sonnax
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TAKE COMPLETE CONTROL

OF YOUR SLIPS, BUMPS, & SHUDDERS WITH THESE UNIQUE TCC CONTROL FIXES

Although there are many causes of Torque Converter Clutch (TCC) related problems, a great majority of these problems are caused by valve or bore wear in a variety of TCC control components. Sonnax has spent hundreds of hours diagnosing the root cause of these failures and has developed many products that not only fix these problems but also actually save you money.

How does TCC control component wear cause TCC problems? To answer this, let's look at the lock-up system for a late design 4L60-E PWM controlled TCC. (see Figure 1 on page 2). It is important to remember that this is an example of only one system and the specific paths it uses to apply the Converter Clutch. Many different systems may be found, not only in designs from different manufacturers, but even in the system and paths of similar unit such as the 4L60-E – non PWM design. While the specific circuits of the system in question must be understood and its components examined in turn, the principle remains that multiple control components work together and can stand independently or jointly as the cause of TCC-related problems.

In the system shown, the first component involved is the Actuator Feed Limit Valve. This valve determines the signal pressure available to the TCC PWM Solenoid. The PWM Solenoid CC signal then strokes the Isolator and Regulator Valves, establishing a regulated apply pressure which is made available to the TCC Apply Valve. Changes in duty cycle at the PWM Solenoid are used to increase or decrease this regulated apply pressure. The TCC Apply Valve must then deliver the regulated apply pressure to the Torque Converter Clutch Piston.

Problems may arise when wear at any single component causes a reduction in the pressure intended for torque converter apply (see Figures 2-4 on page 3).

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Welcome

...to our premier issue of ***Sonnax Technical Bulletin***, a compilation of technical information and product bulletins. Each issue of ***Sonnax Technical Bulletin*** will have a theme and will deal with problems related to that theme.

Sonnax hopes that you find this information useful and valuable and encourages your comments. Please contact us via the information given on the back of this bulletin.

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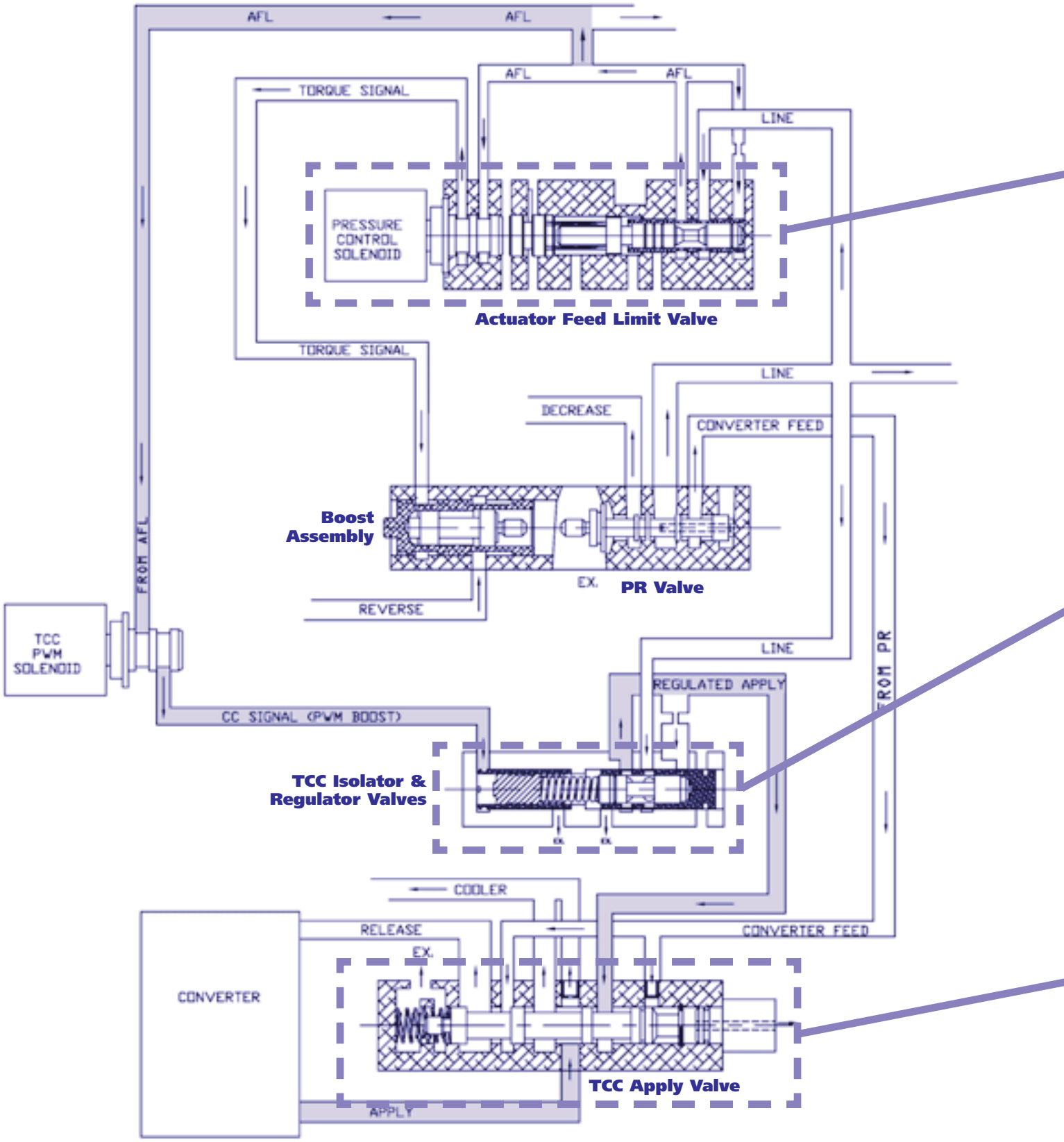
Figure 1 4L60-E PWM CONTROLLED SYSTEM



