



2009 CHEVROLET & GMC 2500/3500 SERIES TRUCKS WITH ALLISON 1000

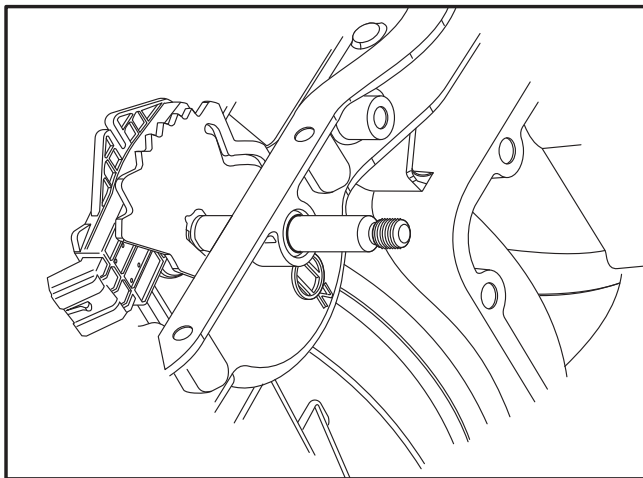
PO708 TRS CIRCUIT HIGH

COMPLAINT: A 2009 Chevrolet or GMC 2500 or 3500 series truck equipped with an Allison 1000 transmission comes into the shop with a PO708 Transmission Range Sensor Circuit High. The shop replaces the Internal Mode Switch inside the transmission. See figure 1. The code P0708 comes right back. The shop next checks the internal and external harness for open and shorts. Both check good. The shop even goes as far to check the reverse warning chime which is part of the circuit. That checks good too.

CAUSE: The TCM Transmission Control Module is bad. ATSG has seen numerous BAD TCM's on 2009- 2500 and 3500 series trucks with the Allison 1000. To verify this, install a scan tool and use the parity chart in figure 2 to confirm that all four switch signals A, B, C & P match to the chart. If everything reads correctly, then the P0708 is being set by a BAD TCM.

CORRECTION: Replace the TCM. Located on the drivers side inner fender panel near the fan shroud. The dealer will have to flash the TCM.

INTERNAL MODE SWITCH LOCATION



Copyright © 2014 ATSG

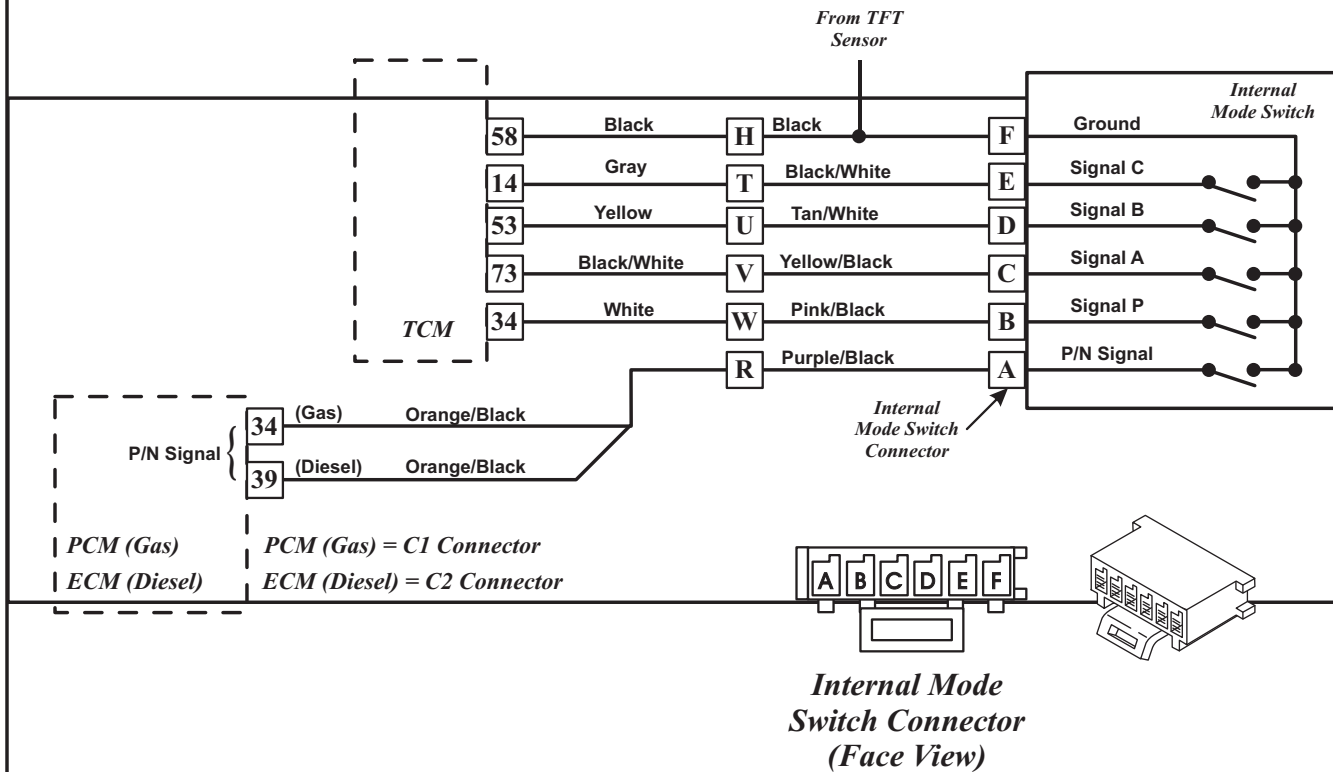
Figure 1

INTERNAL MODE SWITCH PARITY CHART

| RANGE | INTERNAL MODE SWITCH SIGNAL A | INTERNAL MODE SWITCH SIGNAL B | INTERNAL MODE SWITCH SIGNAL C | INTERNAL MODE SWITCH SIGNAL P |
|-----------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| <i>P</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> |
| <i>R</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> | <i>HIGH/ON</i> |
| <i>N</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> |
| <i>D</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> |
| <i>*M</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> |
| <i>2</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> | <i>HIGH/ON</i> |
| <i>1</i> | <i>HIGH/ON</i> | <i>HIGH/ON</i> | <i>LOW/OFF</i> | <i>LOW/OFF</i> |

NOTE: HIGH/ON = APPROXIMATELY 5 VOLTS
LOW/OFF = APPROXIMATELY 0 VOLTS

**M* mode allows TAP Up/TAP Down feature functionally, 1st thru 6th ranges.
When in *M* range, logic states do not change.



Copyright © 2014 ATSG

Figure 2