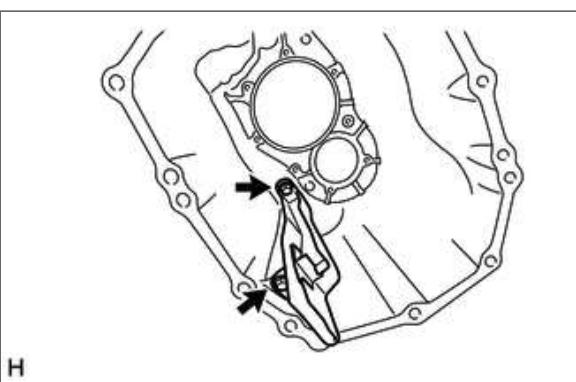
Using a brass bar and hammer, tap the transmission case sub-assembly to remove it from the transmission intermediate plate.

HINT:

Hold the brass bar against the rib of the transmission case sub-assembly.

■ **32.REMOVE NO. 1 OIL RECEIVER PIPE**

33124C



- Remove the 2 bolts and No. 1 oil receiver pipe from the transmission case sub-assembly.

■ **33.REMOVE MANUAL TRANSMISSION CASE RECEIVER**

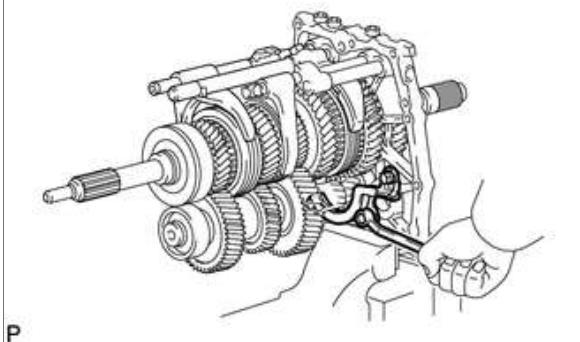
33125B

- Mount the transmission intermediate plate in a vise between aluminum plates.

NOTICE:

Do not overtighten the vise.

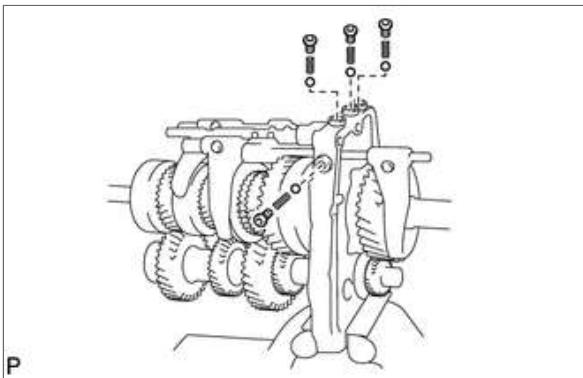
b.



Remove the 3 bolts and manual transmission case receiver from the intermediate plate.

■ **34.REMOVE SHIFT DETENT BALL PLUG**

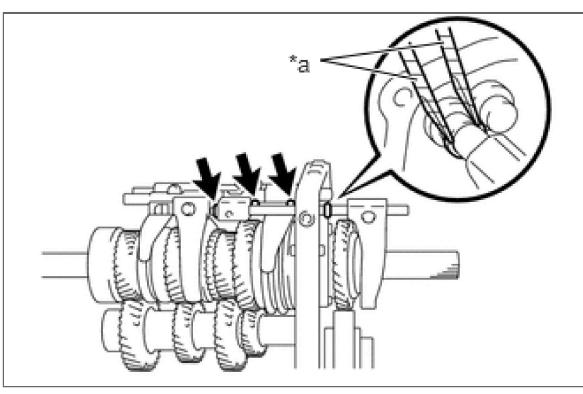
33275F



- a. Using a T40 "TORX" socket wrench, remove the 4 shift detent ball plugs.
- b. Using a magnet hand, remove the 4 springs and 4 balls.

■ 35.REMOVE SHIFT FORK SHAFT SNAP RING

33244B



*a Protective Tape

- a. Using 2 screwdrivers and a hammer, tap out the 4 snap rings.

