

# RANGE ROVER CLASSIC



## Electrical troubleshooting manual

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# Electrical troubleshooting manual

# RANGE ROVER

## 1995 model

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# DISCOVERY

## KEY INFORMATION

### CIRCUIT DIAGRAMS

**D** Circuit diagrams are arranged so that current flow is from the top of the diagram (current source) to the bottom of the diagram (earth).

**D** Only those components that work together in the circuit are shown. If only part of a component is used in the circuit, then only that part of the component is shown.

**D** Remember:



Entire component



Part of a component

TERMINAL NUMBER

DESIGNATION

50

Battery voltage: Ignition Switch in position III

30

Battery voltage: supplied constantly

15

Battery voltage: Ignition Switch in position II or III

R

Battery voltage: Ignition Switch in positions I, II

31

Earth

See Introduction (i) for additional circuit diagram symbols

### DIAGNOSIS

**D** If the diagram is accompanied by text:

- Read the Circuit Operation before proceeding with the electrical diagnosis.
- Read the Troubleshooting Hints before performing the System Diagnosis.
- Tests follow the System Diagnosis
- When performing the System Diagnosis, be certain that all components disconnected in previous steps are reconnected unless otherwise directed.



Component is disconnected. Backprobe harness connector



Component is connected. Backprobe harness connector



Component is disconnected. Probe component



Component is disconnected. Probe harness connector



Probe in-line connector



## INTRODUCTION

This manual is intended for use by trained Land Rover technicians as an aid to diagnosing electrical concerns.

This manual is organized into sections, with most sections containing circuit diagrams. Each section has a unique alpha–numeric code that will normally remain the same from year to year. For example, the Headlights circuit is in Section H1, with the first page of the section numbered H1–1. The following pages of this section will be numbered H1–2, H1–3, H1–4, etc. The manual does not contain any information concerning removal, refit or overhaul of electrical components or harnesses. These details are contained in the Workshop Manual. The following information forms the basis of the troubleshooting routines:

- Circuit Diagrams
- System Diagnosis Flow Charts
- Component Location Table
- Component Locations Views

Additional information, such as Circuit Operation, is also contained in the manual to aid in your understanding of how the different circuits operate.

## DESCRIPTION OF MANUAL

### Circuit Operation And Diagram

The Circuit Operation information at the beginning of the section will give you an overview of how the circuit works.

The Circuit Diagrams should always be your starting point in using this Electrical Troubleshooting Manual. The diagram shows the electrical current paths when a circuit is operating properly. It is essential to understand how a circuit should work before trying to figure out why it doesn't. Diagrams are shown with the Ignition Switch in the OFF position and other switches in the OFF or 'at rest' position.

Notes are provided after certain switches to clarify switch positions. Abbreviations found in the notes are explained in the Abbreviation Table found in the SYMBOLS section of this chapter.

Circuit Diagrams (schematics) break the entire electrical system into individual circuits. Electrical

components that work together are shown together.

Each diagram is arranged so current flows from positive, at the top of the page, to ground, at the bottom of the page. The 'power' labels at the top of a fuse show when the Battery, Main Light Switch, or Ignition Switch supplies power to that fuse.

Wires that connect to another circuit are shown with an arrowhead pointing in the direction of current flow. The name of the circuit that shares the wiring is provided for reference.

Wire Colour charts are no longer provided on each circuit page. One chart is provided in the SYMBOLS section of this chapter.

'See Fuse Details' means there are more connections to other circuits that are not shown. All such shared circuits are shown on the Fuse Details diagrams. 'See Ground Distribution' means there are more shared ground circuits which are shown on the Ground Distribution diagrams.



No attempt is made on the diagrams to represent components and wiring as they physically appear on the car. For example, a long length of wire is treated no differently in a diagram from one which is only a few centimeters long. The number of cavities for each connector is listed in the Component Location Table rather than illustrated. Similarly, switches and other components are shown as simply as possible, with regard to function only.

