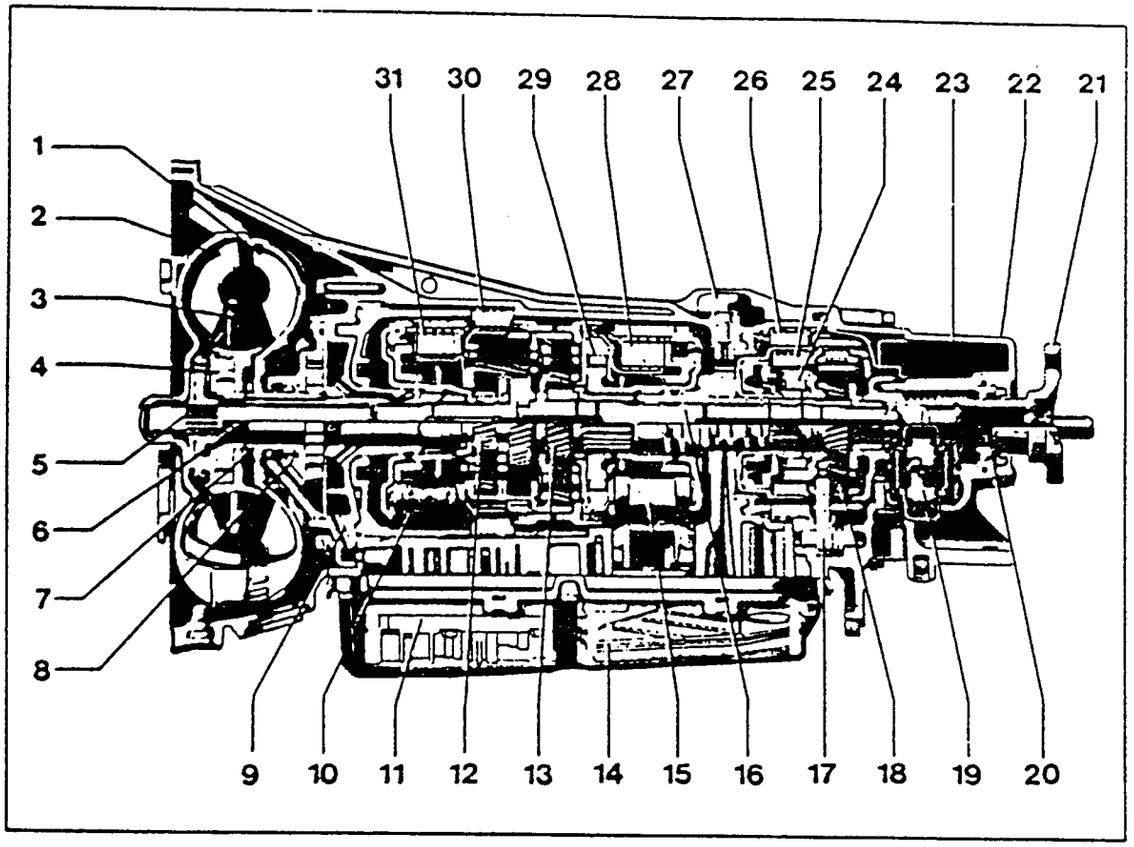
INDEX

722.5 5 Speed



1-Primary Pump Cover
2-Turbine Wheel
3-Impeller
4-One way clutch
5-Input shaft
6-Stator shaft
7-Primary Pump Cover Hub
8-Primary Pump
9-Pump Cover
10-Brake Band 1
11-Valve Body Housing
12-Ravigneaux Planetary gear set
13-Center Planetary gear set
14-Oil Filter
15-Brake band B2
16-Intermediate shaft
17-Park Pawl
18-Rear Planetary Gear Set
19-Governor Assembly
20-Output shaft
21-Output Flange
22-Extension Housing
23-Oil Chamber.
24-One way clutch F2
25-Clutch KS
26-Brake BS
27-Vent
28-Clutch K2
29 -One way Clutch F1
30-Brake B3
31-Clutch K1

CHECK-UP DURING TEST DRIVE

NOTE;
The test methods described are used to check the normal functions of the automatic transmission. Evaluation of the function and any possible malfunctions of the transmission natrually requires experience with automatic transmissions.

Before starting the test, check the oil level in the transmission,the engine idle speed and adjustment of the TV pressure cable(control cable).

During the test try not to exceed continuing shift cycles every 15 seconds. This can cause the unit to over-heat. Heat builds up on the servo elements in the unit.

TEST DRIVE
During the test drive check whether the transmisision shifts in all 5 gear ranges.

A. Shift vehicle to highest gear.
1.Shift selector lever to position"4"
2.Accelerate to 90 km/h
3.Release accelerator pedal to idle position.
4.Then immediately shift selector lever from position "4" to "D"
5.The transmission should shift from 4 to 5
6.Move the selector lever from "D -"4"=transmission should shift 5-4
7.Move selector lever from "4"-"3"=transmission should shift from 4 - 3
8.If transmission down shifts twice =all gears are present.
9.If transmission does not down shift when selector lever is moved from "D"-"4"=one gear is missing.

B.MEASURE SPEED RATIO
10.Speed = 100 km/h
11. Check engine RPM in selector lever positions "3","4", and"D"
3rd gear = approx. 4500 RPM
4th gear = approx. 3150 RPM
5th gear = approx. 2300 RPM
Check missing gear by comparing engine speed.

