DODGE 42-48RE

P1740, TCC OR 4TH SLIPPAGE

CAUTION: The Dodge RH-RE series transmission is very popular amongst the Hi performance truck market. There are numerous specialty companies selling products and services for these transmissions and valve bodies. Pay close attention to assembly details when working on these "specialty" transmissions and valve bodies. The P1740 is set when the ECM detects improper engine RPM values when TCC or 4th is commanded on.

COMPLAINT 1: OD clutch slippage or failure, DTC P1740. No line pressure boost when overdrive is command on. Line pressure boost is good when TCC is commanded on.

CAUSE 1: Overdrive boost feed tube is damaged or plugged. See figure 1.

CORRECTION 1: Replace the feed tube if damaged or blow the blockage debris out of the tube.

COMPLAINT 2: DTC P1740 sets while in 3rd gear only. No line pressure boost when TCC is commanded on. Line pressure boost when overdrive is commanded on is good.

CAUSE 2: The TCC boost plug is stuck. See figure 2.

CORRECTION 2: Free up the TCC boost plug.

COMPLAINT 3: Sets P1740 TCC or OD clutch slip. No line pressure boost when TCC or 4th is commanded on.

CAUSE 3: Incorrect spring on boost valve assembly or stuck boost valve. See figures 2 and 3.

CORRECTION 3: The correct spring has these specifications:
Free length-1.00" Coil count-14.5
Outside diameter-.2805" Collapsed ht.- .430"-.500" MAX"
Wire diameter-.029"
Tension-1.5 or 1lb 8oz lbs @ .581" compressed ht.

COMPLAINT 4: The 2-3 shift is firm. There may be a 2-3-2 shuttle shift condition below 40MPH and lastly TCC or overdrive line pressure boost will be over active, higher than specs.

CAUSE 4: The TV limit and boost valves were installed in the wrong locations, reversed. They have the same outside diameter and look similar, however the land spacing is very different. See figure 4.

CORRECTION 4: Correct the valve installation error.

