

RENAULT

Workshop repair manual

Manual gearbox

Type	Range
PK5	Trafic Master
PK6	Clio V6 Laguna II Avantime Trafic

"The repair methods given by the manufacturer in this document are based on the technical specifications current when it was prepared.

The methods may be modified as a result of changes introduced by the manufacturer in the production of the various component units and accessories from which his vehicles are constructed."

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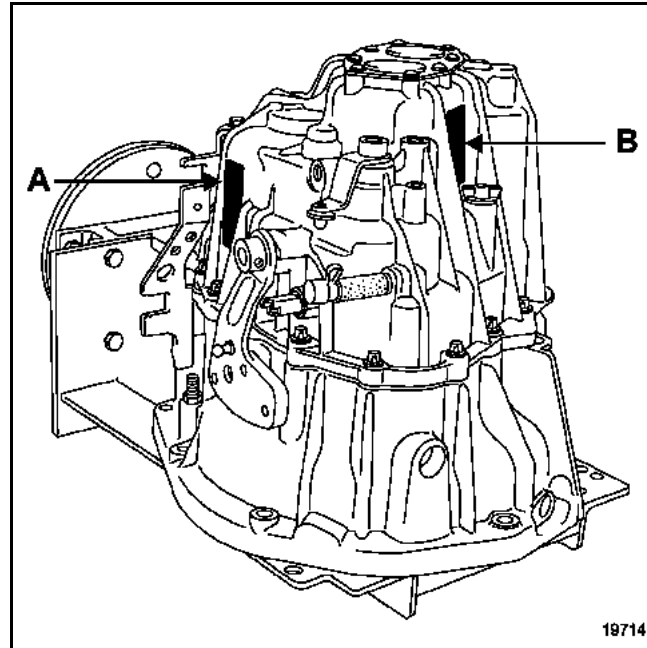
Contents

Page

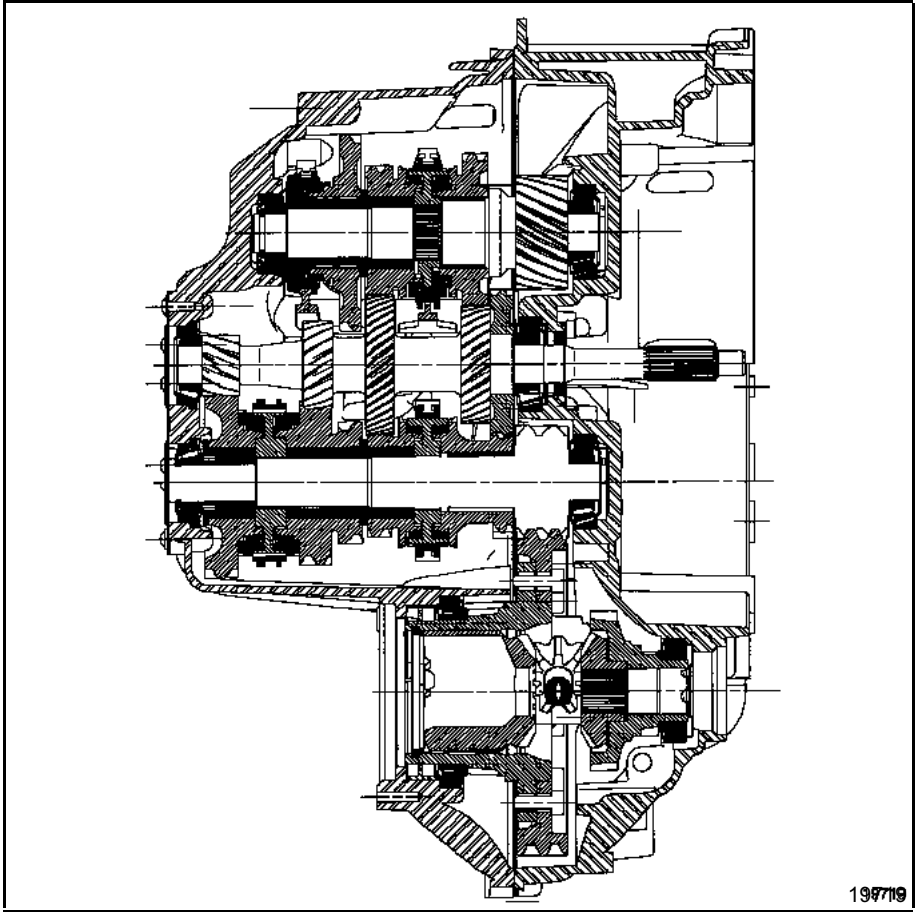
21

MANUAL GEARBOX

Identification	21-1
Section and tightening torques (in daNm)	21-2
Gears	21-3
Consumables	21-4
Parts to be systematically replaced	21-4
Special tooling	21-5
Reassembling gearbox	21-6



A: the gearbox type.
B: the oil volume.



Description	Torque in daNm
Gearbox edge bolts	2.40
Differential crownwheel	13
Reversing switch	2.3
Cable sleeve stop mounting	2.3
Switch	1.5
Concentric stop	0.8
Rear cover (if fitted)	0.8
Rev-counter (PK5)	2

PK5 GEARBOX

Index	Vehicle/engine	Torque	1 st	2 nd	3 rd	4 th	5 th	Reverse
PK5-004	Master/F9Q	16/71	11/46	17/38	31/43	41/37	41/29	27/47
PK5-007	Master/G9Ut	16/67	11/46	17/38	31/43	41/37	41/29	27/47
PK5-008	Master/G9T	16/71	11/46	17/38	31/43	41/37	41/29	27/47
PK5-009	Master/S9Wt	16/71	11/46	17/38	31/43	41/37	41/29	27/47
PK5-010	Master/S8W	15/72	11/51	17/42	21/32	39/43	39/34	27/47
PK5-011	Trafic/F9Q	16/67	11/51	17/38	31/43	41/40	41/31	27/47

PK6 GEARBOX

Index	Vehicle/engine	Torque	1 st	2 nd	3 rd	4 th	5 th	6 th	Reverse
PK6-001	Laguna.II/F9Q	19/64	11/43	19/40	31/43	41/40	41/31	47/30	27/47
PK6-002	Laguna.II/G9T	19/64	11/43	19/40	31/43	41/40	41/31	47/30	27/47
PK6-003	Avantime/F4Rt	17/64	11/43	19/40	29/43	39/43	39/35	41/31	27/47
PK6-004	Avantime/G9T	17/64	11/43	19/40	31/43	41/40	41/31	47/30	27/47
PK6-006	Clio V6/L7X	17/64	11/43	19/40	29/43	39/43	39/35	41/31	27/47
PK6-007	Trafic/G9Ut	16/67	11/43	19/40	31/43	41/40	41/31	47/28	27/47
PK6-008	Trafic/F9Q	17/67	11/51	19/40	31/40	41/37	41/29	47/30	27/47
PK6-009	Trafic/F4R	17/82	11/43	19/40	31/43	41/40	41/31	47/30	27/47
PK6-012	Avantime/L7X	17/64	11/43	19/40	29/43	39/43	39/35	41/31	27/47

Types	Packaging	Part no.	Directions
Gearbox oil			Immerse all components
Rhodorseal	100 g tube	77 01 404 452	Use on housing

CAPACITY(in litres)

PK5 PK6	2.40
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Parts to be systematically replaced

- After they have been removed:
- the lip seals,
 - the O-rings,
 - the bearing circlips,
 - the hub springs,
 - the roll pins.

B. Vi. 31-01	Roll pin drift set
B. Vi. 1235	Differential oil seal fitting tool
B. Vi. 1236	Primary shaft oil seal fitting tool
B. Vi. 1417	Housing supports and chassis
B. Vi. 1418	Adjustable support for fitting bearing races
B. Vi. 1419	Bearing race positioning tool
B. Vi. 1510	Gearbox repair tool set A - Differential small bearing positioning tool A - Differential race bearing positioning tool H - Differential race bearing positioning tool I - Differential large bearing positioning tool J - Bearing race positioning tool (clutch housing side)
B. Vi. 1510-01	L - Tube for sprocket removal M - Tube for positioning primary shaft bearings N - Tube for positioning idle sprocket rings O - Tube for positioning secondary shaft bearings P - Fork shaft needle bearing positioning tool Q - Fork shaft needle bearing positioning tool R - Control shaft needle bearing positioning tool

RECOMMENDED TOOLS

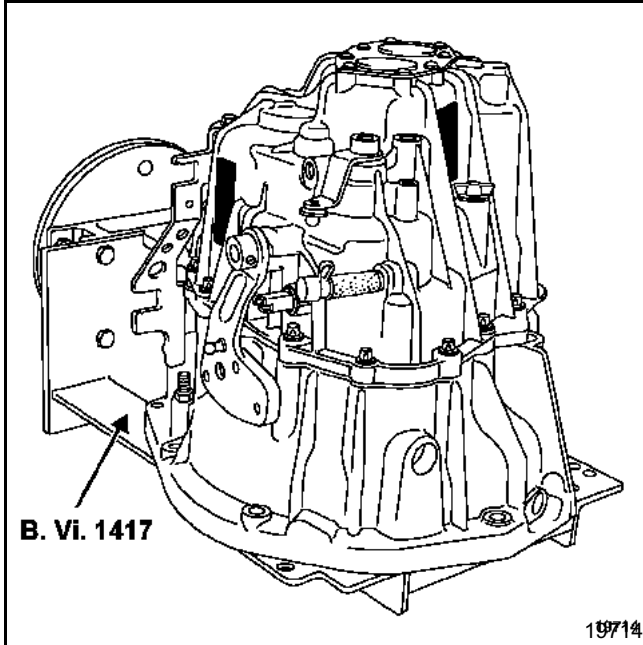
General purpose puller Ø **42** (e.g.: Facom U49M + U49D8)

Ø **18** (e.g.: Facom U49M + U49D4)

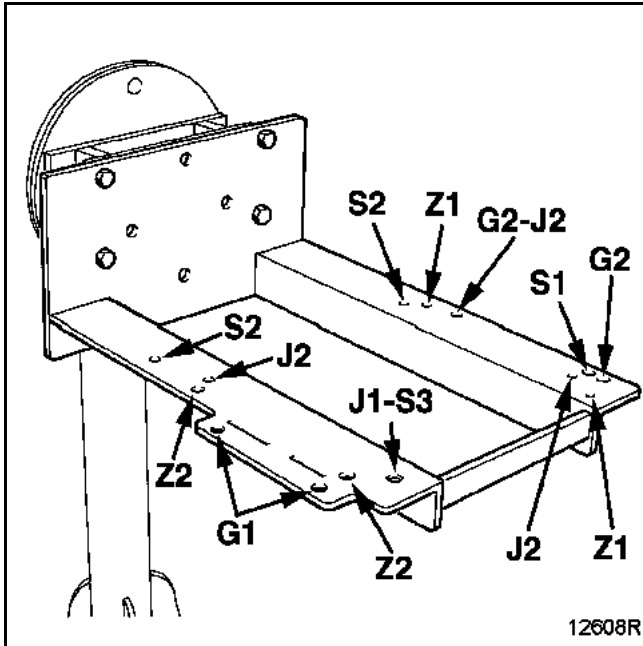
General purpose claw puller.

Fit housing support **B. Vi. 1417** on a Desvil plate.

With housing support **B. Vi 1417** in a horizontal position, place the engine side of the gearbox against the plate.

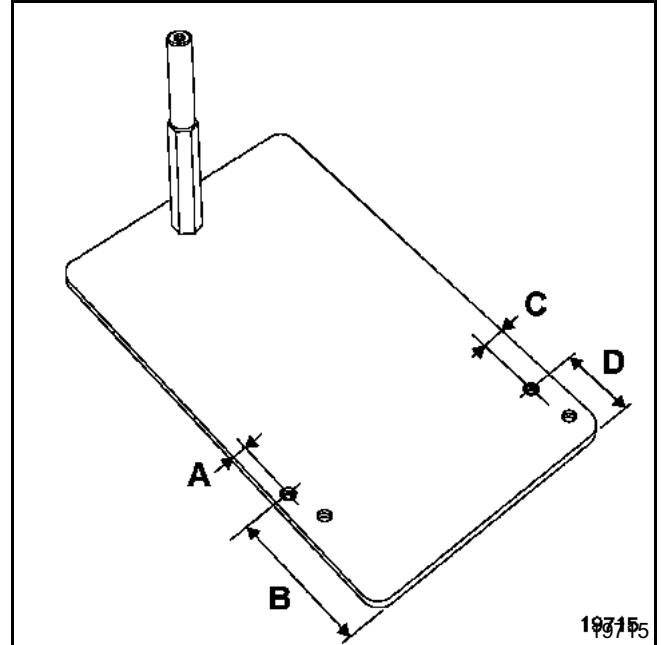


Clamp the gearbox onto housing support **B. Vi. 1417** using holes **G2** and **Z2**.



Modifying the chassis plate for the mechanism housing

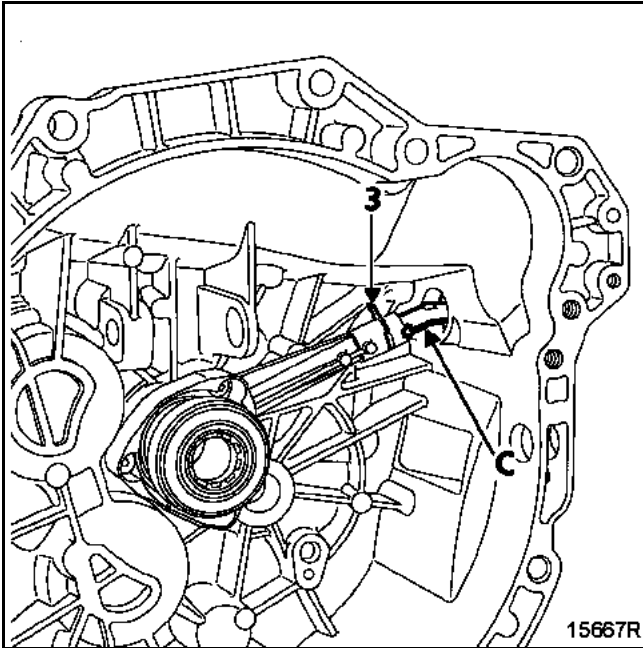
Make two additional **10 mm** \varnothing holes and thread with **M 12 x 175** \varnothing as shown in the diagram.



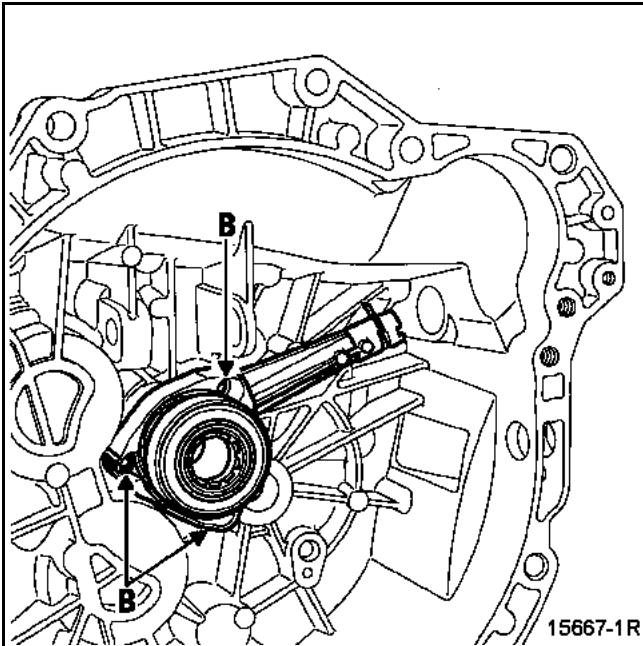
A = 16 mm
B = 144 mm
C = 28 mm
D = 78 mm

OPENING THE GEARBOX

Disconnect the clutch slave cylinder union (C) by removing the clip (3).

