

MANUAL TRANSMISSION

OUTLINE	7A— 2
OUTLINE OF CONSTRUCTION	7A— 2
SPECIFICATIONS.....	7A— 2
STRUCTURAL VIEW.....	7A— 2
INTERCHANGEABILITY OF	
MAJOR COMPONENTS	7A— 3
MAIN SHAFT	7A— 4
COUNTER SHAFT	7A— 5
MAIN DRIVE GEAR	7A— 7
SYNCHRONIZER RING	7A— 8
2ND GEAR	7A— 9
SHIFT ROD	7A—10
SELECT LOCK SPINDLE	7A—11

67U07A-501

OUTLINE

OUTLINE OF CONSTRUCTION

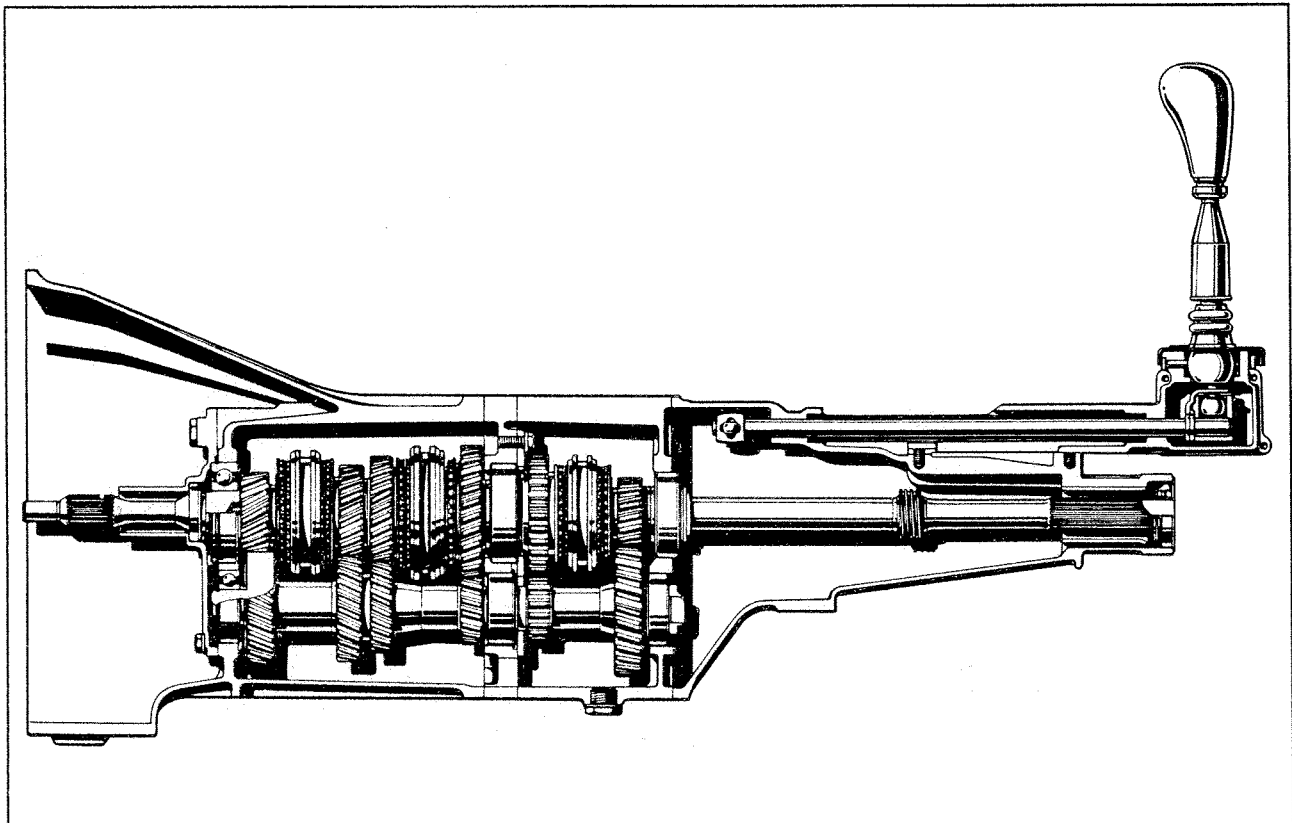
The basic construction is the same as the previous model except that many items have been changed to improve durability and reliability:

SPECIFICATIONS

		New model		Previous model
		AUSTRALIA	EXCEPT AUSTRALIA	
Synchronesh type		Forward: Synchronesh Reverse: Constant-mesh		
Shift type		5-speed Floor shift		
Gear ratios	1st	3.475		3.622
	2nd	2.002	2.000	2.186
	3rd	1.366		1.419
	4th	1.000		
	5th	0.711	0.758	
	Reverse	3.493		

67U07A-502

STRUCTURAL VIEW



67U07A-503

INTERCHANGEABILITY OF MAJOR COMPONENTS

Parts interchangeability and changes between the '86 RX-7 and '85 RX-7 are shown below.

