

## General Information

Sterling vehicles have a 12-volt, negative ground electrical system. See [Specifications 400](#) for a list of standard circuit numbers and circuit descriptions for vehicles built beginning February 27, 2001.

## Fuses and Circuit Breakers

Sterling vehicles use blade-type fuses that have a transparent plastic housing enclosing the metal fuse element. A fuse is designed to melt the metal element at a certain amperage to protect the circuit wiring and components from damage due to an overcurrent condition. The ampere rating of a fuse can be determined by reading the number molded into the top end of the fuse or by color. See [Specifications 400](#) for the fuse amperage rating and color for that amperage rating.

## Wire Color Code

Colored wiring aids in the diagnosis and testing of electrical systems. It allows for faster identification when testing circuits for failure. See [Specifications 400](#) for a list of standard wiring color-coding information for vehicles built beginning February 27, 2001.

## In-Line Protection Devices

In addition to the fuses in the fuse junction panel and the power distribution module (PDM), there may be in-line fuses in the wiring harnesses. The fuses are located in the battery cable wiring assembly and provide power to the PDM fuses for the electrical, audio, and gauges in the cab. Two 10-gauge fuse links may be used on Sterling vehicles built before February 27, 2001: one is located between the starter motor battery terminal, the other is in the alternator wiring circuit protection.

## Fusible Links

Fusible links are short lengths of wire that are smaller than the wires they are protecting. Fusible link wire is covered with a special, thick, non-flammable insulation. An overcurrent condition causes the insulation to blister and, if the overcurrent condition continues, the wire link will melt. To check a fusible link, look for blistered insulation. If the insulation is okay, pull lightly on the wire. If the fusible link insulation stretches, the wire has melted.

## Shielded Wires

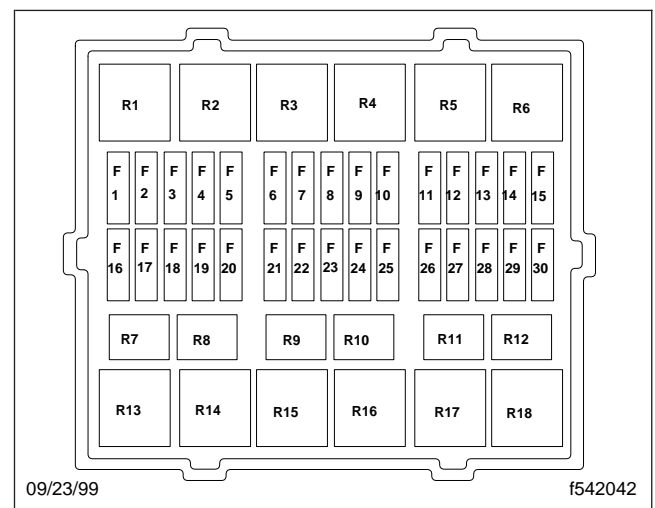
Shielding is necessary when a critical circuit is susceptible to electromagnetic interference. Shielded wire has three conducting strands. The outermost strand is grounded, which creates a ground plane around the two inner conductors. Any interference that enters the shielded cable will be conducted to ground instead of affecting the circuit's signal.

## Engine, Cab, and Trailer Wiring

Sterling vehicles have two PDMs, one in the engine compartment and one in the cab. Both contain fuses, circuit breakers and relays used in the electrical system.

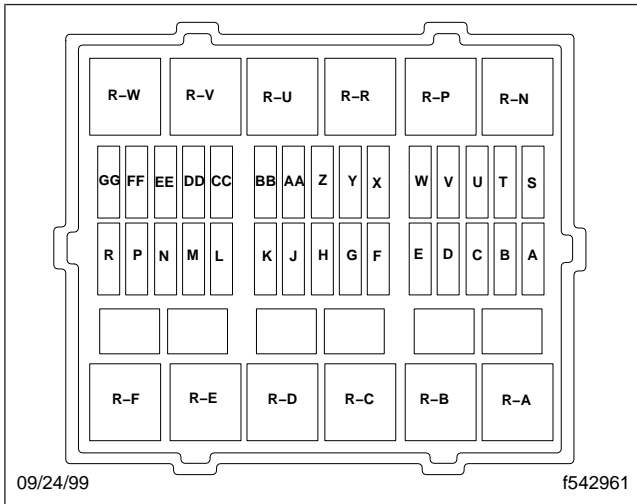
## Engine Wiring

The engine compartment PDM has a decal identifying the location of the fuses, circuit breakers and relays on the outside of the PDM cover. See [Fig. 1](#) for right-hand-drive vehicles, [Fig. 2](#) for left-hand-drive vehicles built before February 27, 2001, or [Fig. 3](#) for left-hand-drive vehicles built since February 27, 2001 but prior to September 12, 2003. Depending on vehicle options, fuse/circuit breaker/relay locations may vary from those shown. For fuse/circuit breaker/relay identification information, see [Table 1](#) for right-hand-drive vehicles, [Table 2](#) for left-hand-drive vehicles built before February 27, 2001, or [Table 3](#) for left-hand-drive vehicles built since February 27, 2001 but prior to September 12, 2003.

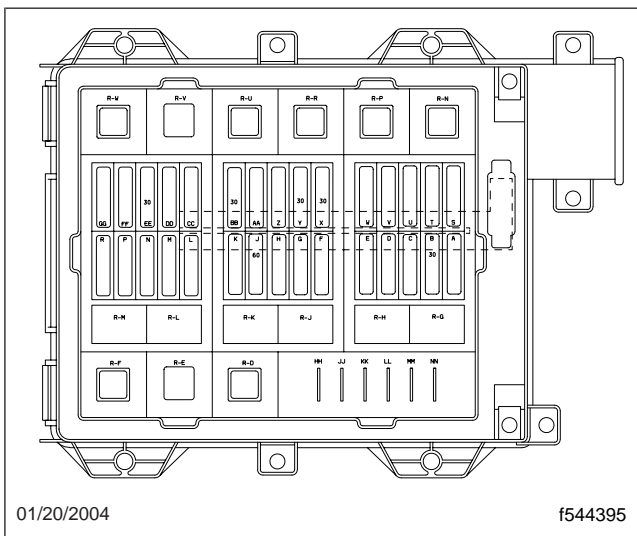


**Fig. 1, Engine Compartment PDM, Right-Hand-Drive Vehicles**

## General Information



**Fig. 2, Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)**



**Fig. 3, Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)**

Engine Compartment PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
<i>Relays</i>		
R1	Trailer Reverse Lamps	—
R2	Trailer Stop Lamps	—
R3	Trailer Left Turn	—

Engine Compartment PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
R4	Trailer Right Turn	—
R5	Trailer Park and Marker Lamps	—
R6	Trailer Auxiliary	—
R7	Not Used	—
R8	Not Used	—
R9	Not Used	—
R10	Not Used	—
R11	Not Used	—
R12	Not Used	—
R13	Aircon Pressure Switch	—
R14	Fog Lamps (Drive Option)	—
R15	High Beam Headlamps	—
R16	Low Beam Headlamps	—
R17	Road (Drive) Lamps	—
R18	Not Used	—
<i>Circuit Breakers</i>		
F1	Not Used	—
F2	Not Used	—
F3	Not Used	—
F4	Not Used	—
F5	Cab-Power-Window Right, Mirrors	20A
F6	Trailer Reverse Lamps	30A *
F7	Trailer Stop Lamps	30A *
F8	Trailer Left Turn	30A *
F9	Trailer Right Turn	30A *
F10	Trailer Park and Marker Lamps	30A *
F11	Cab-Stud Module	20A
F12	Cab-Windshield Wiper, F6	20A
F13	Cab-Stop, Reverse, F12	20A
F14	Cab-Accessory Relay	20A
F15	Cab-Park Lamps-Exterior	20A
F16	Not Used	—
F17	Not Used	—
F18	Not Used	—
F19	Not Used	—

## General Information

Engine Compartment PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
F20	Cab-Power-Window Left, Door Locks	20A
F21	Fog Lamps (Drive Option)	20A *
F22	High Beam Headlamps	20A *
F23	Low Beam Headlamps	20A *
F24	Road (Drive) Lamps	20A *
F25	Trailer Auxiliary	20A *
F26	Cab-Customer Access	20A
F27	Cab-Lighting Control, Courtesy	20A
F28	Cab-Heater Aircon Blower Motor	30A Maxifuse
F29	Cab-Flasher Unit, Horn	20A
F30	Cab-Ignition Switch, Relay, Fuel Shutoff	20A

\* Cycling Type (Automatic Reset)

**Table 1, Engine Compartment PDM, Right-Hand-Drive Vehicles**

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
<i>Relays</i>		
R-A	Fuel Heater	—
R-B	Customer Access Park Lamps	—
R-C	Customer Access Marker Lamps	—
R-D	Not Used	—
R-E	Trailer ABS	—
R-F	Not Used	—
R-N	Trailer Left Turn Signal	—
R-P	Trailer Right Turn Signal	—
R-R	Trailer Park Lamps	—
R-U	Trailer Marker Lamps	—
R-V	Trailer Stop Lamps	—
R-W	Heated Moisture Ejectors	—
<i>Fuses</i>		
A	Fuel Heater Relay R-A	40A
B	Fuse 1 Fuel Solenoid	30A

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
C	Customer Access, Marker and Park Lamp Relays R-B and R-C	40A
D	Fuse 13 Dome Lamp and Lighter, Fuse 14 Mirrors and Diagnostic Connection, Fuse 15 Audio/Phone	40A
E	Left-Hand Power Window Relay R2	40A
F	Run Relay R4, Fuse F36, Flash-to-Pass and Trailer Hookup Lamp	40A
G	Heater/AC Blower Relay R8	40A
H	Run Relay R6	40A
J	Ignition Switch and Run/Acc Relay R5	60A
K	Fuse 31 Courtesy Lamps, Fuse 32 Cab Marker Lamps, Fuse 33 Customer Access Stop Lamps	40A
L	Headlamp Fuse 37 and Headlamp Switch	40A
M	ABS	40A
N	Not Used	—
P	Not Used	—
R	Not Used	—
S	Fuse 3, Horns and C/B 4, Wiper	40A
T	Trailer Turn Lamps Relay, R-P and R-N	40A
U	Fuses 23 and 24, CB Hot Posts	40A
V	Right-Hand Power Window Relay R1	40A
W	Trailer Marker and Park Lamps Relays, R-U, R-R	40A
X	Customer Access, Stud "A", Instrument Panel	30A
Y	Heated Moisture Ejectors	30A
Z	Fuse 42, Turn Signals	40A
AA	Customer Access, Run/ACC Relay R10	40A
BB	Customer Access, Stud "H", Instrument Panel	30A
CC	Trailer Stop Lamps Relay R-V	40A

## General Information

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
DD	Not Used	—
EE	Trailer ABS	40A
FF	Not Used	—
GG	Not Used	—

**Table 2, Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)**

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
<i>Relays</i>		
R-D	Option	—
R-E	Trailer - ABS ECU Power	—
R-F	Option	—
R-G	Reserved for transmission	—
R-H	Reserved for transmission	—
R-J	Tail Lamp (Body Builder/Custom ACC)	—
R-K	Marker Lamp (Body Builder/Custom ACC)	—
R-L	Engine Supply	—
R-M	Not Used	—
R-N	Trailer LH Turn	—
R-P	Trailer RH Turn	—
R-R	Trailer Park Lamp	—
R-U	Trailer Marker Lamp	—
R-V	Trailer Stop Lamp	—
R-W	Air Dryer/Heated Moisture Ejector	—
<i>Fuses</i>		
A	Reserved for Fuel Heater Option	30A
B	Option	30A
C	Power to Relays R-J and R-K, Customer Access/Marker & Tail Lamps	30A

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
D	Feed Fuses 13, 14, 15 Fuse # 13: Cigar Lighter/Dome Lamp Fuse # 14: Power Mirror & Diagnostic Fuse #15: Audio/Phone	30A
E	Power to R-2 Left Door	20A
F	Power to R-4 Ignition Run	40A
G	Power to R-8 HVAC Blower Motor	30A
H	Power to R-6 Ignition Run	40A
J	Ignition to R-5 Run Accessory	60A
K	Feed Fuses 31, 32, and 33. Fuse # 31: Courtesy Lamps Fuse # 32: Cab Marker Lamps Fuse # 33: Customer Access Stop Lamps	40A
L	Feed Fuse F37-Head Lamps	40A
M	Feed Fuse F26-ABS Power	40A
N	Power to Sleeper	60A
P	Power to Sleeper	60A
R	Not Used	—
S	Feed Fuses 1, 2, 3, 4 Fuse # 1: Fuel Shutoff Solenoid Fuse # 2: Option Fuse # 3: Horn Power Fuse # 4: Washer/Wiper Power	30A
T	Power to Relays R-N & R-P. Trailer LH/RH Turn Signals	40A
U	Feed Fuse 23 & 24 Fuse 23: CB Hot Post Fuse 24: CB Hot Post	40A
V	Power to Relay R-1 Right Door	20A
W	Power to Relays R-R & R-U, Trailer Marker & Park Lamps	30A
X	Custom/Option	40A

Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
Y	Power to Relay RW-Heated Moist/Dryer	30A
Z	Feed Fuse 42, Stop Lamps and Turn Signals	40A
AA	Power to Hydromax	40A
BB	Customer Access, Stud "H", Instrument Panel	40A
CC	Trailer Stop Lamps Relay R-V	40A
DD	Not Used	—
EE	Power to Relay R-E: Trailer ABS	40A
FF	Not Used	—
GG	Reserved for Engine	40A
HH	Option	Varied
JJ	Option	Varied
KK	Option	Varied
LL	Battery Power Supply to Transmission ECU	Varied
MM	Ignition Power Supply to Engine	Varied
NN	Ignition Power Supply to Transmission ECU	Varied

**Table 3, Engine Compartment PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)**

## Cab Wiring

The cab PDM is located on the passenger side within the instrument panel. See [Fig. 4](#) for right-hand-drive vehicles, [Fig. 5](#) for left-hand-drive vehicles built before February 27, 2001, or [Fig. 6](#) for left-hand-drive vehicles built since February 27, 2001 but prior to September 12, 2003. A trim panel covers the PDM and is attached to the instrument panel by quarter-turn fasteners. A decal identifying the location of the fuses, circuit breakers, and relays is attached to the back side of the trim panel. For fuse/circuit breaker/relay identification information, see [Table 4](#) for right-hand-drive vehicles, [Table 5](#) for left-hand-drive vehicles built before February 27, 2001, or [Table 6](#) for left-hand-drive vehicles built since February 27, 2001 but prior to September 12, 2003.

