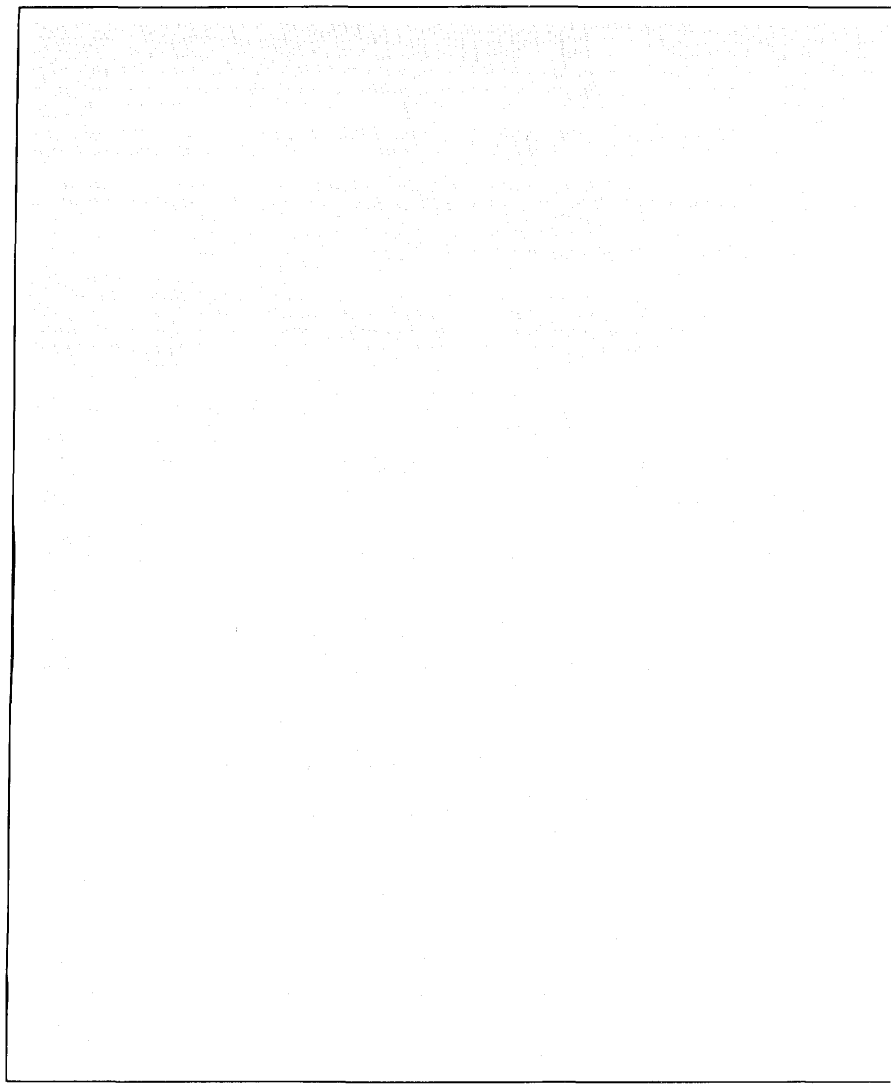
1989 BMW 635CSi Electrical Troubleshooting Manual

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

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FOREWORD

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



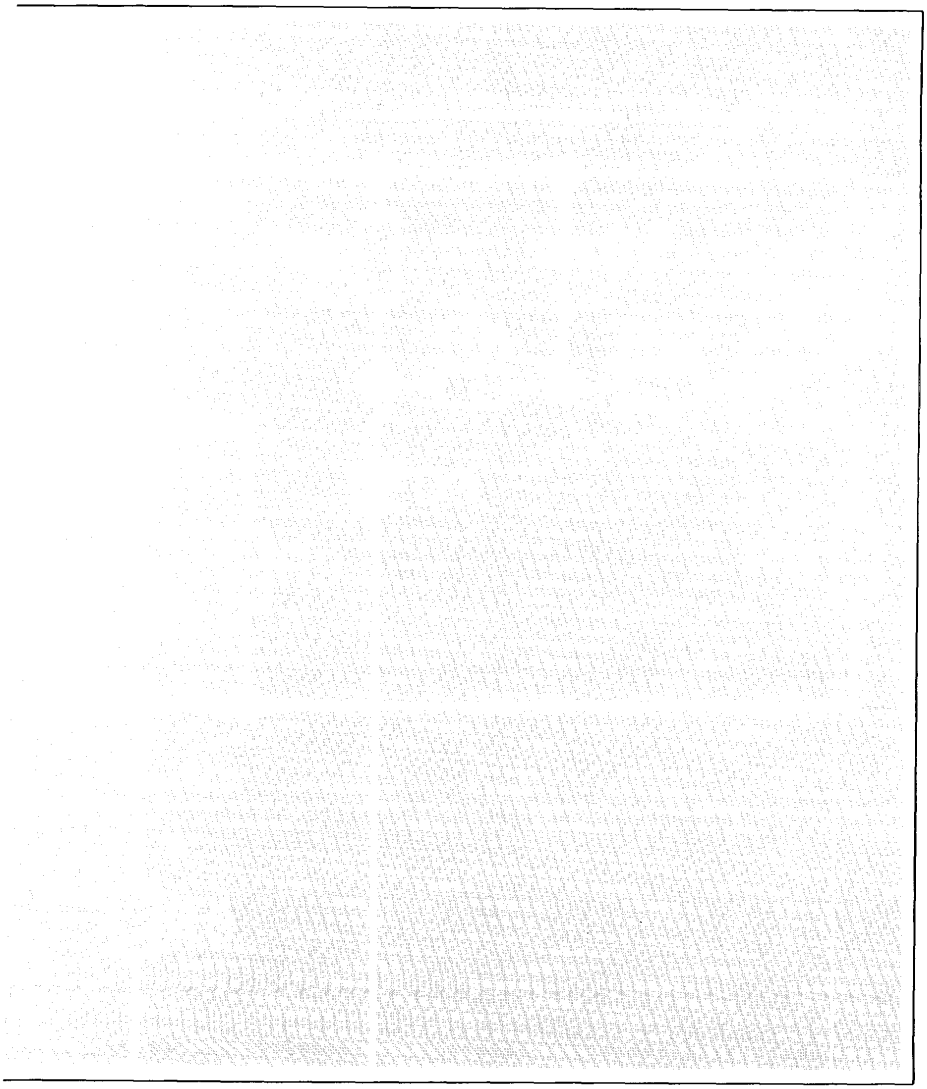
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The purpose of this manual is to show electrical schematics in a manner that makes electrical troubleshooting easier. Electrical components which work together are shown together on one schematic. The Wiper-Washer schematic, for example, shows all 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

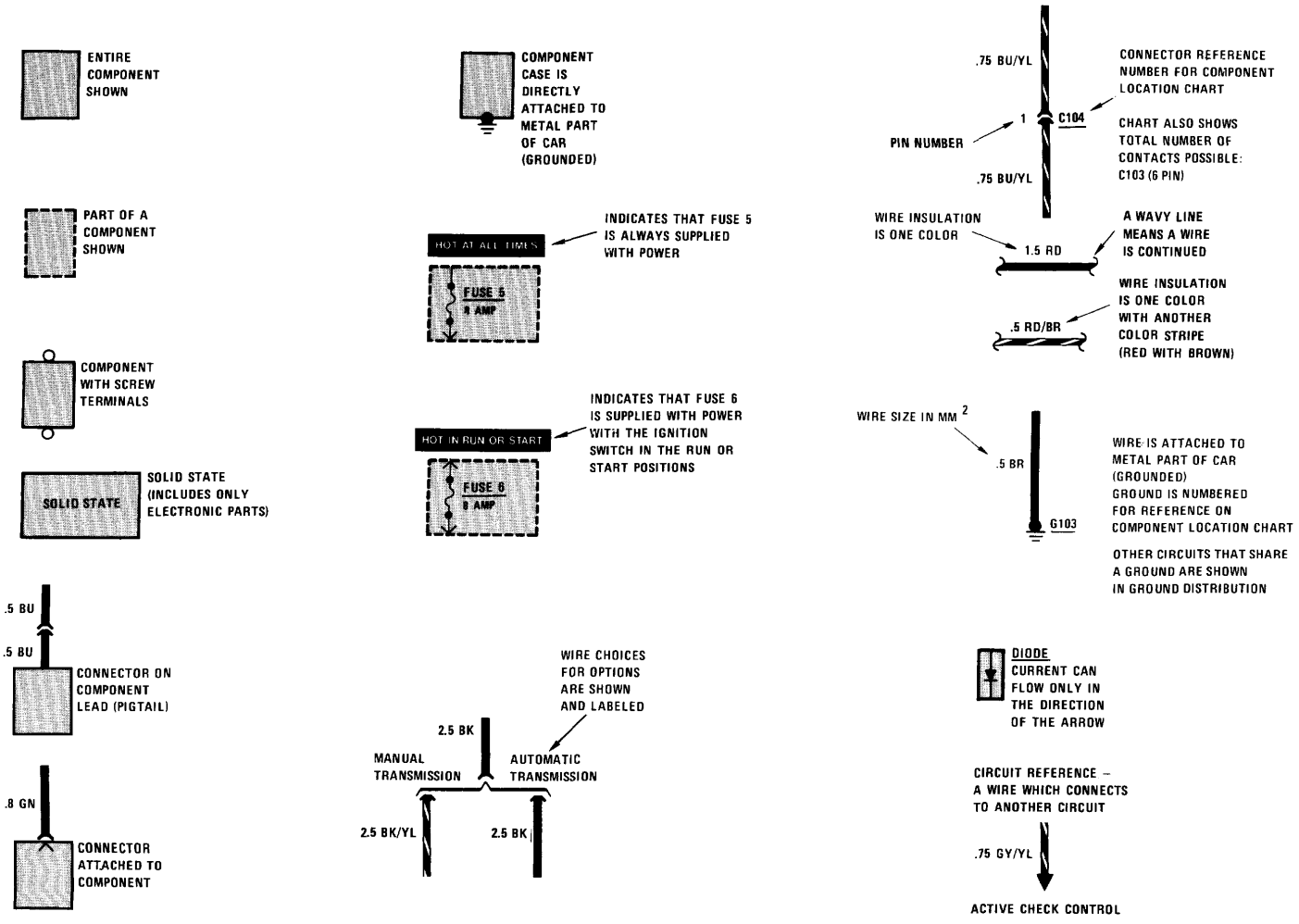
METRIC (CROSSECTIONAL AREA IN MM²)	AWG (AMERICAN WIRE GAUGE)
.5	20
.75	18
1	16
1.5	14
2	14
2.5	12
4	10
6	8
8	8
16	4
20	4
25	2
32	2

WIRE INSULATION

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

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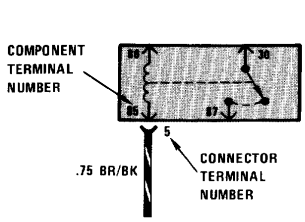
4 SYMBOLS

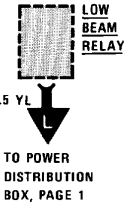


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ONE POLE, TWO POSITION SWITCH



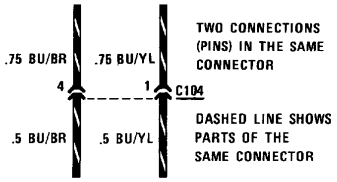




SWITCHES THAT MOVE TOGETHER

DASHED LINE SHOWS A MECHANICAL CONNECTION BETWEEN SWITCHES

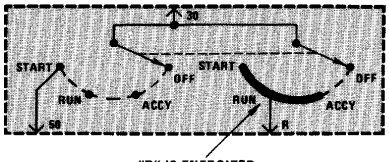
CURRENT PATH IS CONTINUED AS LABELED. THE ARROW SHOWS DIRECTION OF CURRENT FLOW AND IS REPEATED WHERE CURRENT PATH CONTINUES.



TWO CONNECTIONS (PINS) IN THE SAME CONNECTOR

DASHED LINE SHOWS PARTS OF THE SAME CONNECTOR

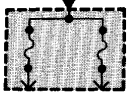
TWO POLE, FOUR POSITION SWITCH



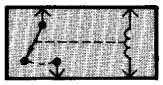
"R" IS ENERGIZED IN ACCY, RUN OR START

FROM LOW BEAM RELAY, PAGE 5

L

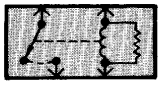


POWER DISTRIBUTION BOX



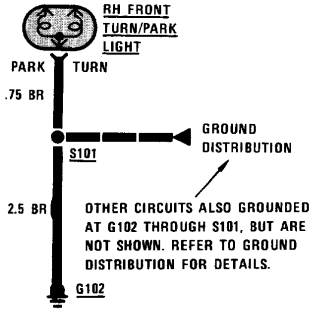
RELAY SHOWN WITH NO CURRENT FLOWING THROUGH COIL

WHEN COIL IS ENERGIZED, SWITCH IS PULLED CLOSED



RELAY SHOWN WITH RESISTOR ACROSS COIL

RESISTOR ACROSS COIL IS FOR NOISE SUPPRESSION





LIGHT EMITTING DIODE

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6 SYSTEMATIC TROUBLESHOOTING

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

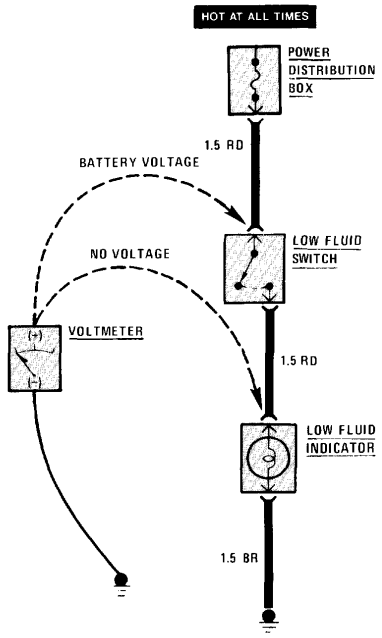
Isolating the problem (Step 3 of TROUBLESHOOTING PROCEDURES) requires the use of a **voltmeter** and/or **ohmmeter**. A voltmeter measures voltage at selected points in a circuit. An ohmmeter measures a circuit's resistance to current flow. It has an internal battery that provides current to the circuit 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.



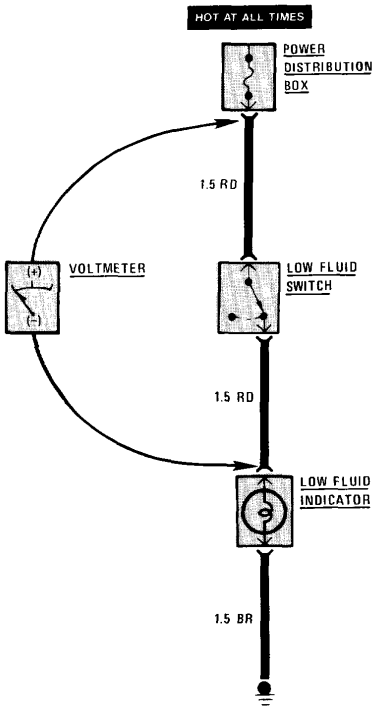
Voltage Test

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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.

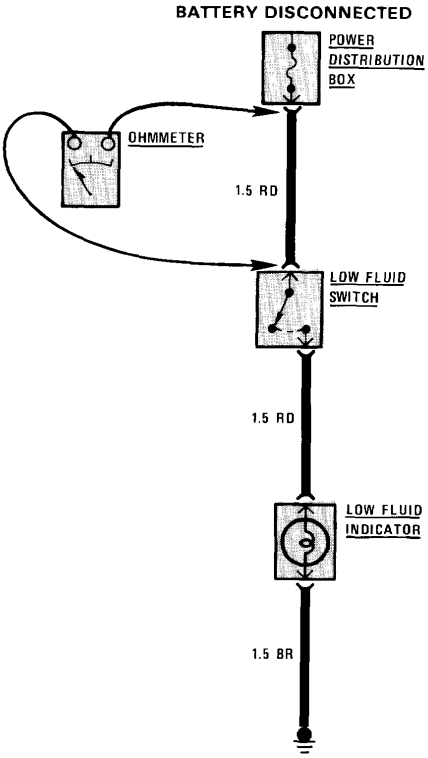
To test for voltage drop, connect the voltmeter leads to connectors at either end of the circuit's suspected problem area. The positive lead should be connected to the connector closest to the power source. The voltmeter will show the voltage drop between these two points.



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.

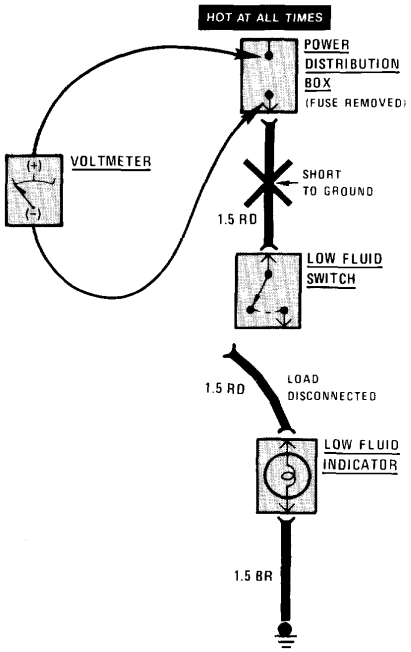


Continuity Test

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.



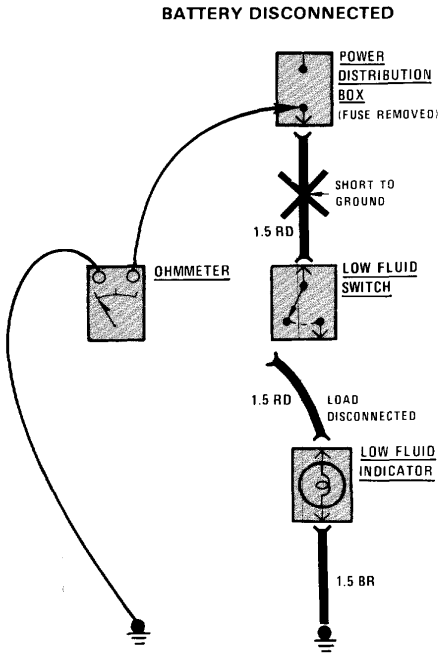
Short Test Using Voltmeter

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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

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0670-0 POWER DISTRIBUTION

POWER DISTRIBUTION BOX

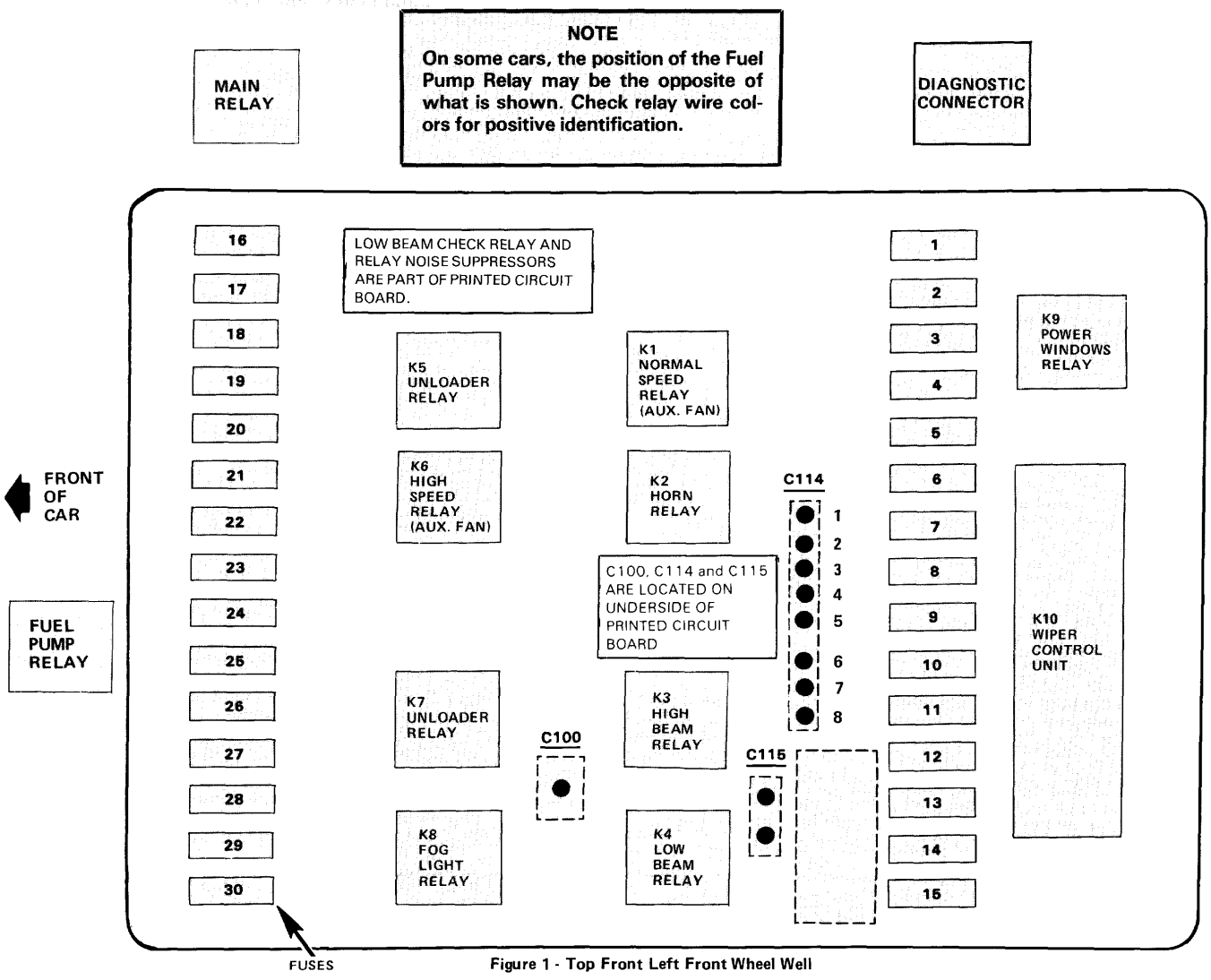


Figure 1 - Top Front Left Front Wheel Well

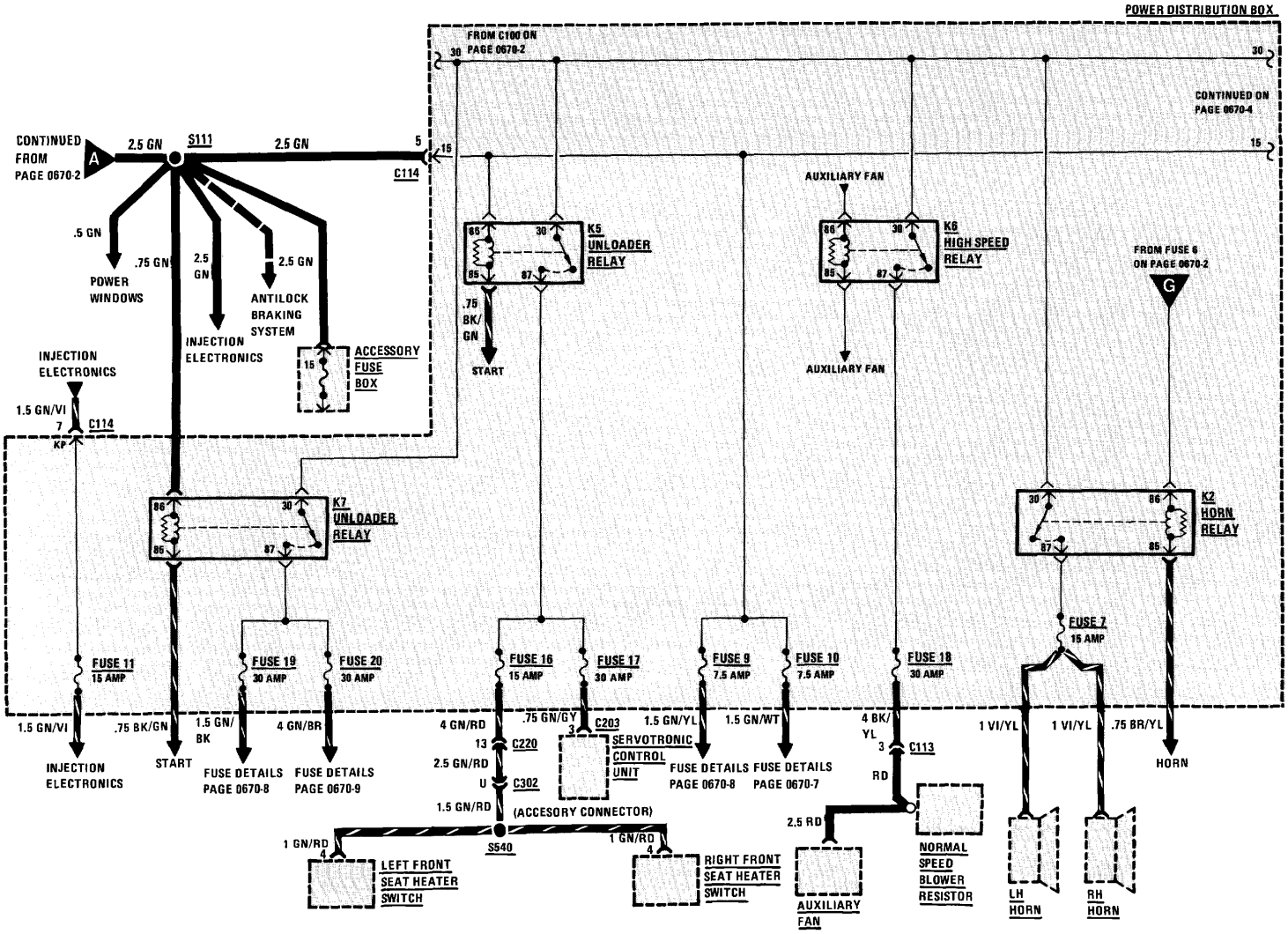
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FUSE DATA CHART

FUSE NO.	SIZE	CIRCUIT PROTECTED
1	7.5A	Headlights (also fuses 2, 13, 14); High Beam Indicator.
2	7.5A	Headlights (also fuses 1, 13, 14).
3	30A	Auxiliary Fan (also fuses 18, 19).
4	15A	Lights: Turn/Hazard Warning (also fuse 24).
5	30A	Wiper/Washer, Windshield Washer Jet Heater.
6	7.5A	Active Check Control (also fuses 10, 12, 21, 22, 23); Antilock Braking System; Cruise Control (also fuse 10); Self-Leveling Suspension (also fuses 19, 25); Stoplights.
7	15A	Horn.
8	30A	Rear Defogger (also fuse 23).
9	7.5A	Injection Electronics (also fuses 10, 11, 21).
10	7.5A	Active Check Control (also fuses 6, 12, 21, 22, 23); Ignition Key Warning (also fuses 19, 21); Injection Electronics (also fuses 9, 11, 21); On-Board Computer (also fuses 12, 21, 27); Speedometer/Gauges Warning Indicators (also fuse 21); Back Up Lights; Brake Lining Warning; Cruise Control (also fuse 6); Service Interval Indicator (also fuse 12, 21); Seatbelt Warning (also fuses 19, 21); Electronic Transmission Control.
11	15A	Injection Electronics (also fuses 9, 10, 21).
12	7.5A	Active Check Control (also fuse 6, 10, 21, 22, 23); On-Board Computer (also fuses 10, 21, 27); Radio (also fuses 21, 28. Radio In-Line Fuse); Warning Indicators (also fuses 10, 21).
13	7.5A	Headlights (also fuses 1, 2, 14).
14	7.5A	Headlights (also fuses 1, 2, 13).
15	—	Not Used.
16	15A	Heated Seats.
17	30A	Servotronic.
18	30A	Auxiliary Fan (also fuses 3, 19).

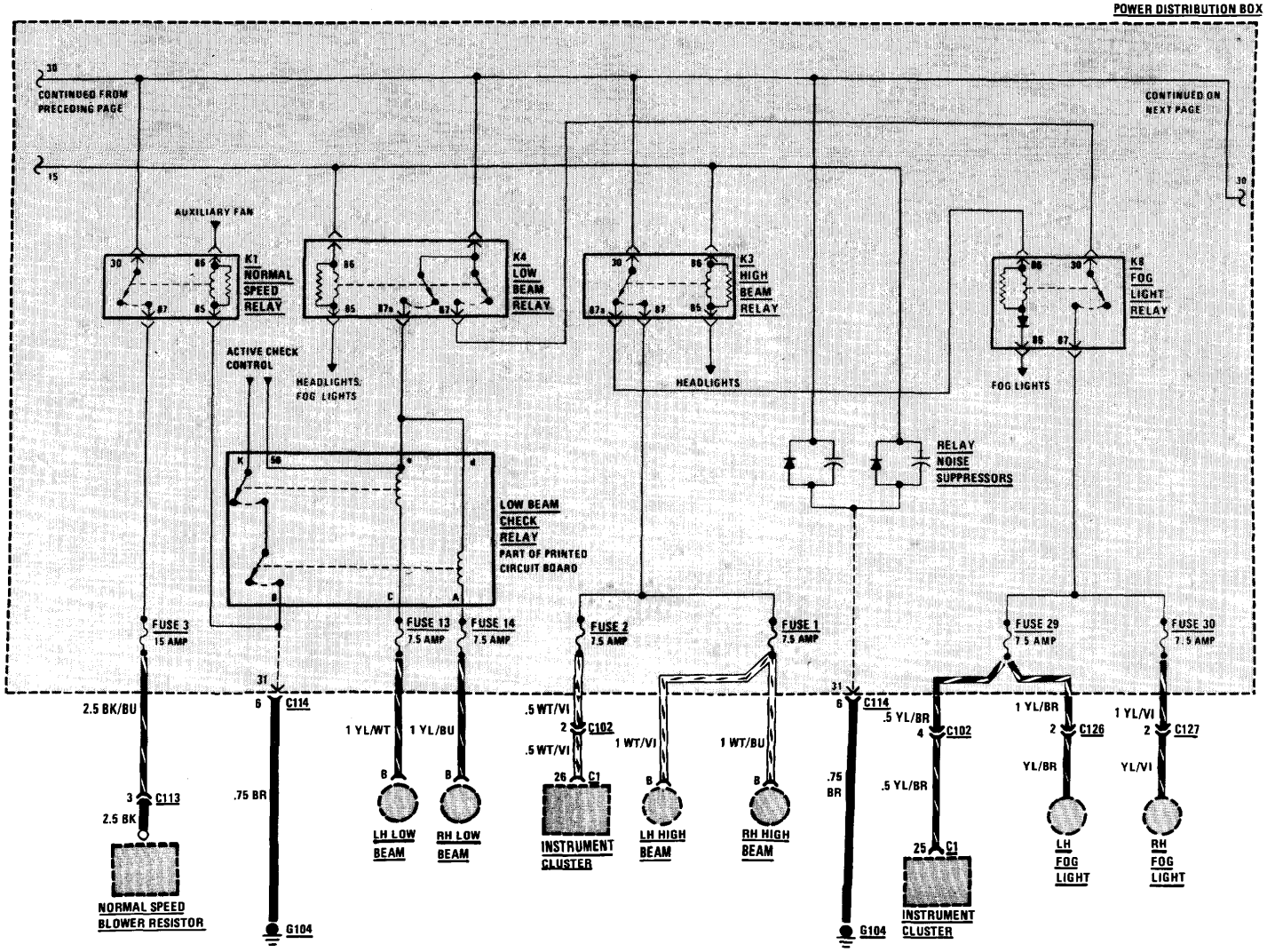
FUSE NO.	SIZE	CIRCUIT PROTECTED
19	30A	Auxiliary Fan (also fuses 3, 18); Heater/Air Conditioning (also fuses 20, 23); Ignition Key Warning (also fuses 10, 21); Interior Lights (also fuse 21); Power Seats (also fuse 26); Power Mirrors; Seatbelt Warning (also fuses 10, 21); Self-Leveling Suspension (also fuses 6, 25).
20	30A	Heater/Air Conditioner (also fuses 19, 23).
21	7.5A	Active Check Control (also fuses 6, 10, 12, 22, 23); Auto-Charging Flashlight; Gauges (also fuses 10, 12); Glove Box Light; Ignition Key Warning (also fuses 10, 19); Interior Lights (also fuse 19); Injection Electronics (also fuses 9, 10, 11); On-Board Computer (also fuses 10, 12, 27); Radio (also fuses 12, 28. Radio In-Line Fuse); Seatbelt Warning (also fuses 10, 19); Service Interval Indicator (also fuse 10); Trunk Light.
22	7.5A	Active Check Control (also fuses 6, 10, 12, 21, 23); Lights: Front Park/Tail (also fuse 23).
23	7.5A	Active Check Control (also fuses 6, 10, 12, 21, 22); Rear Defogger (also fuse 8); Lights: Front Park/Tail/Underhood (also fuse 22); Heater/Air Conditioning (also fuses 19, 20); Lights; Dash/Transmission Range/RH Visor; Lights: Rear Marker/License.
24	15A	Lights: Turn/Hazard Warning (also fuse 4).
25	25A	Self-Leveling Suspension (also fuses 6, 19).
26	30A	Power Seats (also fuse 19).
27	30A	Central Locking; Heated Door Lock; On-Board Computer (also fuses 10, 12, 21).
28	30A	Cigar Lighter; Radio (also fuses 12, 21, Radio In-Line Fuse).
29	7.5A	Fog Lights (also fuse 30); Fog Light Indicator.
30	7.5A	Fog Lights (also fuse 29).
Power Window Circuit Breaker	25A	Power Windows; Sunroof.

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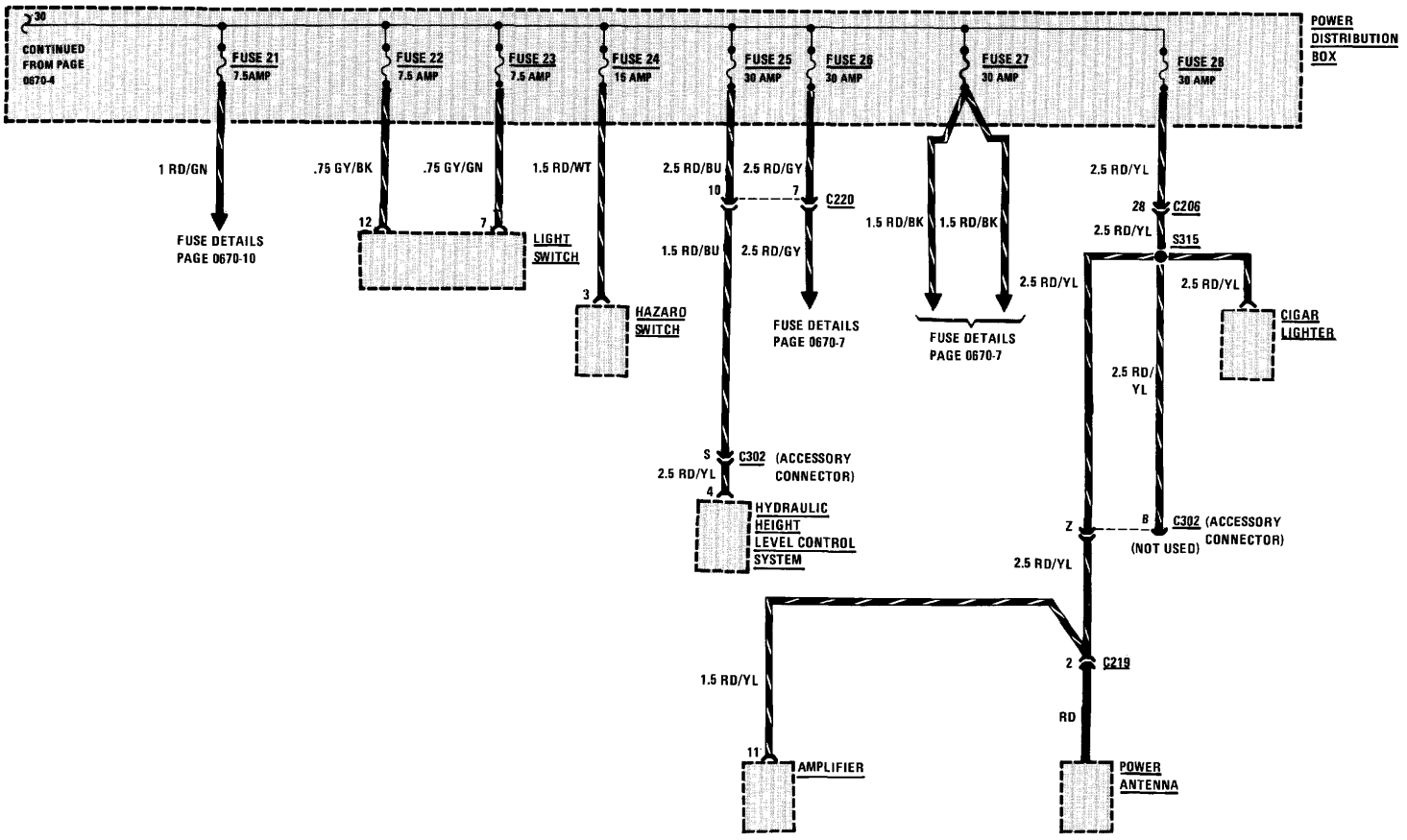


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0670-4 POWER DISTRIBUTION

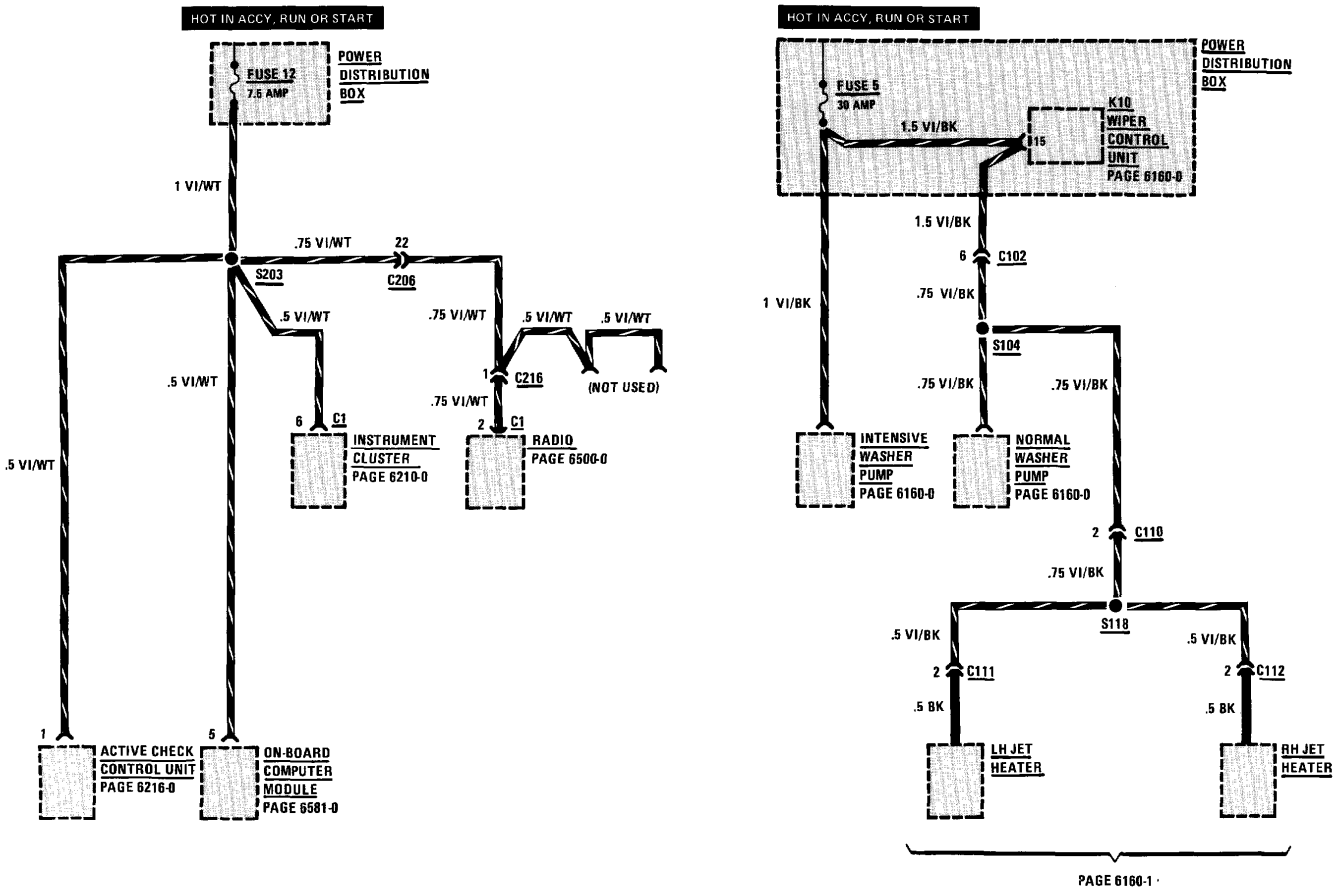


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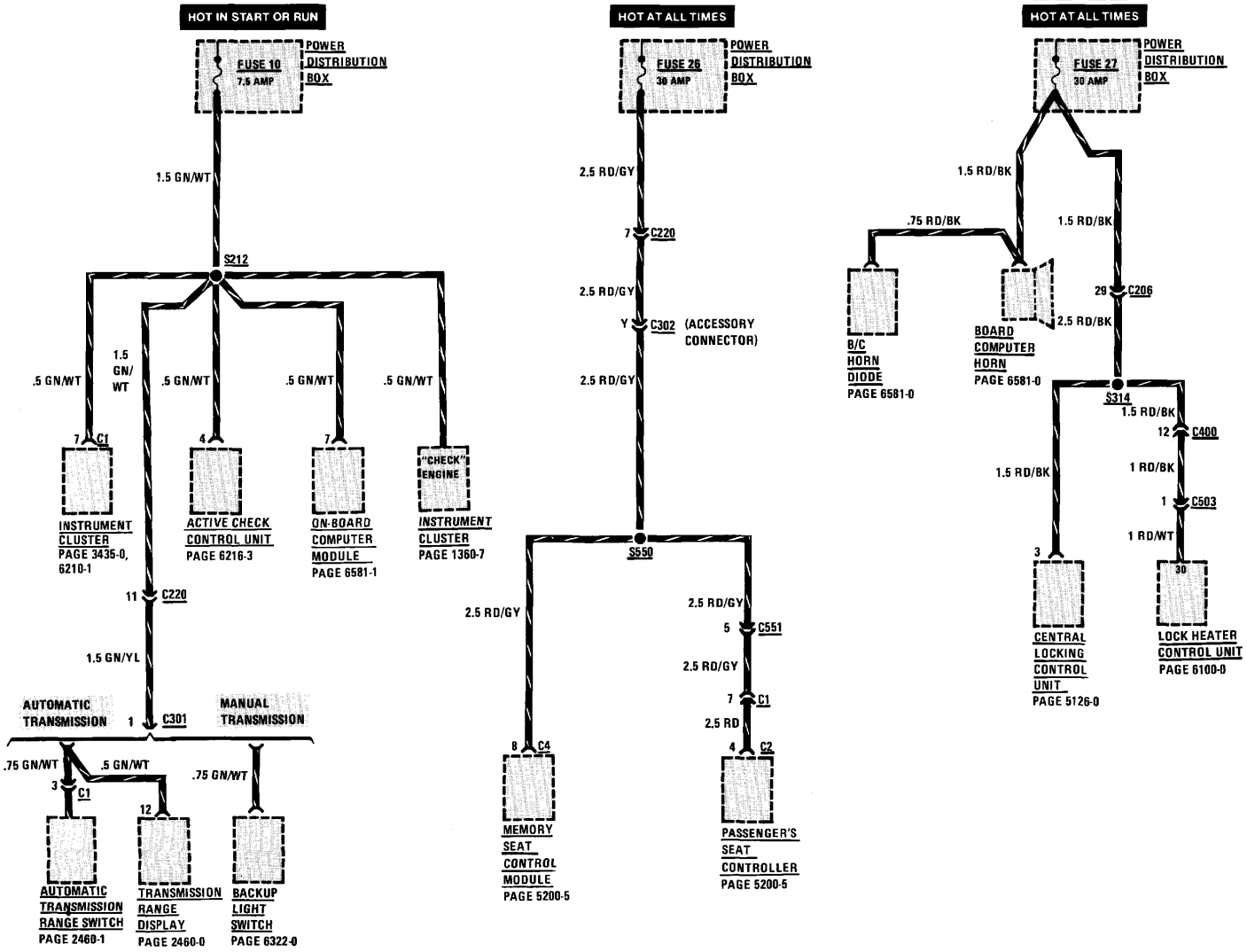
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FUSE DETAILS: FUSES 12 AND 15



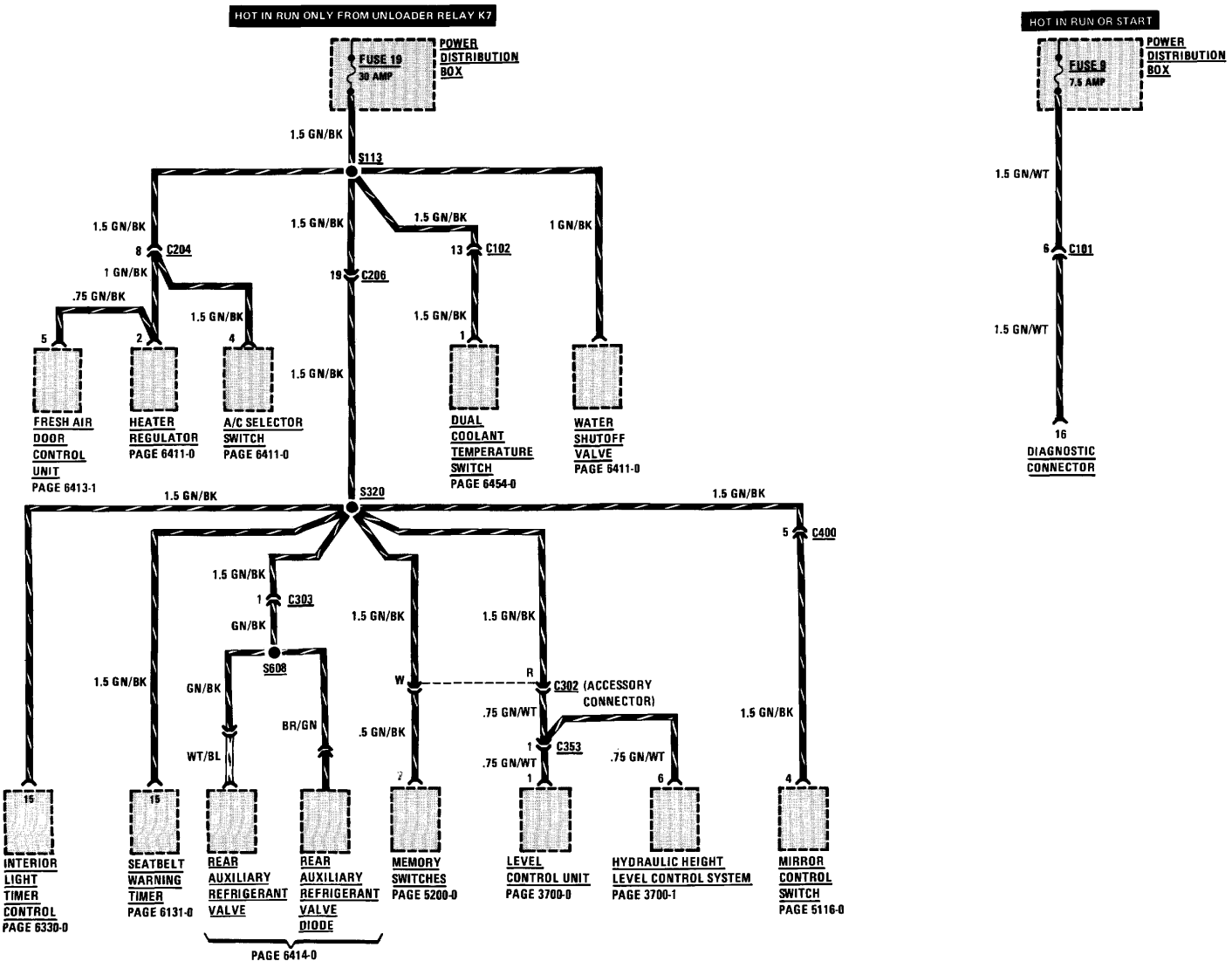
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FUSE DETAILS: FUSES 10, 26 AND 27



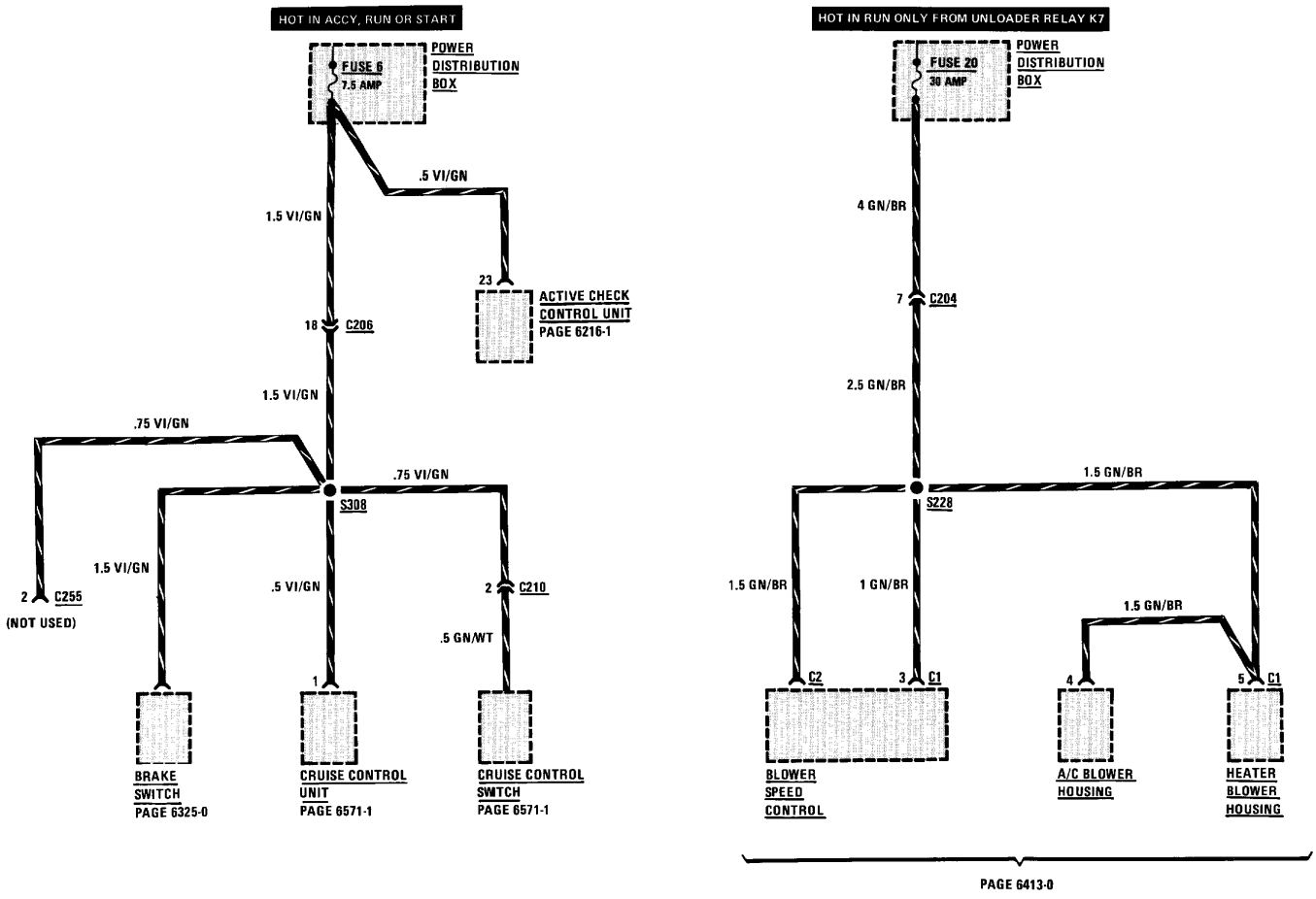
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FUSE DETAILS: FUSES 19 AND 9



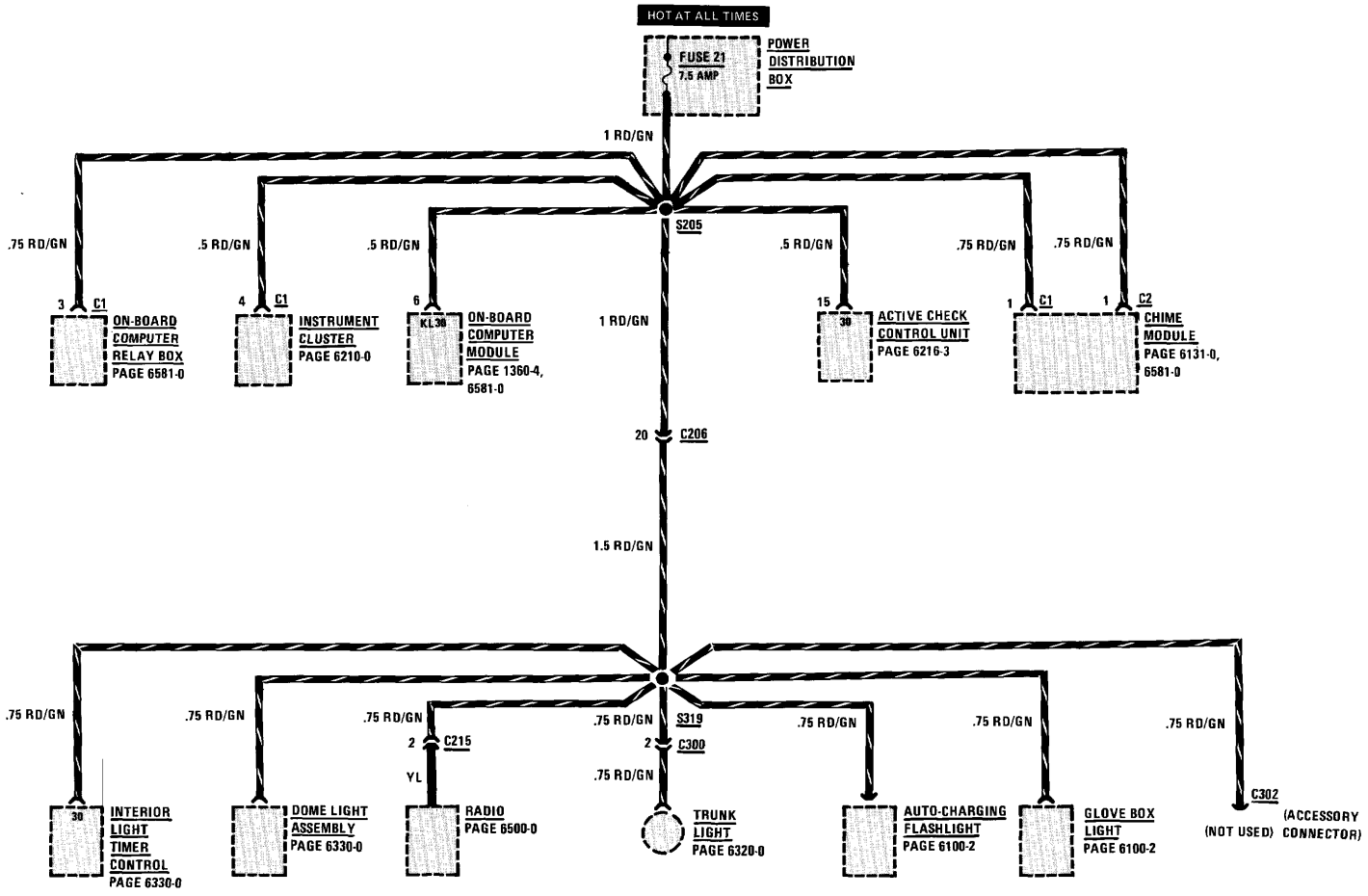
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FUSE DETAILS: FUSES 6 AND 20



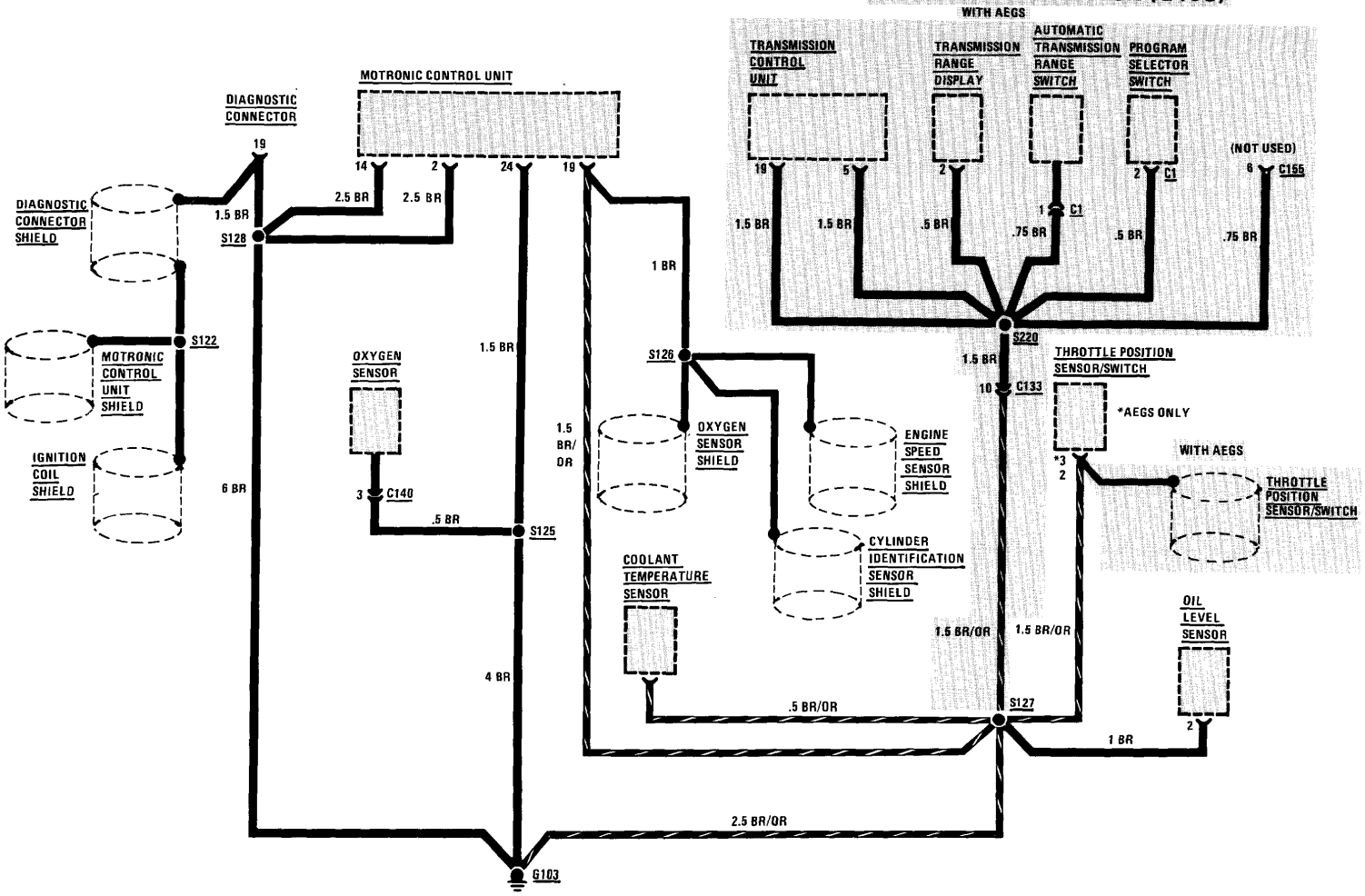
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FUSE DETAILS: FUSE 21

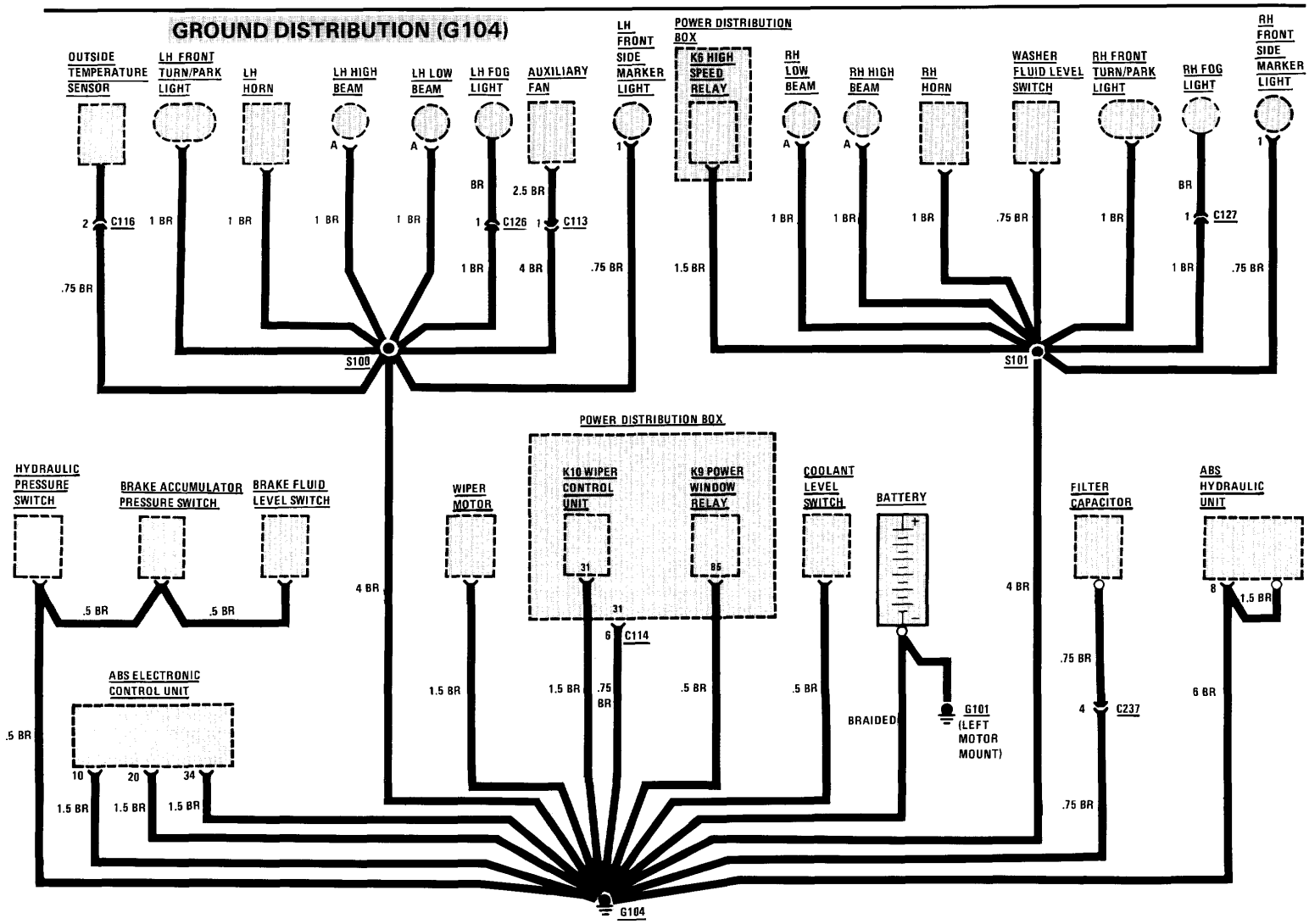


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GROUND DISTRIBUTION (G103)

