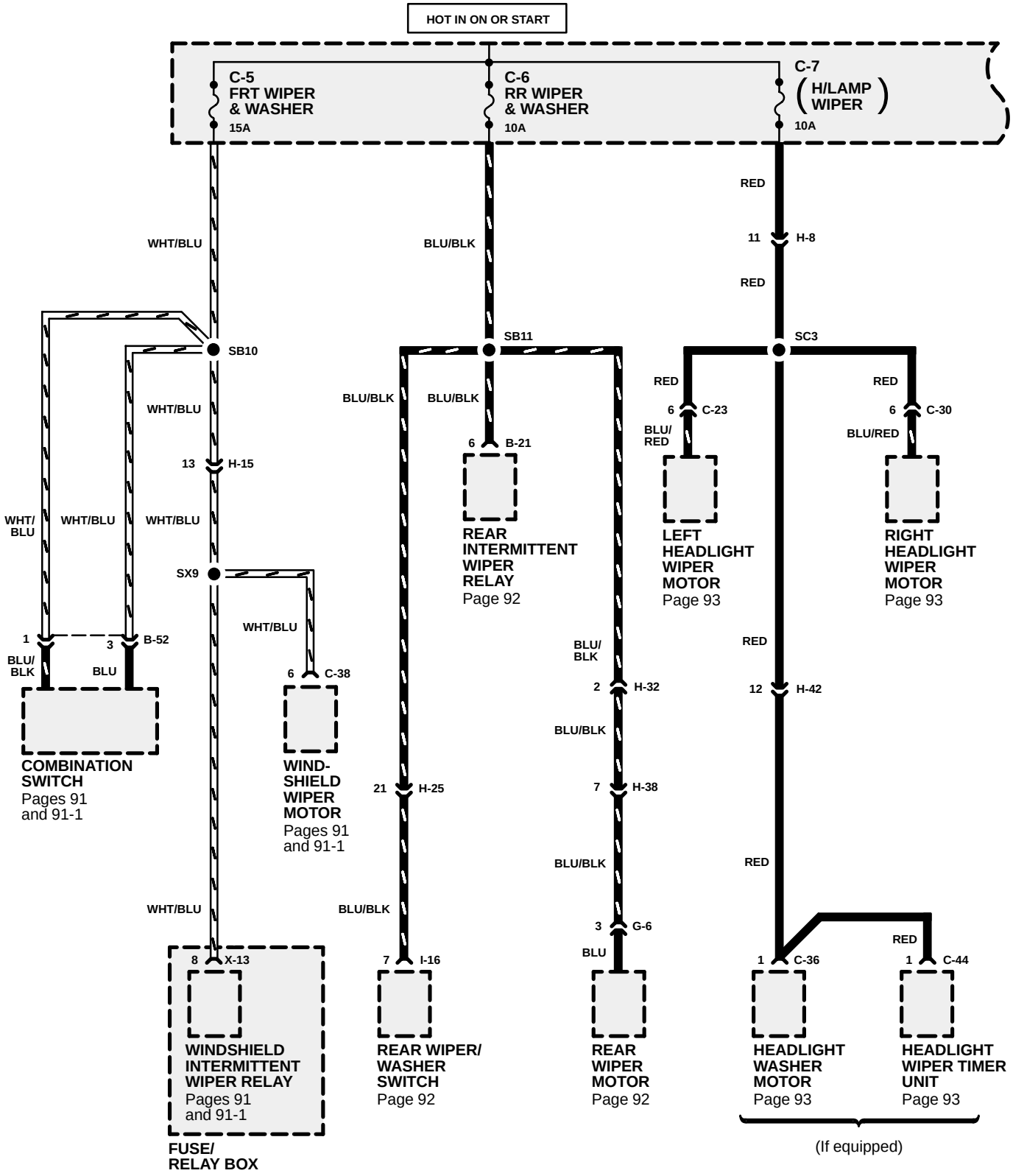
Close

1996 - 1997 Trooper Master Index

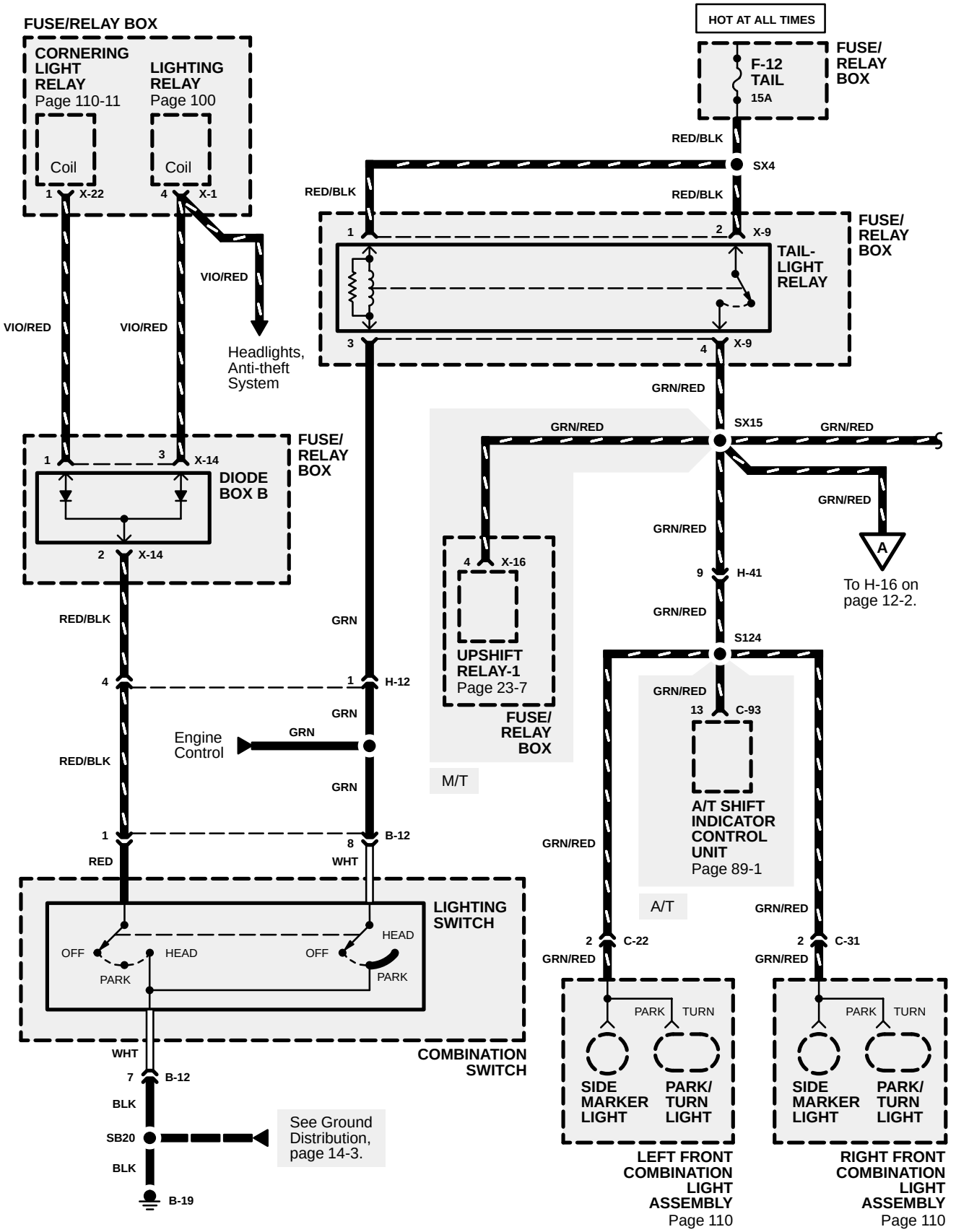
DASH FUSE BOX

Circuit Schematic



LIGHTING SWITCH DETAILS

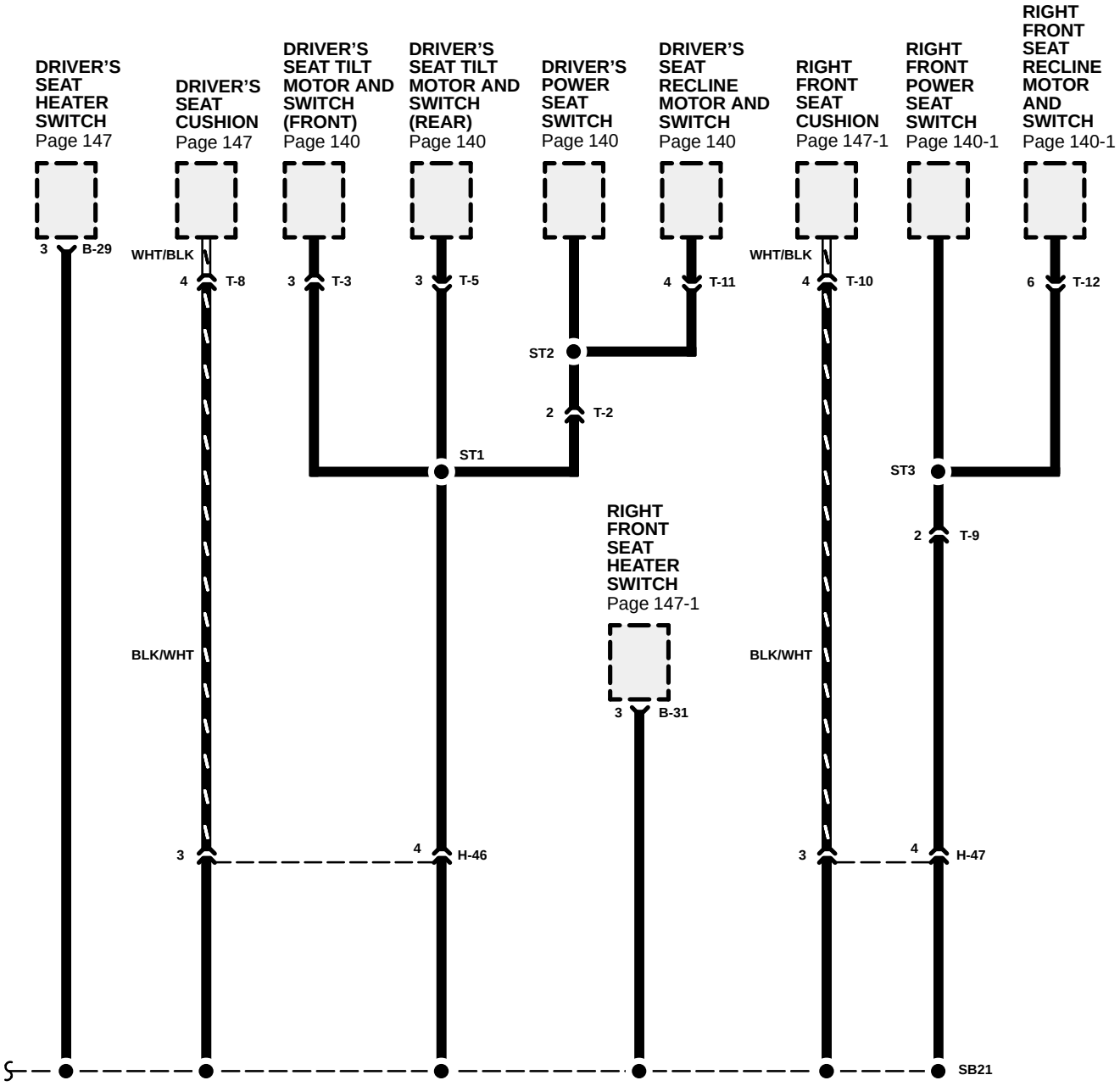
Circuit Schematic



GROUND DISTRIBUTION: B-26

Circuit Schematic

NOTE: Wires shown without color codes are black.



