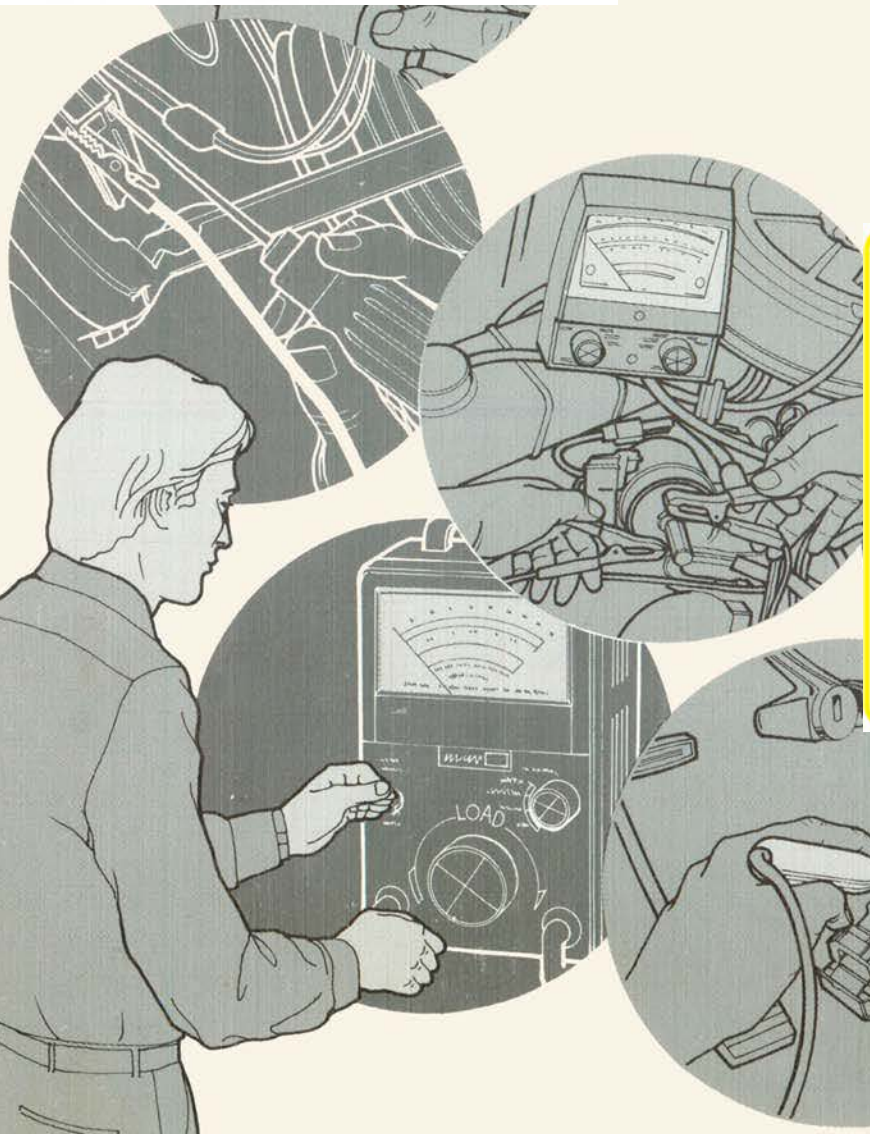
1986 BRONCO/ F150/350

Ford



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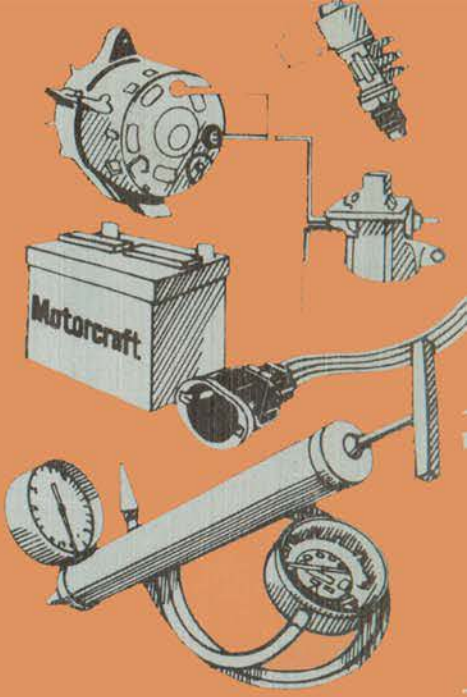
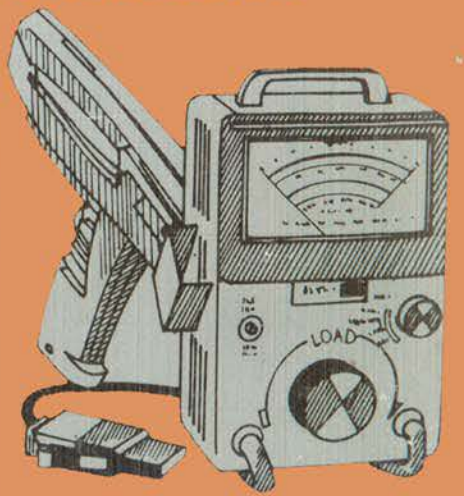


Electrical & Vacuum Trouble-Shooting Manual



1986 BRONCO/F150/350

1986 Bronco F150/350 Electrical & Vacuum Trouble-Shooting Manual (EVTM)

EAN: 978-1-60371-409-9
ISBN: 1-60371-409-X

Forel Publishing Company, LLC
Woodbridge, VA 22192

License #84356800

Note from the Publisher

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IMPORTANT SAFETY NOTICE

Appropriate service methods and proper repair procedures are essential for the safe, reliable operation of all motor vehicles, as well as the personal safety of the individual doing the work. This Manual provides general directions for accomplishing service and repair work with tested, effective techniques. Following them will help assure reliability.

There are numerous variations in procedures, techniques, tools, and parts for servicing vehicles, as well as in the skill of the individual doing the work. This Manual cannot possibly anticipate all such variations and provide advice or cautions as to each. Accordingly, anyone who departs from the instructions provided in this Manual must first establish that he compromises neither his personal safety nor the vehicle integrity by his choice of methods, tools or parts.

The purpose of this manual is to show electrical and vacuum circuits of these vehicles in a clear and simple fashion to make troubleshooting easier. With each circuit is a description of *How the Circuit Works* and some *Troubleshooting Hints*. A *Component Location* chart lists components, connectors, and grounds in that circuit. The chart includes a description of where each item is located, and references to pictures in the manual.

Wiring Diagrams give a schematic picture of when and how the circuit is powered, what the current path is to circuit components, and how the circuit is grounded. Each circuit component is named (underlined titles). Wire and connector colors are listed (standard Ford color abbreviations are used):

COLOR ABBREVIATIONS

BL	**Blue**	**N**	**Natural**
BK	**Black**	**O**	**Orange**
BR	**Brown**	**PK**	**Pink**
DB	**Dark Blue**	**P**	**Purple**
DG	**Dark Green**	**R**	**Red**
GR	**Green**	**T**	**Tan**
GY	**Gray**	**W**	**White**
LB	**Light Blue**	**Y**	**Yellow**
LG	**Light Green**		

Where two colors are shown for a wire, the first color is the basic color of the wire. The second color is the stripe marking. It should be noted that the use of dots and hashes for circuit identification has been eliminated. Dots may still be encountered as an additional identification where the wire harness manufacturer has encountered multiple wires with the same identification colors (solid or stripe) in a connector and requested a deviation.

Connector end views of switches and other components are shown to help with bench testing. The views show the harness wire colors that connect to the mating terminals. Connector colors and locations are shown in the *Component Location* chart. Two-color listings indicate separate colors for each connector half.

Components which work together are shown together. For example, all electrical components used in any circuit are shown on one diagram. The circuit breaker or fuse is shown at the top of the page. All wires, connectors, splices, switches, and motors are shown in the flow of current to ground at the bottom of the page. Notes are included which describe how switches and other components work. If a component is used in several different circuits, it is shown in several places. **For example, the Main Light Switch is an electrical part of many circuits, and is repeated on many pages. In some cases, however, a component may seem, by its name, to belong on a page where it has no electrical connection. For example, Radio Illumination is electrically part of Instrument Illumination. Since it has no electrical connection at all with the actual Radio circuit, it is not shown on the Radio page.**

Troubleshooting Hints point the technician in a general direction, but are not intended as a step-by-step procedure. Ignition troubleshooting is an exception to this. It includes a step-by-step procedure of basic quick checks to locate some of the more common **Ignition System** problems. Read the Shop Manual for more detailed repair procedures.

The **Grounds** pages show detailed views of multiple component ground points. This is useful for checking interconnections among the ground circuits of different diagrams.

Notes, Cautions, and **Warnings** appear in boxes on text pages and contain important **vehicle and mechanic safety information.**

Notes give added information to help complete a particular procedure. Cautions are included to prevent making an error that could damage the vehicle. Warnings highlight areas where carelessness can cause personal injury. The following list contains some general **Warnings** that should be followed when working on a vehicle.

- Always wear safety glasses for eye protection.
- Use safety stands whenever a procedure requires being under a vehicle.
- Be sure that the **Ignition Switch** is always in the OFF position, unless otherwise required by the procedure.
- Set the parking brake when working on any vehicle. An automatic transmission should be in PARK. A manual transmission should be in NEUTRAL.
- Operate the engine only in a well-ventilated area to avoid the danger of carbon monoxide.
- Keep away from moving parts when the engine is running, especially the fan and belts.
- To prevent serious burns, avoid contact with hot metal parts such as the radiator, exhaust manifold, tail pipe, catalytic converter, and muffler.
- Do not allow flame or sparks near the battery. Gases are always present in and around the battery cell. An explosion could occur.
- Do not smoke.
- To avoid injury, always remove rings, watches, loose hanging jewelry, and loose clothing.

TROUBLESHOOTING STEPS

These six steps present an orderly method of troubleshooting:

Step 1. Verify the problem.

- Operate the complete system and see all symptoms for yourself in order to:
  - —check the accuracy and completeness of the customer's complaint.
  - —learn more that might give a clue to the nature and location of the problem.

Step 2. Narrow the problem.

- Using this manual, narrow down the possible causes and locations of the problem in order to more quickly find the exact cause.
- Read the description of *How the Circuit Works* and study the wiring diagram. You should then know enough about the circuit operation to figure out where to check for this trouble.

Step 3. Test the cause.

- Use electrical test procedures to find the specific cause of the symptoms.
- *Troubleshooting Hints* will give some helpful ideas.
- The *Component Location* charts and the pictures will help you find components, grounds, and connectors.

Step 4. Verify the cause.

- Confirm the fact that you have found the correct cause through operating the parts of the circuit you think are good.

Step 5. Make the repair.

- Repair or replace the faulty component.

Step 6. Verify the repair.

- Operate the system as in Step 1 and check that your repair has removed all symptoms, and also has not caused any new symptoms.

Some engine circuits may need special test equipment and special procedures. See the *Shop Manual* and other service books for details. You will find the circuits in this manual to be helpful with these special tests.

TROUBLESHOOTING TOOLS

JUMPER WIRE

This is a test lead used to connect two points of a circuit. A **Jumper Wire** can complete a circuit by bypassing an open.

Uses: Bypassing Switches or Open Circuits

WARNING

Never use a jumper wire across loads (motors, etc.) connected between hot and ground. This direct battery short may cause injury or fire.

VOLTMETER

A DC **Voltmeter** measures circuit voltage. Connect negative (- or black) lead to ground, and positive (+ or red) lead to voltage measuring point.

OHMMETER

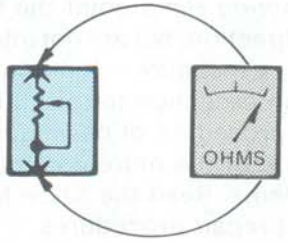


Figure 1— Resistance Check

An **Ohmmeter** shows the resistance between two connected points (Figure 1).

TEST LIGHT

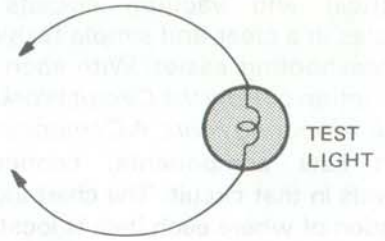


Figure 2—Test Light

A **Test Light** is a 12-volt bulb with two test leads (Figure 2).

Uses: Voltage Check. Short Check

SELF-POWERED TEST LIGHT

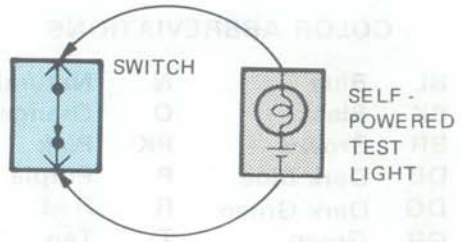


Figure 3—Continuity Check

The **Self-Powered Test Light** is a bulb, battery and set of test leads wired in series (Figure 3). When connected to two points of a continuous circuit, the bulb glows.

Uses: Continuity Check. Ground Check

CAUTION

When using a self-powered test light or ohmmeter, be sure power is off in circuit during testing. Hot circuits can cause equipment damage and false readings.

TROUBLESHOOTING CHECKS

SWITCH CIRCUIT CHECK

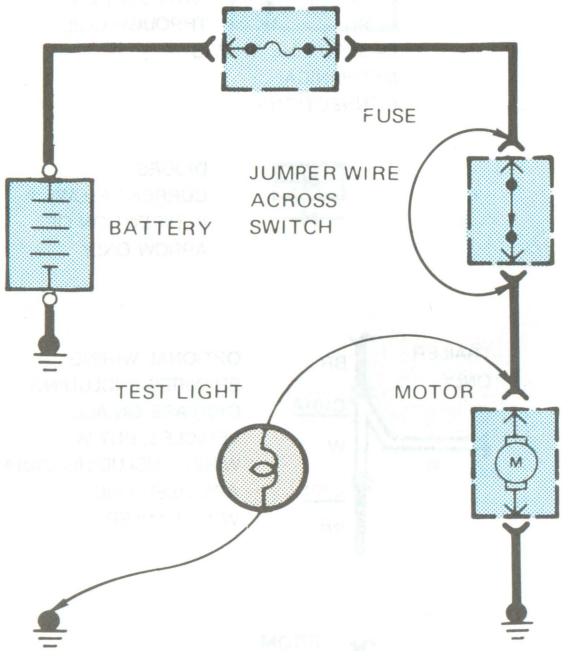


Figure 4—Switch Circuit Check and Voltage Check

In a bad circuit with a switch in series with the load, jumper the terminals of the switch to power the load. If jumping the terminals powers the circuit, the switch is bad (Figure 4).

CONTINUITY CHECK (Locating open circuits)

With power off, connect one lead of **Self-Powered Test Light** or **Ohmmeter** to each end of circuit (Figure 3). Light will glow if circuit is closed. Switches and fuses can be checked in the same way.

VOLTAGE CHECK

Connect one lead of **Test Light** to a known good ground or the negative (-) battery terminal. Test for voltage by touching the other lead to the test point. Bulb goes on when the test point has voltage (Figure 4).

SHORT CHECK (short to ground)

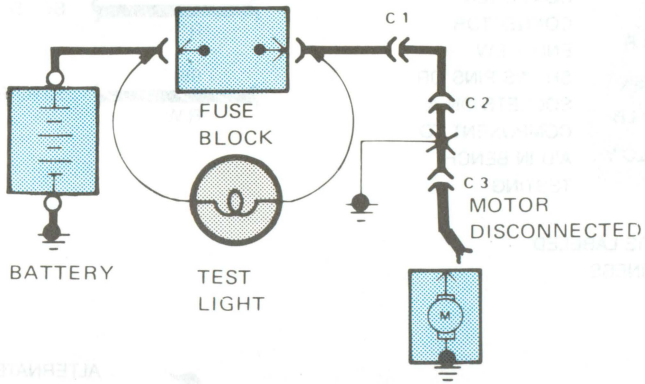


Figure 5— Short Check

A fuse that repeatedly blows is usually caused by a short to ground. It's important to be able to locate such a short quickly (Figure 5).

1) Turn off everything powered through the fuse.
2) Disconnect other loads powered through the fuse:
   - Motors: disconnect motor connector.
   - Lights: remove bulbs.
3) Turn **Ignition Switch** to RUN (if necessary) to power fuse.
4) Connect one **Test Light** lead to hot end of blown fuse. Connect other lead to ground. Bulb should glow showing power to fuse. *(This step is just a check to be sure you have power to the circuit.)*
5) Disconnect the **Test Light** lead from ground and reconnect it to the load side of the fuse.
   - If the **Test Light** is off, the short is in the disconnected equipment.
   - If the **Test Light** goes on, the short is in the wiring. You must find the short by disconnecting the circuit connectors one at a time until the **Test Light** goes out. For example: with a ground at X, the bulb goes out when C1 or C2 is disconnected, but stays on after disconnecting C3. This means the ground is between C2 and C3.

"GOOD GROUND" CHECK

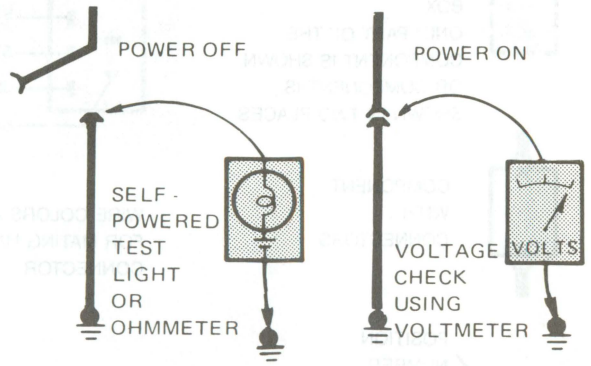


Figure 6 — Grounds Checks

Turn on power to circuit. Perform Voltage Check between suspected bad ground and frame. Any voltage means ground is bad.