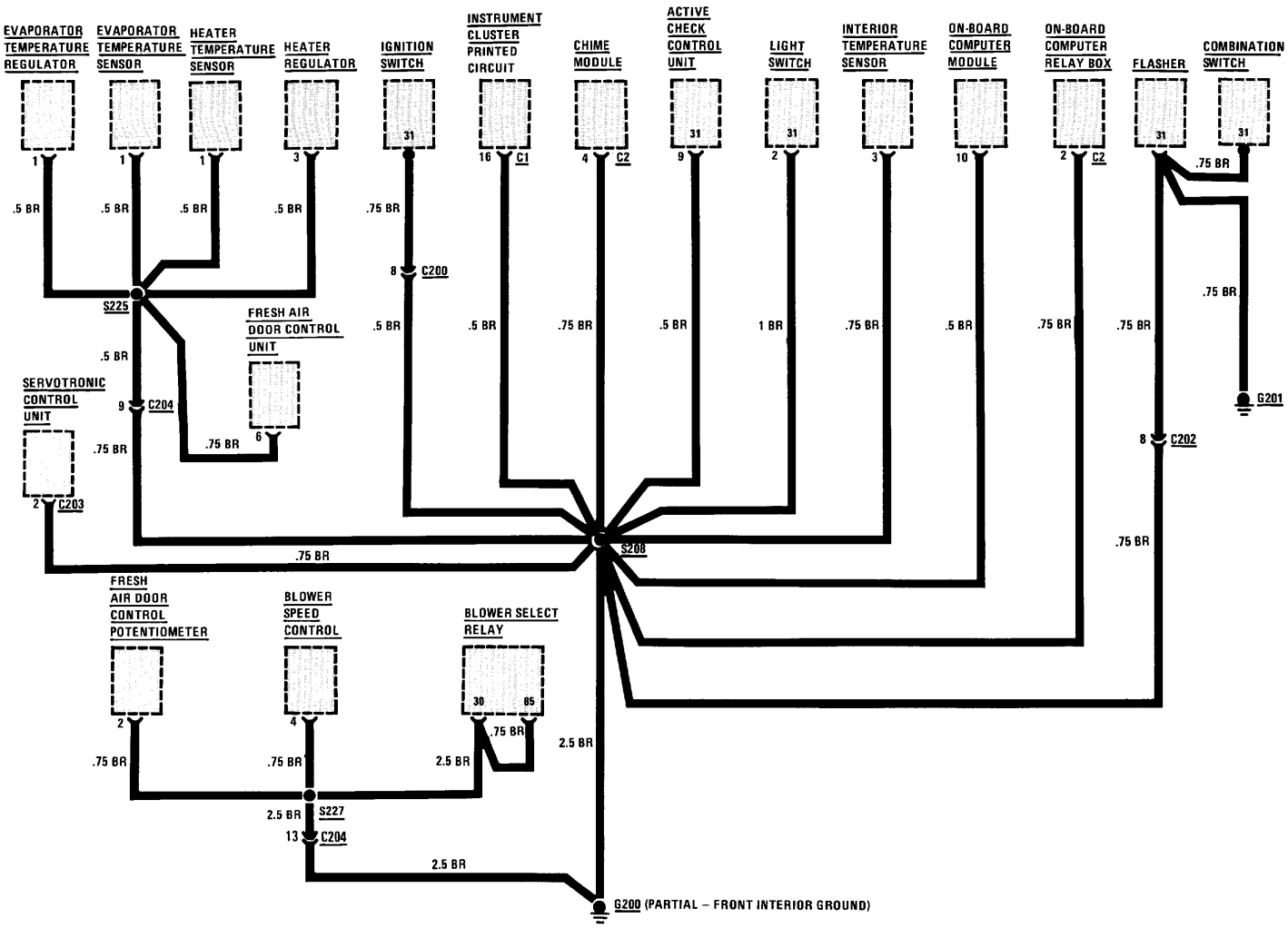


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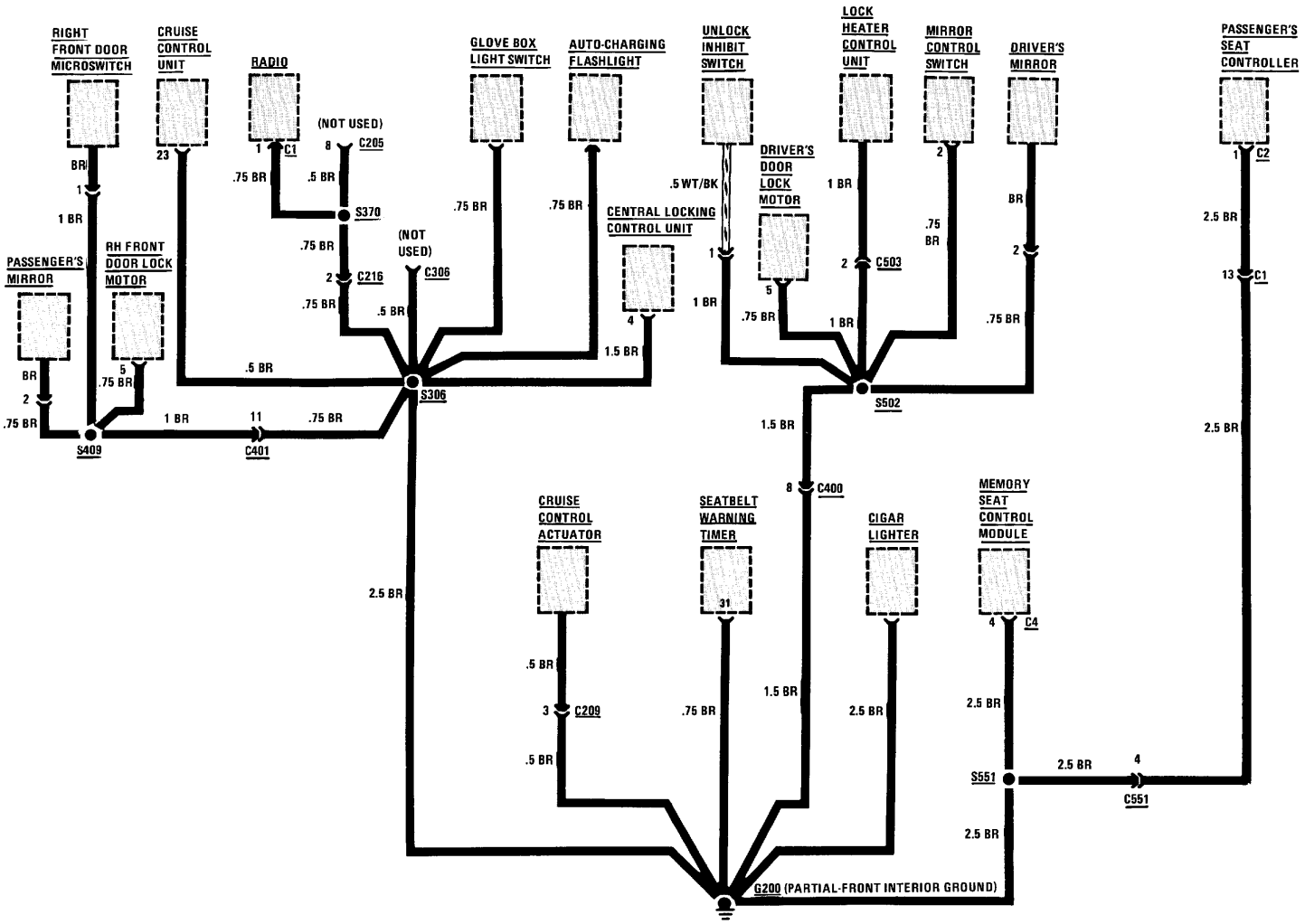
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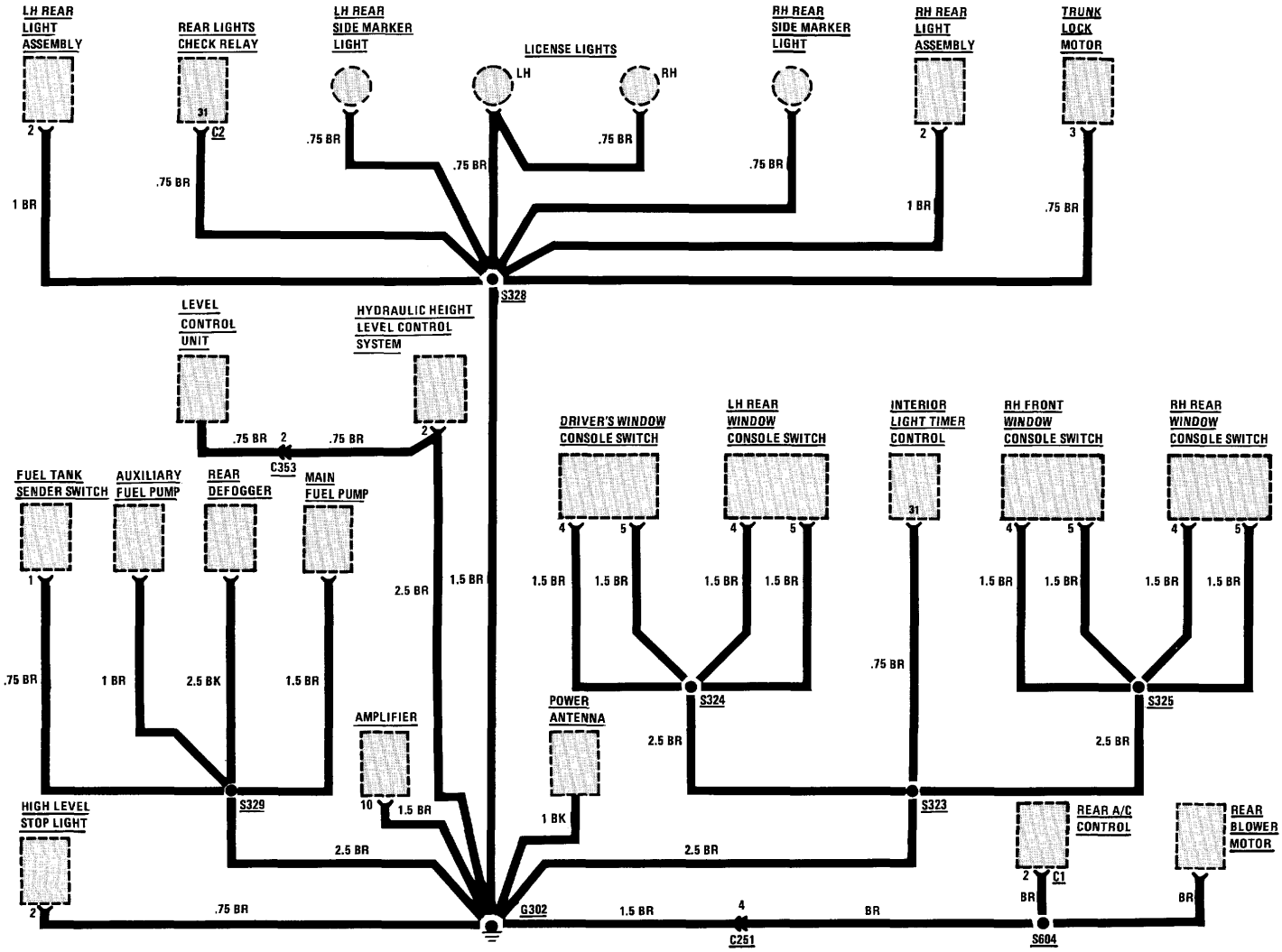
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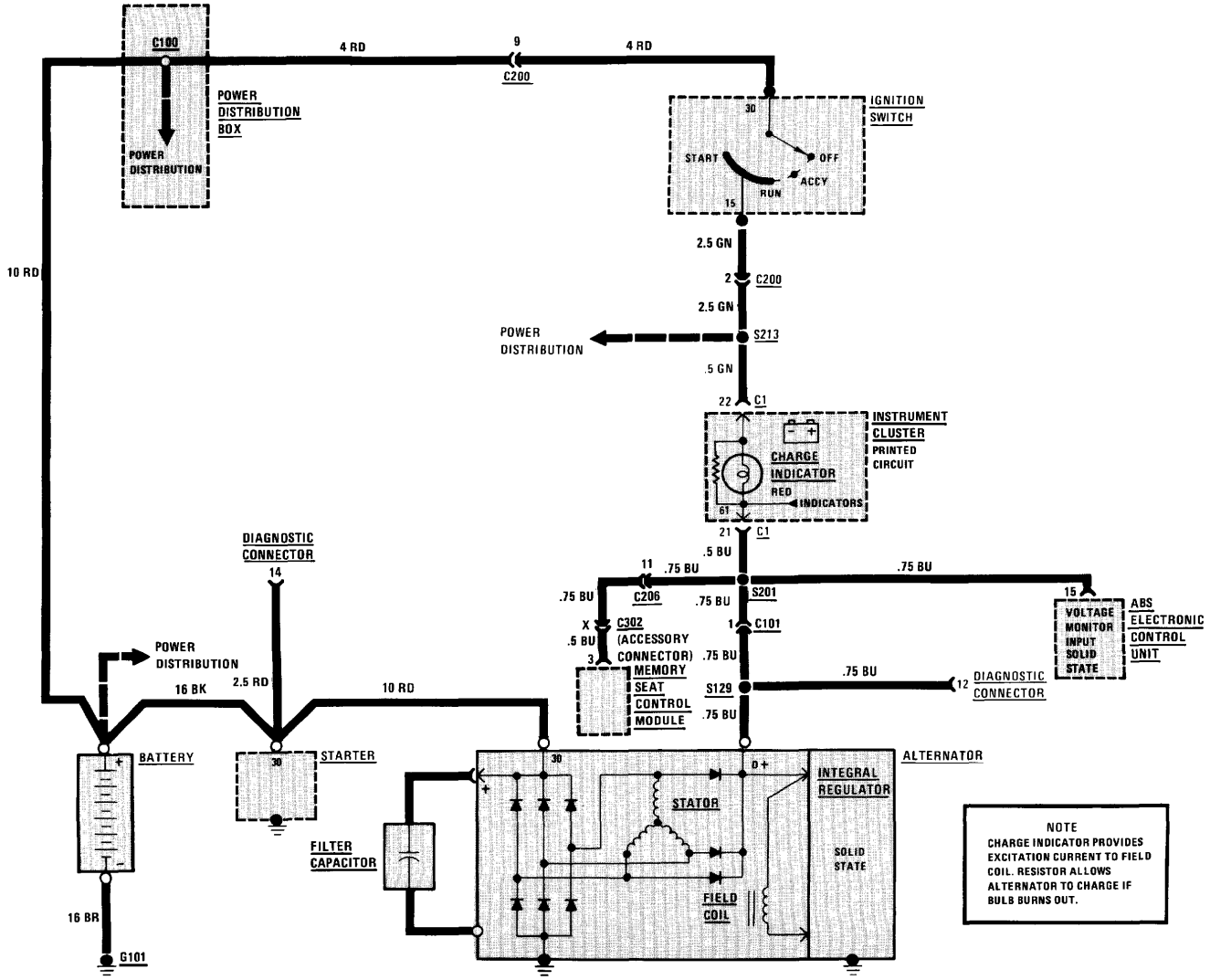
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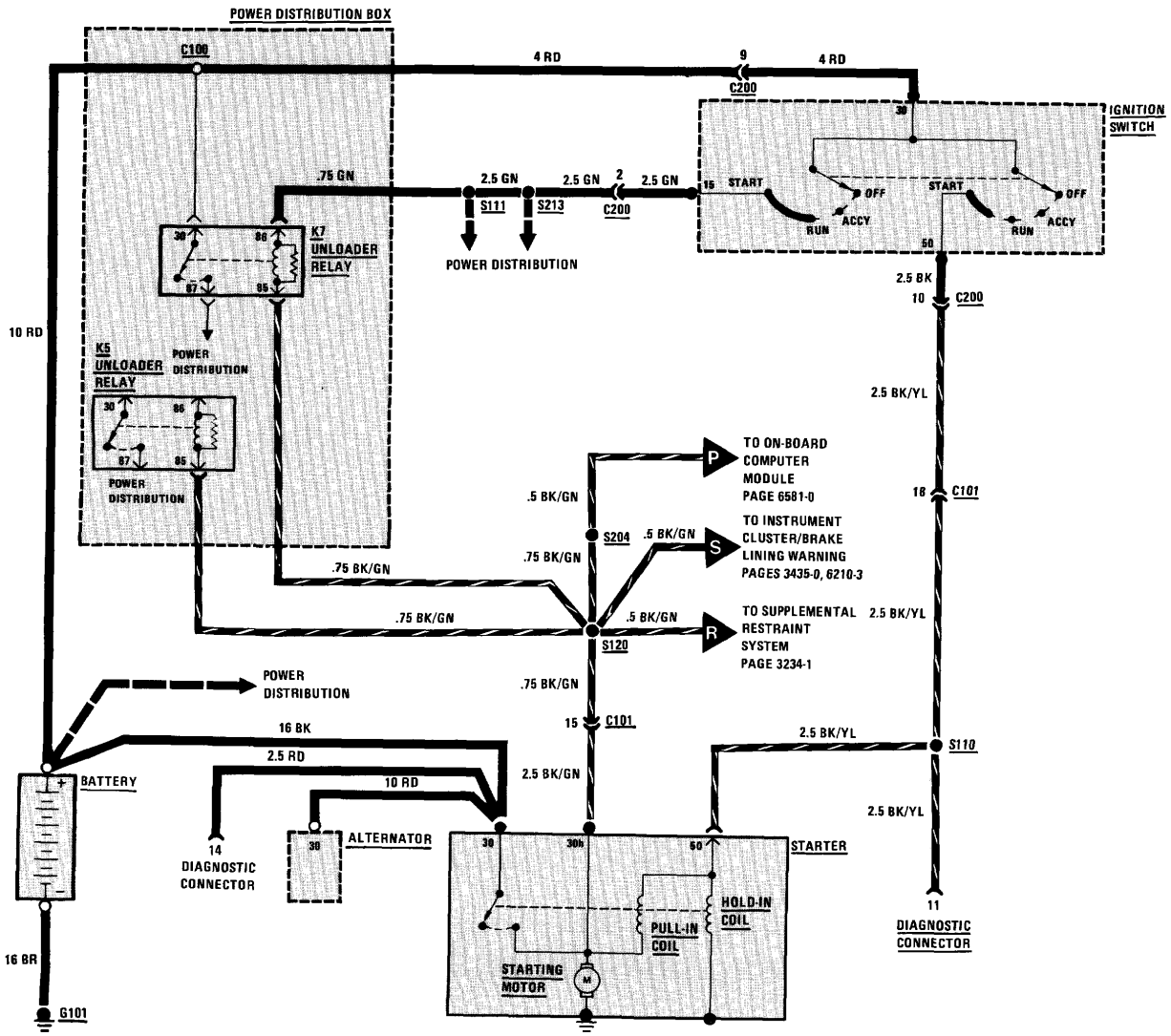
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1230-0 CHARGING SYSTEM



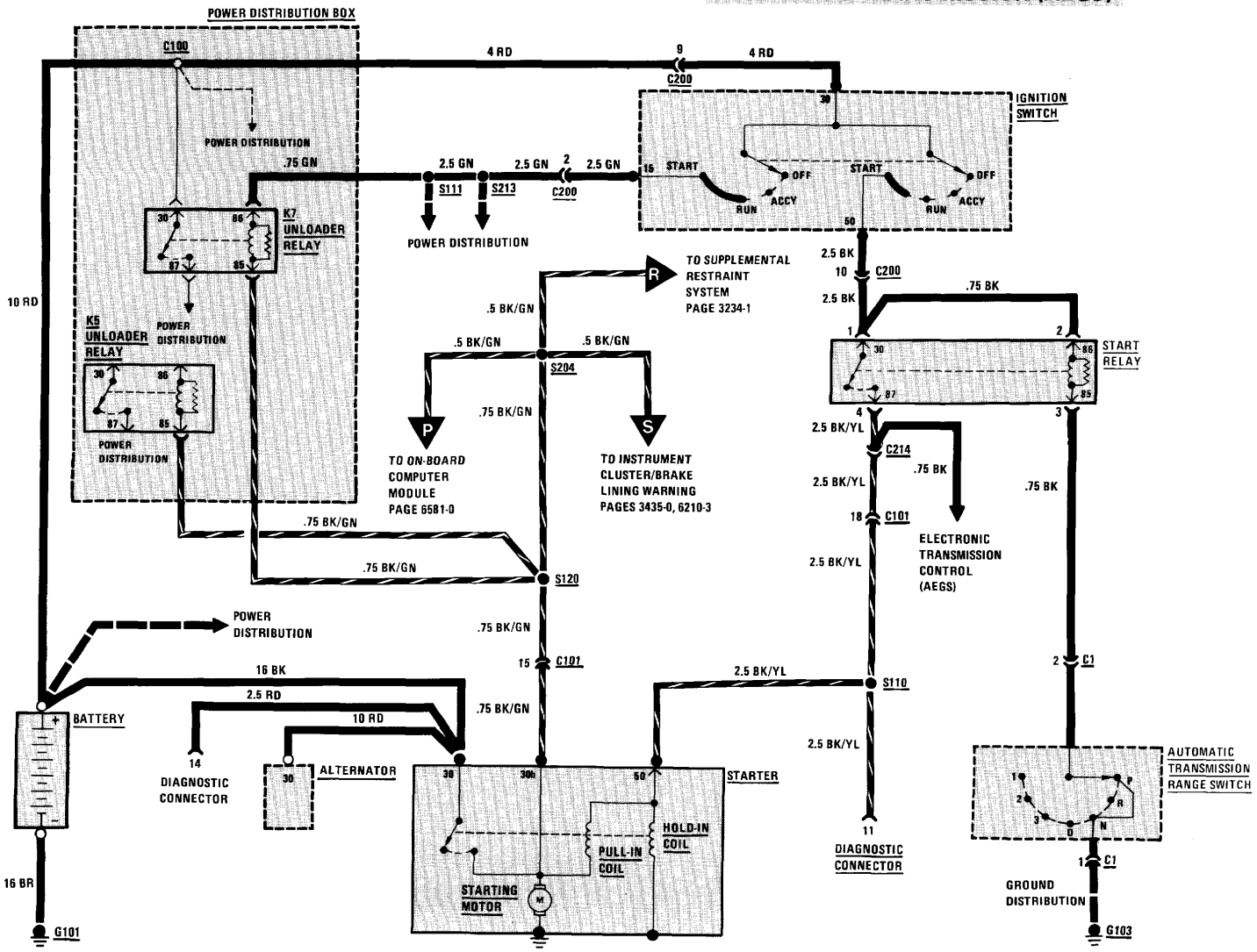
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MANUAL TRANSMISSION



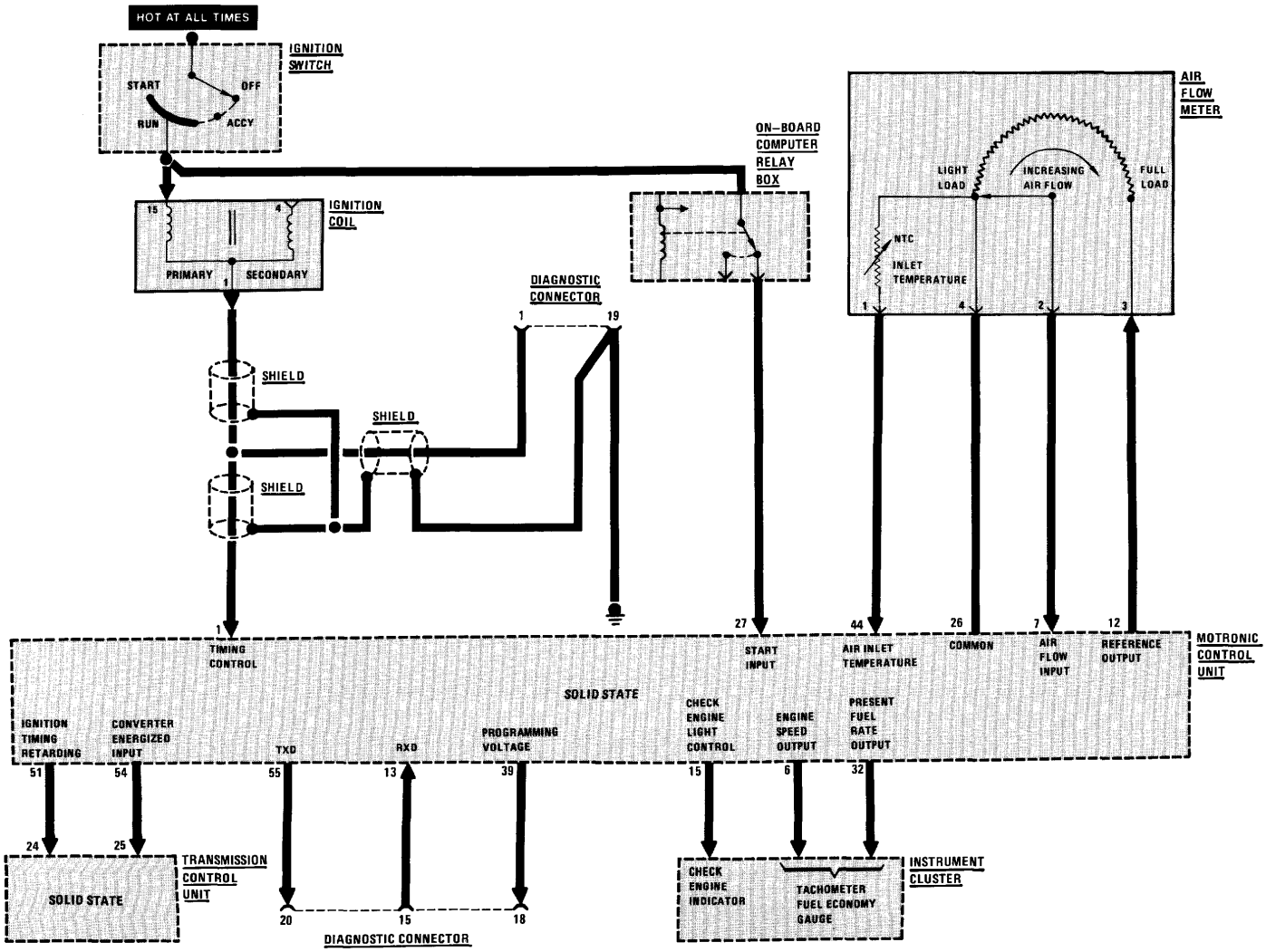
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ELECTRONIC TRANSMISSION (AEGS)



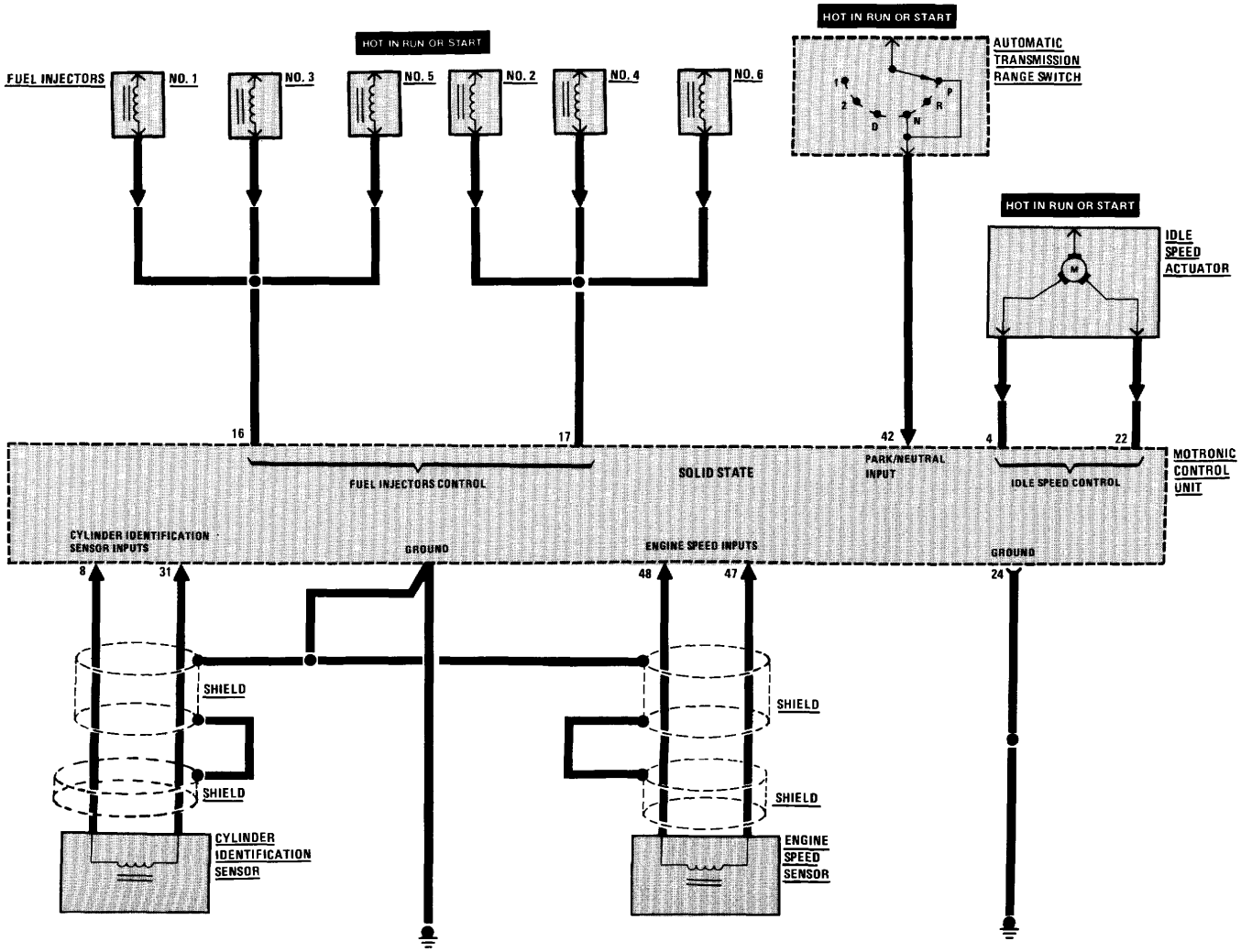
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ENGINE BLOCK DIAGRAM



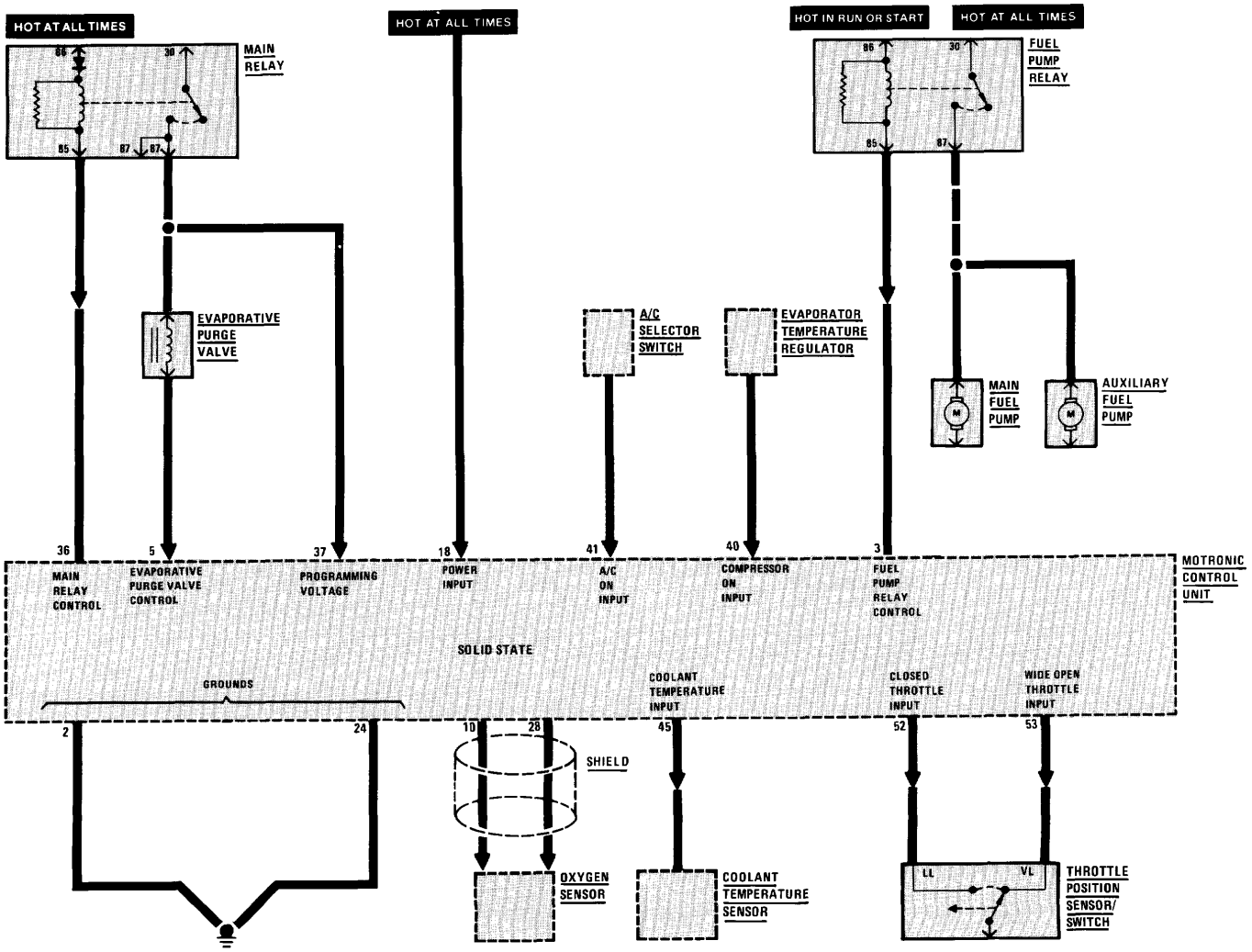
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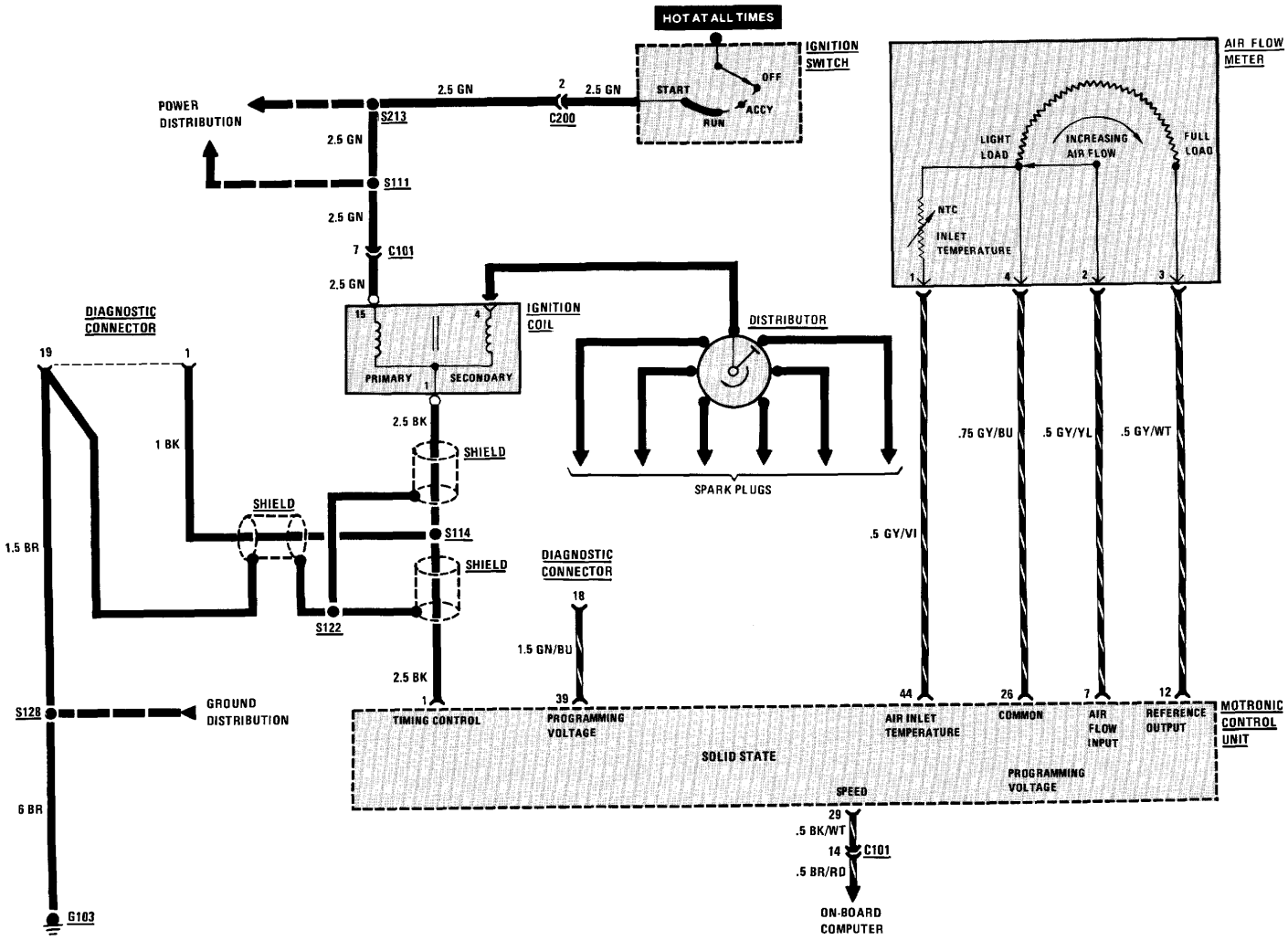


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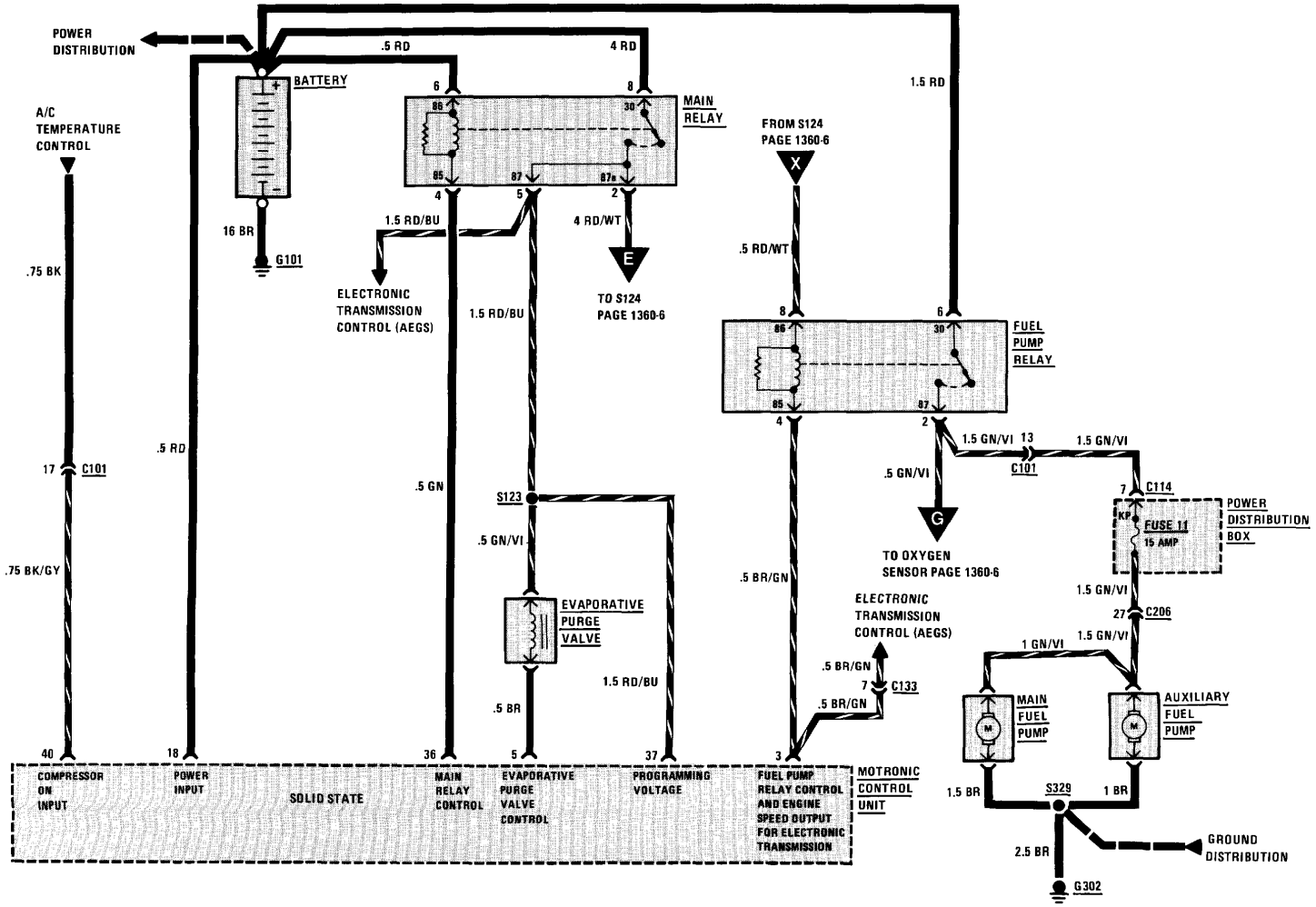


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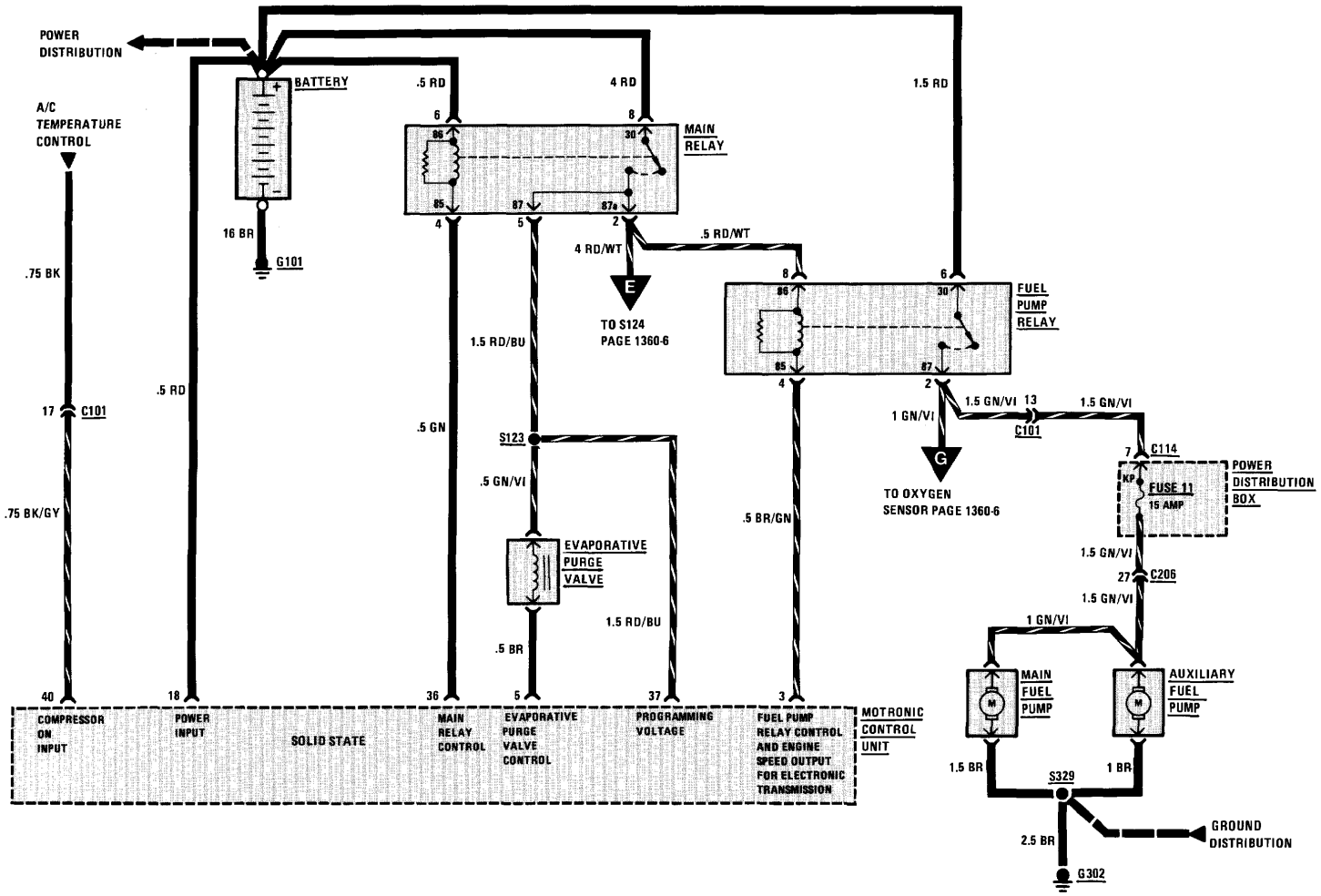
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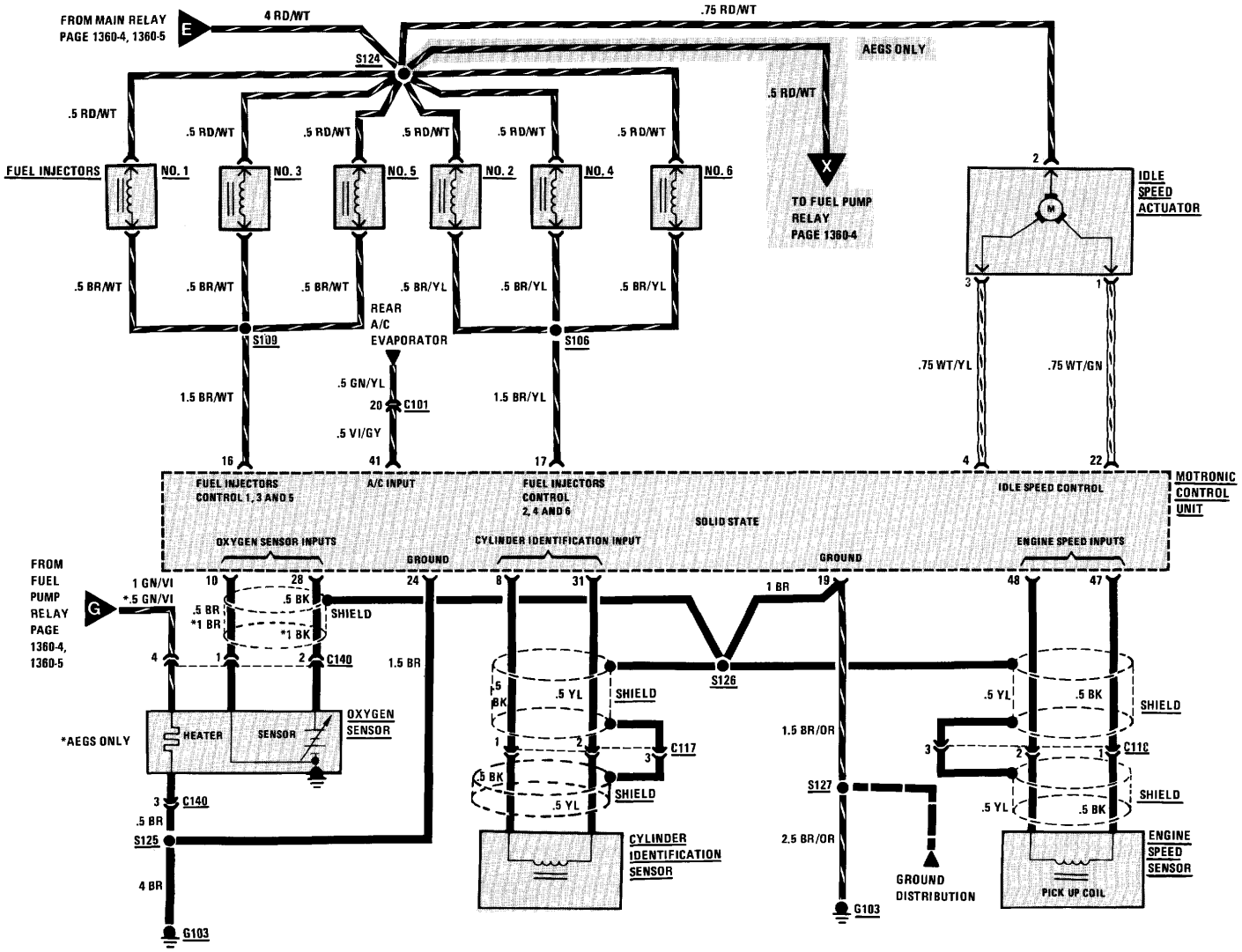


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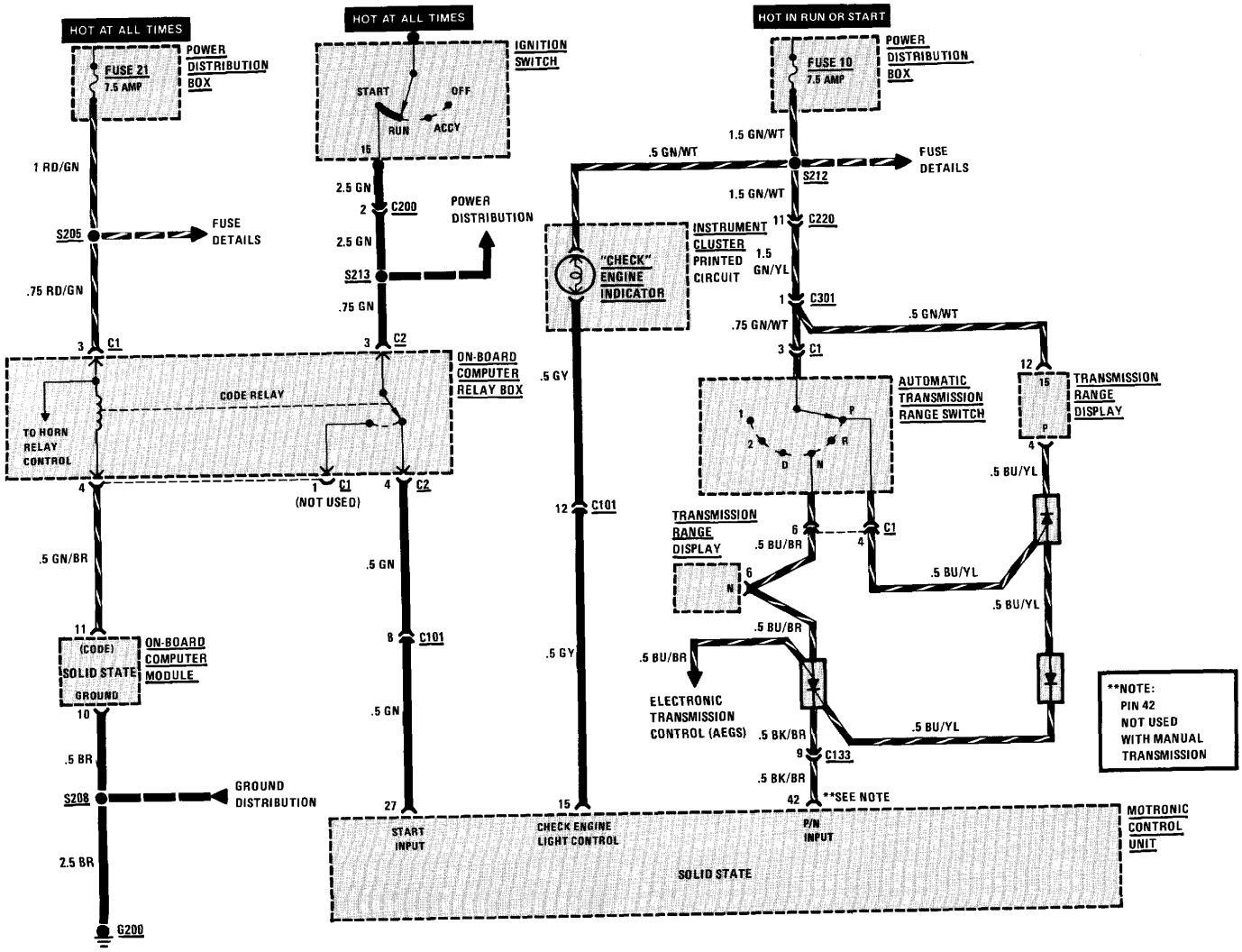
MANUAL TRANSMISSION



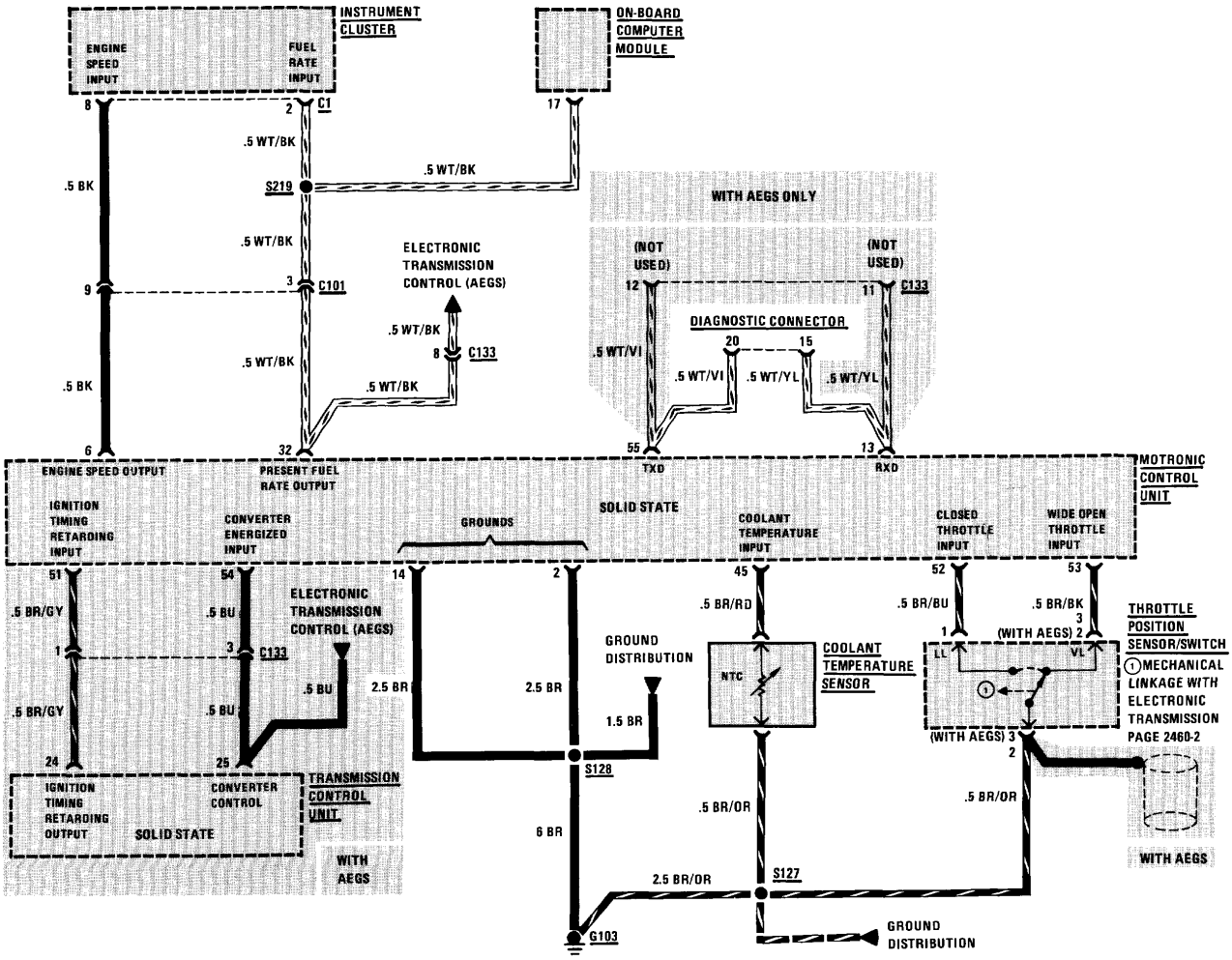
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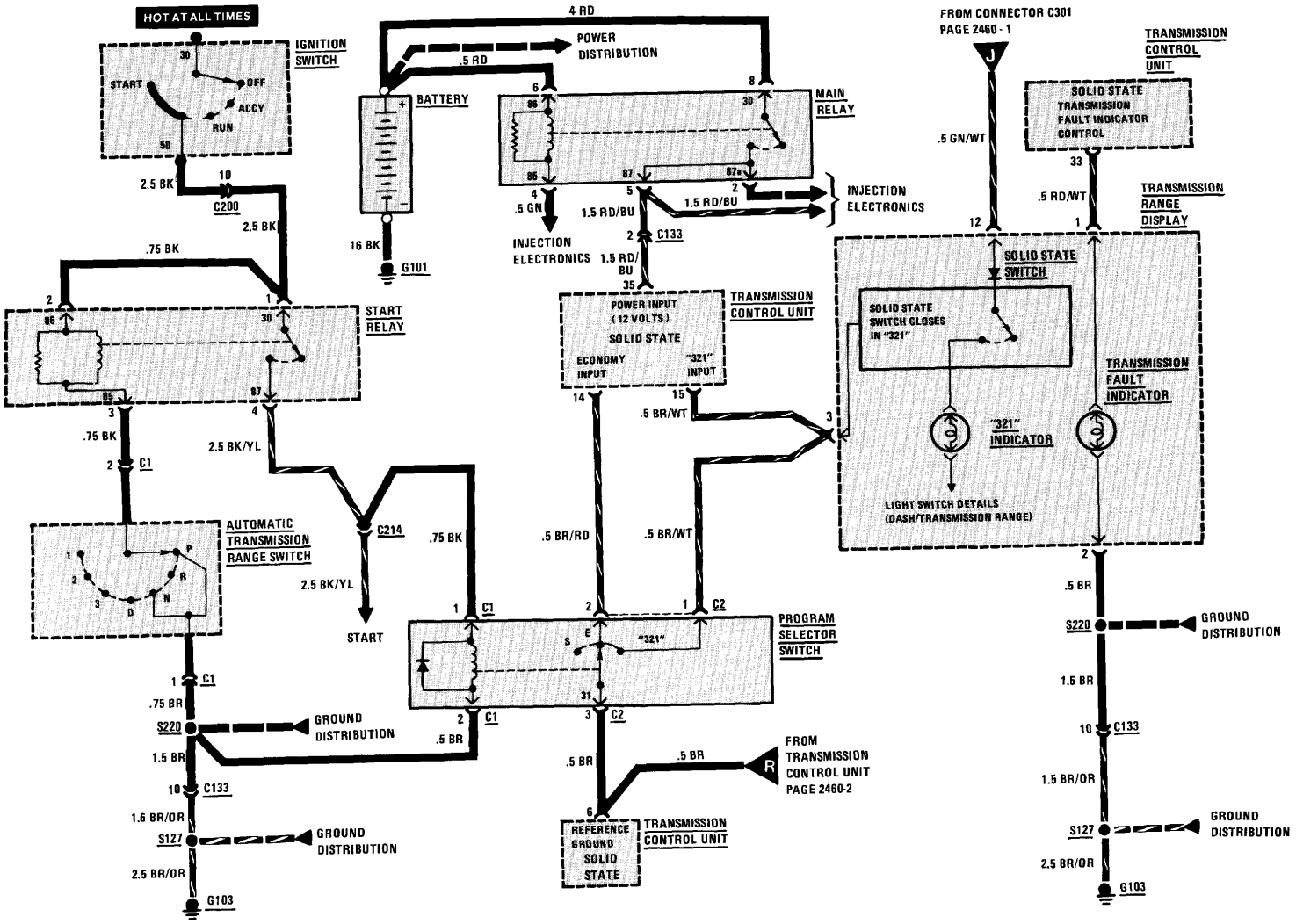


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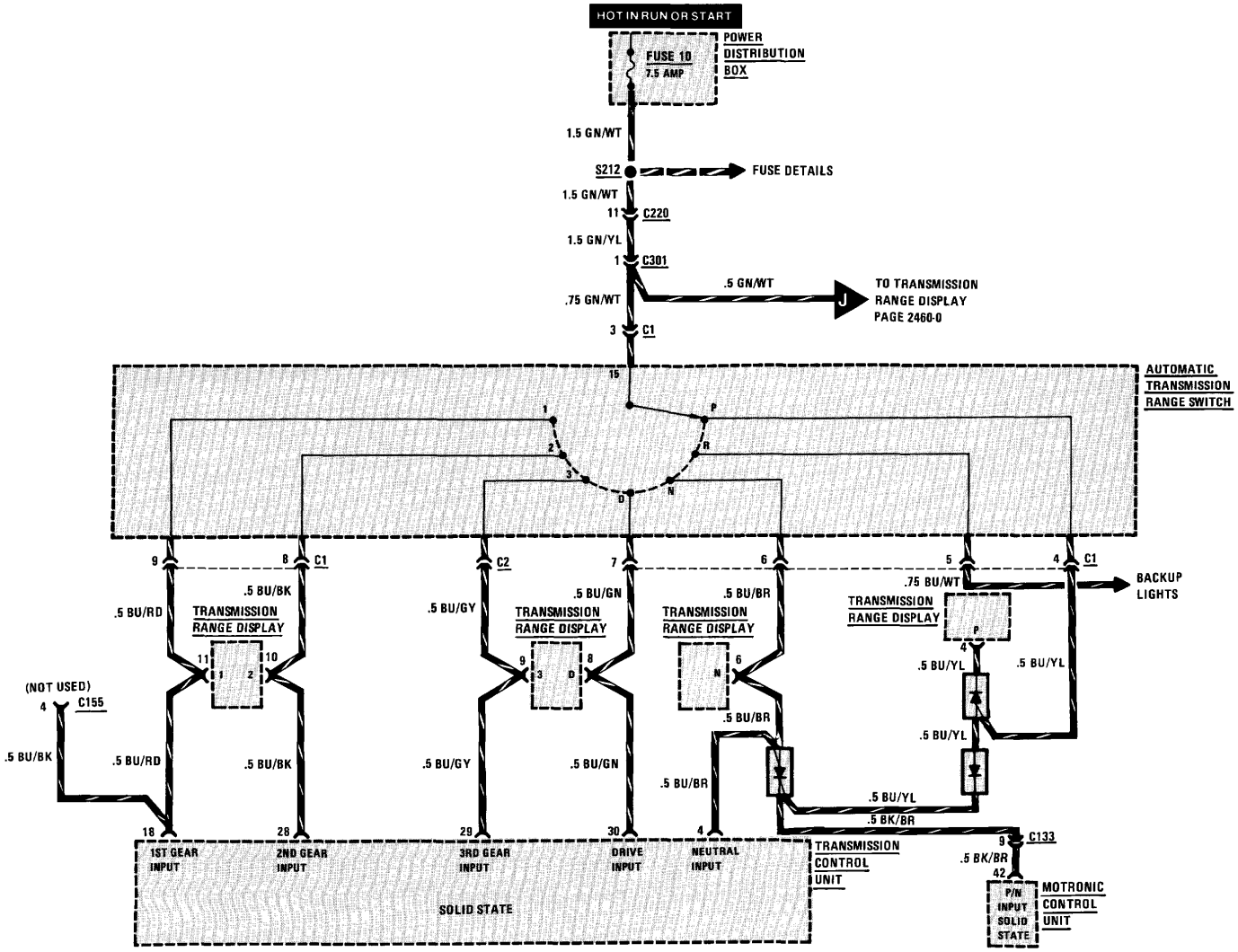


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2460-0 ELECTRONIC TRANSMISSION CONTROL (AEGS)

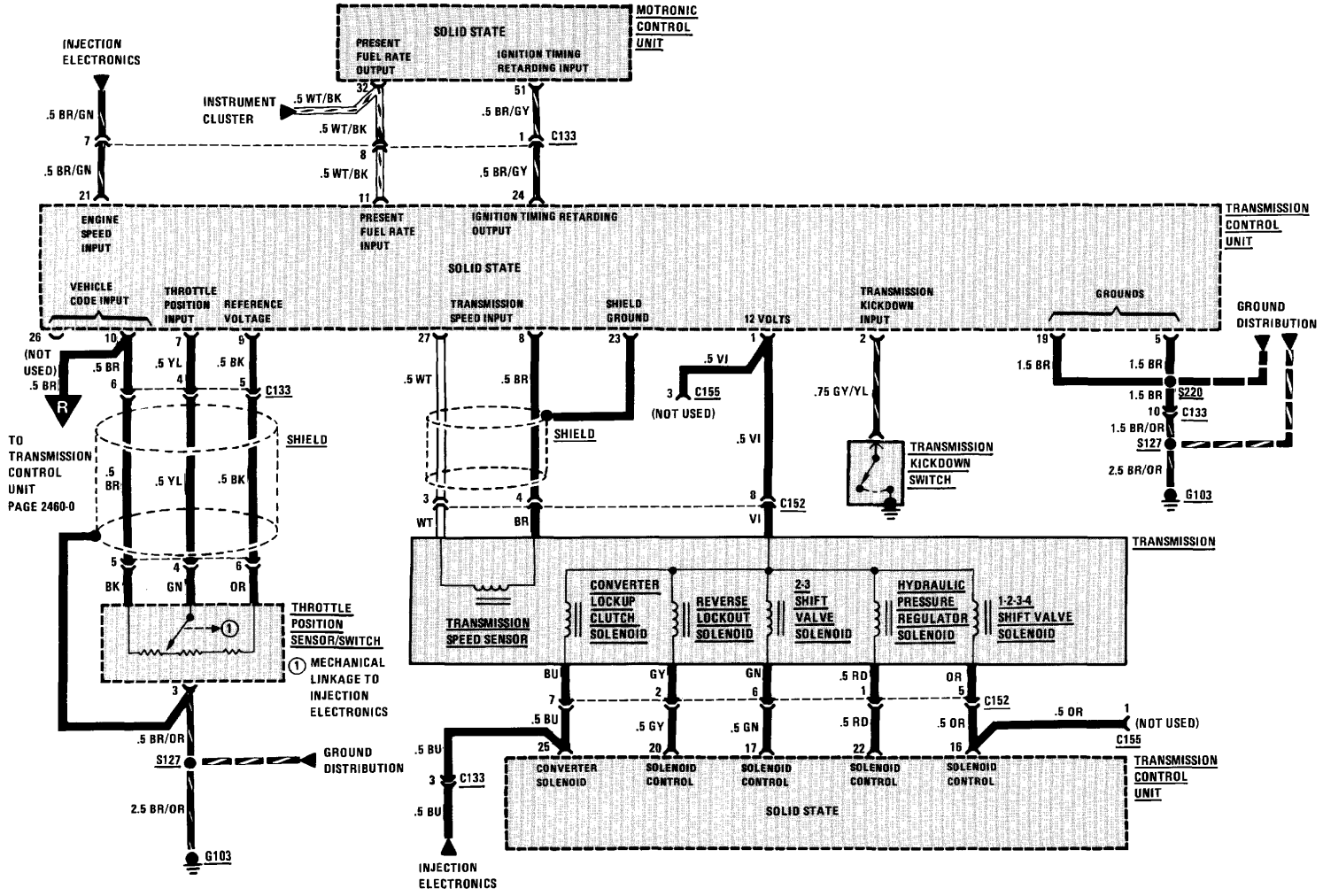


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2460-2 ELECTRONIC TRANSMISSION CONTROL (AEGS)



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TROUBLESHOOTING HINTS

- **Try the following checks before doing the System Check.**
- Check fuses if the Transmission Range Display bulbs do not illuminate.
- CAUTION: Disconnect Control Units only when the Ignition Switch is OFF.
- Use the Universal Adapter and connecting cables while performing individual tests.

