

W59 MANUAL TRANSMISSION

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MT

PRECAUTION

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

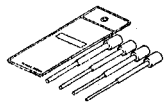
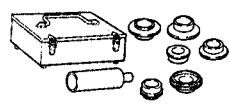
MX022-0U

- Using a razor blade and gasket scraper, remove all the old FIPG material from the gasket surfaces.
- Thoroughly clean all components to remove all the loose material.
- Clean both sealing surfaces with a non-residue solvent.
- Apply the FIPG in an approx. 1 mm (0.04 in.) wide bead along the sealing surface.
- Parts must be assembled within 10 minutes of application. Otherwise, the FIPG material must be removed and reapplied.

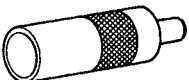
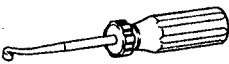
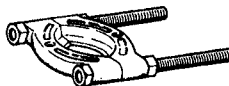
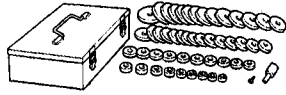
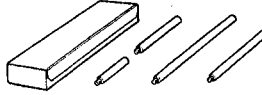
PREPARATION

SST (SPECIAL SERVICE TOOLS)

MT004-00

	09201-10000 Valve Guide Bushing Remover & Replacer Set	Speedometer driven gear oil seal
	(09201-01080) Valve Guide Bushing Remover & Replacer 8	
	09308-00010 Oil Seal Puller	Output shaft rear bearing outer race
	09308-10010 Oil Seal Puller	Extension housing oil seal
	09312-20011 Transmission Gear Remover & Replacer	5th gear Output shaft rear bearing Reverse gear
	(09313-00010) Reverse Gear Remover	
	(09313-00030) Rear Bearing Replacer	
	(09313-00040) Plate "A"	
	(09313-00050) Plate "B"	
	09316-60011 Transmission & Transfer Bearing Replacer	No.3 clutch hub Counter gear center bearing outer race

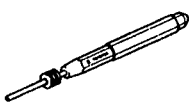
W59 MANUAL TRANSMISSION — PREPARATION

	(09316-00011) Replacer Pipe	
	(09316-00071) Replacer "F"	
	09506-35010 Differential Drive Pinion Rear Bearing Replacer	Input shaft bearing Output shaft center bearing
	09921-00010 Spring Tension Tool	Speedometer driven gear oil seal
	09950-00020 Bearing Remover	
	09950-40010 Puller B Set	Counter 5th gear No.3 clutch hub Reverse gear Counter gear side race
	09950-60010 Replacer Set	
	(09951-00440) Replacer 44	Front bearing retainer oil seal
	(09951-00510) Replacer 51	Counter gear center bearing outer race
	(09951-00560) Replacer 56	Output shaft rear bearing outer race Extension housing oil seal Transfer adaptor oil seal
	09950-70010 Handle Set	
	(09951-07150) Handle 150	

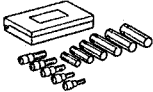
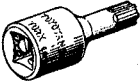
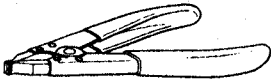
MT

RECOMMENDED TOOLS

MT008-0A

	09031-00030 Pin Punch .	
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W59 MANUAL TRANSMISSION — PREPARATION

	09040-00010 Hexagon Wrench Set .	
	09042-00020 Torx Socket T40 .	
	09905-00012 Snap Ring No.1 Expander .	

EQUIPMENT

MT006-06

Dial indicator	
Calipers	
Micrometer	
Torque wrench	
Feeler gauge	
Magnetic finger	

LUBRICANT

MT007-06

Item		Capacity	Classification
Manual transmission oil	2WD:	2.6 liters (2.7 US qts, 2.3 Imp. qts)	API GL-4 or GL-5
	4WD:	2.5 liters (2.6 US qts, 2.2 Imp. qts)	SAE 75W-90

SSM (SPECIAL SERVICE MATERIALS)

MT008-06

08826-00090	Seal Packing 1281, THREE BOND 1281 or equivalent (FIG)	Transmission case x Intermediate plate Front bearing retainer x Transmission case
08833-00080	Adhesive 1344, THREE BOND 1344, LOCTITE 242 or equivalent	Straight screw plug Front bearing retainer bolt Control shift lever retainer set bolt

TROUBLESHOOTING

MT009-06

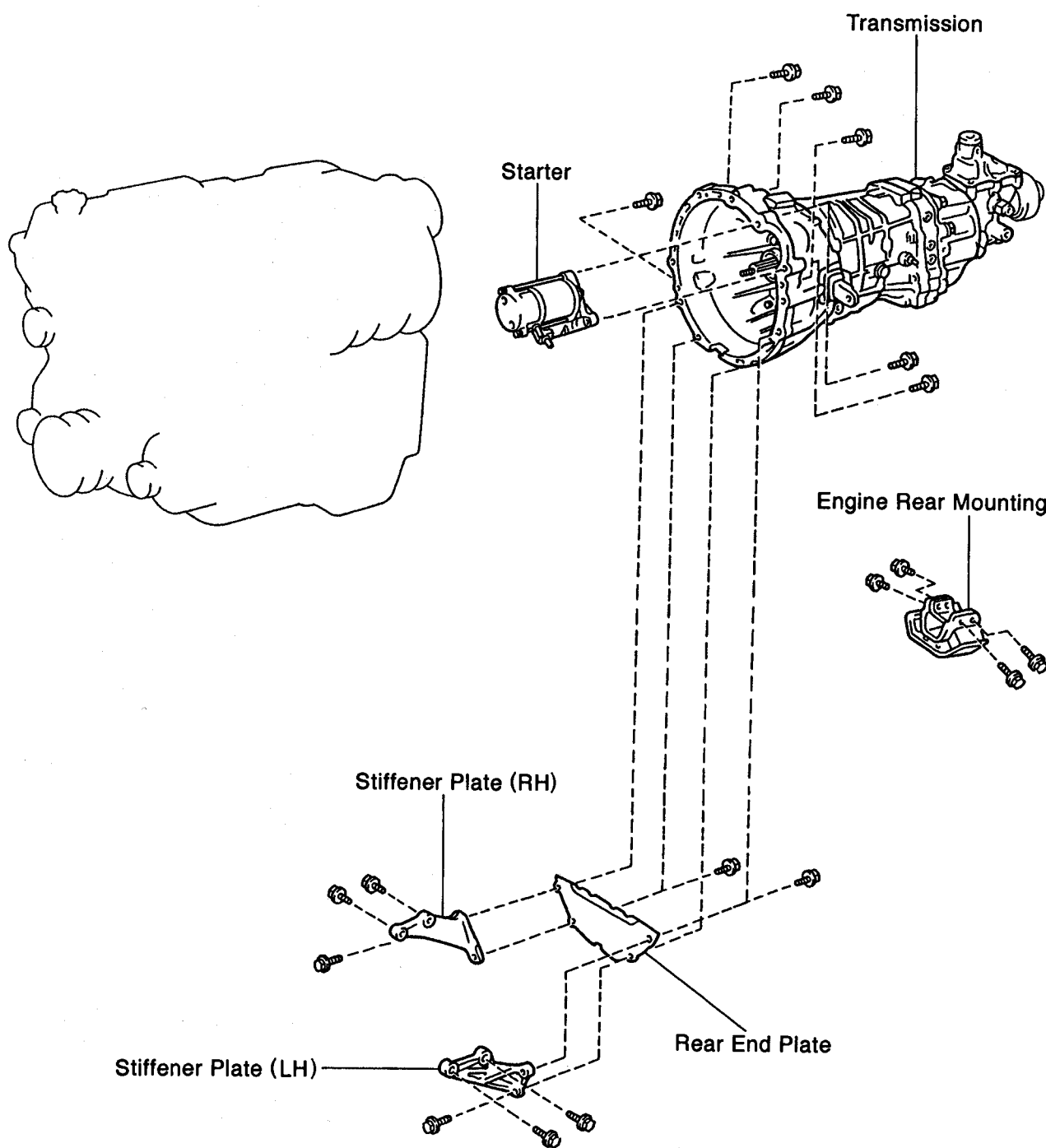
Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

See page	-	MT-4	-	MT-11	MT-11	MT-11	MT-11	MT-11	MT-11	MT-11	MT-11	MT-21, 23 30	MT-23, 30				
Parts Name	Oil (Level low)	Oil (Wrong)	Oil (Level too high)	Gasket (Damaged)	Oil seal (Worn or damaged)	O-Ring (Worn or damaged)	Locking ball spring (Damaged)	Shift fork (Worn)	Gear (Worn or damaged)	Bearing (Worn or damaged)	Synchronizer ring (Worn or damaged)	Shifting key spring (Damaged)					
Trouble																	
Noise	1	2							3	3							
Oil leakage			1	2	2	3											
Hard to shift or will not shift											1	2					
Jumps out of gear							1	2	3	3							

MT

**ASSEMBLY REMOVAL AND
INSTALLATION
(2RZ—FE, 2WD)**

MT00F-01



TRANSMISSION REMOVAL

1. REMOVE TRANSMISSION WITH ENGINE
(See page EG—61)

2. REMOVE REAR END PLATE

Remove the 8 bolts, 2 stiffener plates and plate.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)

3. REMOVE STARTER

Remove the 2 bolts and starter.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

4. REMOVE TRANSMISSION FROM ENGINE

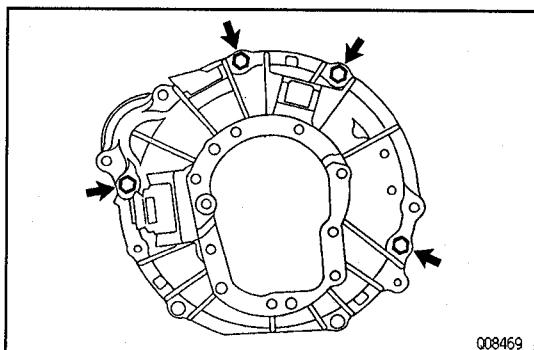
(a) Remove the 4 transmission mounting bolts from the engine.

Torque: 72 N·m (730 kgf·cm, 53 ft·lbf)

(b) Pull out the transmission toward the rear.

5. REMOVE ENGINE REAR MOUNTING

Remove the 4 bolts and engine rear mounting.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)



TRANSMISSION INSTALLATION

Installation is in the reverse order of removal.

HINT: After installation, road test the vehicle.

ASSEMBLY REMOVAL AND INSTALLATION (3RZ—FE, 4WD)

MT08C-08

Transmission Shift Lever Knob

Extra Cab:

Transfer Shift Lever Knob

Front Console Box

Transfer Shift
Lever

Rear Propeller Shaft

Shift Lever Boot
RetainerTransmission
Shift Lever

Shift Lever Boot

Speedometer Cable

Snap Ring

4WD Position Switch Connector

Transmission
with Transfer

Starter

Back-Up Light
Switch Connector

Engine Rear Mounting

O-Ring

Rear End Plate

Clutch Release Cylinder

Oxygen Sensor

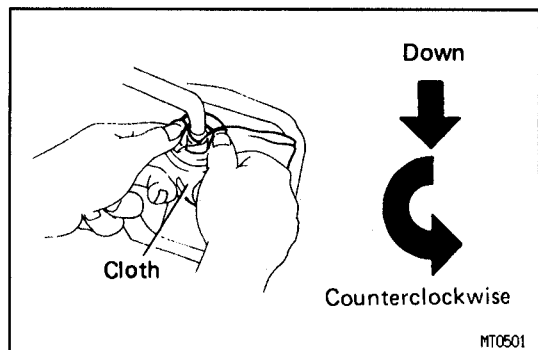
Front Propeller Shaft

Crossmember

Front Exhaust Pipe

◆ Non-reusable part

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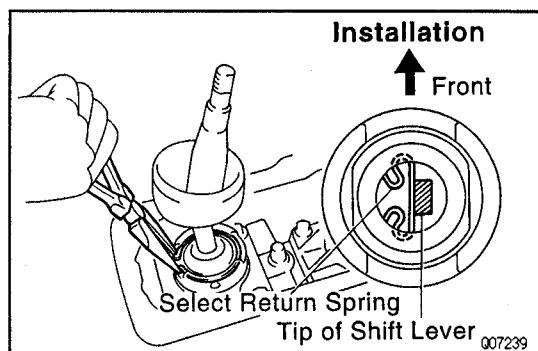


TRANSMISSION REMOVAL

1. REMOVE TRANSMISSION SHIFT LEVER

- Remove the 4 screws and front console box.
- Remove the 4 screws and shift lever boot and retainer.
- Cover the shift lever cap with a cloth.
- Pressing down on the shift lever cap and rotate it counterclockwise to remove.
- Pull out the shift lever.

INSTALLATION HINT: Apply MP grease to the tip of shift lever.



2. REMOVE TRANSFER SHIFT LEVER

Using pliers, remove the snap ring and pull out the shift lever.

INSTALLATION HINT: Apply MP grease to the tip of shift lever.

3. RAISE VEHICLE AND DRAIN TRANSMISSION OIL

Oil grade: API GL-4 or GL-5

Viscosity: SAE 75W-90

Capacity: 2.5 liters (2.6 US qts, 2.2 Imp. qts)

4. DISCONNECT FRONT PROPELLER SHAFT

(See page PR-6)

5. DISCONNECT REAR PROPELLER SHAFT

(See page PR-6)

6. DISCONNECT SPEEDOMETER CABLE

7. DISCONNECT BACK-UP LIGHT SWITCH AND 4WD POSITION SWITCH CONNECTOR

8. REMOVE CLUTCH RELEASE CYLINDER

Remove the 2 bolts and release cylinder.

Torque: 12 N·m (120 kgf·cm, 9 ft·lbf)

9. REMOVE STARTER'S SET BOLT

- Disconnect the connector and wire from the starter.

- Remove the bolt of starter lower side with the clutch line bracket.

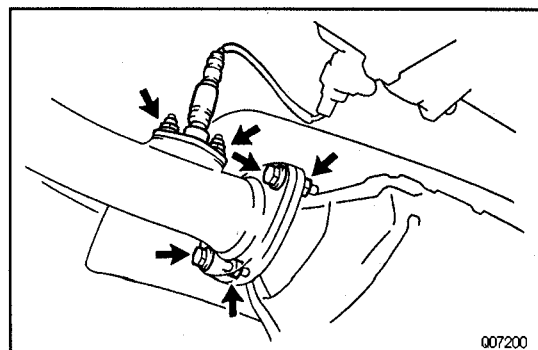
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

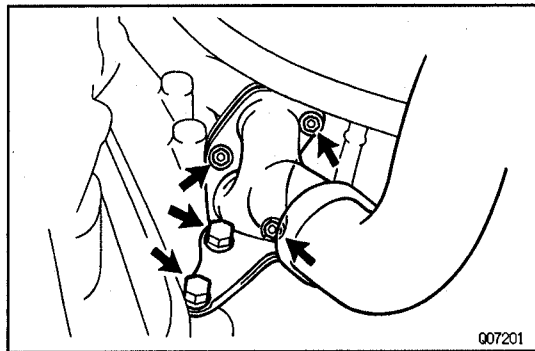
10. REMOVE FRONT EXHAUST PIPE

- Remove the 2 nuts, gasket and oxygen sensor.

- Remove the 2 bolts, nuts and gasket.

Torque: 48 N·m (490 kgf·cm, 35 ft·lbf)

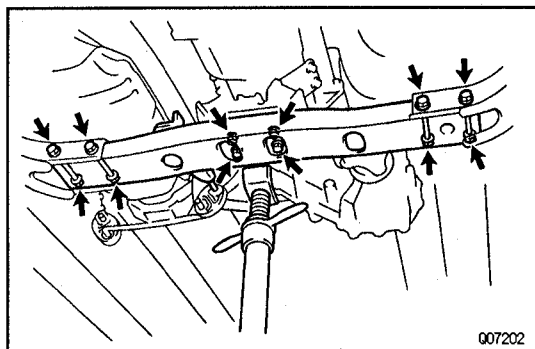




- (c) Remove the front exhaust pipe bracket 2 set bolts.
Torque: 71 N·m (720 kgf·cm, 52 ft·lbf)
- (d) Remove the 3 nuts, front exhaust pipe and 2 gaskets.
Torque: 62 N·m (630 kgf·cm, 46 ft·lbf)

11. REMOVE REAR END PLATE

Remove the 4 bolts, 2 nuts and rear end plate.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)



12. REMOVE CROSSMEMBER

- (a) Support the transmission rear side.
- (b) Remove the 4 bolts from the engine rear mounting.
Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)
- (c) Disconnect the O-ring and remove the 4 bolts, nuts and crossmember.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

13. REMOVE ENGINE REAR MOUNTING

Remove the 4 bolts and engine rear mounting.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

14. JACK UP TRANSMISSION SLIGHTLY

Using a transmission jack, support the transmission.

15. REMOVE STARTER

Remove the bolt of starter upper side and starter.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

16. REMOVE TRANSMISSION

- (a) Remove the 4 transmission mounting bolts from the engine.
Torque: 72 N·m (730 kgf·cm, 53 ft·lbf)

- (b) Pull out the transmission down and toward the rear.

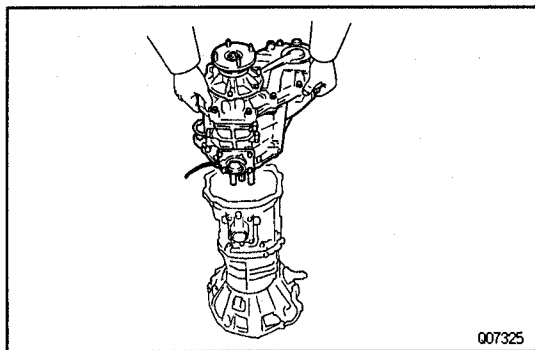
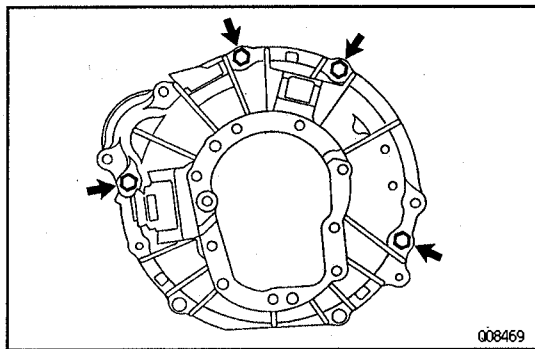
17. REMOVE TRANSFER FROM TRANSMISSION

- (a) Remove the transfer adaptor rear mounting bolts.
Torque: 24 N·m (240 kgf·cm, 17 ft·lbf)
- (b) Pull the transfer straight up and remove it from the transmission.

