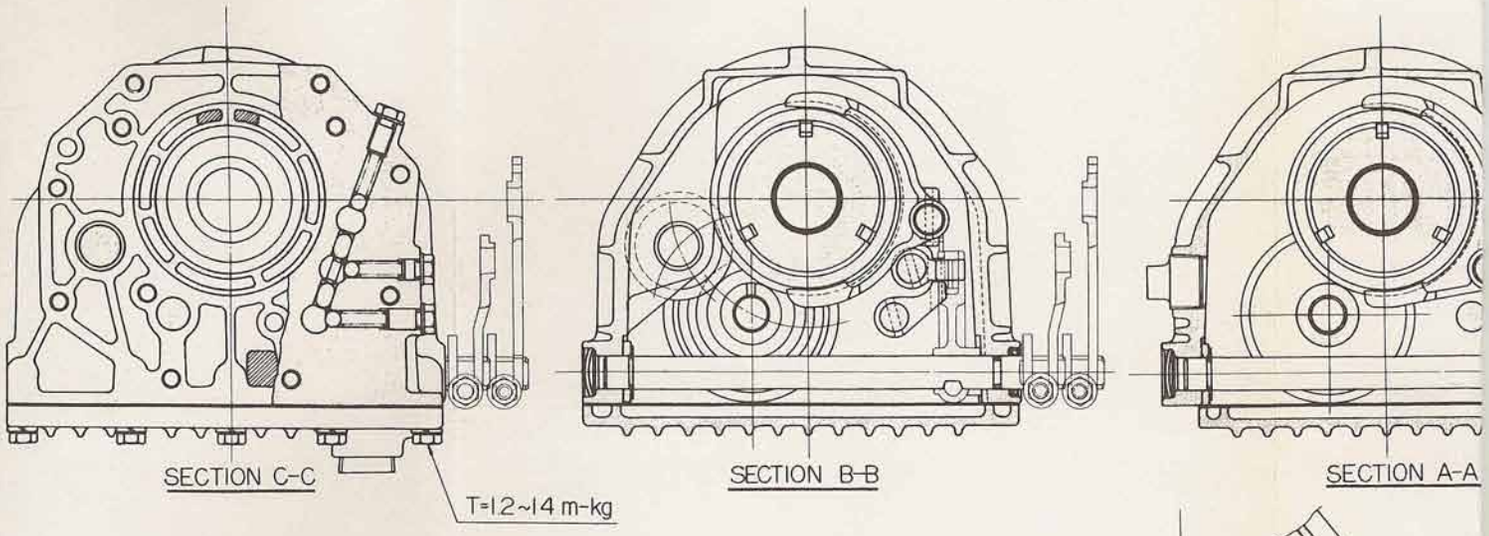
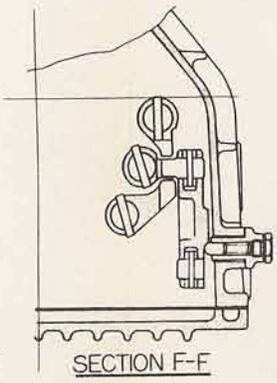
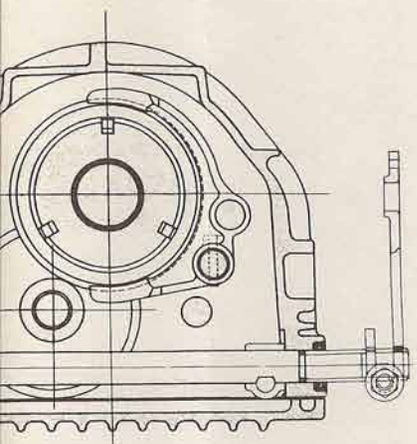
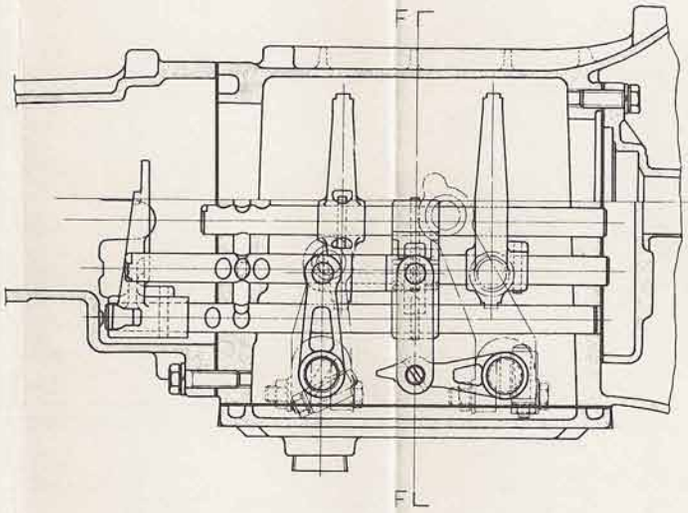
SECTIONAL VIEWS OF TRANSMISSION

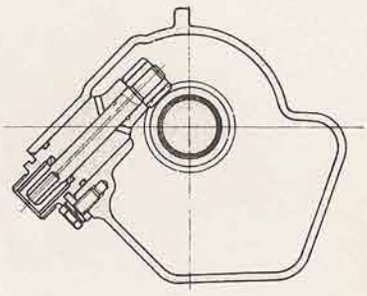






SECTION A-A

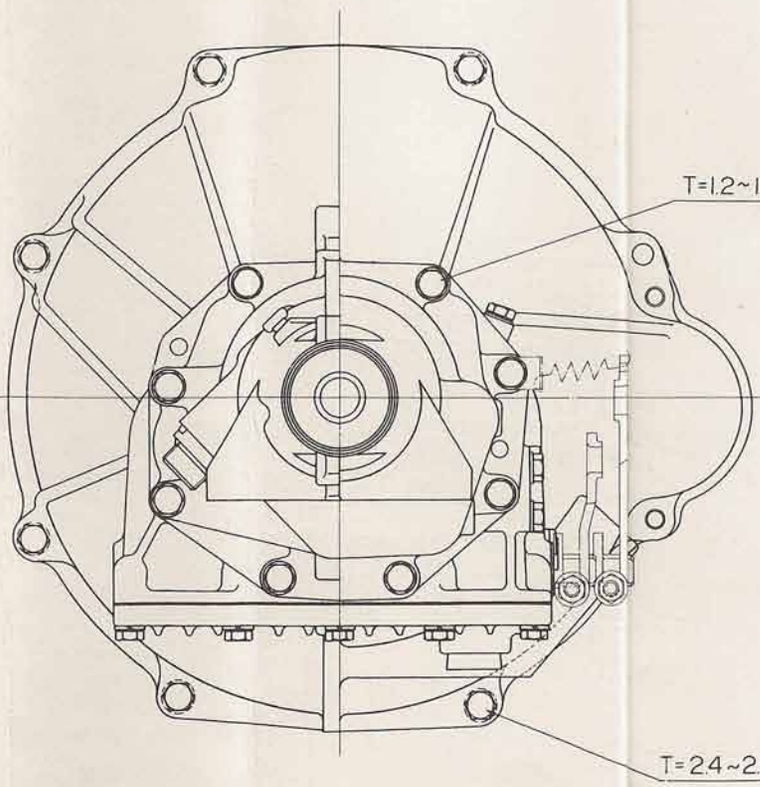


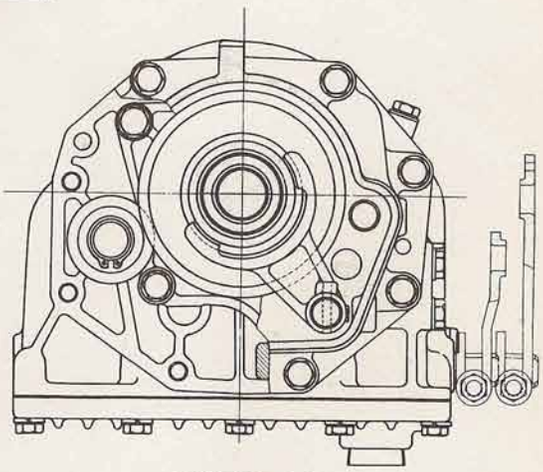


SECTION E-E

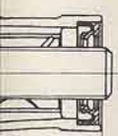
ION F-F

GEAR RATIO	
1ST	5,000
2ND	3,014
3RD	1,685
4TH	1,000
REVERSE	5,146





SECTION D-D

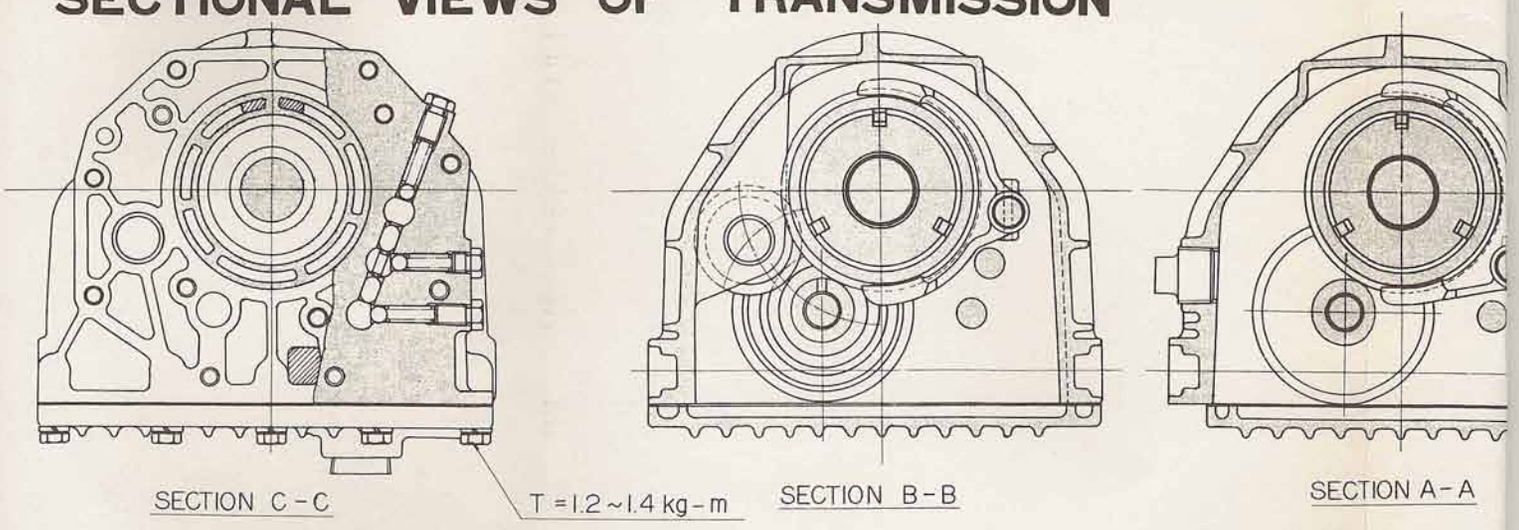


R GEAR
NO.

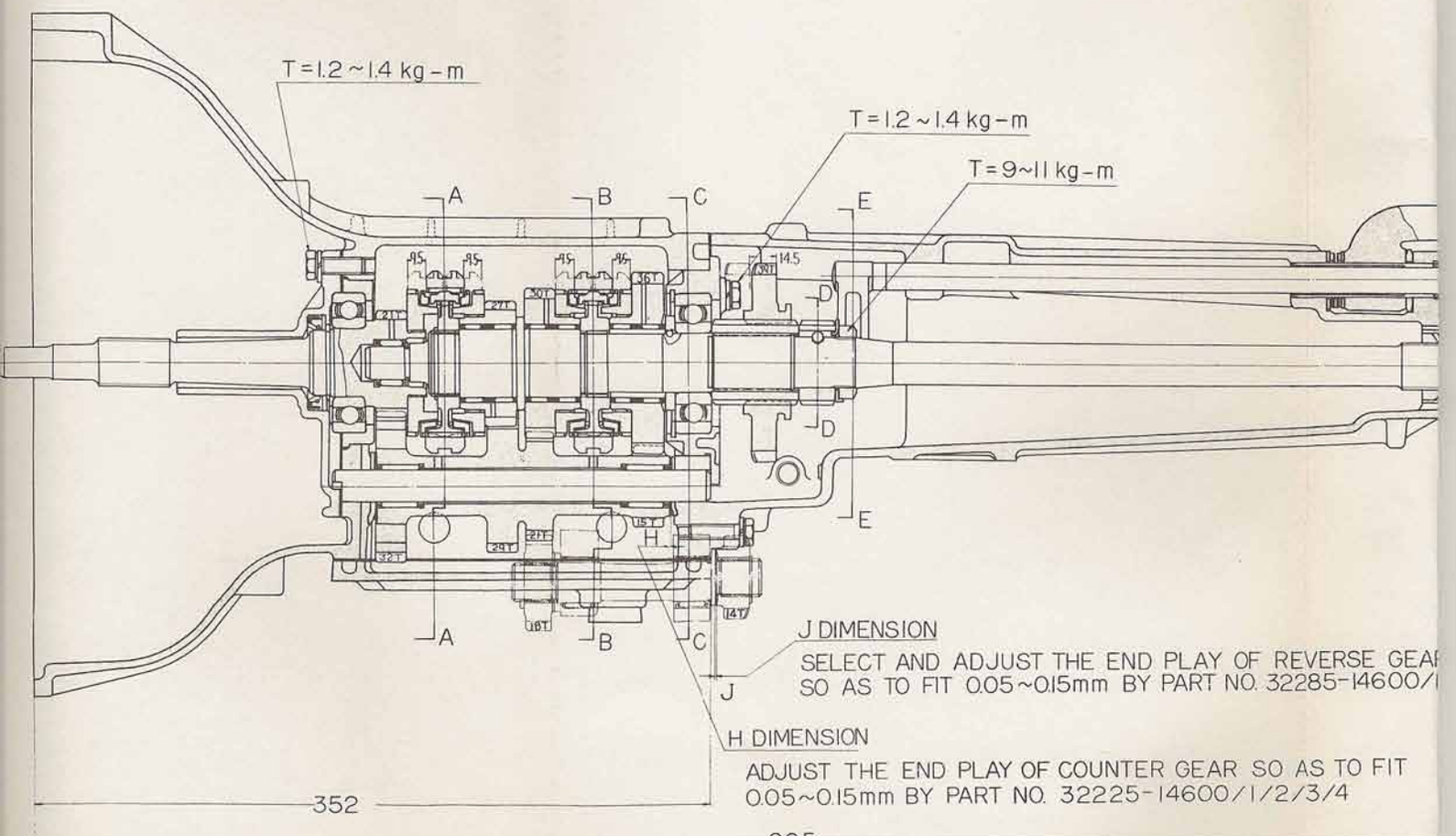
OF

4600/

SECTIONAL VIEWS OF TRANSMISSION



1ST
3RD

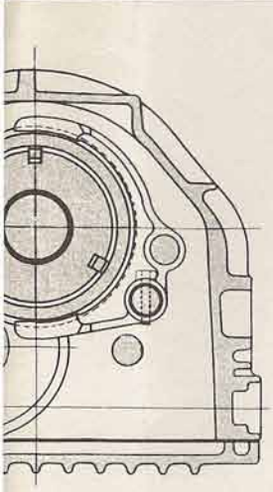


J DIMENSION

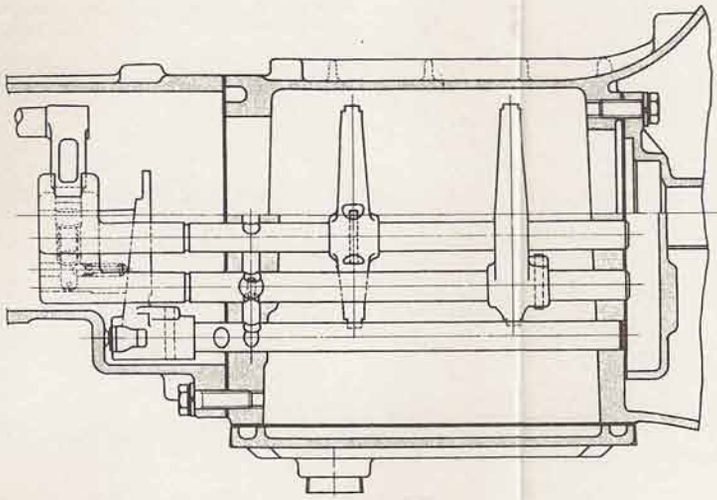
SELECT AND ADJUST THE END PLAY OF REVERSE GEAR SO AS TO FIT 0.05~0.15mm BY PART NO. 32285-14600/1

