

1989
 BMW 525i/535i (E34)
 Electrical
 Troubleshooting
 Manual
 6/88 Production Through 2/89

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Schematics

The schematics divide the entire vehicle electrical system into individual circuits. Interacting electrical components are shown on one common schematic.

Switches and other components are represented in such a way that their general layout and function are self-explicit.

Important: The components and wires are not drawn to scale. For instance, a lead with a length of over 1 m can be shown as a lead which is only a few cm long.

Section 7000.0 **Component Location Chart** has all important connectors, ground points and components listed in tabular form. It provides a precise description of the component locations in the vehicle.

Section 7100.0 **Component Location Views** shows the locations of connectors and components which are difficult to localize in photographs. *-This section is not included in the first issue and will be supplied as a supplement.-*

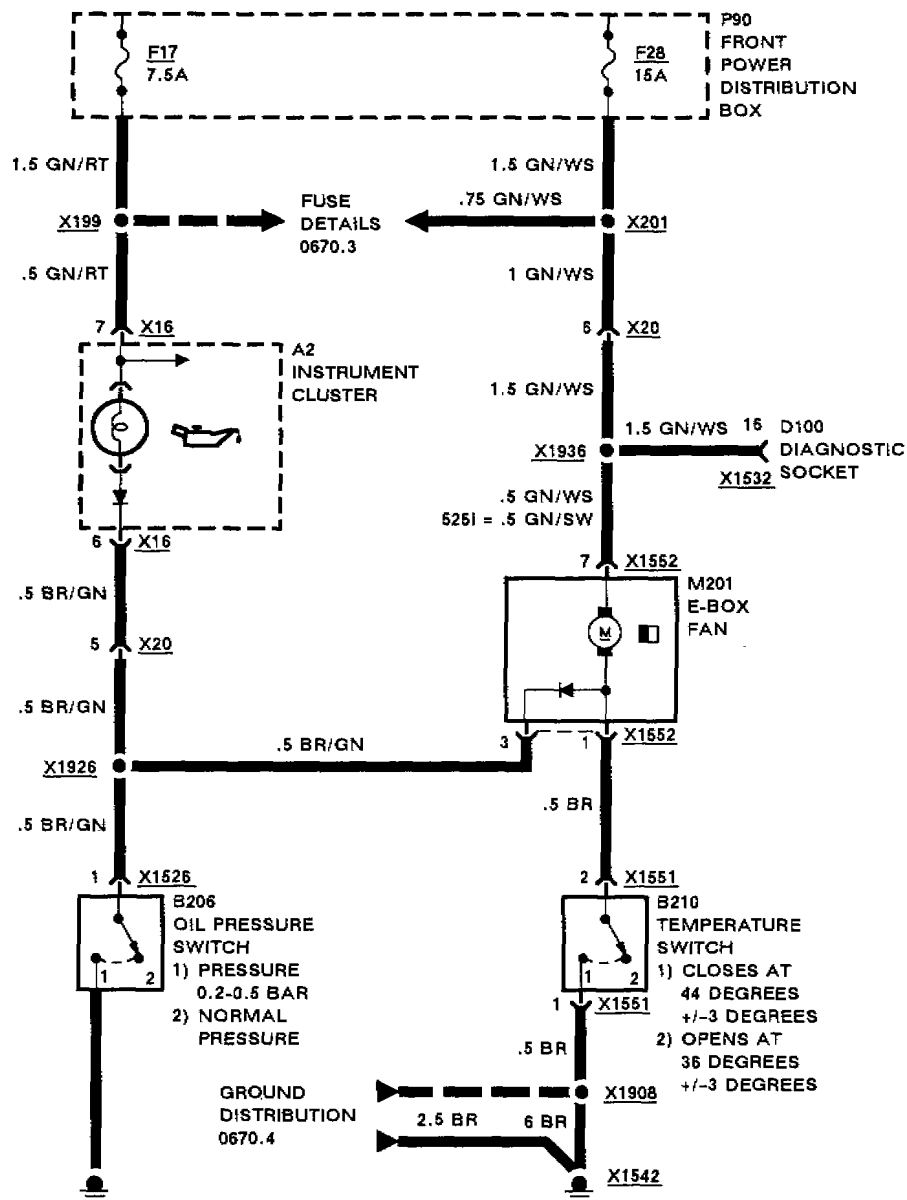
Section 8500.0 **Connector Views** provides diagrams of all connectors with more than three units.

Example

The following example shows how to read the schematic of the E-box fan.

The diagnostic procedure number for the E-box fan is listed in the index.

The schematic shows the following: (see schematic example)



With the ignition on (terminal 15), voltage is applied via fuse F28 at pin 2 of the E-box fan and via fuse F17 at pin 7 of the instrument cluster. When the temperature switch closes at a temperature above 44 °C, or the oil pressure switch at a pressure below 0.2 bar, ground is switched through to the E-box fan. The power circuit is closed and the fan operates. When the oil pressure switch is closed (oil pressure too low), ground is additionally connected to pin 6 of the instrument cluster and the oil pressure warning lamp lights in the instrument cluster.

General conventions can be explained based on this schematic example.

General conventions

1. Switches are always shown in rest position (e.g. B206 and B210).
2. A component shown in a dashed frame signifies that the component is illustrated only in part (e.g. P90 and A2).
3. A component shown in a completely drawn frame signifies that the component is illustrated in full (e.g. M201, B206 and B210).

4. The dashed line between pin 1 and pin 3 at connector X1552 indicates that both pins belong to connector X1552.
5. The dashed line with an arrow at connector X199 indicates that several wires lead to connector X199. All lines leading to a connection are illustrated in section 0670.3 Fuse Details.
6. The uninterrupted line with an arrow at connector X201 indicates that the 0.75 GN/WS wire leads to another circuit. Section 0670.3 Fuse Details shows to which circuit the wire belongs.
7. The dashed lines with arrows at connections X1908 and X1542 indicate that ground is applied. Refer to section 0670.4 Ground Distribution for complete illustration of the line layout. The dashed line to connector X1908 also indicates that several wires lead to this connection.

A complete list of all symbols used can be found in section **0140.0 Symbols**.

TROUBLESHOOTING PROCEDURES

Diagnostic procedures for many of the circuits in this manual are included with the schematics. These procedures are based on a logical problem-solving method. The steps listed below are provided for those circuits that do not include diagnostic procedures. Following these steps will enable you to make a quick diagnosis of the problem.

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 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

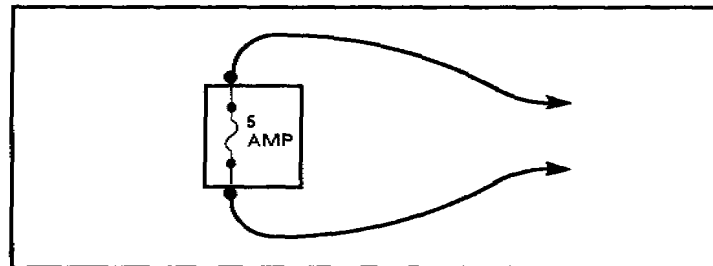
Operate the circuit to check for satisfactory circuit operation. Good repair practice calls for rechecking all circuits you have worked on.

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.

Fused Jumper Wire

A jumper wire is made up of an in-line fuse holder connected to a set of test leads. It should have a five ampere fuse. Use it for bypassing open circuits. Never use a jumper wire across any load (motors, etc.). This direct battery short will blow the fuse.



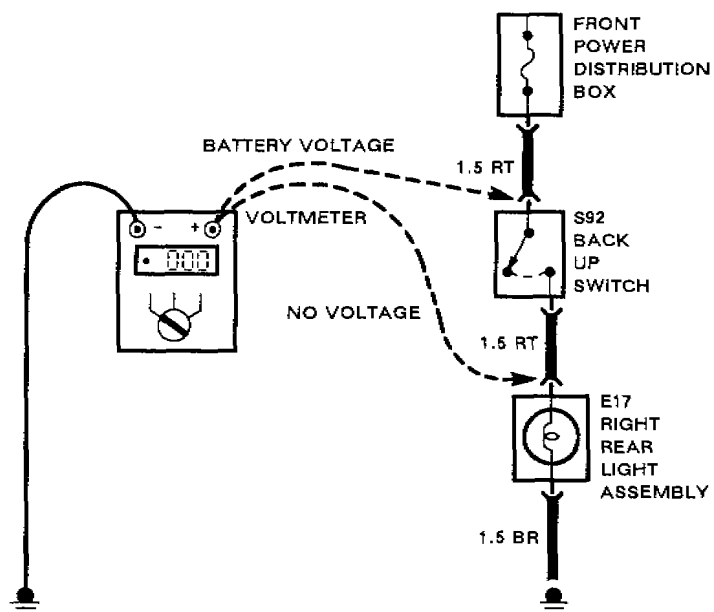
Fused Jumper Wire

TROUBLESHOOTING TESTS

Voltage Test

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

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

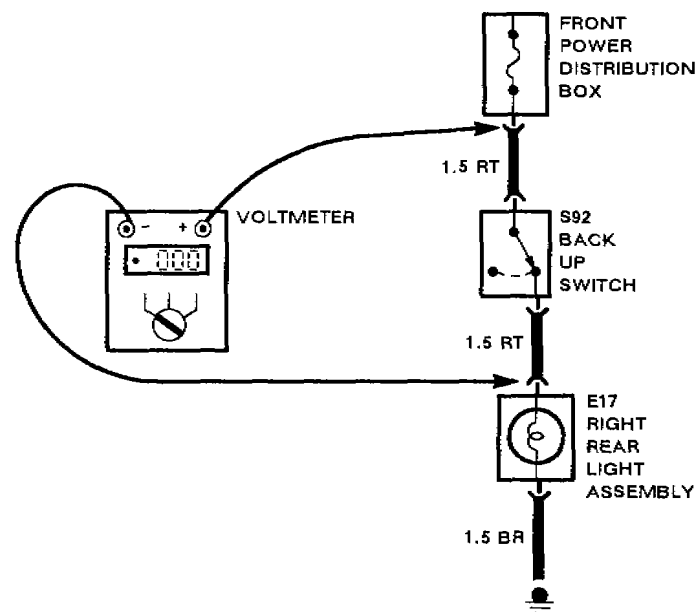


Voltage Test

Voltage Drop Test

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

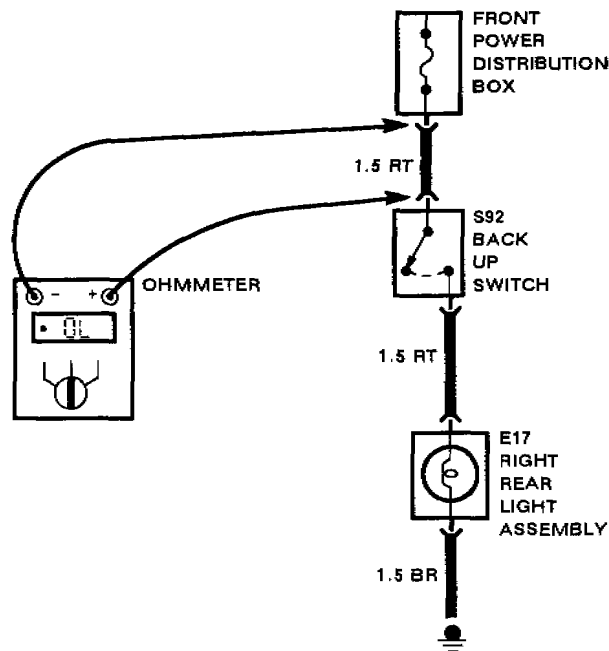
To test for voltage drop, connect the voltmeter leads to connectors at either end of the circuit's suspected problem area. The positive lead should be connected to the connector closest to the power source. The voltmeter will show the voltage drop between these two points. Any switches in the circuit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



Voltage Drop Test

Continuity Test

To perform a continuity test, first disconnect the car battery. Then, while holding the leads together, adjust the ohmmeter to read zero. 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.

