MX09Z–02

DISASSEMBLY

1. REMOVE FILLER PLUG AND DRAIN PLUG WITH 2 GASKETS

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

2. REMOVE SPEED SENSOR

(a) Remove the bolt and speed sensor.

Torque: 11 N·m (115 kgf·cm, 8 ft·lbf)

(b) Using a small screwdriver, remove the clip from the speed sensor.

(c) Remove the speed sensor driven gear from the speed sensor.

(d) Using a small screwdriver, remove the O–ring from the speed sensor.

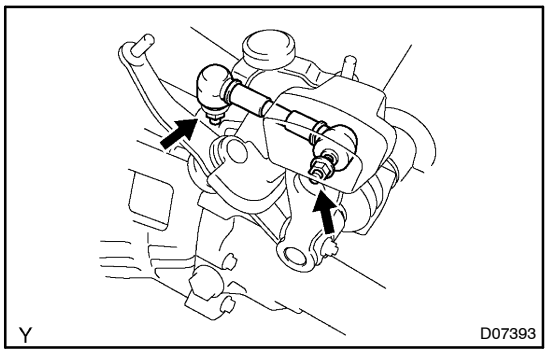
3. REMOVE BACK–UP LIGHT SWITCH WITH GASKET

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

4. REMOVE CONTROL CABLE BRACKET

Remove the 2 bolts and control cable bracket.

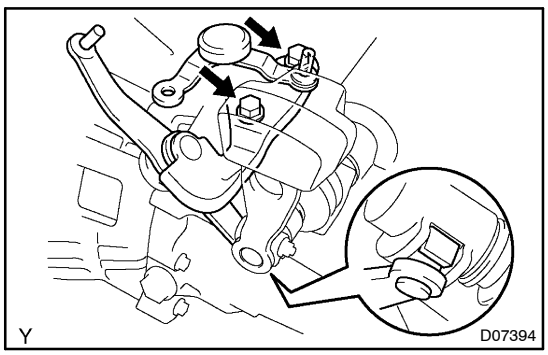
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



5. REMOVE CONTROL SHAFT ASSEMBLY

Remove the 2 nuts, wave washer and control shaft assembly.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



6. REMOVE SELECTING BELLCRANK ASSEMBLY

(a) Remove the 2 bolts and selecting bellcrank assembly.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

NOTICE:

At the time of reassembly, please refer to the following item.

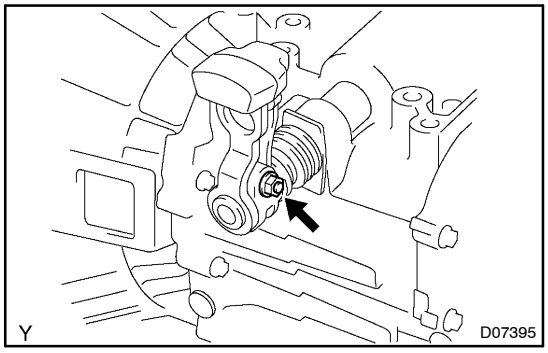
Fit the selecting bellcrank assembly pin part with the dust cover into a groove in the control shift lever.

(b) Remove the control bellcrank dust cover from the selecting bellcrank assembly.

NOTICE:

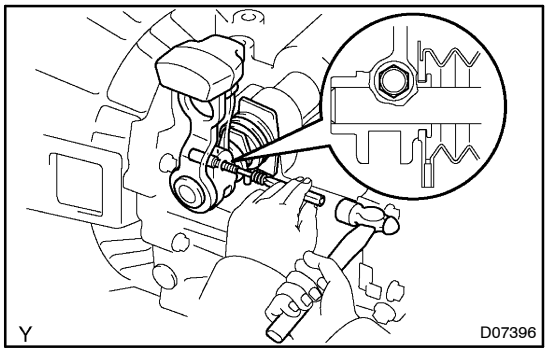
At the time of reassembly, please refer to the following item.

Apply MP grease to the inside circumferential surface of the control bellcrank dust cover.



7. REMOVE CONTROL SHIFT LEVER AND DUST BOOT

(a) Remove the nut and wave washer.
Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)



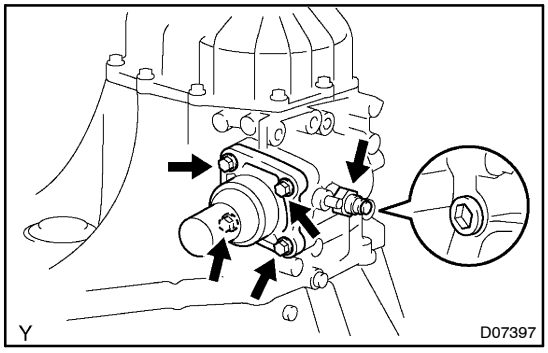
(b) Using a pin punch and hammer, drive out the lever lock pin.

NOTICE:
At the time of reassembly, please refer to the following item.
When fixing the lever lock pin, properly position the shaft groove.

(c) Remove the control shift lever and dust boot.

NOTICE:
At the time of reassembly, please refer to the following items.