GROUND DISTRIBUTION

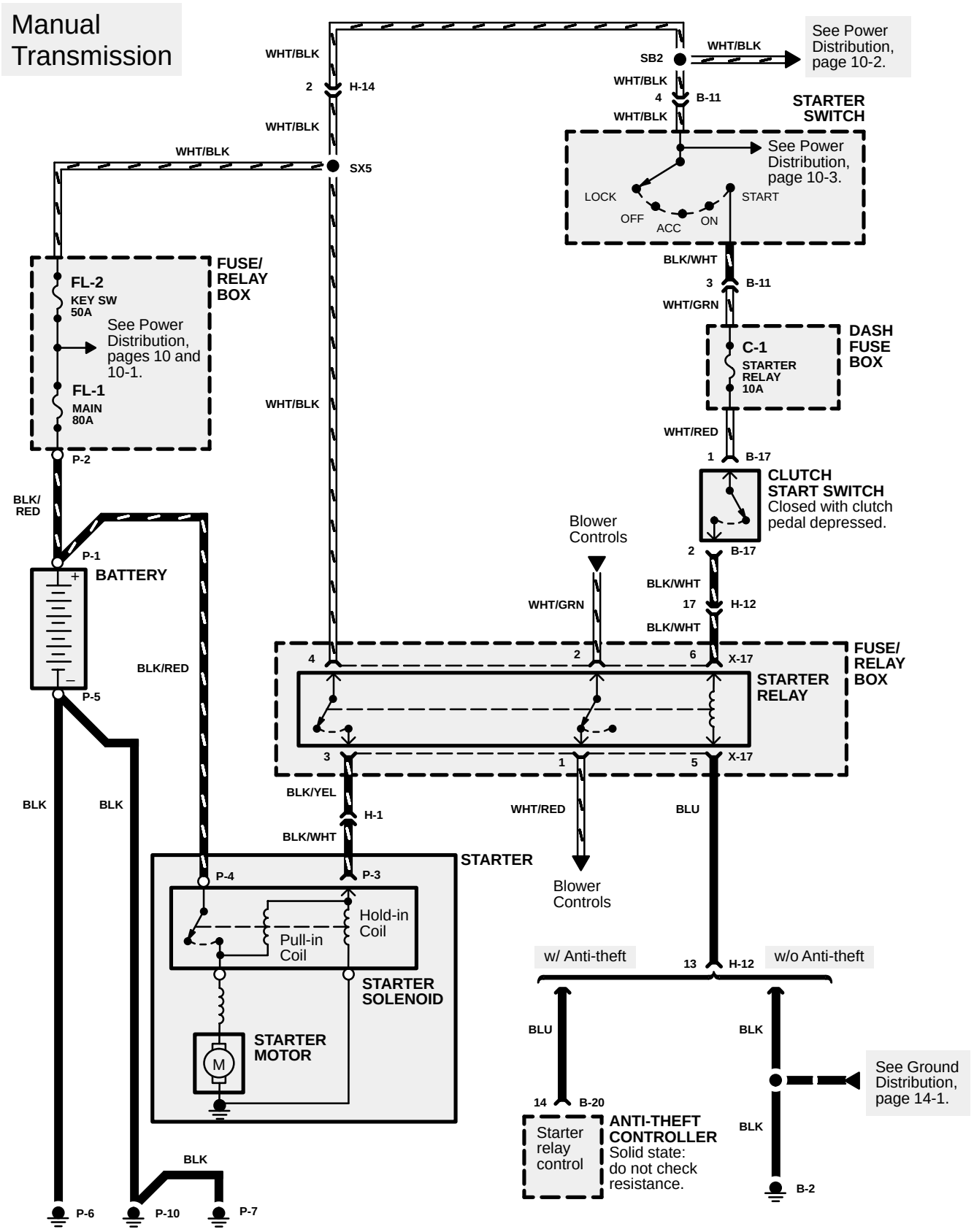
Component Location Index

(Refer to Section 201 for photographs.)

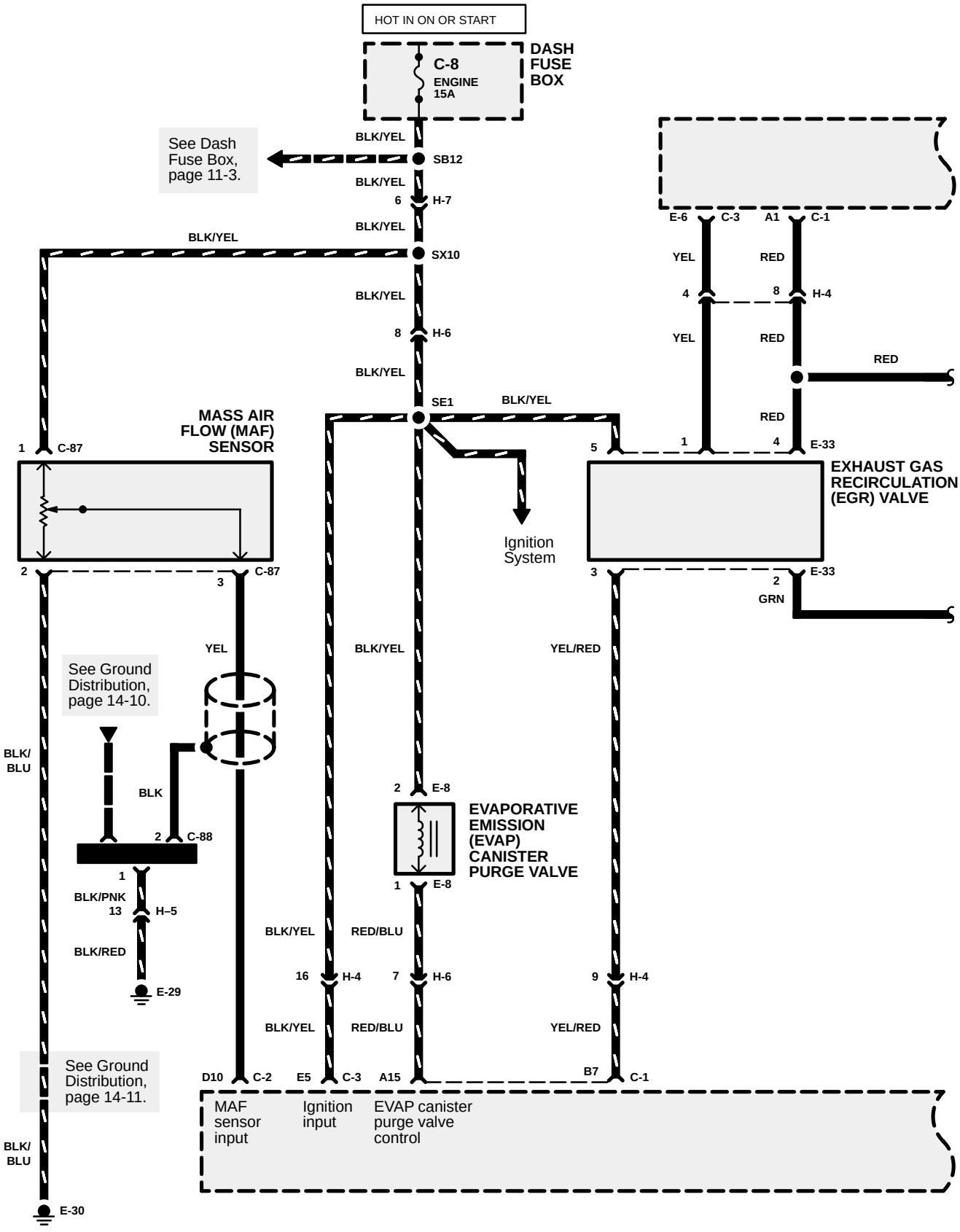
Component		Photo No.
Ignition Control Module (ICM)	Top center of engine	15
Kickdown Switch	Below I/P, on accelerator pedal bracket	59
Knock Sensor (KS)	Top of engine, below intake manifold	114
Left Front Door Key Detect And Tamper Switch	Inside left front door, part of outside handle assembly	79
Left Front Door Lock Actuator/Switch	Inside rear of left front door, behind trim pad	80
Left Front Door Lock Key Switch	Inside left front door, part of door lock assembly	80
Left Headlight Wiper Motor	Behind left headlight assembly	120
Left Rear Door Lock Actuator/Switch	Inside of left rear door, behind trim pad	84
Limit Switch	Right rear underside of roof	
Mass Air Flow (MAF) Sensor	Left front corner of engine compartment	13
No. 1 Ignition Coil	Right side of engine	11
No. 2 Ignition Coil	Left side of engine	12
No. 3 Ignition Coil	Right side of engine	11
No. 4 Ignition Coil	Left side of engine	12
No. 5 Ignition Coil	Right side of engine	11
No. 6 Ignition Coil	Left side of engine	12
Passenger's Inflator Module	Behind right side of I/P	68
PCM Main Relay	In fuse/relay box	38
Power Steering Pressure (PSP) Switch	Lower right front of engine compartment	22
Power Window Relay	In dash fuse box	50
Powertrain Control Module (PCM)	Behind the lower cluster assembly	62
Rear Intermittent Wiper Relay	Behind left dash side trim panel, in access hole	48
Rear Washer Motor	Inside left tailgate door, behind trim pad	93
Rear Wiper Motor	Inside left tailgate door, behind trim pad	91
Right Front Door Key Detect And Tamper Switch	Inside right front door, part of outside handle assembly	79
Right Front Door Lock Actuator/Switch	Inside rear of right front door, behind trim pad	80
Right Front Door Lock Key Switch	Inside rear of right front door, part of door lock assembly	80
Right Front Seat Recline Motor and Switch	In right front seatback	113
Right Headlight Wiper Motor	Behind right headlight assembly	123
Right Rear Door Lock Actuator/Switch	Inside of right rear door, behind trim pad	84
Safety Stop Switch	Rear underside of roof	88
Seat Belt, Key, and Light Remind Buzzer	Behind right dash side trim panel	73
Shift Lock Controller	Below front console	65
SRS Unit	Behind lower cluster assembly	61
Starter Relay	In fuse/relay box	38

STARTING SYSTEM

Circuit Schematic



Circuit Schematic



VEHICLE SPEED SENSOR

Component Location Index

(Refer to Section 201 for photographs.)

