

Palio - Albea

Gearbox and differential

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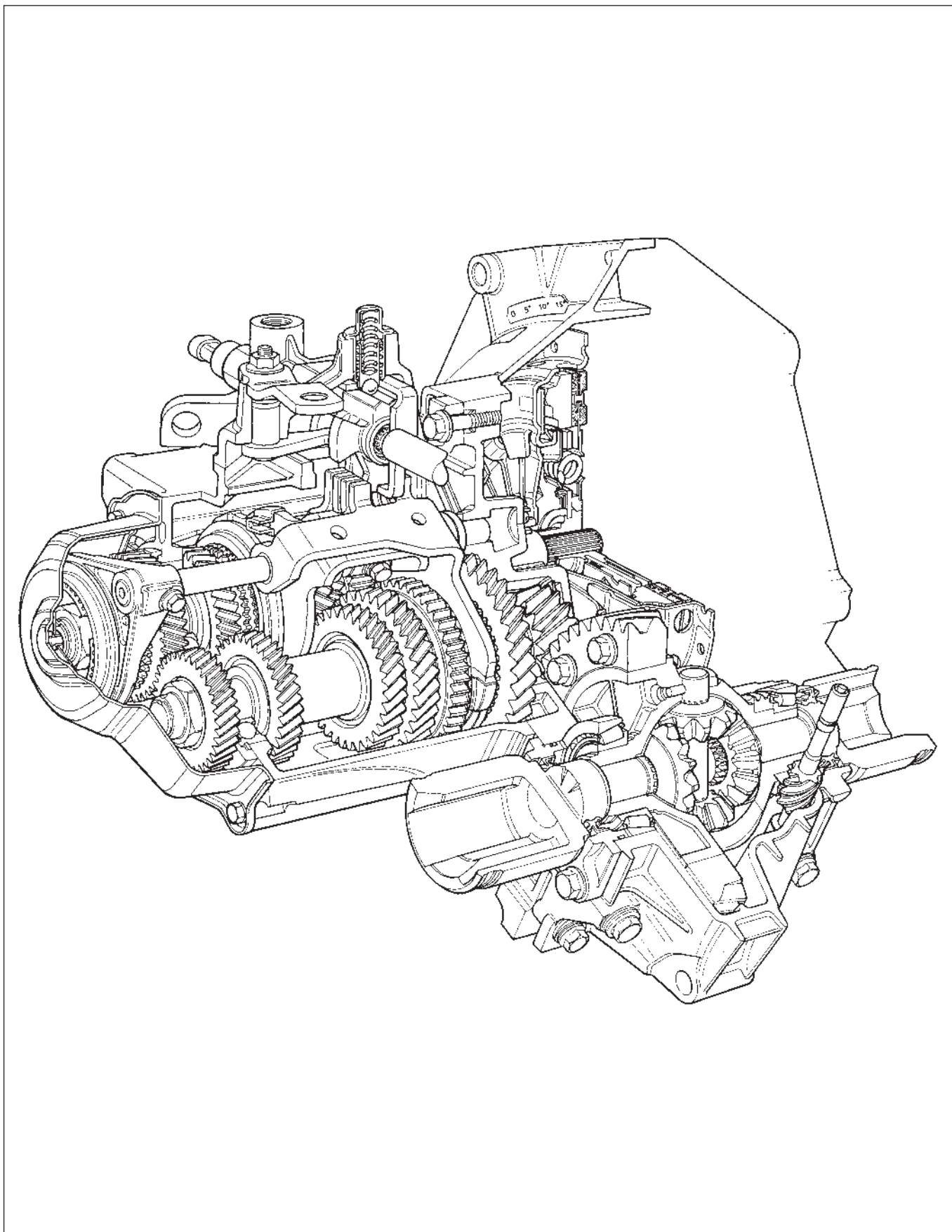
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21-27.

GEARBOX-DIFFERENTIAL ASSEMBLY PERSPECTIVE VIEW



78CBB400

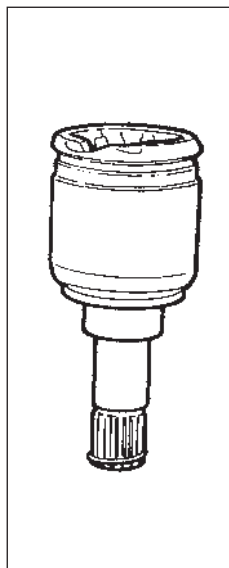
Gearbox and differential

Bench disassembly procedures

21-27.

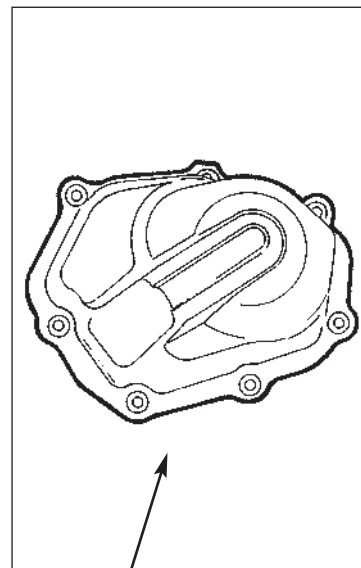
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SEQUENCE OF OPERATIONS

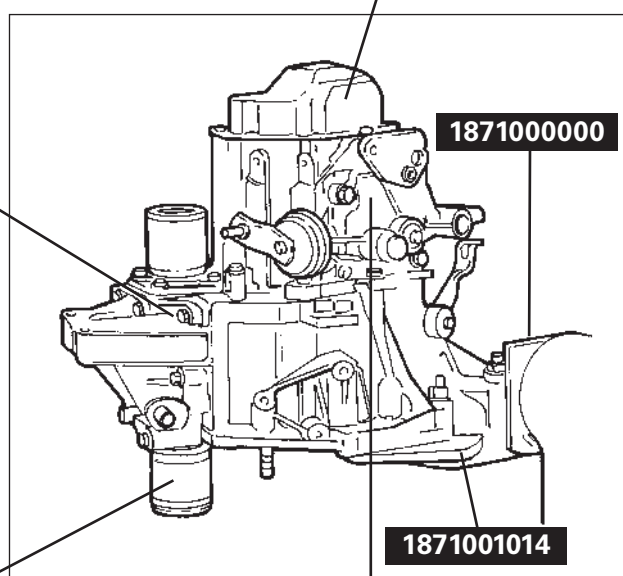


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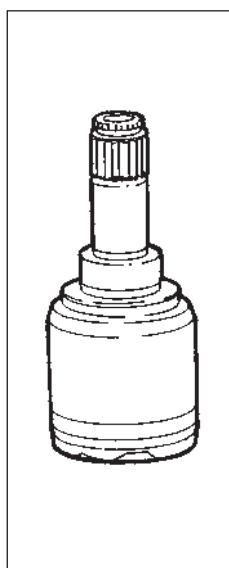
- Arrange the gearbox on a rotary stand 1871000000 with support 1871001014.
- Remove the following:



78CBB123

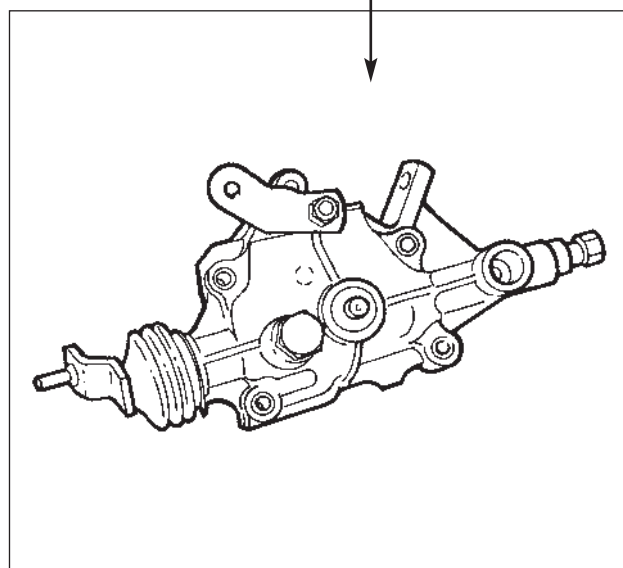


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78CBB126

Engage any gear from 1st to 4th before removing the cover.



78CBB127

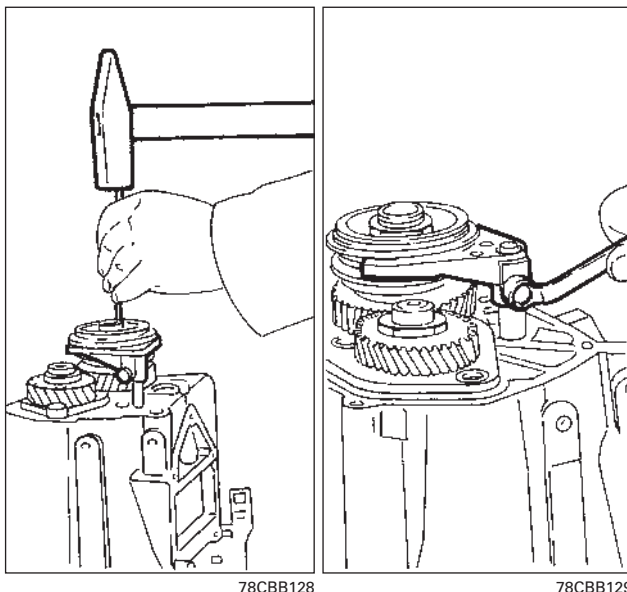
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Gearbox and differential

Bench disassembly procedures

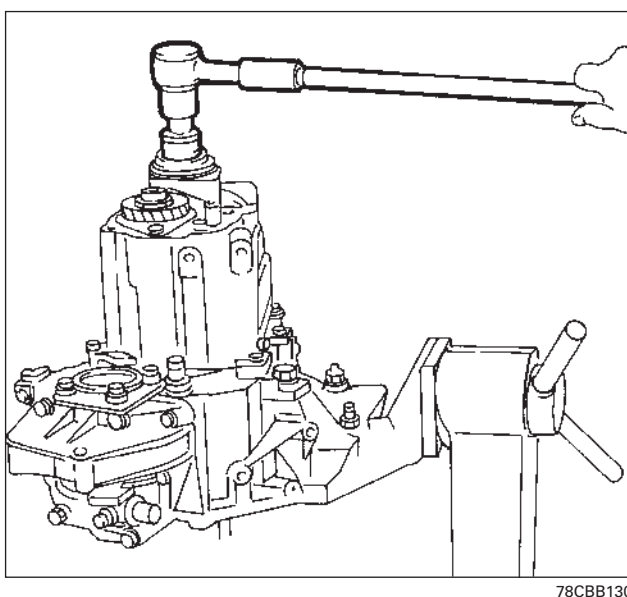
21-27.



Remove the 5th speed engagement fork retainer screw

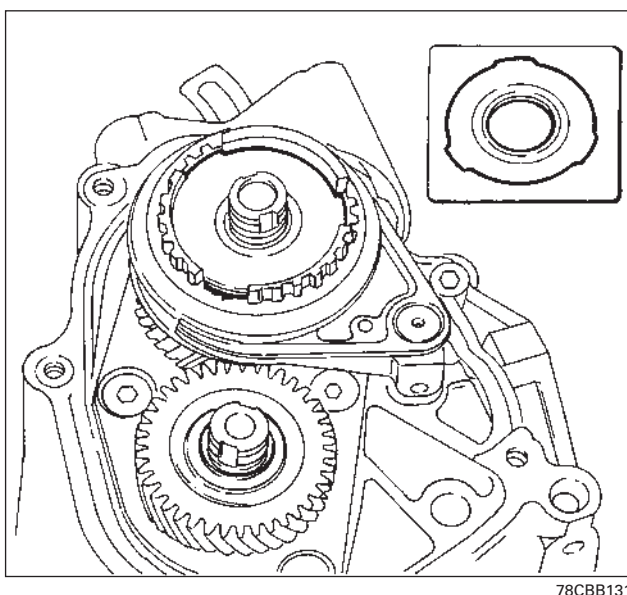
Straighten the caulking on the primary and secondary shaft rings. Then engage the 5th speed by hand.

NOTE The gearbox primary shafts will be locked by engaging two gears at the same time. This operation is required to release the rings fastening the gears.



Remove the primary and secondary shaft 5th speed gear fastening rings

Take the sleeve to neutral position before removing the sleeve fastening ring to avoid losing the synchroniser rollers.



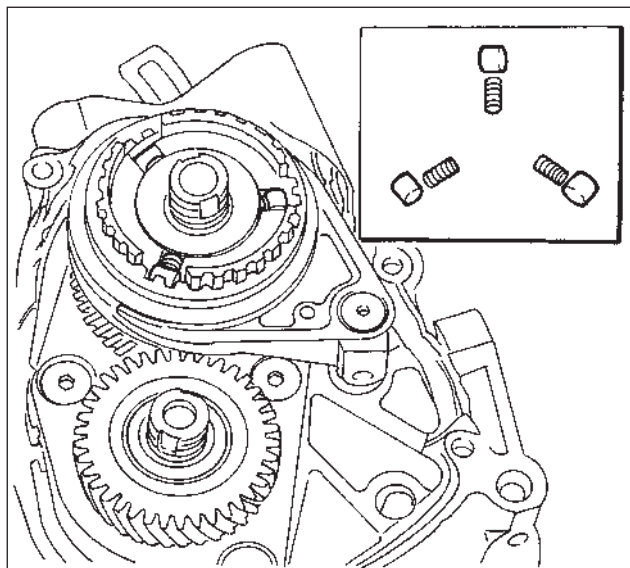
Remove the 5th speed synchroniser spring and roller retainer plate

Gearbox and differential

Bench disassembly procedures

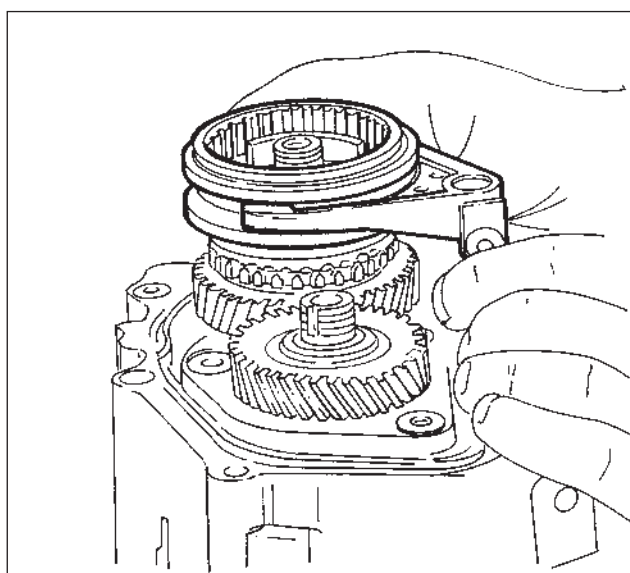
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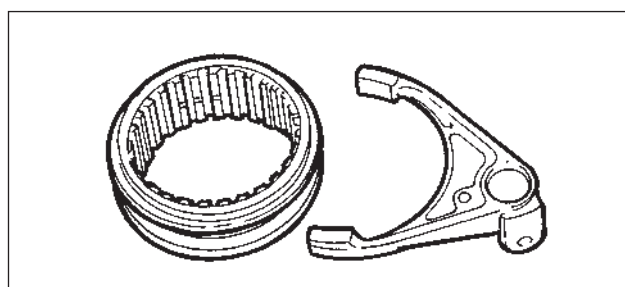
78CBB132

Dismantling of springs and threads rollers 5th speed synchronizer

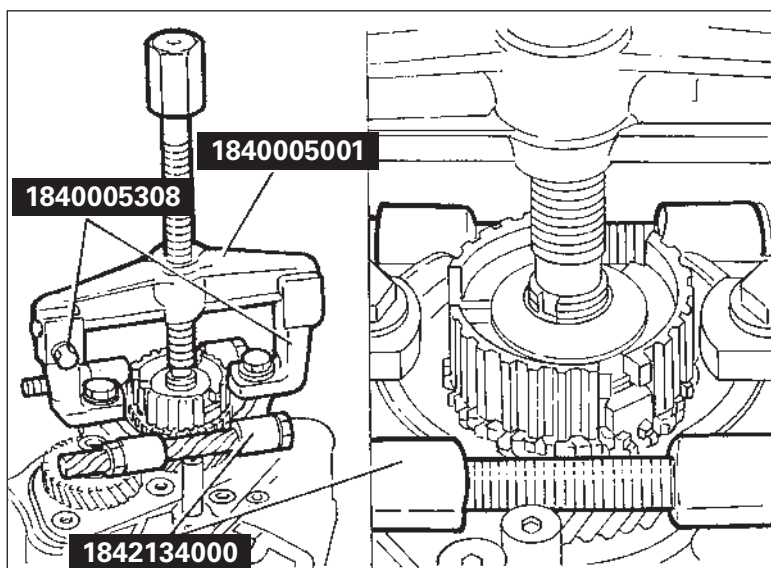


78CBB133

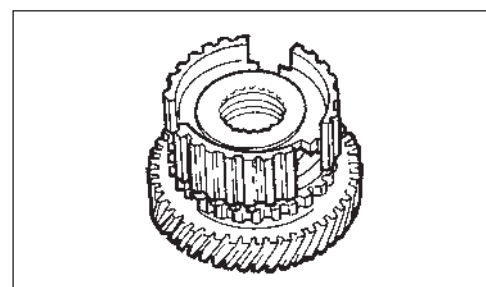
Remove the 5th speed fork and engagement sleeve



78CBB134



78CBB135



78CBB136

Remove the 5th speed gear, synchroniser ring and hub from the secondary shaft

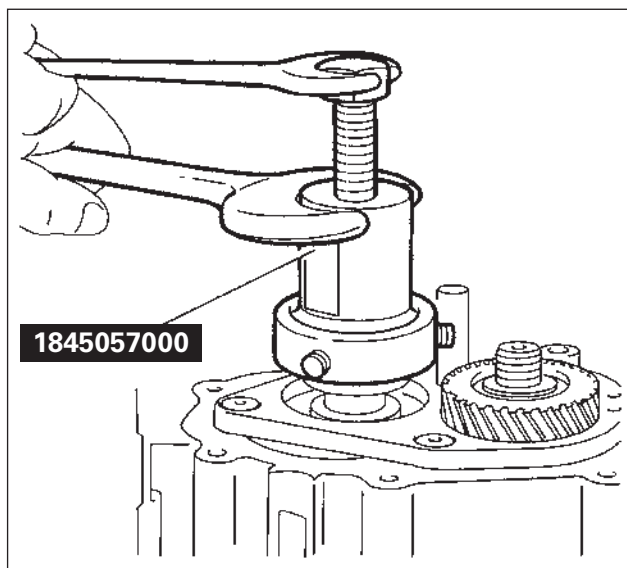
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Gearbox and differential

Bench disassembly procedures

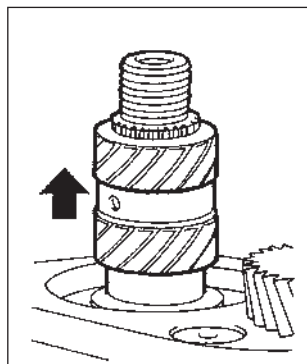
21-27.



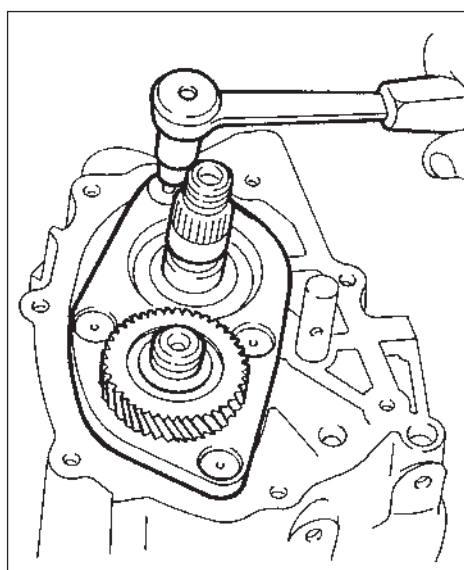
78CBB137



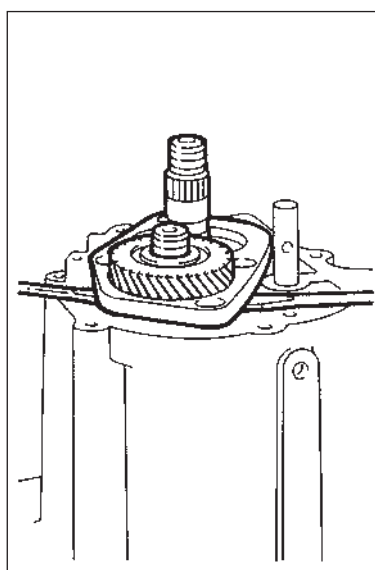
Remove the 5th speed gear bushing from the secondary shaft with tool 1845057000



78CBB138



78CBB139

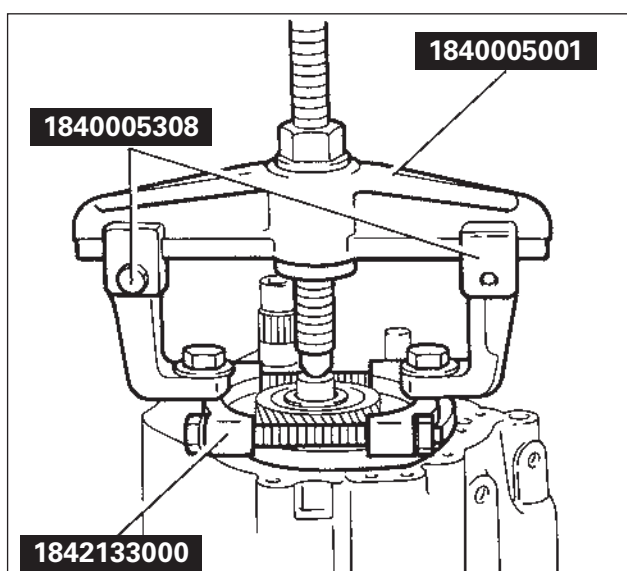


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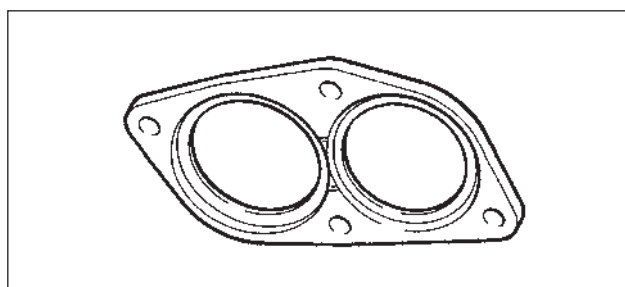


Proceed as follows to disassemble the 5th speed gear correctly:

- loosen the rear bearing plate fastening screws;
- use two levers to lift the plate and the gear to fit extractor 1842133000;



78CBB141



78CBB142

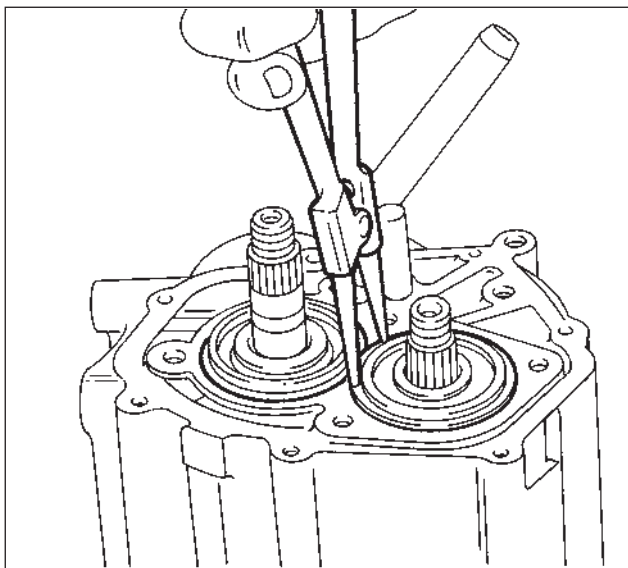
- remove the 5th speed gear as shown in the figure and remove the rear bearing retainer plate.

Gearbox and differential

Bench disassembly procedures

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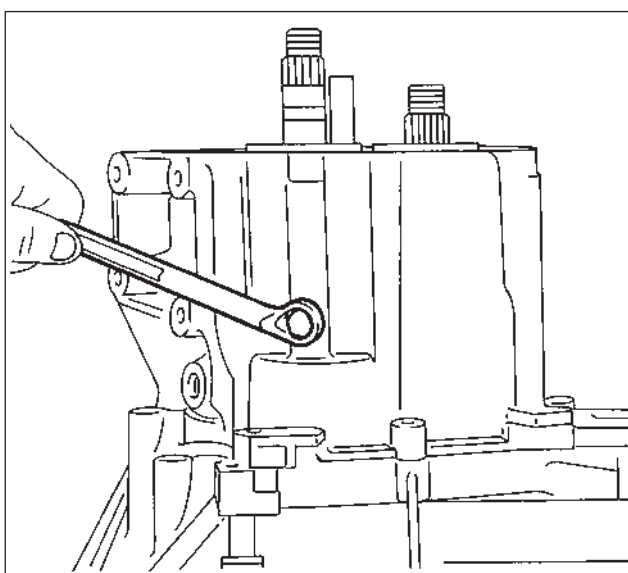
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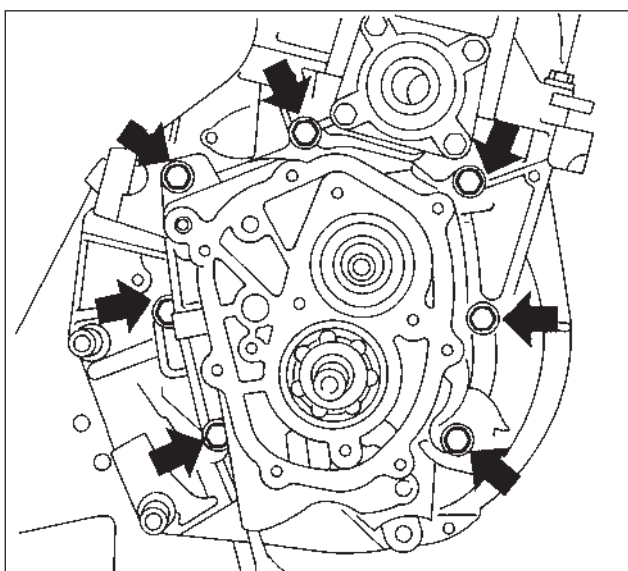
Remove the rear bearing snap rings

NOTE Arrange the snap ring openings as shown in the figure to remove the rings.



78CBB144

Remove the reverse shaft fastening screw



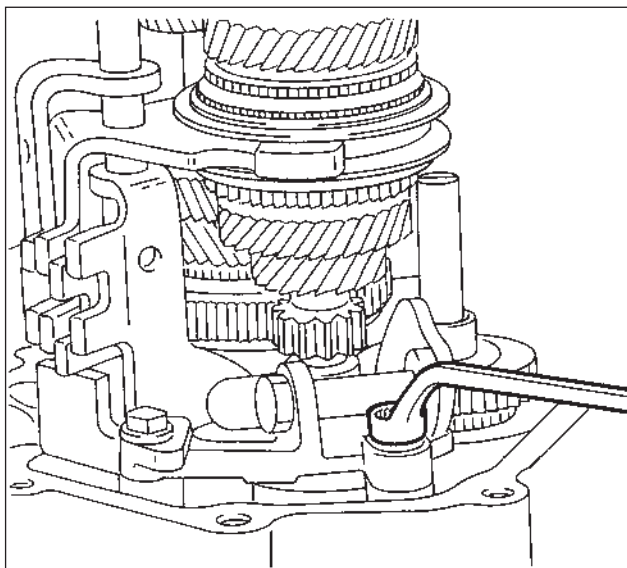
78CBB145

Remove the gearbox

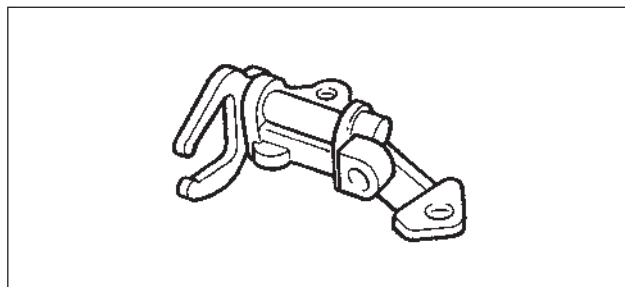
The arrows show the screws to be removed.

