



1984 FIERO SERVICE MANUAL

The enclosed section is a complete revision for your 1984 Fiero Service Manual:

Section 8A - Electrical Troubleshooting

Discard the old section and replace with this section.



## INDEX

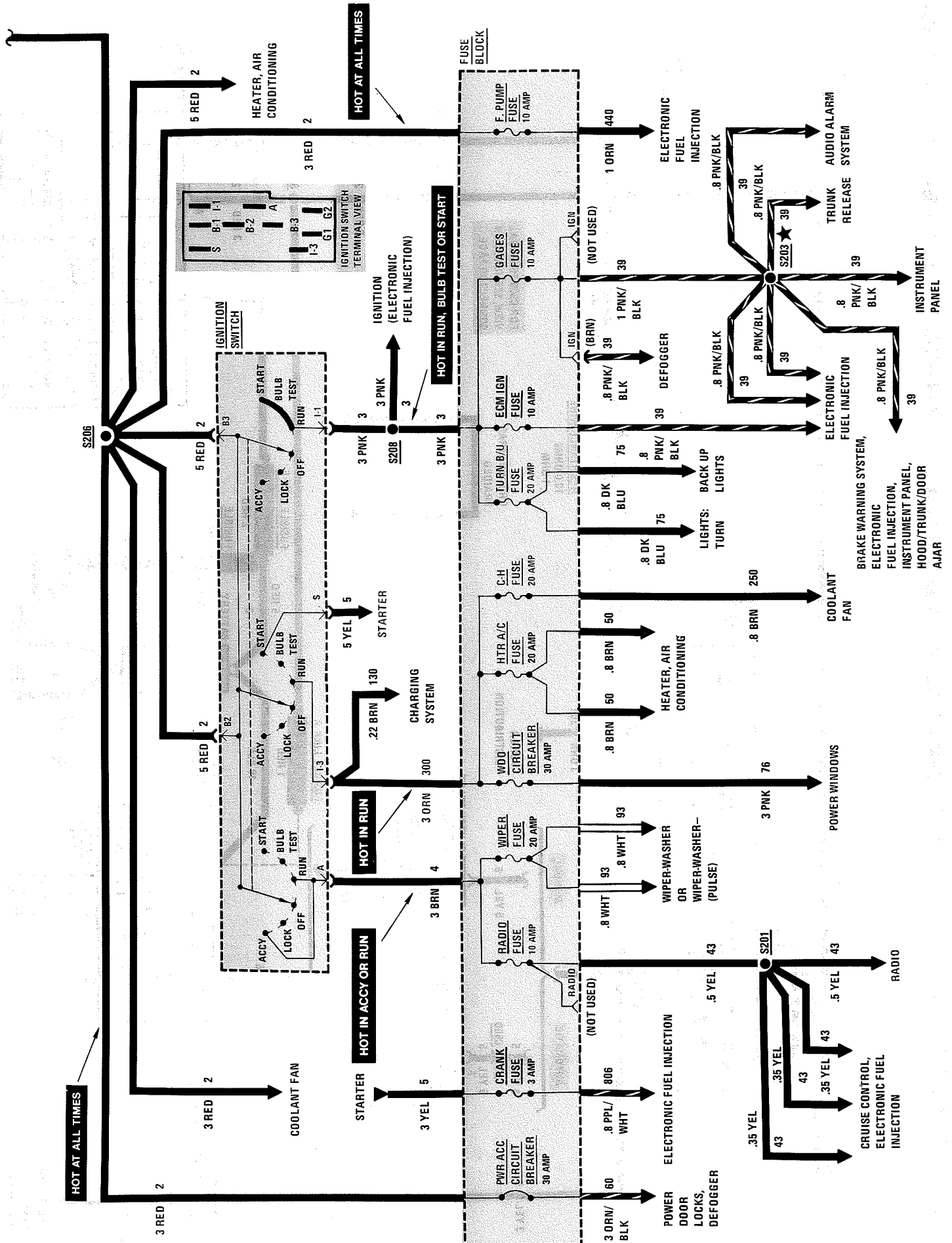
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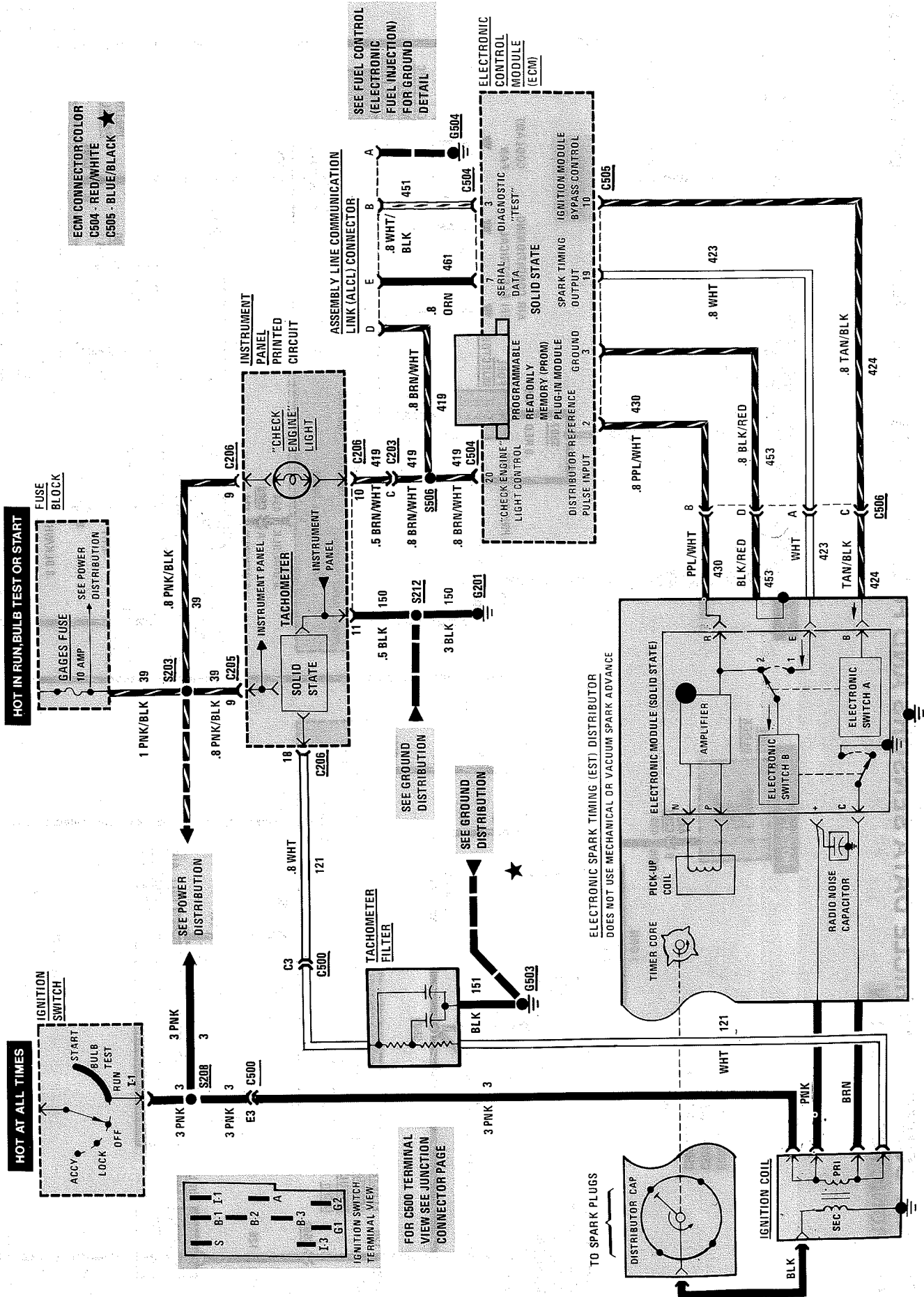
## FUSE DATA

FUSE	COLOR (AMPS)	SCHEMATICS
INST LPS	TAN (5)	Audio Alarm System (Chime) Defogger Lights: Instrument Panel Radio Digital Clock
PWR ACCY (CIRCUIT BREAKER)	(30)	Defogger Power Door Locks
RADIO	RED (10)	Cruise Control Radio Digital Clock
STOP/HAZ	YEL (20)	Audio Alarm System Lights: Stop/Hazard/Turn
TAIL	YEL (20)	Digital Clock Lights: Park/Front Marker Lights: Tail/Rear Marker/ License Radio Underhood Light
TURN-B/U	LT BLU (15)	Back Up Lights Lights: Turn
WDO (CIRCUIT BREAKER)	(30)	Power Windows
WIPER	YEL (20)	Wiper/Washer

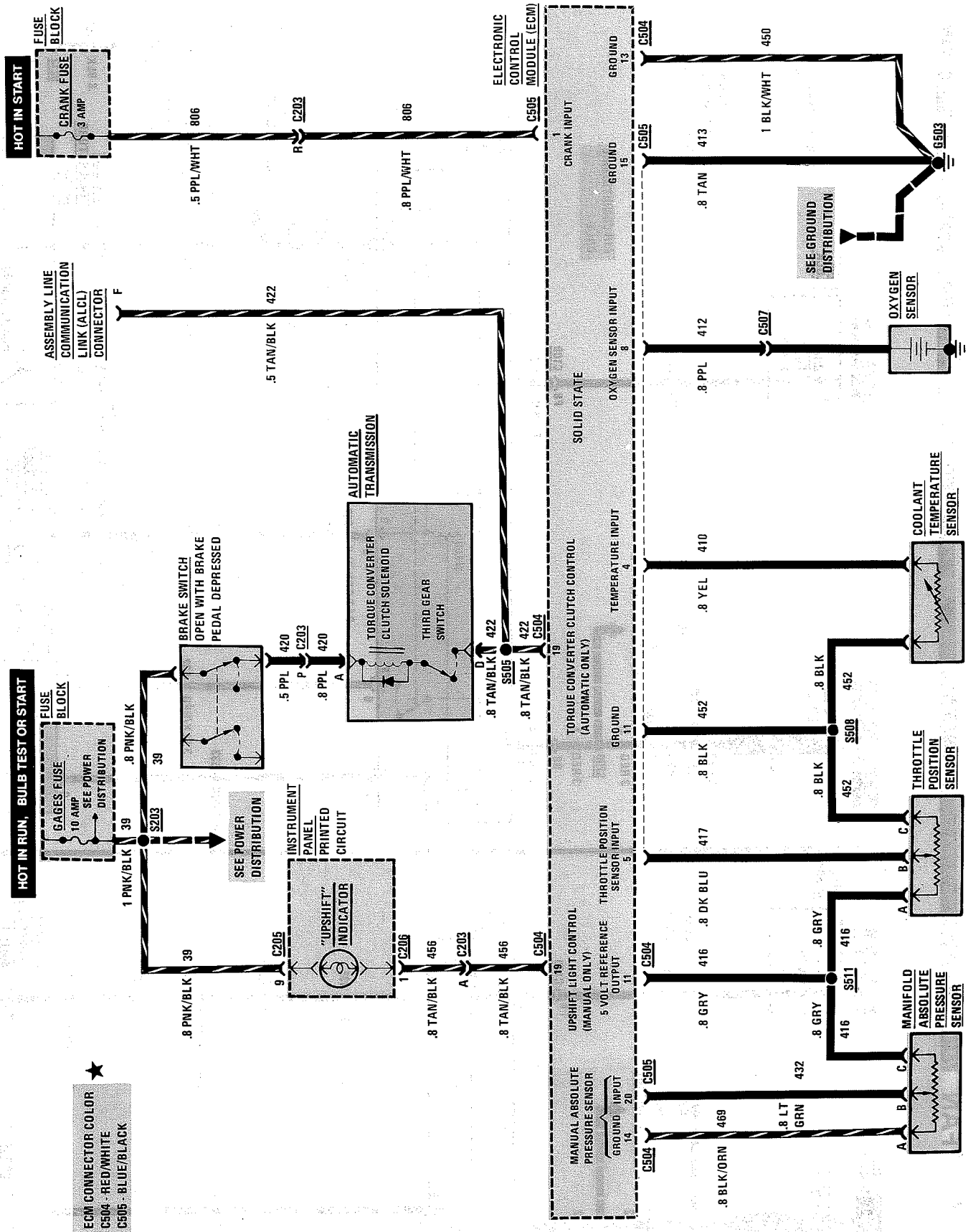
FUSE	COLOR (AMPS)	SCHEMATICS
C/H	YEL (20)	Coolant Fan Diesel Fuel Control
CRANK	TAN (3)	Electronic Fuel Injection
CTSY	YEL (20)	Audio Alarm System (Chime) Cigar Lighter Horns Interior Lights Power Door Locks Power Remote Mirrors Radio Digital Clock Trunk Light Lights: Turn/Stop
ECM/IGN	RED (10)	Electronic Fuel Injection
F PUMP	RED (10)	Electronic Fuel Injection
GAGES	RED (10)	Audio Alarm System (Chime) Brake Warning System Cruise Control Defogger Electronic Fuel Injection Instrument Panel Hood/Trunk/Door Ajar Trunk Release
HTR-A/C	YEL (20)	Air Conditioning Heater



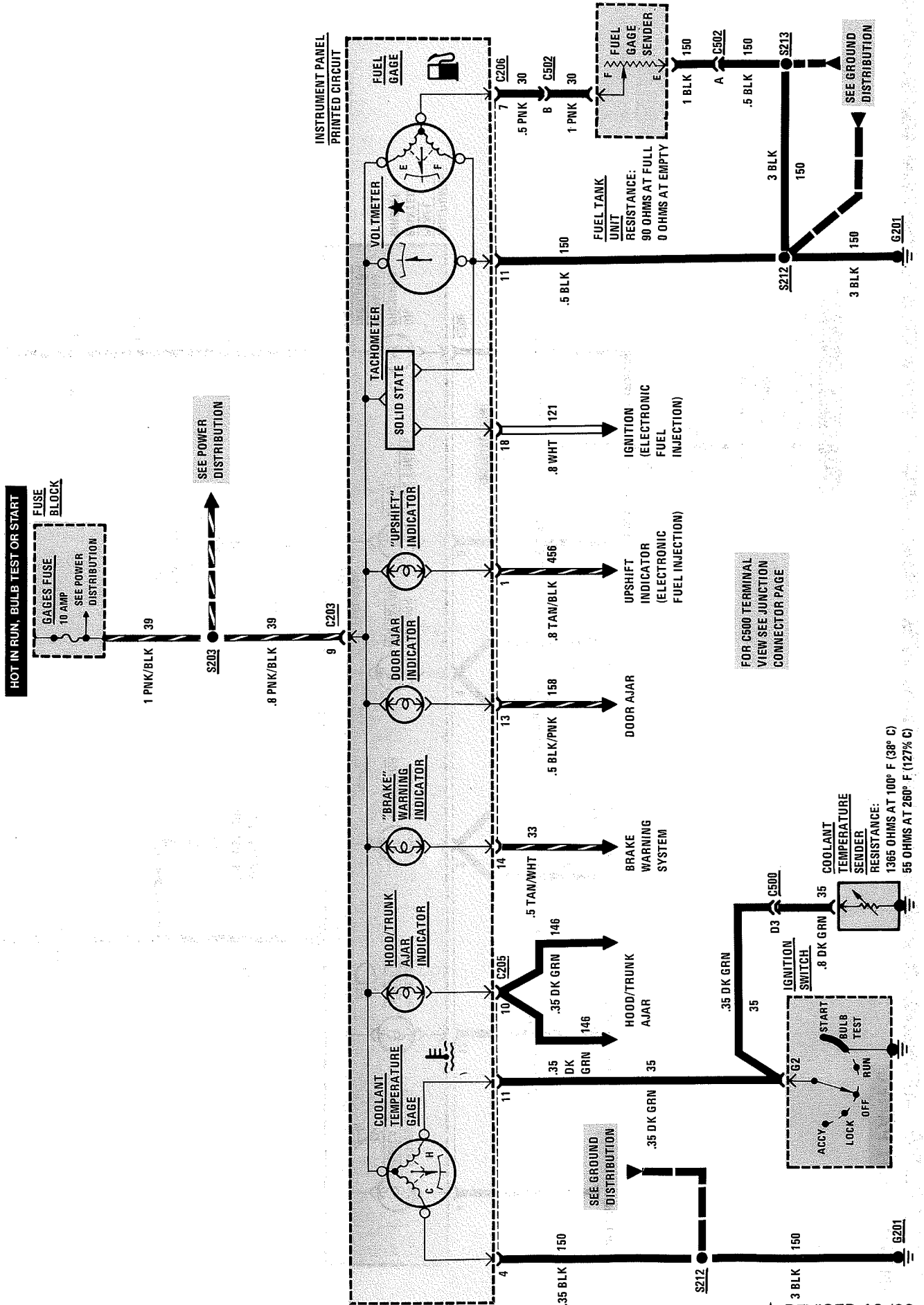
# IGNITION, CHECK ENGINE LIGHT, AND TACHOMETER ELECTRONIC FUEL INJECTION



ENGINE DATA SENSORS, TORQUE CONVERTER CLUTCH, AND UPSHIFT INDICATOR  
ELECTRONIC FUEL INJECTION

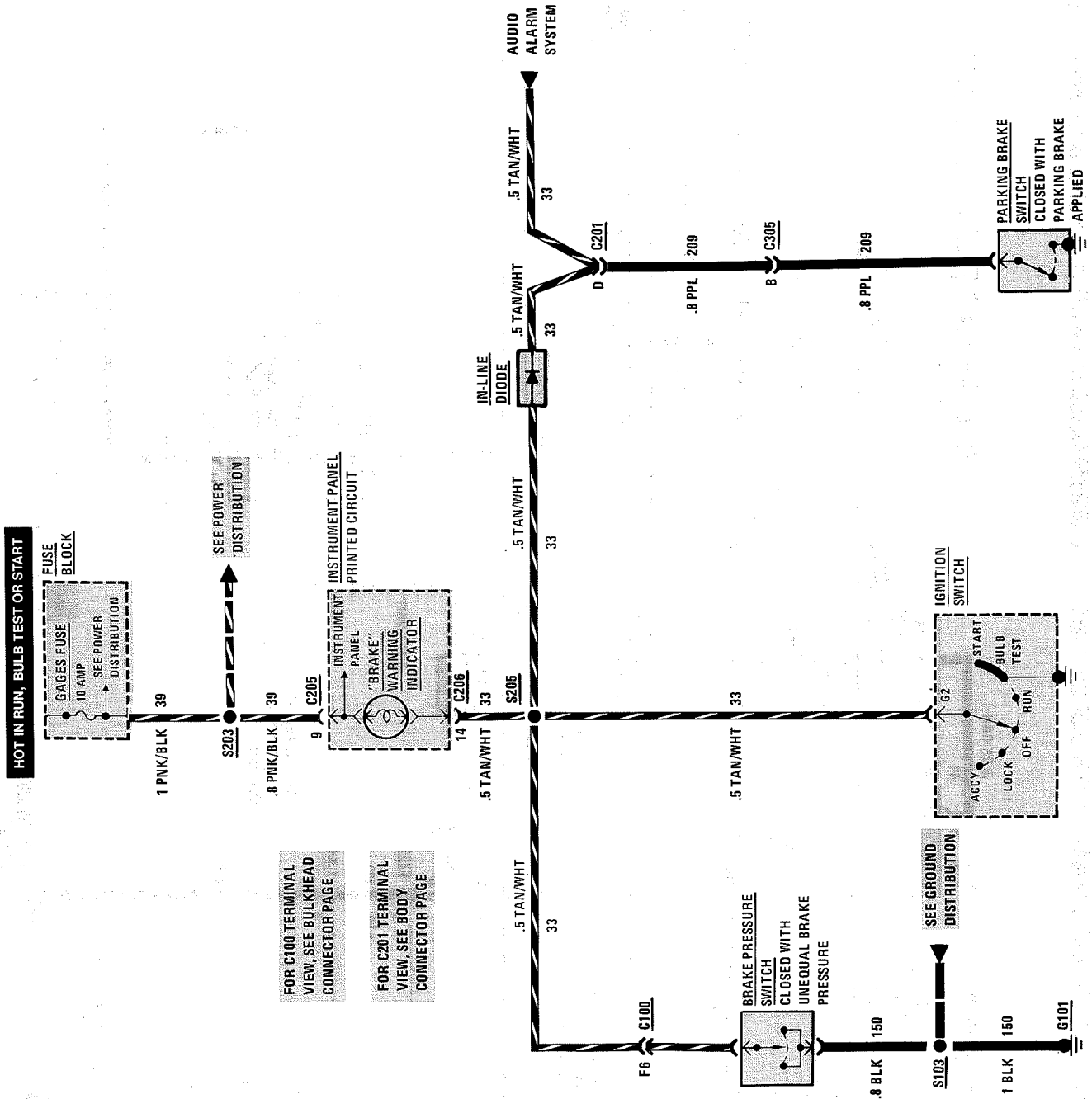


# INDICATORS AND GAGES INSTRUMENT PANEL

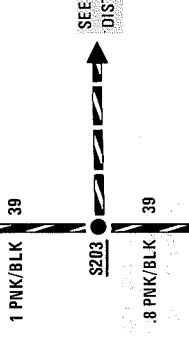
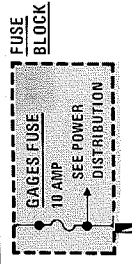


