1989

BMW M3

Electrical

Troubleshooting

Manual

Back to Start Page

Contents Page

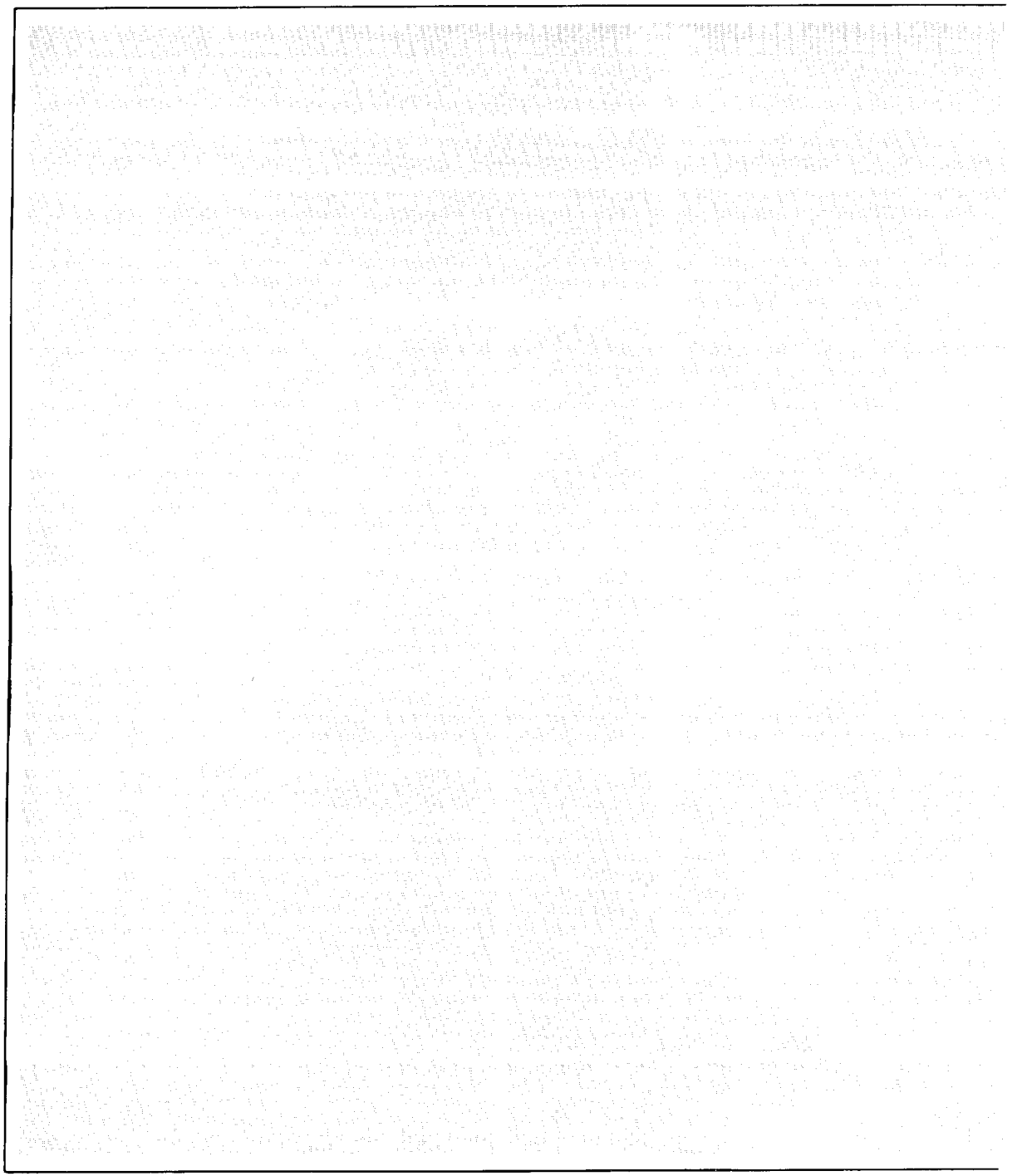
BMW of North America, Inc.
Woodcliff Lake, New Jersey

FOREWORD

In the interests of continuing technical development work we reserve the right to modify designs and equipment.

Printed in USA

PN 89 89 1 000 295



1989
BMW M3
Electrical
Troubleshooting
Manual

CONTENTS

Index — Alphabetical Listing of Electrical Circuits

The purpose of this manual is to show electrical schematics in a manner that makes electrical troubleshooting easier. Electrical components which work together are shown together on one schematic. The Wiper-Washer schematic, for example, shows all of the electrical components in one diagram. At the top of the page is the fuse (positive) that powers the circuit. The flow of current is shown through all wires, connectors, switches, and motors to ground (negative) at the bottom of the page.

Within the schematic, all switches and sensors are shown "at rest," as though the Ignition Switch were off. For identification, component names are underlined and placed next to or above each component. Notes are included, describing how switches and other components work.

The power distribution schematic shows the current feed through all the connections from the Battery and Alternator to each fuse and the Ignition and Light Switches. If the Power Distribution schematic is combined with any other circuit schematic, a complete picture is made of how that circuit works. The Ground Distribution schematics show how several circuits are connected to common grounds.

All wiring between components is shown exactly as it exists in the vehicle; however, the wiring is not drawn to scale. To aid in understanding electrical operation, wiring inside complicated components has been simplified. The "Solid State" label designates electronic components.

WIRE SIZE CONVERSION CHART

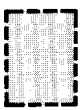
METRIC (CROSSECTIONAL AREA IN MM²)	AWG (AMERICAN WIRE GAUGE)
.5	20
.75	18
1	16
1.5	14
2	14
2.5	12
4	10
6	8
8	8
16	4
20	4
25	2
32	2

WIRE INSULATION

ABBREVIATIONS	COLOR
BK	BLACK
BR	BROWN
RD	RED
YL	YELLOW
GN	GREEN
BU	BLUE
VI	VIOLET
GY	GRAY
WT	WHITE
PK	PINK

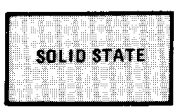
4 SYMBOLS

ENTIRE COMPONENT SHOWN

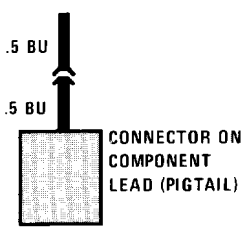


PART OF A COMPONENT SHOWN

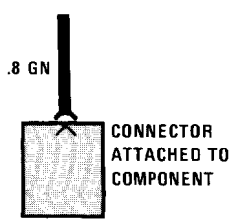
COMPONENT WITH SCREW TERMINALS



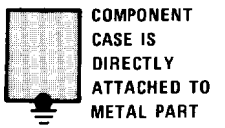
SOLID STATE (INCLUDES ONLY ELECTRONIC PARTS)



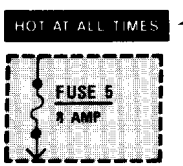
CONNECTOR ON COMPONENT LEAD (PIGTAIL)



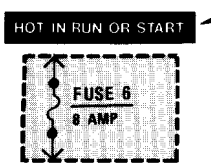
CONNECTOR ATTACHED TO COMPONENT



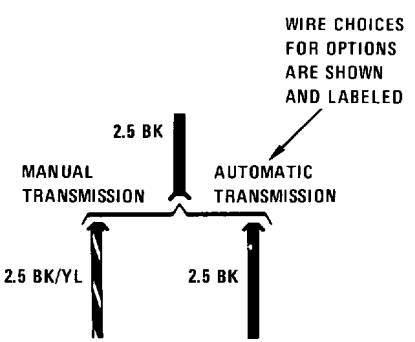
COMPONENT CASE IS DIRECTLY ATTACHED TO METAL PART OF CAR (GROUNDED)

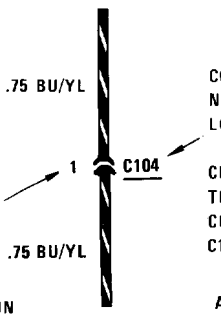


INDICATES THAT FUSE 5 IS ALWAYS SUPPLIED WITH POWER



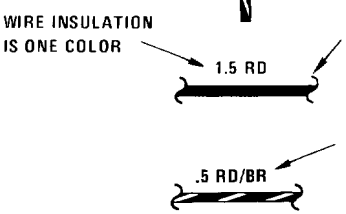
INDICATES THAT FUSE 6 IS SUPPLIED WITH POWER WITH THE IGNITION SWITCH IN THE RUN OR START POSITIONS





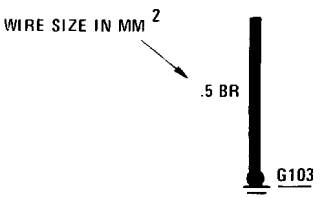
CONNECTOR REFERENCE NUMBER FOR COMPONENT LOCATION CHART

CHART ALSO SHOWS TOTAL NUMBER OF CONTACTS POSSIBLE: C103 (6 PIN)



A WAVY LINE MEANS A WIRE IS CONTINUED

WIRE INSULATION IS ONE COLOR WITH ANOTHER COLOR STRIPE (RED WITH BROWN)



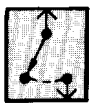
WIRE IS ATTACHED TO METAL PART OF CAR (GROUNDED)
GROUND IS NUMBERED FOR REFERENCE ON COMPONENT LOCATION CHART

OTHER CIRCUITS THAT SHARE A GROUND ARE SHOWN IN GROUND DISTRIBUTION

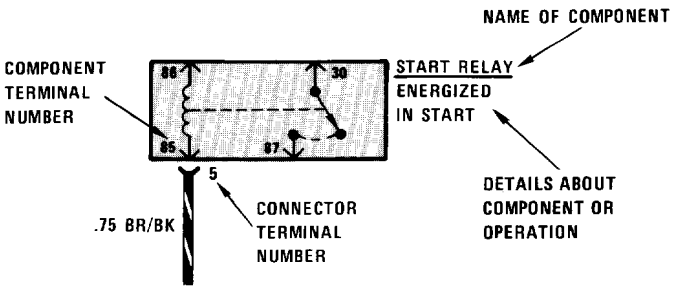
DIODE
CURRENT CAN FLOW ONLY IN THE DIRECTION OF THE ARROW

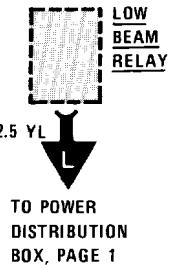
CIRCUIT REFERENCE – A WIRE WHICH CONNECTS TO ANOTHER CIRCUIT

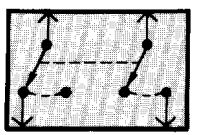
ACTIVE CHECK CONTROL



ONE POLE, TWO POSITION SWITCH



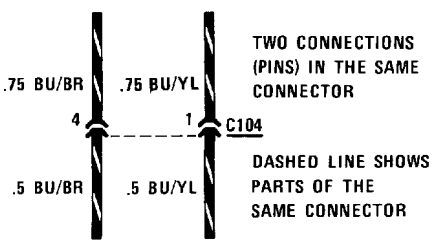




SWITCHES THAT MOVE TOGETHER

DASHED LINE SHOWS A MECHANICAL CONNECTION BETWEEN SWITCHES

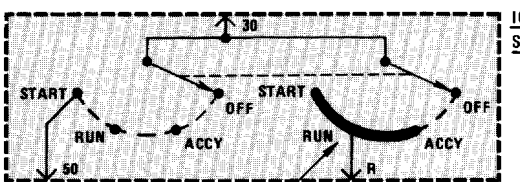
CURRENT PATH IS CONTINUED AS LABELED. THE ARROW SHOWS DIRECTION OF CURRENT FLOW AND IS REPEATED WHERE CURRENT PATH CONTINUES.



TWO CONNECTIONS (PINS) IN THE SAME CONNECTOR

DASHED LINE SHOWS PARTS OF THE SAME CONNECTOR

TWO POLE, FOUR POSITION SWITCH



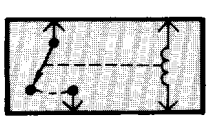
IGNITION SWITCH

"R" IS ENERGIZED IN ACCY, RUN OR START

FROM LOW BEAM RELAY, PAGE 5

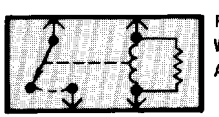
L

POWER DISTRIBUTION BOX



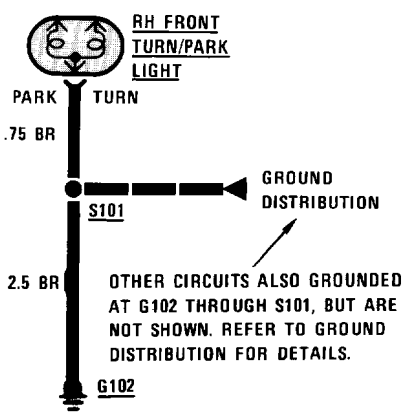
RELAY SHOWN WITH NO CURRENT FLOWING THROUGH COIL

WHEN COIL IS ENERGIZED, SWITCH IS PULLED CLOSED



RELAY SHOWN WITH RESISTOR ACROSS COIL

RESISTOR ACROSS COIL IS FOR NOISE SUPPRESSION



LIGHT EMITTING DIODE

TROUBLESHOOTING PROCEDURE

1. Verify the Problem

Operate the problem circuit to check the accuracy of the complaint. Note the symptoms of the inoperative circuit.

2. Analyze the Problem

Refer to the schematic of the problem circuit in the ETM. Determine how the circuit is supposed to work by tracing the current path(s) from the power feed through the circuit components to ground. Then based on the symptoms you noted in step 1 and your understanding of circuit operation, identify one or more possible causes of the problem.

3. Isolate the Problem

Make circuit tests to prove or disprove the preliminary diagnosis made in step 2. Keep in mind that a logical simple procedure is the key to efficient troubleshooting. Test for the most likely cause of failure first. Try to make tests at points which are easily accessible.

4. Repair the Problem

Once the specific problem is identified, make the repair using the proper tools and safe procedures.

5. Check the Problem

Operate the circuit to check for satisfactory circuit operation. Good repair practice calls for rechecking all circuits you have worked on.

TROUBLESHOOTING TOOLS

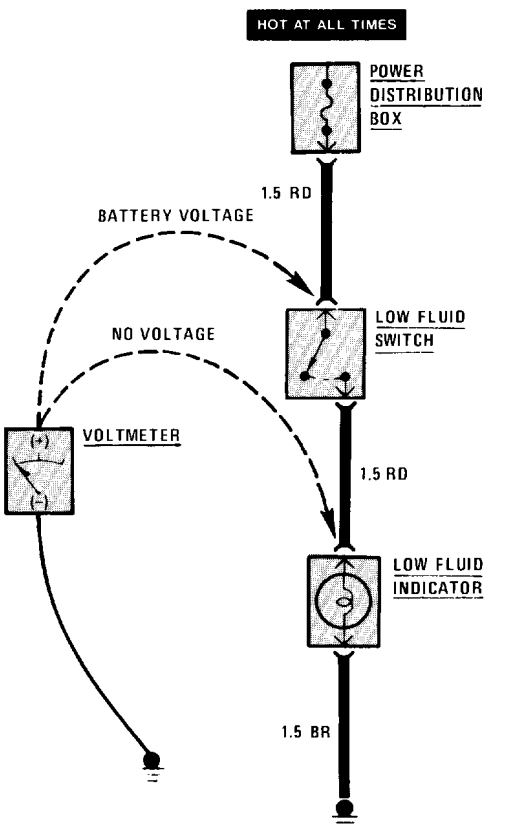
Isolating the problem (Step 3 of TROUBLESHOOTING PROCEDURES) requires the use of a **voltmeter** and/or **ohmmeter.** A voltmeter measures voltage at selected points in a circuit. An ohmmeter measures a circuit's resistance to current flow. It has an internal battery that provides current to the circuit under test. Disconnect the car battery when using an ohmmeter because the battery voltage will cause the ohmmeter to give false readings. Also, do not use an ohmmeter on solid-state components. The voltage that the ohmmeter applies to the circuit could damage these components.

TROUBLESHOOTING TESTS

Voltage Test

This test measures voltage in a circuit. By taking measurements at several points (terminals or connectors) along the circuit, you can isolate the problem.

To take a voltage measurement, connect the negative lead of the voltmeter to the battery's negative terminal or other known good ground. Then connect the positive lead of the voltmeter to the point you want to test. The voltmeter will measure the voltage present at that point in the circuit.

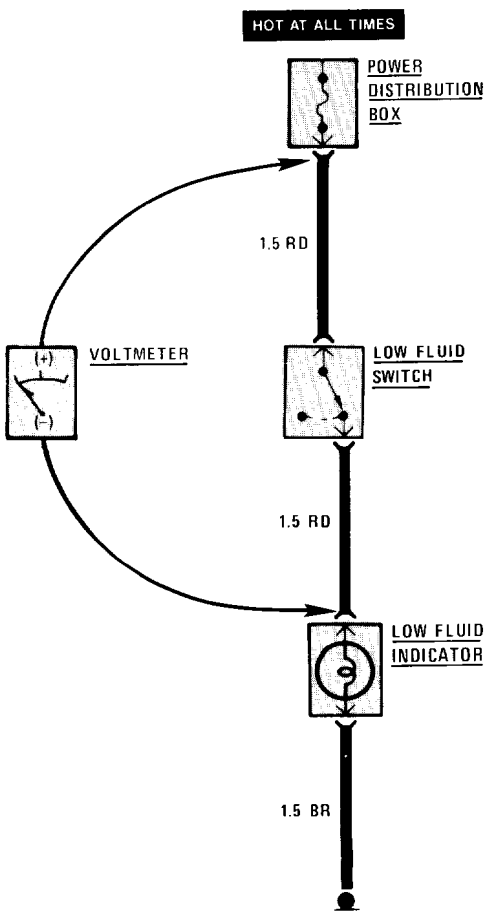


Voltage Test

Voltage Drop Test

Wires, connectors, and switches are designed to conduct current with a minimum loss of voltage. A voltage drop of more than one volt indicates a problem.

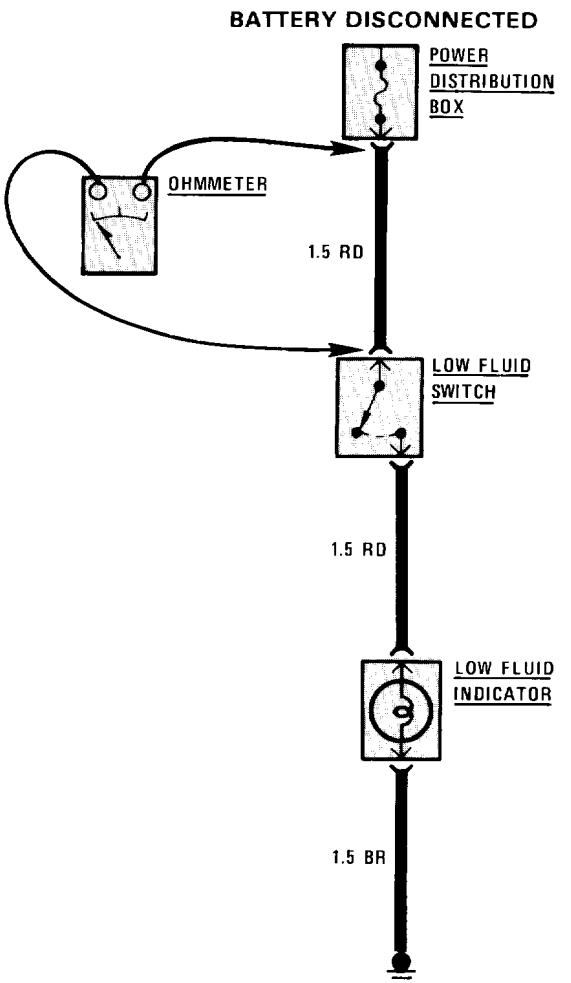
To test for voltage drop, connect the voltmeter leads to connectors at either end of the circuit's suspected problem area. The positive lead should be connected to the connector closest to the power source. The voltmeter will show the voltage drop between these two points.



Voltage Drop Test

Continuity Test

To perform a continuity test, first disconnect the car battery. Then adjust the ohmmeter to read zero while holding the leads together. Connect the ohmmeter leads to connector or terminals at either end of the circuit's suspected problem area. The ohmmeter will show the resistance across that part of the circuit.

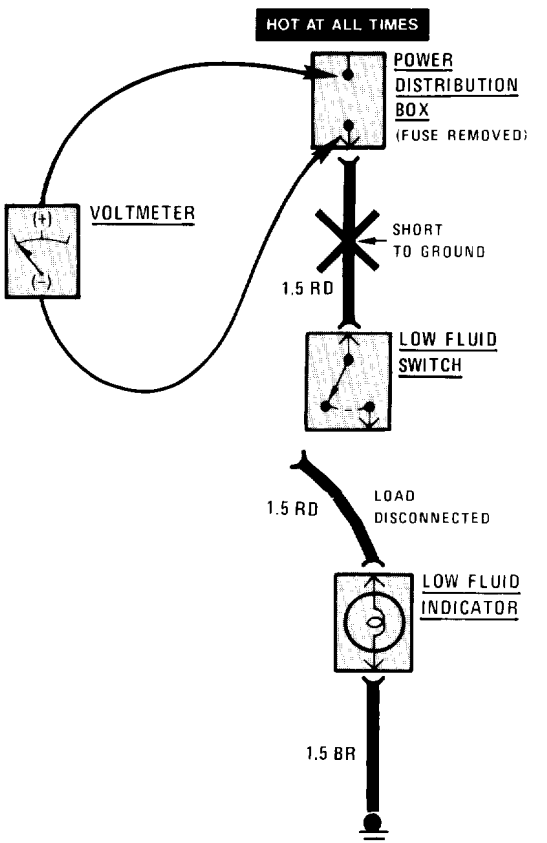


Continuity Test

Short Test Using Voltmeter

Remove the blown fuse and disconnect the load. Connect the voltmeter leads to the fuse terminals. The positive lead should be connected to the terminal closest to the power source.

Starting near the POWER DISTRIBUTION BOX, move the wire harness back and forth and watch the voltmeter reading. If the voltmeter registers a reading, there is a short to ground in the wiring. Somewhere in the area of the harness being moved, the wire insulation is worn away and the circuit is grounding.

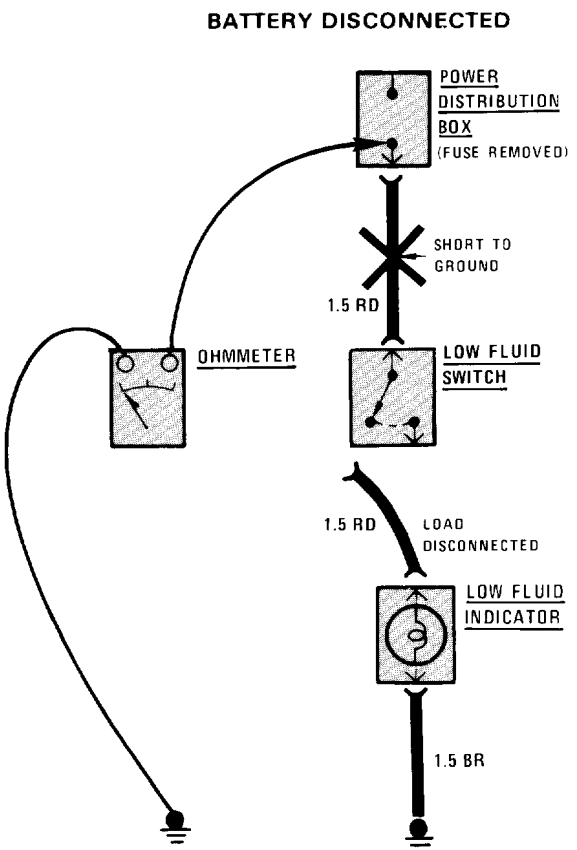


Short Test Using Voltmeter

Short Test Using Ohmmeter

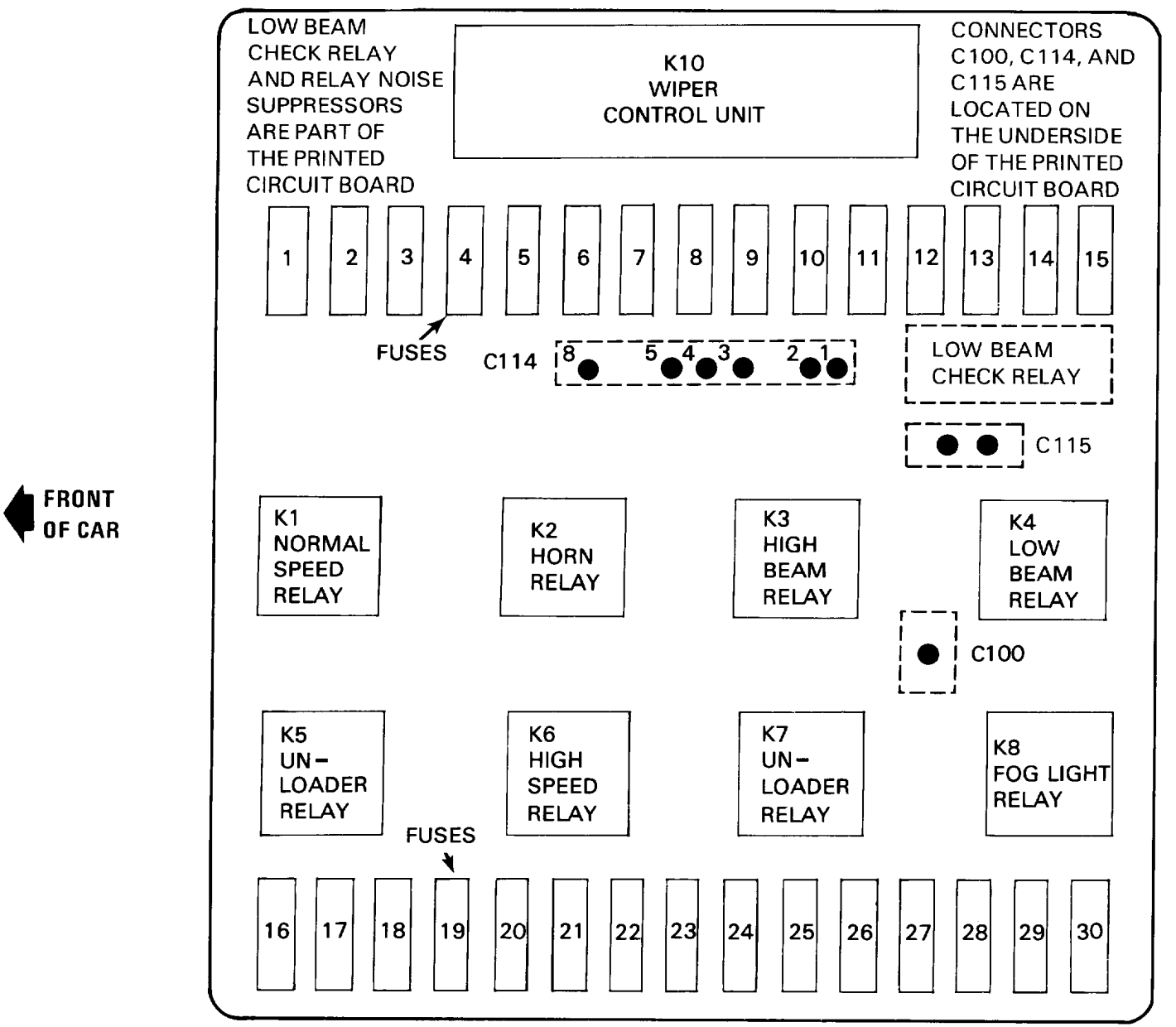
Disconnect the battery. Adjust the ohmmeter to read zero while holding the leads together. Remove the blown fuse and disconnect the load. Connect one lead of the ohmmeter to the fuse terminal that is closest to the load. Connect the other lead to a known good ground.

Starting near the POWER DISTRIBUTION BOX, move the wire harness back and forth and watch the ohmmeter reading. Low or no resistance indicates a short to ground in the wiring. Infinitely high resistance indicates no short.



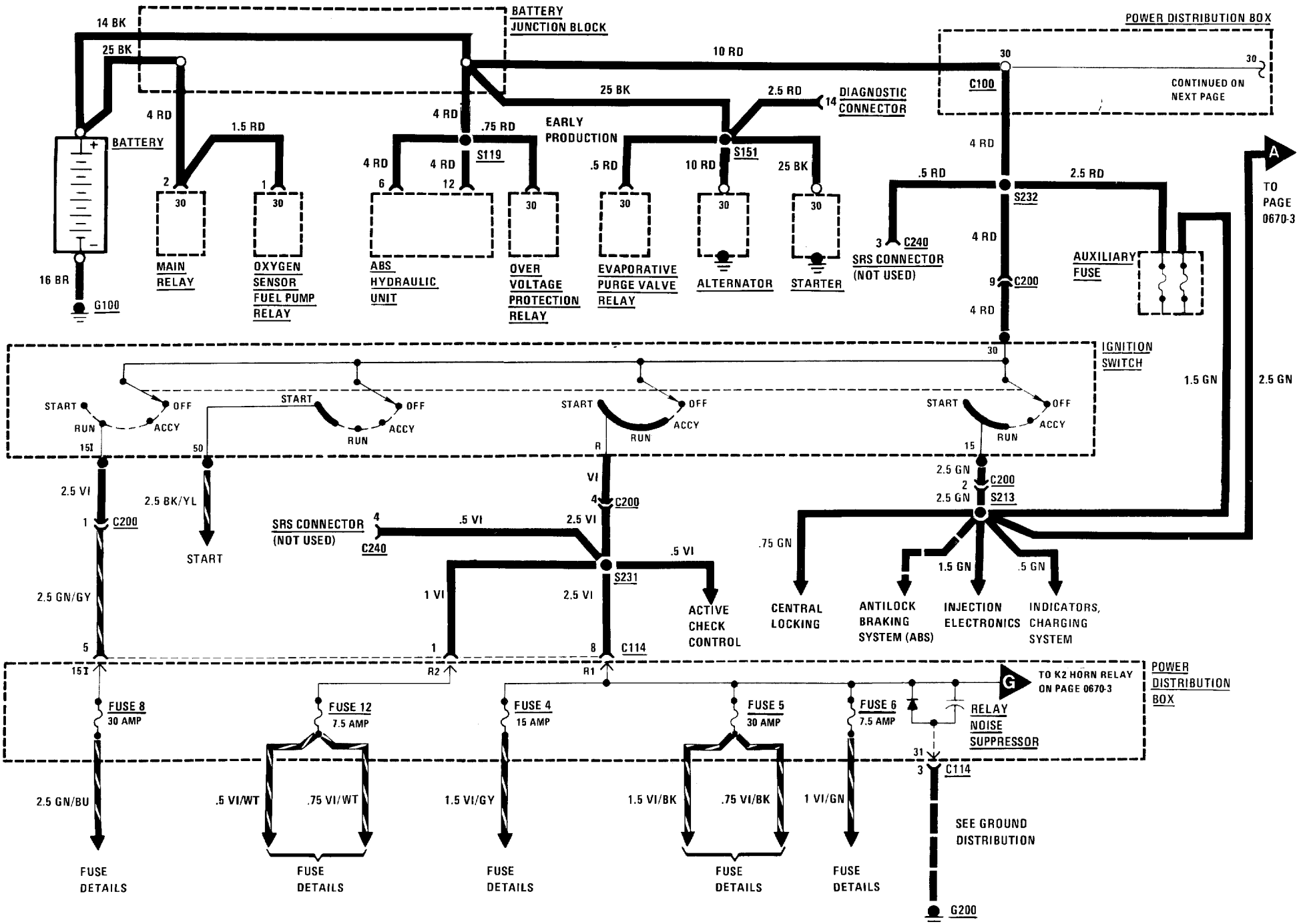
Short Test Using Ohmmeter

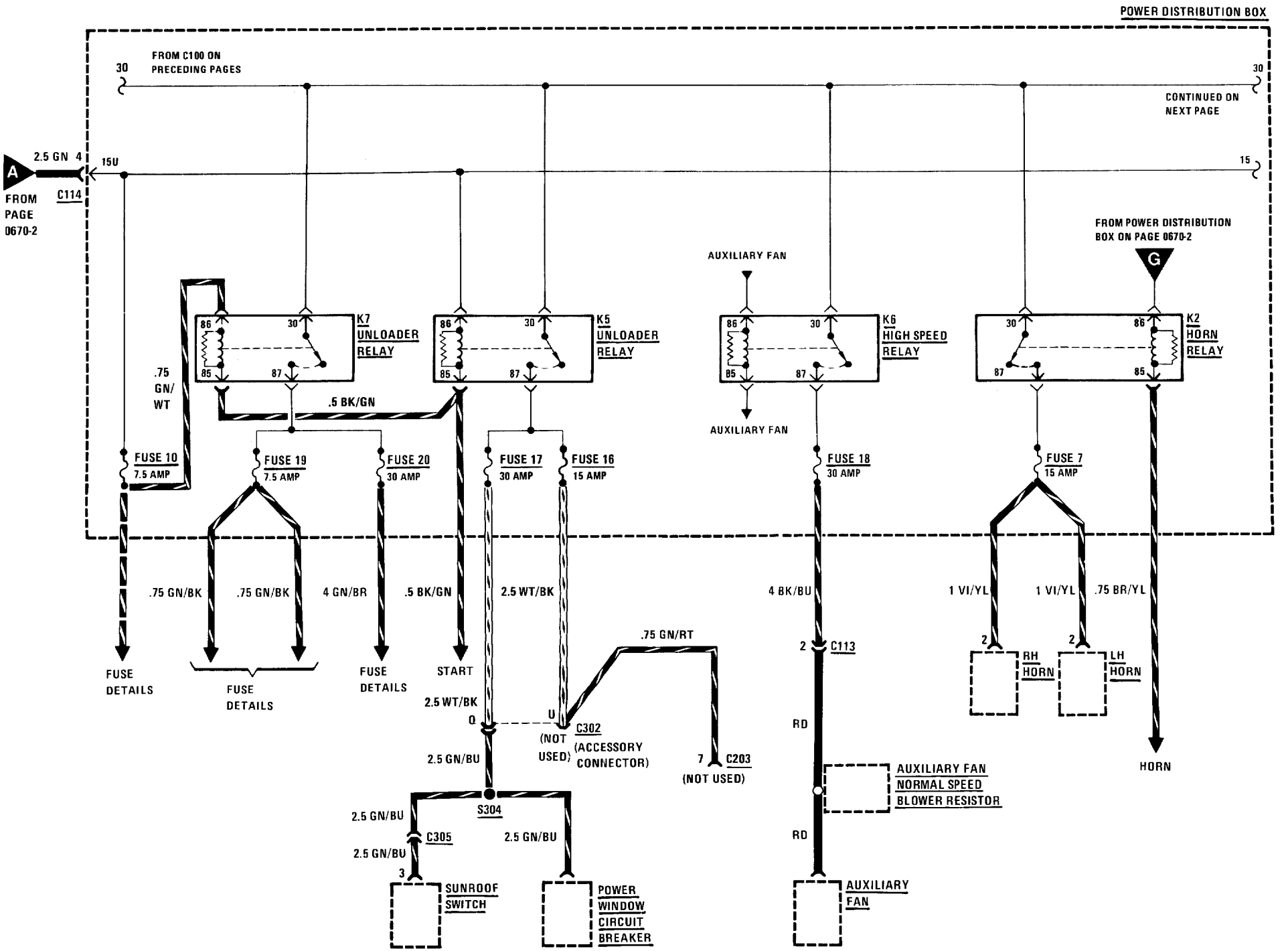
POWER DISTRIBUTION BOX

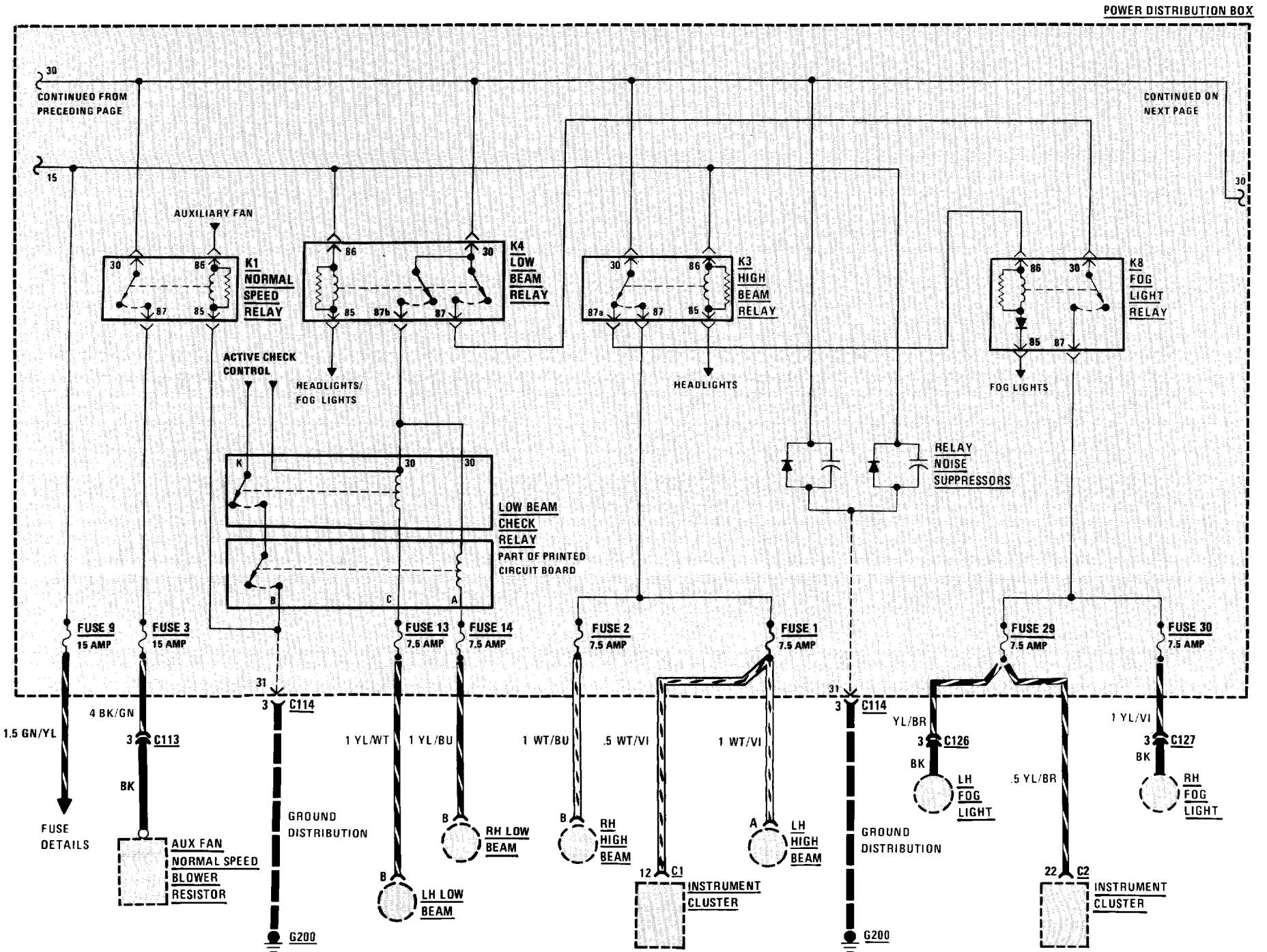


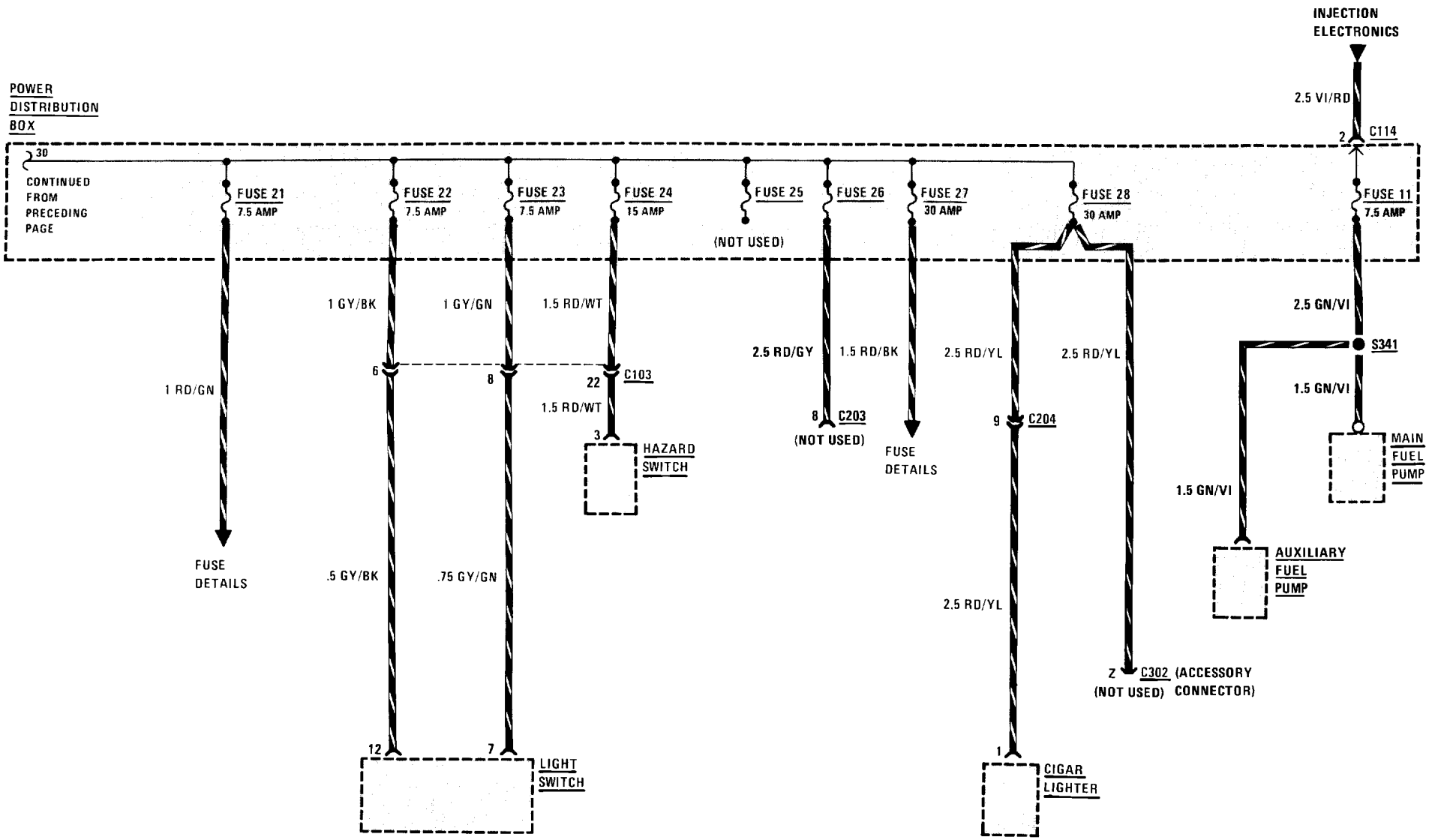
FUSE DATA CHART

FUSE NO.	SIZE/ COLOR	CIRCUIT NAME
1	7.5A	Headlights (also fuses 2, 13, 14).
2	7.5A	Headlights (also fuses 1, 13, 14).
3	15A	Auxiliary Fan (also fuses 18, 19, 20).
4	15A	Lights: Turn/Hazard (also fuse 24); Active Check Control (also fuses 6, 10, 21, 22, 23).
5	30A	Wiper/Washer.
6	7.5A	Stop Lights; Map Reading Light; Cruise Control; Active Check Control (also fuses 4, 10, 21, 22, 23); Glove Box Light; Antilock Braking System (also fuse 10).
7	15A	Horn.
8	30A	Rear Defogger (also fuse 23).
9	15A	Injection Electronics (also fuses 11, 21).
10	7.5A	Seatbelt Warning (also fuse 21); Service Interval Indicator (also fuse 21); Antilock Braking System (also fuse 6); Tachometer/Fuel Economy Gauges (also fuse 21); Gauges/Indicators; Brake Warning System; Back Up Lights; On-Board Computer (also fuses 12, 21, 27); Start; Active Check Control (also fuses 4, 6, 21, 22, 23).
11	7.5A	Injection Electronics (also fuses 9, 21).
12	7.5A	Radio/Antenna (also fuses 21, 27, 28); Speedometer/Indicators; On-Board Computer (also fuses 10, 21, 27).
13	7.5A	Headlights (also fuses 1, 2, 14).
14	7.5A	Headlights (also fuses 1, 2, 13).
15	7.5A	Not Used.
16	15A	Not Used.
17	30A	Sunroof; Power Windows.
18	30A	Auxiliary Fan (also fuses 3, 19, 20).
19	7.5A	Auxiliary Fan (also fuses 3, 18, 20); Interior Lights (also fuses 21, 27); Power Mirrors.
20	30A	Heater/Air Conditioning; Auxiliary Fan (also fuses 3, 18, 19).
21	7.5A	Auto-Charging Flashlight; Ignition Key Warning/Seatbelt Warning; (also fuse 10); Injection Electronics (also fuses 10, 11); Interior Lights (also fuses 19, 27); Radio/Antenna (also fuses 12, 27, 28); Trunk Light; Active Check Control (also fuses 4, 6, 10, 22, 23); Service Interval Indicator (also fuse 10); On-Board Computer (also fuses 10, 12, 27); Tachometer/Fuel Economy Gauge (also fuse 10).
22	7.5A	Active Check Control (also fuses 4, 6, 10, 21, 23); Lights: Front Park/Tail (also fuse 23); Lights: Front Side Marker (also fuse 23).
23	7.5A	Lights: Dash Lights: Front Park/Tail (also fuse 22); Lights; Front Side Marker (also fuse 22); Lights: Rear Marker/License; Active Check Control (also fuses 4, 6, 10, 21, 22); Rear Defogger (also fuse 8).
24	15A	Lights: Turn/Hazard (also fuse 4).
25	—	Not Used.
26	15A	Not Used.
27	30A	Interior Lights (also fuses 19, 21); Central Locking; Radio/Antenna (also fuses 12, 21, 28); On-Board Computer (also fuses 10, 12, 21).
28	30A	Cigar Lighter; Radio/Antenna (also fuses 12, 21, 27).
29	7.5A	Fog Lights (also fuse 30).
30	7.5A	Fog Lights (also fuse 29).
POWER WINDOW CIRCUIT BREAKER	25A	Power Windows

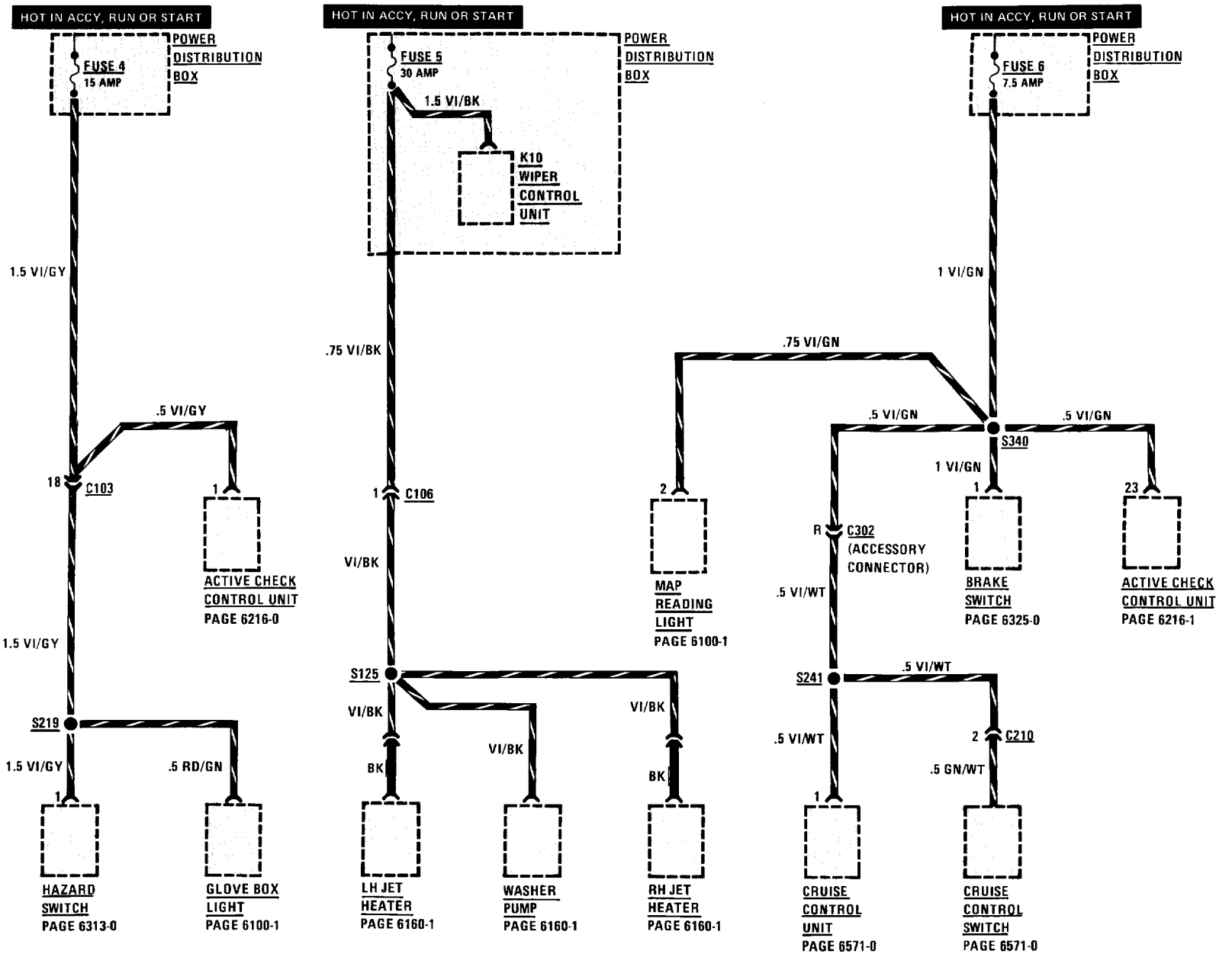

BATTERY JUNCTION BLOCK
POWER DISTRIBUTION BOX
14 BK
25 BK
10 RD
30
C100
CONTINUED ON NEXT PAGE
4 RD
1.5 RD
.75 RD
EARLY PRODUCTION
25 BK
2.5 RD
14 DIAGNOSTIC CONNECTOR
BATTERY
S119
S151
.5 RD
10 RD
25 BK
S232
2.5 RD
A
TO PAGE 0670-3
16 BR
G100
MAIN RELAY
OXYGEN SENSOR FUEL PUMP RELAY
ABS HYDRAULIC UNIT
OVER VOLTAGE PROTECTION RELAY
EVAPORATIVE PURGE VALVE RELAY
ALTERNATOR
STARTER
3 C240 SRS CONNECTOR (NOT USED)
9 C200
AUXILIARY FUSE
IGNITION SWITCH
1.5 GN
2.5 GN
START
RUN
ACCY
OFF
15I
50
R
15
2.5 VI
2.5 BK/YL
2.5 GN
C200
S213
1 C200
4 C200
SRS CONNECTOR (NOT USED)
C240
4
.5 VI
2.5 VI
.5 VI
.75 GN
1.5 GN
.5 GN
S231
1 VI
2.5 VI
2.5 GN/GY
5
1
8
C114
ACTIVE CHECK CONTROL
CENTRAL LOCKING
ANTILOCK BRAKING SYSTEM (ABS)
INJECTION ELECTRONICS
INDICATORS, CHARGING SYSTEM
START
15I
R2
R1
POWER DISTRIBUTION BOX
G
TO K2 HORN RELAY ON PAGE 0670-3
FUSE 8
30 AMP
FUSE 12
7.5 AMP
FUSE 4
15 AMP
FUSE 5
30 AMP
FUSE 6
7.5 AMP
RELAY NOISE SUPPRESSOR
31
3 C114
2.5 GN/BU
.5 VI/WT
.75 VI/WT
1.5 VI/GY
1.5 VI/BK
.75 VI/BK
1 VI/GN
SEE GROUND DISTRIBUTION
FUSE DETAILS
FUSE DETAILS
FUSE DETAILS
FUSE DETAILS
FUSE DETAILS
G200


POWER DISTRIBUTION BOX
FROM C100 ON PRECEDING PAGES
30
CONTINUED ON NEXT PAGE
15
15U
2.5 GN 4
A
FROM PAGE 0670-2
C114
FROM POWER DISTRIBUTION BOX ON PAGE 0670-2
G
AUXILIARY FAN
K7 UNLOADER RELAY
K5 UNLOADER RELAY
K6 HIGH SPEED RELAY
K2 HORN RELAY
86
85
87
30
.75 GN/WT
.5 BK/GN
FUSE 10 7.5 AMP
FUSE 19 7.5 AMP
FUSE 20 30 AMP
FUSE 17 30 AMP
FUSE 16 15 AMP
FUSE 18 30 AMP
FUSE 7 15 AMP
.75 GN/BK
.75 GN/BK
4 GN/BR
.5 BK/GN
2.5 WT/BK
4 BK/BU
1 VI/YL
1 VI/YL
.75 BR/YL
FUSE DETAILS
FUSE DETAILS
FUSE DETAILS
START
.75 GN/RT
2.5 WT/BK
Q
U
C302
(NOT USED)
(ACCESSORY CONNECTOR)
7
C203
(NOT USED)
2.5 GN/BU
S304
2.5 GN/BU
C305
2.5 GN/BU
3
2.5 GN/BU
SUNROOF SWITCH
POWER WINDOW CIRCUIT BREAKER
2
C113
RD
RD
AUXILIARY FAN NORMAL SPEED BLOWER RESISTOR
AUXILIARY FAN
RH HORN
LH HORN
HORN

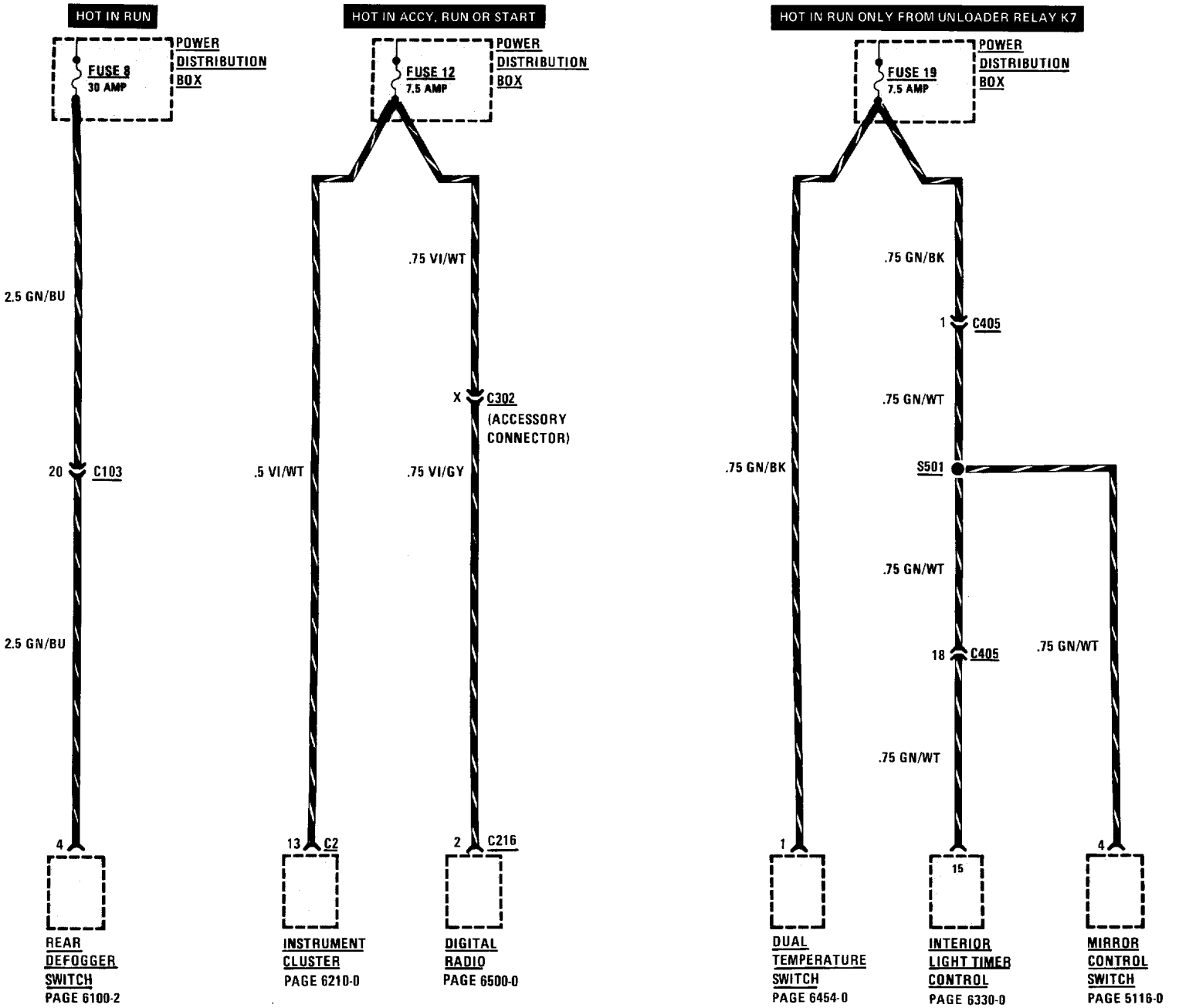

POWER DISTRIBUTION BOX
30
CONTINUED FROM PRECEDING PAGE
CONTINUED ON NEXT PAGE
15
30
AUXILIARY FAN
K1 NORMAL SPEED RELAY
K4 LOW BEAM RELAY
K3 HIGH BEAM RELAY
K8 FOG LIGHT RELAY
ACTIVE CHECK CONTROL
HEADLIGHTS/ FOG LIGHTS
HEADLIGHTS
FOG LIGHTS
RELAY NOISE SUPPRESSORS
LOW BEAM CHECK RELAY
PART OF PRINTED CIRCUIT BOARD
FUSE 9 15 AMP
FUSE 3 15 AMP
FUSE 13 7.5 AMP
FUSE 14 7.5 AMP
FUSE 2 7.5 AMP
FUSE 1 7.5 AMP
FUSE 29 7.5 AMP
FUSE 30 7.5 AMP
1.5 GN/YL
4 BK/GN
1 YL/WT
1 YL/BU
1 WT/BU
.5 WT/VI
1 WT/VI
YL/BR
1 YL/VI
.5 YL/BR
BK
C113
C114
C126
C127
C1
C2
G200
FUSE DETAILS
AUX FAN NORMAL SPEED BLOWER RESISTOR
GROUND DISTRIBUTION
LH LOW BEAM
RH LOW BEAM
RH HIGH BEAM
LH HIGH BEAM
LH FOG LIGHT
RH FOG LIGHT
INSTRUMENT CLUSTER


INJECTION ELECTRONICS
2.5 VI/RD
2
C114
POWER DISTRIBUTION BOX
30
CONTINUED FROM PRECEDING PAGE
FUSE 21
7.5 AMP
FUSE 22
7.5 AMP
FUSE 23
7.5 AMP
FUSE 24
15 AMP
FUSE 25
(NOT USED)
FUSE 26
FUSE 27
30 AMP
FUSE 28
30 AMP
FUSE 11
7.5 AMP
1 GY/BK
1 GY/GN
1.5 RD/WT
2.5 GN/VI
S341
2.5 RD/GY
1.5 RD/BK
2.5 RD/YL
2.5 RD/YL
1.5 GN/VI
1 RD/GN
6
8
22
C103
1.5 RD/WT
3
HAZARD SWITCH
8
C203
(NOT USED)
FUSE DETAILS
9
C204
MAIN FUEL PUMP
FUSE DETAILS
.5 GY/BK
.75 GY/GN
1.5 GN/VI
AUXILIARY FUEL PUMP
2.5 RD/YL
Z
C302 (ACCESSORY CONNECTOR)
(NOT USED)
12
7
1
LIGHT SWITCH
CIGAR LIGHTER