- **Install the dust boot into a groove in the control shift lever.**
- **Be sure to install the dust boot in the correct direction, as shown in the illustration.**

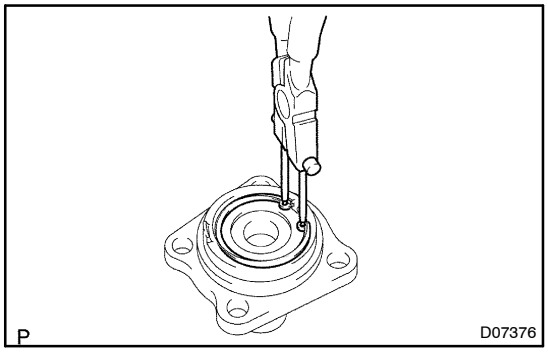


8. REMOVE PLUG, LOCK BALL ASSEMBLY AND CONTROL SHAFT COVER ASSEMBLY

(a) Using a hexagon wrench, remove the plug and gasket.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

(b) Remove the lock ball assembly.
Sealant:
Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

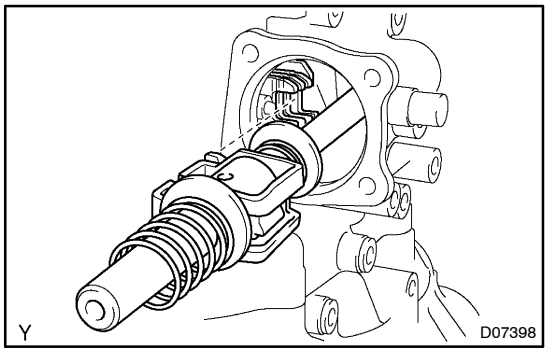
(c) Remove the 4 bolts and control shaft cover assembly with the gasket.
Sealant:
Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)



9. DISASSEMBLE CONTROL SHAFT COVER ASSEMBLY

(a) Using snap ring pliers, remove the snap ring.

(b) Remove the No. 3 select spring seat and compression spring.



10. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY

(a) Remove the shift and select lever shaft assembly.

NOTICE:

At the time of reassembly, please refer to the following item.

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

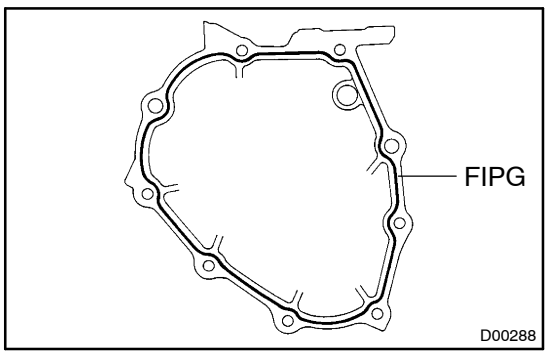
(b) Remove the select spring seat and compression spring from the shift and select lever shaft assembly.

11. REMOVE TRANSMISSION CASE COVER

(a) Remove the 9 bolts.

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

(b) Carefully tap the projection of the transmission case cover with a brass bar and hammer and remove it.



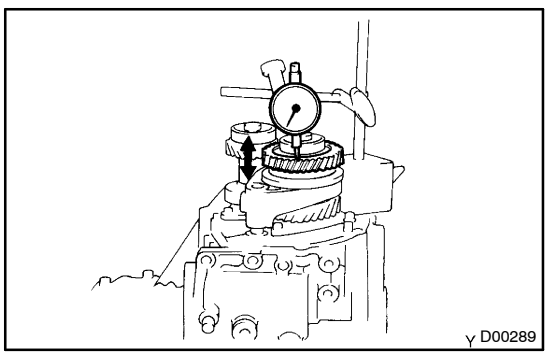
HINT:

At the time of reassembly, please refer to the following item.

Apply FIPG to the transmission case side, as shown in the illustration.

FIPG:

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



12. INSPECT 6TH GEAR THRUST CLEARANCE

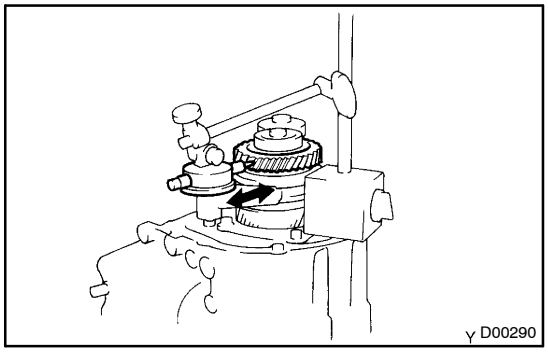
Using a dial indicator, measure the thrust clearance.

Standard clearance:

0.10 – 0.60 mm (0.0039 – 0.0236 in.)

Maximum clearance:

0.60 mm (0.0236 in.)

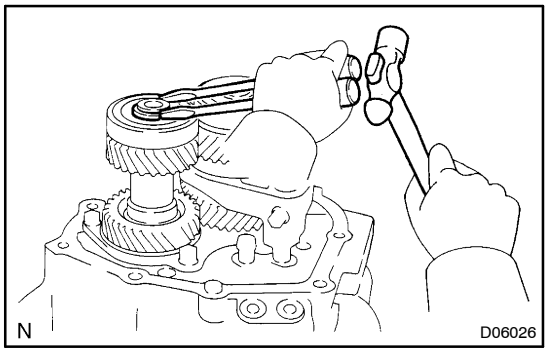


13. INSPECT 6TH GEAR RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance.

Standard clearance:
0.009 – 0.050 mm (0.0003 – 0.0020 in.)
Maximum clearance:
0.050 mm (0.0020 in.)

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



14. REMOVE OUTPUT SHAFT REAR RADIAL BALL BEARING, 6TH DRIVEN GEAR AND SPACER

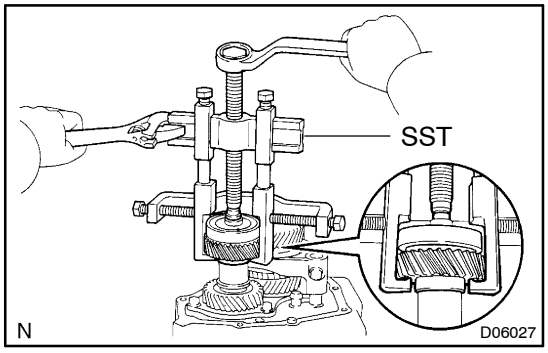
(a) Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

At the time of reassembly, please refer to the following item.