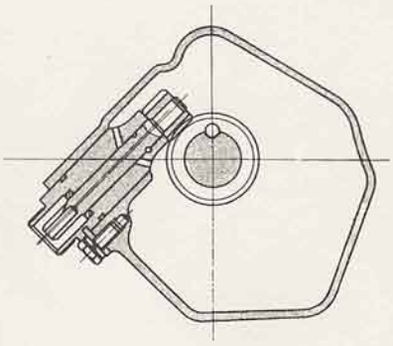
H DIMENSION

ADJUST THE END PLAY OF COUNTER GEAR SO AS TO FIT 0.05~0.15mm BY PART NO. 32225-14600/1/2/3/4

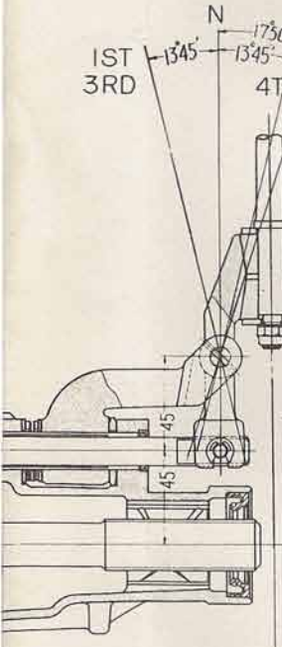


ION A-A

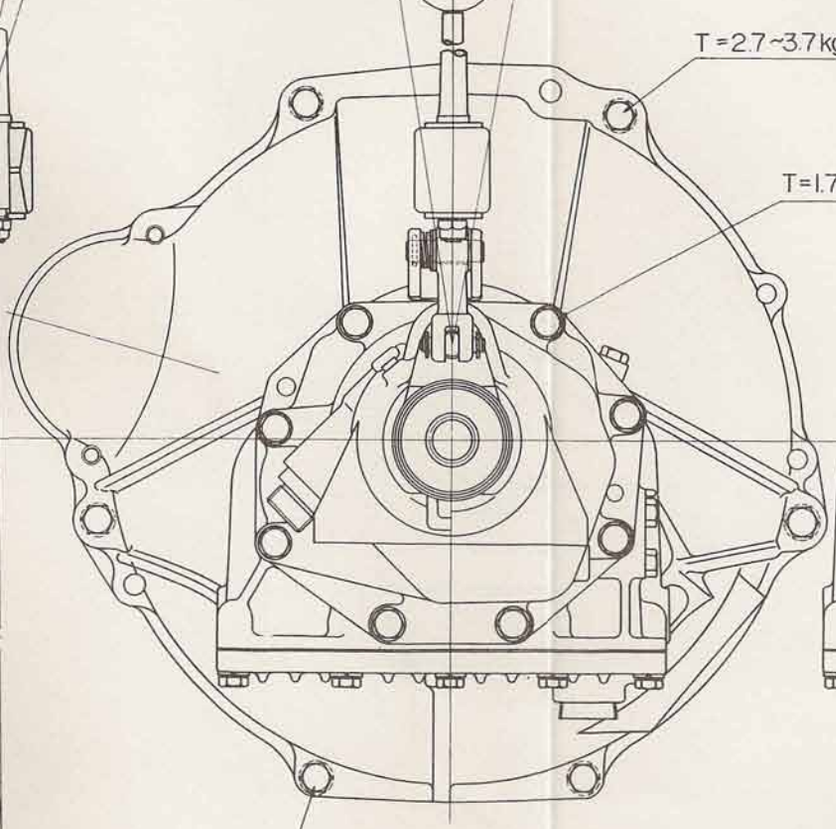


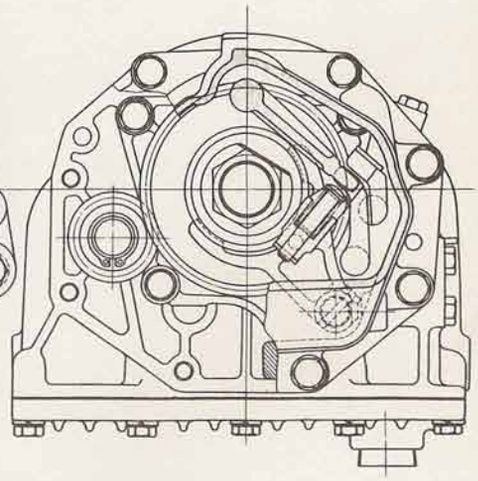


SECTION D-D



GEAR RATIO	
1ST	3.657
2ND	2.177
3RD	1.419
4TH	1.000
REVERSE	3.638





SECTION E-E

VERSE GEAR IDLER
85-14600/1/2/3/4.

S TO FIT
3/4

TRANSMISSION

GENERAL DATA

Model	4 stages for forward, 1 stage for reverse remote controled	
Type of gear	Synchro-meshed for speed #1, 2, 3 & 4 Synchro-meshed helical gear type	
	Remote control	Floor shift
	L520-U U(L)520-U	V(L)520-U L520-UT
Speed #1	5.000	3.657
Speed #2	3.014	2.177
Speed #3	1.685	1.419
Speed #4	1.000	1.000
Reverse	5.146	3.638
No. of tooth of gear		
Main drive gear	17	18 (21 LT)
Main shaft 3rd gear	25	26 (27 LT)
Main shaft 2nd gear	31	30
Main shaft 1st gear	28 (spur gear)	32 (36 LT)
Counter drive gear	31	35
Counter third gear	26	30
Counter second gear	20	20
Counter first gear	11 (spur gear)	14
Reverse idler gear	13 & 17 (spur gear)	13 & 17

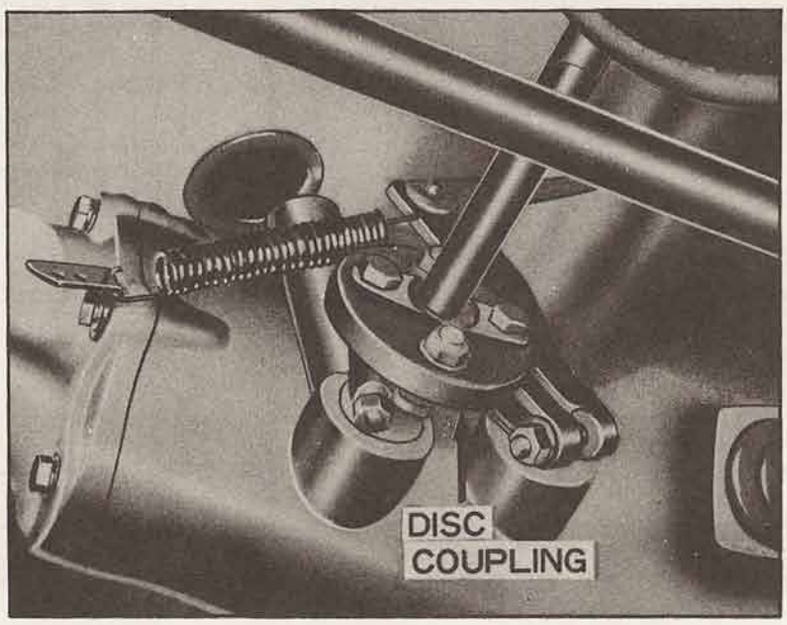
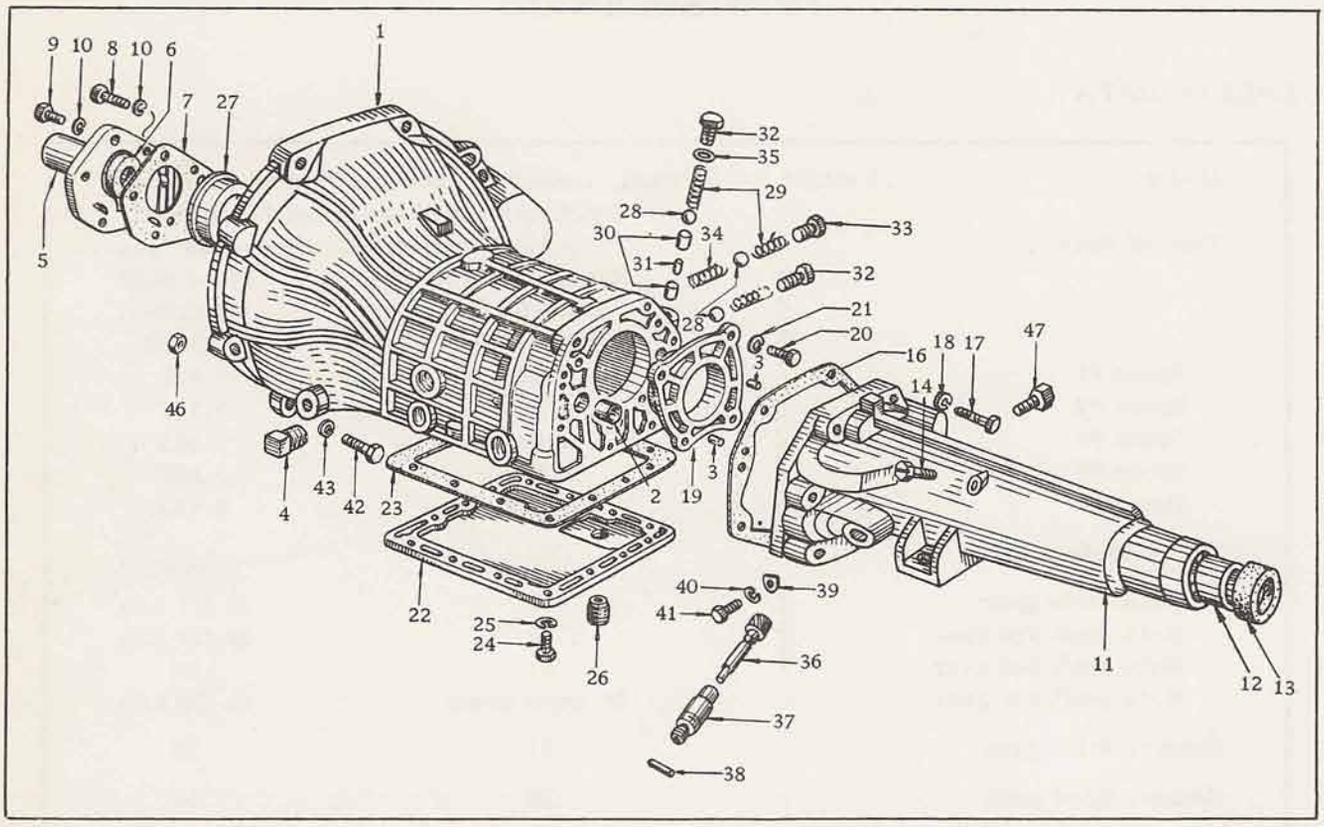
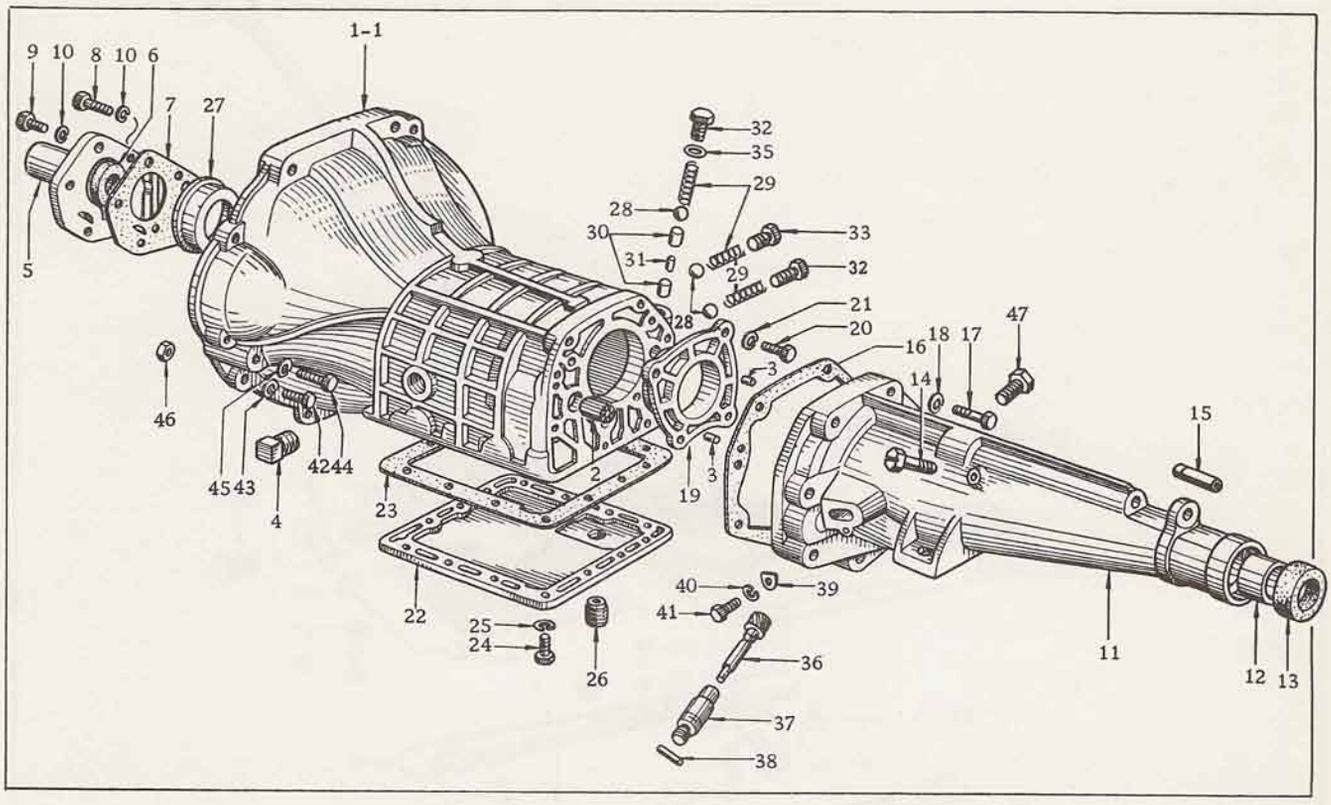