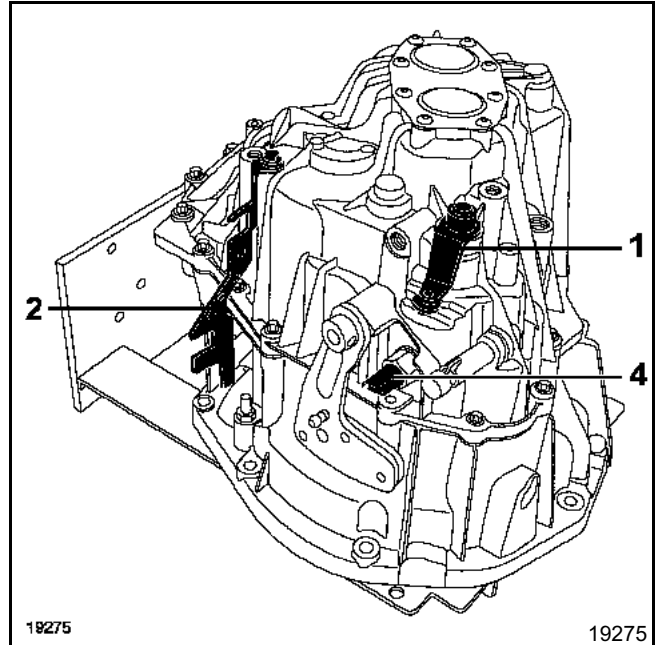


Remove the three slave cylinder mounting bolts (B) then remove the cylinder.



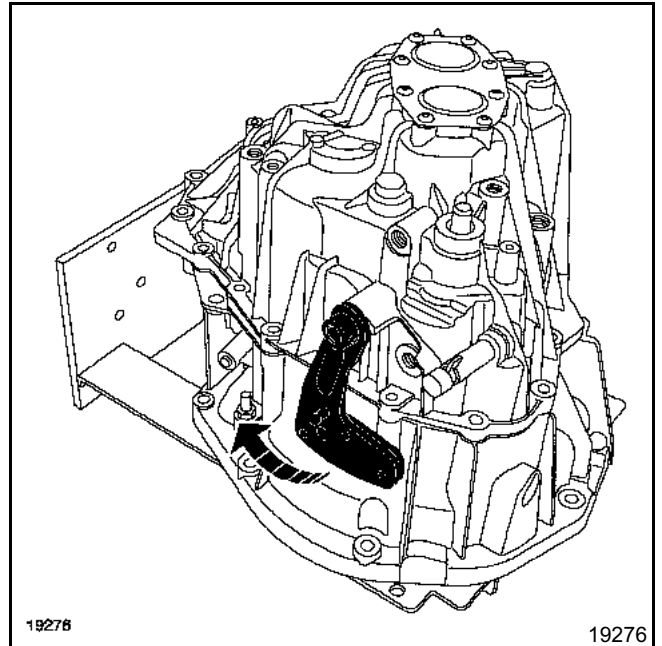
NB: never operate the system when the slave cylinder is removed (even if it is connected to the clutch pedal). There is a risk that the hydraulic piston and the slave cylinder stop will be ejected.

Remove the selector finger (1), the control cable mounting (2) and the reversing light switch (4).



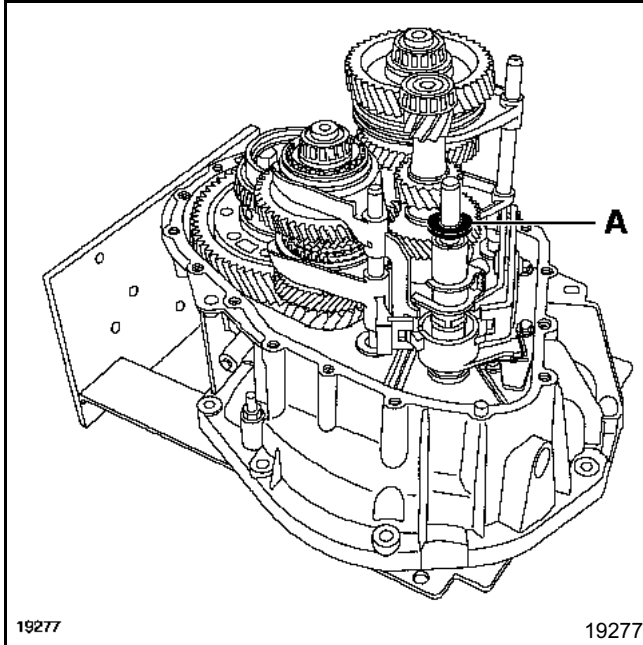
Remove the gearbox edge bolts.

Manoeuvre the gear lever at the same time as raising the housing to disengage the control finger. Remove the control finger.

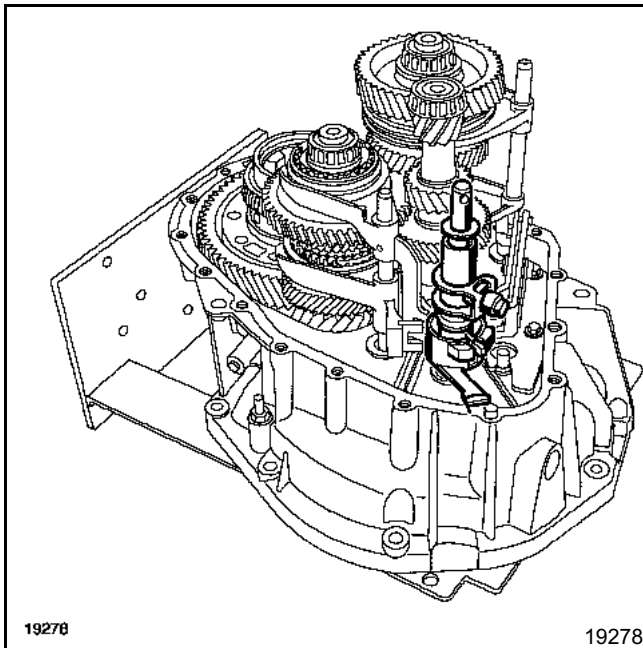


IMPORTANT: keep the setting washer (A) from the selector unit.

It is matched to the unit and may remain bonded to the housing.

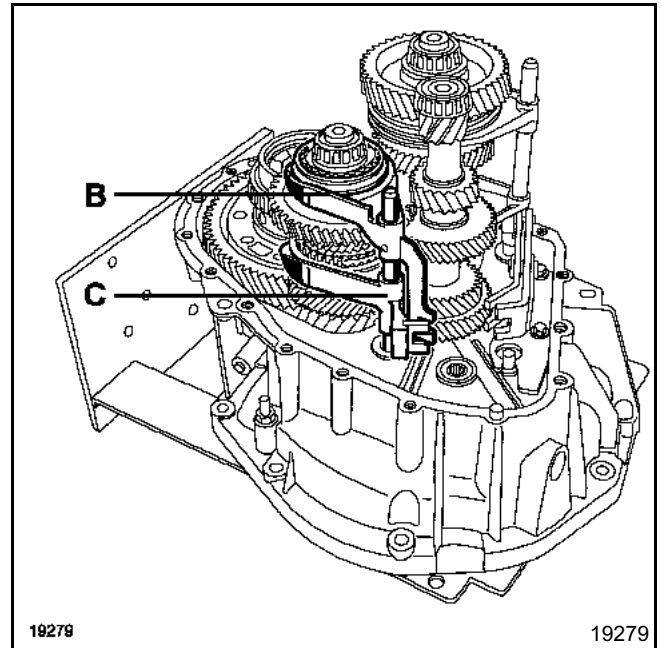


Manoeuvre the control unit while disengaging the spring above the bushing and remove the unit from the top.

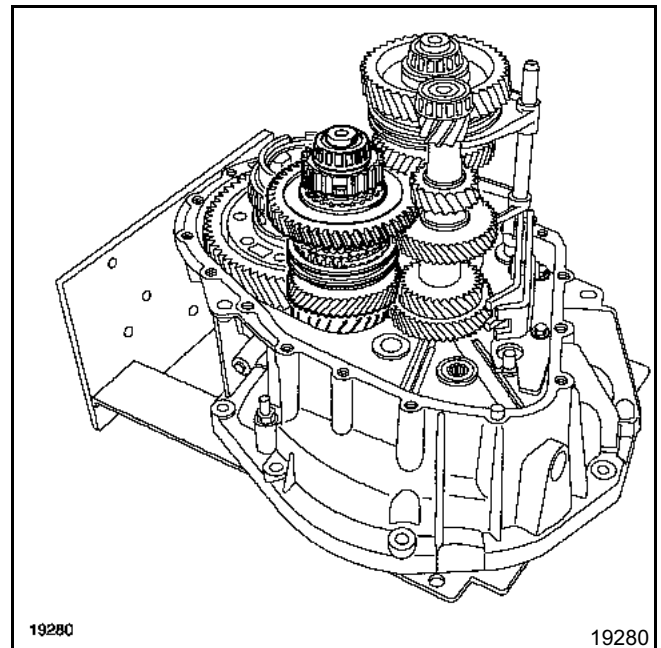


Remove:

- the reverse gear sliding shaft assembly (B),
- the 3rd/4th gear fork (C),

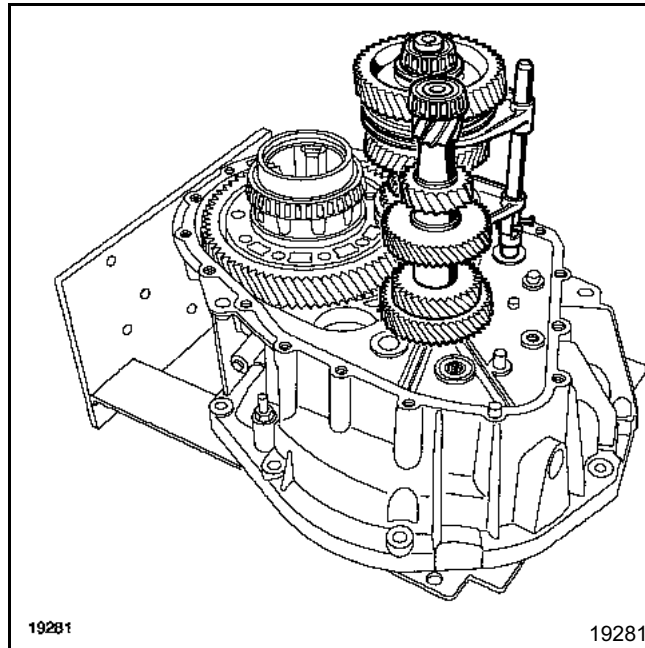


- the 1st/2nd and 5th/6th gear reverse switch, and the short secondary shaft.

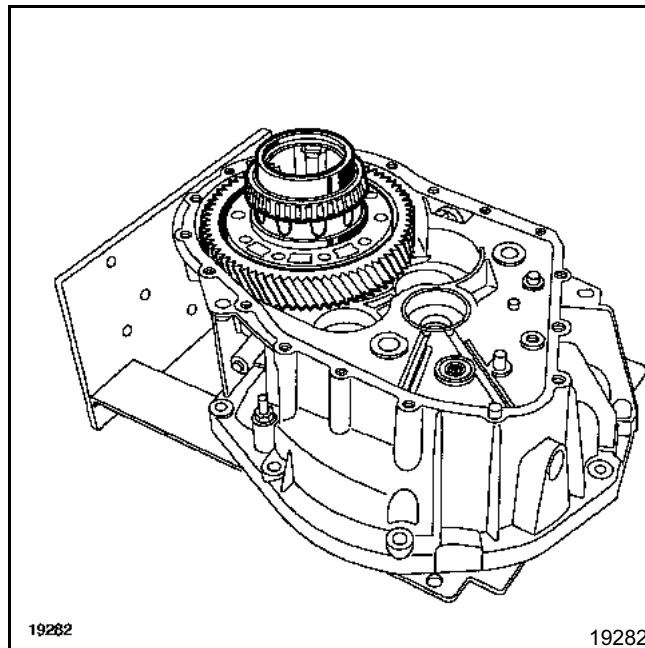


Remove:

- the long secondary shaft assembly with fork and the primary shaft,



- the crownwheel.



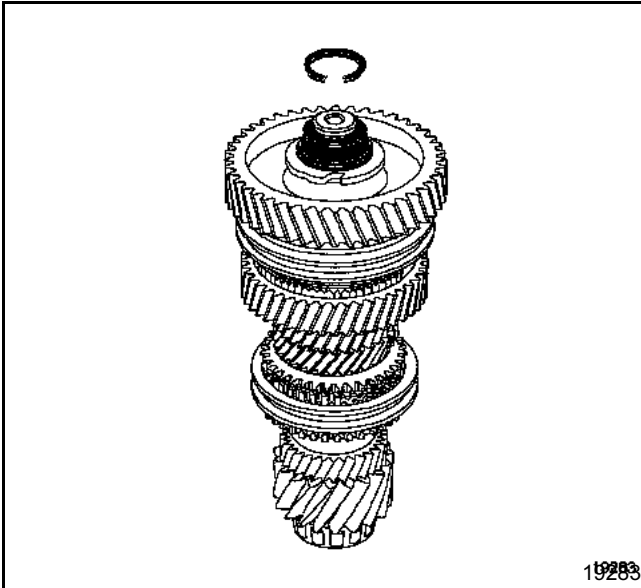
SPROCKET REMOVAL

IMPORTANT: the gear supporting rings are fitted so tightly to the shaft that a force between **10** and **15 tonnes** is required to remove them. Ensure you have good equipment available (e.g. support press).

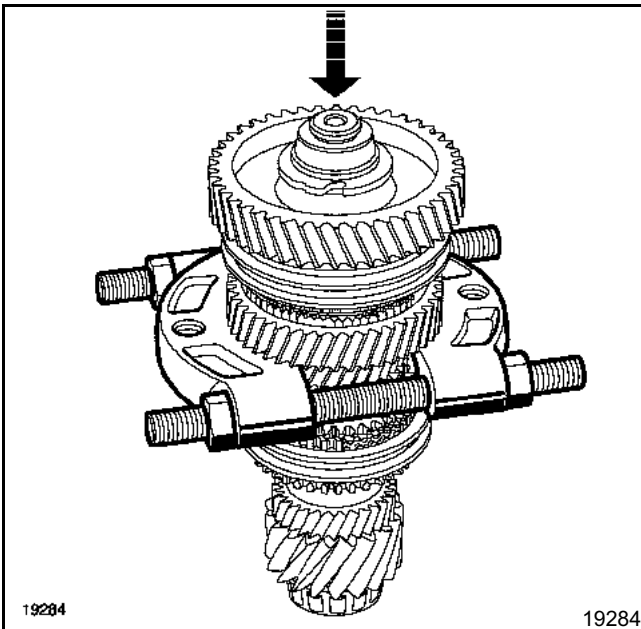
Long secondary shaft

Remove the circlip.

