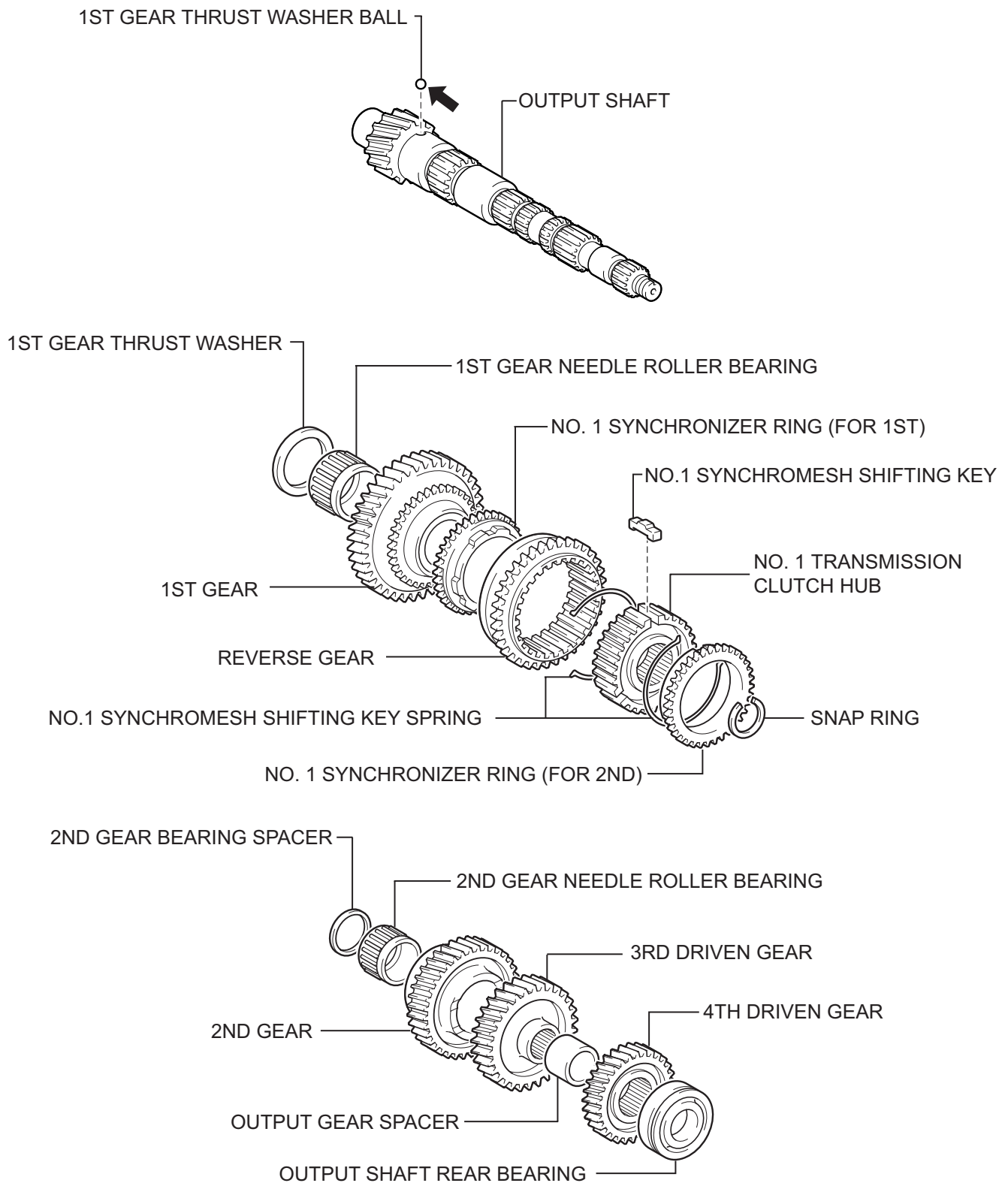
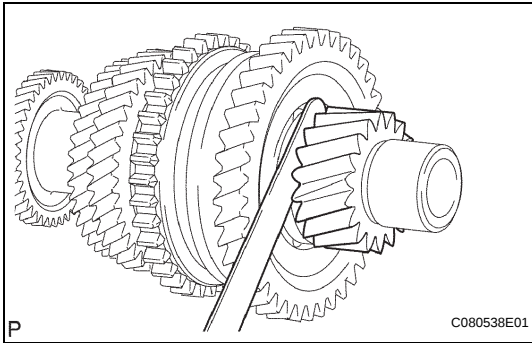