Cab PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
<i>Circuit Breakers</i>		
F1	Left Power Window	18A *
F2	Power Door Locks	10A
F3	Right Power Window	18A *
F4	Power Mirrors	10A
F5	Windshield Wiper/Washer	11A *
F6	Not Used	—
F7	Ignition Switch	10A
F8	Fuel Shutoff Relay	10A
F9	Not Used	—
F10	Reverse Lamps	10A
F11	Stop Lamps	10A
F12	Not Used	—
F13	Flasher Unit	10A
F14	Horn	10A
F15	Ignition Connection Antilock Brakes	5A
F16	Not Used	—
F17	Customer-Constant 12V	10A
F18	Customer-Accessory	10A
F19	A/C-Blend Motor, Blower Relay	5A
F20	Cigar Lighter	10A
F21	Mirror Heater	10A
F22	Switch-Trailer Auxiliary, Customer	5A
F23	Not Used	—
F24	Not Used	—
F25	Air Intake Heater Module	10A
F26	Engine/Exhaust Brake	10A
F27	Warning Lamps	5A
F28	Fan Clutch Solenoid, A/C Pressure Switch	5A
F29	Aircon Compressor	10A
F30	Air Switches	5A
F31	Clock Connection-Constant 12V	5A
F32	Dash Display, Diagnostic Connection 12V	5A

## General Information

Cab PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
F33	Gauges	5A
F34	Clock, Road Speed Module-Ignition	5A
F35	Cruise Switch, Diagnostic Connection-Ignition	5A
F36	Not Used	—
F37	Headlamp Switch	10A
F38	Flash-to-Pass Switch	5A
F39	Courtesy Lamps	10A
F40	Low Beam Relay Control	5A
F41	Park Relay Control	5A
F42	Fog Lamps Switch	5A
F43	Radio-Cassette-Constant 12V	5A
F44	Audio Connector-Constant 12V	5A
F45	Radio-Cassette-Accessory	5A
F46	Audio Connector-Accessory	5A
F47	Stud Module A-Constant 12V	10A
F48	Stud Module C-Constant 12V	10A
F49	High Beam Relay Control	5A
F50	Road Lamp Switch, High Beam Indicator Lamp	5A
F51	Park Lamps-Front and Rear	10A
F52	Park Lamps-Roof and Mirror	10A
F53	Park-Radio/Cassette, Dash Display	5A
F54	Dimmer-Instrument Panel	10A
<i>Relays</i>		
R1	Left Power Window	—
R2	Right Power Window	—
R3	Horn	—
R4	Ignition CB25 to CB30	—
R5	Accessory CB19 to CB24	—
R6	Ignition-Stop, Reverse, CB12	—
R7	Interior Illumination	—
R8	Blower Motor	—
R9	Flasher	—
R10	Accessory-Customer	—

Cab PDM, Right-Hand-Drive Vehicles		
Position	Description	Rating
R11	Windshield Wiper/Washer-Accessory	—
R12	Fuel Shutoff	—
R13	Audio-Accessory	—
R14	Gauges/Electronics-Ignition	—
R15	Engine Control Module-Ignition	—
R16	Exterior Park Lamps	—
R17	Not Used	—
R18	Not Used	—
<i>Stud Module</i>		
A	(AA)/Battery	12V/40A
B	Accessory/Ignition	—
C	Ground	12V
D	Not Used	—
E	Not Used	—
F	Not Used	—
G	Not Used	—

\* Cycling Type (Automatic Reset)

**Table 4, Cab PDM, Right-Hand-Drive Vehicles**

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
<i>Circuit Breakers</i>		
1	Fuel Shutoff Solenoid	10A
2	Not Used	—
3	Horn Power	10A
4	Washer/Wiper Timer	11A *
5	Daytime Running Lights Module, High Beam Indicator	15A
6	Air Dryer, Instrument Panel Air Valves, Trailer Stop Relay	10A
7	Air Intake Heater Module	10A
8	Two-Speed Axle, ABS Relay	15A
9	Exhaust/Engine Brake Solenoid, A/C Clutch, Allison ABS Relay	10A
10	Backup Lamps	10A



## General Information

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
11	Pushbutton Start, Bulb Check Relay, Warning Lamps, Ether Solenoid	20A
12	Engine Fan Control	10A
13	Cigar Lighter/Dome Lamps	15A
14	Power Mirrors, Datalink Power	10A
15	Audio, Cellular Phone (Battery)	20A
16	Audio Cellular Phone, Sleeper Relay (Run/Accy)	10A
17	Heated Mirror, Power Window Relay, Washer/Wiper Relay	25A
18	Heated Seats, Blend Door Motor, Blower Motor Relay	15A
19	Electronic Transmission, Caterpillar 3126 Automatic Transmission (Run)	5A
20	Electronic Engine Control (Start/Run)	15A
21	Warning Lamps, Fuel Heater Relay	10A
22	Gauges, Speedometer, Message Center (Power)	10A
23	Hot Post Number 2 (Instrument Panel or Header Console)	15A
24	Hot Post Number 1 (Instrument Panel)	15A
25	Customer Accessory (Run/Accy)	25A
26	Not Used	—
27	Detroit Diesel and Cummins Electronic Engines	15A
28	Electronic Engines	15A-Detroit Diesel and Cummins, 20A-Caterpillar
29	To Electronic Engines (Battery)	15A
30	Electronic Automatic Transmission (Battery)	15A
31	Courtesy/Dome/Spot Lamps	15A
32	Door Locks, Horn Relay, Marker Lamps	15A

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
33	Customer Accessory Stop Lamps	15A
34	Left-Hand Power Window	18A *
35	Right-Hand Power Window	18A *
36	Flash-to-Pass, Trailer Hookup Lamps, Windshield Wipers	15A
37	Instrument Panel Illumination, Park Lamps, Headlights, Customer Accessory Relay	15A
38	High Beam Indicator Lamp	5A
39	Fog/Road Lamps	10A
40	Left-Hand Turn Signal Indicator Lamp	5A
41	Right-Hand Turn Signal Indicator Lamp	5A
42	Turn Signals, Hazards	30A
43	Customer Access Front Left-Hand Turn Signal	5A
44	Customer Access Front Right-Hand Turn Signal	5A
45	Not Used	—
46	Starter Relay, Air Intake Module, Ether Solenoid	20A
47	Not Used	—
48	Two-Speed Axle Signal to Speedometer	5A
<i>Relays</i>		
R1	Right-Hand Power Window	—
R2	Left-Hand Power Window	—
R3	Two-Speed Axle	—
R4	Run Relay	—
R5	Run/Accessory	—
R6	Run Relay	—
R7	Fog/Road Lamps	—
R8	Blower Motor	—
R9	Turn Signal Flasher	—
R10	Customer Access (Run/Accy)	—
R11	Washer/Wiper	—
R12	ABS Power	—

## General Information

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)		
Position	Description	Rating
R13	Customer Access Stop Lamps	—
R14	Engine Brake Cut-Out	—
R15	A/C High Pressure	—
R16	Horn Power	—
R17	Bulb Check	—
R18	Exhaust Brake	—
R19	ABS Warning Lamp	—
R20	Fuel Shutoff Solenoid, Caterpillar 3126 Neutral Start	—
R21	Engine Fan Control	—
R22	Allison ABS	—
<i>Customer Access Terminals</i>		
A	Battery (AA)	12V/40A
B	Accessory/Ignition	—
C	Ground	12V
D	Feed Number 1 from Chassis	—
E	Feed Number 2 from Chassis	—
F	Auxiliary Switch Number 1	—
G	Auxiliary Switch Number 1	—
H	Battery (positive)	—
J	Road Speed	—
K	Datalink (positive)	—
L	Datalink (negative)	—
M	Stoplamps	—
N	Auxiliary Switch Number 2	—
P	Auxiliary Switch Number 2	—

\* Special Cycling Circuit Breakers

**Table 5, Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)**

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
<i>Fuses</i>		
1	Spare	—
2	Power Door Lock	10A

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
3	Horn Power/Cluster/AC Panel/Diagnostic/Hydra Max	10A
4	Wash/Wipe Module	11A CB
5	Low Coolant/Cluster/Hydra Max/Backup Lite/DRL	15A
6	Air Dryer/Htd Moisture Ejector	10A
7	Not Used	—
8	Two Speed Axle	15A
9	Water/Fuel Separator	20A
10	Customer Supply	10A
11	Gauge, Accessory Supply	10A
12	Spare	—
13	Spare	—
14	ABS Hydraulic Brake	25A
15	Radio System	20A
16	Radio System	10A
17	Mirror, Heated, Power	15A
18	Ignition, Accessories	15A
19	Meritor Transmission	10A
20	Spare	—
21	Not Used	—
22	Not Used	—
23	Spare	—
24	CB Hot Post	15A
25	Ignition, Key Start	10A
26	ABS-Hydraulic Pump	25A
27	Brake, Hydra-Max Pump	10A
28	Spare	—
29	Spare	—
30	Spare	—
31	Interior Light, Domelamp/Courtesy Lamp	15A
32	Exterior Light, Marker Lamp	15A
33	Spare	—
34	LH Pwr Window	18A CB
35	RH Pwr Window	18A CB



## General Information

Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
36	Exterior Light, Trailer Utility Light	10A
37	Park Lamp	15A
38	Headlamp	15A
39	Fog/Road Lamps	10A
40	Customer Access, Front, LH, T/S	5A
41	Customer Access, Front, RH, T/S	5A
42	Stoplamp Switch	10A CB
43	Turn Signal Flasher	25A CB
44	Spare	—
45	ABS Pneumatic Brake	10A
46	Ignition, Push Button Start	10A
47	ABS Hydraulic/ABS Pneumatic	5A/15A
48	Ignition-Engine/Transmission	10A
<i>Relays</i>		
R1	Right-Hand Power Window	—
R2	Left-Hand Power Window	—
R3	Two-Speed Axle	—
R4	Ignition Run	—
R5	Ignition Run/Accessory	—
R6	Ignition Run Relay	—
R7	Fog/Road Lamps	—
R8	Blower Motor	—
R9	Turn Signal Flasher	—
R10	Spare	—
R11	Washer/Wiper	—
R12	Spare	—
R13	Transmission	—
R14	Engine Brake Cut-Out	—
R15	DRL Park Brk Cut Off	—
R16	Horn Power	—
R17	ABS-Hyd Brake Pump Bulb Check	—
R18	Engine Brake	—
R19	ABS Warning Lamp	—

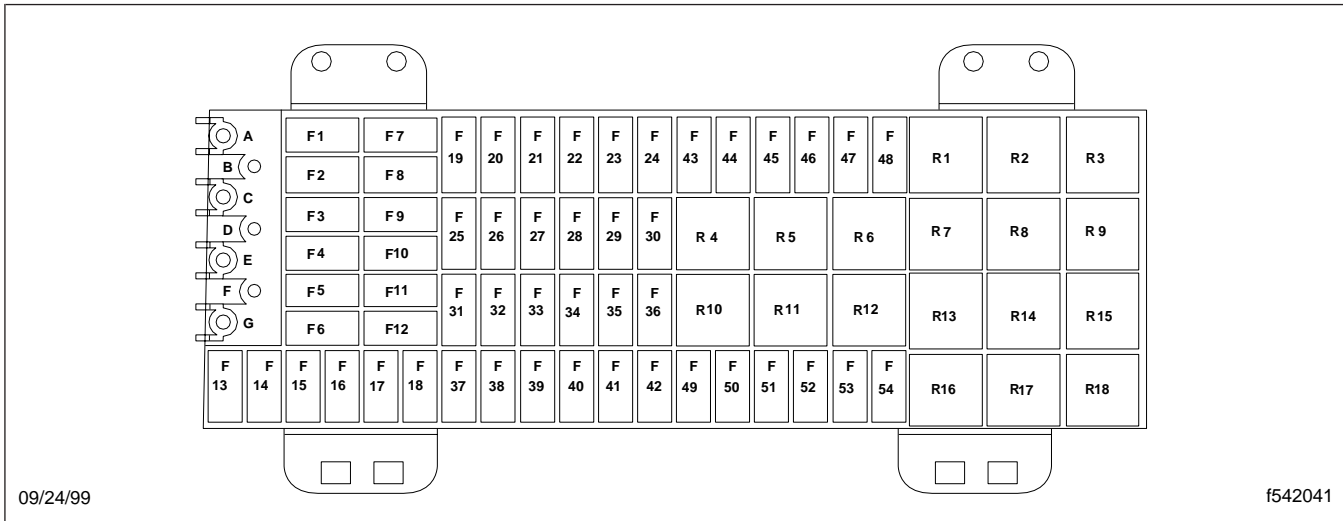
Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)		
Position	Description	Rating
R20	2 Speed Axle	—
R21	Electrical Engine Service Brake	—
R22	Spare	—

**Table 6, Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)**

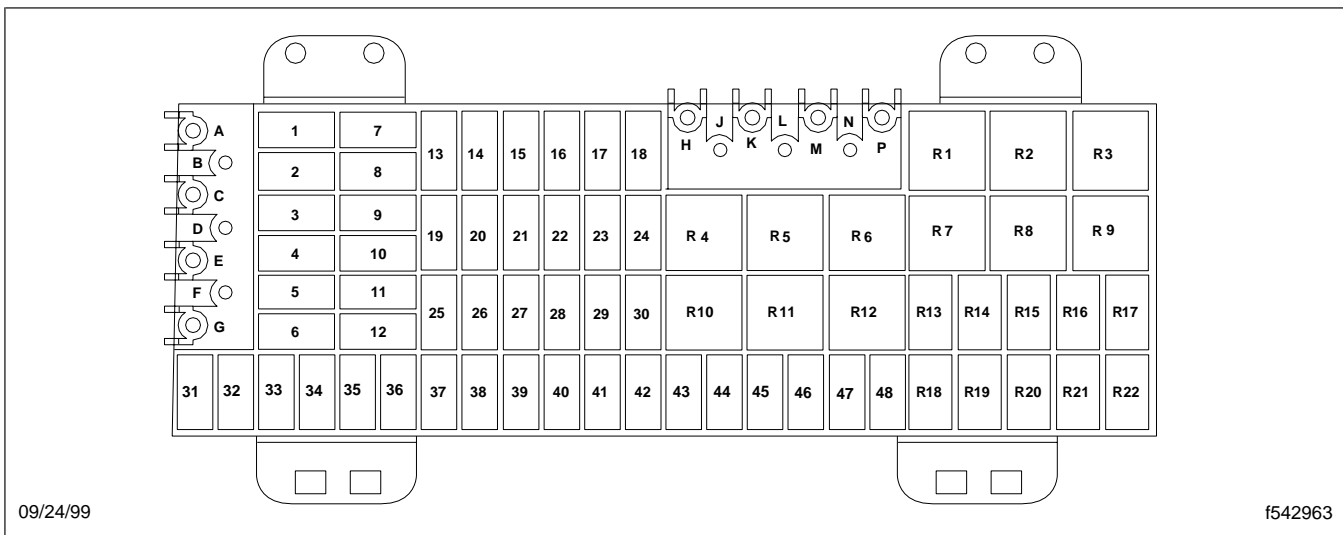
## Trailer Wiring

The trailer wiring harness supplies power to the seven-pin trailer electrical supply socket located on the rear of the cab. See [Fig. 7](#).

## General Information



**Fig. 4, Cab PDM, Right-Hand-Drive Vehicles**



**Fig. 5, Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built before February 27, 2001)**

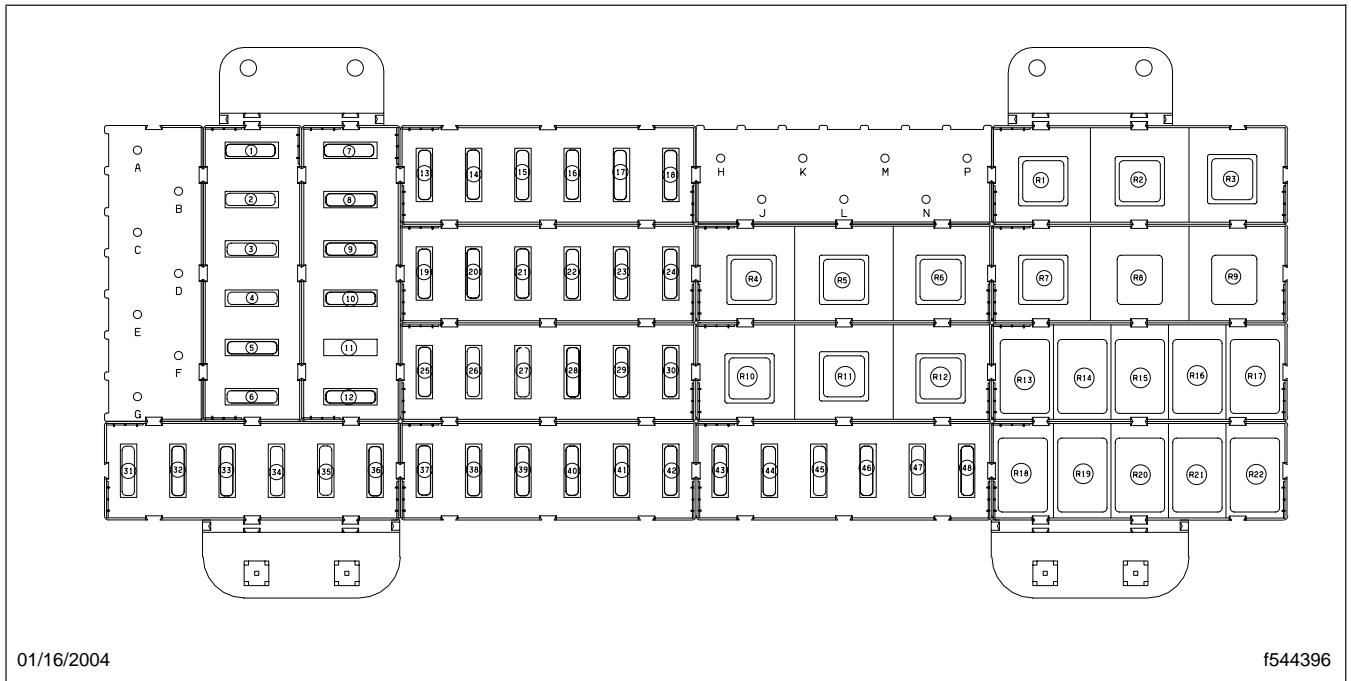
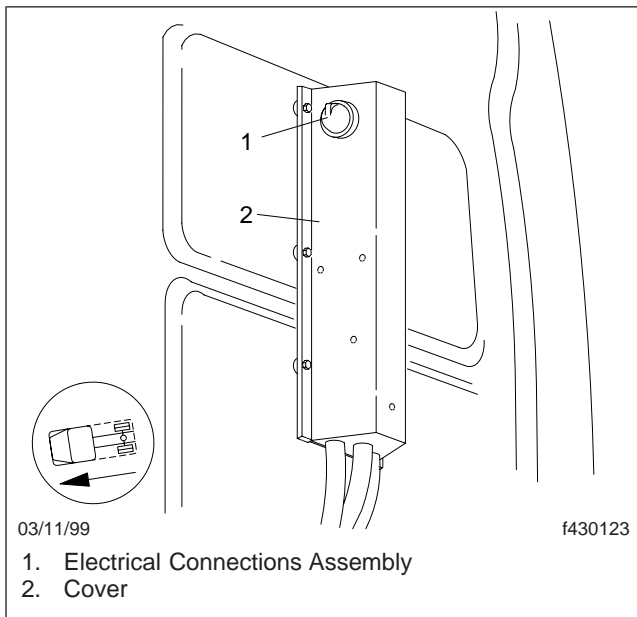