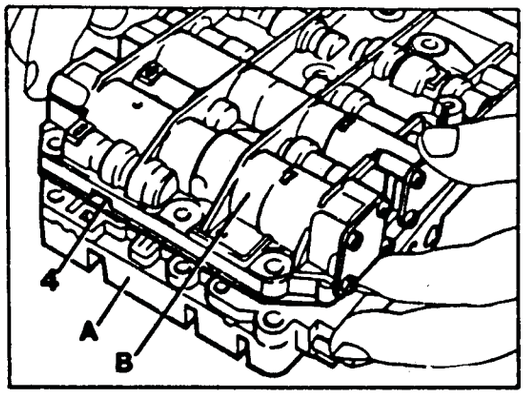
C. In addition to checking shift points check shift feel.

Upshifts at part throttle should be just noticeable. At full throttle or kckdown shift should be clearly noticeable. A revving engine on shifts will indicate that either a band or clutch pack is slipping.

Coast downshifts at very low speed should be noticeable by changes in engine RPM In certain speed ranges part throttle down shifts can occur.

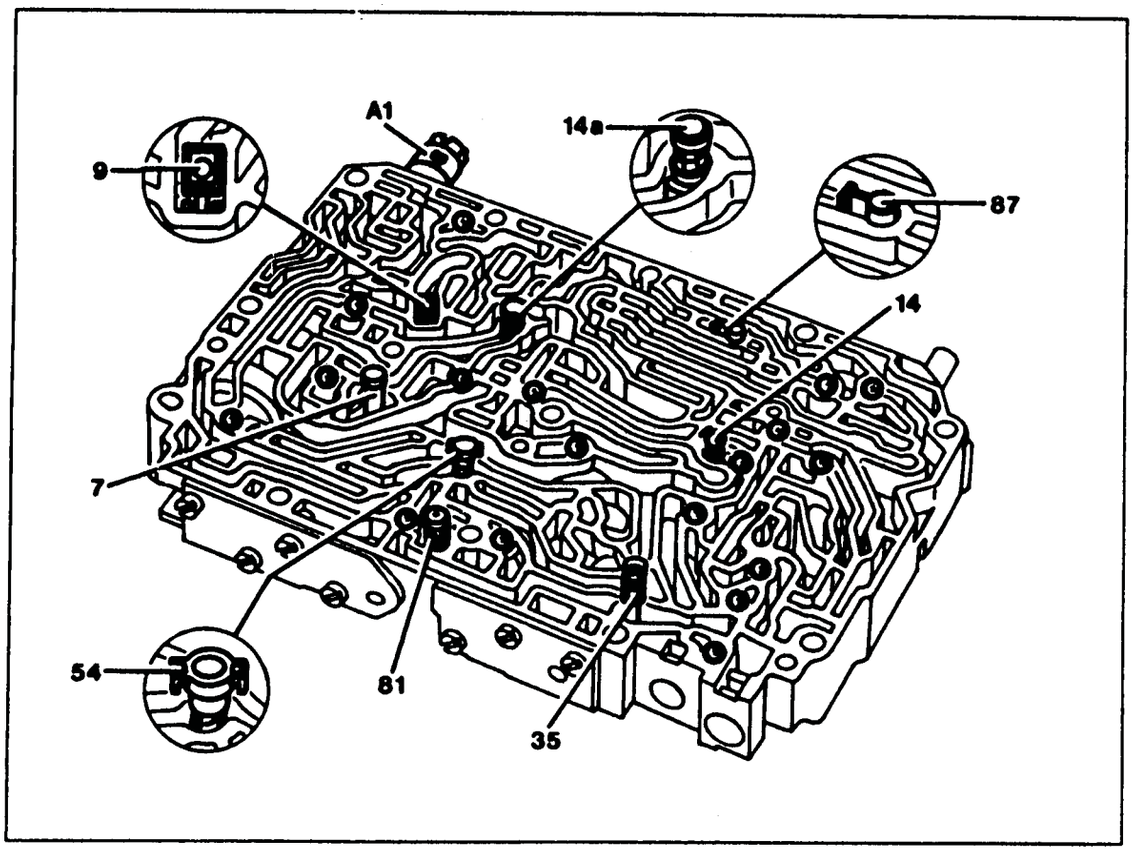
Downshifts with the selector lever are either downshifts with throttle depressed (e.g. uphill) or deceleration downshifts with the throttle released (e.g. downhill or deceleration). Down shifts with throttle released

Carefully lift damper housing (B) together with separator plate (4).



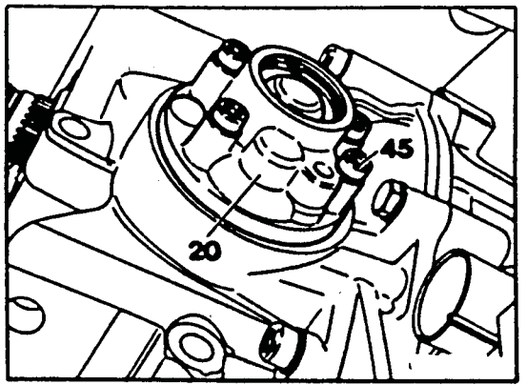
Remove all 19 check balls (14), The valve ball marked with 14 is positioned on a conical spring.

Remove valves, filter and shift pin.