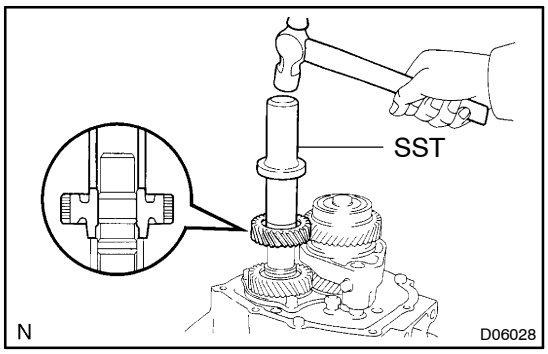
Select a snap ring from the table below that will make the thrust clearance of the output shaft rear radial ball bearing less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
B	2.31 (0.0909)	H	2.67 (0.1051)
C	2.37 (0.0933)	J	2.73 (0.1075)
D	2.43 (0.0957)	K	2.79 (0.1098)
E	2.49 (0.0980)	L	2.85 (0.1122)
F	2.55 (0.1004)	M	2.91 (0.1146)
G	2.61 (0.1028)	–	–



(b) Using SST, remove the rear radial ball bearing and 6th driven gear.

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



HINT:

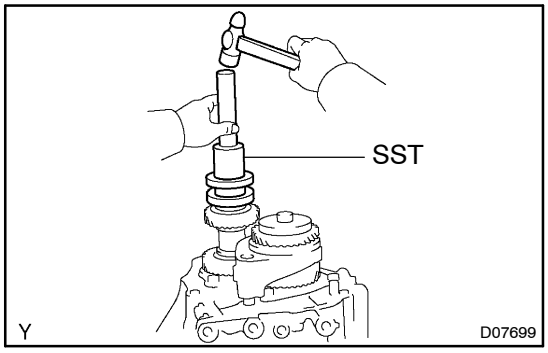
At the time of reassembly, please refer to the following items.

Using SST and a hammer, drive in the 6th driven gear.

SST 09325–12010

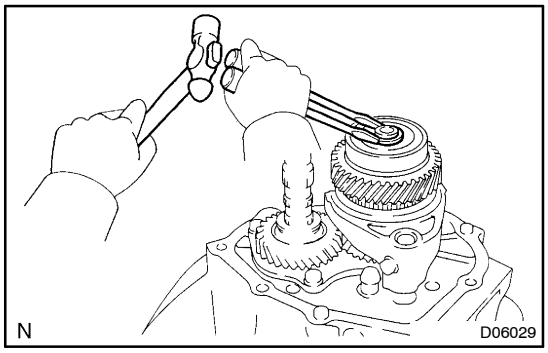
NOTICE:

Be sure to install the 6th driven gear in the correct direction, as shown in the illustration.



HINT:
At the time of reassembly, please refer to the following items.
Set SST to the rear radial ball bearing inner race securely, drive in the bearing with a hammer.
SST 09517–12010

(c) Remove the spacer.

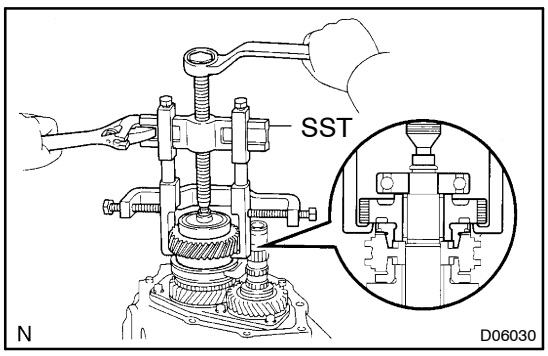


15. REMOVE INPUT SHAFT REAR RADIAL BALL BEARING AND 6TH GEAR

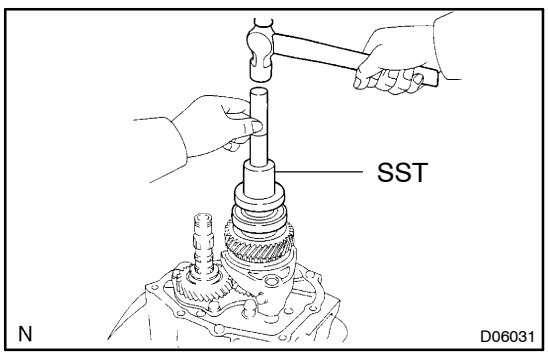
(a) Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:
At the time of reassembly, please refer to the following item.
Select a snap ring from the table below that will make the thrust clearance of the No. 3 clutch hub less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	1.70 (0.0669)	G	2.00 (0.0787)
B	1.75 (0.0689)	H	2.05 (0.0807)
C	1.80 (0.0709)	J	2.10 (0.0827)
D	1.85 (0.0728)	K	2.15 (0.0846)
E	1.90 (0.0748)	L	2.20 (0.0866)
F	1.95 (0.0768)	M	2.25 (0.0886)

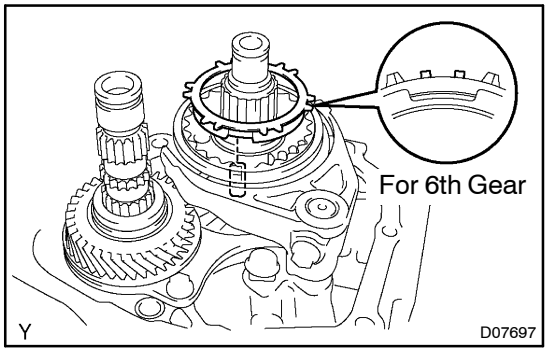


(b) Using SST, remove the rear radial ball bearing and 6th gear.
SST 09950–40011 (09951–04010, 09952–04010, 09953–04030, 09954–04010, 09955–04021, 09957–04010, 09958–04011)



HINT:
At the time of reassembly, please refer to the following item.
Set SST to the rear radial ball bearing inner race securely, drive in the bearing with a hammer.
SST 09517–12010

(c) Remove the needle roller bearing and spacer.

