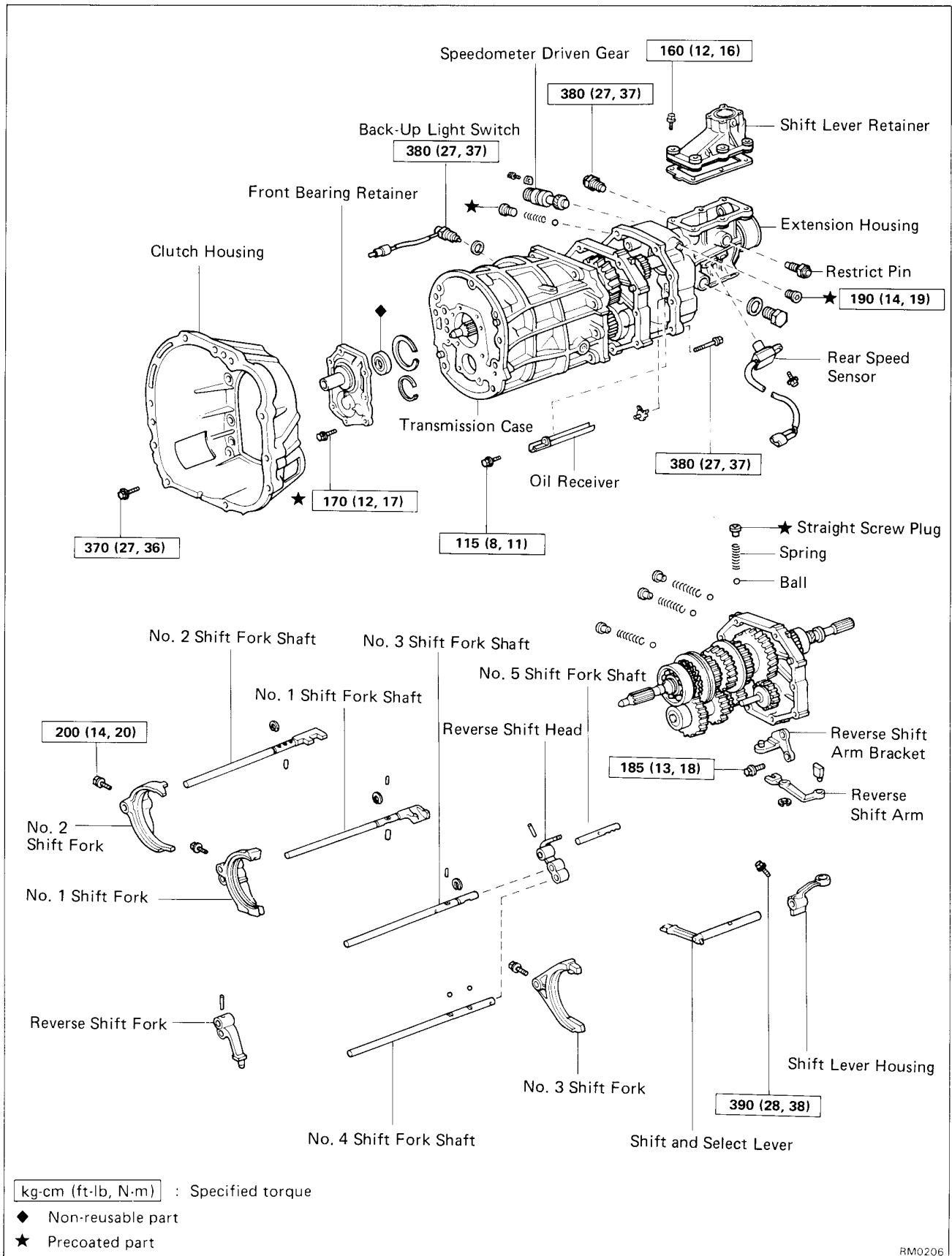
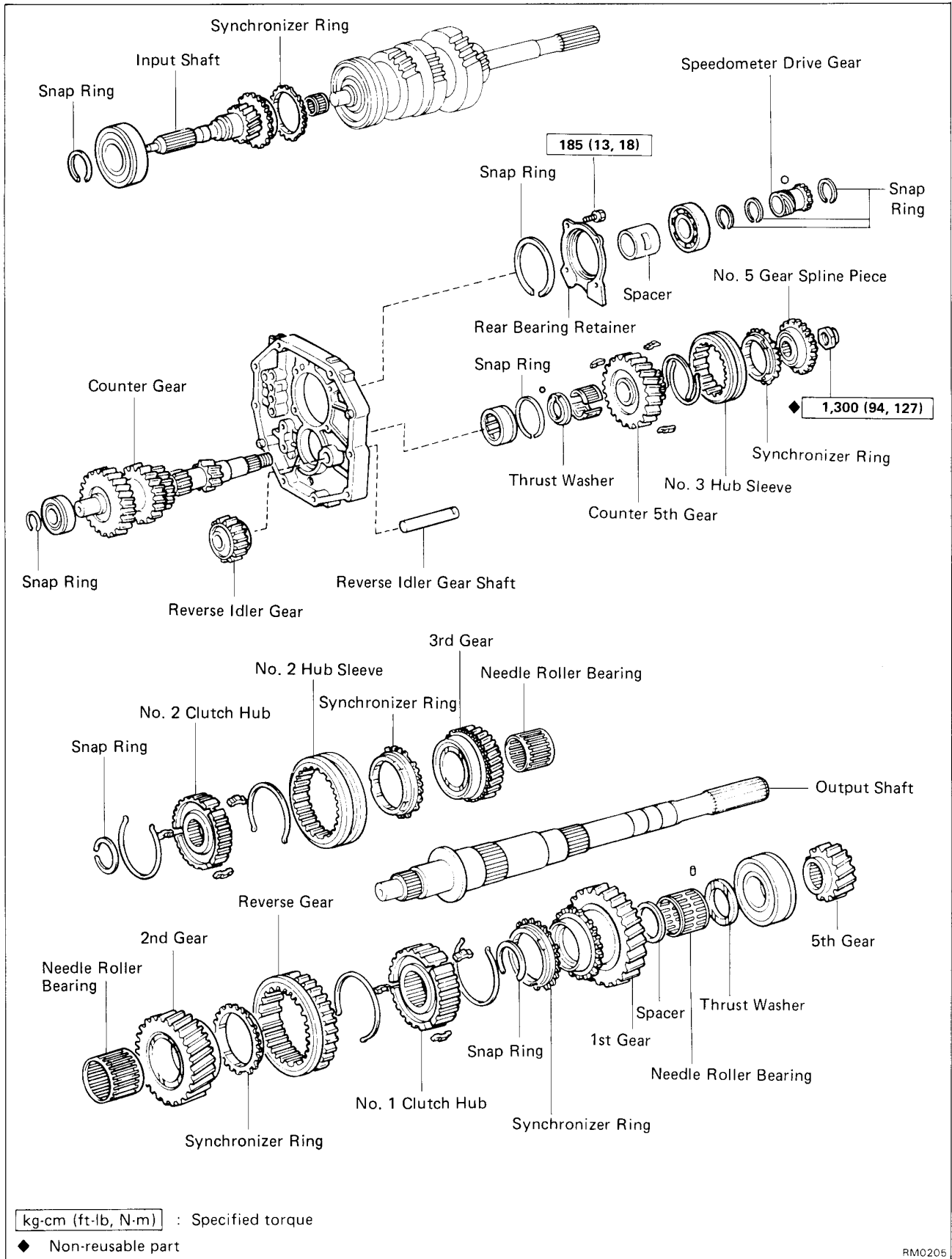


Components (R154 Transmission)

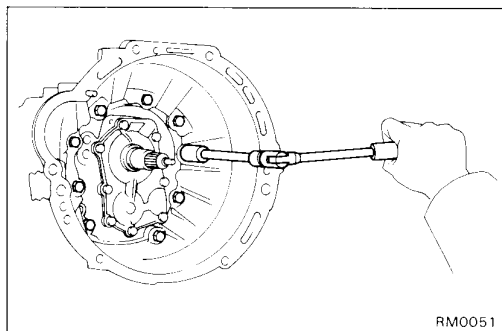


Components (Cont'd)

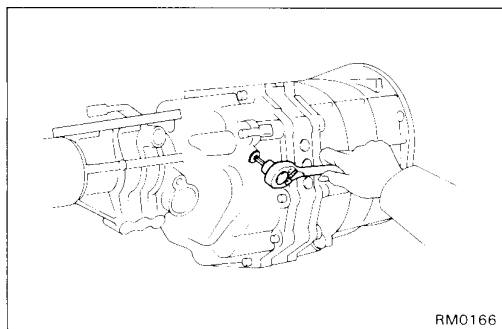


DISASSEMBLY OF TRANSMISSION

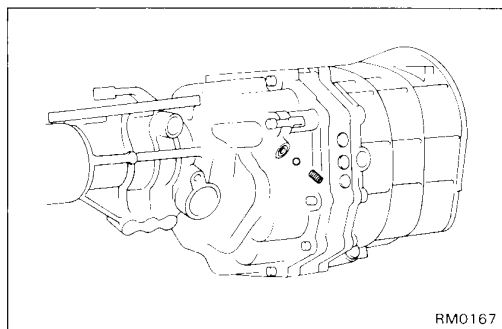
(See pages MT-49, 50)



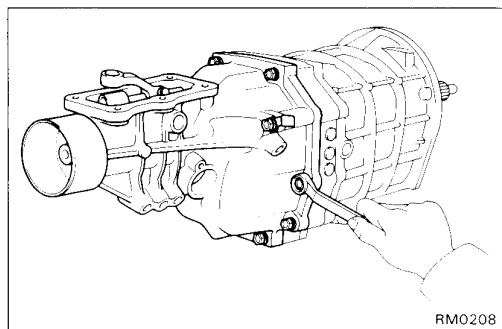
1. REMOVE RELEASE FORK AND BEARING
2. REMOVE BACK-UP LIGHT SWITCH, SPEEDOMETER DRIVEN GEAR, SHIFT LEVER RETAINER, REAR SPEED SENSOR (w/ A.B.S.) AND RESTRICT PINS
3. REMOVE CLUTCH HOUSING FROM TRANSMISSION CASE



4. REMOVE STRAIGHT SCREW PLUG, SPRING AND BALL
 - (a) Using a torx socket wrench, remove the screw plug from the transfer adaptor.

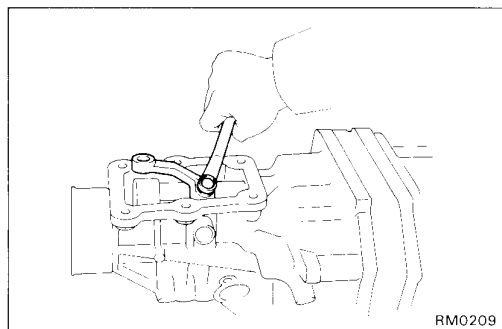


- (b) Using a magnetic finger, remove the spring and ball.

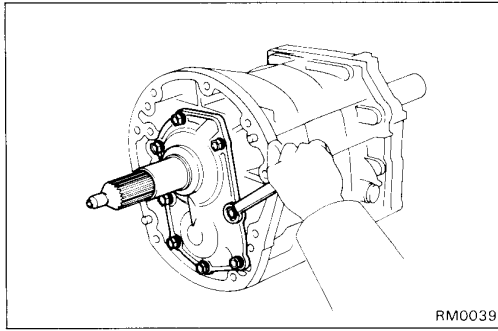


5. REMOVE EXTENSION HOUSING

- (a) Remove the ten bolts.

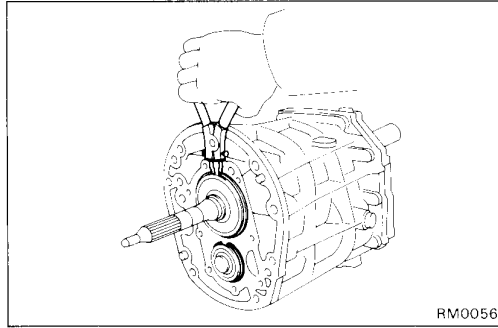


- (b) Remove the shift lever housing set bolt.
- (c) Using a plastic hammer, tap the extension housing and remove the shift lever housing and shift and select lever.



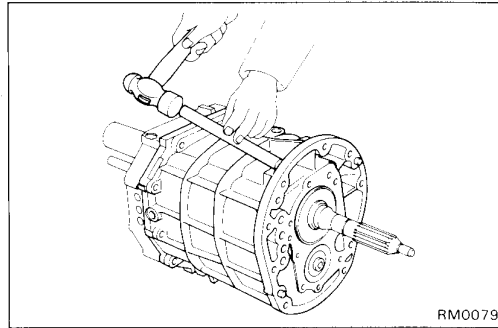
6. REMOVE FRONT BEARING RETAINER

- (a) Remove the eight bolts.
- (b) Using a plastic hammer, tap the front bearing retainer.



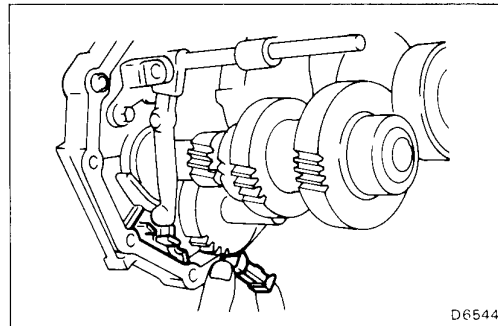
7. REMOVE BEARING SNAP RINGS

- Using snap ring pliers, remove the two snap rings.

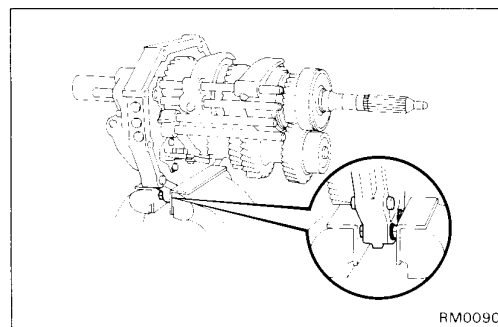


8. SEPARATE INTERMEDIATE PLATE FROM TRANSMISSION CASE

- (a) Using a brass bar and hammer, carefully tap off the transmission case.
- (b) Remove the transmission case from the intermediate plate.



9. REMOVE MAGNET FROM INTERMEDIATE PLATE

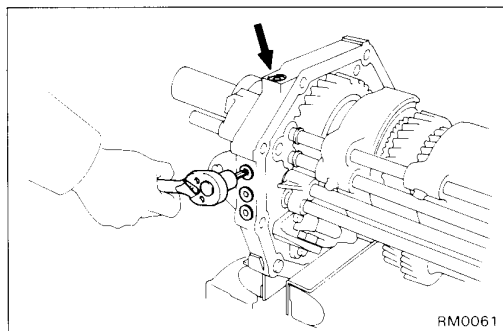


10. MOUNT INTERMEDIATE PLATE IN VISE

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

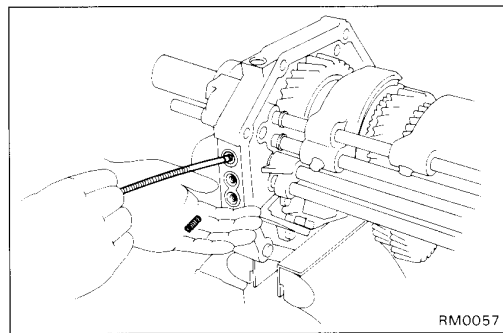
NOTICE: Install the plate washers in reverse of normal. Increase or decrease plate washers so that the bolt tip and front tip surface of the nut are aligned.