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

Figure 1

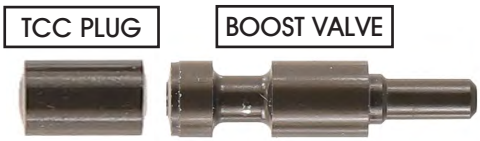

Figure 2

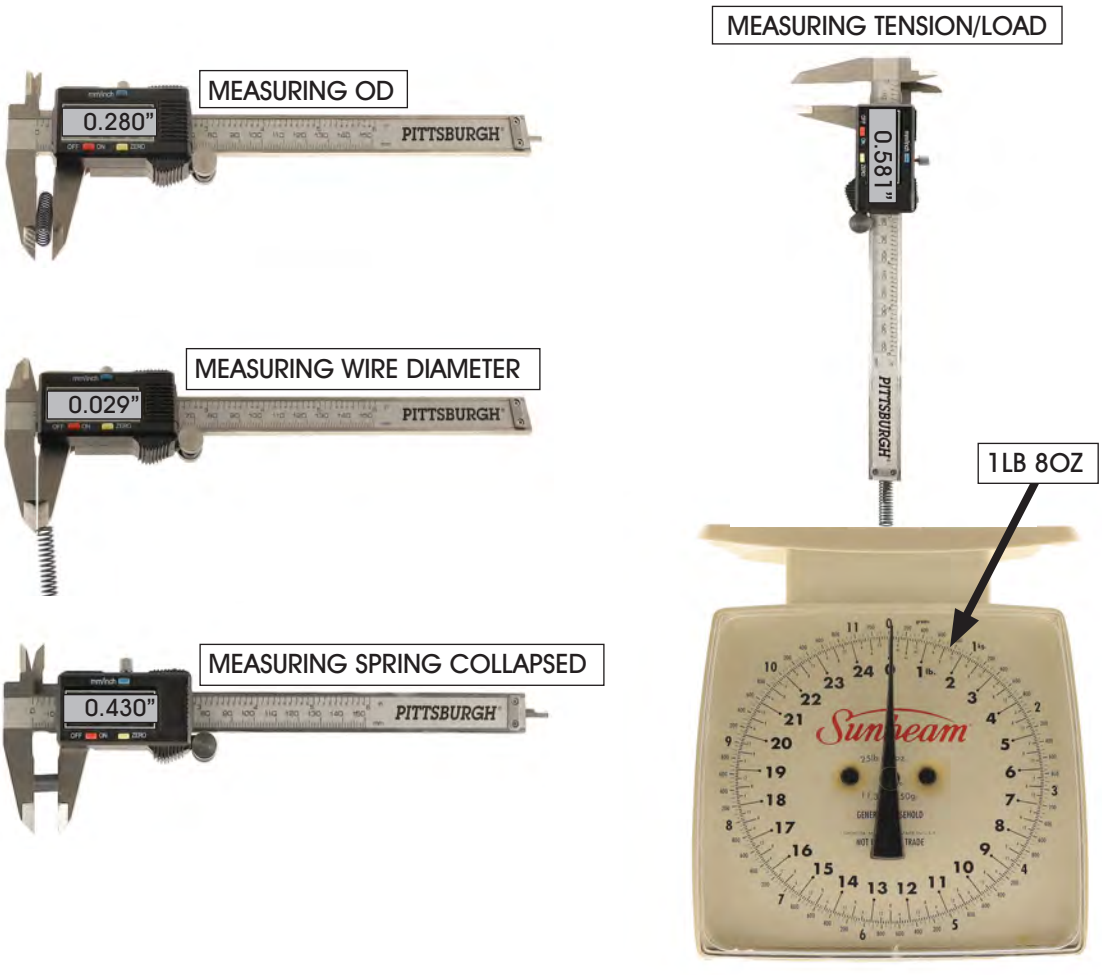

Figure 3

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

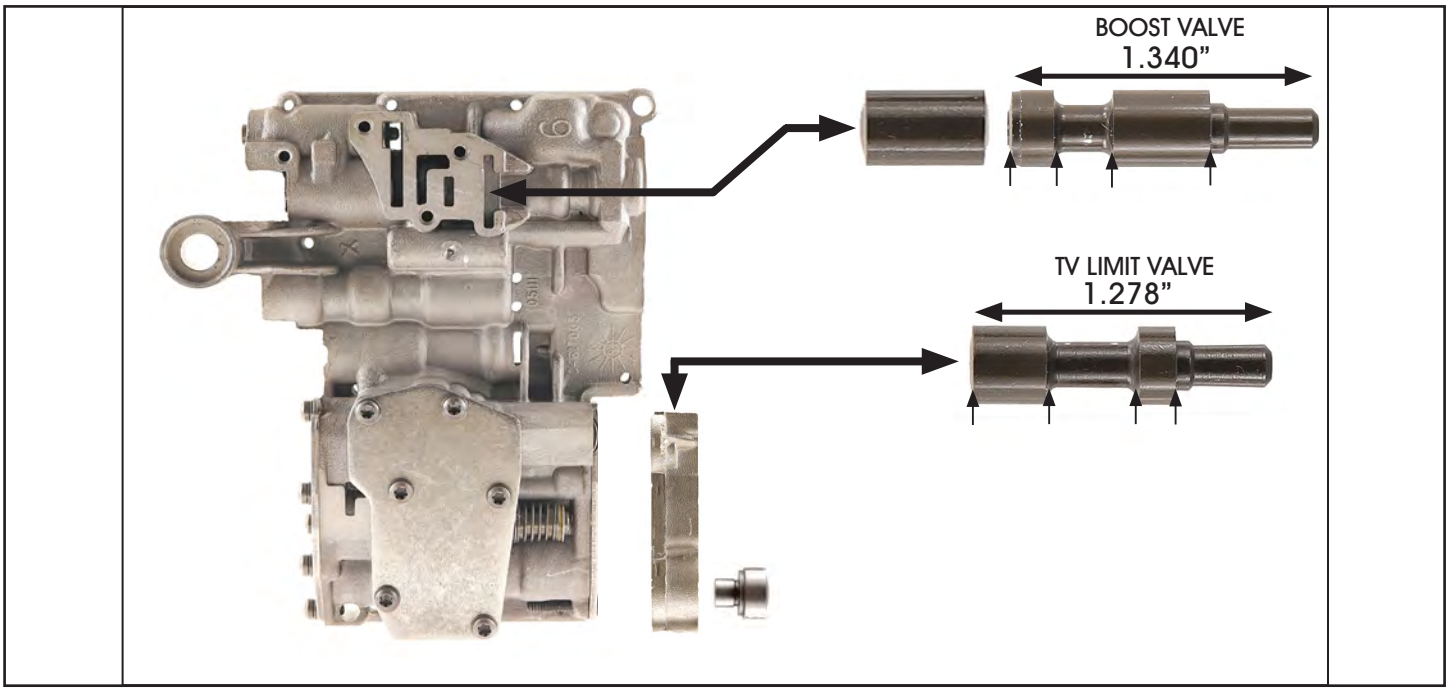

Figure 4

BOOST VALVE FUNCTION:

The purpose of the boost valve is to increase the mainline pressure when the transmission is in 4th gear or when the TCC is applied, there are two separate circuits to accomplish this independently,see figure 5. The boost valve accomplishes this by bleeding off a pressure regulator balance oil circuit, see figure 6. This is done to increase the mainline pressure during TCC or 4th gear operation which increases the torque capacity of these two modes of operation. The boost valve operation is a feed and bleed type circuit, the more you bleed off or exhaust the greater the boost pressure increase will be. The bleed off is controlled through the orifice in the boost valve cover plate, see figure 5. During a road test with a pressure gauge attached to the line or forward clutch pressure tap one can expect to see an increase in mainline pressure when the TCC or 4th gear is commanded on. Under MAX throttle conditions the mainline pressure in 1st through 3rd gear line pressure will be in the 90-100lb range. When the pressure regulator balance circuit is bled off during TCC or 4th gear main line pressure can be reach 115lbs or better. Figures 6-9 illustrate the proper operation of this valve.

VALVE REVERSAL, COMPLAINT #4:

When the boost valve and TV limit valve are reversed the pressure regulator balance circuit is continually exhausted or bled off due to the valve land spacing difference. During a road test you may notice that the shift from 2nd to 3rd will be slightly firmer from the increased mainline pressure. See figure 10. Once TCC or 4th gear is commanded on and the boost valve (TV limit) strokes we are going to see an even greater increase in mainline pressure because the balance oil exhaust is no longer routed through the orifice in the boost valve cover plate, it’s exhausted past the valve land. See figures 11-13.

