

IDENTIFICATION AND CHARACTERISTICS

01 01

REMOVAL AND REFITTING

Tools to be used
Removal
Refitting

02 01
02 03
02 11(1)

DISMANTLING RE-ASSEMBLY

Tools to be used
Dismantling
Re-assembly

03 01
03 02
03 10

GEAR CHANGE CONTROLS

Controls adjustment
- Column gear change lever
- Floor mounted gear change lever

06 01(1)
06 02(1)



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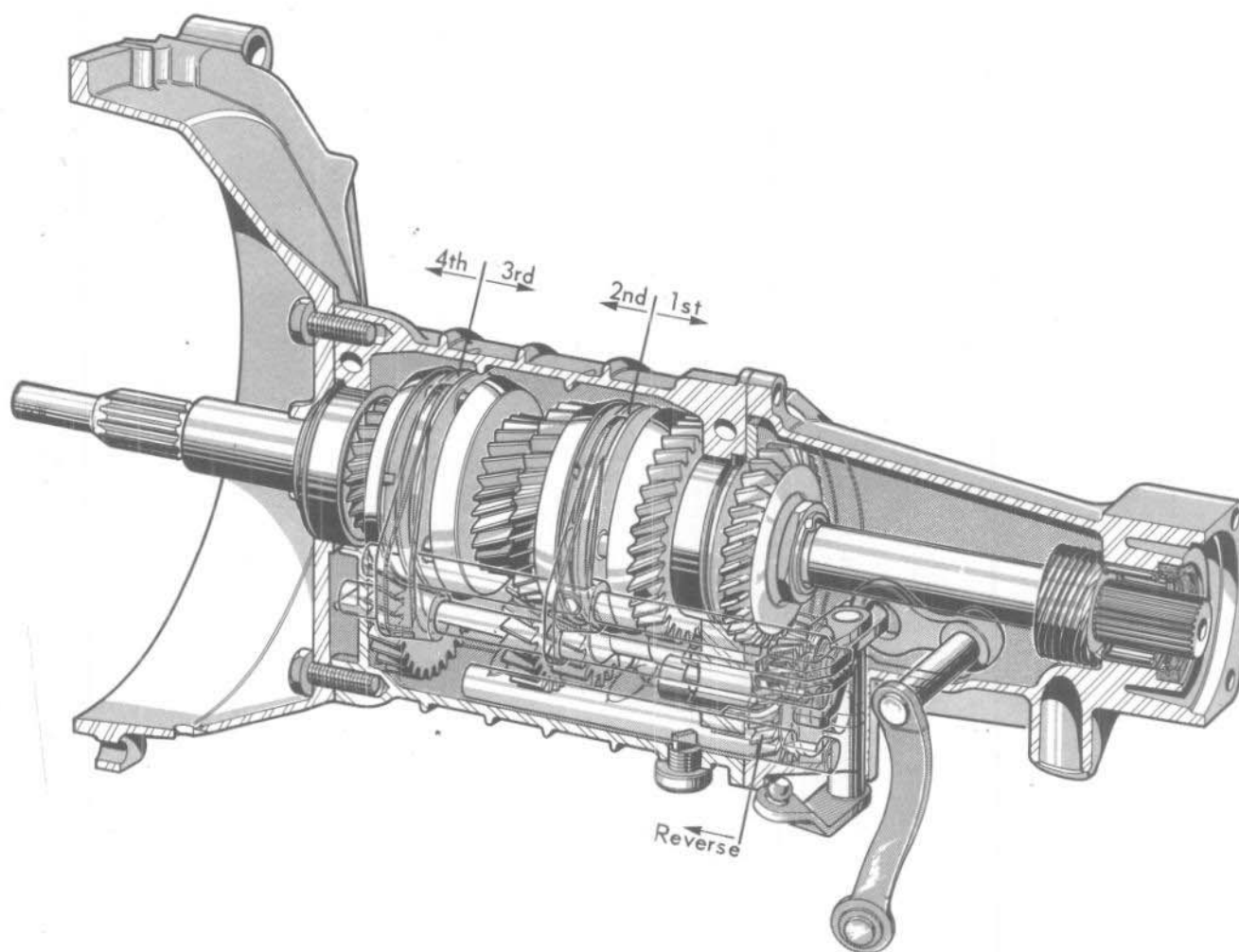
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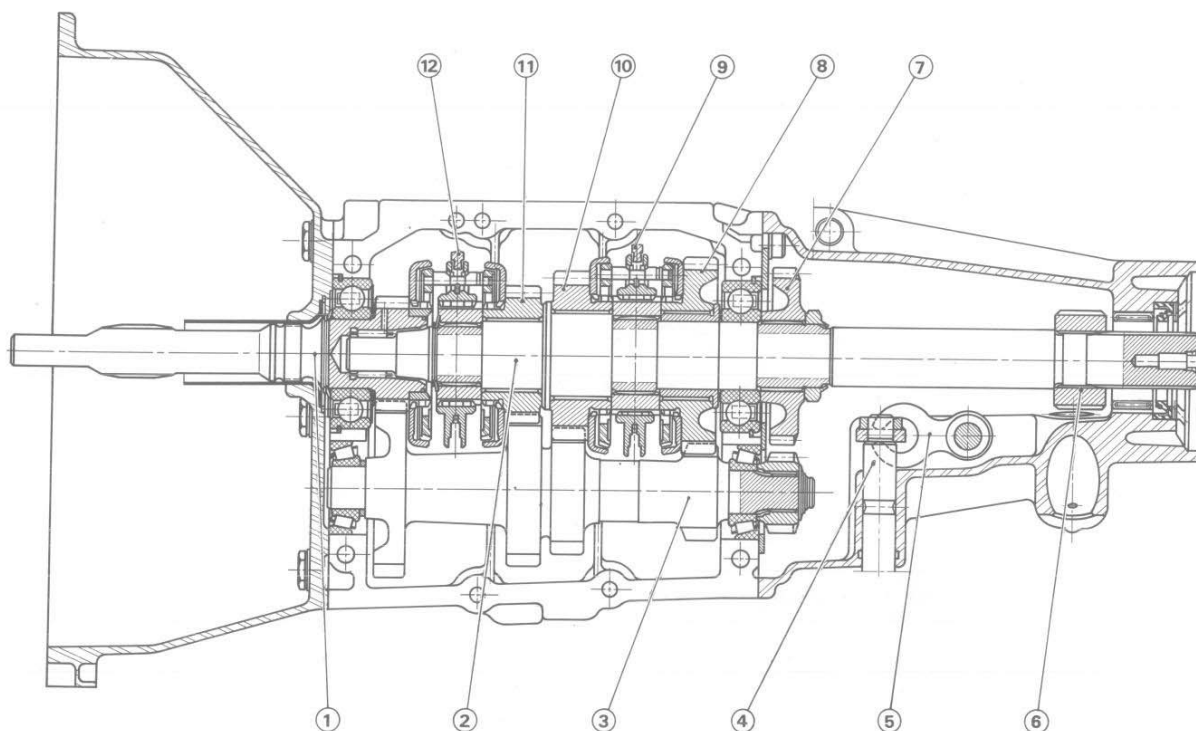
GEARBOX IDENTIFICATION AND CHARACTERISTICS

3 01 01



Speed	Reduction ratios	Ratios
1st	$\frac{21 \times 15}{33 \times 35}$	0.2727
2nd	$\frac{21 \times 21}{33 \times 29}$	0.4608
3rd	$\frac{21 \times 29}{33 \times 26}$	0.7098
4th	Direct drive	1
Reverse	$\frac{21 \times 19 \times 13}{33 \times 31 \times 19}$	0.2669

PEUGEOT

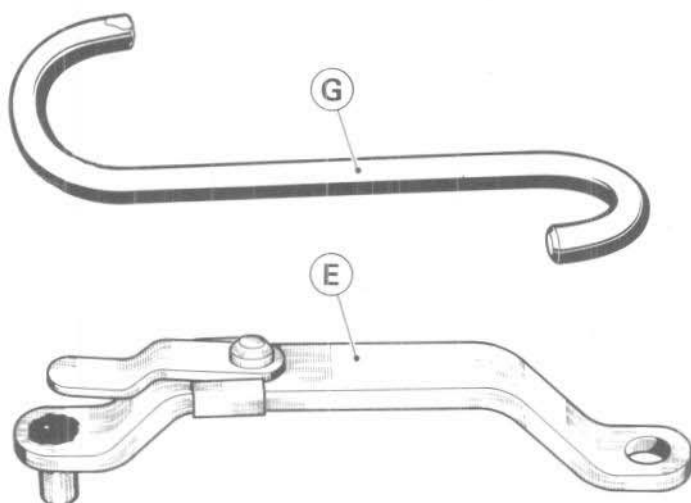


- 1 - Drive shaft
- 2 - Mainshaft
- 3 - Layshaft or intermediate shaft
- 4 - Gear change control
- 5 - Gear selector control
- 6 - Speedometer drive worm 10 threads

- 7 - Reverse gear pinion - 31 teeth
- 8 - 1st gear pinion - 35 teeth
- 9 - 1st/2nd synchronesh cones
- 10 - 2nd gear pinion - 29 teeth
- 11 - 3rd gear pinion - 26 teeth
- 12 - 3rd/4th gear synchronesh cones.

GEARBOX REMOVAL - REFITTING

3 02 01



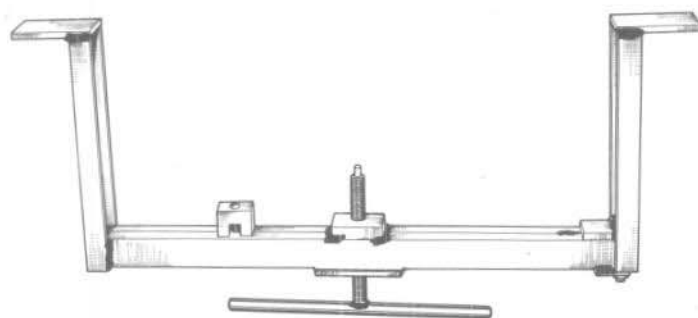
TOOLS TO BE USED

8.0102 X

Engine hoisting apparatus

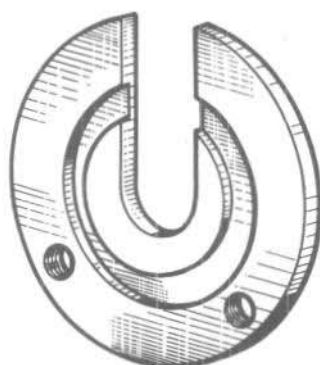
E - Front hook

G - Short hook



8.0125

Engine or gearbox support base



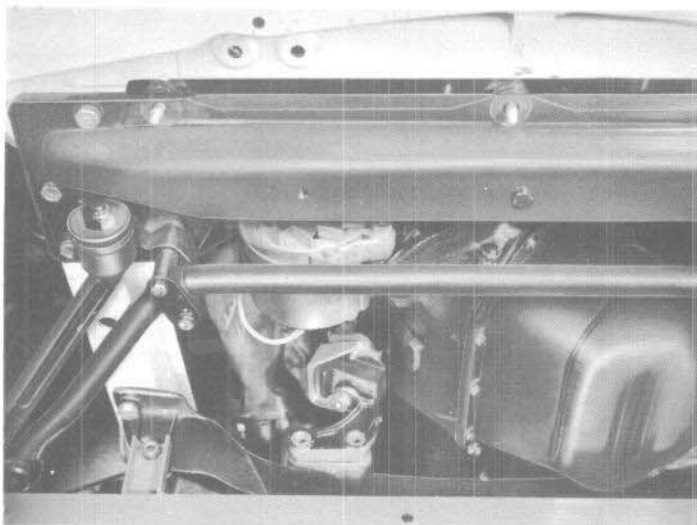
8.0403 S

Propeller shaft holding plate.

PEUGEOT

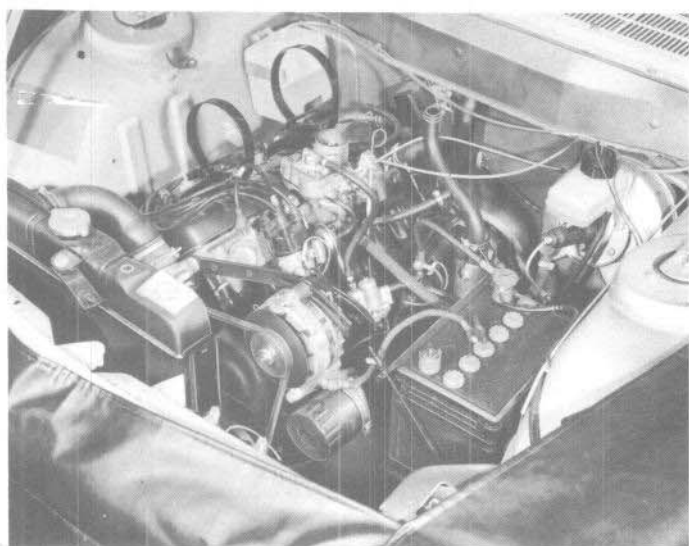
GEARBOX REMOVAL

3 02 03



- Place the car on car lift or a pit.
- Fit wing protective covers.
- Disconnect battery.
- **Drain the gearbox.**
- Remove :
 - ignition coil,
 - radiator upper mounting,
 - both the bolts of the radiator lower mounting on the front crossmember.

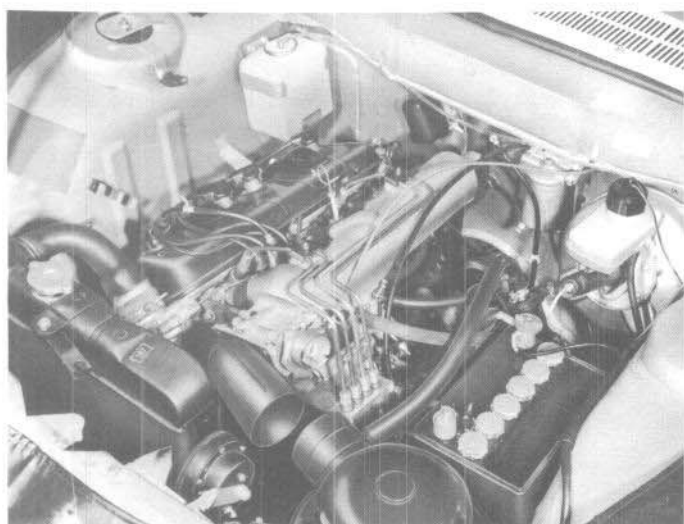
NOTE - There is no need to drain the cooling system.



- Remove the starter motor securing bolts then free the starter motor without disconnecting it.
- Recover the closure plate.

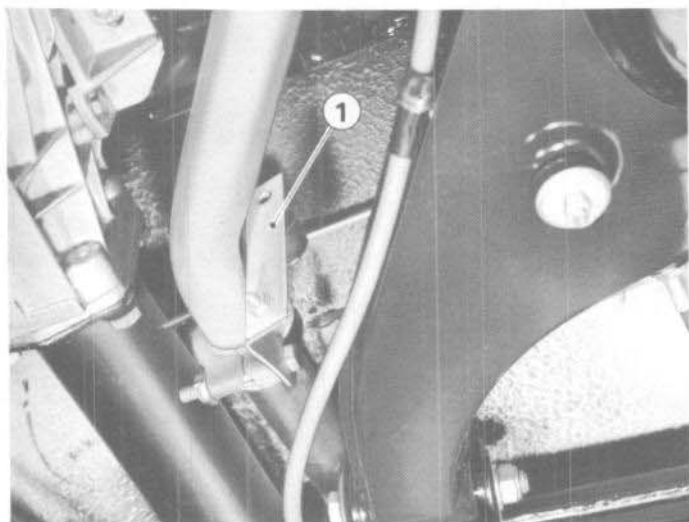
On 504 carburettor engine

- Remove the air cleaner to avoid damaging the regulator cover.

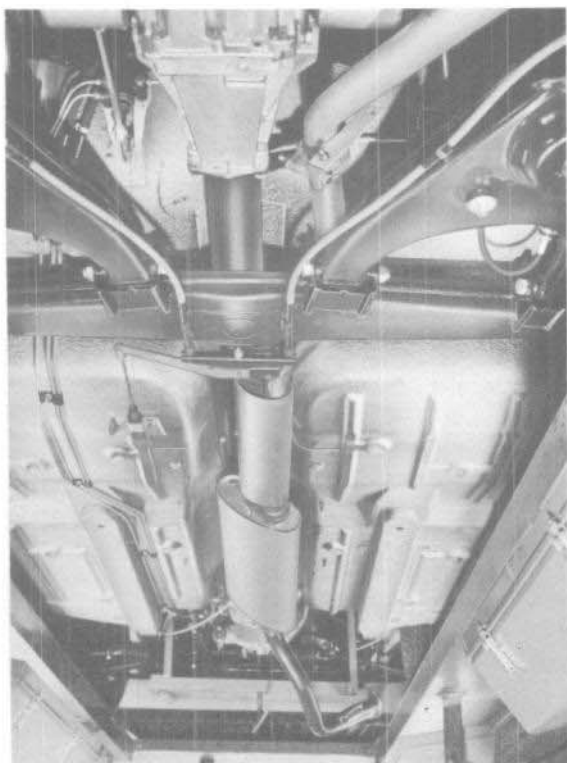


On 504 injection engine

- Disconnect :
 - electro-valve supply pipe,
 - air cleaner to air distribution chamber union.
- Remove the engine oil filler plug without disconnecting the oil vapour recirculating rubber connections.

GEARBOX
REMOVAL

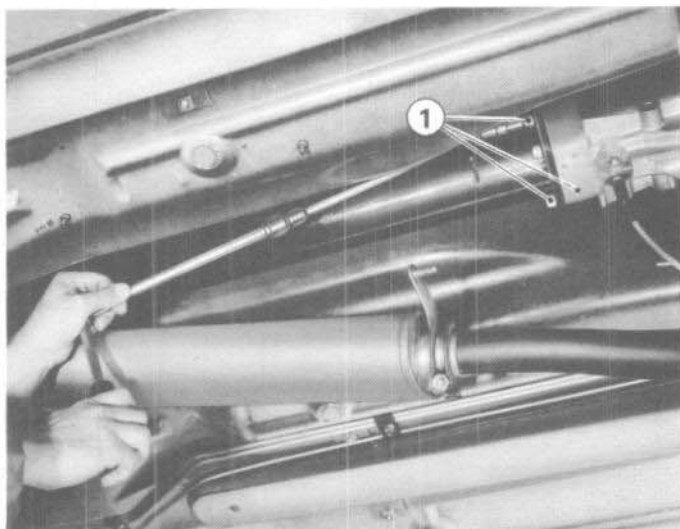
- Remove :
 - the three securing nuts of the exhaust pipe to the manifold,
 - the holding nut of the front silencer on the connecting tube,
 - the upper securing nut of the rear attachment 1 on the connecting tube,
 - the rear attachment on the body.
- Turn the steering wheel clockwise to disengage the front pipe and let the pipe assembly rest on the rear crossmember.



- Remove the heat dissipation plate.
- Place support base 8.0125 under the clutch housing : (the left hand side will be secured after the apparatus has been engaged, exhaust side, then tightly secure the nut).
- Press the end piece against the clutch housing by turning the operating screw without using too much force.

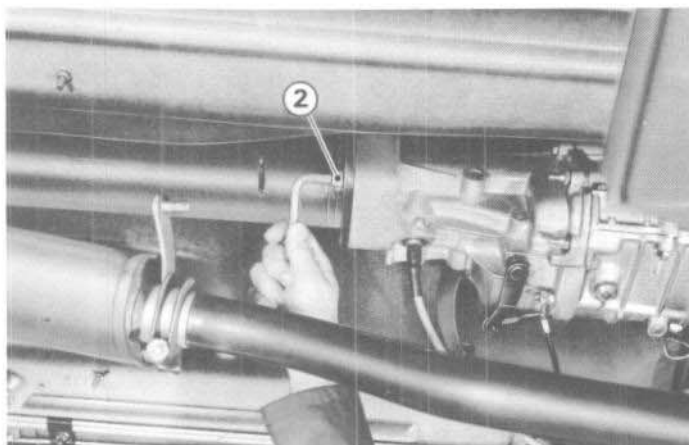
GEARBOX REMOVAL

3 0205⁽¹⁾

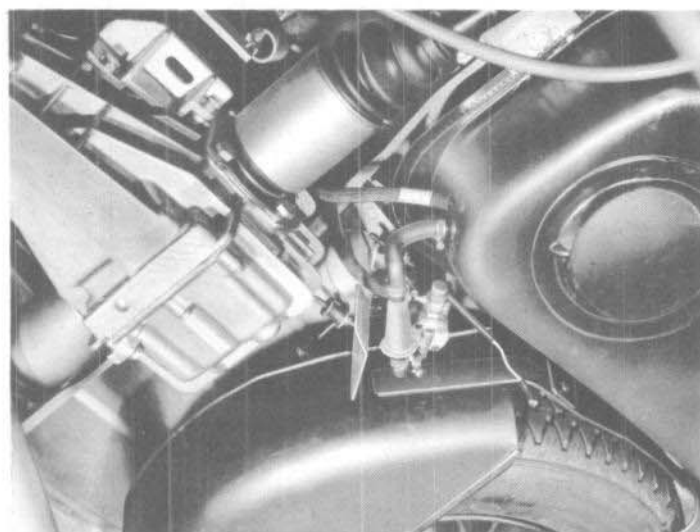


- Using the Facom extension J236/ET8 and an articulated "junior" extension remove the three assembling bolts 1 on the connecting tube to the gearbox housing.

N.B. - The allen extension of 8 mm across flat should protrude from the socket by about 10 mm.



- Remove the fourth bolt 2 using a shouldered allen key of 8 mm across flat. (Do not unscrew completely).



- Remove both the Allen bolts used for securing the differential under the suspension cross-member.

On 404 fuel Injection

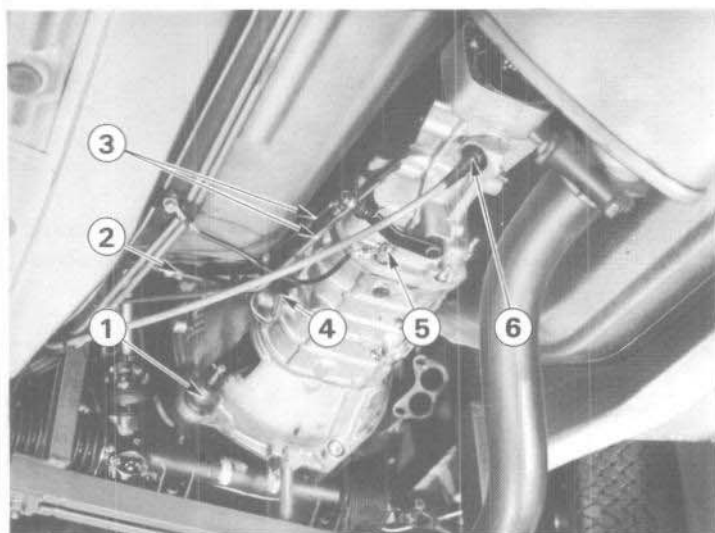
- In order to be able to move the differential backwards the electric supply pump should be freed from its attachments.

