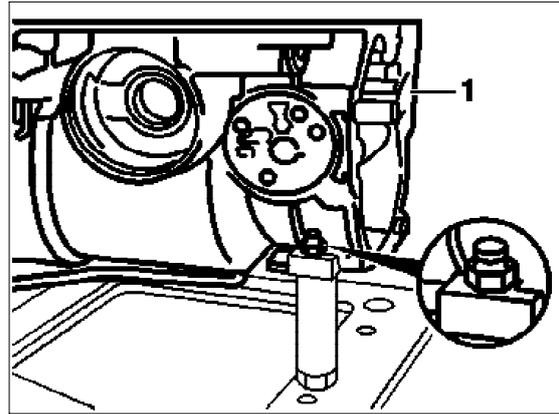


Assembly

Note

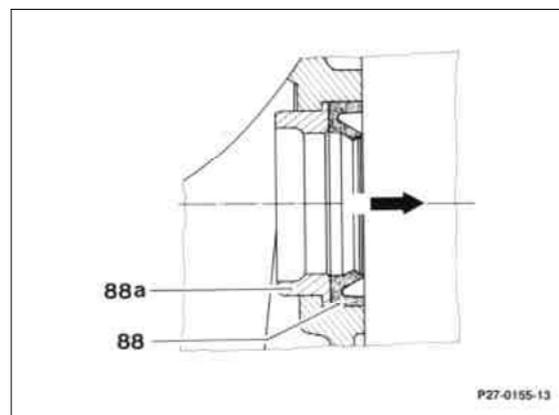
When assembling, apply the specified ATF oil to bearing points and sliding surfaces.
Place new brake bands and lined discs of multi-disc brake for approx. 1 hour in ATF oil before installing.

52 Position housing (1) in the assembly device and secure with the bolt (arrow).



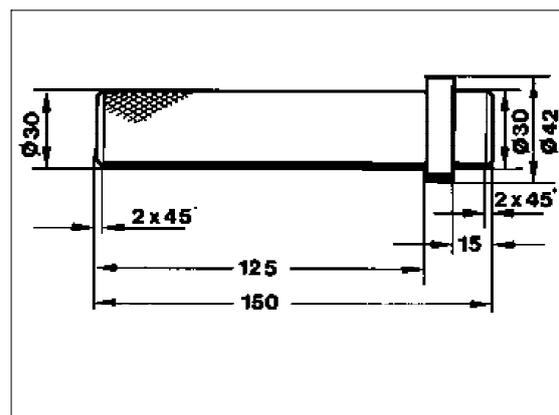
53 Screw in plugs with a new aluminium seal and tighten to 13 Nm.

54 Insert guide ring (88a), then insert lip sealing ring (88) with the shop-made impact mandrel, the sealing lip (arrow) must be facing toward the brake band piston cover.

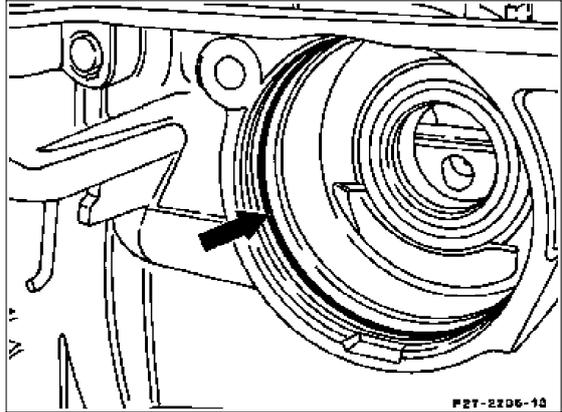
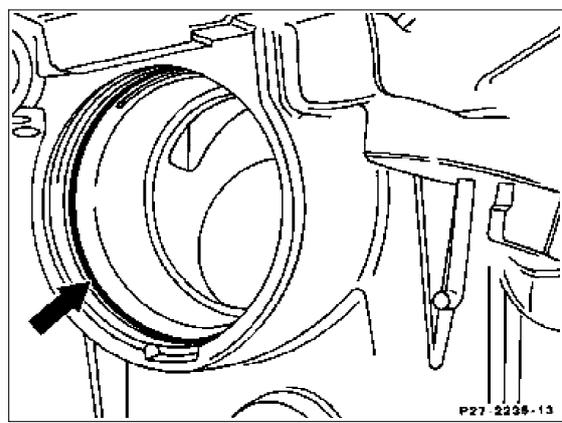


Note

The impact mandrel should be shop-made according to the dimensions indicated.

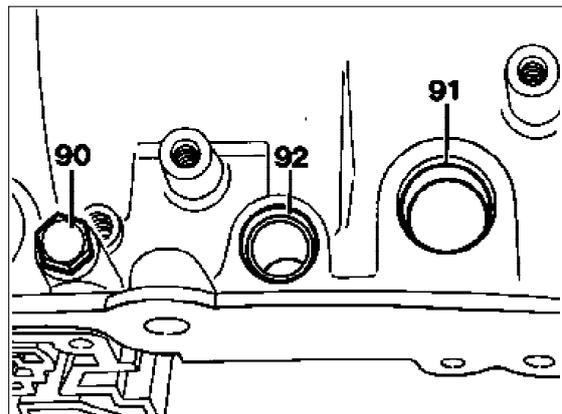


55 Insert O-rings (arrow) into the grooves.

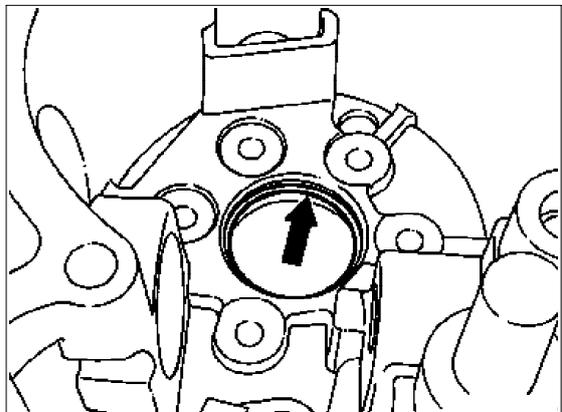


56 Insert O-ring (91) into the groove.

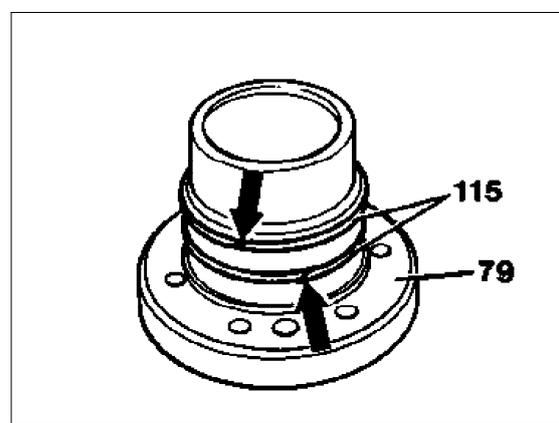
57 Insert radial seal (92).



58 Insert O-ring (arrow) into the groove.

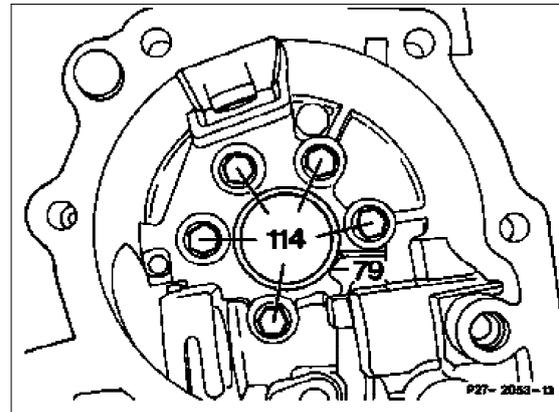


59 Coat grooves in supporting flange K2 (79) with grease. Insert Teflon rings (115) and press into the groove far enough for the joint (arrow) to remain together.

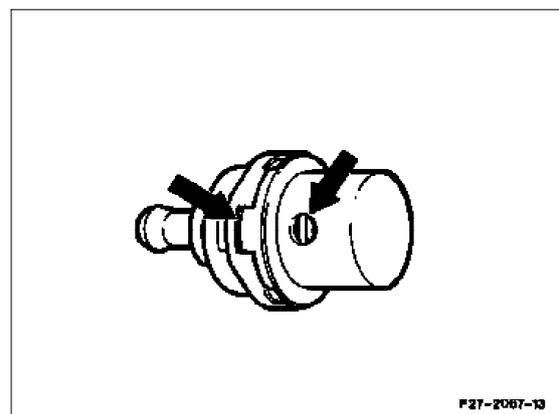


60 Insert supporting flange (79) corresponding to the hole pattern of the mounting hole; perform this step by using two bolts approx. 80 mm long for centering.

61 Screw in bolts (114) and torque to 11 Nm.



62 Examine pressure body B2 for twist
- with the pressure body removed, the hole and the tab (arrows) must be in the same direction.



Note

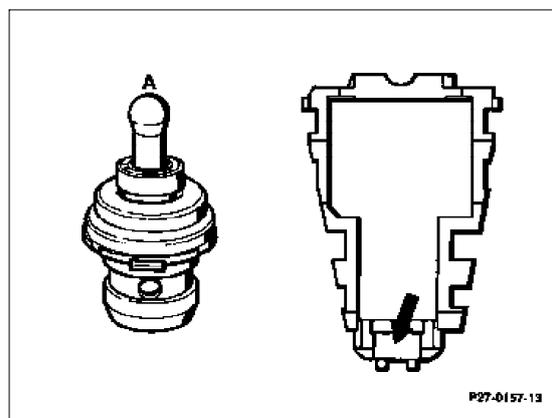
Thrust bearing B2 brake band guide and brake band piston B2 are installed in different versions.

Below is a list of the versions.

Version "A"

Thrust bearing B2 together with brake band guide without oil discharge hole (arrow).

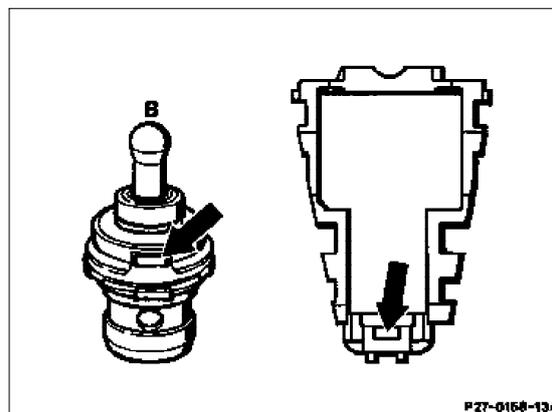
Installed up to Transmission End No. 377 682.