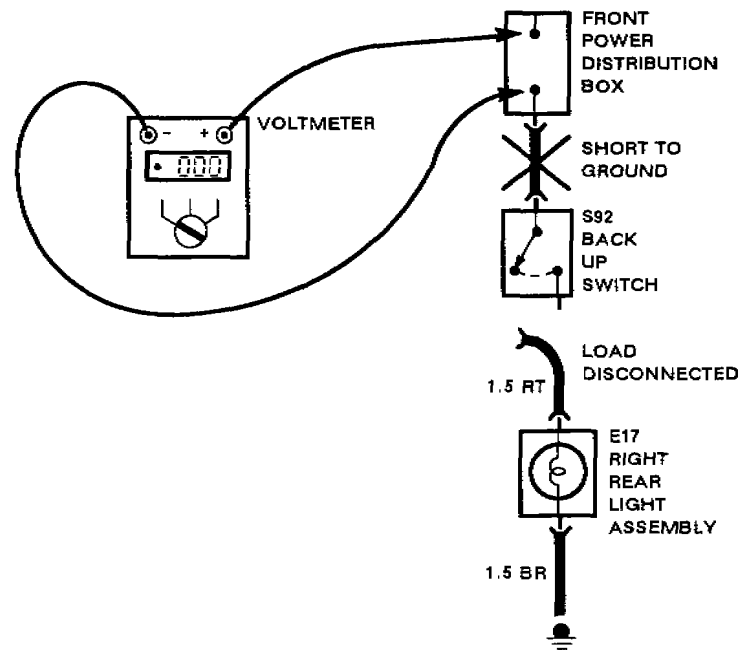


Continuity Test

Short Test Using Voltmeter

To locate a wiring short to ground, 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 FRONT 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.



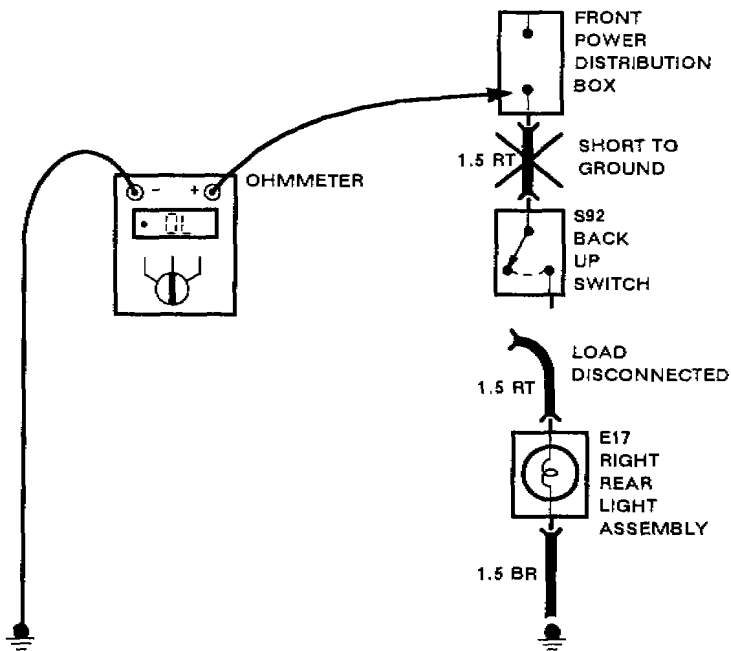
Short Test Using Voltmeter



SYSTEMATIC TROUBLESHOOTING

Short Test Using Ohmmeter

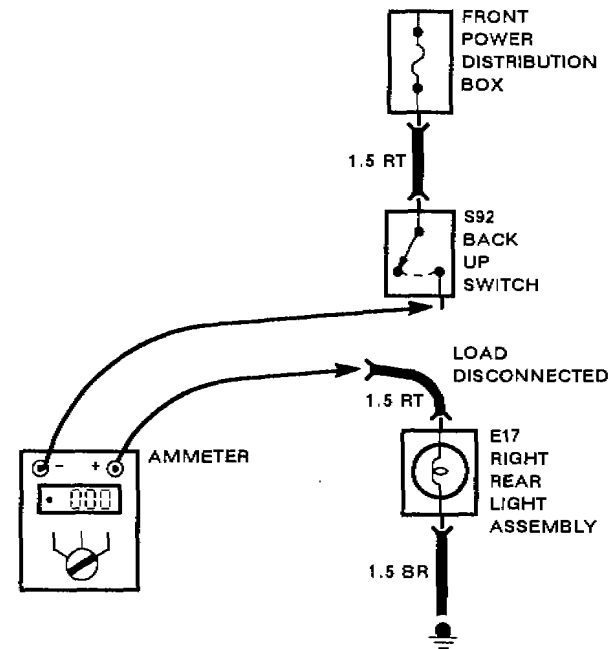
Disconnect the battery. While holding the leads together, adjust the ohmmeter to read zero. Remove the blown fuse and disconnect the load. Connect one lead of the ohmmeter to the fuse terminal that is closest to the load. Connect the other lead to a known good ground. Starting near the FRONT POWER DISTRIBUTION 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

Current Test Using Ammeter

To measure the current, connect the ammeter leads to the connector or terminals in series with the circuit. The ammeter will show the current through the circuit.



Current Test Using Ammeter

Wiring test with analogscope

Measuring Instrument: BMW SERVICE TESTER

Test leads: FREQ OFF (+), blue
 Terminal 1, black
 D+, blue

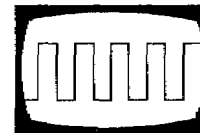
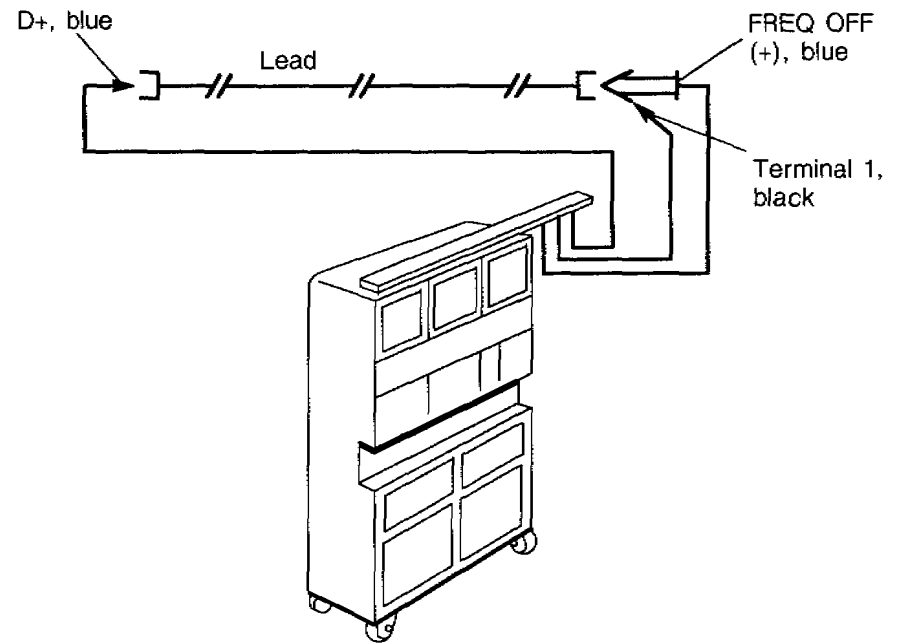
Interruptions which occur briefly are measured. Connect universal test lead and leads for frequency testing to the BMW SERVICE TESTER.

A frequency is applied via the end of the wire to be tested. It is then measured with the analogscope at the other end. Move the wire harness back and forth during testing.

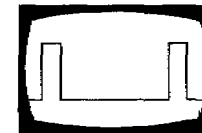
If the wire is OK, the analogscope will indicate a square wave signal with a uniform progression. In the case of fault, the signal will be unevenly interrupted.

Operation: **[M]** for multimeter, 22 for analogscope, 13 for frequency output. Apply any frequency and then press acknowledgement button twice.

Wiring test with analogscope



Correct display on analog scope



Display when a break occurs

Potentiometer test with analogscope

Measuring Instrument: BMW SERVICE TESTER

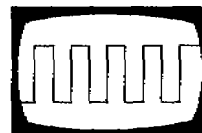
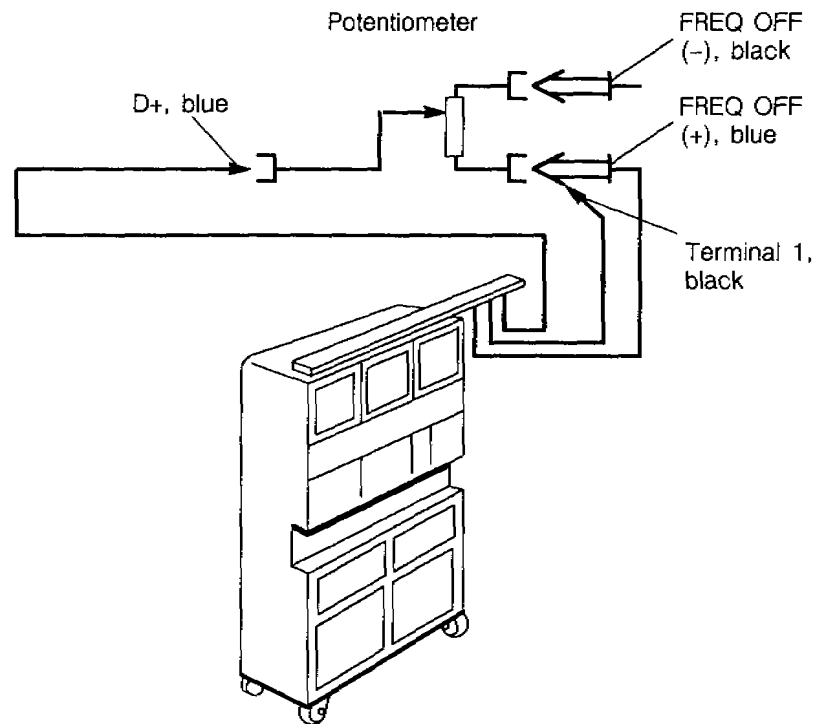
Test leads: FREQ OFF (+), blue
 FREQ OFF (-), black
 Terminal 1, black
 D+, blue

Similar to the wiring test with the analogscope. In this case, however, the measurement is read off at the wiper tap.

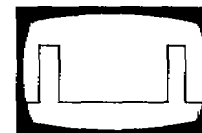
To conduct the test, move the potentiometer through its entire measuring range. If the potentiometer is faulty, the square wave signal on the analogscope will be unevenly interrupted.

Operation: [M] for multimeter, 22 for analogscope, 13 for frequency output. Apply any frequency and press acknowledgement button twice.

Potentiometer test with analogscope



Correct display on analog scope



Display when a break occurs

Simulating speed signal

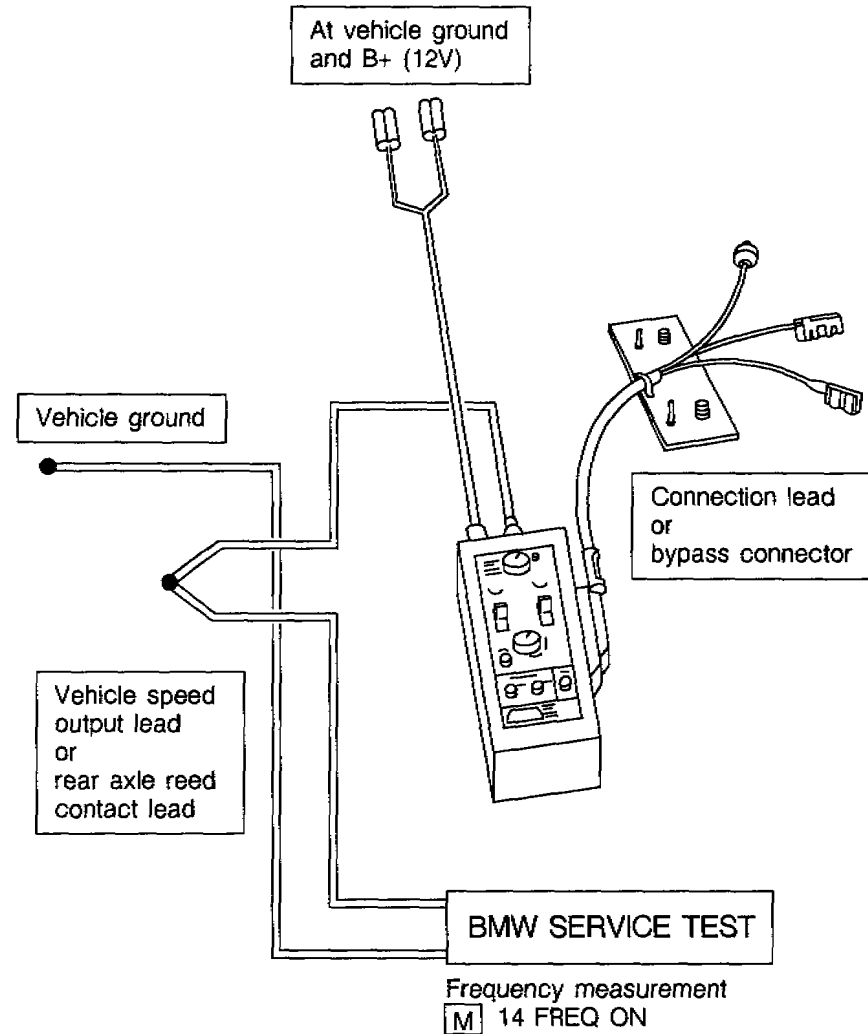
Measuring equipment: BMW Simulator for instrument cluster and BMW SERVICE TESTER

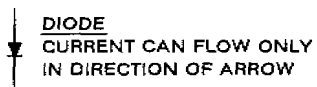
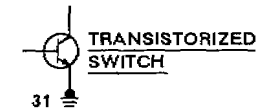
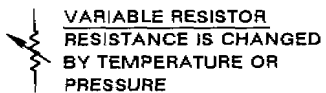
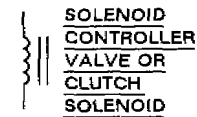
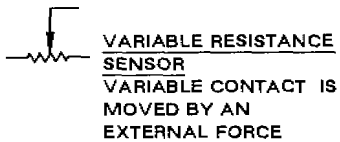
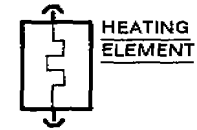
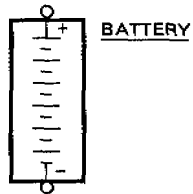
Test leads (tester): FREQ ON (+), yellow
 FREQ ON (-), black

The speed signal can be entered continuously variable with the BMW simulator for the instrument cluster.