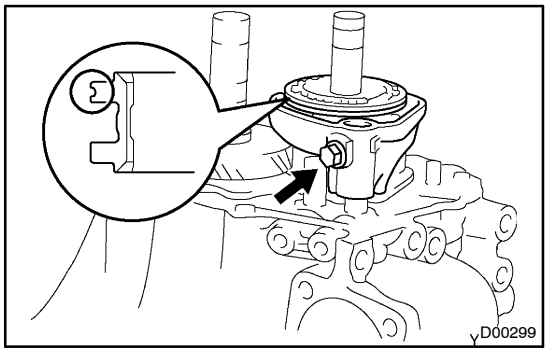


16. REMOVE NO. 3 SYNCHRONIZER RING (FOR 6TH GEAR)

NOTICE:

At the time of reassembly, please refer to the following items.

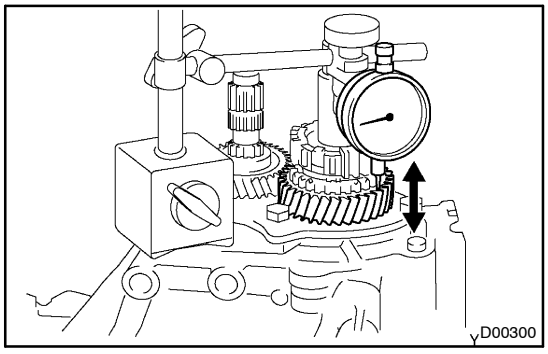
- **Align the No. 3 synchronizer ring slots with the No. 3 shifting keys.**
- **Distinguish the No. 3 synchronizer ring (for the 6th gear) by the teeth on the synchronizer ring.**



17. REMOVE NO. 3 GEAR SHIFT FORK AND NO. 3 HUB SLEEVE

Remove the bolt, No. 3 gear shift fork and No. 3 hub sleeve.

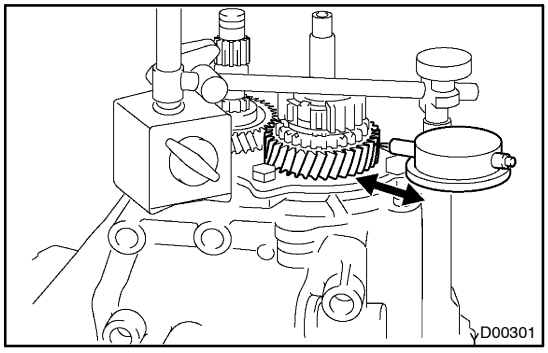
Sealant:
Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
Torque: 16 N·m (160 kgf·cm, 12 ft·lbf)



18. INSPECT 5TH GEAR THRUST CLEARANCE

Using a dial indicator, measure the thrust clearance.

Standard clearance:
0.10 – 0.62 mm (0.0039 – 0.0244 in.)
Maximum clearance:
0.62 mm (0.0244 in.)

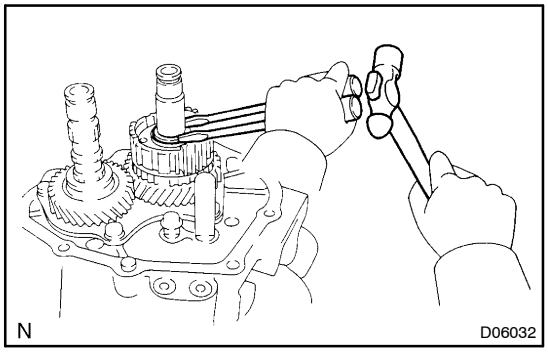


19. INSPECT 5TH GEAR RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance.

Standard clearance:
0.015 – 0.056 mm (0.0006 – 0.0022 in.)
Maximum clearance:
0.056 mm (0.0022 in.)

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



20. REMOVE 5TH GEAR, NO. 3 SYNCHRONIZER RING (FOR 5TH GEAR) AND NO. 3 CLUTCH HUB ASSEMBLY

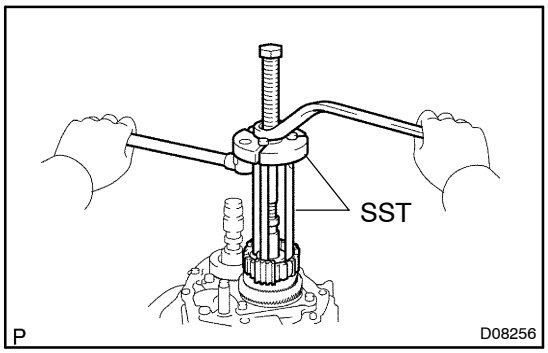
(a) Using 2 screwdrivers and a hammer, tap out the snap ring.

HINT:

At the time of reassembly, please refer to the following item.

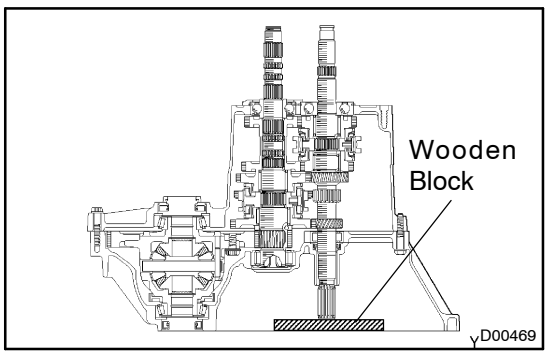
Select a snap ring from the table below that will make the thrust clearance of the No. 3 clutch hub less than 0.1 mm (0.0039 in.).

