

POWER DISTRIBUTION SYSTEMS

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DESCRIPTION AND OPERATION

POWER DISTRIBUTION SYSTEM

DESCRIPTION

This group covers the various standard and optional power distribution components used on this model. Refer to the Component Index of Group 8W - Wiring Diagrams for complete circuit diagrams of the various power distribution components.

OPERATION

The power distribution system for this vehicle is designed to provide safe, reliable, centralized and convenient to access distribution of the electrical current required to operate all of the many standard and optional factory-installed electrical and electronic powertrain, chassis, safety, comfort and convenience systems. At the same time, these systems were designed to provide centralized locations for conducting diagnosis of faulty circuits, and for sourcing the additional current requirements of many aftermarket vehicle accessory and convenience items.

These power distribution systems also incorporate various types of circuit control and protection features, including:

- Fuses
- Fuse cartridges
- Fusible links
- Automatic resetting circuit breakers
- Relays
- Flashers
- Timers
- Circuit splice blocks.

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

- Power Distribution Center (PDC)
- Junction Block (JB)
- Accessory power outlet.

Following are general descriptions of the major components in the power distribution system. Refer to the owner's manual in the vehicle glove box for

more information on the features, use and operation of all of the power distribution system components.

POWER DISTRIBUTION CENTER (PDC)

DESCRIPTION

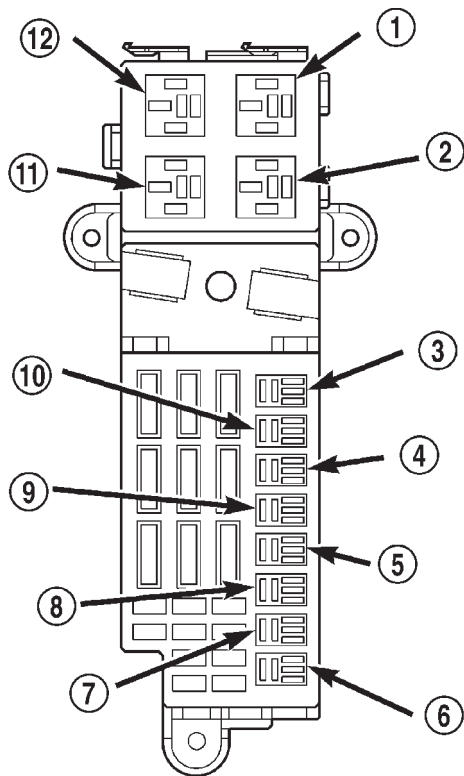
All of the electrical current distributed throughout this vehicle is directed through the standard equipment Power Distribution Center (PDC). The molded plastic PDC housing is located in the left front corner of the engine compartment, just behind the battery. The PDC housing has a molded plastic cover that includes an integral hinge feature on the inboard side, and an integral latch on the outboard side. The PDC cover is easily removed for service access and has a convenient fuse and relay layout label affixed to the inside surface of the cover to ensure proper component identification.

The PDC housing is secured in the engine compartment on the left front corner with three screws to the transmission and engine control module bracket. A small red molded plastic protective cover on the top near the rear of the PDC is unsnapped to access the battery/generator cable input connection stud. All of the PDC outputs are through the integral engine compartment wire harness, which exits from the rear of the PDC housing.

OPERATION

All of the current from the battery/generator cable connection enters the PDC through a 140 ampere fusible link that is secured to the top of the PDC housing. The PDC houses up to ten maxi-fuse cartridges, which replace all in-line fusible links. The PDC also houses up to eight blade-type fuses, up to four full International Standards Organization (ISO) relays, and up to eight ISO micro-relays. Internal connection of all the PDC circuits is accomplished by an intricate network of hard wiring and bus bars. Refer to **Power Distribution** in the Component Index of Group 8W - Wiring Diagrams for complete circuit diagrams.

DESCRIPTION AND OPERATION (Continued)



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Fig. 1 Power Distribution Center (PDC)