Turn off power to circuit. Connect one lead of **Self-Powered Test Light** or **Ohmmeter** to wire in question, and the other to known ground. If bulb glows, circuit ground is OK (Figure 6).

TROUBLESHOOTING HINTS

The circuit schematics in this manual are designed to make it easy to identify common points in circuits. This knowledge can help narrow the problem to a specific area. For example, if several circuits fail at the same time, check for a common power or ground connection. (See *Power Distribution* or *Grounds).* If part of a circuit fails, check the connections between the part that works and the part that doesn't work.

For example, if low beam headlights work but high beams and the indicator light don't work, then power and ground paths must be good. Since the dimmer switch is the component which switches this power to the high beam lights and indicator, it is most likely the cause of failure.

4 ELECTRICAL SYMBOLS

DASHED COMPONENT BOX
ONLY PART OF THE COMPONENT IS SHOWN, OR COMPONENT IS SHOWN IN TWO PLACES

COMPONENT WITH CONNECTORS

POSITION NUMBER
FUSE
CURRENT RATING

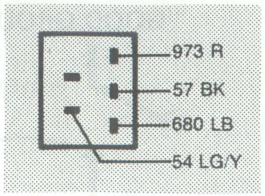
POSITION NUMBER
CIRCUIT BREAKER
CURRENT RATING

SCREW TERMINAL ON COMPONENT

SOLID STATE

SEALED ELECTRONIC COMPONENT
ANY CIRCUITRY SHOWN INSIDE THE BOX IS A FUNCTIONAL EQUIVALENT ONLY AND IS NOT EXACT

GAUGE



COMPONENT CONNECTOR END VIEW SHOWS PINS OR SOCKETS ON A COMPONENT TO AID IN BENCH TESTING

WIRE COLORS ARE LABELED FOR MATING HARNESS CONNECTOR

PIN AND BLADE TERMINAL TYPES

SOCKET TYPES

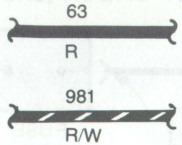
SOCKET
IN-LINE CONNECTOR
PIN

SPLICE OR CRIMP CONNECTION

MOST ARE BUILT INTO HARNESS, ARE NOT ACCESSIBLE

GROUND CONNECTION

20 GA BLUE FUSE LINK



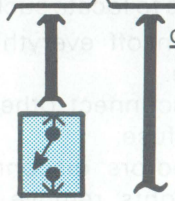
SOLID WIRE

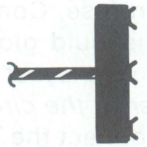
STRIPED WIRE

ALTERNATE CIRCUIT PATHS

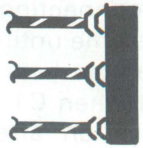
AUTOMATIC TRANSMISSION

MANUAL TRANSMISSION



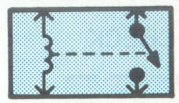


CANDELABRA CONNECTOR ACCEPTS SINGLE-PIN CONNECTORS



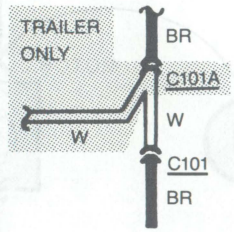
JUNCTION BLOCK

SEE GROUNDS *PAGES 4, 5, 6, 7*

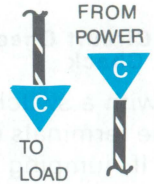


RELAY
CONTACTS CLOSE WITH CURRENT THROUGH COIL
DASHED LINE SHOWS MECHANICAL CONNECTIONS

DIODES
CURRENT FLOWS IN DIRECTION OF ARROW ONLY



OPTIONAL WIRING
BR WIRES (INCLUDING C101) ARE ON ALL VEHICLES, BUT W WIRES (INCLUDING C101A) ARE USED ONLY WITH TRAILER



"CUT" WIRES REFERENCED BETWEEN PAGES ARROWS SHOW CURRENT FLOW FROM POWER TO GROUND

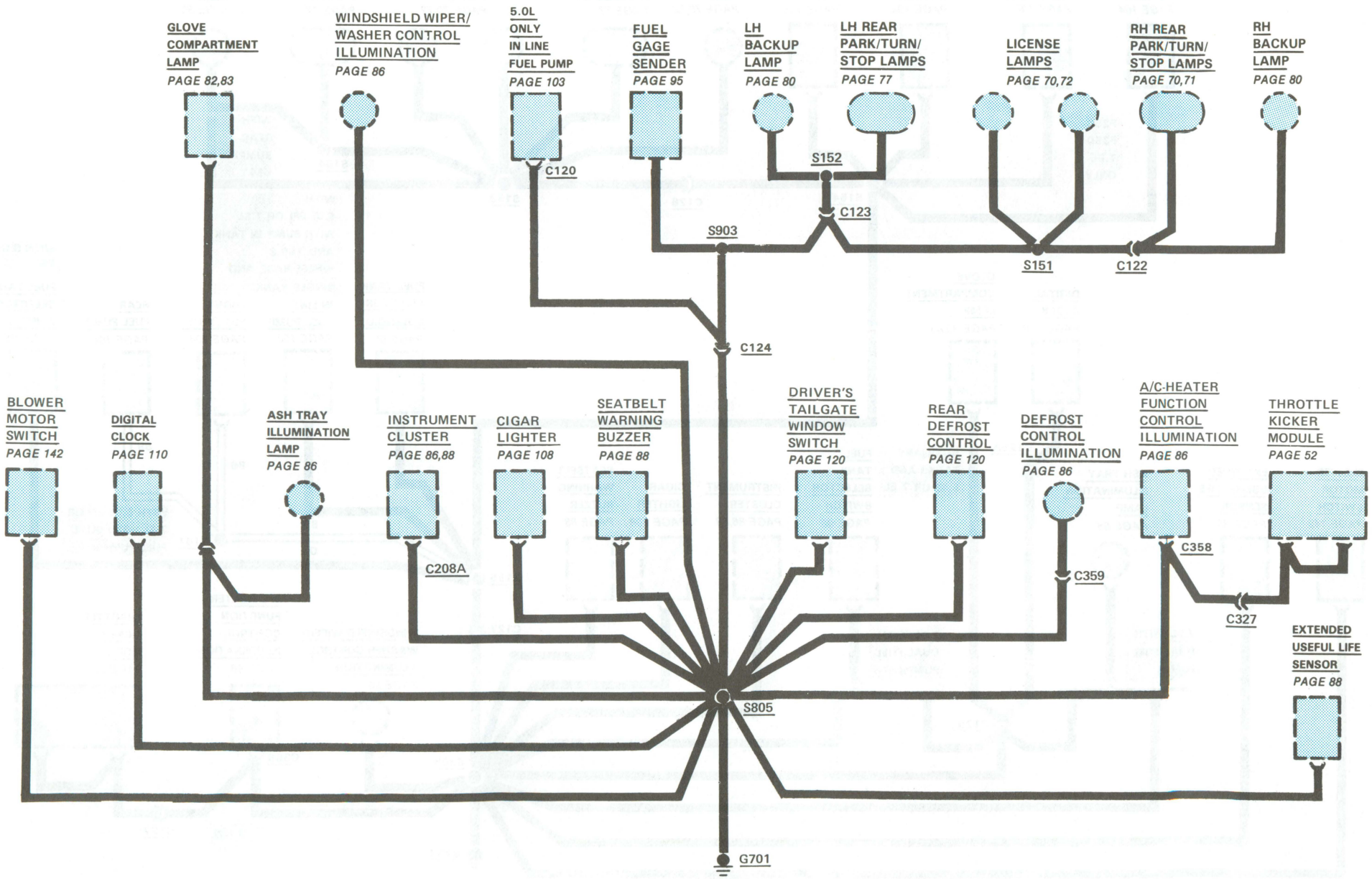
BACKUP LAMPS

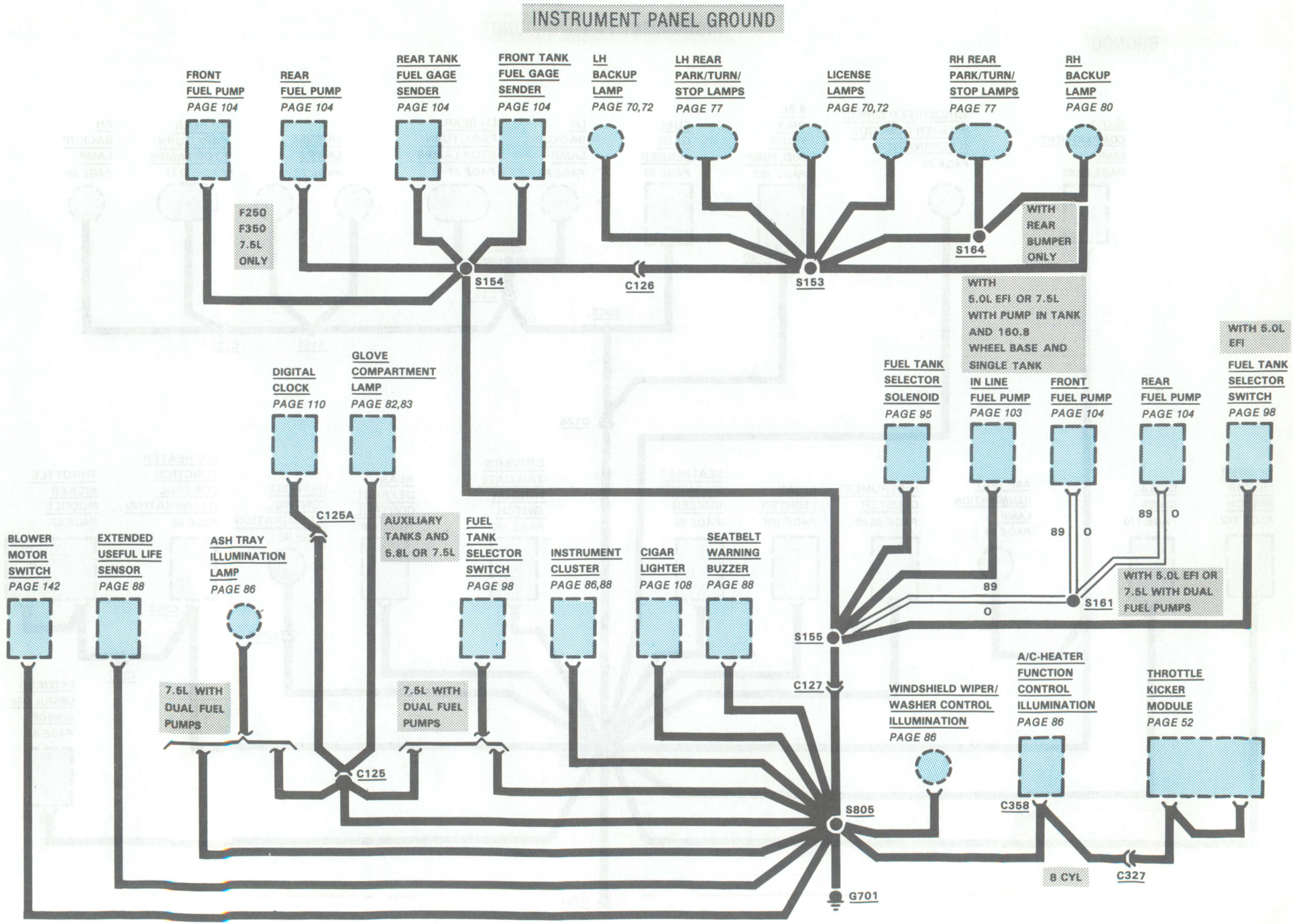
"REFERENCE" WIRES COMPLETE WIRING SHOWN ON ANOTHER PAGE

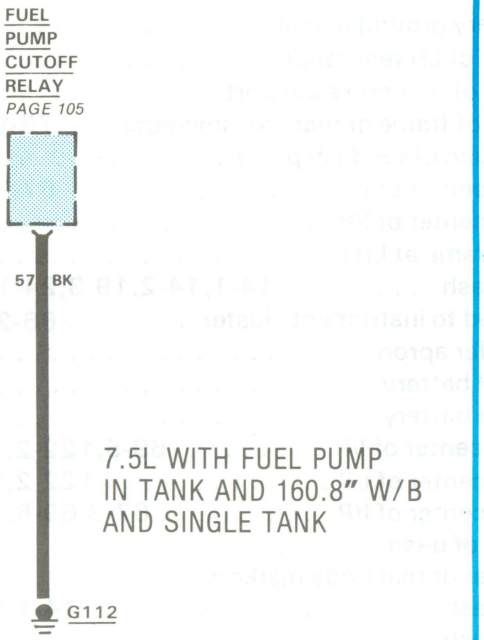
DASHED WIRE CIRCUITRY IS NOT SHOWN IN COMPLETE DETAIL, BUT IS COMPLETE ON ANOTHER PAGE

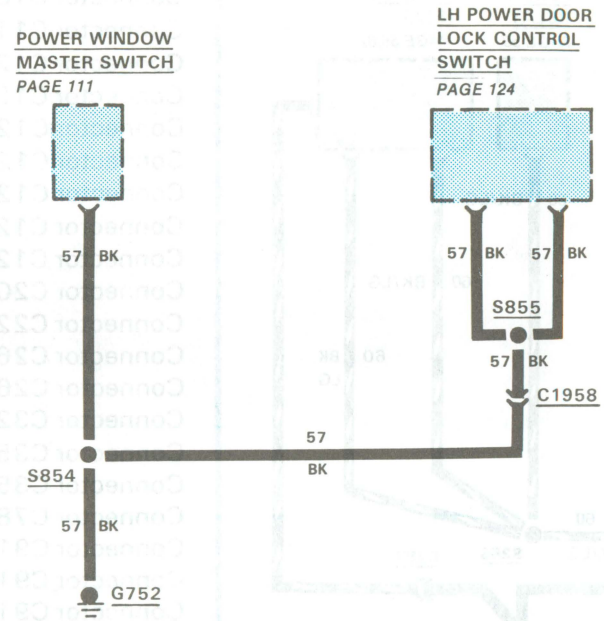
BRONCO

INSTRUMENT PANEL GROUND

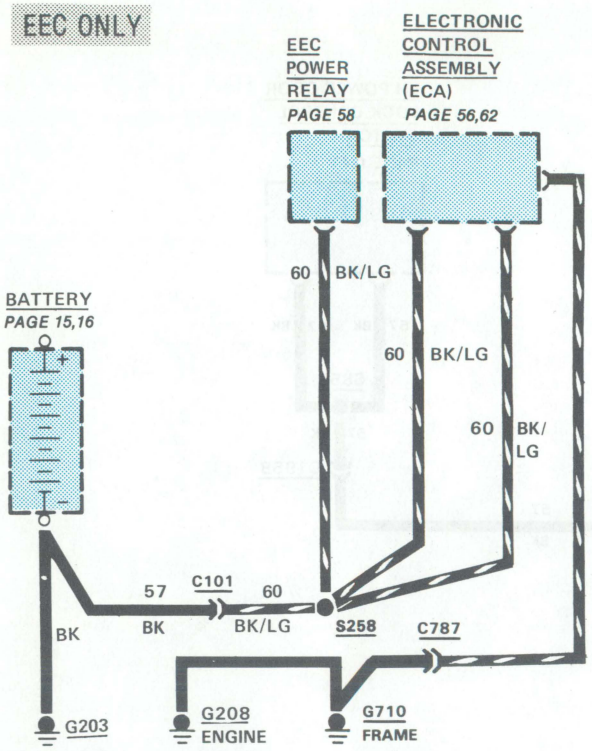



INSTRUMENT PANEL GROUND
FRONT FUEL PUMP
PAGE 104
REAR FUEL PUMP
PAGE 104
REAR TANK FUEL GAGE SENDER
PAGE 104
FRONT TANK FUEL GAGE SENDER
PAGE 104
LH BACKUP LAMP
PAGE 70,72
LH REAR PARK/TURN/ STOP LAMPS
PAGE 77
LICENSE LAMPS
PAGE 70,72
RH REAR PARK/TURN/ STOP LAMPS
PAGE 77
RH BACKUP LAMP
PAGE 80
F250 F350 7.5L ONLY
S154
C126
S153
S164
WITH REAR BUMPER ONLY
WITH 5.0L EFI OR 7.5L WITH PUMP IN TANK AND 160.8 WHEEL BASE AND SINGLE TANK
WITH 5.0L EFI
DIGITAL CLOCK
PAGE 110
GLOVE COMPARTMENT LAMP
PAGE 82,83
FUEL TANK SELECTOR SOLENOID
PAGE 95
IN LINE FUEL PUMP
PAGE 103
FRONT FUEL PUMP
PAGE 104
REAR FUEL PUMP
PAGE 104
FUEL TANK SELECTOR SWITCH
PAGE 98
C125A
89
O
89
O
89
O
S161
WITH 5.0L EFI OR 7.5L WITH DUAL FUEL PUMPS
BLOWER MOTOR SWITCH
PAGE 142
EXTENDED USEFUL LIFE SENSOR
PAGE 88
ASH TRAY ILLUMINATION LAMP
PAGE 86
AUXILIARY TANKS AND 5.8L OR 7.5L
FUEL TANK SELECTOR SWITCH
PAGE 98
INSTRUMENT CLUSTER
PAGE 86,88
CIGAR LIGHTER
PAGE 108
SEATBELT WARNING BUZZER
PAGE 88
S155
C127
7.5L WITH DUAL FUEL PUMPS
7.5L WITH DUAL FUEL PUMPS
C125
WINDSHIELD WIPER/ WASHER CONTROL ILLUMINATION
PAGE 86
A/C-HEATER FUNCTION CONTROL ILLUMINATION
PAGE 86
THROTTLE KICKER MODULE
PAGE 52
S805
C358
8 CYL
C327
G701

