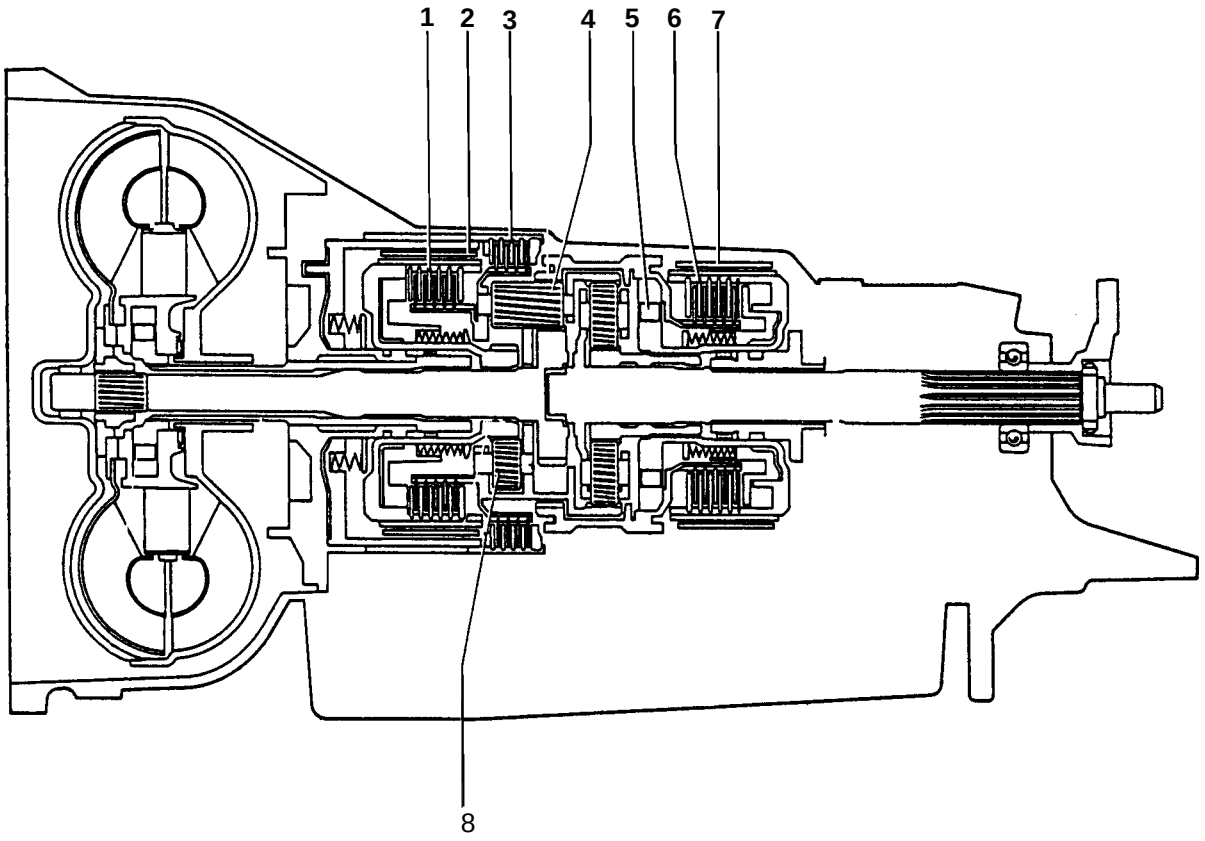
# Mercedes 722.3  722.4



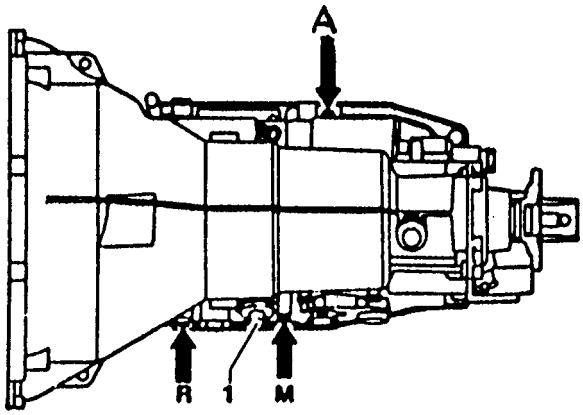

**1** - Clutch K 1
**2** - Brake Band B 1
**3** - Disc Brake B 3
**4** - Wide Planet Pinion
**5** - One-Way Clutch F
**6** - Clutch K 2
**7** - Brake Band B 2
**8** - Narrow Planet Pinion

| | Int. Band | Fwd. Band | Rev. Clutch | Direct Clutch | 4th Clutch | OWC | |
|---|---|---|---|---|---|---|---|
| **Speed** | **B 1** | **B 2** | **B 3** | **K 1** | **K 2** | **F** | **Reduction** |
| 1 | | X | | | (X) | X | 3.68 |
| 2 | X | X | | | | | 2.41 |
| 3 | | X | | X | | | 1.44 |
| 4 | | | | X | X | | 1 |
| R | | | X | | (X) | X | 5.14 |

(X) K 2 bridges the one-way clutch during deceleration (coasting).

**Reference Chart:**

| | | |
|---|---|---|
| B1/Intermediate | B3/Reverse | K2/4th |
| B2/Forward | K1/Direct | F/Low One Way Clutch |

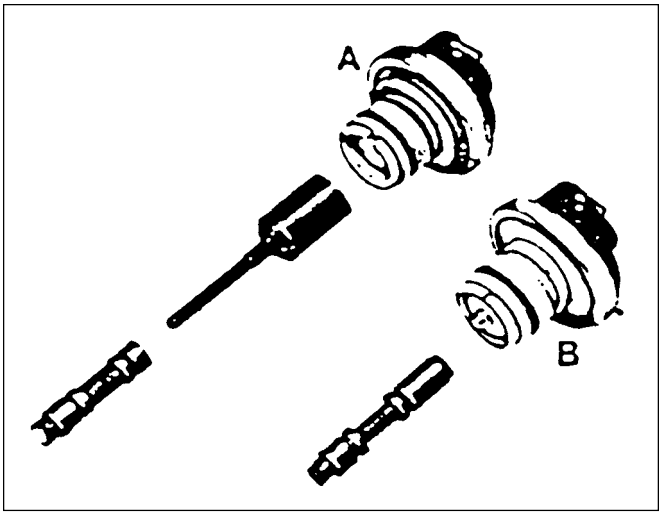



A - Working Line pressure
M - Modulating Pressure
R - Governor Pressure
1 - Vacuum Control Unit

Modulator Pressure: Adjusted W/ a gauge no vacuum, in drive @ specified MPH use supplied chart for proper modulator usage & pressures.

