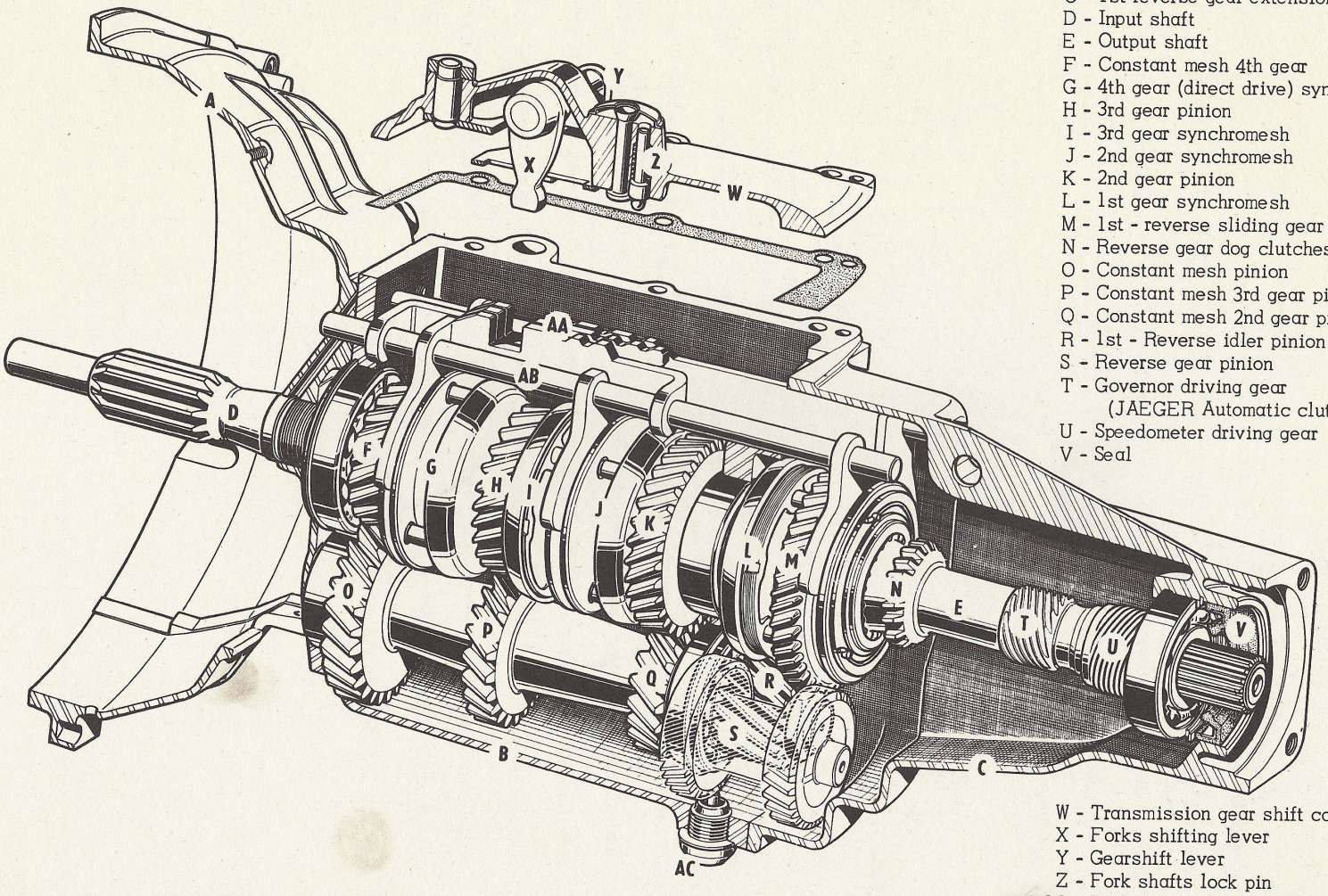
TRANSMISSION

Contents Section 3

DESCRIPTION

The type C3 transmission contains four forward speeds and one reverse. All of the forward speeds are synchronized. Due to the greater power and torque of the 404 engine, fourth speed is direct drive. All gears are of the helical type and are noiseless in operation. The gears are housed in two ribbed aluminum cases placed one behind the other. The main housing contains the input shaft, the counter shaft, the 2nd and 3rd gears, and the direct 4th gear dog, the last three being mounted on the mainshaft. The mainshaft also drives the speedometer gear. The main housing cover is also made of aluminum and incorporates a very effective gear locking system. The rear housing contains 1st and reverse gears. The total oil capacity of both cases is 1½ quarts. The gear ratios are as follows: 1st .250, 2nd .446, 3rd .693 4th 1, reverse .231.

C3 TYPE TRANSMISSION



A - Bell housing
B - Transmission case
C - 1st reverse gear extension housing
D - Input shaft
E - Output shaft
F - Constant mesh 4th gear
G - 4th gear (direct drive) synchromesh
H - 3rd gear pinion
I - 3rd gear synchromesh
J - 2nd gear synchromesh
K - 2nd gear pinion
L - 1st gear synchromesh
M - 1st - reverse sliding gear
N - Reverse gear dog clutches
O - Constant mesh pinion
P - Constant mesh 3rd gear pinion
Q - Constant mesh 2nd gear pinion
R - 1st - Reverse idler pinion
S - Reverse gear pinion
T - Governor driving gear
(JAEGER Automatic clutch only)
U - Speedometer driving gear
V - Seal

W - Transmission gear shift cover
X - Forks shifting lever
Y - Gearshift lever
Z - Fork shafts lock pin
AA - Forks
AB - Fork shafts
AC - Drain plug (magnetic)

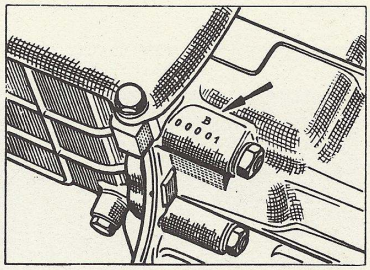
NOTE:

Before Serial #4036783, the 404 is equipped with the CS-A Transmission, identified by the transmission number starting with the letter A.

Starting with Serial #4036783, the C3-B or C3-C is used.

The transmission number is stamped on the upper left mounting boss of the rear housing.

The gears of the C3-A Transmission cannot be interchanged with the C3-B or C3-C. Following are the part numbers pertaining to each type transmission:



PART	C3-A		C3-B & C	
	PEUGEOT #	NO. OF TEETH	PEUGEOT #	NO. OF TEETH
Input Shaft	2301.19	19	2301.20	23
Countershaft Drive & 3rd Drive Gear	2370.21	27–23	2371.09	18–27–
Countershaft	2371.07	18		32
3rd Gear	2335.01	23	2335.02	28
2nd Gear	2337.14	28	2337.15	29

The 403B Peugeot uses the C3-A Transmission, before serial number 2496165 and the C3-B or C after this serial number.

REMOVAL FROM VEHICLE

1 - Disconnect battery

2 - Install fender covers

3 - Support the engine underneath. (Place a wooden block* between rear of engine block and front axle) *8 x 2 x 5/8".