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

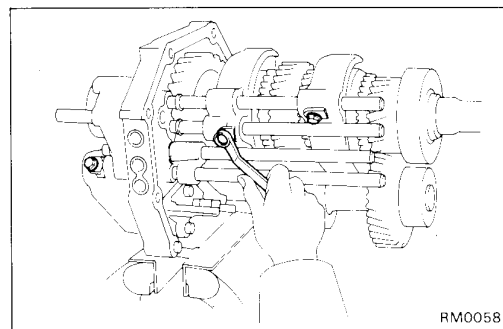


11. REMOVE STRAIGHT SCREW PLUGS, LOCKING BALLS AND SPRINGS

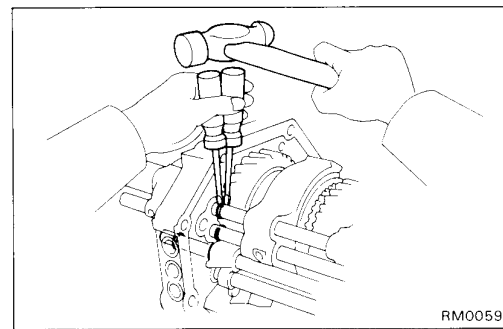
(a) Using a torx socket wrench, remove the four plugs.



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

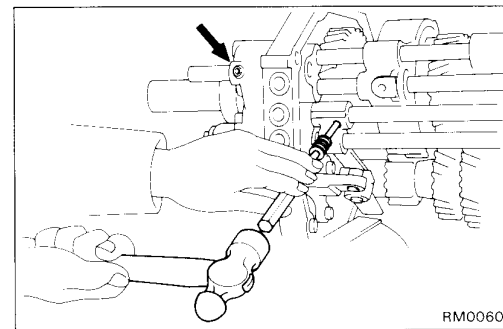


12. REMOVE SHIFT FORK SET BOLTS



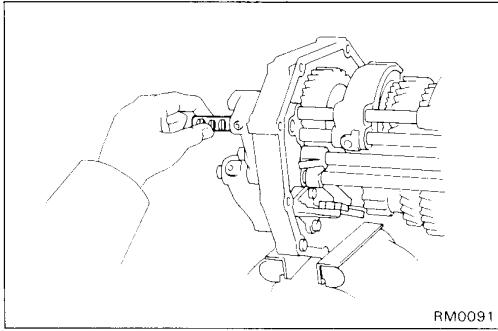
13. REMOVE SNAP RINGS

Using two screwdrivers and a hammer, remove the three snap rings.

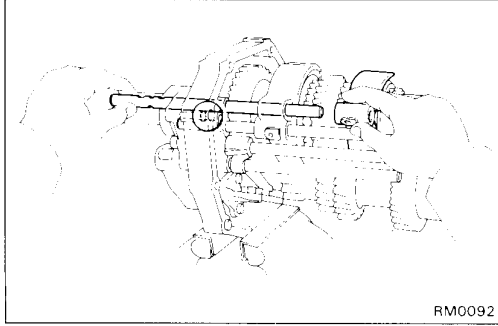


14. REMOVE SLOTTED SPRING PINS

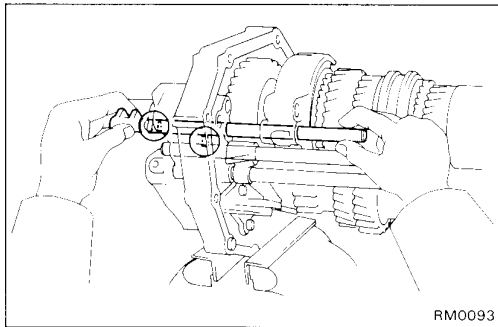
Using a pin punch and hammer, drive out the two pins.

**15. REMOVE NO.5 SHIFT FORK SHAFT**

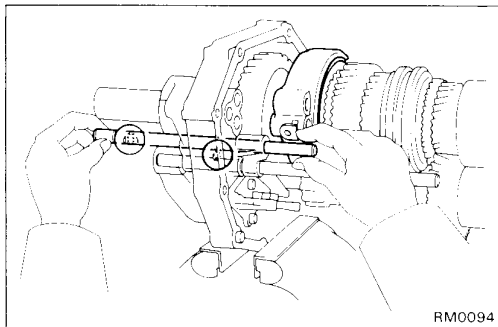
Pull out No.5 shift fork shaft from the intermediate plate.

**16. REMOVE NO.2 SHIFT FORK SHAFT AND SHIFT FORK**

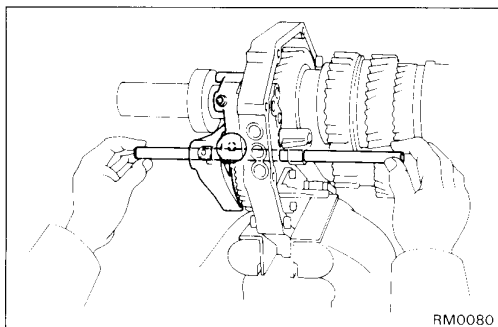
- (a) Pull out No.2 shift fork shaft from the intermediate plate.
- (b) Remove No.2 shift fork.
- (c) Using a magnetic finger, remove the interlock pin from the intermediate plate.

**17. REMOVE NO.1 SHIFT FORK SHAFT**

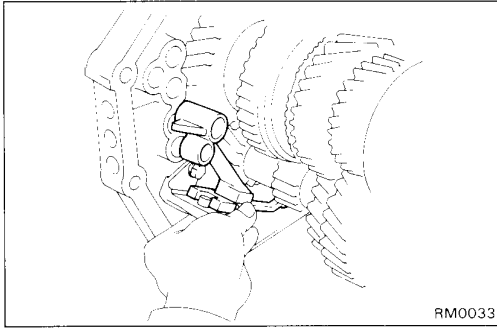
- (a) Pull out No.1 shift fork shaft from the intermediate plate.
- (b) Using a magnetic finger, remove the interlock pins from the shaft hole and intermediate plate.

**18. REMOVE NO.3 SHIFT FORK SHAFT AND NO.1 SHIFT FORK**

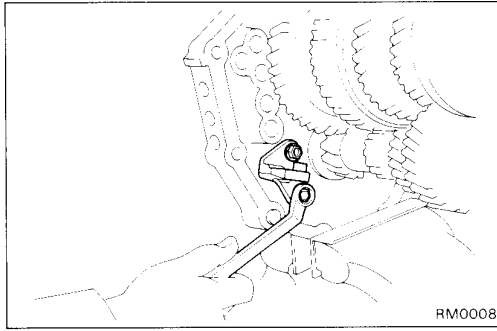
- (a) Pull out No.3 shift fork shaft from the intermediate plate.
- (b) Remove No.1 shift fork.
- (c) Using a magnetic finger, remove the interlock pin and locking ball from the shaft hole and intermediate plate.

**19. REMOVE NO.4 SHIFT FORK SHAFT, NO.3 SHIFT FORK AND REVERSE SHIFT HEAD**

- (a) Pull out No.4 shift fork shaft from the intermediate plate.
- (b) Remove the reverse shift head and locking ball.
- (c) Remove No.3 shift fork.

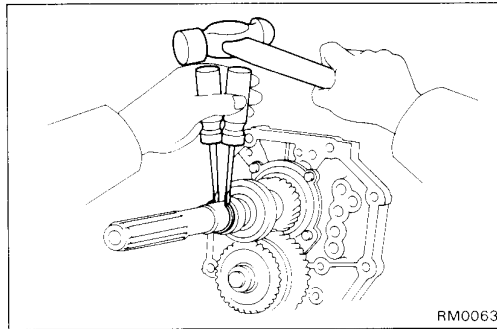


20. REMOVE REVERSE SHIFT ARM FROM REVERSE SHIFT ARM BRACKET



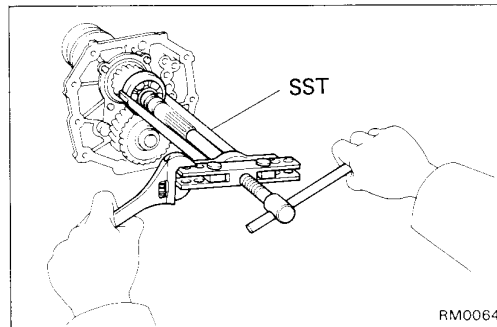
21. REMOVE REVERSE SHIFT ARM BRACKET

Remove the two bolts and the reverse shift arm bracket.



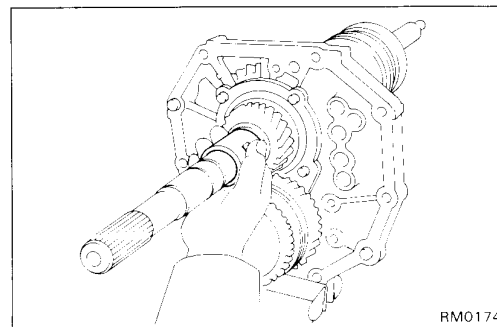
22. REMOVE SPEEDOMETER DRIVE GEAR

- (a) Using two screwdrivers and a hammer, tap out the rear snap ring.
- (b) Remove the speedometer drive gear and ball.
- (c) Using two screwdrivers and a hammer, tap out the front snap ring.

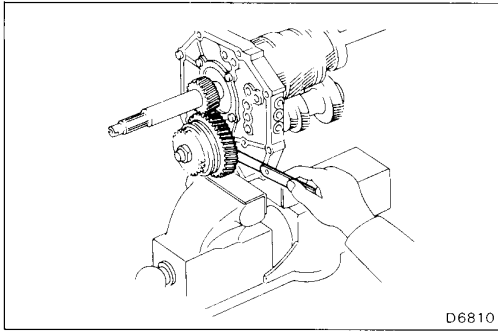


23. REMOVE OUTPUT SHAFT REAR BEARING

- (a) Using two screwdrivers and a hammer, tap out the snap ring.
- (b) Using SST, remove the rear bearing.
SST 09950-20017



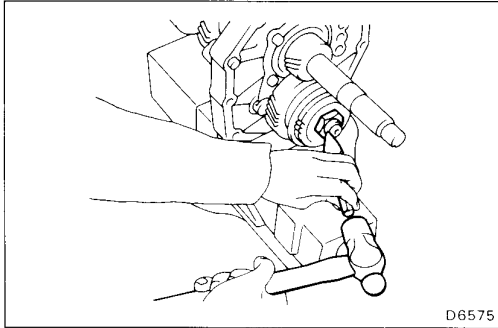
24. REMOVE SPACER

**25. MEASURE COUNTER FIFTH GEAR THRUST CLEARANCE**

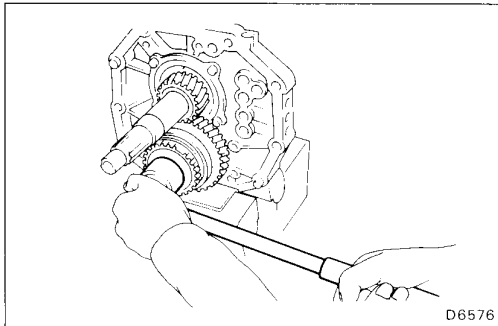
Using a feeler gauge, measure the counter 5th gear thrust clearance.

Standard clearance: 0.10 — 0.35 mm
(0.0039 — 0.0138 in.)

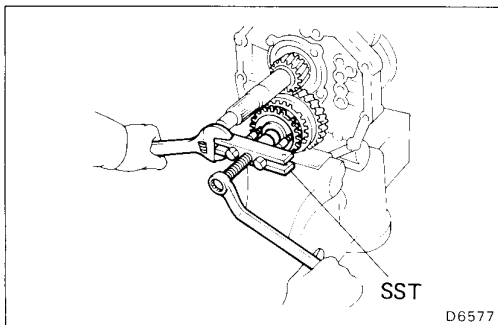
Maximum clearance: 0.40 mm (0.0157 in.)

**26. REMOVE NO.5 GEAR SPLINE PIECE, SYNCHRONIZER RING, NEEDLE ROLLER BEARING AND COUNTER FIFTH GEAR WITH NO.3 HUB SLEEVE**

- (a) Engage the gear double meshing.
- (b) Using a hammer and chisel, loosen the staked part of the nut.



- (c) Remove the lock nut.
- (d) Disengage the gear double meshing.



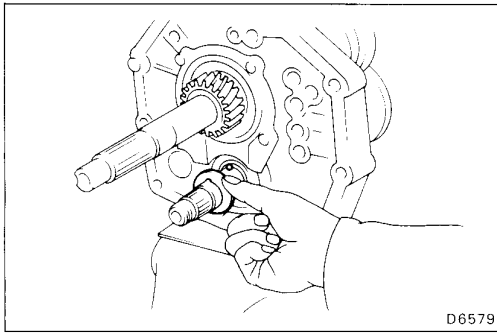
- (e) Using SST, remove No.5 gear spline piece.

SST 09213-31021

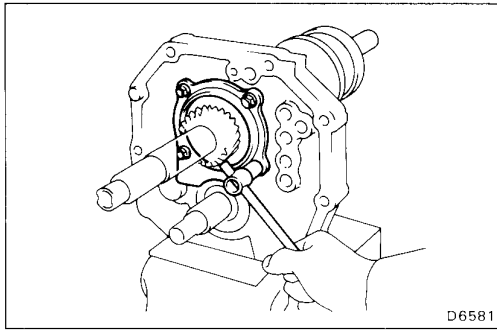
- (f) Remove the counter 5th gear with No.3 hub sleeve.

27. REMOVE SHIFTING KEYS AND SPRINGS FROM 5TH GEAR AND NO.3 HUB SLEEVE

Using a screwdriver, remove the three shifting keys and two springs.

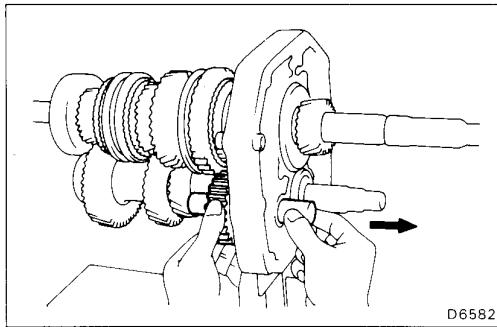


28. REMOVE THRUST WASHER AND BALL



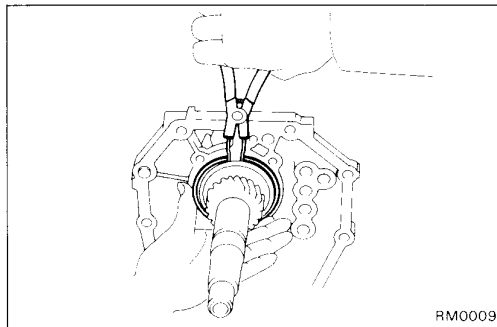
29. REMOVE REAR BEARING RETAINER

Remove the four bolts and rear bearing retainer.



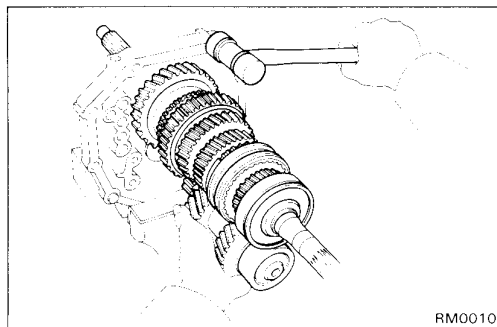
30. REMOVE REVERSE IDLER GEAR AND SHAFT

Pull out the shaft toward the rear.



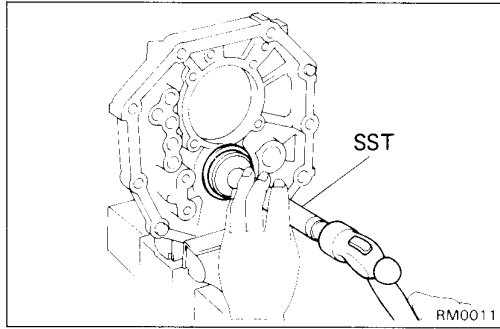
31. REMOVE BEARING SNAP RING

Using snap ring pliers, remove the snap ring.



32. REMOVE OUTPUT SHAFT, COUNTER GEAR AND INPUT SHAFT AS A UNIT FROM INTERMEDIATE PLATE

- (a) Remove the output shaft, counter gear and input shaft 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 with the needle roller bearing from the output shaft.



