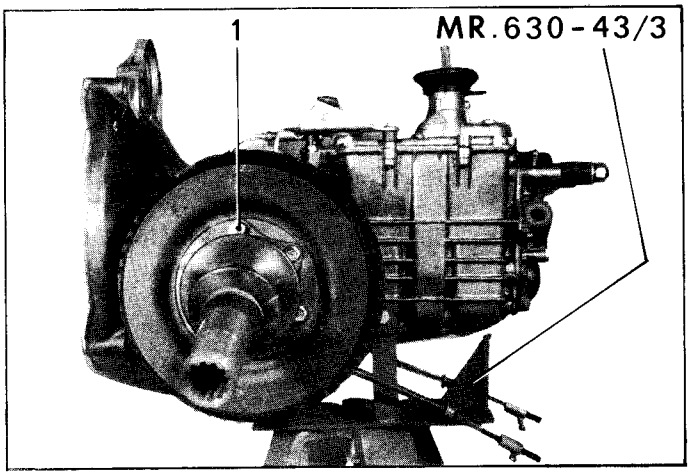
OVERHAULING A GEARBOX



DISMANTLING

1. Drain the oil.

2. Place the gearbox on support bracket (MR. 630-43/3).

3. **Remove the brake drums :**

Remove the securing screws (1) or nuts *(as applicable)*.

Free the drums.

4. **Remove the wheel cylinders :**

Remove the brake piping

Open the brake shoes to maximum extent by operating adjusting cams

Remove the cylinder securing screws and remove the brake cylinders.

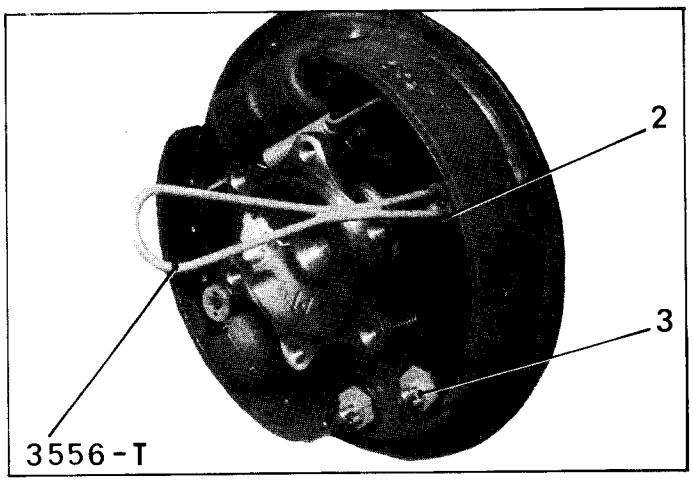
5. **Remove brake shoes :**

On each side :

a) Move the adjusting cams to the closed position

Remove the caps (2) holding the thrust, springs by turning them one quarter of a turn (tool 3556-T)

Remove the guide stems and springs.

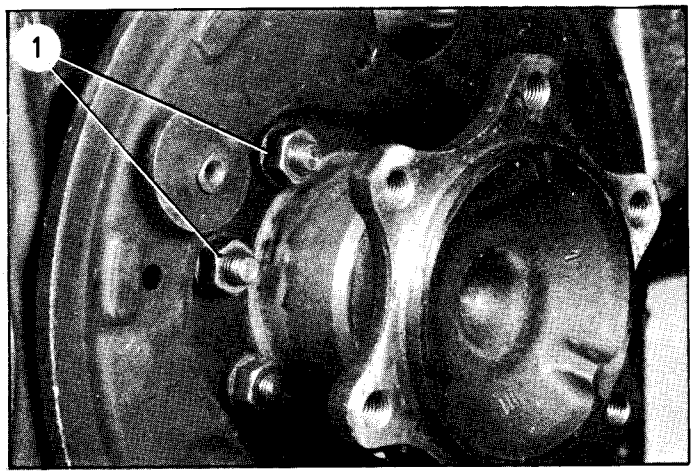


b) Unpin the nuts (3) from the cams, remove and free washers and adjusting cams.

c) Remove the brake shoes :

Remove the shoes from the spindles, tipping the rear point pins shoe upwards.

Unhook the return spring from the shoes as well as the brake cable from the lever.



6. Removal of brake plates :

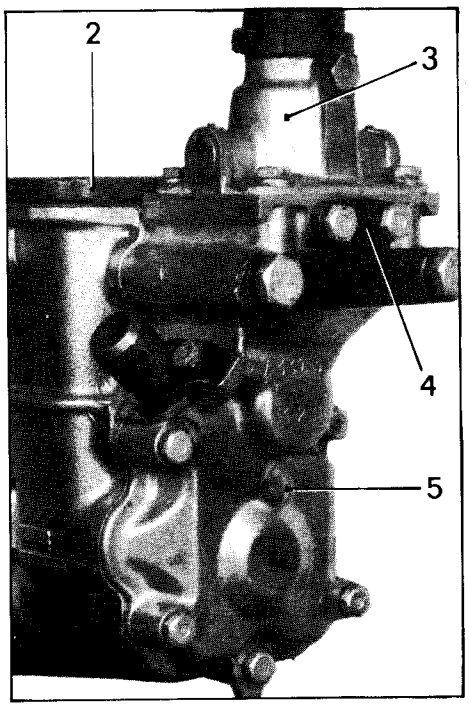
On each side :

a) Remove the securing nuts (1).

b) Free the assembly brake plate and shaft outlet bearing.

NOTE : If the gearbox is dismantled for overhaul without changing :
- either the gearbox housing,
- or the crown wheel and pinion,
- or the differential bearings,
- or the drive shaft bearings.

Mark the adjusting shims between the differential and the hubs. thus obviating readjustment of the tooth clearances.



7. Remove the covers :

Remove :

a) The upper cover (2) *(first fitting)*, or the upper cover (6) equipped with gear control forks lever *(second fitting)*.

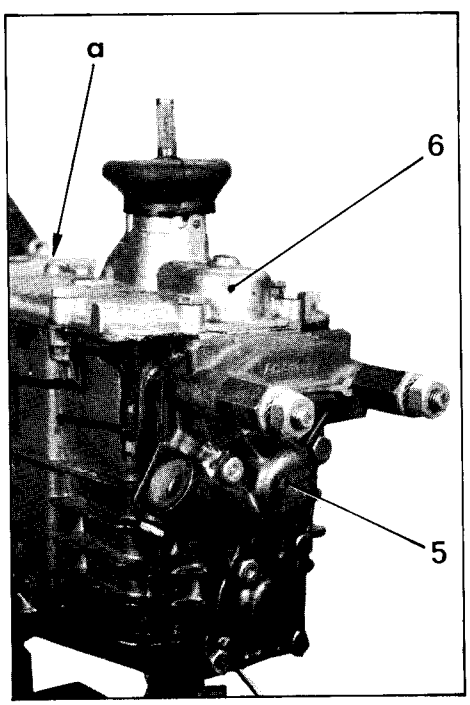
NOTE : The spring for locking ball on the fork spindle of 2nd - 3rd gears is housed at « a » in the upper cover (6).

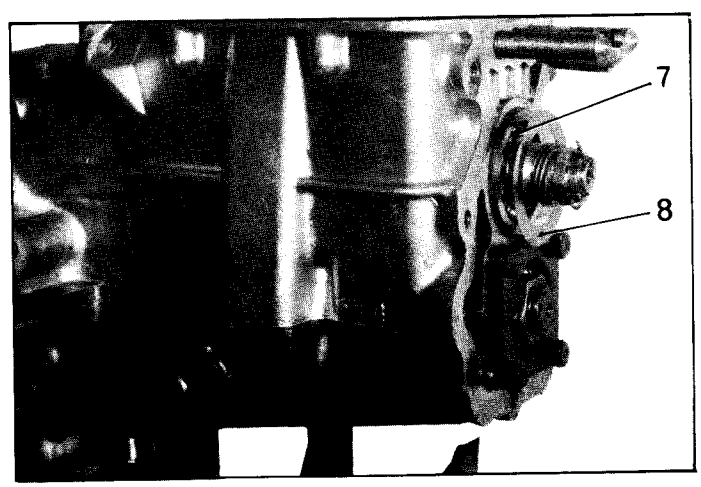
b) The fork control (3), holding lever inclined towards the left *(gearbox equipped with selector fork tip (4))*.

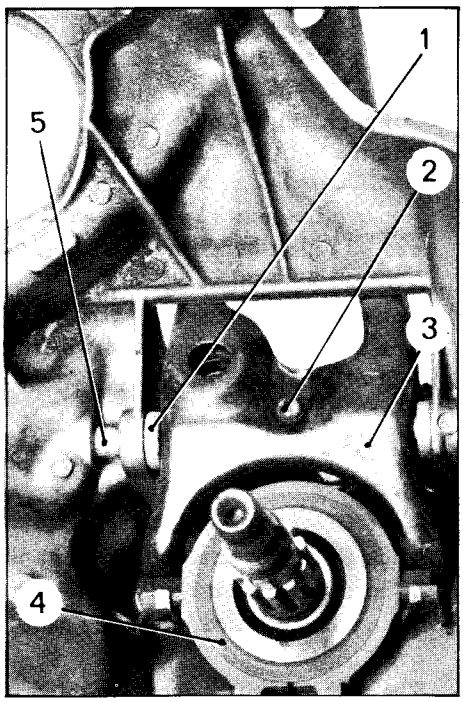
c) The rear cover (5).

d) Adjusting shims (8) *(as applicable)*

NOTE : If the rear cover (5) and the rear bearing (7) of mainshaft are to be used again, **mark position of adjusment shims (8).**







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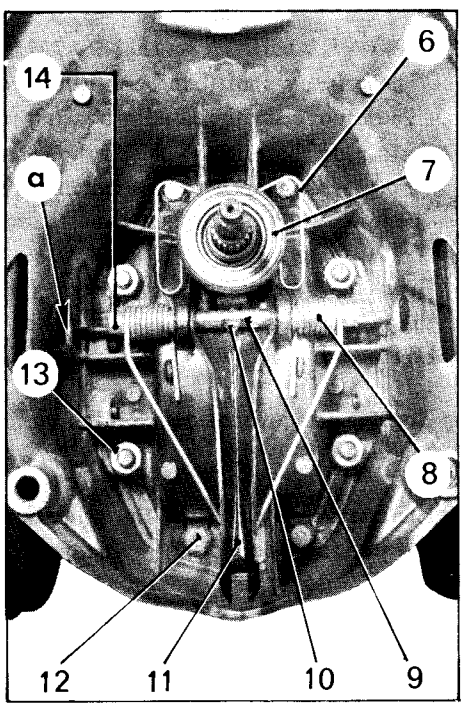
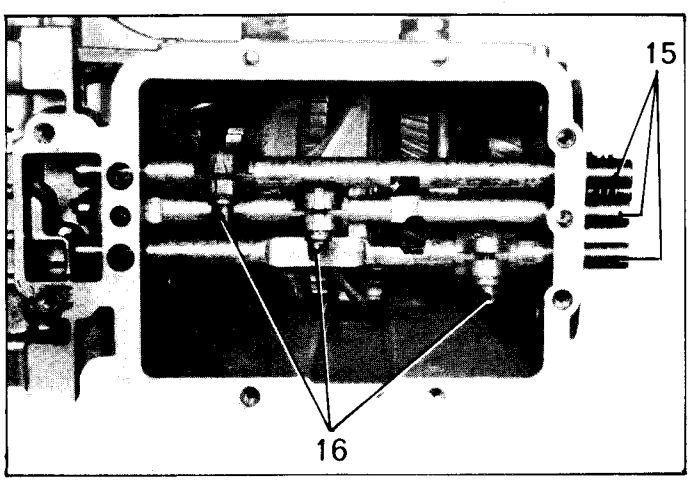




8. Remove the clutch stop and its control fork :

a) Gearbox with *graphite ring for clutch withdrawal :*
- Remove the selector fork spindle (2),
- Tap out the spindle (5),
- Free :
- the two washers (1)
- the fork (3) with its graphite ring
- the return spring.

b) Gearbox with *ball thrust bearing for clutch withdrawal :*
Remove :
- the retaining clip (6),
- the thrust bearing (7),
- the screw (10) for locking the spindle,
- the spindle (9) by passing it through one of the slits « a » in clutch housing,
- the spring (8) the nylon bushes for sound-deadening fork (11).

9. Remove the clutch housing and the differential :

- Remove the screws (12) and the securing nuts (13),

- Free the clutch housing supporting the differential to prevent it falling.

NOTE :

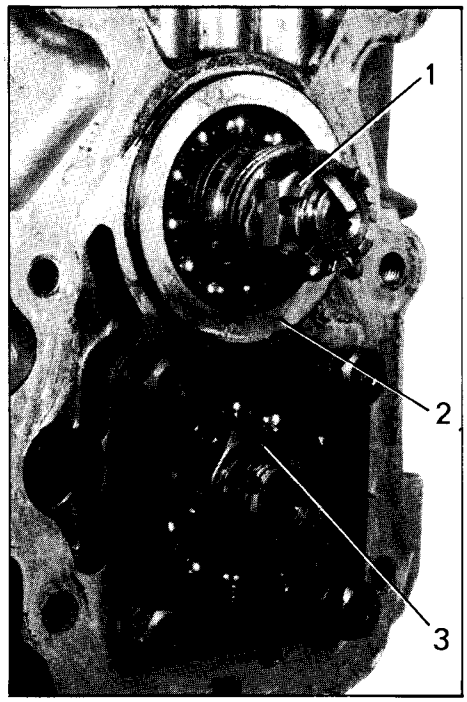
Mark the position of the conical bearing cages of the differential (left and right-hand).

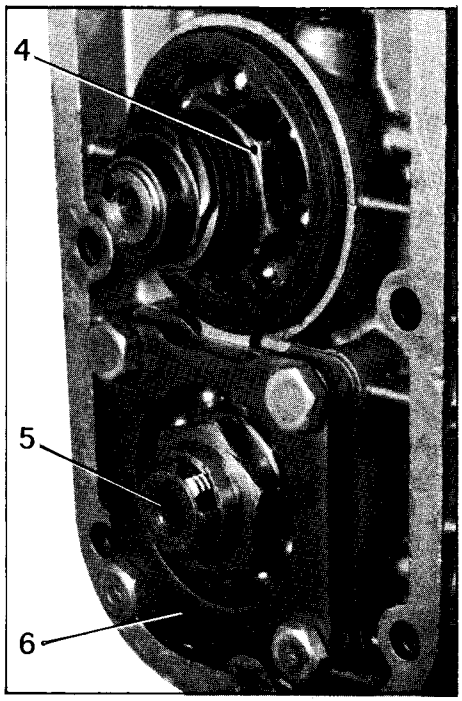
10. Remove the forks and the spindles :

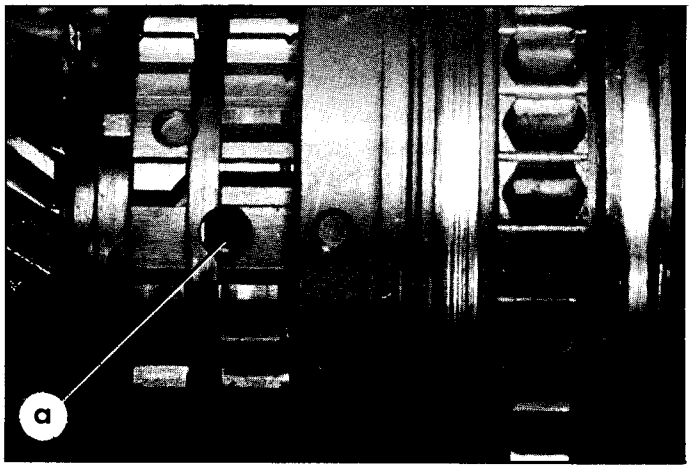
a) Unscrew the screws (16) holding the forks on the spindles (use spanner 1677-T, if necessary).
Free the three spindles (15) rearwards, rotating them half a turn to unlock them.
Block the holes to prevent the fork locking balls from escaping.

b) Remove :
- 1st gear-reverse gear selector fork,
- 2nd-3rd gear selector fork.

c) Recover the locking balls and the springs.







11. Remove the primary shaft :

a) - Engage two gears.

b) - Using chisel, remove the metal turned over into the nut (3) and unpin nut (1) *(as applicable)*.
- Remove the nuts (1) (right-hand thread) and (3) (left-hand thread).

c) Remove the speedometer screw, the distance piece and the flexible washer, if fitted (see illustration opposite).

NOTES :

1°) *Since October 1966*, the tapered distance piece the speedometer screw and nut have been replaced by a speedometer screw (4), acting as a nut and locked by metal turned over.
The reverse gear reduction pinion is fitted on teeth instead of splines.

2°) *(Vehicles built since January 1971)* :
The primary shaft has been modified :
The groove for the needle bearing race for retaining the circlip and the hole for removing the circlip have been discontinued:monobloc needle bearing cage has been fitted.

d) Drive out the bearing (2) towards the rear of the gearbox by tapping on the pinion with a copper drift.

e) Remove the reverse gear pinion and the distance piece.

f) Engage overdrive. Free the primary shaft and the pinions from inside the gearbox.
NOTE : Hold the monobloc needle bearing cage in the main shaft, with a slightly curved wire introduced into hole « a » of 2nd-3rd sliding gear.

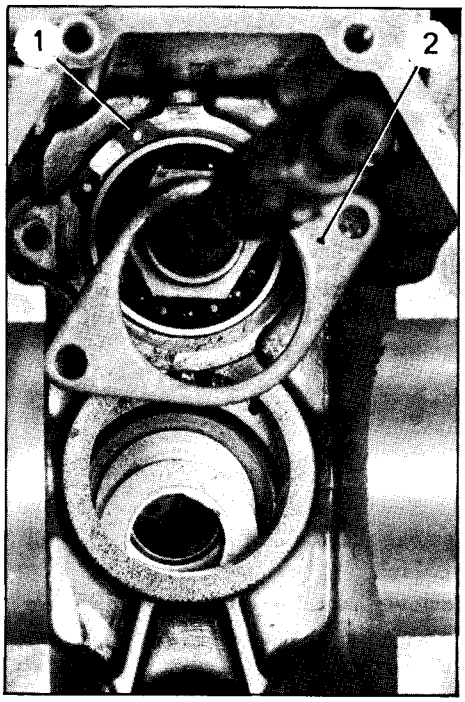
g) Disengage the overdrive fork.

12. Remove the bevel pinion :

a) Remove the bearing retaining plate (6) with its four distance pieces.

b) Drive out the bevel pinion towards the front of the housing, tapping on the end with a copper drift.

c) Free the pinion, and leave the intermediate gear train in the bottom of the housing.



13. Remove the driving shaft and the intermediate gear train :

Remove the bearing retaining flange (2) from the driving shaft.