Line Pressure 75-90 PSI in Drive @ Idle
160-195 PSI @ Stall in Drive
Governor Pressure: 1/2-2/3 of Road Speed
Example @30MPH Governor Pressure
Should be Approx. 15-20 PSI

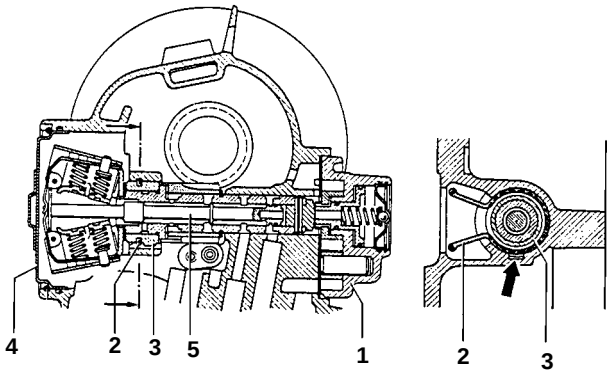
Vacuum control unit version "B" has been installed up to February 1981. Starting February 1981 the vacuum control unit with the thrust pin for heat expansion compensation version "A" is installed.
**Update to the late version on overhaul**




| 722.3 Models Version | Set @ 31 MPH Color | PSI |
|---|---|---|
| .301 | Green | 51 |
| .303 | Green | 42 |
| .304 | Red | 51 |
| .309 | Red | 41 |
| .310 | Red | 57 |
| .311 | White | 48 |
| .312 | Red | 54 |
| .313 | Red | 58 |
| .315 | Green | 42 |
| .317 | Black | 46 |
| .320 | Black | 57 |
| .321 | Black | 46 |
| .323 | Red | 58 |
| .324 | Green | 52 |
| .342 | Black | 58 |
| .350 | Black | 55 |
| .351 | Black | 58 |
| .352 | Red | 55 |
| .353 | Black | 59 |
| .355 | Black | 55 |
| .358 | Black | 58 |
| .359 | Red | 55 |
| .361 | Red | 55 |

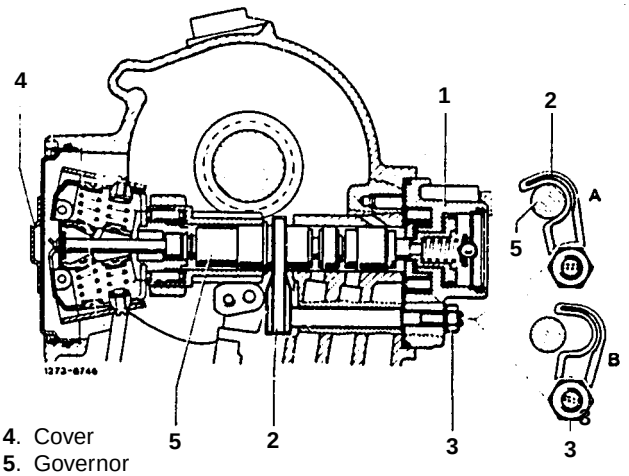
| 722.4 Models Version | Set @ 31 MPH Color | PSI |
|---|---|---|
| .400 | Green | 46 |
| .403 | Green | 44 |
| .408 | Green | 57 |
| .409 | Red | 48 |
| .410 | Green | 51 |
| .413 | Red | 47 |
| .414 | Brown | 41 |
| .416 | Black | 44 |
| .418 | Red* | 47* To serial #813648 |
| | Black* | 47** From Serial #813649 |

### Governor Assembly 722.4




**1**. Secondary Pump
**2**. Lock Ring
**3**. Bearing Ring

### Governor Assembly 722.3




**4**. Cover
**5**. Governor

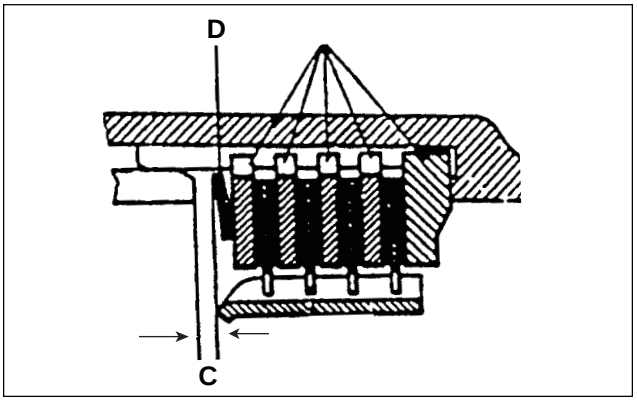
## B3 Clutch Clearance

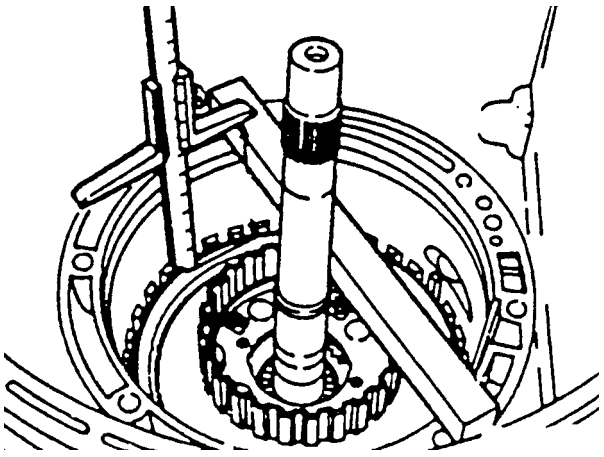
**Measurement "A"**
Position Gauge Bar on Case Surface.
Measure Distance to Edge of B3 Plate Spring. (D)

**Measurement "B"**
Position Gauge Bar on B3 Piston. (E)
Measure Distance to Installed Gasket

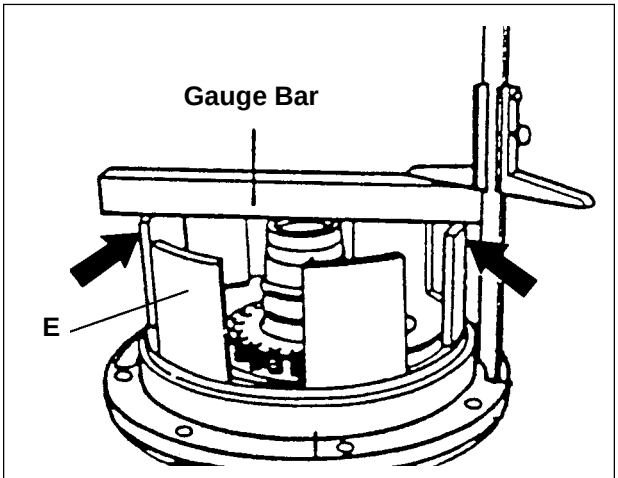
"A" - "B" = "C"
"C" = 1.5 - 2.0mm / .059" - .079"

