



Technical Service Information

GM 4T65E **TCC SURGE AT HIGH SPEEDS OR DTC P0741**

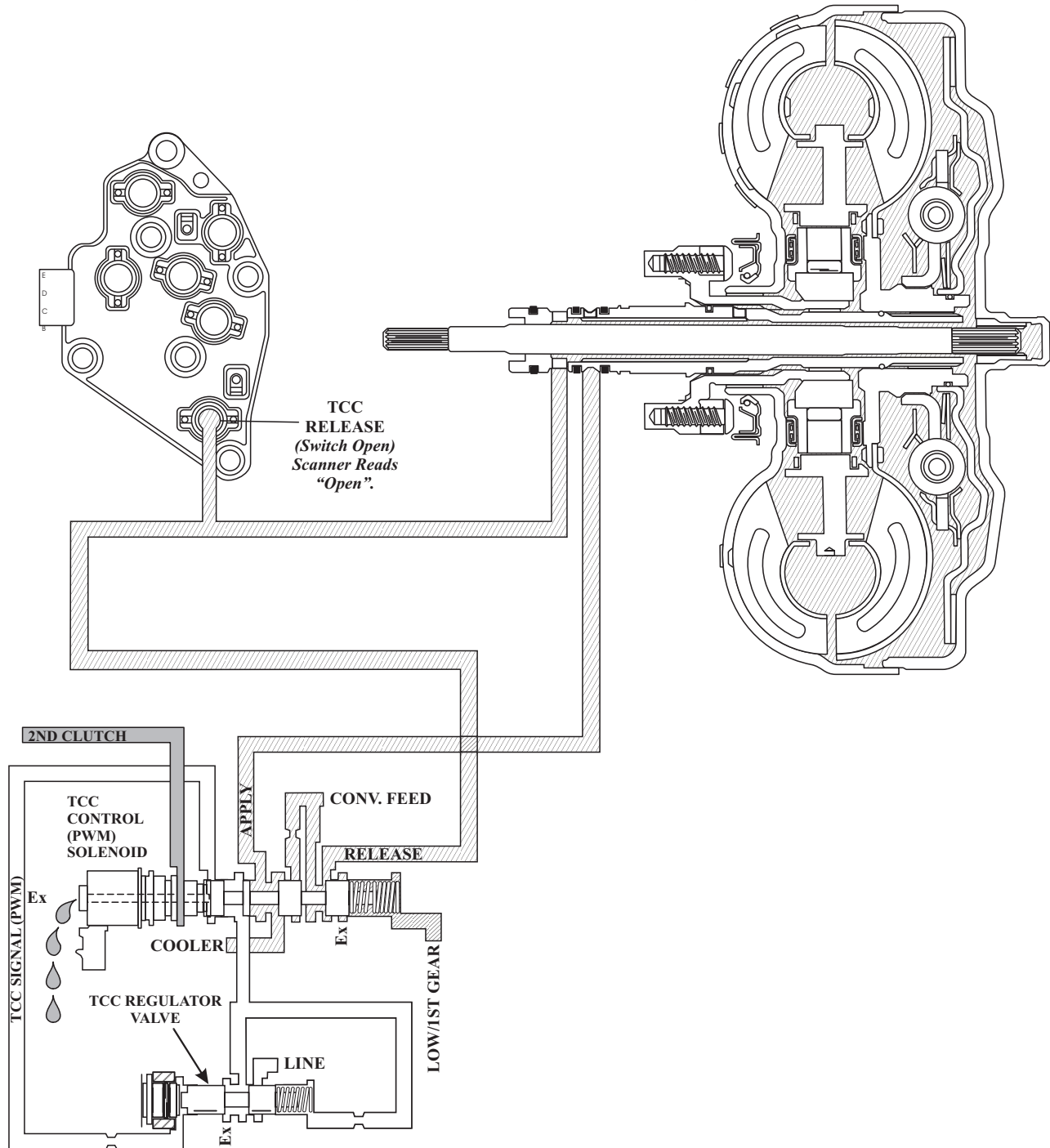
COMPLAINT: Vehicles equipped with the 4T65E transaxle may exhibit a Torque converter clutch surge at highway speeds or a Diagnostic Trouble Code P0741, TCC stuck off, before or after overhaul.