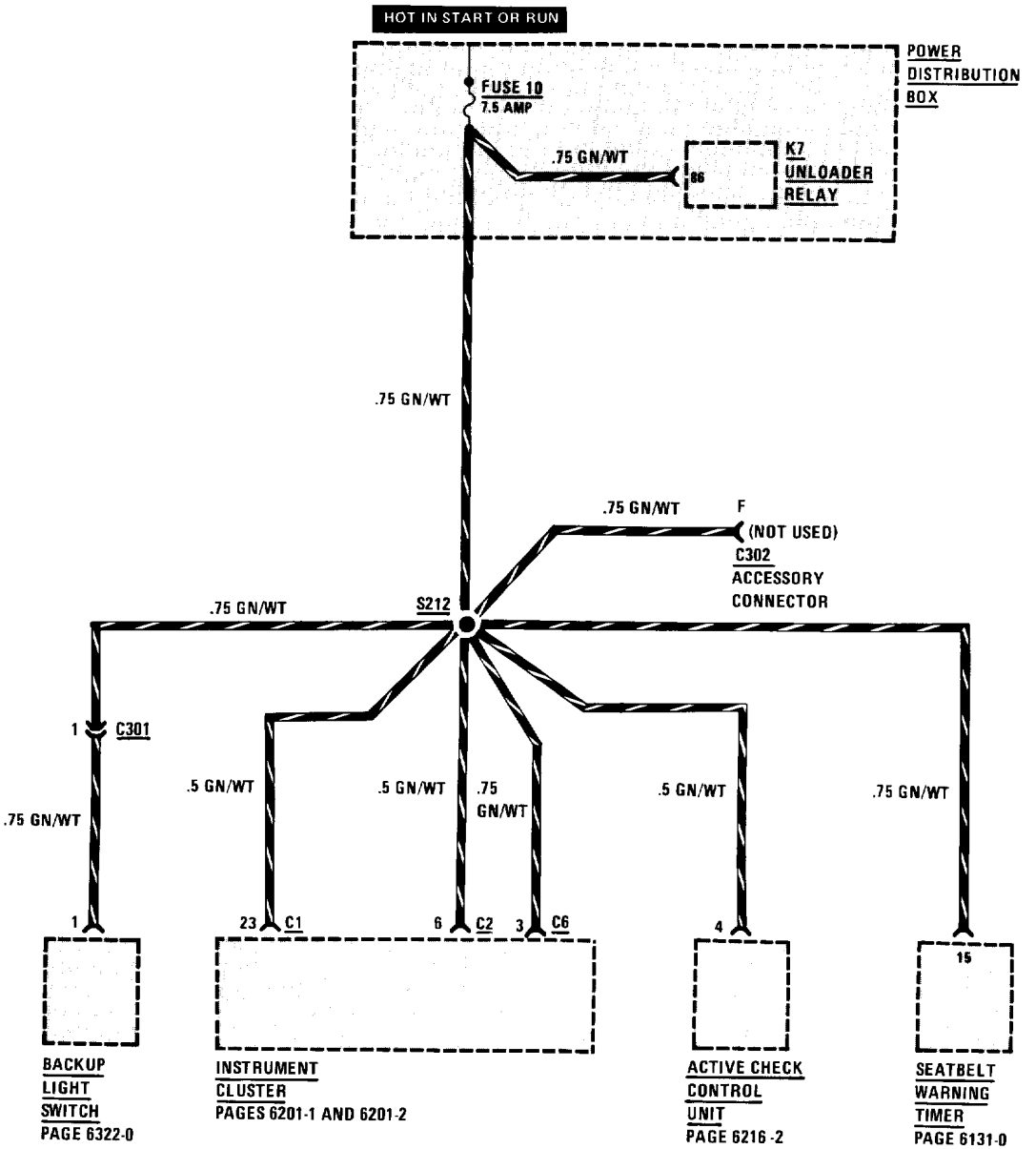
FUSE DETAILS: FUSES 4, 5, AND 6



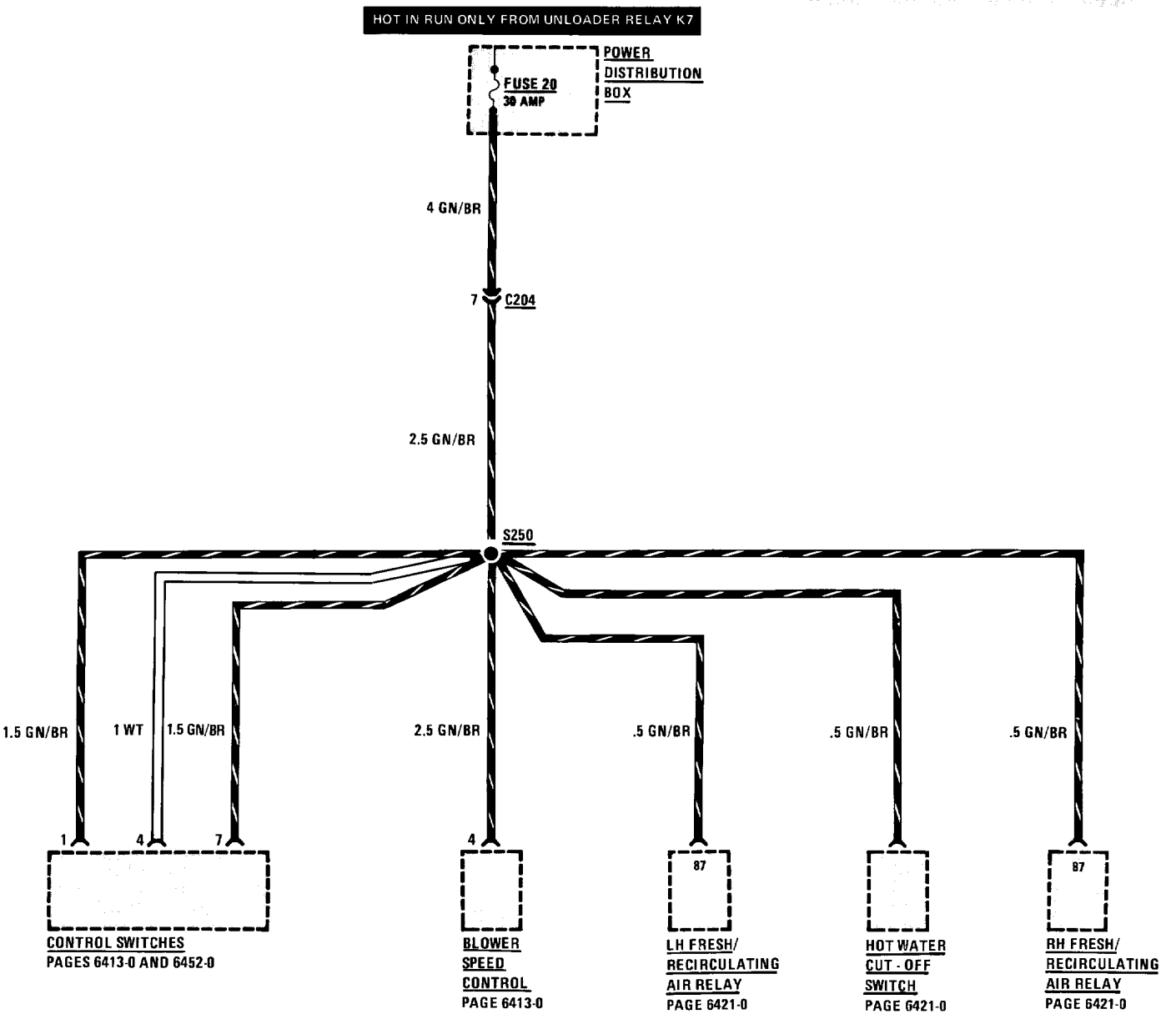
FUSE DETAILS: FUSES 8, 12 AND 19



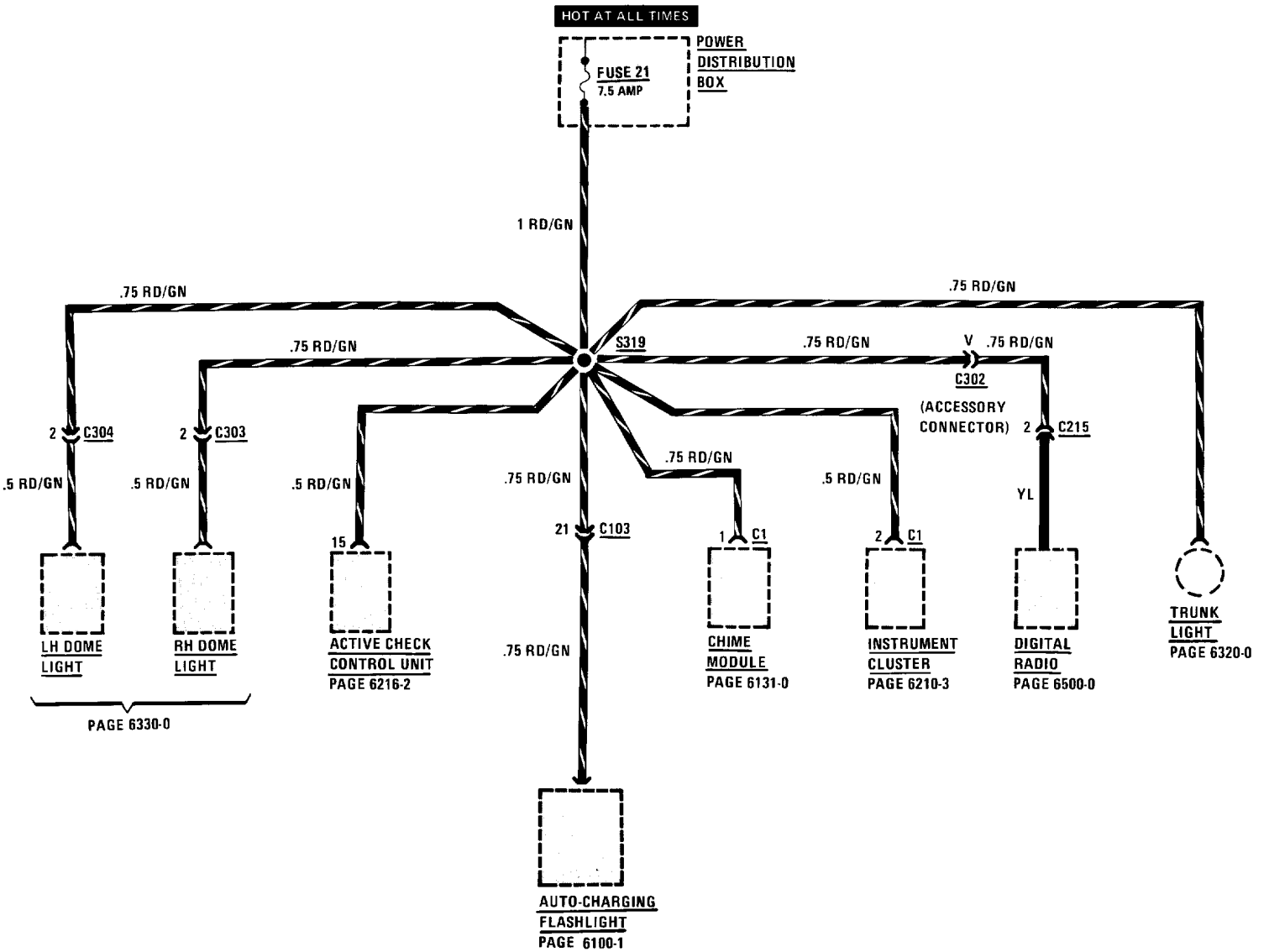
FUSE DETAILS: FUSE 10



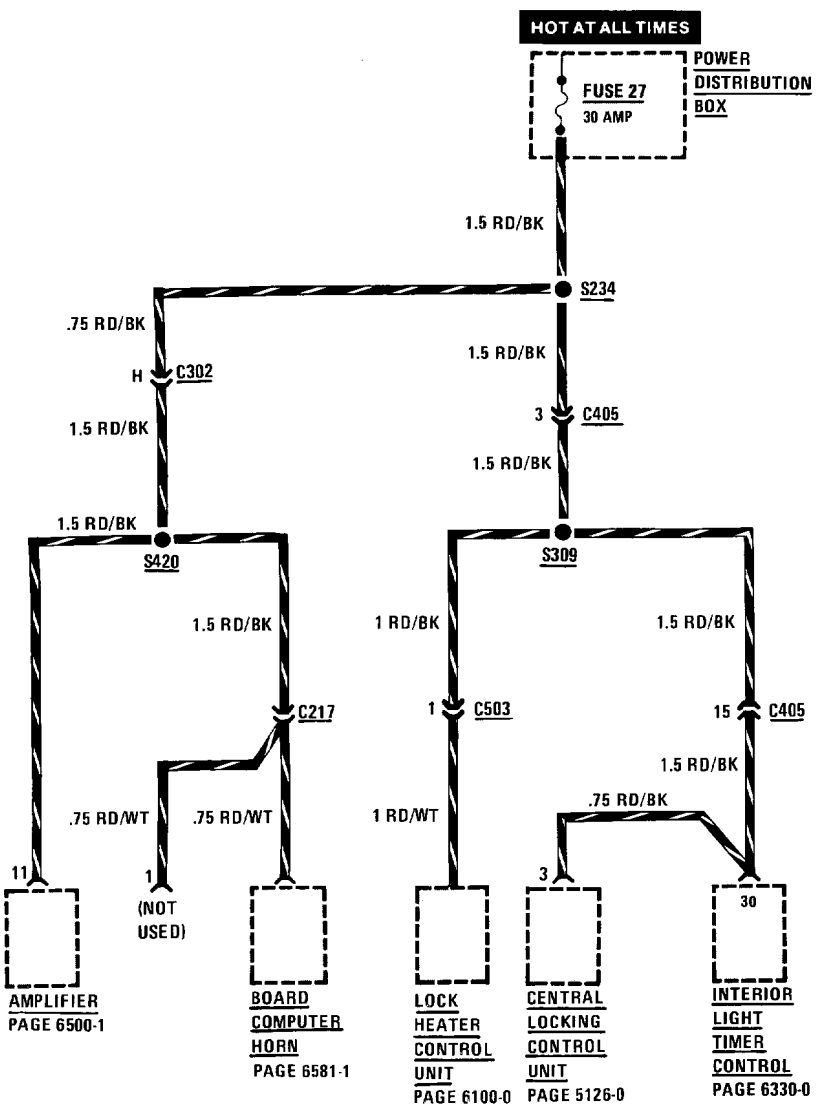
FUSE DETAILS: FUSE 20

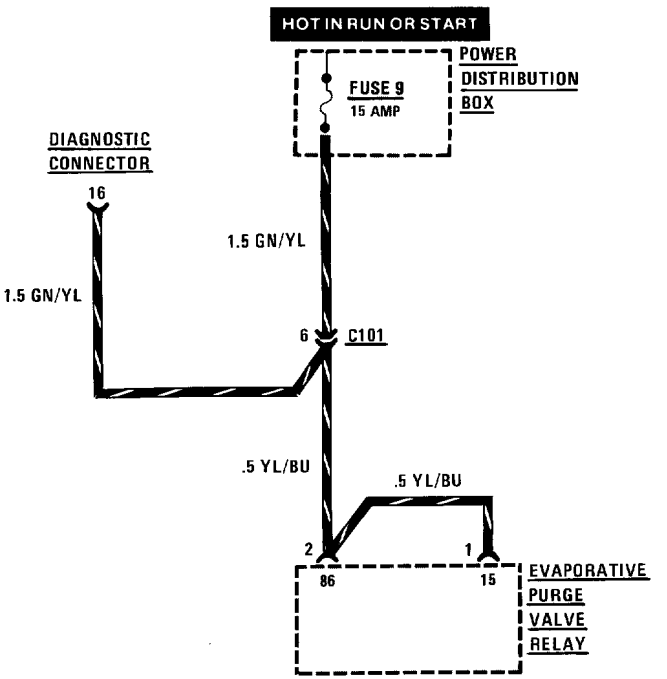


FUSE DETAILS: FUSE 21

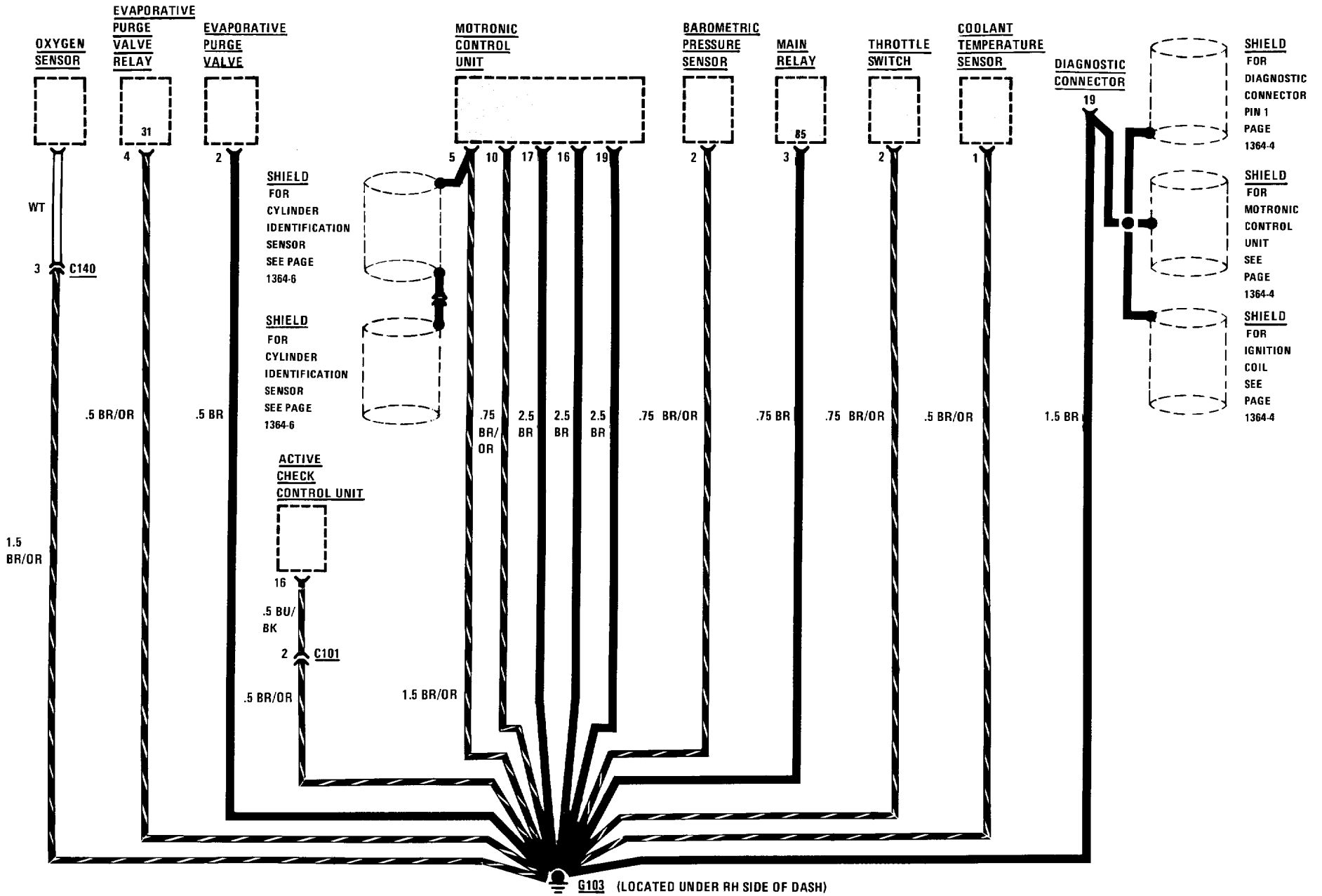


FUSE DETAILS: FUSES 27 AND 9

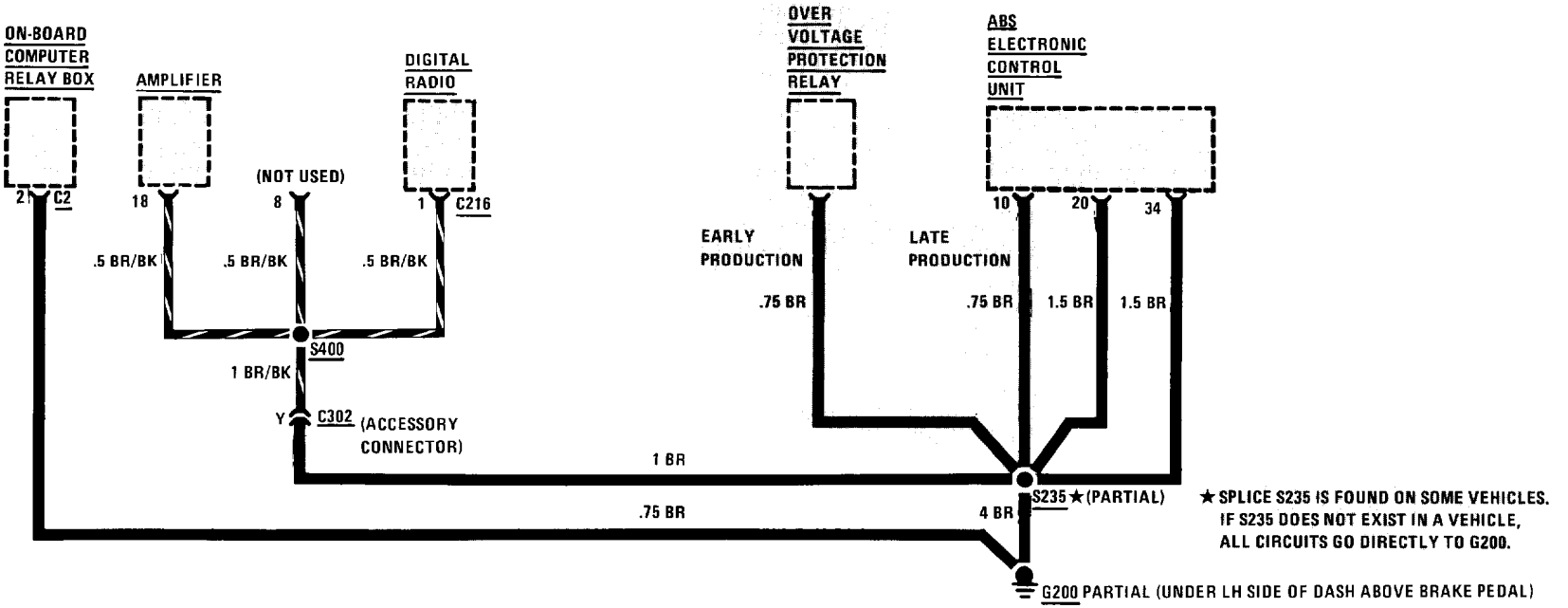


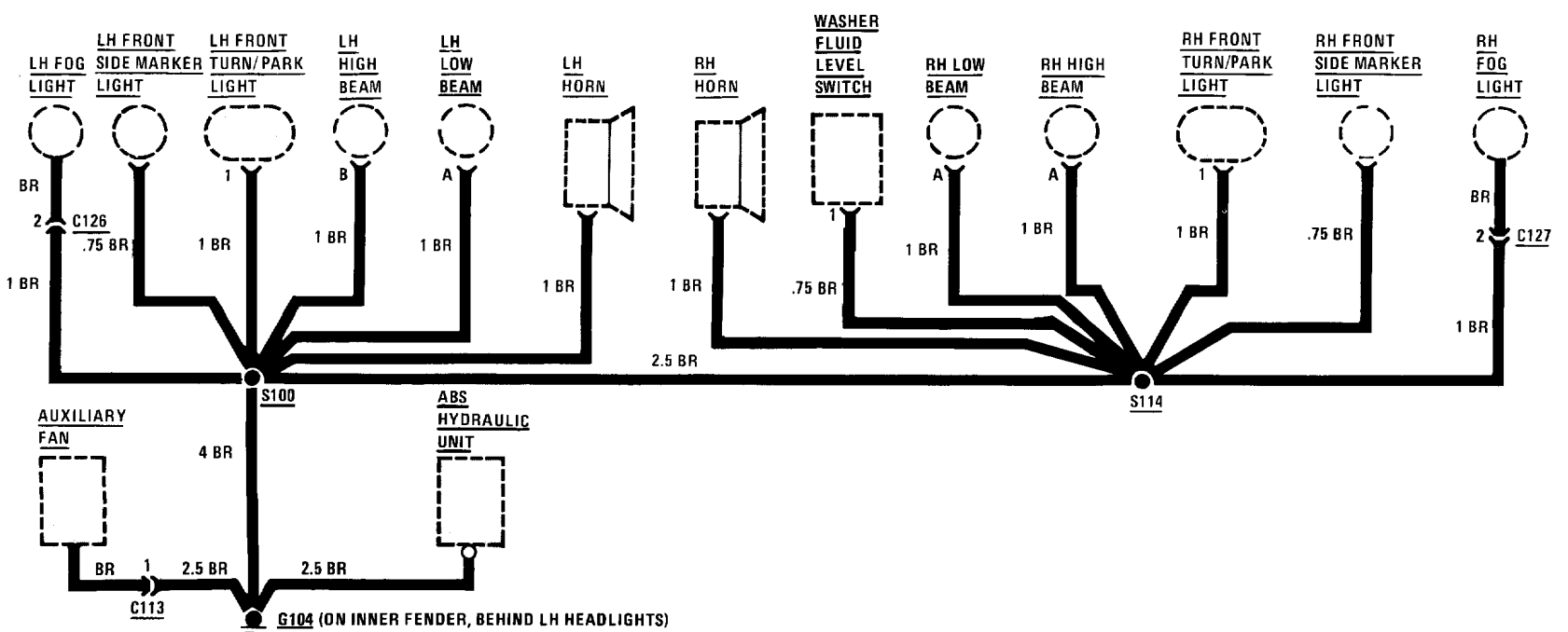


GROUND DISTRIBUTION (G103)

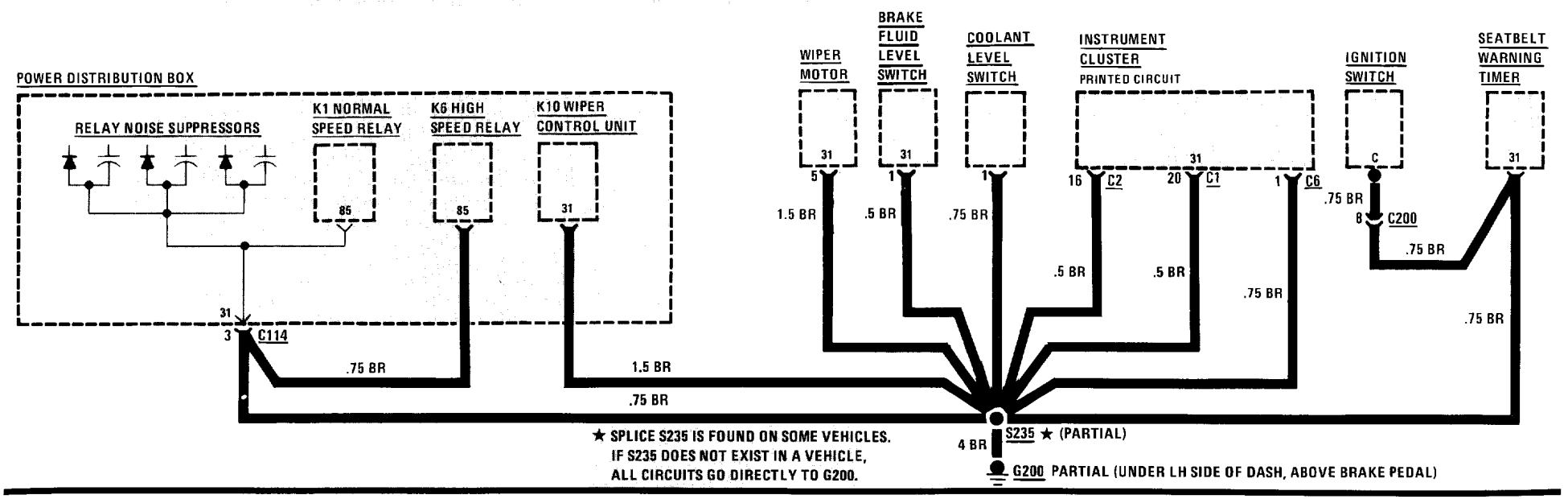


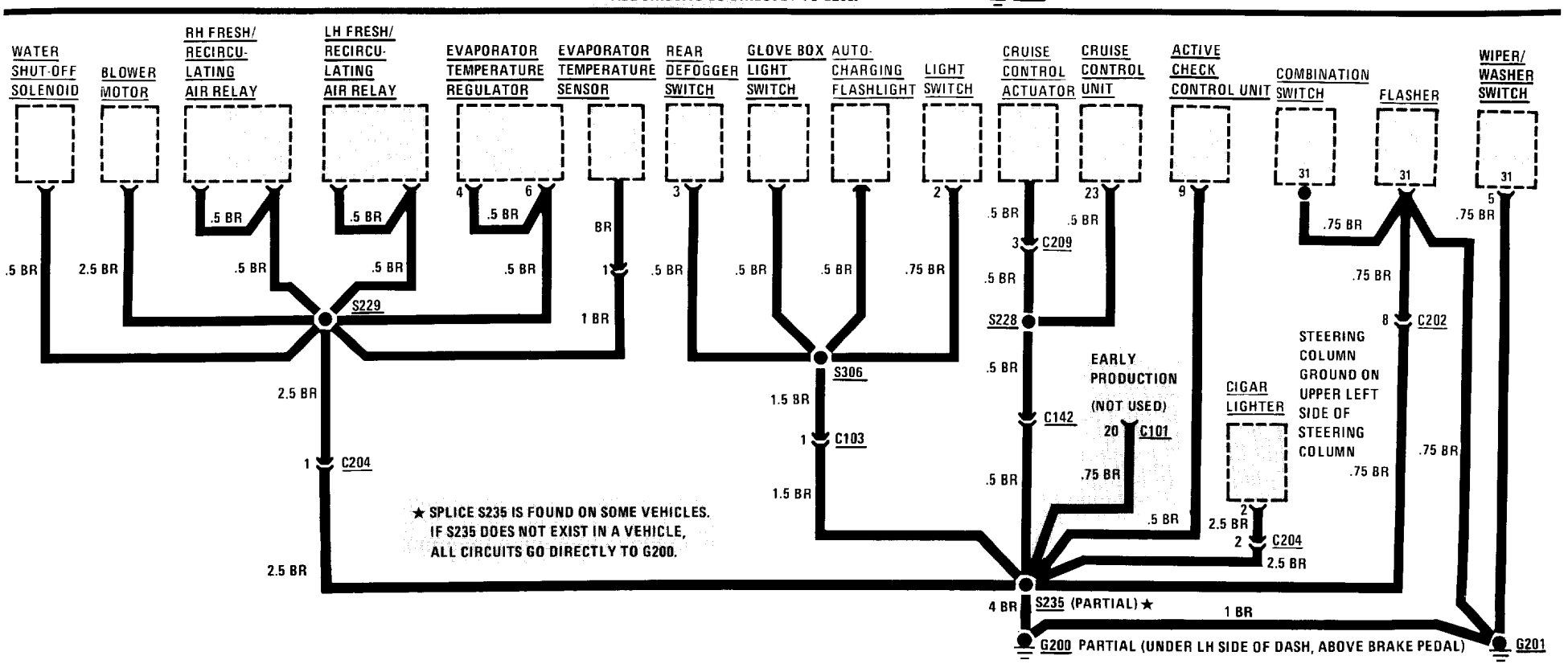
GROUND DISTRIBUTION G104 AND G200 (PARTIAL)



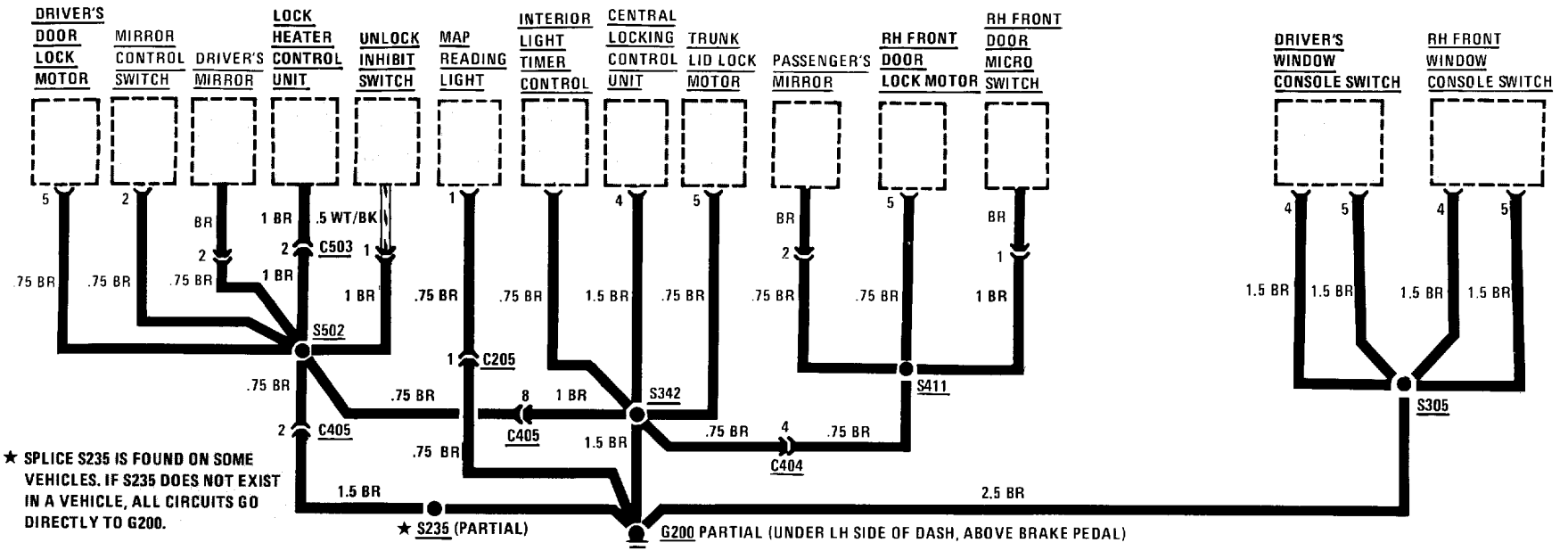


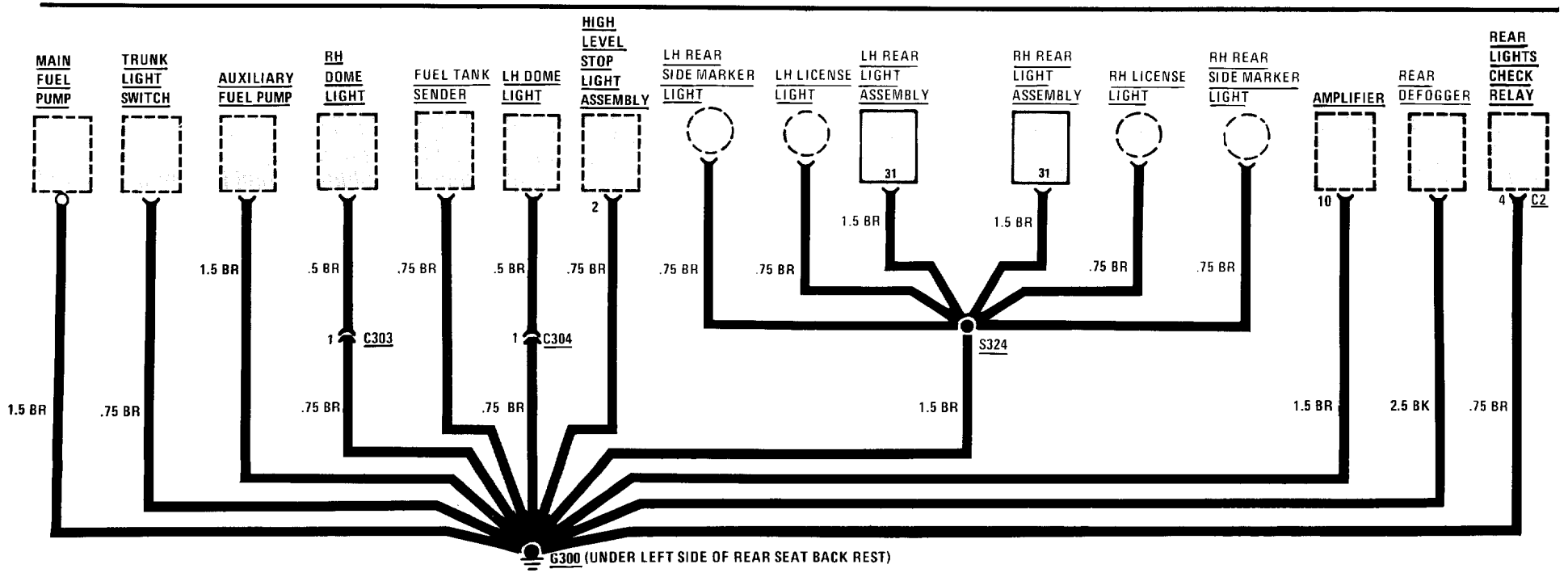
GROUND DISTRIBUTION: G200 (PARTIAL) AND G201

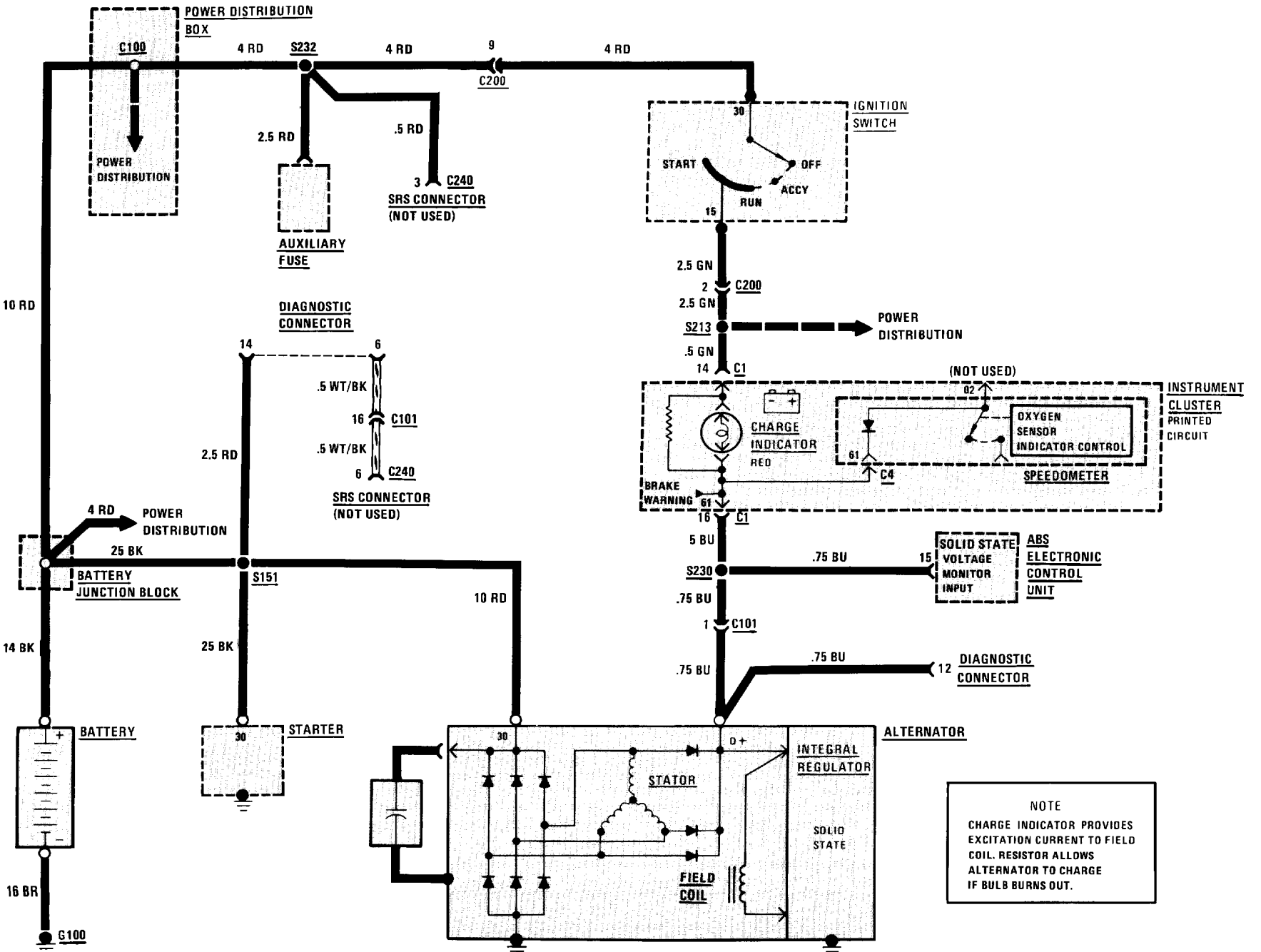




GROUND DISTRIBUTION: G200 (PARTIAL) AND G300

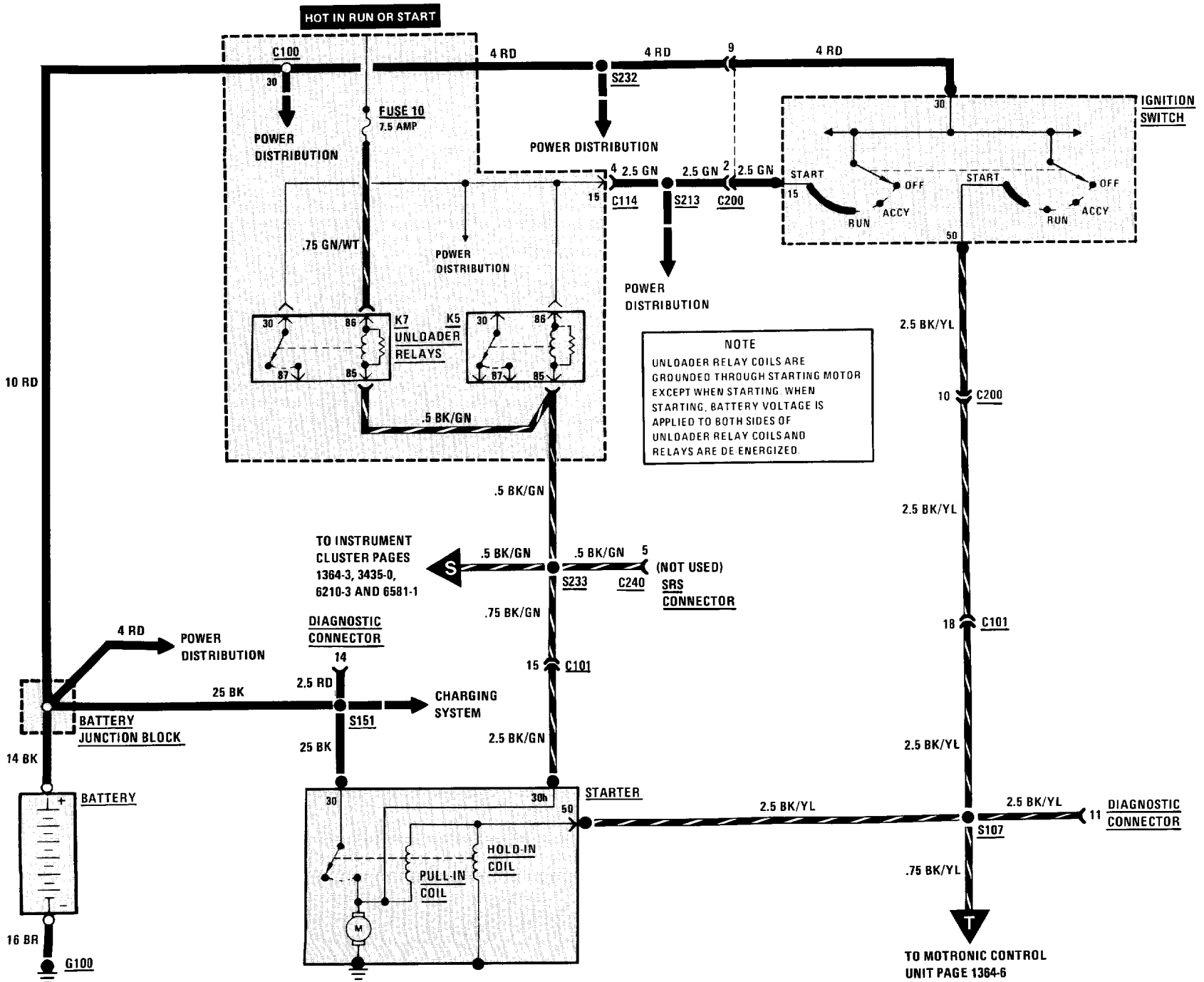




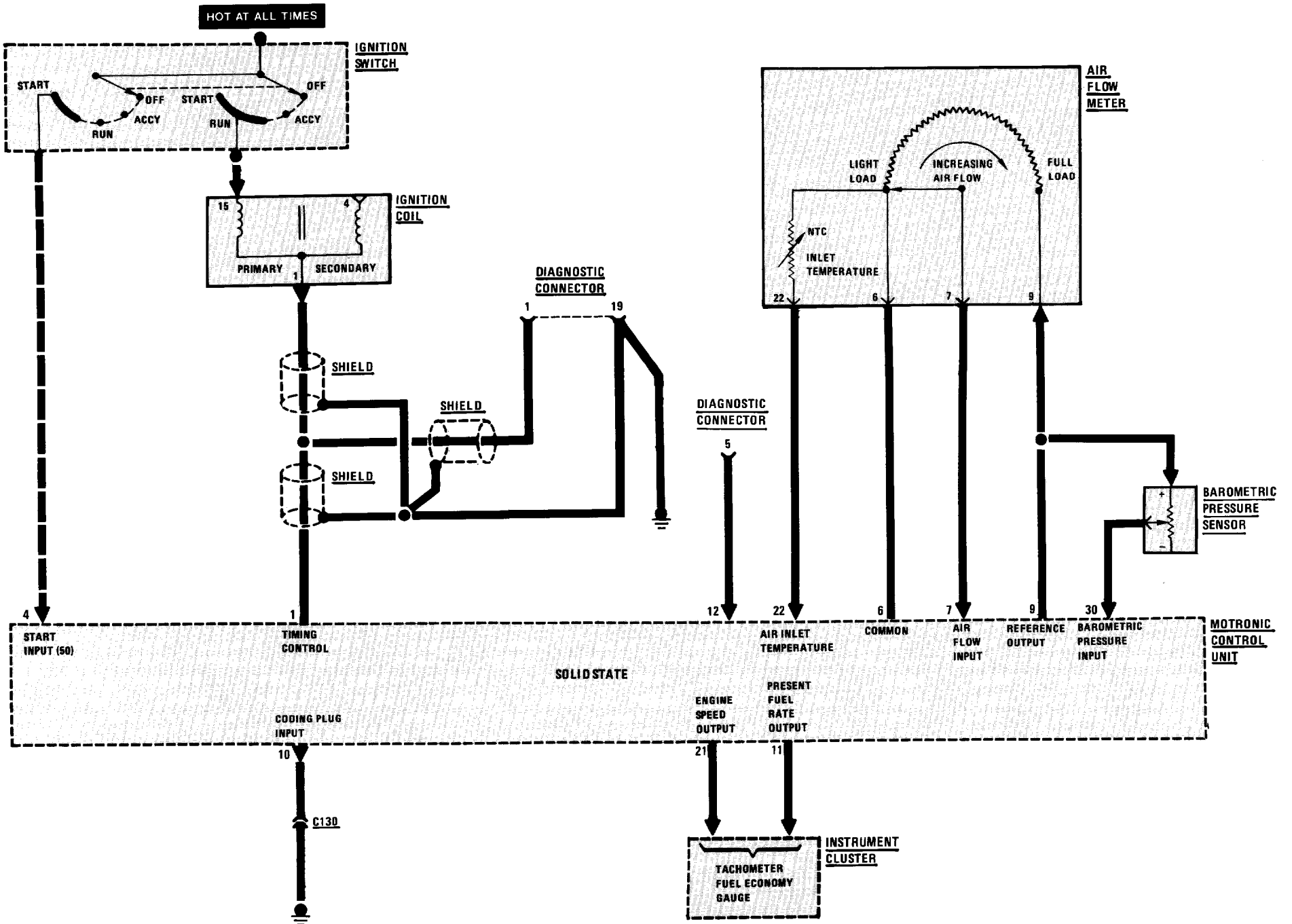


NOTE

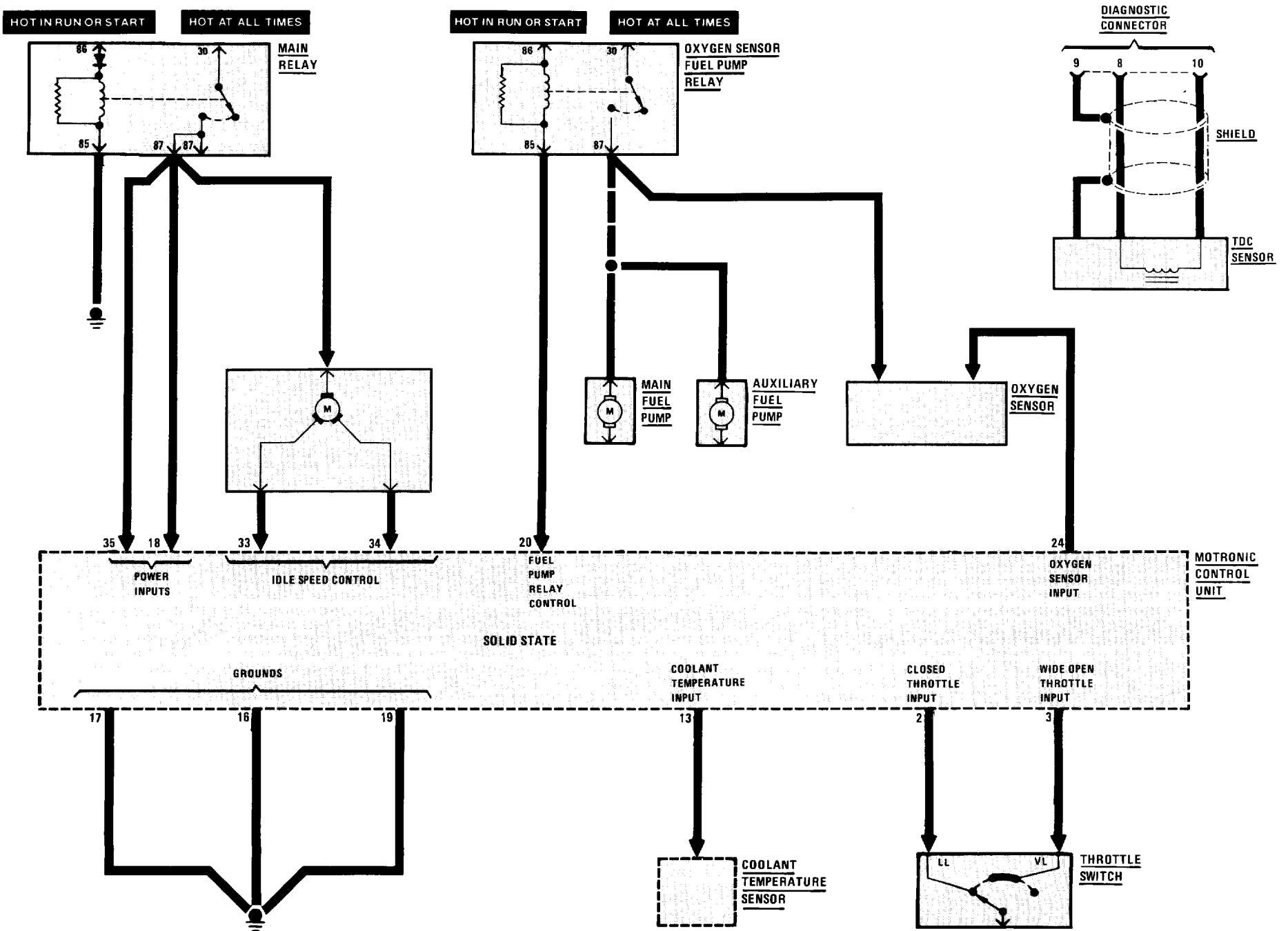
CHARGE INDICATOR PROVIDES EXCITATION CURRENT TO FIELD COIL. RESISTOR ALLOWS ALTERNATOR TO CHARGE IF BULB BURNS OUT.


HOT IN RUN OR START
C100
30
4 RD
4 RD
S232
9
4 RD
IGNITION SWITCH
30
FUSE 10
7.5 AMP
POWER DISTRIBUTION
POWER DISTRIBUTION
4
2.5 GN
2.5 GN
2
2.5 GN
START
OFF
ACCY
RUN
15
50
C114
S213
C200
.75 GN/WT
POWER DISTRIBUTION
POWER DISTRIBUTION
K7
K5
UNLOADER RELAYS
30
86
87
85
.5 BK/GN
NOTE
UNLOADER RELAY COILS ARE GROUNDED THROUGH STARTING MOTOR EXCEPT WHEN STARTING. WHEN STARTING, BATTERY VOLTAGE IS APPLIED TO BOTH SIDES OF UNLOADER RELAY COILS AND RELAYS ARE DE-ENERGIZED.
2.5 BK/YL
10 RD
10
C200
.5 BK/GN
2.5 BK/YL
TO INSTRUMENT CLUSTER PAGES 1364-3, 3435-0, 6210-3 AND 6581-1
.5 BK/GN
.5 BK/GN
5
(NOT USED)
SRS CONNECTOR
S233
C240
.75 BK/GN
18
C101
4 RD
POWER DISTRIBUTION
DIAGNOSTIC CONNECTOR
14
15
C101
2.5 RD
25 BK
CHARGING SYSTEM
BATTERY JUNCTION BLOCK
S151
2.5 BK/GN
2.5 BK/YL
14 BK
25 BK
BATTERY
STARTER
30
30h
50
2.5 BK/YL
2.5 BK/YL
11
DIAGNOSTIC CONNECTOR
S107
HOLD-IN COIL
PULL-IN COIL
M
.75 BK/YL
16 BR
G100
TO MOTRONIC CONTROL UNIT PAGE 1364-6

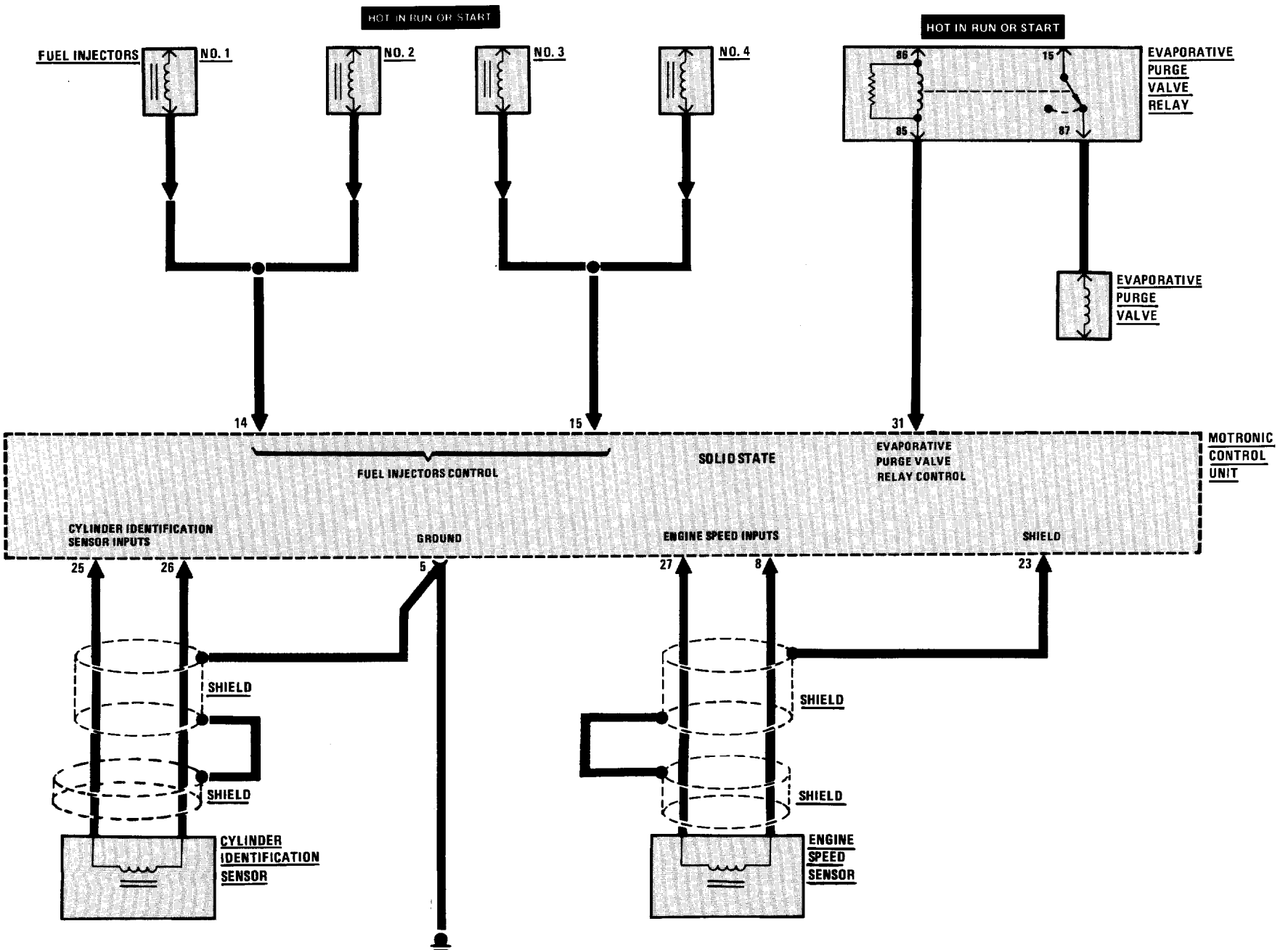
ENGINE BLOCK DIAGRAM

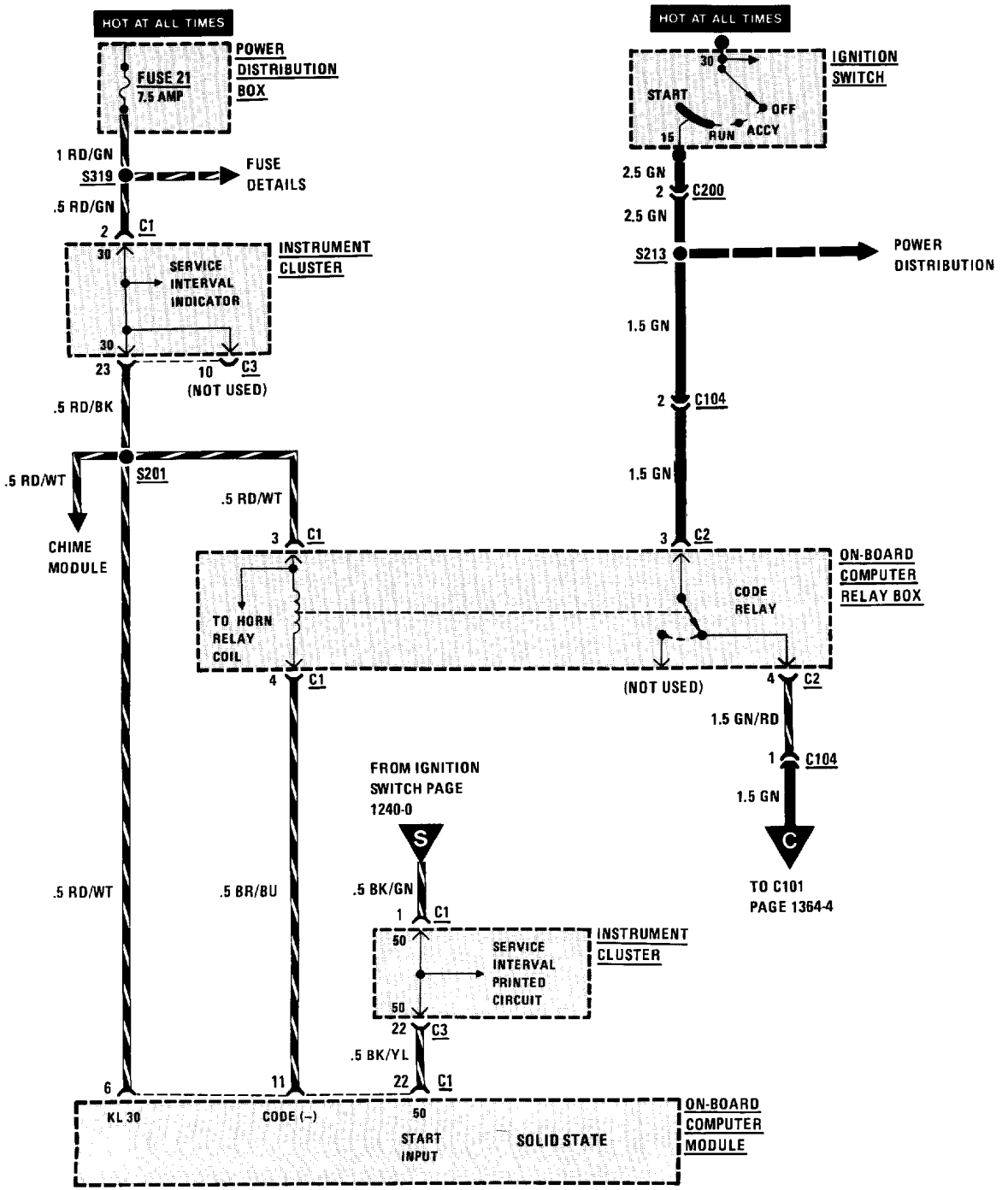


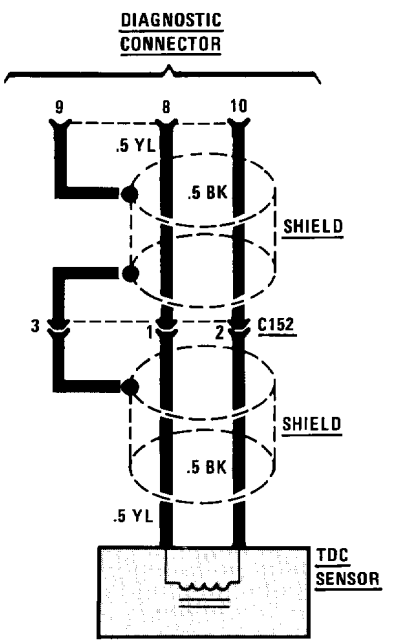
ENGINE BLOCK DIAGRAM

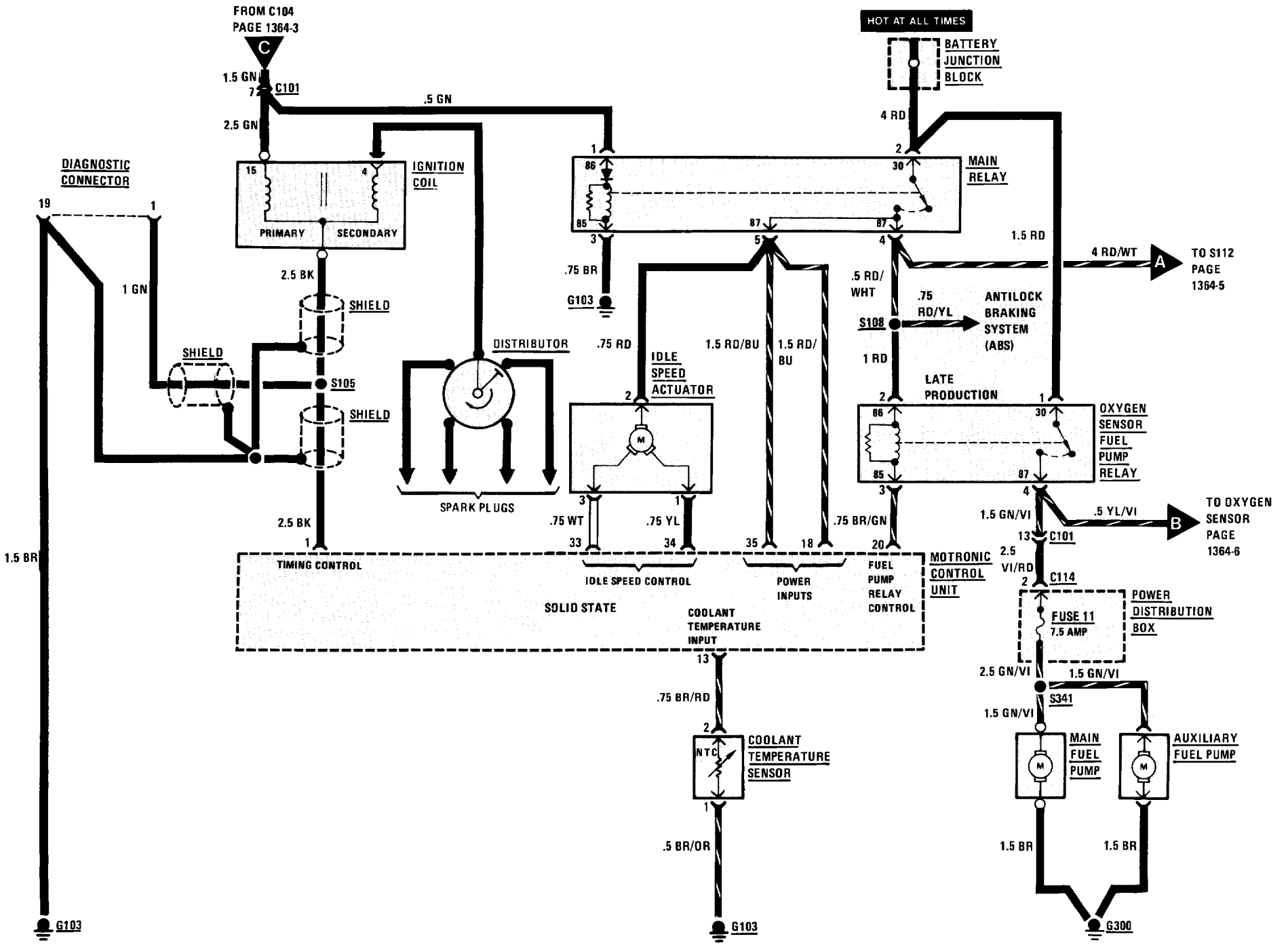


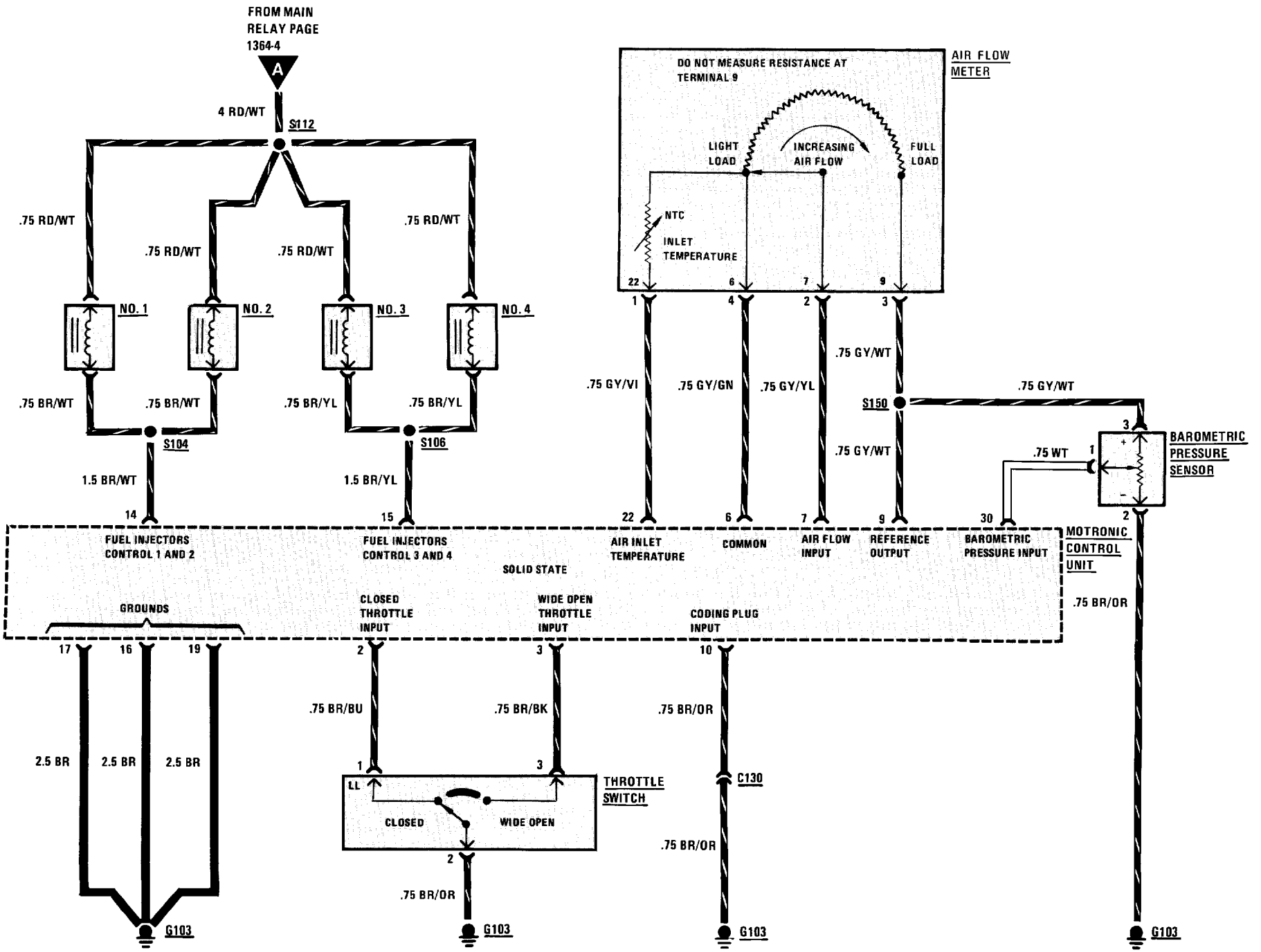
ENGINE BLOCK DIAGRAM

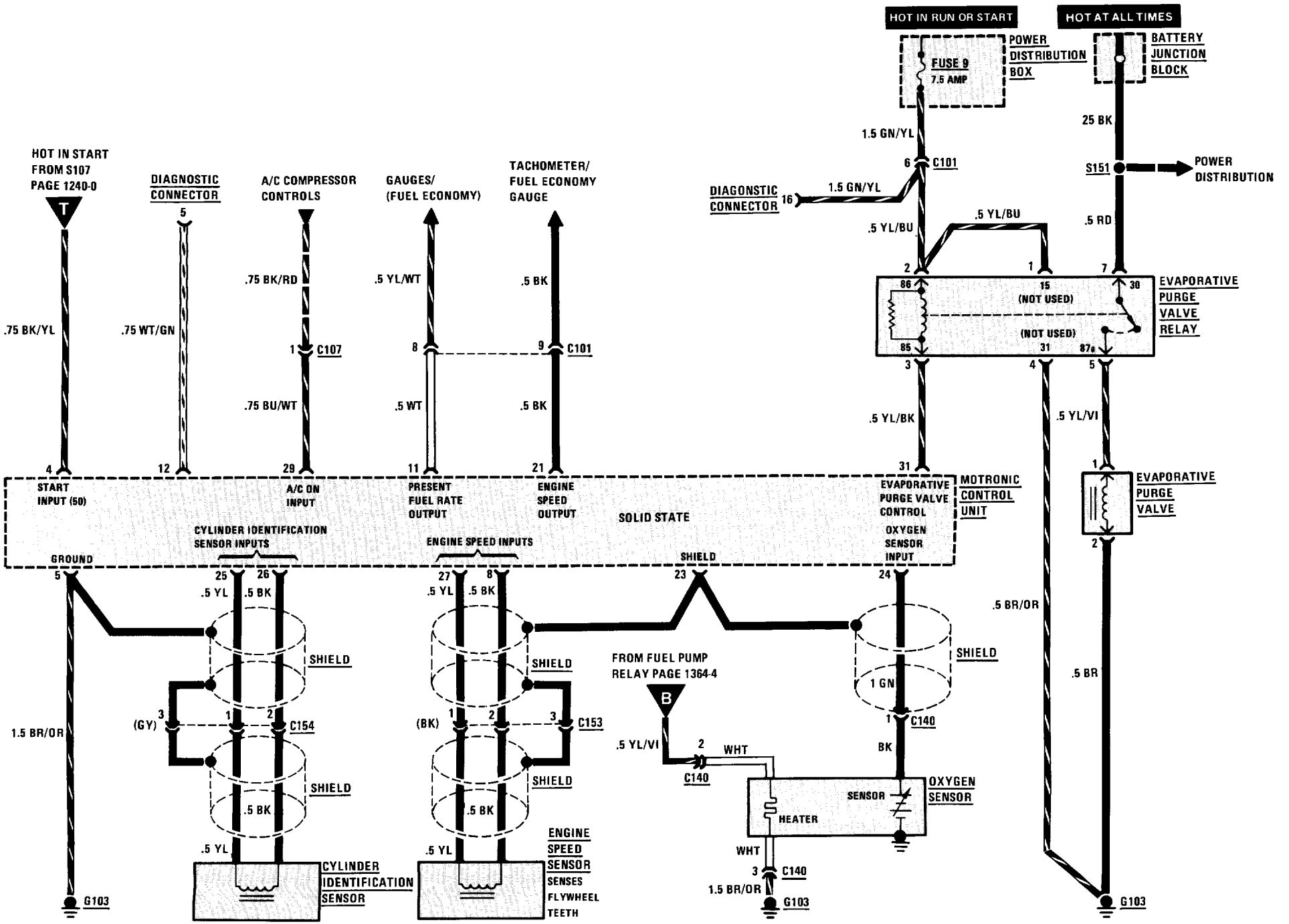



HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 21
7.5 AMP
1 RD/GN
S319
FUSE DETAILS
.5 RD/GN
2
C1
INSTRUMENT CLUSTER
30
SERVICE INTERVAL INDICATOR
30
23
10
C3
(NOT USED)
.5 RD/BK
.5 RD/WT
S201
CHIME MODULE
.5 RD/WT
3
C1
HOT AT ALL TIMES
IGNITION SWITCH
30
START
OFF
15
RUN
ACCY
2.5 GN
2
C200
2.5 GN
S213
POWER DISTRIBUTION
1.5 GN
2
C104
1.5 GN
3
C2
ON-BOARD COMPUTER RELAY BOX
TO HORN RELAY COIL
CODE RELAY
4
C1
(NOT USED)
4
C2
1.5 GN/RD
1
C104
1.5 GN
TO C101
PAGE 1364-4
FROM IGNITION SWITCH PAGE 1240-0
S
.5 BK/GN
1
C1
INSTRUMENT CLUSTER
50
SERVICE INTERVAL PRINTED CIRCUIT
50
22
C3
.5 BK/YL
22
C1
.5 RD/WT
.5 BR/BU
6
11
50
KL 30
CODE (–)
START INPUT
SOLID STATE
ON-BOARD COMPUTER MODULE

