



## ZF5HP-19/FL/FLA

### FIRM ENGAGEMENT INTO D HARSH COAST-DOWNSHIFTS

**COMPLAINT:** Audi or BMW vehicles, equipped with the ZF5HP-19/ FL/FLA may exhibit a condition of a firm engagement in the Drive position accompanied with a harsh coast-downshift. This condition will typically get more pronounced when hot. This condition seems to be more prevalent in vehicles 2003 and newer.

**CAUSE:** The cause may be a mechanically malfunctioning EDS 1 Solenoid. Refer to Figure 1 for a description on mechanical function. Figure 2 shows a partial hydraulic schematic of the EDS 1 Solenoid and how it controls the Modulating Pressure Valve. If the EDS 1 is malfunctioning it will cause high modulating valve pressure, which can cause high line pressure as well as high accumulator back pressure. This typically causes the firm engagement in Drive and the harsh coast-downshifts.

**CORRECTION:** To correct this condition, refer to Figure 3 for the location of EDS 1 Solenoid and replace it. Refer to Figure 4 for the location of the Modulating Pressure Valve, as it would be a good idea to make sure that the valve moves free in its bore, while replacing EDS 1.

#### SERVICE INFORMATION:

EDS 1 SOLENOID (Fits Pulse generator TSS types to 2000- ZF part no.).....0501 209 875  
EDS 1 SOLENOID (Fits Hall effect TSS types and 2003 up- ZF part no.).....0501 210 725  
Verify part number for your application with a ZF distributor.  
Erikson Industries- 800-388-4418