Version "B"

Thrust bearing B2 with oil discharge hole down the way (arrow) only in combination with brake band guide with additional oil discharge hole (arrow).

Installed effective Transmission End No. 377 683.



Version "C"

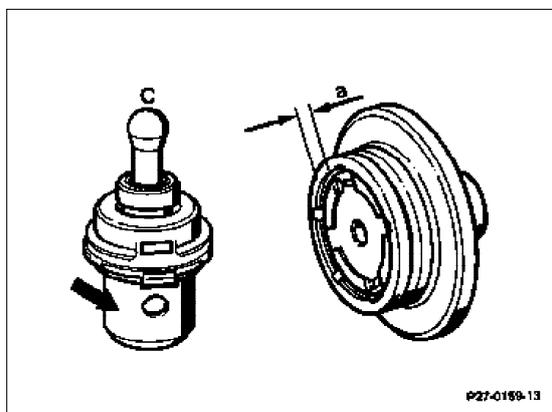
Thrust bearing B2 with enlarged stroke, identified by elimination of annular groove (arrow) in combination with brake band piston B2 with reduced contact stroke. Consequently, size "a" is 2.6 - 2.8 mm; was 3.4 - 3.6 mm.

Installed effective Transmission End No. 451 986.

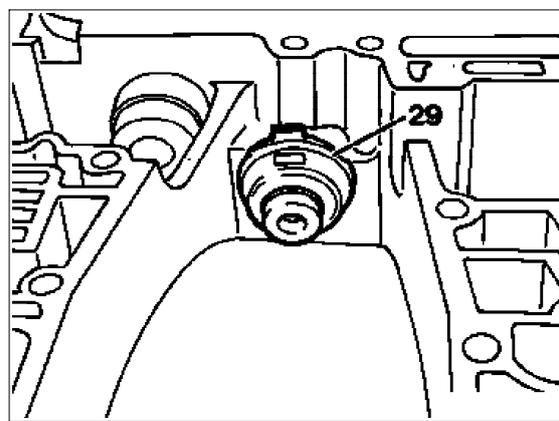
Note

Install thrust bearing B2 with enlarged stroke only together with the modified brake band piston B2.

The previous thrust bearing can be combined with the old and new brake band pistons.

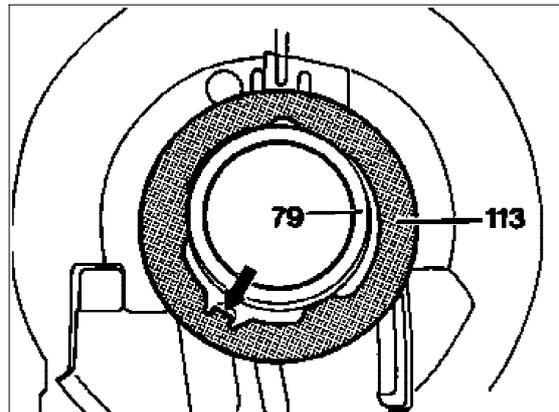


63 Insert pressure body B2 (29) with the tab facing up the way.



64 Insert thrust washer (113) so that the tab for the anti-twist lock (arrow) is located in the housing.

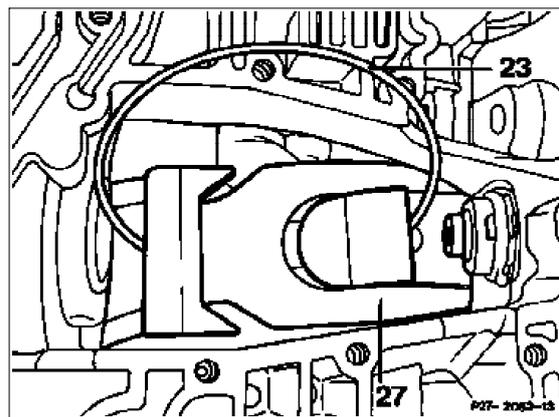
65 Re-check the seating of the Teflon rings on the supporting flange (79).



66 Compress brake band B2 (27) at the supporting tabs as far as possible and insert into the housing.

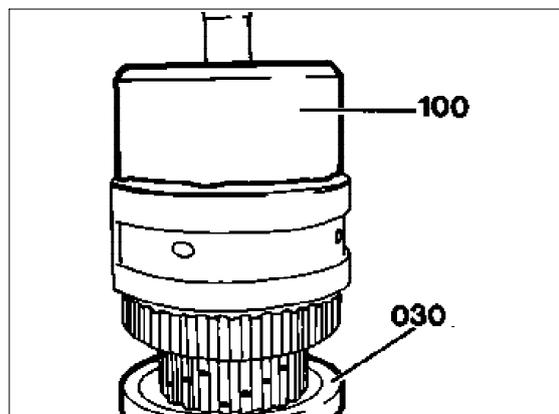
Note

As an installation aid, the brake band can be held together with the aid of the locking element (23).



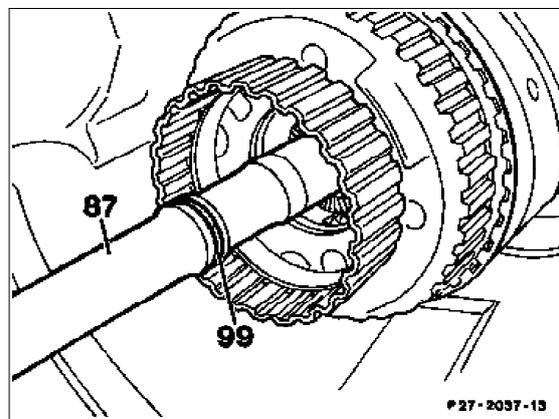
67 Fit clutch K2 (100) onto the gear set.

Assembly bracket (030) 126 589 00 35 00.



68 Insert gear set into the transmission housing, turning input shaft (87) when performing this step.

69 Position transmission with input shaft (87) up the way vertically.

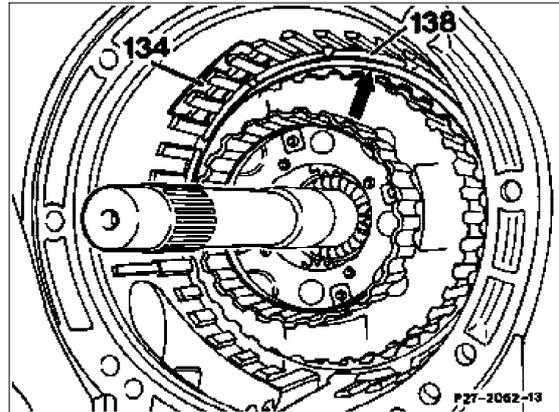


70 Check installation position of gear set. The gear set is correctly inserted if the top edge of the connection carrier (arrow) is lower than the contact face of the externally toothed disc LB3.

71 Assemble front cover with primary pump (27-630).

72 Insert damping spring (134); installed effective Transmission End No. 22 600.

73 For transmissions of previous design, a repair version damping spring, Part No. 123 993 05 15 can be installed.



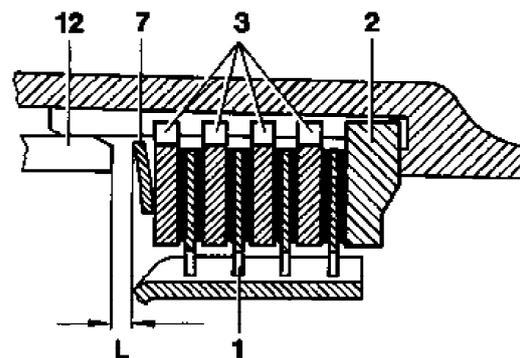
74 Arrange the discs for the multi-disc brake B3 in the order shown in the illustration and insert individually (version effective 09.88).

Note

Externally toothed disc (3) 2.5 or 3.0 mm thick

Externally toothed disc (4) 3.0, 3.5 or 4.0 mm thick

- 1 Internally toothed disc
- 3 Externally toothed disc
- 7 Belleville spring washer
- 12 Piston LB3

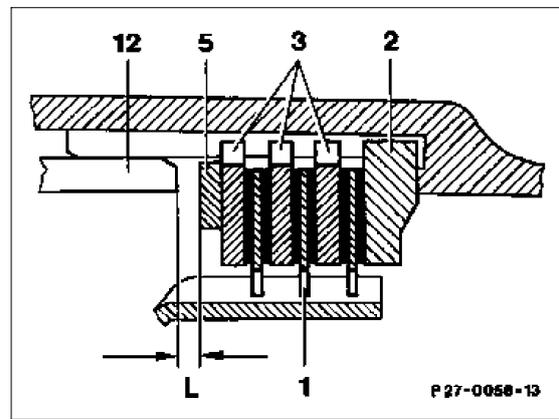


Note

Transmission with manufacturing date prior to 09/88.

Arrange discs for the multi-disc brake B3 in the order shown in the illustration and insert individually.

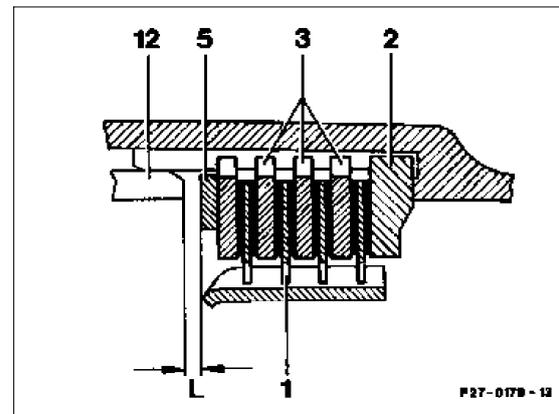
- Transmission: 722.400
722.402
722.403
722.404
722.405
722.406
722.407
722.411
722.414



- 1 Internally toothed disc
- 2 Externally toothed disc
- 3 Externally toothed disc
- 5 Compensating disc
- 12 Piston LB3

The shim (5) is available in the thicknesses 2.5 - 3.0 - 3.5 mm and the externally toothed disc (3) in the thicknesses 3.0 - 3.5 mm.

