UI BULLETIN # 87

SUBJECT: Installation of Non-GM Approved Aftermarket Products on the Malibu/Malibu Hybrid

MODELS AFFECTED:
Malibu - All Models

MODEL YEAR(S):
2008-2010 Non-Hybrid
2008-2009 Hybrid

DATE: 06/26/2009

ADVISORY:

The following information provides some general guidelines and considerations IF electrical loads are planned for installation to the current model Chevrolet Malibu. **This vehicle is not designed to accommodate significant aftermarket accessory current draw.**

Caution: Adding electrical current draw in excess of the values shown in this bulletin can cause vehicle performance issues and may impact the vehicle's warranty.

This bulletin provides an overview of potential interfaces to the Malibu electrical system and contains the following sections:

1. Matrix of Aftermarket Electrical Load Capability
2. 12V Battery Power Connection
3. Ground Connection
4. Run/Crank Circuit Connection
5. Vehicle Speed Signal
6. Wire Gauge Selection
7. Voltage Spike Noise Suppression
8. Reference Parts List

1. Matrix of Aftermarket Electrical Load Capability

Caution: Installation of NON-GM electrical products is not recommended beyond what is described in this document. The Malibu electrical capacity is limited to electrical amperage loads as outlined in the table below. Adding electrical draw in excess of the system's capabilities can cause vehicle performance issues and may impact the vehicle's warranty.

Electrical Aftermarket Accessory Amp Load

The amperage listed is based on a maximum continuous load.

Vehicle Configuration	Engine RPO			
	LAT (Hybrid)	LE5	LZ4	LY7
With Heated Seats or Fog Lamps	10 amps	2 amps	0 amps	20 amps
Without Heated Seats or Fog Lamps	18 amps	6 amps	4 amps	20 amps

Non-GM Electrical Product Installation Guidelines

Important: Any installation of non-GM Approved Products or modifications to the vehicle is the sole responsibility of the vehicle owner. This bulletin provides some of the guidelines and aftermarket best practices based on limited aftermarket device's amperage loads listed in the table above.

The location for 12 volt battery power can be acquired at the Underhood Electrical Center (UEC). The ground location can be acquired at a ground stud located under the right front side door opening floor carpet retainer (kick pad). The power and ground can be connected at these locations without having to splice or cut into the existing wiring.

The run/crank circuit can be acquired at the Body Control Module (BCM).

Typically, the installation of an electrical accessory will include a relay for controlled switching of battery power. The relay will be controlled by the run/crank circuit.

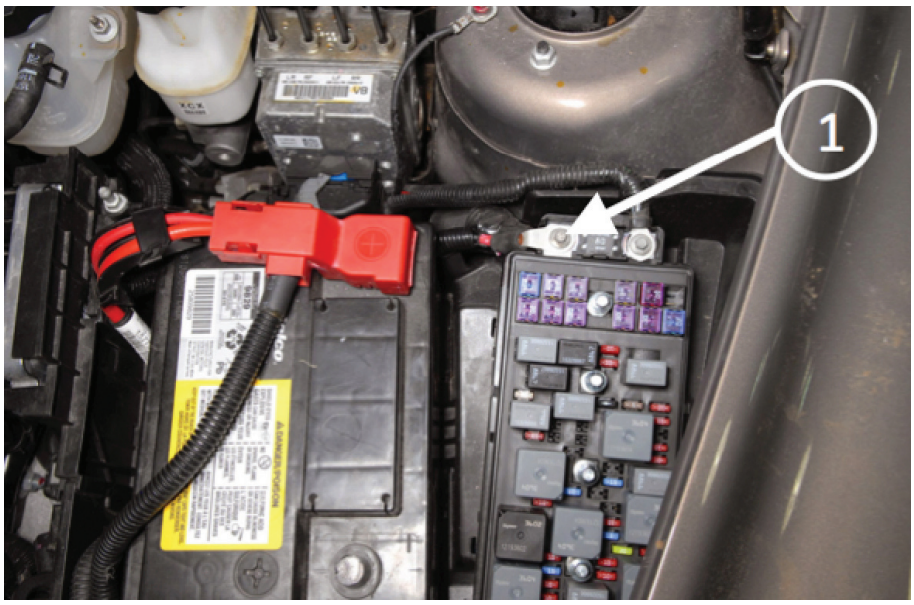
The following illustrates a typical connection to a battery power, ground and run/crank circuits, as well as install the relay.