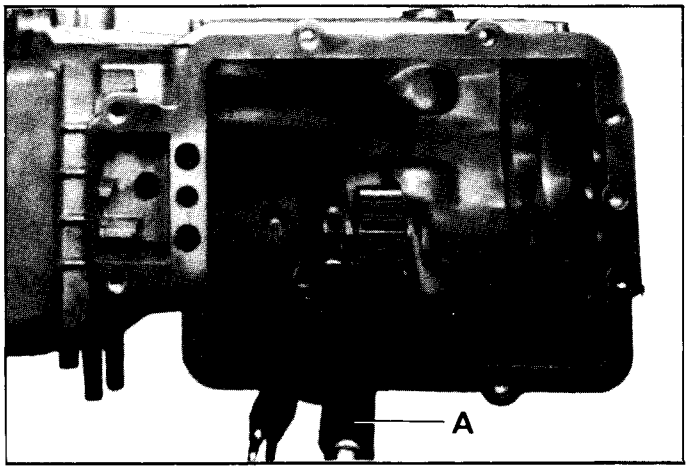
a) If the toothing of the driving shaft has a smaller diameter than the one of the bearing, disengage the latter from the differential side.

b) If the toothing has a diameter larger than the one of the bearing :
- Remove the circlip (1),
- Disengage the driving shaft from the inside of the gearbox. If necessary, drive out the bearing from the casing by tapping on the outer cage with a tube.

c) Remove the intermediate gear train.

d) Disengage the rear bearing of the intermediate gear train using a tube passing inside the gearbox (tube ϕ outside 51 mm, inside diameter 43 mm, length 290 mm).

NOTE : If the bevel pinion, the bearings and the gearbox housing are to be used again, **mark the adjusting shims for bevel pinion distance** *(gearbox with gear change lever on rear gearbox housing).*



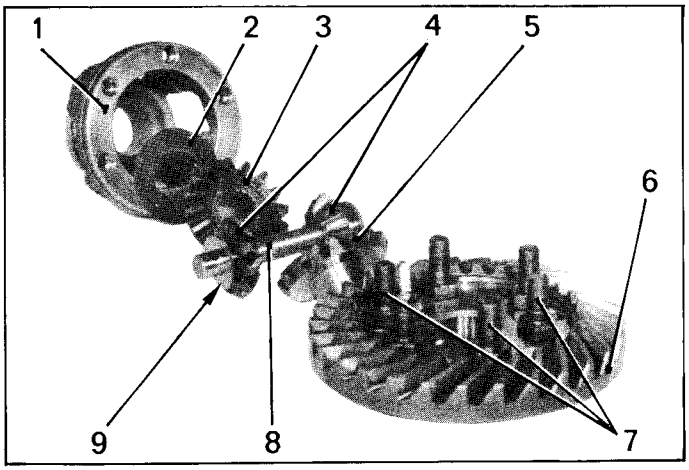
14. Remove the reverse speed pinion :

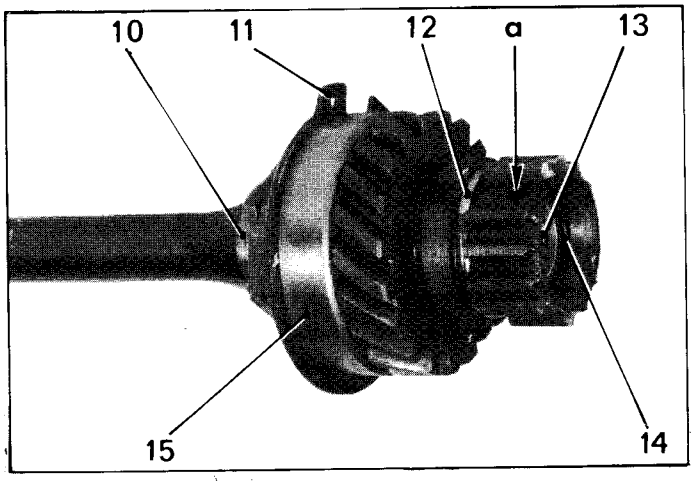
Remove the Mecanindus retaining pin from the spindle.

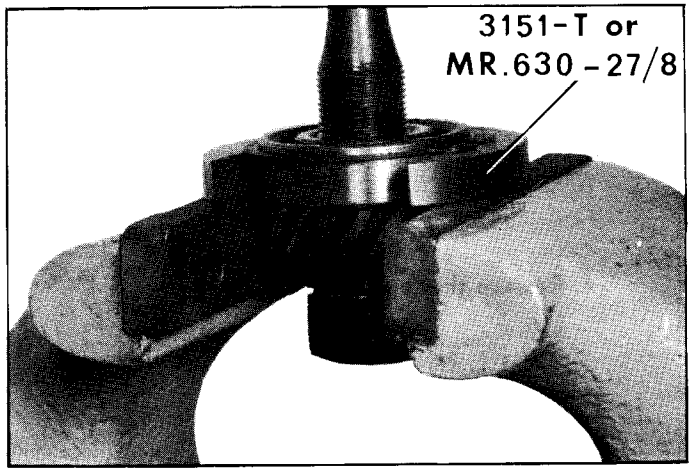
Use gripping pliers A, having previously inserted a 4 mm split pin inside the Mecanindus pin.

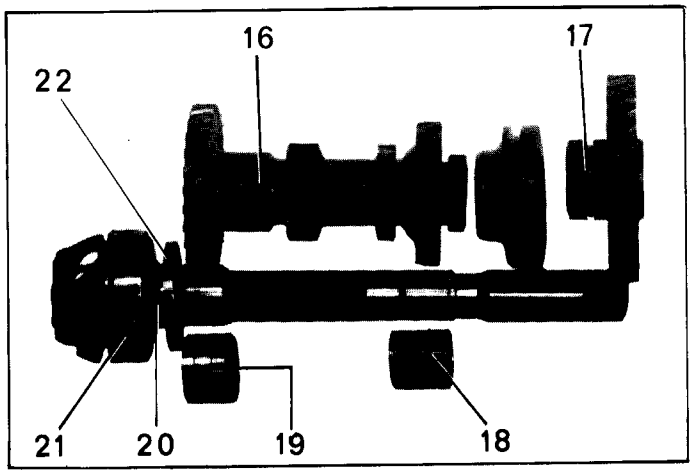
Withdraw the spindle. Free the reverse speed pinion.

15. Remove the oil drain and filler plugs.









16. Dismantle the differential :

a) Remove the conical inner bearing cages (use extractor 1750-T with half shells 1736-T and pressure pad 1743-T or extractor 2405-T).

b) Remove the screws (7) :
- Free the crown wheel (6) from housing (1).
- Remove the planet wheel (5) (crown wheel side)
- Tap out the spindle (8).

c) Remove :
- the two satellite pinions (4) and their adjusting washers (9),
- the second planet wheel (3),
- the fibre washer (2).

17. Stripping the main shaft :

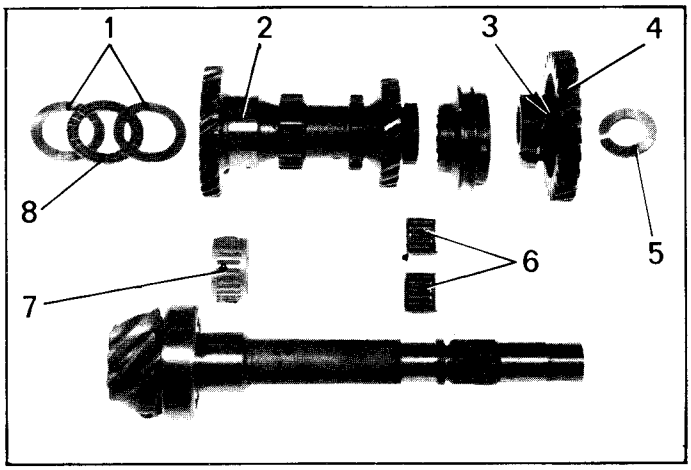
Remove the locking metal from the nut (10), using a chisel.
Remove the nut (10) (left-hand thread).
Remove the bearing (15) ; to do this :
- Fit the stop ring (11).
- Place the pinion (see illustration opposite), with the thrust ring bearing on block 3151-T or MR. 630-27/8 and drive the shaft from the bearing using a press.

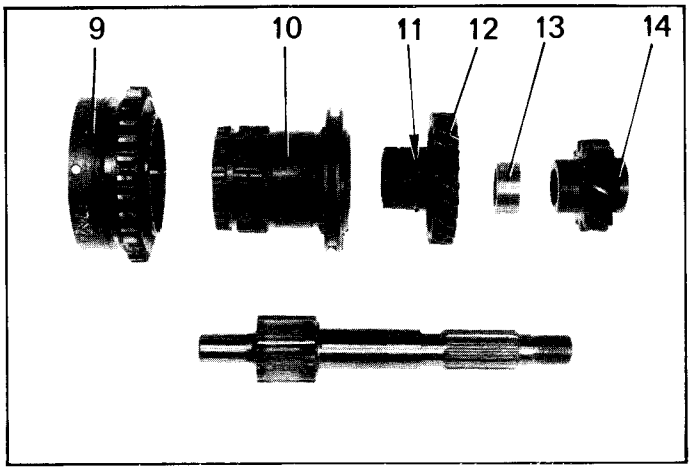
Remove the stop ring (11).
Remove the synchronizing circlip (12).
Renew the synchronizing circlip after each overhaul.
Remove the bearing locking circlip (14) from the needle cage (13), using a 2 mm pin passing through the hole « a ».
Remove the needle bearing cage and distance piece (as the case may be).

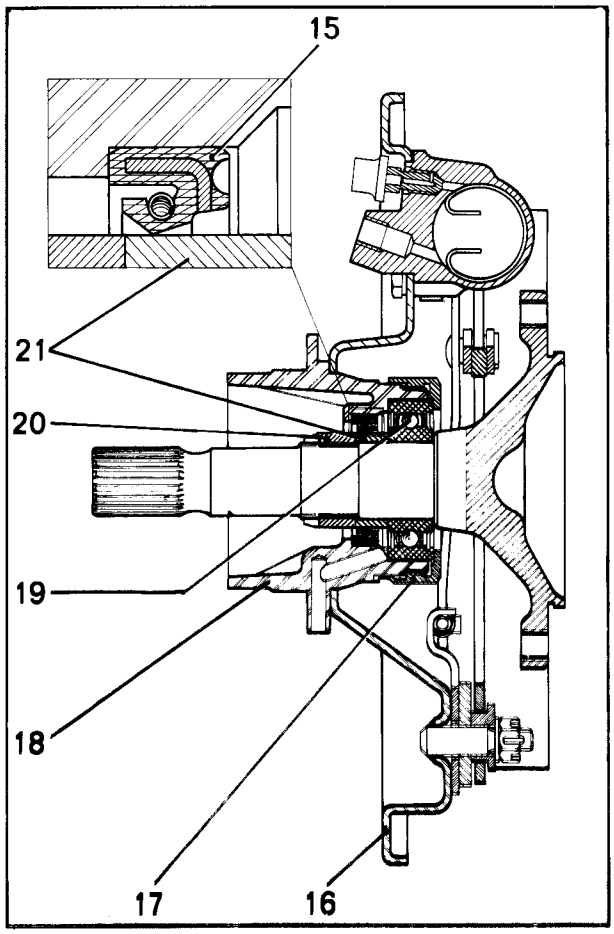
18. Strip the bevel pinion and intermediate gear train :

a) *Gearbox with intermediate gear train and its thrust washer :*
Remove :
- the fixed thrust washer (22),
- the circlip (20),
- the bearing (21), using a tube and a press if necessary),
- the synchronizing circlip (17) from the step-down gear pinion,

Renew the synchronizing circlip after each overhaul.
Remove the bushes (18) and (19) from the bore of the intermediate gear train (16).







b) *Gearbox with intermediate gear train and its needle bearing thrust race :*
Remove :
- the needle bearing thrust race (8) and its two thrust washers (1),
- the needle bearing cage or the two needle bearing cage halves (as applicable),
- the synchronizing circlip (3) from the step-down gear (4).

Replace the needle bearing cage after each overhaul.
Remove :
- the needle bearing cage (7) from the bore of the intermediate gear train (2),
- the adjusting washer for the conic distance of the bevel pinion (as applicable).

NOTE : If the gearbox overhaul does not entail changing the gearbox housing, the crown wheel and pinion or the step-down pinion, retain the adjusting washer to avoid having to re-set the conic distance.

19. Strip the primary shaft :

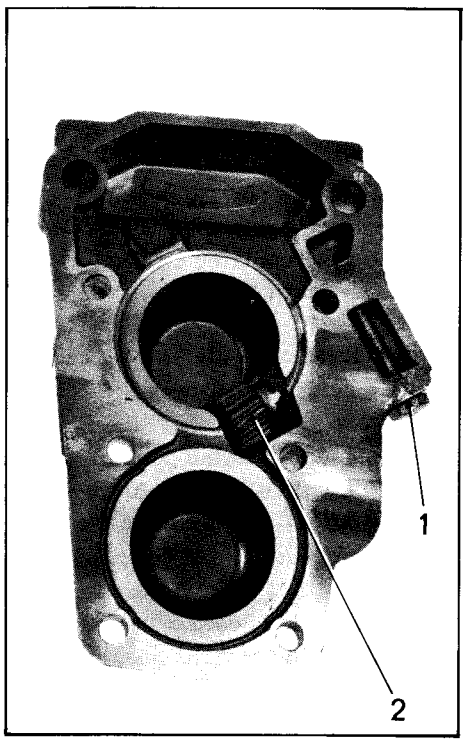
Remove :
- 1st-reverse gear sliding pinion (9),
- 2nd-3rd gear sliding pinion (10),
- 2nd gear idler pinion (12),
- 2nd gear idler pinion synchronizing circlip (11).

Renew the synchronizing circlip after each overhaul.

20. Strip the brake backplate :

- Clamp the differential shaft in a vice fitted with soft jaws (to prevent damage) holding it by the driving plate (18).
- With a chisel knock out the metal of the nut and remove the nut (20) locking the differential shaft.
- Press out the differential shaft from the bearing, resting the back plate (16) on two vee blocks.
- Disengage the back plate from the bearing (18)

a) *Vehicles fitted with gearbox having the gear change lever on the upper cover :*
Hold the bearing (18) in a vice.
Unscrew the bush-nut (17) (use a chain spanner or strip spanner).
Remove :
- the sealing bearing (19),
- the distance spacer (21),
- the sealing bush (15).



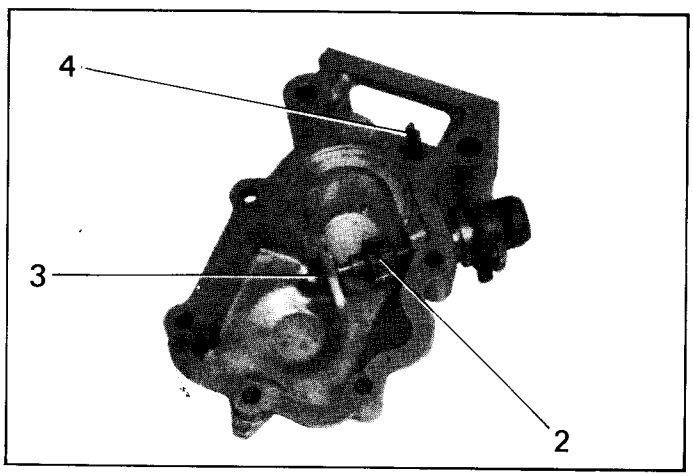
b) *Vehicles equipped with gearbox having the gear change lever on the rear cover :*
Using a chisel, remove the locking metal from the bush-nut and remove the bush-nut (use spanner 1926-T).
Free the bearing using a bronze drift.
Drive off the sealing bush from the hub.
Remove, if necessary, the oil deflector from the hub.

21. Stripping the wheel cylinders.
(See relevant operation).

22. Strip the rear cover :

Remove :
- the stop-screw (1) *(as the case may be).*
- the speedometer drive and pinion (2),
- the thrust ring (3) *(as the case may be).*
- the guide finger (4) *(on gearboxes thus equipped).*

Disconnect the pinion from its plastic support *(as applicable).*



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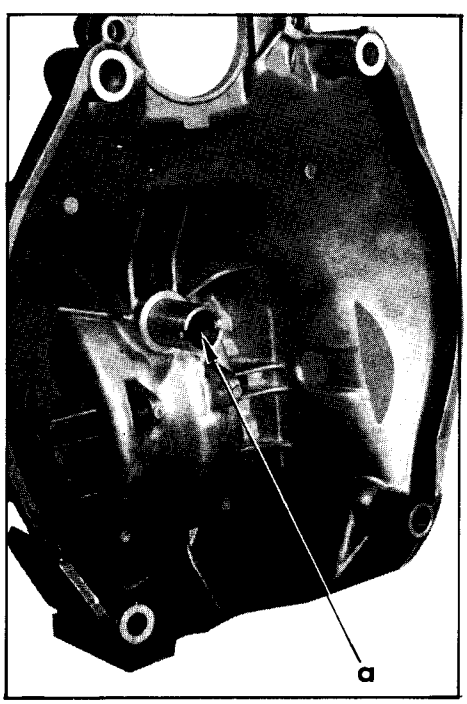
23. Strip the clutch housing *(first fitting) :*

Remove :
- the oil retaining cup *(gearboxes on vehicles equipped with centrifugal clutch mechanism).*
- or the bearing *(gearboxes fitted on vehicles equipped with a conventional clutch mechanism.*



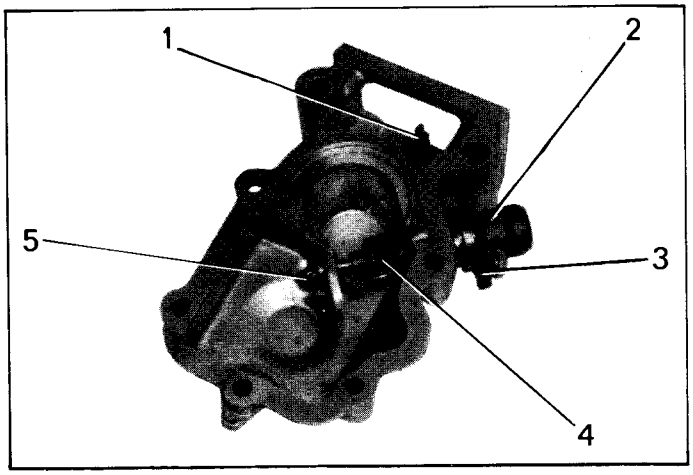
24. Thoroughly clean all the parts.

PREPARATION.

25. Prepare the clutch housing :

a) *First fitting :*
- Fit the oil retaining cup using a mandrel MR. 630-32/14 *(gearbox for centrifugal clutch).*
- Fit the bearing *(gearbox for conventional clutch).*

b) *Second fitting :*
Check that the inner bore at « a » of the hub support for the clutch stop is not worn *(traces of threads in driving shaft oil return).*



26. Prepare the selector fork control lever :

Grease the control lever ball
(TOTAL MULTIS).

NOTE : In case of an overhaul of the control lever, see relevant operation.