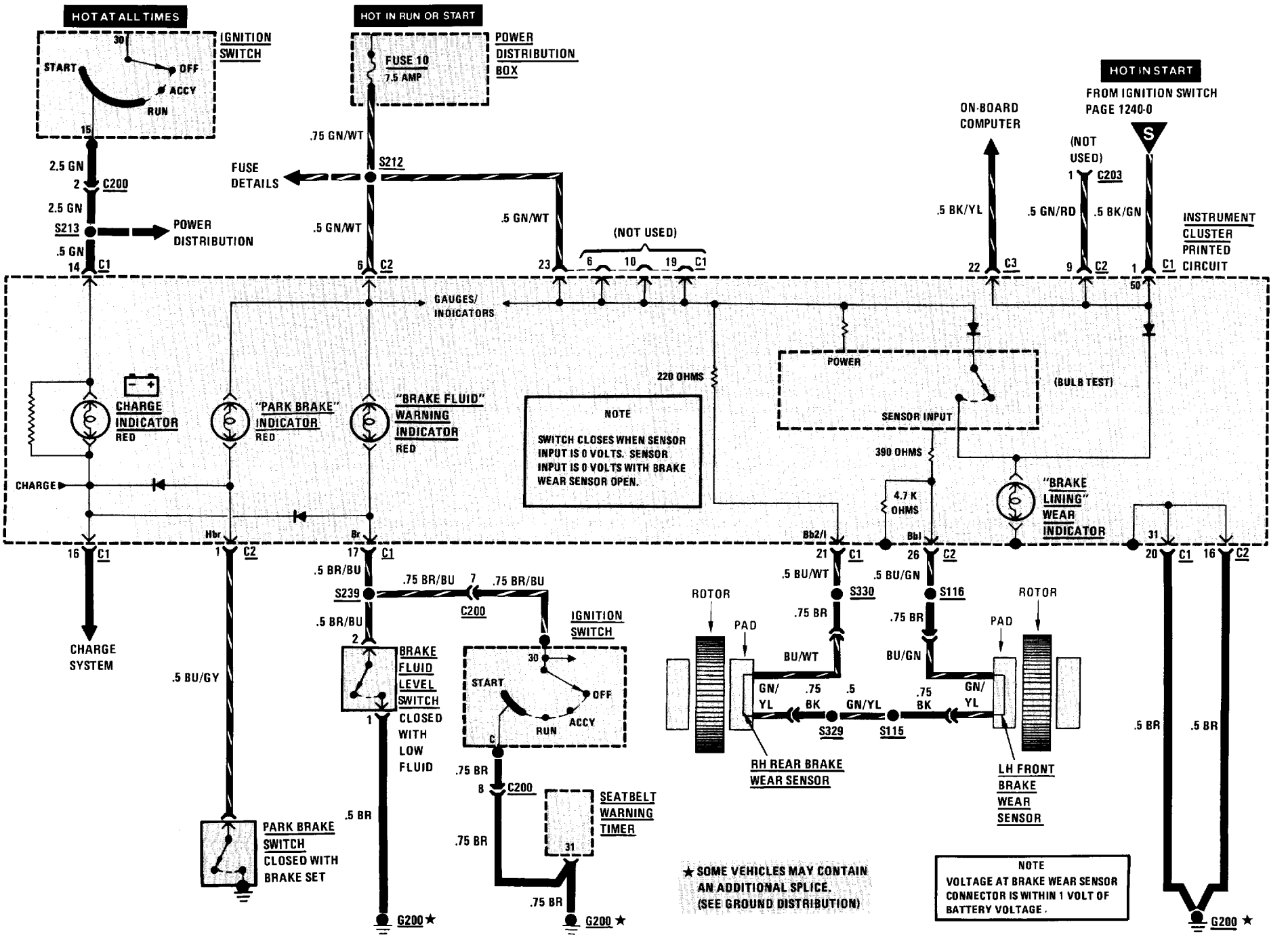

DIAGNOSTIC CONNECTOR
9
8
10
.5 YL
.5 BK
SHIELD
3
1
2
C152
SHIELD
.5 BK
.5 YL
TDC SENSOR


FROM C104
PAGE 1364-3
C
1.5 GN
7
C101
.5 GN
2.5 GN
HOT AT ALL TIMES
BATTERY JUNCTION BLOCK
4 RD
DIAGNOSTIC CONNECTOR
19
1
1 GN
15
4
IGNITION COIL
PRIMARY
SECONDARY
2.5 BK
SHIELD
SHIELD
SHIELD
S105
DISTRIBUTOR
SPARK PLUGS
1.5 BR
G103
.75 BR
G103
MAIN RELAY
86
30
85
87
87
1.5 RD
4 RD/WT
A
TO S112
PAGE
1364-5
.5 RD/
WHT
.75
RD/YL
ANTILOCK
BRAKING
SYSTEM
(ABS)
S108
1 RD
.75 RD
IDLE SPEED ACTUATOR
1.5 RD/BU
1.5 RD/
BU
LATE PRODUCTION
OXYGEN SENSOR FUEL PUMP RELAY
.75 BR/GN
1.5 GN/VI
.5 YL/VI
B
TO OXYGEN
SENSOR
PAGE
1364-6
.75 WT
.75 YL
33
34
35
18
20
13
C101
2.5
VI/RD
2
C114
TIMING CONTROL
SOLID STATE
IDLE SPEED CONTROL
POWER INPUTS
FUEL PUMP RELAY CONTROL
MOTRONIC CONTROL UNIT
COOLANT TEMPERATURE INPUT
POWER DISTRIBUTION BOX
FUSE 11
7.5 AMP
2.5 GN/VI
1.5 GN/VI
S341
1.5 GN/VI
.75 BR/RD
2
NTC
COOLANT TEMPERATURE SENSOR
1
.5 BR/OR
G103
MAIN FUEL PUMP
AUXILIARY FUEL PUMP
1.5 BR
1.5 BR
G300

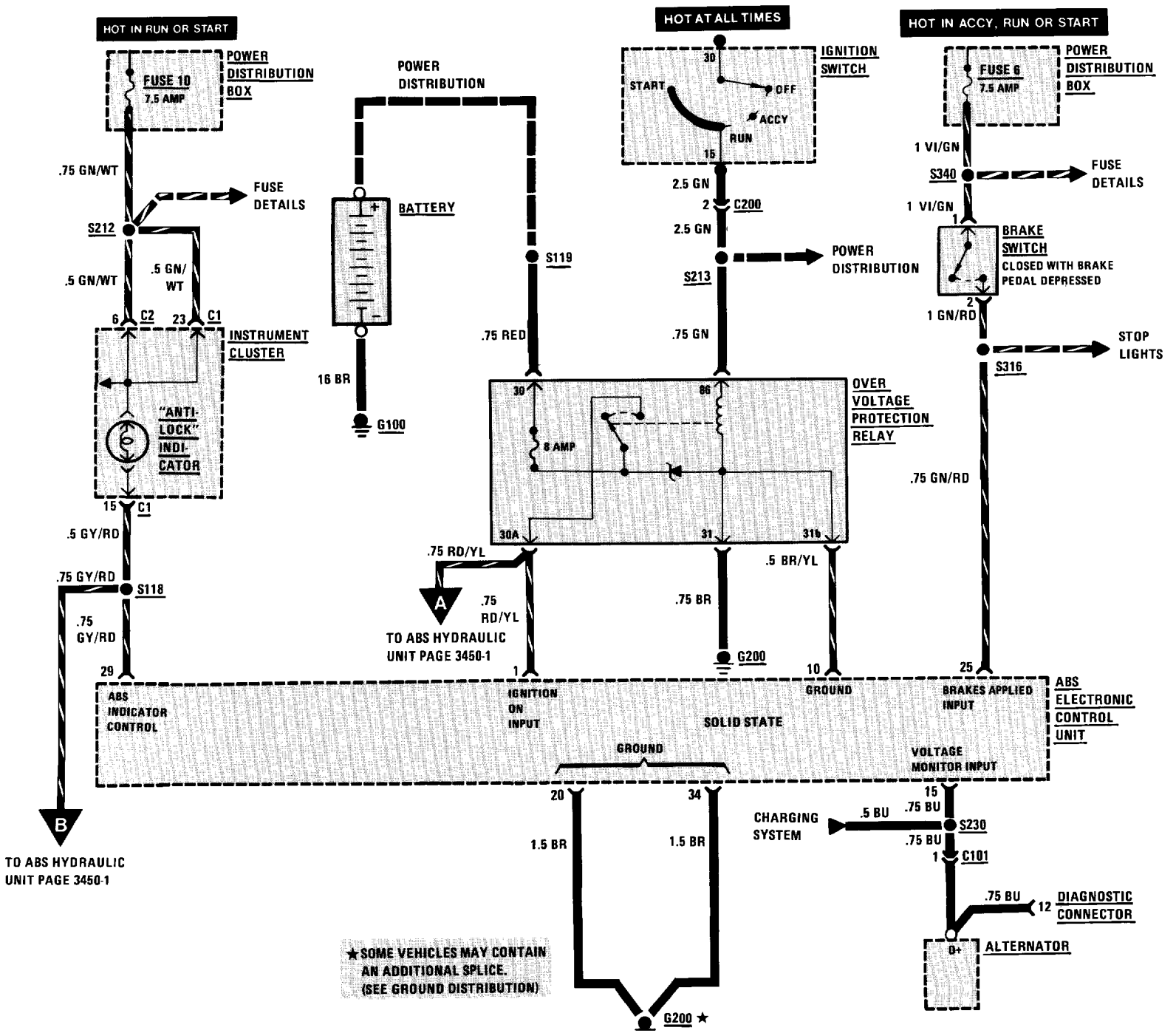

FROM MAIN RELAY PAGE 1364-4
A
4 RD/WT
S112
.75 RD/WT
.75 RD/WT
.75 RD/WT
.75 RD/WT
NO. 1
NO. 2
NO. 3
NO. 4
.75 BR/WT
.75 BR/WT
.75 BR/YL
.75 BR/YL
S104
S106
1.5 BR/WT
1.5 BR/YL
14
15
DO NOT MEASURE RESISTANCE AT TERMINAL 9
AIR FLOW METER
LIGHT LOAD
INCREASING AIR FLOW
FULL LOAD
NTC
INLET TEMPERATURE
22
6
7
9
1
4
2
3
.75 GY/VI
.75 GY/GN
.75 GY/YL
.75 GY/WT
.75 GY/WT
S150
.75 GY/WT
3
.75 WT
1
BAROMETRIC PRESSURE SENSOR
2
22
6
7
9
30
FUEL INJECTORS CONTROL 1 AND 2
FUEL INJECTORS CONTROL 3 AND 4
SOLID STATE
AIR INLET TEMPERATURE
COMMON
AIR FLOW INPUT
REFERENCE OUTPUT
BAROMETRIC PRESSURE INPUT
MOTRONIC CONTROL UNIT
.75 BR/OR
GROUNDS
CLOSED THROTTLE INPUT
WIDE OPEN THROTTLE INPUT
CODING PLUG INPUT
17
16
19
2
3
10
2.5 BR
2.5 BR
2.5 BR
.75 BR/BU
.75 BR/BK
.75 BR/OR
1
3
LL
THROTTLE SWITCH
CLOSED
WIDE OPEN
C130
2
.75 BR/OR
.75 BR/OR
G103
G103
G103
G103

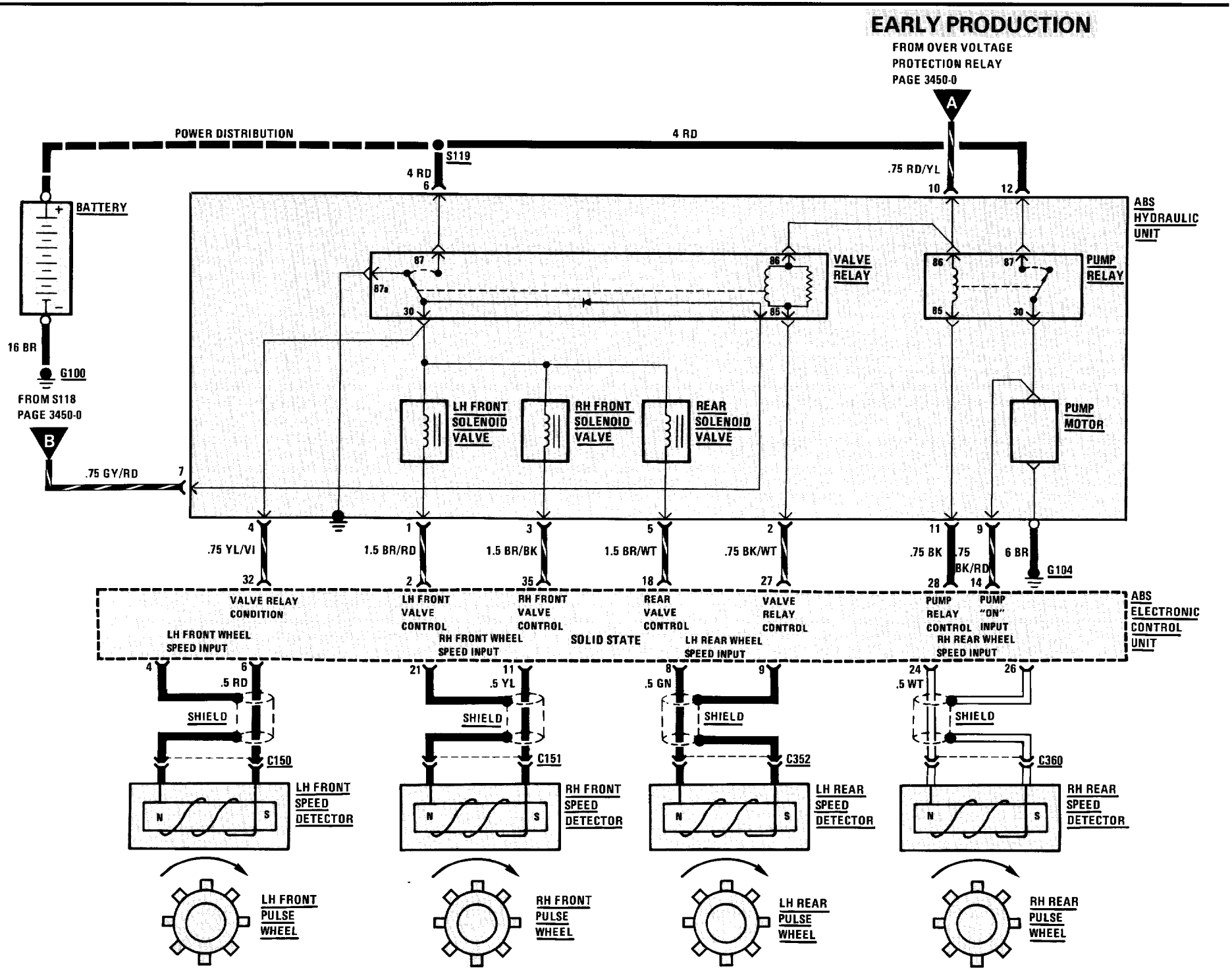

HOT IN RUN OR START
HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 9
7.5 AMP
BATTERY JUNCTION BLOCK
25 BK
S151
POWER DISTRIBUTION
1.5 GN/YL
6
C101
DIAGONSTIC CONNECTOR
16
1.5 GN/YL
.5 YL/BU
.5 YL/BU
.5 RD
2
1
7
86
15
30
(NOT USED)
(NOT USED)
85
31
87a
EVAPORATIVE PURGE VALVE RELAY
3
4
5
.5 YL/BK
.5 YL/VI
31
1
EVAPORATIVE PURGE VALVE
2
HOT IN START FROM S107 PAGE 1240-0
T
DIAGNOSTIC CONNECTOR
A/C COMPRESSOR CONTROLS
GAUGES/ (FUEL ECONOMY)
TACHOMETER/ FUEL ECONOMY GAUGE
.75 BK/YL
.75 WT/GN
.75 BK/RD
.5 YL/WT
.5 BK
.75 BU/WT
.5 WT
.5 BK
4
12
29
11
21
1
C107
8
9
C101
START INPUT (50)
A/C ON INPUT
PRESENT FUEL RATE OUTPUT
ENGINE SPEED OUTPUT
SOLID STATE
EVAPORATIVE PURGE VALVE CONTROL
OXYGEN SENSOR INPUT
MOTRONIC CONTROL UNIT
CYLINDER IDENTIFICATION SENSOR INPUTS
ENGINE SPEED INPUTS
SHIELD
GROUND
5
25
26
27
8
23
24
.5 YL
.5 BK
.5 YL
.5 BK
.5 BR/OR
SHIELD
SHIELD
SHIELD
SHIELD
1 GN
(GY)
3
1
2
C154
(BK)
1
2
3
C153
1
C140
1.5 BR/OR
.5 BR
FROM FUEL PUMP RELAY PAGE 1364-4
B
.5 YL/VI
2
WHT
C140
BK
.5 BK
.5 BK
SENSOR
OXYGEN SENSOR
HEATER
.5 YL
.5 YL
WHT
3
C140
1.5 BR/OR
CYLINDER IDENTIFICATION SENSOR
ENGINE SPEED SENSOR SENSES FLYWHEEL TEETH
G103
G103
G103

3435-0 BRAKE WARNING SYSTEM

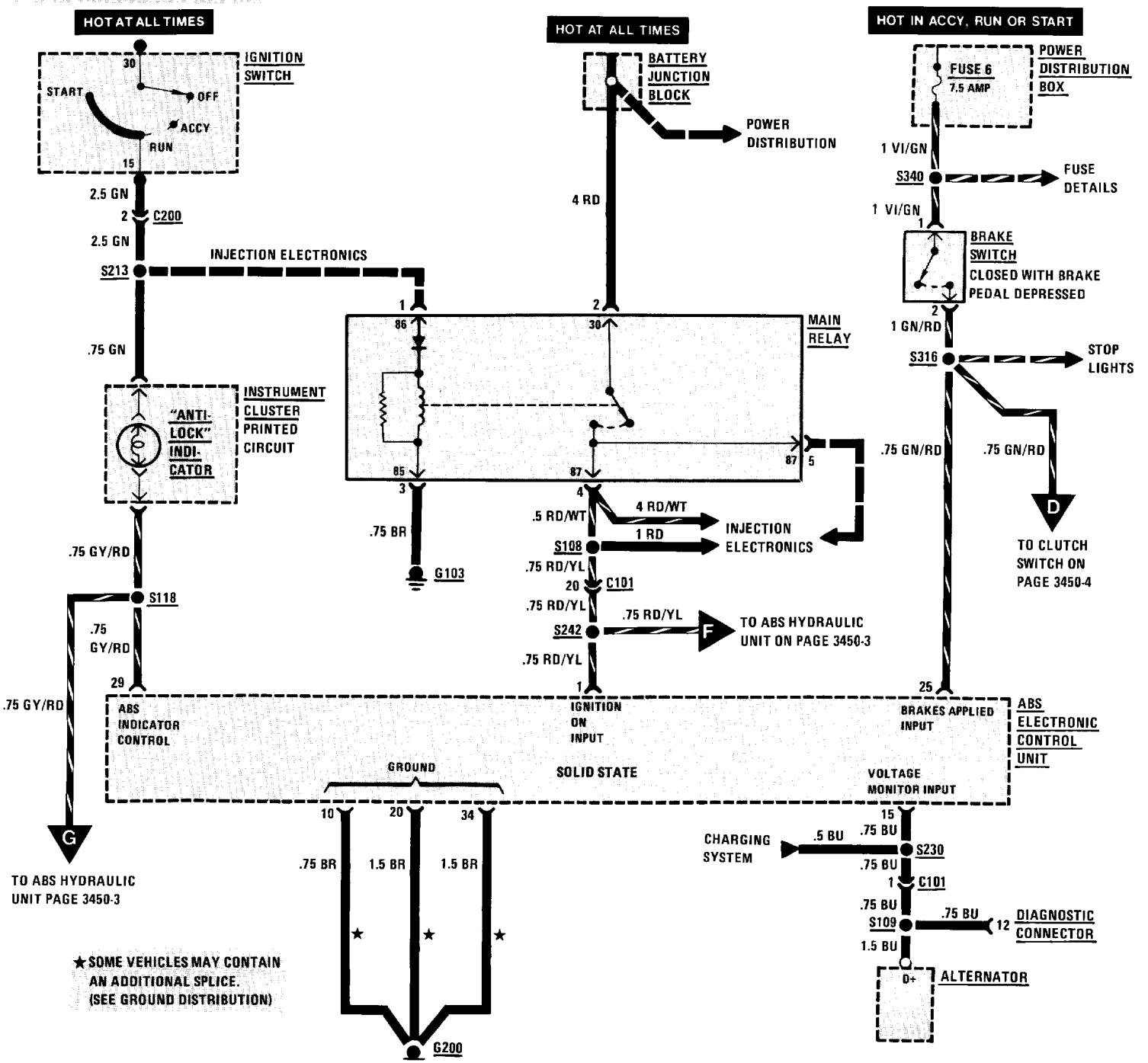


EARLY PRODUCTION

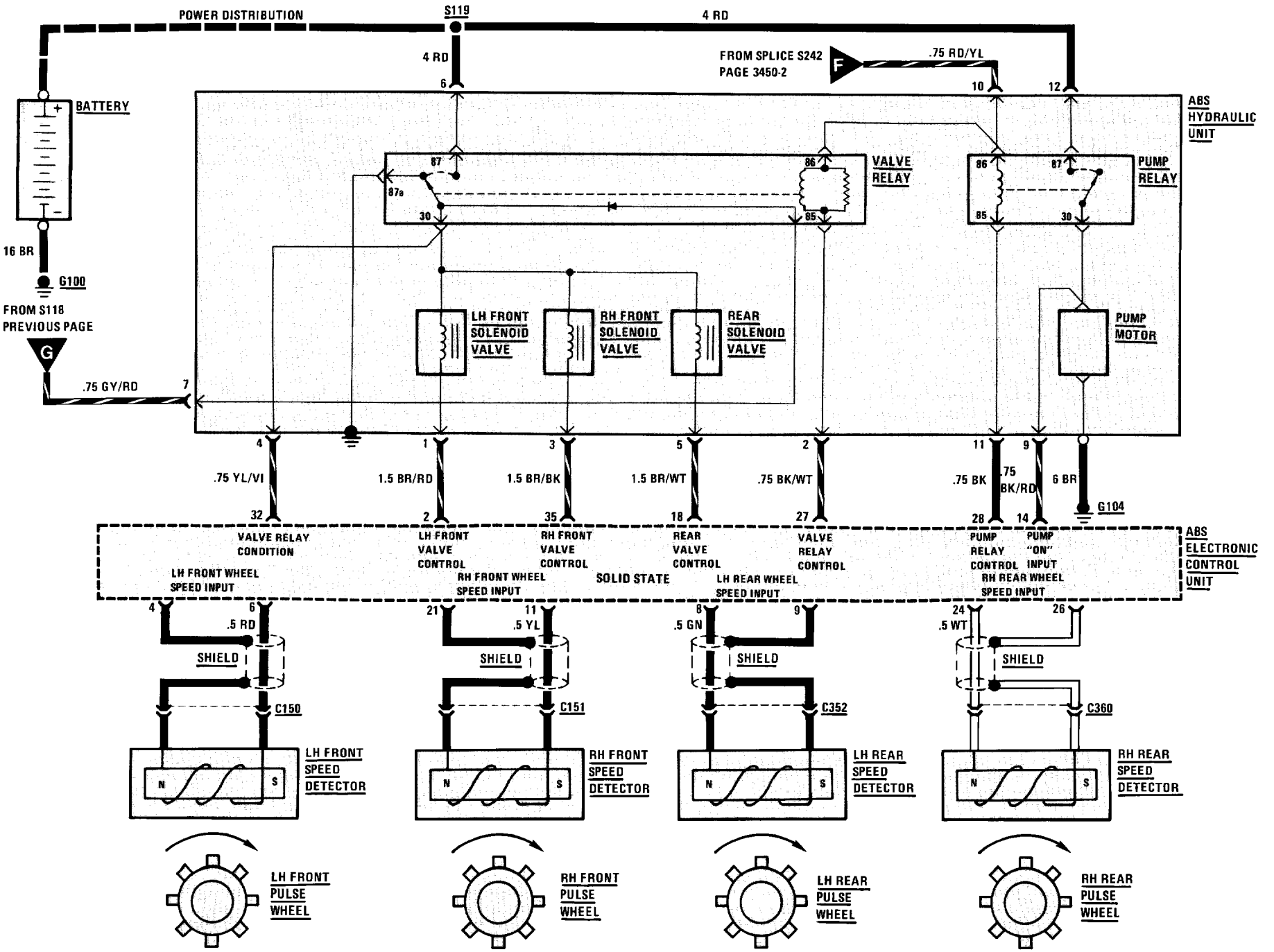


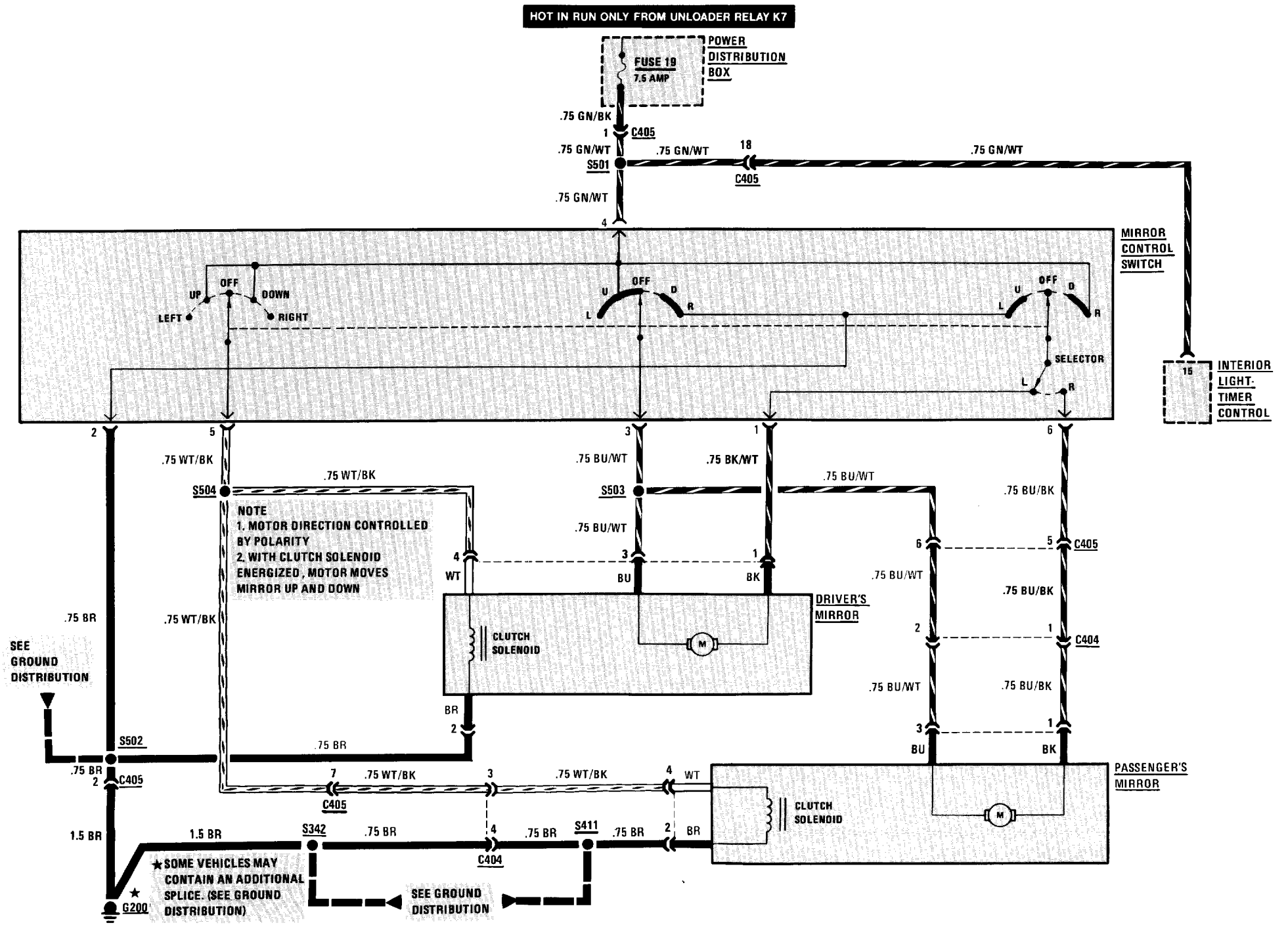

EARLY PRODUCTION
FROM OVER VOLTAGE PROTECTION RELAY PAGE 3450-0
A
POWER DISTRIBUTION
4 RD
S119
4 RD
6
.75 RD/YL
10
12
BATTERY
+
-
16 BR
G100
FROM S118 PAGE 3450-0
B
.75 GY/RD
7
ABS HYDRAULIC UNIT
87
87a
30
86
85
VALVE RELAY
86
87
85
30
PUMP RELAY
LH FRONT SOLENOID VALVE
RH FRONT SOLENOID VALVE
REAR SOLENOID VALVE
PUMP MOTOR
4
.75 YL/VI
1
1.5 BR/RD
3
1.5 BR/BK
5
1.5 BR/WT
2
.75 BK/WT
11
.75 BK
9
.75 BK/RD
6 BR
G104
32
2
35
18
27
28
14
VALVE RELAY CONDITION
LH FRONT VALVE CONTROL
RH FRONT VALVE CONTROL
REAR VALVE CONTROL
VALVE RELAY CONTROL
PUMP RELAY CONTROL
PUMP "ON" INPUT
LH FRONT WHEEL SPEED INPUT
RH FRONT WHEEL SPEED INPUT
SOLID STATE
LH REAR WHEEL SPEED INPUT
RH REAR WHEEL SPEED INPUT
ABS ELECTRONIC CONTROL UNIT
4
6
.5 RD
21
11
.5 YL
8
9
.5 GN
24
26
.5 WT
SHIELD
C150
C151
C352
C360
N
S
LH FRONT SPEED DETECTOR
RH FRONT SPEED DETECTOR
LH REAR SPEED DETECTOR
RH REAR SPEED DETECTOR
LH FRONT PULSE WHEEL
RH FRONT PULSE WHEEL
LH REAR PULSE WHEEL
RH REAR PULSE WHEEL

LATE PRODUCTION

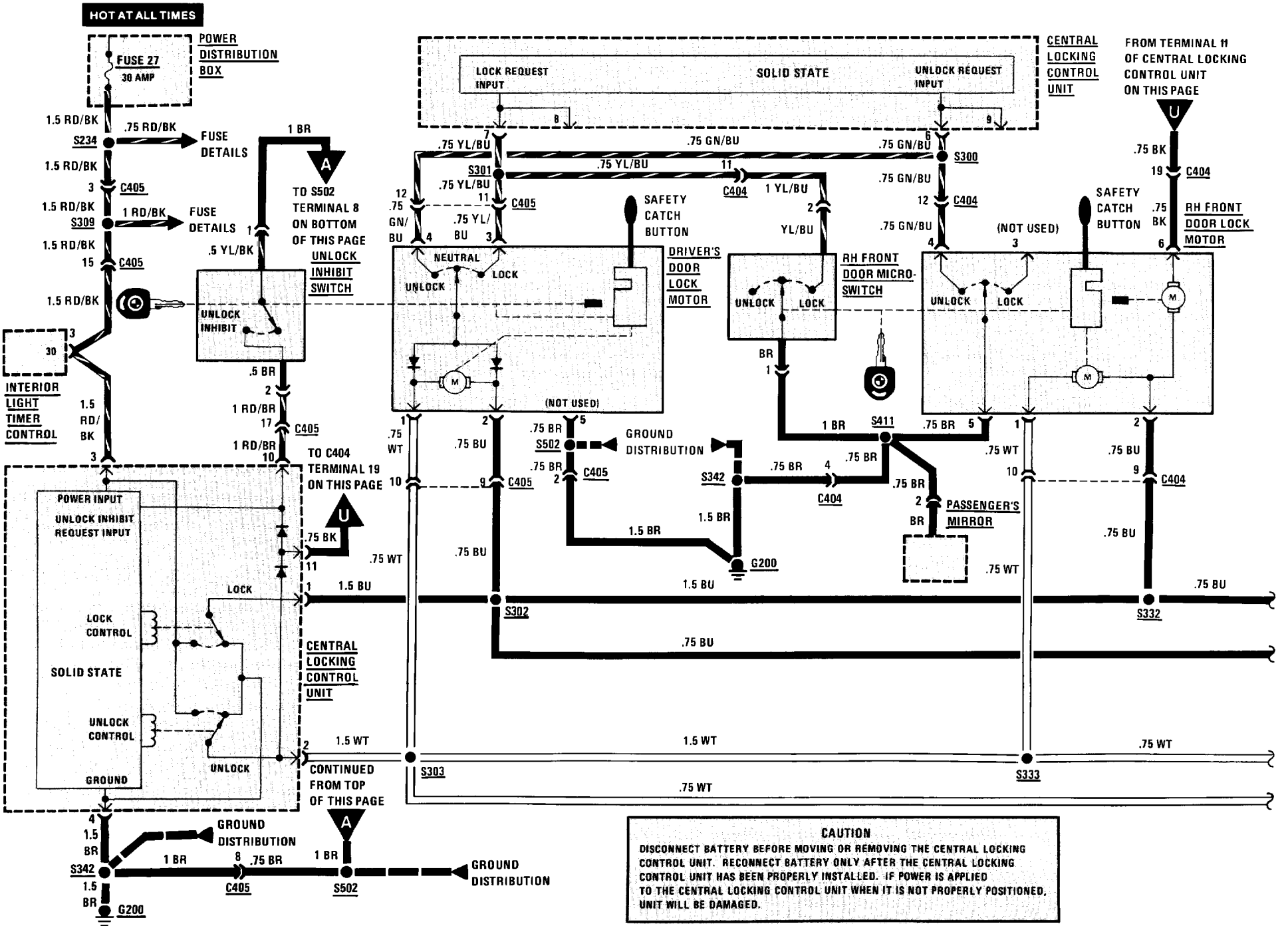


LATE PRODUCTION



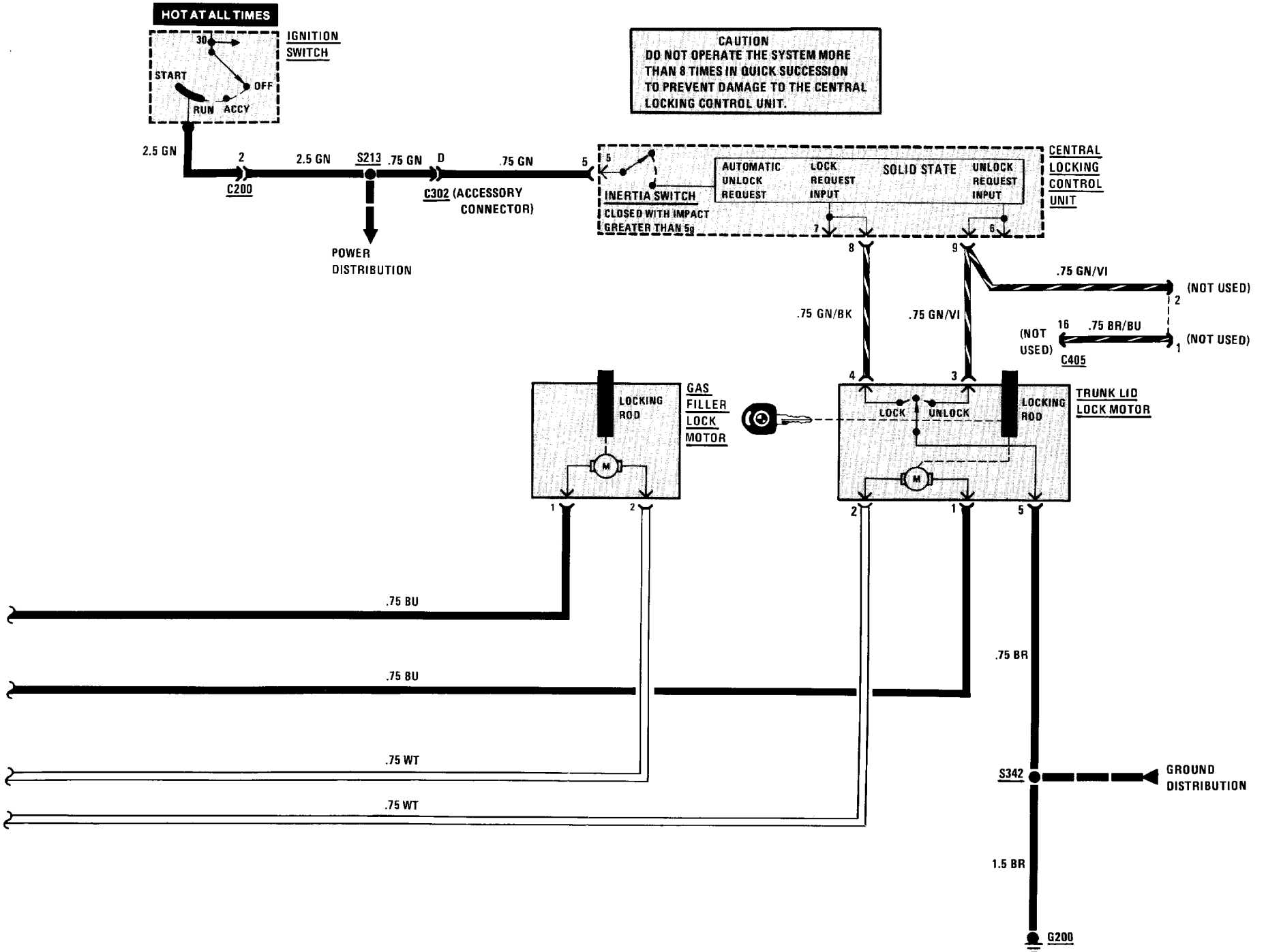

HOT IN RUN ONLY FROM UNLOADER RELAY K7
FUSE 19
7.5 AMP
POWER DISTRIBUTION BOX
.75 GN/BK
1
C405
.75 GN/WT
.75 GN/WT
18
.75 GN/WT
S501
C405
.75 GN/WT
4
MIRROR CONTROL SWITCH
UP
OFF
DOWN
LEFT
RIGHT
U
OFF
D
L
R
SELECTOR
15
INTERIOR LIGHT-TIMER CONTROL
2
5
3
1
6
.75 WT/BK
.75 WT/BK
S504
.75 BU/WT
.75 BK/WT
S503
.75 BU/WT
.75 BU/BK
NOTE
1. MOTOR DIRECTION CONTROLLED BY POLARITY
2. WITH CLUTCH SOLENOID ENERGIZED, MOTOR MOVES MIRROR UP AND DOWN
.75 BU/WT
4
3
1
6
5
C405
WT
BU
BK
.75 BU/WT
.75 BU/BK
DRIVER'S MIRROR
CLUTCH SOLENOID
M
.75 BR
.75 WT/BK
SEE GROUND DISTRIBUTION
2
1
C404
BR
2
.75 BU/WT
.75 BU/BK
3
1
BU
BK
S502
.75 BR
PASSENGER'S MIRROR
.75 BR
2
C405
7
.75 WT/BK
3
.75 WT/BK
4
WT
C405
CLUTCH SOLENOID
M
1.5 BR
1.5 BR
S342
.75 BR
4
.75 BR
S411
.75 BR
2
BR
C404
★SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)
SEE GROUND DISTRIBUTION
★
G200

2 DOOR (SELECT)



CAUTION

DISCONNECT BATTERY BEFORE MOVING OR REMOVING THE CENTRAL LOCKING CONTROL UNIT. RECONNECT BATTERY ONLY AFTER THE CENTRAL LOCKING CONTROL UNIT HAS BEEN PROPERLY INSTALLED. IF POWER IS APPLIED TO THE CENTRAL LOCKING CONTROL UNIT WHEN IT IS NOT PROPERLY POSITIONED, UNIT WILL BE DAMAGED.


HOT AT ALL TIMES
30
START
OFF
RUN
ACCY
IGNITION SWITCH
CAUTION
DO NOT OPERATE THE SYSTEM MORE THAN 8 TIMES IN QUICK SUCCESSION TO PREVENT DAMAGE TO THE CENTRAL LOCKING CONTROL UNIT.
2.5 GN
2
C200
2.5 GN
S213
.75 GN
D
C302 (ACCESSORY CONNECTOR)
.75 GN
5
POWER DISTRIBUTION
5
1
INERTIA SWITCH
CLOSED WITH IMPACT GREATER THAN 5g
AUTOMATIC UNLOCK REQUEST
LOCK REQUEST INPUT
SOLID STATE
UNLOCK REQUEST INPUT
7
6
CENTRAL LOCKING CONTROL UNIT
8
9
.75 GN/BK
.75 GN/VI
.75 GN/VI
(NOT USED)
2
16
.75 BR/BU
(NOT USED)
1
C405
4
3
LOCKING ROD
GAS FILLER LOCK MOTOR
LOCK
UNLOCK
LOCKING ROD
TRUNK LID LOCK MOTOR
M
M
1
2
2
1
5
.75 BU
.75 BU
.75 WT
.75 WT
.75 BR
S342
GROUND DISTRIBUTION
1.5 BR
G200

TROUBLESHOOTING HINTS

1. Check Fuse by operating the Interior Light Timer for either Dome Light.
2. If all locks stay in UNLOCK INHIBIT, check the wires to terminal 10 of the Central Locking Control Unit for a short to ground.

SYSTEM CHECK

- **Operate controls in sequence listed in the System Check Table.**
- **Refer to Repair Action for the Response received (tests follow the System Check Table).**
- **After any repair, repeat System Check to verify proper system operation.**

NOTE: Before replacing any system component, check all connectors, splices, and wiring to that component.

SYSTEM CHECK TABLE

OPERATION	RESPONSE	REPAIR ACTION
1. Insert the key in the Driver's door and turn to LOCK	All doors lock	None, proceed to Operation 2
	Some doors lock	Repair/replace the suspect Door Lock Motor circuit
	No doors lock	Proceed to Operation 4
2. Turn the key to UNLOCK INHIBIT (clockwise until key is horizontal)	All doors double lock (Safety Catch Buttons cannot be pulled up by hand)	None, proceed to Operation 3
	Driver's door double locks and only some of the other doors double lock	Repair/replace the suspect Door Lock Motor
	Driver's door double locks but no other doors double lock	Perform Test B
	Driver's door does not double lock	Mechanical problem, see BMW Workshop Manual

SYSTEM CHECK TABLE (CONT'D)

OPERATION	RESPONSE	REPAIR ACTION
3. Turn the key to UNLOCK	All doors unlock	None, proceed to Operation 4
	Some doors unlock	Repair/replace the suspect Door Lock Motor circuit
	No doors unlock	Proceed to Operation 5
4. Insert the key in the Passenger's door and turn to LOCK	All doors lock	If the doors did not lock in Operation 1, repair/ replace the Driver's Door Lock Switch, otherwise proceed to Operation 5
	Some doors lock	Repair/replace the suspect Door Lock Motor circuit
	No doors lock	If all the doors locked in Operation 1, repair/ replace the Right Front Door Microswitch. If the doors did not lock in Operation 1, perform Test A
5. Insert the key in the Passenger's door and turn to UNLOCK	All doors unlock	If all the doors did not unlock in Operation 3, repair/replace the Driver's Door Lock Switch, otherwise proceed to Operation 6
	Some doors unlock	Repair/replace the suspect Door Lock Motor
	No doors unlock	If all the doors unlocked in Operation 3, repair/ replace the Passenger's Door Lock Switch. If the doors did not unlock in Operation 3, perform Test C
6. Get in the car and close and lock all doors Turn the Ignition Switch to RUN	Doors remain locked	None, proceed to Operation 7
	Doors unlock	Repair/replace the Central Locking Control Unit
7. Get out of the car Insert the key in the Driver's door and turn to LOCK Unlock each of the doors by pulling up the Safety Catch Buttons	All doors can be unlocked	None, proceed to Operation 8
	All doors remain secure	Disconnect the connector from the Central Locking Control Unit and check for a short to ground in the wires at terminal 11. • If short to ground is not present, replace the Central Locking Control Unit • If short to ground is present isolate wiring from Door Lock Motors one at a time to find short

SYSTEM CHECK TABLE (CONT'D)

OPERATION	RESPONSE	REPAIR ACTION
8. Insert the key in the Trunk Cylinder Switch. Turn the key to LOCK	Trunk locks	None, proceed to Operation 9
	Trunk does not lock	If the doors lock, repair/replace the Trunk Lock Motor Circuit or Trunk Lock Motor If the doors do not lock, repair/replace the Trunk Switch Repair/replace the Central Locking Control Unit if the Trunk Switch Circuit is OK
9. Turn the key to UNLOCK	Trunk unlocks	None, proceed to Operation 10
	Trunk does not unlock	If the doors unlock, repair/replace the Trunk Lock Motor circuit or Trunk Lock Motor If the doors do not unlock, repair/replace the Trunk Switch Repair/replace the Central Locking Control Unit if the Trunk Switch Circuit is OK
10. Turn the key back to LOCK	Gas Filler locks	None, proceed to Operation 11
	Gas Filler does not lock	Repair/replace the Gas Filler Lock Motor circuit
11. Turn the key to UNLOCK	Gas Filler unlocks	None
	Gas Filler does not unlock	Repair/replace the Gas Filler Lock Motor circuit

- **If all results are normal, the system is OK.**

SYSTEM DIAGNOSIS

- **Do the following tests when directed by the System Check Table.**

A: CONTROL UNIT LOCK TEST (TABLE 1)

Measure: VOLTAGE
At: CONTROL UNIT CONNECTOR (Connected)

Measure Between	Correct Voltage	For Diagnosis
3 & Ground	Battery	See 1
3 & 4	Battery	See 2

- If the voltages are correct, proceed to Table 2.

1. Check the wire to terminal 3 for an open.
2. Check the wire from terminal 4 for an open to ground (see schematic).

A: CONTROL UNIT LOCK TEST (TABLE 2)

Connect: A FUSED JUMPER
At: CONTROL UNIT CONNECTOR (Connected)

Jumper Between	Correct Result	For Diagnosis
7 & Ground	Doors lock	See 1

- If the result is correct, repair/replace the switches and related wiring (see schematic).

1. Proceed to Table 3.

A: CONTROL UNIT LOCK TEST (TABLE 3)

Connect: FUSED JUMPERS
At: CONTROL UNIT CONNECTOR
(Disconnected)

Jumper Between	Correct Result	For Diagnosis
1 & 3 2 & 4	Doors lock	See 1

- If the result is correct, replace the Central Locking Control Unit.

1. Check the wire from terminal 1 to splice and the wire from terminal 3 to splice for opens (see schematic).

B: UNLOCK INHIBIT TEST

Connect: A FUSED JUMPER
At: CONTROL UNIT CONNECTOR
(Connected)

Jumper Between	Correct Result	For Diagnosis
10 & Ground	Doors double lock	See 1

- If the result is correct, check the wires from terminal 10 to ground for opens (see schematic). Replace the Unlock Inhibit Switch if the wires and connections are OK.

1. Check the wires from terminal 11 for opens (see schematic). Replace the Central Locking Control Unit, if the wires and connections are OK.

C: CONTROL UNIT UNLOCK TEST

Connect: A FUSED JUMPER
At: CONTROL UNIT CONNECTOR
(Connected)

Jumper Between	Correct Result	For Diagnosis
6 & Ground	Doors unlock	See 1

- If the result is correct, repair/replace the switches and related wiring (see schematic).

1. Replace the Central Locking Control Unit.

CIRCUIT DESCRIPTION

The Central Locking System is controlled by the Central Locking Control Unit. This unit senses when a lock switch is moved by a key, and sends the appropriate signal to drive the Motors. The Central Locking Control Unit controls the Door Locks, Gas Filler Lock and Trunk Lock. The unit also has an Inertia Switch which closes on impact greater than 5g. If in RUN or START the locks are then unlocked.

Lock

When the Key is inserted into a lock and turned clockwise, the Lock switch moves to LOCK and grounds terminal 7 of the Central Locking Control Unit. The unit then activates the Lock Relay and applies voltage from Fuse 27 to the Lock Motor, which is grounded through the Central Locking Control Unit terminal 2. The Lock Motor then pulls the lock down. The door locks also control the Trunk Lock and Gas Filler Lock.

Unlock

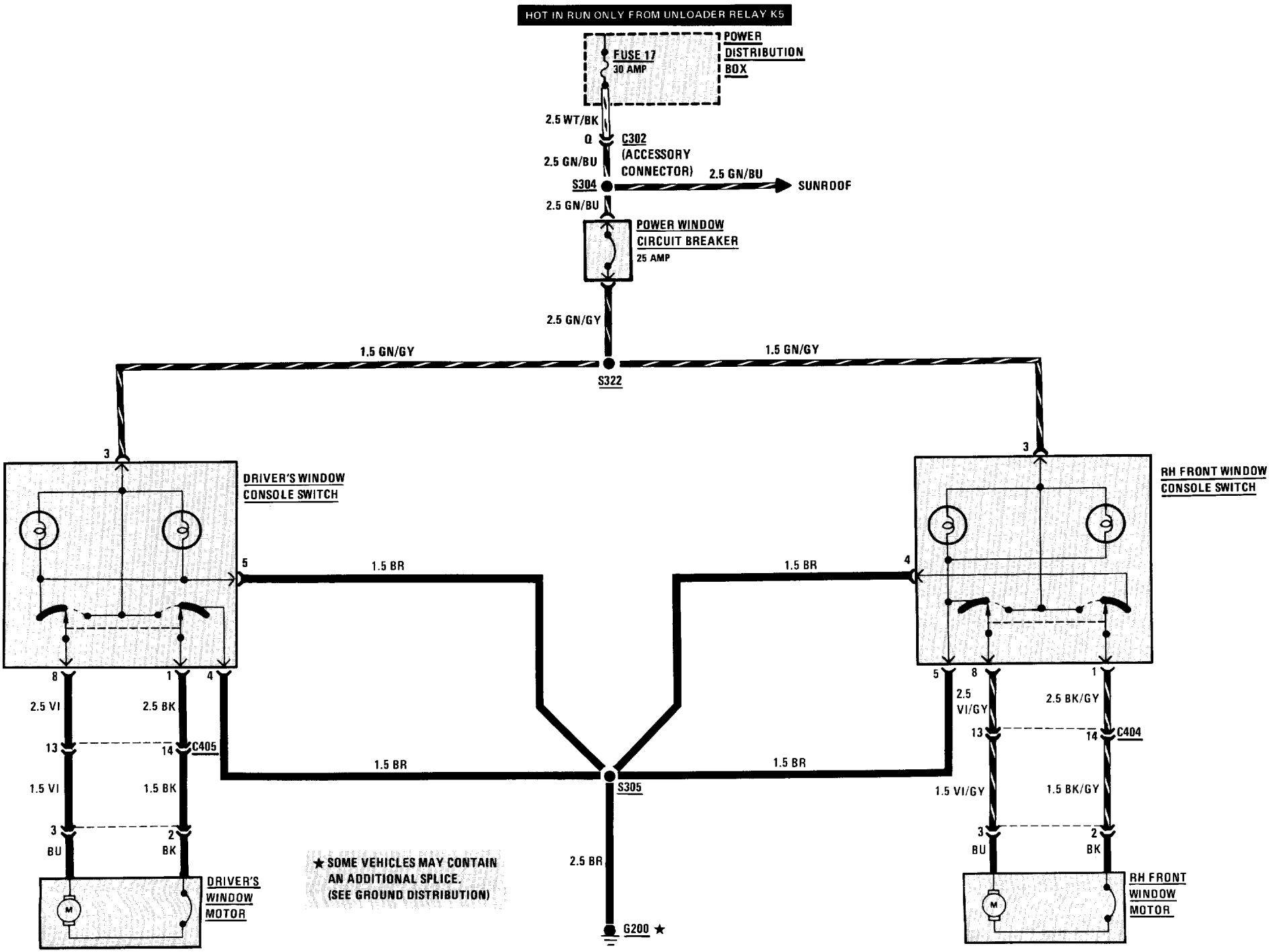
When the key is turned counterclockwise, terminal 6 of the Central Locking Control Unit is grounded through the Lock Switch. The Central Locking Control Unit then activates the Unlock Relay and applies voltage from Fuse 27, through terminal 2 to the Lock Motor. The motor is grounded through the Cental Locking Control Unit terminal 1. The polarity is reversed and the motor pushes the lock up.

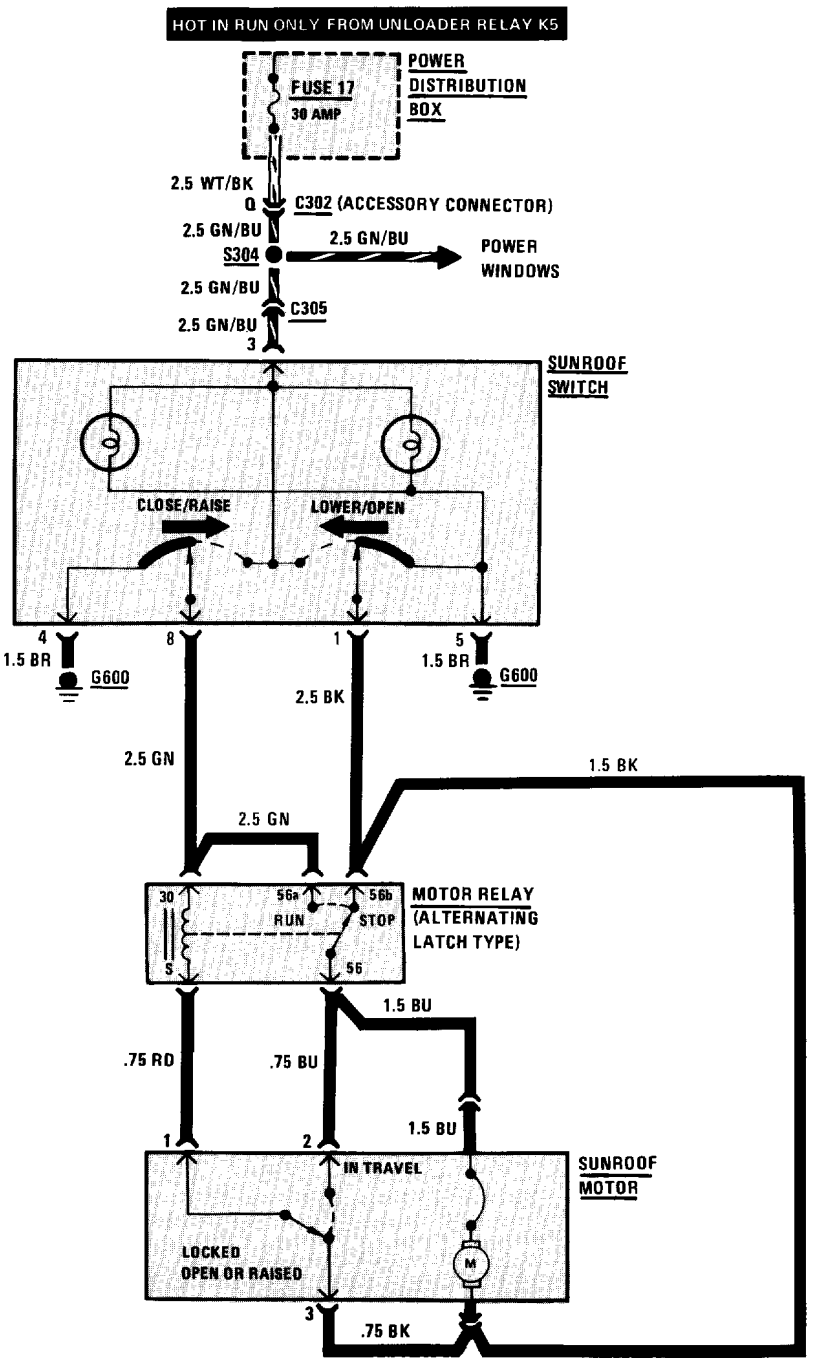
Unlock Inhibit

When the key is inserted into the Driver's Lock and turned clockwise past the LOCK position, the Unlock Inhibit mechanism is engaged. This mechanically inserts a bar into the driver's lock and prevents unlocking through use of the Safety Catch Button. When in the Unlock Inhibit position, ground is applied to the Unlock Inhibit motors in the other lock units. The Central Locking Control Unit is grounded at terminal 10 and then activates the Lock Relay. Voltage is applied to the Unlock Inhibit motors through terminal 1. They are now activated and engage the other Unlock Inhibit mechanisms. The direction of the motors is reversed when the doors are unlocked (see Unlock).