4 - Disconnect starter from clutch bell housing and from front bracket.

5 - Remove throw-out bearing lubrication line.

6 - Remove jackshaft bearing cap (clutch pedal) with the help of a 12 mm. socket with an extension. Remove return spring.

7 - Remove bell housing baffle plates.

8 - Disconnect speedometer cable.

9 - Remove the two securing nuts (exhaust pipe to exhaust manifold) and the clamp nut (exhaust pipe to transmission housing).

10 - Disconnect gear linkage from ball joints.

11 - Disconnect hand brake cables from floor board and support plate.

12 - Disconnect the Lockheed flexible brake hose clamp and remove fuel and brake lines clamp.

13 - Remove the bolt and the two nuts securing the rear mount.

14 - Remove the four Allen bolts from the torque tube front sphere cover (lift up the body - from the rear jack adaptors to clear the two top Allen bolts).

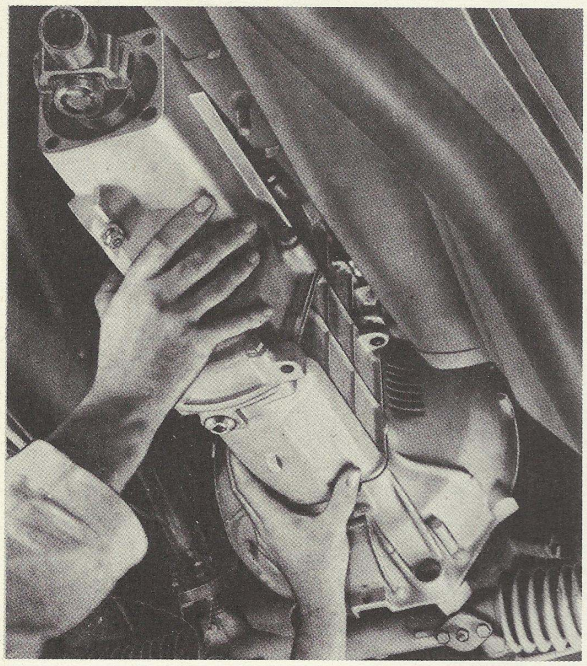
15 - Disconnect stabilizing bar and rear shock absorbers from the rear axle housing.

16 - Lift the body from the rear and remove the two rear springs.

17 - Shift the rear axle assembly to the rear of the vehicle.

18 - Remove engine-transmission rear mount.

TRANSMISSION



19 - Jack up the transmission a small amount to clear the bell housing from the steering column.

20 - Remove the clutch jackshaft.

21 - Remove the three Allen bolts securing the bell housing to the engine. Use wrench 8.0202 for the bolt close to the steering.

22 - Remove transmission assembly.

REINSTALLATION

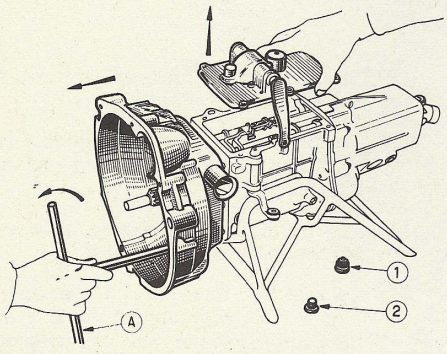
Proceed with the installation operations in their reverse order.

PRECAUTIONS:

1 - Before connecting the rear axle assembly, align the transmission with a supporting jack.

2 - Use new "Nylstop" nuts for securing the rear shock absorbers to the axle housings.

TRANSMISSION DISASSEMBLY



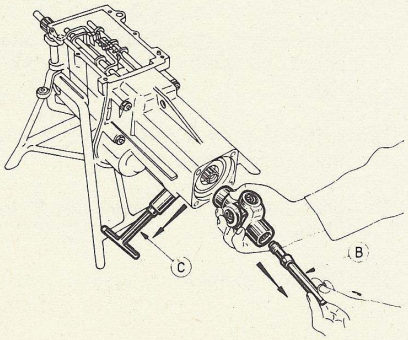
DISASSEMBLY OPERATIONS

1 - Remove oil level and drain plugs. Drain completely.

2 - Install assembly on cradle.

3 - Remove clutch housing using wrench A.

4 - Remove gearbox cover.



5 - Engage two gears - 4th and reverse.

6 - Remove Allen screw from universal joint, using end fitting B with a 10 mm offset wrench.

7 - Remove universal joint.

8 - Remove speedometer drive sleeve locking screw.

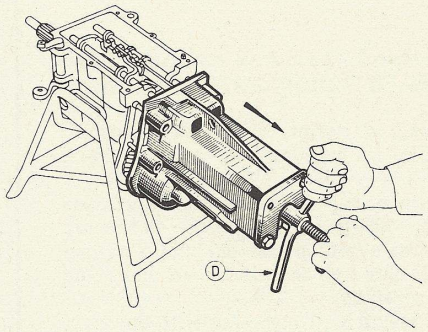
9 - Remove speedometer drive, using puller C.

TRANSMISSION

10 - Remove the 6 rear housing attachment nuts and washers (14 mm).

11 - Remove rear housing, using puller D.

Save the bronze washer between rear bearing and rear seal.

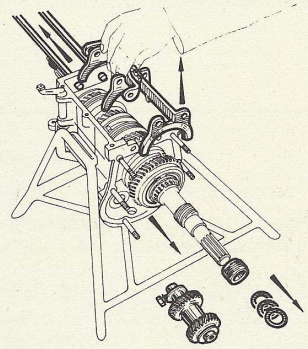


12 - Remove adjustment shims and speedometer drive screw from mainshaft.

13 - Remove reverse idler pinion shaft lock screw (14 mm wrench).

14 - Remove shaft, reverse idler pinion and its washers.

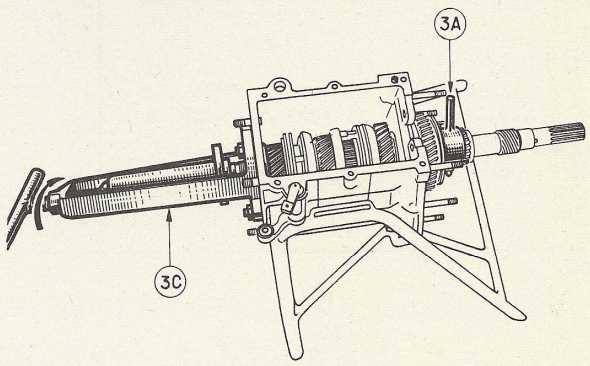
15 - Remove selector fork axis rails and selector forks.



16 - Install clamp 3A to keep 1st gear engaged.

17 - Make sure 4th remains engaged.

18 - Using puller 3C, pull out input shaft assembly complete with bearing, protecting washer, lockring and nut. Remove puller 3C.