NOTICE:

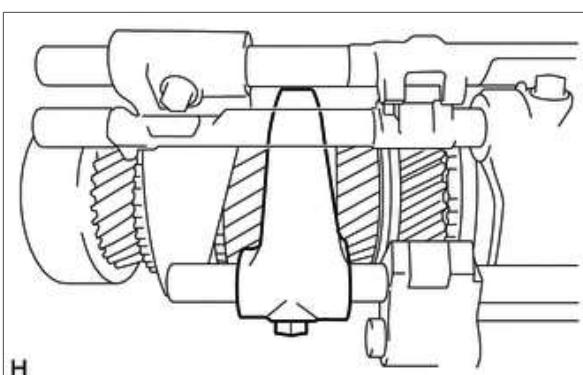
- Use a piece of cloth to prevent the snap ring from flying off.
- Do not damage the No. 3 shift fork shaft and No. 4 gear shift fork shaft.

HINT:

Tape the screwdriver tip before use.

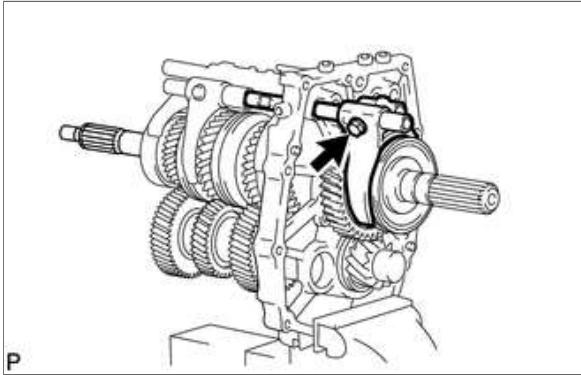
■ 36.REMOVE REVERSE SHIFT FORK

33211



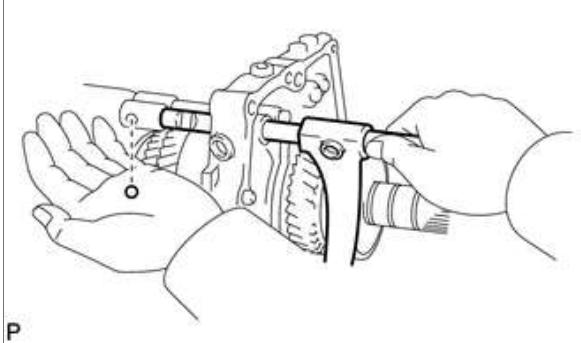
- a. Move the No. 3 gear shift fork to the position shown in the illustration.

b.



Remove the bolt from the No. 4 gear shift fork shaft.

c.



While pulling the No. 4 gear shift fork shaft to the rear side, remove the ball from the reverse shift head.

- d. While supporting the reverse shift fork, remove the No. 4 gear shift fork shaft from the transmission intermediate plate and reverse shift fork.
- e. Remove the reverse shift fork from the output shaft.

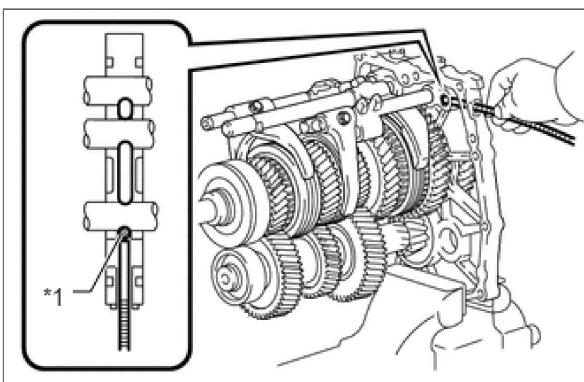
■ **37.INSPECT REVERSE SHIFT FORK**

33211

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■ **38.REMOVE NO. 3 GEAR SHIFT FORK SHAFT**

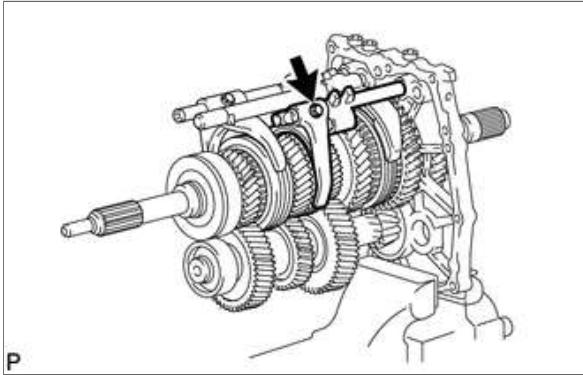
33244D



*1 Ball

- a. Using a magnet hand, remove the ball.

b.