GEARBOX

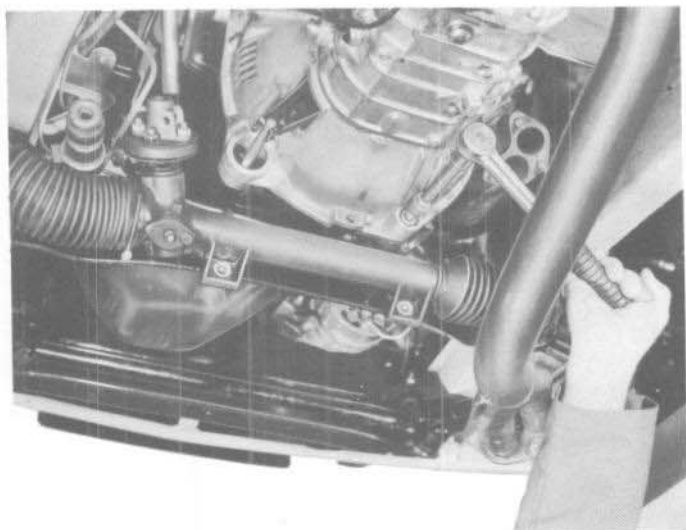
REMOVAL



- Separate the connecting tube from the gearbox by about 20 mm.
- Insert propeller shaft holding plate 8.0403 S between them.
- Using two M10 × 150 bolts secure the plate at the lower part of the tube.
- Completely remove propeller shaft assembly from the gearbox.



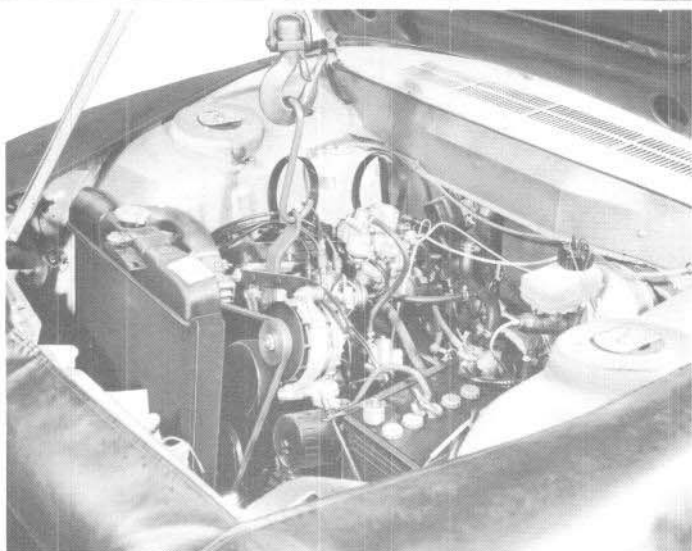
- Release the clutch slave cylinder 1 without disconnecting the pipe.
- Remove the counter lever 2 with its rods 3.
- Disconnect :
 - the reversing light switch leads 4,
 - the earth lead 5 on the gearbox,
 - the speedometer cable 6.



- Remove
 - the flector clamp bolt,
 - the steering gear housing securing bolts.
- Lower the steering gear housing without disconnecting the connecting ball heads.
- Remove the clutch housing closure plates.
- Remove the support base 8.0125
- Remove the three Allen bolts that secure the gearbox to the engine.

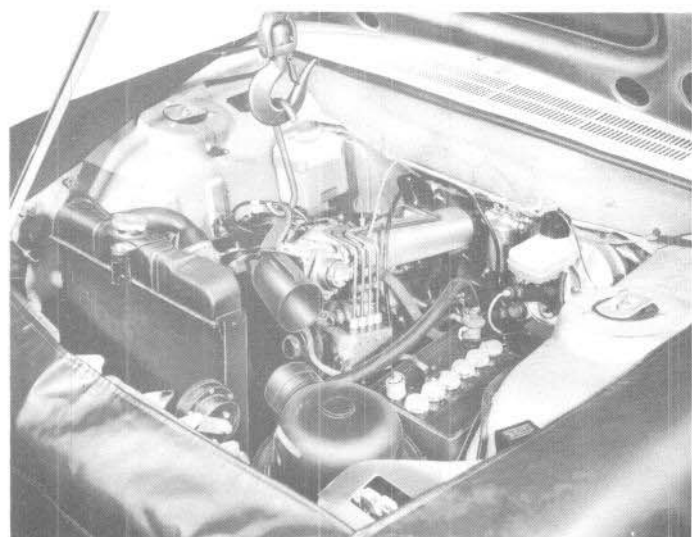
GEARBOX REMOVAL

3 02 07

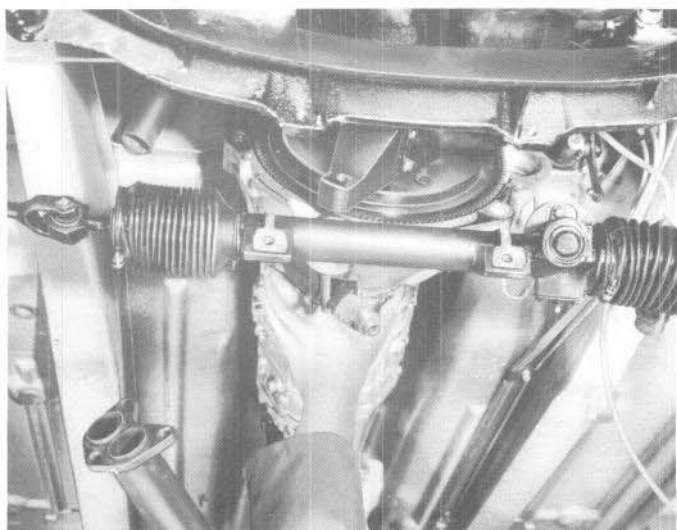


- Attach the engine to the hoisting apparatus through the intermediary of short hook **G** and hook **E** secured to the front handling hole.

- Rotate the engine on its rubber mounting blocks as far as possible in order to disengage the gearbox under the tunnel.



- Insert a wooden block between the hoisting cross-piece and the radiator in order to prevent the radiator weight from damaging the hoses.

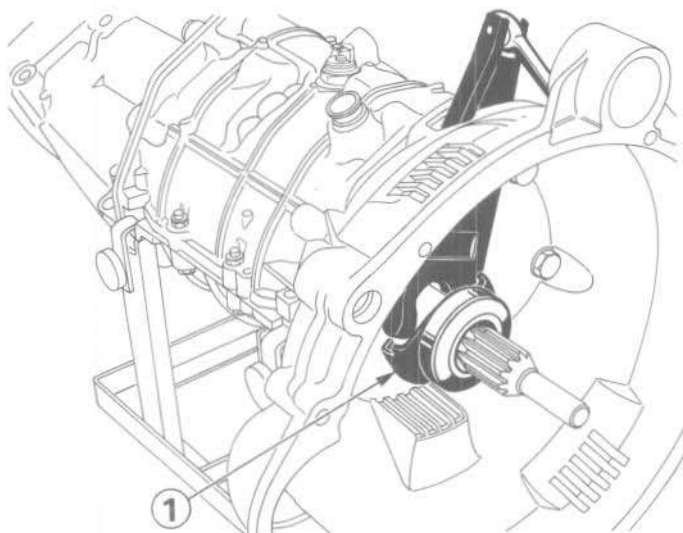


- Release the gearbox by rotating it a quarter of a turn anti-clockwise to allow for the passage of the starter motor boss under the tunnel.

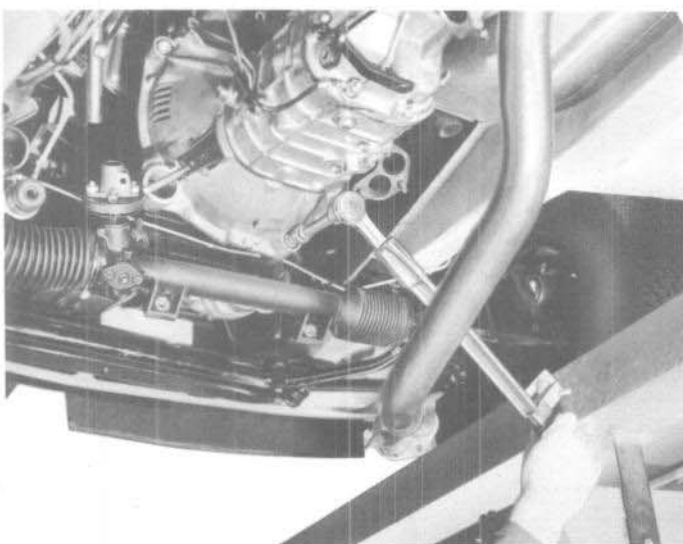
- Remove the clutch thrust ball bearing.

GEARBOX REFITTING

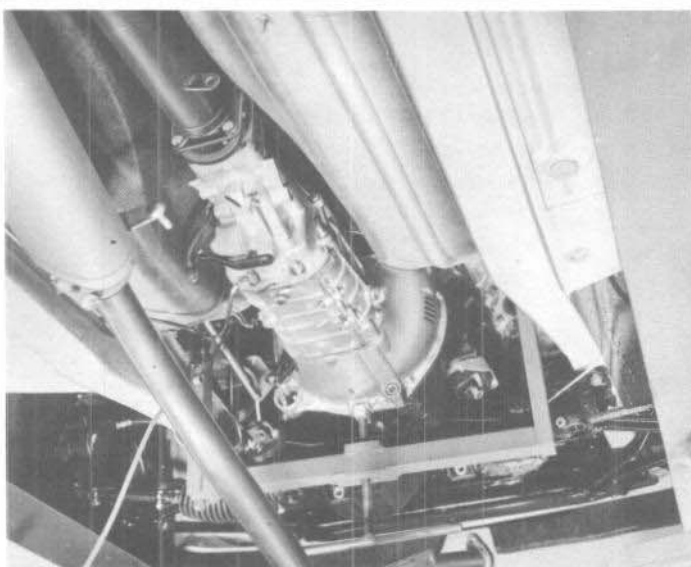
3 0211⁽²⁾



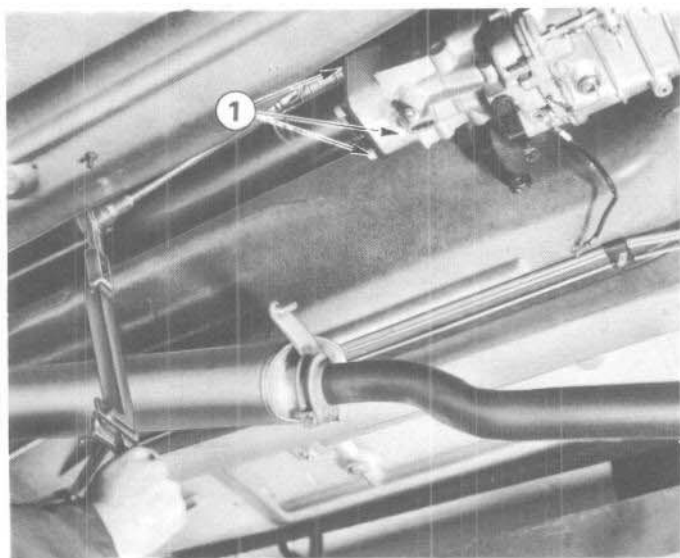
- Smear Molykote 321 on the front part of the engine drive shaft as well as in the thrust ball bearing guide sleeve.
- Engage the thrust ball bearing by positioning its retaining jaw 1 towards the starter motor housing.
- Engage thrust bearing with clutch release fork by rotating the bearing clockwise.



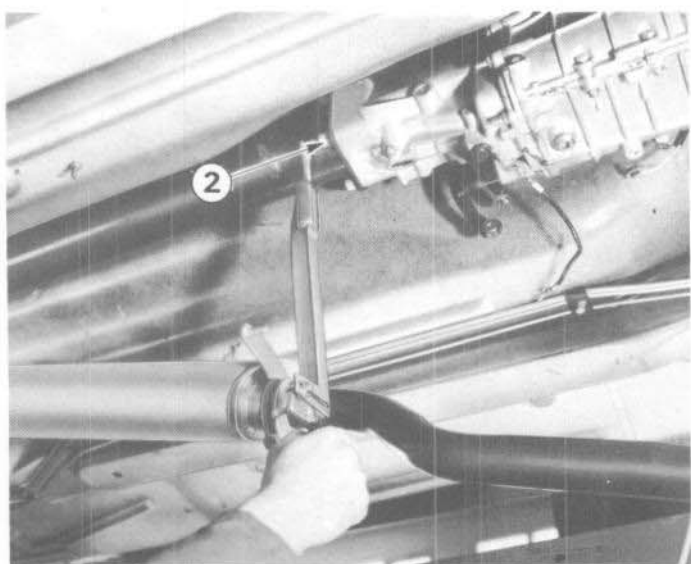
- Properly position the gearbox and engage the engine drive shaft with the clutch disc without using too much force.
- Secure the gearbox by means of three Allen screws equipped with new Grower washers. The tightening torque is 40 ft.lbs (5.5 m.kg).



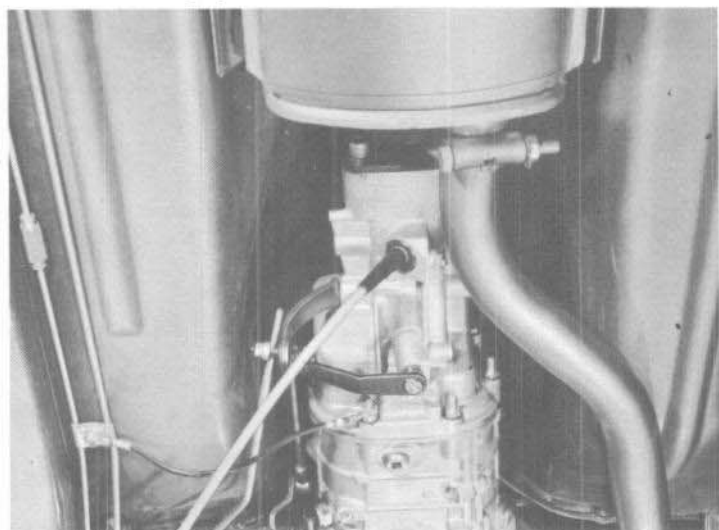
- Remove the block placed under the radiator.
- Lower the hoisting apparatus and remove hooks E and G.
- Place the support base 8.0125 as for removal.
- Align the engine-gearbox assembly with the propeller shaft by means of the operating screw.
- Smear MULTIPURPOSE GREASE H on the propeller shaft splines.

GEARBOX
REFITTING

- Engage propeller shaft splined sleeve with the drive shaft.
- Remove plate 8.0403 S.
- Ensure final engagement of propeller shaft with gearbox.
- Fit four Allen screws equipped with new Bloc-for washers.
- Tighten the three screws 1 to 43.5 ft.lbs (6 m.kg).



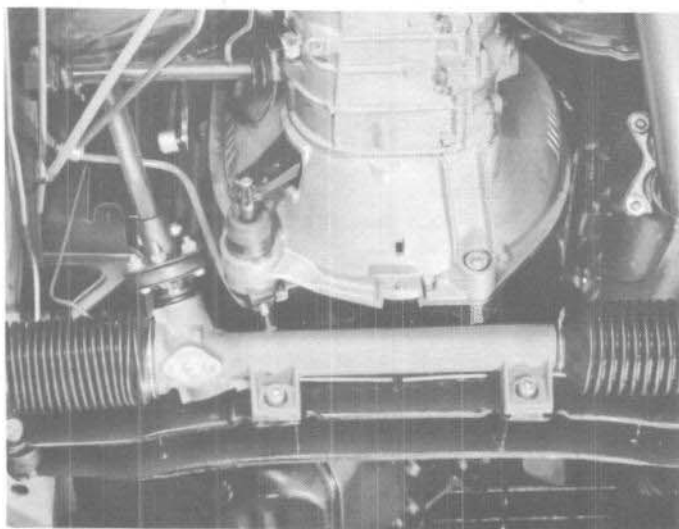
- Using an hexagonal extension of 8 mm and the torque wrench equipped with a fork extension tighten the fourth screw 2 to 43.5 ft.lbs (6 m.kg).
- Remove the support base 8.0125.



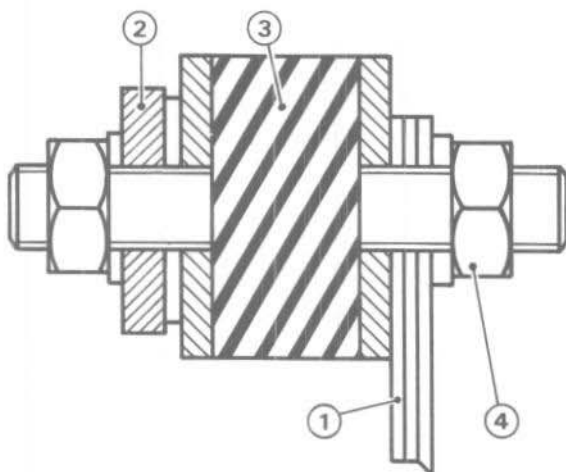
- Reconnect :
 - the earth lead to the gearbox,
 - the reversing lights switch leads,
 - the speedometer drive cable (the drive worm should just be engaged on the pinion, only the lock nut should be tightened).
- Refit :
 - the counter lever,
 - the control rods,
 - the drain plug equipped with a new seal, tightening torque 20 ft.lbs (2.75 m.kg).

GEARBOX REFITTING

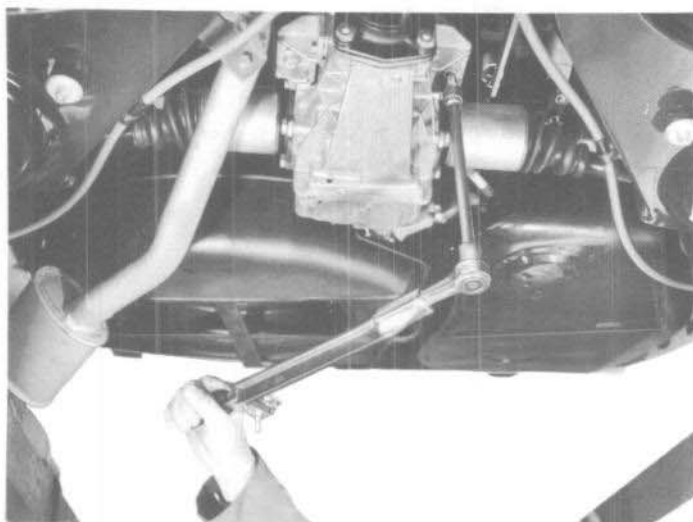
3 02 13



- Refit :
 - the clutch housing closure plates,
 - the clutch release slave cylinder,
 - the steering gear housing (refer to class 7, page 02 03).
- Secure the radiator to the front crossmember and tighten to 7.2 ft.lbs (1 m.kg).



- Secure the heat dissipation plate under the car floor.
- Refit the exhaust pipe assembly and use a new «metalloplastic» gasket.
- Secure the rear attachment 1 to the connecting tube lug 2 as per drawing opposite.
- Ensure that the rubber ring 3 does not turn while tightening nut 4.

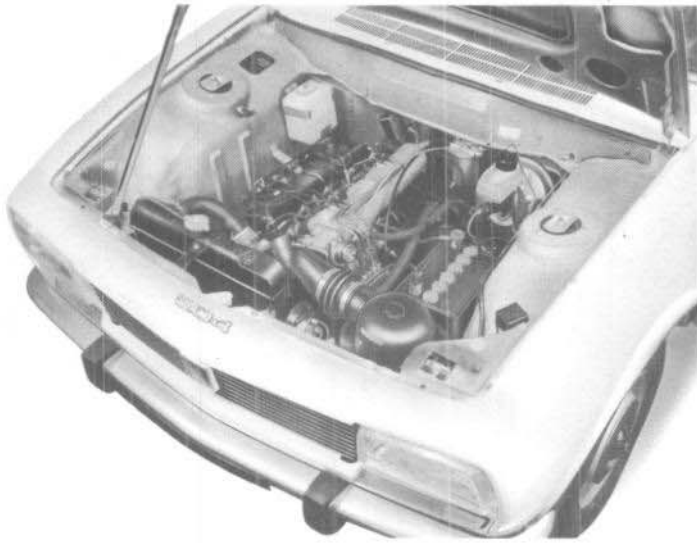


- Using the two Allen screws equipped with new Onduflex washers secure the differential to the suspension crossmember.

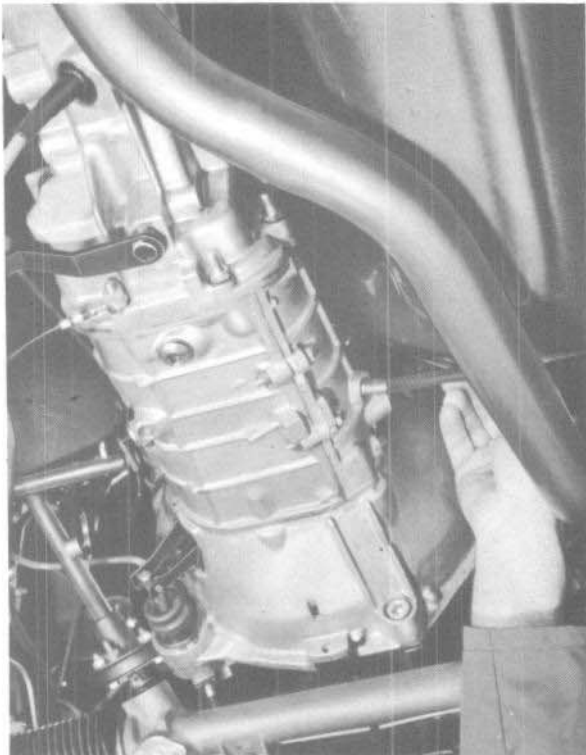
- Tighten the bolts to 27 ft.lbs (3.75 m.kg).

On 504 fuel injection

- Secure the electric fuel supply pump.

GEARBOX
REFITTING

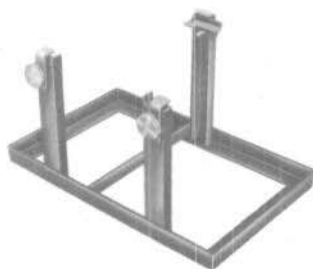
- Secure the radiator at its upper part.
- Fit :
 - the clutch housing upper left hand closure plate,
 - the starter motor of which the securing bolts should be tightened to 14,5 ft.lbs (2 m.kg).
- Refitting is a reversal of the removal procedure.



- Using 2 pints (1.150 l) of ESSO EXTRA MOTOR OIL 20 W 30/40, fill the gearbox.
- Tighten the filling plug to 20 ft.lbs (2.75 m.kg).
- Ensure correct gear selector movement and adjust the controls if necessary (refer to class 3, page 06 02).
- Check clutch control for correct operation.
- Road test the vehicle and then check the housings and the gearbox plugs for leaks.

GEARBOX DISMANTLING - REFITTING

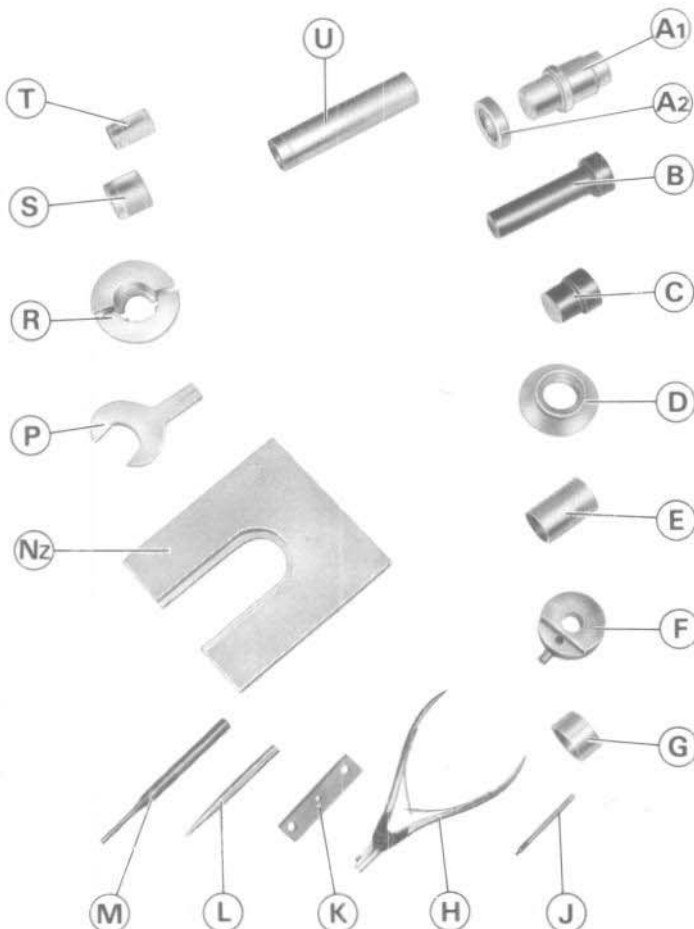
3 03 01



TOOLS TO BE USED

8.0311

Gearbox support base.