Warning: Exposure to the intermediate voltage used on the Malibu Hybrid can cause serious personal injury, shock and burns. The intermediate voltage systems in the vehicle can only be serviced by technicians with special training. Intermediate voltage devices are identified by labels. Do not remove, open, take apart, or modify these devices. Intermediate voltage cable or wiring has blue covering. Do not probe, tamper with, cut, or modify intermediate voltage cable or wiring.

2. 12V Battery Power Connection

12 Volt Battery Power Connection

Important: When connecting to 12 volt battery power, DO NOT splice into Original Equipment Manufacturer (OEM) fused circuits. Limit battery current draw to the amperage loads listed in the table above so that the charging system can maintain battery charge.



1. Obtain 12 volt battery power at the UEC battery cable bolt (1) using a ring terminal attachment.
2. Add a primary fuse as close to UEC battery cable bolt as possible. Primary fuse size should be large enough to handle all aftermarket equipment.
3. Add the appropriate secondary fusing downstream of the primary fuse.
4. Use at least the minimum required wire gauge size for selected primary and secondary fuse sizes.

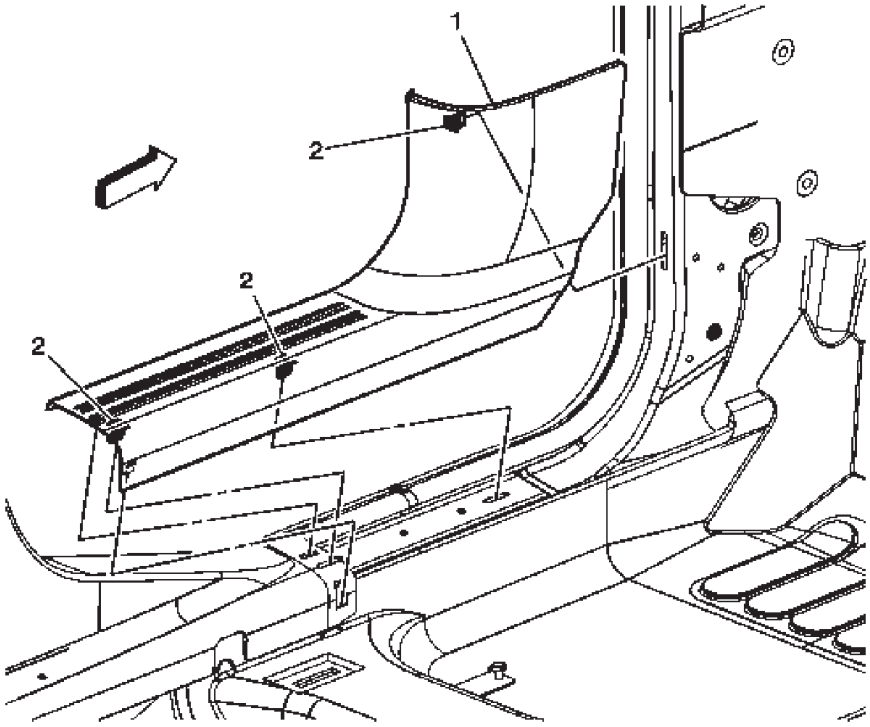
Caution: Do not route the wire through existing harness grommets to enter the passenger compartment. Routing wire through the existing harness may damage harness wires and grommets.

Important: When connecting to the battery power, provide the necessary battery voltage switching so as not to draw more than a few milliamps (<2 ma) when the ignition is off (so as not to drain the battery).

