

8W-97 POWER DISTRIBUTION - SERVICE INFORMATION

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## POWER DISTRIBUTION - SERVICE INFORMATION

### DESCRIPTION

The power distribution system for this vehicle consists of the following components:

- Cigar Lighter Outlet
- Front Control Module (FCM)
- Integrated Power Module (IPM)
- Power Distribution Center (PDC)
- Power Outlets

**For complete circuit diagrams, refer to the appropriate wiring information.** The wiring information includes wiring diagrams, proper wire and connector repair procedures, details of wire harness routing and retention, connector pin-out information and location views for the various wire harness connectors, splices and grounds.

The power distribution system also incorporates various types of circuit control and protection features, including:

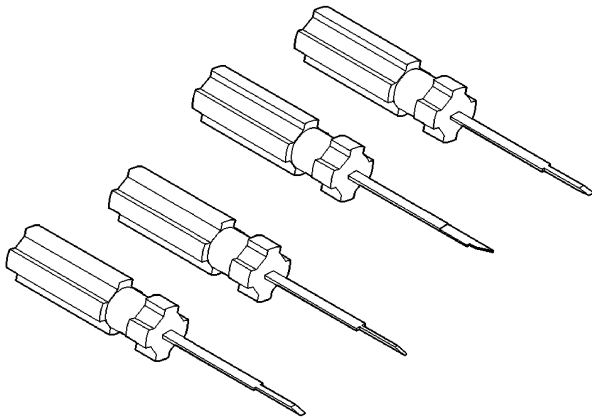
- Automatic resetting circuit breakers
- Blade-type fuses
- Cartridge fuses
- Relays

### OPERATION

The power distribution system for this vehicle is designed to provide safe, reliable, and centralized distribution points for the electrical current required to operate all of the many standard and optional factory-installed electrical and electronic powertrain, chassis, safety, security, comfort and convenience systems. At the same time, the power distribution system was designed to provide ready access to these electrical distribution points for the technician to use when conducting diagnosis and repair of inoperative circuits. The power distribution system can also prove useful for the sourcing of additional electrical circuits that may be required to provide the electrical current needed to operate many accessories that the vehicle owner may choose to have installed.