HINT: Take care not to damage the adaptor rear oil seal with the transfer input gear spline.

INSTALLATION HINT:

(See page TR—6)



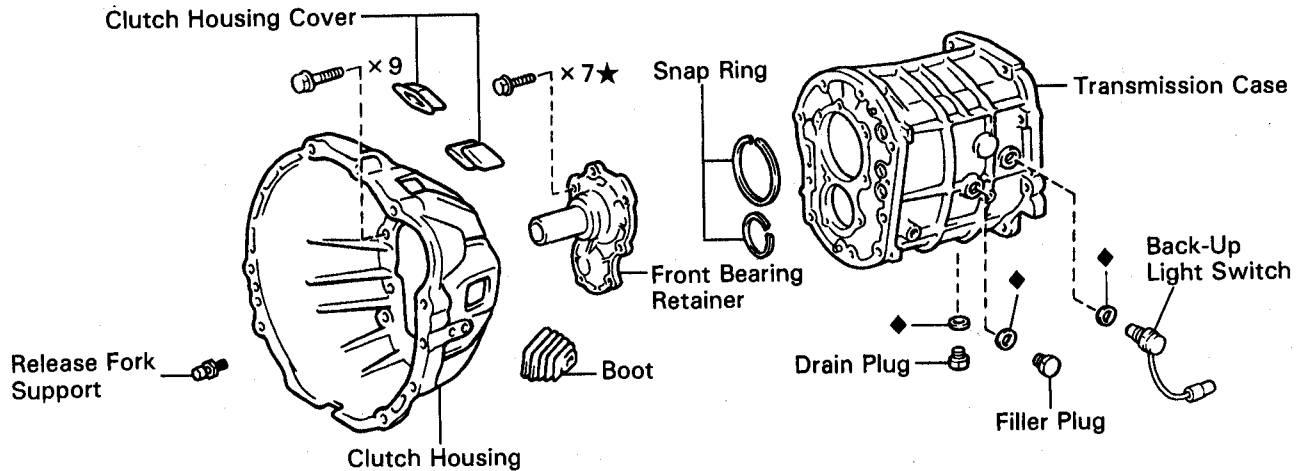
TRANSMISSION INSTALLATION

Installation is in the reverse order of removal.

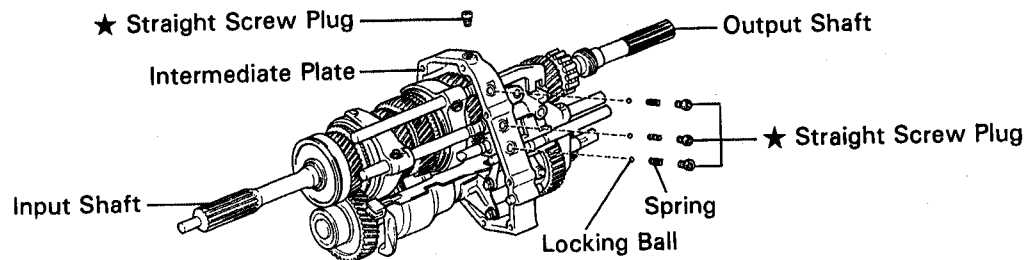
HINT: After installation, road test the vehicle.

COMPONENT PARTS REMOVAL COMPONENTS

MT000-06

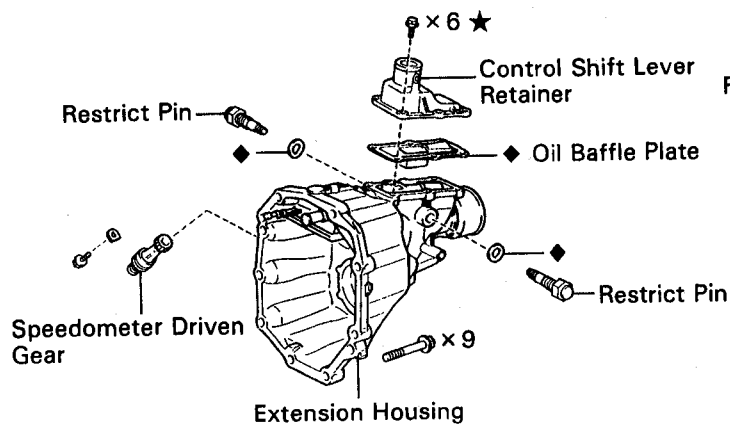


Q04904

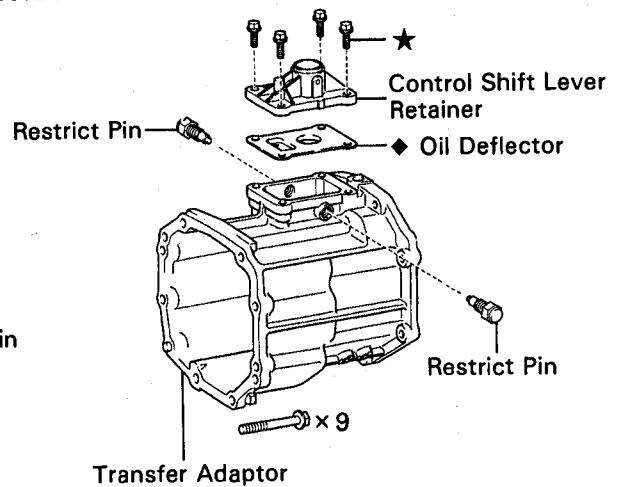


Q04012

2WD:



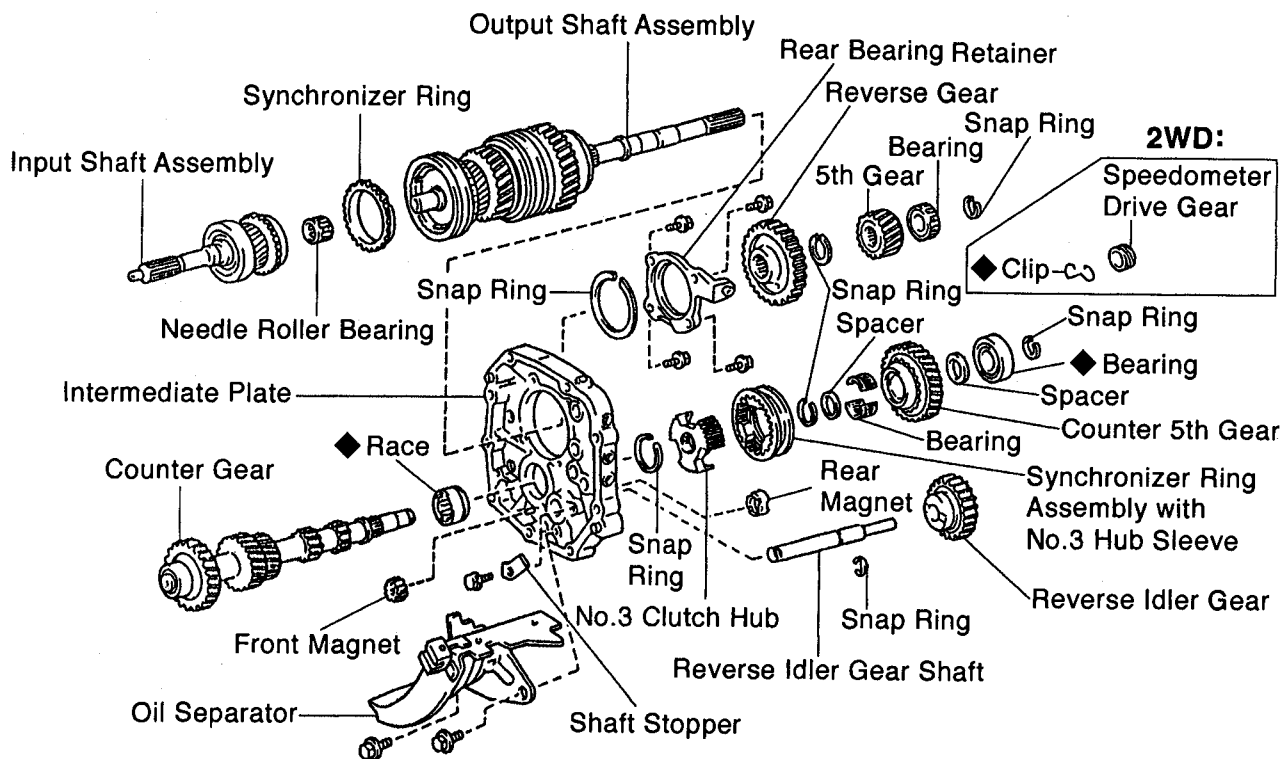
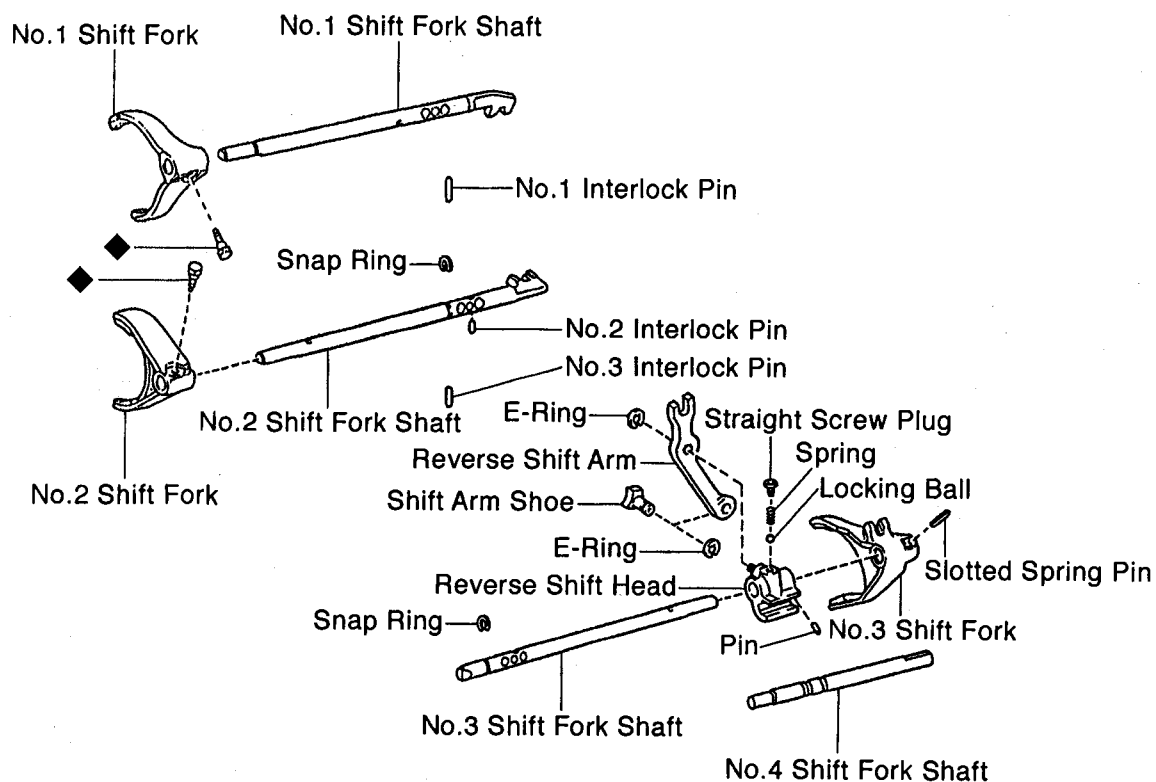
4WD:



Q07392

Q07257

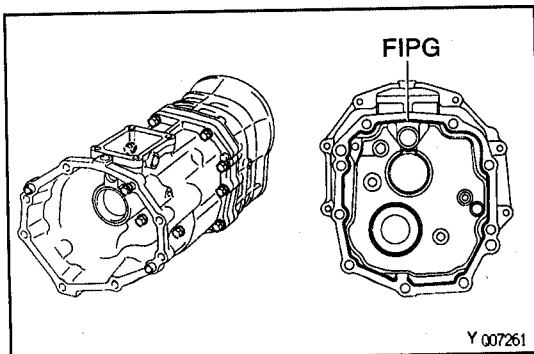
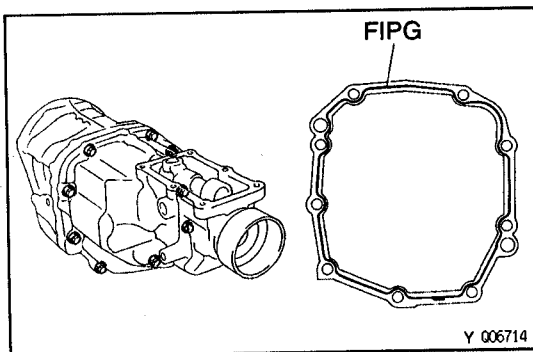
- ◆ Non-reusable part
- ★ Precoated part



◆ Non-reusable part

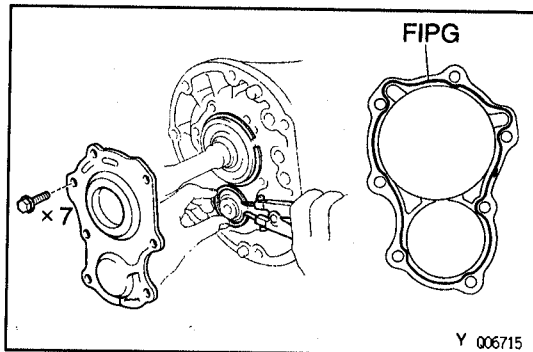
BASIC SUBASSEMBLY SEPARATION

1. **REMOVE BACK—UP LIGHT SWITCH**
Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)
2. **2WD:**
REMOVE SPEEDOMETER DRIVEN GEAR
Remove the lock plate set bolt and driven gear.
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)
3. **REMOVE CLUTCH HOUSING**
Remove the 9 bolts and clutch housing.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)
4. **REMOVE CONTROL SHIFT LEVER RETAINER**
 - (a) Remove the 6 (2WD) or 4 (4WD) bolts.
Sealant: Part No.08833 — 00080, THREE BOND 1344,
LOCTITE 242 or equivalent
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)
 - (b) Remove the retainer and oil baffle plate (2WD) or oil deflector (4WD).
5. **2WD:**
REMOVE 2 RESTRICT PINS AND GASKETS
INSTALLATION HINT: Install the black pin on the reverse gear/5th gear side.
Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)
6. **4WD:**
REMOVE 2 RESTRICT PINS
INSTALLATION HINT: Install the black pin on the reverse gear/5th gear side.
Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)
7. **2WD:**
REMOVE EXTENSION HOUSING
 - (a) Remove the shift lever housing set bolt.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
 - (b) Remove the 9 bolts from the extension housing.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)
 - (c) Using a plastic hammer, carefully tap the housing.
 - (d) Disengage the shift and select lever from the shift head.
 - (e) Pull out the extension housing.
FIPG: Part No.08826 — 00090, THREE BOND 1281 or equivalent
8. **4WD:**
REMOVE TRANSFER ADAPTOR
 - (a) Remove the shift lever housing set bolt.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
 - (b) Remove the 9 bolts from the transfer adaptor.
Torque: 37 N·m (380 kgf·cm, 27 ft·lbf)
 - (c) Using a plastic hammer, carefully tap the adaptor.
 - (d) Disengage the shift and select lever from the shift head.



- (e) Pull out the transfer adaptor.

FIPG: Part No.08826—00090, THREE BOND 1281 or equivalent



9. REMOVE FRONT BEARING RETAINER AND BEARING SNAP RING

- (a) Remove the 7 bolts.

Sealant: Part No.08833—00080, THREE BOND 1344, LOCTITE 242 or equivalent

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

- (b) Remove the front bearing retainer.

FIPG: Part No.08826—00090, THREE BOND 1281 or equivalent

- (c) Using a snap ring expander, remove the 2 snap rings.

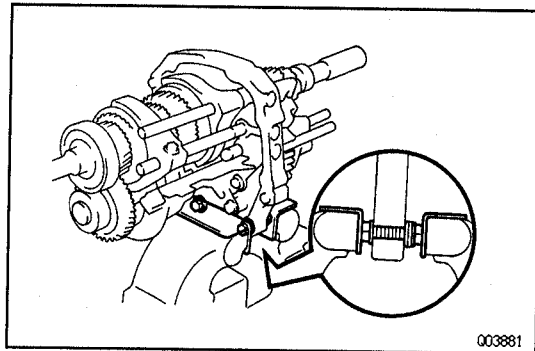
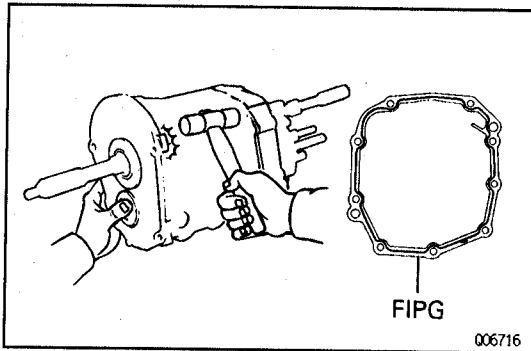
10. SEPARATE INTERMEDIATE PLATE FROM TRANSMISSION CASE

- (a) Using a plastic hammer, carefully tap the transmission case.

- (b) Pull the transmission case from the intermediate plate.

INSTALLATION HINT: Align each bearing outer race and each shift fork shaft end with the case holes.