OUTPUT SHAFT

COMPONENTS



MX



DISASSEMBLY

1. INSPECT 1ST GEAR THRUST CLEARANCE

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

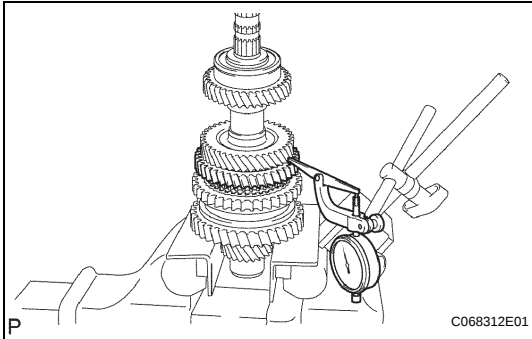
Standard clearance:

0.10 to 0.40 mm (0.0039 to 0.0157 in.)

Maximum clearance:

0.40 mm (0.0157 in.)

If the clearance is greater than the maximum, replace the 1st gear or No. 1 transmission clutch hub.



2. INSPECT 2ND GEAR THRUST CLEARANCE

- (a) Using a dial indicator, measure the thrust clearance.

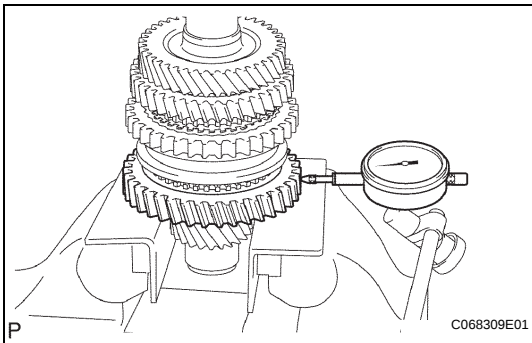
Standard clearance:

0.10 to 0.45 mm (0.0039 to 0.0177 in.)

Maximum clearance:

0.45 mm (0.0177 in.)

If the clearance is greater than the maximum, replace the No. 1 transmission clutch hub, 2nd gear or 3rd driven gear.



3. INSPECT 1ST GEAR RADIAL CLEARANCE

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

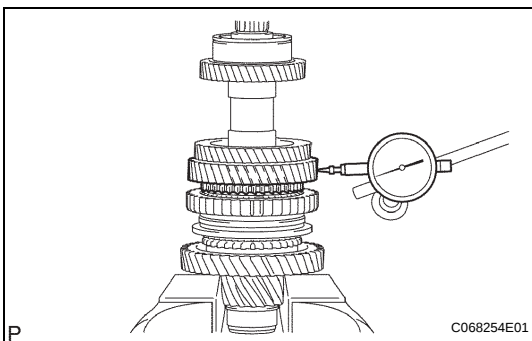
Standard clearance

Item	Specified Condition
KOYO made	0.015 to 0.058 mm (0.0006 to 0.0023 in.)
NSK made	0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance

Item	Specified Condition
KOYO made	0.058 mm (0.0023 in.)
NSK made	0.056 mm (0.0022 in.)

If the clearance is greater than the maximum, replace the gear, needle roller bearing or shaft.



4. INSPECT 2ND GEAR RADIAL CLEARANCE

- (a) Using a dial indicator, measure the radial clearance.

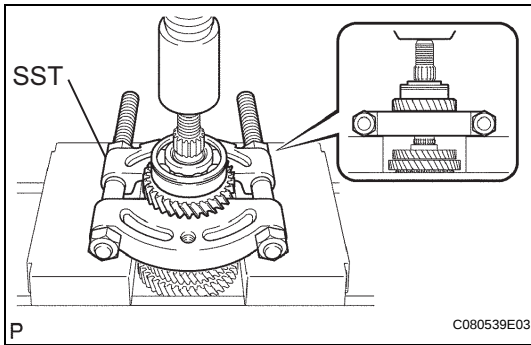
Standard clearance

Item	Specified Condition
KOYO made	0.015 to 0.058 mm (0.0006 to 0.0023 in.)
NSK made	0.015 to 0.056 mm (0.0006 to 0.0022 in.)

