2000 ISUZU TROOPER & BMW
4L30-E
D.T.C. P1870 OR TCC SHUDDER

COMPLAINT: 2000 and up Isuzu Trooper and BMW models with the 4L30-E transmission may exhibit a Diagnostic Trouble Code P1870 Torque Converter Slip or a shudder on Torque Converter Clutch application.

CAUSE: The Cause may be, a worn Torque Converter Regulator Valve and Sleeve, creating insufficient converter apply pressure to hold the clutch on. See Figure 1.
2000 and up model Trooper and BMW applications have a Pulse Width Modulated Converter application. This TCC application strategy change, required a new TCC PWM solenoid and numerous casting changes to the pump and it's related parts.
See Figure 3 for the ON-OFF two valve pump that is still used on 2000 and up Cadillac Catera, Rodeo and Passport models.
See Figure 2 for the PWM pump with the identification of the new valves and their locations.
See Figure 4 for the differences in the worm track configuration of the ON-OFF pump casting and the PWM pump casting.
See Figure 5 for the differences in the hole configuration between the pump plates.
See Figure 6 for the differences in the worm track configuration of the Bell Housings.
See Figure 7 for a partial hydraulic schematic of the PWM Torque Convertor Clutch apply circuit.

CORRECTION: Replace the Torque Converter Regulator Valve and Sleeve.

SERVICE INFORMATION:

TORQUE CONVERTER REGULATOR VALVE (Isuzu).....8-96018-518-0
TORQUE CONVERTER REGULATOR VALVE SLEEVE (Isuzu).....8-96018-472-0

TORQUE CONVERTER REGULATOR VALVE AND SLEEVE

Special thanks to:
Ted's Transmission
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Santilli's Transmission
Glenside Pa.
Dynamic Dino
John Forrester

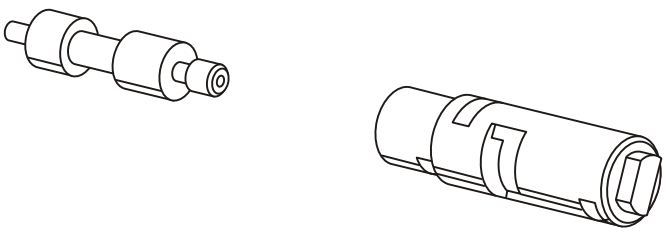
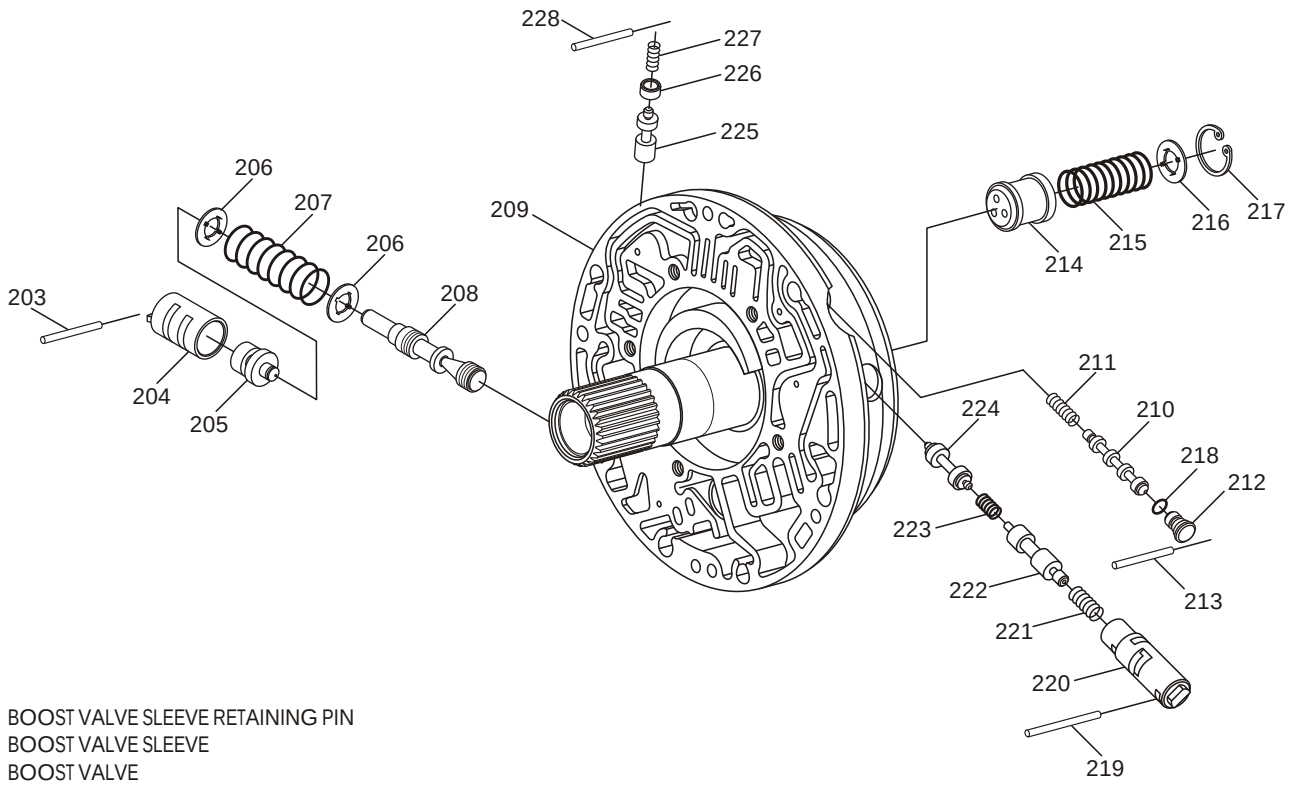