Component		Photo No.
Cruise Control Unit	Below right side of I/P, above dash side trim panel	71
Dash Fuse Box	Behind left dash side trim panel	51
Powertrain Control Module (PCM)	Behind the lower cluster assembly	62
Vehicle Speed Sensor (VSS) (A/T)	Beneath center of vehicle, on rear of transmission	41
Vehicle Speed Sensor (VSS) (M/T)	Beneath the center of the vehicle, on rear of transmission	119
Connector		
H-7 (20-BRN/WHT)	Below I/P, above left dash side trim panel, on bracket	52
H-8 (16-BLK)	Below I/P, above left dash side trim panel, on bracket	53
H-9 (20-BLK)	Below I/P, above left dash side trim panel, on bracket	53
H-10 (12-BLU) (M/T)	Left front of engine compartment	27
H-10 (16-BLU) (A/T)	Left front of engine compartment	27
H-11 (16-BLK)	Left front of engine compartment	27
H-16 (22-WHT)	Behind right dash side trim panel	73
H-24 (18-YEL)	Below I/P, above left dash side trim panel, on bracket	53
H-25 (22-BLU)	Below I/P, above left dash side trim panel, on bracket	54
H-41 (16-BLU)	Right front of engine compartment	31
I-9 (16-BLK)	On left rear of meter assembly	45
I-10 (16-WHT)	On right rear of meter assembly	45
Ground		
C-39	Right rear corner of engine compartment, on inner fender panel	40

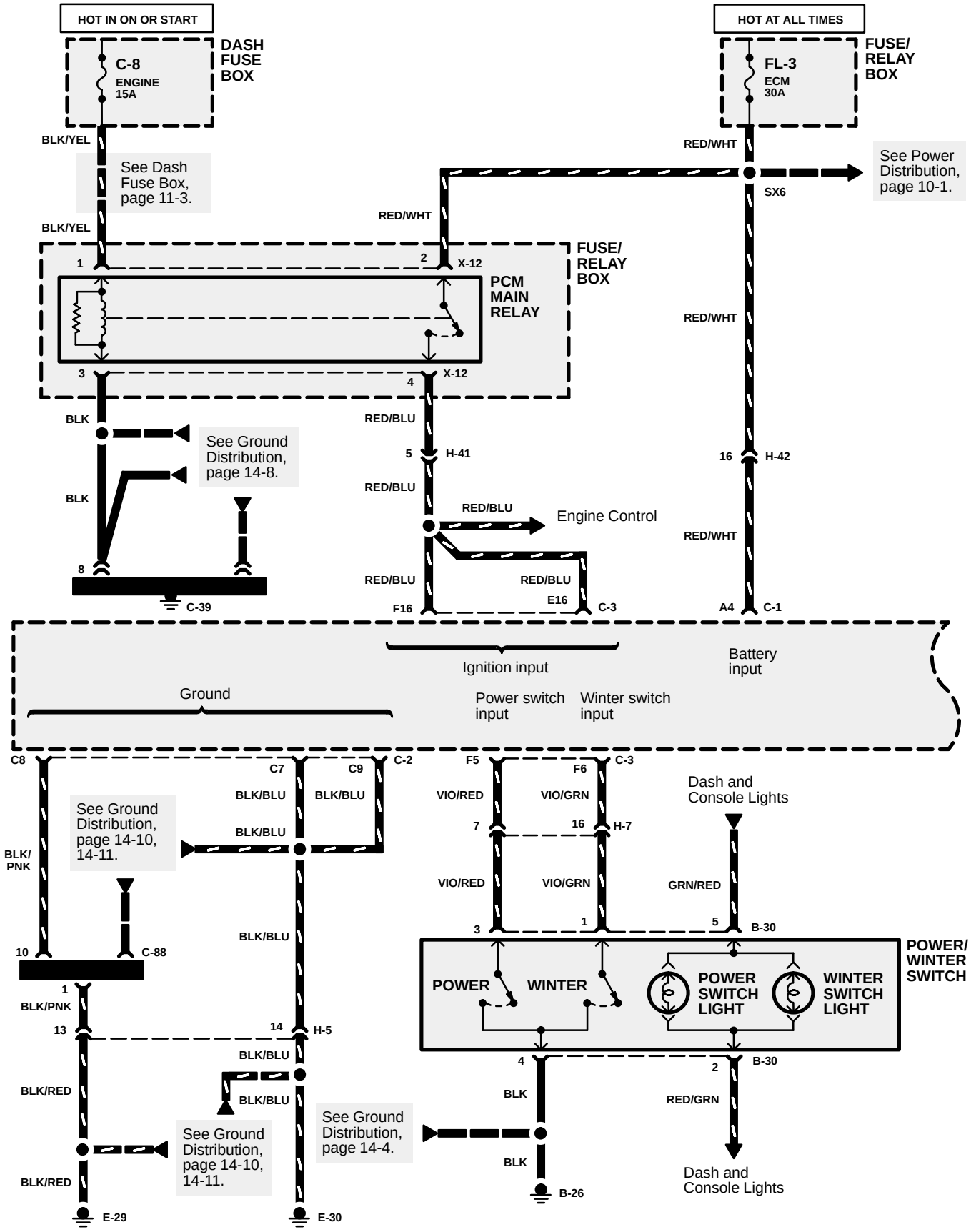
Circuit Operation

The vehicle speed sensor generates a signal which indicates the vehicle speed to the speedometer. The speedometer consists of a vehicle speed sensor, an ammeter (needle movement), stepper motor (odometer), and a driving circuit (printed circuit board).

The vehicle speed sensor is mounted to the transmission. The transmission pinion shaft rotates and generates four pulses per one rotation. The rate at which the pulses are generated indicates the vehicle speed. The vehicle speed sensor (incorporated in the speedometer) uses the pulses to control needle movement and sends vehicle speed information to the powertrain control module (PCM) and the cruise control unit. The speedometer sends 4096 pulses per mile and the frequency indicates the vehicle speed.