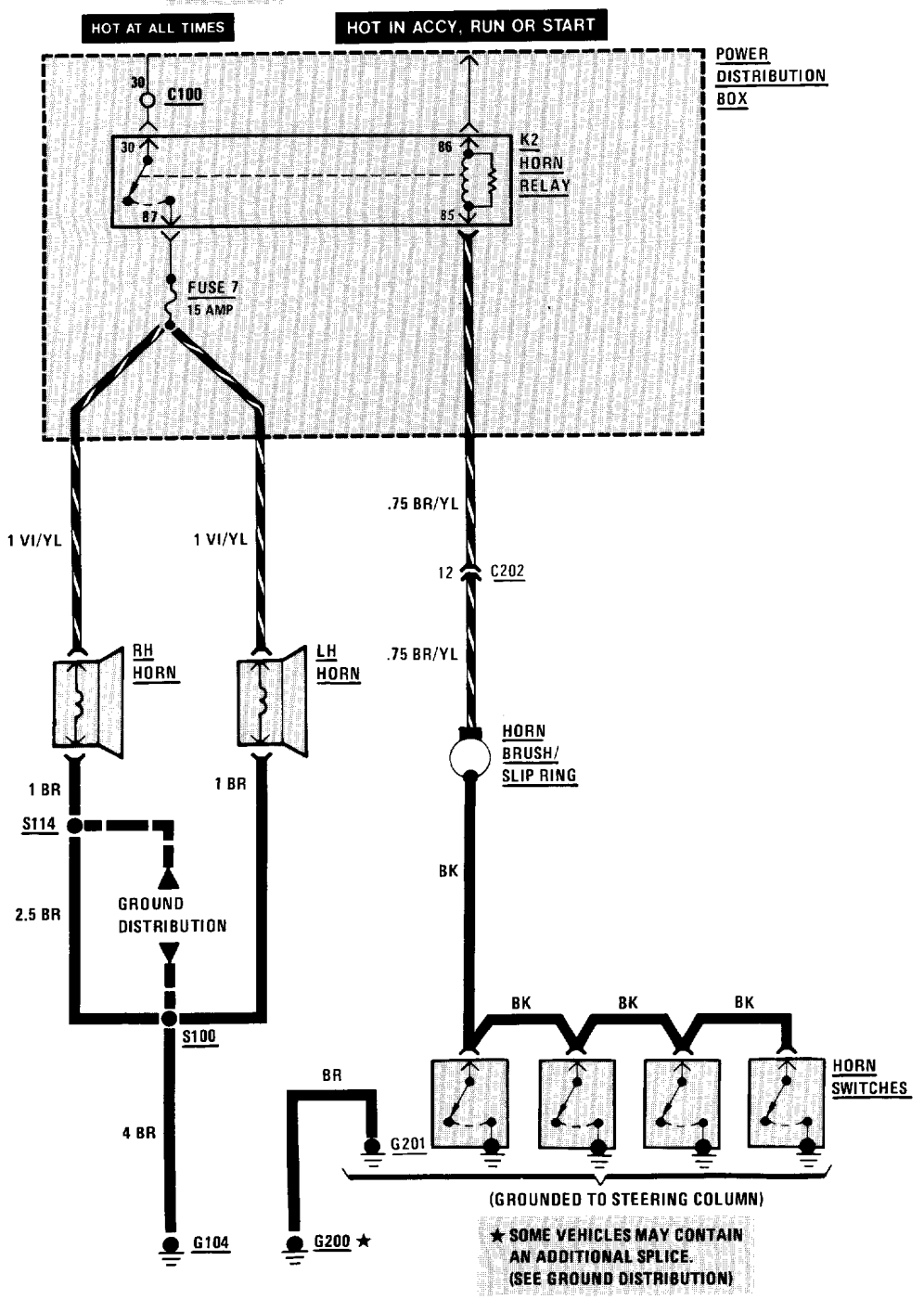
Trunk Lock

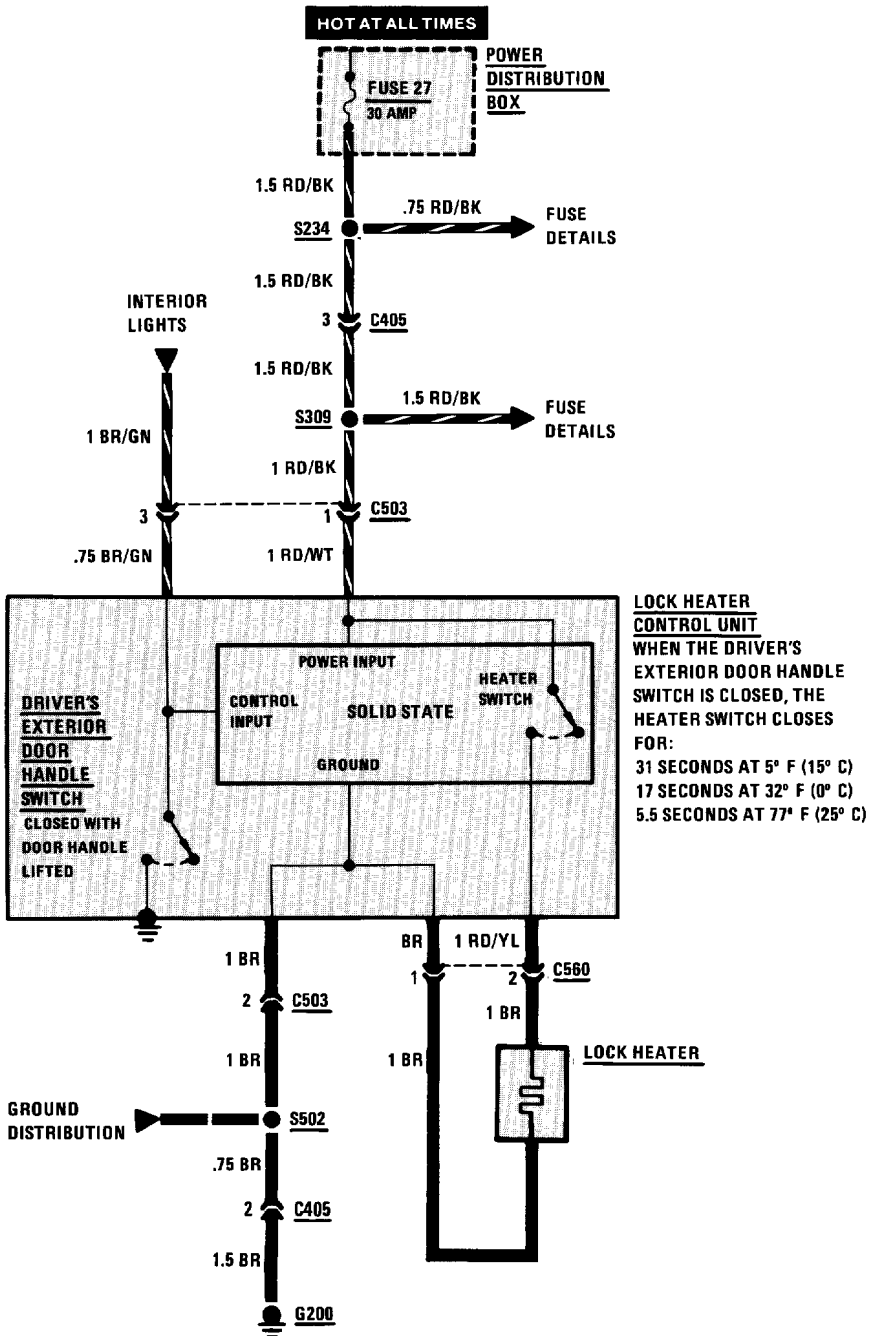
The Trunk Lock operates in a manner similar to the Door Locks.


HOT IN RUN ONLY FROM UNLOADER RELAY K5
FUSE 17
30 AMP
POWER DISTRIBUTION BOX
2.5 WT/BK
Q
C302
(ACCESSORY CONNECTOR)
2.5 GN/BU
2.5 GN/BU
S304
2.5 GN/BU
SUNROOF
POWER WINDOW CIRCUIT BREAKER
25 AMP
2.5 GN/GY
1.5 GN/GY
1.5 GN/GY
S322
3
DRIVER'S WINDOW CONSOLE SWITCH
3
RH FRONT WINDOW CONSOLE SWITCH
5
1.5 BR
1.5 BR
4
8
1
4
5
8
1
2.5 VI
2.5 BK
2.5 VI/GY
2.5 BK/GY
13
14
C405
13
14
C404
1.5 BR
1.5 BR
S305
1.5 VI
1.5 BK
1.5 VI/GY
1.5 BK/GY
3
2
3
2
BU
BK
BU
BK
DRIVER'S WINDOW MOTOR
★ SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)
2.5 BR
G200 ★
RH FRONT WINDOW MOTOR

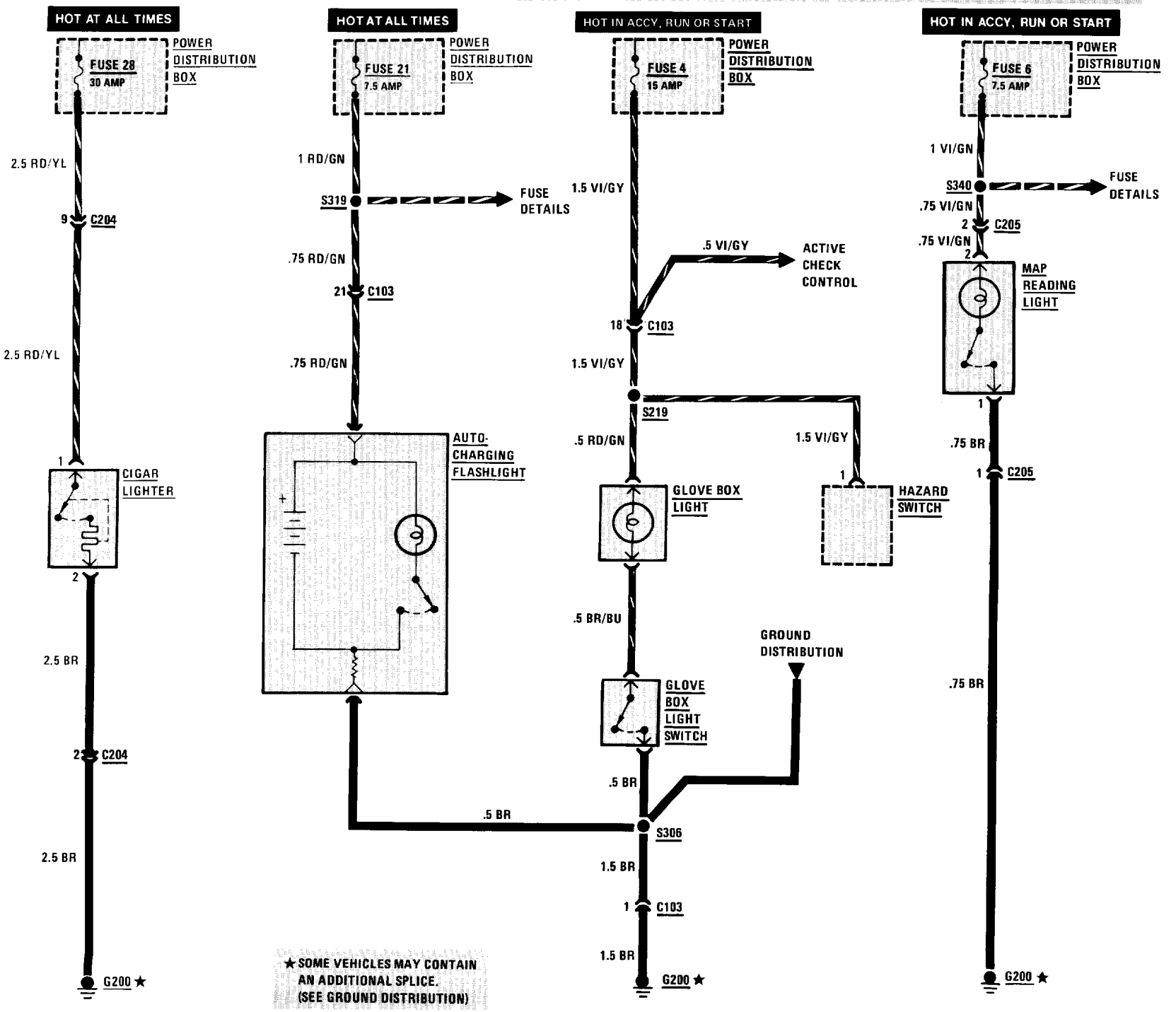

HOT IN RUN ONLY FROM UNLOADER RELAY K5
POWER DISTRIBUTION BOX
FUSE 17
30 AMP
2.5 WT/BK
Q
C302 (ACCESSORY CONNECTOR)
2.5 GN/BU
S304
2.5 GN/BU
POWER WINDOWS
2.5 GN/BU
C305
2.5 GN/BU
3
SUNROOF SWITCH
CLOSE/RAISE
LOWER/OPEN
4
1.5 BR
G600
8
1
5
1.5 BR
G600
2.5 BK
2.5 GN
1.5 BK
2.5 GN
30
S
56a
RUN
56b
STOP
56
MOTOR RELAY (ALTERNATING LATCH TYPE)
1.5 BU
.75 RD
.75 BU
1.5 BU
1
2
IN TRAVEL
SUNROOF MOTOR
LOCKED OPEN OR RAISED
M
3
.75 BK

HORNS

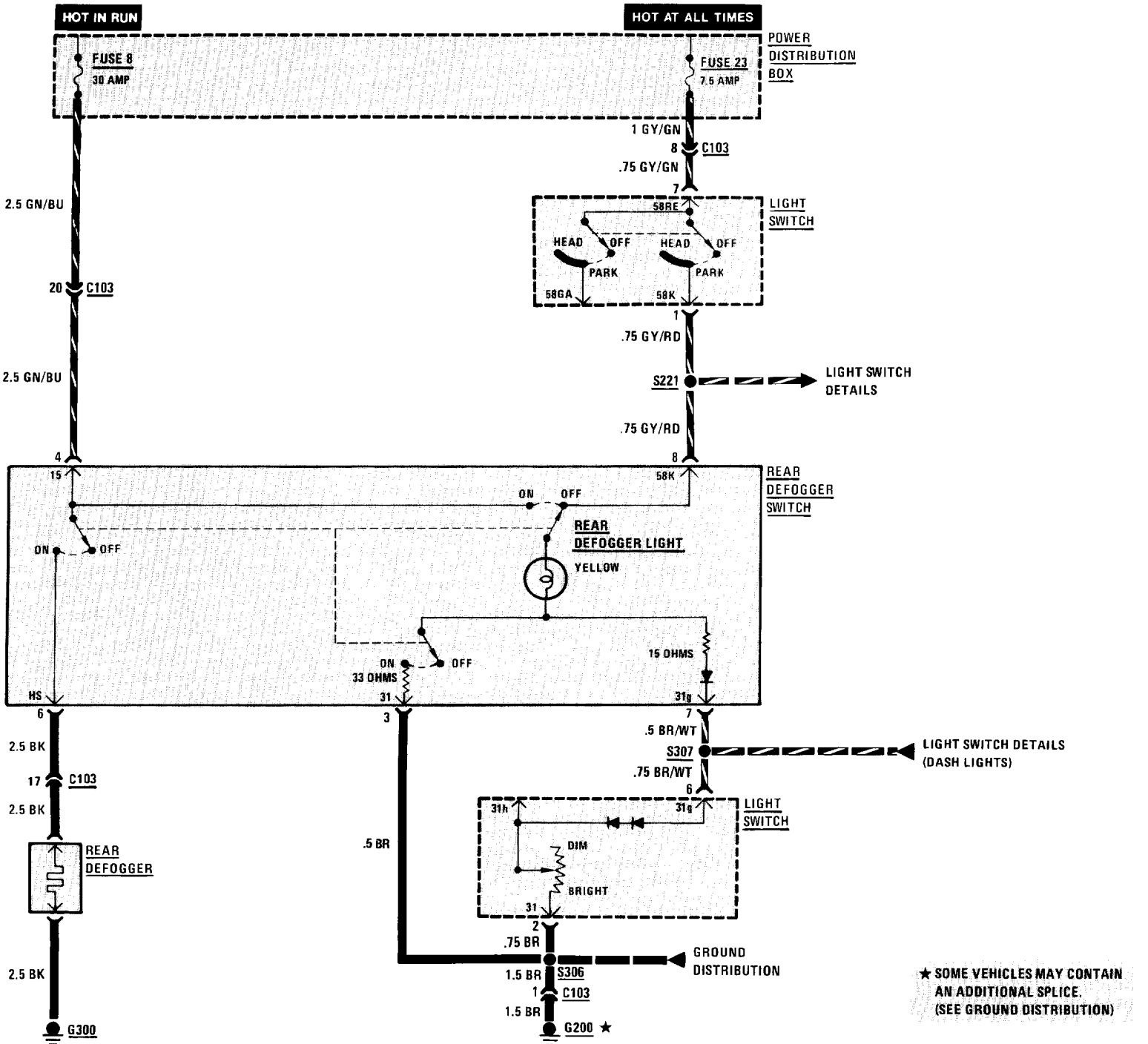

HOT AT ALL TIMES
HOT IN ACCY, RUN OR START
POWER DISTRIBUTION BOX
30
C100
30
86
K2 HORN RELAY
87
85
FUSE 7
15 AMP
1 VI/YL
1 VI/YL
.75 BR/YL
12
C202
.75 BR/YL
RH HORN
LH HORN
HORN BRUSH/ SLIP RING
1 BR
1 BR
S114
BK
2.5 BR
GROUND DISTRIBUTION
BK
BK
BK
S100
BR
HORN SWITCHES
4 BR
G201
(GROUNDED TO STEERING COLUMN)
G104
G200 ★
★ SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)


HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 27
30 AMP
1.5 RD/BK
.75 RD/BK
FUSE DETAILS
S234
1.5 RD/BK
INTERIOR LIGHTS
3
C405
1.5 RD/BK
1.5 RD/BK
FUSE DETAILS
S309
1 BR/GN
1 RD/BK
3
1
C503
.75 BR/GN
1 RD/WT
LOCK HEATER CONTROL UNIT
WHEN THE DRIVER'S EXTERIOR DOOR HANDLE SWITCH IS CLOSED, THE HEATER SWITCH CLOSES FOR:
31 SECONDS AT 5° F (15° C)
17 SECONDS AT 32° F (0° C)
5.5 SECONDS AT 77° F (25° C)
POWER INPUT
HEATER SWITCH
CONTROL INPUT
SOLID STATE
GROUND
DRIVER'S EXTERIOR DOOR HANDLE SWITCH
CLOSED WITH DOOR HANDLE LIFTED
1 BR
BR
1 RD/YL
2
C503
1
2
C560
1 BR
1 BR
1 BR
LOCK HEATER
GROUND DISTRIBUTION
S502
.75 BR
2
C405
1.5 BR
G200

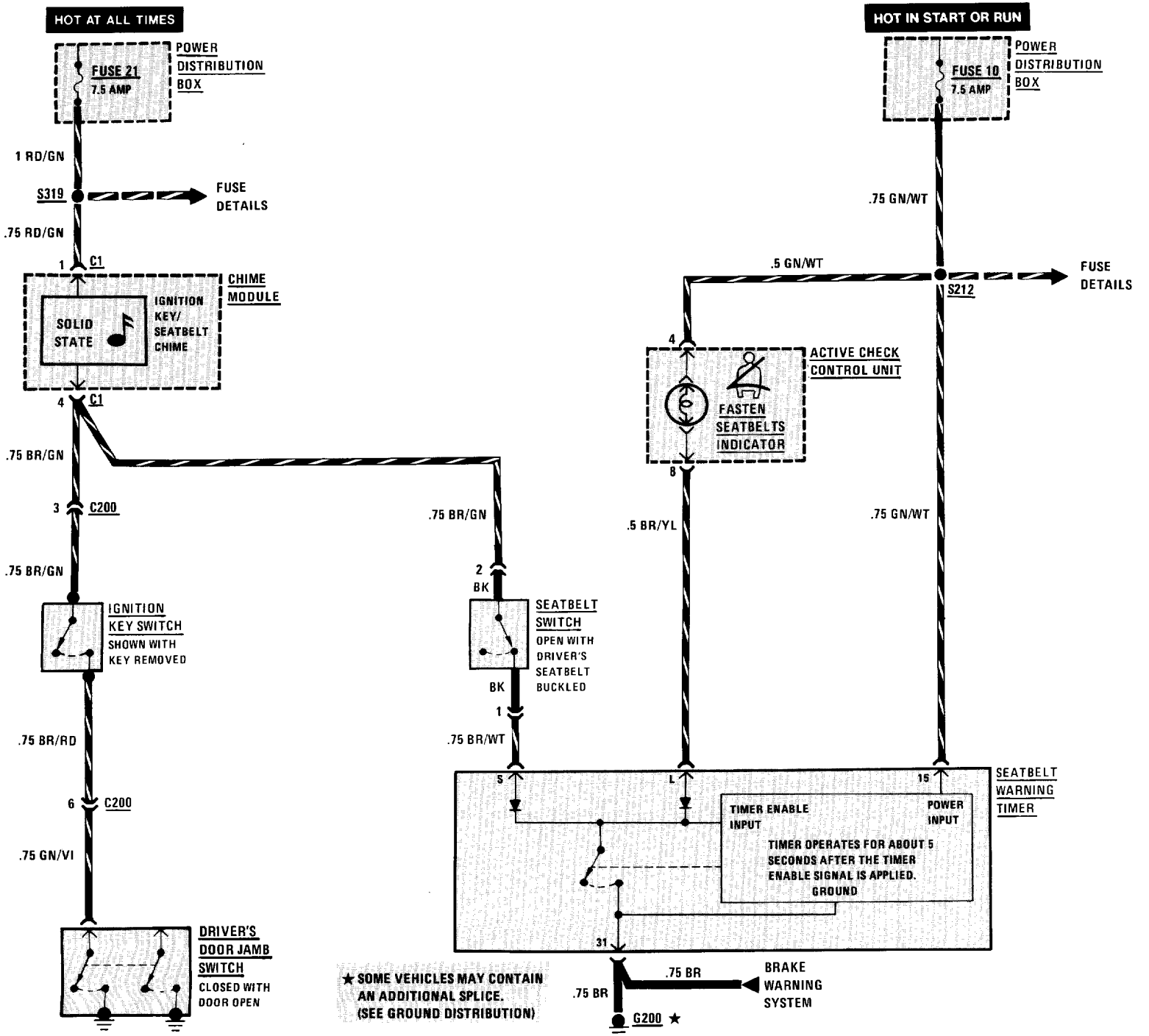
CIGAR LIGHTER/GLOVE BOX LIGHT/AUTO-CHARGING FLASHLIGHT/MAP READING LIGHT

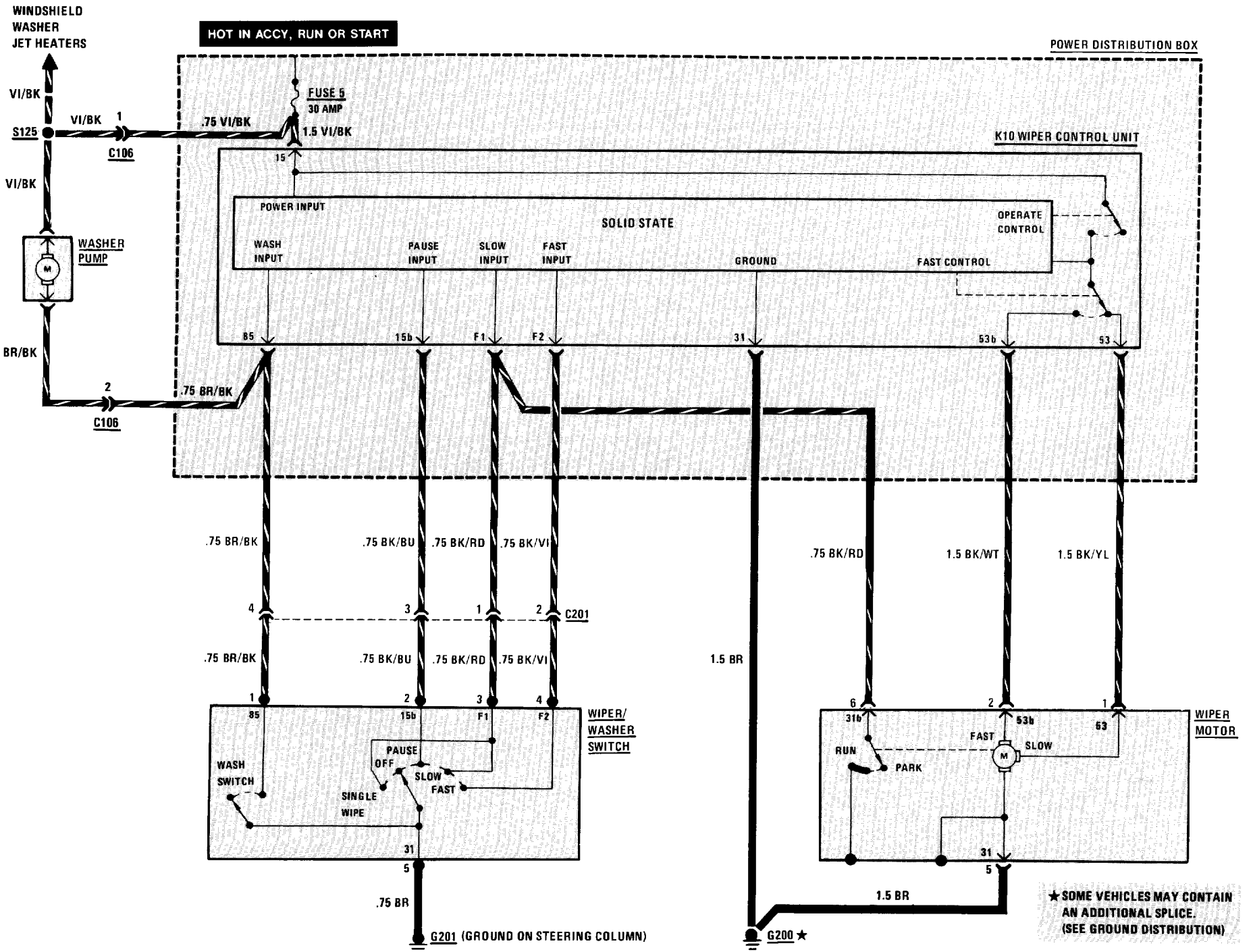


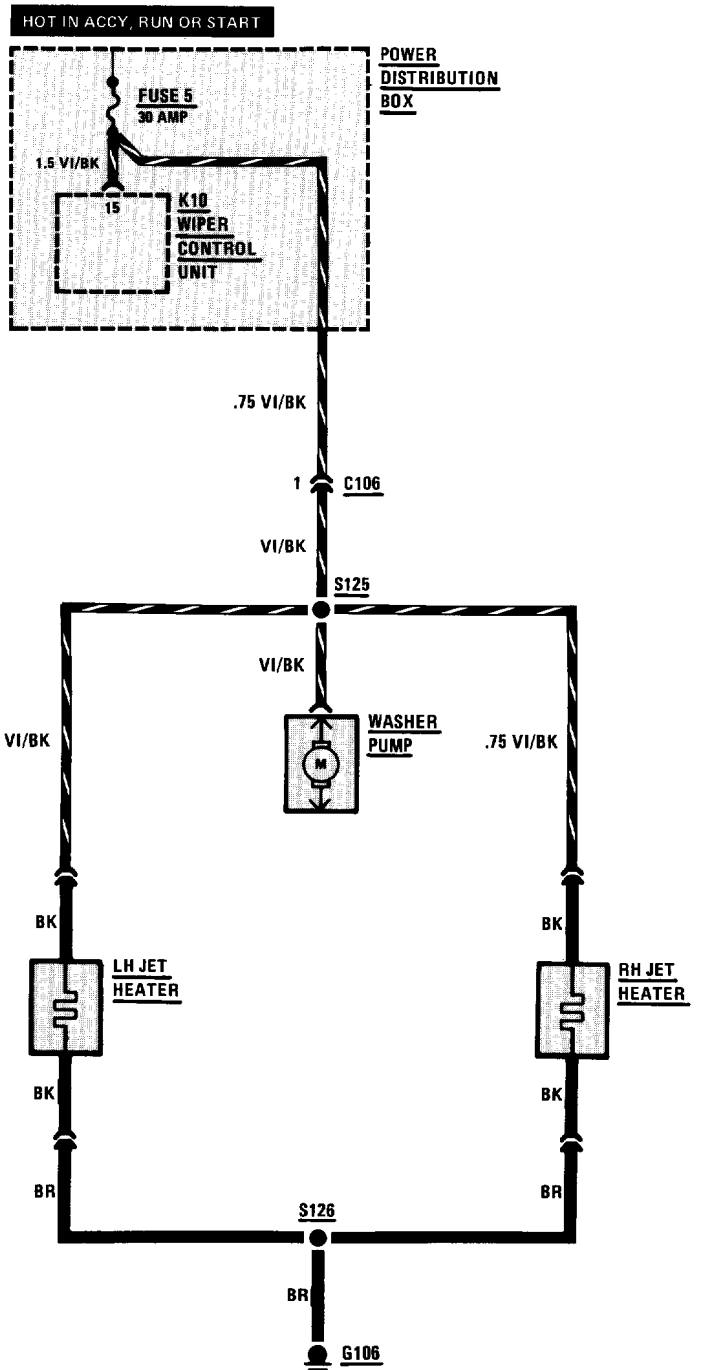
REAR DEFOGGER



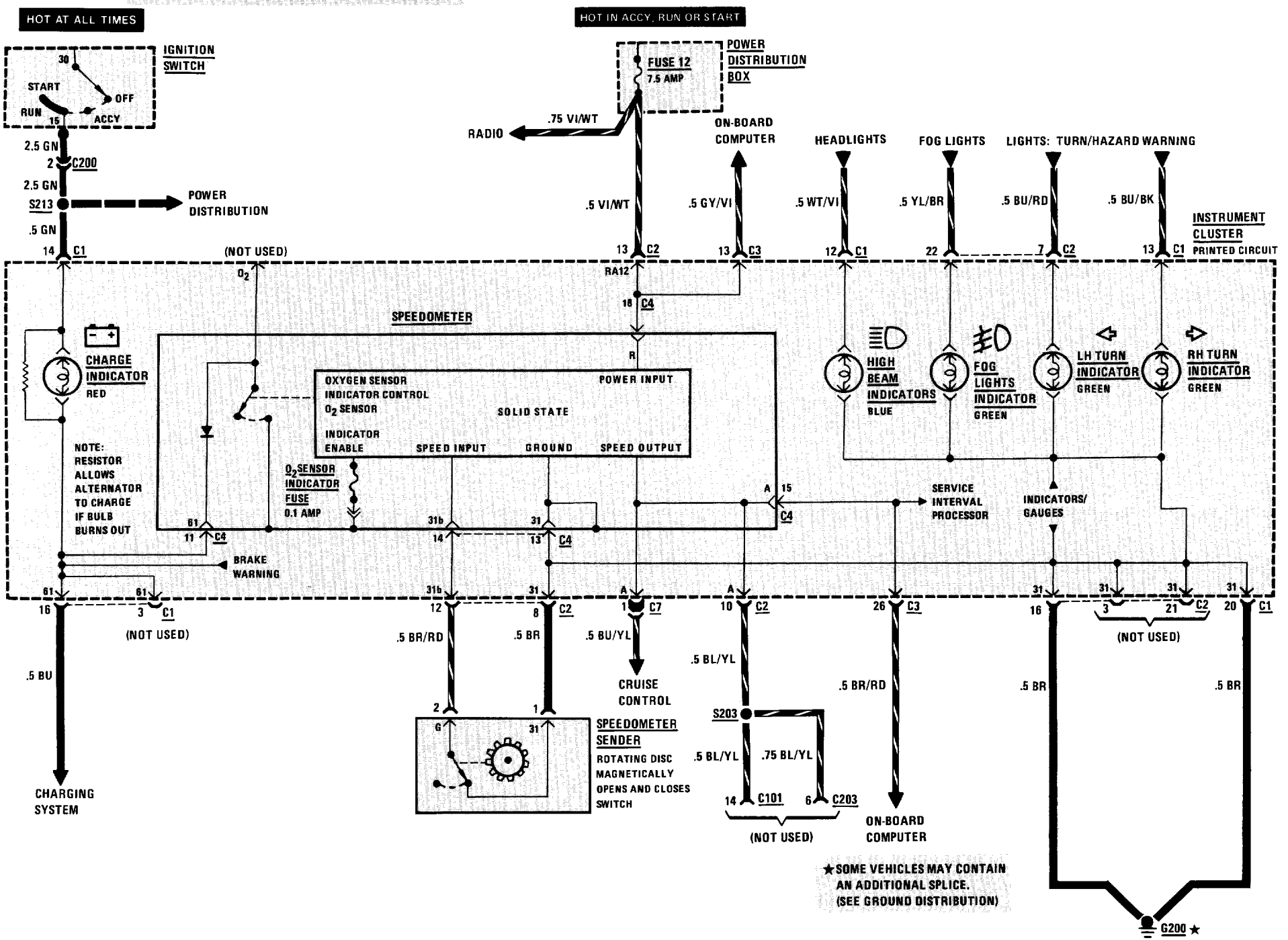
6131-0 IGNITION KEY WARNING/SEATBELT WARNING



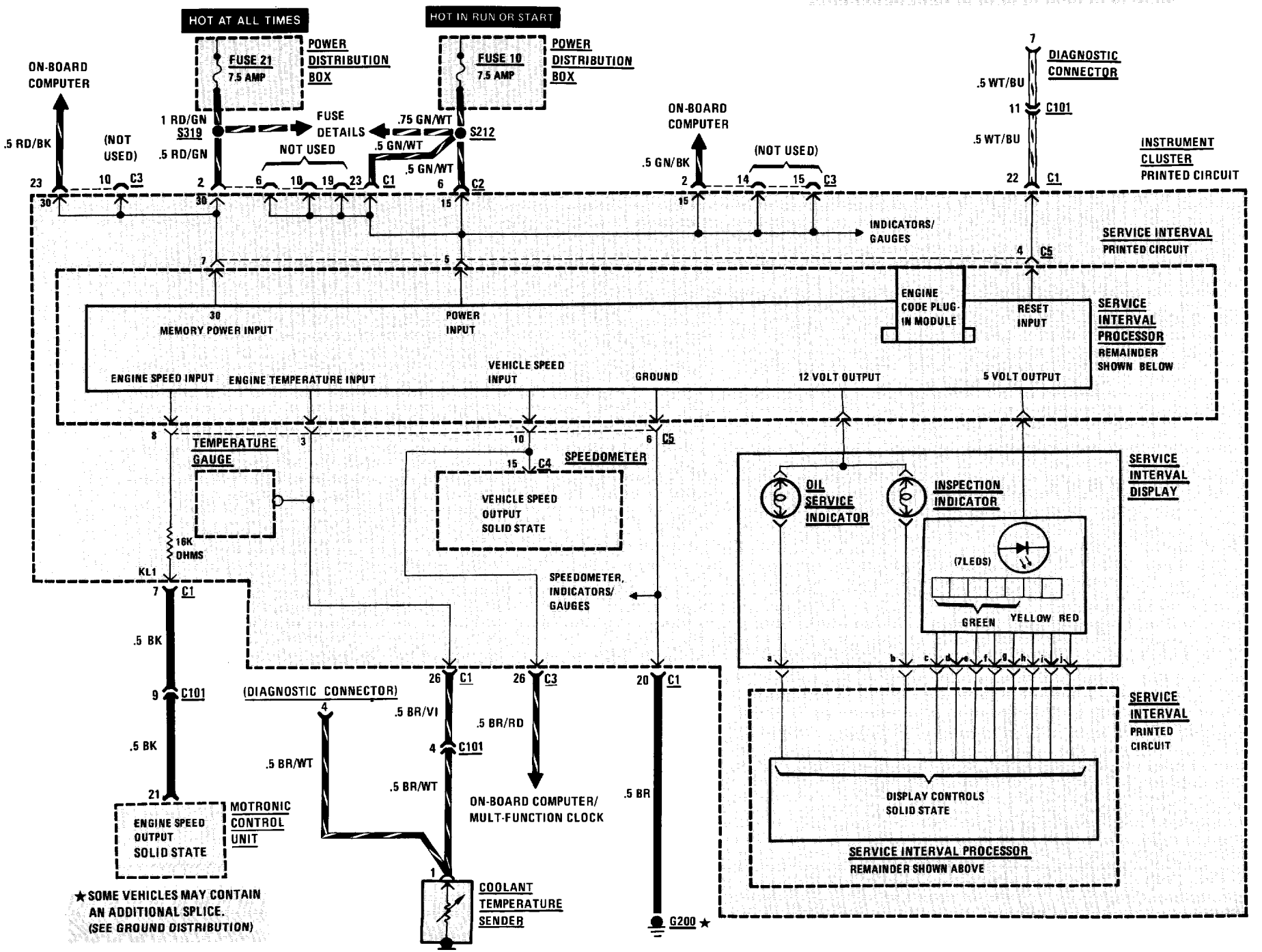

WINDSHIELD WASHER JET HEATERS
HOT IN ACCY, RUN OR START
POWER DISTRIBUTION BOX
VI/BK
S125
VI/BK 1
C106
.75 VI/BK
FUSE 5
30 AMP
1.5 VI/BK
K10 WIPER CONTROL UNIT
15
POWER INPUT
SOLID STATE
OPERATE CONTROL
WASH INPUT
PAUSE INPUT
SLOW INPUT
FAST INPUT
GROUND
FAST CONTROL
85
15b
F1
F2
31
53b
53
WASHER PUMP
BR/BK
2
C106
.75 BR/BK
.75 BR/BK
.75 BK/BU
.75 BK/RD
.75 BK/VI
.75 BK/RD
1.5 BK/WT
1.5 BK/YL
4
3
1
2
C201
1.5 BR
WIPER/ WASHER SWITCH
WASH SWITCH
PAUSE
OFF
SLOW
FAST
SINGLE WIPE
WIPER MOTOR
RUN
PARK
FAST
SLOW
5
.75 BR
G201 (GROUND ON STEERING COLUMN)
1.5 BR
G200★
★SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)


HOT IN ACCY, RUN OR START
POWER DISTRIBUTION BOX
FUSE 5
30 AMP
1.5 VI/BK
15
K10
WIPER
CONTROL
UNIT
.75 VI/BK
1
C106
VI/BK
S125
VI/BK
VI/BK
WASHER
PUMP
.75 VI/BK
BK
LH JET
HEATER
BK
RH JET
HEATER
BK
BK
BR
BR
S126
BR
G106

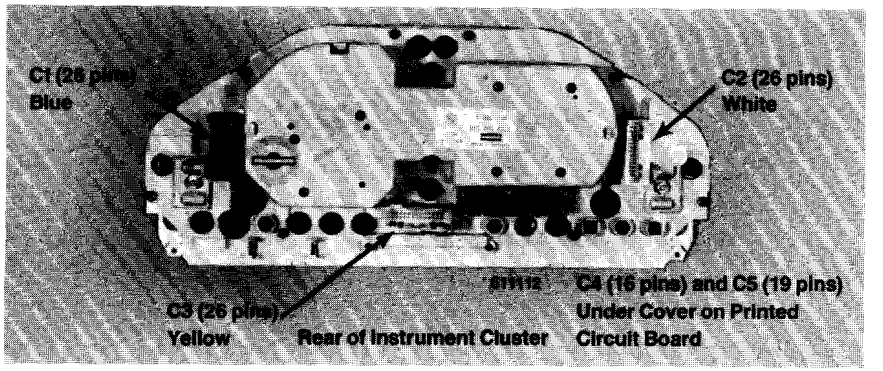
SPEEDOMETER/INDICATORS



SERVICE INTERVAL INDICATOR



GAUGES



HOT IN RUN OR START

FUSE 10
7.5 AMP

POWER DISTRIBUTION BOX

.75 GN/WT

S212

FUSE DETAILS

.75 GN/WT

3 C6

INSTRUMENT CLUSTER PRINTED CIRCUIT

GAUGES/ INDICATORS, SPEEDOMETER

TACHOMETER

OIL TEMPERATURE GAUGE

(+)

(–)

G

68 OHMS

E F (+)

(–)

FUEL GAUGE

LOW FUEL WARNING INDICATOR

YELLOW

G

GAUGES/ INDICATORS, SPEEDOMETER

NOT USED

2 15 25 C2

.5 GY/WT

.5 GY/YL

.5 GY/BK

2 4 3 C203

NOT USED

★SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)

1

.75 BR

G200 ★

2 C6

.75 BR/YL

19 C101

.5 BR/VI

1

OIL TEMPERATURE SENSOR

31

16 C2

.5 BR

G200 ★

5 C3

.5 BR/ GN

ON-BOARD COMPUTER

4 5 C2

.5 BR/ GN

.5 BR/GY

G W

LOW

31

FUEL TANK SENDER

SWITCH CLOSES WHEN TANK CONTAINS LESS THAN 1.5 GALLONS

.75 BR

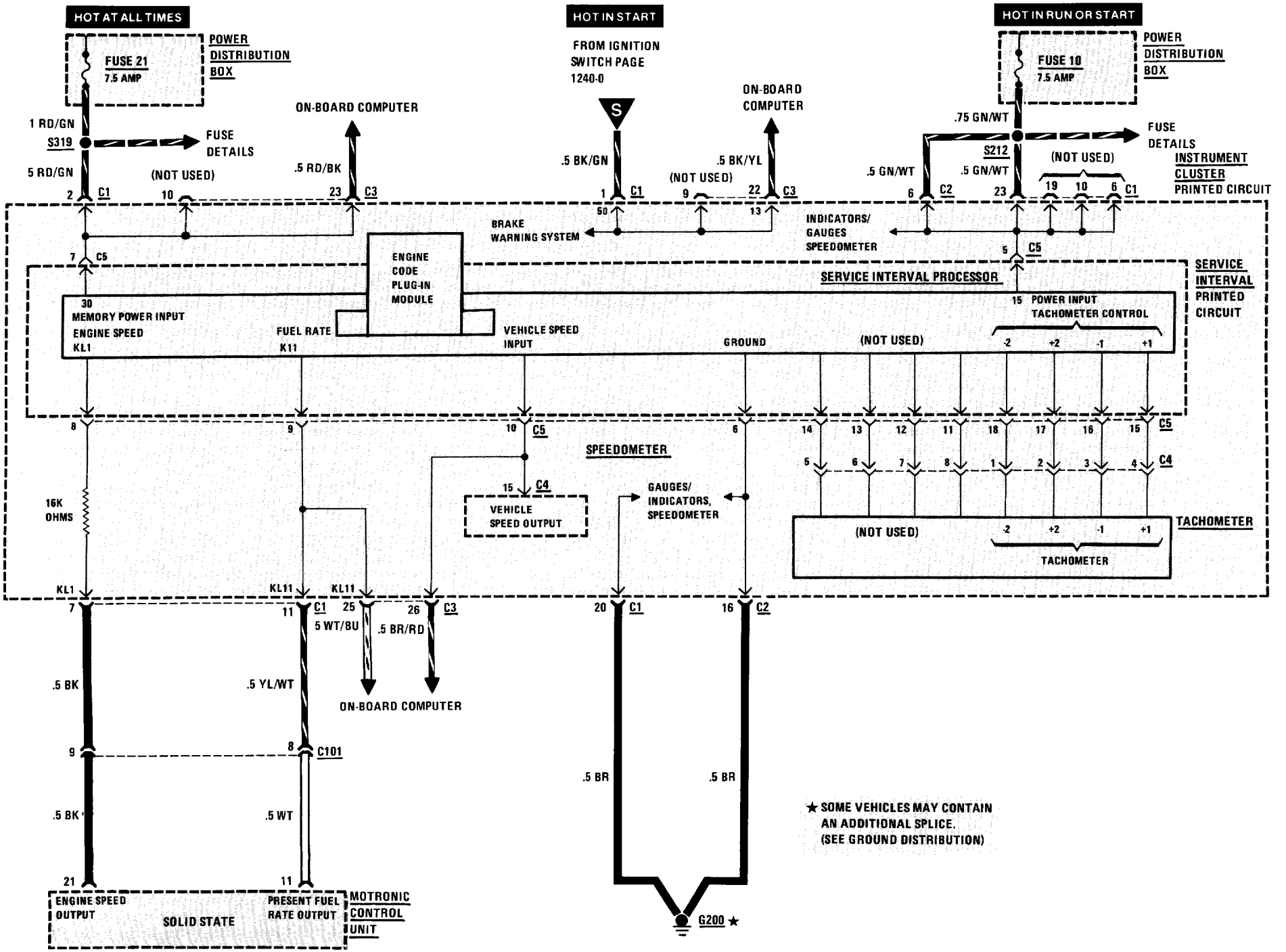
G300

4 C3

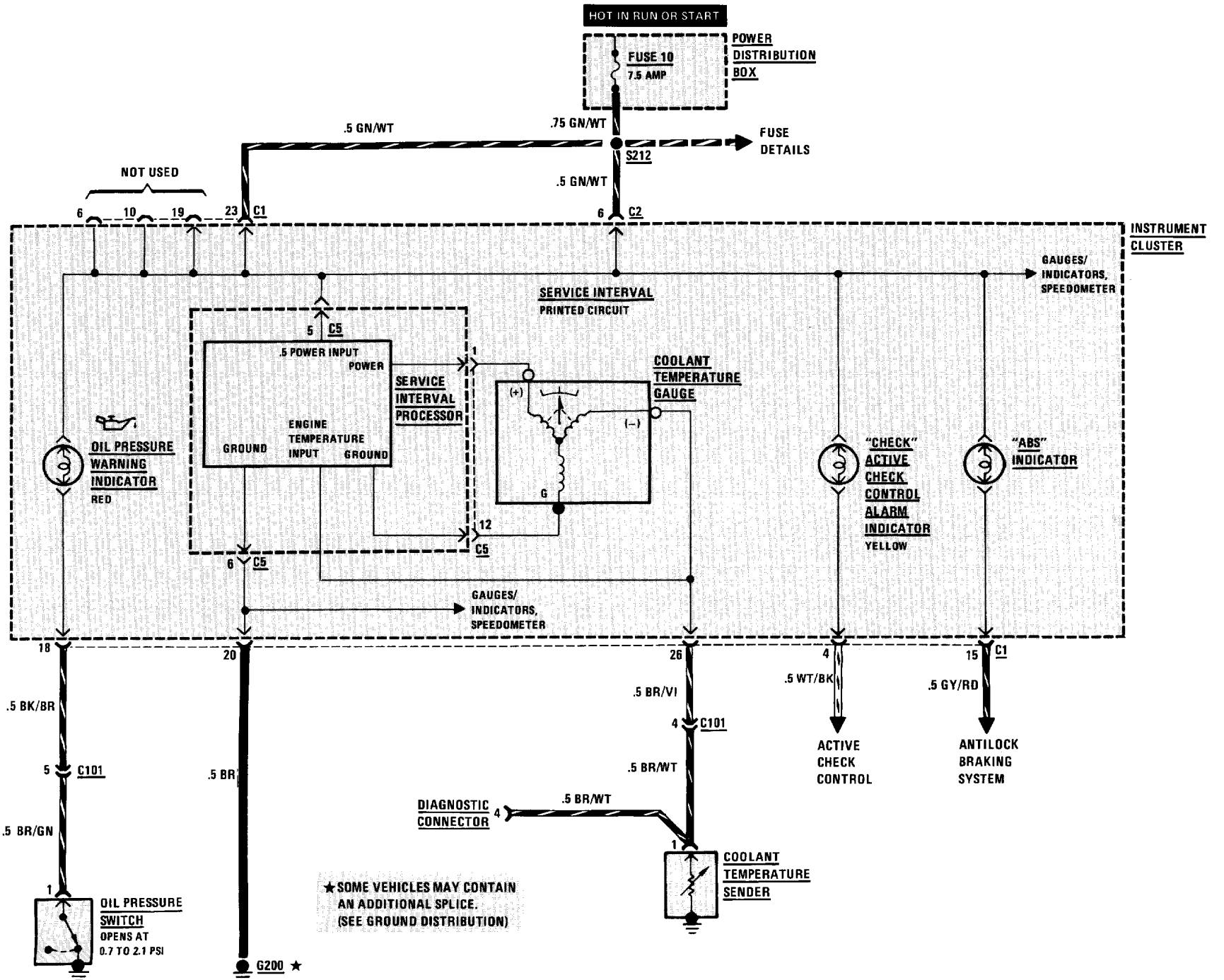
.5 BR/GY

ON-BOARD COMPUTER

TACHOMETER/FUEL ECONOMY GAUGE



GAUGES/INDICATORS



ACTIVE CHECK CONTROL

1. When the Ignition Switch is initially placed in "Run," the Active Check Control Arm Indicator flashes, and the Active Check Control Unit Brake Light LED and panel light illuminate for test purposes. Depressing the brake pedal clears the display.

2. When the Ignition Switch is placed in "Run," fault monitoring begins. To monitor the low beams, rear lights, or license lights, those circuits must be on. The brake lights are monitored only while the brake pedal is depressed. An exception to this is when all brake light circuits are open. A fault will be indicated with the ignition switch in "RUN".

3. When a fault occurs, the alarm indicator flashes, the appropriate LED fault indicator lights, and the panel light goes on for five seconds. Depressing the test button will clear the alarm indicator, but the LED fault indicator remains on.

4. To test the unit, depress the test button. The LED fault indicators and the panel lights should go on.

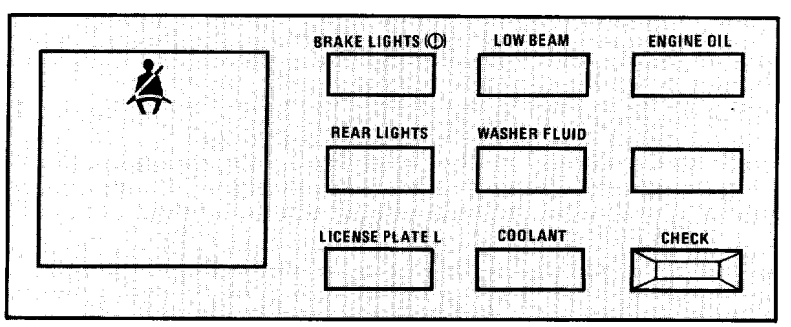
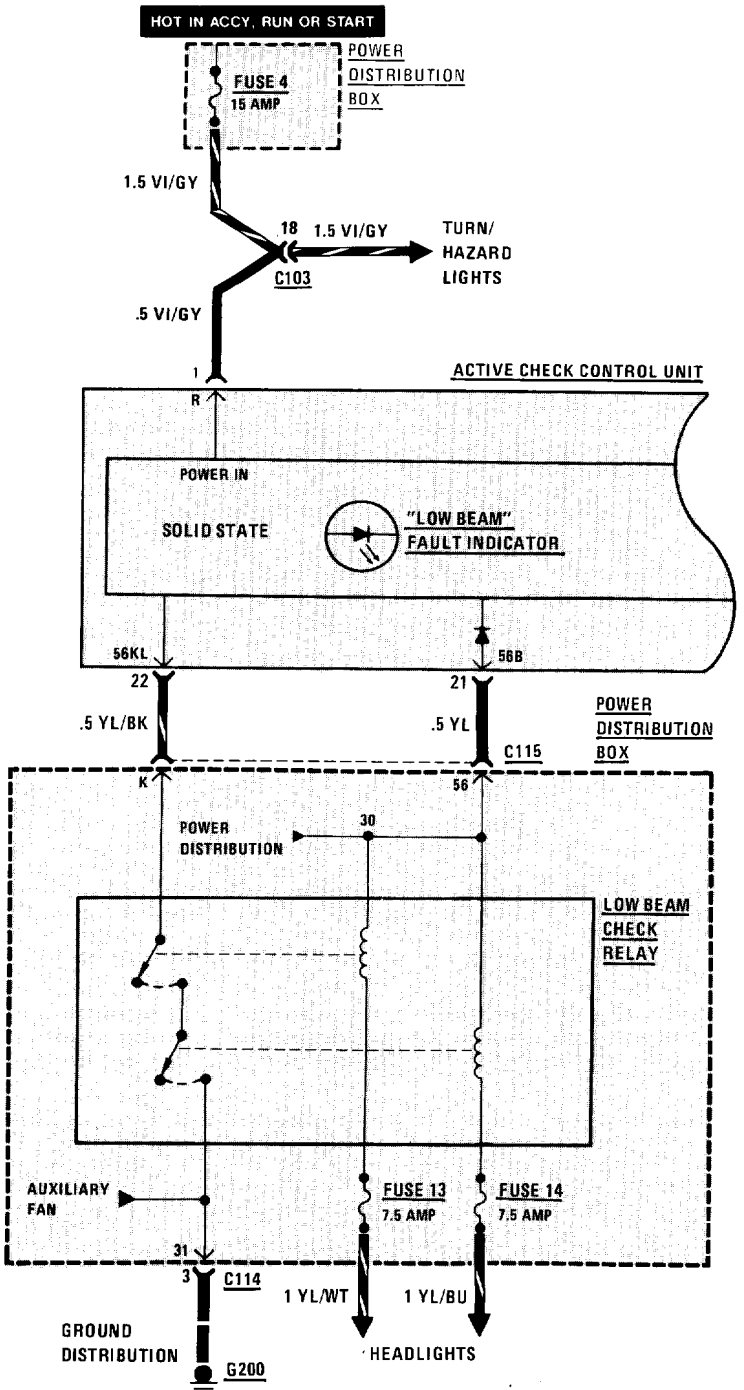
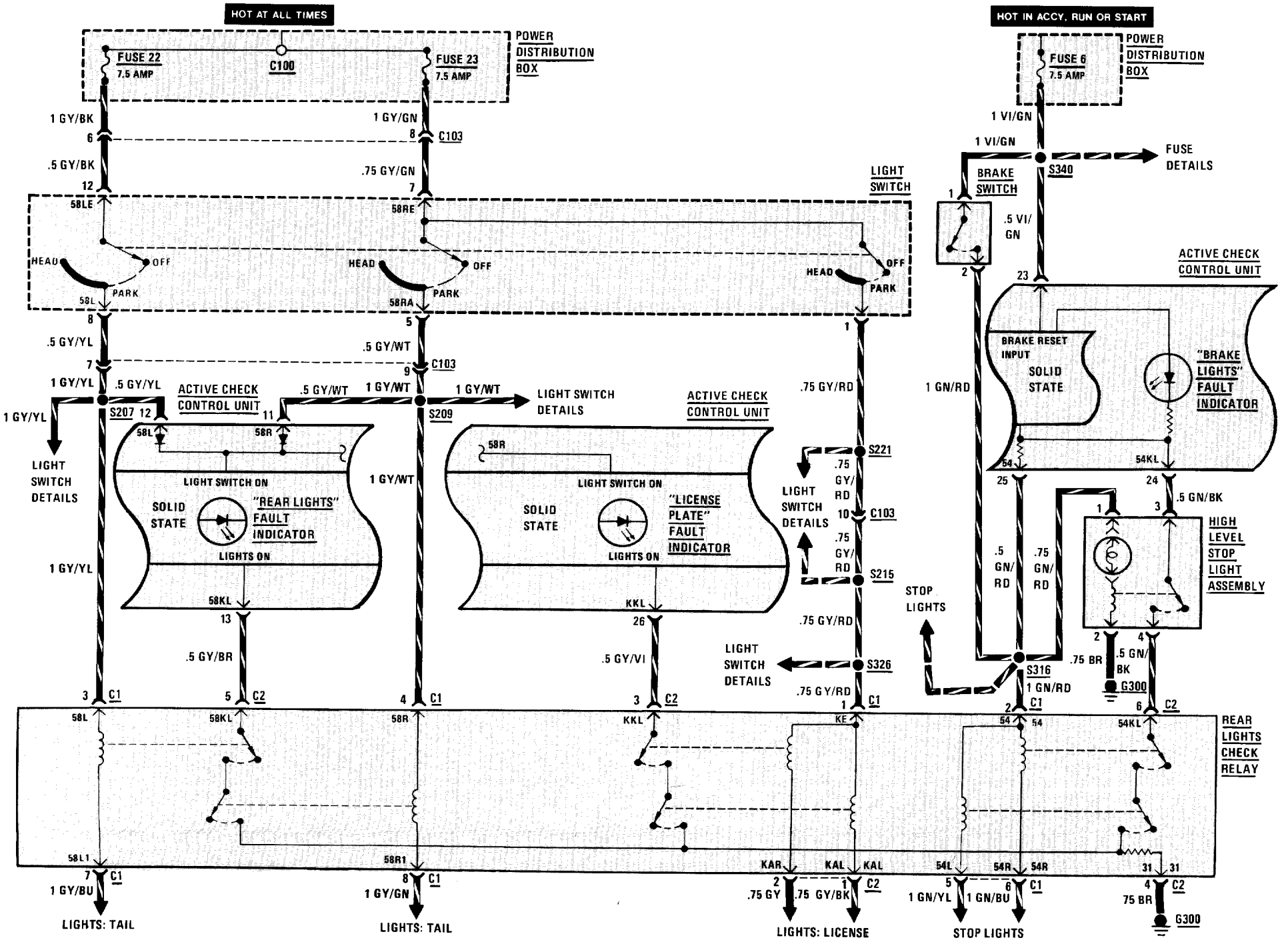
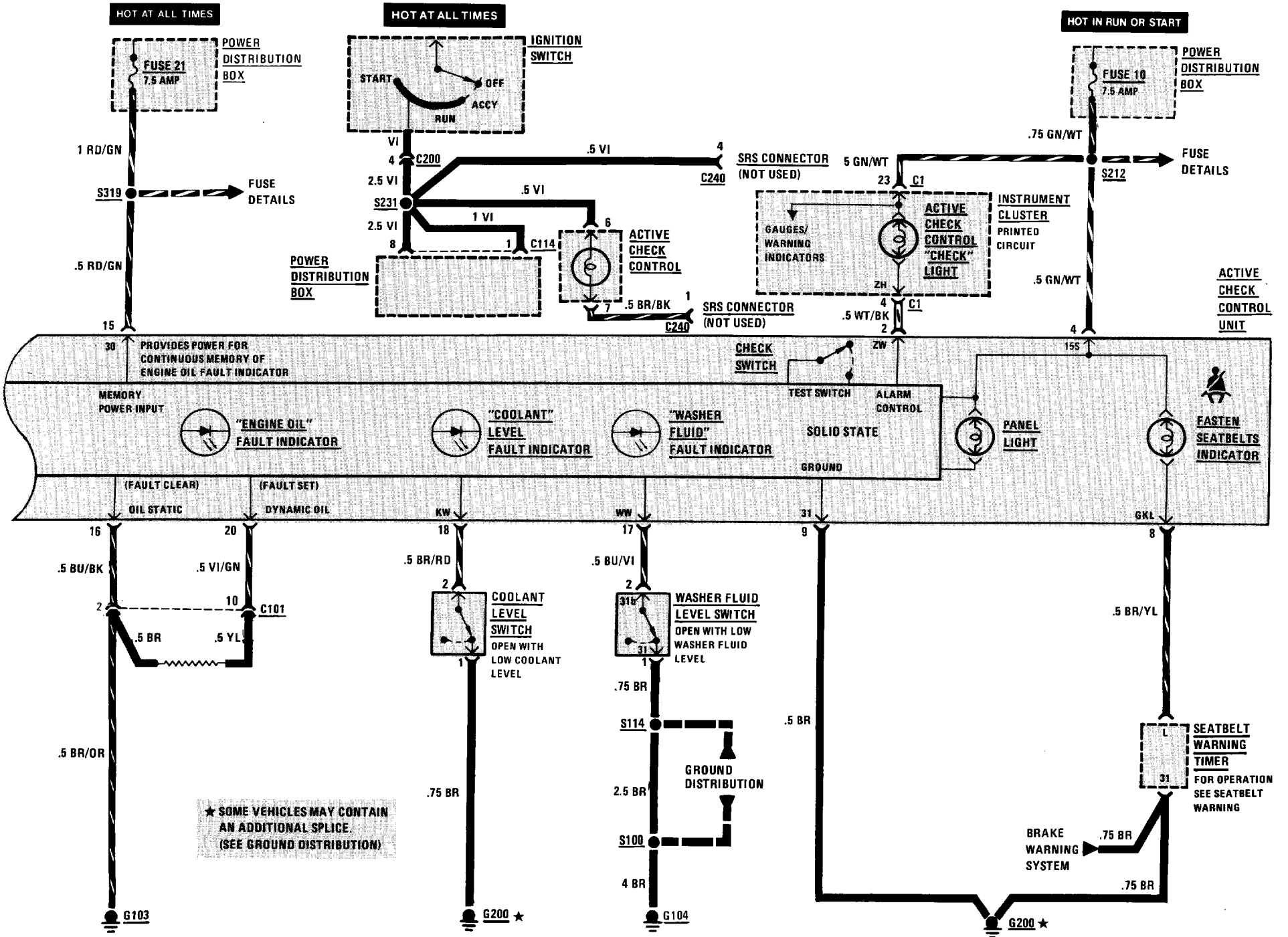