Figure 1

EXPLODED VIEW
"4 VALVE PUMP"

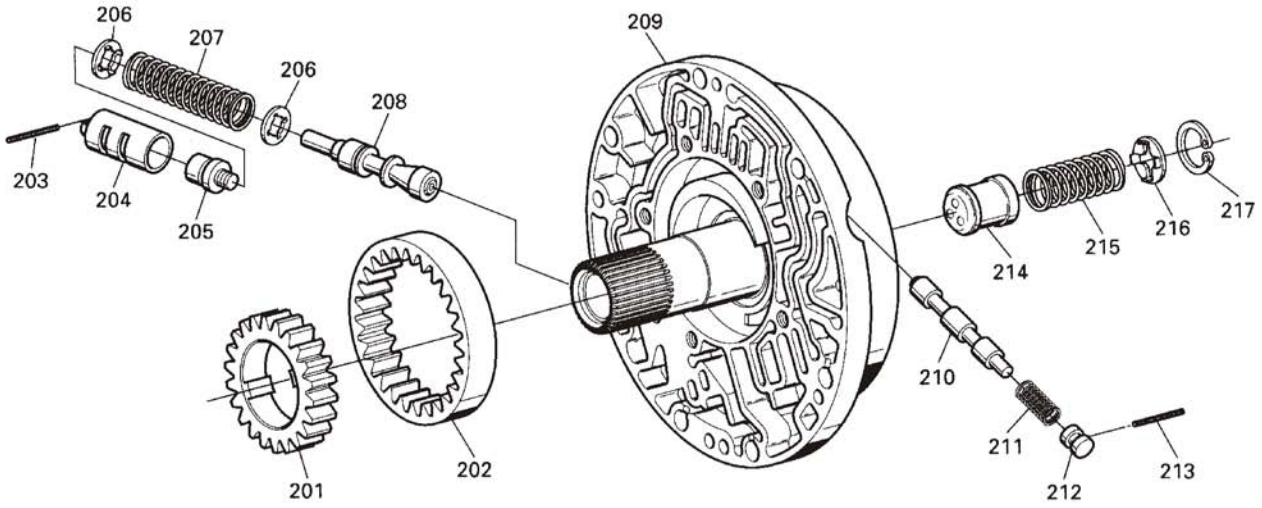


203 BOOST VALVE SLEEVE RETAINING PIN
204 BOOST VALVE SLEEVE
205 BOOST VALVE
206 PRESSURE REGULATOR VALVE SPRING SEAT (2)
207 PRESSURE REGULATOR VALVE SPRING
208 PRESSURE REGULATOR VALVE
209 OIL PUMP ASSEMBLY
210 CONVERTER CLUTCH CONTROL VALVE
211 CONVERTER CLUTCH CONTROL VALVE SPRING
212 CONVERTER CLUTCH CONTROL VALVE BORE PLUG
213 TCC CONTROL VALVE BORE PLUG RETAINING PIN
214 THROTTLE SIGNAL ACCUMULATOR PISTON
215 THROTTLE SIGNAL ACCUMULATOR PISTON SPRING
216 THROTTLE SIGNAL ACCUMULATOR SPRING SEAT
217 THROTTLE SIGNAL ACCUMULATOR SNAP RING
218 TCC CONTROL VALVE BORE PLUG "O" RING
219 TCC REGULATOR VALVE SLEEVE RETAINING PIN
220 TCC REGULATOR VALVE SLEEVE
221 TCC REGULATOR VALVE SPRING
222 TCC REGULATOR VALVE
223 TCC ISOLATOR VALVE SPRING
224 TCC ISOLATOR VALVE
225 TCC ENABLE VALVE
226 TCC ENABLE VALVE SPRING
227 TCC ENABLE VALVE SLEEVE
228 TCC ENABLE VALVE RETAINING PIN