Symbols

O: interchangeable

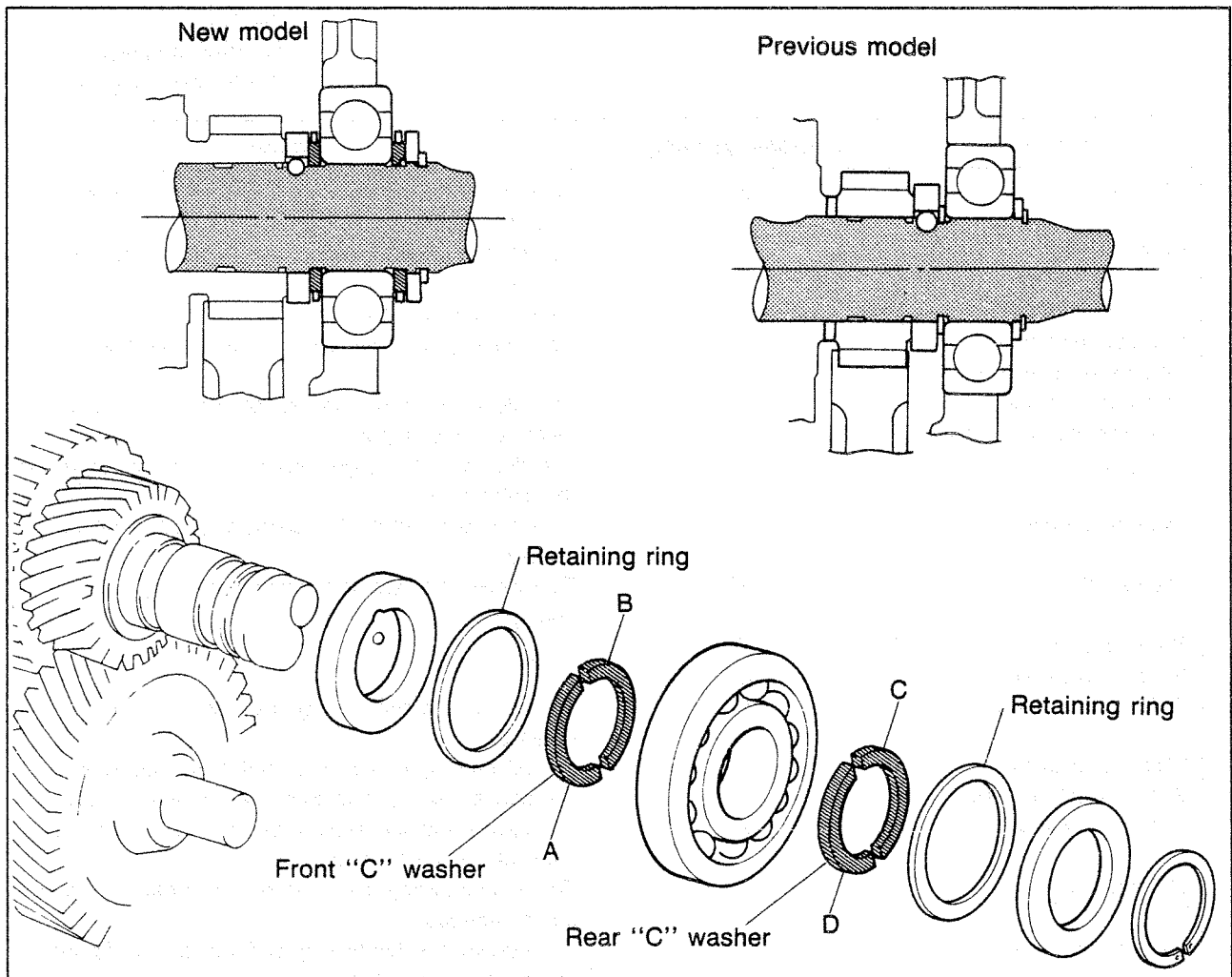
X: not interchangeable

Part name	Interchangeability	Remark
Change lever	X	To improve the shift feeling, thickness of rubber is increased. (3 mm, 0.118 in)
Control lever	X	To improve the shift feeling, length of control lever is increased. Gear ratio is changed.
Counter shaft gear	X	To reduce gear noise, a friction gear is adopted.
Counter reverse gear	O	
Extension housing	X	To reduce vibration, transmission mounts are changed.
First, second, third and fifth gear	X	Gear ratio is changed. The diameter of 2nd gear cone is increased, to improve the shift feeling
Main drive gear	X	To improve durability, the diameter of pilot bearing is increased.
Main shaft	X	To improve the retaining strength, the retainer is changed.
Reverse gear	O	
Reverse idle gear	O	
Shift fork (1st-2nd)	X	To improve the shift feeling, the diameter shift fork is increased.
Shift fork (3rd-4th)	X	To reduce weight, aluminum shift fork is adopted.
Shift fork (5th-reverse)	X	To reduce weight, aluminum shift fork is adopted.
Shift rod (1st-2nd)	X	To improve the shift feeling, the groove of shift rod for interlock pin is changed.
Shift rod (3rd-4th)	X	To improve feeling, the groove of shift rod for interlock pin is changed.
Shift rod (5th-reverse)	X	To improve the shift feeling, shift rod groove for the interlock pin is changed.
Synchronizer ring (1st, 2nd, 3rd, 4th)	X	To improve the shift feeling, the shape is changed.
Synchronizer ring (5th)	O	

67U07A-504

MAIN SHAFT

Rear Ball Bearing



67U07A-505

The retainer for the main shaft rear ball bearing has been changed from a snap ring type to "C" washers to improve retaining strength.