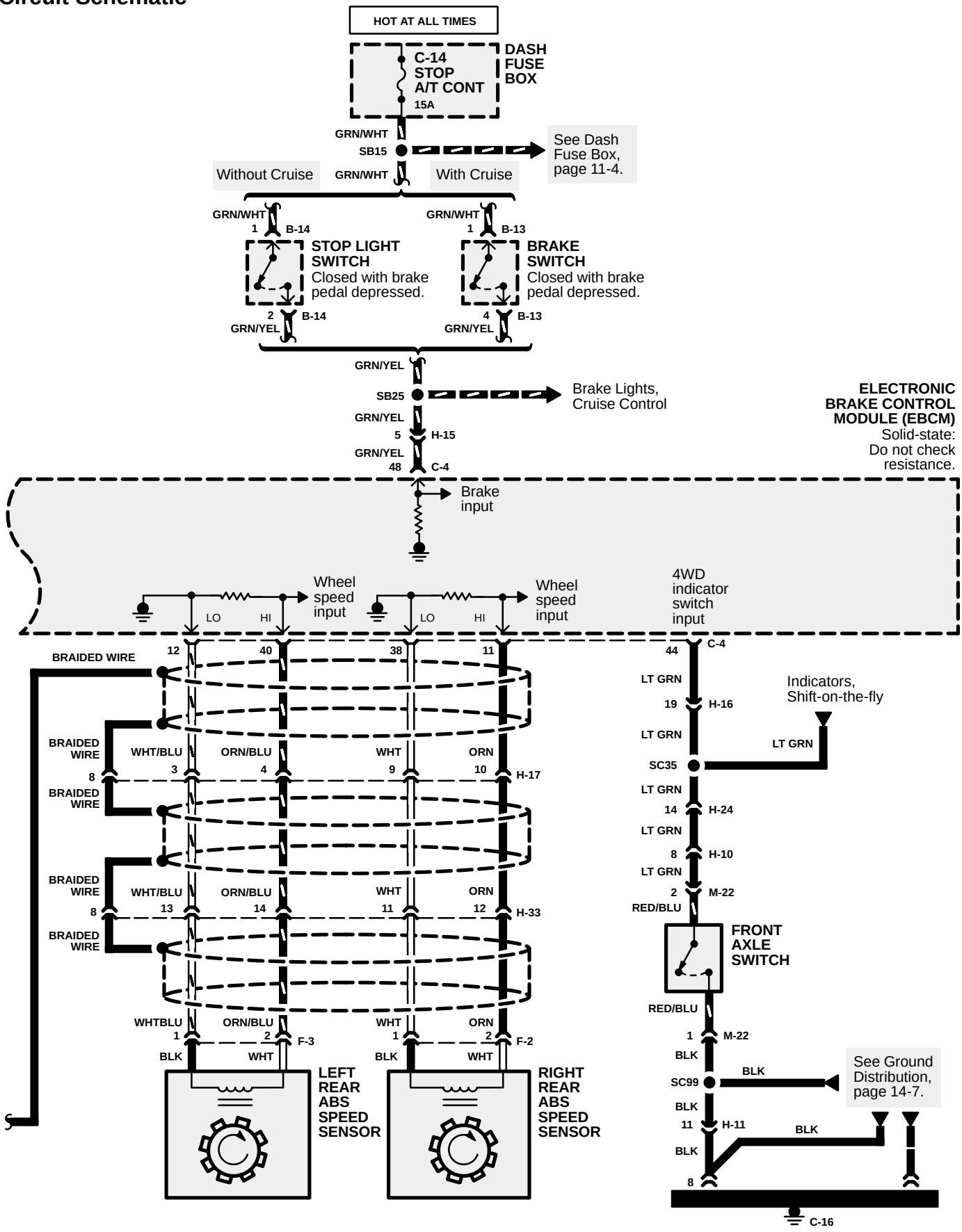
AUTOMATIC TRANSMISSION CONTROL

Circuit Schematic

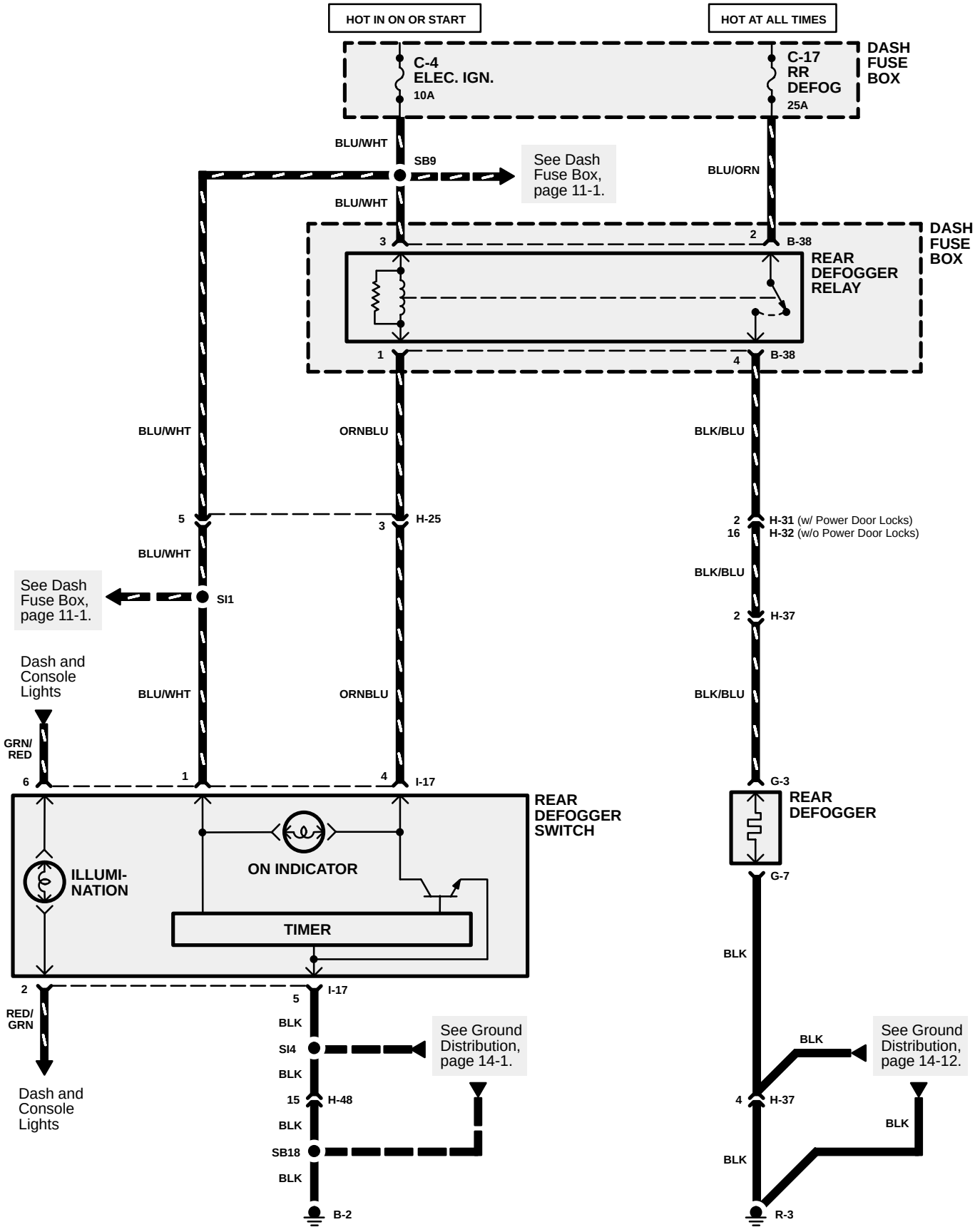


4-WHEEL ANTI-LOCK BRAKE SYSTEM (ABS)

Circuit Schematic



REAR DEFOGGER



AIR CONDITIONER: COMPRESSOR CONTROLS

Circuit Operation

A/C Compressor Clutch

With the starter switch in START and the transmission control lever in PARK or NEUTRAL (automatic transmission), or the clutch pedal depressed (manual transmission), voltage is applied to the starter relay and the relay energizes. When the starter switch is turned to ON with the engine running, the relay deenergizes and voltage is applied from the generator to the heater and A/C relay through the normally closed contacts of the starter relay. The heater and A/C relay energizes, allowing voltage to be applied from FL-1 (MAIN) fusible link to the A/C switch, the A/C thermostat relay, and the A/C compressor relay through fuse C-20. When the A/C switch is switched on, voltage is applied through the A/C pressure switch to the coil of the A/C thermostat relay. Ground is provided to the coil of this relay through the electronic thermostat unit and the blower switch (provided the blower switch is not in the OFF position).

A/C Thermo Sensor

If the air conditioning compressor's temperature rises above 160 ± 5° C (320 ± 9° F), the A/C thermo sensor will open, disengaging the A/C compressor clutch. The A/C thermo sensor will close when the temperature falls below 135 ± 5° C (275 ± 9° F). Power is reapplied to the A/C compressor clutch and the clutch engages.

A/C Pressure Switch

Air conditioning system pressure below 176.5 ± 9.6 kPa (25.6 ± 2.8 psi) indicates a loss of refrigerant or refrigerant oil. The A/C pressure switch opens with low system pressure to prevent compressor damage. Also, with system pressure above 2942 ± 196.1 kPa (426.6 ± 28.4 psi), the A/C pressure switch opens to prevent compressor damage.

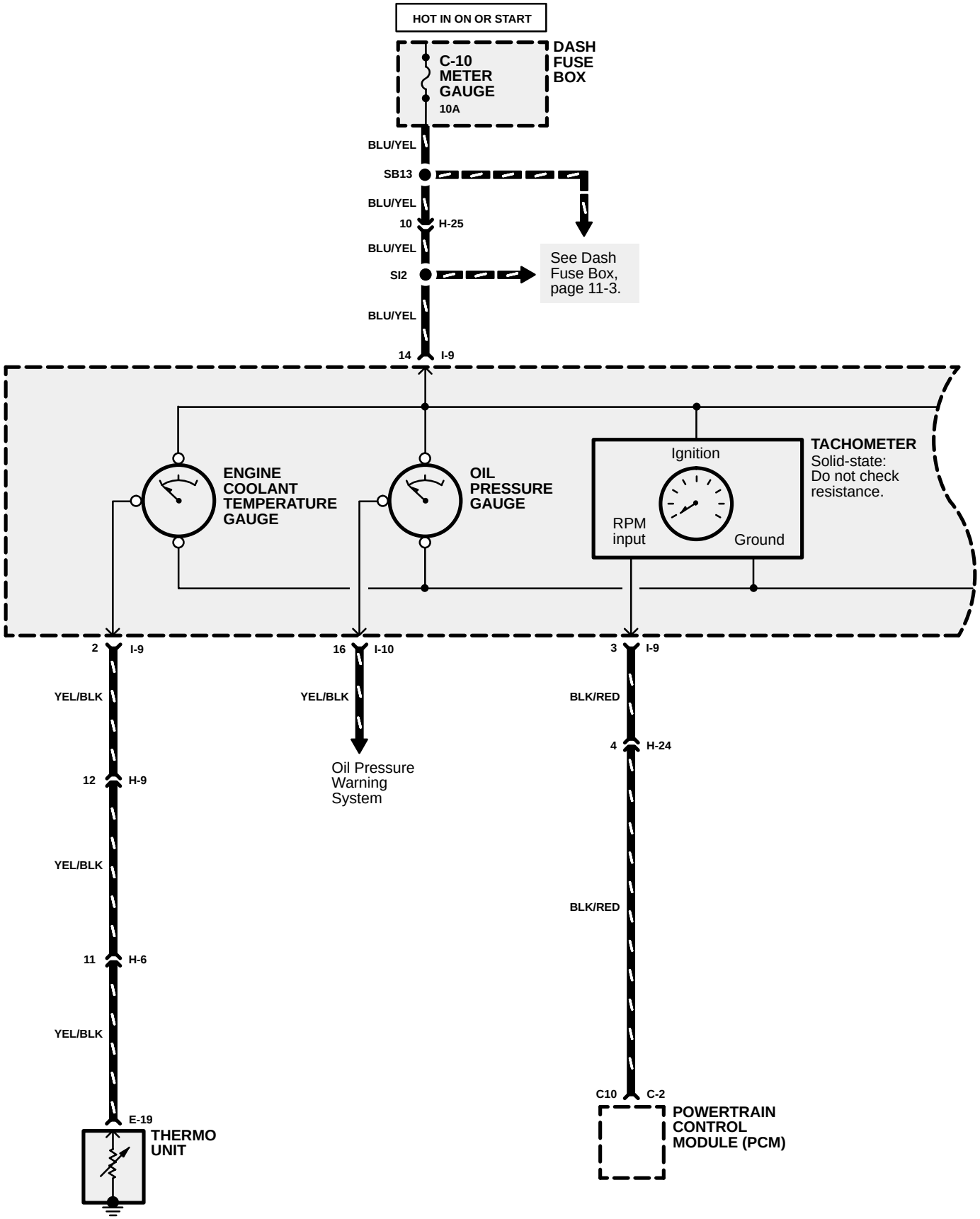
Electronic Thermostat Unit

The electronic thermostat unit senses the temperature of the cool air from the evaporator and the evaporator fins by means of the evaporator thermo sensor. This information is input by the electronic thermostat unit, which determines whether ground is to be provided to the A/C thermostat relay. When the temperature becomes too low, ground is not provided.

FUEL LEVEL INDICATION SYSTEM

Component Index

Circuit Schematic



WINDSHIELD WIPER/WASHER

Component Location Index

(Refer to Section 201 for photographs.)

Component		Photo No.
Dash Fuse Box	Behind left dash side trim panel	51
Fuse/Relay Box	Right side of engine compartment, on inner fender panel	33
Windshield Intermittent Wiper Relay	In fuse/relay box	36
Windshield Washer Motor	Right front corner of engine compartment, in washer fluid reservoir	122
Windshield Wiper Motor	Right rear corner of engine compartment	39
Connector		
B-52 (14-BLK)	Below I/P, right of steering column	58
C-38 (6-WHT)	Right rear of engine compartment	39
H-15 (14-WHT)	Below I/P, above right dash side trim panel, on bracket	70
Ground		
B-19	Behind top of left dash side trim panel	54
C-39	Right rear corner of engine compartment, on inner fender panel	40

Circuit Operation

With the starter switch in ON or START, battery voltage is applied to the windshield wiper/washer switch, windshield wiper motor, and windshield intermittent wiper relay from fuse C-5.

Low Speed

When the windshield wiper switch is moved to LO, battery voltage is applied to the LO winding of the windshield wiper motor and the windshield wipers run at low speed.

Park/Run

When the windshield wiper switch is turned to OFF, fuse C-5 provides battery voltage through the windshield wiper motor, windshield intermittent wiper relay, and the windshield wiper switch to the LO winding of the windshield wiper motor. When the switch on the motor reaches the PARK position, battery voltage from fuse C-5 is removed from the circuit and the windshield wipers stop in the PARK position.

