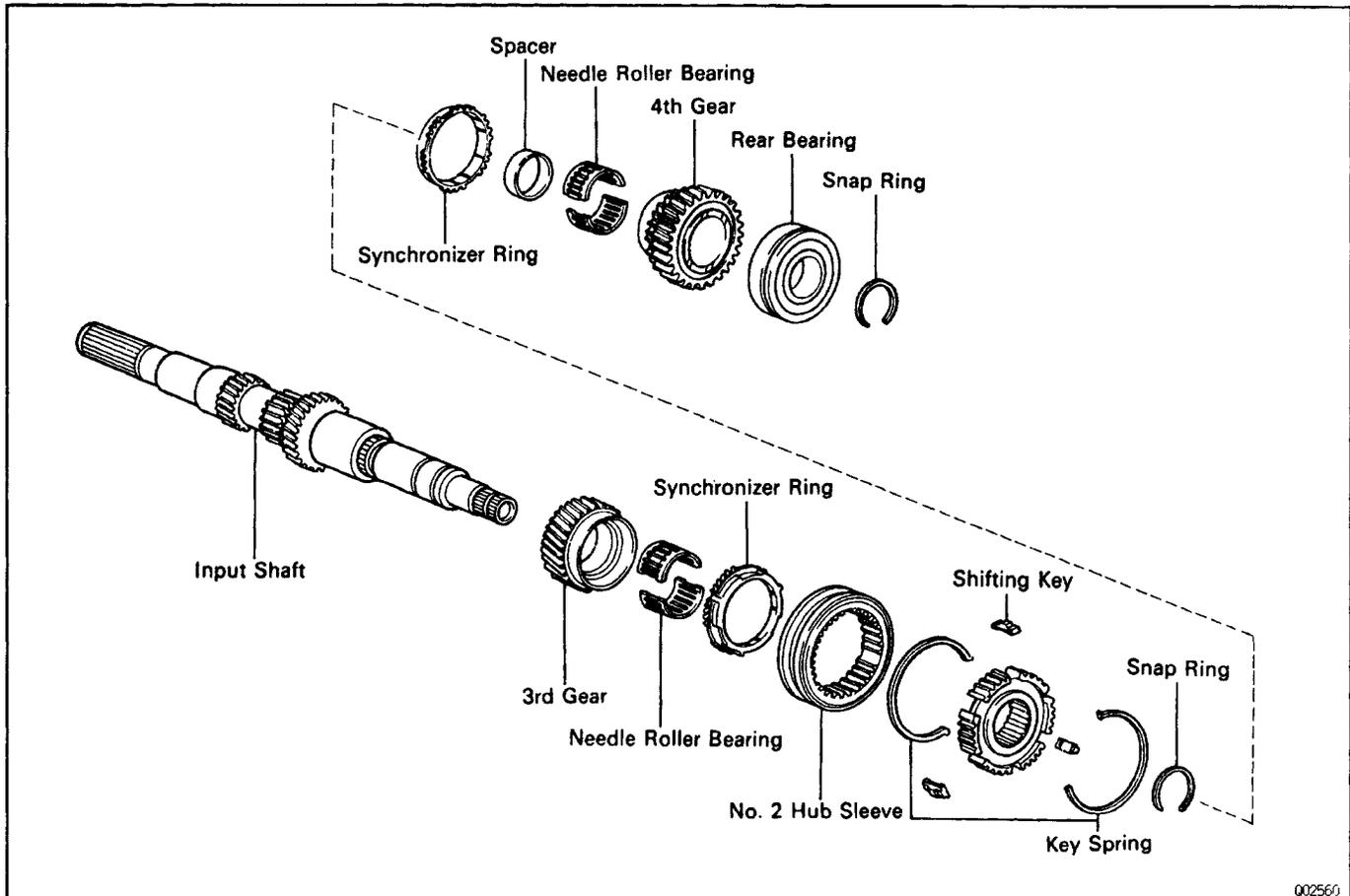
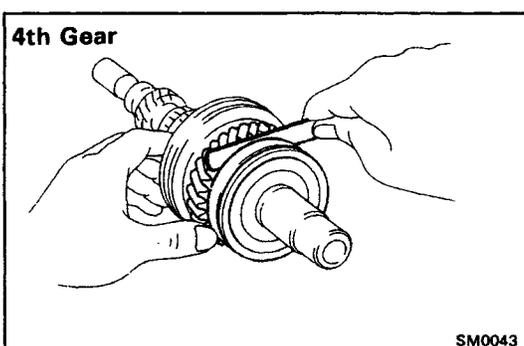
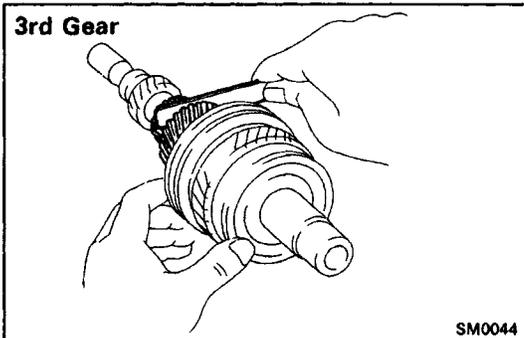


