



Technical Service Information

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 Converter Clutch apply circuit.

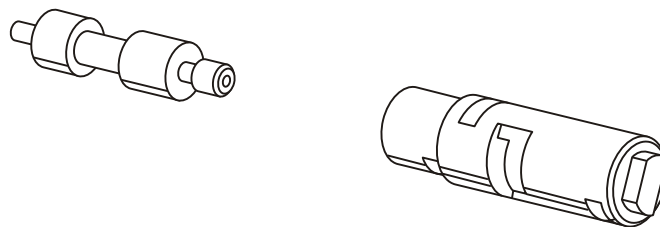
CORRECTION: Replace the Torque Converter Regulator Valve and Sleeve.

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

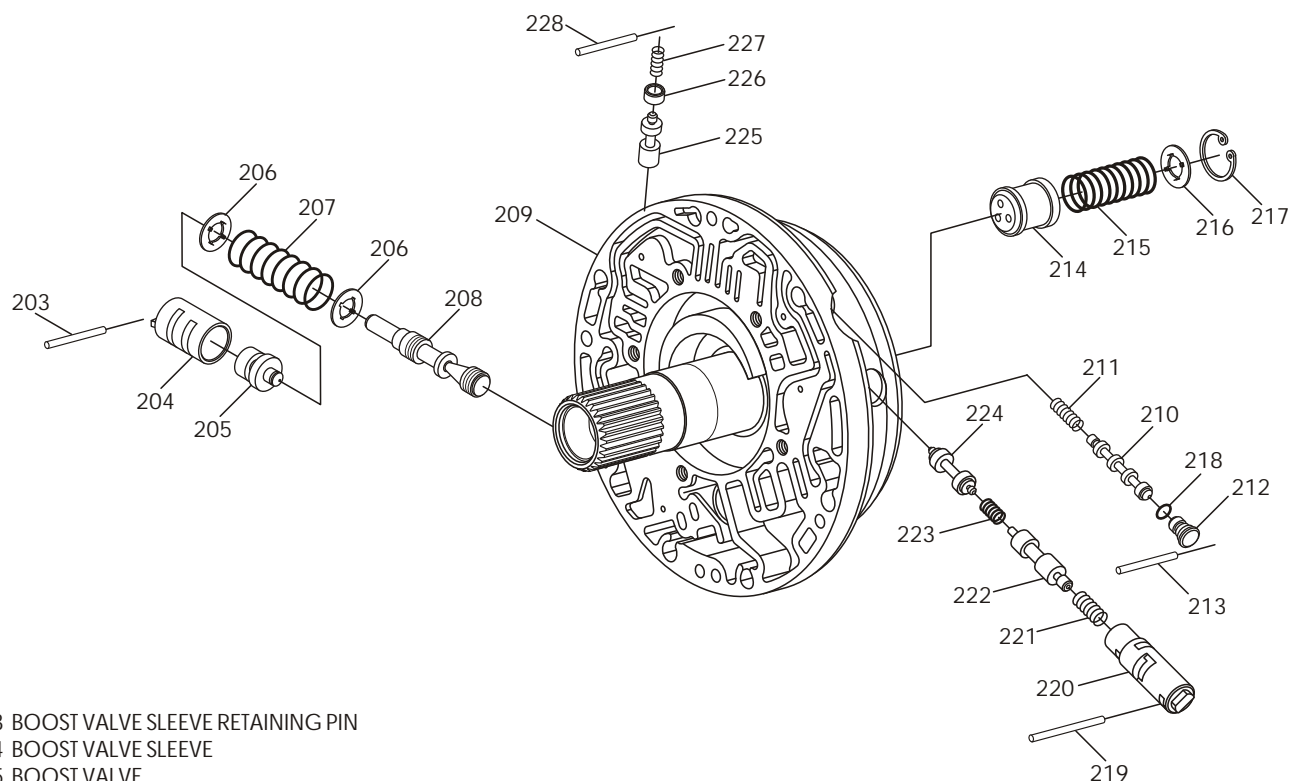
*Special thanks to:
Ted's Transmission
Alex Biliski at
Santilli's Transmission
Glenside Pa.
Dynamic Dino
John Forrester*



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Figure 1

EXPLODED VIEW "4 VALVE PUMP"