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

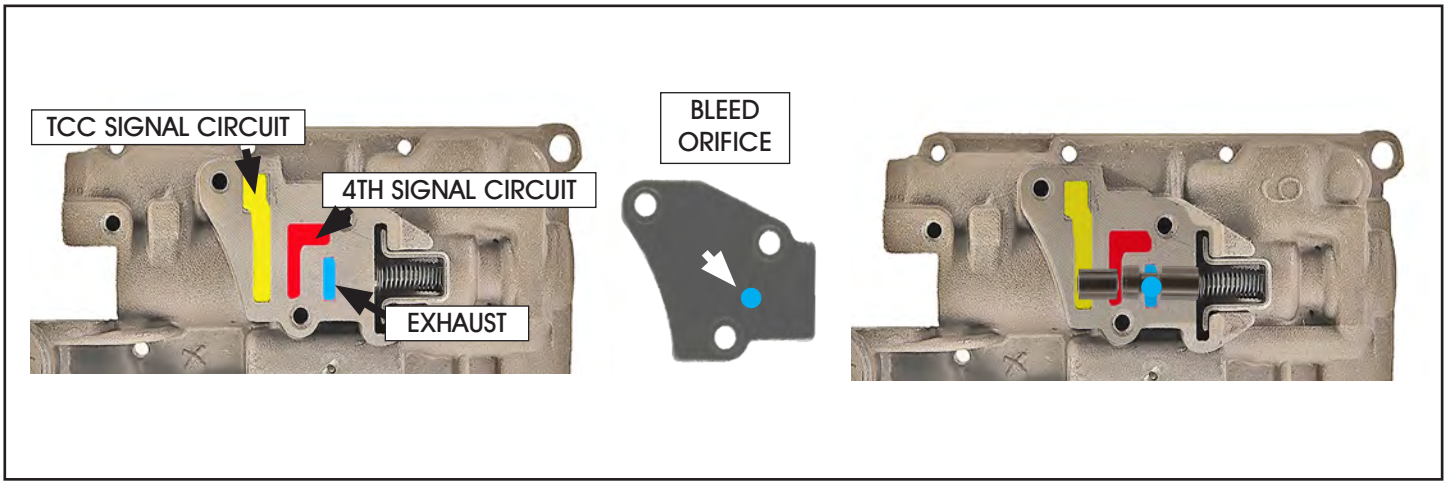

Figure 5

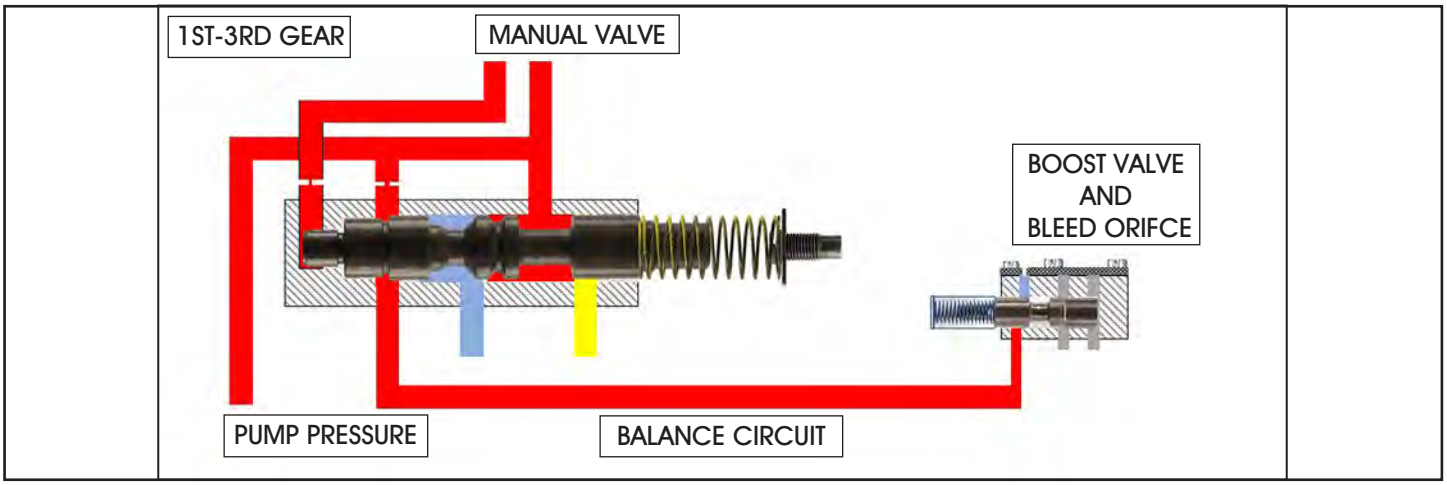

Figure 6

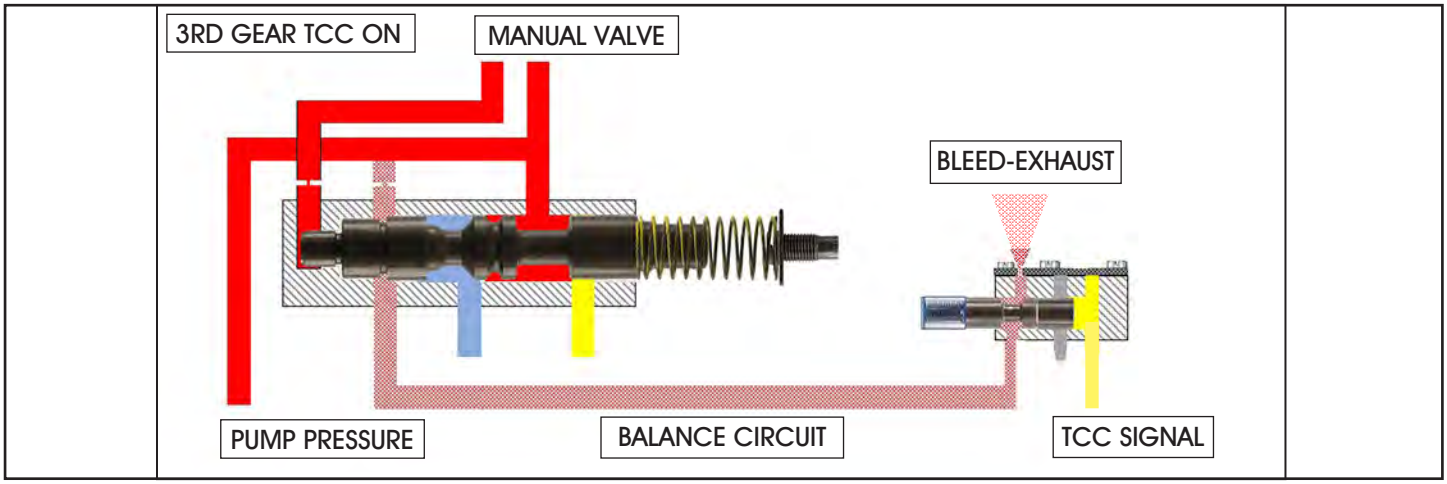

Figure 7