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Gearbox and differential **Bench disassembly procedures** **21-27.**

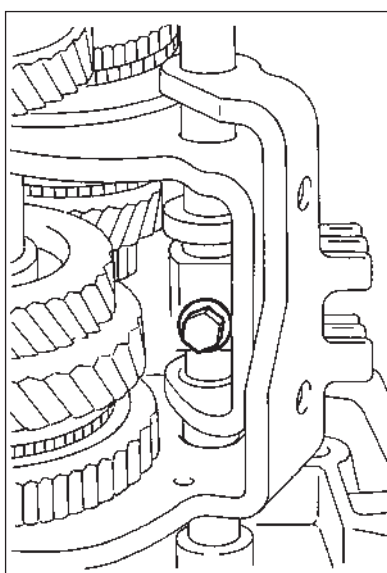


78CBB146

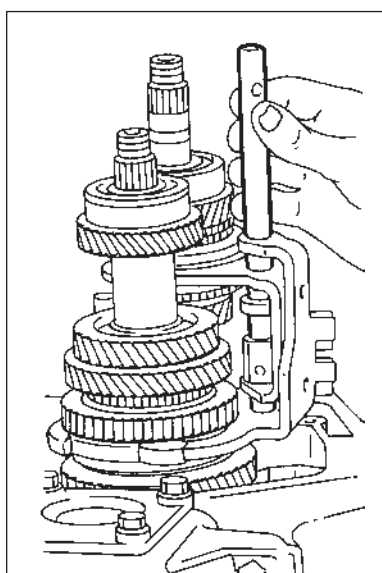


78CBB147

Remove the reverse engagement fork lever support



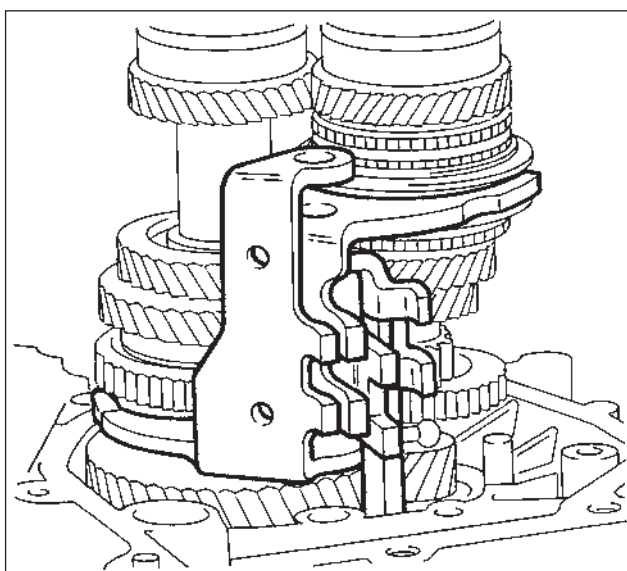
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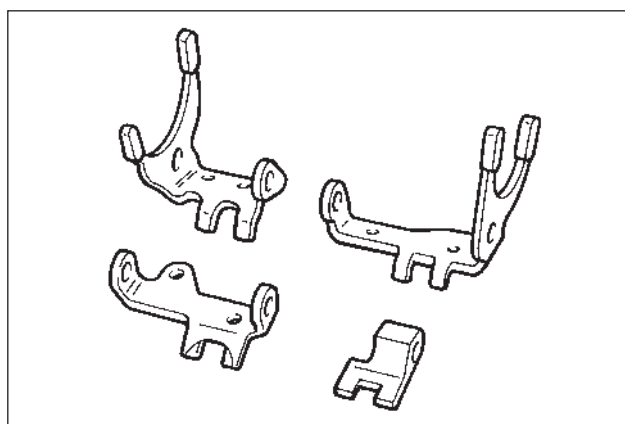
78CBB149



Remove the gear engagement fork guide rod fastening screw



78CBB150



78CBB151

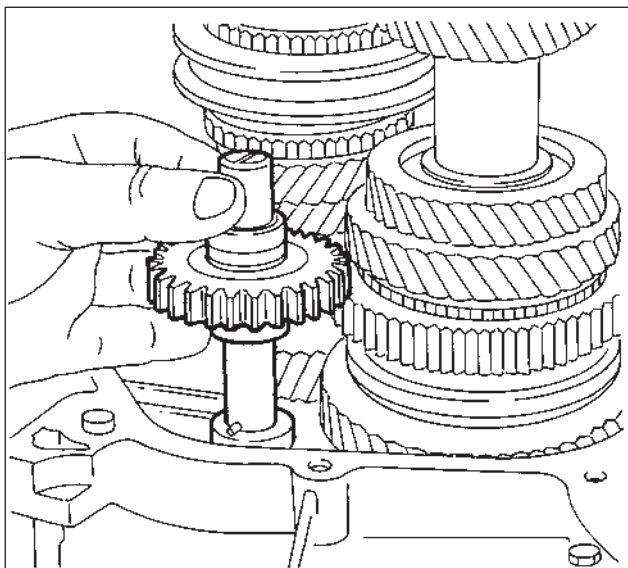
Remove the gear forks

Gearbox and differential

Bench disassembly procedures

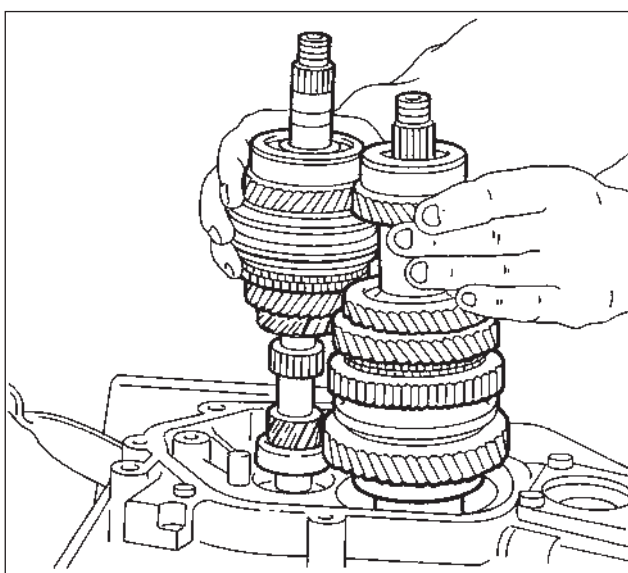
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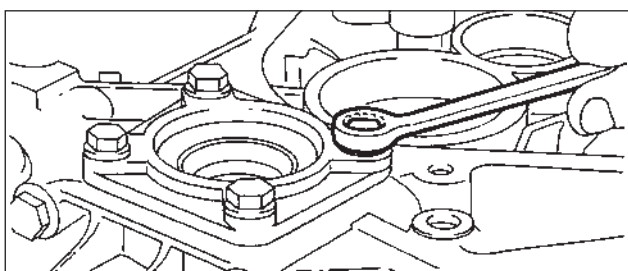
78CBB152

Remove the reverse transmission shaft and gear

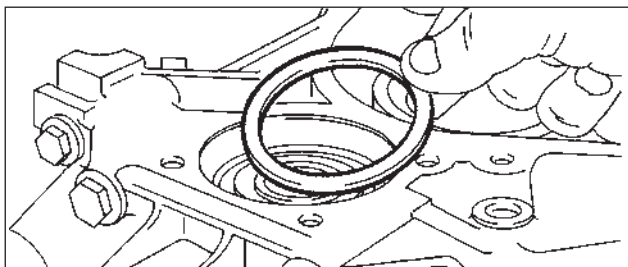


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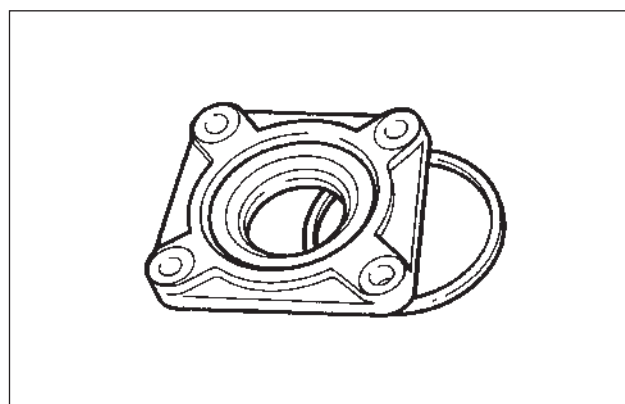
Remove the primary shaft and secondary shaft assembly



78CBB154



78CBB155



78CBB156

Remove the differential carrier cover and the bearing pre-load adjustment ring

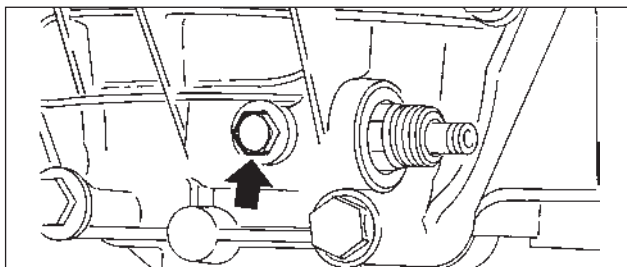
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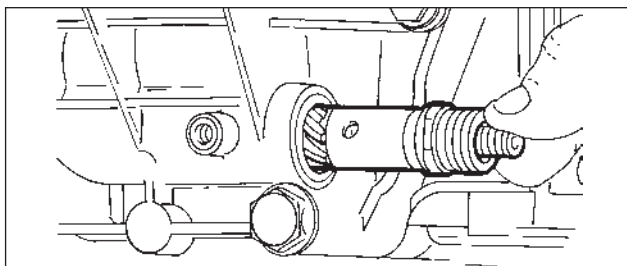
Gearbox and differential

Bench disassembly procedures

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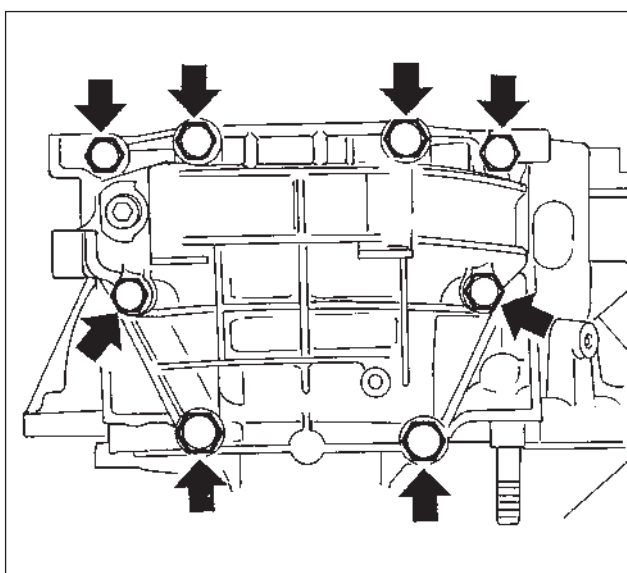


78CBB157



78CBB158

Remove the odometer transmission gear

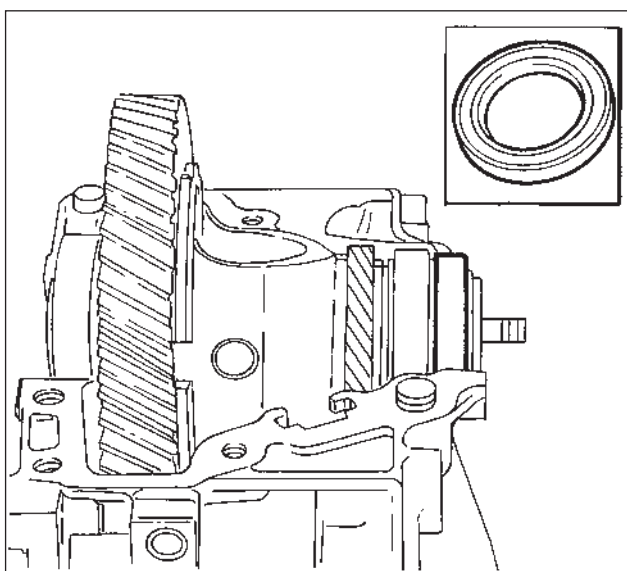


78CBB159



Remove the differential cover

The arrows show the screws to be removed.



78CBB160



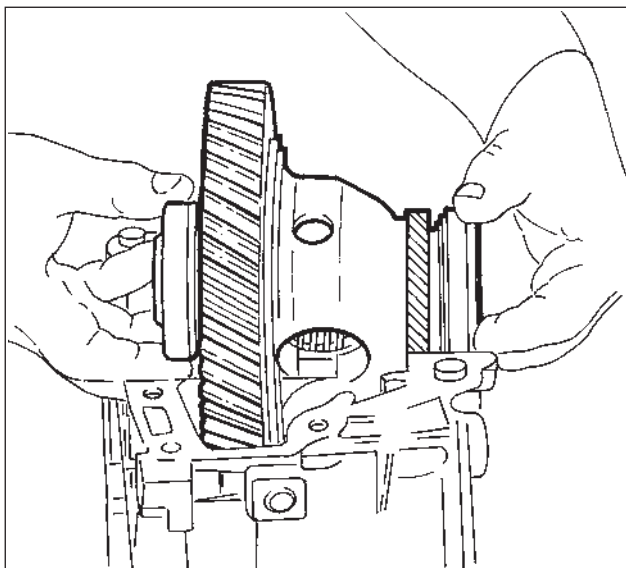
Remove the differential carrier seal

Gearbox and differential

Bench disassembly procedures

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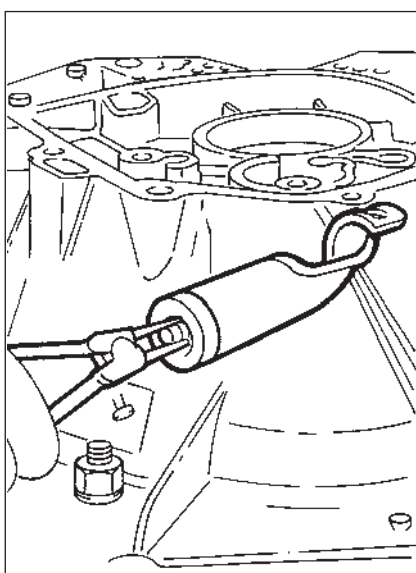


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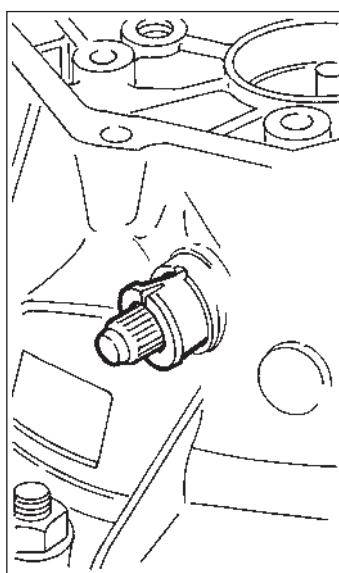


Remove the differential assembly

The arrow shows the magnet to be removed and cleaned of ferrous residues.



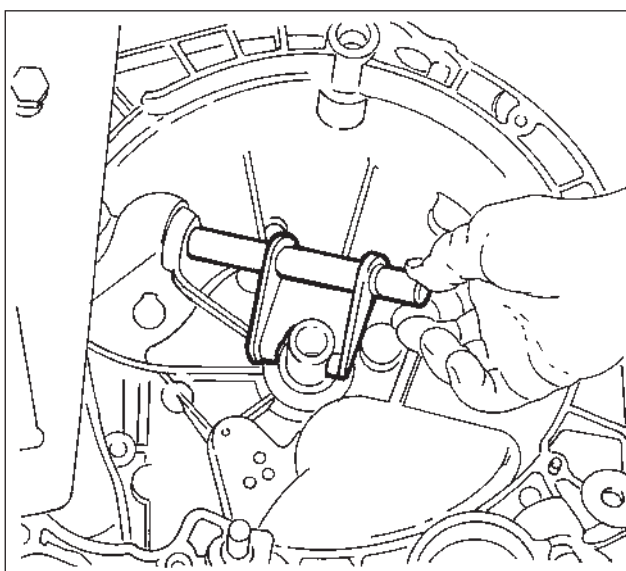
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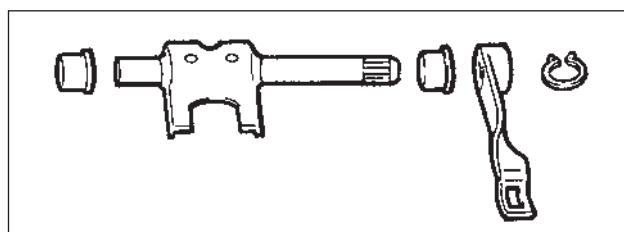
78CBB163



Remove the thrust bearing shaft control lever and remove the outer bushing



78CBB164



78CBB165

Remove the thrust bearing shaft

NOTE Replace the bearings if the thrust bearing shaft play is excessive.

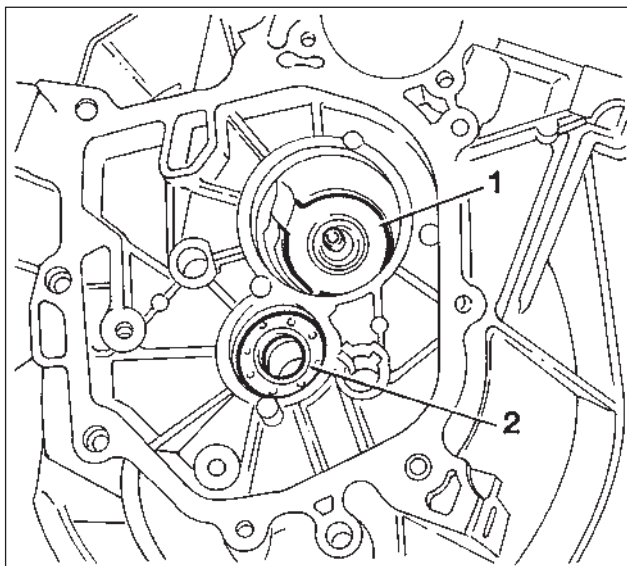
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Gearbox and differential

Bench disassembly procedures

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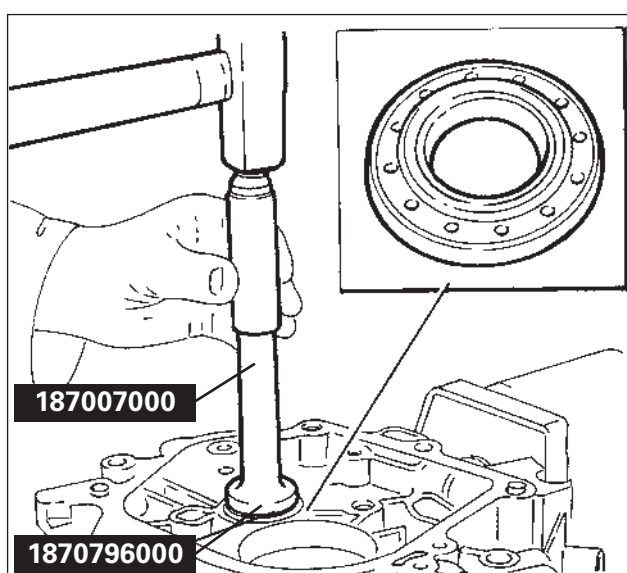


78CBB166

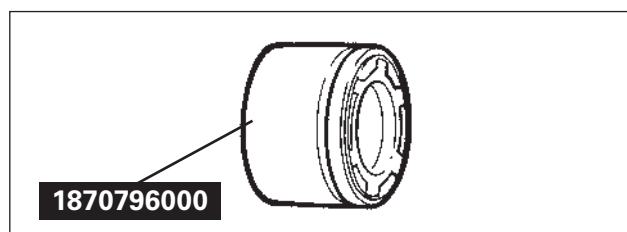


Removal of oil centring device and primary shaft seal

Remove part (1) using the universal extractive. Also uncalk the oil centring device; this operation is destructive, therefore always replace the oil centring device.



78CBB167

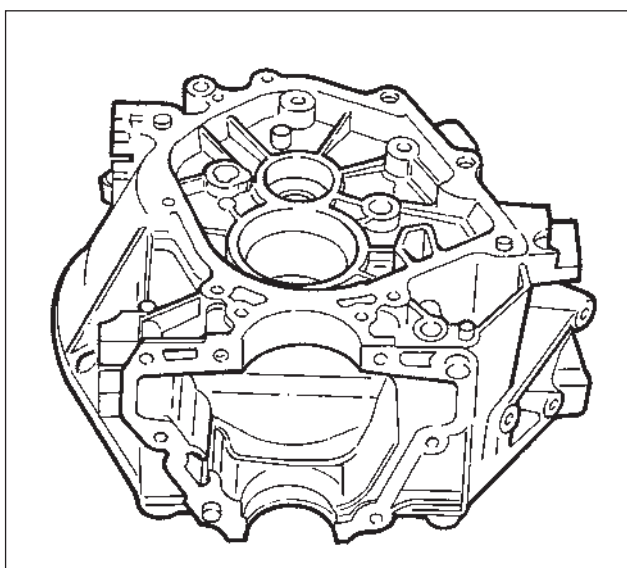


78CBB168

Fit the primary shaft seal



Before assembly, accurately fit the seal on the centring section of tool 1870796000 as shown in the figure.



78CBB171



Gearbox to engine mount (gearbox bell)

Gearbox and differential

Bench disassembly procedures

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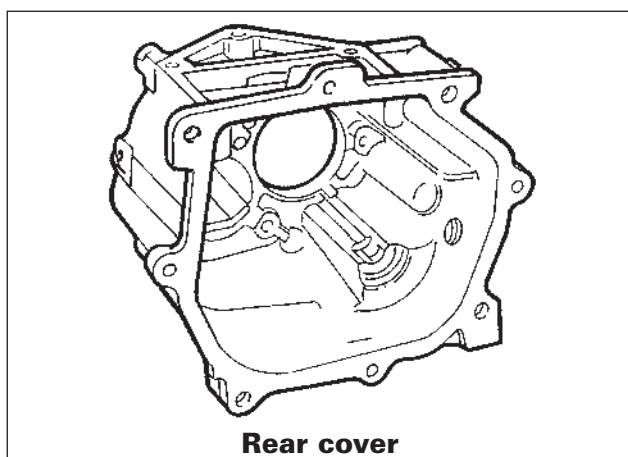
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Check the gearbox to engine mount, the central box, the rear cover and the differential cover

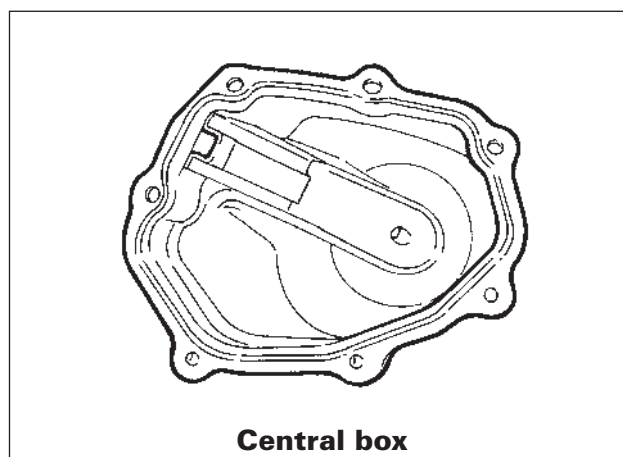
The box, the cover, the mount and the differential cover should not be cracked. The bearing and rod housings should not be worn or damaged.

The contact surfaces should be flat (use a fine file to correct minor imperfections).

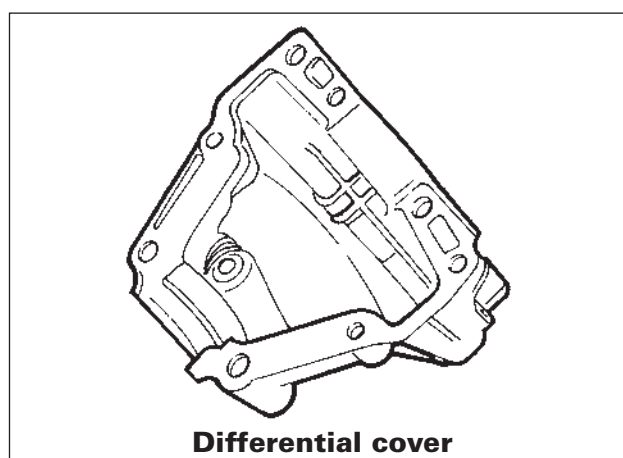
Check that the rear cover oil duct is not clogged up.



78CBB172



78CBB173



78CBB174

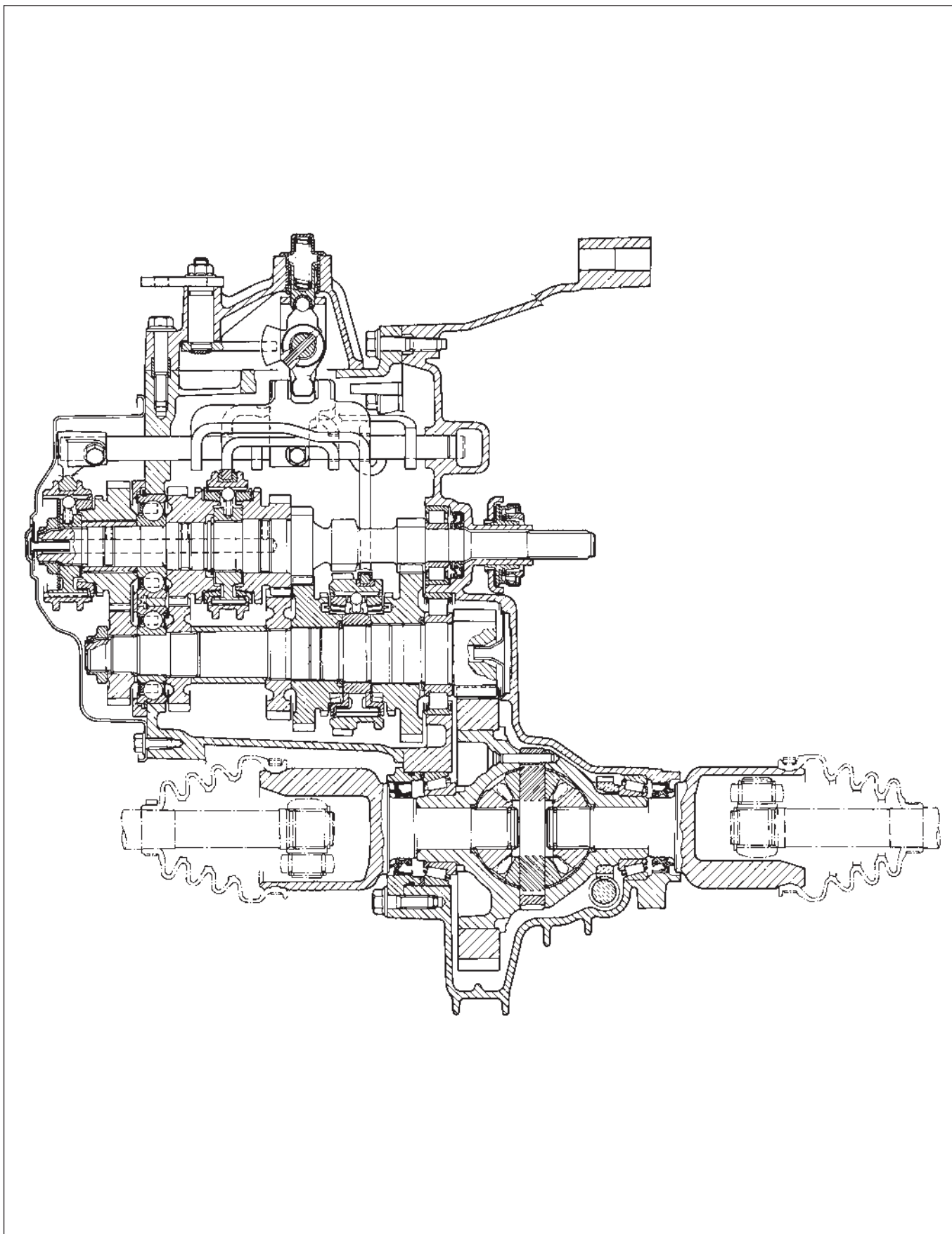
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Gearbox and differential

