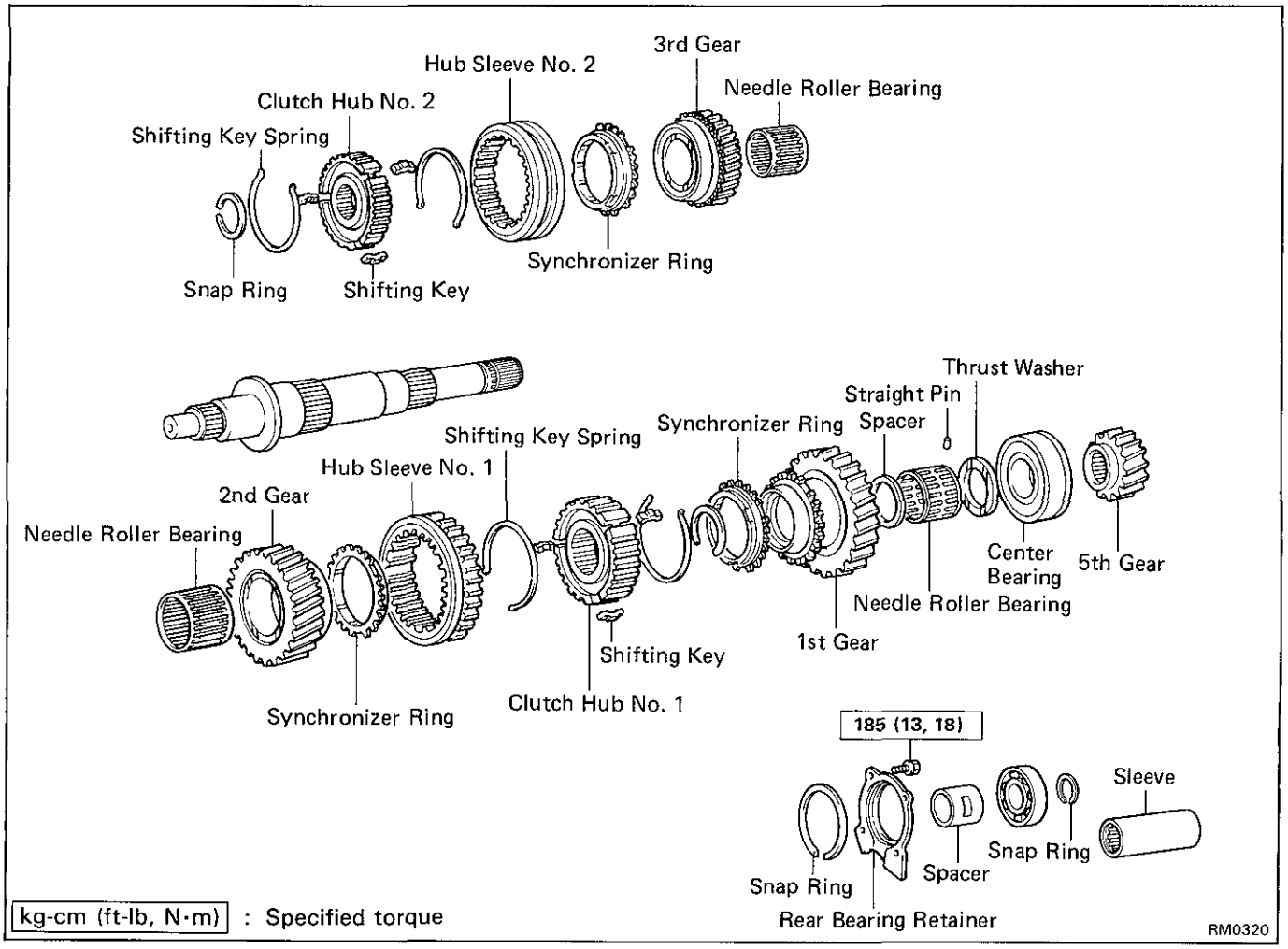
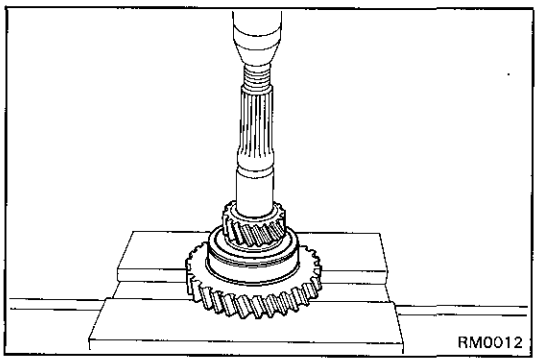
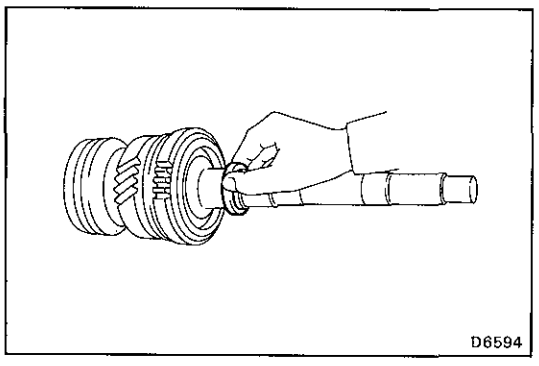
Output Shaft Assembly