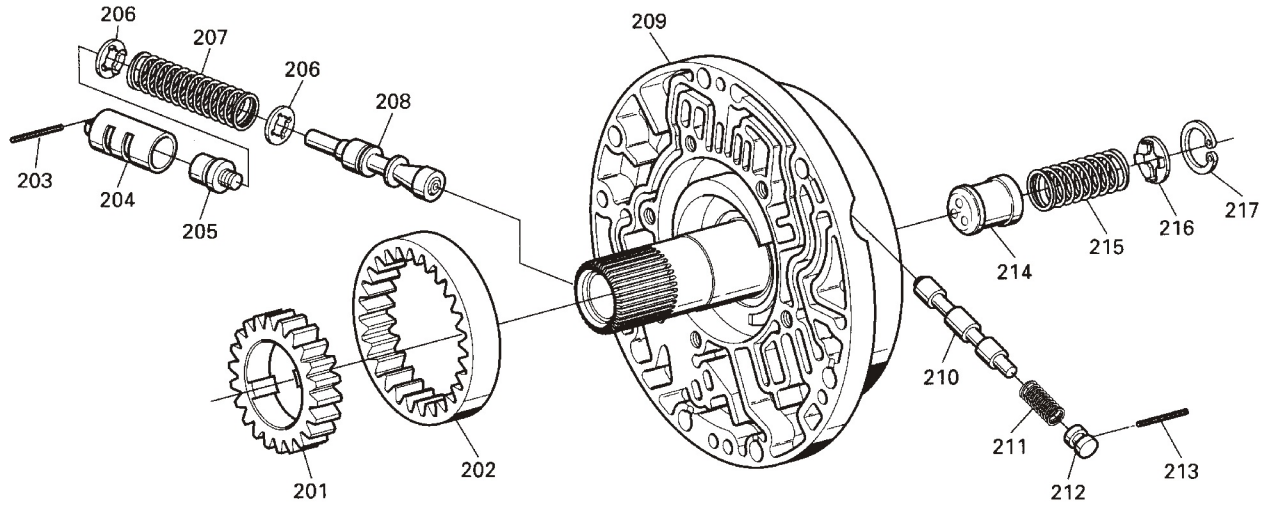
- 203 BOOST VALVE SLEEVE RETAINING PIN
- 204 BOOST VALVE SLEEVE
- 205 BOOST VALVE
- 206 PRESSURE REGULATOR VALVE SPRING SEAT (2)
- 207 PRESSURE REGULATOR VALVE SPRING
- 208 PRESSURE REGULATOR VALVE
- 209 OIL PUMP ASSEMBLY
- 210 CONVERTER CLUTCH CONTROL VALVE
- 211 CONVERTER CLUTCH CONTROL VALVE SPRING
- 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.

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Figure 2

EXPLODED VIEW "2 VALVE PUMP"



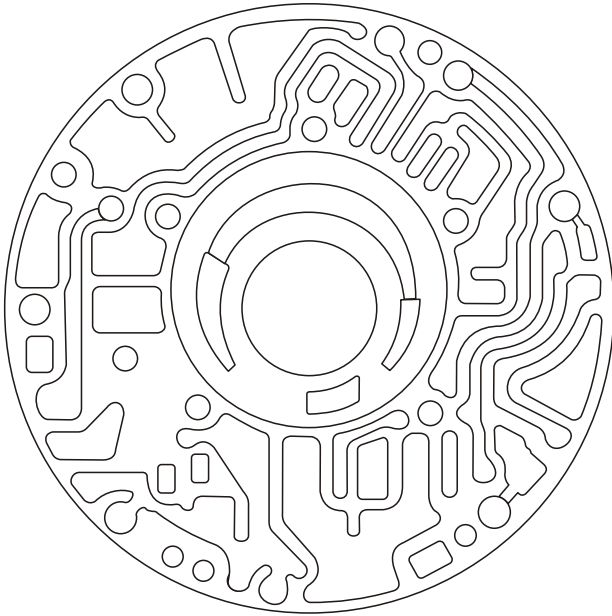
- 201 OIL PUMP DRIVE GEAR
- 202 OIL PUMP DRIVEN GEAR
- 203 BOOST VALVE SLEEVE RETAINING PIN
- 204 BOOST VALVE SLEEVE
- 205 BOOST VALVE
- 206 PRESSURE REGULATOR VALVE SPRING SEAT (2)
- 207 PRESSURE REGULATOR VALVE SPRING
- 208 PRESSURE REGULATOR VALVE
- 209 OIL PUMP ASSEMBLY