CAUSE: The cause may be, a leaking bore plug “O” ring on the Torque Converter Regulator Valve train. Refer to Figure 1 to see a partial hydraulic circuit of the Torque Converter Regulator valve when the TCC is off. Refer to Figure 2 to see a partial hydraulic circuit of the Torque Converter Regulator valve when the TCC is on. Notice, when there is a leak in the TCC Signal Circuit, the torque converter regulator valve may move to the left causing insufficient converter apply pressure, allowing the Torque Converter Clutch to slip, causing a surging sensation or the P0742 code.

CORRECTION: Refer to Figure 3 and 4 for the valve locations in the valve body and replace the “o”ring on the Torque Converter Regulator Valve bore plug (item number 328).

*Special thanks to
Jim at Lee Miles*

TCC HYDRAULIC CIRCUIT IN DRIVE 2ND 3RD AND 4TH GEARS (Converter Clutch Released)

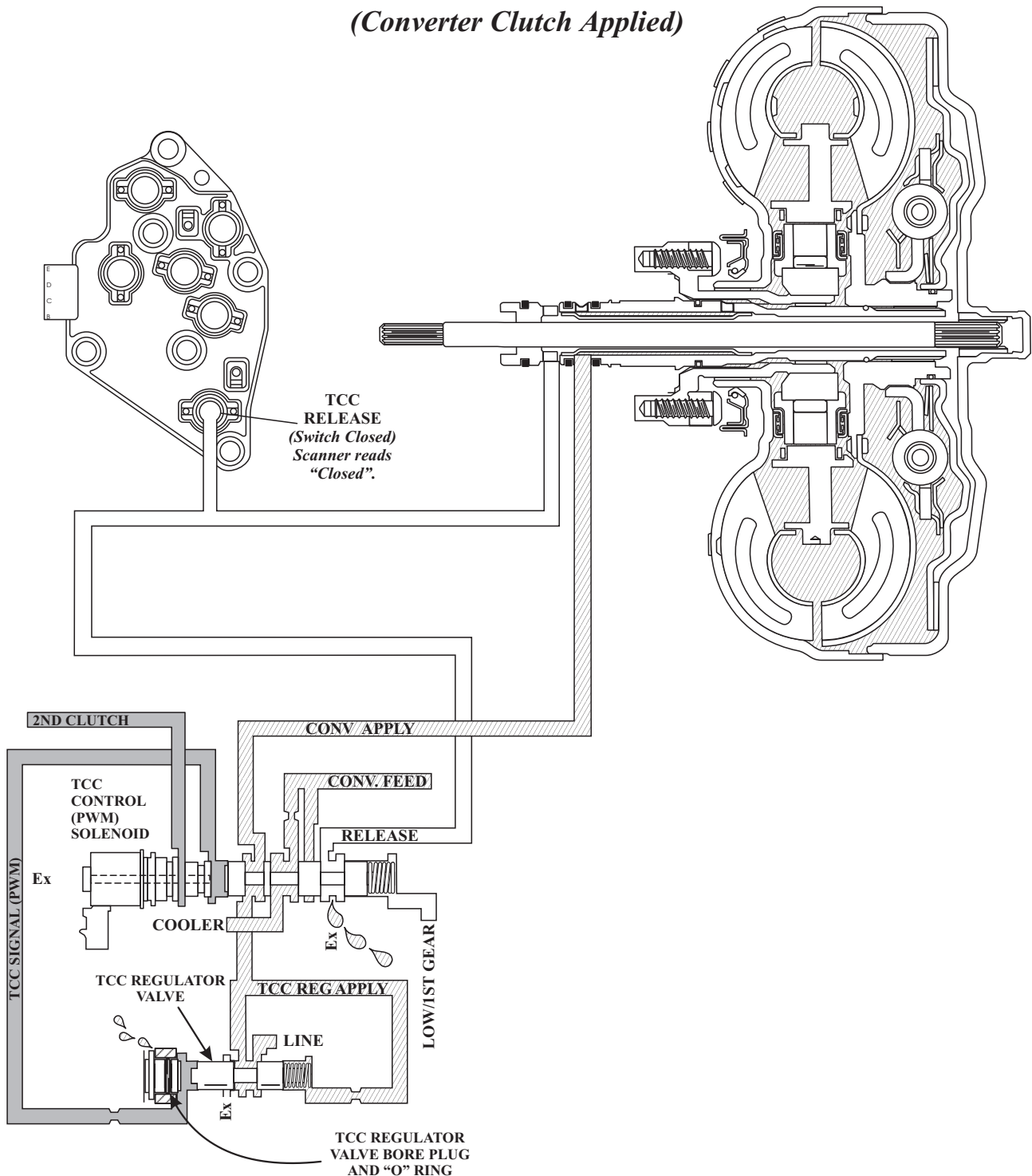


*This diagram shows the transmission in 2nd, 3rd, or, 4th gear, with converter clutch released.
Notice the TCC PWM solenoid is exhausting the TCC signal oil (2nd Clutch).*

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Figure 1

TCC HYDRAULIC CIRCUIT IN DRIVE 2ND 3RD AND 4TH GEARS (Converter Clutch Applied)