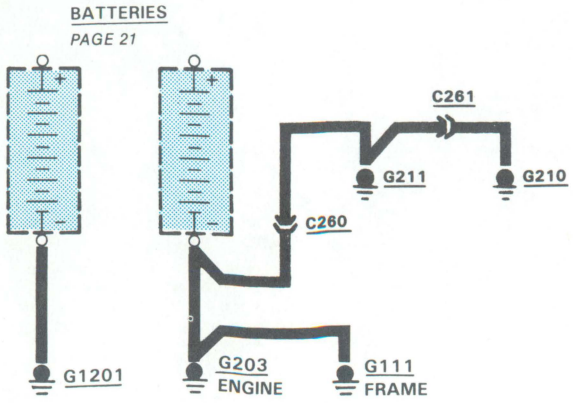

FUEL PUMP CUTOFF RELAY
PAGE 105
57 BK
G112
7.5L WITH FUEL PUMP IN TANK AND 160.8" W/B AND SINGLE TANK


POWER WINDOW MASTER SWITCH
PAGE 111
LH POWER DOOR LOCK CONTROL SWITCH
PAGE 124
57 BK
57 BK
57 BK
S855
57 BK
C1958
57 BK
S854
57 BK
G752

EEC ONLY



DIESEL



COMPONENT LOCATION

		Page-Figure	Color	Terminals
Connector C101	At battery ground pigtail		GY	1
Connector C117	At front of LH rear fender	75-8	BR	
Connector C122	RH side of rear cross support	74-3	BK	
Connector C123	LH side of frame at rear crossmember	75-9,79-1	NAT	
Connector C124	Lower side of LH dash panel	19-3	BK	
Connector C125	Behind center of I/P	67-3,69-5		
Connector C125A	Behind center of I/P	69-5		
Connector C126	Under frame at LH rear	74-2	BR	1
Connector C127	At LH dash	14-1,14-2,19-3,24-1,94-1	GY	4
Connector C208A	Attached to instrument cluster	66-2,68-4	GY	18
Connector C220	RH fender apron	20-1		1
Connector C260	Near RH battery	24-3		1
Connector C261	Near RH battery	24-3		1
Connector C327	Behind center of I/P	69-5,122-2,140-1	GY	3
Connector C358	Behind center of I/P	122-2,140-1	GY	2
Connector C359	Behind center of I/P	67-3,69-5,122-2	GR	2
Connector C787	RH side of dash			1
Connector C913	At center of rear body markers	75-5	GR	2
Connector C915	At LH dash	14-1,130-1	BK	2
Connector C916	At LH dash	74-2	BK	2
Connector C918	Near LH side of rear crossmember	74-2	GY	2
Connector C950	At LH rear fender	75-8	BR	2
Connector C951	Near RH side of rear crossmember	75-6	BR	2
Connector C952	At front of RH rear fender		BR	2
Connector C953	At rear of RH rear fender	75-8	BR	2
Connector C954	In forward part of roof cab	73-1	BK	2
Connector C955	In forward part of roof cab	73-1	BK	2
Connector C956	In forward part of roof cab	73-1	BK	2
Connector C957	In forward part of roof cab	73-1	BK	2
Connector C958	In forward part of roof cab	73-1	BK	2
Connector C1958	Near LH front door lock	118-1	BR	6

(Continued on next page)

HOW THE CIRCUIT WORKS

The ground circuits shown here are complete and connect several components together to screw terminal ground points. On other pages only parts of these circuits may be shown. Partial ground circuits are shown dashed on those pages.

All simple or component ground circuits are shown on the individual circuit pages and are complete on those pages.

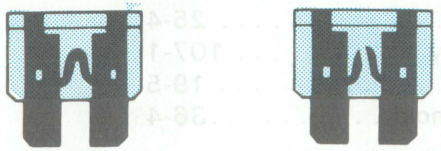
All ground wires are **57 BK** unless otherwise noted.

COMPONENT LOCATION

(Continued from previous page)

		Page-Figure	Color	Terminals
Ground G105	At water in fuel switch (diesel)	24-1		
Ground G108	At glow plug relay	20-1		
Ground G111	RH frame near battery	25-4		
Ground G112	Near fuel pump cutoff relay	107-1		
Ground G203	RH side of engine	19-5		
Ground G208	Near throttle position solenoid	36-4		
Ground G210	At electronic voltage regulator	20-1		
Ground G211	Near starter motor relay	20-1		
Ground G701	Behind I/P near RH side of radio	67-3		
Ground G710	LH side of dash panel	19-3		
Ground G752	LH door rear power window motor	118-1		
Ground G801	On LH inner fender behind headlamps	66-2		
Ground G802	On RH inner fender behind headlamp	14-3		
Ground G903	At LH side of rear crossmember	74-2		
Ground G909	At lower LH cowl access hole	75-7		
Ground G1201	On front LH side of engine	20-3		
Splice S151	Near license plate T/O			
Splice S152	Near LH backup lamp T/O			
Splice S153	Near license plate T/O			
Splice S154	Near front fuel gage sender T/O			
Splice S155	Near fuel tank selector valve solenoid T/O			
Splice S161	Near front fuel pump T/O			
Splice S162	Near heater control switch T/O			
Splice S164	Near license plate T/O			
Splice S258	Near EEC power relay T/O			
Splice S804	Near parking break switch T/O			
Splice S805	Near cigar lighter T/O			
Splice S807	Near LH front headlamp T/O			
Splice S808	Near RH park lamp T/O			
Splice S854	Near LH master window control T/O			
Splice S855	Near LH master window control T/O			
Splice S903	Near fuel gage sender and pump T/O			
Splice S1108	Near rear marker lamp T/O			
Splice S1109	Near LH front side marker lamp T/O			
Splice S1152	Near RH front side marker lamp T/O			

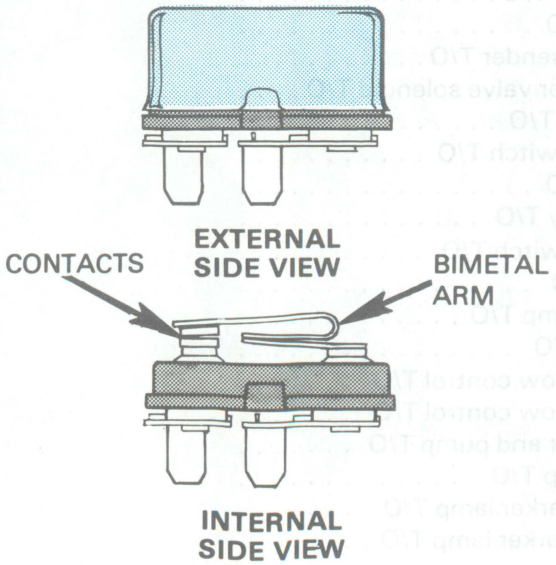
REPLACEMENT OF FUSES/ CIRCUIT BREAKERS



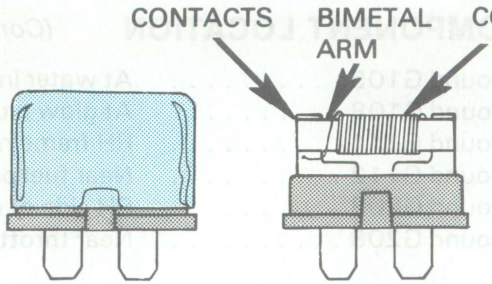
GOOD FUSE BLOWN FUSE

Fuses are mounted either in the **Fuse Panel** or in-line. They are identified by the numbered value in amperes, and by a color code. Some positions may have either a fuse with adapter or a circuit breaker. Be sure to replace a fuse or circuit breaker with the same kind of unit and with the same ampere rating. Remove fuses in order to check them.

CIRCUIT BREAKER OPERATION



Cycling Fuse Block Type



Non-Cycling Fuse Block Type

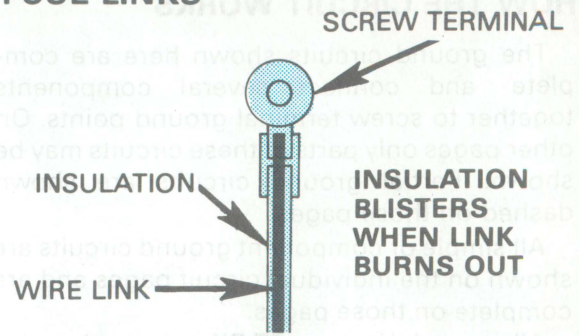
Cycling In-Line Type

Some circuits are protected by circuit breakers. (Abbreviated "c.b." in fuse chart.) They can be **Fuse Panel** mounted or in-line. Like fuses, they are rated in amperes.

Each circuit breaker conducts current through an arm made of two types of metal bonded together (bimetal arm). If the arm starts to carry too much current, it heats up. As one metal expands faster than the other, the arm bends, opening the contacts. Current flow is broken. In the cycling type, the arm cools and straightens out. This closes the circuit again. This cycle repeats as long as the overcurrent exists, with power applied.

In the non-cycling type, there is also a coil wrapped around the bimetal arm. When an overcurrent exists and the contacts open, a small current passes through the coil. This current through the coil is not large enough to operate a load, but it does heat up both the coil and bimetal arm. This keeps the arm in the open position until power is removed.

FUSE LINKS

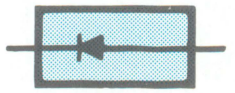


The fuse link is a short length of wire smaller in gage than the wire in the protected circuit. The wire is covered with a thick non-flammable insulation. An overload causes the link to heat and the insulation to blister. If the overload remains, the link will melt, causing an open circuit. The links are color coded for wire size as follows:

COLOR CODE	
BLUE	20 GA
RED	18 GA
ORANGE	16 GA
GREEN	14 GA

When replacing, make tight crimp joints or hot solder joints for good connections.

DIODES



Diodes are electrical devices that permit current to flow in one direction only. The current flows in the direction indicated by the arrow.

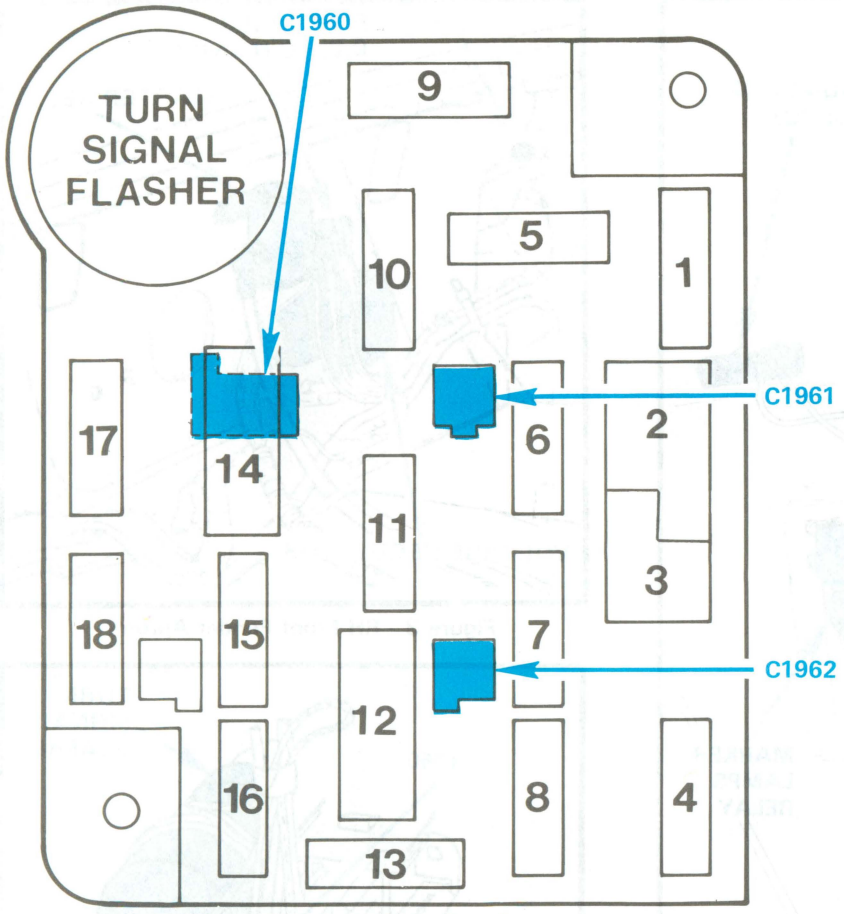


Figure 1 - Fuse Panel

Fuse Value Amps	Color Code
4	Pink
5	Tan
10	Red
15	Light Blue
20	Yellow
25	Natural
30	Light Green

Fuse Position	Amps	Circuits Protected
1	15	Stop/Hazard Lamps; Speed Control
2	--	(Not used)
3	--	(Not used)
4	15	Exterior Lamps; Instrument Illumination
5	15	Turn Lamps; Backup Lamps
6	15	Speed Control; 4-Wheel Drive Indicator; Auxiliary Battery Control; Digital Clock; Rear Window Defrost; Feedback Carburetor Control (4.9L)
7	--	(Not used)
8	15	Courtesy, Dome, Cargo Lamps; Warning Buzzer
9	30	Heater; A/C-Heater
10	--	(Not used)
11	15	Radio
12	25	Tailgate Power Window
	30 c.b.	Power Door Locks
13	--	(Not used)
14	25	Tailgate Power Window
	20 c.b.	Power Windows
15	10	Auxiliary Fuel Tank Selector
16	20	Horn; Cigar Lighter
17	5	Instrument Illumination, Digital Clock
18	15	Seatbelt Buzzer; Warning Indicators; EEC; Carburetor Circuits; Tachometer; Choke Heater; Diesel Indicators Electric Fuel Pump Control (7.5L)

Power Distribution

The **Alternator** and **Battery** are connected together at the **Starter Relay** hot terminal. Other circuits originate at the **Starter Relay** hot terminal and are protected by fuse links. Low power circuits are also protected by fuses.

The **Ignition Switch** and **Main Light Switch** are powered at all times as are **Fuses 1, 4, 8, 12,** and **16.** The other fuses are powered through the **Ignition Switch** or the Main Light Switch.