NOTE: Some valve nomenclature is ATSG interpretations by valve function. Some manuals list all of the TCC related valves the same name.

Figure 2

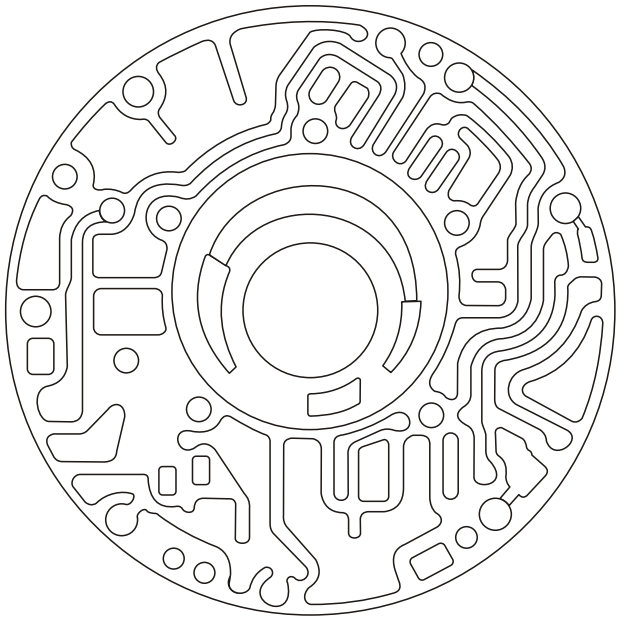
EXPLODED VIEW
"2 VALVE PUMP"



201 OIL PUMP DRIVE GEAR
202 OIL PUMP DRIVEN GEAR
203 BOOST VALVE SLEEVE RETAINING PIN
204 BOOST VALVE SLEEVE
205 BOOST VALVE
206 PRESSURE REGUL ATOR VALVE SPRING SEAT (2)
207 PRESSURE REGUL ATOR VALVE SPRING
208 PRESSURE REGUL ATOR VALVE
209 OIL PUMP ASSEMBLY
210 CONVERTER CLUTCH CONTROL VALVE
211 CONVERTER CLUTCH CONTROL VALVE SPRING
212 CONVERTER CLUTCH CONTROL VALVE BORE PLUG
213 TCC CONTROL VALVE BORE PLUG RETAINING PIN
214 THROTTLE SIGNAL ACCUMULATOR PISTON
215 THROTTLE SIGNAL ACCUMULATOR PISTON SPRING
216 THROTTLE SIGNAL ACCUMULATOR SPRING SEAT
217 THROTTLE SIGNAL ACCUMULATOR SNAP RING

Figure 3

OIL PUMP WORM TRACK
"2 VALVE PUMP"



OIL PUMP WORM TRACK
"4 VALVE PUMP"

