



Technical Service Information

CHEVROLET COBALT TCC CYCLING

COMPLAINT: A 2008 Chevy Cobalt with a 2.2 Liter Engine and 4T45E Transmission has complaints of inoperative cruise control and TCC cycling at 45 to 55 mph.

When the technician viewed the data list on the scan tool, he noticed that the brake switch parameter indicated that the brake was applied when it was not. Another oddity was when vehicle speed reached 70 mph, lockup stayed ON yet the scan tool continued to show the brake switch status as applied.

CAUSE: The Center High Mount Rear Stop Light (CH/MSL) assembly had a burned out light bulb, refer to figure 1.

CORRECTION: When the light bulb was replaced all complaints vanished and the vehicle performed normally.

SUMMARY: The burned out light bulb in the center high mount brake light assembly allowed residual voltage of approximately 0.8 to 0.9 volts to remain on circuit 20 when the brake pedal was released (figure 2). This residual voltage could be mistaken for a compromised G401 stop lamp ground or ECM/TCM ground, but this was not the case.

A volt meter revealed that the CH/MSL relay 5065 circuit (figure 2) always responded to the apply and release of the brake pedal. It displayed zero volts when the brake pedal was released and 12 volts when the brake pedal was applied. This meant that the Body Control Module properly recognized the BPPS operation. When the 5065 circuit operates the relay, 12 volts is then supplied to the TCM, ECM and the brake bulbs on circuit 20.

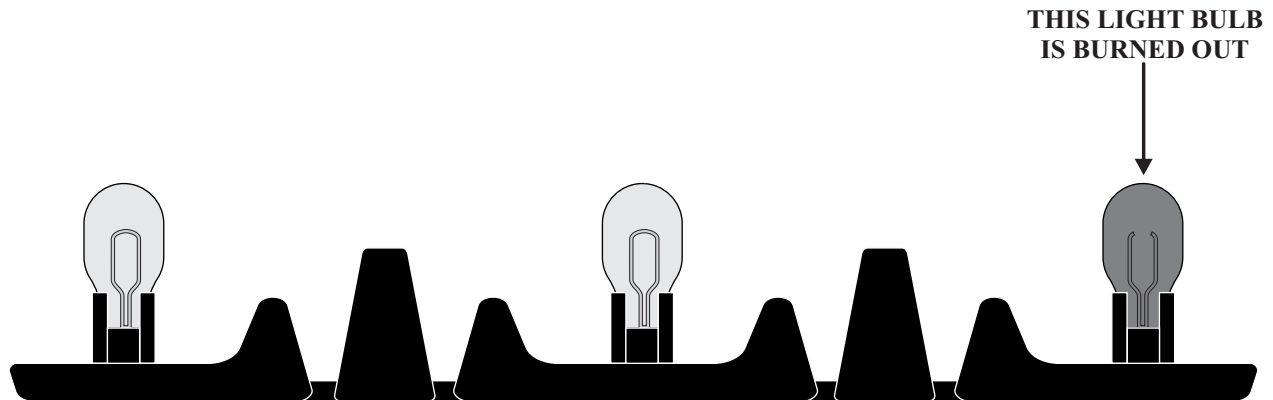
Circuit 20 should have zero volts when the brake pedal is released and 12 volts when the brake pedal is applied. The 0.8 residual voltage seen on circuit 20 when the brakes were not applied, was due to the TCM/ECM providing that residual voltage so as to monitor the stop light circuits. With the brake bulb being blown, it opened the circuit preventing that residual voltage from being drawn to ground which would provide a 0 volt reading. This became apparent when testing this circuit by manually grounding circuit 20. When it was grounded, the scan tool said the brake was released. When the ground was lifted, the scan tool said the brakes were applied. The 0.8 - 0.9 volts due to the blow brake bulb was enough to cause the TCC complaints as well as the BPPS status showing applied when it was not (figure 3).

Once the brake bulb was replaced the scan tool parameters for the BPP Signal and the TCC Brake Signal displayed correctly as shown in figure 4.

Many thanks to Lorenzo from Philips Transmission in Phoenix, AZ.