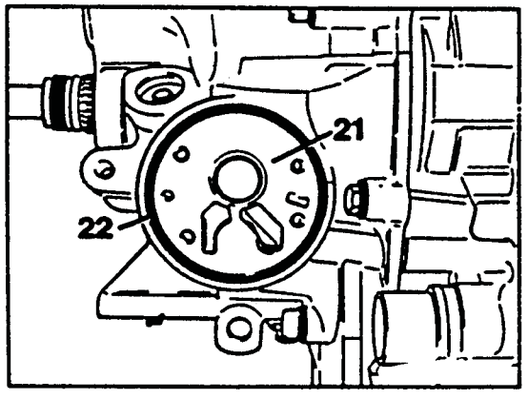
A1 Manual Valve
7 Shift valve K1
9 Check valve (white)
14 check balls (19)
14a Pressure valve
35 Shift pin lube pressure
54 Check valve
81 Sieve filter
87 Throttle Valve

12-Screw out allen screw (45) and remove secondary pump (20)



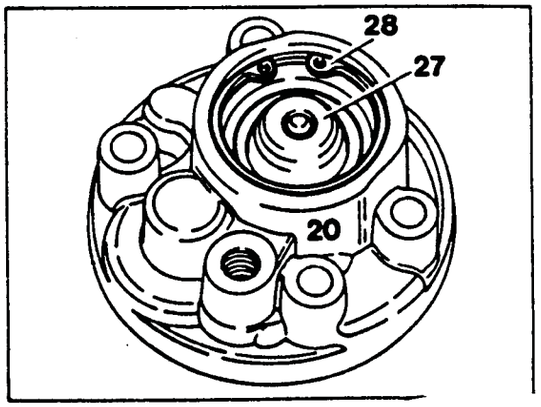
INSTALLATION NOTE
Tighten torque for M6x30 bolt is 8 Nm

13-Remove O-ring (22) and intermediate plate (21) for secondary pump.

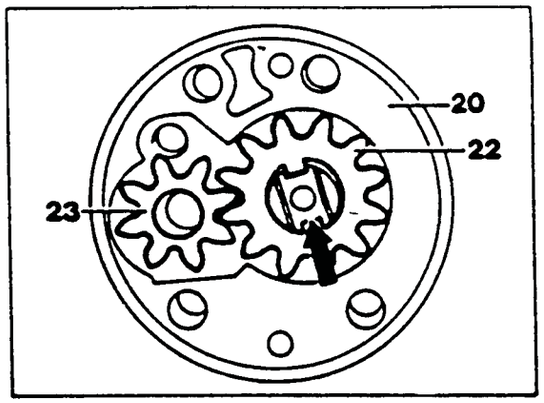


13a-Remove pump from housing.

13b-Remove retaining ring (28) and cover (27).

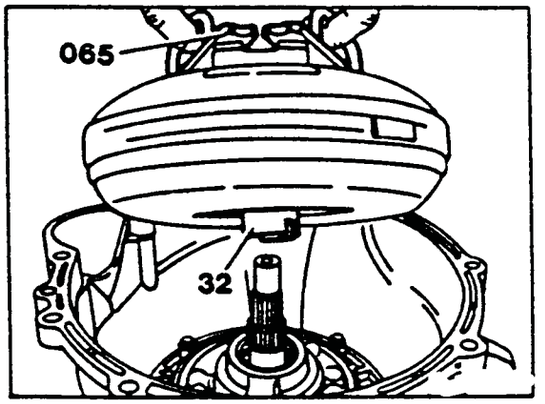


INSTALLATION NOTE:
Oil pump gears(22 and 23) and insert into pump housing. Insert driven pump gear (22) so that drive lug (arrow) points upwards.



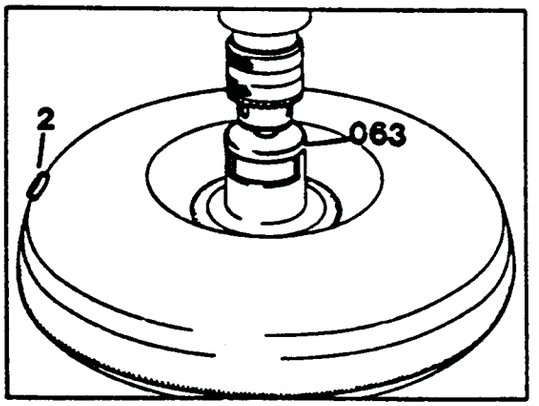
31-Pull out torque converter.

INSTALLATION NOTE:
Grease drive flange (32) and crankshaft bearing journal with molycote. Turn torque converter back and forth when installing to allow teeth to mesh. Insert plastic retaining pin (arrow) and turn 1/4 turn clockwise.

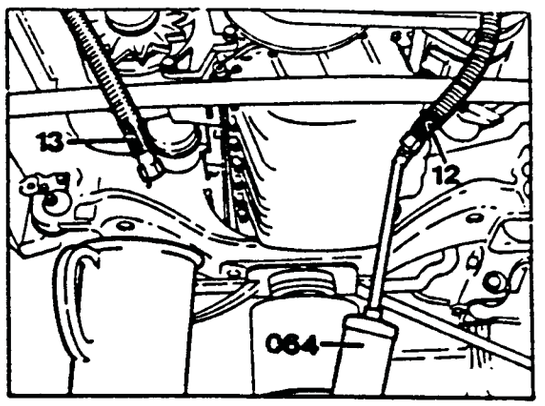


If the transmission oil pan contains metal chips, replace the torque converter. Metal chips cannot be completely removed by flushing the torque converter.

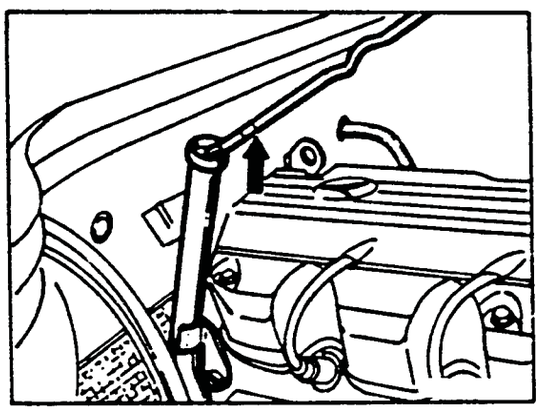
32-Flush torque converter by adding 1 liter of kerosene. Insert flushing mandril (063) (mercedes tool number 116 589 00 15 00) and operate at a low speed for approximately 2 minutes. Then drain kerosene by removing drain plug.
Repeat this procedure 3-4 times until kerosene flowing out is clean.