Bench disassembly procedures

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GEARBOX-DIFFERENTIAL ASSEMBLY CROSS-SECTION VIEW



78CBB402

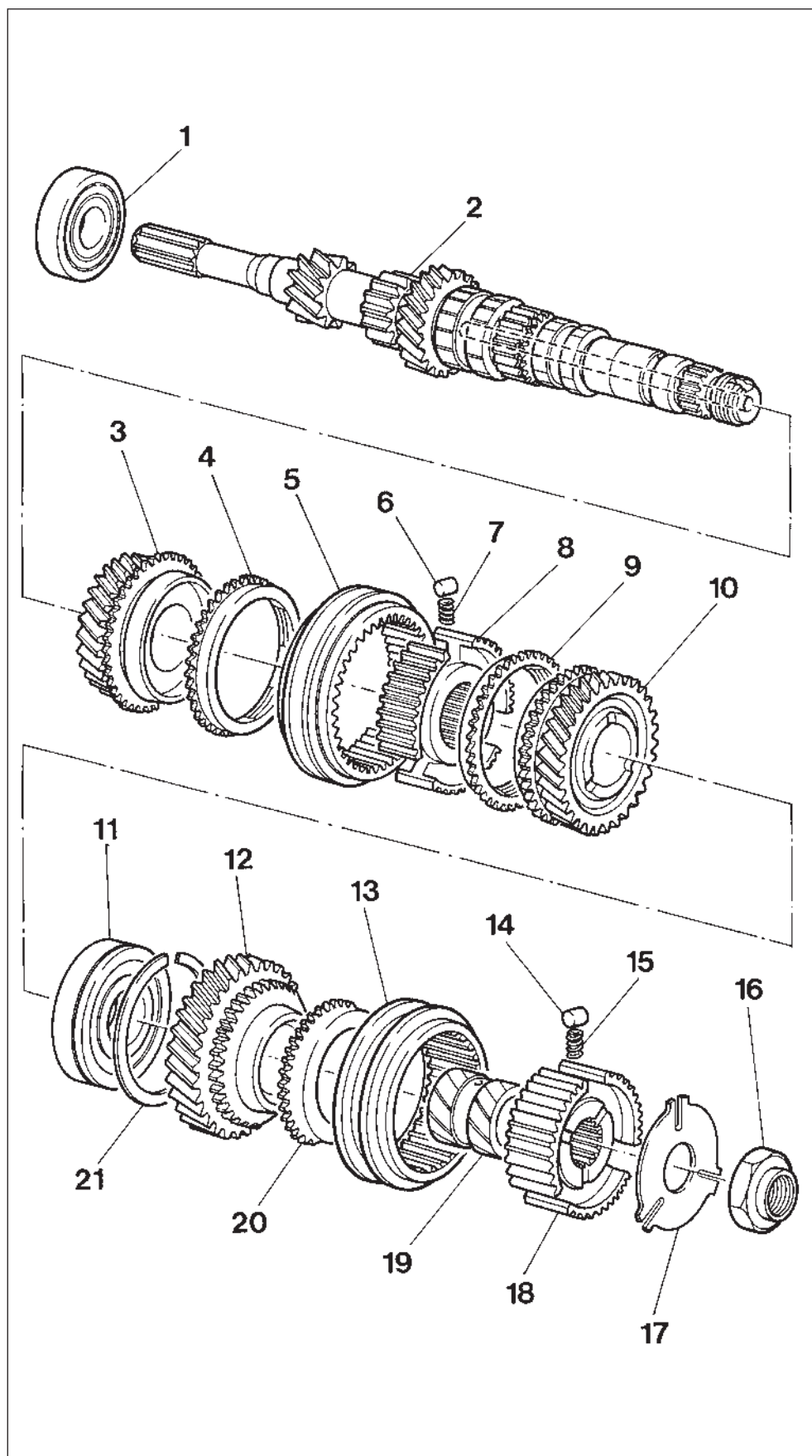
Gearbox and differential

Gearbox

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PRIMARY SHAFT

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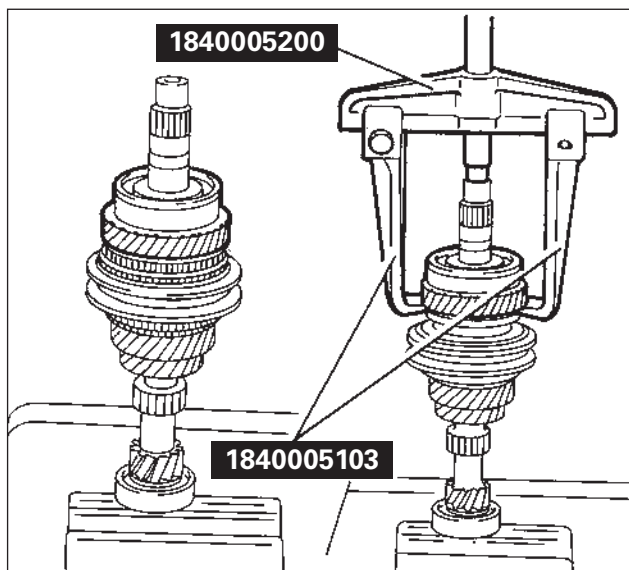


78CBB420

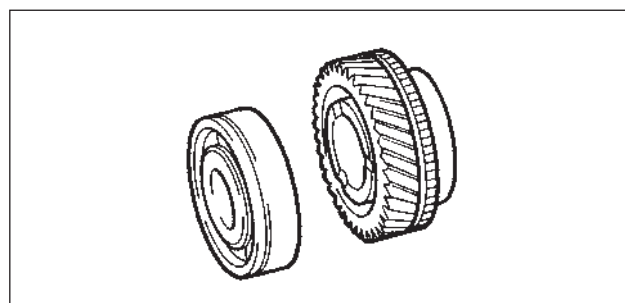
1. Front bearing
2. Primary shaft
3. 3rd speed drive gear
4. 3rd speed synchroniser ring
5. 3rd-4th speed sliding sleeve
6. 3rd-4th hub roller
7. 3rd-4th speed hub springs
8. 3rd-4th speed sliding sleeve hub
9. 4th speed synchroniser ring
10. 4th speed drive gear
11. Rear bearing
12. 5th speed drive gear
13. 5th speed engagement sliding sleeve
14. 5th speed hub rollers
15. 5th speed hub springs
16. Ring fastening gear on primary shaft
17. 5th speed roller retainer plate and synchroniser ring
18. 5th speed engagement sliding sleeve hub
19. 5th speed gear bushing
20. 5th speed synchroniser ring
21. Snap ring

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Gearbox and differential Gearbox **21-27.**

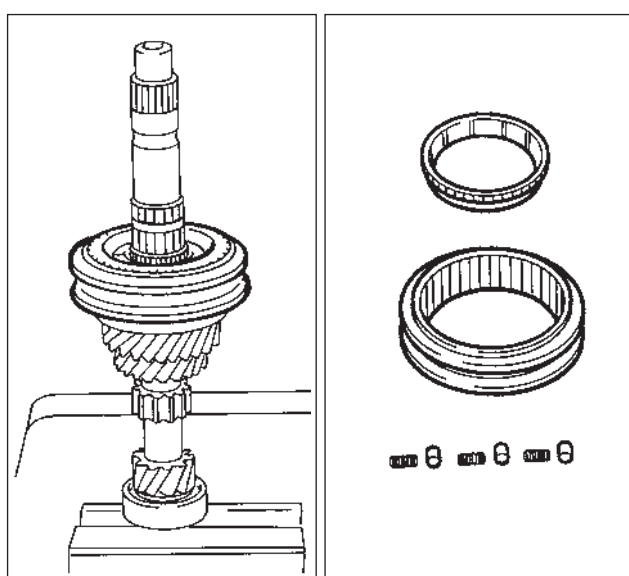


PRIMARY SHAFT DISASSEMBLY

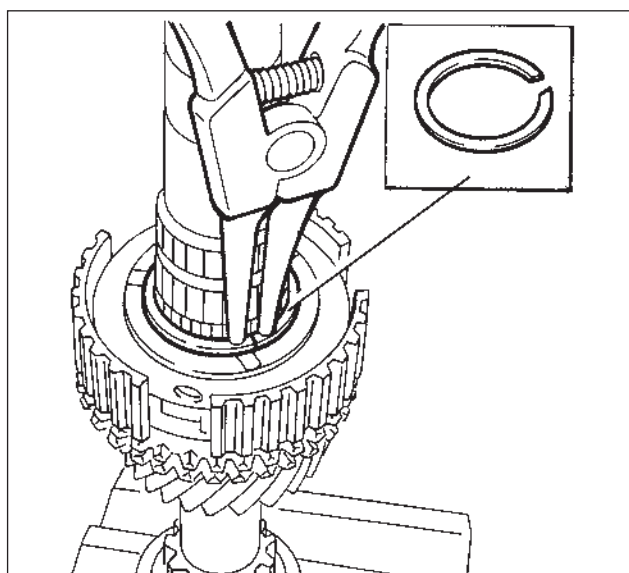


78CBB178

Remove the rear bearing and the 4th speed gear from the primary shaft



Remove the 4th speed synchroniser ring and 3rd-4th speed engagement sliding hub with springs and rollers from the primary shaft



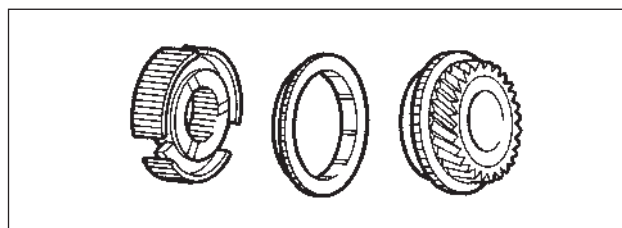
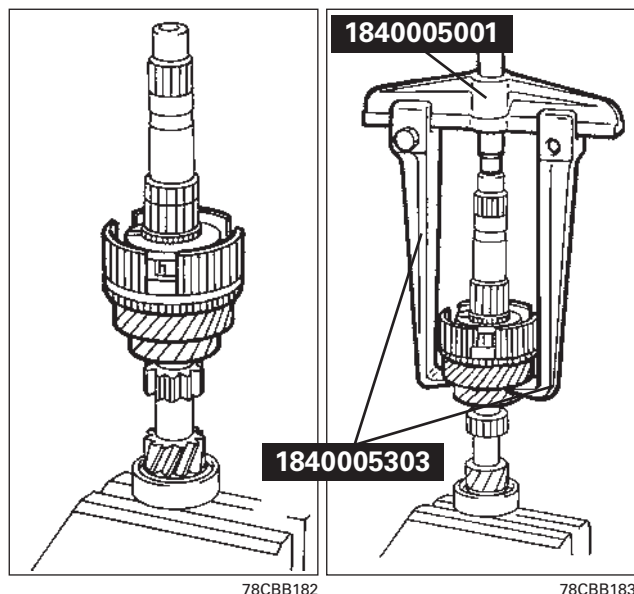
Remove the 3rd-4th speed engagement sliding sleeve hub snap ring

Gearbox and differential

Gearbox

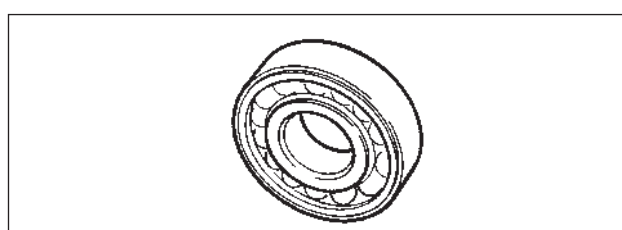
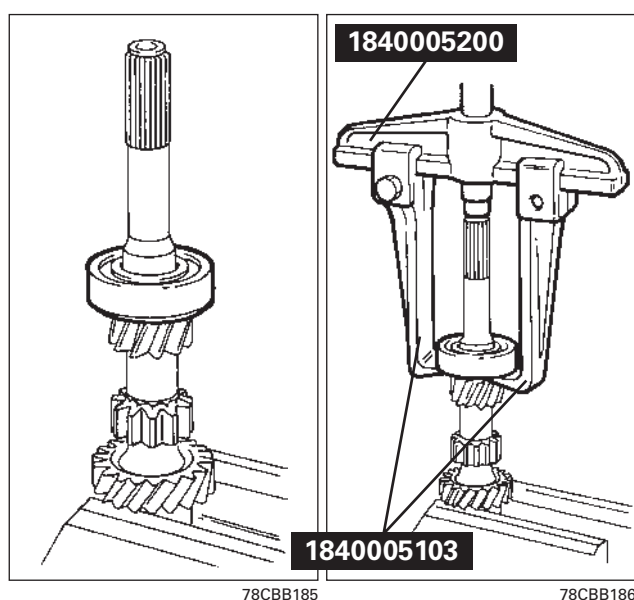
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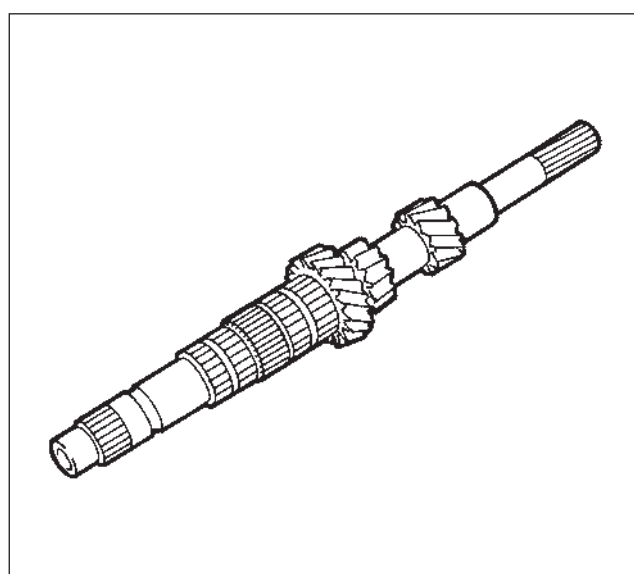
78CBB184

Remove the 3rd-4th speed engagement sliding sleeve hub, 3rd speed synchroniser ring and 3rd speed gear from the primary shaft



78CBB187

Remove the front bearing from the primary shaft



Check the primary shaft

Check that the gears are not damaged or excessively worn.

Following high mileage, it is good practice to replace all the secondary shaft gears when replacing the primary shaft.

Furthermore, check that the inner oil ducts are not clogged up.

78CBB188

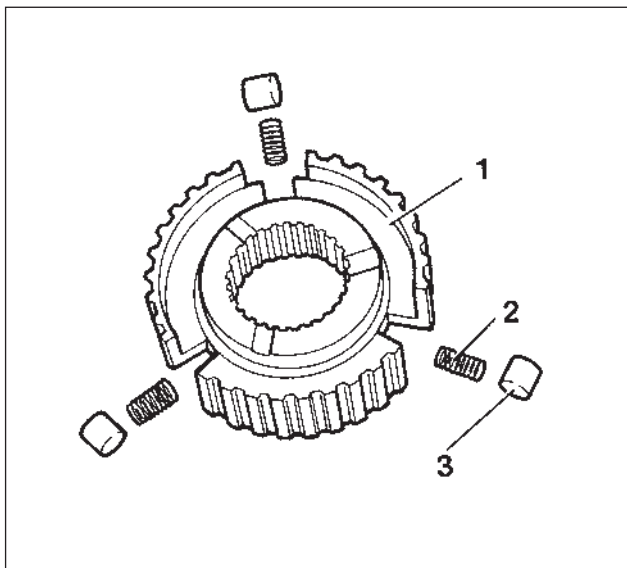
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Gearbox and differential

Gearbox

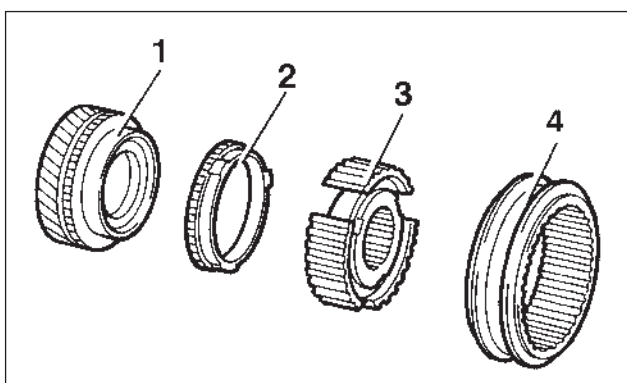
21-27.



78CBB189


BORG WARNER TAPER SYNCHRONISERS

1. Hub
2. Thrust spring
3. Roller



78CBB190

1. Synchronising surface of gear
2. Synchroniser gear
3. Sliding sleeve hub
4. Engagement sliding sleeve

Check the synchroniser assembly components

The inner surface of the synchroniser ring should not show signs of wear or ovalisation.

It is good practice to always replace the synchroniser.

Check that the hubs and the respective engagement sliding sleeves are not damaged. Check that they slide without excessive play or seizing. The inner sleeves should not be worn. Replace the sleeves if this is not so.

Check the conditions of the thrust springs and the rollers. Replace them if required.

GEARS - BUSHINGS

The gears and the side engagements (synchroniser crown) should not be damaged or excessively worn. Furthermore, check that the inner surfaces of the gears do not show signs of seizure or abnormal wear.

HUBS - SLEEVES

Check that the hub and the respective 3rd-4th and 5th speed engagement sliding sleeves are not damaged. Check that they slide without excessive play or seizing. The inner sleeves should not be worn. Replace the sleeves if this is not so.

BEARINGS

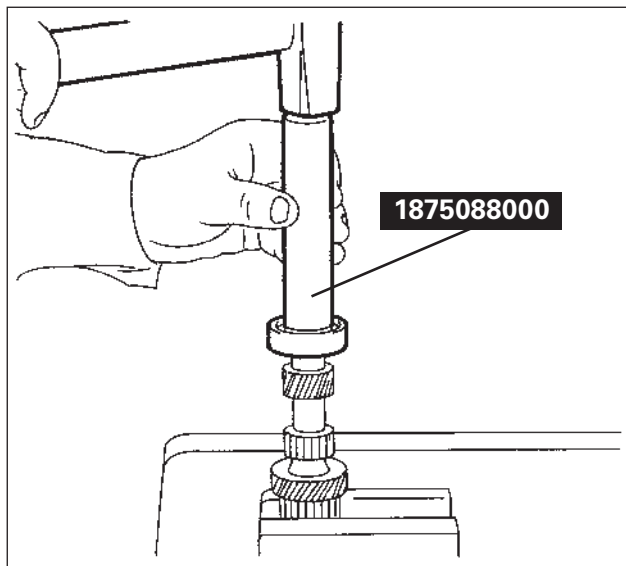
Replace the bearings if they are scratched or if excessive play or wear are found.

Gearbox and differential

Gearbox

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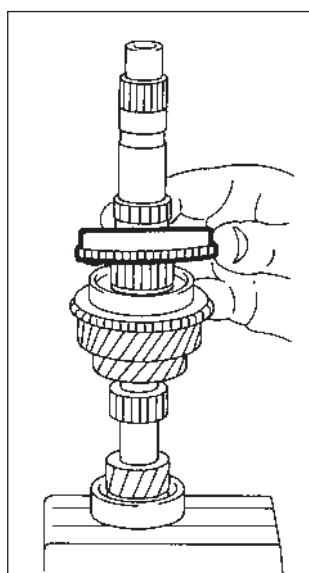
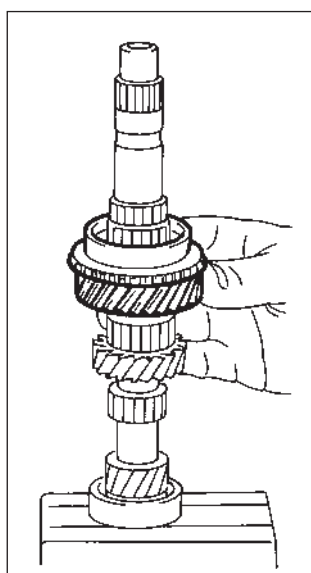


PRIMARY SHAFT ASSEMBLY

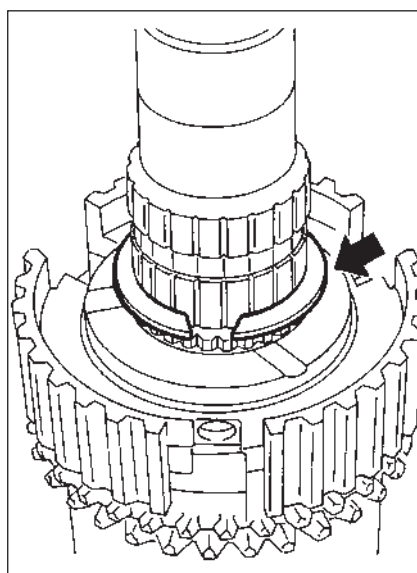
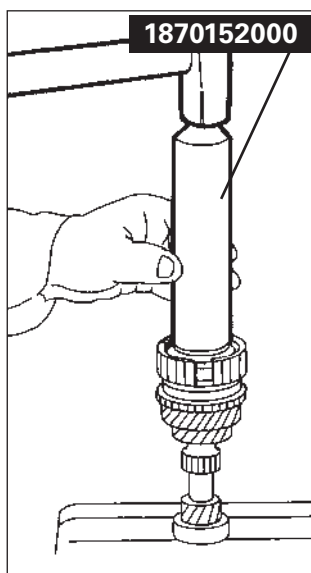


Apply gearbox oil to the concerned parts before assembly.

Fit the front bearing on the primary shaft



Fit the 3rd speed gear and respective synchroniser ring



Fit the 3rd-4th speed engagement sliding sleeve hub and respective snap ring

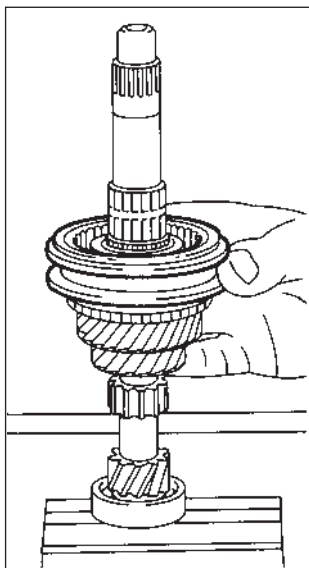
Palio - Albea

C.514.5.15

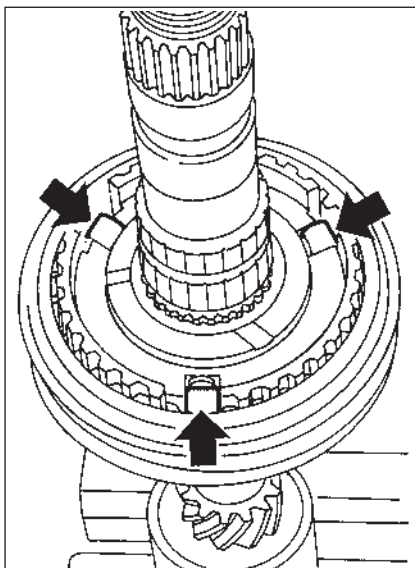
Gearbox and differential

Gearbox

21-27.



78CBB196



78CBB197

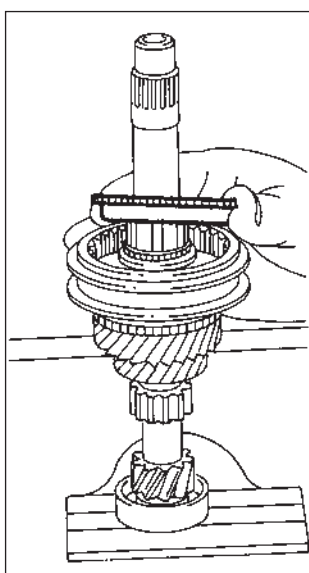


Fit the 3rd speed sliding sleeve

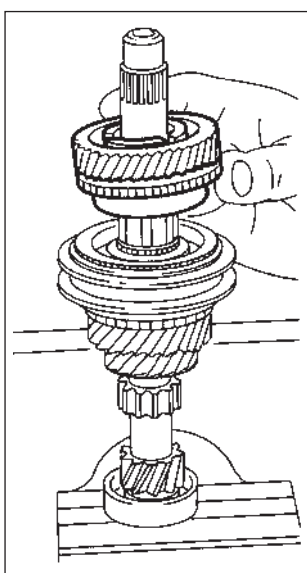
Fit the three synchroniser rollers (see arrows) between the springs on the hub and the recesses on the 3rd-4th speed engagement sliding sleeve with a screw-driver.



Take the sliding sleeve to neutral position to avoid losing the springs and the synchroniser rollers.



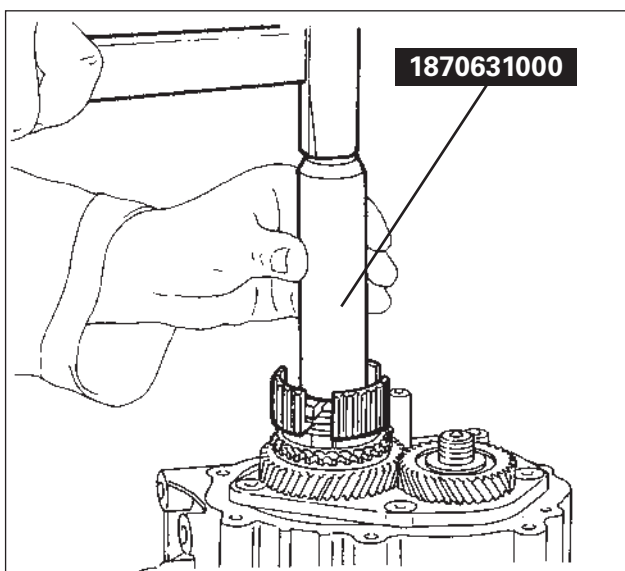
78CBB198



78CBB199



Fit the 4th speed synchroniser ring and gear on the primary shaft



78CBB200



Fit the rear bearing on the primary shaft

Gearbox and differential

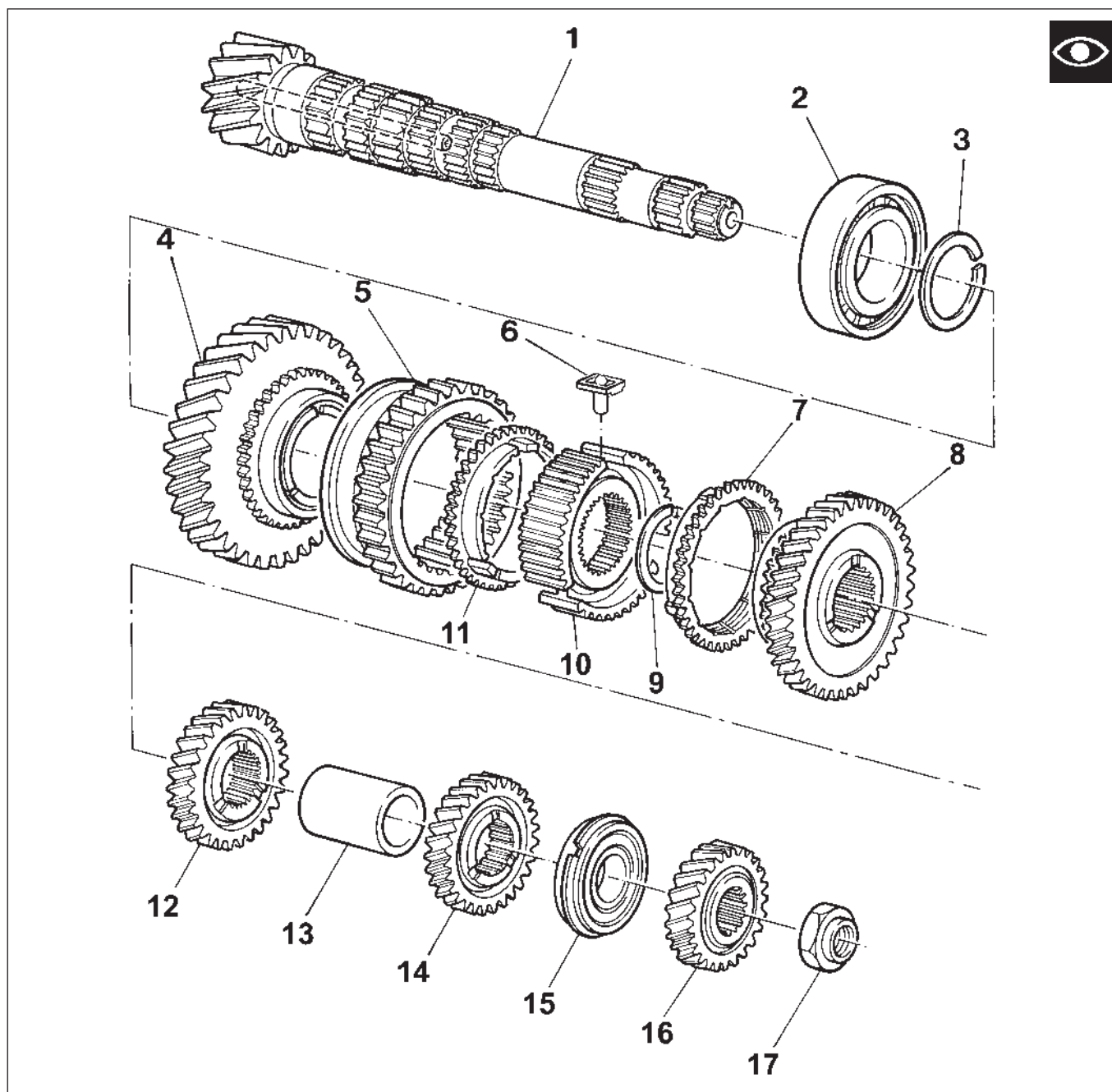
Gearbox

Palio - Albea

C.514.5.15

21-27.

SECONDARY SHAFT



78CBB403

- | | |
|--|--|
| 1. Pinion secondary shaft | 10. 1 st -2 nd speed engagement sliding sleeve hub |
| 2. Front bearing | 11. 1 st speed synchroniser ring |
| 3. Snap ring | 12. 3 rd speed driven gear |
| 4. 1 st speed driven gear | 13. 3 rd -4 th speed shim |
| 5. 1 st -2 nd speed and reverse engagement sliding sleeve (outer part) | 14. 4 th speed driven gear |
| 6. Presynchronizer plugs | 15. Rear bearing |
| 7. 2 nd speed synchroniser ring | 16. 5 th speed driven gear |
| 8. 2 nd speed driven gear | 17. Ring fastening 5 th speed gear on secondary shaft |
| 9. Hub snap ring | |

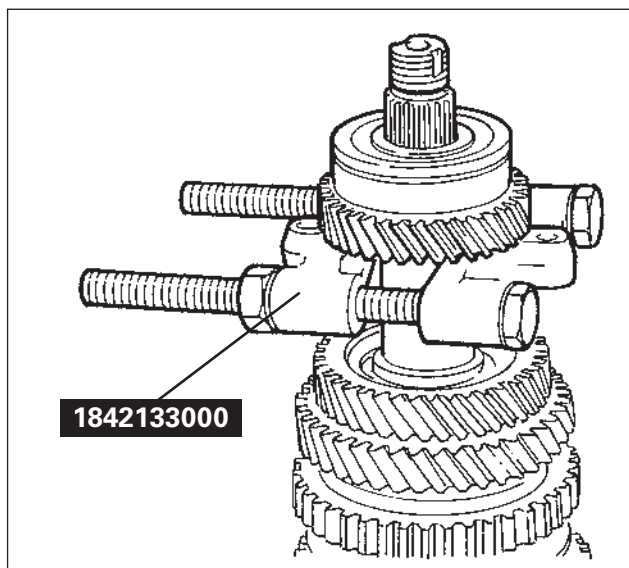
Palio - Albea

C.514.5.15

Gearbox and differential

Gearbox

21-27.



