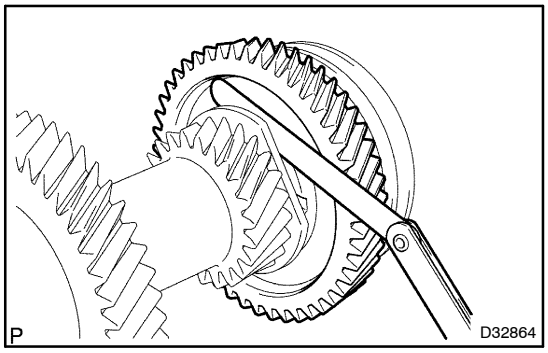
410HF–01

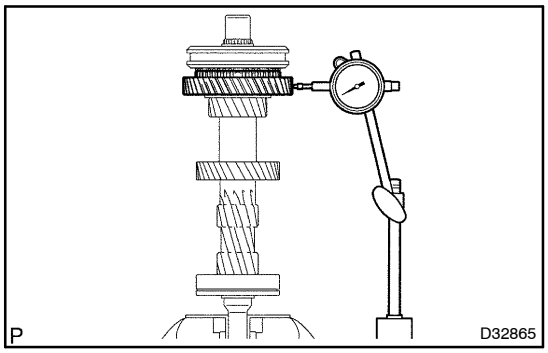
OVERHAUL



1. INSPECT 5TH GEAR THRUST CLEARANCE

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

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



2. INSPECT 5TH GEAR RADIAL CLEARANCE

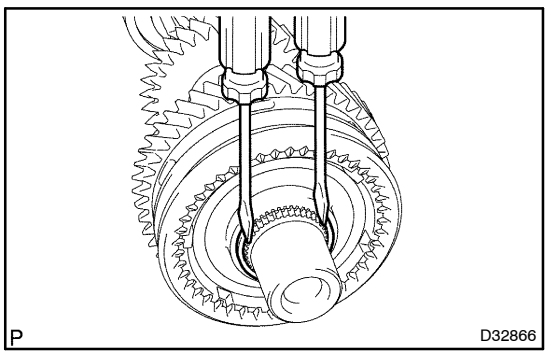
(a) Fix the input shaft through 2 protective aluminum plates in a vise.

(b) Using a dial indicator, measure the 5th gear radial clearance.

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

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

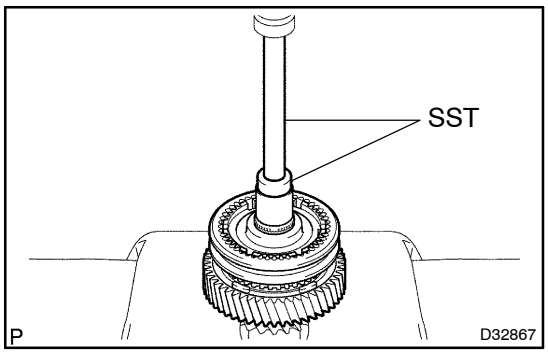
(c) Remove the input shaft from the vise.



3. REMOVE TRANSMISSION CLUTCH HUB SHAFT SNAP RING NO. 3

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

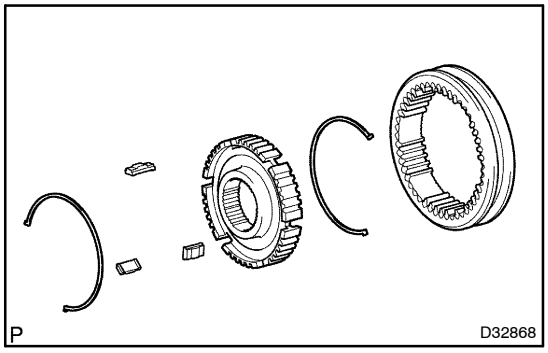
NOTICE:
Use a shop rag to keep the shaft snap ring from flying.



4. REMOVE 5TH GEAR

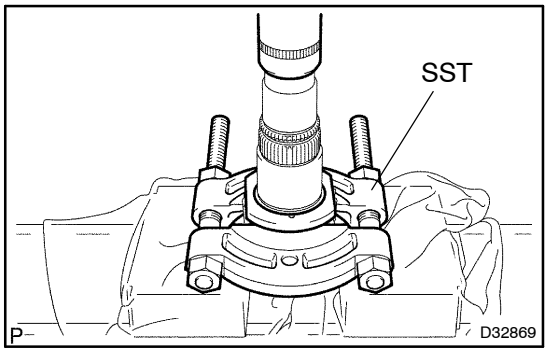
(a) Using SST and a press, press out the 5th gear, clutch hub No. 3, needle roller bearing and synchronizer ring.

