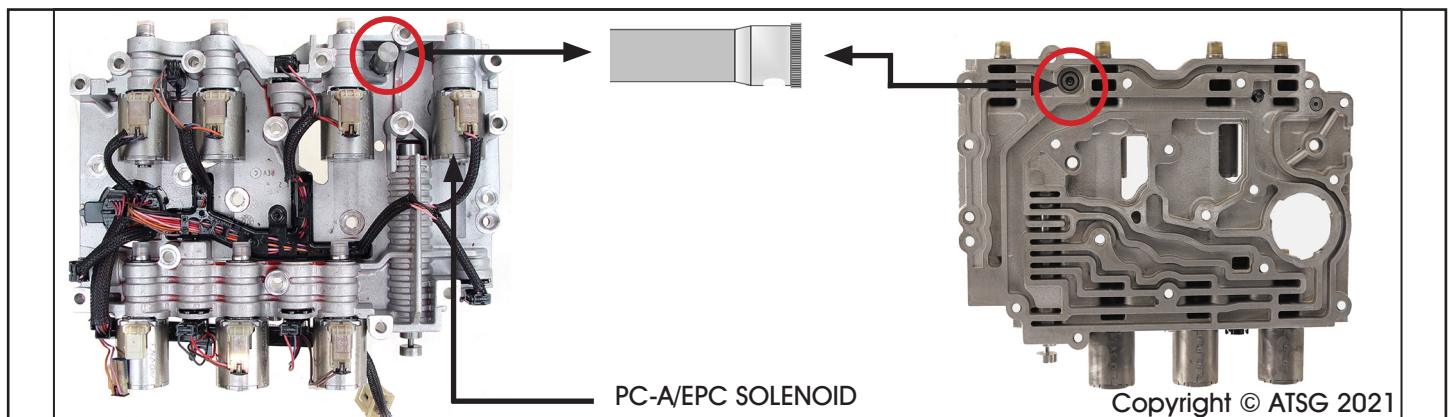


FORD 5R110W
LOW LINE PRESSURE-SLIPS NO MOVE

- COMPLAINT:** From time to time you will encounter a 5R110W that has no movement or slips in forward and reverse. A pressure gauge will reveal that mainline pressure is below the 20lb range in all lever positions. Quite often the unit is mistakenly pulled out because someone is stating the pump has to be bad with line pressure this low. As we all know the 5R110 is prone to self inflicted pump failures, see ATSG TSB 21-09. In most cases this low pressure symptom is not from a catastrophic pump failure or a pressure regulator valve problem.
- CAUSE #1:** The PC-A/EPC solenoid is stuck closed or in the off position. See figure 1 and 8.
- CORRECTION #1:** Replace the PC-A solenoid with a OE quality solenoid.
- CAUSE #2:** The line pressure blow off ball is stuck open. See figures 1 and 9.
- CORRECTION 2:** With a 3/16" flat nose pin punch actuate the blow off ball to free it up. Note: The blow off ball is not a serviceable part. If you can not restore it's function you will have to replace the valve body. See figure 2.
- CAUSE #3:** The valve body to intermediate plate filter gasket is blown out at the red main line pressure passages or the yellow PC-A passage. Check both sides of the gasket. See figure 3.
- CORRECTION 3:** Replace the valve body filter gasket.
- CAUSE #4:** The PC-A air bleed check ball in the pump cover is missing or stuck open.
- CORRECTION 4:** Remove the capsule assembly in the pump and PLUG the hole in the pump cover. See figures 4 and 10. NOTE: Not all pumps are fitted with the air bleed.