Axial force of the ball bearing is retained by the "C" washers in the grooves and retaining rings and snap ring hold the "C" washers in place.

The "C" washer thickness sizes are selective to adjust bearing end play. The front "C" washers should be 3.0 mm (0.118 in), or the standard bearing end play may not be obtained.

Standard bearing end play: 0.0 to 0.3 mm (0.000 to 0.0118 in)

"C" washer thickness:

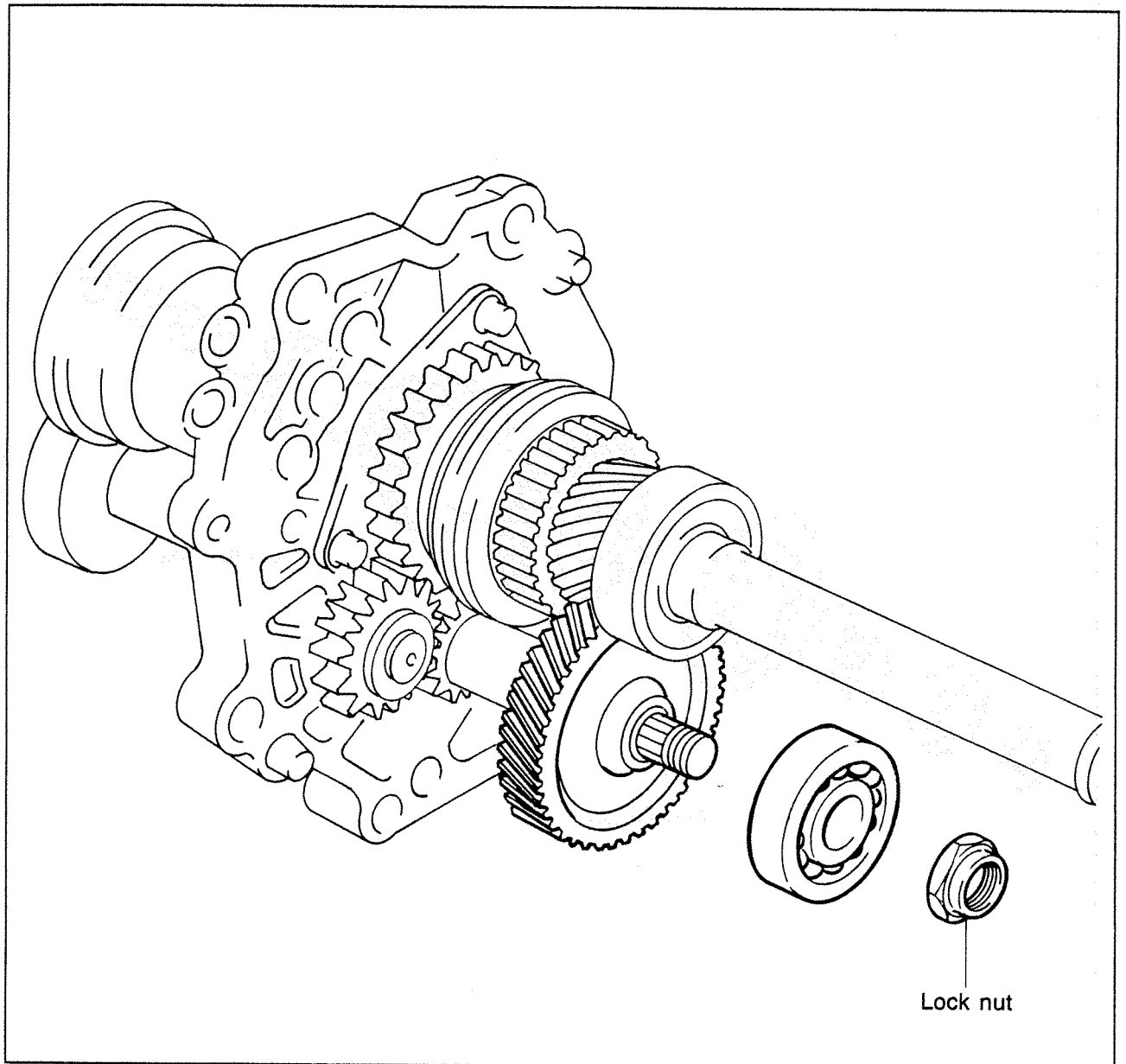
- 2.9 mm (0.114 in)
- 3.0 mm (0.118 in)
- 3.1 mm (0.122 in)
- 3.2 mm (0.126 in)

Caution

Each of front "C" washer A and B or rear "C" washer C and D must be the same thickness, or else it will cause bearing failure due to misalignment.

