

## 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

Refer to Wiring Diagrams for complete circuit schematics.

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

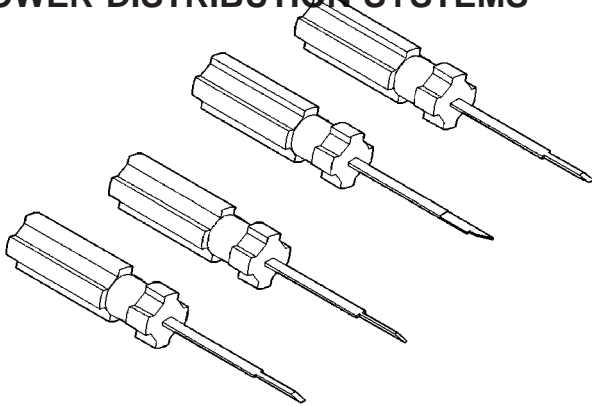
- Automatic resetting circuit breakers
- Blade-type fuses
- Cartridge fuses
- Relays

### 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

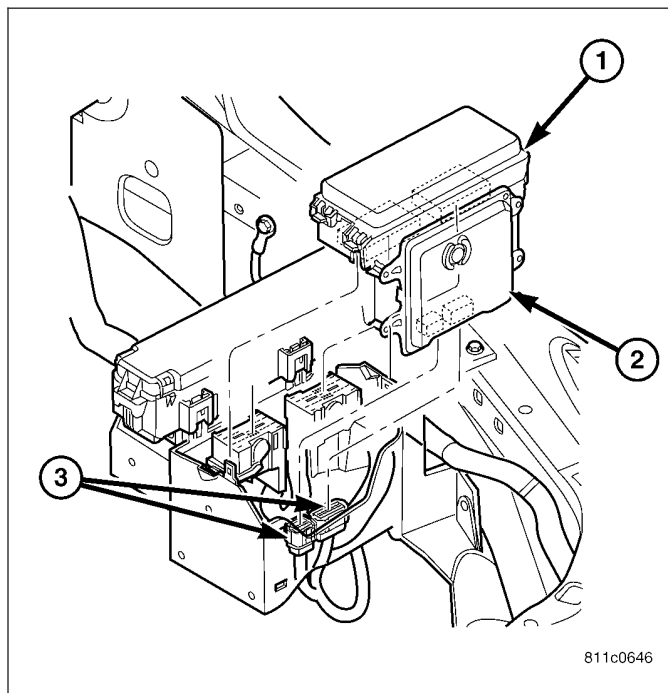


*Terminal Pick 6680*

## INTEGRATED POWER MODULE

### DESCRIPTION

The Integrated Power Module (IPM) is a combination of the Power Distribution Center (PDC) (1) and the Front Control Module (FCM) (2). The IPM is located in the engine compartment, next to the battery. The power distribution center 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.

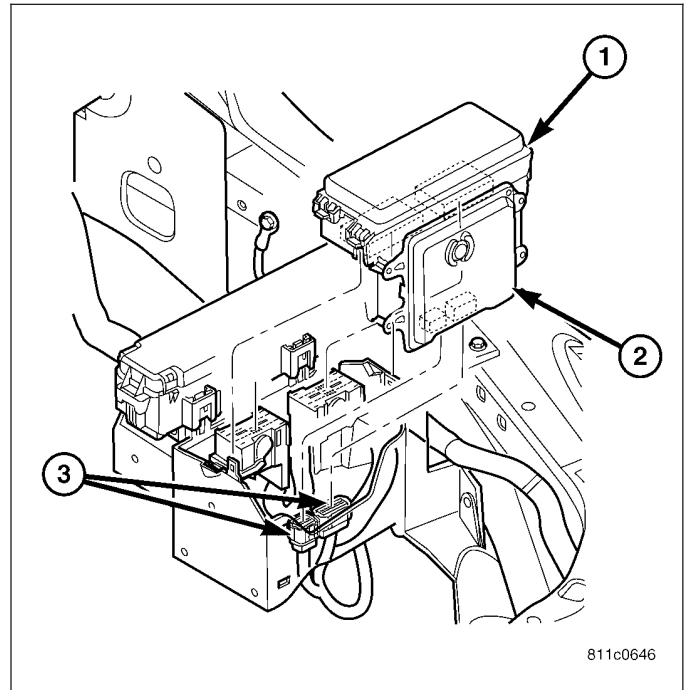


### OPERATION

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.