	Tool Number
Universal Adapter	81 12 9 425 091
Connector Cable	81 12 9 425 092
35 pin Control Unit Connector Cable	81 12 9 425 093
35 pin Harness	

- **For an explanation of how this system operates, refer to circuit operation found at the end of this cell.**

SYSTEM CHECK

- **Use the System Check Table as a guide to normal operation.**
- **Perform all steps listed in the System Check Table.**

SYSTEM CHECK TABLE

ACTION	NORMAL OPERATION
Turn the Ignition Switch to RUN	The Transmission Fault Indicator flashes twice, then stays on
Set the program Selector Switch to 321	The 321 Indicator lights
Crank the engine	The Program Selector Switch returns to E
Start the engine	The Transmission Fault Indicator goes out with the engine running
Drive the car with the Program Selector Switch in 321	The car operates in selected gear only (first, second, or third gear)
Drive the car with the Program Selector Switch in S	First, second and third gears are kept selected up to full engine speed. Fourth gear (overdrive) is not selected
Drive the car with the Program Selector Switch in E	Transmission shifts at lower engine speeds and a fourth gear (overdrive) is available

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- **If a system did not check out properly, proceed with System Diagnosis.**

SYSTEM DIAGNOSIS

- **Diagnostic steps for the symptoms listed in the following table are listed after the table.**
- **Select the symptom found after performing the System Check.**
- **Perform the tests listed for the symptom found.**

SYMPTOM TABLE

SYMPTOM	DO TEST
Transmission Fault Indicator does not flash when the Ignition Switch is turned to RUN and lights when the engine is running. Transmission shift rough	A: Transmission Control Unit Shift Output Power and Ground Test
Transmission Fault Indicator flashes when the Ignition Switch is turned to RUN and lights with the engine running	C: Engine Speed and Fuel Rate Input Test D: Hydraulic Pressure Regulator and Solenoid Test
Transmission Fault Indicator does not light with the Ignition Switch in RUN and the engine not running	B: Transmission Control Unit Ignition Power Test G: Transmission Fault Indicator Test
Program Selector Switch does not return to E when the engine is cranked	F: Program Selector Switch Return Test

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321 Indicator does not light when the Program Selector Switch is set to 321, but Transmission operates in the 321 mode	H: 321 Indicator Test
Transmission does not operate in selected program and the Transmission Fault Indicator is off with the engine running	I: Program Selector Switch Continuity Test
Kickdown function is inoperative	K: Kickdown Switch Test
Shift Points are inaccurate or rough and the Transmission Fault Indicator is off with the engine running	L: Gear Input Test M: Throttle Position Sensor Test J: Transmission Speed Sensor Test

A: TRANSMISSION CONTROL UNIT SHIFT OUTPUT AND GROUND TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
24 & Ground	Approximately 5 Volts	See 1

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24 & 19	Approximately 5 Volts	See 2
24 & 5	Approximately 5 Volts	See 2

- If all the results are correct, replace the Transmission Control Unit.

1. Go to Test E: Motronic Control Unit Test.
2. Check/repair the ground wire for an open (see schematic).

B: TRANSMISSION CONTROL UNIT IGNITION POWER TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

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

- If the result is correct, go to the Symptom Table.

1. Check/repair the wire from terminal 35 to the Main Relay for an open (see schematic).

C: ENGINE SPEED AND FUEL RATE INPUT TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
11 & Ground	Greater than 10 Volts	See 1
21 & Ground	Greater than 10 Volts	See 2

- If all the results are correct, go to the Symptom Table.

1. Go to Test E: Motronic Control Unit Test if the Fuel Rate Gauge does not operate.
   - Check/repair the wire to terminal 11 if the Fuel Rate Gauge operates.
2. Go to Test E: Motronic Control Unit Test if the Tachometer does not operate.
   - Check/repair the wire to terminal 21 if the Tachometer operates.

D: HYDRAULIC PRESSURE REGULATOR AND SOLENOID TEST

Measure: RESISTANCE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Disconnected)

Measure Between	Correct Resistance	For Diagnosis
1 & Ground	Greater than 500 K Ohms	See 1
1 & 25	25 to 46 Ohms	See 2

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1 & 20	25 to 46 Ohms	See 2
1 & 17	25 to 46 Ohms	See 2
1 & 16	25 to 46 Ohms	See 2
1 & 22	1.8 to 4.6 Ohms	See 3

- If all the results are correct, replace the Transmission Control Unit.

1. Check the wiring from terminals 1, 16, 17, 20, 22, and 25 for shorts to ground (see schematic). Check the Pressure Regulator and Solenoids for a short to ground if wiring is OK. Repair/replace as necessary.
2. Check/repair wire (see schematic) and connector terminal. Replace the Solenoid Valve (see schematic) if wire and connector terminal are OK.
3. Check/repair wire (see schematic) and connector terminal. Replace the Hydraulic Pressure Regulator Solenoid if wire and connector terminal are OK.

E: MOTRONIC CONTROL UNIT TEST

Measure: VOLTAGE
At: MOTRONIC CONTROL UNIT CONNECTOR (Connected — Use Universal Adapter)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
10 & Ground	Approximately 5 Volts	See 1
11 & Ground	Greater than 10 Volts	See 1

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21 & Ground	Greater than 10 Volts	See 1

- If all the results are correct, check/repair the wire(s) to the Transmission Control Unit for an open(s).

1. Check the wire to the Transmission Control Unit for a short to ground (see schematic). Check/replace the Motronic Control Unit if wire is OK.

F: PROGRAM SELECTOR SWITCH RETURN TEST

Measure: VOLTAGE
At: PROGRAM SELECTOR SWITCH CONNECTOR C1 (Connected)
Condition:
- **Ignition Switch: START**

Measure Between	Correct Voltage	For Diagnosis
1 & Ground	Greater than 8 Volts	See 1
1 & 2	Greater than 8 Volts	See 2

- If all the results are correct, replace the Program Selector Switch.

1. Check/repair the wire to terminal 1 for an open (see schematic).
2. Check/repair the wire from terminal 2 for an open (see schematic).

G: TRANSMISSION FAULT INDICATOR TEST (TABLE 1)

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
33 & Ground	Greater than 10 Volts	See 1

- If the voltage is correct, go to Table 2.

1. Replace the Transmission Control Unit.

G: TRANSMISSION FAULT INDICATOR TEST (TABLE 2)

Measure: VOLTAGE
At: TRANSMISSION RANGE DISPLAY CONNECTOR (Disconnected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
1 & Ground	Greater than 10 Volts	See 1
1 & 2	Greater than 10 Volts	See 2

- If all the voltages are correct, check the bulb and printed circuit board. Replace as necessary.

1. Check/repair the wire to terminal 1 for an open (see schematic).
2. Check/repair the wire from terminal 2 for an open (see schematic).

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H: 321 INDICATOR TEST

Measure: VOLTAGE
At: TRANSMISSION RANGE DISPLAY CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Program Selector Switch: 321**

Measure Between	Correct Voltage	For Diagnosis
3 & Ground	0 Volts	See 1
12 & Ground	Greater than 10 Volts	See 2

- If all the results are correct, check the associated wire, bulb, printed circuit board, and connector terminals. Repair/replace as necessary.

1. Check/repair the wire to terminal 3 and the connector terminal (see schematic).
2. Check/repair the wire to terminal 12 for an open (see schematic).

I: PROGRAM SELECTOR SWITCH CONTINUITY TEST

Measure: RESISTANCE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Disconnected)
Conditions:
- **Transmission Range Display Connector: DISCONNECTED**
- **Program Selector Switch: E**

Measure Between	Correct Resistance	For Diagnosis
14 & 6	Less than 1 Ohm	See 1
• Set Program Selector Switch to 321.		

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15 & 6	Less than 1 Ohm	See 1
• Set Program Selector Switch to S.		
14 & 6	Infinite Ohms	See 2
15 & 6	Infinite Ohms	See 2

- If all the results are correct, replace the Transmission Control Unit.

1. Check the wires and connector terminal (see schematic). Replace the Program Selector Switch if wires are OK.
2. Replace the Program Selector Switch.

J: TRANSMISSION SPEED SENSOR TEST (TABLE 1)

Measure: RESISTANCE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Disconnected)

Measure Between	Correct Resistance	For Diagnosis
8 & Ground	Greater than 500 K Ohms	See 1
8 & 27	800 Ohms to 1.6 K Ohms	See 2

- If all the results are correct, go to Table 2.

1. Check/repair the wires from terminals 8 and 27 for short to ground (see schematic). Replace the Transmission Speed Sensor if wires are OK.
2. Check/repair the wires from terminals 8 and 27 for opens (see schematic). Replace the Transmission Speed Sensor if wires are OK.

J: TRANSMISSION SPEED SENSOR TEST (TABLE 2)

Measure: AC VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Disconnected)
Conditions:
- **Lift car (rear wheels must turn freely)**
- **Engine running**
- **Gear Selector: D**
- **Speedometer: 30 km/h (20 mph)**

Measure Between	Correct Voltage	For Diagnosis
8 & 27	Greater than 3.5 Volts AC	See 1

- If the result is correct, replace the Transmission Control Unit.

1. Replace the Transmission Speed Sensor.

K: KICKDOWN SWITCH TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
2 & Ground	Approximately 5 Volts	See 1
• Depress accelerator pedal to Kickdown.		
2 & Ground	0 Volts	See 2

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- If all the results are correct, check the BMW Workshop Manual to verify that the problem is not in the Transmission. Replace the Transmission Control Unit if the problem is not in the Transmission.

1. Check the wire from terminal 2 and Kickdown Switch for a short to ground (see schematic). Replace the Transmission Control Unit if wire and Kickdown Switch are OK.
2. Check the wire from terminal 2 for an open (see schematic). Replace the Kickdown Switch if wire is OK.

L: GEAR INPUT TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Conditions:
- **Ignition Switch: RUN**
- **Gear Selector: N (Neutral)**

4 & Ground	Battery	See 1
• Put the Gear Selector in all positions except N (Neutral).		
4 & Ground	Less than 1 Volt	See 2
• Put the Gear Selector in D (Drive).		
30 & Ground	Battery	See 1
• Put the Gear Selector in all positions except D (Drive).		
30 & Ground	Less than 1 Volt	See 2
• Put the Gear Selector in 3 (third gear).		

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29 & Ground	Less than 1 Volt	See 2
• Put the Gear Selector in 2 (second gear).		
28 & Ground	Battery	See 1
• Put the Gear Selector in 1 (first gear).		
18 & Ground	Battery	See 1
• Put the Gear Selector in all positions except 1 (first gear).		
18 & Ground	Less than 1 Volt	See 2

- If all the results are correct, go to the Symptom Table.

1. If the associated bulb in the Transmission Range Display lights, check/repair the wire to the Transmission Range Switch for an open (see schematic).
- If the associated bulb in the Transmission Range Display does not light, check/repair wire from the Automatic Transmission Range Switch, and the Automatic Transmission Range Switch (see schematic).

2. Check/repair the wire for a short to voltage. Also check/repair the Automatic Transmission Range Switch (see schematic).

M: THROTTLE POSITION SENSOR TEST

Measure: VOLTAGE
At: TRANSMISSION CONTROL UNIT CONNECTOR (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
9 & Ground	Approximately 5 Volts	See 1
9 & 6	Approximately 5 Volts	See 1
• Operate Throttle through its full range.		
7 & 6	7 Volts (Throttle closed) increasing evenly to 4.77 Volts (Throttle fully opened)	See 2

- If all the results are correct, go to the Symptom Table.

1. Replace the Transmission Control Unit.
2. Check/repair the wiring to the Throttle Position Sensor. Adjust the Throttle Position Sensor if wiring is OK. Replace the Throttle Position Sensor if adjustment does not correct the problem.

Note: The highest voltage at full open position should be .22 volts less than the stabilized voltage. Adjust Throttle Position Sensor accordingly.

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CIRCUIT OPERATION

By operating the Program Selector Switch, the driver can select 3 different transmission modes. When the Program Selector Switch is set to E (Economy), the Economy Input (terminal 14) in the Transmission Control Unit is grounded through terminal 6. The Economy Mode is designed for smooth, refined shift points and low fuel consumption. A fourth gear, or overdrive ratio, is available in the Economy Mode to reduce engine speed and noise level. When the Program Selector Switch is set to 321, the 321 Indicator lights. The Transmission does not shift up or down and will operate in the selected gear only. When the Program Selector Switch is set to S, voltage is present at the Economy and 321 Inputs in the Transmission Control Unit. Fourth gear is not selected and first, second, and third gears are kept selected up to full engine speed. The Program Selector Switch is designed to return to E when the engine is cranked. When the engine is cranked, voltage is applied to the coil in the Program Selector Switch through the Ignition Switch and the Start Relay. The coil energizes and the Program Selector returns to E.

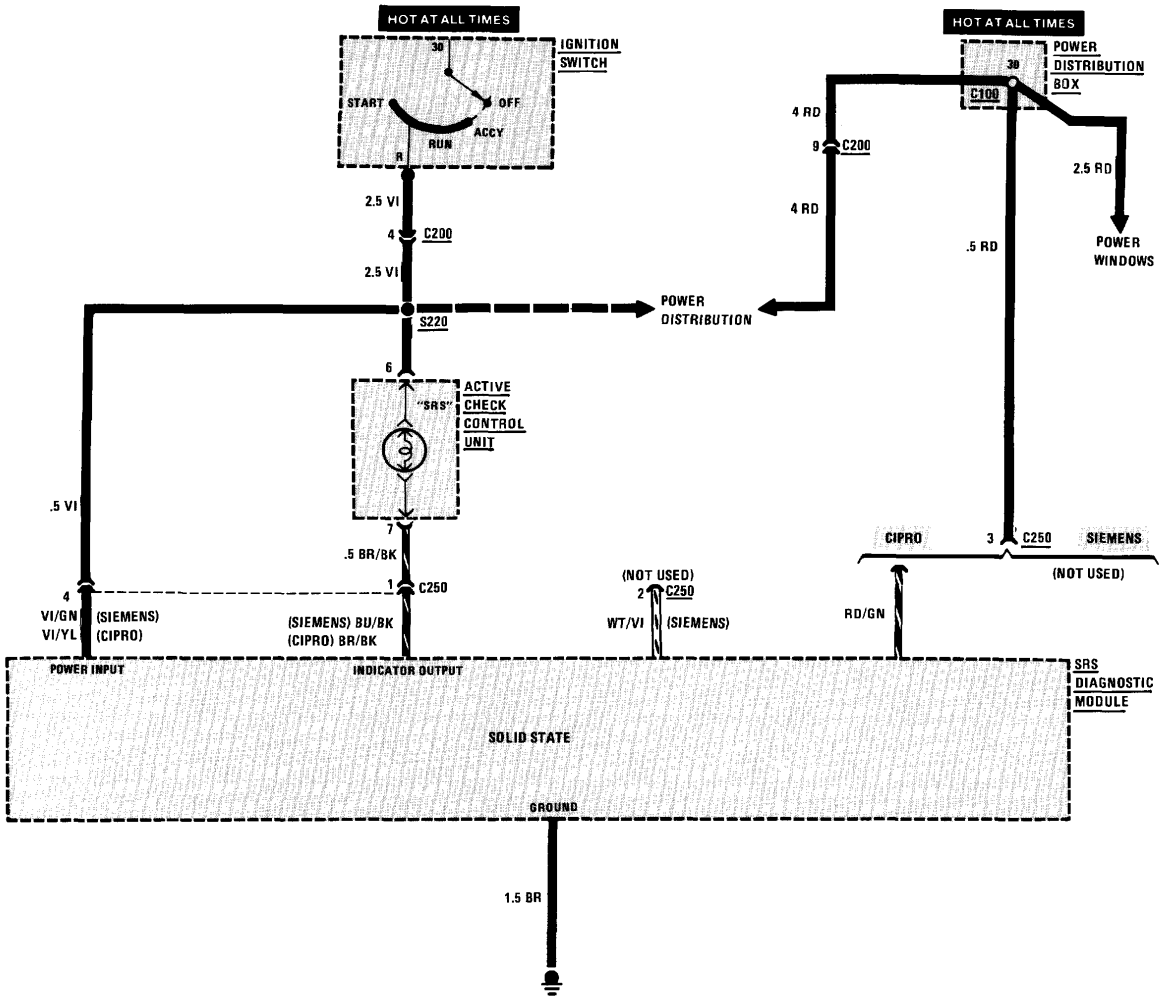
The Transmission Control Unit monitors engine speed (terminal 21), fuel rate (terminal 11), Throttle position (terminal 7), road speed (terminals 8 and 27), Kickdown signal (terminal 2), Gear Selector position (terminals 4, 30, 29, 28 and 18) and Program Selector Switch position (terminals 14 and 15). The Transmission Control Unit's electronic processing circuit compares this information with the program data to establish the correct gear and smooth shift points by controlling the Shift Valve Solenoids and the Hydraulic Pressure Regulator.

The Transmission Fault Indicator will light with the engine running if a problem with the control system occurs. When a fault is detected, the vehicle can only be driven in third and reverse gears. Neutral and Park also retain their functions. Voltage to the transmisssion (terminal 1) is not present when a fault is detected.

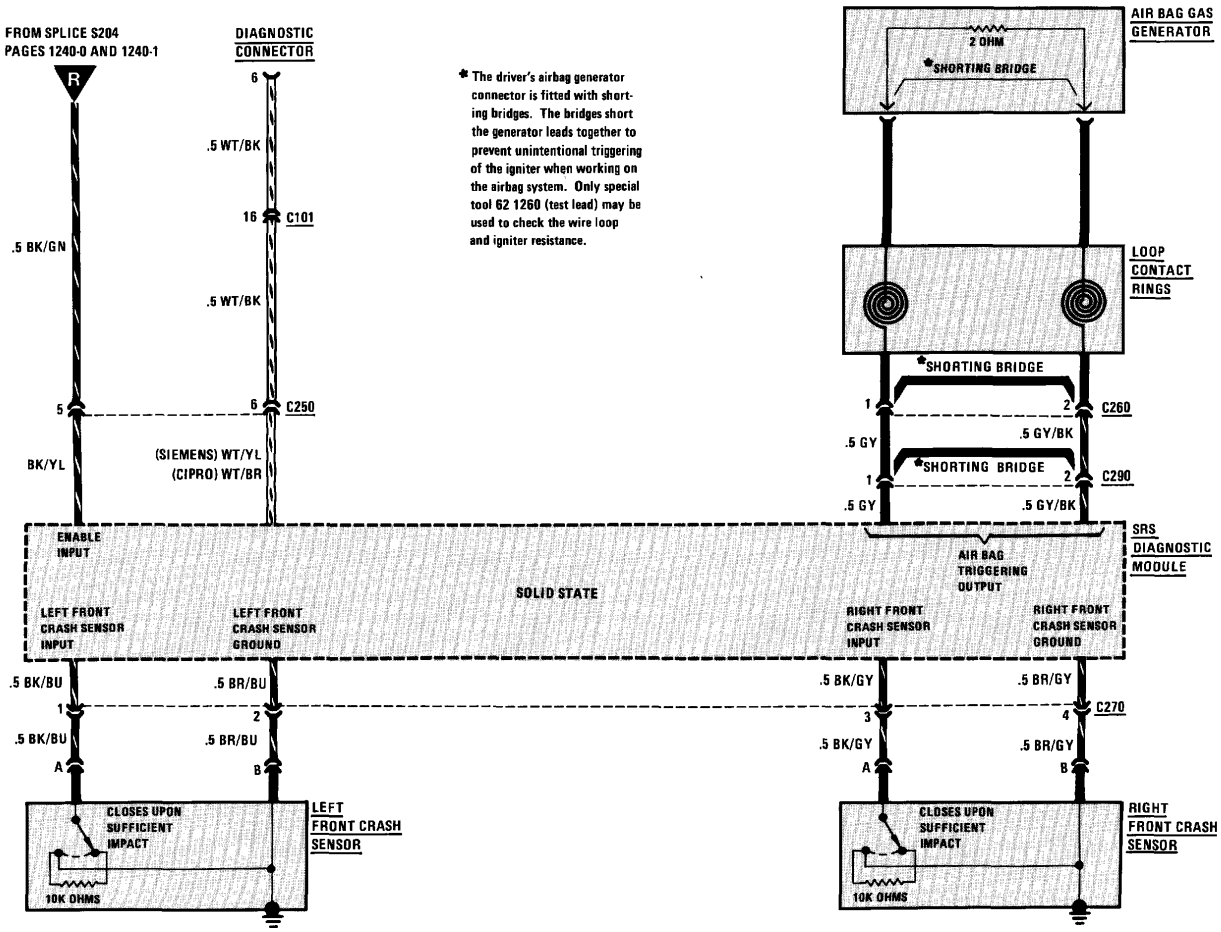
The Reverse Lock Solenoid prevents the driver from selecting reverse above 5 mph.

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3234-0 SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

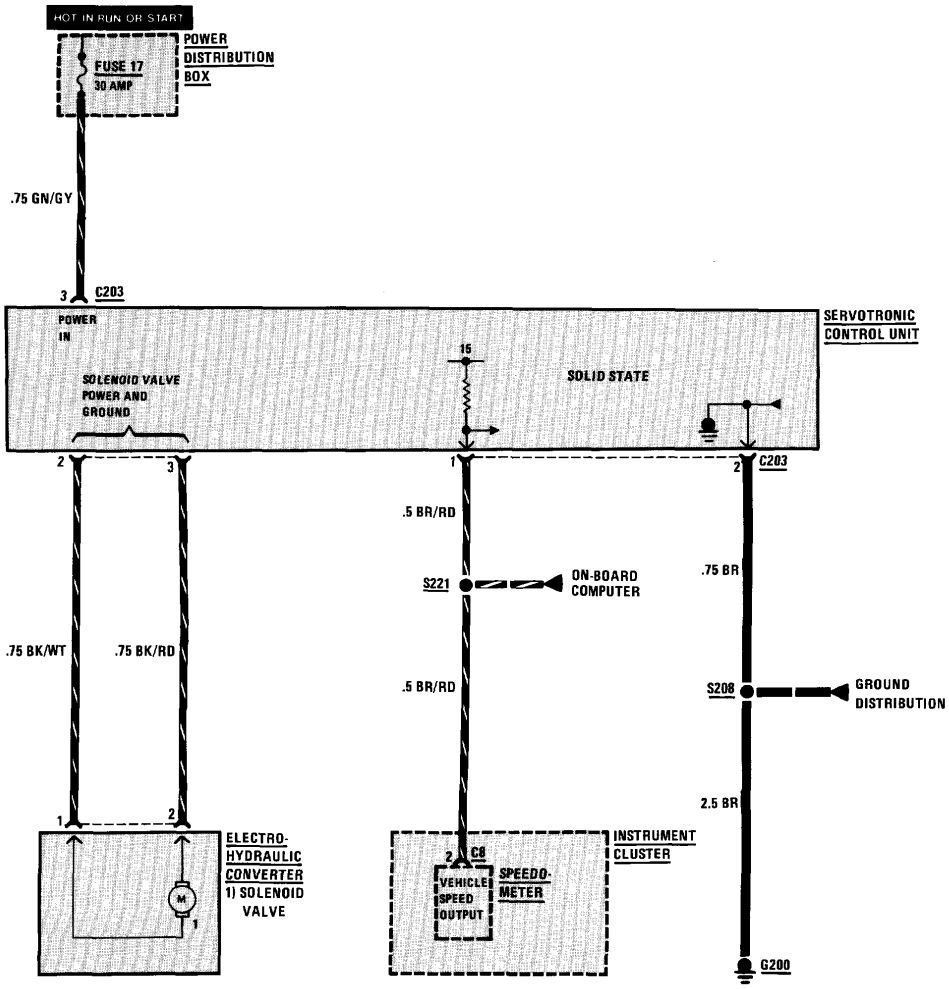


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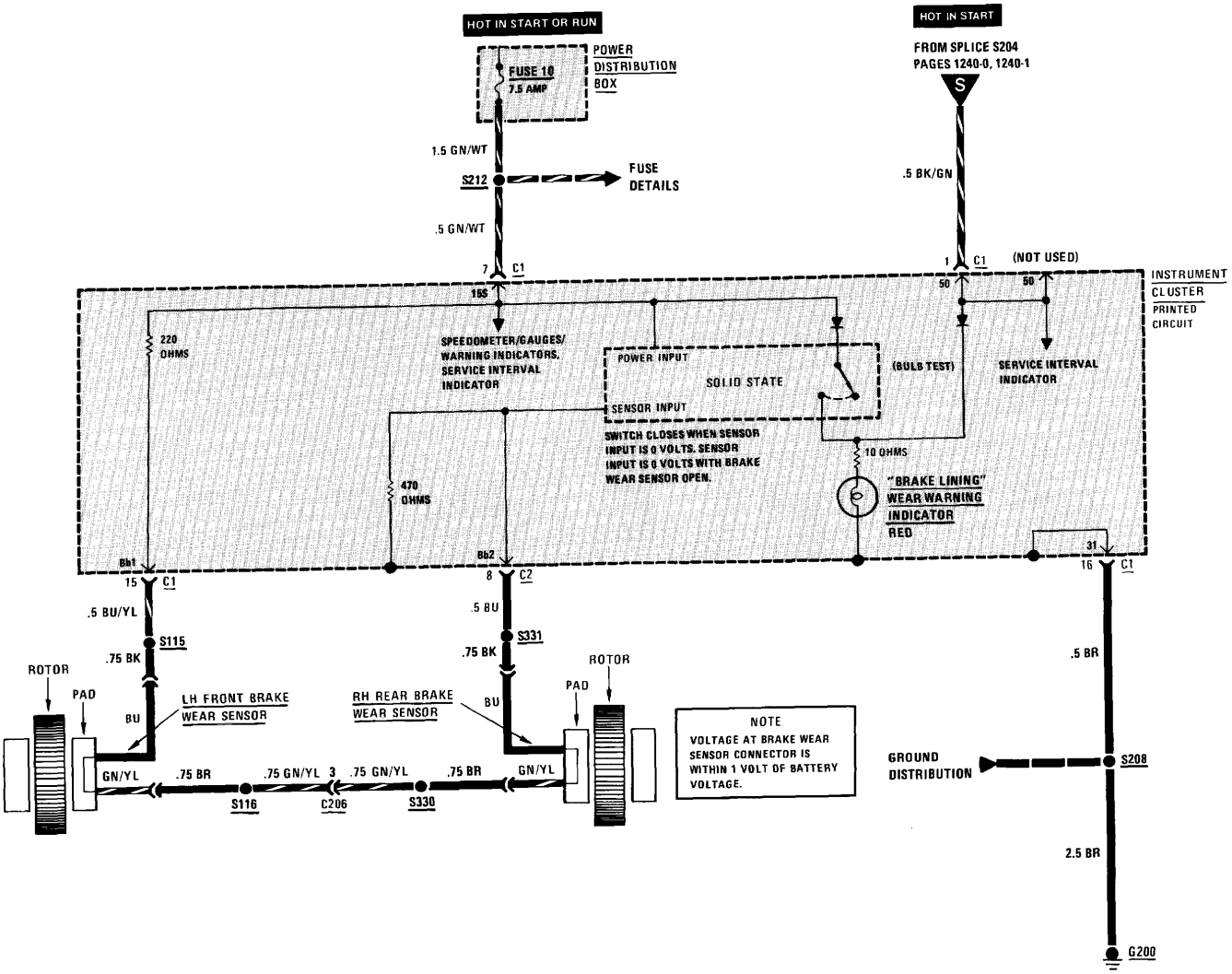
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3240-0 POWER ASSIST STEERING (SERVOTRONIC)



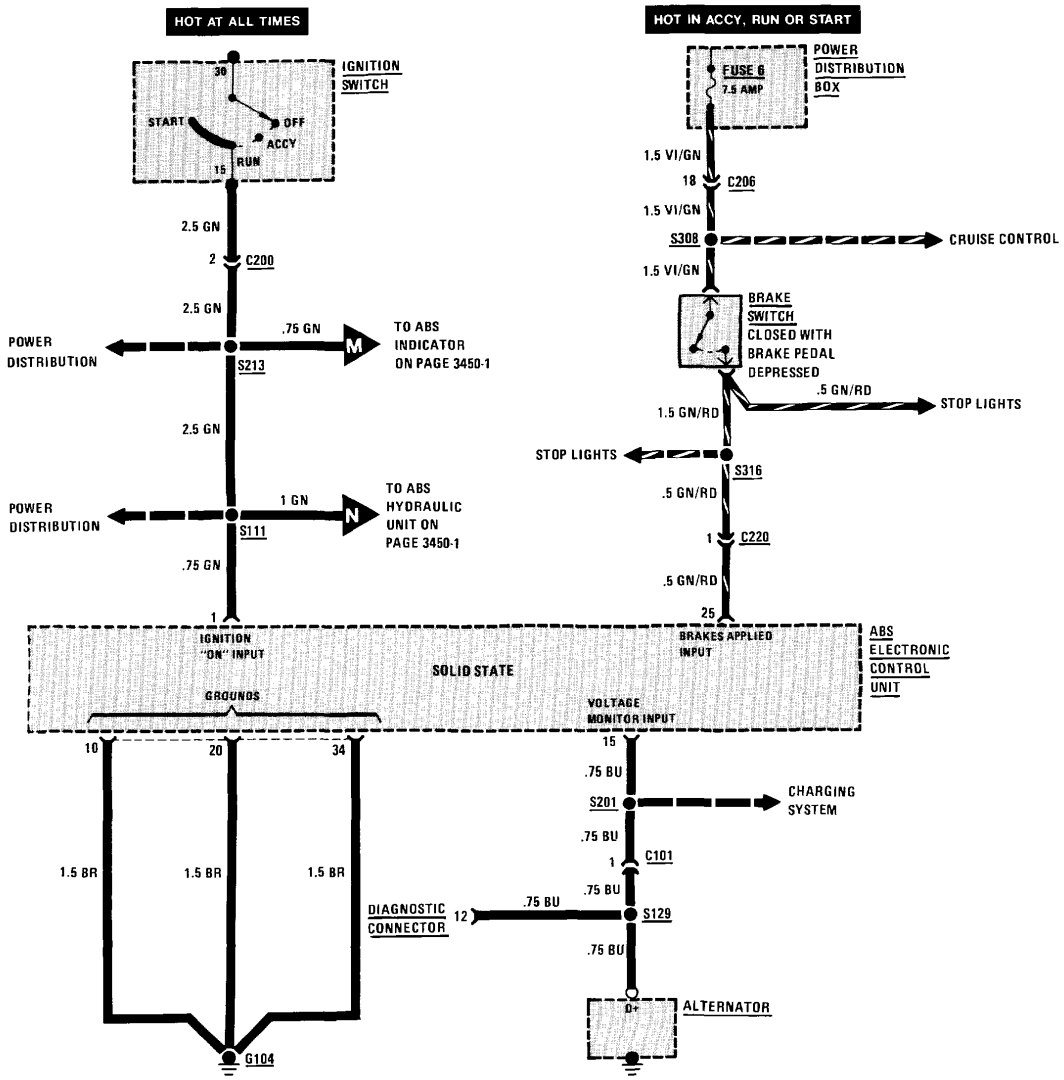
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3435-0 BRAKE LINING WARNING

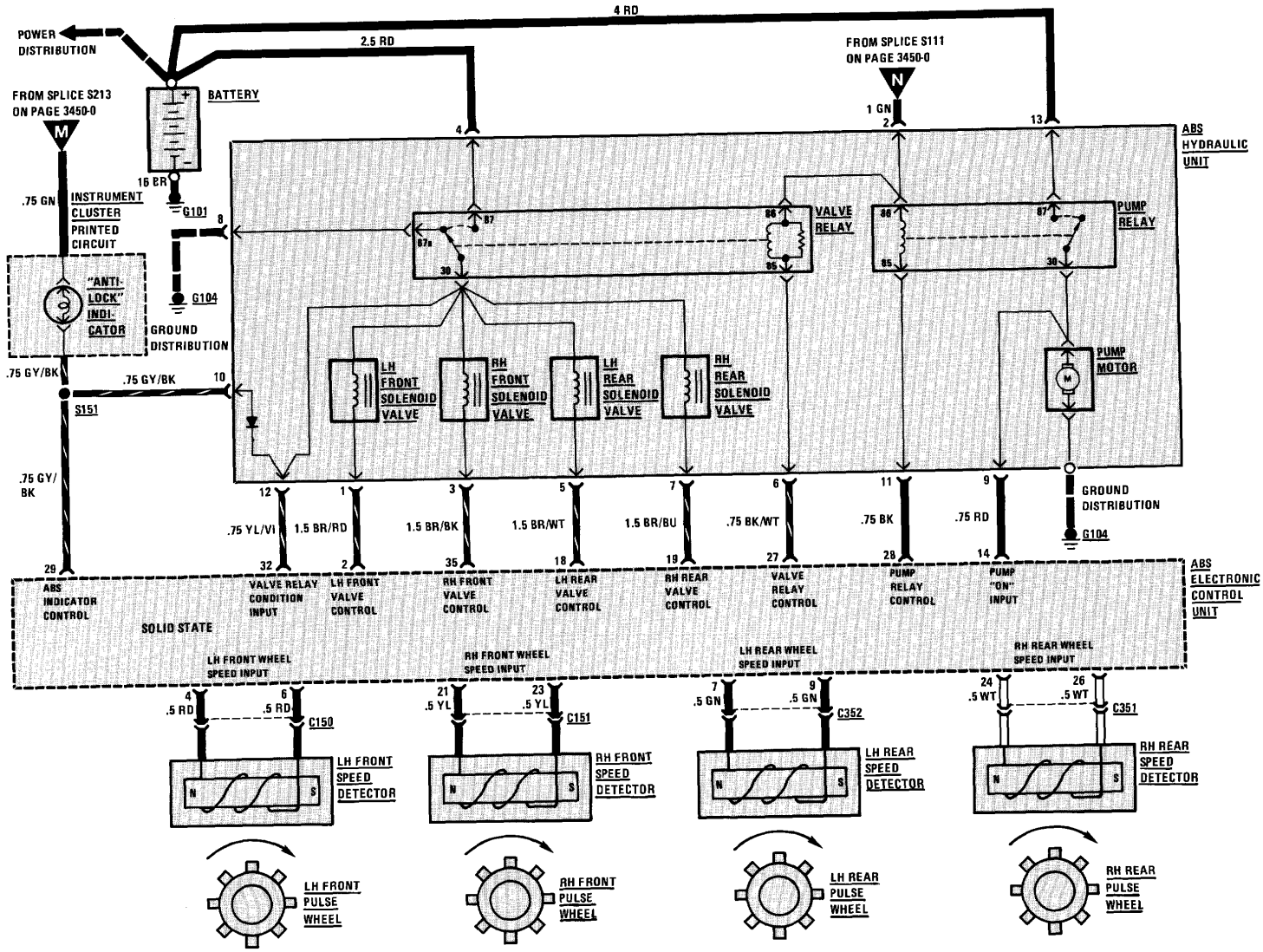


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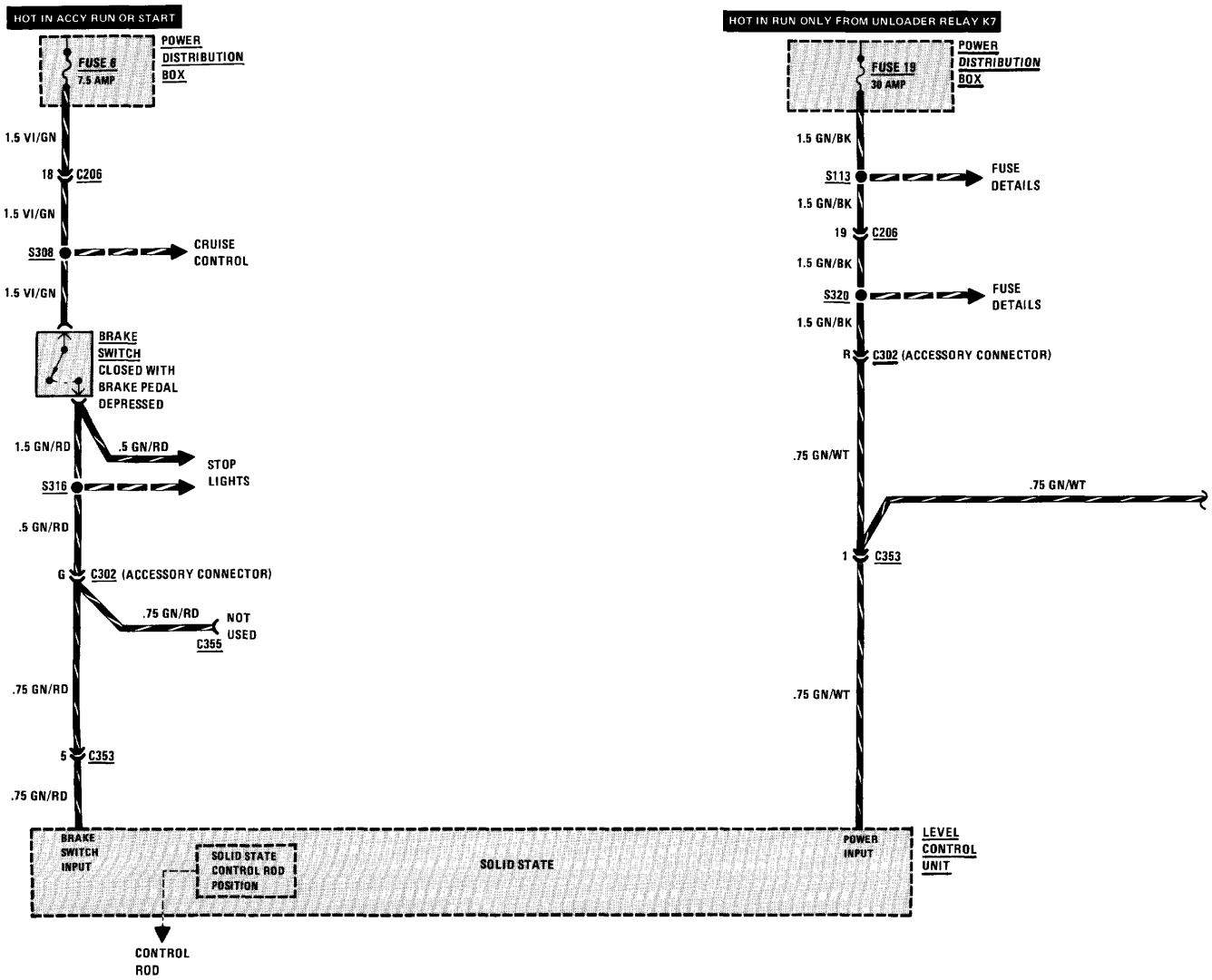
3450-0 ANTILOCK BRAKING SYSTEM (ABS)



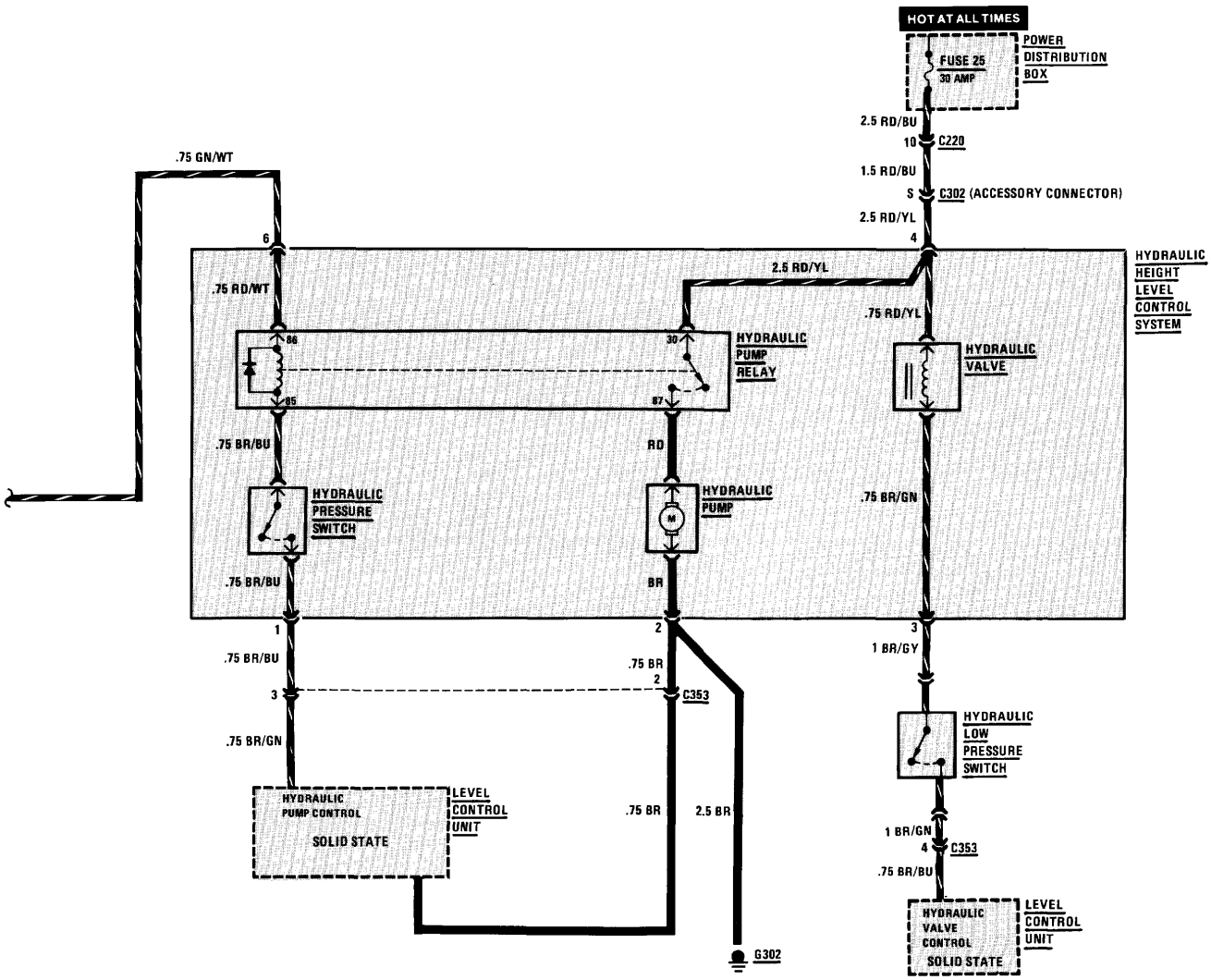
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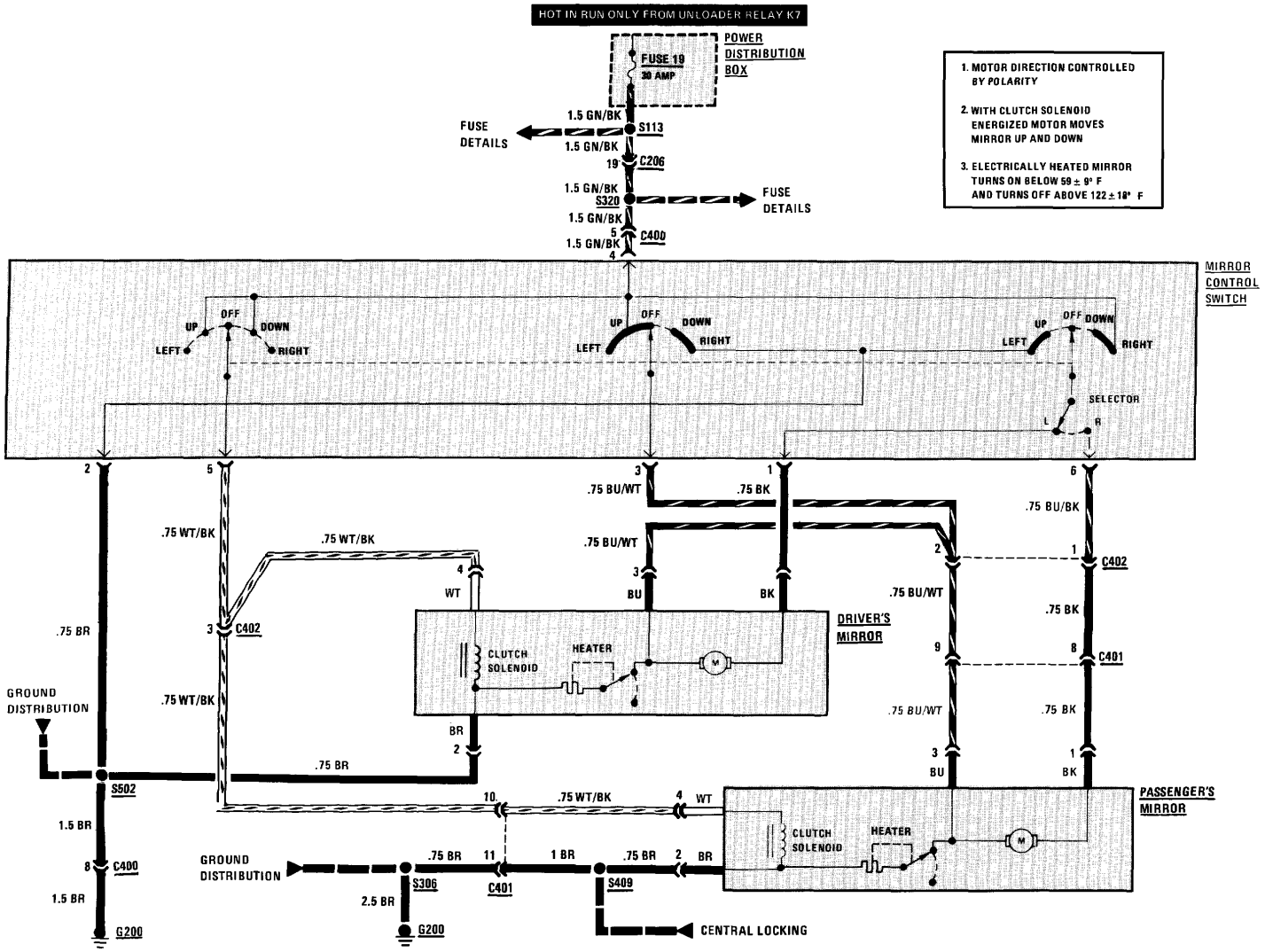


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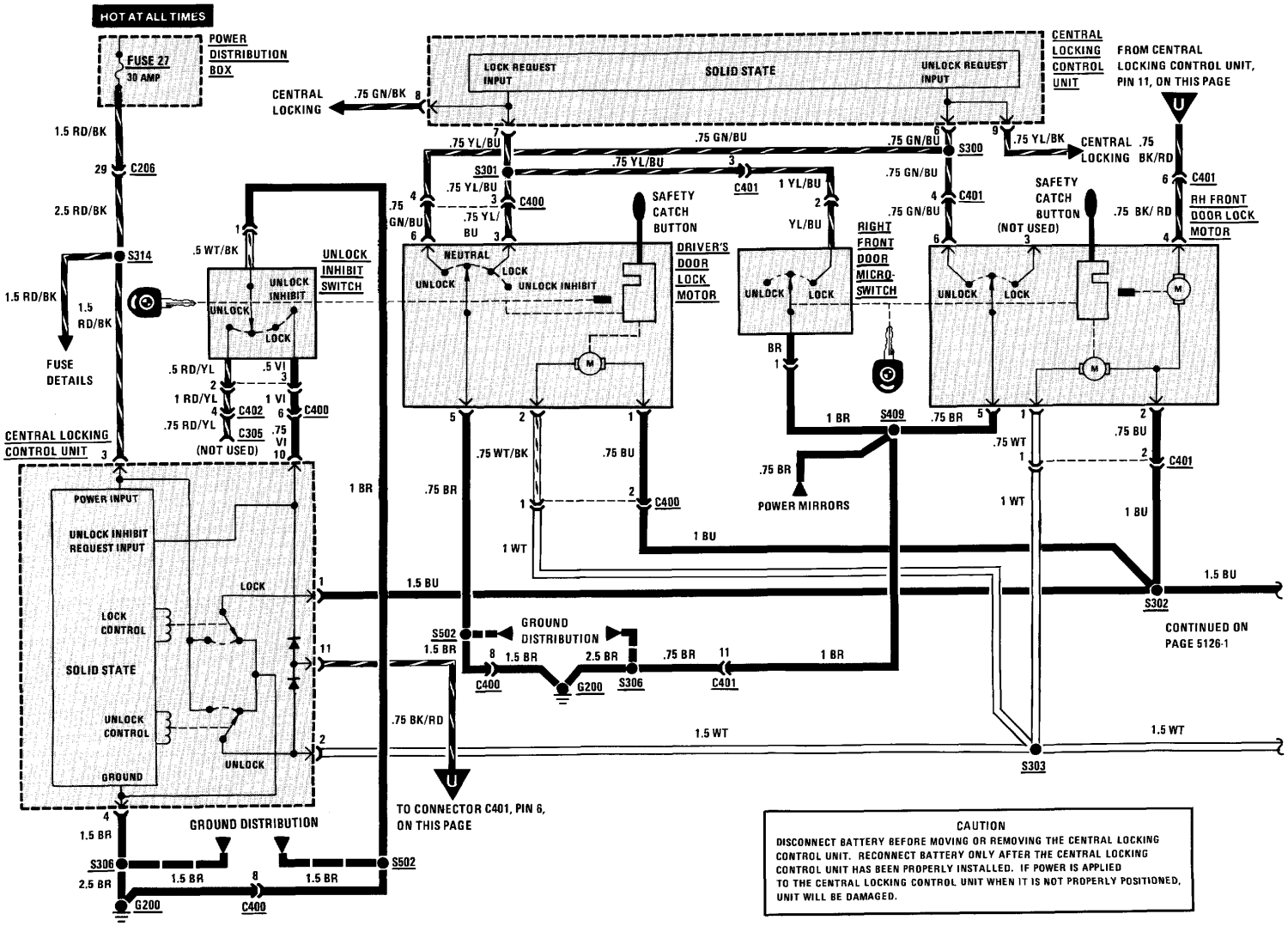
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5116-0 POWER MIRRORS



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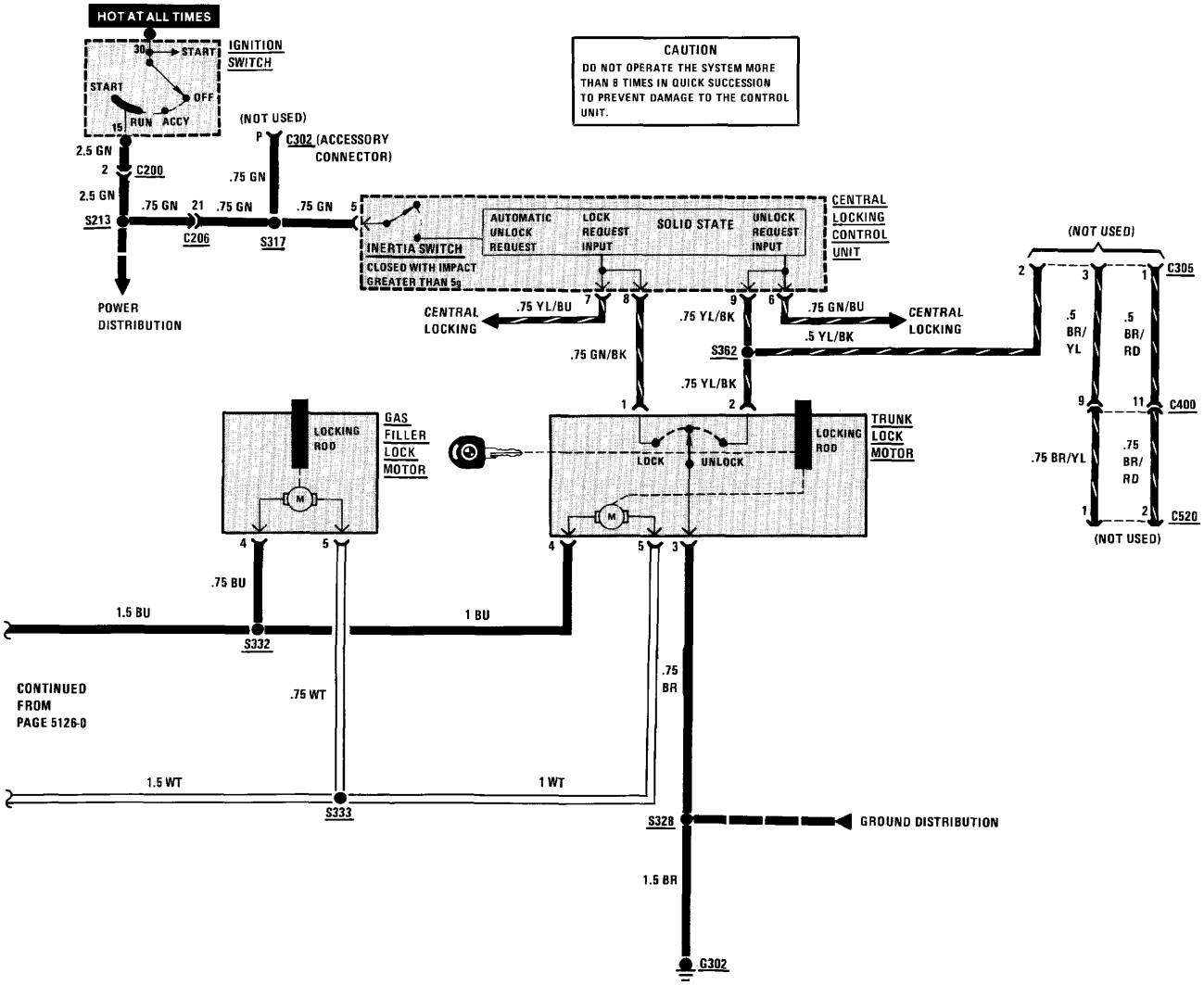
5126-0 CENTRAL LOCKING



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.

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5126A-0 CENTRAL LOCKING

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 all the other doors do not double lock	Perform Test B
	Driver's door does not double lock	Mechanical problem, see BMW Workshop Manual

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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

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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.

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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 then 5g. If Ignition Switch is 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 Central Locking Control Unit terminal 1. The polarity is reversed and the motor pushes the lock up.

Unlock Inhibit

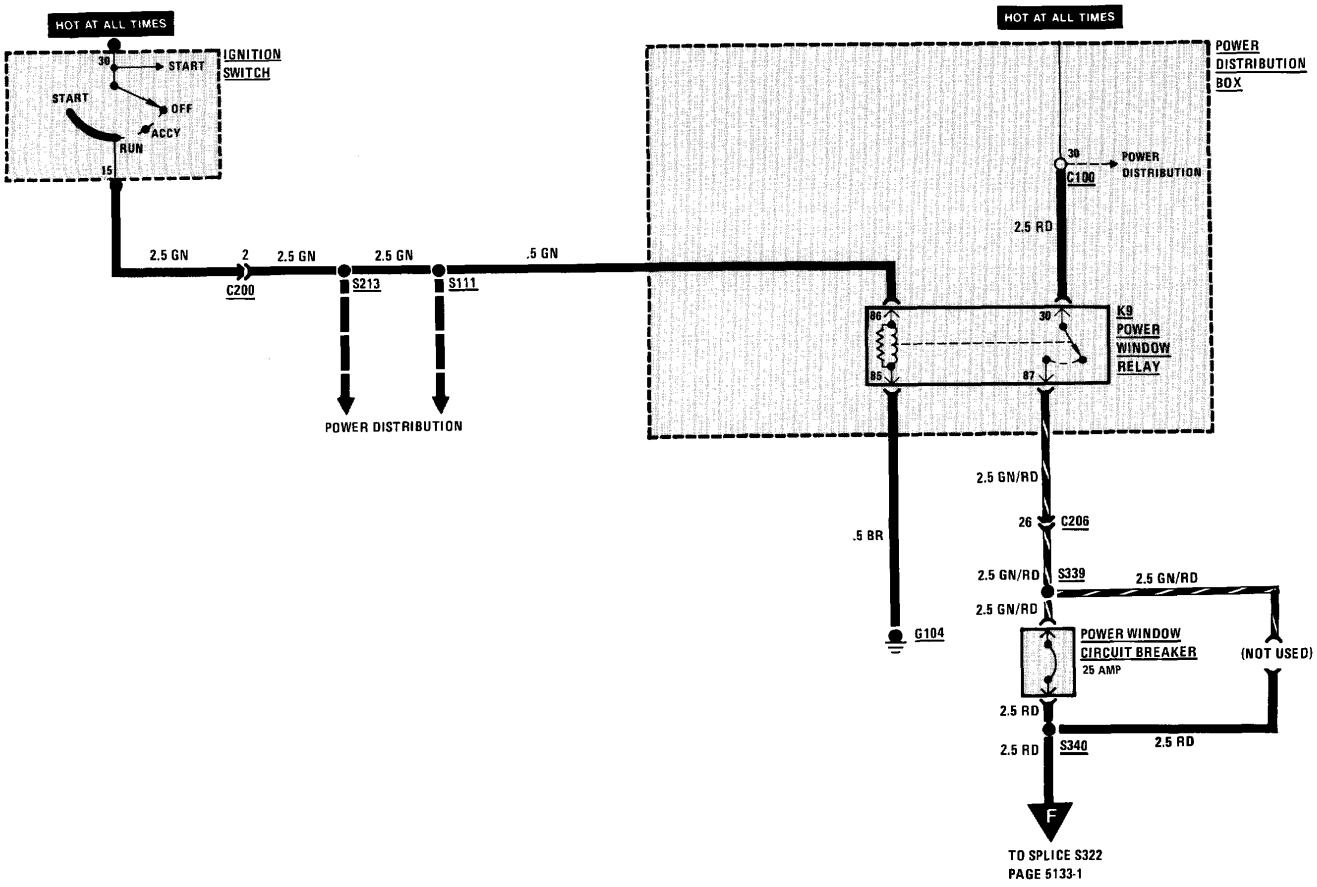
When the key is inserted into the Driver's Lock and turned clockwise past the LOCK position, the Unlock Inhibit mechanism is engaged. This mechanically inserts a bar into the driver's lock and prevents unlocking through use of the Safety Catch Button. When in the Unlock Inhibit position, ground is applied 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

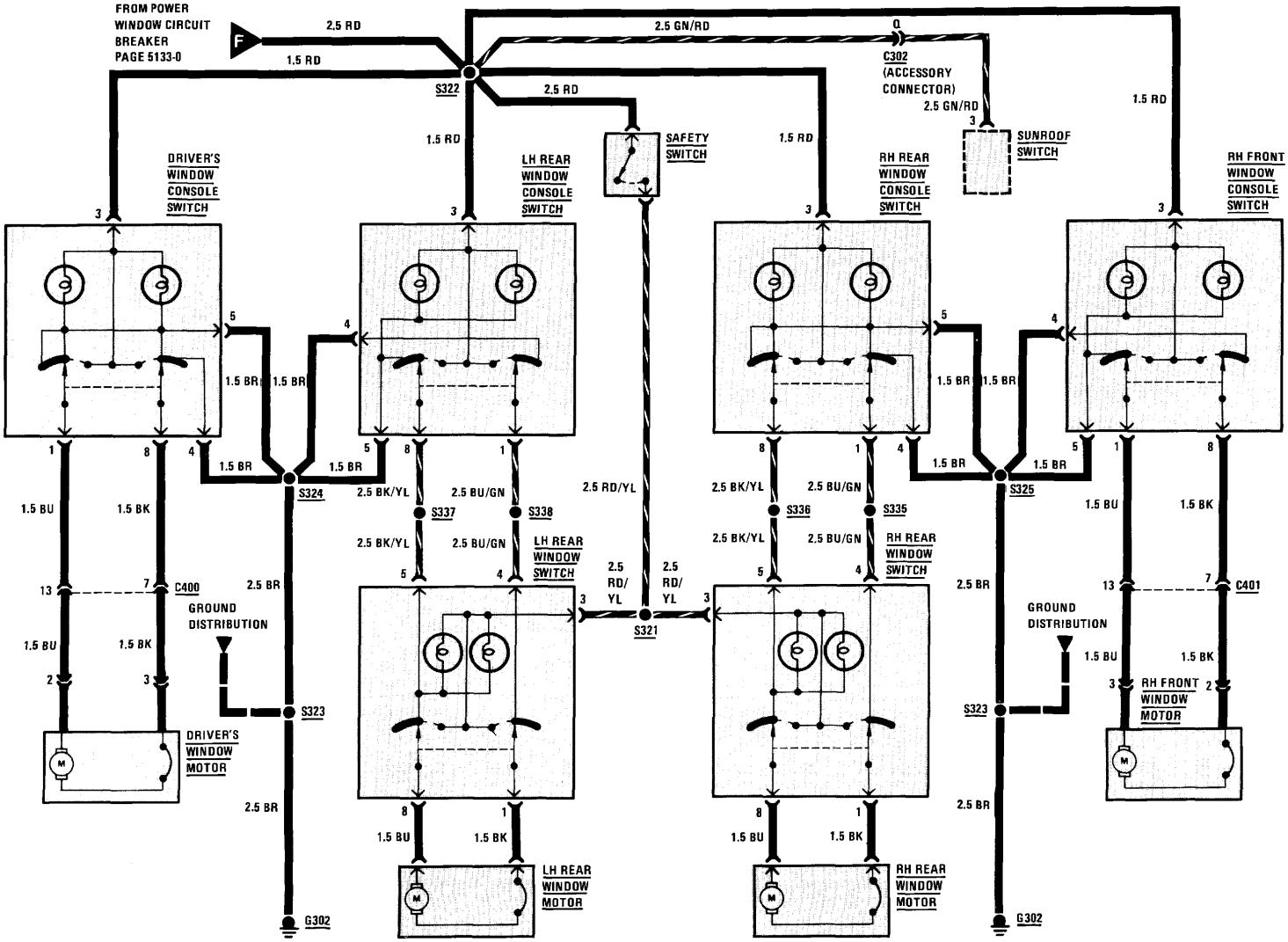
The Trunk Lock operates in a manner similiar to the Door Locks.