33-Screw oil cooler to syringe (064) (Mercedes tool number 112 589 00 72 00) and flush with kerosene. Then blow out oil cooler lines and oil lines.

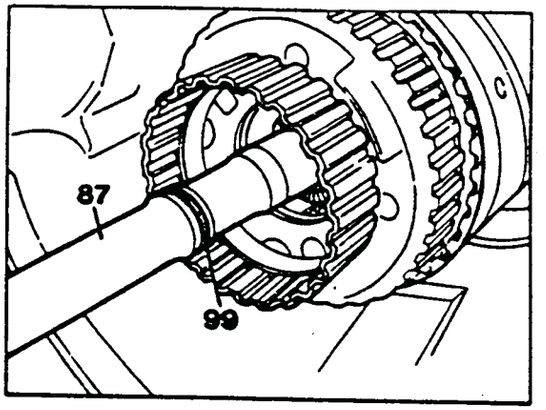


34-Add transmission fluid through filler neck . When the transmission is at operating temperature (80' C.) the oil level should be at the maximum mark (arrow).



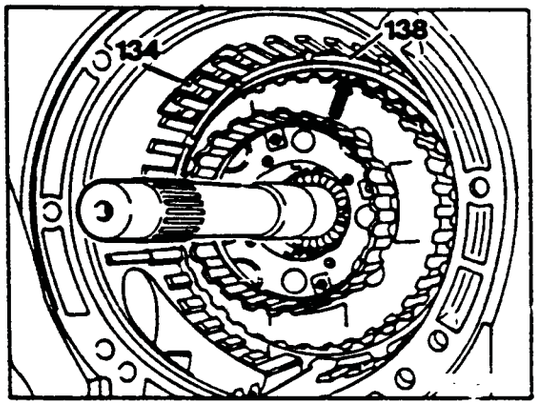
55-Insert planetary gear set into transmission housing while turning input shaft (87).

56-Place transmission in vertical position with input shaft (87) pointing upward.



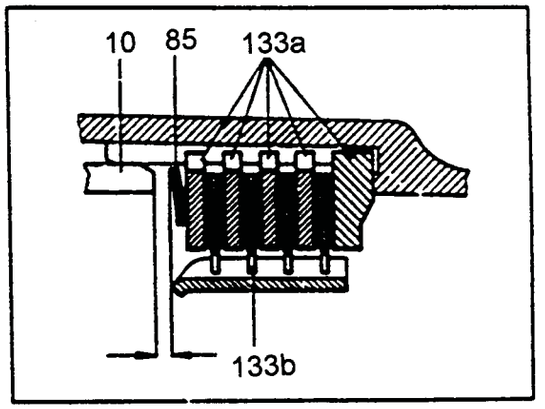
57-Check installed position of planetary gear set. The planetary gear set is installed properly when the upper edge of the front connection support (arrow) is lower than the support surface (138) of the outer disc LE3.

58-Reassemble front cover with the front pump Install damping spring (134).



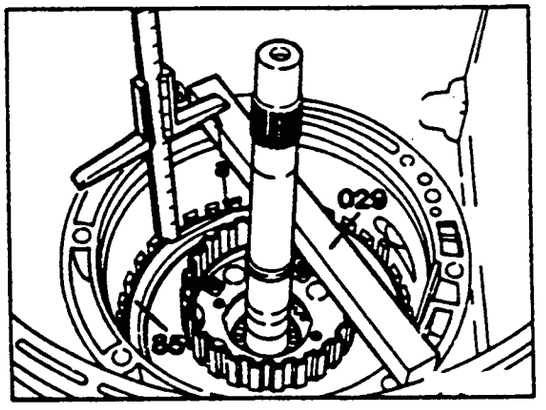
59-Position plates for clutch pack brake B3 in sequence as shown in figure and insert individually..

133b	inner plate
133a	outer plate
85	Plate spring
10	Piston LB3



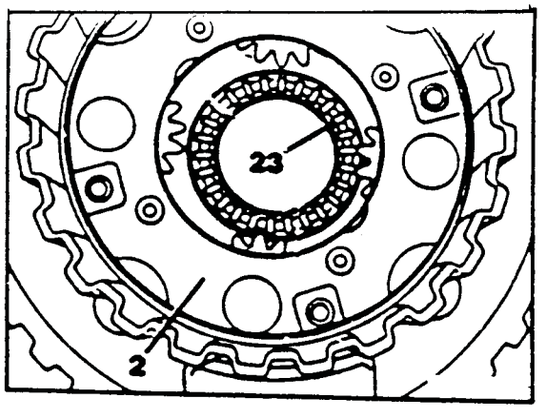
60-Measure release clearance "L" of multiple plate brake B3 and adjust.

Measure dimension "a"
Position paraellel support (029) on machined surface and measure the distance to outer edge of plate spring (85)

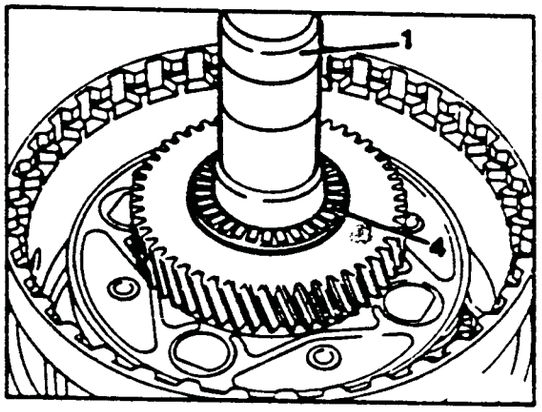


5-Lift front planetary gear assembly (2) up.

6-Remove thrust bearing (23) from planetary gear assembly and check.