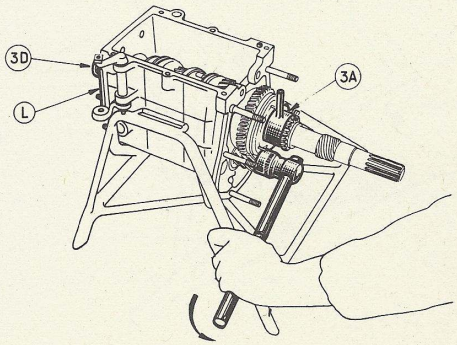


19 - Install plate L fitted with wrench 3D, while maintaining 4th speed dog engaged, and at the same time engage 2nd speed.

20 - Loosen pinion locknut on mainshaft.

21 - Unlock and remove 1st gear pinion locknut from intermediate shaft (26 mm socket wrench).

22 - Remove plate L, wrench 3D and locknut from mainshaft, and then remove clamp 3A.



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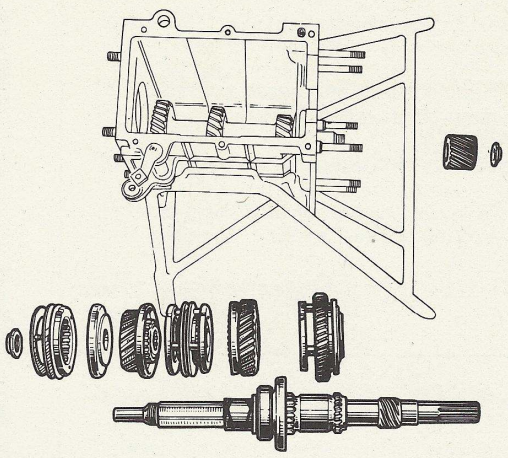
23 - Remove 1st gear drive pinion synchronizer.

24 - Using a mallet, drive out mainshaft while maintaining 4th gear engaged.

Remove the following as they come out: 4th gear synchronizer and cone, 3rd gear pinion and bushing, 2nd and 3rd gear synchronizer and hub, 2nd gear pinion.
Mainshaft will come out with 2nd gear pinion shoulder bushing, center bearing and 1st gear synchronizer cone in place.

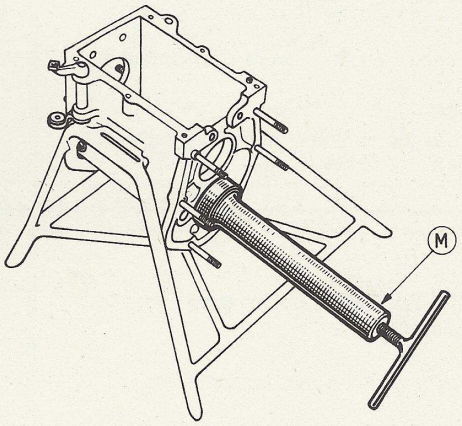


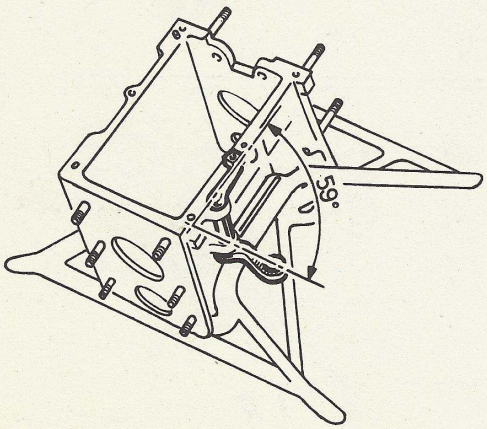
25 - Using pliers J, disengage bearing snap ring from intermediate shaft.

Push intermediate shaft towards the rear until clear from bearing groove.

26 - Using puller M and spacer N, pull out rear bearing.

27 - Push front bearing towards the rear and free it from its housing. Take out intermediate shaft through inside of housing.





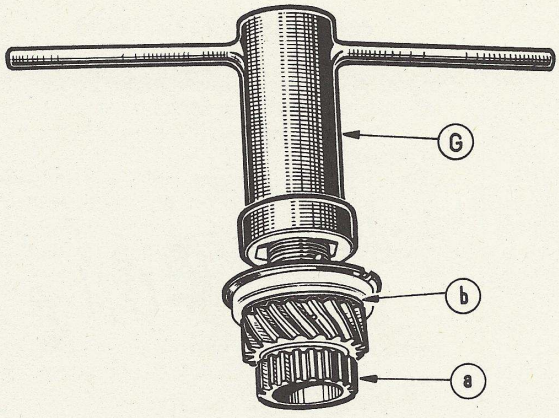
GEAR SHIFT SELECTOR CONTROL

1 - Whenever this control has been removed it becomes necessary to mark the lower lever for correct position, after removal of the securing nut.

2 - Wrong position of this lever would upset gear shifting.

3 - The angle formed by the two levers (lower and upper) should be 59°. The upper lever is facing toward the rear, parallel to the transmission, and the lower lever is 59° away from the upper lever.

TRANSMISSION



COMPLETE DISASSEMBLY OF SHAFTS

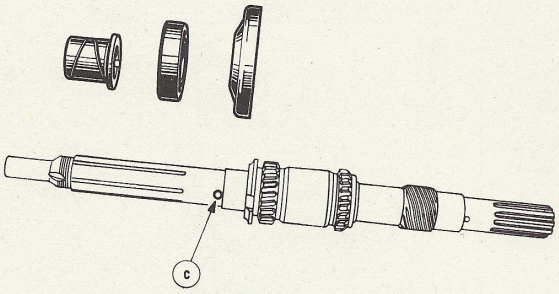
A INPUT SHAFT

1 - Hold drive shaft through 4th gear dog.

2 - Unlock and remove bearing locknut (LEFT HAND THREAD, wrench G).

3 - Remove snap ring and remove bearing using puller K.

Remove and save oil deflector washer.



B MAINSHAFT

1 - Remove 2nd gear pinion shoulder bushing.

2 - Remove stop pin.

3 - Remove bearing using puller M fitted with shells 3E.

4 - Remove 1st gear synchronizer cone.

C COUNTERSHAFT (C3-A & B only)

1 - Hold shaft firmly in position by chucking 2nd gear idler pinion between lead vise clamps.

2 - Unlock and remove front locknut.

3 - Remove 3rd gear bearing and idler pinion by pressing out 2nd gear idler shaft using an arbor press.

TRANSMISSION – PREPARATION OF COMPONENTS

- REASSEMBLY -

Preliminary Conditions.

All parts should be perfectly clean.

Each component part will be lubricated as it is assembled.

Preparation

A COUNTERSHAFT.

1 - Using a press, install 3rd speed idler pinion and front bearing.

2 - Use a new nut and torque to 50 ft. lb. then lock with punch.

[NOTE: A one piece countershaft is used in the C3-C Transmission and this preparation is not necessary.]

B MAINSHAFT.

1 - Install 1st gear synchronizer cone.

2 - Install center bearing to bear on synchronizer cone, using body of puller M. Make sure shoulder bushing stop pin hole is completely exposed.

3 - Install shoulder bushing, engaging pin into the appropriate recess in the bushing.

C INPUT SHAFT.

1 - Install oil deflector washer, bearing (with its groove turned outside), and nut. Torque to 60 ft. lb.