27. Prepare the rear cover :

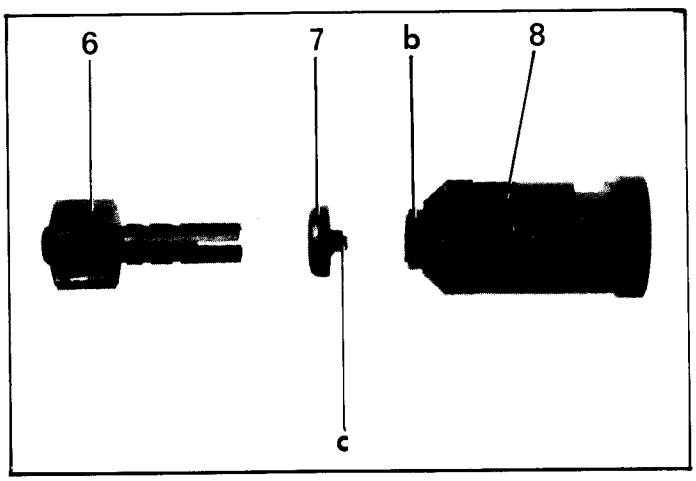
a) *Early type gearbox :*

Position :
- the thrust ring (5),
- the pinion (4) previously oiled.

Fit the speedometer drive socket (2) with its clamp (3) ; tighten the screw (spring washer).

NOTE : The slot for the flexible drive retainer should be parallel to the box centreline and positioned downwards.

For gearboxes equipped with a selector fork guide finger (1) :
- Fit with the flat opposite the speedometer drive socket.



b) *New type gearbox :*

Oil the speedometer pinion (6).
Place the cup (7) on the end of the plastic support (8), positioning the spigots « c » in the corresponding slots « b ».

Fit the pinion on its support.

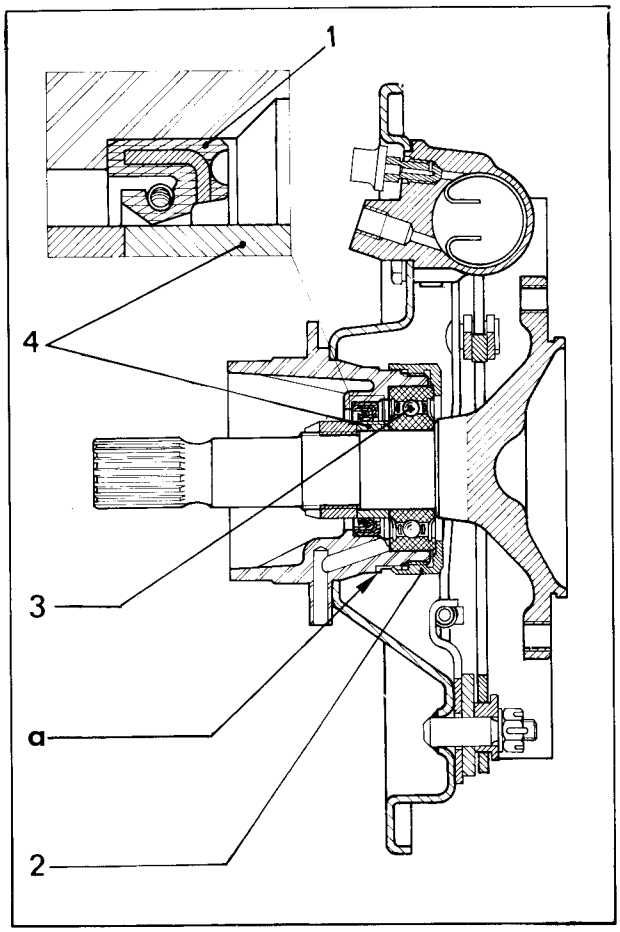
Fit the assembly in the rear cover.

Tighten the stop screw.

28. Prepare the wheel cylinders :

(See relevant operation).

29. Prepare the brake plates :

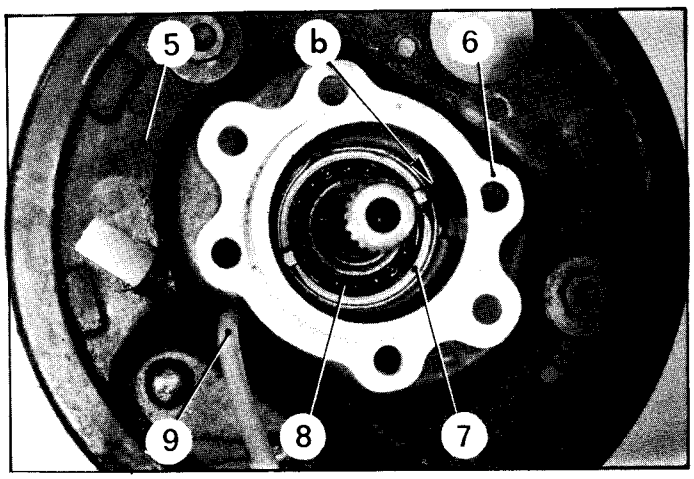


a) If necessary, fit the adjusting cams.
Tighten the pins so as to obtain a rotation torque of between 10 to 25 mΛN (1 to 2.5 m.kg).
Use mandrel for rivetting MR. 630-62/13 and snap for rivets : MR. 630-62/11.

b) *Vehicles equipped with a gearbox having the gear change lever on the upper cover.*

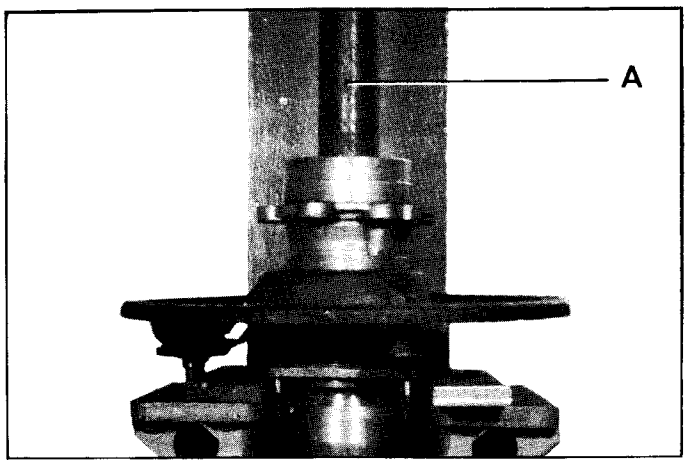
Fit in position :
- the sealing bush (1) (previously oiled) with the rubber edge inwards,
- the distance piece (4) in the bore of the bush inserting it from the outside,
- the sealing bearing (3),
- the bush-nut (2). Tighten it using a chain spanner or a strap spanner (60 to 75 mΛN, 6 to 7.5 m.kg) and knock over the shoulder flange at point « a »,
- the brake plate on the bearing.

c) *Vehicles equipped with a gearbox having the gear change control lever on the rear cover.*



Place in position :
- the brake plate (5) on the bearing (6),
- the oil deflector on the bearing support using a tube of 60 mm inside diameter, 72 mm outside diameter, length 60 mm. Align the oil drain tube with the centreline of the oil return hole boss,
- the sealing bush previously oiled, with its rubber edge inwards,
- the bearing (8) (oiled),
- the bush-nut (7) tightened to between 100 and 140 mΛN (10 to 14 m.kg) (spanner 1926-T) and knock over the metal of the nut in the counter sunk portion of the bearing support at point « b ».

d) Fit the differential shaft in the bearing support :
Offer up the assembly of brake plate and bearing on the differential shaft.

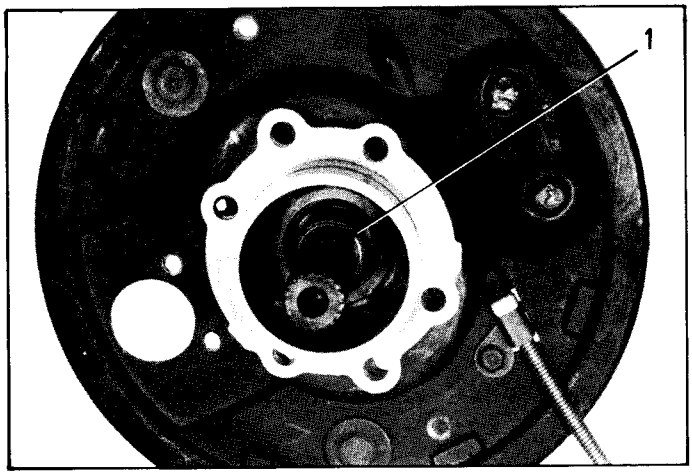


- Fit the differential shaft in the bearing (under a press) using a tube A (inside ϕ 26 mm, outside ϕ 34 mm, length 150 mm).

- Screw and tighten the nut (1) to between 100 and 120 mAN (10 to 12 m.kg).

- Knock over the metal of the nut with a matting tool into the countersunk portion of the shaft.

- Fit the handbrake cable. Tighten the securing screw for the stop sheath (spring washer).

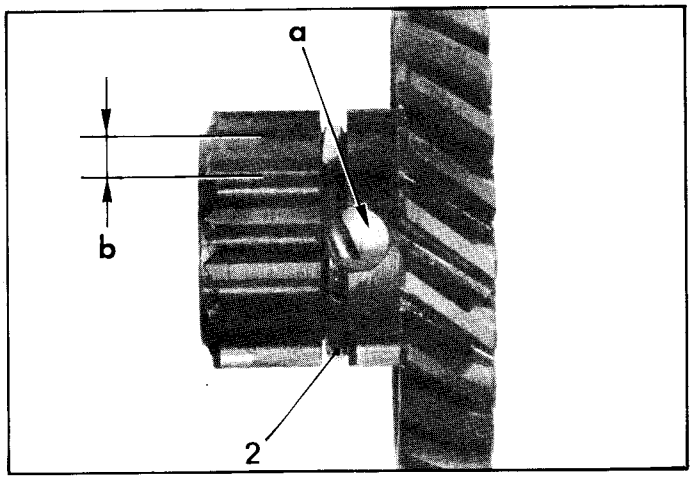


30. Prepare the primary shaft :

NOTES :

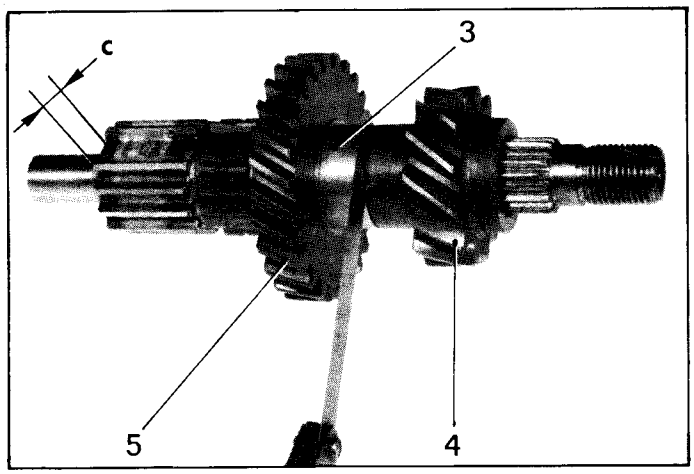
1°) *Since April 1966 and up to October 1966*, the primary shafts were fitted with a rear single row ball bearing and a 7 mm distance piece between this bearing and the step-down pinion.

2°) *From October 1966*, the distance piece has been discontinued and the step-down pinion hub has been lengthened by 7 mm.
The step-down pinion has teeth instead of splines.
The conical distance piece, the speedometer screw and the nut have been replaced by a nut forming speedometer screw and locked by knocked over metal. Gearboxes produced earlier can be modified in the same way if the following parts are replaced :
- the primary shaft,
- the step-down pinion,
- the ball bearing,
- the nut forming speedometer screw.



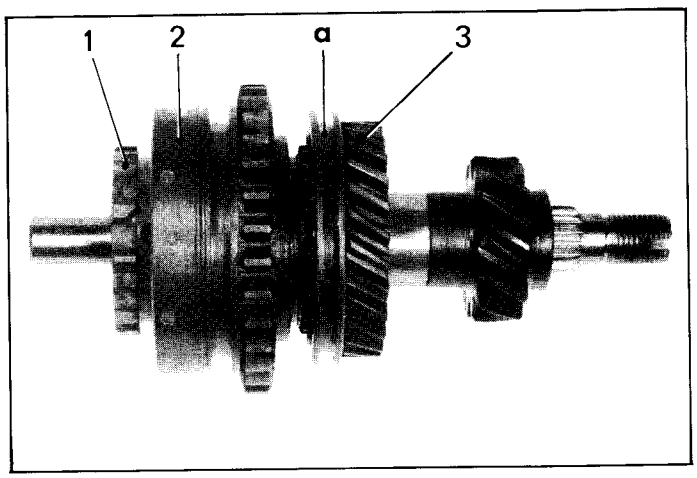
a) Place the synchronizing segment in position (2) on the second gear idler pinion.

NOTE : Position the « tag » of the segment (2) in the hole « a » in the pinion.



b) Position on the primary shaft, the 2nd gear idler pinion (5) the distance piece (3), the step-down pinion (4).
Hold the step-down pinion (4) against the shoulder of the shaft.
Make sure that the 2nd gear idler turns freely with an end float of between 0.05 and 0.35 mm.
If not, replace the distance piece (3).

c) Place the wide splines « b » on the 2nd gear idler pinion (5) in line with those « c » on the shaft.



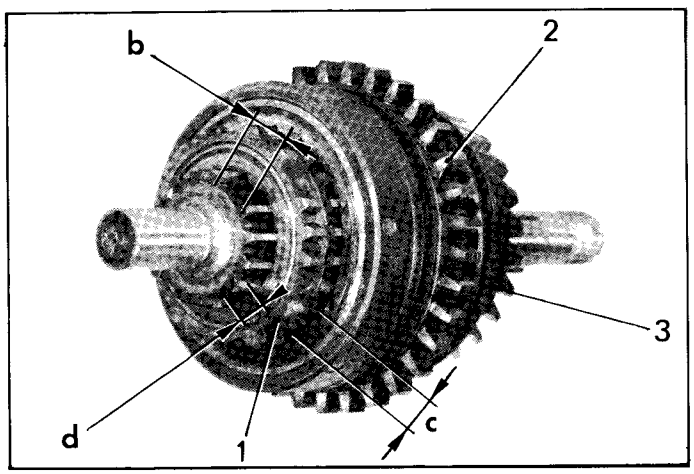
d) Place on the primary :

- the 2nd - 3rd gear sliding pinion (1), the collar « a » against the 2nd gear idler pinion (3) with wide splines « d » of the synchronizing cones in line with those on the shaft « b ». Engage the sliding gear (1) on the dogs of the 2nd gear idler pinion.

- 1st gear - reverse gear sliding pinion (2) (teeth facing towards the rear), engaging the dogs in the wide splines « c » of 2nd - 3rd gear sliding pinion (1). Push the sliding pinion (2) fully home.

CARE : The sliding pinions must be cleaned with the greatest care to ensure that the cones do not stick : ensure that the latter turn freely.

NOTE : The Replacement Parts Department sell « paired » assemblies of primary shaft and second and third sliding pinion (1).
If either of these two parts is worn, a new assembly must be fitted.



31. Prepare the bevel pinion :

a) *Gearbox with intermediate gear train fitted with fixed thrust washer :*

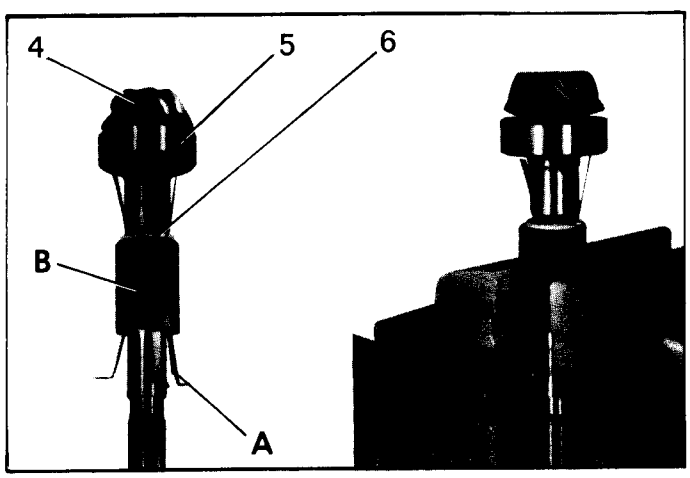
- Fit bearing (5) on shaft (4) using a press.

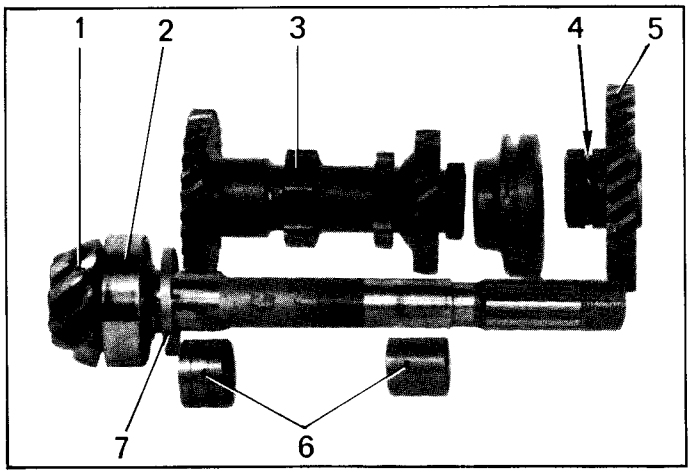
NOTE : *From October 1963*, the ball bearing has been modified : width 16 mm instead of 18 mm. The bevel pinion, the fixed thrust washer and the front bush of the intermediate gear train have also been modified.

This coupling may be fitted in early type gearboxes on condition that the fixed washer and front intermediate gear train bush are also fitted.

To avoid scoring the bearing face of the front bush, fit the circlip as follows :

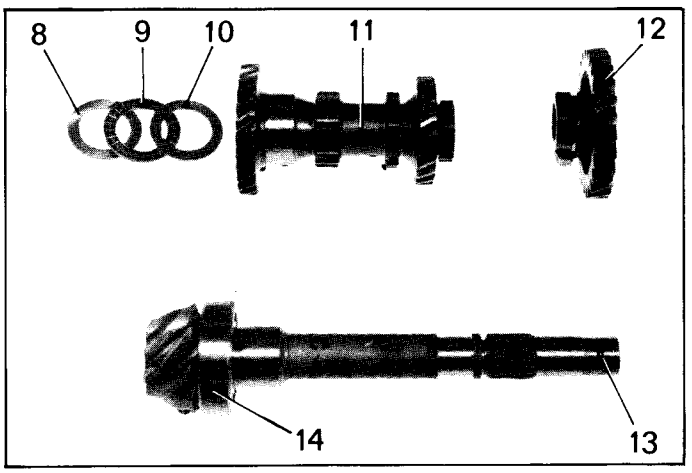
Place on the shaft the locking segment (6) and the three shims A (0.3 mm thick, 5 mm wide, 100 mm long) arranged at 120°. Fit a tube B of inside diameter 26 mm, bearing against the segment. Invert this assembly and the clamp tube in a vice. Tap on the end face of the bevel pinion with a mallet until the locking segment is correctly located in its groove. Remove the shims. To save time, the tool MR. 630-31/34 can also be used for this operation.