FIPG: Part No.08826—00090, THREE BOND 1281 or equivalent



11. MOUNT INTERMEDIATE PLATE IN VISE

- (a) Use the 2 long clutch housing bolts, plate washers and suitable nuts, as shown.

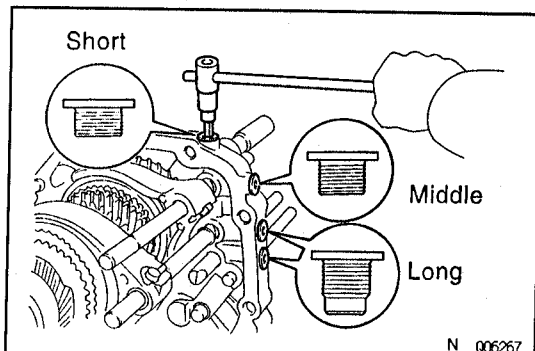
REMOVAL NOTICE: Increase or decrease plate washers so that the bolt tip does not protrude from the nut.

- (b) Mount the intermediate plate in a vise.

12. REMOVE OIL SEPARATOR

Remove the 2 bolts and oil separator.

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



13. REMOVE FRONT MAGNET

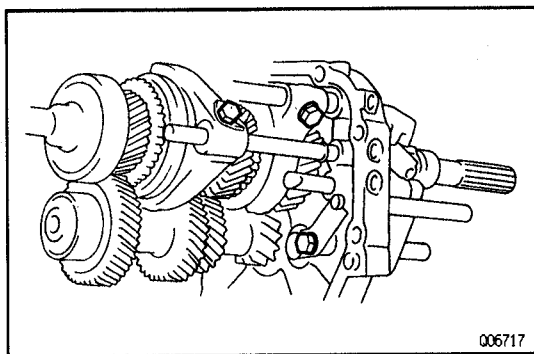
14. REMOVE LOCKING BALL AND SPRING

- (a) Using a hexagon wrench, remove the 4 straight screw plugs.

Sealant: Part No.08833—00080, THREE BOND 1344, LOCTITE 242 or equivalent

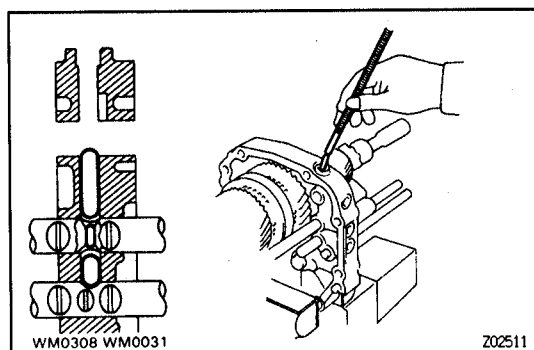
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

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

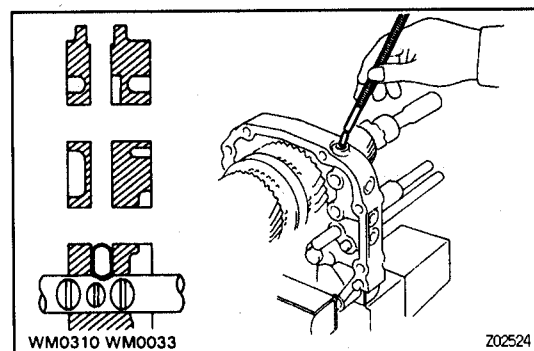


15. REMOVE SHIFT FORK, SHIFT FORK SHAFT AND REVERSE IDLER GEAR

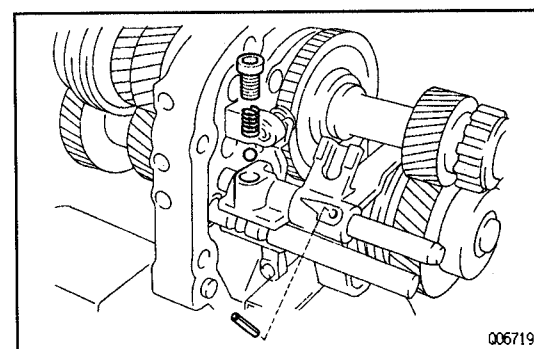
- (a) Remove the No.1 shift fork set bolt.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)
- (b) Remove the No.2 shift fork set bolt.
Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)
- (c) Remove the bolt and reverse idler gear shaft stopper.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)
- (d) Remove the reverse idler gear and shaft with the snap ring.



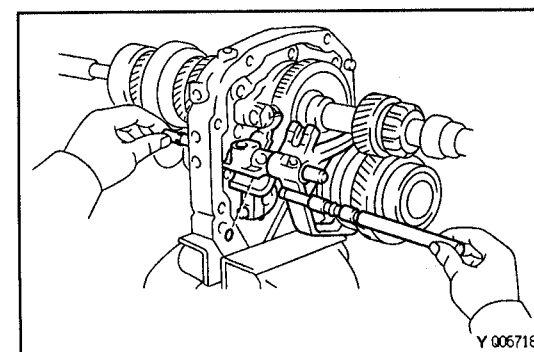
- (e) Remove the No.1 shift fork and shaft.
- (f) Using a magnetic finger, remove the No.1 and No.2 interlock pins.
INSTALLATION HINT: Apply MP grease to the No.1 and No.2 interlock pins.
- (g) Using 2 screwdrivers and a hammer, tap out the No. 2 shift fork shaft snap ring.
- (h) Remove the No. 2 shift fork and shaft.



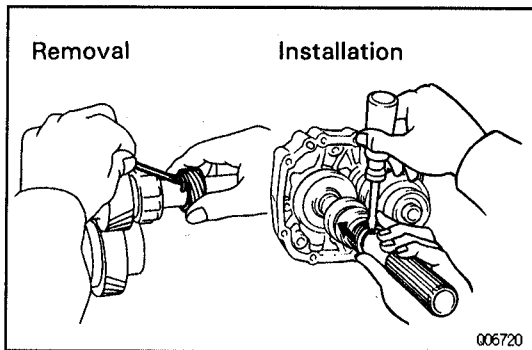
- (i) Using a magnetic finger, remove the No. 3 interlock pin.
INSTALLATION HINT: Apply MP grease to the No.3 interlock pin.



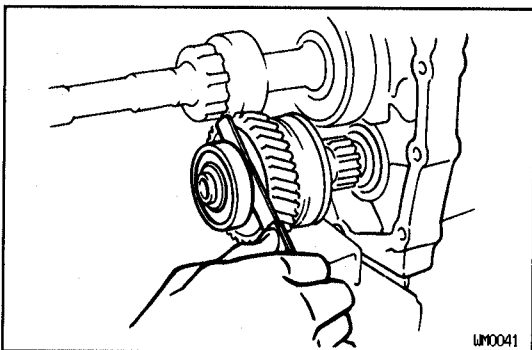
- (j) Using a pin punch and hammer, drive out the No. 3 shift fork pin.
- (k) Using a hexagon wrench, remove the plug.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)
- (l) Using a magnetic finger, remove the spring and ball.



- (m) Pull out the No.4 shift fork shaft.
- (n) Remove the interlock pin.
INSTALLATION HINT: Apply MP grease to the pin.
- (o) Remove the No.3 shift fork, fork shaft and reverse shift arm with the snap ring.
INSTALLATION HINT: Align the No.3 shift fork with the No.3 hub sleeve groove, put the reverse shift arm into the pivot of bearing retainer and align the reverse shift arm shoe with the reverse idler gear groove.

**16. 2WD:****REMOVE SPEEDOMETER DRIVE GEAR**

Using a screwdriver, pry out both ends of the clip and remove the drive gear.

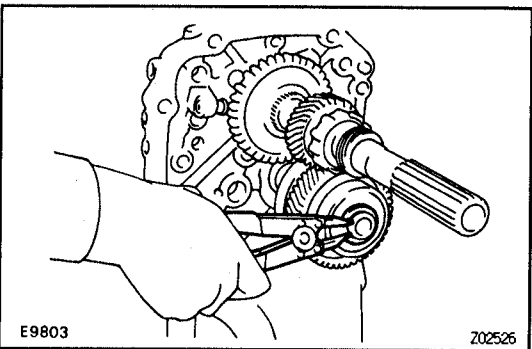
**17. INSPECT COUNTER 5TH GEAR THRUST CLEARANCE**

Using a feeler gauge, measure the counter 5th gear thrust clearance.

Standard clearance:

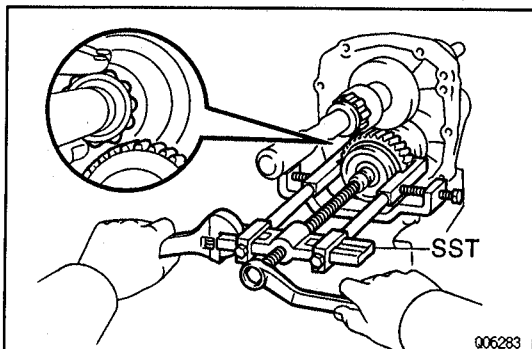
0.10–0.41 mm (0.0039–0.0161 in.)

Maximum clearance: 0.46 mm (0.0181 in.)

**18. REMOVE COUNTER REAR BEARING, SPACER, COUNTER 5TH GEAR AND NEEDLE ROLLER BEARING**

- (a) Using a snap ring expander, remove the snap ring.
INSTALLATION HINT: Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
1	1.90–1.95 (0.0748–0.0768)
2	1.96–2.01 (0.0772–0.0791)
3	2.02–2.07 (0.0795–0.0815)
4	2.08–2.13 (0.0819–0.0839)
5	2.14–2.19 (0.0843–0.0862)
6	2.20–2.25 (0.0866–0.0886)
7	2.26–2.31 (0.0890–0.0909)

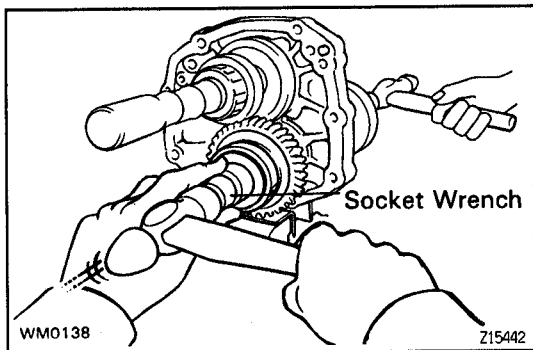


- (b) Using SST, remove the rear bearing, spacer, 5th gear and bearing.

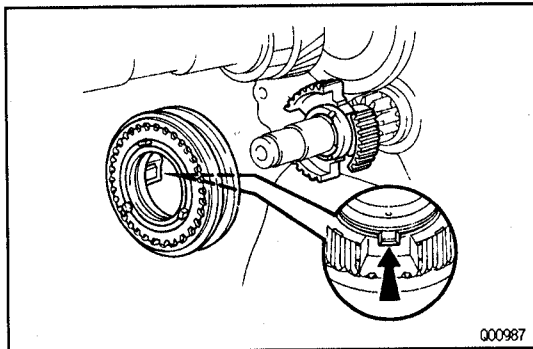
SST 09950–40010

REMOVAL NOTICE: Be careful not to catch the output shaft rear bearing roller on the counter 5th gear.

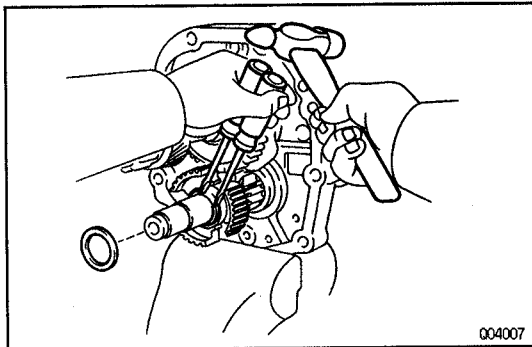
- (c) Remove the spacer.

**INSTALLATION HINT:**

- Install the counter 5th gear with the 5th gear gaps aligned with the synchronizer cone ring pin.
- Using a socket wrench and hammer, drive in the bearing.
- When driving in the bearing, support the counter shaft in front with 3–5 lb hammer or equivalent.

**19. REMOVE SYNCHRONIZER RING ASSEMBLY WITH NO.3 HUB SLEEVE AND NO.3 CLUTCH HUB**

- (a) Remove the synchronizer ring assembly with the No.3 hub sleeve from the No.3 clutch hub.

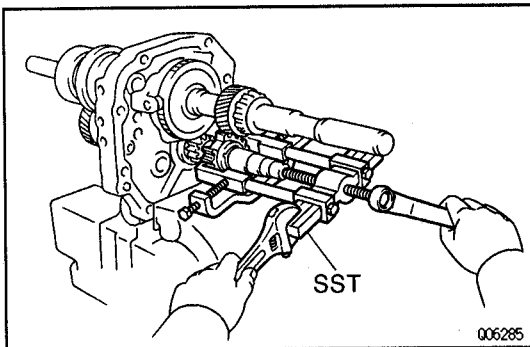


- (b) Remove the spacer.

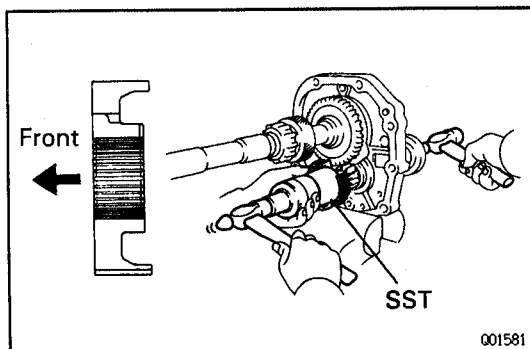
- (c) Using 2 screwdrivers and a hammer, tap out the snap ring.

INSTALLATION HINT: Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
2	2.06–2.11 (0.0811–0.0831)
3	2.12–2.17 (0.0835–0.0854)
4	2.18–2.23 (0.0858–0.0878)
5	2.24–2.29 (0.0882–0.0902)



- (d) Using SST, remove the No.3 clutch hub.
SST 09950–40010

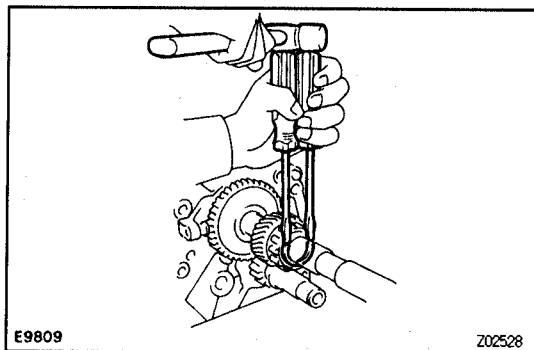


INSTALLATION HINT: Using SST and a hammer, drive in the No.3 clutch hub.

SST 09316–60011 (09316–00011, 09316–00071)

- When installing the No.3 clutch hub, support the counter shaft in front with a 3–5 lb hammer or equivalent.

20. REMOVE REAR MAGNET

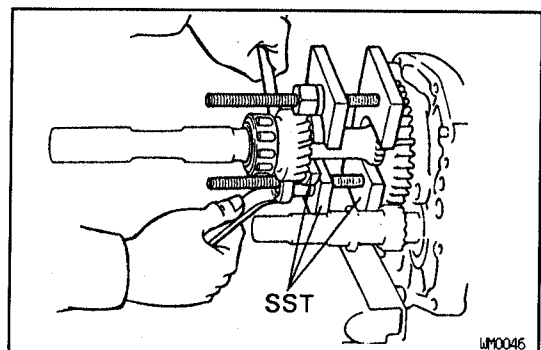


21. REMOVE OUTPUT SHAFT REAR BEARING AND 5TH GEAR

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

INSTALLATION HINT: Select a snap ring that will allow minimum axial play.

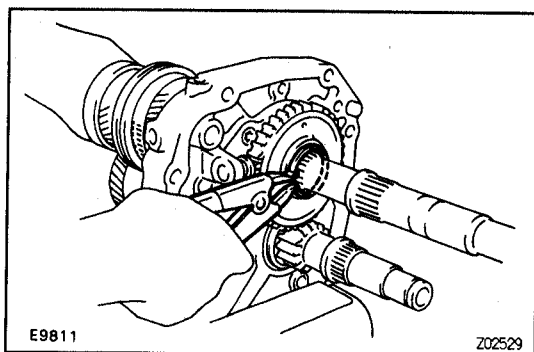
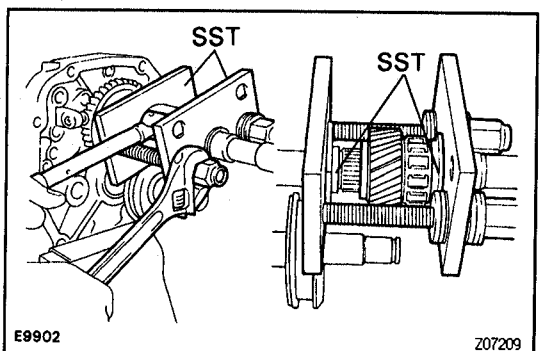
Mark	Thickness mm (in.)
8	2.31–2.36 (0.0909–0.0929)
9	2.37–2.42 (0.0933–0.0953)
10	2.43–2.48 (0.0957–0.0976)
11	2.49–2.54 (0.0980–0.1000)
12	2.55–2.60 (0.1004–0.1024)
13	2.61–2.66 (0.1028–0.1047)
14	2.68–2.73 (0.1055–0.1075)
15	2.74–2.79 (0.1079–0.1098)



- (b) Using SST, remove the rear bearing and 5th gear.
SST 09312–20011 (09313–00030, 09313–00040, 09313–00050)

INSTALLATION HINT: Using SST, install the 5th gear and rear bearing.