Remove the bolt and while supporting the No. 3 gear shift fork, pull out the No. 3 shift fork shaft from the rear side of the No. 3 gear shift fork to remove the No. 3 gear shift fork from the output shaft.

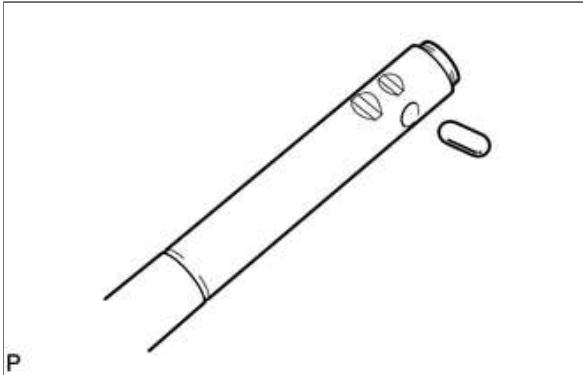
c. Remove the reverse shift head from the No. 3 gear shift fork shaft.

d. Remove the No. 3 shift fork shaft from the transmission intermediate plate.

NOTICE:

Do not drop the interlock pin.

e.



Remove the interlock pin from the No. 3 gear shift fork shaft.

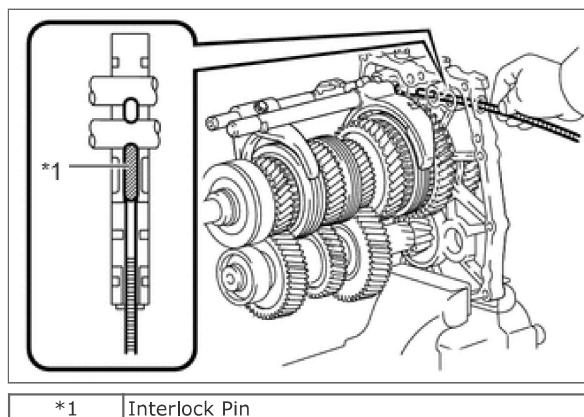
■ **39.INSPECT NO. 3 GEAR SHIFT FORK**

33214G

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■ **40.REMOVE NO. 1 GEAR SHIFT FORK**

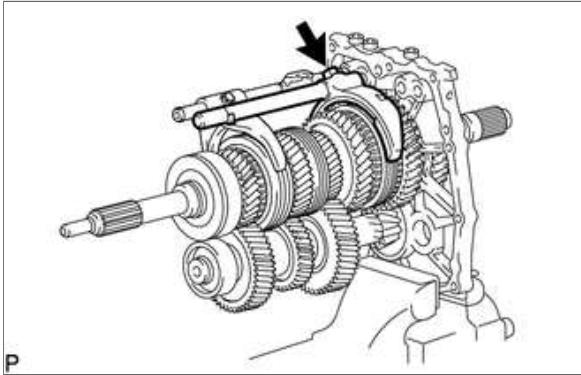
33212A



*1 Interlock Pin

a. Using a magnet hand, remove the interlock pin.

b.



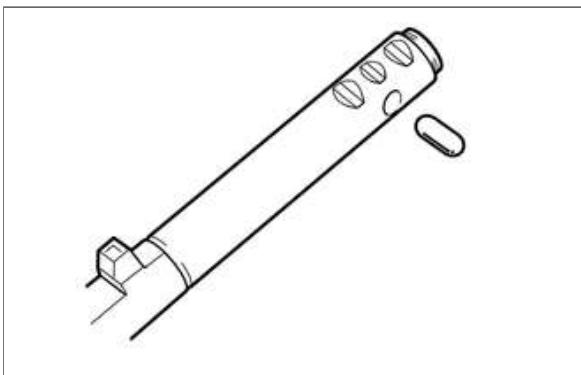
Remove the bolt and while supporting the No. 1 gear shift fork, remove the No. 1 gear shift fork shaft from the transmission intermediate plate and No. 1 gear shift fork.