33. REMOVE COUNTER REAR BEARING FROM INTERMEDIATE PLATE

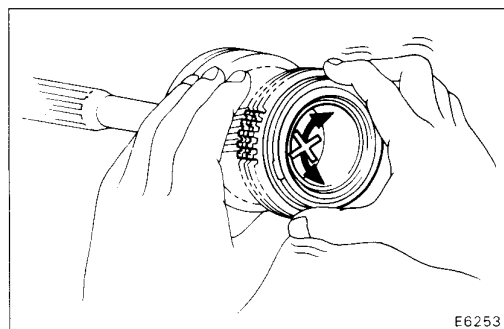
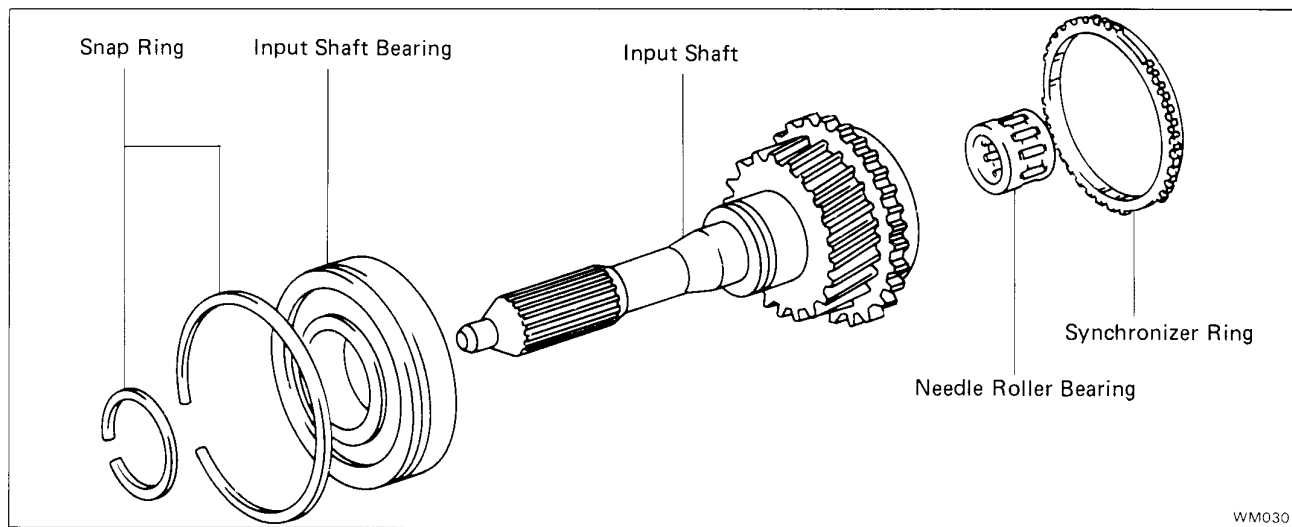
Using SST, remove the counter rear bearing.

SST 09608-12010 (09608-00020, 09608-00050)

COMPONENT PARTS

Input Shaft Assembly

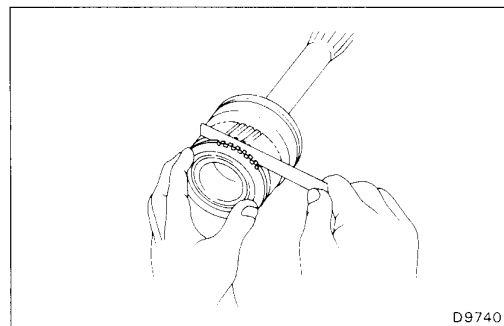
COMPONENTS



INSPECTION OF INPUT SHAFT

INSPECT SYNCHRONIZER RING

(a) Turn the ring and push it in to check the braking action.

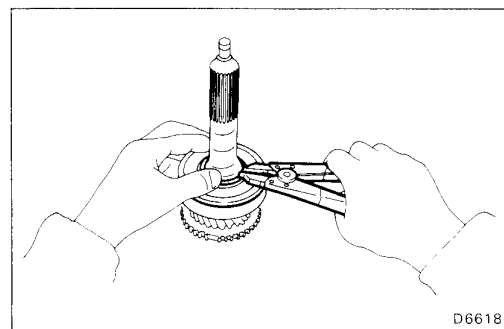


(b) Measure the clearance between the synchronizer ring back and the gear spline end.

Standard clearance: 0.8 — 1.6 mm
(0.031 — 0.063 in.)

Minimum clearance: 0.6 mm (0.024 in.)

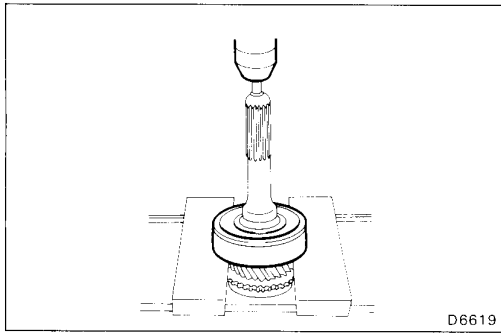
If the clearance is less than the limit, replace the synchronizer ring.



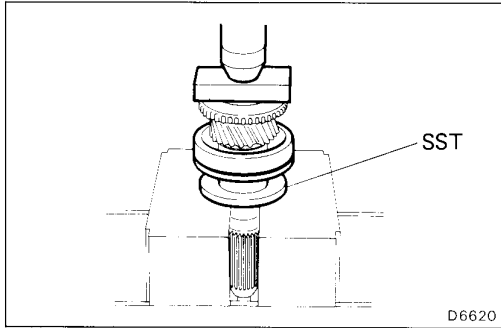
REPLACEMENT OF BEARING

IF NECESSARY, REPLACE INPUT SHAFT BEARING

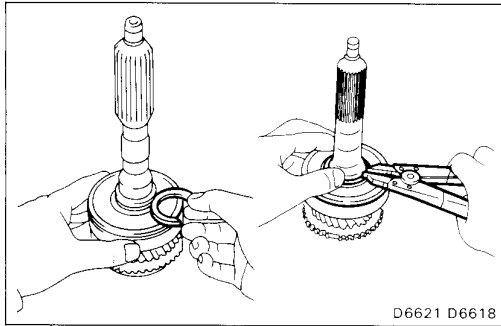
(a) Using snap ring pliers, remove the snap ring.



(b) Using a press, remove the bearing.



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

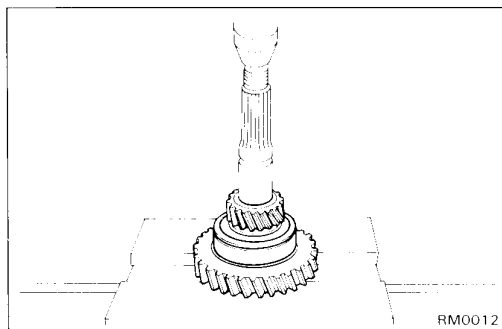
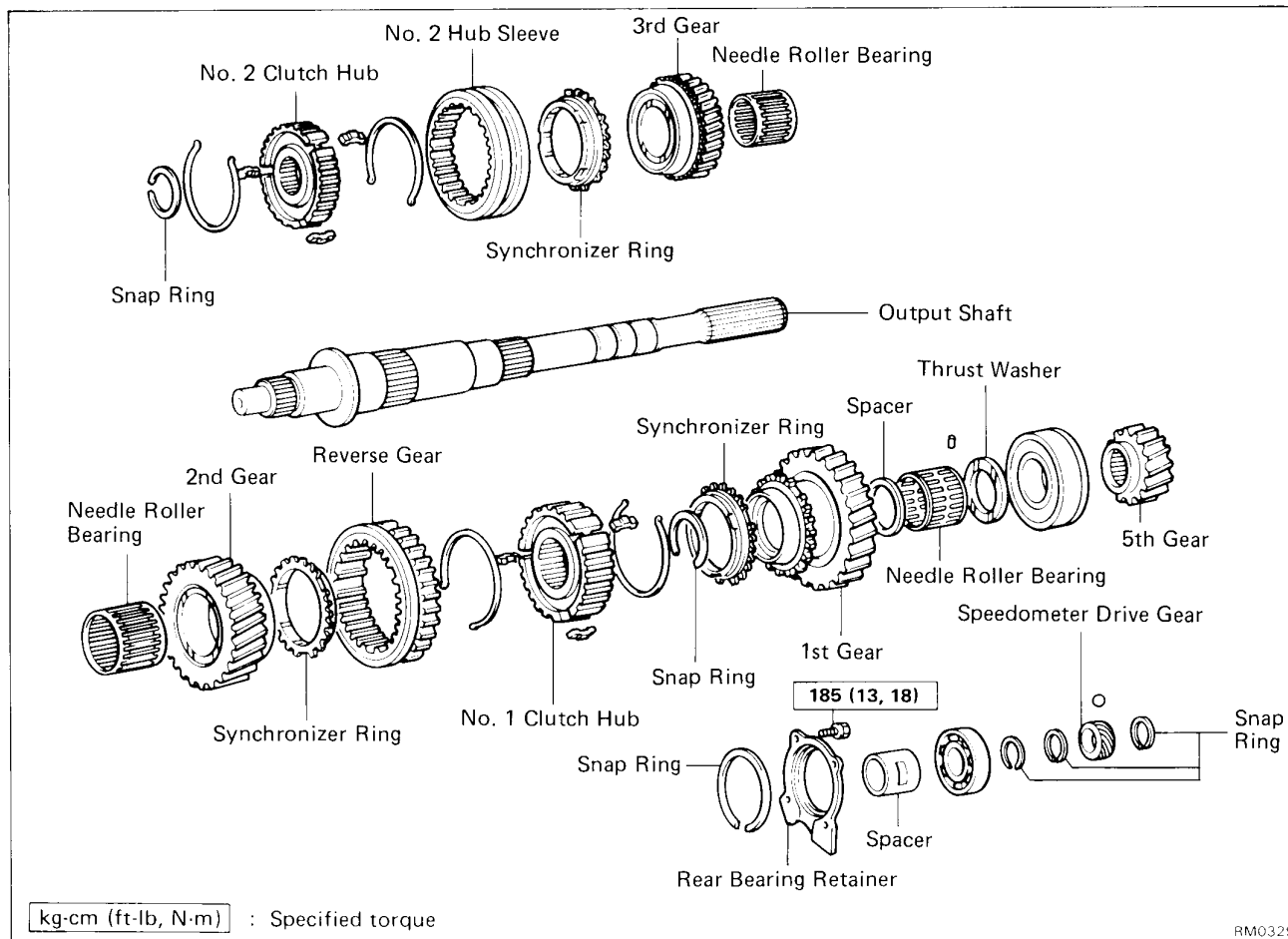


(d) Select a snap ring that will allow minimum axial play and install it on the shaft.

Mark	Thickness	mm (in.)
A	2.10 – 2.15	(0.0827 – 0.0846)
B	2.15 – 2.20	(0.0846 – 0.0866)
C	2.20 – 2.25	(0.0866 – 0.0886)
D	2.25 – 2.30	(0.0886 – 0.0906)
E	2.30 – 2.35	(0.0906 – 0.0925)
F	2.35 – 2.40	(0.0925 – 0.0945)
G	2.40 – 2.45	(0.0945 – 0.0965)

Output Shaft Assembly

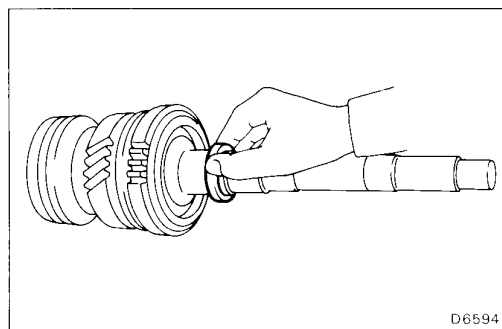
COMPONENTS



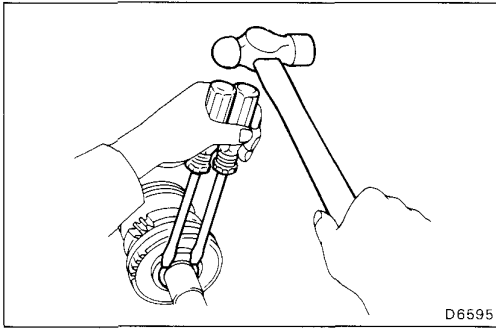
DISASSEMBLY OF OUTPUT SHAFT ASSEMBLY

1. REMOVE FIFTH GEAR, CENTER BEARING AND FIRST GEAR ASSEMBLY

- (a) Using a press, remove the 5th gear, center bearing, thrust washer and 1st gear.
- (b) Remove the synchronizer ring.
- (c) Remove the straight pin and needle roller bearing.

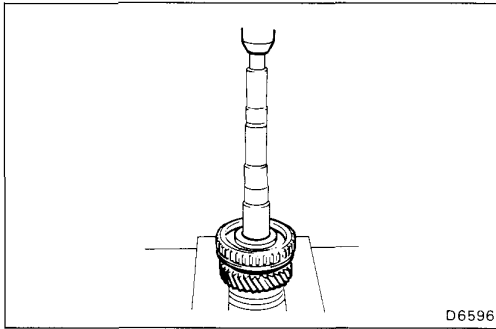


- (d) Remove the spacer.



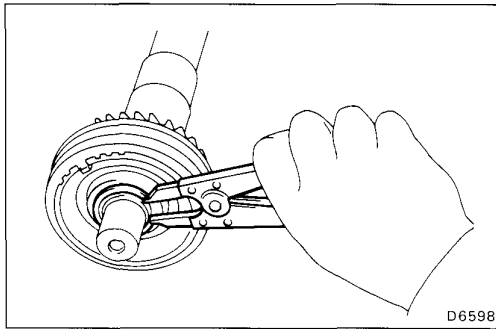
2. REMOVE NO.1 HUB SLEEVE ASSEMBLY AND SECOND GEAR ASSEMBLY

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



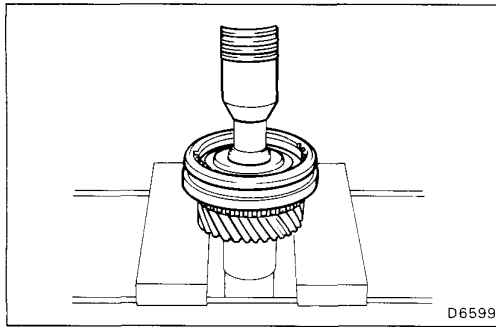
- (b) Using a press, remove No.1 hub sleeve, synchronizer ring and 2nd gear.

- (c) Remove the needle roller bearing.



3. REMOVE NO.2 HUB SLEEVE ASSEMBLY AND THIRD GEAR ASSEMBLY

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



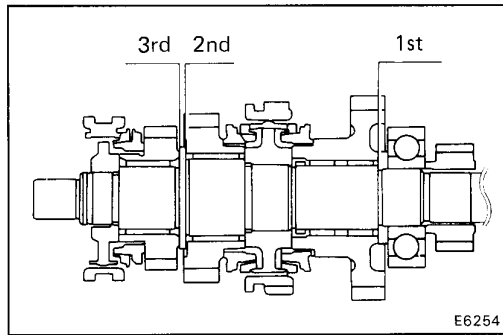
- (b) Using a press, remove No.2 hub sleeve, synchronizer ring and 3rd gear.

- (c) Remove the needle roller bearing.

4. REMOVE SHIFTING KEYS AND SPRINGS FROM HUB SLEEVE ASSEMBLY

Using screwdriver, remove the three shifting keys and two springs.

HINT: No.1 hub sleeve and No.2 hub sleeve.



INSPECT OF OUTPUT SHAFT ASSEMBLY

1. MEASURE EACH GEAR THRUST CLEARANCE

- (a) Using a feeler gage, measure the thrust clearance of 1st gear and 3rd gear.
- (b) Using a dial indicator, measure the thrust clearance of 2nd gear.

1st gear

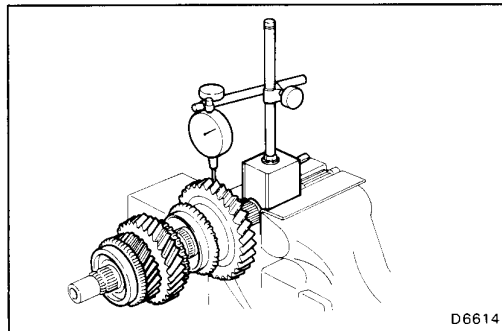
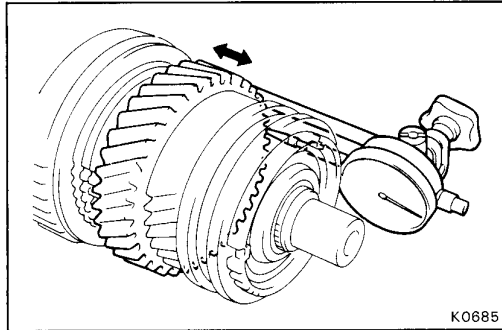
Standard clearance: 0.10 — 0.45 mm
(0.0039 — 0.0177 in.)