- Transmission: 722.401
722.405
722.408
722.409
722.410
722.412
722.413
722.415
722.416

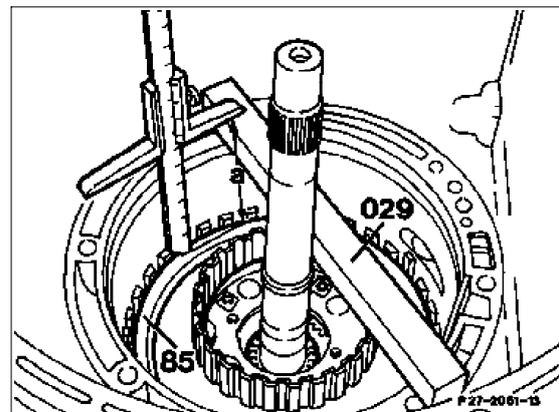


- 1 Internally toothed disc
- 2 Externally toothed disc
- 3 Externally toothed disc
- 5 Compensating disc
- 12 Piston LB3

75 Measuring and compensating play "L" of multi-disc brake B3

Determining size "a".

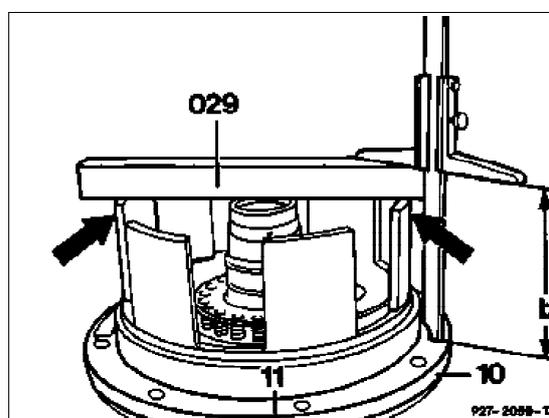
Place parallel support (029) onto the machined surface, measure with the depth gauge to the outer edge of the Belleville spring washer (85) or of the shim (5).



Determining size "b".

Place parallel support (029) onto the piston of the multi-disc brake (arrows), measure with the depth gauge to the gasket (11). The difference of the two measurements produces the play "L".

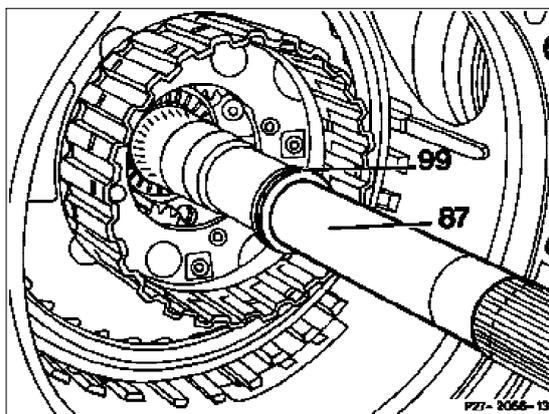
Adjust the play "L" to the specified value of 1.5 - 2.0 mm. Play is compensated by fitting externally toothed discs which are available in various thicknesses, or with the compensating disc (refer to step 74).



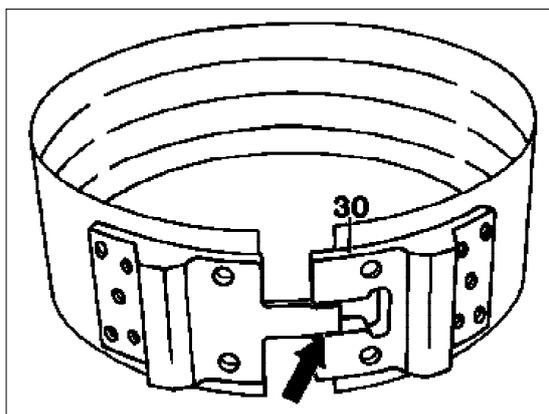
76 Grease groove in the input shaft (87). Insert lubricating pressure rings (99) and press into the groove far enough for the joint to remain together.

Note

Transmission 722.417 is fitted with only one lubricating pressure ring (99) and has an additional bearing point in the front cover.

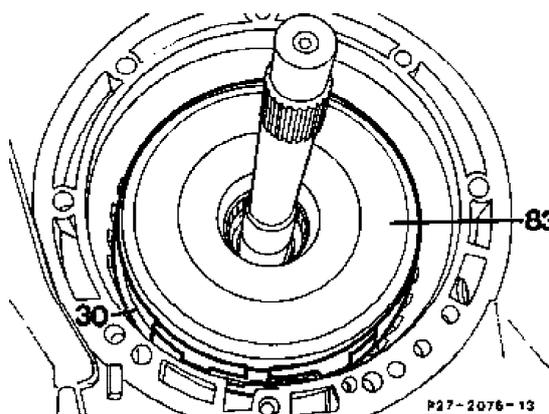


77 Attach assembly lock (arrow) to brake band B1 (30).

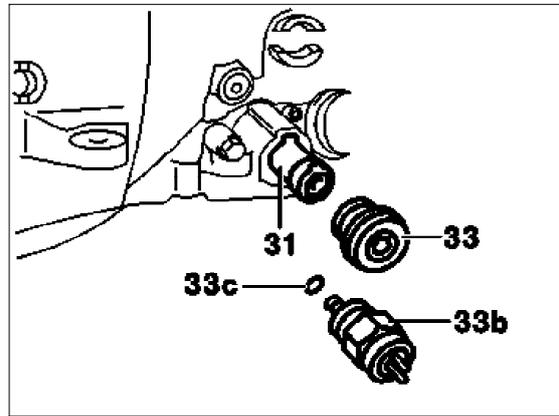


78 Insert clutch K1 (83), turn it when performing this step so that the teeth mesh.

79 Insert brake band B1 (30) so that pin of assembly lock (arrow, fig. step 77) is facing the pressure body B1.



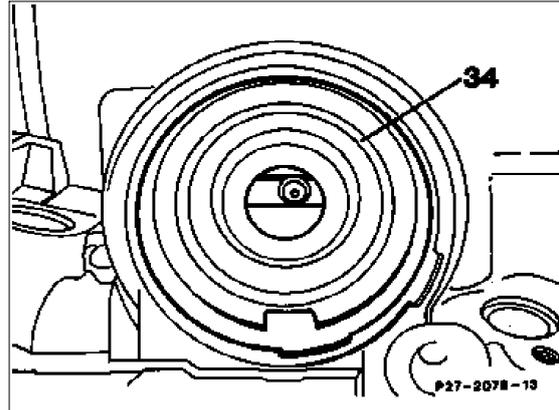
80 Check O-rings, renew if necessary. Then, insert pressure body B1 (31) with thrust pin and screw in plug (33) or overload protection switch (33b), respectively, and tighten to 70 Nm.



81 Insert brake band guide (34), ensuring that the locating studs engage in the holes in the housing, and press in until it is felt to lock.



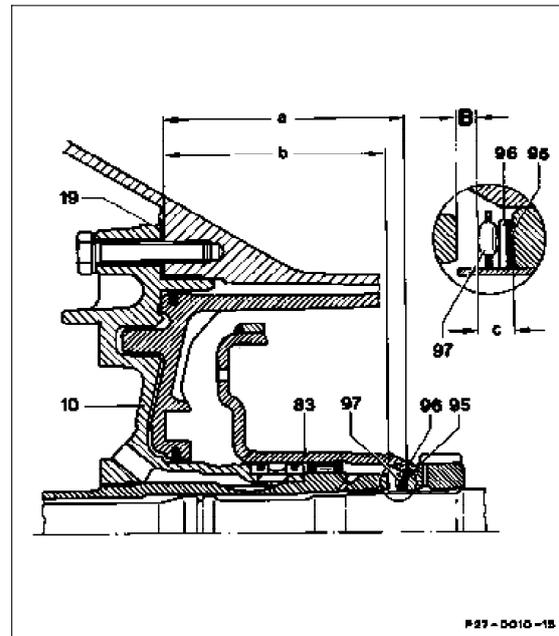
Effective Transmission End No. 180 000, a brake band guide with a larger through hole for the brake band piston with removable thrust pin is installed.



82 Measuring and compensating end play "B" for clutch K1.

Rear housing not fitted 0.6 - 1.0 mm.

Rear housing fitted 0.3 - 0.5 mm.

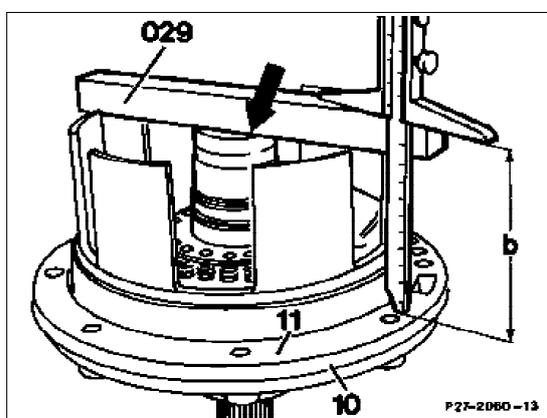


- 95 Shims
- 96 Thrust washer
- 97 Axial bearing

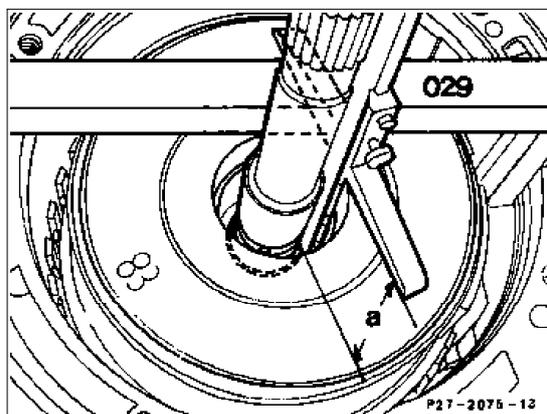
Place gasket (11) onto the front cover (10).

Place parallel support (029) onto the flange (arrow).

Measure with depth gauge from the parallel support to the gasket (size "b").



Place parallel support (029) onto the machined face of the transmission housing. Measure with depth gauge from the parallel support to the contact face in the clutch K1 (83) (size "a").