High Speed

When the windshield wiper switch is in HI, battery voltage is applied to the HI winding of the windshield wiper motor and the windshield wipers run at high speed.

Intermittent

When the windshield wiper switch is moved to INT, the windshield wiper switch applies battery voltage to the windshield intermittent wiper relay. The windshield intermittent wiper relay momentarily energizes every 3 to 4 seconds (S models) or a variable time of 2 to 20 seconds (depending on intermittent ring position) and applies battery voltage to the LO winding of the windshield wiper motor to move the windshield wipers from the PARK position to the RUN position, then the PARK/RUN function takes over to return the windshield wipers to the PARK position. The windshield wipers make a single sweep approximately every 3 to 4 seconds (S models) or a variable time of 2 to 20 seconds (depending on intermittent ring position).

Washer

When the windshield washer switch is depressed, battery voltage is applied to the windshield washer motor and the windshield intermittent wiper relay. The windshield washer motor pumps fluid on the windshield and the windshield intermittent wiper relay energizes and applies battery voltage to the LO winding of the windshield wiper motor through the windshield wiper switch. The wipers run at LO speed until the switch is released.

HEADLIGHTS AND FOG LIGHTS

Component Location Index

(Refer to Section 201 for photographs.)

Component		Photo No.
Diode Box B	In fuse/relay box	37
Fog Light Relay	In fuse/relay box	35
Fuse/Relay Box	Right side of engine compartment, on inner fender panel	33
Lighting Relay	In fuse/relay box	35
Connector		
B-12 (16-WHT)	Below I/P, right of steering column	58
C-24 (2-GRY)	Behind left fog light	4
C-29 (2-GRY)	Behind right fog light	4
H-8 (16-BLK)	Below I/P, above left dash side trim panel, on bracket	53
H-9 (20-BLK)	Below I/P, above left dash side trim panel, on bracket	53
H-12 (20-WHT)	Below I/P, above right dash side trim panel, on bracket	69
H-16 (22-WHT)	Behind right dash side trim panel	73
H-26 (20-WHT)	Below I/P, above left dash side trim panel, on bracket	54
H-41 (16-BLU)	Right front of engine compartment	31
H-42 (16-BLK)	Right front of engine compartment	31
I-10 (16-WHT)	On right rear of meter assembly	45
Ground		
B-19	Behind top of left dash side trim panel	54
C-16	Left rear corner of engine compartment, on inner fender panel	28

Circuit Operation

Lo Beam Operation

With the lighting switch in HEAD and the dimmer/passing switch in LO, the lighting switch provides a ground path to the lighting relay, and the dimmer/passing switch provides a ground path for the lo beam filaments. The lighting relay energizes and provides battery voltage to the headlights and the lo beams light up.

Hi Beam Operation

With the lighting switch in HEAD and the dimmer/passing switch in HI, the lighting switch provides a ground to the lighting relay and the dimmer/passing switch provides a ground path for the high beam filaments. The lighting relay energizes and provides battery voltage to the headlights and the hi beams light up.

Battery voltage is also applied to the hi beam indicator and the hi beam indicator lights up to remind the driver that the hi beams are on.

Flash To Pass Operation

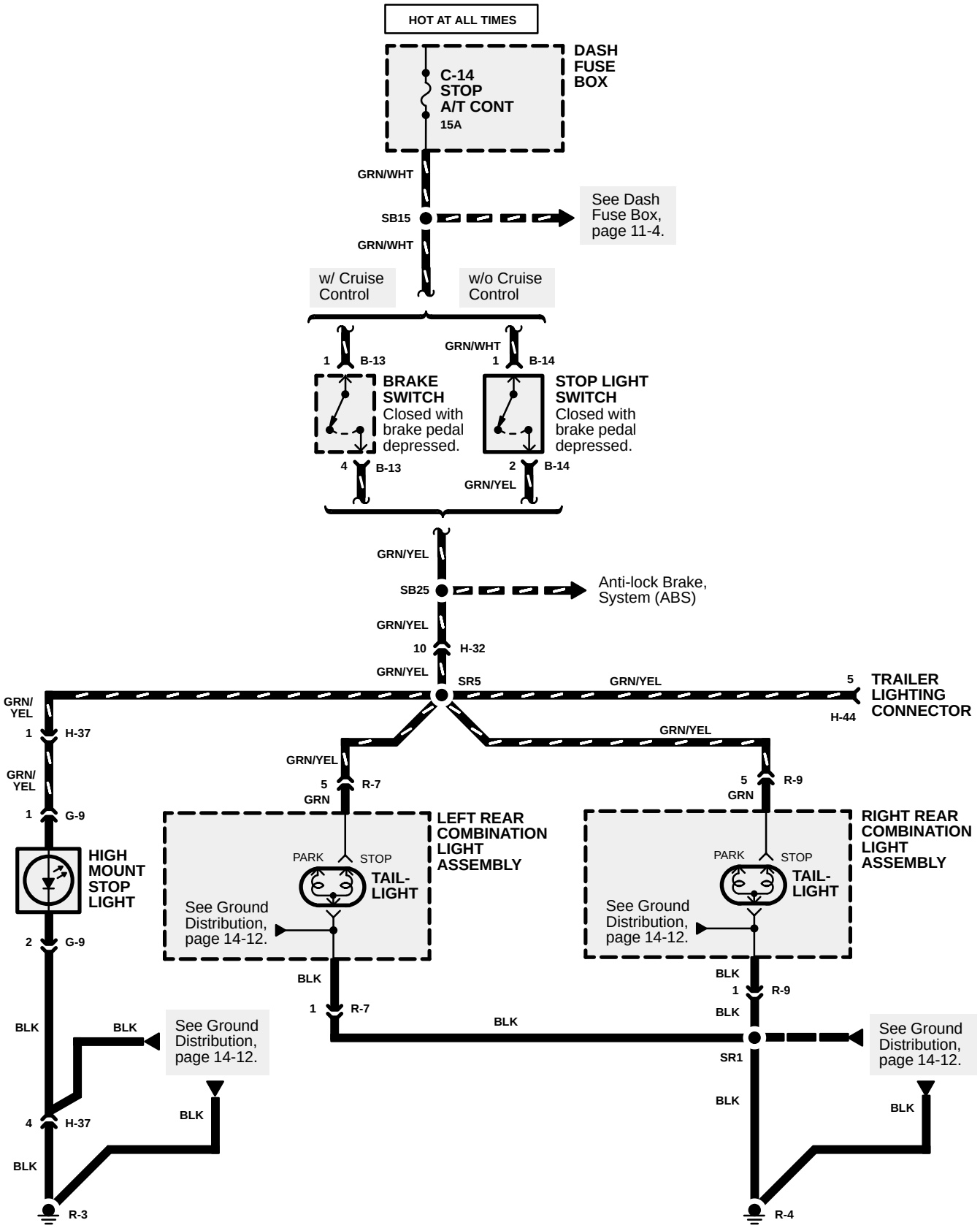
The flash to pass feature works with the lighting switch in OFF, PARK, or HEAD (lo beams). When the passing switch is turned on, it provides a ground path for both the hi and lo beam filaments and the lighting relay. The lighting relay energizes and applies battery voltage to the headlights and to the hi beam indicator light and the hi and lo beams light up. The hi beam indicator also flashes during the flash to pass operation. The flash to pass function has no effect if the hi beams are already on.

Fog Light Operation

With the lighting switch in HEAD and the dimmer/passing switch in LO, the lighting switch provides a ground path to the lighting relay which provides power through fuse F-8 to the fog light relay. A ground path is provided for the fog light relay through the fog light switch and the dimmer/passing switch. When the relay is energized, power is provided to both fog lights and the fog lights light. When the fog light switch is turned off or when the dimmer/passing switch is moved to HI, ground is removed from the fog light relay and the fog lights go out.

BRAKE LIGHTS

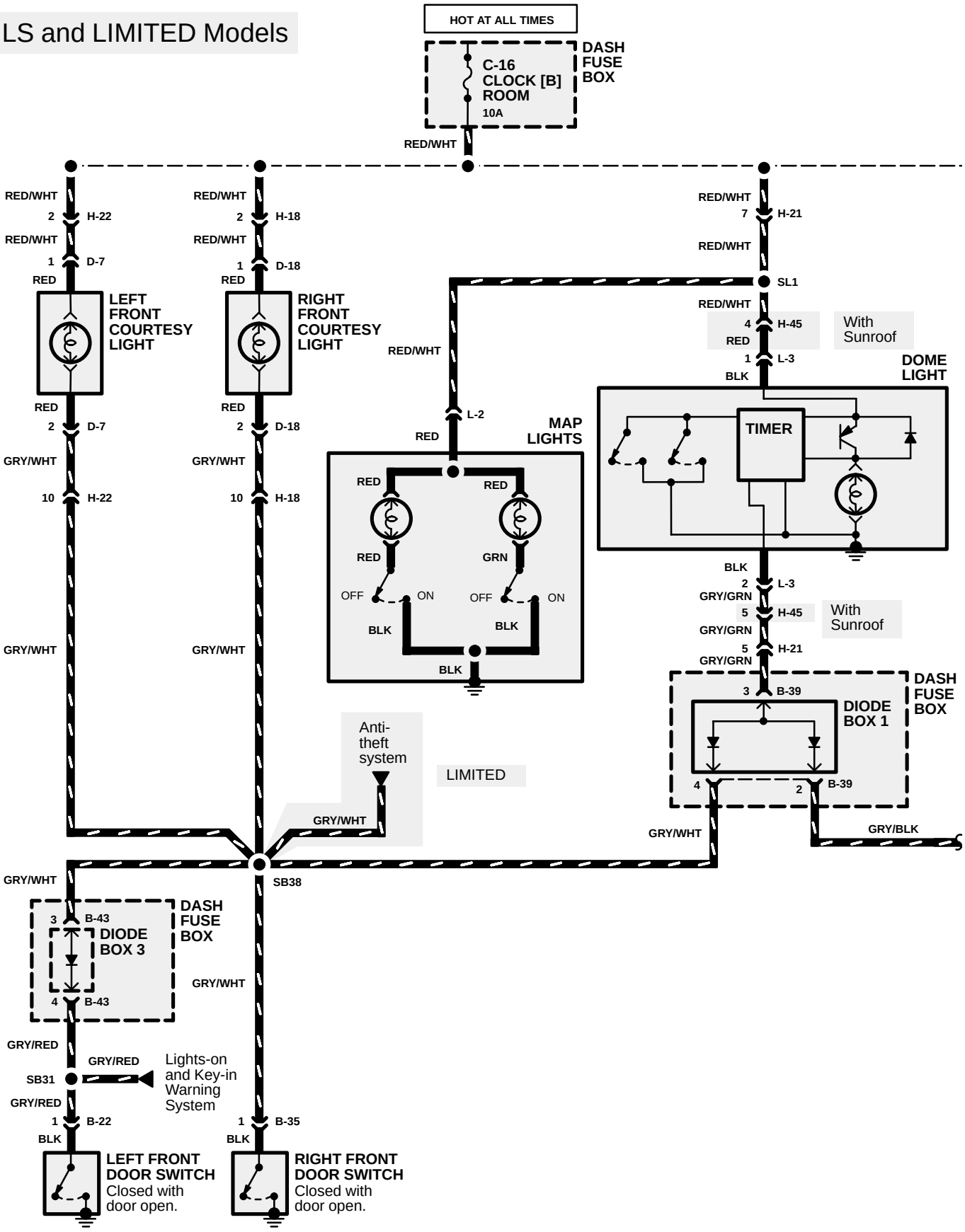
Circuit Schematic



DOME, LUGGAGE ROOM, COURTESY, AND MAP LIGHTS

Circuit Schematic

LS and LIMITED Models



TRAILER ADAPTER

Component Index

Circuit Operation

Fuse C-18 applies battery voltage at all times to the left front door power window switch. The circuit breaker C/B-2 applies battery voltage at all times to the power window relay. With the starter switch in ON or START, fuse C-4 applies battery voltage to the power window relay. The power window relay energizes and allows battery voltage from the circuit breaker to all the door power window switches.