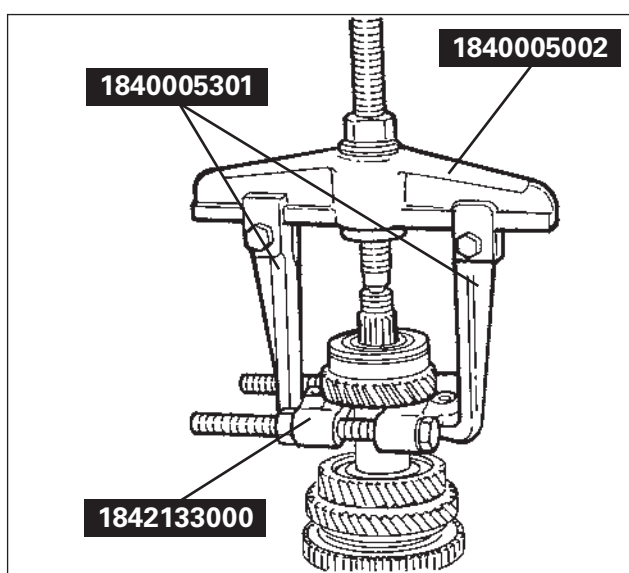
78CBB202



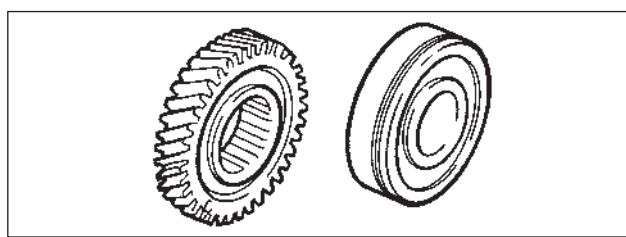
SECONDARY SHAFT DISASSEMBLY

Proceed as follows to correctly remove the 4th speed gear and the rear bearing from the secondary shaft:

- position extractor 1842133000 as shown in the figure;

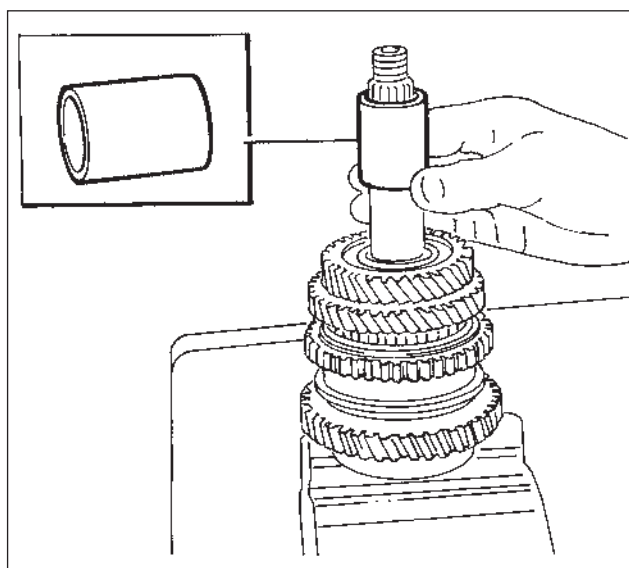


78CBB203



78CBB204

- use a universal extractor (arranged as shown in the figure) to remove the 4th speed gear and the respective bearing at the same time.



78CBB205

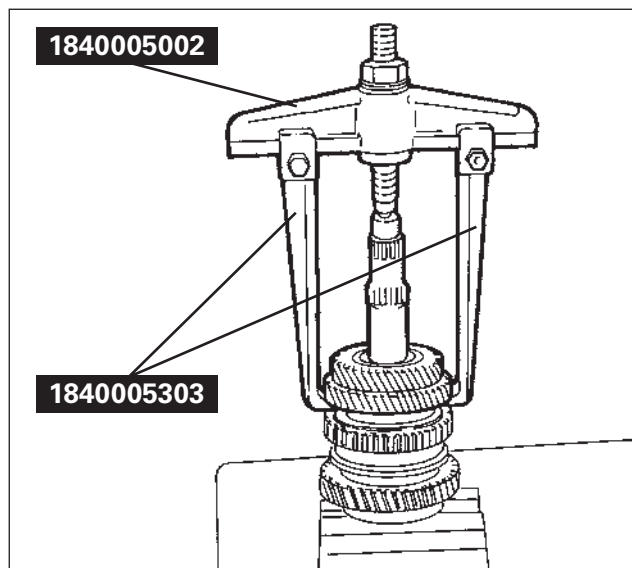
Remove the 3rd-4th speed gear shim

Gearbox and differential

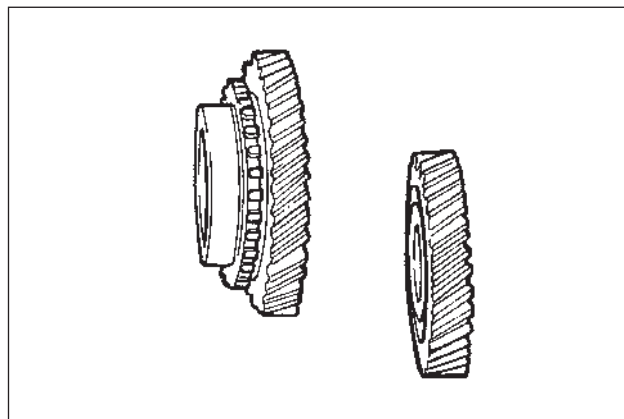
Gearbox

21-27.

Palio - Albea
C.514.5.15

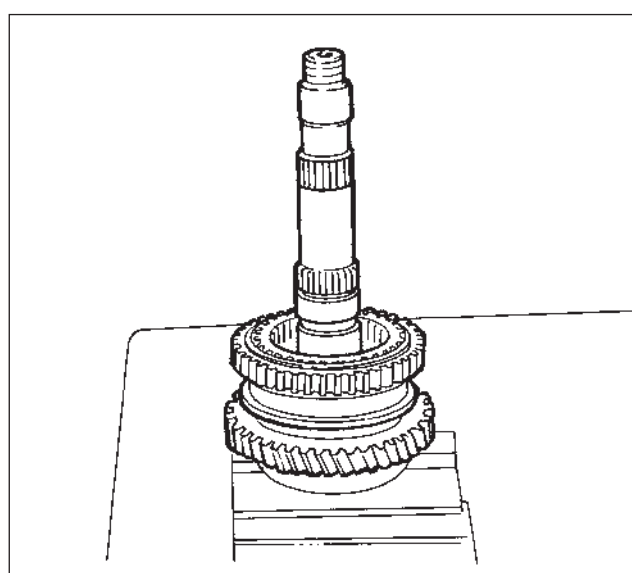


78CBB206

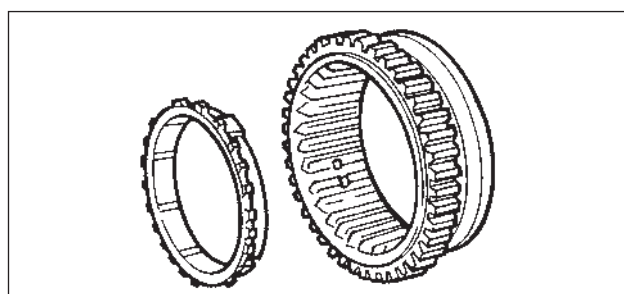


78CBB207

Remove the 2nd and 3rd speed gear from the secondary shaft

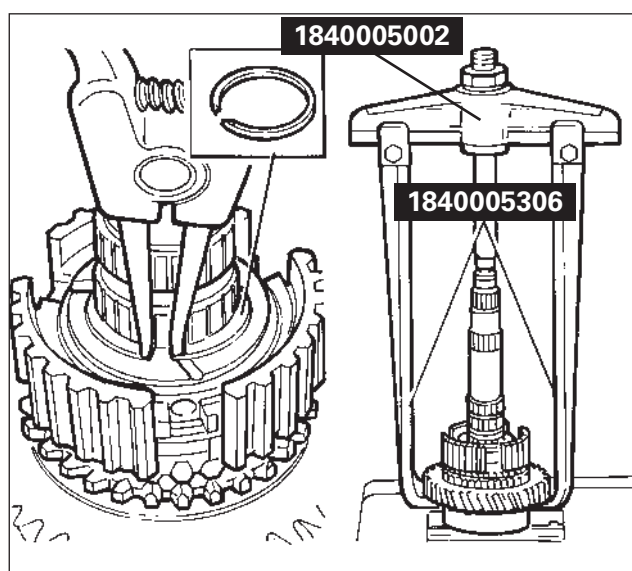


78CBB208

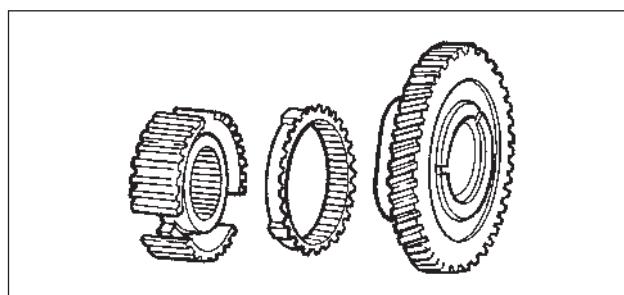


78CBB209

Remove the 2nd speed synchroniser ring and 1st-2nd gear engagement sliding sleeve with presynchronizer plugs



78CBB210



78CBB211

Remove the snap ring, the gear, the 1st speed synchroniser and the 1st-2nd speed engagement sliding sleeve hub

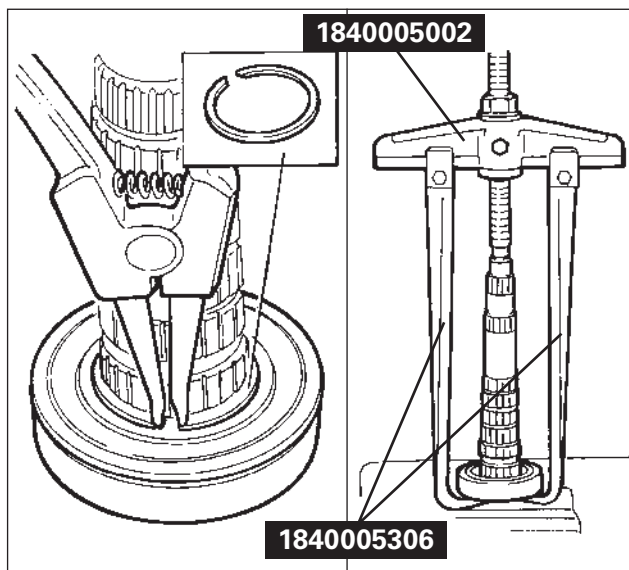
Palio - Albea

C.514.5.15

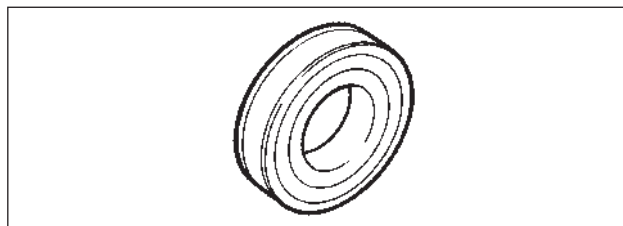
Gearbox and differential

Gearbox

21-27.

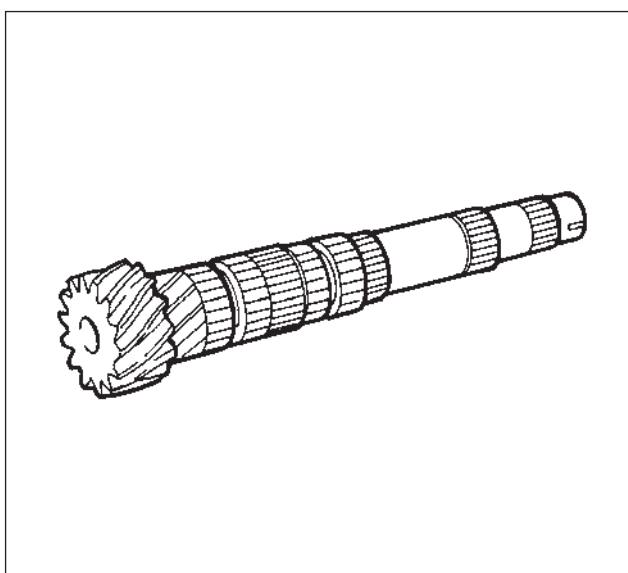


78CBB212



78CBB213

Remove the snap ring and front bearing from the secondary shaft



78CBB214



Spur gear secondary shaft-pinion

Check that the pinion is not damaged or excessively worn.

Furthermore, check that the inner oil ducts are not clogged up.

GEARS - BUSHINGS

The gears and the side engagement teeth (synchroniser crown) should not be damaged or excessively worn.

Furthermore, check that the inner surfaces of the gears do not show signs of seizure or abnormal wear.

HUBS - SLEEVES

Check that the hub and the respective 1st-2nd speed engagement sliding sleeves are not damaged. Check that they slide without excessive play or seizing. The teeth inside the sleeves should not be worn, otherwise, replace.

BEARINGS

Replace the bearings if they are scratched or if excessive play or wear is found.

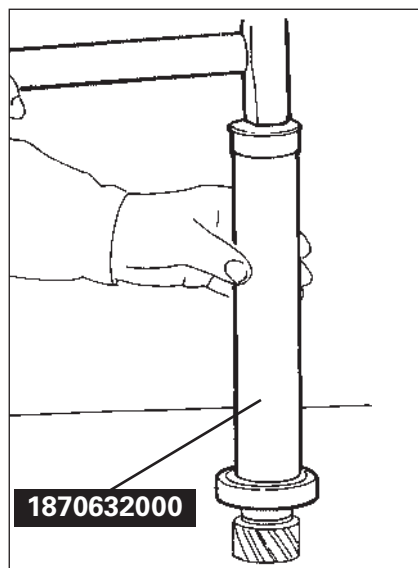
Gearbox and differential

Gearbox

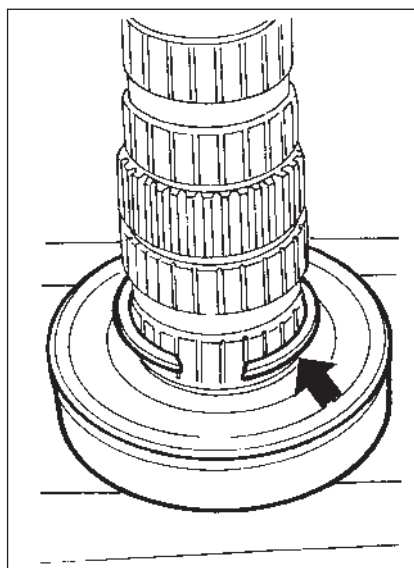
21-27.

Palio - Albea

C.514.5.15



78CBB215



78CBB234

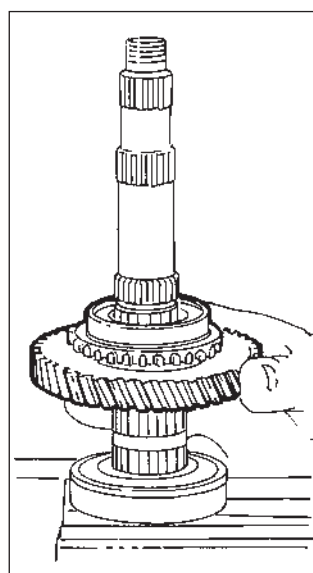


SECONDARY SHAFT ASSEMBLY

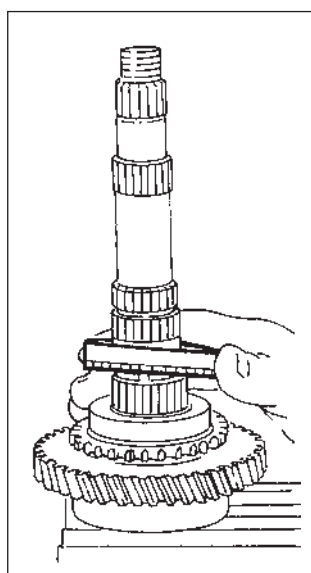


Apply gearbox oil to the concerned parts before assembly.

Fit the front bearing and respective snap ring on the secondary shaft



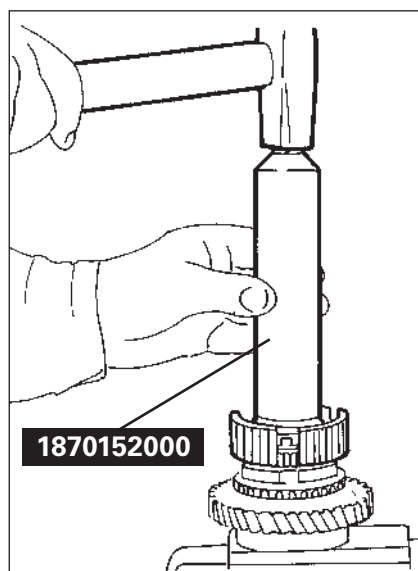
78CBB216



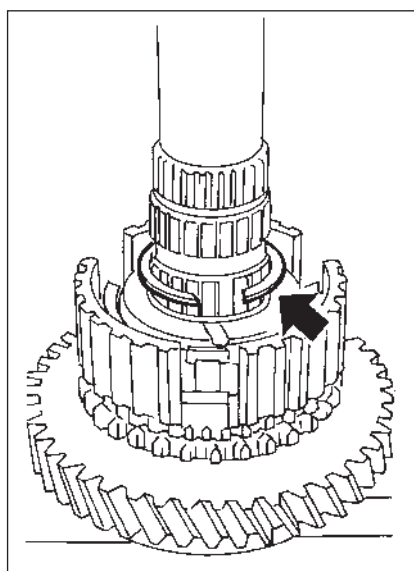
78CBB217



Fit the 1st speed gear and synchroniser ring



78CBB218



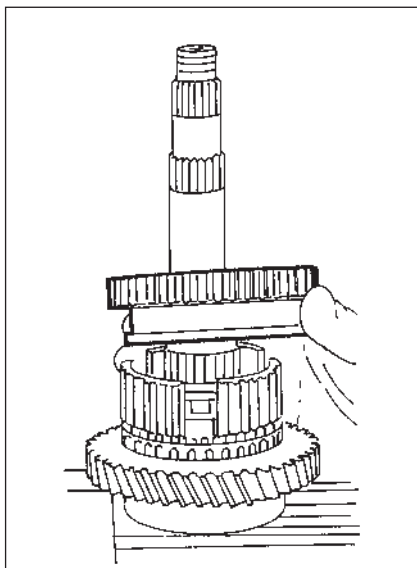
78CBB326



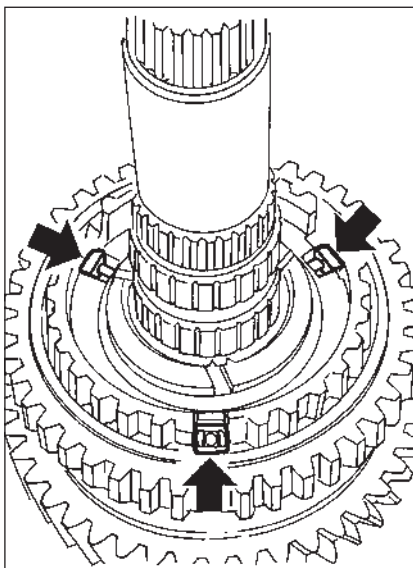
Fit the 1st-2nd speed engagement sliding sleeve hub and respective snap ring

Palio - Albea **C.514.5.15**

Gearbox and differential **Gearbox** **21-27.**



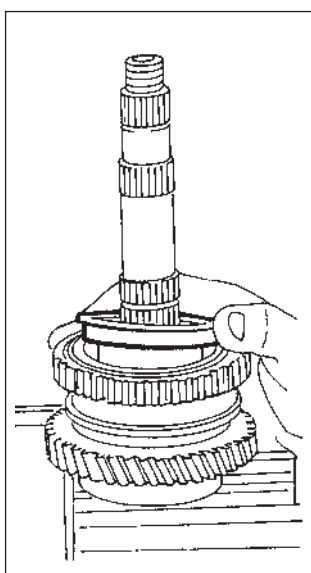
78CBB219



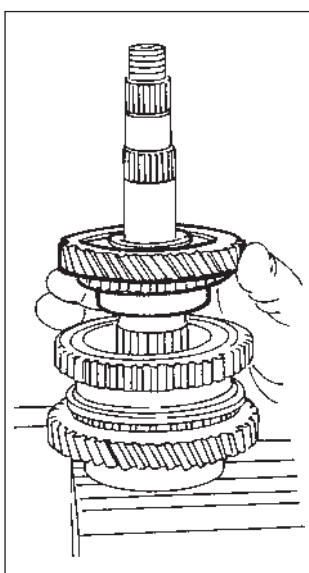
78CBB404

Fit the 1st-2nd speed engagement sliding sleeve and reverse gear (outer part)

Fit the three presynchronizer plugs (using a screwdriver) between the hub and the slots obtained on the 1st and 2nd speed engagement sliding sleeve.

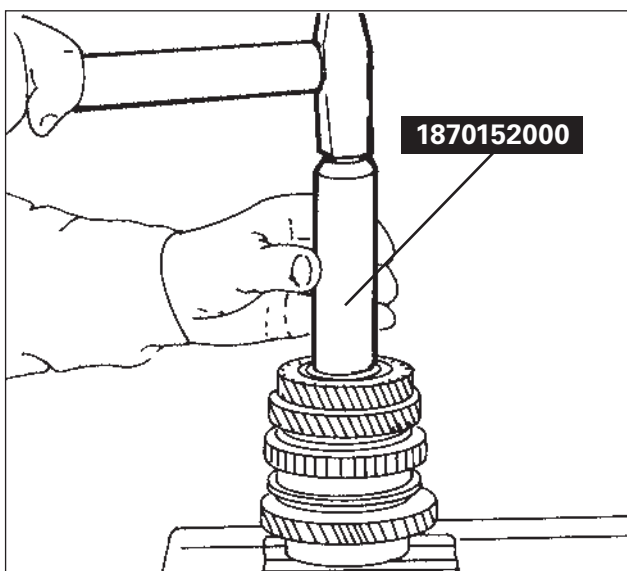


78CBB220



78CBB221

Fit the 2nd speed synchroniser ring and gear



78CBB222

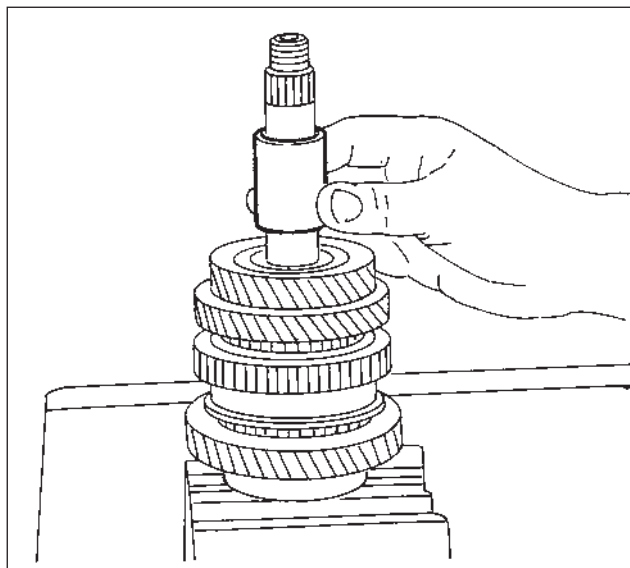
Fit the 3rd speed gear

Gearbox and differential

Gearbox

21-27.

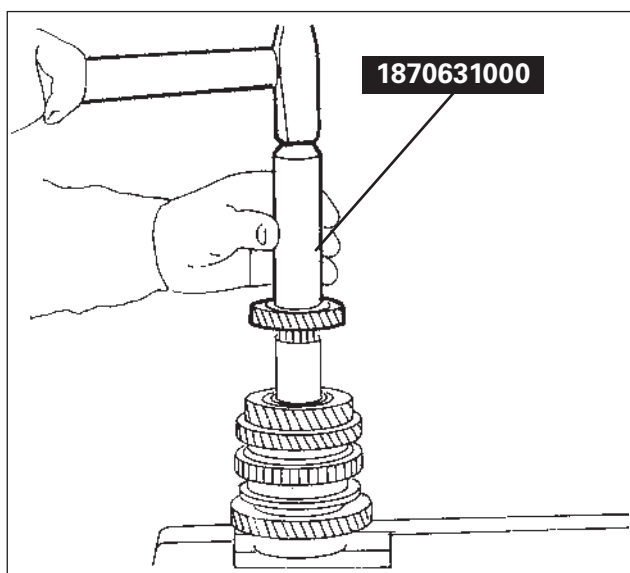
Palio - Albea
C.514.5.15



78CBB223



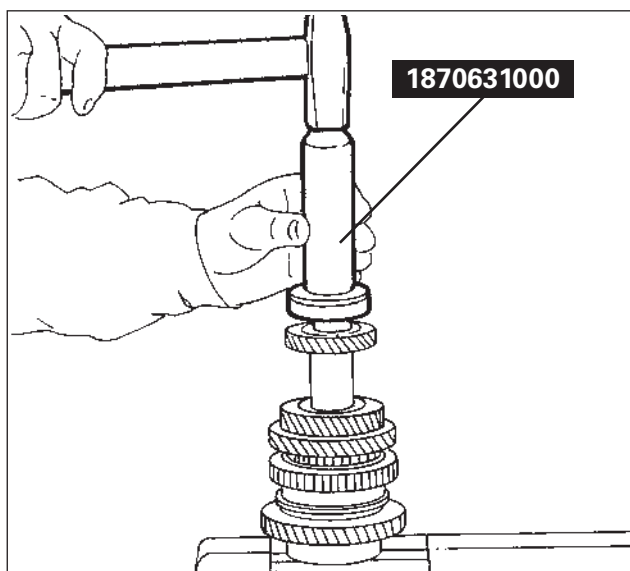
Fit the shim between the 3rd and 4th gear



78CBB224



Fit the 4th speed gear



78CBB225



Fit the rear bearing

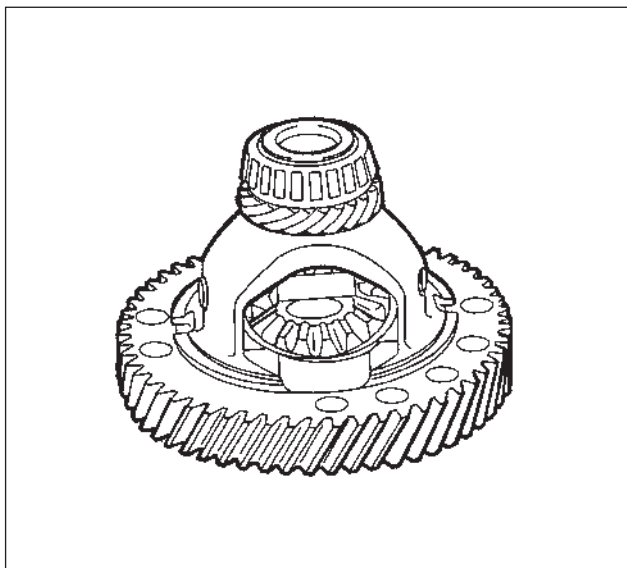
Palio - Albea

C.514.5.15

Gearbox and differential

Differential

21-27.