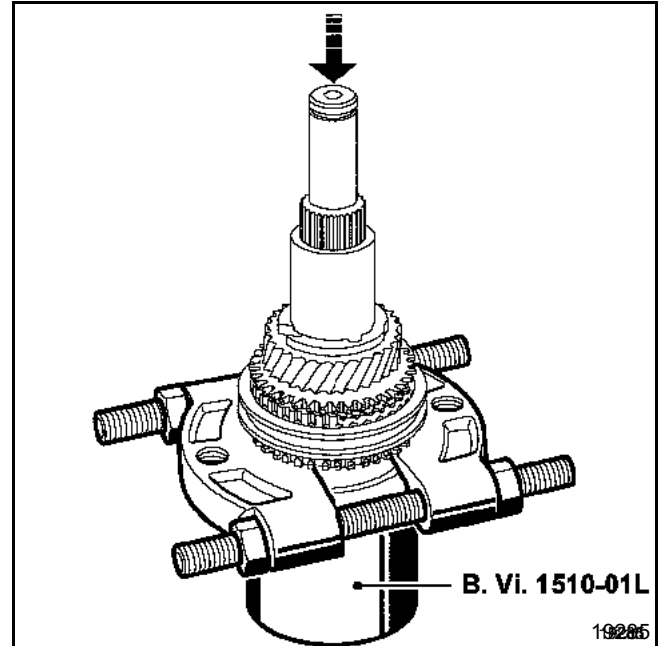
N.B.: break the bearing race to remove the circlip.



OR remove from the press the sprocket assembly (hubs, pinions, rings), using a separator to place the weight on the 2nd gear pinion.



Remove from the press the sprocket assembly (hubs, pinions, rings), using tool **B. Vi. 1510-01 index L** and a separator to place the weight on the 6th or 5th gear, depending on gearbox type.

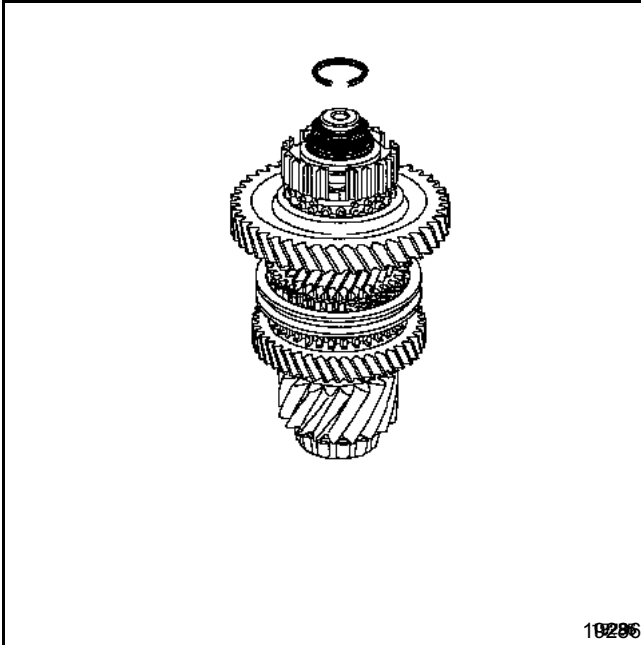


Place a cloth around the bottom of the tool to cushion the shaft when it drops.

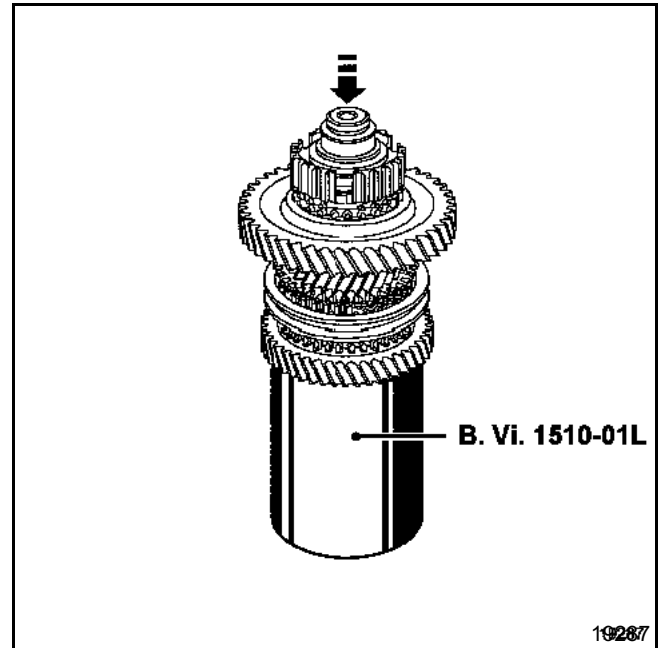
Short secondary shaft

Remove the circlip.

N.B.: break the bearing race to remove the circlip.



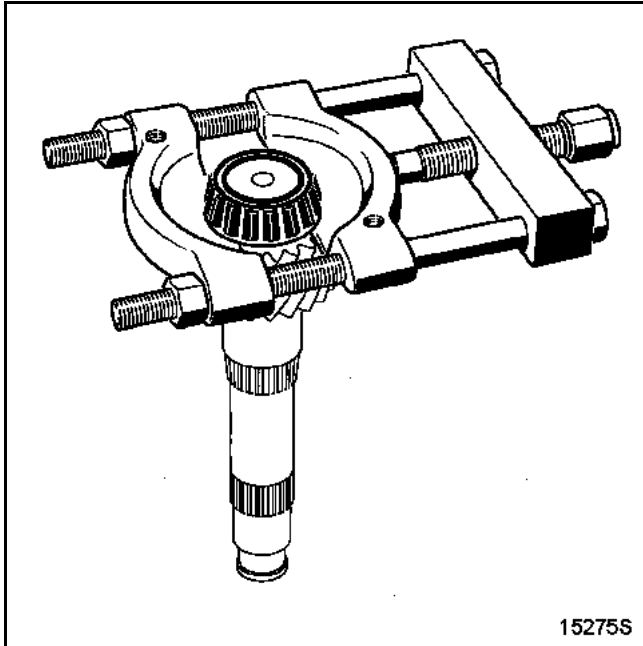
Remove from the press the sprocket assembly (hubs, pinions, rings), using tool **B. Vi. 1510 index L** to place the weight on the 3rd gear pinion.



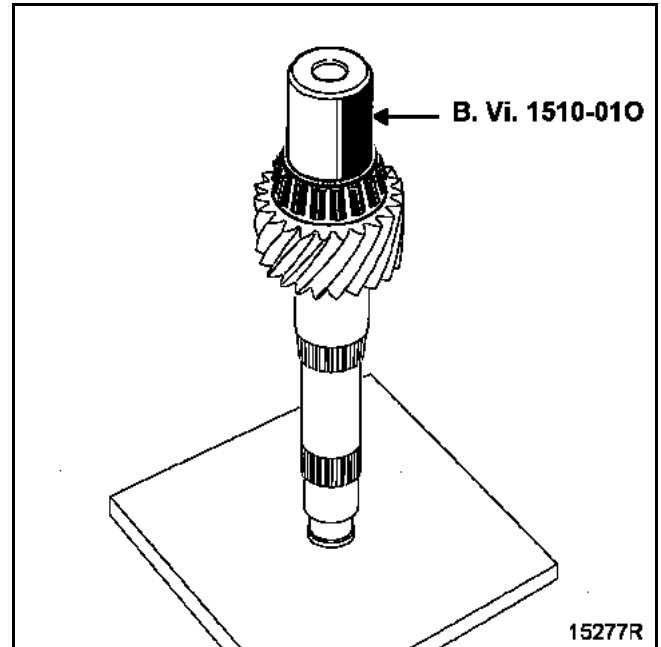
Place a cloth around the bottom of the tool to cushion the shaft when it drops.

REMOVING - REFITTING BEARINGS

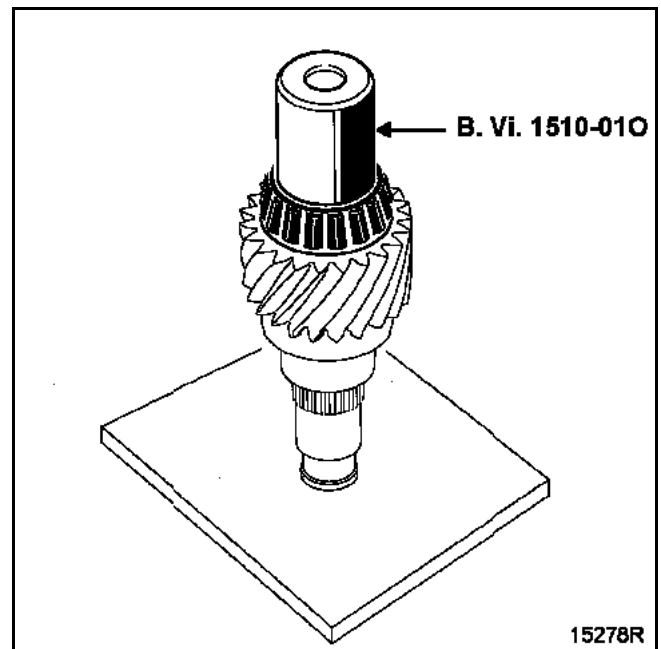
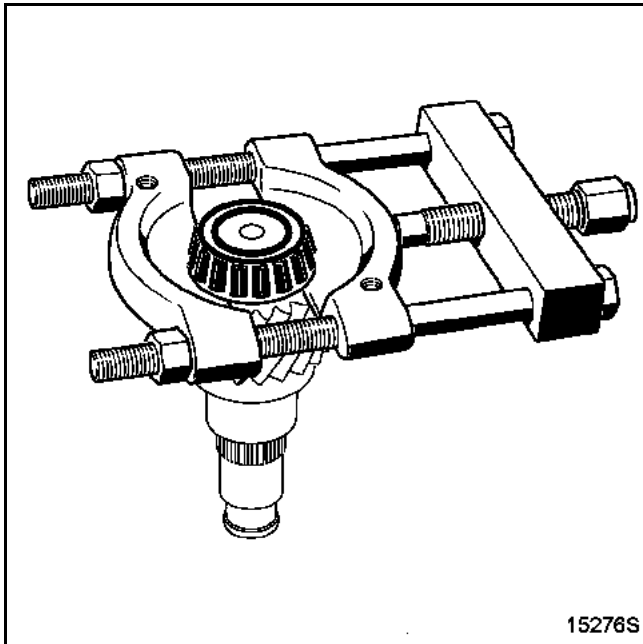
Long secondary shaft



Use tool B. Vi. 1510-01 index O to replace the bearings.



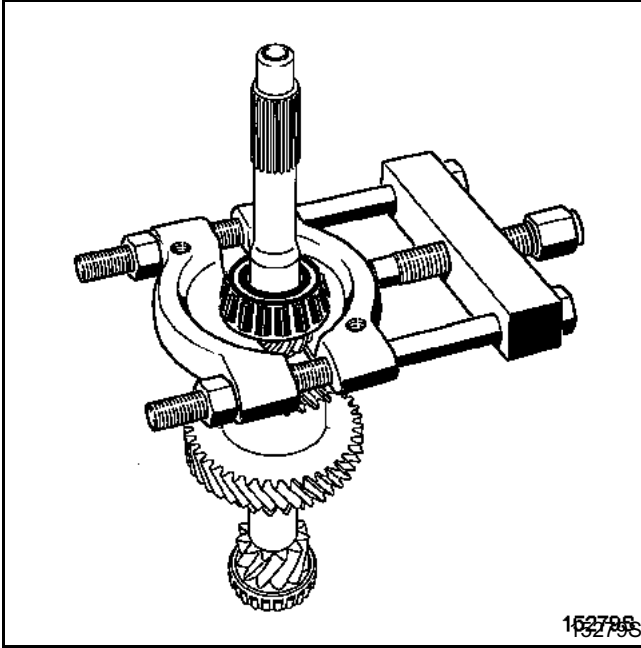
Short secondary shaft



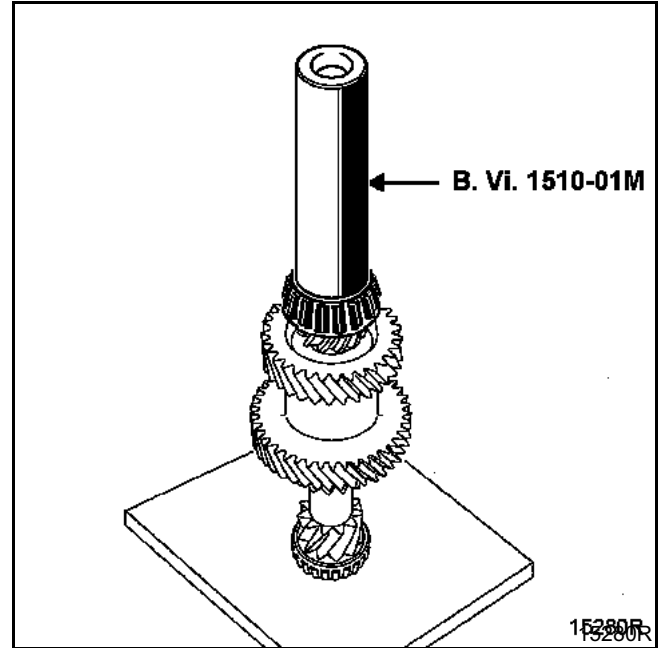
Use a separator to extract the bearings on the press.

Primary shaft

Use a separator to extract the bearings on the press.



Use tool **B. Vi. 1510-01 index M** to replace the bearings.



CHECKING PARTS

The pinion and claw teeth should not be chipped or excessively worn.

Also make sure that the shaft surfaces and inner pinion surfaces are free from marks and any signs of unusual wear.