Fig. 6, Cab PDM, Left-Hand-Drive Vehicles (typical, for vehicles built since February 27, 2001 but prior to September 12, 2003)



- 03/11/99
- 1. Electrical Connections Assembly
- 2. Cover

Fig. 7, Trailer Electrical Connections Socket Location

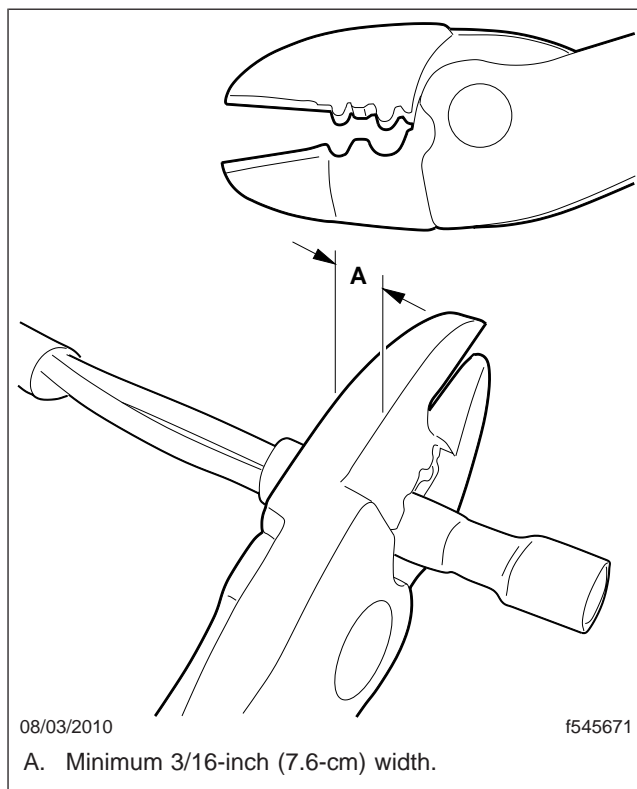
## Wiring Repair Using Phillips STA-DRY® Solderless Connectors

### Parts and Tools

Parts are available through the Parts Distribution Centers (PDCs) in packages of 25 connectors. Use the connectors and adhesive lined shrinkable tubing shown in [Table 1](#) when making a wiring splice.

Tools needed for wiring repair using solderless connectors include the following.

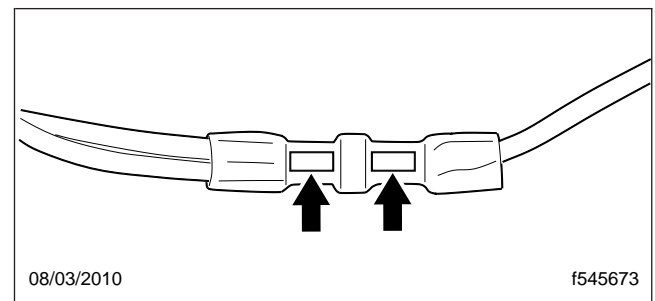
- A dimple-type crimp tool with a minimum 3/16-inch (7.6-cm) width. See [Fig. 1](#) for an example of a proper crimp tool. A typical manufacturer for this tool is Thomas & Betts.
- A heat gun rated at 1000°F (538°C).



**Fig. 1, Dimple-Type Crimp Tool**

### Procedure

1. Dress the wires to be spliced by stripping the insulation to expose 1/4 inch (2.5 cm) of copper. Slide a 3-inch (7.6-cm) section of adhesive coated shrink tubing onto one of the wires.
2. Crimp the splice connector onto the wires. Use the type of crimp tool that makes a dimple in the connector. The dimple must be at least 3/16-inch (7.6-cm) wide or there will be too much space inside the connector and the solder will not flow into the wire. This crimp provides the mechanical retention needed. See [Fig. 2](#).



**Fig. 2, Properly Crimped Splice**

3. Pull test the wires by hand to ensure the crimp is mechanically solid.

**IMPORTANT:** A crimp tool that is too narrow will leave excessive air gaps in the crimp. The connection will not have the required amount of mechanical strength and the solder will not bond the wire to the connector. [Figure 3](#) shows an example of a bad crimp when the wrong tool is used.

4. Heat the properly crimped splice connector with the heat gun while slowly rotating the wire. The solder will take longer to flow than it will for the shrinkable insulation to contract. Heat until the solder band has completely melted into the connector. If the shrinkable insulation ruptures and a small amount of solder bubbles out, gently shake the splice to remove the solder. See [Fig. 4](#).
5. When the connector has cooled, center the shrinkable tubing over the splice and heat the tubing until it has completely sealed the splice and a small fillet of adhesive is visible at the ends of the shrink tube. See [Fig. 4](#).

## Wiring Repair and Replacement

6. A three-wire tap splice can be made following the same procedure. Use a connector that is large enough to fit all the strands of the wires. See [Fig. 5](#) for an example of the completed splice.

Solderless Connector Parts		
Wire Size: gauge (mm)	Connector Part Number*	Shrinkable Tubing (Daimler Part Number)
20 to 18 (0.5 to 0.8)	PHM 1 1863	1/4 inch (2.5 cm) with internal adhesive coating (48-02461-025)
16 10 14 (1 to 2)	PHM 1 1862	1/4 inch (2.5 cm) with internal adhesive coating (48-02461-025)
12 to 10 (3 to 5)	PHM 1 1861	3/8 inch (7.6 cm) with internal adhesive coating—4 foot length (48-02461-038)
8 or larger (5 or larger)	Replace the terminal or the entire cable	Use adhesive lined red for positive cables and black for negative cables.

\* Twenty-five connectors per pack.

Table 1, Solderless Connector Parts

## Wiring Repair Using Daimler Trucks North America (DTNA) Kit ES66 404

### Parts and Tools

Parts are available through the Parts Distribution Centers (PDCs) in kits with material for 50 splices. This kit may be used on 16 to 14 gauge (1 to 2 mm) wire.

Tools needed for wiring repair using solderless connectors include the following.

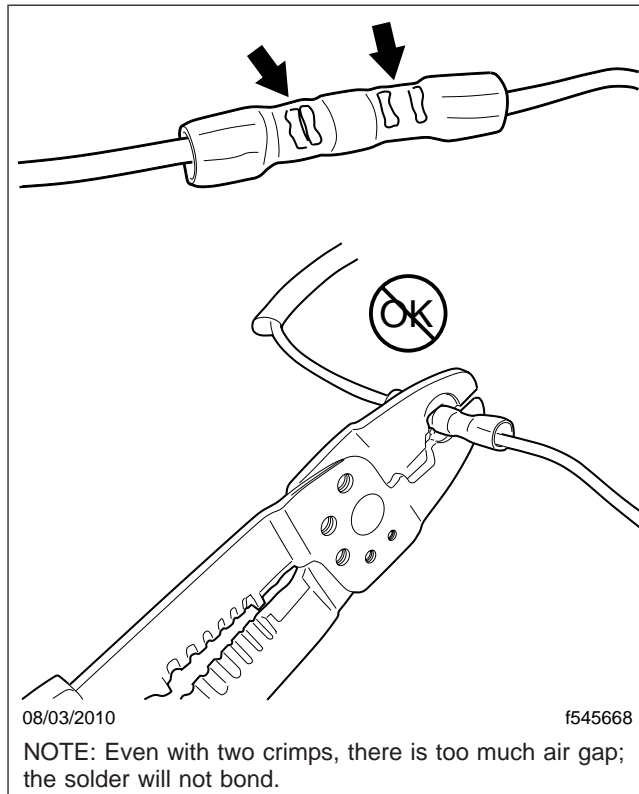
- A dimple-type crimp tool with a minimum 3/16-inch (7.6-cm) width. See [Fig. 6](#) for an example of a proper crimp tool. A typical manufacturer for this tool is Thomas & Betts.
- A heat gun rated at 250°F (121°C).

### Procedure

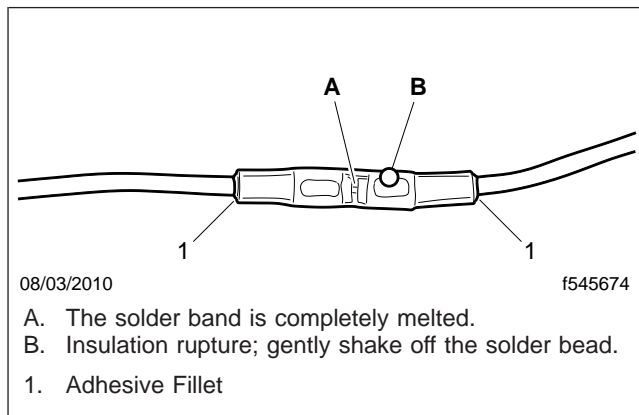
1. Dress the wires to be spliced by stripping the insulation to expose 1/4 inch (2.5 cm) of copper. Slide a piece of the shrink tubing from the kit onto one of the wires.
2. Slide a shrinkable solder sleeve from the kit onto one of the wires.
3. Place the wires that will be spliced into each end of the barrel connector. See [Fig. 7](#) for an example of the splice.

4. Crimp each end of the barrel using a dimple-type crimp tool to secure the wires. See [Fig. 6](#) for an example of a proper crimp tool.
5. Pull test the wires by hand to ensure the crimp is mechanically solid.
6. Slide the shrinkable solder sleeve onto the barrel connector so the solder band is at the center of the barrel connector.
7. Heat the splice using a heat gun rated at 250°F (121°C) until the sleeve has completely shrunk against the wire and the solder flows into the barrel connector. A small fillet of adhesive may be visible at the ends of the connector. See [Fig. 8](#).
8. Slide the shrinkable tubing over the splice and apply heat with a heat gun rated at 250°F (121°C) until it has completely shrunk against the wire insulation. A small fillet of adhesive should be visible at the ends of the shrinkable tubing.

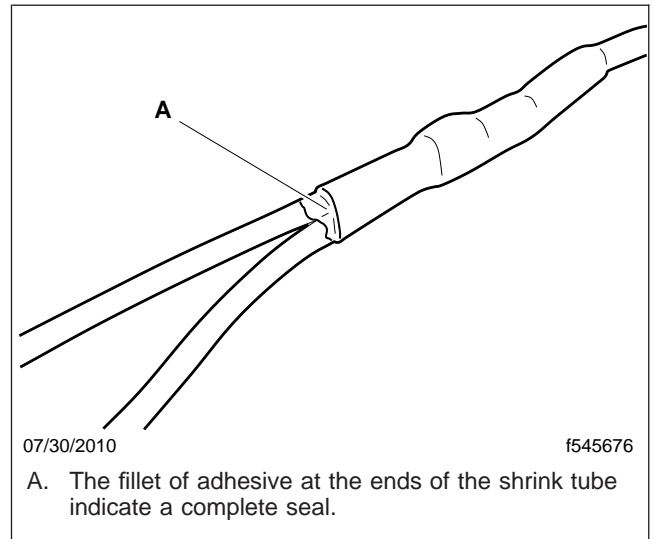
Wiring Repair and Replacement



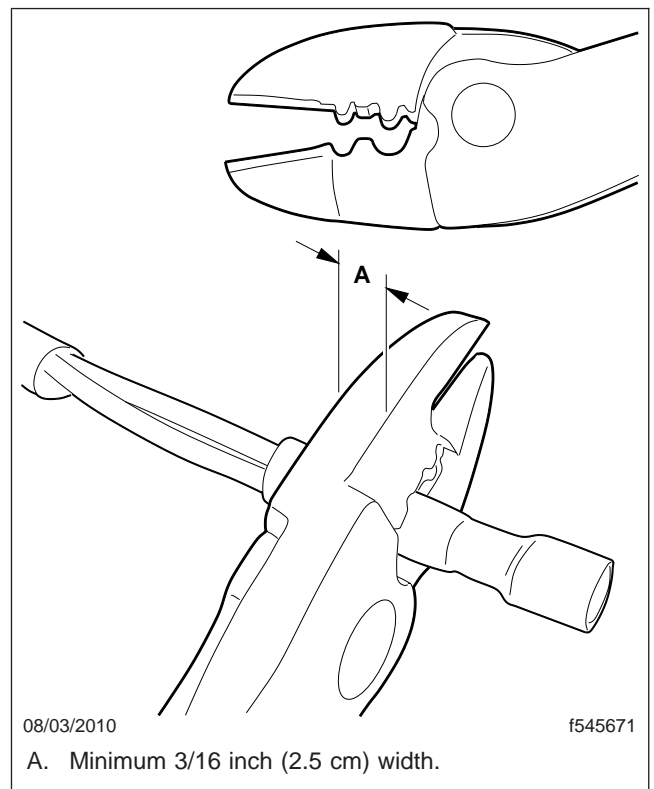
**Fig. 3, Wrong Tool Being Used and a Crimp That Will Fail**



