# WIRING DIAGRAMS

CONTENTS



## HOW TO USE THIS GROUP

The purpose of this group is to show the electrical circuits in a clear, simple fashion and to make troubleshooting easier. Components that work together are shown together. All electrical components used in a specific system are shown on one diagram. The feed for a system is shown at the top of the page. All wires, connectors, splices, and components are shown in the flow of current to the bottom of the page. Wiring which is not part of the circuit represented is referenced to another page/section, where the complete circuit is shown. In addition, all switches, components, and modules are shown in the **at rest position with the doors closed and the key removed from the ignition.**

If a component is part of several different circuits, it is shown in the diagram for each. For example, the headlamp switch is the main part of the exterior lighting, but it also affects the interior lighting and the chime warning system.

**It is important to realize that no attempt is made on the diagrams to represent components and wiring as they appear on the vehicle. For example, a short piece of wire is treated the same as a long one. In addition, switches and other components are shown as simply as possible, with regard to function only.**

Both the standard cab and club cab models are shown in this section. If there is a difference in systems or components between the models, an identifier is placed next to the component.

## SECTION IDENTIFICATION

Sections in Group 8W are organized by sub-systems. The sections contain circuit operation descriptions, helpful information, and system diagrams. The intention is to organize information by system, consistently from year to year.

## CONNECTOR LOCATIONS

Section 8W-90 contains Connector Location illustrations. The illustrations contain the connector number and component identification. Connector Location charts in Section 8W-90 reference the illustration number for components and connectors.

Section 8W-80 shows each connector and the circuits involved with that connector. The connectors are identified using the number on the Diagram pages.

## SPLICE LOCATIONS

Splice Location charts in Section 8W-70 show the entire splice, and provide references to other sections the splice serves.

Section 8W-95 contains illustrations that show the general location of the splices in each harness. The illustrations show the splice by number, and provide a written location.

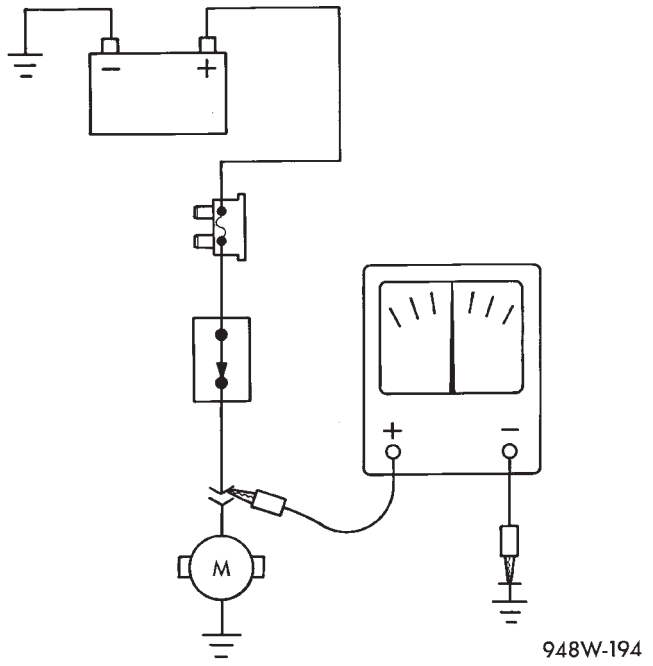



***Fig. 8 Testing for Voltage***

*TESTING FOR CONTINUITY*

(1) Remove the fuse for the circuit being checked or, disconnect the battery.

(2) Connect one lead of the ohmmeter to one side of the circuit being tested (Fig. 9).

(3) Connect the other lead to the other end of the circuit being tested. Low or no resistance means good continuity.

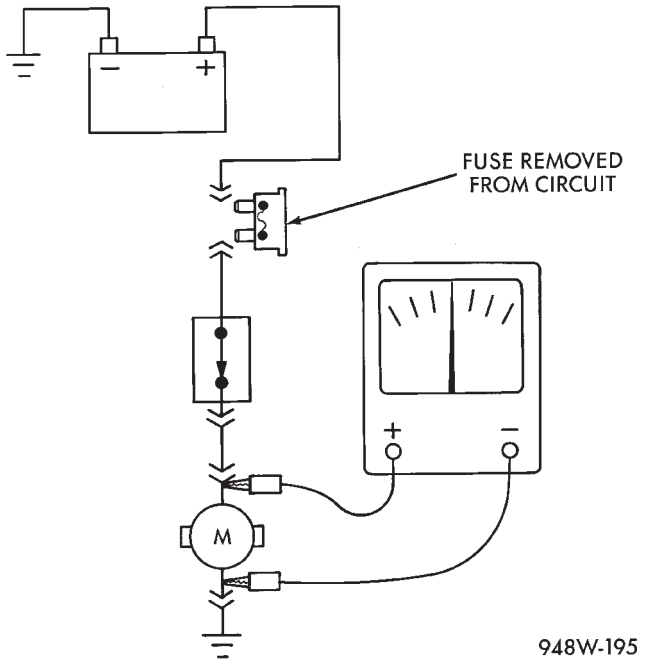



***Fig. 9 Testing for Continuity***

*TESTING FOR A SHORT TO GROUND*

(1) Remove the fuse and disconnect all items involved with the fuse.

(2) Connect a test light or a voltmeter across the terminals of the fuse.

(3) Starting at the fuse block, wiggle the wiring harness about six to eight inches apart and watch the voltmeter/test lamp.

(4) If the voltmeter registers voltage or the test lamp glows, there is a short to ground in that general area of the wiring harness.

*TESTING FOR A SHORT TO GROUND ON FUSES POWERING SEVERAL LOADS*

(1) Refer to the wiring diagrams and disconnect or isolate all items on the fused circuit.

(2) Replace the blown fuse.

(3) Supply power to the fuse by turning ON the ignition switch or re-connecting the battery.

(4) Start connecting the items in the fuse circuit one at a time. When the fuse blows the circuit with the short to ground has been isolated.

*TESTING FOR A VOLTAGE DROP*

(1) Connect the positive lead of the voltmeter to the side of the circuit closest to the battery (Fig. 10).

(2) Connect the other lead of the voltmeter to the other side of the switch or component.

(3) Operate the item.

(4) The voltmeter will show the difference in voltage between the two points.