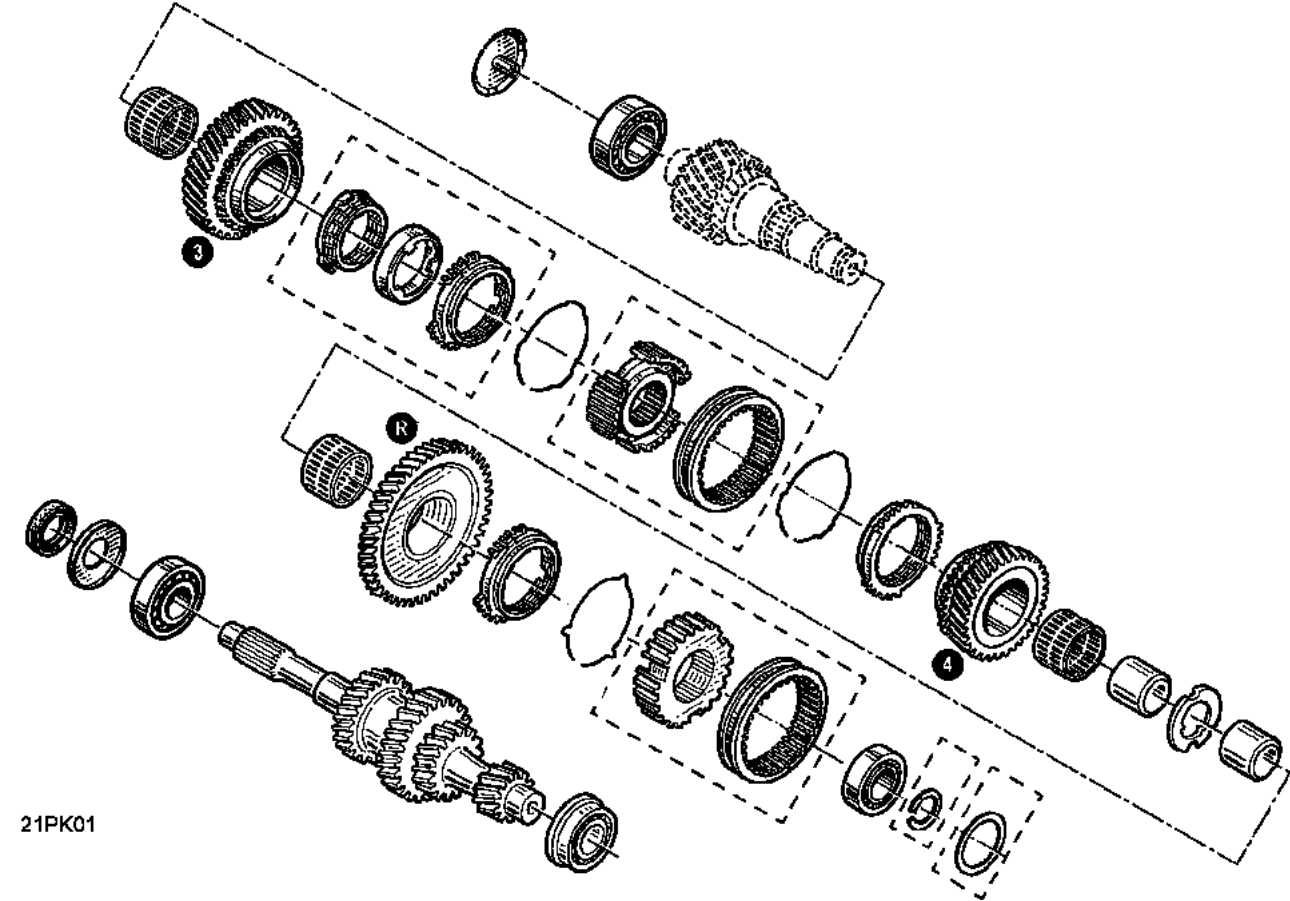
SLIDING SHAFT HUBS

We recommend that you mark the position of the sliding shafts in relation to the hubs.

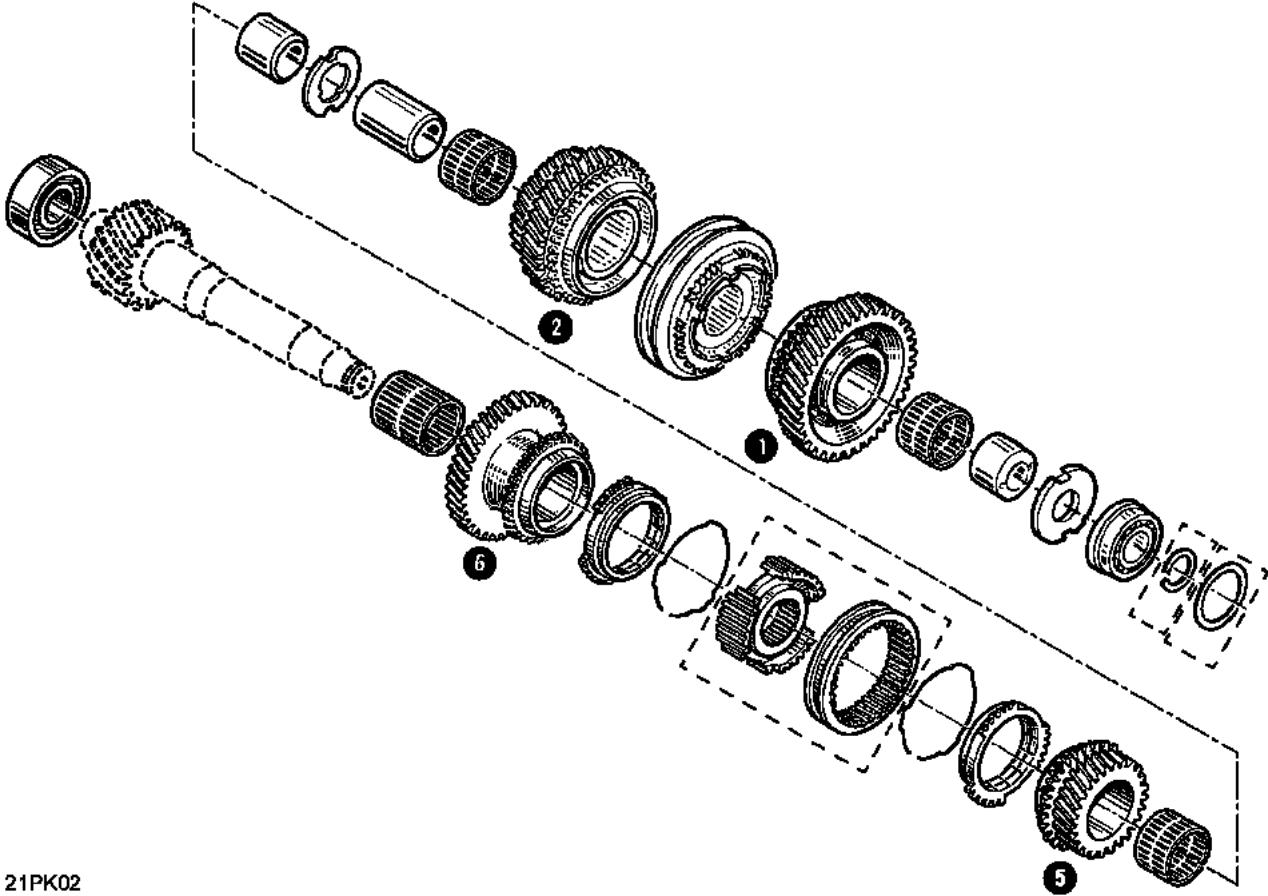
BEARINGS

The bearings should be replaced if they show any sign of scratches, scorch marks or excessive wear.

PK6 GEARBOX

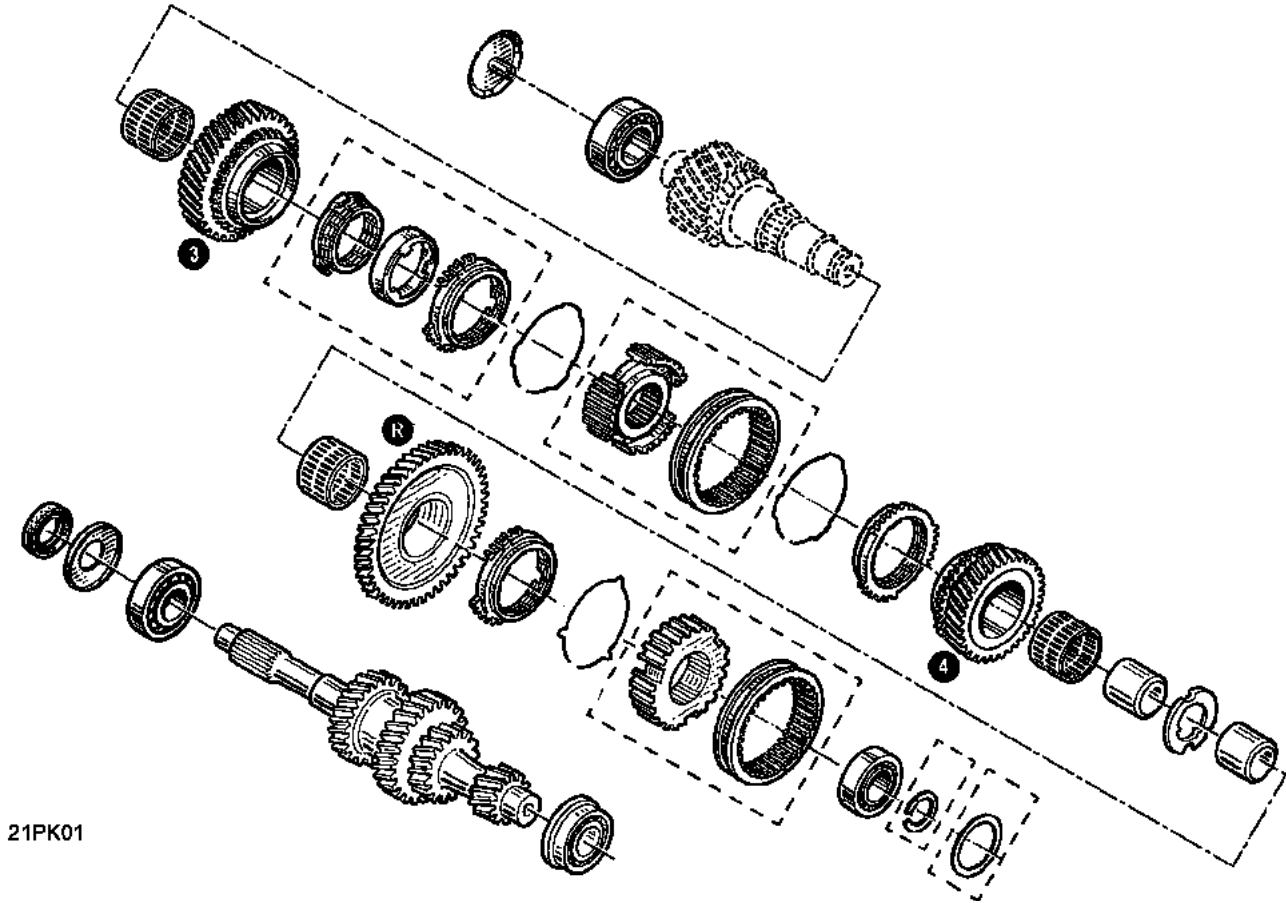


21PK01



21PK02

PK5 GEARBOX



SPROCKET REFITTING

IMPORTANT: if you replace parts such as:
– the gear support rings,
– or the hubs
you must modify the settings using the following method:

Method: measure the height of the original part (to be replaced) and the new (replacement) part.

When the gap between the two parts is greater than **0.025 mm**, you must alter the shim setting:
– increase the shim if the new part is smaller than the old part,
– decrease the shim if the new part is bigger than the old part.

The table contains an example of the shim values to be set using the formula after replacing gear support rings or hubs.

Replacing rings or hubs for a long secondary shaft

Part	Original part	New part
6 th gear support ring	A	A
Hub (5 th /6 th gear)	B	B
2 nd gear long ring	C	C
Hub (1 st /2 nd gear)	D	D
Shim	x	$X = x \pm (a-A) \pm (b-B) \pm (c-C) \pm (d-D)$

Replacing rings or hubs for a short secondary shaft

Part	Original part	New part
4 th gear support ring	A	A
Reverse gear support ring	B	B
Hub (3 rd -4 th gear)	C	C
Reverse gear hub	D	D
Shim	x	$X = x \pm (a-A) \pm (b-B) \pm (c-C) \pm (d-D)$

Example: replacing the reverse gear support ring for a short secondary shaft.

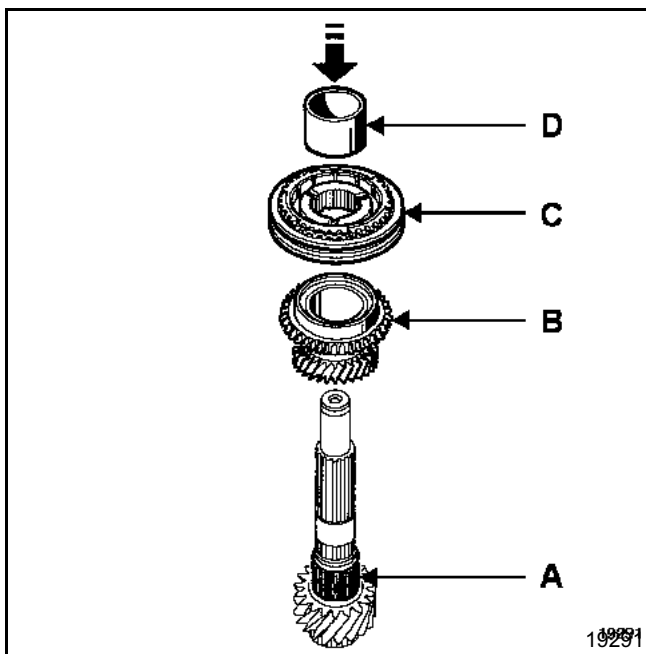
Part	Original part	New part	Difference
4 th gear support ring	A	A	
Reverse gear support ring	b (30.802)	B (30.830)	
Hub (3 rd -4 th gear)	C	C	+0.028
Reverse gear hub	D	D	
Shim		$X = x \pm (a-A) \pm (b-B) \pm (c-C) \pm (d-D)$	
Result	2.10	$x = 2.10 - 0.028 = 2.028$	

Knowing that shim size varies between 0.020 and 0.020, you would have to use a 2.02 shim for this example.

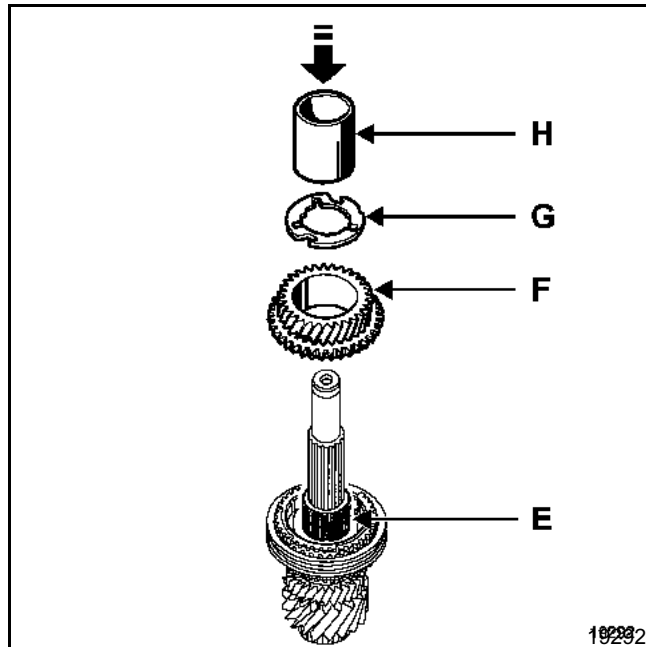
REFITTING THE LONG SECONDARY SHAFT SPROCKET

Fitting

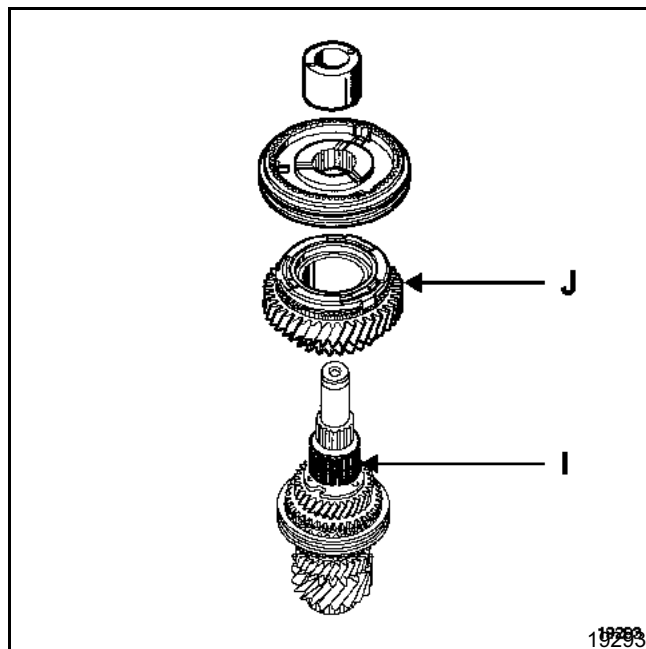
- 1 Fit the needle bearing (A), the 6th gear idle sprocket (B) and its blocking ring (PK6).
- 2 Use **B. Vi. 1510-01 index N** to fit the 5/6th gear sliding shaft hub (C) (align the hub notches with those of the blocking ring).
- 3 Use **B. Vi. 1510-01 index N** to fit the 5th gear idle sprocket ring (D) (apply a pressure of **5 tonnes** when securing).