Fig. 1



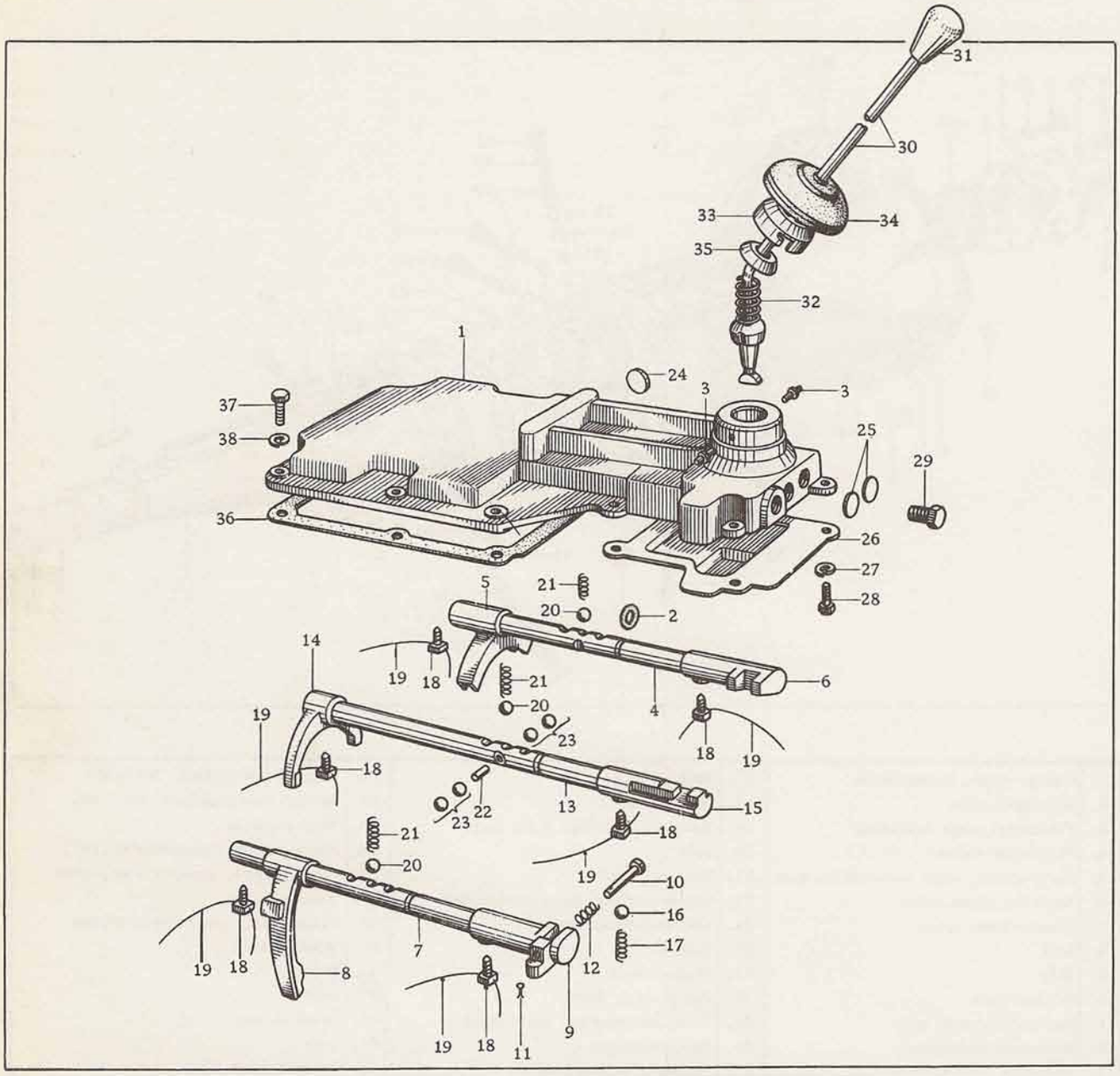
1.	Comp.-case, transmission	16.	Gasket-rear extension	30.	Plunger-inter lock
2.	Bearing-needle	17.	Bolt	31.	Pin-inter lock
3.	Pin-dowel, rear extension	18.	Washer-lock	32.	Plug-checking ball
4.	Plug-taper thread	19.	Retainer-bearing, main shaft	33.	Plug-checking ball, 3rd & 4th
5.	Ass'y-cover, front transmission case	20.	Bolt	34.	Spring-checking ball, 3rd & 4th
6.	Seal-oil, front cover	21.	Washer-lock	35.	Washer-plain
7.	Gasket-front cover	22.	Cover-bottom, transmission case	36.	Ass'y-pinion, speedometer (19T)
8.	Bolt	23.	Gasket-bottom cover	37.	Ass'y-sleeve, speedometer pinion
9.	Bolt	24.	Bolt	38.	Pin-retaining
10.	Washer-lock	25.	Washer-lock	39.	Plate-lock, speedometer sleeve
11.	Ass'y-extension, rear	26.	Ass'y-plug, drain	40.	Washer-lock
12.	Bush-rear extension	27.	Retainer-bearing, main drive	41.	Bolt
13.	Seal-oil, rear extension	28.	Ball-checking	46.	Nut
14.	Ass'y-breather	29.	Spring-checking ball	47.	Plug (used for reverse lamp switch)

Fig. 2 Transmission Case



1-1	Comp.-case, transmission	17.	Bolt	33.	Plug-checking ball, 3rd & 4th
2.	Bearing-needle	18.	Washer-lock	34.	Spring-checking ball, 3rd & 4th
3.	Pin-dowel, rear extension	19.	Retainer-bearing, main shaft	35.	Washer-plain
4.	Plug-taper thread	20.	Bolt	36.	Ass'y-pinion, speedometer (19T)
5.	Ass'y-cover, front transmission case	21.	Washer-lock	37.	Ass'y-sleeve, speedometer pinion
6.	Seal-oil, front cover	22.	Cover-bottom, transmission case	38.	Pin-retaining
7.	Gasket-front cover	23.	Gasket-bottom cover	39.	Plate-lock, speedometer sleeve
8.	Bolt	24.	Bolt	40.	Washer-lock
9.	Bolt	25.	Washer-lock	41.	Bolt
10.	Washer-lock	26.	Ass'y-plug, drain	42.	Bolt
11.	Ass'y-extension, rear	27.	Retainer-bearing, main drive	43.	Washer-lock
12.	Bush-rear extension	28.	Ball-checking	44.	Bolt
13.	Seal-oil, rear extension	29.	Spring-checking ball	45.	Washer-lock
14.	Ass'y-breather	30.	Plunger-inter lock	46.	Nut
15.	Bush-striking	31.	Pin-inter lock	47.	Plug (used for reverse lamp switch)
16.	Gasket-rear extension	32.	Plug-checking ball		

Fig. 3 Transmission Case (Model L520 UT)



1.	Cover-transmission	14.	Fork-3rd & 4th speed	27.	Washer-lock
2.	Ring-"O" shift rod	15.	Bracket-rod, 3rd & 4th speed	28.	Bolt
3.	Pin-control lever pivot	16.	Ball-checking reverse, select	29.	Plug-thread
4.	Rod-fork, 1st & 2nd speed	17.	Spring-popet pin, reverse	30.	Ass'y lever-control
5.	Fork-1st & 2nd speed	18.	Screw-set, fork	31.	Knob-lever, control
6.	Bracket-rod, 1st & 2nd speed	19.	Wire-lock	32.	Spring-lever control
7.	Rod-fork, reverse	20.	Ball-check	33.	Cap-cover, T°M case
8.	Fork-reverse	21.	Spring-popet, shift rod	34.	Boot-rubber
9.	Bracket-rod, reverse	22.	Pin-inter lock	35.	Seat-lever, spring
10.	Pin-fork, reverse	23.	Ball-inter lock	36.	Gasket-cover, T/M case
11.	Pin cotter	24.	Plug-welch	37.	Bolt-cover to T/M case
12.	Spring-pin, reverse, fork	25.	Plug-welch	38.	Washer-lock
13.	Rod-fork, 3rd & 4th speed	26.	Plate-dust, T/M cover		

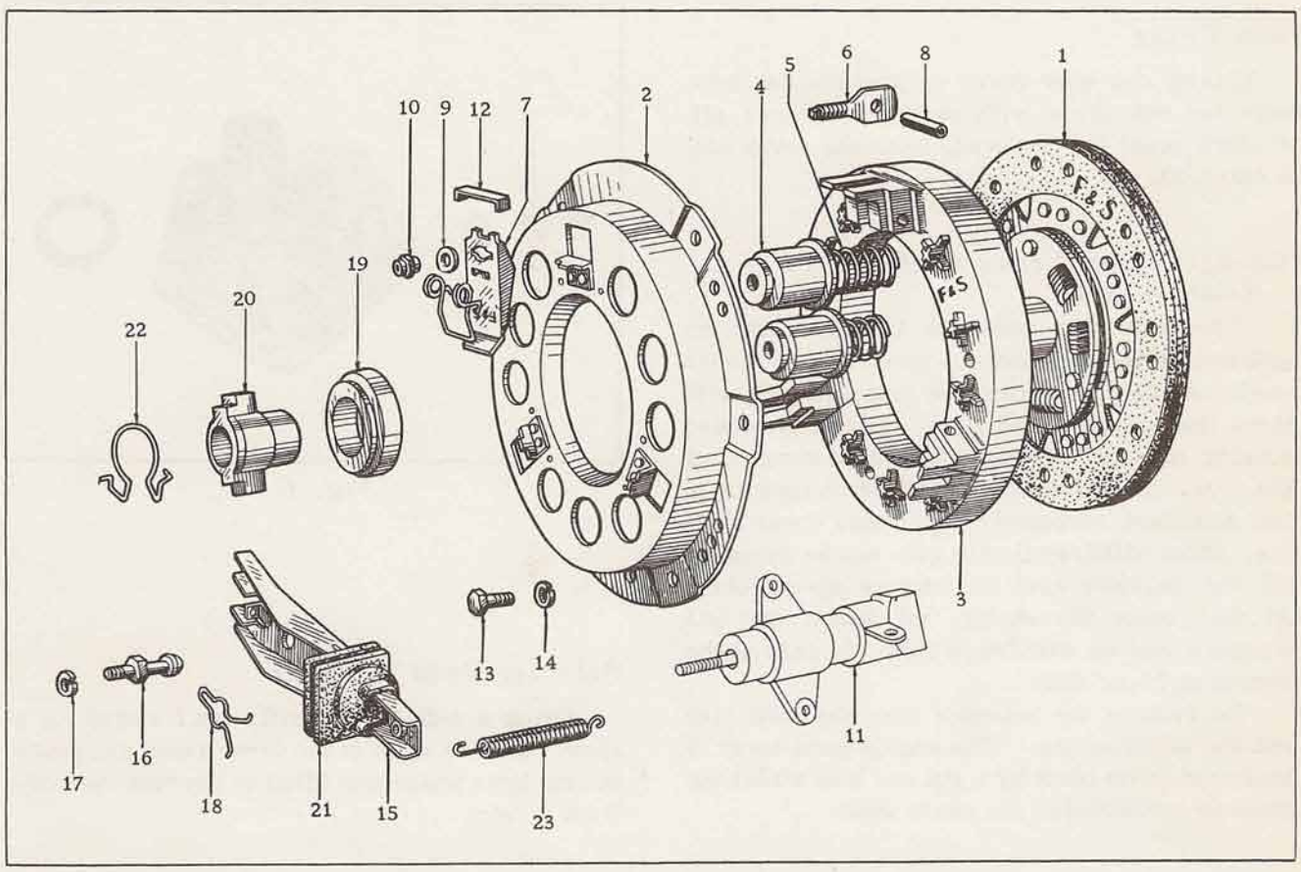
Fig. 4 Transmission Cover & Fork (Floor Shift)
(to C/# 520-30000)

DISASSEMBLING THE CASE

First drain the oil from the transmission by removing the drain plug. The drain plug is situated beneath the case at the left-hand side.

Clutch Withdrawal Lever

Bend back the lock washer, remove the nut its spring washer, and screw the bolt out of the bracket. The leg of the clutch withdrawal support bracket on the steering part of the car is threaded; do not therefore, try to knock the bolt out, or the threaded in the support bracket will be stripped. Screw the bolt out. Detach the rubber dust cover around the withdrawal lever from within the clutch housing.



1.	Ass'y-disc, clutch	12.	Support-release lever
2.	Ass'y-cover, clutch	13.	Bolt
3.	Plate-pressure	14.	Washer-lock
4.	Retainer-pressure spring	15.	Lever-clutch
5.	Spring-pressure	16.	Pin-ball, withdrawal lever
6.	Bolt-pressure plate	17.	Washer-lock
7.	Lever-release	18.	Spring-retainer, withdrawal lever
8.	Pin-eye bolt	19.	Bearing-clutch release
9.	Seat-release lever	20.	Sleeve-bearing
10.	Nut-lock	21.	Cover-dust, withdrawal lever
11.	Spring-retracting	22.	Spring-holder, bearing sleeve
		23.	Spring-return, withdrawal lever

Fig. 5

Cross Shaft Levers

The cross shaft levers are positioned on the right-hand side of the case of transmission if the car has right-hand steering, and on the left-hand side if left-hand steering.

A cotter pin, spring washer, and nut, secures each lever to its shaft. After the nuts and washers have been removed, the pins may be tapped out, and the levers lifted off the shafts.

Side Cover

Holding the side cover in position are set-bolts and set-screw with serrated washers, all of which must be removed, when the cover can be taken off.

Change Speed Cross Shafts & Selector Arm

Once the side cover is removed both the selector arm and change speed lever cross shafts can be drawn from the case, bringing with them the change speed gate. Gentle pressing prising may be necessary to assist removal of the gate, as its rounded ends are a tight fit in the machined recesses on the side cover seating. After withdrawal, the gate can be threaded off the selector arm and change speed lever. At this stage the shafts, oil seals, and felt washers can be withdrawn from the case at the operating lever side.