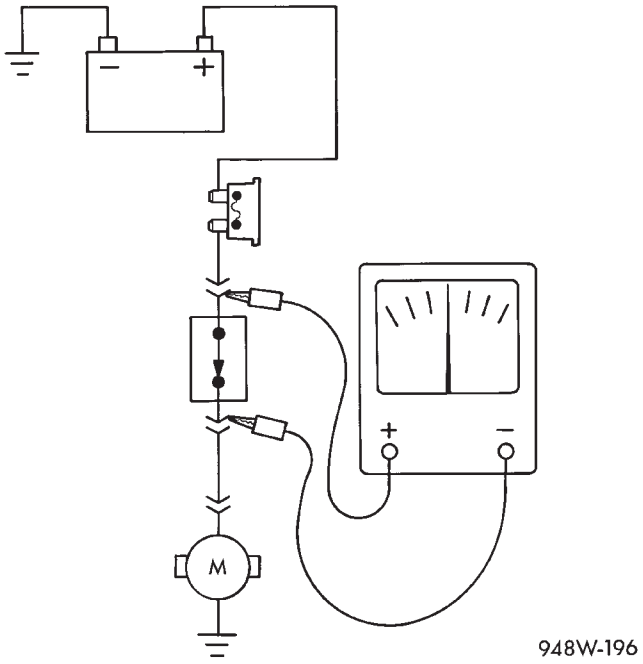
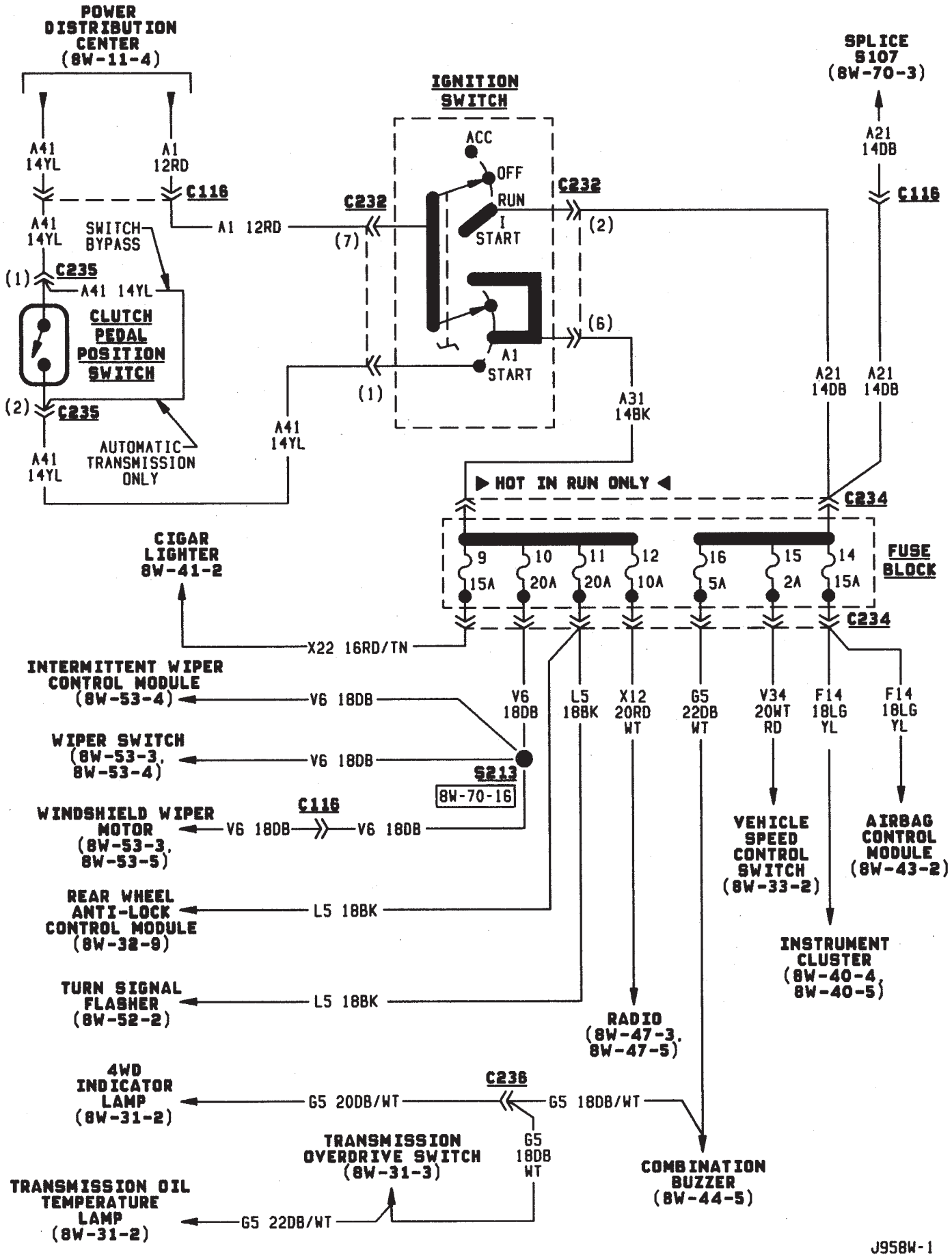
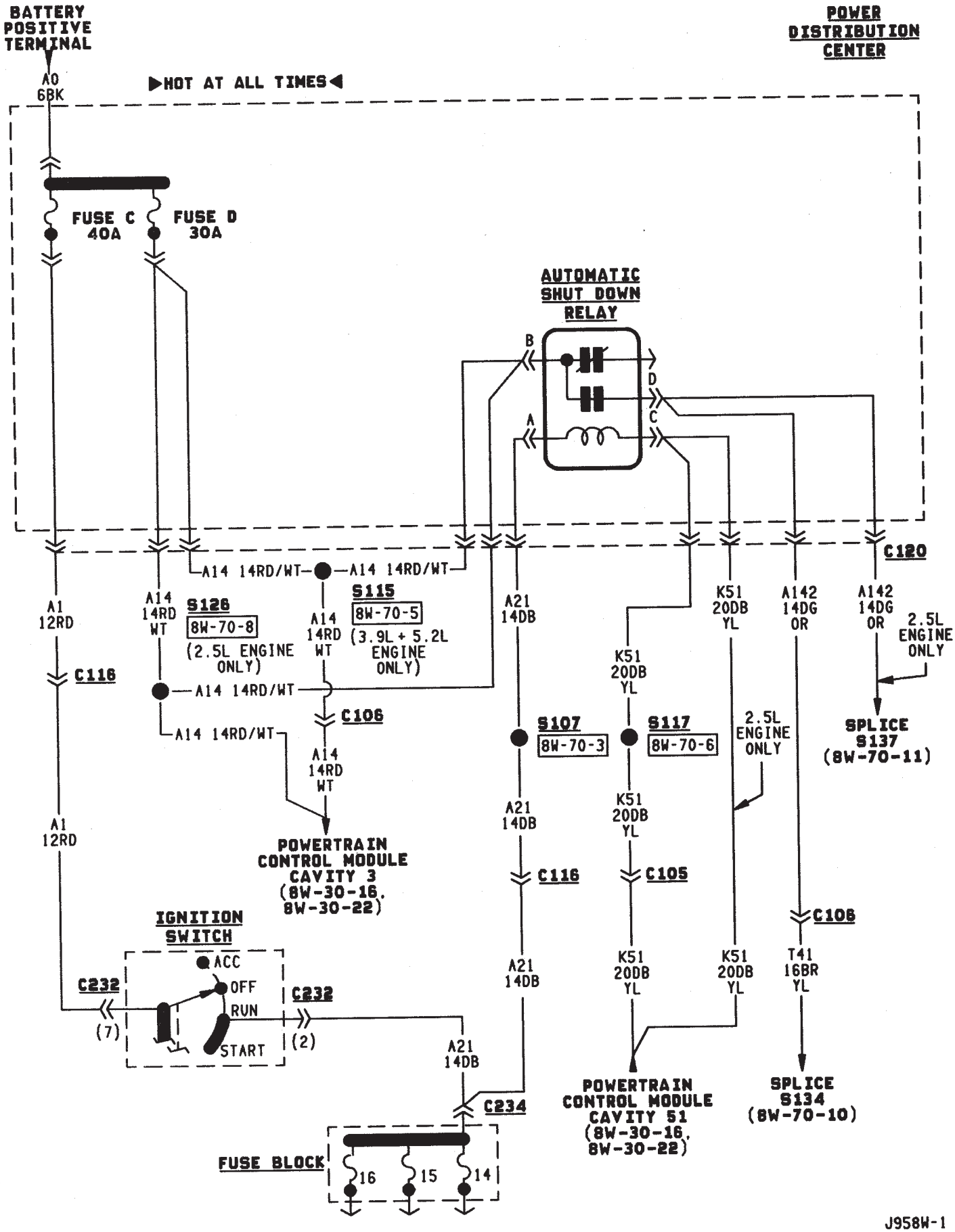