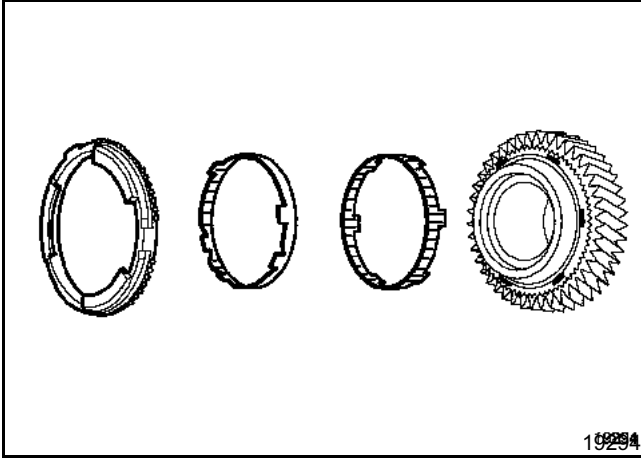
- 4 Fit the needle bearing (E), the 5th gear idle sprocket and its blocking ring (F).
- 5 Fit the grooved washer (G).
- 6 Use **B. Vi. 1510-01 index N** to fit the 2nd gear idle sprocket ring (H) (apply a pressure of **5 tonnes** when securing).



- 7 Fit the needle bearing (I), the 2nd gear/reverse gear idle sprocket (J) fitted with a three-cone blocking ring.



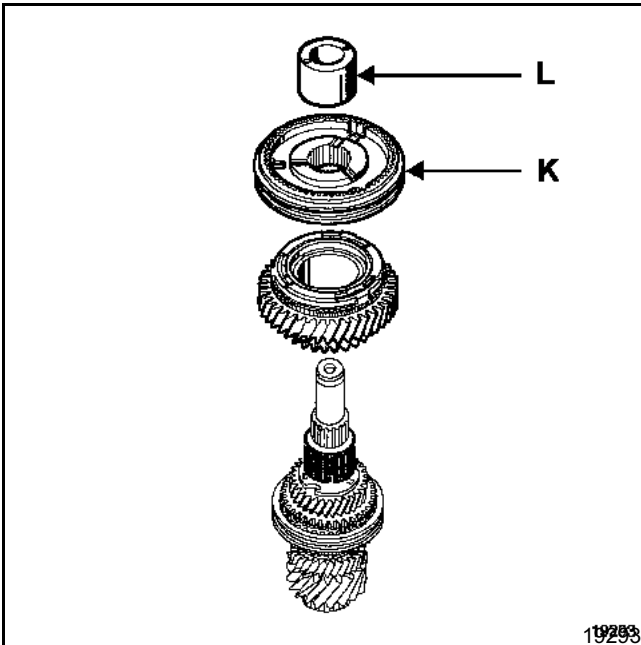
IMPORTANT: make sure that the notches on the three-cone ring are correctly positioned.



- 8 Use **B. Vi. 1510-01 index N** to fit the 1st/2nd gear sliding shaft hub (K). Align the hub notches with those of the blocking ring.

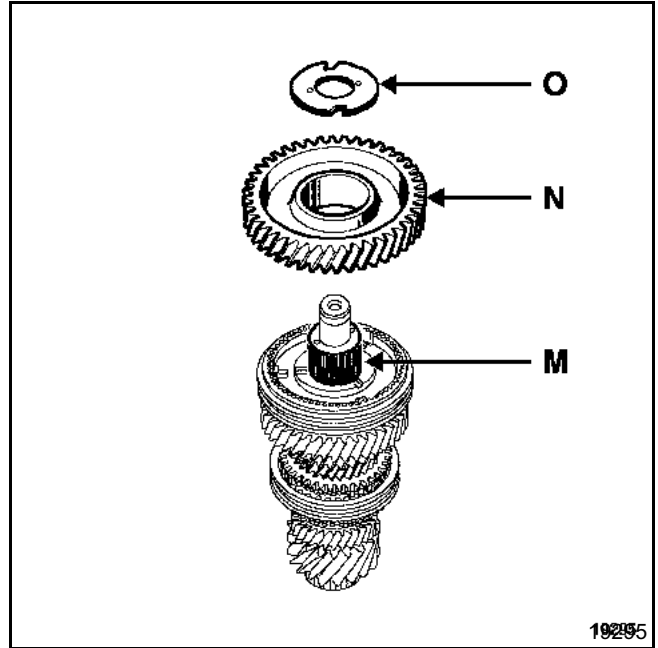
IMPORTANT: the long hub support should be placed on the pinion side of the 2nd gear.

- 9 Use **B. Vi. 1510-01 index N** to fit the 1st gear idle sprocket ring (L) which has pin holes at the top (apply a pressure of **5 tonnes** when securing).

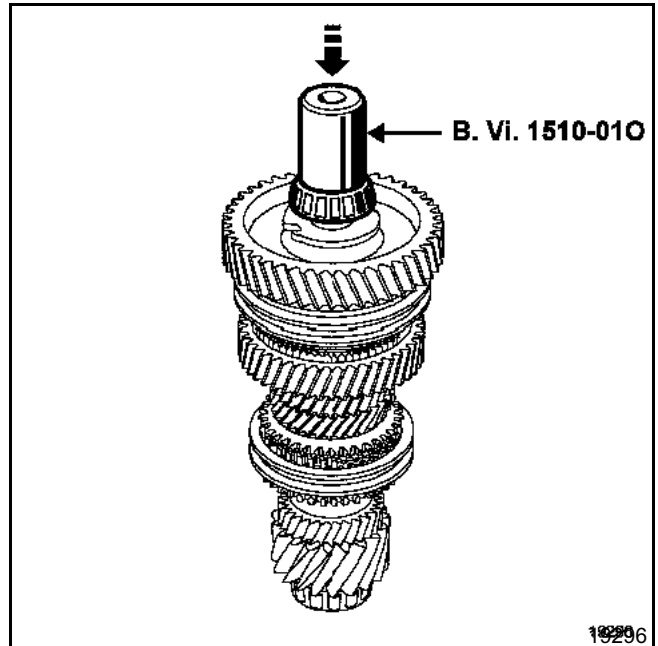


- 10 Fit the needle bearing (M) and the 1st gear idle sprocket (N) fitted with three-cone blocking rings.

- 11 Fit the grooved washer pin (O).



- 12 Use **B. Vi. 1510-01 index O** to fit the bearing.



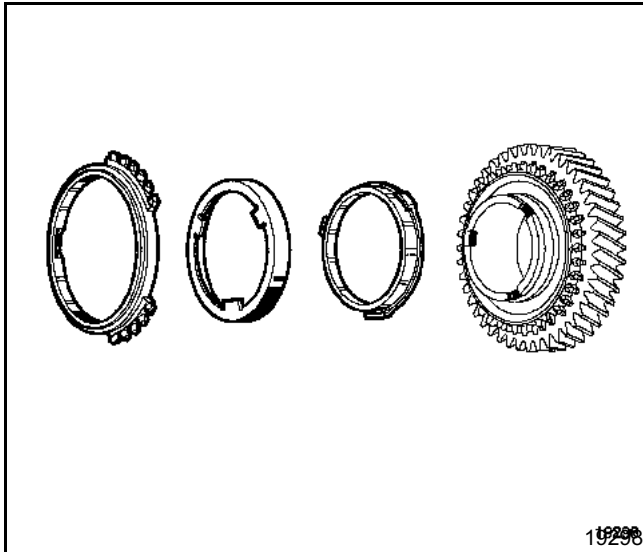
Select and fit a new circlip just inside the neck (it should not be able to move once it has been fitted).

REFITTING THE SHORT SECONDARY SHAFT SPROCKET

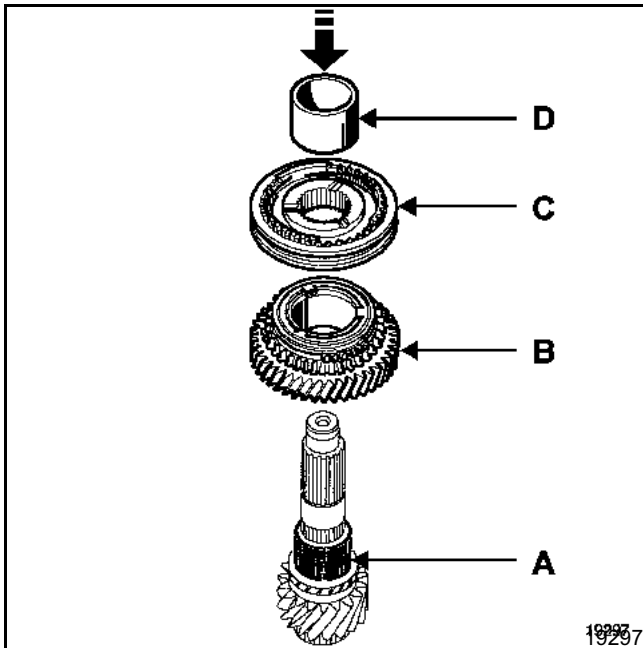
Fitting:

- 1 Fit the needle bearing (A) and the 3rd gear idle sprocket (J) fitted with three-cone blocking rings.
- 2 Use **B. Vi. 1510-01 index N** to fit the 3rd/4th gear sliding shaft hub (C).

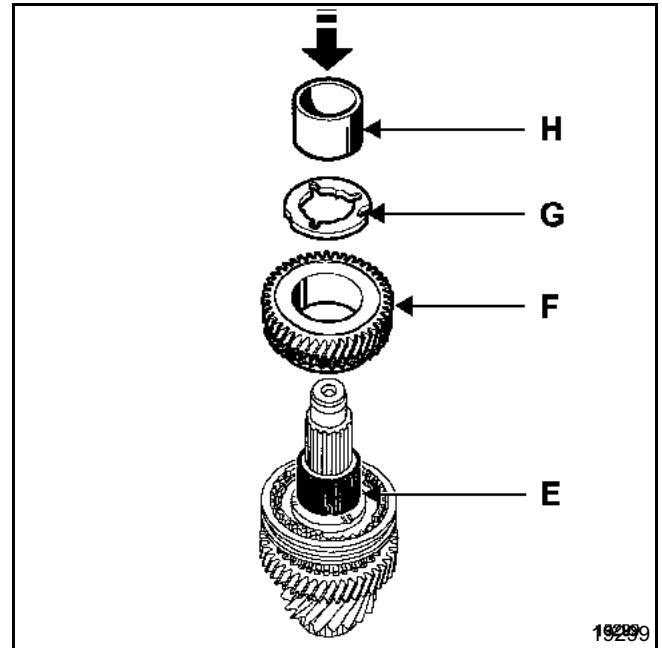
IMPORTANT: make sure that the notches on the three-cone ring are correctly positioned.



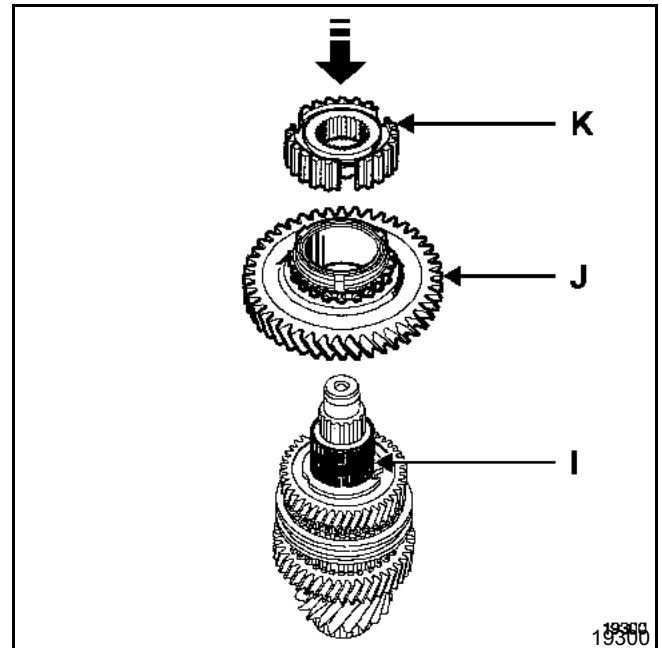
- 3 Use **B. Vi. 1510-01 index N** to fit the 4th gear idle sprocket ring (D) (apply a pressure of **5 tonnes** when securing).



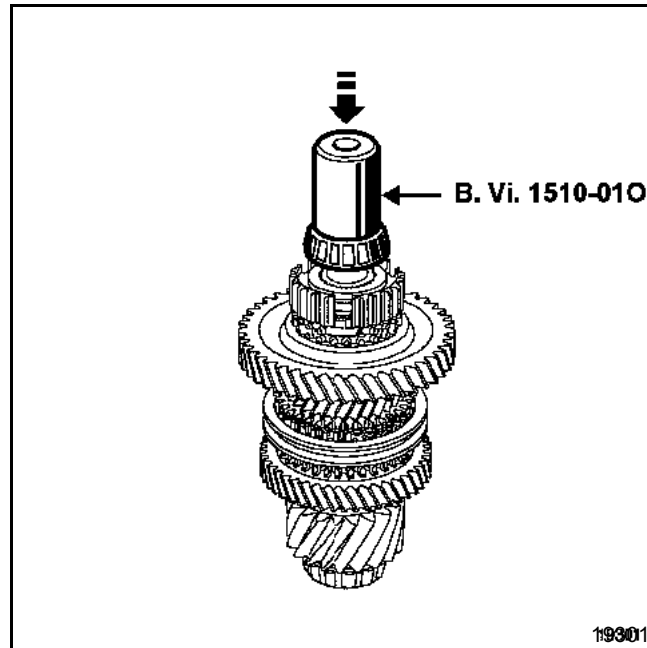
- 4 Fit the needle bearing (E) and the 4th gear idle sprocket and its blocking ring (F).
- 5 Fit the grooved washer (G).
- 6 Use **B. Vi. 1510-01 index N** to fit the reverse gear idle sprocket ring (H) (apply a pressure of **5 tonnes** when securing).



- 7 Fit the needle bearing (I) and the reverse gear idle sprocket (J) fitted with a blocking ring.
- 8 Use **B. Vi. 1510-01 index N** to fit the reverse gear sliding shaft hub (K).