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5133-0 POWER WINDOWS

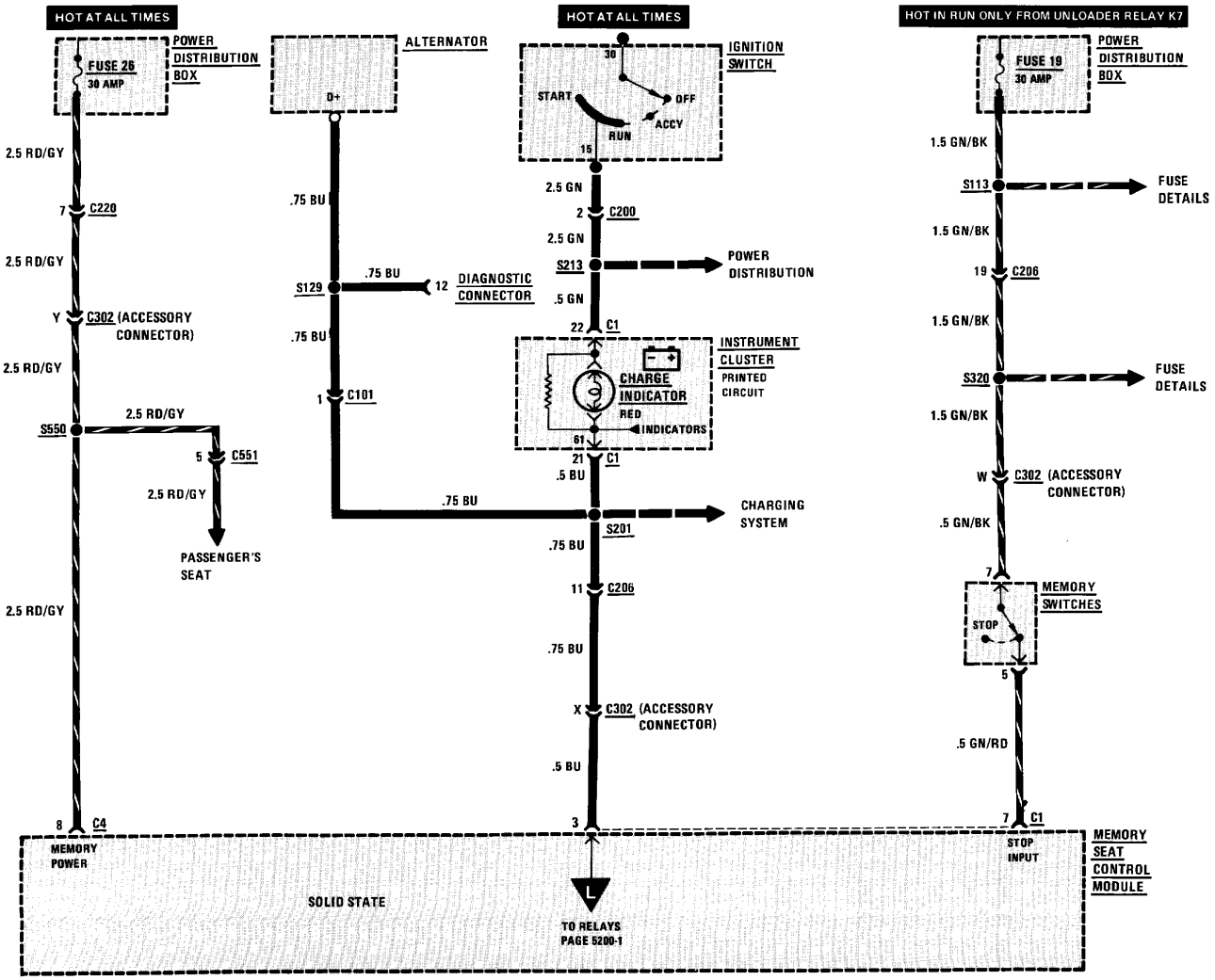


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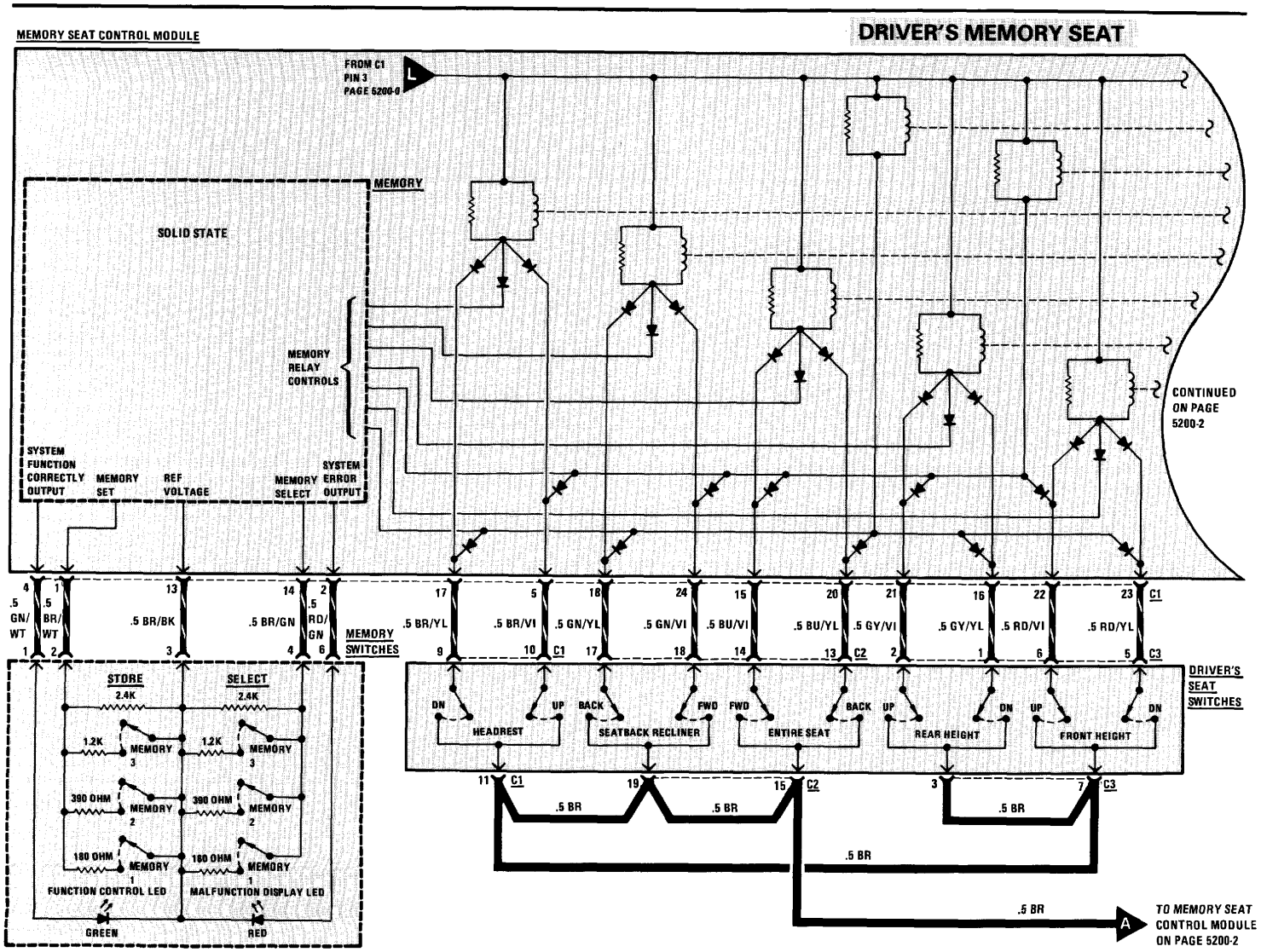


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DRIVER'S MEMORY SEAT

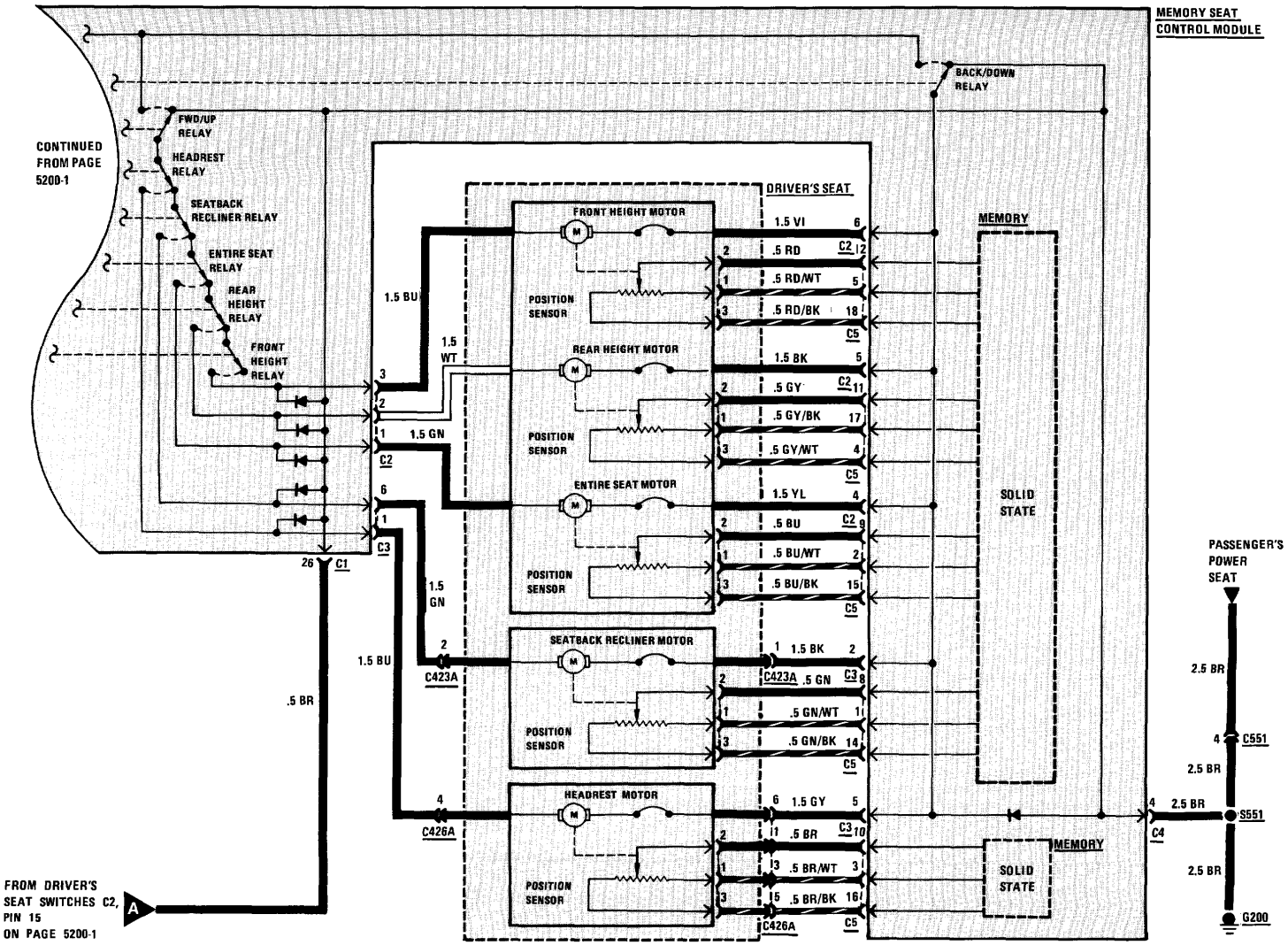


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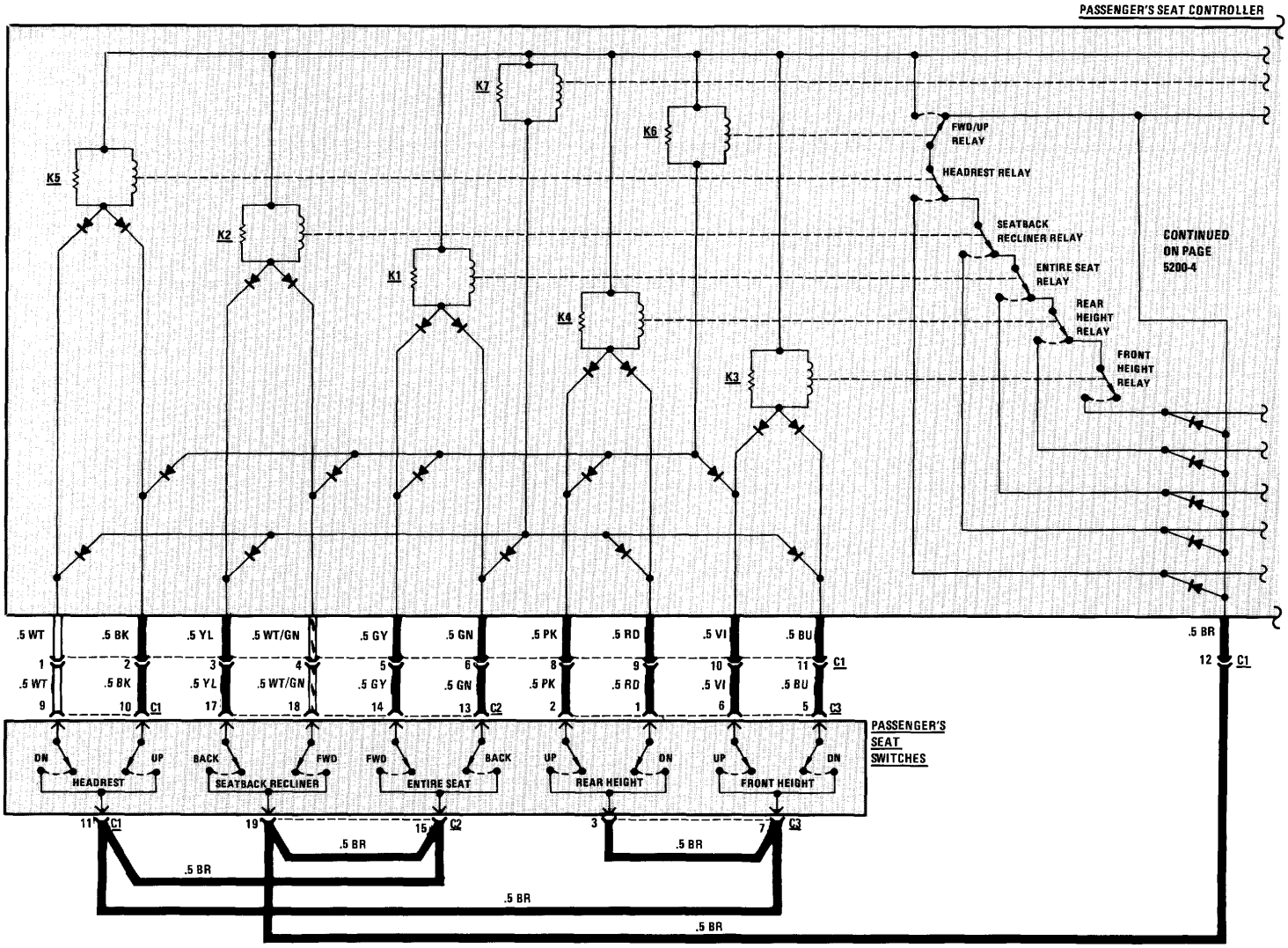
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DRIVER'S MEMORY SEAT



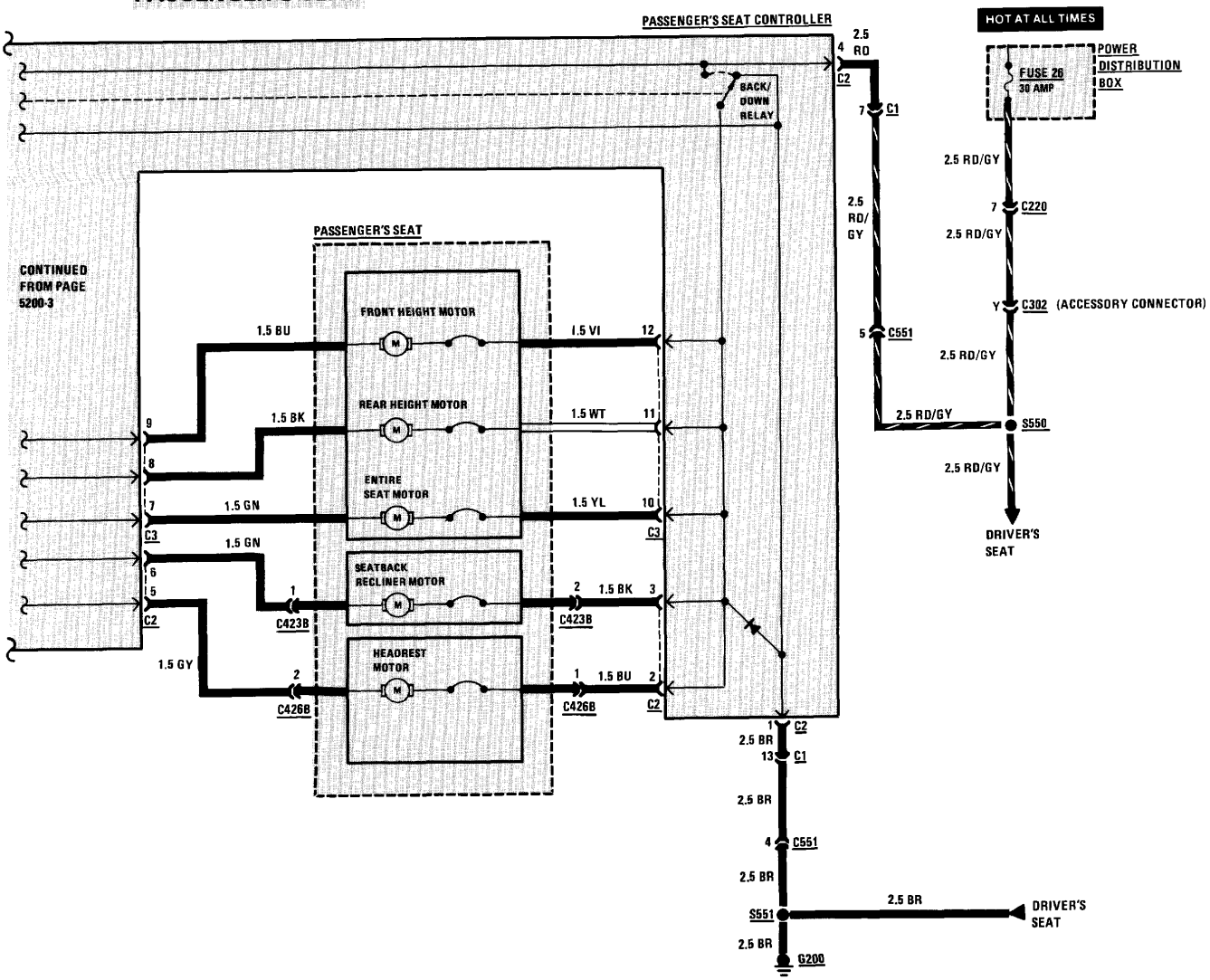
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PASSENGER'S SEAT



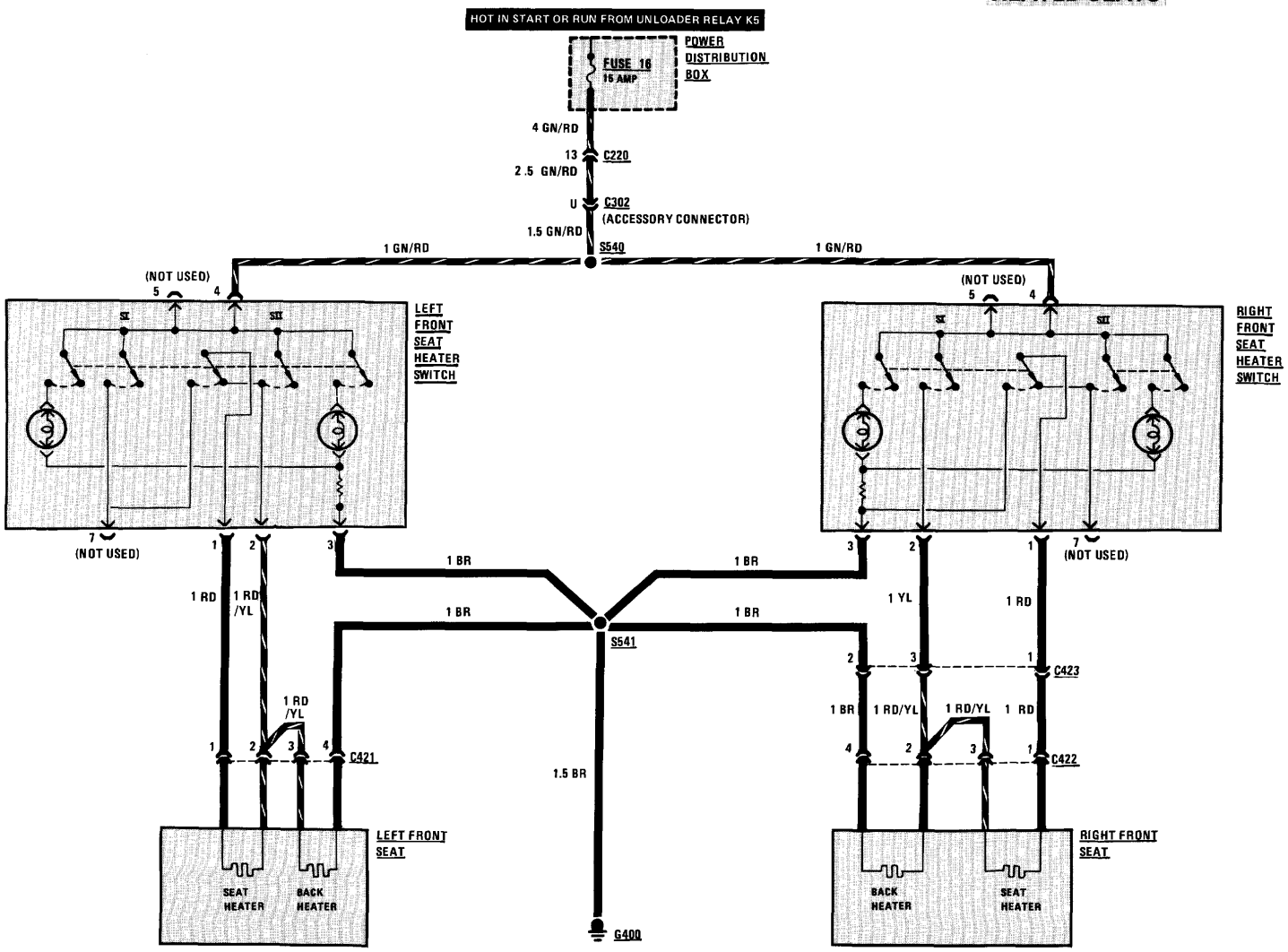
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PASSENGER'S SEAT



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HEATED SEATS



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TROUBLESHOOTING HINTS

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

1. If both Power Seats do not operate, check Fuse 26 and the power lead to the splice.
2. Check Fuse 19 and wire to the Memory Switch.
3. Check the wiring to terminal 3 of the Memory Seat Control Module if the operation of the power seats is the same with the engine off or running.

- **Go to System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM CHECK

- **Use the System Check Table as a guide to normal operation.**

SYSTEM CHECK TABLE

ACTION	NORMAL
1. Operate the Seatback Recliner Switch in the BACK and FWD positions	Back of the seat moves backward and forward in response to operation of Seat Switch
2. Operate the Rear Height Switch in the UP and DN positions	The rear seat height moves up and down
3. Operate the Front Height Switch in the UP and DN positions	The front seat height moves up and down
4. Operate the Entire Seat Switch in the FWD and BACK positions	The seat moves forward and back
5. Operate the Headrest Switch in the UP and DN positions	The headrest moves up and down

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6. Repeat steps 1 through 6 using the LH Seat Switch	Results are the same
7. Press the Store MEMORY 1 button (this will remove any previously stored seat position from the memory)	The current seat position is stored in memory (the green LED will flash when seat position is stored)
8. Using the Seat Switches, move the seat to a different position, then press MEMORY 1 button	The seat automatically returns to the position stored in step 8
9. Using the Seat Switches, move the seat to a new position, then press the Store MEMORY 2 button	The new seat position is stored in memory (the green LED will flash when seat position is stored)
10. Move the seat to a different position, then press MEMORY 2 button	The seat automatically returns to the position stored in step 10
11. Using the Seat Switches, move the seat to a new position, then press the Store MEMORY 3 button	The new seat position is stored in memory (the green LED will flash when seat position is stored)
12. Move the seat to a different position, then press MEMORY 3 button	The seat automatically returns to the position stored in step 12
13. Press MEMORY 2 button, and while the seat is moving, press the STOP button	The seat stops before reaching the position stored in step 8

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

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SYSTEM DIAGNOSIS

- **Diagnostic steps for the symptoms listed in the following table are listed after the table.**

SYMPTOM TABLE

A: No seat functions work
B: Some seat functions work
C: Memory functions do not work

A: NO SEAT FUNCTIONS WORK (TABLE 1 - SEAT WITHOUT MEMORY)

Measure: VOLTAGE
At: PASSENGER'S SEAT CONTROLLER CONNECTORS C1 & C2 (Connected)

Measure Between	Correct Voltage	For Diagnosis
C2/4 & Ground	Battery	See 1
C2/4 & C2/1	Battery	See 2
C2/4 & C1/12	Battery	See 3

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

1. Check wire to connector C2, terminal 4 (see schematic). Check Fuse 26.
2. Check wire from connector C2, terminal 1 (see schematic). Check ground G200.
3. Replace Passenger's Seat Controller.

A: NO SEAT FUNCTIONS WORK (TABLE 2 - SEAT WITH MEMORY)

Measure: VOLTAGE
At: MEMORY SEAT CONTROL MODULE CONNECTORS C1 (26-pin Connecting Lead and Universal Adapter Connected) & C2 (Connected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
C2/8 & Ground	Battery	See 1
C2/8 & C4/10	Battery	See 2
C1/3 & Ground	Battery	See 3
C1/3 & C1/26	Battery	See 4

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

1. Check wire from connector C2 for an open (see schematic). Check Fuse 26.
2. Check wire from connector C4, terminal 10 for an open (see schematic). Check ground G200.
3. Check wire to connector C1, terminal 3 for an open (see schematic).
4. Replace Memory Seat Control Module.

B: SOME SEAT FUNCTIONS WORK (TABLE 1 - SEAT WITHOUT MEMORY)

Measure: RESISTANCE
At: PASSENGER'S SEAT CONTROLLER CONNECTOR C1 (Disconnected)
Condition:
- **Headrest Switch: DOWN**

Measure Between	Correct Resistance	For Diagnosis
1 (female) & 12 (female)	0 Ohms	See 1
• Headrest Switch: UP		
2 (female) & 12 (female)	0 Ohms	See 1
• Seatback Recliner Switch: BACK		
3 (female) & 12 (female)	0 Ohms	See 1
• Seatback Recliner Switch: FWD		
4 (female) & 12 (female)	0 Ohms	See 1
• Entire Seat Switch: FWD		
5 (female) & 12 (female)	0 Ohms	See 1
• Entire Seat Switch: BACK		
6 (female) & 12 (female)	0 Ohms	See 1
• Rear Height Switch: UP		
8 (female) & 12 (female)	0 Ohms	See 1
• Rear Height Switch: DN		
9 (female) & 12 (female)	0 Ohms	See 1

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• Front Height Switch: UP		
10 (female) & 12 (female)	0 Ohms	See 1
• Front Height Switch: DN		
11 (female) & 12 (female)	0 Ohms	See 1
• If all results are correct, reconnect connector and go to Table 2.		
1. Check wire to Passenger's Seat Switches (see schematic). If wire is good, replace Passenger's Seat Switches.		

B: SOME SEAT FUNCTIONS WORK (TABLE 2 - SEAT WITHOUT MEMORY)

Measure: VOLTAGE
At: PASSENGER'S SEAT CONTROLLER CONNECTORS C2 & C3 (Connected)
Condition:
• Headrest Switch: UP and DN

Measure Between	Correct Voltage	For Diagnosis
C2/2 & C2/5	Battery	See 1
• Seatback Recliner Switch: FWD and BACK		
C2/3 & C2/6	Battery	See 1
• Entire Seat Switch: FWD and BACK		
C3/7 & C3/10	Battery	See 1
• Rear Switch: UP and DN		
C3/8 & C3/11	Battery	See 1
• Front Switch: UP and DN		
C3/9 & C3/12	Battery	See 1
• If all voltages are correct, repair/replace suspect motor and associated wiring.		
1. Replace Passenger's Seat Controller.		

B: SOME SEAT FUNCTIONS WORK (TABLE 3 - SEAT WITH MEMORY)

Measure: RESISTANCE
At: MEMORY SEAT CONTROL MODULE CONNECTOR C1 (Disconnected)
Condition:
• Headrest Switch: DOWN

Measure Between	Correct Voltage	For Diagnosis
17 & 26	0 Ohms	See 1
• Headrest Switch: UP		
5 & 26	0 Ohms	See 1
• Seatback Recliner Switch: BACK		
18 & 26	0 Ohms	See 1
• Seatback Recliner Switch: FWD		
24 & 26	0 Ohms	See 1
• Entire Seat Switch: FWD		
15 & 26	0 Ohms	See 1
• Entire Seat Switch: BACK		
20 & 26	0 Ohms	See 1
• Rear Height Switch: UP		
21 & 26	0 Ohms	See 1
• Rear Height Switch: DN		
16 & 26	0 Ohms	See 1
• Front Height Switch: UP		
22 & 26	0 Ohms	See 1
• Front Height Switch: DN		
23 & 26	0 Ohms	See 1
• If all resistances are correct, reconnect connector and go to Table 2.		
1. Check wire to Driver's Seat Switches (see schematic). If wire is good, replace Driver's Seat Switches.		

B: SOME SEAT FUNCTIONS WORK (TABLE 4 - SEAT WITH MEMORY)

Measure: VOLTAGE
At: MEMORY SEAT CONTROL MODULE CONNECTORS C2 & C3 (Connected)
Condition:
• Headrest Switch: UP and DN

Measure Between	Correct Voltage	For Diagnosis
C3/11 & C3/7	Battery	See 1
• Seatback Recliner Switch: FWD and BACK		
C3/6 & C3/12	Battery	See 1
• Entire Seat Switch: FWD and BACK		
C2/1 & C2/4	Battery	See 1
• Rear Height Switch: UP and DN		
C2/5 & C2/2	Battery	See 1
• Front Height Switch: UP and DN		
C2/3 & C2/6	Battery	See 1
• If all voltages are correct, repair/replace suspect motor and associated wiring.		
1. Replace Memory Seat Control Module.		

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C: MEMORY FUNCTIONS DO NOT WORK (TABLE 1 - SEAT WITH MEMORY)

Measure: RESISTANCE
At: MEMORY SWITCHES CONNECTOR (Disconnected)
Condition:
• STOP Switch: PRESSED

Measure Between	Correct Resistance	For Diagnosis
5 & 7	Infinite Ohms	See 1
• STOP Switch: RELEASED		
5 & 7	0 Ohms	See 1
2 & 3	Approximately 2.2 K Ohms	See 1
3 & 4	Approximately 2.2 K Ohms	See 1
• MEMORY 1: PRESSED		
3 & 4	Approximately 170 Ohms	See 1
• MEMORY 2: PRESSED		
3 & 4	Approximately 340 Ohms	See 1
• MEMORY 3: PRESSED		
3 & 4	Approximately 800 Ohms	See 1
• Store MEMORY 1: PRESSED		
2 & 3	Approximately 170 Ohms	See 1
• Store MEMORY 2: PRESSED		

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2 & 3	Approximately 340 Ohms	See 1
• Store MEMORY 3: PRESSED		
2 & 3	Approximately 800 Ohms	See 1
• If all resistances are correct, go to Table 2.		
1. Replace Memory Switches.		

C: MEMORY FUNCTIONS DO NOT WORK (TABLE 2 - SEAT WITH MEMORY)

Measure: VOLTAGE
At: MEMORY SEAT CONTROL MODULE CONNECTOR C5 (26-pin Connecting Lead and Universal Adapter) (Connected)
Condition:
• Ignition Switch: RUN

Measure Between	Correct Voltage	For Diagnosis
3 & 16	Greater than 4 Volts	See 1
1 & 14	Greater than 4 Volts	See 1
2 & 15	Greater than 4 Volts	See 1
4 & 17	Greater than 4 Volts	See 1
5 & 18	Greater than 4 Volts	See 1
• If all voltages are correct, go to Table 3.		
1. Replace Memory Seat Control Module.		

C: MEMORY FUNCTIONS DO NOT WORK (TABLE 3 - SEAT WITH MEMORY)

Measure: VOLTAGE
At: MEMORY SEAT CONTROL MODULE CONNECTOR C5 (26-pin Connecting Lead and Universal Adapter) (Connected)
Conditions:
• Ignition Switch: RUN
• Headrest Switch: UP or DOWN

Measure Between	Correct Voltage	For Diagnosis
10 & Ground	Varies between 1 & 5 Volts	See 1
• Seatback Recliner Switch: FWD or BACK		
8 & Ground	Varies between 1 & 5 Volts	See 1
• Entire Seat Switch: FWD or BACK		
9 & Ground	Varies between 1 & 5 Volts	See 1
• Rear Height Switch: UP or DOWN		
11 & Ground	Varies between 1 & 5 Volts	See 1
• Front Height Switch: UP or DOWN		
12 & Ground	Varies between 1 & 5 Volts	See 1
• If all voltages are correct, replace Memory Seat Control Module.		
1. Check wire to Position Sensor (see schematic). If wire is good, replace Position Sensor.		

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CIRCUIT OPERATION

Driver's Seat and Passenger's Seat - Manual Operation

There are five reversible Motors that operate the Power Seats. The seat height is controlled by two Motors: one for Front Height and the other for Rear Height; these two Motors operate independently of each other. The other three Motors provide positioning for Headrest Height, Seatback Reclining, and the Entire Seat Forward/Backward.

When any Seat Switch is depressed, a path to ground is provided for two Relays inside the Control Unit. One Relay controls the Motor for the seat function depressed and the other controls the polarity of the voltage to the Motor selected. An example of this action is as follows: The Front Height UP Switch is depressed, energizing the coils of the Front Height and Fwd/Up Relays. The Relay Switch contacts close and voltage is applied to the Front Height Motor. This drives the front of the seat up as long as the Front Height UP Switch is depressed, or until end of travel. When the Front Height Down Switch is depressed, the Front Height and the Back/Down Relays are energized. Polarity to the motor is reversed, which drives the seat down. The operation of the other seat functions is similar to the operation of the Front Height control.

Driver's Seat - Memory Operation

When operating the Memory Seats from the Seat Switches, operation is the same as the non-memory seats. When the memory functions are operated, the appropriate relays are grounded through the Solid State circuits of the Control Unit rather than the Seat Switches.

Operation of the Memory Seat requires the Ignition Switch to be in ACCY or RUN.

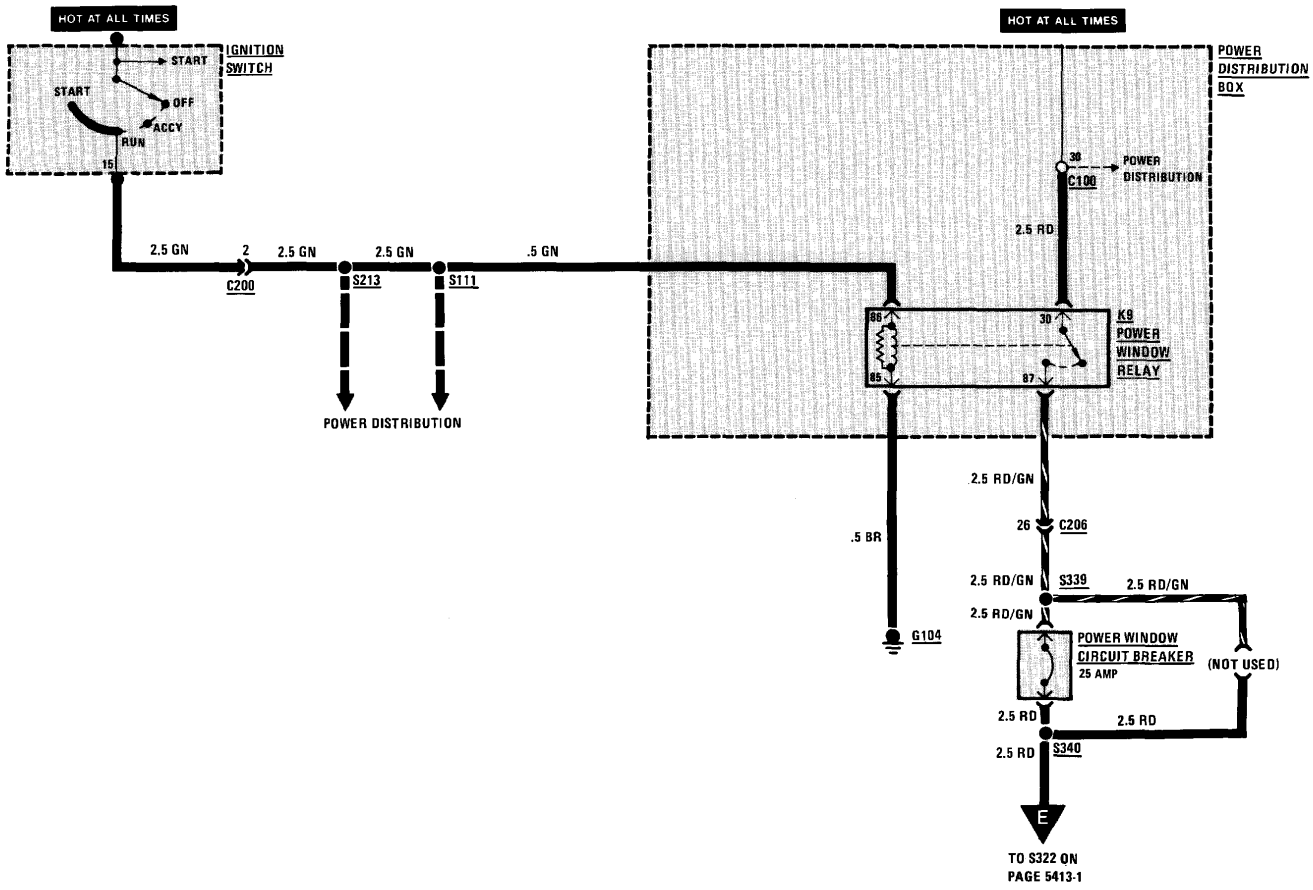
The Memory Seat operates by storing voltages at the Motor Position Inputs of the Memory Seat Control Module. Voltage is applied to the Front Height Motor Position Sensor at terminal 1 and grounded through terminal 3. The input voltage of the Motor Position Sensor is supplied to the Memory Control Module through terminal 2. The input voltage will vary between 1 and 5 volts depending upon the location of the Front Height Motor. The Motor Position Sensor circuits of the other Seat Motors are similar to the Front Height Motor circuit. When any one of the Memory Select buttons is pressed, the Memory Control Module applies voltage to the Motors until the Memory Position Sensor input voltages equal those previously stored.

To store a seat position in memory, move the seat to the desired position and depress one of the three Memory Store Switches. The green LED will flash when the position is accepted in memory. When the Ignition is in ACCY or RUN and the engine is running, the Memory Select Switches can be pressed momentarily to move the seat to a memory position. As the seat is moving to a memory position, the green LED will light until the seat reaches that position. When the engine is running, the desired Memory Select switch must be depressed and held. During this Memory Seat Operation, the green LED will flash until the seat has reached the position stored.

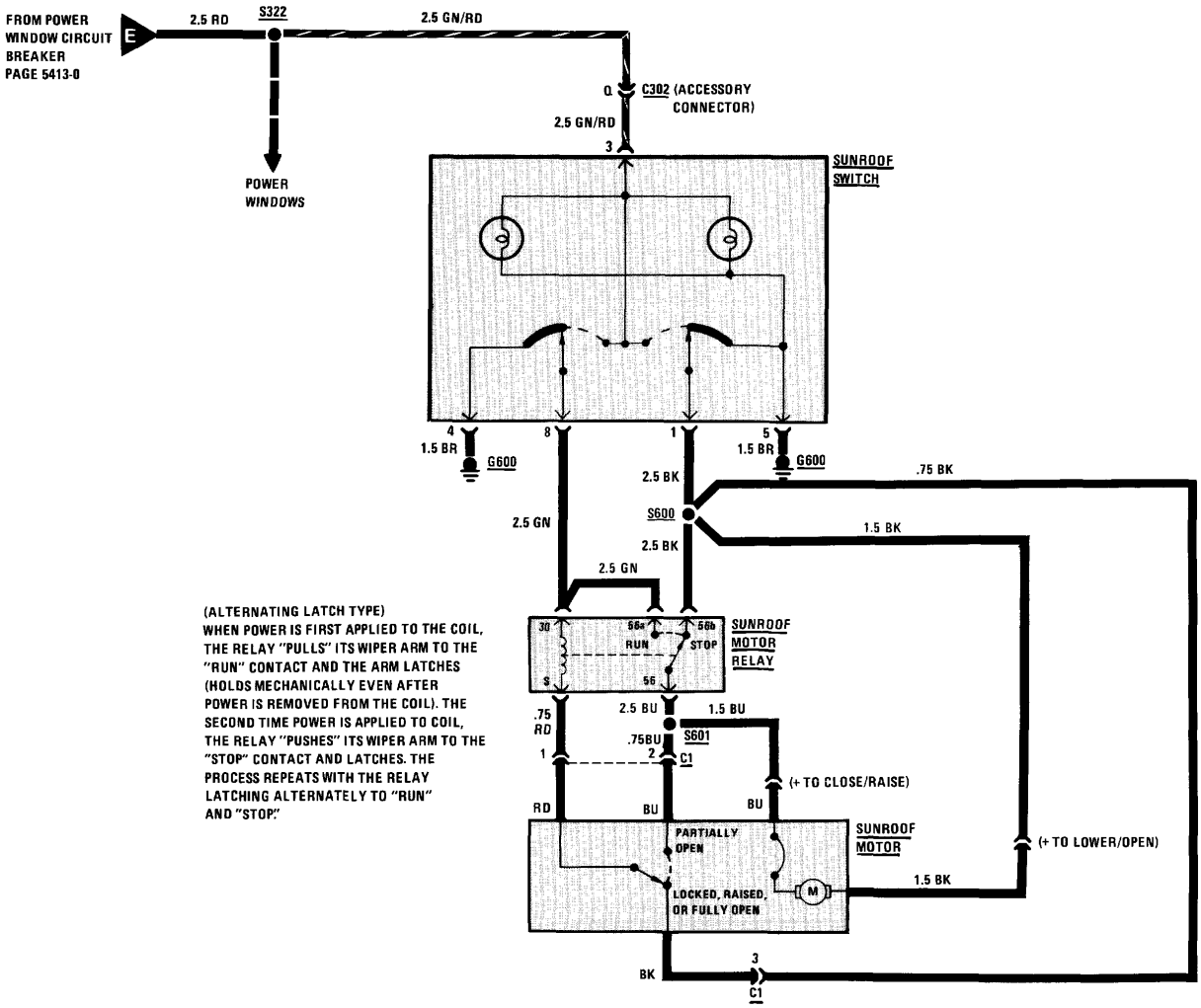
When the Stop Switch is depressed, memory functions are disabled. This action will disable the memory prior to and during memory position positioning. Memory positioning will also be disrupted if any other Memory Select Switch is depressed during positioning.

When a fault occurs in the Memory Seat System, the red LED will flash after depressing any of the Memory Select Switches.

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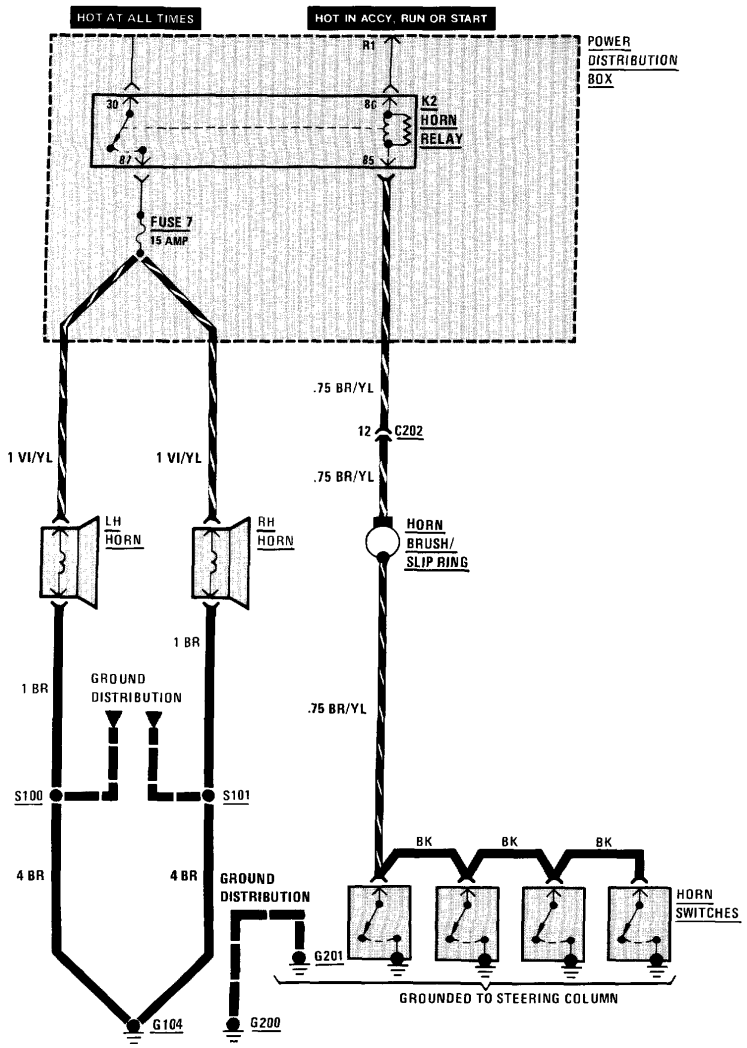


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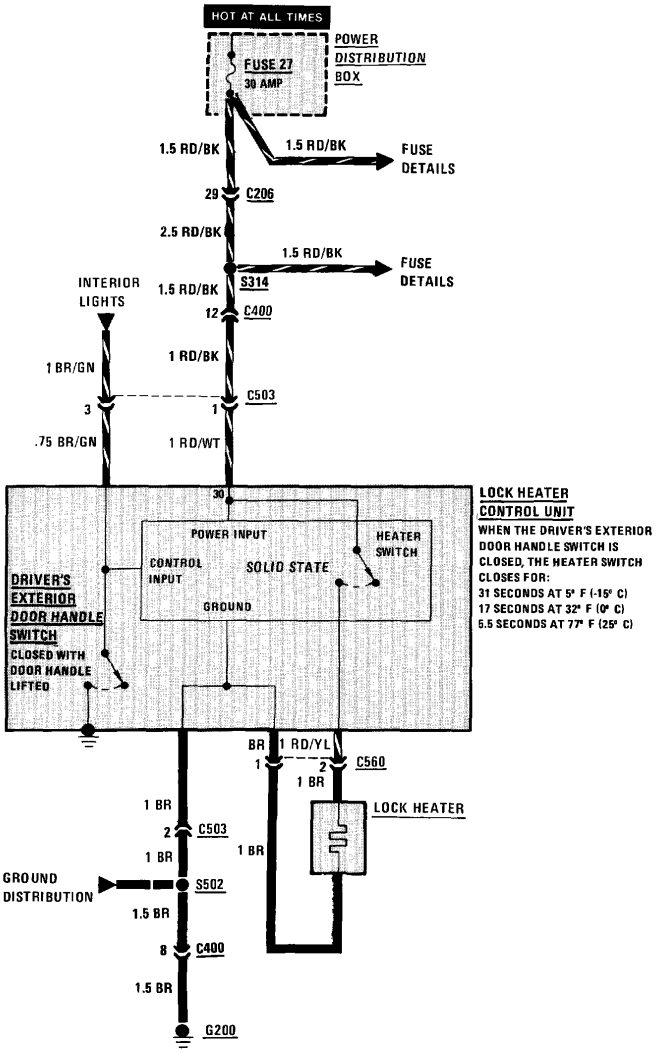


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HORN

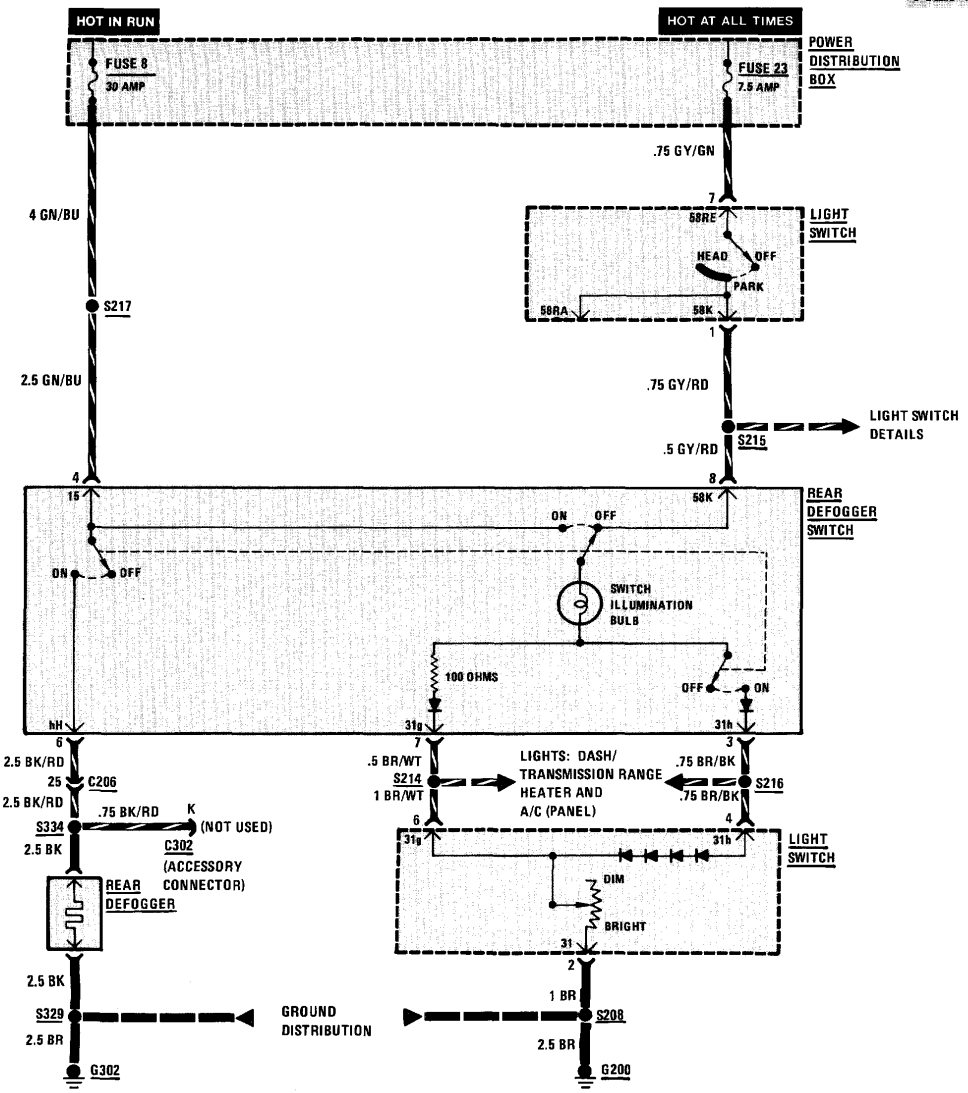


HEATED DOOR LOCK



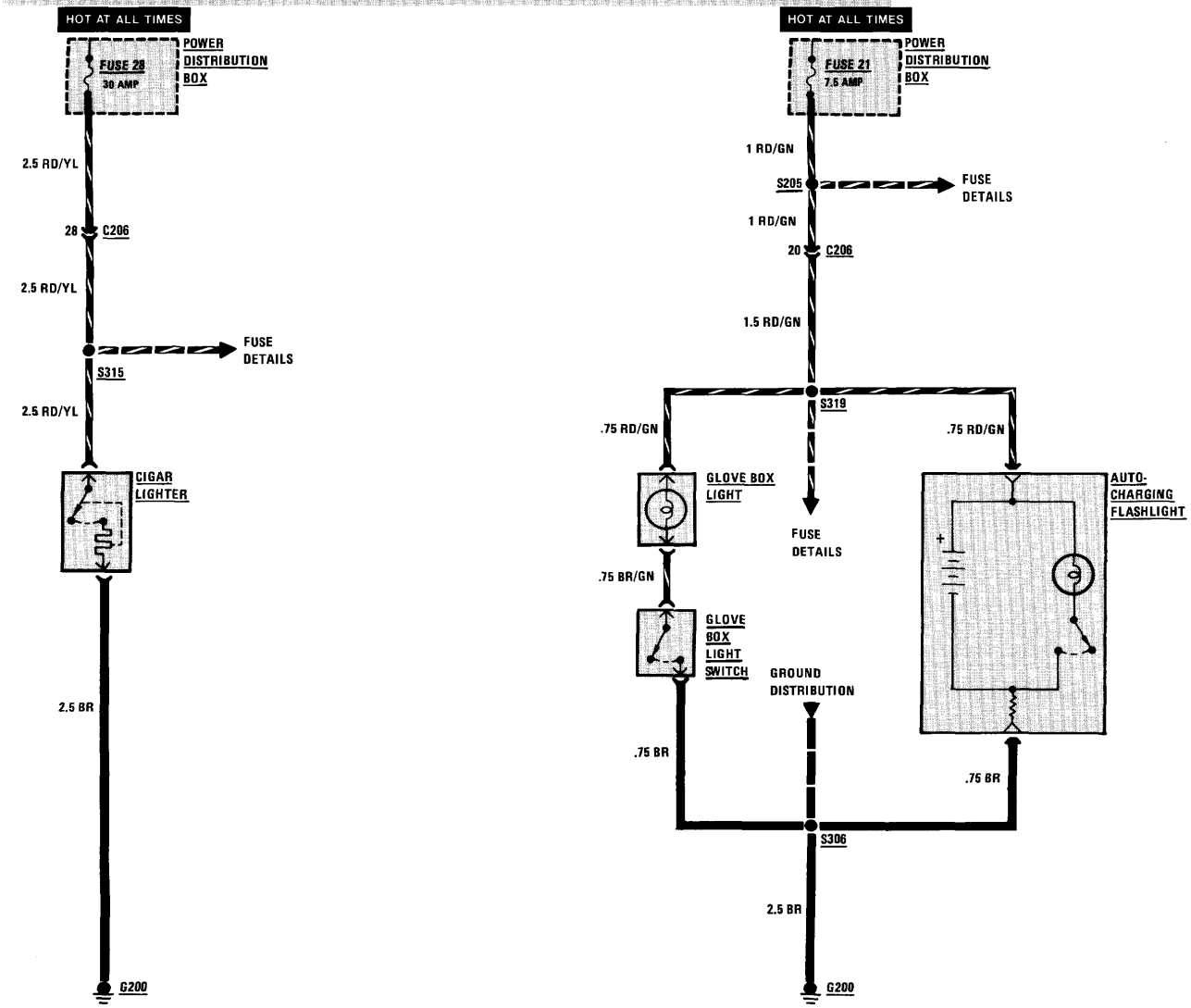
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REAR DEFOGGER



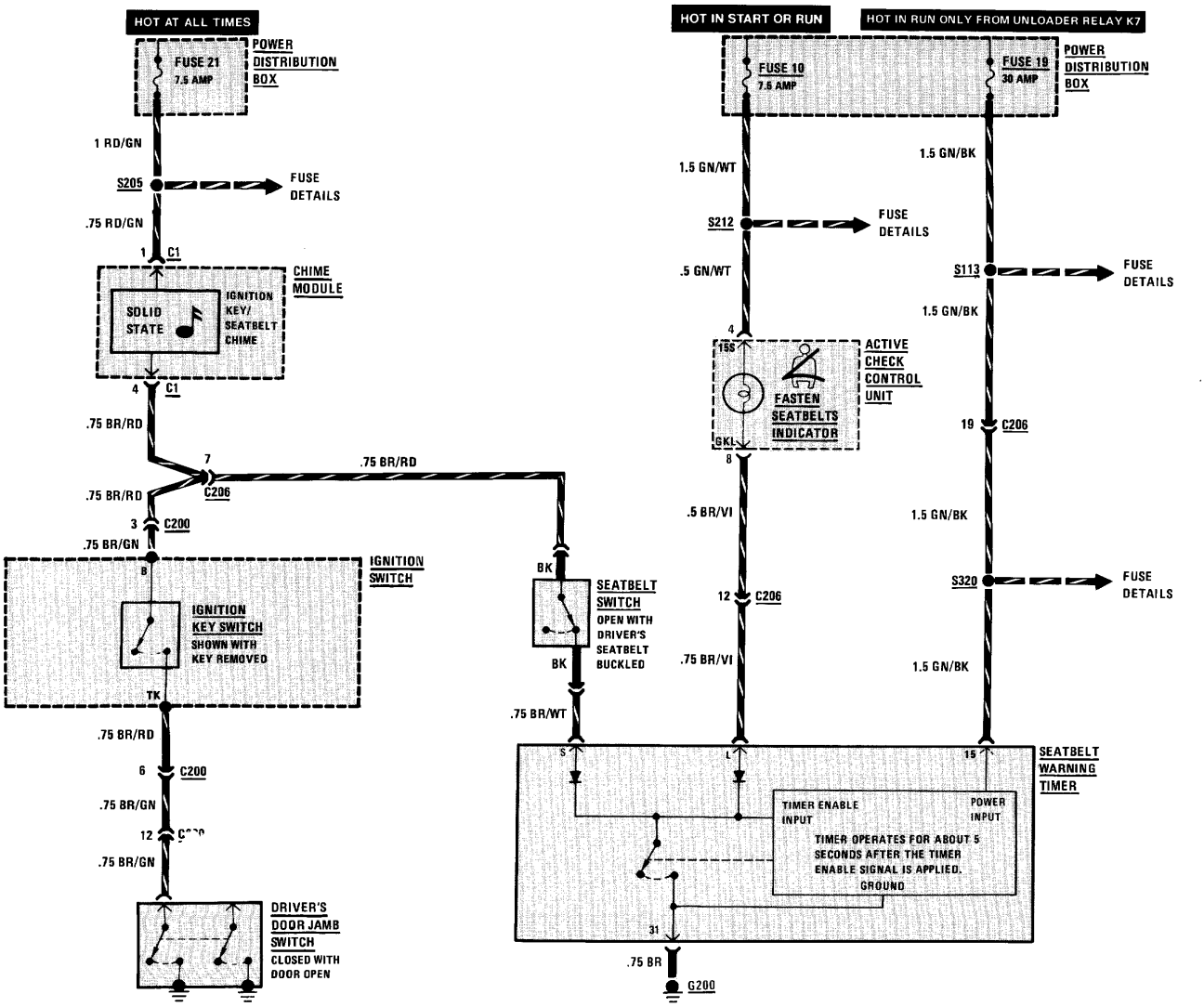
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CIGAR LIGHTER/GLOVE BOX LIGHT/AUTO-CHARGING FLASHLIGHT



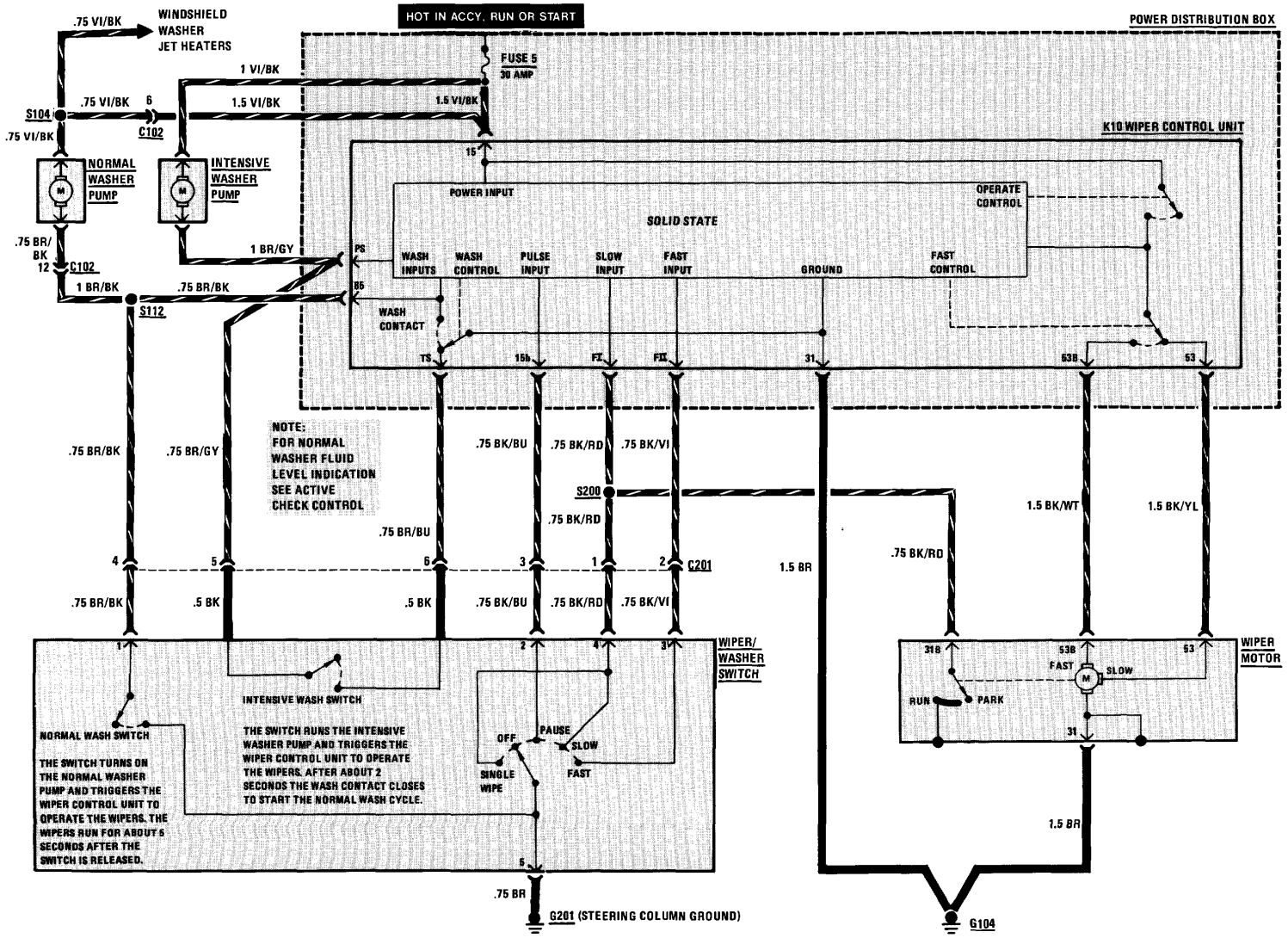
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6131-0 IGNITION KEY WARNING/SEATBELT WARNING

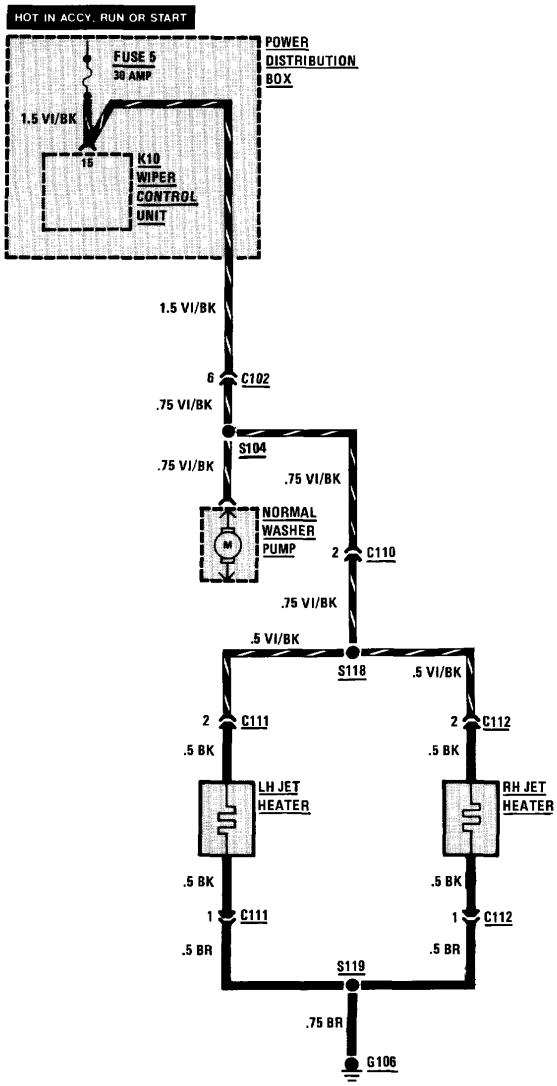


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6160-0 WIPER/WASHER



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CIRCUIT OPERATION

The Wiper/Washer functions are selected by the Wiper/Washer Switch. There are six settings: SINGLE WIPE, PAUSE, SLOW, FAST, NORMAL WASH, and INTENSIVE WASH. These settings are controlled by solid state components in the K10 Wiper Control Unit.