FOR C500 TERMINAL  
VIEW SEE JUNCTION  
CONNECTOR PAGE

# BRAKE WARNING SYSTEM

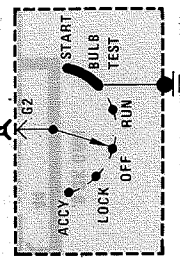
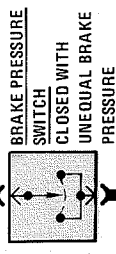


HOT IN RUN, BULB TEST OR START



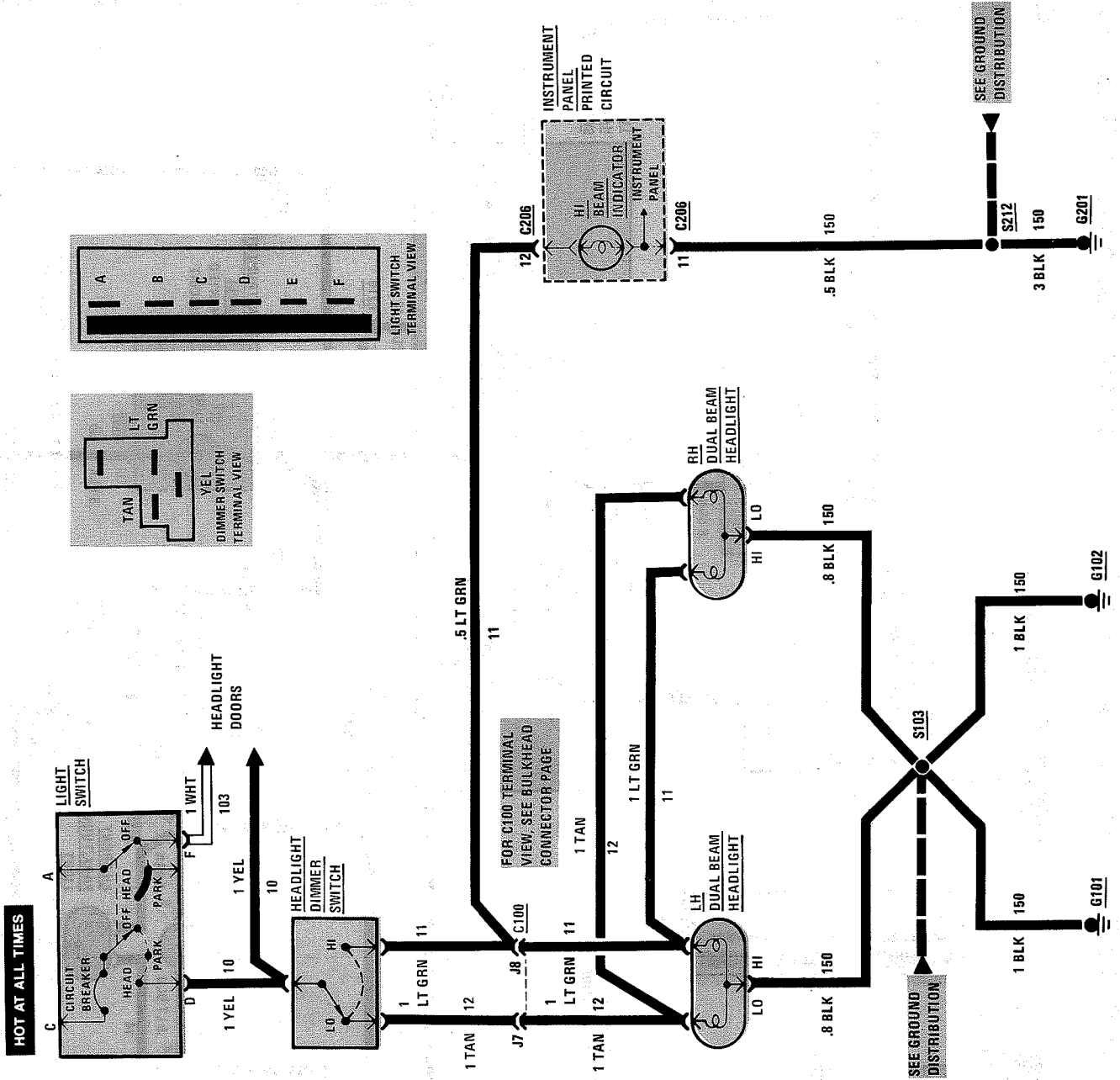
FOR C100 TERMINAL VIEW, SEE BULB HEAD CONNECTOR PAGE

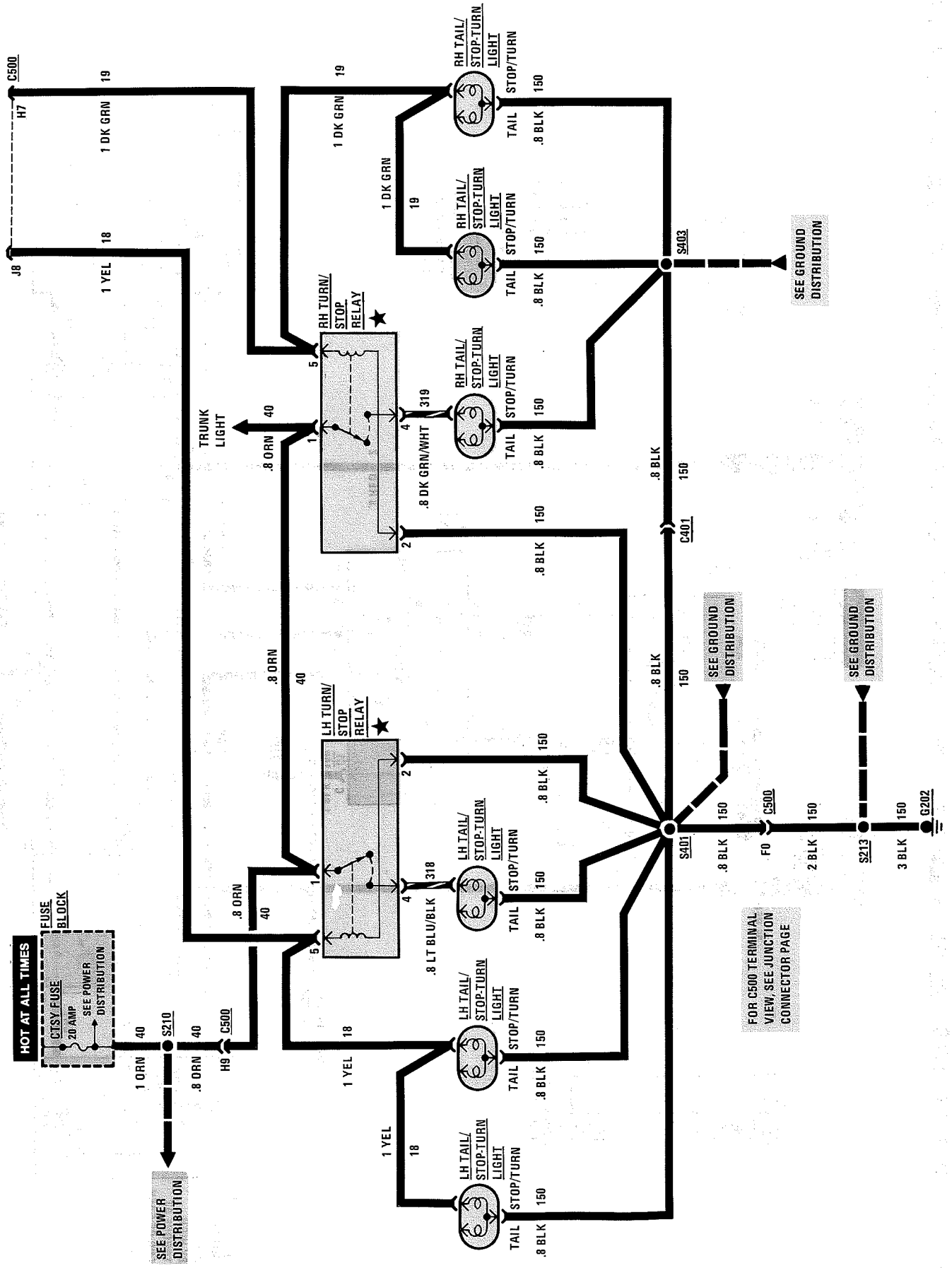
FOR C201 TERMINAL VIEW, SEE BODY CONNECTOR PAGE





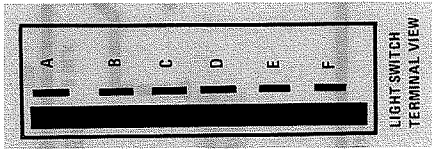
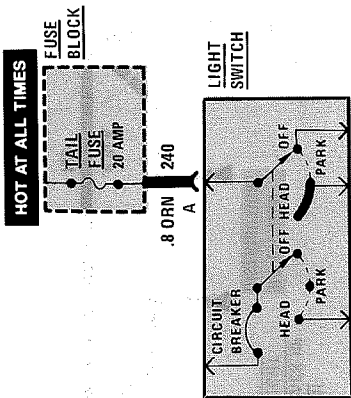
HEADLIGHTS