### **Power Distribution**

The Power Distribution diagrams are found in Section Y1. These diagrams show how voltage is supplied from the positive Battery terminal to the various circuits in the vehicle.

The individual Circuit Diagrams begin with a fuse or the Ignition Switch. Power Distribution shows the wiring from the Battery to the Fuse Boxes, the Ignition Switch, the Main Lighting Switch, and any circuit fuses not located in a Fuse Box.

### **Fuse Details**

The Fuse Details diagrams are found in Section Y2. These diagrams show all the wiring between each fuses in the Fuse Boxes and the components connected to the output of the fuse. The Fuse Details diagrams are extremely helpful in locating a short circuit that causes a fuse to blow. These diagrams also aid in troubleshooting an inoperative circuit by showing a second circuit using the same fuse. If the second circuit works, then the fuse and certain wires of the inoperative circuit are good.

### **Ground Distribution**

The Ground Distribution diagrams are found in Section Y5. These diagrams show which components share each ground point. This information can often be a time-saver when troubleshooting a poor ground.

For example, if the Fuel Pump does not run, you may suspect an open in its circuit to ground. However, if the Number Plate Lamps work, and they share the same ground point as the Fuel Pump, you know that the ground and the wire up to the common splice are good. You have learned this just by inspecting the diagram and knowing the vehicle's symptoms.

### **Connector Views**

Connector Views are provided in section Z6. All connectors with 2 terminals or more will be shown. Pin-out tables with the appropriate wire colours will also be shown.

### **Component Location Table**

A Component Location Table can be found in Section Z4. Except for the location of obvious components like the Left Headlight, the table lists the location of every component, connector and ground point depicted in the Circuit Diagrams. The table also gives references to Component Location Views located in Section Z5 and cross references to Workshop Manual remove and refit procedure sections. The number of cavities in each connector and the connector colour is also listed. Wires may not be used in all connector cavities.

## TROUBLESHOOTING TECHNIQUE

The following five-step troubleshooting procedure is recommended.

### (1) Verify the Problem

Check the operation of the circuit to be sure you understand the problem. Do not begin disassembly or testing until you have narrowed down the possible causes.

### (2) Analyze the Circuit Diagram (schematic)

Analyze the diagram. Check circuits that share the wiring with the problem circuit. The names of shared circuits are often given on each Circuit Diagram to aid troubleshooting. Shared power and ground circuits can be found in the Power and Ground Distribution sections. Try to operate the shared circuits. If these circuits work, then the shared wiring is OK. The cause must be within the wiring used only by the problem circuit. If several circuits fail at the same time, chances are the power (fuse) or ground circuit is faulty.

### (3) Find the Cause

- Narrow down the possible causes.
- Before you replace a component, check power, signal, and ground wires at the component harness connector.

### (4) Repair the Problem

Once the specific problem is identified, make the repair. Be sure to use the correct tools and safe procedures.

### (5) Check the Repair

Check the operation of the repaired circuit in all modes to make sure you fixed the entire problem. If the problem was a blown fuse, be sure to test all of the circuits on that fuse. Make sure no new problems are present.

## TEST EQUIPMENT

Where applicable, Land Rover recommended testers should be used.

### Voltmeter and Test Light

Use a voltmeter or test light to check for voltage. While a test light shows whether or not voltage is present, a voltmeter indicates how much voltage there is.

**CAUTION:** A number of circuits include solid-state devices. Voltages in these circuits should be tested only with a 10-megohm or higher impedance digital multimeter. Never use a test light on circuits that contain solid-state devices. Damage to the device may result.

On circuits without solid-state devices, a test light may be used to check for voltage. A test light is made up of a 12-volt bulb with a pair of leads attached. After grounding one lead, touch the other lead to various points along the circuit where voltage should be present. The bulb will come on if the voltage at the point being tested is greater than 5 volts.