Left Front Window

When the left front power window switch is moved to UP, a signal is sent to the control unit. The control unit grounds the coil of the up relay. The contacts of the relay close, and voltage is applied to the left front power window motor. The motor's ground path is through the open contacts of the down relay. The motor drives the window up as long as the switch is held. When the switch is moved to DOWN, a signal is sent to the control unit. The control unit grounds the coil of the down relay. The contacts of the relay close, and voltage is applied to the motor. The motor's ground path is through the open contacts of the up relay. The motor drives the window down as long as the switch is held.

Auto Down

When the left front power switch is moved to AUTO, a signal is sent to the control unit. The control unit grounds the coil of the down relay. The contacts of the relay close, and voltage is applied to the left front power window motor. The motor's ground path is through the open contacts of the down relay. The control unit keeps the relay energized until the motor drives the window to the fully open position.

Passenger's Window

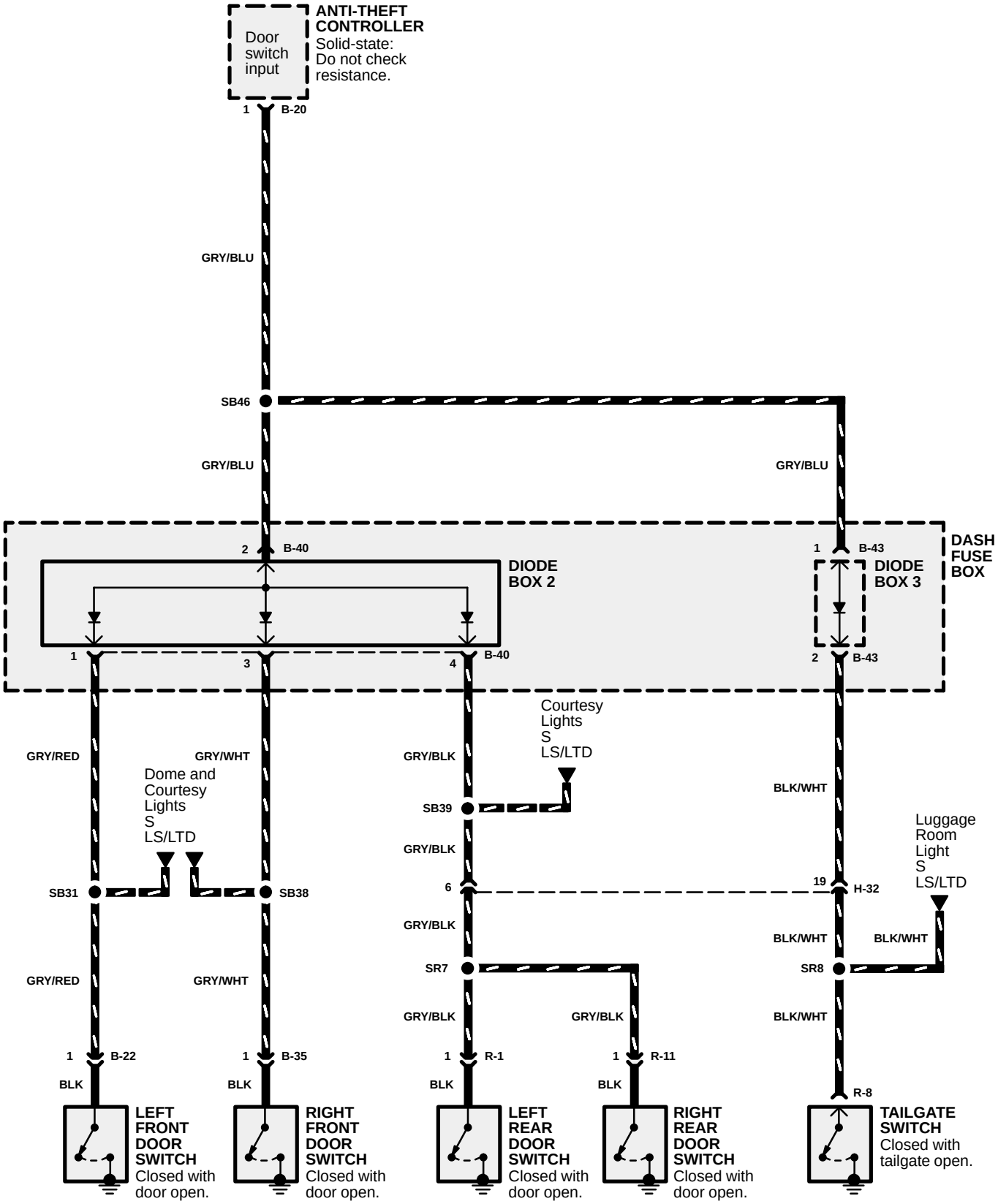
The passenger windows can be operated from the left front door power window switch or the respective door power window switch. The passenger's door power window switches can only operate the windows when the lock switch in the left front power window switch is in the OFF position.

When a passenger's door power window switch is moved to UP, a signal is sent to the respective control unit. The control unit grounds the coil of the up relay. The contacts of the relay close, and voltage is applied to the respective power window motor. The motor's ground path is through the open contacts of the down relay. The motor drives the window up as long as the switch is held. When the switch is moved to DOWN, a signal is sent to the control unit. The control unit grounds the coil of the down relay. The contacts of the relay close, and voltage is applied to the motor. The motor's ground path is through the open contacts of the up relay. The motor drives the window down as long as the switch is held.

When a passenger's power window is being controlled by the switch in the left front door power window switch, the control unit in the left front door power window switch sends a multiplexed signal to the control units in the other power window switches. The signal tells the appropriate control unit to energize either the up or down relay depending on the function requested. Once the relay is energized, power is supplied to the respective power window motor (see above paragraph) and the motor drives the window in the proper direction as long as the switch is held. Since the signal is multiplexed, more than one passenger's window can be controlled by the left front door power window switch simultaneously.

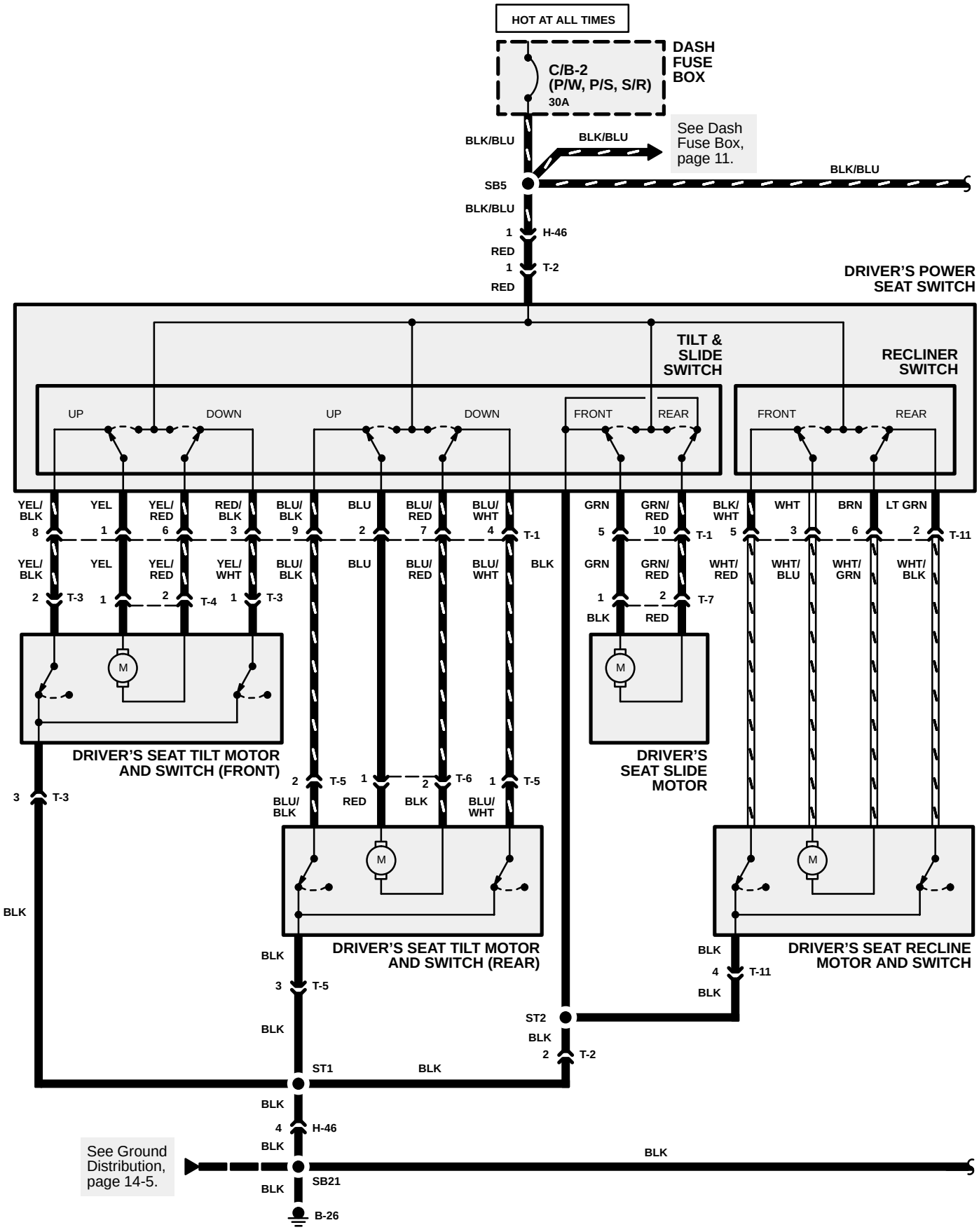
ANTI-THEFT SYSTEM

Circuit Schematic



POWER SEATS

Circuit Schematic



SEAT HEATER

Component Location Index

(Refer to Section 201 for photographs.)

