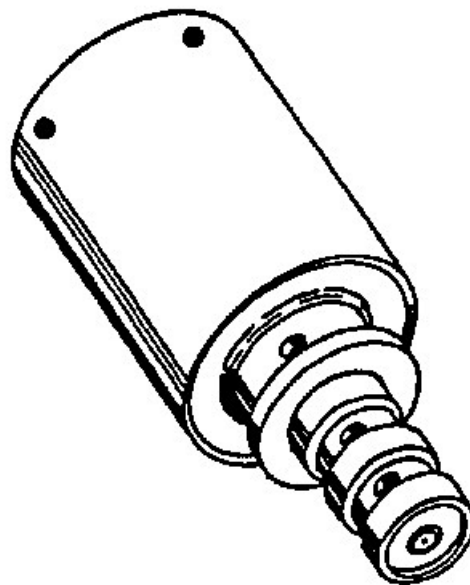


## ZF4HP22

### EXTREMELY HARSH SHIFTS

- COMPLAINT:** Harsh engagements and severe shifts while all shift speeds are okay.
- CAUSE:** Pressure Regulator “Force Motor” failure (See Figure 1). Extremely high pressure will result. This cannot always be diagnosed with an ohms test as the failure may be mechanical.
- CORRECTION:** Replace the Pressure Regulator “Force Motor”.
- NOTE:** A new Pressure Regulator from BMW is just under \$600.00 and is usually available in less than two weeks. There is, however, a suitable alternative that has proved most effective. The G.M. 4L80-E Force Motor is manufactured by the same company and aside from a few minor differences does the same job. Most of the overall dimensions are the same except that the G.M. 4L80-E Force Motor uses screens in the plunger and port areas (See Figure 2). Those differences are insignificant. A new 4L80-E Force Motor will cost you about \$133.00. The G.M. part # is 8677314.

*Research by:  
Steve Lavallee*



**PRESSURE REGULATOR “FORCE MOTOR”**

Figure 1

Pressure Regulator ohms test across both terminals should be 2.5 - 4.0 ohms resistance. This ohms test should be done near room temperature. Do not energize this force motor with full battery voltage as damage may result.

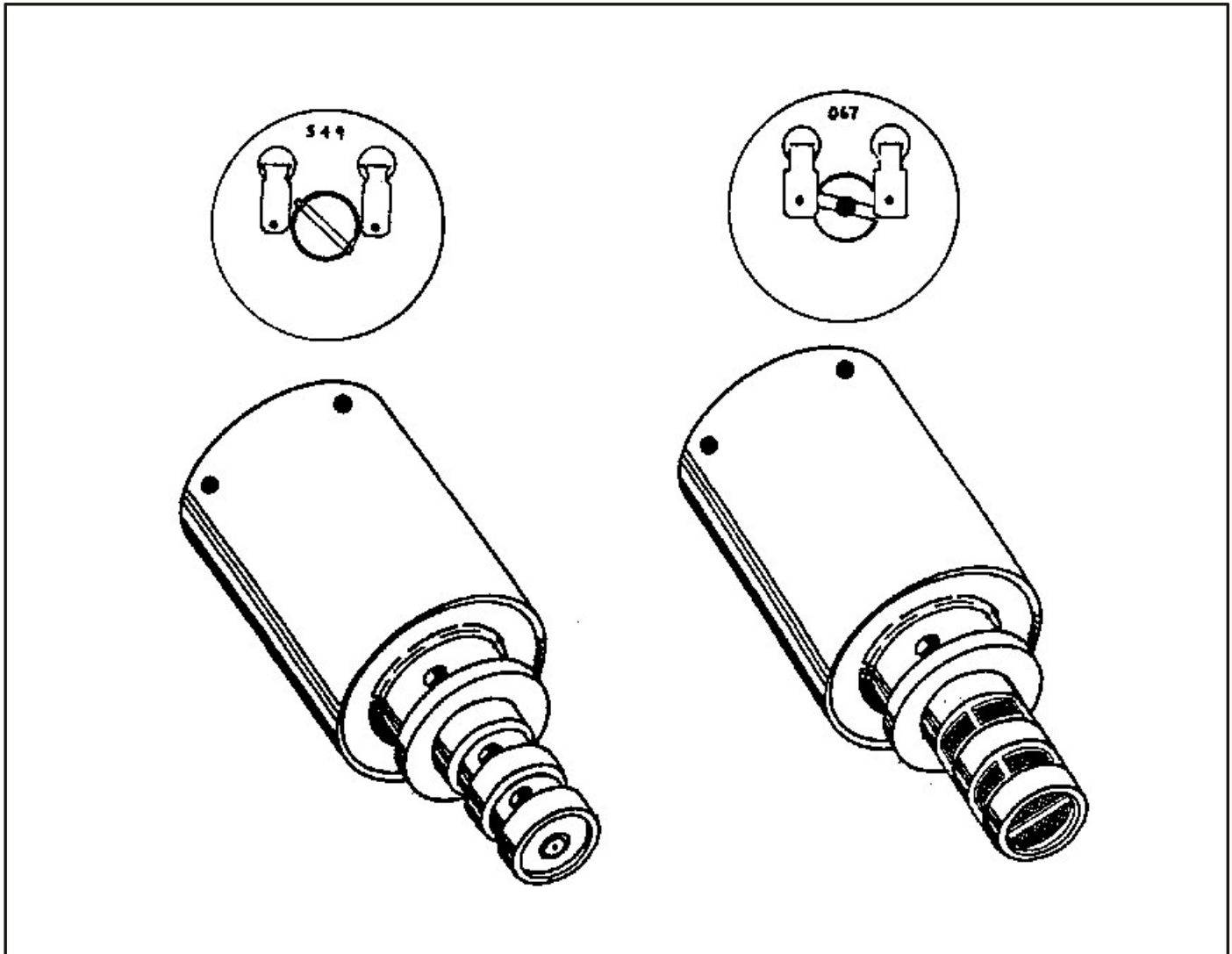


Figure 2

The BMW Pressure Regulator on the left uses no screens. The G.M. 4L80-E Force Motor on the right has screened ports and a steel ball pressed into the screw head to prevent tampering.