SST 09312–20011 (09313–00010, 09313–00030, 09313–00040, 09313–00050)

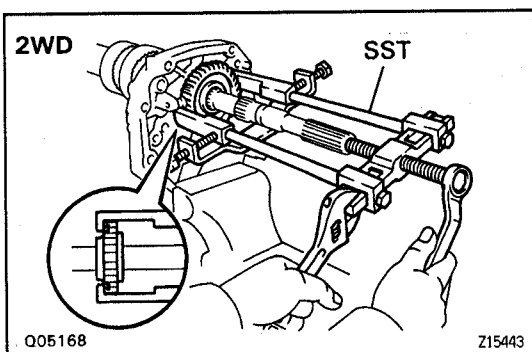


22. REMOVE REVERSE GEAR

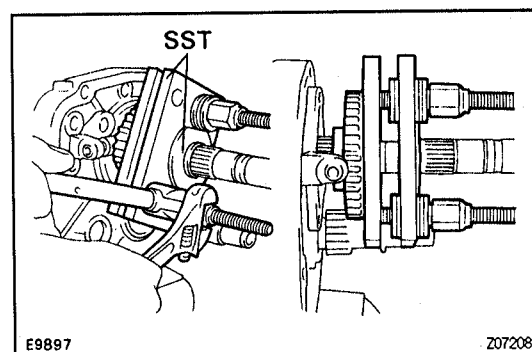
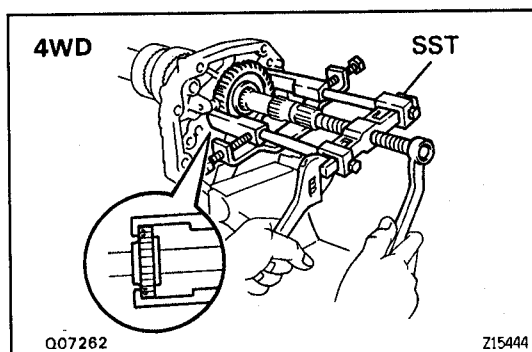
- (a) Using a snap ring expander, remove the snap ring.

INSTALLATION HINT: Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
5	2.25–2.30 (0.0886–0.0906)
11	2.30–2.35 (0.0906–0.0925)
12	2.35–2.40 (0.0925–0.0945)
13	2.40–2.45 (0.0945–0.0965)
14	2.45–2.50 (0.0965–0.0984)
15	2.50–2.55 (0.0984–0.1004)
16	2.55–2.60 (0.1004–0.1024)
17	2.61–2.66 (0.1028–0.1047)
18	2.67–2.72 (0.1051–0.1071)
19	2.73–2.78 (0.1075–0.1094)
20	2.79–2.84 (0.1098–0.1118)
21	2.85–2.90 (0.1122–0.1142)
22	2.91–2.96 (0.1146–0.1165)
23	2.97–3.02 (0.1169–0.1189)



- (b) Using SST, remove the reverse gear.
SST 09950-40010



INSTALLATION HINT: Using SST, install the reverse gear.

SST 09312-20011 (09313-00030, 09313-00040, 09313-00050)

23. REMOVE REAR BEARING RETAINER

- (a) Using a torx socket wrench, unscrew the 4 torx screws and remove the rear bearing retainer.
Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)
(Torx socket wrench T40 09042-00020)

- (b) Using a snap ring expander, remove the 2 snap rings.
INSTALLATION HINT: Be sure the snap ring is flush with the intermediate plate surface.

24. REMOVE OUTPUT SHAFT AND COUNTER GEAR FROM INTERMEDIATE PLATE

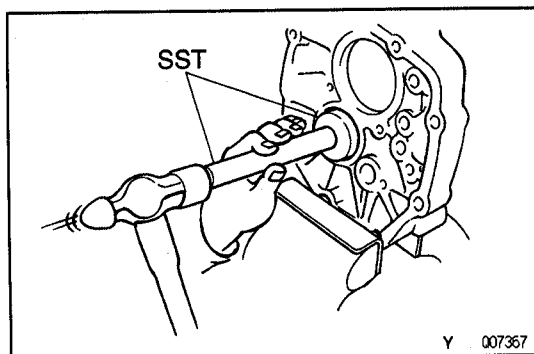
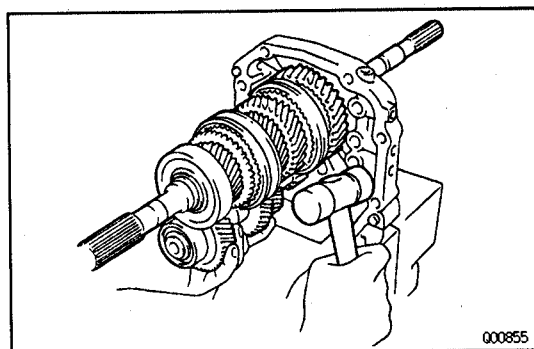
- (a) Remove the output shaft, input shaft and counter gear as a unit from the intermediate plate by pulling on the counter gear and tapping on the intermediate plate with a plastic hammer.
- (b) Remove the input shaft from the output shaft.

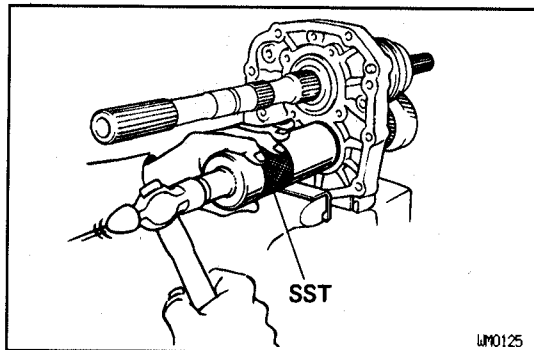
INSTALLATION HINT:

- Before installing the output shaft, use SST to remove the counter gear center bearing outer race.

SST 09950-60010 (09951-00510),
09950-70010 (09951-07150)

- Install the outer race after installing the counter gear.
- Install the output shaft into the intermediate plate by pulling on the output shaft and tapping on the intermediate plate.

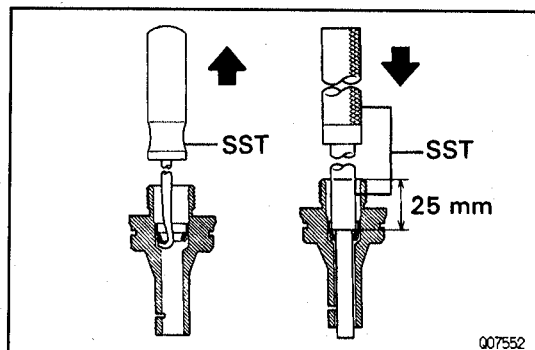


**INSTALLATION HINT:**

- Apply gear oil to the needle roller bearing.
- Install the needle roller bearing to the input shaft.
- Install the input shaft and counter gear together.
- Using SST and a hammer, install a new counter gear center bearing outer race.

SST 09316-60011 (09316-00011)

- Be careful not to damage the bearing rollers.

**25. 2WD:****IF NECESSARY, REPLACE SPEEDOMETER DRIVEN GEAR OIL SEAL**

- Using SST, remove the oil seal.
SST 09921-00010
- Coat the lip of oil seal with MP grease.
- Using SST, drive in a new oil seal.

SST 09201-10000 (09201-01080),
09950-70010 (09951-07150)

Drive in depth: 25 mm (0.98 in.)

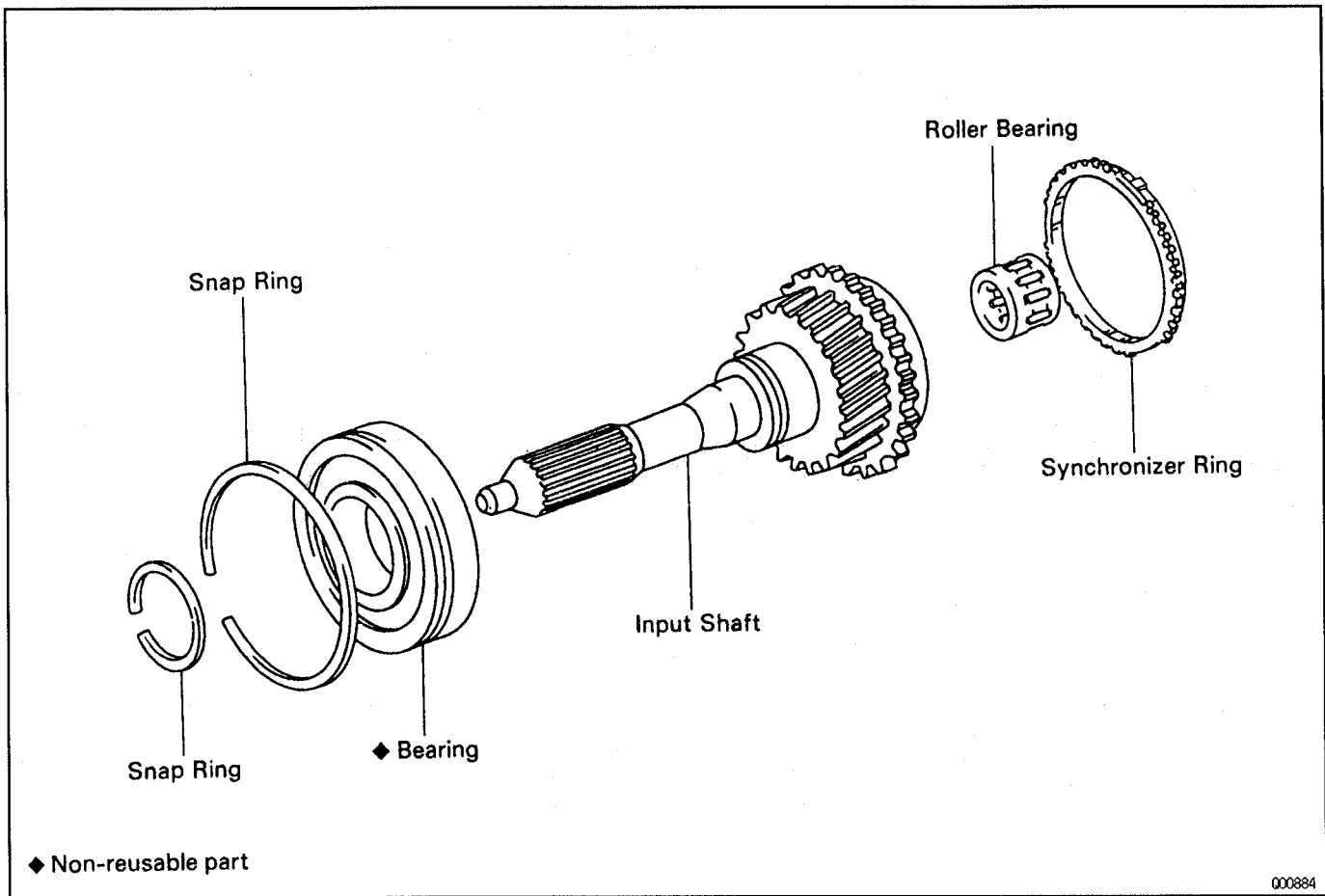
BASIC SUBASSEMBLY REASSEMBLY

MT00K-01

Assembly is in the reverse order of separation.**HINT:** Coat all of the sliding and rotating surfaces with gear oil before assembly.

INPUT SHAFT COMPONENTS

MT00F-06



000884

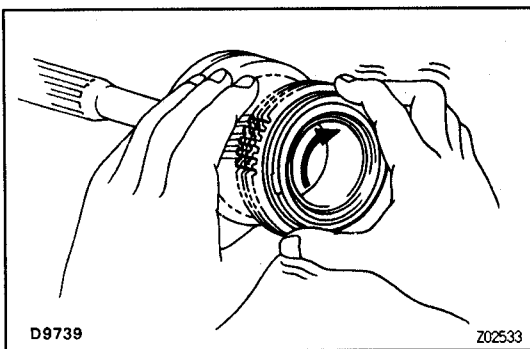
MT

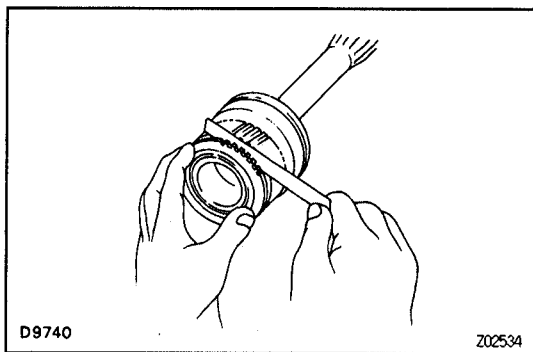
MT00G-0F

INPUT SHAFT INSPECTION

INSPECT SYNCHRONIZER RING

- (a) Check for wear or damage.
- (b) Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks. If the braking effect is insufficient, apply a small amount of fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.
NOTICE: Ensure the fine lapping compound is completely washed off after rubbing.
- (c) Check again the braking effect of the synchronizer ring.



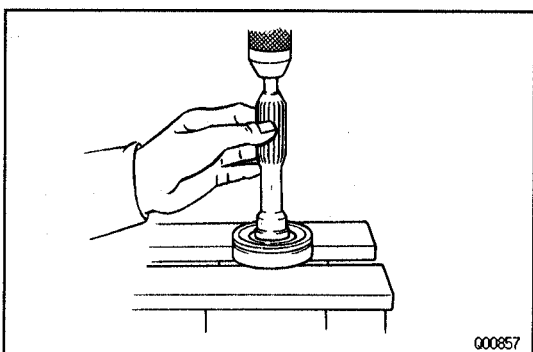


- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance: 0.5 mm (0.020 in.)

If the clearance is less than the minimum, replace the synchronizer ring and gear cone by applying a small amount of fine lapping compound.

NOTICE: Ensure the fine lapping compound is completely washed off after rubbing.

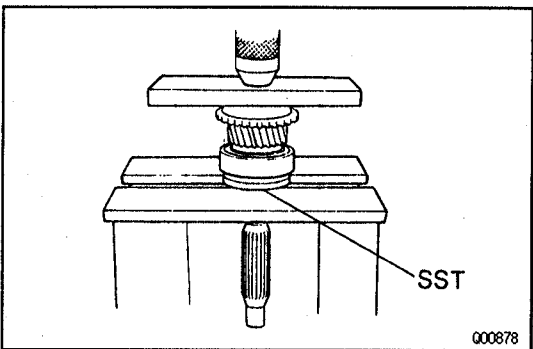


BEARING REPLACEMENT

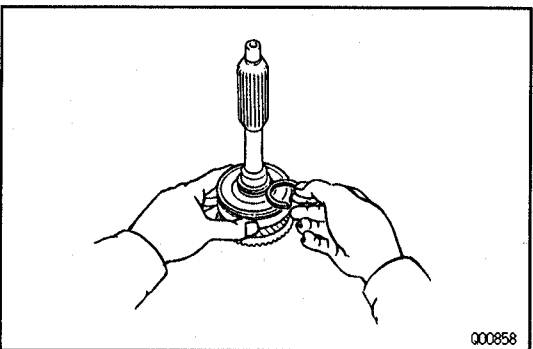
MT0AZ-03

IF NECESSARY, REPLACE INPUT SHAFT BEARING

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



- (c) Using SST and a press, install a new bearing.
SST 09506-35010



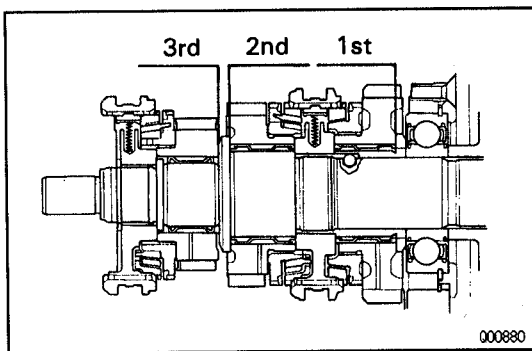
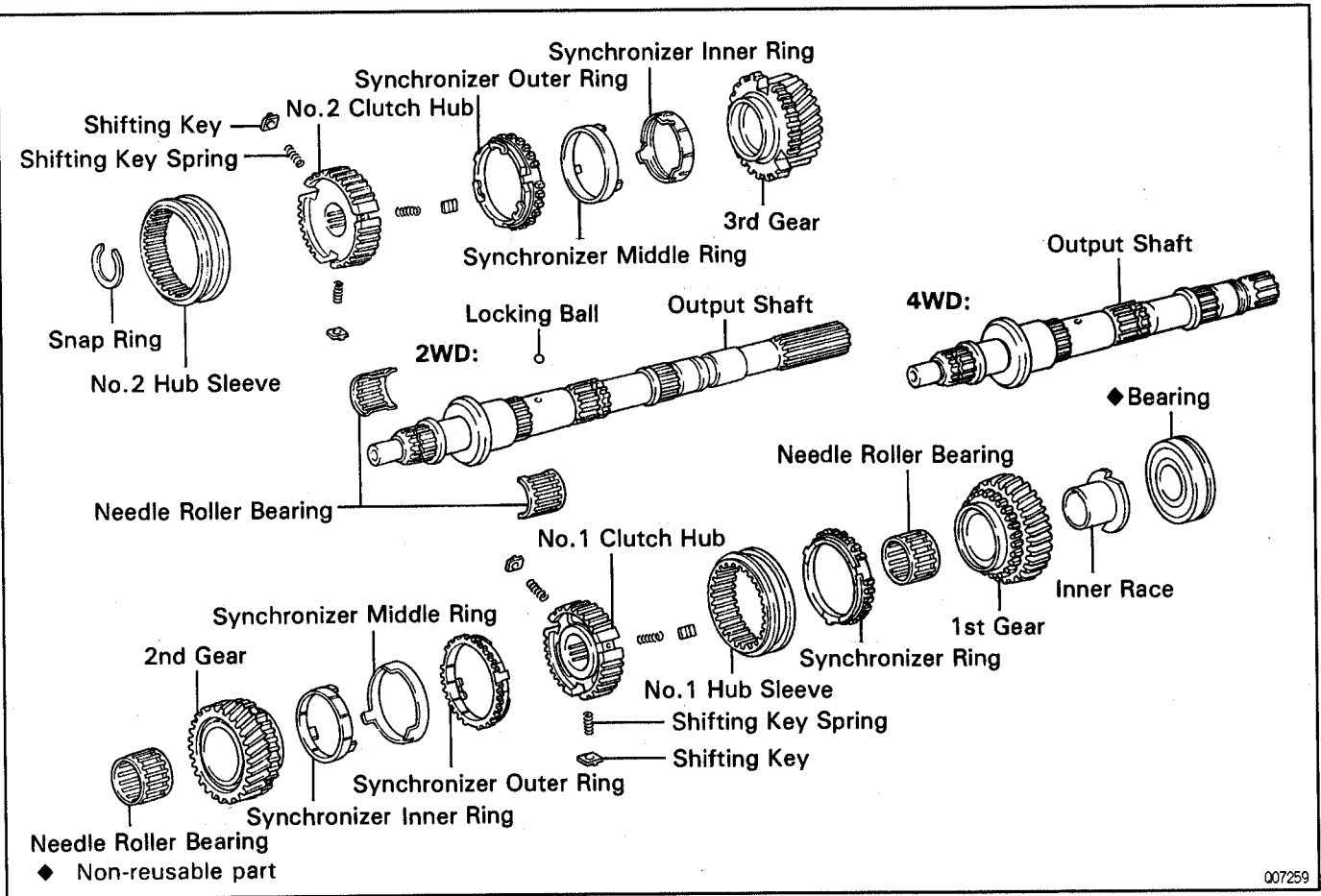
- (d) Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
1	2.05 – 2.10 (0.0807 – 0.0827)
2	2.10 – 2.15 (0.0827 – 0.0846)
3	2.15 – 2.20 (0.0846 – 0.0866)
4	2.20 – 2.25 (0.0866 – 0.0886)
5	2.25 – 2.30 (0.0886 – 0.0906)
11	2.30 – 2.35 (0.0906 – 0.0925)
12	2.35 – 2.40 (0.0925 – 0.0945)

- (e) Using a snap ring expander, install the snap ring.