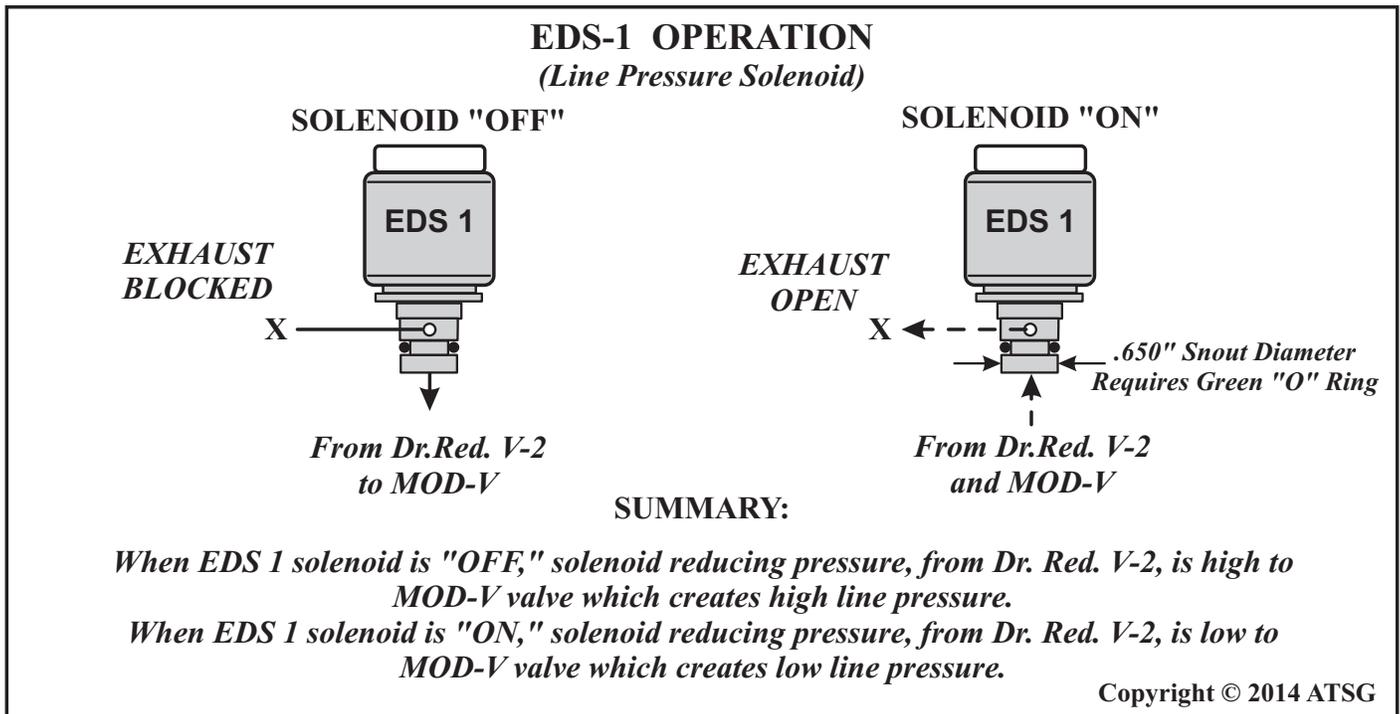
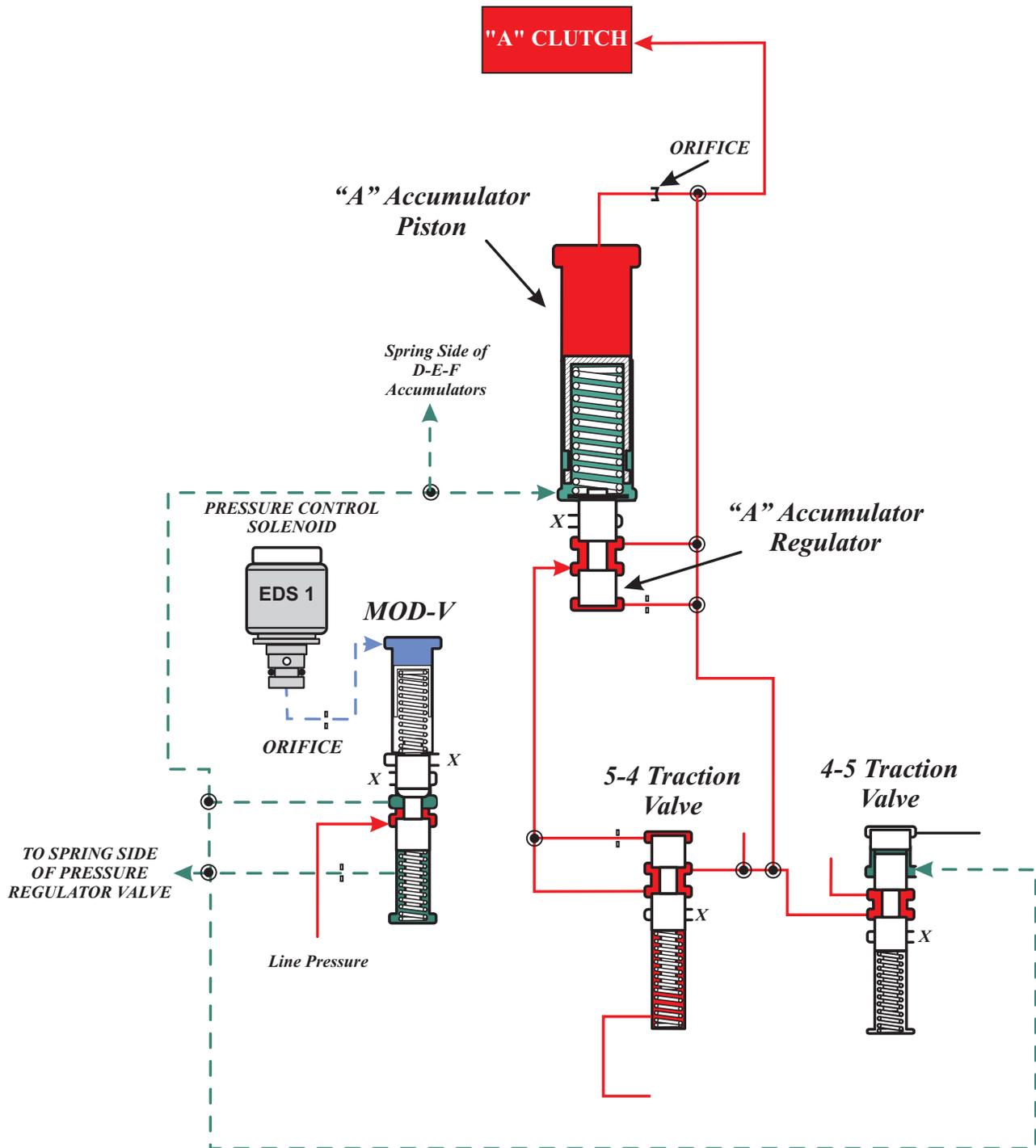


Figure 1

## EDS-1 SOLENOID OPERATION

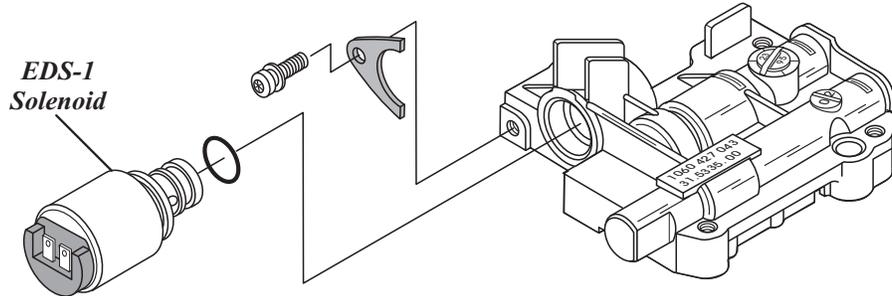


*EDS 1 is a pressure control solenoid that acts on the Modulating Pressure Valve (MOD-V). Mod-V pressure is fed to the spring side of the accumulator pistons and the Pressure Regulator valve, which controls pressure rise and shift feel.*