- Grease and place in position the fixed thrust washer (7). Place the flats on the shaft (1) in line with those on the washer. If the latter as a chamfer, fit it with the chamfer towards the bearing (2).
- Fit the synchronizing segment on the step-down gear pinion (5).
- Fit on the shaft (1) :
  - the intermediate gear train (3) with its two bushes (6),
  - the step-down gear pinion (5).
- Hold the step-down gear against the shoulder of the shaft.
- Ensure that the intermediate gear train turns freely.
- The end float should be of from 0.05 to 0.35 mm for the early type coupling (width of bearing = 18 mm) and of from 0.45 to 1 mm for the new type (width of bearing = 16 mm). If not, replace the thrust washer (7).

  After this check remove :
  - the step-down gear pinion (5),
  - the intermediate gear train (3) with its bronze bushes (6).



b) *Gearbox with intermediate gear train fitted with needle bearing thrust race :*

Fit the synchronizing segment on the step-down gear pinion (reverse speed reduction gear) (12).
Determine the thickness of the thrust washers for the needle bearing thrust race.
Place on the bevel pinion shaft (13) :
- a thrust washer of any thickness (8),
- a thrust washer of identical thickness to that of the needle bearing thrust race (9), i.e. 2 mm,
- the intermediate gear train (11),
- the reverse speed reduction gear pinion (step-down gear) (12).

Hold the reverse speed reduction gear pinion (step-down gear) (12) against the shoulder of the bevel pinion shaft (13).
Select from the thrust washers sold by our Replacement Parts Department those which pass (at « a ») between the reverse speed gear pinion (step-down pinion) and the end of the intermediate gear train with a *clearance between 0.10 and 0.20 mm.*
Remove the step-down pinion (12), the intermediate gear train (11) and the 2 mm thick thrust washer.
Fit in this order :
- the thrust washer (8) fitted previously (as selected),
- the needle thrust race (9),
- the washer (10) of the predetermined thickness.

Stick these three parts with grease on the bearing retaining the front roller bearing (14) of the bevel pinion.

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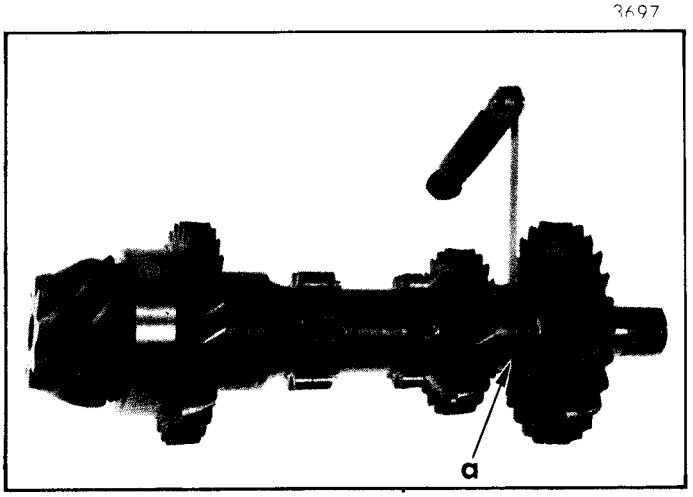
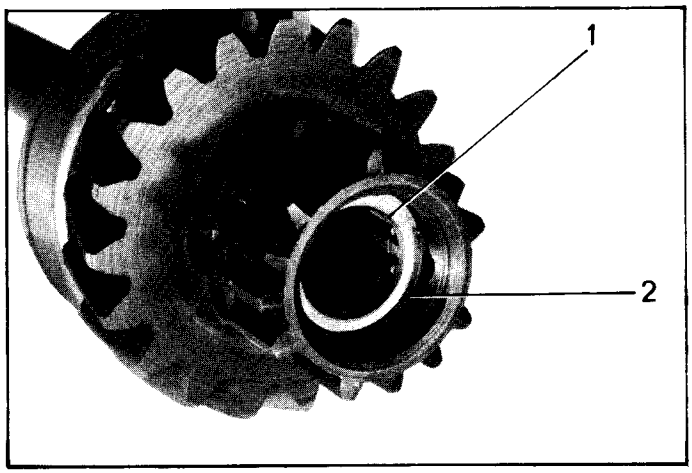
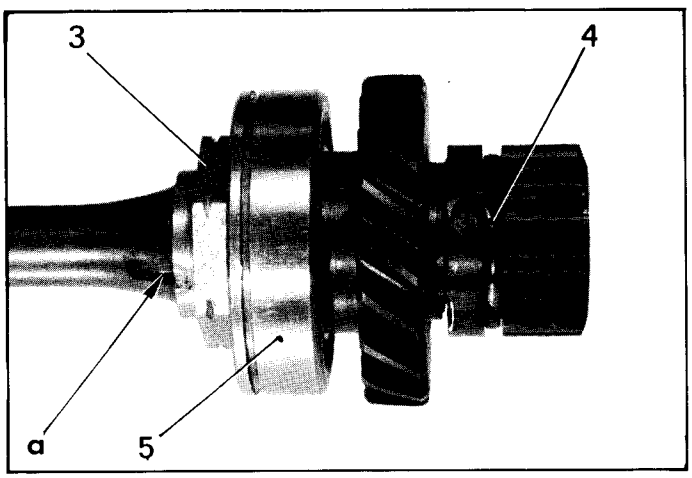
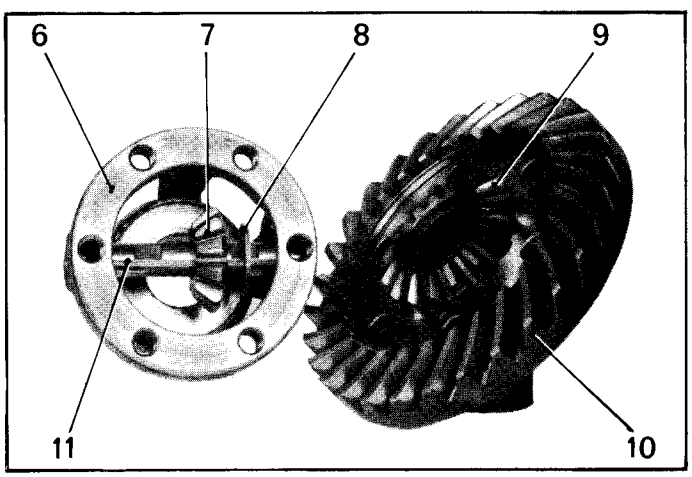
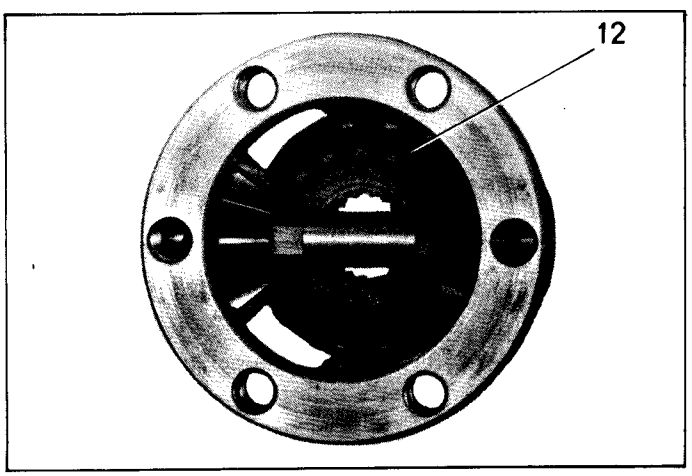










32. Prepare the main shaft :

a) Fit the needle bearing cage :
Place the needle bearing cage (1) (previously greased) in the bore of the shaft.
Fit (if need be) the retaining circlip (2) in the groove in the bore of the shaft.
(See NOTE, paragraph 11, this operation).

b) Fit the synchronizing segment (4).

c) Fit the bearing (5), using a press.
Tighten the nut (3) to between 120 and 140 mN (12 to 14 m.kg) *(left-hand thread)* and lock it in position by turning over the metal of the nut into the countersunk portion of the shaft at point « a ».

33. Prepare the differential :

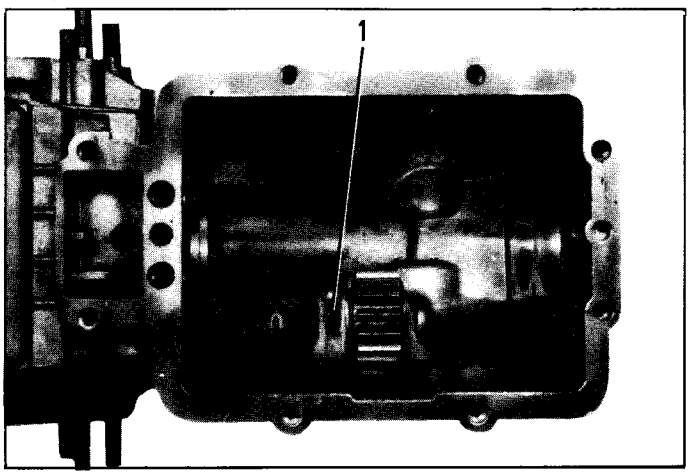
a) Place in the housing (6) a satellite pinion (7) a thrust washer for satellite pinion (8) and the spindle (11).

b) Offer up the crown wheel (10) together with a planet wheel (9). Tighten the screws progressively, at the same time checking the rotation of the planet wheel. There must be no stiffness at any point. There must be a minimum clearance at any point of 0.10 mm, and the tightening torque of the crown wheel securing screws must be between 70 and 80 mN (7 to 8 m.kg) (use torque spanner 2471-T).
Select from amongst the washers sold by our Replacement Parts Department those giving those conditions.
Remove the crown wheel and its planet wheel : disengage the satellite pinion and its thrust washer. *Do not unpair these parts.*

c) Carry out the same operation for the other satellite pinion.

d) Remove the crown wheel (10). Disengage each satellite pinion and thrust washer assembly, without mixing the parts.

e) Place the 2nd planet wheel (12) with its thrust washer in the housing. Fit the satellite spindle and each satellite and thrust washer assembly.
Select from the planet wheel thrust washers sold by our Replacement Parts Department one which permits the rotation of the planet wheel without stiffness at any point. The minimum clearance at any point should be 0.10 mm.



f) Finally fit the planet wheel and its thrust washer, the satellite pinions and their thrust washers, the spindle, the 2nd planet wheel and the crown wheel, after first oiling their bearing surfaces.
Tighten the screws to between 70 and 80 mAN (7 to 8 m.kg).
(There are no lockwashers under the heads of the screws).

g) Fit the tapered bearing using a press and a tube (inside ϕ 36 mm, outside ϕ 45 mm, length 40 mm).

34. Prepare the reverse speed pinion (step-down gear) :

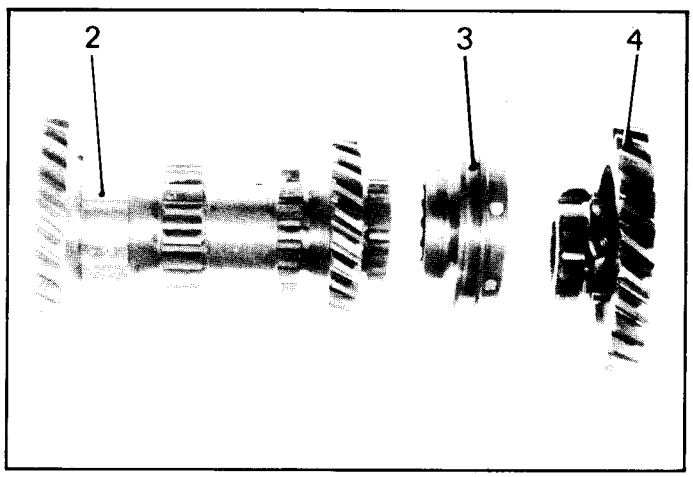
Check the condition of the bush.

NOTE : If the bush is worn, the complete pinion assembly should be renewed.

FITTING.

35. Place the gearbox housing on a stand (MR. 630-43/3).

36. Fit the reverse speed pinion :

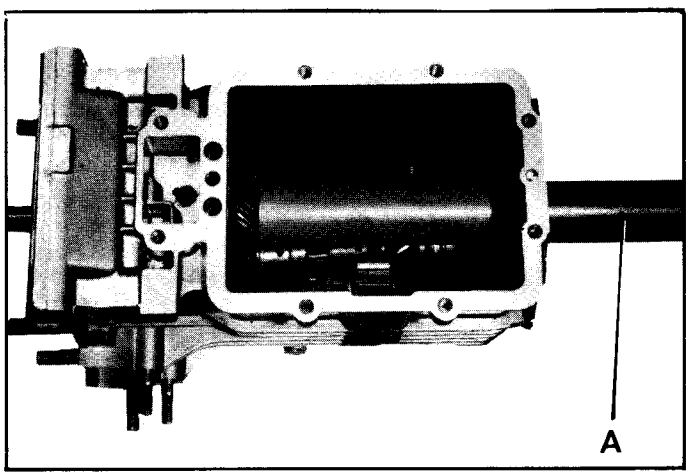


Oil the spindle.
Engage it in the boss in the casing, place the hole for the locking pin towards the front, approximately vertical.
Offer up the reverse speed pinion with the entry side of the teeth facing the front of the gearbox.
Insert the spindle and position it correctly : insert the Mecanindus pin (1) in contact with the bottom of the front support.

37. Fit the main shaft *(Only in cases where diameter of toothing is greater than that of bearing) :*

a) Prepare the intermediate gear train fitted with its two bronze bushes or its two needle bearing cages or the front needle bearing cage *(as applicable)*, (the intermediate gear train bores and bushes previously oiled).
Fit the overdrive sliding pinion (3) on the intermediate gear train (2).
Fit the step-down gear pinion (4) in the sliding pinion dogs.
Place the assembly in the bottom of the housing.

b) Offer up the main shaft from inside the housing.
Fit it in position by tapping on the end with a bronze drift or a tube A (inside ϕ 33 mm, outside ϕ 40 mm, length 250 mm).



c) Fit the bearing circlip.
Fit the securing clamp and tighten the screws to 25 mAN (2.5 m.kg).

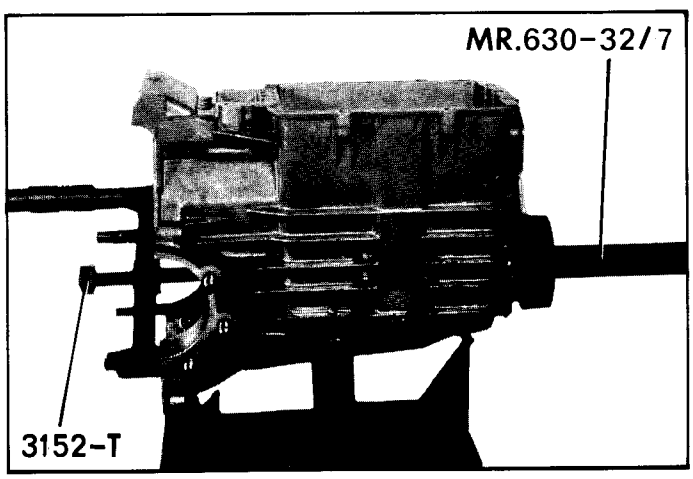
38. Fit the bevel pinion :

a) Place in position the half needle bearing sleeves *(as applicable)*, securing them with grease to the bevel pinion.

NOTE :

Check as applicable :
- that the needle thrust bearing with flat is correctly positioned on the bevel pinion,
- or that the needle thrust bearing and its two thrust washers are securely stuck on the front bearing circlip.

3707



b) Fit the bevel pinion in the intermediate gear train and in the splines of the step-down gear.

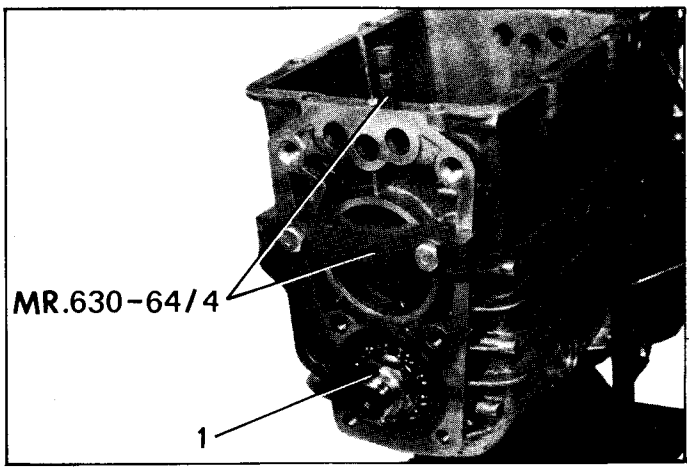
Insert the front bearing into its bore.

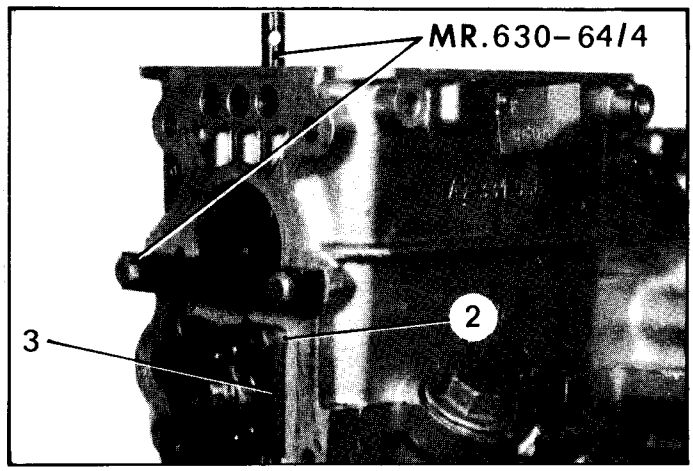
Complete the fitting of the pinion by means of the thrust screw 3152-T and leave this in position.

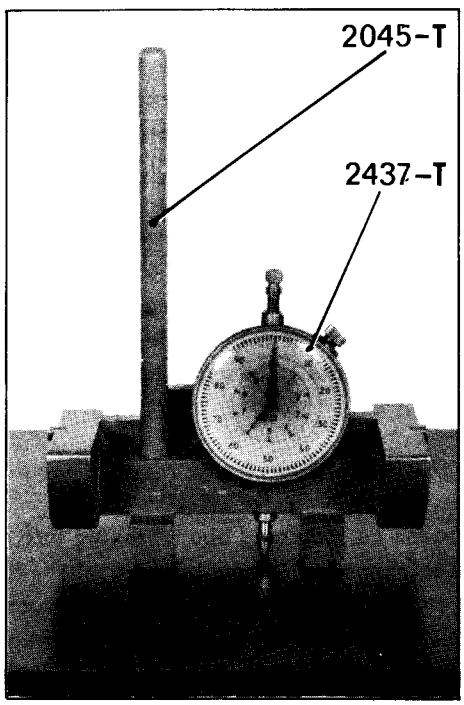
c) Fit a conic distance adjusting washer of any thickness on the rear end of the pinion.
Push it against the reverse speed pinion *(gearbox with the gear change lever on the cover)*.

d) Fit the rear bearing, positioning it with the mandrel MR. 630-32/7.