***Fig. 10 Testing for Voltage Drop***

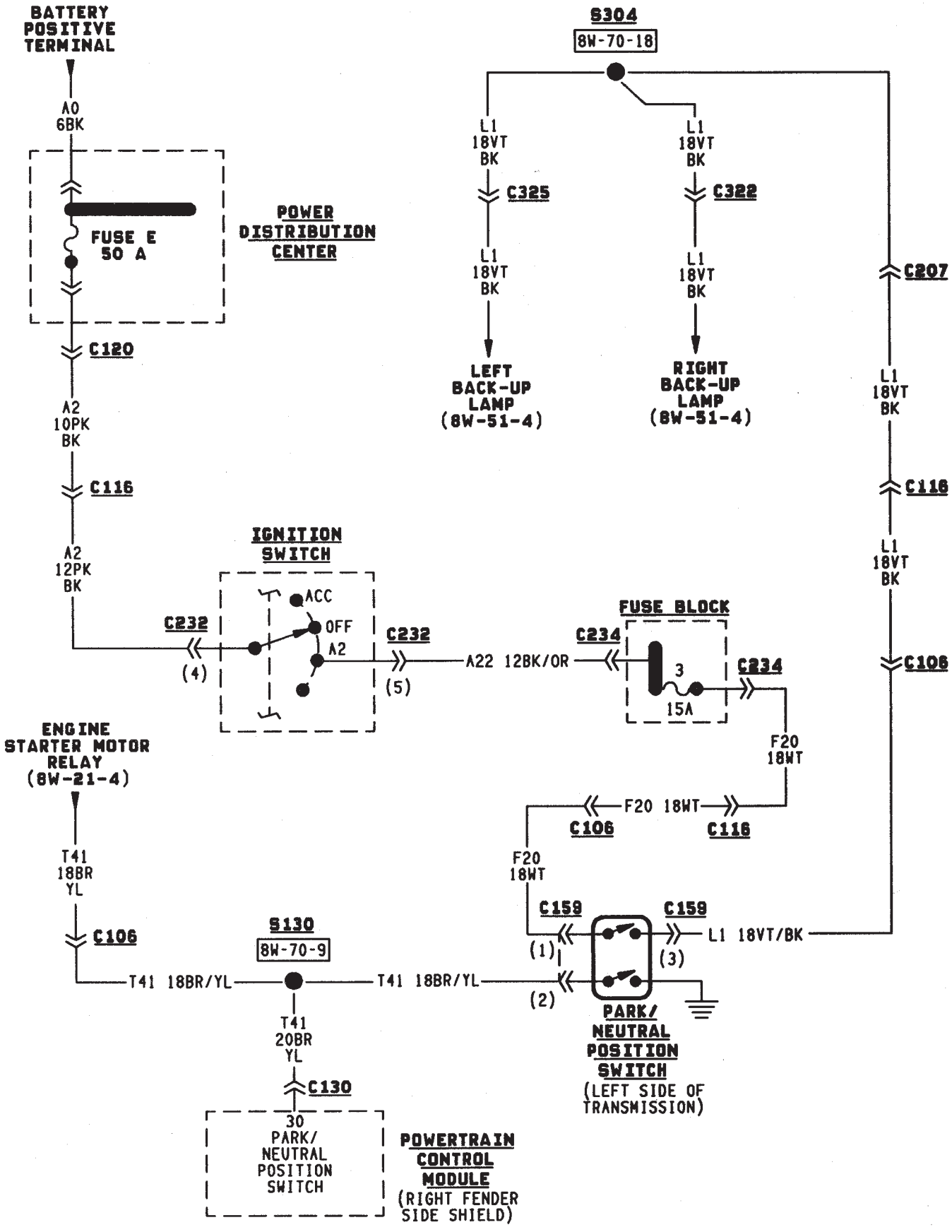
## TROUBLESHOOTING WIRING PROBLEMS

When troubleshooting wiring problems there are six steps which can aid in the procedure. The steps


POWER DISTRIBUTION CENTER (8W-11-4)
A41 14YL
A1 12RD
C116
A41 14YL
SWITCH BYPASS
A1 12RD
C232
(7)
(1)
C235
A41 14YL
CLUTCH PEDAL POSITION SWITCH
(2)
C235
A41 14YL
AUTOMATIC TRANSMISSION ONLY
A41 14YL
IGNITION SWITCH
ACC
OFF
RUN
START
C232
(2)
(6)
A1 START
(1)
A31 14BK
SPLICE S107 (8W-70-3)
A21 14DB
C116
A21 14DB
A21 14DB
HOT IN RUN ONLY
C234
FUSE BLOCK
9 15A
10 20A
11 20A
12 10A
16 5A
15 2A
14 15A
C234
CIGAR LIGHTER 8W-41-2
X22 16RD/TN
INTERMITTENT WIPER CONTROL MODULE (8W-53-4)
V6 18DB
WIPER SWITCH (8W-53-3, 8W-53-4)
V6 18DB
S213
8W-70-16
WINDSHIELD WIPER MOTOR (8W-53-3, 8W-53-5)
C116
V6 18DB
V6 18DB
REAR WHEEL ANTI-LOCK CONTROL MODULE (8W-32-9)
L5 18BK
TURN SIGNAL FLASHER (8W-52-2)
L5 18BK
V6 18DB
L5 18BK
X12 20RD WT
G5 22DB WT
V34 20WT RD
F14 18LG YL
F14 18LG YL
VEHICLE SPEED CONTROL SWITCH (8W-33-2)
AIRBAG CONTROL MODULE (8W-43-2)
INSTRUMENT CLUSTER (8W-40-4, 8W-40-5)
RADIO (8W-47-3, 8W-47-5)
4WD INDICATOR LAMP (8W-31-2)
G5 20DB/WT
C236
G5 18DB/WT
TRANSMISSION OVERDRIVE SWITCH (8W-31-3)
G5 18DB WT
COMBINATION BUZZER (8W-44-5)
TRANSMISSION OIL TEMPERATURE LAMP (8W-31-2)
G5 22DB/WT
J958W-1


BATTERY POSITIVE TERMINAL
A0 6BK
▶HOT AT ALL TIMES◀
POWER DISTRIBUTION CENTER
FUSE C 40A
FUSE D 30A
AUTOMATIC SHUT DOWN RELAY
B
D
A
C
C120
A1 12RD
C116
A14 14RD WT
S126
8W-70-8
(2.5L ENGINE ONLY)
A14 14RD/WT
A14 14RD WT
S115
8W-70-5
(3.9L + 5.2L ENGINE ONLY)
A14 14RD/WT
A14 14RD/WT
C106
A14 14RD WT
POWERTRAIN CONTROL MODULE CAVITY 3 (8W-30-16, 8W-30-22)
A21 14DB
S107
8W-70-3
A21 14DB
C116
A21 14DB
C234
K51 20DB YL
S117
8W-70-6
K51 20DB YL
C105
K51 20DB YL
POWERTRAIN CONTROL MODULE CAVITY 51 (8W-30-16, 8W-30-22)
K51 20DB YL
2.5L ENGINE ONLY
K51 20DB YL
A142 14DG OR
C108
T41 16BR YL
SPLICE S134 (8W-70-10)
A142 14DG OR
2.5L ENGINE ONLY
SPLICE S137 (8W-70-11)
IGNITION SWITCH
ACC
OFF
RUN
START
C232
C232
(7)
(2)
FUSE BLOCK
16
15
14

J958W-1


BATTERY POSITIVE TERMINAL
A0 6BK
FUSE E 50 A
POWER DISTRIBUTION CENTER
C120
A2 10PK BK
C116
A2 12PK BK
IGNITION SWITCH
ACC
OFF
A2
C232
(4)
C232
(5)
A22 12BK/OR
FUSE BLOCK
C234
3
15A
C234
F20 18WT
F20 18WT
C106
C116
F20 18WT
C159
C159
L1 18VT/BK
(1)
(3)
(2)
PARK/ NEUTRAL POSITION SWITCH
(LEFT SIDE OF TRANSMISSION)
S304
8W-70-18
L1 18VT BK
C325
L1 18VT BK
LEFT BACK-UP LAMP (8W-51-4)
L1 18VT BK
C322
L1 18VT BK
RIGHT BACK-UP LAMP (8W-51-4)
C207
L1 18VT BK
C116
L1 18VT BK
C106
ENGINE STARTER MOTOR RELAY (8W-21-4)
T41 18BR YL
C106
S130
8W-70-9
T41 18BR/YL
T41 18BR/YL
T41 20BR YL
C130
30
PARK/ NEUTRAL POSITION SWITCH
POWERTRAIN CONTROL MODULE
(RIGHT FENDER SIDE SHIELD)