COMPONENTS

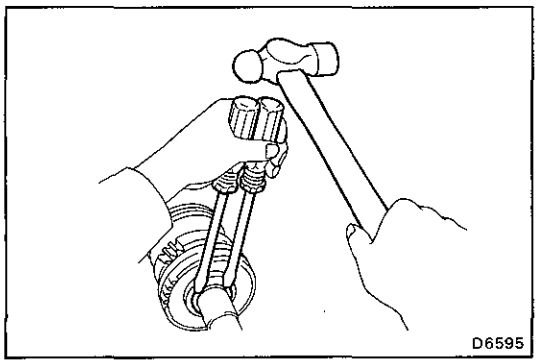






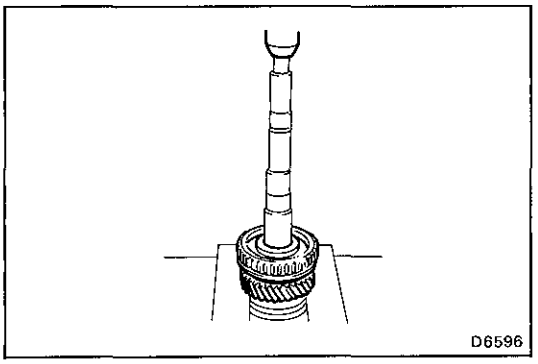
DISASSEMBLY OF OUTPUT SHAFT ASSEMBLY

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.



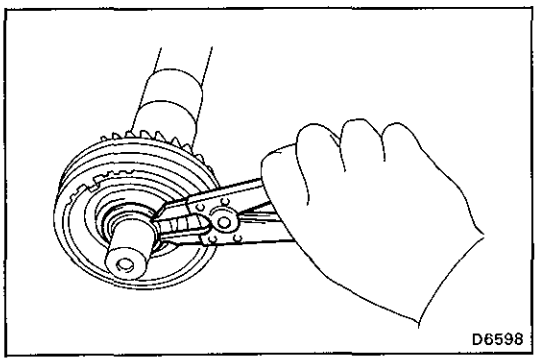
2. REMOVE HUB SLEEVE NO.1 ASSEMBLY AND SECOND GEAR ASSEMBLY

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



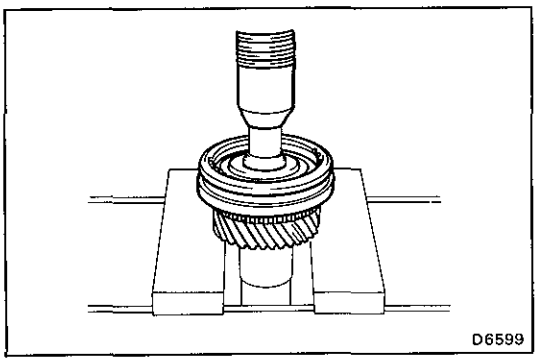
(b) Using a press, remove hub sleeve No.1, synchronizer ring and 2nd gear.

(c) Remove the needle roller bearing.