FOR C500 TERMINAL VIEW, SEE JUNCTION CONNECTOR PAGE

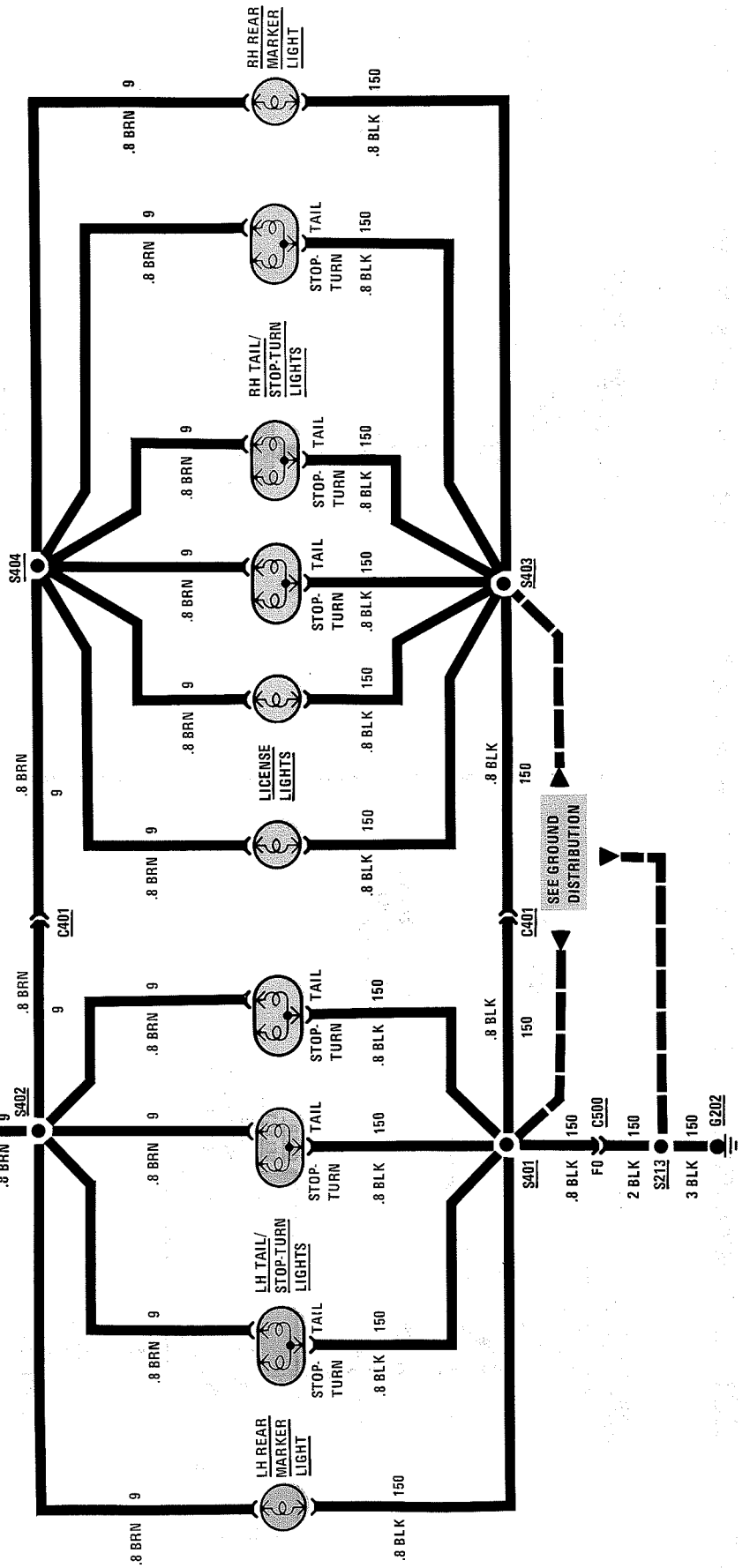
LIGHTS: TAIL/REAR MARKER/LICENCE



FOR C500 TERMINAL VIEW, SEE JUNCTION CONNECTOR PAGE

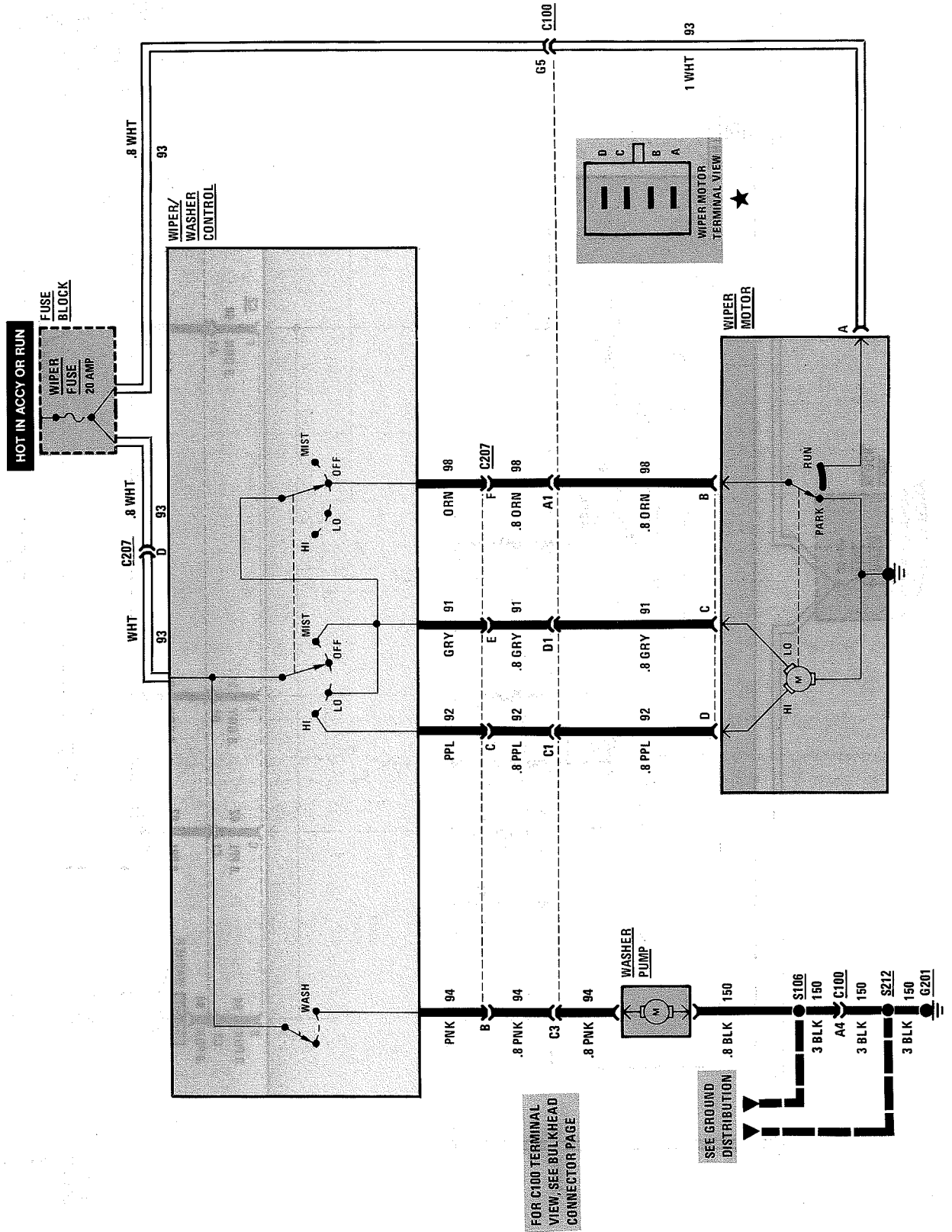
SEE POWER DISTRIBUTION

SEE GROUND DISTRIBUTION





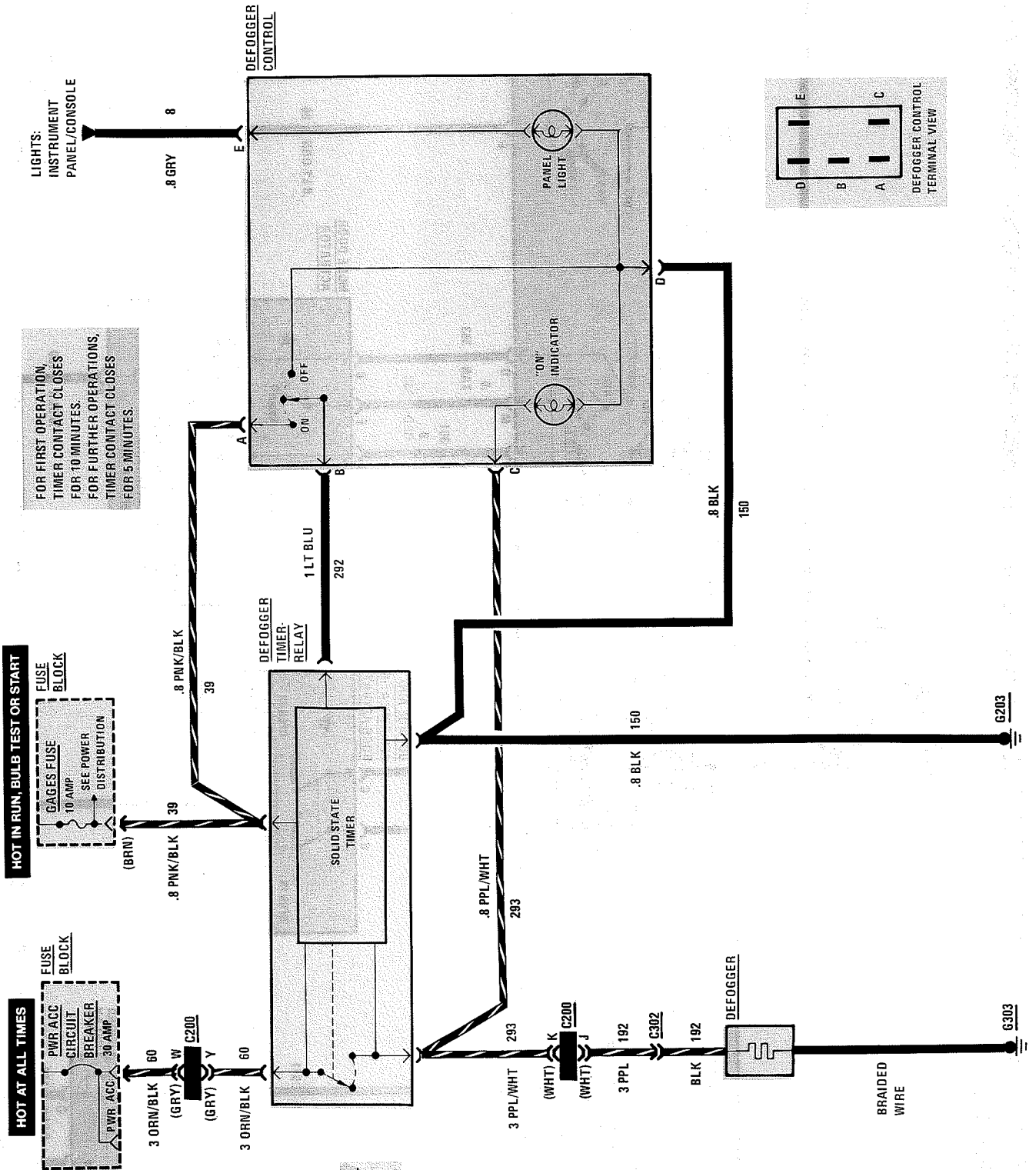
WIPER/WASHER



FOR C100 TERMINAL VIEW, SEE BULKHEAD CONNECTOR PAGE

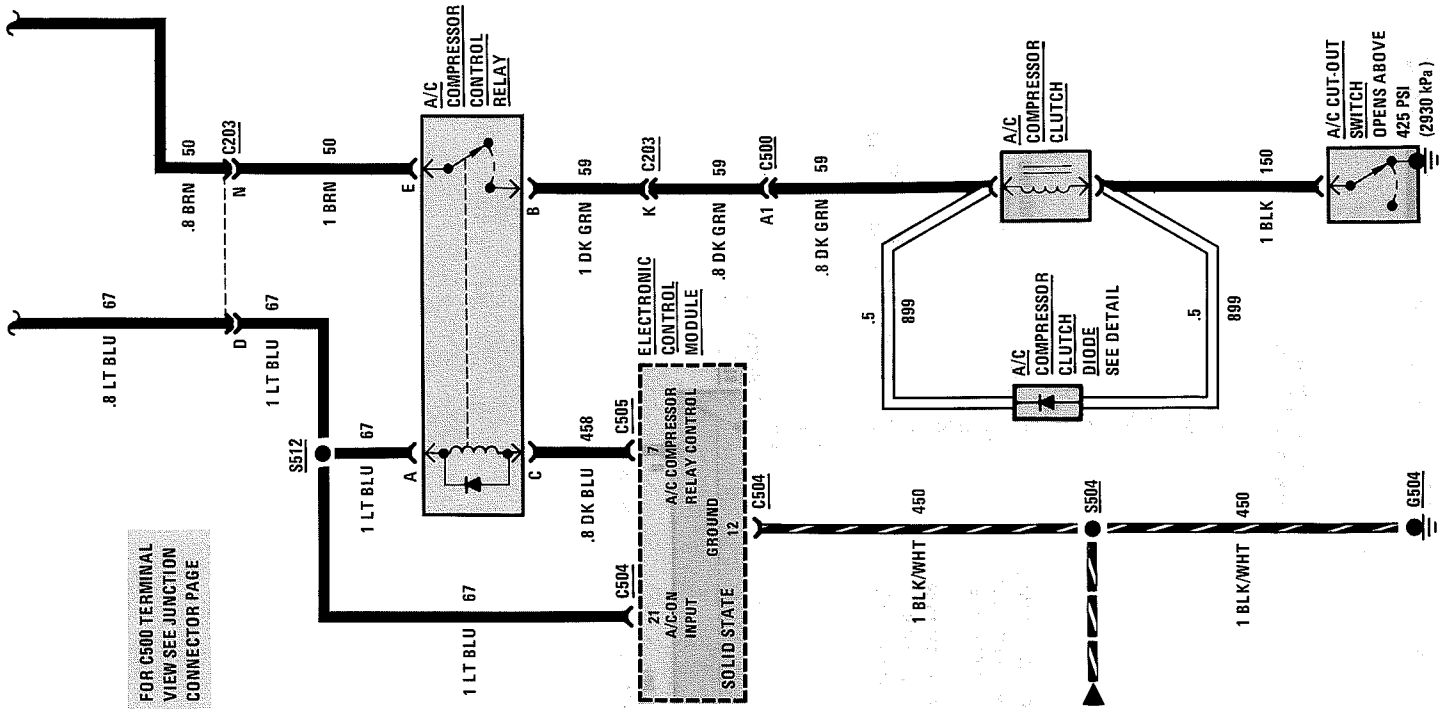
SEE GROUND DISTRIBUTION

**DEFOGGER**



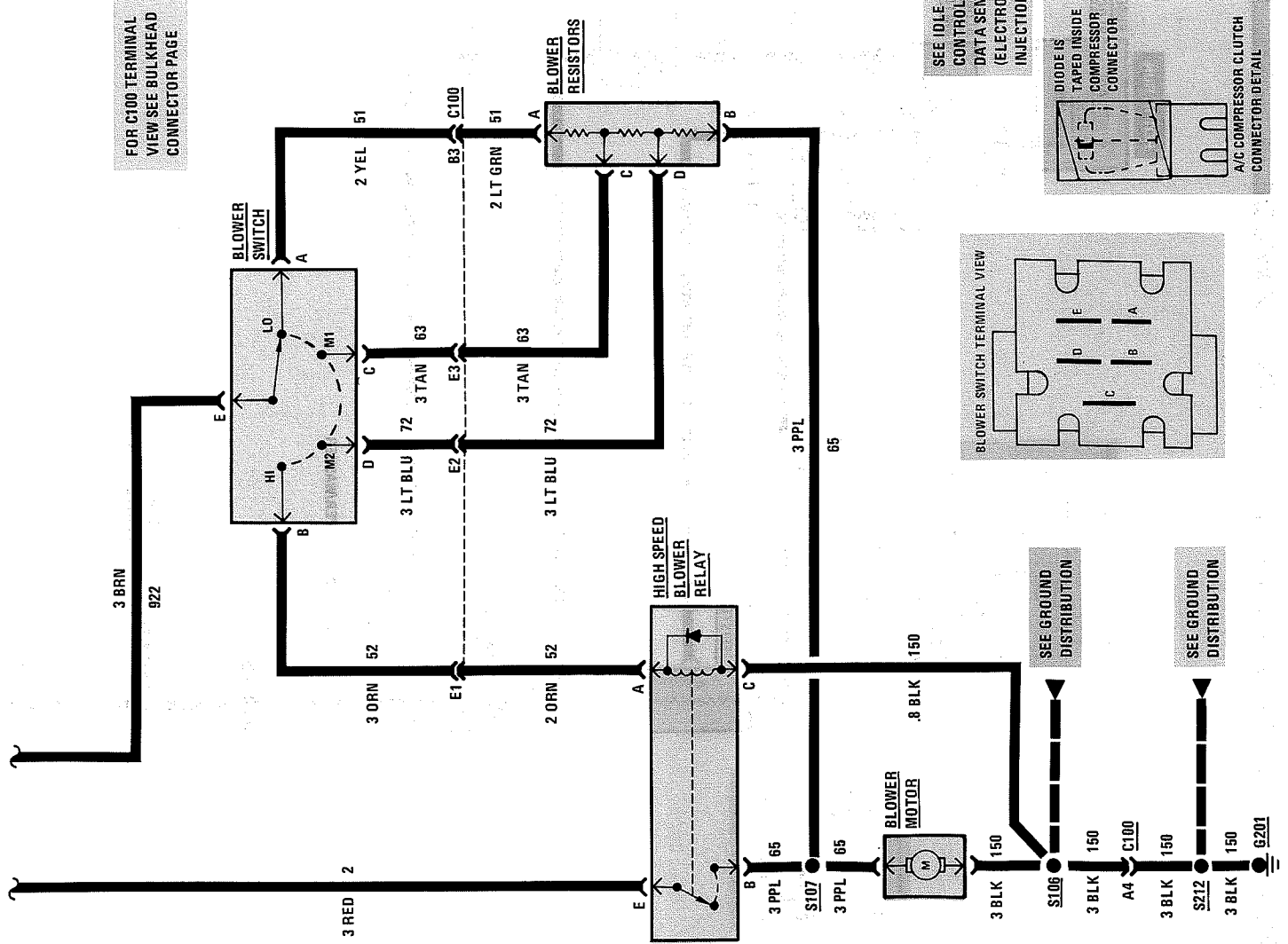
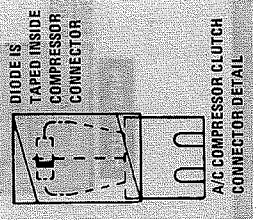
FOR FIRST OPERATION, TIMER CONTACT CLOSURES FOR 10 MINUTES.  
FOR FURTHER OPERATIONS, TIMER CONTACT CLOSURES FOR 5 MINUTES.

FOR C200 TERMINAL VIEW SEE JUNCTION BLOCK PAGE

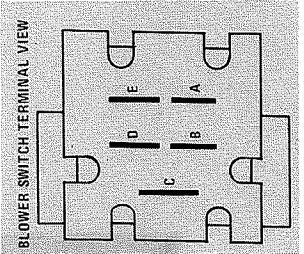


FOR C500 TERMINAL VIEW SEE JUNCTION CONNECTOR PAGE

SEE IDLE AIR CONTROL AND VEHICLE DATA SENSORS (ELECTRONIC FUEL INJECTION)



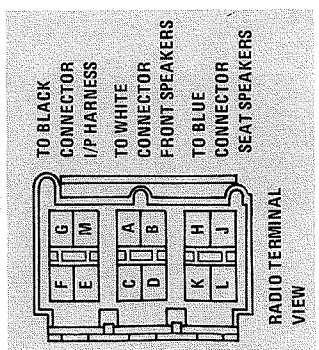
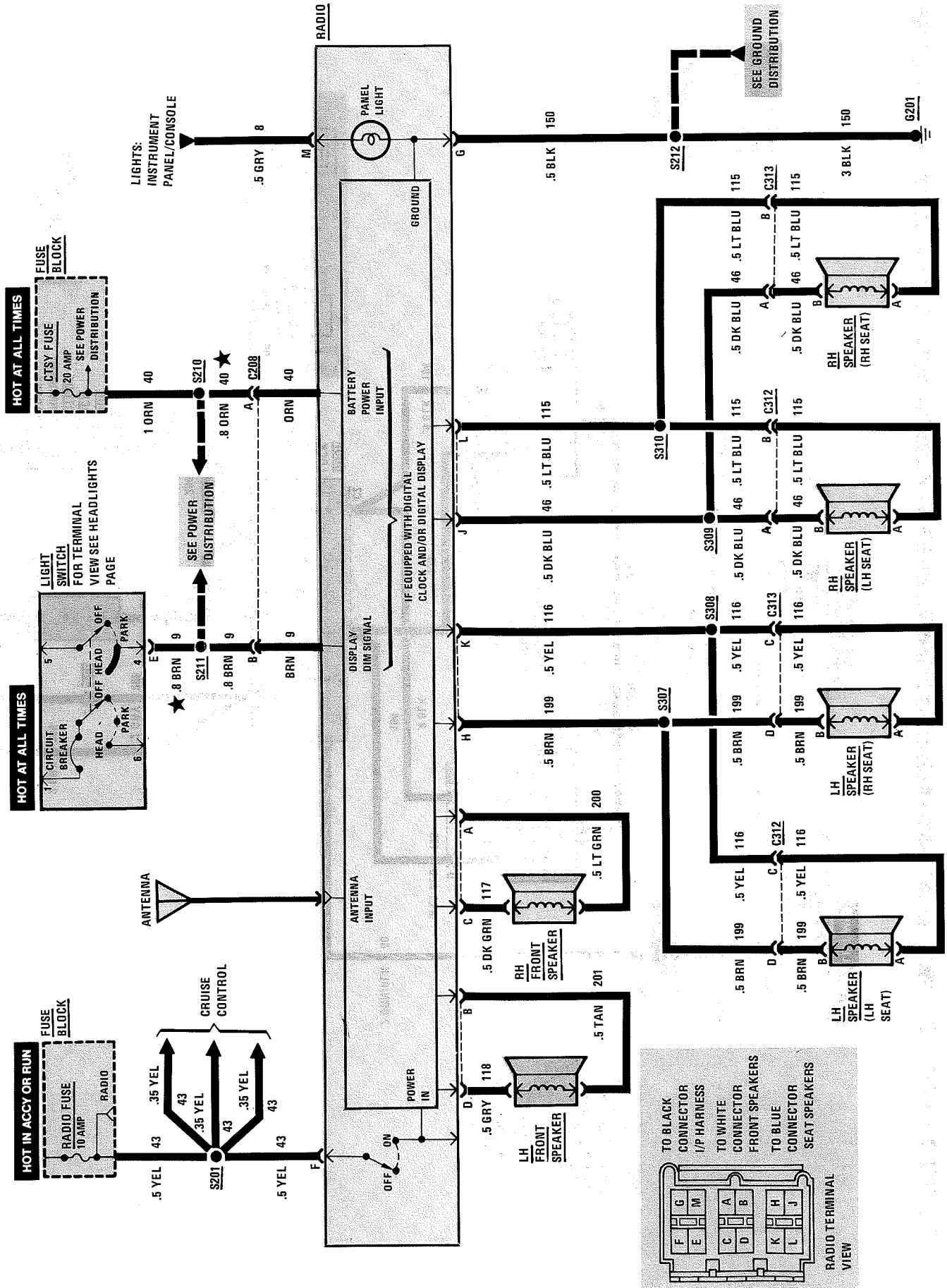
FOR C100 TERMINAL VIEW SEE BULKHEAD CONNECTOR PAGE