Connect 25-pole bypass connector for frequency simulation (or connection lead for instrument test) to the simulator. Connect the power supply lead of the simulator to the vehicle battery. Connect frequency output of the simulator with the vehicle wire for the speed signal (speedometer A-wire or wire at rear axle reed contact). Set frequency at the simulator.

The frequency can also be measured with the BMW SERVICE TESTER. Connect FREQ ON (-) lead to vehicle ground. Connect FREQ ON (+) lead in parallel to the frequency output of the simulator. **M** Select 14 frequency test, the set frequency is indicated.

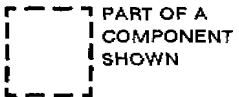




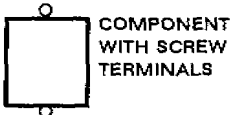
SYMBOLS



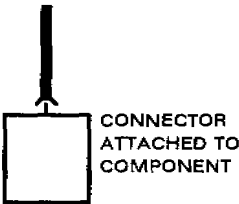
ENTIRE COMPONENT SHOWN



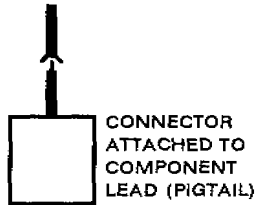
PART OF A COMPONENT SHOWN



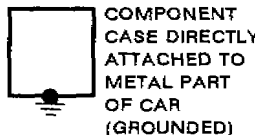
COMPONENT WITH SCREW TERMINALS



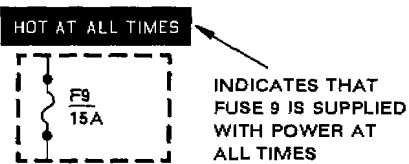
CONNECTOR ATTACHED TO COMPONENT



CONNECTOR ATTACHED TO COMPONENT LEAD (PIGTAIL)

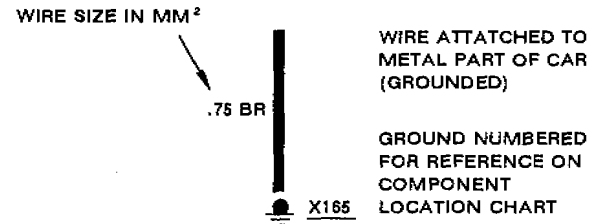
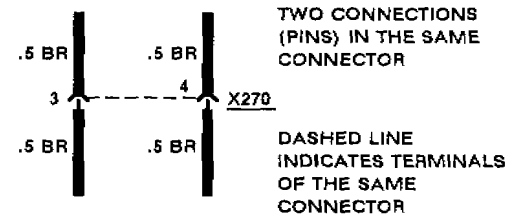
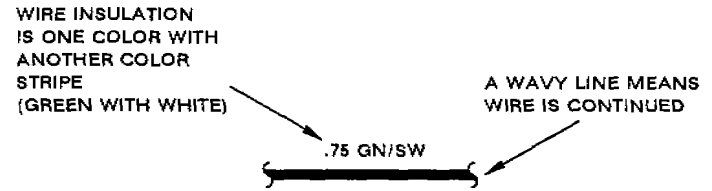
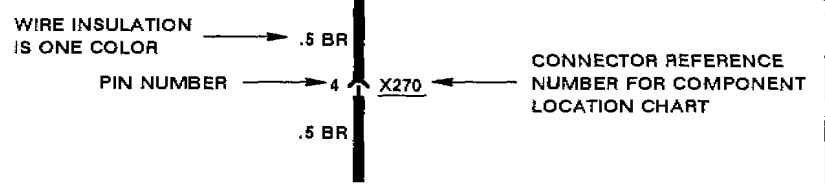


COMPONENT CASE DIRECTLY ATTACHED TO METAL PART OF CAR (GROUNDED)



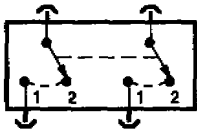
INDICATES THAT FUSE 9 IS SUPPLIED WITH POWER AT ALL TIMES

TERMINAL NUMBER	DESCRIPTION
50	VOLTAGE: IGNITION SWITCH IN START
30	VOLTAGE: SUPPLIED AT ALL TIMES
15	VOLTAGE: IGNITION SWITCH IN RUN OR START
15E	VOLTAGE: IGNITION SWITCH IN RUN
R	VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN OR START

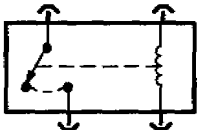




ONE POLE,
TWO POSITION
SWITCH

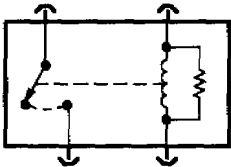


SWITCHES THAT MOVE
TOGETHER
DASHED LINE SHOWS
A MECHANICAL
CONNECTION BETWEEN
SWITCHES

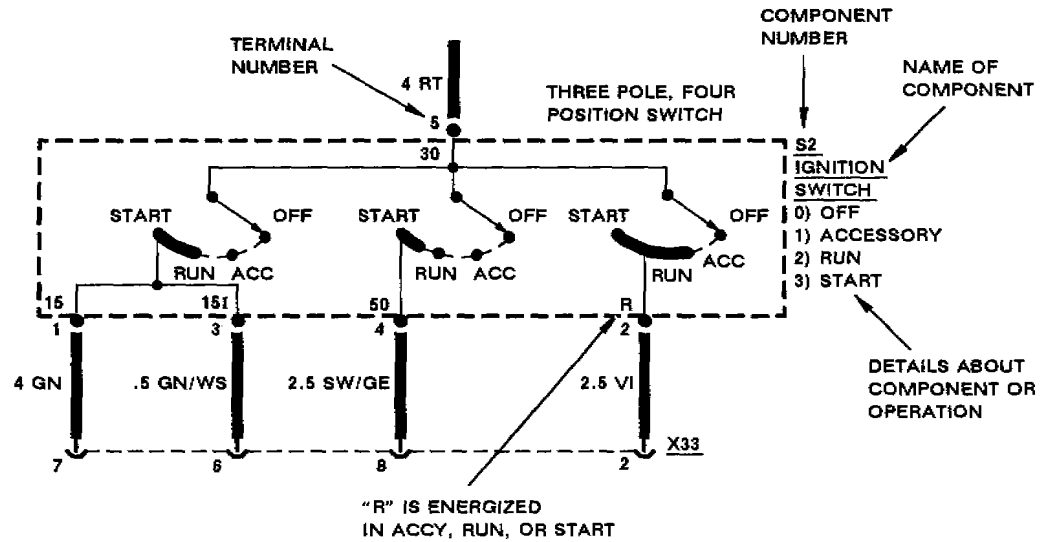


RELAY WITH NO
CURRENT FLOWING
THROUGH COIL

WHEN COIL IS
ENERGIZED, SWITCH
IS PULLED CLOSED

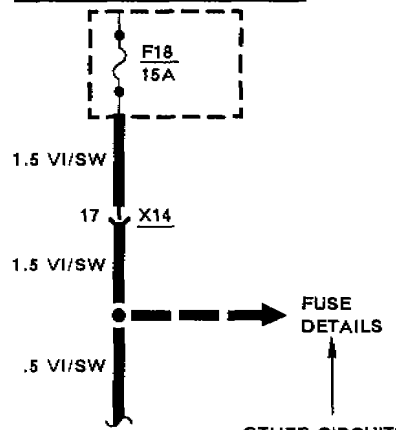


RELAY WITH
RESISTOR ACROSS
COIL



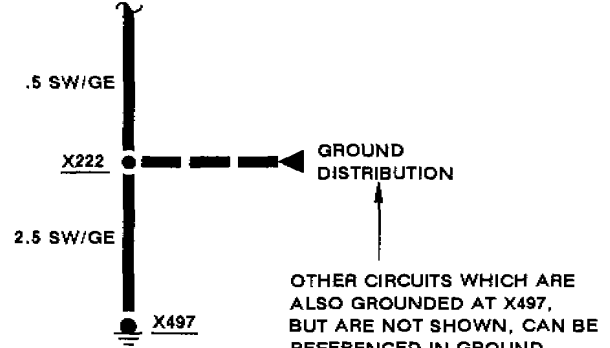
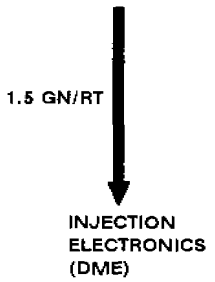
TERMINAL NUMBER	DESCRIPTION
50	VOLTAGE: IGNITION SWITCH IN START
30	VOLTAGE: SUPPLIED AT ALL TIMES
15	VOLTAGE: IGNITION SWITCH IN RUN OR START
15I	VOLTAGE: IGNITION SWITCH IN RUN
R	VOLTAGE: IGNITION SWITCH IN ACCESSORY, RUN, OR START

HOT IN ACCY RUN OR START

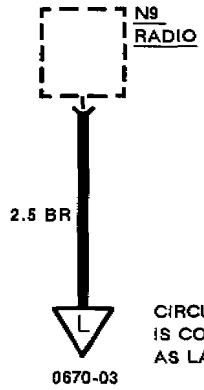


OTHER CIRCUITS WHICH SHARE FUSE 18, BUT ARE NOT SHOWN, CAN BE REFERENCED IN FUSE DETAILS

CIRCUIT REFERENCE- A WIRE WHICH CONNECTS TO ANOTHER CIRCUIT

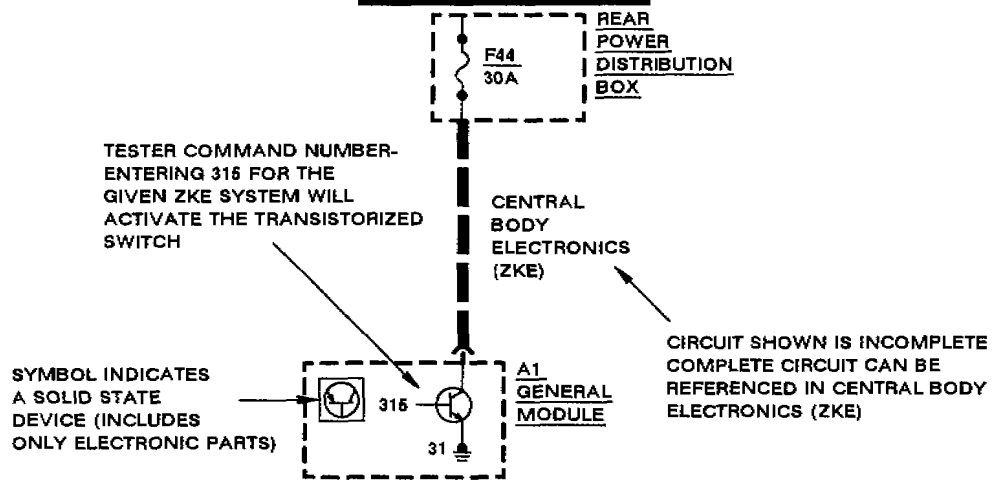


OTHER CIRCUITS WHICH ARE ALSO GROUNDED AT X497, BUT ARE NOT SHOWN, CAN BE REFERENCED IN GROUND DISTRIBUTION



ARROW SHOWS DIRECTION OF CURRENT FLOW AND IS REPEATED WHERE CURRENT PATH CONTINUES

HOT IN ACCY RUN OR START



TESTER COMMAND NUMBER- ENTERING 315 FOR THE GIVEN ZKE SYSTEM WILL ACTIVATE THE TRANSISTORIZED SWITCH

SYMBOL INDICATES A SOLID STATE DEVICE (INCLUDES ONLY ELECTRONIC PARTS)