## SPECIAL TOOLS

### POWER DISTRIBUTION SYSTEMS

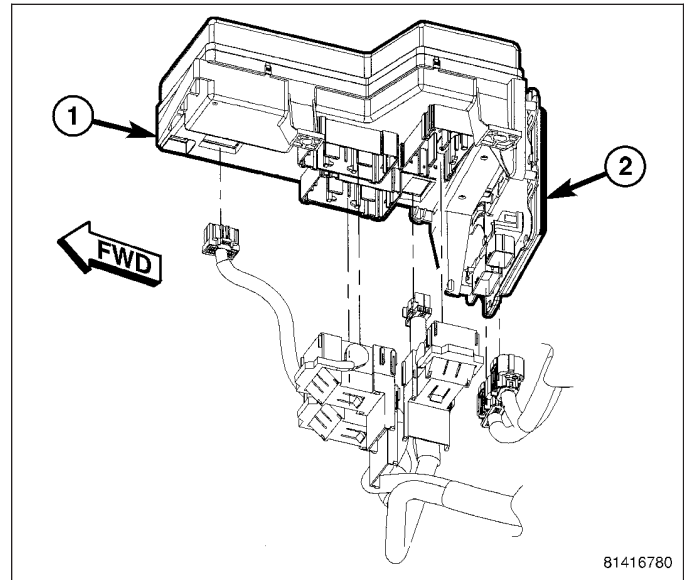


*Terminal Pick 6680*

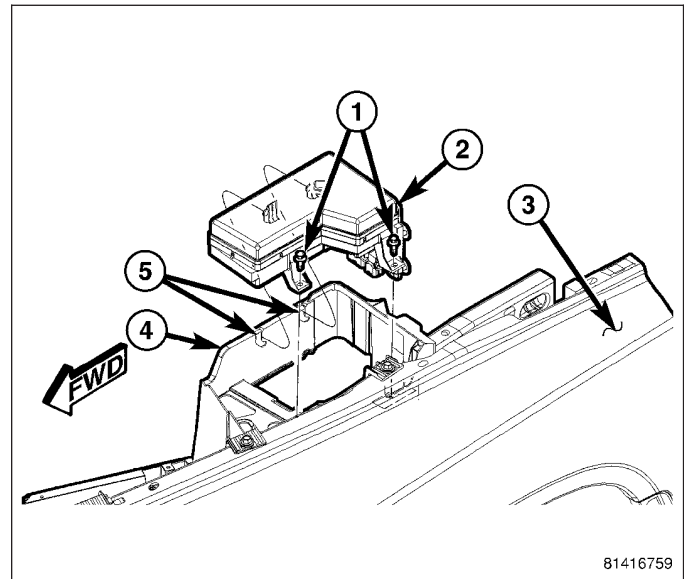
## MODULE-INTEGRATED POWER

### DESCRIPTION

The Integrated Power Module (IPM) is a combination of the Power Distribution Center (PDC) (1) and the Front Control Module (FCM) (2). The PDC mates directly with the FCM to form the IPM. The PDC is a printed circuit board based module that contains fuses and relays, while the FCM contains the electronics controlling the IPM and other functions. The IPM connects directly to the battery positive via a stud located on top of the unit. The ground connection is via electrical connectors. The IPM provides the primary means of voltage distribution and protection for the entire vehicle.



The IPM (2) is located in the engine compartment, next to the battery. It is secured to the battery tray (4) with two locating slots (5) and two pushpin style fasteners (1). The PDC portion of the IPM cannot be repaired and must be replaced if inoperative or damaged, (Refer to 8 - ELECTRICAL/POWER DISTRIBUTION/POWER DISTRIBUTION CENTER - REMOVAL).

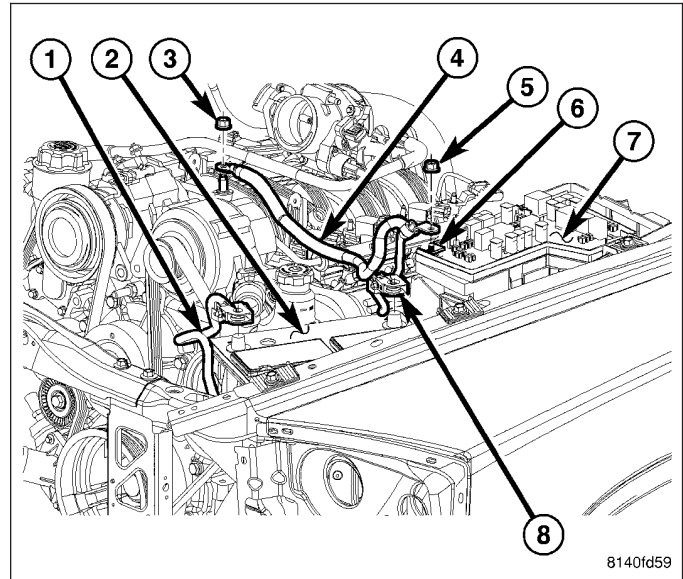


### OPERATION

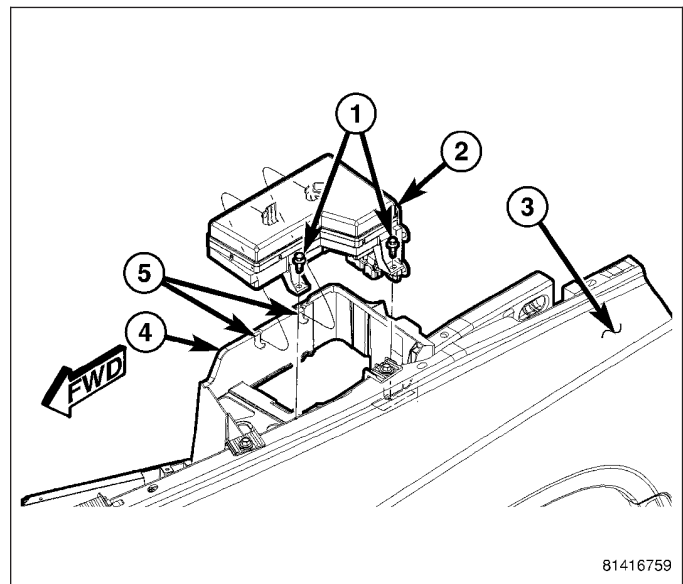
All of the current from the battery and the generator output enters the integrated power module via a stud on the top of the module. Internal connections of all of the power distribution center circuits is accomplished by a combination of bus bars and a printed circuit board.