### Measurement "A" Detail



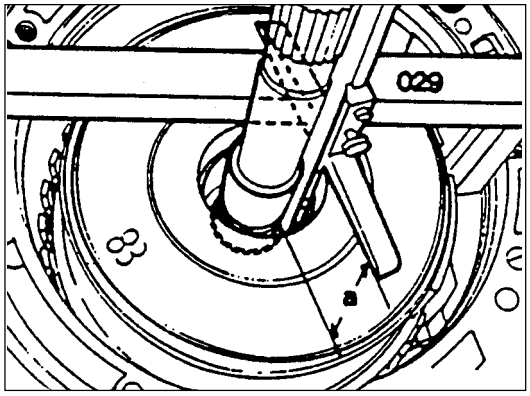



**Measurement "A"**

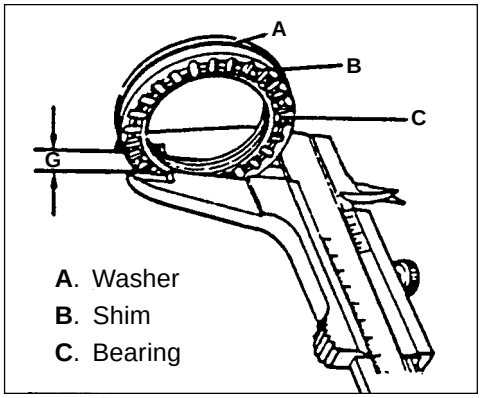



**Measurement "B"**

**Measurement "F" Detail**



**Measurement "H" Detail**



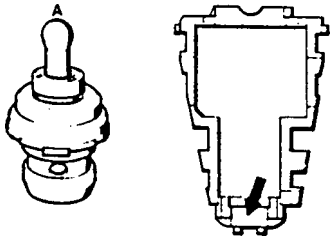

## K1 to Pump Clearance

Measurement "B" (Previous Page)
Position Gauge Bar on B3 Piston.
Measure Distance to Installed Gasket.

Measurement "F"
Position Gauge Bar on Case Surface.
Measure Distance to K1 Thrust Surface

Measurement "G"
Add K1 Shim, Thrust Bearing & Washer Thickness' Together

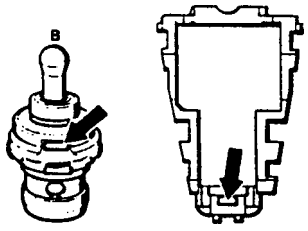
"B" - "F" - "G" = "H"
"H" = 0.4 - 0.6mm / .016" - .024"
W/Rear Housing Installed




### Version "A"

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

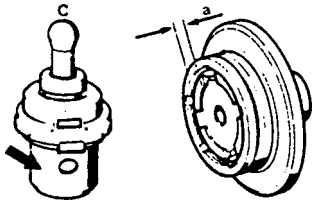
Installed up to transmission serial No. 377 682




### 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 serial No. 377 683

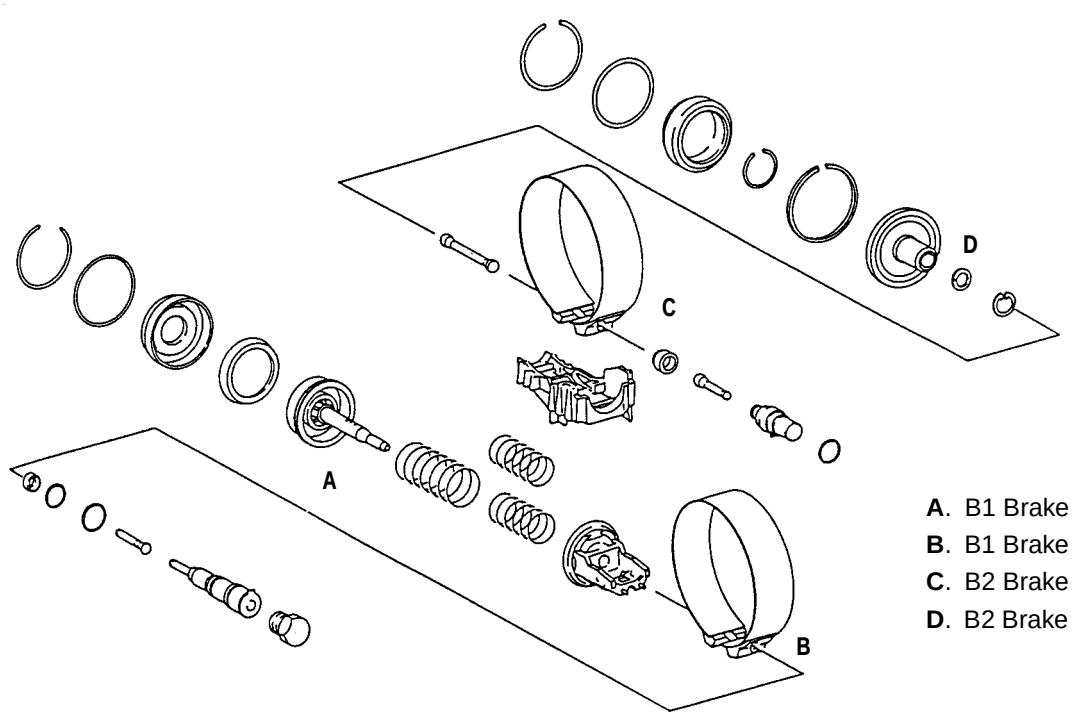



### Version "C"

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 2.6-2.8mm; was 3.4-3.6 mm.

Installed effective Transmission serial No. 451 986

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




**A**. B1 Brake Servo
**B**. B1 Brake Band
**C**. B2 Brake Band
**D**. B2 Brake Servo

**Fig. 1**

## B2 Brake Band Adjustment.

Install Servo Cover & Ring

Press band toward band piston - direction of arrow so that piston contacts cover. (Fig. 1)

Measure dimension "A" on brake band

Press band toward thrust element - in direction of arrow until it bottoms (Fig. 2)

Measure dimension "B" on brake band

Measured A - B = C. C = Brake band travel
5.5 - 6.0mm / .217" - .236"

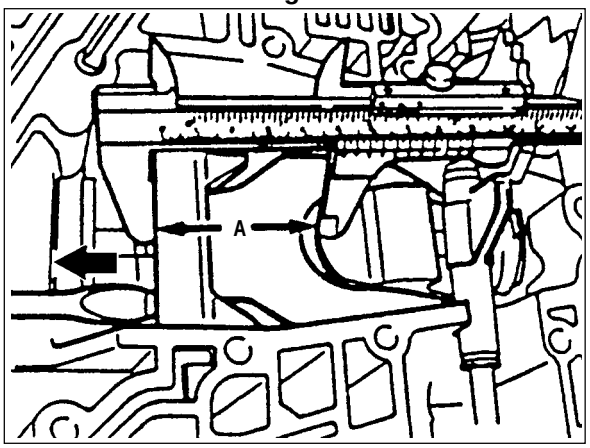
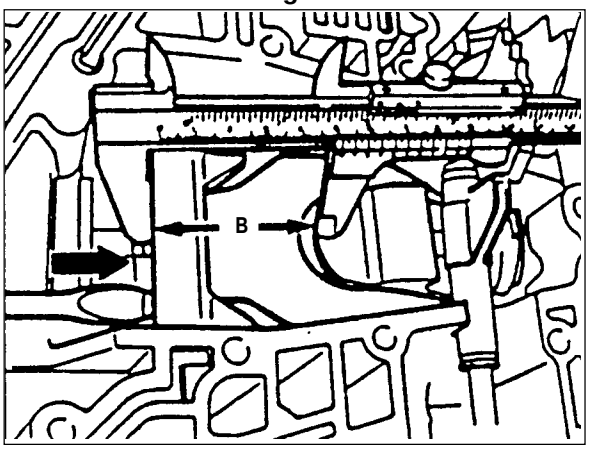
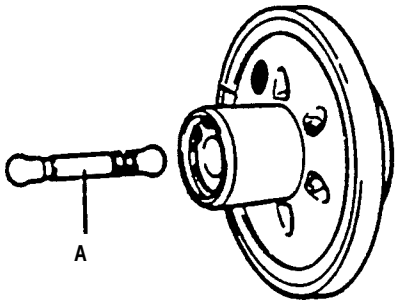
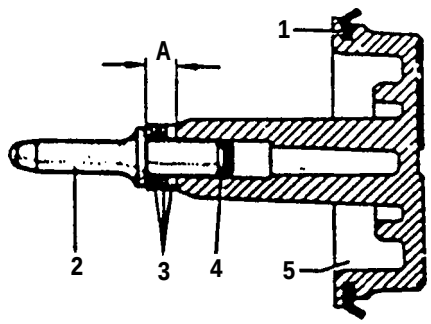