OUTPUT SHAFT COMPONENTS

MT00J-06



OUTPUT SHAFT DISASSEMBLY

MT080-04

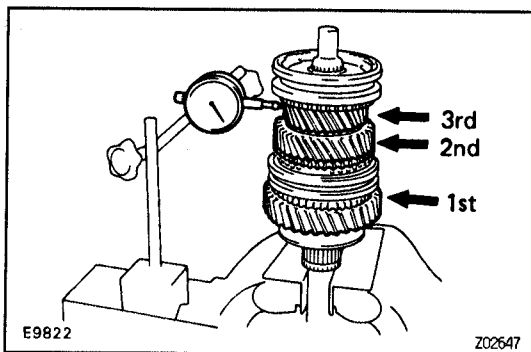
1. INSPECT EACH GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance of each gear.

Standard clearance:

0.10—0.25 mm (0.0039—0.0098 in.)

Maximum clearance: 0.30 mm (0.0118 in.)



2. INSPECT EACH GEAR RADIAL CLEARANCE

Using a dial indicator, measure the radial clearance of each gear.

Standard clearance:

1st and 2nd gear:

0.009–0.060 mm (0.0004–0.0024 in.)

3rd gear:

0.015–0.066 mm (0.0006–0.0026 in.)

Maximum clearance:

1st and 2nd gear: 0.150 mm (0.0059 in.)

3rd gear: 0.200 mm (0.0079 in.)

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

3. REMOVE OUTPUT SHAFT CENTER BEARING AND 1ST GEAR ASSEMBLY

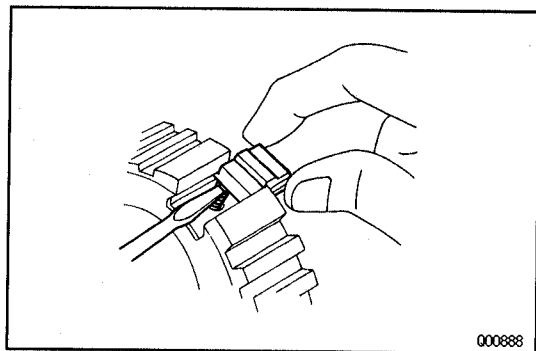
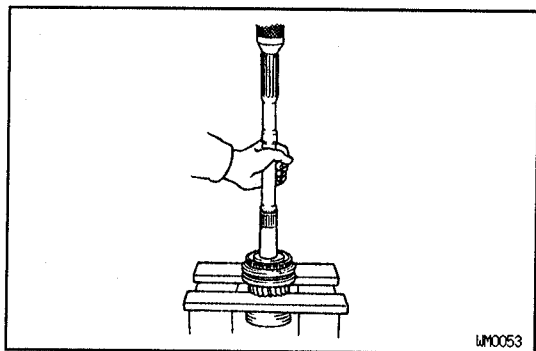
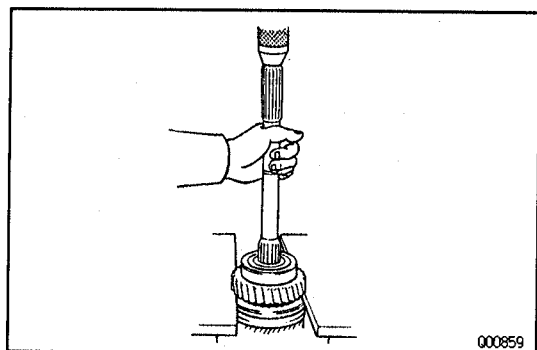
- (a) Shift the No.1 hub sleeve onto the 2nd gear.
- (b) Using a press, remove the center bearing, 1st gear, needle roller bearing, inner race and synchronizer ring.

4. REMOVE LOCKING BALL ON OUTPUT SHAFT

Using a magnetic finger, remove the locking ball.

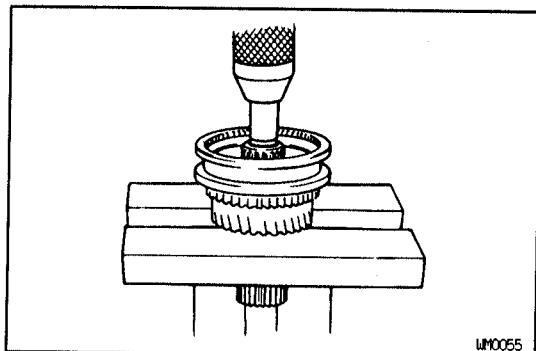
5. REMOVE NO. 1 HUB SLEEVE ASSEMBLY, 2 ND GEAR AND NEEDLE ROLLER BEARING

Using a press, remove the parts from the shaft as an assembly.



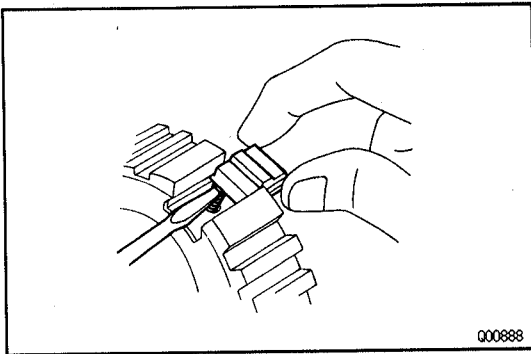
6. REMOVE NO.1 HUB SLEEVE, SHIFTING KEY AND SPRING FROM NO. 1 CLUTCH HUB

- (a) Remove the No.1 hub sleeve from the No.1 clutch hub.
- (b) Push the shifting key spring with a screwdriver, remove the 3 shifting keys and key springs.

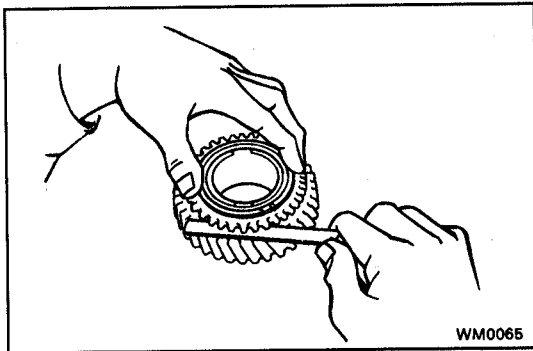
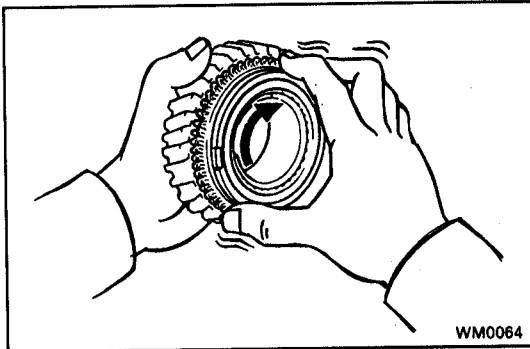


7. REMOVE NO.2 HUB SLEEVE ASSEMBLY AND 3RD GEAR

- (a) Using a snap ring expander, remove the snap ring.
- (b) Using a press, remove the No. 2 hub sleeve, synchronizer ring and 3rd gear.



- 8. REMOVE NO.2 HUB SLEEVE, SHIFTING KEY AND SPRING FROM NO.2 CLUTCH HUB**
- Remove the No.2 hub sleeve from the No.2 clutch hub.
 - Push the shifting key spring with a screwdriver, remove the 3 shifting keys and key springs.



OUTPUT SHAFT COMPONENT PARTS INSPECTION

1. INSPECT 1ST GEAR SYNCHRONIZER RING

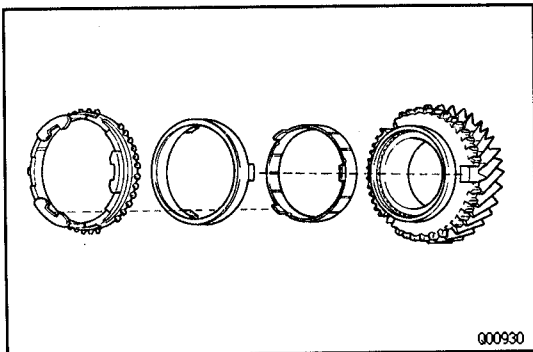
- Check for wear or damage.
- Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks. If the braking effect is insufficient, apply a small amount of fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.

NOTICE: Ensure the fine lapping compound is completely washed off after rubbing.

- Check again the braking effect of the synchronizer ring.
- Using a feeler gauge, measure the clearance between the synchronizer ring back and gear spline end. **Minimum clearance: 0.5 mm (0.020 in.)**

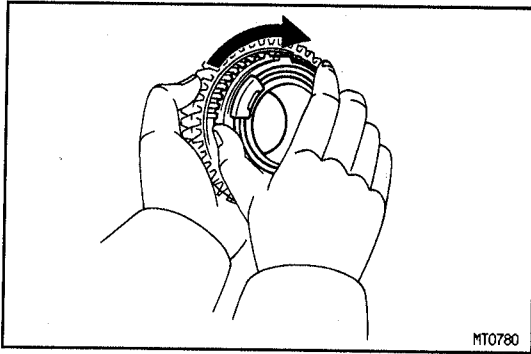
If the clearance is less than the minimum, replace the synchronizer ring and gear cone by applying a small amount of fine lapping compound.

NOTICE: Ensure the fine lapping compound is completely washed off after rubbing.



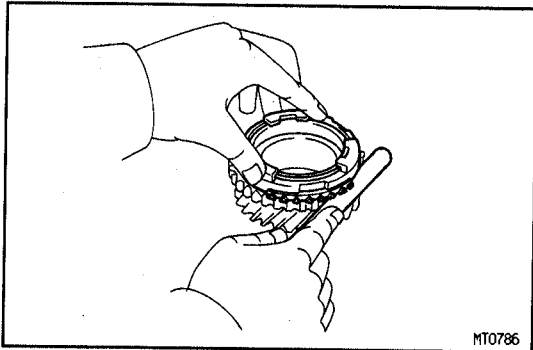
2. INSPECT 2ND AND 3RD GEAR SYNCHRONIZER RINGS

- Check for wear or damage.
- Install the synchronizer inner ring, middle ring and outer ring to each gear.



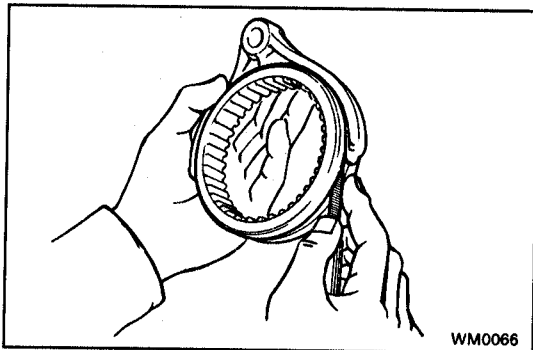
MT0780

- (c) Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks. If it does not lock, replace the synchronizer ring.



MT0786

- (d) Using a feeler gauge, measure the clearance between the synchronizer ring back and the gear spline end. **Minimum clearance: 0.7 mm (0.028 in.)** If the clearance is less than the minimum, replace the synchronizer ring.



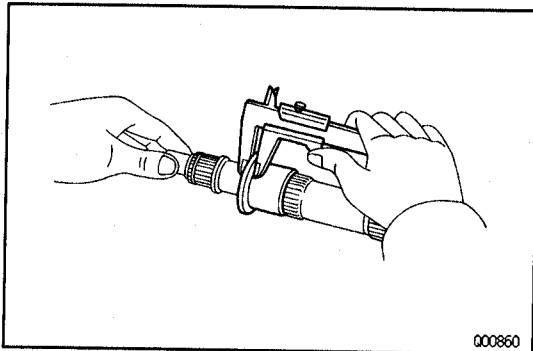
WM0066

3. INSPECT SHIFT FORK AND HUB SLEEVES CLEARANCE

Using a feeler gauge, measure the clearance between the hub sleeves and shift forks.

Maximum clearance: 1.0 mm (0.039 in.)

If the clearance exceeds the maximum, replace the shift fork or hub sleeve.



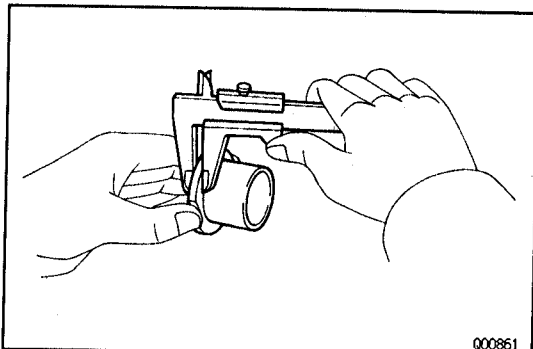
000860

4. INSPECT OUTPUT SHAFT AND INNER RACE

- (a) Using vernier calipers, measure the output shaft flange thickness.

Minimum thickness: 5.60 mm (0.2205 in.)

If the thickness is less than the minimum, replace the output shaft.



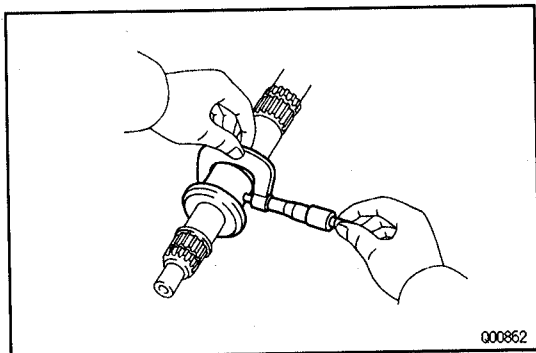
000861

- (b) Using vernier calipers, measure the inner race flange thickness.

Minimum thickness: 4.78 mm (0.1881 in.)

If the thickness is less than the minimum, replace the inner race.

W59 MANUAL TRANSMISSION — OUTPUT SHAFT



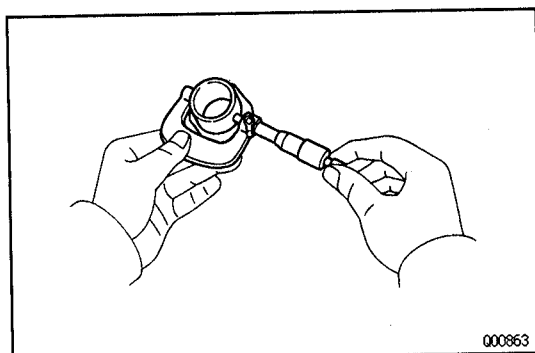
- (c) Using a micrometer, measure the outer diameter of the output shaft journal.

Minimum diameter:

2nd gear: 42.975 mm (1.6919 in.)

3rd gear: 31.969 mm (1.2586 in.)

If the outer diameter is less than the minimum, replace the output shaft.

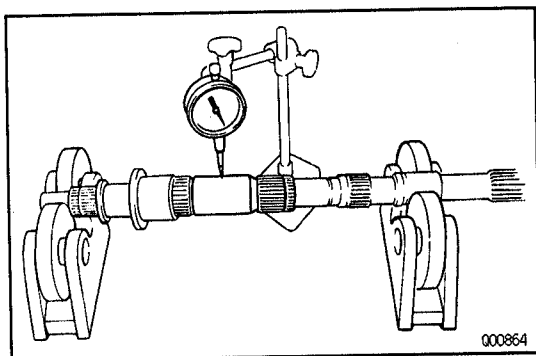


- (d) Using a micrometer, measure the outer diameter of the inner race.

Minimum diameter: 42.975 mm (1.6919 in.)

If the outer diameter is less than the minimum, replace the inner race.

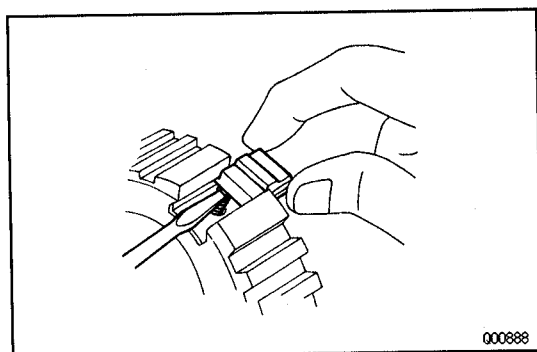
MT



- (e) Using a dial indicator, check the shaft runout.

Maximum runout: 0.06 mm (0.0024 in.)