NOTICE:

Do not drop the interlock pin.

c. Remove the No. 1 gear shift fork.

d.



Remove the interlock pin from the No. 1 gear shift fork shaft.

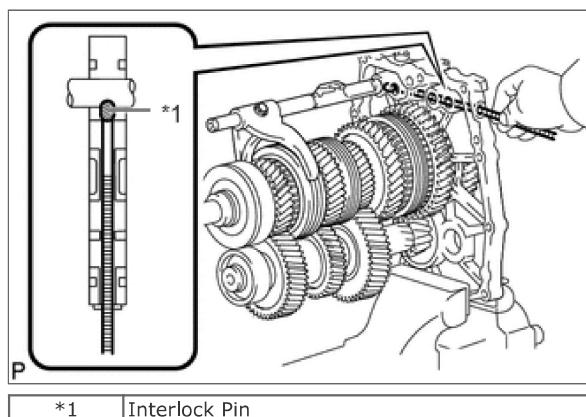
■ **41.INSPECT NO. 1 GEAR SHIFT FORK**

33212A

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■ **42.REMOVE NO. 2 GEAR SHIFT FORK**

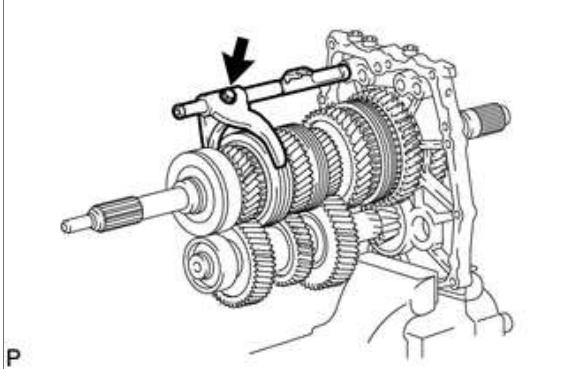
33213G



*1 Interlock Pin

a. Using a magnet hand, remove the interlock pin.

b.



Remove the bolt and while supporting the No. 2 gear shift fork, pull out the No. 2 gear shift fork shaft from the front side of the transmission intermediate plate and remove it together with the No. 2 gear shift fork from the output shaft.

- c. Remove the No. 2 gear shift fork from the No. 2 gear shift fork shaft.

■ **43.INSPECT NO. 2 GEAR SHIFT FORK**

33213G

Click hereDrivetrain>H150F (MANUAL TRANSMISSION / TRANSAXLE)>MANUAL TRANSMISSION UNIT>INSPECTION

■ **44.INSPECT REVERSE GEAR THRUST CLEARANCE**

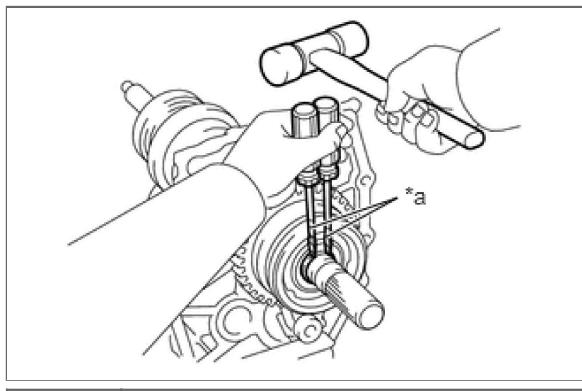
Click hereDrivetrain>H150F (MANUAL TRANSMISSION / TRANSAXLE)>MANUAL TRANSMISSION UNIT>INSPECTION

■ **45.INSPECT REVERSE GEAR RADIAL CLEARANCE**

Click hereDrivetrain>H150F (MANUAL TRANSMISSION / TRANSAXLE)>MANUAL TRANSMISSION UNIT>INSPECTION

■ **46.REMOVE NO. 3 TRANSMISSION CLUTCH HUB SHAFT SNAP RING**

33393A



- a. Using 2 screwdrivers and a hammer, tap out the No. 3 transmission clutch hub shaft snap ring.