**Fig. 2**



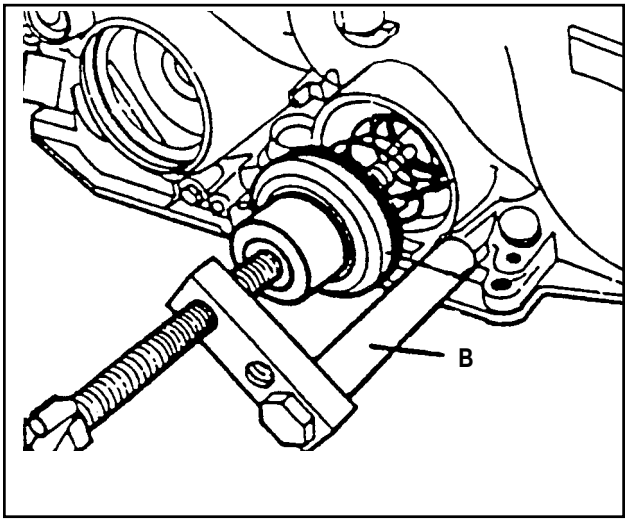




Note: Thrust pins (A) are available with lengths of 47.2; 48.8 and 49.6 mm for brake band B2 1.858", 1.921" & 1.953"



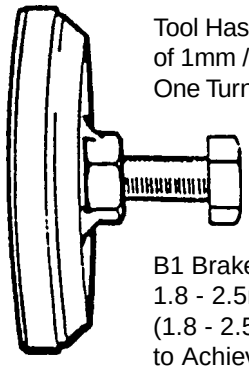

**B1 Brake Band Piston**

**1**. Piston Seal, Lip Type
**2**. Thrust Pin
**3**. Adjustment Shims
**4**. O-Ring
**5**. Piston, B1



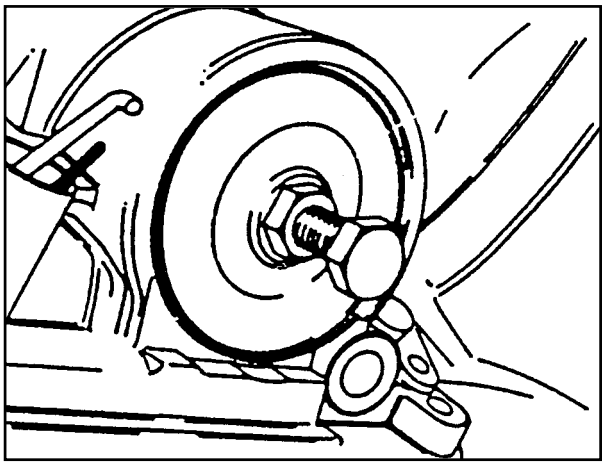

**A**: Servo Adjustment Shims Not to Exceed 6.5mm / .256"

**B**: Servo Assembly/Disassembly Tool, Mercedes #125 589 06 21 00 or Equivalent



Tool Has a Bolt Thread Pitch
of 1mm / .040"
One Turn = A Distance of 1mm / .040"

B1 Brake Band Travel
1.8 - 2.5mm / .071" - .098"
(1.8 - 2.5 Turns of the Bolt
to Achieve 1Nm / .225 Ft. Lb)

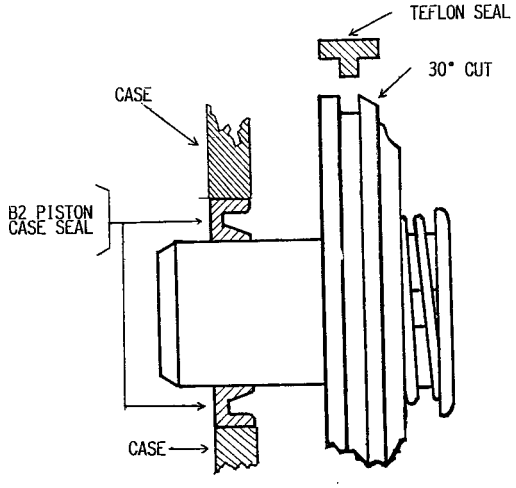


Delayed Engagement in all Forward Ranges May be Due to the "T" Type B2 Brake Piston Seal

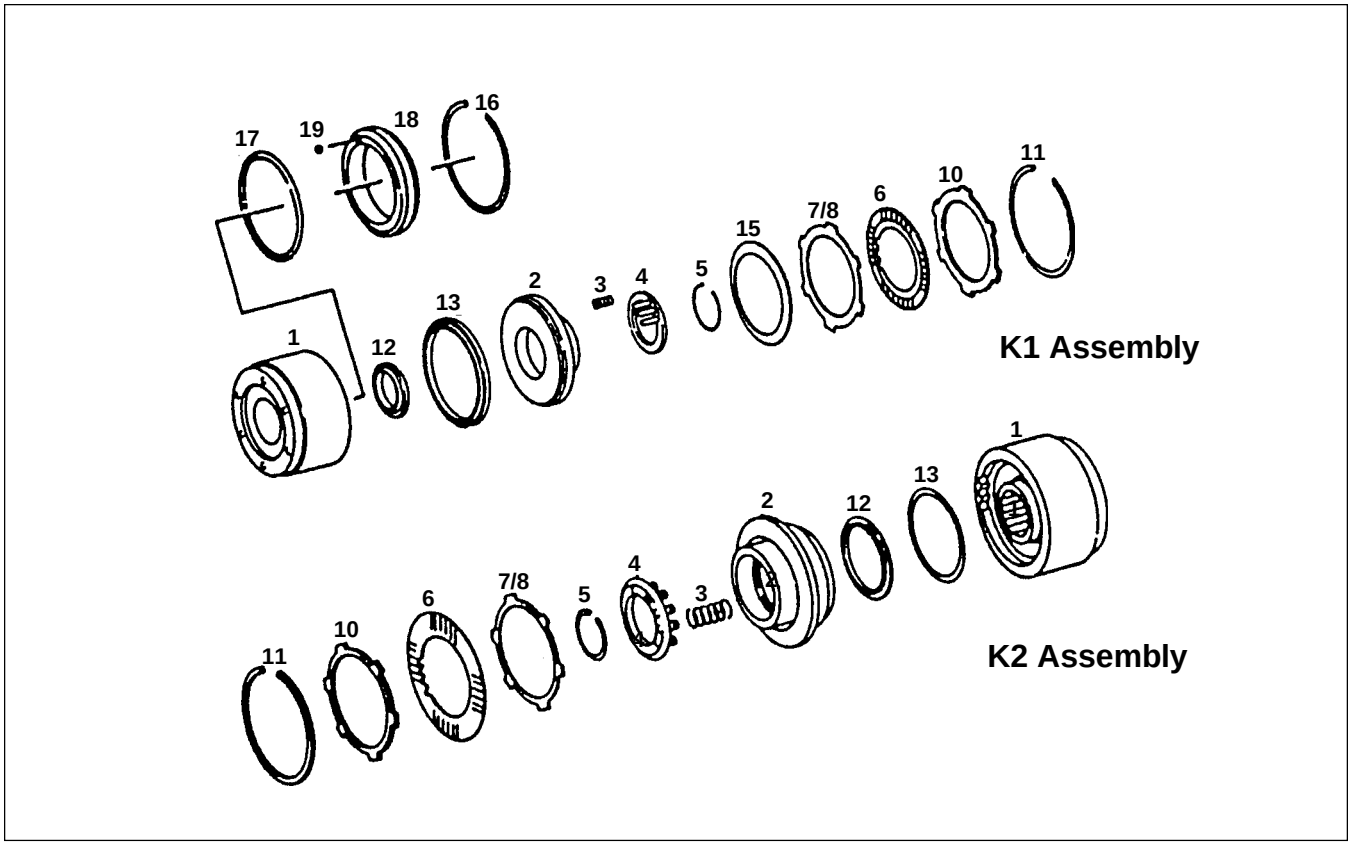
The "T" Type Seal is not as Flexible and May Not Seal Well Against the Servo Bore.