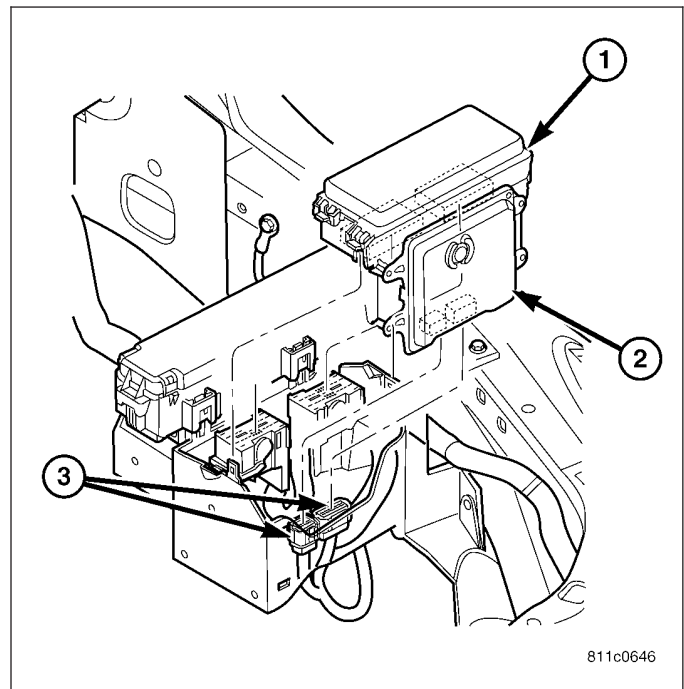
## REMOVAL

1. Disconnect the negative and positive battery cables.
2. Unsnap cover and remove the B+ terminal nut from the integrated power module (IPM). Remove the B+ cable.
3. Remove the IPM from the retaining bracket (1).
4. Disconnect the connectors from the (IPM).
5. Remove the Front Control Module (FCM) (2) retaining screws.
6. Disconnect the front control module by pulling it straight off the integrated power module.



## INSTALLATION

1. Install the Front Control Module (FCM) (2) to the Integrated Power Module (IPM).
2. Connect the electrical connectors to the IPM (1).
3. Install the IPM to the retaining bracket.
4. Install the B+ cable and nut on the IPM B+ terminal. Snap the cover in place.
5. Connect the negative and positive battery cables.



## 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 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.

## JUNCTION BLOCK

### DESCRIPTION

An electrical Junction Block (JB) (1) is concealed behind the left outboard end of the instrument panel cover. The JB combines the functions previously provided by a separate fuseblock module and relay center, serves to simplify and centralize numerous electrical components, and to distribute electrical current to many of the accessory systems in the vehicle. It also eliminates the need for numerous splice connections and serves in place of a bulkhead connector between many of the engine compartment, instrument panel, and body wire harnesses.

The molded plastic JB housing has integral mounting brackets that are secured with two screws to the left instrument panel end bracket. The left end of the instrument panel cover has a snap-fit fuse access panel that can be removed for service of the JB. A fuse puller and spare fuse holders are located on the back of the fuse access cover, as well as a fuse layout to help ensure proper fuse identification.