- 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

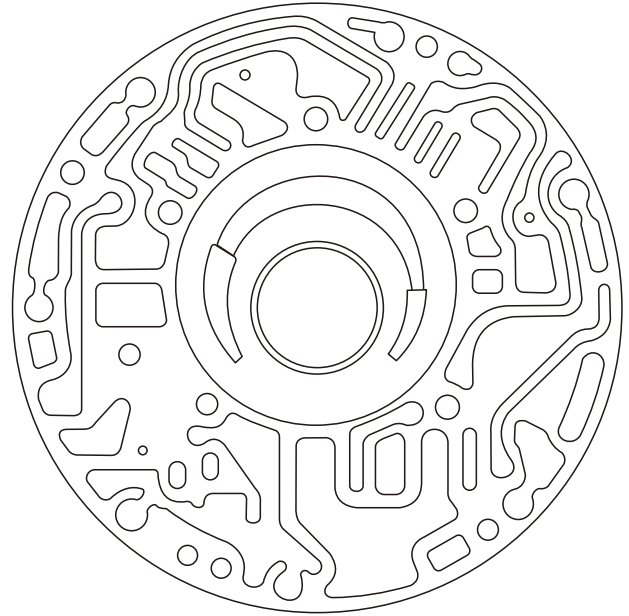
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Figure 3

***OIL PUMP WORM TRACK
"2 VALVE PUMP"***



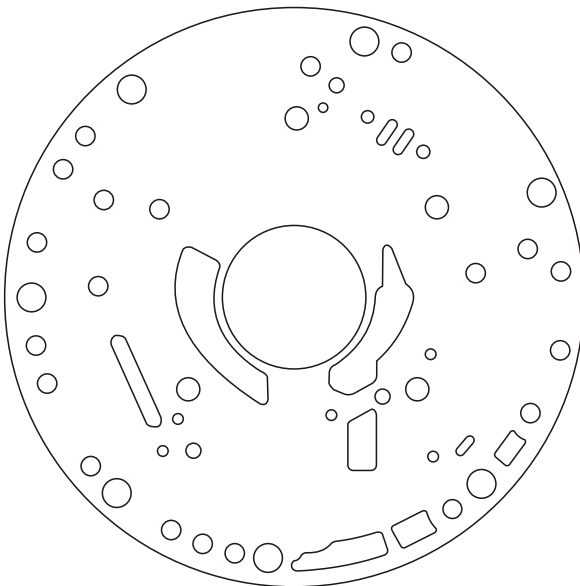
***OIL PUMP WORM TRACK
"4 VALVE PUMP"***



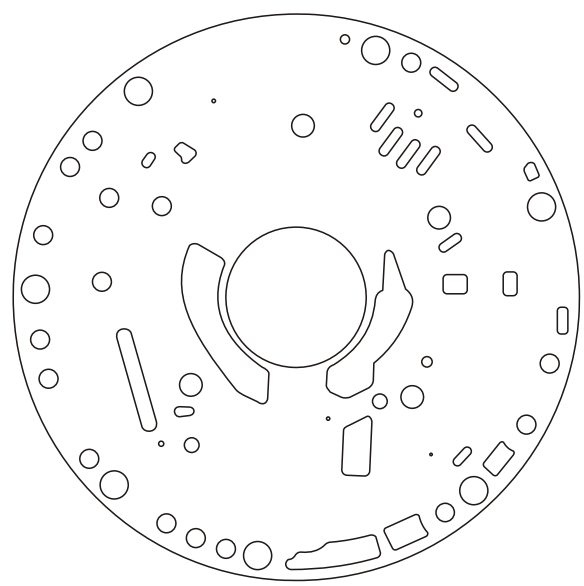
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Figure 4