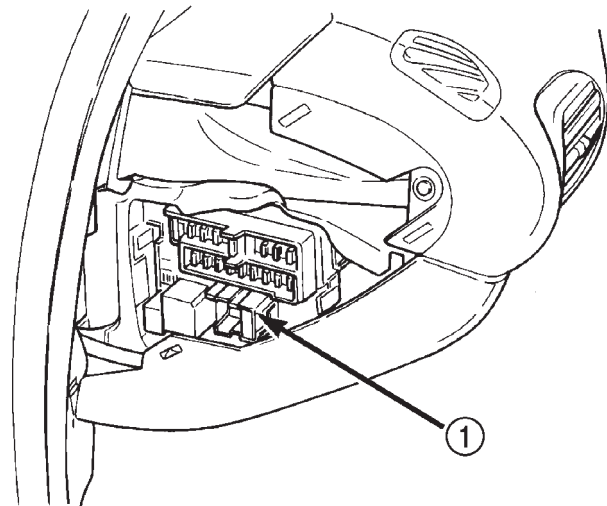
- 1 – LOW SPEED RADIATOR FAN RELAY (11)
- 2 – ENGINE STARTER MOTOR RELAY (9)
- 3 – NOT USED (8)
- 4 – POWER TOP INHIBIT (6)
- 5 – HI/LO WIPER RELAY (4)
- 6 – NOT USED (1)
- 7 – TRANSMISSION CONTROL RELAY (2)
- 8 – FUEL PUMP RELAY (3)
- 9 – INTERMITTENT WIPER RELAY (5)
- 10 – A/C COMPRESSOR CLUTCH RELAY (7)
- 11 – AUTOMATIC SHUTDOWN RELAY (10)
- 12 – HIGH SPEED RADIATOR FAN RELAY (12)

The fusible link, fuse cartridges, fuses and relays are available for service replacement. The PDC unit cannot be repaired and is only serviced as a unit with the engine compartment wire harness. If the PDC is faulty or damaged, the engine compartment wire harness assembly must be replaced.

JUNCTION BLOCK (JB)

DESCRIPTION

An electrical Junction Block (JB) is located in the left endcap of the instrument panel. The JB combines the functions previously provided by a separate fuseblock module and relay center. It also serves to simplify and centralize numerous electrical components, as well as to distribute electrical current to many of the accessory systems in the vehicle. It eliminates the need for



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Fig. 2 Junction Block Location

1 – JUNCTION BLOCK

numerous splice connections and serves in place of a bulkhead connector between many of the engine compartment, instrument panel, and body wire harnesses.

The JB is positioned on a mounting bracket up and under the left instrument panel. It is secured by three screws. The JB is concealed behind the left instrument panel endcap. The left instrument panel endcap is a snap-fit fuse access cover that conceals the JB fuses. A fuse puller and spare fuse holders are located on the back of the endcap, as well as the fuse layout to ensure proper fuse identification. The left instrument panel endcap must be removed to access components other than the fuses in the JB.

OPERATION

All of the current entering and leaving the JB does so through wire harnesses, which are connected to the JB through integral connector receptacles molded into the JB housing. The JB houses blade-type fuses, blade-type automatic resetting circuit breakers, full International Standards Organization (ISO) relays, and ISO micro-relays. Internal connection of all the JB circuits is accomplished by an intricate network of hard wiring and bus bars. Refer to **Junction Block** in the Component Index of Group 8W - Wiring Diagrams for complete circuit diagrams.

The fuses, circuit breakers, relays, and are available for service replacement. 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 Junction Block assembly must be replaced.

REMOVAL AND INSTALLATION

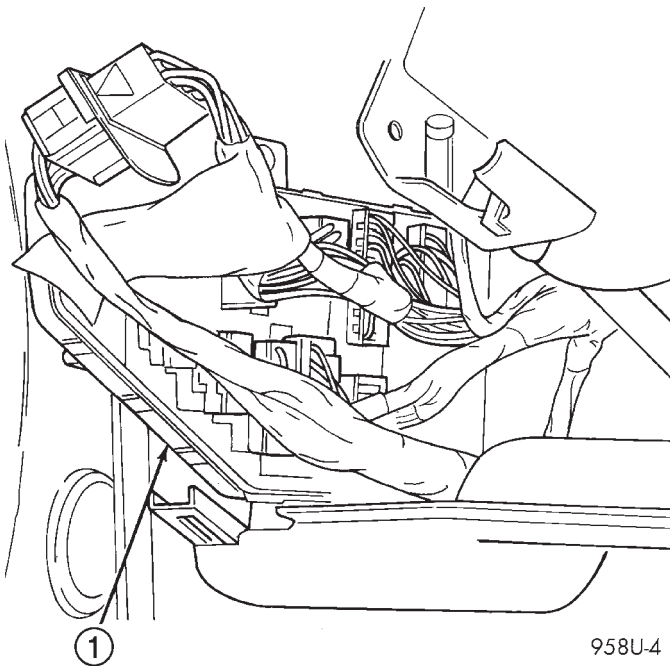
JUNCTION BLOCK (JB)

REMOVAL

WARNING: ON VEHICLES EQUIPPED WITH AIR-BAGS, REFER TO GROUP 8M - PASSIVE RESTRAINT SYSTEMS BEFORE ATTEMPTING ANY STEERING WHEEL, STEERING COLUMN, OR INSTRUMENT PANEL COMPONENT DIAGNOSIS OR SERVICE. FAILURE TO TAKE THE PROPER PRECAUTIONS COULD RESULT IN ACCIDENTAL AIR-BAG DEPLOYMENT AND POSSIBLE PERSONAL INJURY.