Maximum clearance: 0.50 mm (0.0197 in.)

2nd and 3rd gear

Standard clearance: 0.10 — 0.25 mm
(0.0039 — 0.0098 in.)

Maximum clearance: 0.30 mm (0.0118 in.)



2. CHECK OIL CLEARANCE OF EACH GEAR

Using a dial indicator, measure the oil clearance between the gear and shaft with the needle roller bearing installed.

1st gear

Standard clearance: 0.020 — 0.073 mm
(0.0008 — 0.0029 in.)

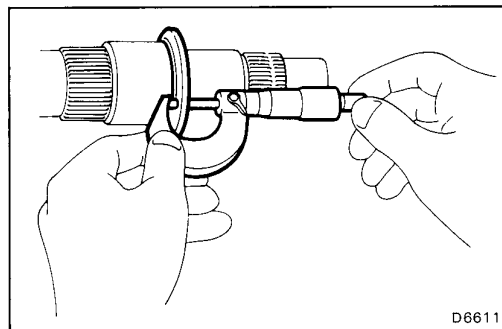
Maximum clearance: 0.16 mm (0.0063 in.)

2nd and 3rd gear

Standard clearance: 0.015 — 0.068 mm
(0.0006 — 0.0027 in.)

Maximum clearance: 0.16 mm (0.0063 in.)

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



3. INSPECT OUTPUT SHAFT

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

Minimum thickness: 4.70 mm (0.1850 in.)

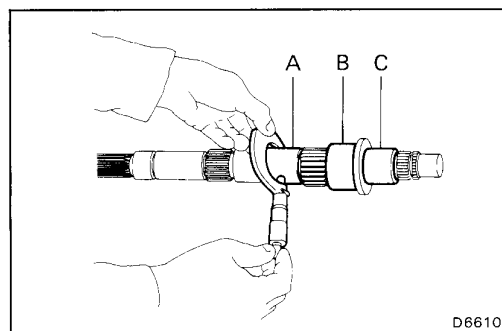
- (b) Using a micrometer, measure the outer diameter of the output shaft journal.

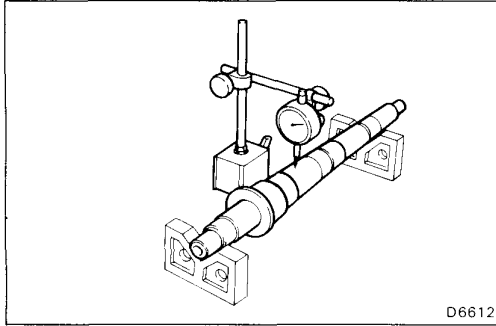
Minimum diameter:

A 1st gear 38.860 mm (1.5299 in.)

B 2nd gear 46.860 mm (1.8449 in.)

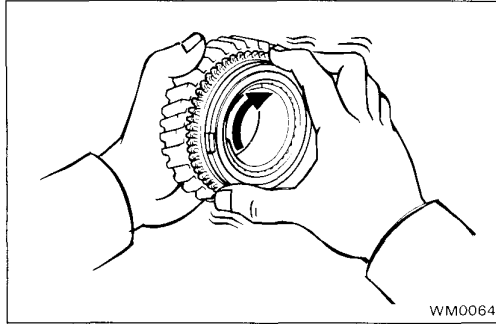
C 3rd gear 37.860 mm (1.4905 in.)





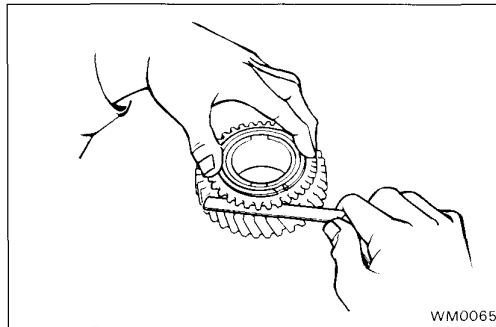
(c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.06 mm (0.0024 in.)



4. INSPECT SYNCHRONIZER RINGS

(a) Turn the ring and push it in to check the braking action.

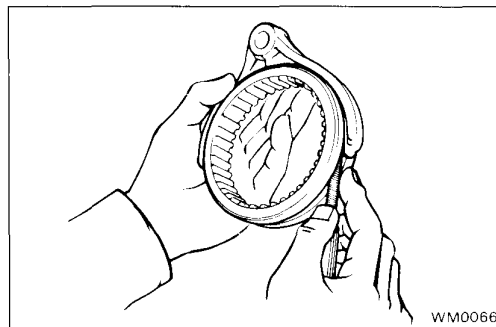


(b) Measure the clearance between the synchronizer ring back and the gear spline end.

**Standard clearance: 0.8 – 1.6 mm
(0.031 – 0.063 in.)**

Minimum clearance: 0.6 mm (0.024 in.)

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

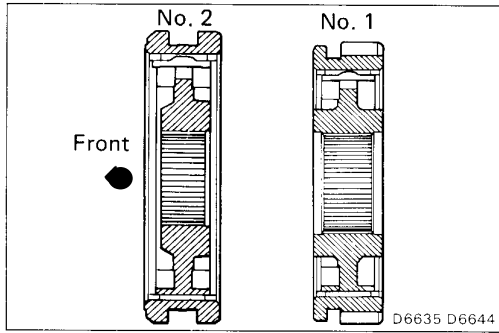


5. MEASURE CLEARANCE OF SHIFT FORKS AND HUB SLEEVES

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (0.039 in.)

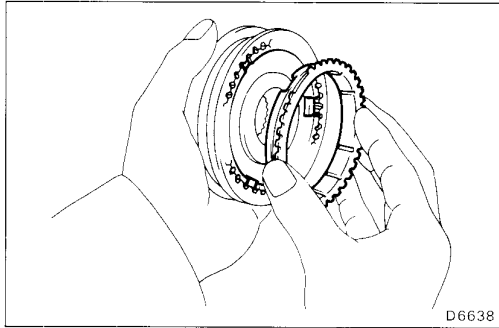
If the clearance exceeds the limit, replace the shift fork or hub sleeve.



ASSEMBLY OF OUTPUT SHAFT ASSEMBLY

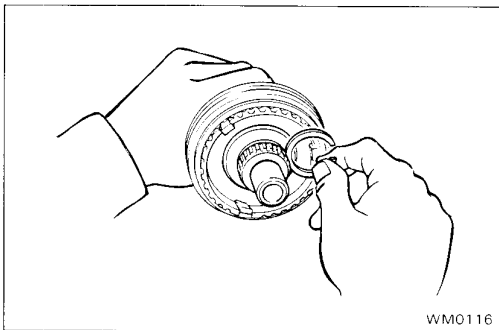
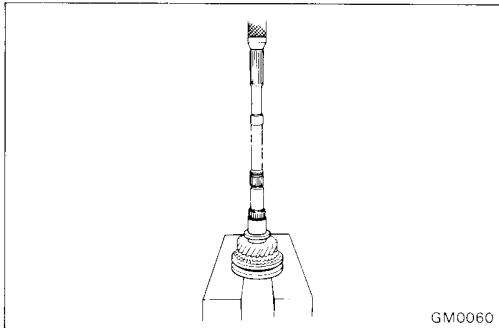
1. INSERT NO.1 AND NO.2 CLUTCH HUB INTO HUB SLEEVE
 - (a) Install the clutch hub and shifting keys to the hub sleeve.
 - (b) Install the shifting key springs under the shifting keys.

NOTICE: Install the key springs positioned so that their end gaps are not in line.



2. INSTALL THIRD GEAR AND NO.2 HUB SLEEVE ON OUTPUT SHAFT
 - (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 3rd gear.

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

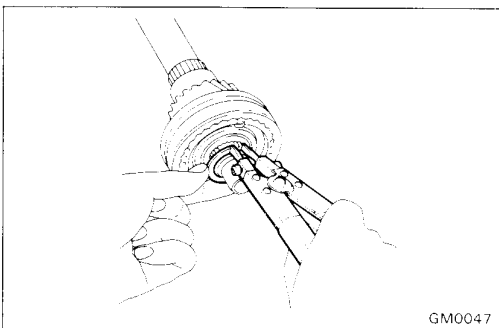


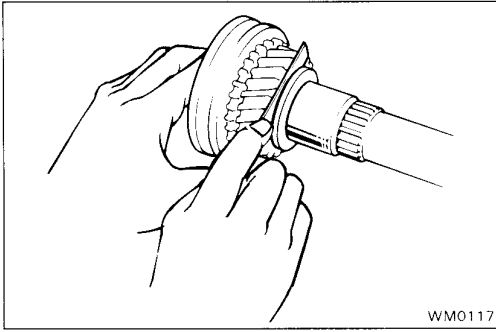
3. INSTALL SNAP RING
 - (a) Select a snap ring that will allow minimum axial play.

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

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

- (b) Using snap ring pliers, install the snap ring.

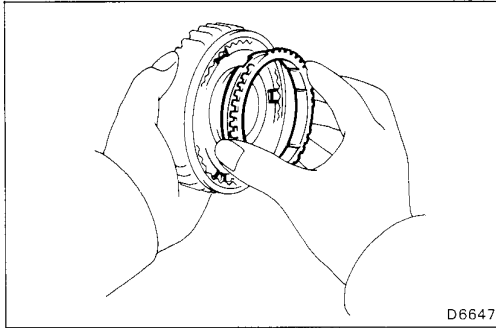




4. MEASURE THIRD GEAR THRUST CLEARANCE

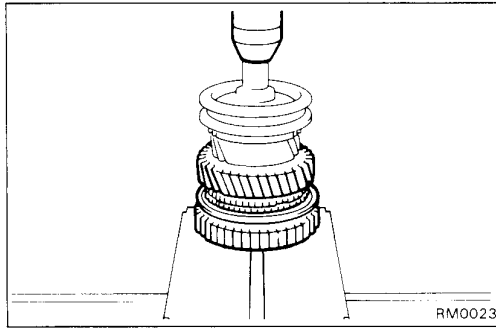
Using a feeler gauge, measure the 3rd gear thrust clearance.

**Standard clearance: 0.10 – 0.25 mm
(0.0039 – 0.0098 in.)**

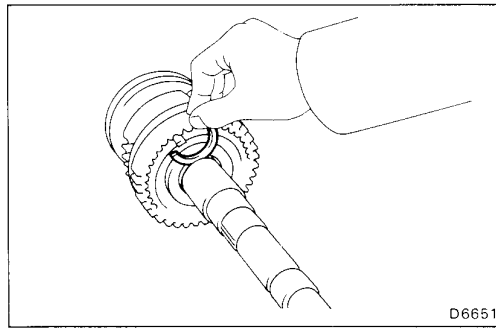


5. INSTALL SECOND GEAR AND NO.1 HUB SLEEVE

- (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 hub sleeve.

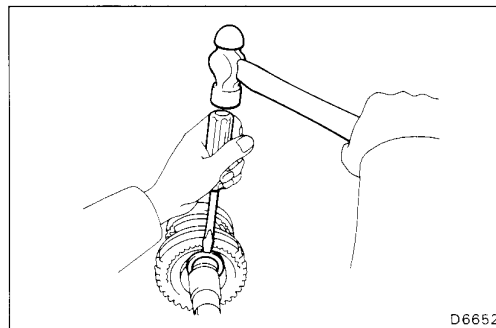


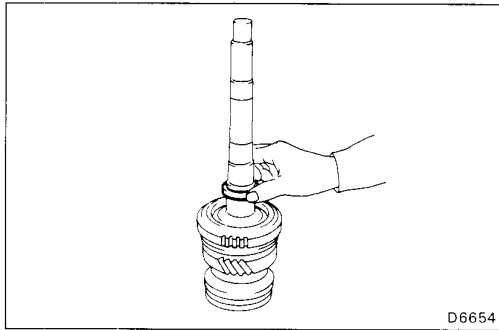
6. INSTALL SNAP RING

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

Mark	Thickness	mm (in.)
A	2.30 – 2.35	(0.0906 – 0.0925)
B	2.35 – 2.40	(0.0925 – 0.0945)
C	2.40 – 2.45	(0.0945 – 0.0965)
D	2.45 – 2.50	(0.0965 – 0.0984)
E	2.50 – 2.55	(0.0984 – 0.1004)
F	2.55 – 2.60	(0.1004 – 0.1024)
G	2.60 – 2.65	(0.1024 – 0.1043)

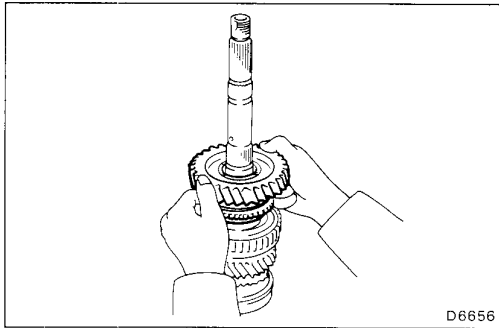
- (b) Using a screwdriver and hammer, install the snap ring.





7. INSTALL SPACER AND FIRST GEAR ASSEMBLY

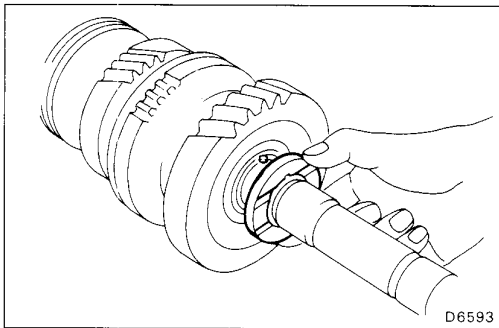
(a) Install the spacer on the output shaft.



(b) Apply gear oil to the needle roller bearing.

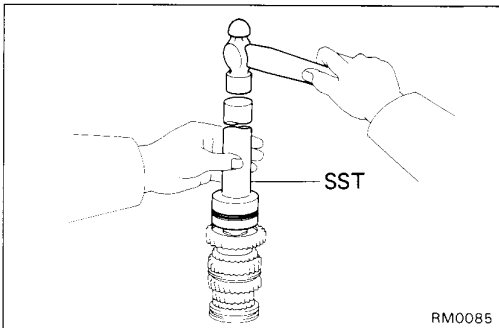
(c) Assemble the 1st gear, synchronizer ring and needle roller bearing.

(d) Install the assembly on the output shaft with the synchronizer ring slots aligned with the shifting keys.



8. INSTALL STRAIGHT PIN AND FIRST GEAR THRUST WASHER

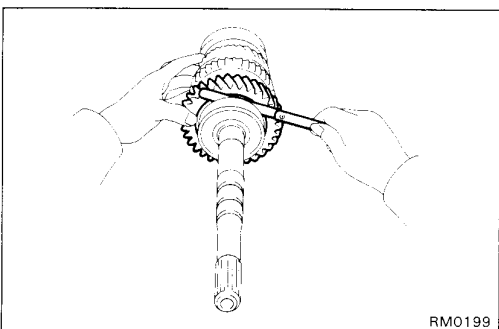
Install the 1st gear thrust washer onto the output shaft with the straight pin aligned with the 1st gear thrust washer.



9. INSTALL OUTPUT SHAFT CENTER BEARING

Using SST, drive in the bearing with the outer race snap ring groove toward the rear.