J958W-1

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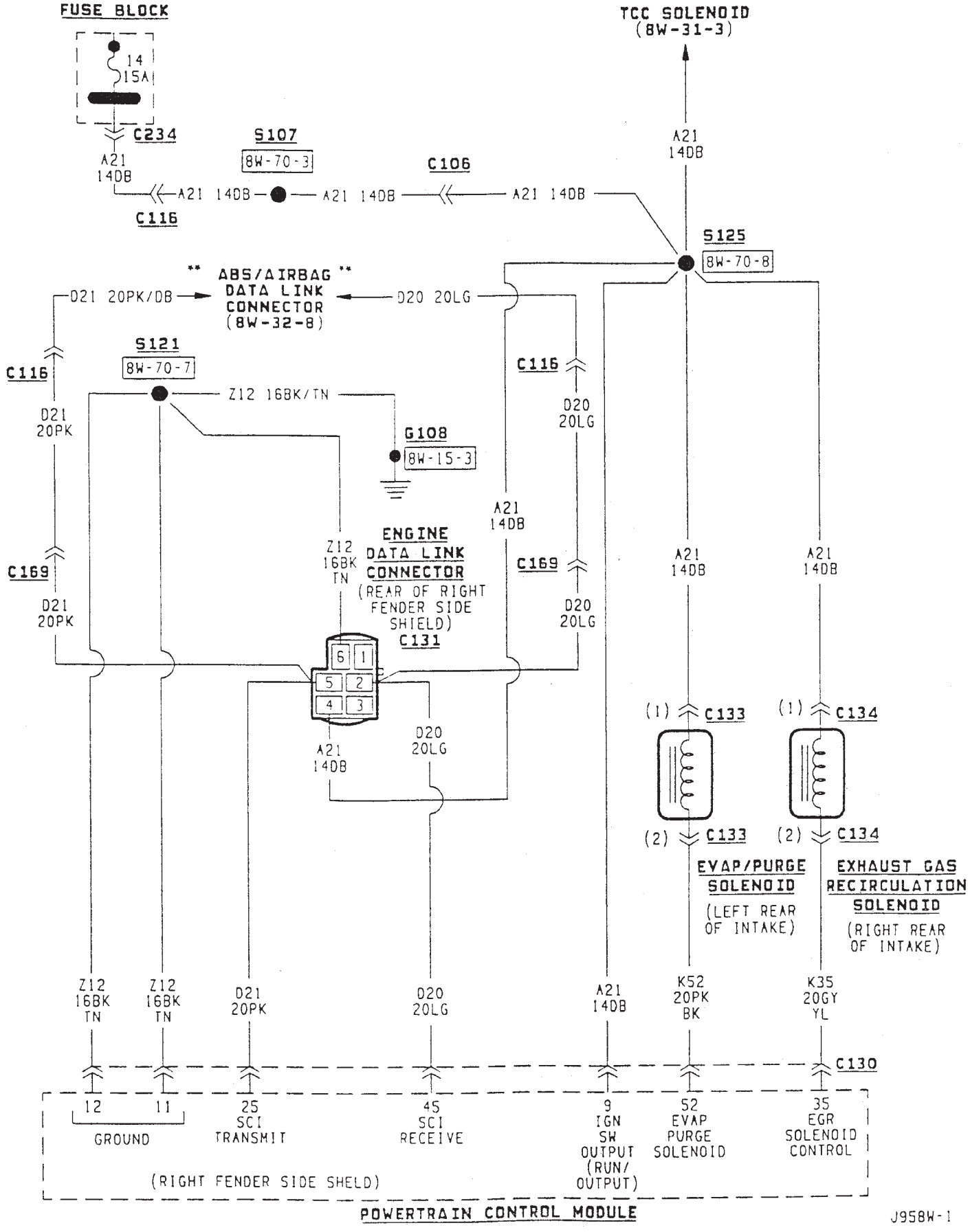
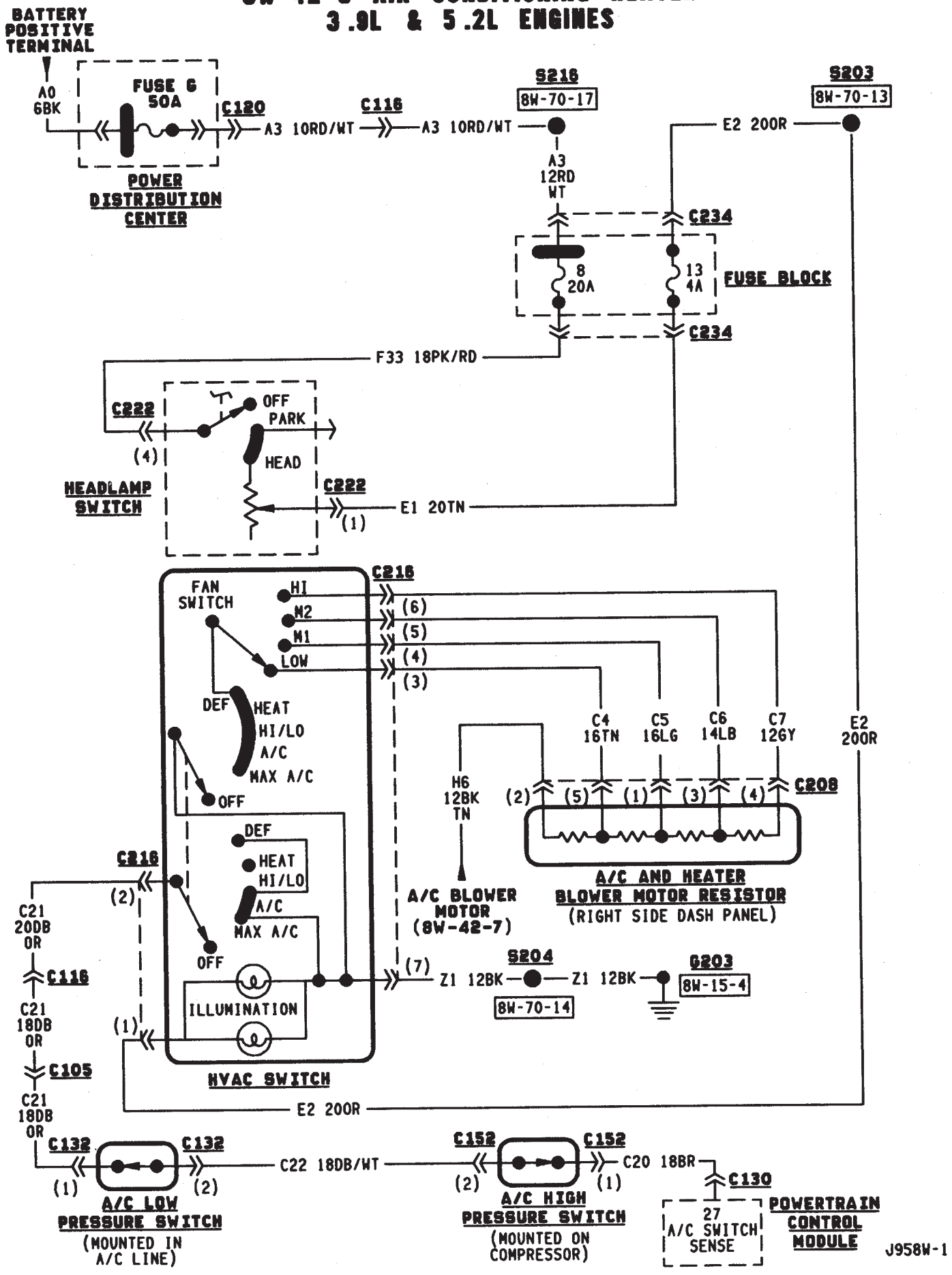
TSB 08-55-94 October 14, 1994



# 3.9L & 5.2L ENGINES



# FRONT LIGHTING

## INDEX



## HEADLAMPS

The headlamp switch has three positions: ON, PARK (parking lamps) and OFF. Two circuits, L2 and L20, connect the headlamp switch to the headlamp dimmer/optical horn switch located in the multi-function switch. The multi-function switch feeds the low and high beams of the headlamps.

