Department	Customer Service
Category	Service Manual
Section	Electrical
Title	Power Distribution Box
Number	KM815020
Date	03/05/03
Model	W900, T600, T800 C500 chassis built before 12/03/01
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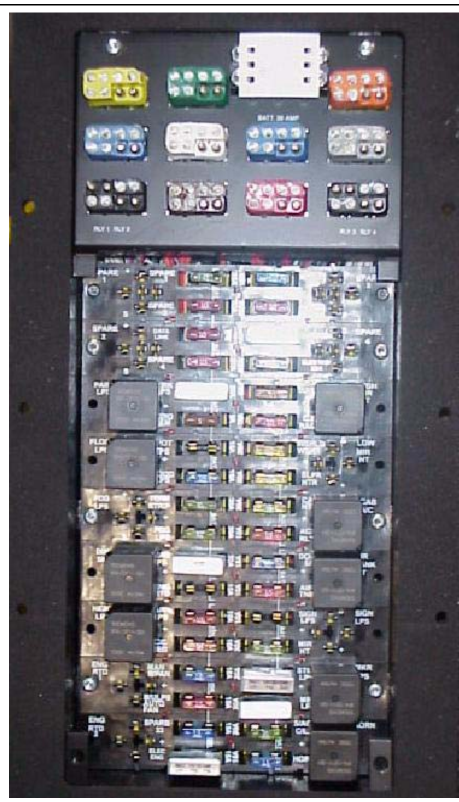
Power Distribution Box

for W900, T600, T800 C500 chassis built before 12/03/01



Adding Electrical Circuits

NOTE: This section applies to all T600, T800, C500 and W900 vehicles built between 3/01/82 and 12/03/01 and equipped with a Power Distribution Box. For vehicles built after 12/3/01, refer to Power Distribution Box (for chassis built after 12/01), KM815055.

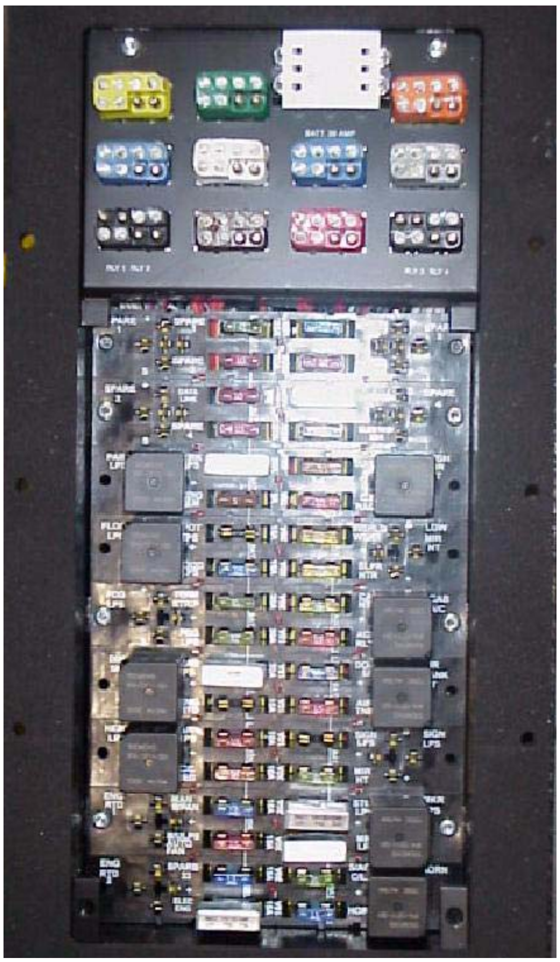


Figure 1

The power distribution electrical system used in T600, T800, C500 and W900 model vehicles was first introduced in March 1982. The system includes a Power Distribution Box that allows the addition of electrical options in the field while maintaining proper protection of the entire electrical system.

When testing electrical circuits, remember that the current travels:

1. First to the right side terminal of the CB/fuse.

NOTE: Some circuits are equipped with Circuit Breakers and some with fuses. CB/fuse refers to both kinds of circuits.

2. Through the CB/fuse.
3. And then to a component switch or high power circuit relay.

Relay-controlled circuits use a low amp single wire dash switch to provide a ground path for the relay when the switch is in the On position.

NOTE: Remember that some "hot" circuits require the key to be switched On. Other circuits are hot at all times.

Locating Spare Circuits

WARNING! To avoid damage to wiring, circuits, or components, disconnect whenever possible the vehicle's electrical system before attempting to install or repair wiring or electrical components.