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Figure 2

## ZF-5HP-19 SOLENOID IDENTIFICATION AND LOCATIONS



**SPECIAL NOTE:**

*EDS-1 Solenoid*  
*.650" Snout Diameter*  
*Requires Green "O" Ring*

*EDS-2, 3, 4 Solenoids*  
*.670" Snout Diameter*  
*Requires Black "O" Ring*

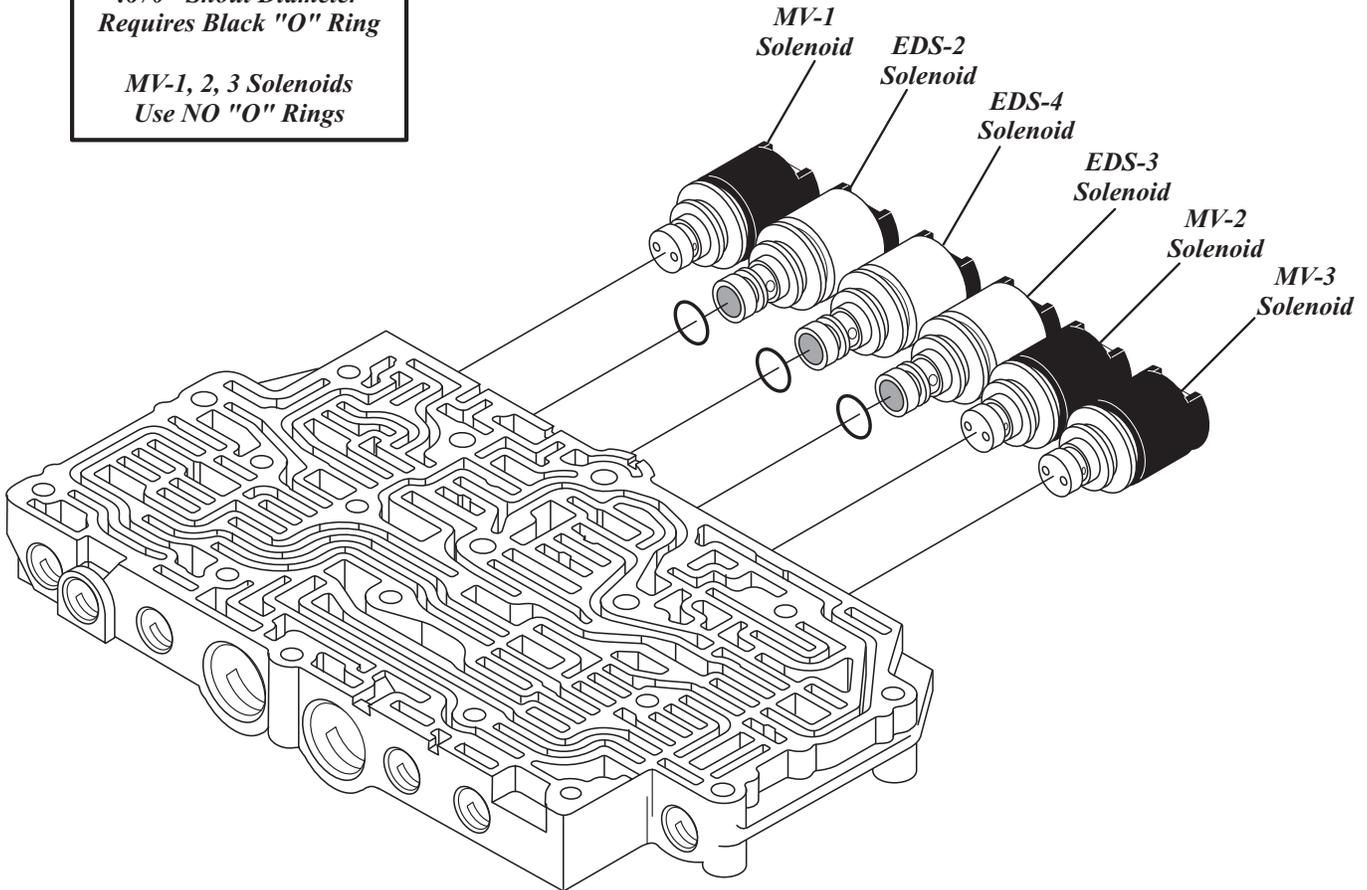
*MV-1, 2, 3 Solenoids*  
*Use NO "O" Rings*