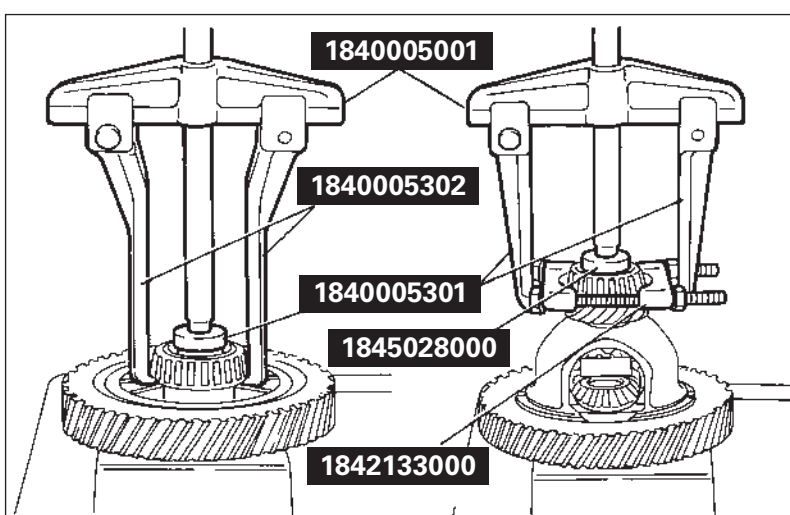


78CBB405

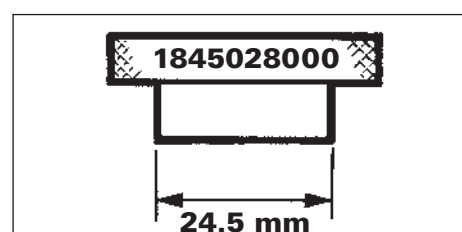


DISASSEMBLY

Differential carrier view



78CBB227

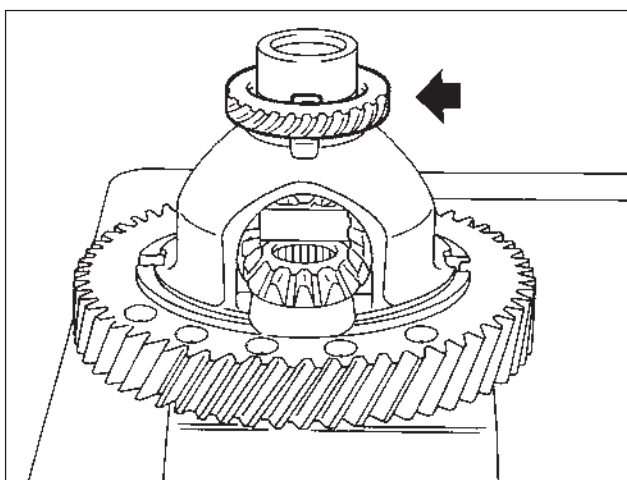


78CBB228

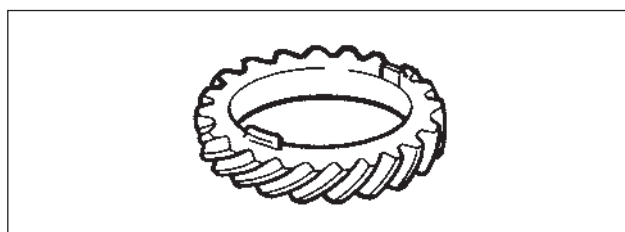
The diameter of the lower block 1845028000 must be reduced to 24.5 mm as shown in the figure.

Remove the tapered roller bearings from the differential carrier

Replace the bearings if scratches, overheating or excessive wear is found.



78CBB421



78CBB230

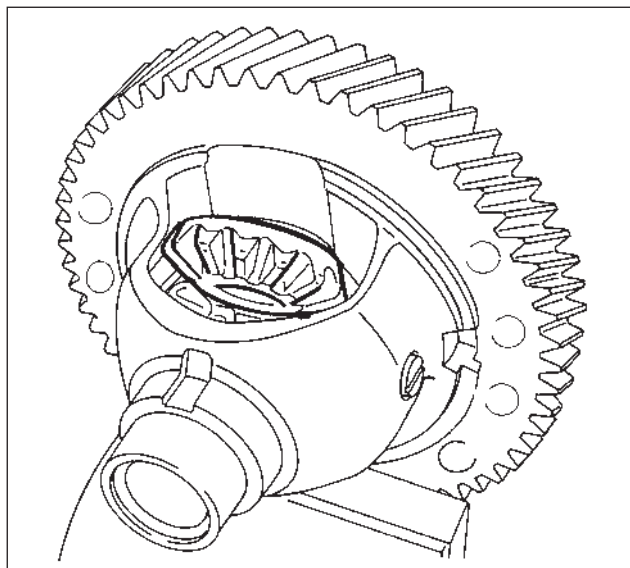
Remove the odometer gear

Gearbox and differential

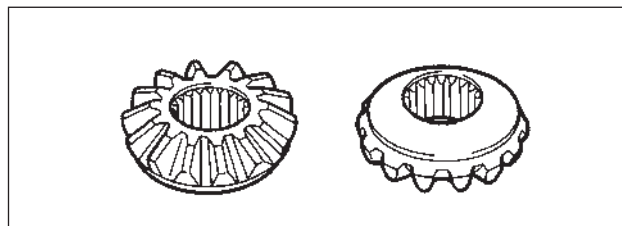
Differential

21-27.

Palio - Albea
C.514.5.15

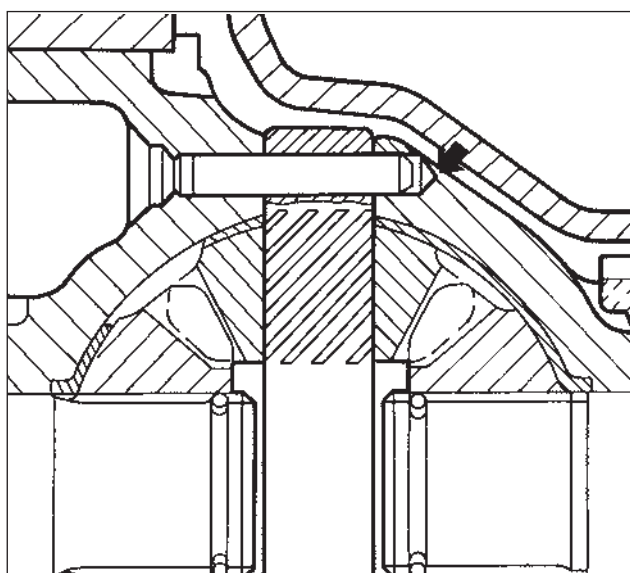


78CBB406



78CBB232

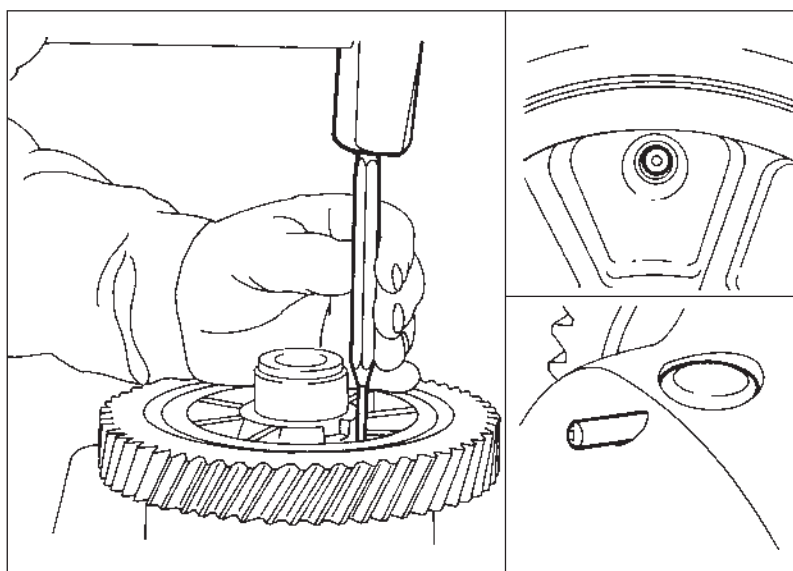
Remove differential carrier sun wheels



78CBB233



Crack the differential carrier wall with a chisel in the point shown by the arrow to remove the spring pin.



78CBB234

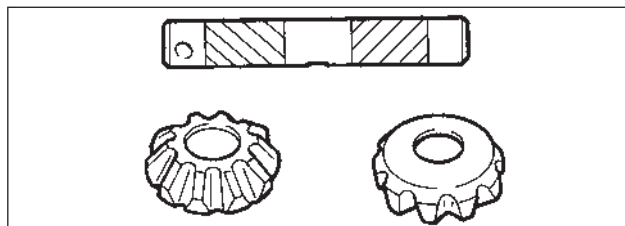
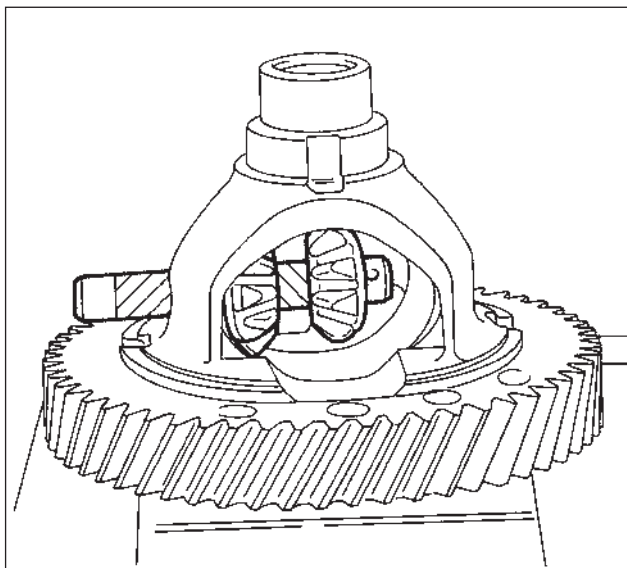


Remove the planet gear carrier spring pin

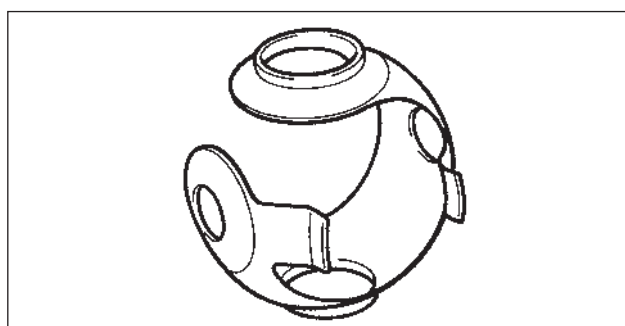
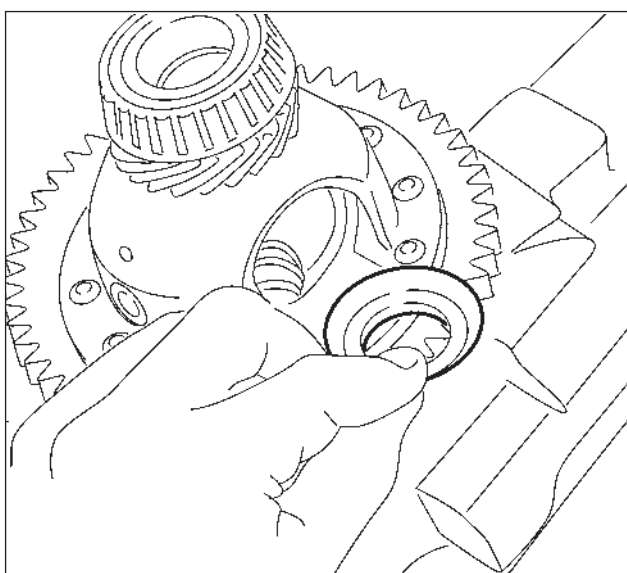
Use a steel punch (\varnothing 4 mm) for this operation.

Palio - Albea **C.514.5.15**

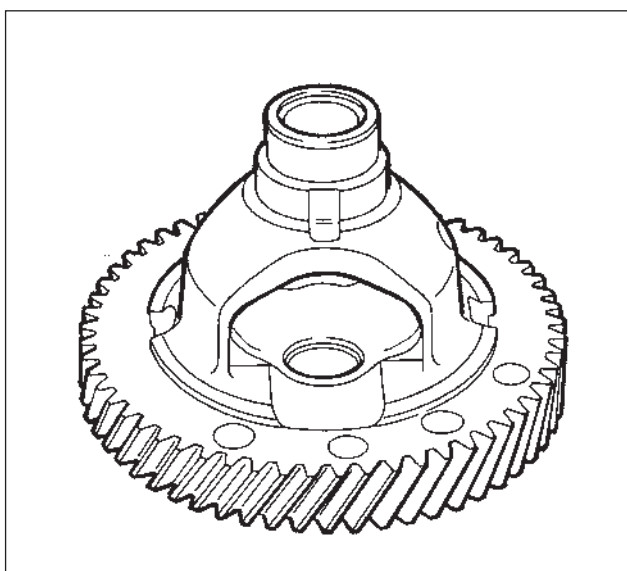
Gearbox and differential **Differential** **21-27.**



Remove the planet gear carrier and planet gears



Removing spider and planet gear sheet metal shoulder shells



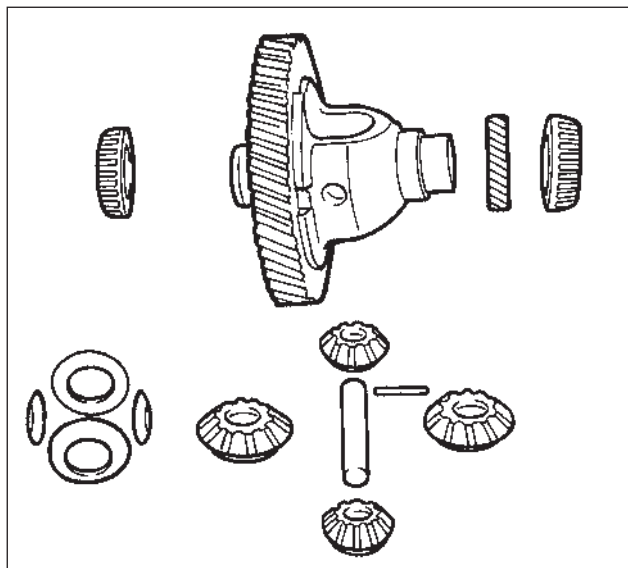
Differential housing-screwed spur crown gear assembly

Gearbox and differential

Differential

21-27.

Palio - Albea
C.514.5.15

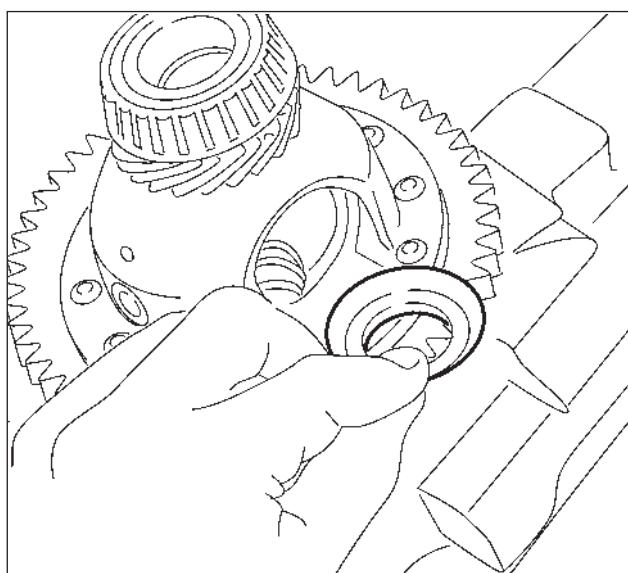


78CBB411



ASSEMBLY

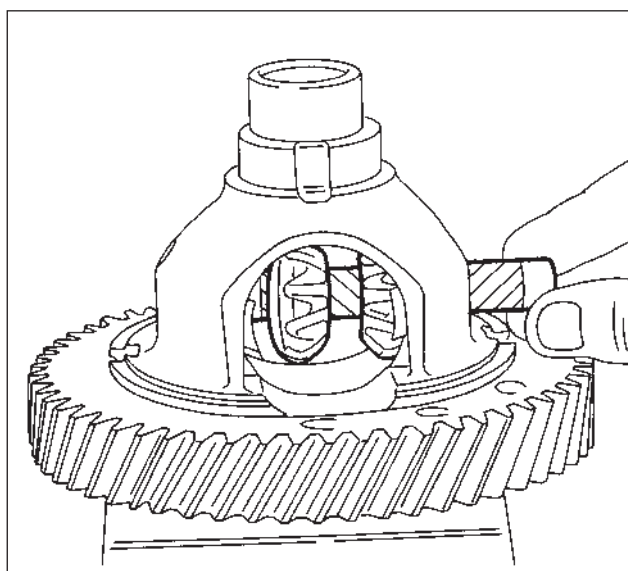
Differential assembly parts



78CBB408



Fit the planet and sun wheel gear casing



78CBB412



Fit the planet gear carrier pin and planet gears

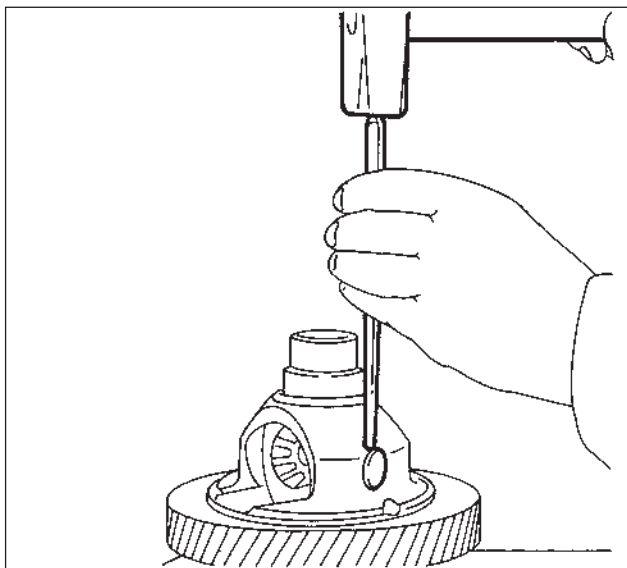
Palio - Albea

C.514.5.15

Gearbox and differential

Differential

21-27.

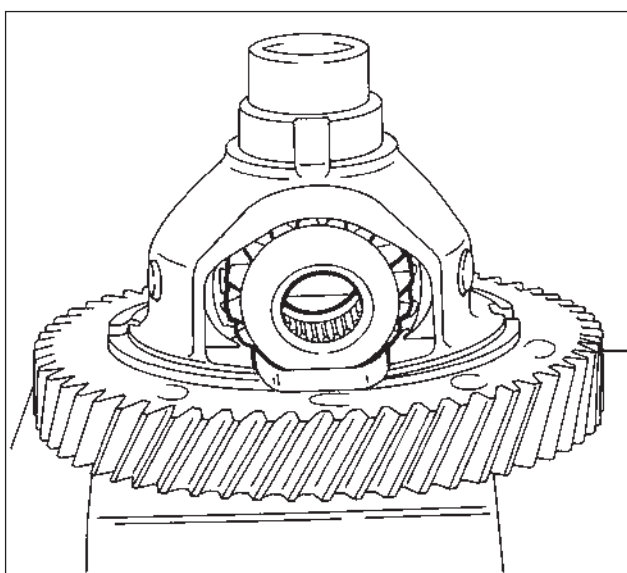


78CBB243



Fit the planet gear carrier pin spring pin

Caulk the differential carrier after fitting to prevent losing the spring pin.



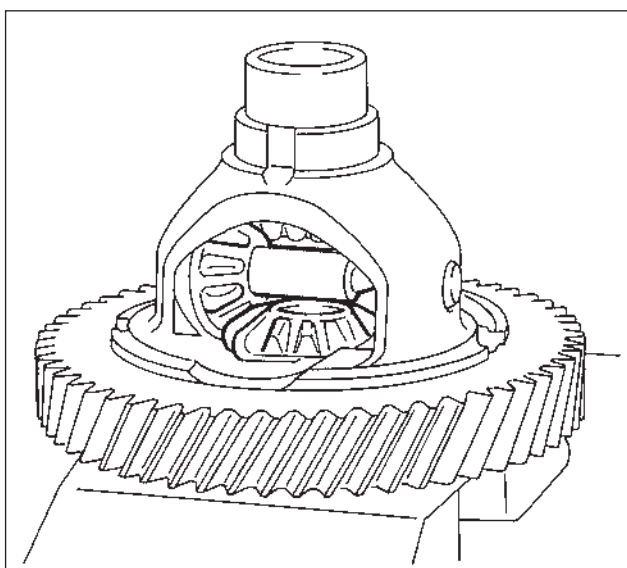
78CBB413



Fit the sun wheels in the differential carrier

Arrange the sun wheels on the planet gears, turn them on the planet gears and push them into the housing inside the differential carrier.

NOTE The sun wheels are fitted in the differential carrier without adjustment rings. Consequently, the play between planet gears and sun wheels cannot be adjusted.



78CBB245



Check play between sun wheel and planet gears



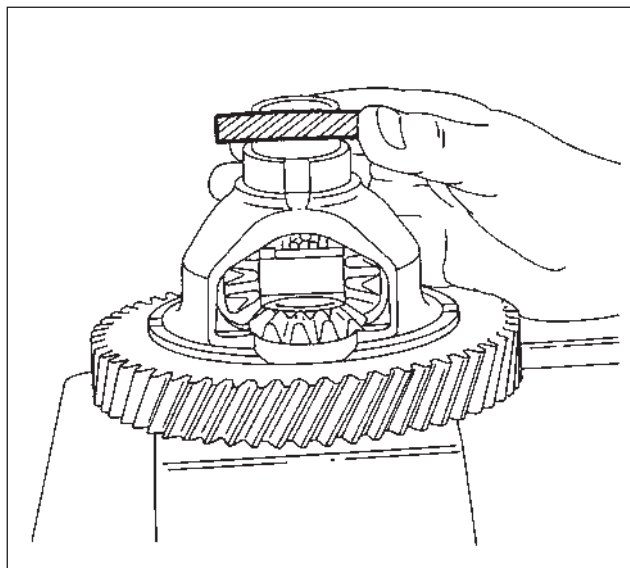
The coupling between sun wheels and planet gears is correct when the set turns without play and puts up a slight resistance.

Gearbox and differential

Differential

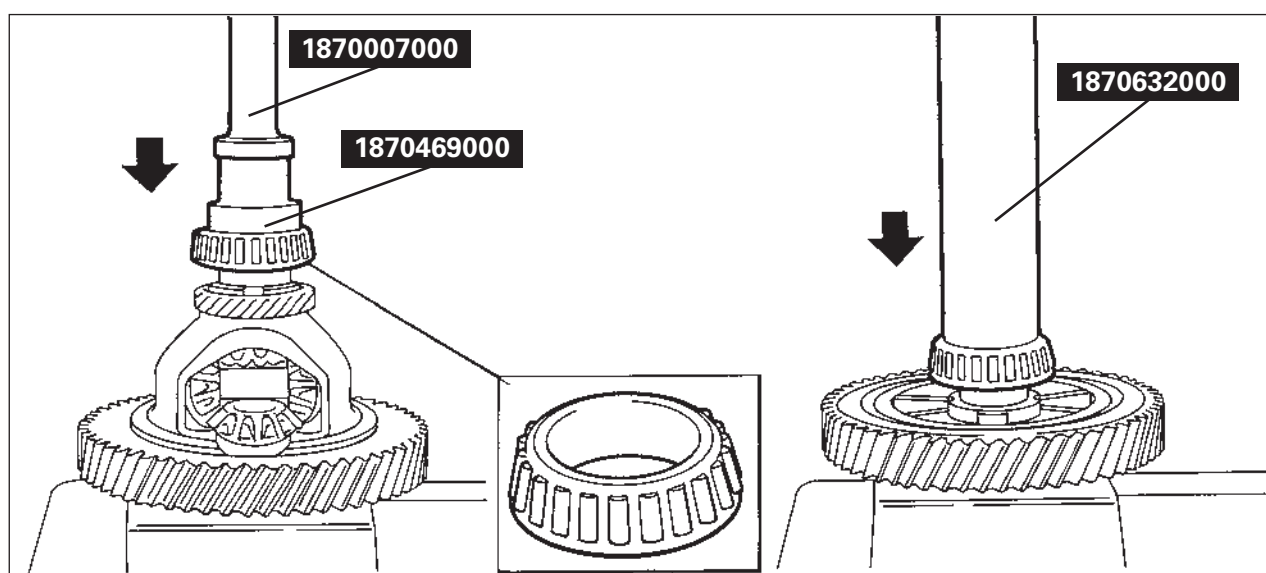
21-27.

Palio - Albea
C.514.5.15



78CBB246

Fit the odometer gear on the differential carrier

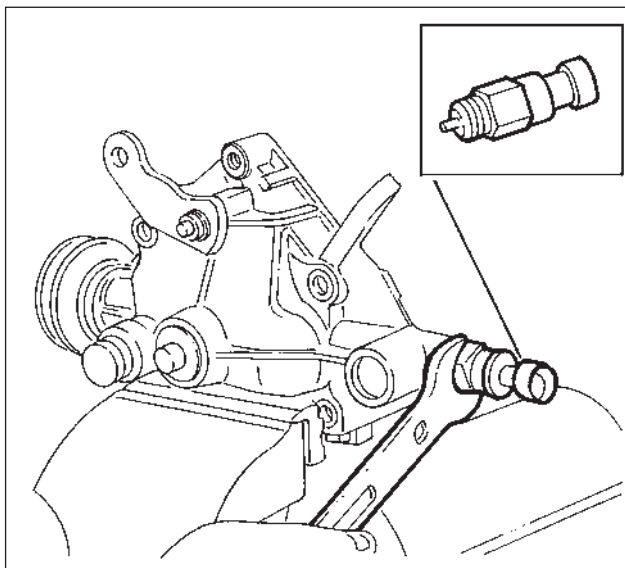


78CBB247

Fit the tapered roller bearings on the differential carrier

Palio - Albea **C.514.5.15**

Gearbox and differential **Engagement and disengagement devices** **21-27.**

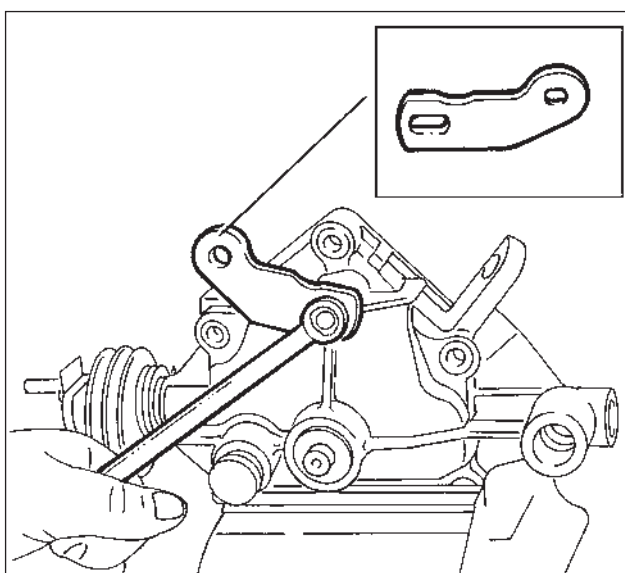


78CBB248



DISASSEMBLY

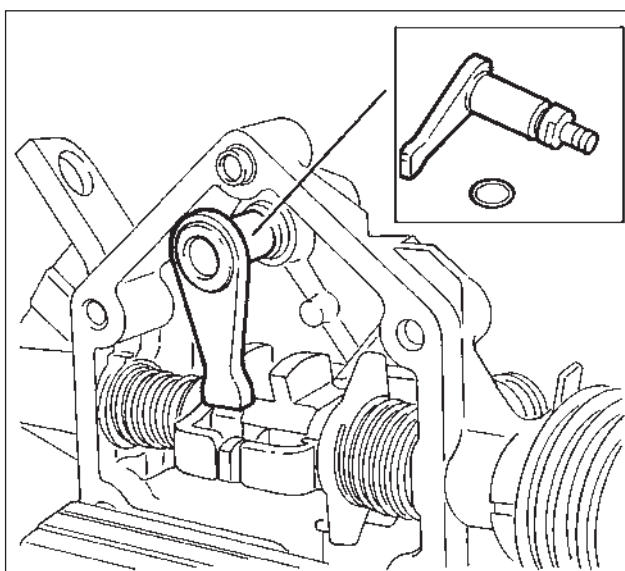
Remove the reverse light switch



78CBB249



Remove the gear selection lever



78CBB250



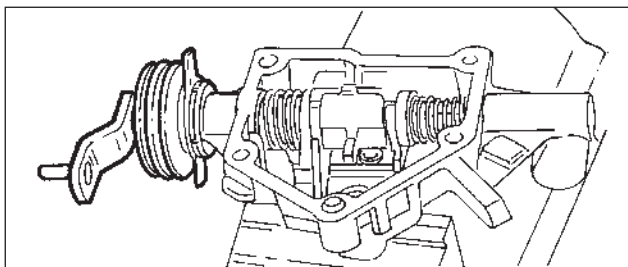
**Remove the gear selection and
engagement prong lever**

Gearbox and differential

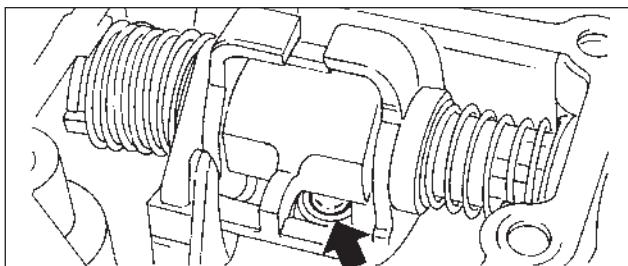
Engagement and disengagement devices

21-27.