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

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



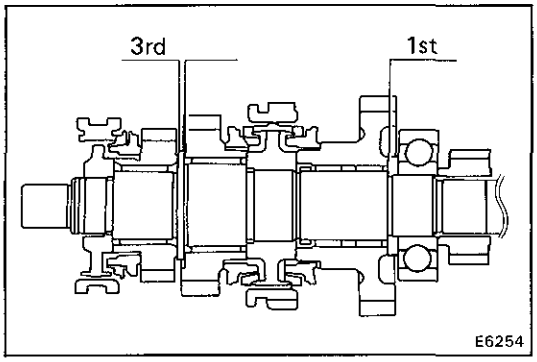
(b) Using a press, remove hub sleeve No.2, synchronizer ring and 3rd gear.

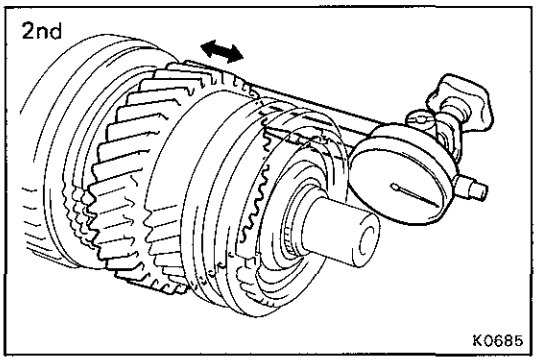
(c) Remove the needle roller bearing.

4. REMOVE SHIFTING KEYS AND SPRINGS FROM HUB SLEEVE ASSEMBLY

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

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





INSPECT OF OUTPUT SHAFT ASSEMBLY

1. MEASURE EACH GEAR THRUST CLEARANCE

(a) Using a feeler gauge, measure the thrust clearance of 1st gear and 3rd gear.

1st gear

Standard clearance:	**0.10 — 0.45 mm (0.0039 — 0.0177 in.)**
Maximum clearance:	**0.55 mm (0.0197 in.)**

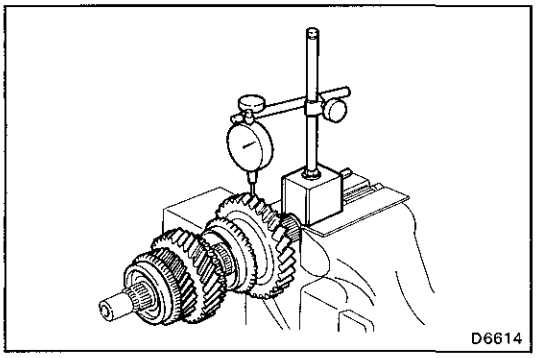
3rd gear

Standard clearance:	**0.10 — 0.25 mm (0.0039 — 0.0098 in.)**
Maximum clearance:	**0.30 mm (0.0118 in.)**

(b) Using a dial indicator, measure the thrust clearance of 2nd gear.

2nd gear

Standard clearance:	**0.10 — 0.25 mm (0.0039 — 0.0098 in.)**
Maximum clearance:	**0.30 mm (0.0118 in.)**



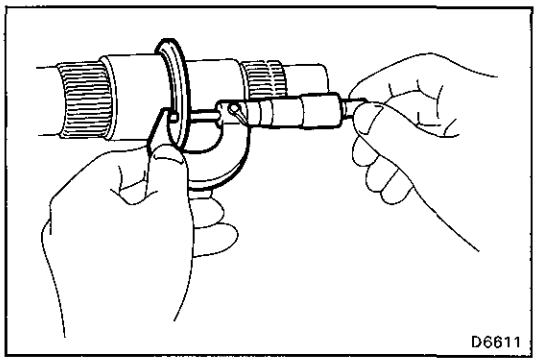
2. CHECK OIL CLEARANCE OF EACH GEAR

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

Standard clearance:

1st gear	**0.020 — 0.073 mm (0.0008 — 0.0029 in.)**
2nd and 3rd gears	**0.015 — 0.068 mm (0.0006 — 0.0027 in.)**
Maximum clearance:	**0.16 mm (0.0063 in.)**

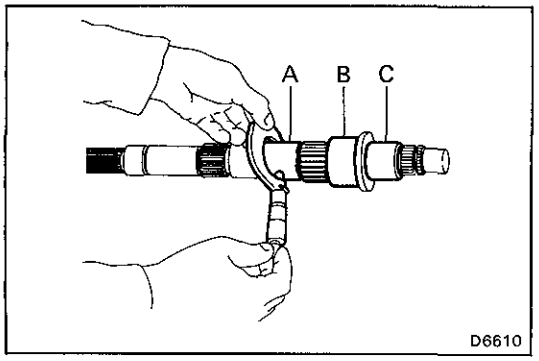
If the clearance more than the limit, replace the gear needle roller bearing or shaft.