### *HEADLAMP SWITCH IN OFF OR PARKING LAMP POSITION*

Circuit A3 from fuse G in the Power Distribution Center (PDC) supplies battery voltage to the headlamp switch. The headlamp switch has an internal circuit breaker that connects circuit A3 to circuit L20.

In the OFF and PARK positions, the headlamp switch feeds circuit L20 which connects to the multi-function switch. Circuit L20 powers the high-beam circuit when the operator flashes the headlamps with the turn signal stalk of the multi-function switch. The multi-function switch connects circuit L20 to circuit L3. Circuit L3 feeds the high beam of the headlamps.

### *HEADLAMP SWITCH IN ON POSITION*

When the headlamp switch is in the ON position, the A3 circuit from the Power Distribution Center (PDC) connects to circuit L2. Circuit L2 connects to the multi-function switch and feeds the L4 circuit. The L4 circuit powers the low beam of the headlamps.

When the operator selects high beam operation, with the turn signal stalk of the multi-function switch, circuit L2 connects to the L3 circuit. Circuit L3 powers high beam operation.

### *HEADLAMP GROUND*

Although circuit Z1 provides ground for both the right and left headlamps, it has different termination points for each. For the right headlamp, the Z1 circuit terminates at the dash panel, near the blower motor resistor block. For the left headlamp, the Z1 circuit terminates at the left fender side shield.

### *HELPFUL INFORMATION*

- Check fuse G in the PDC.
- The headlamp switch has an internal circuit breaker.
- For the left front parking lamp, turn signal, side marker lamp, and left headlamp, the Z1 circuit grounding point is on the dash panel, near the blower motor resistor block.
- For the right front parking lamp, turn signal, side marker lamp, and right headlamp, the Z1 circuit grounding point is on the right fender side shield.
- For the left and rear parking lamps, turn signals, side marker lamps, and the rear license plate lamp, the Z1 circuit grounding point is the left inner fender panel. The Z1 circuit also provides ground for the fuel level sensor.

## PARKING LAMPS

Circuit A3 in the Power Distribution Center (PDC) connects to a bus bar in the fuse block. One of the four circuits powered by the bus bar is circuit F33. Circuit F33 connects to the headlamp switch. Fuse G in the PDC protects the A3 circuit. Fuse 8 in the fuse block protects circuit F33.

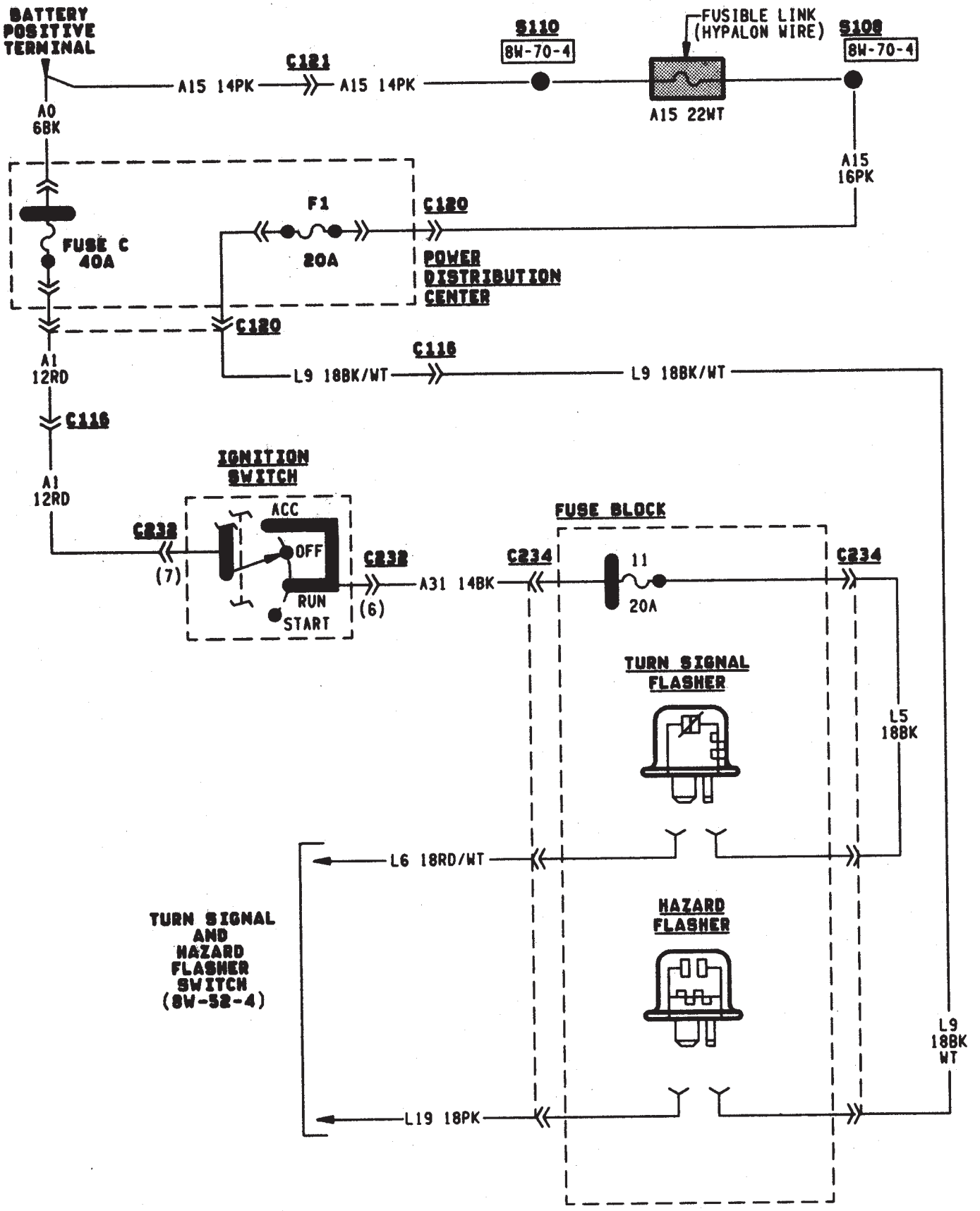
The headlamp switch has three positions: ON, PARK (parking lamps) and OFF, plus a dimmer switch. When the headlamp switch is in the PARK or ON position, the switch connects circuit F33 to circuit L7. From the headlamp switch, circuit L7 branches to power the front parking lamps and rear tail lamps, side marker lamps, and rear license plate lamps.

### *GROUND CIRCUIT*

Circuit Z1 provides a ground for the parking lamps, tail lamps, and rear license plate lamps. The grounding point for circuit Z1 is the dash panel, left of the brake master cylinder.

### *HELPFUL INFORMATION*

- If the vehicle is equipped with factory installed fog lamps, circuit L7 splices to feed the park lamp relay.
- Check fuse G in PDC.
- Check fuse 8 in the fuse block.
- Circuit L7 also feeds the radio, if equipped.
- When the headlamp switch is in the PARK or ON position, the dimmer circuit, F33, also connects to circuit E1. Circuit E1 feeds circuit E2, which powers


BATTERY POSITIVE TERMINAL
A0 6BK
C121
A15 14PK
A15 14PK
S110
8W-70-4
FUSIBLE LINK (HYPALON WIRE)
A15 22WT
S108
8W-70-4
A15 16PK
FUSE C 40A
F1
20A
C120
POWER DISTRIBUTION CENTER
C120
A1 12RD
C116
L9 18BK/WT
L9 18BK/WT
C116
A1 12RD
IGNITION SWITCH
ACC
OFF
RUN
START
C238
(7)
C238
(6)
A31 14BK
FUSE BLOCK
C234
11
20A
C234
TURN SIGNAL FLASHER
L5 18BK
L6 18RD/WT
HAZARD FLASHER
TURN SIGNAL AND HAZARD FLASHER SWITCH (8W-52-4)
L19 18PK
L9 18BK WT