COUNTER SHAFT

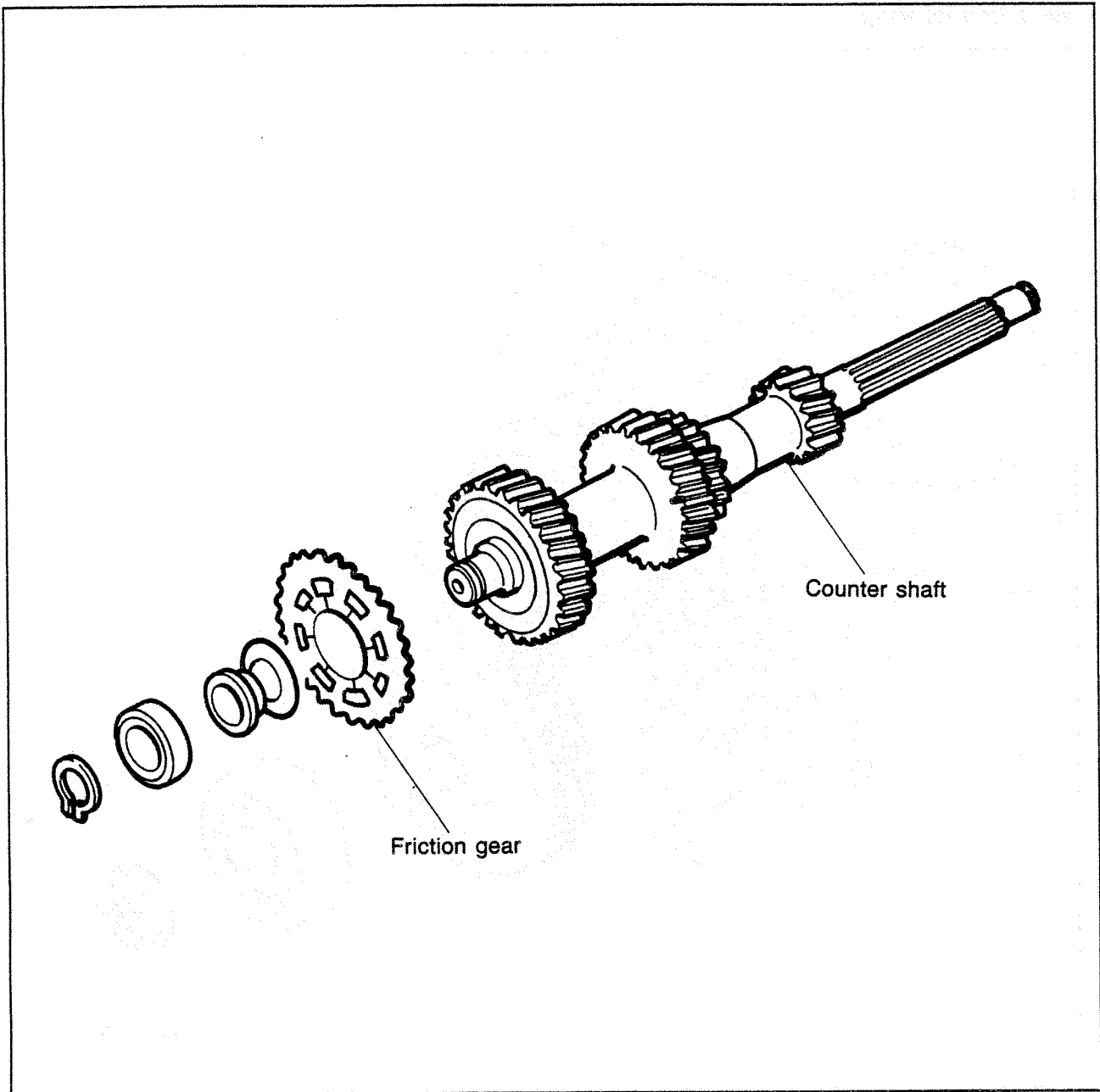
Rear Ball Bearing



67U07A-506

In order to increase the retention reliability of the counter shaft rear bearing, the retainer has been changed from a snap ring to a lock nut. New nut should be used during repair.