Slow Speed

In the SLOW position, the Wiper/Washer Switch grounds the Slow Input of the K10 Wiper Control Unit through terminal FI. The output relays supply voltage to terminal 53, which supplies voltage to the Wiper Motor. The Wipers sweep at slow speed until they are turned off.

Fast Speed

In the FAST position, the Wiper/Washer Switch grounds the Fast Input of the K10 Wiper Control Unit through terminal FII. The output relays supply voltage to terminal 53B, which supplies voltage to the Wiper Motor. The Wipers sweep at fast speed. When the Wiper/Washer Switch is turned off, the Wipers complete the last sweep at slow speed and then park.

Park

When the Wipers are turned off, the Park/Run contact remains closed if the Wipers are not in the PARK position. The Wiper Motor continues to sweep at slow speed. When the Wipers reach the PARK position, the Park/Run Relay of the Wiper Motor circuit opens, stopping the Motor. The Wipers remain in the Park position.

Pause

In the PAUSE position, the Wiper/Washer Switch grounds the Pause Input of the K10 Wiper Control Unit through terminal 15b. The Control Unit momentarily supplies voltage through the contacts of the Relay to run the Wiper Motor at slow speed. When the Wiper blades have reached park, the Park/Run Relay opens. The blades remain in park until the Control Unit supplies voltage to start another sweep. The pause time is 5 seconds.

Normal Wash

In the WASH position, the Wiper/Washer Switch grounds the Normal Wash Input of the K10 Wiper Control Unit and the Normal Washer Pump through terminal B5. The Washer continues and the Wipers sweep at slow speed for as long as the Switch is held. After the Washer Switch is released, the Wipers sweep for approximately 3 additional seconds.

Intensive Wash

When the INTENSIVE WASH is activated, the Wiper/Washer Switch grounds the Intensive Wash Input of the K10 Wiper Control Unit. The Intensive Washer Pump is grounded through the K10 Wiper Control Unit to ground G104. The Intensive Washer Pump runs for approximately 1 second to spray the Windshield. The Wipers are activated, and run for approximately 5 seconds. The K10 Wiper Control Unit then closes the relay to activate the Normal Washer Pump. The Normal Washer Pump runs for approximately 2 seconds to finish cleaning the windshield.

TROUBLESHOOTING HINTS

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

1. Check Fuse 5.
2. Check that grounds G104, G106, and G201 are clean and tight.

- **Go to System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

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.**

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SYSTEM CHECK TABLE

ACTION	NORMAL OPERATION
Activate Single Wipe by moving the Wiper/Washer control arm down and then releasing it.	Wipers sweep once and park.
Activate Pause Wipe by moving the Wiper/Washer control arm up one position.	Wipers sweep at slow speed every 5 seconds.
Activate Slow Wipe by moving the Wiper/Washer control arm up one more position.	Wipers sweep at slow speed.
Activate Fast Wipe by moving the Wiper/Washer control arm up one more position.	Wipers sweep at fast speed.
Turn Wipers off by returning Wiper/Washer control arm to the original position.	Wipers stop and park.
Activate Normal Wash Cycle by pulling Wiper/Washer control arm towards driver.	Normal Washer Pump runs until control arm is released and Wipers sweep at slow speed. After control arm is released, wipers continue for 3 seconds.
Activate Intensive Wash by pushing Wiper/Washer control arm to the left.	Intensive Washer Pump runs for 1 second before a 2-second Normal Wash Cycle. Wipers sweep at slow speed for 5 seconds.

- **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
Wipers do not operate at all.	Do Test A: K10 Wiper Control Unit Battery Voltage Test Do Test B: Wiper Motor Test Do Test C: Wiper/Washer Switch Test
Wipers do not operate in PAUSE.	Do Test C: Wiper/Washer Switch Test

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Wipers do not operate in SLOW or FAST.	Do Test B: Wiper Motor Test Do Test C: Wiper/Washer Switch Test
Normal Washer does not operate at all.	Do Test D: Normal Washer Pump Test
Wipers do not park.	Check 31B wire of Wiper Motor for an open. If wire is OK, replace Wiper Motor.
Wipers run continuously.	1. Disconnect connector C201. If Wipers stop, replace Wiper/Washer Switch. 2. Check that wires to terminals 3 and 4 are not shorted to ground. 3. Replace K10 Wiper Control Unit.
Washer Jets freeze.	Do Test E: Washer Jet Heater Test
Intensive Washer Pump does not operate at all.	Do Test F: Intensive Washer Pump Test

A: K10 WIPER CONTROL UNIT BATTERY VOLTAGE TEST

Measure: VOLTAGE
At: K10 WIPER CONTROL UNIT (Disconnected)
Condition:
- **Ignition Switch: ACCY**

Measure Between	Correct Voltage	For Diagnosis
15 & Ground	Battery	See 1
15 & 31	Battery	See 2

- If both voltages are correct, go to Symptom Table.

1. Check Fuse 5 and wire to terminal 15 for an open.
2. Check wire from terminal 31 for an open to ground.

B: WIPER MOTOR TEST

Connect: FUSED JUMPER
At: K10 WIPER CONTROL UNIT (Disconnected)
Condition:
- **Ignition Switch: ACCY**

Jumper Between	Correct Result	For Diagnosis
15 & 53B	Wipers sweep at Fast speed	See 1
15 & 53	Wipers sweep at Slow speed	See 2

- If both results are correct, go to Symptom Table.

1. Check wires from terminal 53B for an open (see schematic). If wire is OK, replace Wiper Motor.
2. Check wire from terminal 53 for an open (see schematic). If wire is OK, replace Wiper Motor.

C: WIPER/WASHER SWITCH TEST

Connect: TEST LAMP
At: K10 WIPER CONTROL UNIT (Disconnected)
Conditions:
- **Ignition Switch: ACCY**
- **Wiper/Washer Switch: SINGLE WIPE and then SLOW**

Connect Between	Correct Result	For Diagnosis
15 & FI	Test Lamp Lights	See 1
• Wiper/Washer Switch: PAUSE		
15 & 15b	Test Lamp Lights	See 2
• Wiper/Washer Switch: FAST		
15 & FII	Test Lamp Lights	See 3

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- If all results are correct, replace K10 Wiper Control Unit.

1. Check wire from terminal FI of the Control Unit and wire from terminal 5 of the Wiper/Washer Switch for an open to ground. If wire is OK, replace Wiper/Washer Switch.
2. Check wire from terminal 15b for an open to ground. If wire is OK, replace Wiper/Washer Switch.
3. Check wire from terminal FII for an open to ground. If wire is OK, replace Wiper/Washer Switch.

D: NORMAL WASHER PUMP TEST

Measure: VOLTAGE
At: NORMAL WASHER PUMP CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: ACCY**
- **Wiper/Washer Switch: WASH**

Measure Between	Correct Voltage	For Diagnosis
Power Lead & Ground (see schematic)	Battery	See 1
Power Lead & Ground Lead (see schematic)	Battery	See 2

- If both voltages are correct, replace Normal Washer Pump.

1. Check power lead and Fuse 5 for an open (see schematic).
2. Check ground lead for an open to ground (see schematic). If OK, replace Wiper/Washer Switch.

E: WASHER JET HEATER TEST

Connect: TEST LAMP
At: EITHER JET HEATER CONNECTOR C111 OR C112 (Disconnected)
Condition:
- **Ignition Switch: ACCY**

Connect Between	Correct Result	For Diagnosis
2 (Female) & Ground	Test Lamp Lights	See 1
2 (Female) & 1 (Female)	Test Lamp Lights	See 2

- If both results are correct, replace the defective Jet Heater.

1. Check Fuse 5 and wire to terminal 2 for an open.
2. Check wire from terminal 1 for an open and make sure ground G106 is clean and tight.

F: INTENSIVE WASHER PUMP TEST (TABLE 1)

Measure: VOLTAGE
At: INTENSIVE WASHER PUMP CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: ACCY**
- **Disconnect C201 & Jumper Terminal 5 To Ground**

Measure Between	Correct Voltage	For Diagnosis
Power Lead & Ground (see schematic)	Battery	See 1

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Power Lead & Ground Lead (see schematic)	Battery	See 2

- If both voltages are correct, go to Table 2.

1. Check Fuse 5 and power lead for an open.
2. Check ground lead for an open.

F: INTENSIVE WASHER PUMP TEST (TABLE 2)

Connect: TEST LAMP
At: K10 WIPER CONTROL UNIT (Disconnected)
Conditions:
- **Ignition Switch: ACCY**
- **Wiper/Washer Switch: INTENSIVE WASH**

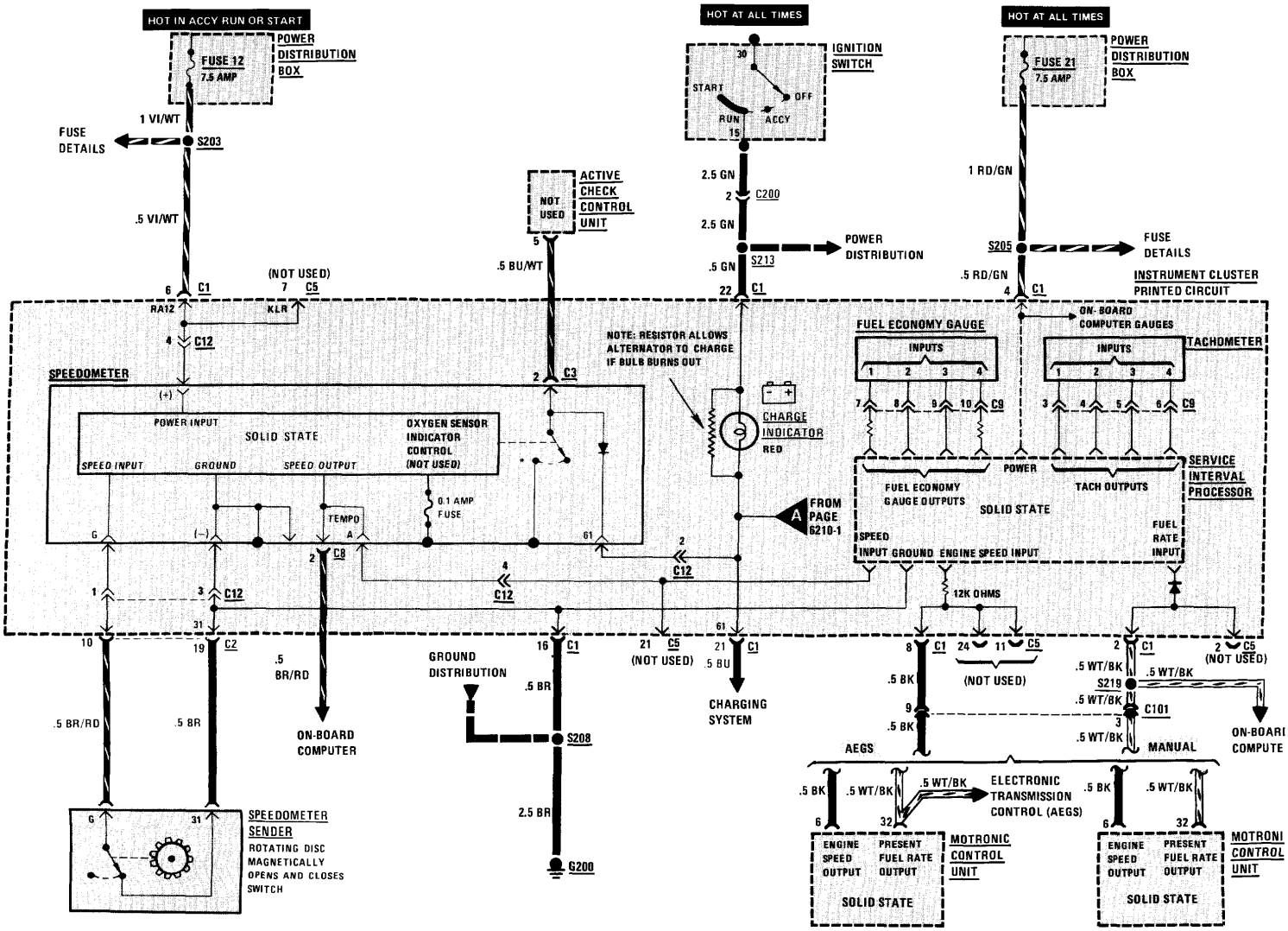
Connect Between	Correct Voltage	For Diagnosis
TS & Ground	Test Lamp Lights	See 1

- If the result is correct, replace Wiper Control Unit.

1. Check wire to connector C201, terminal 6 for an open. If wire is OK, replace Wiper/Washer Switch.

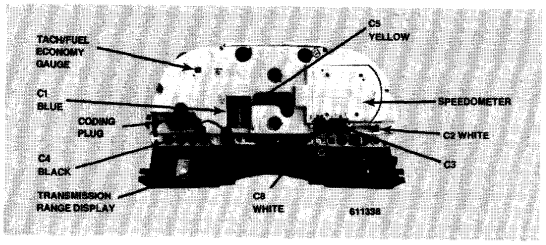
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SPEEDOMETER/GAUGES/WARNING INDICATORS



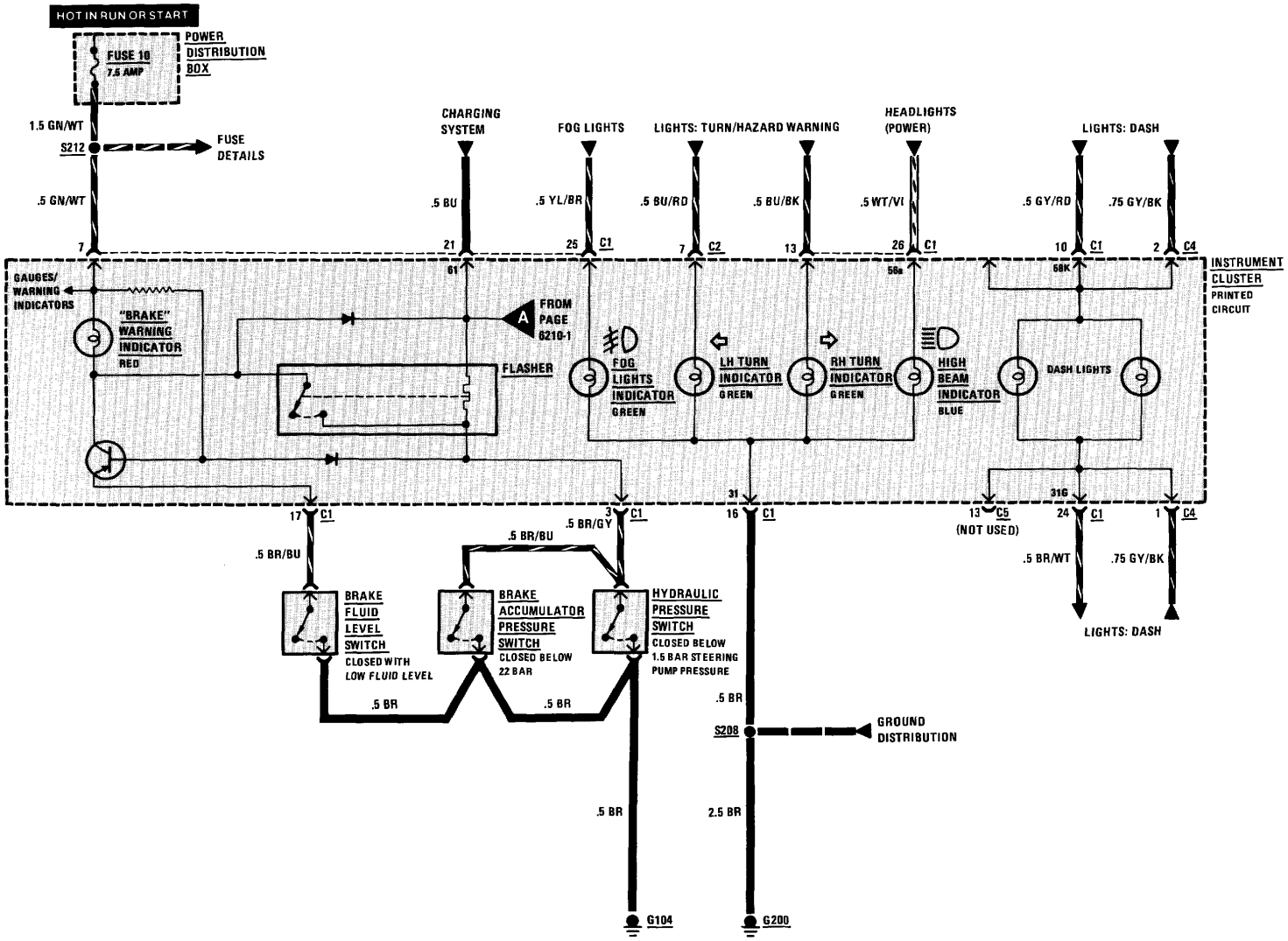
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GAUGES/WARNING INDICATORS



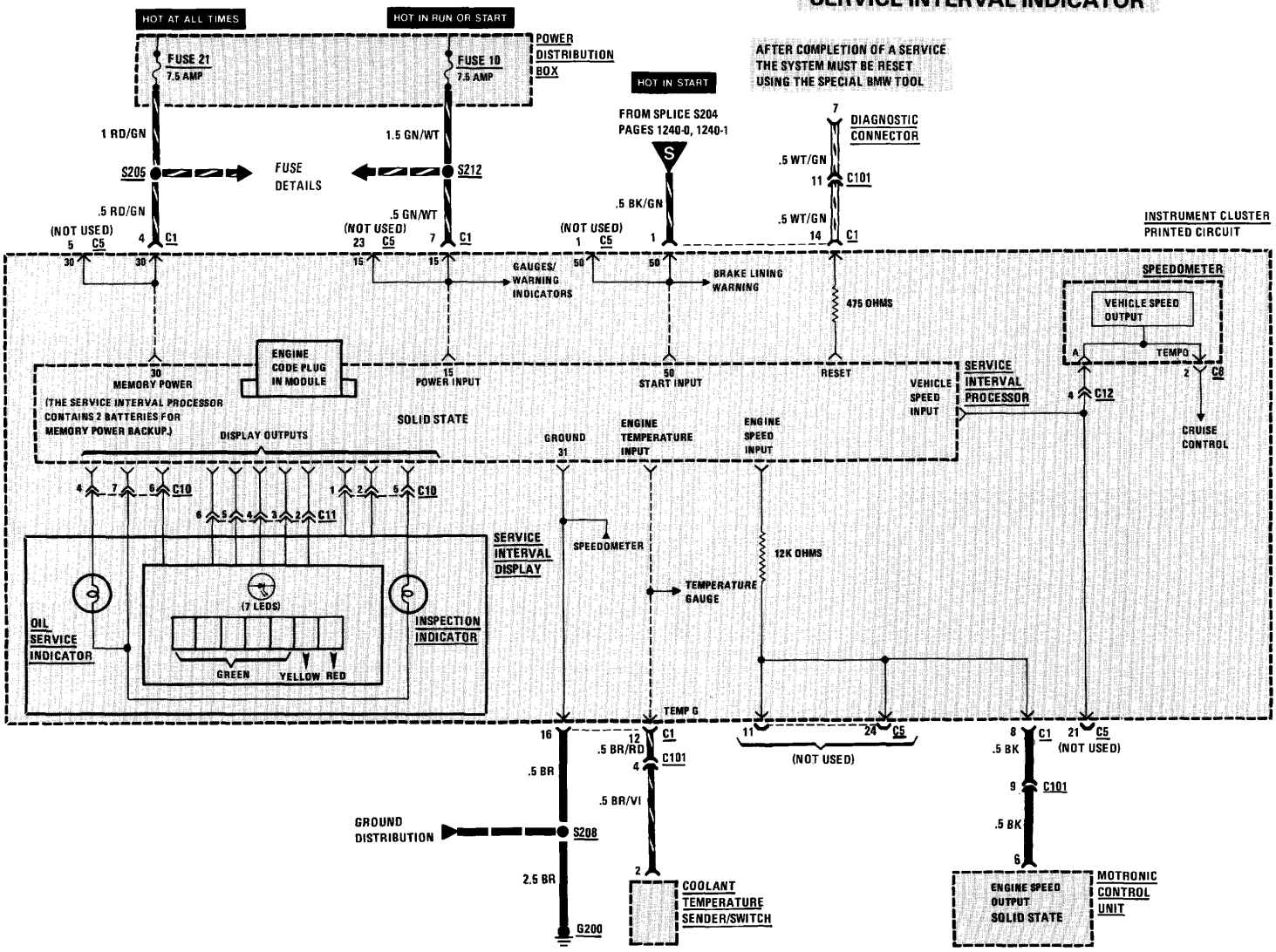
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WARNING INDICATORS



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SERVICE INTERVAL INDICATOR



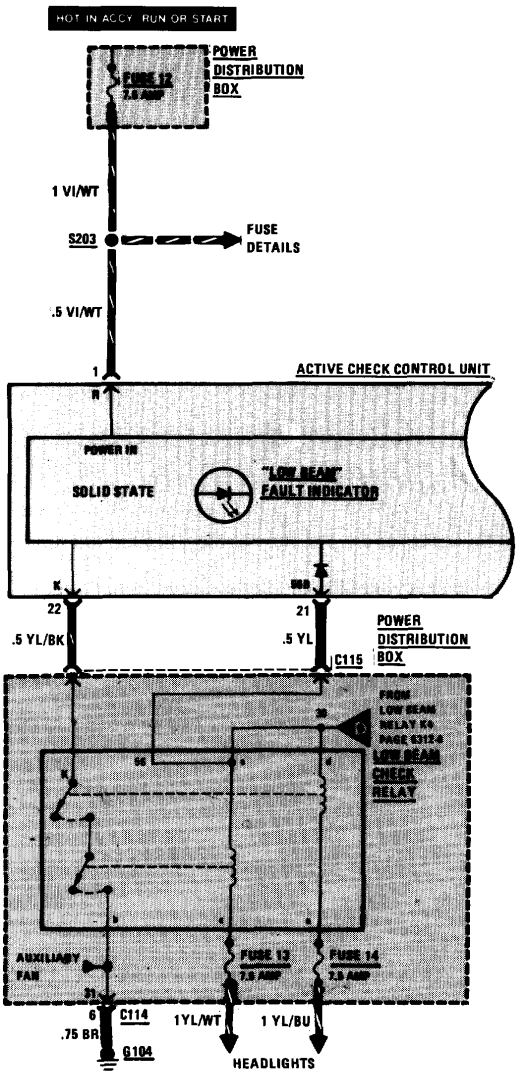
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ACTIVE CHECK CONTROL

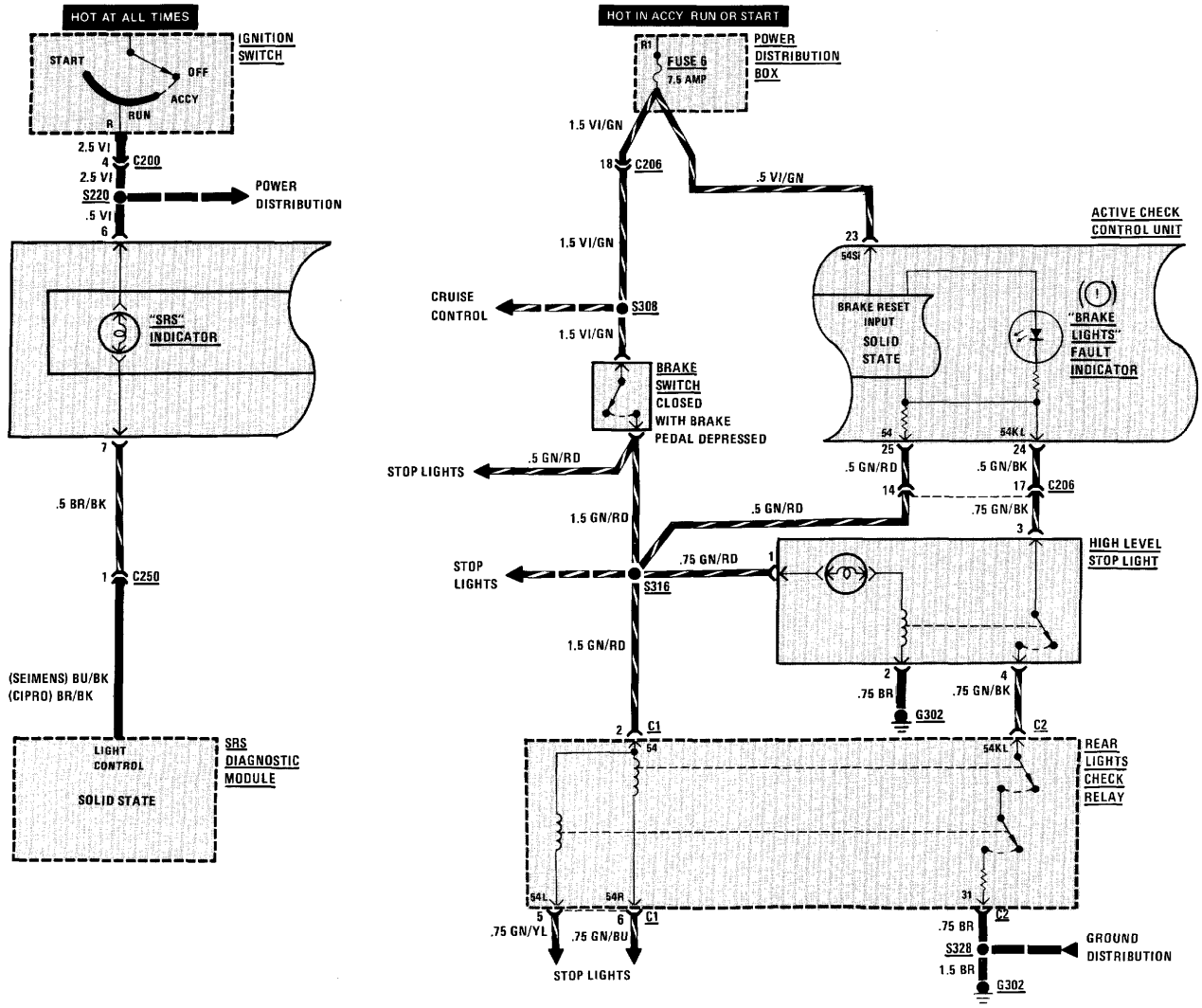
1. When the Ignition Switch is initially placed in "Run," the Active Check Control Arm Indicator flashes, and the Active Check Control Unit Brake Light LED and panel light illuminate for test purposes. Depressing the brake pedal clears the display.
2. When the Ignition Switch is placed in "Run," fault 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 (Dash, Left Of Steering Column)

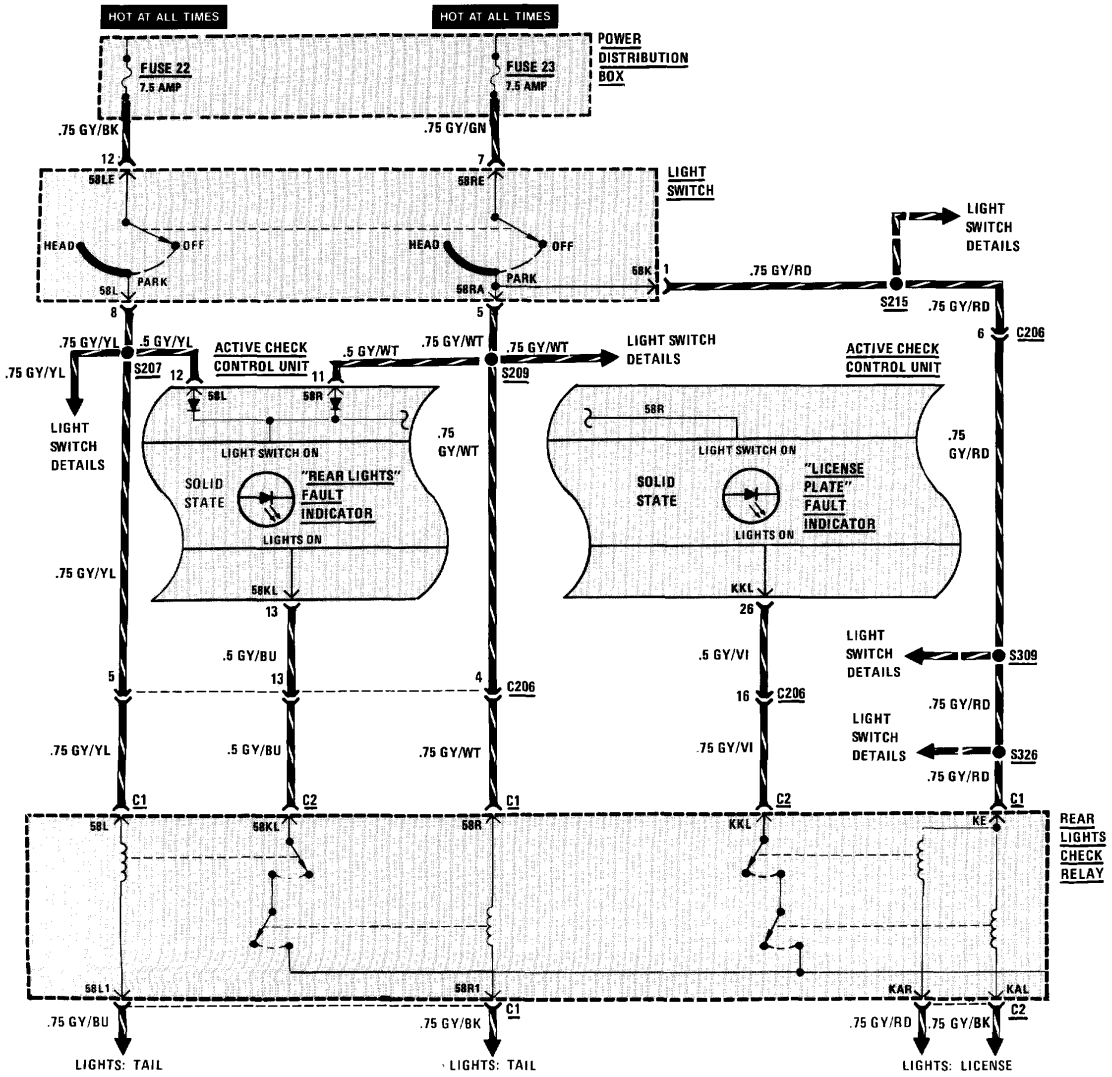


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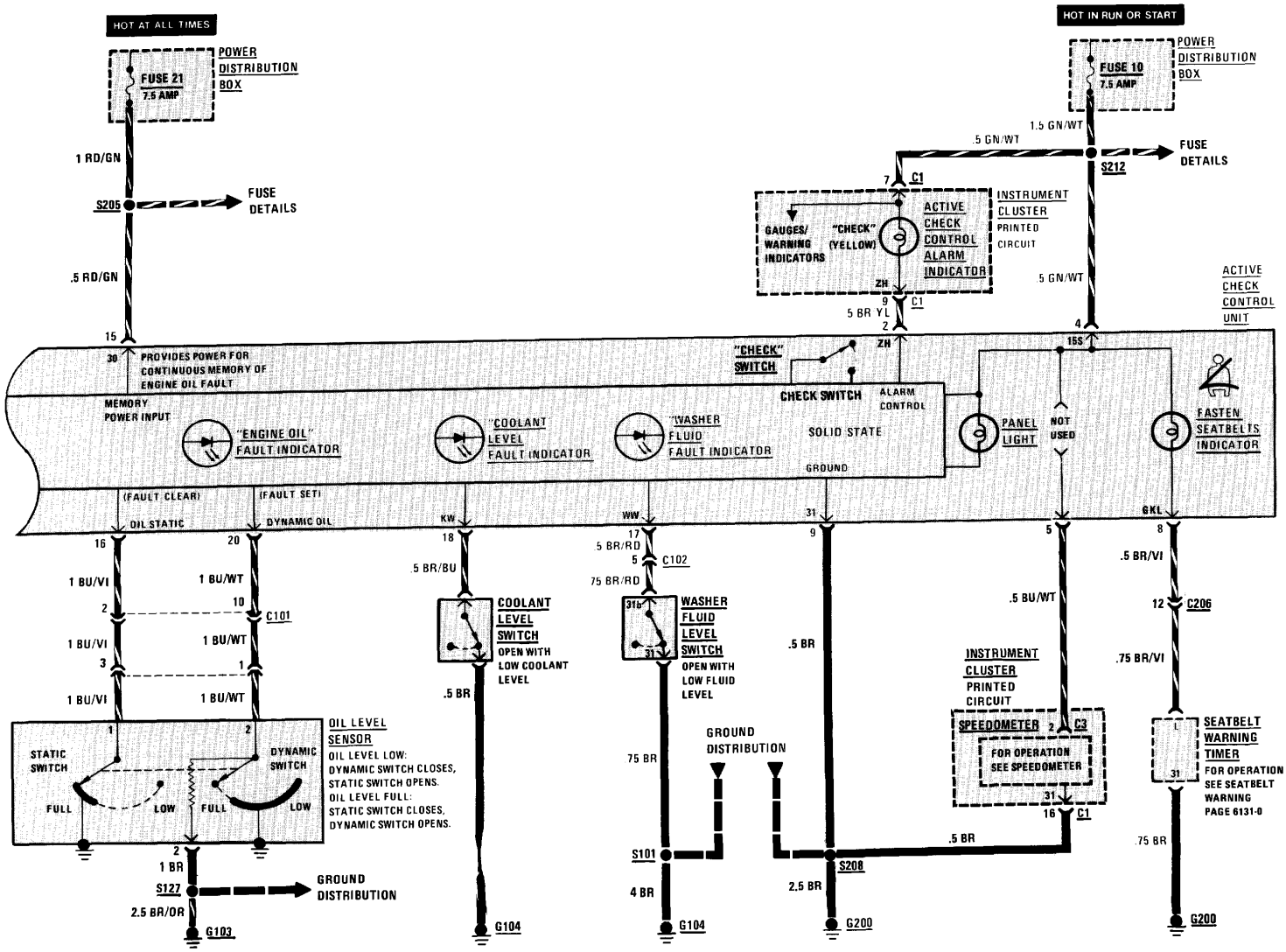


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6216-2 ACTIVE CHECK CONTROL

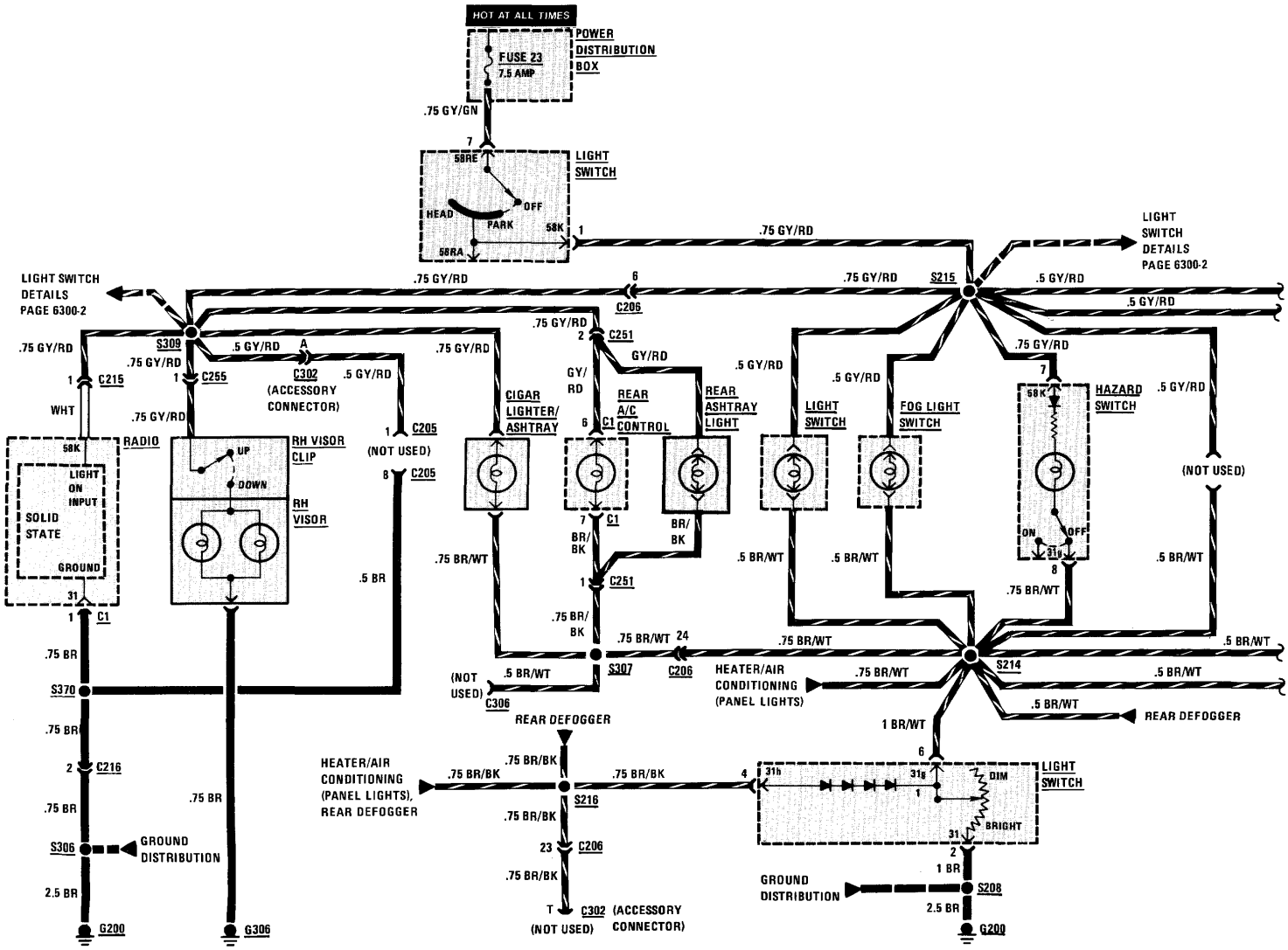


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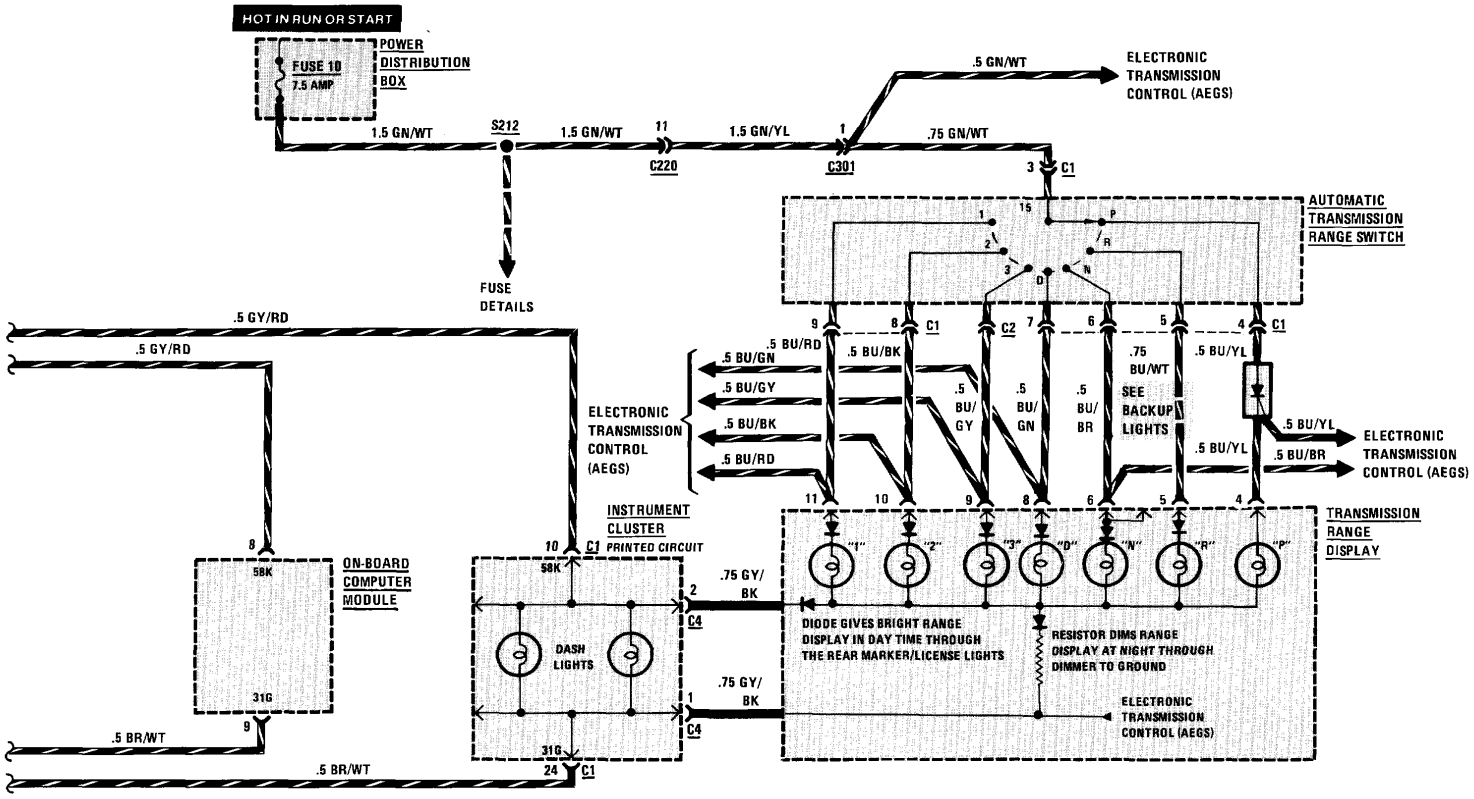
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LIGHTS: DASH/TRANSMISSION RANGE/RH VISOR



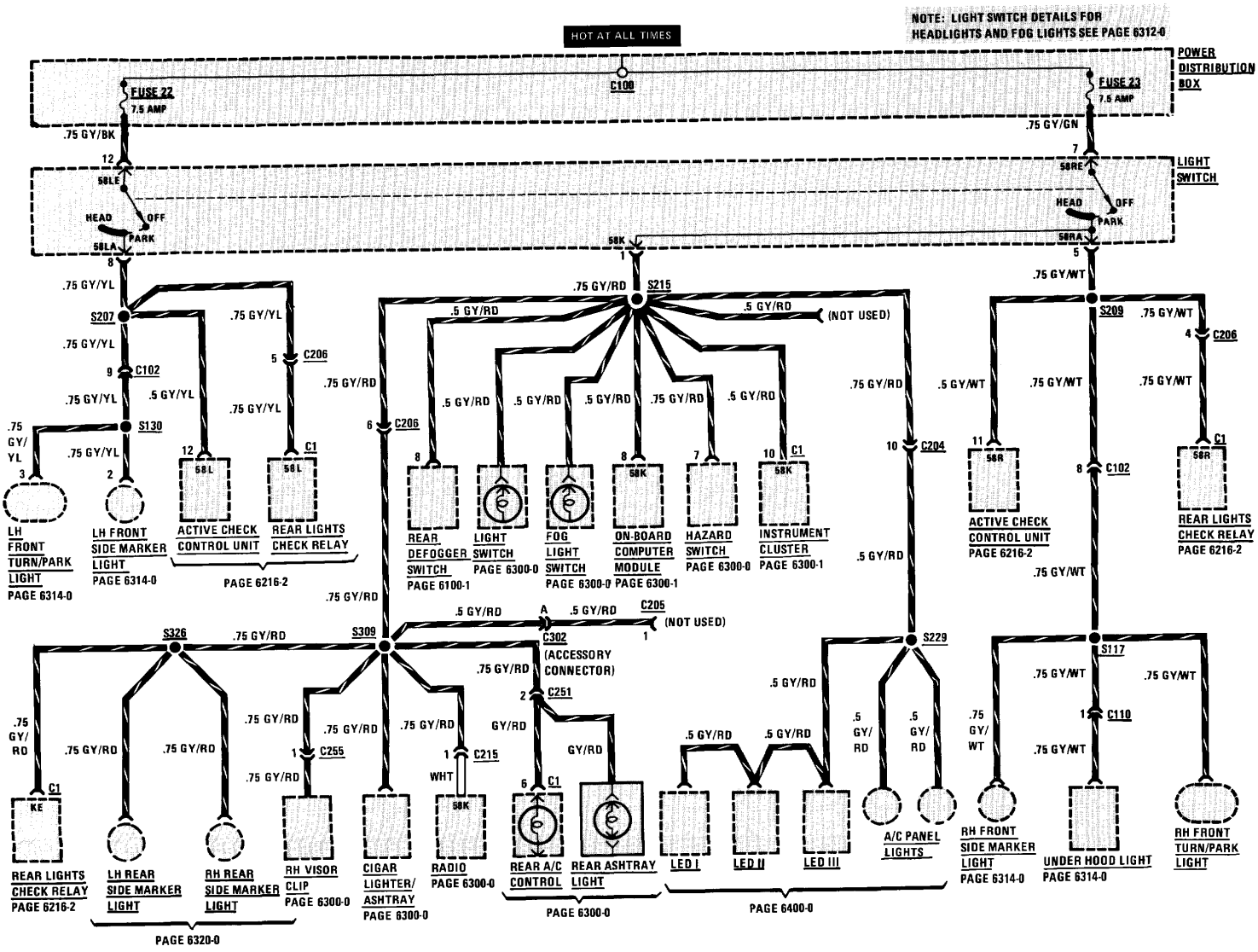
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LIGHTS: DASH/TRANSMISSION RANGE



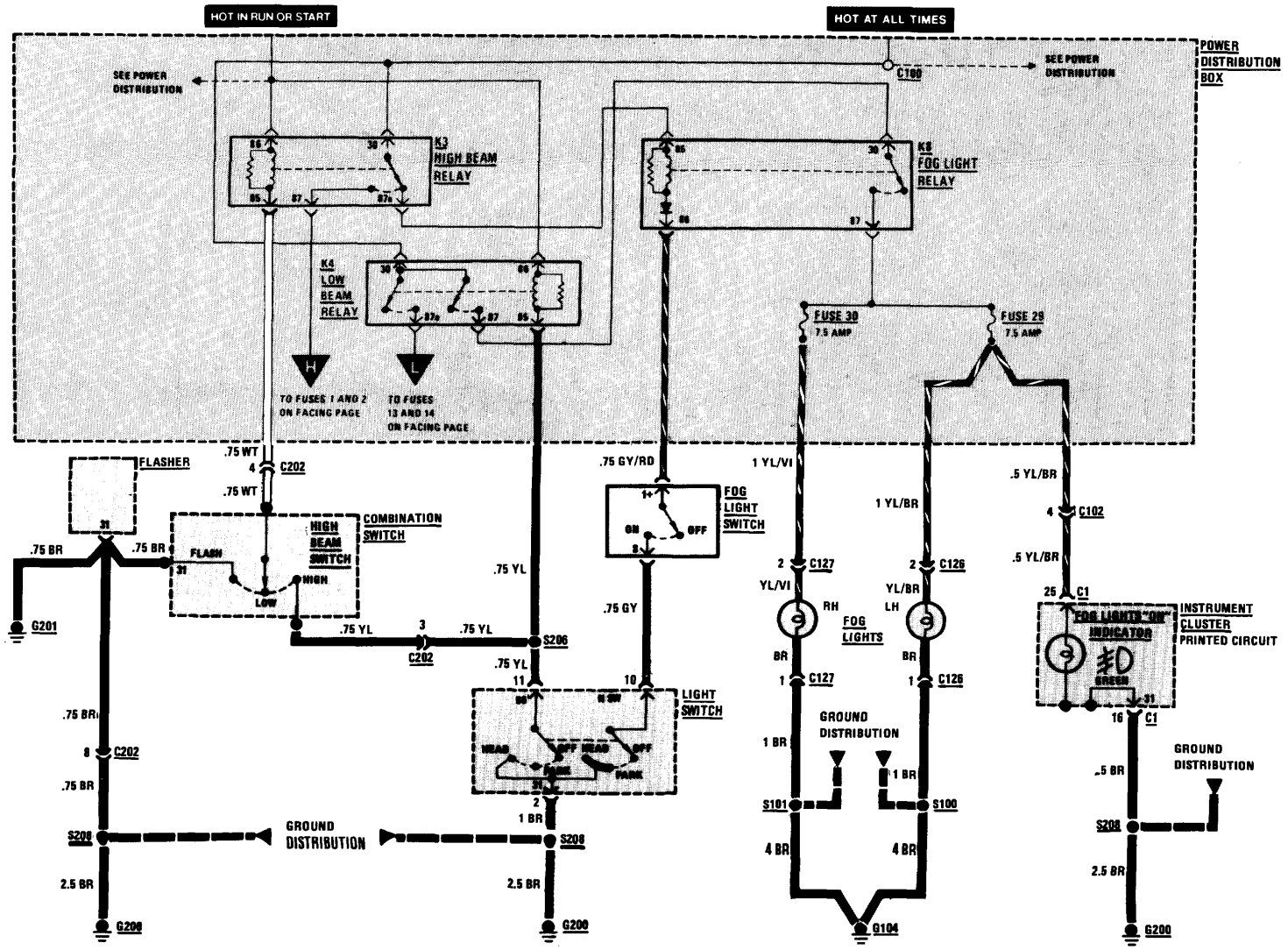
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6300-2 LIGHT SWITCH DETAILS



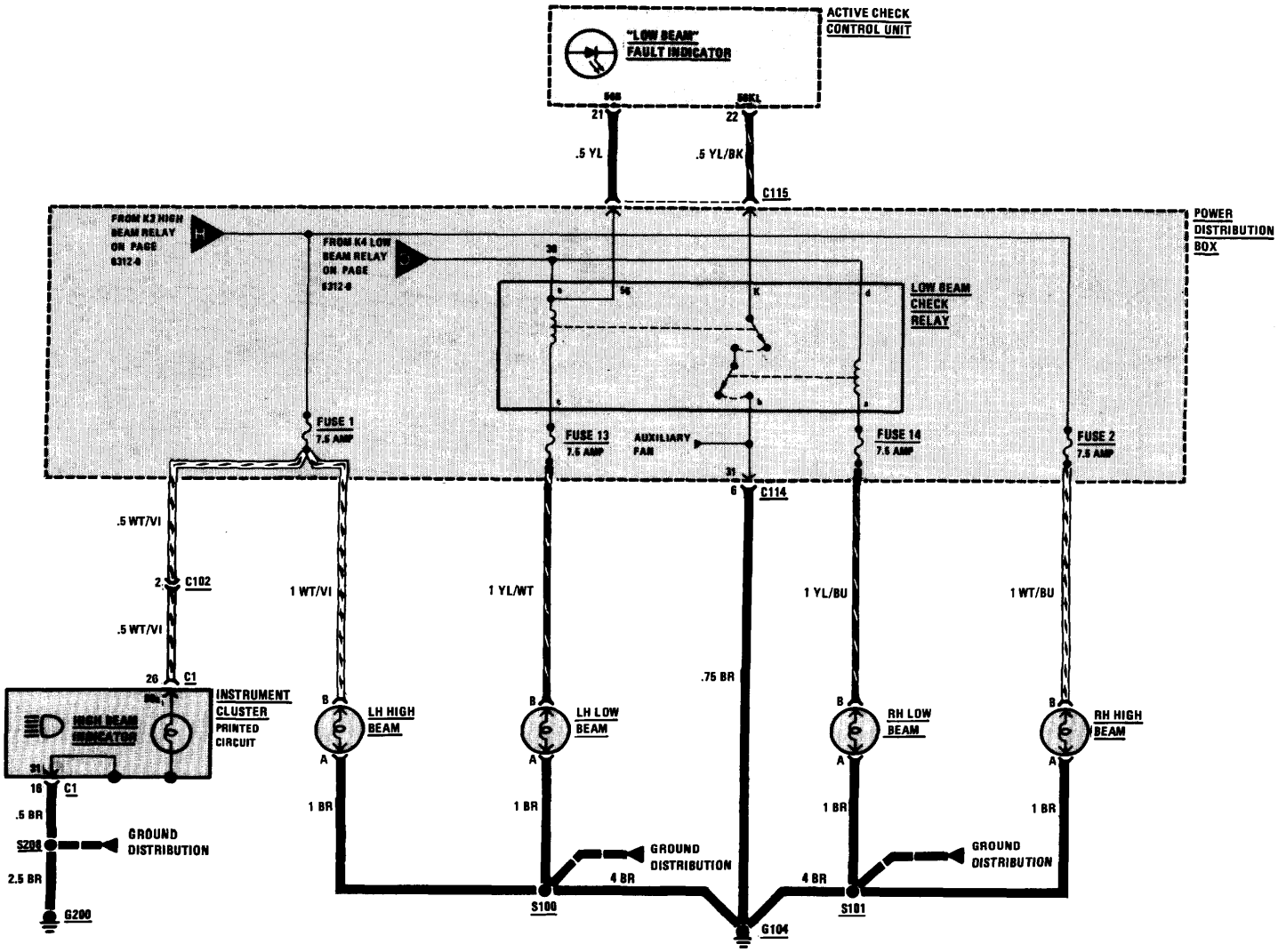
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HEADLIGHTS (CONTROL) AND FOG LIGHTS



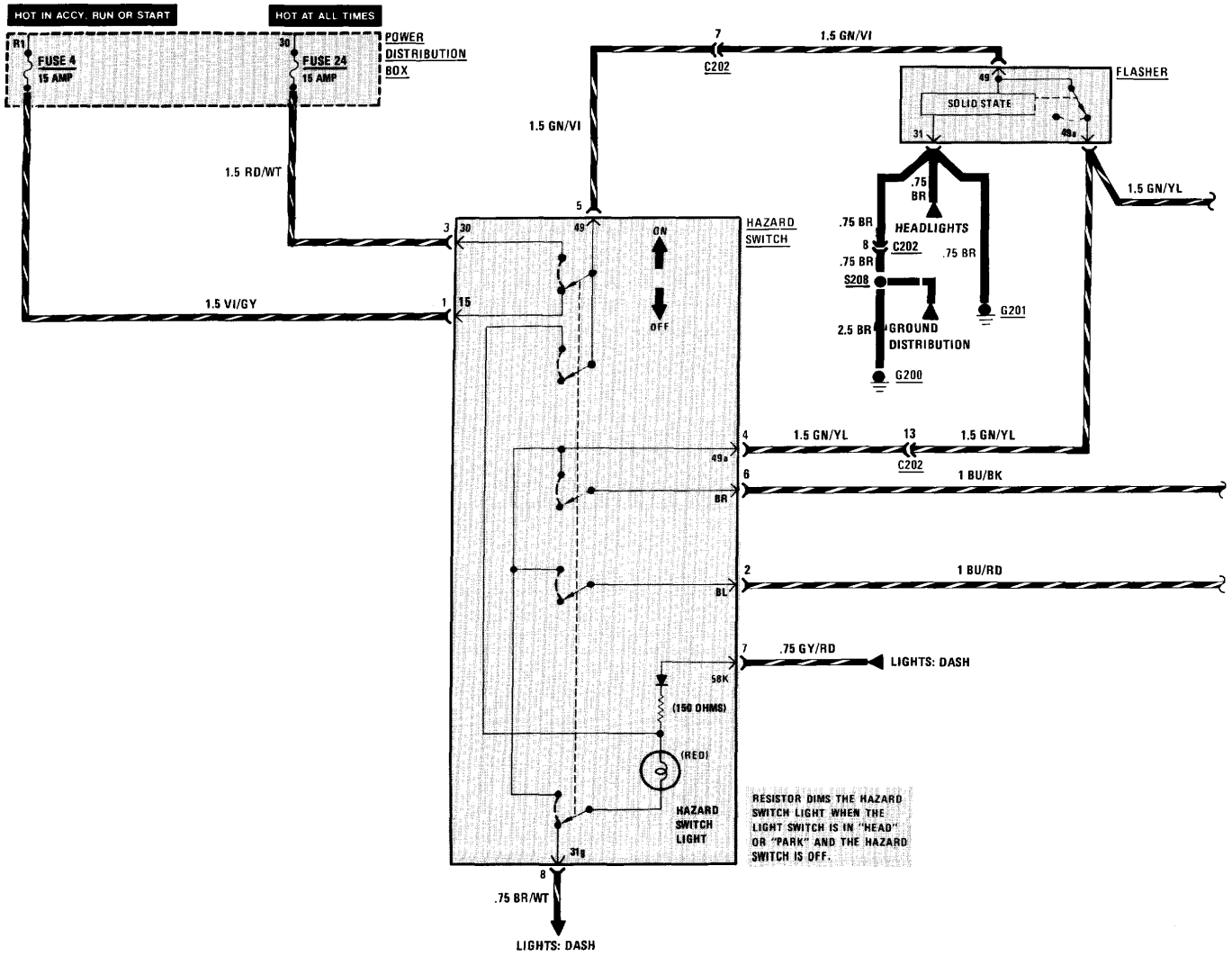
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HEADLIGHTS (POWER)

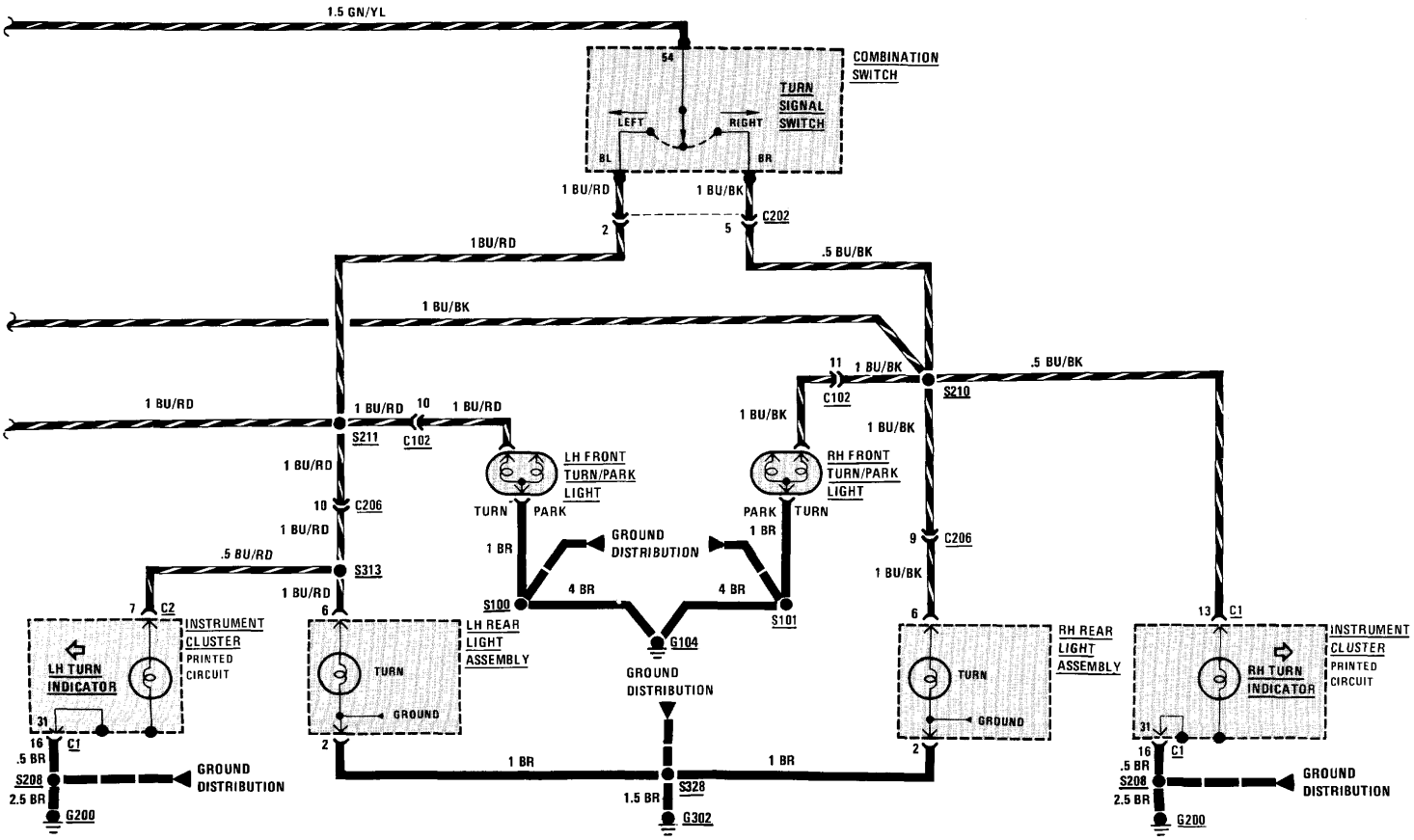


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6313-0 TURN/HAZARD LIGHTS

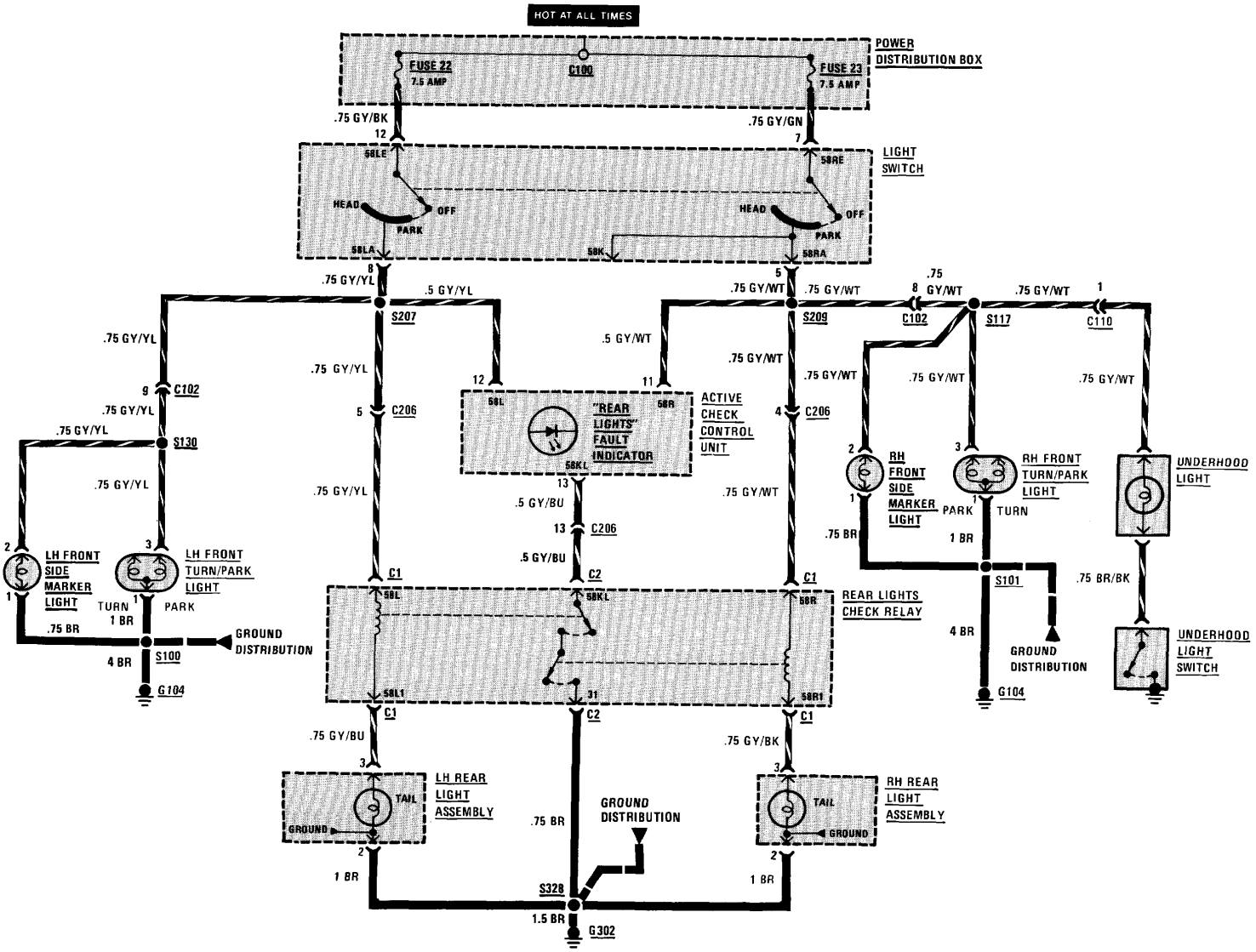


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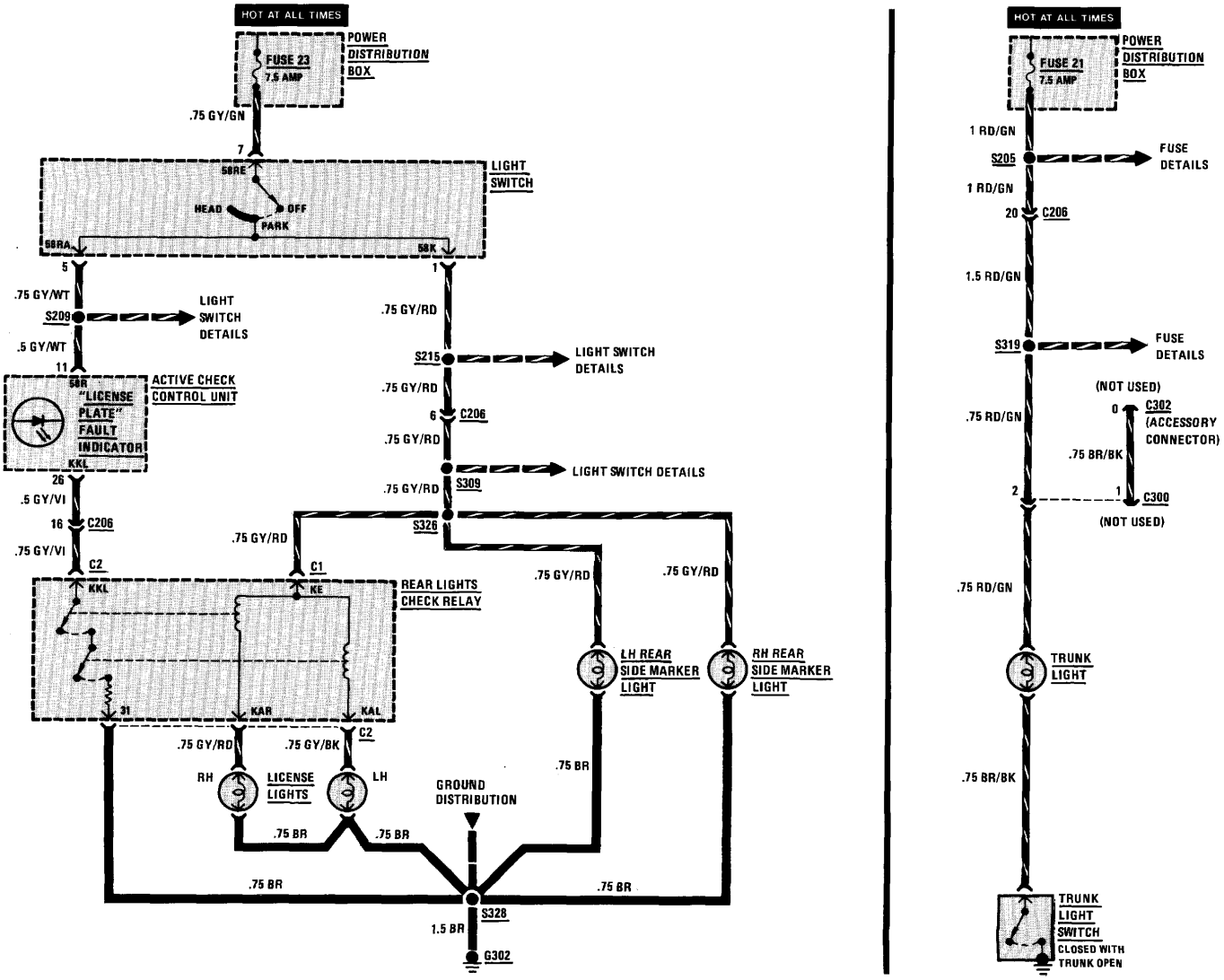
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6314-0 PARK/TAIL/UNDERHOOD/MARKER LIGHTS