3. Ground Connection

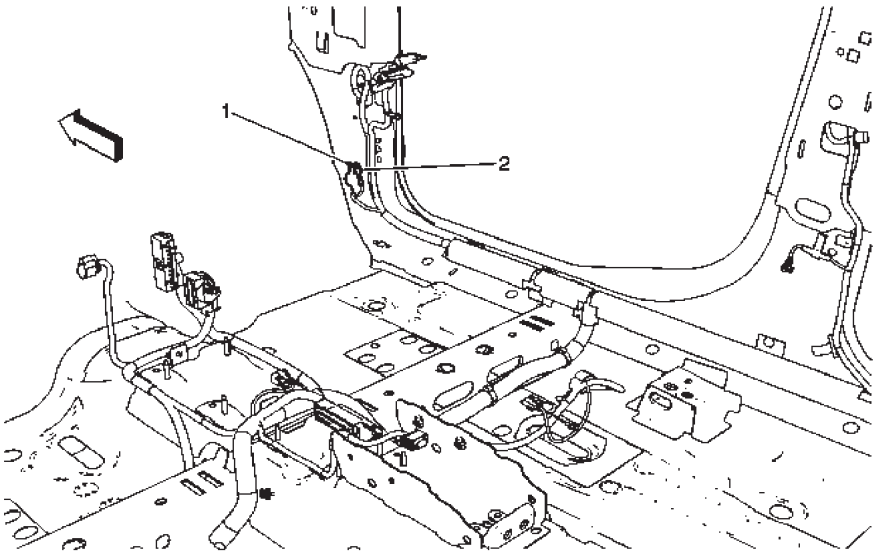
Ground Connection

Important: When connecting to ground, DO NOT splice into the existing ground wires.



1. The ground stud is located under the right front side door opening floor carpet retainer (kick pad). Remove the carpet retainer (1) by removing the 3 clips (2). The illustration shown is the left side, but the ground stud is actually under the right side. Do not remove the left side carpet retainer (kick pad).

3. Ground Connection (continued)

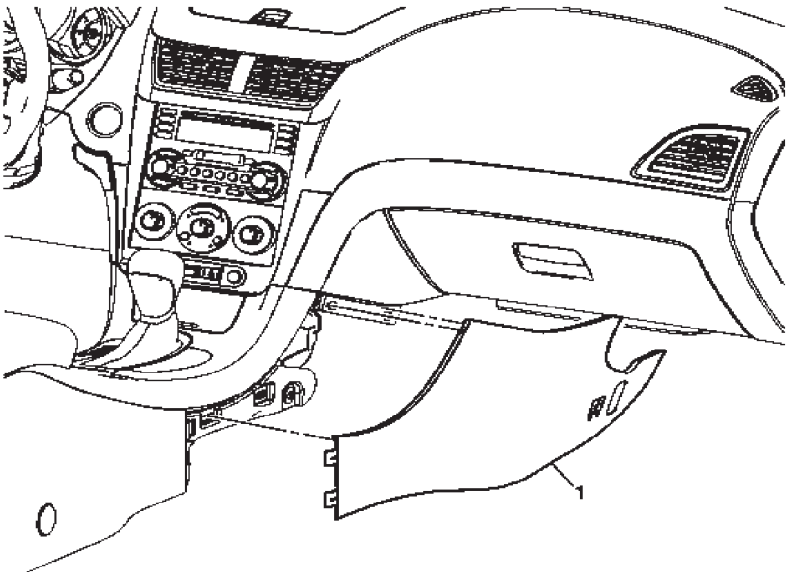


2. The illustration above shows the location of 2 ground studs on the lower right front side panel.
3. Terminate the aftermarket ground wire with a ring terminal stacked on top of the larger OEM ground ring terminal in this location.