SEE GROUND DISTRIBUTION

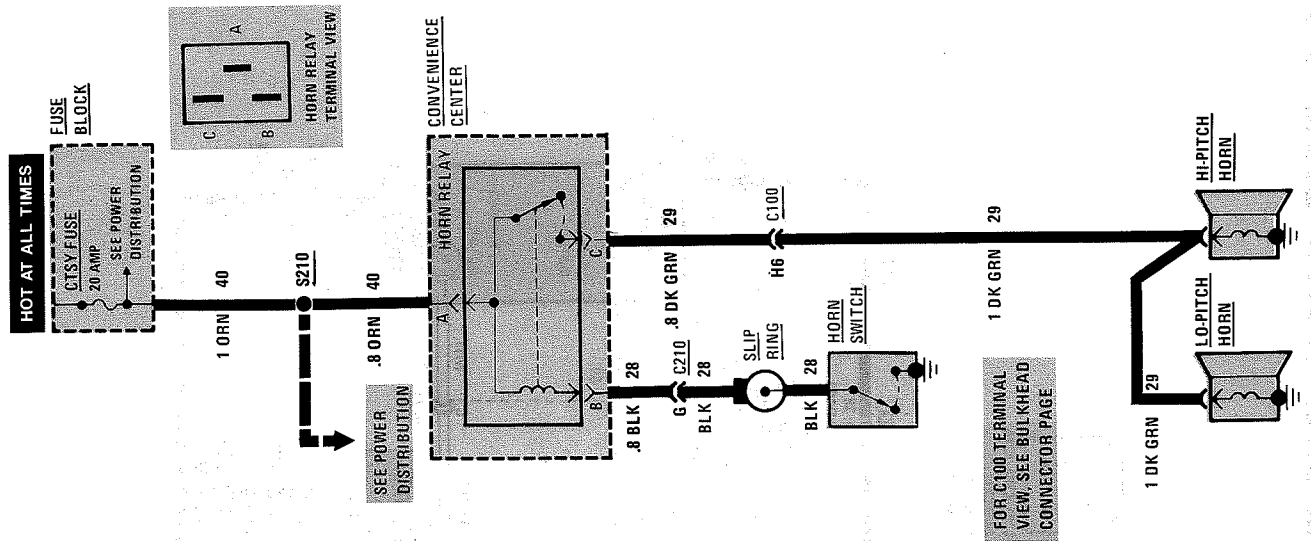
SEE GROUND DISTRIBUTION

**RADIO**

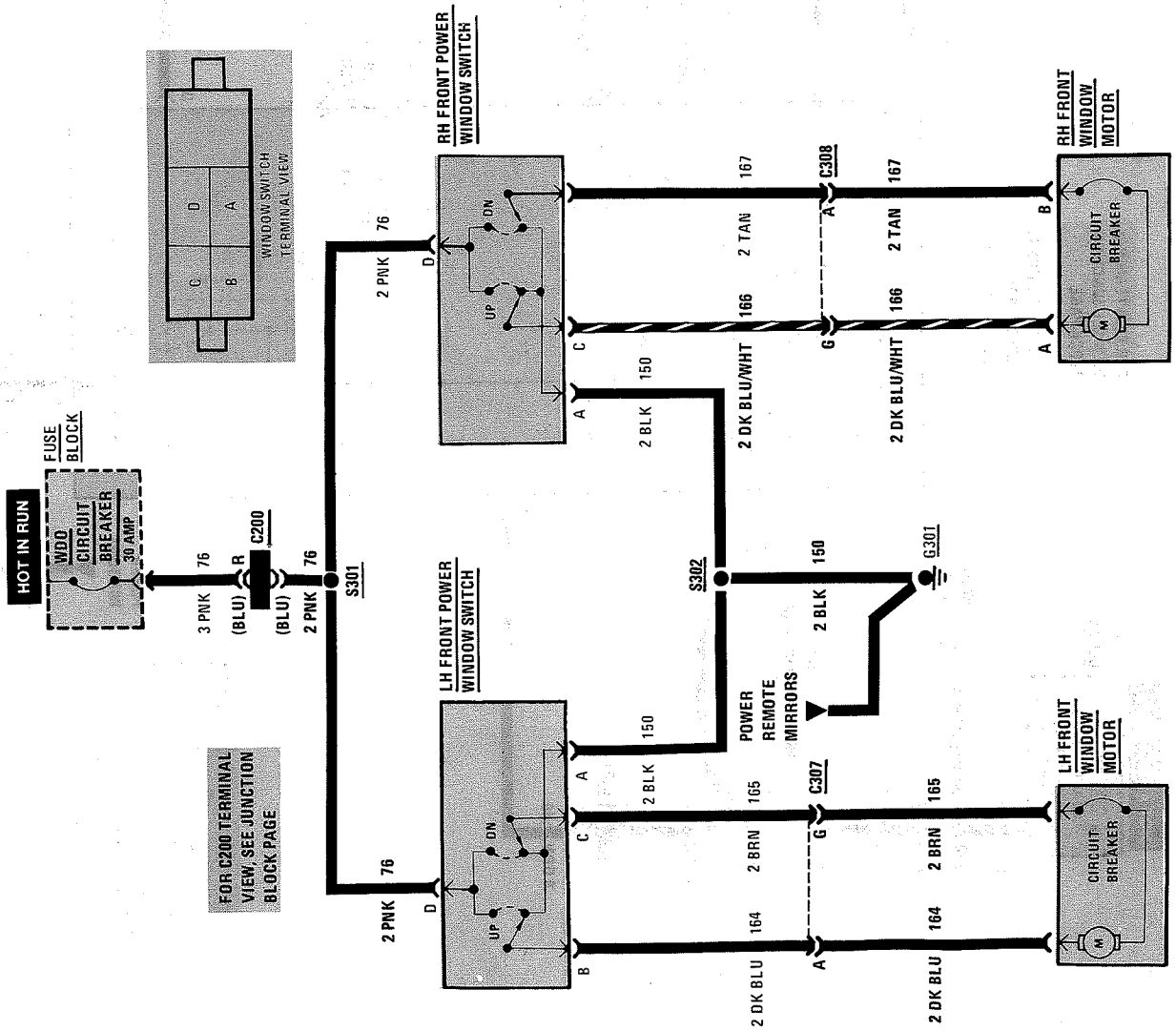




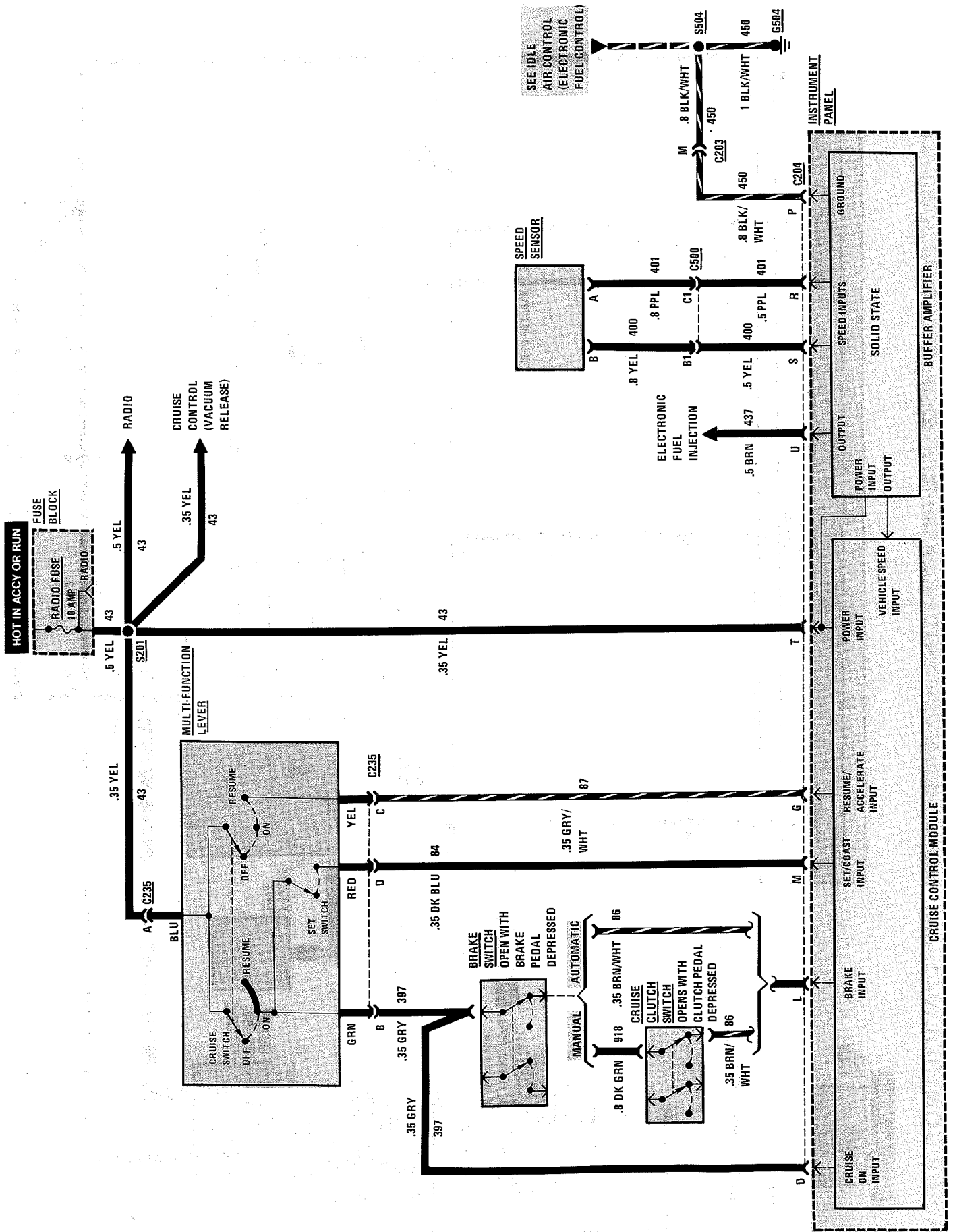
HORN



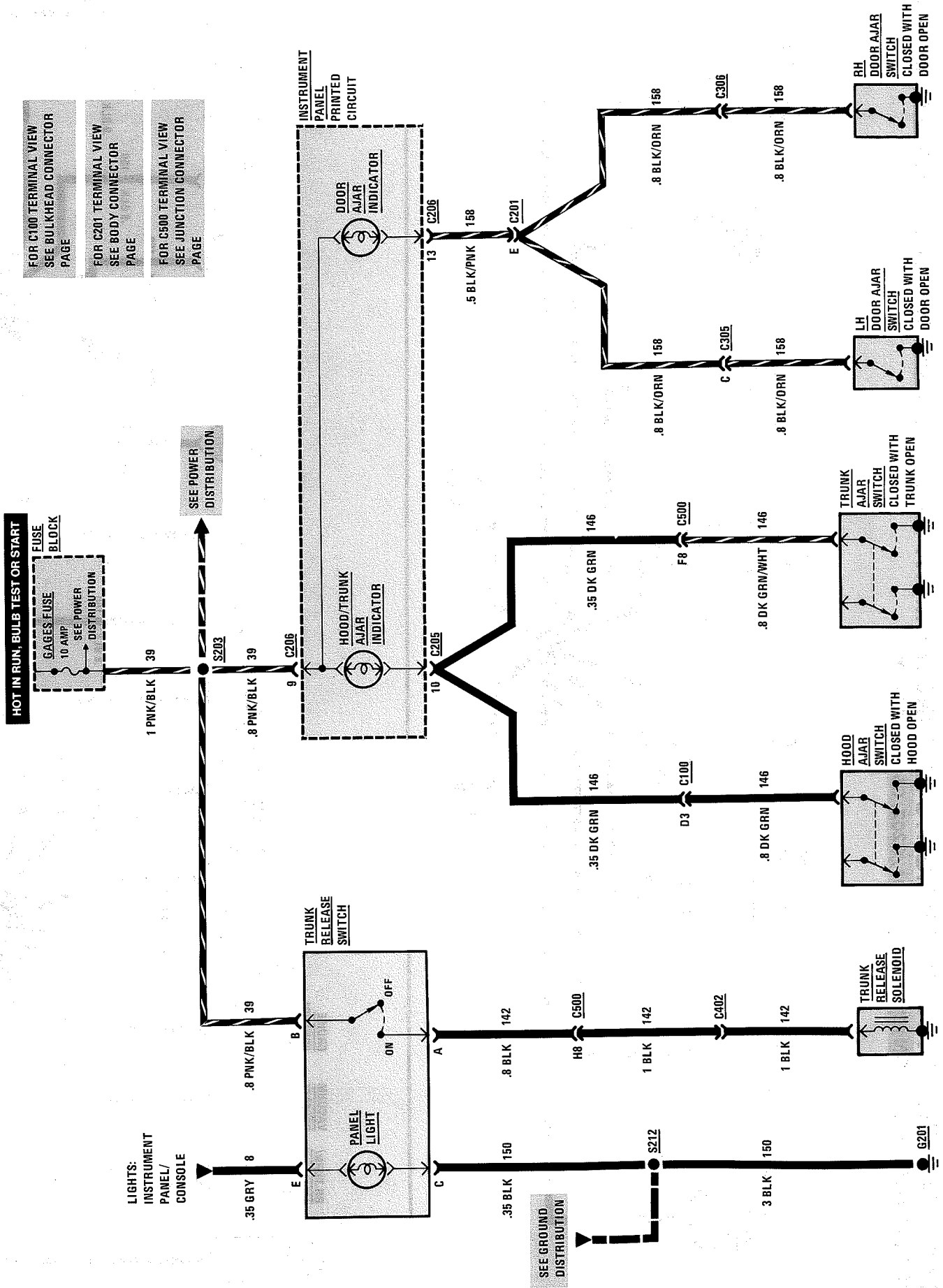
POWER WINDOWS

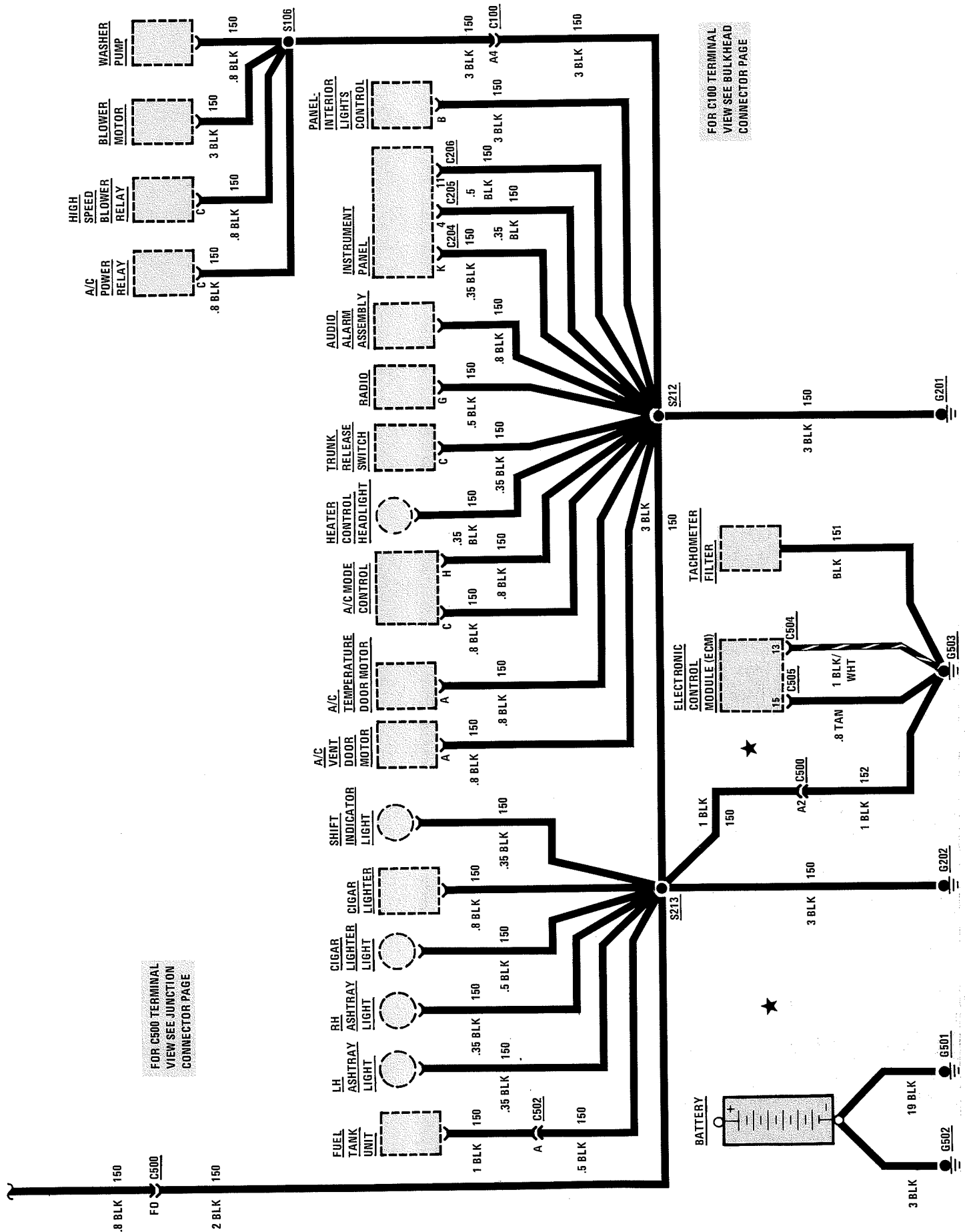


**CRUISE CONTROL**



**HOOD, TRUNK, AND DOOR AJAR AND TRUNK RELEASE**





FOR C500 TERMINAL VIEW SEE JUNCTION CONNECTOR PAGE

FOR C100 TERMINAL VIEW SEE BULKHEAD CONNECTOR PAGE

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

### POWER DISTRIBUTION

#### CIRCUIT OPERATION

Electrical power for the car is provided by the GENERATOR when the engine is running. The schematic diagram shows how each circuit gets its power. For more detail about the GENERATOR, and connections to the BATTERY and STARTER ASSEMBLY, see Starter/Charging System.

The car's Power Distribution system consists of FUSIBLE LINKS, FUSES, CIRCUIT BREAKERS, the LIGHT SWITCH, and the IGNITION SWITCH. FUSIBLE LINKS are short pieces of wire several sizes smaller than the circuit wire to which they supply power. They are covered with special high-temperature insulation. When conducting a dangerously high current, they will melt and stop current flow. They are designed to protect the car's electrical system from electrical shorts that are not protected by the CIRCUIT BREAKERS and FUSES. See the Repair Procedures pages for method of replacing FUSIBLE LINKS.

The IGNITION SWITCH has six positions, five of which have detents. The "Bulb Test" position is after the "Run" position and just before the "Start" position. "Bulb Test" does not have a detent. As shown in the schematic, circuits which are supplied from the IGNITION SWITCH are "On" (hot) for different switch positions. The hot bar at the top of each schematic states when the fuse is hot according to the position of the IGNITION SWITCH.

### STARTER AND CHARGING SYSTEM

#### CIRCUIT OPERATION

##### Starter

BATTERY voltage is applied to the IGNITION SWITCH at all times.

When the IGNITION SWITCH is moved to "Start," current flows to terminal S on the STARTER SOLENOID if one of these two conditions is met: 1) clutch pedal on manual transmission is depressed; or 2) selector on automatic transmission is placed in "N" or "P."

Current flows through the pull-in and hold-in windings which work together magnetically. Current through the pull-in winding also flows through the STARTER MOTOR. The motor begins to turn slowly to insure easy meshing of the gear teeth. As the gears mesh, the solenoid motor contacts close. This supplies full BATTERY voltage directly to the STARTER MOTOR through terminal B.

##### Charging System

The GENERATOR provides electricity to power all car electrical equipment and to charge the BATTERY. Alternating current is generated by the stator as the field rotates. The rectifier bridge changes the alternating current to direct current. The amount of DC voltage produced by the GENERATOR is controlled by the regulator. When the GENERATOR output voltage

is low, the regulator increases current flowing through the field. This increases the GENERATOR'S output voltage (at terminal BAT). Field current is supplied directly from the stator's output through the diode trio or from the BATTERY.

When the IGNITION SWITCH is released from "Start," current through the purple and yellow wires is cut off. Current from the BATTERY flows in the reverse direction through the pull-in winding, then continues in normal direction through the hold-in winding. The magnetic force of the hold-in winding is opposed and canceled by the reverse current through the pull-in winding. The spring released motor contacts open. Voltage to the STARTER MOTOR is cut off.

#### TROUBLESHOOTING HINTS

If STARTER MOTOR doesn't run:

- Check BATTERY for full charge.
- Check that G501 is clean and tight.
- Check that STARTER SOLENOID terminals S and B and BATTERY connections are clean and tight.

### TORQUE CONVERTER CLUTCH

#### CIRCUIT OPERATION

The TORQUE CONVERTER CLUTCH (TCC) provides a direct mechanical coupling between the engine and transmission when the vehicle is operated at park throttle cruise. This coupling eliminates torque converter slippage and increases the efficiency of the transmission assembly. The converter

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

In the COOLANT TEMPERATURE GAGE, current flows through the "H" coil and a sender. Current also flows through the "C" coil to ground. The COOLANT TEMPERATURE SENDER controls the pointer by changing the amount of current flowing through the "H" coil.

With the engine not running, the OIL PRESSURE WARNING INDICATOR bulb is tested in "Run," "Bulb Test," and "Start" by grounding through the OIL PRESSURE SWITCH.

With the engine running and normal oil pressure, the OIL PRESSURE SWITCH is open and the indicator does not go on. If engine oil pressure drops below 27 kPa (4 psi), the OIL PRESSURE SWITCH closes and the OIL PRESSURE WARNING INDICATOR goes on.

The FUEL GAGE pointer is controlled by varying the FUEL GAGE SENDER resistance. Current flows from the GAGES FUSE to the empty coil of the FUEL GAGE and divides into two paths: 1) through the FUEL GAGE SENDER to ground and 2) through the full coil to ground. The gage pointer is controlled by changes to the FUEL GAGE SENDER resistance. When the FUEL GAGE SENDER resistance decreases, more current flows through the FUEL GAGE SENDER and the empty coil. At the same time, the current in the full coil decreases.

### TROUBLESHOOTING HINTS

If none of these components work, check GAGES FUSE.

If coolant temperature gage doesn't work,

disconnect coolant temperature sender wire. If gage then shows "C," the sender is suspect.

If FUEL GAGE doesn't work, disconnect its sender. If its pointer then goes to maximum, the sender is suspect.

If the OIL PRESSURE WARNING INDICATOR does not come on in "Run," "Bulb Test," and "Start," check related wiring.

If the OIL PRESSURE WARNING INDICATOR does not go out after engine is running:

- Check oil level.
- Check the OIL PRESSURE SWITCH and related wiring.

### BRAKE WARNING SYSTEM

#### CIRCUIT OPERATION

The Brake Warning System alerts the driver to possible braking problems by turning on the "BRAKE" WARNING INDICATOR. The "BRAKE" WARNING INDICATOR goes on with unequal brake pressure, or when the parking brake is applied. The "BRAKE" WARNING INDICATOR also goes on with the IGNITION SWITCH in "Bulb Test" or "Start" to test the bulb.

With the IGNITION SWITCH in "Run," "Bulb Test," or "Start," voltage is applied through the GAGES FUSE to the "BRAKE" WARNING INDICATOR. The indicator will go on if any of three current paths to ground are closed.