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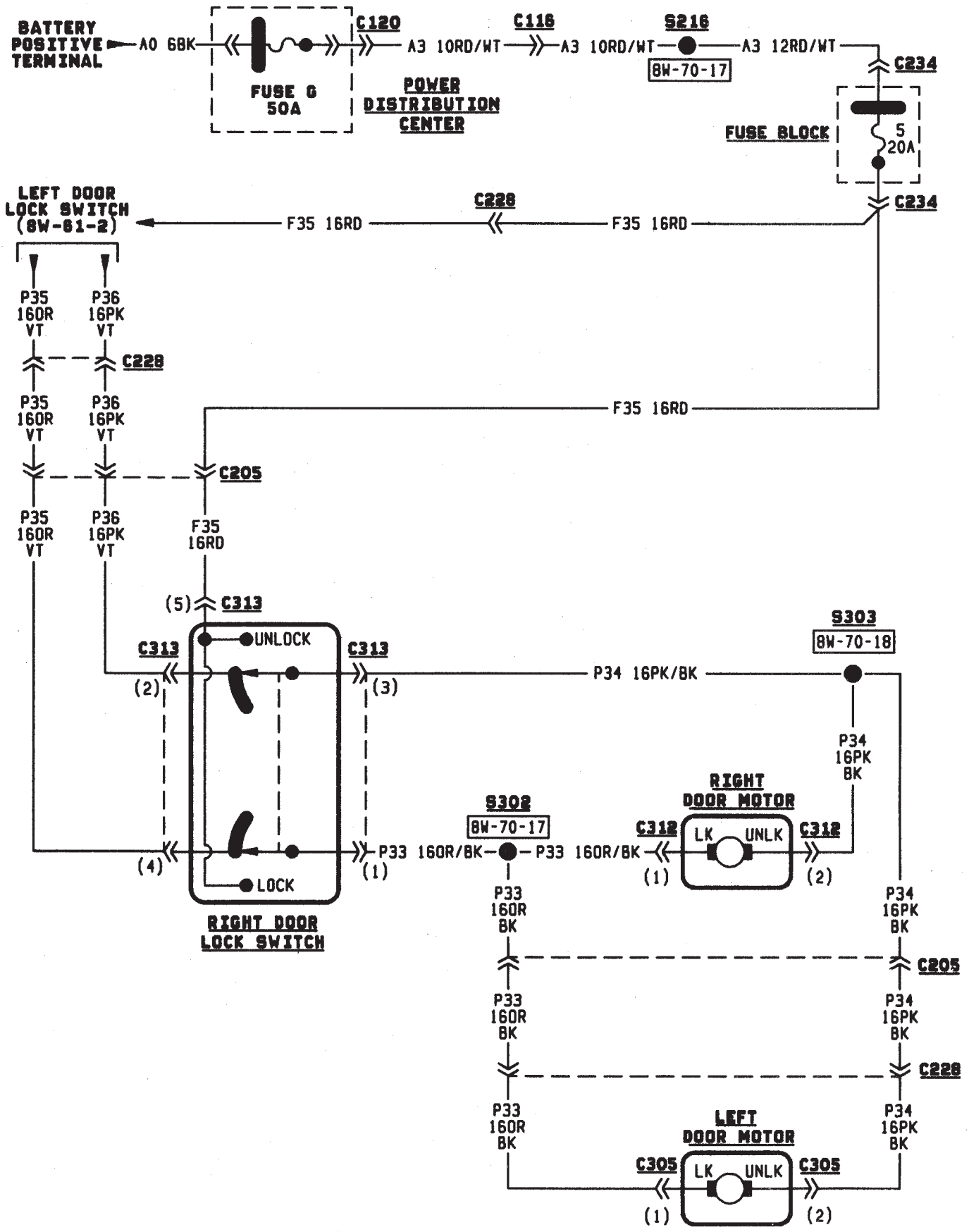
# 8W-61-3 POWER DOOR LOCKS

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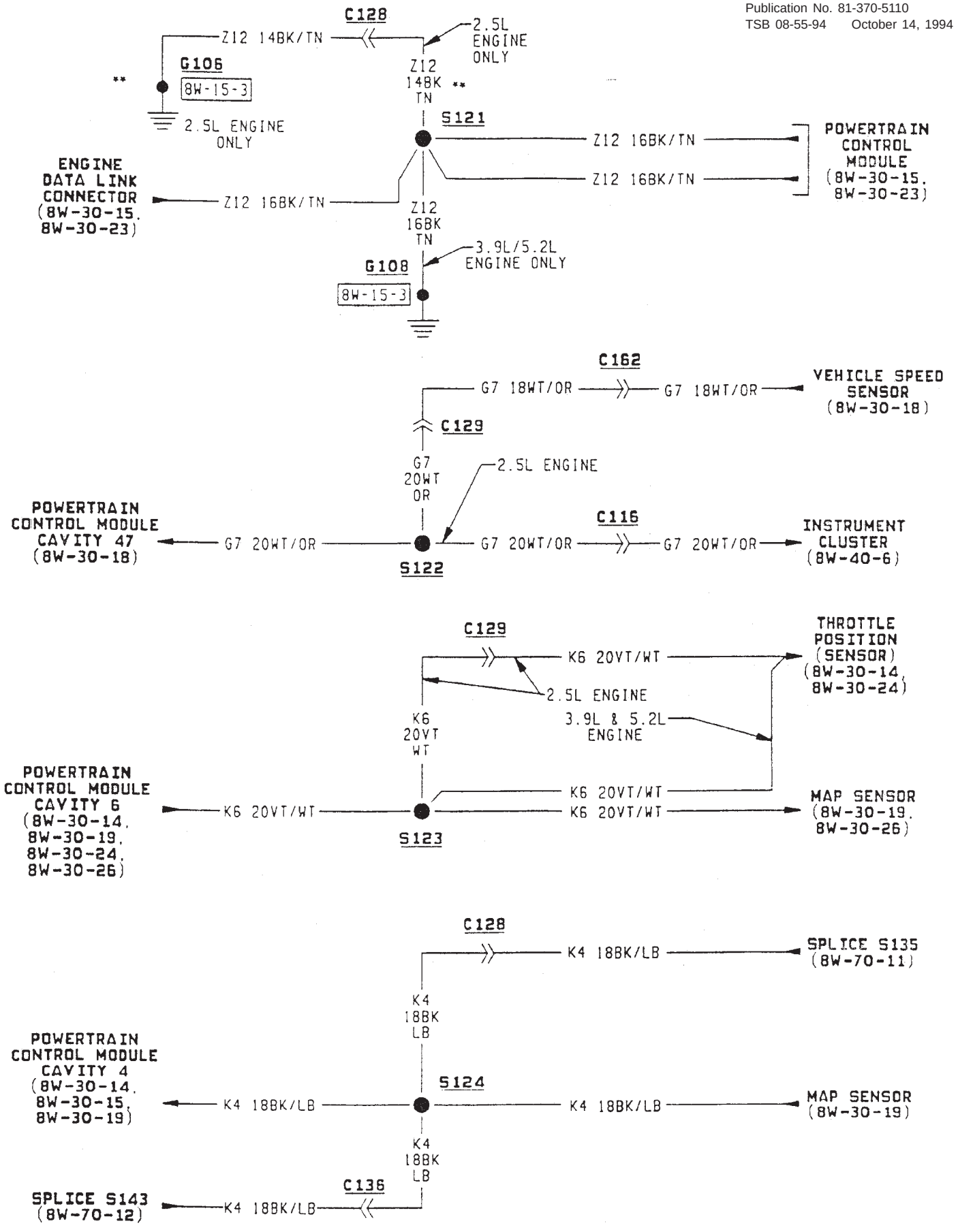


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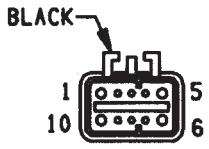
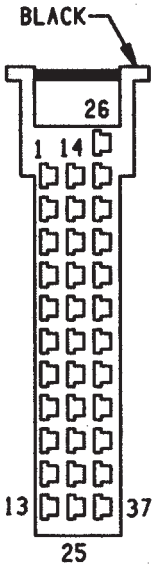