4. Run/Crank Circuit Connection

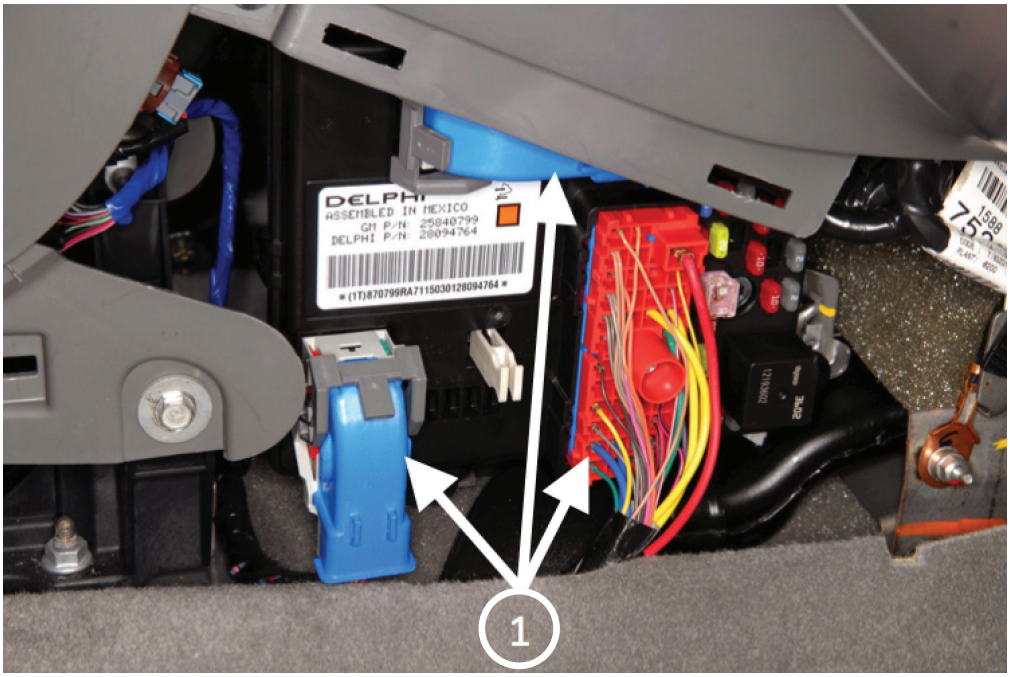
Run/Crank Circuit Connection

Important: DO NOT draw more than 100 mA on this circuit

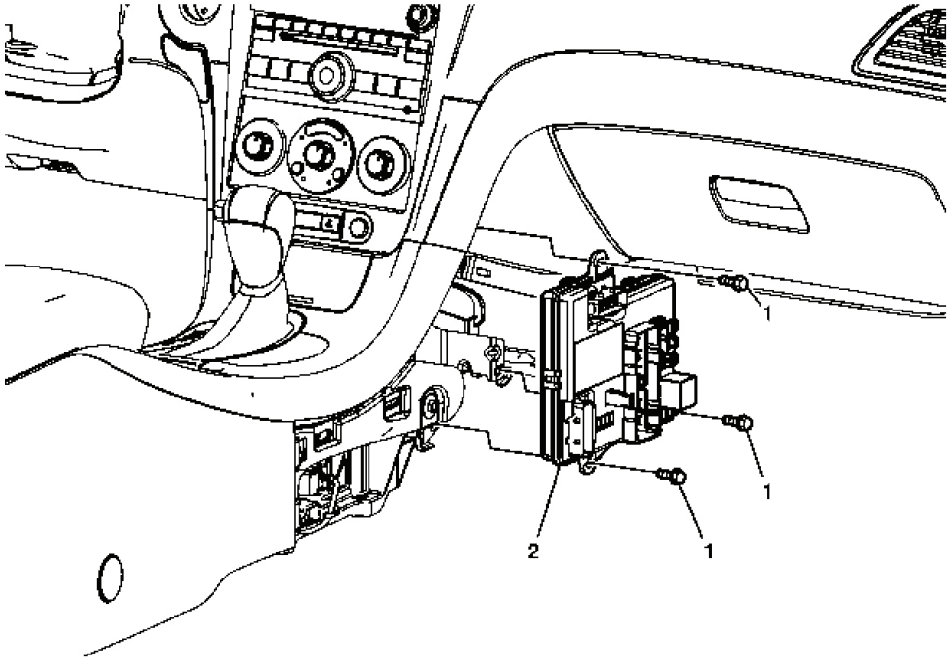


1. The Run/Crank circuit can be acquired at the 2 amp fuse location for circuit 339 at the Body Control Module (BCM) connector X4, pin F4. The BCM is located under the forward right side of the front floor console. Remove the right side front floor console extension panel (1).