NOTICE:

- Do not damage the output shaft.
- Use a piece of cloth to prevent the snap ring from flying off.

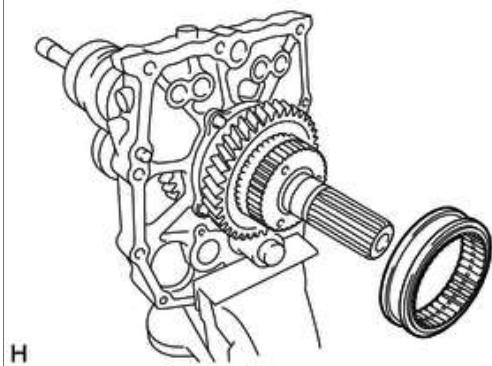
HINT:

Tape the screwdriver tip before use.

■ **47.REMOVE NO. 1 TRANSMISSION HUB SLEEVE**

33363

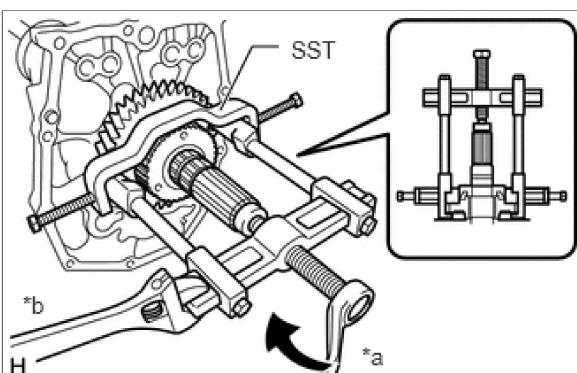
a.



Remove the No. 1 transmission hub sleeve from the No. 4 transmission clutch hub.

■ **48.REMOVE REVERSE GEAR**

33331



*a Turn

*b Hold

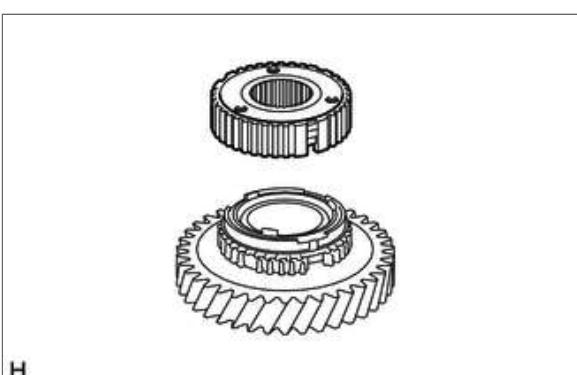
- a. Using SST, remove the reverse gear, reverse synchronizer ring set and No. 4 transmission clutch hub from the output shaft.

SST

09950-40011 (09951-04020, 09952-04010, 09953-04010, 09954-04020, 09955-04021, 09957-04010, 09958-04011)
09950-60010 (09951-00300)

■ **49.REMOVE NO. 4 TRANSMISSION CLUTCH HUB**

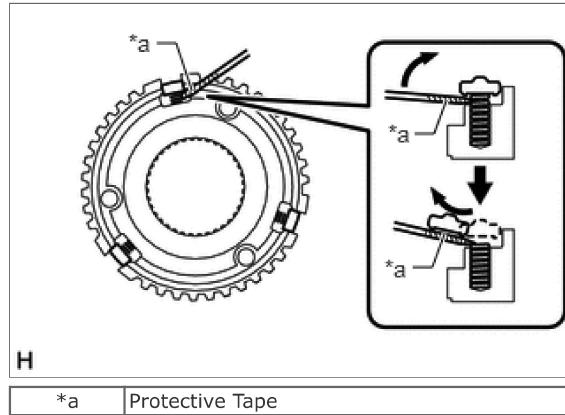
33352B



H

- a. Remove the transmission clutch hub from the reverse gear.

b.



Using a screwdriver, remove the 3 shifting keys and 3 springs from the No. 4 transmission clutch hub.

NOTICE:

- Do not drop the shifting key.
- Do not damage the No. 4 transmission clutch hub and spring.