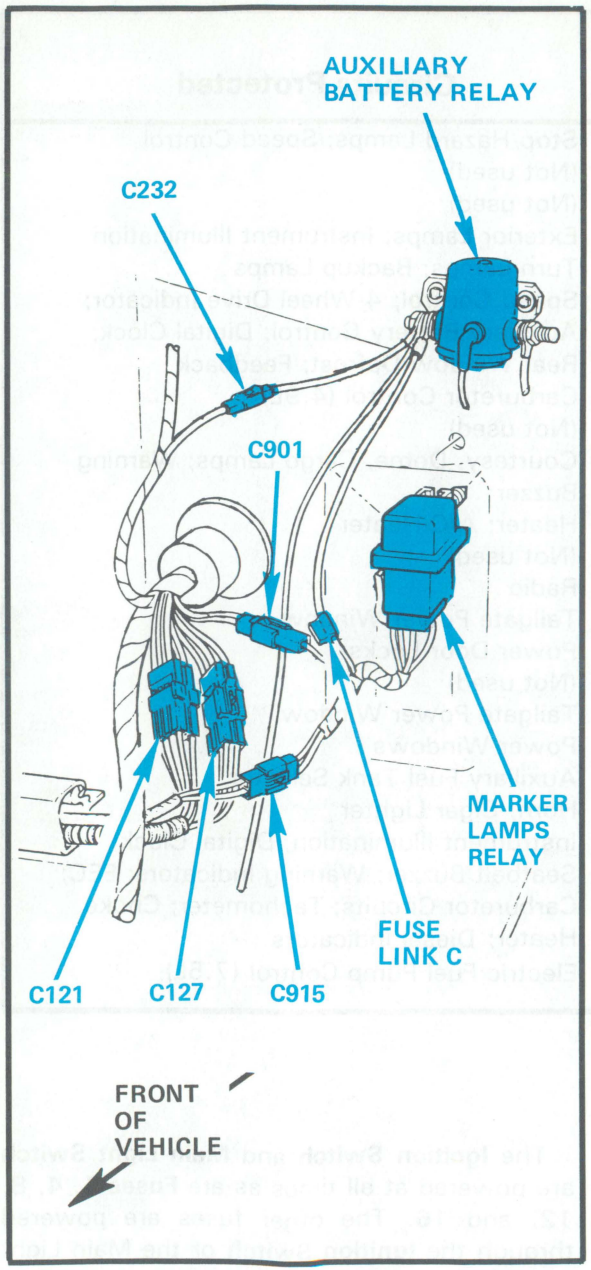


Figure 1 - LH Dash Panel For Dual Rear Wheels And Dual Batteries

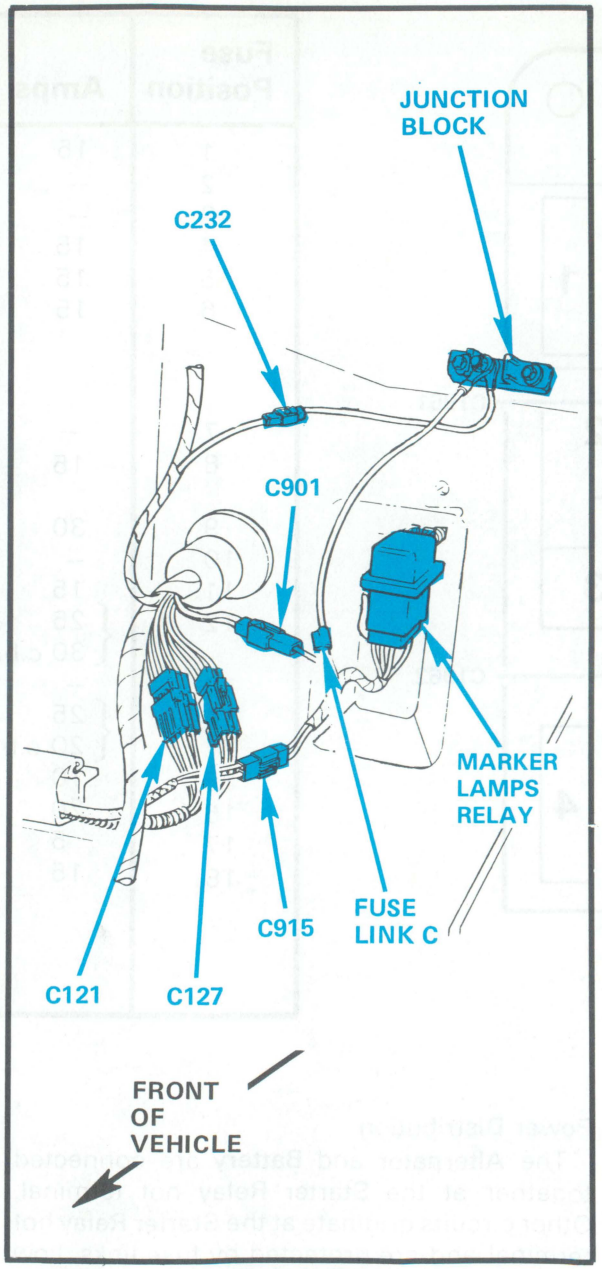


Figure 2 - LH Dash Panel For Dual Rear Wheels Without Dual Batteries

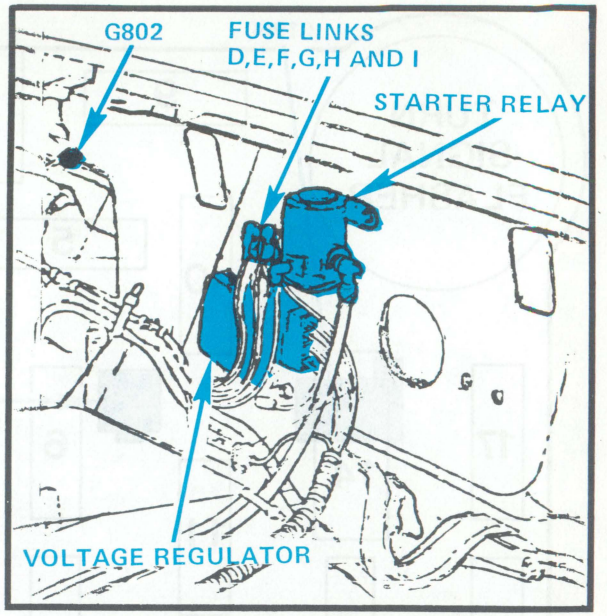


Figure 3 - RH Front Fender Apron

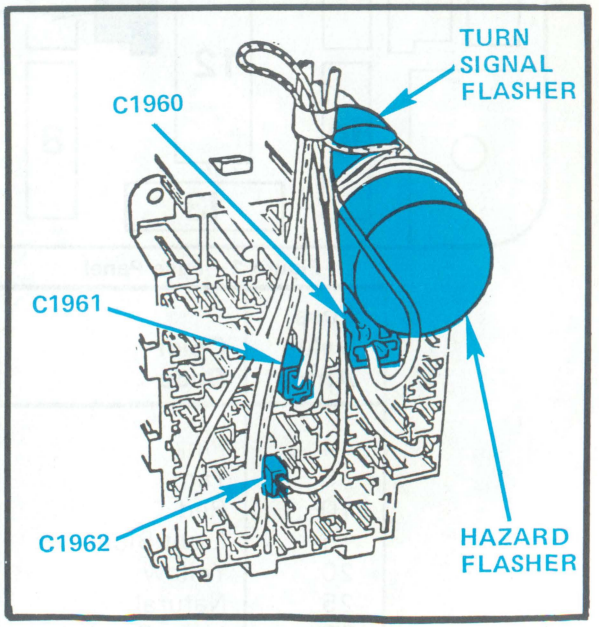
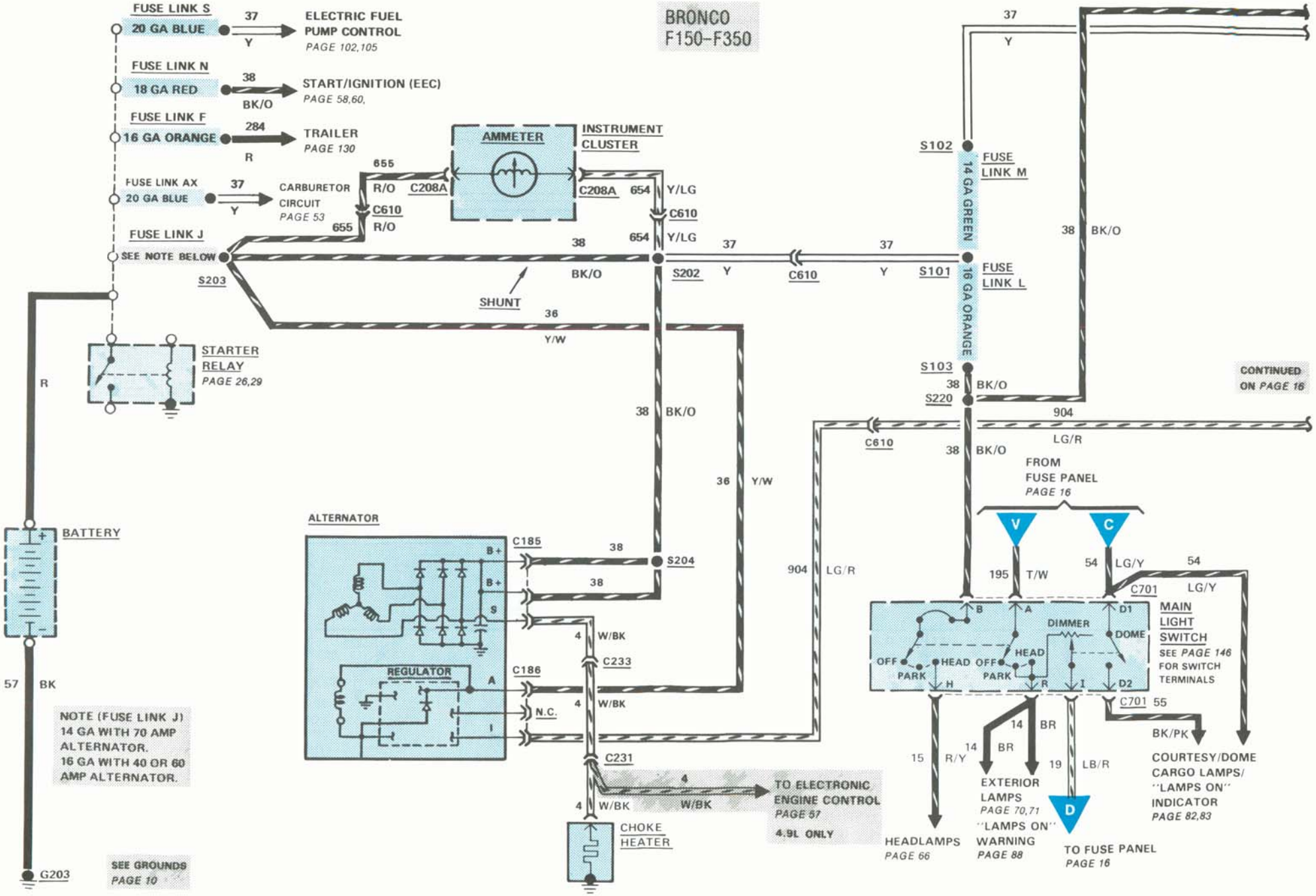
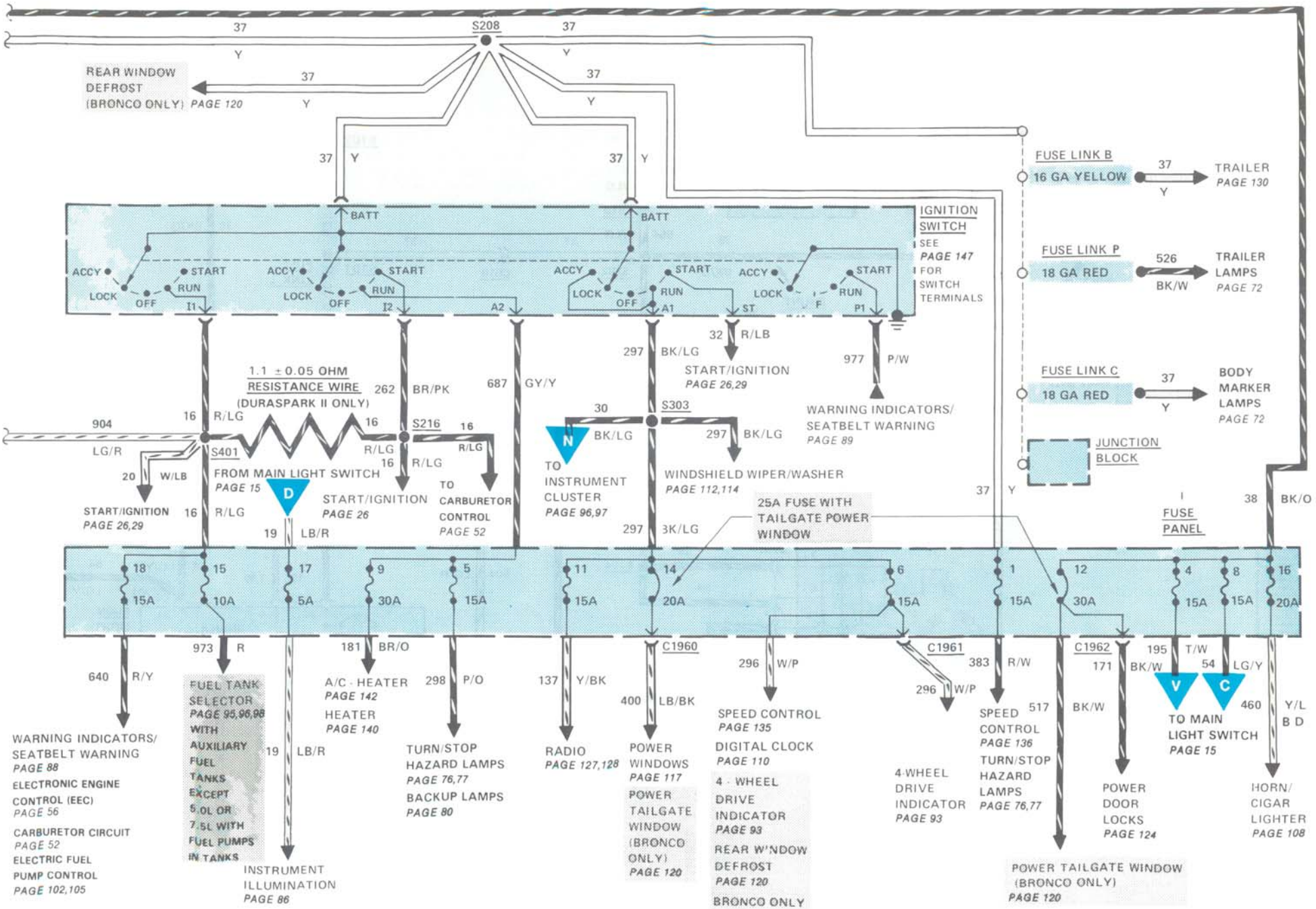


Figure 4 - Behind LH I/P, Rear Of Fuse Panel


BRONCO
F150-F350
FUSE LINK S
20 GA BLUE
37
Y
ELECTRIC FUEL PUMP CONTROL
PAGE 102,105
FUSE LINK N
18 GA RED
38
BK/O
START/IGNITION (EEC)
PAGE 58,60,
FUSE LINK F
16 GA ORANGE
284
R
TRAILER
PAGE 130
FUSE LINK AX
20 GA BLUE
37
Y
CARBURETOR CIRCUIT
PAGE 53
FUSE LINK J
SEE NOTE BELOW
S203
AMMETER
INSTRUMENT CLUSTER
655
R/O
C208A
C610
655
R/O
C208A
654
Y/LG
C610
654
Y/LG
38
BK/O
SHUNT
36
Y/W
37
Y
C610
37
Y
S202
S101
S102
14 GA GREEN
FUSE LINK M
16 GA ORANGE
FUSE LINK L
37
Y
38
BK/O
S103
38
BK/O
S220
CONTINUED ON PAGE 16
904
LG/R
C610
38
BK/O
FROM FUSE PANEL
PAGE 16
V
C
195
T/W
54
LG/Y
54
LG/Y
C701
MAIN LIGHT SWITCH
SEE PAGE 146 FOR SWITCH TERMINALS
OFF
PARK
HEAD
H
OFF
PARK
HEAD
R
DIMMER
I
DOME
D1
D2
C701
55
BK/PK
COURTESY/DOME CARGO LAMPS/ "LAMPS ON" INDICATOR
PAGE 82,83
15
R/Y
HEADLAMPS
PAGE 66
14
BR
14
BR
EXTERIOR LAMPS
PAGE 70,71
"LAMPS ON" WARNING
PAGE 88
19
LB/R
D
TO FUSE PANEL
PAGE 16
ALTERNATOR
B+
B+
S
REGULATOR
A
I
C185
38
38
S204
4
W/BK
C233
C186
4
W/BK
N.C.
C231
4
W/BK
4
W/BK
TO ELECTRONIC ENGINE CONTROL
PAGE 57
4.9L ONLY
CHOKE HEATER
BATTERY
+
-
57
BK
G203
SEE GROUNDS
PAGE 10
R
STARTER RELAY
PAGE 26,29
NOTE (FUSE LINK J)
14 GA WITH 70 AMP ALTERNATOR.
16 GA WITH 40 OR 60 AMP ALTERNATOR.


S208
37
Y
REAR WINDOW DEFROST (BRONCO ONLY) PAGE 120
BATT
IGNITION SWITCH
SEE PAGE 147 FOR SWITCH TERMINALS
ACCY
START
RUN
LOCK
OFF
I1
I2
A2
A1
ST
I
F
P1
FUSE LINK B
16 GA YELLOW
TRAILER PAGE 130
FUSE LINK P
18 GA RED
526
BK/W
TRAILER LAMPS PAGE 72
FUSE LINK C
BODY MARKER LAMPS PAGE 72
JUNCTION BLOCK
FUSE PANEL
1.1 ±0.05 OHM RESISTANCE WIRE
(DURASPARK II ONLY)
262 BR/PK
687 GY/Y
904 LG/R
S401
S216
S303
FROM MAIN LIGHT SWITCH PAGE 15
START/IGNITION PAGE 26,29
TO CARBURETOR CONTROL PAGE 52
TO INSTRUMENT CLUSTER PAGE 96,97
297 BK/LG
32 R/LB
START/IGNITION PAGE 26,29
977 P/W
WARNING INDICATORS/ SEATBELT WARNING PAGE 89
WINDSHIELD WIPER/WASHER PAGE 112,114
25A FUSE WITH TAILGATE POWER WINDOW
38 BK/O
18 15A
15 10A
17 5A
9 30A
5 15A
11 15A
14 20A
6 15A
1 15A
12 30A
4 15A
8 15A
16 20A
640 R/Y
WARNING INDICATORS/ SEATBELT WARNING PAGE 88
ELECTRONIC ENGINE CONTROL (EEC) PAGE 56
CARBURETOR CIRCUIT PAGE 52
ELECTRIC FUEL PUMP CONTROL PAGE 102,105
973 R
FUEL TANK SELECTOR PAGE 95,96,98 WITH AUXILIARY FUEL TANKS EXCEPT 5.0L OR 7.5L WITH FUEL PUMPS IN TANKS
19 LB/R
INSTRUMENT ILLUMINATION PAGE 86
181 BR/O
A/C - HEATER PAGE 142
HEATER PAGE 140
298 P/O
TURN/STOP HAZARD LAMPS PAGE 76,77
BACKUP LAMPS PAGE 80
137 Y/BK
RADIO PAGE 127,128
C1960
400 LB/BK
POWER WINDOWS PAGE 117
POWER TAILGATE WINDOW (BRONCO ONLY) PAGE 120
296 W/P
SPEED CONTROL PAGE 135
DIGITAL CLOCK PAGE 110
4 - WHEEL DRIVE INDICATOR PAGE 93
REAR WINDOW DEFROST PAGE 120
BRONCO ONLY
C1961
296 W/P
4-WHEEL DRIVE INDICATOR PAGE 93
383 R/W
SPEED CONTROL PAGE 136
517 BK/W
TURN/STOP HAZARD LAMPS PAGE 76,77
C1962
171 BK/W
POWER TAILGATE WINDOW (BRONCO ONLY) PAGE 120
195 T/W
BK/W
54 LG/Y
460 Y/L B D
V
C
TO MAIN LIGHT SWITCH PAGE 15
POWER DOOR LOCKS PAGE 124
HORN/ CIGAR LIGHTER PAGE 108

HOW THE CIRCUIT WORKS

The **Battery** and **Alternator** with integral **Voltage Regulator** make up the **Charging System.** With the **Ignition Switch** in RUN, **Battery** current flows through the solid-state electronic control of the **Voltage Regulator.** The electronic control applies **Battery** voltage to the **Alternator** field.