CIRCUIT SHOWN IS INCOMPLETE COMPLETE CIRCUIT CAN BE REFERENCED IN CENTRAL BODY ELECTRONICS (ZKE)

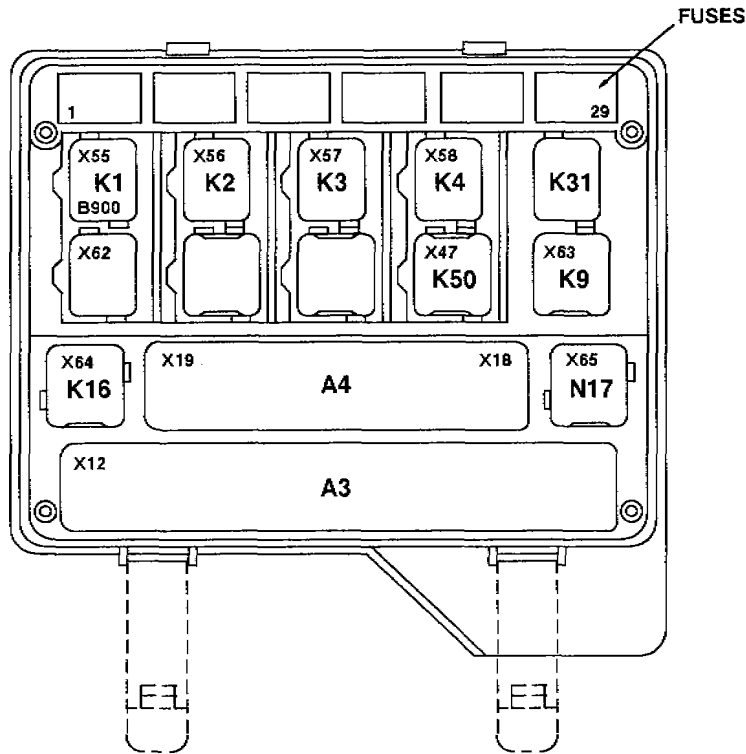




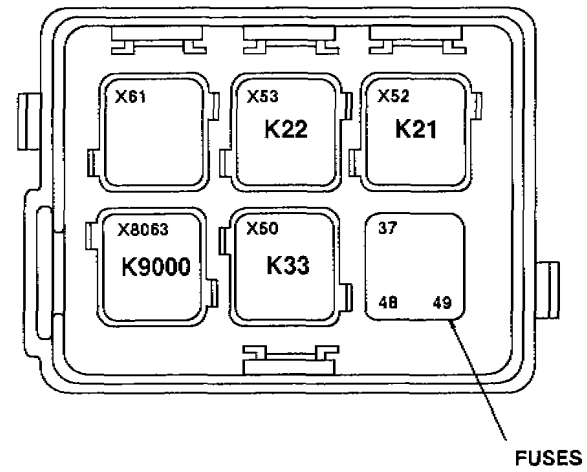
POWER DISTRIBUTION CHARTS

FRONT POWER DISTRIBUTION BOX, AUXILIARY RELAY BOX

P90 FRONT POWER DISTRIBUTION BOX



P92 AUXILIARY RELAY BOX





POWER DISTRIBUTION CHARTS

FRONT POWER DISTRIBUTION BOX, AUXILIARY RELAY BOX

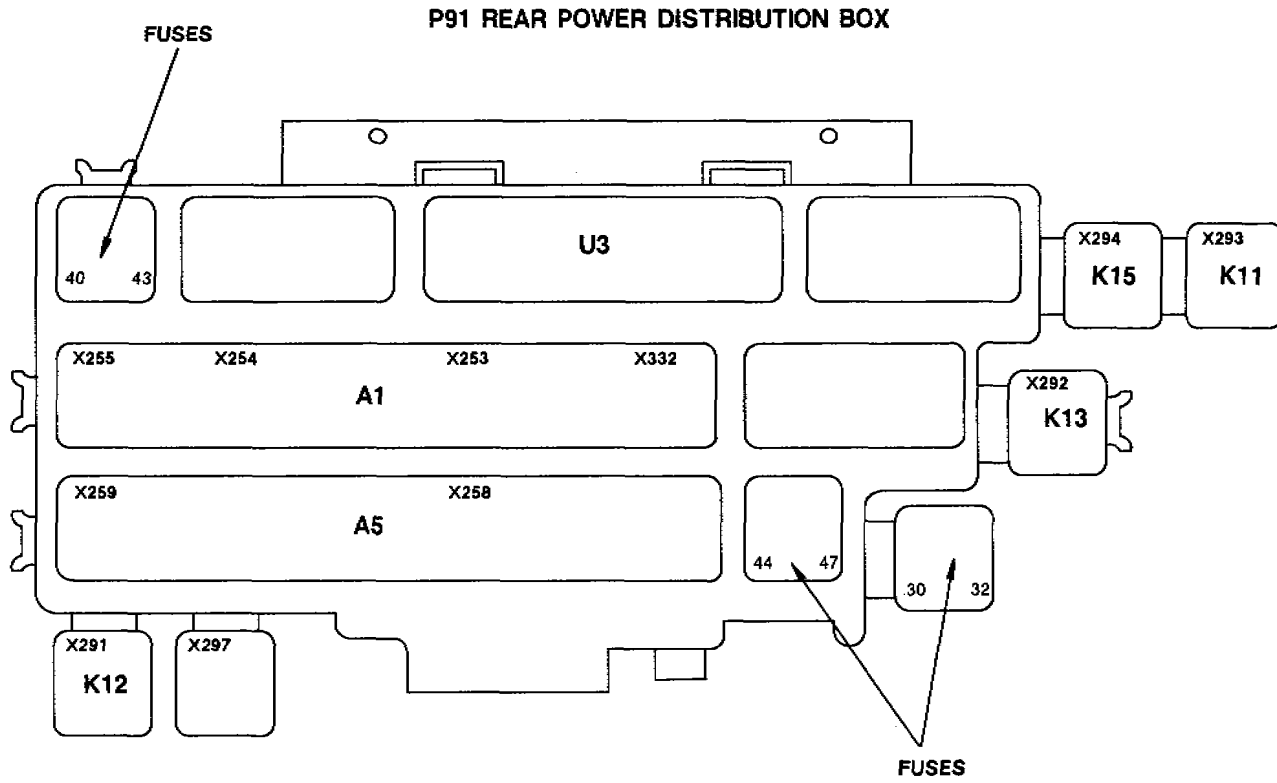
COMPONENTS IN FRONT POWER DISTRIBUTION BOX		
NUMBER	CONNECTOR	DESCRIPTION
A3	X12	LAMP CONTROL MODULE
A4	X18, X19	CHECK CONTROL MODULE
K1	X55	STARTER RELAY
B900	X55	JUMPER PLUG (MANUAL)
K2	X56	HORN RELAY
K3	X57	UNLOADER RELAY, KLR
K4	X58	BLOWER RELAY
	X62	NOT IN U.S.
K9	X63	UNLOADER RELAY, KL 15
K16	X64	HAZARD FLASHER RELAY
K50	X47	WATER PUMP RELAY
K31		PRESENTLY NOT AVAILABLE
N17	X65	CRASH CONTROL UNIT

COMPONENTS IN AUXILIARY RELAY BOX		
NUMBER	CONNECTOR	DESCRIPTION
K21	X52	NORMAL SPEED RELAY
K22	X53	HIGH SPEED RELAY
K33	X50	AIR CONDITIONING RELAY
K9000	X8063	PHONE HORN ALERT RELAY (WITH CELLULAR TELEPHONE PROVISIONS)
	X61	NOT IN U.S.



POWER DISTRIBUTION CHARTS

REAR POWER DISTRIBUTION BOX





POWER DISTRIBUTION CHARTS

REAR POWER DISTRIBUTION BOX

COMPONENTS IN REAR POWER DISTRIBUTION BOX		
NUMBER	CONNECTOR	DESCRIPTION
A1	X253, X254 X255, X332	GENERAL MODULE
A5	X258, X259	RELAY MODULE
K11	X293	WIPER RELAY
K12	X291	WIPER PRESSURE CONTROL RELAY (ADV)
K13	X292	REAR DEFOGGER RELAY
K15	X294	ELECTRIC POWER PROTECTION RELAY
U3	X8062	TRANSCIVER TELEPHONE IF EQUIPPED
	X297	NOT IN U.S.



FUSE CHARTS

FUSE	CIRCUIT PROTECTED
F1 15A	3450.0 ABS Antilock Brake System (Also Fuse 17) 6200.0 Instrument Cluster Check Control (K/CC) (Also Fuses 15,17, 20) 6301.0 Lamp Monitor (LKM) (Also Fuses 2, 3, 4, 5, 7, 10, 11, 13, 14, 15) 6325.0 Brake Lights (Also Fuse 15) 6571.0 Cruise Control (Tempomat) (Also Fuse 17)
F2 7.5A	6300.0 Light Switch Details (Also Fuses 3, 4, 5, 24) 6301.0 Lamp Monitor (LKM) (Also Fuses 1, 3, 4, 5, 7, 10, 11, 13, 14, 15) 6312.0 Headlights/Fog Lights (Also Fuses 3, 5, 7, 10, 11, 13, 14, 37) 6313.0 Turn/Hazard Lights (Also Fuses 3, 6, 13, 14)
F3 7.5A	6100.0 Central Body Electronics (ZKE) (Also Fuses 5, 15, 17, 30, 44, 47) 6300.0 Light Switch Details (Also Fuses 2, 4, 5, 24) 6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 4, 5, 7, 10, 11, 13, 14, 15) 6312.0 Headlights/Fog Lights (Also Fuses 2, 5, 7, 10, 11, 13, 14, 37) 6313.0 Turn/Hazard Lights (Also Fuses 2, 6, 13, 14)
F4 7.5A	6300.0 Light Switch Details (Also Fuses 2, 3, 5, 24) 6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 5, 7, 10, 11, 13, 14, 15) 6314.0 Park/Tail/Underhood Lights (Also Fuses 5, 15, 20)
F5 10A	6100.0 Central Body Electronics (ZKE) (Also Fuses 3, 15, 17, 30, 44, 47) 6300.0 Light Switch Details (Also Fuses 2, 3, 4, 24) 6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 7, 10, 11, 13, 14, 15) 6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 7, 10, 11, 13, 14, 37) 6314.0 Park/Tail/Underhood Lights (Also Fuses 4, 15, 20) 6320.0 License/Trunk Lights (Also Fuses 15, 21) 6330.0 ZKE Interior Lights (Also Fuses 15, 17, 21, 30, 44) 6332.0 Glove Box Light/Cigar Lighter/Charging Plug (Also Fuses 18, 21, 26)
F6 7.5A	6313.0 Turn/Hazard Lights (Also Fuses 2, 3, 13, 14)
F7 15A	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 10, 11, 13, 14, 15) 6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 5, 10, 11, 13, 14, 37)