**Figure 1**

FORD 5R110W
LOW LINE PRESSURE-SLIPS NO MOVE



Figure 2

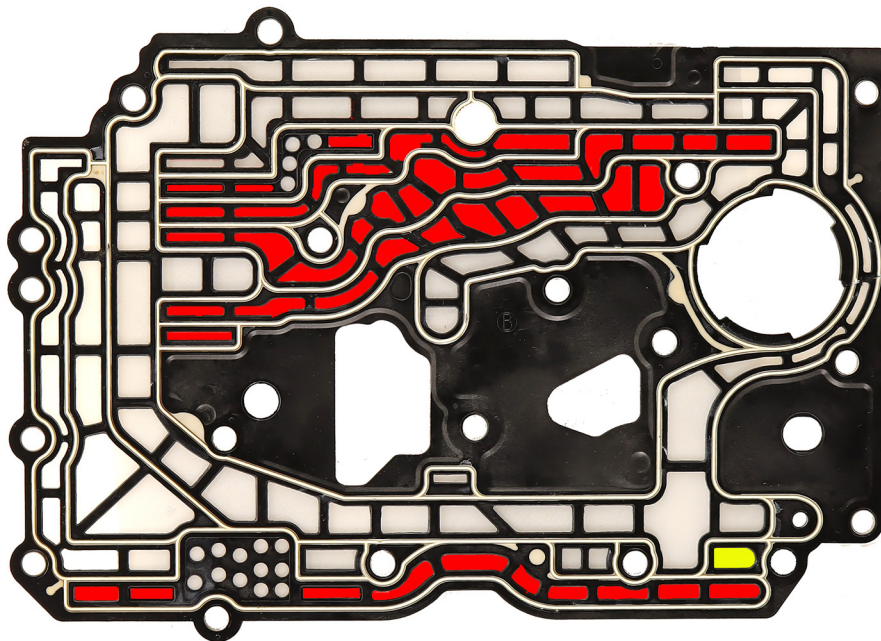


Figure 3

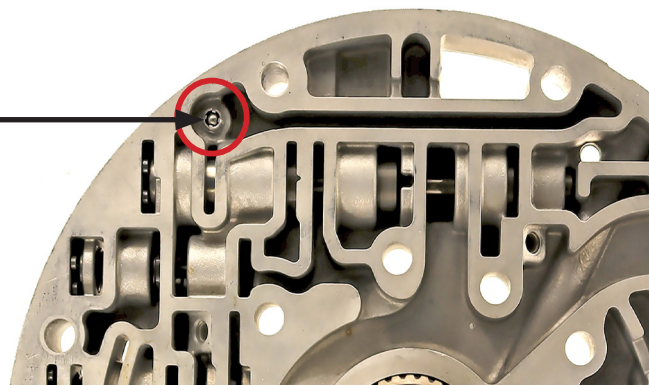
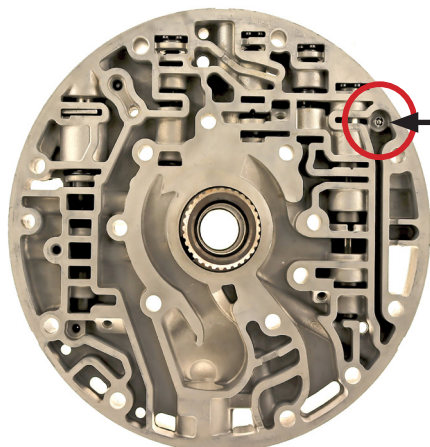


Figure 4

FORD 5R110W

LOW LINE PRESSURE-SLIPS NO MOVE

MAINLINE PRESSURE REGULATING SYSTEMS:

I imagine by now you are questioning how in the world does a stuck PC-A/EPC solenoid cause the main line pressure to drop below 20lbs. The answer to that question depends on what type of pressure regulating system the transmission is equipped with. There are several types of pressure regulating systems in use throughout the transmissions that we work on from day to day. The 5R110W has what I refer to as a "SANB+" system, SINGLE AREA **NO** BOOST VALVE+, See figure 5. The + indicates that the PC-A/EPC is used to boost or increase mainline pressure. With the SANB+ system 98% of the OVERALL main line pressure is determined by the PC-A/EPC BOOST influence. The remaining 2% of the pressure is produced from the pressure regulator spring tension, again this system **does not** utilize a boost valve. The factory pressure regulator spring on the 5R110W has a compressed tension of 2.25lbs. Divide the tension by the balance area of the pressure regulator valve and you get 7lbs. This is the amount of mainline pressure produced by the spring with 0 PC-A pressure. This type of system allows the ECM to have full control over mainline pressure.