Palio - Albea
C.514.5.15



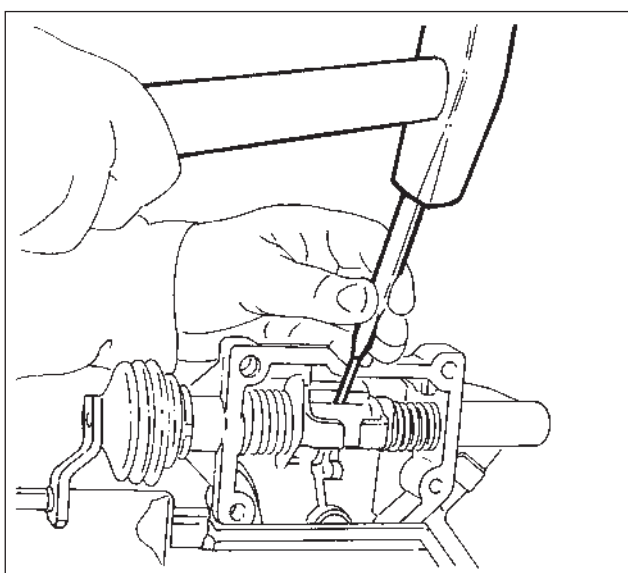
78CBB251



78CBB252

Position the control shaft

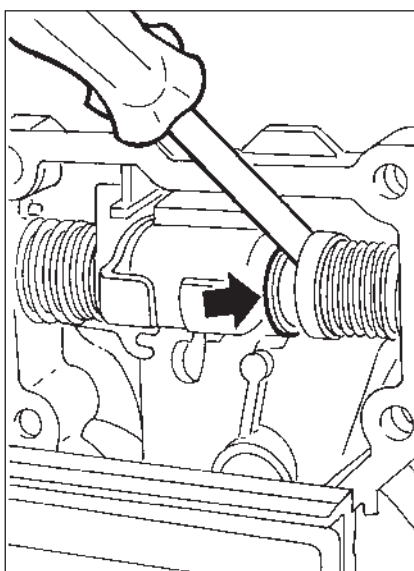
Position the control shaft as shown in the figure and act on the mobile part of the ball cap (see arrow) to remove the retainer pin.



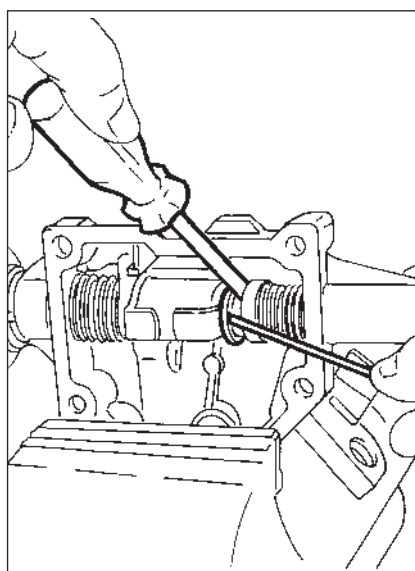
78CBB253



Remove the shaft gear engagement prong spring pin



78CBB254



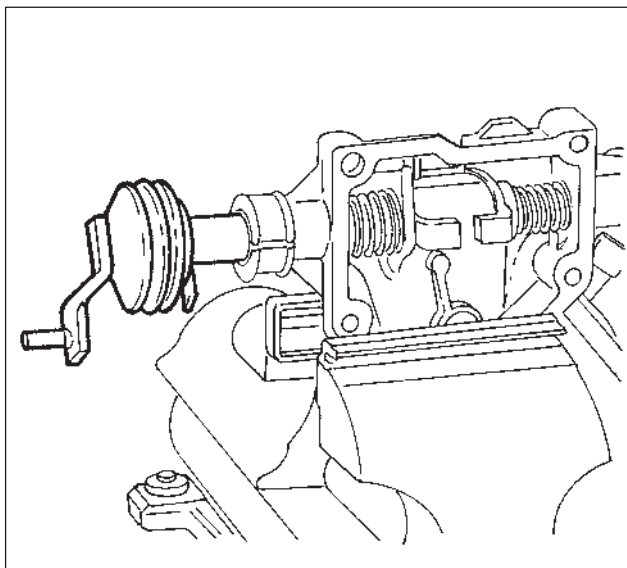
78CBB255



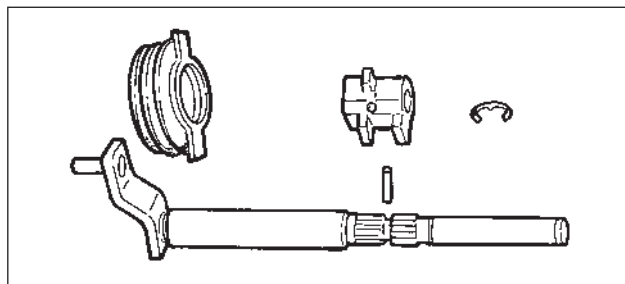
Remove the shaft bolt snap ring

Palio - Albea **C.514.5.15**

Gearbox and differential **Engagement and disengagement devices** **21-27.**

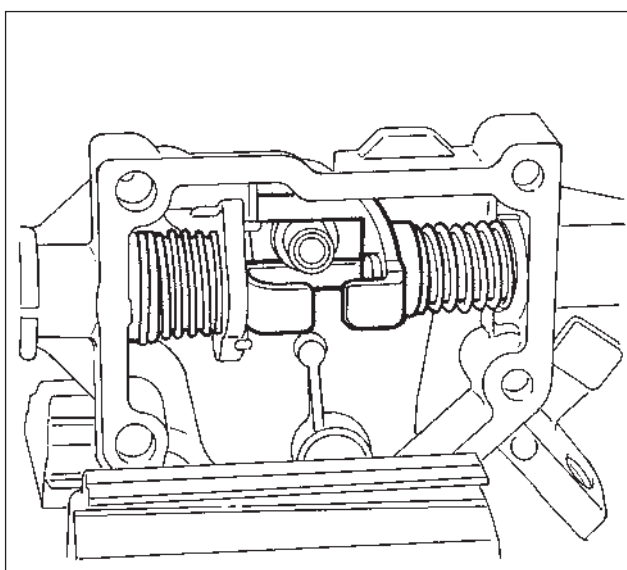


78CBB256

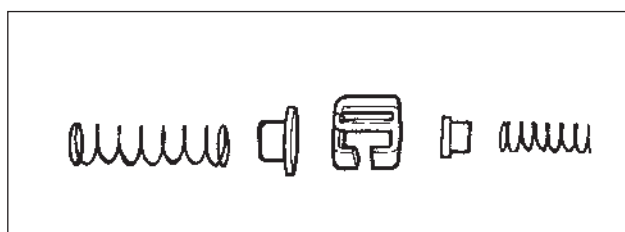


78CBB257

Remove the shaft with gear engagement prong

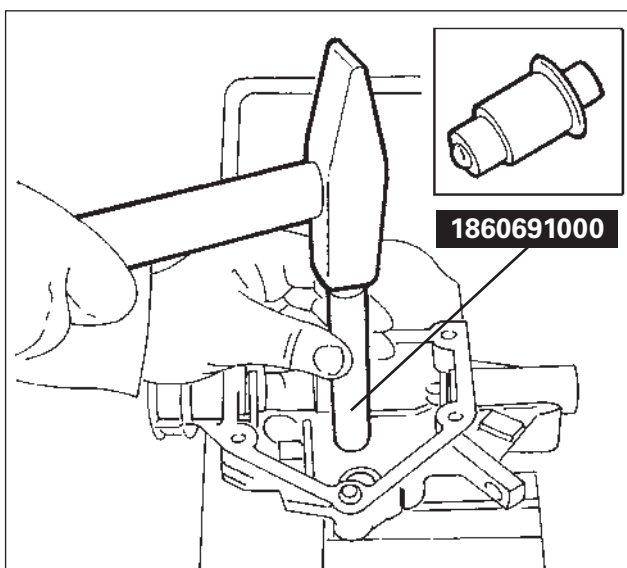


78CBB258

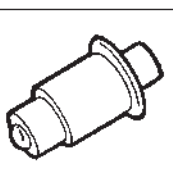


78CBB259

Remove the safety bolt, the bushings and the reaction springs



78CBB260



1860691000

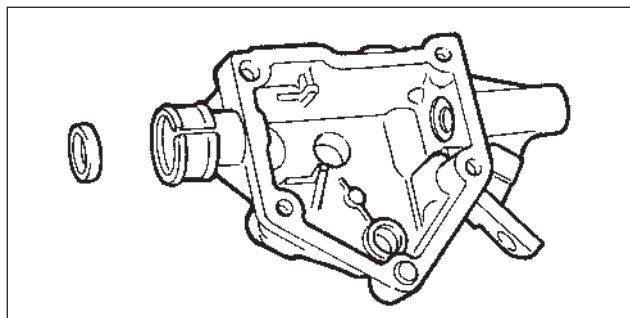
Remove the gear stiffener ball cap

Gearbox and differential

Engagement and disengagement devices

21-27.

Palio - Albea
C.514.5.15



78CBB261

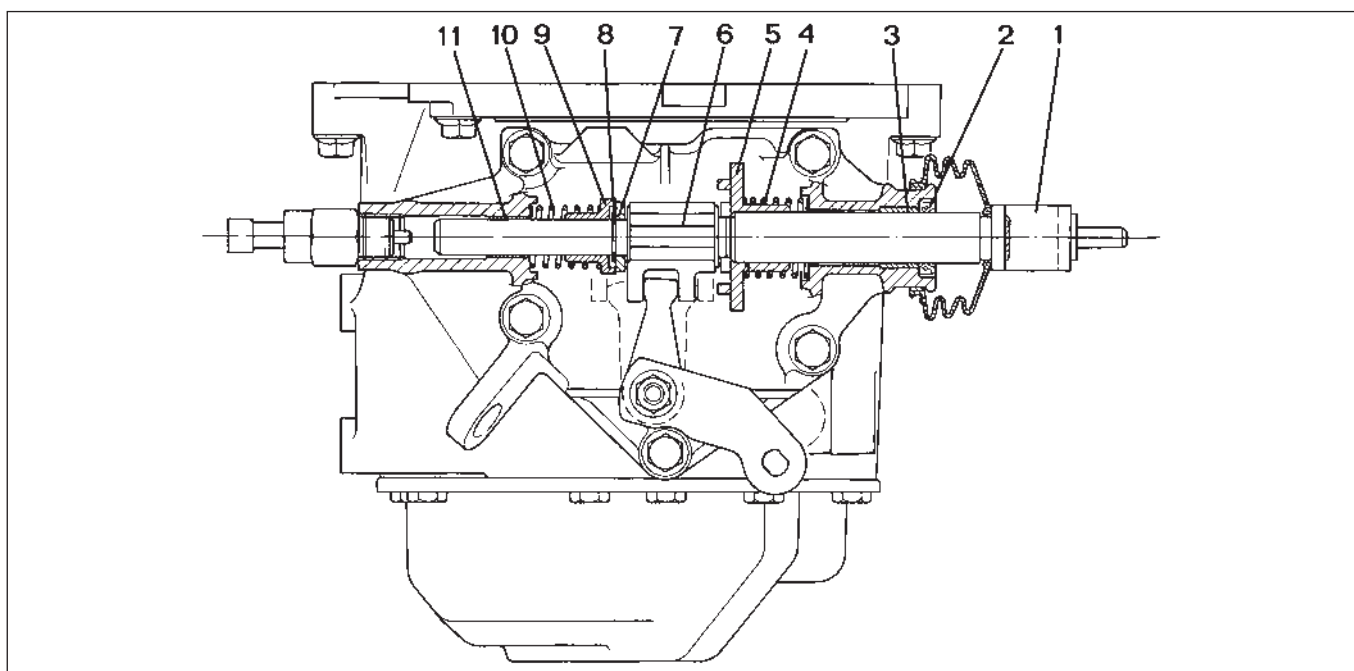


Shaft gear selection and engagement cover with seal

Remove the seal with general tools. The oil seal will be damaged.

The gear selection and engagement cover must not be cracked.

Replace the entire cover if the shaft bushings (3, 11) are worn since the bushings are not provided as a spare part.



78CBB262

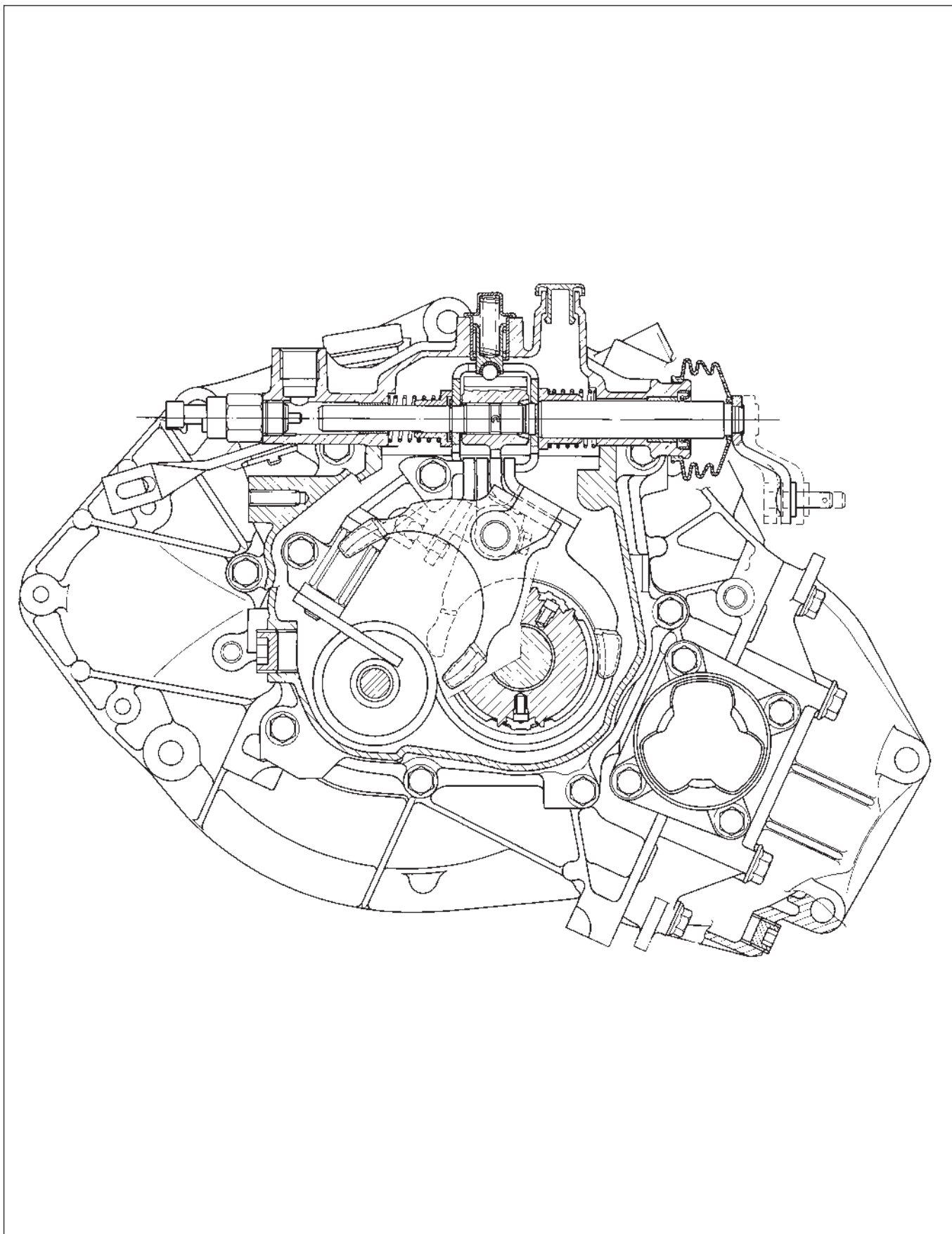
Gear selection and engagement cross-section view

- | | |
|--------------------------|--------------------|
| 1. Shaft | 7. Safety bolt |
| 2. Seal | 8. Shaft snap ring |
| 3. Shaft bushing | 9. Plastic bushing |
| 4. Spring | 10. Spring |
| 5. Plastic bushing | 11. Shaft bushing |
| 6. Gear engagement prong | |

Palio - Albea
C.514.5.15

Gearbox and differential
Engagement and disengagement devices
21-27.

GEARBOX CROSS-SECTION VIEW



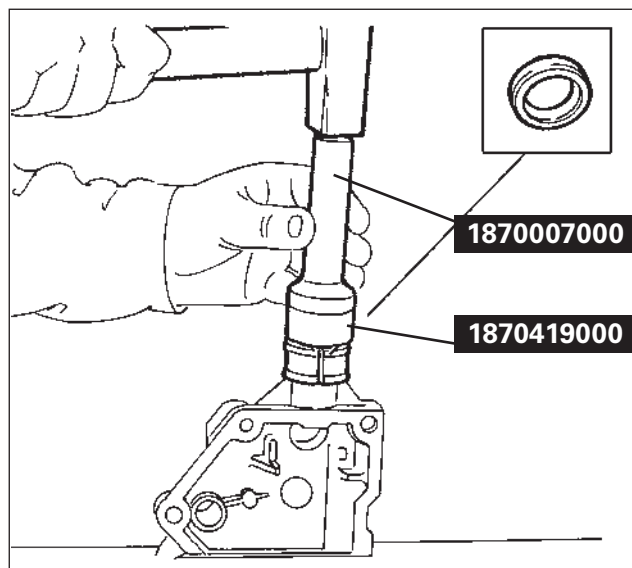
78CBB417

Gearbox and differential

Engagement and disengagement devices

21-27.

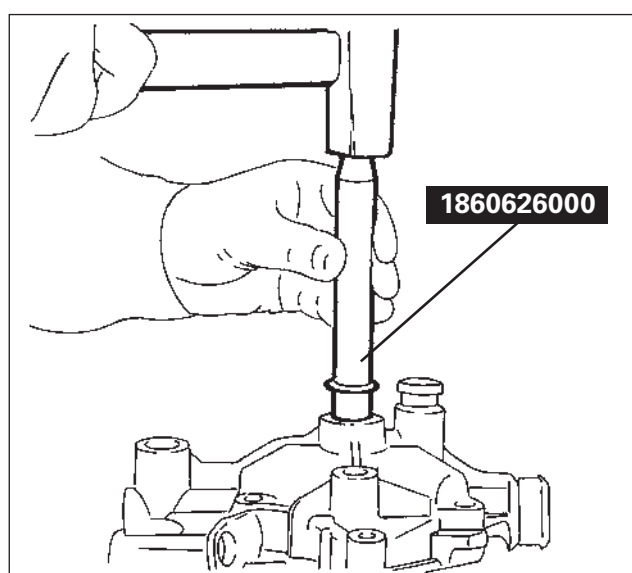
Palio - Albea
C.514.5.15



ASSEMBLY

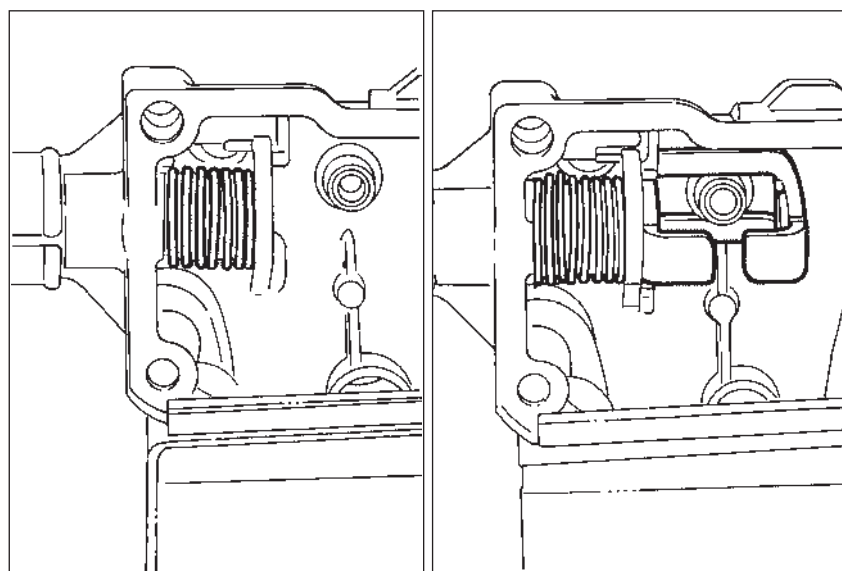
Fit the shaft seal

78CBB418



Fit the gear stiffener ball cap

78CBB265



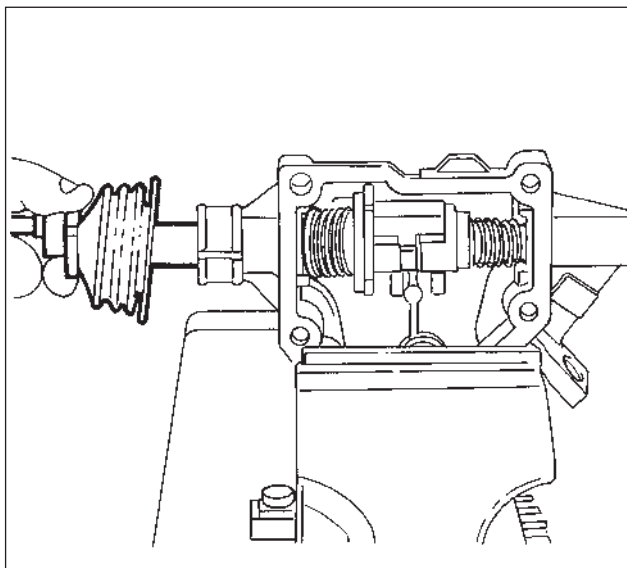
**Fit the bushing with
respective spring (seal side)
and safety bolt**

78CBB266

78CBB267

Palio - Albea **C.514.5.15**

Gearbox and differential **Engagement and disengagement devices** **21-27.**



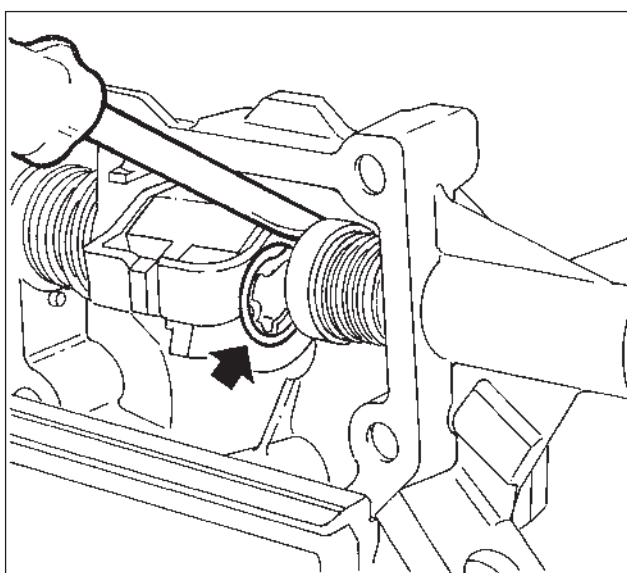
78CBB268



Fit the shaft, the engagement prong and the respective bushing with spring (reverse light switch side)



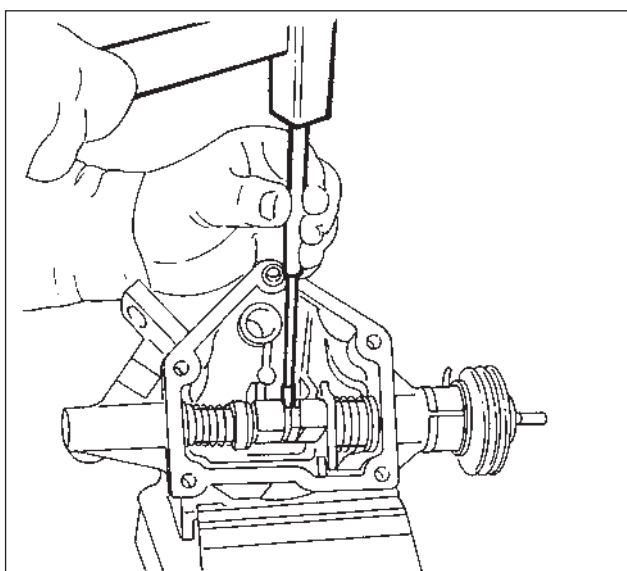
Make the spring pin hole coincide when refitting the shaft in the prong.



78CBB269



Fit the shaft safety bolt snap ring



78CBB270



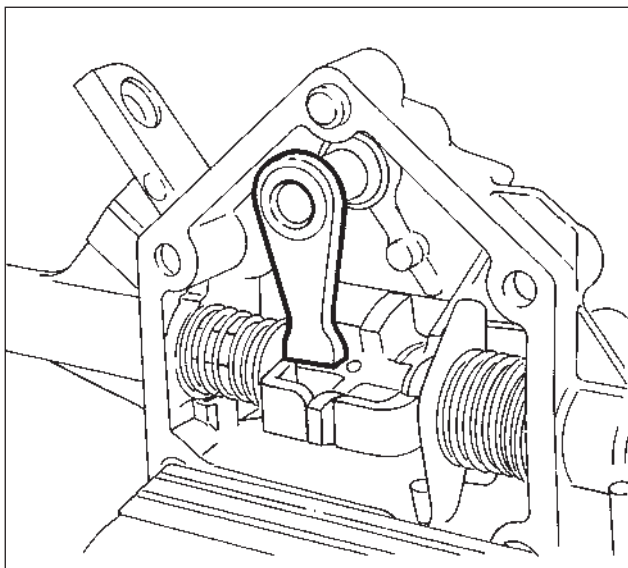
Fit the gear engagement prong spring pin on the shaft

Gearbox and differential

Engagement and disengagement devices

21-27.

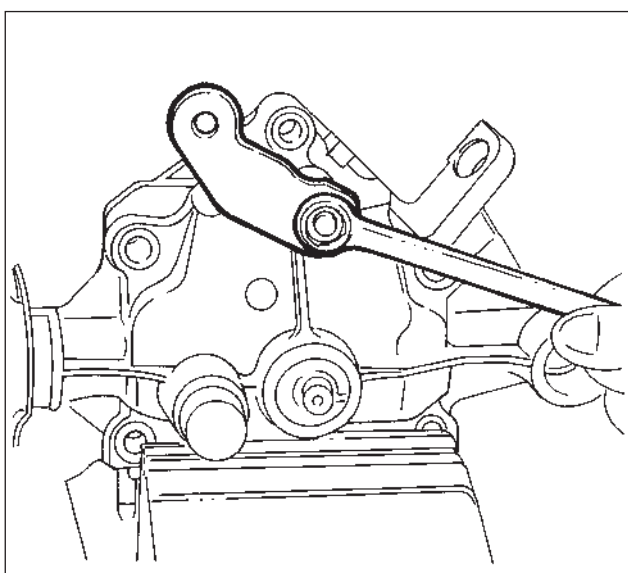
Palio - Albea
C.514.5.15



78CBB271



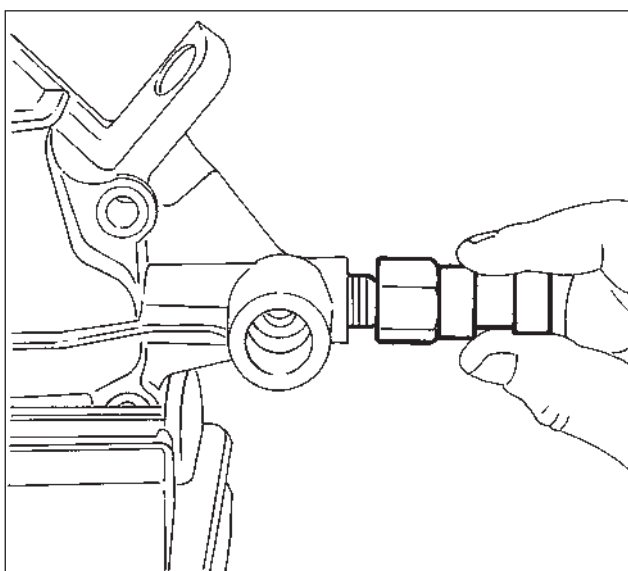
Fit the gear selection and engagement prong lever



78CBB272



Fit the gear selection lever



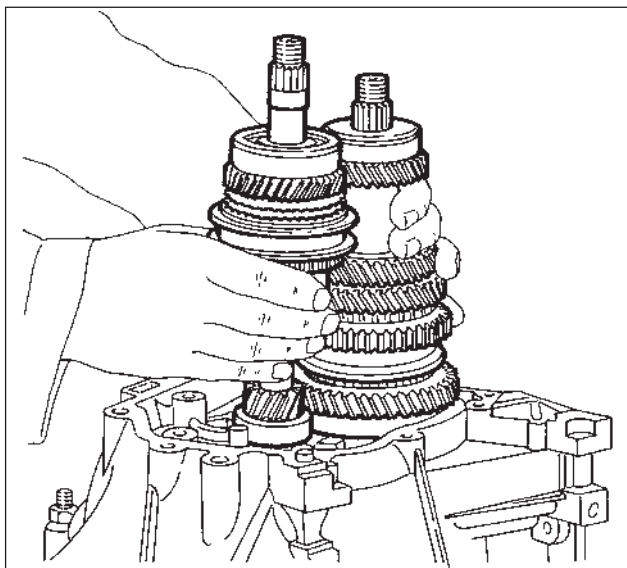
78CBB273



Fit the reversing light switch

Palio - Albea **C.514.5.15**

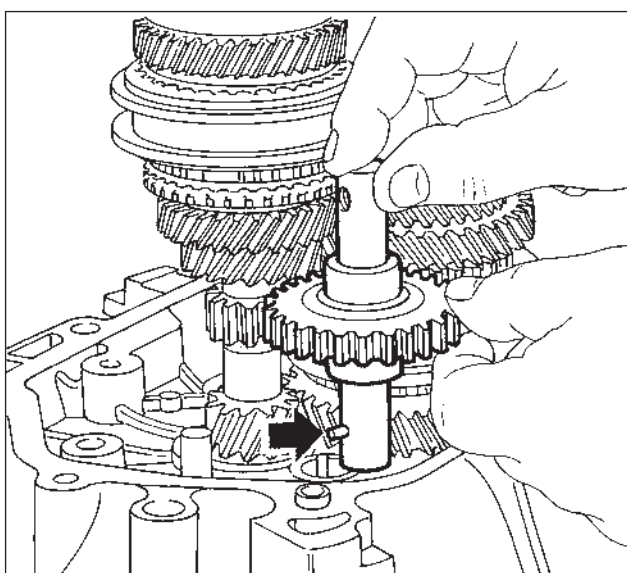
Gearbox and differential **Bench assembly procedures** **21-27.**



78CBB274



Fit the primary and secondary shaft assembly

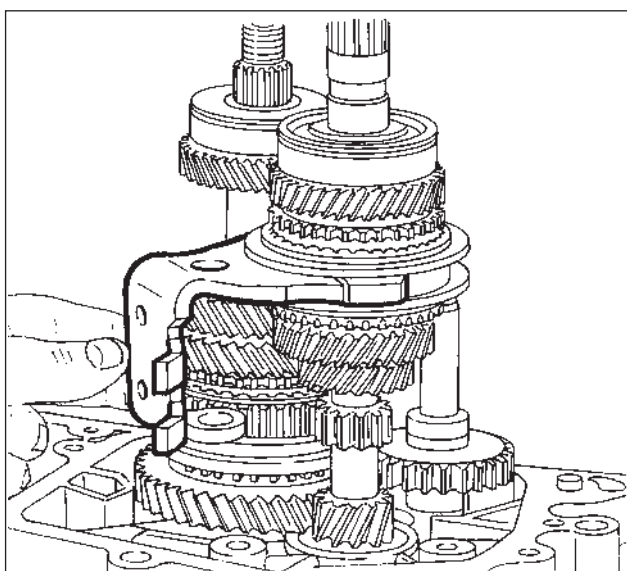


78CBB275

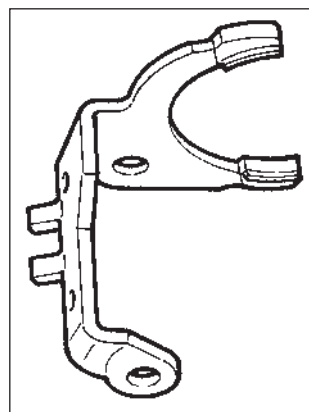


Fit the reverse shaft and transmission gear

Fit the pin shown by the arrow in the specific housing in the box to fit the shaft correctly.