**Fig. 4, Solder Bead Rupture**

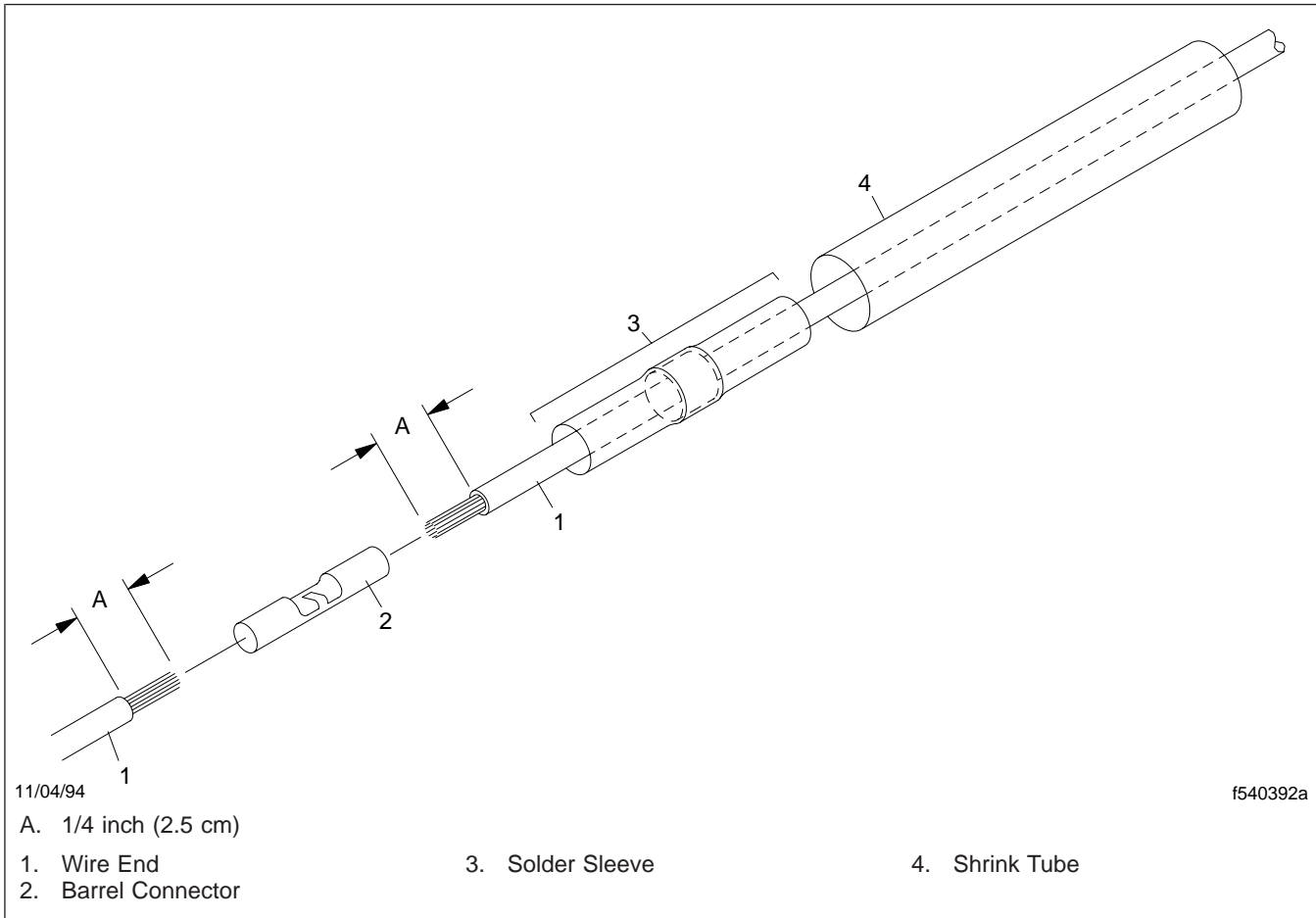


**Fig. 5, Completed Three-Wire Tap Splice**

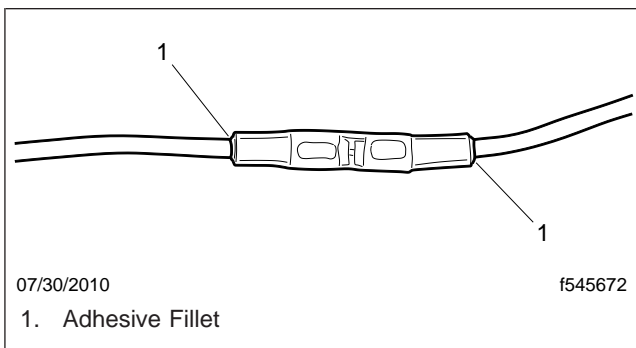


**Fig. 6, Dimple-Type Crimp Tool**

## Wiring Repair and Replacement



**Fig. 7, Splice Prepared with Parts in Kit ESY ES66 404**



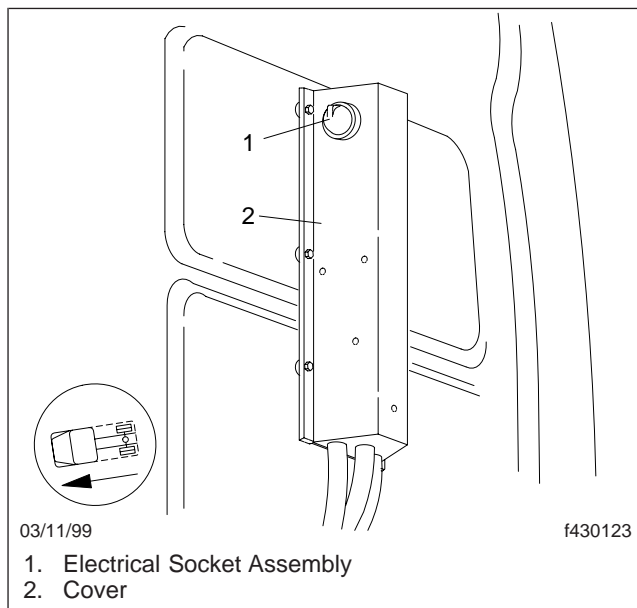
**Fig. 8, Heated Solder Sleeve with Solder Band Melted into the Splice**



## Trailer Electrical Supply Socket Removal and Installation

### Removal

1. Park the vehicle on a level surface and set the parking brake. Shut down the engine. Chock the tires.
2. Disconnect the batteries.
3. Remove the cover stud nuts retaining the cover to the cab.
4. Remove the cover. See [Fig. 1](#).

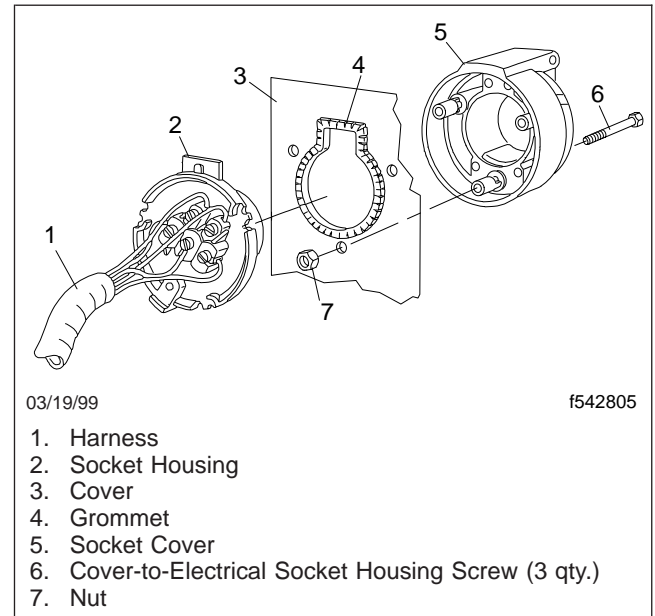


**Fig. 1, Trailer Electrical Supply Socket Location**

5. Remove the three screws holding the electrical socket to the cover. See [Fig. 2](#).
6. Remove the housing cover from the electrical socket and remove the cap.
7. Mark and disconnect the wires from the electrical socket terminals.

### Installation

1. Connect the wires to the electrical socket terminals.
2. Install the housing cover.
  - 2.1 Insert the electrical socket into the housing.



**Fig. 2, Trailer Electrical Supply Socket and Components**

- 2.2 Tighten the three screws connecting the electrical socket to the housing cover. See [Fig. 2](#).
3. Apply caulking around the studs.
4. Slide the cover over the studs.
5. Install and tighten the nuts fastening the cover to the cab.
6. Connect the batteries.
7. Remove the chocks from the tires.

**IMPORTANT:** All figures are typical for vehicles built before February 27, 2001.

See **Table 1** for fuse amperage ratings and colors for each amperage rating.

See **Table 2** for standard wiring color-coding information for vehicles built beginning February 27, 2001.

See **Table 3** for circuit numbers and descriptions for vehicles built beginning February 27, 2001.

See **Fig. 1** for a full view of the power distribution wiring.

See **Fig. 2** and **Fig. 3** for partial views of the power distribution wiring.

See **Fig. 4** for a full view of the customer access circuits wiring.

See **Fig. 5** and **Fig. 6** for partial views of the customer access circuits wiring.

See **Fig. 7** for a full view of the instrument panel wiring.

See **Fig. 8** for a full view of the cab ground summary.

See **Fig. 9** and **Fig. 10** for partial views of the cab ground summary.

See **Fig. 11** for a full view of the right-hand-drive chassis ground summary.

See **Fig. 12** for a full view of the left-hand-drive chassis ground summary.

See **Fig. 13** for bulkhead connector "A" pin and circuit number identification.

See **Fig. 14** for bulkhead connector "B" pin and circuit number identification.

See **Fig. 15** for bulkhead connector "C" pin and circuit number identification.

Blade Fuse Color-Coding Chart	
Ampere Rating	Color
5A ATO	Tan
10A ATO	Red
15A ATO	Light Blue
20A ATO	Yellow
25A ATO	Natural
30A ATO or Maxi	Light Green
40A Maxi	Amber

**Table 1, Blade Fuse Color-Coding Chart**

Standard Wiring Color-Coding for Vehicles Built Beginning February 27, 2001		
Color	Abbr	Typical Usage
Black	BK	Ground, General
Black-White	BK-W	Ground, Clean or Isolated
Blue DK	DKBL	Backup/Windshield Wiper/Trailer Auxiliary
Blue LT	LTBL	HVAC/Circulation Fans/1922+
Blue LT-White	LTBL-W	Water, Oil Gauge and Indicator (Engine and Transmission)
Brown	BR	Marker, Tail and Panel Lamps
Gray	GY	Electronic Engine (or TXL Insulation)
Green DK	DKG	Turn Signal, RH/Driver's Display/Data Record/1587+/1939-

## Specifications

Standard Wiring Color-Coding for Vehicles Built Beginning February 27, 2001		
Color	Abbr	Typical Usage
Green DK-White	DKG-W	Starting Aids/Fuel Heaters/Material Control/Winch/Tailgate
Green LT	LTG	Headlamp/Roadlamp/DRL
Green LT-White	LTG-W	Axle Controls and Indicators/Suspension/Fifth Wheel
Orange	O	ABS/EBS/1587-
Pink	PK	Start Control/Ignition/Charging/Volt and Ammeter/1922-
Pink-White	PK-W	Fuel Control and Indicators/Shutdown/Speed Limiter
Purple	PRP	Engine Fan/PTO/Auto Lube and Oil
Purple-White	PRP-W	Utility/Spot/Ad/Interior/Emergency Lighting
Red	R	Power Distribution, Constant
Red-White	R-W	Brake/Pneumatic/Hydraulic/Retarder/Stop
Tan	T	MPH, RPM Signals/Horn/Flasher/Pyro/Turbo
Tan-White	T-W	Audio/Video/Security/Window/Computer/Seat/Mirror/Cab Tilt
White	W	Transmission (or SXL Insulation)
Yellow	Y	Turn Signal, LH/1939+ (or GXL Insulation)
Yellow-White	Y-W	Air Bag and SPACE

**Table 2, Standard Wiring Color-Coding for Vehicles Built Beginning February 27, 2001**

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
1	Battery cable, ground
2	Battery cable, 6v positive
3	Battery cable, 6v negative
5	Battery cable, 6v, series/parallel terminal
6	Battery cable, 12v positive
7	Ground, starter terminal
8	Starter, battery terminal
9	Starter, solenoid switch terminal
13	Ground stud, series/parallel terminal
14	Cab power, main
15	Starter, engine
16	Alternator, main power cables, ammeter
18	Ignition switch power, misc. components
19	Voltage, meter/alarm

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
20	Headlamp, LH
21	Headlamp, high beam, LH/RH
22	Headlamp, low beam, LH/RH
23	Tail/marker lamps
24	Horn, electric
25	Horn, electric, button
26	Horn, electric, supply
27	Roadlamp/foglamp
28	Roadlamp/foglamp
29	Panel/instrument lamps
30	Transmission oil temperature
31	Transmission oil temperature, auxiliary
32	Heater, RH auxiliary
33	Heater, auxiliary

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
34	Oil pressure, engine
35	Oil temperature, engine
36	Stop lamp
37	Turn signal flasher supply
38	Turn signal LH, EOF and trailer
39	Stop/turn combination lamp
40	Fan, windshield/sleeper
41	Dome lamp, interior
42	Axle oil temperature, forward
43	Axle oil temperature, rear
44	Axle oil temperature, center auxiliary
45	Receptacle, trailer
46	Marker/parking lamps
47	Fuel level
48	Fuel control and level, natural gas
52	Ignition switch and controls
54	Data recorder, speed and tach graph
55	Data recorder, speed and tach graph
57	Outlet, 12v power receptacle/cigar lighter
58	Heater, auxiliary
60	Turn signal, LH cab
61	Turn signal, RH cab
71	Ignition switch and controls
73	Utility lamp, back of cab
74	Starter mag switch/solenoid
75	Starter mag switch, ground, thermal protection
76	Mirror heat
77	Mirror heat, RH mirror supply
78	Spot lamp
80	Mirror heat, switch and controls
81	Ignition switch control devices
82	Starter mag switch, power supply
83	Alternator ground
84	Starting aid, glow plug heater
85	Starting aid, glow plug heater

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
86	Axle lock, switch, interaxle
87	Axle lock
88	Lubrication system, automatic
90	Sander, road
91	Heater, diesel-fired auxiliary
94	Air dryer, heated
95	Speaker, radio
96	Oil level warning
97	Coolant level alarm, Perry
98	Heater A/C motor, blower
99	Fuel solenoid, engine run
101	Alternator control bus
102	Parking lamps
103	Parking lamps, RH
108	Door control dome lamp, LH
109	Door control dome lamp, RH
113	Baggage compartment lamps
116	Ground, cab stud
117	Speed sensor "+", vehicle, MPH/KPH
118	Speed sensor "-", vehicle, MPH/KPH
119	Coolant temperature, engine
120	Back-up/reverse lamp
121	Brake, engine/retarder/compression
122	Backup/reverse alarm
123	Alternator, voltage regulator/rectifier
124	Alternator regulator, ground
125	Park brake indicator/warning
130	Alternator/generator multi-voltage
131	Alternator "No Charge" indicator/warning
132	Alternator "No Charge" indicator/warning
137	Alternator "No Charge" indicator/warning
138	Starter lockout, alternator, ADLO
139	Starter lockout, alternator, ADLO
140	Oil pressure gauge, electronic
141	Starter lockout, alternator, ADLO

## Specifications

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
147	Fan control, engine, manual override
148	Fan control, engine, manual override
149	Fan manual controls, engine
150	Engine protection, shutdown/warning
151	Power inverter/converter 12v/110v
153	Axle declutch, front
154	Auxiliary air pressure
155	Axle lift controls
157	Mirror remote power controls
158	Engine protection, Kysor, shutdown/warning
159	Fan indicator/warning, engine
160	Power inverter/converter 110v to 12v
162	Tach sensor "+", engine, RPM
163	Tach sensor "-", engine, RPM
164	Axle indicator/warning, front
166	Starting aid, engine, ether
167	Oil fill system, leveler
168	Hour meter, engine
170	Fifth wheel slide lock indicator
171	Brakesaver, CAT
172	Clock
173	Coolant level, engine coolant
174	Engine protection, Nycal, warning
175	Engine protection, Nycal, warning
177	Engine protection, Robert Shaw, warning
178	Idle timer, delayed shutdown, cool down
179	Starting aid, glow plug heater
180	Engine protection, Corning Glass, warning
182	Fuel pressure
183	Air cleaner restriction indicator/warning
184	Starter lockout, neutral
185	Security system, Britec System 5
187	Fan ignition supply, engine
188	Antilock Brake System (ABS)
189	Antilock Brake System (ABS)

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
190	Air dryer, heated, Graham-White
191	Starting aid, glow plug, heater
192	Axle indicator/warning, pusher
193	Cab tilt pump
196	Fuel/water separator heater
197	Transmission lockup sensor
198	Axle, two-speed shift control
200	PTO controls
202	Alternator, 24v
203	Exhaust brake
204	Seat belt indicator/warning
205	Fan controls and headlamp
206	Heater A/C with oil pressure controls
208	Axle control, tri-axle, steer lock
209	Axle, two-speed shift control
210	Power Distribution Module (PDM), outside cab
211	Security system; see 185
212	Refrigerator, power, (no outlet)
213	Power inverter/converter 110v to 12v
214	Generator, auxiliary
215	Heater, diesel-fired auxiliary, Webasto
216	Engine idler, Sterling Tech (SLG)
217	Fuel solenoid, engine, synchro start
218	Pyrometer, gauge
219	Turbo pressure gauge
220	Ignition switch, accessory
221	Suspension dump controls
222	Headlamp dimmer controls
223	Transmission controls, auto shift (axle shift, see 209)
224	Transmission controls (axle shift, see 209)
225	Air pressure gauge, primary
226	Air pressure gauge, secondary
227	Air pressure gauge, application
228	Oil pressure gauge, electronic