### Self-powered Test Light and Ohmmeter

Use a self-powered test light or ohmmeter to check for continuity. The ohmmeter shows how much resistance there is between two points along a circuit. Low resistance means good continuity.

**CAUTION:** Never use a self-powered test light on circuits that contain solid-state devices. Damage to these devices may result.

Diodes and solid-state devices in a circuit can make an ohmmeter give a false reading. To find out if a component is affecting a measurement, take one reading, reverse the leads, and take a second reading. If the readings differ, the component is affecting the measurement.

Circuits that contain solid-state devices should only be tested with a 10-megohm or higher impedance digital multimeter.

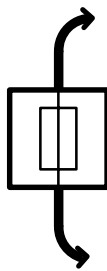
A self-powered test light consists of a light bulb, Battery and two leads. If the leads are touched together, the bulb will go on.

A self-powered test light is only used on an unpowered circuit. First, disconnect the battery or remove the fuse that feeds the circuit you are working on. Select two points along the circuit through which there should be continuity. Connect one lead of the self-powered test light to each point. If there is continuity, the test light's circuit will be completed and the bulb will go on.

#### **Fused Jumper Wire**

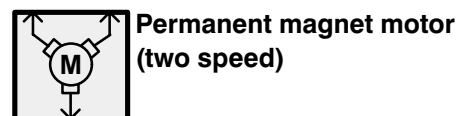
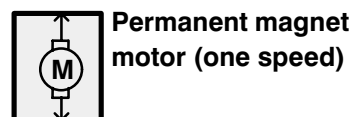
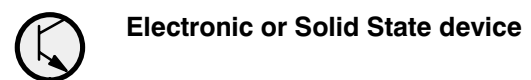
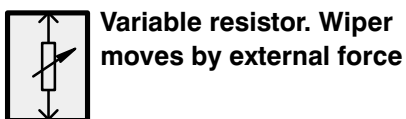
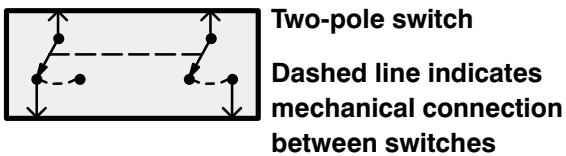
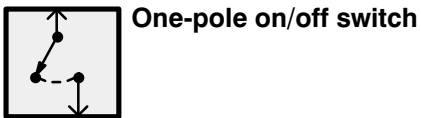
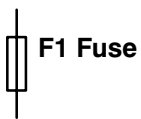
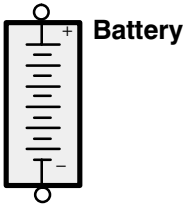
Use a fused jumper wire to bypass an open circuit. A fuse jumper wire is made up of an in-line fuse holder connected to a set of test leads. Never use a jumper wire across any load. This direct battery short will blow the fuse.

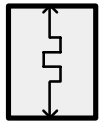
The following symbol represents a fused jumper:



## SYMBOLS

The abbreviations and symbols explained here are used throughout the manual; it is necessary to know what they mean in order to use the diagrams effectively.