3720







e) Support the step-down gear with apparatus MR. 630-64/4.

Tighten the nut (1) to between 70 and 80 mAN (7 to 8 m.kg).

Remove the thrust screw 3152-T and the tool MR. 630-64/4.

f) Fit the flange (3) with its four distance pieces (2). *(Gearbox with gear change lever on the rear cover).*

g) Fit the rear cover, securing it with four screws only. *(Gearbox with gear change lever on the upper cover).*

39. Adjust the conic distance of the bevel pinion :

NOTE : This adjustment is of the utmost importance. Giving the teeth the correct setting will ensure silence and long service from the crown wheel and pinion. The setting dimension is given in millimetres and hundredths of a millimetre and is etched on the ground end of the bevel pinion. The dimension represents the distance which must exist, when the adjustment is completed, between the centreline of the differential shaft and the ground end of the bevel pinion.

This will vary with each crown wheel and pinion.

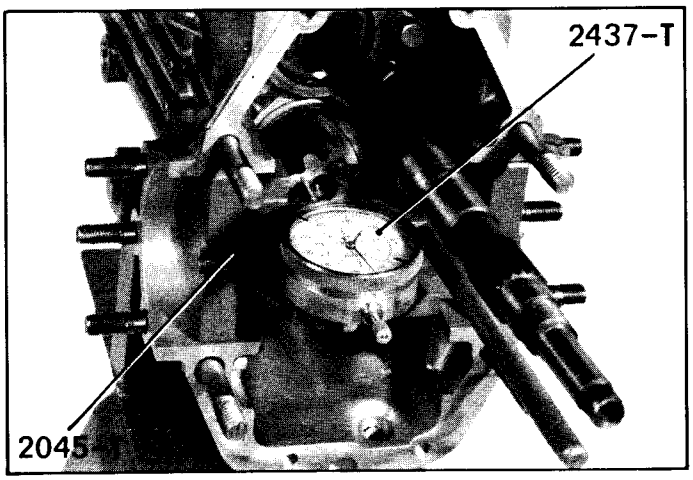
The adjustment of the conic distance should be made by using the adjusting fixture 2045-T together with a dial gauge 2437-T.

This fixture is constructed so that the distance between the centreline of the ground contact surfaces and the contact points is 48 mm.

IMPORTANT NOTE :
The measurements should not be taken from the joint facing, since the machining tolerance for this face is measured in several tenths millimetres as compared with the centre of the bores of the differential bearings.

a) Place the adjustment fixture on a surface plate bringing the figure zero on the movable dial in line with the large pointer.
Note the position of the pointers on the dial gauge.

Example : totalizing pointer on figure (6), large pointer on zero.



b) *Gearboxes with the gear change lever on the rear cover :*

Measure the actual distance of the bevel pinion :

1°) Put the adjusting fixture in place on the differential ; pivot the adjusting fixture by means of the knurled handle, until the large pointer of the dial gauge changes its direction of rotation : note the readings given by the dial gauge pointers.

Example : totalizing pointer between 5 and 6, large pointer on 49,

2°) Bring the pointers back to the position in which they were in paragraph « a » by pulling on the dial gauge stem.

3°) Slowly release the dial gauge stems counting the number of turns and fractions of a turn made by the large pointer until the point again contacts the ground face of the bevel pinion.
Check to make sure that the dial gauge pointers have returned to exactly the same position as in b) 1°).

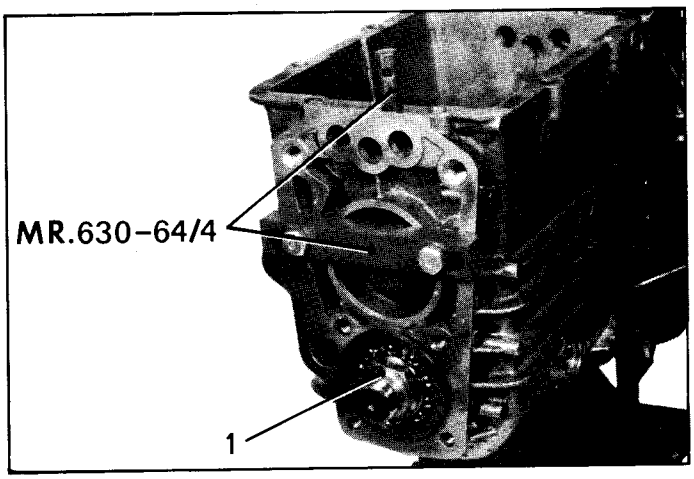
Example : the large pointer has rotated 0.51 turns, that is to say that the dial gauge point has travelled 0.51 mm from the position it occupied when the adjusting fixture 2045-T was placed on the surface plate (see paragraph a). Therefore, the actual conic distance setting :
48 mm + 0.51 mm = 48 51 mm.
The dimension etched on the ground end of the bevel pinion being for example 49.50, it is necessary to move the bevel pinion from the differential centreline 49.50 - 48.51 = 0.99 mm.

The thickness of the adjustment shims to be placed between bearing flange and casing in the above example, would be 1 mm, because the shims sold by our Replacement Parts Department only allow for adjustments to be made to within 0.05 mm.

c) *Gearbox with gear change lever on the upper cover*

Proceed as indicated above, taking into account the thickness of the adjusting washer (fitted at paragraph 38, sub-paragraph c) and choose an adjusting washer so as to make the conic distance previously measured equal to that etched on the bevel pinion.

3720



d) Remove (as applicable) the flange securing the bearing and the four distance pieces or the rear cover.

- Place in position holding fixture MR. 630-64/4.

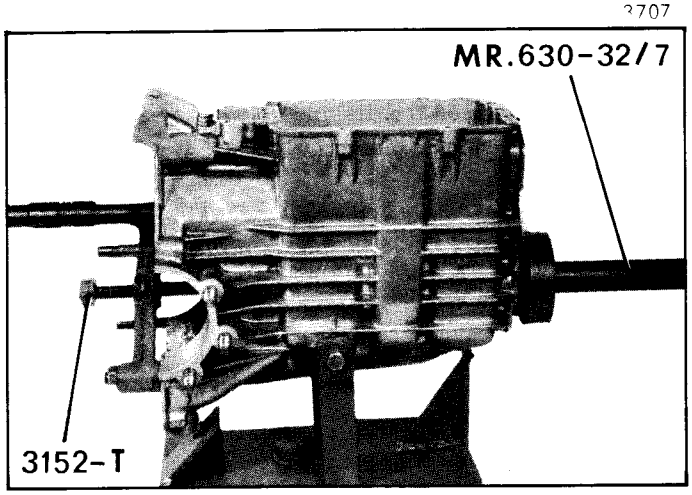
- Remove the nut from the bevel pinion.

- Remove the rear bearing, using two levers.
  CARE : Do not damage face of joint.

- Remove fixture MR. 630-64/4.

Place in position (as applicable) the adjusting shims previously determined, between the thrust flange of the bearing and the housing or between step-down gear pinion and the bearing.

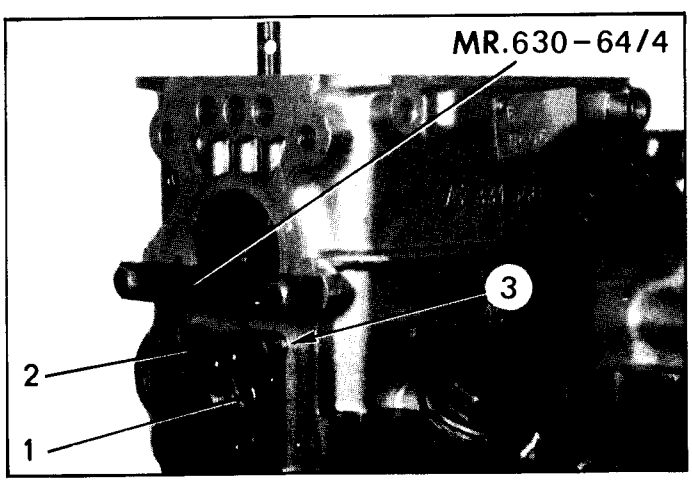
3707



e) Fit the rear bearing, using mandrel MR. 630-32/7, and supporting the bevel pinion by means of the thrust screw 3152-T.

- Place in position fixture MR. 630-64/4 and tighten the nut to between 70 and 85 mAN (7 to 8.5 m.kg).

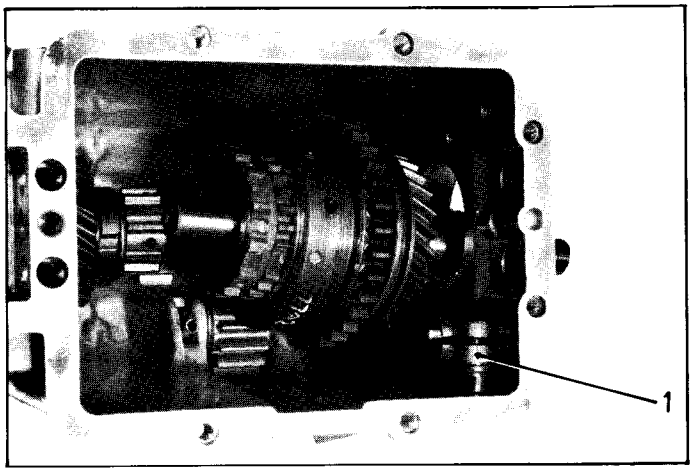
- Remove the thrust screw 3152-T and the fixture MR. 630-64/4.

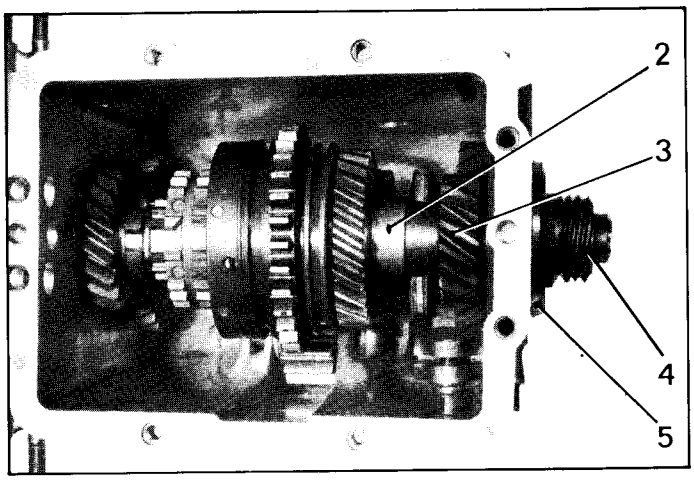


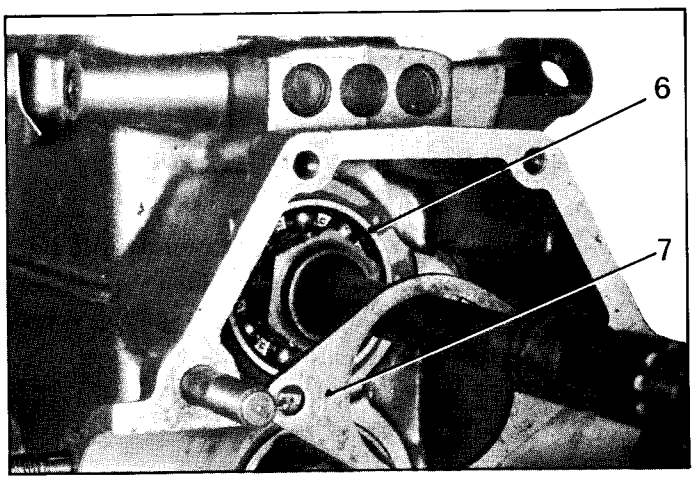
f) Fit the flange (2) securing the bearing with its four distance pieces (3) and tighten the screws to 25 mAN (2.5 m.kg) or fit the rear cover securing it with four screws only.

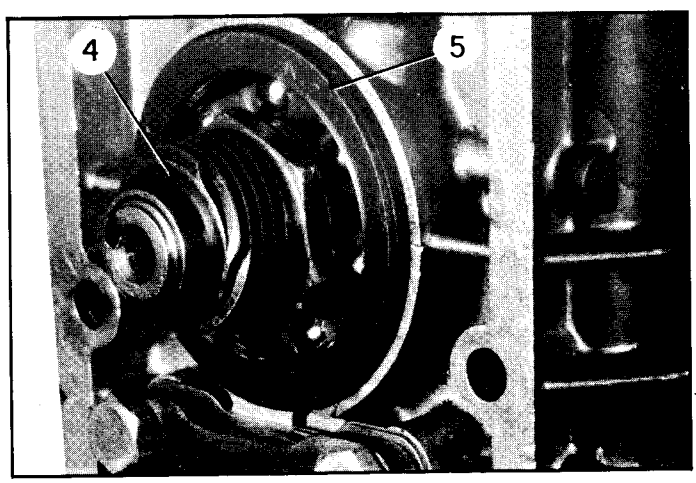
g) Check again the conic distance as indicated above.

h) Remove (as applicable) the rear cover.
Tap over the metal of the nut (1) to lock it.
(Perpendicular blows to the shaft are prohibited in order to avoid damage to the bearing).









40. Fit the main shaft and the primary shaft :

a) *The toothing of the main shaft has a larger diameter than that of the bearing :*

- The main shaft having been fitted at para. 38, position the primary shaft.

- Place the fork (1) of the overdrive in the groove of the sliding pinion, with the head of fixing screw positioned towards the left hand-side of the gearbox.

  Ensure that the sliding pinion is engaged on the step-down pinion.

- Offer up the assembly of primary shaft, sliding pinions and second gear idler pinion in the gearbox casing. Engage the end of the shaft in the needle bearing cage of the main shaft pinion and the sliding pinion on the 3rd gear dogs.

- Position the distance piece (2) and the step-down gear pinion (3).

b) *The toothing of the main shaft has a smaller diameter than that of the bearing :*

- Place the overdrive fork (1) in the groove of the sliding pinion, with the head of the securing screw positioned towards the left of the gearbox.

- Position the assembly shaft and pinion in the gearbox casing.

- Fit the main shaft making sure that the dogs on the main shaft mesh with the second third gear sliding pinion (use a tube placed against the outer race of the bearing (6) (inside ϕ of tube = 46 mm, outside ϕ = 52 mm, length = 300 mm).

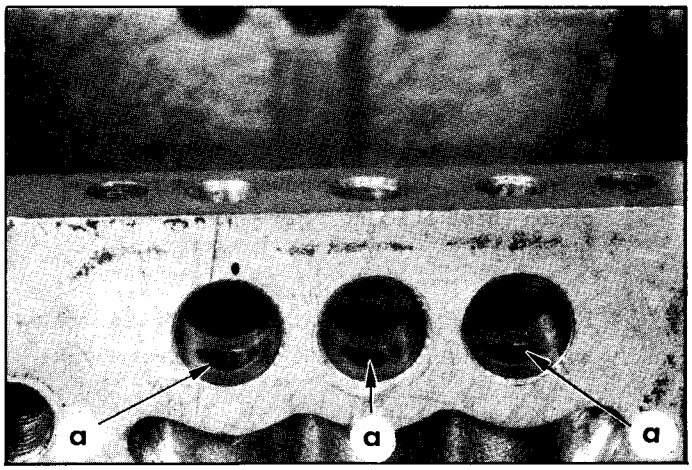
- Fit and tighten the securing flange (7) to 25 mN (2.5 m.kg).

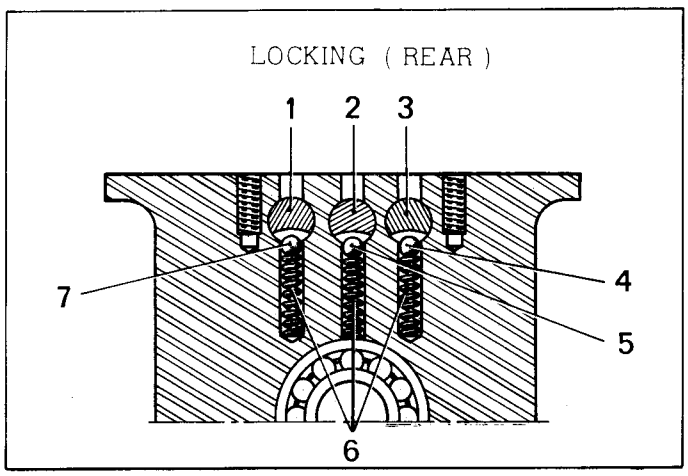
c) Fit the rear bearing (5) (mandrel MR. 630-32/7).

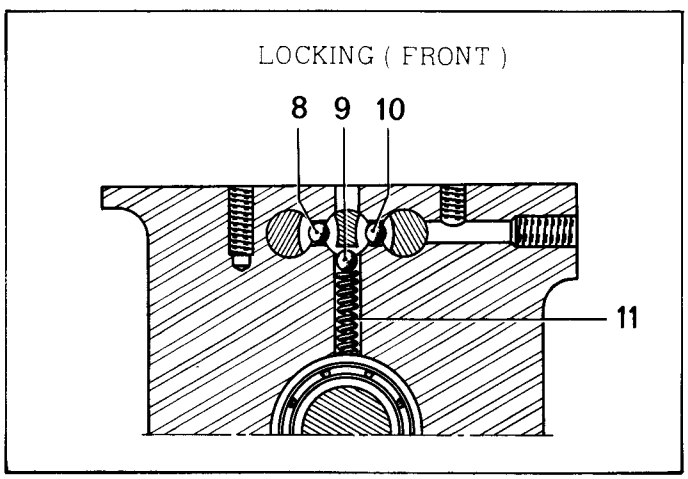
d) Place the speedometer screw (4) forming a nut or flexible washer, the distance piece and the speedometer screw (as applicable).

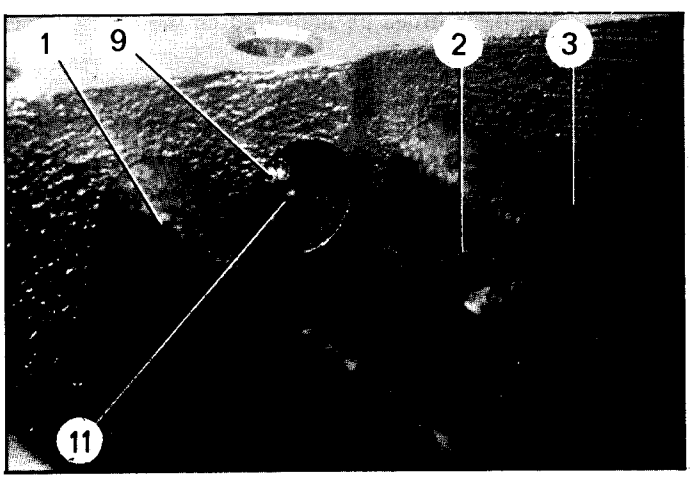
e) Engage two speeds, tighten the nut to between 70 and 90 mN (7 to 9 m.kg).

Lock the nut by turning over the metal or fitting split pin.









41. Fit the selector fork shafts :

A - *Gearbox with gear change lever on the rear cover :*

- Place the 2nd and 3rd gear selector forks and those of 1st and reverse gear in the grooves of their sliding pinion (head of the fixing screws positioned towards the left).