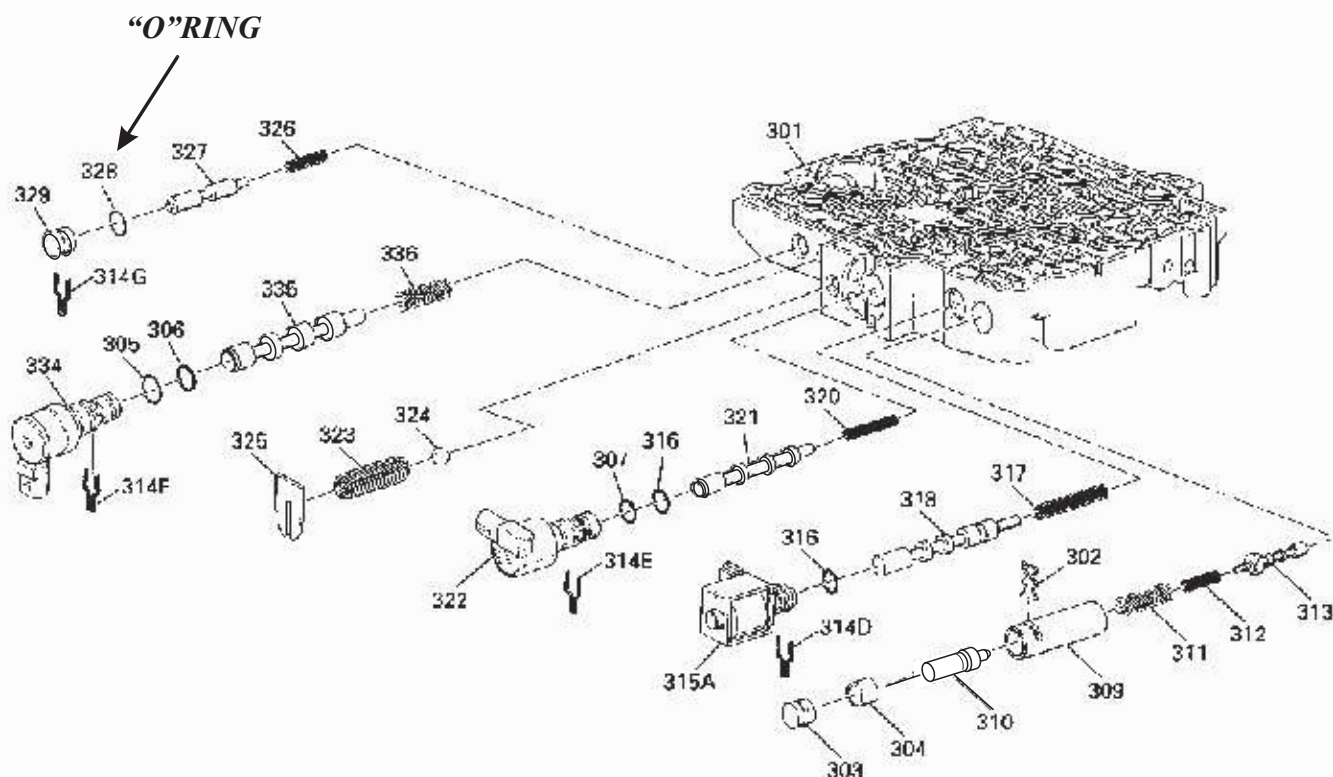


This diagram shows the transmission in 2nd, 3rd, or, 4th gear, with converter clutch applied. Notice the TCC PWM Solenoid is energized, and TCC signal oil is pushing TCC valve to the right. This same signal oil strokes the TCC regulator valve to the right. A leaking "O"-ring on the bore plug for the TCC regulator valve may cause the TCC reg. Valve to limit the amount of converter apply pressure by allowing the valve to move to the left.