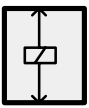




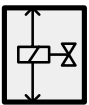
Heating Element



Loudspeaker or horn



Coil

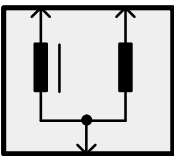


Solenoid

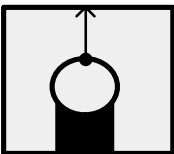


Relay

Switch is drawn into the closed position when current flows through coil



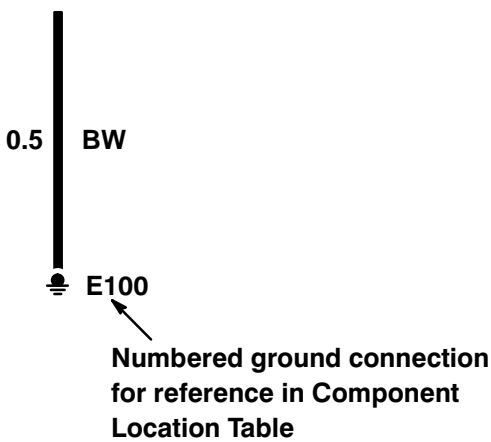
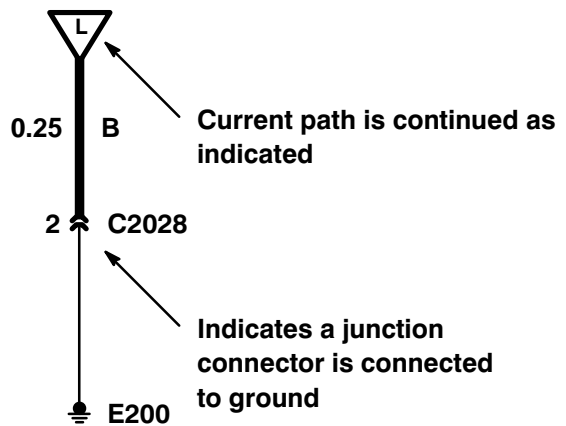
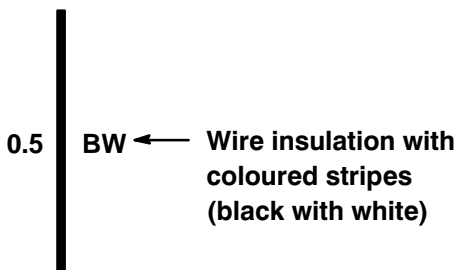
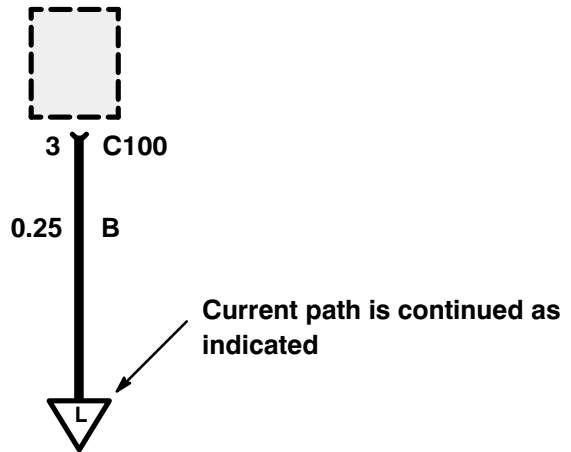
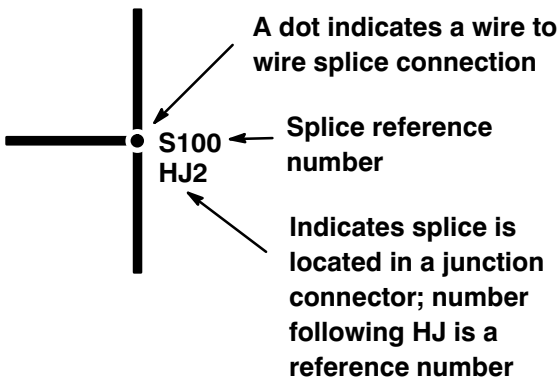
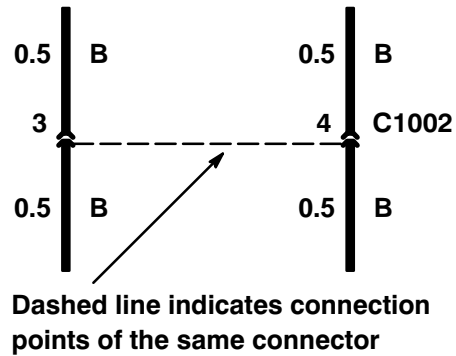
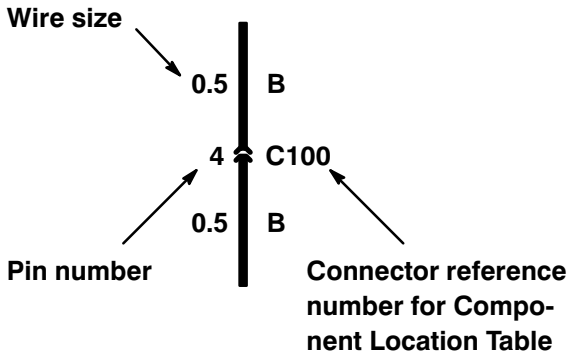
Ignition Coil