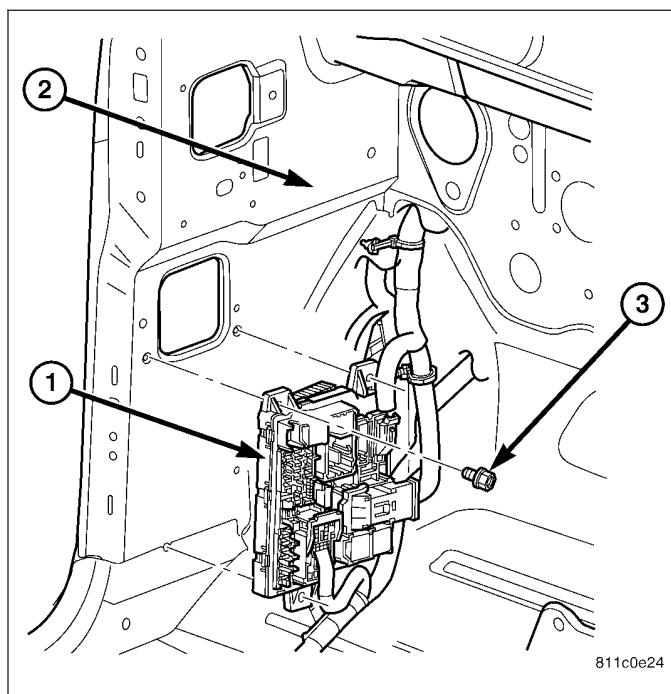
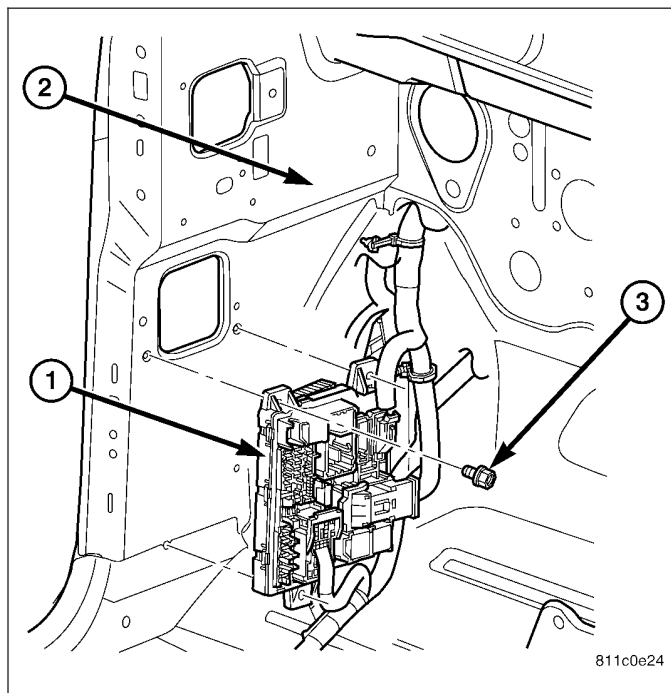
The JB unit cannot be repaired and is only serviced as an assembly. If any internal circuit or the JB housing is faulty or damaged, the entire JB unit must be replaced.

### OPERATION

All of the circuits entering and leaving the JB do so through wire harness connectors, which are connected to the JB through integral connector receptacles molded into the JB housing. Internal connection of all of the JB circuits is accomplished by an intricate combination of hard wiring and bus bars.