By Grinding a 30 Degree Champher Around the Outer Land on the Piston - See Illustration

This Will Allow Additional Oil Pressure to Directly Affect the Piston Seal During the Apply




Mario Aristides Independent Transmission




## Replacing K1 & K2 Aluminum Support O-Ring In Mercedes 722.3 And 722.4

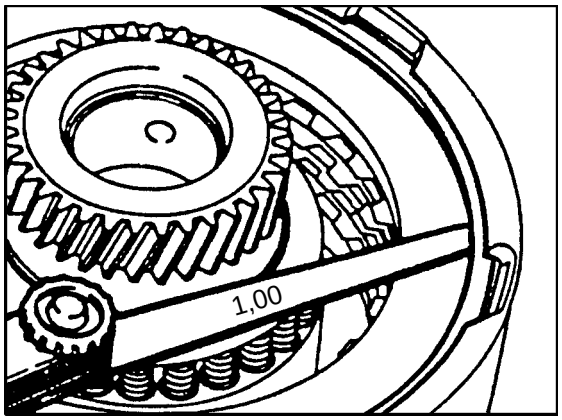
**Read Complete Instructions Carefully And Completely Before Replacing O-Ring.**

### K1 Aluminum Support O-Ring Replacement

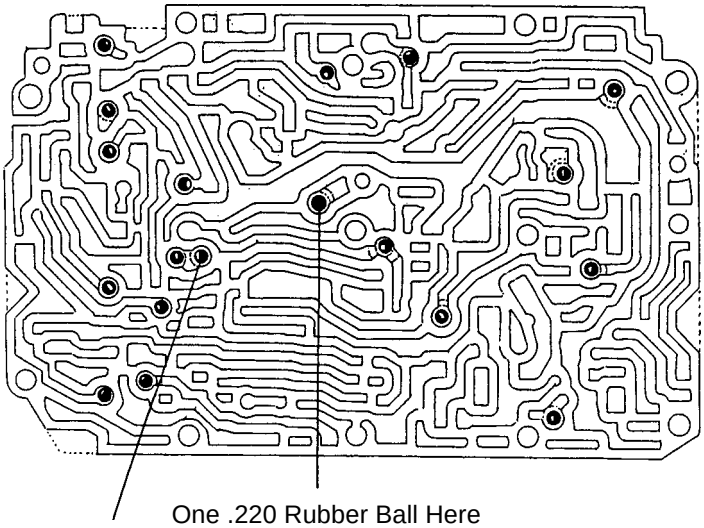
1. Remove three rivets from the drum holding the support to the drum.
2. Drill the holes in the aluminum to 3/16".
3. Counter sink the area on the inside of the support where the head of the bolt meets the support. **The head of the bolt needs to be recessed in the support so that the bolt doesn't interfere with the piston travel.**
4. Tap the three holes in the drum with a 10-32 machine tap and clean all parts thoroughly.
5. Place the new O-Ring in the support groove using assembly lube to hold the O-Ring in place.
6. Install support into drum, install the three bolts being sure to pull down the support evenly, torque bolts to 36 inch pounds.
7. Turn the drum over and remove excess part of the bolt that is sticking out.

### K2 Aluminum Support O-Ring Replacement

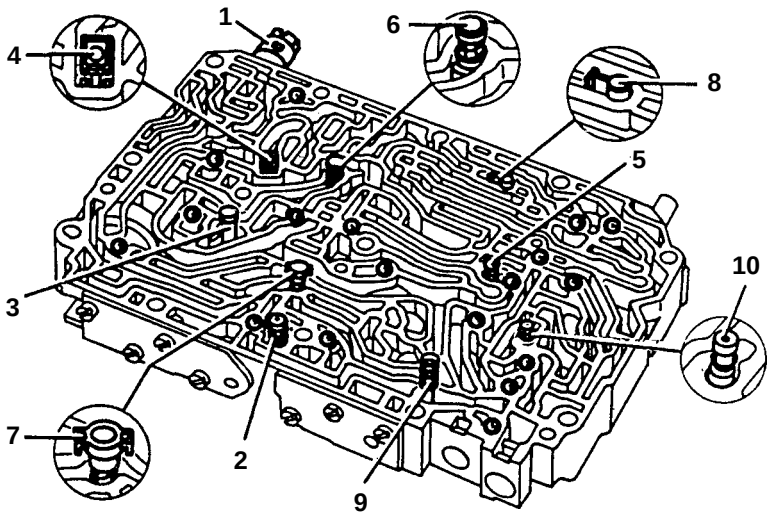
1. Do steps 1 and 2 from above.
2. The K2 drum support is a different design than the K1. You need to use a 1/4" counter sink drill bit so the support has the same counter as the bolts. The head of the bolts will not interfere with piston operation.
3. Grind off the edge of the bolt heads so that they clear the support and fit down in the pockets.
4. Do steps 4-7 from above.