8.0310 Z

Components of the BA7 gearbox.

- A - Tool set, rear housing bearing and «SPI» seal fitting and removing comprising :
 - A1 - Plug, NADELLA bearing fitting and removing
 - A2 - Ring, «SPI» seal fitting
- B - Gauge, 2nd gear pinion
- C - Gauge, 4th gear synchronizer or synchro-meshcone
- D - Ring, fitting
- E - Drift, mainshaft lock ring fitting
- F - Support, dial indicator mounting (micro-meter)
- G - Spacer
- H - Pliers, speedometer drive socket removing and snap ring fitting.
- J - Extension, dial indicator finger
- K - Bar, safety
- L - Tool, staking
- M - Drift, plastic covered
- NZ - Plate, backing, hydraulic press
- P - Wrenchend, mainshaft nut
- R - Shells, intermediate gearshaft bearing removing
- S - Drift, intermediate gearshaft bearing fitting.
- T - Drift, intermediate gearshaft snap ring fitting
- U - Drift, drive shaft bearing and snap ring fitting.

PEUGEOT



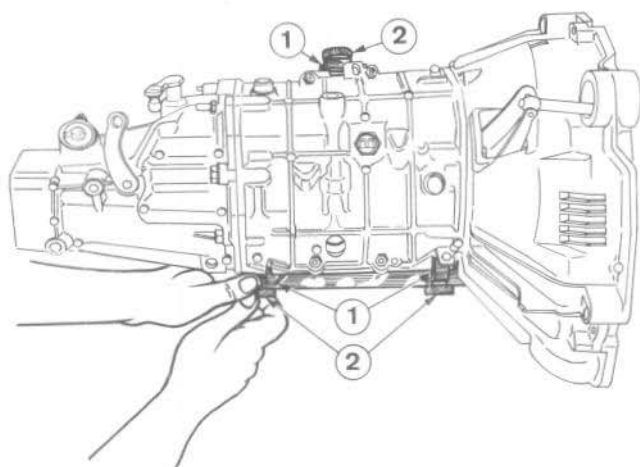
TOOLS RECOMMENDED

Facom standard tools

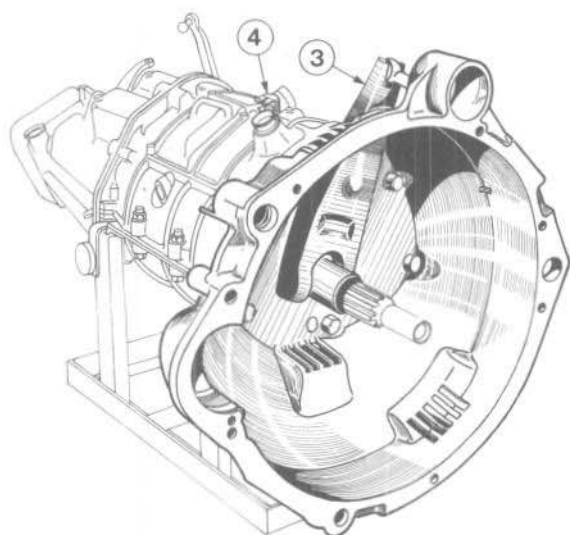
- 1 - Socket, «long», 13 mm (J13 L)
- 2 - Socket, external hexagonal (J 236/ET 8)
- 3 - Socket, external hexagonal (J 235/ET 6)
- 4 - Socket, external hexagonal (J 235/ET 5)
- 5 - Socket, adaptor, 1/2" - 3/8" (S 230)

The above tools are not supplied with the tool chest, but compartments are provided for storing them.

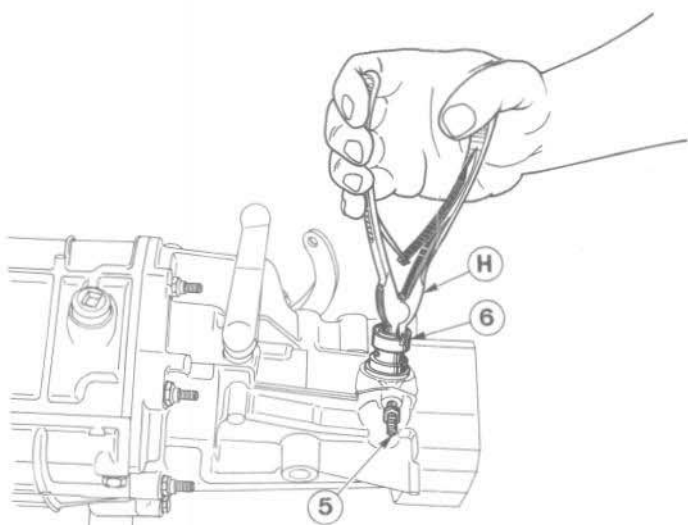
GEARBOX DISMANTLING



- Tightly secure gearbox to support base 8.0311 as indicated on drawing opposite, by pressing support brackets 1 against the corresponding pads on the housing.
- Firmly tighten screws 2.



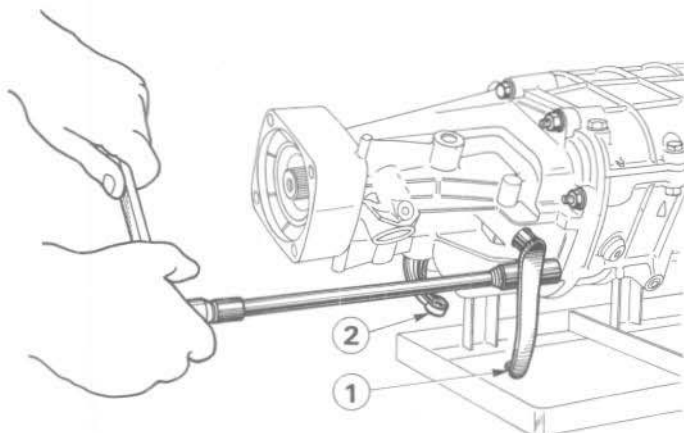
- Remove :
- clutch release fork 3
- clutch housing
- reversing lights switch 4



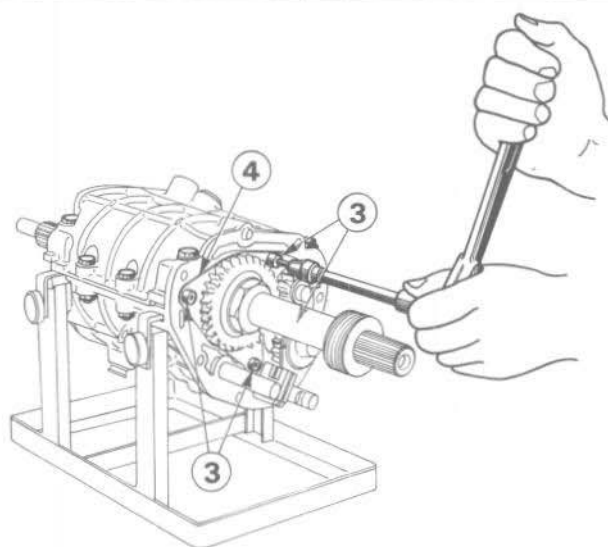
- Remove :
- stop screw 5
- speedometer drive socket 6, using pliers H.

GEARBOX DISMANTLING

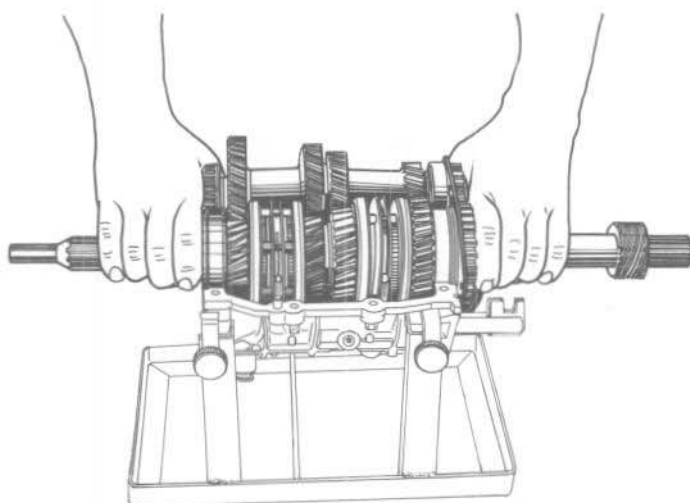
3 03 03



- Reverse the position of the gearbox on the support base, and firmly tighten all the three knurled bolts.
- Set control lever 1 to neutral and pull selector lever 2 fully to the rear.
- Remove all seven housing securing bolts (use wrench equipped with 13 mm long socket, Facom J 13 L).

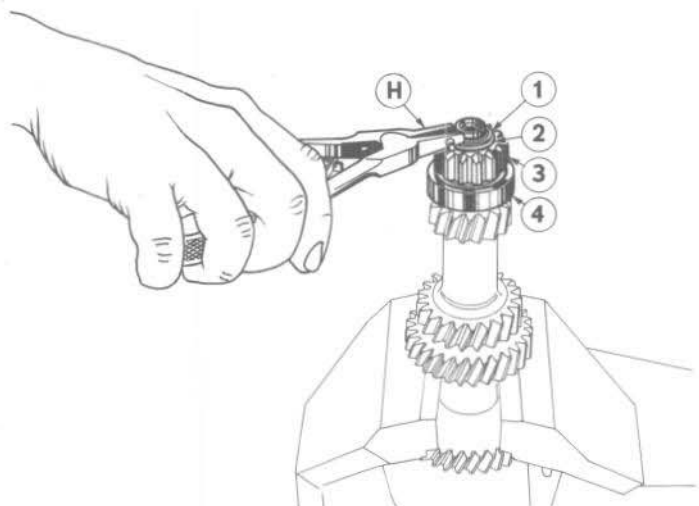


- Remove rear housing, using a mallet if required.
- Remove :
 - all four Allen screws 3 on bearing lock plate 4 use a 6 mm Allen key, Facom J 235/ET 6,
 - all eight half housings assembling screws,
 - the upper housing.



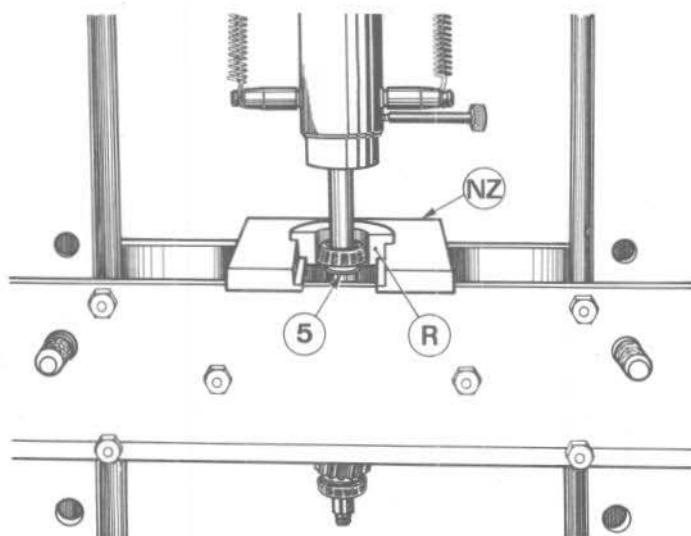
- Lift off and remove gear and pinion assembly.

PEUGEOT

**INTERMEDIATE SHAFT**

- Remove :

- snap ring 1 from intermediate shaft reverse pinion, using pliers H,
- spring washer 2,
- intermediate shaft reverse pinion 3,
- bearing outer race 4.

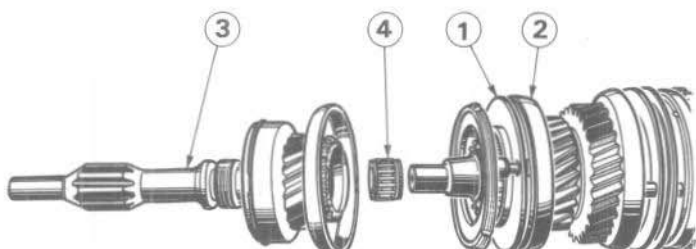


- Remove front bearing using :

- plate NZ
- half-shells R.
- Remove and recover front bearing and calibrated adjusting washer 5.
- Remove rear bearing, using the same procedure.

GEARBOX DISMANTLING

3 03 05



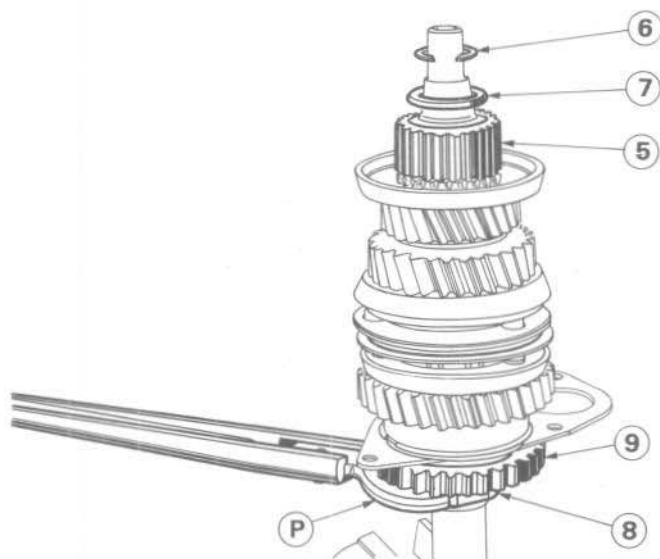
DRIVE SHAFT AND MAINSHAFT

- Engage 3rd/4th speed sliding gear 1 into 3rd speed synchronizer cone 2 and hold it in this position.
- Separate drive shaft 3 from mainshaft.
- Remove needle bearing cage 4 from inside of drive shaft.



MAINSHAFT

- Remove grease from 3rd/4th speed synchronizer without disengaging the dog gear.
- Hold mainshaft in a vice.
- Mark the position and direction of rotation of 3rd/4th speed sliding gear with respect to its hub 5 using a sharp brass rod.
- Remove sliding gear 1.

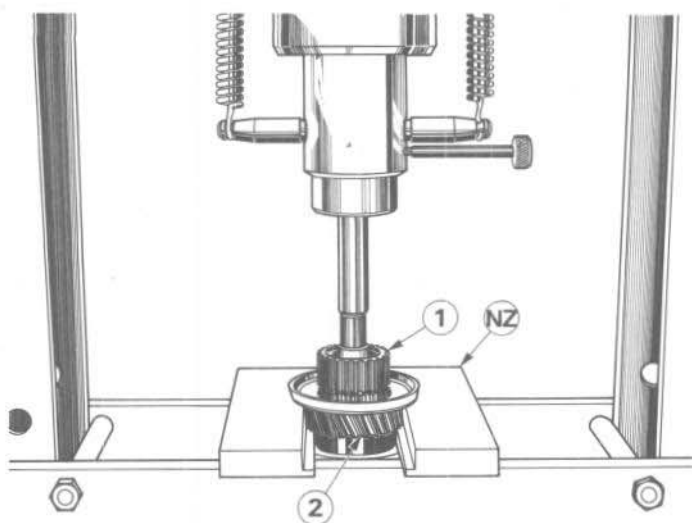


- Remove snap ring 6 and spring washer 7 from 3rd/4th speed synchronizer hub 5.
- Fully unscrew nut 8 while holding mainshaft reverse pinion 9 with wrench P equipped with Facom SJ 214, extension.

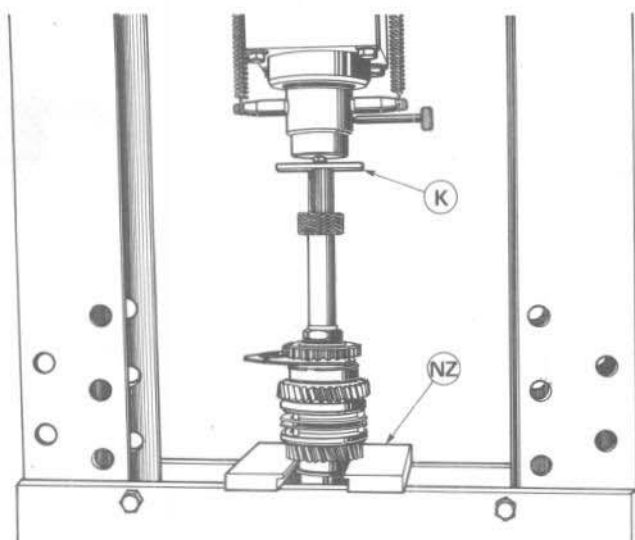
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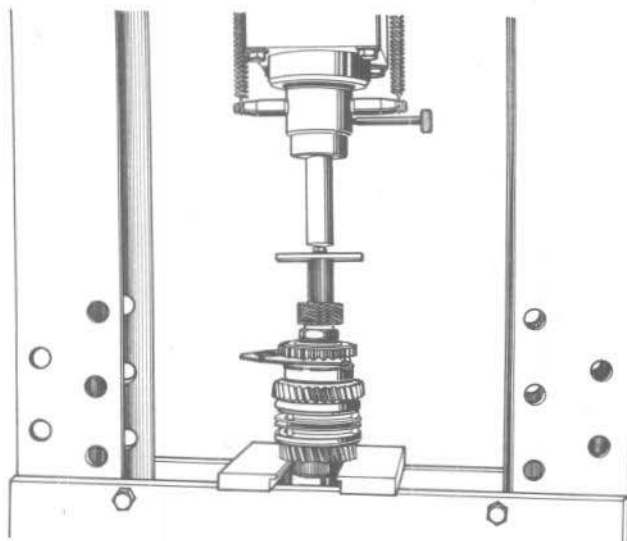
GEARBOX DISMANTLING



- Remove synchronizer hub 1 and 3rd speed mainshaft 2, using the press if required.
- In such a case, install backing plate NZ on press table with wider side turned upwards.



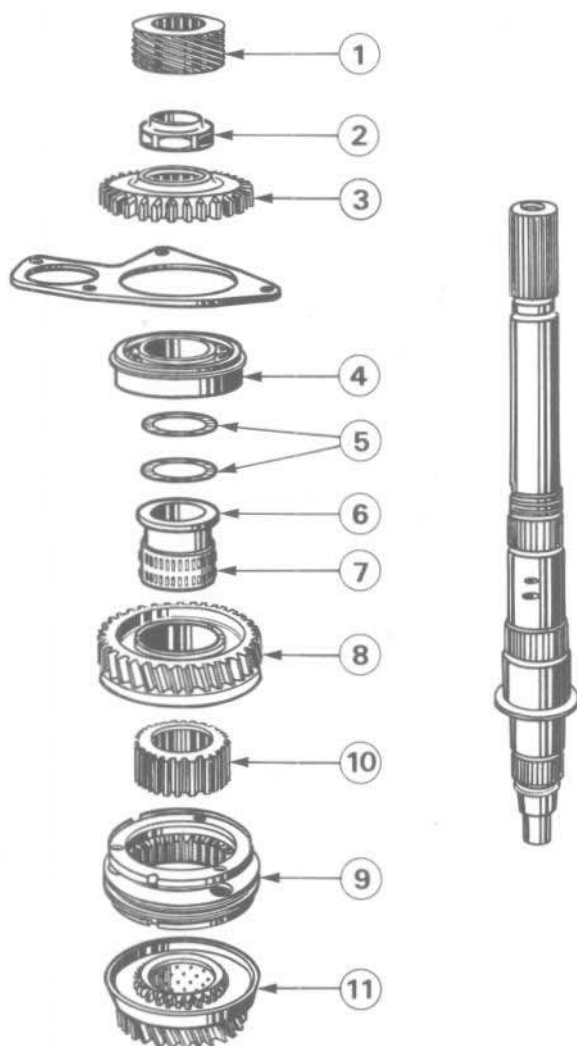
- Turn plate NZ upside down (narrow side is turned upwards).
- Secure safety bar K to shaft end, using one of the rear housing attachment screws inserted into the centre hole of the safety bar. Tighten to 7.2 ft.lbs (1 m.kg).
- Install mainshaft on backing plate with 2nd gear pinion pressing against plate.
- Press mainshaft downwards to free rear bearing.



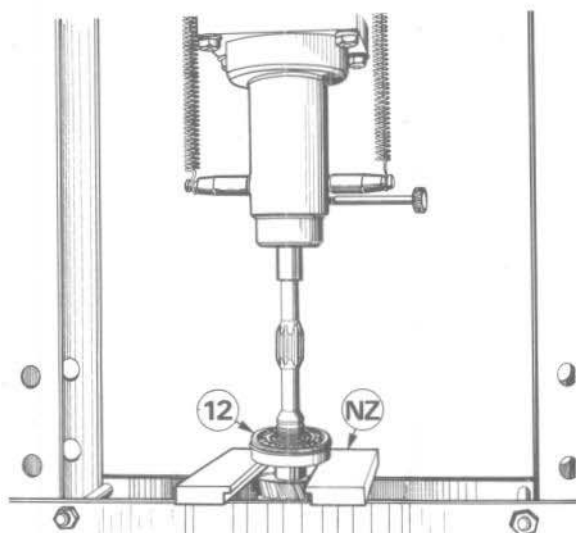
- Continue pressing main shaft downwards to free speedometer drive worm.

GEARBOX DISMANTLING

3 0307



- Remove safety bar K
- Remove the following parts in the indicated order:
 - speedometer drive worm 1,
 - nut 2,
 - reverse pinion 3,
 - rear bearings backing plate,
 - rear bearing 4,
 - adjusting shim stack 5,
 - 1st speed spacer bushing 6,
 - needle bearing cage 7,
 - mainshaft 1st speed pinion 8,
 - 1st/2nd speed synchronizer, without removing sliding gear 9 from hub 10,
 - mainshaft 2nd speed 11.
- Remove grease from parts 9 and 10 and mark their respective positions.



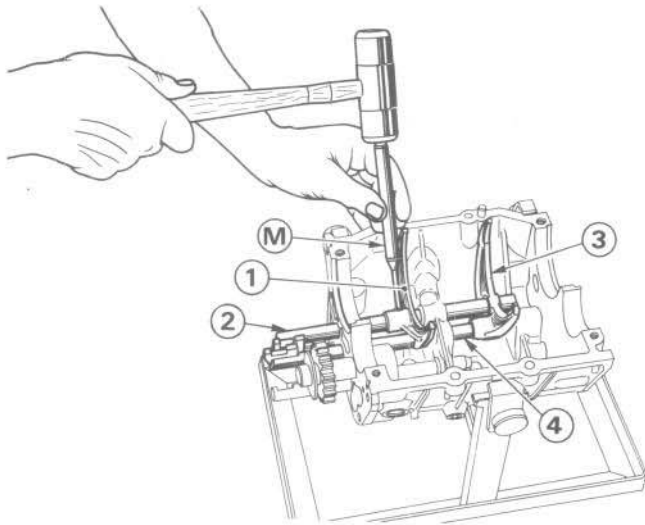
Drive shaft

- Remove snap ring, using pliers H.
- Remove the spring washer.
- Remove bearing 12, using plate NZ, with narrow side turned upwards.
- Recover :
 - bearing 12,
 - deflector washer,
 - adjusting shims.