FUSE CHARTS

FUSE	CIRCUIT PROTECTED
F9 15A	6133.0 Horn
	6450.1 Integrated Climate Regulation (IHKR) (Also Fuses 19, 20, 24, 29, 46)
F10 7.5A	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 7, 11, 13, 14, 15)
	6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 5, 7, 11, 13, 14, 37)
F11 7.5A	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 7, 10, 13, 14, 15)
	6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 5, 7, 10, 13, 14, 37)
F12 15A	5116.0 Power Mirrors
	6169.0 Windshield Washer Jet Heaters
	6322.0 Back Up Lights
F13 7.5A	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 7, 10, 11, 14, 15)
	6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 5, 7, 10, 11, 14, 37)
	6313.0 Turn/Hazard Lights (Also Fuses 2, 3, 6, 13,)
F14 7.5A	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 7, 10, 11, 13, 15)
	6312.0 Headlights/Fog Lights (Also Fuses 2, 3, 5, 7, 10, 11, 13, 37)
	6313.0 Turn/Hazard Lights (Also Fuses 2, 3, 6, 13,)
F15 7.5A	6100.0 Central Body Electronics (ZKE) (Also Fuses 3, 5, 17, 30, 44, 47)
	6160.0 ZKE Windshield Wiper Control (SWS) (Also Fuse 44)
	6164.0 ZKE Windshield Wiper Pressure Control (ADV) (Also Fuses 22, 44)
	6200.0 Instrument Cluster/Check Control (K/CC) (Also Fuses 1, 17, 20)
	6301.0 Lamp Monitor (LKM) (Also Fuses 1, 2, 3, 4, 5, 7, 10, 11, 13, 14)
	6314.0 Park/Tail/Underhood Lights (Also Fuses 4, 5, 20)
	6320.0 License/Trunk Lights (Also Fuses 5, 21)
	6325.0 Brake Lights (Also Fuse 1)
	6330.0 ZKE Interior Lights (Also Fuses 5, 17, 21, 30, 44)
6581.0 On Board Computer (BCIV) (Also Fuses 17, 20)	
F16 30A	5203.0 Heated Seats



FUSE CHARTS

FUSE	CIRCUIT PROTECTED
F17 7.5A	1210.2 Injection Electronics (DME 1.3) (Also Fuse 23) 1230.0 Charging System 1240.0 Start 1290.0 E-Box Fan (Also Fuse 28) 2460.0 Electronic Transmission Control (AEGS) 3450.0 Antilock Brake System (ABS) (Also Fuse 1) 5120.0 ZKE Door Lock Heating (TSH) (Also Fuse 30) 5133.0 ZKE Power Windows (FH) (Also Fuses 30, 31, 47) 5410.0 ZKE Sunroof (SHD) (Also Fuses 30, 31, 47) 6100.0 Central Body Electronics (ZKE) (Also Fuses 3, 5, 15, 30, 44, 47) 6200.0 Instrument Cluster/Check Control (K/CC) (Also Fuses 1, 15, 20) 6330.0 ZKE Interior Lights (IB) (Also Fuses 5, 15, 21, 30, 44) 6571.0 Cruise Control (Tempomat) (Also Fuse 1) 6581.0 On Board Computer (BCIV) (Also Fuses 15, 20)
F18 15A	6332.0 Glove Box Light/Cigar Lighter/Charging Plug (Also Fuses 5, 21, 26) 6510.0 Radio/CD Player (Provisions) (Also Fuse 41) 6561.0 Cellular Telephone (Provisions) (Also Fuses 31 and 48)
F19 30A	6450.1 Integrated Climate Regulation (IHKR) (Also Fuses 9, 20, 24, 29, 46)
F20 7.5A	6200.0 Instrument Cluster/Check Control (K/CC) (Also Fuses 1, 15, 17) 6314.0 Park/Tail/Underhood Lights (Also Fuses 4, 5, 15) 6450.1 Integrated Climate Regulation (IHKR) (Also Fuses 9, 19, 24, 29, 46) 6581.0 On Board Computer (BCIV) (Also Fuses 15, 17)
F21 7.5A	6320.0 License/Trunk Lights (Also Fuses 5, 15) 6330.0 ZKE Interior Lights (IB) (Also Fuses 5, 15, 17, 30, 44) 6332.0 Glove Box Light/Cigar Lighter/Charging Plug (Also Fuses 5, 18, 26)
F22 30A	6164.0 ZKE Windshield Wiper Pressure Control (ADV) (Also Fuses 15, 44)



FUSE CHARTS

FUSE	CIRCUIT PROTECTED
F23 7.5A	1210.2 Injection Electronics (DME 1.3) (Also Fuse 17)
F24 15A	6300.0 Light Switch Details (Also Fuses 2, 3, 4, 5) 6450.1 Integrated Climate Regulation (IHKR) (Also Fuses 9, 19, 20, 29, 46)
F25 30A	6454.0 Auxiliary Fan (Also Fuse 29)
F26 30A	6332.0 Glove Box Light/Cigar Lighter/Charging Plug , (Also Fuses 5, 18, 21)
F28 15A	1290.0 E-Box Fan (Also Fuse 17) 3240.0 Power Assist Steering
F29 7.5A	6450.1 Integrated Climate Regulation (IHKR) (Also Fuses 9, 19, 20, 24, 46) 6454.0 Auxiliary Fan (Also Fuse 25)
F30 7.5A	5120.0 ZKE Door Lock Heating (TSH) (Also Fuse 17) 5126.0 ZKE Central Locking (ZV) (Also Fuses 31, 47) 5133.0 ZKE Power Windows (FH) (Also Fuses 17, 31, 47) 5410.0 ZKE Sunroof (SHD) (Also Fuses 17, 31, 47) 6100.0 Central Body Electronics (ZKE) (Also Fuses 3, 5, 15, 17, 44, 47) 6330.0 ZKE Interior Lights (Also Fuses 5, 15, 17, 21, 44)
F31 7.5A	5126.0 ZKE Central Locking (ZV) (Also Fuses 30, 47) 5133.0 ZKE Power Windows (FH) (Also Fuses 17, 30, 47) 5410.0 ZKE Sunroof (SHD) (Also Fuses 17, 30, 47) 6561.0 Cellular Telephone (Provisions) (Also Fuses 18, 48)
F32 7.5A	NOT USED
F37 5A	NOT USED
F40 15A	NOT USED
F41 30A	6510.0 Radio/CD Player (Provisions) (Also Fuse 18)

BMW
5 **FUSE CHARTS**

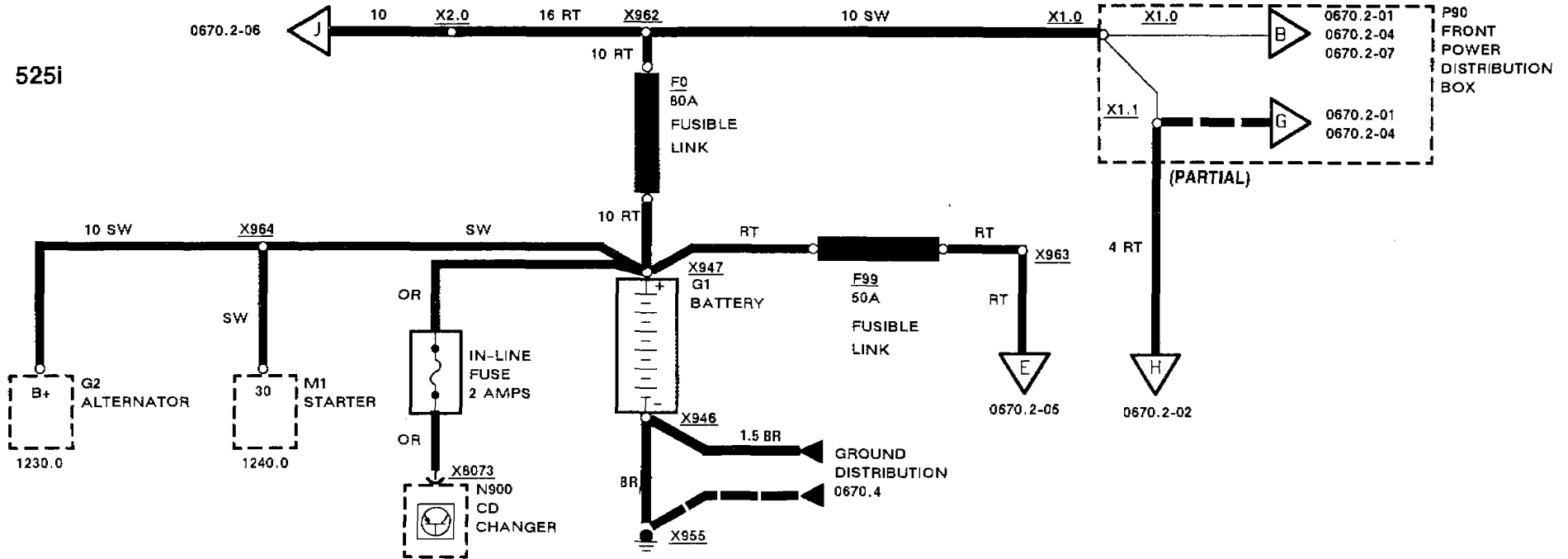
FUSE	CIRCUIT PROTECTED	
F42 30A	5200.0	Power Seats (Also Fuse 43)
F43 30A	5200.0	Power Seats (Also Fuse 42)
F44 30A	6100.0 6160.0 6164.0 6330.0	Central Body Electronics (ZKE) (Also Fuses 3, 5, 15, 17, 30, 47) ZKE Windshield Wiper Control (SWS) (Also Fuse 15) ZKE Windshield Wiper Pressure Control (ADV) (Also Fuses 15, 22) ZKE Interior Lights (IB) (Also Fuses 5, 15, 17, 30)
F46 30A	6450.1	Integrated Climate Regulation (IHKR) (Also Fuses 9, 19, 20, 24, 29)
F47 30A	5126.0 5133.0 5410.0 6100.0	ZKE Central Locking (ZV) (Also Fuses 30, 31) ZKE Power Windows (FH) (Also Fuses 17, 30, 31) ZKE Sunroof (SHD) (Also Fuses 17, 30, 31) Central Body Electronics (ZKE) (Also Fuses 3, 5, 15, 17, 30, 44)
F48 15A	6561.0	Cellular Telephone (Provisions) (Also Fuses 18, 31)
F49	NOT USED	