Maximum clearance

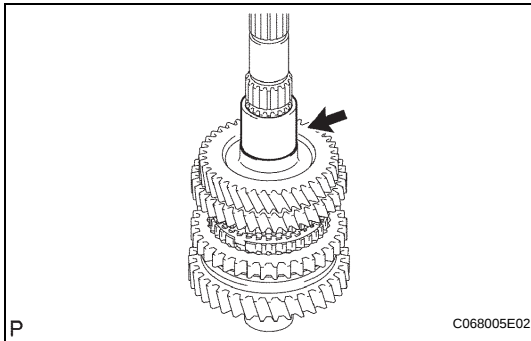
Item	Specified Condition
KOYO made	0.058 mm (0.0023 in.)
NSK made	0.056 mm (0.0022 in.)

If the clearance is greater than the maximum, replace the 2nd gear needle roller bearing.

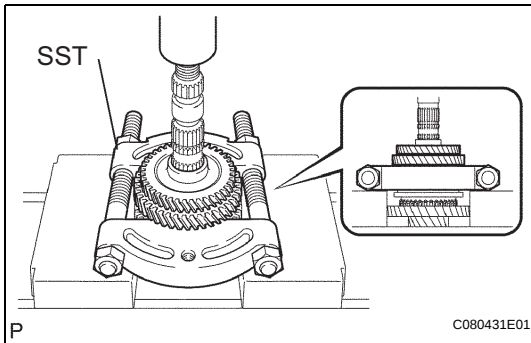
**5. REMOVE 4TH DRIVEN GEAR**

- (a) Using SST and a press, press out the output shaft rear bearing and 4th driven gear from the output shaft.

SST 09950-00020

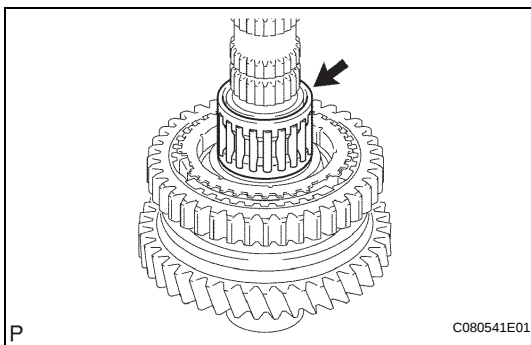
**6. REMOVE OUTPUT GEAR SPACER**

- (a) Remove the output gear spacer from the output shaft.

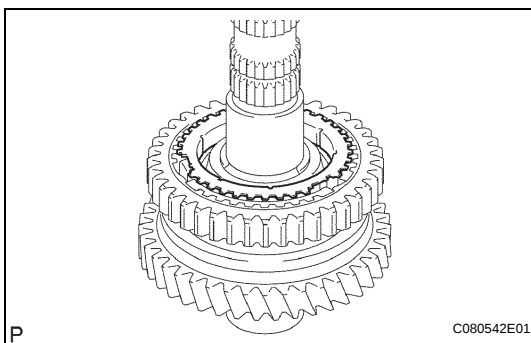
**7. REMOVE 2ND GEAR**

- (a) Using SST and a press, press out the 3rd driven gear with 2nd gear from the output shaft.

SST 09950-00020

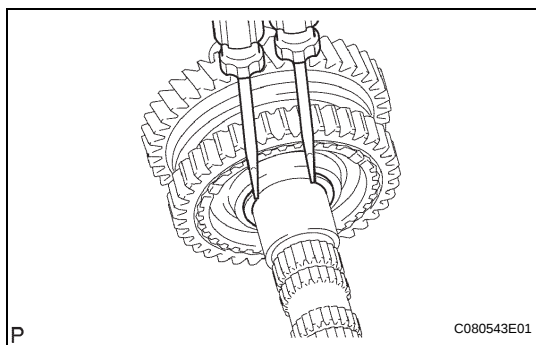
**8. REMOVE 2ND GEAR NEEDLE ROLLER BEARING**

- (a) Remove the 2nd gear needle roller bearing and 2nd gear bearing spacer from the output shaft.