SST 09950–60010 (09951–00350), 09950–70010 (09951–07100)



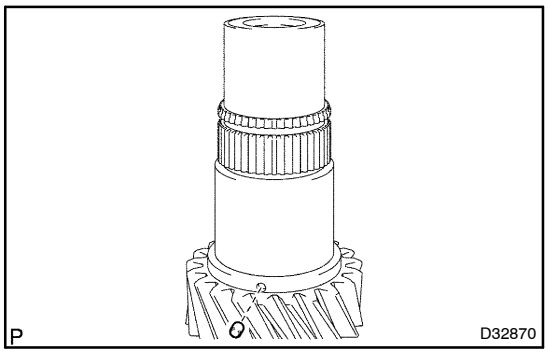
5. REMOVE TRANSMISSION CLUTCH HUB NO. 3

(a) Using a screwdriver, remove the 2 key springs, 3 keys, hub sleeve from the clutch hub No. 3.

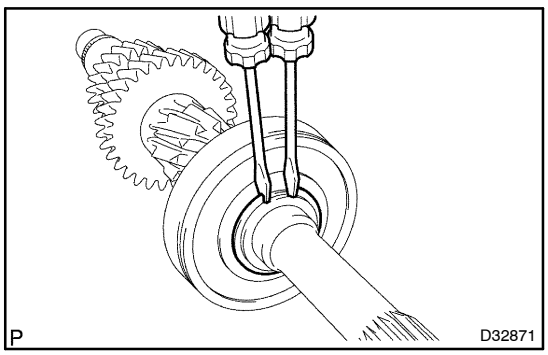


6. REMOVE 5TH GEAR THRUST WASHER

(a) Using SST and a press, press out the thrust washer.
SST 09950–00020



7. REMOVE 5TH GEAR THRUST WASHER PIN (BALL)

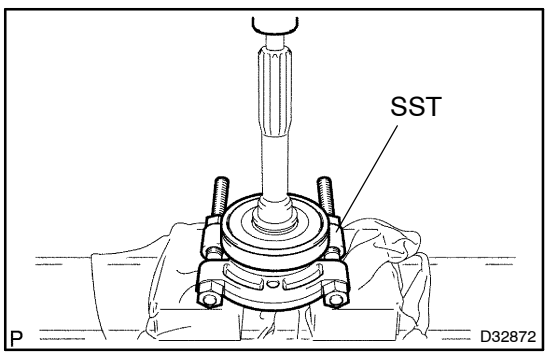


8. REMOVE INPUT SHAFT FRONT BEARING SNAP RING

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

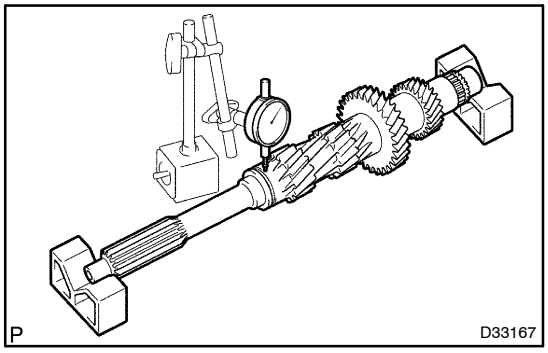
NOTICE:

Use a shop rag to keep the shaft snap ring from flying.



9. REMOVE INPUT SHAFT FRONT BEARING

(a) Using a press, press out the bearing.
SST 09950–00020

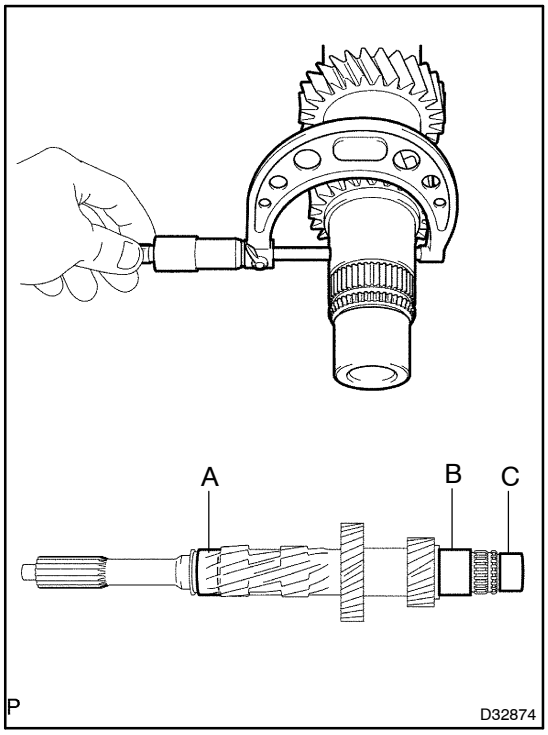


10. INSPECT INPUT SHAFT ASSY

(a) Using a dial indicator, measure the input shaft runout.