With either the BRAKE PRESSURE SWITCH or the PARKING BRAKE SWITCH closed, current flows through the GAGES FUSE, the "BRAKE" WARNING INDICATOR, and the closed switch contacts to ground. The indicator goes on. With the IGNITION SWITCH in "Bulb Test" or "Start," current flows through the GAGES FUSE, the "BRAKE" WARNING INDICATOR, and the IGNITION SWITCH to ground. This tests the bulb.

### TROUBLESHOOTING HINTS

If the "BRAKE" WARNING INDICATOR does not turn on with the IGNITION SWITCH in "Bulb Test" or "Start," or when the parking brake is applied, check the bulb and the GAGES FUSE.

### AUDIO ALARM SYSTEM

#### CIRCUIT OPERATION

The Audio Alarm System sounds a tone to call attention to one or more of several conditions. 1) Lights-On Warning: A fast-pulsed chime sounds when the park or headlights are "On" and the IGNITION SWITCH is in "Accy," "Lock," or "Off." (2) Ignition Key Warning: A fast chime sounds when the ignition key is in the ignition switch and the driver's door is opened. (3) Seatbelt Warning: A slow chime sounds when the driver's seatbelt is unbuckled and the ignition switch is in "Run," "Bulb Test," or "Start."

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

If only the "Hi" HEADLIGHTS flash on and off, check LT GRN wires for shorts to ground.

If only the "Lo" HEADLIGHTS flash on and off, check TAN wires for shorts to ground.

If both the "Hi" and "Lo" HEADLIGHTS flash on and off, check the YEL wire for a short to ground.

### LIGHTS: TURN/HAZARD/PARK/ FRONT MARKER/STOP

#### CIRCUIT OPERATION

##### Turn Lights

With the IGNITION SWITCH in "Run," "Bulb Test," or "Start," voltage is applied through the TURN B/U FUSE and TURN FLASHER to the normally closed pole of the hazard switch in the TURN-HAZARD SWITCH ASSEMBLY.

With the turn switch in "Left Turn" position, current flows out of the turn switch in two paths. The path through the LT BLU wire divides, flowing through both the LH TURN INDICATOR to ground, and the LH FRONT PARK/TURN LIGHT to ground. The second path flows through the yellow wire, two of the three LH TAIL/STOP-TURN LIGHTS and the LH TURN/STOP RELAY. The relay contacts close. All three lights go on immediately. They begin to flash when the current flow heats up the timing element in the flasher, and it repeatedly opens and closes the circuit.

Current flowing through the LH FRONT PARK/TURN LIGHT will also apply voltage to the LH FRONT MARKER LIGHT. If the LIGHT SWITCH is "Off," current will flow to ground through S104. The marker light will flash with the turn light.

When the light switch is in "Park" or "Head," current flows through the marker and park lights. With the TURN-HAZARD SWITCH ASSEMBLY in "Turn Left," the LH FRONT MARKER LIGHT will have voltage at both connections and will go off. When the flasher stops voltage to the turn light, the marker light will be grounded through the turn light and will go on. In this way, the LH FRONT MARKER LIGHT will flash on when the LH FRONT PARK/TURN LIGHT goes off, and off when the turn light goes on.

With the switch assembly in "Turn Right," similar current flow takes place to the RH lights.

##### Hazard Lights

Voltage is applied at all times through the TURN B/U FUSE and the HAZARD FLASHER to the normally open poles of the hazard switch in the TURN-HAZARD SWITCH ASSEMBLY. With the hazard switch in "Hazard," current flows through the assembly. The current leaves the assembly using all four paths used by both front and rear turn lights. All of the turn lights and both TURN INDICATORS flash on and off.

The FRONT SIDE MARKER LIGHTS flash in "Hazard Flash" just as they did in "Turn Right" and "Turn Left." If the LIGHT SWITCH is in either "Park" or "Head," they flash on when the hazard lights are off, and off when the hazard lights are on.

In "Hazard," the turn circuit is always open, and the HAZARD FLASHER controls the lights.

##### Stop Lights

Voltage is applied at all times through the STOP HAZ FUSE to the BRAKE SWITCH. When the brake pedal is depressed, the stop lights go on. The WHT wire directs current through the TURN-HAZARD SWITCH ASSEMBLY, the YEL and DK GRN wires, four of the six tail/stop-turn lights, and the LH and RH turn/stop relays to ground. The relay contacts close. All six lights go on immediately.

Notice that the current flows through a combination stop and turn-hazard light filament. This is why it also flows through the TURN-HAZARD SWITCH ASSEMBLY. If any LH or RH TAIL/STOP-TURN LIGHT is flashing to signal a turn, it will not be affected by the BRAKE SWITCH. Only the other light will operate as a stop light.

##### Front Park and Front Marker Lights

Voltage is applied through the TAIL FUSE to the LIGHT SWITCH at all times. With the LIGHT SWITCH in "Park" or "Head," current flows through four paths to ground. Two of the paths are through the

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

**NOTICE:** To help avoid personal injury, keep hands, clothes, etc. away from headlight motors and mechanism while they are being operated. Headlight motors operate electrically whenever the headlights are turned on or off. These motor are very powerful. See Owners Manual for detailed headlight replacement procedures.

### TROUBLESHOOTING HINTS

The RH and LH actuators contain torque-operated limit switches. The mechanical load when the headlight door is fully open or fully closed operates the limit switches to shut off the motor. Any other high-torque load can cause the motor to stop before the end of travel. Check the door linkage for binding before conducting these electrical tests.

#### Both Headlight Doors Not Working

Check ISOLATION RELAY. Press light switch to "Off." The headlight doors will be closed. Check for these voltages at the isolation relay.

- |                          |          |
|--------------------------|----------|
| 1. YEL wire .....        | 0 volts  |
| 2. WHT wire .....        | 12 volts |
| 3. DK BLU/WHT wire ..... | 12 volts |
| 4. PNK wire .....        | 0 volts  |
| 5. DK BLU wire .....     | 12 volts |
| 6. BLK wire .....        | 0 volts  |

Press light switch to "Head." Check for these voltages at the isolation relay:

- |                          |          |
|--------------------------|----------|
| 1. YEL wire .....        | 12 volts |
| 2. WHT wire .....        | 0 volts  |
| 3. DK BLU/WHT wire ..... | 0 volts  |

- |                      |          |
|----------------------|----------|
| 4. PNK wire .....    | 12 volts |
| 5. DK BLU wire ..... | 0 volts  |
| 6. BLK wire .....    | 0 volts  |

If the isolation relay checks OK, check each actuator relay.

#### One Headlight Door Not Working

CHECK ACTUATOR RELAYS. Check the actuator relay for the door that is not working. Press light switch to "Off." The headlight doors will be closed. Check for these voltages at the actuator relay.

- |                            |          |
|----------------------------|----------|
| 1. RED wire .....          | 12 volts |
| 2. PNK wire .....          | 0 volts  |
| 3. BLK wire .....          | 0 volts  |
| 4. GRY wire .....          | 0 volts  |
| 5. GRN wire .....          | 0 volts  |
| 6. Actuator WHT wire ..... | 12 volts |

Press light switch to "Head." Check for these voltages at the actuator relay:

- |                            |          |
|----------------------------|----------|
| 1. RED wire .....          | 12 volts |
| 2. PNK wire .....          | 12 volts |
| 3. BLK wire .....          | 0 volts  |
| 4. GRY wire .....          | 0 volts  |
| 5. GRN wire .....          | 12 volts |
| 6. Actuator WHT wire ..... | 12 volts |

### LIGHTS: TAIL/REAR MARKER/LICENSE

#### CIRCUIT OPERATION

Voltage is applied through the TAIL FUSE to the LIGHT SWITCH at all times. With the LIGHT SWITCH in "Park" or "Head," current flows through the fuse,

LIGHT SWITCH and all of the lights in this circuit.

### TROUBLESHOOTING HINTS

If no LICENSE, TAIL, or REAR MARKER LIGHTS go on:

- Check the TAIL FUSE.
- Check that G304 is clean and tight.
- Check that the FRONT PARK/FRONT MARKER lights go on.
- If they go on, check connections below C500.
- If they don't go on, check the LIGHT SWITCH and related wiring.

### BACK UP LIGHTS

#### CIRCUIT OPERATION

With the IGNITION SWITCH in "Run," "Bulb Test," or "Start," voltage is applied through the TURN B/U FUSE to the GEAR SELECTOR SWITCH (with automatic transmission), or to the BACK UP SWITCH (with manual transmission). Whenever the gear selector lever is shifted to "Reverse," the GEAR SELECTOR SWITCH or the BACK UP SWITCH closes and current flows through the BACK UP LIGHTS to ground.

### TROUBLESHOOTING HINTS

If BACK UP LIGHTS don't work:

- Check the fuse by operating TURN LIGHTS.
- Move gear selector lever to check BACK UP SWITCH adjustment.



MOTOR to the WIPER/WASHER CONTROL and through the GRAY wires to the "Lo" terminal of the WIPER MOTOR.

With the control in "Delay" the timer operates the switch in the WIPER PULSE MODULE. The timer closes the switch at regular intervals, to start the wiper cycle. When the switch is closed current flows to the LO terminal of the WIPER MOTOR. When the switch opens, the switch in the WIPER MOTOR maintains current to the motor until the wipers reach park.

When the wash switch in the WIPER/WASHER CONTROL is closed, current from the WIPER FUSE energizes the WASHER PUMP and signals the timer. If the control is in "Off" the timer closes the switch in the WIPER PULSE MODULE for several wiper cycles. When the timer releases the switch, the PARK/RUN switch maintains current to the WIPER MOTOR until the wipers reach park.

**DEFOGGER**

**CIRCUIT OPERATION**

Voltage is applied at all times through the PWR ACCY CIRCUIT BREAKER to the relay contacts and timer in the DEFOGGER TIMER-RELAY. With the IGNITION SWITCH in "Run," "Bulb Test," or "Start," a control voltage is applied through the GAGES FUSE to the TIMER in the DEFOGGER TIMER-RELAY and the DEFOGGER CONTROL.

Moving the DEFOGGER CONTROL to "On" turns on the solid state timer. Current flows through the PWR ACC CIRCUIT BREAKER and the timer to G203. This causes the relay contacts to close. Current then flows through the PWR ACC CIRCUIT BREAKER, closed relay contacts and DEFOGGER to ground. This provides current flow to heat the DEFOGGER grid wires. Current through the closed relay contacts also flows through the "On" indicator in the DEFOGGER CONTROL to G203.

After 10 minutes of operation, the timer automatically opens the relay contacts, cutting off current flow to the DEFOGGER and on indicator.

If the DEFOGGER is turned on again, the timer operates the DEFOGGER for only 5 minutes. (The timer will reset to 10 minutes when the IGNITION SWITCH is turned "Off.")

The DEFOGGER can be turned off manually anytime by moving the DEFOGGER CONTROL to "Off" or by turning the IGNITION SWITCH to "Off."

**TROUBLESHOOTING HINTS**

Check DEFOGGER CONTROL. Remove the DEFOGGER CONTROL from behind the Instrument Panel. Leave the wire harness connected. Turn the IGNITION SWITCH to "Run" and check for these voltages:

- 1. ORN/BLK wire ..... 12 volts
- 2. PPL/WHT wire ..... 0 volts

- 3. BLK wire ..... 0 volts
- 4. PNK/BLK wire ..... 12 volts

Move DEFOGGER CONTROL button "On," "On" indicator comes on. Release DEFOGGER CONTROL button. "On" indicator stays on. Check for these voltages at the DEFOGGER CONTROL:

- 1. ORN/BLK wire ..... 12 volts
- 2. PPL/WHT wire ..... 12 volts
- 3. BLK wire ..... 0 volts
- 4. PNK/BLK wire ..... 12 volts
- 5. Middle of DEFOGGER ..... 5-7 volts
- 6. BLK wire at DEFOGGER ..... 10 volts

**BLOWER AND COMPRESSOR CONTROLS AIR CONDITIONING**

**CIRCUIT OPERATION**

**Blower Controls**

With the IGNITION SWITCH in "Run," voltage is applied through the HTR/A/C FUSE to the A/C MODE CONTROL. With the control in any position except "Off," current flows through the HTR A/C FUSE, the A/C MODE CONTROL, and the A/C POWER RELAY to ground. The relay contacts close. Voltage is then available from FUSIBLE LINK A and the closed contacts of the A/C POWER RELAY to the blower switch.

With the BLOWER SWITCH In "Lo," current flows through the relay, the BLOWER SWITCH, all three BLOWER RESISTORS, the PPL wire, and the BLOWER MOTOR to ground.

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

- Check the HTR A/C FUSE.
- Check that G201 is clean and tight.
- Check the motor and fan for mechanical binding.
- Check continuity and connections through the BLOWER RESISTORS.
- Check continuity through BLOWER SWITCH.

### RADIO

#### CIRCUIT OPERATION

With the IGNITION SWITCH in "Accy" or "Run," voltage is applied through the RADIO FUSE to the "On-Off" switch in the RADIO and to the clock display (option). When the switch is turned to "On," current flows through the RADIO FUSE and "On-Off" switch into the solid state radio.

Voltage is applied at all times through the CTSY FUSE to the clock. This powers the clock's time-keeping function. A control voltage from the RADIO FUSE turns the display on. It can also be displayed with ignition "Off" by operating push-button to right of clock. When the LIGHT SWITCH is placed in "Park" or "Head" (see LIGHTS: TAIL/REAR MARKER/LICENSE), a control voltage is applied through the BRN wire, dimming the display.

Also with the LIGHT SWITCH in "Park" or "Head," current flows through the GRY wire and the panel light to ground. The PANEL-INTERIOR LIGHTS CONTROL dimmer controls the brightness of the panel light.

**NOTICE:** Incorrect hook-up or grounding of speaker system will seriously damage the audio output stage of any chosen radio package.

#### TROUBLESHOOTING HINTS

Refer to Chassis Service Manual—Section 9 for diagnosis.

### POWER DOOR LOCKS

#### CIRCUIT OPERATION

Voltage is applied through the CTSY FUSE to the DOOR LOCK SWITCHES at all times. Voltage is also applied at all times through the PWR ACC CIRCUIT BREAKER to the open relay contacts in the DOOR LOCK RELAY ASSEMBLY. When either DOOR LOCK SWITCH is moved to "Lock," current flows through the CTSY FUSE, the DOOR LOCK SWITCH, and the lock relay coil of the DOOR LOCK RELAY ASSEMBLY to ground. The lock relay operates. Current to lock the doors flows from the PWR ACC CIRCUIT BREAKER, through the lock relay contacts, each DOOR LOCK MOTOR, and the unlock relay contacts to ground.

When either DOOR LOCK SWITCH is moved to "Unlock," current to close the unlock relay contacts flows through the unlock relay coil to ground. The unlock relay operates.

Current to unlock the doors flows through the PWR ACC CIRCUIT BREAKER, the unlock relay contacts, each DOOR LOCK

MOTOR, and the lock relay contacts to ground. The motors run in the opposite direction to lock the doors.

#### TROUBLESHOOTING HINTS

**TEST THE CIRCUIT:** Remove the DOOR LOCK RELAY ASSEMBLY from LH shroud. Leave relay connected. Connect clip lead from relay bracket to body metal. Measure voltages at relay.

1. ORN/BLK wire ..... 12 volts
2. TAN wires ..... 0 volts
3. GRY wires ..... 0 volts
4. LT BLU wires ..... 0 volts
5. BLK wires ..... 0 volts
6. Case of relay ..... 0 volts

Hold the RH FRONT DOOR LOCK SWITCH in "Lock." Measure voltages at relay.

1. ORN/BLK wire ..... 12 volts
2. TAN wires ..... 0 volts
3. GRY wires ..... 12 volts
4. LT BLU wire ..... 12 volts
5. BLK wires ..... 0 volts
6. Case of relay ..... 0 volts

Hold the RH FRONT DOOR LOCK SWITCH in "Unlock." Measure voltages at relay.

1. ORN/BLK wire ..... 12 volts
2. TAN wires ..... 12 volts
3. GRY wires ..... 0 volts
4. LT BLU wires ..... 0 volts
5. BLK wires ..... 12 volts

## CIRCUIT OPERATIONS AND TROUBLESHOOTING HINTS

Operate LH OUTSIDE MIRROR. Check for these voltages:

	"UP"	"DOWN"
ORN wire .....	12 volts	12 volts
BLK wire .....	0 volts	0 volts
YEL wire .....	12 volts	0 volts
LT GRN/BLK wire .	0 volts	12 volts
WHT/BLK wire ....	0 volts	0 volts
LT BLU wire .....	0 volts	0 volts
	"LEFT"	"RIGHT"
ORN wire .....	12 volts	12 volts
BLK wire .....	0 volts	0 volts
YEL wire .....	0 volts	0 volts
LT GRN/BLK wire .	0 volts	0 volts
WHT/BLK wire ....	12 volts	0 volts
LT BLU wire .....	0 volts	12 volt

### CRUISE CONTROL

#### CIRCUIT OPERATION

With the IGNITION SWITCH in "Accy" or "Run," voltage is applied through the RADIO FUSE to the MULTI-FUNCTION LEVER where the cruise switch is located. To operate the Cruise Control System vehicle speed must be above 25 mph and the cruise switch set to the "On" position. Current flows from the cruise switch to the BRAKE SWITCH and to terminal D of the CRUISE CONTROL MODULE as the Cruise On Input signal.

The BUFFER AMPLIFIER receives a low-voltage, pulsed signal from the VEHICLE SPEED SENSOR. This signal represents car speed. After the amplifier modifies

the pulses they are sent to the CRUISE CONTROL MODULE as the Vehicle Speed Input signal.

To engage the Cruise Control System, the set switch is pushed in all the way and released. Current flows from the set switch to terminal M of the CRUISE CONTROL MODULE as the Set/Coast Input signal.

After receiving the Set/Coast Input signal, the CRUISE CONTROL MODULE operates the CRUISE CONTROL SERVO to maintain the selected speed. The CRUISE CONTROL MODULE controls the vacuum valve and the vent valve with voltage pulses. The longer the pulse, the greater is the amount of vacuum applied to the servo. When the vacuum valve is closed, no vacuum is applied to the servo. Vacuum also cannot be applied to the servo unless the vent valve is closed. Otherwise, vacuum is vented to the atmosphere.

The servo position sensor senses servo movement. The CRUISE CONTROL MODULE monitors servo movement by listening to signals sent to terminals E and J from the servo position sensor. By controlling the vacuum and vent valves, the CRUISE CONTROL MODULE maintains smooth acceleration by avoiding sudden throttle changes.

Once the speed has been set, depressing the gas pedal will increase car speed. Releasing the gas pedal lets the car coast back down to the set speed. The Cruise Control set speed does not change by speeding up unless the set button is depressed. If the

driver depresses the set button and releases the gas pedal at the same time, the throttle returns to an idle position and the car's speed decreases. The car will now cruise at a new set speed when the button is released.