2 - Lock nut to milled portion of shaft with punch.

3 - Install snap ring in bearing groove

TRANSMISSION

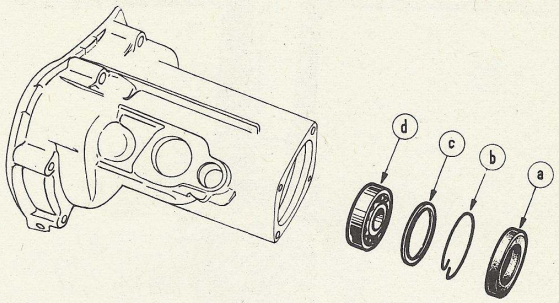
REPLACING REAR BEARING IN REAR HOUSING

Remove: oil seal

Bearing snap ring.

Adjustment shim.

Bearing (using drift)



The thickness of the shim required to hold bearing in its housing without any side play should be determined at this time.

This shim is to be inserted between bearing and lock ring.

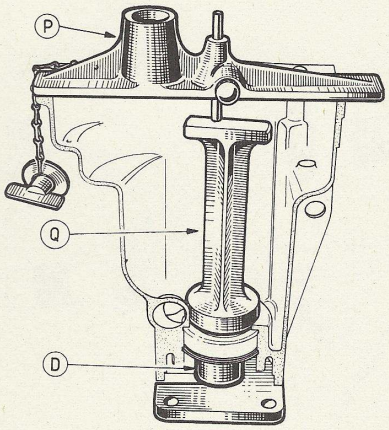
Three different thicknesses are available: 1.89, 1.99, and 2.01 mm (0.074" - 0.078 - 0.082).

To do this proceed as follows:

1 - Install new bearing without shim, but with the lock ring.

2 - Install puller D and its spacer in order to hold bearing against housing shoulder.

3 - Place gauge Q on bearing and gauge P on housing upper face.
Bring gauge rod into contact with block and lock in position.
(uppermost position of bearing).

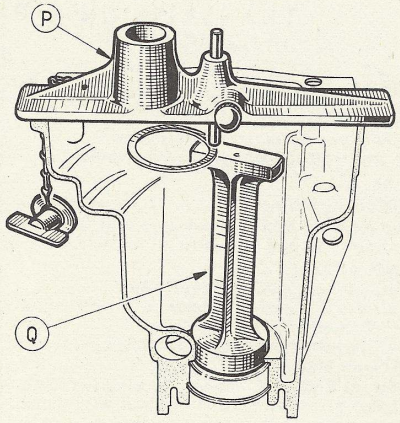


4 - Remove P and Q and then remove puller D and spacer. Using a drift, bring bearing to its full down position. (against lock ring).

5 - Reinstall gauge Q and gauge P without disturbing gauge rod. The distance between them is the thickness of the shim to be inserted between bearing and lock ring.

6 - Move bearing back onto bearing housing shoulder, remove lock ring, insert shim as determined in 5 above and reinstall lock ring.

7 - Install oil seal.



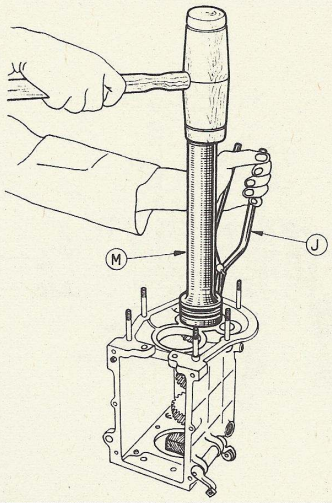
TRANSMISSION

REASSEMBLY OPERATIONS

1 - Insert intermediate shaft through inside of housing, while engaging front bearing into its recess (use a mallet).

2 - Remove rear bearing snap ring using pliers J, and install rear bearing with groove facing outwards. Push bearing using body of puller M, with gearbox upright and front end of intermediate shaft resting on a wooden block.

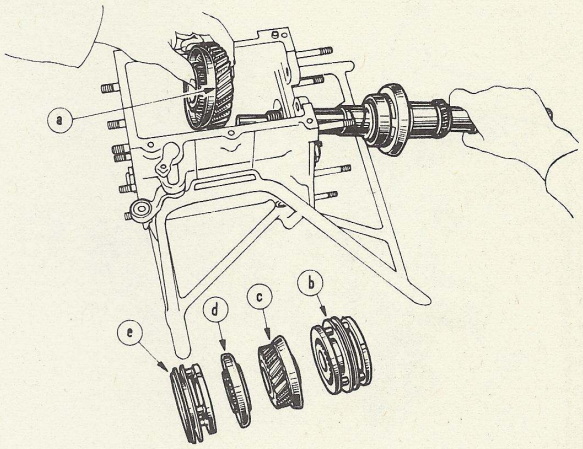
Make sure snap ring is correctly engaged in bearing groove.



3 - Install 1st gear pinion on intermediate shaft splines. Hold in position by means of a new nut temporarily screwed in hand tight.

4 - Bring mainshaft in position, rear end first. Install the following in this order: 2nd gear pinion "a", 2nd/3rd gear synchronizer and hub "b", 3rd gear pinion and bushing "c", 4th gear pinion "d" and its synchronizer "e".

Engage shaft until center bearing has fully entered housing. Hold assembly using a new nut temporarily screwed in hand tight on main shaft.

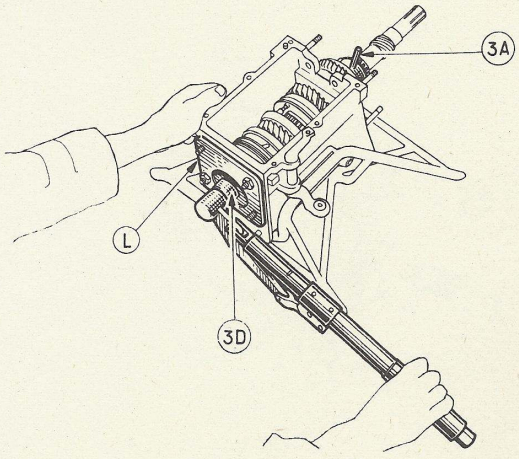


5 - Install plate L and wrench 3D.

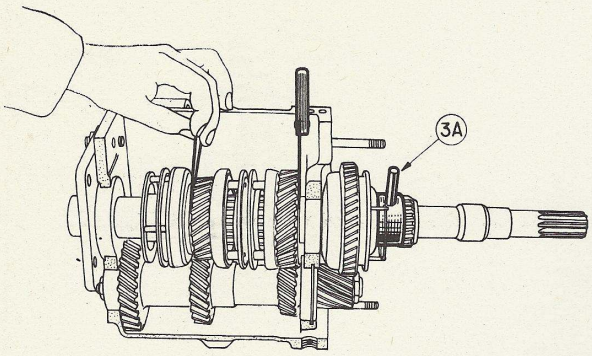
6 - Install 1st reverse sliding gear. Install clamp 3A to keep 1st engaged.

7 - Engage 2nd and 1st gear.