# INPUT SHAFT COMPONENTS

MX02H-02



002560



## INPUT SHAFT DISASSEMBLY

MX02H-01

### 1. INSPECT THIRD AND FOURTH GEAR THRUST CLEARANCE

Using a feeler gauge, measure the clearance.

#### Standard clearance:

##### 3rd gear

0.10–0.25 mm (0.0039–0.0098 in.)

##### 4th gear

0.20–0.45 mm (0.0079–0.0177 in.)

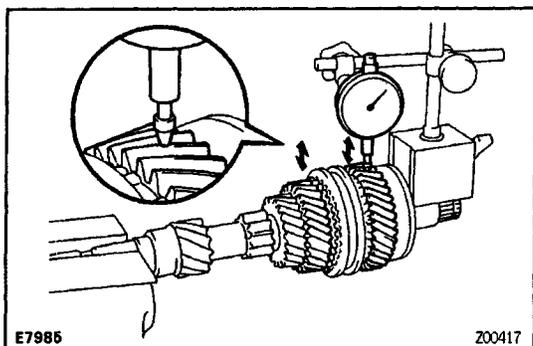
#### Maximum clearance:

##### 3rd gear

0.30 mm (0.0118 in.)

##### 4th gear

0.50 mm (0.0197 in.)



E7986

Z00417

## 2. INSPECT THIRD AND FOURTH GEAR OIL CLEARANCE

Using dial indicator, measure the oil clearance between the gear and shaft.

**Standard clearance:**

**0.009–0.053 mm (0.0004–0.0021 in.)**

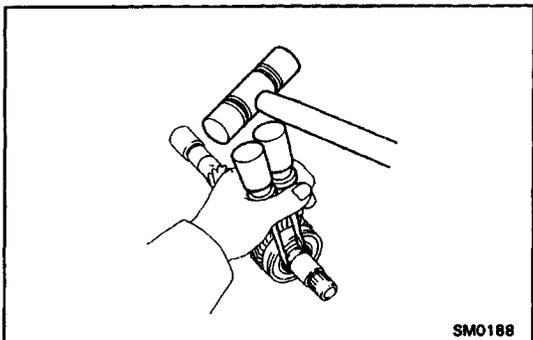
**Maximum clearance:**

**0.070 mm (0.0028 in.)**

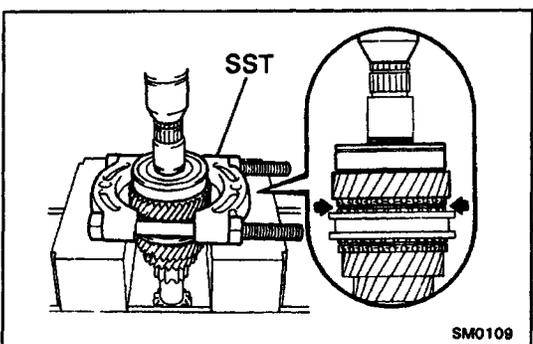
If the clearance exceeds the maximum, replace the gear, needle roller bearing or shaft.

## 3. REMOVE SNAP RING

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



SM0188



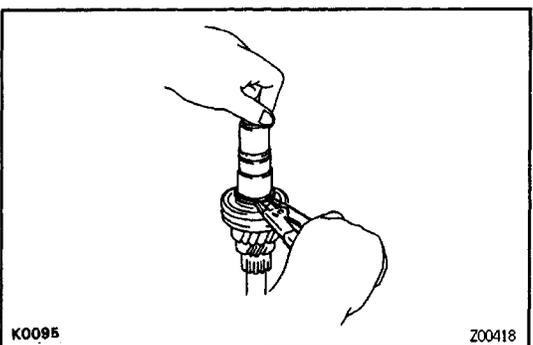
SM0109

## 4. REMOVE REAR BEARING, FOURTH GEAR, NEEDLE ROLLER BEARINGS. SPACER AND SYNCHRONIZER RING FROM INPUT SHAFT

(a) Using SST and a press, remove the 4th gear and rear bearing.