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	1.75 (0.0689)	F	2.00 (0.0787)
B	1.80 (0.0709)	G	2.05 (0.0807)
C	1.85 (0.0728)	H	2.10 (0.0827)
D	1.90 (0.0748)	J	2.15 (0.0846)
E	1.95 (0.0768)	–	–



(b) Using SST, remove the No. 3 clutch hub assembly.

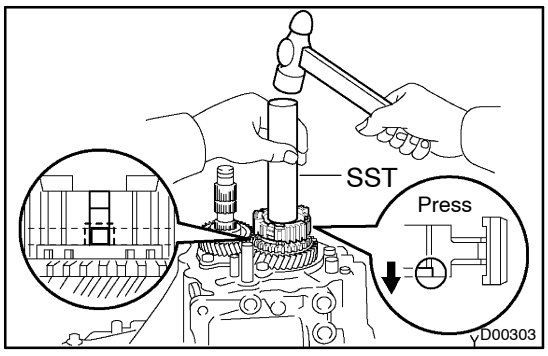
SST 09950–30011 (09951–03010, 09953–03010), 09950–50012 (09954–05030)



HINT:

At the time of reassembly, please refer to the following items.

- Before driving in the No. 3 clutch hub assembly and input shaft rear radial ball bearing, place the suitable sized wooden block on the rear side of the input shaft, as shown in the illustration. When driving them in, fix the input shaft firmly so that it is not pushed downward. Otherwise the input shaft center bearing is overloaded, it might be damaged.

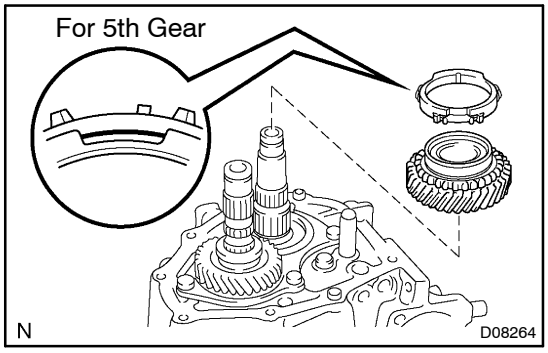


- Using SST and a hammer, drive in the No. 3 clutch hub assembly.

  SST 09612–22011

NOTICE:

- **Align the No. 3 synchronizer ring slots with the No. 3 shifting keys.**
- **Be sure to install the No. 3 clutch hub assembly in the correct direction, as shown in the illustration.**



(c) Remove the No. 3 synchronizer ring (for the 5th gear) and 5th gear from the input shaft.

NOTICE:

At the time of reassembly, please refer to the following item.

Distinguish the No. 3 synchronizer ring (for the 5th gear) by the teeth on the synchronizer ring.

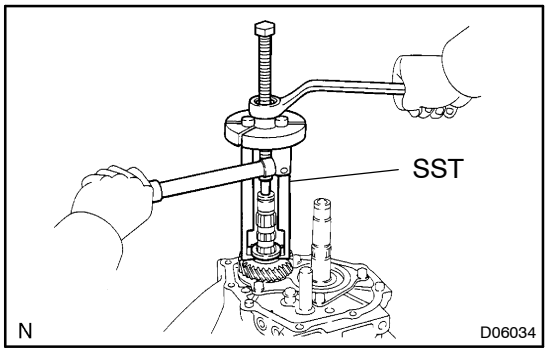
(d) Using 2 screwdrivers and a hammer, tap out the snap ring.

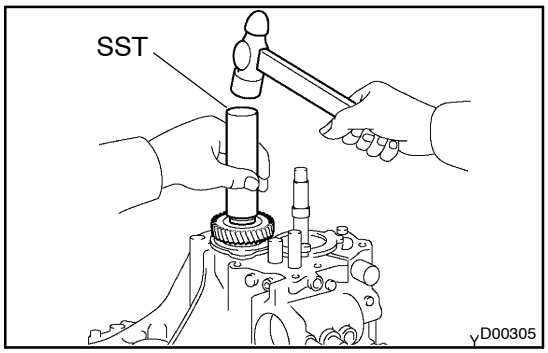
(e) Remove the needle roller bearing and 2 spacers.

21. REMOVE 5TH DRIVEN GEAR

Using SST, remove the 5th driven gear.

SST 09950–30011 (09951–03010, 09953–03010, 09954–03010, 09955–03021)



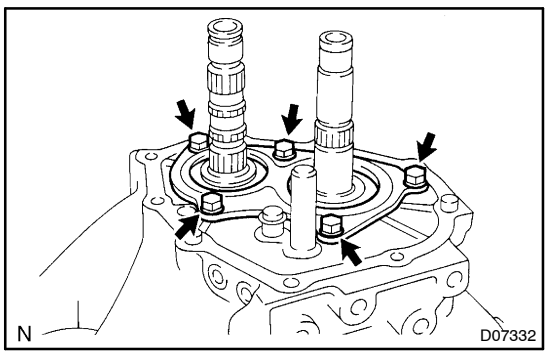


HINT:

At the time of reassembly, please refer to the following item.

Using SST and a hammer, drive in the 5th driven gear.

SST 09612–22011



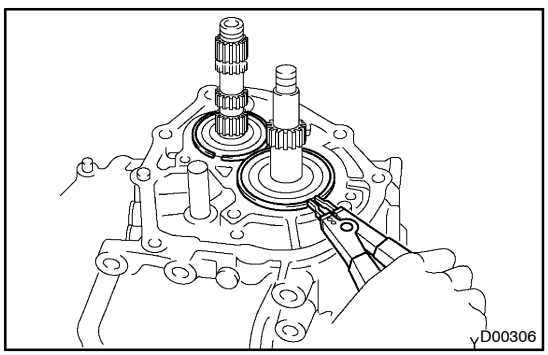
22. REMOVE REAR BEARING RETAINER

Remove the 5 bolts and rear bearing retainer.