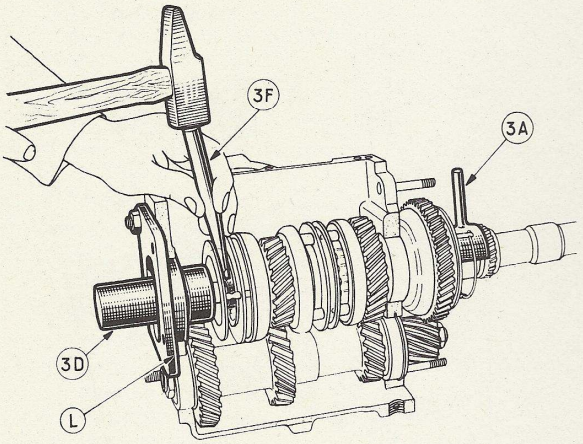
8 - Torque 1st gear pinion to intermediate shaft nut, applying 50 ft. lb. torque; stake carefully to both milled portions. Torque mainshaft nut, using wrench 3D, to 20 ft lb.



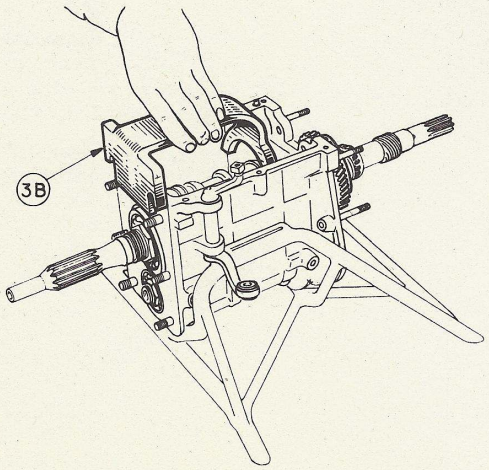
TRANSMISSION



9 - Using a set of feeler gauges, check clearance between 2nd gear pinion and pinion bushing shoulder (this should be .012 to .024 inch), as well as between 3rd gear pinion and 4th gear (same clearance).



10 - If proper clearances are obtained, withdraw wrench 3D until mainshaft locknut is freed, and stake locknut to the two milled grooves, using punch 3F.



11 - Remove plate L, wrench 3D and clamp 3A.

12 - Install input shaft with bearing fitted with its lock ring. Tap with a mallet until lock ring is firmly bottomed in its recess.

13 - Install gauge 3B and attach it to gearbox front face by means of two nuts.

With gears in neutral, gauge fork should fit into synchronizer, and 2nd gear pinion cone should come to rest against the fork when box is placed vertically.

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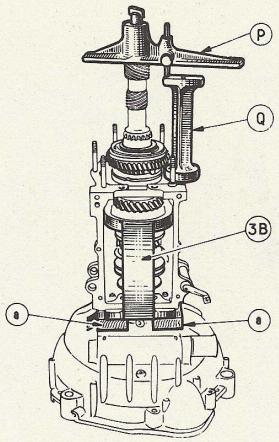
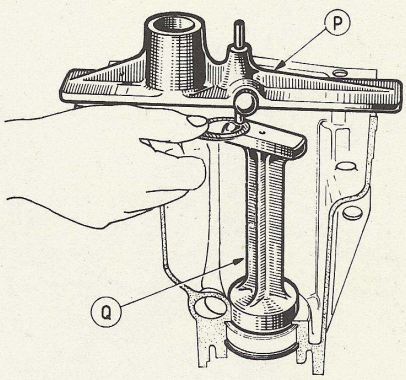
14 - Lay clutch housing down on bench and place transmission upright on housing, using a 3/4 inch thick wooden block between box and housing, on each side of drive shaft.

15 - Make sure 2nd gear synchronizer cone is firmly seated against gauge, and install speedometer drive worm on mainshaft.

16 - Install gauge P in position and hold it firmly by means of its screw.
Bring gauge Q in position on rear face of transmission housing and bring gauge rod into contact with block.



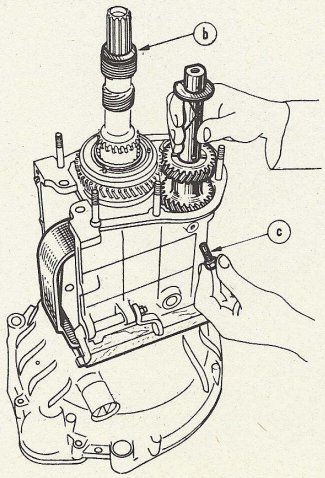
17 - With transmission rear housing resting on its rear end, place gauge Q in position on bearing and gauge P on upper bearing surface. The distance between rod and gauge determines the thickness of shims to be inserted between rear bearing and speedometer drive worm in order to obtain proper adjustment.



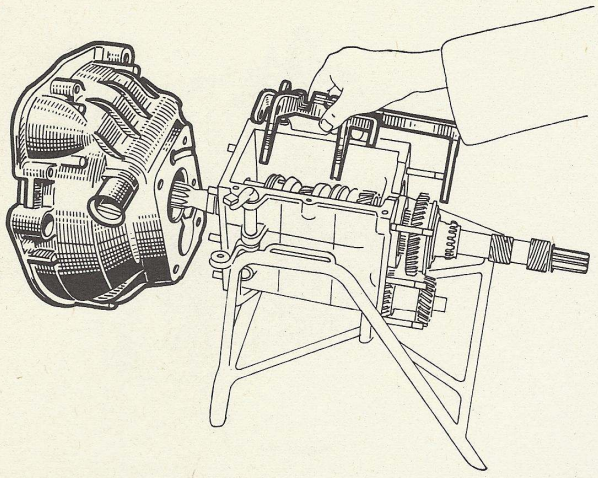
18 - Install adjustment shims as determined by use of gauge Q.

19 - Install reverse idler pinion, washers and shaft, and secure shaft by means of its lockscrew.

Check protecting washers for correct installation, with oil cavities facing pinion.



TRANSMISSION



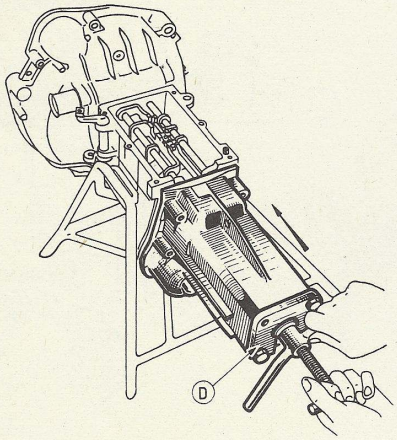
20 - Lay transmission horizontally down onto a support and remove gauge 3B.

Shafts should rotate freely when turned manually.

21 - Install selector forks and fork axis rails.

22 - Install clutch housing with oiled paper gasket.