SST 09950-00020

(b) Remove the needle roller bearings, spacer and synchronizer ring.

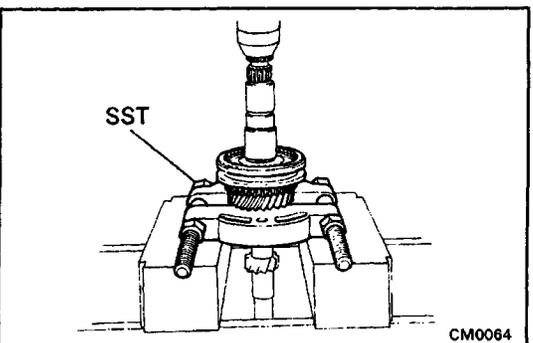


K0095

Z00418

## 5. REMOVE SNAP RING

Using a snap ring expander, remove the snap ring.



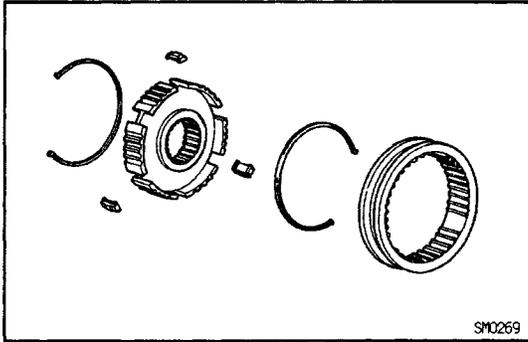
CM0064

## 6. REMOVE NO.2 HUB SLEEVE ASSEMBLY, THIRD GEAR SYNCHRONIZER RING AND NEEDLE ROLLER BEARINGS

Using SST and a press, remove the No.2 hub sleeve, 3rd gear, synchronizer ring and needle roller bearings.

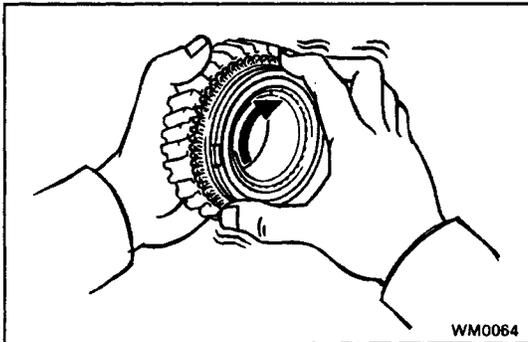
SST 09950-00020

**NOTICE:** Be careful not to confuse the synchronizer ring for 3rd gear and synchronizer ring for 4th gear.



## 7. REMOVE No.2 HUB SLEEVE, SHIFTING KEYS AND SPRINGS FROM No.2 CLUTCH HUB

Using a screwdriver, remove the three shifting keys and two springs from the No.2 clutch hub.



## INPUT SHAFT COMPONENTS INSPECTION

### 1. INSPECT SYNCHRONIZER RINGS

(a) Check for wear or damage.

(b) Check the braking effect of the synchronizer ring. Turn the synchronizer ring in one direction while pushing it to the gear cone and check that the ring is locked.

If the braking effect is insufficient, apply a small amount of fine lapping compound between the synchronizer ring and gear cone.

Lightly rub the synchronizer ring and gear cone together.

#### NOTICE:

- Wash off completely the fine lapping compound after rubbing.
- Check again the braking effect of the synchronizer ring.