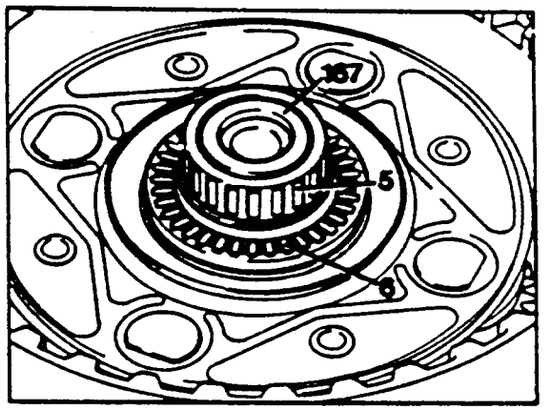
7-Remove thrust bearing (4) and input shaft (1).



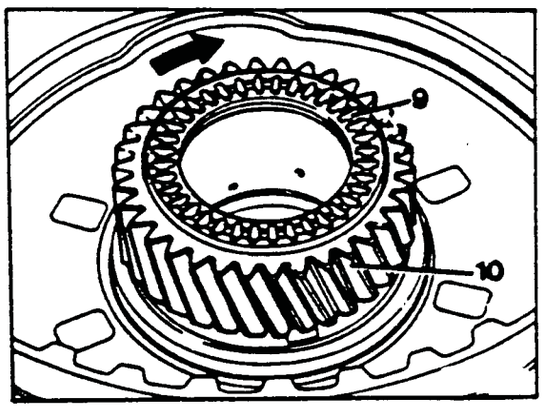
8-Remove radial bearing (5) and thrust bearing (6).

9-Remove intermediate shaft (167).

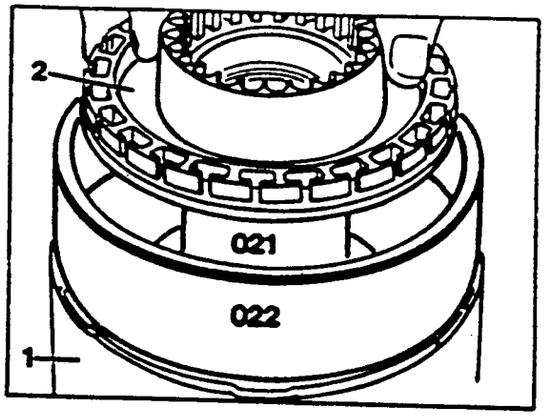
10-Remove thrust bearing (9) and pull out sun gear (10)



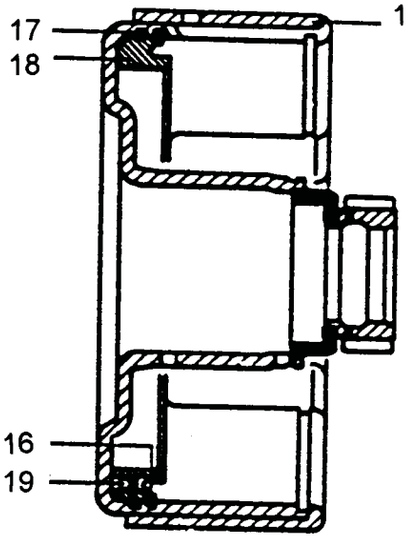
Installation note:
Insert sun gear (10) into one way clutch and turn; the one way clutch should not rotate in the direction of the arrow. The position thrust bearing (9) on sun gear.



7-Coat insertion sleeve and lip seals with transmission fluid and carefully insert piston (2) and press into outer plate carrier (1) without cocking.

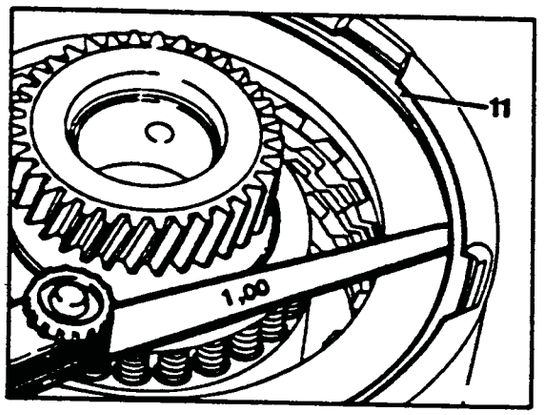


8-Check O-ring (17) between outer plate carrier (1) and piston guide ring (18) for leakage by filling the piston guide ring with a small quanity of kerosene. If the O-ring leaks press out retaining ring (16) remove the piston and replace the lip seal.

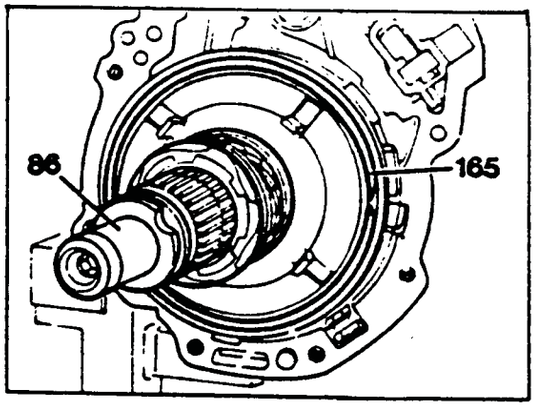


Measurement:
9-Measure play "A" with feeler gauge.