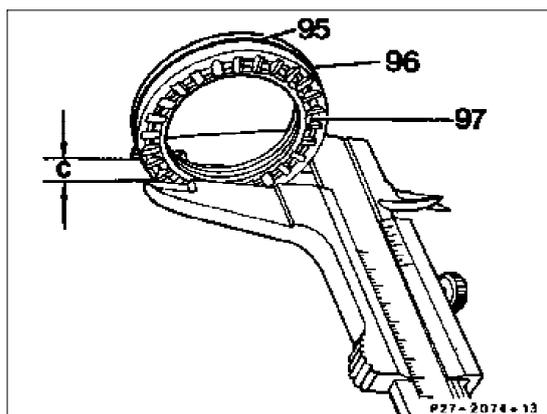


Hold shim (95), thrust washer (96) and axial bearing (97) together and measure the size "c" with a caliper slide.

Size "b" and "c" deducted from size "a" produces the end play "B" of clutch K1. The end play can be adjusted by inserting appropriate shims (95, thickness 0.1, 0.2, 0.5 mm).

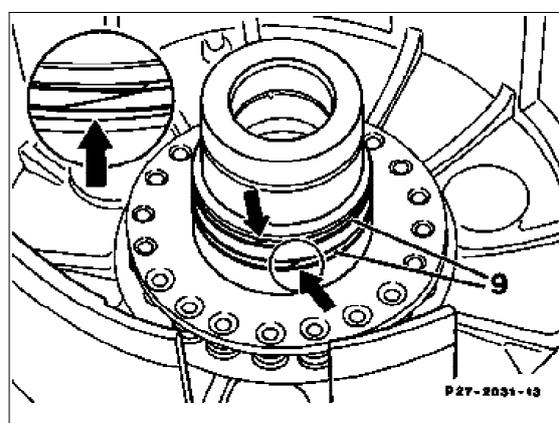


Pay attention to the order in which the thrust washers and shims are installed.



83 Insert measured size of shims, thrust washer and axial bearing in turn into the clutch K1 (see fig., step 82).

84 Insert Teflon rings (9) with grease. Ensure that the gap of the rings (arrow) remains together. Take rings off once again, if necessary, and shape to form a smaller diameter.

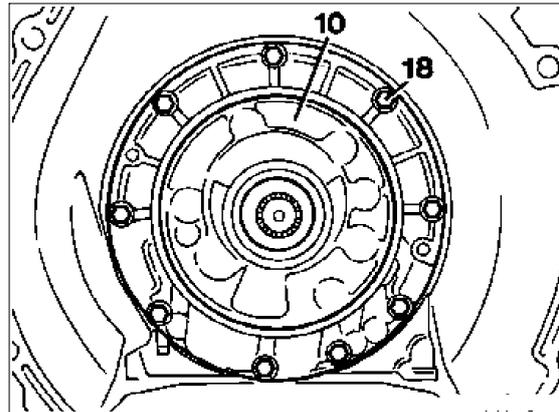


85 Insert front cover (10) with gasket. Tighten bolts (18) to 13 Nm.

Note

Fit on cover (10) so that the two passages which are in the cover, are not covered over.

The gasket can be used several times, but must not be coated with any sealant. In contrast, the bolts (18) should be given a light coating of non-hardening sealant.



86 Turn assembly device so that input shaft (68) is pointing up the way.

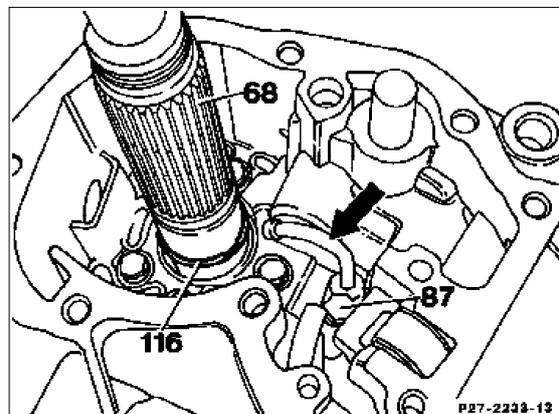
87 Push locking ring (116) onto the input shaft (68) as far as its groove.

88 Insert oil pipe (arrow). Tighten bolt (87) to 8 Nm.

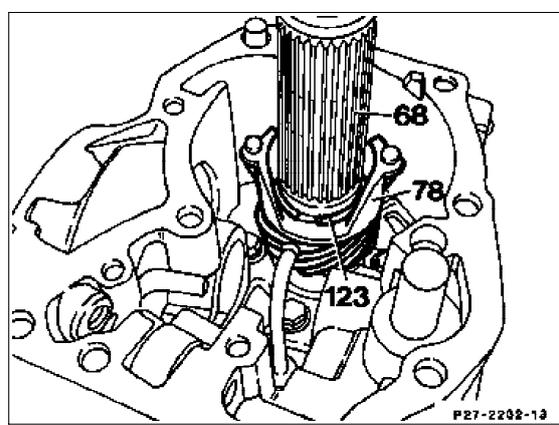
Note

The oil pump for lubricating the governor drive is no longer fitted.

Eff. Transmission End No. 370 052 for 722.409
396 963 for 722.4

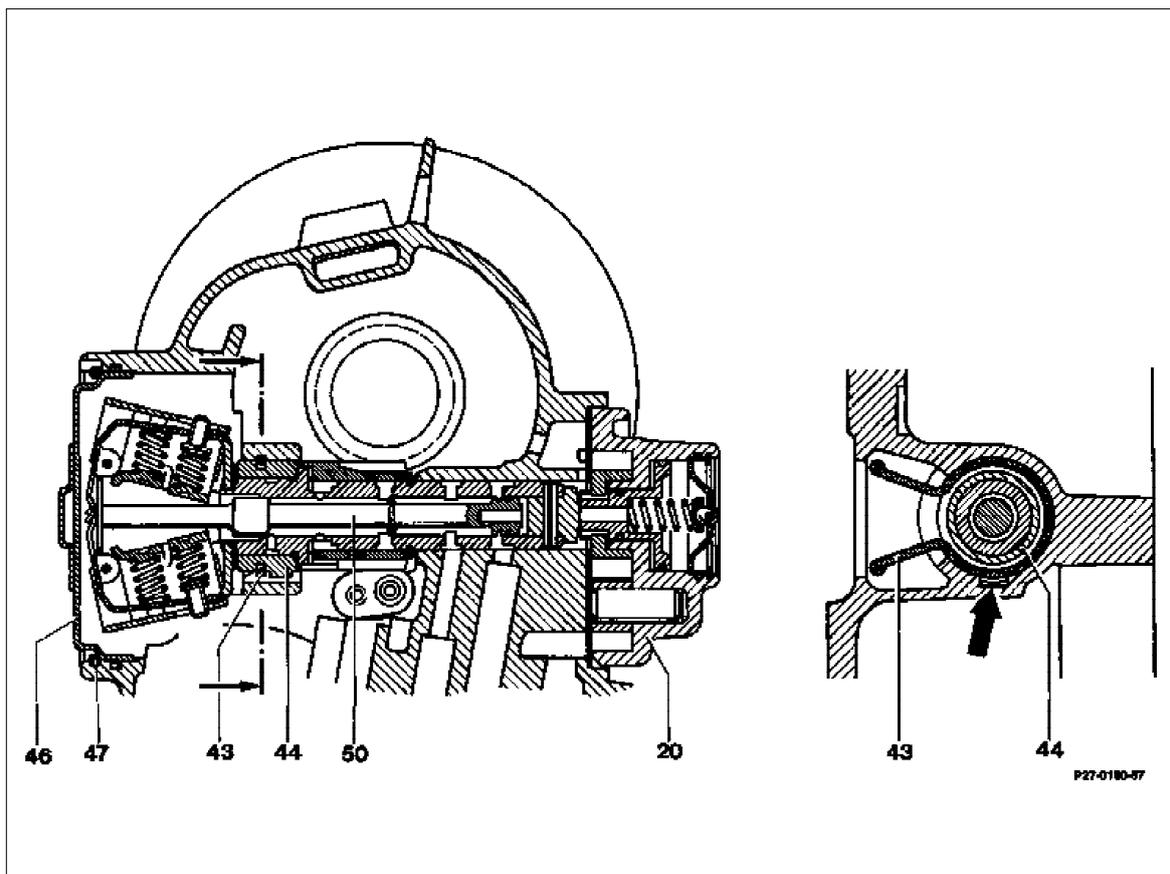
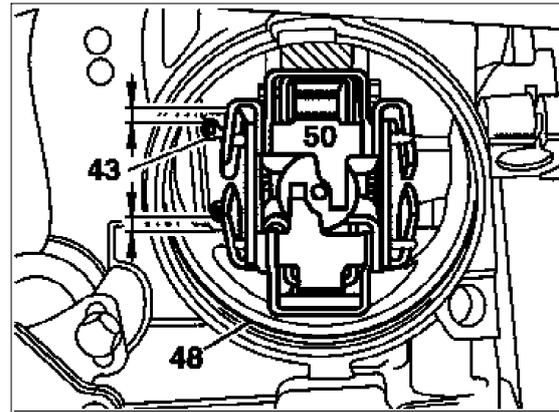


89 Fit on helical gear (78) and insert snap ring (123).



90 Insert O-ring (48).

91 Insert centrifugal governor (50); turn bearing ring when performing this step so that the lug meshes into the groove in the housing (see sectional view, arrow). Insert locking ring (43) and ensure that it engages in the groove.