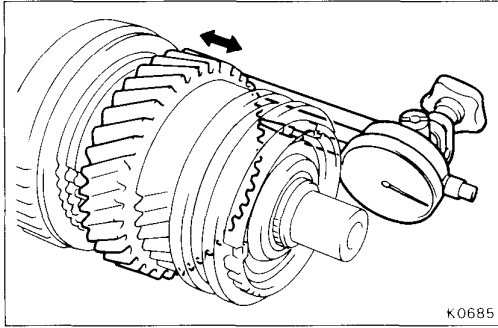
SST 09309-35010



10. MEASURE FIRST GEAR THRUST CLEARANCE

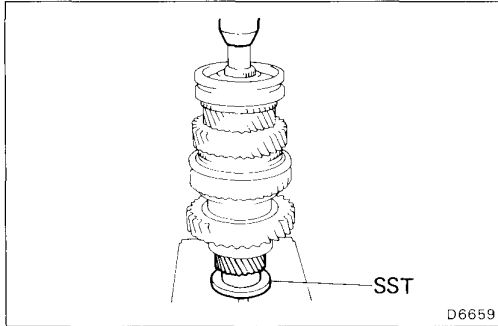
Using a feeler gauge, measure the 1st gear thrust clearance.

Standard clearance: 0.10 — 0.45 mm
(0.0039 — 0.0177 in.)

**11. MEASURE SECOND GEAR THRUST CLEARANCE**

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

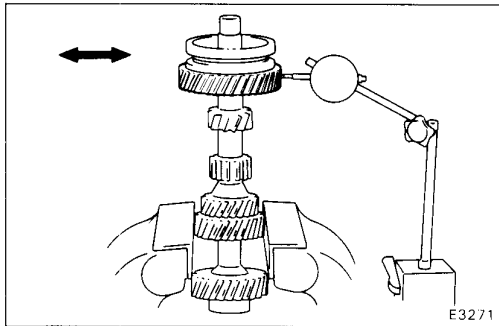
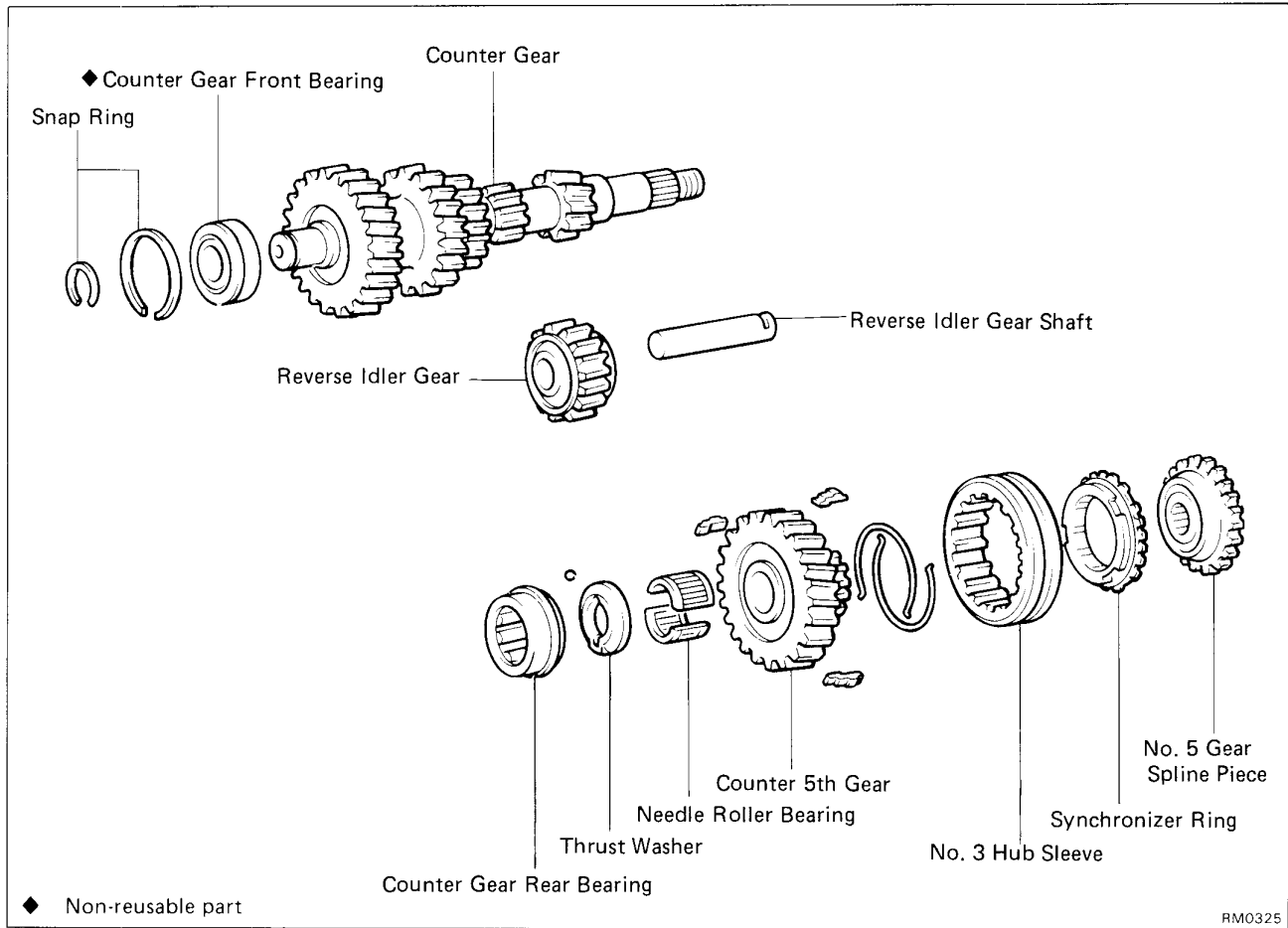
Standard clearance: 0.10 – 0.25 mm
(0.0039 – 0.0098in.)

**12. INSTALL FIFTH GEAR**

Using SST and a press, install the 5th gear.

SST 09316-60010 (09316-00030)

Counter Gear and Reverse Idler Gear COMPONENTS



INSPECTION OF COUNTER GEAR

1. CHECK OIL CLEARANCE OF 5TH GEAR

- (a) Install the spacer, counter 5th gear and needle roller bearings.
- (b) Using a dial indicator, measure the counter 5th gear oil clearance.

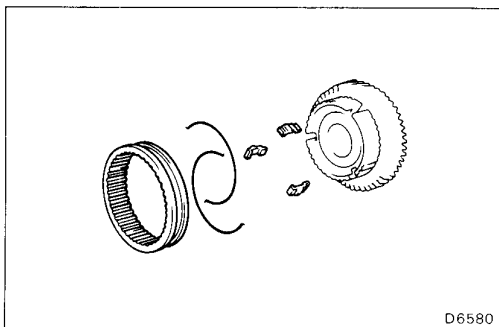
Standard clearance: 0.015 — 0.068 mm
(0.006 — 0.0027 in.)

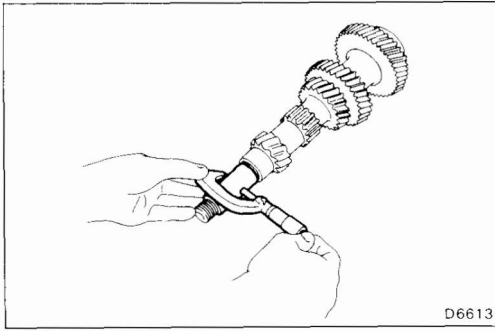
Maximum clearance: 0.16 mm (0.0063 in.)

If the clearance exceeds the limit, replace the gear, bearing or shaft.

2. REMOVE HUB SLEEVE NO.3 SHIFTING KEYS AND SPRINGS FROM COUNTER 5TH GEAR

Using a screwdriver, remove three shifting keys and two springs from counter 5th gear.

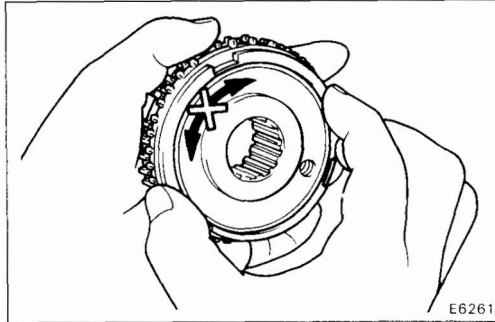




3. INSPECT COUNTER GEAR

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

Minimum diameter: 27.860 mm (1.0968 in.)



4. INSPECT SYNCHRONIZER RINGS

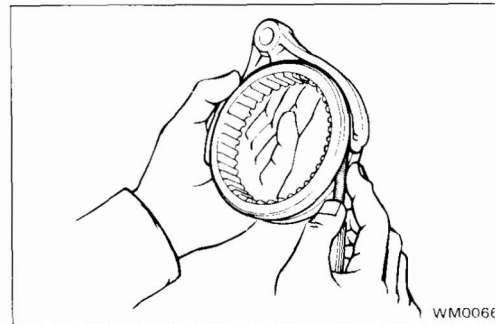
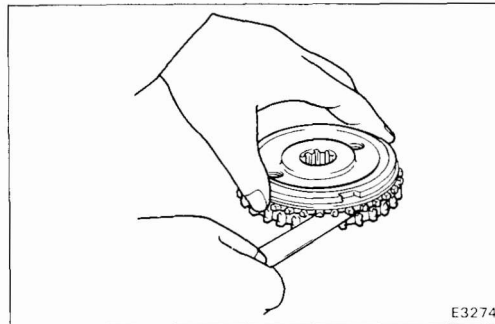
(a) Turn the ring and push it in to check the braking action.

(b) Measure the clearance between the synchronizer ring back and the gear spline end.

**Standard clearance: 0.8 – 1.6 mm
(0.031 – 0.063 in.)**

Minimum clearance: 0.6 mm (0.024 in.)

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

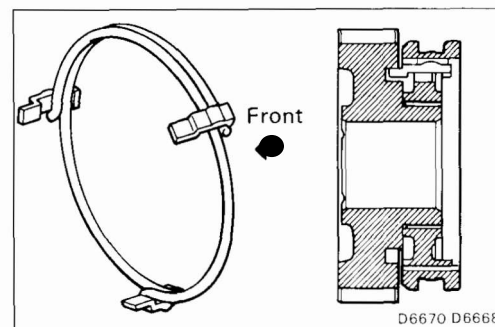


5. MEASURE CLEARANCE OF SHIFT FORKS AND HUB SLEEVES

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (0.039 in.)

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

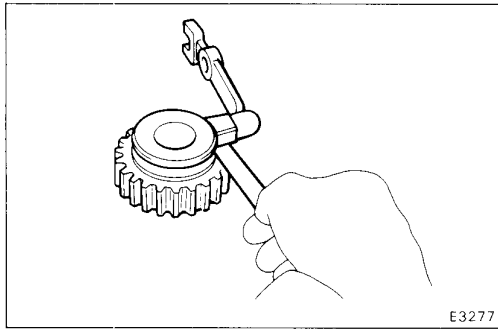


6. INSTALL HUB SLEEVE NO.3 SHIFTING KEYS AND SPRINGS TO COUNTER 5TH GEAR

(a) Install the counter 5th gear and shifting keys to the hub sleeve.

(b) Install the shifting key springs under the shifting keys.

NOTICE: Install the key springs positioned so that their end gaps are not in line.



INSPECTION OF REVERSE IDLER GEAR

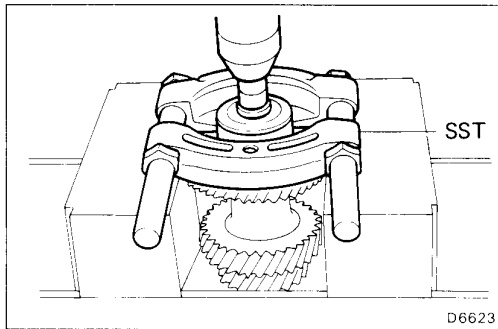
MEASURE CLEARANCE OF REVERSE IDLER GEAR AND SHIFT ARM SHOE

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

Standard clearance: 0.05 — 0.25 mm
(0.0020 — 0.0098 in.)

Maximum clearance: 0.5 mm (0.020 in.)

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



REPLACEMENT OF BEARING

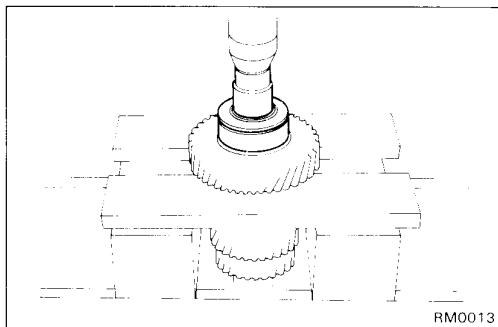
IF NECESSARY, REPLACE COUNTER GEAR FRONT BEARING

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

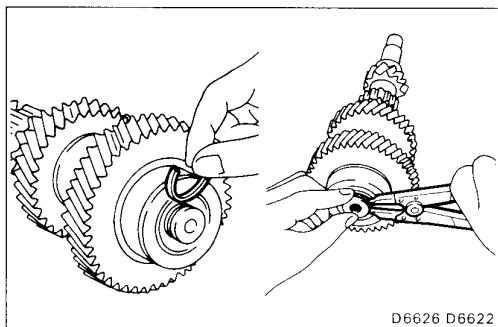
(b) Using SST, press out the bearing.

SST 09950-00020

(c) Replace the side race.



(d) Using a 24-mm socket wrench, press in the bearing and inner race.

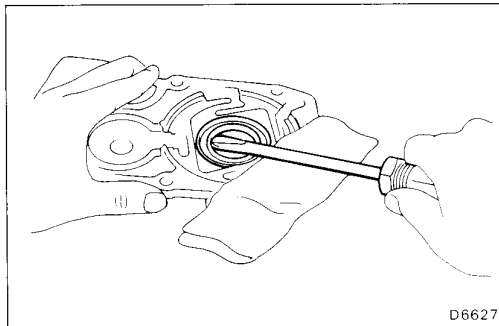
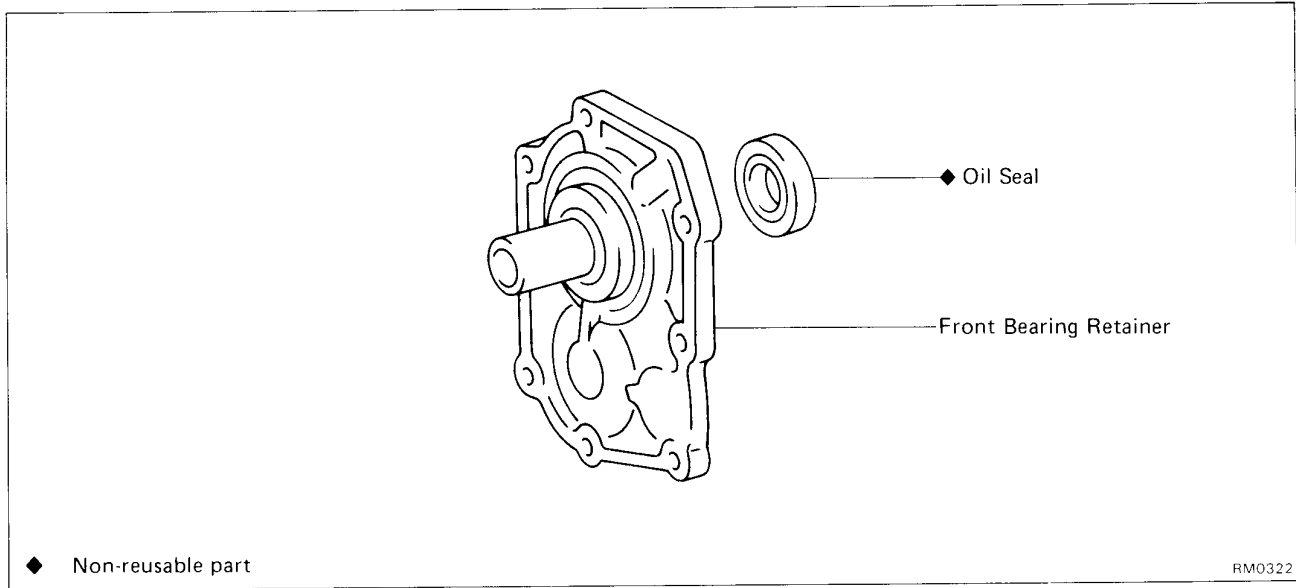


(e) Select a snap ring that will allow minimum axial play and install it on the shaft.