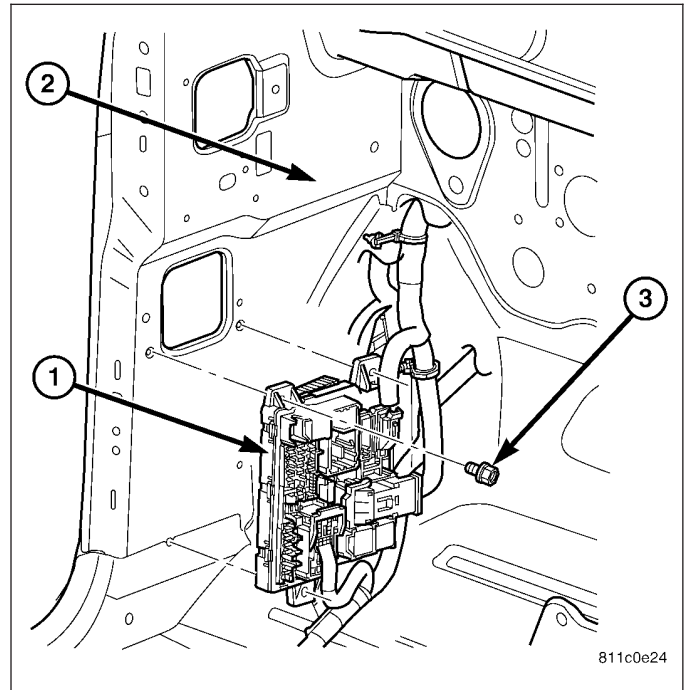
### REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Remove the cowl trim cover (Refer to 23 - BODY/ INTERIOR/COWL TRIM COVER - REMOVAL).
3. Remove the mounting fasteners (3).
4. Disconnect the electrical harness connectors and remove Junction Block (1).
5. Transfer components as necessary.



## INSTALLATION

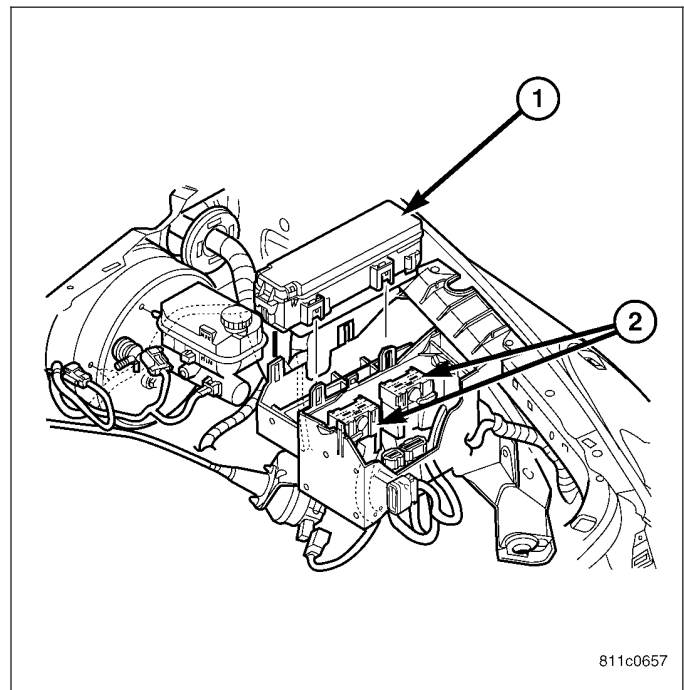
1. Connect wire harness connectors to the Junction Block (JB) (1).
2. Position JB and install mounting fasteners (3).
3. Install cowl trim cover (Refer to 23 - BODY/INTERIOR/COWL TRIM COVER - INSTALLATION).
4. Connect the battery negative cable.



## POWER DISTRIBUTION CENTER

### DESCRIPTION

All of the electrical current distributed throughout this vehicle is directed through the Power Distribution Center (PDC) (1). The molded plastic PDC housing is located in the left front corner of the engine compartment, just behind the battery. The PDC houses the generator cartridge fuse and maxi-type cartridge fuses, which replace all in-line fusible links. The PDC also houses blade-type fuses, relays, and a fuse puller.