Figure 1 - Active Check Control Unit Above Rear View Mirror

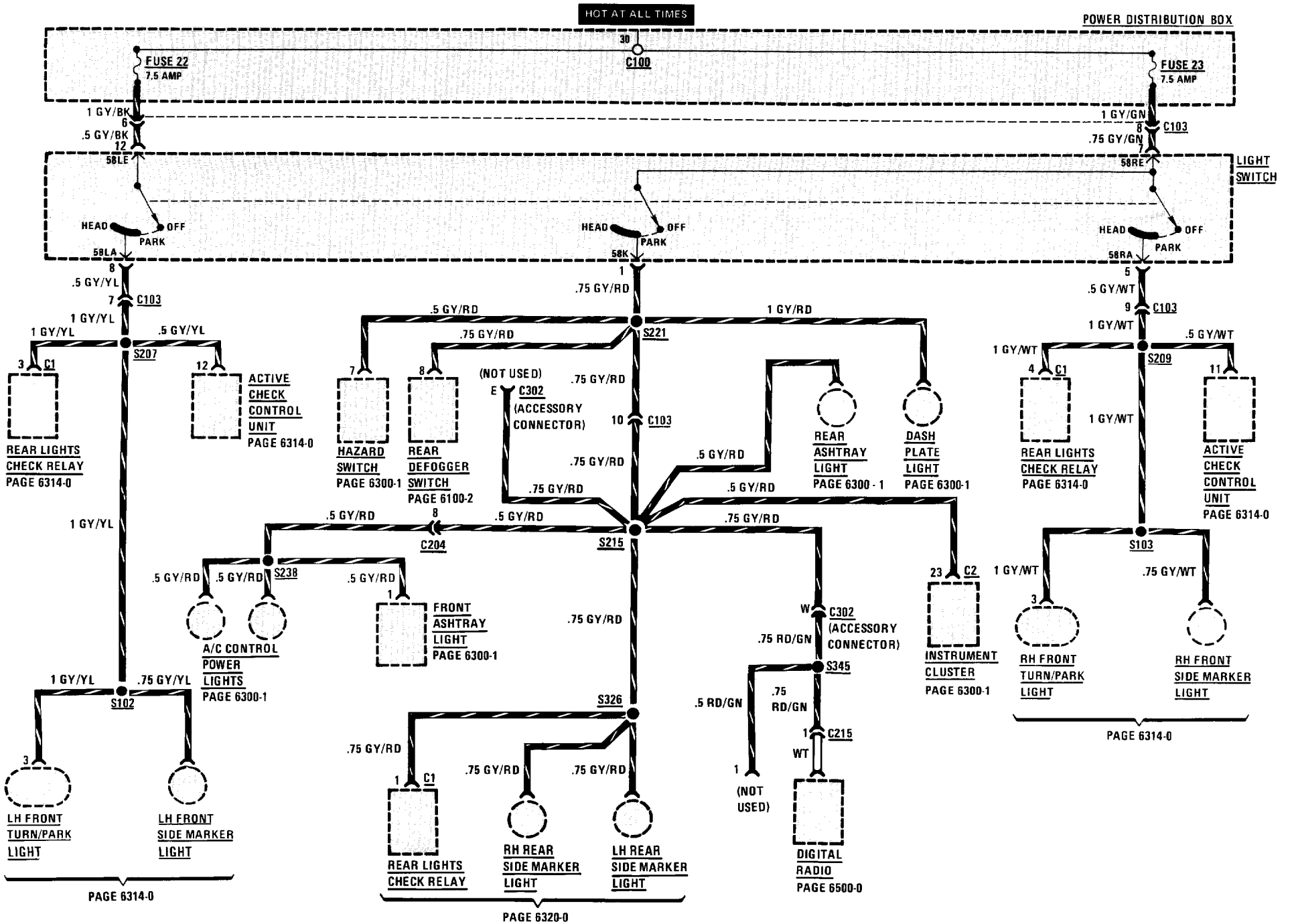



HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 22 7.5 AMP
C100
FUSE 23 7.5 AMP
1 GY/BK
6
1 GY/GN
8
C103
.5 GY/BK
12
.75 GY/GN
7
LIGHT SWITCH
58LE
58RE
HEAD
OFF
PARK
58L
58RA
8
5
1
.5 GY/YL
.5 GY/WT
7
9
C103
1 GY/YL
.5 GY/YL
ACTIVE CHECK CONTROL UNIT
.5 GY/WT
1 GY/WT
1 GY/WT
LIGHT SWITCH DETAILS
.75 GY/RD
1 GY/YL
S207
12
11
S209
58L
58R
LIGHT SWITCH ON
SOLID STATE
"REAR LIGHTS" FAULT INDICATOR
LIGHTS ON
1 GY/WT
LIGHT SWITCH DETAILS
ACTIVE CHECK CONTROL UNIT
58R
LIGHT SWITCH ON
SOLID STATE
"LICENSE PLATE" FAULT INDICATOR
LIGHTS ON
S221
.75 GY/RD
LIGHT SWITCH DETAILS
10
C103
.75 GY/RD
1 GY/YL
58KL
KKL
S215
13
26
.75 GY/RD
.5 GY/BR
.5 GY/VI
LIGHT SWITCH DETAILS
S326
.75 GY/RD
3
C1
5
C2
4
C1
3
C2
1
C1
58L
58KL
58R
KKL
KE
58L1
58R1
KAR
KAL
KAL
7
C1
8
C1
2
C2
1
C2
1 GY/BU
1 GY/GN
.75 GY
.75 GY/BK
LIGHTS: TAIL
LIGHTS: TAIL
LIGHTS: LICENSE
HOT IN ACCY, RUN OR START
POWER DISTRIBUTION BOX
FUSE 6 7.5 AMP
1 VI/GN
1 VI/GN
FUSE DETAILS
S340
BRAKE SWITCH
1
.5 VI/GN
2
23
ACTIVE CHECK CONTROL UNIT
BRAKE RESET INPUT
SOLID STATE
"BRAKE LIGHTS" FAULT INDICATOR
1 GN/RD
54
54KL
25
24
.5 GN/BK
1
3
HIGH LEVEL STOP LIGHT ASSEMBLY
.5 GN/RD
.75 GN/RD
STOP LIGHTS
2
4
.75 BR
.5 GN/BK
G300
S316
1 GN/RD
2
C1
6
C2
54
54
54KL
REAR LIGHTS CHECK RELAY
54L
54R
54R
31
31
5
6
C1
4
C2
1 GN/YL
1 GN/BU
75 BR
G300
STOP LIGHTS

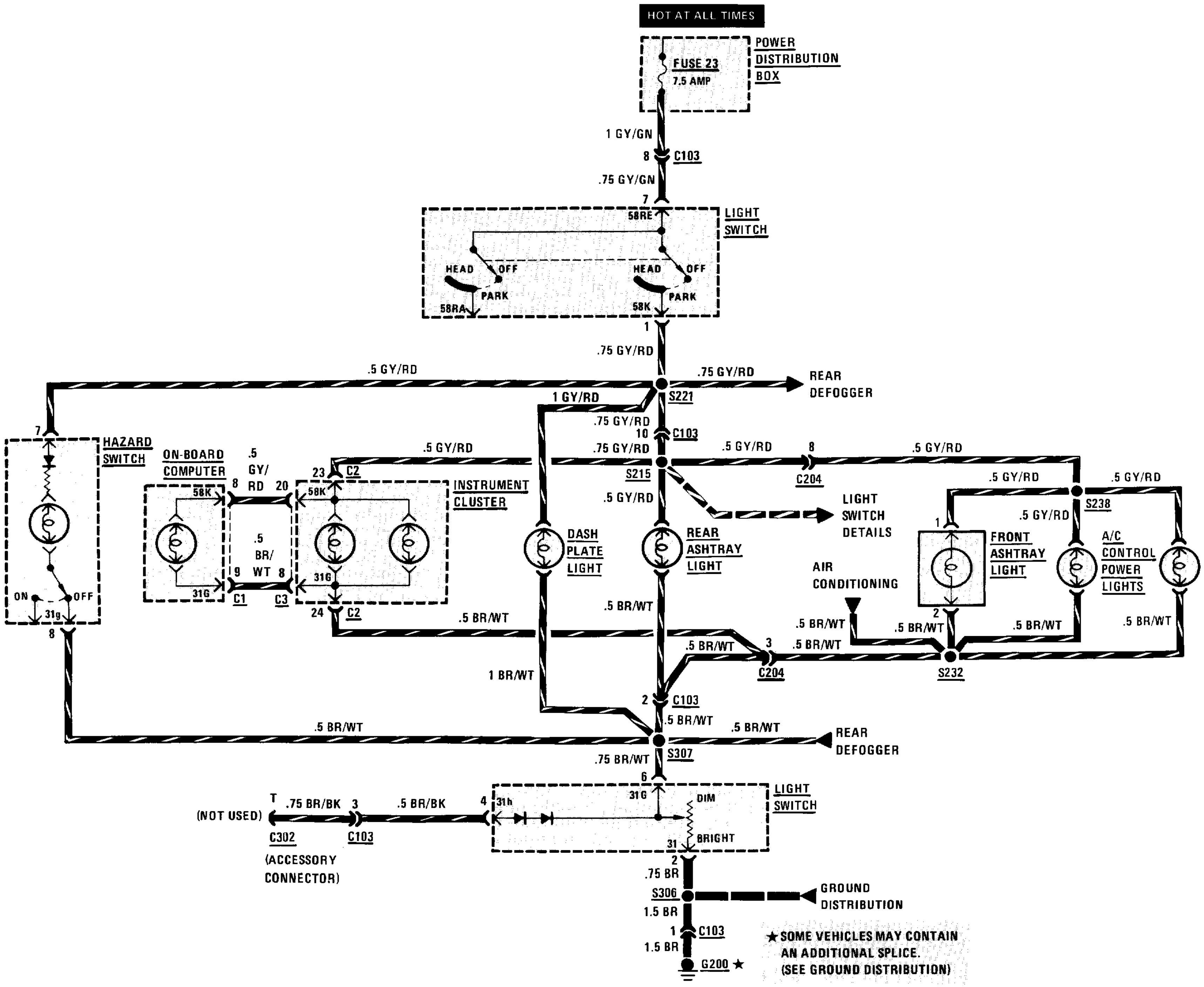
6216-2 ACTIVE CHECK CONTROL



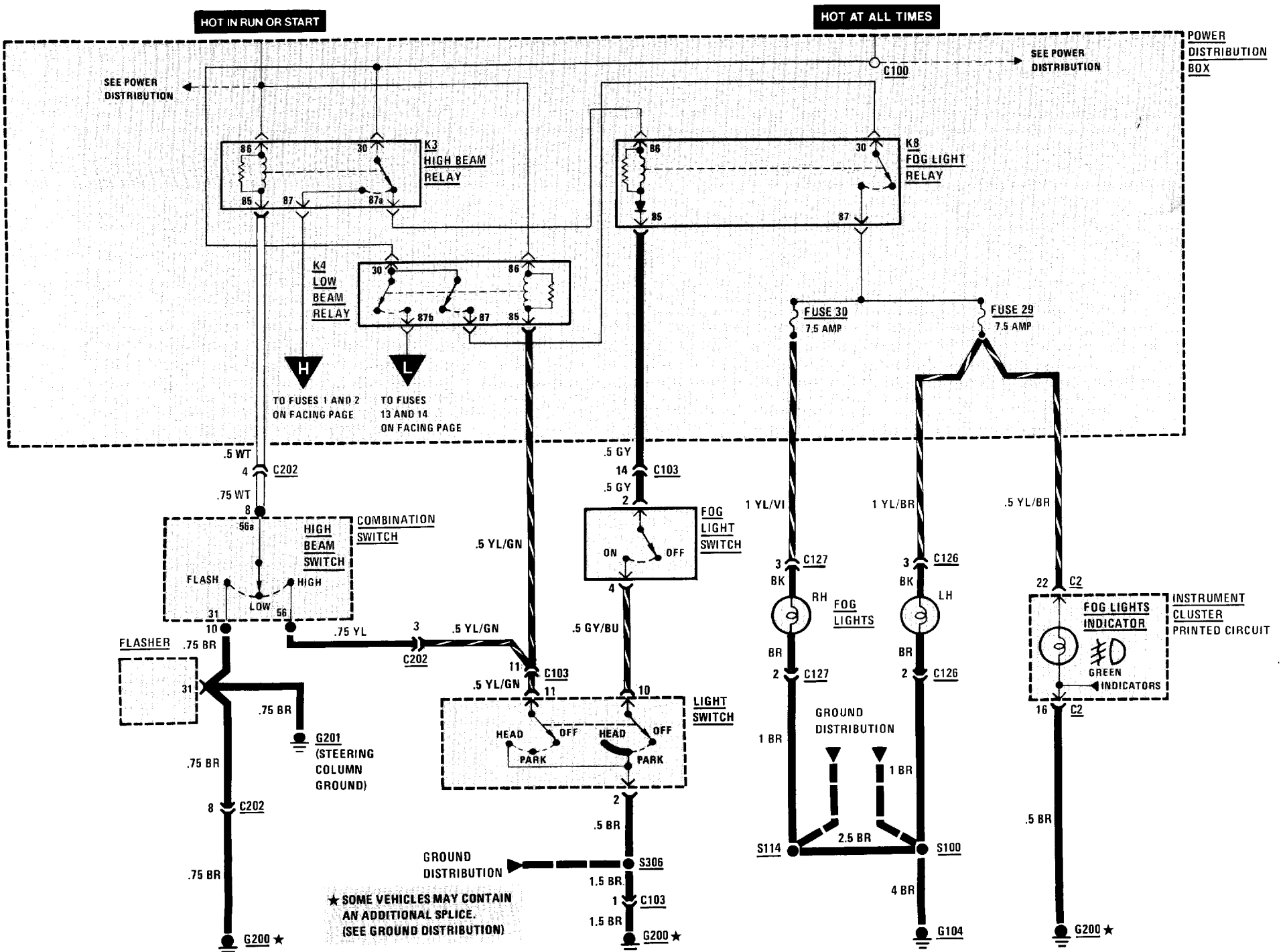
6300-0 LIGHT SWITCH DETAILS

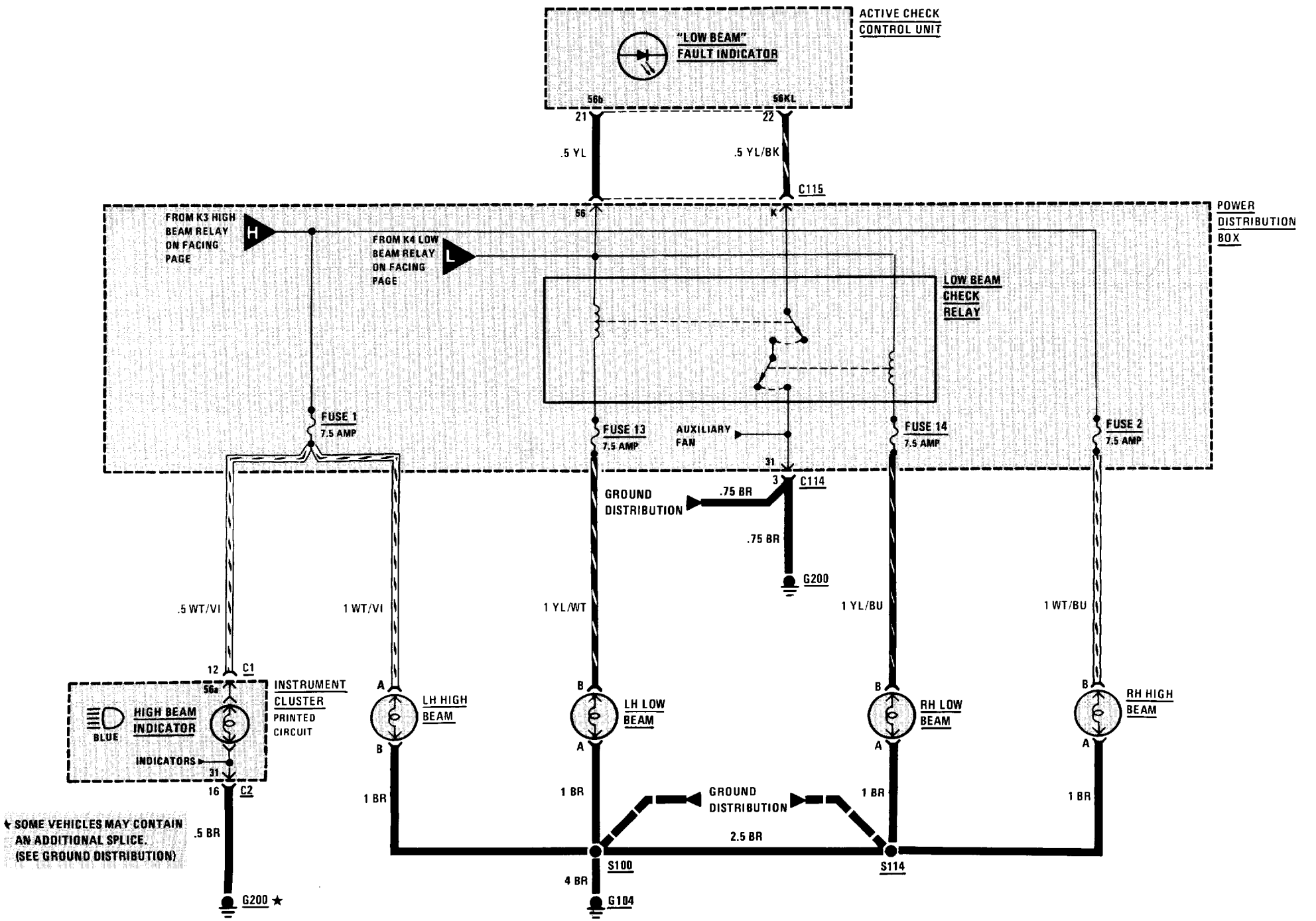


DASH LIGHTS

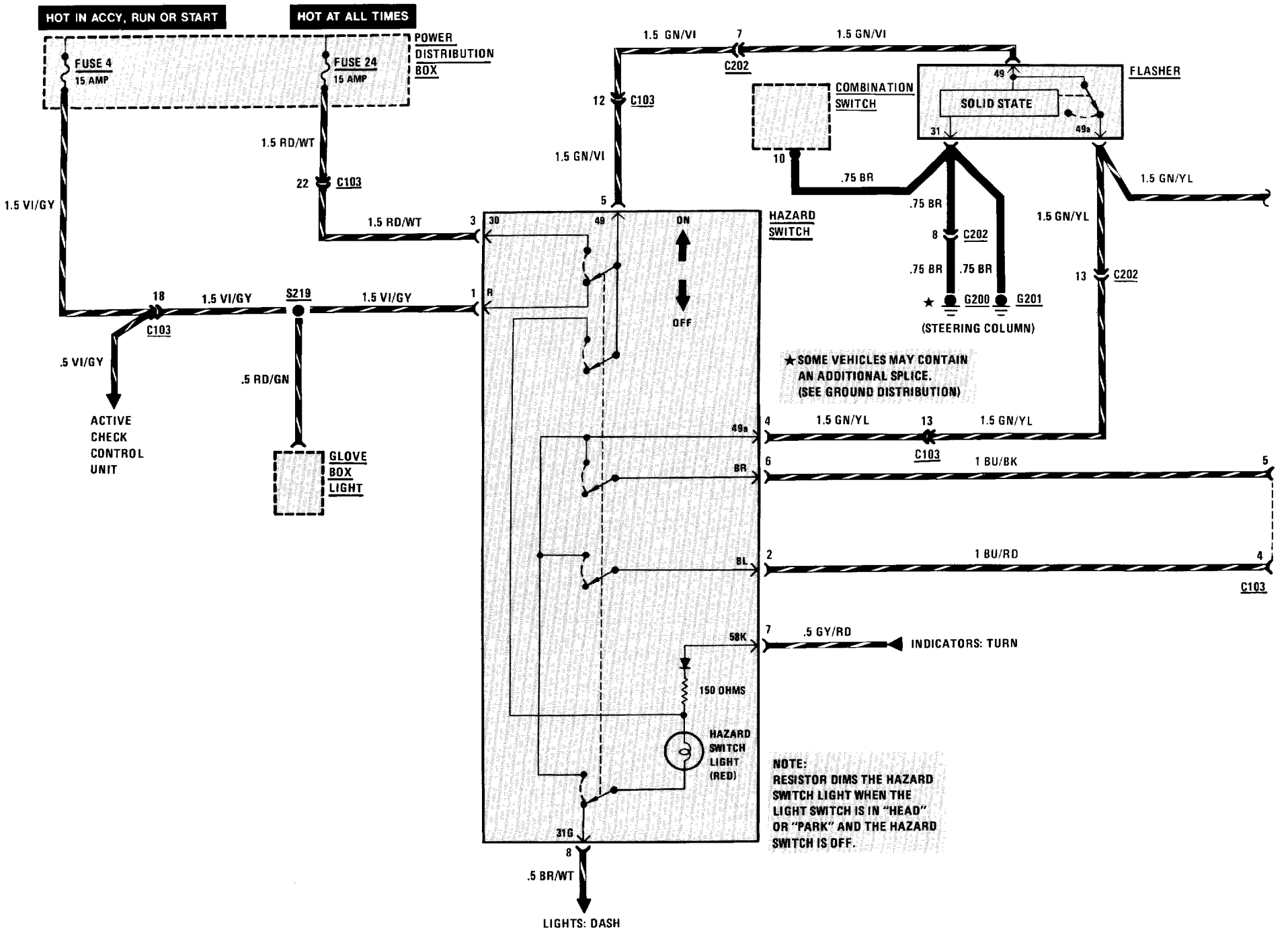

HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 23
7.5 AMP
1 GY/GN
C103
.75 GY/GN
LIGHT SWITCH
58RE
HEAD
OFF
PARK
58RA
58K
.75 GY/RD
.5 GY/RD
REAR DEFOGGER
1 GY/RD
S221
HAZARD SWITCH
ON-BOARD COMPUTER
.5 GY/RD
INSTRUMENT CLUSTER
C2
C1
C3
.5 BR/WT
31G
S215
C204
S238
LIGHT SWITCH DETAILS
DASH PLATE LIGHT
REAR ASHTRAY LIGHT
FRONT ASHTRAY LIGHT
A/C CONTROL POWER LIGHTS
AIR CONDITIONING
ON
OFF
31g
S232
1 BR/WT
S307
.75 BR/WT
T
.75 BR/BK
.5 BR/BK
(NOT USED)
C302
(ACCESSORY CONNECTOR)
31h
DIM
BRIGHT
.75 BR
S306
GROUND DISTRIBUTION
1.5 BR
G200 ★
★ SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)

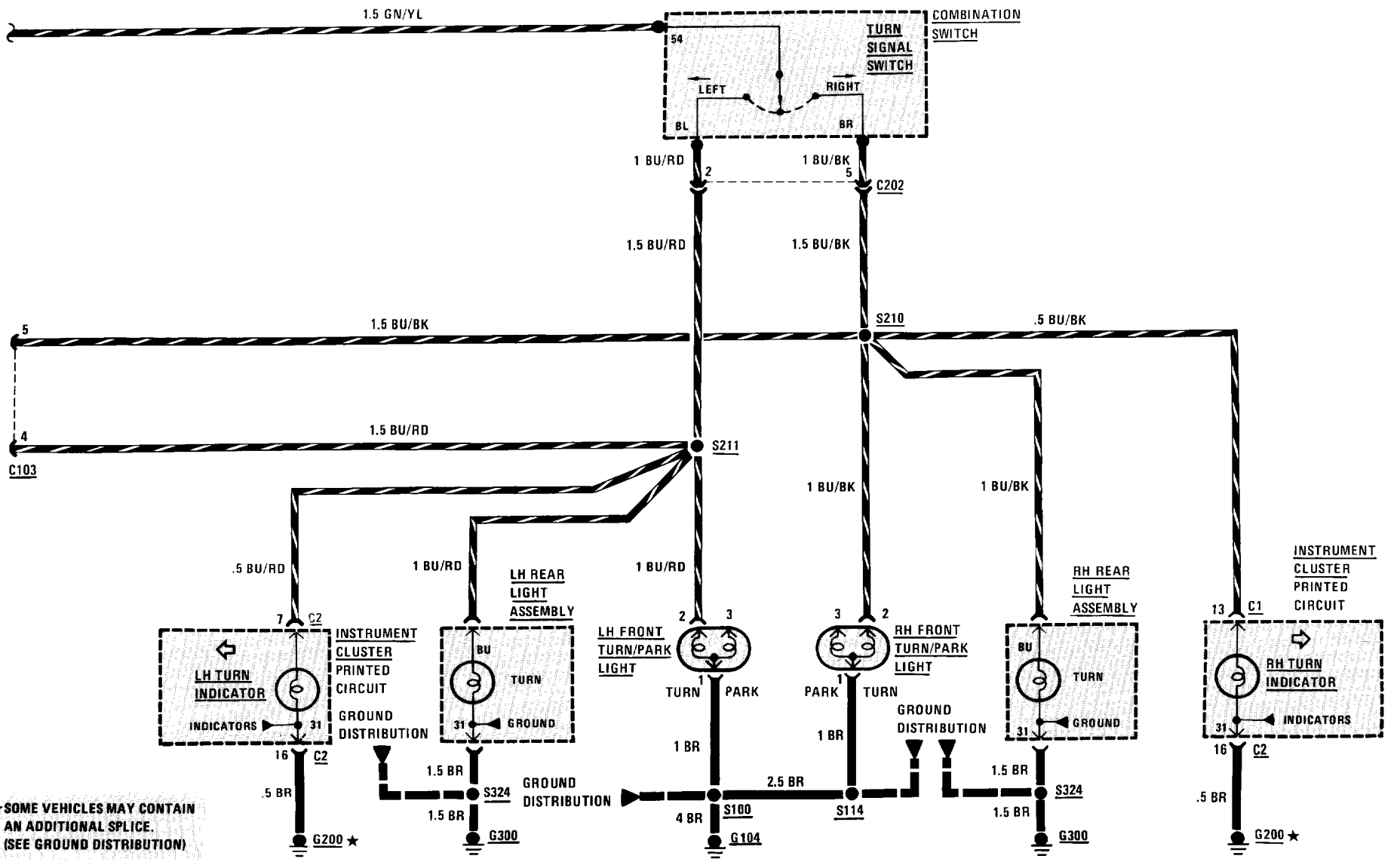
6312-0 HEADLIGHTS/FOG LIGHTS



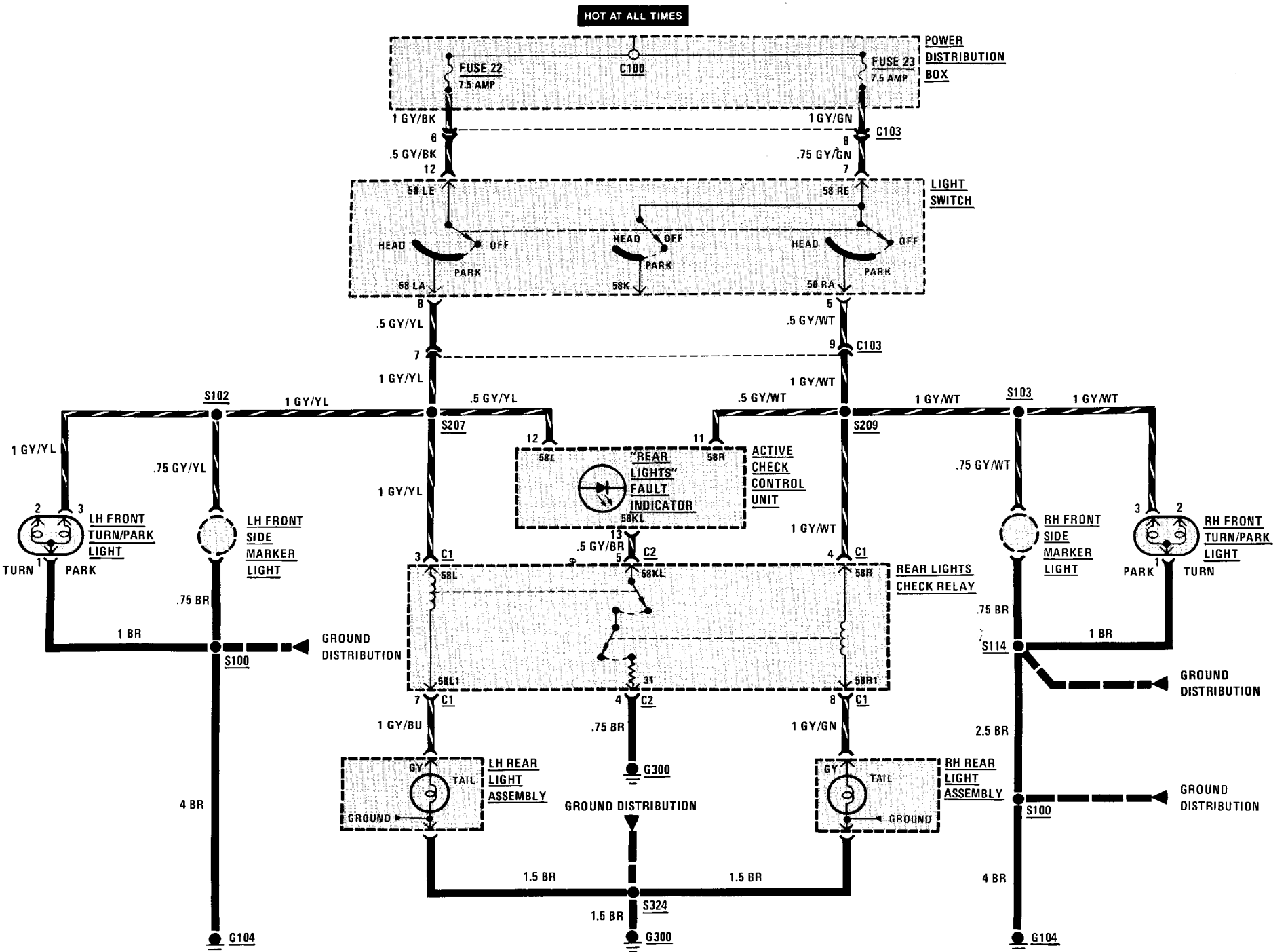

ACTIVE CHECK CONTROL UNIT
"LOW BEAM" FAULT INDICATOR
56b
56KL
21
22
.5 YL
.5 YL/BK
C115
56
K
POWER DISTRIBUTION BOX
FROM K3 HIGH BEAM RELAY ON FACING PAGE
H
FROM K4 LOW BEAM RELAY ON FACING PAGE
L
LOW BEAM CHECK RELAY
FUSE 1
7.5 AMP
FUSE 13
7.5 AMP
AUXILIARY FAN
FUSE 14
7.5 AMP
FUSE 2
7.5 AMP
31
3
C114
GROUND DISTRIBUTION
.75 BR
.75 BR
G200
.5 WT/VI
1 WT/VI
1 YL/WT
1 YL/BU
1 WT/BU
12
C1
56a
INSTRUMENT CLUSTER
PRINTED CIRCUIT
HIGH BEAM INDICATOR
BLUE
INDICATORS
31
16
C2
A
B
LH HIGH BEAM
LH LOW BEAM
RH LOW BEAM
RH HIGH BEAM
1 BR
1 BR
1 BR
1 BR
GROUND DISTRIBUTION
2.5 BR
S100
S114
4 BR
G104
.5 BR
G200 ★
★ SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)

6313-0 TURN/HAZARD LIGHTS

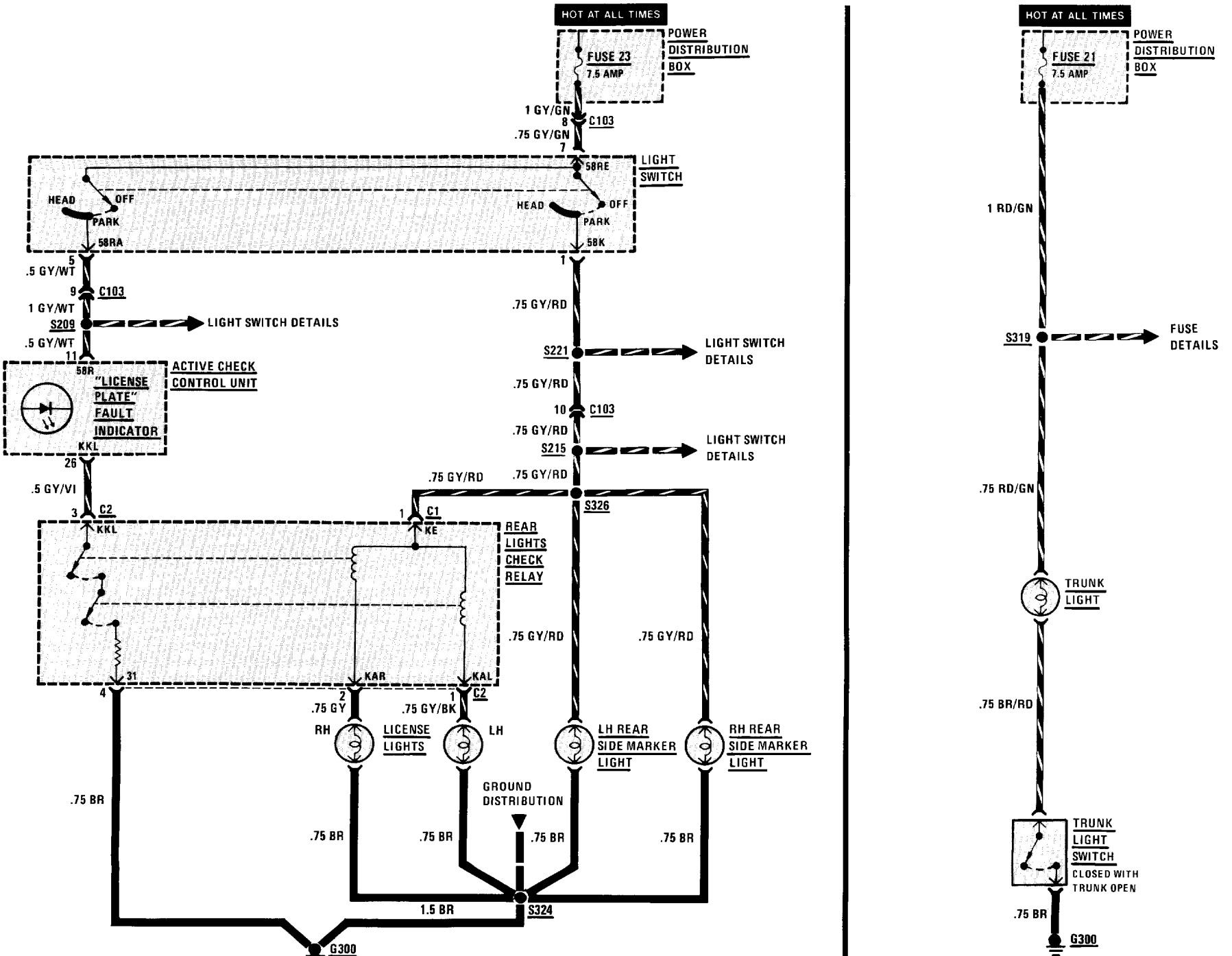



1.5 GN/YL
COMBINATION SWITCH
54
TURN SIGNAL SWITCH
LEFT
RIGHT
BL
BR
1 BU/RD
1 BU/BK
2
5
C202
1.5 BU/RD
1.5 BU/BK
5
1.5 BU/BK
S210
.5 BU/BK
4
1.5 BU/RD
S211
C103
1 BU/BK
1 BU/BK
.5 BU/RD
1 BU/RD
1 BU/RD
LH REAR LIGHT ASSEMBLY
RH REAR LIGHT ASSEMBLY
INSTRUMENT CLUSTER PRINTED CIRCUIT
7
C2
LH TURN INDICATOR
INDICATORS
31
GROUND DISTRIBUTION
BU
TURN
GROUND
LH FRONT TURN/PARK LIGHT
RH FRONT TURN/PARK LIGHT
2
3
1
TURN
PARK
PARK
TURN
1 BR
1 BR
GROUND DISTRIBUTION
13
C1
RH TURN INDICATOR
16
C2
.5 BR
1.5 BR
S324
1.5 BR
G300
GROUND DISTRIBUTION
2.5 BR
4 BR
S100
G104
S114
1.5 BR
S324
1.5 BR
G300
.5 BR
G200 ★
G200 ★
★SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)

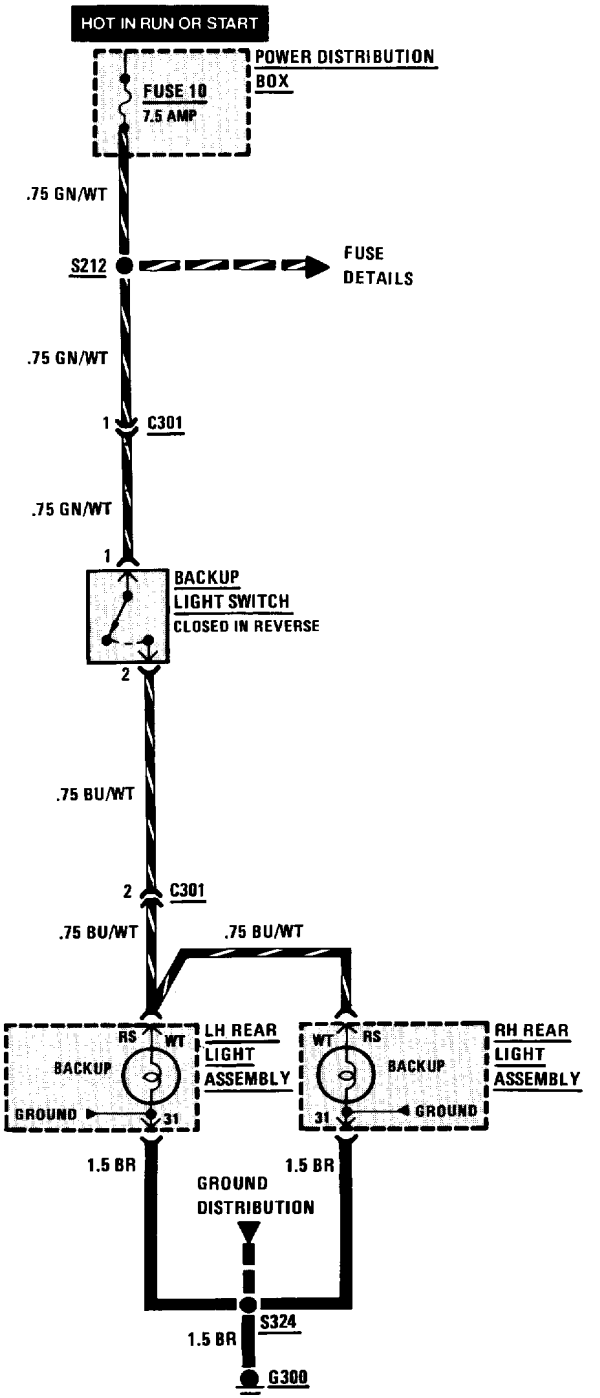
6314-0 PARK/TAIL/FRONT MARKER LIGHTS



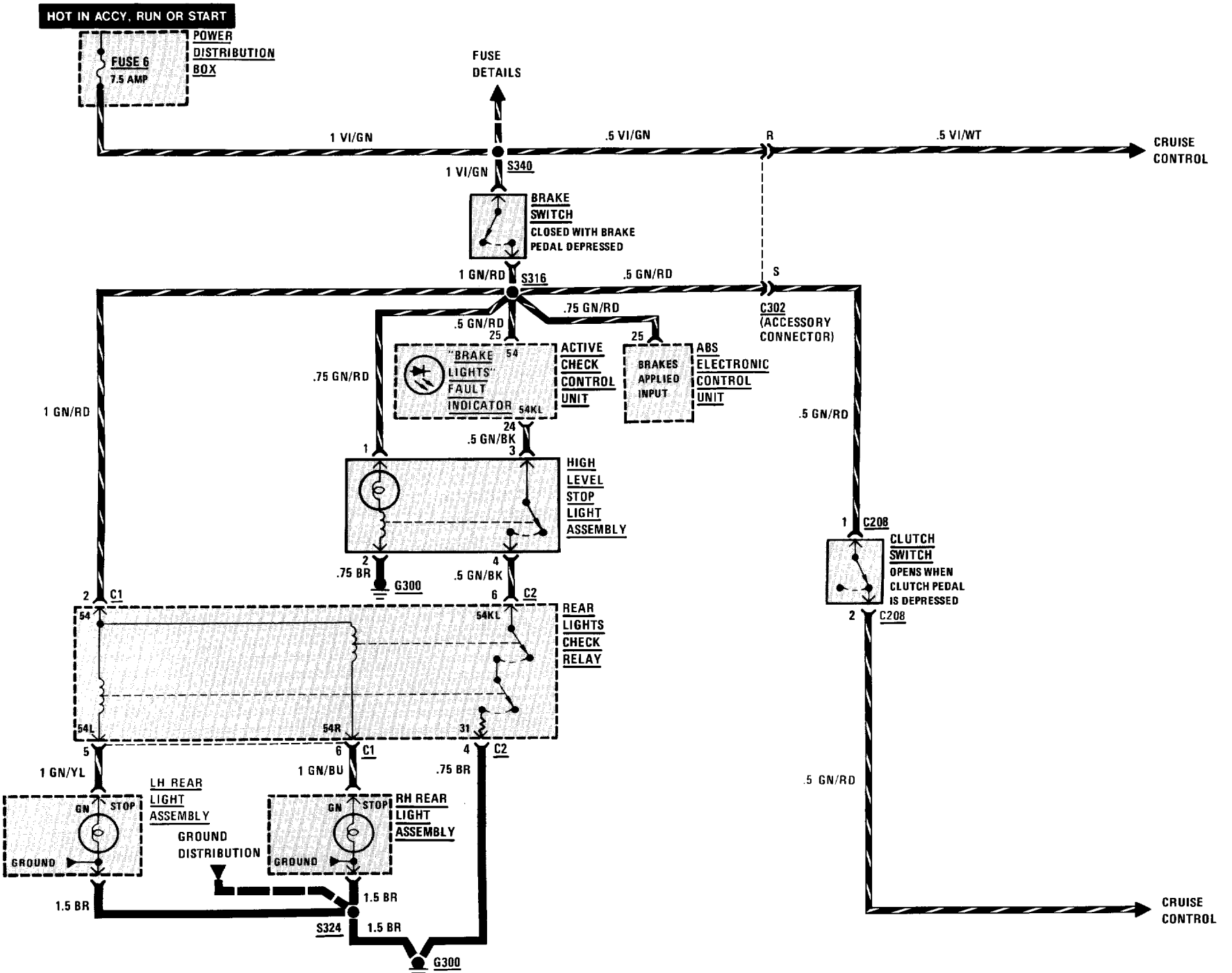
6320-0 REAR MARKER/LICENSE/TRUNK LIGHTS



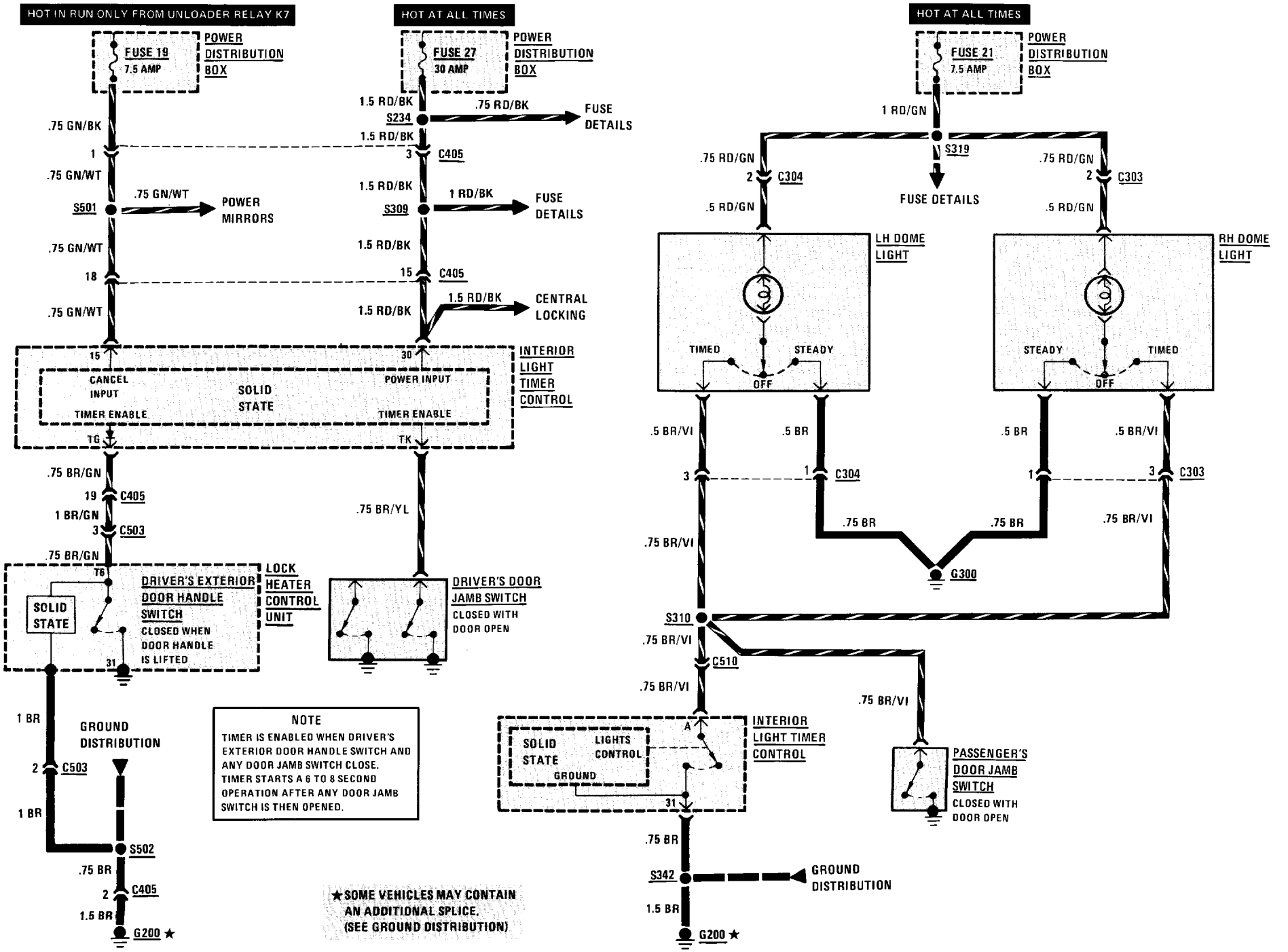
6322-0 BACKUP LIGHTS



6325-0 STOP LIGHTS



6330-0 INTERIOR LIGHTS



SYSTEM CHECK

This procedure provides an overall check of the Heating and Air Conditioning System. Each of the steps can be performed without disassembly or the use of tools.

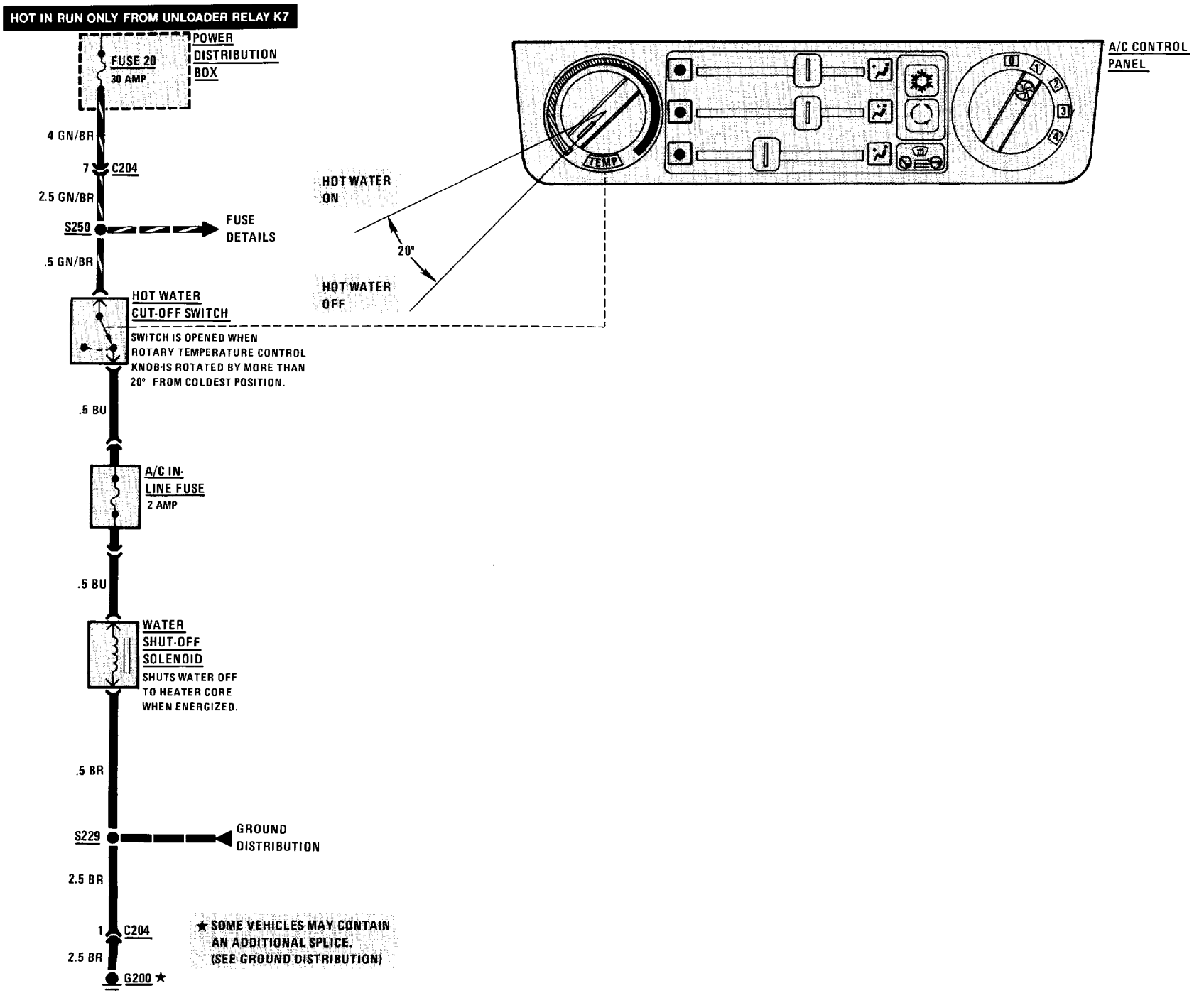
Complete this procedure with the temperature outside the car above 60 degrees F (16 degrees C) and the engine warm and running at idle.

SYSTEM CHECK TABLE

SET: Temperature Control fully counterclockwise Upper and Lower Slide Levers to extreme left Center Slide Lever to extreme right Blower Speed Control at 0 (OFF)	
ACTION	**NORMAL RESULT**
Press Fresh/Recirculating Air Switch (ON). Release A/C button (OFF).	Fresh/Recirculating pushbutton lights. Blower runs slowly.
Rotate Blower Speed Control through steps 1 to 4	Blower speed increases at each step to maximum speed at Step 4
Press Fresh/Recirculating Air Switch to release it (OFF)	Fresh/Recirculating button is no longer lit. Outside air is drawn into car. (The sound of Flap Door Motors may be heard repositioning flaps.)
Rotate Temperature Control at least 1/4 turn clockwise	Air flow becomes warm
Depress A/C button (ON)	A/C button lights. A/C Compressor runs. Auxiliary Cooling Fan runs.
Press A/C button to release it (OFF)	A/C button is no longer lit. A/C Compressor turns off. Auxiliary Cooling Fan turns off.
Set Blower Speed Control to 0 (OFF)	Blower turns off

- **If all of the steps can be completed as described, the Heating and Air Conditioning System is operating normally.**

HEATING AND AIR CONDITIONING (HOT WATER CONTROL)



CIRCUIT OPERATION

The Water Shut-Off Solenoid controls the flow of engine coolant through the heater core. When the solenoid is energized, coolant flow is shut off to allow maximum cooling from the air conditioning system. The Water Shut-Off Solenoid is controlled by the Hot Water Cut-Off Switch, which is part of the A/C Control Panel TEMP Control.

Battery voltage is applied through Fuse 20 to the Hot Water Cut-Off Switch when the Ignition Switch is in RUN. The Hot Water Cut-Off Switch is closed when the TEMP Control is rotated fully counterclockwise (coldest position), and opens when the control is rotated more than 20 degrees in a clockwise direction. When the switch is closed, battery voltage is applied through the A/C In-Line Fuse to the Water Shut-Off Solenoid. The solenoid is energized and shuts off the coolant flow through the heater core.

The Water Shut-Off Solenoid and A/C In-Line Diode are protected by the A/C In-Line Fuse. If any failures occur in the solenoid, the fuse will isolate them to prevent the failures from affecting other parts of the heating and air conditioning circuits.

TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Diagnosis.**

1. Check that Water Shut-Off Solenoid connector is firmly seated.
2. Check the A/C In-Line Fuse.

- **Go to Heating and Air Conditioning (6410-0) System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM DIAGNOSIS

- **Do the following test if the Water Shut-Off Solenoid does not operate normally.**

WATER SHUT-OFF SOLENOID TEST (TABLE 1)

Measure: VOLTAGE
At: WATER SHUT-OFF SOLENOID CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Control Panel TEMP Control: FULLY COUNTERCLOCKWISE**

Measure Between	Correct Voltage	For Diagnosis
BU & Ground	Battery	See 1
BU & or BR	Battery	See 2
• Rotate A/C Control Panel TEMP Control to Mid-Position		
BU & Ground	0 Volts	See 3

(Continued in next column)

(Continued from previous column)

- If all voltages are correct, replace the Water Shut-Off Solenoid.

1. Check the BU wire and A/C In-Line Fuse for an open. If wire and fuse are good, go to Table 2.
2. Check the BR wire for an open to ground. Check that connector C204 is properly mated.
3. Check BU wire for a wire-to-wire short to voltage. If wire is good, replace the A/C Control Panel TEMP Control.

WATER SHUT-OFF SOLENOID TEST (TABLE 2)

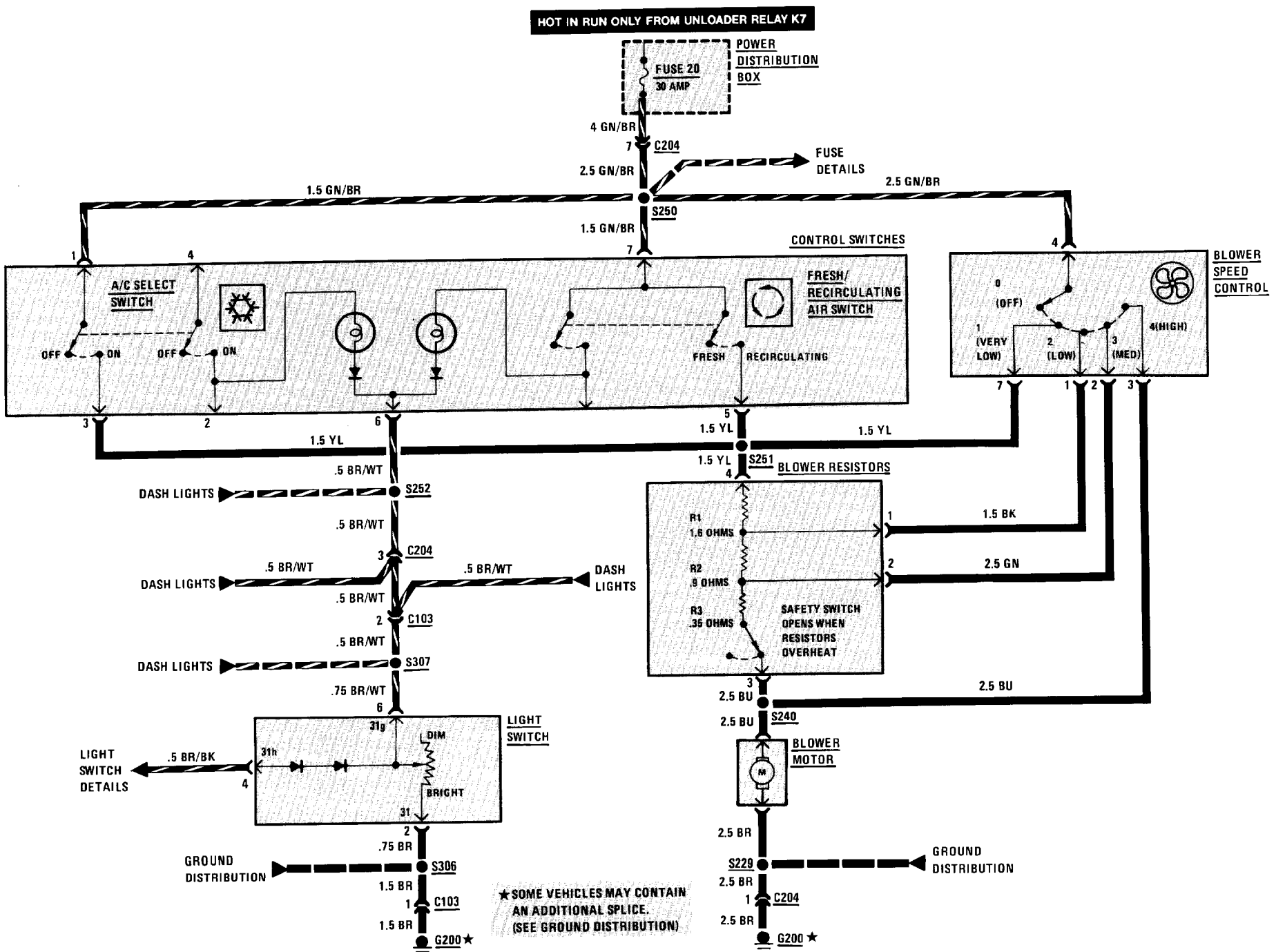
Measure: VOLTAGE
At: HOT WATER CUT-OFF SWITCH CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Water Shut-Off Solenoid: CONNECTED**

Measure Between	Correct Voltage	For Diagnosis
GN/BR & Ground	Battery	See 1
GN/BR & BU	Battery	See 2

- If both voltages are correct, replace the A/C Control Panel TEMP Control.

1. Check the GN/BR wire for an open back to Fuse 20.
2. Check the BU wire for an open.

HEATING AND AIR CONDITIONING (BLOWER CONTROLS)



CIRCUIT OPERATION

With the Ignition Switch in RUN, battery voltage is applied to the Control Switches and the Blower Speed Control through the GN/BR wires. If either the A/C Select Switch or the Fresh/Recirculating Air Switch are ON or the Blower Speed Control is in position 1, battery voltage is applied through the YL wire to the Blower Resistors and the Blower Motor.

The Blower Motor is a variable speed motor which runs at a speed proportional to the voltage applied to it. With all of the Blower Resistors in the circuit, the voltage applied to the Motor is reduced so the Motor runs at a low speed.

As the Blower Speed Control is moved through positions 2 and 3, some of the Resistors are bypassed, allowing more voltage to be applied to the Blower Motor, which then runs at a higher speed. When the Blower Speed Control is moved to position 4, battery voltage is applied directly to the Blower Motor, which then runs at maximum speed.

The Blower Resistors dissipate heat because of the current flowing through them. They are cooled by the air flow from the Blower. If there is insufficient air flow to cool the Resistors, the Safety Switch will open, shutting the Blower Motor off until the Resistors have cooled.

TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Diagnosis.**

1. Check Fuse 20 by visual inspection.
2. If Blower will run in high only, check the Blower Resistors' Safety Switch for an open.

- **Go to Heating and Air Conditioning (6410-0) System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM DIAGNOSIS

- **Do the tests listed for your symptom in the Symptom Table below.**
- **Tests follow the Symptom Table.**

SYMPTOM TABLE

SYMPTOM	DO TEST
Blower Motor does not run in any speed setting.	B
Blower runs only in HIGH (does not run in any other speed setting).	B
Blower does not run in some modes.	A
Blower does not run with A/C ON or in Recirculating mode.	A
A/C Select Switch or Fresh/Recirculating Air Switch does not light.	A

A: CONTROL SWITCH VOLTAGE TEST

Measure: VOLTAGE
At: CONTROL SWITCHES CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: OFF**

Measure Between	Correct Voltage	For Diagnosis
1 (GN/BR) & Ground	Battery	See 1

(Continued in next column)

(Continued from previous column)

1 (GN/BR) & 3 (YL)	Battery	See 2 & 4
7 (GN/BR) & Ground	Battery	See 1
7 (GN/BR) & 5 (YL)	Battery	See 2 & 4
7 (GN/BR) & 6 (BR/WT)	Battery	See 3

- If all voltages are correct, do Test B.

1. Check the GN/BR wire for an open.
2. Check the YL wire for an open.
3. Check the BR/WT wire for an open.
4. If voltage is not present between the GN/BR wire and both the YL wires (terminals 3 and 5), do Test B.

B: BLOWER SPEED CONTROL TEST

Measure: VOLTAGE
At: BLOWER SPEED CONTROL CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Select Switch: ON (Depressed)**
- **Fresh/Recirculating Air Switch: FRESH (Not Depressed)**

Measure Between	Correct Voltage	For Diagnosis
4 (GN/BR) & Ground	Battery	See 1
7 (YL) & Ground	Battery	See 2
• A/C Select Switch: OFF (Not Depressed)		
7 (YL) & Ground	0 Volts	See 3

(Continued on next page)

(Continued from previous page)

4 (GN/BR) & 7 (YL)	Battery	See 4, 8, 9, & 10
4 (GN/BR) & 1 (BK)	Battery	See 5, 8, 9, & 10
4 (GN/BR) & 2 (GN)	Battery	See 6, 8, 9, & 10
4 (GN/BR) & 3 (BU)	Battery	See 7 & 10

- If all voltages are correct, replace the Blower Motor.

1. Check the GN/BR wire for an open.
2. Check the YL wire for an open between Blower Speed Control and splice S231.
3. Check the YL wire for a wire to wire short to voltage.
4. Check the YL wire for an open between splice S231 and the Blower Resistors.
5. Check the BK wire for an open.
6. Check the GN wire for an open.
7. Check the BU wire for an open.
8. If voltage is not present at the YL wire, but is present at the GN wire or BK wire, replace the Blower Resistors.
9. If voltage is not present at the YL, BK or GN wires, check for an open Blower Resistors' Safety Switch.
10. If voltage is not present at the YL, BK, GN and BU wires, do Test C.