FRICION GEAR

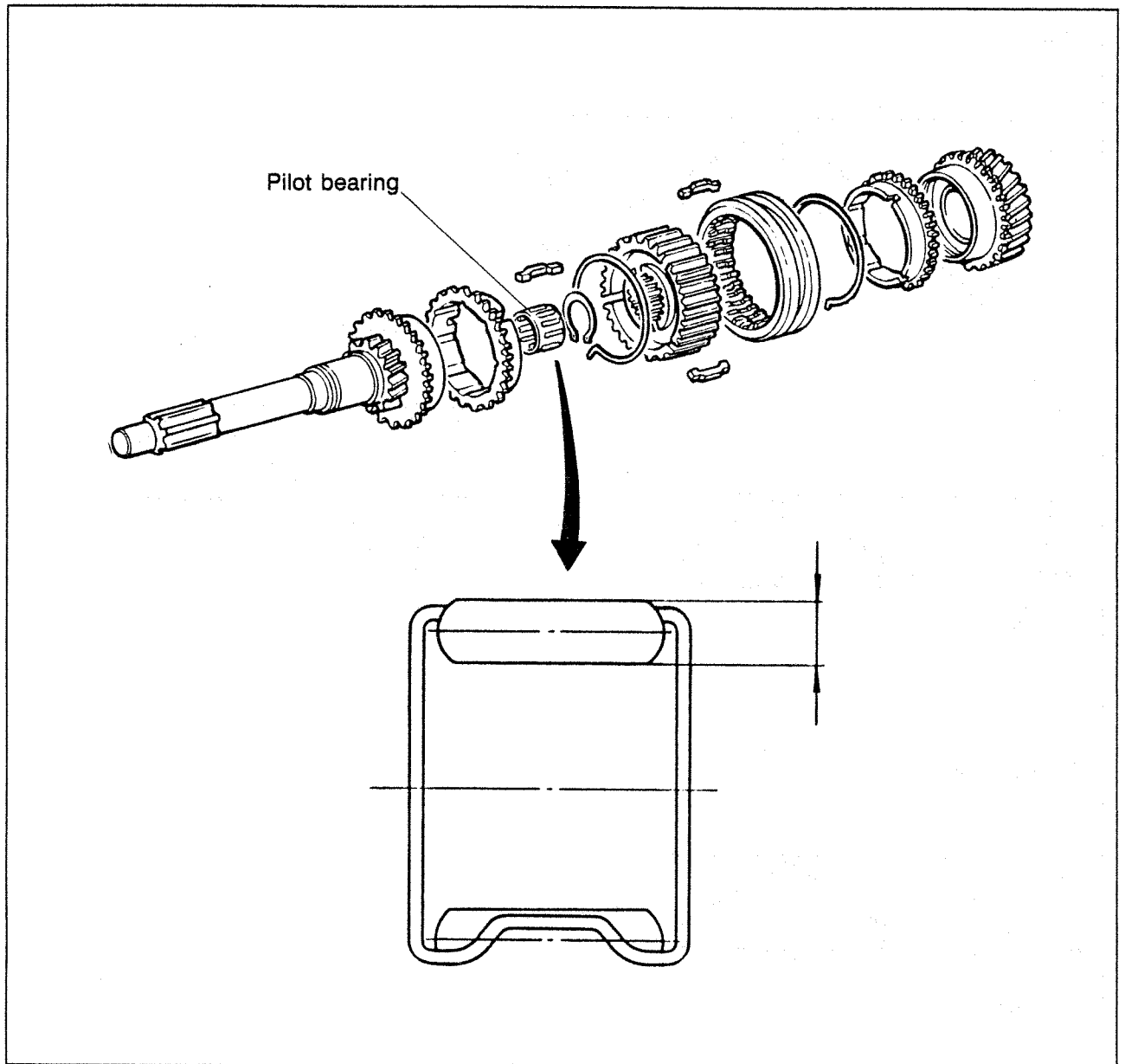


67U07A-507

To reduce gear noise, a friction gear is fitted on the front face of the countershaft gear, and backlash is eliminated between countershaft gear and the main drive gear.