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

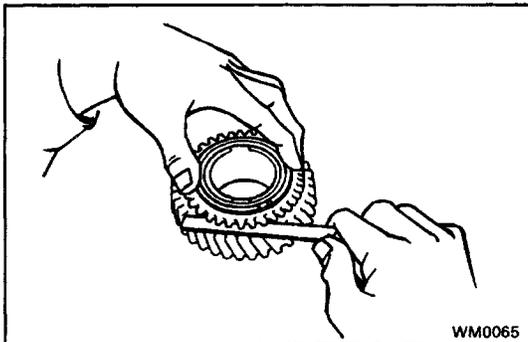
#### Minimum clearance:

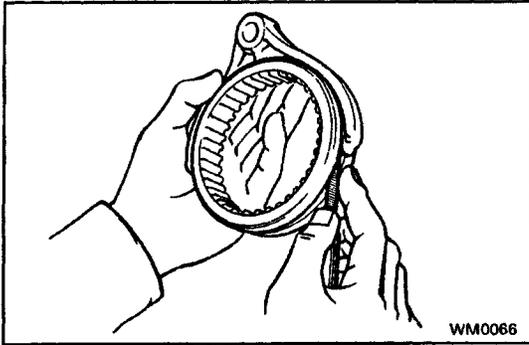
**0.6 mm (0.024 in.)**

#### HINT:

- When replacing either a synchronizer ring or gear, apply a small amount of fine lapping compound between the synchronizer ring and gear cone. Lightly rub the synchronizer ring and gear cone together.
- When replacing both the synchronizer ring and gear, there is no need to apply any compound or to rub them together.

**NOTICE: Wash off completely the fine lapping compound after rubbing.**





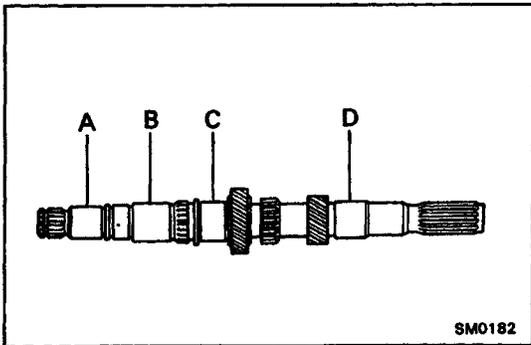
## 2. INSPECT CLEARANCE OF NO.2 SHIFT FORK AND HUB SLEEVE

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 maximum, replace shift fork or hub sleeve.



## 3. INSPECT INPUT SHAFT

(a) Check the input shaft for wear or damage.

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

**Minimum outer diameter:**

**Part A**

**26.970 mm (1.0618 in.)**

**Part 6**

**32.470 mm (1.2783 in.)**

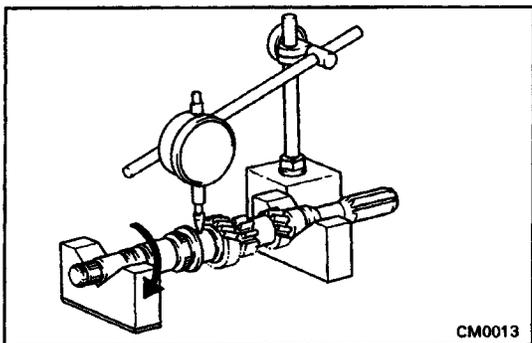
**Part C**

**33.090 mm (1.3028 in.)**

**Part D**

**29.970 mm (1.1799 in.)**

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



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

**Maximum runout:**

**0.05 mm (0.0020 in.)**

If the outer diameter exceeds the maximum, replace the input shaft.

# INPUT SHAFT ASSEMBLY

(See page [MX-30](#))