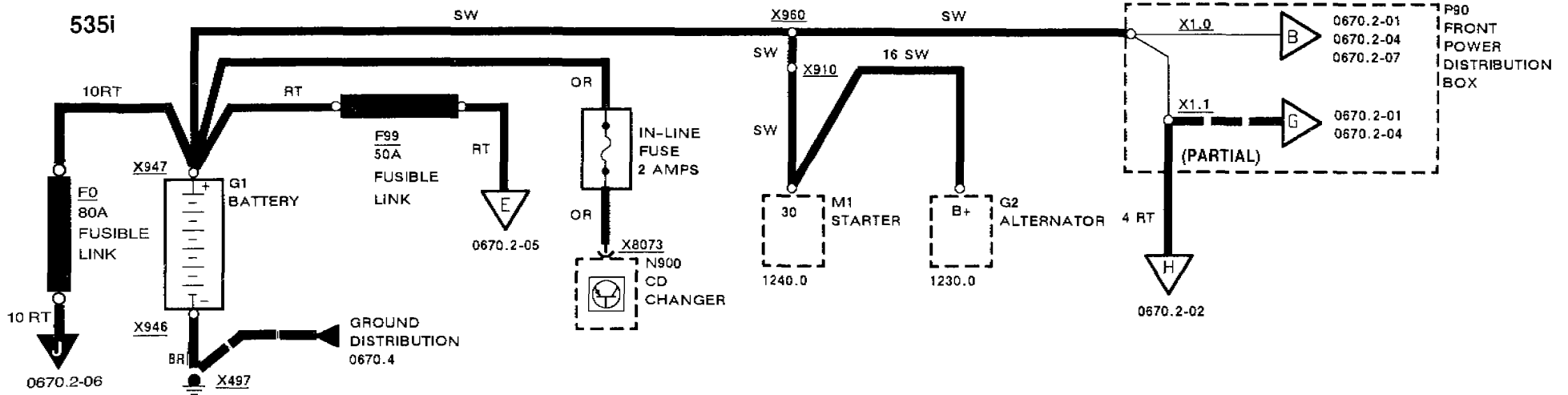
POWER DISTRIBUTION

FRONT POWER DISTRIBUTION BOX

525i



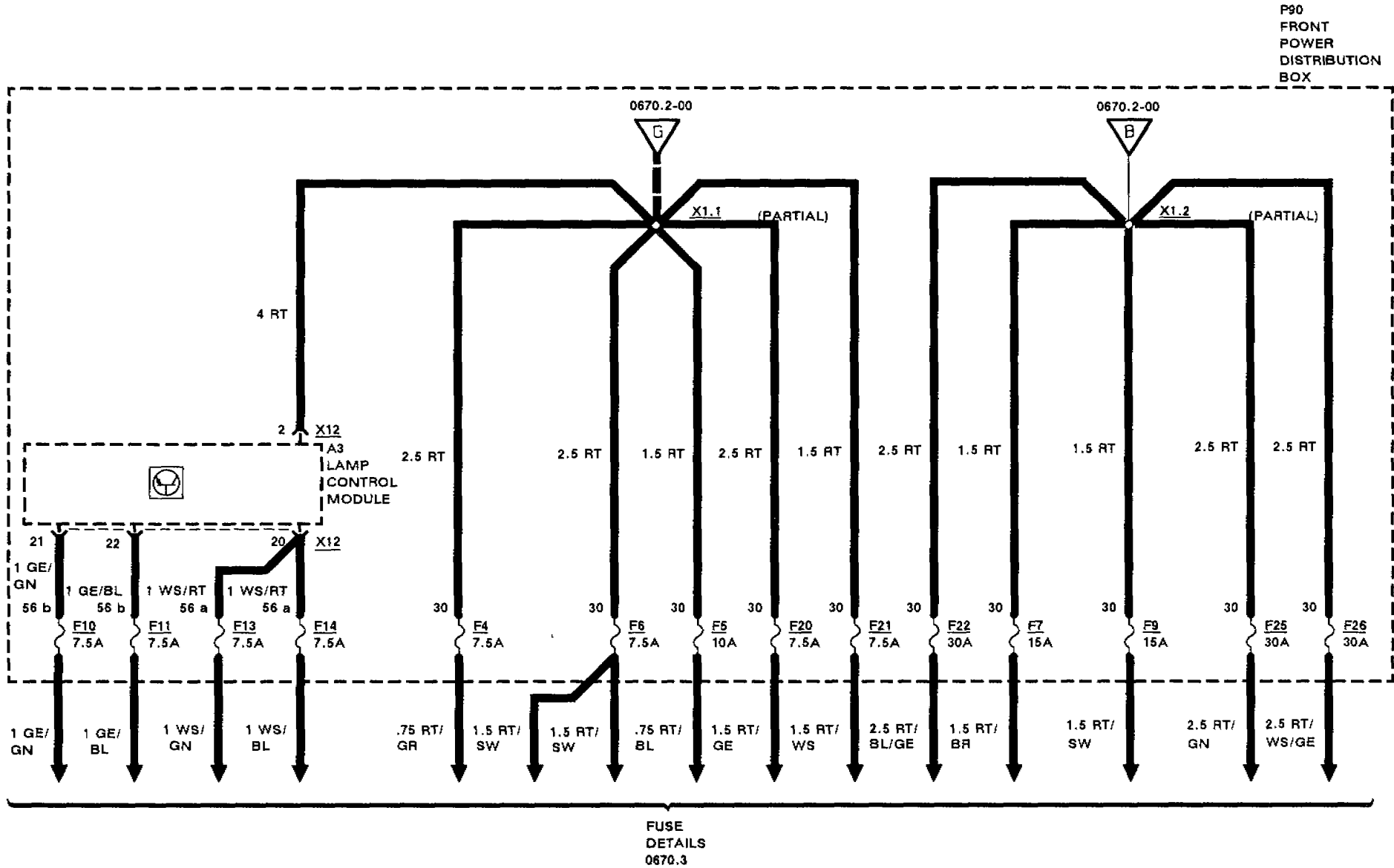
535i





POWER DISTRIBUTION

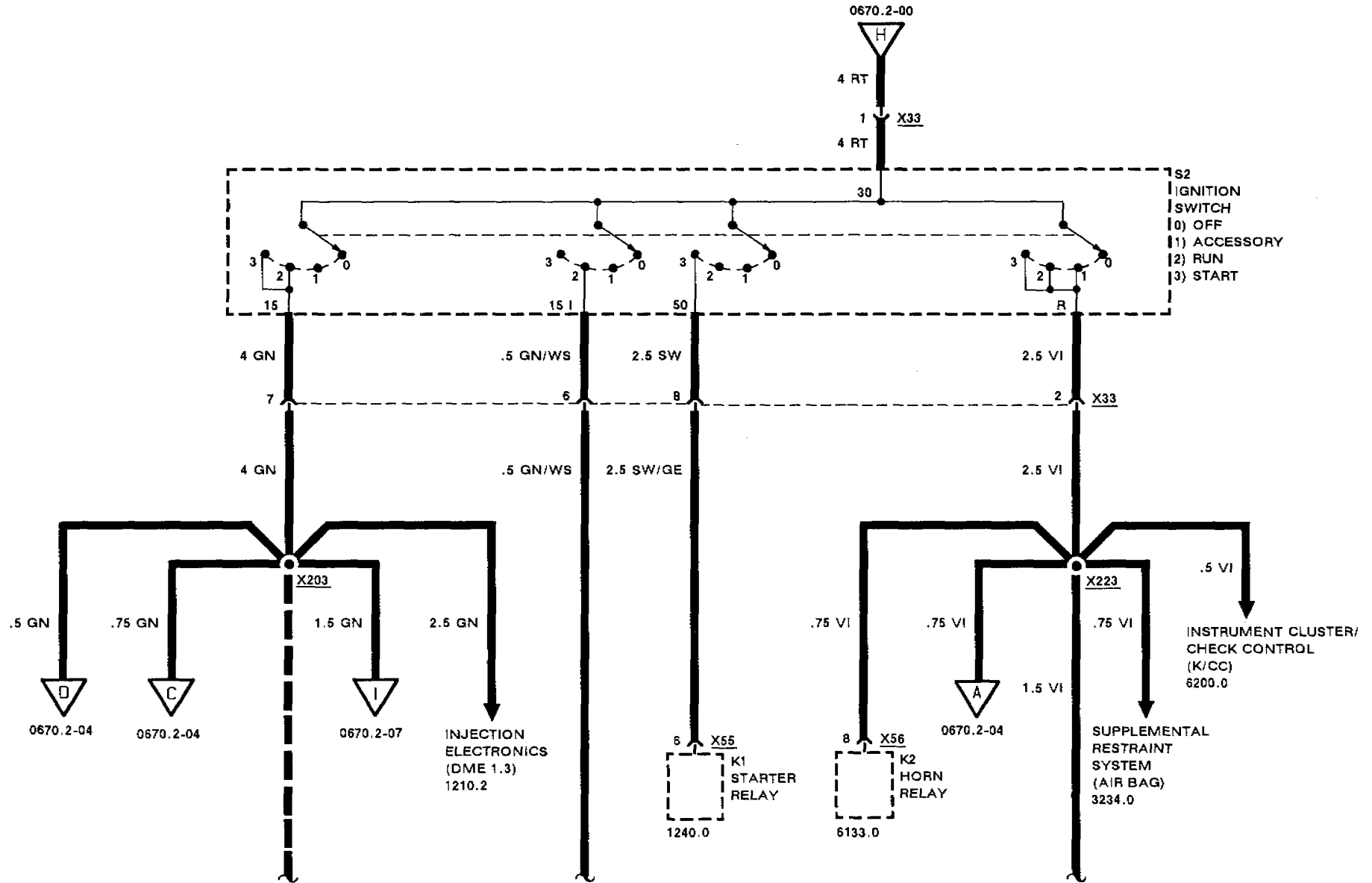
FRONT POWER DISTRIBUTION BOX

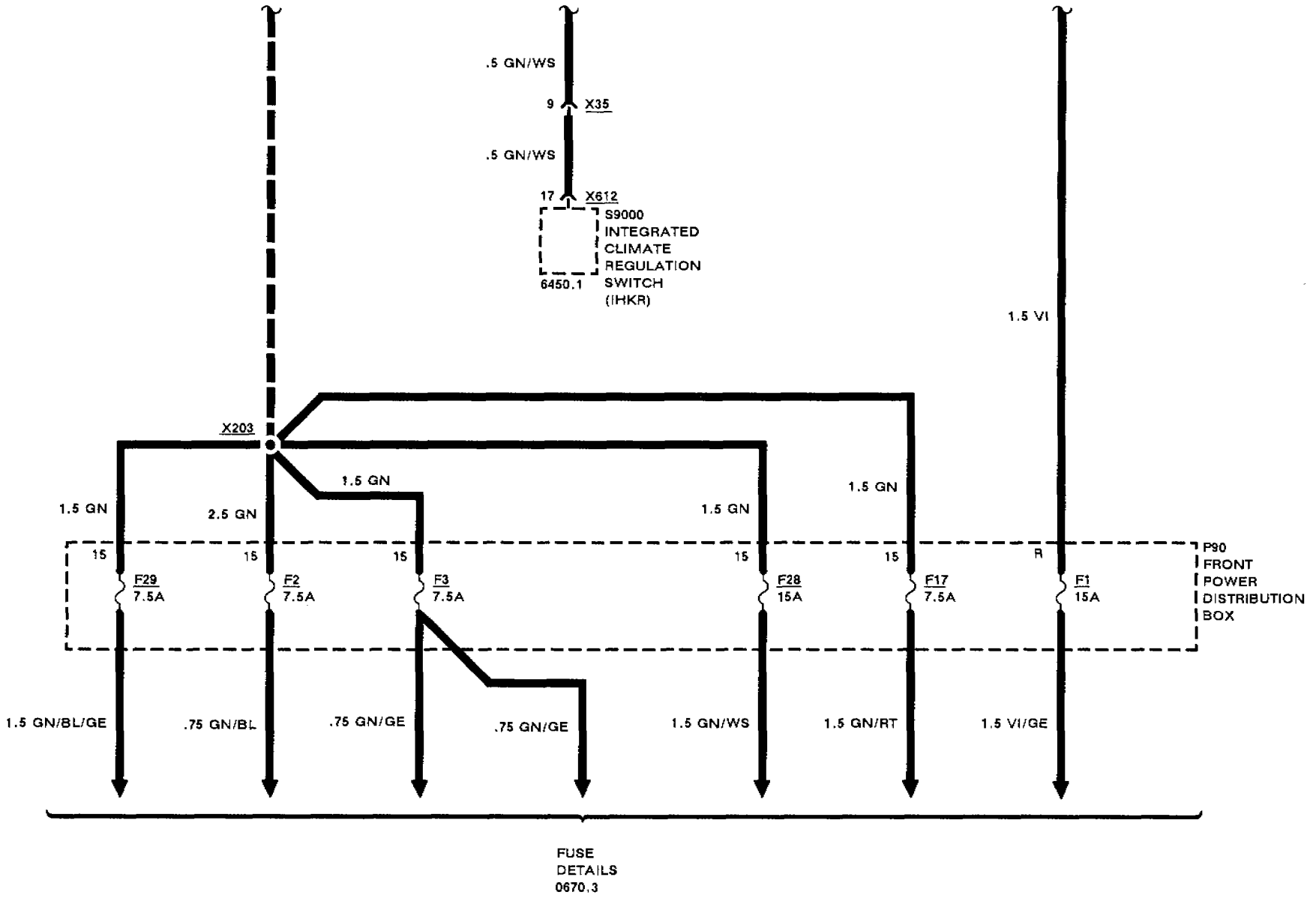




POWER DISTRIBUTION

FRONT POWER DISTRIBUTION BOX