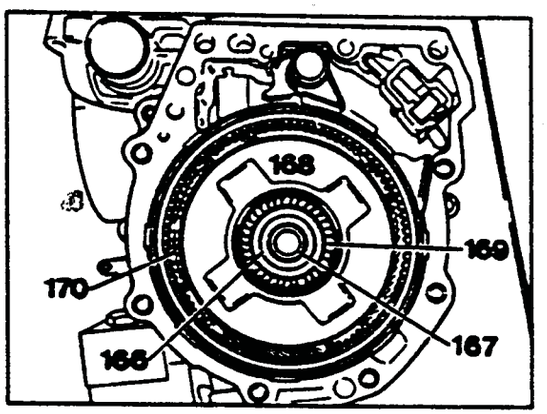
Adjust play "A" with retaining ring (11) available in 3 thicknesses(2.0; 2.5; 3.0 mm). For this purpose machine the groove for the retaining ring to a width of 3.2 mm. If it is not possible to achieve the specified play "A" with the retaining ring (11) alone,additional compensation is possible with the center outer plate. Adjust the release clearance to 0.7-1.3mm.



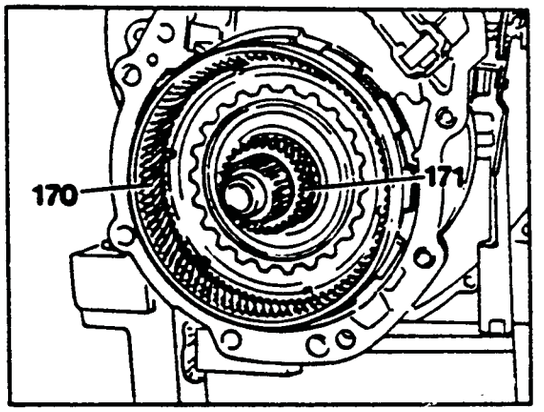
10-Remove retaining ring (165 and output shaft (86).



11-Remove shims (166) from intermediate shaft (167) and planetary gear carrier (168) from ring gear (170). Note position of 2 thrust bearings (169)

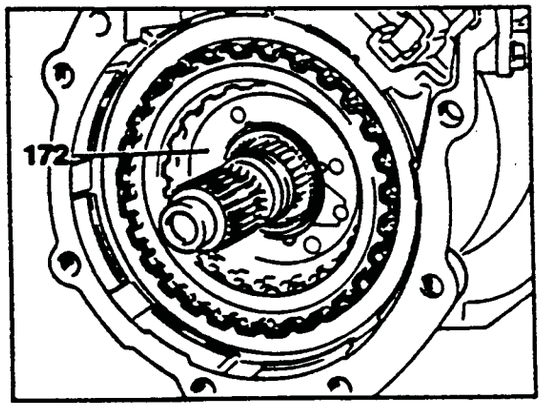


12-Remove sun gear (171) and ring gear (170).



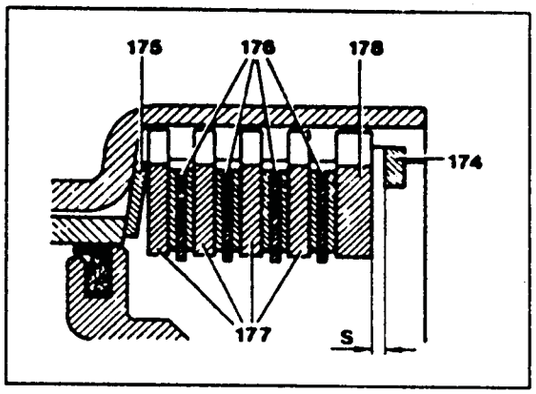
13-Remove plate carrier KS (172) with plate assembly.

14-Disassemble clutch KS.

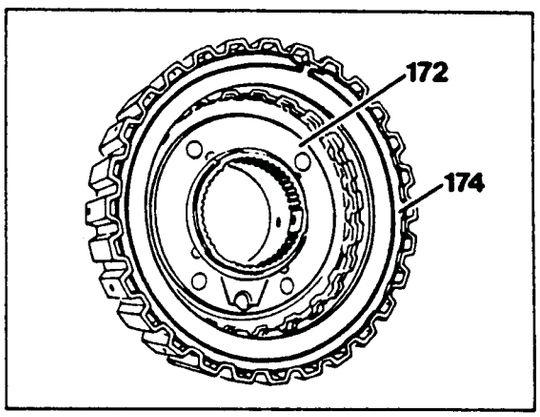


CLUTCH PLATE SEQUENCE

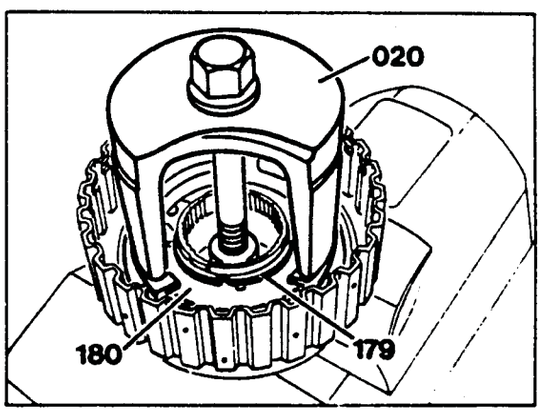
174	**Retaining ring**
175	**Plate spring**
176	**Inner plate**
177/178	**outer plates**



Teardown
1-Remove retaining ring (174) from plate carrier (172) and remove plate assembly.



2-Position assembly device (020) (Mercedes tool 126 589 00 43 00) on plate spring (180) and compress spring until retaing ring (179) is exposed. Remove retaining ring.