**Common ZF Part Numbers**

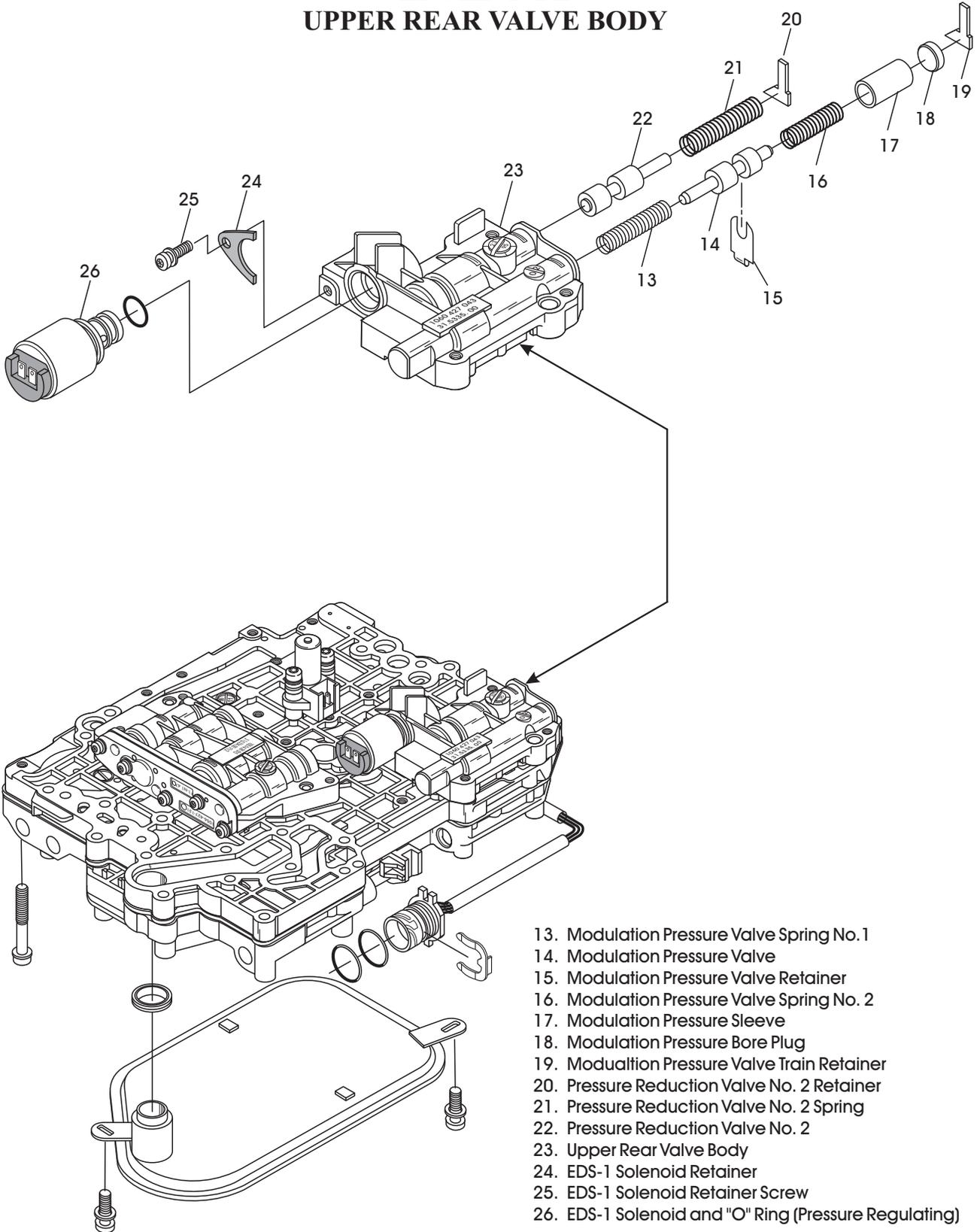
*EDS-1 Solenoid 0501 209 875*  
*(Fits Pulse generator TSS to 2000)*

*EDS-1 Solenoid 0501 210 725*  
*(Fits Hall effect TSS and 03 up)*

*Note: Verify part number with ZF distributor for your application*



## ZF-5HP-19FL UPPER REAR VALVE BODY



- 13. Modulation Pressure Valve Spring No. 1
- 14. Modulation Pressure Valve
- 15. Modulation Pressure Valve Retainer
- 16. Modulation Pressure Valve Spring No. 2
- 17. Modulation Pressure Sleeve
- 18. Modulation Pressure Bore Plug
- 19. Modulation Pressure Valve Train Retainer
- 20. Pressure Reduction Valve No. 2 Retainer
- 21. Pressure Reduction Valve No. 2 Spring
- 22. Pressure Reduction Valve No. 2
- 23. Upper Rear Valve Body
- 24. EDS-1 Solenoid Retainer
- 25. EDS-1 Solenoid Retainer Screw
- 26. EDS-1 Solenoid and "O" Ring (Pressure Regulating)

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Figure 4