Sealant:

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

Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)

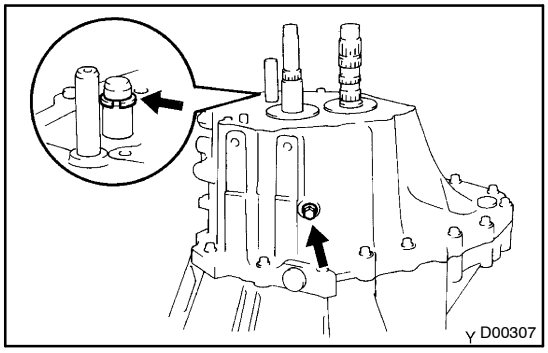


23. REMOVE BEARING SNAP RING

Using a snap ring expander, remove the 2 snap rings.

HINT:

If it is difficult to remove and install the snap rings, pull up the shafts.



24. REMOVE REVERSE IDLER GEAR SHAFT LOCK BOLT AND GASKET

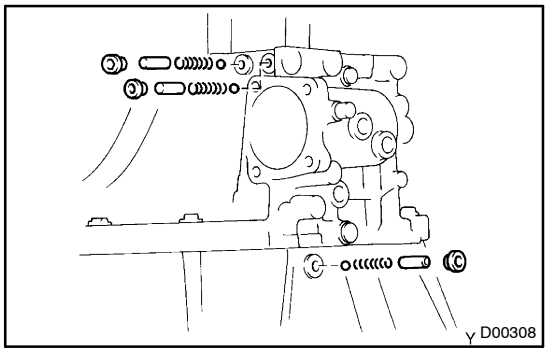
Sealant:

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

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

25. REMOVE SNAP RING FROM NO. 2 SHIFT FORK SHAFT

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



26. REMOVE STRAIGHT SCREW PLUG, SEAT, SPRING AND BALL

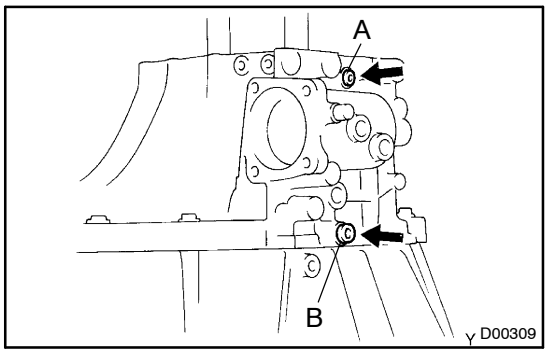
(a) Using a hexagon wrench, remove the 3 straight screw plugs.

Sealant:

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

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

(b) Using a magnetic finger, remove the 3 seats, springs and balls.



27. REMOVE STRAIGHT SCREW PLUG

Using a hexagon wrench, remove the 2 straight screw plugs.

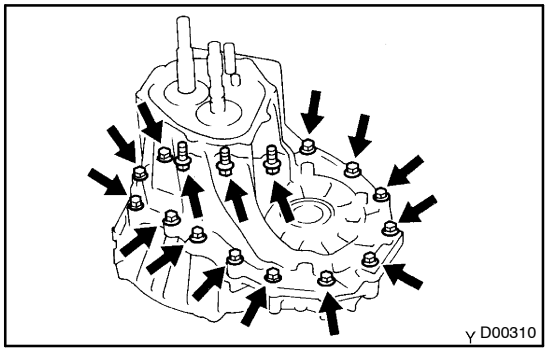
Sealant:

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

Torque:

Plug A: 13 N·m (130 kgf·cm, 9 ft·lbf)

Plug B: 39 N·m (400 kgf·cm, 29 ft·lbf)

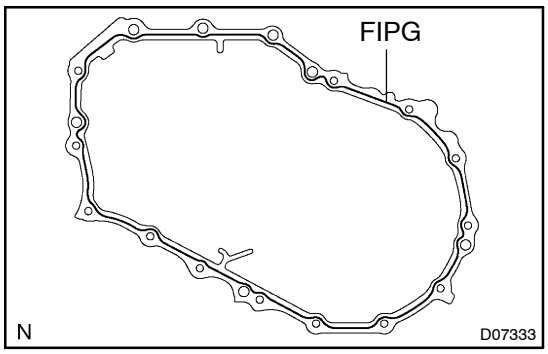


28. REMOVE TRANSMISSION CASE

(a) Remove the 16 bolts.

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

(b) Carefully tap the transmission case with a plastic hammer and remove it.



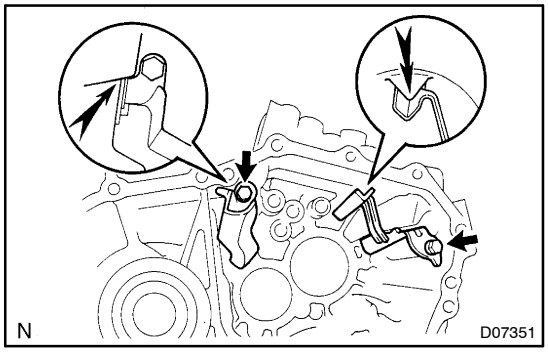
HINT:

At the time of reassembly, please refer to the following item.

Apply FIPG to the transaxle case side, as shown in the illustration.