Technical Service Information

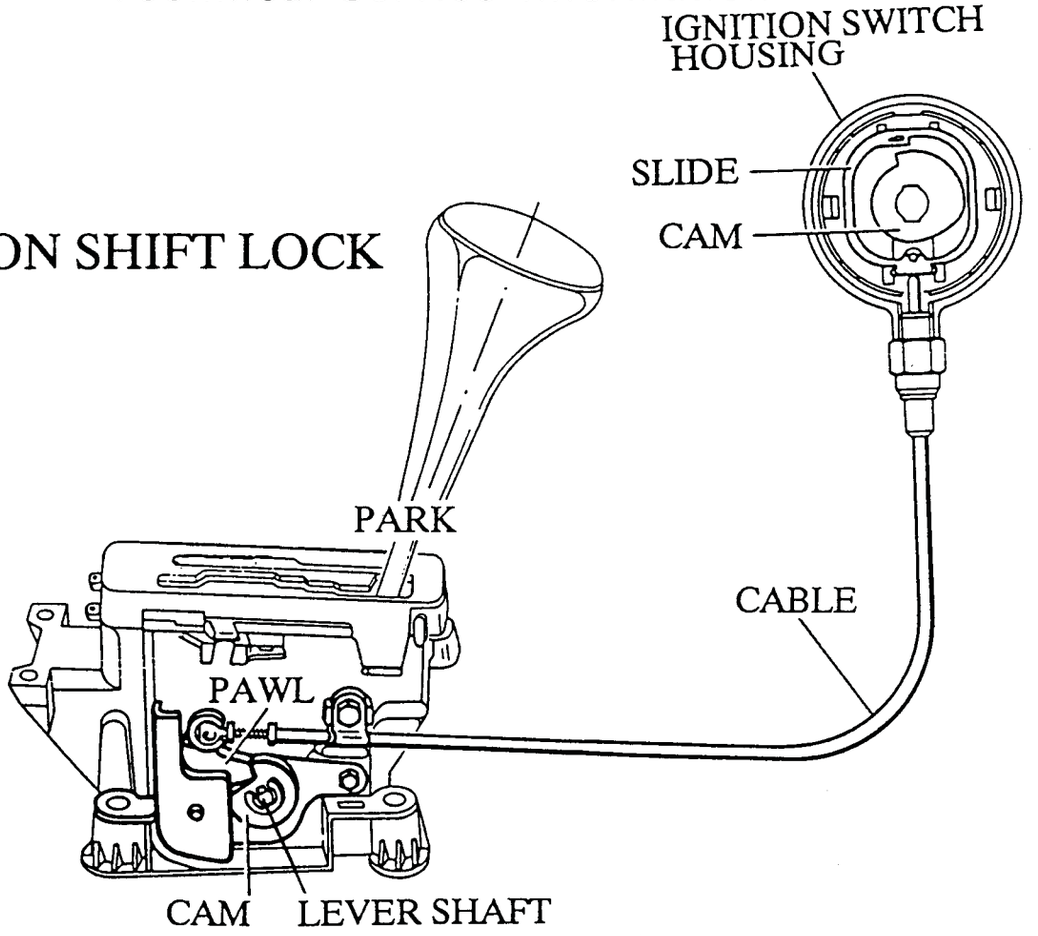
AUTOMATIC TRANSMISSION SYSTEMS

MODEL YEAR 1990

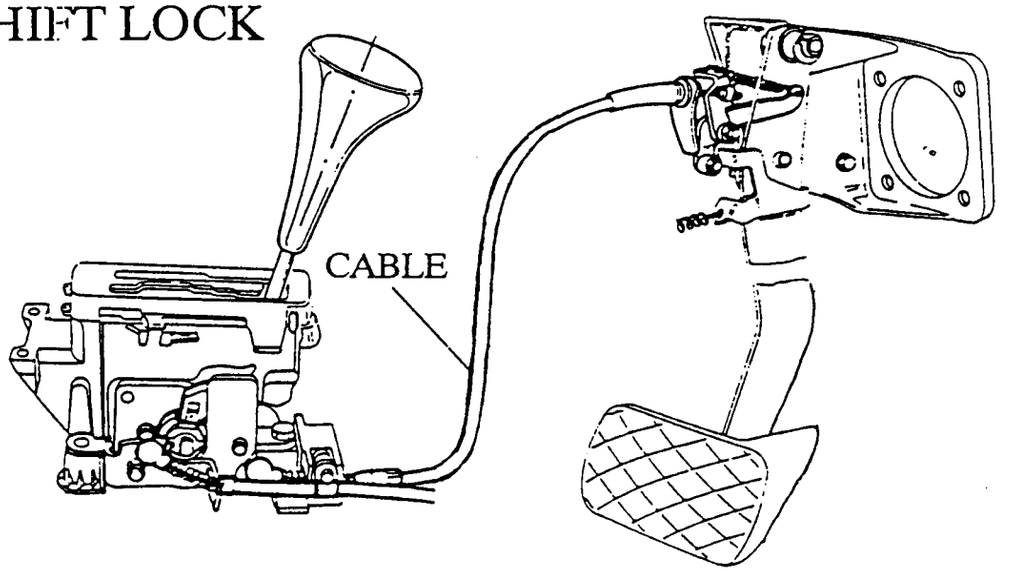
	SHIFT LOCK	OVERLOAD PROTECTION	DELAYED SHIFTING	SHIFT TO 5TH GEAR
190E 2.6 M-103	YES	NO	YES	NO
260E M103	YES	NO	YES	NO
300E M-103	YES	NO	YES	NO
300TE M-103	YES	NO	YES	NO
300CE M-104	YES	YES	YES	NO
300SE/SEL M-103	YES	NO	YES	NO
300SL M-104	YES	YES	YES	YES
500SL M-119	YES	YES	YES	NO
450SEL M-116	YES	NO	NO	NO
560SEL M-117	YES	NO	NO	NO
DIESELS OM-602&603	YES	NO	NO	NO

NOTE: THE SHIFT LOCK WILL BE INSTALLED ON ALL MODELS FOR 1990.
: ADDITIONAL TECHNICAL INFORMATION IS AVAILABLE IN GROUP 27 OF MODEL 1990 AND 129 INTRODUCTION BOOKS