## COMPONENT LOCATIONS

### COMPONENTS

A/C Compressor Clutch Diode	Taped inside compressor connector	511-1
A/C Compressor Clutch	RH front of engine	511-1
A/C Compressor Control Relay	On rear bulkhead, left of center	513-3
A/C Cutoff Switch	Engine compartment, LH end of A/C compressor	511-1
A/C High Pressure Switch	Engine compartment, LH end of A/C compressor	511-1
A/C Power Relay	Front compartment, on RH side of heater/A/C plenum	509-3
Actuator Relay	Front compartment, next to each headlamp	508-3
Actuator	Front compartment, behind each headlamp	508-3
ALCL Connector	In console, near lighter	506-1
Back Up Switch	At base of shifter, to LH side	506-2
Blower Motor	Center of front bulkhead	510-1
Blower Resistors	Lower RH side of heater A/C plenum	510-1
Brake Pressure Switch	Front compartment, to left of brake master cylinder	509-2
Brake Switch	Top of brake pedal support	502-1
Clutch Start Switch	Upper portion of clutch pedal	503-4
Convenience Center	Behind RH side of dash, near RH cowl	504-2
Coolant Fan Relay	LH front corner of front compartment	508-2
Coolant Temperature Sender	LH top front of engine	511-1
Coolant Temperature Sensor	LH top of engine	512-5
Coolant Temperature Switch	Front of engine, LH side of cylinder head	511-1
Cruise Brake Switch	On brake pedal support	502-1
Cruise Clutch Switch	On clutch pedal support	502-1
Cruise Control Servo	Engine compartment, near LH shock tower	513-1
Defogger Timer Relay	On brake pedal support	505-1
Door Lock Motors	In rear of door	507-5
Door Lock Relay Assembly	Near upper RH shroud	515-1
Door Lock Switches	In each door, near top front	507-5
Electronic Control Module	Between seats, on rear bulkhead	506-1
Fuel Injector	Top of engine	513-4
Fuel Pump Relay	On rear bulkhead, left of center	513-3
Fuel Tank Unit	Top of fuel tank	
Fuse Block	Behind LH side of I/P	503-5
Fusible Link A	Lower LH front of engine, near starter	511-1
Fusible Link B	Lower LH front of engine, near starter	511-1
Fusible Link C	In front lights harness, to right of brake master cylinder	510-4
Fusible Link D	In front lights harness, to right of brake master cylinder	510-4

## COMPONENT LOCATIONS

Turn/Hazard Switch.....	At top of steering column.....	502-3
Underhood light.....	On front bulkhead.....	509-3
Vacuum Release Solenoid.....	Engine compartment, on LH shock tower.....	513-1
Washer Pump.....	LH side of washer fluid reservoir.....	510-2
Window Motors.....	In front lower corner of each door.....	507-5
Wiper Motor.....	On center of front bulkhead.....	507-1
Wiper Pulse Module.....	On outside of RH steering column bracket.....	507-2

## CONNECTORS

C100 (34 cavities).....	LH side of front bulkhead, right of brake master cylinder.....	510-4
C101 (1 cavity).....	Near RH side of LH headlamp assembly.....	508-3
C102 (1 cavity).....	Near LH side of RH headlamp assembly.....	508-3
C200 (16 cavities).....	LH shroud ahead of center access hole.....	503-5
C201 (6 cavities).....	LH shroud above center access hole.....	515-1
C203 (15 cavities).....	Between seats, in front of rear bulkhead.....	506-1
C204 (18 cavities).....	LH lower edge of cluster.....	504-3
C205 (12 cavities).....	Behind LH side of cluster.....	504-1
C206 (18 cavities).....	Behind RH side of cluster.....	504-1
C207 (7 cavities).....	Behind dash, near windshield wiper switch.....	507-2
C208 (2 cavities).....	Center of dash, behind radio.....	507-3
C209 (2 cavities).....	Behind LH side of I/P, near shroud.....	505-3
C210 (11 cavities).....	Lower RH side of steering column.....	503-2
C235 (4 cavities).....	Middle of steering column, LH side.....	502-2
C302 (1 cavity).....	Near LH side of rear window.....	514-1
C303 (4 cavities).....	LH shroud, near center access hole.....	516-1
C304 (4 cavities).....	RH shroud, near center access hole.....	516-1
C305 (3 cavities).....	Behind dash, near LH shroud.....	515-1
C306 (3 cavities).....	Behind dash, near RH shroud.....	515-1
C307 (8 cavities).....	Near center of LH shroud.....	507-5
C308 (8 cavities).....	Near center of RH shroud.....	507-5
C309 (2 cavities).....	Behind LH seat.....	514-1
C310 (1 cavity).....	In LH door, below mirror.....	507-6
C311 (1 cavity).....	In RH door, below mirror.....	507-6
C312 (4 cavities).....	Under driver's seat.....	510-5
C313 (4 cavities).....	Under passenger's seat.....	510-5
C401 (2 cavities).....	Taped to rear lights harness, to right of license plate lamps.....	517-1
C402 (1 cavity).....	LH front corner of trunk lid.....	511-3

## COMPONENT LOCATIONS

S207	Main harness, left of steering column	503-3
S208	Main harness, right of steering column	503-3
S209	Main harness, right of steering column	503-3
S210	Main harness, behind RH side of cluster	503-3
S211	Main harness, behind RH side of cluster	503-3
S212	Main harness, behind center of dash	503-3
S213	Main harness, behind shift lever	506-3
S301	Cross car harness, between seats	515-1
S302	Cross car harness, between seats	515-1
S303	Cross car harness, above steering column	515-1
S304	Cross car harness, above steering column	515-1
S305	Electric mirror cross car harness, right of steering column	516-1
S306	Electric mirror cross car harness, right of steering column	516-1
S307	Seat speaker harness, near rear bulkhead	510-5
S308	Seat speaker harness, near rear bulkhead	510-5
S309	Seat speaker harness, near rear bulkhead	510-5
S310	Seat speaker harness, near rear bulkhead	510-5
S401	Rear lights harness, LH side of back panel	517-1
S402	Rear lights harness, LH side of back panel	517-1
S403	Rear lights harness, RH side of back panel	517-1
S404	Rear lights harness, RH side of back panel	517-1
S501	Engine harness, under intake manifold	512-1
S502	Engine harness, LH end of engine	511-1
S504	TBI harness, in front of rear bulkhead	506-1
S505	TBI harness, in front of rear bulkhead	506-1
S506	TBI harness, in front of rear bulkhead	506-1
S507	TBI harness, in front of rear bulkhead	506-1
S508	TBI harness, in front of rear bulkhead	506-1
S509	TBI harness, in front of rear bulkhead	506-1
S510	TBI harness, in front of rear bulkhead	506-1
S511	TBI harness, rear of engine	513-2
S512	TBI harness, in front of rear bulkhead	506-1