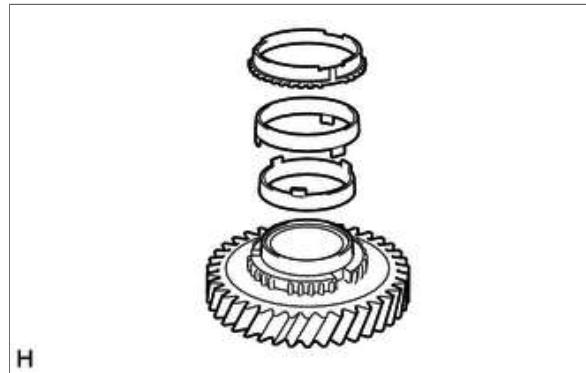
HINT:

Push down the spring as shown in the illustration and remove the shifting key.

■ **50.REMOVE REVERSE SYNCHRONIZER RING SET**

33049

a.



Remove the reverse synchronizer ring set from the reverse gear.

■ **51.INSPECT REVERSE SYNCHRONIZER RING SET**

33049

Click hereDrivetrain>H150F (MANUAL TRANSMISSION / TRANSAXLE)>MANUAL TRANSMISSION UNIT>INSPECTION

■ **52.INSPECT REVERSE GEAR**

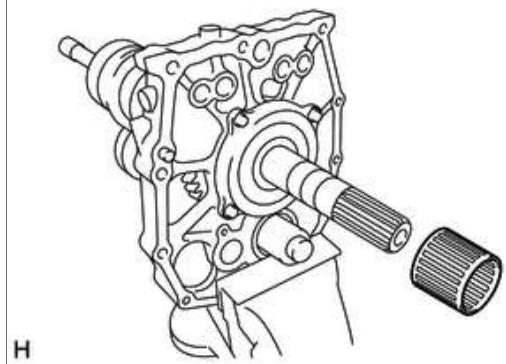
33331

Click hereDrivetrain>H150F (MANUAL TRANSMISSION / TRANSAXLE)>MANUAL TRANSMISSION UNIT>INSPECTION

■ **53.REMOVE REVERSE GEAR BEARING**

33331A

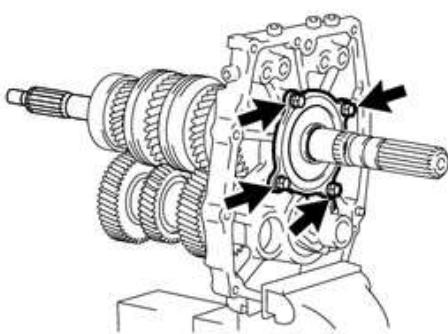
a.



Remove the reverse gear bearing.

■ **54.REMOVE OUTPUT SHAFT REAR BEARING RETAINER**

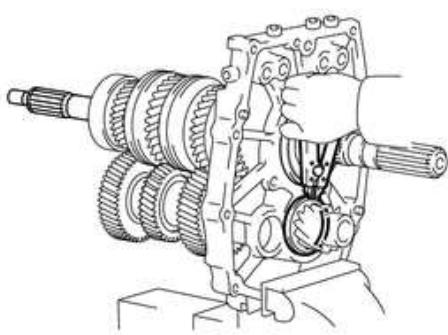
33151



a. Remove the 4 bolts and rear output shaft bearing retainer.

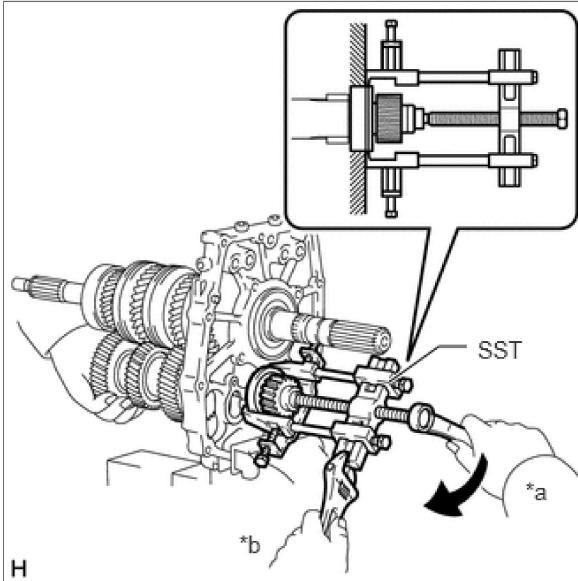
■ **55.REMOVE COUNTER GEAR**

33421



a. Using a snap ring expander, remove the rear counter gear shaft snap ring.

b.