PEUGEOT

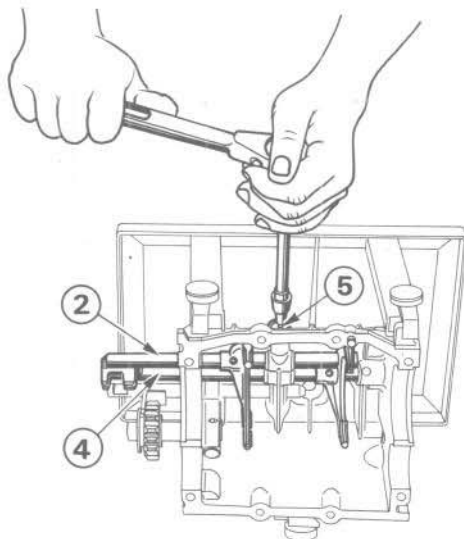
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GEARBOX DISMANTLING

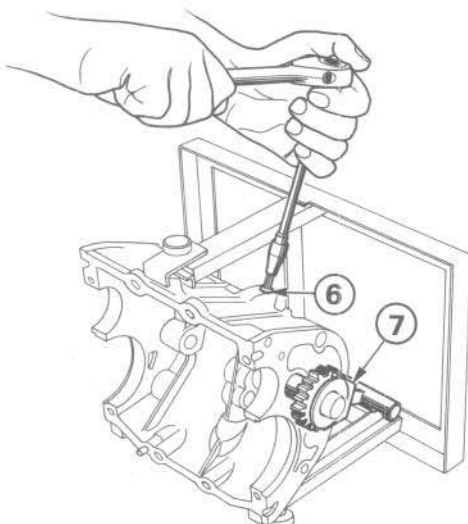


SHIFTING FORKS AND LOCKING DEVICES

- Engage 2nd gear.
- Remove «Mecanindus» pin from 1st/2nd gear shifting fork using drift M.
- Return shifting fork shaft 2 to «Neutral»,
- Engage 4th gear,
- Remove «Mecanindus» pin from 3rd/4th gear shifting fork 3.
- Return shifting fork 4 to «Neutral».



- Remove :
- Locking plug 5 (use a 5mm Allen key type Facom J235/ET 5).
- 1st/2nd gear fork shaft 2.
- 3rd/4th gear fork shaft 4.

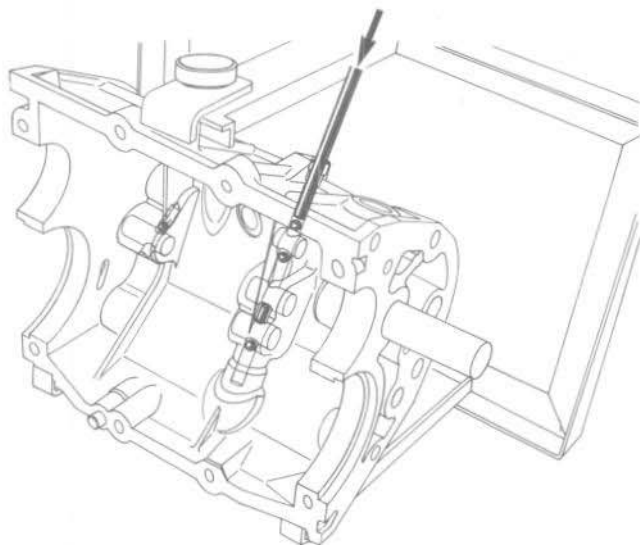


- Turn gearbox support base on its side.
- Remove :
- locking plug 6 for reverse shifting fork.
- reverse shifting fork 7 with countershaft pinion.

GEARBOX DISMANTLING

3

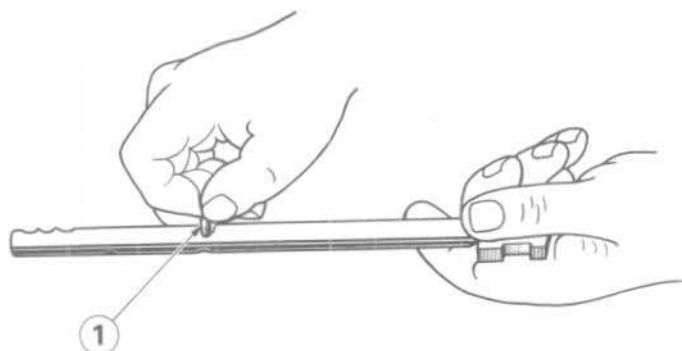
03 09



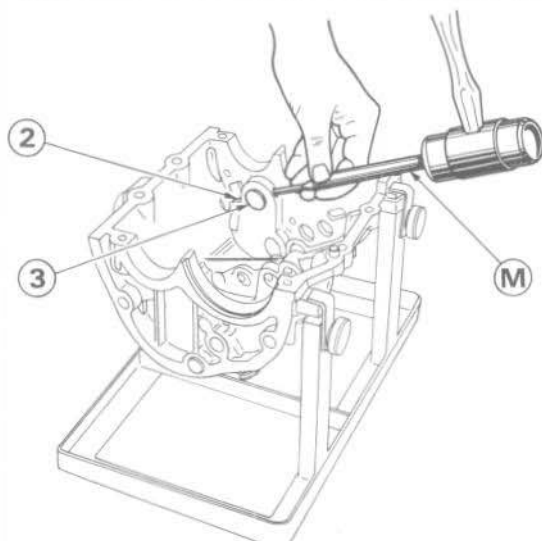
- Recover :

- 3 locking springs,
- 4 balls,
- 1 locking finger.

N.B. - If the balls are «stuck» in the passage, use a 7 mm dia., 230 mm long rod to free them.



- Remove locking needle 1 from 3rd/4th speed fork shaft.



- Use drift M to dislodge «Spiral» pin 2 from reverse pinion shaft 3, and to force this shaft towards the inside of the housing.

PEUGEOT

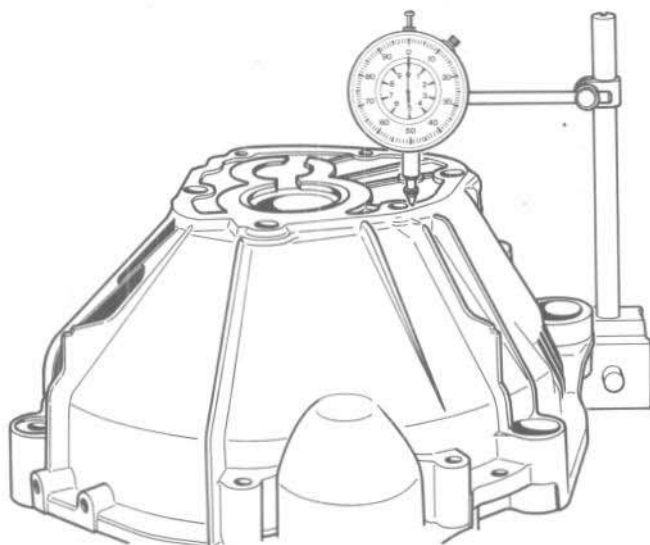
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Preliminary conditions

- All parts must be perfectly clean
- Mating surfaces smeared with «Perfect seal» sealing compound should be cleaned using a fluffless cloth moistened with industrial grade methylated spirit **exclusively**. NEVER USE EMERY CLOTH or CUTTING TOOLS.
- The following parts must be replaced systematically :
 - snap rings used on shafts,
 - spring washers,
 - Mecanindus pins,
 - Spiral pin (reverse shaft),
 - mainshaft nut,
 - mainshaft rear oil seal,
 - speedometer drive socket «0» seal ring,
 - all Onduflex and Blocfor washers,
 - engine drive shaft bearing deflector washer.
- All components should be smeared with ESSO EXTRA MOTOR OIL 20 W 30/40 before installing them.

GEARBOX RE-ASSEMBLY

3 03 11

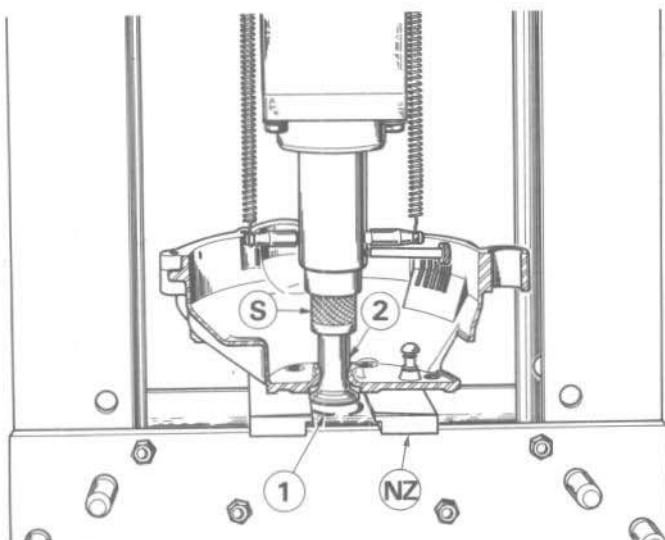


PREPARING THE HOUSINGS

CLUTCH HOUSING

Use a flat surface to check the parallelism of the front and rear faces of the clutch housing ; proceed as indicated on drawing opposite.

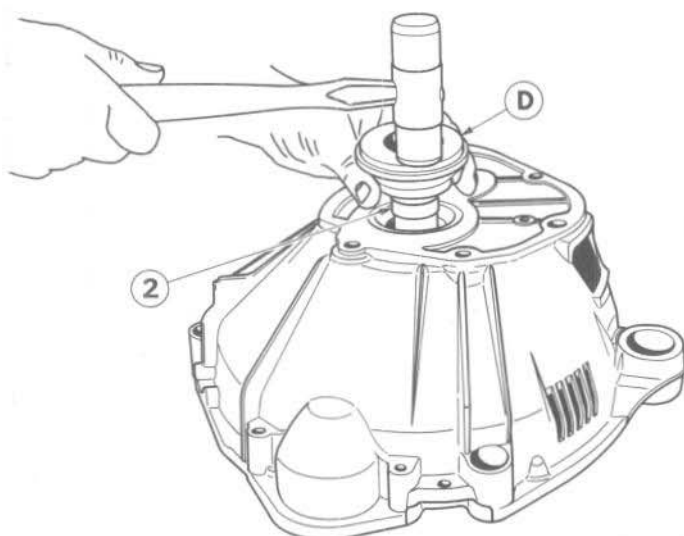
The housing must be replaced if the lack of parallelism exceeds 0.10 mm.



Replacing the guide sleeve

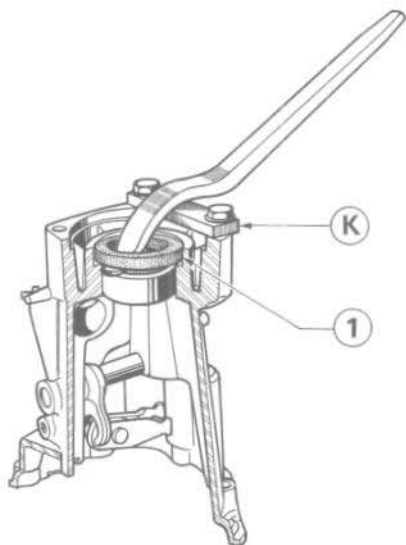
DISMANTLING

- Remove snap ring 1 from guide sleeve 2 using a screwdriver.
- Remove guide 2 by forcing it out with a press if required ; use :
 - plate NZ, covered with cardboard,
 - driver S.



RE-ASSEMBLY

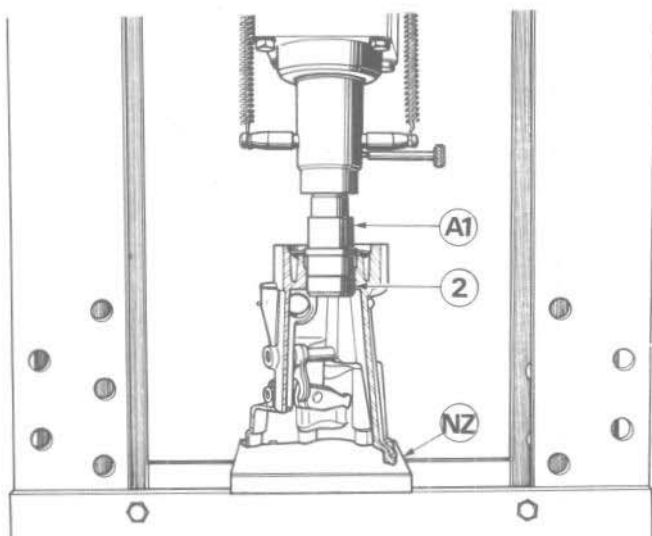
- Place the housing on the bench.
- Insert guide sleeve 2 and force it in place using installing ring D and a mallet.
- Install a new snap ring.

GEARBOX
RE-ASSEMBLY

REAR HOUSING

Removing the oil seal

- Secure safety bar K with two 10 × 25 mm bolts and tighten to 7.2 ft.lbs (1 m.kg).
- Remove oil seal 1 using a tyre lever resting on bar K.



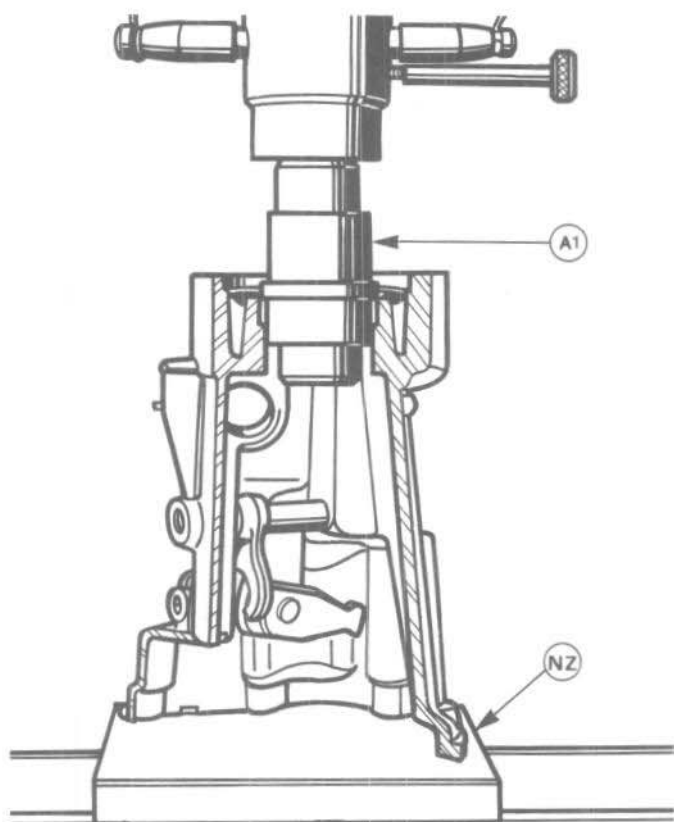
Removing the needle bearing

- Insert plug A1 into bearing 2.
- Press out the Nadella bearing, using a press and resting the housing on plate NZ covered with a sheet of cardboard.

- The rear housing assembly must be replaced if the gear controls are defective, since these controls cannot be dismantled.

GEARBOX RE-ASSEMBLY

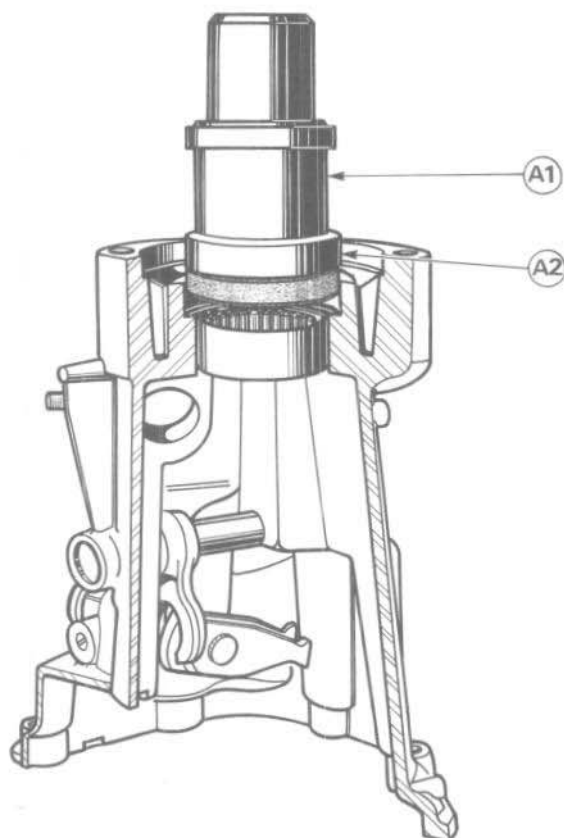
3 03 13



Installing the rear bearing

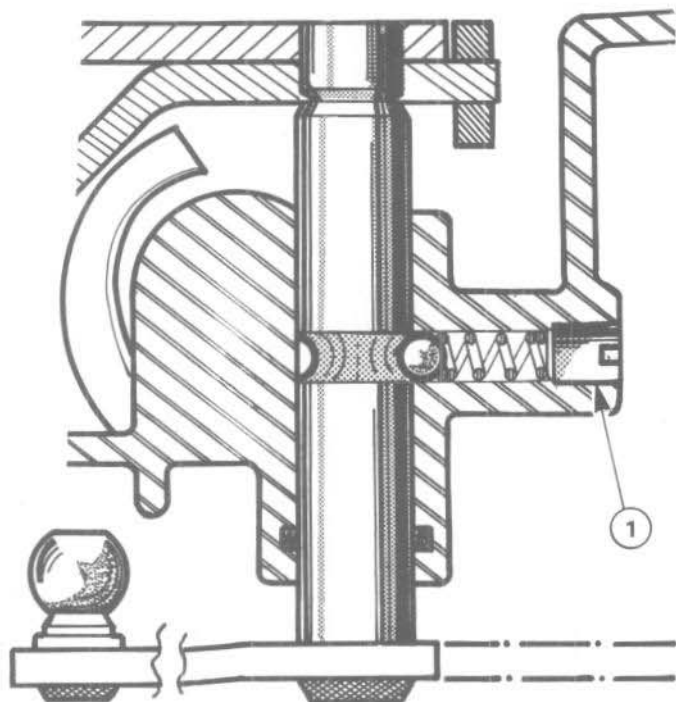
- Position the bearing inside the housing, with the written face turned outwards, and install it, using the following :
- plate NZ, covered with a sheet of cardboard,
- drift A1 positioned as indicated on drawing opposite.

NOTE - The rear bearing and the oil seal must be replaced at each dismantling operation.



Installing the rear oil seal

- Use drift A1 equipped with ring A2 positioned as indicated on drawing opposite.
- Press the oil seal into position until it abuts.



«Neutral» ball lock

- Check the «Neutral» ball lock for positive action by moving the selector lever in both directions.

a - Check that the plug 1 for the «Neutral» ball lock is flush with the housing.

b - Should the ball lock be inoperative remove the plug and check the spring and ball for proper condition.

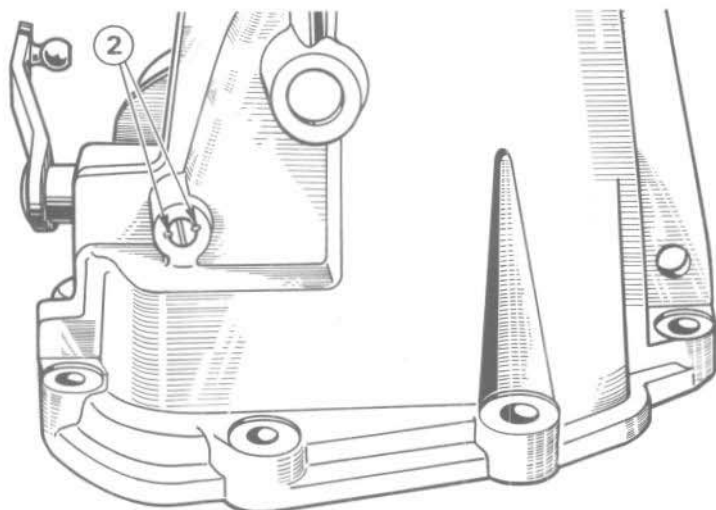
- replace all defective parts.

- At each repair operation :

- remove the plug,

- clean it as well as its recess,

- smear the plug with «Perfect seal» n° 4 and tighten it until it is flush with the housing then lock in this position by two punch marks 2.