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



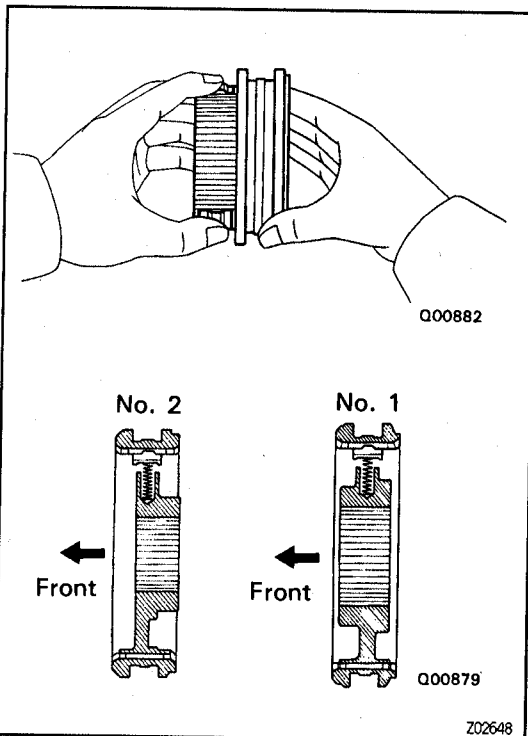
OUTPUT SHAFT ASSEMBLY

MT081-04

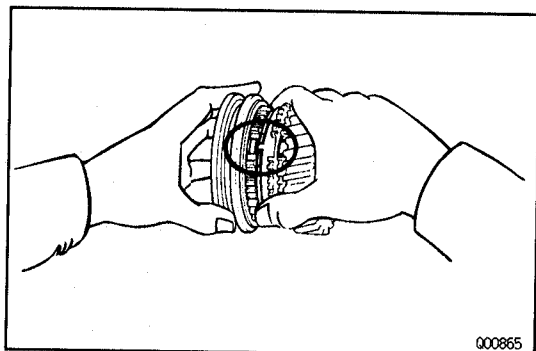
HINT: Coat all of the sliding and rotating surfaces with gear oil before assembly.

1. INSTALL NO.1 AND NO.2 CLUTCH HUBS INTO HUB SLEEVE

- (a) Install the 3 shifting key springs to the clutch hub.
- (b) While pushing the shifting key spring with a screwdriver, install the 3 shifting keys.

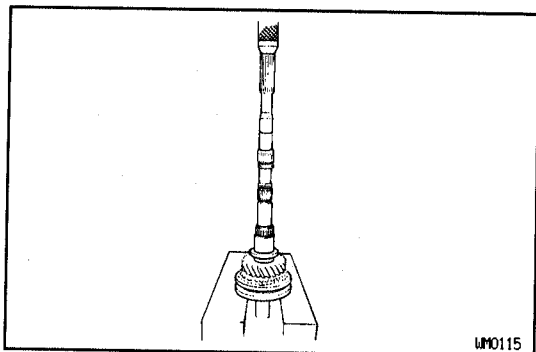


- (c) While pushing the 3 shifting keys, install the clutch hub to the hub sleeve, as shown.



2. INSTALL 3RD GEAR AND NO.2 CLUTCH HUB ON OUTPUT SHAFT

- (a) Apply gear oil to the shaft.
(b) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.

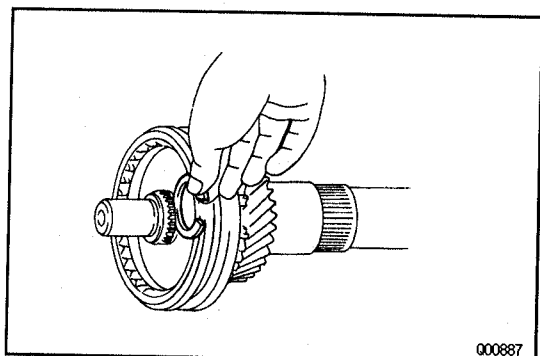


- (c) Using a press, install the 3rd gear and No.2 clutch hub.

3. INSTALL SNAP RING

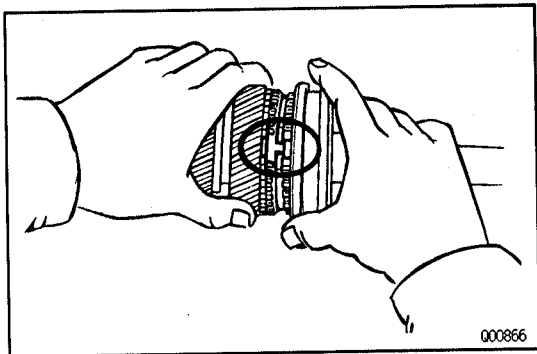
- (a) Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
C-1	1.75-1.80 (0.0689-0.0709)
D	1.80-1.85 (0.0709-0.0728)
11	1.86-1.91 (0.0732-0.0752)
12	1.92-1.97 (0.0756-0.0776)
13	1.98-2.03 (0.0780-0.0799)
14	2.04-2.09 (0.0803-0.0823)
15	2.10-2.15 (0.0827-0.0846)

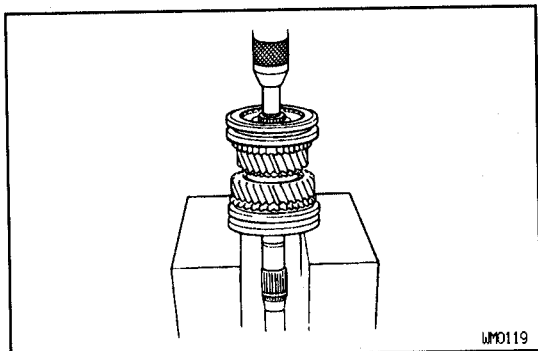


- (b) Using a snap ring expander, install the snap ring.

4. INSPECT 3RD GEAR THRUST CLEARANCE (See page MT-23)

**5. INSTALL 2ND GEAR AND NO.1 CLUTCH HUB**

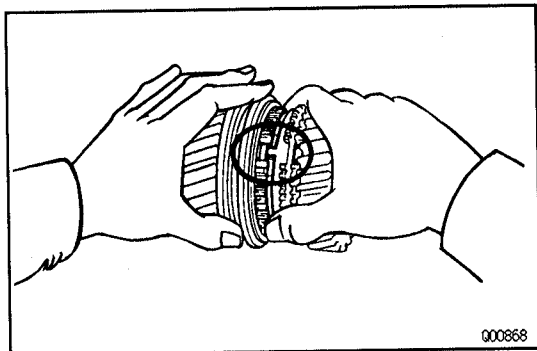
- (a) Apply gear oil to the shaft and needle roller bearing.
- (b) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.
- (c) Install the needle roller bearing in the 2nd gear.



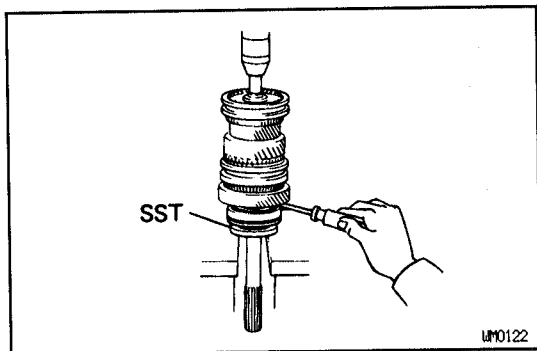
- (d) Using a press, install the 2nd gear and No.1 clutch hub.

6. INSPECT 2ND GEAR THRUST CLEARANCE

(See page MT-23)

**7. INSTALL LOCKING BALL AND 1ST GEAR ASSEMBLY**

- (a) Install the locking ball in the shaft.
- (b) Apply gear oil to the bearing.
- (c) Assemble the 1st gear, synchronizer ring, needle roller bearing and bearing inner race.
- (d) Install the assembly on the output shaft with the synchronizer ring slots aligned with the shifting keys and turn the inner race to align it with the locking ball.

**8. INSTALL OUTPUT SHAFT CENTER BEARING**

Using SST and a press, install the bearing on the output shaft with the outer race snap ring groove toward the rear.

HINT: Hold the 1st gear inner race to prevent it from falling.

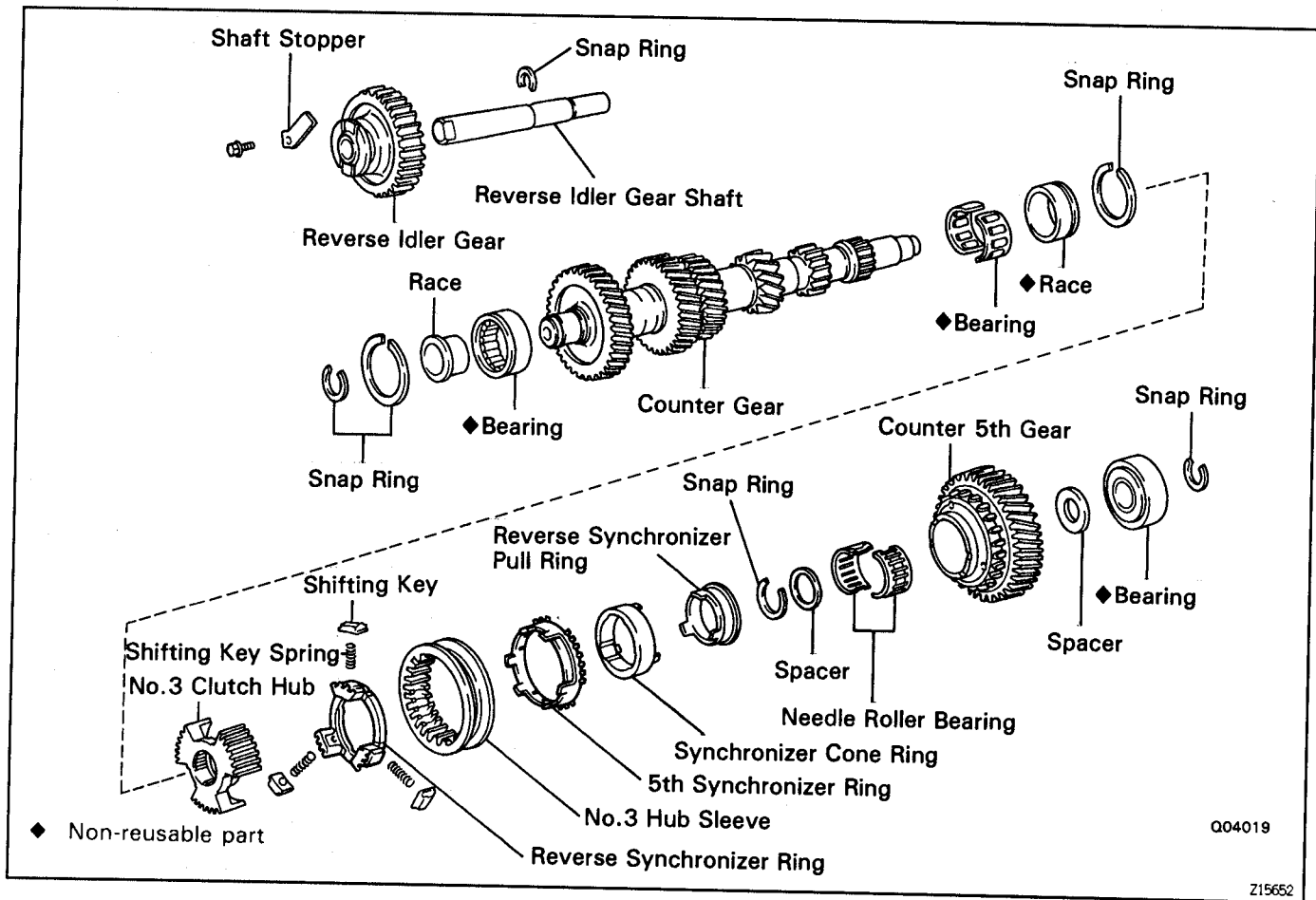
SST 09506-35010

9. INSPECT 1ST GEAR THRUST CLEARANCE

(See page MT-23)

COUNTER GEAR AND REVERSE IDLER GEAR COMPONENTS

MT00N-0C

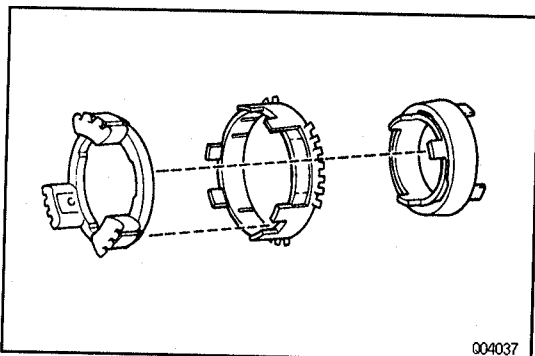
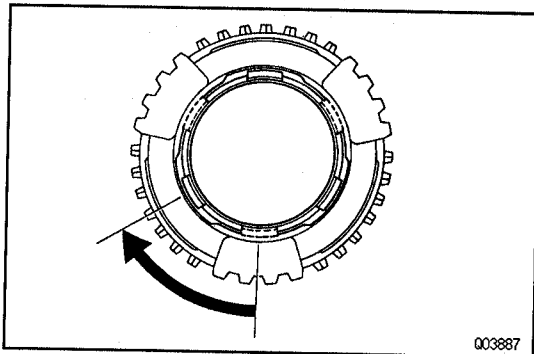


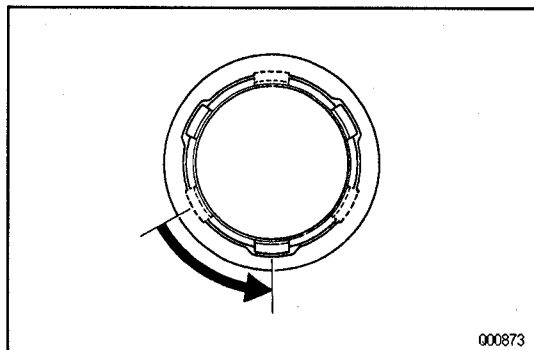
COUNTER GEAR COMPONENT PARTS DISASSEMBLY

MT082-04

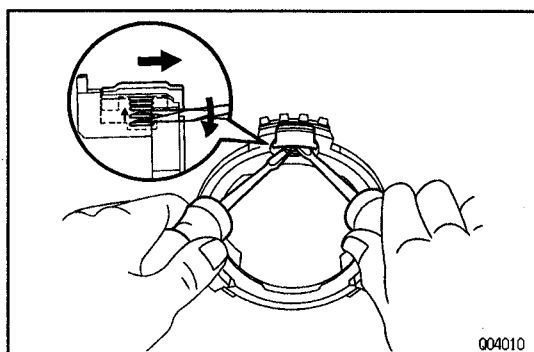
REMOVE NO.3 HUB SLEEVE, SHIFTING KEY AND SPRING FROM SYNCHRONIZER RING

- Remove the synchronizer ring assembly from the No.3 hub sleeve.
- Turn the reverse synchronizer pull ring.
- Remove the reverse synchronizer ring and 5th synchronizer ring from the synchronizer pull ring and cone ring.

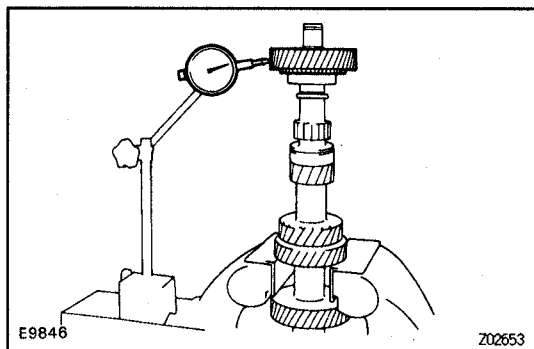




- (d) Turn the reverse synchronizer pull ring and separate the pull ring and cone ring.



- (e) Remove the 3 shifting keys and key springs by carefully levering up the shifting key spring with one screwdriver and levering the shifting key away from the reverse synchronizer ring with another screwdriver.



COUNTER GEAR AND REVERSE IDLER GEAR COMPONENT PARTS INSPECTION

1. INSPECT COUNTER 5TH GEAR RADIAL CLEARANCE

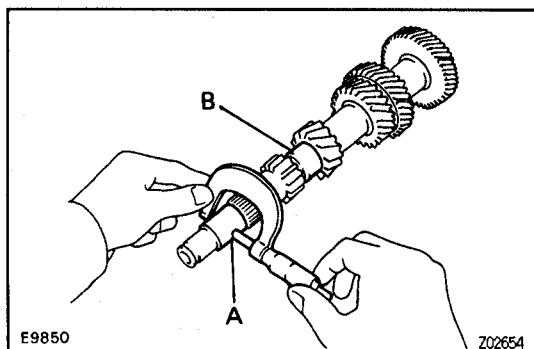
- Install the spacer, counter 5th gear and needle roller bearing to the counter gear.
- Using a dial indicator, measure the counter 5th gear radial clearance.

Standard clearance:

0.009—0.060 mm (0.0004—0.0024 in.)

Maximum clearance: 0.150 mm (0.0059 in.)

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



2. INSPECT COUNTER GEAR

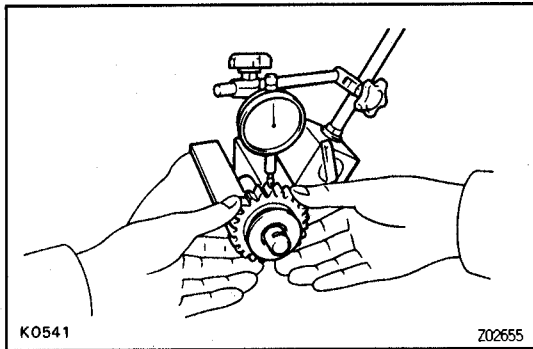
Using a micrometer, measure the outer diameter of the counter shaft journal.

Minimum diameter:

Part A: 26.975 mm (1.0620 in.)

Part B: 29.950 mm (1.1791 in.)

If the outer race is less than the minimum, replace the counter gear.