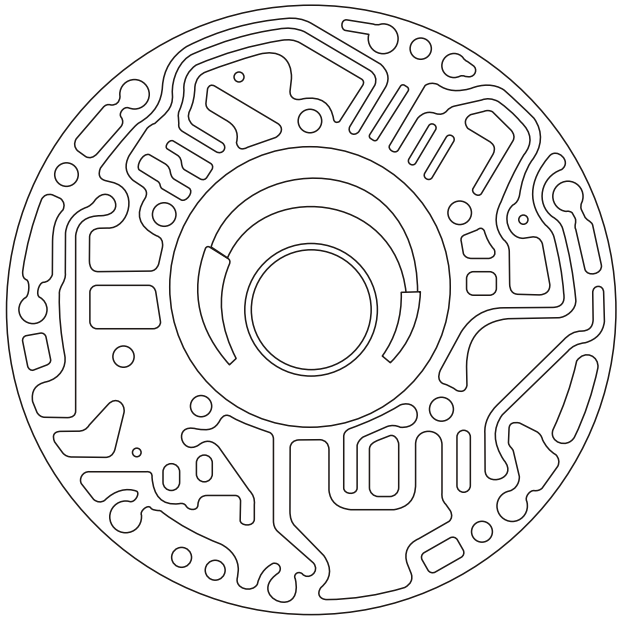
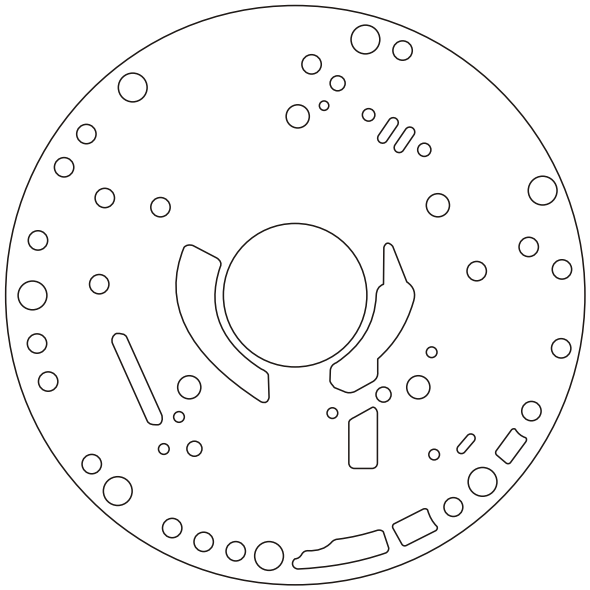


Figure 4

PUMP WEAR PLATE
"2 VALVE PUMP"



PUMP WEAR PLATE
"4 VALVE PUMP"