**9. REMOVE NO. 1 SYNCHRONIZER RING (for 2nd Gear)**

- (a) Remove the No. 1 synchronizer ring from the output shaft.

MX

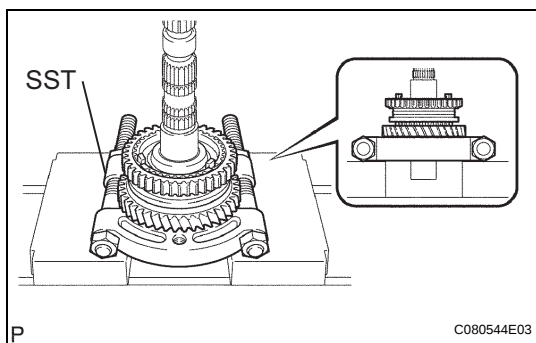


10. REMOVE 1ST GEAR

- (a) Using 2 screwdrivers and a hammer, remove the snap ring from the output shaft.

NOTICE:

Use a cloth to keep the snap ring from springing away.

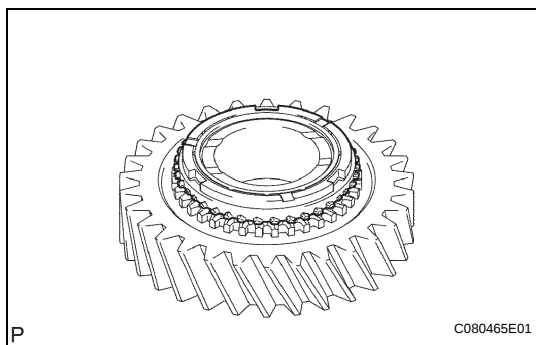


- (b) Using SST and a press, press out the No. 1 clutch hub and 1st gear from the output shaft.

SST 09950-00020

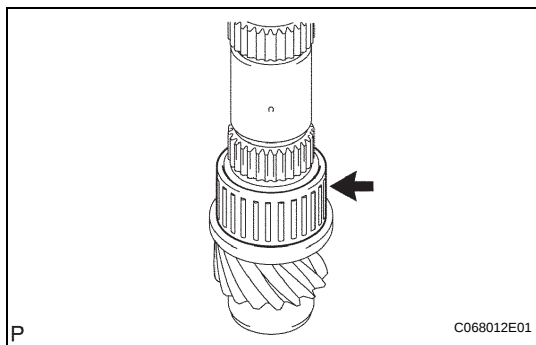
NOTICE:

- Do not tighten SST excessively.
- Support the input shaft by hand so that it will not drop.



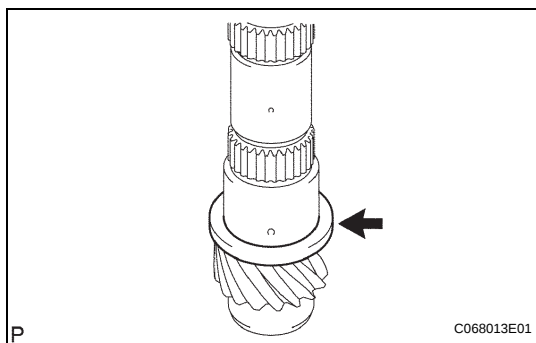
11. REMOVE NO. 1 SYNCHRONIZER RING (for 1st Gear)

- (a) Remove the No. 1 synchronizer ring from the 1st gear.



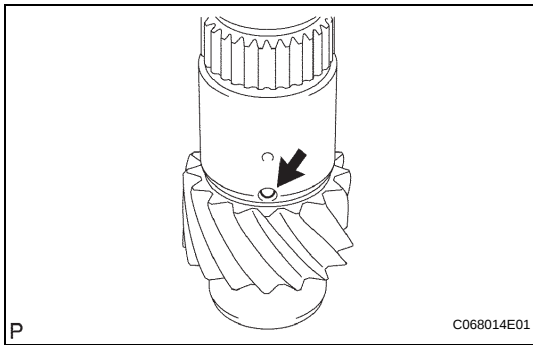
12. REMOVE 1ST GEAR NEEDLE ROLLER BEARING

- (a) Remove the 1st gear needle roller bearing from the output shaft.