Component		Photo No.
Dash Fuse Box	Behind left dash side trim panel	51
Connector		
H-46 (6-WHT)	Below left side of left front seat	105
H-47 (6-WHT)	Below right side of right front seat	110
T-8 (4-WHT)	Underside of driver's seat	107
T-10 (4-WHT)	Underside of right front seat	111
T-14 (2-BLK)	Underside of driver's seat	109
T-15 (2-BLK)	Underside of right front seat	111
T-16 (2-WHT)	In driver's seat back	113
T-17 (2-WHT)	In right front seat back	113
Ground		
B-26	Below rear of center console	67

Circuit Operation

When the starter switch is on ON or START, fuse C-2 applies battery voltage to the driver's and right front seat heater switches.

Heat Operation

When the driver's or right front seat heater switch is moved to HEAT, battery voltage is applied through the circuit breakers in the respective seat cushion to both the seat cushion and seat back heating elements. The seat back is grounded through the seat heater switch to B-26 while the seat cushion is grounded directly to B-26. With battery voltage applied to the heating elements in this manner, they draw the maximum current causing them to heat up quickly and to a high temperature. When the temperature becomes too high the circuit breakers in the seat cushion open, removing the voltage to the circuit. When the temperature falls to a safe temperature, the circuit breakers close, supplying voltage to the circuit.

Keep Operation

When the driver's or right front seat heater switch is moved to KEEP, battery voltage is applied through the respective seat cushion heating element to the respective seat cushion heating element. The respective seat cushion is grounded directly to B-26. With battery voltage applied to the heating elements in this manner, they draw less current, and do not reach as high of a temperature as in the HEAT position.

DIGITAL CLOCK

Component Location Index

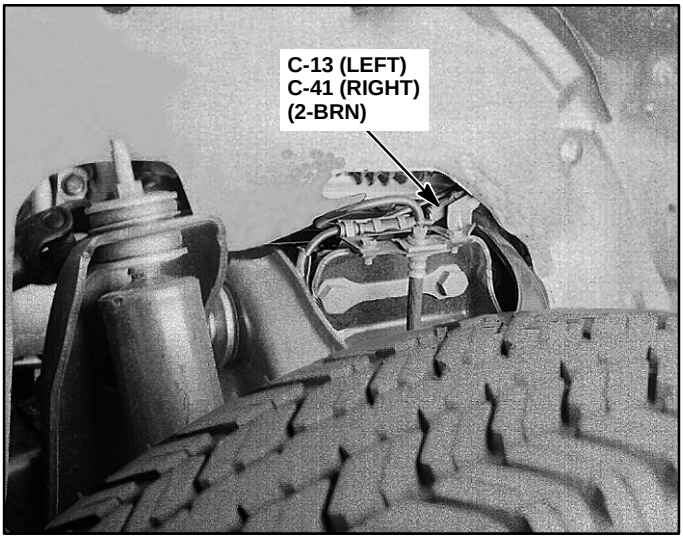
(Refer to Section 201 for photographs.)

Component		Photo No.
Dash Fuse Box	Behind left dash side trim panel	51
Fuse/Relay Box	Right side of engine compartment, on inner fender panel	33
Taillight Relay	In fuse/relay box	35
Connector		
B-12 (16-WHT)	Below I/P, right of steering column	58
H-12 (20-WHT)	Below I/P, above right dash side trim panel, on bracket	69
H-16 (22-WHT)	Behind right dash side trim panel	73
H-25 (22-BLU)	Below I/P, above left dash side trim panel, on bracket	54
H-48 (16-BLK)	Behind right dash side trim panel	73
Ground		
B-2	Above right dash side trim panel	71
B-19	Behind top of left dash side trim panel	54

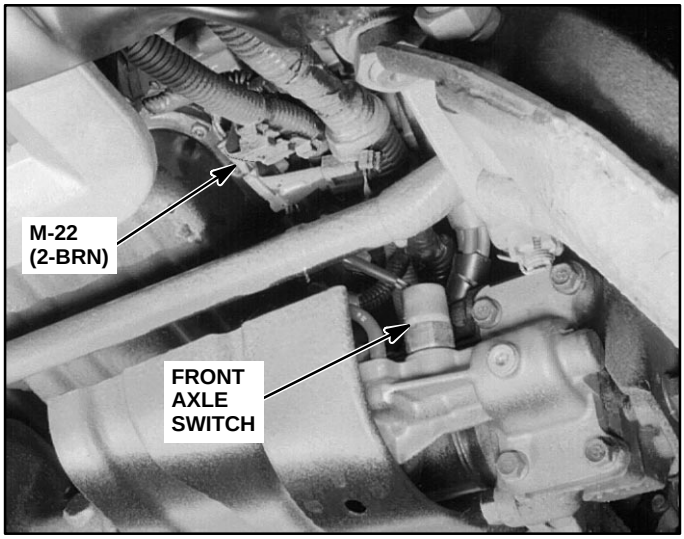
Circuit Operation

With the starter switch in ACC or ON, battery voltage is applied to the clock from fuse C-11 and the time display appears. Battery voltage is supplied through fuse C-16 at all times to keep the clock running. When the light switch is switched to PARK or HEAD, a dimming signal is sent to the clock and the clock display dims.

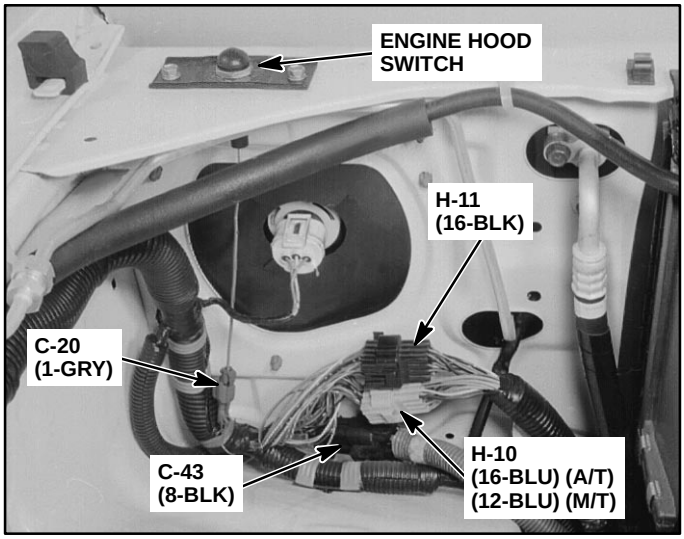
7. Inside of Left Front Fender (Right Similar)



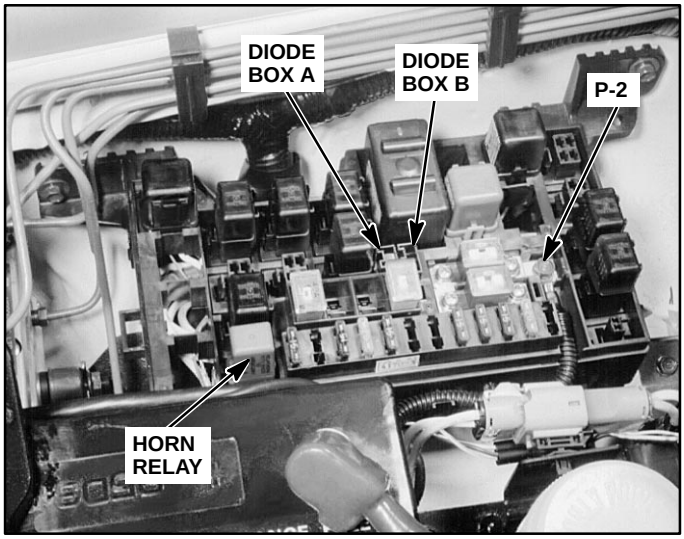
17. Left Side of Front Differential



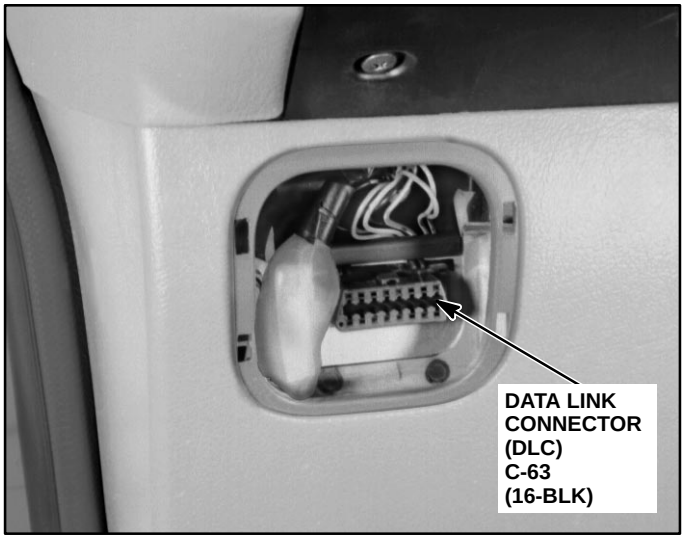
27. Left Front Corner of Engine Compartment



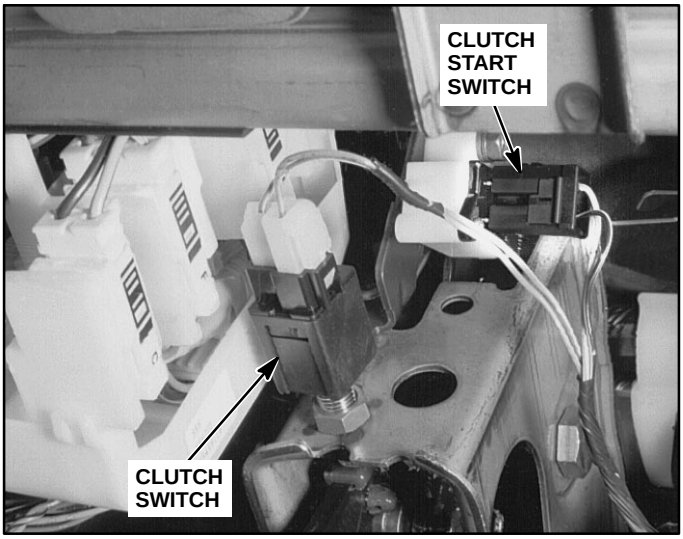
37. Fuse/Relay Box (Cover Removed)