3. INSPECT OUTPUT SHAFT

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

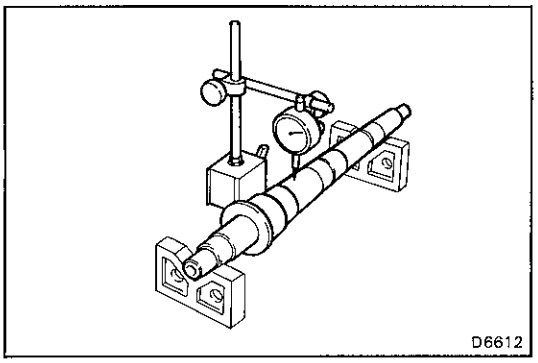
Minimum thickness: 4.70 mm (0.1850 in.)



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

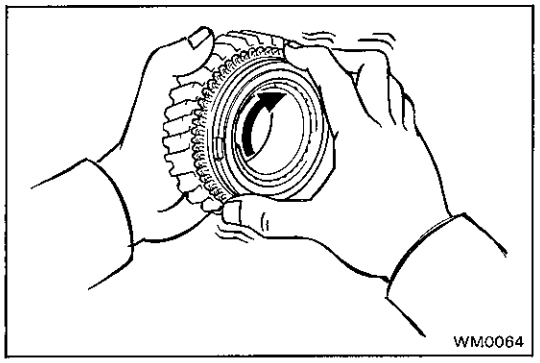
Minimum diameter:

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.)



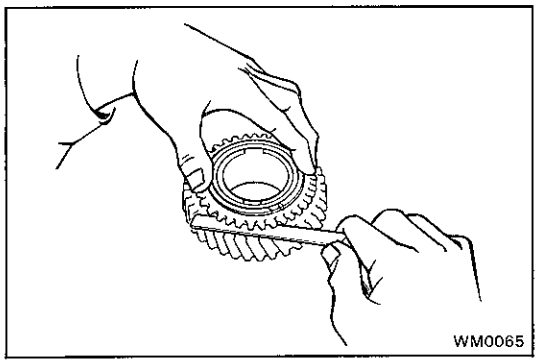
(c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.06 mm (0.0024 in.)



4. INSPECT SYNCHRONIZER RINGS

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

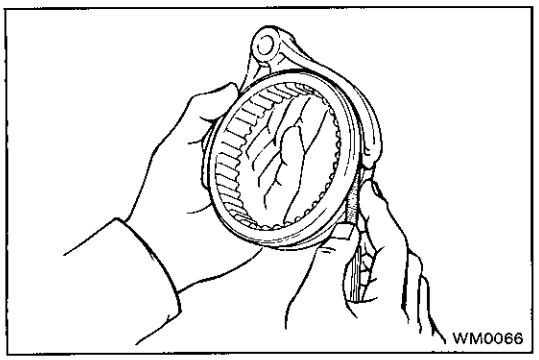


(b) Measure the clearance between the synchronizer ring back and the gear spline end.

Standard clearance: 0.8 — 1.6 mm (0.013 — 0.063 in.)

Minimum clearance: 0.6 mm (0.024 in.)

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

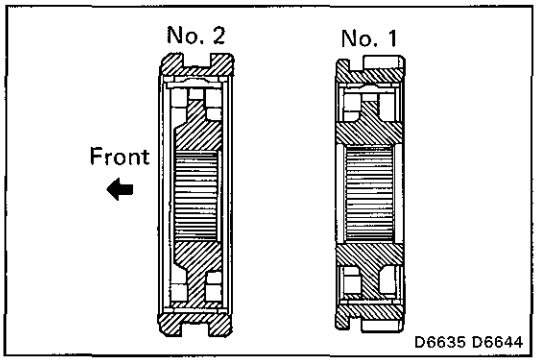


5. MEASURE CLEARANCE OF SHIFT FORKS AND HUB SLEEVES

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 more than the limit, replace the shift fork or hub sleeve.