To remove the selector arm the shaft, tap out the securing pin. The engagement lever is anchored in its pivot by a nut and bolt whilst the pivot is connected to the cross shaft.

Front Cover

Release the front cover situated within the clutch housing by removing the nuts and spring washers. At this stage of disassembling do not attempt to remove the cover and front washer.

The operation will prove easier if the shift fork selector ords are tapped forward, thus pushing the cover away from the casing.

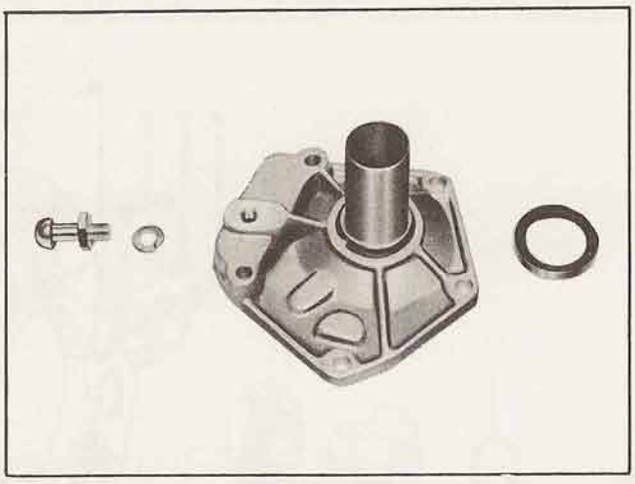
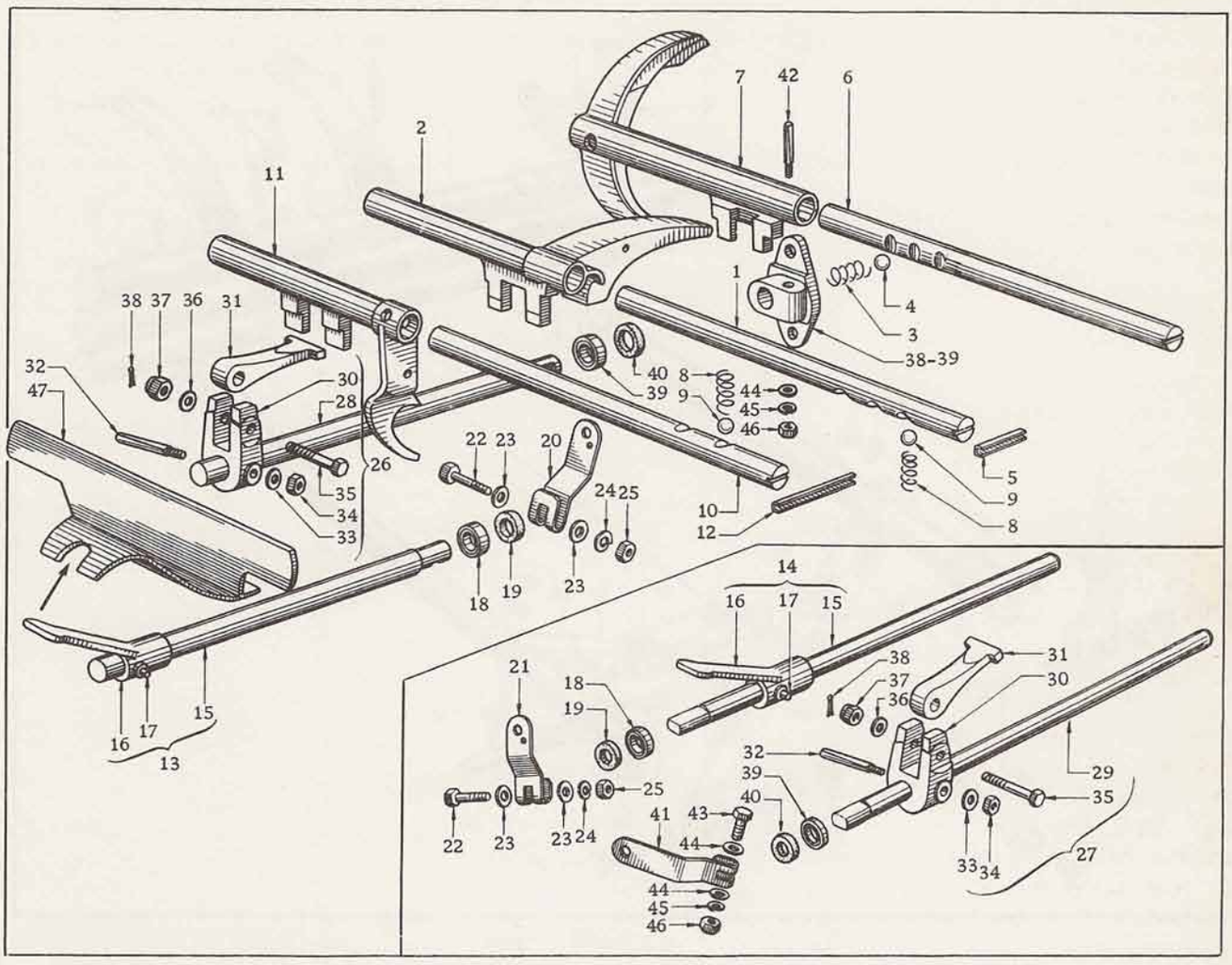


Fig. 6

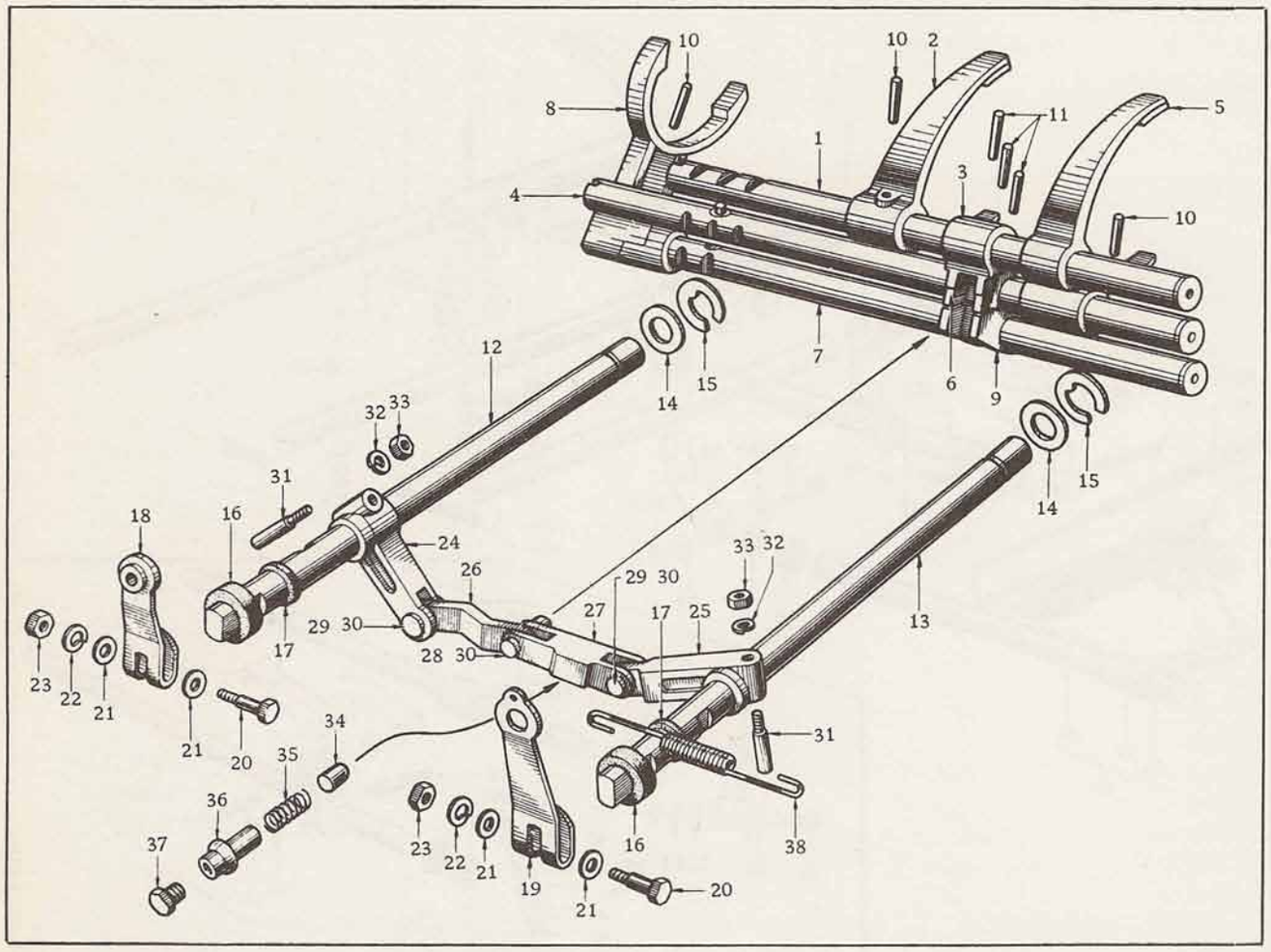
Selector Rods & Forks

Using a soft metal drift, tap forward for a short distance, each of the three rods, and prise out the keys which are fitted to prevent the rods from turning.



1.	Rod-fork, 1st & 2nd speed	17.	Pin-taper	33.	Washer-lock
2.	Fork-1st & 2nd speed	18.	Seal-oil, cross shaft	34.	Nut
3.	Spring-locking ball	19.	Ring-felt	35.	Pin-fulcrum, change speed lever
4.	Ball-checking	20.	Lever-selector	36.	Washer-plain
5.	Strip-locking, fork rod, shaft	21.	Lever-selector cross shaft	37.	Nut
6.	Rod-fork, 3rd & 4th speed	22.	Bolt-fix, change lever	38.	Pin-cotter
7.	Fork-3rd & 4th speed	23.	Washer-plain	39.	Seal-oil, cross shaft
8.	Spring-locking ball	24.	Wa her-lock	40.	Ring-felt
9.	Ball-checking	25.	Nut	41.	Lever-cross shaft, change
10.	Rod-fork, reverse	26.	Ass'y-fork, operating change speed	42.	Pin-lock
11.	Fork-reverse	27.	Ass'y-fork, operating change speed	43.	Bolt-fix, change speed
12.	Strip-locking, fork rod, long	28.	Shaft-cross, change speed	44.	Washer-plain
13.	Ass'y-shaft, cross, selector	29.	Shaft-cross, change speed	45.	Washer-lock
14.	Ass'y-shaft, cross, selector	30.	Fork-operating, change speed	46.	Nut
15.	Shaft-cross selector	31.	Lever-operating, change speed	47.	Ass'y-gate, change speed
16.	Lever-selector cross shaft, inner	32.	Pin-lock		

Fig. 7 Transmission Fork & Rod (Remote Control Shift)
(C/# to 520-30000)



1.	Rod-fork, 1st & 2nd	14.	Washer-thrust, cross shaft	27.	Rod-selecting
2.	Fork-shift, 1st & 2nd	15.	Ring-retaining, cross shaft	28.	Pin-joint
3.	Bracket-rod fork, 1st & 2nd	16.	Seal-oil, cross shaft	29.	Pin-joint
4.	Rod-fork, 3rd & 4th	17.	Ring-"O" cross shaft	30.	Pin-retaining
5.	Fork-shift, 3rd & 4th	18.	Lever-shift	31.	Pin-lock
6.	Bracket-rod fork, 3rd & 4th	19.	Lever-select	32.	Washer-lock
7.	Rod-fork, reverse	20.	Bolt-fix lever	33.	Nut
8.	Fork-shift, reverse	21.	Washer-plain	34.	Plunger-reverse checking
9.	Bracket-rod fork, reverse	22.	Washer-lock	35.	Spring-plunger, reverse check
10.	Pin-retaining	23.	Nut	36.	Cap-reverse checking spring
11.	Pin-retaining	24.	Arm-shifting	37.	Plug-cap, reverse check
12.	Shaft-cross shifting	25.	Arm-selecting	38.	Lever-cross shaft change
13.	Shaft-cross selecting	26.	Rod-shifting		

Fig. 8 Transmission Fork & Rod (Remote Control Shift)
(C/# form 520-030001)

Now drive each rod forward, clear of the forks and extract them from the case. Care should be exercised in order not to lose the spring loaded ball fitted to each fork. Lift out the three forks, noting carefully their respective positions to assist reassembly.

Fitting behind the third speed fork is a distance piece which must be retrieved from the case when removing this fork.

Reverse Gear

A lug, which is an integral part of the main casting locates the forward end of the reverse gear shaft. To secure the shaft in position, a setpin is screwed through the lug locating in the shaft. The setpin is locked by a tab washer. Straighten the tab washer, release the setpin, then tap forward and remove the reverse gear shaft. Lift out the reverse gear.

Counter Shaft & Gear

Using a soft metal drift, drive the counter shaft forward and out of the case, when the counter gear cluster and two thrust washers will drop to the bottom of the case.

These gears can only be lifted from the casting when the main and drive shafts together with their respective gears, have been removed.

Remove the needle roller bearing within the counter gear cluster.

Main Shaft

The main shaft can now be withdrawn from the transmission casing. To remove the gears from the main shaft first slide off the third and fourth speed synchronizer assembly, then with a piece of wire inserted through the hole in the gear cone, depress the small spring loaded plunger which locates the splined washer at the forward end of the main shaft, turning the washer into line with the splines. The third and second speed constant mesh gears, together with their common phosphor bronze sleeve, can now be pulled over the steel plunger and so clear of the main shaft. As the phosphor bronze sleeves and their common driving washer are a tight fit on the shaft, the shaft should be immersed in warm oil in order to expand the sleeves so that they will slide off the shaft, when the second speed gear can be removed. Take out the steel plunger and spring.