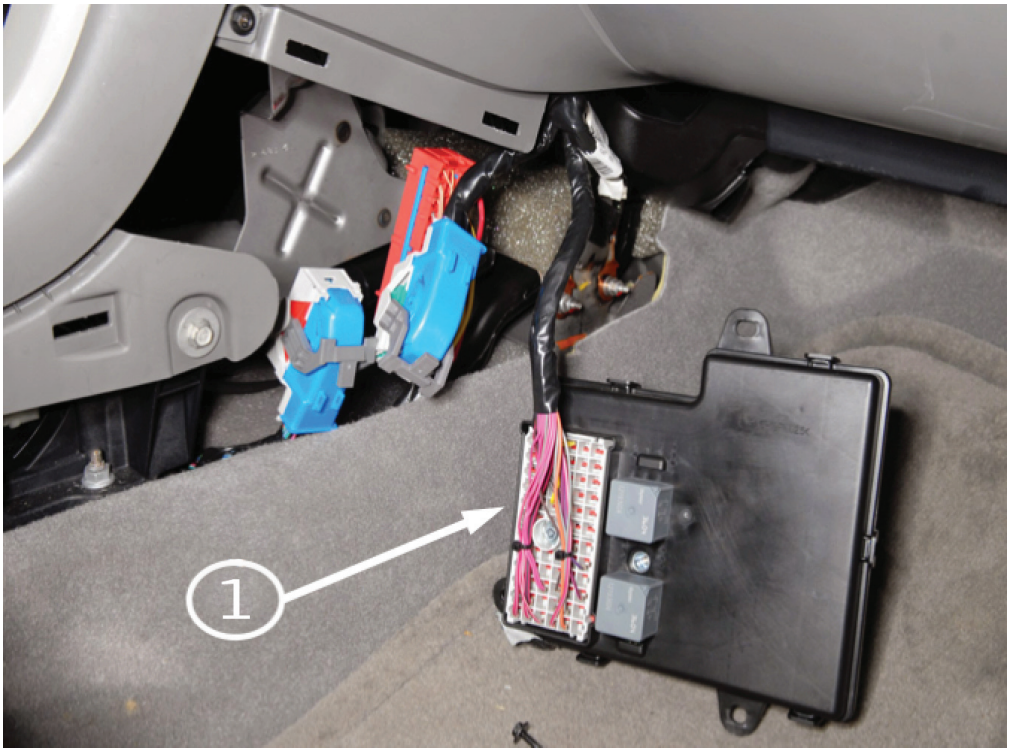
4. Run/Crank Circuit Connection (continued)



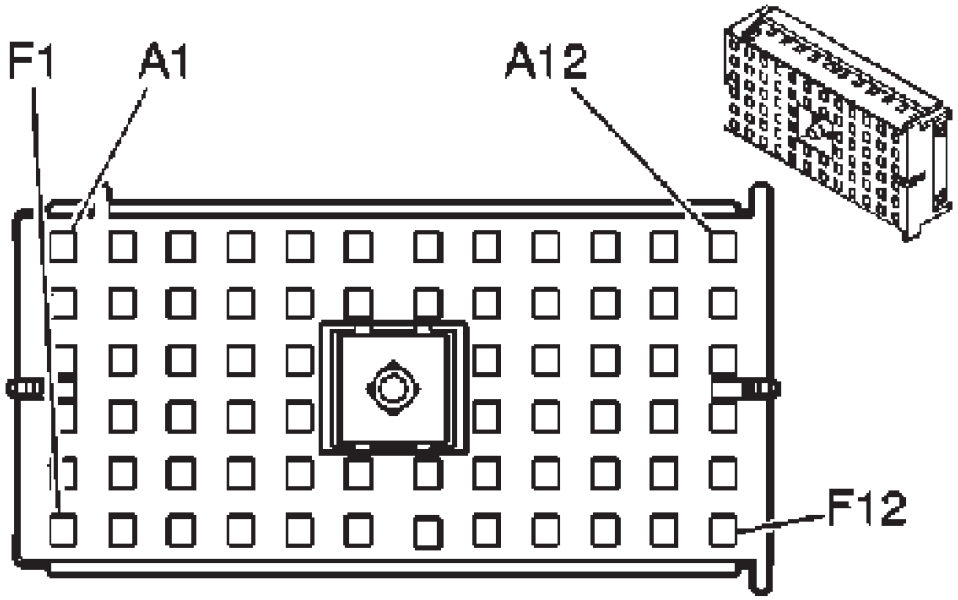
2. Remove the three connectors from the front of the BCM.



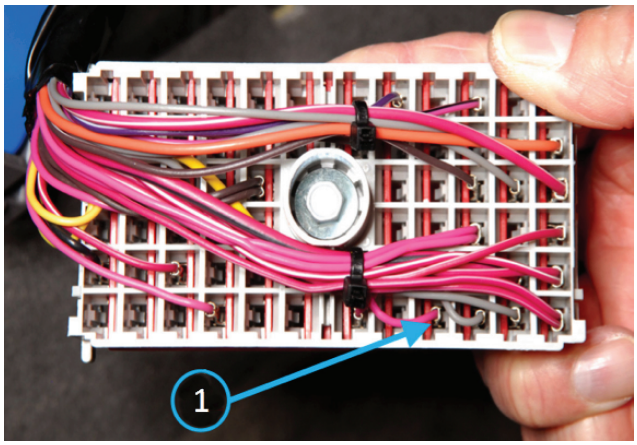
3. Remove the BCM (2) by removing the three bolt screws (1).