FIPG:

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



29. REMOVE OIL RECEIVER PIPE

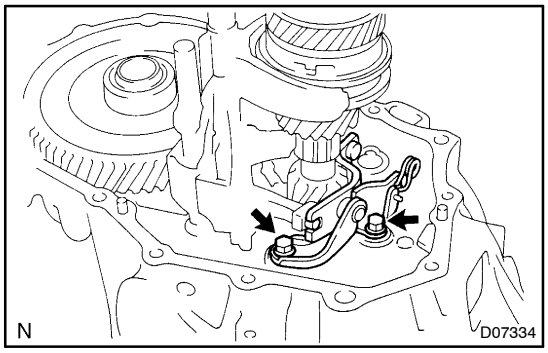
Remove the 2 bolts and oil receiver pipes from the transmission case.

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

NOTICE:

At the time of reassembly, please refer to the following items.

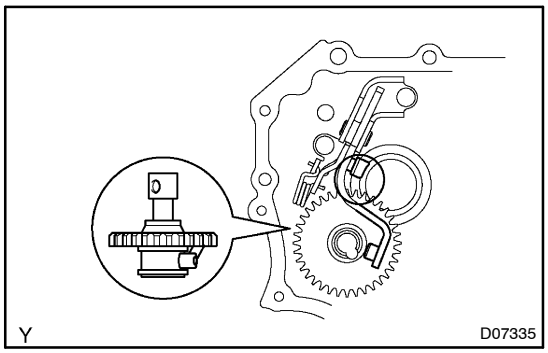
- **Prevent the oil receiver pipes from being deformed.**
- **Install the oil receiver pipes while placing it against the transmission case, as shown in the illustration.**



30. REMOVE REVERSE SHIFT ARM BRACKET

Remove the 2 bolts and reverse shift arm bracket.

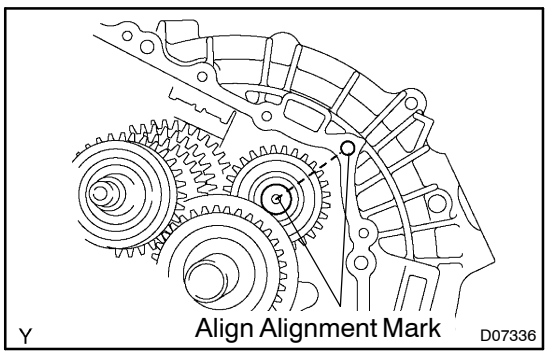
Torque: 17 N·m (175 kgf·cm, 13 ft·lbf)



NOTICE:

At the time of reassembly, please refer to the following items.

- **Set the pin on the top of the reverse shift arm into a groove on the reverse idler gear.**
- **Fit the claw of the reverse shift arm bracket with the notch of the input shaft front bearing.**

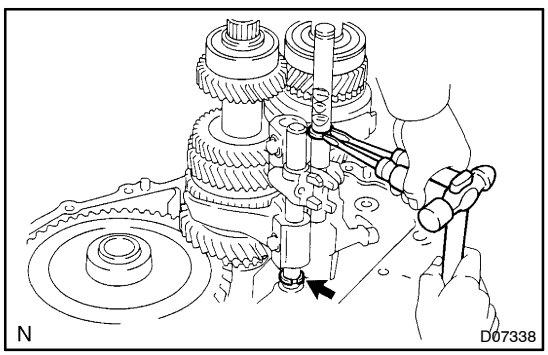


31. REMOVE REVERSE IDLER GEAR, THRUST WASHER AND SHAFT

NOTICE:

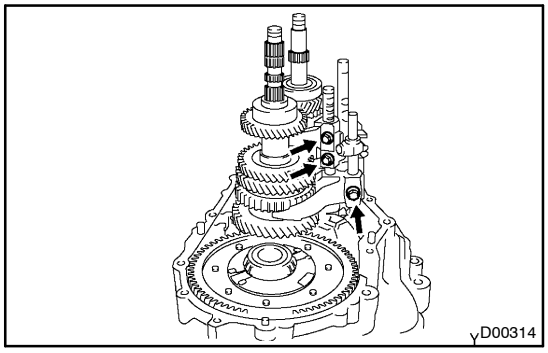
At the time of reassembly, please refer to the following item.

Install the reverse idler gear, thrust washer and shaft, as shown in the illustration.

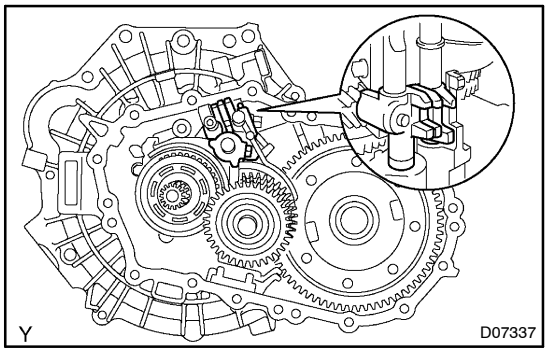


32. REMOVE GEAR SHIFT FORK SHAFT SNAP RING

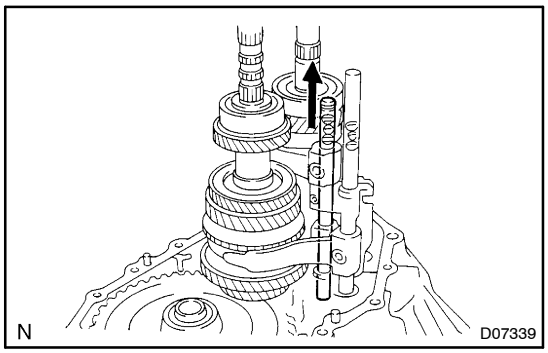
Using 2 screwdrivers and a hammer, tap out the 2 snap rings from the No. 1 and No. 3 gear shift fork shafts.