Maximum runout: 0.015 mm (0.0006 in.)

If the runout exceeds the maximum, replace the input shaft assy.



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

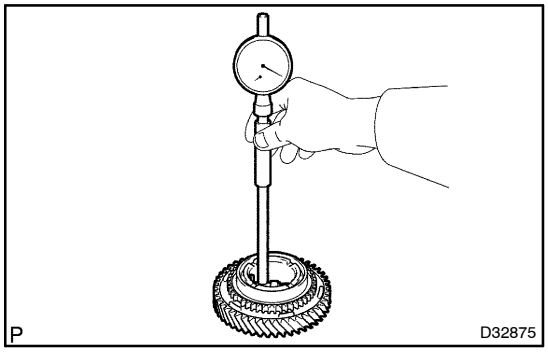
Standard:

Part	Outer diameter
A	47.002 to 47.018 mm (1.8505 to 1.8511 in.)
B	47.984 to 48.000 mm (1.8891 to 1.8898 in.)
C	38.118 to 38.130 mm (1.5007 to 1.5012 in.)

Minimum:

Part	Outer diameter
A	47.002 mm (1.8505 in.)
B	47.984 mm (1.8891 in.)
C	38.118 mm (1.5007 in.)

If the diameter is less than the minimum, replace the input shaft.

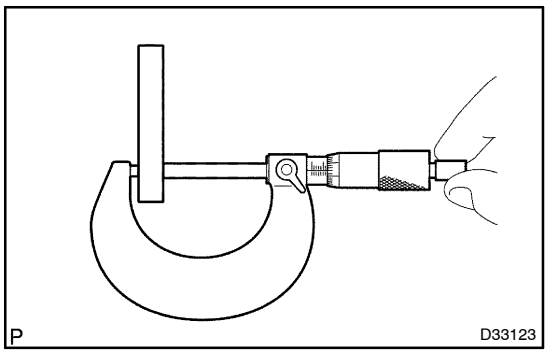


11. INSPECT 5TH GEAR

(a) Using a cylinder gauge, measure the inside diameter of the gear.

Standard clearance:
55.015 to 55.040 mm (2.1659 to 2.1669 in.)
Maximum clearance: 55.040 mm (2.1669 in.)

If the clearance exceeds the maximum, replace the 5th gear.

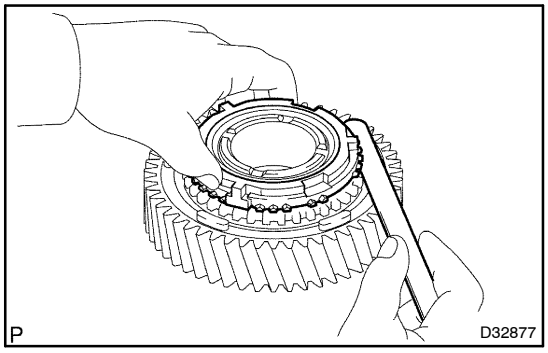


12. INSPECT 5TH GEAR THRUST WASHER

(a) Using a micrometer, measure the thrust washer thickness.

Standard thickness:
4.95 to 5.05 mm (0.1945 to 0.2004 in.)
Minimum thickness: 4.95 mm (0.1945 in.)

If the thickness is less than the minimum, replace the 5th gear thrust washer.