3. INSPECT REVERSE IDLER GEAR RADIAL CLEARANCE

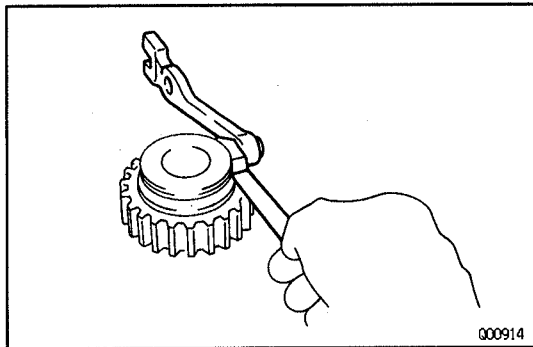
Using a dial indicator, measure the reverse idler gear radial clearance.

Standard clearance:

0.041–0.074 mm (0.0016–0.0029 in.)

Maximum clearance: 0.194 mm (0.0076 in.)

If the clearance exceeds the maximum, replace the gear or shaft.



4. INSPECT REVERSE IDLER GEAR AND SHIFT ARM SHOE CLEARANCE

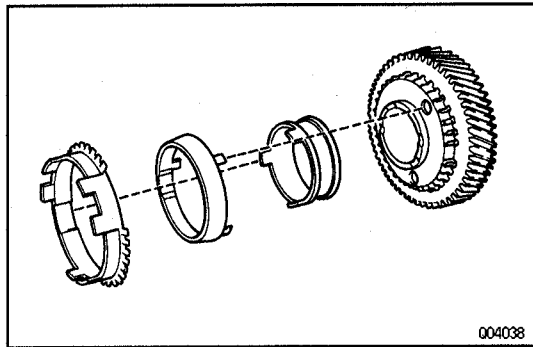
Using a feeler gauge, measure the clearance between the reverse idler gear and shift arm shoe.

Standard clearance:

0.20–0.41 mm (0.0079–0.0161 in.)

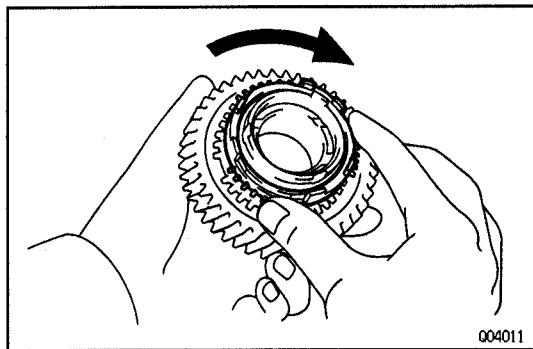
Maximum clearance: 0.90 mm (0.0354 in.)

If the clearance exceeds the maximum, replace the shift arm shoe or reverse idler gear.

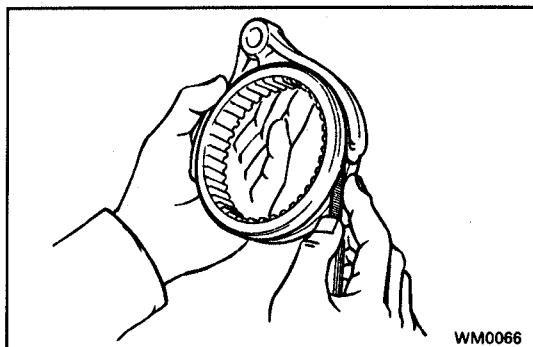


5. INSPECT 5TH GEAR SYNCHRONIZER RING

- Check for wear or damage.
- Install the synchronizer pull ring, cone ring and outer ring to the 5th gear.



- Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone. Check that the ring locks. If it does not lock, replace the synchronizer ring.



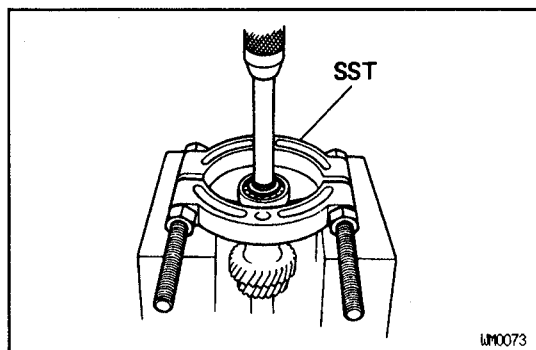
6. INSPECT SHIFT FORK AND HUB SLEEVE CLEARANCE

Using a feeler gauge, measure the clearance between the hub sleeves and shift forks.

Maximum clearance: 1.0 mm (0.039 in.)

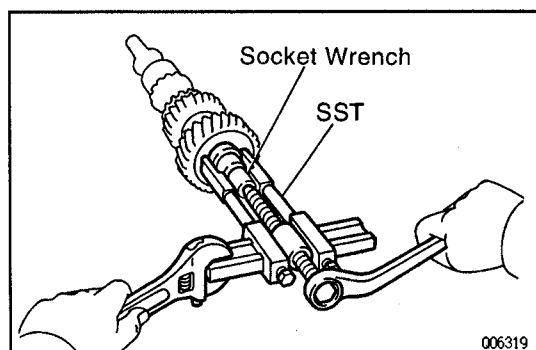
If the clearance exceeds the maximum, replace the shift fork or hub sleeve.

BEARING REPLACEMENT

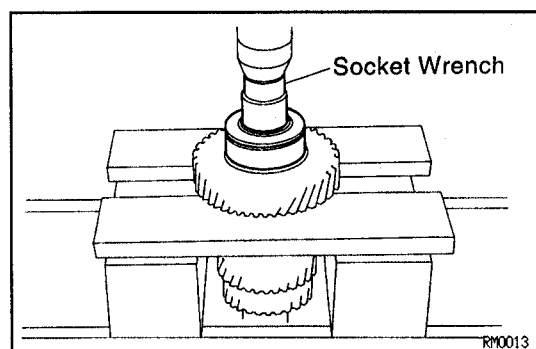


1. IF NECESSARY, REPLACE COUNTER GEAR FRONT BEARING AND SIDE RACE

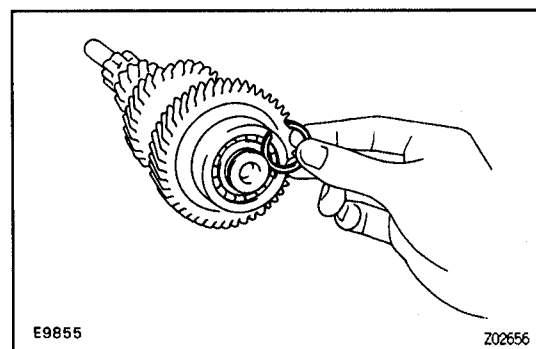
- Using a snap ring expander, remove the snap ring.
- Using SST and a press, press out the bearing.
SST 09950-00020
- Check the side race for wear or damage.



- If necessary, remove the side race.
 - Using SST and a socket wrench, remove the side race.
SST 09950-40010



- Using a socket wrench and press, install a new bearing, side race and inner race.

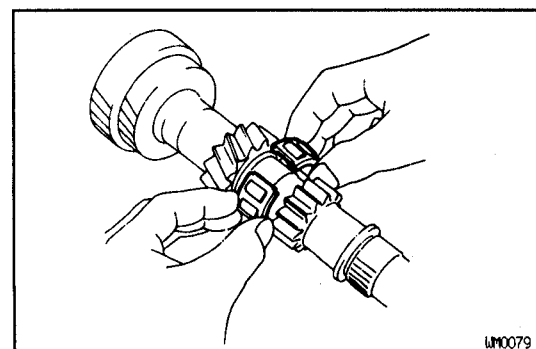


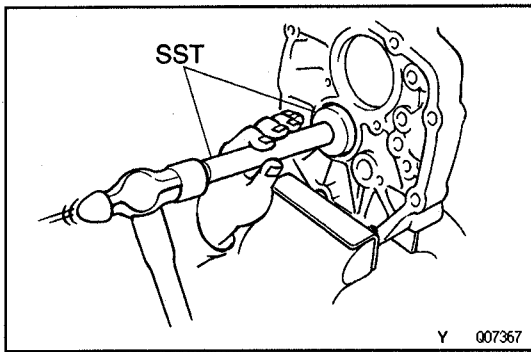
- Select a snap ring that will allow minimum axial play.

Mark	Thickness mm (in.)
A	2.05-2.10 (0.0807-0.0827)
B	2.10-2.15 (0.0827-0.0846)
C	2.15-2.20 (0.0846-0.0866)
D	2.20-2.25 (0.0866-0.0886)
E	2.25-2.30 (0.0886-0.0906)
F	2.30-2.35 (0.0906-0.0925)

- Using a snap ring expander, install the snap ring.
- ### 2. IF NECESSARY, REPLACE COUNTER GEAR CENTER BEARING

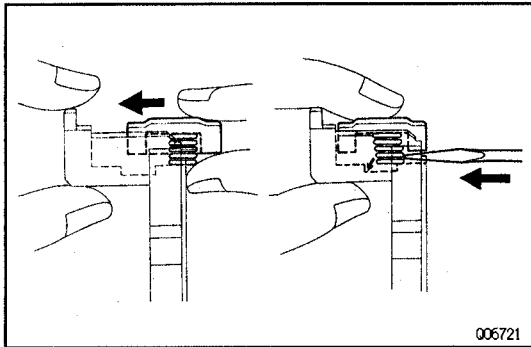
- Remove the bearing from the counter gear.
- Install a new bearing on the counter gear.
HINT: Engage the roller cages.





- (c) Using SST, tap out the bearing outer race.
SST 09950-60010 (09951-00510),
09950-70010 (09951-07150)

HINT: The outer race will be installed later, as the transmission is assembled.

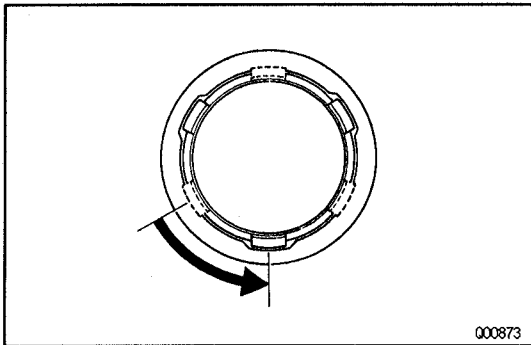


COUNTER GEAR ASSEMBLY

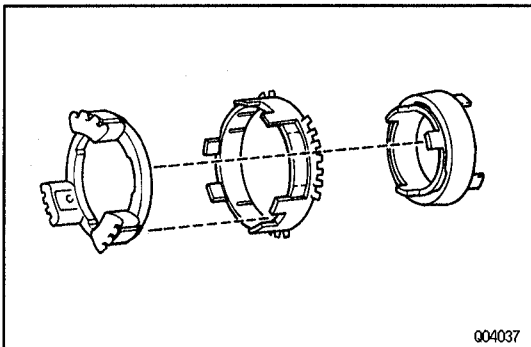
MT084-02

INSTALL SYNCHRONIZER RING ASSEMBLY TO NO.3 HUB SLEEVE

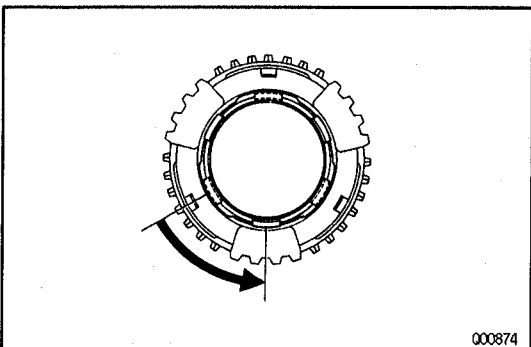
- (a) Push the synchronizer key spring, install the shifting key and key spring to the reverse synchronizer ring.
(b) Using a screwdriver, push the 3 key springs into the synchronizer ring spring gaps.



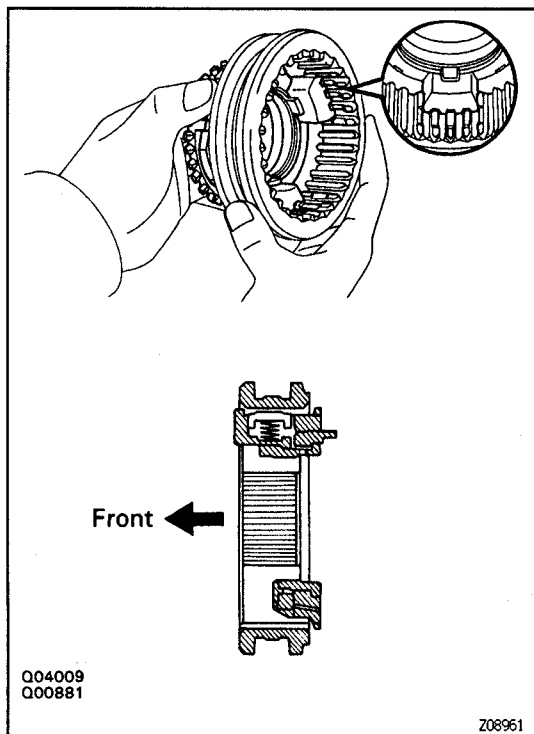
- (c) Install the synchronizer cone ring to the reverse synchronizer pull ring and turn the pull ring.



- (d) Install the 5th synchronizer ring.
(e) Install the reverse synchronizer ring.



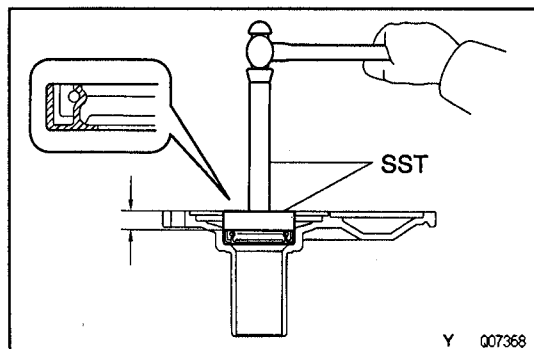
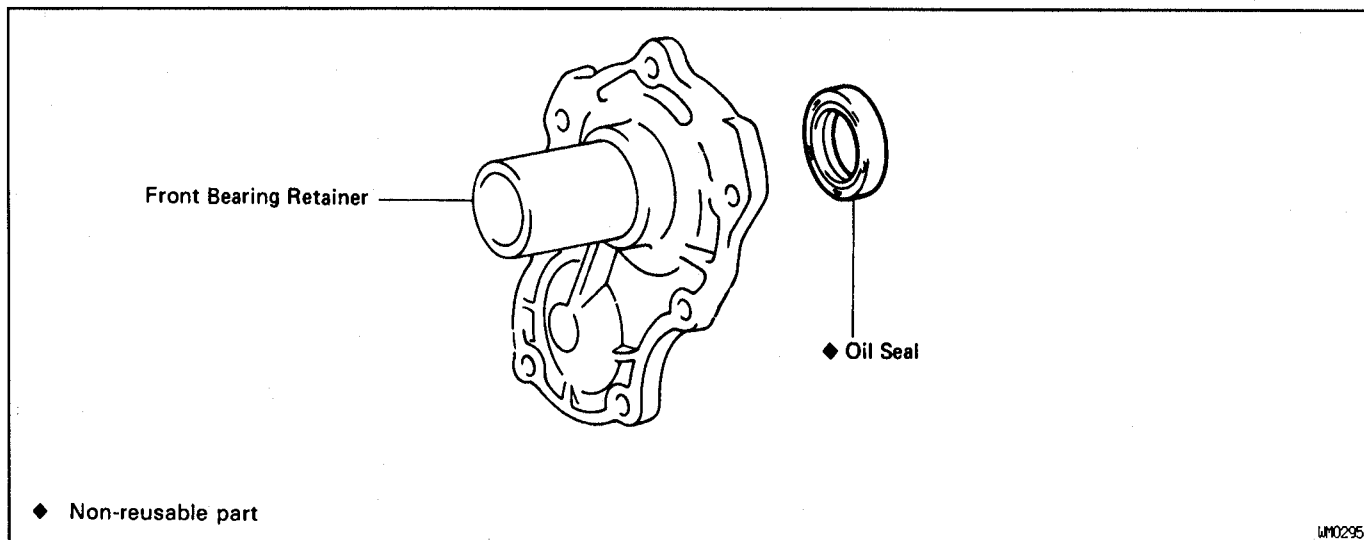
- (f) Turn the reverse synchronizer pull ring.



- (g) While pushing 3 shifting keys, install the synchronizer ring assembly to the No.3 hub sleeve.