78CBB276



78CBB277



The forks should not be deformed. No wear should be found on the sliding sleeve contact surfaces.

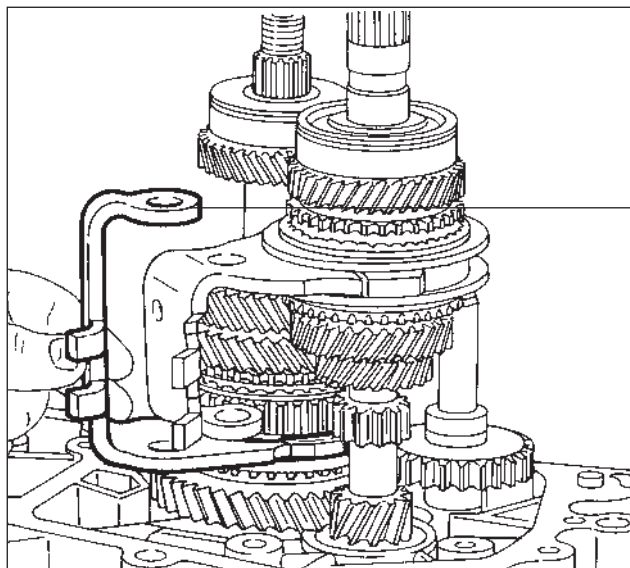
Fit the 3rd-4th engagement fork

Gearbox and differential

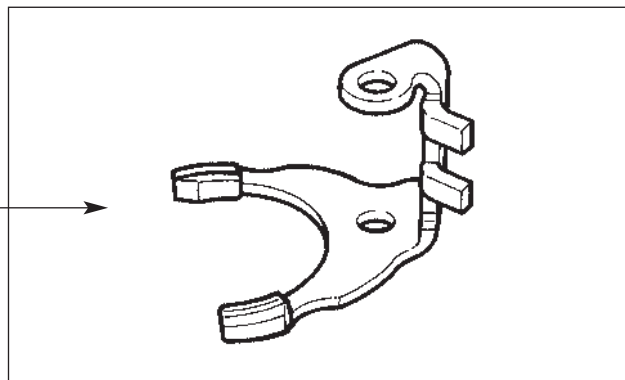
Bench assembly procedures

21-27.

Palio - Albea
C.514.5.15

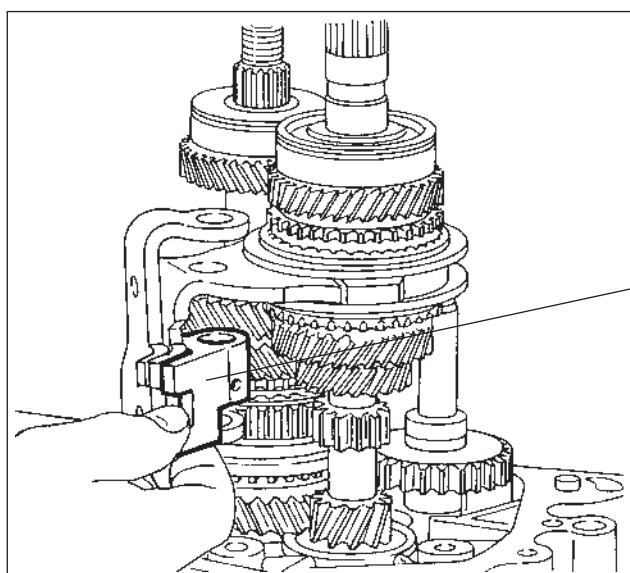


78CBB278

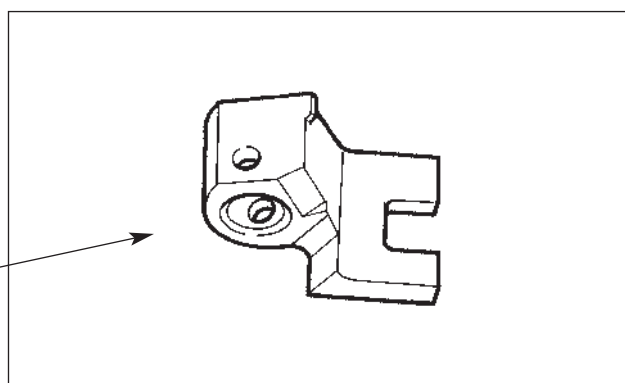


78CBB279

Fit the 1st-2nd speed engagement fork

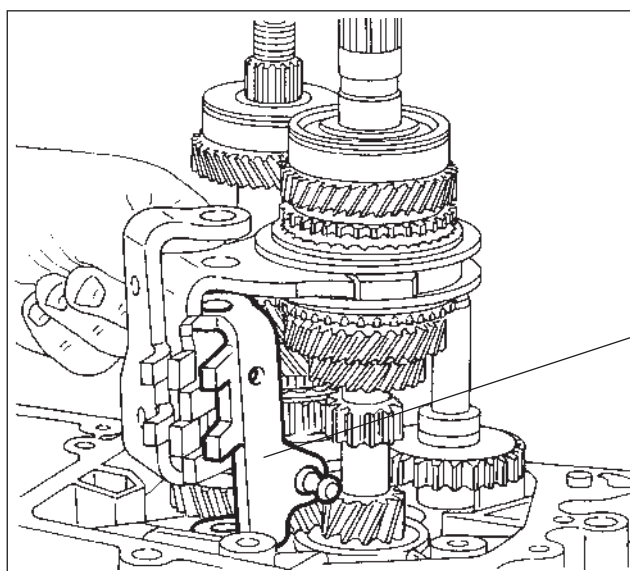


78CBB280

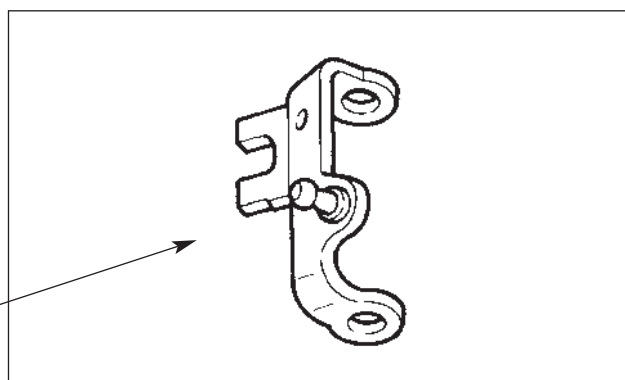


78CBB281

Fit the 5th speed engagement fork prong



78CBB282

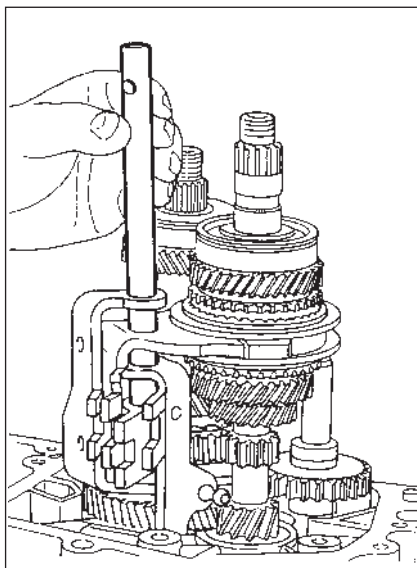


78CBB283

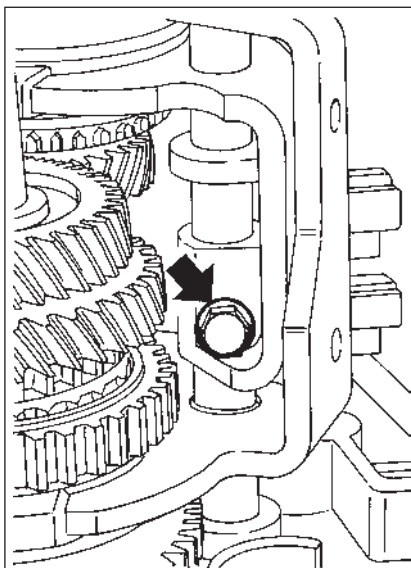
Fit the reverse engagement fork prong

Palio - Albea **C.514.5.15**

Gearbox and differential **Bench assembly procedures** **21-27.**



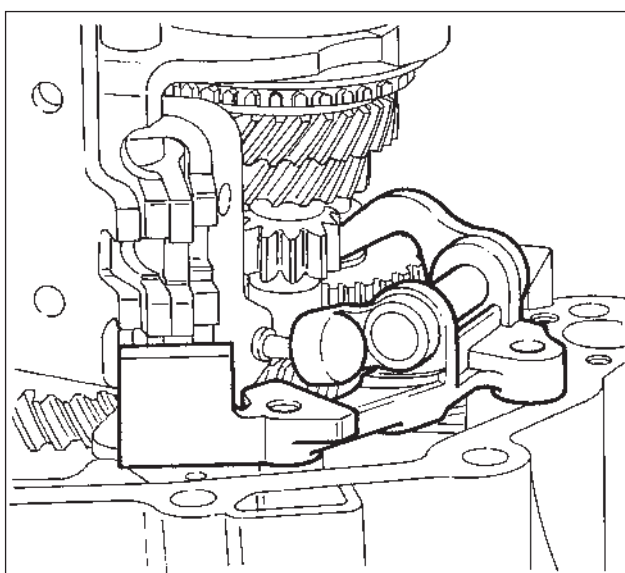
78CBB284



78CBB285



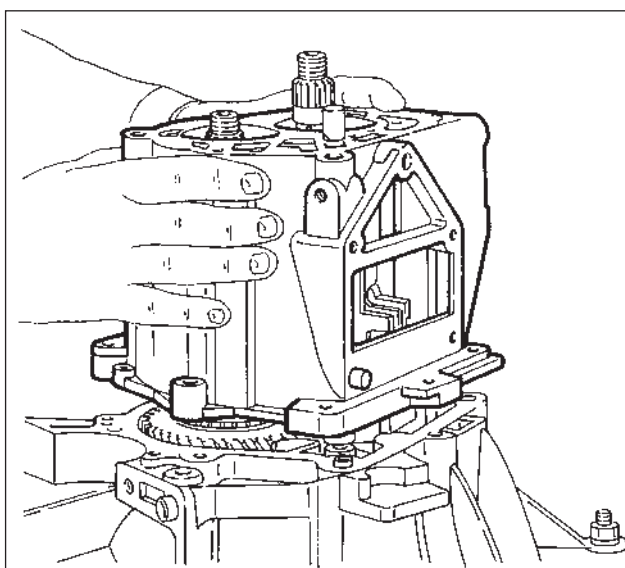
**Fit the fork guide rod and
fit the 5th speed
engagement prong
fastening screw to the rod**



78CBB286



**Fit the reverse engagement fork lever
support**



78CBB287



Fit the gearbox



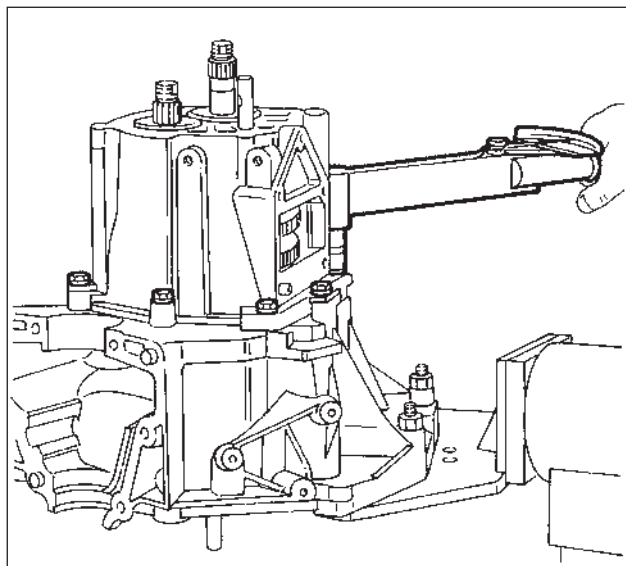
*Apply LOCTITE (573) for flat surfaces on
the contact surfaces between the bell and
the central gearbox.*

Gearbox and differential

Bench assembly procedures

21-27.

Palio - Albea
C.514.5.15

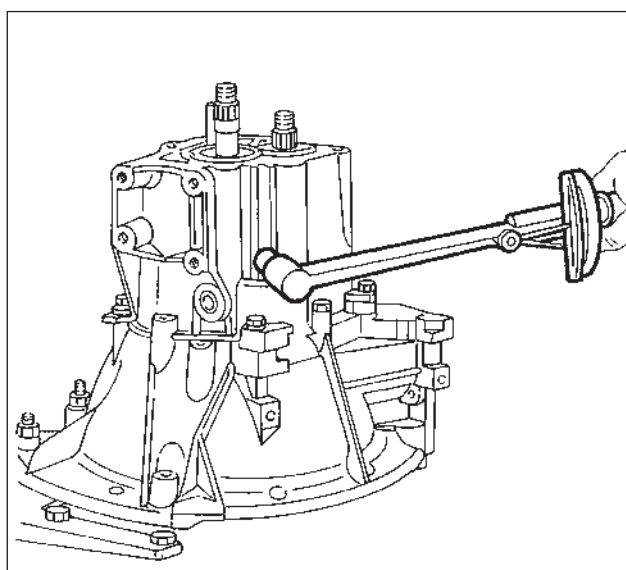


78CBB288



2 daNm

**Torque the gearbox to engine mount
gearbox fastening screws**

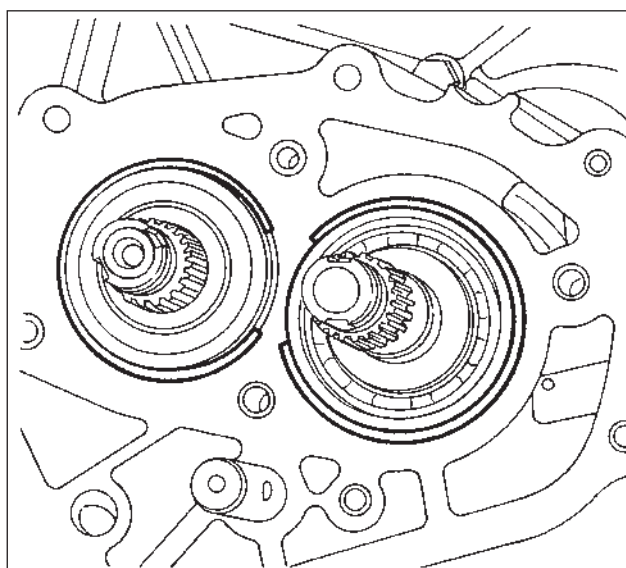


78CBB289



2.6 daNm

**Fit and torque the reversing shaft
fastening screw**



78CBB290



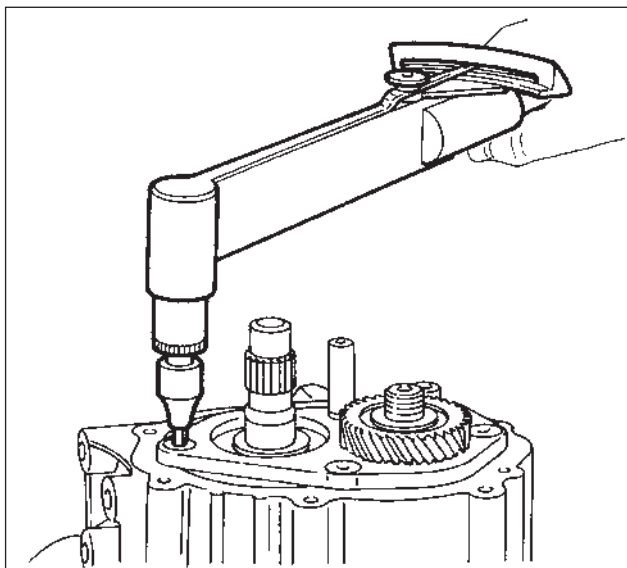
Fit the rear bearing snap rings



*Arrange the snap rings frontally as shown
in the figure to facilitate refitting.*

Palio - Albea **C.514.5.15**

Gearbox and differential **Bench assembly procedures** **21-27.**

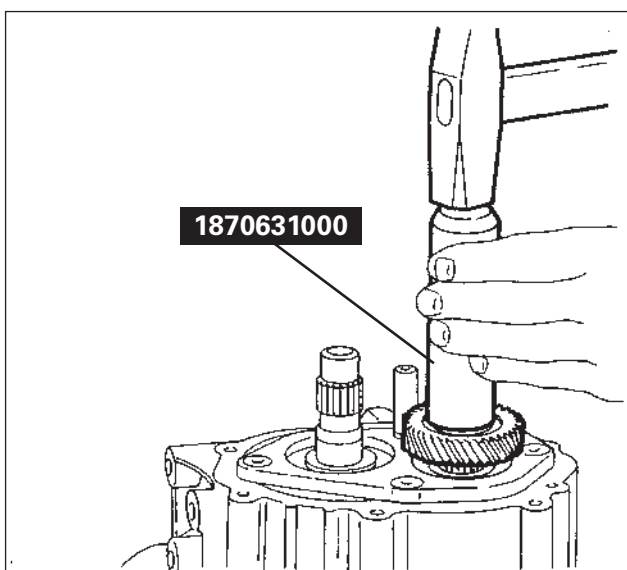


78CBB291



2 daNm

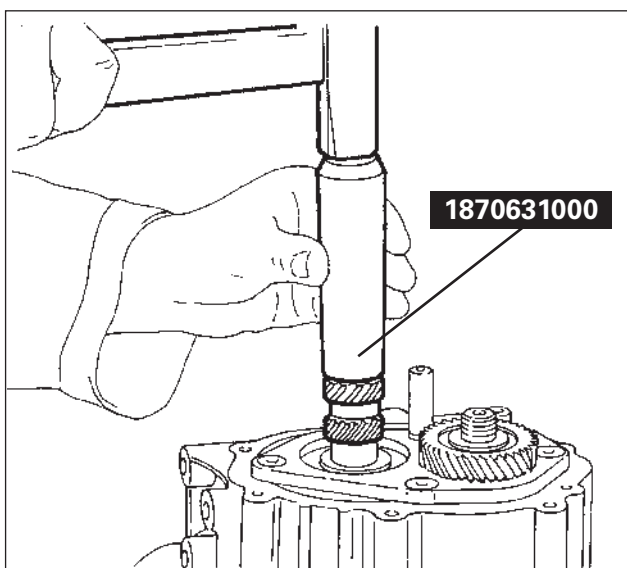
Fit and torque the rear bearing retainer plate fastening screws



78CBB292



Fit the 5th speed gear on the secondary shaft



78CBB293



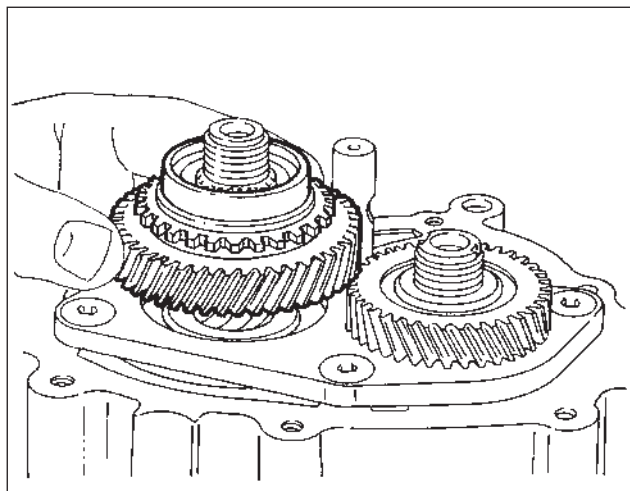
Fit the 5th speed gear bushing

Gearbox and differential

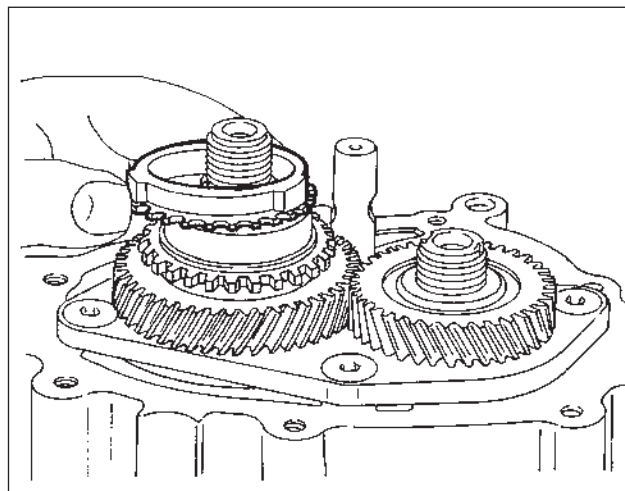
Bench assembly procedures

21-27.

Palio - Albea
C.514.5.15

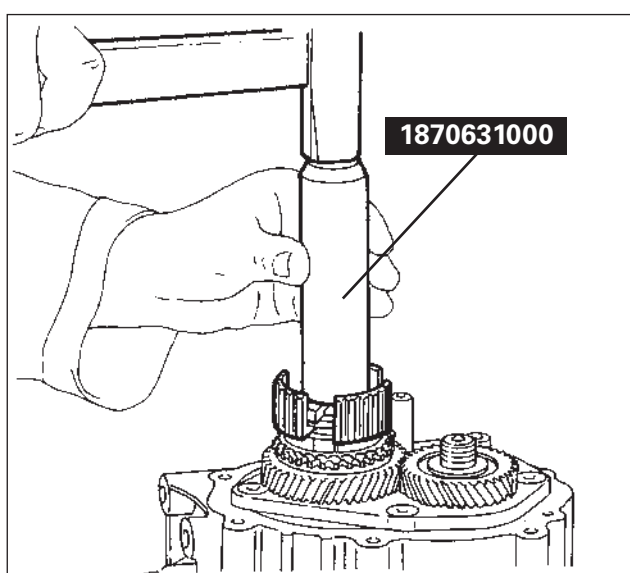


78CBB294



78CBB295

Fit the 5th speed gear and respective synchroniser ring on the primary shaft

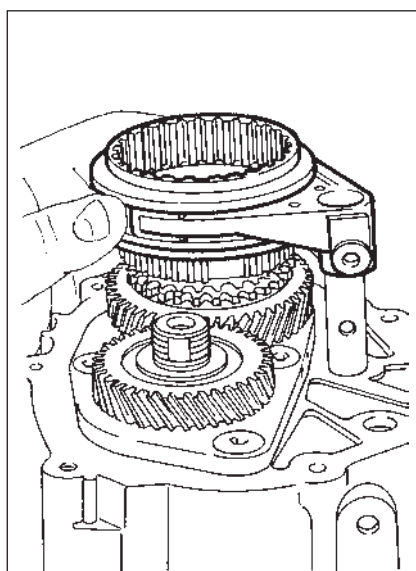


78CBB296

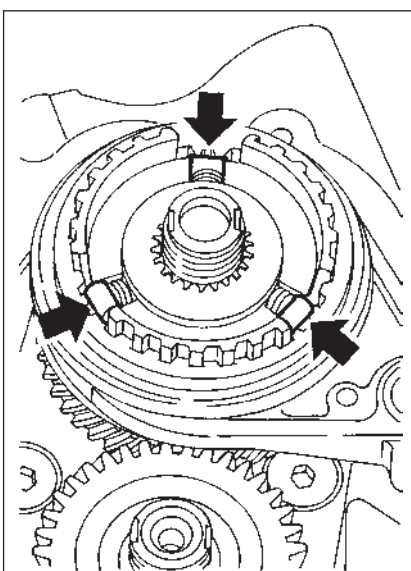


Fit the 5th speed engagement sliding sleeve hub

Fit the hub with the oil grooves facing towards the gear.



78CBB297



78CBB298



Fit the 5th speed fork and sliding sleeve

Fit the three synchroniser rollers (see arrows) between the springs on the hub and the recesses on the 3rd-4th speed engagement sliding sleeve with a screwdriver.



Take the sliding sleeve to neutral position to avoid losing the springs and the synchroniser rollers.

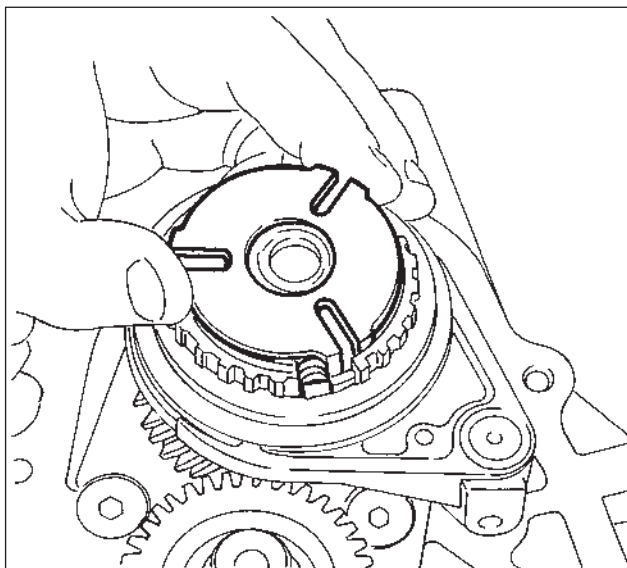
Palio - Albea

C.514.5.15

Gearbox and differential

Bench assembly procedures

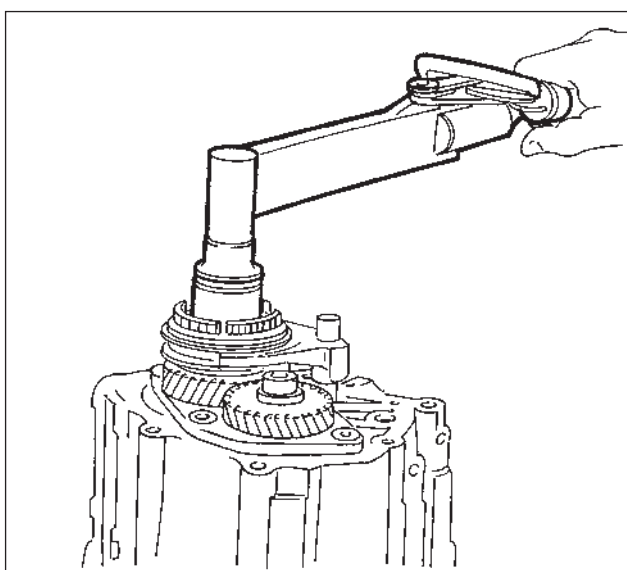
21-27.