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
229	Retarder, Telma (TLM)
230	Retarder, Telma (TLM)
231	Cab tilt alarm
232	Transmission controls, power harness
233	Retarder, transmission (Allison)
234	Fan controls, engine
235	Speed limiter, vehicle, Lenmar (LNM)
236	Transmission neutral indicator
237	Axle lock, auto, Meritor
238	PTO controls, Chelsea
239	Axle lock, auto, Meritor
240	Fuel/water separator indicator/warning
241	Data recorder, Sangamo tacho graph
242	Seat controls
243	Power inverter/converter
244	Speed limiter, vehicle, Hewitt
245	Engine protection, warning, P & N Co. (PNC)
246	Fuel pump, electric
248	Engine protection, shutdown, Ulanet Watchdog (ULN)
250	Cruise control, Bendix (BW)
251	Speed limiter, vehicle, Cummins Arrest (CUM)
252	Engine protection, shutdown, Lenmar (LNM)
253	Cab tilt indicator
254	Emergency lamp, beacon
255	Advertising lamp
256	Optional power wire
257	Windshield wiper delay
258	Fifth wheel, indicator
259	Alternator multi-voltage
260	Engine protection, shutdown, Murphy (MUR)
261	Axle lock, controlled differential
262	Retarder, transmission (Allison)
263	Engine protection, shutdown, Sterling Tech (SLG)

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
264	Coolant level alarm, Webb (WEI)
265	Oil level warning, Webb (WEI)
266	PTO controls, transfer case
268	Gauge alarm, Murphy (MUR)
269	Speedometer, Engler (ENG)
270	Tachometer, Engler (ENG)
271	Oil pressure gauge, electronic
272	Transmission, deep reduction indicator
273	Axle oil temperature indicator, rear
274	Transmission oil temperature
275	TRW ETEC
276	Oil fill system, leveler, Webb (WEI)
277	Idle limiter, Kysor Idlestop (KYS)
278	Windshield wiper control, RH
279	Windshield wiper control, LH
280	Pyrometer alarm/shutdown, Hewitt (HEW)
281	Oil filter change indicator/warning
282	Engine protection, shutdown
283	Engine idler, cycler, Webb (WEI)
284	Oil filter change indicator/warning, Big Cam3
285	Suspension electrical/air controls
286	Fuel/water separator indicator/warning, Racor (RAI)
287	Tachometer, Sangamo (SNG)
288	Engine protection, alarm, Sterling Tech (SLG)
289	Transmission indicator, neutral
290	Engine protection, alarm, Hewitt (HEW)
291	Engine protection, warning, Webb (WEI)
292	Fuel tachometer, Flowsan (FOS), Argo (ARG)
293	Starting aid, engine, ether, Lubristart
294	Air tank auto-drain valve, SAB
295	Radio, AM/FM/CB
296	Fuel transfer pump
297	Data recorder warning buzzer
298	Fuel pressure gauge

## Specifications

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
299	Air temperature, outside cab
300	Radio line level signals
301	Security system
302	CB Radio
303	Air pressure, low
304	Back-up/reverse lamp
305	Ignition switch, accessory
306	Ignition switch, run position
307	Headlamp switch
308	Fifth wheel, controls
309	Park brake indicator/warning
310	Axle lock
311	Ignition accessory option block
312	Radio
313	Turn signal flasher supply
314	Turn signal switch supply
315	Windshield wiper
316	Windshield wiper motor low speed
317	Windshield wiper motor park
318	Windshield wiper motor high speed
319	Windshield wiper motor park
320	Windshield wiper washer
321	Marker lamps, trailer, ICC
322	Headlamp switch, park mode
323	Odometer output
324	Lightbar high coolant temperature
325	Lightbar, engine oil pressure
326	Lightbar turn signal flasher control
327	Tachometer sensor, engine, RPM
328	Speed sensor, vehicle, MPH/KPH
329	Pyrometer sensor positive
330	Pyrometer sensor negative
331	Datalink signal, positive
332	Datalink return, negative
333	Air dryer, heated

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
334	Door-activated dome lamp
335	A/C cold control jumper
336	Headlamp relay jumper
337	Roadlamp switch
338	Heater A/C electronic controls
339	Lightbar/cluster power
340	A/C cold control switch
341	Marker lamps, trailer
342	Ammeter gauge
343	Starting aid, glow plug switch, heater
344	Starting aid, glow plug pressure switch, heater
345	Starting aid, glow plug solenoid, heater
346	Speaker, radio, ground
347	Shutter, engine fan
348	Shutter control, engine fan
349	Shutter, engine fan
350	Lightbar, turn signal flasher timing
351	Speed limiter, vehicle, lightbar
352	Engine protection, delayed shutdown
353	Engine protection, delayed shutdown
354	Shutter transmission temperature control, engine fan
355	Fan transmission temperature control, engine
356	Speed control
357	Fuel solenoid delay shutdown
358	Trailer relay
359	Headlamp ON signal, lightbar/cluster
360	Fan controls, engine, Kysor lightbar
362	Fuel/water separator heater
363	Window power
364	Window power, up
365	Window power, down
367	Coolant temperature gauge, Kysor VIP
368	Coolant temperature gauge, Kysor VIP
369	Coolant temperature gauge, Kysor VIP



Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
370	Receptacle auxiliary terminal, trailer
371	Marker lamp, fender guides
372	Receptacle, heavy duty, trailer
373	Fuel solenoid, engine run
374	Starter lockout
375	Daylight Running Lamps (DRL), neutral
376	Antilock Brake System (ABS) controls
377	Antilock Brake System (ABS) sensors
378	Antilock Brake System (ABS) valves
379	Daylight Running Lamps (DRL)
380	Daylight Running Lamps (DRL)
381	Daylight Running Lamps (DRL)
382	Daylight Running Lamps (DRL), LH headlamp
383	Daylight Running Lamps (DRL), RH headlamp
384	Daylight Running Lamps (DRL), program
385	Daylight Running Lamps (DRL), controls
386	Daylight Running Lamps (DRL), LH headlamp
387	Daylight Running Lamps (DRL), RH headlamp
388	Hydraulic brake power
389	Hydraulic brake relay
390	Hydraulic brake lamp
391	Hydraulic brake relay
392	Hydraulic brake motor
393	Hydraulic brake flow/relay
394	Hydraulic brake, park brake lamp
395	Hydraulic brake fluid sensor
396	Hydraulic brake buzzer/alarm
397	Hydraulic brake cab door signal
398	Hydraulic brake motor sense
399	Optional wire, cab/chassis, customer furnished
400	Optional wire, cab/chassis, customer furnished
401	Block coolant heater, Truck Comfort Sys (TCS)
403	Fuel restriction indicator, Hewitt (HEW)
404	Data recorder, ARI Trip
405	Data recorder

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
406	Emergency lamp, alternating flashing
407	Emergency lamp, cross-fire lights
408	Emergency lamp, alley lights
409	Emergency lamp, bin lights
410	Emergency siren
411	Emergency fire truck miscellaneous
412	Data recorder, Isspro (ISP)
414	Tracking system, vehicle, Sony Geostrat RGSS
415	Idle governor, high
416	Refrigerator/television power, (no outlet)
417	Phone power, mobile
418	Tool box lamp, LH
419	Tool box lamp, RH
420	Military 24v lighting, blackout
421	Military 24v lighting, blackout
422	Military auxilliary 24v heater
423	Military, winch controls
424	Headlamp wiper/washer
425	Battery cutoff switch controls and bypass
426	Air inside/outside indicator
427	Tracking system, vehicle, satellite
428	Battery isolator protection system
429	Pyrometer alarm/warning
430	Windshield wiper heater
431	Starting aid, engine preheater, grid/flame
432	Seat controls
433	Data recorder, Data Hub (DDE)
434	Suspension controls, ECAS
435	Seat belt indicator/warning
436	Camera, rear and side view
437	Instrumentation Control Unit (ICU), dash display
439	Electronic engine ECU
440	Electronic engine ECU
442	Data recorder, Data Logger Unit (DLU)
443	Door lock

## Specifications

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
444	Obstacle Detection Sys (ODS), VORAD
445	Body controls, dump lock
446	Tire inflation, Central Tire Inflation Sys (CTIS)
447	Battery cutoff protection system, Hewitt (HEW)
448	Tailgate controls, material
449	Fueling data recording and transmitter
450	Mirror dimming controls (MSI)
454	Air Bag and Seat Pretention System (SPACE)
455	Instrument LH/RH side selection control
457	Dash controls, datalink, (BPU)
459	Steering pump controls
460	Transmission, automatic, Aisin Seiki, cab controls
461	Transmission, automatic, Aisin Seiki, chassis/transmission controls
462	Headlamp, LH auxiliary, snow plow
463	Headlamp, RH auxiliary, snow plow
464	Transmission SmartShift control
465	Headlamp flashing control
466	Lane departure indicator/tracking system
467	Coolant flow, engine
468	Obstacle Detection Sys (ODS), VORAD
469	Level control power, body/chassis
500	Hydraulic brake ECU, brake signal
501	Buzzer
502	Oil level warning, engine low
503	Starting aid, engine preheater, flame start
505	Gauge sender, optional
516	Starting aid, engine preheater, flame start
1587	Databus, diagnostics, SAE J1587
1922	Databus, controls, SAE J1922
1939	Databus, controls, SAE J1939
BAT	Main battery power
GND	Ground, miscellaneous cab/chassis
NEW	Circuit number required

Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001	
Circuit Number	Circuit Description
OPT	Optional wiring, spare or customer furnished
B###	Bendix Antilock Brake System (ABS)
C###	Caterpillar electronic engine
D###	Detroit Diesel electronic engine (DDE)
E###	Allison electronic transmission
N###	Cummins electronic engine
S###	Spicer AutoMate transmission
T###	Twin Disc automatic transmission
W###	Eaton Ceemat/AutoShift transmission
X###	WABCO Anitlock Brake System (ABS); see 376, 377 and 378

**Table 3, Circuit Numbers and Descriptions for Vehicles Built Beginning February 27, 2001**

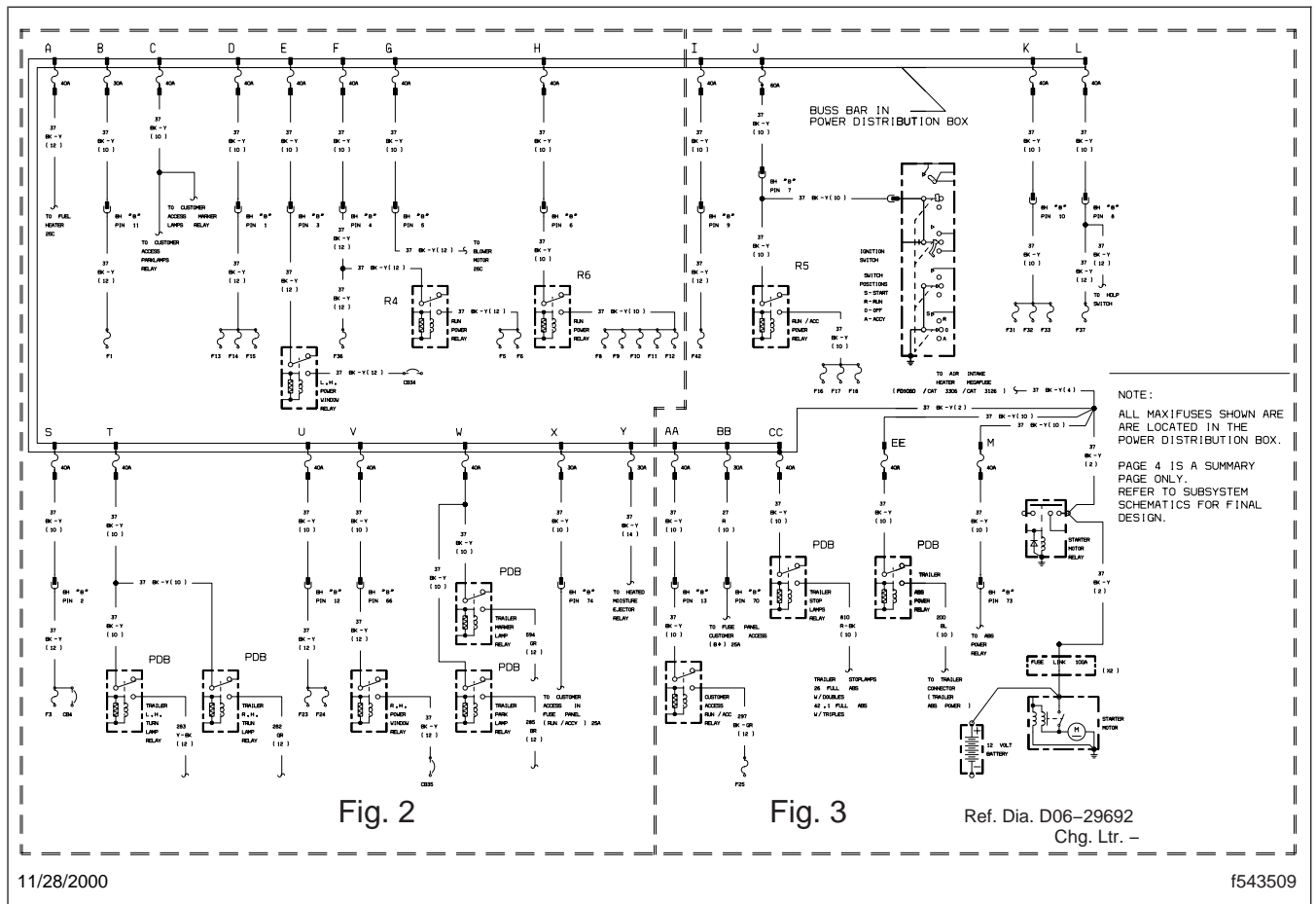


Fig. 1, Power Distribution Wiring (full view; typical, for vehicles built before February 27, 2001)

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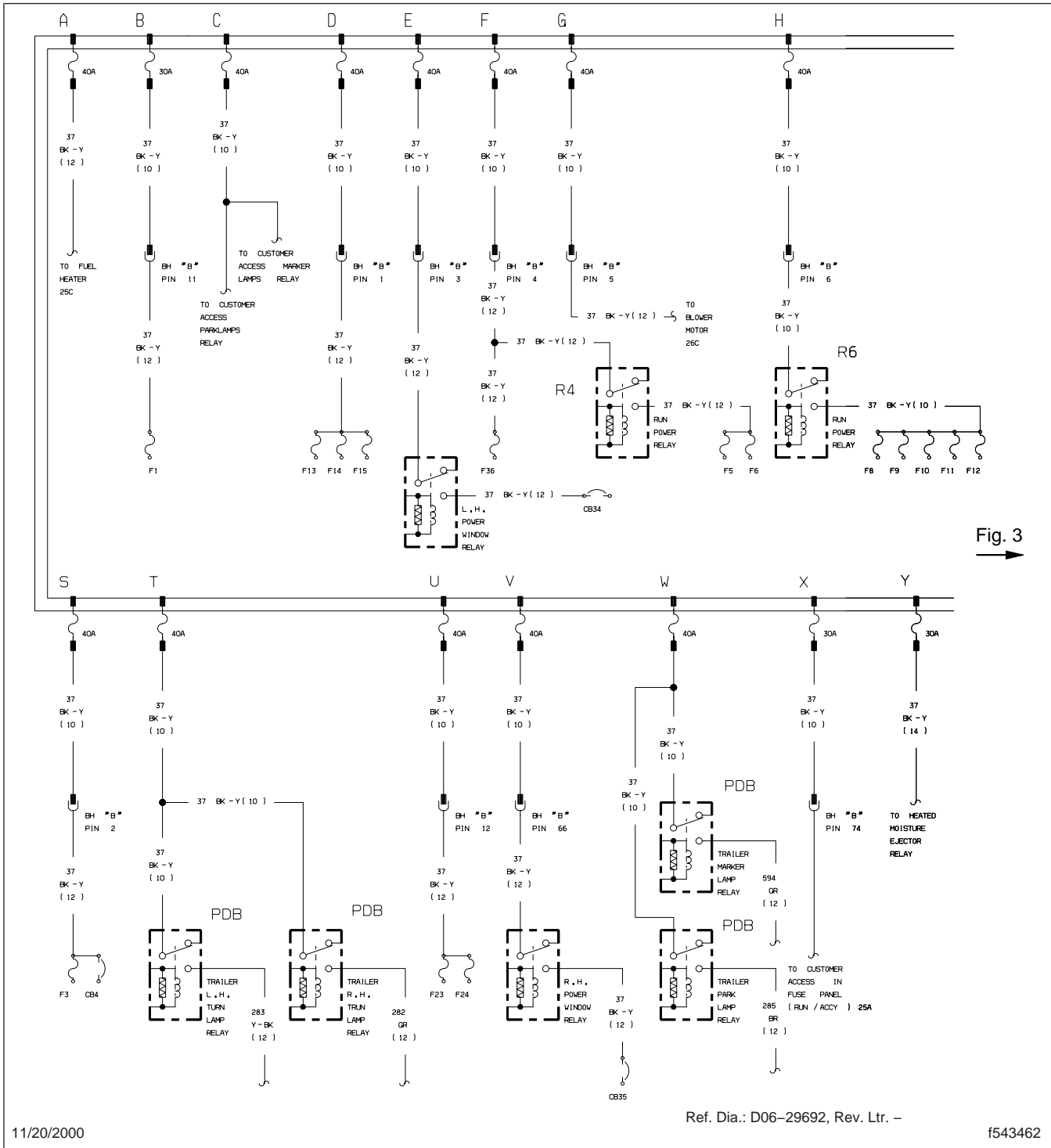