The Junction Block (JB) and Body Control Module (BCM) are attached to each other. After removal they can be separated. Junction Block and Body Control Module assemblies are located on the driver's side of the vehicle (Fig. 3).

connectors are in good condition and connectors are properly installed.



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Fig. 3 Junction Block/BCM Location

1 - JUNCTION/BCM

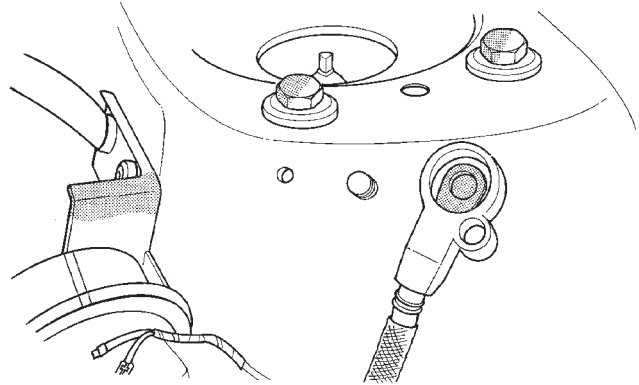
(1) Open hood then disconnect and isolate the battery negative remote cable from the remote terminal on the left shock tower (Fig. 4).

(2) Open the front driver's door and remove end cap.

(3) Remove center bezel.

(4) Remove instrument cluster hood.

(5) Remove silencer.



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Fig. 4 Battery Negative Remote Cable

(6) Remove wire harness connectors from Junction Block.

(7) Remove Junction Block three mounting screws.

(8) Remove Junction Block/BCM by pulling straight down from the mounting bayonet.

(9) Disconnect BCM wire connectors and remove the assembly.

(10) Remove Junction Block/BCM from vehicle.

(11) With the Junction Block/BCM removed from the vehicle, separate the BCM from the Junction Block.

(12) Remove the two BCM attaching screws and release the two BCM locking latches from the Junction Block.

(13) Disconnect BCM from the Junction Block.

INSTALLATION

For installation, reverse the above procedures. Ensure that the wire terminals and connectors are in good condition and connectors are properly installed.

POWER DISTRIBUTION CENTER

The Power Distribution Center (PDC) is serviced as a unit with the engine compartment wire harness. If any internal circuit of the PDC or the PDC housing is faulty or damaged, the entire PDC and engine compartment wire harness unit must be replaced.

REMOVAL

(1) Open hood then disconnect and isolate the battery negative remote cable from the remote terminal on the left shock tower (Fig. 4).

(2) Remove the Air Inlet System (housing and resonator). Refer to Group 14, Fuel System for Removal and Installation.

(3) Disconnect each of the engine compartment wire harness connectors. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the locations of the affected connectors.

REMOVAL AND INSTALLATION (Continued)

(4) Remove the fasteners that secure each of the engine compartment wire harness ground eyelets to the vehicle body and chassis components. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the ground eyelet locations.

(5) Disengage each of the retainers that secure the engine compartment wire harness to the vehicle body and chassis components. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the retainer locations.

(6) Remove the three screws retaining the PDC to its mounting bracket.

(7) Remove the PDC and the engine compartment wire harness from the engine compartment as a unit.

INSTALLATION

NOTE: If the power distribution center is being replaced with a new unit, be certain to transfer each of the fuses, fuse cartridges, fusible links and relays from the old power distribution center to the proper cavities of the new power distribution center. Refer to Power Distribution in Group 8W - Wiring Diagrams for the proper power distribution center cavity assignments.

(1) Position the PDC over the mounting bracket between the Powertrain and Transmission Control Modules in the engine compartment.

(2) Align the PDC mounting slots with the blades on the PDC mounting bracket.

(3) Install the three mounting screws into the PDC.

(4) Route the engine compartment wire harness from the PDC through the engine compartment, engaging each of the harness retainers to the mounting provisions in the vehicle body and chassis components. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the harness routing and retainer locations.

(5) Install and tighten the fasteners that secure each of the engine compartment wire harness ground eyelets to the vehicle body and chassis components. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the ground eyelet locations. See the table below for the proper fastener tightness values.

(6) Reconnect each of the engine compartment wire harness connectors. Refer to **8W-90 - Connector Locations** in Group 8W - Wiring Diagrams for more information on the locations of the affected connectors.

(7) Reconnect the battery negative remote cable (Fig. 4) to the remote terminal on the left strut tower.