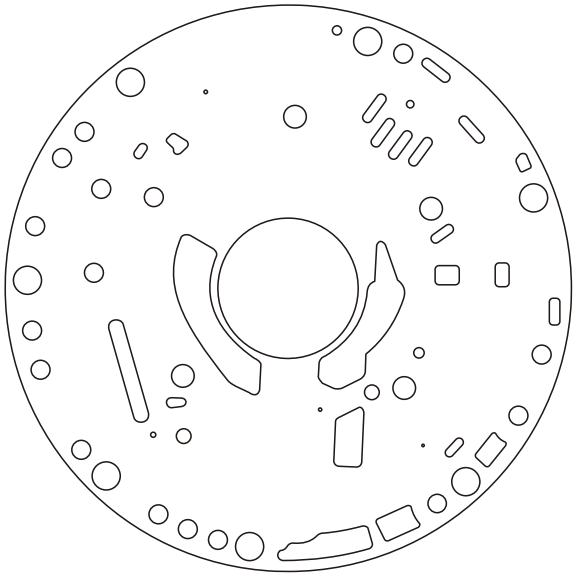


Figure 5

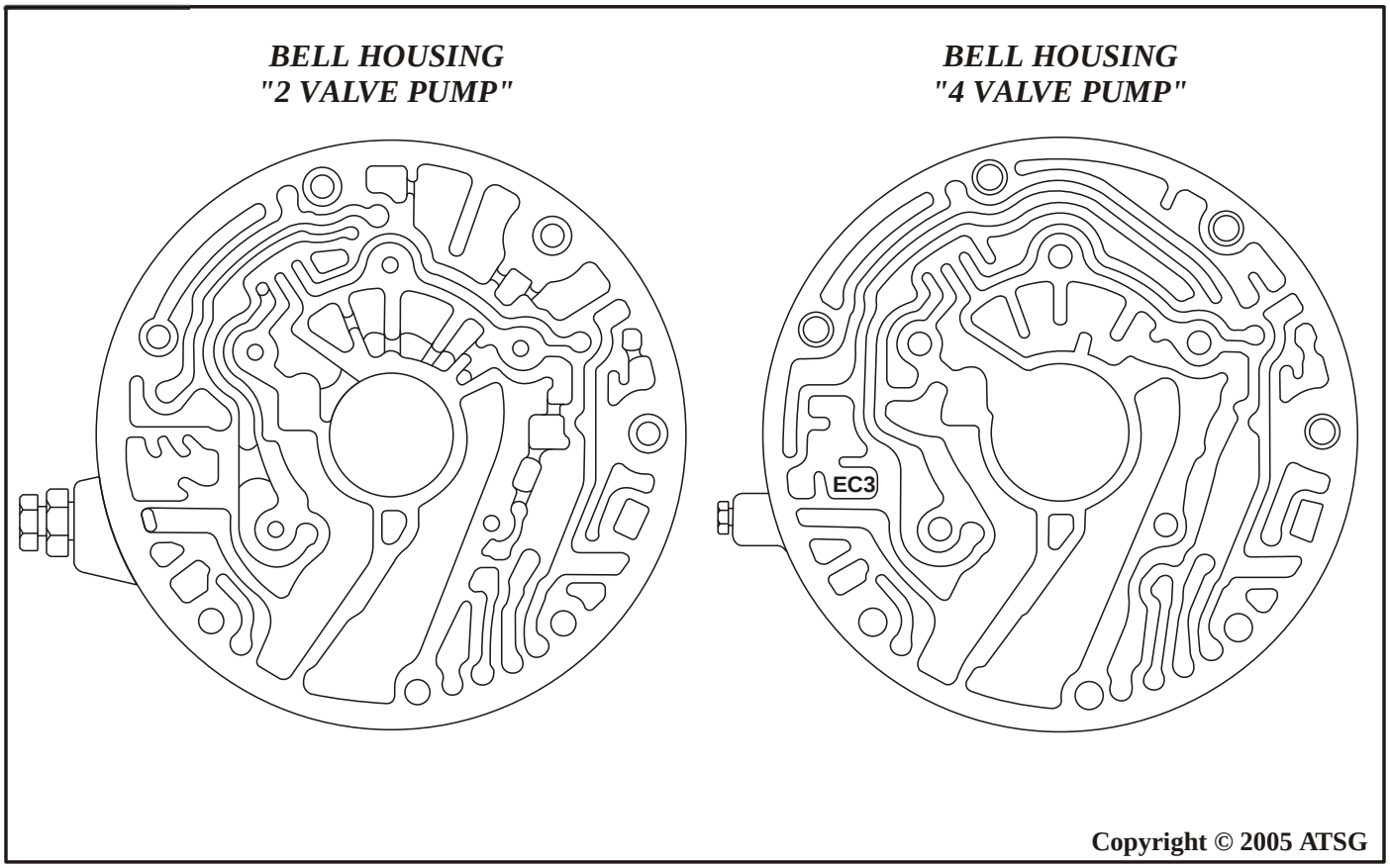
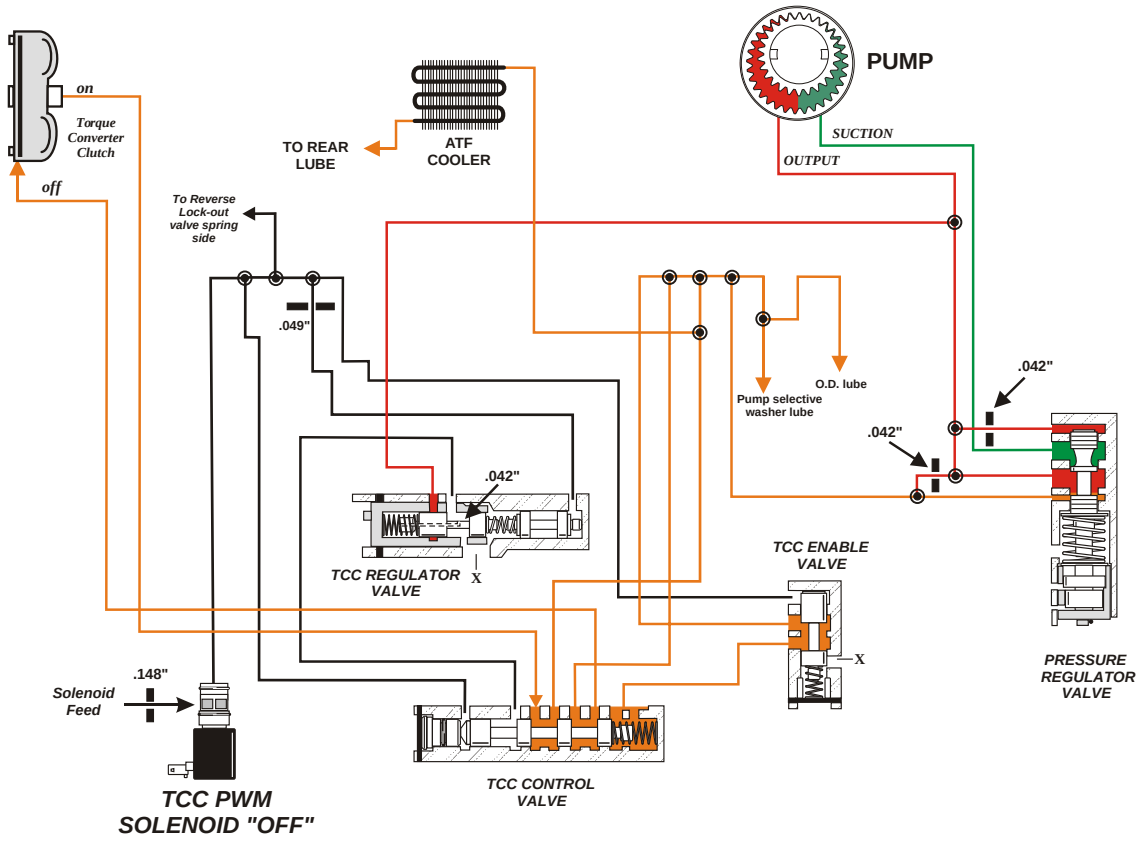