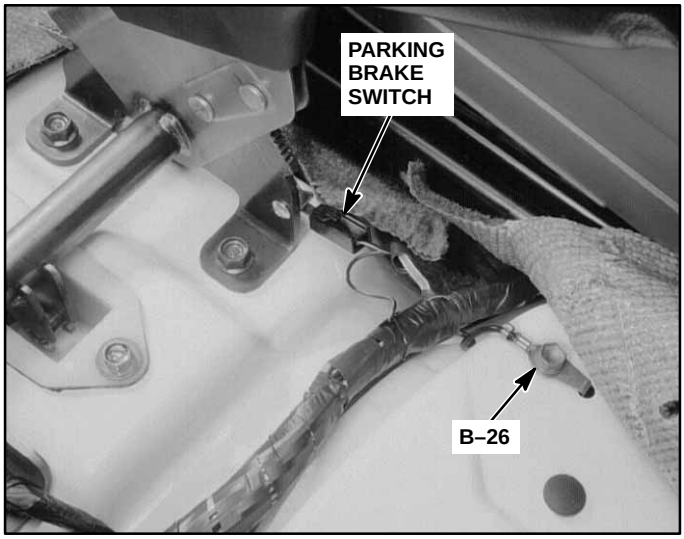
47. Left Side of Dash Panel



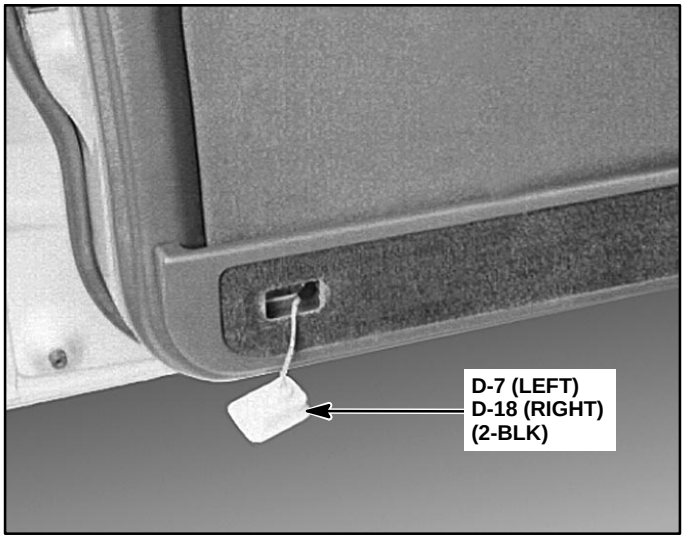
57. Behind Lower Left Dash Panel



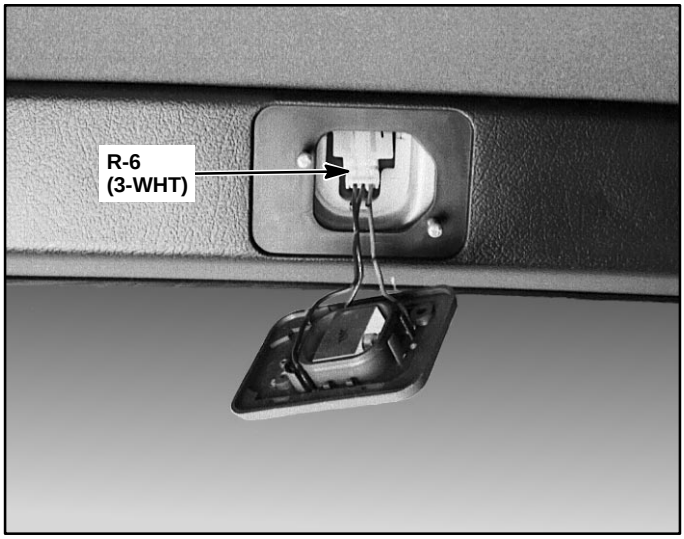
67. Below Center Console



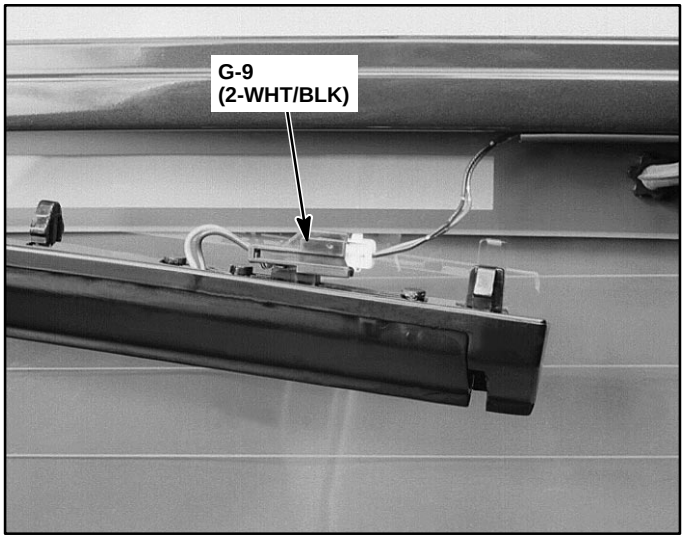
77. Left Front Door (Right Similar)



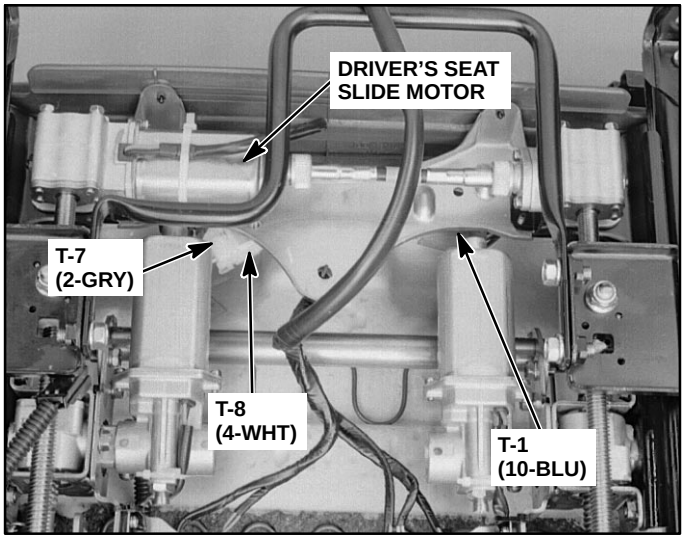
87. Center Rear of Roof



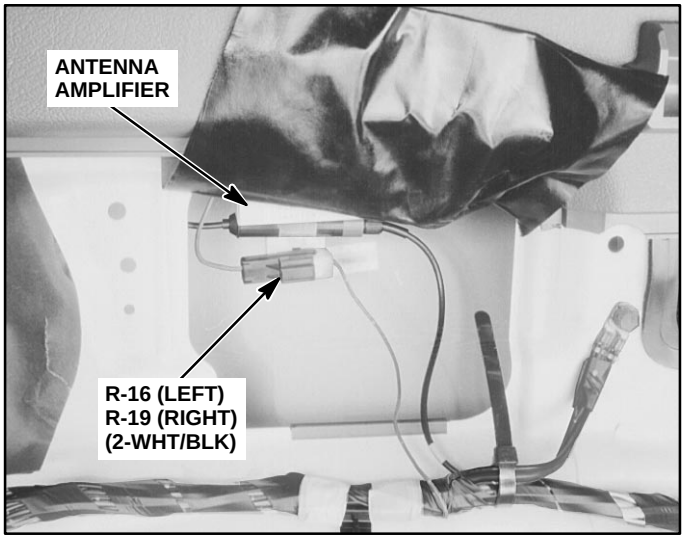
97. Top of Left Tailgate Door



107. Underside of Driver's Seat

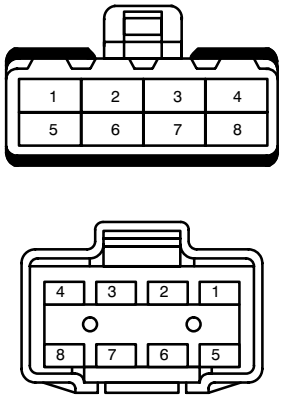


117. Left Side of Luggage Room (Right Similar)



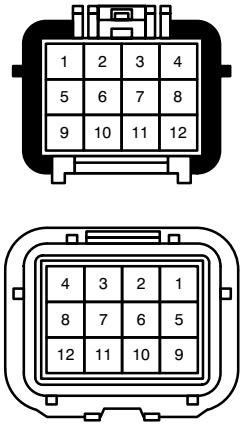
HARNESS CONNECTOR VIEWS

C-16



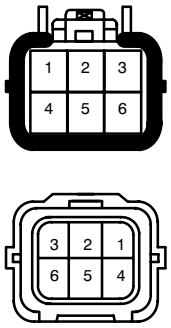
I.086

C-34



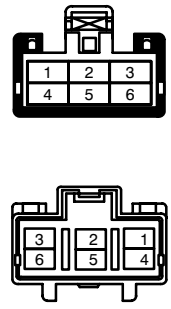
I.241

C-23



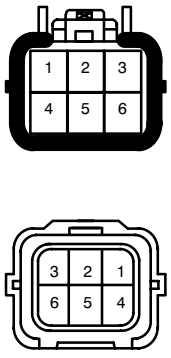
I.023

C-38



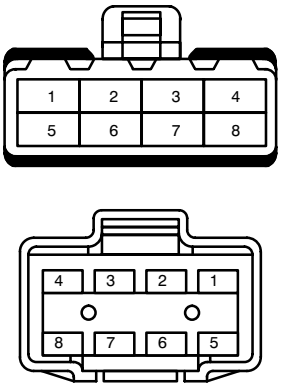
I.019

C-30



I.023

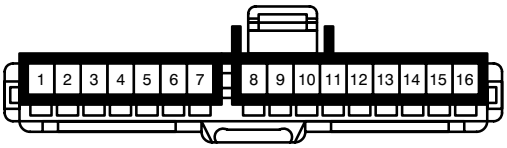
C-39



I.086

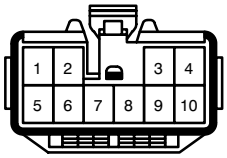
HARNESS CONNECTOR VIEWS

I-10



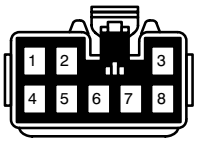
I.370

I-16



I.163

I-11

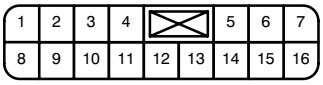


I.093

I-17

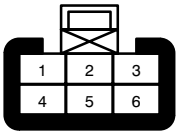
I.029

I-15



I.371

I-18



I.027