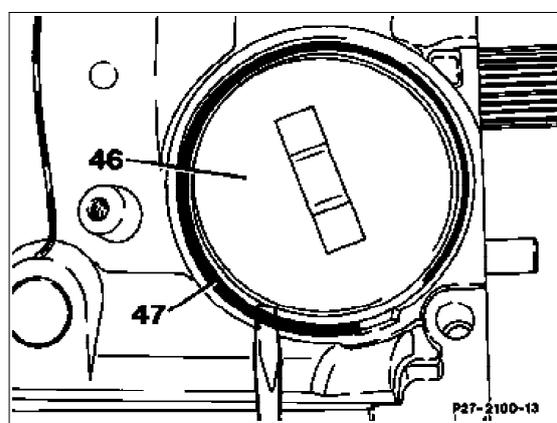


20 Secondary pump
43 Locking ring
44 Bearing ring

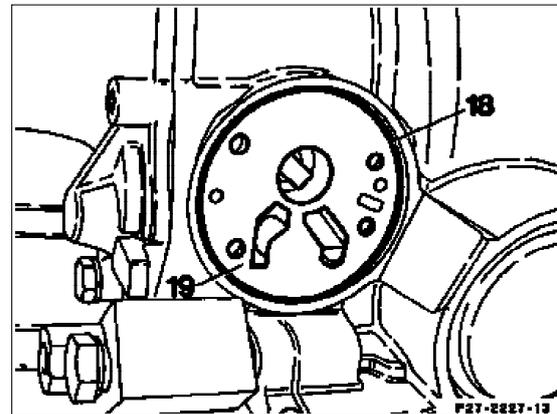
46 Cover
47 Locking ring
50 Centrifugal governor

P27-0180-37

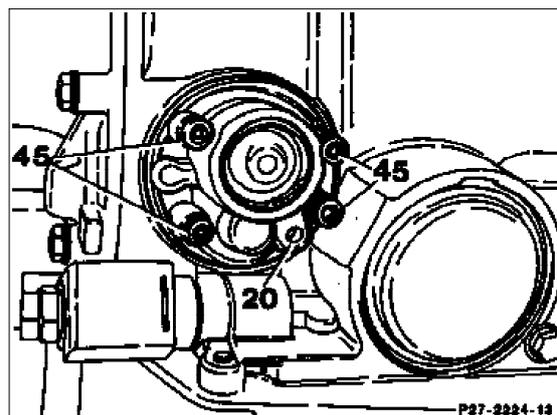
92 Insert cover (46) and install locking ring (47) using a screwdriver as an aid. Following this, pull the cover out the way so that it is resting against the locking ring around its entire circumference.



93 Insert intermediate plate (19) and install O-ring (18).

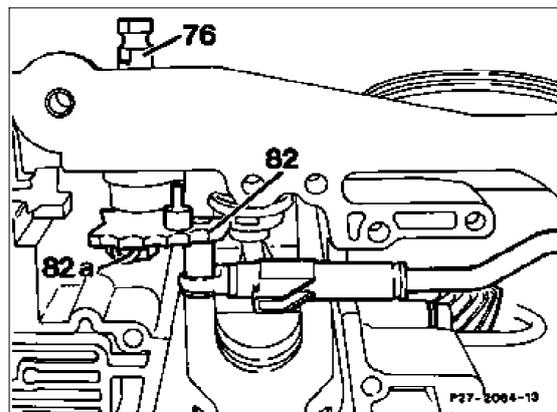


94 Fit on secondary pump (20). Tighten hexagon socket bolts (45) to 8 Nm.



95 Insert detent plate (82) with resilient linkage and push in shaft (76).

96 Screw in hexagon socket bolt (82a) and tighten to 8 Nm.

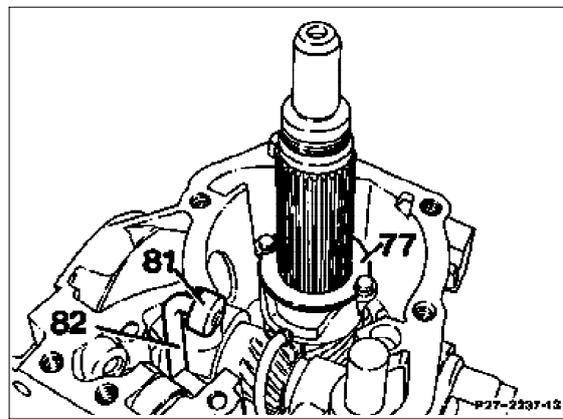


97 Fit on spacer sleeve (124) and the existing shims (77).

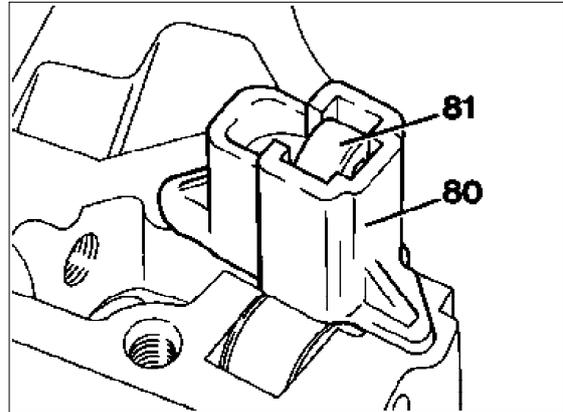
Note

Fit on spacer sleeve with the recess on the inside facing snap ring.

98 Fit roller (81) onto the resilient linkage (82).

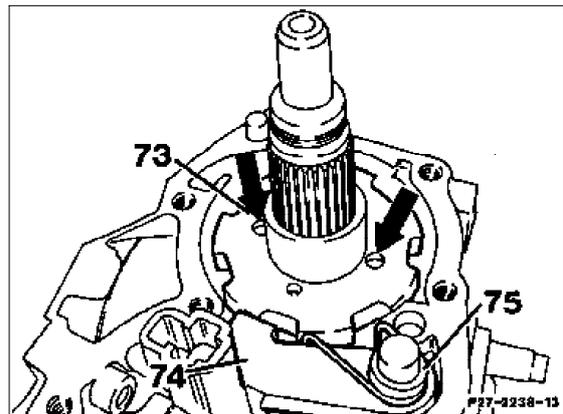


99 Fit on plastic guide (80) and press into the locating hole.

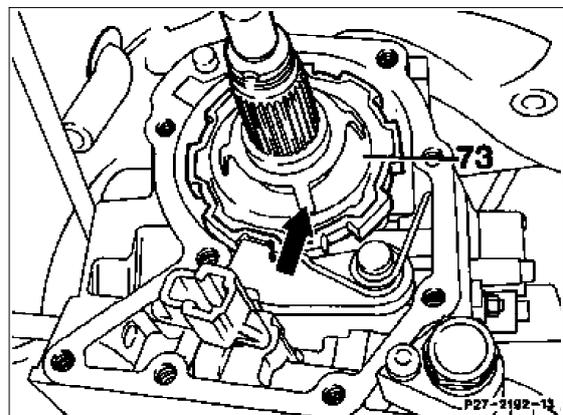


100 Fit on parking lock ratchet (74), insert spreader spring (75) and attach to the parking lock ratchet.

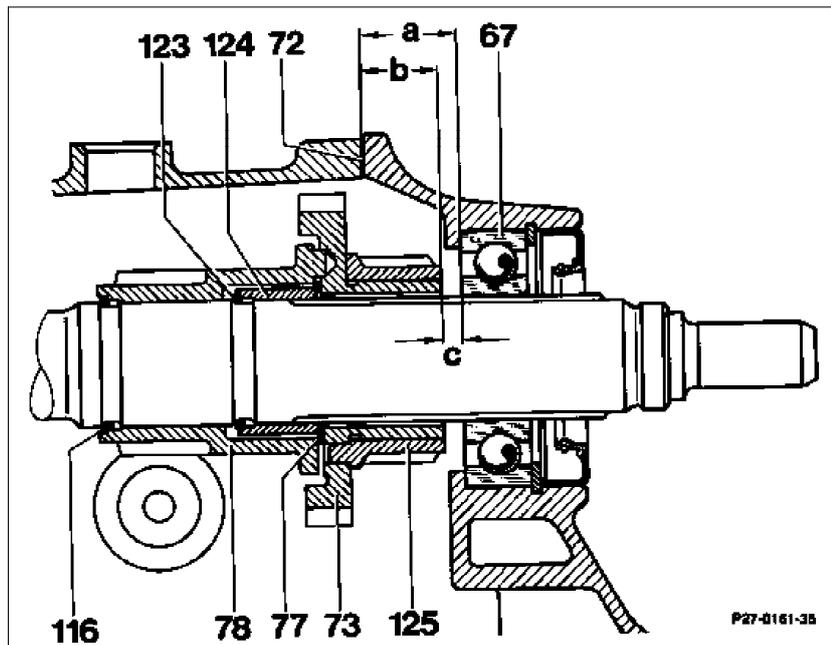
101 Fit on parking lock gear (73), ensuring that the two studs on the helical gear engage in the holes (arrows).



102 On transmission with electronic speedometer, fit on parking lock gear (73) with pulse disc (arrow) already pressed on.

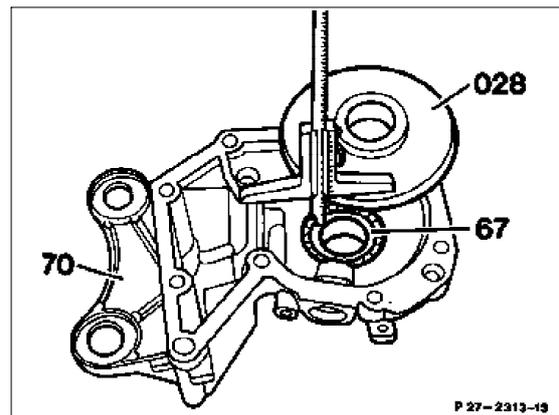


103 Measure end play (C) of output shaft (clutch K2) and compensate.



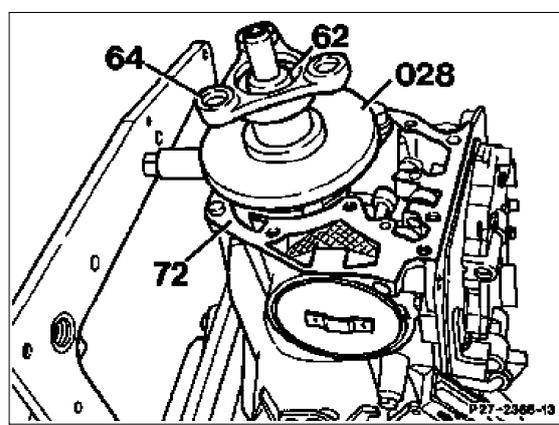
Determining size "a".

Place measuring disc (028) 129 589 06 23 00 onto the sealing face of the rear cover. Measure with the depth gauge from the measuring disc (028) to the ball bearing inner race (67).



Determining size "b".

