



Technical Service Information

ZF 4HP-18 FLE/FLA NEUTRAL AFTER A 3-4 UPSHIFT

COMPLAINT: Vehicles equipped with the ZF 4HP-18 FLE or FLA may exhibit a neutralizing condition on the 3-4 upshift, then a neutral condition when the vehicle comes to a stop. After an ignition cycle the vehicle will then move forward, but will go through the whole cycle once the 3-4 shift is attempted again.

CAUSE: The cause may be split conical cushion washers in the 2-4 servo assembly as shown in Figure 1. This will create a neutral condition when the band is re-applied in 4th gear, because of the broken cushion washers limiting the travel of the servo. **NOTE: The 2-4 servo is also applied in 2nd gear but only provides engine braking because of the application of the "C" clutch in 2nd gear. See Figure 2 for the Clutch and Band application chart.** The Transmission Control Module will put the transmission in a "Fail Safe Mode" when it neutrals out in 4th. In this situation, this is a 4th gear command (all solenoids OFF), which is now Neutral. The driver of the vehicle will have to cycle the ignition switch to regain forward application.

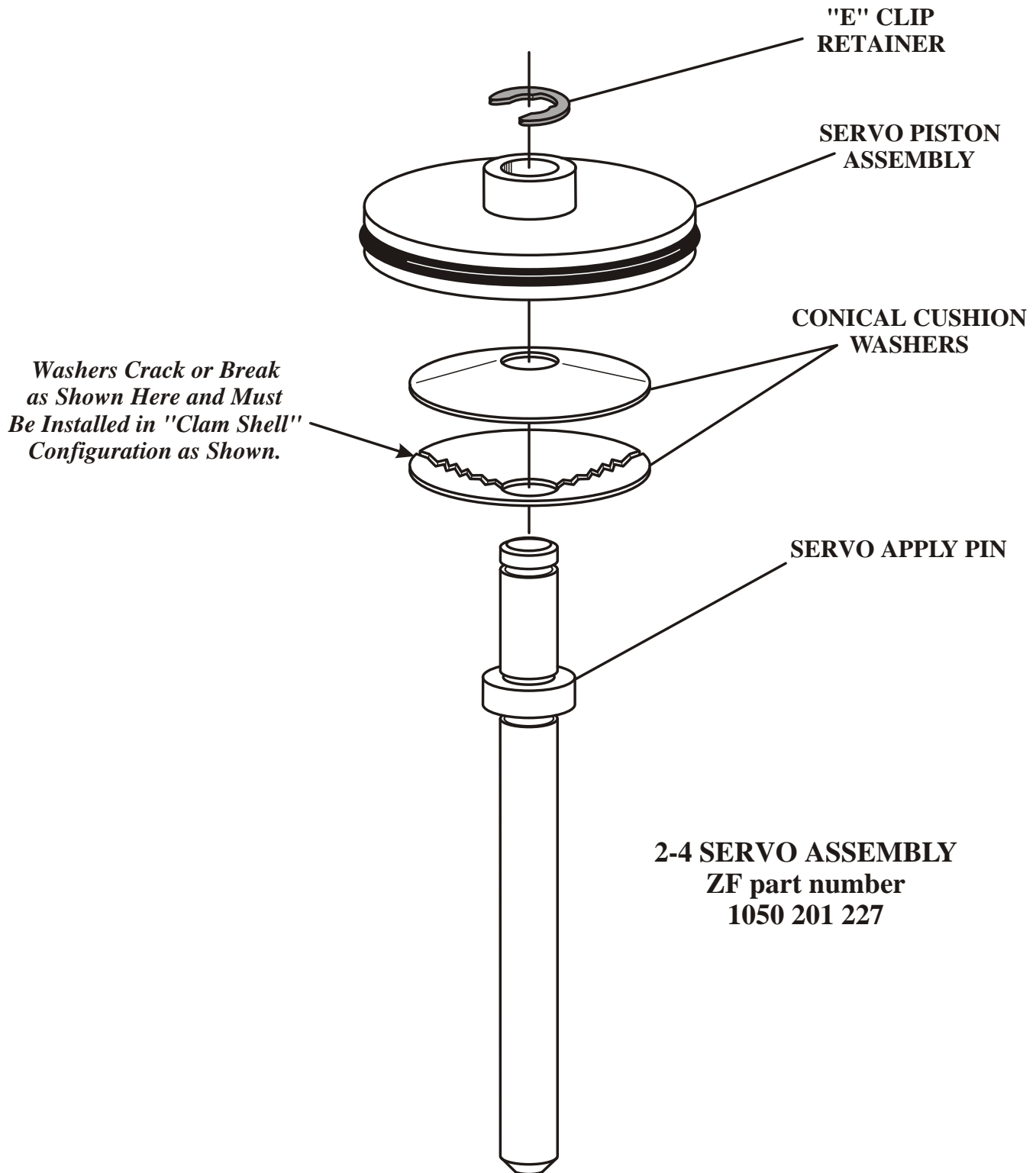
NOTE: There are two different Fail Safe Modes that the TCM provides. The first Fail Safe Mode is related to soft codes or ratio errors that may occur. This is a 4th gear command (all solenoids OFF) which will result in a stalling condition when coming to a stop, (if 4th gear is available). The second Fail Safe Mode provides 2nd gear only (all solenoids OFF) if a solenoid circuit code is set before the vehicle is started. The Safety Mode Valve in the Main Valve body controls the routing of fluid for these two different fail safe modes. It is controlled by the MV-2 solenoid. This solenoid is turned ON in Park to move the Safety Mode Valve to the left as shown in Figure 3. When the Second Fail Safe mode is initiated, MV-2 is **not** energized which does not stroke the Safety Mode valve. This blocks the passages feeding the E clutch for 3rd and 4th gear, providing 2nd gear only.