C: BLOWER MOTOR TEST

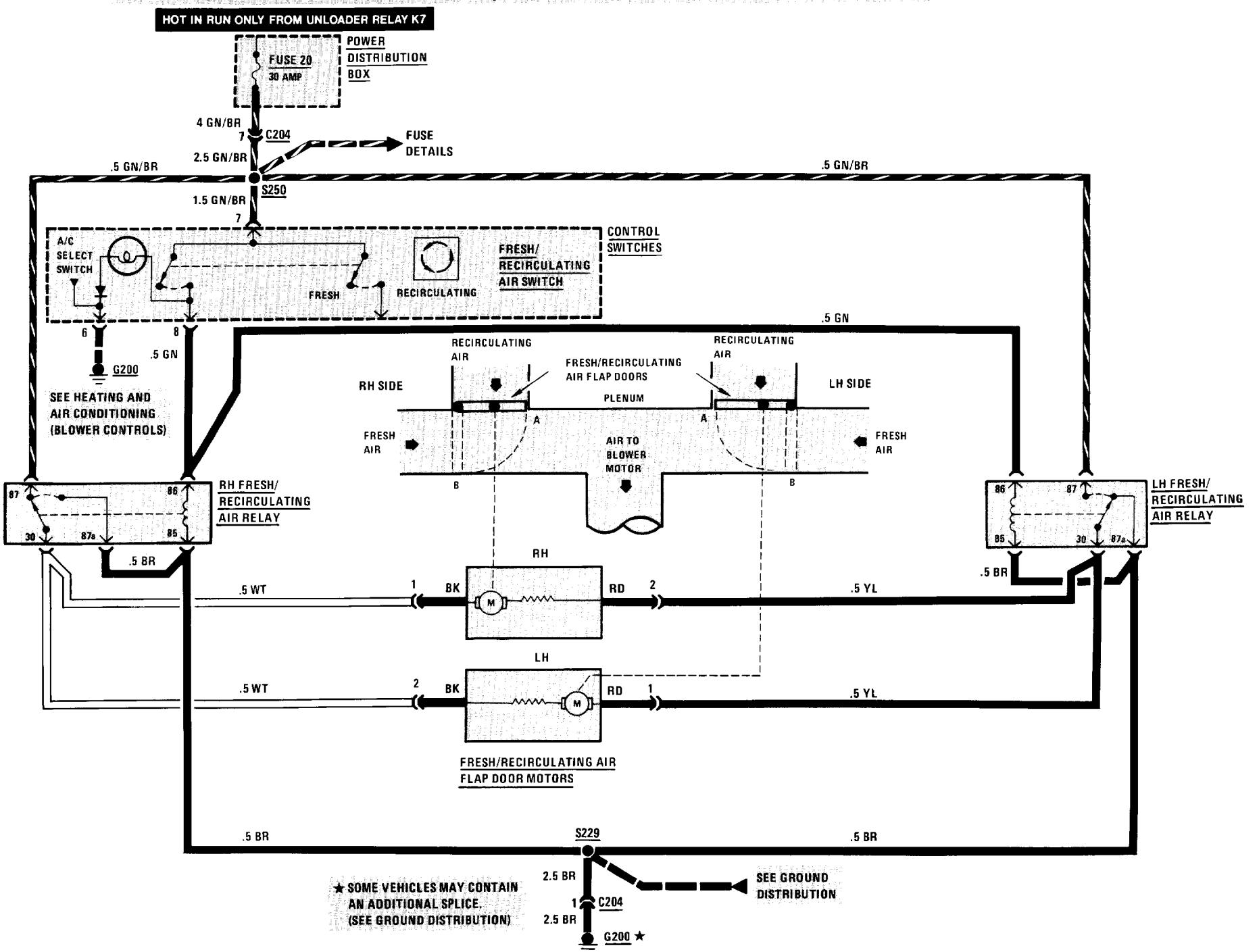
Measure: VOLTAGE
At: BLOWER MOTOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Select Switch: ON**
- **Blower Speed Control: HIGH**

Measure Between	Correct Voltage	For Diagnosis
BU & Ground	Battery	See 1
BU & BR	Battery	See 2

- If both voltages are correct, replace the Blower Motor.

1. Check the BU wire for an open. If wire is good, recheck Test B.
2. Check the BR wire to ground G200 for an open.

HEATING AND AIR CONDITIONING (FRESH/RECIRCULATING AIR CONTROLS)



CIRCUIT OPERATION

When the Ignition Switch is in RUN, battery voltage is applied to terminal 7 of the Control Switches, the normally open contacts of the LH Fresh/Recirculating Air Relay, and the normally closed contacts of the RH Fresh/Recirculating Air Relay. If the Fresh/Recirculating Air Switch is not depressed (open), battery voltage is applied through the normally closed contacts of the RH Fresh/Recirculating Air Relay to both Fresh/Recirculating Air Flap Door Motors and then to ground through the normally closed contacts of the LH Fresh/Recirculating Air Relay. Both motors operate and move the Fresh/Recirculating Air Flap Doors to position A, allowing fresh air to enter the blower.

When the Fresh/Recirculating Air Switch is depressed (closed), battery voltage is applied through the switch to both the LH and RH Fresh/Recirculating Air Relay coils. Both relays are energized. Battery voltage is then applied through the closed contacts of the LH Fresh/Recirculating Air Relay to the Flap Door Motors, and to ground through the closed contacts of the RH Fresh/Recirculating Air Relay. Since the voltage is now applied to the Flap Door Motors in the opposite direction, the motors reverse direction and move the Fresh/Recirculating Air Flap Doors to position B, allowing only recirculating air to enter the blower. Both of the Air Flap Door Motors remain energized continuously. When the doors reach the end of their travel, the motors stall and hold the doors in position.

TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Diagnosis.**

1. Check that LH and RH Fresh/Recirculating Air Relays are firmly seated.
2. Check that LH and RH Fresh/Recirculating Air Relay pigtail connectors are properly mated.

- **Go to Heating and Air Condtioning (6410-0) System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM DIAGNOSIS

- **Do the tests below if the Fresh/Recirculating Air Flap Doors do not operate.**

A: FRESH/RECIRCULATING AIR FLAP DOOR MOTOR VOLTAGE TEST

Measure: VOLTAGE
At: FRESH/RECIRCULATING AIR FLAP DOOR MOTOR PIGTAIL CONNECTORS (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Fresh/Recirculating Air Switch: RELEASED (FRESH)**

Measure Between	Correct Voltage	For Diagnosis
WT and Ground	Battery	See 1
WT and YL	Battery	See 2
• Fresh/Recirculating Air Switch: DEPRESSED (RECIRCULATING)		
YL and Ground	Battery	See 3

(Continued in next column)

(Continued from previous column)

YL and WT	Battery	See 3

- If all voltages are correct, replace the inoperative motor.

1. Check the WT wire for an open. If wire is good, do Test B for RH Air Relay.
2. Check the YL wire for an open. If wire is good, do Test B for LH Air Relay.
3. Do Test B for both Air Relays.

B: FRESH/RECIRCULATING AIR RELAY VOLTAGE TEST

Measure: VOLTAGE
At: FRESH/RECIRCULATING AIR RELAY CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Fresh/Recirculating Air Switch: DEPRESSED (RECIRCULATING)**
- **Fresh/Recirculating Air Flap Door Motor Connectors: CONNECTED**

Measure Between	Correct Voltage	For Diagnosis
87 (GN/BR) and Ground	Battery	See 1
86 (GN) and Ground	Battery	See 2
86 (GN) and 85 (BR)	Battery	See 3
86 (GN) and 87a (BR)	Battery	See 3

(Continued on next page)

(Continued from previous page)

- If all voltages are correct, replace the suspect Fresh/Recirculating Air Relay.

1. Check the GN/BR wire for an open.
2. Check the GN wire back to the Control Switches for an open. If wire is good, do Test C.
3. Check the BR wire for an open.

C: CONTROL SWITCHES VOLTAGE TEST

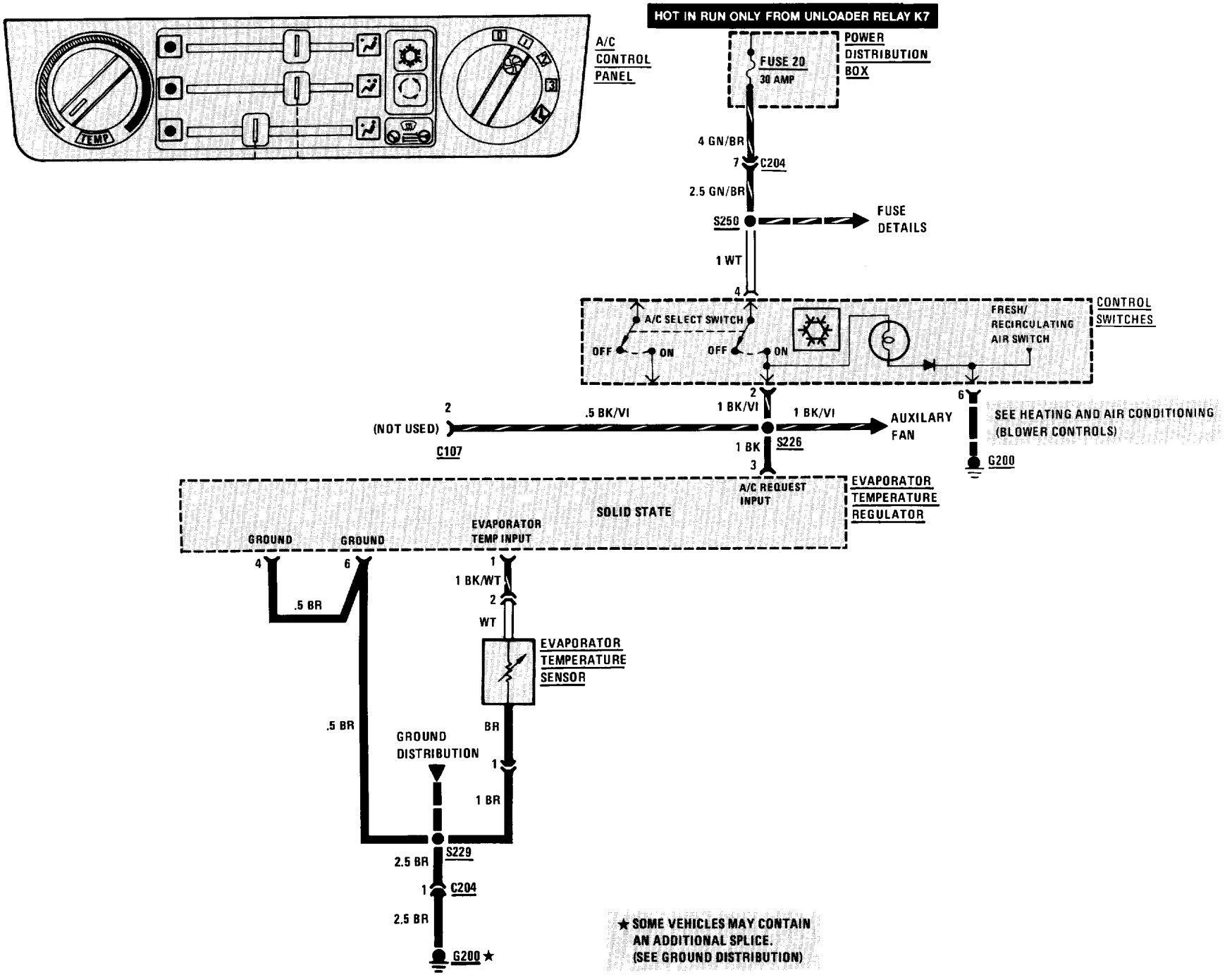
Measure: VOLTAGE
At: CONTROL SWITCHES CONNECTOR (Disconnected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
7 (GN/BR) & Ground	Battery	See 1
7 (GN/BR) & 8 (GN)	Battery	See 2

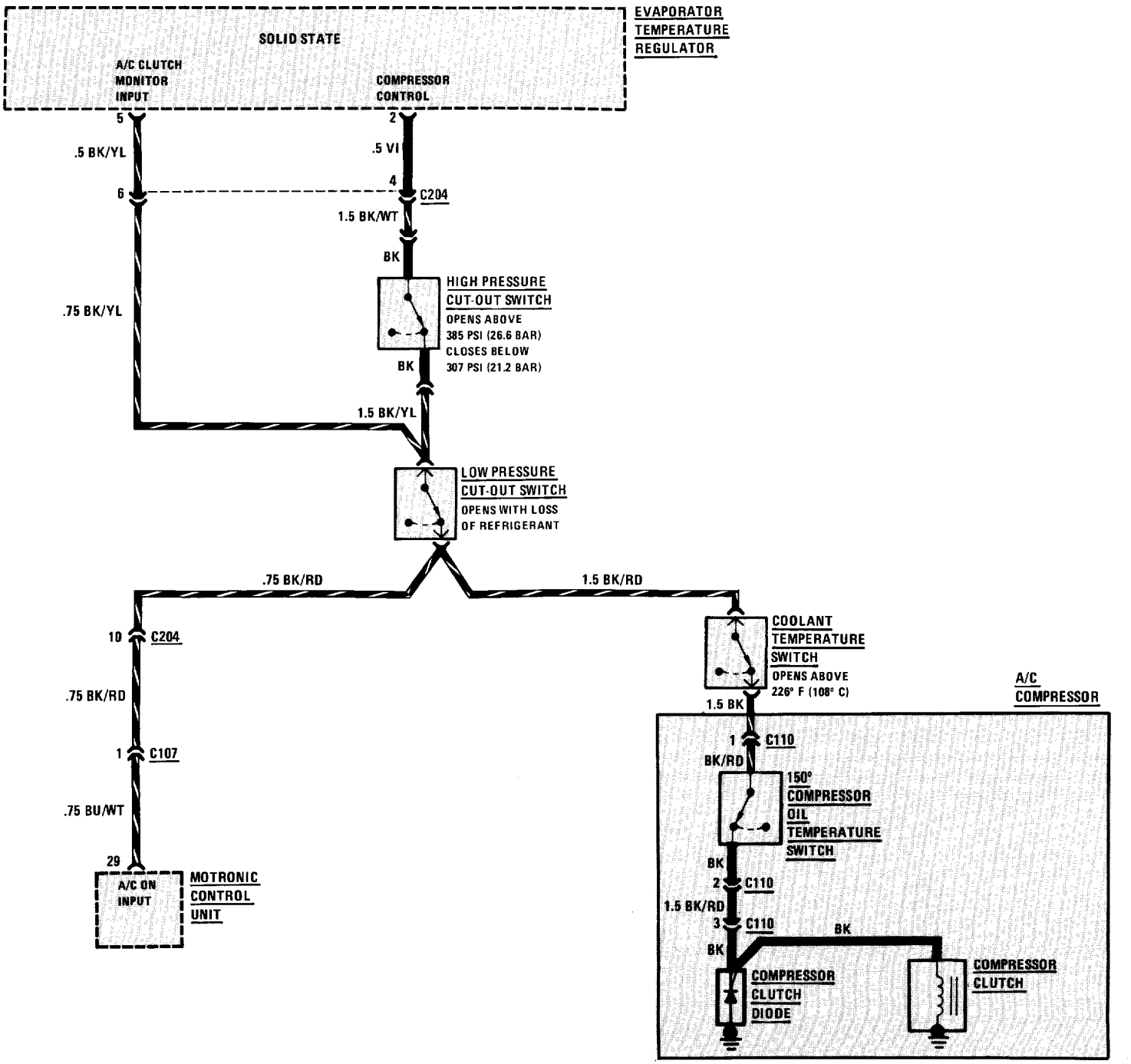
- If both voltages are correct, replace the Control Switches.

1. Check the GN/BR wire for an open. If wire is good, check that connector C204 is properly mated.
2. Check the GN wire for an open between the Control Switches and the LH and RH Fresh/Recirculating Air Relays.

HEATING AND AIR CONDITIONING (COMPRESSOR CONTROLS)



HEATING AND AIR CONDITIONING (COMPRESSOR CONTROLS)



CIRCUIT OPERATION

When the Ignition Switch is in RUN, battery voltage is applied through Fuse 20 to the A/C Select Switch. When the A/C Select Switch is pressed, voltage is applied to terminal 3 of the Evaporator Temperature Regulator. The Evaporator Temperature Regulator applies voltage from terminal 2 to the Compressor Clutch through the High Pressure Cut-Out Switch, the Low Pressure Cut-Out Switch, and the Temperature Switch.

The High Pressure Cut-Out Switch will disengage the Compressor Clutch when refrigerant pressure rises above 385 PSI (26.6 Bar). The Evaporator Temperature Regulator will detect the High Pressure Cut-Out Switch opening at terminal 5 and will turn off the output voltage at the Compressor Control terminal. The Evaporator Temperature Regulator will not allow the Compressor Clutch to be turned on again until circuit continuity has been restored between terminals 5 and 2. The regulator tests for continuity by momentarily applying voltage at the Compressor Control every 8 to 10 seconds. Voltage at the A/C Clutch Monitor Input indicates continuity. The Evaporator Temperature Regulator will continue to apply voltage at the Compressor Control output, which will energize the Compressor.

The Temperature Switch opens to remove the compressor load from the engine if the engine coolant temperature rises above 226 °F (108 °C). The Evaporator Temperature Sensor signals the Evaporator Temperature Regulator to de-energize the Compressor Clutch when evaporator temperature is low enough for freezing to result.

Clutch Diode

Whenever the Compressor Clutch is de-energized, the collapsing magnetic field induces a voltage in the winding. The Clutch Diode provides a path for the resulting current.

A/C On Input

When the Compressor Clutch is turned on, voltage is applied to terminal 29 of the Motronic Control Unit. The Motronic Control Unit uses this signal to increase idle speed to compensate for the increased engine load from the Compressor Clutch engaging.

TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Diagnosis.**

1. Check Fuse 20 by visual inspection.
2. Check that Compressor Clutch connector is firmly seated.

- **Go to Heating and Air Conditioning (6410-0) System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM DIAGNOSIS

- **Do the tests listed for your symptom in the Symptom Table below.**
- **Tests follow the Symptom Table.**

SYMPTOM TABLE

Compressor Clutch does not engage	A
Engine idle speed is not high enough when Compressor Clutch engages	D

A: A/C ISOLATION TEST (TABLE 1)

Measure: VOLTAGE
At: EVAPORATOR TEMPERATURE REGULATOR (Disconnected)
Conditions:
- **Ignition Switch: RUN (Engine need not be running)**
- **A/C Selector Switch: Depressed (ON)**

Measure Between	Correct Voltage	For Diagnosis
3 & Ground	Battery	See 1

- If voltage is correct, go to Table 2.

1. Go to Test E.

A: A/C ISOLATION TEST (TABLE 2)

Connect: FUSED JUMPER
At: EVAPORATOR TEMPERATURE REGULATOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: Depressed (ON)**

Connect Across	Correct Result	For Diagnosis
2 & 3	Compressor Clutch Engages	See 1

- If result is correct go to Test C.

1. Go to Test B.

B: PRESSURE SWITCH TEST

Measure: RESISTANCE
At: EVAPORATOR TEMPERATURE REGULATOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: OFF**
- **Negative Battery Terminal: DISCONNECTED**

Measure Between	Correct Resistance	For Diagnosis
2 & Ground	Approximately 3 to 4 ohms	See 1

- If measurement is correct replace the Evaporator Temperature Regulator.

1. Check for an open Low Pressure Cut-Out Switch, High Pressure Cut-Out Switch, A/C Temperature Switch, or associated wiring (see schematic). If High Pressure Cut-Out Switch is open, replace it. If Low Pressure Cut-Out Switch is open, check refrigerant pressure to be sure it is normal before replacing the switch. Replace the A/C Temperature Switch if it is open and engine coolant temperature is below 226 °F (108 °C). If the switches and related wiring is OK, replace the Compressor Clutch.

C: EVAPORATOR TEMPERATURE REGULATOR VOLTAGE AND RESISTANCE TEST

Measure: RESISTANCE
At: EVAPORATOR TEMPERATURE REGULATOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: OFF**
- **Negative Battery Terminal: DISCONNECTED**

Measure Between	Correct Resistance	For Diagnosis
1 & Ground	Approximately 3.5K to 4.5K ohms at 70 °F (21 °C)	See 1
4 & Ground	Less than 0.5 ohms	See 2
6 & Ground	Less than 0.5 ohms	See 2
5 & 2	Less than 0.5 ohms	See 3

- If all resistances are correct but Compressor Clutch does not operate normally, replace the Evaporator Temperature Regulator.

1. Check the BK/WT wire for an open or a short to ground (see schematic). Check the BR wire for an open (see schematic). If wires are good, replace the Evaporator Temperature Sensor.
2. Check the BR wire for an open (see schematic).
3. Check BK/YL for an open between terminal 5 and the Low Pressure Cut-Out Switch.

D: IDLE SPEED CONTROL VOLTAGE TEST

Measure: VOLTAGE
At: MOTRONIC CONTROL UNIT CONNECTOR (Connected — Universal Adapter)
Conditions:
- **Ignition Switch: RUN**
- **A/C Control Panel: A/C ON**
- **Temperature Outside Car: Above 60 degrees F (16 degrees C)**

Measure Between	Correct Voltage	For Diagnosis
29 BL/WT & Ground	Battery	See 1

- If the voltage is correct, repair/replace the Motronic Control Unit.

1. Check for an open in the BL/WT and BK/RD wires.

E: A/C SELECT SWITCH VOLTAGE TEST

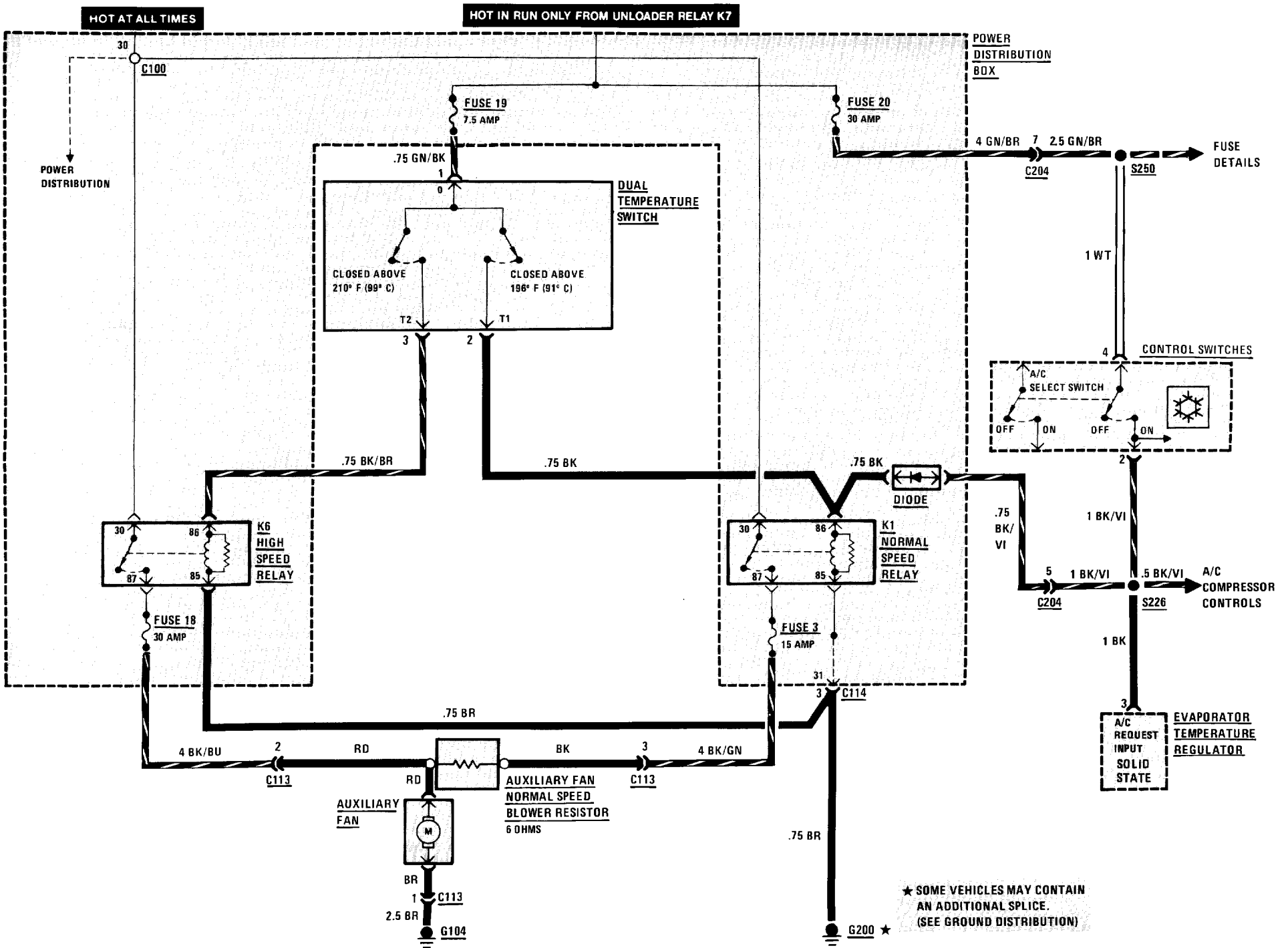
Measure: VOLTAGE
At: CONTROL SWITCHES CONNECTOR (Connected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Control Panel: A/C ON**
- **Temperature Outside Car: Above 60 degrees F (16 degrees C)**

Measure Between	Correct Voltage	For Diagnosis
4 (WT) & Ground	Battery	See 1
2 (BK/VI) & Ground	Battery	See 2

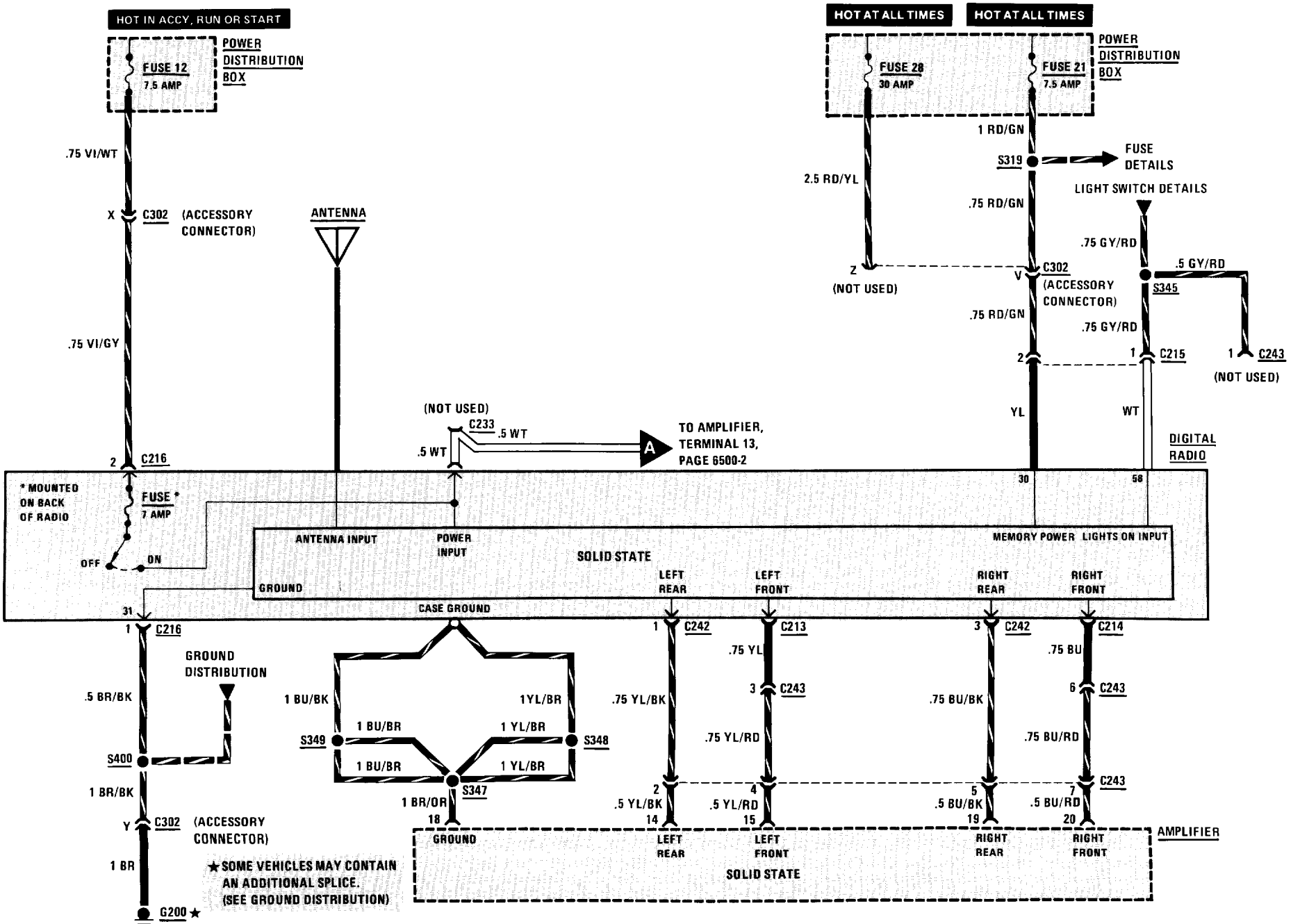
- If both voltages are correct, check connections at Evaporator Temperature Regulator.

1. Check for an open in the WT and GN/BR wires.
2. Replace the A/C Select Switch.

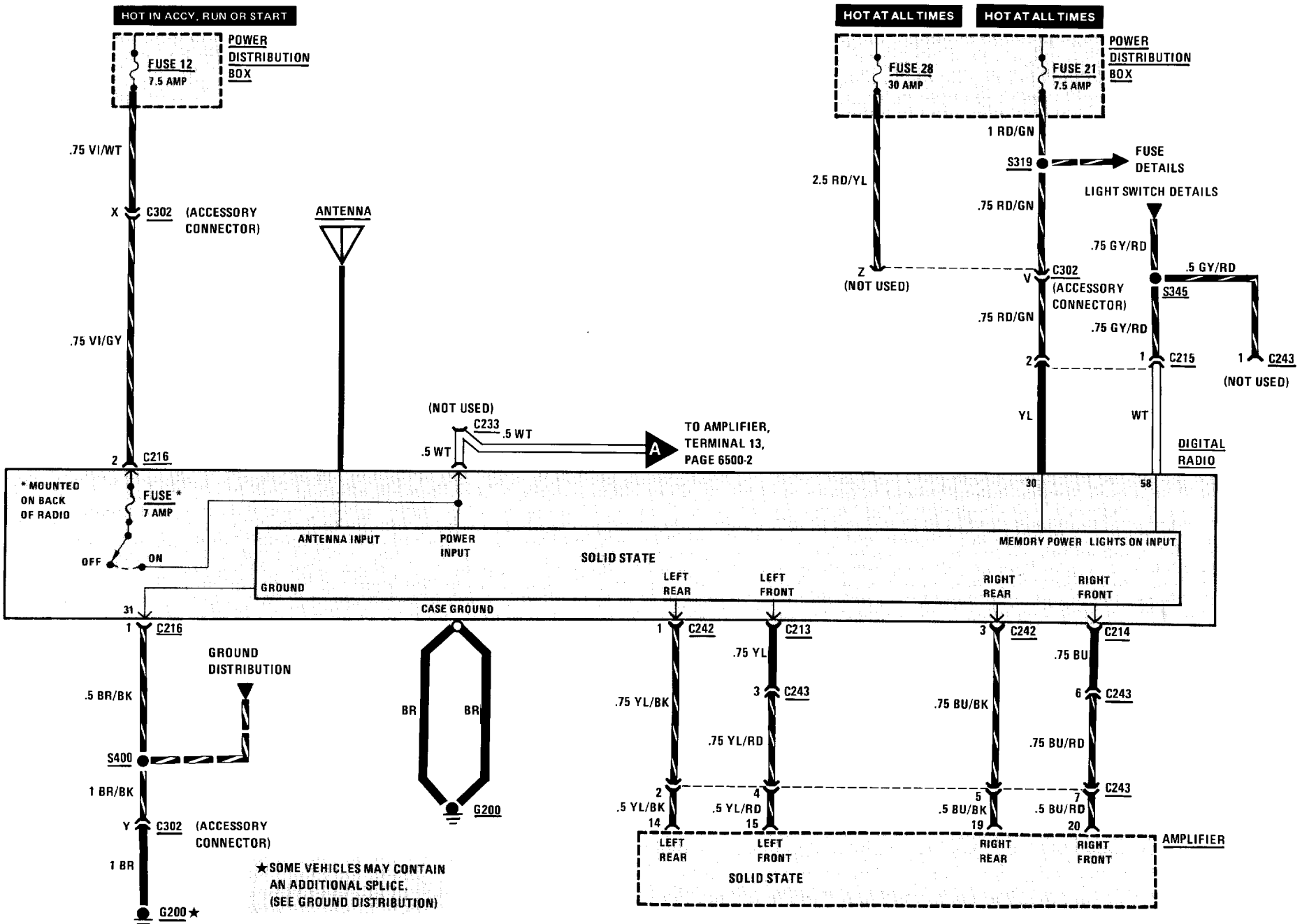
6454-0 AUXILIARY FAN



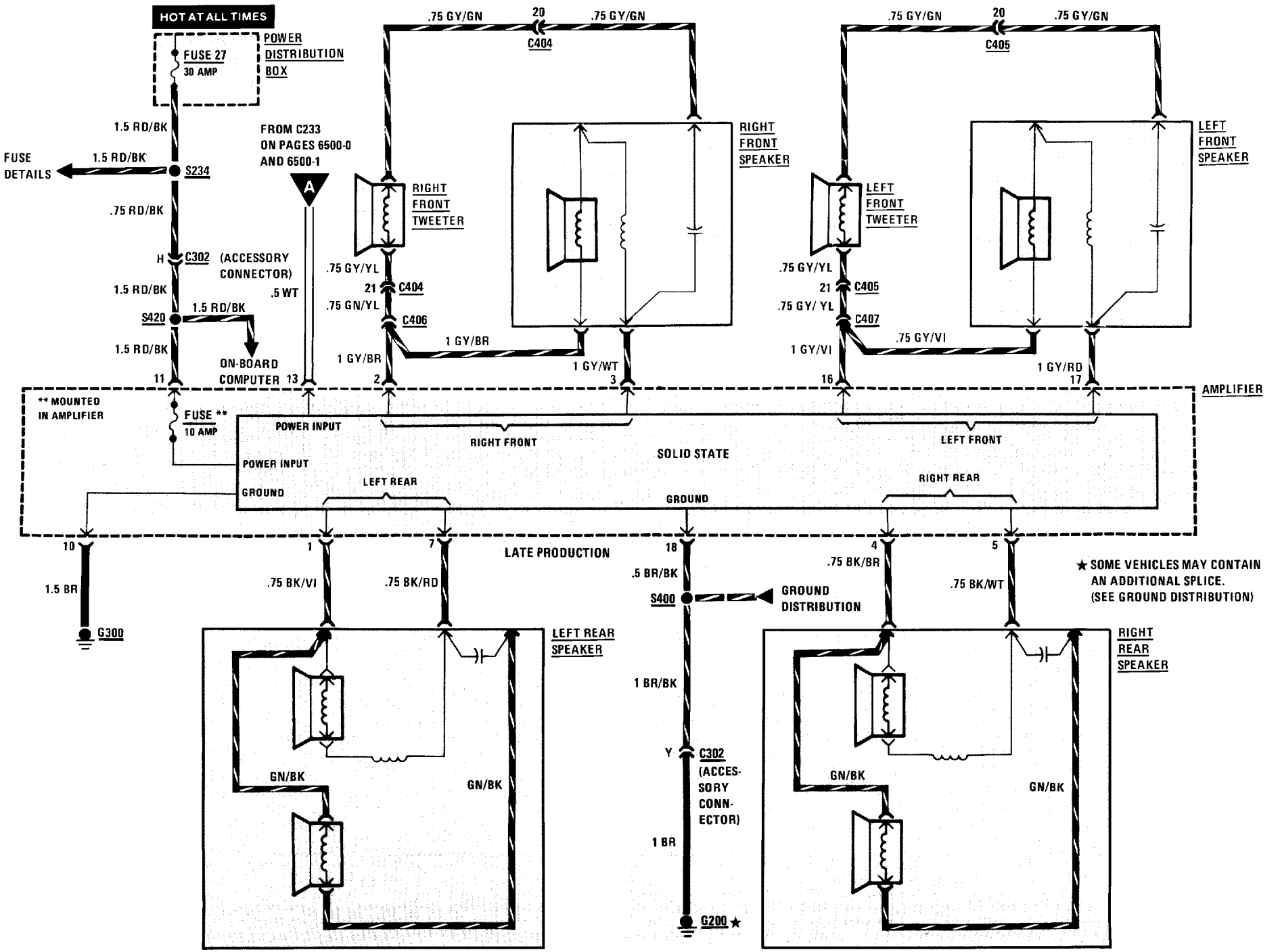
EARLY PRODUCTION



LATE PRODUCTION



WITH SOUND SYSTEM



CIRCUIT OPERATION

With the Ignition Switch in ACCY, RUN or START, Fuse 12 provides voltage to turn on the three components in the system. When the Radio Switch in on, voltage is applied to the Radio and the Amplifier. This voltage is used to control the individual unit's main power supply.

Fuse 21 constantly supplies voltage to the Memory Power Input of the Radio. This allows the Radio to maintain the present settings while it is turned off.

The Amplifier receives constant power at terminal 11 from Fuse 27. When the Radio is on, voltage is applied to terminal 13 to enable the Amplifier.

The actual Radio signal originates at the Antenna. It is supplied to the Radio, processed, and output from the Left Channel and Right Channel Outputs. The signal is then input to the Left Front, Left Rear, Right Front and Right Rear Inputs to the Amplifier. After amplification, the signal is output to the corresponding speakers.

TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Check.**

1. Check power input to the Radio by observing if Instrument Cluster Indicators light.
2. Check memory power to Radio by checking operation of the Glove Box Light.
3. Check power input to the Amplifier.
4. Check that the Antenna is properly connected.
5. Before troubleshooting a suspect Speaker, check all connections to that Speaker.
6. If display shows "CODE" and Radio will not operate, the individual Anti-Theft Code must be entered. Refer to "Anti-Theft" instruction booklet.
7. Check Radio Fuse located on back of Radio.
8. Check Amplifier Fuse located on back of Amplifier.
9. For Radio without Sound System: If a speaker is inoperative, switch with a good speaker. If still inoperative, check related wiring. Remove Radio for service if wiring is OK.

SYSTEM CHECK

- **Use the System Check Table as a guide to normal operation.**
- **Refer to System Diagnosis for a list of symptoms and diagnostic steps.**

SYSTEM CHECK TABLE

ACTION	NORMAL RESULT
With Ignition Switch in RUN, turn Radio ON.	Digital display lights. Sound is emitted from all Speakers.
Operate Fader Control.	Sound volume varies from front to rear.

- **Refer to System Diagnosis when a result is not normal.**

SYSTEM DIAGNOSIS

- **Do the tests listed for your symptom in the Symptom Table below.**
- **Tests follow the Symptom Table.**

SYMPTOM TABLE

SYMPTOM	FOR DIAGNOSIS
Radio does not work (no display, no sound).	Do Test A
Digital display lights, but there is no sound.	Do Test B
LH Speakers or RH Speakers do not operate.	Do Test C

(Continued on next page)

(Continued from previous page)

An individual Speaker does not operate.	Do Test D
Excessive noise comes from all speakers.	Do Test E

A: RADIO POWER TEST

Measure: VOLTAGE
At: RADIO CONNECTOR C216 (Disconnected) or CONNECTOR C215 (Disconnected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
C216 Ground	Battery	See 1
C216/2 & C216/1	Battery	See 2
C215/2 & Ground	Battery	See 3

- If all voltages are correct, check wire from connector C215 to Radio for an open. If wire is OK, remove Radio for service.

1. Check power input wire for an open.
2. Check ground wire for an open to ground. Make sure ground G200 is clean and tight.
3. Check memory power supply wire for an open.

B: AMPLIFIER POWER TEST

Measure: VOLTAGE
At: AMPLIFIER CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Radio: ON**

Measure Between	Correct Voltage	For Diagnosis
11 & Ground	Battery	See 1
11 & 18	Battery	See 2
13 & Ground	Battery	See 3
11 & 10	Battery	See 4

- If all voltages are correct, go to Test C.

1. Check power supply wire for an open.
2. Check Amplifier ground to Amplifier for an open to ground. Make sure ground G200 is clean and tight.
3. Check Amplifier "Radio On" wire for an open.
4. Check wire from terminal 10 for an open to ground. Make sure ground G106 is clean and tight.

C: FADER SIGNAL TEST (WITH SOUND SYSTEM)

Measure: VOLTAGE
At: AMPLIFIER CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Radio: ON**

Measure Between	Correct Voltage	For Diagnosis
14 & Ground	Approximately 6 Volts	See 1
15 & Ground	Approximately 6 Volts	See 1
19 & Ground	Approximately 6 Volts	See 1
20 & Ground	Approximately 6 Volts	See 1

- If all voltages are correct but sound was not present, remove Amplifier for service.

1. Check between Radio and Amplifier for an open in the wiring. If wire is OK, remove Radio for service.

D: SUSPECT SPEAKER TEST

Connect: OHMMETER
At: SUSPECT SPEAKER (Disconnected) d)
- **Ohmmeter set on Rx 1 scale or Diode Check Scale**

Action	Correct Result	For Diagnosis
Connect Ohmmeter across Speaker Terminals	Speaker "pops"	See 1

- If the result is correct, check wires to the Amplifier or Radio for opens or shorts. If OK, check wires between Amplifier (if equipped) and the Radio. Remove Radio for service.

1. Replace the suspect Speaker.

E: NOISE DIAGNOSIS

With Radio on and noise present, unplug the Antenna at the back of the Radio.

- If noise is no longer present, it was being picked up by the Antenna. Perform Antenna Noise Test.
- If noise persists, it is coming in the Radio wiring. Refer to the following Noise Symptom Table.

ANTENNA NOISE TEST

Measure: RESISTANCE
At: ANTENNA

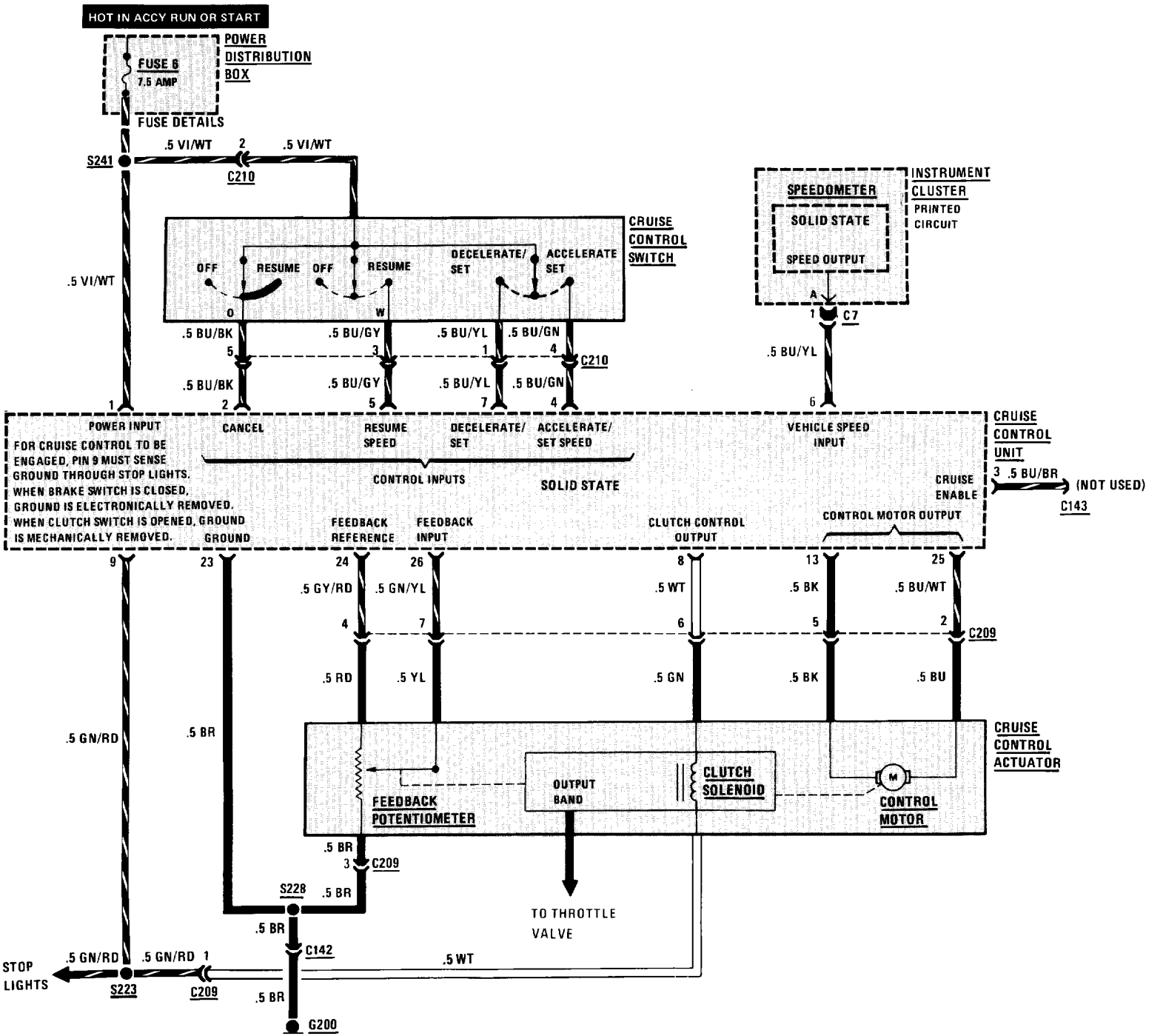
Measure Between	Correct Resistance	For Diagnosis
Antenna Plug Base & Ground	Less than 3 Ohms	See 1
Antenna Plug Tip & Antenna Plug Base	Greater than 1 Megohm (open circuit)	See 2

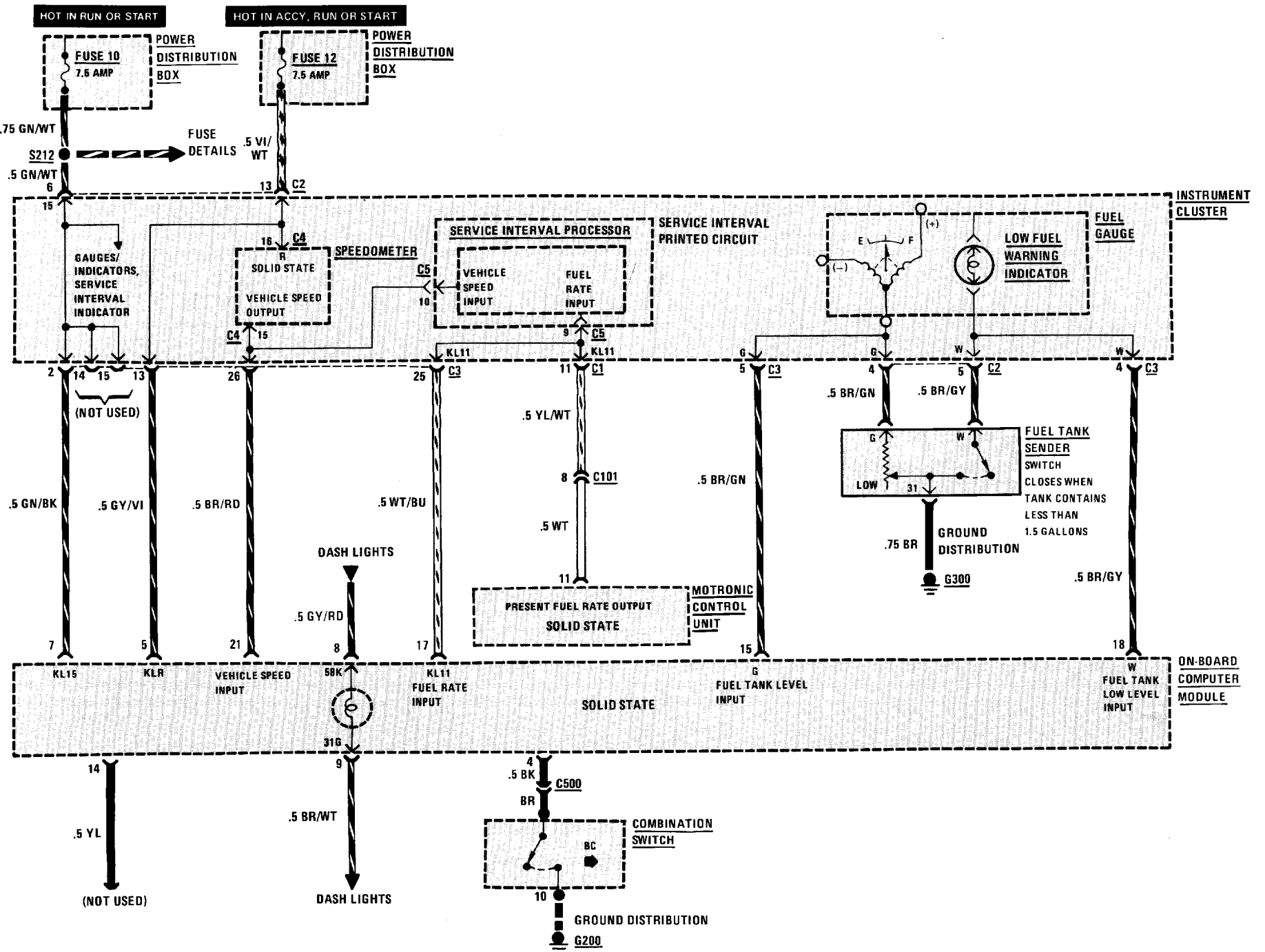
- If both resistances are correct, check the hood ground strap. If OK, substitute different Antenna at Radio. If good, replace Antenna. If noise is still present, refer to Noise Symptom Table.

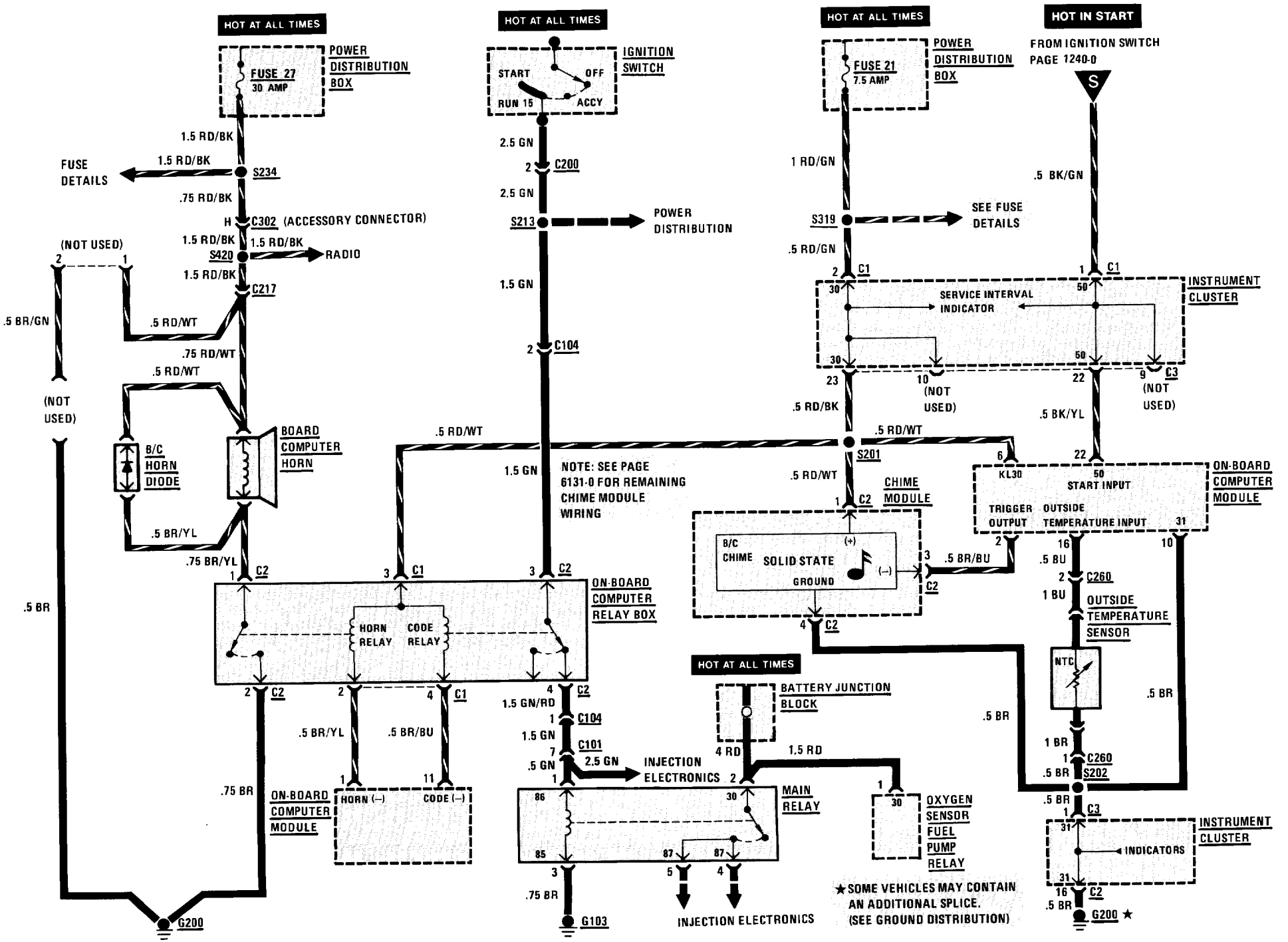
1. Check ground contact at Antenna base. If necessary, install a braided ground strap from the Antenna Base to Chassis ground. Check for an open in the Antenna Cable.
2. Check for a short to ground at the Antenna or Antenna cable.

NOISE SYMPTOM TABLE

SYMPTOM	POSSIBLE CAUSE	REPAIR ACTION
Harsh popping or crackling noise present when ignition on-changes with engine rpm.	Ignition Noise	• Check for proper distributor cap shielding. • Check shielding ground strap. If not present, install. • Check for defective spark plug or spark plug wire. • Reroute spark plug wires laying against anything that could be transmitting noise to the Radio (wiring or sensor leads traveling into the passenger compartment). • Check engine/firewall ground strap and engine hood/body ground strap. • Check if engine hood is closing properly. • Connect dedicated ground strap to Radio. • Replace distributor cap and rotor.
High whine or howling that changes with engine rpm.	Alternator noise	• Connect dedicated ground strap to Radio. • Run a direct wire from Battery to Alternator.
AM only is weak and noisy.	AM alignment	• Remove Radio for service.
FM only is weak and noisy.	FM alignment	• Remove Radio for service.


HOT IN ACCY RUN OR START
POWER DISTRIBUTION BOX
FUSE 6
7.5 AMP
FUSE DETAILS
S241
.5 VI/WT
2
C210
SPEEDOMETER
SOLID STATE
SPEED OUTPUT
INSTRUMENT CLUSTER
PRINTED CIRCUIT
A
1
C7
.5 BU/YL
6
CRUISE CONTROL SWITCH
OFF
RESUME
OFF
RESUME
DECELERATE/ SET
ACCELERATE SET
O
W
.5 BU/BK
.5 BU/GY
.5 BU/YL
.5 BU/GN
5
3
1
4
C210
.5 BU/BK
.5 BU/GY
.5 BU/YL
.5 BU/GN
2
5
7
4
1
POWER INPUT
FOR CRUISE CONTROL TO BE ENGAGED, PIN 9 MUST SENSE GROUND THROUGH STOP LIGHTS. WHEN BRAKE SWITCH IS CLOSED, GROUND IS ELECTRONICALLY REMOVED. WHEN CLUTCH SWITCH IS OPENED, GROUND IS MECHANICALLY REMOVED.
CANCEL
RESUME SPEED
DECELERATE/ SET
ACCELERATE/ SET SPEED
CONTROL INPUTS
SOLID STATE
VEHICLE SPEED INPUT
CRUISE CONTROL UNIT
CRUISE ENABLE
3 .5 BU/BR
(NOT USED)
C143
GROUND
FEEDBACK REFERENCE
FEEDBACK INPUT
CLUTCH CONTROL OUTPUT
CONTROL MOTOR OUTPUT
9
23
24
26
8
13
25
.5 GY/RD
.5 GN/YL
.5 WT
.5 BK
.5 BU/WT
4
7
6
5
2
C209
.5 RD
.5 YL
.5 GN
.5 BK
.5 BU
.5 GN/RD
.5 BR
FEEDBACK POTENTIOMETER
OUTPUT BAND
CLUTCH SOLENOID
CONTROL MOTOR
CRUISE CONTROL ACTUATOR
.5 BR
3
C209
S228
.5 BR
TO THROTTLE VALVE
.5 BR
C142
.5 WT
STOP LIGHTS
.5 GN/RD
.5 GN/RD
1
S223
C209
.5 BR
G200


HOT IN RUN OR START
HOT IN ACCY, RUN OR START
FUSE 10
7.5 AMP
POWER DISTRIBUTION BOX
FUSE 12
7.5 AMP
POWER DISTRIBUTION BOX
.75 GN/WT
FUSE DETAILS
.5 VI/WT
S212
.5 GN/WT
6
13
C2
15
INSTRUMENT CLUSTER
GAUGES/ INDICATORS, SERVICE INTERVAL INDICATOR
16
C4
SPEEDOMETER
SOLID STATE VEHICLE SPEED OUTPUT
C4
15
C5
10
SERVICE INTERVAL PROCESSOR
VEHICLE SPEED INPUT
FUEL RATE INPUT
SERVICE INTERVAL PRINTED CIRCUIT
9
C5
KL11
KL11
FUEL GAUGE
LOW FUEL WARNING INDICATOR
E
F
(+)
(-)
G
G
W
W
2
14
15
13
26
25
C3
11
C1
5
C3
4
5
C2
4
C3
(NOT USED)
.5 BR/GN
.5 BR/GY
.5 YL/WT
FUEL TANK SENDER
SWITCH CLOSES WHEN TANK CONTAINS LESS THAN 1.5 GALLONS
G
W
LOW
31
.5 GN/BK
.5 GY/VI
.5 BR/RD
.5 WT/BU
8
C101
.5 BR/GN
.5 WT
.75 BR
GROUND DISTRIBUTION
G300
.5 BR/GY
DASH LIGHTS
11
PRESENT FUEL RATE OUTPUT
SOLID STATE
MOTRONIC CONTROL UNIT
.5 GY/RD
7
5
21
8
17
15
18
KL15
KLR
VEHICLE SPEED INPUT
58K
KL11 FUEL RATE INPUT
SOLID STATE
G FUEL TANK LEVEL INPUT
W FUEL TANK LOW LEVEL INPUT
ON-BOARD COMPUTER MODULE
31G
14
9
4
.5 BK
C500
BR
.5 YL
.5 BR/WT
COMBINATION SWITCH
BC
10
(NOT USED)
DASH LIGHTS
GROUND DISTRIBUTION
G200


HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 27 30 AMP
1.5 RD/BK
FUSE DETAILS
S234
.75 RD/BK
H C302 (ACCESSORY CONNECTOR)
(NOT USED)
S420
RADIO
C217
.5 BR/GN
.5 RD/WT
.75 RD/WT
(NOT USED)
B/C HORN DIODE
BOARD COMPUTER HORN
.5 BR/YL
.75 BR/YL
.5 BR
ON-BOARD COMPUTER RELAY BOX
HORN RELAY
CODE RELAY
ON-BOARD COMPUTER MODULE
HORN (–)
CODE (–)
.75 BR
G200
HOT AT ALL TIMES
IGNITION SWITCH
START
OFF
RUN 15
ACCY
2.5 GN
C200
S213
POWER DISTRIBUTION
1.5 GN
C104
.5 RD/WT
1.5 GN
NOTE: SEE PAGE 6131-0 FOR REMAINING CHIME MODULE WIRING
1.5 GN/RD
C101
2.5 GN
INJECTION ELECTRONICS
.75 BR
G103
HOT AT ALL TIMES
BATTERY JUNCTION BLOCK
4 RD
1.5 RD
MAIN RELAY
INJECTION ELECTRONICS
HOT AT ALL TIMES
POWER DISTRIBUTION BOX
FUSE 21 7.5 AMP
1 RD/GN
S319
SEE FUSE DETAILS
.5 RD/GN
.5 RD/BK
.5 RD/WT
S201
CHIME MODULE
B/C CHIME
SOLID STATE
GROUND
.5 BR/BU
OXYGEN SENSOR FUEL PUMP RELAY
HOT IN START
FROM IGNITION SWITCH PAGE 1240-0
S
.5 BK/GN
INSTRUMENT CLUSTER
SERVICE INTERVAL INDICATOR
(NOT USED)
.5 BK/YL
ON-BOARD COMPUTER MODULE
KL30
START INPUT
TRIGGER OUTPUT
OUTSIDE TEMPERATURE INPUT
.5 BU
C260
1 BU
OUTSIDE TEMPERATURE SENSOR
NTC
.5 BR
1 BR
S202
INDICATORS
G200 ★
★SOME VEHICLES MAY CONTAIN AN ADDITIONAL SPLICE. (SEE GROUND DISTRIBUTION)

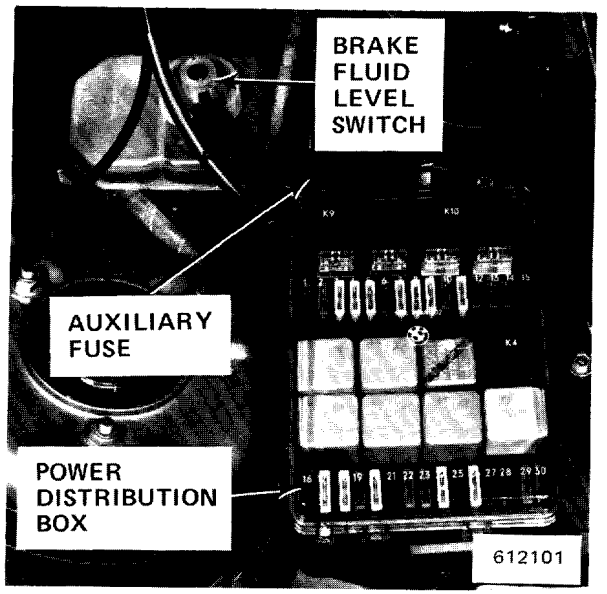


Figure 1 - LH Rear Corner of Engine Compartment

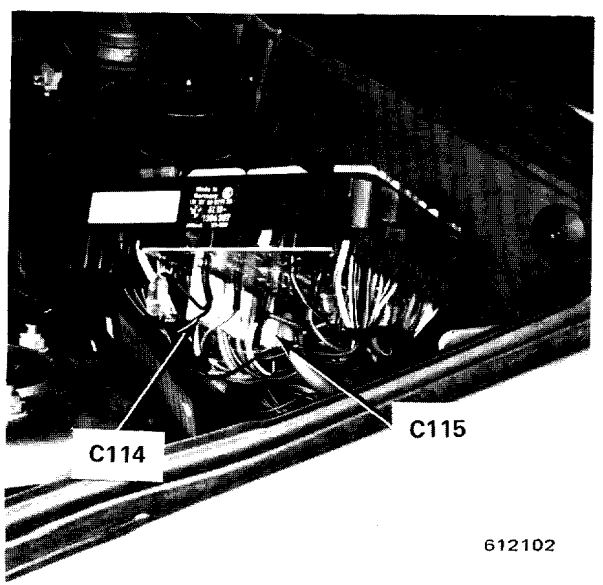


Figure 2 - LH Rear Corner of Engine Compartment (Inside Power Distribution Box)