K1 & K2
Adjust the release clearance to 0.7-1.3mm

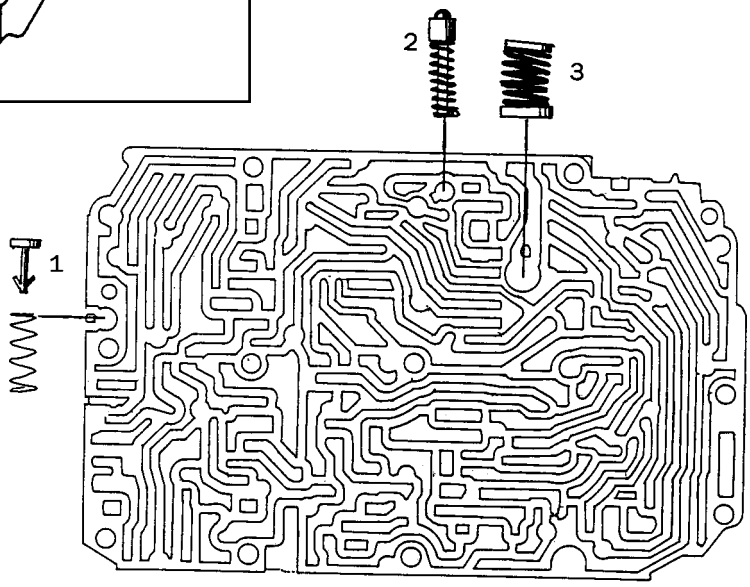


One .220 Rubber Ball Here
Place Spring Under This Ball (18) .215 Steel Check Ball Locations

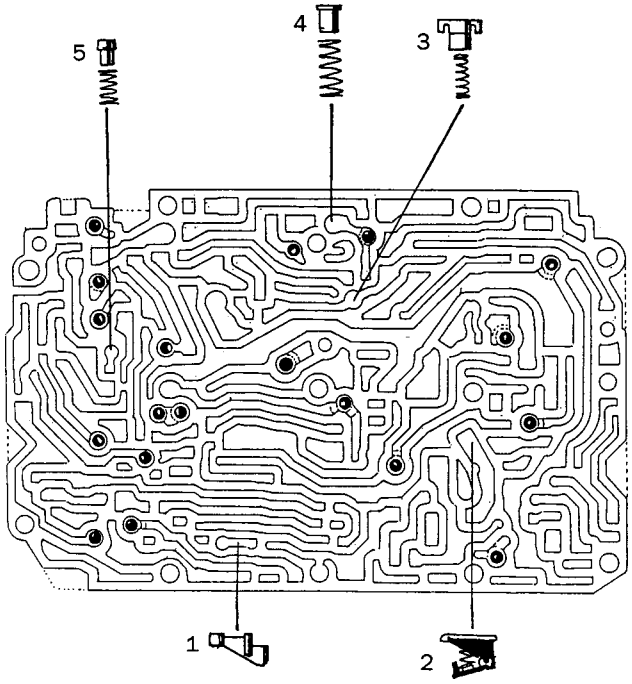



1. Manual Valve
2. Strainer
3. Shift Valve K1
4. Check Valve
5. Check Ball w/Spring
6. Check Ball
7. Check Valve
8. Restrictor Valve K
9. Lubricating Pressure Shaft
10. Check Valve w/Restrictor *

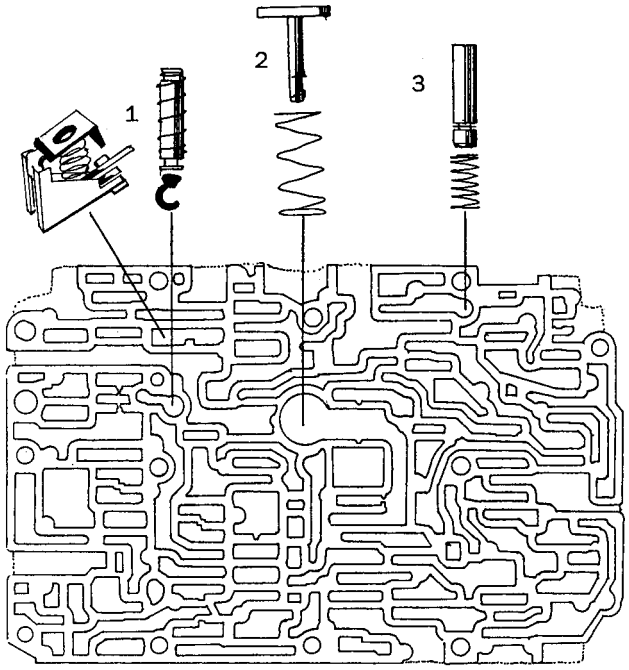
* Not Used in 722.3 Models



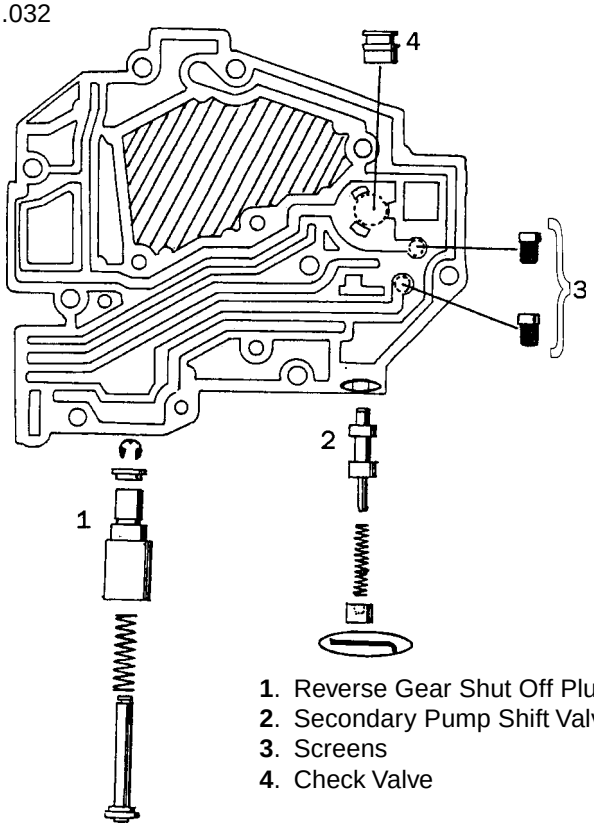

1. Pressure Limiting Valve
2. Modulating Pressure Relief Valve
3. Lubricating Pressure Valve




**1**. Throttle Check Valve
**2**. Plate Type Check Valve
**3**. Check Valve with Strainer
**4**. Throttle Check Valve with Strainer - Orifice .032
**5**. Throttle Check Valve - Orifice .032