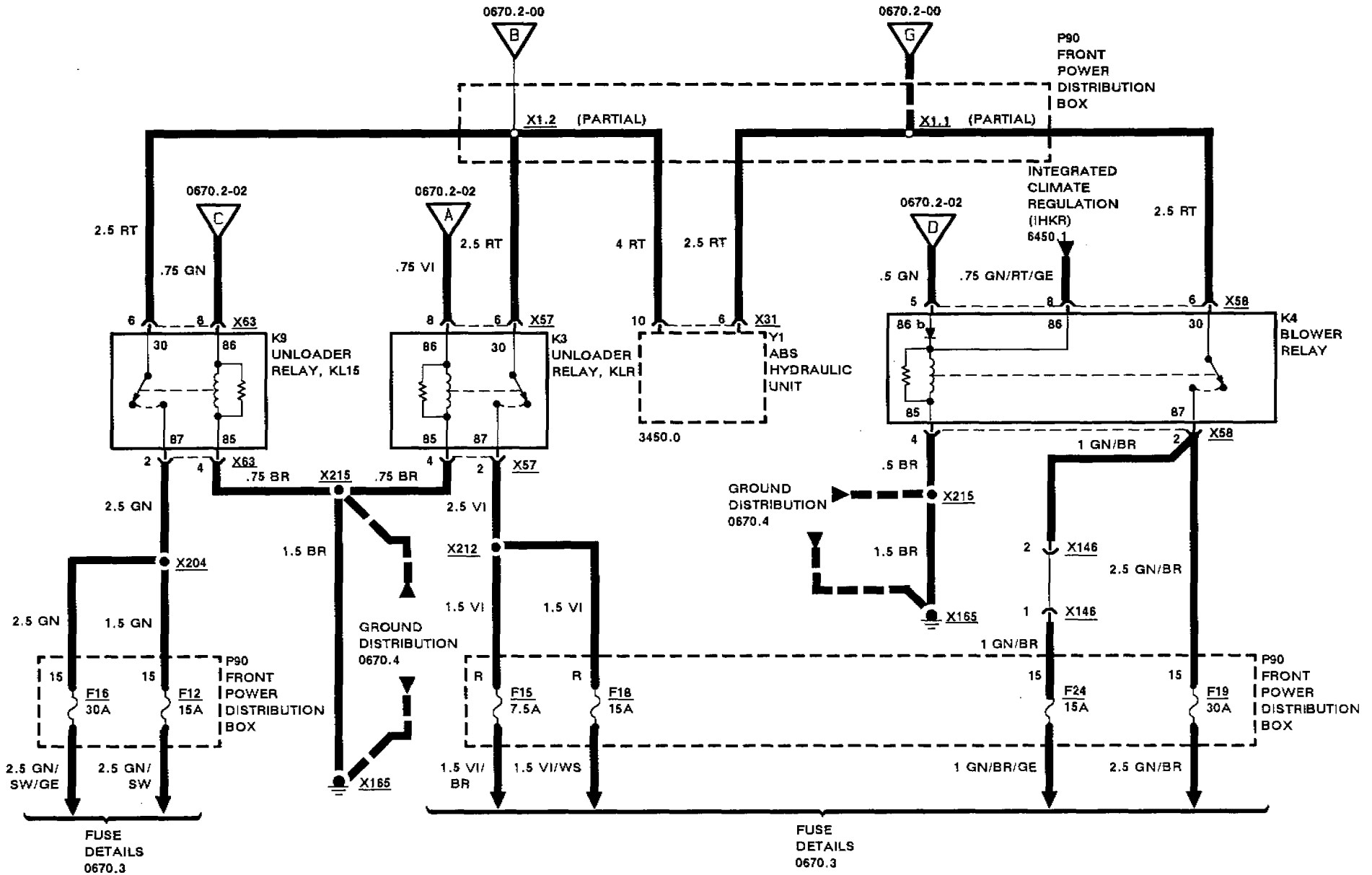






POWER DISTRIBUTION

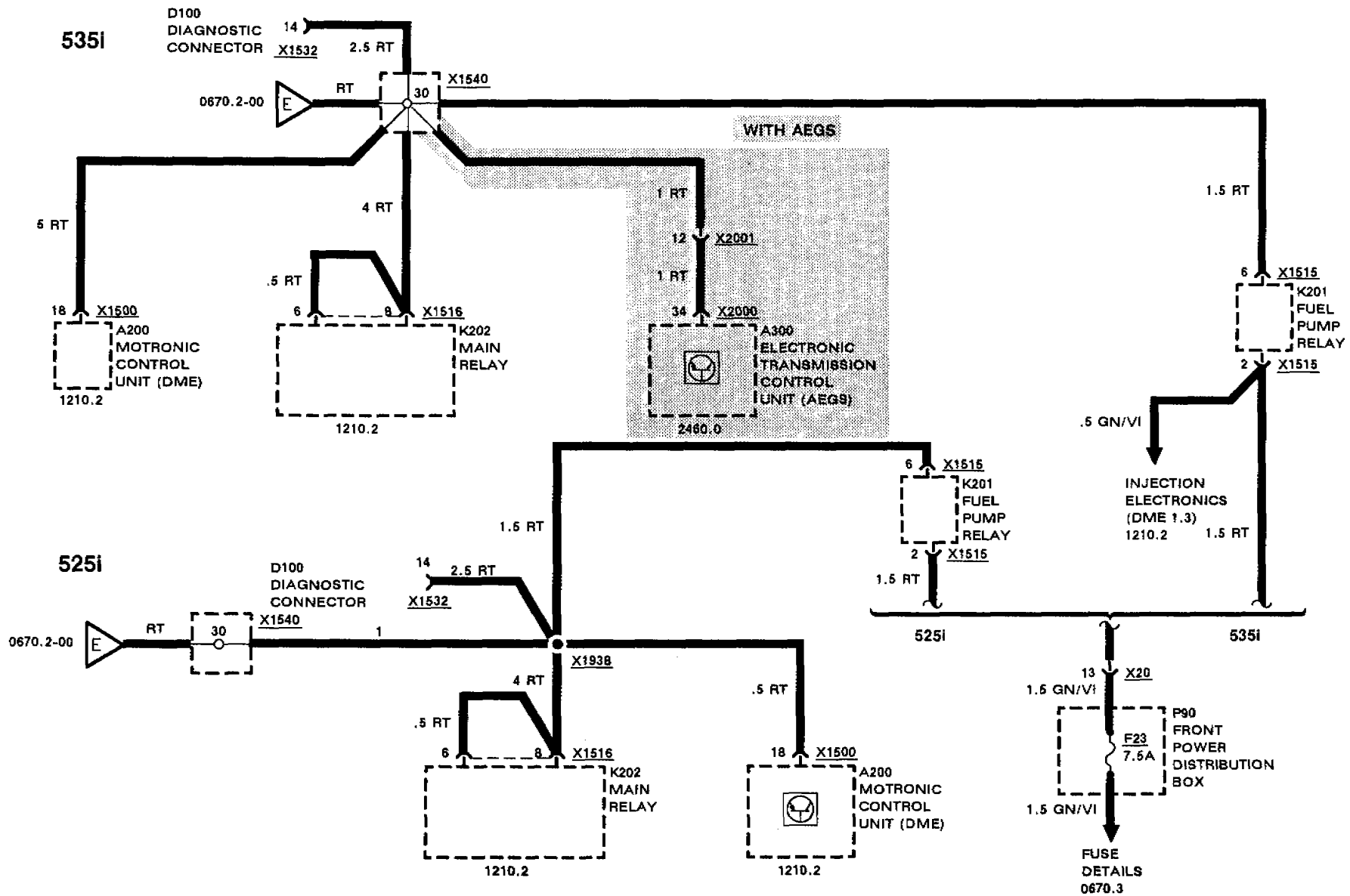
FRONT POWER DISTRIBUTION BOX





POWER DISTRIBUTION

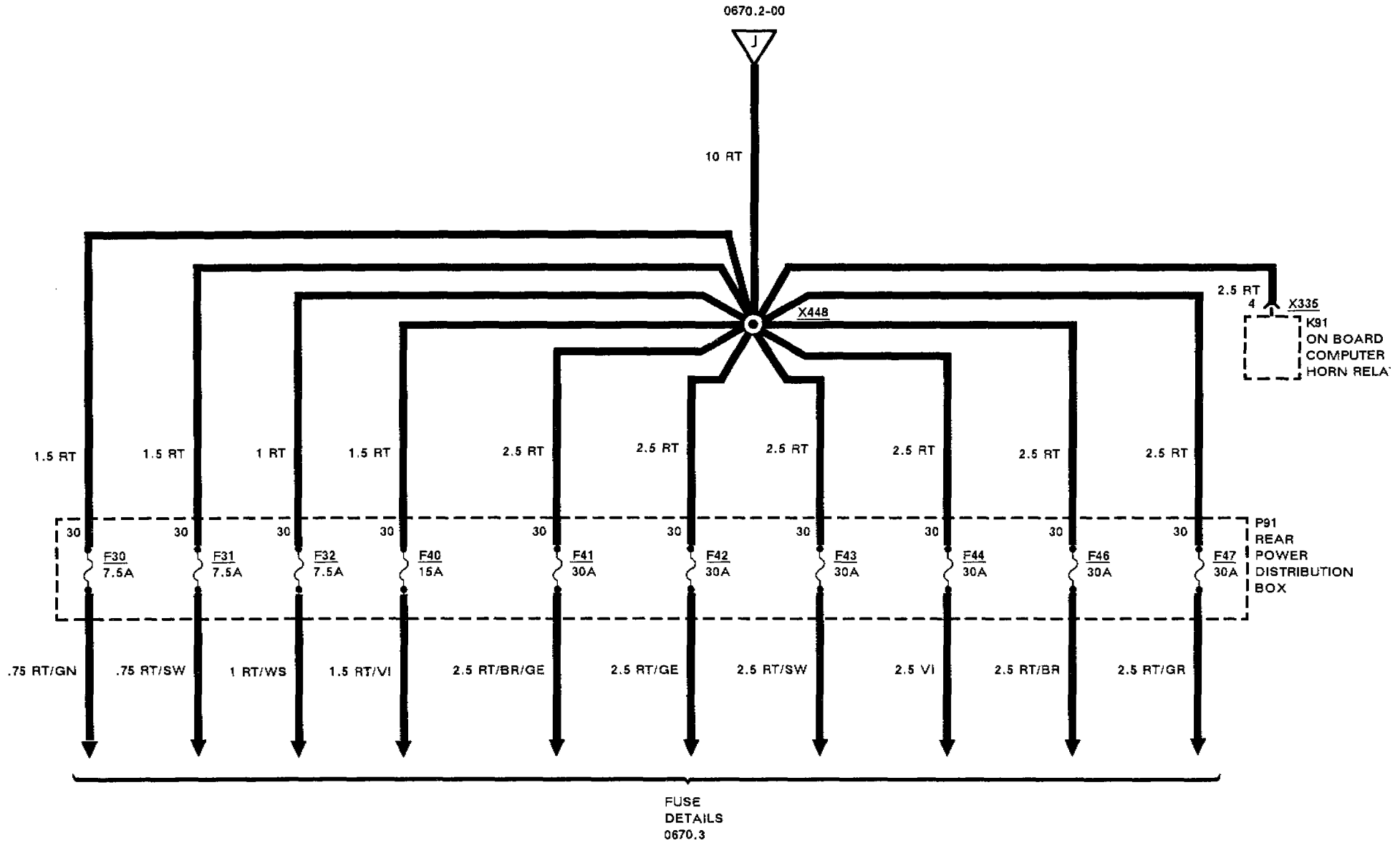
FRONT POWER DISTRIBUTION BOX





POWER DISTRIBUTION

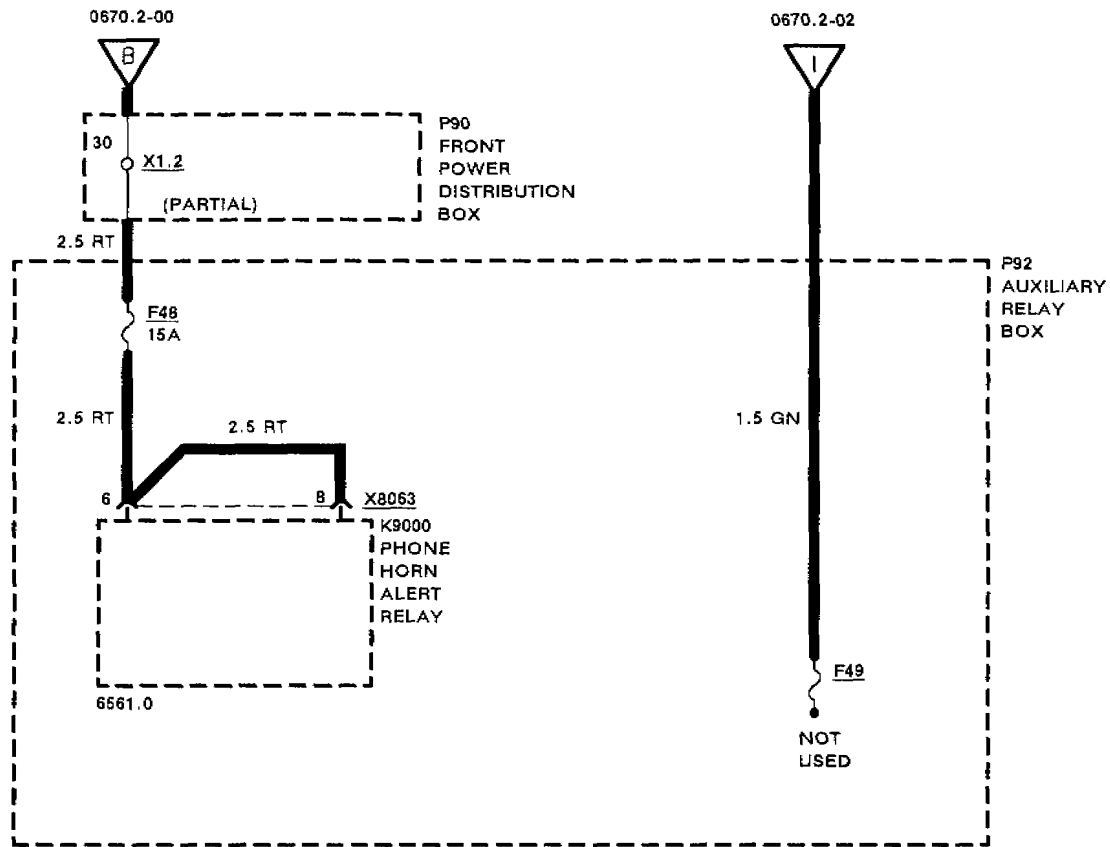
REAR POWER DISTRIBUTION BOX