H

*a	Turn
*b	Hold

Using SST, remove the counter shaft center bearing (outer race).

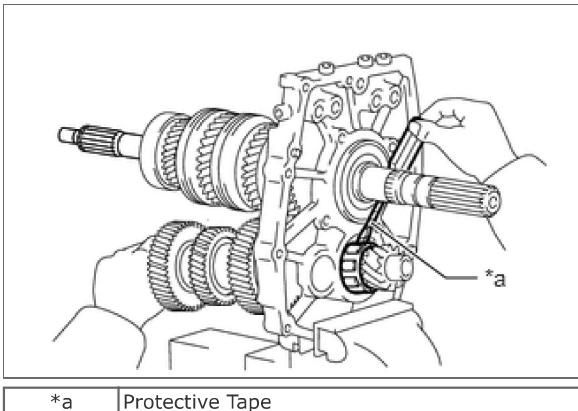
SST

09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04020, 09955-04011, 09957-04010, 09958-04011)
09950-60010 (09951-00300)

NOTICE:

Do not drop the counter gear. Hold the front side of the counter gear when removing the bearing outer race.

c.



*a	Protective Tape
----	-----------------

Using a screwdriver, detach the 2 locations of the center counter shaft bearing and remove the center counter shaft bearing from the counter gear.

NOTICE:

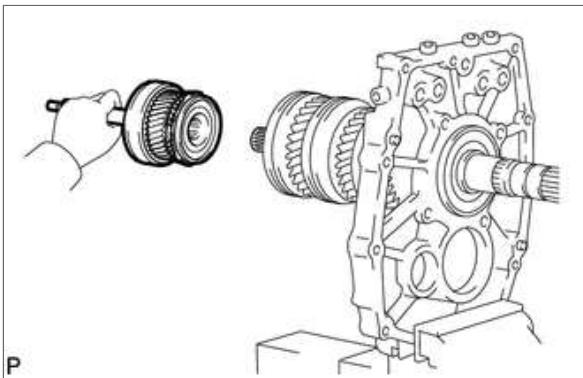
- Do not damage the center counter shaft bearing.
- Do not damage the counter gear.
- Support the counter gear by hand so that it does not fall.

d. Remove the counter gear.

NOTICE:

Do not drop the input shaft.





- a. Remove the input shaft from the output shaft.

NOTICE:

Do not drop the input shaft bearing and No. 2 synchronizer ring.

■ **57.INSPECT NO. 2 SYNCHRONIZER RING**

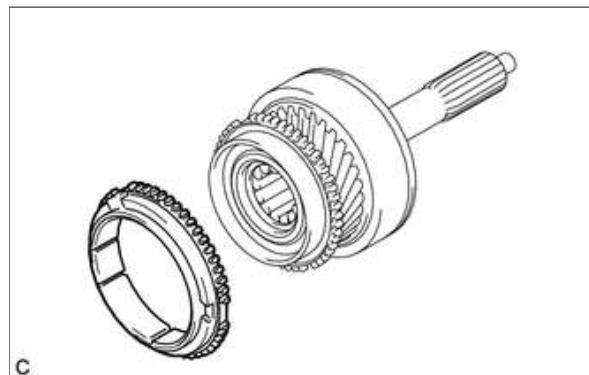
33368

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■ **58.REMOVE NO. 2 SYNCHRONIZER RING**

33368

a.



Remove the No. 2 synchronizer ring from the input shaft.