***PUMP WEAR PLATE
"2 VALVE PUMP"***



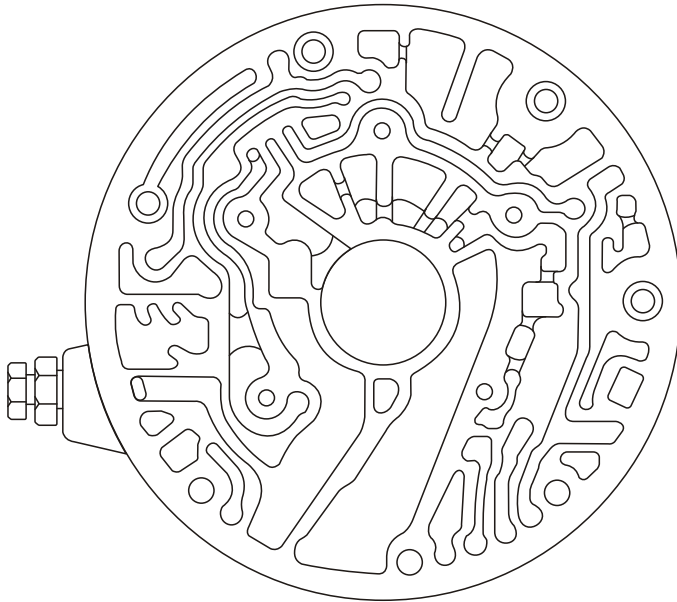
***PUMP WEAR PLATE
"4 VALVE PUMP"***



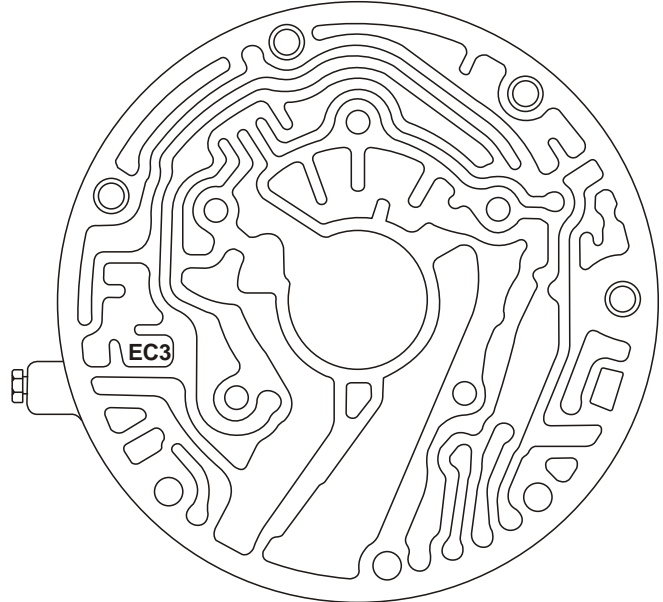
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Figure 5