Path used to control TCC apply pressure.

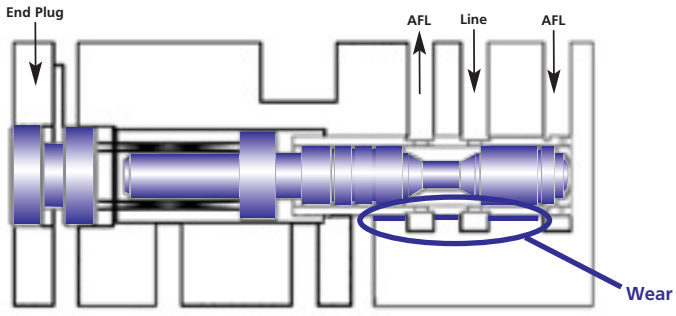


Figure 2 **Actuator Feed Limit Valve**

Pressure loss caused by wear results in reduced AFL signal available to PWM solenoid.

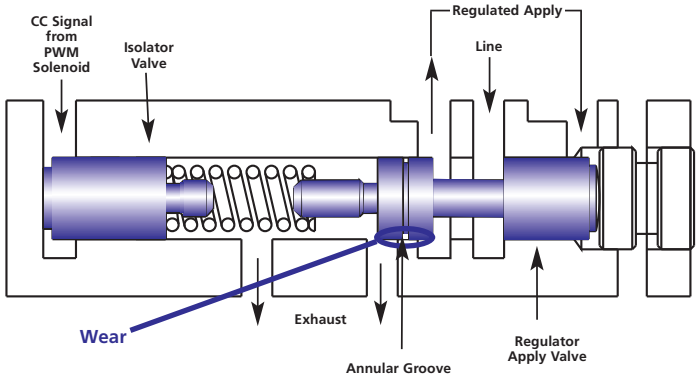


Figure 3 **TCC Isolator & Regulator Valve**

Pressure loss caused by wear results in a reduction of the intended regulated apply pressure.

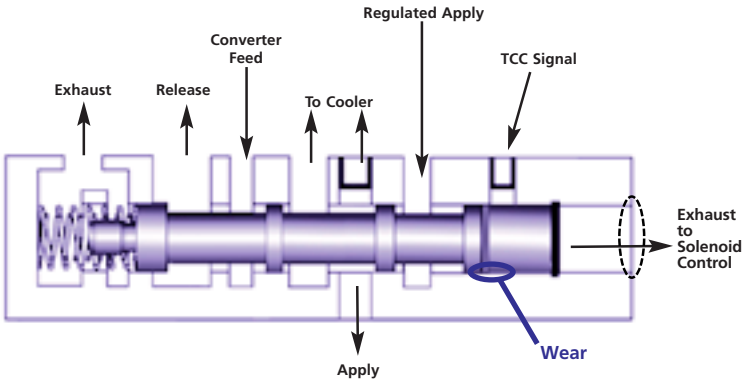


Figure 4 **TCC Apply Valve**

Pressure loss caused by wear prevents valve from stroking properly. Regulated apply pressure may be reduced or even prevented from being fed to the converter.