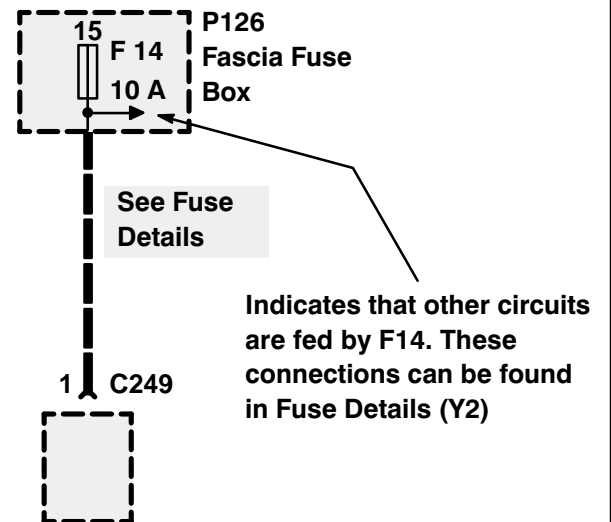
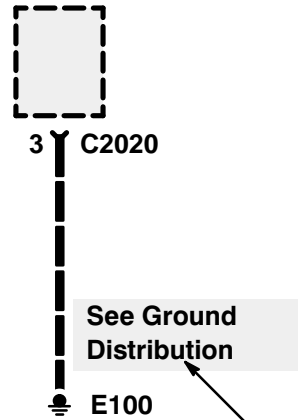
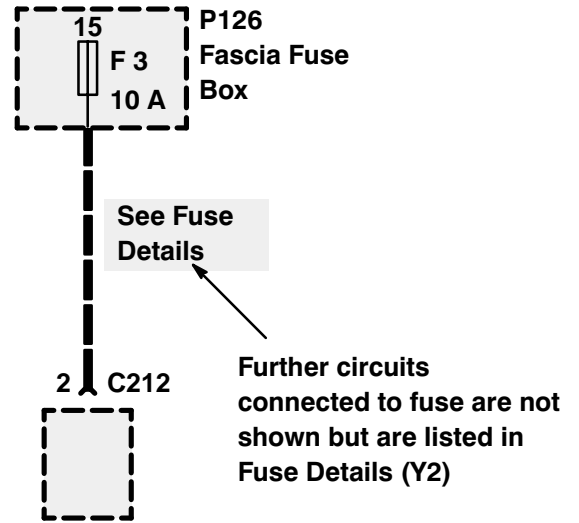
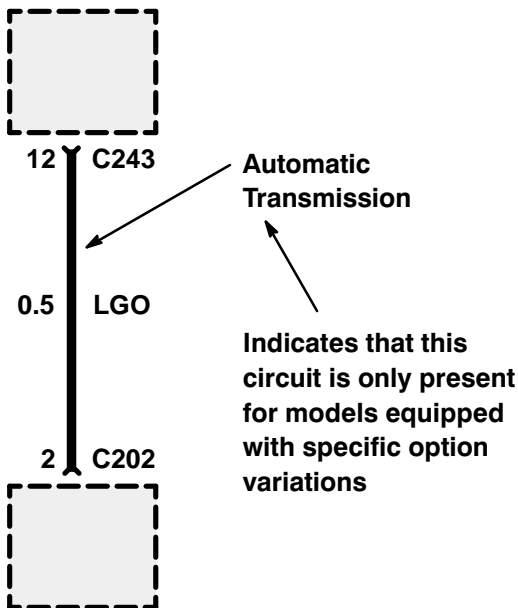
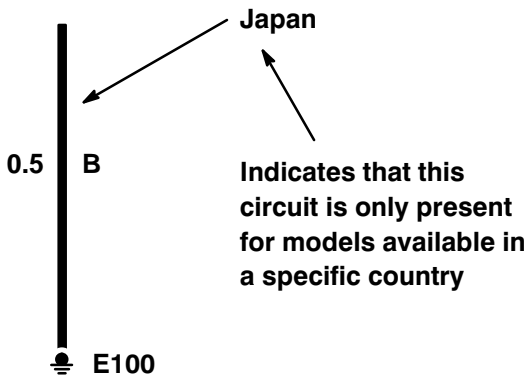
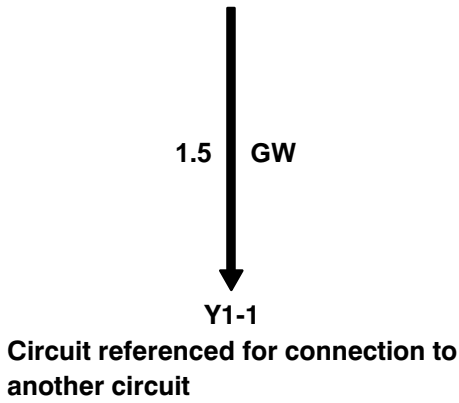