MAIN DRIVE GEAR

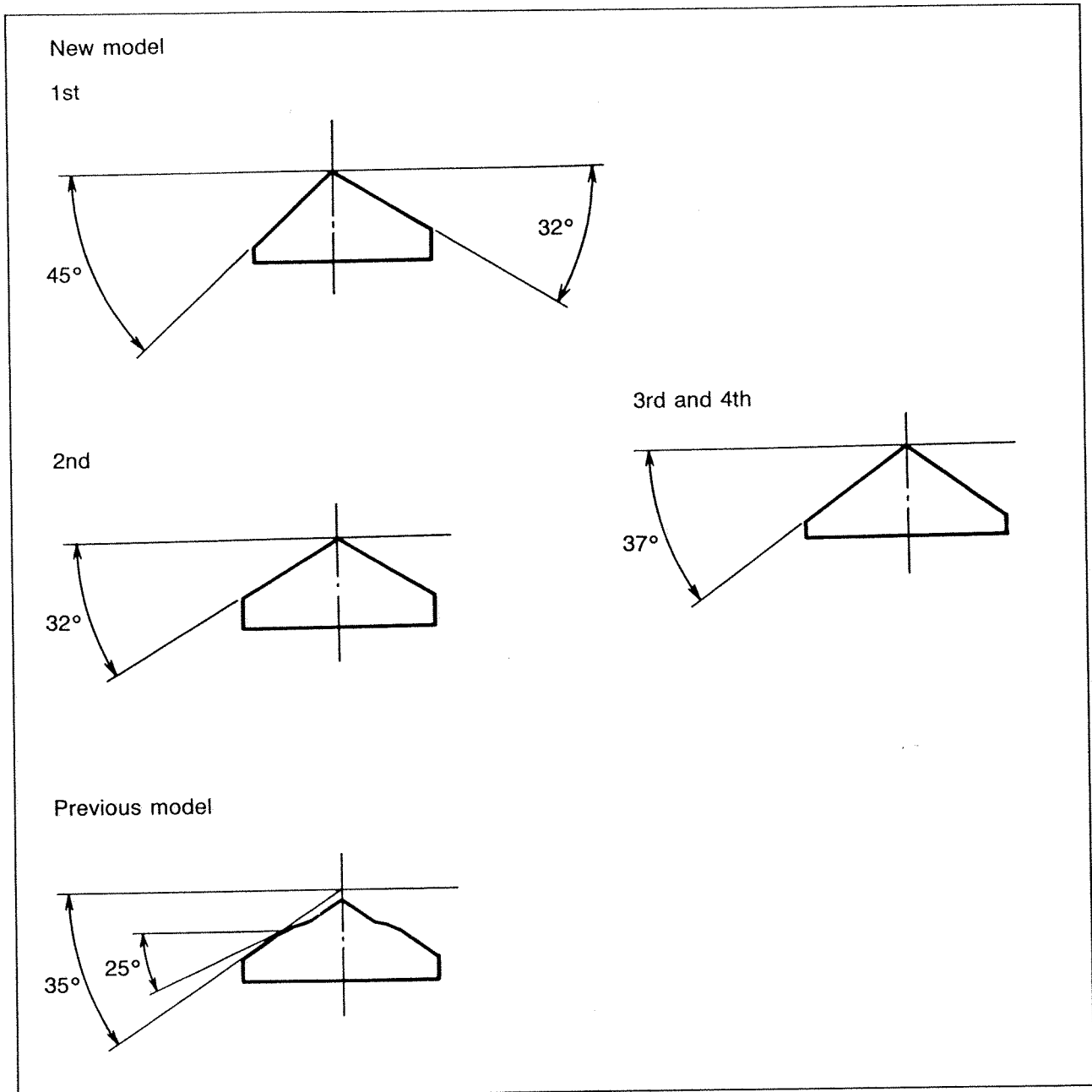
Pilot Bearing



67U07A-508

To improve durability, the diameter of pilot bearing is increased from 3.0mm to 4.5mm.

SYNCHRONIZER RING (1st, 2nd, 3rd and 4th gear)