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

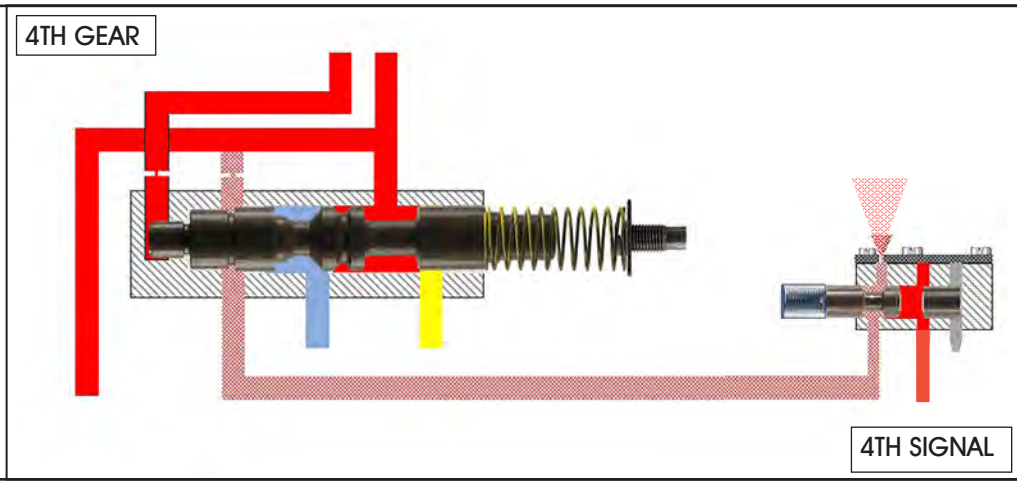

Figure 8

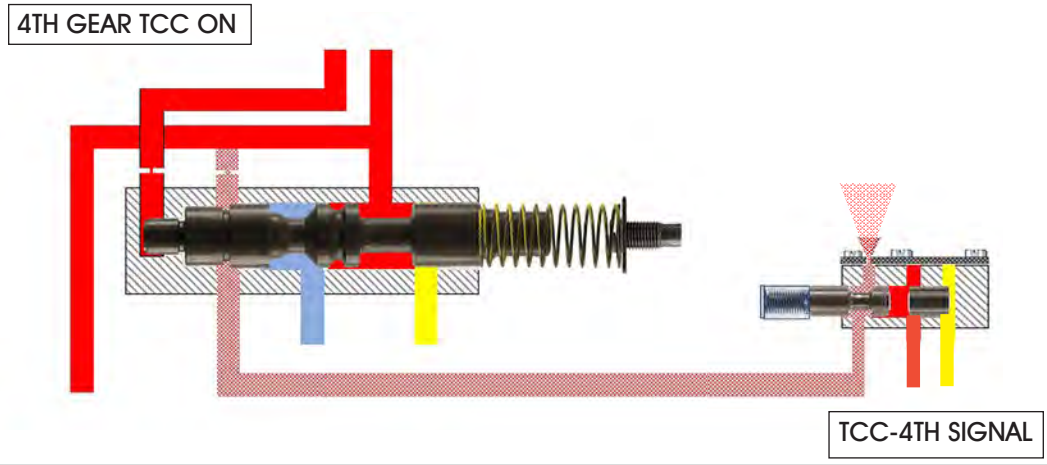

Figure 9

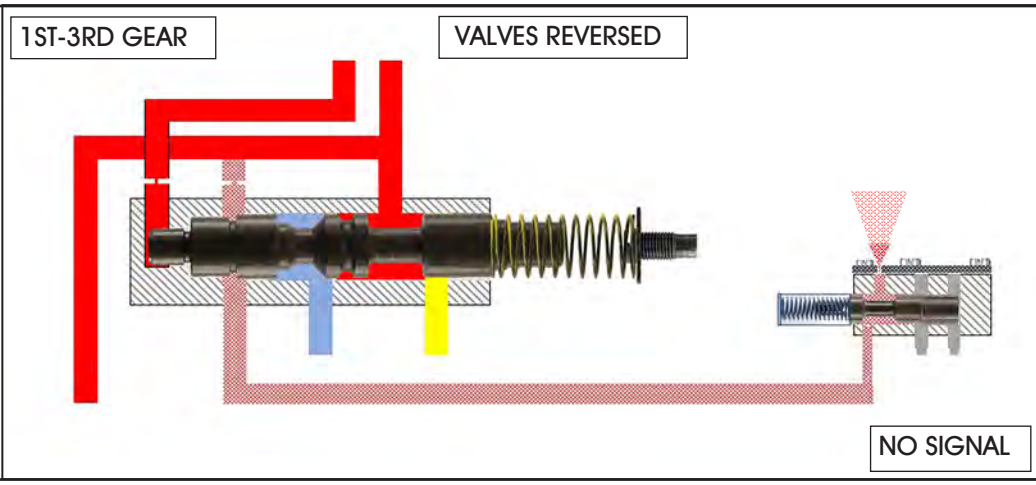

Figure 10