WARNING! Do not open Power Distribution Box. Attempts to open it may cause damage and will be considered abuse, precluding warranty coverage.

The upper section of the Power Distribution Box inside the cab provides three different methods for adding additional electrical circuits.

Figure 2

1. A terminal strip is protected by a 30 amp circuit breaker. See Figure 2 and Figure 3 on page 4, Term Strip. The terminal strip is always energized. To assure proper electrical protection, any circuit wired to the terminal strip must be 14 gauge (min.) wire.
2. A red 8-way electrical connector and pigtail provides eight hot leads: spare circuits 1, 2, 3, 4, 19, 20, 21 and 33 which are labeled on the pigtail. Circuits 20 and 21 are prewired to the “spare” dash switches of many chassis. See Figure 2 and Figure 3 on page 4,

   NOTE: Pigtail part number K068-4107.

   For a wiring diagram of this pigtail harness see R115-3271, “Key Switch and Spare Circuit Breaker” in ServiceNet.

   With the corresponding spare CBs/fuses installed in the Power Distribution Box, circuits 1, 2, 3 and 4 are always hot. Circuit 33 is hot only with the ignition key switch in the Run position. Circuits 19, 20, 21 and 22 are hot only in the Accessory and Run positions.
3. A brown 8-way connector and pigtail provides two additional spare hot leads: spare circuits 22 and 33. Note that hot lead no. 33 can be accessed in either the red or brown pigtail. See Figure 2 and Figure 3 on page 4,

   For adequate protection, spare circuits 1,2,3 and 4 and Term. Strip (30 amp) must be wired with 14 gauge (min.) wire. Circuits 19, 20, 21, 22 and 33 (1 5 amp) must be wired with 16 gauge (min.) wire.

   The “spare” switches supplied in the dash are usually two-wire dash switches.

i *NOTE: Kenworth recommends that all 20 amp circuits and above be controlled with a relay and single-wire switch. Circuits of less than 20 amps may be directly controlled by a two-wire switch.*