ABS FRONT
HYDRAULIC VALVE

**C117**

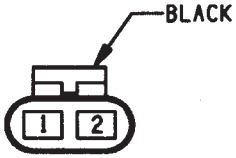
| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | B120 12BR/WT | ABS POWER RELAY OUTPUT |
| 2 | B18 20VT/LG | RIGHT FRONT RESET SWITCH SENSE |
| 3 | B248 16DG/WT | RIGHT FRONT DUMP VALVE CONTROL |
| 4 | B249 18WT/TN | RIGHT FRONT ISOLATION VALVE CONTROL |
| 5 | B60 12LB/BK | PUMP MOTOR CONTROL |
| 6 | B120 12BR/WT | ABS POWER RELAY OUTPUT |
| 7 | B245 18WT/LG | LEFT FRONT ISOLATION VALVE CONTROL |
| 8 | B243 16DG/BK | LEFT FRONT DUMP VALVE CONTROL |
| 9 | B5 20VT/RD | LEFT FRONT RESET SWITCH SENSE |
| 10 | B120 12BR/WT | ABS POWER RELAY OUTPUT |




ANTI-LOCK
BRAKE SYSTEM
(ABS) CONTROL MODULE

**C118**

| | CAV | CIRCUIT | FUNCTION |
|---|---|---|---|
| * | 1 | B113 20RD/VT | REAR WHEEL SPEED SENSOR (+) |
| * | 2 | B7 20WT | RIGHT FRONT WHEEL SPEED SENSOR (+) |
| * | 3 | B9 20RD | LEFT FRONT WHEEL SPEED SENSOR (+) |
| | 4 | B116 20GY | ABS POWER RELAY CONTROL |
| | 5 | B5 20VT/RD | LEFT FRONT RESET SWITCH SENSE |
| | 6 | — | — |
| | 7 | A20 18RD/DB | FUSED IGNITION SWITCH OUTPUT (RUN) |
| | 8 | G107 20BK/GY | 4WD SENSE |
| | 9 | V40 20WT/PK | BRAKE SWITCH SENSE |
| | 10 | D12 20OR | SCI TRANSMIT |
| | 11 | D11 20WT/LB | SCI RECEIVE |
| | 12 | A20 18RD/DB | FUSED IGNITION SWITCH OUTPUT (RUN) |
| | 13 | B47 20RD/LB | ABS WARNING LAMP RELAY CONTROL |
| * | 14 | B114 20WT/VT | REAR WHEEL SPEED SENSOR (−) |
| * | 15 | B6 20WT/DB | RIGHT FRONT WHEEL SPEED SENSOR (−) |
| * | 16 | B8 20RD/GY | LEFT FRONT WHEEL SPEED SENSOR (−) |
| | 17 | — | — |
| | 18 | B18 20VT/LG | RIGHT FRONT RESET SWITCH SENSE |
| | 19 | B19 20LB | REAR RESET SWITCH SENSE |
| | 20 | Z7 18BK/RD | GROUND |
| | 21 | — | — |
| | 22 | — | — |
| | 23 | — | — |
| | 24 | G19 20LG/RD | ABS WARNING LAMP DRIVER |
| | 25 | G9 20GY/BK | RED BRAKE WARNING LAMP DRIVER |
| | 26 | B254 16DG/OR | REAR DUMP VALVE CONTROL |
| | 27 | — | — |
| | 28 | B252 18BR/TN | REAR ISOLATION VALVE CONTROL |
| | 29 | — | — |
| | 30 | B248 16DG/WT | RIGHT FRONT DUMP VALVE CONTROL |
| | 31 | — | — |
| | 32 | — | — |
| | 33 | B249 18WT/TN | RIGHT FRONT ISOLATION VALVE CONTROL |
| | 34 | B120 14BR/WT | ABS POWER RELAY OUTPUT |
| | 35 | B243 16DG/BK | LEFT FRONT DUMP VALVE CONTROL |
| | 36 | — | — |
| | 37 | B245 18WT/LG | LEFT FRONT ISOLATION VALVE CONTROL |



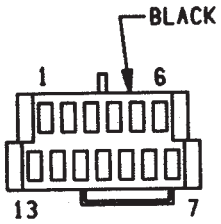

ABS 2-WAY
POWER FEED

**C119**

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | Z8 12BK/PK | GROUND |
| 2 | B60 12LB/BK | PUMP MOTOR CONTROL |

*— INDICATES TWISTED PAIRS
(B6 & B7, B8 & B9, B113 & B114)

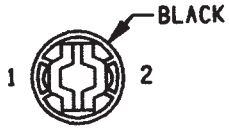
## C214




AIRBAG CONTROL MODULE

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | R47 18DB/LB | LEFT IMPACT SENSOR LINE 1 |
| 2 | R49 18LB | LEFT IMPACT SENSOR LINE 2 |
| 3 | D2 18WT/BK | CCD BUS (−) |
| 4 | D1 18VT/BR | CCD BUS (+) |
| 5 | F20 18WT | FUSED IGN SWITCH OUTPUT (RUN) |
| 6 | F14 18LG/YL | FUSED IGN SWITCH OUTPUT (RUN/START) |
| 7 | R41 18BK/TN | AIRBAG WARNING LAMP DRIVER |
| 8 | — | — |
| 9 | — | — |
| 10 | — | — |
| 11 | Z6 18BK/PK | GROUND |
| 12 | R48 18TN | RIGHT IMPACT SENSOR LINE 2 |
| 13 | R46 18BR/LB | RIGHT IMPACT SENSOR LINE 1 |

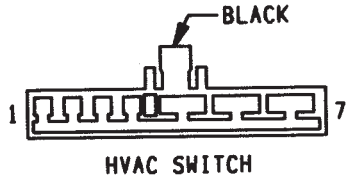
## C215




CIGAR LIGHTER LAMP

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | Z1 20BK | GROUND |
| 2 | E2 20OR | PANEL LAMPS DRIVER |

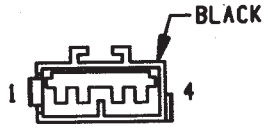
## C216




HVAC SWITCH

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | E2 20OR | PANEL LAMPS DRIVER |
| 2 | C21 20DB/OR | A/C SWITCH SENSE |
| 3 | C4 16TN | LOW BLOWER MOTOR DRIVER |
| 4 | C5 16LG | M1 BLOWER MOTOR DRIVER |
| 5 | C6 14LB | M2 BLOWER MOTOR DRIVER |
| 6 | C7 12GY | HIGH BLOWER MOTOR DRIVER |
| 7 | Z1 12BK | GROUND |

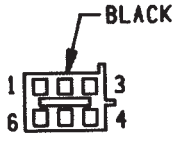
## C217




RADIO CHOKE RELAY

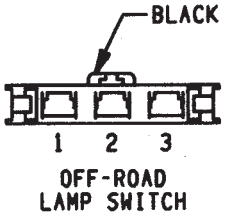
| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | Z1 20BK | GROUND |
| 2 | X60 20DG/RD | RADIO 12—VOLT OUTPUT |
| 3 | X13 16BK/RD | AMPLIFIED SPEAKER (+) |
| 4 | X1 16RD/LG | FUSED B(+) |

## C218




STOP LAMP SWITCH

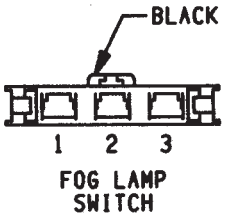
| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | V32 20YL/RD | SPEED CONTROL ON/OFF SWITCH SENSE |
| 2 | L50 18WT/TN | STOP LAMP SWITCH OUTPUT |
| 3 | V40 18WT/PK | STOP LAMP SWITCH SENSE |
| 3 | V40 18WT/PK | STOP LAMP SWITCH SENSE |
| 4 | Z1 20BK | GROUND |
| 5 | F32 18PK/DB | FUSED B(+) |
| 5 | F32 20PK/DB | FUSED B(+) |
| 6 | V30 22DB/RD | SPEED CONTROL ON/OFF SWITCH OUTPUT |