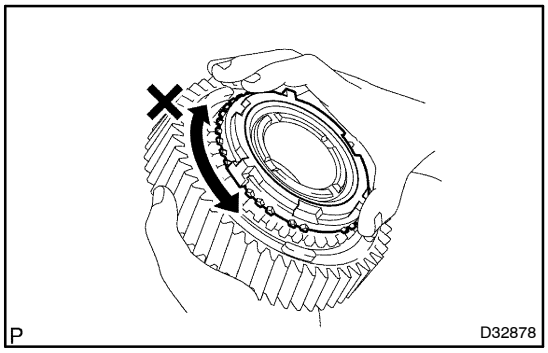


13. INSPECT 5TH GEAR SYNCHRONIZER RING

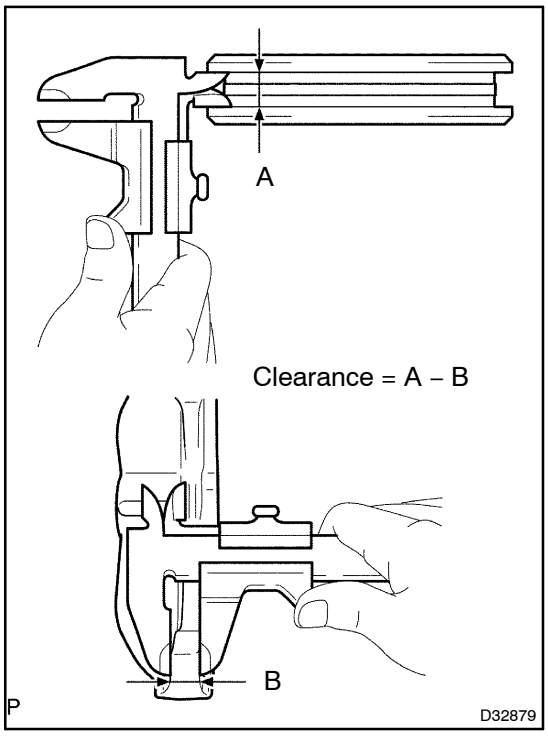
(a) Using a feeler gauge, measure the clearance between the synchronizer ring and gear spline.

Standard clearance:
0.78 to 1.62 mm (0.0307 to 0.0638 in.)
Minimum clearance: 0.78 mm (0.0307 in.)

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



(b) Coat the 5th gear cone with gear oil. 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.



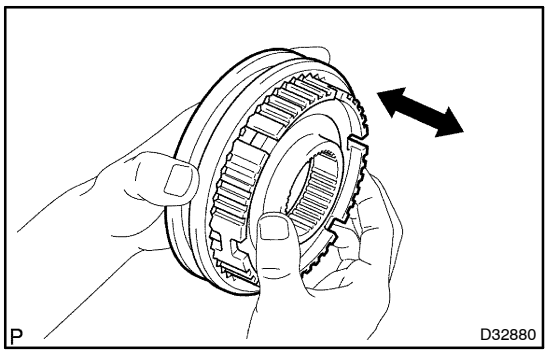
14. INSPECT TRANSMISSION HUB SLEEVE NO. 3

(a) Using a vernier caliper, measure the wide of the hub sleeve and thickness of the gear shift fork No. 3 as shown in the illustration.

(b) Calculate the clearance using the formula below

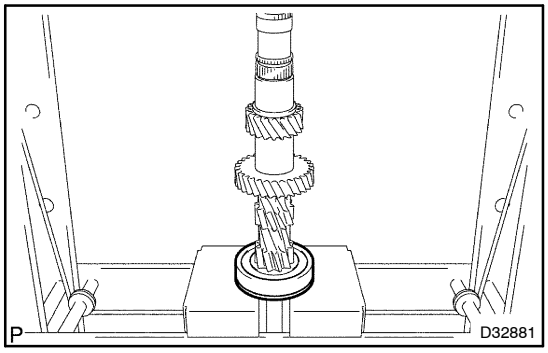
Formula:
Clearance = A – B
Standard: 0.15 to 0.26 mm (0.0059 to 0.0102 in.)

If the clearance not as specified, replace the transmission hub sleeve No. 3 and gear shift fork No. 3.



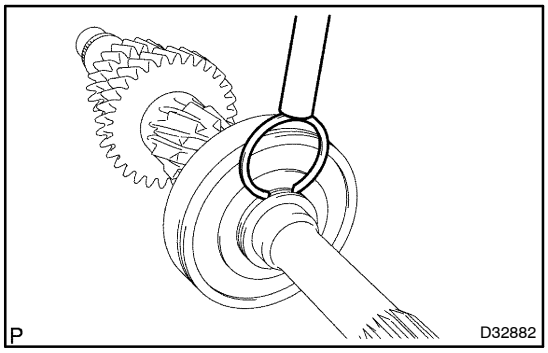
(c) Check the sliding condition between the hub sleeve and clutch hub.

(d) Check that the spline gear's edges of the hub sleeve are not worn down.