4. Disconnect the X4 connector (1) from the back of the BCM.



5. Identify pin F4 of the X4 connector. Use the connector end view above. F4 is the fourth pin from the left on the bottom row.



6. Identify the corresponding wire from pin F4 in the harness. The wire color is pink (1). F4 is the 4th wire from the right on the bottom row in the back view shown.
7. Using a splice clip, solder and shrink wrap, splice a wire to the pink harness wire using the following steps.
8. Use the same gage (0.35 mm (22 ga)) and color wire as the OEM harness.
9. Cut the pink harness wire at a convenient spot where there is minimum obstruction.
10. Strip off the insulation from both ends of the cut pink harness wire and the wire to be added about 6.35 mm (0.250 in) of length.
11. Place self sealing type heat shrink tubing over the wire so it can be positioned over the splice when completed. Use about 3” of heat shrink to assure a good moisture tight seal.
12. Overlap the three bare wires and crimp on a copper splice ring.
13. Solder the splice assuring good flow around the crimp ring and a bright finish on the solder joint (cold solder joints will look dull).
14. Center the self sealing heat shrink tubing over the joint and shrink/seal the cable (Note: moisture intrusion is the major failure risk when splicing wires. This must be done correctly).

5. Vehicle Speed Signal

The vehicle speed pulse signal is not readily available on the Malibu. Use of a non-GM product module such as a Serial Data Link Pulse Converter, like a *Centrodyne Z059 OBD-VSS or equivalent, to read the serial data bus at the ALDL connector is necessary. None of these devices have been validated by General Motors, and damage caused by this device is not covered by GM warranty.

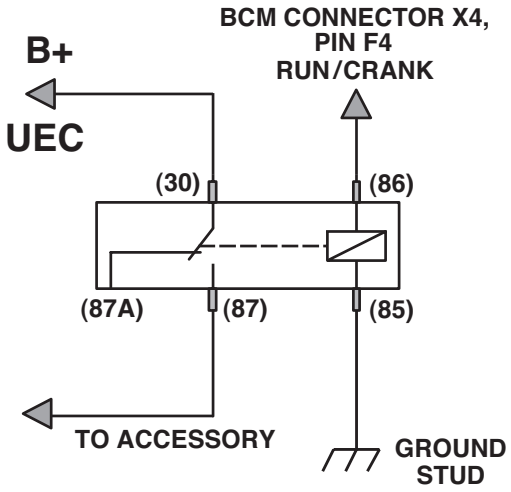
* General Motors does not endorse, indicate any preference for or assume any responsibility for the products or material from this firm or for any such items that may be available from other sources.

6. Wire Gauge Selection

For any of these powered connections to be used, circuit protection guidelines must be followed to assure that the circuit gauge is selected appropriately so that it will be protected by the fuse in case of a short circuit.

7. Voltage Spike Noise Suppression

ACCESSORY RELAY



Install the suitable relay (Example like GM PN 12193601) with 5-way pigtail connector (like GM PN 15306045) as shown in the above diagram to insure the load from the accessory is connected to the battery feed, and not the run/crank circuit. Locate the relay under the front floor console near the BCM after connections are completed.

1. Connect the battery feed from the UEC battery bolt to pin 30 of the relay.
2. Connect pin 87 of the relay to the accessories.
3. Connect the run/crank (circuit 339) from pin X4-F4 of the BCM to pin 86 of the relay coil.
4. Connect pin 85 of the relay coil to the ground stud located under the right front side door opening floor carpet retainer.

Caution: To prevent damage to any sensitive electronic components, use the relay listed which includes a suppression resistor circuit. The integral suppression resistor will prevent a voltage spike from being transmitted onto the run/crank circuit.

8. Reference Parts List

Part Information (For Reference ONLY)

GM Part Number	Description	Qty.
12193601	Relay	1
15306045	5-Way Connector w/Leads	1
19151475	Relay Bracket	1
**Z059	OBD VSS Signal Generator CAN and ISO	1

**This part number is currently available from Centrodyne Corp. of America (US) and Centrodyne Inc. (Canada, export markets). To obtain information in the US, please call Centrodyne at 800-655-5575. To obtain information in Canada and export markets, call 1-514-331-8760.