Figure 6

PWM TCC "OFF" PARTIAL SCHEMATIC



PWM TCC "ON" PARTIAL SCHEMATIC

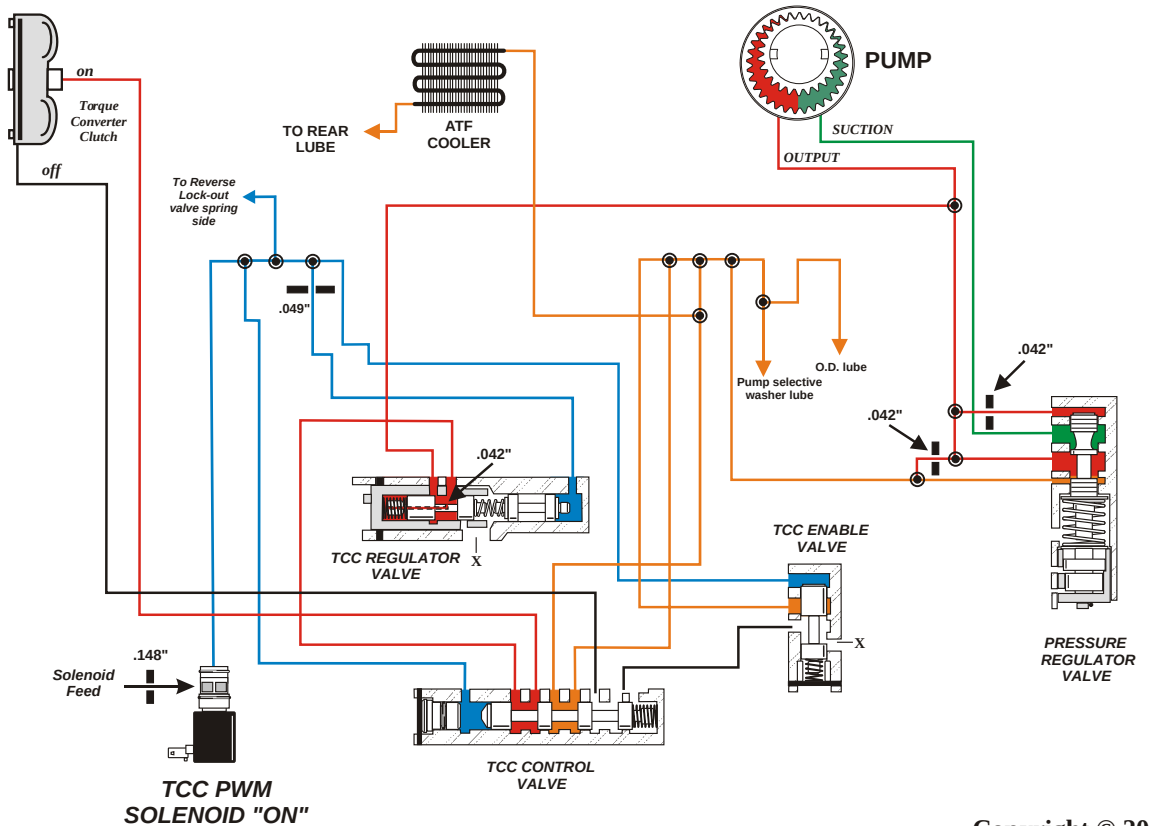


Figure 7