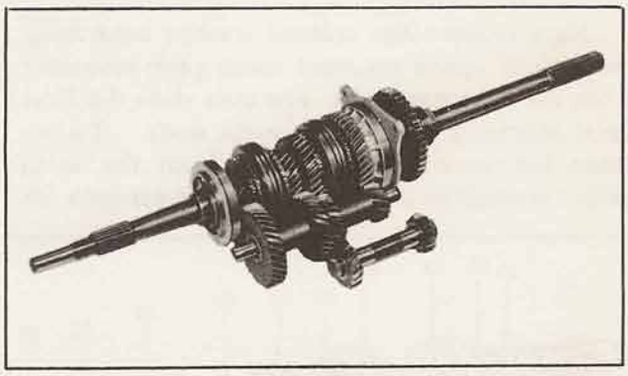


Fig. 9

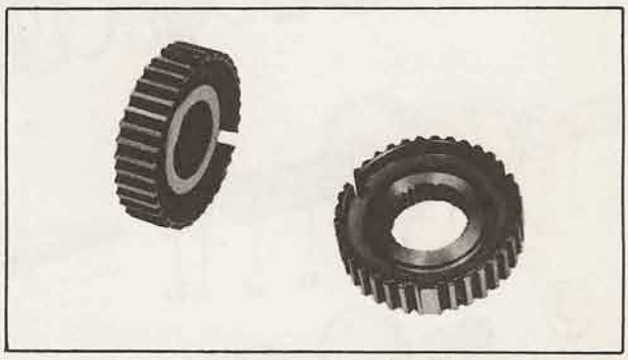


Fig. 10 Synchronizer Hub

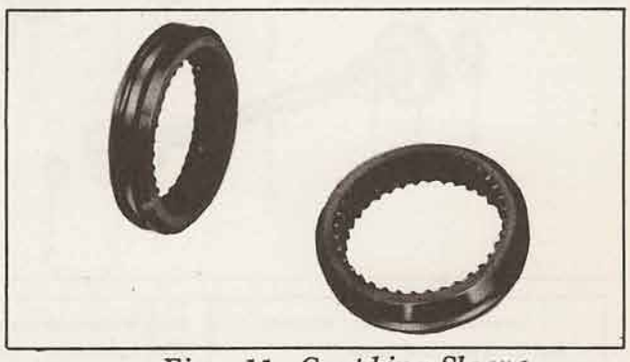


Fig. 11 Coupling Sleeve

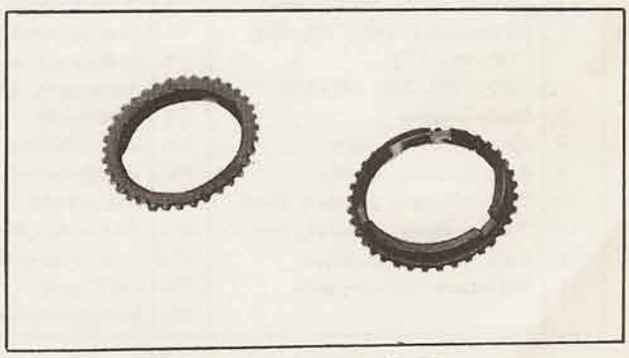
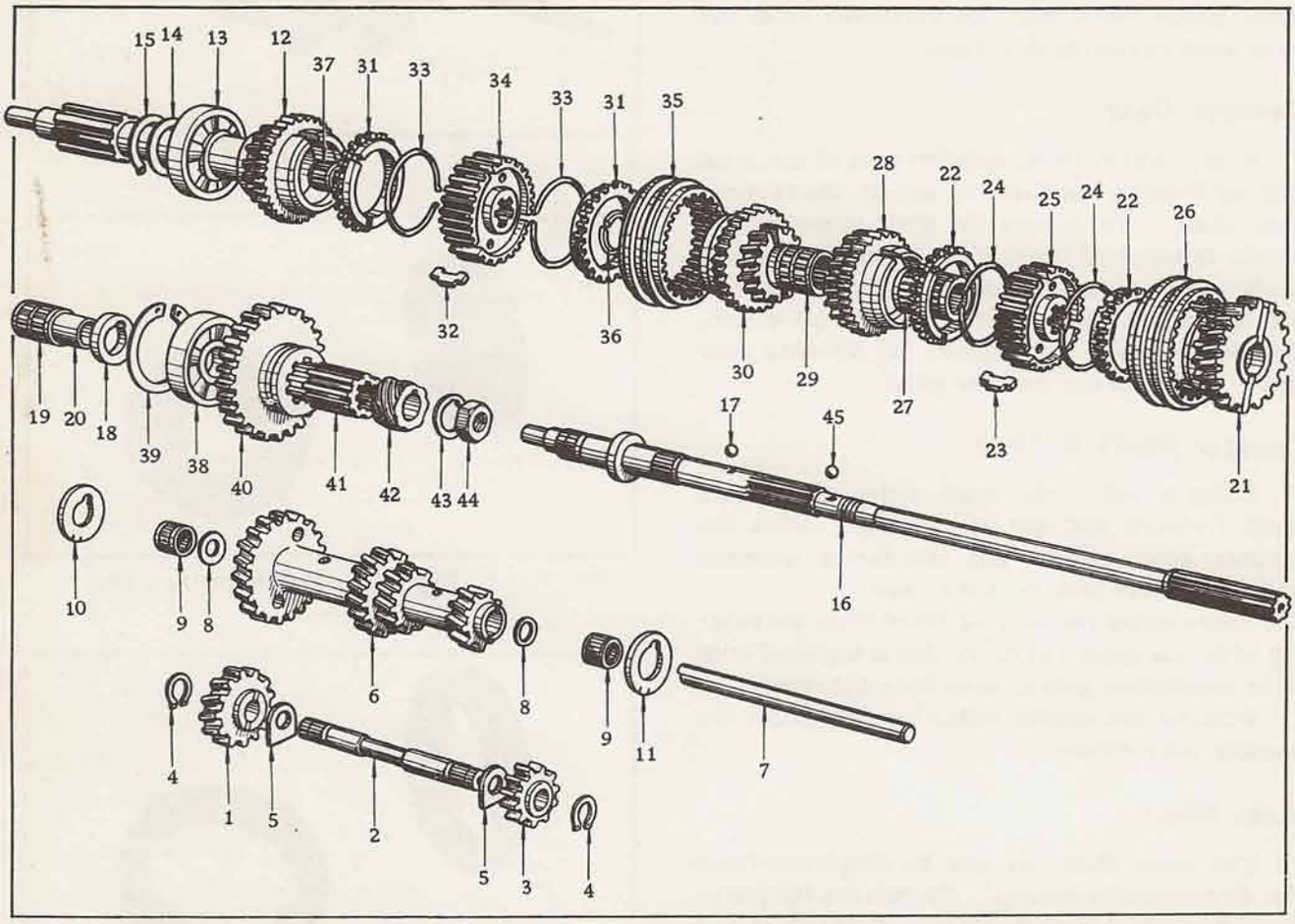


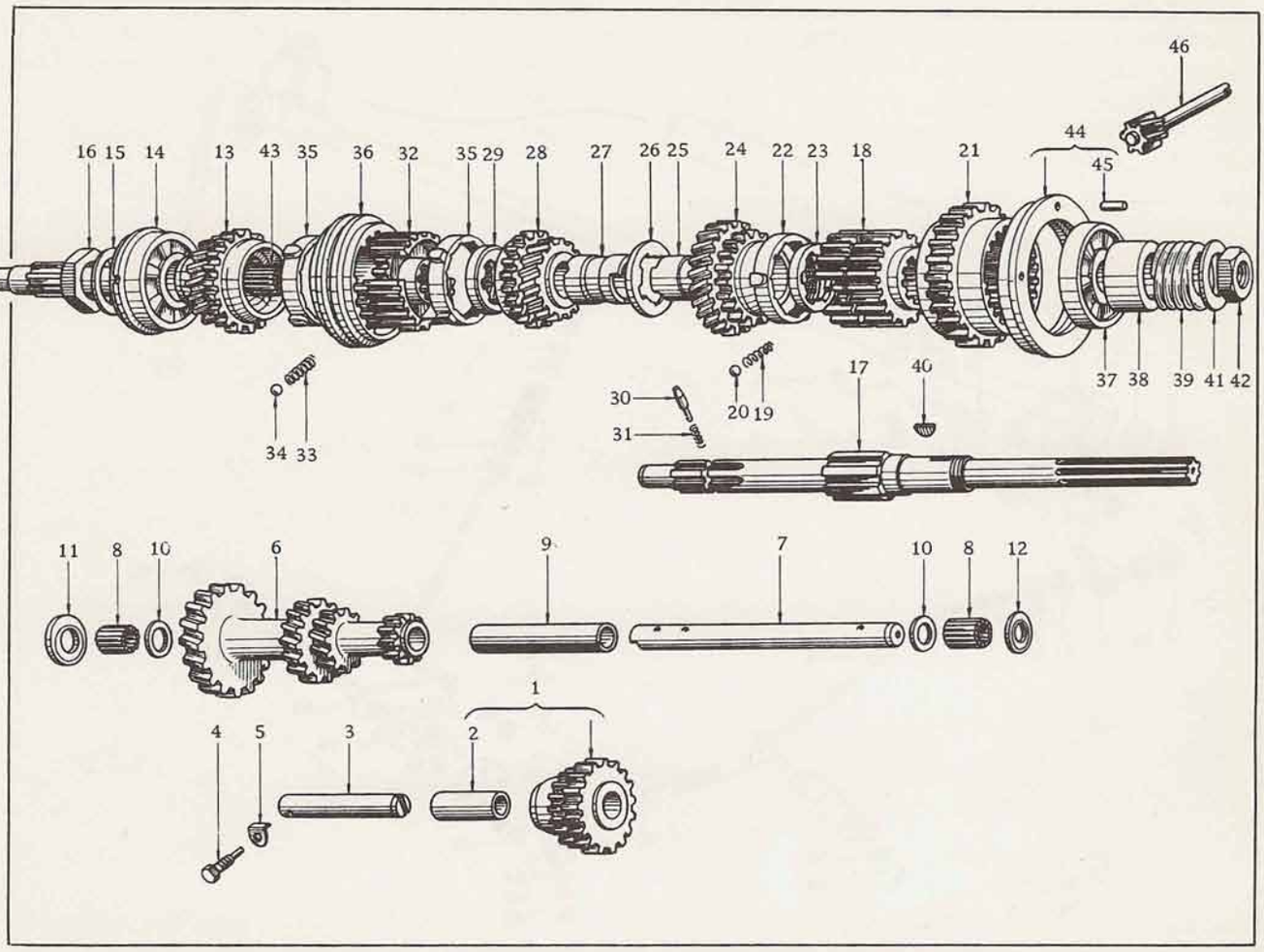
Fig. 12 Baulk Ring

Next remove the splined washer separating the second speed constant mesh gear assembly from the first gear unit, and then slide the first gear assembly free of the main shaft. To release the speedometer wheel from the main shaft, straighten the tab washer and unscrew its securing nut, then slide the speedometer wheel off the shaft. Do not lose the key. Take off the distance piece, and the main shaft bearing, can be separated from its housing after the nut has been prised from the shaft.



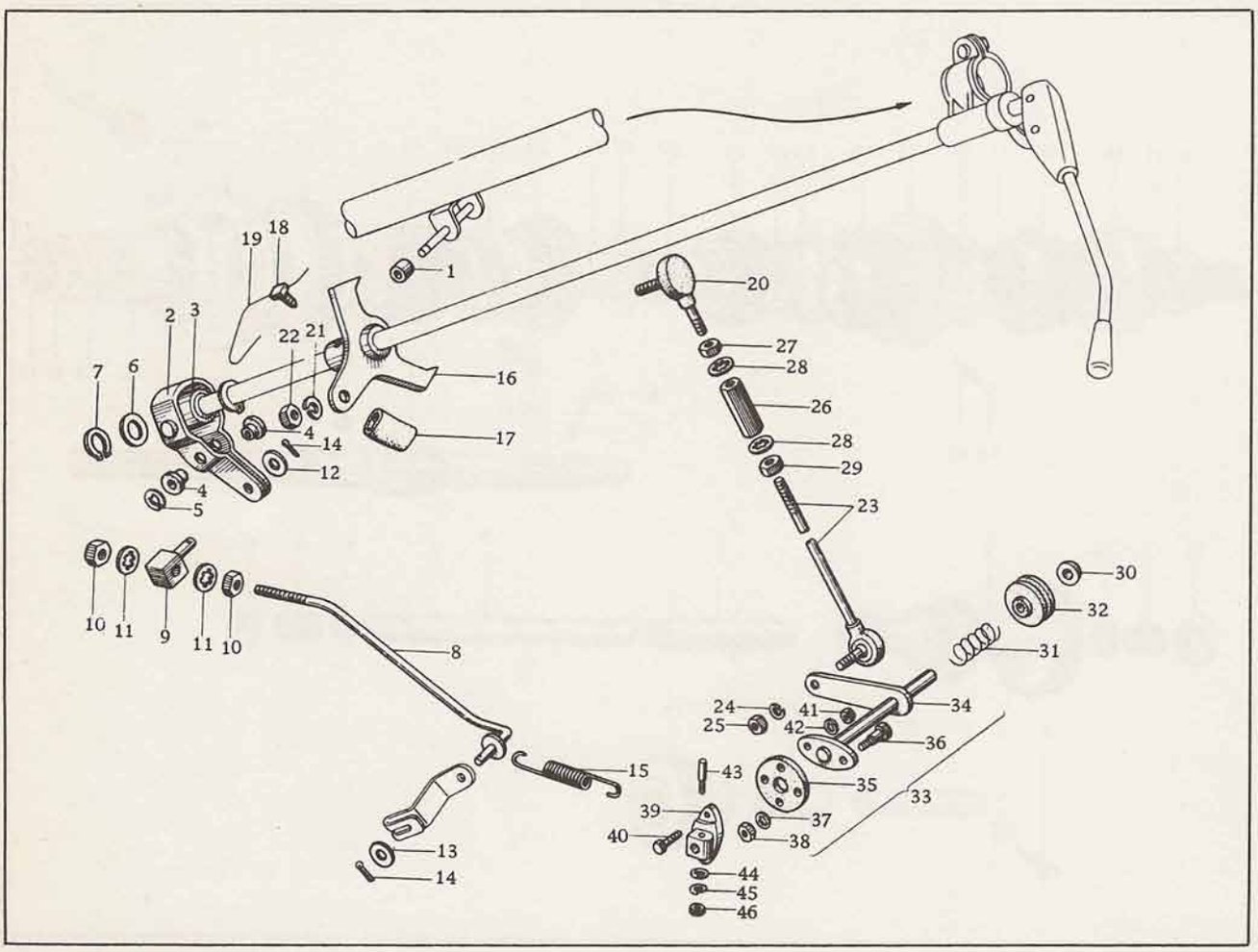
1.	Gear-reverse idler, counter	14.	Washer-main drive gear	30.	Ass'y-gear, 3rd speed, main shaft
2.	Shaft-reverse idler	15.	Ring-snap, main drive gear	31.	Ring-baulk
3.	Gear-reverse idler, main	16.	Shaft-main	32.	In ert-shifting
4.	Ring-snap, reverse idler	17.	Ball-steel 5/32"ϕ	33.	Spring-spread
5.	Washer-thrust, reverse idler	18.	Washer-thrust, main shaft	34.	Hub-synchro, 3rd & 4th speed
6.	Gear-counter (35t, 30t, 20t, 14t- ex. LT) (32t, 29t, 21t, 15t-LT)	19.	Bearing-needle, main shaft	35.	Sleeve-coupling
		20.	Bush-main shaft, 1st gear	36.	Ring-snap, synchro, hub
		21.	Ass'y-gear, 1st speed, main shaft	37.	Bearing-pilot, main shaft
7.	Shaft-counter	22.	Ring-baulk	38.	Bearing-main shaft
8.	Spacer-counter shaft	23.	Insert-shifting	39.	Ring-snap, main shaft bearing
9.	Ass'y-bearing, needle	24.	Spring-spread	40.	Gear-reverse, main shaft
10.	Washer-thrust, counter, front	25.	Hub-synchro, 1st & 2nd speed	41.	Hub-reverse, main shaft
11.	Washer-thrust, counter, rear	26.	Sleeve-coupling	42.	Gear-drive, speedometer
12.	Ass'y-gear, main drive	27.	Bearing-needle, main shaft	43.	Washer-lock, main shaft
13.	Bearing-main drive gear	28.	Ass'y-gear, 2nd speed, main shaft	44.	Nut-main shaft
		29.	Bearing-needle, main shaft	45.	Ball-steel