Fig. 3

Fig. 2, Power Distribution Wiring (partial view; typical, for vehicles built before February 27, 2001)

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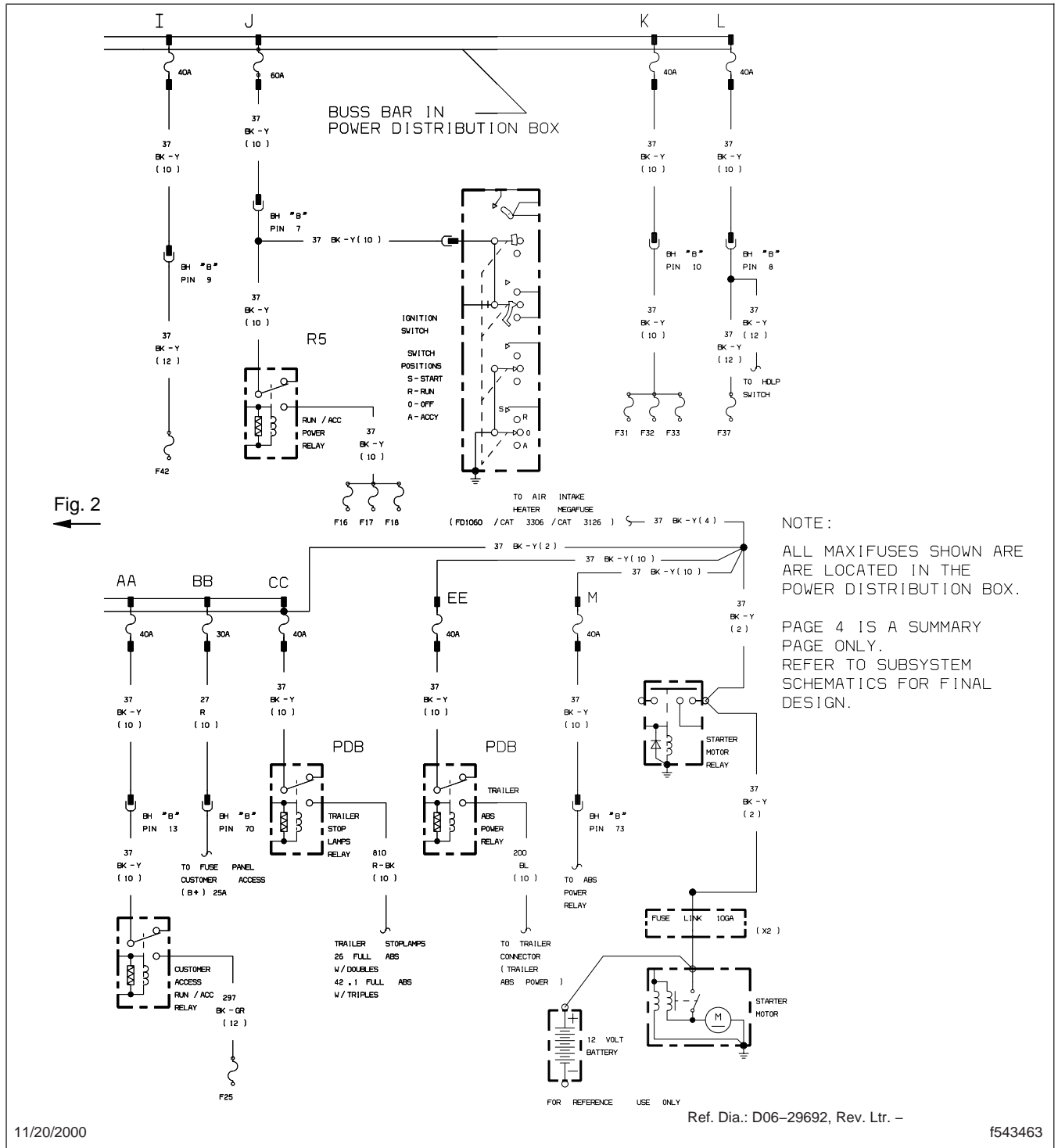


Fig. 3, Power Distribution Wiring (partial view; typical, for vehicles built before February 27, 2001)

## Specifications

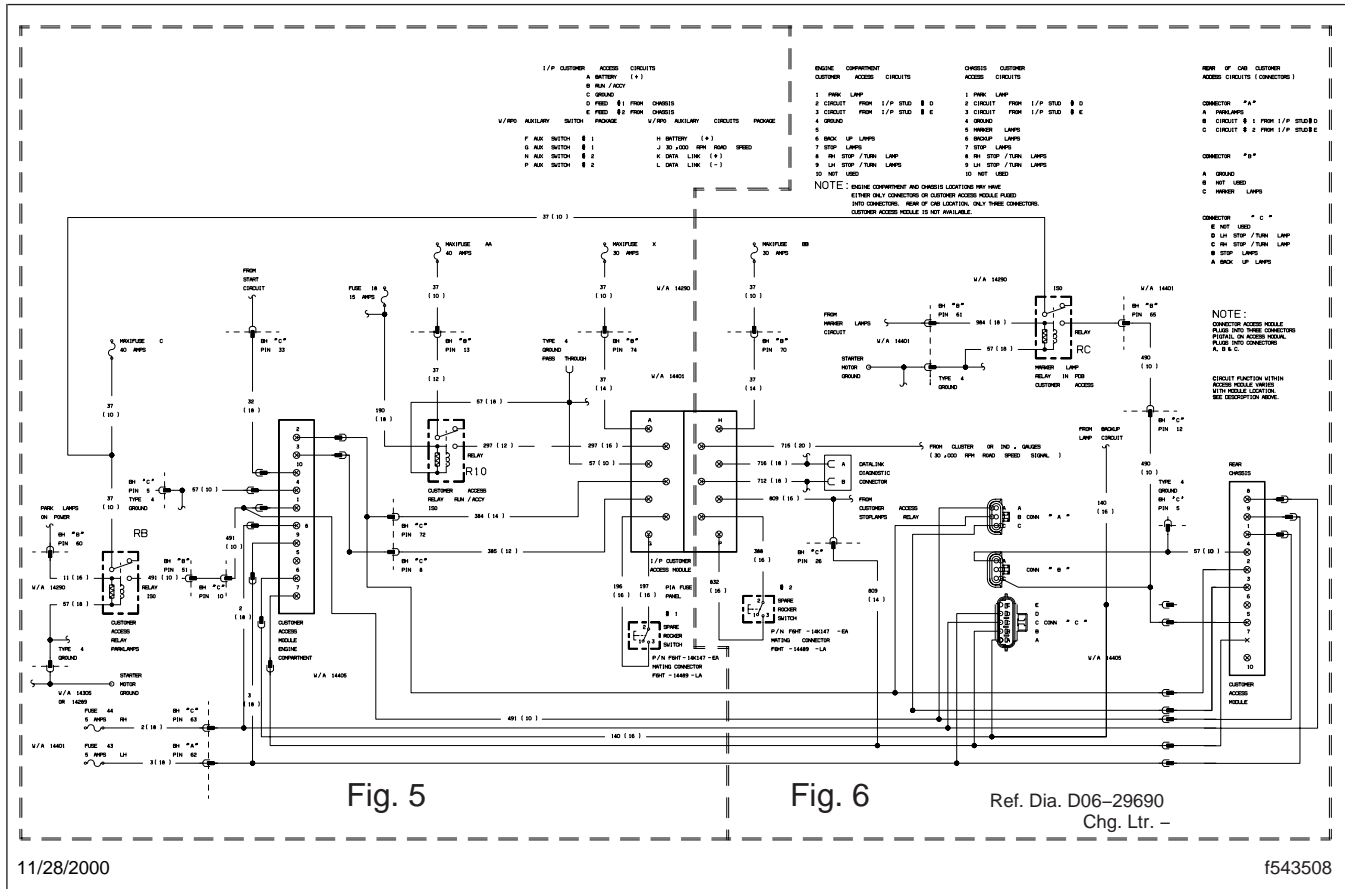


Fig. 4, Customer Access Circuits Wiring (full view; typical, for vehicles built before February 27, 2001)

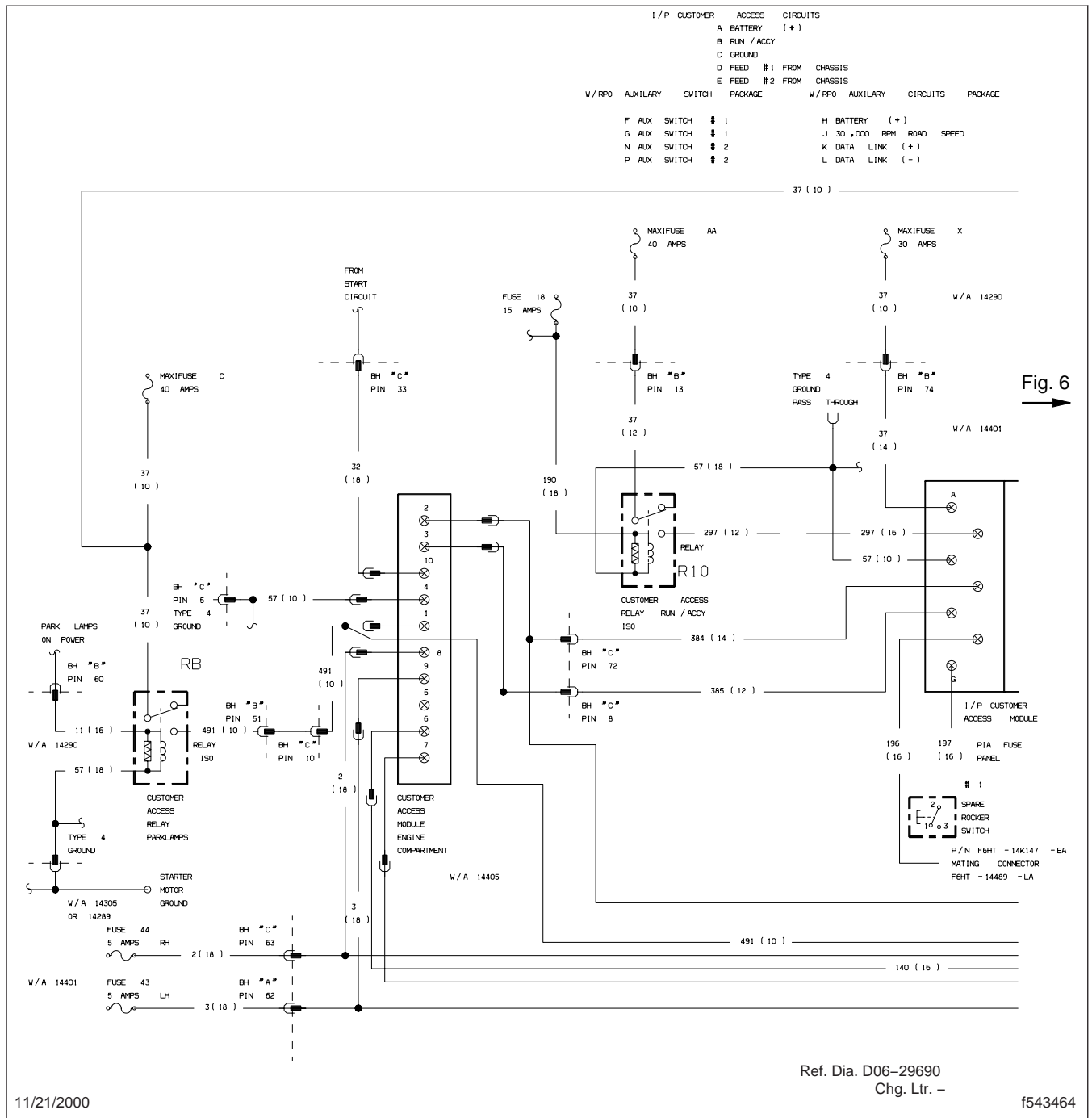
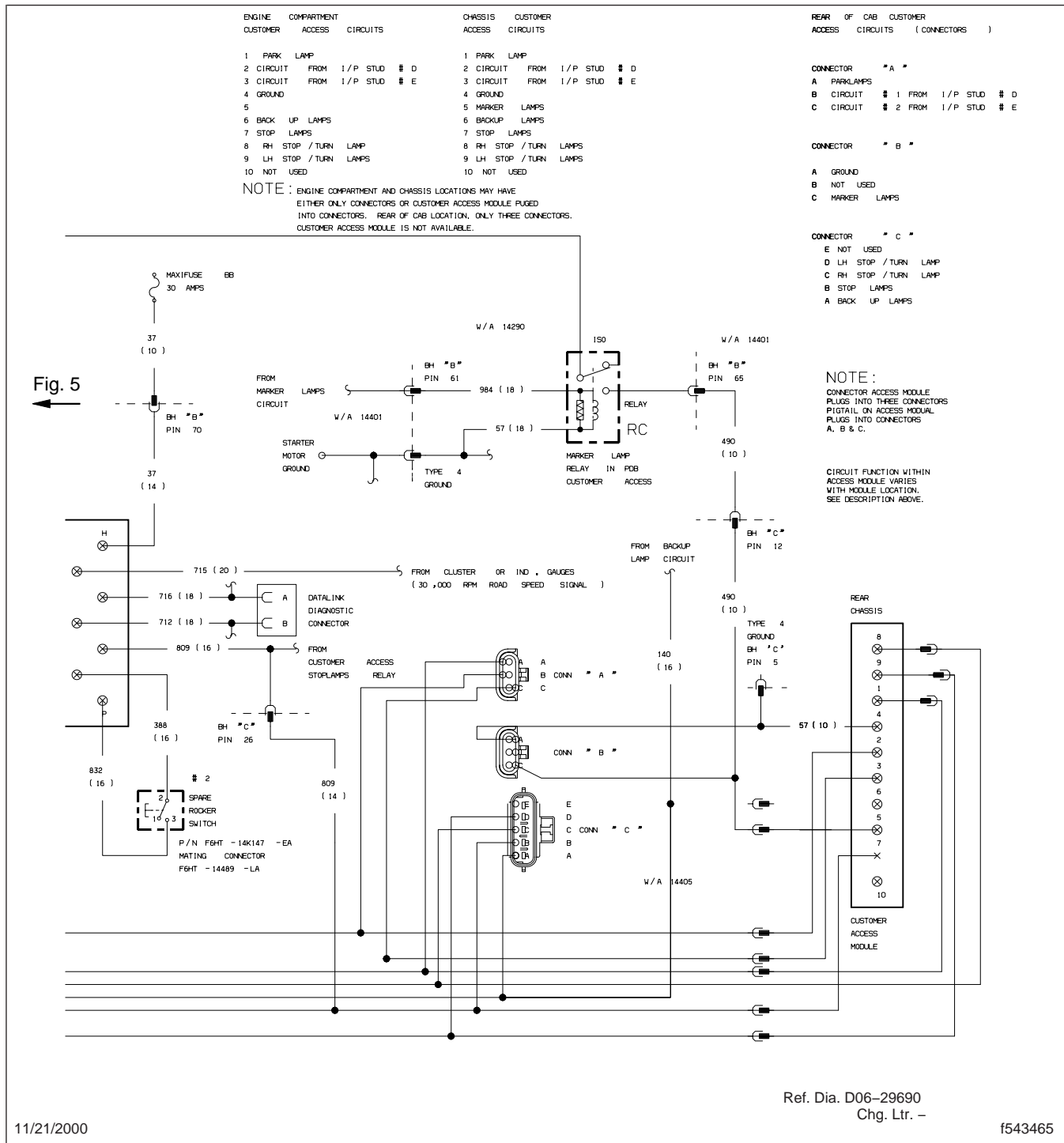