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

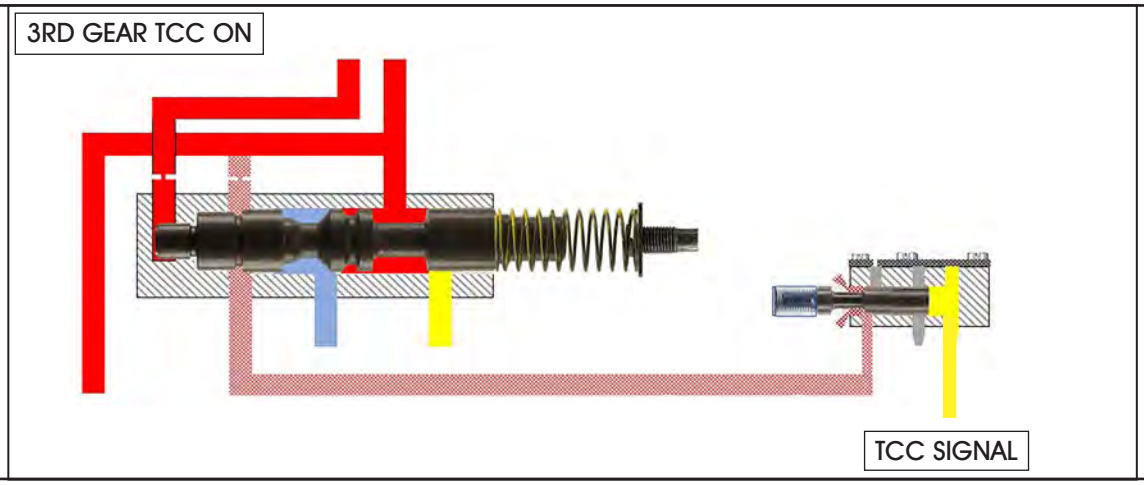

Figure 11

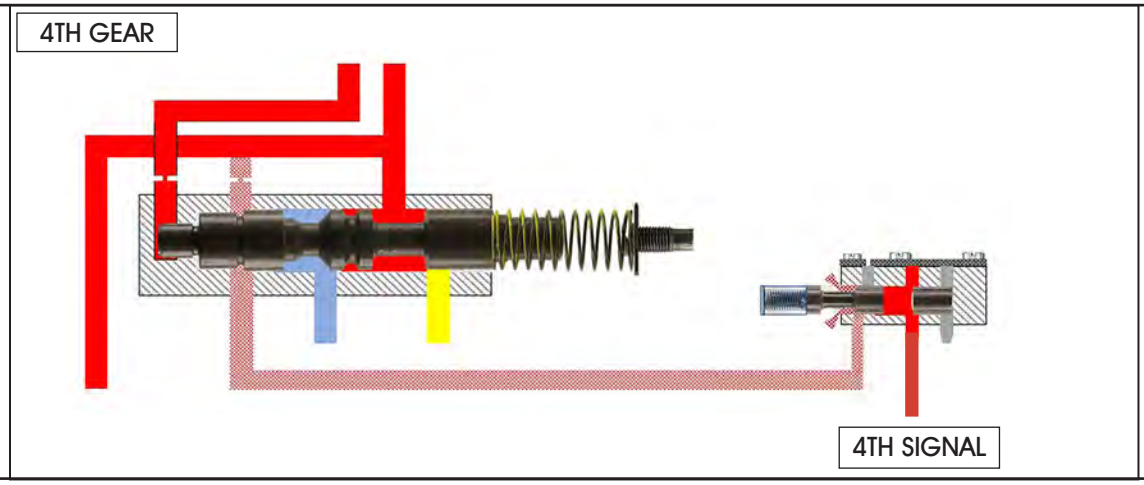

Figure 12

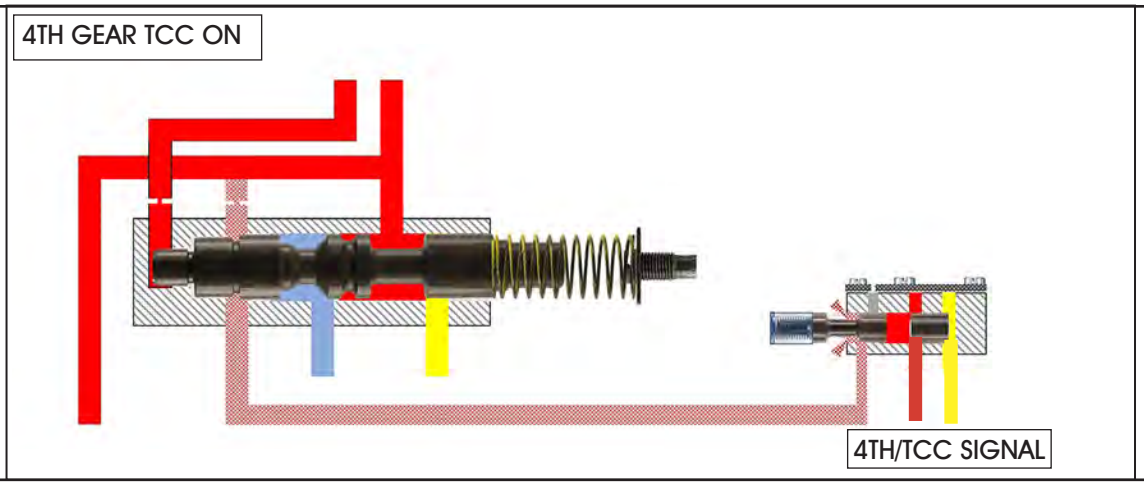

Figure 13

DODGE 46-48RE

P1740, TCC OR 4TH SLIPPAGE

TV LIMIT VALVE OPERATION:
The TV limit valve function is to shut off the TV feed to the 2-3 shift plug at 42lbs of governor pressure. The reason for this is to help prevent any 2-3-2 shift cycling at speeds below 40MPH.