15. INSTALL INPUT SHAFT FRONT BEARING

(a) Using a press, press in a new bearing.

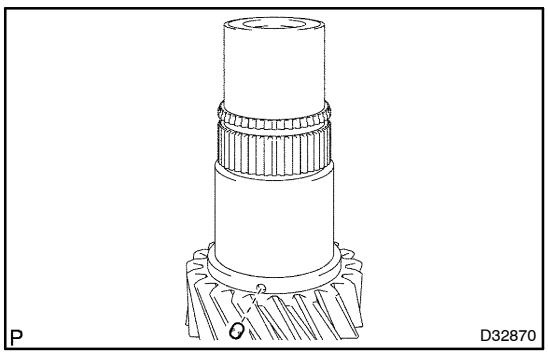


16. INSTALL INPUT SHAFT FRONT BEARING SNAP RING

(a) Select a snap ring that allows minimum axial play.
Standard clearance: 0.10 mm (0.0039 in.) or less

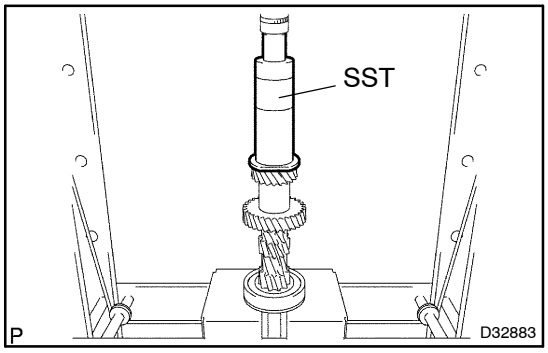
Mark	Specified Condition
A	3.00 to 3.05 mm (0.1181 to 0.1201 in.)
B	3.05 to 3.10 mm (0.1201 to 0.1220 in.)
C	3.10 to 3.15 mm (0.1220 to 0.1240 in.)
D	3.15 to 3.20 mm (0.1240 to 0.1260 in.)
E	3.20 to 3.25 mm (0.1260 to 0.1280 in.)
F	3.25 to 3.30 mm (0.1280 to 0.1300 in.)

(b) Using a brass bar and hammer, tap in the snap ring.



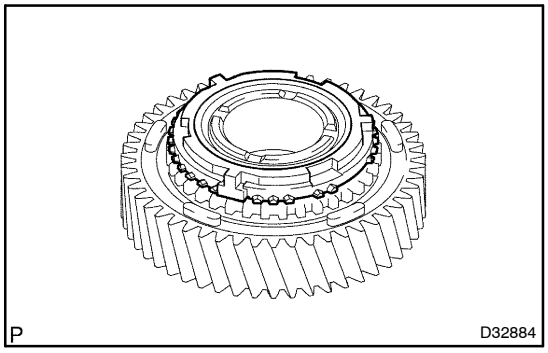
17. INSTALL 5TH GEAR THRUST WASHER PIN (BALL)

(a) Coat the pin (ball) with gear oil and install it.



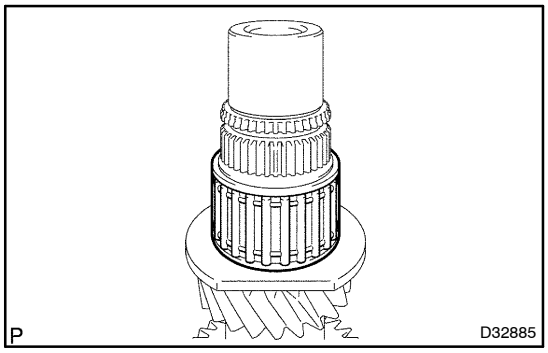
18. INSTALL 5TH GEAR THRUST WASHER

(a) Using SST and a press, press in the thrust washer.
SST 09316–60011 (09316–00011)



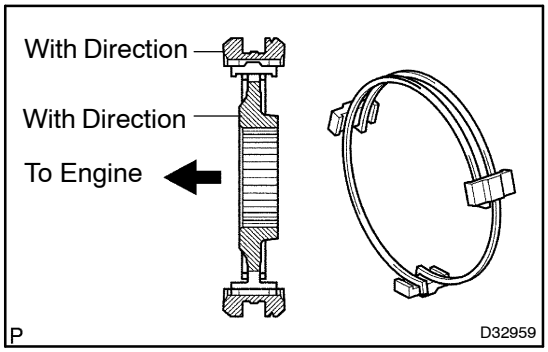
19. INSTALL 5TH GEAR SYNCHRONIZER RING

(a) Coat the synchronizer ring with gear oil and install it to the 5th gear.