Fig. 5, Customer Access Circuits Wiring (partial view; typical, for vehicles built before February 27, 2001)



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**Fig. 6, Customer Access Circuits Wiring (partial view; typical, for vehicles built before February 27, 2001)**

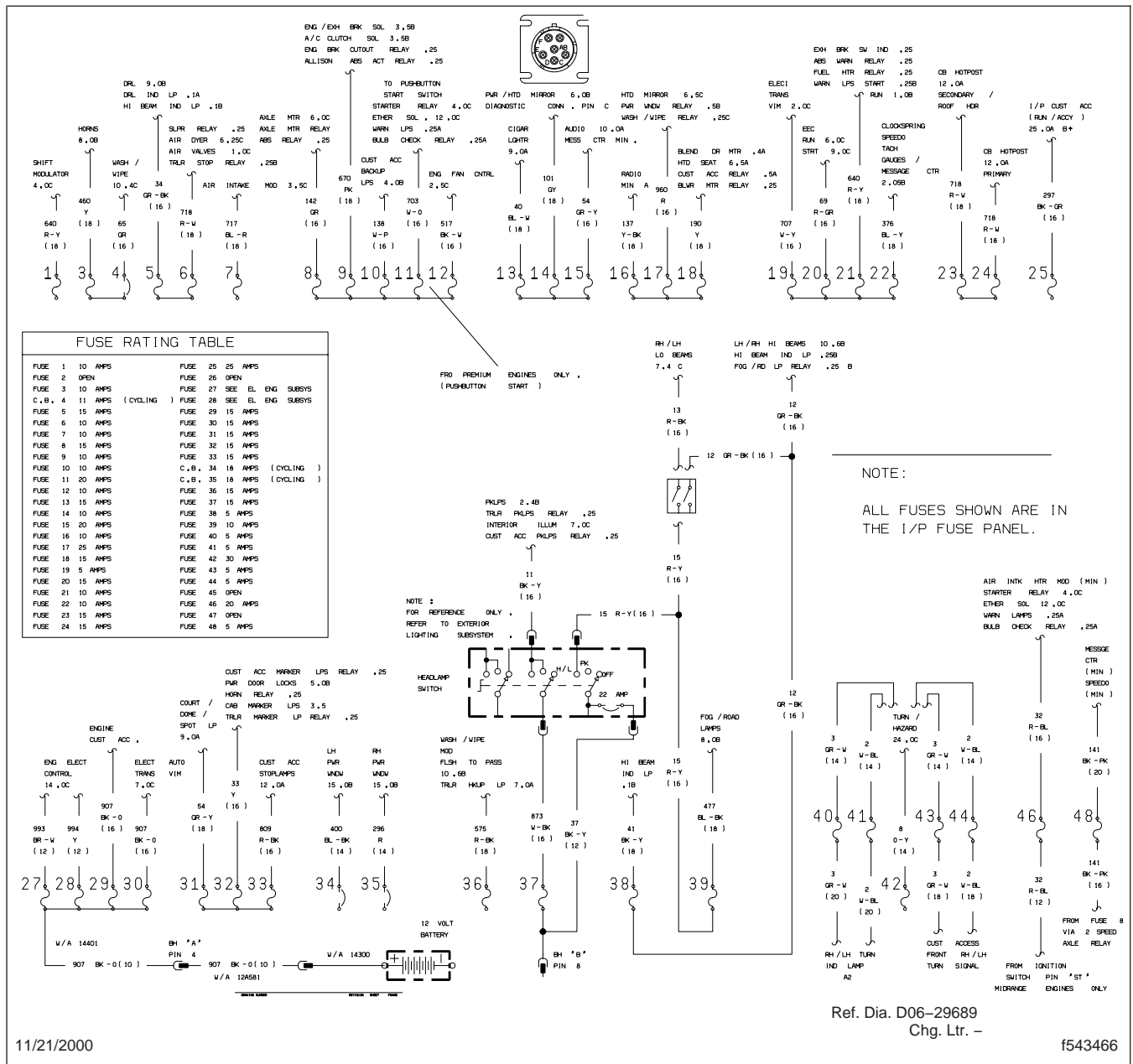


Fig. 7, Instrument Panel Wiring (full view; typical, for vehicles built before February 27, 2001)



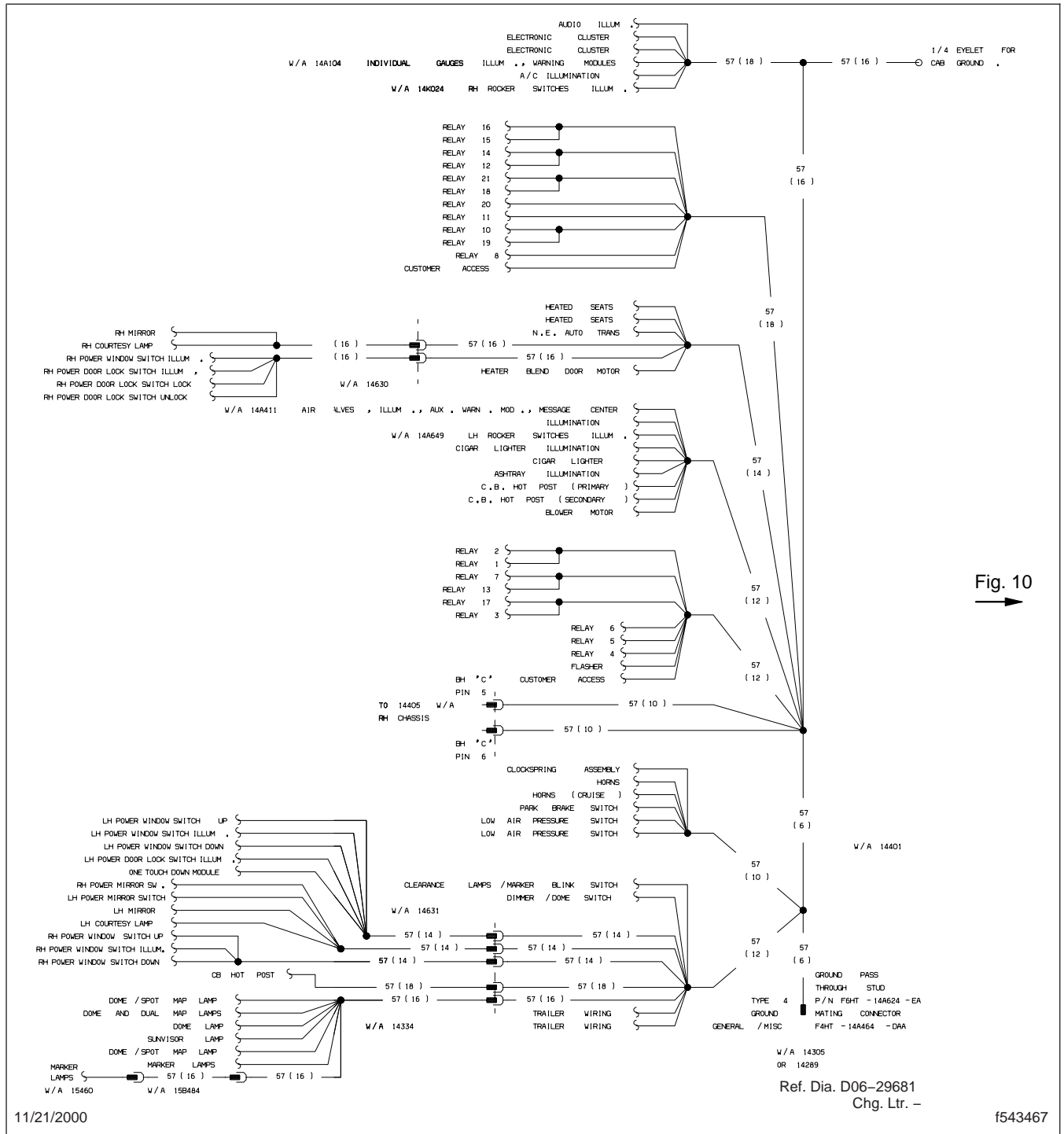
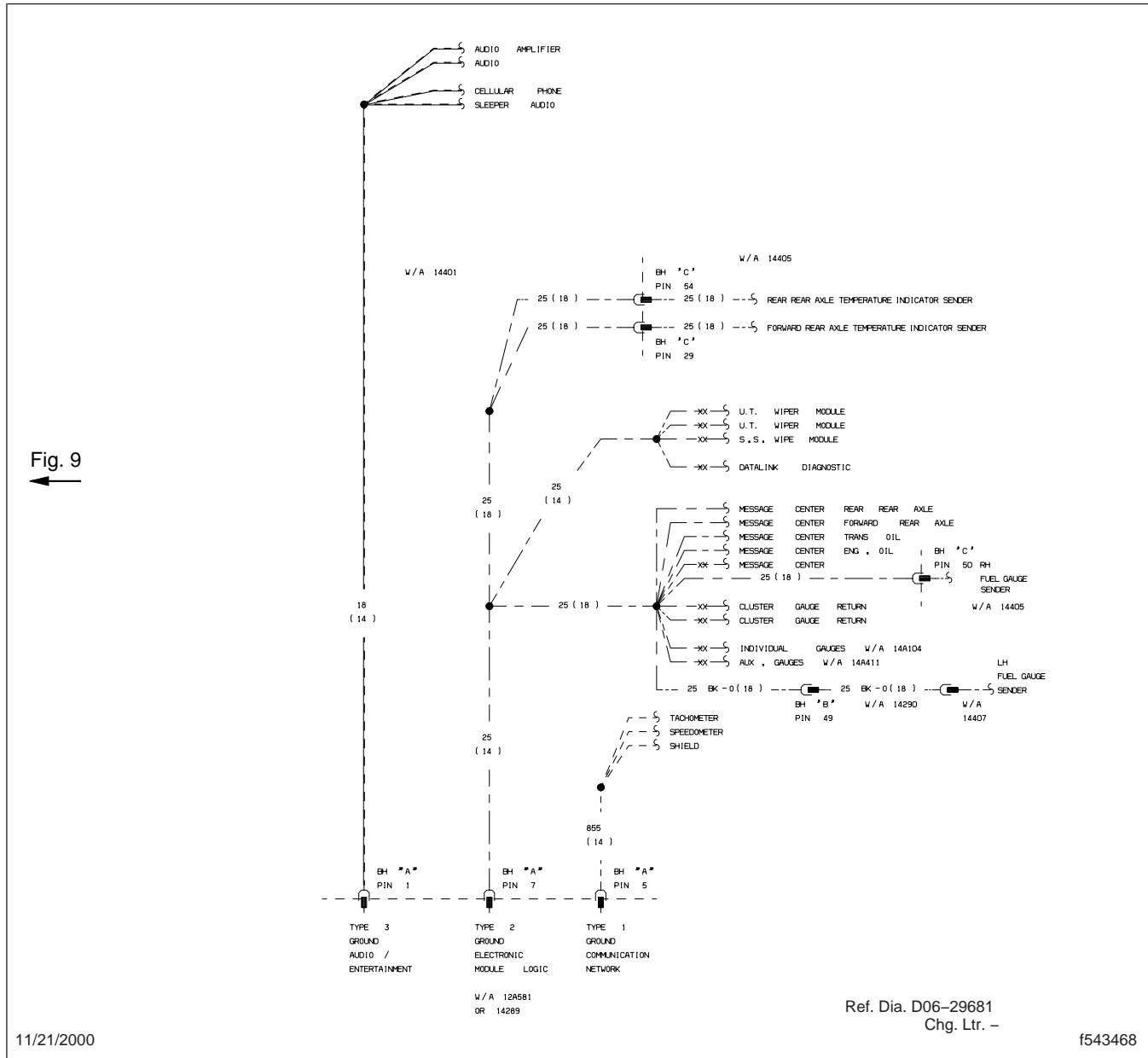


Fig. 10

Fig. 9, Cab Ground Summary (partial view; typical, for vehicles built before February 27, 2001)

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**Fig. 10, Cab Ground Summary (partial view; typical, for vehicles built before February 27, 2001)**