23 - Check locating rings for correct positioning on rear face of gearbox hous-

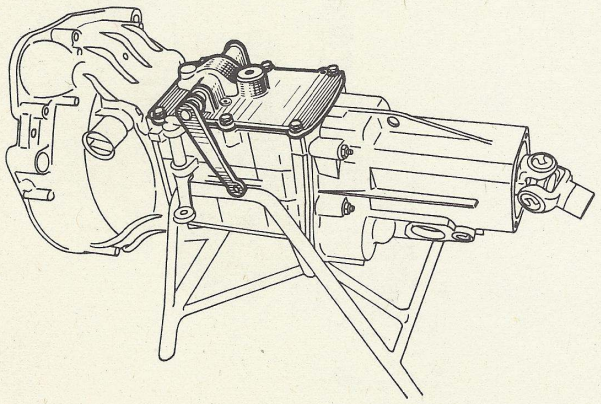


24 - Install rear housing with a cement such as "Permatex" No. 3 using puller D fitted with its spacer. Torque attachment nuts to 15 ft. lb.

25 - Install universal joint, being sure not to forget the bronze washer. Make sure this washer is lubricated.

26 - Engage 2 gears and torque universal joint Allen screw to 50 ft. lb. Loosen and retorque to 10 ft. lb. Stake with care.

27 - With gears in neutral, install speedometer drive assembly



28 - Install transmission cover with gasket using a cement such as "Permatex" No. 3.

29 - Before reinstallation on the vehicle, engage all speeds. All should operate freely.

30 - Fill with oil to the required level. Capacity is 1½ qts. of SAE 40 motor oil.

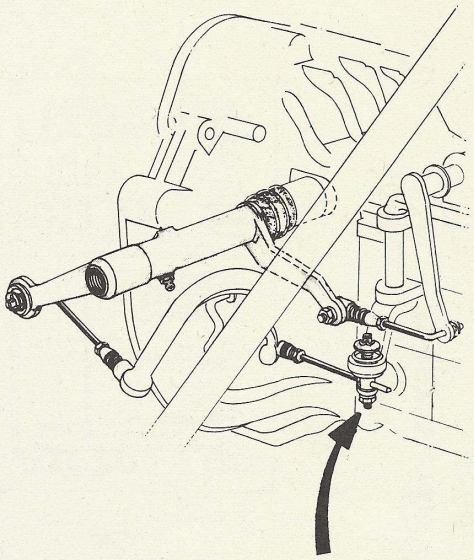
TRANSMISSION

On the Car Linkage Adjustment

Place shift lever in second gear position.

Loosen the securing nut of the gear change selector control rod (shown by arrow).

Center the rod in the free play and tighten the nut.

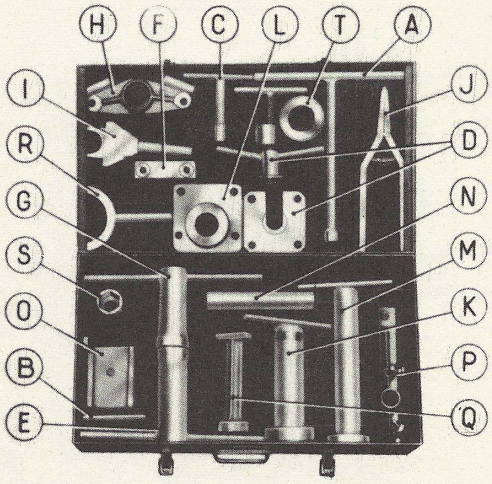


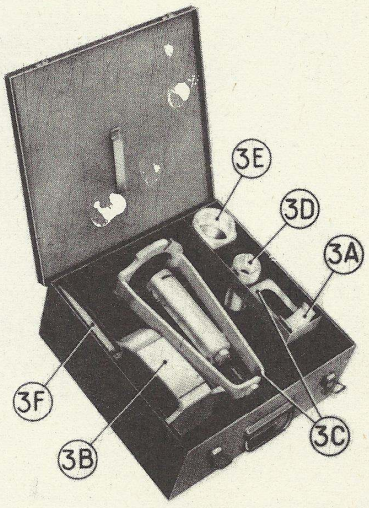
TOOLS

The instructions in this section are presented using Peugeot special tool kits.

8.0301A is the C-2 transmission tool kit.

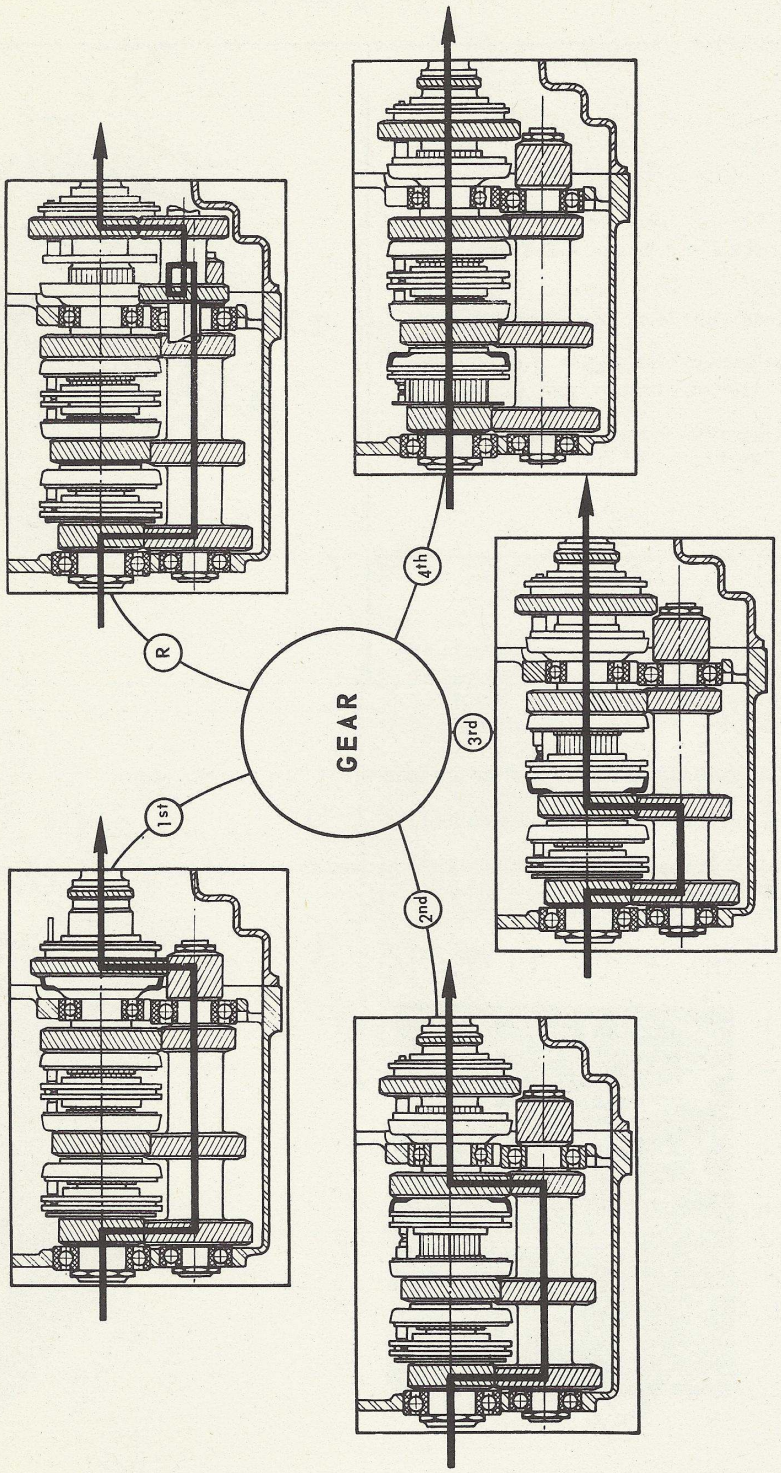
8.0302 is the supplementary tool kit to be used in conjunction with 8.0301A to service the C-3A, B and C transmission.