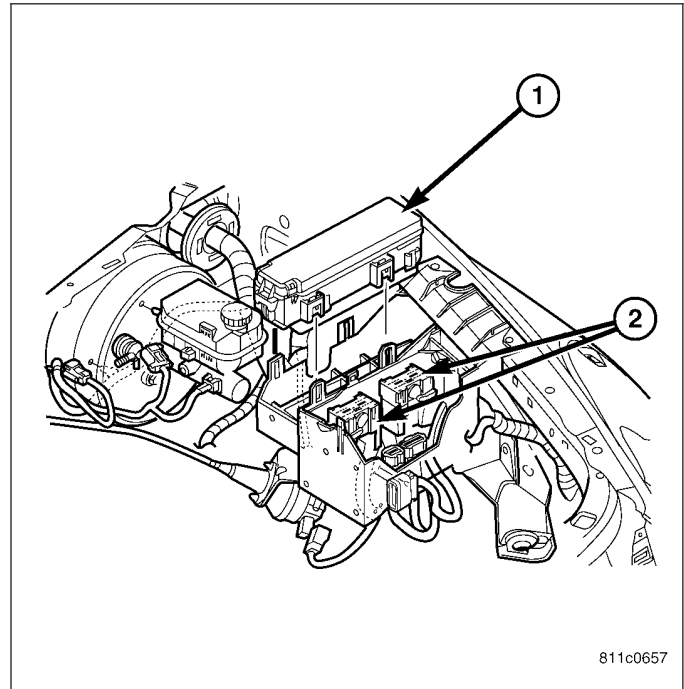
### OPERATION

All of the current from the battery and the generator output enters the PDC through two cables with eyelets that are secured with nuts to the two B(+) terminal studs located just inside the inboard end of the PDC housing. The PDC

cover is unlatched and removed to access the battery and generator output connection B(+) terminal studs, the fuses, the relays, the joint connectors and the engine wire harness in-line connector.

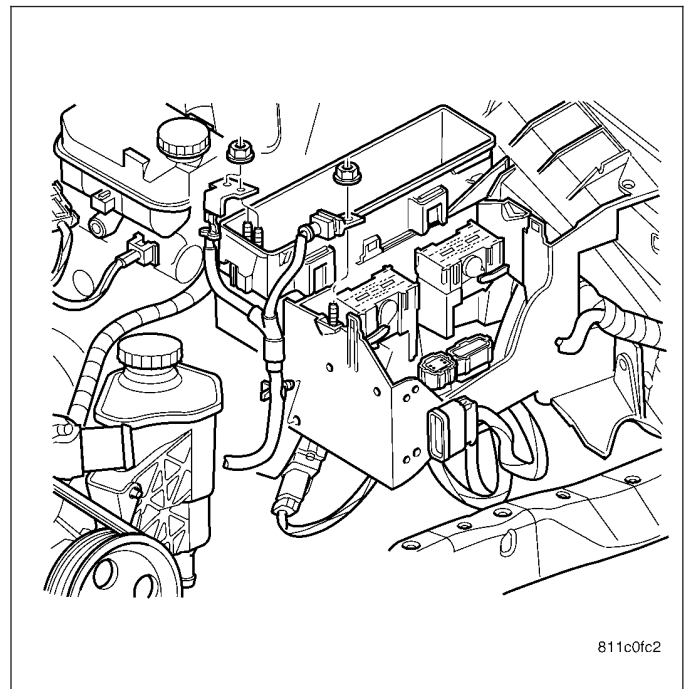
## REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Depress retaining tabs on the side on the PDC (1).
3. Disconnect electrical harness connectors (2) and remove PDC.



## INSTALLATION

1. Connect electrical harness connectors to Power Distribution Center (PDC).
2. Position PDC and engage into the retaining tabs.
3. Connect the battery negative cable.



## POWER OUTLET

### REMOVAL

1. Disconnect and isolate the battery negative cable.
2. Pull the cigar lighter knob and element out of the cigar lighter receptacle base, or unsnap the protective cap from the power outlet receptacle base.
3. Look inside the cigar lighter or power outlet receptacle base and note the position of the rectangular retaining bosses of the mount that secures the receptacle base to the panel.
4. Insert a pair of external snap ring pliers 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.
7. Disconnect the instrument panel wire harness connector from the cigar lighter or power outlet receptacle base connector receptacle.
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.