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Figure 2

VALVE BODY IDENTIFICATION

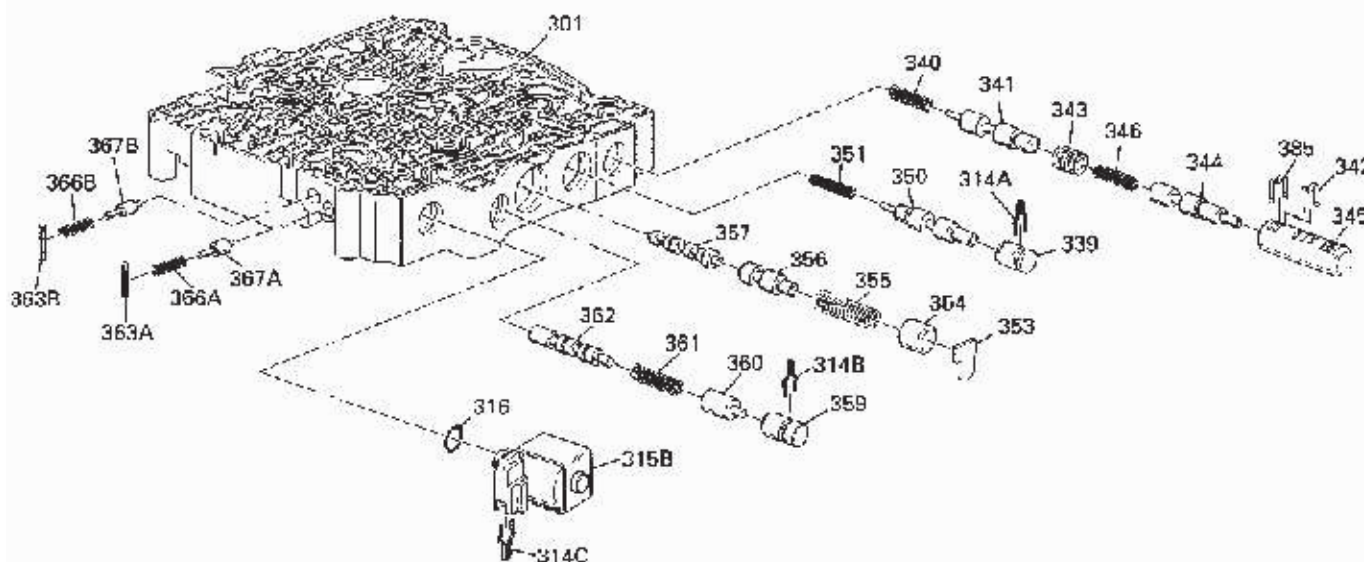


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|---|---|
| 301 CONTROL VALVE BODY | 317 1-2 SHIFT VALVE SPRING |
| 302 LINE BOOST VALVE AND BUSHING RETAINER | 318 1-2 SHIFT VALVE |
| 303 LINE BOOST VALVE BORE PLUG | 320 TORQUE SIGNAL REGULATOR VALVE SPRING |
| 304 LINE BOOST VALVE | 321 TORQUE SIGNAL REGULATOR VALVE |
| 305 TCC PWM SOLENOID "O" RING SEAL | 322 PRESSURE CONTROL SOLENOID ASSEMBLY |
| 306 TCC PWM SOLENOID "O" RING SEAL | 323 LINE PRESSURE RELIEF VALVE SPRING |
| 307 PRESSURE CONTROL SOLENOID "O" RING SEAL | 324 LINE PRESSURE RELIEF VALVE |
| 309 REVERSE BOOST VALVE BUSHING | 325 LINE PRESSURE RELIEF VALVE SPRING RETAINER |
| 310 REVERSE BOOST VALVE | 326 TCC REGULATOR APPLY VALVE SPRING |
| 311 PRESSURE REGULATOR VALVE OUTER SPRING | 327 TCC REGULATOR APPLY VALVE |
| 312 PRESSURE REGULATOR VALVE INNER SPRING | 328 TCC REGULATOR APPLY VALVE BORE PLUG "O" RING SEAL |
| 313 PRESSURE REGULATOR VALVE | 329 TCC REGULATOR APPLY VALVE BORE PLUG |
| 314D 1-2, 3-4 SHFIT SOLENOID RETAINER | 334 TCC PWM SOLENOID ASSEMBLY |
| 314E PRESSURE CONTROL SOLENOID RETAINER | 335 TCC CONTROL VALVE |
| 314F TCC PWM SOLENOID RETAINER | 336 TCC CONTROL VALVE SPRING |
| 314G TCC REGULATOR APPLY VALVE BORE PLUG RETAINER | |
| 315A 1-2, 3-4 SHIFT SOLENOID ASSEMBLY | |