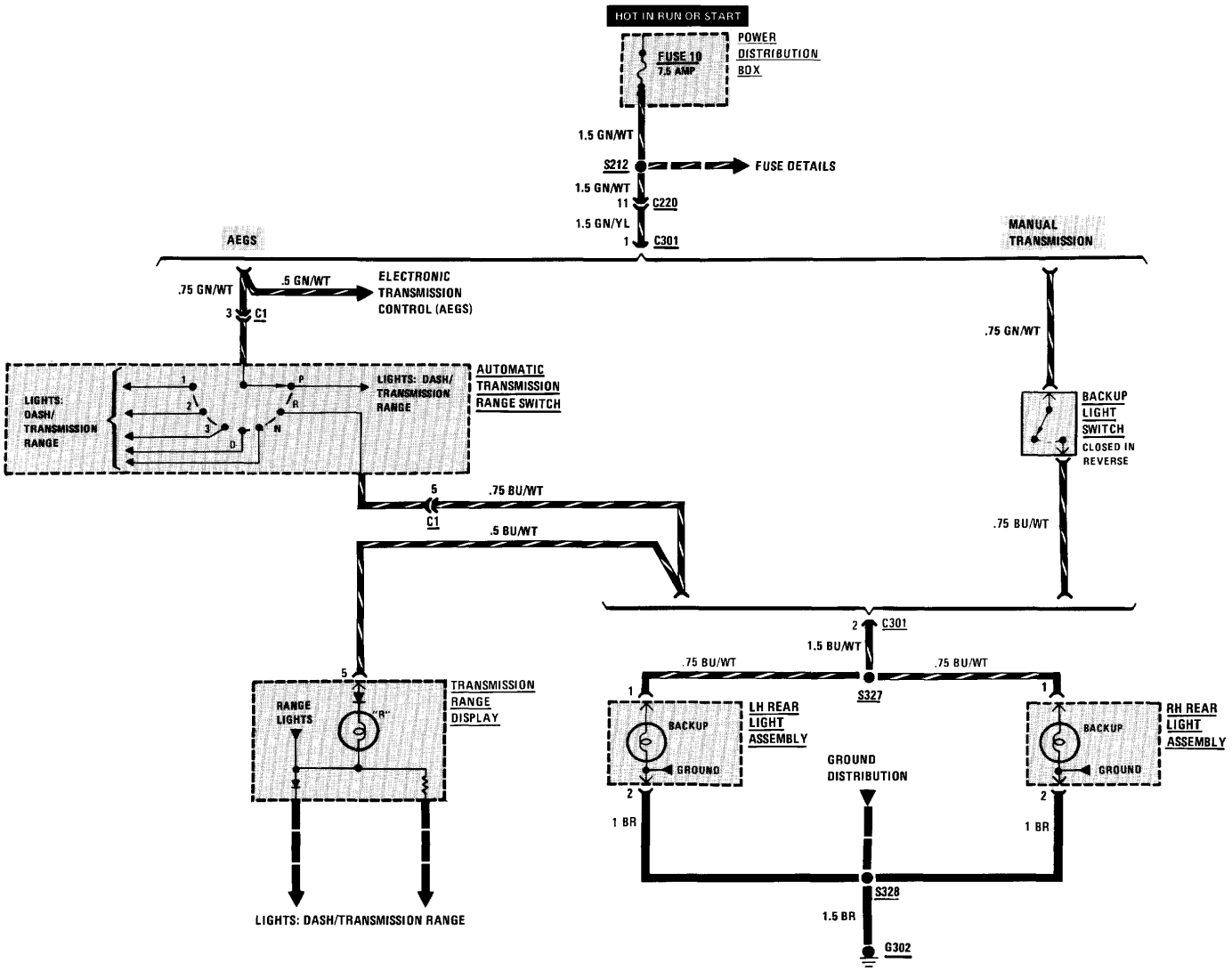
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6320-0 REAR MARKER/LICENSE/TRUNK LIGHTS



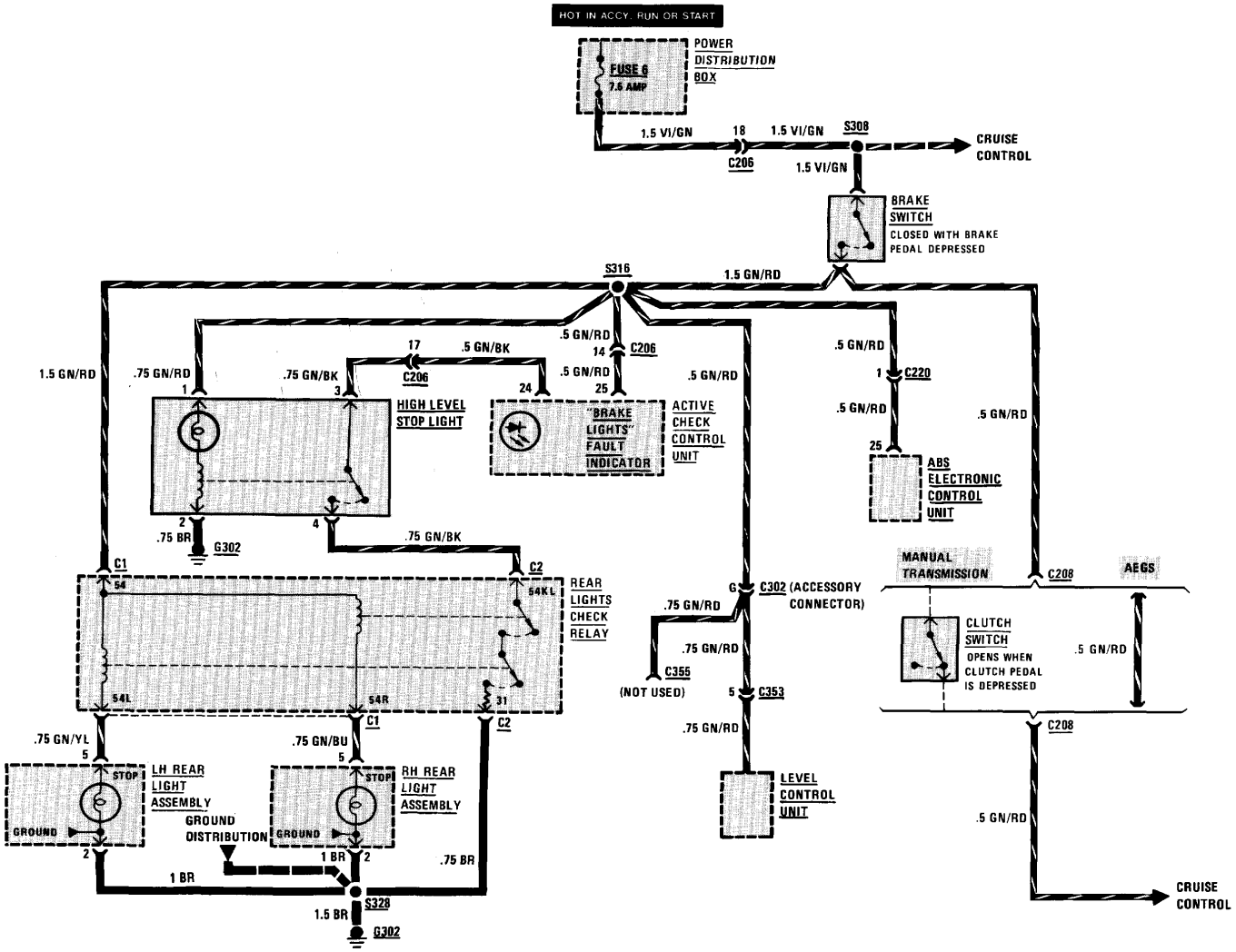
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6322-0 BACKUP LIGHTS



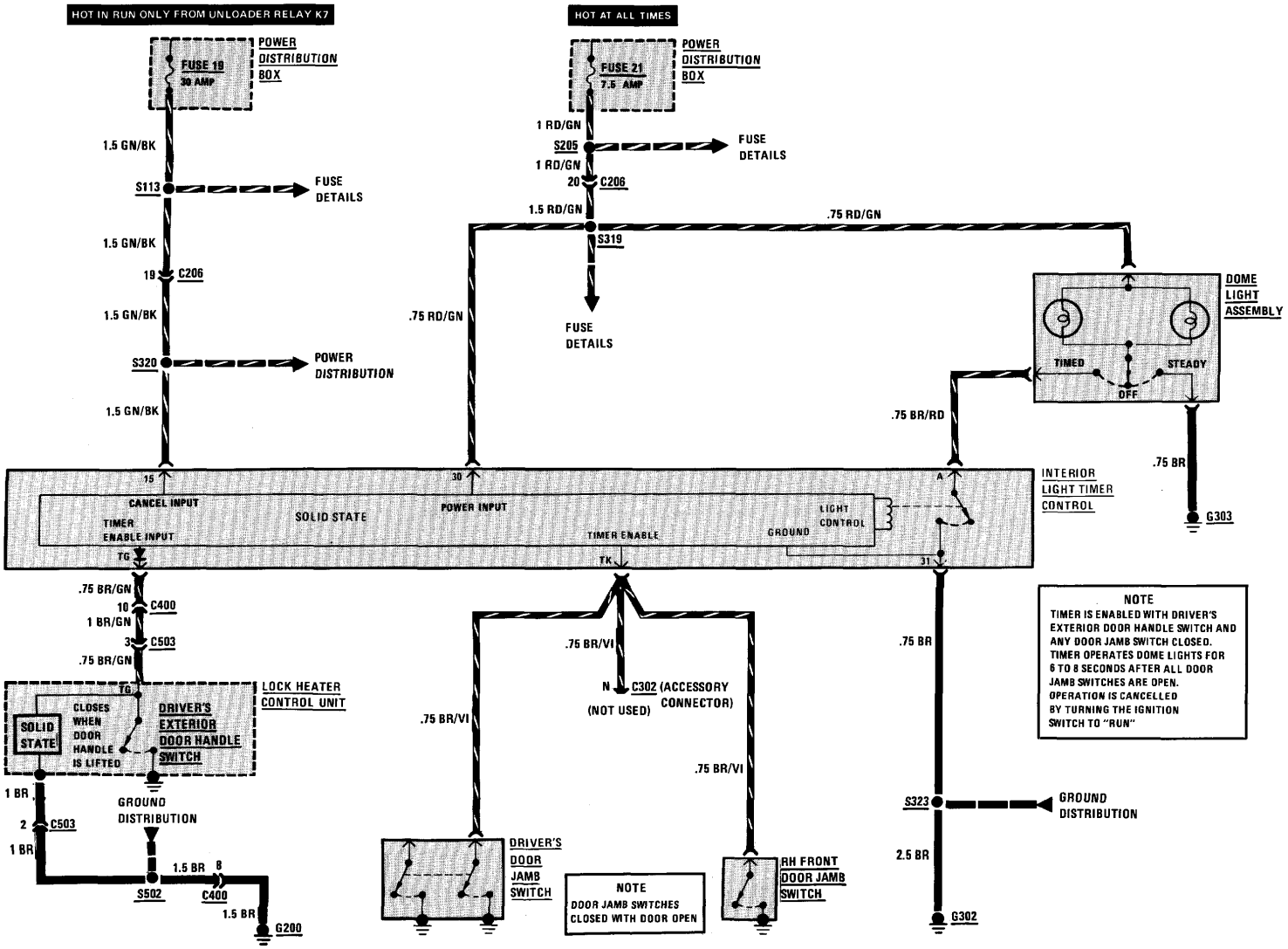
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6325-0 STOP LIGHTS



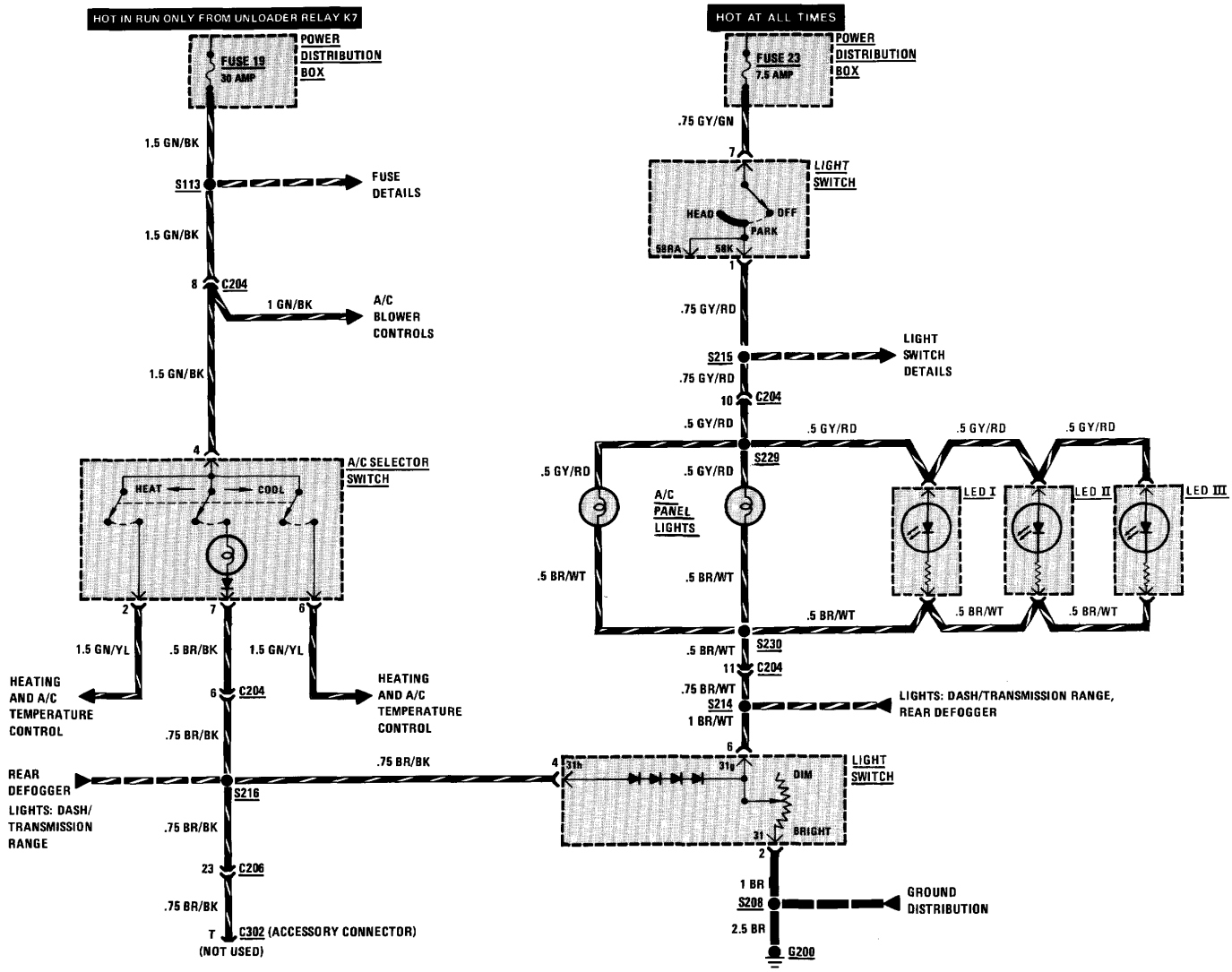
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6330-0 INTERIOR LIGHTS



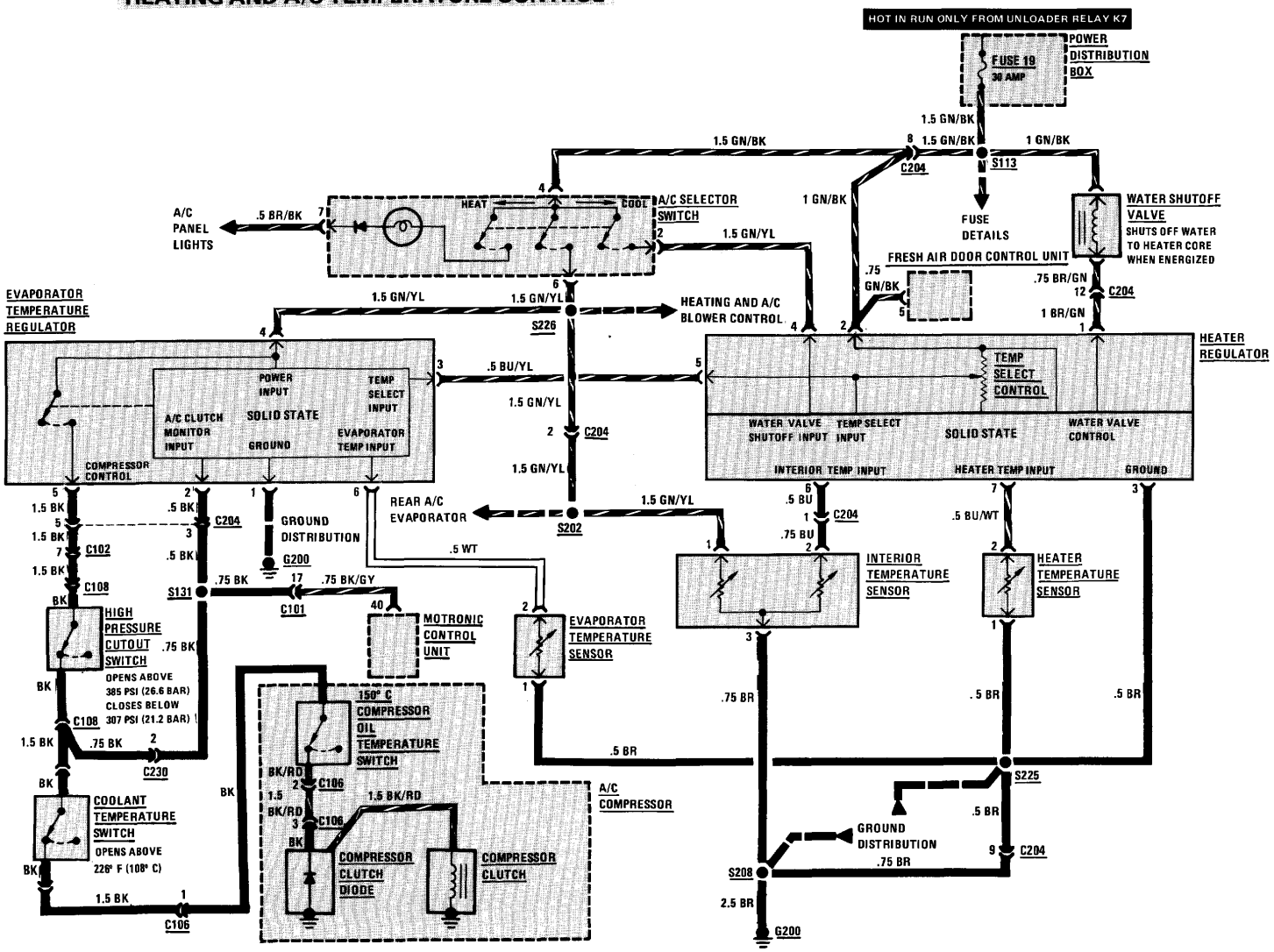
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HEATING AND A/C PANEL LIGHTS



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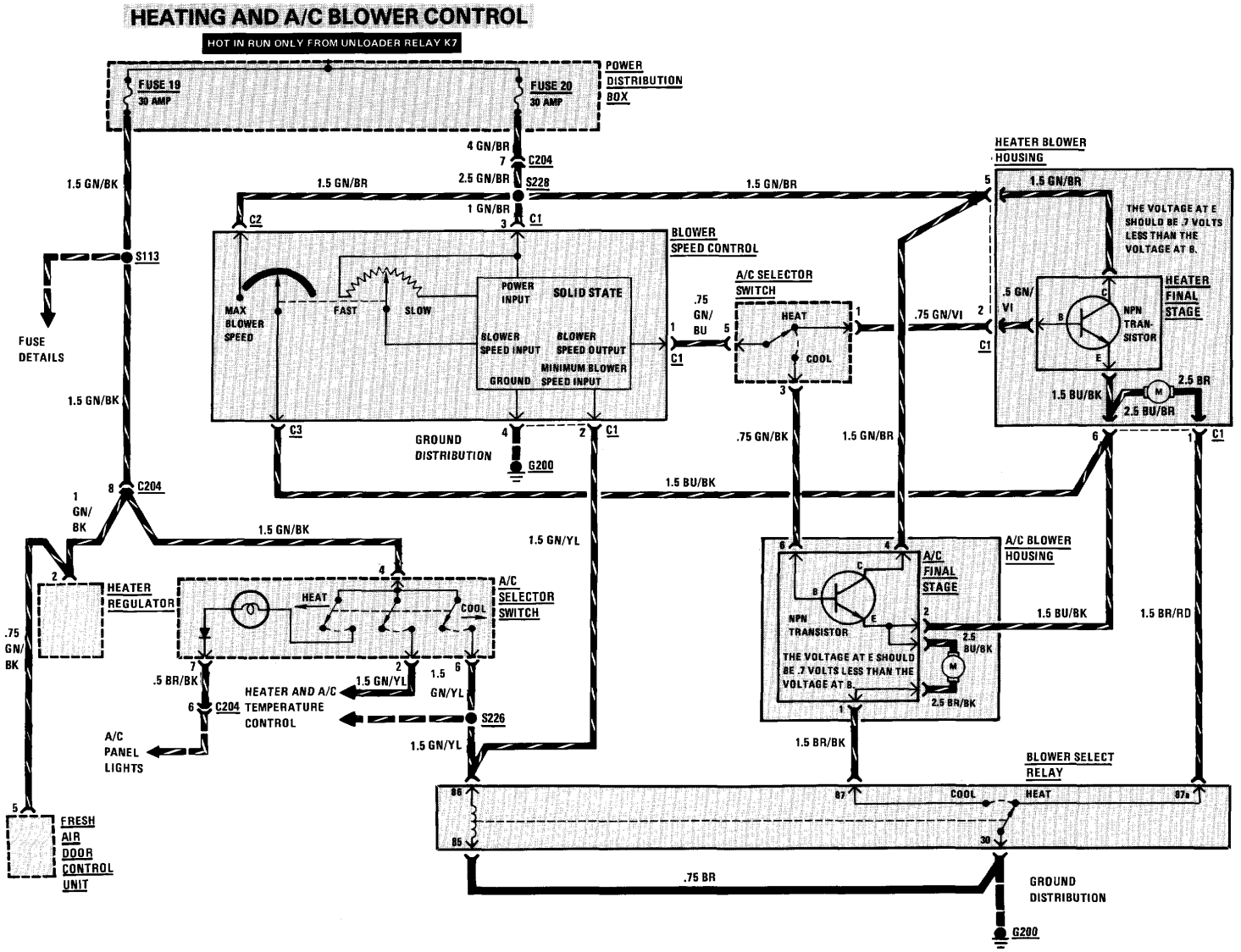
HEATING AND A/C TEMPERATURE CONTROL



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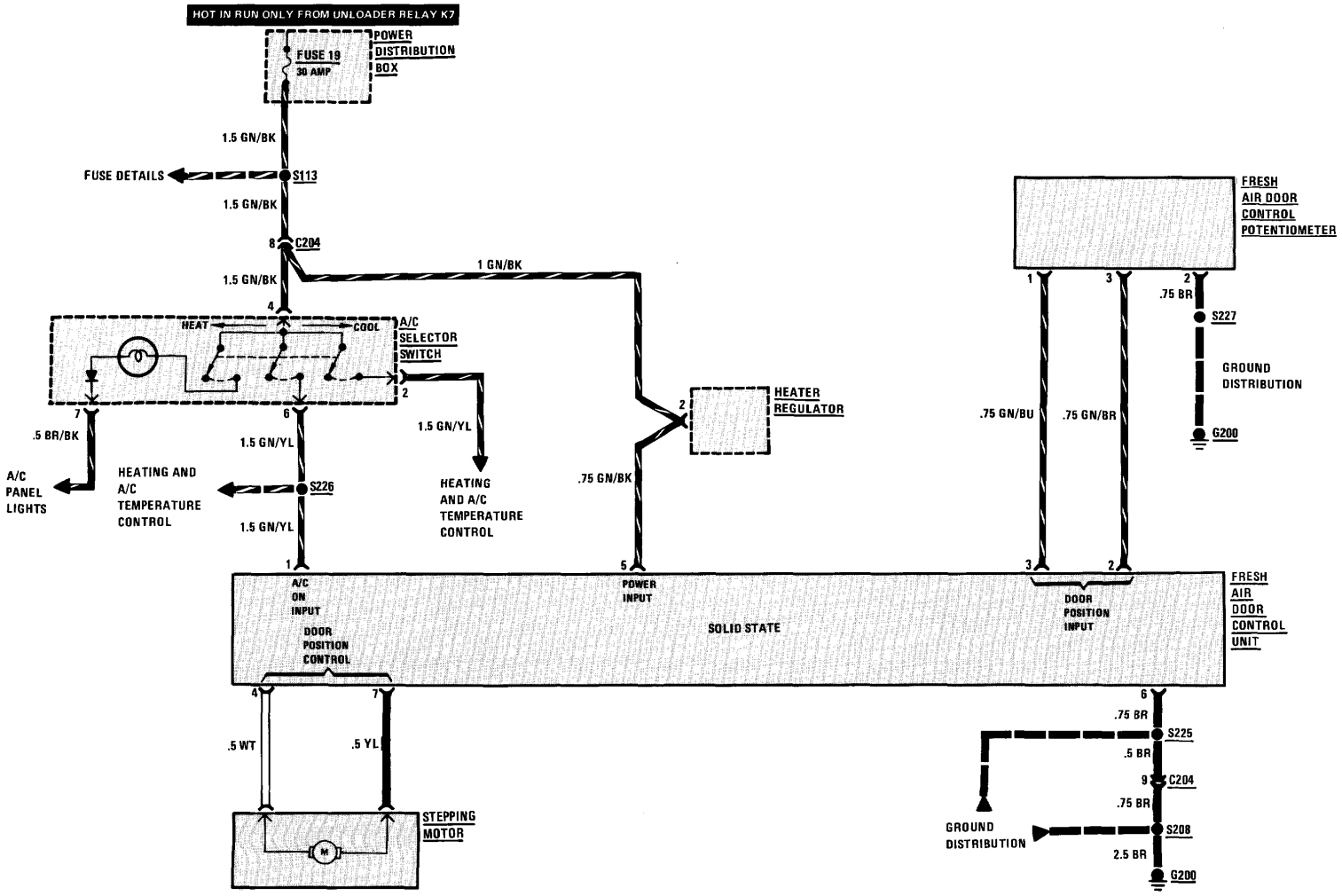
6413-0 A/C BLOWER CONTROLS

HEATING AND A/C BLOWER CONTROL



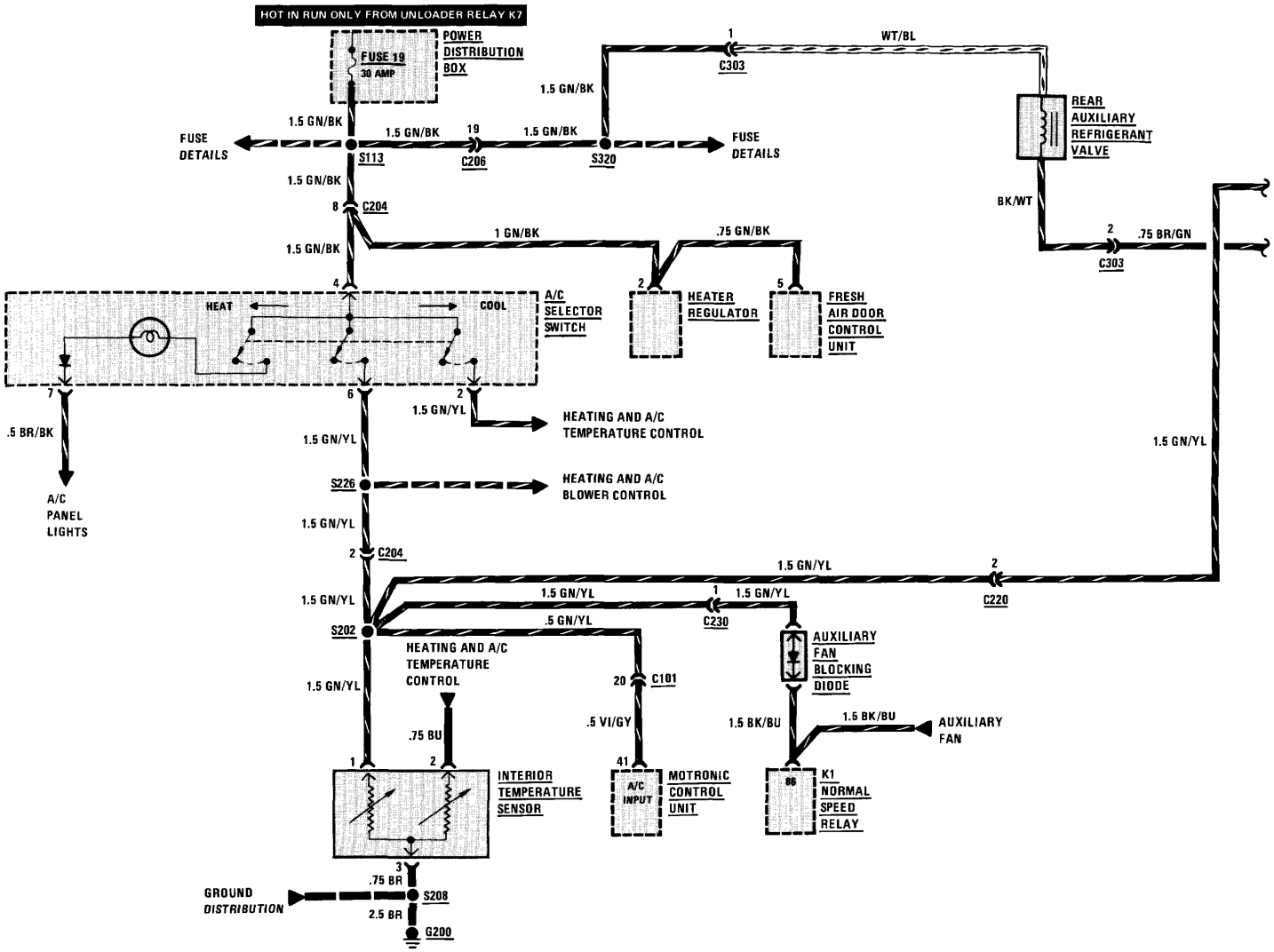
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HEATING AND A/C BLOWER CONTROL

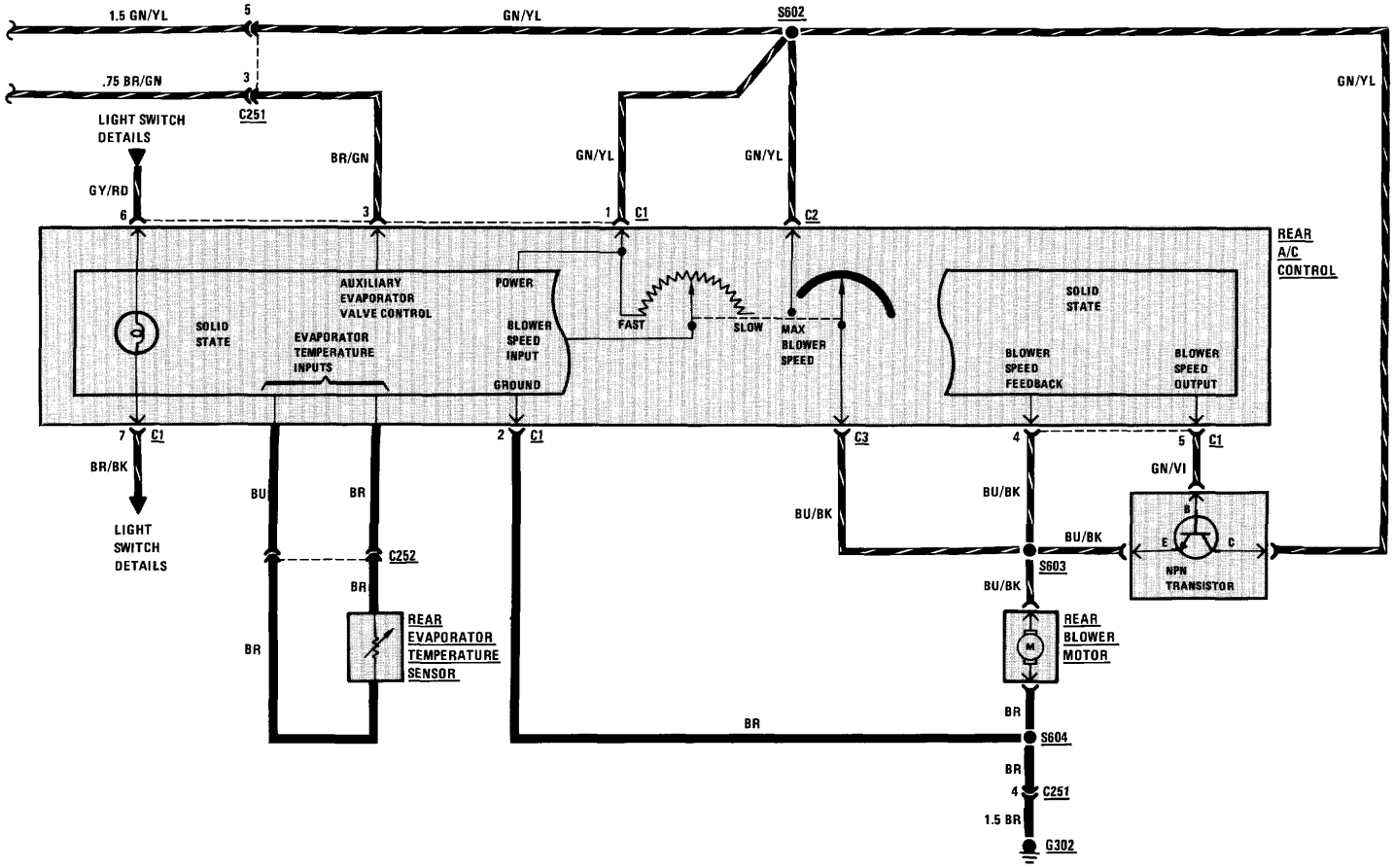


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6414-0 REAR A/C EVAPORATOR



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CIRCUIT OPERATION

Blower Controls

With the Ignition Switch in RUN, battery voltage is applied through Fuse 20 to the Blower Speed Control at connector C2 and terminal 3 on connector C1, to the Heater Final Stage at terminal 5, and to the A/C Final Stage at terminal 4. When the Blower Speed Control is set to SLOW, a very low voltage (less than 1 volt) is output at terminal 1 on connector C1 to the A/C Selector Switch. If the A/C Selector Switch is in the HEAT position (not depressed), the low voltage from the Blower Speed Control is directed to the Heater Final Stage at terminal 2.

The Heater Final Stage determines the amount of voltage applied to the Heater Blower Motor and also provides the current to operate the motor. The voltage applied is approximately 0.7 volts less than the input voltage to the Heater Final Stage at terminal 2. The Heater Blower Motor is grounded through the normally closed contacts of the Blower Select Relay.

Both the Heater Blower Motor and the A/C Blower Motor are variable speed motors that run at a speed proportional to the applied voltage. At low applied voltage, the Blower Motor runs at very low speed.

As the Blower Speed Control is increased toward FAST, the output voltage at terminal 1 on connector C1 of the Blower Speed Control gradually increases to a maximum of about 10 volts, which is applied to the input of the Heater Final Stage. The output voltage from the Heater Final Stage increases at a level approximately 0.7 volts less than the input and drives the Heater Blower at faster speed.

If the Blower Speed Control is moved to the maximum speed position (fully clockwise), battery voltage at connector C2 is applied through the Blower Speed Control and then directly to the Heater Blower. The Heater Blower runs at maximum speed.

When the A/C Selector Switch is in COOL (depressed), battery voltage at Fuse 19 is applied through the A/C Selector Switch at terminals 4 and 6 to the coil of the Blower Select Relay and to the Minimum Blower Speed Input Enable at terminal 2 on connector C1 of the Blower Speed Control.

Operation of the Blower Select Relay removes the ground from the Heater Blower Motor (BR/RD wire) and grounds the A/C Blower Motor (BR/BK wire). At the same time, a different section of the A/C Selector Switch directs the Blower Speed Output at terminal 1 on connector C1 of the Blower Speed Control to the input (terminal 6) of the A/C Final Stage.

Operation of the A/C Final Stage is similar to that of the Heater Final Stage. The Blower Speed Control now controls the speed of the A/C Blower instead of the Heater Blower. The only exception to the operation is that at minimum speed the output from the Blower Speed Control does not drop below approximately 3 volts. This ensures that blower speed does not drop so low that freezing of the evaporator takes place.

Temperature Control

The in-car temperature is controlled by the Heater Regulator and Evaporator Temperature Regulator. In Heater mode operation (A/C Selector Switch not depressed), the temperature of air flow into the car is determined by the operation of the Water Shut-Off Valve. If the in-car temperature is significantly lower than the setting of the Temperature Selector Control, the Water Shut-Off Valve remains open (de-energized), allowing a continuous flow of engine coolant through the heater core. As the in-car temperature approaches the setting of the Temp Select Control, the Heater Regulator grounds terminal 1 at about 4-second intervals, which energizes the Water Shut-Off Valve at the same rate. The intermittent flow of engine coolant through the heater core reduces the average temperature of the air flow into the car. If the in-car temperature rises above the setting of the Temp Select Control, the Heater Regulator will ground terminal 1 continously, shutting off the coolant flow through the heater core. In-car and heater core temperatures are input to the Heater Regulator at terminals 6 and 7.

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In A/C mode operation (A/C Selector Switch depressed), battery voltage is applied to terminal 4 of the Heater Regulator, indicating that the Water Shut-Off Valve should be energized continuously. This removes all heat from the heater core. Battery voltage is also applied to terminal 4 of the Evaporator Temperature Regulator. When the setting of the Temp Select Control is below the in-car temperature, the voltage at terminal 3 of the Evaporator Temperature Regulator is at a level which enables the Compressor Control output. The Evaporator Temperature Regulator will then provide a ground for the relay, which closes its contacts. Battery voltage is then applied from terminal 5 to the Compressor Clutch through the High Pressure Cut-Out Switch and the A/C Temperature Switch.

The Evaporator Temperature Regulator also monitors the current through the High Pressure Cut-Out Switch. If terminal 2 of the Evaporator Temperature Regulator does not receive voltage when the clutch is engaged, the Evaporator Temperature Regulator will remove ground from the relay. The relay's contact will open, removing battery voltage to the Compressor Clutch. The Compressor Clutch will disengage. The Evaporator Temperature Regulator will again provide ground for the relay (after a short time delay), and the Compressor Clutch will turn on again. This on-off cycling of the Compressor Clutch will continue if terminal 2 does not receive an input.

The High Pressure Cut-Out Switch opens if refrigerant pressure rises to a value which is too high for normal operation. The A/C 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.

Whenever the Compressor Clutch is de-energized, the magnetic field around the coil collapses, generating an induced voltage in the coil. The Compressor Clutch Diode provides a path for the current resulting from the induced voltage.

Fresh Air Door Control

The Fresh Air Door Control Unit determines whether outside air will be drawn into the car or in-car air will be recirculated. The Air Flap Door is moved by the Stepping Motor connected to the Fresh Air Door Control Unit. Battery voltage is applied to the Control Unit at terminal 5 when the Ignition Switch is in RUN.

Battery voltage is applied to the Fresh Air Door Control Potentiometer from terminal 2 of the Fresh Air Door Control Unit. The position of the Potentiometer determines the voltage input to terminal 3 of the Control Unit, which then operates the door.

In the A/C Mode, battery voltage is applied to terminal 1 through the A/C Selector Switch. This signals the Fresh Air Door Control Unit to move the door to the fully open position.

Rear A/C Evaporator

The Rear A/C Control receives battery voltage at terminal 1 when the Ignition Switch is in RUN and the A/C Selector Switch is in COOL (depressed). The Rear A/C Control regulates both the Rear Auxiliary Refrigerant Valve and the Rear Blower Motor speed.

When the setting of the Temp Select Control is such that cooling is required in the rear of the vehicle, the Rear A/C Control grounds terminal 3 to energize the Rear Auxiliary Refrigerant Valve. This cools the air flowing through the Auxiliary Evaporator to the rear vehicle area.

When the temperature in the rear vehicle area has reached the point set by the Temperature Control, the Rear A/C Control de-energizes the Rear Auxiliary Refrigerant Valve so that no further cooling takes place. After the vehicle rear area temperature or evaporator temperature has risen to a point where cooling is required again, the Rear Auxiliary Refrigerant Valve is re-energized.

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TROUBLESHOOTING HINTS

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

1. Check Fuse 19 and Fuse 20 by visual inspection.
2. Check that connectors are firmly seated on the Heater Regulator, Water Shut-Off Valve, Interior Temperature Sensor, and Compressor Clutch.
3. If Rear Blower Motor only operates with Rear A/C Control in MAX, check GN/YL, BU/BK, and GN/VI wires. If all wires are OK, replace Rear A/C Control or Transistor.
4. If any A/C Panel Light or LED does not light with Park Lights on, check GY/RD, BR/WT, and bulb for an open (see schematic). Repair/replace as necessary.
5. If either the Heater Blower or A/C Blower does not operate at slow speeds but both blowers operate at maximum speed, replace the Final Stage for the affected blower.

- **Go to System Check for a guide to normal operation.**
- **Go to System Diagnosis for diagnostic tests.**

SYSTEM CHECK

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

Even though one or more steps may not give the correct result, complete all of the steps to reveal all the symptoms that may exist. Refer to System Diagnosis when a result is not normal.

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

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SYSTEM CHECK TABLE

ACTION	NORMAL RESULT
Set Temp Select Control fully counterclockwise Set all Slide Levers to extreme right Set Blower Speed Control fully counterclockwise	Blowers do not run
Rotate Blower Speed Control slowly to fully clockwise position	Blower speed gradually increases to maximum. Air at outside temperature is drawn into car.
Move Center Slide Lever to the left	Sound of air flow changes as Air Flap Doors are repositioned
Move Center Slide Lever to the right	Sound of air flow changes again as Air Flap Doors return to original position
Rotate Temp Select Control to fully clockwise position	Air flow becomes warm
Set Temp Select Control to temperature slightly higher than existing in-car temperature Close car doors and windows	Heater Regulator maintains in-car temperature at approximate Temperature Control setting
Return Blower Speed Control to fully counterclockwise position	Blower stops operating
Press A/C Selector Switch	Evaporator Blower runs slowly
Rotate Blower Speed Control slowly to fully clockwise position	Blower speed gradually increases to maximum
Rotate Temp Select Control fully counterclockwise	A/C Compressor operates. Air flow becomes cold. Engine Auxiliary Fan operates when Compressor Clutch is energized.
Set Temp Select Control to temperature slightly lower than in-car temperature Close car doors and windows	Evaporator Temperature Regulator maintains in-car temperature at approximate setting of Temperature Control
Return Blower Speed Control to fully counterclockwise position	Blower runs at minimum speed
Rotate Rear A/C Unit Blower Speed Control to fully clockwise position	Rear Blower runs at maximum speed
Set Rear A/C Unit Temperature Control to fully counterclockwise position	Air flow from Rear A/C Unit becomes cold
Set Rear A/C Unit Temperature Control to temperature slightly lower than in-car temperature	Rear A/C Unit maintains temperature in rear of car at approximate setting of Rear Temperature Control

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

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SYSTEM DIAGNOSIS

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

SYMPTOM TABLE

SYMPTOM	DO TEST
Heater Blower runs, but air flow does not become warm	A and B
Heater Blower does not run at slow speed settings	G
Heater Blower does not run in any mode	H and J
A/C Blower runs, but air flow does not become cool	C
A/C Blower does not run at slow speed settings	G and I
A/C Blower does not run in any mode	I and J
Fresh Air Door does not operate correctly	K
Rear A/C Control does not operate	L
Rear Blower Motor does not operate with A/C Control in MAX	N
Rear Blower Motor does not operate in any mode	O
Engine idle speed is not high enough with A/C on	P
Compressor Clutch cycles on and off	Q

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A: HEATER REGULATOR TEST (TABLE 1) (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: HEATER REGULATOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: OFF**

Measure Between	Correct Voltage	For Diagnosis
2 & Ground	Battery	See 1
2 & 3	Battery	See 2
1 & 3	Battery	See 3
4 & 3	0 Volts	See 4
• A/C Selector Switch: ON		
4 & 3	Battery	See 5

- If all voltages are correct, go to Table 2.

1. Check the associated wire for an open (see schematic).
2. Check the associated wire for an open to ground G200 (see schematic).

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3. Check that Water Shut-Off Valve connector is firmly seated. Check the wires at the Water Shut-Off Valve for an open. If wires and connector are good, replace the Water Shut-Off Valve.
4. Check the wire at terminal 4 for a wire to wire short to voltage. If wire is good, do Test F.
5. Check the wire at terminal 4 for an open. If wire is good, do Test F.

A: HEATER REGULATOR TEST (TABLE 2) (Refer to Schematic on Page 6411-0 or 6411-1)

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

Measure Between	Correct Resistance	For Diagnosis
6 & Ground	Approximately 11K ohms at 70 °F (21 °C)	See 1
7 & Ground	Approximately 11K ohms at 70 °F (21 °C)	See 2

- If all resistances are correct, go to Test B.

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1. Check the wire at terminal 6 for an open or short to ground. Check the wire at terminal 3 of the Interior Temperature Sensor for an open (see schematic). If wires are good, replace the Interior Temperature Sensor.
2. Check the wire at terminal 7 for an open or short to ground (see schematic). Check the wire at terminal 1 of the Heater Temperature Sensor for an open (see schematic). If wires are good, replace the Heater Temperature Sensor.

B: WATER SHUT-OFF VALVE TEST (TABLE 1) (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: WATER SHUT-OFF VALVE CONNECTOR (Disconnected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
Wire from Fuse 19 & Ground (see schematic)	Battery	See 1

- If the voltage is correct, go to Table 2.

1. Check the associated wire for an open to Fuse 19 (see schematic).

B: WATER SHUT-OFF VALVE TEST (TABLE 2) (Refer to Schematic on Page 6411-0 or 6411-1)

Connect: TEST LAMP
At: WATER SHUT-OFF VALVE CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Engine at operating temperature**
- **Blower Speed Control: FAST**
- **A/C Selector Switch: OFF**
- **Temp Select Control: Fully Counterclockwise**

Connect Between	Correct Result	For Diagnosis
Water Shut-Off Valve Terminals	Test Lamp lights	See 1
• Temp Select Control fully clockwise		
Water Shut-Off Valve Terminals	Test Lamp does not light	See 1
• Temp Select Control at same temperature setting as existing in-car temperature		
Water Shut-Off Valve Terminals	Test Lamp flashes on and off at approximately 4-second intervals	See 1
• Temp Select Control fully clockwise		

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Water Shut-Off Valve Terminals	Test Lamp stays off	See 1

- If all results are correct, Heater Regulator is operating normally. If warm air is not generated in heat mode, replace the Heater Shut-Off Valve.

1. Replace Heater Regulator.

C: A/C ISOLATION TEST (TABLE 1) (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: HIGH PRESSURE CUT-OUT SWITCH HARNESS CONNECTOR C108 (Disconnected)
Conditions:
- **Ignition Switch: RUN (Engine need not be running)**
- **Temp Select Control: 61 °F (Fully Counterclockwise)**
- **A/C Selector Switch: Depressed (ON)**

Measure Between	Correct Voltage	For Diagnosis
Wire to C102 & Ground	Battery	See 1

- If the voltage is correct, go to Table 2.

1. Do Test E.

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C: A/C ISOLATION TEST (TABLE 2) (Refer to Schematic on Page 6411-0 or 6411-1)

Connect: FUSED JUMPER
At: HIGH PRESSURE CUT-OUT SWITCH HARNESS CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Temp Select Control: 61°F (Fully Counterclockwise)**
- **A/C Selector Switch: ON**

Connect Between	Correct Result	For Diagnosis
High Pressure Cut-Out Switch Terminals	Compressor Clutch engages	See 1

- If the result is correct, check that High Pressure Cut-Out Switch is closed. If the switch is open, replace it.

1. Do Test D.

D: COMPRESSOR CLUTCH VOLTAGE TEST (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: COMPRESSOR CLUTCH HARNESS CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN (Engine need not be running)**
- **Temp Select Control: 61°F (Fully Counterclockwise)**
- **A/C Selector Switch: ON**

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

- If the voltage is correct and the refrigerant charge is normal, but Compressor Clutch does not engage, replace the Compressor Clutch.

1. Check the wire for an open. Check that the A/C Temperature Switch is closed. Repair/replace as necessary.

E: EVAPORATOR TEMPERATURE REGULATOR VOLTAGE AND RESISTANCE TEST (TABLE 1) (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: EVAPORATOR TEMPERATURE REGULATOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Temp Select Control: 61°F (Fully Counterclockwise)**
- **A/C Selector Switch: ON**

Measure Between	Correct Voltage	For Diagnosis
4 & Ground	Battery	See 1
4 & 1	Battery	See 2
3 & Ground	Less than 0.5 Volts	See 3

- Turn Temp Select Control to 87°F (Fully Clockwise)

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3 & Ground	Approximately 8 Volts	See 4
• A/C Selector Switch: OFF		
4 & Ground	0 Volts	See 5

- If all voltages are correct, go to Table 2.

1. Check the associated wire for an open (see schematic). If wire is good, do Test F.
2. Check the wire at terminal 1 for an open to splice S225.
3. If higher voltage is present, replace Heater Regulator.
4. Voltage should increase smoothly to 8 volts as Temp Select Control is turned clockwise. If no voltage is present, check associated wire for an open (see schematic). If wire is good or voltage does not increase uniformly, replace the Heater Regulator.
5. Check the associated wire for a wire-to-wire short to voltage. If wire is good, replace the A/C Selector Switch.

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E: EVAPORATOR TEMPERATURE REGULATOR VOLTAGE AND RESISTANCE TEST (TABLE 2) (Refer to Schematic on Page 6411-0 or 6411-1)

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

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

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

1. Check the associated wire for an open between the Evaporator Temperature Regulator terminal 5 and High Pressure Cut-Out Switch (see schematic).

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2. Check the associated wire for an open or a short to ground (see schematic). Check the associated wire from terminal 1 to splice S225 for an open (see schematic). If wires are good, replace the Evaporator Temperature Sensor.
3. Check wire at Terminal 2 for an open between Terminal 2 and connector C106.

F: A/C SELECTOR SWITCH VOLTAGE TEST (Refer to Schematic on Page 6411-0 or 6411-1)

Measure: VOLTAGE
At: A/C SELECTOR SWITCH CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: 3**

Measure Between	Correct Voltage	For Diagnosis
4 & Ground	Battery	See 1
4 & 6	Battery	See 2
4 & 2	Battery	See 3
4 & 7	Battery	See 4

- If all voltages are correct but A/C Selector Switch does not operate normally, replace it.

1. Check the associated wire for an open (see schematic). If wire is good, check Fuse 19.
2. Check the wire at terminal 6 for an open (see schematic).
3. Check the wire at terminal 2 for an open (see schematic).
4. Check the wire at terminal 7 for an open (see schematic).

G: BLOWER SPEED CONTROL VOLTAGE TEST (TABLE 1) (Refer to Schematic on Page 6413-0)

Measure: VOLTAGE
At: BLOWER SPEED CONTROL CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: MINIMUM**
- **A/C Selector Switch: OFF**

Measure Between	Correct Voltage	For Diagnosis
C1/3 & Ground	Battery	See 1
C1/3 & C1/4	Battery	See 2
C2 & Ground	Battery	See 3
C1/2 & Ground	0 Volts	See 4
• A/C Selector Switch: ON		
C1/2 & Ground	Battery	See 3

- If all voltages are correct but Speed Control setting will not vary blower speed, go to Table 2.

1. Check the associated wire for an open back to Fuse 20 (see schematic).
2. Check the wire to terminal 4 for an open to ground G200 (see schematic).
3. Check the associated wire for an open (see schematic).
4. Check the associated wire for a wire-to-wire short to voltage (see schematic). If the wire is good, do Test F.

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G: BLOWER SPEED CONTROL VOLTAGE TEST (TABLE 2) (Refer to Schematic on Page 6413-0)

Measure: VOLTAGE
At: A/C SELECTOR SWITCH CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: SLOW**
- **Blower Speed Control: CONNECTED**

Measure Between	Correct Voltage	For Diagnosis
5 & Ground	Less than 0.5 Volts	See 1
• Blower Speed: FAST		
5 & Ground	Approximately 10 Volts	See 2
• A/C Selector Switch Connector: Reconnected • A/C Selector Switch: OFF		
1 & Ground	Approximately 10 Volts	See 3
• A/C Selector Switch: ON		
3 & Ground	Approximately 10 Volts	See 4
• Blower Speed: SLOW		
3 & Ground	Approximately 3 Volts	See 5
• If all voltages are correct but blower motors do not operate normally, do Test H or I.		

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1. If the voltage is greater than 0.5 volts, replace the Blower Speed Control.
2. Check the associated wire for an open (see schematic). If the wire is good, replace the Blower Speed Control.
3. Check the associated wire for a short to ground (see schematic). If the wire is good, do Test H.
4. Check the associated wire for a short to ground (see schematic). If the wire is good, do Test I.
5. Replace the Blower Speed Control.

H: HEATER FINAL STAGE VOLTAGE TEST (Refer to Schematic on Page 6413-0)

Measure: VOLTAGE
At: HEATER BLOWER HOUSING CONNECTOR C1 (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: FAST**
- **A/C Selector Switch: OFF**

Measure Between	Correct Voltage	For Diagnosis
5 & Ground	Battery	See 1
2 & Ground	Approximately 10 Volts	See 2
6 & Ground	Battery	See 2
6 & 1	Battery	See 3
• If all voltages are correct but Heater Blower does not run, replace the Heater Blower.		

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1. Check the associated wire for an open back to Fuse 20 (see schematic).
2. Check associated wire for an open (see schematic).
3. Check the wire at terminal 1 for an open (see schematic). If the wire is good, do Test J.

I: A/C FINAL STAGE VOLTAGE TEST (Refer to Schematic on Page 6413-0)

Measure: VOLTAGE
At: A/C BLOWER HOUSING CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: FAST**
- **A/C Selector Switch: ON**

Measure Between	Correct Voltage	For Diagnosis
4 & Ground	Battery	See 1
6 & Ground	Approximately 10 Volts	See 1
2 & Ground	Battery	See 1
2 & 1	Battery	See 2

- If all voltages are correct but A/C Blower does not run, replace the A/C Blower.

1. Check the associated wire for an open (see schematic).
2. Check the wire at terminal 1 for an open (see schematic). If the wire is good, do Test J.

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J: BLOWER SELECT RELAY VOLTAGE TEST (Refer to Schematic on Page 6413-0)

Measure: VOLTAGE
At: BLOWER SELECT RELAY (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Blower Speed Control: FAST**
- **A/C Selector Switch: Depressed (ON)**

Measure Between	Correct Voltage	For Diagnosis
86 & Ground	Battery	See 1
86 & 85	Battery	See 2
87 & Ground	Battery	See 3
87a & Ground	Battery	See 4

- If all voltages are correct but either the A/C Blower or Heater Blower will not operate with Blower Speed at FAST, replace the Blower Select Relay.

1. Check the associated wire for an open to splice S226 (see schematic). If wire is good, do Test F.
2. Check the wire at terminal 85 for an open to ground G200 (see schematic).
3. Check the associated wire for an open back to terminal 1 of the A/C Blower Housing (see schematic).
4. Check the associated wire for an open back to terminal 1 of the Heater Blower Housing (see schematic).

K: FRESH AIR DOOR CONTROL UNIT VOLTAGE TEST (TABLE 1) (Refer to Schematic on Page 6413-1)

Measure: VOLTAGE
At: FRESH AIR DOOR CONTROL UNIT CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: Not Depressed (OFF)**

Measure Between	Correct Voltage	For Diagnosis
5 & Ground	Battery	See 1
5 & 6	Battery	See 2
1 & 6	0 Volts	See 3
• A/C Selector Switch: Depressed (ON)		
1 & 6	Battery	See 4

- If all voltages are correct, go to Table 2.

1. Check the associated wire for an open (see schematic). If wire is good, check Fuse 19.
2. Check the associated wire for an open between terminal 6 and ground G200 (see schematic).
3. If voltage is present, check the wire at terminal 1 for a wire-to-wire short to voltage. If the wire is good, replace the A/C Selector Switch.
4. Check the wire at terminal 1 for an open to splice S226 (see schematic).

K: FRESH AIR DOOR CONTROL UNIT VOLTAGE TEST (TABLE 2) (Refer to Schematic on Page 6413-1)

Measure: RESISTANCE
At: FRESH AIR DOOR CONTROL UNIT CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: OFF**
- **Negative Battery Terminal: DISCONNECTED**
- **Center Slide Lever at extreme left**

Measure Between	Correct Resistance	For Diagnosis
2 & Ground	10K ohms ± 1K ohm	See 1
3 & Ground	10K ohms ± 1K ohm	See 2
• Center Slide Lever at extreme right		
3 & Ground	Less than 500 Ohms	See 3
4 & 7	60 to 70 Ohms	See 4

- If all resistances are correct but Fresh Air Door does not operate, replace the Fresh Air Door Control Unit.

1. Check the associated wire and the wire at terminal 3 of the Fresh Air Door Control Potentiometer for an open (see schematic). If the wires are good, replace the Fresh Air Door Control Potentiometer.
2. Check the associated wire for an open (see schematic). If the wire is good, replace the Fresh Air Door Control Potentiometer.
3. Replace the Fresh Air Door Control Potentiometer.

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4. Check the wires at terminals 4 and 7 for an open or wire-to-wire short (see schematic). If the wires are good, replace the Stepping Motor.

L: REAR A/C CONTROL VOLTAGE TEST (Refer to Schematic on Page 6414-0)

Measure: VOLTAGE
At: REAR A/C CONTROL CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Front A/C Selector Switch: ON**

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

- If all voltages are correct but air flow is not cooled, go to Test M.

1. Check the associated wire for an open back to splice S202 (see schematic). Check that connector C220 is properly mated.
2. Check the wire at terminal 2 for an open to ground G302 (see schematic)j.
3. Check the associated wire for an open (see schematic). If the wire is good, do Test M.

M: REAR AUXILIARY REFRIGERANT VALVE VOLTAGE TEST (TABLE 1) (Refer to Schematic on Page 6414-0)

Measure: VOLTAGE
At: REAR AUXILIARY REFRIGERANT VALVE (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Rear A/C Control Connector: CONNECTED**

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

- If the voltage is correct, go to Table 2.