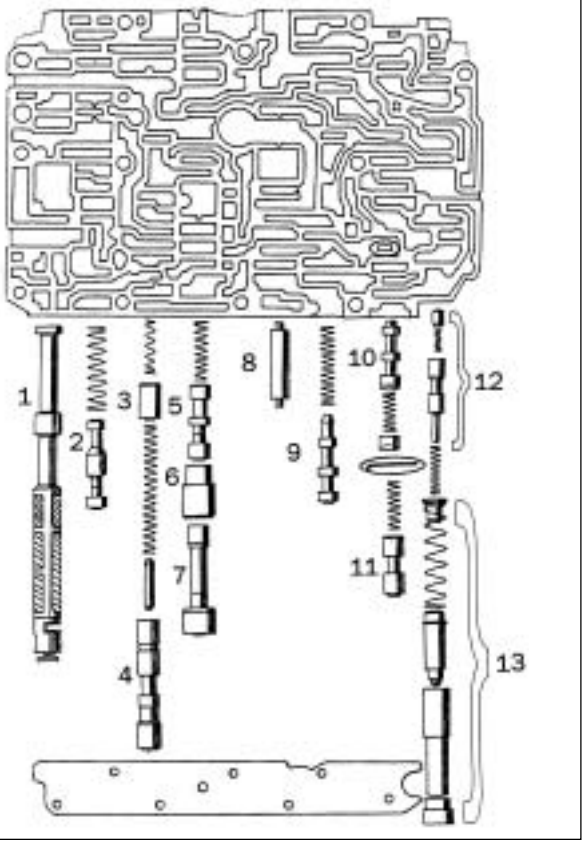



**1**. K1 Shut Off Valve
**2**. Primary Pump Check Valve
**3**. Lubricating Pressure Shift Pin



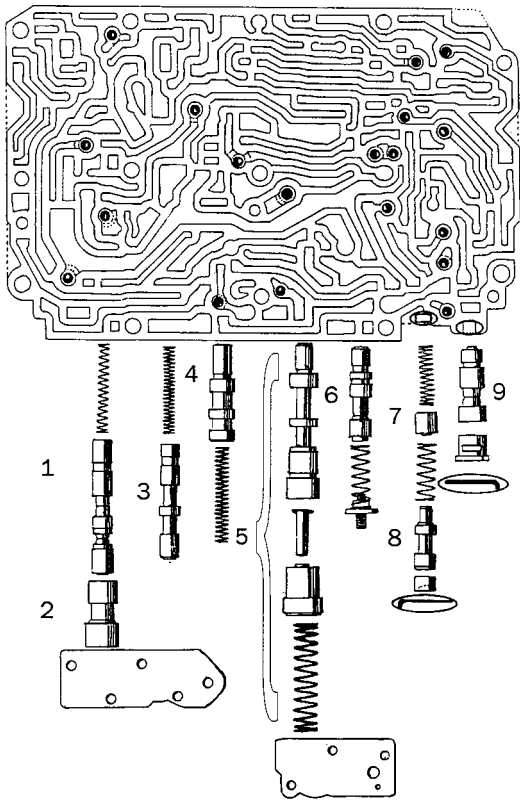

**1**. Reverse Gear Shut Off Plunger
**2**. Secondary Pump Shift Valve
**3**. Screens
**4**. Check Valve

## Upper Valve Body (Top View)



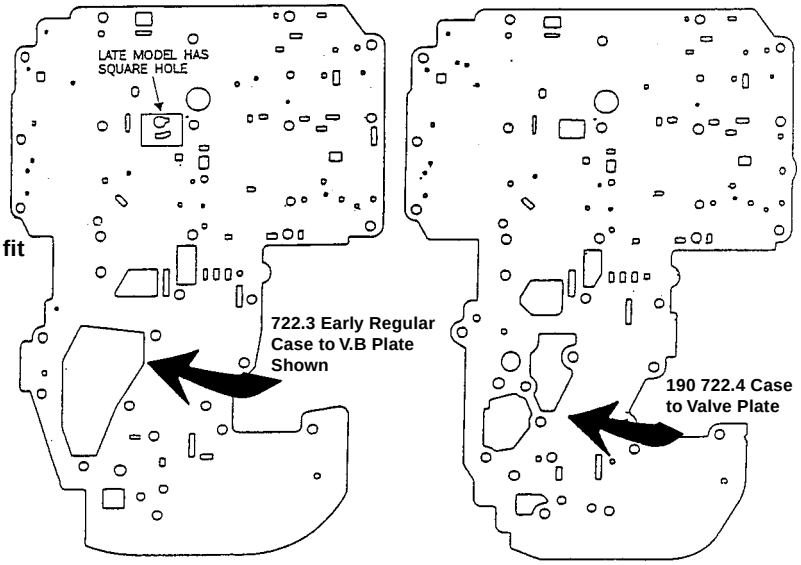

1. Manual Valve
2. Converter Adaption Control Valve
3. 3-4 Plunger Command Valve
4. 3-4 Command Valve
5. 1-2 Command Valve
6. 1-2 Command Valve Sleeve
7. 1-2 Plunger Command Valve
8. Shift Valve Bridging Clutch Plug
9. B2 Shift Valve
10. Kickdown Shift Valve
11. Governor Pressure Shift Valve
12. Pressure Control Valve
13. Pressure Control Valve Plunger

## Upper Valve Body (Bottom View)

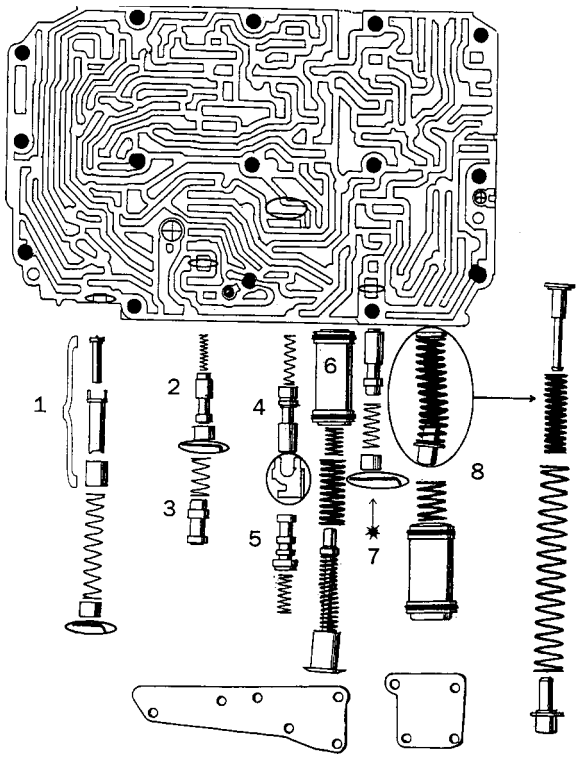



1. 2-3 Command Valve
2. 2-3 Command Valve Plunger
3. B1 Shift Valve
4. Basic Pressure Control Valve
5. Working Pressure Control Valve
6. Full Throttle Control Valve
7. B1 Plunger Control Valve
8. B1 Control Valve
9. Governor Pressure Boost Valve

**The 722.3 has two plates early & late. The early plate will not fit the late valve body, however, the late model plate will fit the early model valve body.**