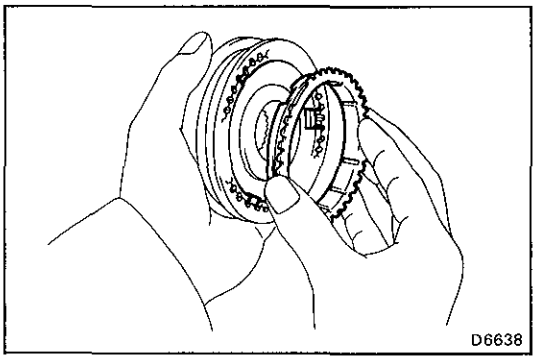
ASSEMBLY OF OUTPUT SHAFT ASSEMBLY

1. *INSERT CLUTCH HUB NO.1 AND NO.2 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.

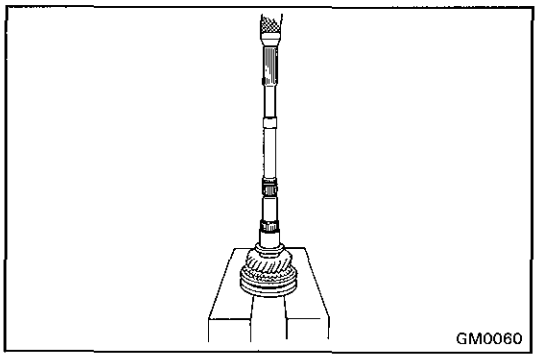


2. INSTALL THIRD GEAR AND HUB SLEEVE NO.2 ON OUTPUT SHAFT

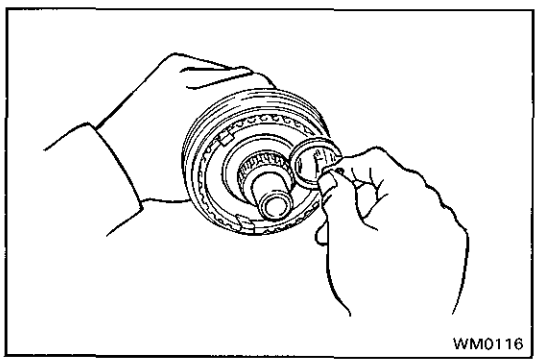
(a) Apply gear oil to the shaft and needle roller bearing.

(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 hub sleeve No.2.

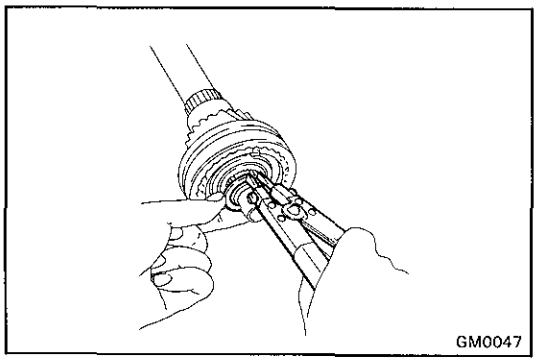


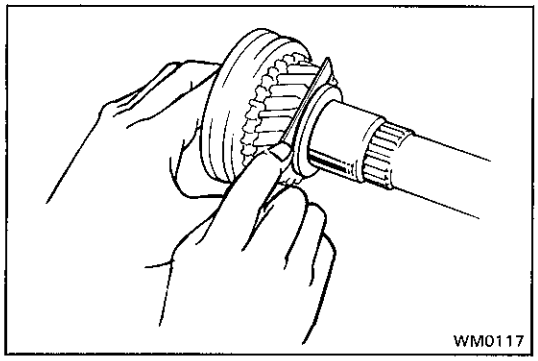
3. INSTALL SNAP RING

(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.