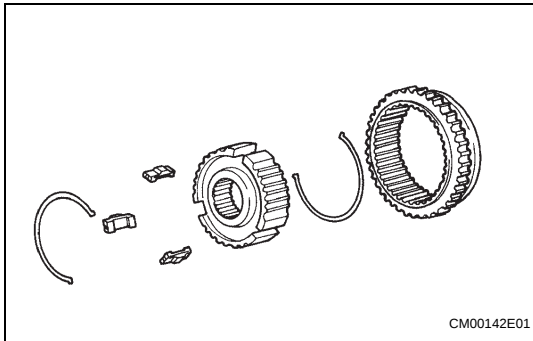


13. REMOVE 1ST GEAR THRUST WASHER

- (a) Remove the 1st gear thrust washer from the output shaft.

**14. REMOVE 1ST GEAR THRUST WASHER BALL**

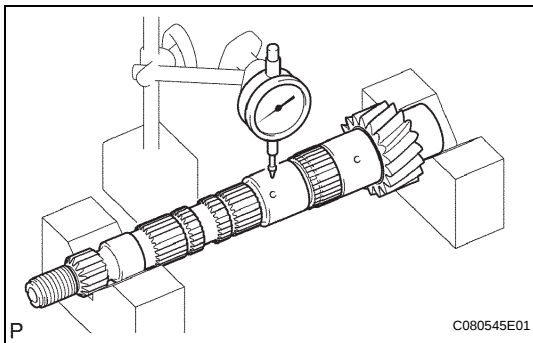
- (a) Remove the 1st gear thrust washer ball from the output shaft.

**15. REMOVE REVERSE GEAR**

- (a) Remove the reverse gear, 3 No. 1 synchromesh shifting keys and 2 No. 1 synchromesh shifting key springs from the No. 1 transmission clutch hub.

NOTICE:

Use a cloth to keep the shifting key and shifting key spring from springing away.

**INSPECTION****1. INSPECT OUTPUT SHAFT**

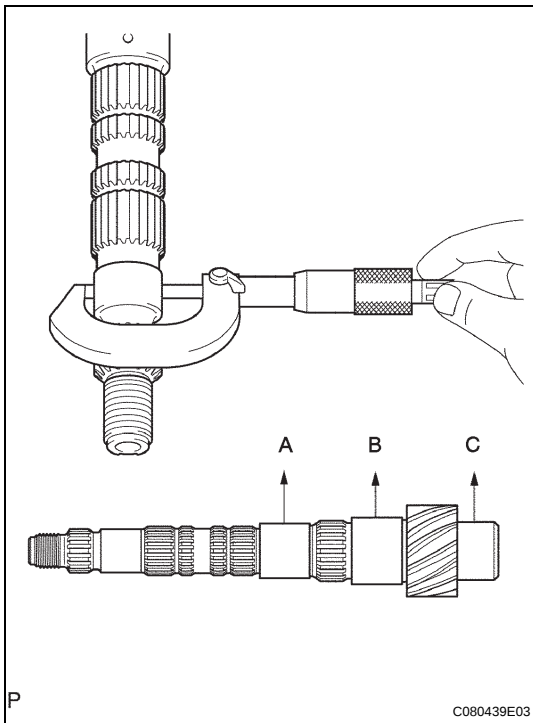
- (a) Using a dial indicator and 2 V-blocks, measure the output shaft runout.

Maximum runout:

0.015 mm (0.0006 in.)

If the runout is greater than the maximum, replace the output shaft.

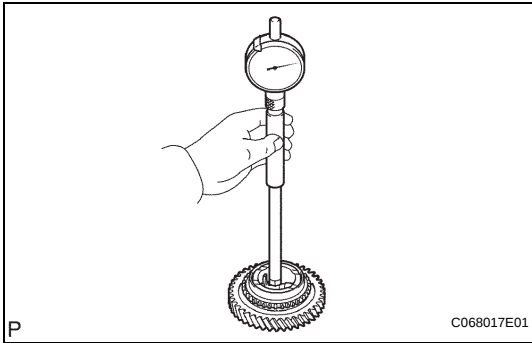
- (b) Using a micrometer, measure the diameter of the output shaft journal surface.