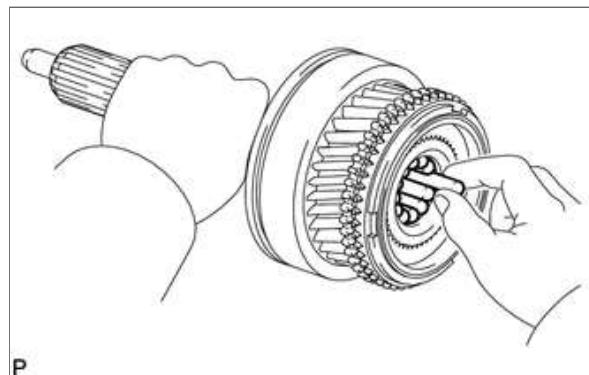
NOTICE:

Do not drop the input shaft bearing.

■ **59.REMOVE INPUT SHAFT BEARING**

33311D

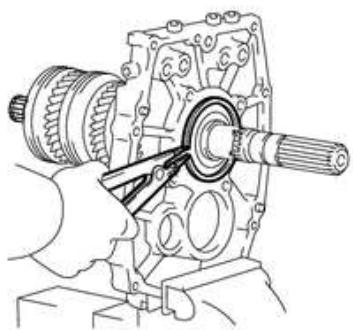
a.



Remove the 12 input shaft bearings.

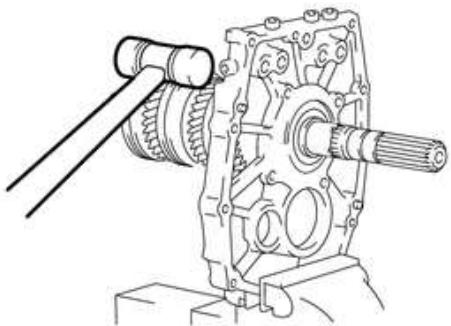
■ **60.REMOVE OUTPUT SHAFT BEARING SHAFT SNAP RING**

33321B



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

■ **61.REMOVE OUTPUT SHAFT ASSEMBLY**



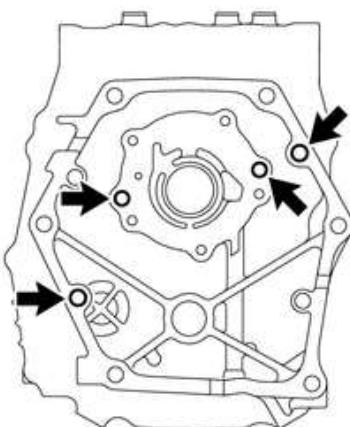
- a. Remove the output shaft from the intermediate plate by pulling on the output shaft and tapping on the intermediate plate with a plastic-faced hammer.

■ **62.REMOVE TRANSFER ADAPTER STRAIGHT PIN**

33112C

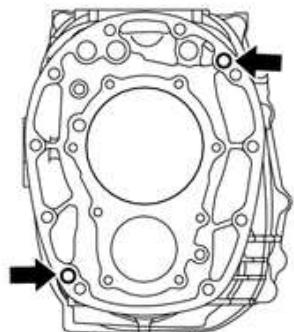
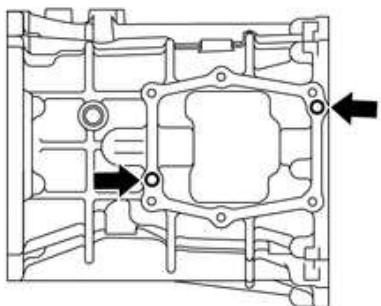
NOTICE:

It is not necessary to remove the transfer adapter straight pin unless it is being replaced.



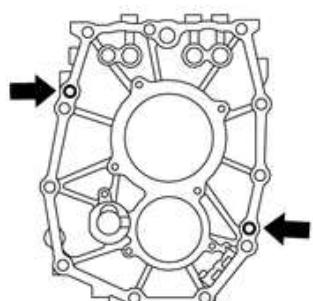
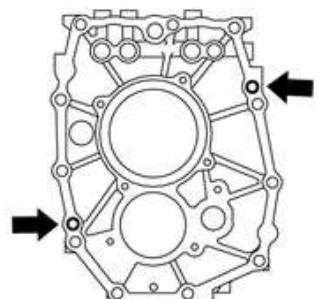
- a. Remove the 4 transfer adapter straight pins from the transfer adapter.

b.



Remove the 4 transfer adapter straight pins from the transmission case.

c.



Remove the 4 transfer adapter straight pins from the transmission intermediate plate.