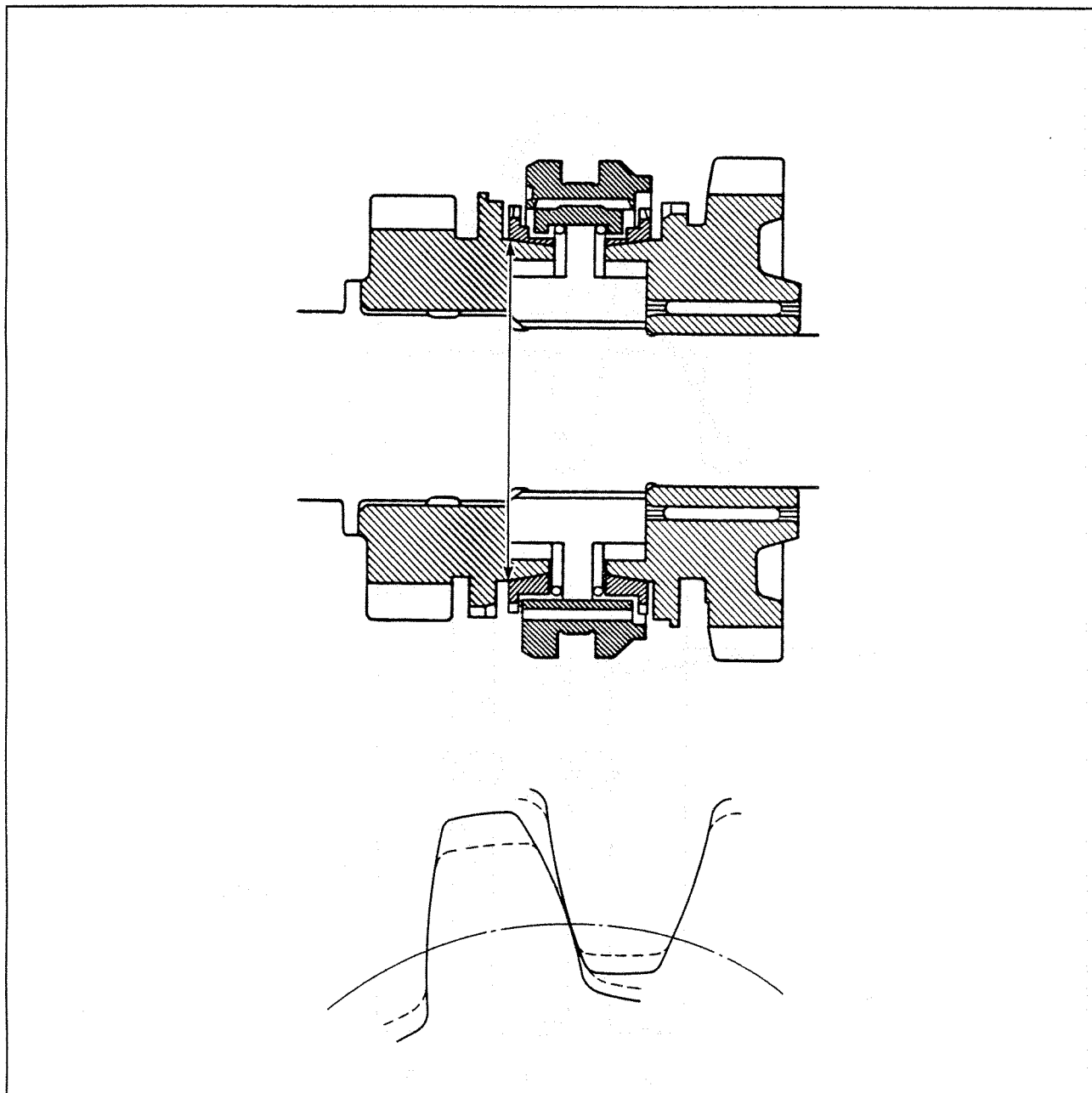
67U07A-509

In order to improve the shift "feeling", the chamfer of the synchronizer ring has been changed from a 3-step chamfer to a straight chamfer.

In the previous model braking force (synchro force) is generated at the second step, but when second-step wear occurs, there were cases of "catching" during shifting.

In the new model in order to prevent gear wear, the gear shape has been changed to a straight chamfer, and, in order to assure sufficient braking force (synchro force), the gear angle has been changed to an obtuse angle.

2ND GEAR

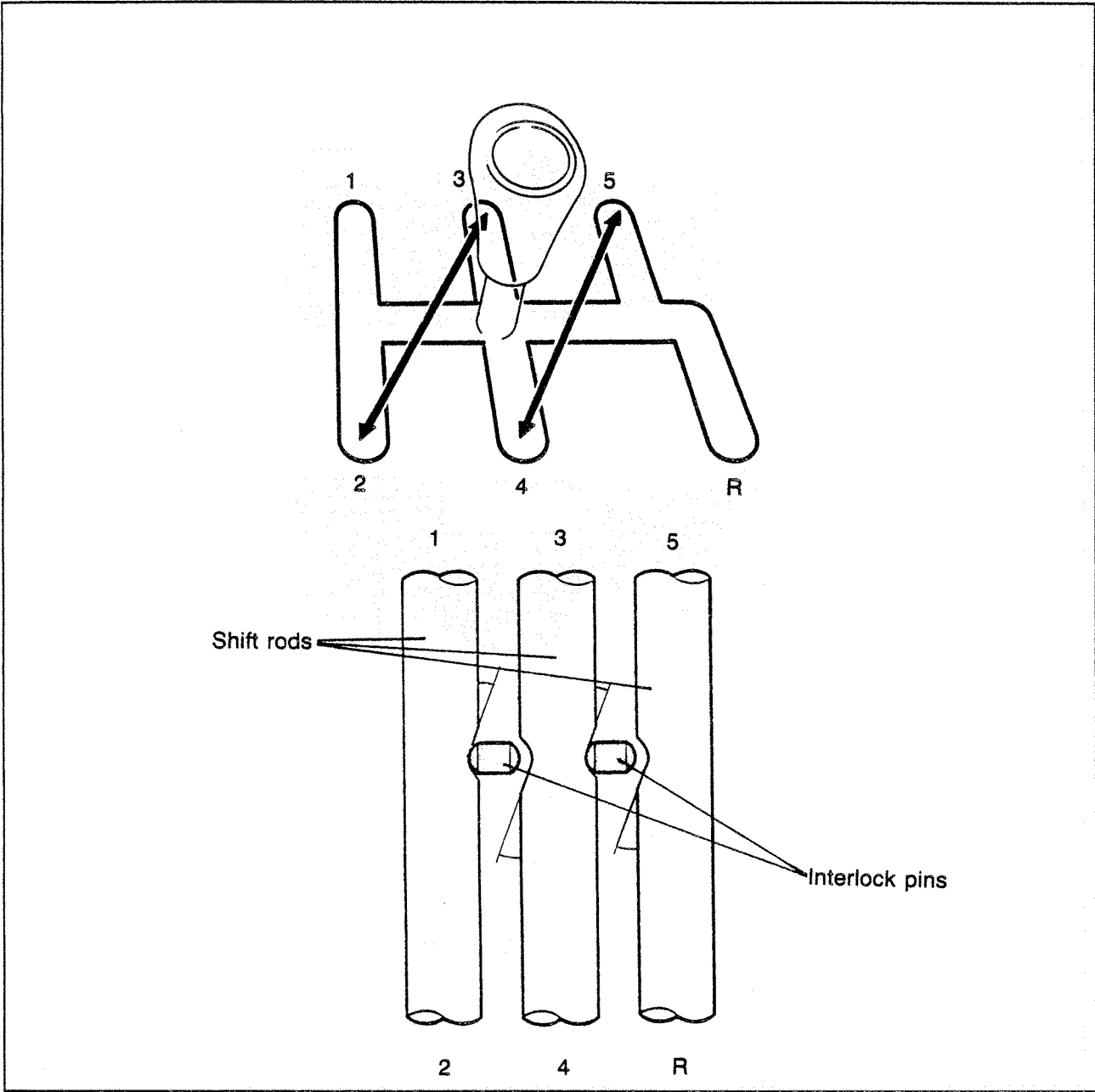


67U07A-510

In order to reduce the shifting force required to shift from 1st gear to 2nd gear, the cone diameter has been changed from 61 mm to 65 mm.