## REMOVAL

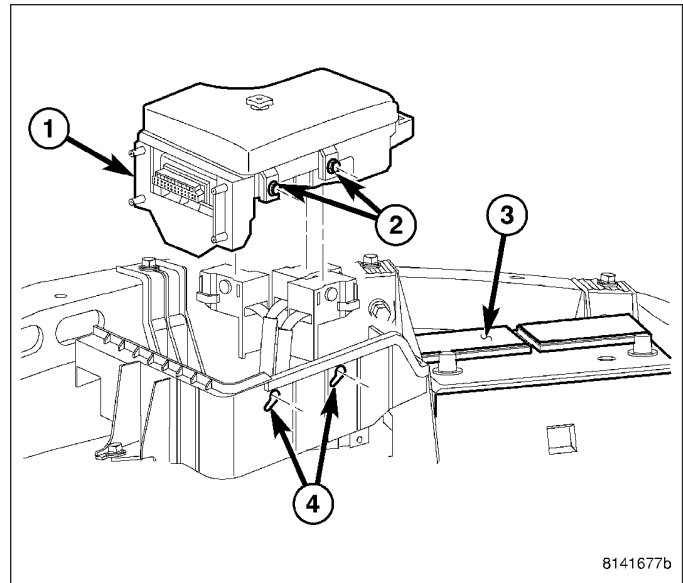
1. Disconnect the battery negative cable.
2. Remove the Integrated Power Module (IPM) cover and remove the nut (5) from the IPM B+ terminal stud (6).
3. Remove the battery positive cable (4).



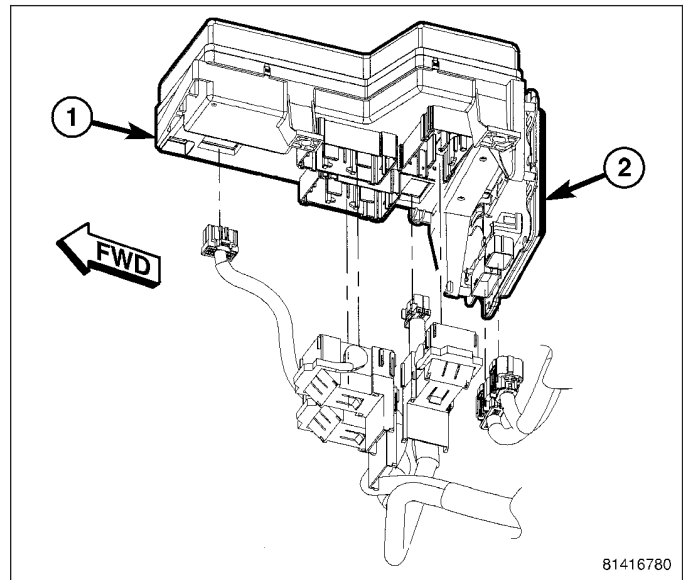
4. Remove the IPM (2) pushpin fasteners (1) from the battery tray (4).



5. Move the IPM (1) forward and up to disengage the locking tabs (2) from the battery tray locating slots (4).

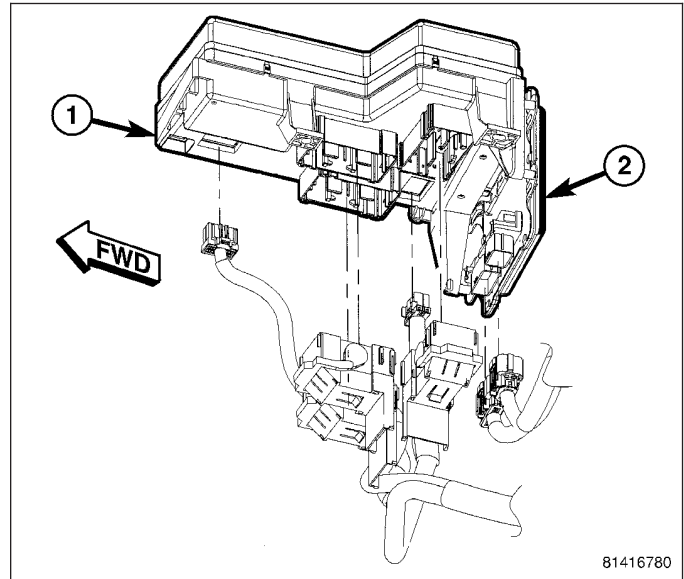


6. Lift the IPM up to access and disconnect the wiring harness connectors from the Power Distribution Center (1) and Front Control Module (2).
7. Remove the IPM assembly from the vehicle.