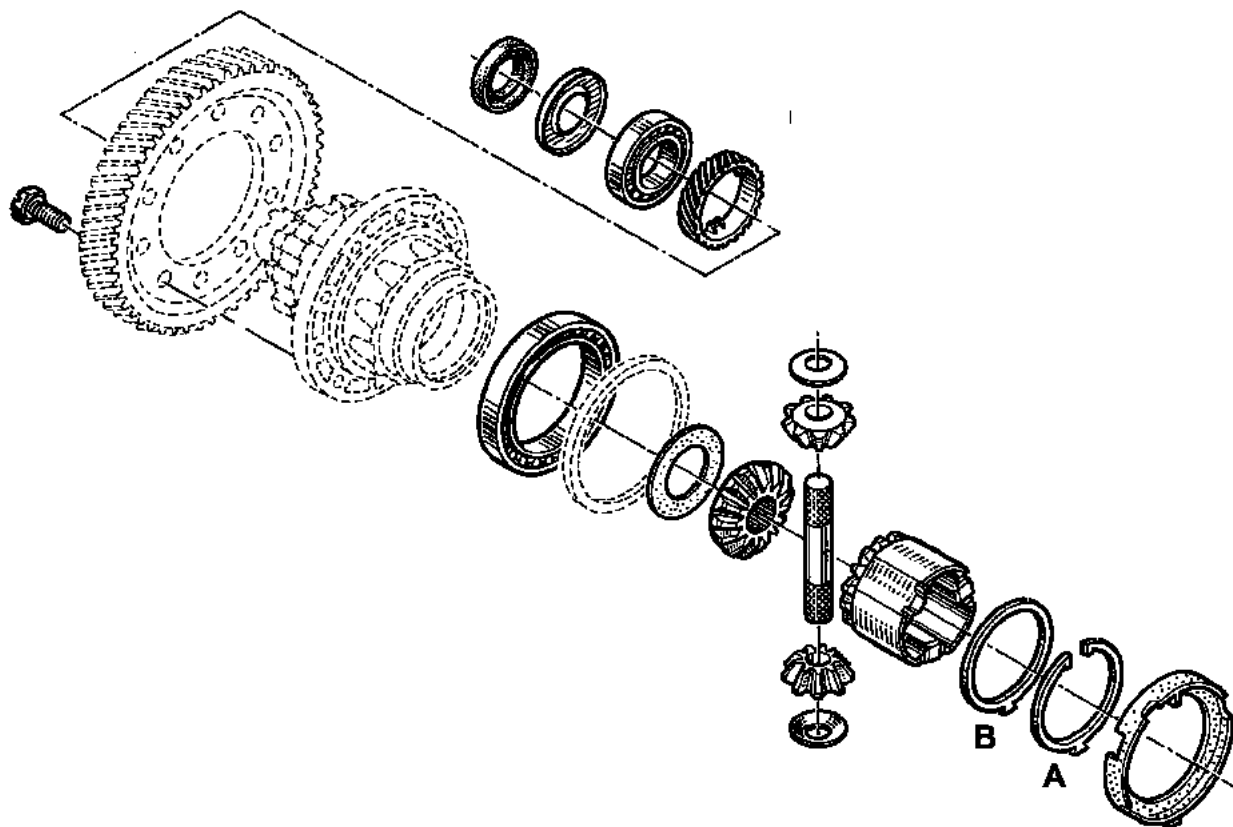


9 Use **B. Vi. 1510-01** index **O** to fit the bearing.



Select and fit a new circlip just inside the neck (it should not be able to move once it has been fitted).

DIFFERENTIAL



21PK04

REMOVAL

Remove the tripod sunwheel stop ring (A) and remove the shim (B).

Remove the tripod sunwheel.

Lock the unit in a vice with clamping jaws and remove the crownwheel.

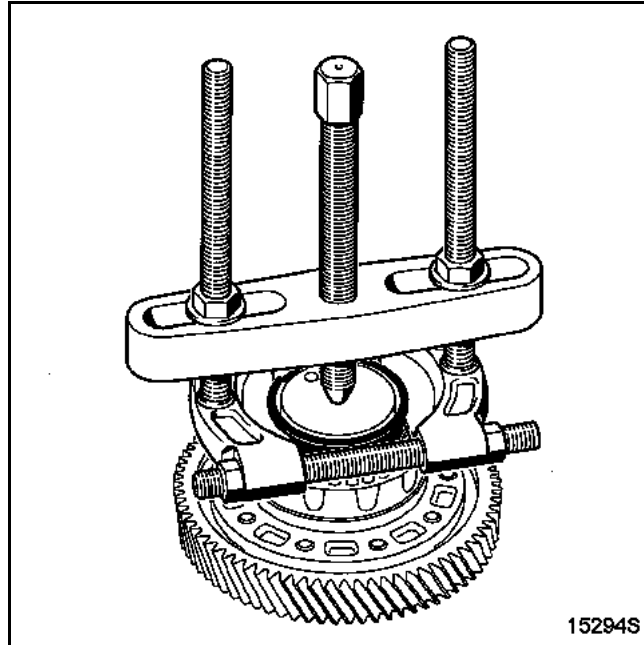
Remove the satellites and the sunwheel and attach the support washers to their respective satellites.

CHECKING PARTS

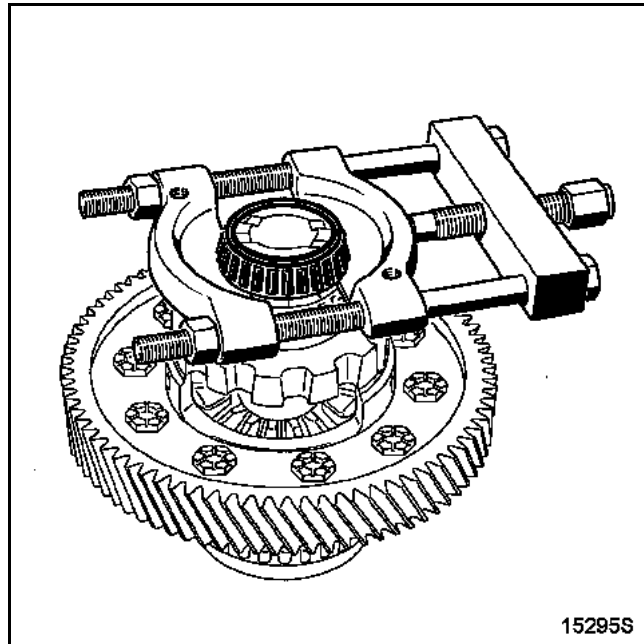
Check the condition:

- of the teeth (crownwheel - satellites - sunwheels),
- the washers (satellites - sunwheels),
- and the unit.

Use a general purpose puller to remove the large bearing.



Use a general purpose puller to remove the small bearing.



DIFFERENTIAL

REFITTING

Refitting is the reverse of removal.

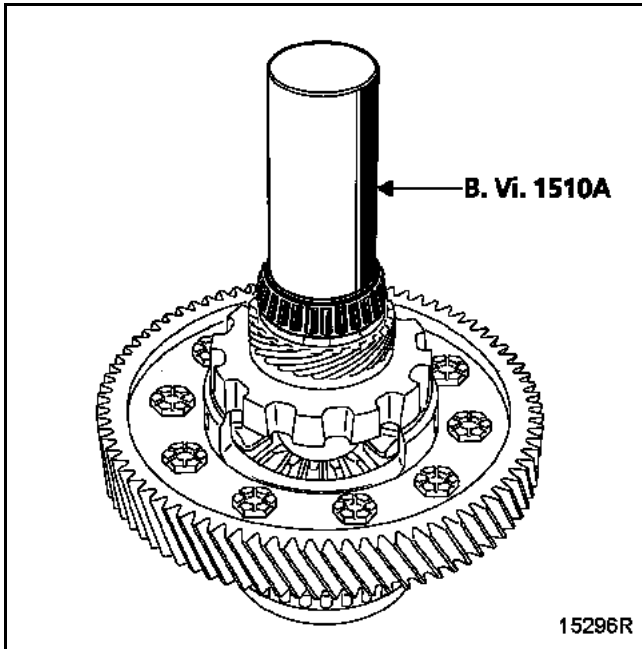
All the cleaned and checked parts should be oiled as they are fitted.

The stop ring is always replaced.

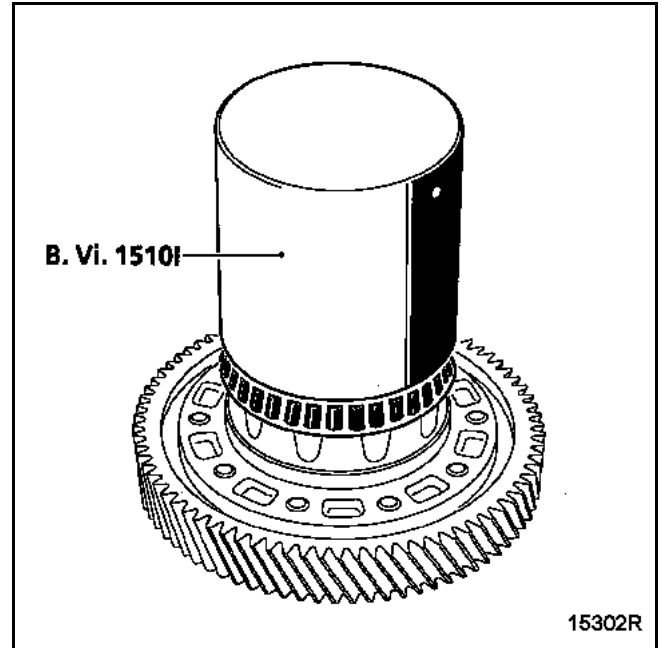
Tighten the crownwheel bolts to **13 daNm**.

Refit:

- the small bearing using **B. Vi. 1510A**.

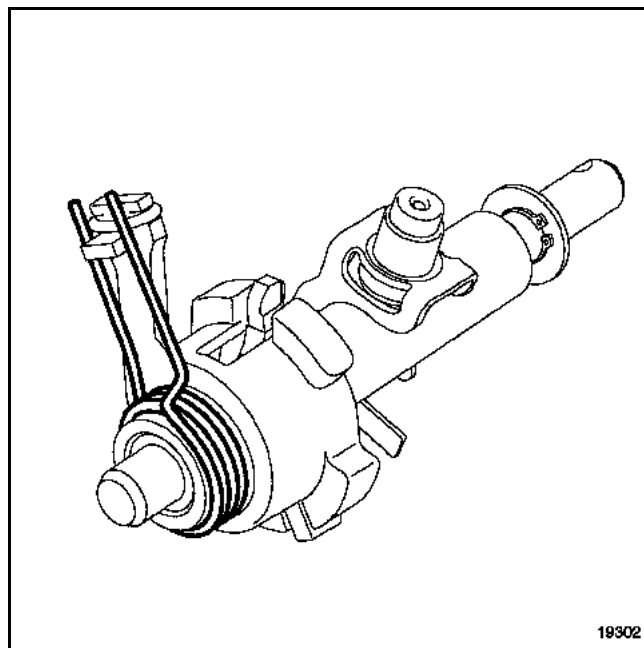


- the large bearing using **B. Vi. 1510I**.



This exploded view diagram illustrates the assembly of a mechanical component, likely a control lever or actuator. The diagram shows five main sub-assemblies and their constituent parts:

- Top Left:** A lever arm with a mounting bracket. Three washers are shown below it, with dashed lines indicating they are to be placed on the lever's shaft.
- Top Right:** A linkage assembly consisting of two angled levers connected by a central pivot. It is labeled with a circled 'R' and a circled '34'. A pin is shown passing through the assembly.
- Bottom Left:** A complex mechanical linkage with a central pivot and two side arms. A pin is shown passing through it, and a small circular component labeled '2' is shown nearby.
- Bottom Right:** A large, curved bracket or housing. It is labeled with a circled '56' and a circled '12'. A pin is shown passing through its base.
- Bottom Center:** A detailed view of the lever arm from the top left, showing its internal structure and the mounting bracket. Two screws are shown passing through the bracket into the lever arm.

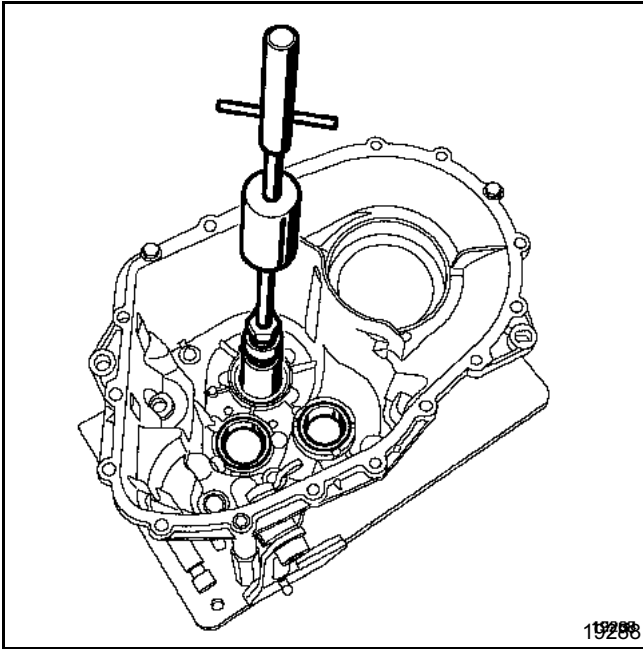


BEARING RACES IN THE MECHANISM HOUSING

REMOVAL

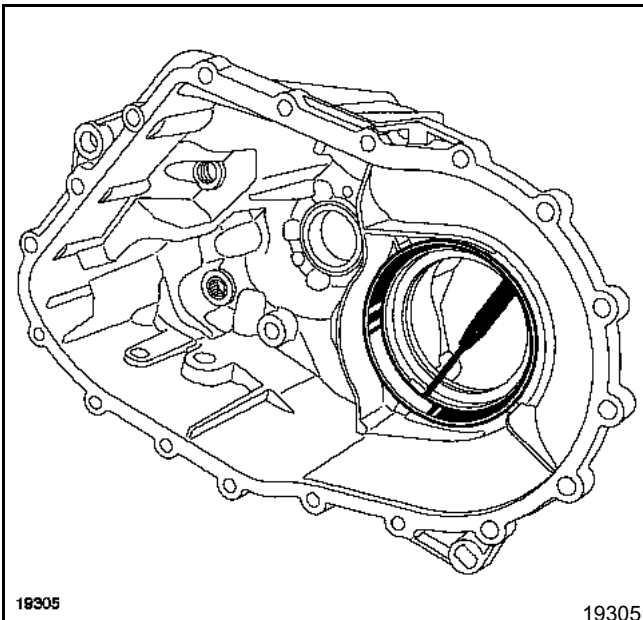
Place the housing on the chassis of **B. Vi. 1417** and secure it with the three bolts.

Use a **42 diameter** general purpose puller and an inertia extractor to remove the shaft bearing races.



WARNING: take care not to mix up the three setting shims.

Use a pin punch to remove the outer race of the large differential bearing.