Standard diameter

Journal Position	Specified Condition
A	31.985 to 32.000 mm (1.2592 to 1.2598 in.)
B	37.985 to 38.000 mm (1.4955 to 1.4961 in.)
C	32.985 to 33.000 mm (1.2986 to 1.2992 in.)

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

MX



2. INSPECT 2ND GEAR

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

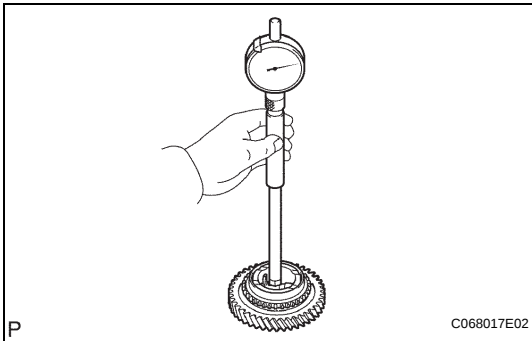
Standard inside diameter:

38.015 to 38.031 mm (1.4967 to 1.4972 in.)

Maximum inside diameter:

38.031 mm (1.4972 in.)

If the inside diameter is greater than the maximum, replace the 2nd gear.



3. INSPECT 1ST GEAR

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

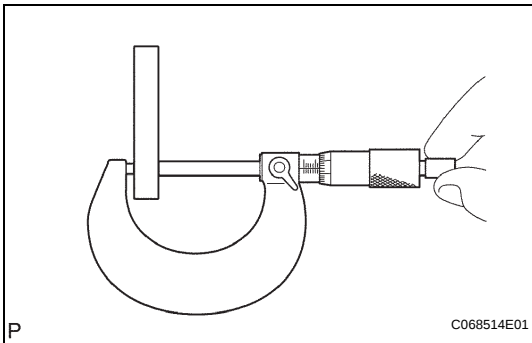
Standard inside diameter:

44.015 to 44.031 mm (1.7328 to 1.7335 in.)

Maximum inside diameter:

44.031 mm (1.7335 in.)

If the inside diameter is greater than the maximum, replace the 1st gear.



4. INSPECT 1ST GEAR THRUST WASHER

- (a) Using a micrometer, measure the thickness.

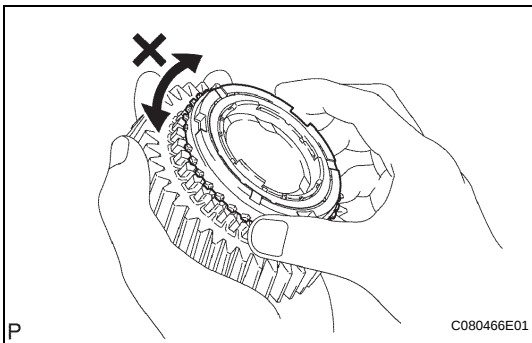
Standard thickness:

5.975 to 6.025 mm (0.2352 to 0.2372 in.)

Minimum thickness:

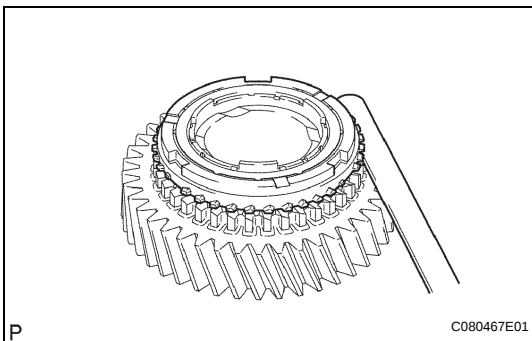
5.975 mm (0.2352 in.)

If the thickness is less than the minimum, replace the 1st gear thrust washer.



5. INSPECT NO. 1 SYNCHRONIZER RING (for 2nd Gear)

- (a) Coat the 2nd gear cone with gear oil. Turn the synchronizer ring in one direction while pushing it against 2nd gear cone. Check that the ring locks. If the synchronizer ring does not lock, replace the ring or 2nd gear.