  Fit the springs (6) in their housings « a ».

  Position the 4th gear selector fork shaft (1) previously oiled and fitted with its locking segment ; grease and fit the locking ball (7) on the spring.

  Block the shaft passageway on the gearbox side, with one finger.

  Compress the ball and spring assembly using a rod (5 mm ϕ).

  Fit the shaft after having turned it 1/4 of a turn to prevent it from locking and complete fitting in its selector fork until it reaches neutral position. Rotate 1/4 of a turn so that it reverts to its normal position.

- Fit the shaft of 1st-reverse gear (3) :
  Grease and fit the ball (4) on its spring and proceed as above.

- Fit 2nd-3rd gear shaft (2) :

  Oil and position the shaft (rotating it 1/2 of a turn).
  Grease and fit the ball (5) on its spring.

  Block the shaft passageway on the gearbox side.

  Compress the ball and spring assembly using a rod (5 mm ϕ).

  Fit the shaft.

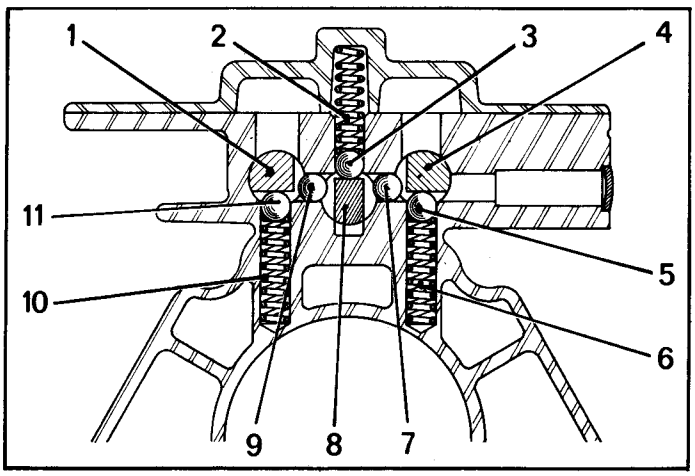
  Insert the shaft in selector fork.

  Rotate the shaft to bring it to normal position (do not engage the shaft to fullest extent).

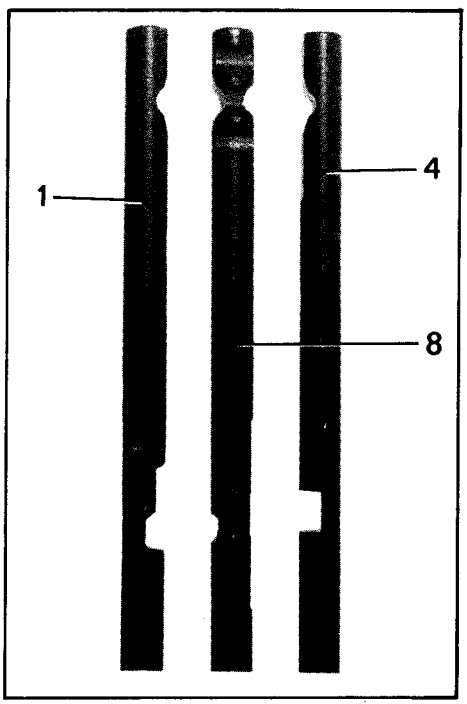
  Position the spring (11).

  Fit the safety balls (8) and (10) then ball (9) on the spring (11) (the ball having previously been greased).

  Compress the ball (9) and spring (11) assembly and complete the engagement of 2nd-3rd gear fork selector shaft up to neutral position.



LOCKING



B - *Gearbox with gear change lever on the upper cover :*

- Place the selector forks of 2nd - 3rd gear and 1st - reverse gear, into the grooves of their sliding pinion (head of fixing screws positioned towards the left).

- Position the springs (10) and (6) for the locking balls of overdrive and 1st - reverse gear shafts.

- Oil the three shafts.

- Fit the overdrive shaft (1) in gear casing (the end with the locking splines towards the front), then in the fork, but without inserting it in the front housing of the casing.

- Position the balls (7) and (9) previously greased.

Fit the 2nd - 3rd gear shaft (8) in the casing, then in the selector fork, the end with the splines towards the front.

Introduce the shaft into its front housing, arranging as indicated in the diagram and photograph herewith.

Position the ball (3) previously greased.

Move the shaft in « neutral » position.

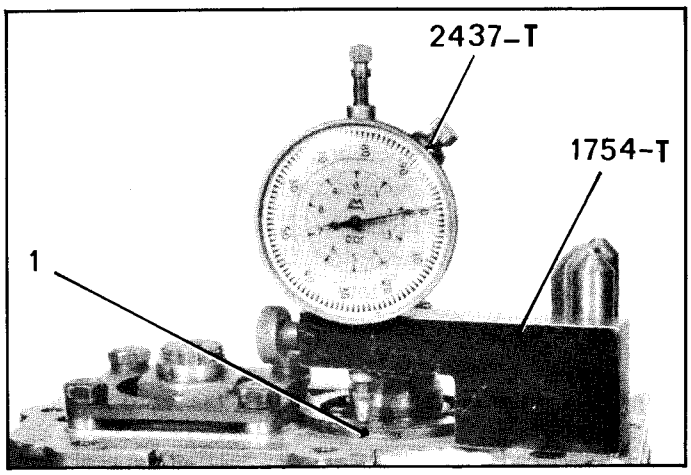
- Fit the 1st and reverse gear shaft (4) into the casing, then into its selector fork, with splined end toward the front.

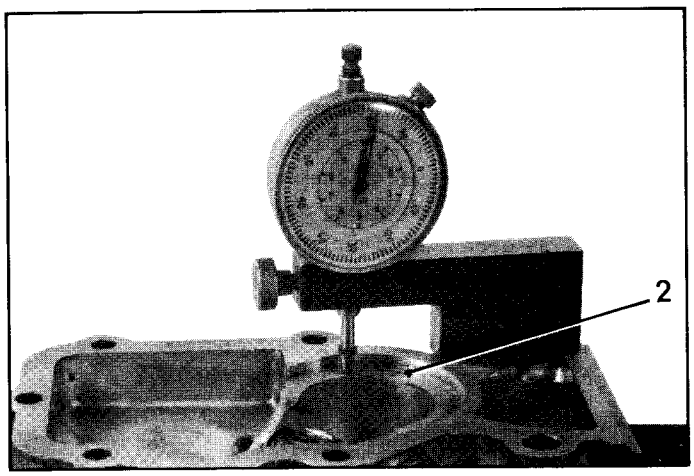
- Position the ball (5), previously greased, on the spring (6).

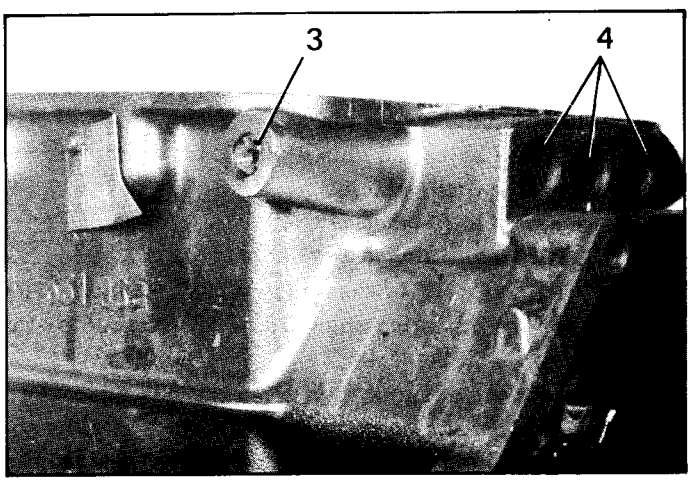
Compress the assembly of ball and spring using a rod 5 mm in ϕ, and complete the engagement of 1st and reverse gear shaft in its front housing positioning the splines as indicated on the diagram and photograph herewith.

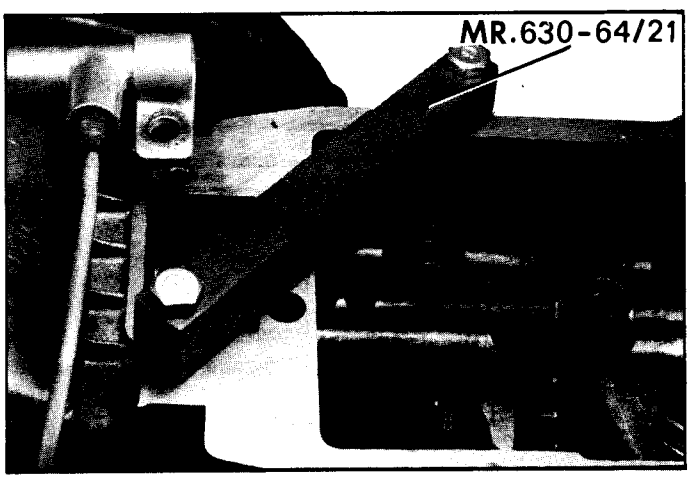
- Position the greased ball (11) on the spring (10). Compress the assembly of ball and spring using a rod 5 mm in ϕ and complete the engagement of the overdrive shaft (1).

- Set the overdrive and 1st - reverse gear overdrive shafts in « neutral » position.









42. Fit the rear cover :

a) *Gearbox with the gear change lever on the rear cover :*

a) Ensure that the flange of the bearing of the primary shaft is firmly in contact against the gearbox casing.

b) Measure the projection of the bearing (1) (using straight edge 1754-T equipped with dial gauge 2437-T).

c) Measure the depth of the bearing recess in the cover (2). The difference between these two measurements, increased by 0.05 mm indicates the thickness of the shims to be placed between the upper bearing and the cover.

Coat the joint of the cover with CURTYLON.

Hold the shims in place with grease.

Fit the cover and tighten the screws.

d) Fit the plug (3) or the screw on the front right-hand side of the gearbox.

Fit blanks (4) coated with CURTYLON if the casing has been renewed.

NOTE : These blanks do not exist on pressure cast casings.

b) *Gearbox with gear change lever on the upper cover :*

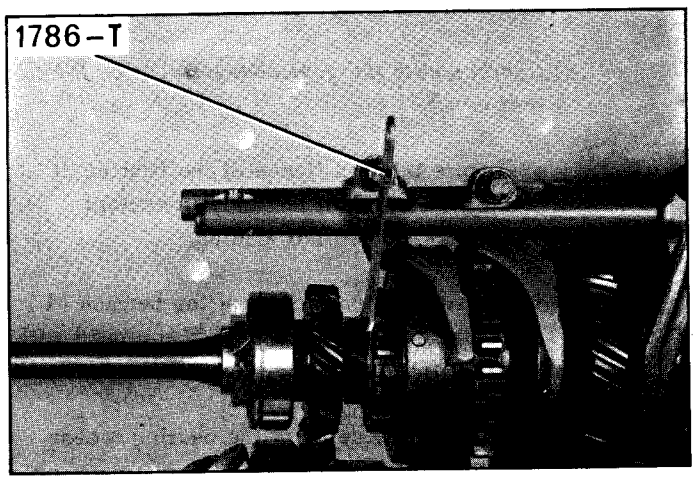
Ensure that the casings and cover joint surfaces show no traces of bruising or scratches. Coat them with CURTYLON Masti-joint. Tighten the screws to between 15 and 20 mN (1.5 to 2 m.kg).

43. Adjust the selector forks :

a) Adjust the selector fork of 2nd - 3rd gear :

- Set the selector fork spindle in « neutral » position.

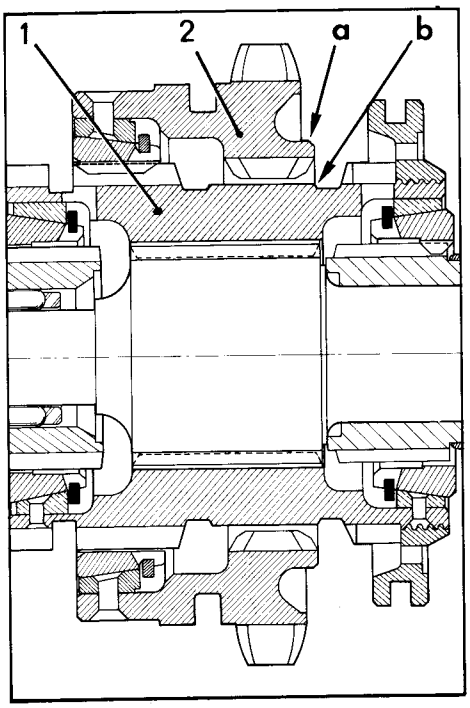
NOTE : In the case of a gearbox with the gear change lever on the upper cover the operation is more easily carried out by using clamp MR. 630-64/21 which holds 2nd - 3rd gear shaft locking ball and spring in position.



- Set the adjusting shim 1786-T, 1.8 mm thick on the synchronizing segment of the driving shaft.
- Using the selector fork, move the 2nd and 3rd gear sliding pinion into contact with the adjusting shim in order to obtain a play of 1.8 mm, between the end of the 2nd and 3rd gear sliding pinion and the main shaft dogs.
- Tighten the selector fork fixing screw.
  (For screws with flats use spanner 1677-T).
- Disengage the adjusting shim.

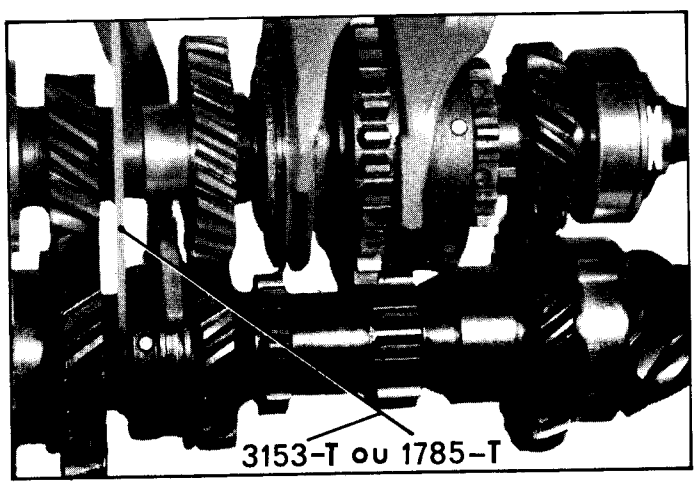
b) Adjust the selector fork 1st - reverse gears :

IMPORTANT : Before starting this adjustment, it is essential that the selector fork of 2nd and 3rd gear is correctly adjusted.
Ensure that the selector fork shafts is in « neutral ».
Position 1st gear - reverse gear sliding pinion (2) bringing it, by means of the selector fork, to the centre of its travel on the 2nd - 3rd gear sliding pinion (1), which brings the rear face of the 1st - reverse gear sliding pinion « a » with the rear end « b » of the ground portion of the 2nd and 3rd gear sliding pinion.
Tighten the selector fork fixing screw.
(For screws with flats use spanner 1677-T).



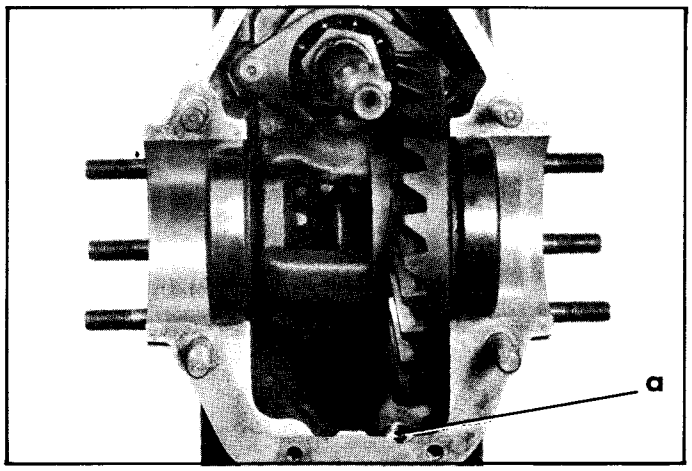
c) Adjust the 4th gear (overdrive) selector fork :

- Ensure that the selector fork spindle in the « neutral » position.
- Place the adjusting shim on slow running ring of idle reduction gear pinion :
- Use the adjusting shim 1785-T, 1.50 mm thick for the following vehicles :
  - *AZ up to February 1970.*
  - *AZU up to January 1972.*
  - *DYANE (AYA) from August 1967 to March 1968.*
- Use the adjusting shim 3153-T, 2.70 mm thick for other vehicles.
- Using the selector fork, bring the sliding pinion of 4th gear in contact with the adjusting shim so as to obtain a play (of the amount determined above) between the end of the 4th gear sliding pinion and the idle reduction gear pinion dogs.
- Tighten the selector fork fixing screw.
- Disengage the adjusting shim.



d) Check the operation of the gears successively of the gears.
Remove clamp MR. 630-64/21.

e) Fit the upper cover.
Pay attention to 2nd - 3rd gear change locking spring (gearbox with gear change lever on the upper cover).



44. Fit the differential :

- Oil the bearings. Put the outer races of the bearings on the rollers.

Position the differential assembly in the half of housing.

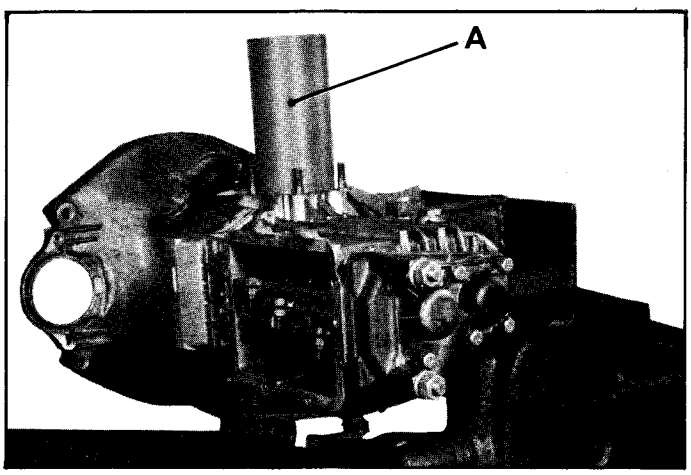
NOTE : The crown wheel passes via the centre line of the drain plug « a ».

- Fit the clutch housing, and when tightening, make sure that the bearing faces of the differential shaft hubs on the clutch housing and gearbox casing are correctly aligned

NOTE : If neither the clutch housing, the crown wheel and pinion, the roller bearings nor the bearing housings have been replaced, there is no need to adjust the bearing clearance, provided that the same adjustment washers, found when dismantling are used in exactly the same positions.

Fit the left-hand hub assembly inserting two gaskets between the hub housing and the casing.