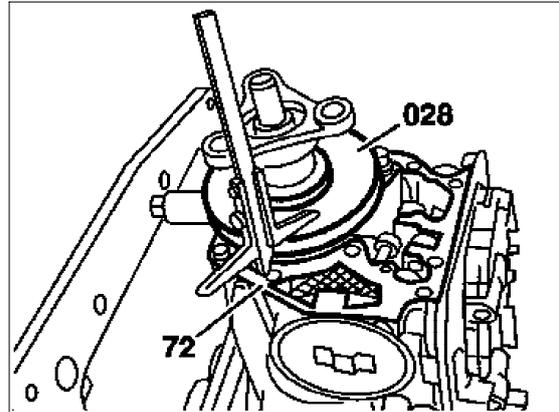
Fit on measuring disc (028) and joint flange (64), tighten collar nut (62) to 100 Nm. Engage parking lock ratchet to prevent parts moving. Fit on gasket (72).



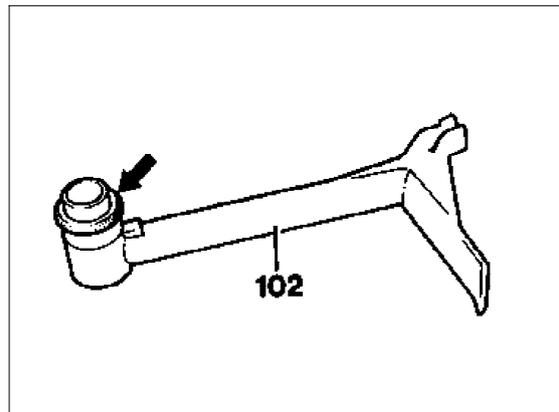
Measure with the depth gauge from the measuring disc (028) to the gasket (72).

Size "b" subtracted from size "a" produces the end play "C".

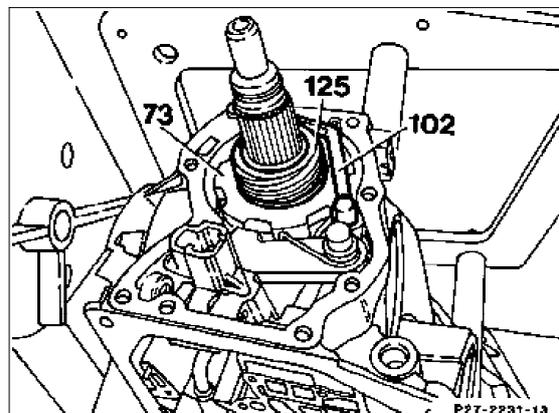
Adjust end play "C" by inserting or removing shims (77) below the parking lock gear (73) (see fig., step 110) to 0.3F0.1 mm.



104 Push gasket (arrow) onto the oil pipe (102) of speedometer lubrication (mechanical) and insert oil pipe.

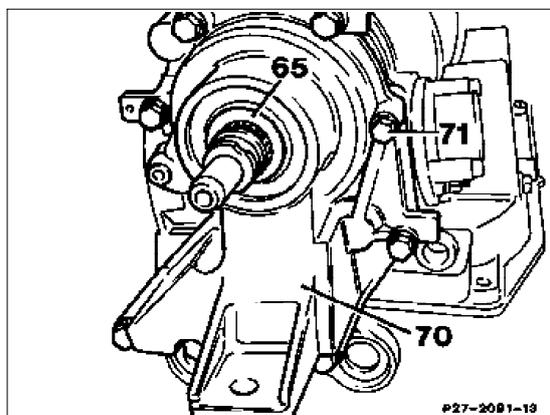


105 Fit on helical gear for speedometer drive (125) and ensure that the two studs engage in the holes in the parking lock gear (73).

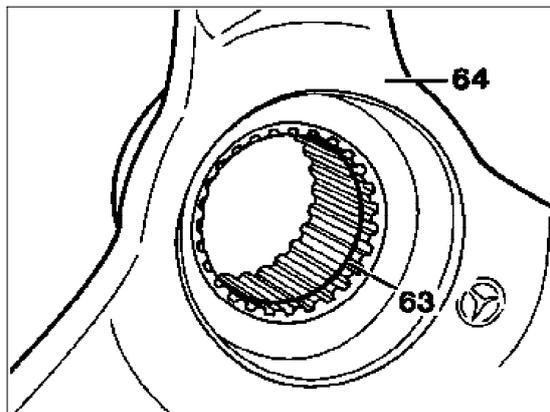


106 Fit on rear cover (70), tighten bolts (71) to 13 Nm.

107 Insert washer (65).



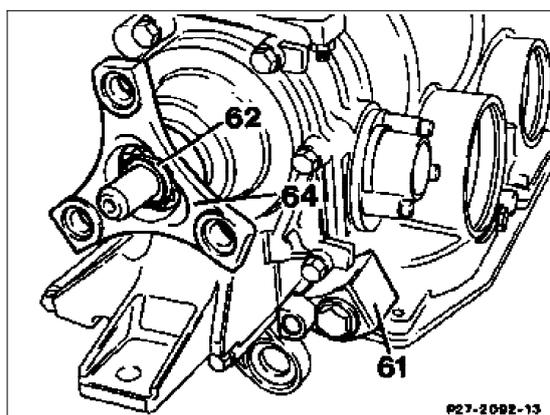
108 Insert O-ring (63) into the joint flange (64).



109 Fit on joint flange (64), tighten twelve-side collar nut (62) to 120 Nm.

110 Knock collar of the twelve-side collar nut (62) into the recess of the output shaft (arrow) with a suitable drift.

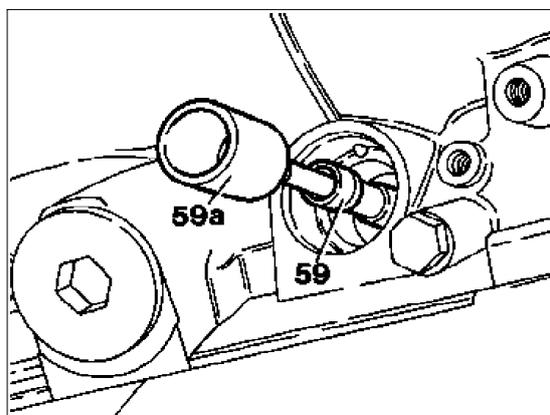
111 Screw in kickdown solenoid valve (61) and tighten to 20 Nm.



112 Insert modulating pressure control valve (59) and thrust pin (59a).

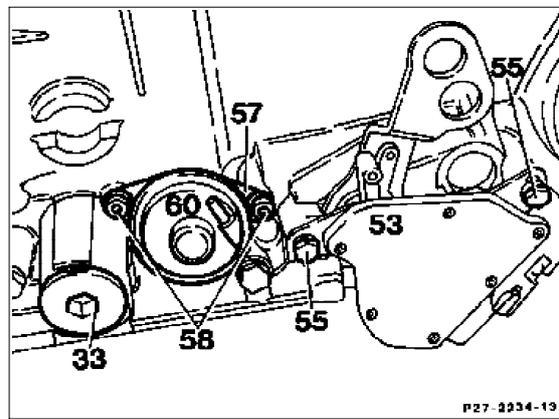
Note

On transmission 722.402 and 722.407, a spring is installed effective End. No. 2201 (refer to 27-425).

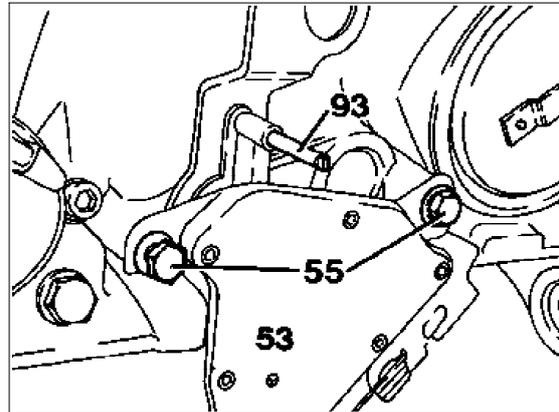


113 Fit on vacuum unit (60) together with retaining plate (57), tighten hexagon socket bolts (58) to 8 Nm.

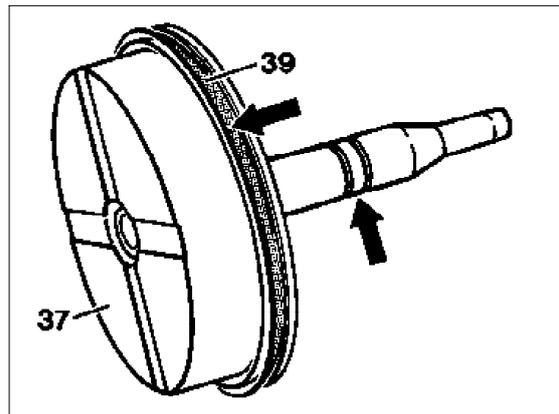
114 Fit on starter lockout switch (53); when performing this step, ensure that the driver (arrow) engages in the range selector lever. Screw in both bolts (55), but do not tighten.



Insert a 4 mm split pin or bit as locating pin (93) through the locating hole into the driver of the starter lockout switch (53). Tighten bolts (55) to 8 Nm and withdraw locating pin.



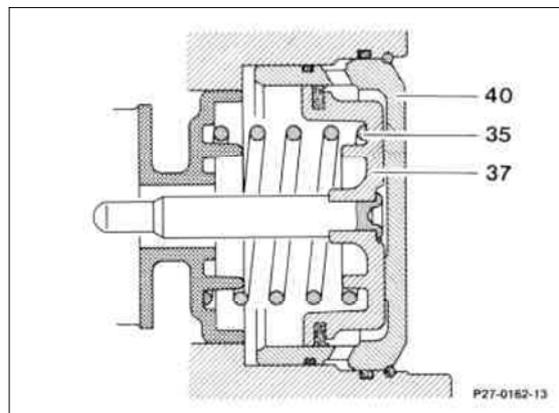
115 Insert lip sealing ring (39) at the brake band piston B1 (37) so that the sealing lip is pointing in the direction of the arrow.



Note

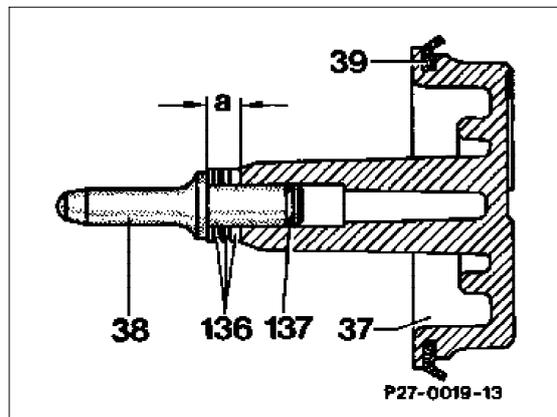
Transmissions 722.403/404/407 have a brake band piston B1 with reduced diameter (56 mm). The brake band piston cover (49) is designed as an insert and accommodates the B1 piston (37).