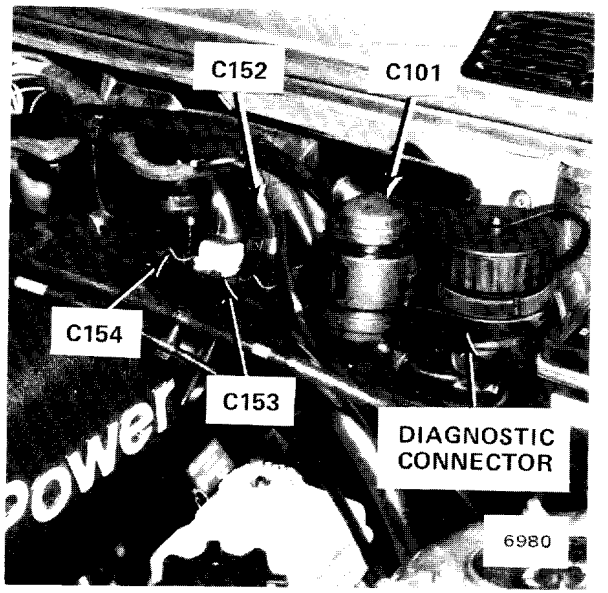


Figure 3 - LH Rear of Engine Compartment

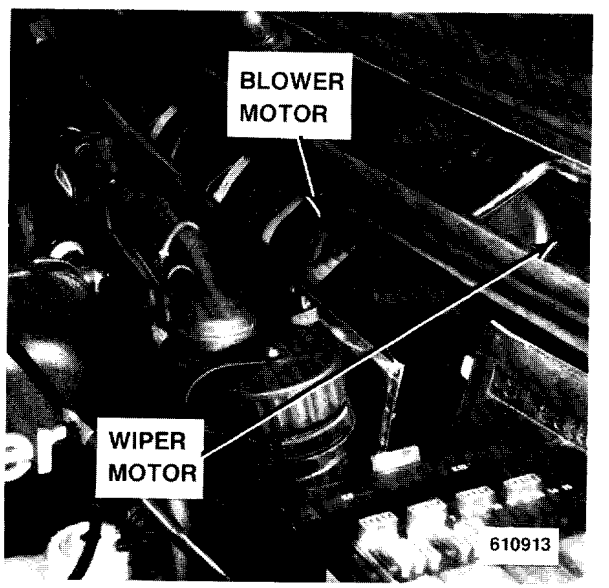


Figure 4 - LH Rear of Engine Compartment

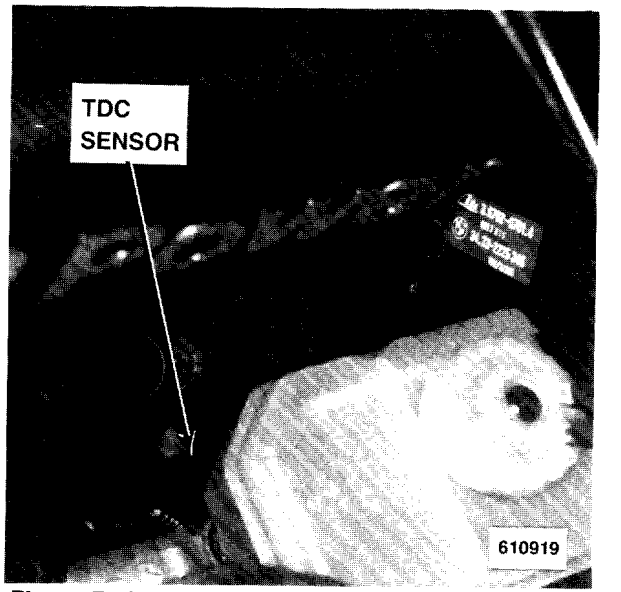


Figure 5 - Lower LH Rear of Engine

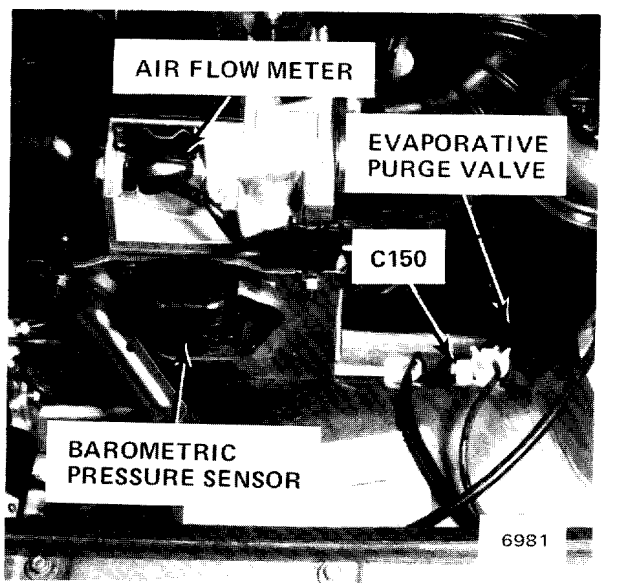


Figure 6 - LH Front of Engine Compartment

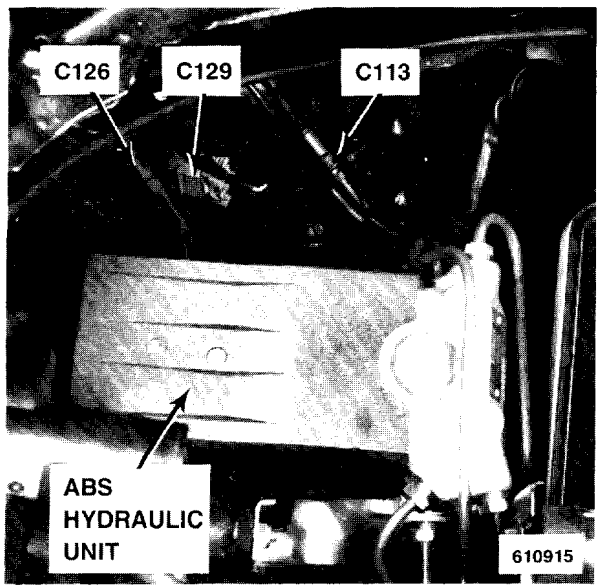


Figure 1 - LH Front Corner of Engine Compartment

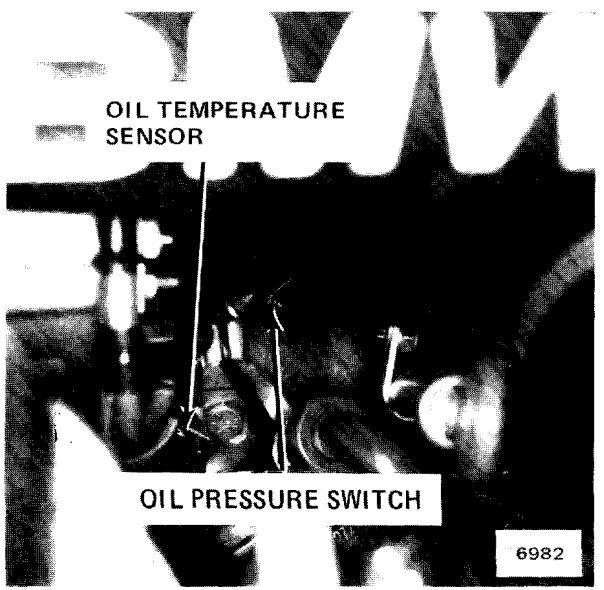


Figure 2 - Lower LH Front of Engine

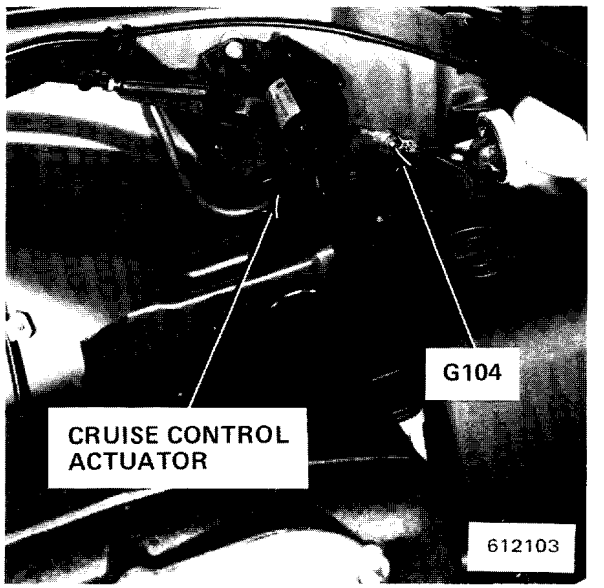


Figure 3 - LH Front Corner of Engine Compartment

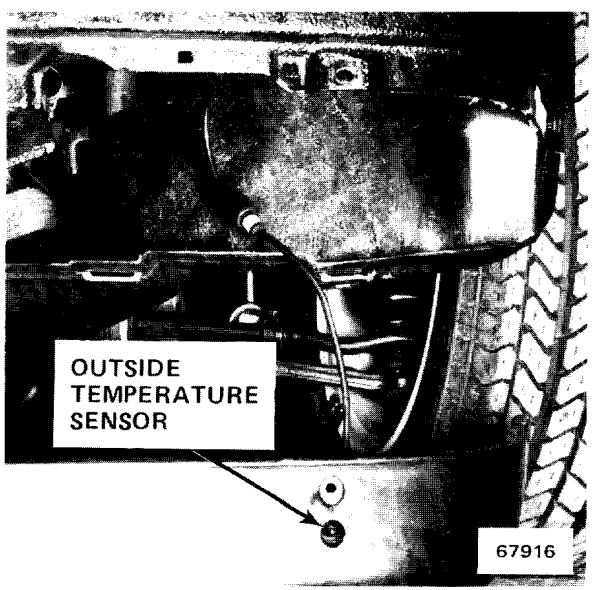


Figure 4 - Under LH Side of Bumper (Splash Guard Pulled Down)

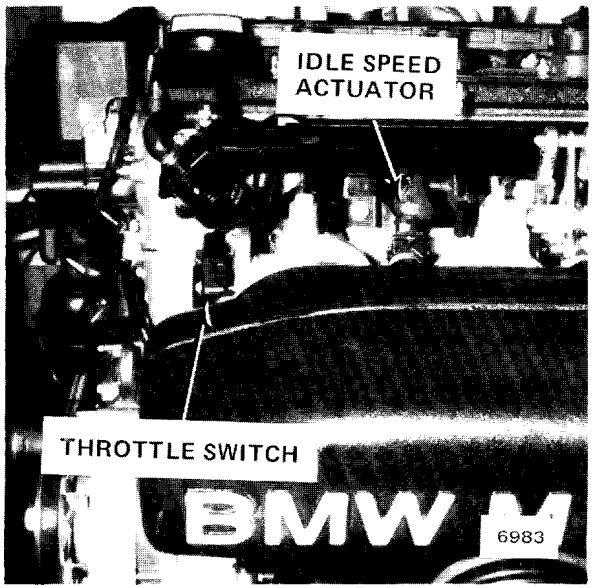


Figure 5 - Top Front Center of Engine

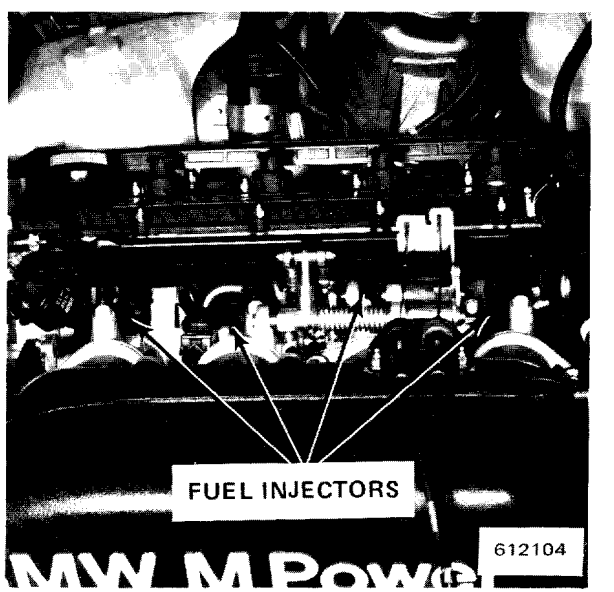


Figure 6 - Top of Engine

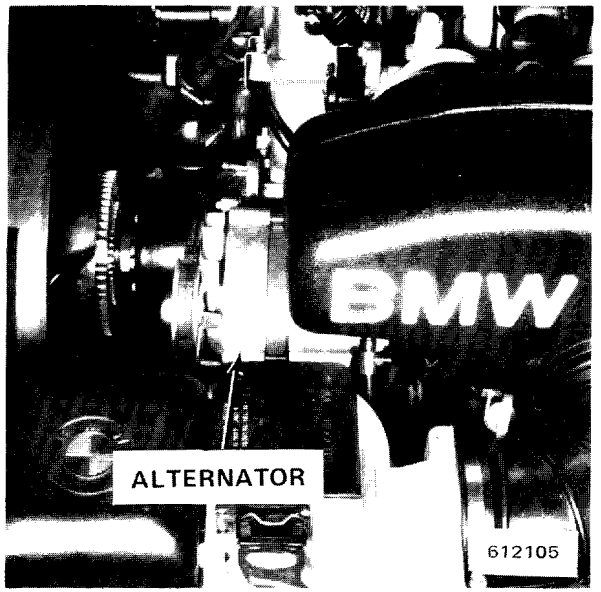


Figure 1 - LH Front of Engine Compartment

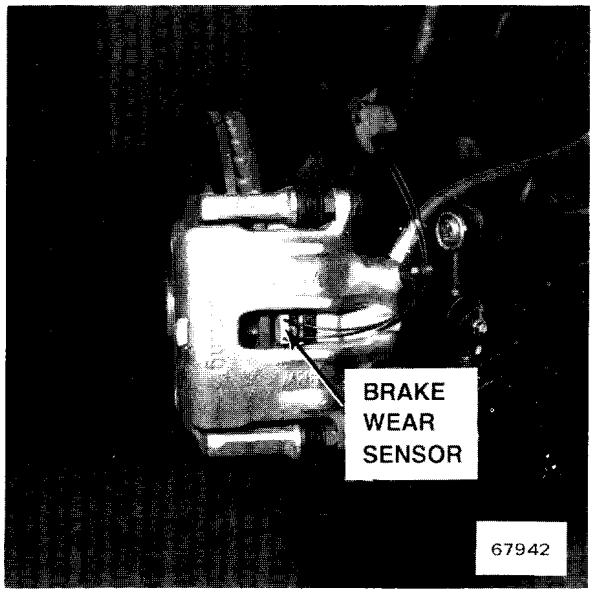


Figure 3 - LH Front Brake Assembly (Wheel Removed)

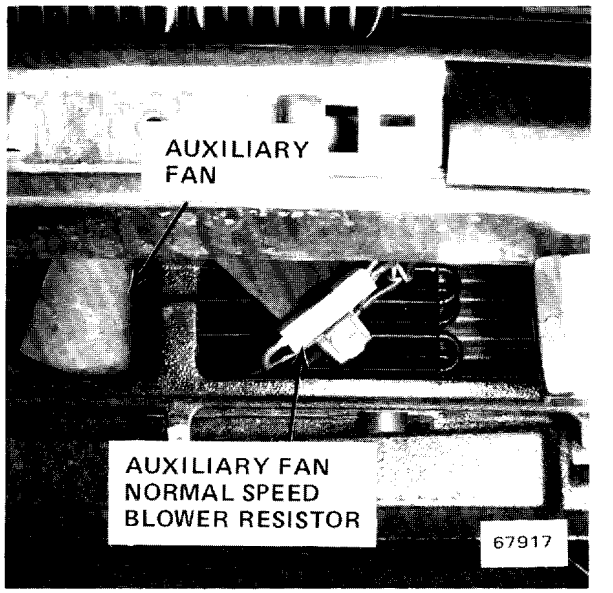


Figure 5 - Behind Middle of Front Bumper

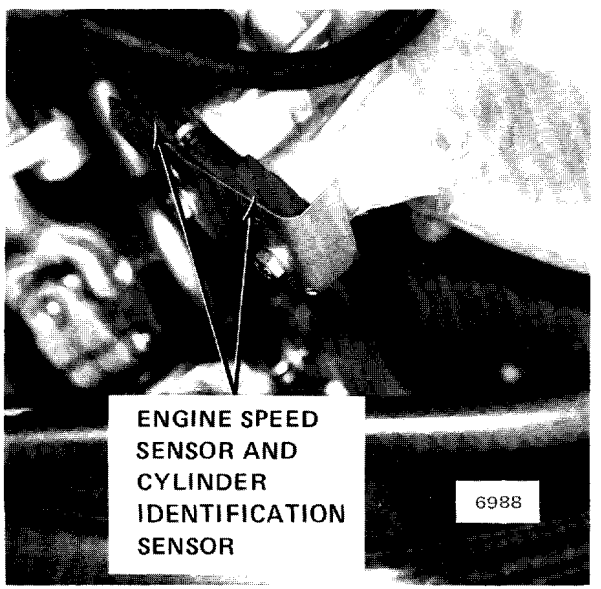


Figure 2 - LH Side of Transmission Bell Housing

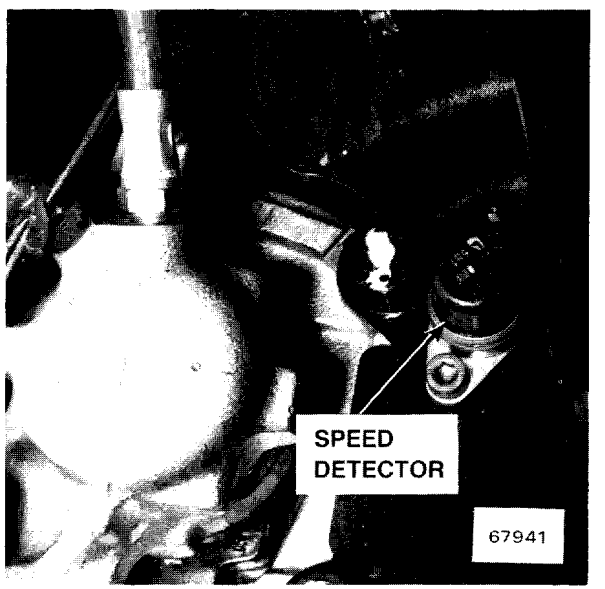


Figure 4 - LH Front Spindle Assembly

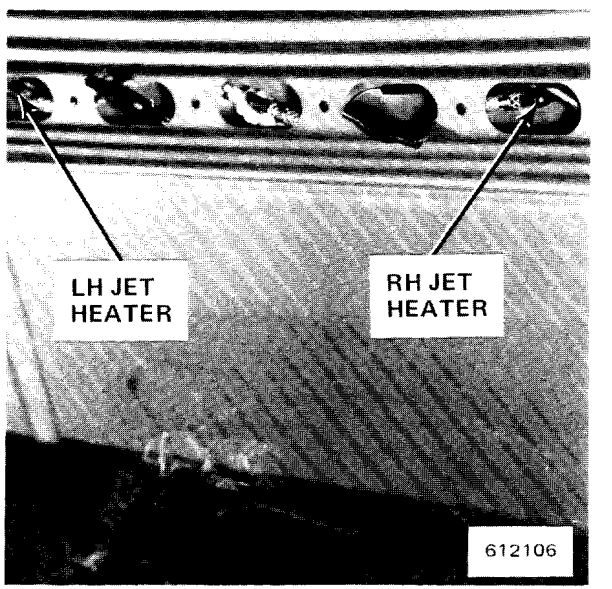


Figure 6 - Center of Engine Compartment Hood

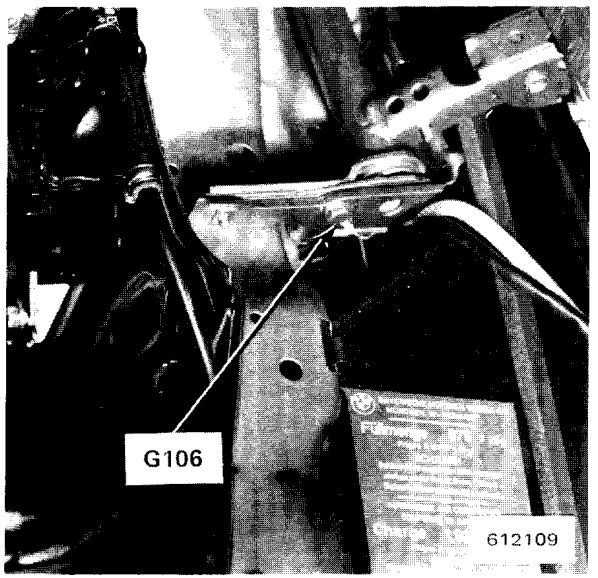


Figure 1 - RH Front Corner of Engine Compartment

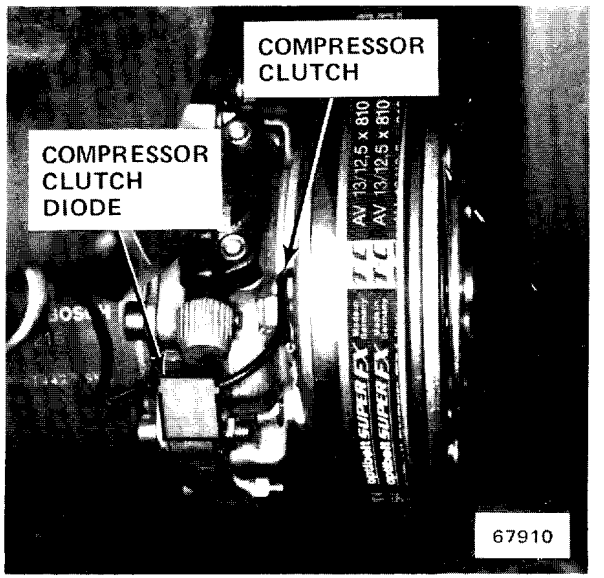


Figure 3 - Lower RH Front of Engine

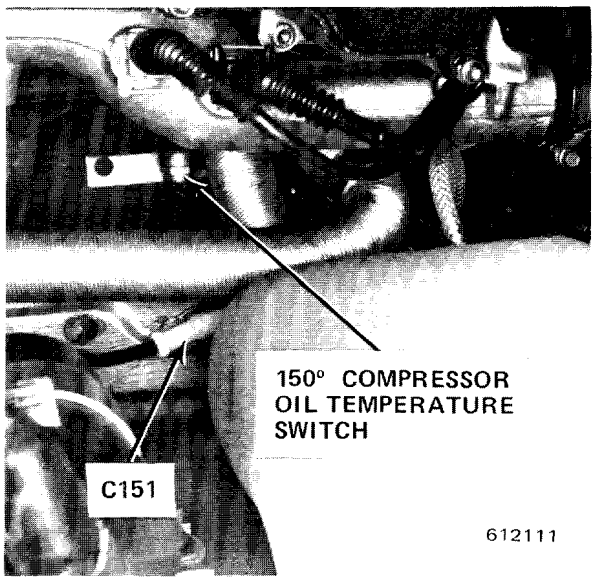


Figure 5 - Lower RH Front Center of Engine Compartment

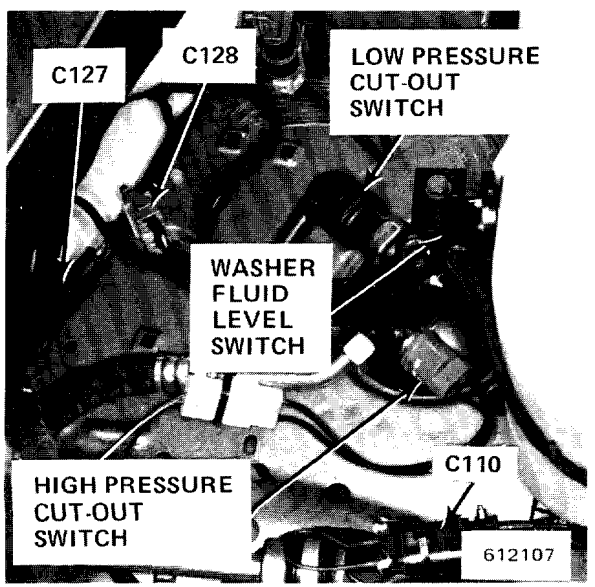


Figure 2 - RH Front Corner of Engine Compartment

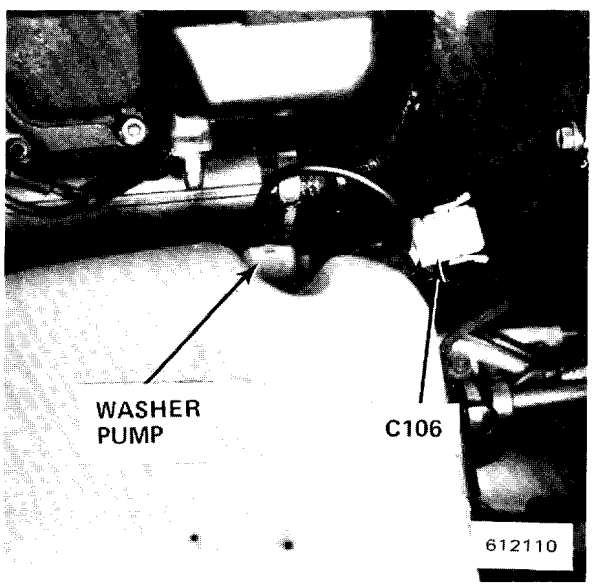


Figure 4 - RH Front Corner of Engine Compartment

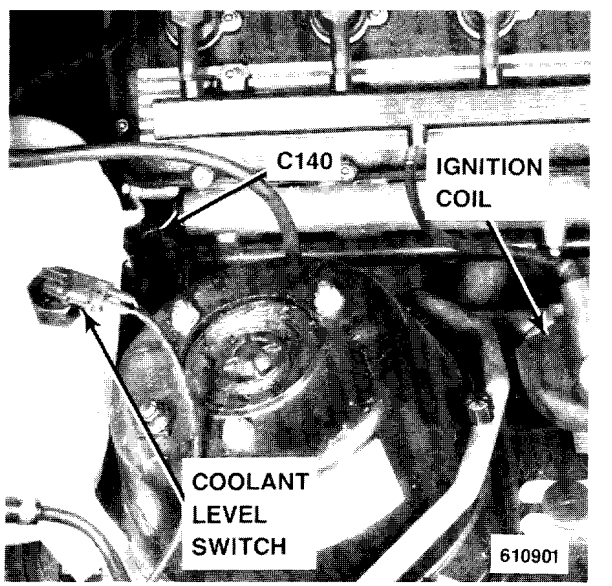


Figure 6 - RH Side of Engine Compartment

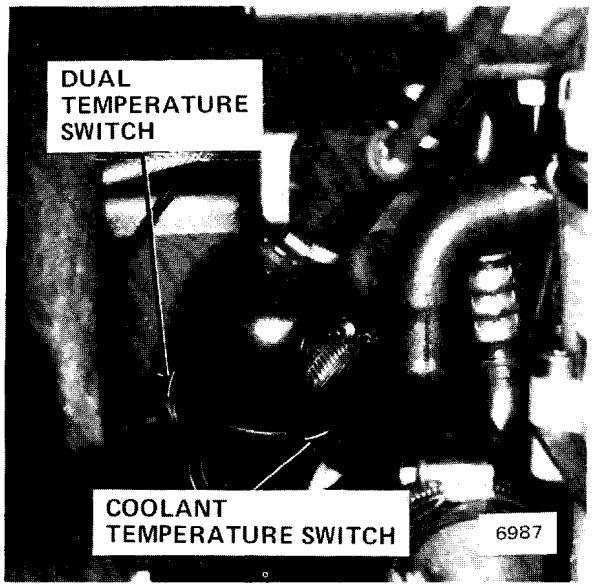


Figure 1 - Lower RH Side of Engine Compartment

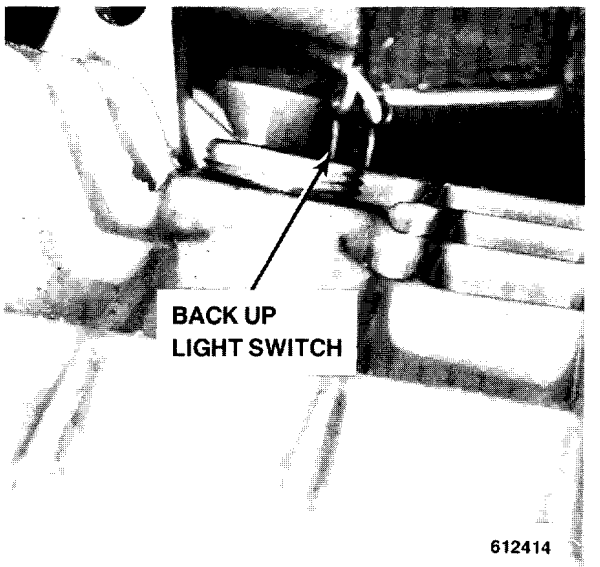


Figure 3 - Lower RH Rear of Engine Compartment

Figure 5 - Top RH Side of Transmisison

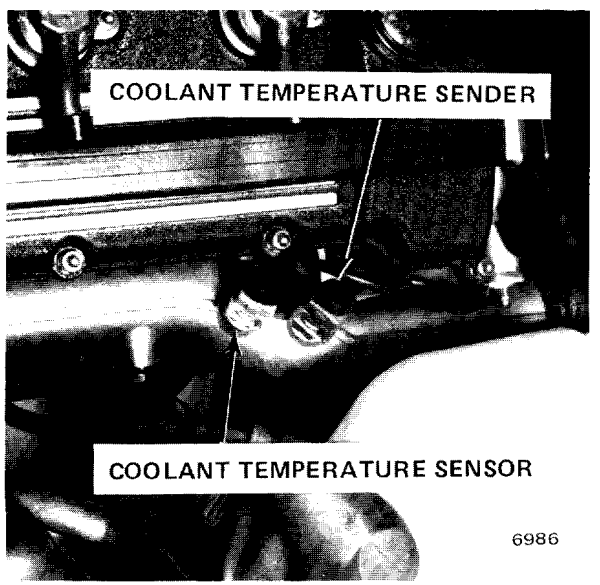


Figure 2 - RH Front Side of Engine Compartment

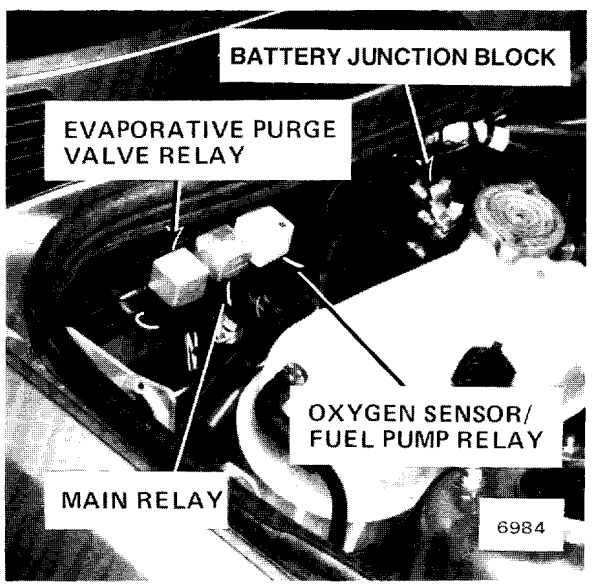


Figure 4 - RH Rear Corner of Engine Compartment

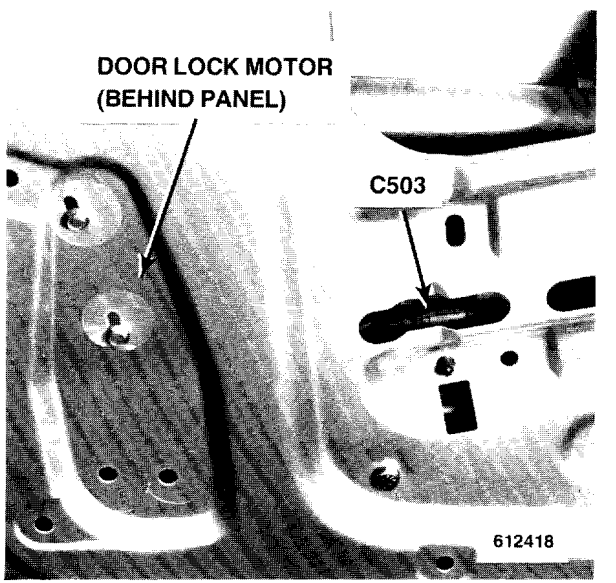


Figure 6 - Rear of LH Door

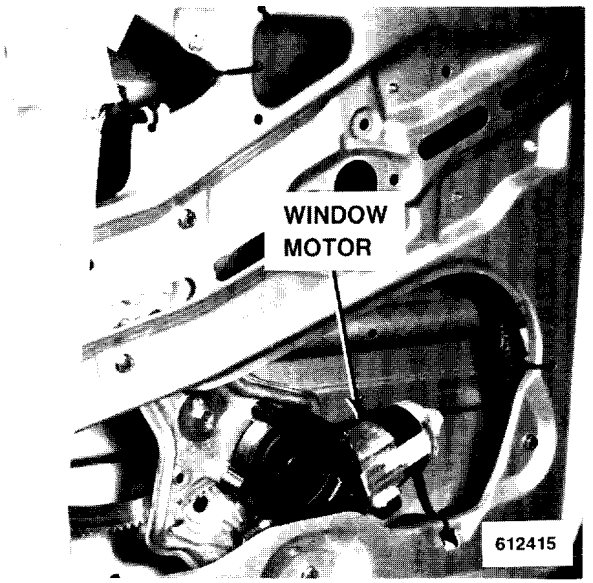


Figure 1 - Lower Front of LH Door

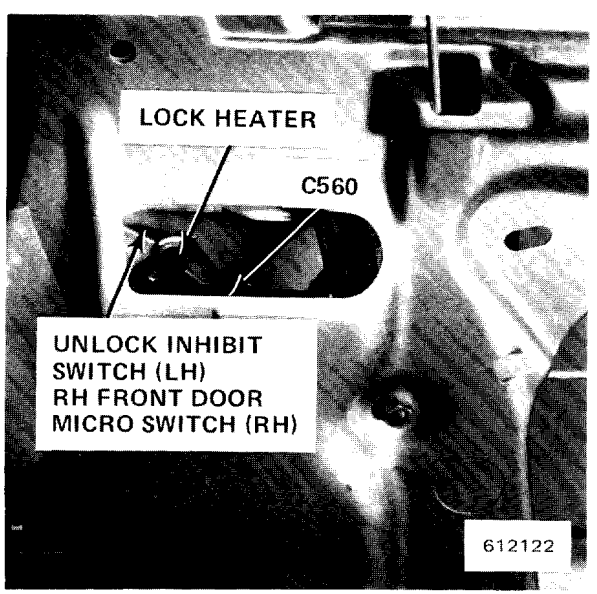


Figure 2 - Top Rear of LH Door

Figure 3 - Top Rear of LH Door

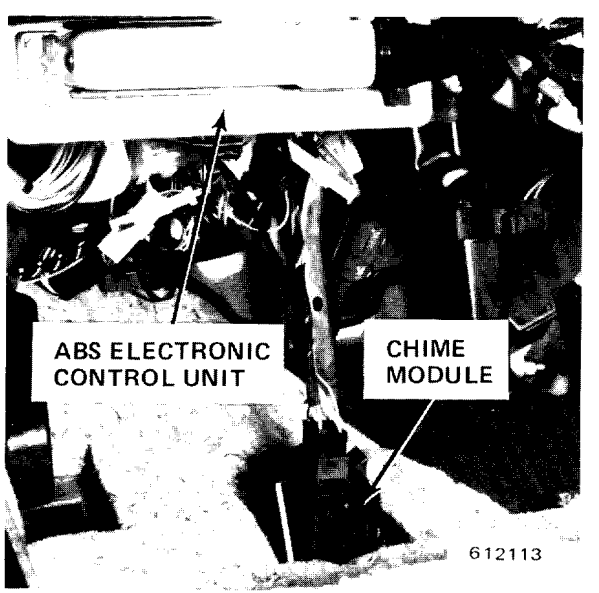


Figure 4 - Behind LH Side of Dash

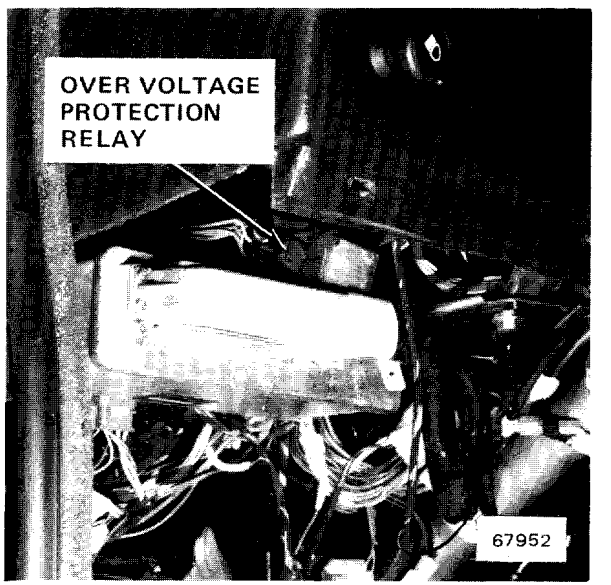


Figure 5 - Behind LH Side of Dash

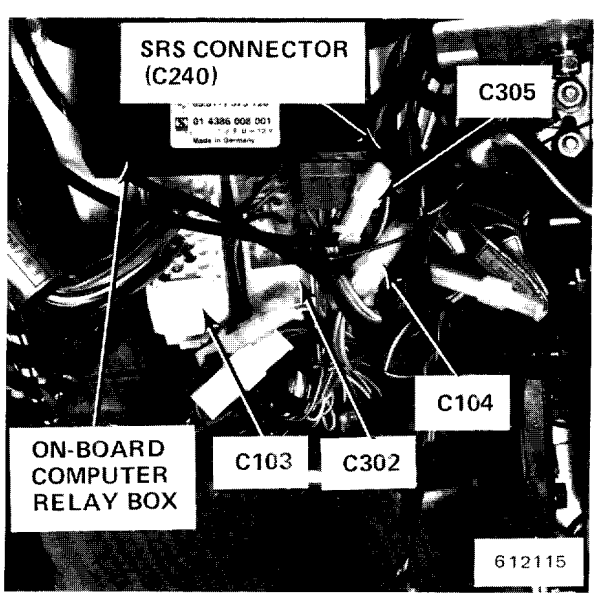


Figure 6 - Behind LH Side of Dash (ABS Electronic Control Unit Dropped)

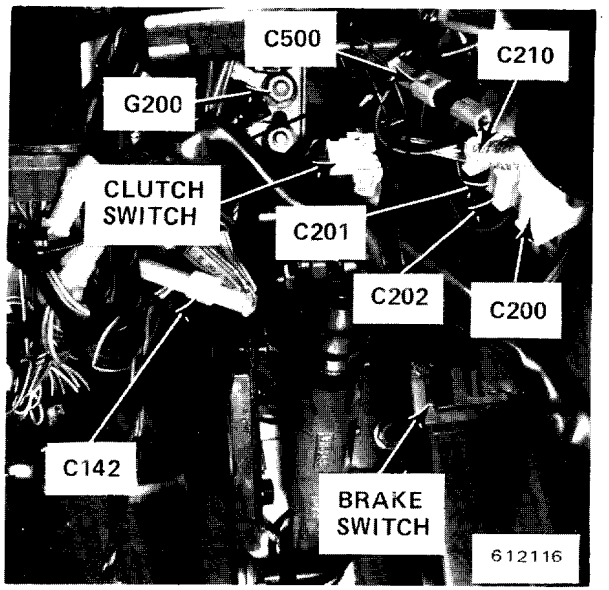


Figure 1 - Behind LH Side of Dash (ABS Electronic Control Unit Dropped)

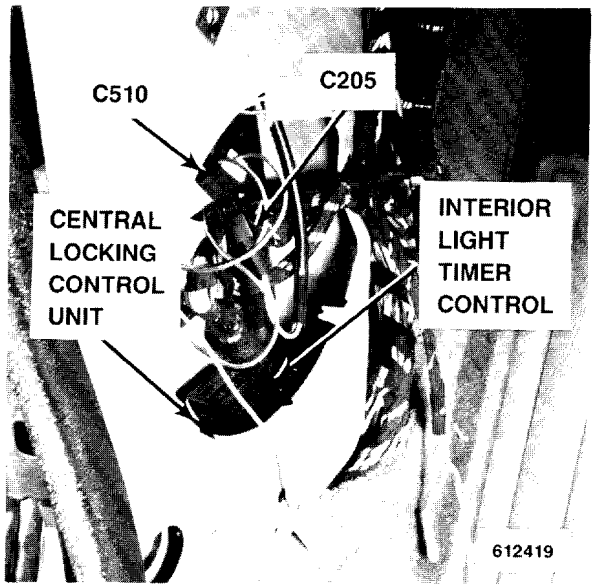


Figure 3 - Behind LH Front Speaker

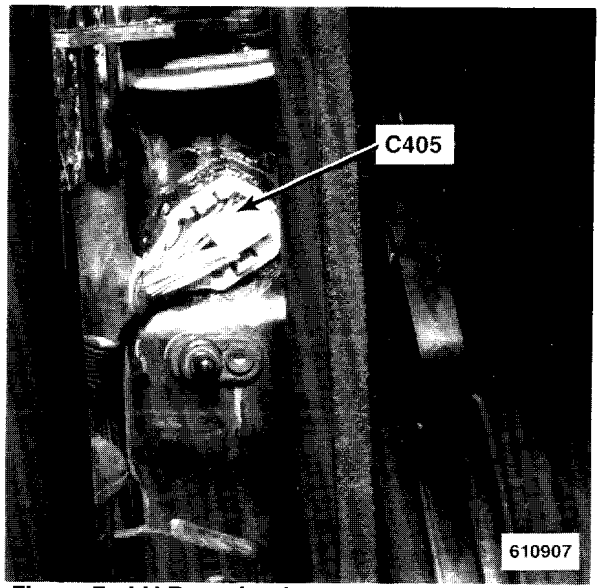


Figure 5 - LH Door Jamb

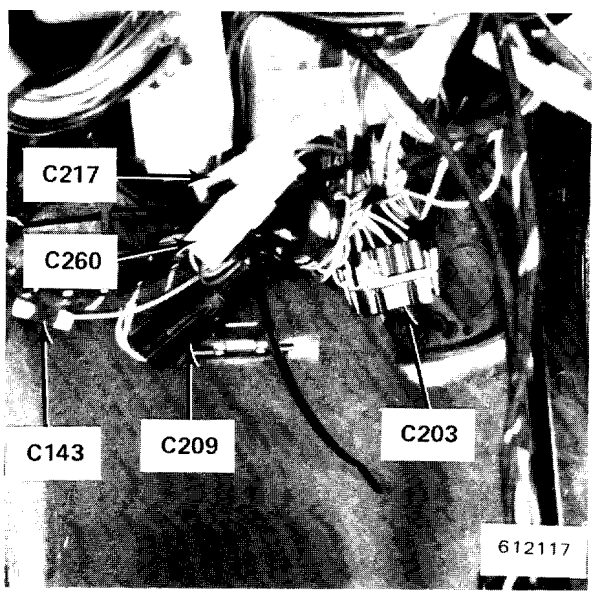


Figure 2 - Behind LH Side of Dash

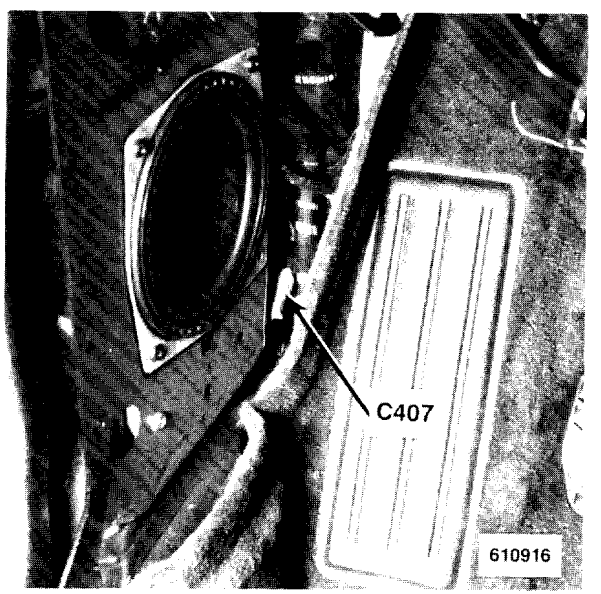


Figure 4 - LH Kick Panel

Figure 6 - Behind LH Side of Dash

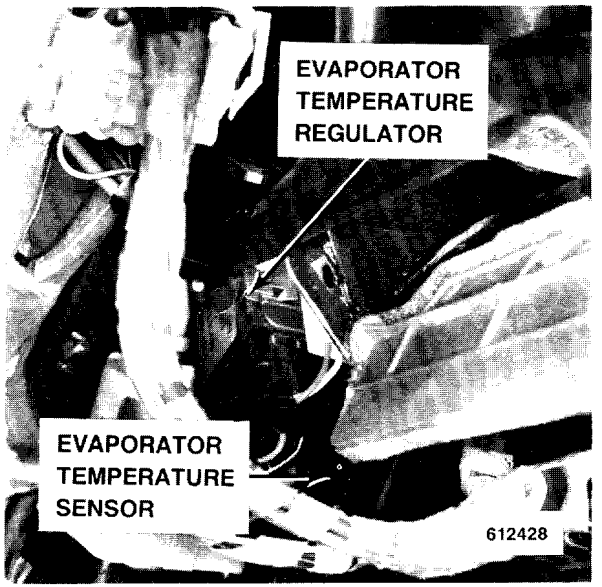


Figure 1 - LH Side of Evaporator Housing

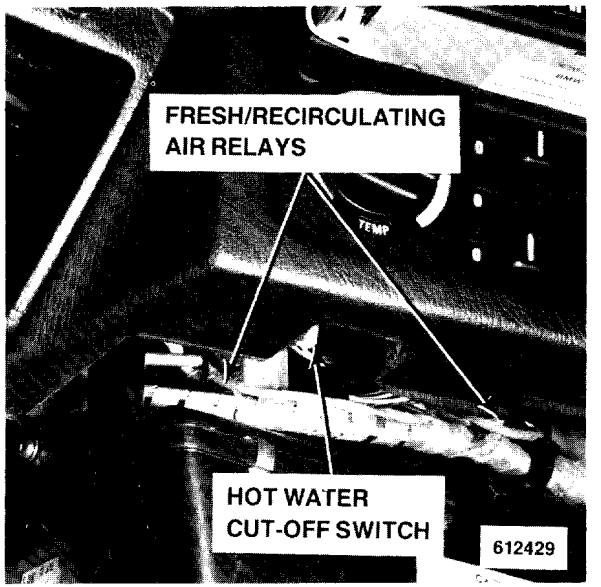


Figure 3 - Behind Center of Dash

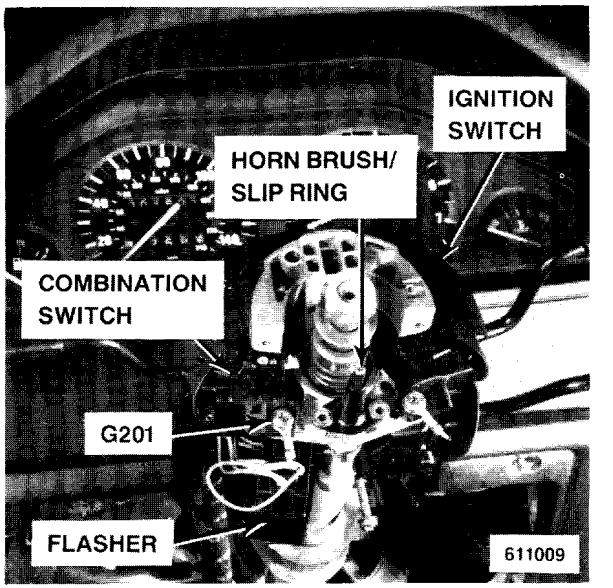


Figure 5 - Steering Column

Figure 2 - LH Side of Evaporator Housing

Figure 4 - LH Side of Evaporator Housing

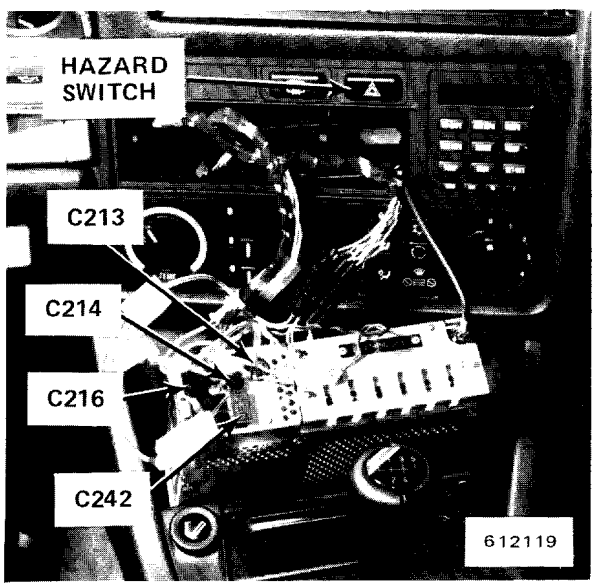


Figure 6 - Behind Center of Dash

Figure 1 - Behind Center of Dash

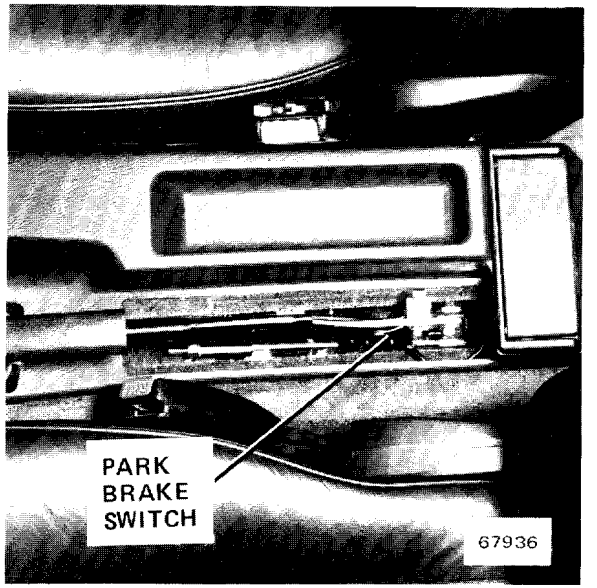


Figure 3 - Rear of Center Console

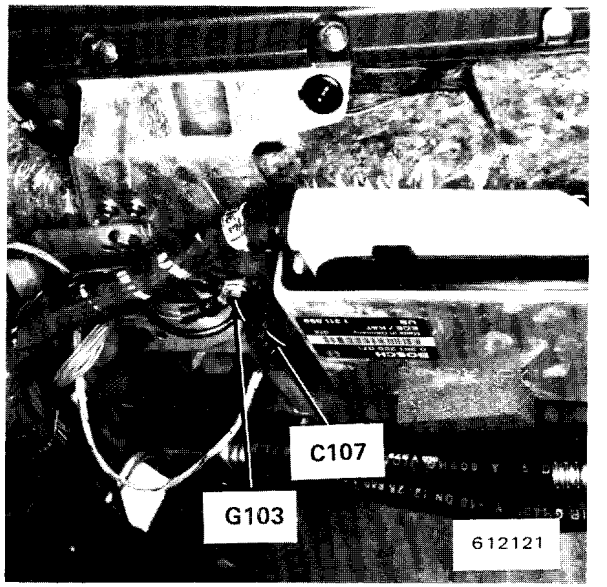


Figure 5 - Behind RH Side of Dash

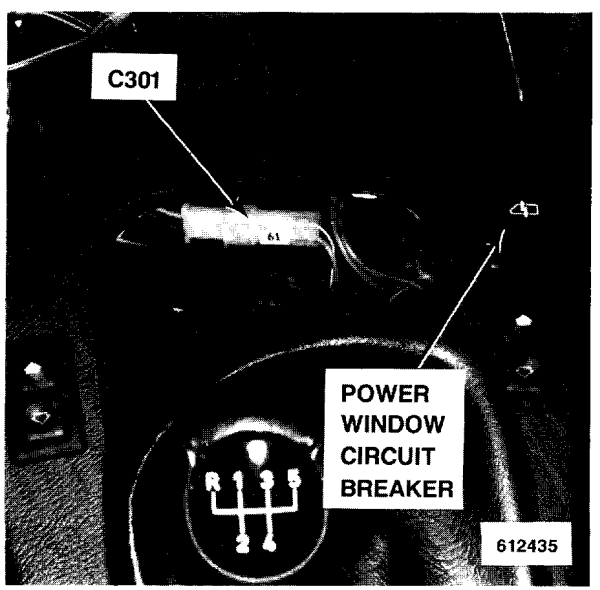


Figure 2 - Under Center Console

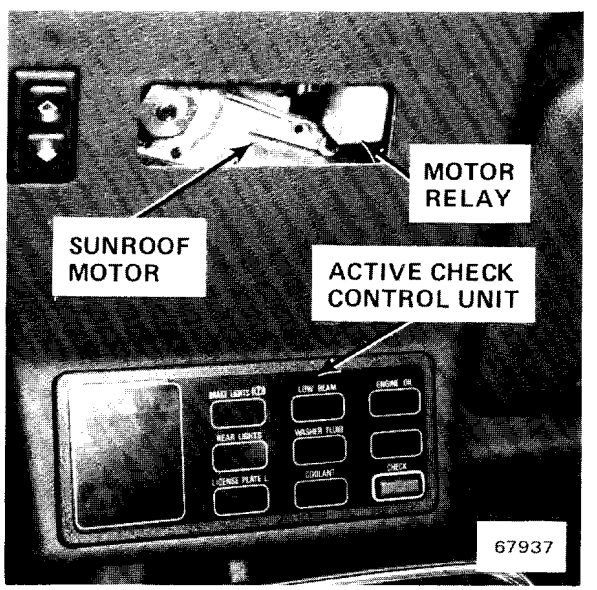


Figure 4 - Above Rear View Mirror

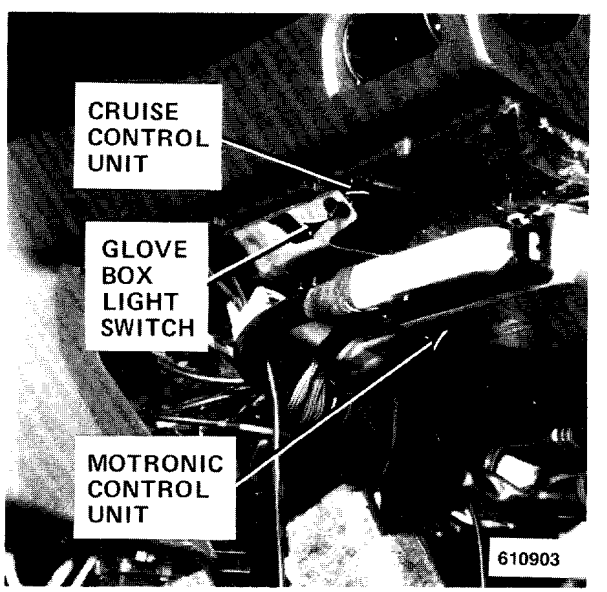


Figure 6 - Behind RH Side of Dash

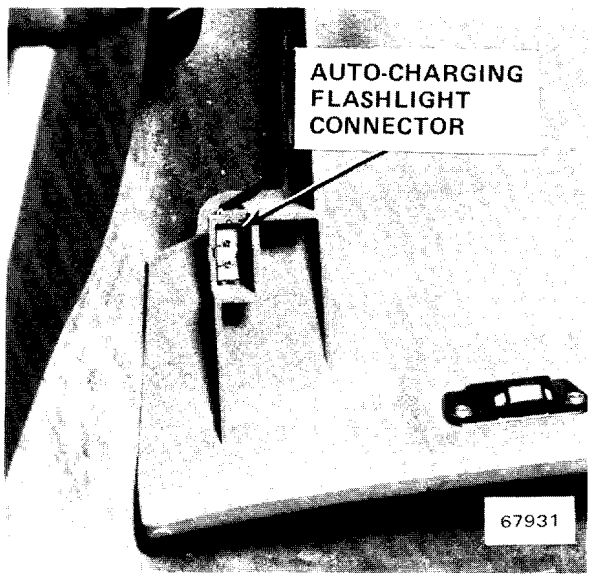


Figure 1 - Inside Glove Box

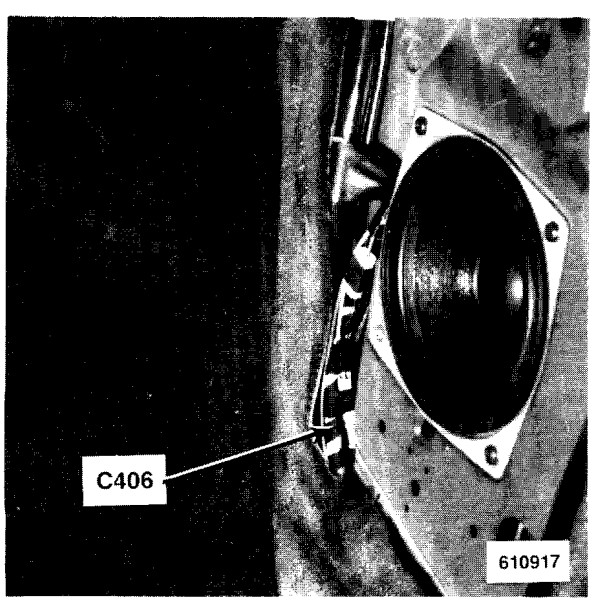


Figure 2 - RH Kick Panel

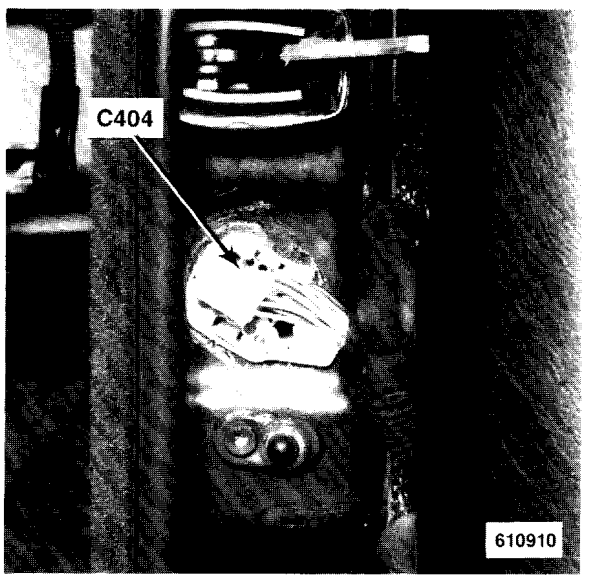


Figure 3 - RH Front Door Jamb

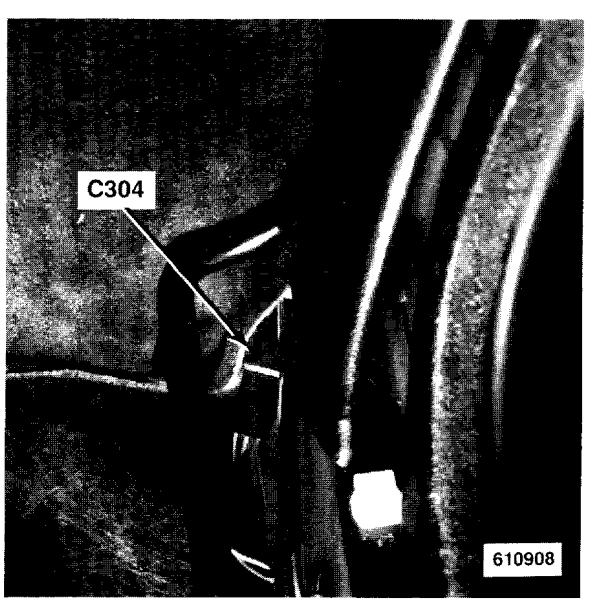


Figure 4 - Base of LH "B" Pillar

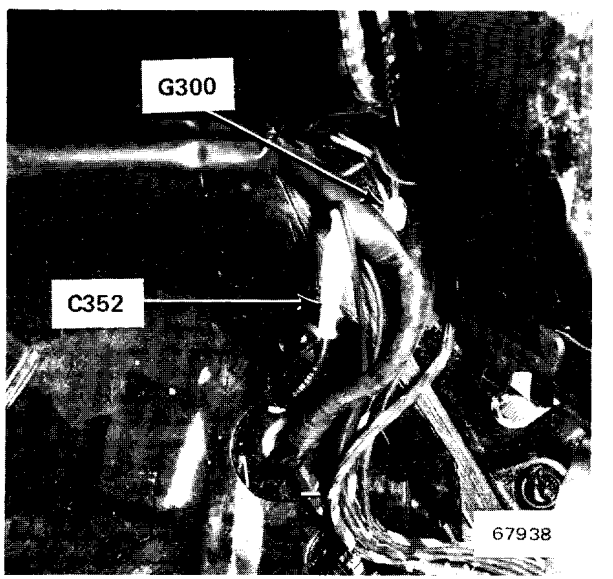


Figure 5 - Under LH Side of Rear Seat

Figure 6 - Base of RH "B" Pillar

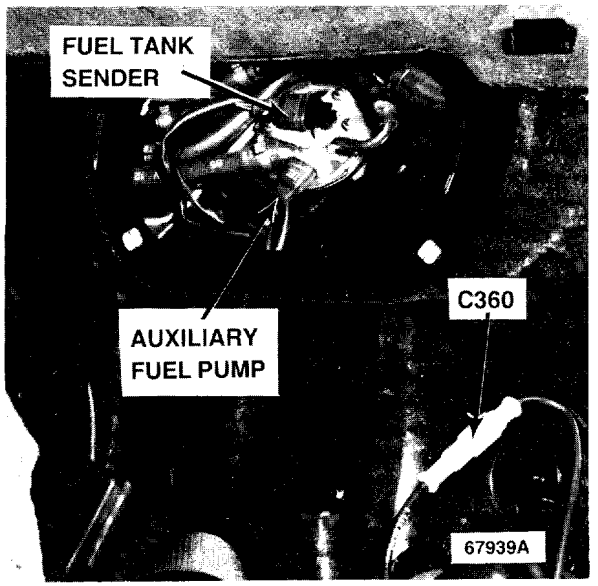


Figure 1 - Under RH Side of Rear Seat

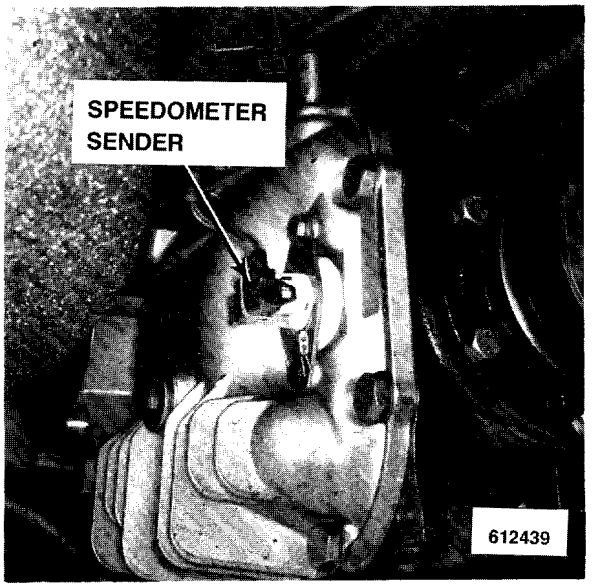


Figure 3 - RH Rear of Differential

Figure 5 - Center of Trunk

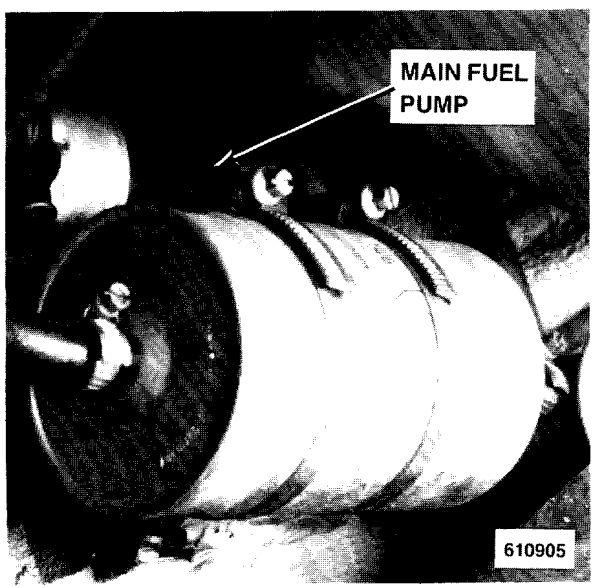


Figure 2 - Under Car, in Front of LH Rear Wheel

Figure 4 - LH Side of Trunk

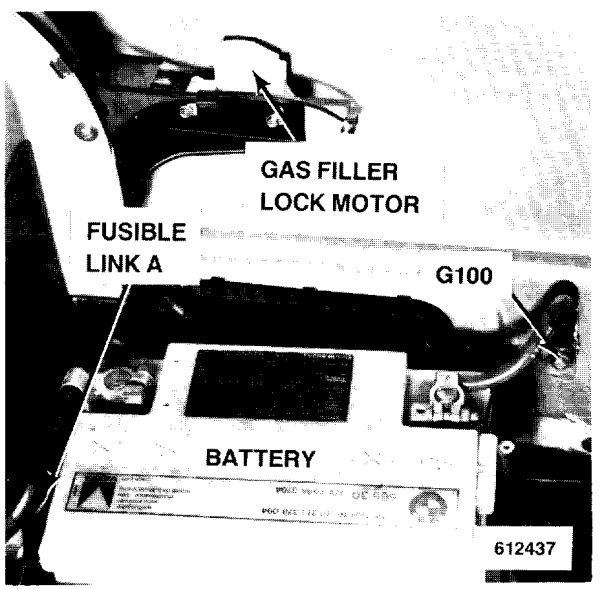


Figure 6 - RH Side of Trunk

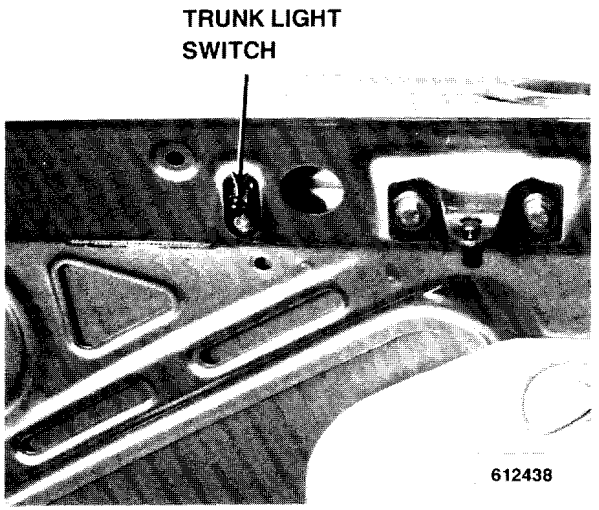


Figure 1 - Top Center of Trunk Lid

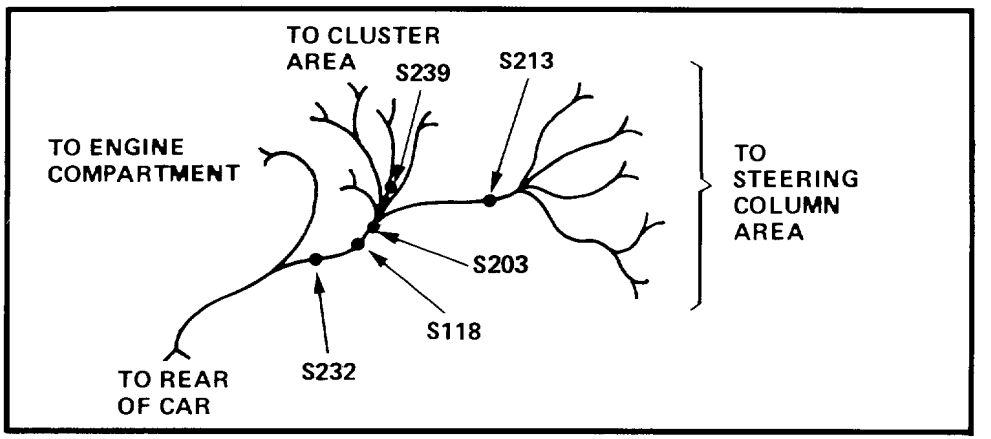
8000-0 SPLICE LOCATION VIEWS

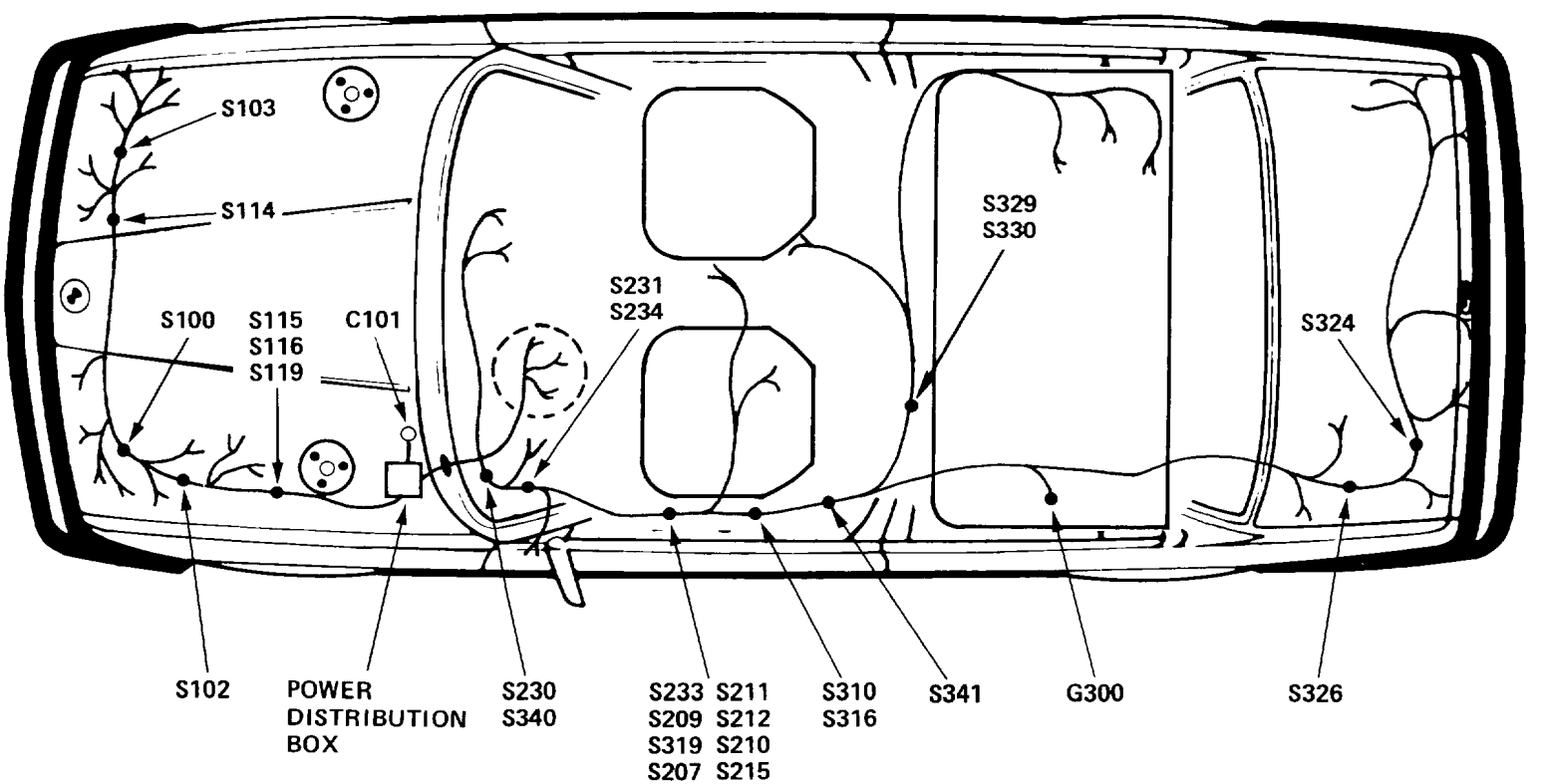
INDEX

This index contains all the splices in the car, what harness each one is in, and the page that the splices appear on. The drawings after the index show how the harness is routed through the car and where the splices are located on the harness.