Mark	Thickness	mm (in.)
A	2.00 — 2.05	(0.0787 — 0.0807)
B	2.05 — 2.10	(0.0807 — 0.0827)
C	2.10 — 2.15	(0.0827 — 0.0846)
D	2.15 — 2.20	(0.0846 — 0.0866)
E	2.20 — 2.25	(0.0866 — 0.0886)

Front Bearing Retainer

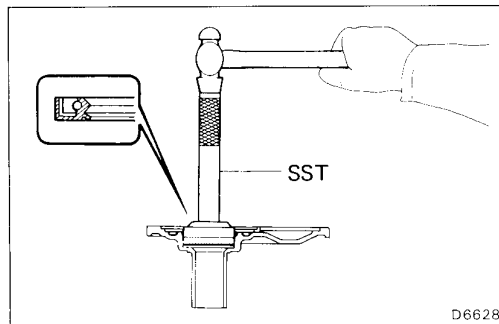
COMPONENTS



REPLACEMENT OF OIL SEAL

IF NECESSARY, REPLACE FRONT BEARING RETAINER OIL SEAL

(a) Using a screwdriver, pry out the oil seal.

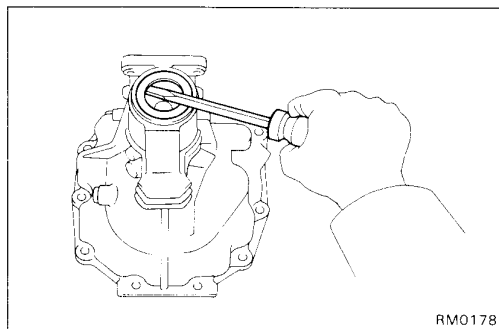
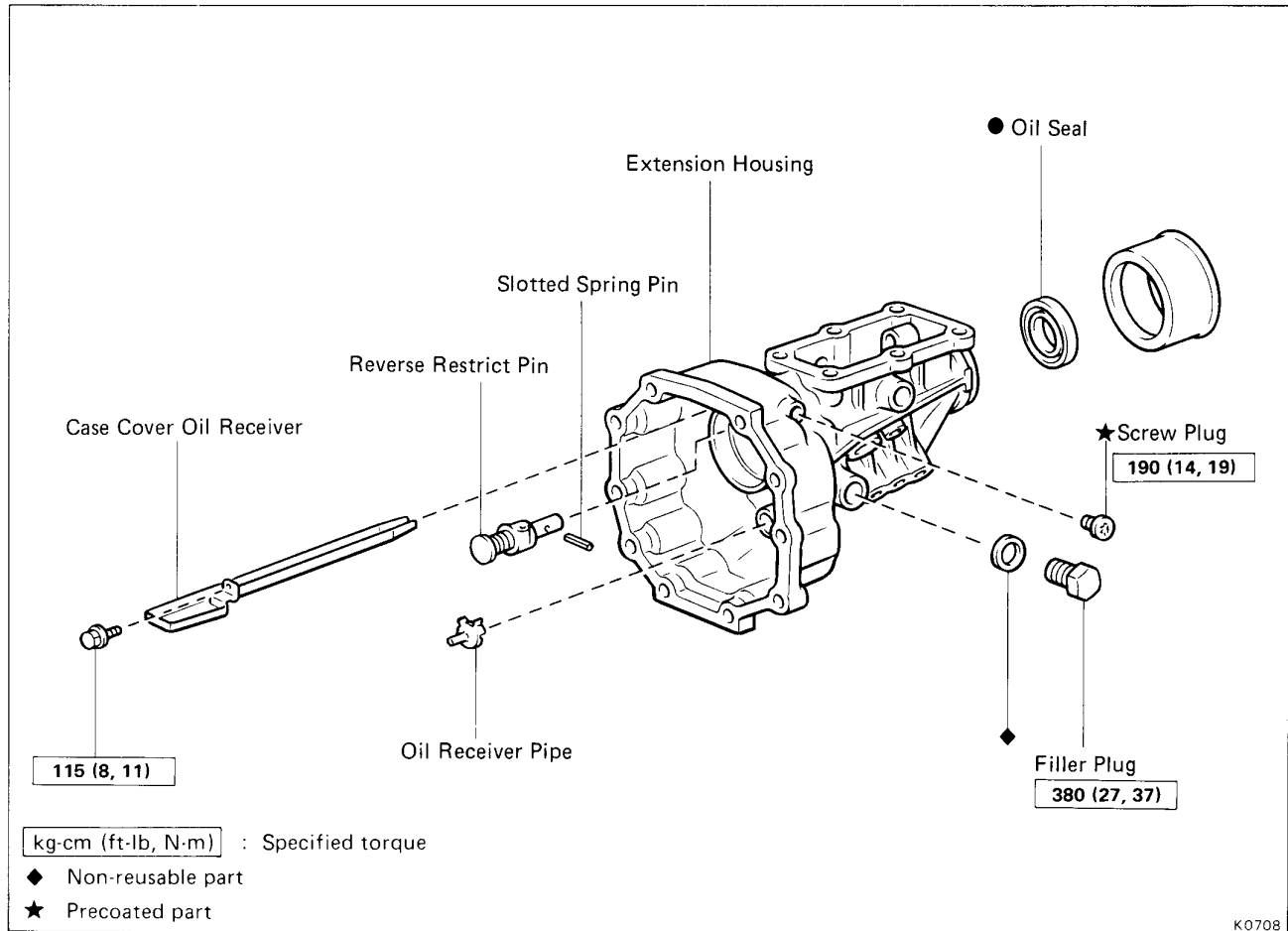


(b) Using SST, drive in a new oil seal.

SST 09608-35014 (09608-06020, 09608-06090)

Drive in depth: 11.2 – 12.2 mm (0.441 – 0.480 in.)
Transmission case installation surface

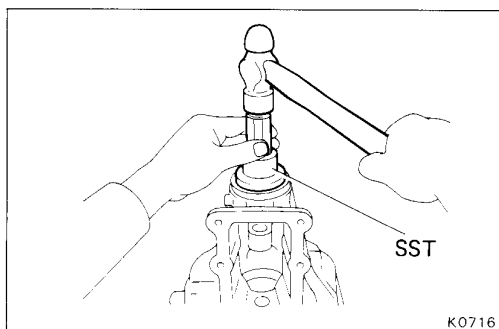
Extension Housing COMPONENTS



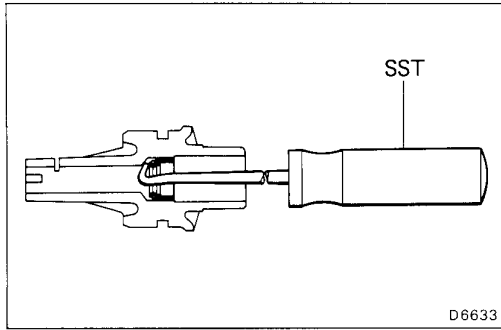
REPLACEMENT OF OIL SEAL

1. IF NECESSARY, REPLACE EXTENSION HOUSING OIL SEAL

- (a) Remove the dust deflector.
- (b) Using a screwdriver, pry out the oil seal.

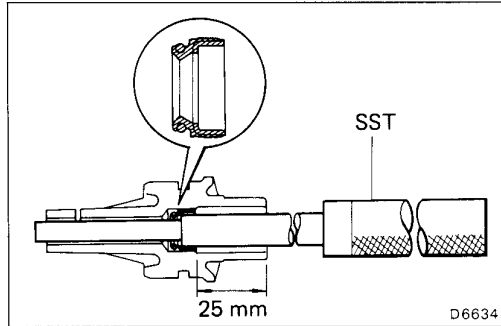


- (c) Using SST, drive in a new oil seal.
SST 09325-40010
- (d) Install the dust deflector.

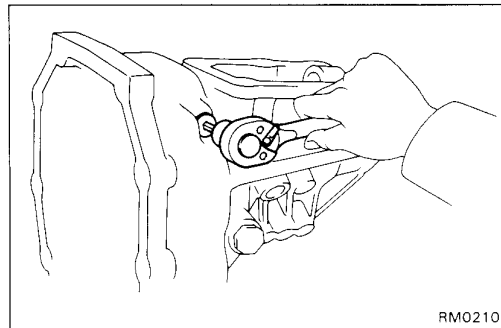


2. IF NECESSARY, REPLACE SPEEDOMETER DRIVEN GEAR OIL SEAL

- (a) Using SST, pull out the oil seal.
SST 09921-00010



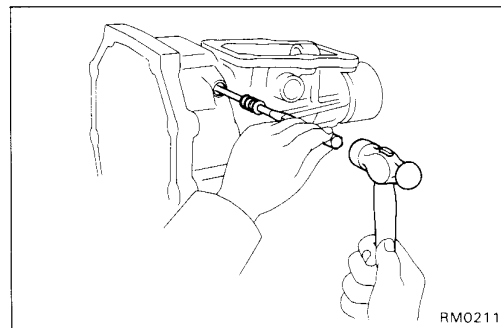
- (b) Using SST, drive in a new oil seal into the sleeve.
SST 09201-60011
Drive in depth: 25 mm (0.98 in.)



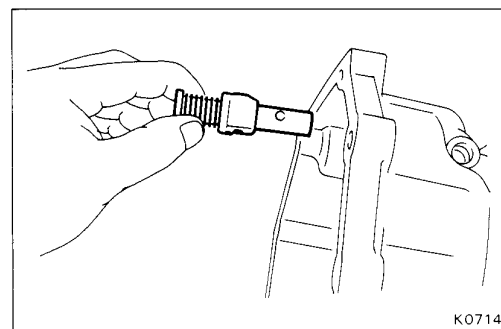
INSPECTION AND REPLACEMENT OF REVERSE RESTRICT PIN

1. REMOVE REVERSE RESTRICT PIN

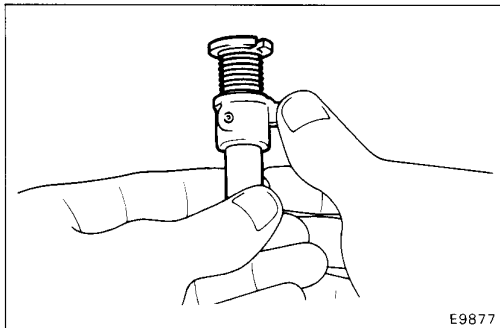
- (a) Using a torx socket wrench, remove the screw plug.



- (b) Using a pin punch and hammer, drive out the slotted spring pin.

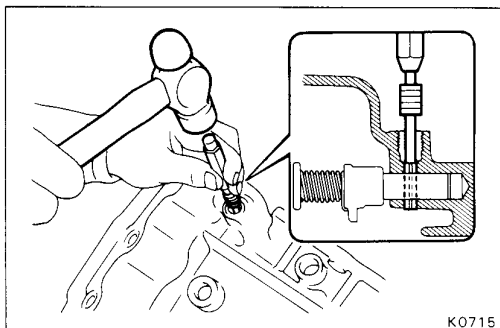


- (c) Remove the reverse restrict pin.



2. INSPECTION OF REVERSE RESTRICT PIN

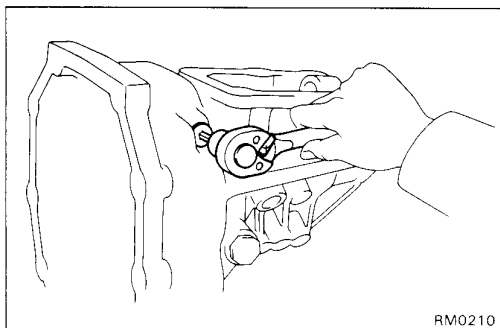
Turn and push the reverse restrict pin by hand while applying direction.



3. INSTALL REVERSE RESTRICT PIN

(a) Install the reverse restrict pin to the extension housing or transfer adaptor.

(b) Using pin punch and hammer, drive in the slotted spring pin.



(c) Apply liquid sealer to the plug threads.

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

(d) Using a torx socket wrench, install and torque the screw plug.

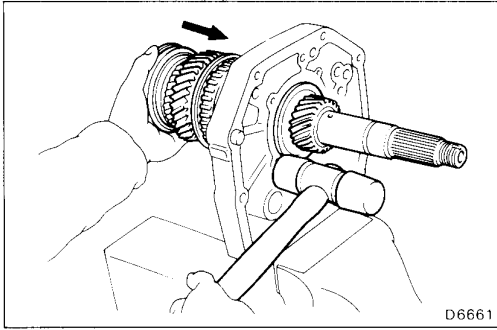
Torque: 190 kg-cm (14 ft-lb, 19 N·m)

ASSEMBLY OF TRANSMISSION

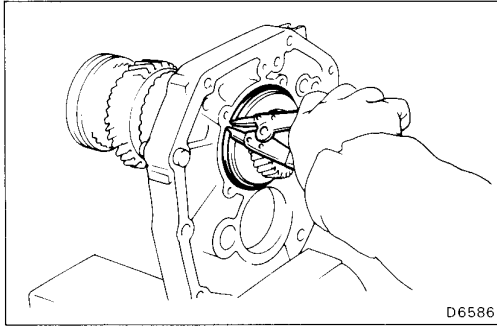
(See pages MT-49, 50)

1. INSTALL OUTPUT SHAFT TO INTERMEDIATE PLATE

- (a) Install the output shaft into the intermediate plate by pushing on the output shaft and tapping on the intermediate plate.

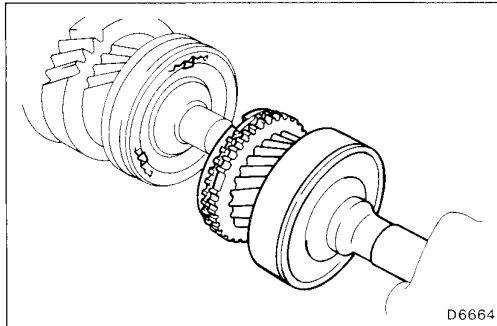


- (b) Using snap ring pliers, install the snap ring.



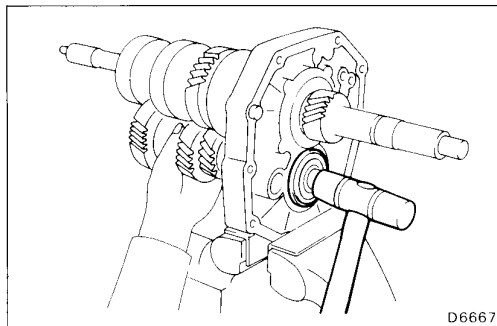
2. INSTALL INPUT SHAFT

- (a) Apply gear oil to the needle roller bearing and install it into the input shaft.
- (b) Install the input shaft to the output shaft with the synchronizer ring slots aligned with the shifting keys.



3. INSTALL COUNTER GEAR

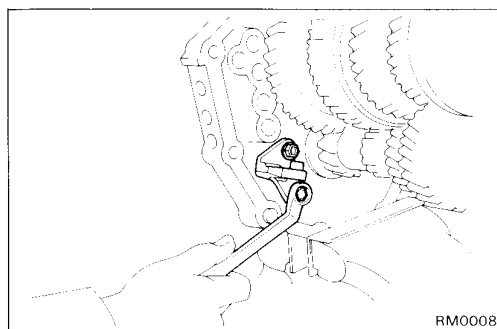
Install the counter gear into the intermediate plate while holding the counter gear, and install the counter rear bearing with a plastic hammer.

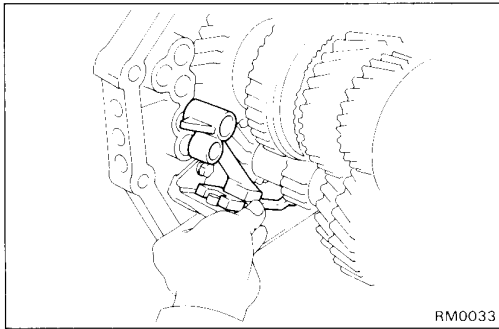


4. INSTALL REVERSE SHIFT ARM BRACKET

Install the reverse shift arm bracket and torque the bolts.