Measure the play "L" at brake band B1; it does not alter.



Effective Transmission End No. 346 389 a brake band piston with removable thrust pin is installed. The play is set with shims, which are available in 3 thicknesses 0.5, 1.0 and 1.5 mm.

- | | |
|-----|----------------------|
| 37 | Brake band piston B1 |
| 38 | Thrust pin |
| 39 | Lip sealing ring |
| 136 | Shims |
| 137 | O-ring |
| a | max. 6.5 mm |



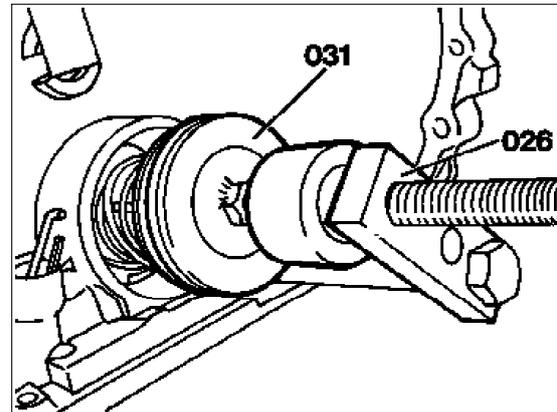
116 Fit on assembly device (026)
201 589 03 59 00 and bolt to transmission housing.

117 Insert brake band piston B1 (37) together with compression springs (35 and 36) and measuring device (031) 201 589 07 21 00.

Note

Spring (36) is not fitted to transmission
722.403/404/407.

118 Screw in spindle of assembly device (026),
ensuring that the thrust pin of the brake band piston
B1 (37) is inserted into the brake band and the lip
sealing ring (39) is not damaged.



119 Insert locking ring, release pressure on
assembly device (026) and take off.

**120 Measuring and adjusting play "L" at
brake band B1**

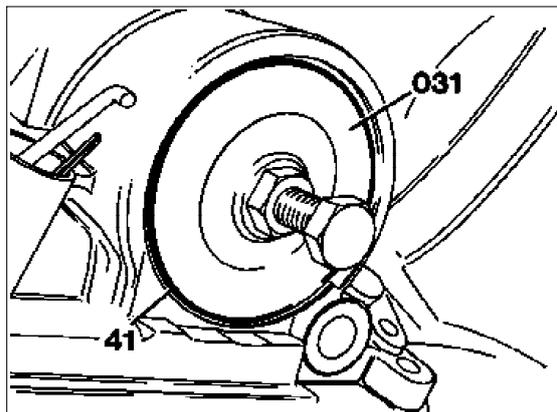
Note

The thread on the measuring device (031) has a 1
mm pitch so that one revolution means 1 mm travel.

Screw in bolt on the measuring device (031) by hand
until a resistance is felt.

Note

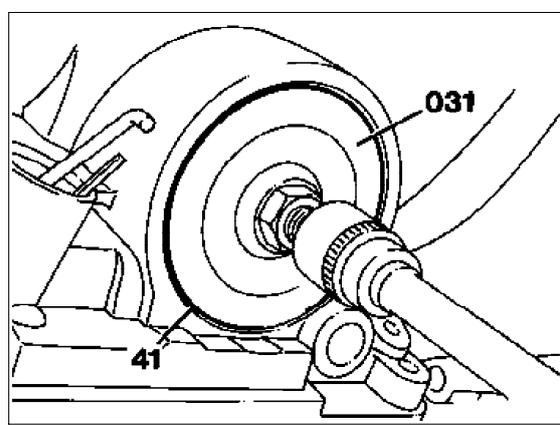
Use a bolt without measuring tip for brake band
pistons with removable thrust pin.



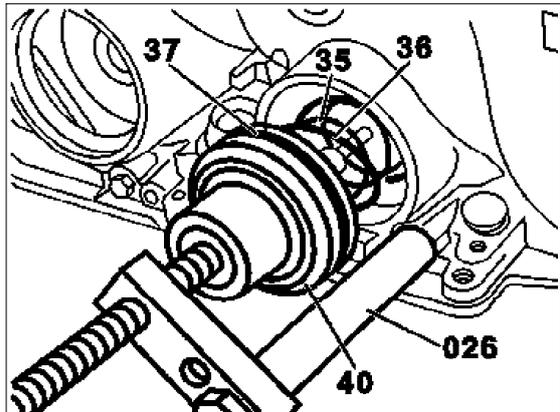
Screw in bolt further with torque wrench, counting the number of turns and torquing bolt to 1 Nm.

Idle travel at brake band must be 1.8 - 2.4 mm, in other words after 1.8 - 2.4 turns a torque of 1 Nm must be reached.

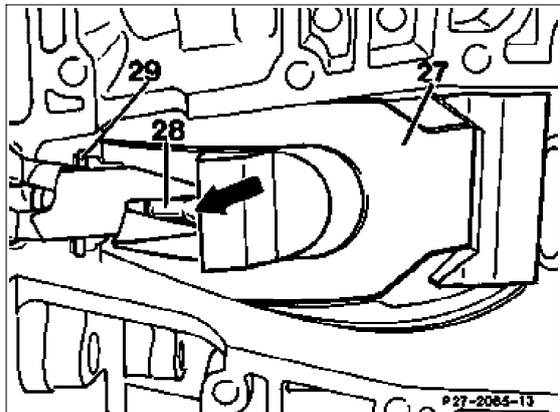
If the idle travel is excessive, install a brake band piston with longer thrust pin or, if idle travel too small, install a brake band piston with shorter thrust pin.



121 Fit on assembly device (026) again and bolt tight. In place of measuring device (031), install brake band piston cover (40), then take off assembly device (026).



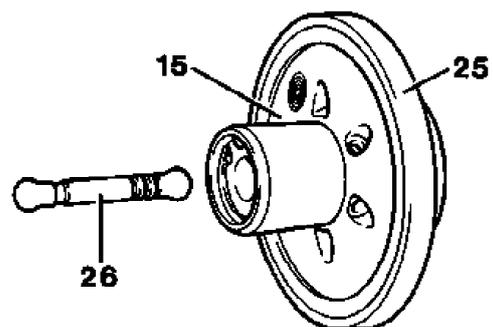
122 Insert thrust pin thrust bearing B2 (28) with the large diameter facing brake band B2 (27).



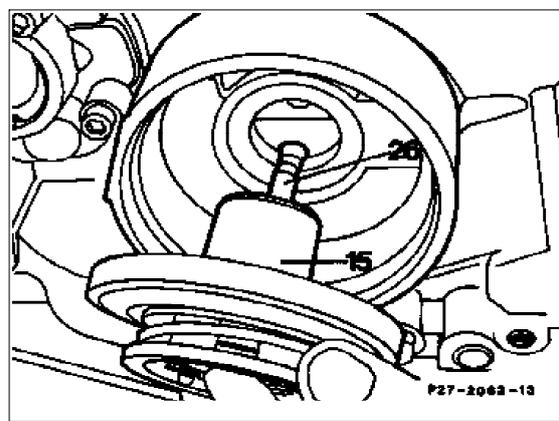
123 Insert thrust pin (26) into the brake band piston B2.

Note

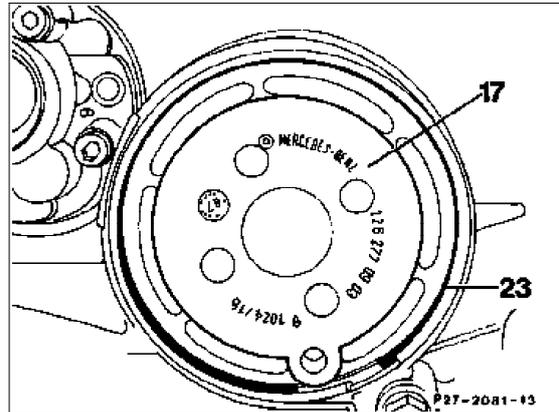
Thrust pins (26) are available in 5 lengths for compensating for the idle travel at brake band B2.



124 Introduce brake band piston B2 (15), ensuring that thrust pin (26) engages in the brake band.



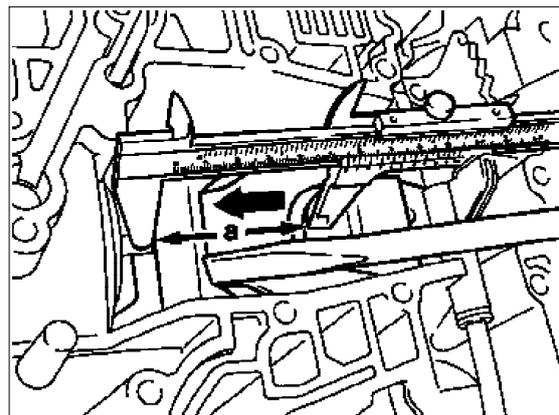
125 Press in brake band piston cover B2 (17) and insert locking ring (23).



126 Measuring and adjusting play "L" at brake band.

Press brake band B2 (27) at the supporting tab toward the brake band piston (in direction of arrow) so that brake band piston is resting against brake band piston cover.

Use a caliper gauge to measure size "a" at the brake band.

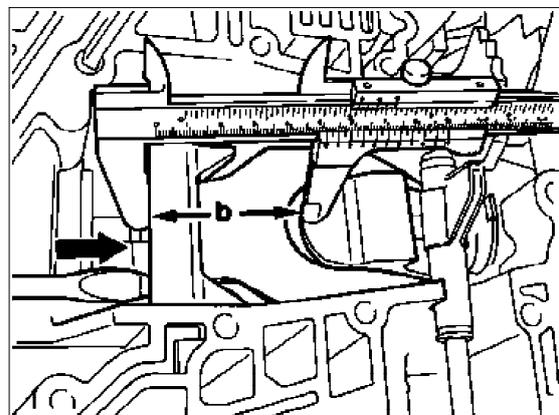


Likewise, press brake band B2 at the supporting tab toward the pressure body (in direction of arrow).

Measure the size "b".

The difference from both measurements produces the play "L".