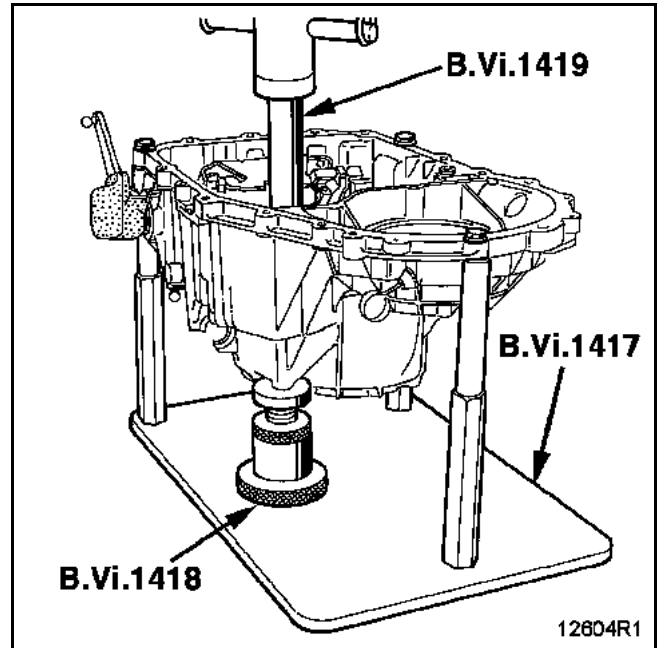


REFITTING

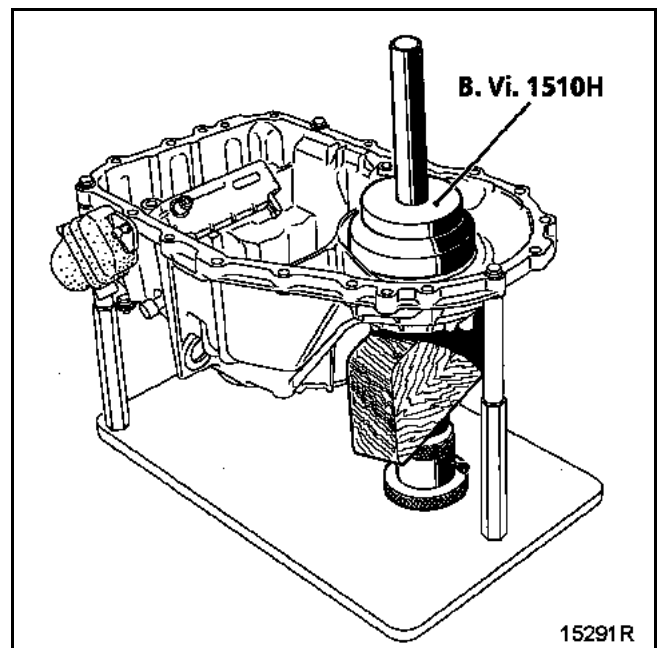
Fit adjustable support **B. Vi. 1418** under the mechanism housing that corresponds to each line.

Fit the setting shims corresponding to each line.

Use **B. Vi. 1419** to fit the shaft bearing races.



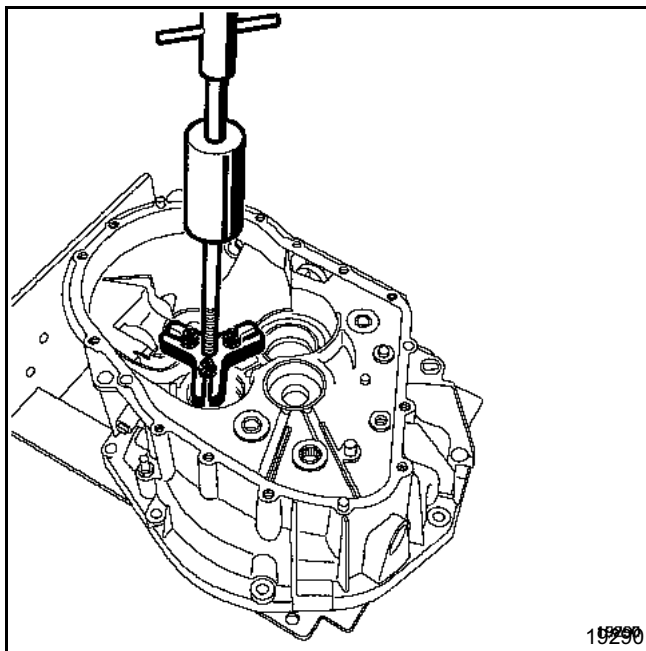
Use **B. Vi. 1510H** to refit the differential bearing race.



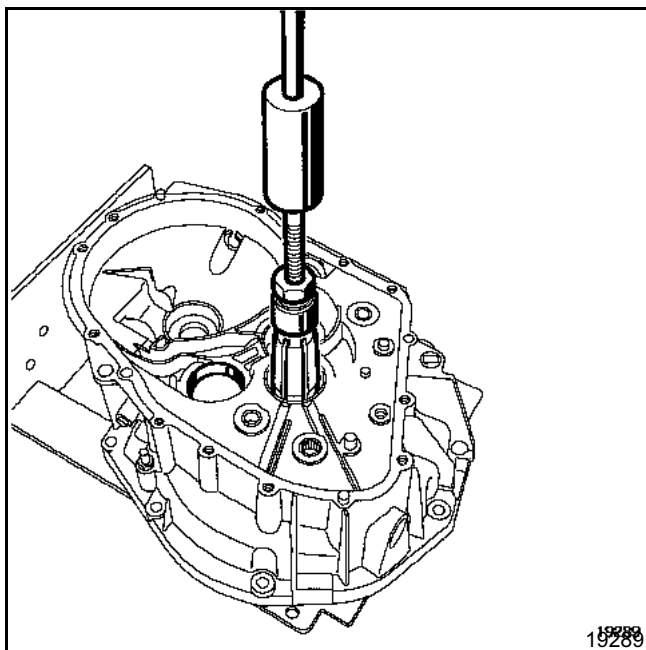
BEARING RACES IN THE CLUTCH HOUSING

REMOVAL

Use a general purpose puller with three claws to remove the secondary shaft bearing races.



Use a 42 diameter general purpose puller and an inertia extractor to remove the primary shaft and differential bearing races.

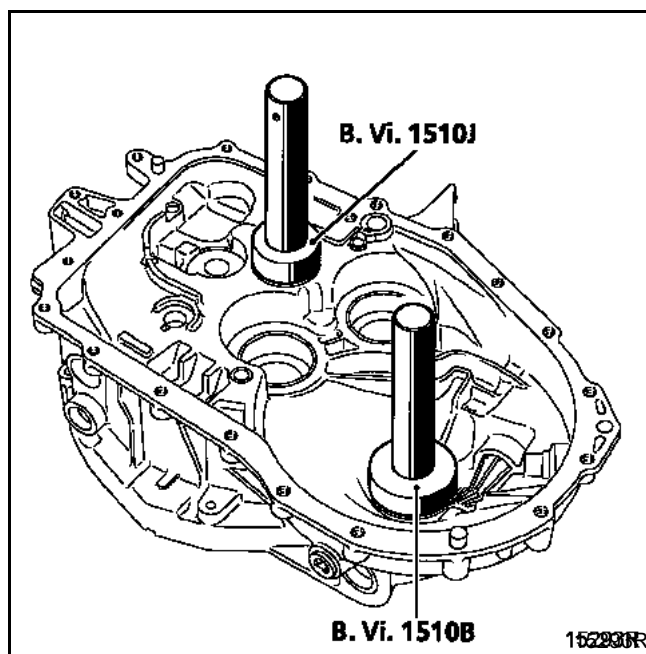


REFITTING

Fit the housing on the press plate.

Fit adjustable support **B. Vi. 1418** under the housing that corresponds to each line.

Use **B. Vi. 1510J** and **B. Vi. 1510B** to fit the shaft bearing races.

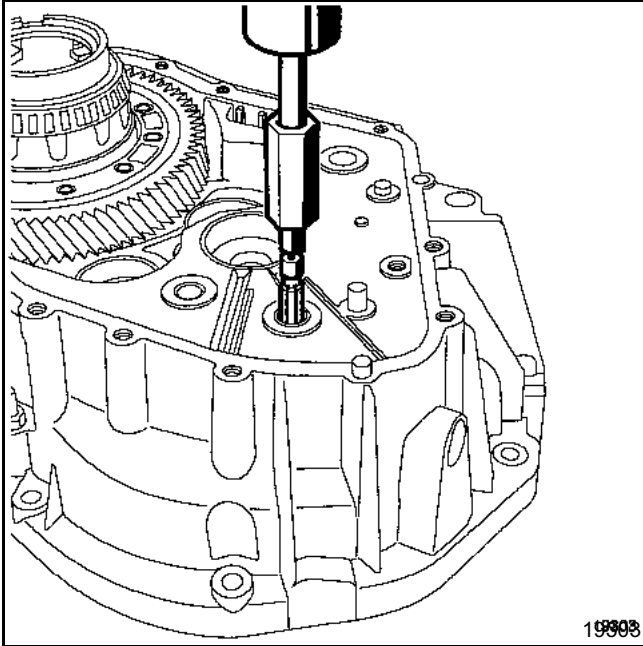


N.B.: remember to fit a new deflector under the small diameter differential bearing race.

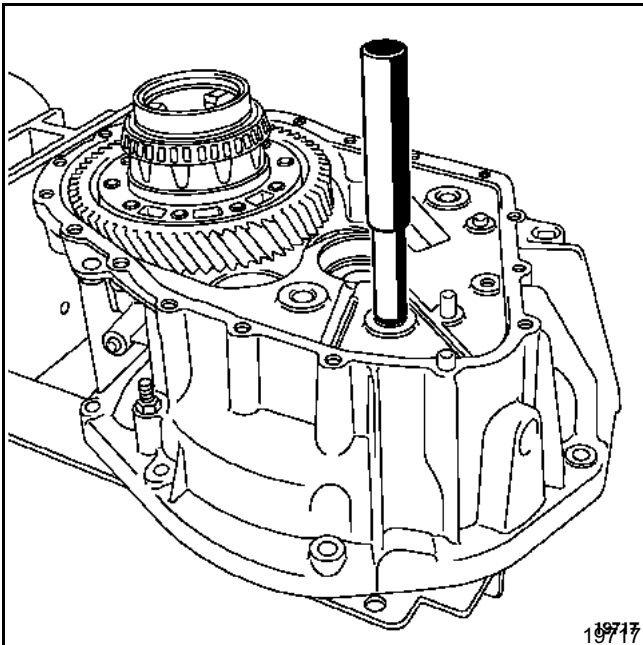
REMOVING THE NEEDLE BUSHINGS ON THE HOUSING

Clutch housing side

Use a **14 diameter** general purpose puller to remove the bushings.

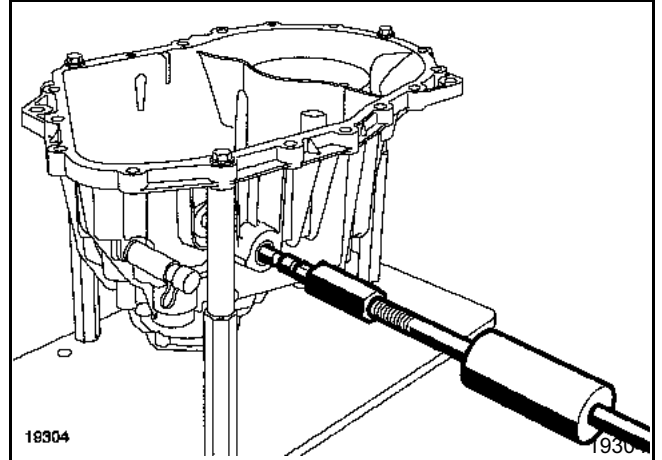


Use **B. Vi. 1510-01 index Q** to refit the bushings.

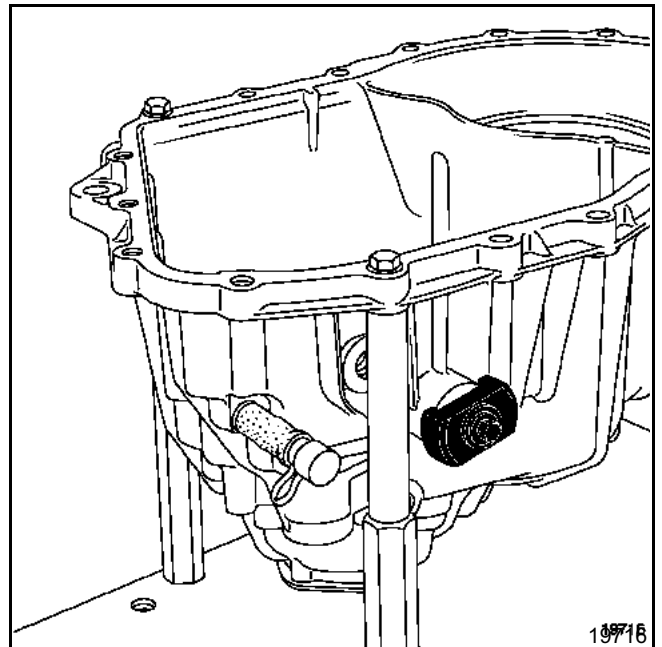


Mechanism housing side

Remove the gear shift finger and use a **14 diameter** general purpose puller to remove the bushings.

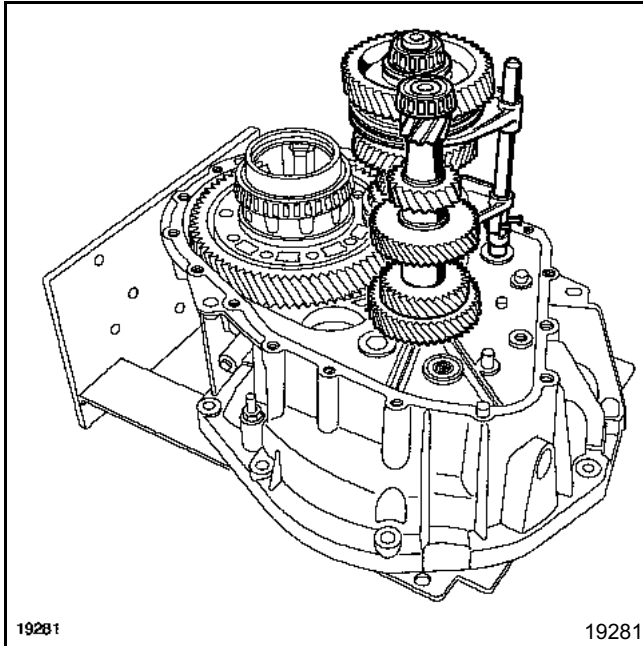


Use **B. Vi. 1510-01 index R** to refit the bushings.

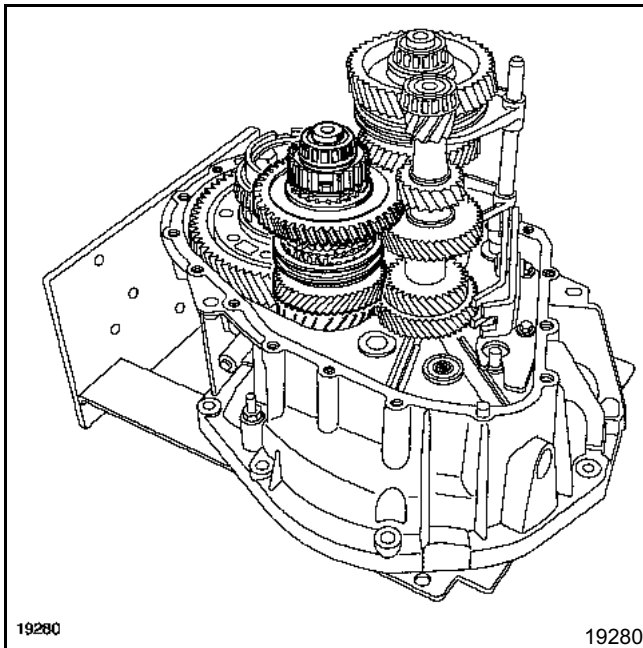


REFITTING THE SHAFTS

Fit the differential and the long secondary shaft - primary shaft with fork assembly.