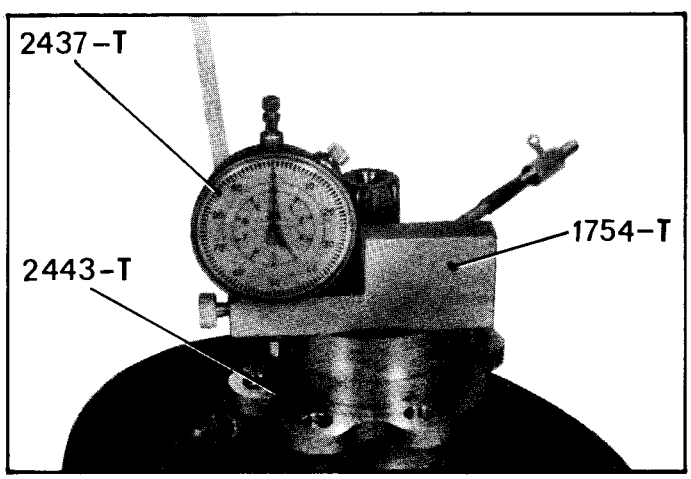
Tighten the nuts to between 38 and 42 mAN (3.8 to 4.2 m.kg).



45. Adjust the bearing clearance :

a) Clamp the gearbox on its bracket in a vice, as shown opposite.

b) Make sure that the differential is properly positioned against the left-hand hub and that the outer races are properly located on the rollers by lightly tapping on the outer race of the right-hand bearing with a tube «A» (outside ϕ 71.5 mm, inside ϕ 58 mm, 150 mm long).

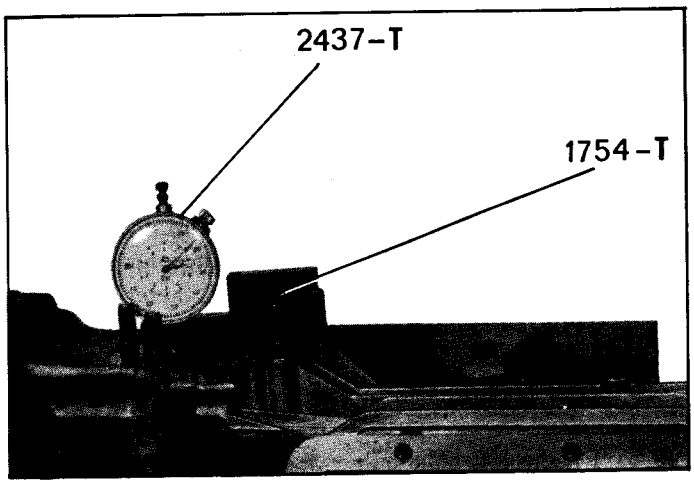


c) Fit the straight edge 1754-T together with dial gauge 2437-T (with extension 2443-T) on the hub shoulder of the bearing as shown opposite, with dial gauge point in contact with bearing.

Bring the zero mark on the movable dial of the gauge opposite the large hand and note the position of the totalizing needle.

Example : Totalizing needle between 7 and 8, large needle on zero.

Take this measurement at several points and take the meansurement. The difference between the measurements should not exceed 0.05 mm.



d) Without disturbing the dial gauge, place a straight edge 1754-T on the hub bearing face of the casing the point of dial gauge resting on the outer race of the bearing. (*Make sure that the point of the extension of the dial gauge does not rest on the inscription engraved on the bearing, as this would give a false reading*).

Note the position taken by the dial gauge needle and make sure that this remains constant (within about 0.02 mm) when measurements are taken at three equidistant points of about 120°.

If the reading is the same the bearings of the differential are not seated properly on the left-hand hub, and their correct positioning must be re-checked as indicated at b) above. Take the measurement again.

Example : totalizing hand between 4 and 6, large hand at 54.

e) Bring the dial gauge hands back to the position they occupied at c) by pulling on the dial gauge spindle.

Slowly release this spindle and count the number of complete turns and partial turns made by the large hand, until the point of the dial gauge is again on the outer race of the bearing.

Check that the dial gauge hands have returned to the same position they occupied in «d»).

Example : the large hand has made 1.46 turns.

Select from among the adjusting shims sold by our Replacement Parts Department those which give this thickness.

Check this thickness.

Put these shims aside for subsequent fitting.

46. Adjust the clearance between the teeth :

a) Put the gearbox on its bracket in a vertical position.

Remove :
- the left-hand bearing,
- the two paper gaskets,
- the clutch housing.

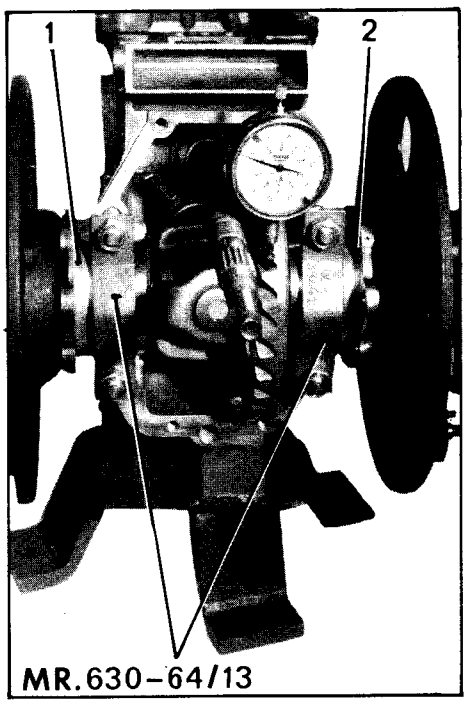
b) Secure the differential using the two clamps MR. 630-64/13.

Fit a paper gasket (without shim) on the left-hand hub.

Fit the left-hand hub (2) and secure it.

Place on the right-hand side :
- all the adjusting shims (determined in para. 45) against the outer race of the right-hand bearing,
- a paper gasket,
- the right-hand hub (1), and secure by two nuts.

Ensure that the differential turns without any hard spots.

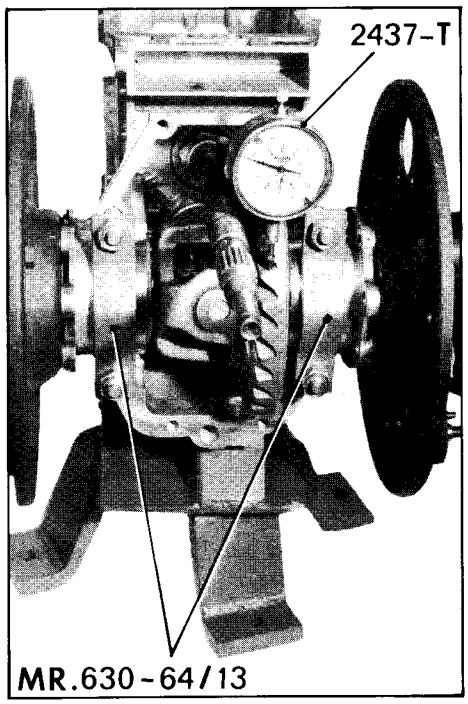


c) Fit the dial gauge 2437-T, in position on the upper left-hand securing stud of the clutch housing, using only the adjustable component of the dial gauge 2041-T.

Adjust the position of the dial gauge so that its point rests perpendicularly on the flank of one tooth on the periphery of the crown wheel.

The figure for the clearance between the teeth should be :
0.14 and 0.18 mm *(gearbox with the control lever on the upper cover)*
0.13 and 0.23 mm *(gearbox with the control lever on the rear cover).*

d) Measure the clearance between the teeth on four teeth at an angular distance of 90° approximately (keep the bevel pinion stationary, holding it by hand) and take the average of the four measurements.
The distance between two measurements must not exceed 0.1 mm.
If it does the crown wheel is running out and must be replaced or there is a foreign body between the crown and the differential housing.
Example : movement measured : 0.77 mm.



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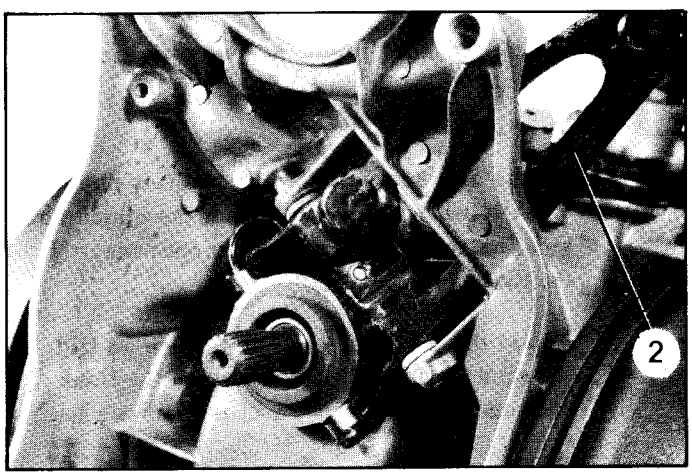
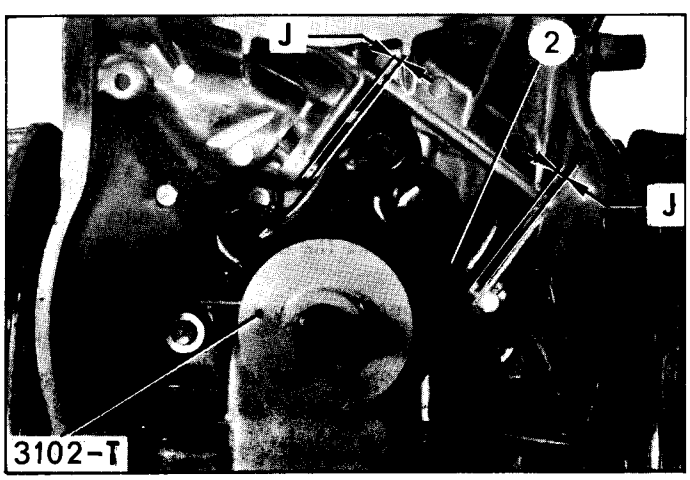




e) Determine the thickness of the adjusting shims to be removed from the right-hand side and placed on the left-hand side.

NOTE : Moving one adjusting shim having a thickness of 0.1 mm will cause a variation of 0.07 mm approximately in the meshing clearance.

Example : Clearance between the teeth measured = 0.77 mm
minimum clearance to be obtained = 0.14 mm
difference = 0.63 mm

The thickness of the shims to be moved in this case is therefore :

$$\frac{0.63 \times 0.1}{0.07} = 0.90 \text{ mm}$$

Loosen the two clamps MR. 630-64/13.
Remove the left and right-hand hubs.
Take away from the right-hand hub, shims of the thickness determined above (in the example given : 0.90 mm) and position them under the left-hand hub.

Fit the hubs.

Tighten the two clamps.

Check the clearance between the teeth and make any necessary modification by changing one or several shims from one side to the other.

Remove :
- the dial gauge 2437-T and the support 2041-T
- the two hubs (mark the shims : do not damage the gaskets),
- the two clamps MR. 630-64/13

f) Coat with CURTYLON the mating faces of the clutch housing. Fit the housing, tighten the nuts to between 35 and 45 mN (3.5 to 4.5 m kg) and fixing screws to between 15 and 20 mN (1.5 to 1 m kg). While tightening, ensure that the bearing faces of the differential shaft hubs on the differential housing and the gearbox casing are in alignment.

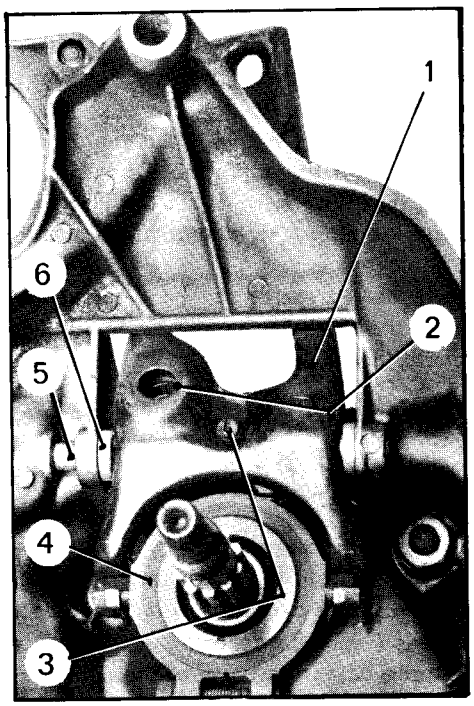
47. Fit the clutch selector fork :

a) *Gearbox with graphite clutch stop :*

1°) Centre the fork :
Fit the clutch release fork (2).
Place the bush 3102-T on the driving shaft splines.
Swing the fork so that the two support fork for the clutch stop ring come into contact with the bevelled portion of bush 3102-T.

With feeler gauge, measure clearance on either side of fork at point « j ».

Choose washers with appropriate thickness to leave clearance of between 0.03 and 0.4 mm on either side of the fork.
Remove ring 3102-T, the fork and the shaft.



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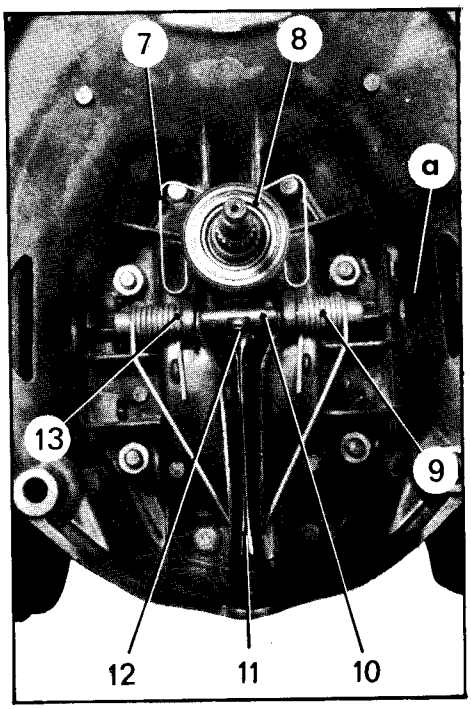

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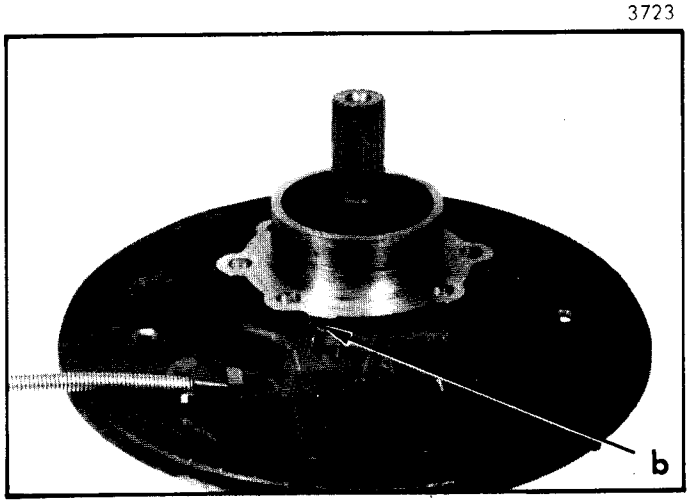


2°) Fit the fork.
Fit the clutch stop ring (4) in the fork (1)
Position the spring (2).
Offer up the fork equipped with its clutch stop ring.

Oil and fit the spindle (5) with thrust washers (6) determined as above (or the distance pieces, for early type housings) and by compressing the spring.

Insert the spindle and position it by turning the screwdriver.

Screw the locking screw (3).

b) *Gearbox with ball bearing stop ring :*

Place in position the-two anti-noise bushes (13) in the spirals of the spring (9), with the shoulders face to face.

Lightly oil the spindle (10).

Hold in position the selector fork (11) and its spring (9).
Insert the spindle (10) through one of the holes « a » in the casing, then through the spring, the fork and the hubs.

Position the spindle and tighten the nut (12) (shakeproof washer).

Fit the stop ring (8) on the hub.

Fit the stop clip (7) locking the bearing stop ring on the fork.

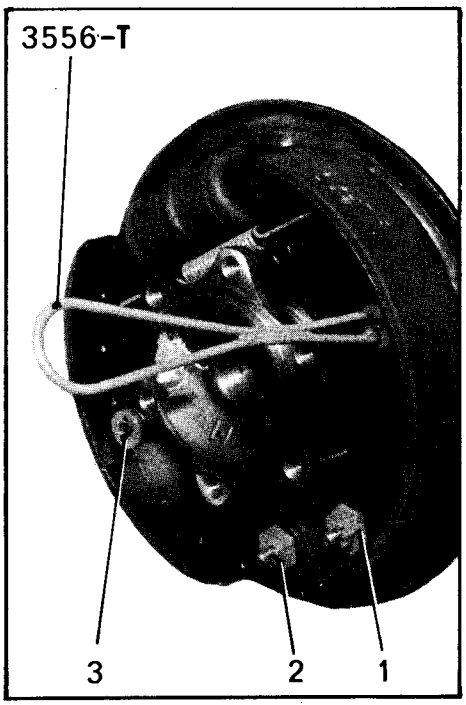
48. Fit the hubs and brake backplates :

- Stick the adjusting shims with grease against the outer bearing rings of the differential bearings.
- Fit the front guide-rods on the backplates.
- Fit the hubs, inserting a gasket.

NOTE : Position (as applicable) the hubs so that the overflow holes « b » point downwards.

Tighten the securing nuts (shakeproof washers) to between 38 and 42 mΛN (3.8 to 4.2 m.kg)

3566



49. Fit the brake shoes :

a) Hook the return springs onto the shoes with the hand-brake lever on the longer shoe.

b) Position the shoes, hooking the hand-brake cable to lever.

c) Lightly oil the adjusting eccentrics (1) and put them in position. Fit the plain washers and the nuts (2), provisionally tighten them

d) Fit the rear guide rods, the thrust springs and the retaining caps (3), locking them with tool 3556-T.

Ensure that the shoes operate freely.

50. Fit the wheel cylinders :

- Separate the brake-shoes by turning the adjusting cams to the maximum.
- Fit the wheel cylinders. Fit the adjusting screws (spring washer).

Bring the adjusting cams to their initial position.

51. Centre the brake shoes :

(Use centring apparatus 3570-T)

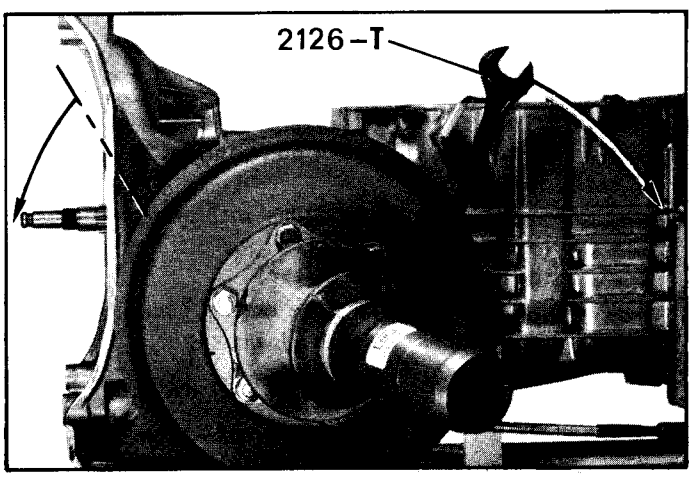
52. Fit the brake drums :

True drums if necessary, using *(as applicable)* mandrel 2118-T or MR. 630-35/7, or mandrel MR. 630-35/11.

Fit the drums and drive shafts on drum side *(as applicable)*.

Tighten the screws to 45 mAN (4.5 m.kg) or nuts to 25 mAN (2.5 m.kg).