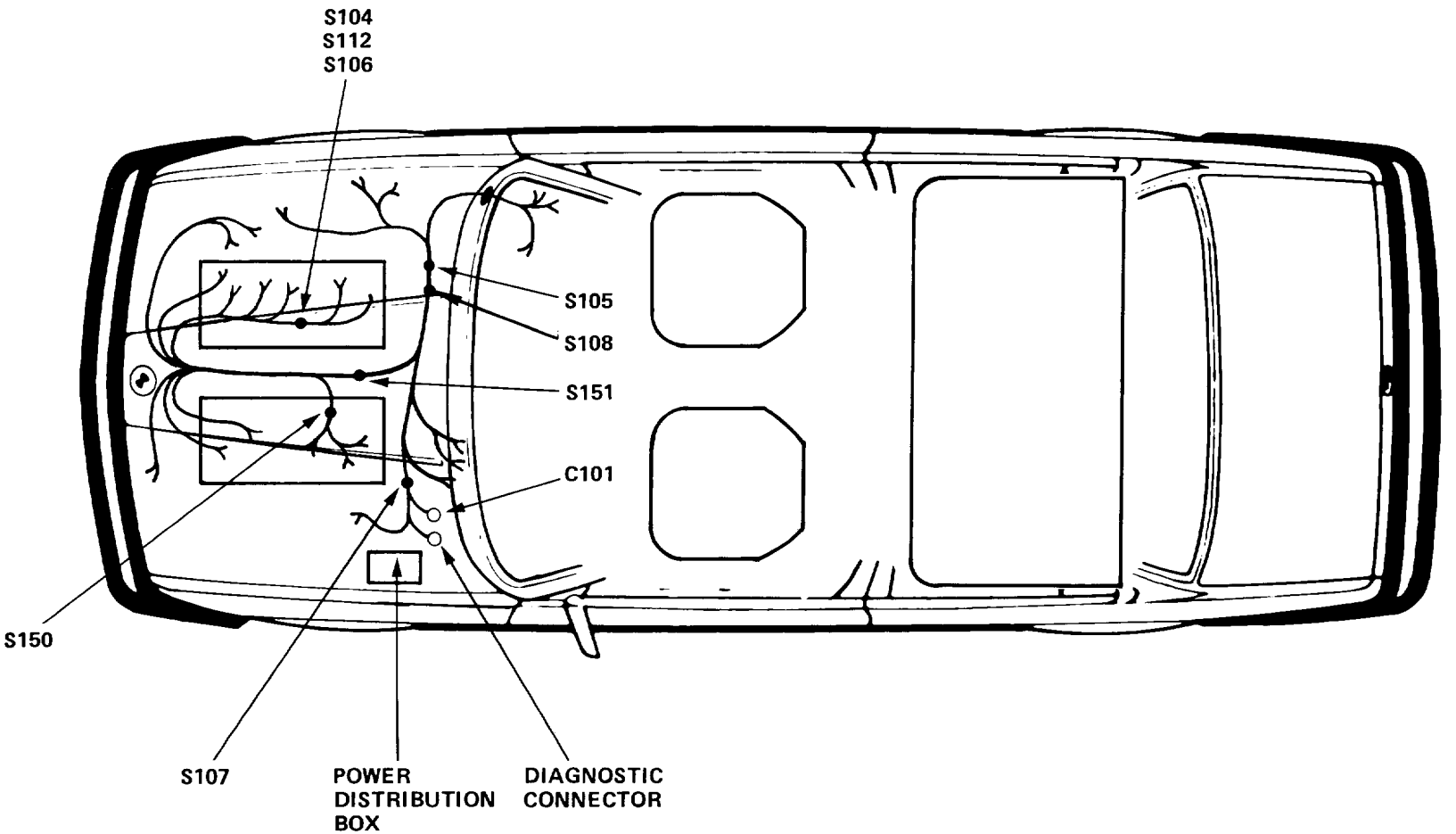
SPLICE	HARNESS	PAGE NUMBER
S100	MAIN	8000-1
S102	MAIN	8000-1
S103	MAIN	8000-1
S104	ENGINE (S14)	8000-2
S105	ENGINE (S14)	8000-2
S106	ENGINE (S14)	8000-2
S107	ENGINE (S14)	8000-2
S108	ENGINE (S14)	8000-2
S112	ENGINE (S14)	8000-2
S114	MAIN	8000-1
S115	MAIN	8000-1
S116	MAIN	8000-1
S118	MAIN	8000-1
S119	MAIN	8000-1
S125	JET HEATER	NOT SHOWN
S126	JET HEATER	NOT SHOWN
S150	ENGINE (S14)	8000-2
S151	ENGINE (S14)	8000-2
S201	ON-BOARD COMPUTER	8000-5
S202	ON-BOARD COMPUTER	8000-5
S203	MAIN	8000-1
S207	MAIN	8000-1
S209	MAIN	8000-1
S210	MAIN	8000-1
S211	MAIN	8000-1
S212	MAIN	8000-1
S213	MAIN	8000-1
S215	MAIN	8000-1
S219	INSTRUMENT PANEL	8000-4
S221	INSTRUMENT PANEL	8000-4
S223	CRUISE CONTROL	NOT SHOWN
S226	A/C	NOT SHOWN
S228	CRUISE CONTROL	NOT SHOWN
S229	AIR CONDITIONING	NOT SHOWN
S230	MAIN	8000-1
S231	MAIN	8000-1
S232	MAIN	8000-1
S233	MAIN	8000-1
S234	MAIN	8000-1
S239	MAIN	8000-1
S240	A/C	NOT SHOWN
S241	CRUISE CONTROL	NOT SHOWN
S242	MAIN	NOT SHOWN
S250	A/C	NOT SHOWN
S251	A/C	NOT SHOWN
S252	A/C	NOT SHOWN
S300	DOOR	8000-3
S301	DOOR	8000-3
S302	DOOR	8000-3
S303	DOOR	8000-3
S304	DOOR	8000-3
S305	DOOR	8000-3
S306	INSTRUMENT PANEL	8000-4
S307	INSTRUMENT PANEL	8000-4
S309	DOOR	8000-3
S310	MAIN	8000-1
S316	MAIN	8000-1
S319	MAIN	8000-1
S322	DOOR	8000-3
S324	MAIN	8000-1
S326	MAIN	8000-1
S329	MAIN	8000-1
S330	MAIN	8000-1
S332	DOOR	8000-3
S333	DOOR	8000-3
S340	MAIN	8000-1
S341	MAIN	8000-1
S342	DOOR	8000-3
S345	RADIO	NOT SHOWN
S400	RADIO	NOT SHOWN
S403	RADIO	NOT SHOWN
S404	RADIO	NOT SHOWN
S411	DOOR	8000-3
S501	DOOR	8000-3
S502	DOOR	8000-3
S503	DOOR	8000-3
S504	DOOR	8000-3

MAIN HARNESS SPLICE LOCATIONS

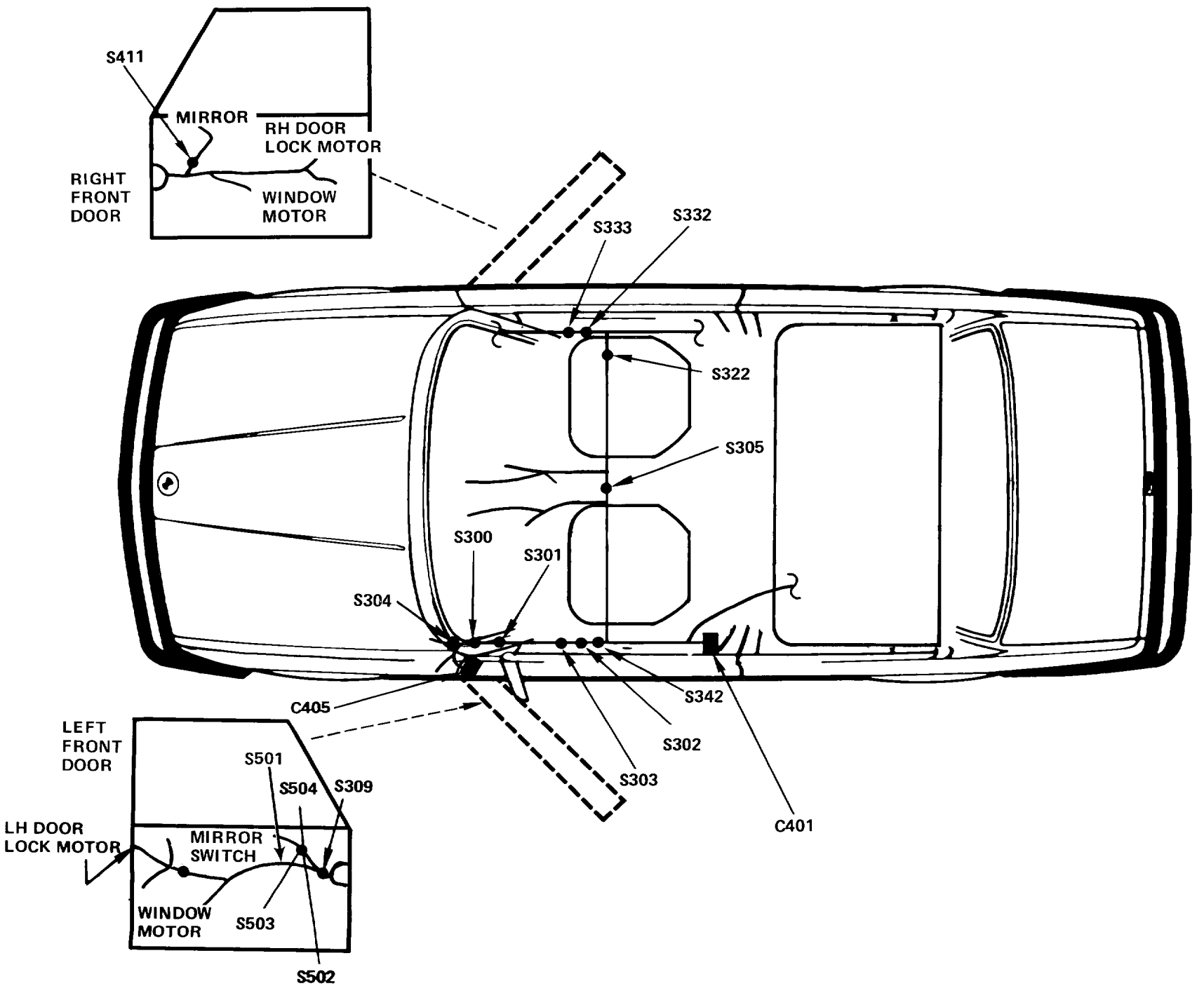




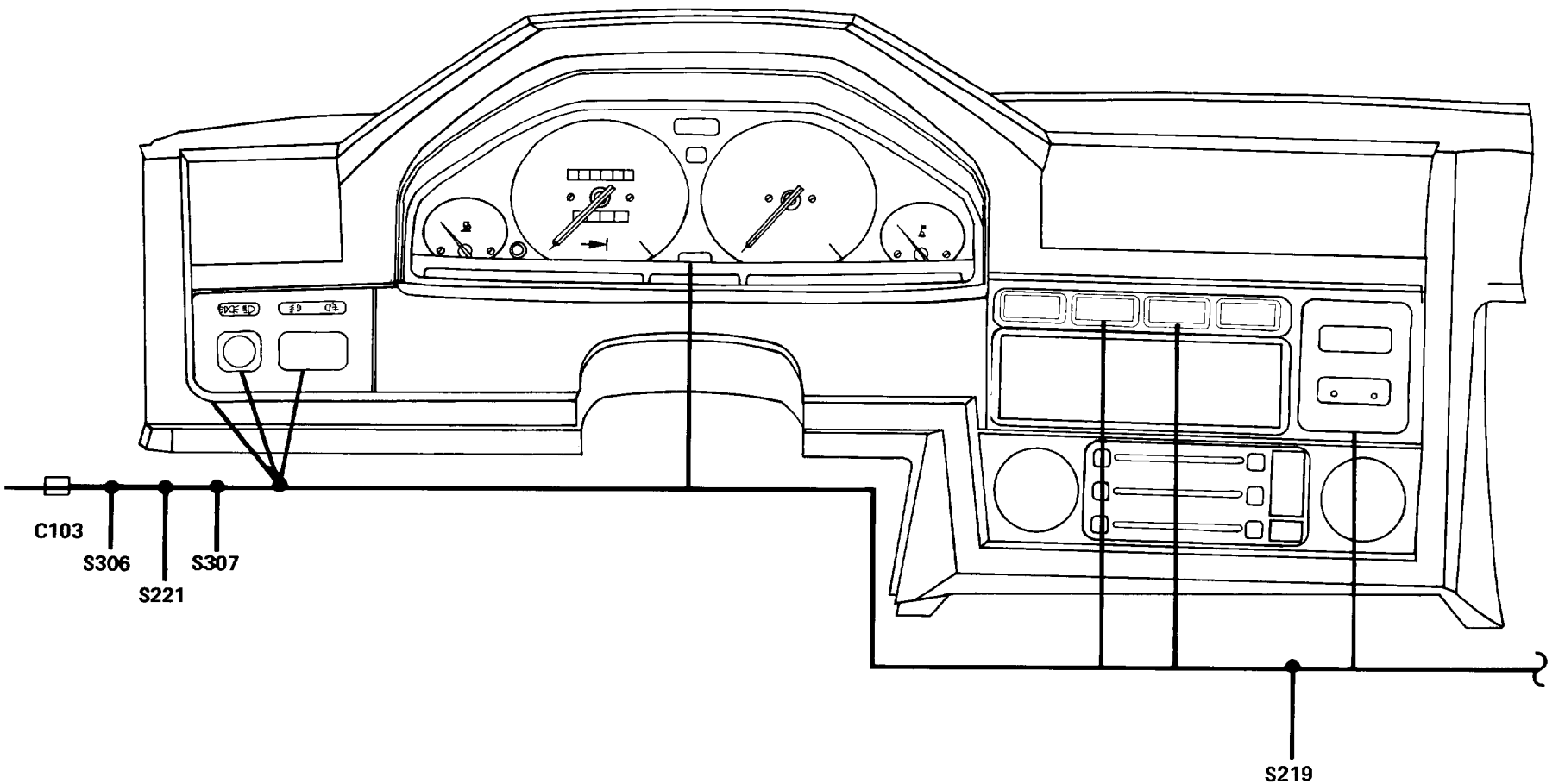
ENGINE HARNESS SPLICE LOCATIONS



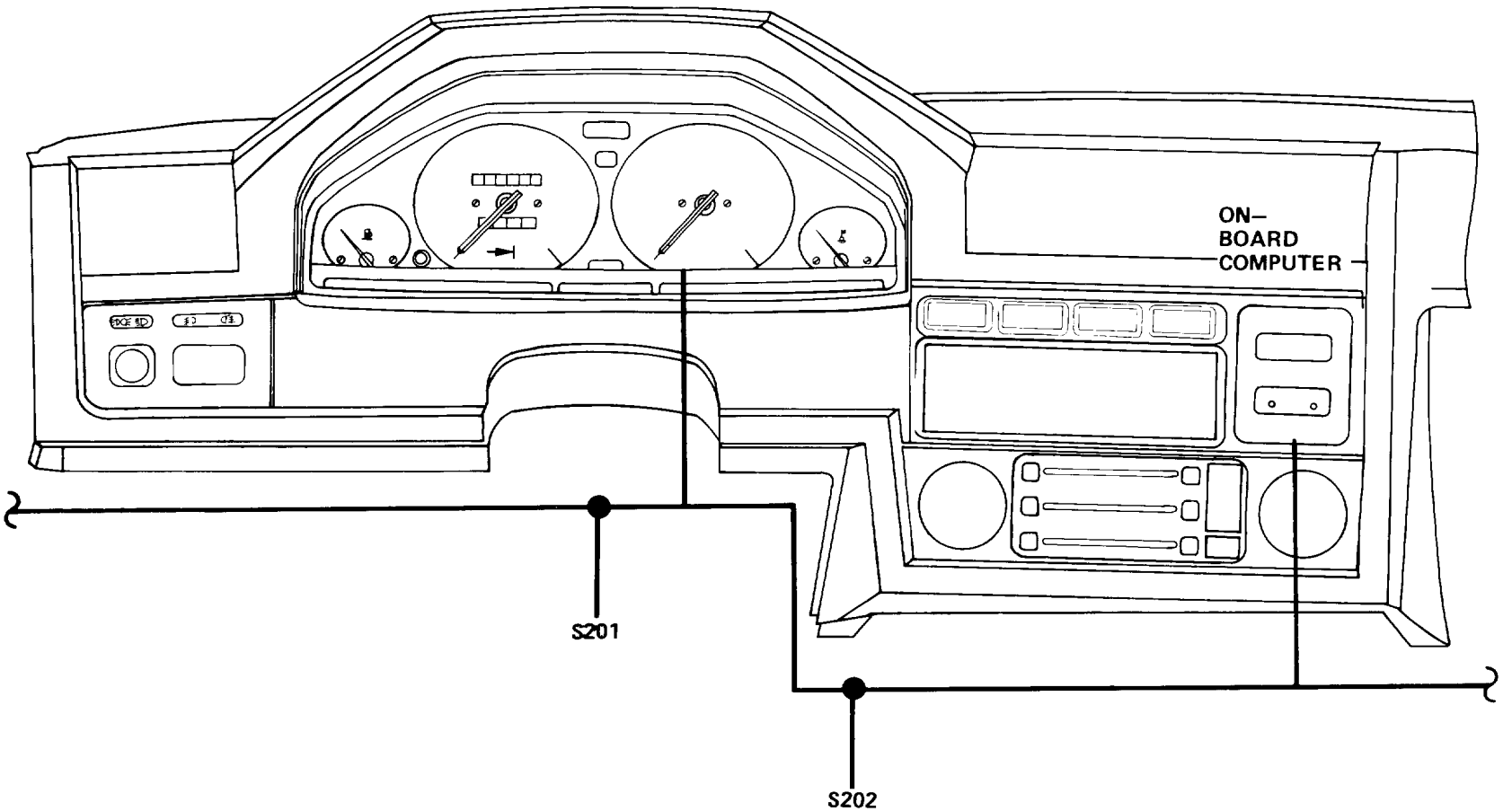
DOOR HARNESS SPLICE LOCATIONS



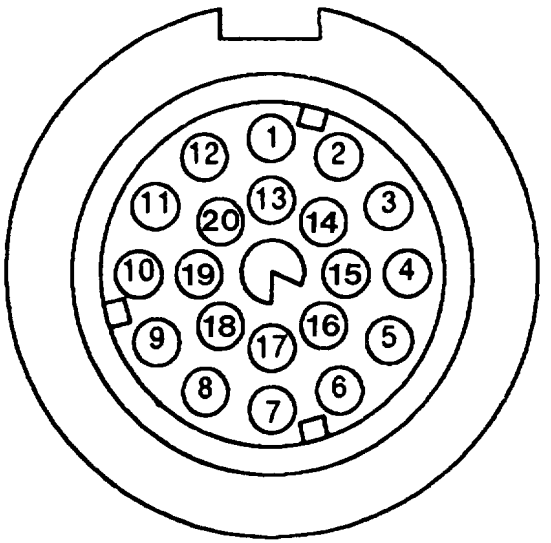
INSTRUMENT PANEL HARNESS SPLICE LOCATION



ON-BOARD COMPUTER HARNESS SPLICE LOCATIONS



DIAGNOSTIC CONNECTOR



DIAGNOSTIC CONNECTOR FACE

Pin	Wire Size	Wire Color	Circuit and Component Connected
1	1	BK	Ignition Coil, Motronic Control Unit
6	.5	WT/BK	SRS Connector (Not Used)
7	.5	WT/GN	Service Interval Indicator, Service Interval Processor (Reset)
11	2.5	BK/YL	Starter, Start Signal (50)
12	.75	BU	Charge, Alternator (D+)
14	2.5	RD	Battery (+)
15	.5	WT/YL	Motronic Control Unit (RXD)
16	1.5	GN/WT	Oxygen Sensor
18	.5	GN/BU	Motronic Control Unit (Programming Voltage)
19	1.5 BR	BR	Ground Distribution (G103)
20	.5	WT/VI	Motronic Control Unit (TXD)

ACCESSORY CONNECTOR

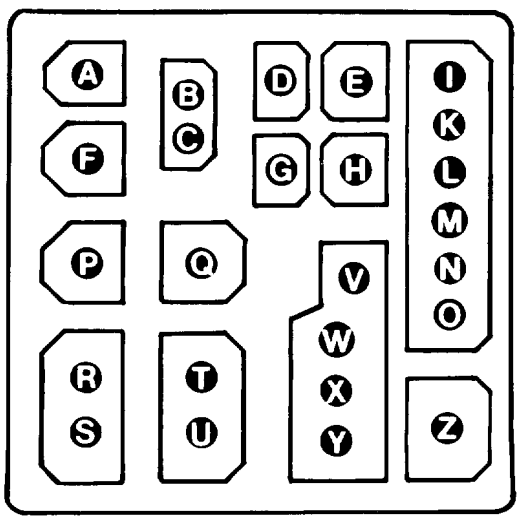
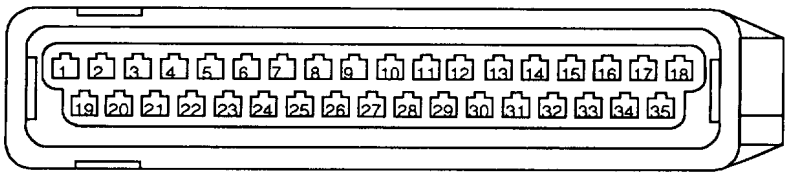


Figure 1-C302 (Accessory Connector) Front View—Under LH Side of Dash Ahead of Pedal Assembly

CIRCUITS USING C302 (ACCESSORY CONNECTOR)

TERMINAL	CIRCUIT	TERMINAL	CIRCUIT
A	Not Used	N	Not Used
B	Not Used	O	Not Used
C	Anti-Lock Braking	P	Not Used
D	Central Locking	Q	Power Windows & Sunroof
E	Not Used		
F	Not Used	R	Cruise Control
G	Anti-Lock Braking	S	Anti-Lock Braking
H	On-Board Computer	T	Not Used
I	Not Used	U	Not Used
J	Not Used	V	Radio
K	Not Used	W	Radio
L	Not Used	X	Radio
M	Not Used	Y	Radio
		Z	Power Antenna

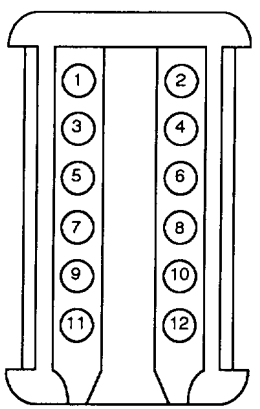
B350002.04



Mating Face

ABS CONTROL UNIT

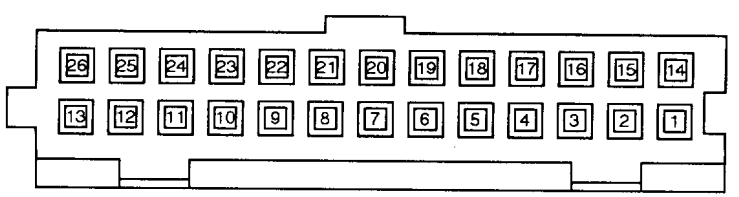
B120014



Wiring Face

ABS HYDRAULIC UNIT

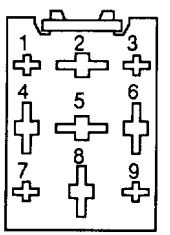
B260002.01



Mating Face

ACTIVE CHECK CONTROL

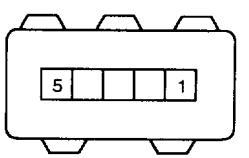
B090001.14



Mating Face

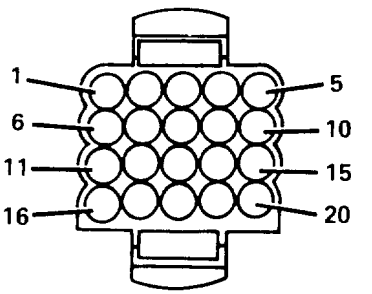
ABS NEUTRAL INPUT RELAY

B050010.00



Mating Face

AIR FLOW METER

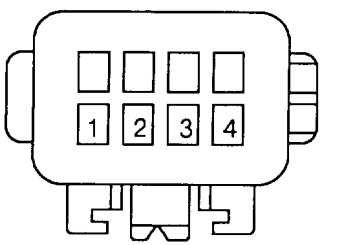


Wiring Face

AMPLIFIER

(SOUND SYSTEM)

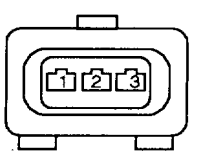
B080012



Wiring Face

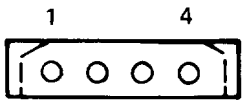
AUXILIARY FUSE

B030015.03



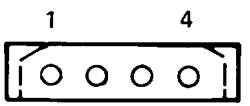
Wiring Face

BAROMETRIC PRESSURE SENSOR



Wiring Face

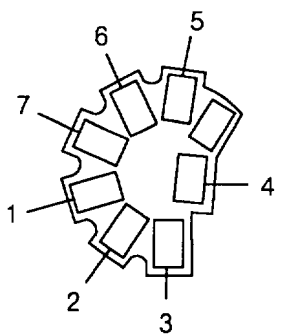
CHIME MODULE (C1)



Wiring Face

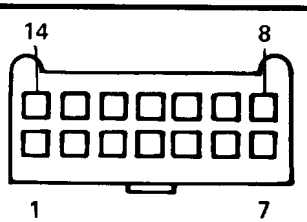
BLOWER RESISTORS

B080014.00



Wiring Face

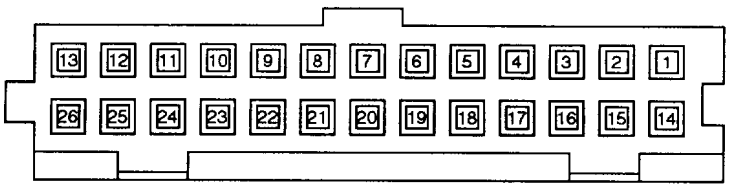
BLOWER SPEED CONTROL



Wiring Face

CENTRAL LOCKING CONTROL UNIT

B260002.03

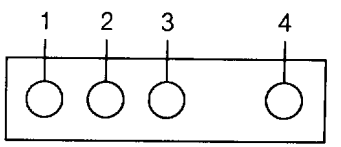


Wiring Face

CRUISE CONTROL

UNIT

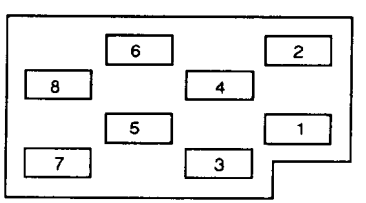
B040013



Wiring Face

CHIME MODULE (C2)

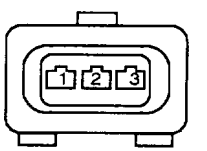
B080013.00



Wiring Face

CONTROL SWITCHES

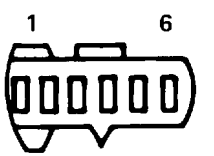
B030015.05



Mating Face

CYLINDER IDENTIFICATION

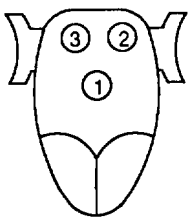
SENSOR



Wiring Face

DOOR LOCK MOTOR

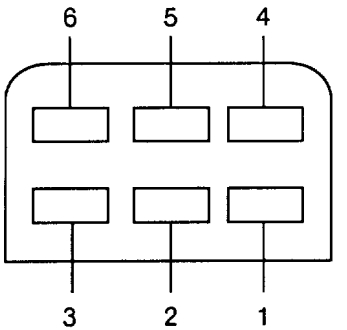
B030019.00



Wiring Face

DUAL TEMPERATURE SWITCH

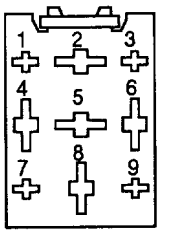
B060024



Wiring Face

EVAPORATOR TEMPERATURE REGULATOR

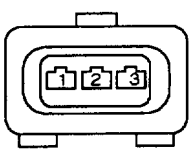
B090001.17



Mating Face

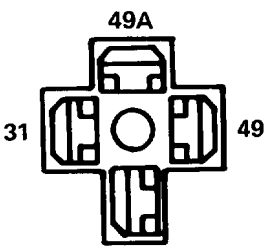
FRESH/RECIRCULATING AIR RELAY

B030015.04



Wiring Face

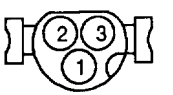
ENGINE SPEED SENSOR



Wiring Face

FLASHER

B030017.00



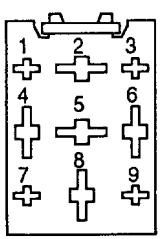
Wiring Face

FRONT TURN/PARK LIGHT

LATE PRODUCTION

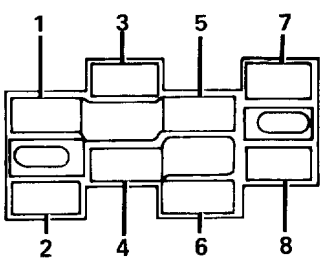
for 325i/325is, 325ix

B090001.04



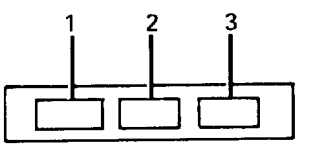
Mating Face

EVAPORATIVE PURGE VALVE RELAY



Wiring Face

FOG LIGHT SWITCH



Wiring Face

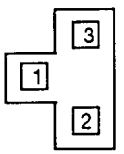
FRONT TURN/PARK LIGHT

All 325ic, M3

EARLY PRODUCTION

for 325i/325is, 325ix

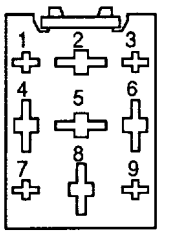
B030020.00



Wiring Face

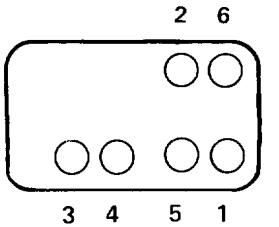
INSTRUMENT CLUSTER (C6)

B090001.06



Mating Face

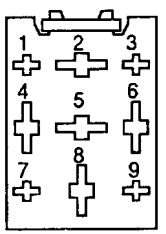
MAIN RELAY



Mating Face

MIRROR CONTROL SWITCH

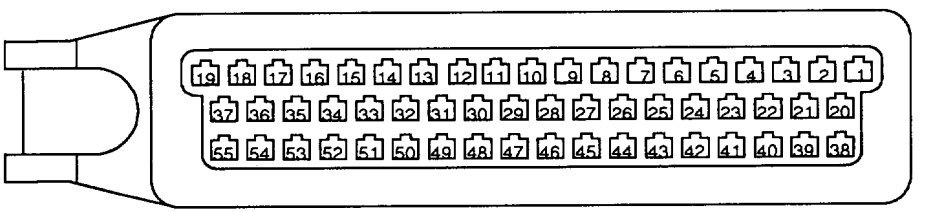
B090001.16



Mating Face

INTERIOR LIGHT TIMER CONTROL

B550001.02

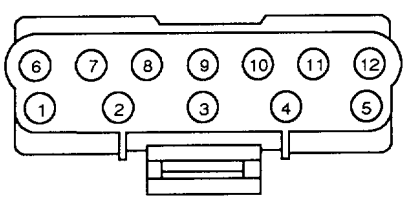


Mating Face

MOTRONIC CONTROL UNIT

ALL EXCEPT M3

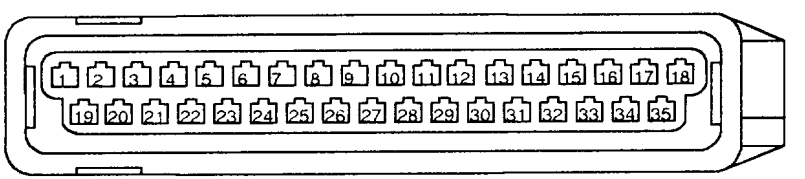
B120006.00



Wiring face

LIGHT SWITCH

B350002

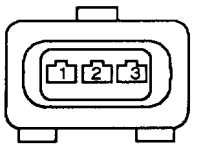


Mating Face

MOTRONIC CONTROL UNIT

(M3)

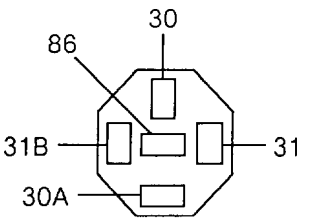
B030015.06



Wiring Face

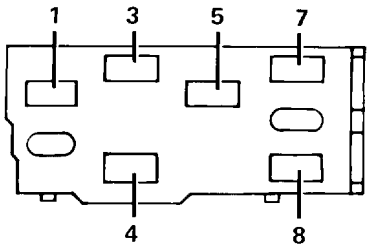
OIL LEVEL SENSOR

B060027



Wiring Face

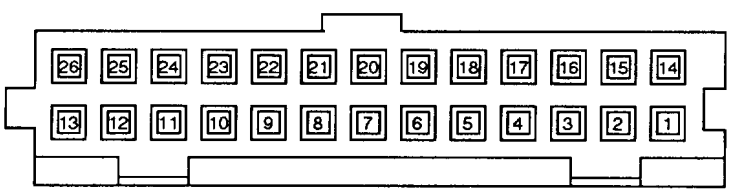
OVER VOLTAGE PROTECTION RELAY



Wiring Face

POWER WINDOW SWITCHES

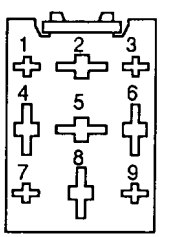
B260002.00



Mating Face

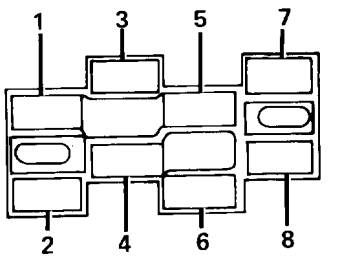
ON - BOARD COMPUTER MODULE

B090001.05



Mating Face

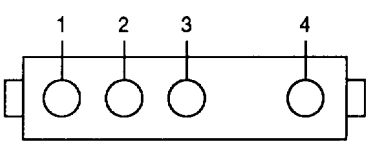
OXYGEN SENSOR HEATER RELAY



Wiring Face

REAR DEFOGGER SWITCH

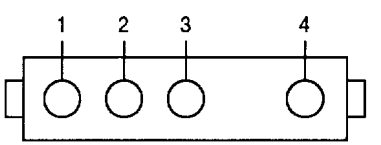
B040012.02



Wiring Face

ON - BOARD COMPUTER RELAY BOX (C2)

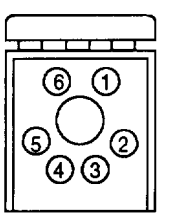
B040012.01



Wiring Face

POWER MIRRORS

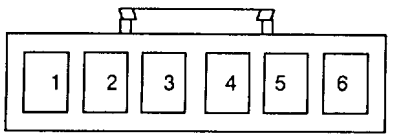
B060027.00



Wiring Face

REAR LIGHT ASSEMBLY

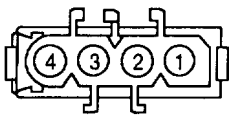
B060033.00



Wiring Face

REAR LIGHT ASSEMBLY

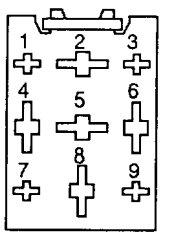
B0400002.03



Mating Face

REAR WINDOW BLOWER

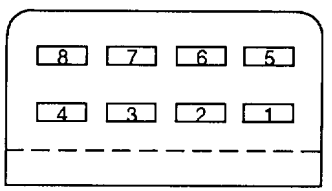
B090001.08



Mating Face

START RELAY

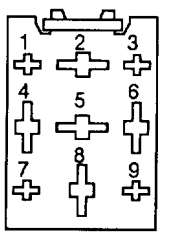
B080015.01



Wiring Face

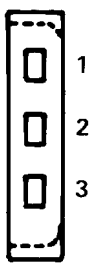
REAR LIGHTS CHECK RELAY (C1)

B090001.14



Mating Face

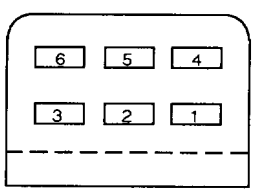
REAR WINDOW BLOWER RELAY



Wiring Face

SUNROOF MOTOR (CI)

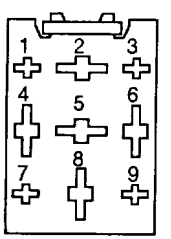
B060028 .01



Wiring Face

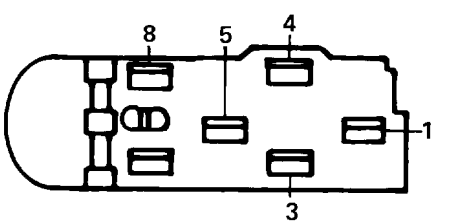
REAR LIGHTS CHECK RELAY (C2)

B090001.05



Mating Face

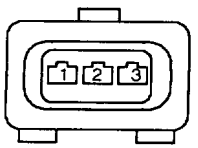
SEATBELT WARNING TIMER



Wiring Face

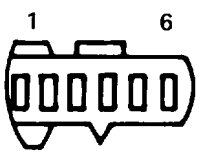
SUNROOF SWITCH

B030015.07



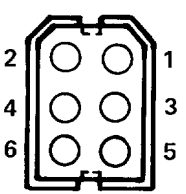
Wiring Face

THROTTLE SWITCH



Wiring Face

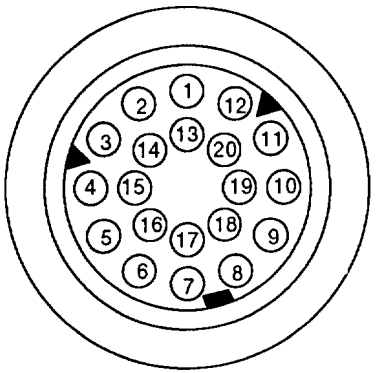
TRUNK LID LOCK MOTOR



Wiring Face

WIPER MOTOR

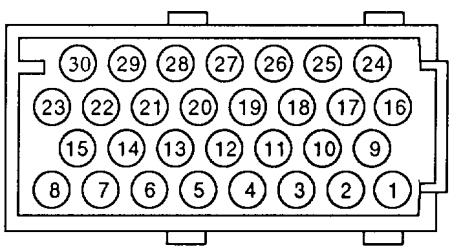
B200002.00



Wiring Face

C101

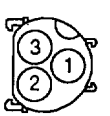
B300001.00



Wiring Face

C103

B030004.02



Mating Face

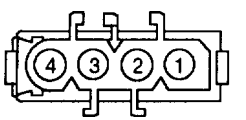
C110

C113

Wiring Face

C114

B040002.00



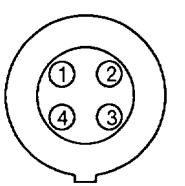
Wiring Face

C107

C131

C136

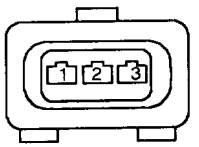
B040006.01



Wiring Face

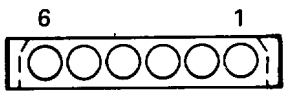
C140

B030015.06



Wiring Face

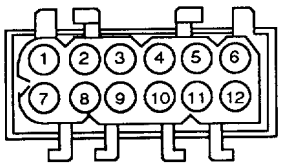
C152, C153, C154



Wiring Face

C201

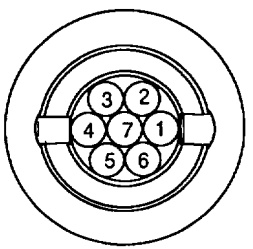
B120004.00



Wiring Face

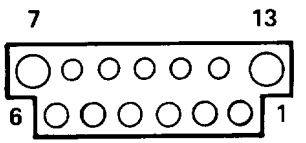
C204

B070002.00



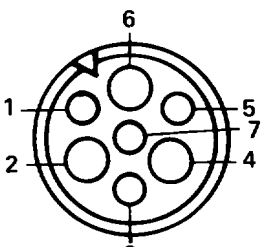
Wiring Face

C191



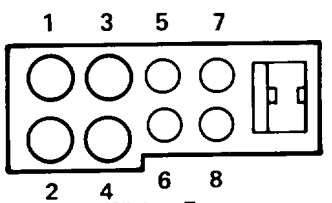
Wiring Face

C202



Wiring Face

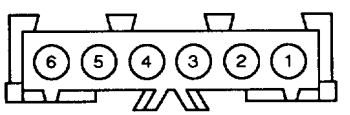
C209



Wiring Face

C200

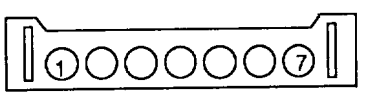
B060032.00



Wiring Face

C203

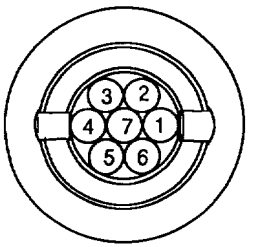
B070004.00



Wiring Face

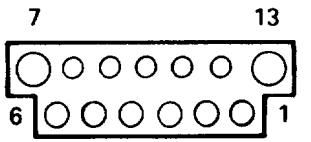
C210

B070002.00



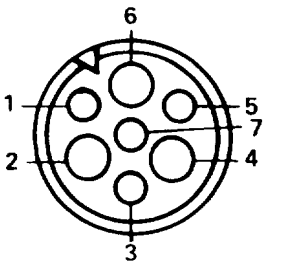
Wiring Face

C191



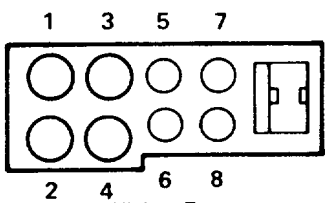
Wiring Face

C202



Wiring Face

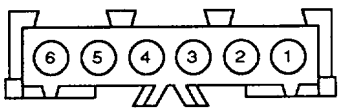
C209



Wiring Face

C200

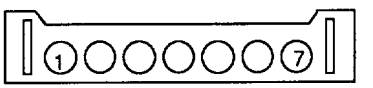
B060032.00



Wiring Face

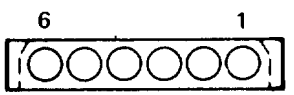
C203

B070004.00



Wiring Face

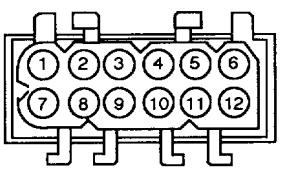
C210



Wiring Face

C201

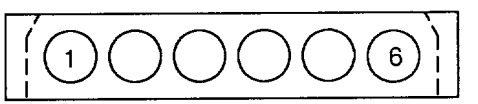
B120004.00



Wiring Face

C204

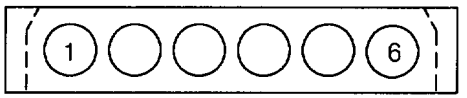
B060025



Wiring Face

C240

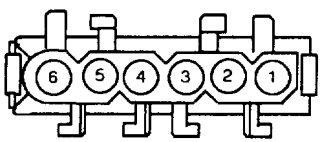
B060025



Wiring Face

C240

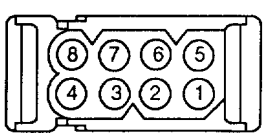
B060003.03



Mating Face

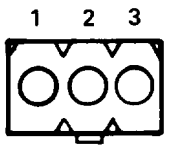
C242

B080002.00



Mating Face

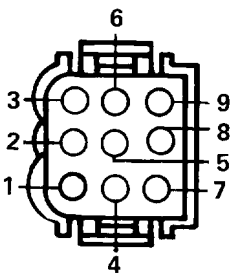
C243



Wiring Face

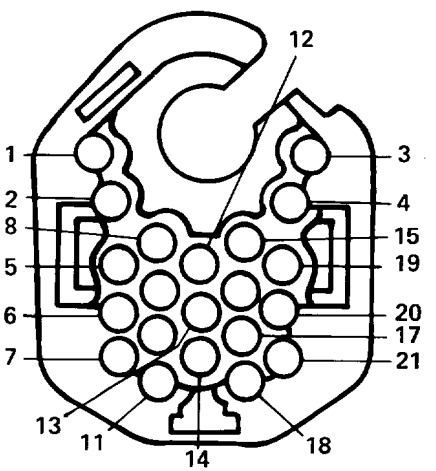
C303

C304



Wiring Face

C306

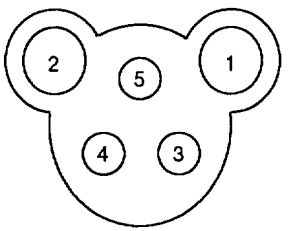


Wiring Face

C404

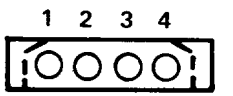
C405

B050011.00



Wiring Face

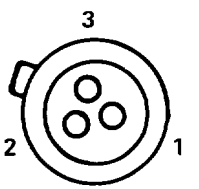
C413



Wiring Face

C421

C422



Wiring Face

C503

COMPONENTS

		Page-Figure
A/C In-Line Fuse	LH rear side of evaporator housing	7000- 7-2
ABS Electronic Control Unit	Behind LH side of dash, above hood release	7000- 5-4
ABS Hydraulic Unit	LH front corner of engine compartment	7000- 1-1
Active Check Control Unit	Above rear view mirror	7000- 8-4
Air Flow Meter	LH front of engine compartment, behind air cleaner	7000- 0-6
Alternator	Top LH front of engine compartment	7000- 2-1
Amplifier	LH side of trunk, above LH wheel well	7000-10-4
Auto-Charging Flashlight	Inside LH side of glove box	7000- 9-1
Auxiliary Fan	In front of radiator	7000- 2-5
Auxiliary Fan Normal Speed Blower Resistor	In front of radiator, RH side of auxiliary fan	7000- 2-5
Auxiliary Fuel Pump	Beneath RH side of rear seat	7000-10-1
Auxiliary Fuse	LH rear of engine compartment, above brake fluid reservoir	7000- 0-1
Back Up Light Switch	Top RH side of transmission	7000- 4-5
Barometric Pressure Sensor	LH side of engine compartment, on wheel well	7000- 0-6
Battery	In RH rear corner of trunk	7000-10-6
Battery Junction Block	RH rear of engine compartment, on RH bulkhead	7000- 4-4
Blower Motor	Inside fresh air intake cowl	7000- 0-4
Blower Resistors	Inside cowl, inside blower housing	
Board Computer Horn	Behind LH front corner of bumper	
Brake Fluid Level Switch	LH side of engine compartment, on brake fluid reservoir	7000- 0-1
Brake Switch	Behind LH side of dash, on brake pedal support	7000- 6-1
Brake Wear Sensors	On LH front and RH rear brake calipers	7000- 2-3
Central Locking Control Unit	Inside LH kick panel, below LH front speaker	7000- 6-3
Chime Module	Mounted on LH dash hush panel	7000- 5-4
Clutch Switch	Behind LH side of dash, on clutch pedal support	7000- 6-1
Combination Switch	Upper LH side of steering column	7000- 7-5
Compressor Clutch	Lower RH front of engine	7000- 3-3
Compressor Clutch Diode	Lower RH front of engine, on A/C compressor	7000- 3-3
Coolant Level Switch	Rear of RH front wheel well, in coolant reservoir	7000- 3-6
Coolant Temperature Sender	Front RH side of engine, on coolant manifold	7000- 4-2
Coolant Temperature Sensor	Front RH side of engine, on coolant manifold	7000- 4-2
Coolant Temperature Switch	Lower front RH corner of engine compartment	7000- 4-1
Cruise Control Actuator	LH front of engine compartment	7000- 1-3
Cruise Control Unit	Behind RH side of dash, above glove box	7000- 8-6
Cylinder Identification Sensor	Lower LH rear of engine, on transmission bell housing	7000- 2-2
Diagnostic Connector	LH side of bulkhead, by power distribution box	7000- 0-3
Door Lock Motors	Rear part of each door	7000- 4-6

COMPONENTS

		Page-Figure
Dual Temperature Switch	Lower RH front corner of engine compartment	7000- 4-1
Engine Speed Sensor	Lower LH rear of engine, on transmission bell housing	7000- 2-2
Evaporative Purge Valve	LH side of engine compartment, on wheel well	7000- 0-6
Evaporative Purge Valve Relay	RH side of bulkhead, behind cover	7000- 4-4
Evaporator Temperature Regulator	On LH side of evaporator housing	7000- 7-1
Evaporator Temperature Sensor	On LH side of evaporator housing	7000- 7-1
Flasher	Upper part of steering column	7000- 7-5
Fresh/Recirculating Air Flap Door Motors	Behind A/C face plate, on either side of evaporator housing	7000- 7-4
Fresh/Recirculating Air Relays	Behind A/C face plate	7000- 7-3
Fuel Injectors	Top of engine, at each intake port	7000- 1-6
Fuel Tank Sender	Below RH side of rear seat, on top of fuel tank	7000-10-1
Fusible Link A	RH rear of trunk, on battery	7000-10-6
Gas Filler Lock Motor	RH side of trunk, behind RH wheel well	7000-10-6
Glove Box Light Switch	Behind RH side of dash, above glove box	7000- 8-6
Hazard Switch	In center of dash, above digital radio	7000- 7-6
High Pressure Cut-Out Switch	On receiver dryer, behind RH headlight	7000- 3-2
Horn Brush/Slip Ring	In upper part of steering column	7000- 7-5
Horns	Near fog lights, behind splash guard	
Hot Water Cut-Off Switch	Behind center of dash, near rotary temperature control	7000- 7-3
Idle Speed Actuator	Top center of engine	7000- 1-5
Ignition Coil	On RH front wheel well, forward of shock tower	7000- 3-6
Ignition Key Switch	Part of ignition switch, in upper part of steering column	
Ignition Switch	Top RH side of steering column	7000- 7-5
Interior Light Timer Control	Inside LH kick panel, below LH front speaker	7000- 6-3
LH Jet Heater	Center of engine compartment hood, on washer jet	7000- 2-6
Lock Heater	In top rear of LH front door	7000- 5-2
Lock Heater Control Unit	In top rear of LH front door	7000- 5-3
Low Pressure Cut-Out Switch	On receiver dryer, behind RH headlight	7000- 3-2
Main Fuel Pump	Under car, in front of LH rear wheel	7000-10-2
Main Relay	RH rear of engine compartment, on bulkhead	7000- 4-4
Motor Relay	In windshield header, above rear view mirror	7000- 8-4
Motronic Control Unit	Behind RH side of dash, above glove box	7000- 8-6
Oil Pressure Switch	Lower LH front of engine	7000- 1-2
Oil Temperature Sensor	Lower LH front of engine	7000- 1-2
On-Board Computer Module	In center of dash, on RH side of digital radio	7000- 8-1

COMPONENTS		Page-Figure
On-Board Computer Relay Box	Behind LH side of dash, near ABS electronic control unit	7000- 5-6
Outside Temperature Sensor	Behind splash guard, near LH fog light	7000- 1-4
Over Voltage Protection Relay	Behind LH side of dash, near ABS electronic control unit	7000- 5-5
Oxygen Sensor	Lower RH rear of engine compartment, on exhaust manifold	7000- 4-3
Oxygen Sensor/Fuel Pump Relay	RH rear of engine compartment, on bulkhead	7000- 4-4
Park Brake Switch	At base of parking brake	7000- 8-3
Power Distribution Box	LH rear corner of engine compartment	7000- 0-1
Power Window Circuit Breaker	On center console, near gear shift lever	7000- 8-2
Pulse Wheels	On respective wheel, in brake housing	
Rear Lights Check Relay	LH side of trunk, above LH wheel well	7000-10-4
RH Front Door Micro Switch	In top rear of RH front door	7000- 5-2
RH Jet Heater	Center of engine compartment hood, on washer jet	7000- 2-6
Seatbelt Switch	In driver's seatbelt buckle assembly	
Seatbelt Warning Timer	Behind LH side of dash, on electrical bracket	7000- 6-6
Speed Detectors	On wheels, in brake housing	7000- 2-4
Speedometer Sender	On rear of differential	7000-10-3
SRS Connector (C240)	Behind LH side of dash, RH side of accessory connector	7000- 5-6
Starter	Lower LH rear of engine	
Sunroof Motor	In windshield header, above rear view mirror	7000- 8-4
TDC Sensor	Lower LH rear of engine	7000- 0-5
Throttle Switch	Top front center of engine	7000- 1-5
Trunk Lid Lock Motor	On trunk lock center support	7000-10-5
Trunk Light Switch	Top center of trunk lid	7000-11-1
Unlock Inhibit Switch	Top rear of LH front door	7000- 5-2
Washer Fluid Level Switch	Behind RH headlight, in washer fluid reservoir	7000- 3-2
Washer Pump	Ahead of RH front wheel well, on washer fluid reservoir	7000- 3-4
Water Shut-Off Solenoid	LH side of evaporator housing	7000- 7-2
Window Motors	Forward part of each door	7000- 5-1
Wiper Motor	Inside LH side of fresh air intake cowl	7000- 0-4
CONNECTORS		
150° Compressor Oil Temperature Switch	Bottom RH front of engine compartment, on A/C compressor	7000- 3-5
C101 (20 pins)	Next to power distribution box, mounted on engine dash	7000- 0-3
C103 (29 pins)	Behind LH side of dash, on body electrical bracket	7000- 5-6

CONNECTORS

CONNECTORS

		Page-Figure
C301 (2 pins)	Below center console, near gear shift lever	7000- 8-2
C302 (25 pins) Accessory Connector	Behind LH side of dash, on body electrical bracket	7000- 5-6
C303 (3 pins)	At base of RH "B" pillar	7000- 9-6
C304 (3 pins)	At base of LH "B" pillar	7000- 9-4
C305 (1 pin)	Behind LH side of dash, near accessory connector	7000- 5-6
C352 (2 pins)	Behind LH side of rear seat	7000- 9-5
C360 (2 pins)	Behind RH side of rear seat	7000-10-1
C404 (21 pins)	Above RH front door jamb switch	7000- 9-3
C405 (21 pins)	Above LH front door jamb switch	7000- 6-5
C406 (1 pin)	Below RH front speaker	7000- 9-2
C407 (1 pin)	Below LH front speaker	7000- 6-4
C500 (1 pin)	Behind LH side of dash, near steering column	7000- 6-1
C503 (3 pins)	In lower rear of LH front door	7000- 4-6
C510 (1 pin)	Inside LH kick panel, above LH front speaker	7000- 6-3
C560 (1 pin)	In top rear of LH front door	7000- 5-2

GROUNDS

G100	RH rear corner of trunk, behind battery	7000-10-6
G103	Behind RH side of dash, near motronic control unit	7000- 8-5
G104	On inner fender, behind LH headlight	7000- 1-3
G106	RH front corner of engine compartment	7000- 3-1
G200	Behind LH side of dash, above clutch pedal	7000- 6-1
G201 (Steering Column Ground)	Upper LH side of steering column	7000- 7-5
G300	Behind LH side of rear seat	7000- 9-5
G600	In windshield header	