Fig. 13 Transmission Gear (from C/#520-03001)



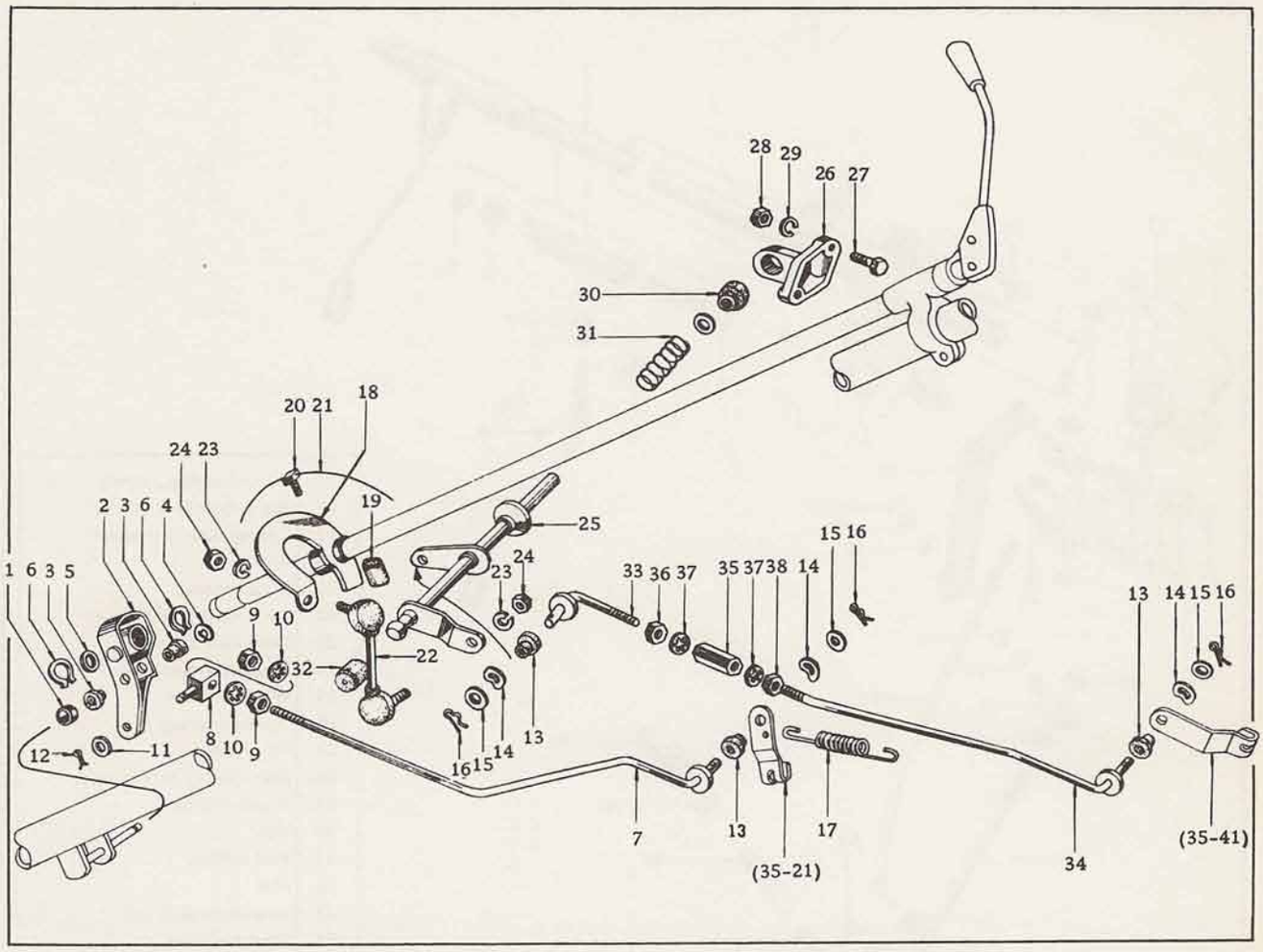
1.	Ass'y-gear, reverse (17T)	16.	Ring-snap, main drive gear	32.	Synchronizer-3rd & 4th speed
2.	Bushing-reverse gear	17.	Shaft-main	33.	Spring-synchronizer
3.	Shaft-reverse	18.	Hub-synchronizer, 2nd speed	34.	Ball-synchronizer
4.	Screw-set, reverse gear	19.	Spring-synchronizer	35.	Ring-baulk, 3rd & 4th speed
5.	Washer-lock	20.	Ball-synchronizer	36.	Sleeve-synchronizer, 3rd & 4th speed
6.	Gear-counter shaft (31 t, 26 t, 20 t, 11 t)	21.	Gear-1st speed, main shaft (28 t)	37.	Bearing-main shaft
		22.	Ring-baulk, 2nd speed (from 64. 8)	38.	Piece-distance, main shaft
7.	Shaft-counter	23.	Washer-thrust, main shaft, re.	39.	Gear-drive, speedometer (4 t)
8.	Roller-needle, counter shaft	24.	Gear-main shaft, 2nd speed (31 t)	40.	Key-woodruff
9.	Spacer-counter shaft	25.	Bushing-2nd speed, main shaft gear	41.	Washer-lock, main shaft
10.	Ring-snap, counter shaft	26.	Washer-thrust, main shaft	42.	Nut-main shaft
11.	Washer-thrust, counter shaft, front	27.	Bushing-3rd speed, main shaft gear	43.	Bearing-main shaft pilot
12.	Washer-thrust, counter shaft, rear	28.	Gear-3rd speed, main shaft (25 t)	44.	Ass'y-retainer, bearing, main shaft
13.	Gear-main drive (20 t)	29.	Washer-thrust, main shaft, front	45.	Locator-bearing, main shaft retainer
14.	Bearing-main drive gear	30.	Peg-locking	46.	Ass'y-pinion, speedometer pinion
15.	Spacer-bearing, main drive gear	31.	Spring-locking peg		

Fig. 14 Transmission Gear (up to C/#520-030000)



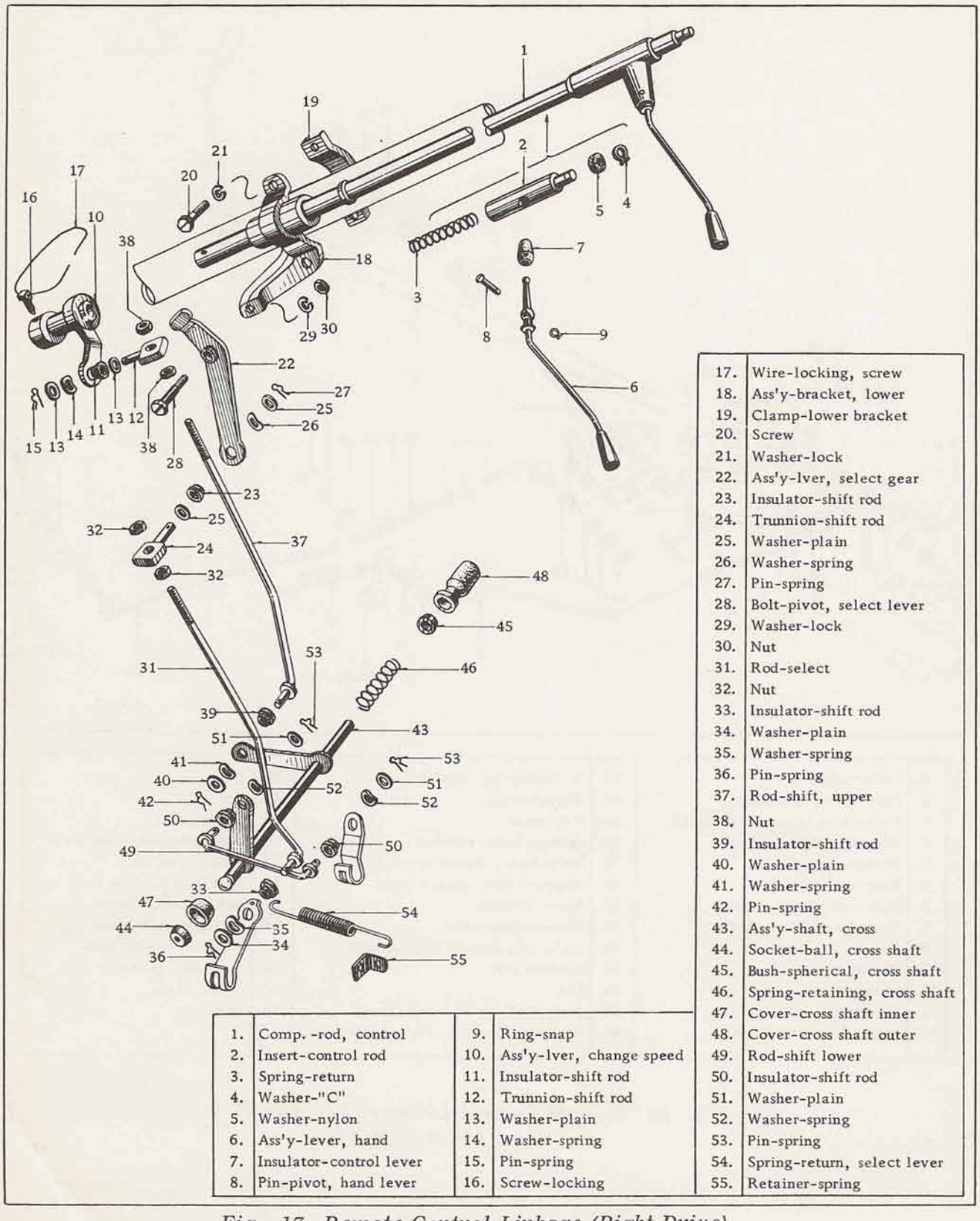
1.	Collar-selector lever	17.	Stopper-lever, change	32.	Boot-cross shaft
2.	Ass'y-lever, gear selector	18.	Screw-locking	33.	Ass'y-cross shaft & coupling
3.	Bush-lever support	19.	Wire-locking screw	34.	Ass'y-shaft, cross
4.	Bush-select lever, gear control	20.	Comp. -joint, gear shift	35.	Disc-coupling
5.	Ring-snap type E	21.	Washer-lock	36.	Bolt-fixed, coupling
6.	Washer-plain	22.	Nut	37.	Washer-lock
7.	Ring-snap type C	23.	Comp. -rod, gear shift	38.	Nut
8.	Rod-gear control, selector	24.	Washer-lock	39.	Flange-coupling, cross shaft
9.	Trunnion-selector, lever	25.	Nut	40.	Bolt-fixed, coupling
10.	Nut-plain	26.	Adjuster-rod, gear shift	41.	Nut
11.	Washer-lock	27.	Nut-lock, gear shift lock	42.	Washer-lock
12.	Washer-plain	28.	Washer-lock	43.	Pin-lock
13.	Washer-plain	29.	Nut	44.	Washer-plain
14.	Pin-cotter	30.	Bush-spherical, cross shaft	45.	Washer-lock
15.	Spring-return	31.	Spring-cross shaft	46.	Nut
16.	Ass'y-lever, change speed				

Fig. 15 Remote Control Linkage (Right Drive)
(To C/#520-030000)



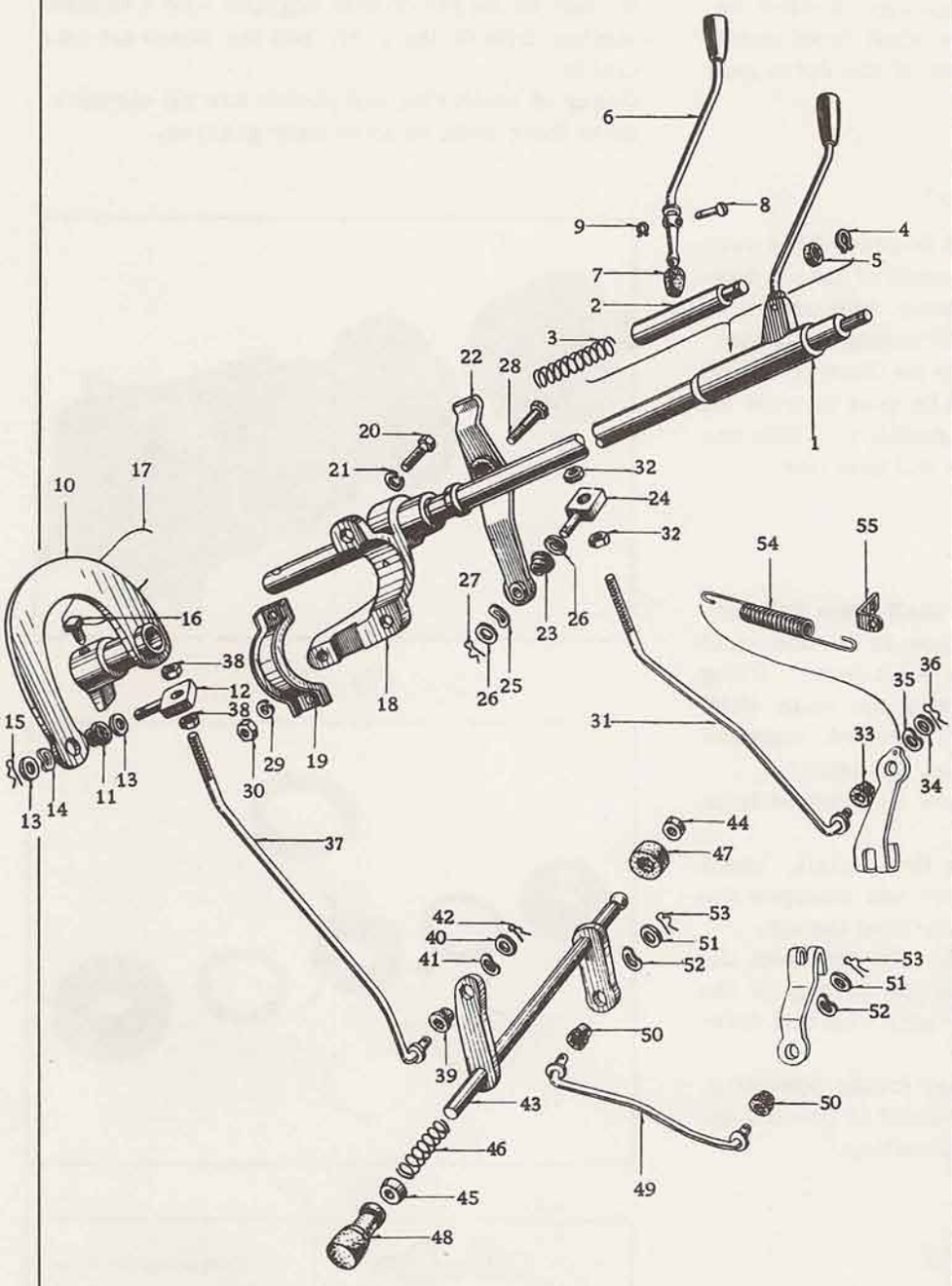
1.	Collar-selector	14.	Washer-spring, insulator	27.	Bolt
2.	Ass'y-lever, gear shift	15.	Washer-plain	28.	Nut
3.	Bush-select lever, gear control	16.	Pin-cotter	29.	Washer-lock
4.	Ring-snap type E	17.	Spring-return, selector	30.	Bush-spherical, cross shaft
5.	Washer-plain	18.	Ass'y-lever, change speed	31.	Spring-cross shaft
6.	Ring-snap, typeC	19.	Stopper-lever, change speed	32.	Socket-ball, cross shaft
7.	Rod-gear control selector	20.	Screw-locking	33.	Rod-gear shift upper
8.	Trunnion-selector, lever	21.	Wire-locking screw	34.	Rod-gear shift lower
9.	Nut	22.	Ass'y-rod, connecting gear shift	35.	Adjust-rod, gear shift
10.	Washer-lock	23.	Washer-lock	36.	Nut-lock, gear shift lock
11.	Washer-plain	24.	Nut	37.	Washer-lock
12.	Pin-cotter	25.	Ass'y-shaft, cross change speed	38.	Nut
13.	Insulator-gear shift rod	26.	Bracket-cross shaft, change speed		