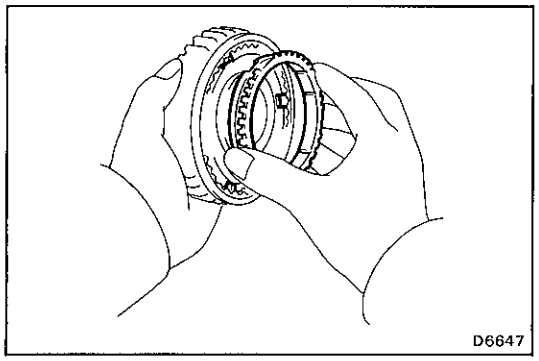




4. MEASURE THIRD GEAR THRUST CLEARANCE

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

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

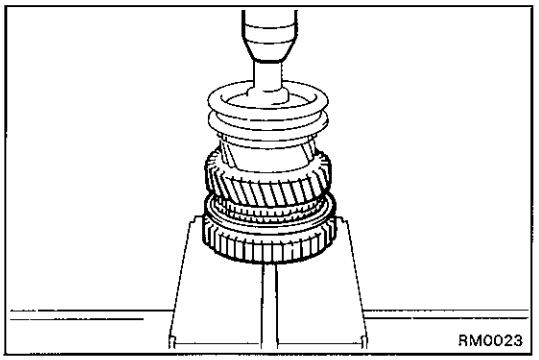


5. INSTALL SECOND GEAR AND NO.1 HUB SLEEVE

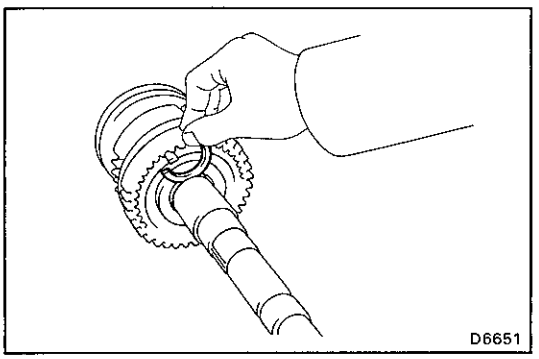
(a) Apply gear oil to the shaft and needle roller bearing .

(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.



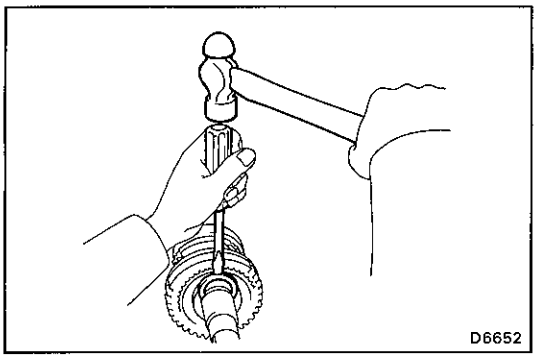
(d) Using a press, install the 2nd gear and hub sleeve No.1.



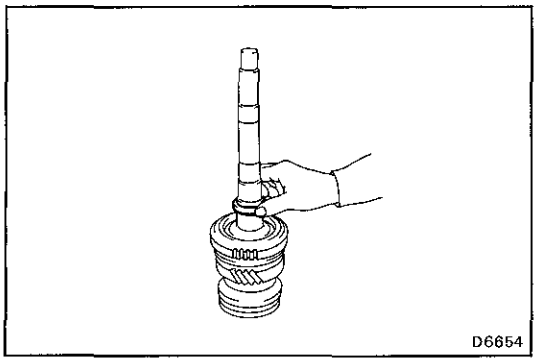
6. INSTALL SNAP RING

(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)

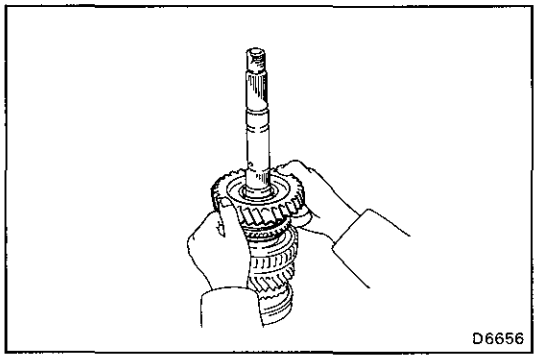


(b) Using a screwdriver and hammer, install the snap ring.