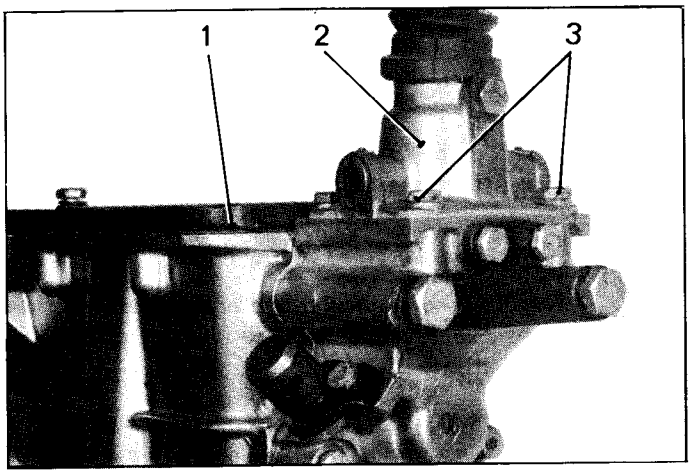
PL. 440

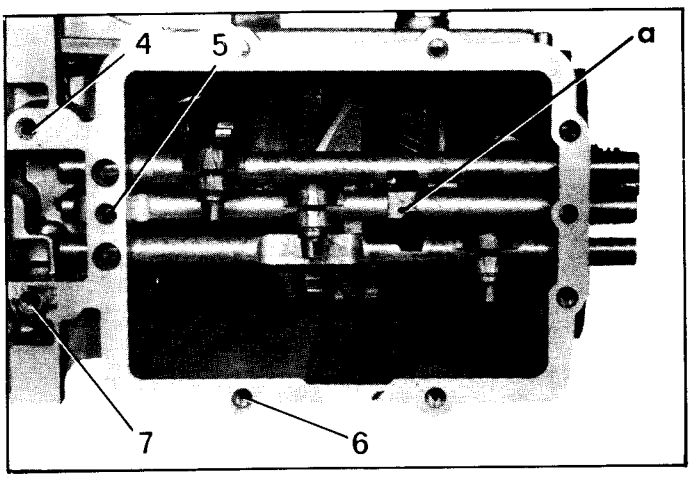


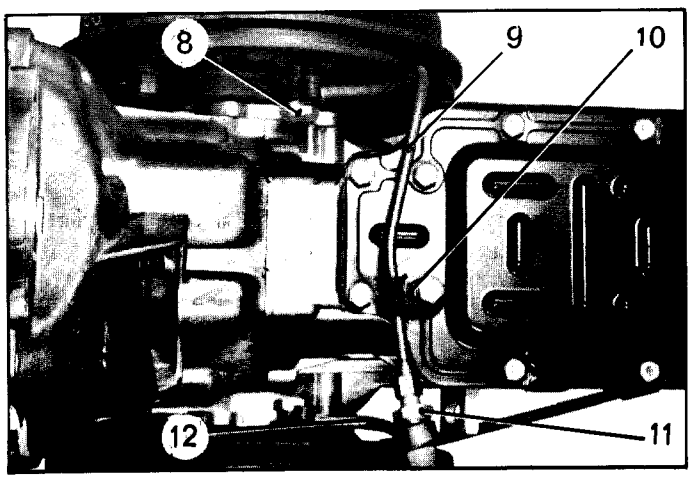
53. Adjust the brake shoes :

Turn the cam spindle using spanner 2126-T (or a 14 mm ring spanner) in the direction shown opposite, at the same time turning the brake drum by hand until the brake shoe comes in contact with it. Withdraw the shoe lightly to free it and bring it forward again until the lining exerts a light pressure. *(Never complete the adjustment by withdrawing the shoe from the drum).*

Proceed in the same manner for the other shoe.







54. Fit (as applicable) gear change forks control lever on the rear cover :

Pack the lever (2) on the casing with grease (TOTAL MULTIS).

Position the lever, inclining it towards the left to clear the selector fork tip (if fitted).

Tighten the four fixing screws (3). (spring washer).

Check the operation of the lever.

55. Fit the upper cover :

a) *Gearbox with control lever on the rear cover :*

Fit a cork gasket with CURTYLON on the cover (1).

Tighten the screw (spring washer).

b) *Gearbox with control lever on the upper cover :*

Ensure that the forks are all in « neutral » position.

Coat the faces of the cover joint with CURTYLON paste.

Fit in position the spring (5) for the locking ball of fork spindle for 2nd and 3rd.

Fit the cover, positioning the spindle control lever so that its ends fits into notch « a » in the fork spindle of 2nd and 3rd speed.

Position the fixing screws except those at at points (4), (6), and (7). Tighten moderately.

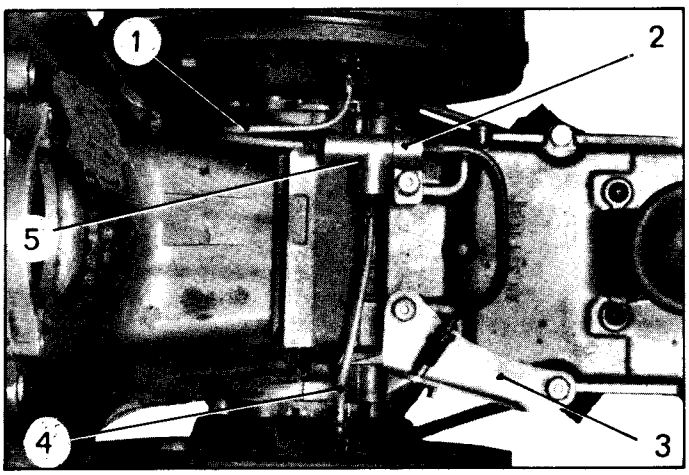
56. Fit the brake piping :

a) *Gearbox with control lever on the rear cover :*

Fit the right-hand connecting tube (9) with its fixing lug (10) and a copper joint on either side of the screwed union (8) and tighten this screw provisionally.

Fit the left-hand connecting tube (12).

Provisionally assemble left and right-hand connecting tubes with the distribution connection (11) fitted with a copper joint.



Fix the right-hand connecting tube to the upper cover fit a distance piece ; tighten the screw (flat and spring washers).

Tighten the union screws to the wheel cylinders.

NOTE : The distribution connection is tightened after fitting the gearbox on the vehicle.

b) *Gearbox with control lever on the upper cover :*

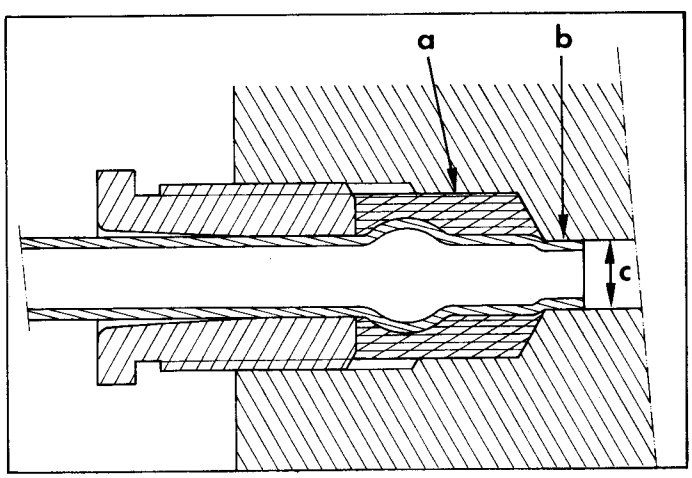
NOTE : The sealing of the brake lines is achieved by seals which must be renewed after each dismantling.

IMPORTANT : Never use jointing marked in green, which deteriorates rapidly under the action of brake fluid used in this type of vehicle.

When fitting, the seal « a » should stand down 2 mm below the end of the tube « b ».

Centralize the tube in the bore offering it up in the centre of the hole.

Ensure that the end of the tube « b » enters well the small bore at « c ».



Start fitting the union screw by hand and tighten it moderately 6 to 8 mΛN (0.6 to 0.8 m.kg).

Provisionally connect :

- the left-hand (4) and right-hand (1) brake piping to wheel cylinders,
- the three-way union (5) to the brake piping

Fix the three-way union to the casing with a clip (2)(distance piece plain washer and shake-proof washer).

Finally tighten the union screws.

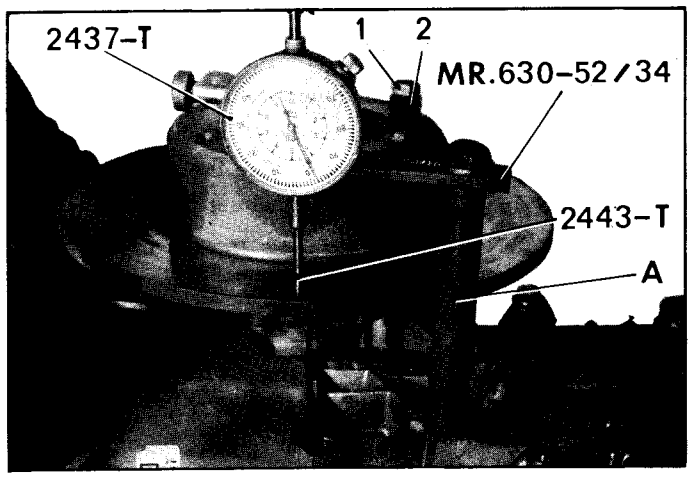
Fit the bracket (3) securing the connection Tighten the screws (distance piece shake-proof washer).

57. Provisionally fit the oil filter plug with metalloplastic gasket.

Tighten the drain-plug, fitted metalloplastic gasket.

58. Remove the gearbox from its bracket MR. 630-43/3.

FITTING THE DISCS AND THE BRAKE CALIPERS.



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58. Fit the brake discs :

Position the discs. Fix them by means of three securing bolts (1), equipped with spacers (2) (thickness = 10 mm).
Tighten bolts **from 4.5 to 5 m.daN (33 to 36.8 ft. lbs).**

59. Check the disc run-out :

- Use support MR. 630-52/34, fitted with comparator 2437-T (with extensions 2443-T).
- Secure the support and distance tube (A) on the gearbox housing using a bolt for brake caliper fixing (see the figure).
- Rotate the disc : *the run-out must not exceed 0.20 mm.*
- If it does exceed 20 mm, choose among the six positions of the disc, the one which gives the minimum run-out. If the run-out chosen is still superior to the authorized value, change the disc.

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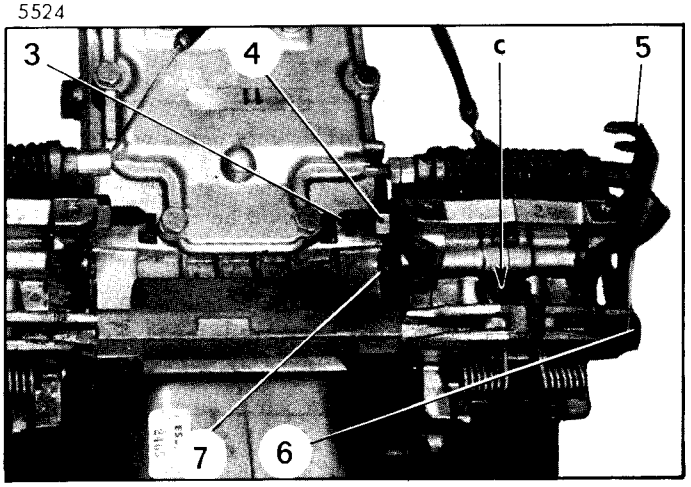
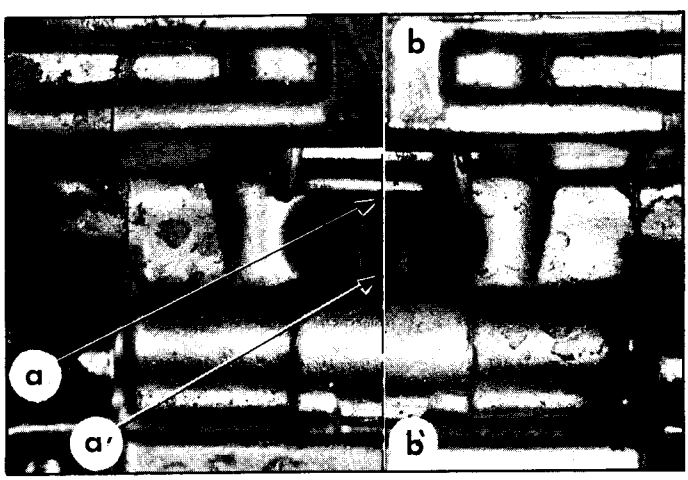


60. Fit the brake calipers :

- Position the caliper (prepared in para. 28) equipped with shim (7) (identified when removed).
- Fit securing bolt (6) without fully tightening it. (plain washer under bolt head, R.H. side, and bracket (5) on L.H. side).
  Swing the caliper in order to position it on the disc. (If necessary, release the rubber holding the securing brake pads in position).
- Remove nut (4), free bolt (3) and position the caliper.
- Fit securing bolt (3), checking that shim (7) is correctly positioned.
  Tighten bolts (3) and (6) **from 4.5 to 5 da Nm (33 to 36.8 ft. lbs).**



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61. Check the caliper position in relation to the discs :

- Make an identification mark « a a' » on the edge of the disc, at an equal distance from the two faces.
- Rotate the disc so that the mark appears through hole « c » of the caliper.
- This mark must coincide with seating surface « bb' » of the two half-calipers.

62. Fit the main brake pads.

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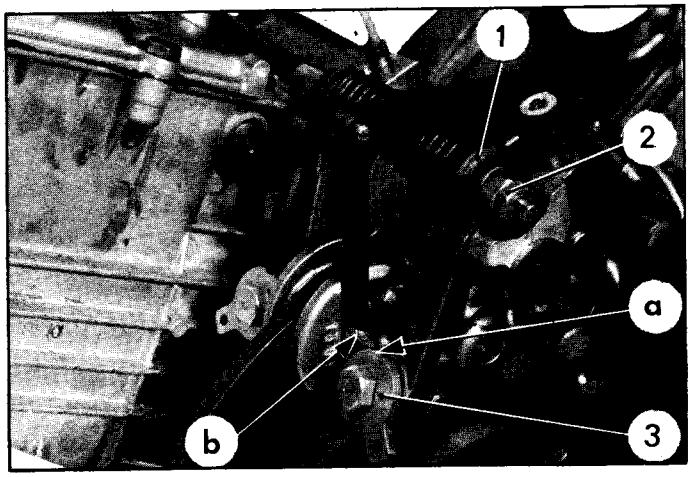

63. Adjust the position of the handbrake pads :

- Check that eccentrics (3) are orientated as shown on the opposite figure (position notches « a » in relation to levers (1)).
- Bring one pad into contact with the disc, using its eccentric , and determine the point of maximum run-out. Then, adjust the eccentric so as to obtain *a 0.10 mm free-play between heel « b » of lever (1) and the pad.*
- Adjust the other pad in the same way.

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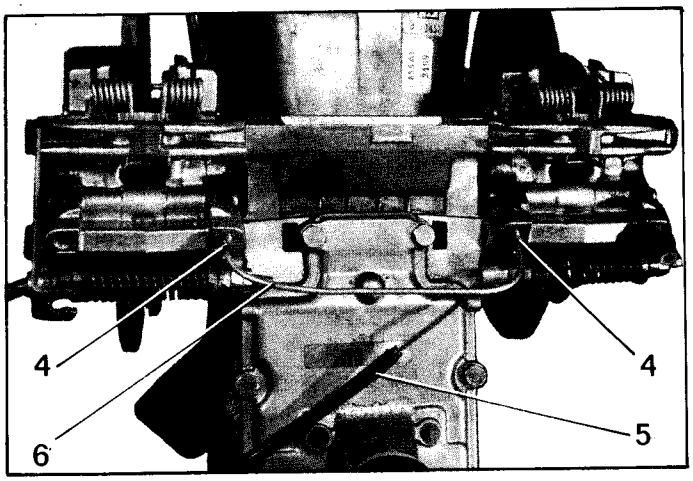

64. Fit connecting pipe (6) :

The correct sealing of unions (4) is ensured by sleeve-seal (7).

For this type of vehicle, only use sleeve-seals identified by a green paint mark.
Any other sleeve-seal would be rapidly damaged by the LHM mineral fluid used for these brakes.

Each time the tube is removed, these sleeve-seals must be replaced.

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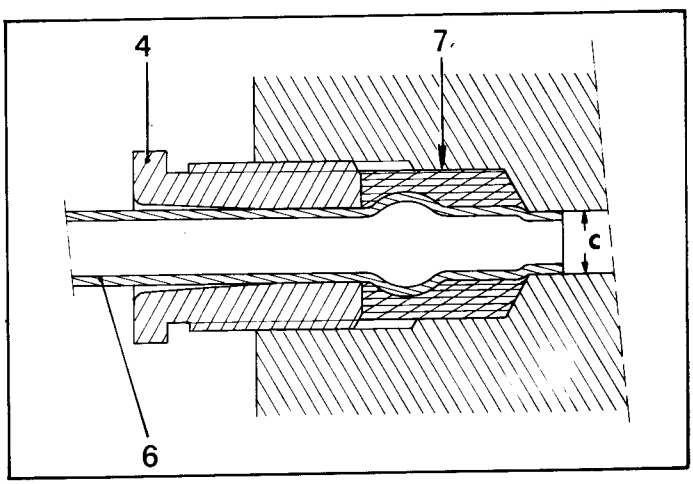

When fitting the brake, the sleeve-seal must be at 2 mm from the end of the tube.

Centre the tube in the bore, positioning it according to the centre line of the orifice.

Make sure that the end of the tube correctly enters the small bore at « c ».

Screw the union-nut by hand and slightly tighten it : **from 0.8 to 0.9 m.daN (5.8 to 6.6 ft.lbs)**. This slight tightening is enough to ensure a correct sealing. *Tightening too strong would entail a leak.*

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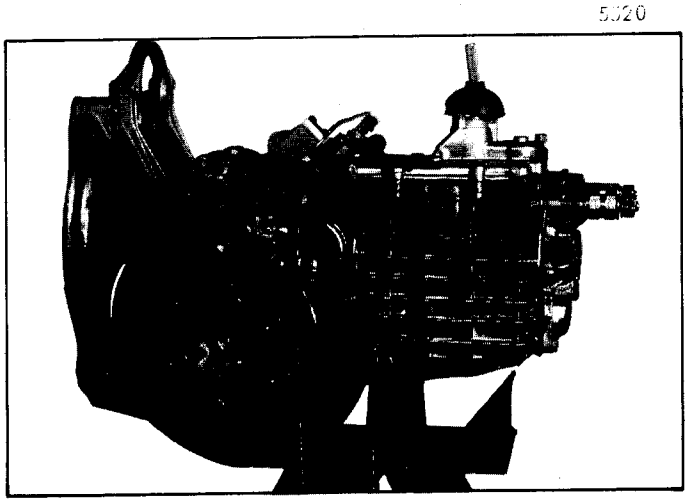

65. Temporarily fit the oil filler plug and its gasket.

Remove the gearbox from its bearer.