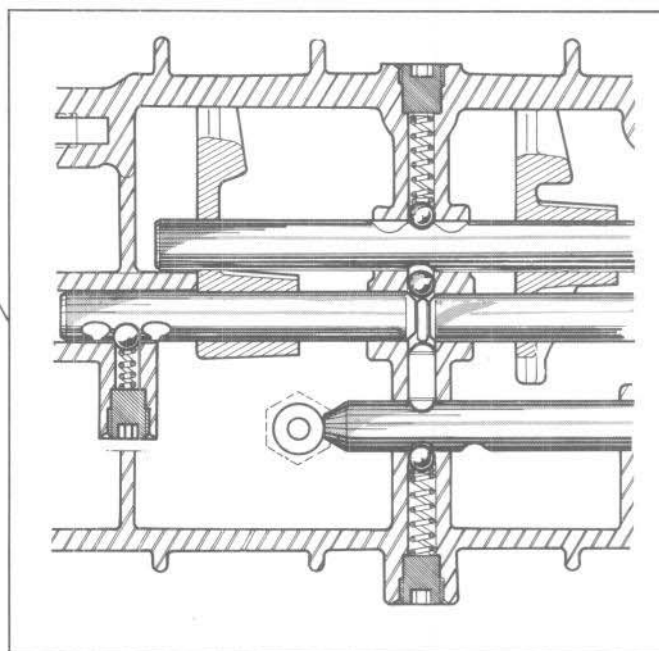
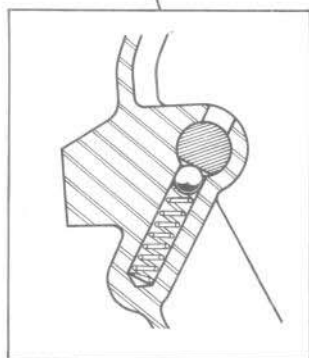
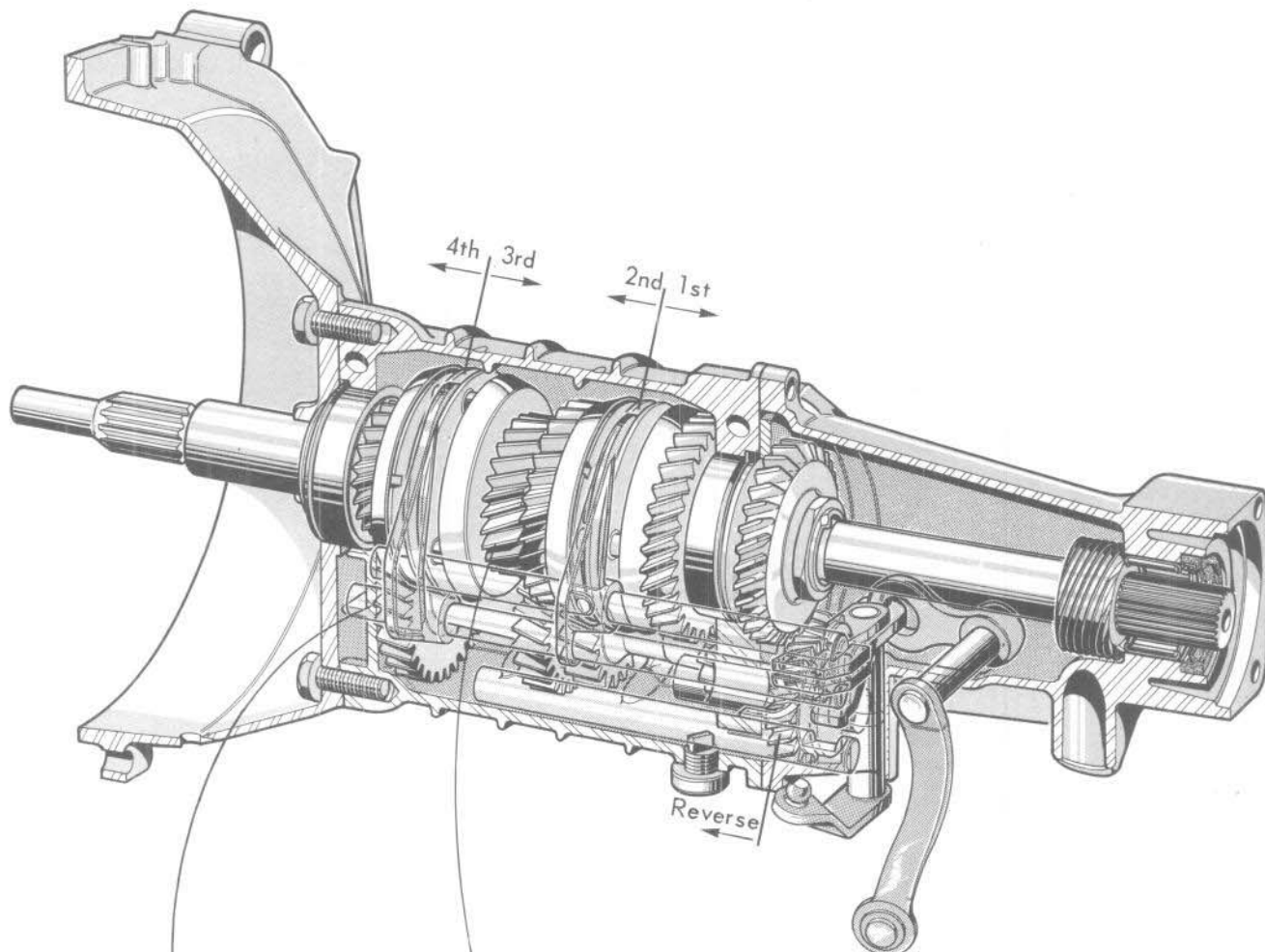


GEARBOX
RE-ASSEMBLY

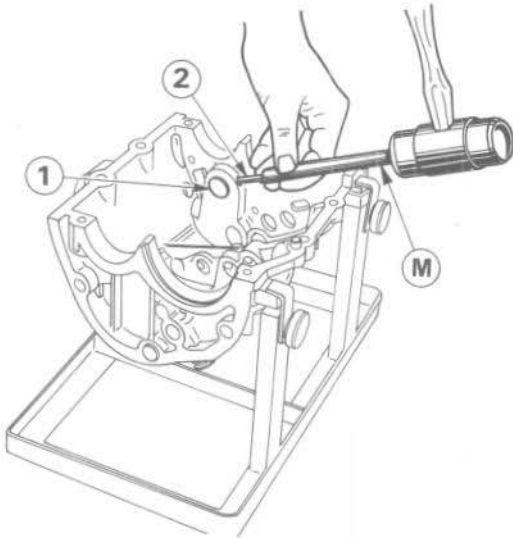
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03 15

SCHEMATIC DIAGRAM OF GEAR CHANGE BALL LOCKS AND LOCKING PLUNGERS

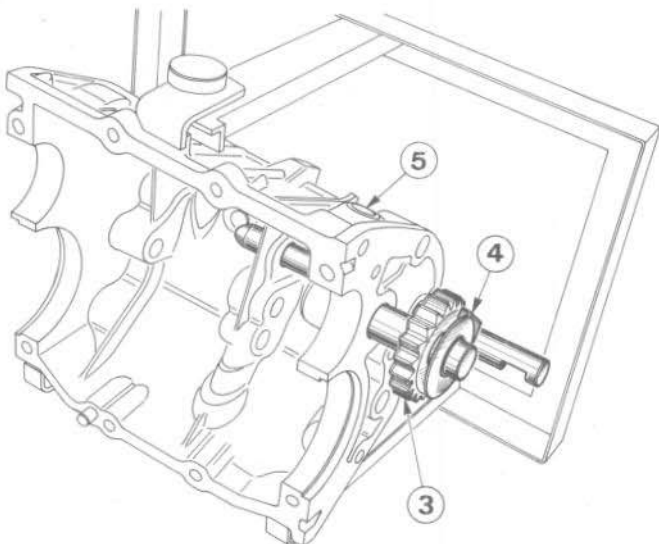


GEARBOX RE-ASSEMBLY

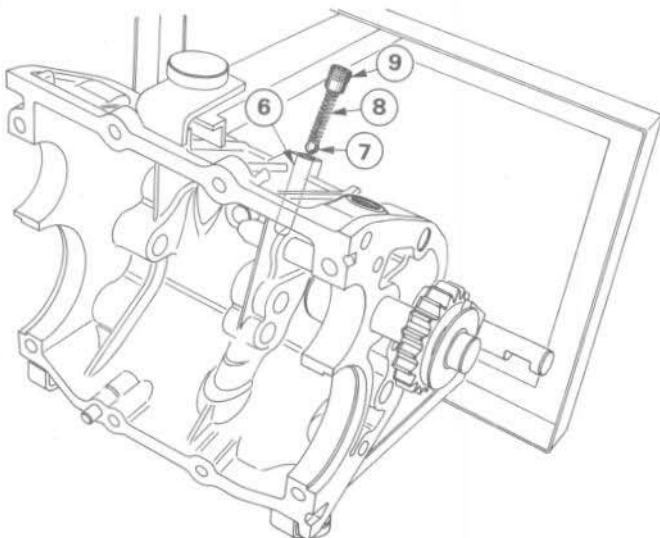


SHIFTING FORKS AND LOCKING DEVICES

- Secure the L.H. housing to support base 8.0311.
- Install :
 - «reverse» pinion shaft 1, using a mallet and taking care to align pin holes,
 - a new «SPIRAL» pin 2, smeared with tallow ; using drift M.



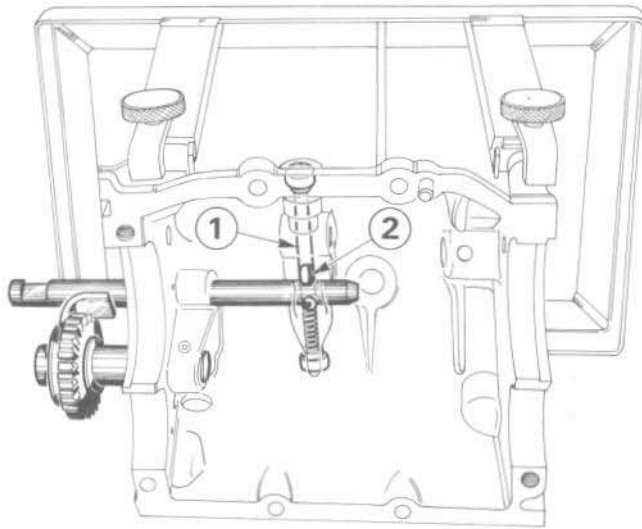
- Turn the support base on its side, so that drain hole 5 is upwards.
 - Install reverse gear pinion 3 together with shifting fork 4.
- (Direction of fitment as shown on drawing opposite).



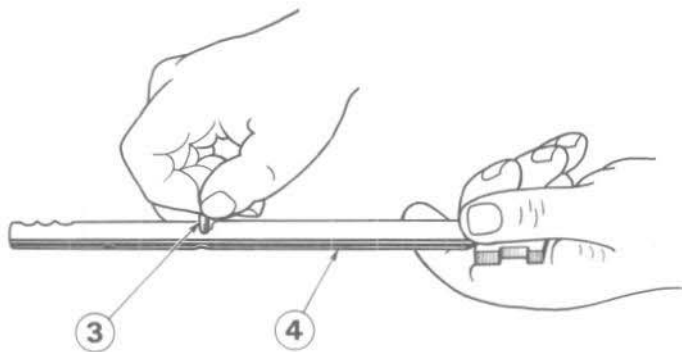
- Insert the following into locking passage 6 :
 - 1 ball 7,
 - 1 spring 8.
- Smear the threads of plug 9 with «Perfect Seal» n° 4.
- Tighten plug to 7.2 ft.lbs (1 m.kg)
- Bring the «reverse» shifting fork shaft to «Neutral».

GEARBOX RE-ASSEMBLY

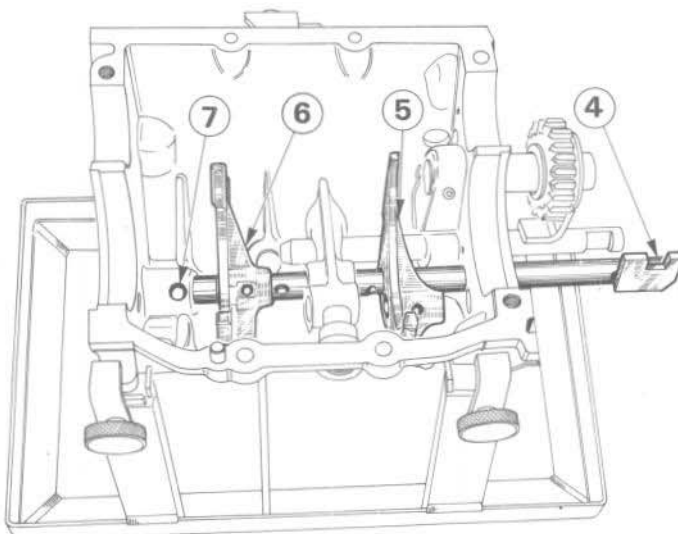
3 03 17



- Rest the housing on the opposite side, so that locking passage 1 is in vertical position.
- Install 3rd/4th and Reverse locking finger 2.



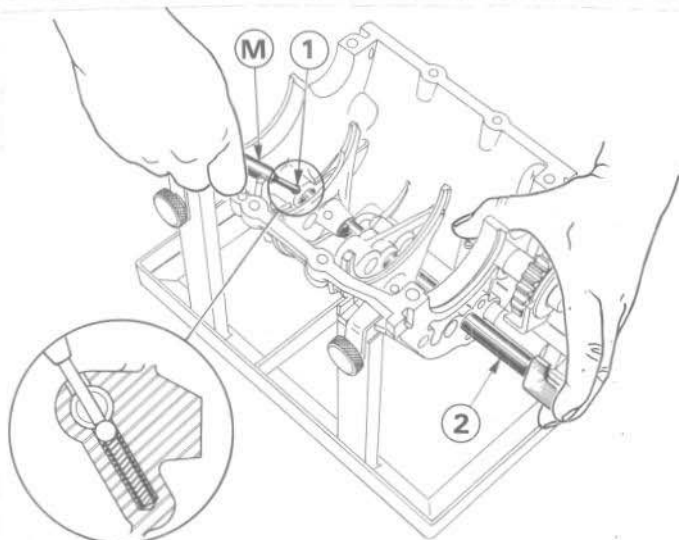
- Smear locking needle 3 with tallow and insert it in the corresponding housing in 3rd/4th gear change fork shaft 4.



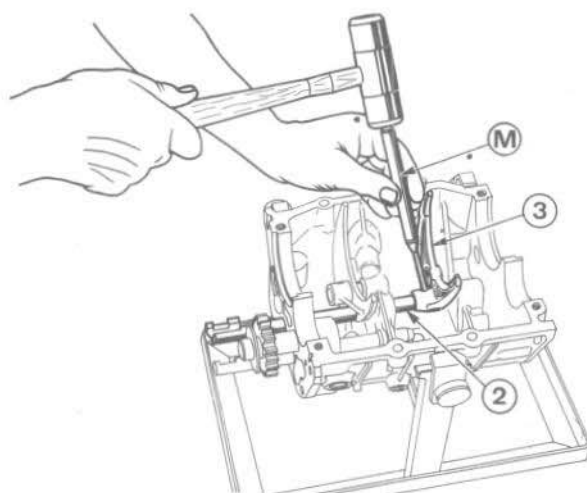
- Re-install the gearbox support base in upright position.
- Install the following inside the housing :
 - 1st/2nd gear change fork 5 (larger one), and
 - 3rd/4th gear change fork 6.
- Insert fork shaft 4 until it is flush with ball lock hole 7.

PEUGEOT

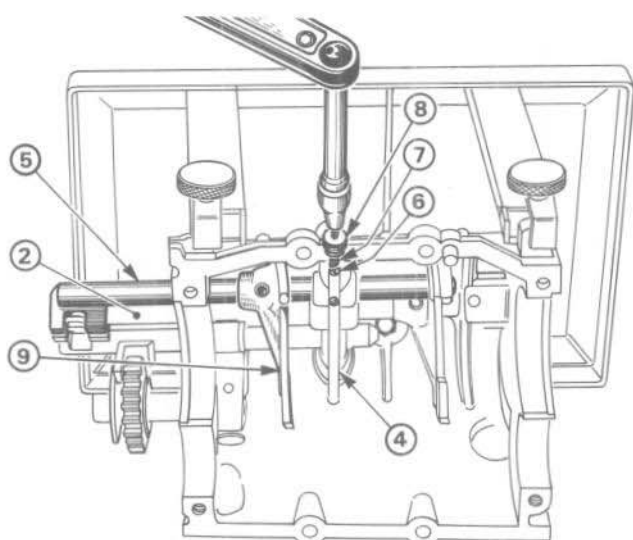
GEARBOX RE-ASSEMBLY



- Insert one spring and one locking ball into passage 1.
- Press ball against spring using drift M.
- Push shaft 2 against the drift and remove the drift while maintaining pressure on the shaft.



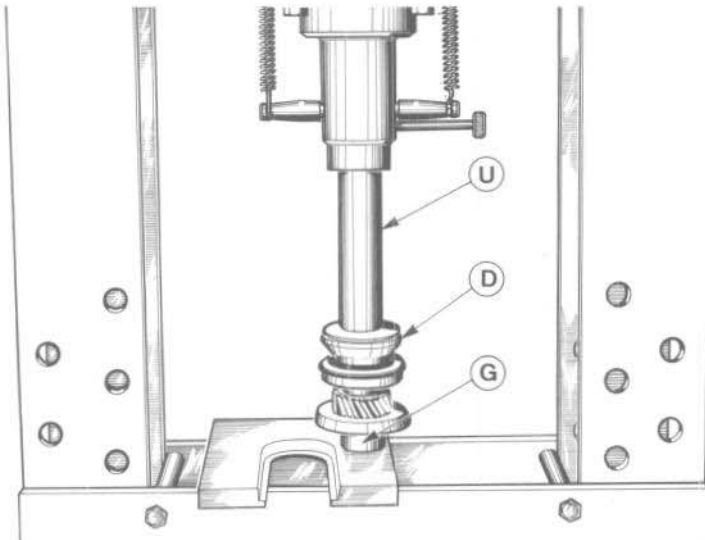
- Set shaft 2 to «Neutral».
- Secure 3rd/4th gear change fork 3 with a new «Mecanindus» pin.



- Rest the housing on its R.H. side.
- Insert a locking ball into passage 4 ; this ball must rest against 3rd/4th gear shaft 2.
- Insert 1st/2nd gear shaft 5 until the «Neutral» position is reached.
- Insert 1st/2nd gear locking ball 6 and spring 7 into passage 4.
- Smear plug 8 with «Perfect Seal» compound n° 4 and tighten to 7.2 ft.lbs (1 m.kg).
- Secure 1st/2nd gear change fork 9 using a new «Mecanindus» pin.

GEARBOX RE-ASSEMBLY

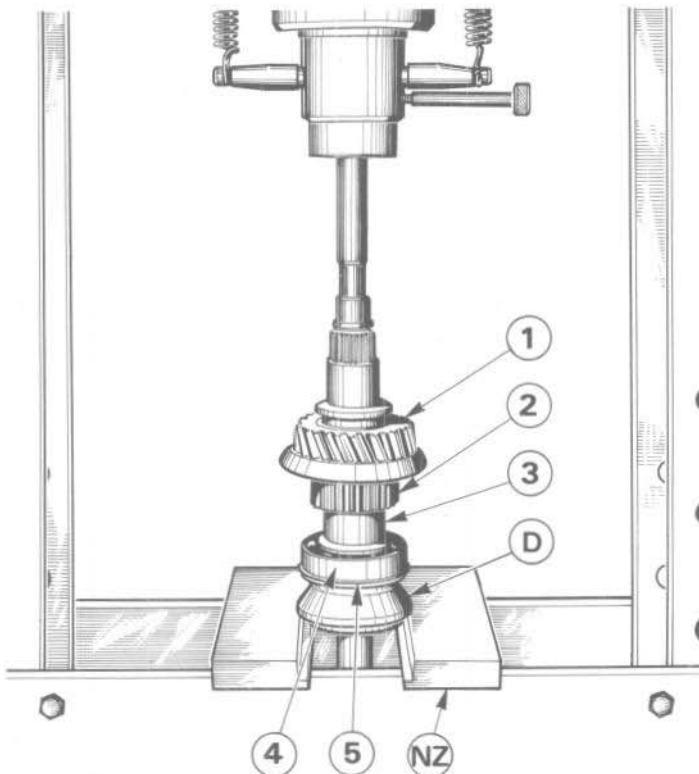
3 03 19



PREPARING THE SHAFTS FOR ADJUSTMENT

DRIVE SHAFT

- Install the following parts on the press table in the indicated order :
- spacer G,
- drive pinion,
- one bearing with a new snap ring on the upper surface,
- ring D,
- driver U.
- Press the bearing onto the shaft until it bottoms.

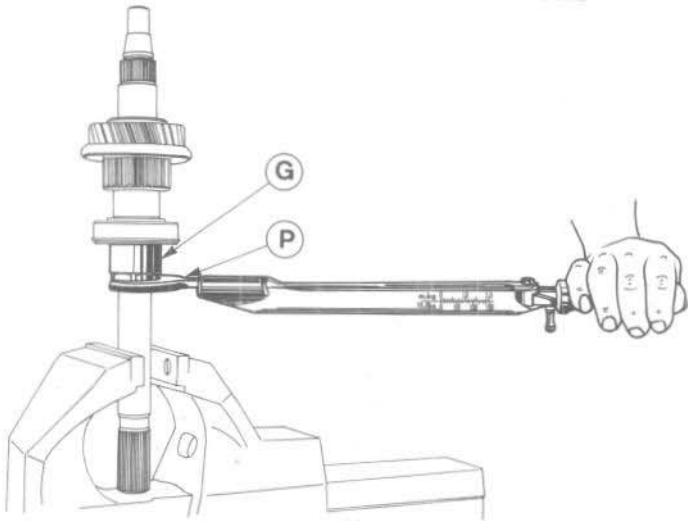


MAINSHAFT

- Install the following on the mainshaft in the indicated order :
- mainshaft 2nd gear pinion 1,
- 1st/2nd gear synchronizer hub 2,
- 1st gear pinion spacer 3,
- bearing 4 equipped with a new snap ring 5 on its rear face.
- Press the bearing into position, using :
- plate NZ
- ring D

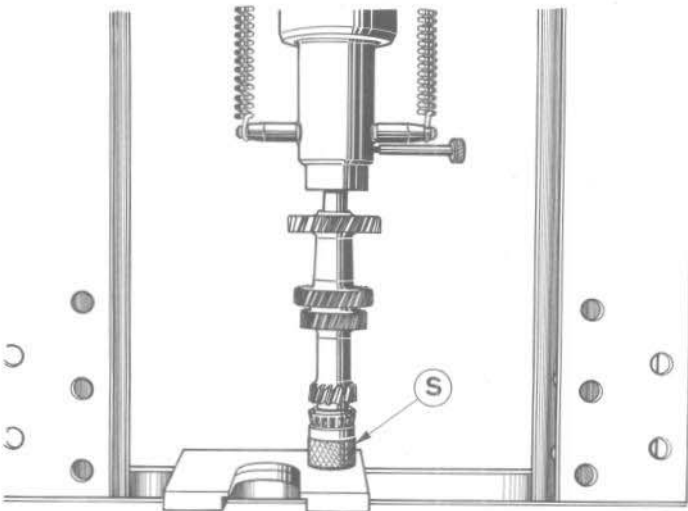
CAUTION - Do not exert a force greater than 3 tons when the bearing is bottomed.

GEARBOX RE-ASSEMBLY



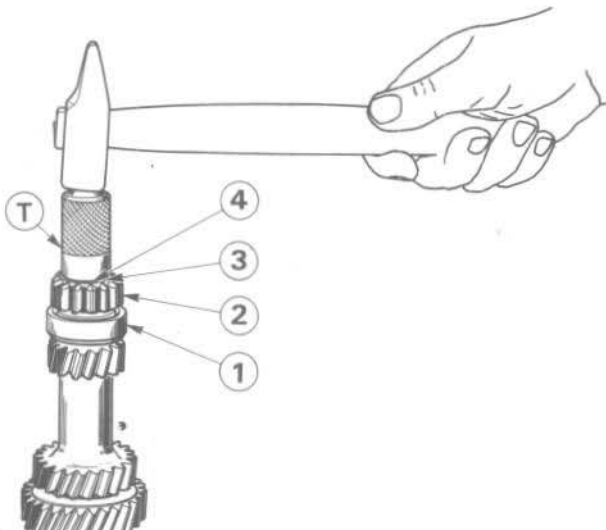
- Install :

- Spacer **G**,
- A new nut, using wrench **P**.
Tightening torque : 40.00 ft.lbs (5.5 m.kg).



INTERMEDIATE GEARSHAFT

- Install the front and rear bearings, using drift **S**.



- Position the following parts :

- rear bearing outer race **1**,
- reverse gear pinion **2**,
- a new spring washer **3**,
- a new snap ring **4**.

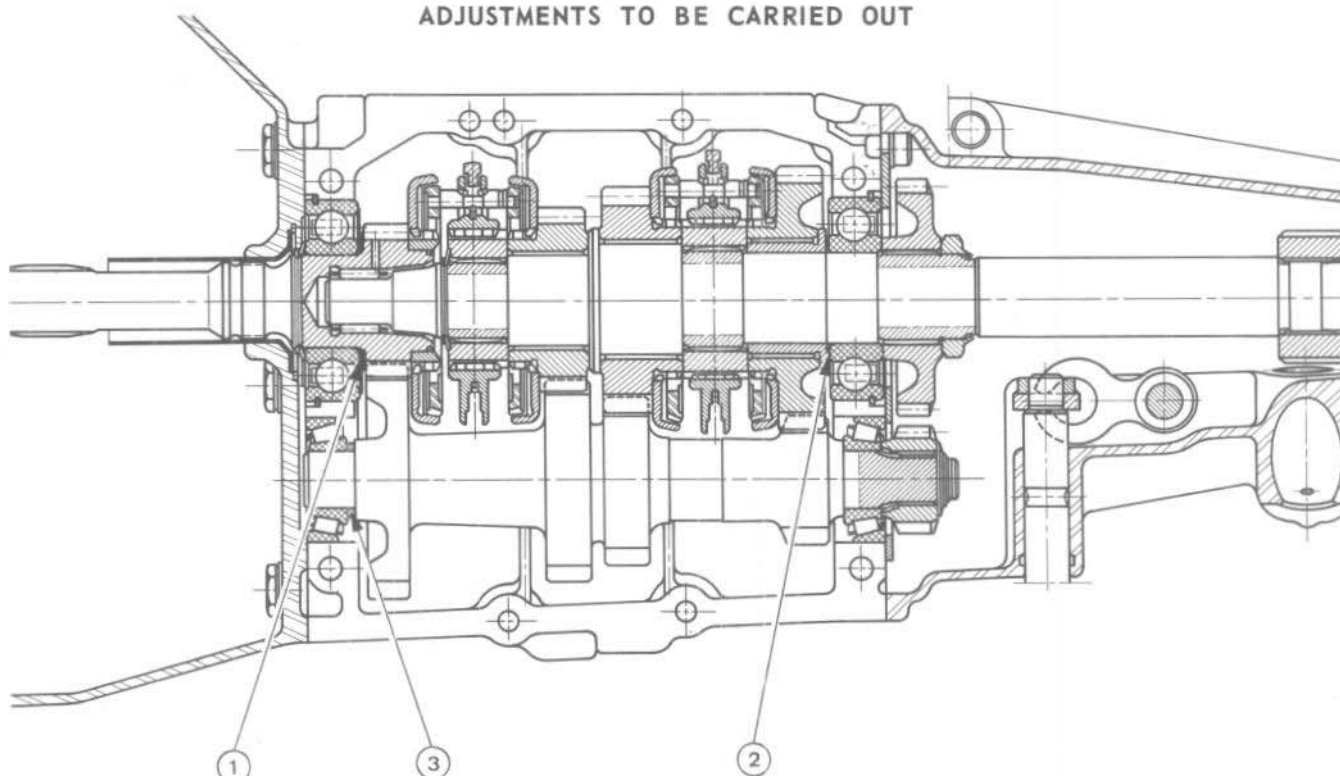
- Engage the snap ring into its mounting groove, using driver **T**.