7. INSTALL SPACER AND FIRST GEAR ASSEMBLY

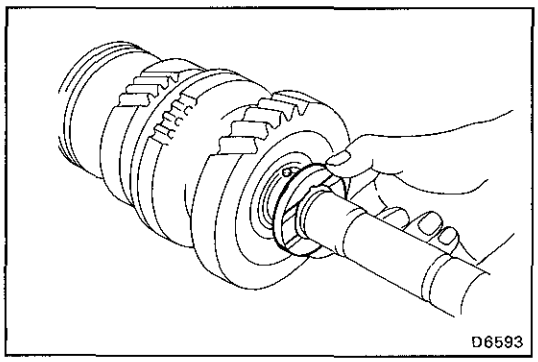
(a) Install the spacer on the output shaft.



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

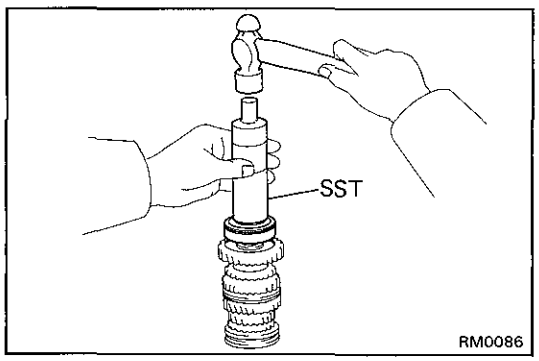
(c) Assemble the 1st gear, synchronizer ring and needle roller bearing.

(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

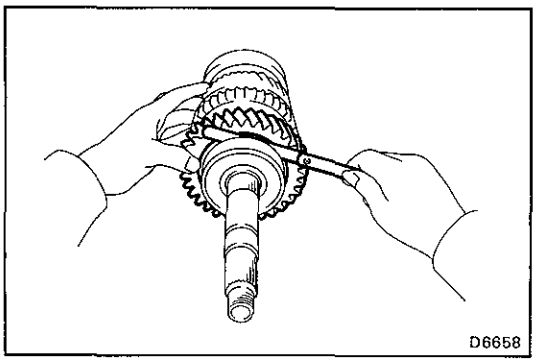
Install the 1st gear thrust washer onto the output shaft with the straight pin aligned with the slit of 1st gear thrust washer.



9. INSTALL OUTPUT SHAFT CENTER BEARING

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

SST 09316-60010 (09316-00010, 09316-00070)

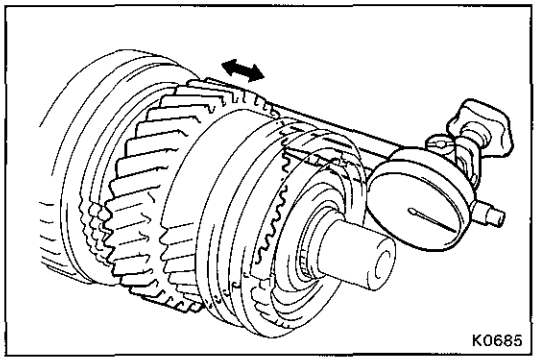


10. MEASURE FIRST GEAR THRUST CLEARANCE

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

Standard clearance:

1st gear 0.10 — 0.45 mm (0.0039 — 0.0177 in.)

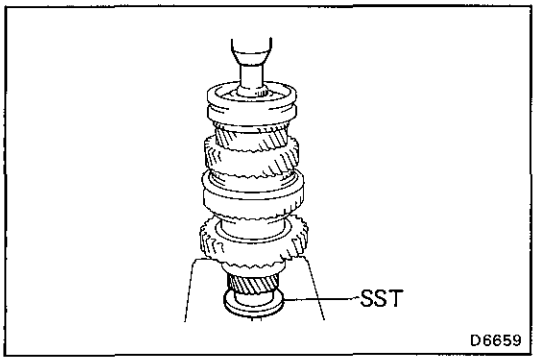


11. MEASURE SECOND GEAR THRUST CLEARANCE

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

Standard clearance:

2nd gear 0.10 — 0.25 mm (0.0039 — 0.0098 in.)



12. INSTALL FIFTH GEAR

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

SST 09316-60010 (09316-00030)