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

## 1. INSTALL 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 line.

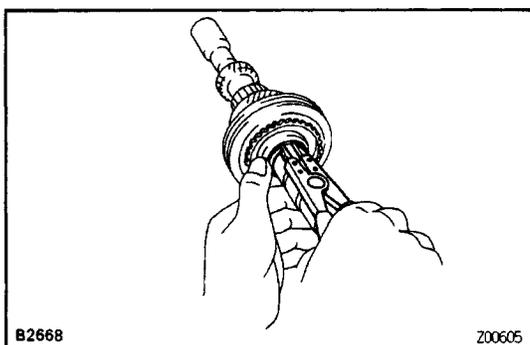
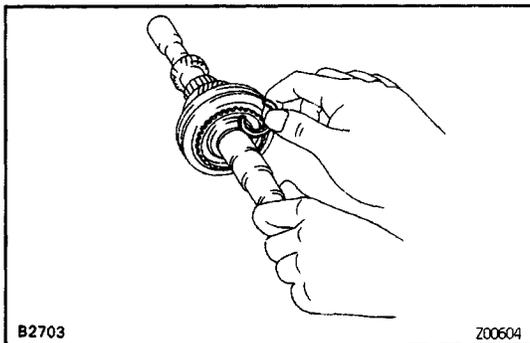
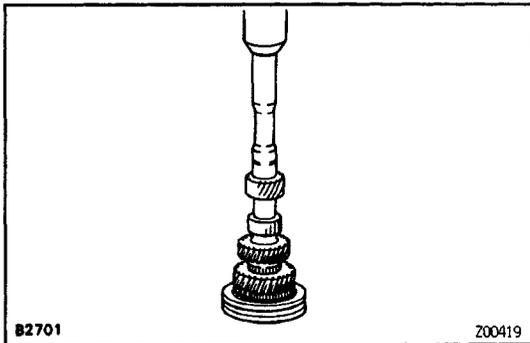
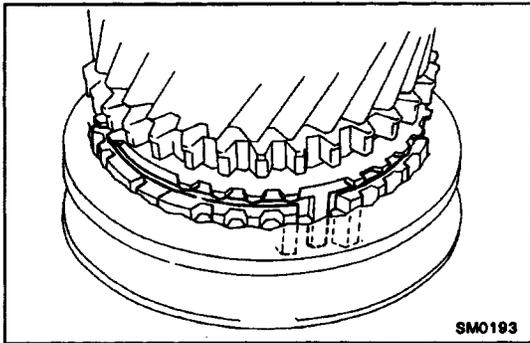
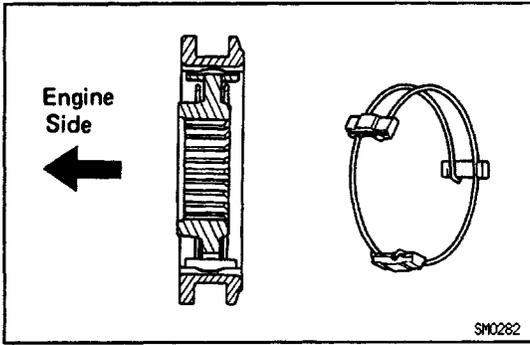
## 2. INSTALL THIRD GEAR, NEEDLE ROLLER BEARINGS, SYNCHRONIZER RING AND NO. 2 HUB SLEEVE ASSEMBLY TO INPUT SHAFT

(a) Apply gear oil to the needle roller bearings.

(b) Place the synchronizer ring (for 3rd gear) on the gear and align the ring slots with the shifting keys.

**NOTICE:** Do not install the synchronizer ring for 4th gear.

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

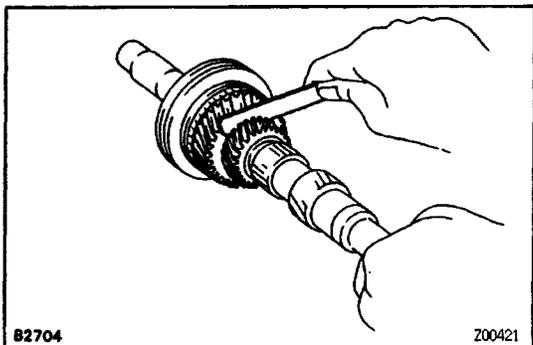


## 3. INSTALL SNAP RING

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

Mark	Thickness mm (in.)
1	1.95-2.00 (0.0768-0.0787)
2	2.00 - 2.05 (0.0787 - 0.0807)
3	2.05-2.10 (0.0807-0.0827)
4	2.10-2.15 (0.0827-0.0846)
5	2.15-2.20 (0.0846-0.0866)
6	2.20-2.25 (0.0866-0.0886)