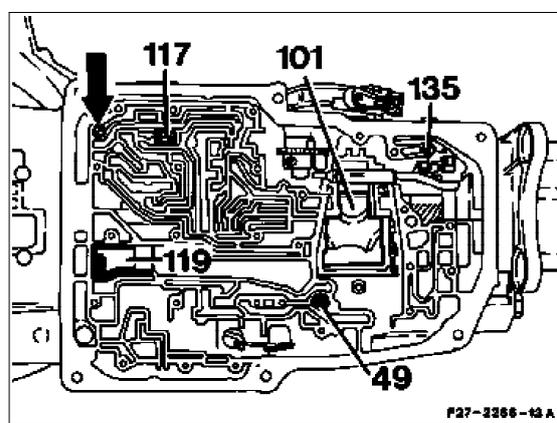
Adjust play "L" to 5.5 - 6 mm by replacing the thrust pin at brake band piston B2.



127 Insert brake band guide B2 (16), one-way valve (49), filler piece (128), locating pin (135), temperature inductor (117) and oil deflector piece (119) into the transmission housing.

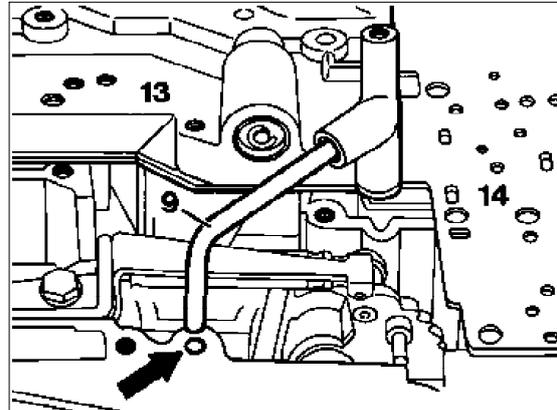
Note

The additional inductor (arrow) has been installed only in the case of repairs.



128 Assemble bottom cover (13) with intermediate plate (14) (27-430).

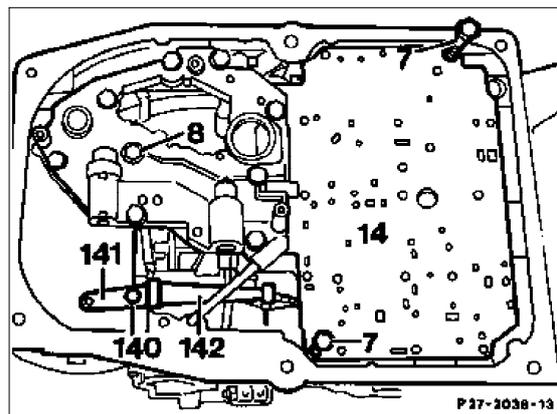
129 Fit on bottom cover (13) with intermediate plate (14), ensuring that the oil pipe (9) is introduced into the hole (arrow).



130 Centre intermediate plate (14) with two bolts (7).

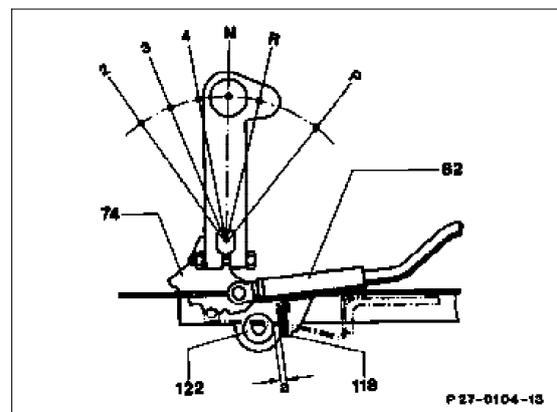
131 Insert bolt-and-washer assys. (8) and tighten to 8 Nm.

132 Fit on detent spring (142) with bracket (141), tighten bolt (140) to 8.5 Nm.

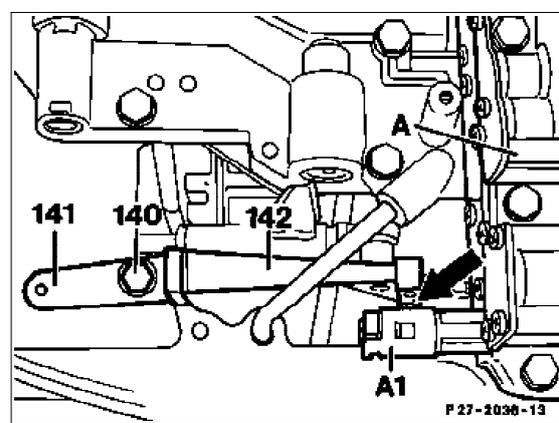


133 Check play "a" between locking piston (122) and the stop on the resilient linkage (82); adjust, if necessary.

The play "a" is set to 0.4 - 1.0 mm in position "N" by means of plastic clip (118). The plastic clip is available in three thicknesses.



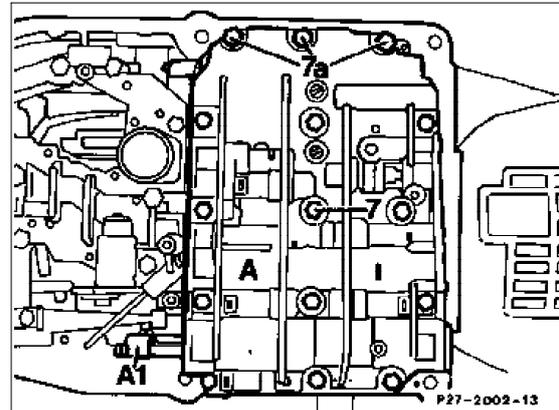
134 Fit on control valve body (A), ensuring the the range selector valve (A1) engages in the driver on the detent plate (arrow).



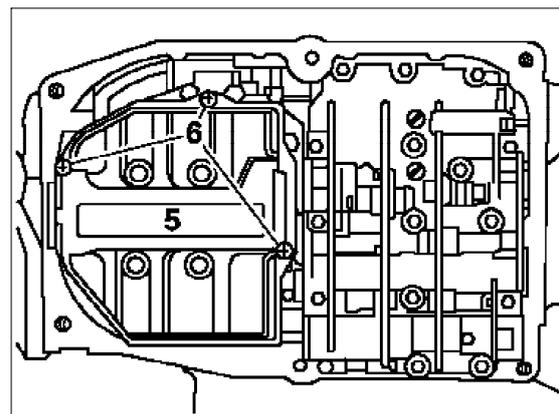
135 Insert bolts (7) and tighten to 8 Nm.



Pay attention to bolt length. The three bolts identified as item 7a are only 50 mm long, the other 12 bolts are 55 mm long.

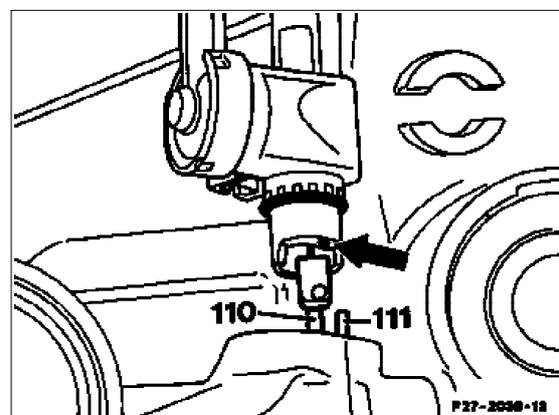


136 Fit on oil filter (5), tighten screws (6) to 4 Nm.

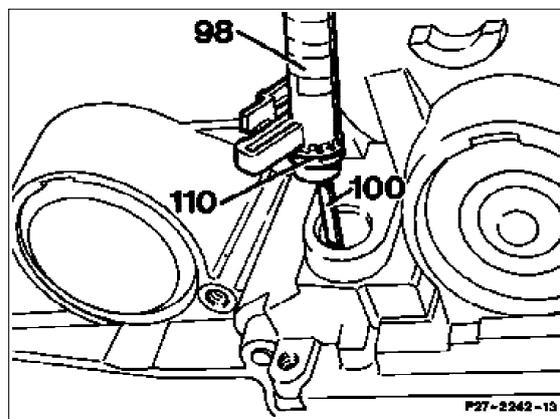


137 Attach control pressure cable with vacuum element to the connecting rod (100), insert limiting rod (111) into the hole (arrow) and insert control pressure cable.

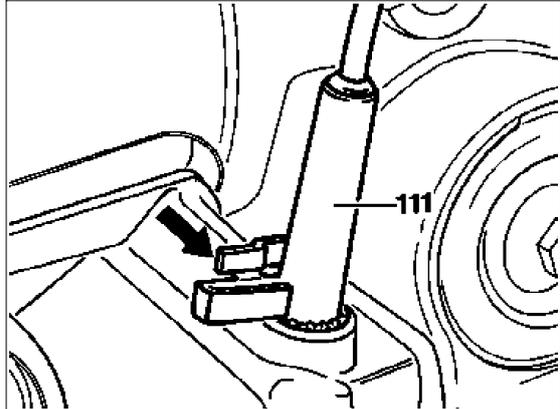
138 Turn control pressure cable until the lock engages.



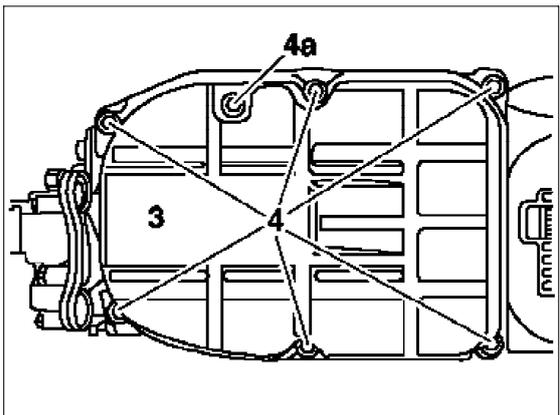
139 Attach cable for control pressure (98) into the connecting rod (100). Check O-ring (110), renew if necessary.



140 Press plastic sleeve (111) of the control pressure cable into the housing. Turn plastic sleeve clockwise until tab (arrow) engages in the housing.



141 Fit on oil sump (3), tighten bolts (4) to 8 Nm.



142 Remove bolt (arrow) and lift transmission out of the assembly pedestal.

After installing, check the transmission for signs of leaks. Check the modulating block also; adjust, if necessary.