1. Check the associated wire for an open to Fuse 19.

M: REAR AUXILIARY REFRIGERANT VALVE VOLTAGE TEST (TABLE 2) (Refer to Schematic on Page 6414-0)

Connect: TEST LAMP
At: REAR AUXILIARY REFRIGERANT VALVE (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **Front A/C Selector Switch: ON**
- **Rear Blower Control: FAST**
- **Rear Temperature Control: Fully Counterclockwise**

Connect Between	Correct Result	For Diagnosis
1 & 2	Test Lamp lights	See 1

- Rear Temperature Control: Fully Clockwise

(Continued in next column)

(Continued from previous column)

1 & 2	Test lamp does not light	See 1

- If both results are correct, Rear Temperature Control is operating normally. If cold air is not generated in cooling mode, replace the Rear Auxiliary Refrigerant Valve.

1. Replace the Rear A/C Control.

N: REAR BLOWER MOTOR TEST (TABLE 1)

Measure: VOLTAGE
At: REAR A/C CONTROL CONNECTOR C2 (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: COOL**

Measure Between	Correct Voltage	For Diagnosis
GN/YL & Ground	Battery	See 1

- If voltage is correct, go to Table 2.

1. Check GN/YL wire for an open (see schematic).

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N: REAR BLOWER MOTOR TEST (TABLE 2)

Connect: FUSED JUMPER
At: REAR A/C CONTROL CONNECTORS C2 & C3 (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: COOL**

Connect Between	Correct Result	If Result Is Incorrect
GN/YL & BU/BK	Rear Blower Motor runs	See 1

- If result is correct, replace Rear A/C Control.

1. Check BU/BK wire for an open (see schematic).

O: REAR BLOWER MOTOR VOLTAGE TEST

Measure: VOLTAGE
At: REAR BLOWER MOTOR CONNECTOR (Disconnected)
Conditions:
- **Ignition Switch: RUN**
- **A/C Selector Switch: COOL**
- **Rear A/C Control: MAX Blower Speed**

Measure Between	Correct Voltage	If Voltage Is Incorrect
BU/BK & Ground	Battery	See 1
BU/BK & BR	Battery	See 2

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

1. Reconnect Rear Blower Motor connector and go to Test N.

(Continued in next column)

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2. Check BR wire to ground for an open (see schematic).

P: 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
40 & Ground	Battery	See 1
41 & Ground	Battery	See 2

- If the voltage is correct, check connections at Motronic Control Unit.

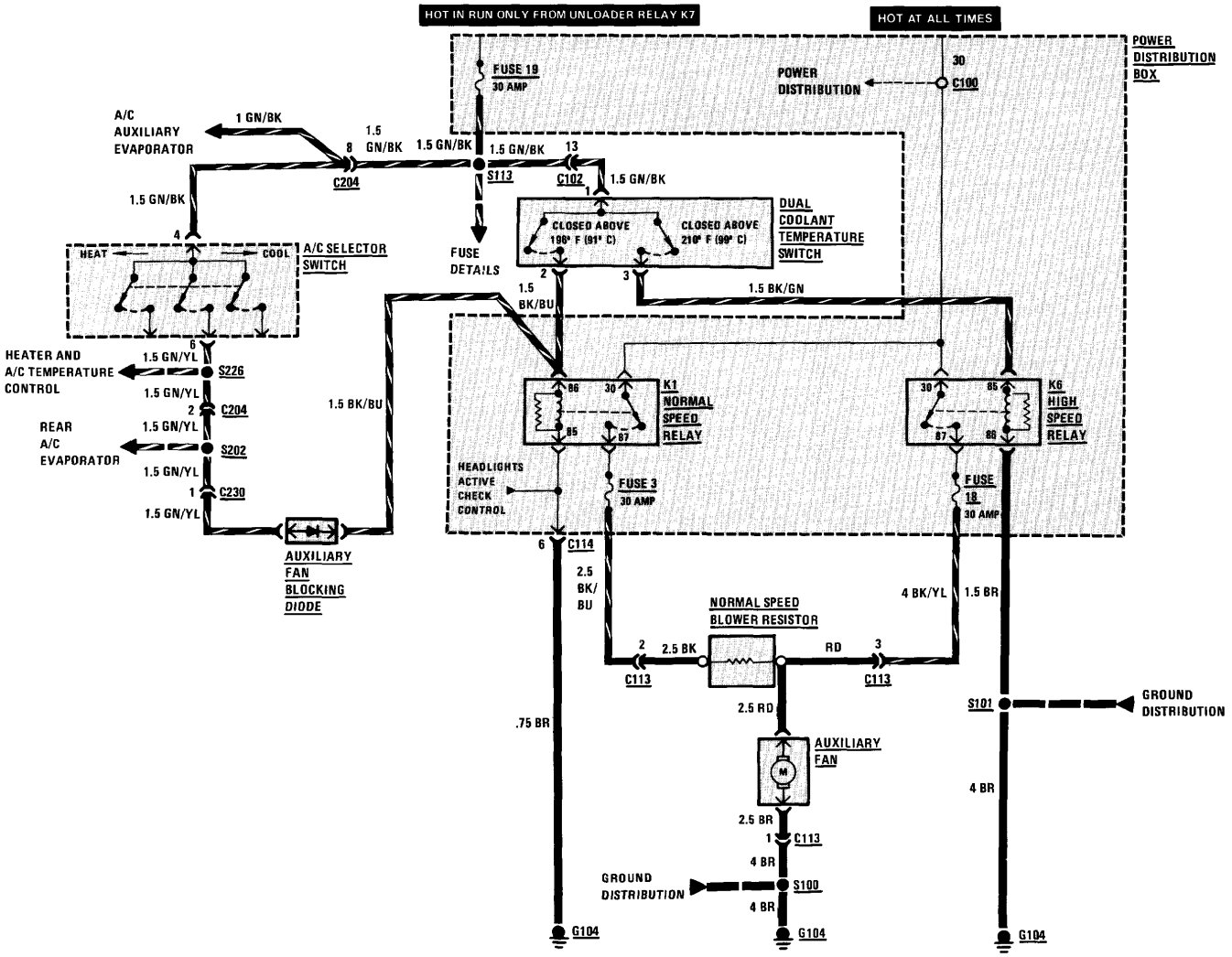
1. Check BK/GY and BK wires to Evaporator Temperature Regulator for an open (see schematic). Repair/replace as necessary.
2. Check VI/GY and GN/YL wires to A/C Selector Switch for an open (see schematic). Repair/replace as necessary.

Q: COMPRESSOR CYCLING TEST

Check High Pressure Cut-Out Switch. Check BK wire to terminal 2 of Evaporator Temperature Regulator for an open or short. Repair/replace as necessary.

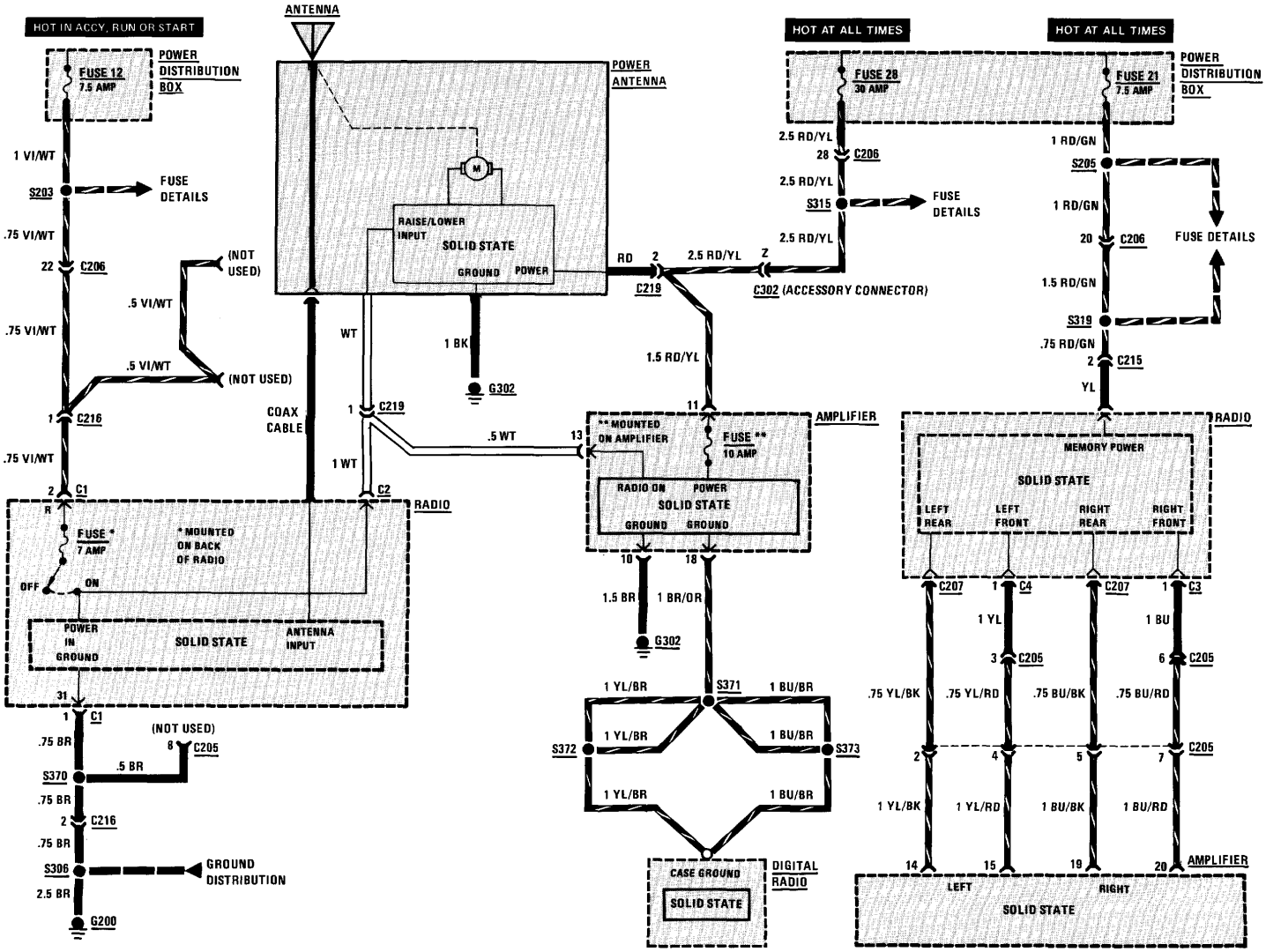
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6454-0 AUXILIARY FAN

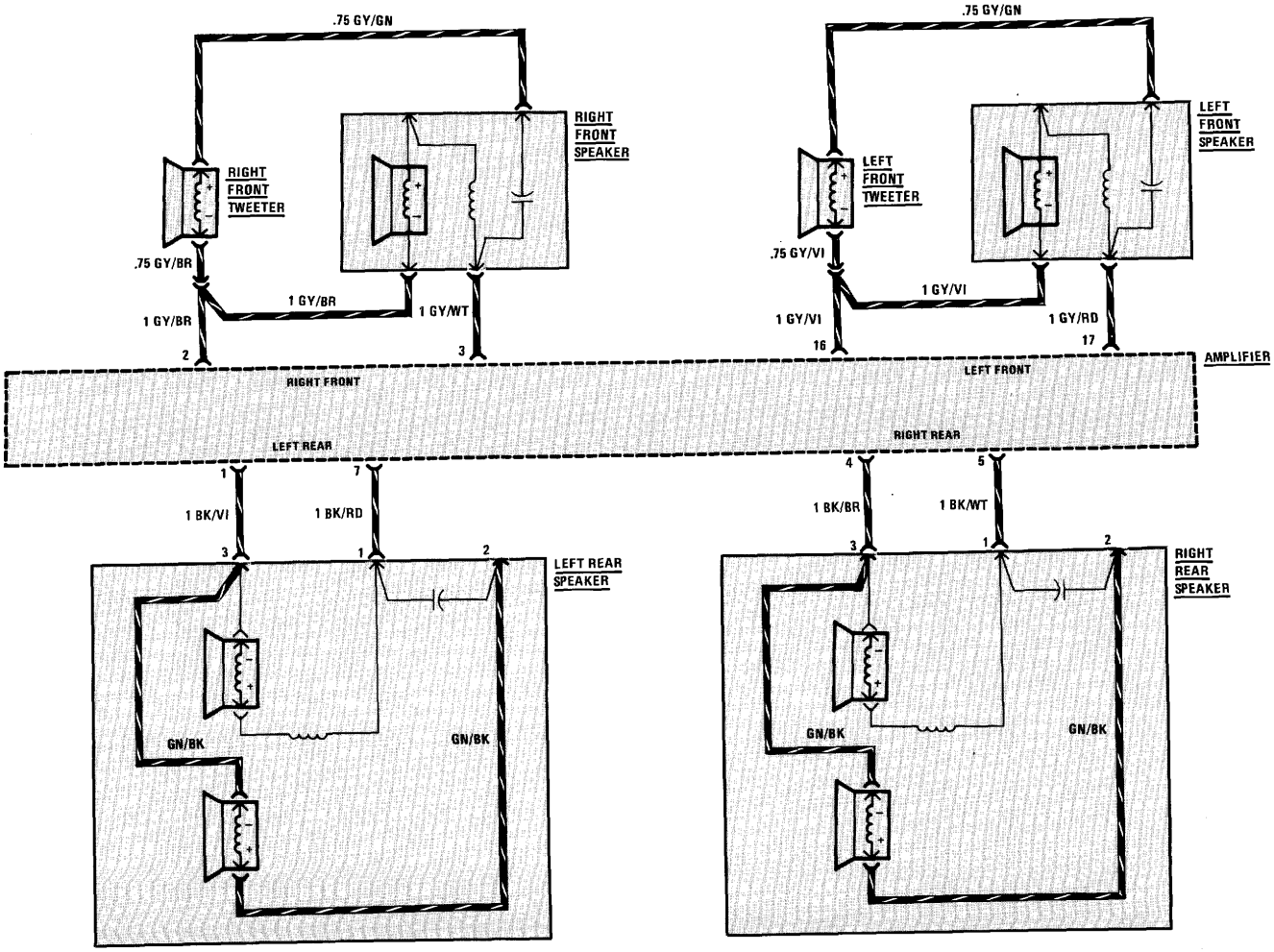


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6500-0 RADIO/POWER ANTENNA



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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 is on, voltage is applied to the Radio, the Power Antenna Raise/Lower Input, and the Amplifier. This voltage is used to control the individual unit's main power supply.

When the Raise/Lower Input of the Power Antenna receives voltage, power is supplied from Fuse 28 to run the motor and raise the Antenna. When voltage is no longer present at the Raise/Lower Input, the Antenna is lowered.

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 28. 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 power input to Antenna by observing the Cigar Lighter.
3. Check memory power to Radio by checking operation of the Glove Box Light.
4. Check power input to the Amplifier.
5. Check that the Antenna is properly connected.
6. Before troubleshooting a suspect Speaker, check all connection to that Speaker.
7. If display shows "CODE" and Radio will not operate, the individual Anti-Theft Code must be entered. Refer to "Anti-Theft" instruction booklet.
8. Check Radio Fuse located on back of Radio.
9. Check Amplifier Fuse located on back of Amplifier.

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.	Antenna extends. 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 and RH Speakers do not operate.	Do Test C

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Antenna does not extend or retract.	Check ground wire for an open. Make sure ground G302 is clean and tight. Check wire to Power Antenna for opens. If OK, replace Power Antenna.
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 C1 (Disconnected) or CONNECTOR C215 (Disconnected)
Condition:
- **Ignition Switch: RUN**

Measure Between	Correct Voltage	For Diagnosis
C1/2 & Ground	Battery	See 1
C1/2 & C1/1	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 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 G302 is clean and tight.

C: SUSPECT SPEAKER TEST

Connect: OHMMETER
At: SUSPECT SPEAKER (Disconnected)
Condition:
- **Ohmmeter set on Rx 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.

D: 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.

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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 Megaohm (open circuit)	See 2

- If both resistances are correct, check the hood ground strap. If hood ground strap is OK, substitute a different Antenna at Radio. If the new Antenna is 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.

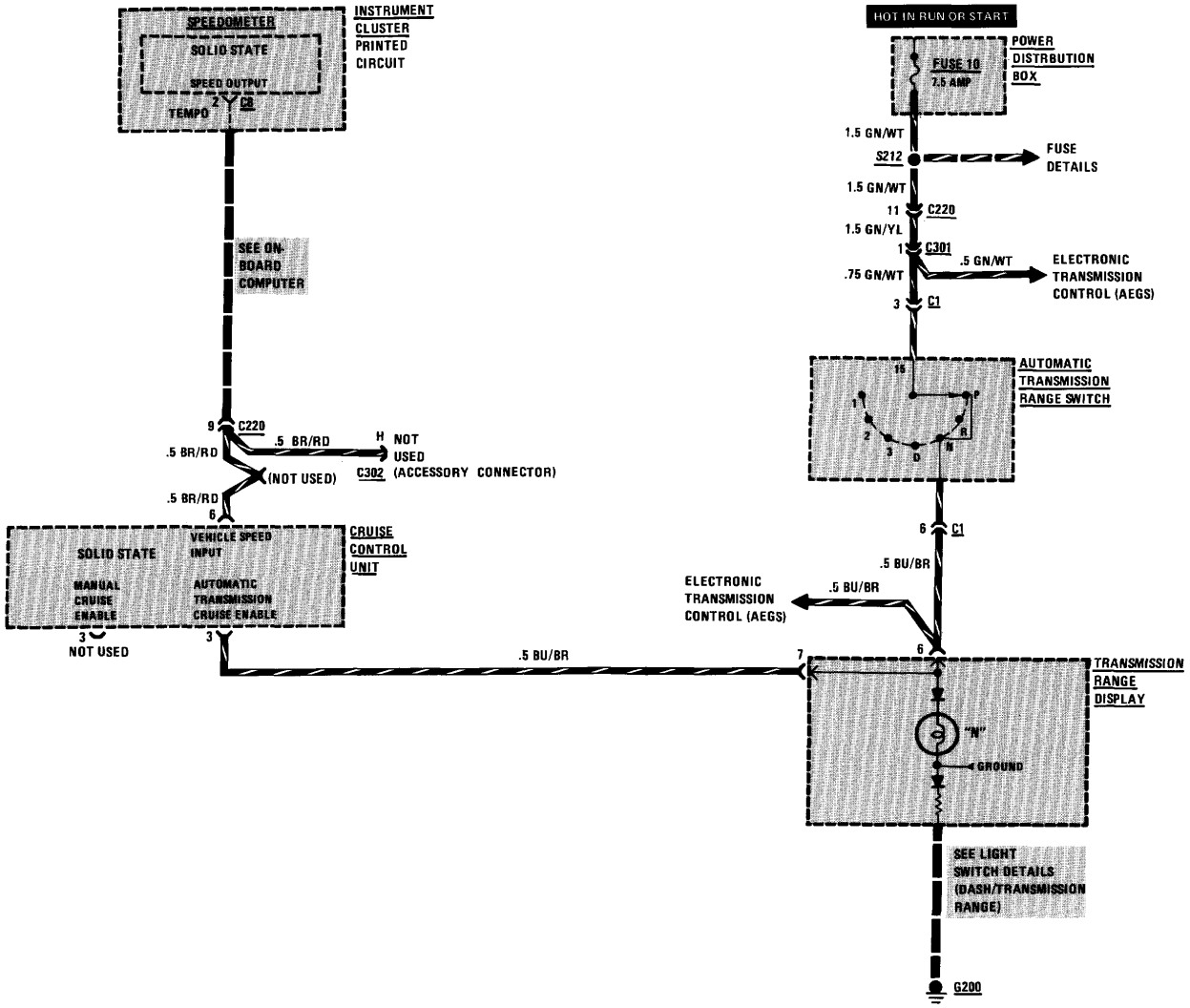
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NOISE SYMPTOM TABLE

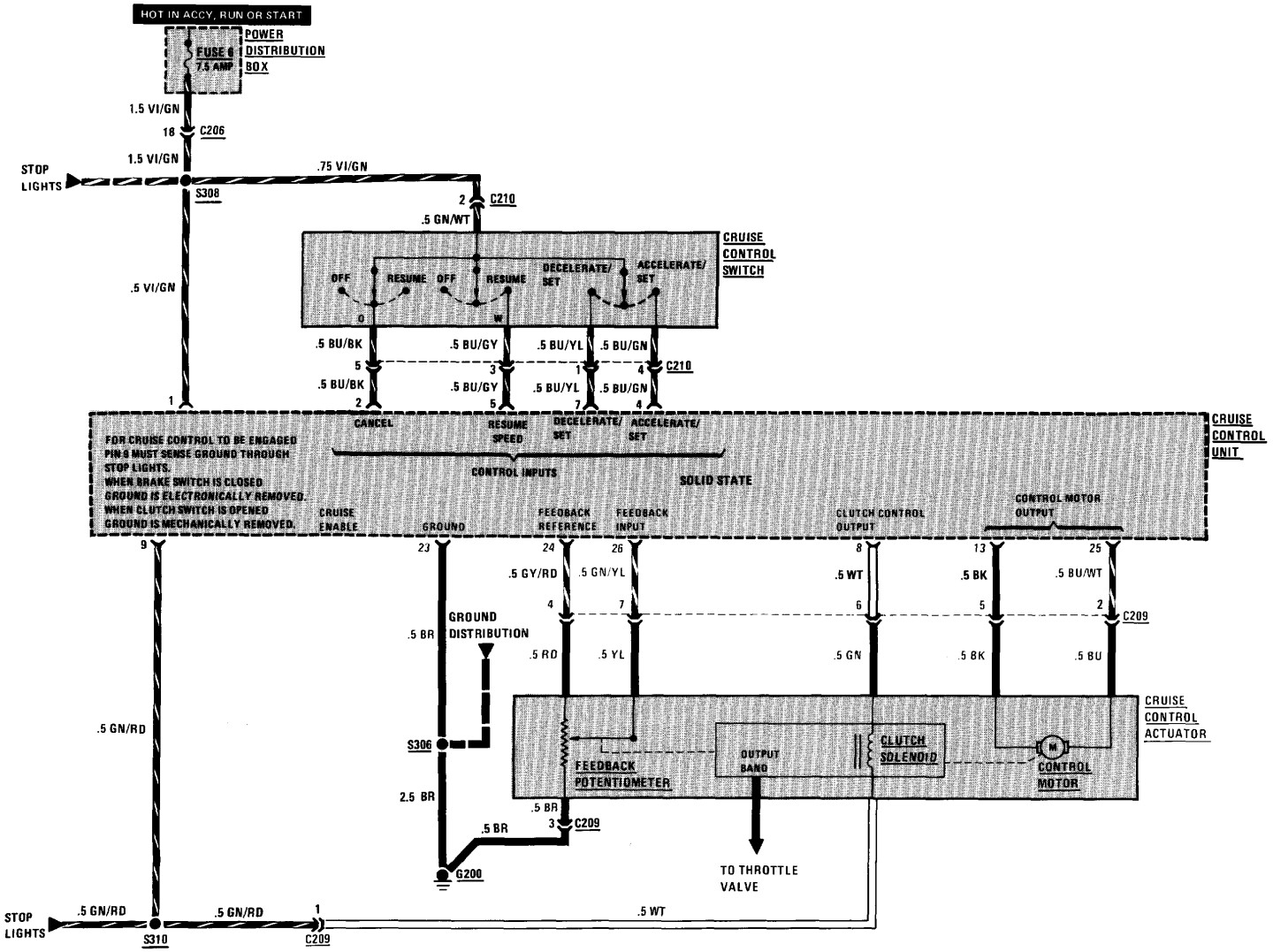
SYMPTOM	POSSIBLE CAUSE	REPAIR ACTION
Harsh popping or crackling noise present when ignition on-changes with engine rpm.	Ignition Noise	• Check for proper distributor cap shielding. • Check shielding ground strap. If not present, install. • Check for defective spark plug or spark plug wire. • Reroute 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.

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6571-0 CRUISE CONTROL

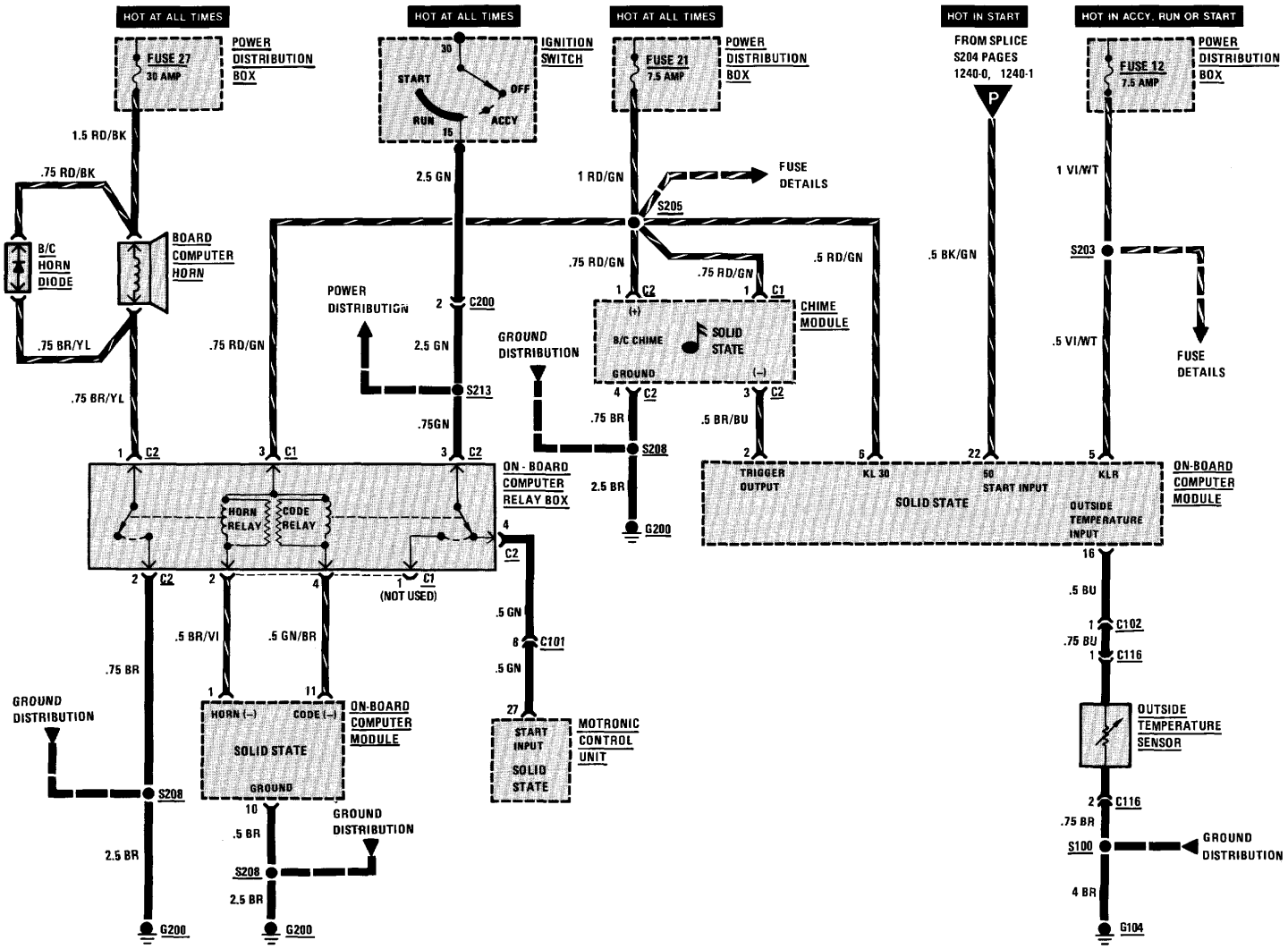


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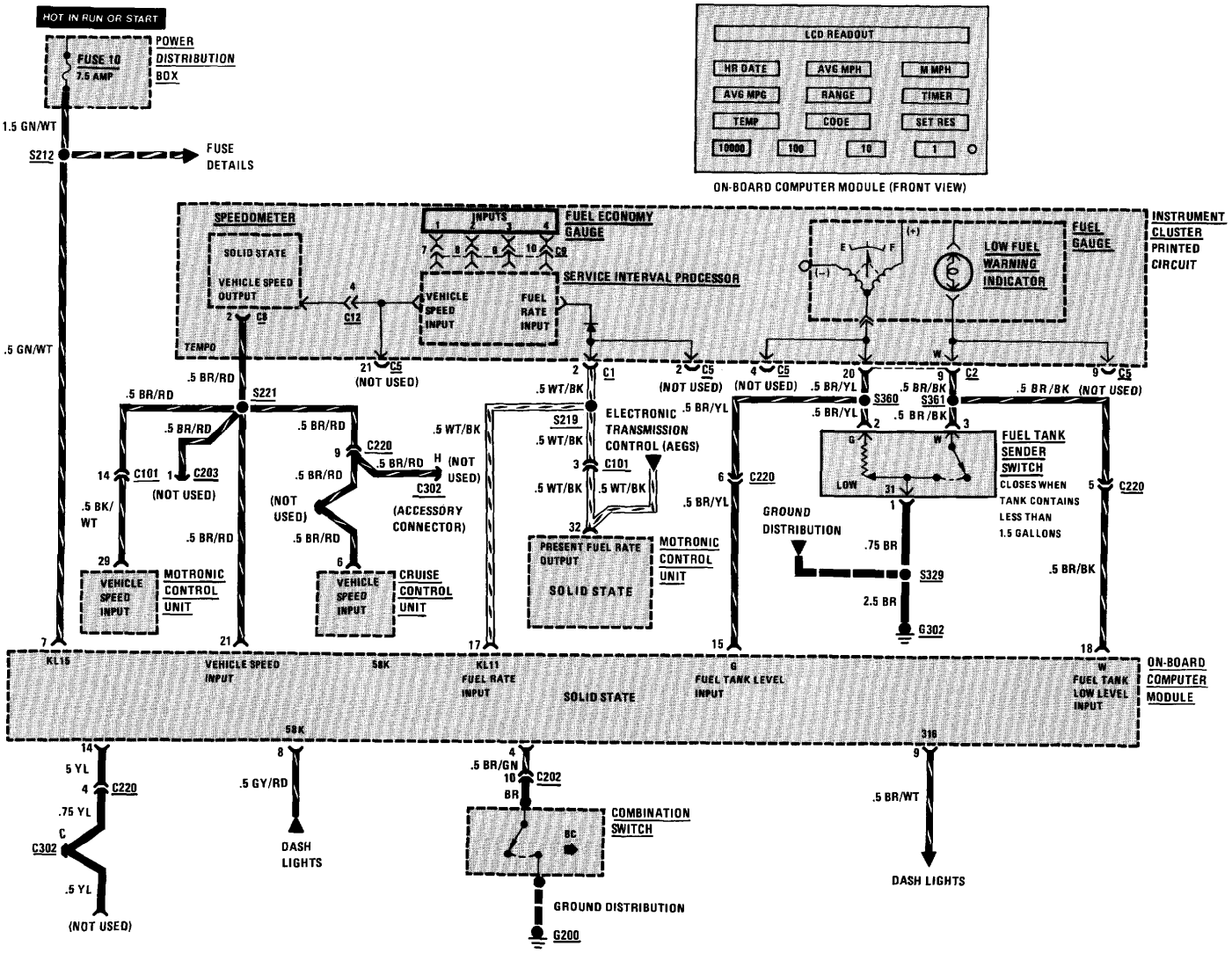


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6581-0 ON-BOARD COMPUTER



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7000-0 COMPONENT LOCATION VIEWS

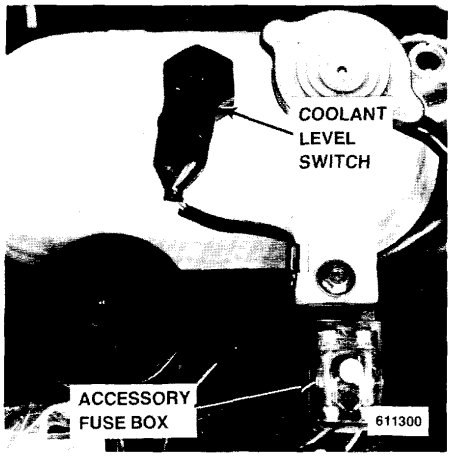


Figure 1 - Right of LH Front Wheel Well

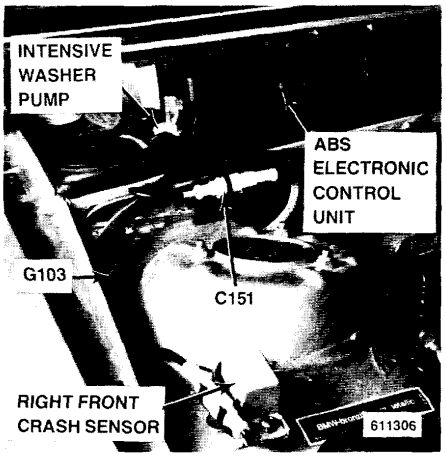


Figure 3 - RH Rear Corner of Engine Compartment

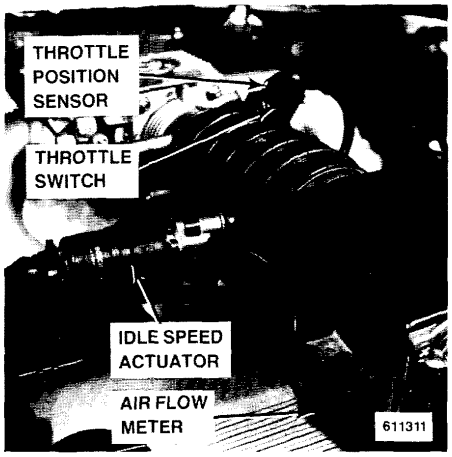


Figure 5 - Top Center of Engine

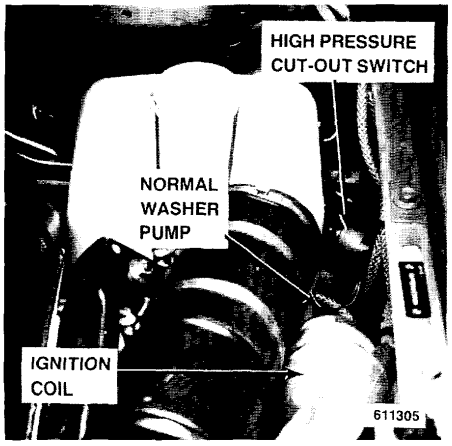


Figure 2 - Ahead of RH Front Wheel Well

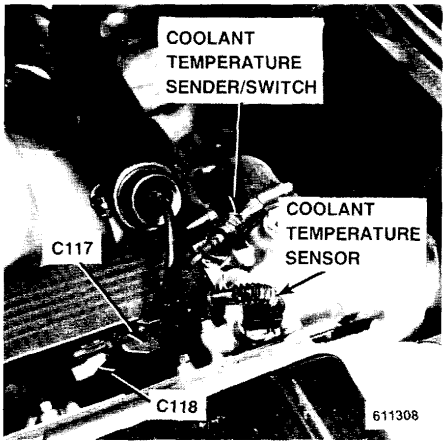


Figure 4 - Top Front of Engine

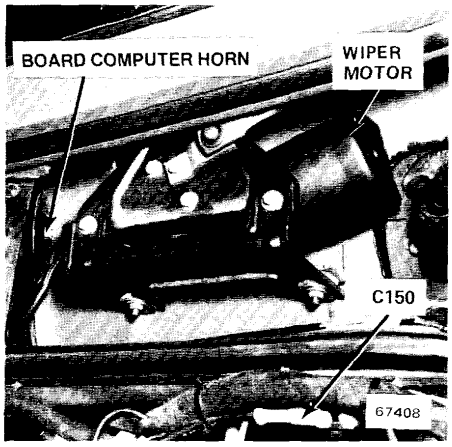


Figure 6 - Under LH Side Of Cowl

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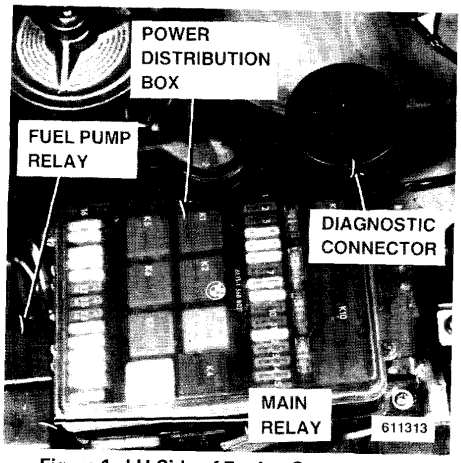


Figure 1 - LH Side of Engine Compartment

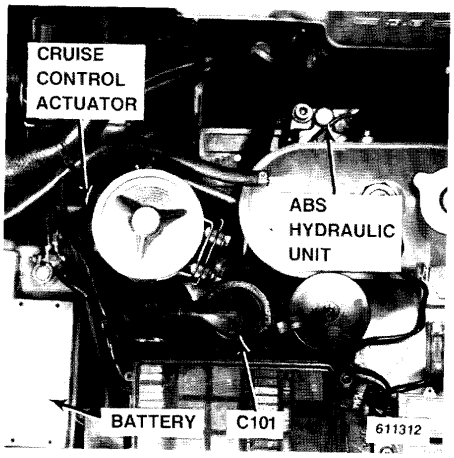


Figure 3 - LH Side of Engine

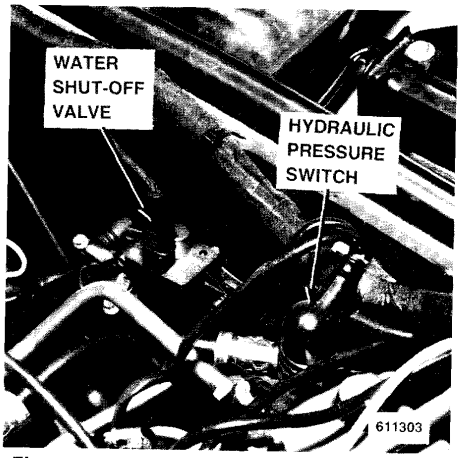


Figure 5 - LH Rear of Engine Compartment

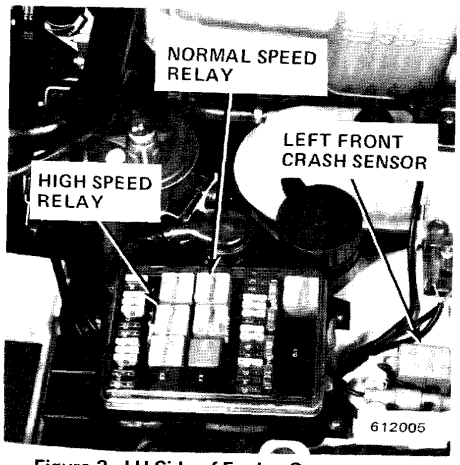


Figure 2 - LH Side of Engine Compartment

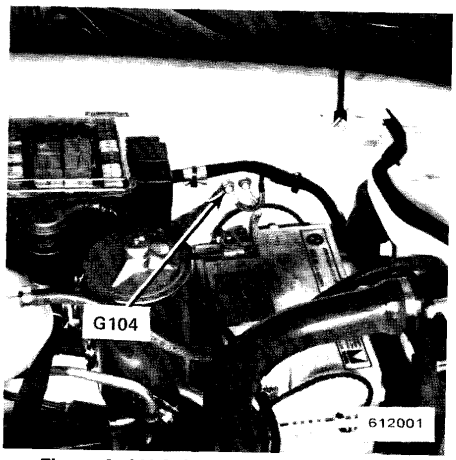


Figure 4 - LH Side of Engine Compartment

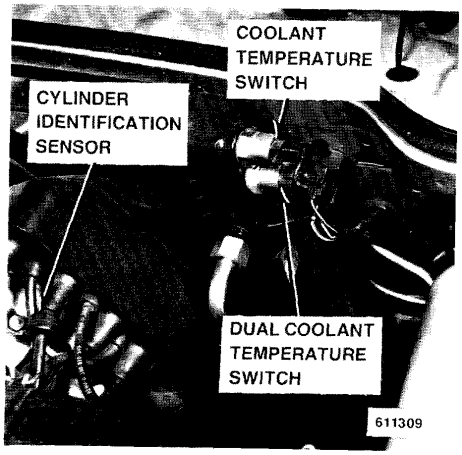


Figure 6 - Top RH Side of Radiator

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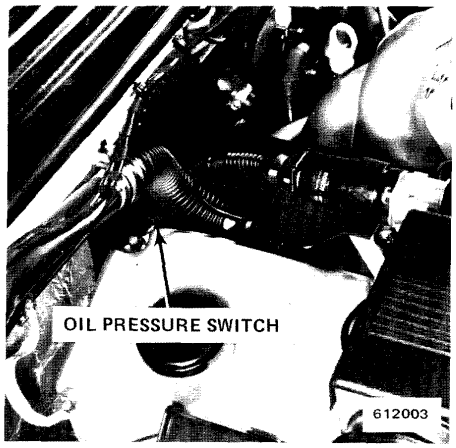


Figure 1 - RH Rear of Engine

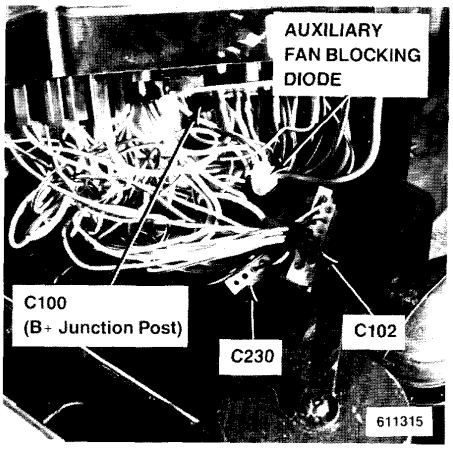


Figure 3 - LH Side of Engine Compartment

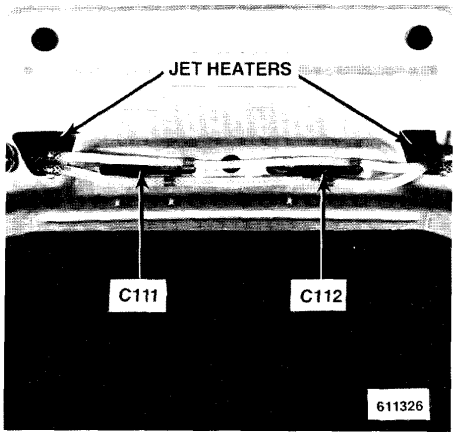


Figure 5 - Rear of Engine Compartment Hood

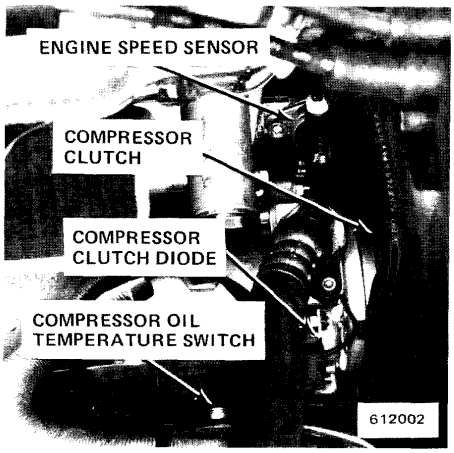


Figure 2 - RH Front of Engine

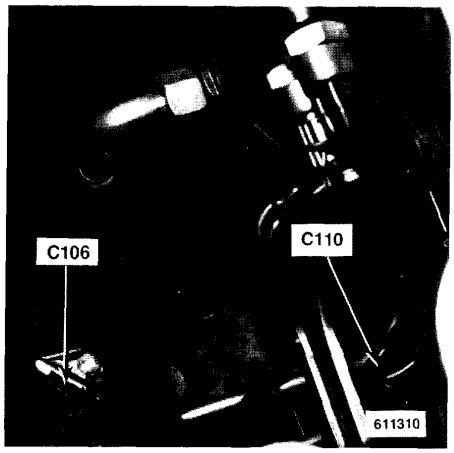


Figure 4 - Front of Car (Center Grills Removed)

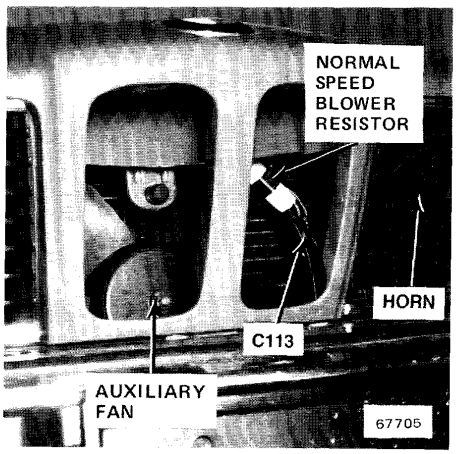


Figure 6 - RH Front of Engine Compartment

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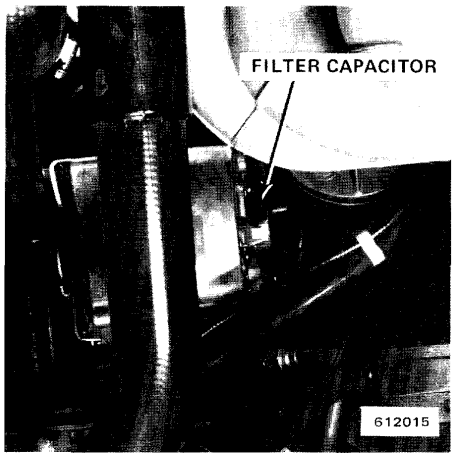


Figure 1 - LH Front of Engine

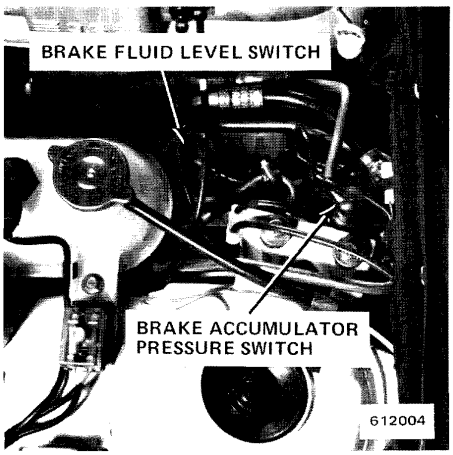


Figure 2 - LH Rear of Engine Compartment

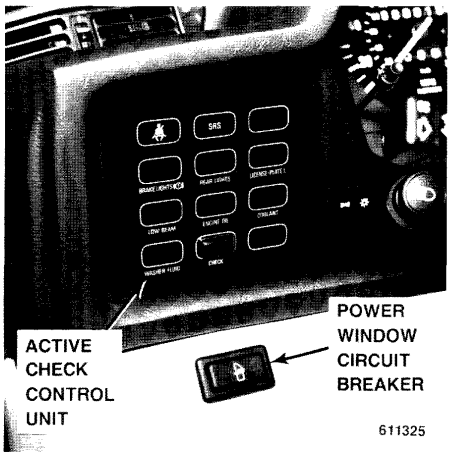


Figure 3 - LH Side of Dash

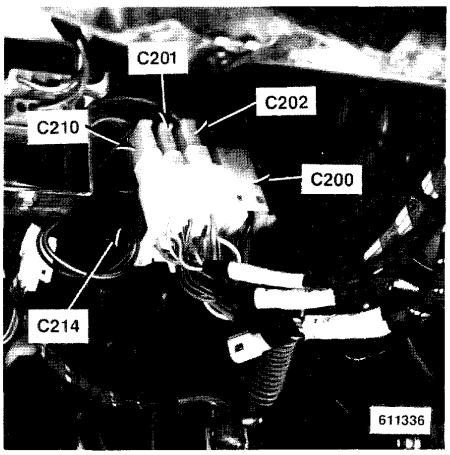


Figure 4 - Driver's Footwell, Above Brake Pedal

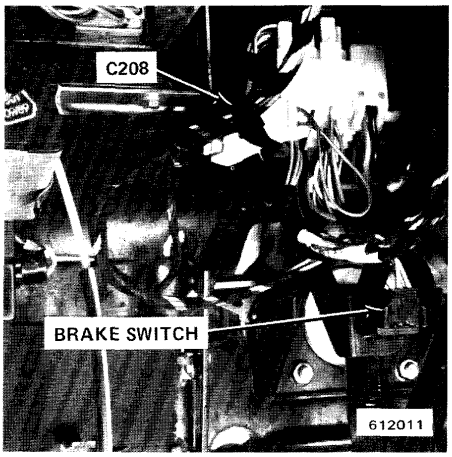


Figure 5 - Driver's Footwell, Above Brake Pedal

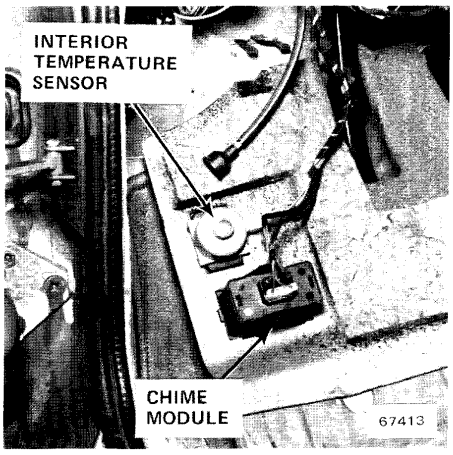


Figure 6 - Behind Dash, Left of Steering Column

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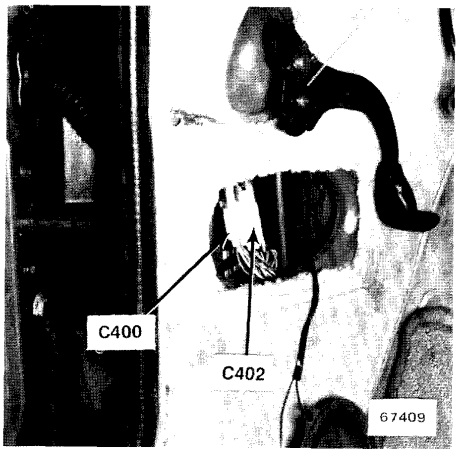


Figure 1 - LH Front Kick Panel

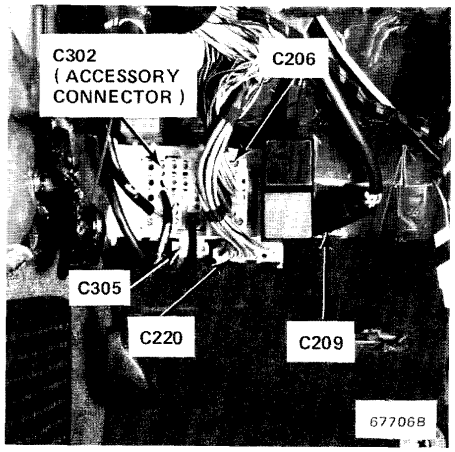


Figure 3 - Near LH Front Kick Panel

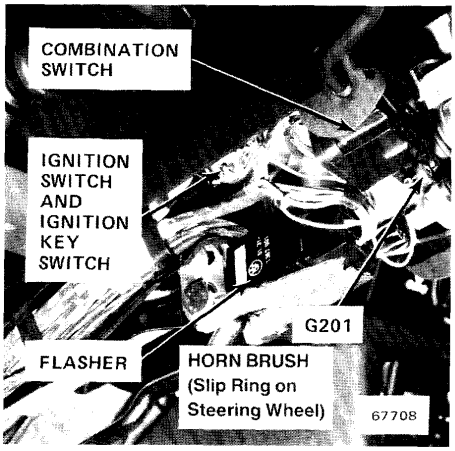


Figure 5 - Underside of Steering Column

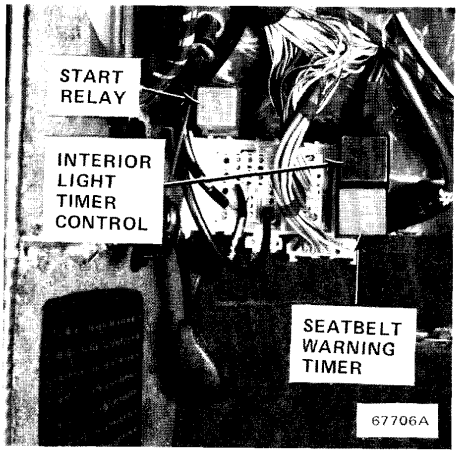


Figure 2 - Near LH Front Kick Panel

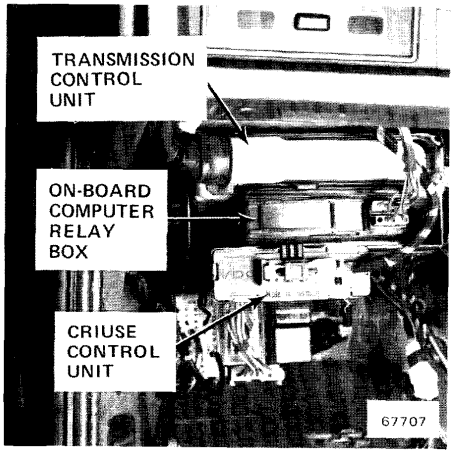


Figure 4 - Above LH Front Kick Panel

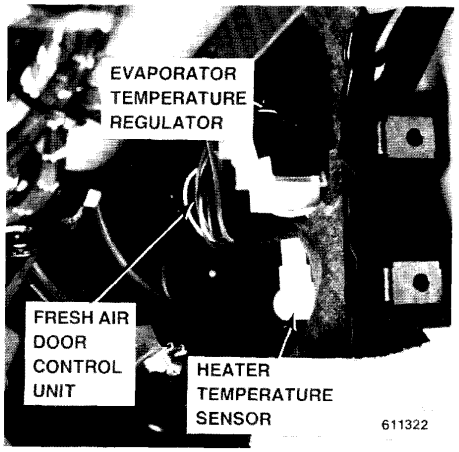


Figure 6 - Rear LH of Center Console

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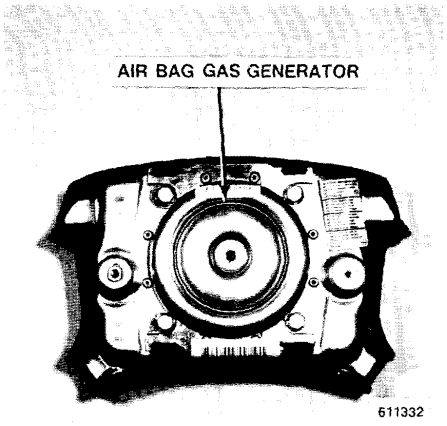


Figure 1 - Inside Steering Wheel

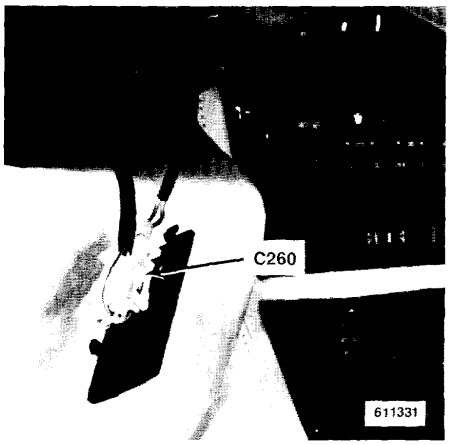


Figure 2 - Under Steering Column

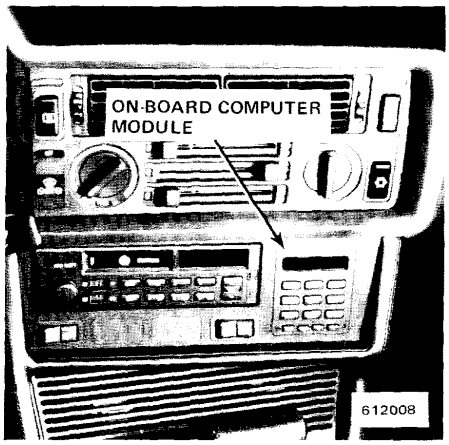


Figure 3 - Center of Dash

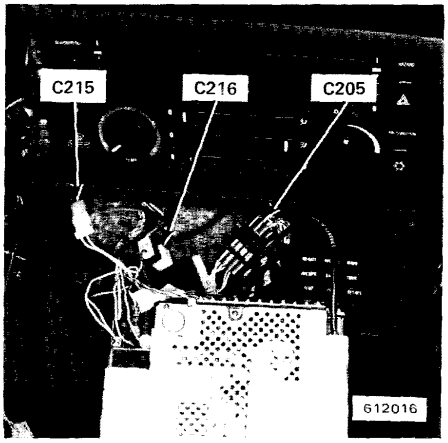


Figure 4 - Center of Dash



Figure 5 - Center Console

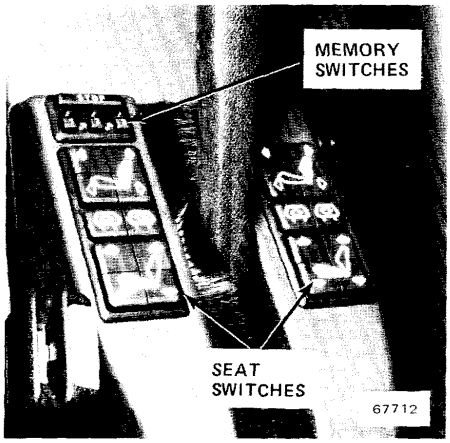


Figure 6 - Center Console

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Figure 1 - Center Console

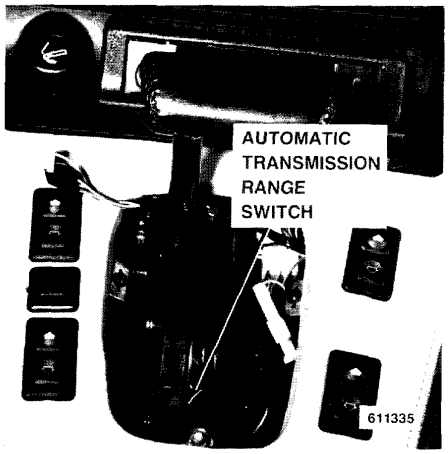


Figure 2 - Center Console

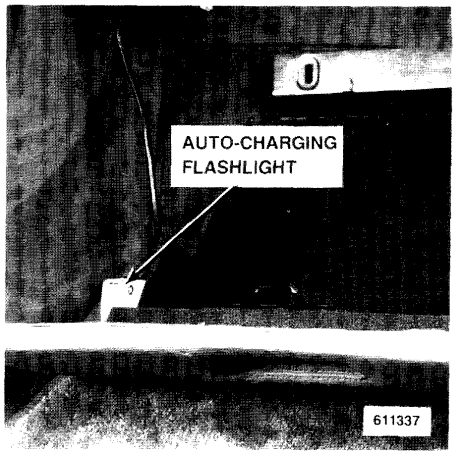


Figure 3 - Center of Dash, Behind Front of Center Console

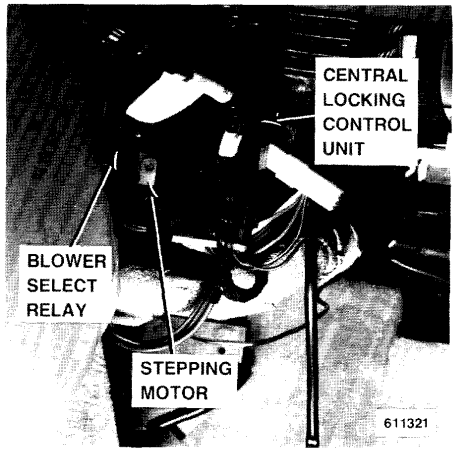


Figure 4 - Under RH Side of Dash



Figure 5 - Under RH Side of Dash

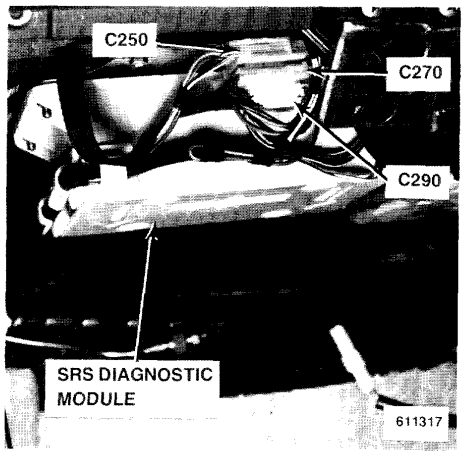


Figure 6 - Inside Glove Box

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Figure 1 - Behind RH Side of Dash, Above Kick Panel

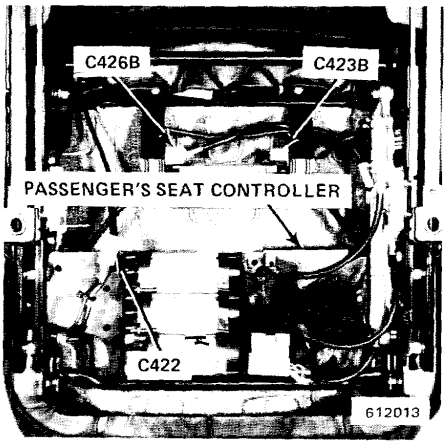


Figure 3 - Inside Driver's Door (RH Similar)

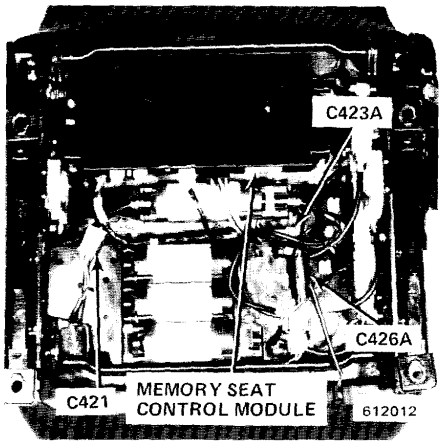


Figure 5 - Under LH Front Seat

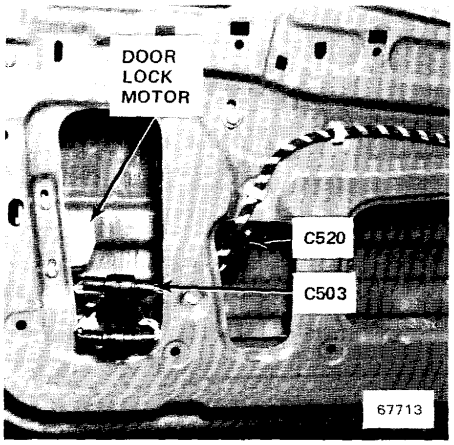


Figure 2 - RH Front Kick Panel



Figure 4 - Inside Driver's Door

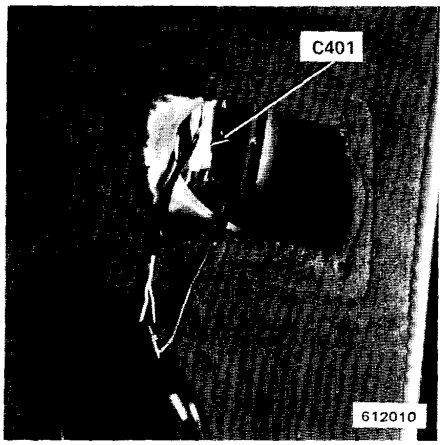


Figure 6 - Under RH Front Seat

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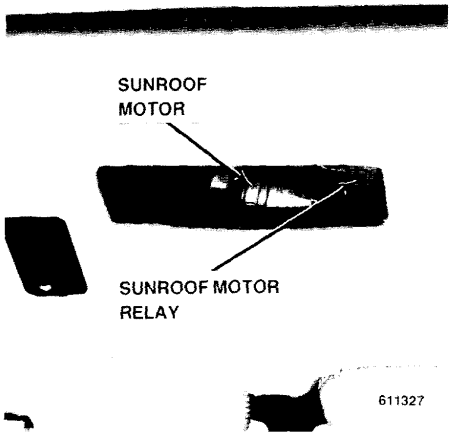