The round end of Gauge Q has a diameter of 2-3/8 inches. The edge of the round end should be machined to give it a new diameter of 2-1/16 inches. Note that the length of the gauge will not be altered by this modification, and it may be used for C2 or C3 transmission work.

TRANSMISSION FUNCTIONAL DIAGRAM

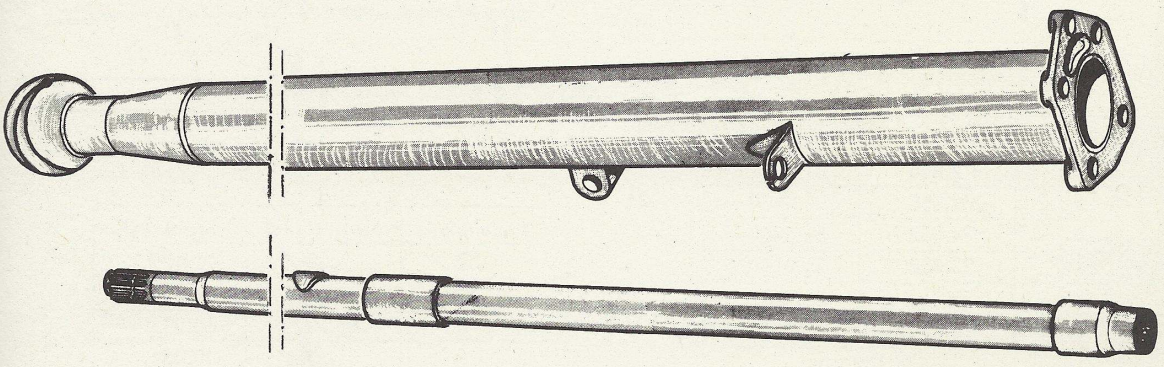


Contents Section 4

4

DESCRIPTION

The propeller shaft of the 404 is of the torque tube type. The outer tube takes the thrust of the rear wheels which are driven by the inner shaft. The tube transmits this thrust to the rear mount of the engine gearbox assembly, which point coincides with the car's center of gravity. The inner drive shaft is splined to the universal joint located at the rear of the gearbox. The other end of this same shaft drives the rear axle worm gear which in turn drives the rear wheels through the differential. The drive shaft is statically and dynamically balanced, and is supported in the torque tube by a needle bearing mounted on rubber rings within the tube.



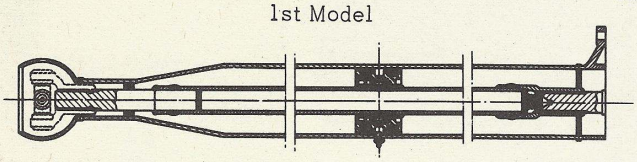
PROPELLER SHAFT

TECHNICAL DATA

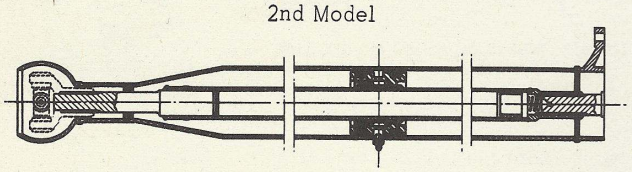
Complete Assembly

Since 404 Serial #4135628, some modifications have been performed on torque tube and propeller shaft assembly. A late model torque tube and propeller shaft assembly can be installed on an early model car with a new universal joint. Parts between those two assemblies are not interchangeable.

1st Model

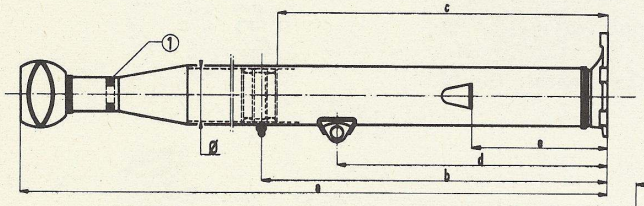


2nd Model



The Torque Tube

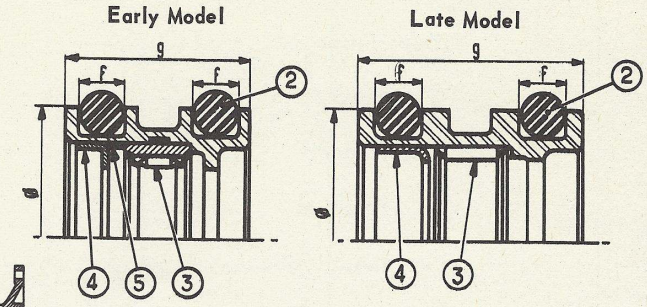
The major differences between an early and late model torque tube are in the location and size of the center bearing.



Dimensions	Early Model	Late Model
Ø	2.964"	2.964"
a	68.956"	68.956"
b	34.862"	36.436"
c	33.818"	35.216"
d	23.110"	23.110"
e	11.811"	11.811"
①	Oil Retainer	

Center Bearing Assembly

The late model center bearing is wider, and the inside diameter is larger.



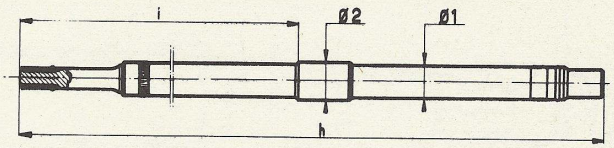
Dimensions	Early Model	Late Model
Ø	2.834"	2.834"
f	.511"	.511"
g	2.086"	2.440"

PART NUMBERS

Part	Early Model	Late Model
2	2810-01	2810-01
3	2811-06	2811-07
4	2809-05	2809-06
5	2808-01	

The Propeller Shaft

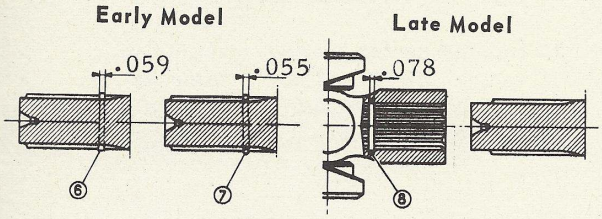
The late model propeller shaft is of a larger diameter. The position of the center bearing inner race has been moved forward.



Dimensions	Early Model	Late Model
Ø1	1.220"	1.456"
Ø2	1.503"	1.771"
h	66.397"	66.397"
I	31.535"	30.039

Snap Ring

The snap ring previously installed on the outside splined end of the shaft is now installed inside the universal joint.