Fig. 16 Remote Control Linkage (Left Drive)
(To C/#520-030000)



1.	Comp. -rod, control	9.	Ring-snap	17.	Wire-locking, screw
2.	Insert-control rod	10.	Ass'y-lver, change speed	18.	Ass'y-bracket, lower
3.	Spring-return	11.	Insulator-shift rod	19.	Clamp-lower bracket
4.	Washer-"C"	12.	Trunnion-shift rod	20.	Screw
5.	Washer-nylon	13.	Washer-plain	21.	Washer-lock
6.	Ass'y-lever, hand	14.	Washer-spring	22.	Ass'y-lver, select gear
7.	Insulator-control lever	15.	Pin-spring	23.	Insulator-shift rod
8.	Pin-pivot, hand lever	16.	Screw-locking	24.	Trunnion-shift rod
				25.	Washer-plain
				26.	Washer-spring
				27.	Pin-spring
				28.	Bolt-pivot, select lever
				29.	Washer-lock
				30.	Nut
				31.	Rod-select
				32.	Nut
				33.	Insulator-shift rod
				34.	Washer-plain
				35.	Washer-spring
				36.	Pin-spring
				37.	Rod-shift, upper
				38.	Nut
				39.	Insulator-shift rod
				40.	Washer-plain
				41.	Washer-spring
				42.	Pin-spring
				43.	Ass'y-shaft, cross
				44.	Socket-ball, cross shaft
				45.	Bush-spherical, cross shaft
				46.	Spring-retaining, cross shaft
				47.	Cover-cross shaft inner
				48.	Cover-cross shaft outer
				49.	Rod-shift lower
				50.	Insulator-shift rod
				51.	Washer-plain
				52.	Washer-spring
				53.	Pin-spring
				54.	Spring-return, select lever
				55.	Retainer-spring

Fig. 17 Remote Control Linkage (Right Drive)
(From C/#520-030001)



1.	Comp. -rod, control
2.	Insert-control rod
3.	Spring-return
4.	Washer-"C"
5.	Washer-nylon
6.	Ass'y-lever, hand
7.	Insulator-control lever
8.	Pin-pivot, hand lever
9.	Ring-snap
10.	Ass'y-lever, change speed
11.	Insulator-shift rod
12.	Trunnion-shift rod
13.	Washer-plain
14.	Washer-spring
15.	Pin-spring
16.	Screw-locking
17.	Wire-locking, screw
18.	Ass'y-bracket, lower
19.	Clamp-lower bracket
20.	Screw
21.	Washer-lock
22.	Ass'y-lever, select gear
23.	Insulator-shift rod
24.	Trunnion-shift rod
25.	Washer-lock
26.	Washer-plain
27.	Pin-spring
28.	Bolt-pivot, select lever
29.	Washer-lock
30.	Nut
31.	Rod-select
32.	Nut
33.	Insulator-shift rod
34.	Washer-plain
35.	Washer-spring
36.	Pin-spring
37.	Rod-shift, upper
38.	Nut
39.	Insulator-shift rod
40.	Washer-plain
41.	Washer-spring
42.	Pin-spring
43.	Ass'y-shaft, cross
44.	Socket-ball, cross shaft
45.	Bush-spherical, cross shaft
46.	Spring-retining, cross shaft
47.	Cover-cross shaft inner
48.	Cover-cross shaft outer
49.	Rod-shift lower
50.	Insulator-shift rod
51.	Washer-plain
52.	Washer-spring
53.	Pin-spring
54.	Spring-return, select lever
55.	Retainer-spring

Fig. 18 Remote Control Linkage (Left Drive)
(From C/#520-30001)

If it is desired to dismantle the fourth and third speed coupling sleeve, or the first speed gear, these can be pressed clear of their splined synchronizers, but care must be taken to retrieve the three balls and springs in each assembly. Take out the main shaft front needle roller bearings from the end of the drive gear shaft.

Rear Oil Seal

This oil seal is situated in the end of the rear cover and should not be dismantled unless suspected of leaking. It is almost impossible to take off the seal without damaging it; consequently a new oil seal should be fitted if the old one has been moved. It will be seen that the oil seal housing is pinched into position. This can be removed by using a punch and hammer.

Drive Gear Shaft

Before driving the drive shaft from its position, tilt the counter gears, now in the bottom of the case, to clear the drive shaft gear. Using a long drift, inserted through the main shaft opening, drive the drive shaft forward, complete with bearing and circlip, from the case.

The counter gears may now be removed from the case.

To remove the bearing from shaft, knock back the tab locking washer and unscrew the shaft nut. This nut has a left-hand thread.

The bearing can now be driven from the shaft, preferably by resting the circlip of the outer race on the jaws of an open vice and driving the shaft downward.

Use a hide or lead hammer for the operation, as great care must be exercised to prevent the end of the gear shaft from spreading.

ASSEMBLING THE TRANSMISSION

Synchromesh Device

Synchromesh device consists of (1) synchronizer sleeve, (2) Baulk ring, (3) Spread spring, (4) Synchronizer Hub, (5) Insert. Hub is fitted into the main shaft tightely, having three grooves on its periphery where synchronizer Inserts are inserted respectively, and spread springs push the inserts outwards against the synchronizer sleeve.

The Baulk ring between the hub and the gear has a cone on its inside that engages with a tapered mating cone on the gear, and the cones act as a clutch.

Gears of baulk ring and sleeve are all chamfered at their ends so as to easy gearing.

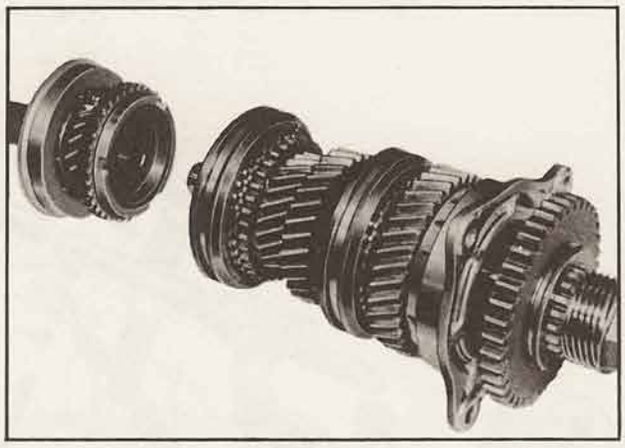


Fig. 19

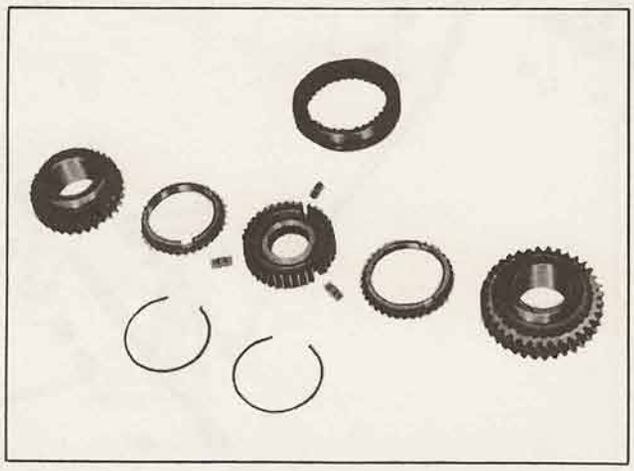


Fig. 20

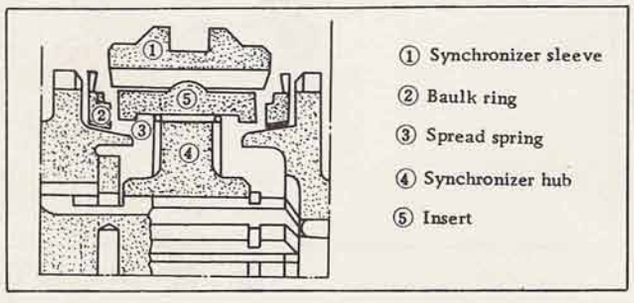


Fig. 21

Assembling the Baulk Ring

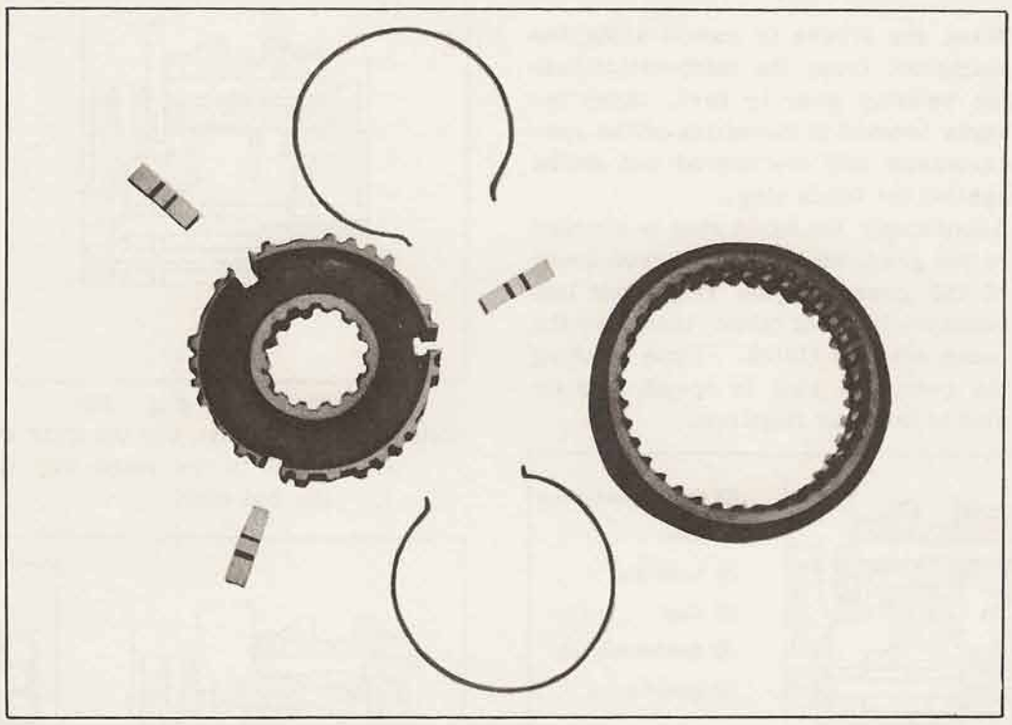


Fig. 22

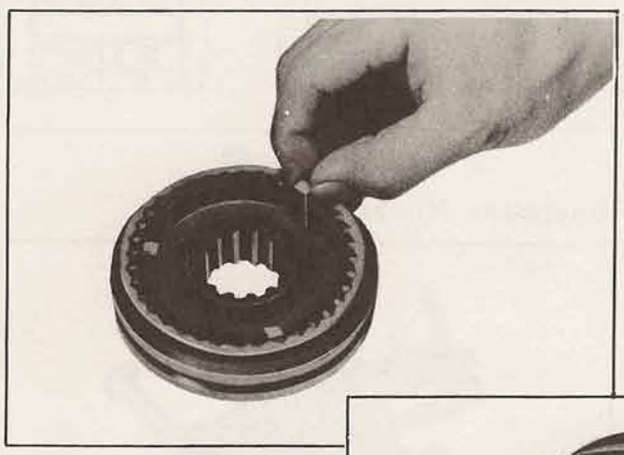


Fig. 23

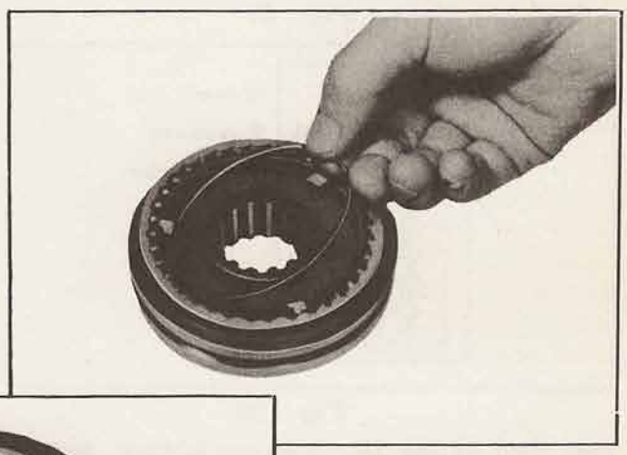


Fig. 24

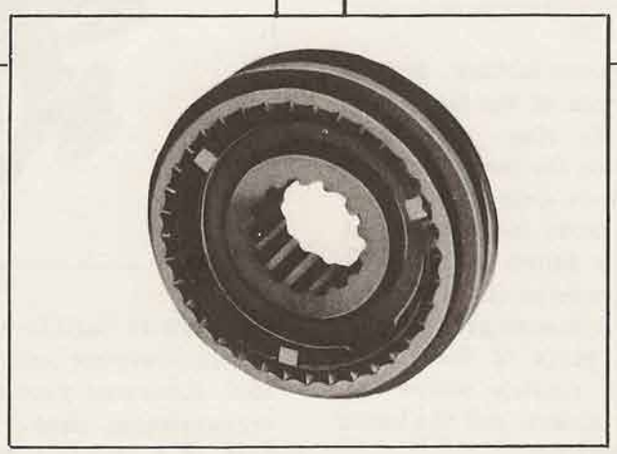


Fig. 25

OPERATION

(1st step) When the sleeve is moved along the mainshaft from its midposition into the running gear by fork, three inserts located at the inside of the synchronizer hub are moved and strike against the baulk ring.
Accordingly the baulk ring is pressed to the gear, so that the tapered cones of the gear and the ring come into contact with each other, therefore the cones act as a clutch. Upon touching the gear, the ring is speeded up or slowed down as required.