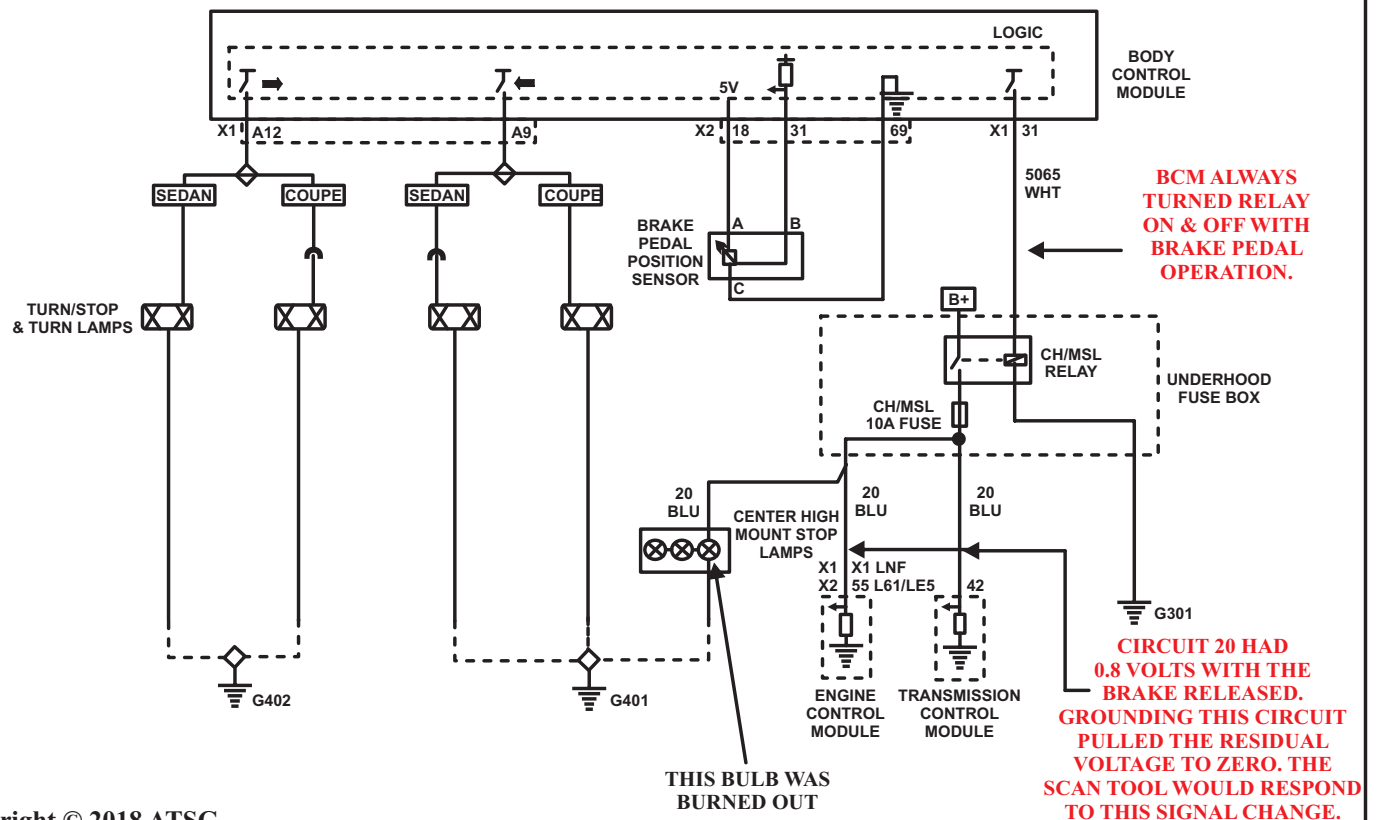
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CENTER HIGH MOUNT STOP LIGHT ASSEMBLY



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Figure 1



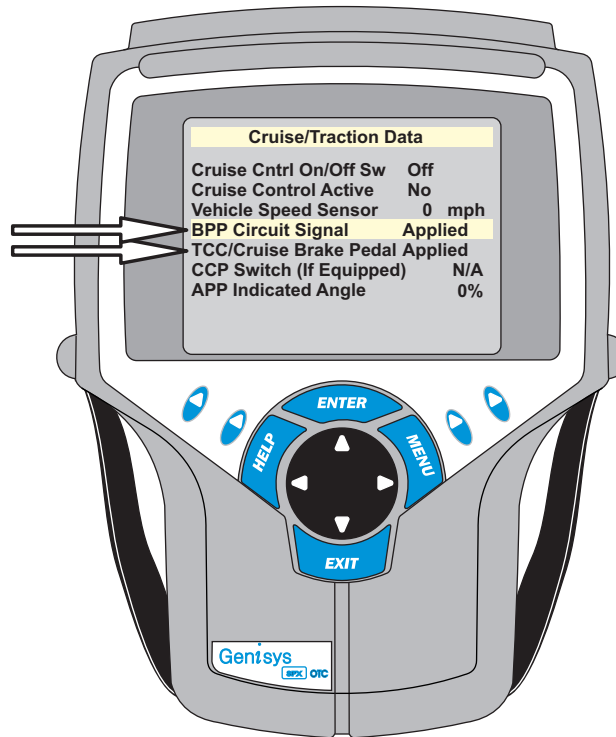
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Figure 2

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BRAKE PEDAL NOT APPLIED - BULB BURNED OUT

The Brake Pedal is not applied yet the scan tool indicates that it is applied

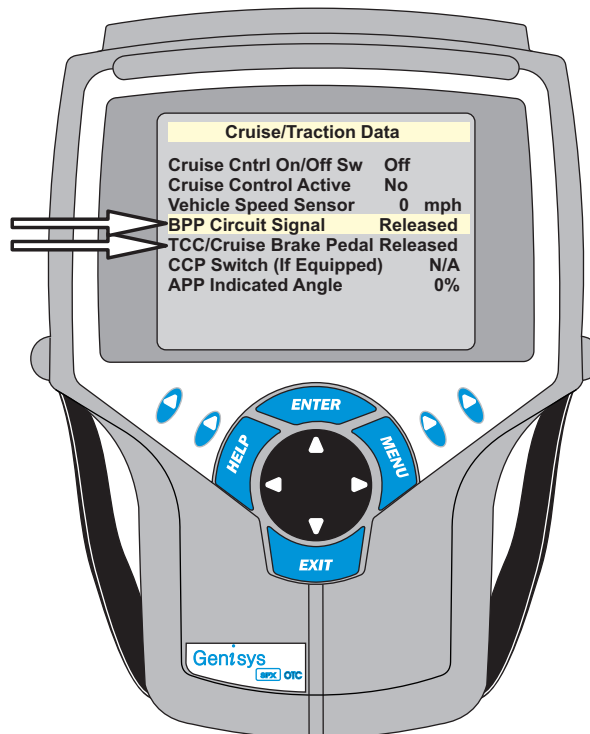


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Figure 3

BRAKE PEDAL NOT APPLIED - BULB REPLACED

Once the brake bulb was replaced, the brake signal functioned correctly



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Figure 4