1. By increasing the cone diameter, the synchronization surface area is increased, thus providing a greater synchro force by a lower shifting force.
2. To reduce gear noise, gear tooth height has been increased to increase the tooth contact area, and eliminate backlash between 2nd gear and the countershaft gear.

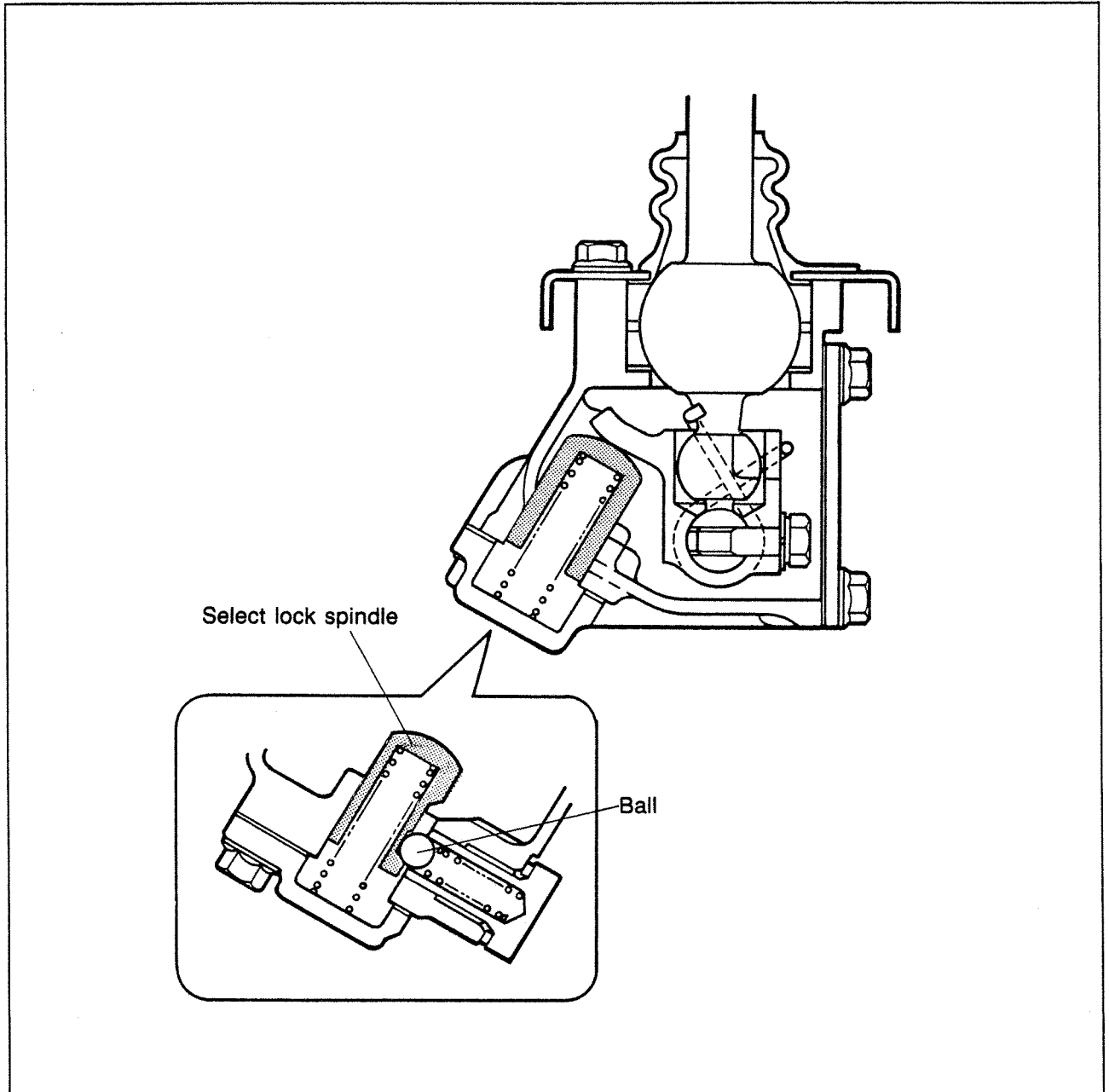
SHIFT ROD



67U07A-511

To improve the shift feeling, the shift rod grooves for the interlock pin is cut on an angle (20°) to prevent an interruption when the shift lever is moved from 2nd to 3rd, 4th to 5th or 5th to 4th, 3rd to 2nd.

SELECT LOCK SPINDLE



67U07A-512

In order to improve the shift "feeling" from 4th gear to 5th gear and from 5th gear to 4th gear, the surface of the select lock spindle has been made smooth.