***BELL HOUSING
"2 VALVE PUMP"***



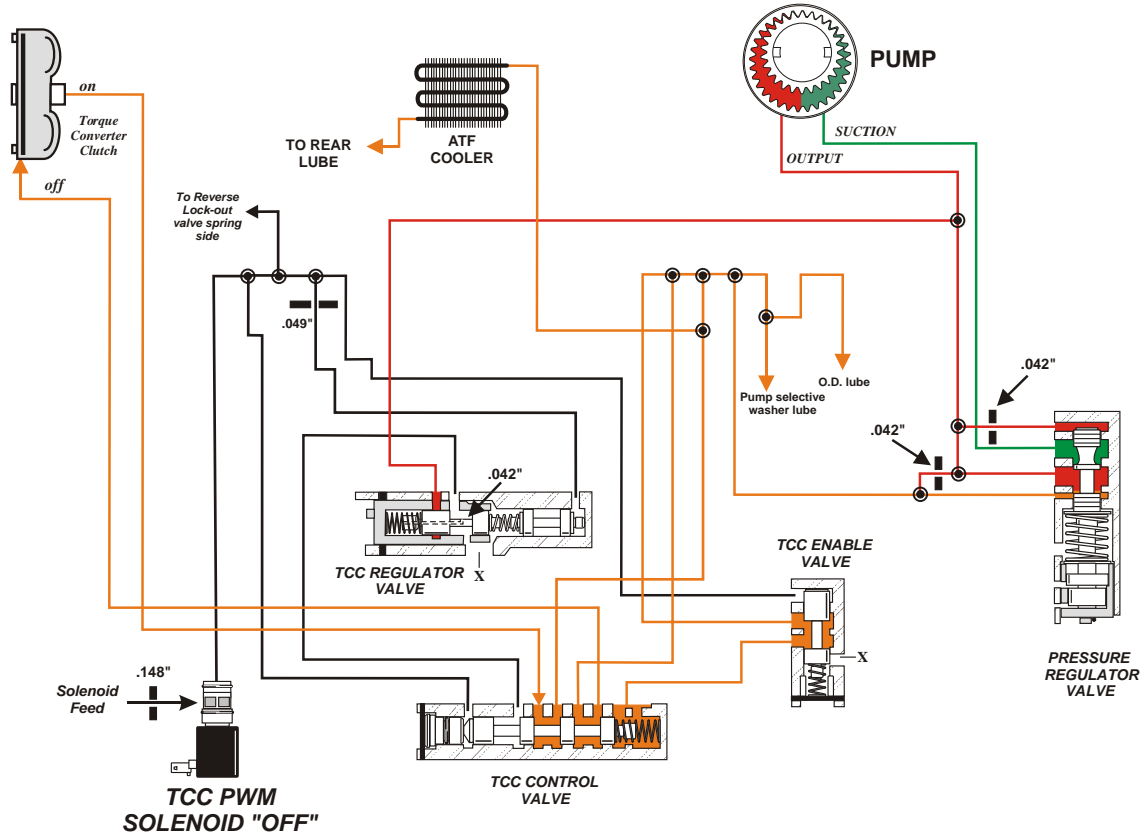
***BELL HOUSING
"4 VALVE PUMP"***



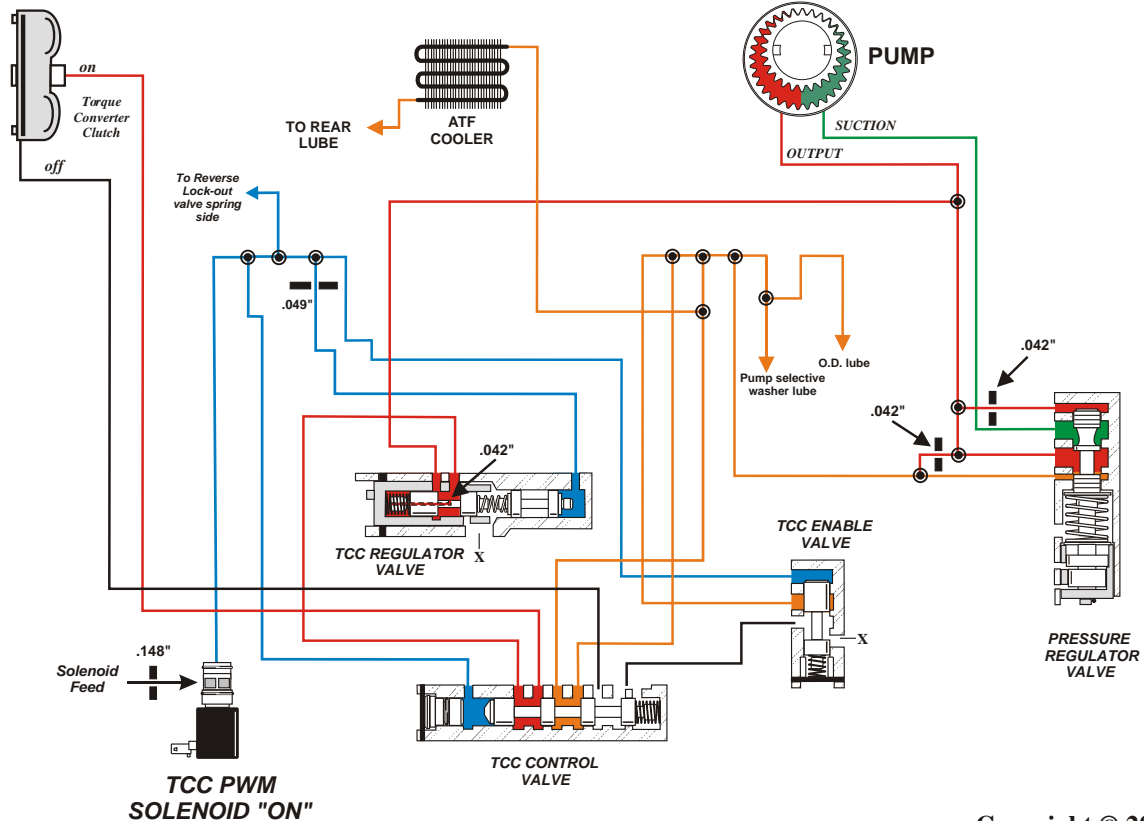
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Figure 6

PWM TCC "OFF" PARTIAL SCHEMATIC



PWM TCC "ON" PARTIAL SCHEMATIC



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Figure 7