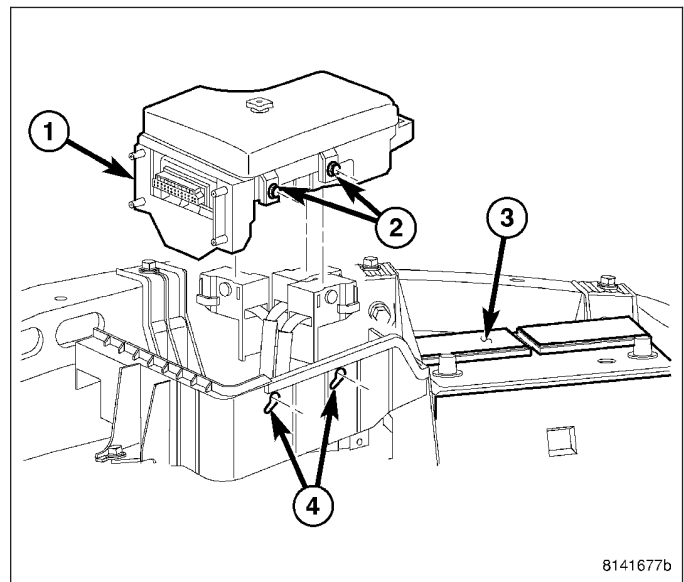


## INSTALLATION

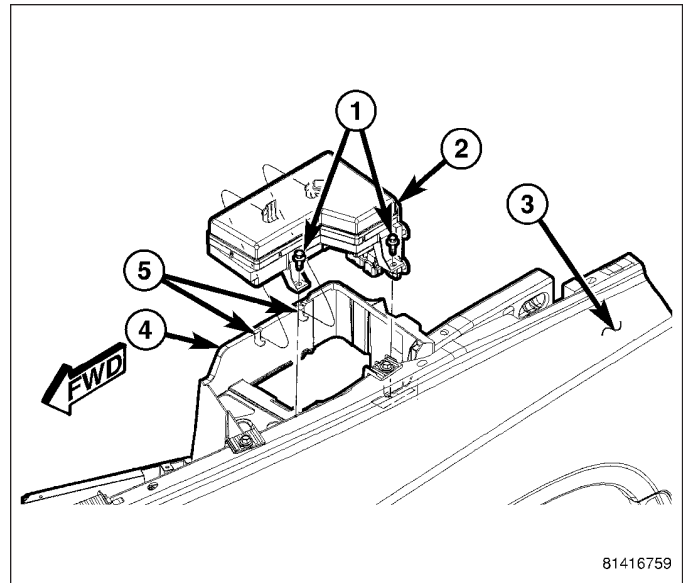
1. Connect the wiring harness connectors to the Power Distribution Center (1) and the Front Control Module (2).



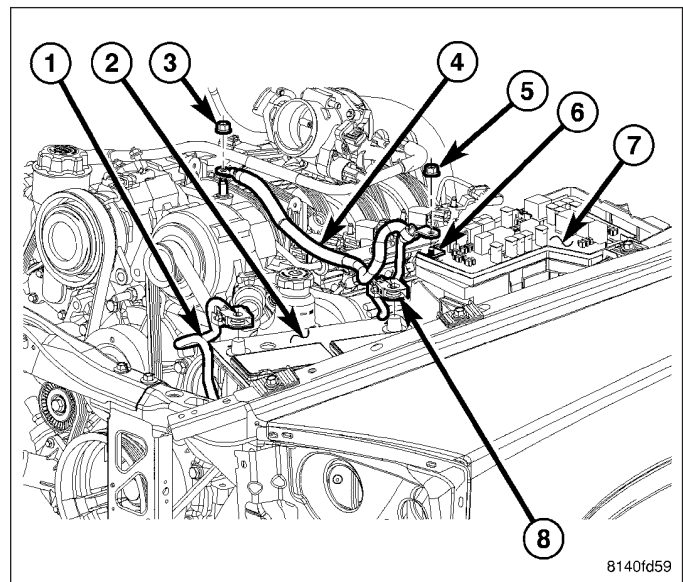
2. Position the Integrated Power Module (IPM) (1) into the battery tray. Move the IPM down and rearward to engage the locking tabs (2) into the battery tray locating slots (4).



3. Install the IPM (2) pushpin fasteners (1) into the battery tray (4).



4. Position the battery positive cable (4) and install the nut (5) onto the IPM B+ terminal stud (6). Install the IPM cover.
5. Connect the battery negative cable.
6. Confirm proper vehicle operation.