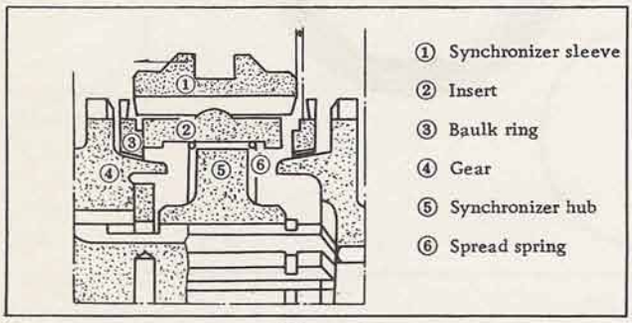


Fig. 26

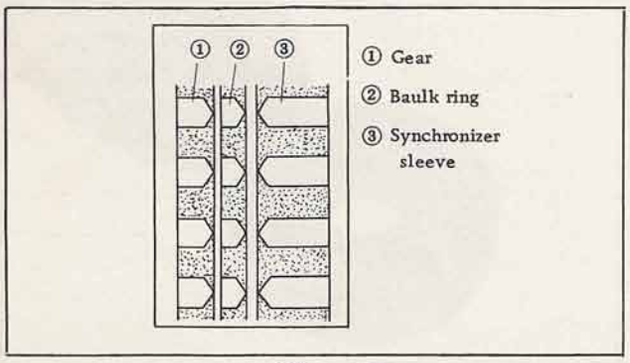


Fig. 27

(2nd step) As the sleeve moves further, it goes over the projection of the insert and approaches to the ring. However, splines provided on the inside surface of the sleeve and the gears of the synchronizer ring come into contact at their both ends as shown in Fig. preventing the progression of the sleeve. But the sliding continues gradually at the chamfered parts of the gears transmitting the rotation power and finally both the sleeve and the baulk ring are synchronized.

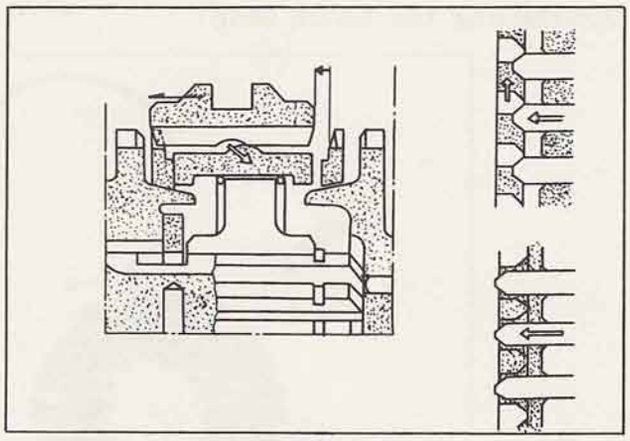


Fig. 28

(3rd step) The sleeve and the gear are synchronized in the same way mentioned in the 2nd step.

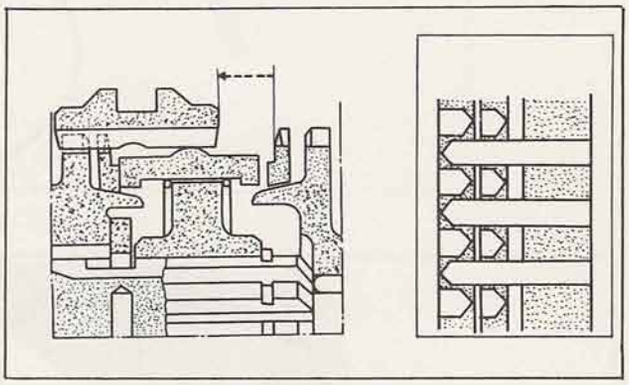


Fig. 29

Operation Mechanism

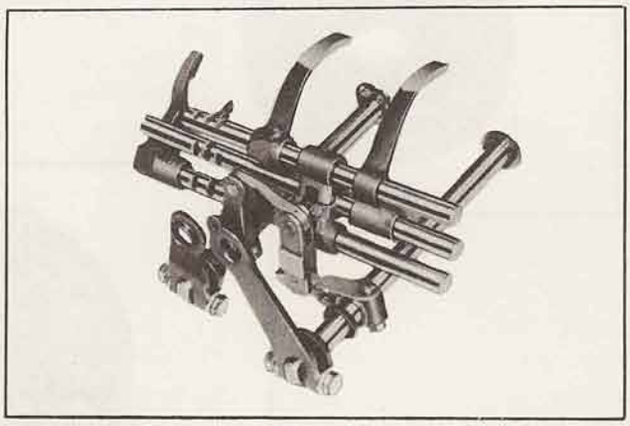


Fig. 30

Fork is fixed to each fork rod by the pin and select positions are dotermined through interlock apparatus provided on rear portion of the transmission case. Shifting apparatus of the fork is a simple mechanism of link system as

shown in the Figure. Point E is the select cross shaft. Each selected position is shown in the Figures.

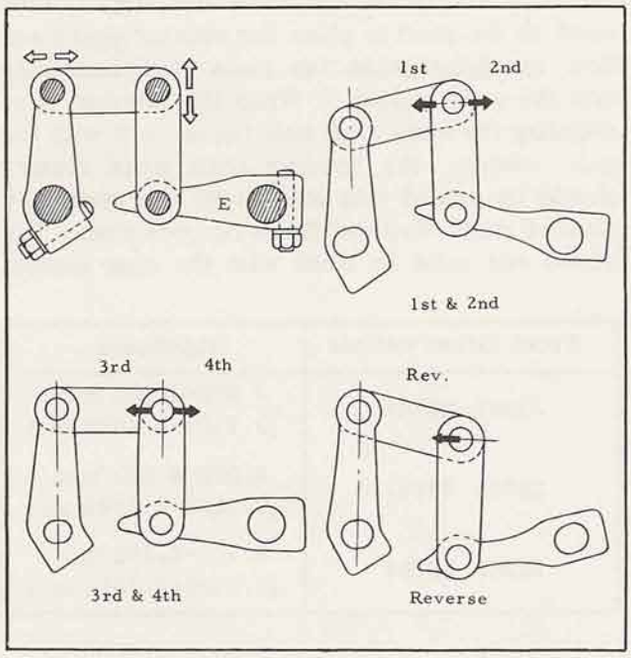


Fig. 31

Synchromesh Sub-Assembly

During manufacture both speed gear and the third and fourth speed coupling sleeves are each paired with their respective synchronizers. Only mated pairs of these parts should therefore fitted.

Special guides are available to facilitate the reassembling of the three balls and springs into the synchronizers. The guide is of the same diameter as the coupling sleeve as shwon Fig. 32.

The guide is slipped over the synchronizer and turned until the hole coincides with one of the three sockets. A spring and ball are then placed in position, the ball depressed and the guide rotated for each spring and ball in turn until they are all depressed. The guide is then pushed further along the synchronizer splines, followed by the coupling sleeve.

As the coupling sleeve replaces the guide, the balls find their correct location in the coupling sleeve. It should be noted that the coupling sleeve has a much greater depth of flange on one side, and on reassembly this should fall towards the rear of the box. In addition the internal splines must be correctly located to allow the baulking ring to pass through the machined grooves between the teeth.

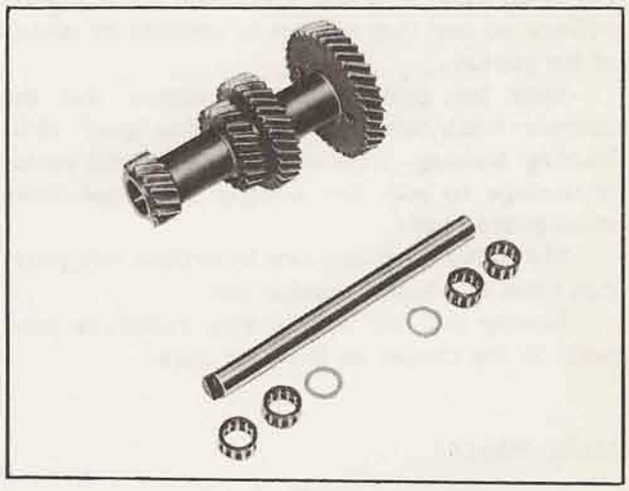


Fig. 32 Counter Gear

Counter Shaft & Gears

First locate the two thrust washers to the counter gears, ensuring that the larger washsr is at the front, and then place the gear cluster in the gear case.

Check that there is end play for the cluster gears of between 0.05-0.15 mm and remedy if necessary by fitting a thicker or thinner rear washer.

(From C/#520-030001)

Part Name	Part No.	Thickness
Washer-thrust, rear	32225 - 14600	2.35 - 2.40 mm
"	32225 - 14601	2.40 - 2.45 mm
"	32225 - 14602	2.45 - 2.50 mm
"	32225 - 14603	2.50 - 2.55 mm
"	32225 - 14604	2.55 - 2.60 mm
"	32224 - 14600	1.3 - 1.7 mm

Temporarily replace the counter shaft with a thin rod which will permit the gear cluster to remain out of mesh with the main and drive shaft gears.

Drive Gear Shaft

The ball journal bearing should now be drifted on to the shaft, with its spring ring away from the geared end. Position the geared end of the drive shaft in a dummy 3rd and 4th speed

coupling sleeve, put the washer over the bearing tighten the nut and lock it in position.

Smear grease in the end of the shaft, where the main shaft locates, then load the 18 needle rollers so that they adhere in position by means of the grease.

Turn the gear casing to ensure that the counter teeth are below the drive gear shaft bearing housing. Failure to do this will result in damage to both the counter gear and drive shaft geared ends.

The drive shaft can now be drifted into position from the clutch housing end.

Ensure that the spring ring resisters properly in the racess on the gear case.

Main Shaft

Press the main shaft center bearing complate with housing on to the shaft from the rear. The bearing must be pressed firmly against the shoulder of the center splined portion of the shaft.

Lightly oil the shaft forward of the bearing and refit the first speed wheel assembly with the synchronizer pointing forward.

Refit the thrust washer on to the shaft followed by the baulking ring.

The phosphor bronze sleeve which carries the second speed is a tight fit on the shaft; there it must be first immersed in warm oil and then slid into position on the shaft. Fit the second speed wheel over the sleeve, then the driving washer and the second bronze sleeve which carries the third speed wheel. The two sleeves are locked together by the driving washer. Now position the third gear over its sleeve. Place the spring and plunger into the hole in the main shaft and slide the splined washer. Depress the plunger with a piece of wire through the hole in the third speed, and slide the splined washer over the plunger. Then turn the washer for the plunger to engage with a groove in the washer.

The gears are now assembled on the main shaft and there should be end movement for the first speed gear between the center bearing and the keyed washer at the rear of the second speed gear. Assemble the two baulking rings to the third and top speed synchronizer and coupling sleeve.

When fitted to the shaft, the large boss of the inner splines of the synchronizer must face towards the front of the box. Also note that in each case the pointed ends of the baulking ring lugs face inwards to the synchronizers. Slide the third and fourth synchronizers slightly forward on the shaft to clear the counter gears and then carefully guide the main shaft assembly into the gear casing. When the housing surrounding the main shaft bearing is flush with the gear casing, the counter shaft gear cluster should be raised into mesh with the gears and counter shaft oiled and fitted into position. The lipped end must be flush with the gear casing.

Front thrust washer	Thickness
32264 26761	3.975-4.001 mm (0.1564-0.1575 in.)
32265 26761	4.026-4.051 mm (0.1585-0.1595 in.)
32266 26761	4.077-4.102 mm (0.1605-0.1614 in.)

Reverse Gear

Refit the reverse gear into the gear casing with the large gear to the rear. Oil the reverse gear shaft before inserting and secure the shaft with locating pin and tab washer.

Selector Rods & Forks

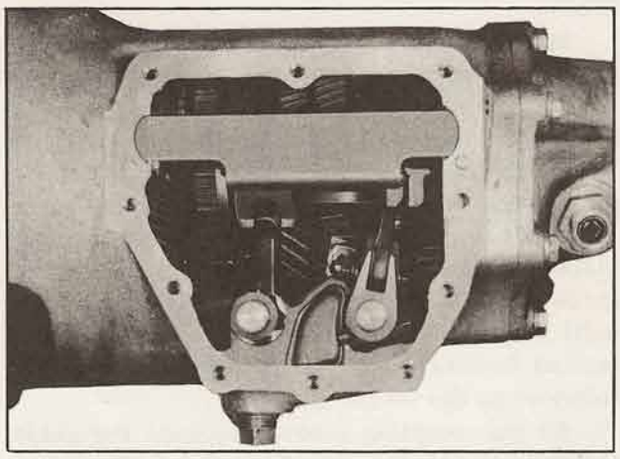


Fig. 33

Before commencing to locate the selector forks within the gear case it is advisable to pre-

load the spring and ball into each fork, and with the aid of a pilot bar, retain the spring and ball in position until each fork rod has entered its correlative fork.

With the gear in the neutral position, first fit the first speed selector fork and then locate the third and fourth speed fork. Now tap the third and fourth fork rod through the casing. Continue tapping the rod through its fork until it reaches its final position. Next locate the reverse gear fork and then enter the first and second selector fork rod and the reverse gear fork rod, through the casing and into their respective forks. When driving the fork rods hole remember to retrieve the pilot bars as they leave the forks. The key ways in the rod ends are offset and when fitted the narrow face should be at the bottom.

SELECTOR INNER & OPERATING LEVER CROSS SHAFT

With the selector lever, pinned to its respective cross shaft, also change speed cross shaft lever assembly, cottered to its own cross shaft, the two shafts should be positioned in the case with the respective levers nearest to the side cover opening. Note that the selector cross shaft takes the forward position in the case. At the same time that the shafts are placed in the case, the change speed gate should be threaded over the levers and the whole assembly put into the case as one unit. The gate is located in position by its rounded ends in the machined recesses of the side cover seating.

Before fitting the levers, the oil seal and felt ring must be fitted to each shaft in that order. The levers are cottered to their respective shaft.

Side Cover

Secure the side cover into position by means of the bolts and screws, ensuring that the side cover is intact.

Front Cover

The front cover and gasket should now be positioned over the securing studs and attached by means of the seven nuts and lock washers.