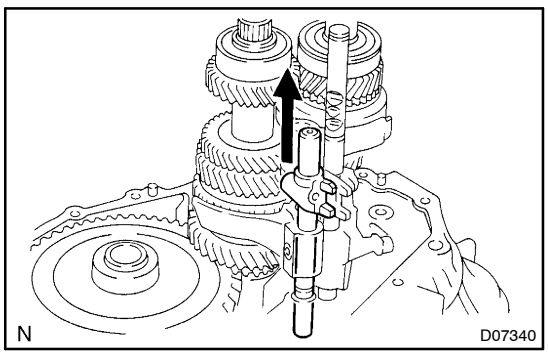
33. REMOVE NO. 1 GEAR SHIFT HEAD, NO. 1 AND NO. 2 GEAR SHIFT FORKS 3 SET BOLTS
Sealant:
Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
Torque: 16 N·m (160 kgf·cm, 12 ft·lbf)



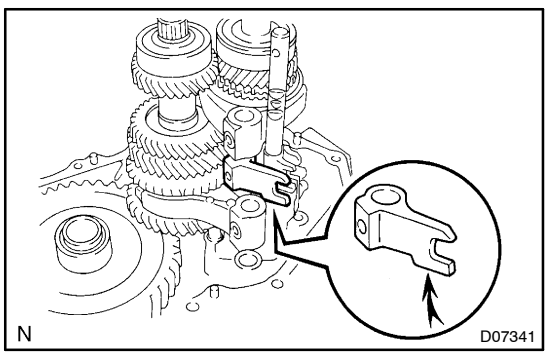
NOTICE:
At the time of reassembly, please refer to the following item.
Make sure that the 3 gear shift heads are positioned, as shown in the illustration.



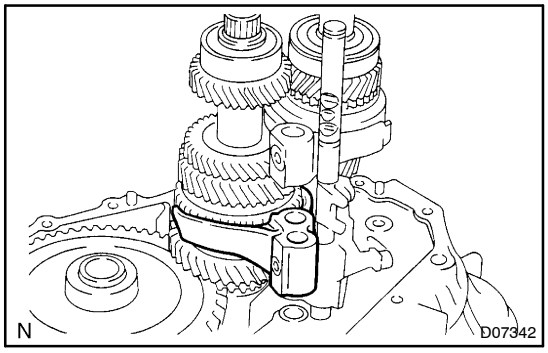
34. REMOVE NO. 2 GEAR SHIFT FORK SHAFT
Remove the No. 2 gear shift fork shaft from the No. 2 gear shift fork, No. 1 gear shift head, No. 1 gear shift fork, reverse shift fork and transaxle case.



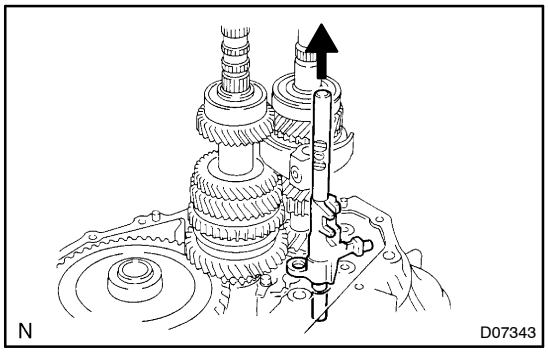
35. REMOVE NO. 1 GEAR SHIFT FORK SHAFT
Remove the No. 1 gear shift fork shaft from the No. 1 gear shift fork and transaxle case.



36. REMOVE NO. 1 GEAR SHIFT HEAD



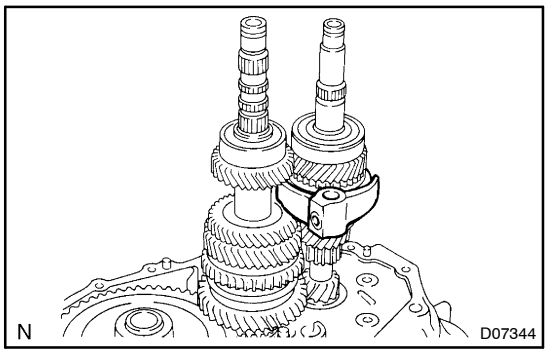
37. REMOVE NO. 1 GEAR SHIFT FORK FROM REVERSE GEAR GROOVE



38. REMOVE NO. 3 GEAR SHIFT FORK SHAFT AND REVERSE SHIFT FORK

(a) Remove the No. 3 gear shift fork shaft from the reverse shift fork and transaxle case.

(b) Remove the reverse shift fork.



39. REMOVE NO. 2 GEAR SHIFT FORK FROM NO. 2 HUB SLEEVE GROOVE

40. REMOVE INPUT AND OUTPUT SHAFTS TOGETHER FROM TRANSAXLE CASE

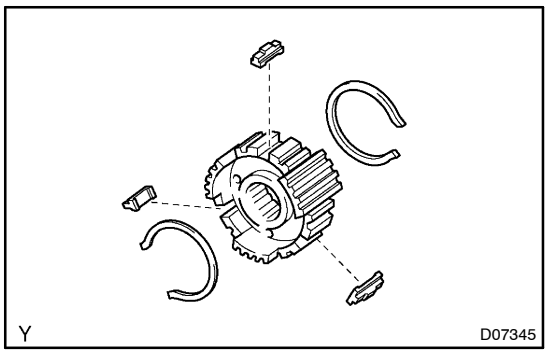
41. REMOVE DIFFERENTIAL CASE ASSEMBLY

NOTICE:

At the time of reassembly, please refer to the following item.

Before reassembly, inspect the differential tapered roller bearing preload. (See page MX–54)

42. REMOVE MAGNET FROM TRANSAXLE CASE



43. DISASSEMBLE NO. 3 CLUTCH HUB ASSEMBLY

(a) Using a screwdriver, remove the 2 shifting key springs.

NOTICE:

At the time of reassembly, please refer to the following item.

Position the shifting key springs so that their end gaps are not aligned.

(b) Remove the 3 No. 3 shifting keys from the No. 3 clutch hub.