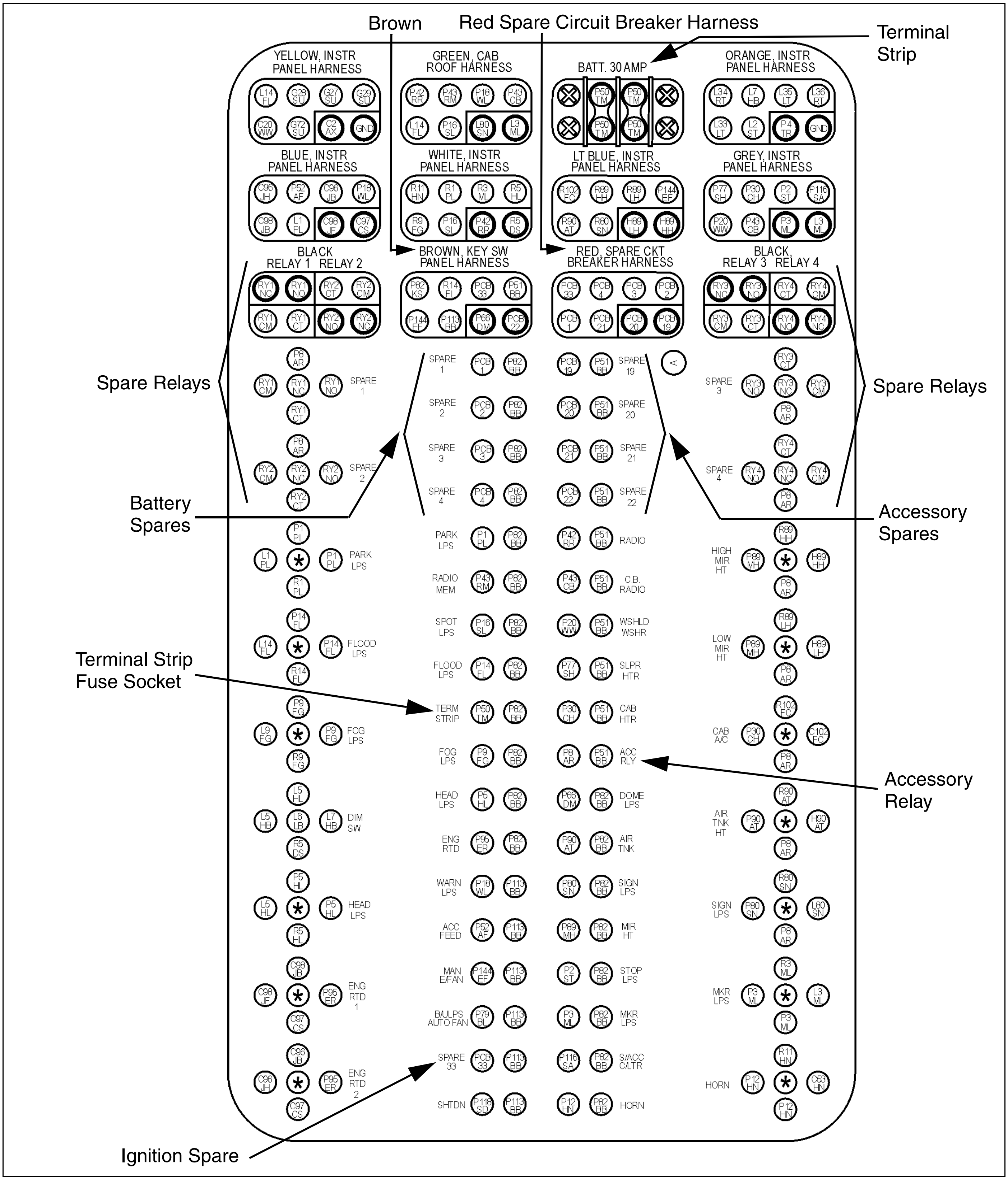


Figure 3 Power Distribution Box

Adding Accessory Circuits With A Relay

1. Plug CB/fuses into the ACC RLY position.
2. Select an unused spare relay socket. Plug in a relay.
3. Connect the appropriate spare CB/fused hotwire in the red plug to the appropriate wire of the black relay plug, using the following chart and Figure 3 on page 4. All connections should use 14 gauge wire (min.).

	Spare Fuse 1	Spare Fuse 2	Spare Fuse 3	Spare Fuse 4
Spare Relay 1	PCB 1 To RY1 CM	PCB 2 To RY1 CM	PCB 3 To RY1 CM	PCB 4 To RY1 CM
Spare Relay 2	PCB 1 To RY2 CM	PCB 2 To RY2 CM	PCB 3 To RY2 CM	PCB 4 To RY2 CM
Spare Relay 3	PCB 1 To RY3 CM	PCB 2 To RY3 CM	PCB 3 To RY3 CM	PCB 4 To RY3 CM
Spare Relay 4	PCB 1 To RY4 CM	PCB 2 To RY4 CM	PCB 3 To RY4 CM	PCB 4 To RY4 CM

4. Install a single-wire, self-grounding dash switch (K301-198), or ground one side of a two-wire dash switch. Then connect the switch to the appropriate wire in the black relay plug, as determined by the following chart and Figure 3 on page 4.

Relay Used	Wire or Switch
1	RY1 CT
2	RY2 CT
3	RY3 CT
4	RY4 CT

5. Note the relay and select whether the accessory is to be energized with the switch On or Off. Then connect the accessory to the desired relay switched hotwire. See chart below and Figure 3 on page 4.

Relay Used	Hot With Switch ON	Hot With Switch OFF
1	RY1 NO	RY1 NC
2	RY2 NO	RY1 NC
3	RY3 NO	RY1 NC
4	RY4 NO	RY1 NC

6. Connect the accessory ground wire, if any, to a good ground. If there is no ground wire, be certain that the accessory mounting makes a good electrical connection with the cab or chassis.

Adding Accessory Circuits Without A Relay

1. Select an appropriately rated spare circuit by matching the circuit amp reading as closely as possible and always slightly higher than the amp requirements of the accessory. Insert a properly rated CB/fuse.
2. Install a two-wire dash switch (K301-201). Connect one wire to the appropriate wire of the red or brown plug as determined by the following chart. See Figure 3 on page 4 for appropriate wire of red or brown plug.
3. Connect the second wire from the switch to the accessory.
4. Connect the accessory ground wire, if any, to a good ground. If there is no ground wire, be certain that the accessory mounting makes a good electrical connection with the cab or chassis.

BAT	Spare Fuse	Wire Size	Connect To
	1	14 Gauge	PCB 1 Red
	2	14	PCB 2 Red
	3	14	PCB 3 Red
	4	14	PCB 4 Red
	Term Strip	14	P50 TM -----
ACC	19	16	PCB 19 Red
	20	16	PCB 20 Red
	21	16	PCB 21 Red
	22	16	PCB 22 Brown
IGN	33	16	PCB 33 Brown