20. INSTALL 5TH GEAR NEEDLE ROLLER BEARING

(a) Coat the bearing with gear oil and install it.



21. INSTALL TRANSMISSION CLUTCH HUB NO. 3

(a) Coat the hub sleeve with gear oil and install it to the clutch hub.

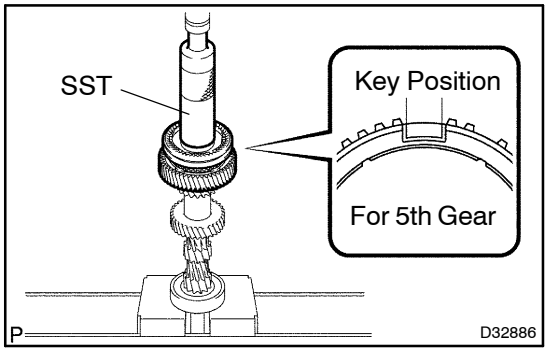
HINT:

Set the hub sleeve and the clutch hub in correct orientation.

(b) Install the 2 key springs and 3 keys to the hub sleeve.

NOTICE:

Do not set both opening of the shifting key springs in the same position.

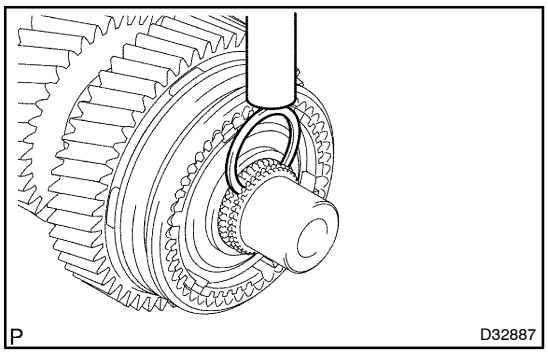


22. INSTALL 5TH GEAR

(a) Coat the gear with gear oil.

(b) Using SST and a press, press in the gear.

SST 09316–60011 (09316–00011)



23. INSTALL TRANSMISSION CLUTCH HUB SHAFT SNAP RING NO. 3

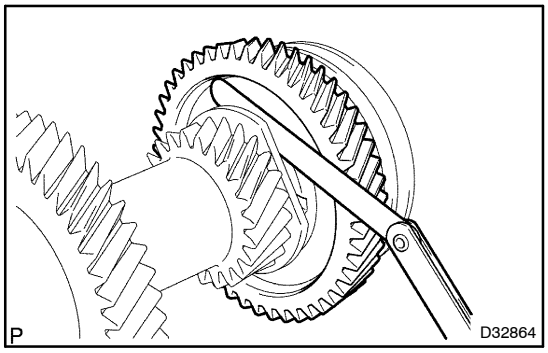
(a) Select a snap ring that will allow minimum axial play.

Standard clearance: 0.10 mm (0.0039 in.) or less

Mark	Specified Condition
A	2.60 to 2.65 mm (0.1024 to 0.1043 in.)
B	2.65 to 2.70 mm (0.1043 to 0.1063 in.)
C	2.70 to 2.75 mm (0.1063 to 0.1083 in.)
D	2.75 to 2.80 mm (0.1083 to 0.1102 in.)

Mark	Specified Condition
E	2.80 to 2.85 mm (0.1102 to 0.1122 in.)
F	2.85 to 2.90 mm (0.1122 to 0.1142 in.)

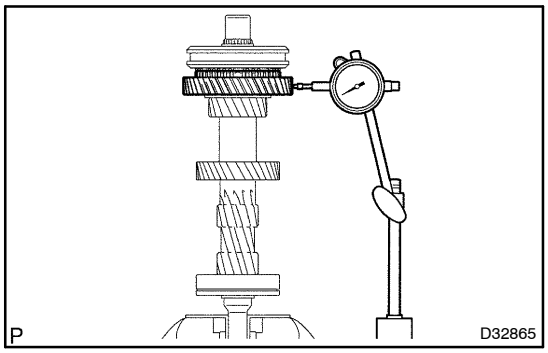
(b) Using a brass bar and hammer, and tap in the snap ring.



24. INSPECT 5TH GEAR THRUST CLEARANCE

(a) Using a feeler gauge, measure the gear thrust clearance.

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



25. INSPECT 5TH GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance between the gear and shaft.

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

If the clearance is not as specified, replace the 5th gear needle roller bearing.