- Check the snap ring for proper engagement, using combination pliers.

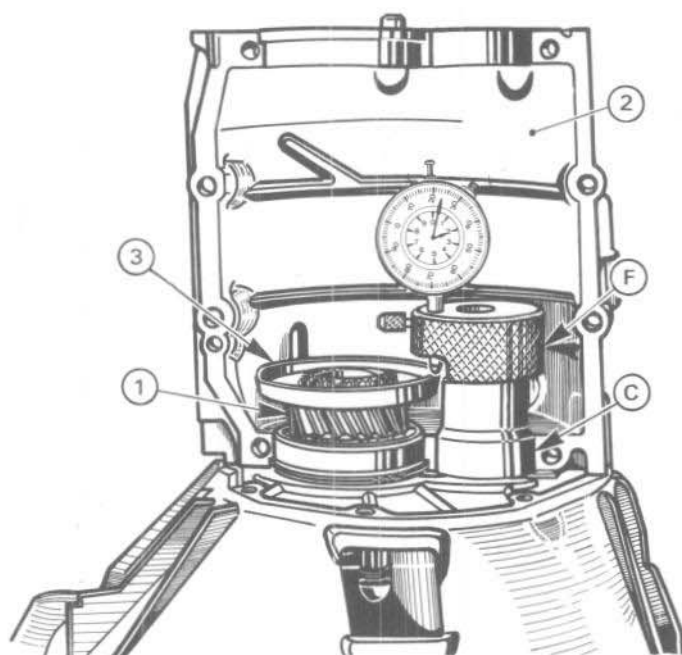
GEARBOX RE-ASSEMBLY

3 0321

ADJUSTMENTS TO BE CARRIED OUT



- 1 - 4th gear synchronizer cone position,
- 2 - 2nd gear synchronizer cone position,
- 3 - Pre-loading of intermediate gearshaft conical roller bearings.

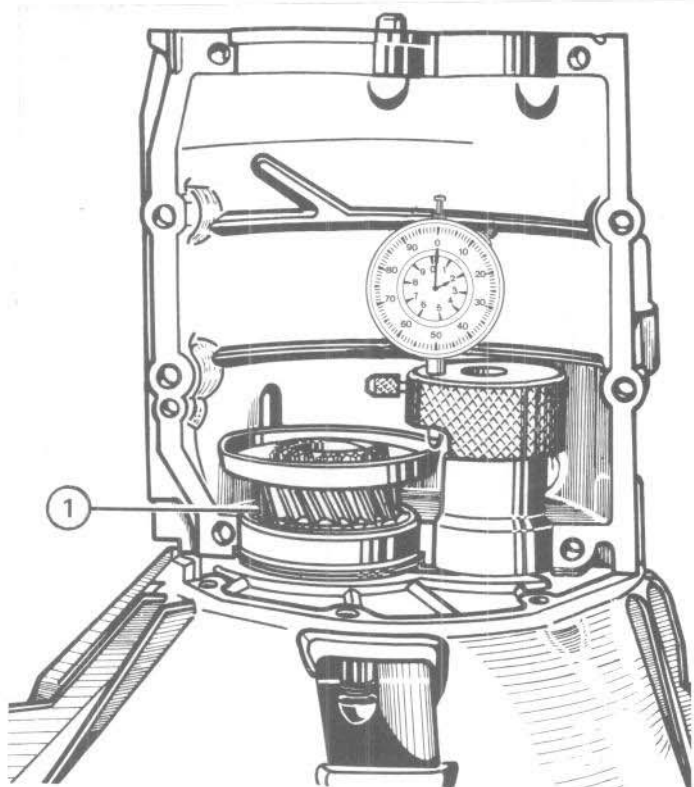


ADJUSTMENT N° 1

- Install the clutch housing on support base 8.0311 turned upside down.
- Engage drive shaft 1 into the corresponding hole.
- Secure R.H. housing 2 to the clutch housing, using the assembling bolts
Tightening torque : 14.5 ft.lbs (2 m.kg).
- Position gauge C equipped with dial indicator support F in the mounting hole for the intermediate gearshaft front bearing.
- Align dial indicator finger with the upper edge of synchronizer cone 3.

PEUGEOT

GEARBOX RE-ASSEMBLY



- Rotate drive shaft 1.
- Set dial indicator to zero at the mean high spot found for one revolution of the drive shaft.

- Move the dial indicator support until the indicator finger rests on the surface of the gauge.
- The clearance found represents the value of the shims to be inserted between drive pinion and front bearing.
- The measured value should be rounded to the nearest 0,05 mm.

Example :

Dial indicator reading = 0.58 mm

- Prepare a stack consisting of the following :
 - 1 deflector washer - Thickness = 0,15 mm *
 - 1 shim - Thickness = 0,20 mm
 - 1 shim - Thickness = 0,25 mm
- 0,60 mm

- Store this stack in the location provided in the cover of chest 8.0310 Z.

NOTE - * The thickness of the deflector is always 0,15 mm.

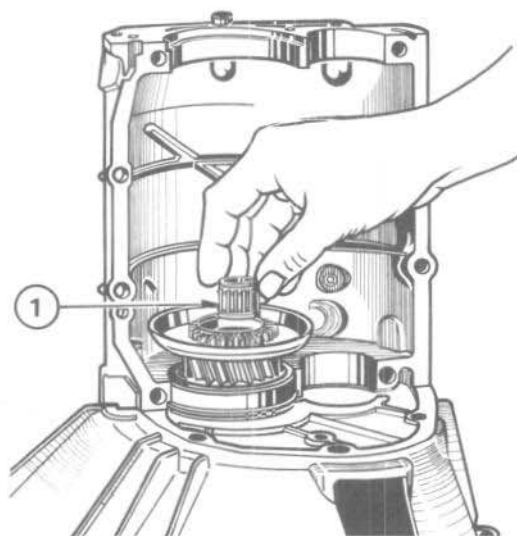
Shims are available in the following thicknesses

0,15 mm
0,20 mm
0,25 mm
0,30 mm
0,35 mm

GEARBOX RE-ASSEMBLY

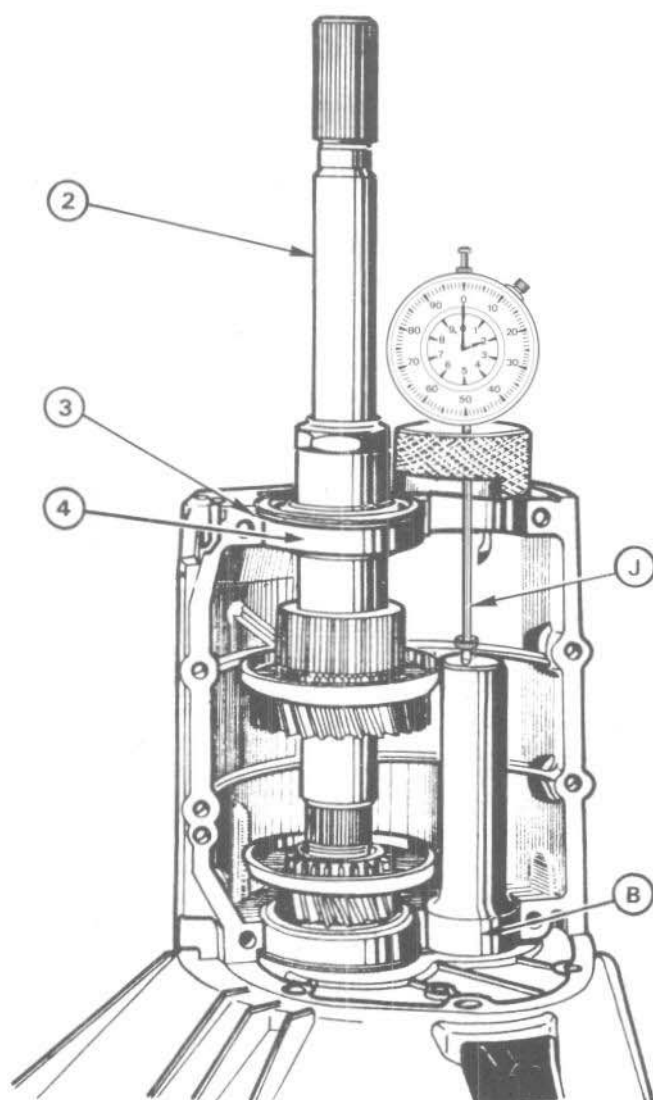
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03 23



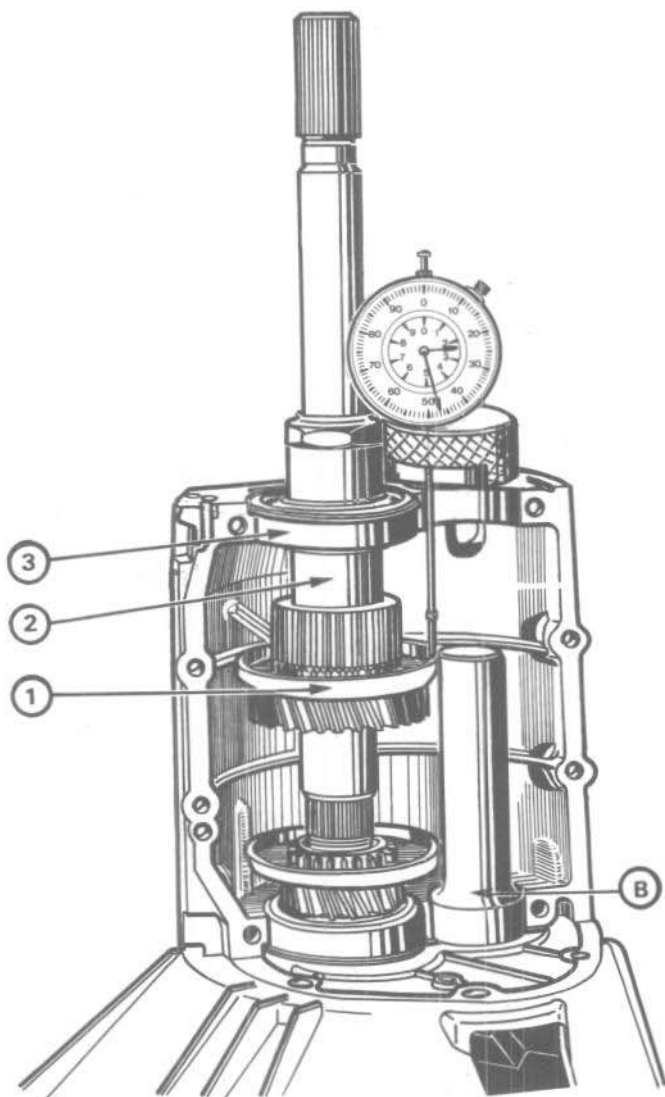
ADJUSTMENT N° 2

- Position needle cage 1 in the drive shaft.



- Position mainshaft 2 so that snap ring 3 of rear bearing 4 is bottomed in its recess in the housing.
- Install gauge B in place of the intermediate gearshaft front bearing.
- Install the dial indicator finger on finger extension J and secure the finger extension to the dial indicator.
- Position the indicator support on the rear face of the housing, with the dial indicator finger resting on the upper surface of gauge B.
- Set the dial indicator to 0.

GEARBOX RE-ASSEMBLY



- Turn the dial indicator support until the indicator finger is in contact with the upper edge of 2nd gear synchronizer cone 1.
- The clearance obtained indicates the thickness of the shims to be inserted between the 1st gear pinion bushing 2 and rear bearing 3.
- The above value should be rounded to the nearest 0.05 mm.

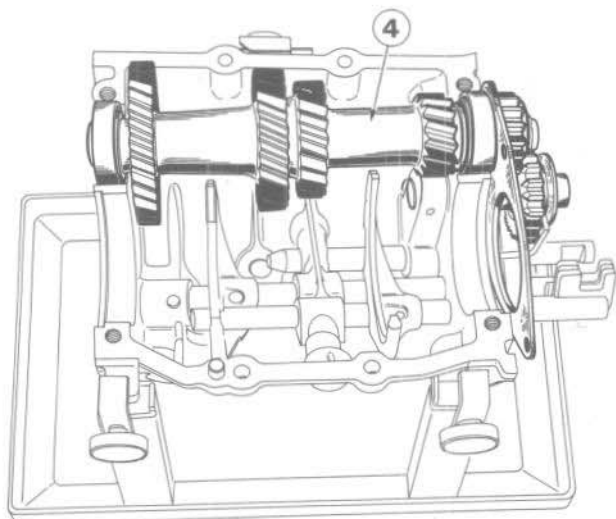
Example :

Indicator reading : 0.47 mm

- Prepare a 0.45 mm stack of shims and store it in the location provided in the cover of the chest.
- Remove :
 - mainshaft and gauge B
 - R.H. half housing,
 - drive shaft.

N.B. - Shims are available in the following thicknesses :

0.15 mm	0.25 mm
0.20 mm	0.50 mm



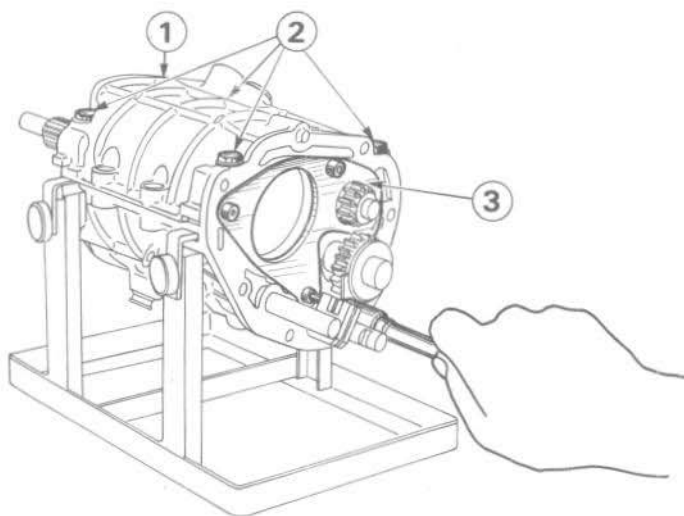
ADJUSTMENT N° 3

- Secure the L.H. housing on support base 8.0311.
- Install intermediate gearshaft 4, equipped with its bearings and rear plate, in the housing.

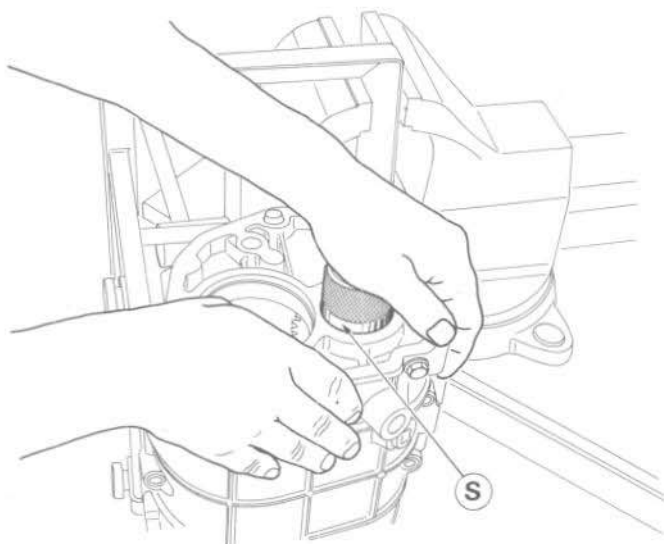
GEARBOX RE-ASSEMBLY

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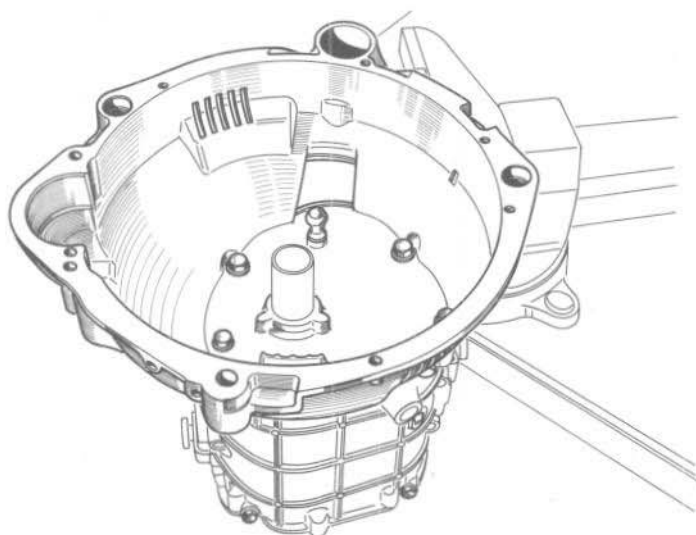
03 25



- Position R.H. housing 1 and secure with the four housing bolts 2 (Hand tight only).
- Secure rear plate 3 using the 4 Allen screws (hand tight only).

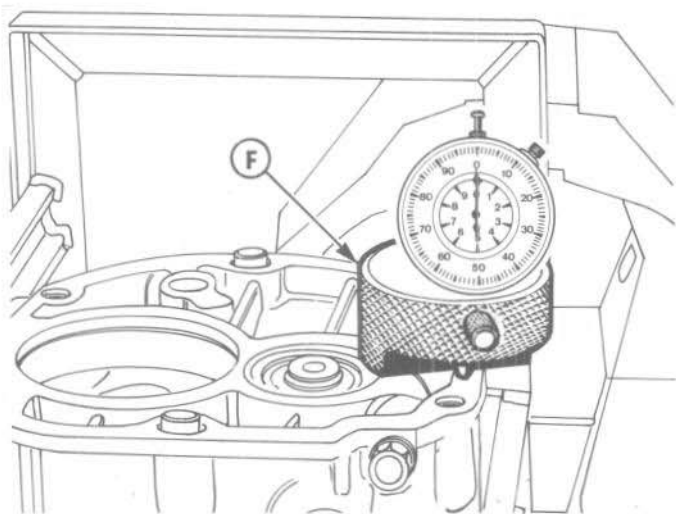


- Make sure the knurled head screws are tightened on support base 8.0311 and clamp base vertically in a vice, with the front part of the gearbox facing upwards.
- Place installing drift S on intermediate gear shaft front bearing and press downwards.
- Rotate the shaft to position the bearings.

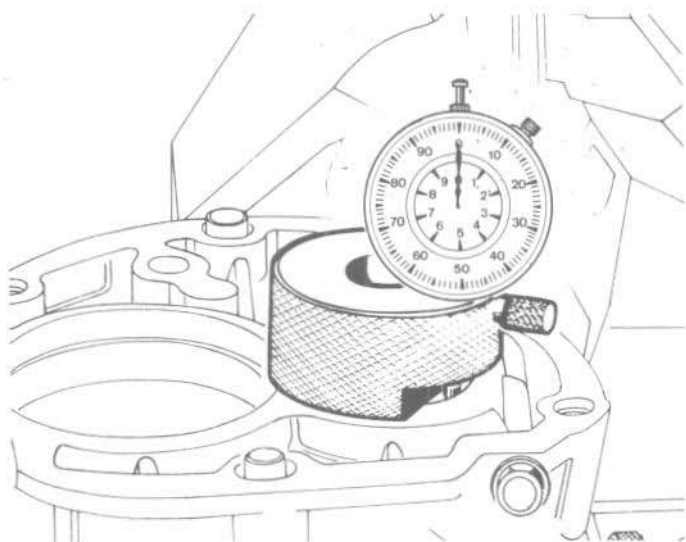


- Install the clutch housing and secure with four bolts installed either side of the gearbox half housing mating surfaces.
- Tighten the following bolts :
 - clutch housing bolts,
 - gearbox housing bolts,
 - rear plate bolts
 Tightening torque : 7.2 ft.lbs (1 m.kg)
- Remove the clutch housing.

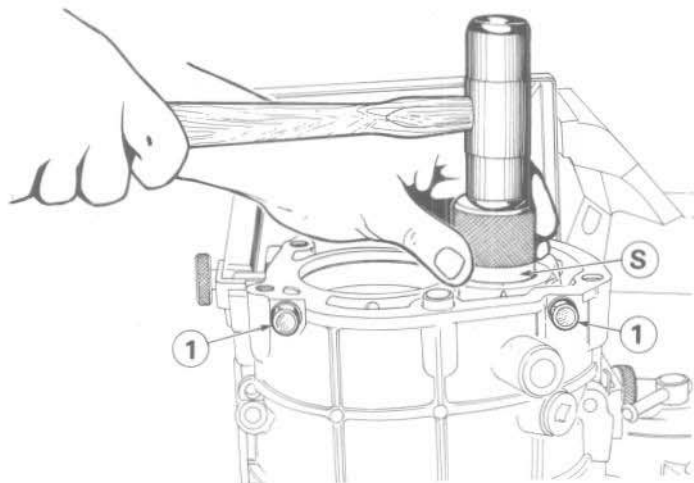
GEARBOX RE-ASSEMBLY



- Using dial indicator support **F**, make sure that the half housings are not out of flush by more than 0.02 mm.
- If they are, replace the clutch housing and recommence tightening as previously described.



- Locate the indicator support on the intermediate gearshaft end face, and engage it in the intermediate gearshaft bore.
- Rotate the dial indicator one complete revolution on the outer race of the rear bearing.
- The out of parallel of the race, with respect to the rear face of the half housings, must not exceed 0.02 mm.

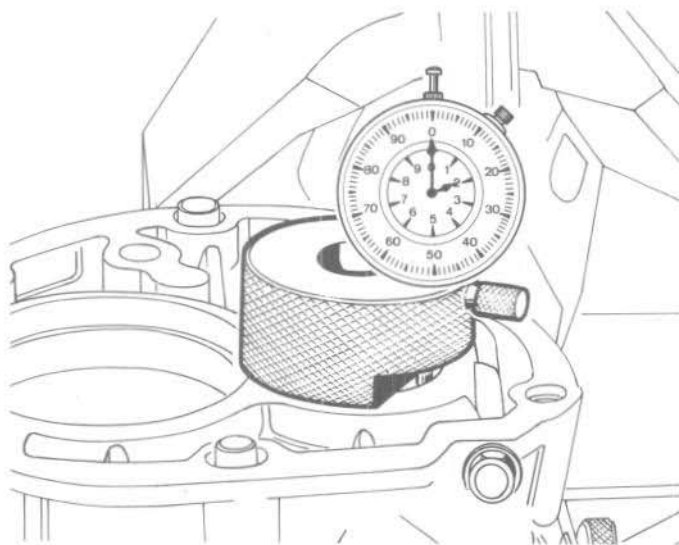


- If the above value is exceeded, the race should be straightened by striking it lightly with a mallet through drift **S**.
- Make sure the above operation does not tighten the intermediate gearshaft.
- Both bolts **1** should be loosened, and then re-tightened if bind is noted in the shaft.
- Repeat the check for parallelism.