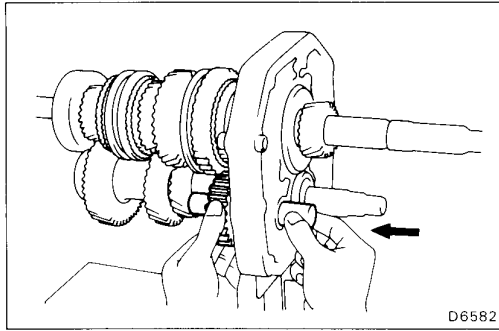
Torque: 185 kg-cm (13 ft-lb, 18 N·m)





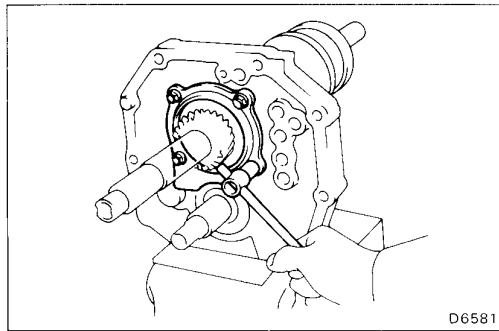
5. INSTALL REVERSE SHIFT ARM TO REVERSE SHIFT ARM BRACKET

Install the reverse shift arm to the pivot of the reverse shift arm bracket.



6. INSTALL REVERSE IDLER GEAR AND SHAFT

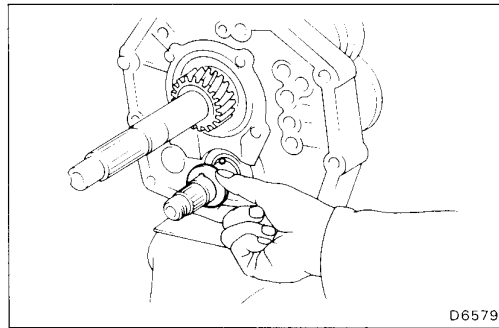
Align the reverse shift arm shoe to the reverse idler gear groove and insert the reverse idler gear shaft to the intermediate plate.



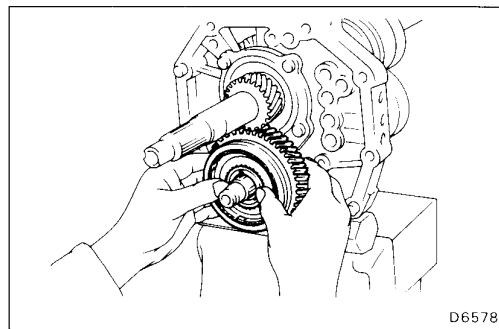
7. INSTALL REAR BEARING RETAINER

- (a) Align the rear bearing retainer to the reverse idler gear shaft groove.
- (b) Install and torque the bolts.

Torque: 185 kg-cm (13 ft-lb, 18 N·m)

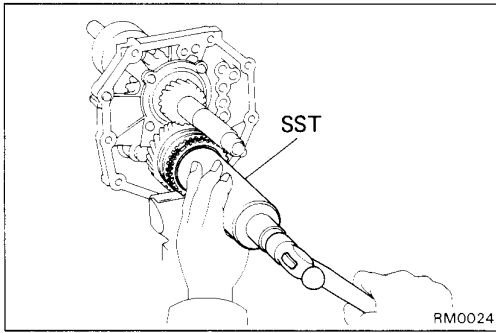


8. INSTALL BALL AND THRUST WASHER



9. INSTALL COUNTER FIFTH GEAR WITH NO.3 HUB SLEEVE ASSEMBLY AND NEEDLE ROLLER BEARINGS

- (a) Apply gear oil to the needle roller bearings.
- (b) Install the counter 5th gear with No.3 hub sleeve and needle roller bearings.

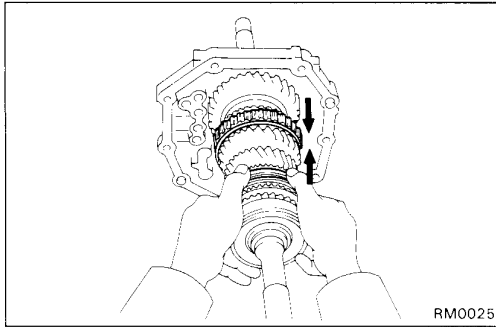


10. INSTALL SYNCHRONIZER RING AND NO.5 GEAR SPLINE PIECE

- (a) Install the synchronizer ring on No.5 gear spline piece.
- (b) Using SST, drive in No.5 gear spline piece with the synchronizer ring slots aligned with the shifting keys.

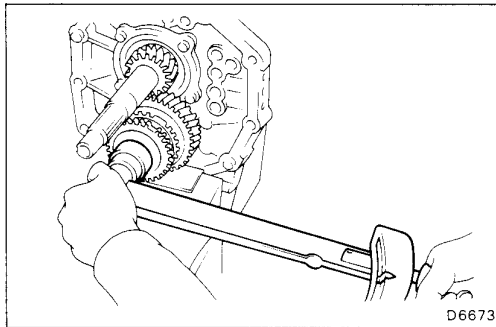
SST 09316-60010 (09316-00010)

HINT: When installing No.5 gear spline piece, support the counter gear in front with a 3-5 lb hammer or equivalent.



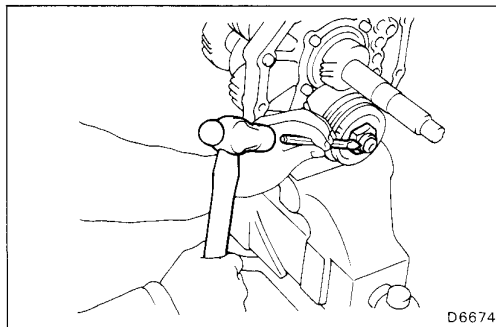
11. INSTALL LOCK NUT

- (a) Engage the gear double meshing.

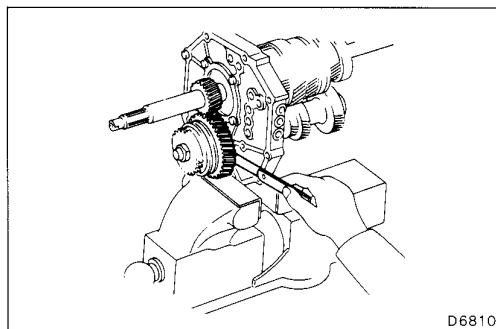


- (b) Install and torque the lock nut.

Torque: 1,300 kg-cm (94 ft-lb, 127 N·m)



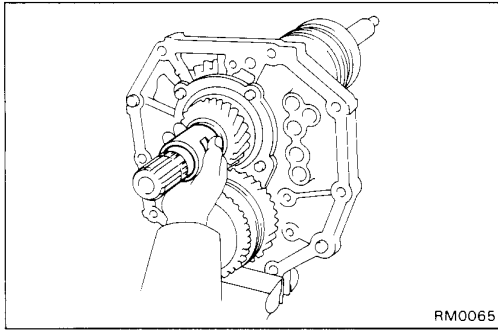
- (c) Stake the lock nut.
- (d) Disengage the gear double meshing.



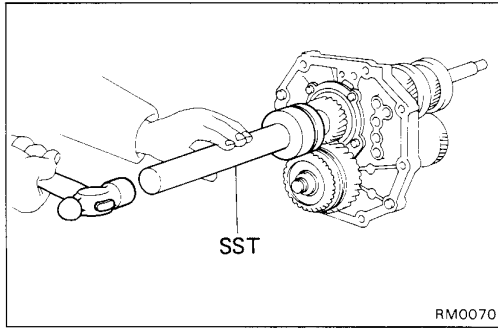
12. MEASURE COUNTER FIFTH GEAR THRUST CLEARANCE

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

**Standard clearance: 0.10 — 0.35 mm
(0.0039 — 0.0138 in.)**



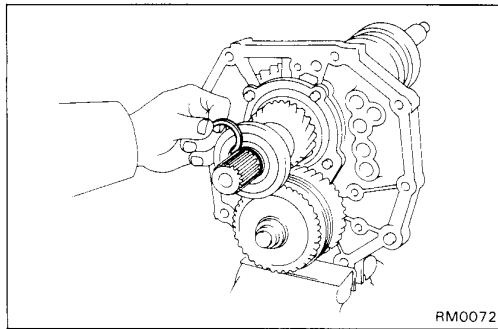
13. INSTALL SPACER



14. INSTALL OUTPUT SHAFT REAR BEARING

Using SST, drive in the rear bearing.

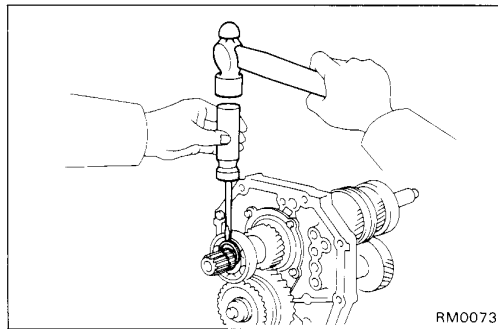
SST 09309-35010



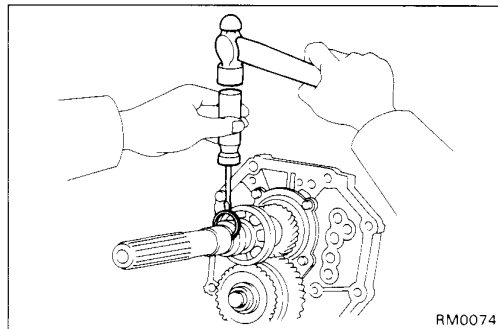
15. INSTALL SNAP RING

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

Mark	Thickness	mm (in.)	Mark	Thickness	mm (in.)
A	2.65 – 2.70	(0.1043 – 0.1063)	K	3.10 – 3.15	(0.1220 – 0.1240)
B	2.70 – 2.75	(0.1063 – 0.1083)	L	3.15 – 3.20	(0.1240 – 0.1260)
C	2.75 – 2.80	(0.1083 – 0.1102)	M	3.20 – 3.25	(0.1260 – 0.1280)
D	2.80 – 2.85	(0.1102 – 0.1122)	N	3.25 – 3.30	(0.1280 – 0.1299)
E	2.85 – 2.90	(0.1122 – 0.1142)	P	3.30 – 3.35	(0.1299 – 0.1319)
F	2.90 – 2.95	(0.1142 – 0.1161)	Q	3.35 – 3.40	(0.1319 – 0.1339)
G	2.95 – 3.00	(0.1161 – 0.1181)	R	3.40 – 3.45	(0.1339 – 0.1358)
H	3.00 – 3.05	(0.1181 – 0.1201)	S	3.45 – 3.50	(0.1358 – 0.1378)
J	3.05 – 3.10	(0.1201 – 0.1220)			



(b) Using a screwdriver and hammer, install the snap ring.

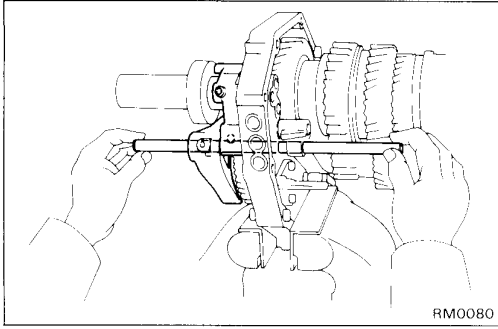


16. INSTALL SPEEDOMETER DRIVE GEAR

(a) Using a screwdriver and hammer, install the front snap ring.

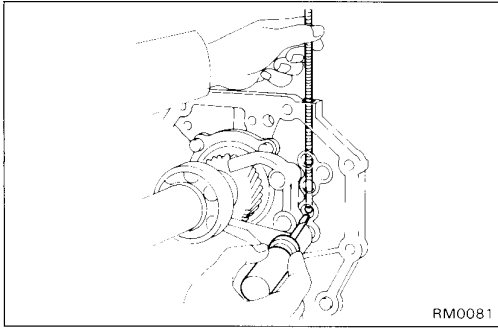
(b) Install the ball and drive gear.

(c) Using a screwdriver and hammer, install the rear snap ring.



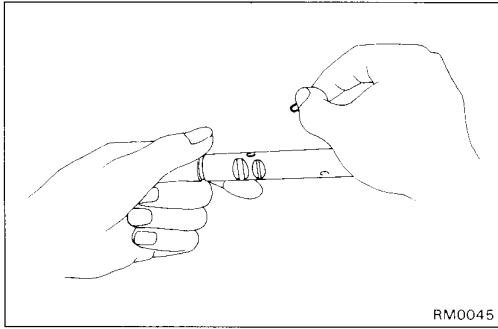
17. INSTALL NO.4 SHIFT FORK SHAFT, REVERSE SHIFT HEAD AND NO.3 SHIFT FORK

- (a) Place No.3 shift fork into the groove of No.3 hub sleeve.
- (b) Install No.4 shift fork shaft to No.3 shift fork, reverse shift head and shift fork through the intermediate plate.
- (c) Install the locking ball into the reverse shift head.

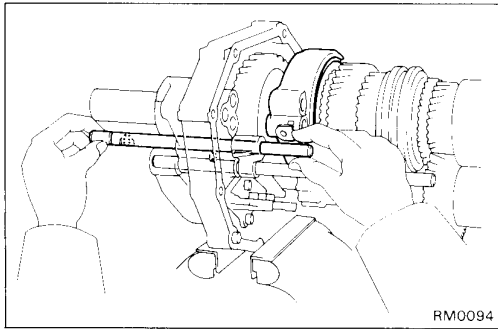


18. INSTALL NO.3 SHIFT FORK SHAFT AND NO.1 SHIFT FORK

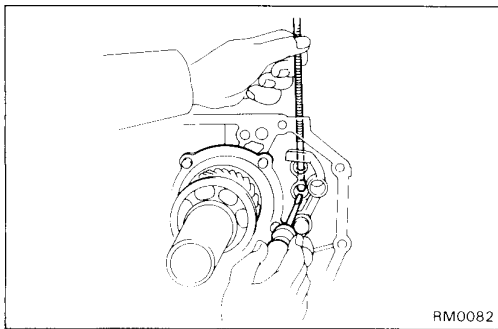
- (a) Using a magnetic finger and screwdriver, install the locking ball into the intermediate plate.



- (b) Install the interlock pin into the shaft hole.

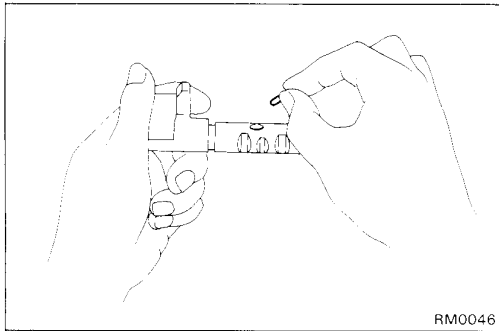


- (c) Place No.1 shift fork into the groove of No.1 hub sleeve.
- (d) Install No.3 fork shaft to the reverse shift fork and shift head through the intermediate plate.

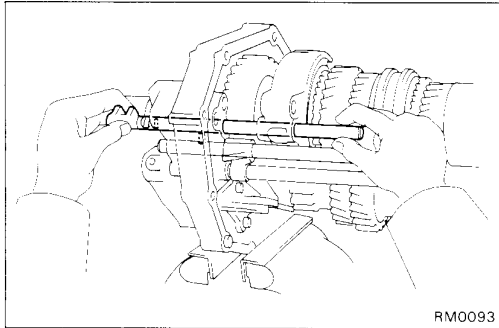


19. INSTALL NO.1 SHIFT FORK SHAFT

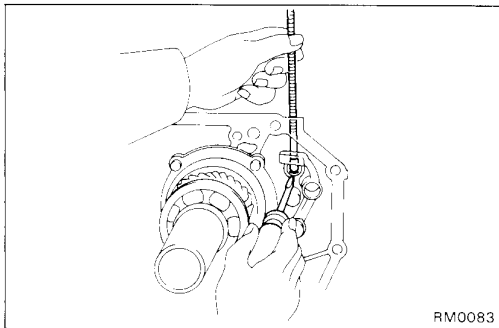
- (a) Using a magnetic finger and screwdriver, install the interlock pin into the intermediate plate.



- (b) Install the interlock pin into the shaft hole.