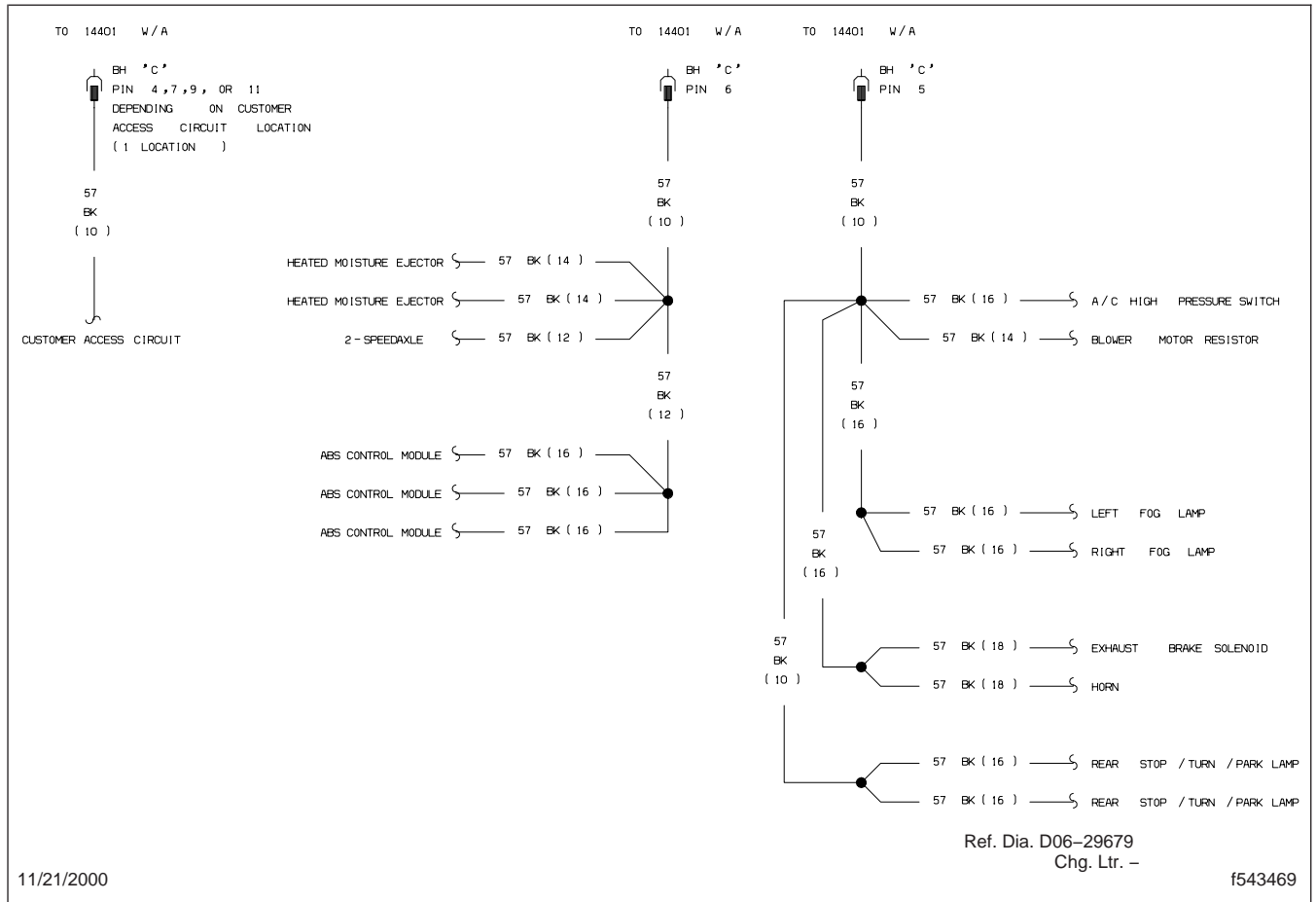
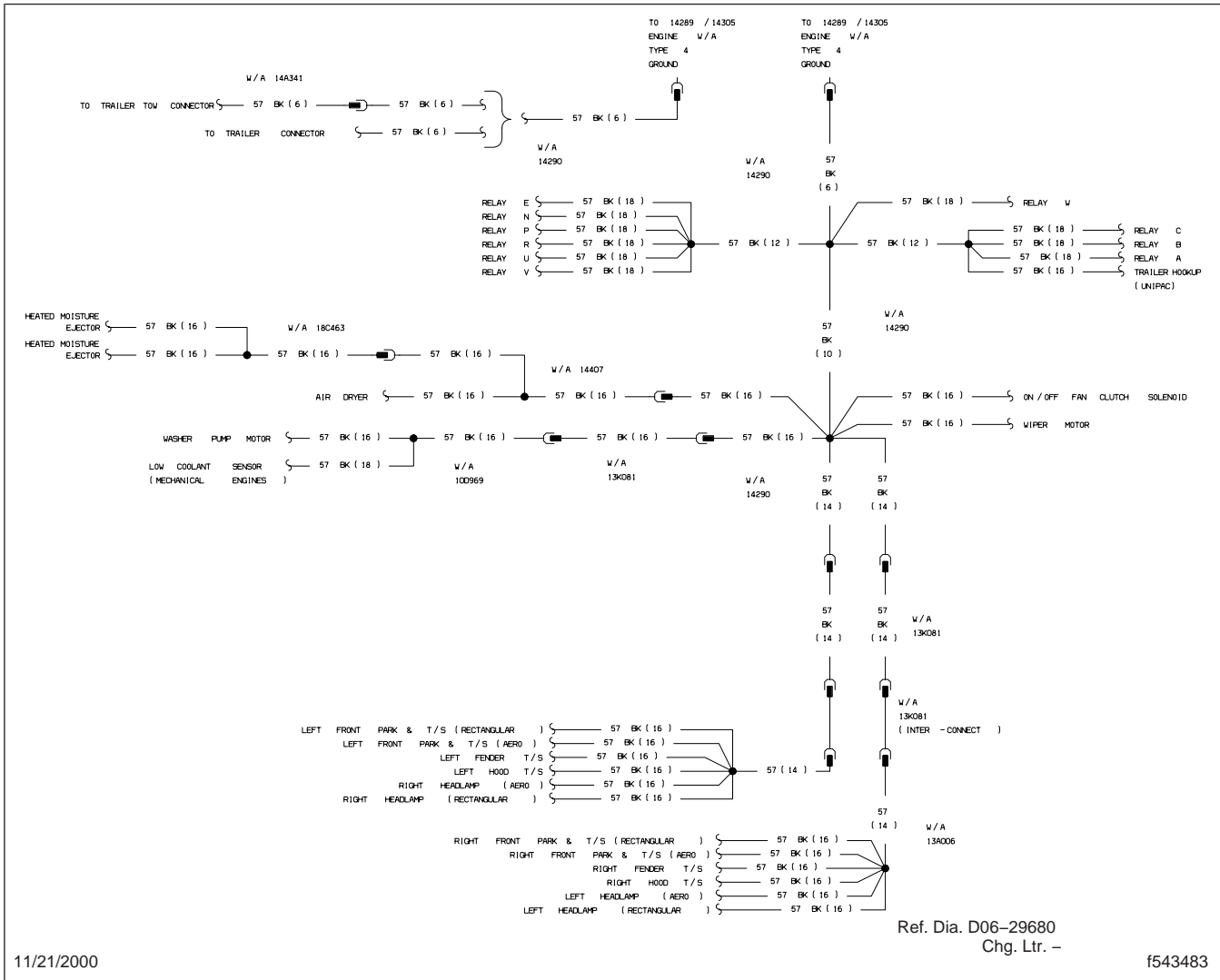


Fig. 11, Right-Hand-Drive Chassis Ground Summary (full view; typical, for vehicles built before February 27, 2001)

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**Fig. 12, Left-Hand-Drive Chassis Ground Summary (full view; typical, for vehicles built before February 27, 2001)**

BULKHEAD "A"		
PIN	CIRCUIT NUMBER	DESCRIPTION
1	18	TYPE 3 GROUND .
2	350	PRESSURE SWITCH TO A/C COMPRESSOR .
3		
4	907	DEDICATED BATTERY POWER (B+)
5	855	TYPE 1 GROUND .
6	907	BATTERY POWER TO TRANSMISSION VIM .
7	25	TYPE 2 GROUND .
8	678	FUEL HEATER
9	669	FUEL SHUTOFF SOLENOID
10	170 / 932	ALLISON SHIFT SELECTOR $\emptyset$ /FUEL SHUTOFF
11	171	ALLISON SHIFT SELECTOR
12	172 / 162	ALLISON SHIFT SELECTOR $\emptyset$ /ACCEL . SW .
13	162	EXHAUST BRAKE
14	184	A/C COMPRESSOR TO "CHECK A/C" IND . LAMP .
15	937	SENSOR COMMON
16	591	CRUISE CONTROL ON / OFF .
17	862	CRUISE CONTROL RES / ACC .
18	860	CRUISE CONTROL SET / COAST .
19	138	RUN POWER TO BACKUP LAMP SWITCH .
20	978	TRANS OIL TEMPERATURE GAUGE / SENDER
21	25	ENGINE OIL TEMPERATURE RETURN .
22	25	TRANS OIL TEMPERATURE RETURN .
23	614	SPEEDOMETER OUTPUT TO ECM .
24	634	ENGINE OIL TEMPERATURE SENDER .
25	978	TRANS OIL TEMP . SW . TO "CHECK TRANS " IND . LAMP .
26	669	FUEL SHUTOFF RELAY COIL
27	697 / 936	IDLE VALIDATION 1 / ON / OFF FAN CLUTCH
28	475 / 517	CLUTCH SWITCH TO ECM . / FAN CLUTCH
29	716	DATALINK (+) .
30	712	DATALINK (-) .
31	122	ALLISON SHIFT SELECTOR
32	140	BACKUP LAMPS SWITCH TO BACKUP LAMPS .
33	181	ALLISON SHIFT SELECTOR
34	911 / 910	ENGINE BRAKE LO / HI OR EXHAUST BRAKE
35	912	ENGINE BRAKE MED / HI .
36	39	WATER TEMPERATURE SENDER .
37	32	START CIRCUIT TO ETHER AND STARTER RELAY COIL .
38	925	SERVICE BRAKE SWITCH TO ECM .
39	721 / 90	ECM TO FAN CONTROL RELAY . COIL . H / FAN CLUTCH
40	60	THROTTLE POSITION SENSOR (+) .
41	827	THROTTLE POSITION SENSOR INPUT .
42	828	THROTTLE POSITION SENSOR RETURN .
43	888	ELECTRONIC SHIFT MODULATOR
44	717	IDLE VALIDATION ACTIVE IDLE INPUT .
45	176	ECM TO "STOP ENGINE " IND . LAMP .
46	360	ECM TO "CHECK ENGINE WARNING " IND . LAMP .
47	704	PARK BRAKE SWITCH
48	161 / 635	ALLISON SENSOR COMMON RETURN / OIL TEMP LP
49	689 / 17	J1922 (+) / LOW OIL PRESS SW .
50	642	J1922 (-)
51	707	START / RUN POWER FOR AUTO TRANS
52	69	START / RUN POWER TO ECM .
53	350	ECM TO A/C HIGH PRESS RELAY SWITCH .
54	594	ECM TO "SERVICE SOON " OR "ENG FLUIDS " IND LAMP .
55	154 / 45	ALLISON ABS ACTIVE SIGNAL / WATER TEMP LP
56	978	TRANS . VIM TO "CHECK TRANS " IND . LAMP .
57	922	ENGINE IDLE DECREMENT .
58	921	ENGINE IDLE INCREMENT .
59	713	TACHOMETER SIGNAL .
60	709 / 232	AIR INT HTR "WAIT TO START " LP / TACH RETURN
61	572	DIAGNOSTIC OR ODC ENG . SHUTDOWN OVERRIDE .
62	614	SPEEDOMETER SIGNAL .
63	826	SPEEDOMETER RETURN .
64	863	ALLISON ENGINE BRAKE CUTOFF
65	172	NEUTRAL SWITCH RELAY TO ECM
66	169	ALLISON ENGINE BRAKE CUTOFF
67	136	ALLISON SHIFT SELECTOR
68	143	ALLISON SHIFT SELECTOR
69	173	ALLISON SHIFT SELECTOR
70	174	ALLISON SHIFT SELECTOR
71	175	ALLISON SHIFT SELECTOR
72	147	ALLISON SHIFT SELECTOR
73	994	BATTERY POWER TO ECM .
74	993	BATTERY POWER TO ECM .
75	907	BATTERY POWER TO ENGINE CUSTOMER ACCESS .
76	48	SHIELD .

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Fig. 13, Bulkhead Connector "A" Pin and Circuit Number Identification (typical, for vehicles built before February 27, 2001)

BULKHEAD "B"		
PIN	CIRCUIT NUMBER	DESCRIPTION
1	37	MAXIFUSE "D"
2	37	MAXIFUSE "S"
3	37	MAXIFUSE "E" TO LH PWR WINDOW MOTOR .
4	37	MAXIFUSE "F"
5	37	MAXIFUSE "G" TO BLOWER MOTOR .
6	37	MAXIFUSE "H" TO RUN RELAY .
7	37	MAXIFUSE "J" TO IGNITION SWITCH .
8	37	MAXIFUSE "L" TO HEADLAMP SWITCH .
9	37	MAXIFUSE "Z" TO FLASHER .
10	37	MAXIFUSE "K"
11	37	MAXIFUSE "B"
12	37	MAXIFUSE "U" TO C.B. HOT POST
13	37	MAXIFUSE "AA" TO CUSTOMER ACCESS .
14	34	RUN POWER TO DRLM .
15	12	HEADLAMP SWITCH TO HIGH BEAMS .
16	41	DRLM OR HIGH BEAMS TO "HIGH BEAM " IND . LAMP .
17	201	DRLM TO "DAYTIME RUNNING " IND . LAMP .
18		
19	55	TRAILER HOOKUP LAMP .
20	718	RUN / ACCY FOR HTD MOIST EJECT OR AIR DRYER
21		
22	162	DRLM TO PARK BRAKE SWITCH .
23		
24		
25	3	LEFT FRONT TURN SIGNAL .
26		
27		
28		
29		
30		
31		
32	941	WIPE / WASH MODULE TO WASHER PUMP .
33	142	ABS TRAILER POWER
34	32	START CIRCUIT TO AIR INTAKE MOD .
35	717	START / RUN POWER TO AIR INTAKE MOD .
36	709	AIR INTAKE MOD . TO "WAIT TO START " IND . LAMP .
37	2	RIGHT FRONT TURN SIGNAL .
38		
39		
40		
41	2	RIGHT TURN SIGNAL TO TRAILER RELAY COIL .
42	3	LEFT TURN SIGNAL TO TRAILER RELAY COIL .
43	984	MARKER LAMPS TO TRAILER RELAY COIL .
44	810	STOP LAMPS TO TRAILER RELAY COIL .
45		
46		
47		
48	25	TYPE 2 FUEL SENDER GROUND
49	286	FUEL SENDER SIGNAL
50	13	HEADLAMP SWITCH TO LOW BEAMS .
51	491	CUSTOMER ACCESS PARK LAMPS
52	936	ON / OFF FAN CONTROL SOLENOID TO FAN CONTROL RELAY SWITCH
53		
54	640	START / RUN POWER TO FUEL HEATER RELAY COIL .
55	670	LOW COOLANT SENSOR TO IND . LAMP .
56		
57		
58		
59		
60	11	HEADLAMP SWITCH TO PARK LAMPS .
61	984	CUSTOMER ACCESS MARKER LAMPS .
62		
63	65	BATTERY POWER TO WIPER MOTOR .
64		
65	490	CUSTOMER ACCESS PARK LAMPS
66	37	MAXIFUSE "V" TO RH PWR WINDOW MOTOR .
67	56	WIPE / WASH MODULE TO WIPER MOTOR "HIGH " .
68	58	WIPE / WASH MODULE TO WIPER MOTOR "LOW " .
69	28	WIPE / WASH MODULE TO WIPER MOTOR "PARK " .
70	37	MAXIFUSE "BB" TO CUSTOMER ACCESS .
71	678	FUEL HEATER
72	838	HEATED MOISTURE EJECTORS
73	37	MAXIFUSE "H" TO ABS
74	37	MAXIFUSE "X" TO CUSTOMER ACCESS .
75		
76		

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Fig. 14, Bulkhead Connector "B" Pin and Circuit Number Identification (typical, for vehicles built before February 27, 2001)



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BULKHEAD "C"			
PIN	CIRCUIT NUMBER	DESCRIPTION	
1	270	BLOWER MOTOR	HIGH .
2	269	BLOWER MOTOR	MED .
3	268	BLOWER MOTOR	LD .
4			
5	57	TYPE 4	GROUND .
6	57	TYPE 4	GROUND .
7			
8	385	CUSTOMER ACCESS	POWER .
9			
10	491	CUSTOMER ACCESS	PARKLAMPS .
11			
12	490	CUSTOMER ACCESS	MARKER LAMPS .
13			
14	718	TO WHEEL	TO WHEEL DIFF LOCK SWITCH
15	210	FROM WHEEL	TO WHEEL DIFF LOCK SWITCH
16			
17	350	A/C PRESSURE SW .	TO A/C COMPRESSOR .
18	350	SELECTOR SWITCH	TO A/C PRESSURE SWITCH .
19	478	FOG / ROAD	LAMPS .
20	642	J1922	( - )
21			
22	670	ABS TO ENGINE	BRK CUT - OUT RELAY COIL .
23			
24			
25	90	A/C CLUTCH SW .	TO A/C HIGH PRESS .RELAY COIL .
26	809	CUSTOMER ACCESS	STOPLAMPS .
27			
28			
29	25	FORWARD REAR	AXLE TEMP . RETURN .
30			
31	962	FORWARD REAR	AXLE TEMP SENDER .
32	140	BACKUP LAMPS SW .	TO BACKUP LAMPS .
33	32	START CIRCUIT	TO CUSTOMER ACCESS .
34	689	J1922	( + )
35	482	BATTERY POWER	TO HORNS .
36			
37	286	FUEL SENDER	.
38	963	REAR REAR	AXLE TEMP . SENDER .
39			
40			
41	712	DATALINK	( - ) .
42	723	ABS TO ABS	WARNING LIGHT RELAY COIL .
43	282	RIGHT REAR	TURN SIGNAL .
44			
45			
46			
47			
48	11	RIGHT AND LEFT	REAR PARKLAMPS .
49	283	LEFT REAR	TURN SIGNAL .
50	25	FUEL GAUGE	RETURN .
51			
52	171	TRACTION CONTROL	SWITCH
53	716	DATALINK	( + ) .
54	25	REAR REAR	AXLE TEMP . SENDER .
55			
56			
57	66	TRACTION CONTROL	WARNING LAMP
58			
59			
60	162	EXH . BRK . CONTROL SW .	TO EXH . BRK . CONTROL SOL .
61			
62	3	CUSTOMER ACCESS	LEFT TURN SIGNAL .
63	2	CUSTOMER ACCESS	RIGHT TURN SIGNAL .
64	692	ABS POWER	
65			
66			
67	183	BLOWER MOTOR	TO BLOWER MOTOR SWITCH
68			
69	143	RUN POWER	TO TWO SPEED AXLE 'HIGH ' .
70	141	RUN POWER	TO TWO SPEED AXLE 'LOW ' .
71	838	HEATED MOISTURE	EJECTOR
72	384	CUSTOMER ACCESS	POWER .
73			
74			
75			
76			

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**Fig. 15, Bulkhead Connector "C" Pin and Circuit Number Identification (typical, for vehicles built before February 27, 2001)**