Another system in use is a SINGLE AREA **WITH** BOOST VALVE. With a SAWB system approximately 40-100% of the **IDLE** mainline pressure is produced by the pressure regulator spring tension alone, this system **has** a boost valve. See the 4L80E example in figure 6. The factory pressure regulator spring on the 4L80E has a compressed tension of 11.25lbs. Divide that by the balance area of the valve and you get 33lbs. This is the amount of mainline pressure produced by the spring with 0 EPC pressure.

Note: 2001-2010 Allison transmissions use a SANB- system however the EPC solenoid IS used to TRIM or REDUCE mainline pressure. The 2011 and later Allison's use the EPC solenoid similar to the Ford 5R110, it's used to boost the main line pressure, SANB+.

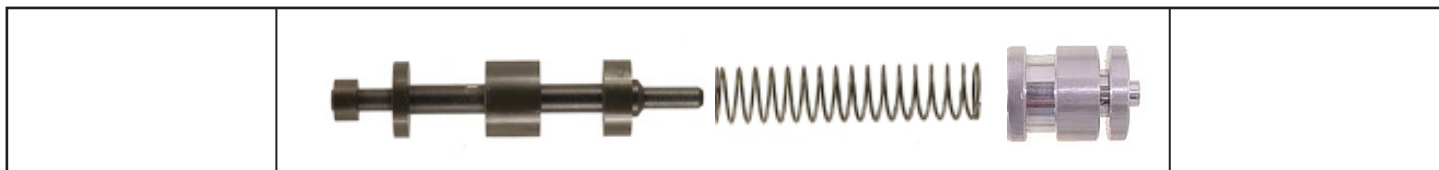


Figure 5



Figure 6

FORD 5R110W

LOW LINE PRESSURE-SLIPS NO MOVE

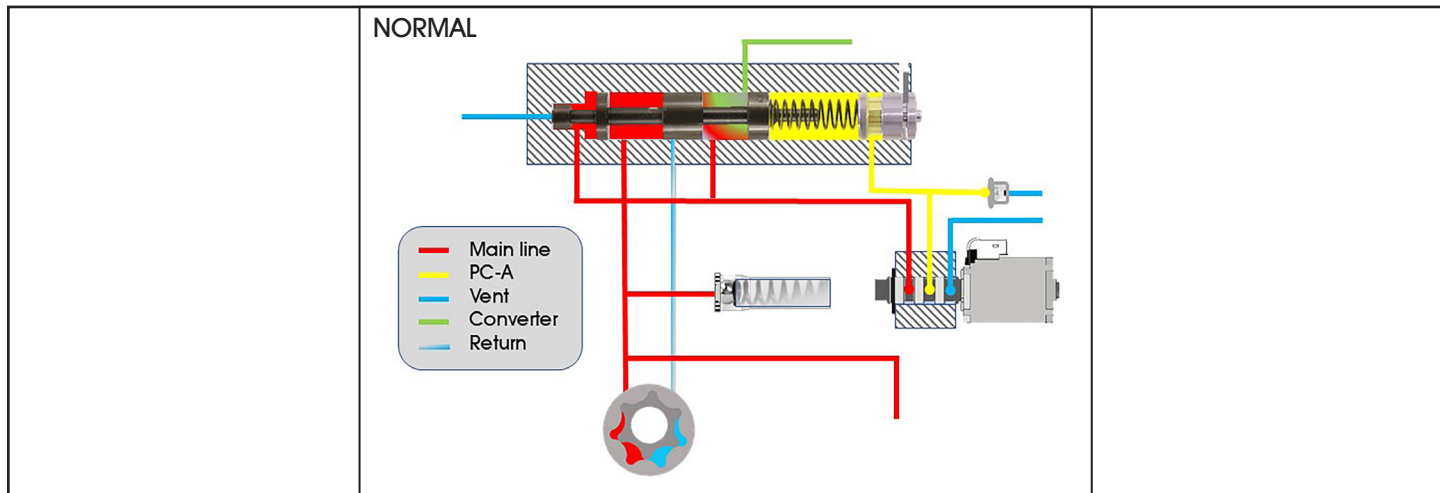


Figure 7

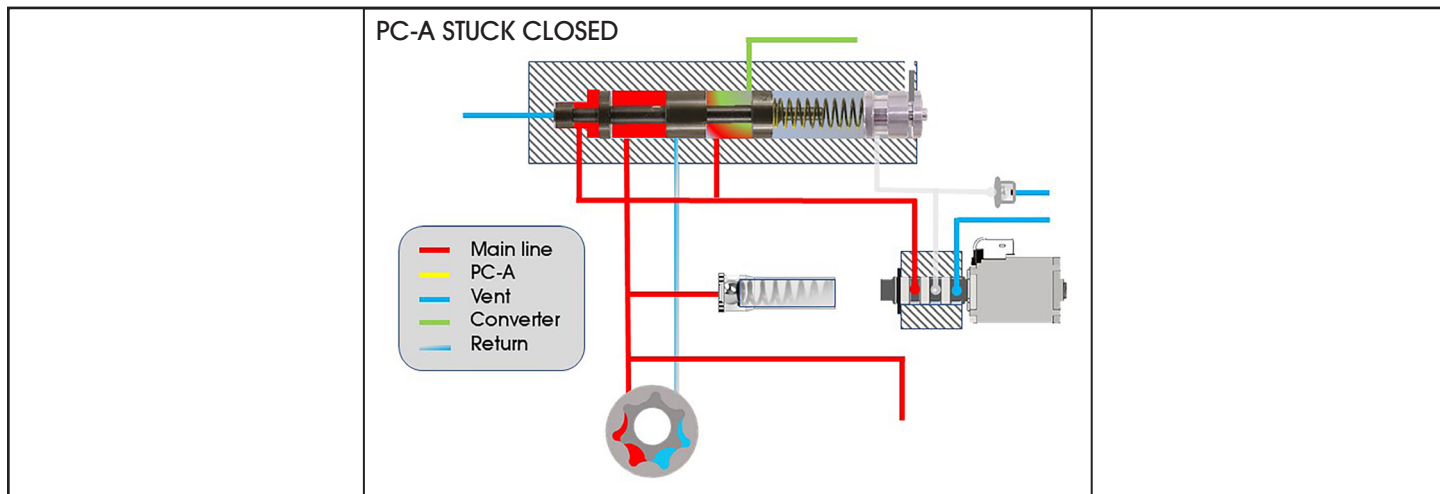


Figure 8

FORD 5R110W

LOW LINE PRESSURE-SLIPS NO MOVE

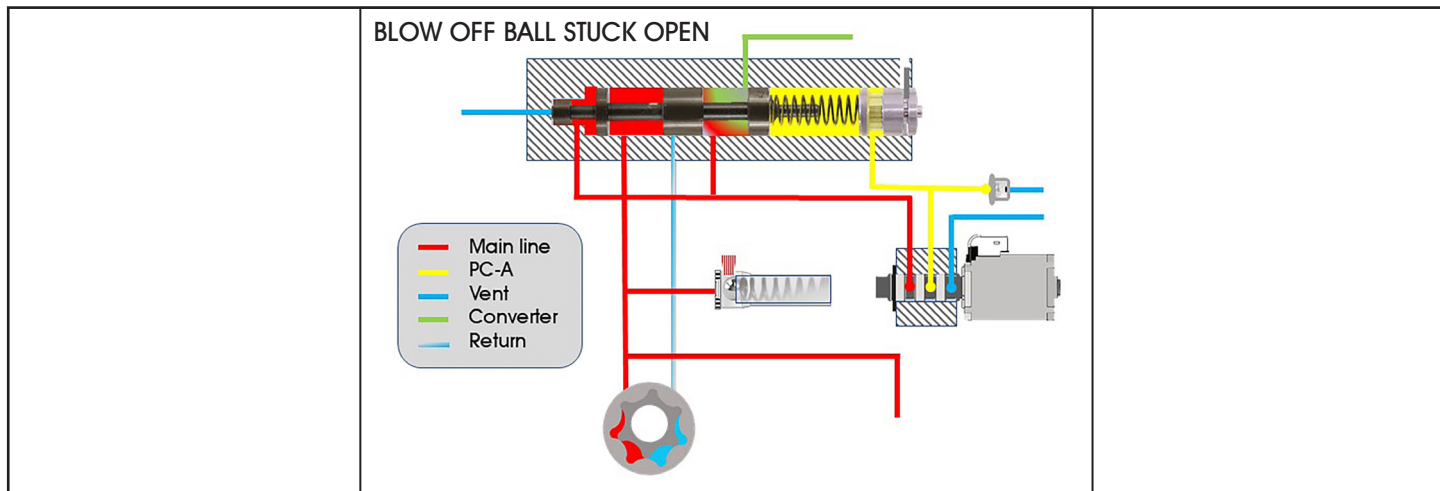


Figure 9

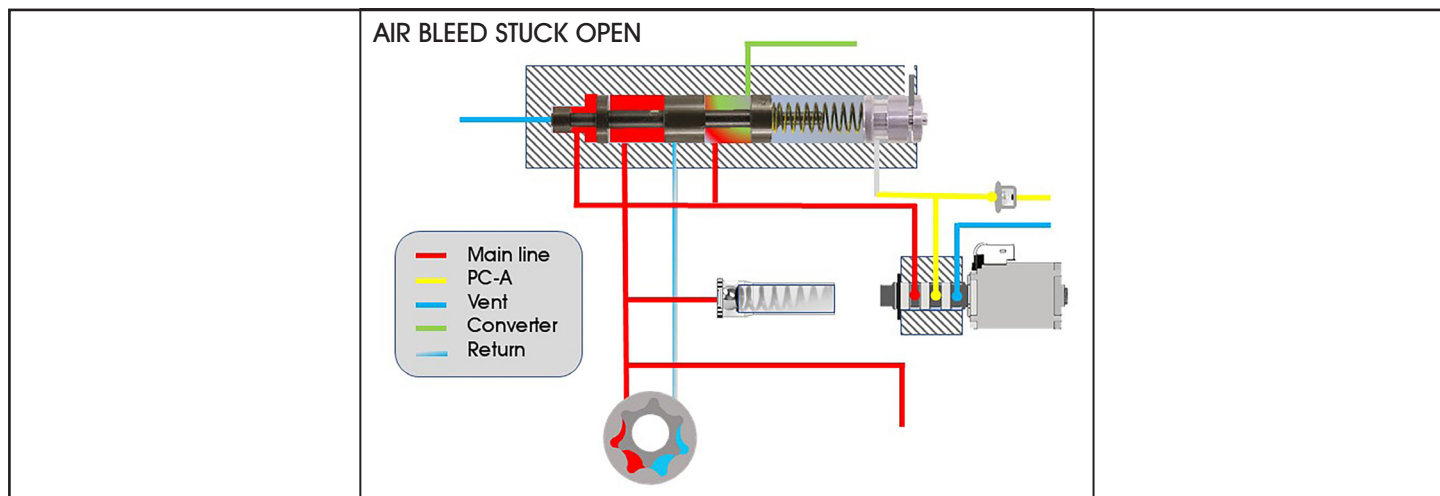


Figure 10