IGNITION SHIFT LOCK



BRAKE SHIFT LOCK



722.353 4 SPEED M-119 ENGINE

722.500 5 SPEED M-104 ENGINE

PURPOSE

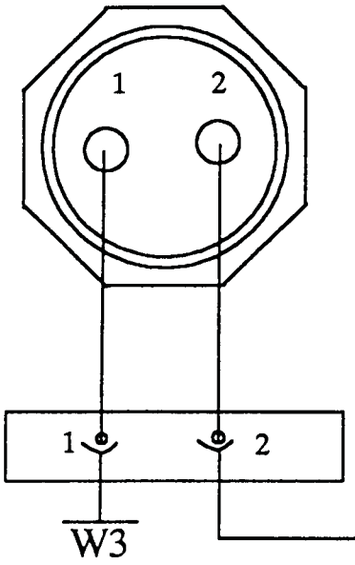
a. Protect transmission from thermal overload.
b. Improves shift quality of 2-3 upshifts at full throttle.

OPERATION

RETARDS IGNITION TIMING FOR 400 MILLISECONDS:
a. 1-2 and 2-3 upshift above 4000 R.P.M..
b. 3-2 down shift at full throttle.
c. The EZL unit receives a signal from S65.
d. Switch S65 is controlled by the reaction valve for band 1.

BACKUP OPERATION

If the EZL unit does not receive a signal from switch S65, the system goes into backup operation.The timing will be retarded for a shorter duration according to engine R.P.M.changes.

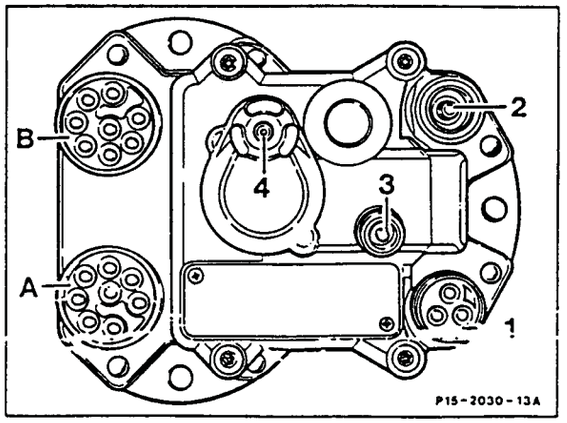


S65 IS LOCATED ON THE GEAR BOX TO THE FRONT OF THE MODULATOR

S65 IS CONTROLLED BY B 1 REACTION VALVE

X22/2 LOCATED UNDER THE DASH TO THE LEFT OF THE STEERING COLUMN ON R-129

N13 (B.3) EZL/AKR UNIT



Test Data

Vehicle Model & (*trans. type*)	Accelerator Pedal Position	Upshift Range (mph) [1]				Downshift Range (mph) [1]				Working Pressure	Governor Pressure		Modulator Pressure
		1→2	2→3 [2]	3→4	4→5 [3]	5→4 [3]	4→3	3→2	2→1		18 mph	56 mph	
124.026 (722.409)	Light Throttle	–	14 – 21	20 – 28	–	–	20 – 13	8 – 11	–	10.9 ± 1.0 bar	0.9 bar	2.4 bar	3.3 bar
	Full Throttle	15 – 24	46 – 60	79 – 94	–	–	54 – 67	21 – 29	9 – 14				
	Kickdown	24 – 31	52 – 62	86 – 97	–	–	75 – 92	42 – 58	16 – 22				
124.128 (722.418)	Light Throttle	10 – 13	13 – 19	20 – 26	–	–	14 – 19	10 – 13	7 – 9	15.6 ± 1.0 bar	0.9 bar	2.5 bar	3.25 bar
	Full Throttle	21 – 27	41 – 51	76 – 83	–	–	50 – 56	23 – 28	12 – 16				
	Kickdown	26 – 29	50 – 52	81 – 83	–	–	71 – 79	38 – 46	22 – 26				
129.061 (722.500)	Light Throttle	–	13 – 20	23 – 30	45 – 52	26 – 33	15 – 23	9 – 13	–	12.7 ± 1.0 bar	0.9 bar	2.3 bar	3.8 bar
	Full Throttle	16 – 25	46 – 58	65 – 88	129 – 143	110 – 123	50 – 60	22 – 30	11 –				
	Kickdown	35 – 37	60 – 60	86 – 96	129 – 143	122 – 136	77 – 92	46 – 58	22 – 22				
201.029 (722.409)	Light Throttle	–	13 – 19	20 – 26	–	–	13 – 19	8 – 11	–	10.9 ± 1.0 bar	0.9 bar	2.4 bar	3.3 bar
	Full Throttle	14 – 22	43 – 56	74 – 88	–	–	51 – 63	21 – 27	8 – 13				
	Kickdown	22 – 29	50 – 58	81 – 91	–	–	70 – 86	40 – 54	16 – 20				

[1] The speeds given in the chart above are given as reference, and are not intended for use as guidelines in an actual road test. MBNA does not require nor recommend testing, on public roads, which exceeds posted state speed limits. Such testing should be conducted on a test track or dynamometer.

[2] Delayed 2→3 upshift range at light throttle with low engine coolant temperatures occurs at:
(models 124.026, 129.061, 201.029) 26 – 31

[3] Model 129.061 only.

Test Results (to be filled in by Technician)

Vehicle Model & (*trans. type*)	Accelerator Pedal Position	Upshift Range (mph)				Downshift Range (mph)				Working Pressure	Governor Pressure		Modulator Pressure
		1→2	2→3	3→4	4→5	5→4	3→4	3→2	2→1		18 mph	56 mph	
	Light Throttle												
	Full Throttle												
	Kickdown												