With current in the field and the rotor turning, the **Alternator** stator produces a DC voltage at B+ terminals (to **Battery**). If the **Alternator** output voltage is greater than the **Battery** terminal voltage, current will flow from the **Alternator** to the **Battery,** as well as to the vehicle electrical load. Current flowing to the battery will show as a charging current on the **Ammeter** (deflection toward "charge"). If the battery is charged, the ammeter deflection will be small unless power windows or door locks are activated. Operation of these intermittent devices will give a charge indication on the **Ammeter.**

If the **Alternator** voltage is less than the **Battery** terminal voltage, current will flow from the **Battery** to supplement the alternator output in supplying the vehicle electrical load. This current flow will register as a "discharge" on the **Ammeter.** The **Choke Heater** operates only when the **Alternator** is generating current (through terminals). Above 60°F, the heater causes a thermostatic spring to pull the choke plates open within 1 to 1.5 minutes. Below 60°F, the heater does not operate and normal choke action occurs.

COMPONENT LOCATION

		Page-Figure	Color	Terminals
Choke Heater	Attached to carburetor	39-9		
Fuse Links B, P	At junction block or marker lights relay	130-7		
Fuse Link C	At junction block or auxiliary battery relay	14-2		
Fuse Link F	At starter relay	14-3		
Fuse Links J, L, M, N, S, AX	Near RH fender apron and dash panel	19-1,20-1,24-3		
Junction Block	Mounted on LH dash panel	24-1		
Radio Noise Capacitor	Attached to voltage regulator	35-2		
Starter Relay	On RH fender apron	14-3,20-1		
Voltage Regulator	Mounted on RH fender apron	19-1,20-1		
Connector C139	Front side of alternator/regulator	24-3		
Connector C185	Attached to alternator			3
Connector C186	Attached to alternator			3
Connector C208	Attached to instrument cluster	40-10	GY	14
Connector C208A	Attached to instrument cluster	66-2,68-4	GY	18
Connector C231	Front right of engine	43-17		
Connector C232	LH dash panel, near junction block	14-1		
Connector C233	At alternator	39-9		
Connector C610	Below voltage regulator	20-2		
Connector C701	Attached to main light switch	67-3		
Connector C1960	On fuse panel	14-4		
Connector C1961	On fuse panel	14-4		
Connector C1962	On fuse panel	14-4		
Ground G203	On RH side of engine	19-5		
Ground G1201	On LH front fender, near battery	20-3		
Splice S101	Near fuel tank selector switch T/O			
Splice S102	Near fuel tank selector switch T/O			
Splice S103	Near fuel tank selector switch T/O			
Splice S150	Near fuse panel power door lock T/O			
Splice S202	Near fuse link J			
Splice S203	Near fuse link J			
Splice S204	Near alternator T/O			
Splice S208	Near headlamp switch T/O			
Splice S216	Near breakerless ignition module T/O			
Splice S220	Near ignition switch T/O			
Splice S303	Near headlamp switch T/O			
Splice S401	Near headlamp switch T/O			
Splice S858	Near 4 × 4 indicator lamp T/O			

TROUBLESHOOTING HINTS

The most common charge system complaints are dead **Battery** and **Ammeter** discharging at normal speed.

- Check **Fuse Link J** (Ammeter) at **Starter Relay.**
- Check **Alternator** bolt tension.
- Check **Battery** terminals and cable clamps.
- Check for clean and tight connections on **Alternator** and **Starter Relay.**
- Read ''Charging System Diagnosis'' in the Shop Manual.

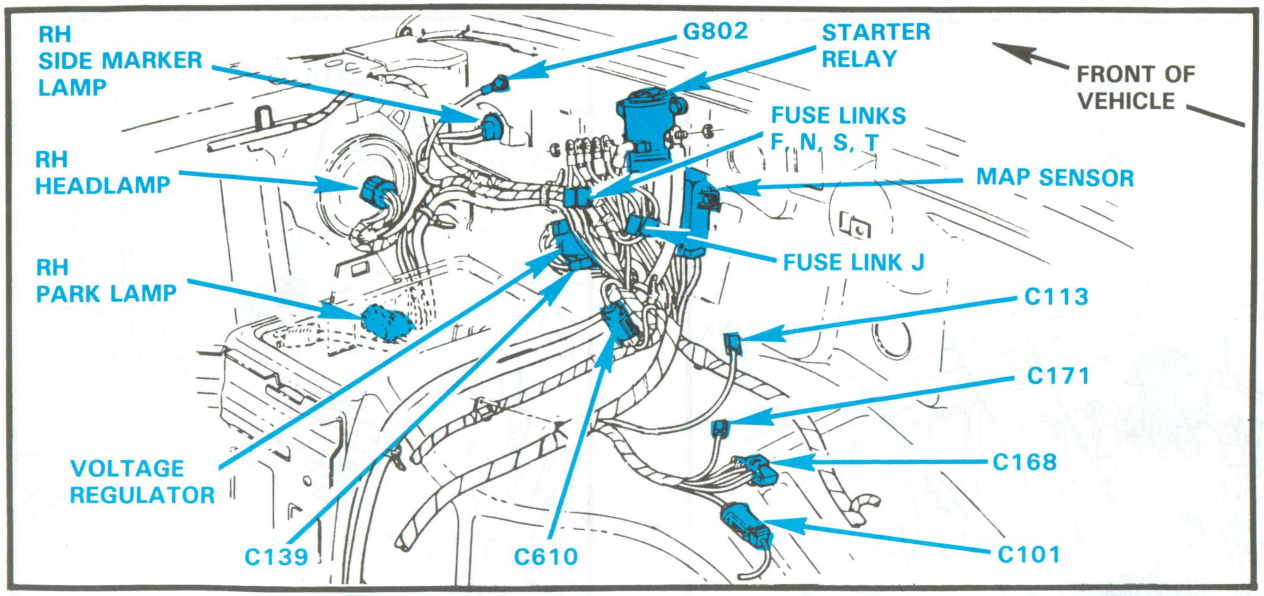


Figure 1—RH Front Fender Apron (With EEC)

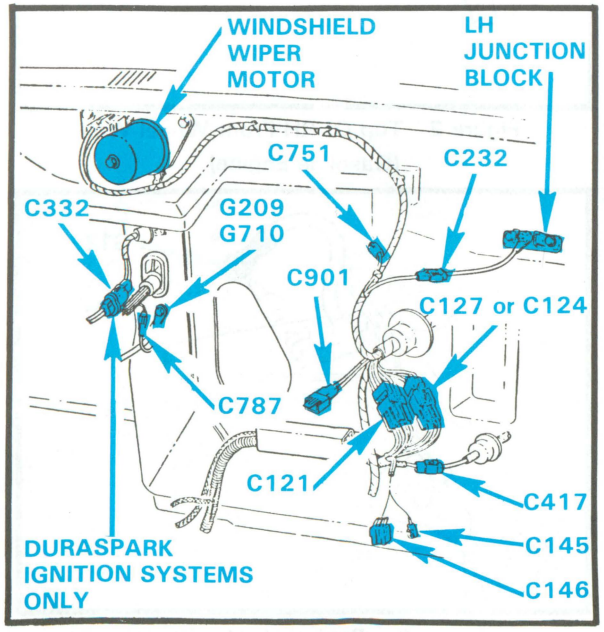


Figure 4 - LH Side Of Dash Panel

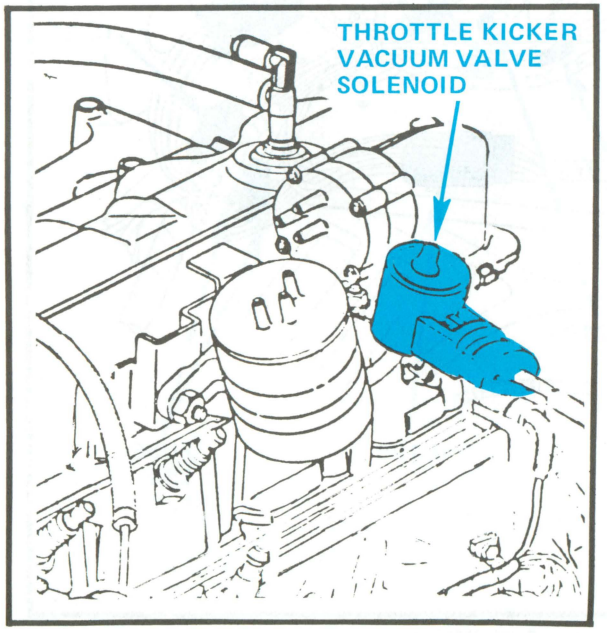


Figure 3— LH Rear Of 4.9L Engine (Duraspark II)

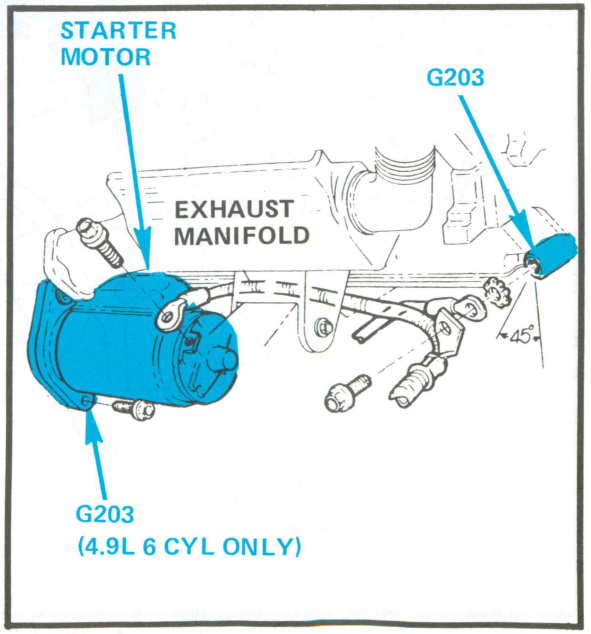


Figure 2 Lower RH Side of Engine

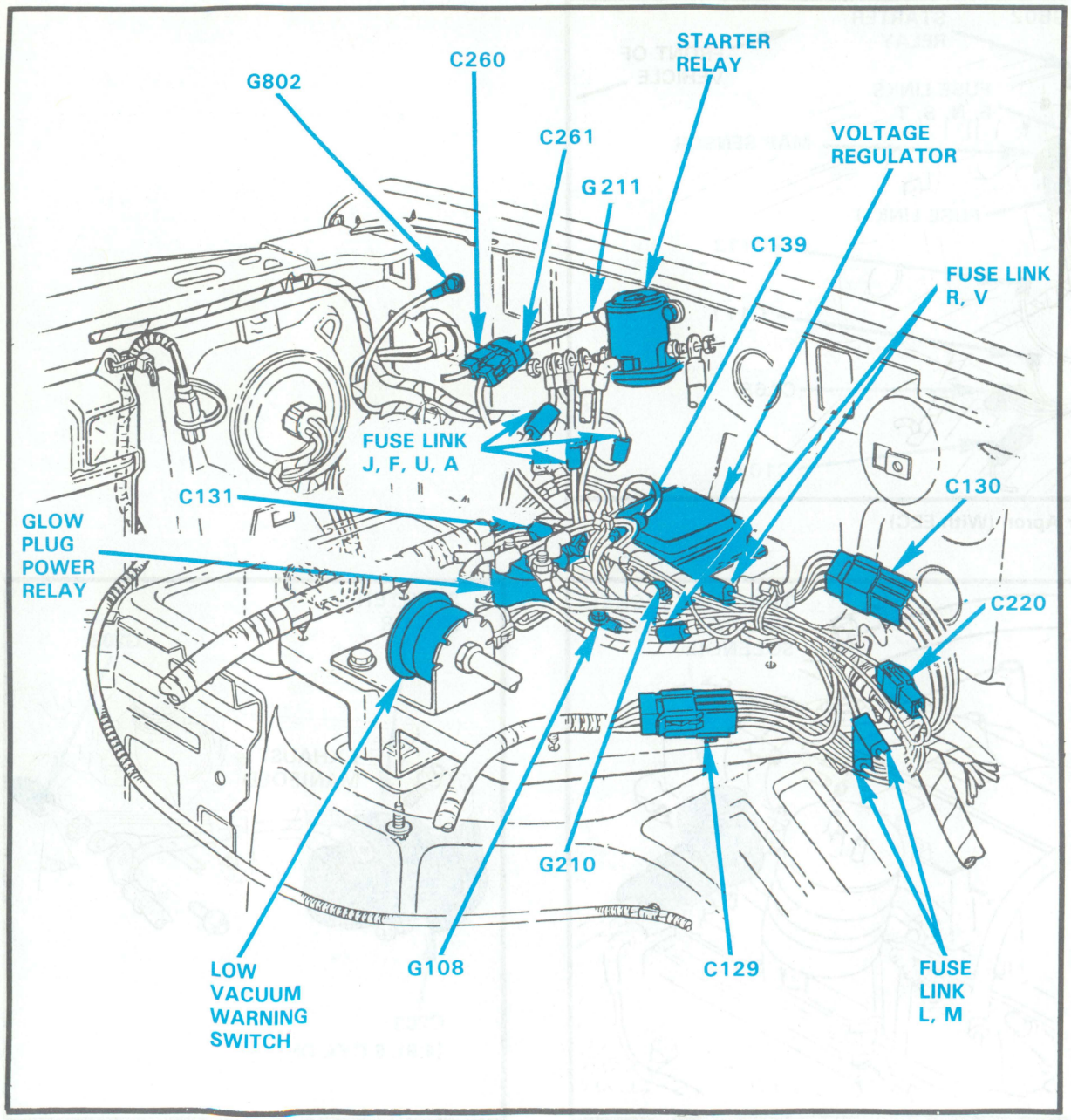


Figure 1 - RH Fender Apron (6.9L Diesel)

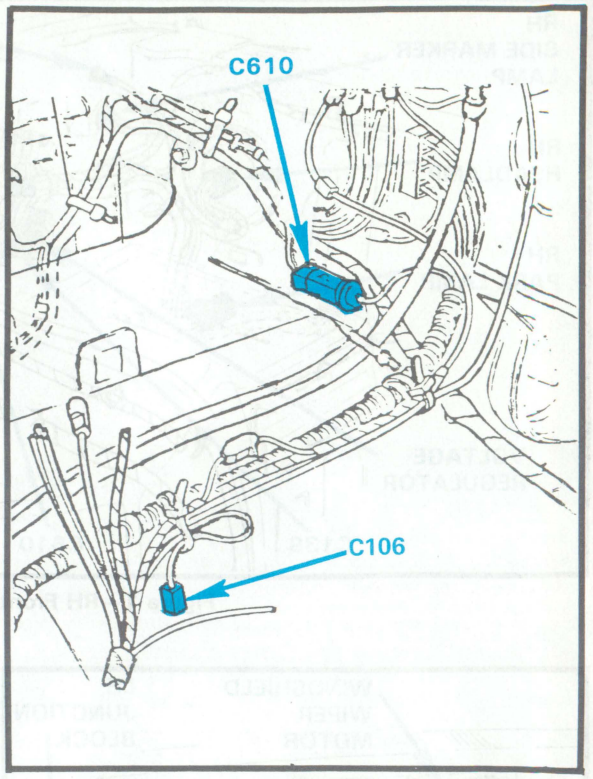


Figure 2 - Top Of RH Front Wheel Well (Gasoline Engine)

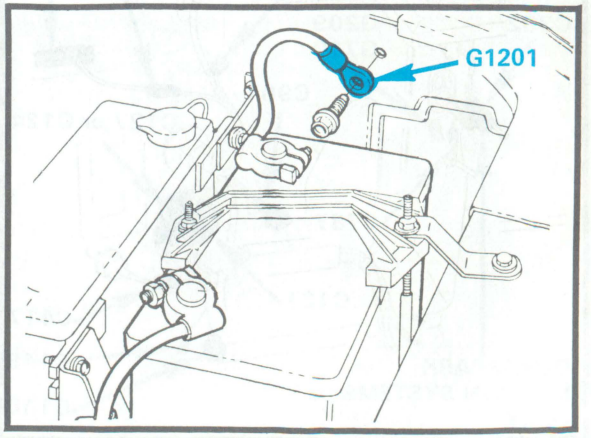
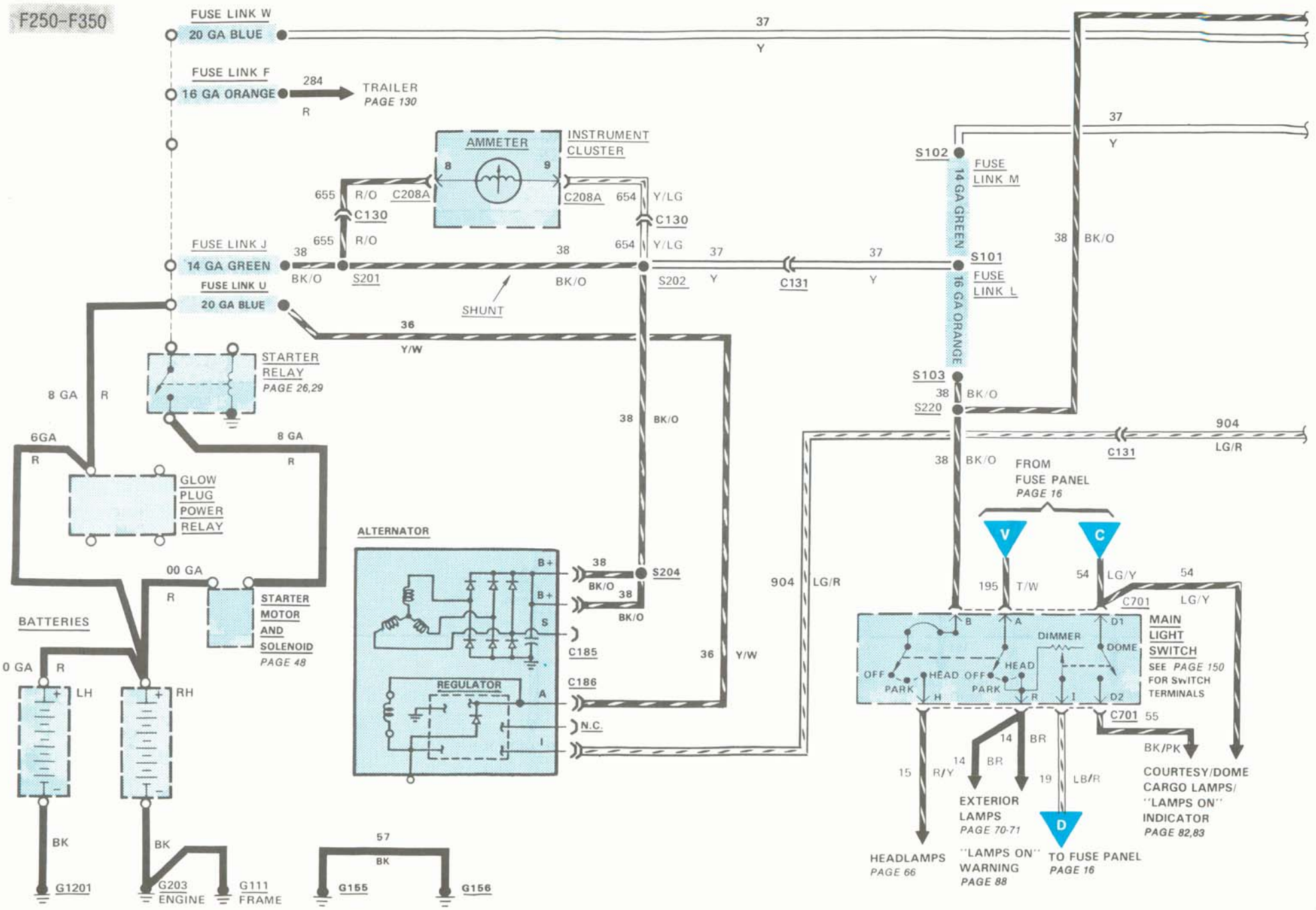