| 316A 1-2, 3-4 SHIFT SOLENOID "O" RING SEAL | |

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Figure 3

VALVE BODY IDENTIFICATION



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|--|--|
| 301 CONTROL VALVE BODY | 353 3-2 MANUAL DOWNSHIFT VALVE RETAINER |
| 314A 1-2, 3-4 ACCUMULATOR VALVE RETAINER | 354 3-2 MANUAL DOWNSHIFT VALVE BORE PLUG |
| 314B 4-3 MANUAL DOWNSHIFT VALVE RETAINER | 355 3-2 MANUAL DOWNSHIFT VALVE SPRING |
| 314C 2-3 SHIFT SOLENOID RETAINER | 356 3-2 MANUAL DOWNSHIFT VALVE |
| 315B 2-3 SHIFT SOLENOID ASSEMBLY | 357 2-3 SHIFT VALVE |
| 316 2-3 SHIFT SOLENOID "O" RING SEAL | 359 4-3 MANUAL DOWNSHIFT VALVE BORE PLUG |
| 339 1-2 ACCUMULATOR VALVE BORE PLUG | 360 4-3 MANUAL DOWNSHIFT VALVE |
| 340 3-4 ACCUMULATOR VALVE SPRING | 361 4-3 MANUAL DOWNSHIFT VALVE SPRING |
| 341 3-4 ACCUMULATOR VALVE | 362 3-4 SHIFT VALVE |
| 342 2-3 ACCUMULATOR VALVE BUSHING RETAINER | 363A REVERSE SERVO BOOST VALVE BORE ROLL PIN |
| 343 2-3 ACCUMULATOR VALVE BORE PLUG | 363B FORWARD SERVO BOOST VALVE BORE ROLL PIN |
| 344 2-3 ACCUMULATOR VALVE | 366A REVERSE SERVO BOOST VALVE SPRING |
| 345 2-3 ACCUMULATOR VALVE BUSHING | 366B FORWARD SERVO BOOST VALVE SPRING |
| 346 2-3 ACCUMULATOR VALVE SPRING | 367A REVERSE SERVO BOOST VALVE |
| 350 1-2 ACCUMULATOR VALVE | 367B FORWARD SERVO BOOST VALVE |
| 351 1-2 ACCUMULATOR VALVE SPRING | 385 2-3 ACCUMULATOR VALVE RETAINER |

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Figure 4