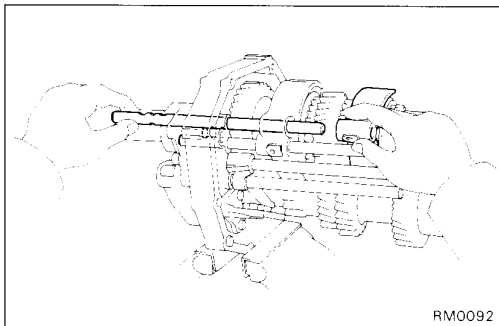


- (c) Install No.1 fork shaft to No.1 shift fork through the intermediate plate.



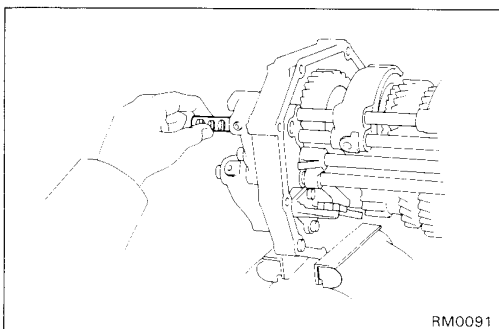
20. INSTALL NO.2 SHIFT FORK SHAFT AND SHIFT FORK

- (a) Using a magnetic finger and screwdriver, install the interlock pin into the intermediate plate.



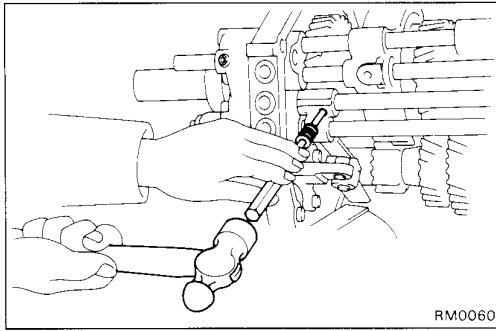
- (b) Place No.2 shift fork into the groove of No.2 hub sleeve.

- (c) Install No.2 fork shaft to No.1 and No.2 shift forks through the intermediate plate.



21. INSTALL NO.5 SHIFT FORK SHAFT

- Install No.5 shift fork shaft to the reverse shift head through the intermediate plate.

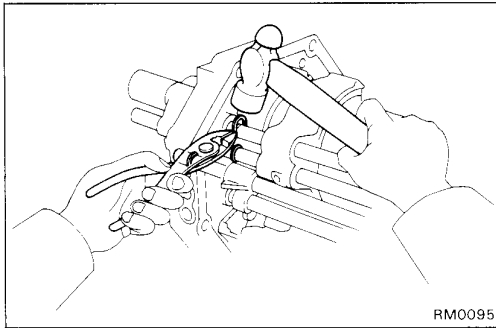


22. INSTALL SLOTTED SPRING PINS

Using a pin punch and hammer, drive in the two slotted spring pins to the reverse shift head and shift fork.

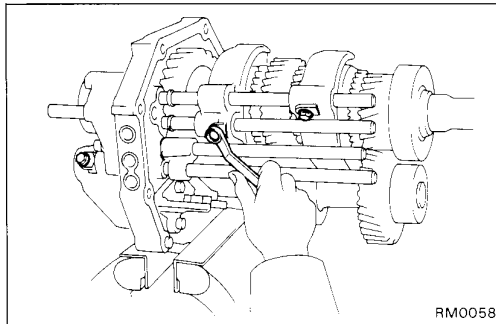
23. CHECK INTERLOCK

- (a) Shift No.1 fork shaft to the 1st speed position.
- (b) No.2, No.3, No.4 and No.5 fork shafts should not move.



24. INSTALL SNAP RINGS

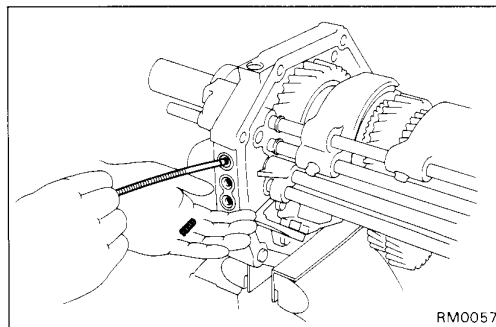
Using pliers and a hammer, install the three snap rings.



25. INSTALL SET BOLTS

Install and torque the three bolts.

Torque: 200 kg-cm (14 ft-lb, 20 N·m)

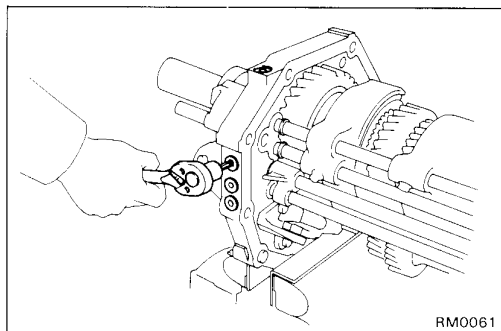


26. INSTALL LOCKING BALLS, SPRINGS AND SCREW PLUGS

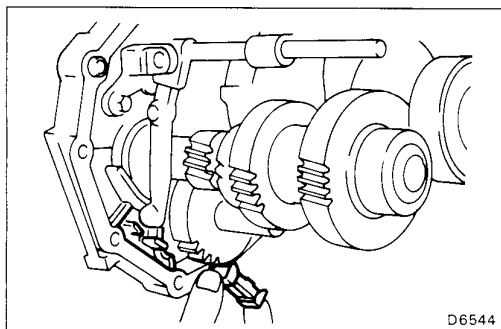
- (a) Apply liquid sealer to the plug threads.

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

- (b) Install the four locking balls, springs and screw plugs.



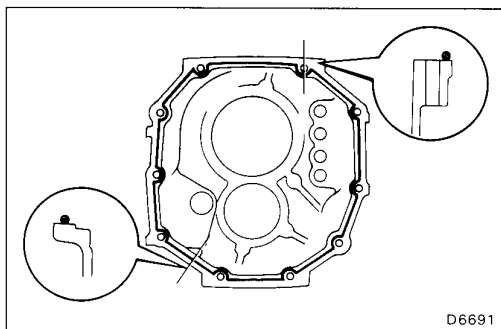
- (c) Using a torx socket wrench, torque the screw plugs.
Torque: 190 kg-cm (14 ft-lb, 19 N·m)



27. INSTALL MAGNET TO INTERMEDIATE PLATE

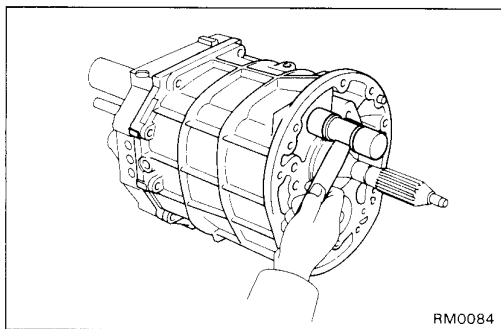
28. DISMOUNT INTERMEDIATE PLATE FROM VISE

- (a) Dismount the intermediate plate from the vise.
 (b) Remove the bolts, nuts and plate washers.

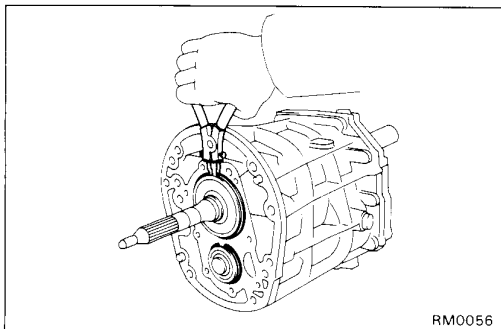


29. INSTALL TRANSMISSION CASE

- (a) Apply seal packing to the transmission case as shown.
Seal packing: Part No.08826-00090, THREE BOND 1281 or equivalent

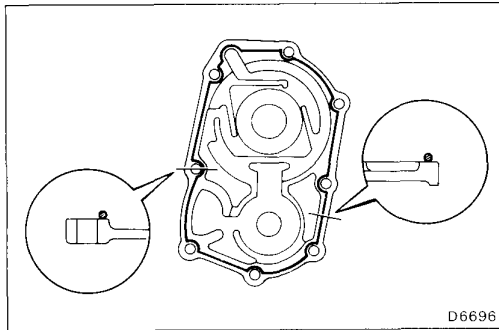


- (b) Align each bearing outer race, each fork shaft end and reverse idler gear shaft end with the case installation holes, and install the case.
 If necessary, tap on the case with a plastic hammer.



30. INSTALL BEARING SNAP RINGS

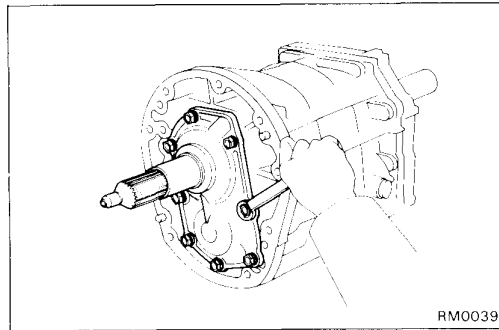
- Using snap ring pliers, install the two snap rings to the input shaft bearing and counter gear front bearing.



31. INSTALL FRONT BEARING RETAINER

- (a) Apply seal packing to the retainer as shown, and install it to the transmission case.

Seal packing: Part No.08826-00090, THREE BOND 1281 or equivalent

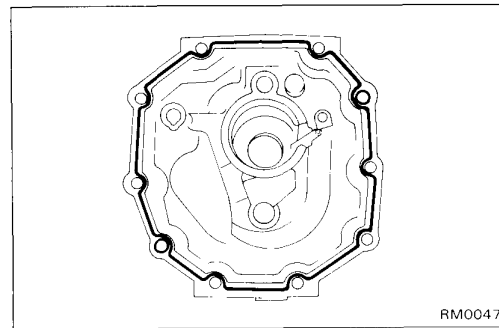


- (b) Apply liquid sealer to the bolt threads.

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

- (c) Install and torque the bolts.

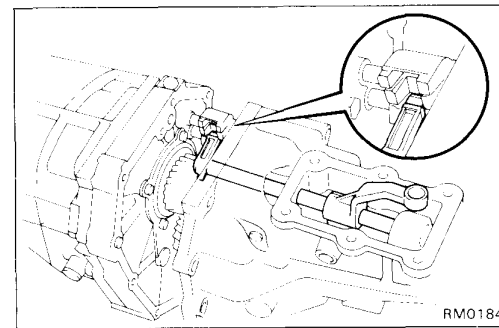
Torque: 170 kg-cm (12 ft-lb, 17 N·m)



32. INSTALL EXTENSION HOUSING, SHIFT AND SELECT LEVER AND SHIFT LEVER HOUSING

- (a) Apply seal packing to the extension housing as shown.

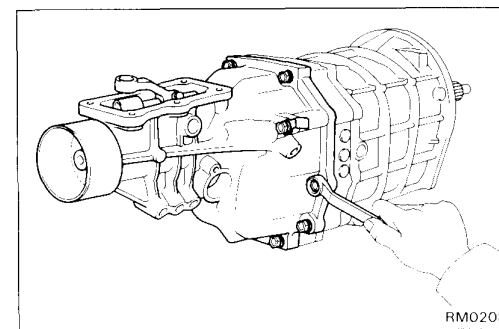
Seal packing: Part No.08826-00090, THREE BOND 1281 or equivalent



- (b) Insert the shift and select lever into the extension housing.

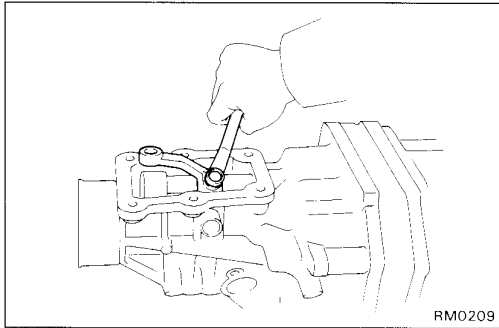
- (c) Connect the shift and select lever to the fork shaft and put in the shift lever housing.

- (d) Align No.5 fork shaft to the extension housing installation hole and push in the extension housing.



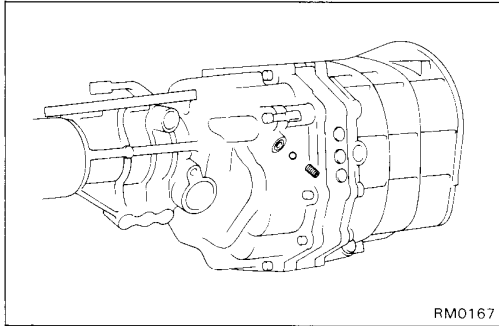
- (e) Install and torque the extension housing bolts.

Torque: 380 kg-cm (27 ft-lb, 37 N·m)



(f) Install and torque the shift lever housing bolt.

Torque: 390 kg-cm (28 ft-lb, 38 N·m)

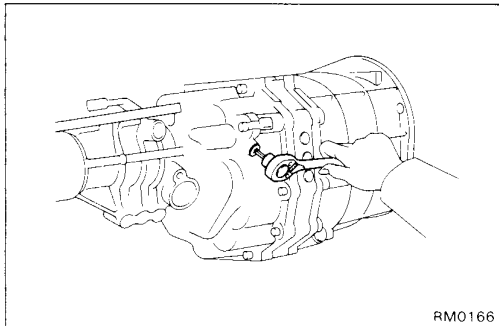


33. INSTALL LOCKING BALL, SPRING AND SCREW PLUG

(a) Apply liquid sealer to the plug threads.

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

(b) Install the locking ball, spring and plug.



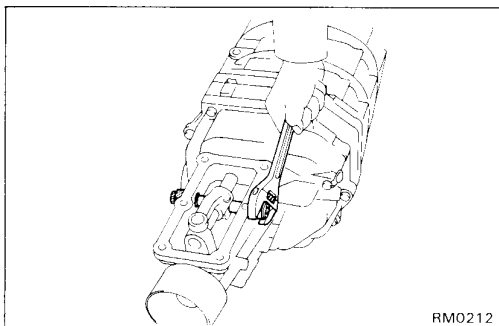
(c) Torque the plug.

Torque: 190 kg-cm (14 ft-lb, 19 N·m)

34. AFTER INSTALLING EXTENSION HOUSING OR TRANSFER ADAPTOR CHECK FOLLOWING ITEMS

(a) Check to see that the input and output shafts rotate smoothly.

(b) Check to see that shifting can be made smoothly to all positions.

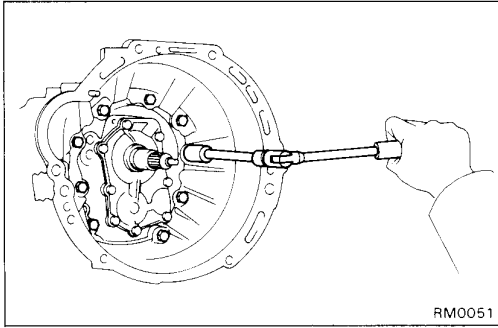


35. INSTALL RESTRICT PINS

(a) Install the black pin on the reverse gear/5th gear side.

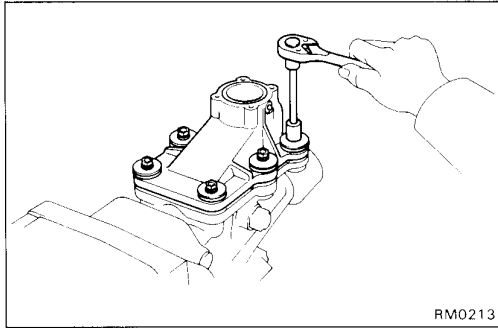
(b) Install another pin and torque the pins.

Torque: 380 kg-cm (27 ft-lb, 37 N·m)

**36. INSTALL CLUTCH HOUSING**

- (a) Install the clutch housing.
- (b) Install and torque the nine bolts.

Torque: 370 kg-cm (27 ft-lb, 36 N·m)

**37. INSTALL SHIFT LEVER RETAINER**

Torque: 160 kg-cm (12 ft-lb, 16 N·m)

39. INSTALL BACK-UP LIGHT SWITCH

Torque: 380 kg-cm (27 ft-lb, 37 N·m)

40. INSTALL SPEEDOMETER DRIVEN GEAR**41. INSTALL REAR SPEED SENSOR (w/ A.B.S.)**