VALVE REVERSAL,COMPLAINT #4:
The over active part throttle downshift,firm 2-3 or 2-3-2 shift complaints occur because the TV limit (boost valve) valve is now working in a reverse function. The TV limit valve normally shuts off TV pressure to the 2-3 plug at 42lbs of governor pressure, see figure 14. With the boost valve in place of the TV limit valve it's now going to supply TV pressure to the 2-3 plug at 42lbs instead of shutting it off. This will disrupt the TV pressure to governor pressure relationship on the 2-3 shift plug and shift valve. See figure 14 for correct operation and figure 15 for valve reversed operation.

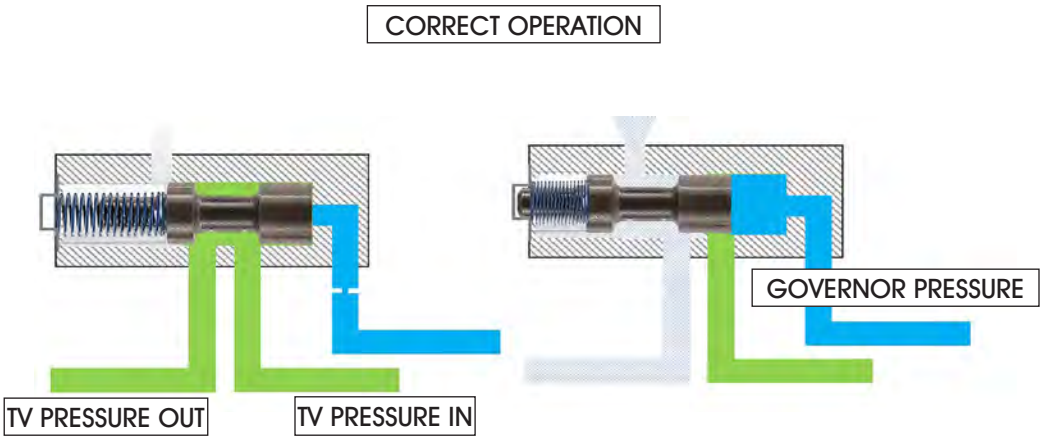

Figure 14

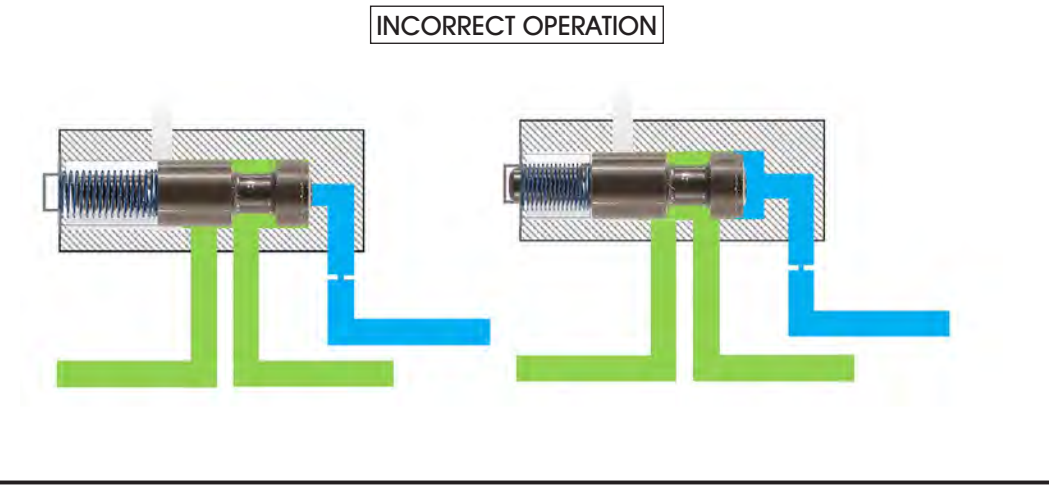

Figure 15