Figure 3 - Behind LH Headlamps


F250-F350
FUSE LINK W
20 GA BLUE
37
Y
FUSE LINK F
16 GA ORANGE
284
R
TRAILER
PAGE 130
AMMETER
INSTRUMENT CLUSTER
8
9
655
R/O
C208A
C130
C208A
654
Y/LG
C130
FUSE LINK J
14 GA GREEN
38
BK/O
S201
SHUNT
S202
C131
S102
FUSE LINK M
14 GA GREEN
S101
FUSE LINK L
16 GA ORANGE
S103
S220
904
LG/R
FUSE LINK U
20 GA BLUE
36
Y/W
STARTER RELAY
PAGE 26,29
8 GA
6GA
GLOW PLUG POWER RELAY
00 GA
STARTER MOTOR AND SOLENOID
PAGE 48
BATTERIES
0 GA
LH
RH
BK
G1201
G203
ENGINE
G111
FRAME
57
G155
G156
ALTERNATOR
B+
S
C185
REGULATOR
C186
A
N.C.
I
S204
FROM FUSE PANEL
PAGE 16
V
C
195
T/W
54
LG/Y
C701
MAIN LIGHT SWITCH
SEE PAGE 150 FOR SWITCH TERMINALS
OFF
PARK
HEAD
DIMMER
DOME
D1
D2
C701
55
BK/PK
COURTESY/DOME
CARGO LAMPS/
"LAMPS ON"
INDICATOR
PAGE 82,83
14
BR
15
R/Y
19
LB/R
EXTERIOR LAMPS
PAGE 70-71
HEADLAMPS
PAGE 66
"LAMPS ON" WARNING
PAGE 88
D
TO FUSE PANEL
PAGE 16

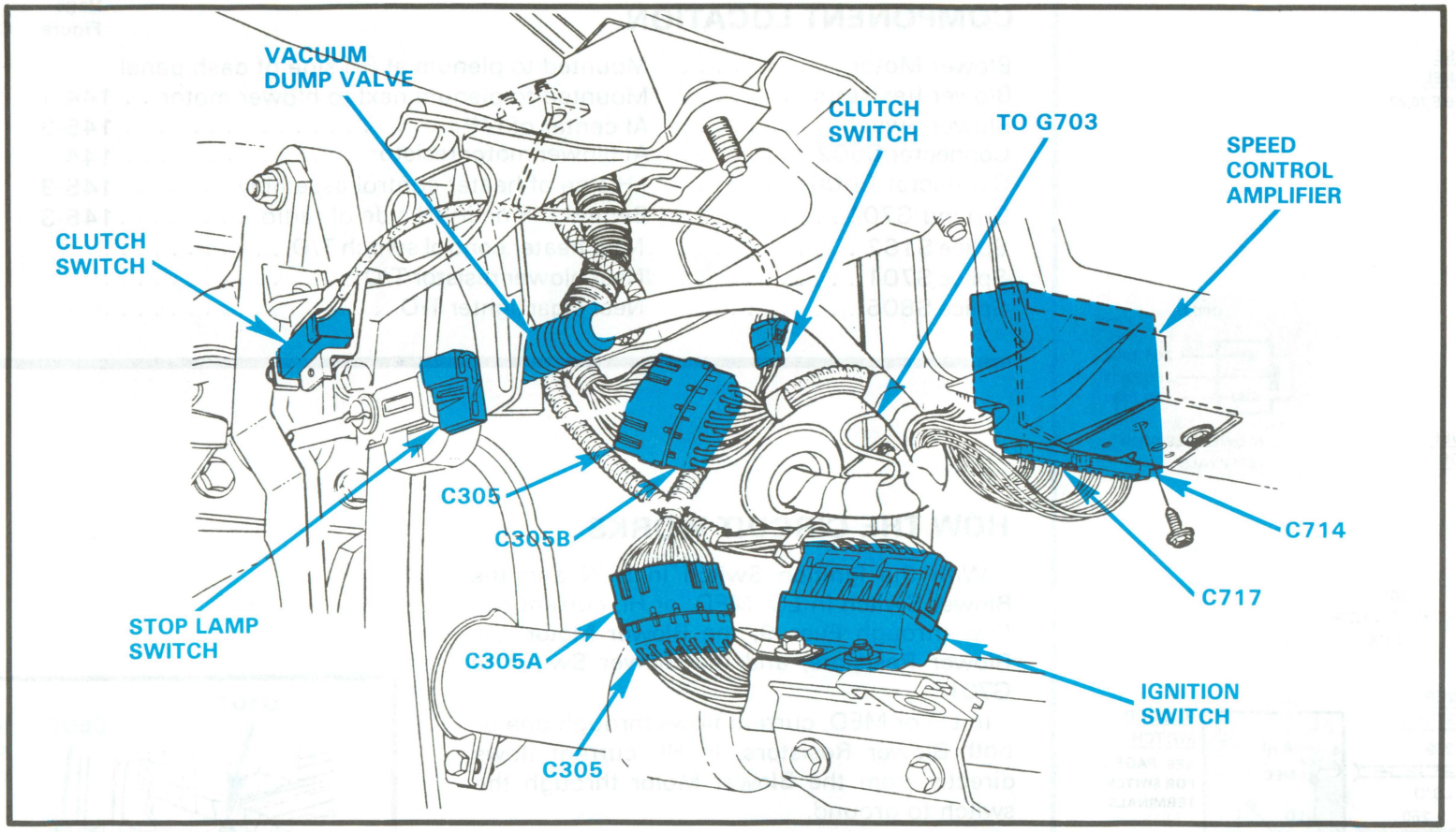
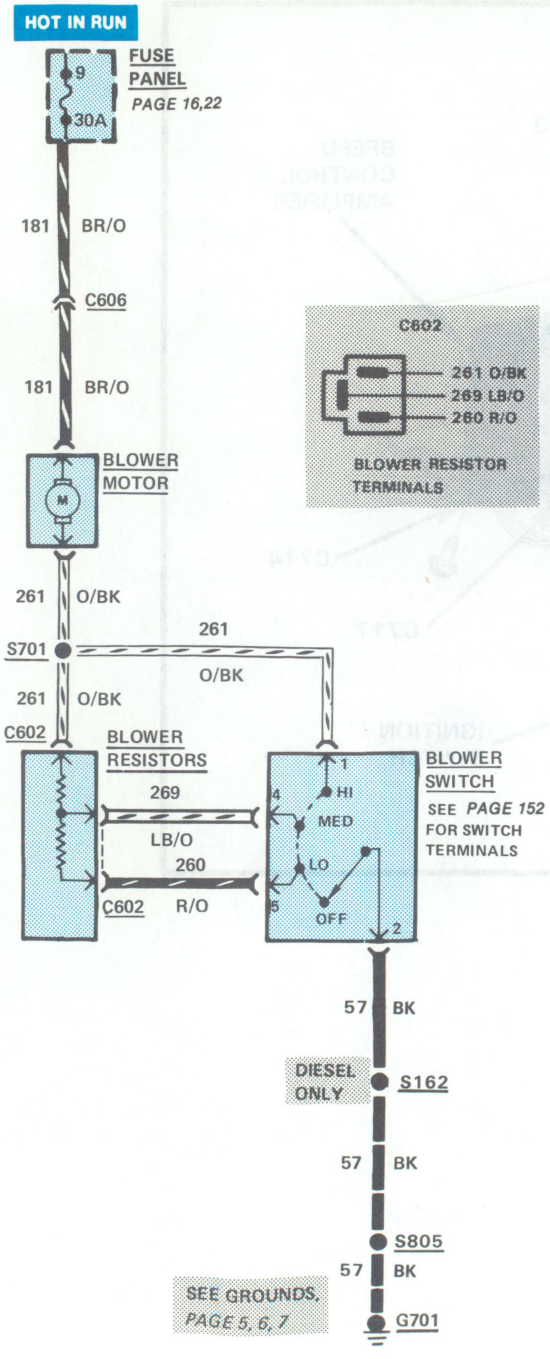


Figure 2— Under LH Side of I/P Next to Steering Column



COMPONENT LOCATION

		Page-Figure	Color	Terminals
Blower Motor	Mounted to plenum at RH side of dash panel			
Blower Resistors	Mounted to plenum next to blower motor	144-1		
Blower Switch	At center of I/P	145-3		
Connector C602	At blower motor resistor	144-1	BK	3
Connector C606	LH side of heater control assembly	145-3	GY	1
Ground G701	Behind I/P near RH side of radio	145-3		
Splice S162	Near heater control switch T/O			
Splice S701	Near blower resistor T/O			
Splice S805	Near cigar lighter T/O			

HOW THE CIRCUIT WORKS

With the **Ignition Switch** in RUN and the **Blower Switch** in LO, MED, or HI, current can flow through **Fuse 9**, the **Blower Motor**, the **Blower Resistors**, and the **Blower Switch** to **G701**.

In LO or MED, current flows through one or both **Blower Resistors**. In HI, current flows directly from the **Blower Motor** through the switch to ground.

TROUBLESHOOTING HINTS

BLOWER DOESN'T WORK

- Check **Fuse 9**. Make sure **G701** is clean and tight.
- Separate the O/BK wire at the **Blower Motor**. Check for continuity to ground (less than 3 ohms). If bad, check continuity of **Blower Motor**, **Blower Resistors**, and **Blower Switch**.
- Check **Blower Switch** for continuity, between pin 2 and pins 1, 4 and 5.
- Check all connectors for corrosion.

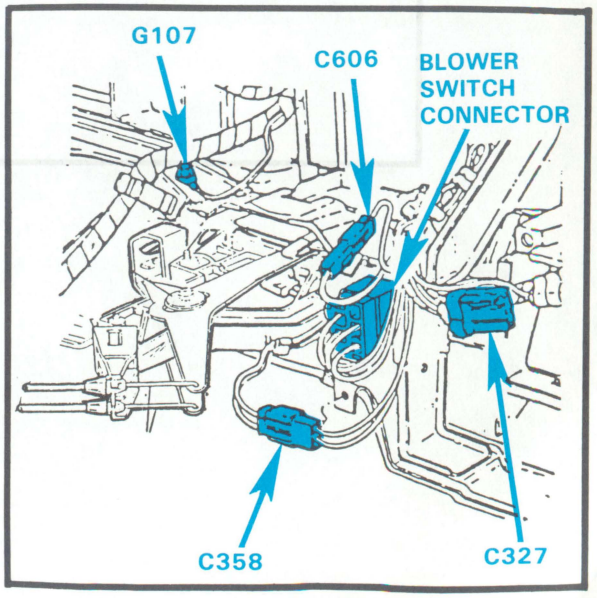


Figure 1 - Behind Center Of I/P

HOW THE CIRCUIT WORKS

The **A/C-Heater System** contains a **Clutch Cycling Pressure Switch** attached to the suction accumulator assembly in the engine compartment. By sensing refrigerant pressure within the accumulator it controls the cycling of the **A/C Clutch Field Coil** to prevent the evaporator core from freezing and blocking air flow.

The **A/C-Heater System** may contain a **Throttle Positioner Solenoid** which increases engine idle speed when the **A/C Clutch Field Coil** is energized.

LEVER POSITIONS AND OPERATION

A/C-Heater

— OFF Vacuum is applied to the **Outside Recirculate Door Vacuum Motor**, closing that door to outside air. The **Blower Motor** does not operate. No air passes through the system. The **Blower Motor** does operate in all other positions of the **Function Selector** lever.

—MAX A/C. The **Outside-Recirculate Door** closes to outside air. The **Floor/Defrost Door** closes the defroster outlets (vacuum at A and B on motor) and the **Panel Door** sends air to the instrument panel registers (vacuum on motor). With the **Temperature Control** at COOL, the **Temperature Blend Door** moves to the COOL position. No air flows through the heater core. The **A/C Clutch Field Coil** is energized through the **Clutch Cycling Pressure Switch** for compressor operation.

—NORM A/C. The **Outside-Recirculate Door** is open to outside air. The **Panel Door** directs air to the instrument panel registers. The **A/C Clutch Field Coil** is energized.

COMPONENT LOCATION

		Page-Figure	Color	Terminals
A/C Clutch Field Coil	Part of compressor	145-4		
Blower Motor	Mounted to plenum at RH side of dash panel			
Blower Switch	At center of I/P	145-3		
Blower Resistors	Mounted to plenum next to blower	144-1		
Clutch Cycling Pressure Switch	RH side of dash panel on accumulator	144-1	GY	1
Connector C228	Near accumulator/drier	144-1	BL	3
Connector C602	At blower motor resistor	144-1	GY	2
Connector C603	At blower motor	144-1	BK	1
Connector C604	At blower motor resistor	144-1	GY	1
Connector C606	LH side of function control	145-3	GY	1
Connector C606A	LH side of function control	145-3	W	1
Connector C616	Near evaporator accumulator	144-1		
Ground G106	Behind I/P near RH side of radio	145-3		
Ground G701	Behind I/P near RH side of radio	145-3		
Splice S162	Near heater control switch T/O diesel only			
Splice S280	Near A/C clutch T/O			
Splice S281	Near A/C clutch T/O			
Splice S603	Near A/C mode switch T/O			
Splice S701	Near blower resistor T/O			
Splice S805	Near cigar lighter T/O			

—VENT. The **Outside-Recirculate Door** is open to outside air, as in normal A/C. Vacuum is applied to the **Panel Door Vacuum Motor,** letting air flow only to the instrument panel registers. In the same way, the defroster outlets are closed by the **Floor/Defrost Vacuum Motor.** The A/C clutch field coil is not energized.

—FLOOR. The **Outside-Recirculate Door** is open to outside air. With no vacuum at the **Panel Door Vacuum Motor.** The **Panel Door** directs air to the floor outlets. The **A/C Clutch Field Coil** does not operate.

—MIX. Vacuum is applied only to port A of the **Floor/Defrost Vacuum Motor** positioning the **Floor/Defrost Door** at mid-position. Air flow is split between the floor and the windshield. There is no vacuum at the **Panel Door Vacuum Motor.** This closes the instrument panel registers. The A/C clutch field coil is energized.

—DEFROST. With no vacuum at any vacuum motor, air flows to the defroster outlets. The A/C clutch field coil is energized.

TROUBLESHOOTING HINTS

BLOWER DOESN'T WORK

- Check **Fuse 9**. Make sure **G106** and **G701** are clean and tight.
- Separate the **Blower Motor Switch Connector**. Set **Function Selector** to OFF position. Check for continuity to ground (less than 3 ohms) at all terminals of harness connector. If bad, check continuity of **Blower Motor** and **Blower Resistors.**
- With **Function Selector Lever** in any position except OFF, check for **Battery** voltage at **BR/O** wire at **C606A**.

COMPRESSOR CLUTCH DOESN'T WORK

- With **Ignition Switch** in RUN and **Function Selector** in A/C MAX or NORM, check for voltage at **A/C Clutch Field Coil.** Check **Fuse 9**.
- Remove connector at **A/C Clutch Field Coil.** Check for continuity through clutch field coil. Check continuity to ground at **57 BK** wire.
- Separate connector at **Clutch Cycling Pressure Switch.** Check continuity through switch. No continuity may indicate system is low or out of R-12 refrigerant.
- Check circuit continuities. Check all connectors for corrosion.

HISSING: AIR FLOW FROM WRONG OUTLETS, OTHER VACUUM PROBLEMS

- Refer to Vacuum Schematic. Check for vacuum system leak or bad motor. Read "How to Find the Vacuum Problem" on page 93.
- If vacuum is lost when engine stops, perform Vacuum Supply Test.
- See "Vacuum Leak Diagnosis" in the Shop Manual.

NO COOLING OR NOT ENOUGH COOLING

- Check A/C compressor drive belt tension.
- Be sure door vacuum motors don't stick.
- Check temperature control cable for proper adjustment.
- See Section 36 of Shop Manual for Refrigerant System diagnosis.