78CBB419



Fit the 5th speed synchroniser roller retainer plate and springs

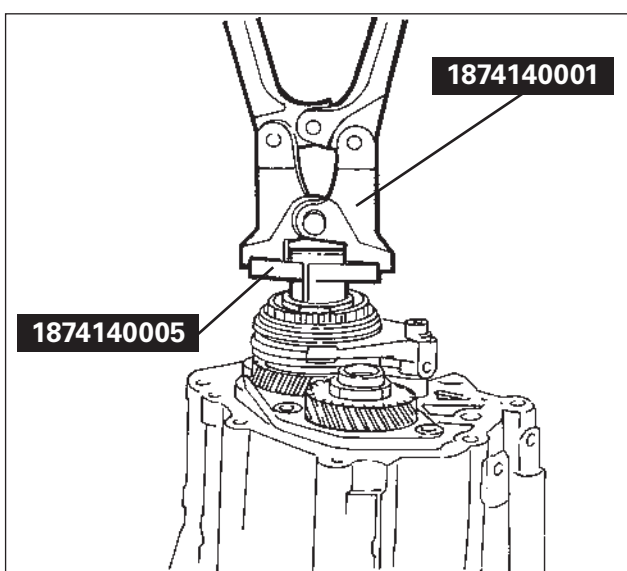


78CBB300



11.8 daNm

Fit and torque the primary and secondary shaft fastening rings



78CBB301



Caulk the primary and secondary shaft gear fastening rings



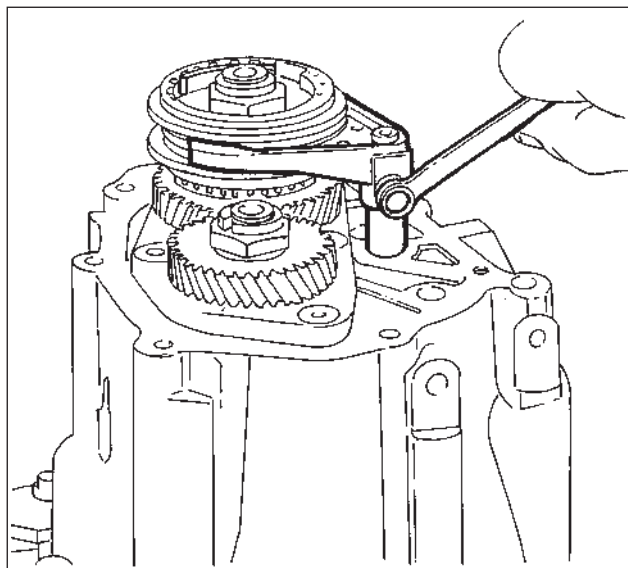
Replace the gear fastening rings whenever they are removed.

Gearbox and differential

Bench assembly procedures

21-27.

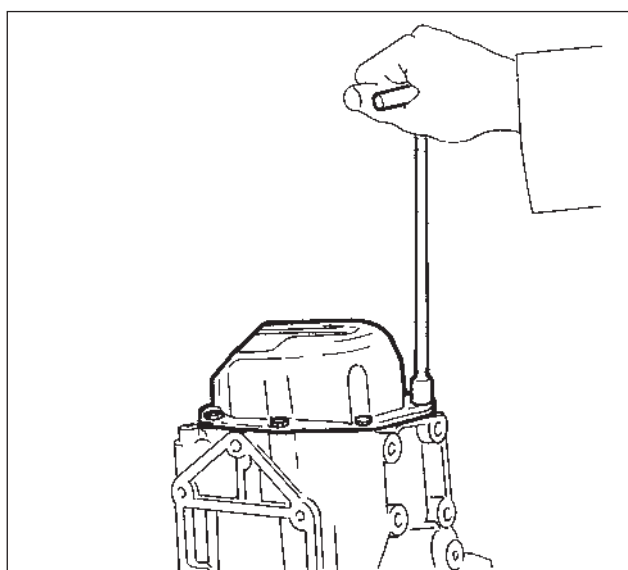
Palio - Albea
C.514.5.15



78CBB302



Fit the 5th speed engagement fork retainer screw



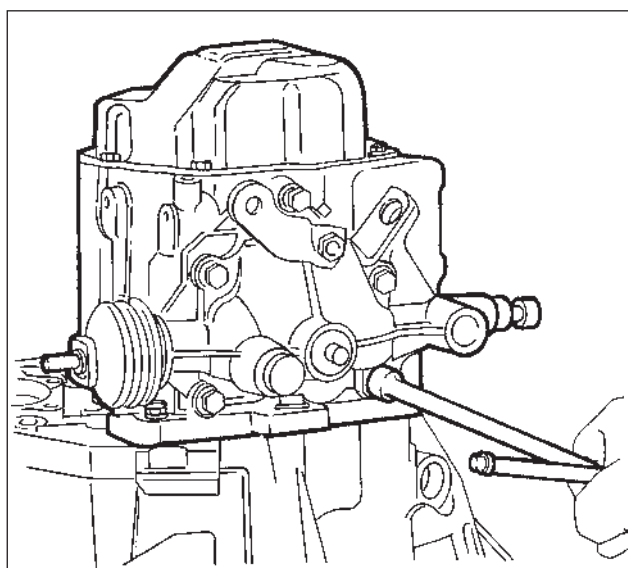
78CBB303



Fit the rear cover



Apply silicon sealant (7091) on the contact surfaces between the central gearbox and the rear cover.



78CBB304



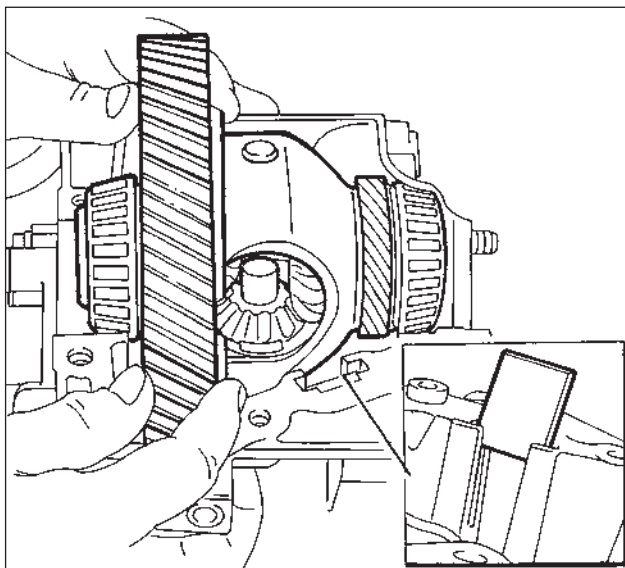
Fit the gear selection and engagement unit



Apply LOCTITE (573) for flat surfaces on the contact surfaces between the central gearbox and the selection and engagement unit.

Palio - Albea **C.514.5.15**

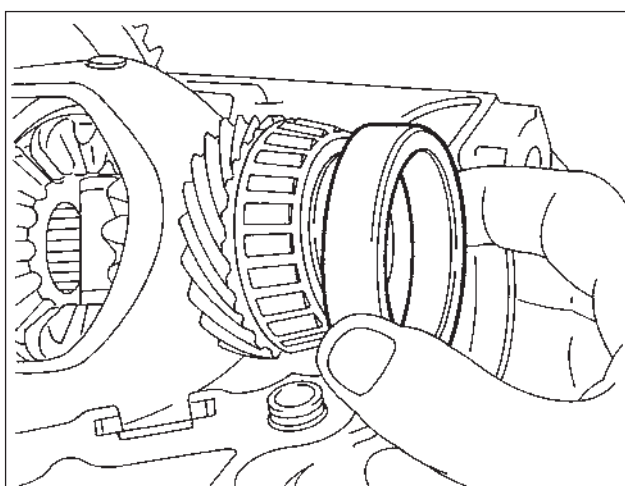
Gearbox and differential **Bench assembly procedures** **21-27.**



78CBB305



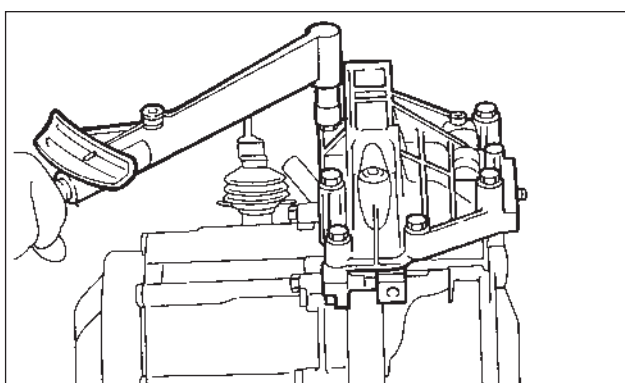
Fit the magnet and the differential assembly



78CBB306



Fit the differential tapered roller bearing outer races



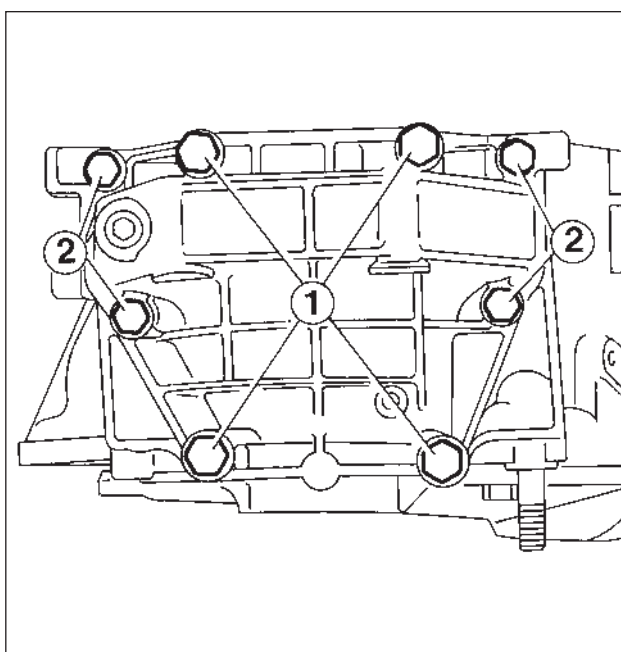
78CBB307



Refit differential housing and tighten bolts (1) and (2) at the prescribed torque



Apply LOCTITE (573) on the contact surfaces between the differential cover and the gearbox support.



78CBB308

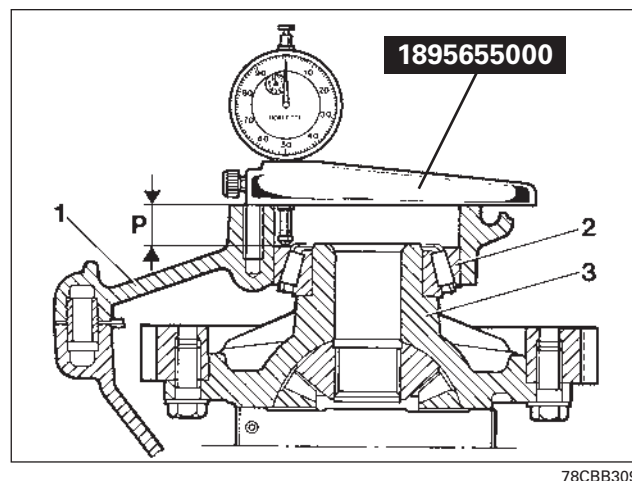
Gearbox and differential

Bench assembly procedures

21-27.

Palio - Albea
C.514.5.15

DETERMINATION OF THICKNESS OF ADJUSTMENT RING FOR DIFFERENTIAL INTERNAL CARRIER BEARING PRE-LOAD



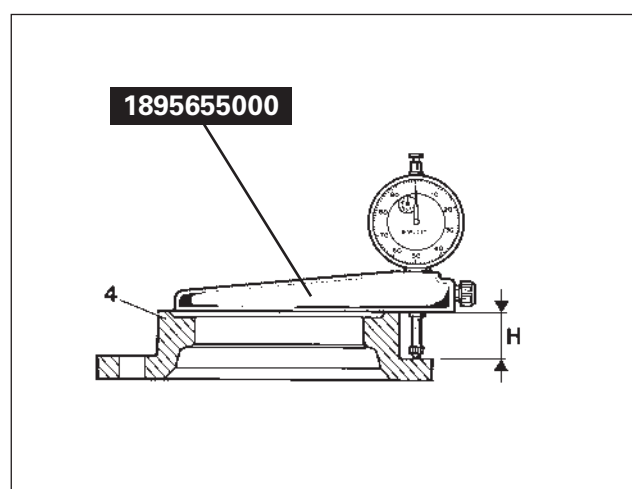
78CBB309

Defining "P"

Depth between cover surface and roller bearing outer race.

1. Gearbox
2. Tapered roller bearing outer race
3. Inner differential carrier

$$S = P - H + 0.12$$



78CBB310

Defining "H"

Cover height.

4. Cover.

"0.12" - Fixed number

Prescribed interference for differential inner bearing settling and pre-load.

"S" adjustment ring thickness (spare part):

2.00 - 2.10 - 2.20 - 2.30 - 2.40 - 2.50 - 2.60 - 2.70 - 2.80 - 2.90 - 3.00.

NOTE Define the exact thickness of the adjustment rings and find a spare ring as close as possible to the required thickness. If the value does not correspond to the available rings, fit the immediately thicker ring or rings.

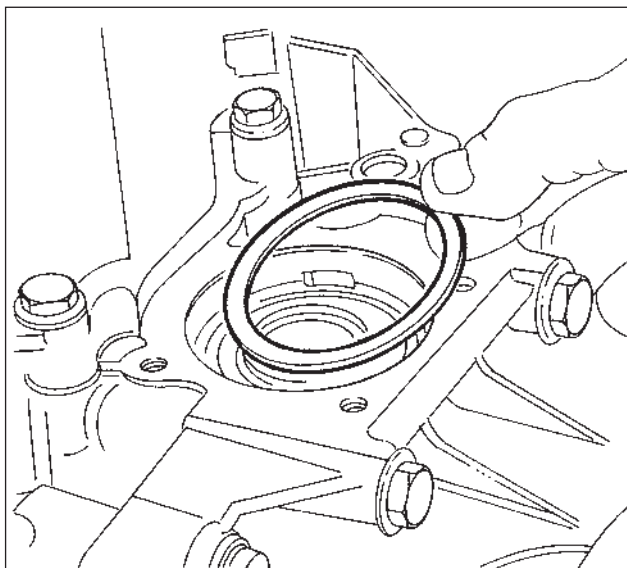
Palio - Albea

C.514.5.15

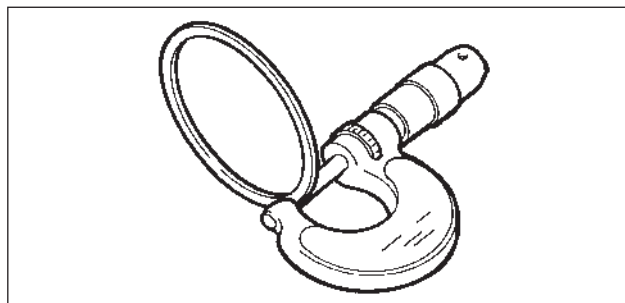
Gearbox and differential

Bench assembly procedures

21-27.

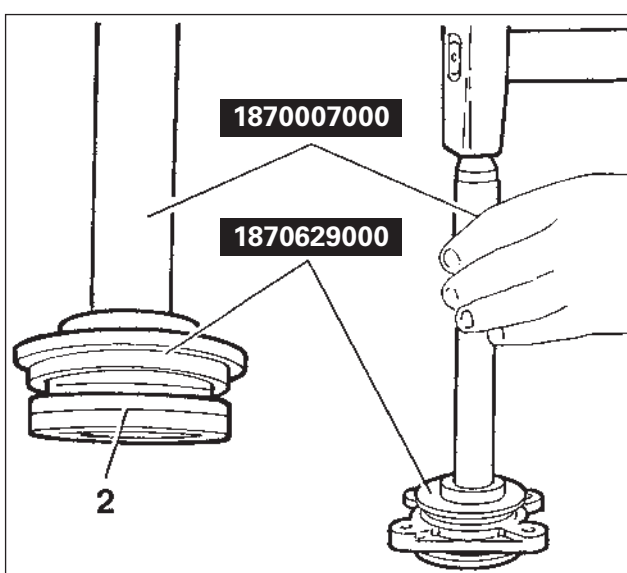


78CBB311

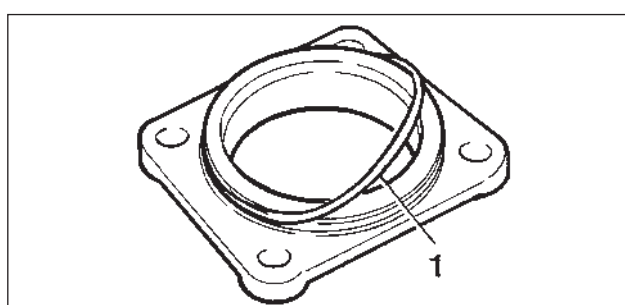


78CBB312

Fit the differential carrier tapered roller bearing pre-load adjustment rings



78CBB313

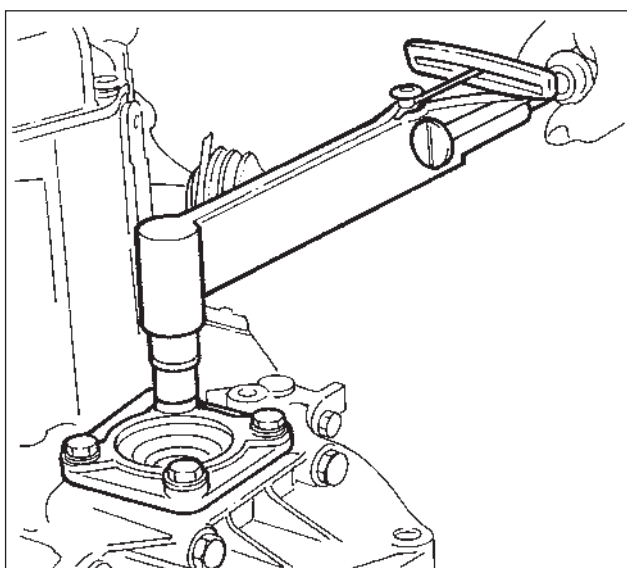


78CBB314

Fit the ring (1) and the seal (2) on the differential cover



Always replace the ring (1) and the seal (2).



78CBB315



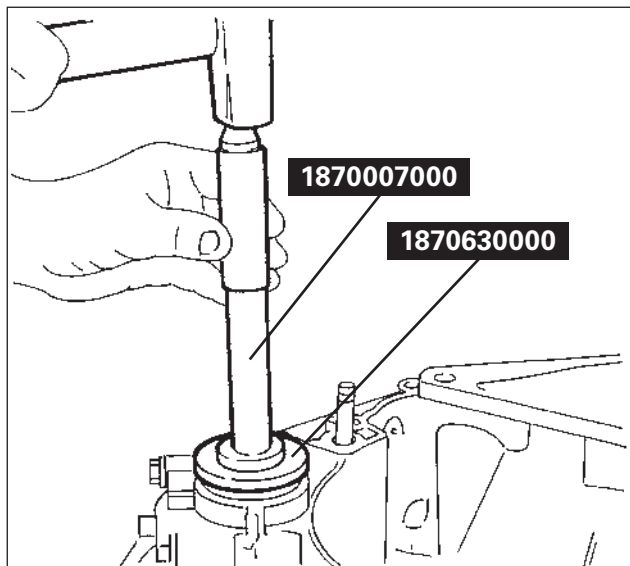
Fit and torque the differential cover

Gearbox and differential

Bench assembly procedures

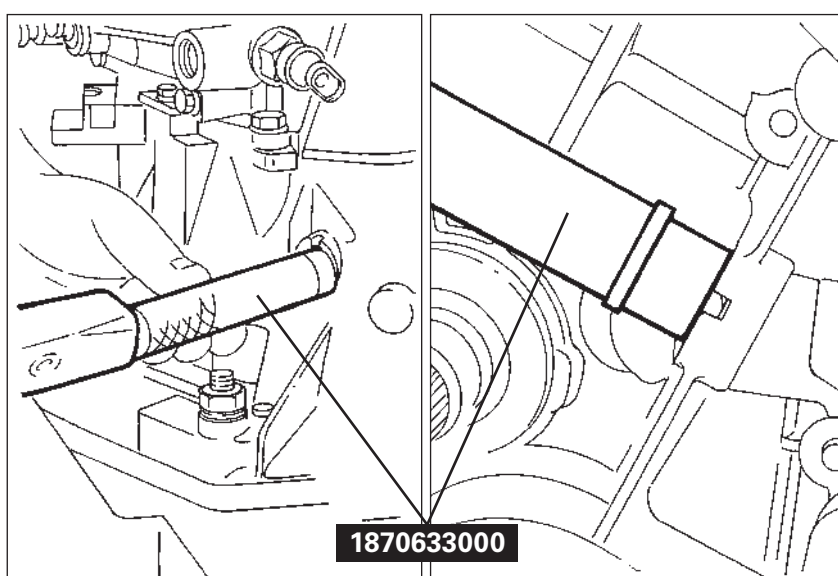
21-27.

Palio - Albea
C.514.5.15



Fit the seal on the gearbox-differential mount

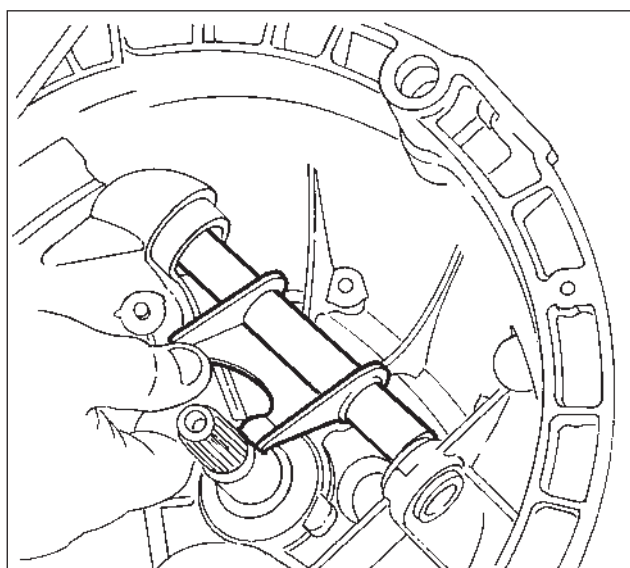
78CBB316



Fit the clutch disengage thrust bearing shaft inner bushing

78CBB317

78CBB318

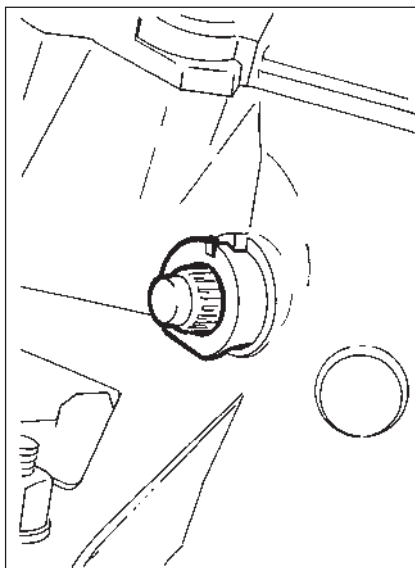


Fit the clutch disengage thrust bearing shaft

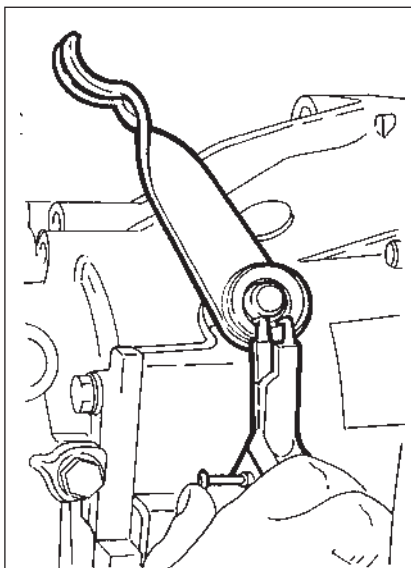
78CBB319

Palio - Albea **C.514.5.15**

Gearbox and differential **Bench assembly procedures** **21-27.**



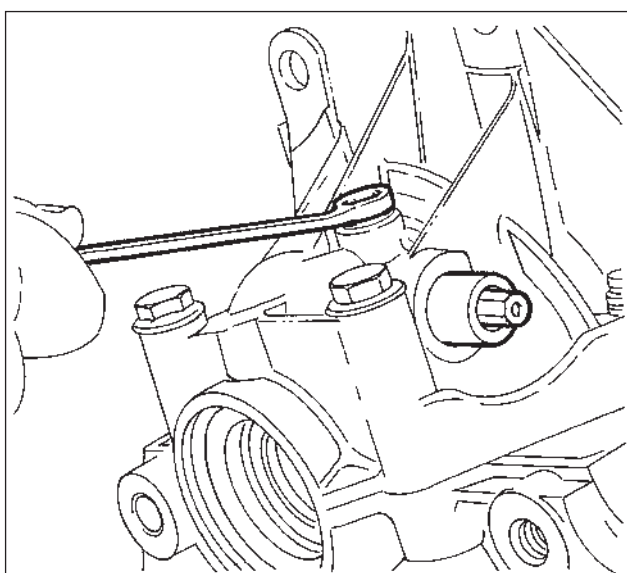
78CBB320



78CBB321



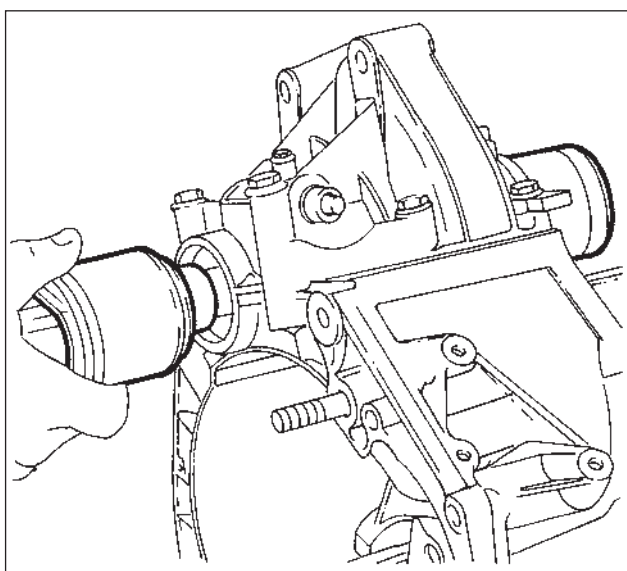
**Fit the outer bearing and
the clutch disengagement
thrust bearing shaft lever**



78CBB322



Fit the odometer transmission gear



78CBB323



**Fit the differential output shaft and outer
tripods**

Gearbox and differential

Specific tools

Palio - Albea

C.514.5.15

21-27.A

1840005000	Universal extractor
1842133000	Differential bearing and gear removal tool
1842134000	Gear and hub removal tool
1845028000	Differential bearing removal reaction tool
1845057000	Secondary shaft 5 th gear bushing removal tool
1847056000	Differential output shaft extractor
1860626000	Gear stiffener ball cap removal and refitting drift
1870007000	Handle for fitters and assembly parts
1870796000	Primary and secondary shaft hub and gear assembly drift
1870419000	Primary shaft seal on gearbox bell refitting part (to be used with 1870007000)
1870469000	Differential bearing refitting part (to be used with 1870007000)
1870629000	Differential carrier cover seal refitting drift (to be used with 1870007000)
1870630000	Differential carrier seal refitting drift (to be used with 1870007000)
1870631000	Primary and secondary shaft bearing and gear refitting drift
1870632000	Bearing refitting drift
1870633000	Clutch disengagement shaft bushing refitting drift
1871000000	Gearbox and differential rotary overhaul stand
1871001014	Gearbox-differential overhaul mount (to be fitted on 1861000000 or 1871000000)
1874140005	Gearbox shaft ring caulking head pair (to be used with 1874140001)
1875088000	Primary shaft front bearing refitting drift
1895655000	Differential bearing adjustment shim tool (to be used with 1895884000)
1895884000	Dial gauge to be used with specific tools (measuring capacity 5 mm, stem length 16.5 mm)

Palio - Albea

C.514.5.15

Gearbox and differential

Tightening torque

21-27.

PART	Threading	Tightening torque
		daNm
Screw with flange fastening 5 th speed pad	M 6	1.2
Screw with flange fastening 5 th speed fork	M 6	1.2
Screw fastening reverse control support	M 8	1.5
Ring fastening 5 th speed gear to primary and secondary shaft	M 20 x 1.5	11.8
Screw with flange fastening control cover to gearbox	M 6	2
Screw with flange for fastening odometer spindle	M 6	0.5
Nut with flange for complete selection lever	M 8	1.5
Screw with flange for fastening differential carrier flange to complete mount	M 8	2
Screw fastening gearbox to engine mount	M 8	2
Screw with flange fastening cover to gearbox	M 6	0.5
Screw with flange fastening differential cover to engine mount	M 8	2
Washer screw for implantation differential housing on bell clutch	M 10 x 1.25	3.5
Screw with flange fastening differential cover to engine mount	M 22 x 1.5	2.2
Gearbox oil filler tapered threaded plug	M 8	2
Allen screw fastening bearing retainer plate to box	M8	2.6