CORRECTION: Replace the conical washers, as shown in Figure 1. The entire 2-4 servo assembly can be purchased through an authorized ZF parts distributor, as the conical washers are not sold separately. If good used conical washers are found, ensure that the washers are assembled in a "clam shell" configuration, as shown in Figure 1.

SERVICE INFORMATION:

2-4 SERVO ASSEMBLY1050 201 227

NOTE: This is a ZF part number and is available only through an authorized ZF distributor.

2-4 SERVO ASSEMBLY

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Figure 1

ZF-4HP-18FLE SOLENOID AND COMPONENT APPLICATION CHART

RANGE	MV-1 Sol.	MV-2 Sol.	MV-3 Sol.	EDS-1 Sol.	"A" Clutch	"B" Clutch	2-4 Band	"C" Clutch	"D" Clutch	"E" Clutch
Park/Neut		ON	ON	**						
Reverse		ON	*	**		ON			ON	
Drive-1st			ON	**	ON					
Drive-2nd	ON		ON	**	ON		ON	ON		
Drive-3rd	ON			**	ON			ON		ON
Drive-4th				**			ON	ON		ON
Manual-1st			ON	**	ON				ON	
"Failsafe" ***				Max.	ON		ON	ON		

* ON For Reverse Inhibit Feature.

** Pressure Regulating.

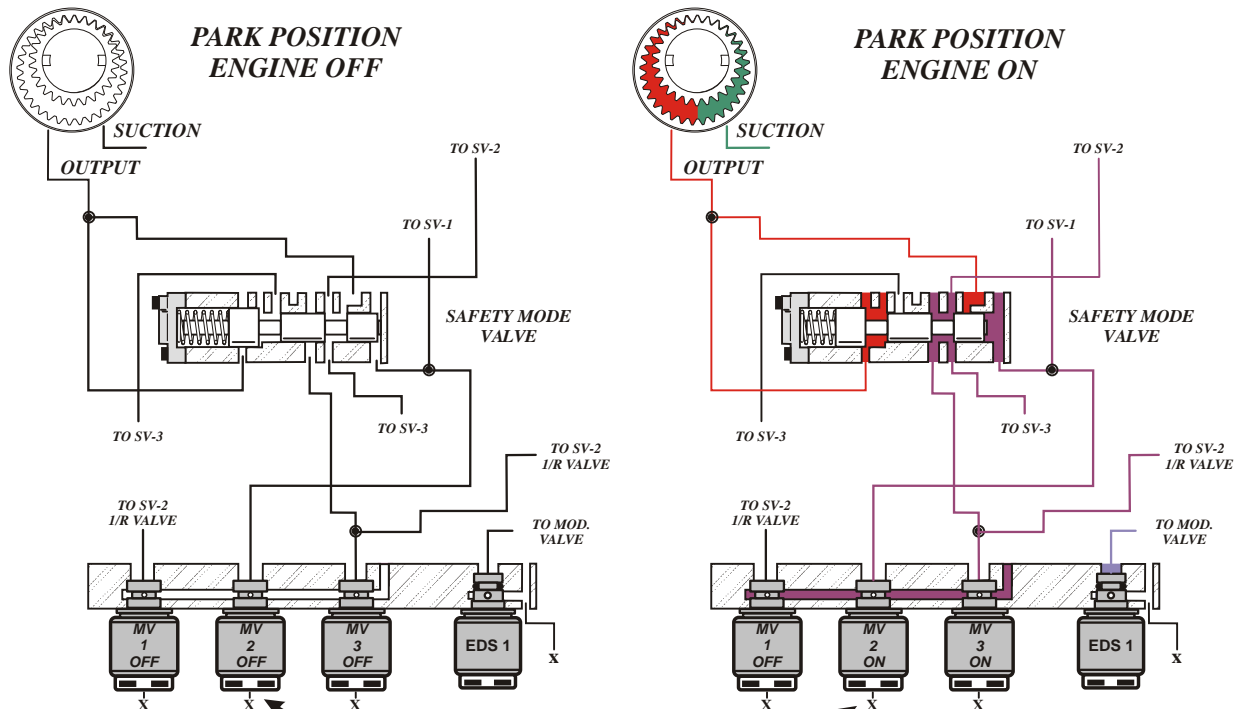
*** Electrical failure while in 4th gear, vehicle remains in 4th gear until engine is turned off. When vehicle is once again started, transaxle will be in "Failsafe" 2nd gear.

SPECIAL NOTE:

Solenoid and Clutch nomenclature are ATSG interpretations, not Audi's nor ZF.

Figure 2

SAFETY MODE VALVE OPERATION



MV-2 IS TURNED "ON" ONLY TO STROKE THE SAFETY MODE VALVE. PUMP PRESSURE WILL KEEP THE SAFETY MODE VALVE STROKED AS LONG AS THE ENGINE IS RUNNING

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Figure 3