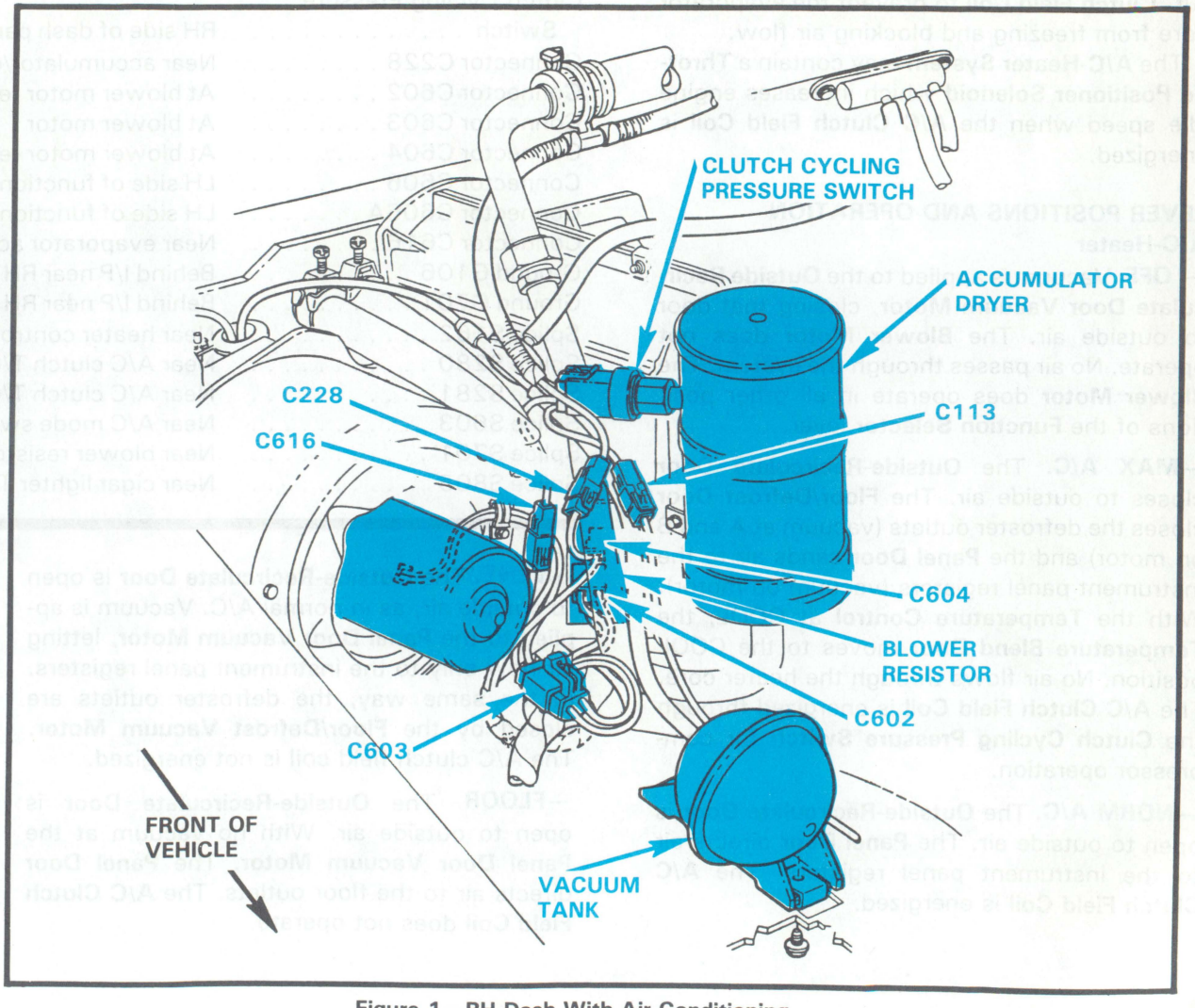


Figure 1—RH Dash With Air Conditioning

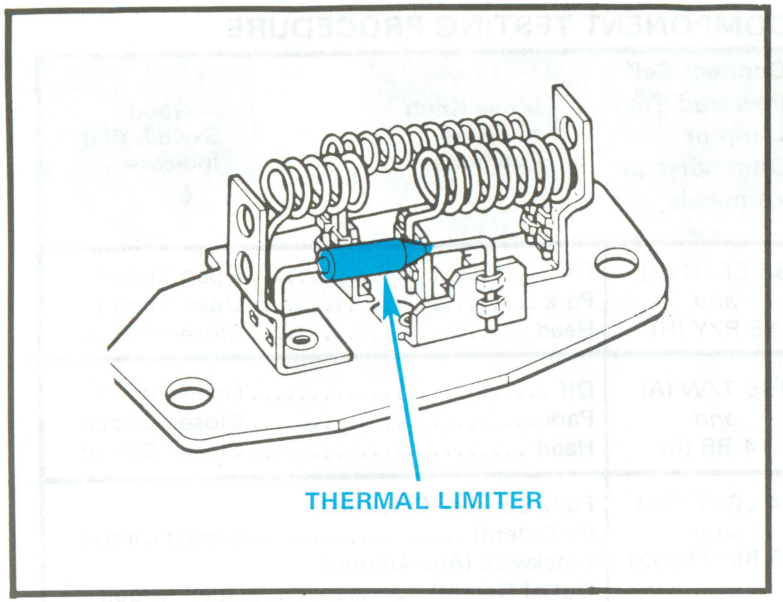


Figure 2— Blower Resistor Assembly

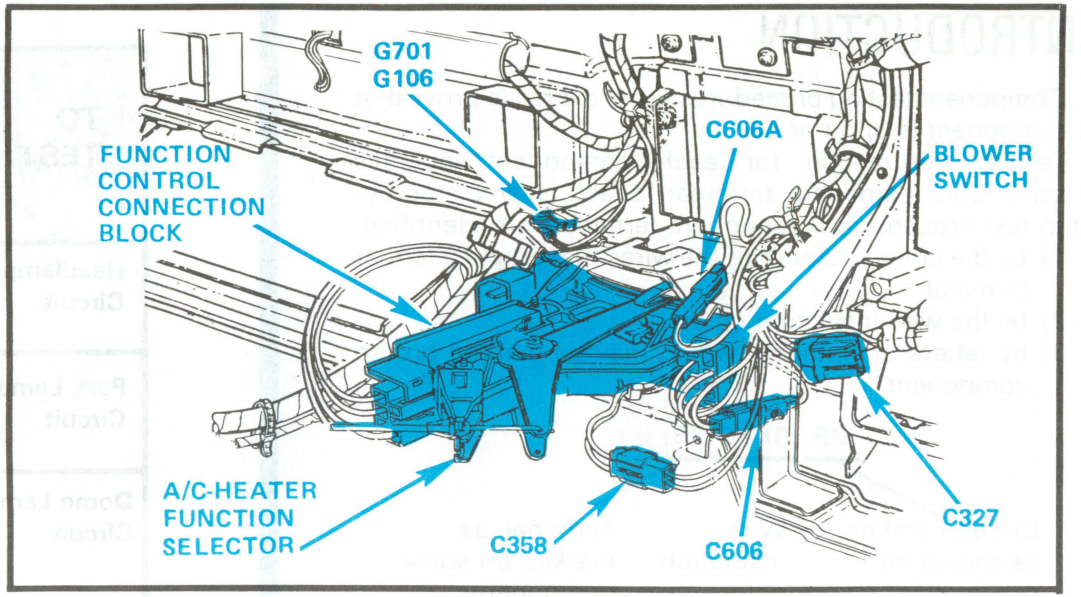


Figure 3— Behind Center Of I/P (A/C And Heater)

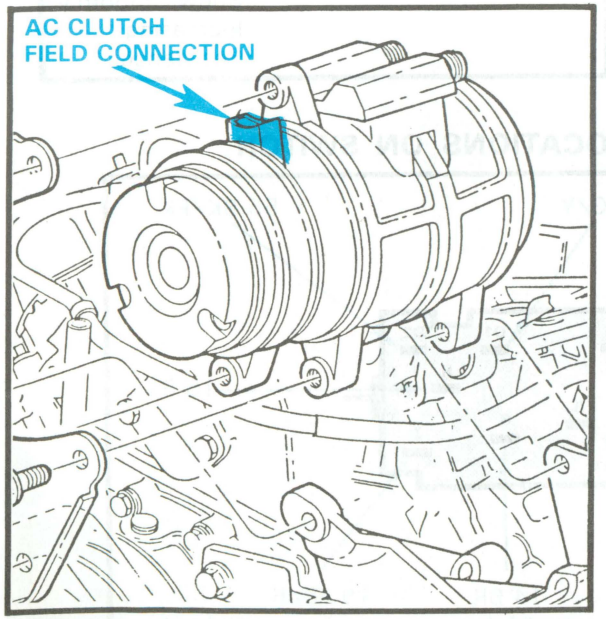


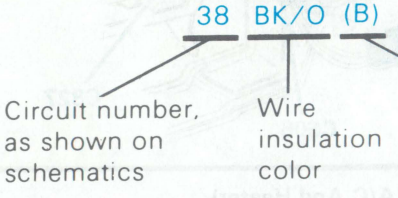
Figure 4— Air Conditioning Compressor Field Coil

INTRODUCTION

Component testing procedures are provided to prove that a component is good or bad.

Testing information for each component includes a schematic, component terminal locations and step-by-step test procedures. Component terminals are identified:

1) by the circuit number of the wires that connect to that terminal;
2) by the wire insulation color;
3) by letters or numbers which may be marked on the component.

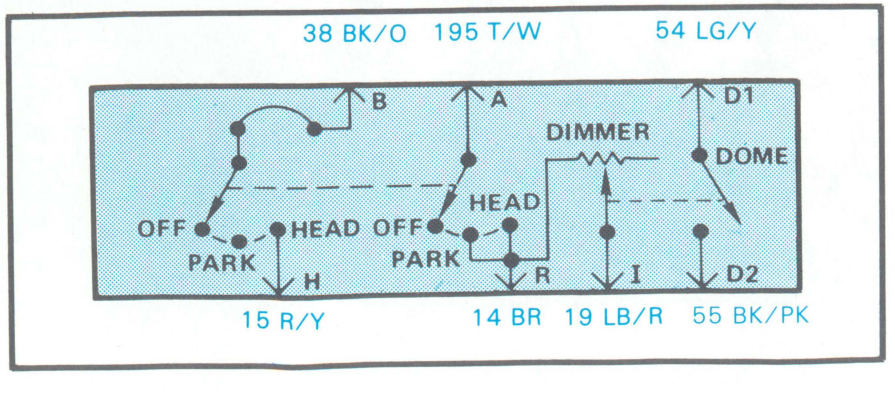


The component connector MUST BE REMOVED before testing. To test a single circuit within the component, select that circuit under the column TO TEST. If you wish to test the complete component, perform all tests.

Connect the tester to the terminals shown in the second column and operate the component as shown in the third column.

MAIN LIGHT SWITCH

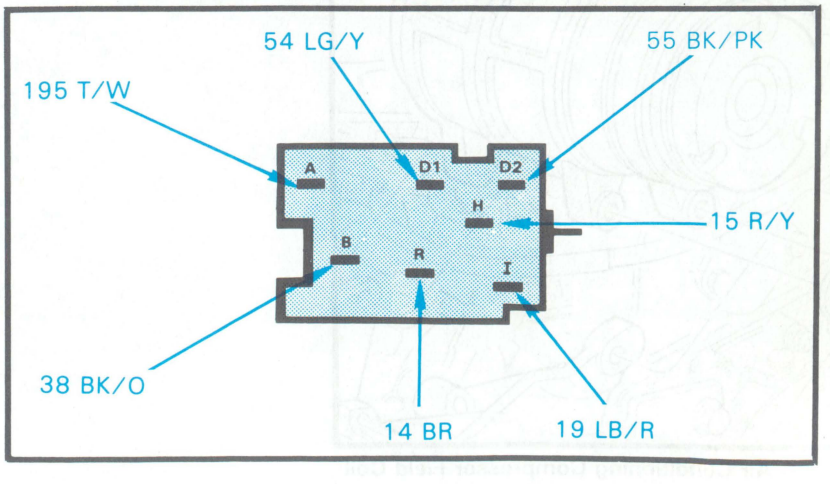
SCHEMATIC



COMPONENT TESTING PROCEDURE

TO TEST	Connect Self Powered Test Lamp or Ohmmeter to Terminals	Move Knob to These Positions	A Good Switch Will Indicate
Headlamp Circuit	38 BK/O (B) *and* 15 R/Y (H)	**Off**	Open Circuit
		Park	Open Circuit
		Head	Closed Circuit
Park Lamp Circuit	195 T/W (A) *and* 14 BR (R)	**Off**	Open Circuit
		Park	Closed Circuit
		Head	Closed Circuit
Dome Lamp Circuit	54 LG/Y (D1) *and* 55 BK/PK (D2)	Fully Counter-Clockwise (In Detent)	Closed Circuit
		Clockwise (Any Amount Out of Detent)	Open Circuit
Panel Lamp Dimmer Circuit	14 BR (R) *and* 19 LB/R (I)	Rotate Knob Clockwise	Ohmmeter Will Show Smoothly Increasing Resistance

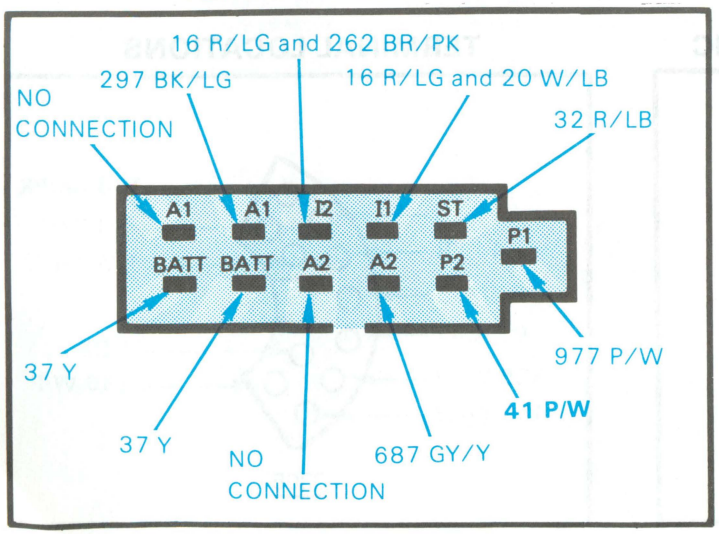
TERMINAL LOCATIONS ON SWITCH



COMPONENT TESTING PROCEDURE

TO TEST	Connect Self Powered Test Light or Ohmmeter to Terminals	Move Key to These Positions	A Good Switch Will Indicate
Internal Switch Connections (perform these tests first)	37 Y (BATT) *and* 37 Y (BATT)	Accy, Lock, Off, Run, Start	Closed Circuit in all five positions
	687 GY/Y (A2) *and* 687 GY/Y (A2)	Accy, Lock, Off, Run, Start	Closed Circuit in all five positions
Starter Relay Circuit	37 Y (BATT) (either terminal) *and* 32 R/L B (ST)	Accy, Lock, Off, Run, Start	Closed Circuit in **Start** position only
A/C, Heater Circuit, Turn/ Stop Lamps, Backup Lamps	37 Y (BATT) (either terminal) *and* 687 GY/Y (A2) (either terminal)	Accy, Lock, Off, Run, Start	Closed Circuit in **Run** position only

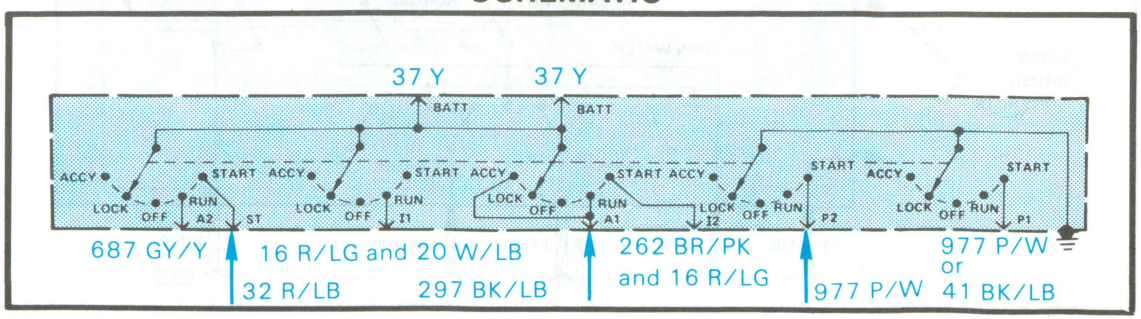
TERMINAL LOCATIONS



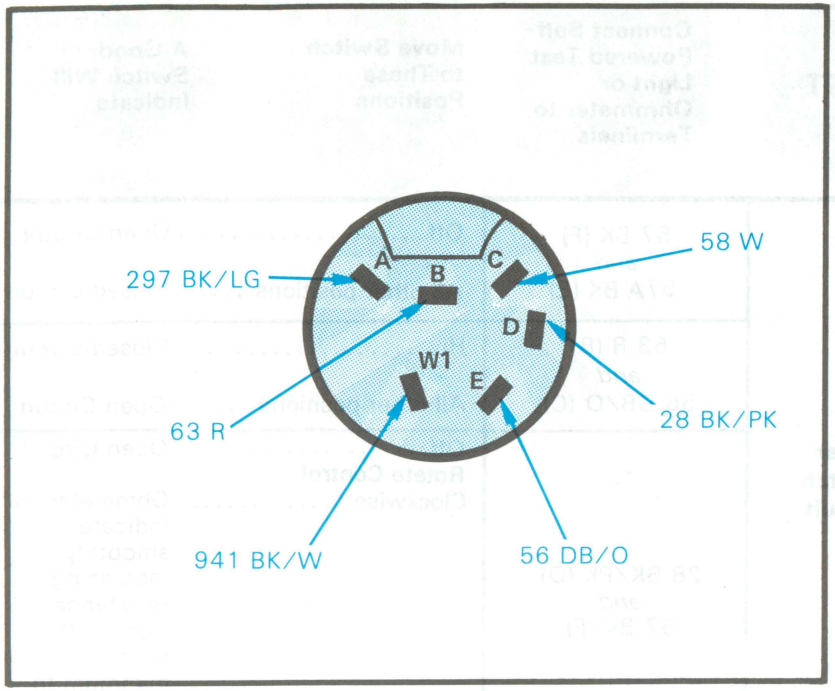
COMPONENT TESTING PROCEDURE

TO TEST	Connect Self Powered Test Light or Ohmmeter to Terminals	Move Key to These Positions	A Good Switch Will Indicate
Ignition Circuit	37 Y (BATT) (either terminal) *and* 16 R/LB and 20 W/LB (I1)	Accy, Lock, Off, Run, Start	Closed Circuit in **Run**. May be open or closed in **Start** position.
	37 Y (BATT) (either terminal) *and* 16 R/LB and 262 BR/PK (I2)	Accy, Lock, Off, Run, Start	Closed Circuit in **Start** position only
"Accy" Circuit	37 Y (BATT) (either terminal) *and* 297 BK/LG (A1)	Accy, Lock, Off, Run, Start	Closed Circuit in **Run** and **Accy** position only
Bulb-Test Circuit	41 BK/LB or 977 P/W (P1) *and* Ignition Switch Case	Accy, Lock, Off, Run, Start	Closed Circuit in **Start** position only
	977 P/W (P2) *and* Ignition Switch Case	Accy, Lock, Off, Run, Start	Closed Circuit in **Start** position only