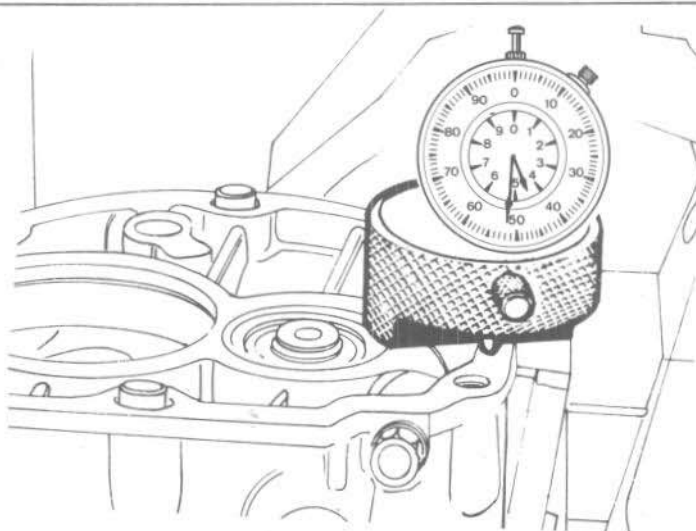
GEARBOX RE-ASSEMBLY

3

03 27



- Set the dial indicator to 2 and to 0.
- Turn the indicator support outwards so that the indicator finger rests on the front face of the housing.
- Note the indicator reading.
- ADD 0.10 mm to this reading, to take into account the pre-load of the bearings.
- The result should be rounded to the nearest 0.05 mm.

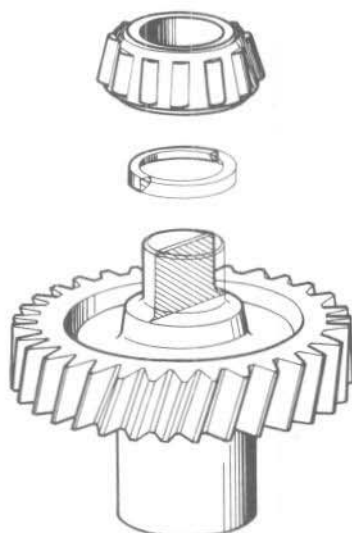


Example :

Reading on housing	4.52 mm
- Reading on bearing	2.00 mm
	2.52 mm
+ Pre-load	0.10 mm
	2.62 mm

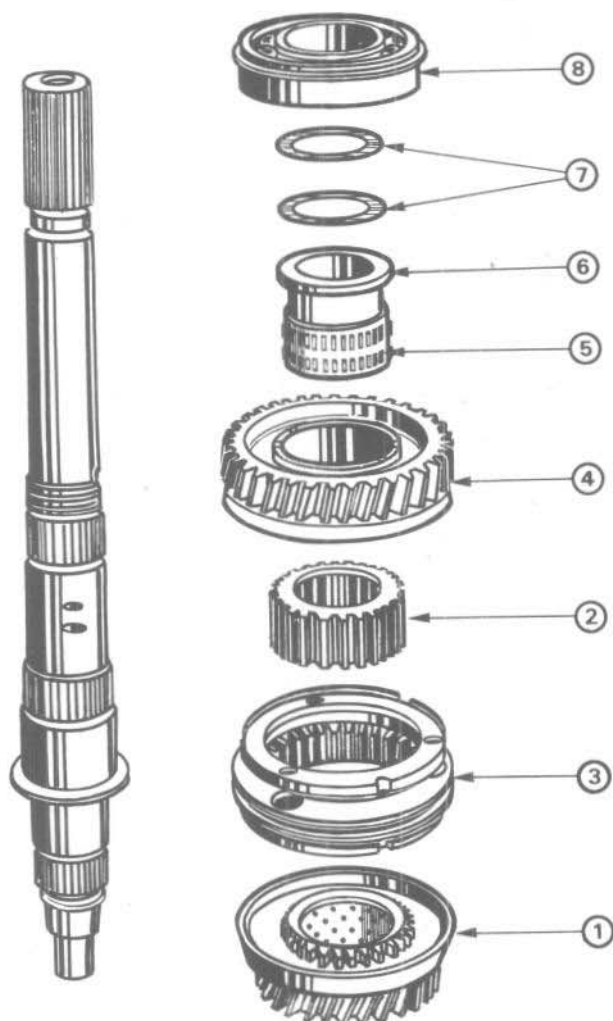
ROUND to 2.60 mm

- Place the shim required in the location provided in the tool chest cover.



- Calibrated adjustment shims are available in different thicknesses of 0.05 mm to 0.05 increments from 2.25 mm to 3.25 mm.
- Remove intermediate gearshaft.
- Remove front bearing, using the press.
- Install the shim previously determined (adjustment 3) chamfered side of the shim should be towards the pinion.
- Re-install the bearing, using the press (class 3, page 03 20).

GEARBOX RE-ASSEMBLY

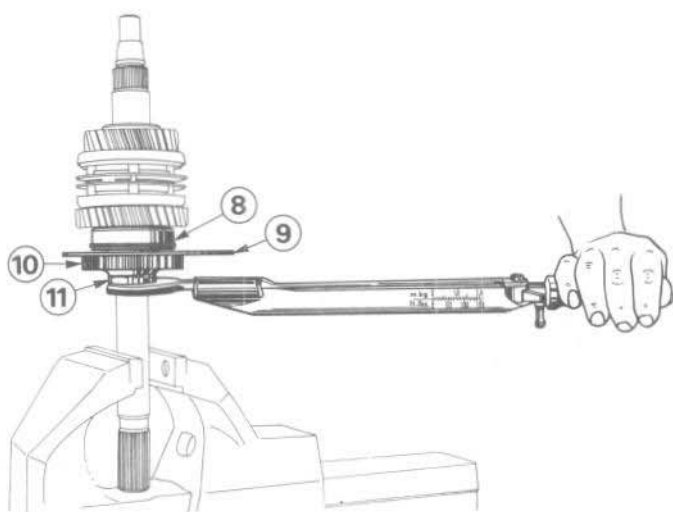


FINAL ASSEMBLY

MAINSHAFT

- Remove the rear bearing together with the shims (see class 3, page 03 06).
- Install the following in the indicated order, taking care to align reference marks made during dismantling :
 - 2nd gear pinion 1,
 - synchronizer hub 2 together with sliding gear 3,
 - 1st gear pinion 4,
 - needle cage 5,
 - spacer bushing 6,
 - ADJUSTMENT SHIMS 7 (Adjustment N° 2),
 - rear bearing 8 with its snap ring towards the rear.
- Bearing 8 should be installed using the press and plate NZ.

CAUTION : Do not exceed a force of 3 tons with the parts bottomed.

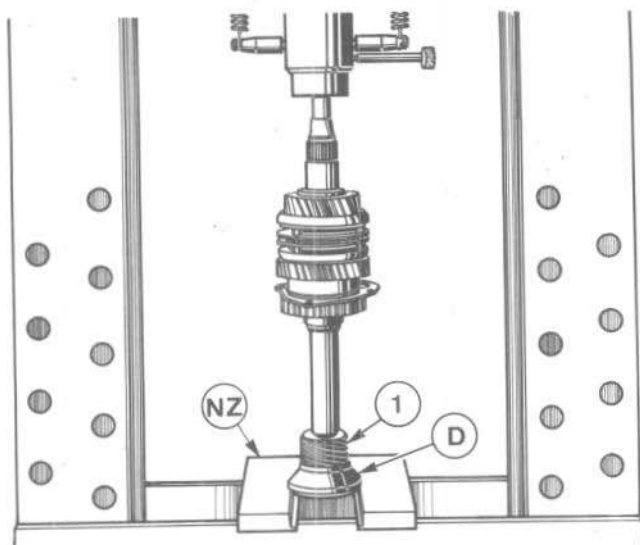


- Engage the mainshaft in the larger hole of backing plate 9 ; the machined surface of this plate must contact bearing 8,
- Engage Reverse pinion 10 with the chamfered edge of the teeth towards the rear,
- Install a new nut 11
Tightening torque : 40.00 ft.lbs (5.5 m.kg)
- Lock the nut.

GEARBOX RE-ASSEMBLY

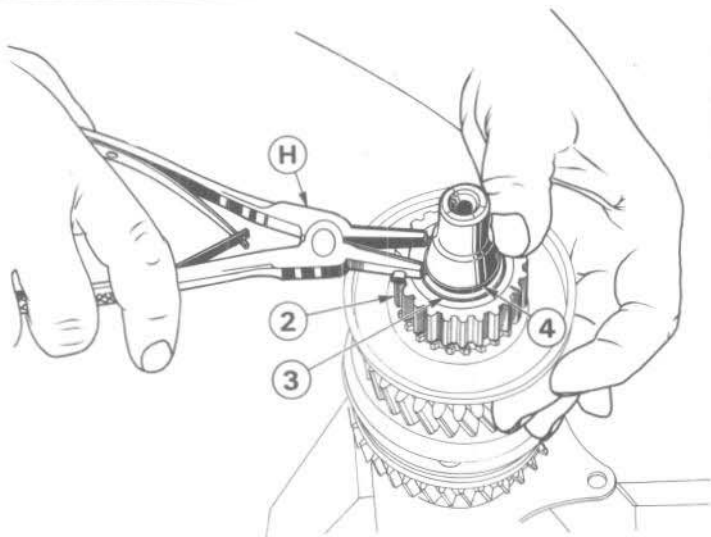
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03 29



- Install speedometer drive worm 1 on mainshaft, using :

- Plate NZ,
- Installing ring D.



- Install :
- 3rd gear mainshaft pinion,
- 3rd/4th gear synchronizer hub 2,
using the press as for the previous operation if required.

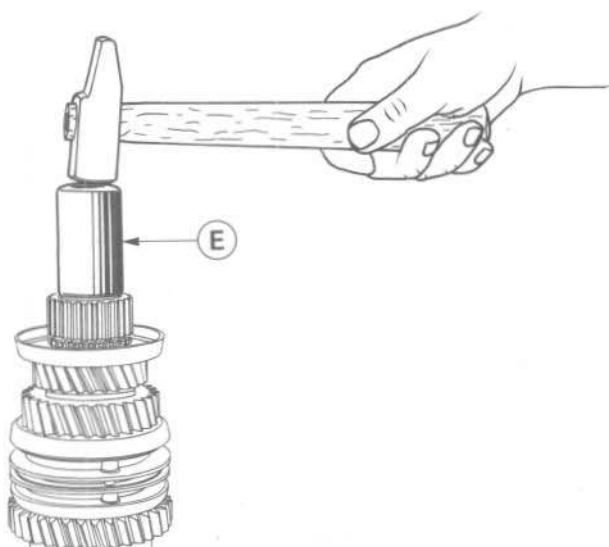
- Clamp this assembly vertically in a vice.

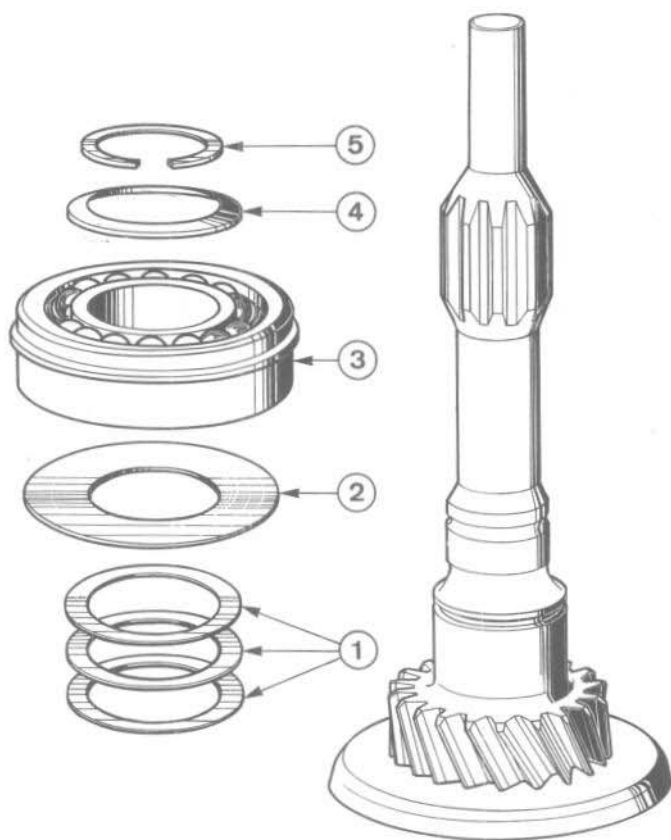
- Install :
- one new spring washer 3
- new snap ring 4, using pliers H and then drift E.

- Squeeze the snap ring, using combination pliers.

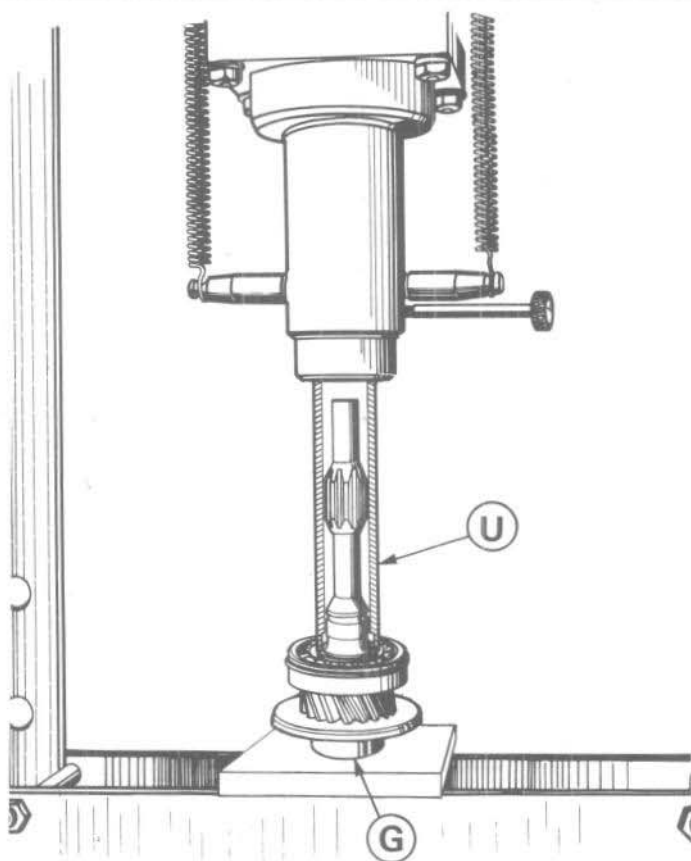
- Install the 3rd/4th gear sliding gear, respecting the reference marks.

- Engage 3rd gear.



**DRIVE SHAFT**

- Remove the bearing (see class 3, page 03 07).
- Place the following on the shaft, respecting the indicated order :
 - adjustment shims 1 previously determined (adjustment n° 1),
 - deflector washer 2.
- Re-install bearing 3 (see class 3, page 03 19).
- Install spring washer 4 and snap ring 5.

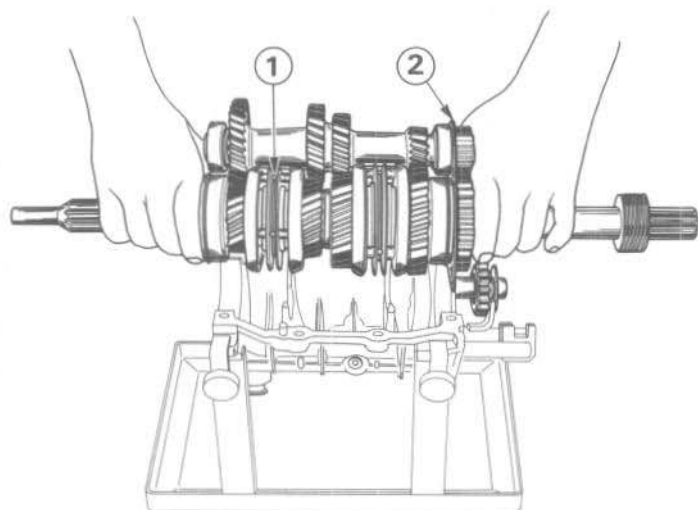


- Place this assembly on the table of the press resting on spacer G.
- Slide installing drift U over the drive shaft with the hollow section of the drift downwards.
- Exert a slight force with the press to compress the spring washer and align the snap ring with its groove.
- Use combination pliers to squeeze the snap ring until its outside diameter is the same as that of drift U.

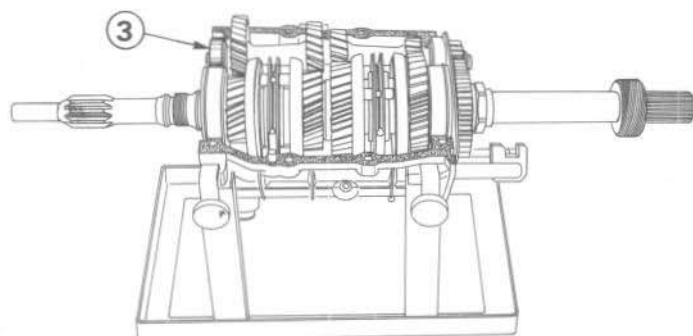
GEARBOX RE-ASSEMBLY

3

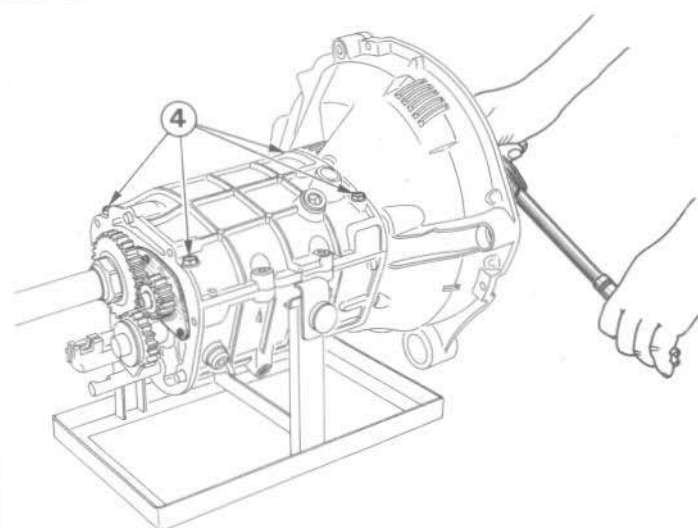
03 31



- Secure the housing equipped with the gear change forks on support base 8.0311.
- Install the needle cage in the drive pinion.
- Assemble drive shaft and mainshaft.
- Bring back 3rd/4th gear sliding gear 1 to the «Neutral position».



- Install the intermediate gearshaft on this assembly by passing reverse pinion through backing plate 2.
- Mesh the pinions.
- Install the assembly inside the L.H. housing, taking care that the shifting forks correctly engage the synchronizer rings.
- Install intermediate gearshaft front bearing outer race 3.
- Lightly smear the mating surfaces of the half housings with «Perfect seal» N° 4 compound.
- Install the R.H. half housing.

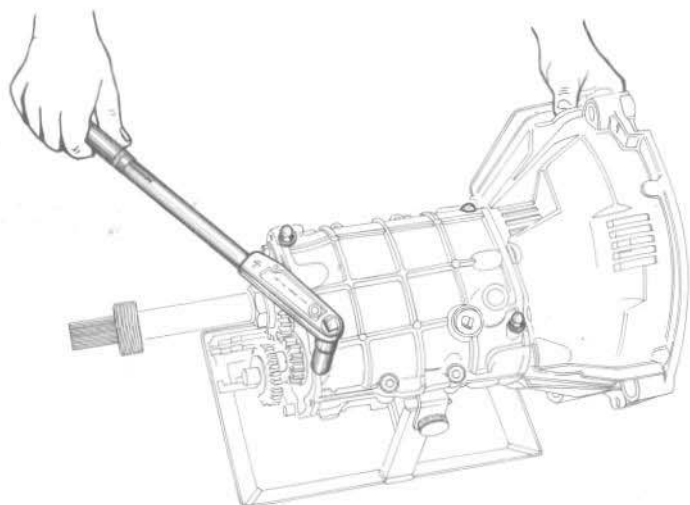


- Install and tighten the four housing bolts 4
Tightening torque : 3.60 ft.lbs (0.5 m.kg)
- Lightly smear the rear face of the clutch housing with «Perfect seal» N° 4 compound and secure this housing with six bolts.

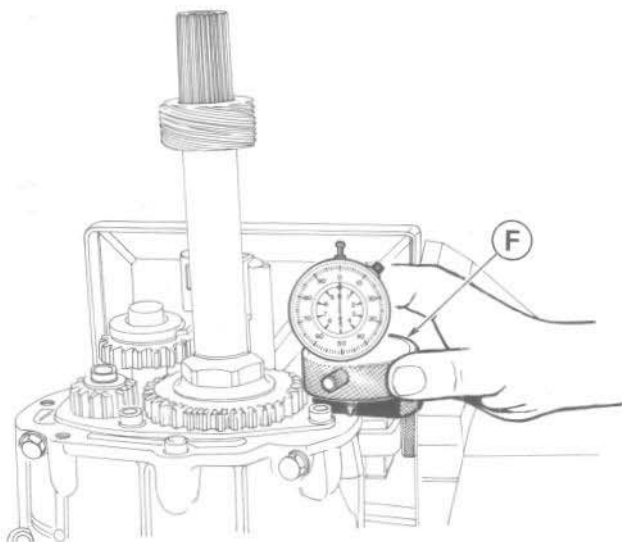
Tightening torque : 20.00 ft.lbs (2.75 m.kg).

- Secure the rear backing plate using four Allen screws.
Tightening torque : 7.2 ft.lbs (1 m.kg)

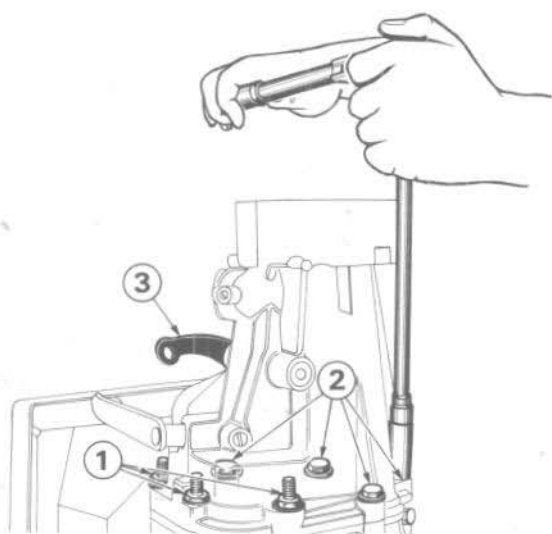
GEARBOX RE-ASSEMBLY



- Loosen the four housing bolts.
- Strike the half housings with a mallet while rotating the drive shaft.
- Re-tighten the four bolts
Tightening torque : 11.00 ft.lbs (1.5 m.kg).