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

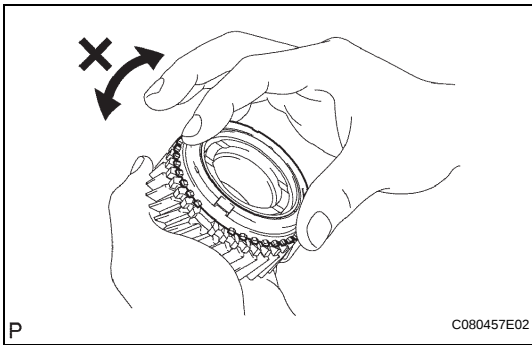
Standard clearance:

0.75 to 1.65 mm (0.0295 to 0.0650 in.)

Minimum clearance:

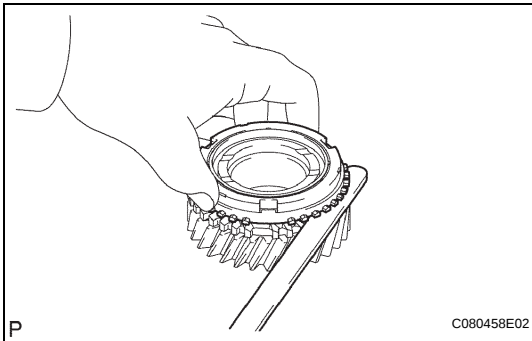
0.75 mm (0.0295 in.)

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



6. INSPECT NO. 1 SYNCHRONIZER RING (for 1st Gear)

- (a) Coat the 1st gear cone with gear oil. Turn the synchronizer ring in one direction while pushing it against the 1st gear cone. Check that the ring locks. If the synchronizer ring does not lock, replace the ring or 1st gear.



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

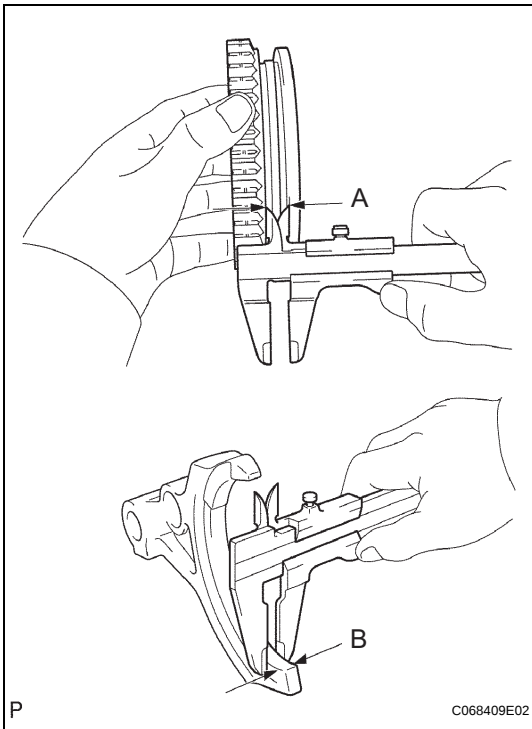
Standard clearance:

0.75 to 1.65 mm (0.0295 to 0.0650 in.)

Minimum clearance:

0.75 mm (0.0295 in.)

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



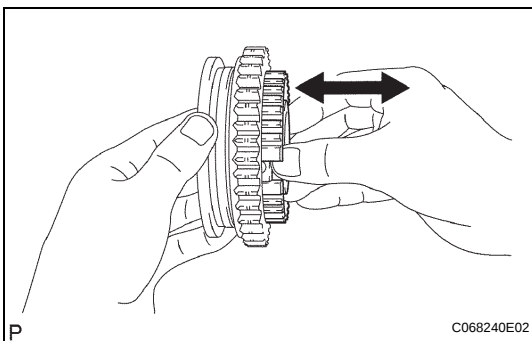
7. INSPECT REVERSE GEAR

- (a) Using a vernier caliper, measure the width of the reverse gear groove (A) and the thickness of the claw part on the reverse shift fork (B), and calculate the clearance.

Standard clearance:

$A - B = 0.15 \text{ to } 0.35 \text{ mm (0.0059 to 0.0138 in.)}$

- (b) Check that the spline gear edges of the reverse gear are not worn down.



8. INSPECT NO. 1 TRANSMISSION CLUTCH HUB

- (a) Check that the No. 1 transmission clutch hub and reverse gear slide smoothly.
- (b) Check that the spline gear edges of the reverse gear are not worn down.