SCHEMATIC



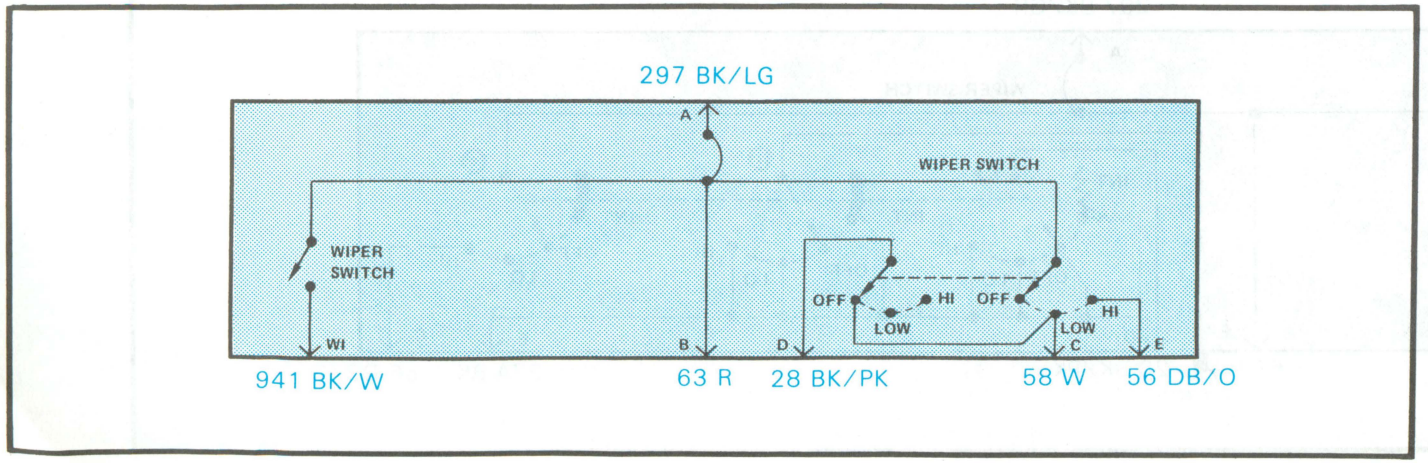
TERMINAL LOCATIONS ON SWITCH



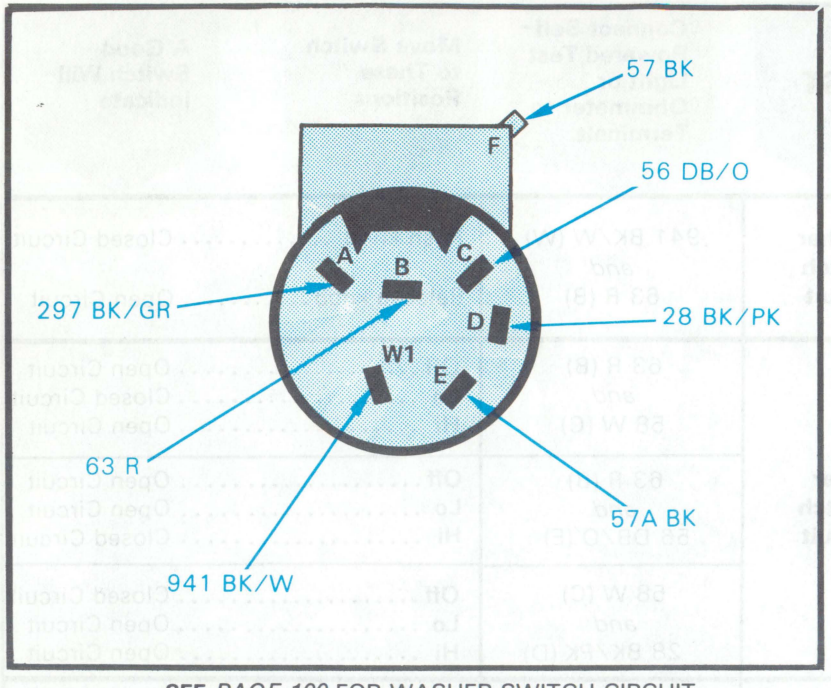
COMPONENT TESTING PROCEDURE

TO TEST	Connect Self-Powered Test Light or Ohmmeter to Terminals	Move Switch to These Positions	A Good Switch Will Indicate
Washer Switch Circuit	941 BK/W (W) *and* 63 R (B)	Push knob Release knob	Closed Circuit Open Circuit
Wiper Switch Circuit	63 R (B) *and* 58 W (C)	**Off** **Lo** **Hi**	Open Circuit Closed Circuit Open Circuit
	63 R (B) *and* 56 DB/O (E)	**Off** **Lo** **Hi**	Open Circuit Open Circuit Closed Circuit
	58 W (C) *and* 28 BK/PK (D)	**Off** **Lo** **Hi**	Closed Circuit Open Circuit Open Circuit
Circuit Breaker	297 BK/LG (A) *and* 63 R (B)	All positions	Closed Circuit

SCHEMATIC



TERMINAL LOCATIONS ON SWITCH

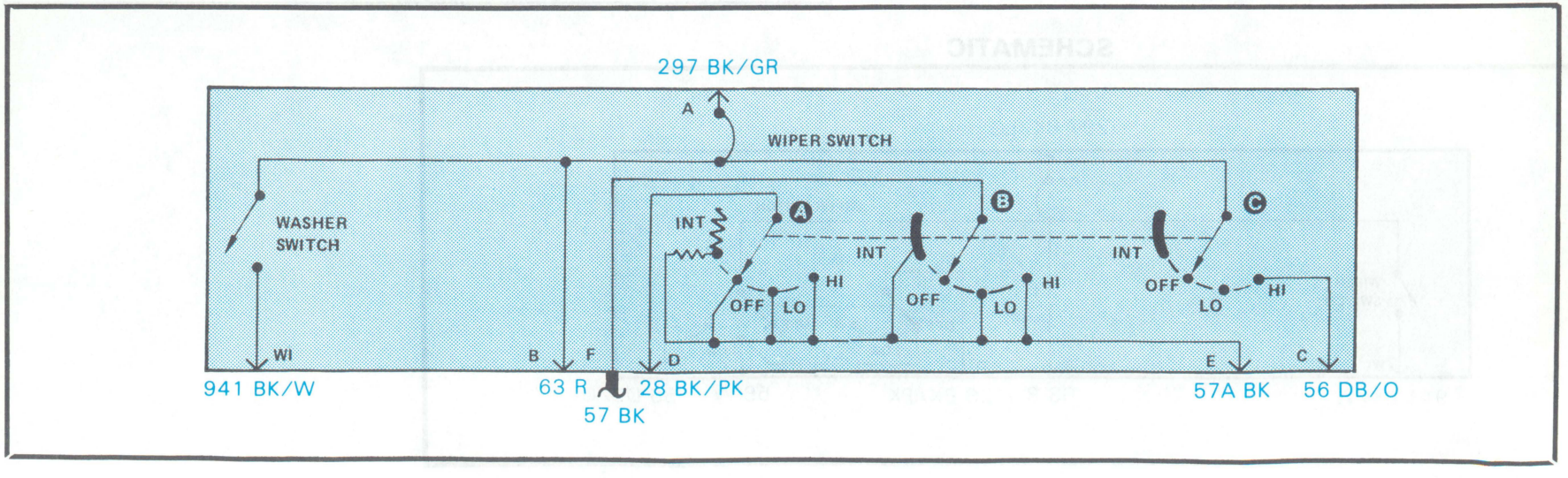


SEE *PAGE 100* FOR WASHER SWITCH CIRCUIT AND CIRCUIT BREAKER TESTS

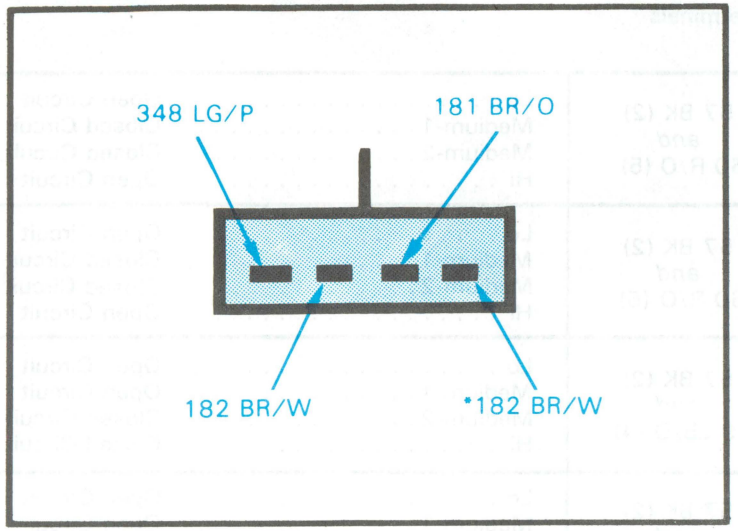
COMPONENT TESTING PROCEDURE

TO TEST	Connect Self-Powered Test Light or Ohmmeter to Terminals	Move Switch to These Positions	A Good Switch Will Indicate
Wiper Switch Circuit	57 BK (F) *and* 57A BK (E)	Off	Open Circuit
		All other positions	Closed Circuit
	63 R (B) *and* 56 DB/O (C)	Hi	Closed Circuit
		All other positions	Open Circuit
	28 BK/PK (D) *and* 57 BK (F)	Off	Open Circuit
		Rotate Control Clockwise	Ohmmeter will indicate smoothly increasing resistance from 200 ohms minimum to 8400 ohms maximum
		All other positions	Closed Circuit

SCHEMATIC



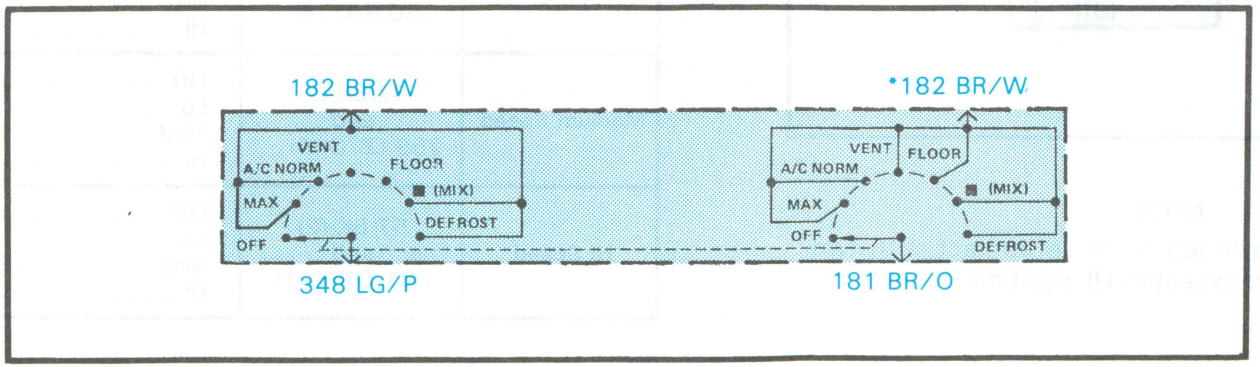
TERMINAL LOCATIONS ON SWITCH



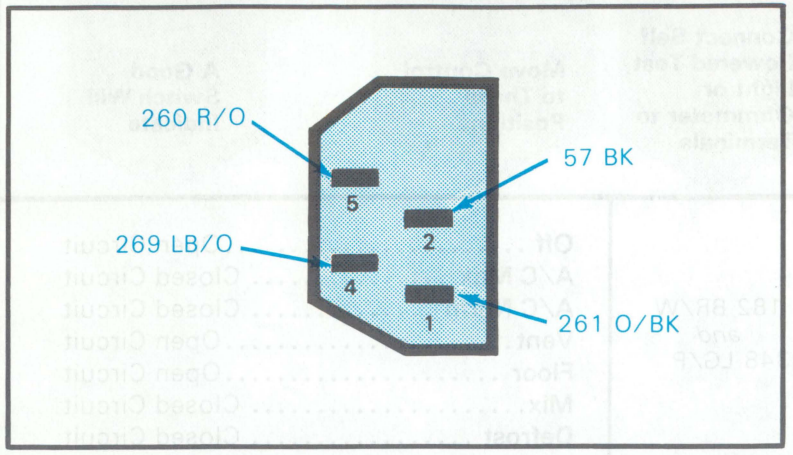
COMPONENT TESTING PROCEDURE

TO TEST	Connect Self Powered Test Light or Ohmmeter to Terminals	Move Control to These Positions	A Good Switch Will Indicate
A/C Clutch Circuit	182 BR/W *and* 348 LG/P	**Off**	Open Circuit
		A/C Max	Closed Circuit
		A/C Norm	Closed Circuit
		Vent	Open Circuit
		Floor	Open Circuit
		Mix	Closed Circuit
		Defrost	Closed Circuit
Blower Motor Circuit	*182 BR/W *and* 181 BR/O	**Off**	Open Circuit
		All other positions	Closed Circuit

SCHEMATIC



TERMINAL LOCATIONS ON SWITCH



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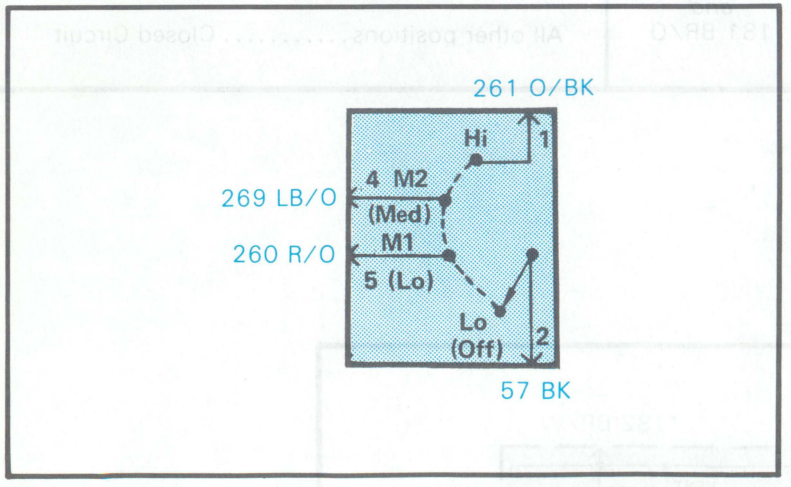

NOTE:

Blower Switch is designed to make contact with two terminals at one time, except in HI position.

COMPONENT TESTING PROCEDURE—WITH A/C

TO TEST	Connect Self-Powered Test Light or Ohmmeter to Terminals	Move Switch to These Positions	A Good Switch Will Indicate
Lo Speed (Lo)	57 BK (2) *and* 260 R/O (5)	Lo Medium-1 Medium-2 Hi	Open Circuit Closed Circuit Closed Circuit Open Circuit
Medium-Low Speed (M1)	57 BK (2) *and* 260 R/O (5)	Lo Medium-1 Medium-2 Hi	Open Circuit Closed Circuit Closed Circuit Open Circuit
Medium-High Speed (M2)	57 BK (2) *and* 269 LB/O (4)	Lo Medium-1 Medium-2 Hi	Open Circuit Open Circuit Closed Circuit Closed Circuit
Hi Speed	57 BK (2) *and* 261 O/BK (1)	Lo Medium-1 Medium-2 Hi	Open Circuit Open Circuit Open Circuit Closed Circuit

COMPONENT TESTING PROCEDURE—WITHOUT A/C

Lo Speed	57 BK (2) *and* 260 R/O (5)	Off Lo Med Hi	Open Circuit Closed Circuit Closed Circuit Open Circuit
Medium Speed	57 BK (2) *and* 269 LB/O (4)	Off Lo Med	Open Circuit Open Circuit Closed Circuit
Hi Speed	57 BK *and* 261 O/		