**FIGURES**

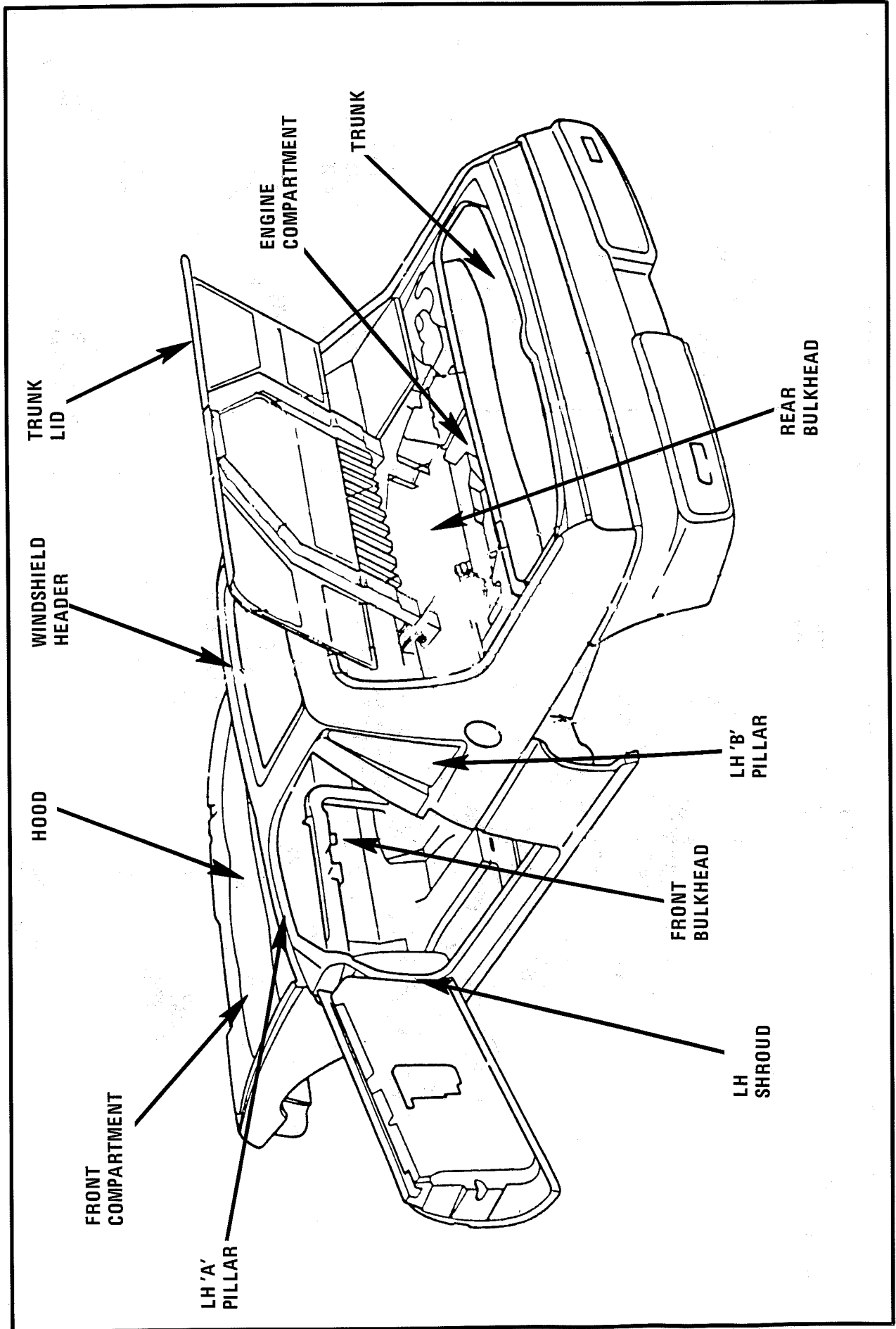


Figure 1 - Body Component Locations

FIGURES

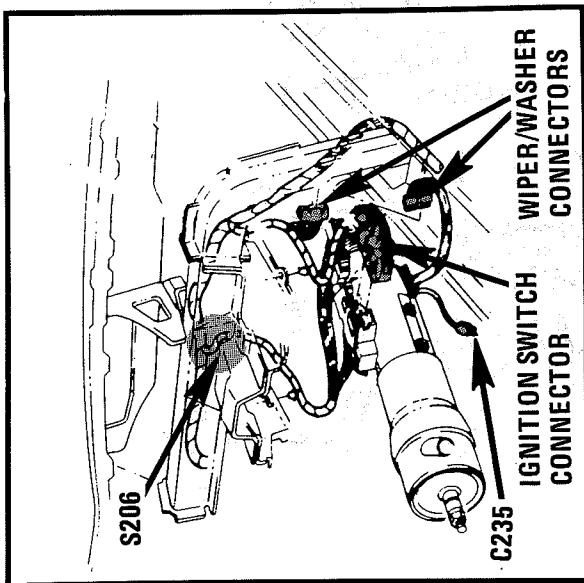


Figure 1 - LH Side Of Steering Column

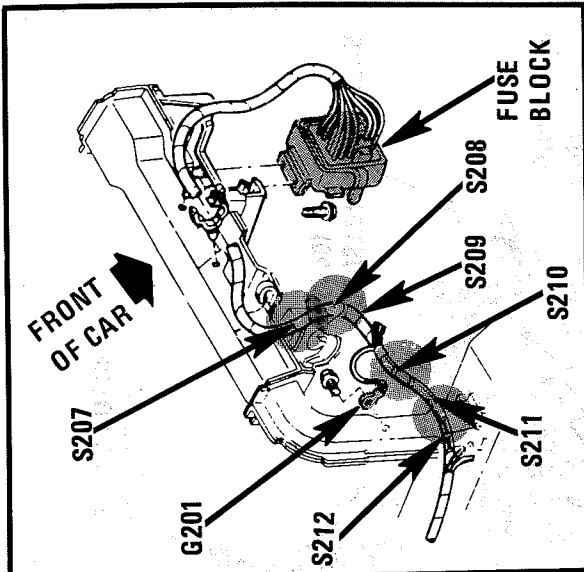


Figure 3 - Behind Cluster

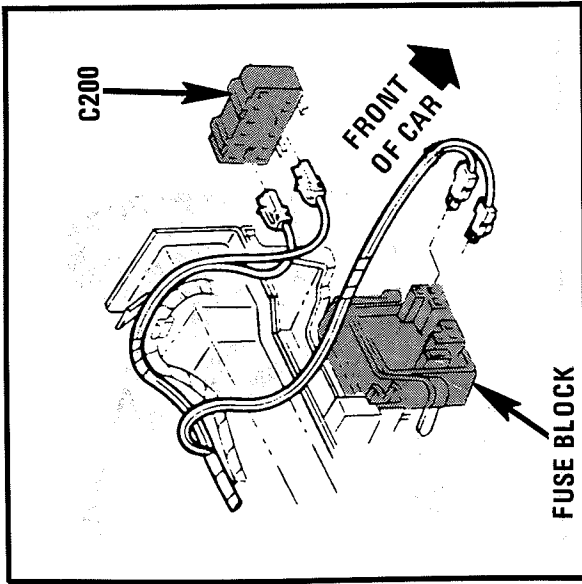


Figure 5 - Behind LH Side Of I/P

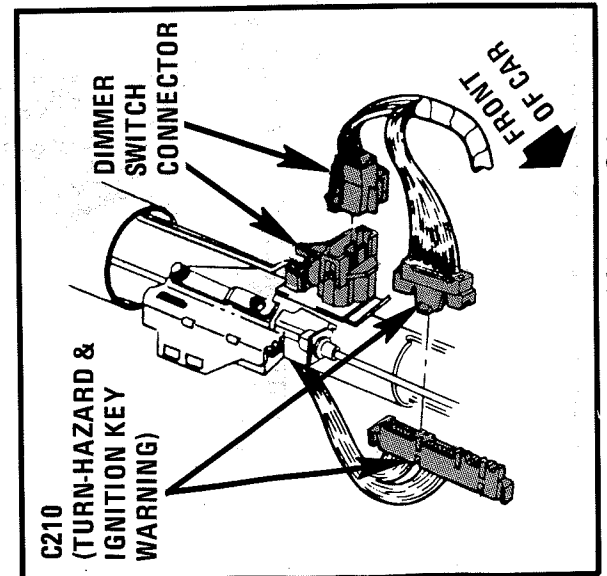


Figure 2 - Center Of Steering Column

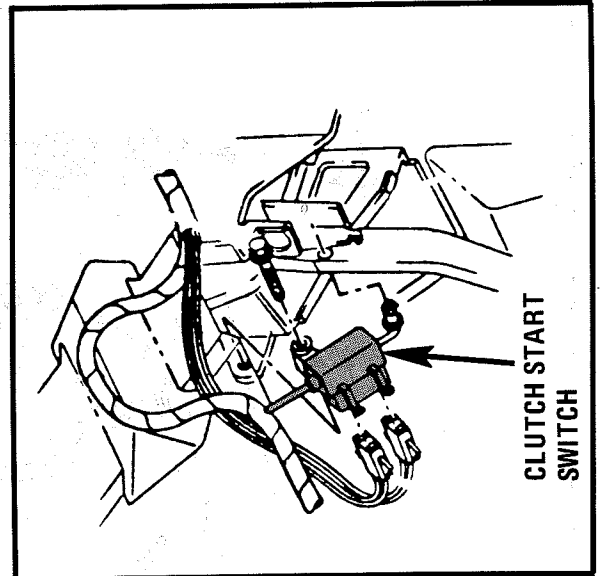


Figure 4 - Above Clutch Pedal

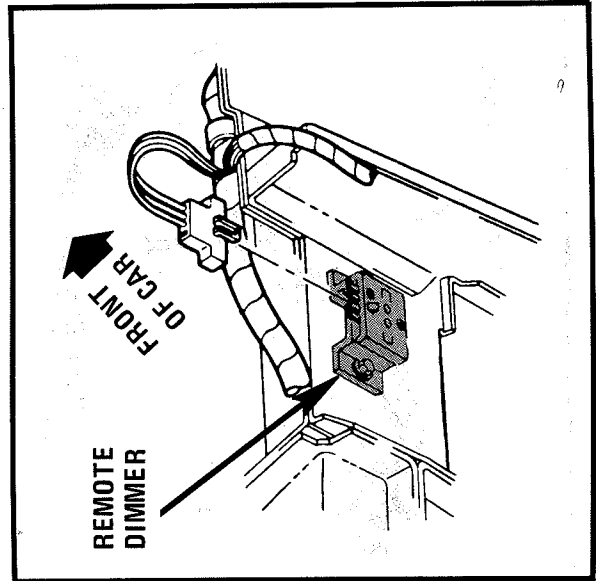


Figure 6 - Below Center Of I/P



FIGURES

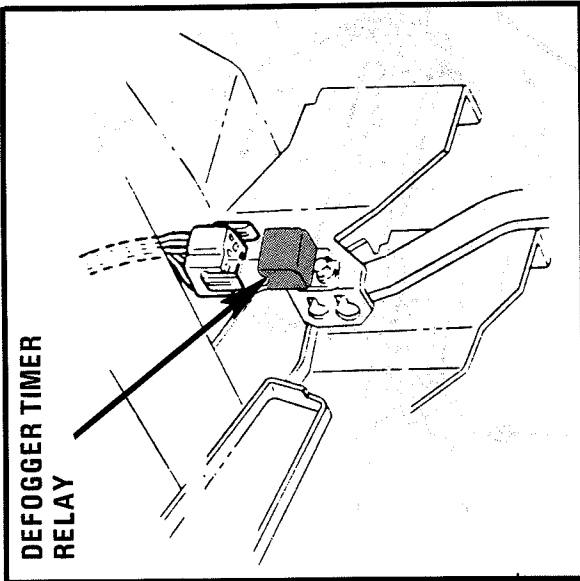


Figure 1 - Above Brake Pedal

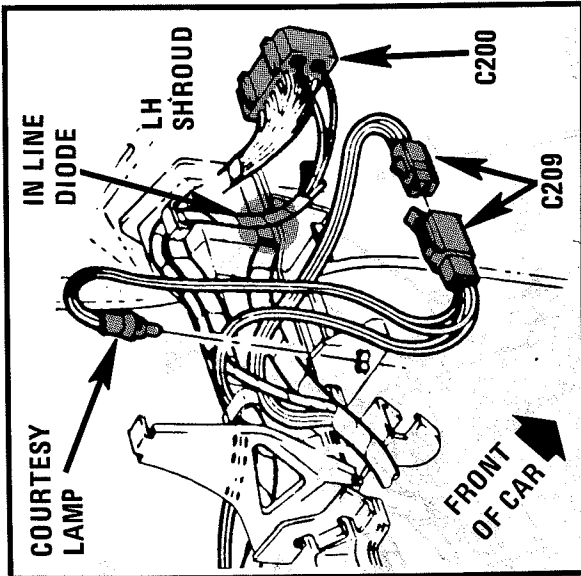


Figure 3 - Behind LH Side Of I/P

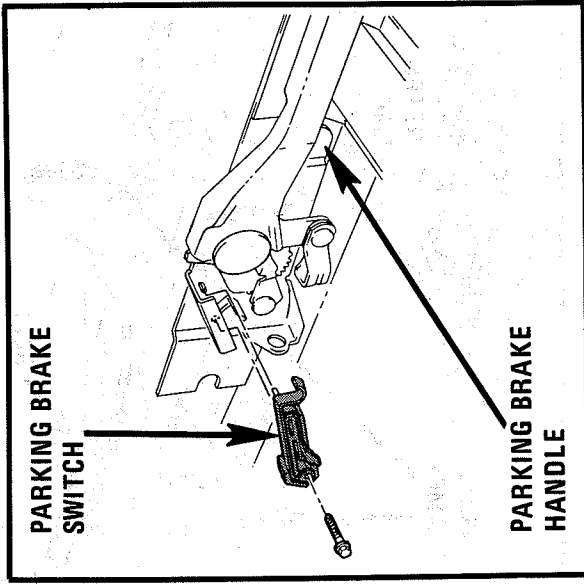


Figure 5 - LH Door Sill

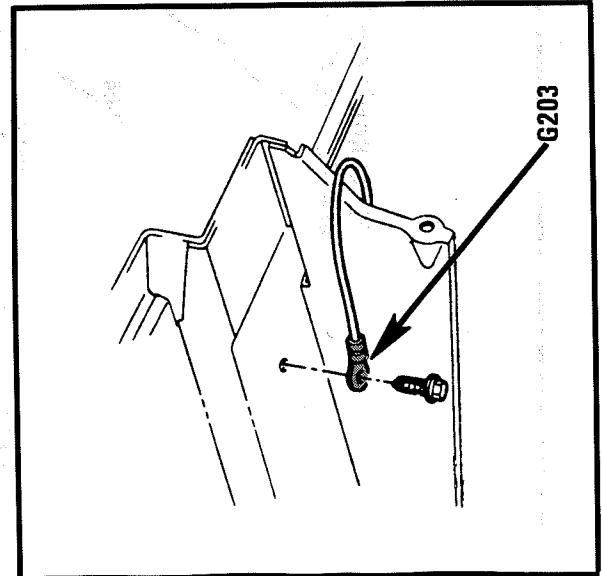


Figure 2 - Right Of Steering Column

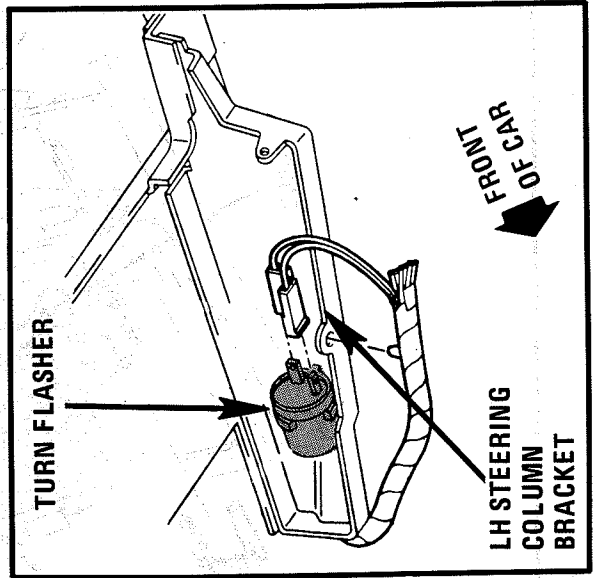


Figure 4 - Left Of Steering Column

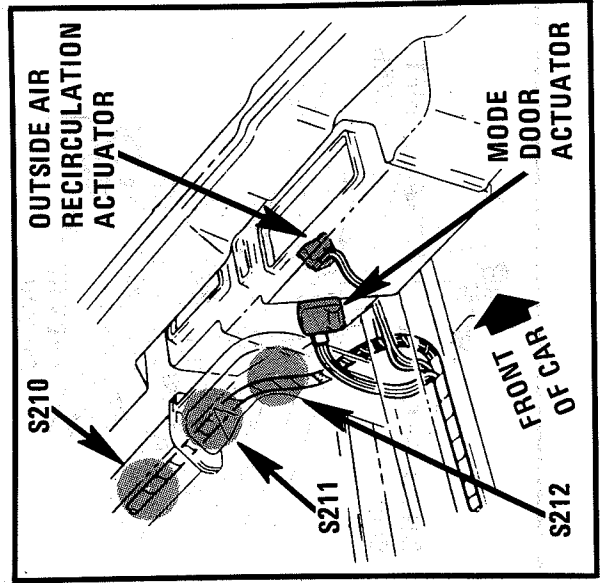


Figure 6 - Behind Center Of I/P

FIGURES

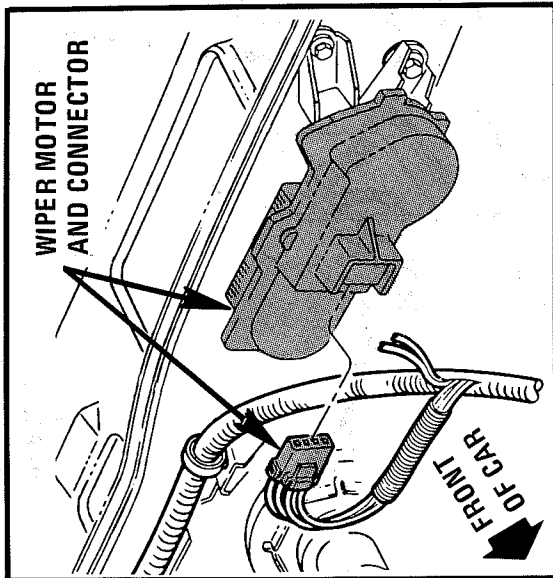


Figure 1 - Center Of Front Bulkhead

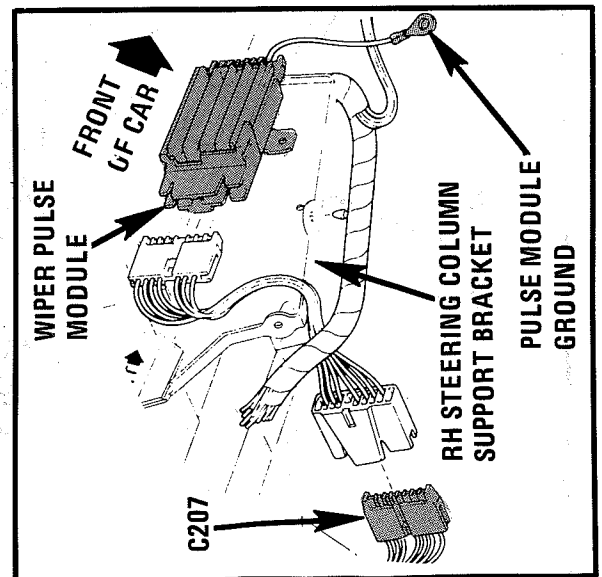


Figure 2 - Right Of Steering Column

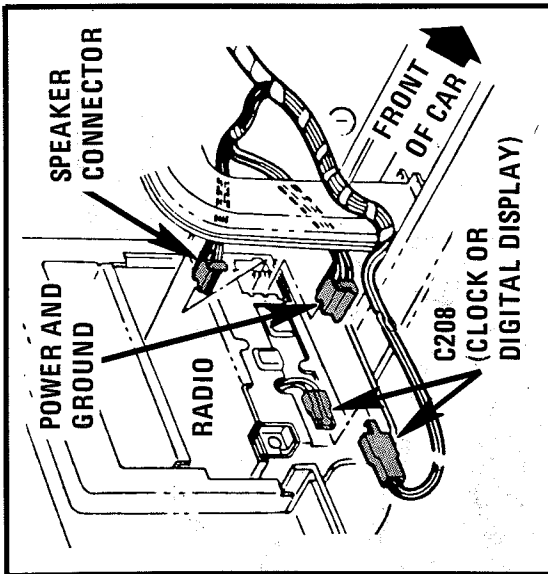


Figure 3 - Behind Radio

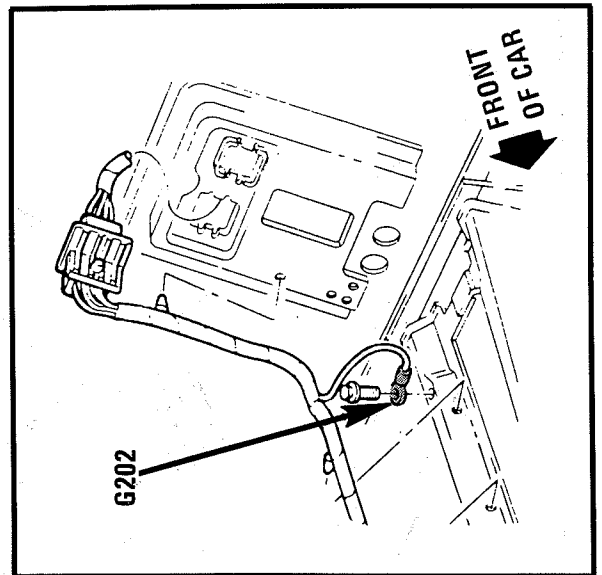


Figure 4 - Center Of Rear Bulkhead

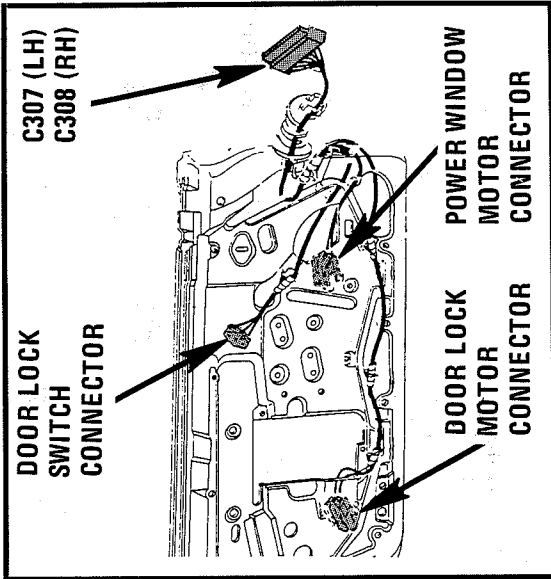


Figure 5 - LH Door

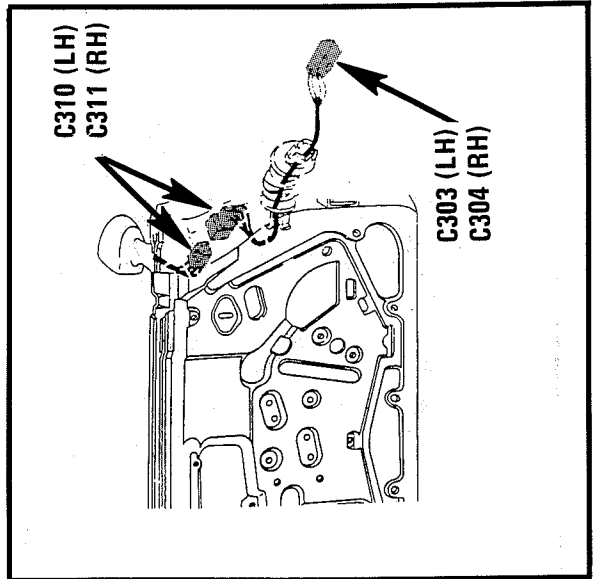


Figure 6 - Front Of LH Door

FIGURES

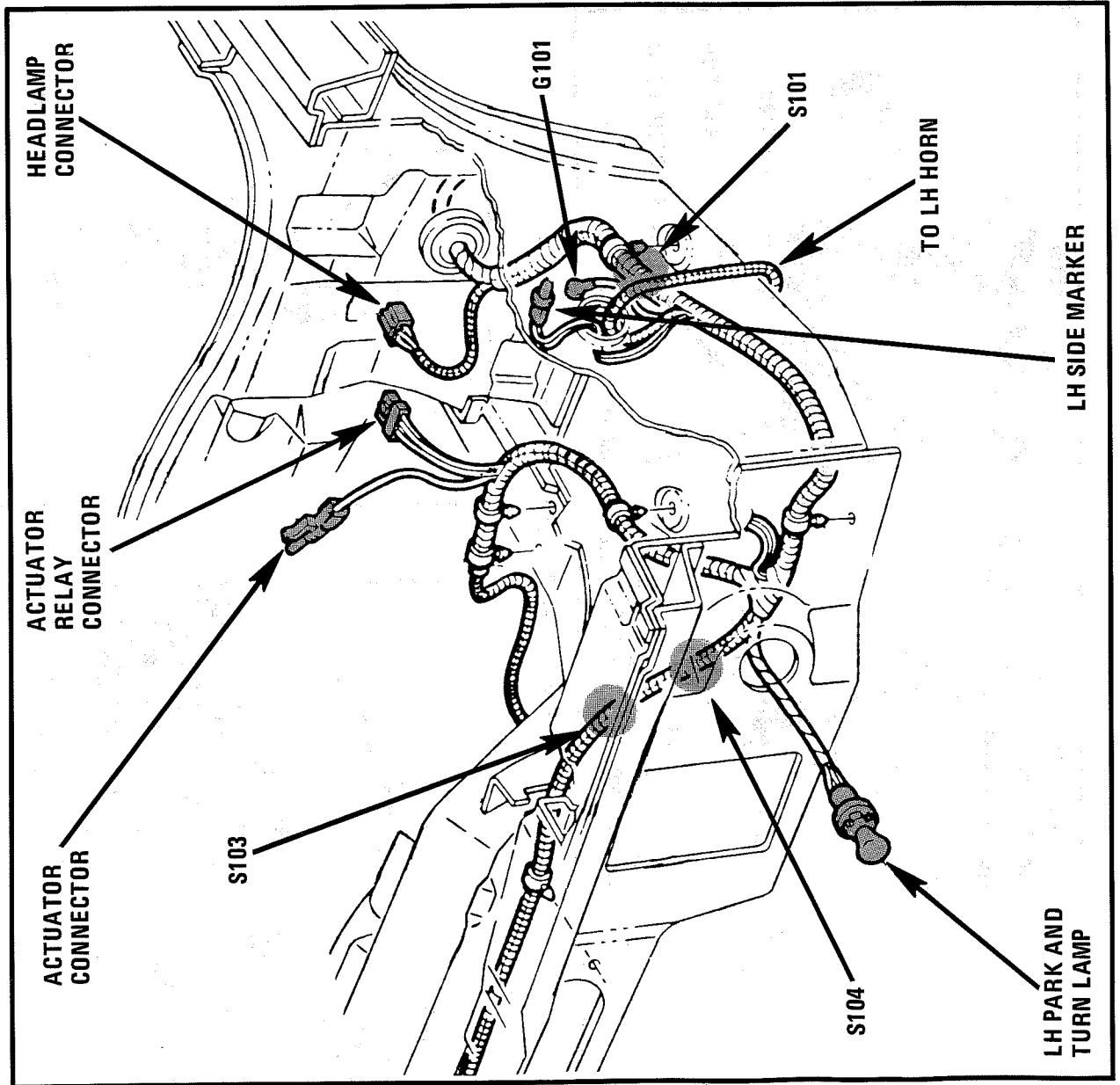


Figure 1 - LH Front Corner Of Front Compartment

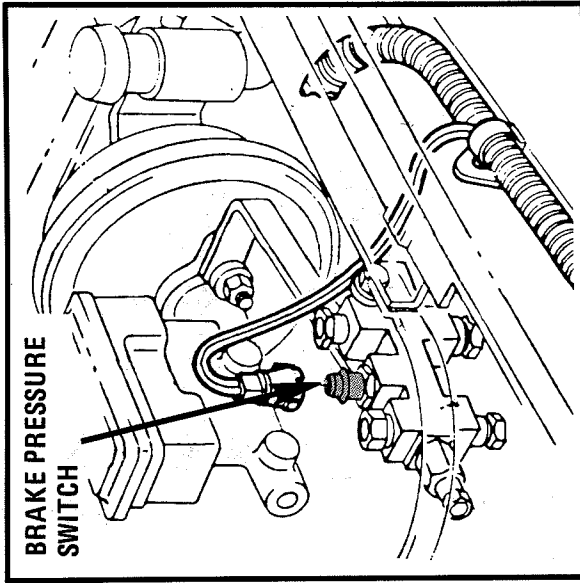


Figure 2 - LH Rear Corner Of Front Compartment

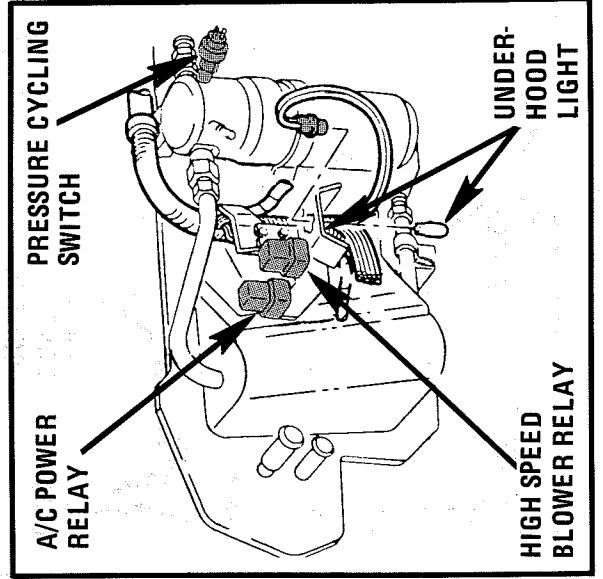


Figure 3 - RH Side Of Front Bulkhead

**FIGURES**

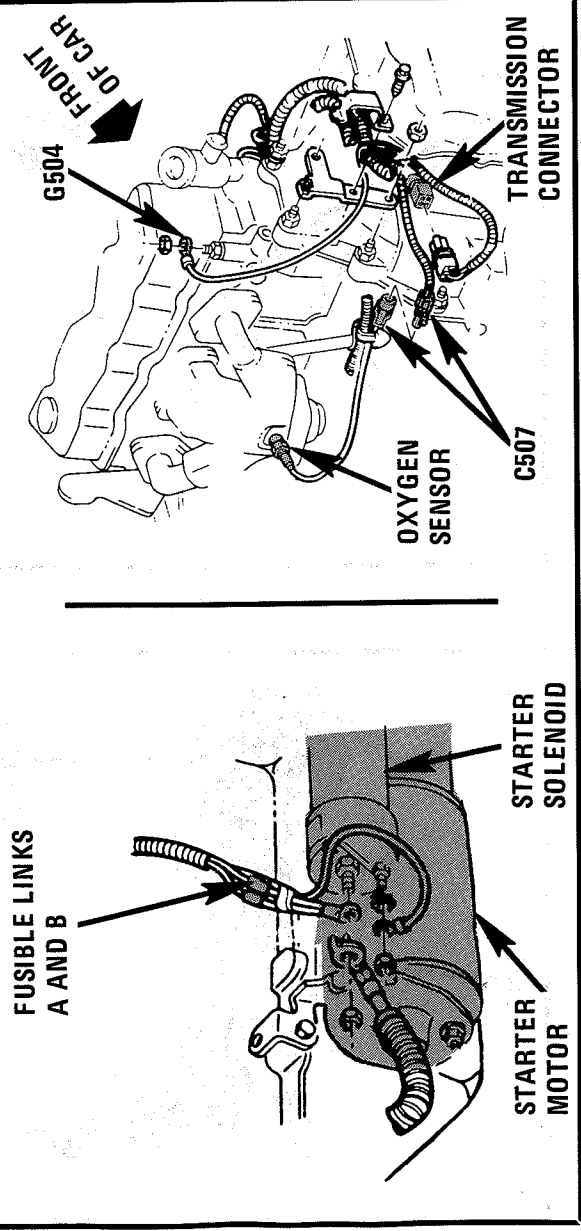
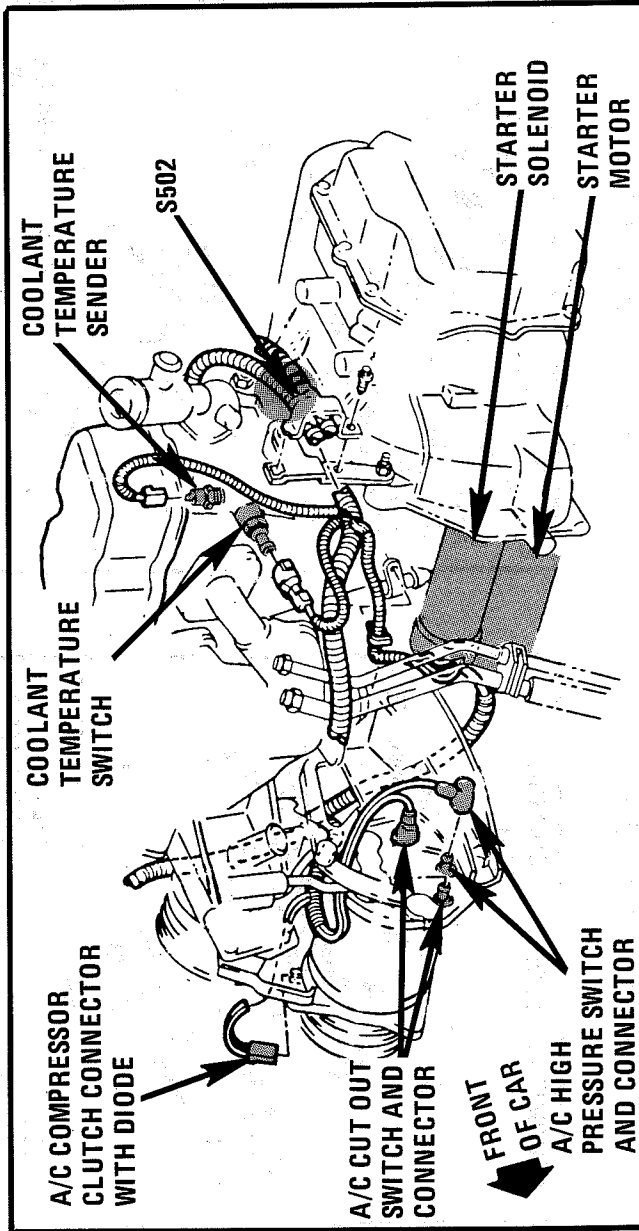