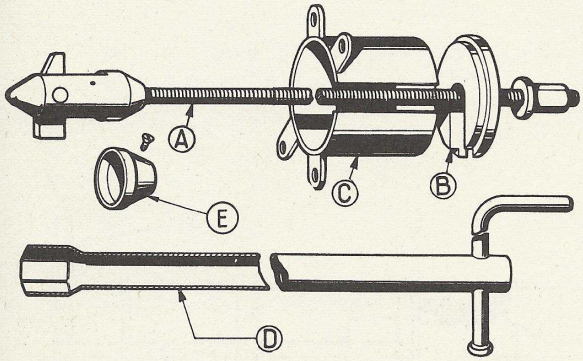


6 - up to Serial #4055689 Part #2635-02
7 - from #4055690 to #4135627 Part #2635-04
8 - from #4135628 Part #2635-05
Snap rings 6-7-8 are not interchangeable.

MAINTENANCE

Removal of the Center Bearing

NOTE: In order to remove the center bearing with a minimum of time and effort, a set of special tools #8.0402 can be ordered from the distributor.



The set of tools includes:

A - Puller body
B - Backing plate
C - Spacer
D - Crank
E - Centering Bushing for later shaft

Preliminary Operations

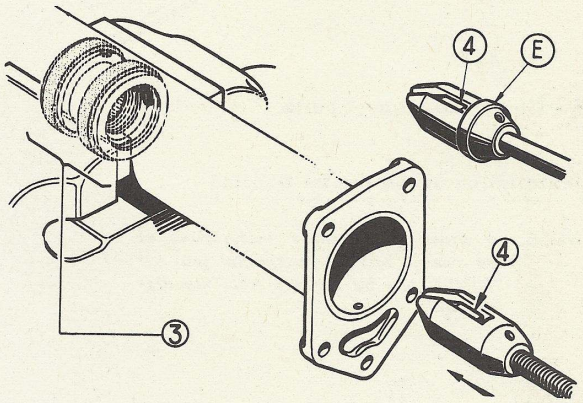
With the propeller shaft removed from the torque tube, hold the tube in a vise and remove the center bearing grease nipple.

Lubricate the inside rear part of the torque tube, to allow the center bearing assembly to slide out freely.

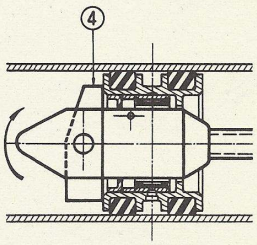
Removal

1 - Secure centering bushing E on the puller if the center bushing is of a late model.

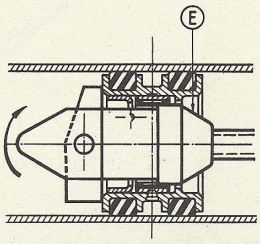
2 - Engage puller body through rear part of torque tube in position so that finger 4 remains horizontally by bearing against pin.



3 - When the head of the puller has reached a position past the bearing, rotate the puller half a turn so that finger bears a vertical position by its own weight.



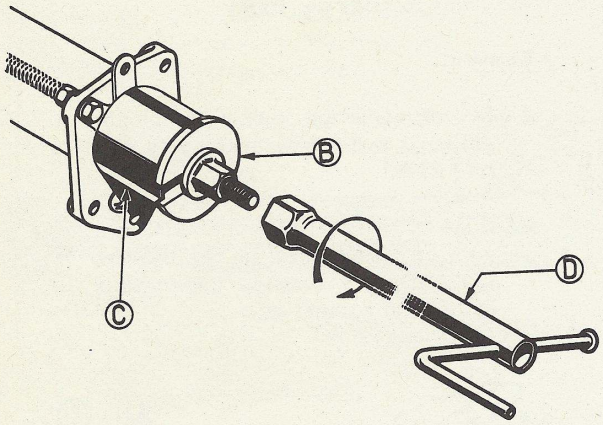
Early Model



Late Model Puller Equipped with Bushing E

4 - With two bolts secure spacer C to torque tube. Install backing plate B, and the nut.

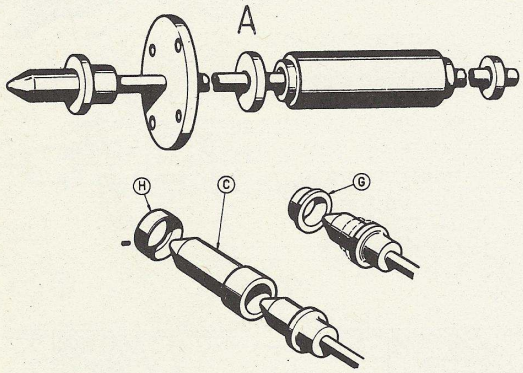
5 - Using crank D, tighten the nut. The center bearing assembly will slide out easily.



6 - Clean and inspect parts.

Installation of the Center Bearing

NOTE: In order to facilitate installation of the center bearing, a special tool kit #8.0403 can be ordered from the distributor.



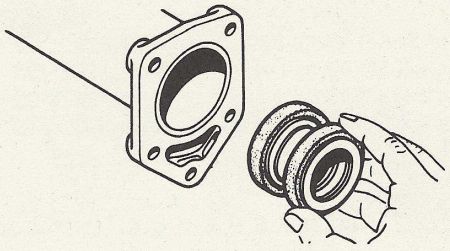
This tool kit includes:

A - Center bearing installer
G - Spacer for early model
C - Bushing for late model
H - Spacer for late model

Preliminary Operations

1 - Hold the torque tube in a vise: lubricate the inside rear part of the torque tube in order to ease the sliding of the center bearing assembly.

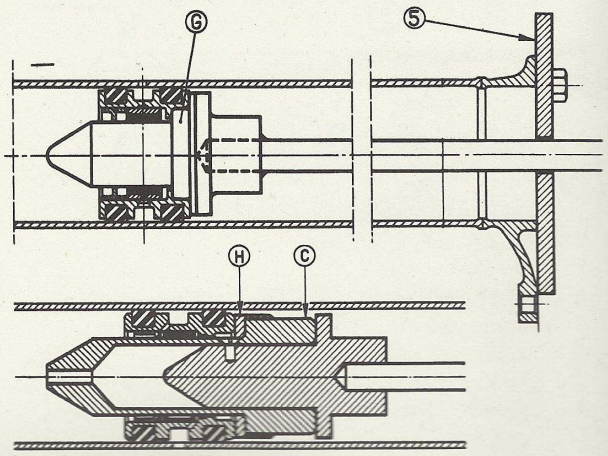
2 - Dip the center bearing assembly in engine oil. Insert the bearing assembly into the torque tube. Use a mallet if necessary.



Installation

1 - Secure the corresponding spacer on the bearing guide of the center bearing installer.
- Spacer G for early model
- Spacer H and Bushing C for late model

2 - Engage the bearing guide of the installer into the bearing, and with two bolts secure plate 5 onto the torque tube.



3 - Slide hammer 6 against shoulder 7 until latter bears against Plate 5.

4 - Remove center bearing installer.

5 - Install center bearing grease nipple.