POWER DISTRIBUTION

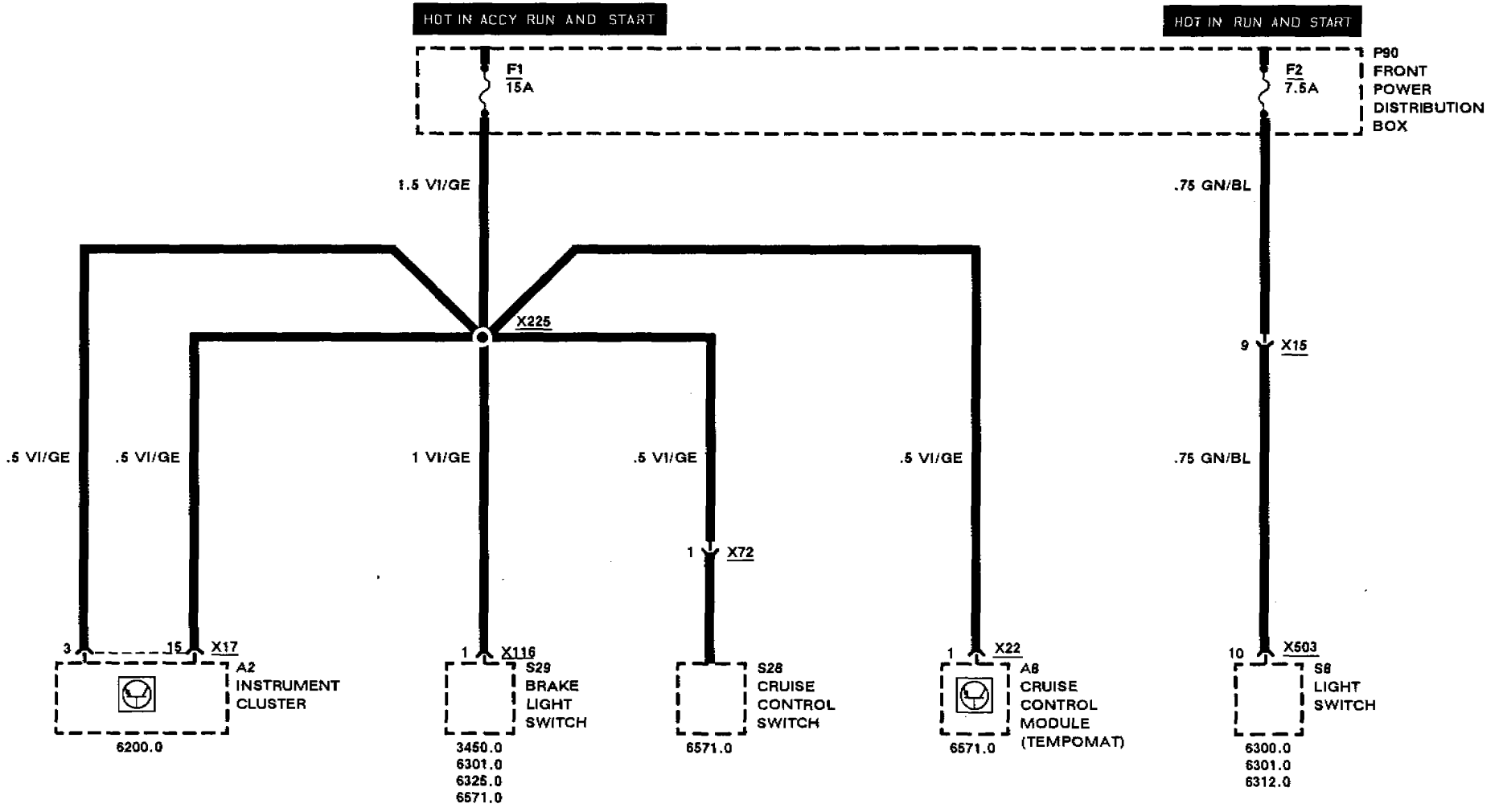
AUXILIARY RELAY BOX





FUSE DETAILS

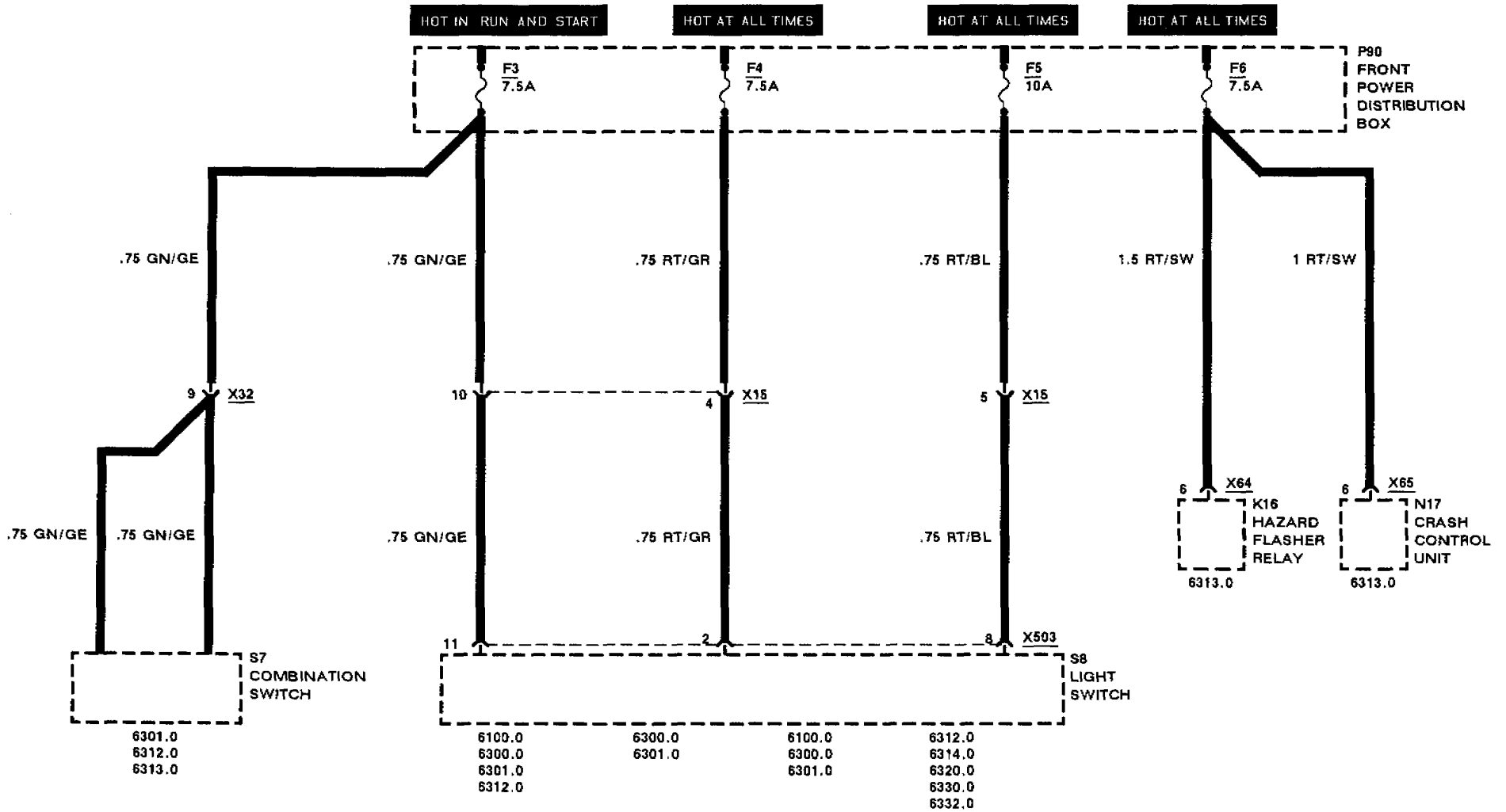
FUSES 1 AND 2





FUSE DETAILS

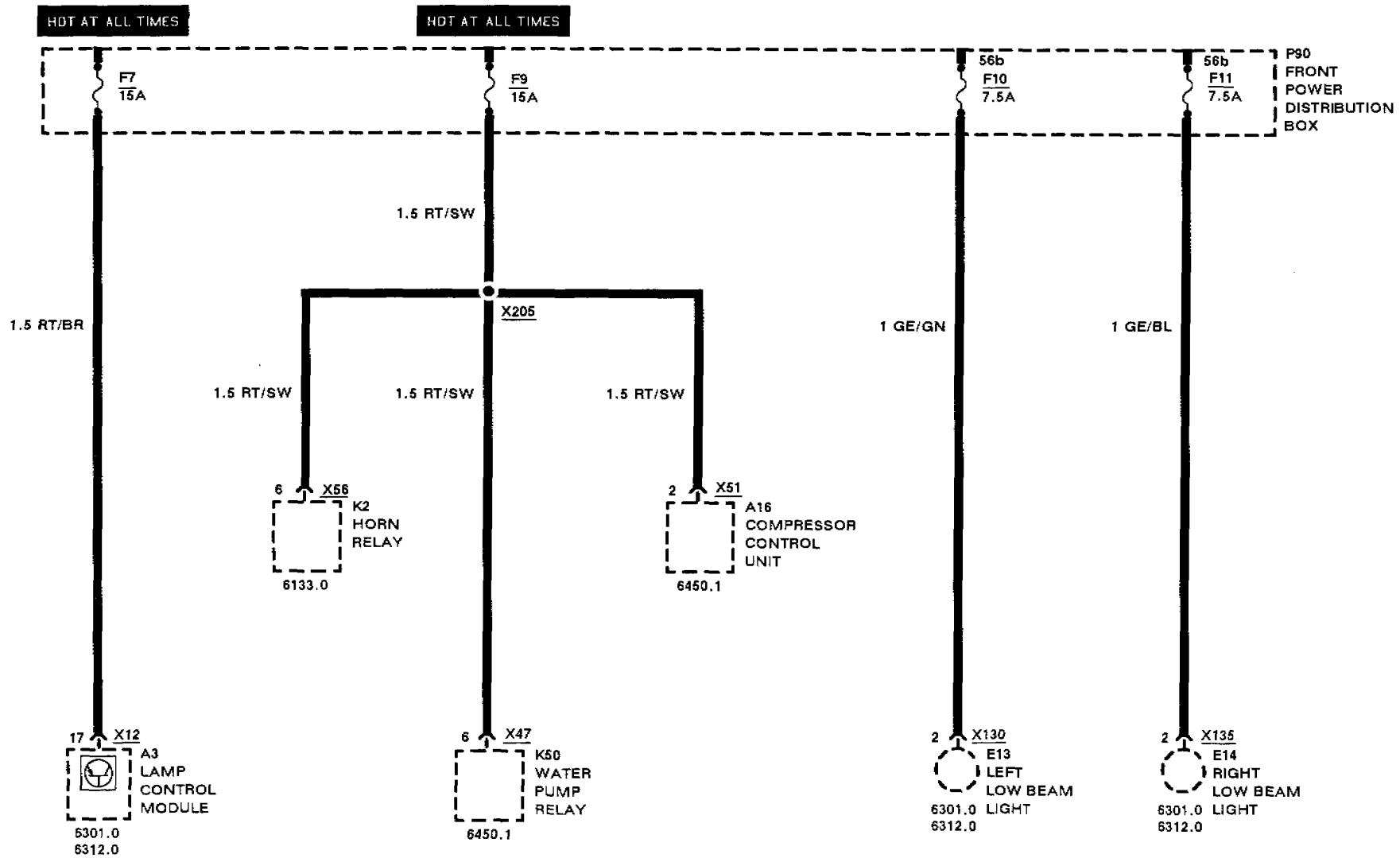
FUSES 3, 4, 5 & 6





FUSE DETAILS

FUSES 7, 9, 10 AND 11





FUSE DETAILS

FUSE 12

HOT IN RUN AND START