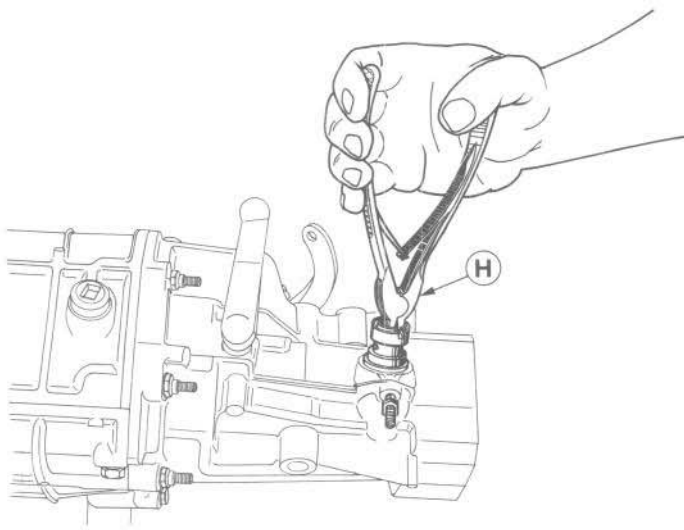
- Use dial indicator support **F** to check the out-of-flush of the half housings at their rear mating surface. The housings must not be out-of-flush by more than 0.02 mm.
- Install the four assembling bolts and nuts of the half housings.
- Tighten these 4 bolts to 7.2 ft.lbs (1 m.kg)



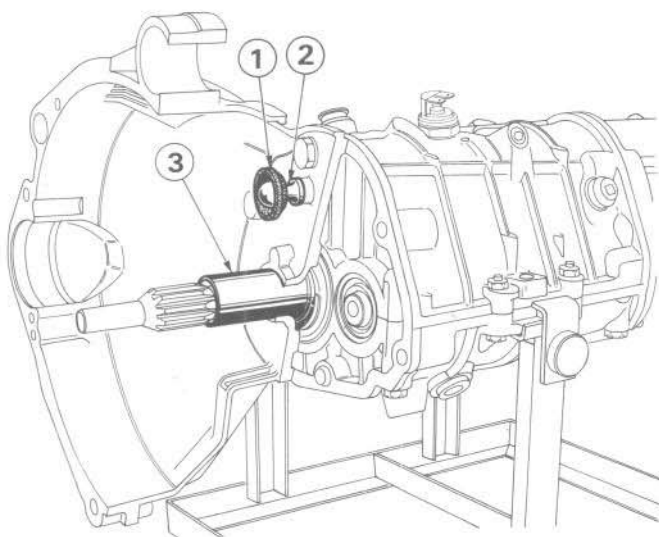
- Smear the mating surface of the rear housing with «Perfect seal» N° 4 compound.
- Install the rear housing.
- Engage :
 - three double-thread studs 1,
 - four attaching bolts 2.
- Pull selector lever 3 fully backwards.
- Tighten the seven bolts and studs
Tightening torque : 11.00 ft.lbs (1.5 m.kg).
- Oil the «Nadella» bearing of the rear housing.

GEARBOX RE-ASSEMBLY

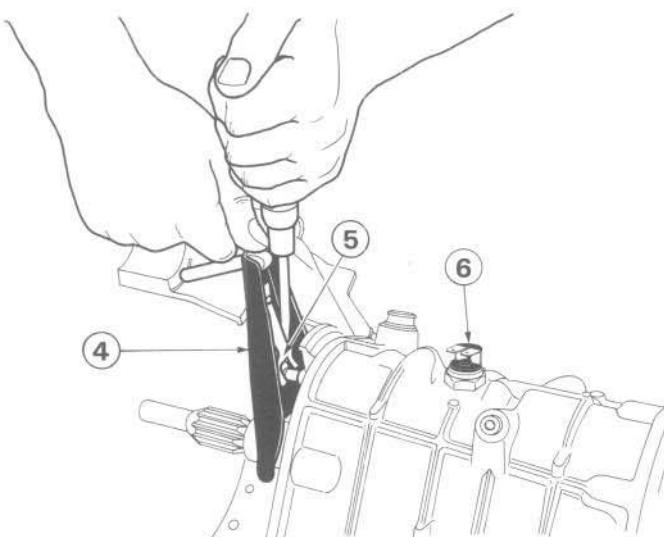
3 0333⁽¹⁾



- Install the speedometer drive socket with a new «O» ring smeared with tallow ; use pliers H and position the parts by rotating them.
- Install the drive socket stop screw together with its lock nut.



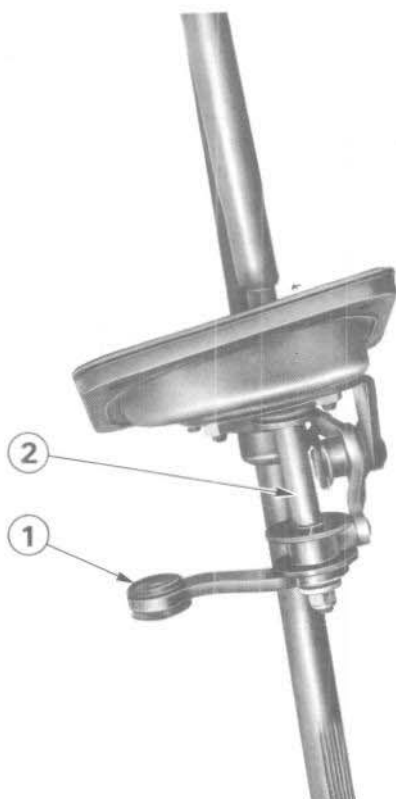
- Working inside the clutch housing, proceed as follows :
- insert rubber cup 1 in the groove behind the ball head thrust 2 and fill with grease.
- coat guide sleeve 3 sparingly with Molykote grease.



- Slide clutch release fork 4 from the inside towards the outside of the housing.
- Use a screwdriver to raise clutch release fork backing spring 5.
- Engage the fork on the ball head with the spring pressing on the rubber cup.
- Fit the reverse lights switch 6, equipped with a new seal.
- For switches with copper body and metallo-plastic gasket tighten to 9 ft.lbs (125 m.kg).
- For switches with steel body and copper gasket tighten to 20 ft.lbs (2.75 m.kg).

GEARBOX GEAR CHANGE CONTROLS

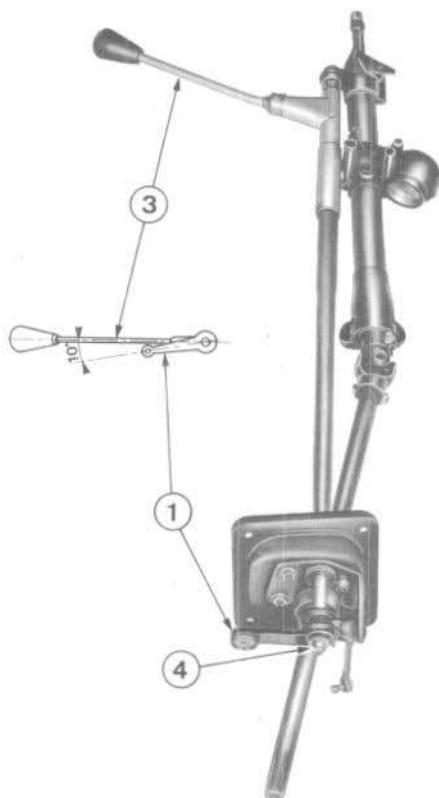
3 06 01⁽¹⁾



STEERING COLUMN GEAR CHANGE LEVER

504 Saloons with L.H.D.

- To overhaul this control it is necessary to remove the steering column.
- Prior to removal, the position of the lower lever 1, on the splines of the control rod 2, should be marked.
- An incorrect angular position of the lower lever, in relation to the control rod, could effect gear selection adversely.



Lower lever on the control rod

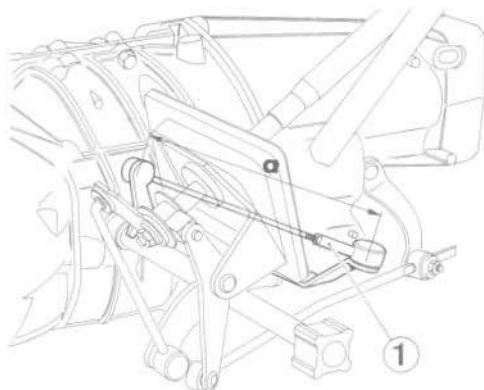
The lower lever 1 should be at an angle of 10° (downwards) in relation to the gear change lever 3.

If this is not the case :

- remove the «Nylstop» nut 4 and the flat washer.
- disengage the lever 1 and reposition correctly.

GEARBOX

GEAR CHANGE CONTROLS

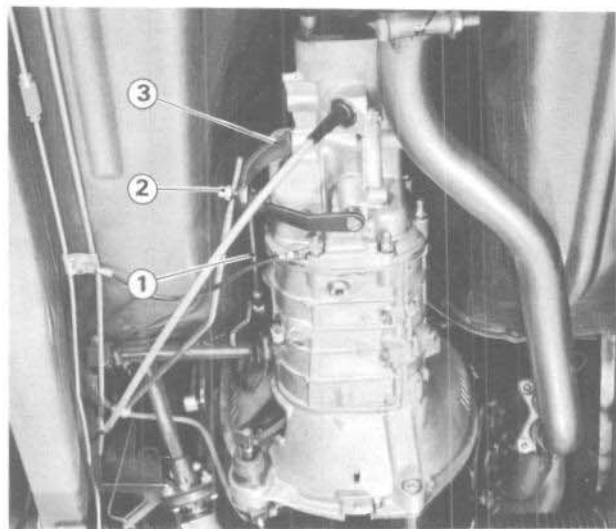


ADJUSTMENT OF THE CONTROLS

R.H.D. 504 Saloons with column gear change lever.

- Gear selector control link 1 :

$$a = 248 \pm 1 \text{ mm}$$

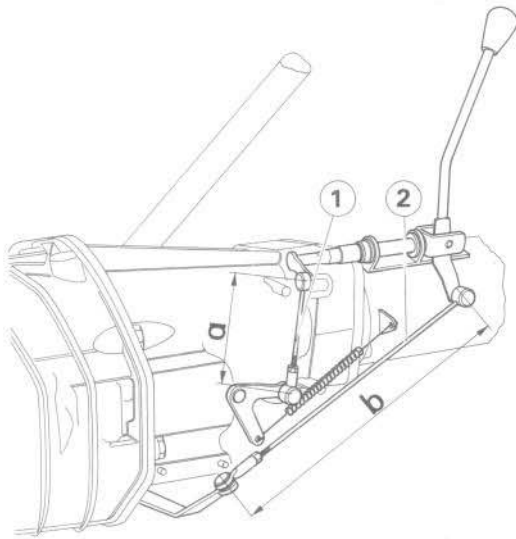


Adjustment on the car

- Fit the selector control link 1 set at the length indicated above
- Inside the car :
 - place the gear change lever in the neutral position
- Under the car :
 - unscrew the nut 2
 - ensure that the selector lever 3 is in the neutral position
 - mark the maximum free play positions permitted by the selector lever 3
 - place the selector lever in the midway position and retighten nut 2
- Check the gear selection in all gears.

GEARBOX GEAR CHANGE CONTROLS

3 06 05

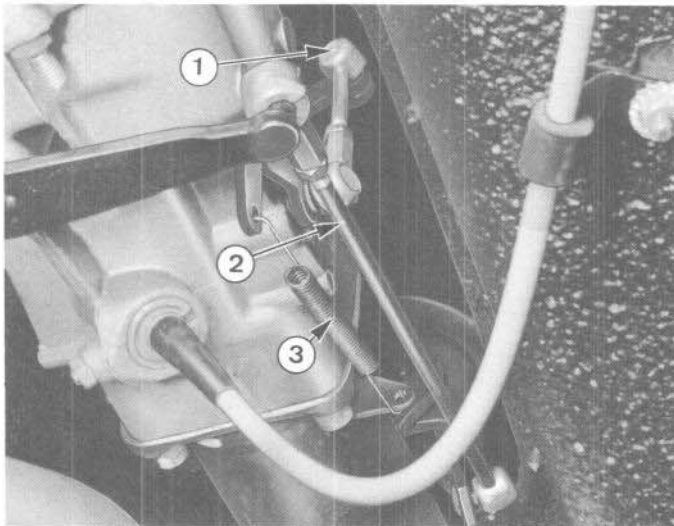


ADJUSTMENT OF THE CONTROLS

R.H.D. 504 Saloons

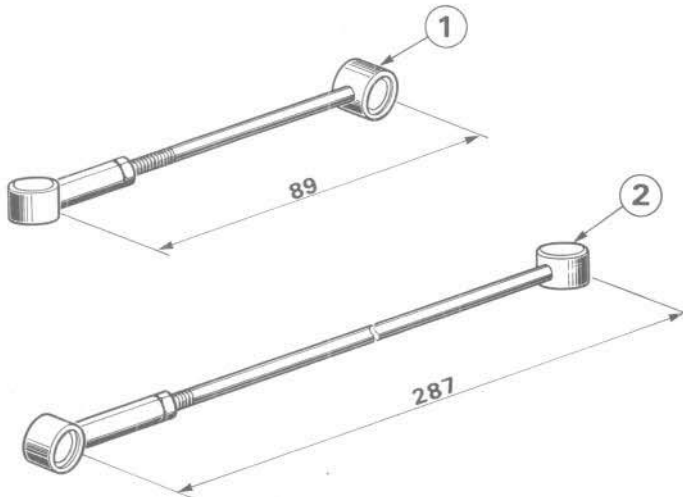
504 Convertibles and Coupés

- Gear selector control link 1
a : 89 ± 1 mm
- Gear selector control link 2
b : 287 ± 1 mm



Adjustment on 504 Convertibles and Coupés

- Remove :
 - the return spring 3 from the selector control link
 - the selector control link 1
 - the selector control link 2
- Clean the plastic ball joint sockets and make sure that they have not been damaged at dismantling
- Replace all defective part
- Lubricate the ball joints prior to refitting.

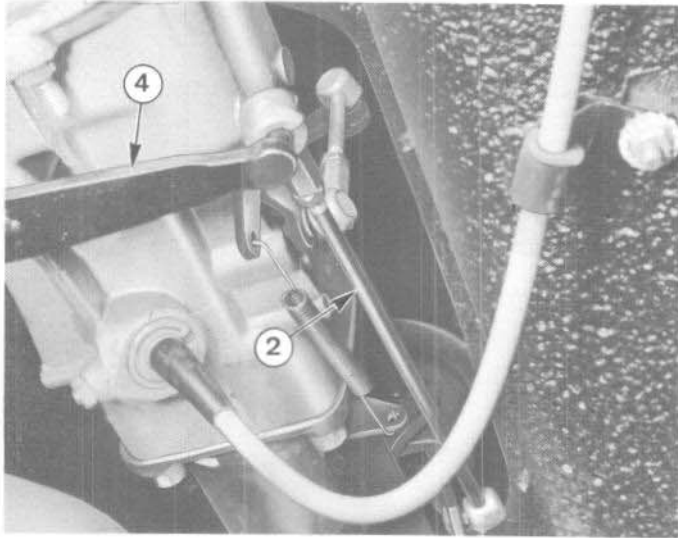


- Check and adjust the between centres distance of the ball joint sockets prior to refitting :
 - selector control link 1 : 89 mm
 - selector control link 2 : 287 mm
- After adjustment do not re-tighten the ball joint socket lock nuts. This operation must only be carried out after refitting of the selector control links.

PEUGEOT

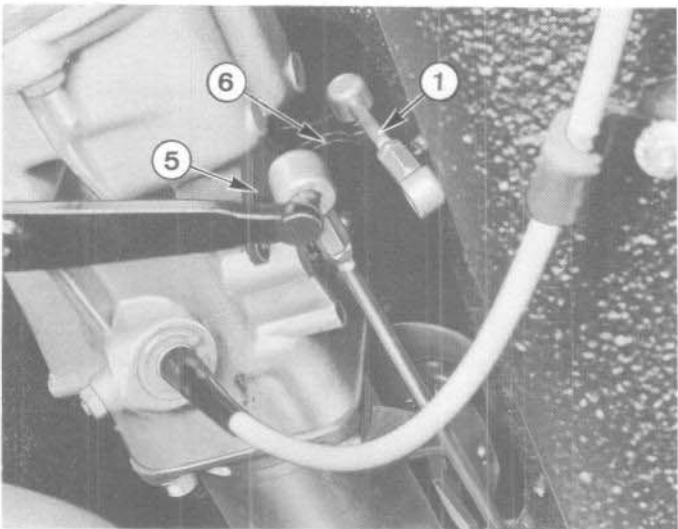
GEARBOX

GEAR CHANGE CONTROLS



1 - Fitting the change link

- Place the lever 4 on the gearbox in "neutral"
- Fit the link 2 positioning the adjustable ball socket as required
- Hold the socket and tighten the lock nut.

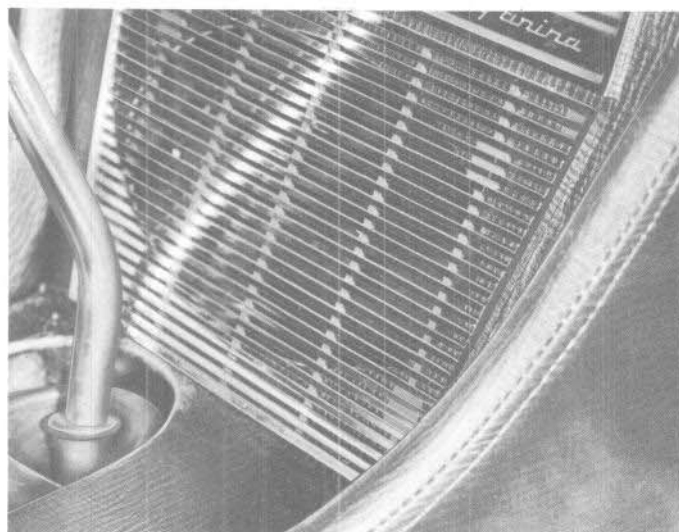


2 - Fitting the selector link

- Make sure that the gear selector lever 5 is in "neutral"
- Connect the fixed ball socket on the link 1 to the selector jack lever 6
- Push the link upwards as far as possible and check the alignment of the ball joint with the lever on the gearbox
- Carry out the necessary adjustment, acting on the bottom ball joint socket, positioning it correctly
- Hold the socket and tighten the lock nut
- Refit the return spring.

GEARBOX GEAR CHANGE CONTROLS

3 06 07

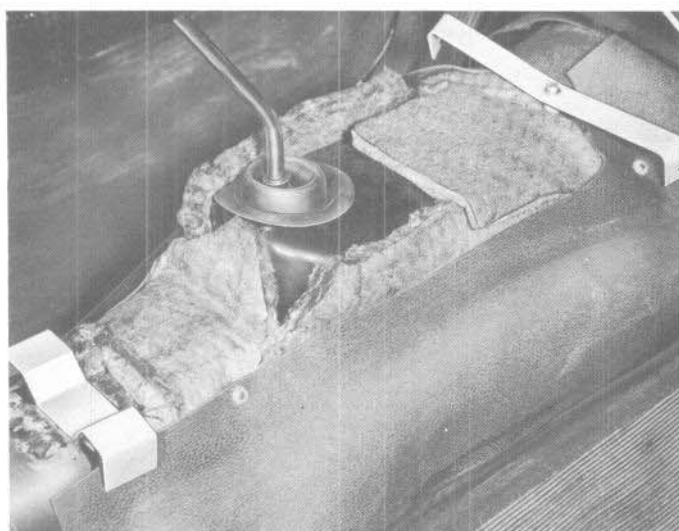


SETTING THE CONSOLE

The heater and the gearbox tunnel are covered by an adjustable console.

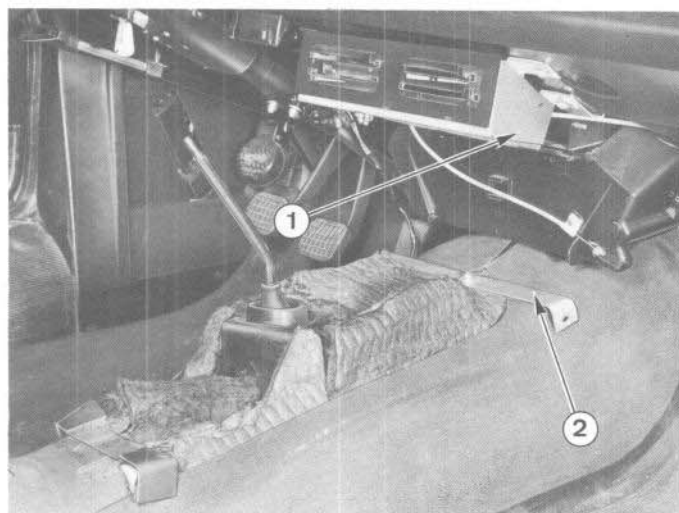
After adjusting the controls, it is necessary to check the position of the lever in 1st gear, as in this position it may come into contact with the edge of the cutaway in the console.

In this case it is necessary to reset the position of the console to ensure a minimum gap of 10 mm between the console and gear change lever in all the gear positions.



REMOVAL

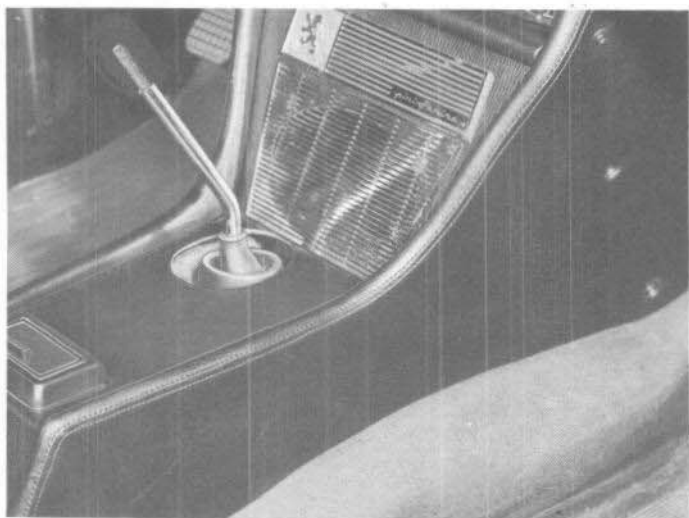
- Disconnect the battery
- Remove the front seats
- Unscrew the gear change lever ball
- Remove the ashtray
- Disconnect the cigarette lighter
- Remove the console.



- Unscrew the four screws and push the heater control support 1 forwards.
 - Retighten the four screws.
 - Slacken the nut and move the front console support 2 forwards.
- Do not tighten the nut yet
- The rear support, on the tunnel, is not adjustable and the console is secured with self tapping screws.

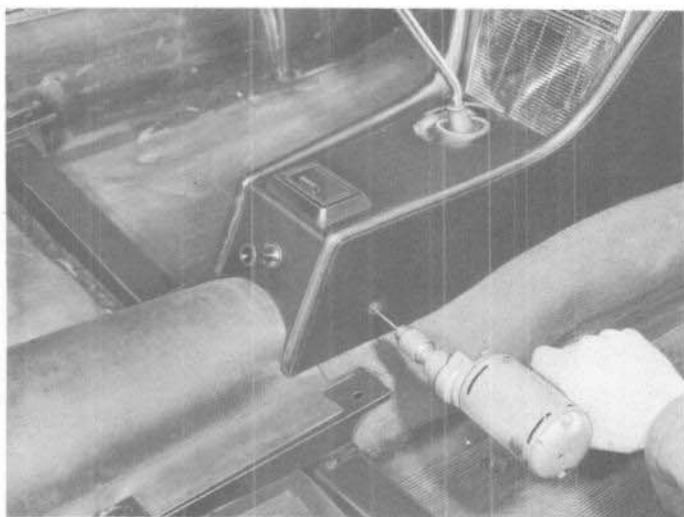
GEARBOX

GEAR CHANGE CONTROLS



REFITTING

- Engage reverse gear
- Refit the console and tighten in the following order :
 - the two securing screws on the heater controls
 - the screws on the sides of the console
 - the screws on the tunnel
 - the central nut on the tunnel
- Check the freedom of the gear change lever in the console, in all the gears.
- Correct the setting if necessary.



- Set the rear of the console on the tunnel
- Drill the support to 2.8 mm diameter
- Position and tighten the self tapping screws.



- Refit the gear change lever ball
- Reconnect the cigarette lighter
- Refit the ash tray
- Refit the front seats
- Reconnect the battery and reset the clock.