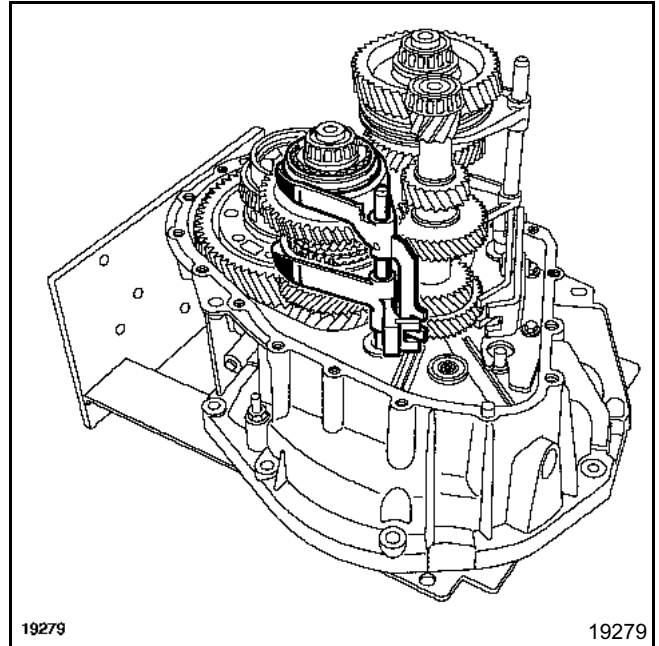


Fit the 1st/2nd and 5th/6th gear reverse switches and the short secondary shaft.

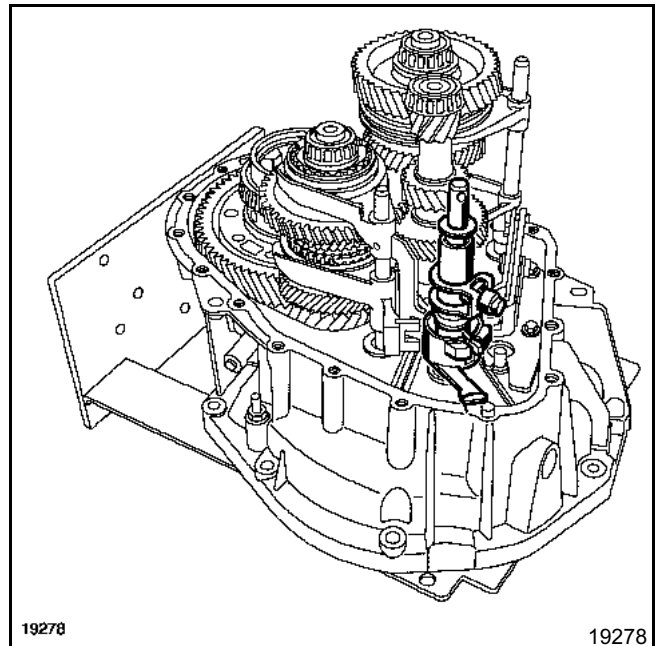


Fit:

- the 3rd/4th gear fork and the sliding shaft - fork - reverse gear shaft assembly,

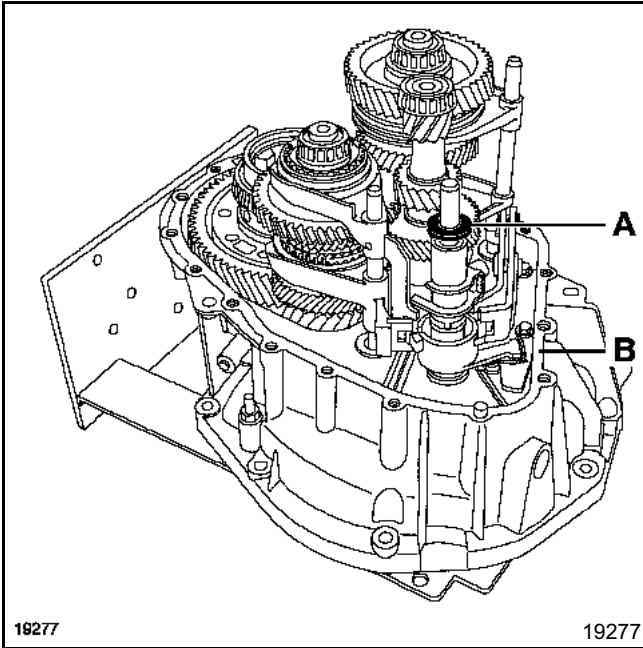


- the control unit. Engage the unit in its housing and then turn it to 3rd/4th gear position and shift the spring above the bushing.



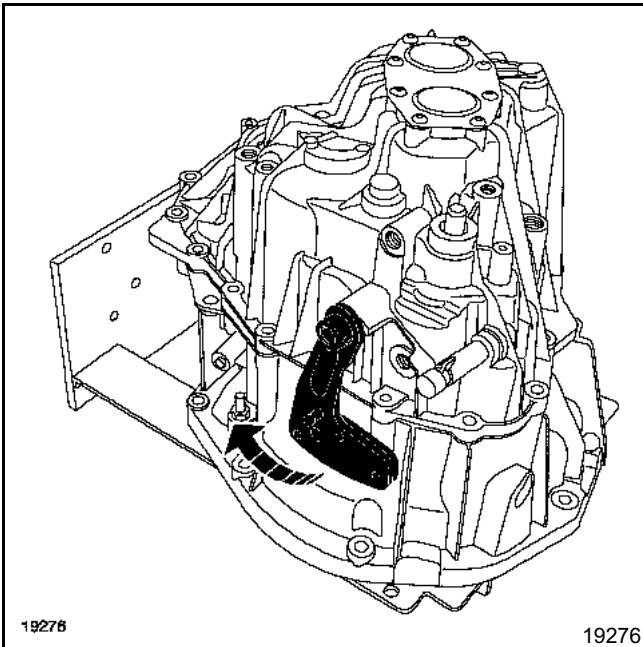
Check that the unit setting washer (A) is correctly fitted.

Apply a line of silicone around the gasket face (B).



Offer up the mechanism housing while moving the gear shift finger towards the front and engage it.

Adjust the controls to engage the finger in the unit fork.

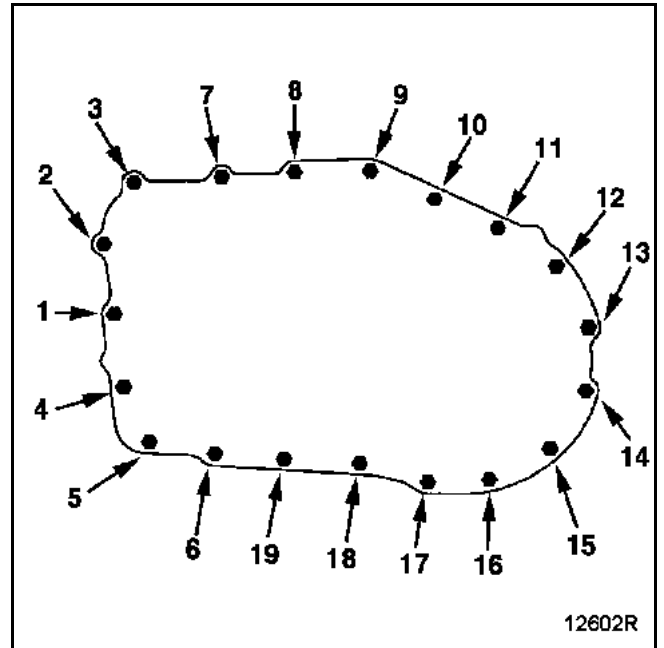


Position the bolts around the unit.

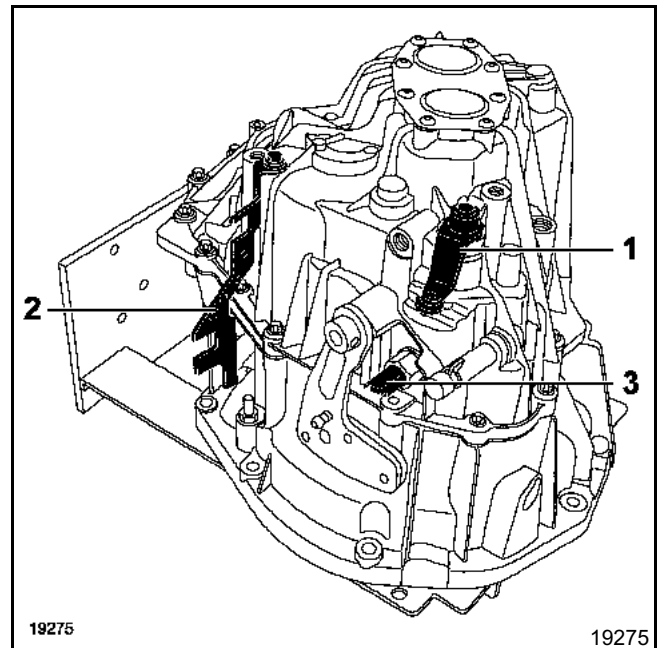
Pretighten bolts (2) and (14) to **1 daNm**.

Turn the primary shaft while shifting the gears.

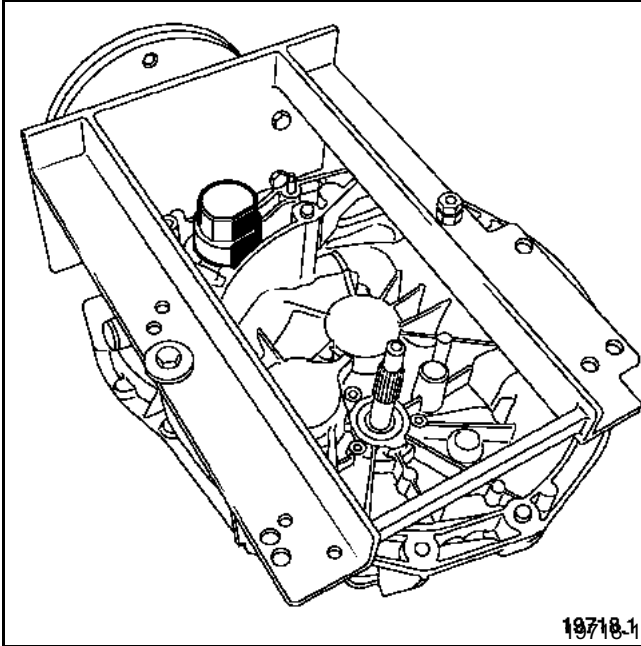
Tighten all the bolts to **2.4 daNm** in the order shown in the diagram below.



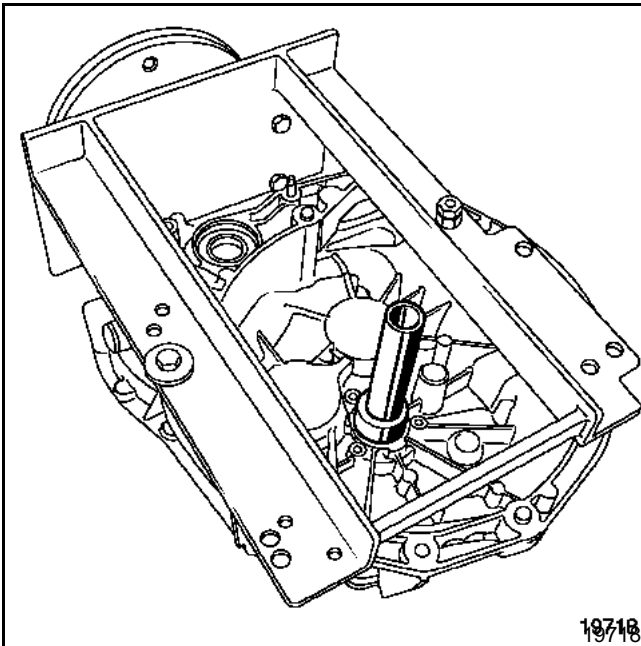
Refit the selector finger (1), the control cable mounting (2) and the reversing light switch (3).



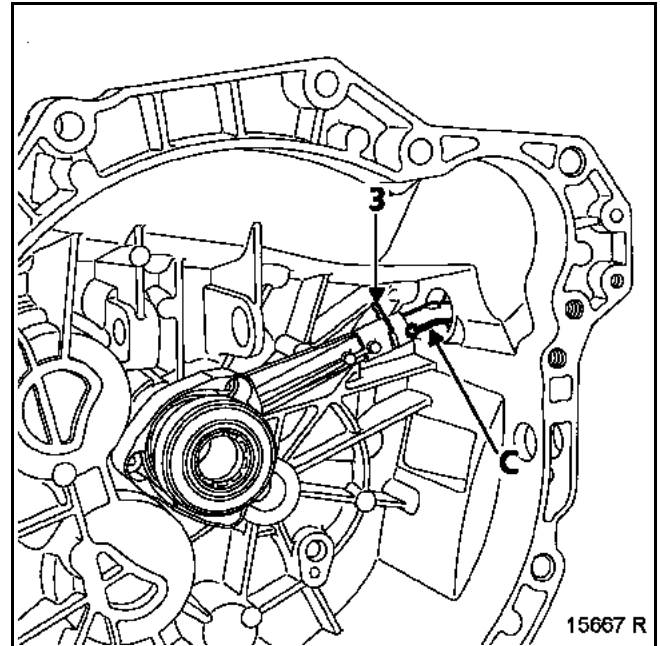
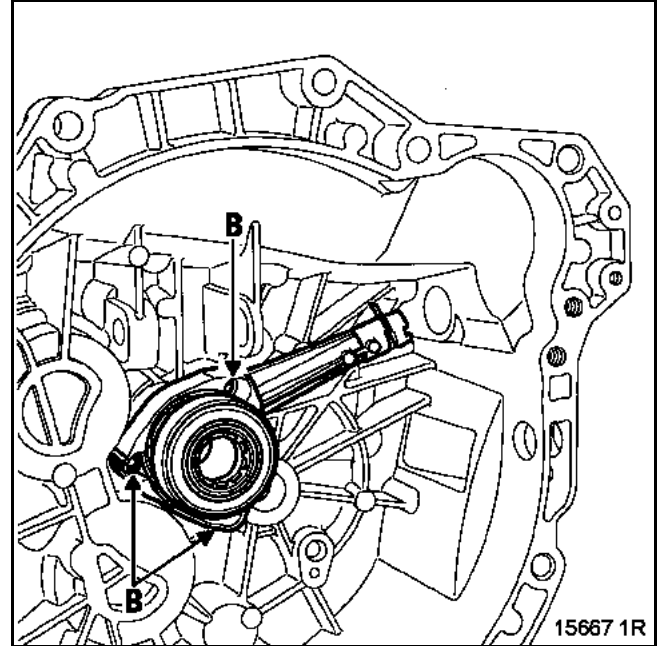
- Fit:
- the differential output lip seals using tool **B. Vi. 1235**,



- the primary shaft output lip seals using tool **B. Vi. 1236**.



- Refit the slave cylinder and tighten the three bolts (B) to **0.8 daNm**.



- Connect the union (C) and secure it with the clip (3).