Figure 1 - Front Of Engine

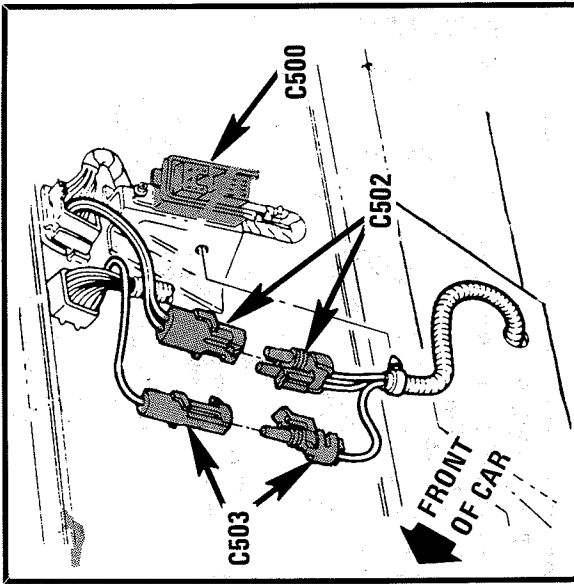


Figure 2 - Center Of Rear Bulkhead

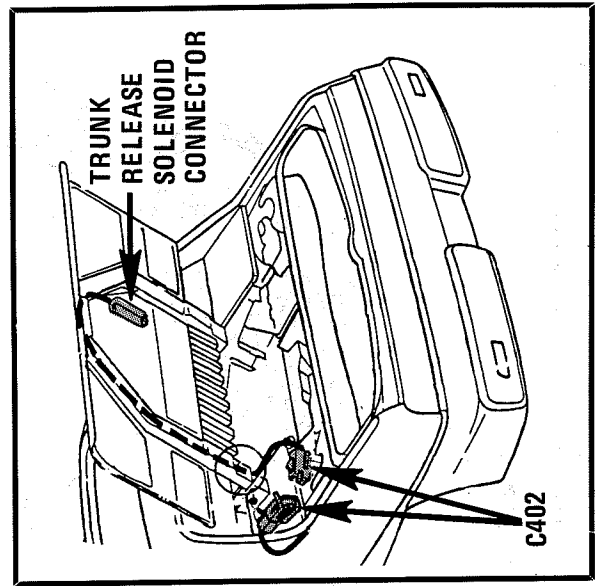


Figure 3 - Rear Of Car

FIGURES

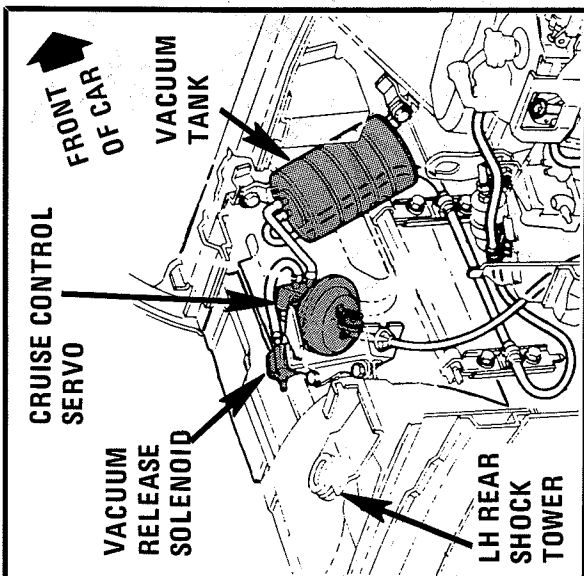


Figure 1 - LH Side Of Engine Compartment

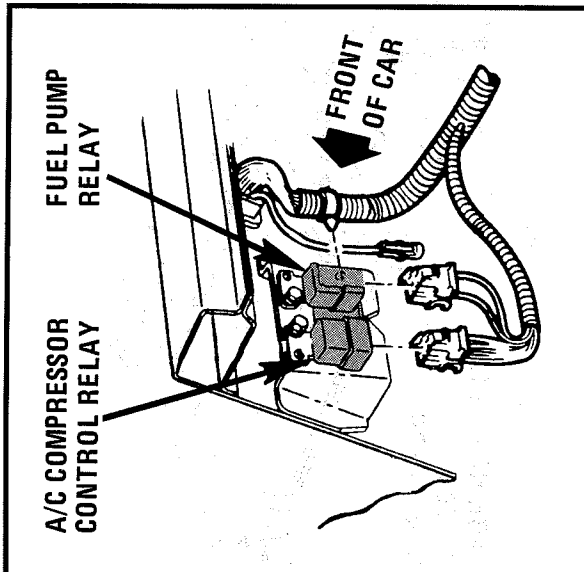


Figure 3 - Center Of Rear Bulkhead

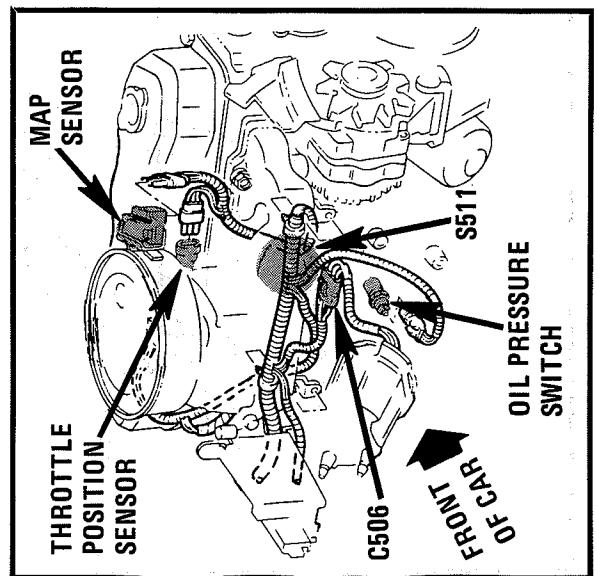
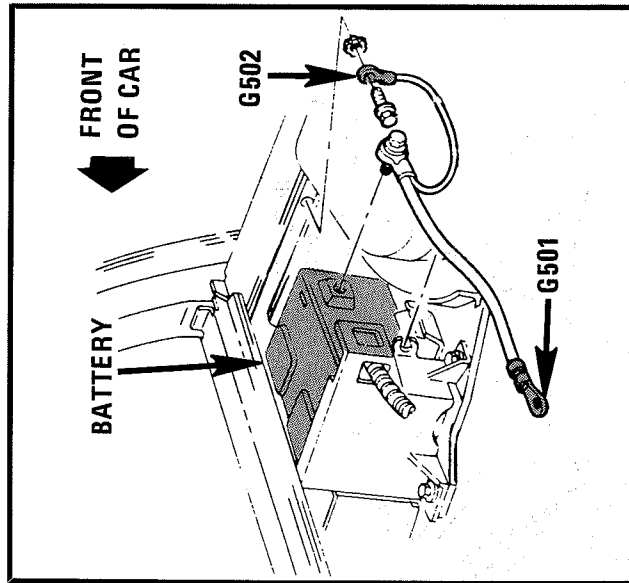


Figure 2 - Rear Of Engine

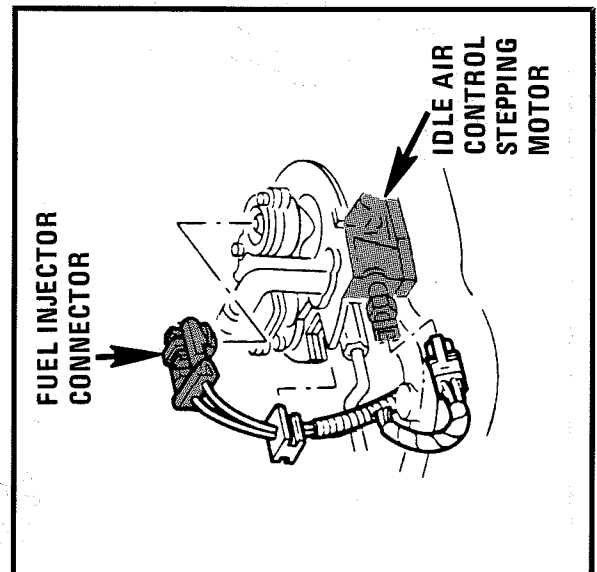


Figure 4 - Rear Of Throttle Body

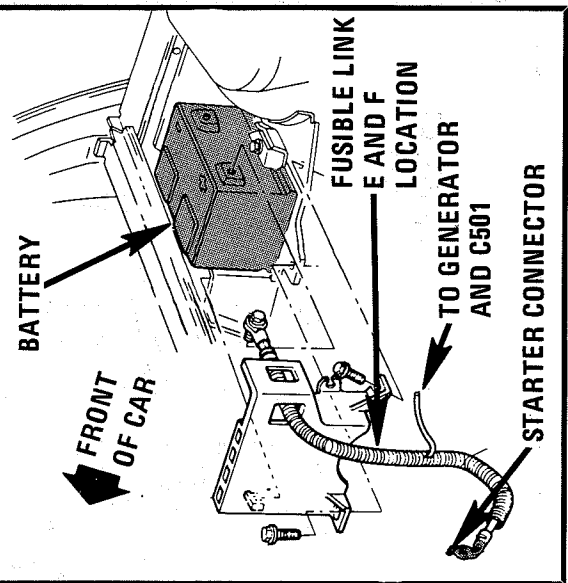


Figure 5 - RH Front Corner Of Engine Compartment

FIGURES

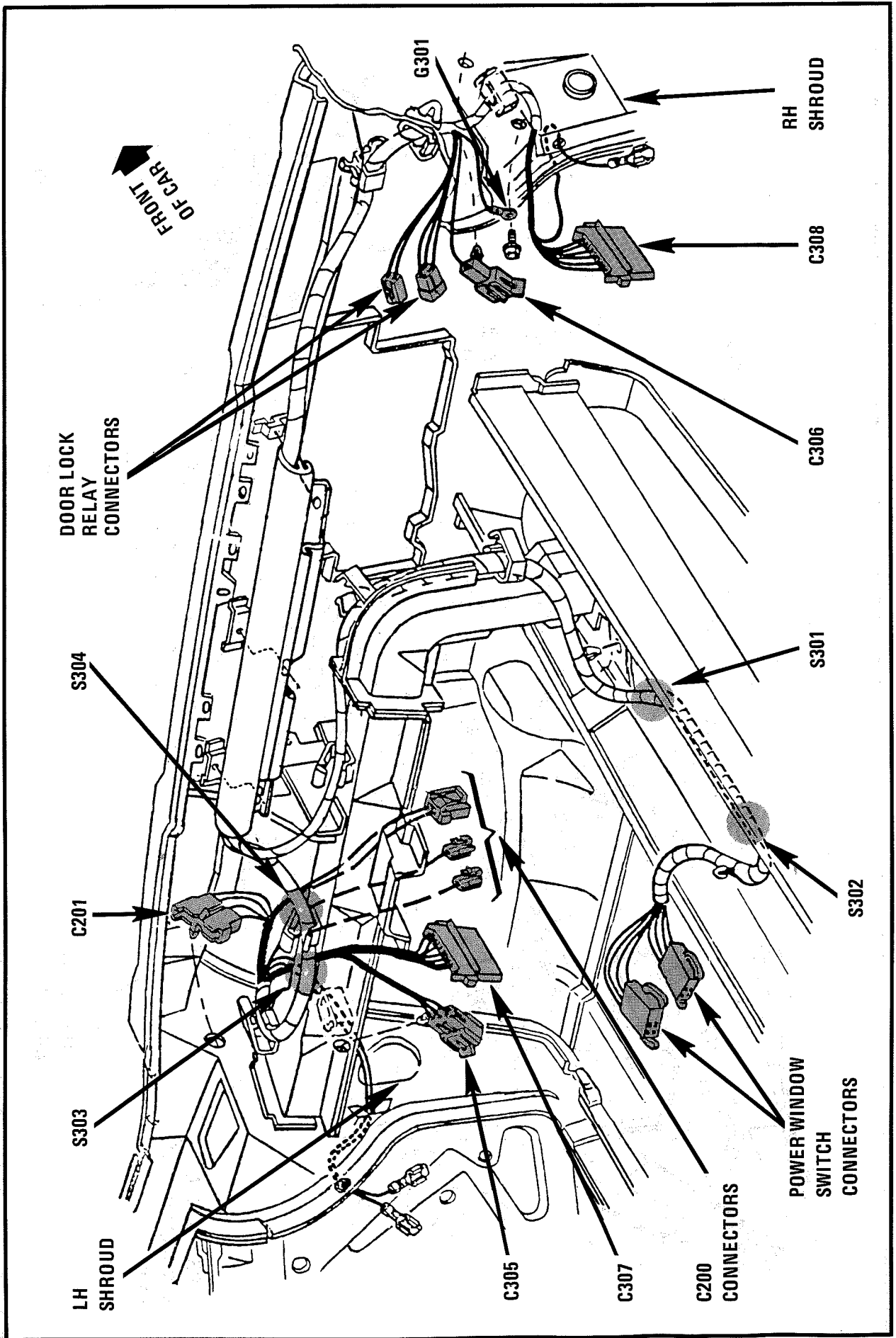


Figure 1 - Behind I/P, Power Windows And Power Door Locks Harness

FIGURES

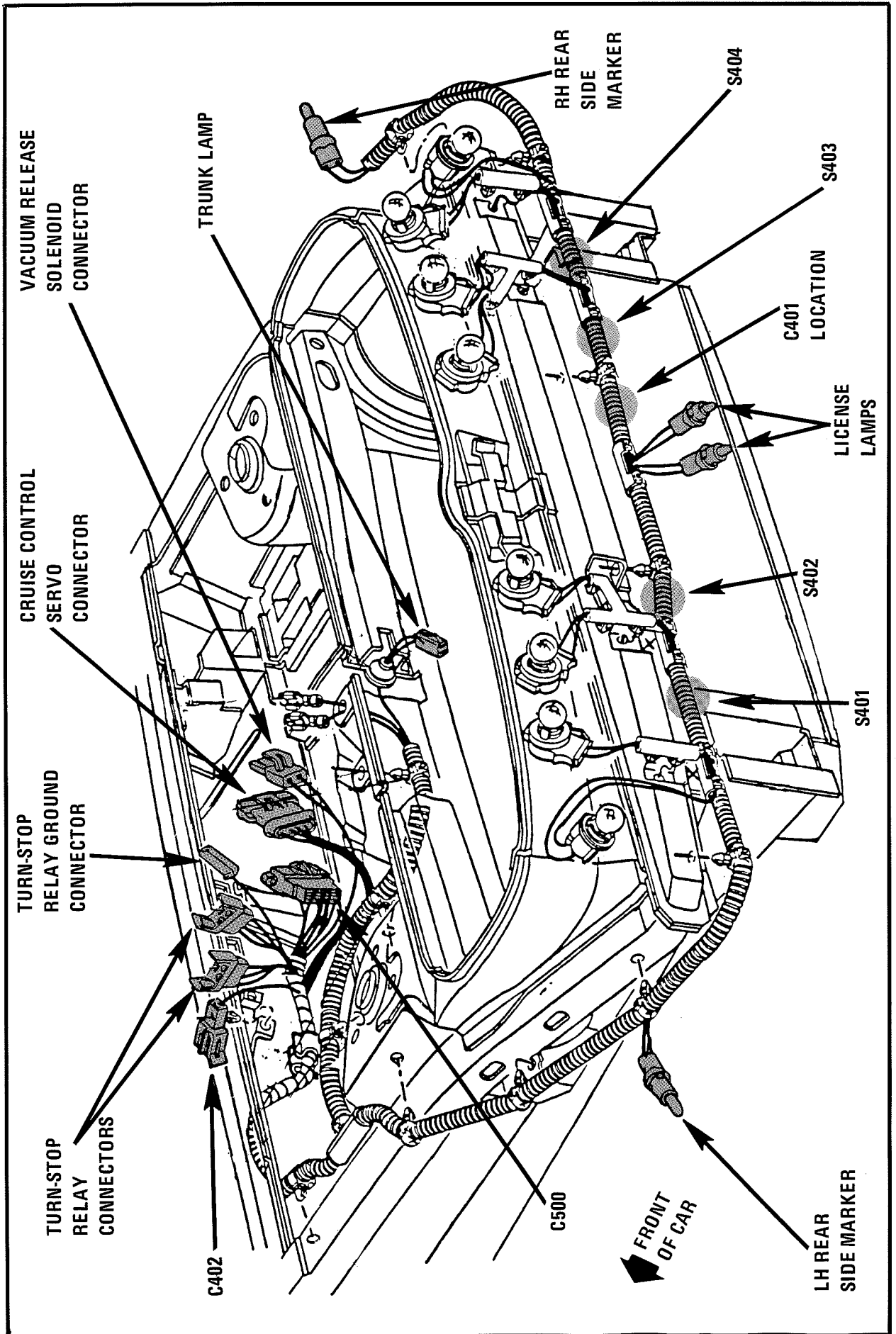


Figure 1 - Rear Of Car