OFF-ROAD LAMP SWITCH

**C335**

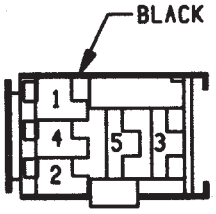
| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | Z1 18BK | GROUND |
| 2 | F39 16PK/LG | FUSED B(+) |
| 3 | L31 16DB/YL | OFF-ROAD LAMP SWITCH OUTPUT |




FOG LAMP SWITCH

**C336**

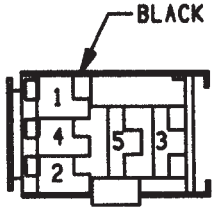
| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | L39 16LB | HIGH BEAM RELAY OUTPUT |
| 2 | L35 18BR/WT | PARK LAMP RELAY CONTROL |
| 3 | Z1 18BK | GROUND |




PARK LAMP RELAY

**C337**

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | L7 18BK/YL | PARK LAMP SWITCH OUTPUT |
| 2 | L35 18BR/WT | PARK LAMP RELAY CONTROL |
| 3 | F39 16PK/LG | FUSED B(+) |
| 4 | — | — |
| 5 | L36 16LG | PARK LAMP RELAY OUTPUT |




HIGH BEAM RELAY

**C338**

| CAV | CIRCUIT | FUNCTION |
|---|---|---|
| 1 | L3 16RD/OR | DIMMER SWITCH HIGH BEAM OUTPUT |
| 2 | Z1 18BK | GROUND |
| 3 | L36 16LG | PARK LAMP RELAY OUTPUT |
| 4 | L39 18LB | HIGH BEAM RELAY OUTPUT |
| 5 | — | — |

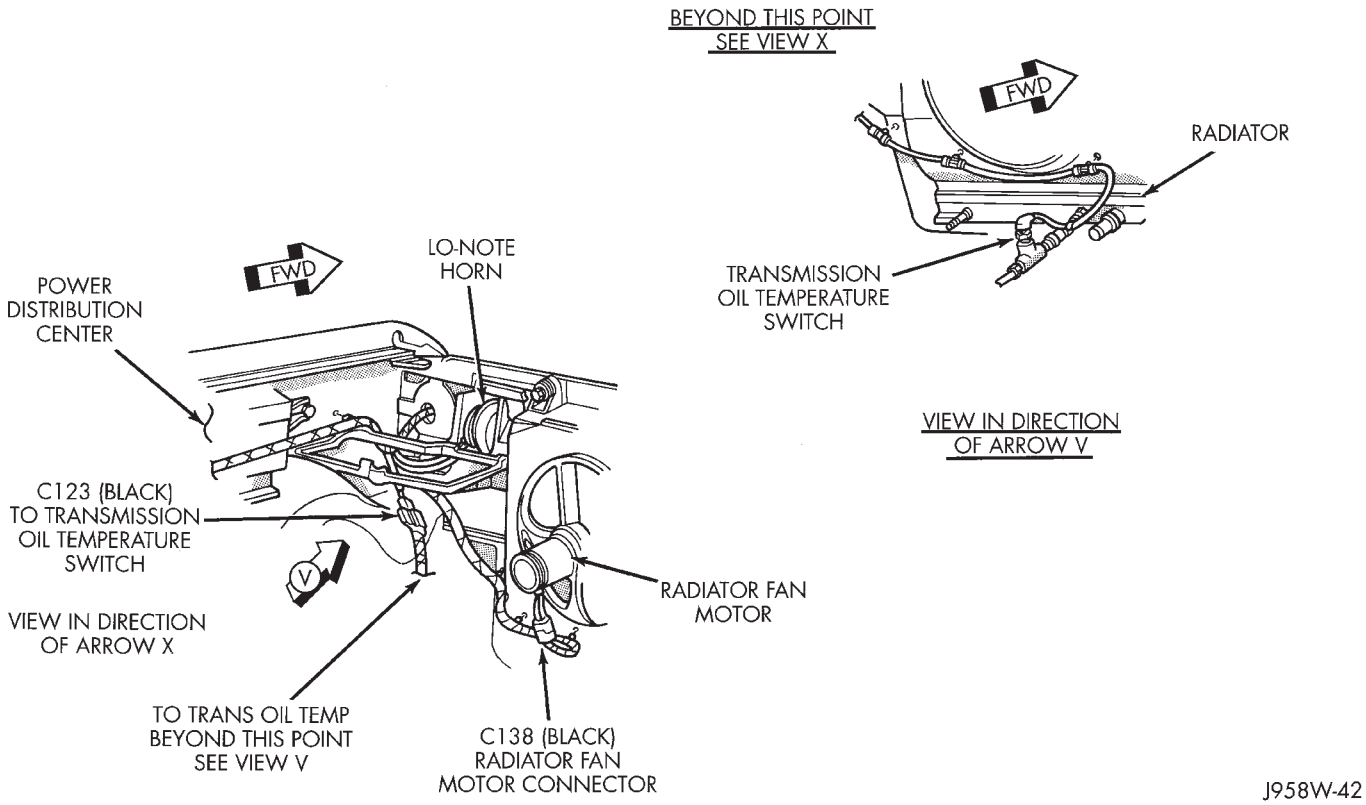



***Fig. 3 Engine Compartment Wiring Connectors—Left Side***

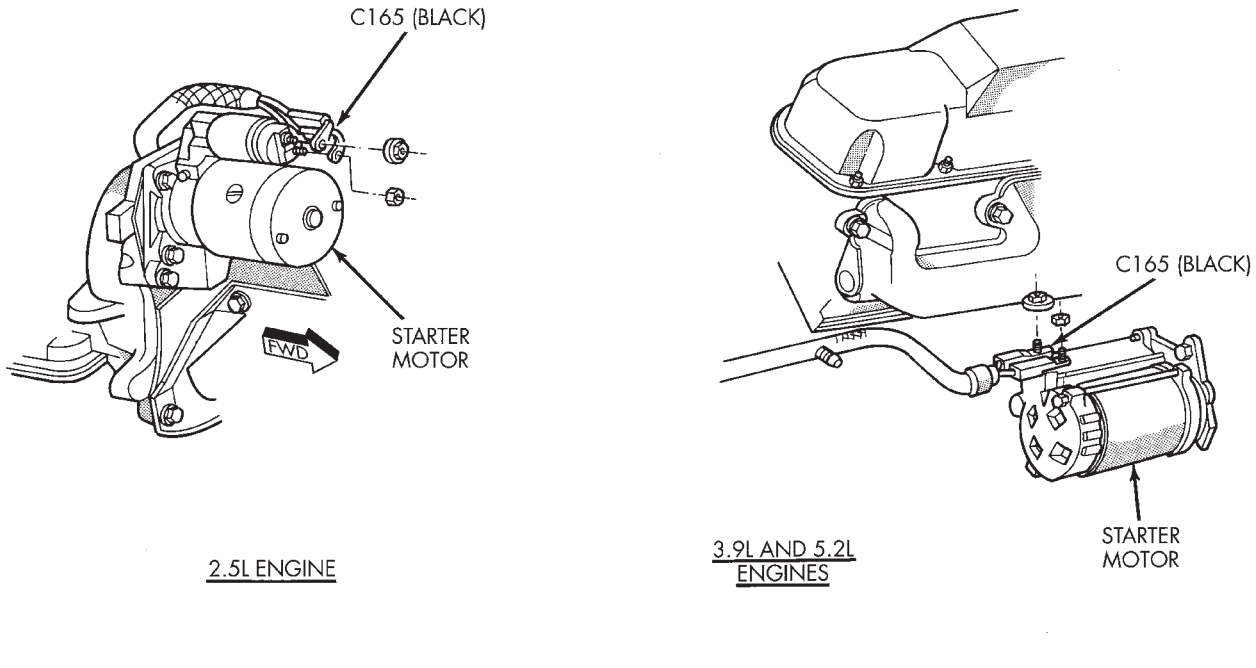



***Fig. 4 Starter Motor Wiring Connectors***