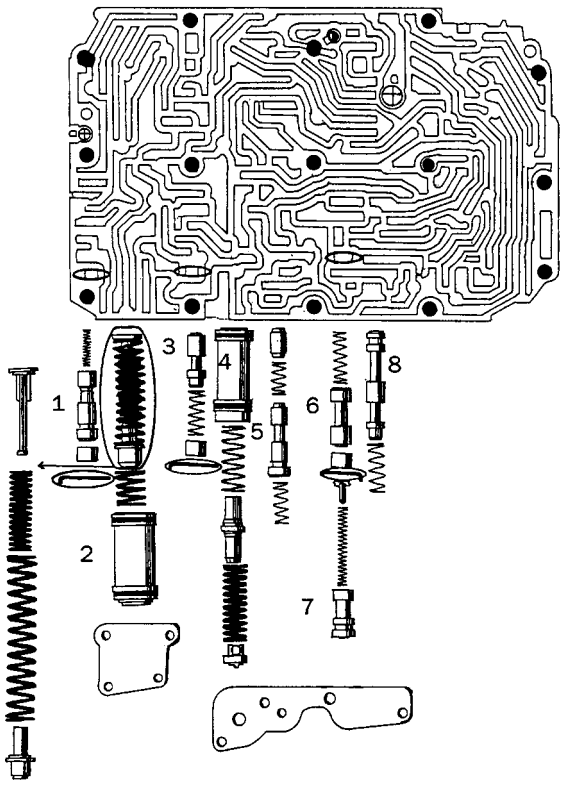


**Lower Valve Body**
**(Front View)**

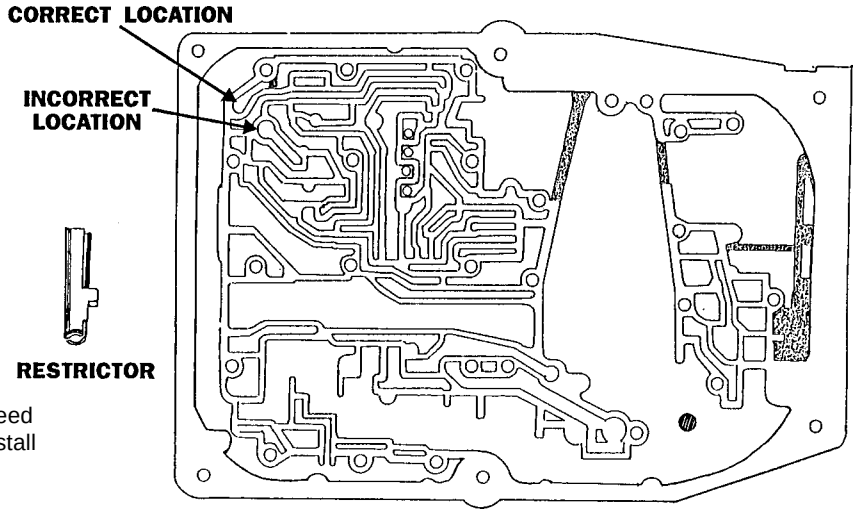



1. Accumulator Kick Down
2. RV1 Shut Off Valve
3. Brake Circuit Shut Off Valve
4. B1 Accumulator Control Valve
5. Deceleration Control Valve
6. B1 Accumulator
7. K1 Accumulator Control Valve
8. K1 Accumulator

**Lower Valve Body**
**(Back View)**




1. Shift Control Pressure Valve
2. K2 Accumulator
3. K2 Accumulator Control Valve
4. Accumulator Switching On
5. RV2 Shut Off Valve
6. Accumulator Switching On Control Valve
7. K2 Shift Valve
8. B2 Detent Valve




A complaint of harsh reverse after overhaul may be due to the reverse feed restrictor into the wrong passage. Install the tapered end in first.

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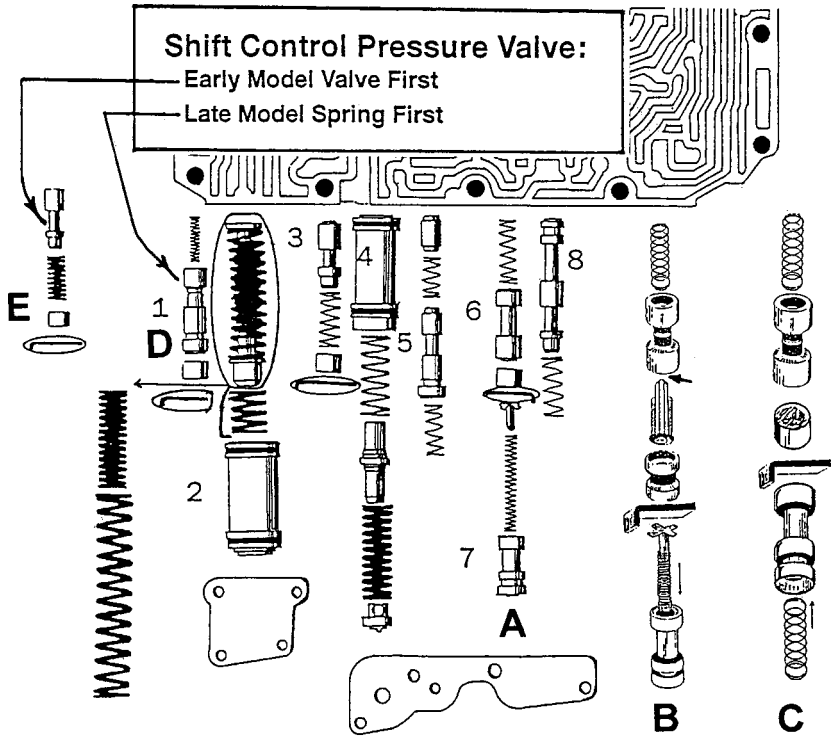
## Lower Valve Body Update

There are three versions of the K2 shift valve body. We have illustrated these in the illustration below. Line-up "A" is the second and most common version. The "C" is the first version. The "B" line-up was first found in the 722.4 and became the third in the late model 722.3.

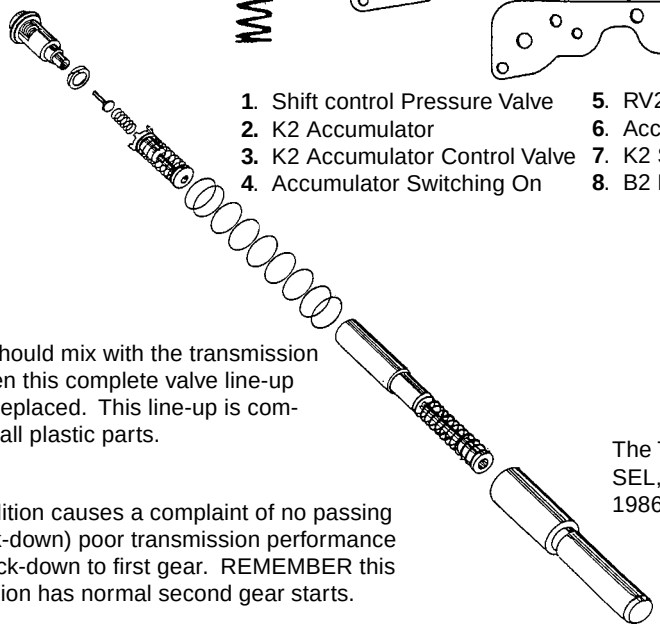
"E" shift control pressure valves can be found to be installed valve first (early) or spring than valve (late). Be sure to check valve type and line-up.




**1**. Shift control Pressure Valve
**2.** K2 Accumulator
**3.** K2 Accumulator Control Valve
**4**. Accumulator Switching On
**5**. RV2 Shut Off Valve
**6**. Accumulator Switching On Control Valve
**7**. K2 Shift Valve
**8**. B2 Detent Valve

If water should mix with the transmission fluid. Then this complete valve line-up must be replaced. This line-up is comprised of all plastic parts.

**NOTE:**
This condition causes a complaint of no passing gear (kick-down) poor transmission performance and no kick-down to first gear. REMEMBER this transmission has normal second gear starts.



### Mercedes 722.3 1986-Up
### TV Plunger Assembly

The TV valve line-up is different in the Mercedes models 420 SEL, 560 SEL and SL models. This change was made in the 1986 model year. Figure 1 illustrates the valve line-up.