Figure 1 - Center of Windshield Header

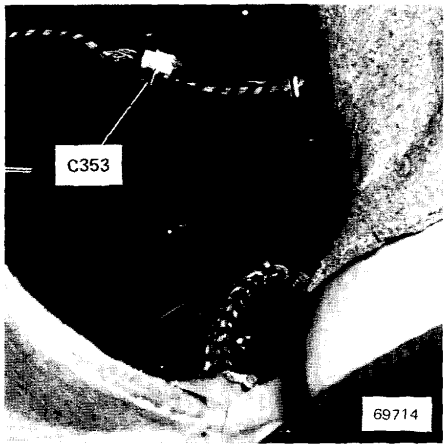


Figure 3 - Under LH Side of Rear Seat

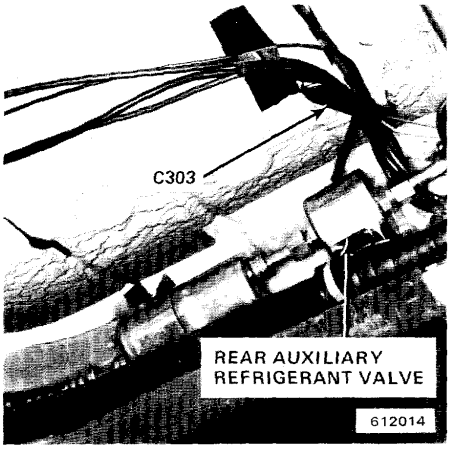


Figure 5 - Under RH Side of Rear Seat

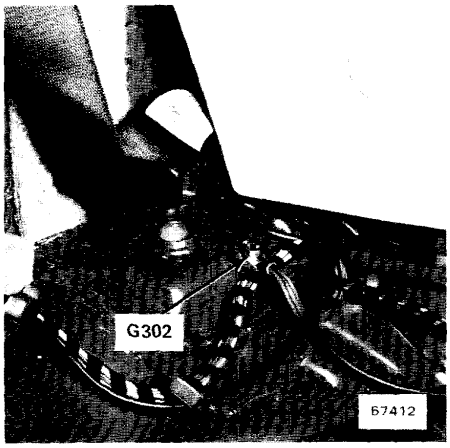


Figure 2 - Under LH Side of Rear Seat

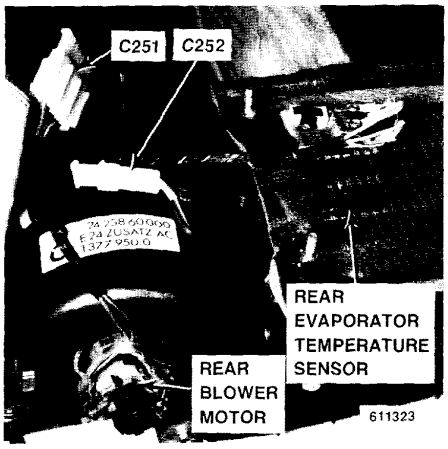


Figure 4 - Under Rear Console

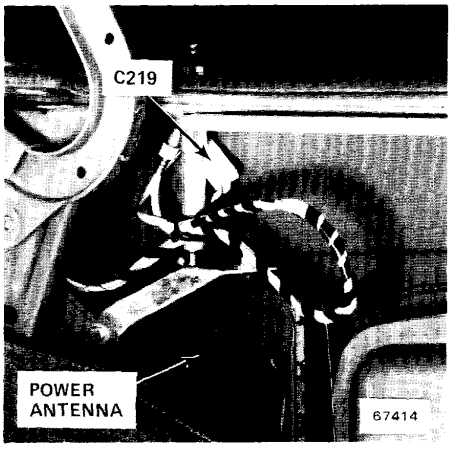


Figure 6 - RH Side of Trunk

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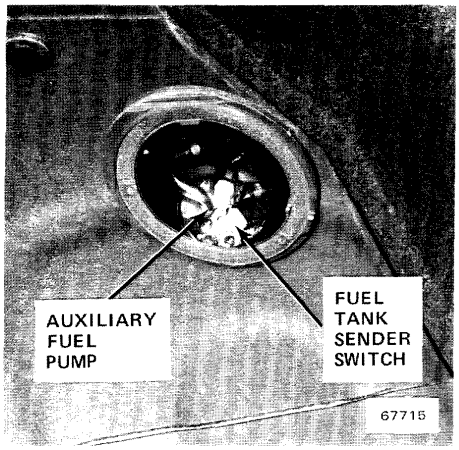


Figure 1 - RH Side of Trunk Floor

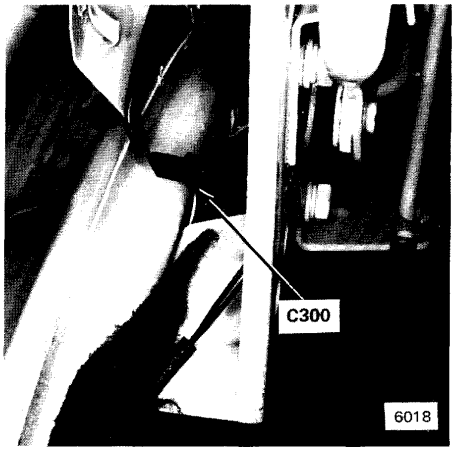


Figure 3 - LH Trunk Hinge

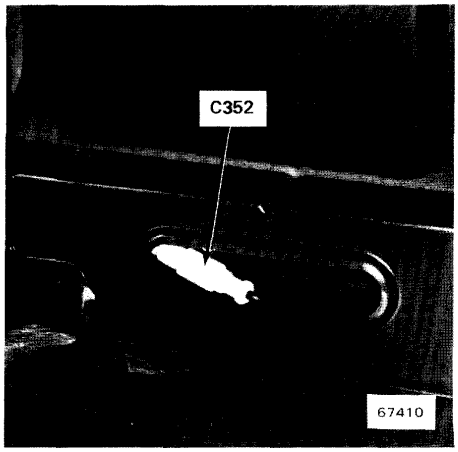


Figure 5 - LH Front of Trunk

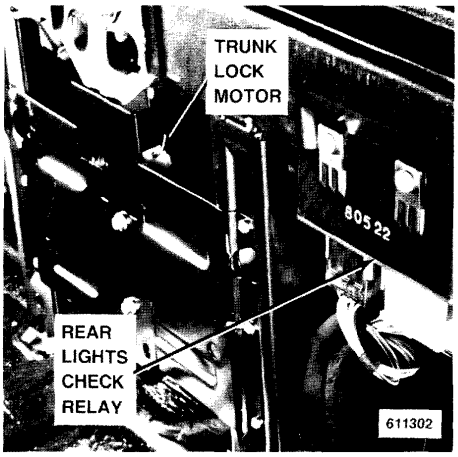


Figure 2 - Rear Panel of Trunk

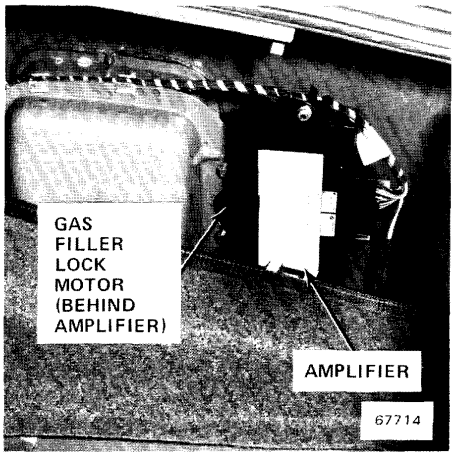


Figure 4 - RH Side of Trunk

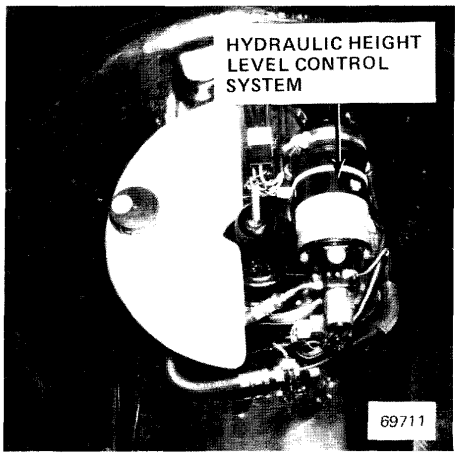


Figure 6 - Bottom of Trunk

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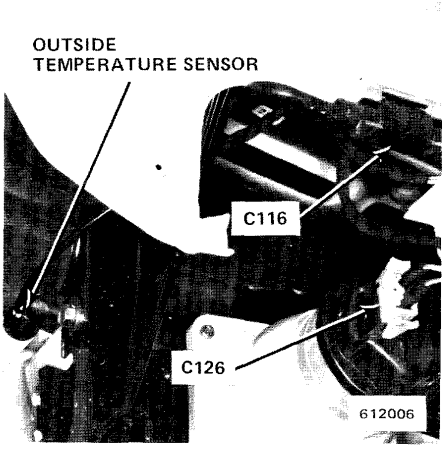


Figure 1 - Underside of Car, Behind LH Side of Front Bumper



Figure 3 - Underside of Car, Rear of Differential

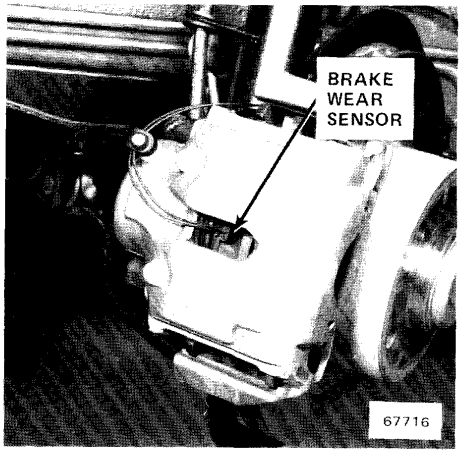


Figure 5 - LH Front Brake Assembly (RH Similar)



Figure 2 - Underside of Car, Above Differential

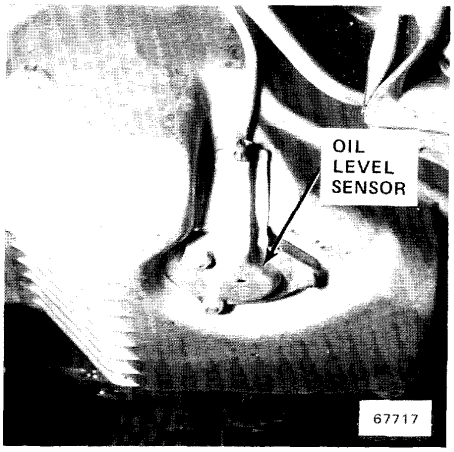


Figure 4 - Underside of Car, Bottom of Oil Pan

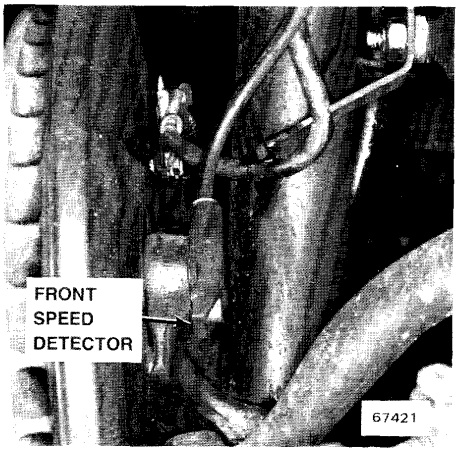


Figure 6 - Back of LH Front Wheel

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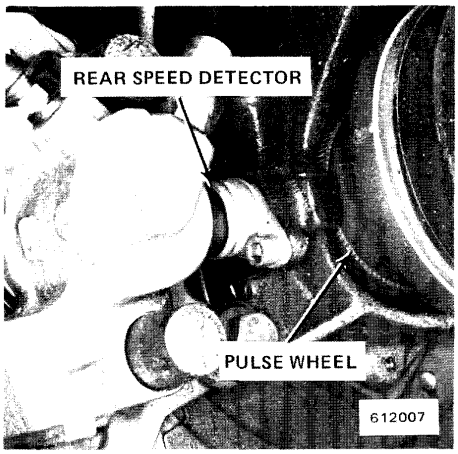


Figure 1 - Back of LH Rear Wheel (RH Similar)

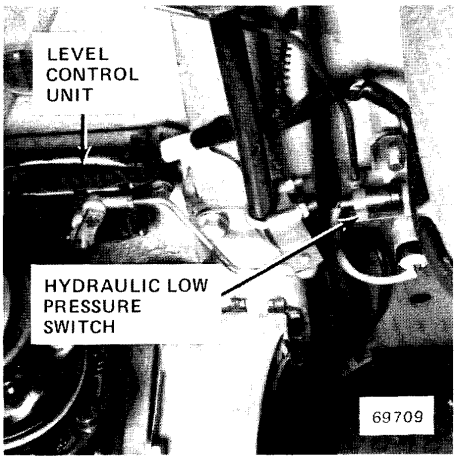


Figure 2 - Underside of Car, in Front of Fuel Tank

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8000-0 SPLICE LOCATION VIEWS

SPLICE LOCATION 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	SPLICE	HARNESS	PAGE NUMBER
S100	FRONT	8000-2	S203	MIDDLE	8000-3
S101	FRONT	8000-2	S204	MIDDLE	8000-3
S104	FRONT	8000-2	S205	MIDDLE	8000-3
S106	ENGINE	8000-5	S206	MIDDLE	8000-3
S109	ENGINE	8000-5	S207	MIDDLE	8000-3
S110	ENGINE	8000-5	S208	MIDDLE	8000-3
S111	MIDDLE	8000-3	S209	MIDDLE	8000-3
S112	MIDDLE	8000-3	S210	MIDDLE	8000-3
S113	MIDDLE	8000-3	S211	MIDDLE	8000-3
S114	ENGINE	8000-5	S212	MIDDLE	8000-3
S115	MIDDLE	8000-3	S213	MIDDLE	8000-3
S116	MIDDLE	8000-3	S214	MIDDLE	8000-3
S117	FRONT	8000-2	S215	MIDDLE	8000-3
S118	WASHER JETS	NOT SHOWN	S216	MIDDLE	8000-3
S119	WASHER JETS	NOT SHOWN	S217	MIDDLE	8000-3
S120	MIDDLE	8000-3	S219	MIDDLE	8000-3
S122	ENGINE	8000-5	S220	MIDDLE	8000-3
S123	ENGINE	8000-5	S221	MIDDLE	8000-3
S124	ENGINE	8000-5	S225	A/C	NOT SHOWN
S125	ENGINE	8000-5	S226	A/C	NOT SHOWN
S126	ENGINE	8000-5	S227	A/C	NOT SHOWN
S127	ENGINE	8000-5	S228	A/C	NOT SHOWN
S128	ENGINE	8000-5	S229	A/C	NOT SHOWN
S129	ENGINE	8000-5	S230	A/C	NOT SHOWN
S130	FRONT	8000-2	S300	REAR	8000-4
S131	MIDDLE	8000-3	S301	REAR	8000-4
S151	MIDDLE	8000-3	S302	REAR	8000-4
S200	MIDDLE	8000-3	S303	REAR	8000-4
S201	MIDDLE	8000-3	S306	REAR	8000-4
S202	MIDDLE	8000-3	S307	REAR	8000-4

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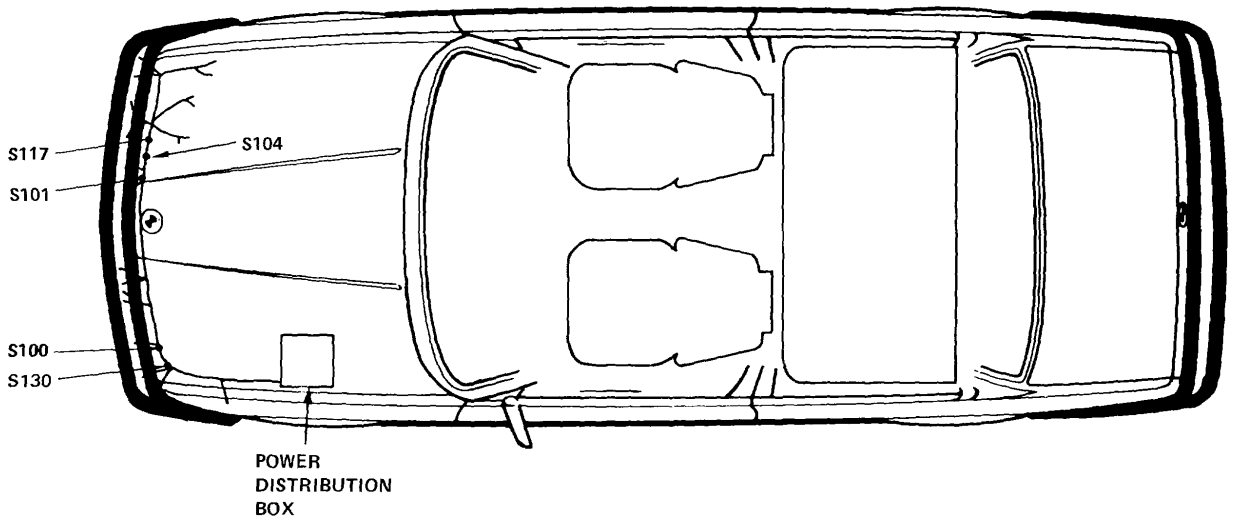
SPLICE LOCATION INDEX

SPLICE	HARNESS	PAGE NUMBER
S308	REAR	8000-4
S309	REAR	8000-4
S310	REAR	8000-4
S313	REAR	8000-4
S314	REAR	8000-4
S315	REAR	8000-4
S316	REAR	8000-4
S317	REAR	8000-4
S319	REAR	8000-4
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S339	REAR	8000-4
S340	REAR	8000-4
S360	REAR	8000-4
S361	REAR	8000-4
S362	REAR	8000-4
S370	SOUND SYSTEM	NOT SHOWN
S371	SOUND SYSTEM	NOT SHOWN
S372	SOUND SYSTEM	NOT SHOWN
S373	SOUND SYSTEM	NOT SHOWN
S409	PASSENGER DOOR	NOT SHOWN
S502	DRIVER DOOR	NOT SHOWN
S550	POWER SEATS	NOT SHOWN
S551	POWER SEATS	NOT SHOWN
S600	SUNROOF	NOT SHOWN
S601	SUNROOF	NOT SHOWN
S602	REAR CONSOLE	NOT SHOWN
S603	REAR CONSOLE	NOT SHOWN
S604	REAR CONSOLE	NOT SHOWN

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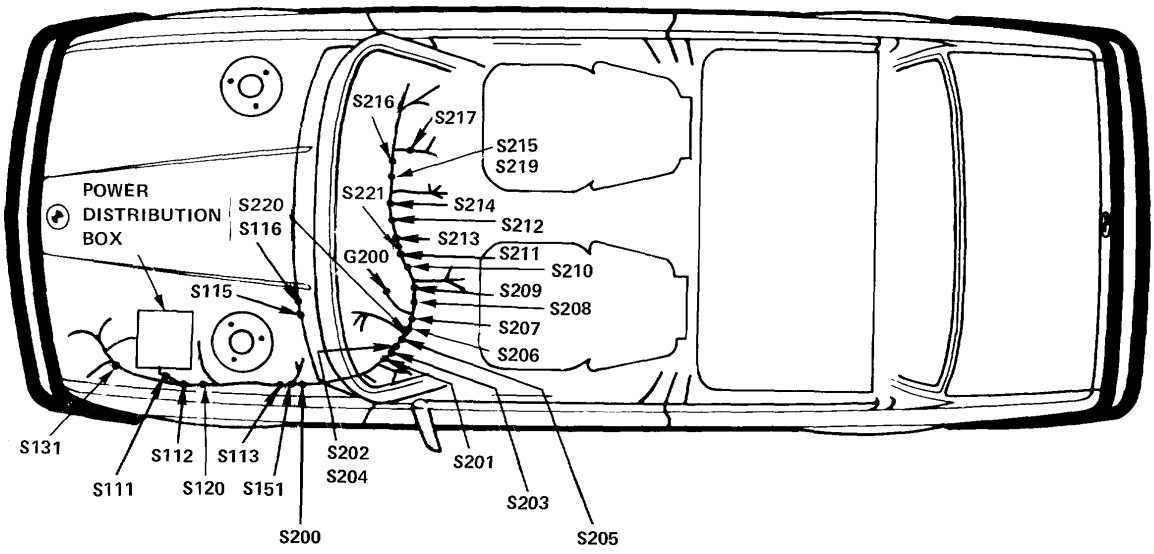
8000-2 SPLICE LOCATION VIEWS

FRONT HARNESS



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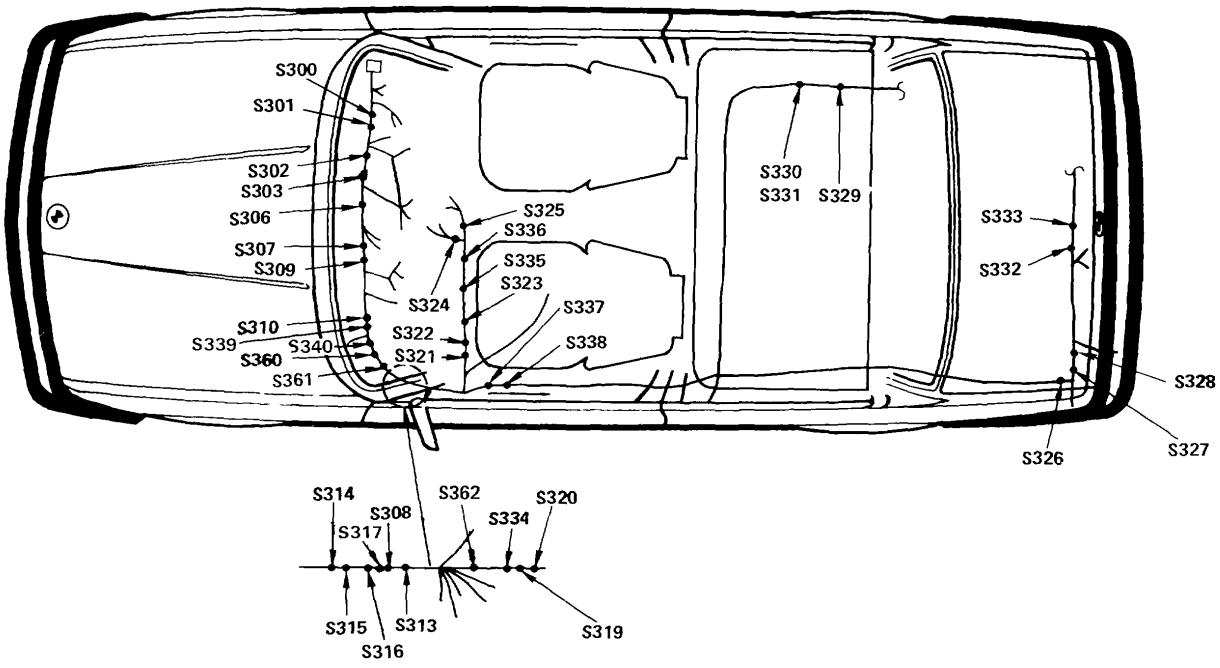
MIDDLE HARNESS



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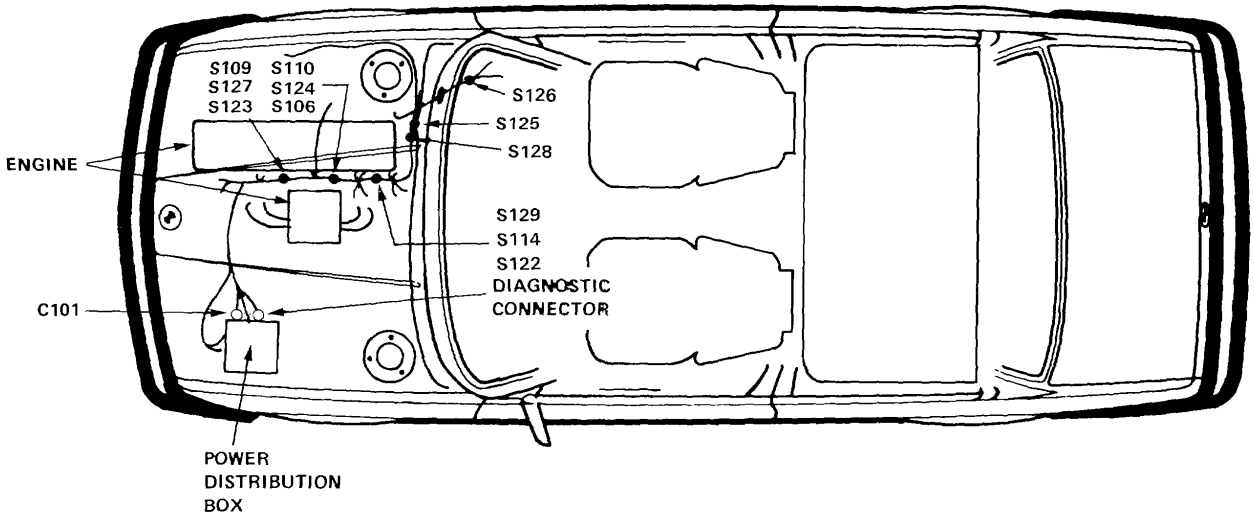
8000-4 SPLICE LOCATION VIEWS

REAR HARNESS



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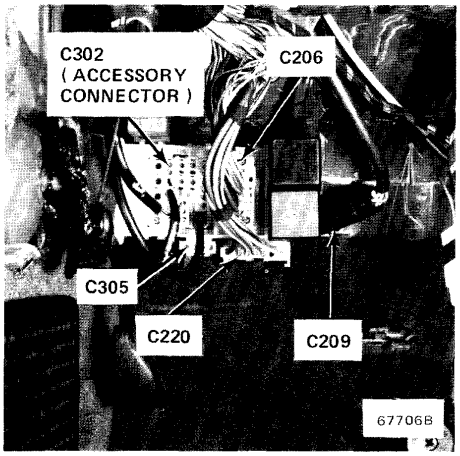
ENGINE HARNESS



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8500-0 CONNECTOR VIEWS

ACCESSORY CONNECTOR (302)



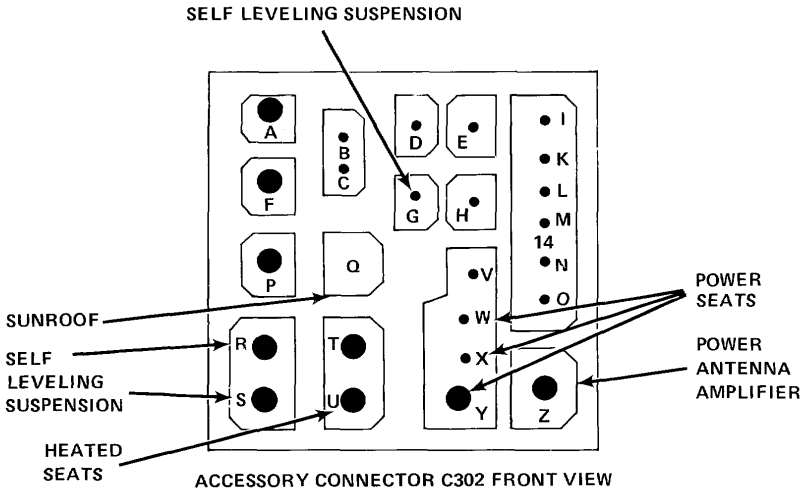
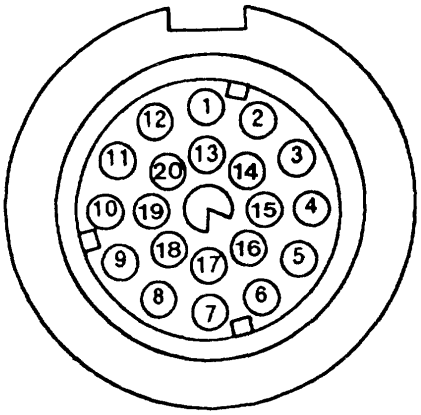


Figure 1 - Under Left Side Of Dash

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DIAGNOSTIC CONNECTOR



DIAGNOSTIC CONNECTOR FACE

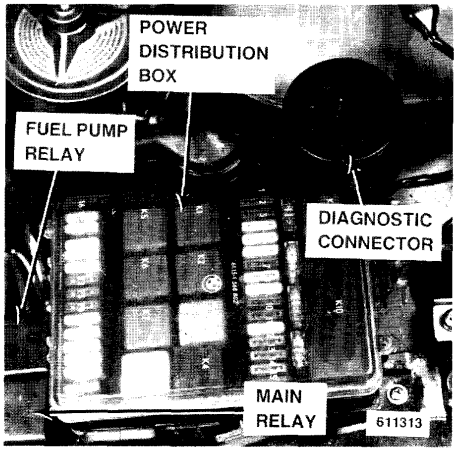
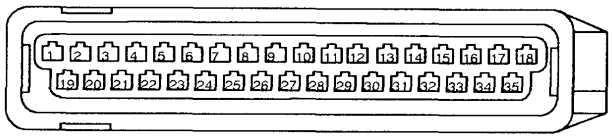


Figure 1 - On Power Distribution Box

Pin	Wire Size	Wire Color	Circuit and Component Connected
1	1	BK	Ignition Coil, Motronic Control Unit
6	.5	WT/BK	SRS Connector
7	.5	WT/GN	Service Interval Indicator, Service Interval Processor (Reset)
11	2.5	BK/YL	Start, Start Signal (50)
12	.75	BU	Charge System, Alternator (D+)
14	2.5	RD	Battery (+)
15	.5	WT/YL	Motronic Control Unit (RXD)
16	1.5	GN/WT	Oxygen Sensor
18	1.5	GN/BU	Motronic Control Unit (Programming Voltage)
19	1.5 BR	BR	Ground Distribution (G103)
20	.5	WT/VI	Motronic Control Unit (TXD)

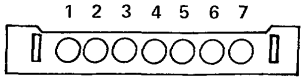
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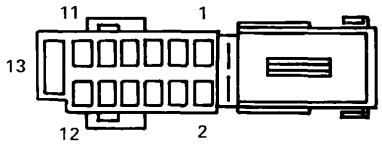
Wiring Face

ABS ELECTRONIC CONTROL UNIT



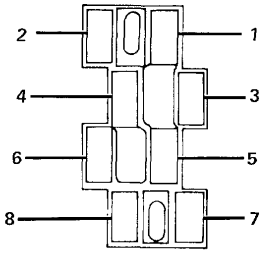
Wiring Face

AIR DOOR CONTROL



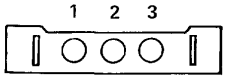
Mating Face

ABS HYDRAULIC UNIT



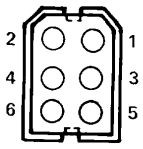
Wiring Face

A/C SELECTOR SWITCH



Wiring Face

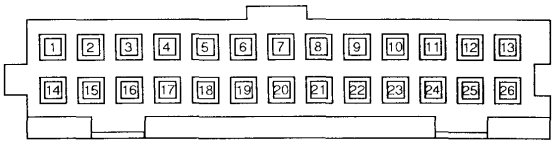
AIR DOOR POTENTIOMETER



Wiring Face

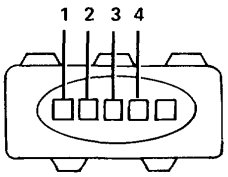
A/C BLOWER HOUSING

B260002.00



Wiring Face

ACTIVE CHECK CONTROL UNIT

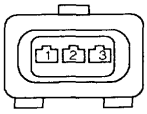


Wiring Face

AIR FLOW METER

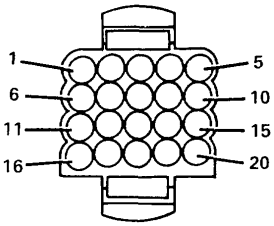
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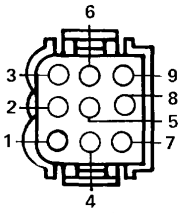
Engine Harness Wiring Face

ALTERNATOR



Wiring Face

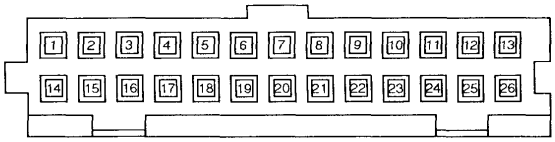
AMPLIFIER
(SOUND SYSTEM)



Wiring Face

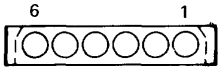
AUTOMATIC TRANSMISSION RANGE SWITCH

B260002.00



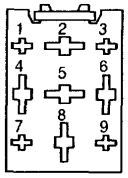
Wiring Face

CRUISE CONTROL
UNIT



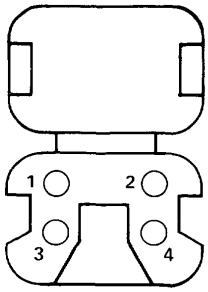
Wiring Face

AUXILIARY EVAPORATOR



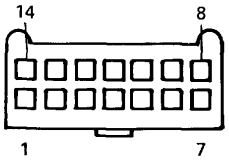
Wiring Face

BLOWER SELECT RELAY



Wiring Face

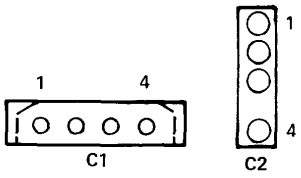
BLOWER SPEED
CONTROL (C1)



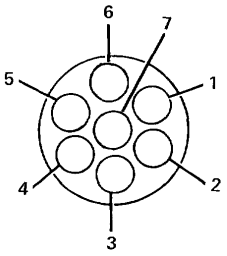
Wiring Face

CENTRAL LOCKING CONTROL UNIT

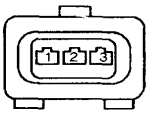
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Wiring Face
CHIME MODULE



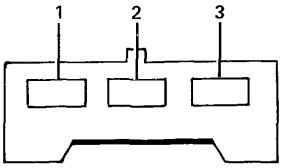
Wiring Face
DRIVER'S SEAT (C8)



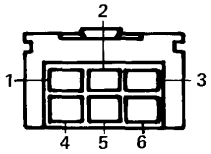
Engine Harness Wiring Face
ENGINE SPEED SENSOR



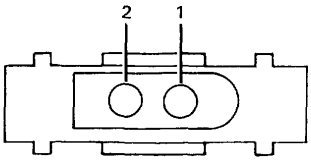
Wiring Face
DIGITAL CLOCK



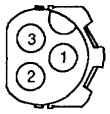
Wiring Face
DRIVER'S SEAT
(C9,C10,C11,C12)



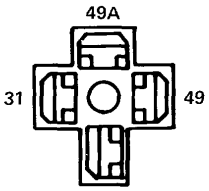
Wiring Face
EVAPORATOR TEMPERATURE REGULATOR



Wiring Face
DRIVER'S SEAT
(C6,C7,C13,C14)

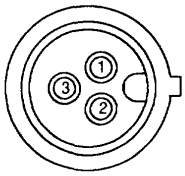


Wiring Face
DUAL COOLANT
TEMPERATURE SWITCH



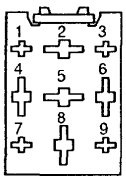
Wiring Face
FLASHER

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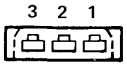
Wiring Face

FRONT TURN PARK LIGHT



Wiring Face

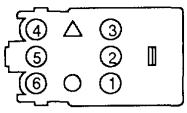
FUEL PUMP RELAY



Wiring Face

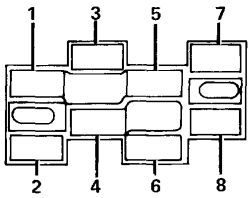
FUEL TANK SENDER

B060005.05



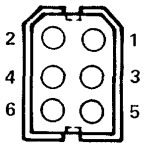
Wiring Face

GAS FILLER LOCK MOTOR



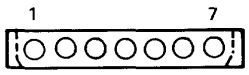
Wiring Face

HAZARD SWITCH



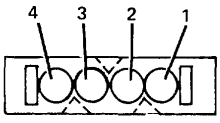
Wiring Face

HEATER BLOWER HOUSING



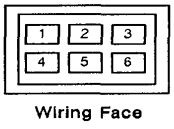
Wiring Face

HEATER REGULATOR



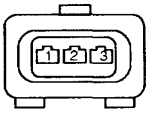
Wiring Face

HIGH LEVEL STOP LIGHT



Wiring Face

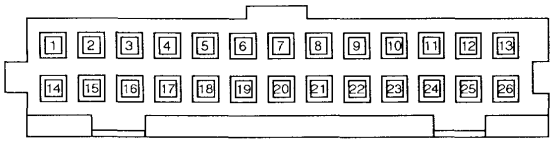
HYDRAULIC HEIGHT
LEVEL CONTROL SYSTEM



Wiring Face

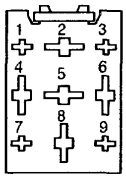
IDLE SPEED ACTUATOR

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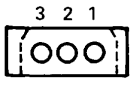
Mating Face

INSTRUMENT CLUSTER



Wiring Face

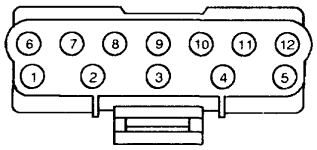
INTERIOR LIGHT
TIMER CONTROL



Wiring Face

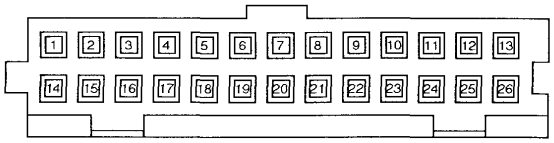
INTERIOR TEMPERATURE SENSOR

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Mating Face

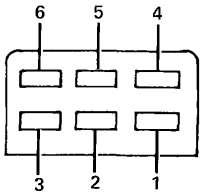
LIGHT SWITCH



Wiring Face

MEMORY SEAT

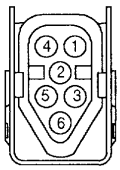
CONTROL UNIT (C1)



Wiring Face

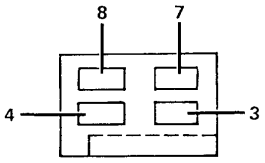
MEMORY SEAT CONTROL UNIT (C2)

B060009.00



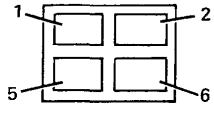
Wiring Face

LOCK MOTOR (CENTRAL LOCKING)



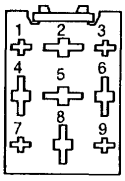
Wiring Face

MEMORY SEAT CONTROL UNIT (C4)



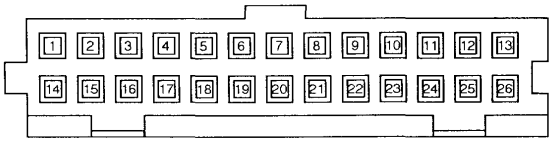
Wiring Face

MEMORY SEAT CONTROL UNIT (C3)



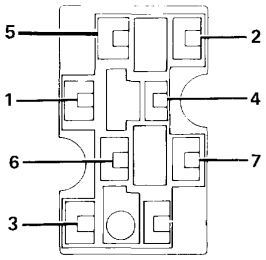
Wiring Face

MAIN RELAY



Wiring Face

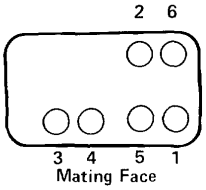
MEMORY SEAT CONTROL UNIT (C5)



Wiring Face

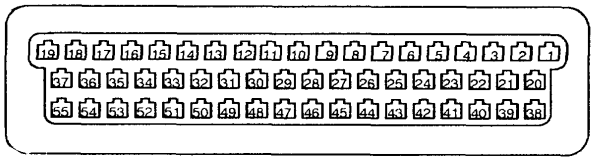
MEMORY SWITCH

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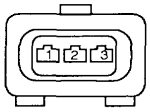
Mating Face

MIRROR CONTROL SWITCH



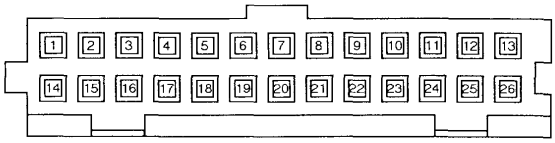
MOTRONIC CONTROL UNIT

B030015.00



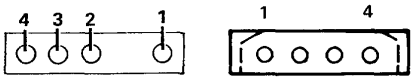
Engine Harness Wiring Face

OIL LEVEL SWITCH



Wiring Face

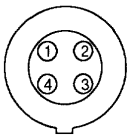
ON-BOARD COMPUTER MODULE



Wiring Face C1 Wiring Face C2

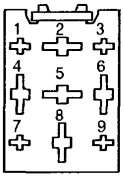
ON-BOARD COMPUTER RELAY BOX

B040006.00



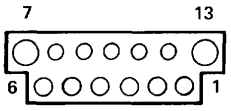
Wiring Face

OXYGEN SENSOR



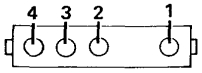
Wiring Face

OXYGEN SENSOR RELAY



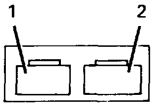
Wiring Face

PASSENGER SEAT CONTROLLER (C1)



Wiring Face

POWER MIRRORS

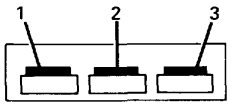


Wiring Face

PROGRAM SWITCH (C1)

(ELECTRONIC TRANSMISSION)

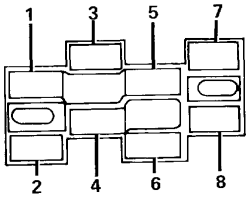
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Wiring Face

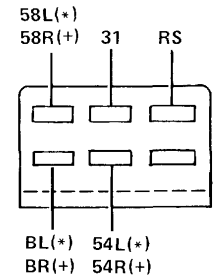
PROGRAM SWITCH (C2)

(ELECTRONIC TRANSMISSION)



Wiring Face

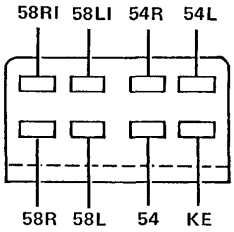
REAR DEFOGGER SWITCH



(*)=LEFT SIDE

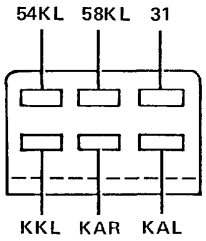
(+)=RIGHT SIDE

REAR LIGHT ASSEMBLY



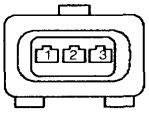
Wiring Face

REAR LIGHTS CHECK RELAY (C1)



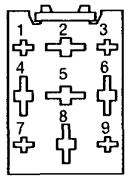
Wiring Face

REAR LIGHTS CHECK RELAY (C2)



Wiring Face

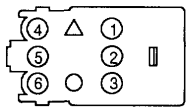
REFERENCE POINT SENSOR



Wiring Face

SEATBELT WARNING TIMER

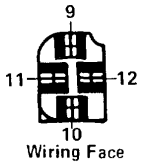
B060005.12



Wiring Face

SEAT HEATING SWITCH

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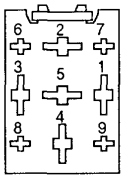


Wiring Face

SEAT SWITCH (C1)

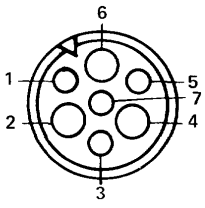
(HEADREST)

B090001.11



Wiring Face

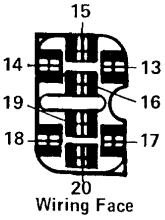
START RELAY



Wiring Face

THROTTLE POSITION SENSOR

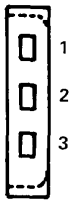
(ELECTRONIC TRANSMISSION AEGS)



Wiring Face

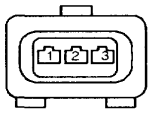
SEAT SWITCH (C2)

(ENTIRE SEAT/SEAT BACK RECLINER)



Wiring Face

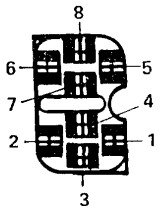
SUNROOF MOTOR (CI)



Wiring Face

THROTTLE SWITCH

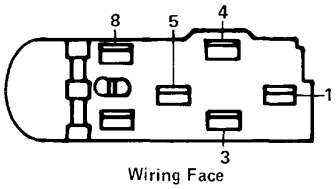
(MANUAL TRANSMISSION)



Wiring Face

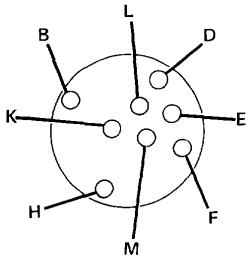
SEAT SWITCH (C3)

(FRONT/REAR)



Wiring Face

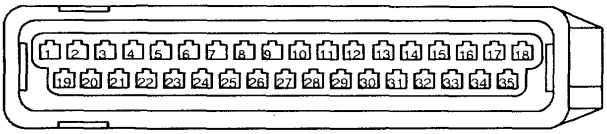
SUNROOF SWITCH



Wiring Face

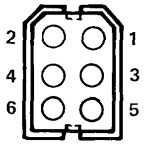
TRANSMISSION

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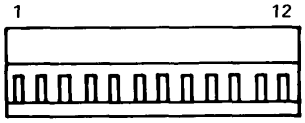
Mating Face

TRANSMISSION CONTROL UNIT



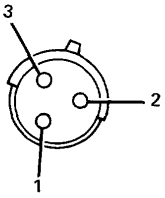
Wiring Face

WIPER MOTOR



Wiring Face

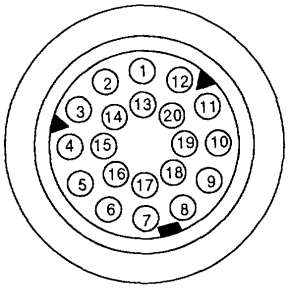
TRANSMISSION RANGE DISPLAY



Mating Face

UNLOCK INHIBIT SWITCH

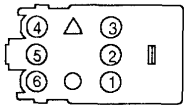
B200002.00



Wiring Face

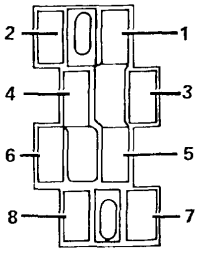
C101

B060005.12



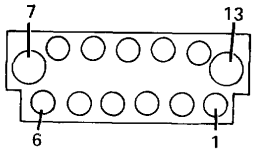
Wiring Face

TRUNK LOCK MOTOR



Wiring Face

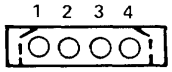
WINDOW SWITCHES



Wiring Face

C102

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Wiring Face

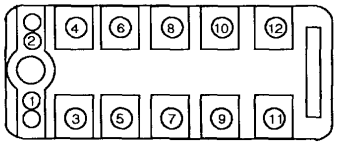
C103



Wiring Face

C114

B120009.00



Wiring Face

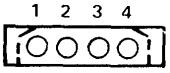
C155

B030004.00



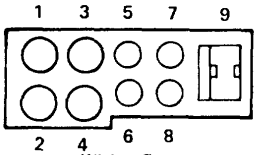
Wiring Face

C106



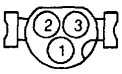
Wiring Face

C132



Wiring Face

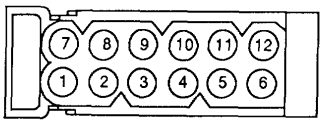
C200



Wiring Face

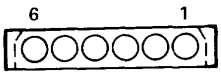
C113

B120002.00



Wiring Face

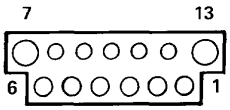
C133



Wiring Face

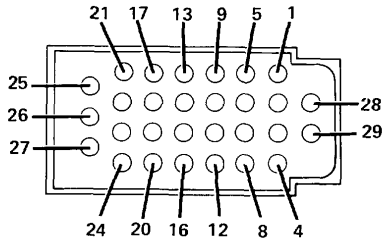
C201

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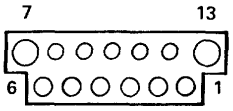
Wiring Face

C202



Wiring Face

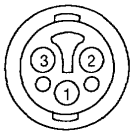
C206



Wiring Face

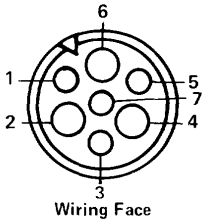
C220

B030013.00



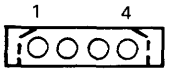
Wiring Face

C203



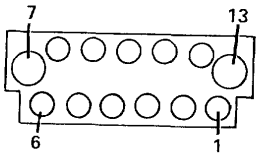
Wiring Face

C209



Wiring Face

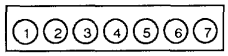
C230



Wiring Face

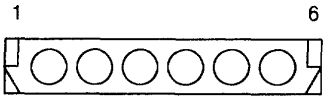
C204

B060003.00



Wiring Face

C210

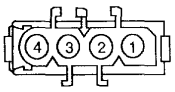


Wiring Face

C250

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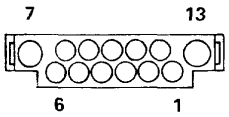
B040002.00



Wiring Face

C270

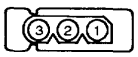
C350



Wiring Face

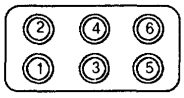
C401

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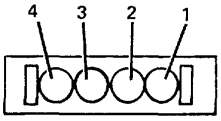
Wiring Face

C423



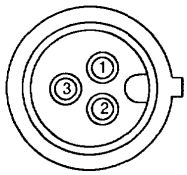
Wiring Face

C353



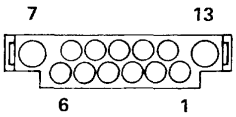
Wiring Face

C402



Wiring Face

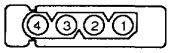
C503



Wiring Face

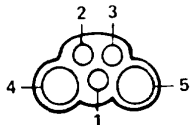
C400

B040004.00



C421

C422



Wiring Face

C551

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9000-0 COMPONENT LOCATION CHART

COMPONENT	LOCATION	Page-Figure
A/C Blower Housing	Behind center console	
ABS Electronic Control Unit	Below RH side of windshield, behind shock tower	7000- 0-3
ABS Hydraulic Unit	LH side of engine compartment	7000- 1-3
Accessory Fuse Box	LH side of engine compartment, near coolant reservoir	7000- 0-1
Active Check Control Unit	In dash, left of steering column	7000- 3-3
Air Bag Gas Generator	In center of steering wheel	7000- 5-1
Air Flow Meter	Top RH side of engine	7000- 0-5
Amplifier	RH side of trunk	7000- 9-4
Auto-Charging Flashlight	In glove box	7000- 6-6
Automatic Transmission Range Switch	Under center console, on LH side of shift lever	7000- 6-2
Auxiliary Fan	Ahead of radiator	7000- 2-4
Auxiliary Fan Blocking Diode	Inside power distribution box	7000- 2-3
Auxiliary Fuel Pump	RH side of trunk floor, below access panel	7000- 9-1
B/C Horn Diode	Under LH side of fresh air intake cowl, near board computer horn	
Back Up Light Switch	On LH side of manual transmission	
Battery	LH front of engine compartment	7000- 1-3
Blower Select Relay	Under dash, left of glove box	7000- 6-3
Board Computer Horn	Under LH side of fresh air intake cowl	7000- 0-6
Brake Accumulator Pressure Switch	LH rear of engine compartment, near brake fluid reservoir	7000- 3-2
Brake Fluid Level Switch	LH rear of engine compartment, on brake fluid reservoir	7000- 3-2
Brake Switch	Above brake pedal	7000- 3-5
Brake Wear Sensor	Near each brake caliper, connected to brake pad	7000-10-5
Central Locking Control Unit	Under dash, left of glove box	7000- 6-3
Chime Module	Under LH side of dash, on hush panel	7000- 3-6
Clutch Switch	Above clutch pedal	
Combination Switch	On LH side of steering column	7000- 4-5
Compressor Clutch	On front of A/C compressor	7000- 2-2
Compressor Clutch Diode	Lower RH front of engine compartment, on RH side of A/C compressor	7000- 2-2
Compressor Oil Temperature Switch	Lower RH front of engine compartment, on A/C compressor	7000- 2-2
Coolant Level Switch	Top of coolant reservoir	7000- 0-1

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COMPONENT LOCATION		Page-Figure
Coolant Temperature Sender/ Switch	Front of engine, on thermostat housing	7000- 0-4
Coolant Temperature Sensor	Front of engine, top of thermostat housing	7000- 0-4
Coolant Temperature Switch	Top RH side of radiator	7000- 1-6
Cruise Control Actuator	LH side of engine compartment	7000- 1-3
Cruise Control Unit	Under LH side of dash, above speaker	7000- 4-4
Cylinder Identification Sensor	RH front of engine	7000- 1-6
Diagnostic Connector	RH side of power distribution box	7000- 1-1
Door Lock Motors	In rear of each door, behind panel	7000- 7-3
Driver's Seat Switches	On center console, left of shift lever	7000- 5-6
Dual Coolant Temperature Switch	Upper RH side of radiator	7000- 1-6
Electro-Hydraulic Converter	Lower LH side of engine compartment, on steering assembly	
Engine Speed Sensor	RH front of engine, above A/C compressor	7000- 2-2
Evaporative Purge Valve	Top center of engine, below throttle body	
Evaporator Temperature Regulator	On LH side of heater-A/C unit	7000- 4-6
Evaporator Temperature Sensor	In center console, below back of radio	
Filter Capacitor	LH front of engine, on back of alternator	7000- 3-1
Flasher	Upper LH side of steering column	7000- 4-5
Fresh Air Door Control Potentiometer	Behind center of dash	
Fresh Air Door Control Unit	On LH side of heater-A/C unit	7000- 4-6
Front Speed Detectors	Back of front wheels, on dust shields	7000-10-6
Fuel Injectors	Top of engine, near each cylinder	
Fuel Pump Relay	On power distribution box	7000- 1-1
Fuel Tank Sender Switch	RH side of trunk floor, below access panel	7000- 9-1
Gas Filler Lock Motor	In trunk, behind RH rear wheel well	7000- 9-4
Heater Blower Housing	Behind center console	
Heater Regulator	Behind temperature select control	
Heater Temperature Sensor	On LH side of heater-A/C unit	7000- 4-6
High Pressure Cut-Out Switch	RH front corner of engine compartment, on receiver-drier	7000- 0-2
High Speed Relay	In power distribution box	7000- 1-2
Horn Brush/Slip Ring	Under hub of steering wheel	7000- 4-5

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COMPONENT LOCATION		Page-Figure
Horns	Behind front grille, next to headlights	7000- 2-4
Hydraulic Height Level Control System	In trunk, under spare tire	7000- 9-6
Hydraulic Low Pressure Switch	Under LH side of car, front of rear axle	7000-11-2
Hydraulic Pressure Switch	LH rear of engine compartment, near brake fluid reservoir	7000- 1-5
Idle Speed Actuator	Top center of engine	7000- 0-5
Ignition Coil	On RH wheel well, behind washer fluid reservoir	7000- 0-2
Ignition Key Switch	In upper part of steering column, part of ignition switch	7000- 4-5
Ignition Switch	In upper part of steering column	7000- 4-5
Intensive Washer Pump	Behind RH front wheel well, in reservoir	7000- 0-3
Interior Light Timer Control	Under LH side of dash, on body electrical bracket	7000- 4-2
Interior Temperature Sensor	Under LH side of dash, on hush panel	7000- 3-6
Jet Heaters	On washer jet nozzles	7000- 2-5
Left Front Crash Sensor	Forward of LH shock tower	7000- 1-2
Level Control Unit	Under LH side of car, front of rear axle	7000-11-2
Lock Heater	In LH front door, on door lock	
Lock Heater Control Unit	In left front door, near door lock	
Loop Contact Rings	In center of steering wheel	
Main Fuel Pump	Under car, above right rear axle	7000-10-2
Main Relay	On power distribution box	7000- 1-1
Memory Seat Control Module	Under LH front seat	7000- 7-5
Memory Switches	On center console, left of park brake lever	7000- 5-6
Motronic Control Unit	Under RH side of dash, above glove box	7000- 6-5
Normal Speed Blower Resistor	Ahead of radiator, on auxiliary fan shield	7000- 2-4
Normal Speed Relay	In power distribution box	7000- 1-2
Normal Washer Pump	Ahead of RH front wheel well, in reservoir	7000- 0-2
Oil Level Sensor	Bottom of engine oil pan	7000-10-4
Oil Pressure Switch	Left rear end of cylinder head	7000- 2-1
On-Board Computer Module	In center of dash, right of radio face	7000- 5-3
On-Board Computer Relay Box	Under LH side of dash, above speaker	7000- 4-4
Outside Temperature Sensor	Under LH front side of bumper	7000-10-1

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COMPONENT LOCATION		Page-Figure
Oxygen Sensor	Underneath car, on catalytic converter	
Park Brake Switch	In shift console, at base of parking brake	
Passenger's Seat Controller	Under passenger's seat, on frame	7000- 7-6
Passenger's Seat Switches	On center console, right of shift lever	7000- 5-6
Power Antenna	RH side of trunk, near hinge	7000- 8-6
Power Distribution Box	Top front of LH front wheel well	7000- 1-1
Power Window Circuit Breaker	LH side of dash	7000- 3-3
Program Selector Switch	On center console, to right of shift lever	7000- 5-5
Pulse Wheels	Inner sides of rotors	7000-11-1
Rear Auxiliary Refrigerant Valve	Under RH rear seat	7000- 8-5
Rear Blower Motor	Under rear console, front of rear evaporator	7000- 8-4
Rear Evaporator Temperature Sensor	Under rear console, in rear evaporator	7000- 8-4
Rear Lights Check Relay	In trunk, left of rear panel center support	7000- 9-2
Rear Speed Detectors	Back of rear wheels, near brake assembly	7000-11-1
Right Front Crash Sensor	Forward of RH shock tower	7000- 0-3
Right Front Door Microswitch	In rear of RH front door, part of door lock assembly	
Safety Switch	In center console, to left of shift lever	7000- 5-5
Seatbelt Switch	In driver's seatbelt buckle	
Seatbelt Warning Timer	Under LH side of dash, on body electrical bracket	7000- 4-2
Servotronic Control Unit	Behind RH side of dash	7000- 7-1
Speedometer Sender	In rear of differential	7000-10-3
SRS Diagnostic Module	Under RH side of dash	7000- 6-4
Start Relay	Under LH side of dash, on body electrical bracket	7000- 4-2
Starter	Lower LH rear of engine	
Stepping Motor	Under dash, left of glove box	7000- 6-3
Sunroof Motor	Above headliner, above rear view mirror	7000- 8-1
Sunroof Motor Relay	Above headliner, above rear view mirror	7000- 8-1
Throttle Position Sensor	Top center of engine, behind rubber boot	7000- 0-5
Throttle Switch	Top center of engine, behind rubber boot	7000- 0-5
Transmission Control Unit	Under LH side of dash, above speaker	7000- 4-4

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COMPONENT LOCATION		Page-Figure
Transmission Kickdown Switch	Passenger compartment, under accelerator pedal	
Trunk Light Switch	In trunk lid, near trunk lock	
Trunk Lock Motor	In trunk, in trunk lock support	7000- 9-2
Underhood Light Switch	Left of RH hood hinge	
Unlock Inhibit Switch	In driver's door, at lock cylinder	
Washer Fluid Level Switch	Ahead of RH front wheel well, in lower front of reservoir	
Water Shut-Off Valve	LH rear of engine compartment	7000- 1-5
Window Motors	In each door, behind panel	7000- 7-4
Wiper Motor	Under LH side of fresh air intake cowl	7000- 0-6
CONNECTORS		
C100 (B+ Junction Post)	On underside of power distribution box	7000- 2-3
C101 (17 pins)	On RH side of power distribution box	7000- 1-3
C102 (13 pins)	Inside power distribution box	7000- 2-3
C106 (3 pins)	RH front of engine compartment	7000- 2-6
C108 (2 pins)	RH front corner of engine compartment	
C110 (2 pins)	Ahead of right headlights' access panel	7000- 2-6
C111 (2 pins)	Underside of hood, near LH washer jet nozzle	7000- 2-5
C112 (2 pins)	Underside of hood, near RH washer jet nozzle	7000- 2-5
C113 (3 pins)	LH side of auxiliary fan shield	7000- 2-4
C114 (8 pins)	In power distribution box, on underside of printed circuit board	
C115 (2 pins)	In power distribution box, on underside of printed circuit board	
C116 (2 pins)	Under LH side of front bumper	7000-10-1
C117 (3 pins)	Top front of engine	7000- 0-4
C118 (3 pins)	Top front of engine	7000- 0-4
C126 (2 pins)	Behind LH side of front spoiler	7000-10-1
C127 (2 pins)	Behind RH side of front spoiler	
C133 (12 pins)	Under RH side of dash, above glove box	7000- 6-5
C140 (4 pins)	On lower LH side of engine	
C150 (2 pins)	Behind LH front shock tower	7000- 0-6
C151 (2 pins)	Behind RH front shock tower	7000- 0-3
C152 (8 pins)	Under center of car, near transmission	

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CONNECTORS

		Page-Figure
C155 (12 pins)	Under RH side of dash, above glove box	
C200 (10 pins)	Under LH side of dash, on LH side of steering column	7000- 3-4
C201 (6 pins)	Under LH side of dash, on LH side of steering column	7000- 3-4
C202 (13 pins)	Under LH side of dash, on LH side of steering column	7000- 3-4
C203 (3 pins)	Under RH side of dash, above glove box	
C204 (13 pins)	Behind center console, above radio	
C205 (8 pins)	Center of dash, behind radio	7000- 5-4
C206 (29 pins)	Under LH side of dash, on body electrical bracket	7000- 4-3
C208 (2 pins)	Above clutch pedal	7000- 3-5
C209 (7 pins)	Under LH side of dash, near body electrical bracket	7000- 4-3
C210 (4 pins)	Under LH side of dash, on LH side of steering column	7000- 3-4
C214 (2 pins)	Under LH side of dash, near steering column	7000- 3-4
C215 (2 pins)	Center of dash, behind radio	7000- 5-4
C216 (2 pins)	Center of dash, behind radio	7000- 5-4
C219 (2 pins)	RH side of trunk, near power antenna	7000- 8-6
C220 (13 pins)	Under LH side of dash, on body electrical bracket	7000- 4-3
C230 (4 pins)	Inside power distribution box	7000- 2-3
C250 (6 pins)	Under RH side of dash	7000- 6-4
C251 (6 pins)	Under rear console, top rear of rear blower motor	7000- 8-4
C252 (2 pins)	Under rear console, top rear of rear blower motor	7000- 8-4
C255 (2 pins)	Above clip for RH visor	
C260 (2 pins)	Underside of steering column	7000- 5-2
C270 (4 pins)	Under RH side of dash	7000- 6-4
C290 (2 pins)	Under RH side of dash	7000- 6-4
C300 (2 pins)	Base of LH trunk hinge	7000- 9-3
C301 (2 pins)	In center console, ahead of shift lever	7000- 6-1
C302 (Accessory Connector)	Under LH side of dash, on body electrical bracket	7000- 4-3
C303 (2 pins)	Under RH rear seat	7000- 8-5
C305 (4 pins)	Under LH side of dash, on underside of accessory connector	7000- 4-3
C306 (2 pins)	Under RH side of dash, above glove box	

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CONNECTORS		Page-Figure
C351 (2 pins)	RH front of trunk	
C352 (2 pins)	LH front of trunk	7000- 9-5
C353 (6 pins)	Under LH side of rear seat	7000- 8-3
C355 (1 pin)	Under LH side of dash, near accessory connector	
C400 (13 pins)	Behind LH front speaker	7000- 4-1
C401 (13 pins)	Behind RH front speaker	7000- 7-2
C402 (4 pins)	Behind LH front speaker	7000- 4-1
C421 (4 pins)	Under LH front seat	7000- 7-5
C422 (4 pins)	Under RH front seat	7000- 7-6
C423 (3 pins)	Below front of center console	
C423A (2 pins)	Under LH front seat	7000- 7-5
C423B (2 pins)	Under RH front seat	7000- 7-6
C426A (6 pins)	Under LH front seat	7000- 7-5
C426B (2 pins)	Under RH front seat	7000- 7-6
C503 (3 pins)	In lower rear corner of driver's door	7000- 7-3
C520 (2 pins)	In lower rear corner of driver's door	7000- 7-3
C551 (2 pins)	Under center console, near park brake	
C560 (2 pins)	In driver's door	
GROUNDS		
G101	LH side of engine, on motor mount	
G103	Behind RH front shock tower	7000- 0-3
G104	Inner side of LH fender, near battery	7000- 1-4
G106	On right hood hinge	
G200 (Front Interior Ground)	On dash frame, left of steering column	
G201 (Column Ground)	On upper LH side of steering column	7000- 4-5
G302 (Rear Interior Ground)	Under LH side of rear seat	7000- 8-2
G303	Above LH "B" pillar	
G306	On hinge of RH visor	
G600	Above headliner, above rear view mirror	

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