FRONT BEARING RETAINER COMPONENTS

MT007-08



OIL SEAL REPLACEMENT

MT008-01

IF NECESSARY, REPLACE FRONT BEARING RETAINER OIL SEAL

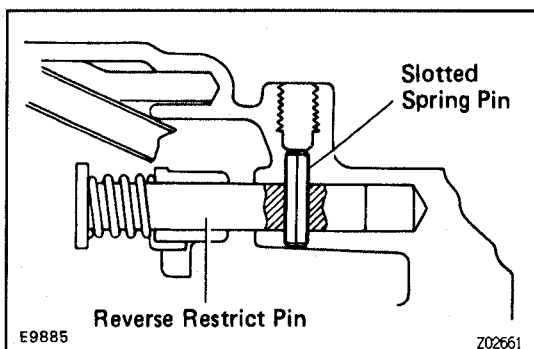
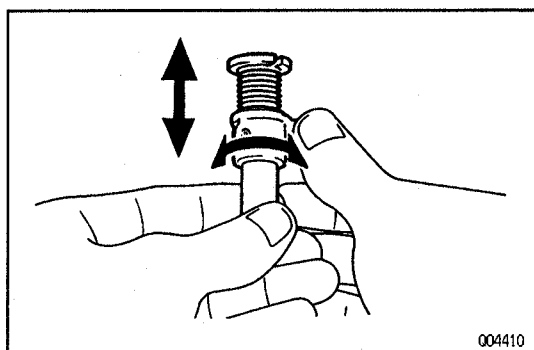
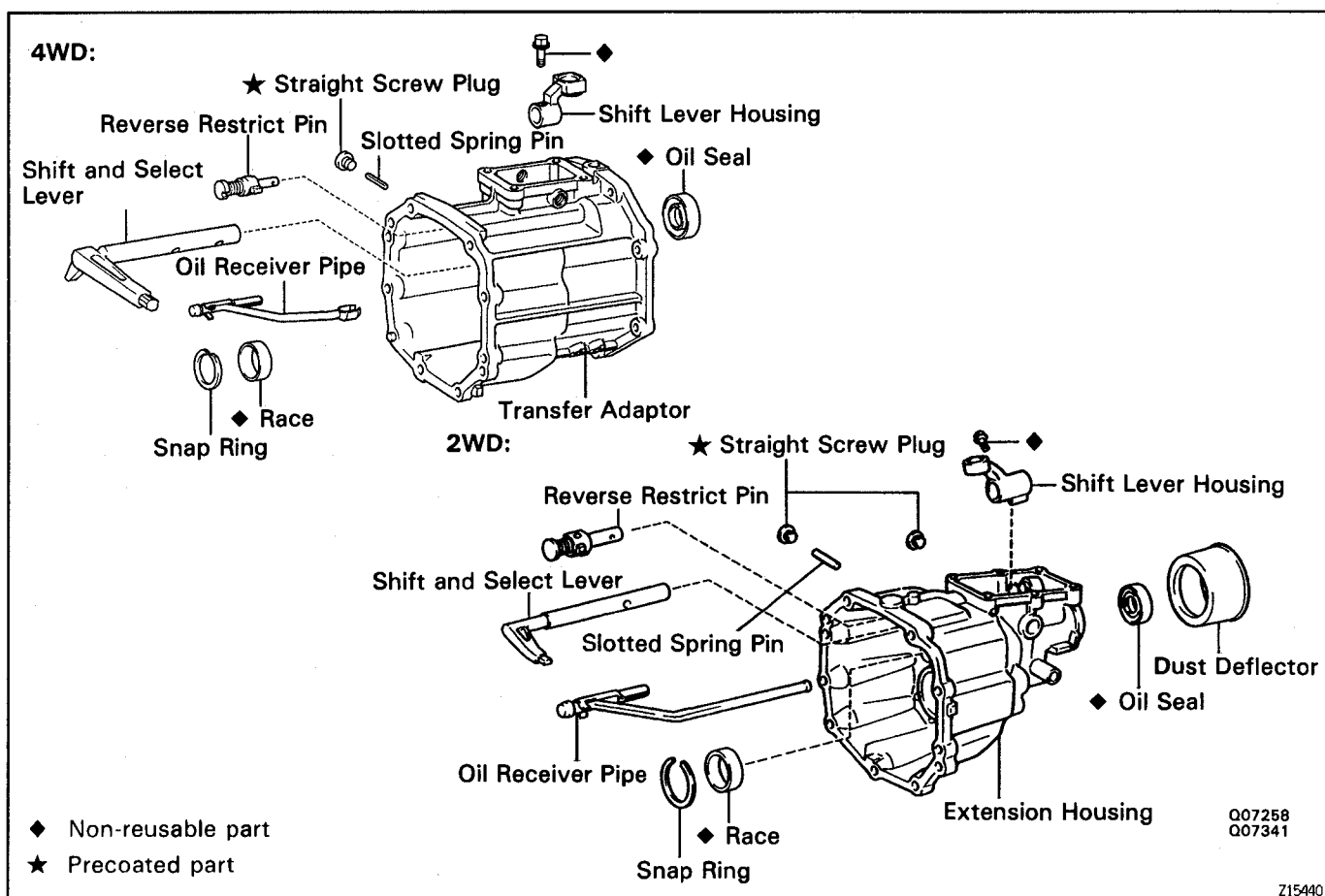
- Using a screwdriver, pry out the oil seal.
- Using SST and a press, install a new oil seal.

SST 09950-60010 (09951-00440),
09950-70010 (09951-07150)

Drive in depth: 12.2 ± 0.5 mm (0.480 ± 0.020 in.)

EXTENSION HOUSING AND TRANSFER ADAPTOR COMPONENTS

MT00V-0E



REVERSE RESTRICT PIN REPLACEMENT

MT085-03

1. REMOVE REVERSE RESTRICT PIN

- Using a hexagon wrench, remove the screw plug.
- Using a pin punch and hammer, drive out the slotted spring pin.
- Pull off the lever housing and slide out the shaft.

2. INSPECT REVERSE RESTRICT PIN

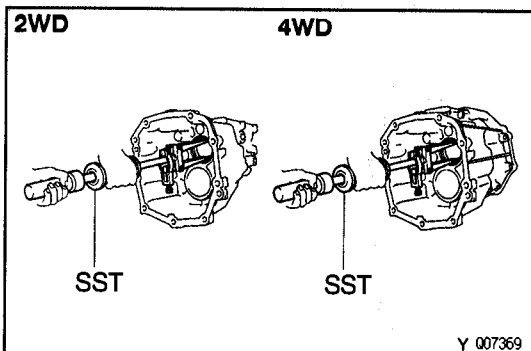
Turn and push the reverse restrict pin by hand.
Check for smooth operation.

3. INSTALL REVERSE RESTRICT PIN

- Install the lever housing.
- Using a pin punch and hammer, drive in the slotted spring pin, as shown.
- Apply sealant to the plug.

Sealant: Part No. 08833 — 00080, THREE BOND 1344,
LOCTITE 242 or equivalent

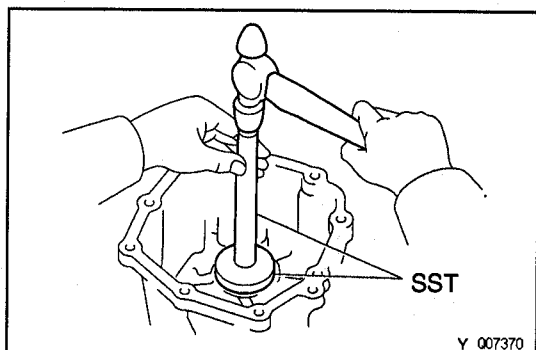
- Install and torque the screw plug.
Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



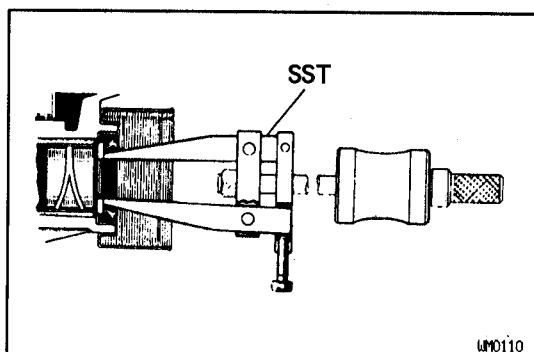
OUTER RACE REPLACEMENT

IF NECESSARY, REPLACE REAR BEARING OUTER RACE

- (a) Using 2 screwdrivers, remove the snap ring.
- (b) Using SST, remove the outer race.
SST 09308-00010



- (c) Using SST, install a new outer race.
SST 09950-60010 (09951-00560),
09950-70010 (09951-07150)
- (d) Using a screwdriver, install the snap ring.

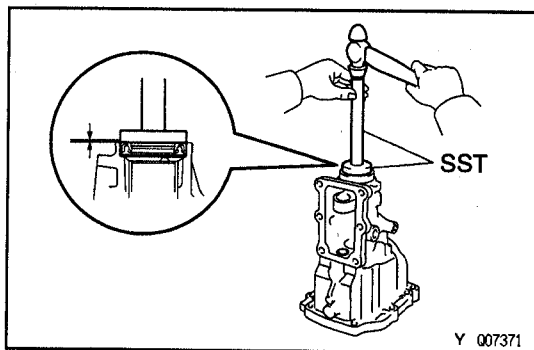


OIL SEAL REPLACEMENT

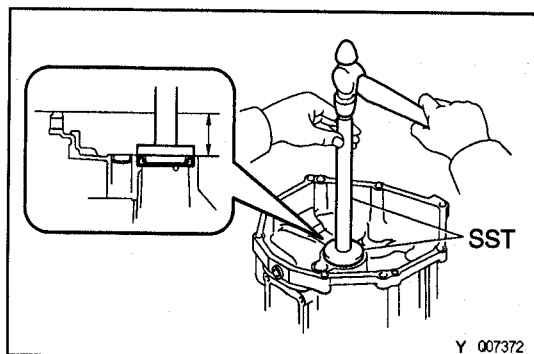
1. 2WD:

IF NECESSARY, REPLACE OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-00010 or
09308-10010 w/ output shaft installed



- (b) Using SST and a hammer, drive in a new oil seal.
SST 09950-60010 (09951-00560),
09950-70010 (09951-07150)
Drive in depth: 0 ± 0.5 mm (0 ± 0.020 in.)



2. 4WD:

IF NECESSARY, REPLACE TRANSFER ADAPTOR OIL SEAL

- (a) Using a screwdriver, pry out the oil seal.
- (b) Using SST and a hammer, drive in a new oil seal.
SST 09950-60010 (09951-00560),
09950-70010 (09951-07150)
Drive in depth: 45.5 ± 0.5 mm (1.969 ± 0.020 in.)

SERVICE SPECIFICATIONS

SERVICE DATA

MT010-00

Output shaft 2nd gear journal diameter	Min.	42.975 mm (1.6919 in.)
Output shaft 3rd gear journal diameter	Min.	31.969 mm (1.2586 in.)
Output shaft flange thickness	Min.	5.60 mm (0.2205 in.)
Output shaft runout	Max.	0.06 mm (0.0024 in.)
1st gear inner race flange thickness	Min.	4.78 mm (0.1881 in.)
1st gear inner race outer diameter	Min.	42.975 mm (1.6919 in.)
Counter gear bearing journal diameter	Min.	29.950 mm (1.1791 in.)
Counter 5th gear journal diameter	Min.	26.975 mm (1.0620 in.)
1st, 2nd and 3rd gear thrust clearance	STD	0.10 — 0.25 mm (0.0039 — 0.0098 in.)
	Max.	0.30 mm (0.0118 in.)
Counter 5th gear thrust clearance	STD	0.10 — 0.41 mm (0.0039 — 0.0161 in.)
	Max.	0.46 mm (0.0181 in.)
1st, 2nd and counter 5th gear radial clearance	STD	0.009 — 0.060 mm (0.0004 — 0.0024 in.)
	Max.	0.150 mm (0.0059 in.)
3rd gear radial clearance	STD	0.015 — 0.066 mm (0.0006 — 0.0026 in.)
	Max.	0.200 mm (0.0079 in.)
Reverse idler gear radial clearance	STD	0.041 — 0.074 mm (0.0016 — 0.0029 in.)
	Max.	0.194 mm (0.0076 in.)
Reverse idler gear to shift arm shoe clearance	STD	0.20 — 0.41 mm (0.0080 — 0.0161 in.)
	Max.	0.90 mm (0.0354 in.)
Shift fork to hub sleeve clearance	Max.	1.0 mm (0.039 in.)
Synchronizer ring to 1st and 4th gear clearance	Min.	0.5 mm (0.020 in.)
Synchronizer ring to 2nd and 3rd gear clearance	Min.	0.7 mm (0.028 in.)
Input shaft snap ring thickness	Mark 1	2.05 — 2.10 mm (0.0807 — 0.0827 in.)
	Mark 2	2.10 — 2.15 mm (0.0827 — 0.0846 in.)
	Mark 3	2.15 — 2.20 mm (0.0846 — 0.0866 in.)
	Mark 4	2.20 — 2.25 mm (0.0866 — 0.0886 in.)
	Mark 5	2.25 — 2.30 mm (0.0886 — 0.0906 in.)
	Mark 11	2.30 — 2.35 mm (0.0906 — 0.0925 in.)
	Mark 12	2.35 — 2.40 mm (0.0925 — 0.0945 in.)
Output shaft snap ring thickness No.2 clutch hub	Mark C-1	1.75 — 1.80 mm (0.0689 — 0.0709 in.)
	Mark D	1.80 — 1.85 mm (0.0709 — 0.0728 in.)
	Mark 11	1.86 — 1.91 mm (0.0732 — 0.0752 in.)
	Mark 12	1.92 — 1.97 mm (0.0756 — 0.0776 in.)
	Mark 13	1.98 — 2.03 mm (0.0780 — 0.0799 in.)
	Mark 14	2.04 — 2.09 mm (0.0803 — 0.0823 in.)
	Mark 15	2.10 — 2.15 mm (0.0827 — 0.0846 in.)

MT

Output shaft snap ring thickness		
Rear bearing	Mark 8	2.31 — 2.36 mm (0.0909 — 0.0929 in.)
	Mark 9	2.37 — 2.42 mm (0.0933 — 0.0953 in.)
	Mark 10	2.43 — 2.48 mm (0.0957 — 0.0976 in.)
	Mark 11	2.49 — 2.54 mm (0.0980 — 0.1000 in.)
	Mark 12	2.55 — 2.60 mm (0.1004 — 0.1024 in.)
	Mark 13	2.61 — 2.66 mm (0.1028 — 0.1047 in.)
	Mark 14	2.68 — 2.73 mm (0.1055 — 0.1075 in.)
	Mark 15	2.74 — 2.79 mm (0.1079 — 0.1098 in.)
Output shaft snap ring thickness		
Reverse gear	Mark 5	2.25 — 2.30 mm (0.0886 — 0.0906 in.)
	Mark 11	2.30 — 2.35 mm (0.0906 — 0.0925 in.)
	Mark 12	2.35 — 2.40 mm (0.0925 — 0.0945 in.)
	Mark 13	2.40 — 2.45 mm (0.0945 — 0.0965 in.)
	Mark 14	2.45 — 2.50 mm (0.0965 — 0.0984 in.)
	Mark 15	2.50 — 2.55 mm (0.0984 — 0.1004 in.)
	Mark 16	2.55 — 2.60 mm (0.1004 — 0.1024 in.)
	Mark 17	2.61 — 2.66 mm (0.1028 — 0.1047 in.)
	Mark 18	2.67 — 2.72 mm (0.1051 — 0.1071 in.)
	Mark 19	2.73 — 2.78 mm (0.1075 — 0.1094 in.)
	Mark 20	2.79 — 2.84 mm (0.1098 — 0.1118 in.)
	Mark 21	2.85 — 2.90 mm (0.1122 — 0.1142 in.)
	Mark 22	2.91 — 2.96 mm (0.1146 — 0.1165 in.)
	Mark 23	2.97 — 3.02 mm (0.1169 — 0.1189 in.)
Counter gear snap ring thickness		
Front bearing	Mark A	2.05 — 2.10 mm (0.0807 — 0.0827 in.)
	Mark B	2.10 — 2.15 mm (0.0827 — 0.0846 in.)
	Mark C	2.15 — 2.20 mm (0.0846 — 0.0866 in.)
	Mark D	2.20 — 2.25 mm (0.0866 — 0.0886 in.)
	Mark E	2.25 — 2.30 mm (0.0886 — 0.0906 in.)
	Mark F	2.30 — 2.35 mm (0.0906 — 0.0925 in.)
Counter gear snap ring thickness		
No.3 clutch hub	Mark 2	2.06 — 2.11 mm (0.0811 — 0.0831 in.)
	Mark 3	2.12 — 2.17 mm (0.0835 — 0.0854 in.)
	Mark 4	2.18 — 2.23 mm (0.0858 — 0.0878 in.)
	Mark 5	2.24 — 2.29 mm (0.0882 — 0.0902 in.)
Counter gear snap ring thickness		
Rear bearing	Mark 1	1.90 — 1.95 mm (0.0748 — 0.0768 in.)
	Mark 2	1.96 — 2.01 mm (0.0772 — 0.0791 in.)
	Mark 3	2.02 — 2.07 mm (0.0795 — 0.0815 in.)
	Mark 4	2.08 — 2.13 mm (0.0819 — 0.0839 in.)
	Mark 5	2.14 — 2.19 mm (0.0843 — 0.0862 in.)
	Mark 6	2.20 — 2.25 mm (0.0866 — 0.0886 in.)
	Mark 7	2.26 — 2.31 mm (0.0890 — 0.0909 in.)

MT

Oil seal drive in depth	25 mm (0.98 in.)
Speedometer drive gear	12.2 ± 0.5 mm (0.480 ± 0.020 in.)
Front bearing retainer (from retainer end)	0 ± 0.5 mm (0 ± 0.020 in.)
Extension housing	45.5 ± 0.5 mm (1.969 ± 0.020 in.)
Transfer adaptor	

MT011-00

TORQUE SPECIFICATIONS

Part tightened	N-m	kgf-cm	ft-lbf
Transmission x Engine	72	730	53
Transmission x Starter	39	400	29
Stiffener plate x Engine	37	380	27
Stiffener plate x Rear end plate	37	380	27
Rear end plate x Transmission	37	380	27
Front exhaust pipe x Exhaust manifold	62	630	46
Front exhaust pipe x TWC	48	490	35
Front exhaust pipe bracket set bolt	71	720	52
Engine rear mounting x Crossmember	19	190	14
Engine rear mounting x Transmission	65	660	48
Crossmember x Frame	65	660	48
Transmission x Transfer	24	240	17
Clutch release cylinder x Transmission	12	120	9
Shift fork set bolt	20	200	14
Straight screw plug	25	250	18
Reverse idler gear shaft stopper bolt	25	250	18
Oil separator x Intermediate plate	18	185	13
Front bearing retainer set bolt	25	250	18
Extension housing x Intermediate plate	37	380	27
Transfer adaptor x Intermediate plate	37	380	27
Restrict pin (2WD)	40	410	30
(4WD)	27	280	20
Shift lever housing x Shift and select lever shaft	39	400	29
Control shift lever retainer x Extension housing	18	185	13
Control shift lever retainer x Transfer adaptor	18	185	13
Drain and filler plugs	37	380	27
Back-up light switch	40	410	30
Clutch housing x Transmission case	37	380	27
Rear bearing retainer x Intermediate plate	18	185	13
Speedometer driven gear set bolt (2WD)	13	130	9

MT