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



82704

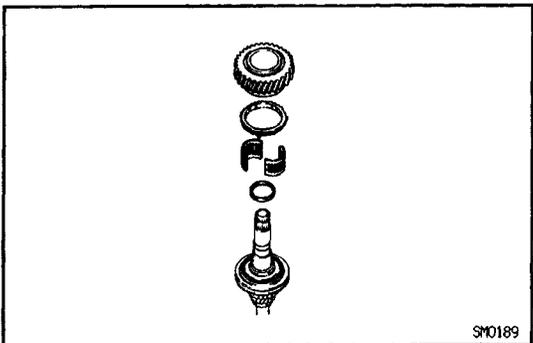
Z00421

#### 4. INSPECT THIRD GEAR THRUST CLEARANCE

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

**Standard clearance:**

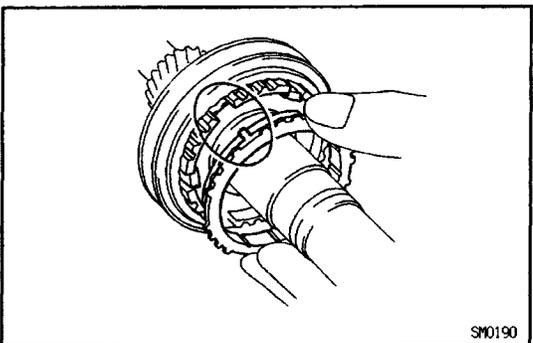
**0.10–0.25 mm (0.0039–0.0098 in.)**



SM0189

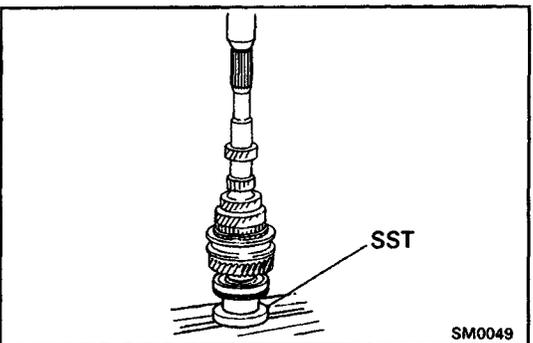
#### 5. INSTALL SYNCHRONIZER RING, NEEDLE ROLLER BEARINGS, SPACER, FOURTH GEAR AND REAR BALL BEARING

- (a) Apply gear oil to the needle roller bearings.
- (b) Install the spacer and needle roller bearings.



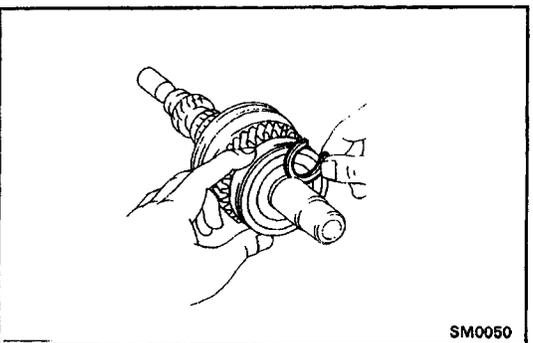
SM0190

- (c) Place the synchronizer ring on the gear.  
HINT: Align the ring slots with the shifting keys, and the ring projections with the hub slots.



SM0049

- (d) Using SST and a press, install the rear ball bearing.  
SST 09608-12010 (09608-00070)

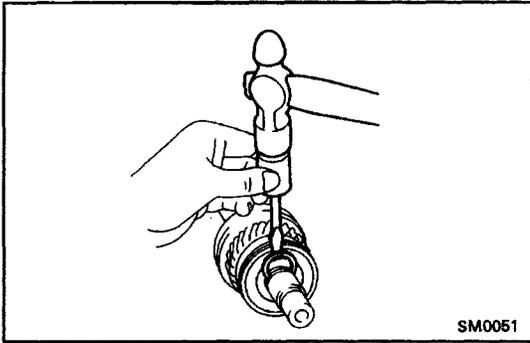


SM0050

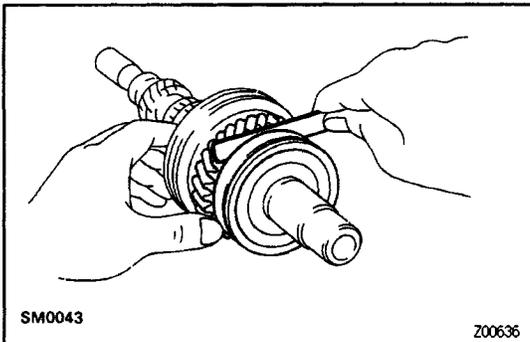
#### 6. INSTALL SNAP RING

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

Mark	Thickness mm (in.)
<b>A</b>	2.15–2.20 (0.0846–0.0866)
<b>B</b>	2.20–2.25 (0.0866–0.0886)
<b>C</b>	2.25–2.30 (0.0886–0.0906)
<b>D</b>	2.30–2.35 (0.0906–0.0925)
<b>E</b>	2.35–2.40 (0.0925–0.0945)



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



### 7. INSPECT FOURTH GEAR THRUST CLEARANCE

Using a feeler gauge, measure 4th gear thrust clearance.

**Standard clearance:**

**0.20–0.45 mm (0.0079–0.0177 in.)**