## IOD FUSE

### DESCRIPTION

All vehicles are equipped with an Ignition-Off Draw (IOD) fuse that is disconnected within the Integrated Power Module when the vehicle is shipped from the factory. Dealer personnel are to reconnect the IOD fuse in the Integrated Power Module as part of the preparation procedures performed just prior to new vehicle delivery. The IOD fuse can be removed to avoid discharging the battery by disconnecting non-essential, low-current memory functions that are normally on at all times. A detent on the IOD fuse holder allows it to be stored in its normal cavity but out of contact. The holder is pushed into place to restore power to the systems it supplies. The following circuits are protected by the IOD fuse:

- Cluster (CCN)
- Diagnostic Connector
- Map Lamps
- Glove Box Lamp
- Courtesy Lamps
- Radio
- Underhood Lamp

### OPERATION

The term ignition-off draw identifies a normal condition where power is being drained from the battery with the ignition switch in the Off position. The IOD fuse feeds the memory and sleep mode functions for some of the electronic modules in the vehicle as well as various other accessories that require battery current when the ignition switch is in the Off position. The only reason the IOD fuse is disconnected is to reduce the normal IOD of the vehicle electrical system during new vehicle transportation and pre-delivery storage to reduce battery depletion, while still allowing vehicle operation so that the vehicle can be loaded, unloaded and moved as needed.

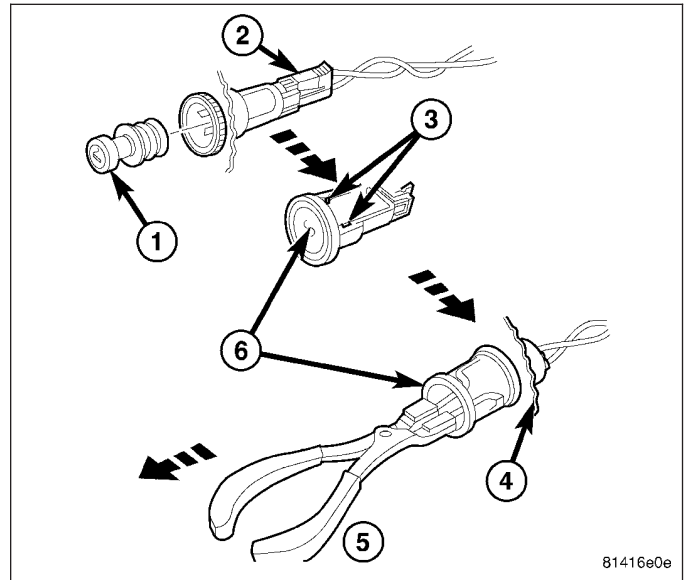
The IOD fuse is disconnected from Integrated Power Module when the vehicle is shipped from the assembly plant. Dealer personnel must reconnect the IOD fuse when the vehicle is being prepared for delivery in order to restore full electrical system operation. Once the vehicle is prepared for delivery, the IOD function of this fuse becomes transparent and the fuse that has been assigned the IOD designation becomes another Fused B(+) circuit fuse.

The IOD fuse can be used by the vehicle owner as a convenient means of reducing battery depletion when a vehicle is to be stored for periods not to exceed about thirty days. However, it must be remembered that disconnecting the IOD fuse will not eliminate IOD, but only reduce this normal condition. If a vehicle will be stored for more than about thirty days, the battery negative cable should be disconnected to eliminate normal IOD; and, the battery should be tested and recharged at regular intervals during the vehicle storage period to prevent the battery from becoming discharged or damaged.

## POWER OUTLET

### REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Pull the cigar lighter knob and element (1) out of the cigar lighter receptacle base (6), or unsnap the protective cap from the power outlet receptacle base (6).
3. Look inside the cigar lighter or power outlet receptacle base and note the position of the rectangular retaining bosses (3) of the mount that secures the receptacle base to the panel (4).
4. Insert a pair of external snap ring pliers (5) into the cigar lighter or power outlet receptacle base and engage the tips of the pliers with the retaining bosses of the mount.
5. Squeeze the pliers to disengage the mount retaining bosses from the receptacle base and, using a gentle rocking motion, pull the pliers and the receptacle base out of the mount.
6. Pull the receptacle base away from the instrument panel far enough to access the instrument panel wire harness connector (2).
7. Disconnect the instrument panel wire harness connector (2) from the cigar lighter or power outlet receptacle base (6).
8. Remove the cigar lighter or power outlet mount from the instrument panel.



### INSTALLATION

1. Connect the instrument panel wire harness connector to the cigar lighter or power outlet receptacle base connector receptacle.
2. Install the cigar lighter or power outlet mount into the instrument panel.
3. Align the splines on the outside of the cigar lighter or power outlet receptacle base connector receptacle with the grooves on the inside of the mount.
4. Press firmly on the cigar lighter or power outlet receptacle base until the retaining bosses of the mount are fully engaged in their receptacles.
5. Install the cigar lighter knob and element into the cigar lighter receptacle base, or the protective cap into the power outlet receptacle base.
6. Connect the battery negative cable.