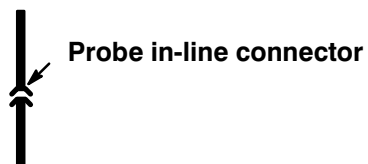
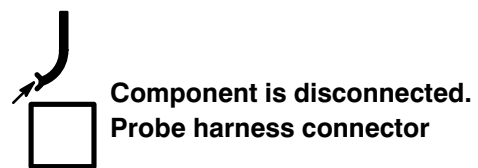
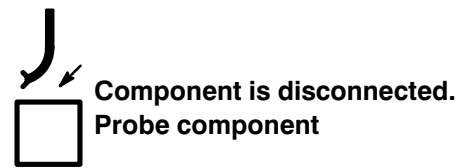
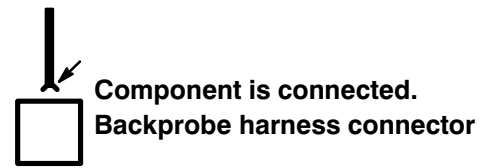
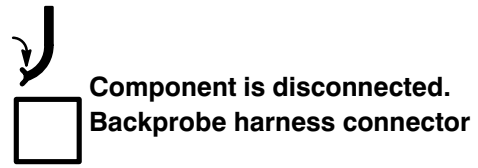
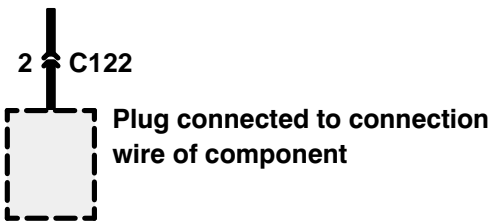
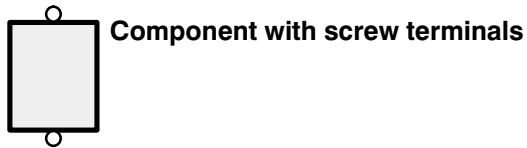
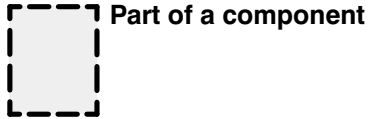
Steering Column  
Horn Brush/  
Slip Ring



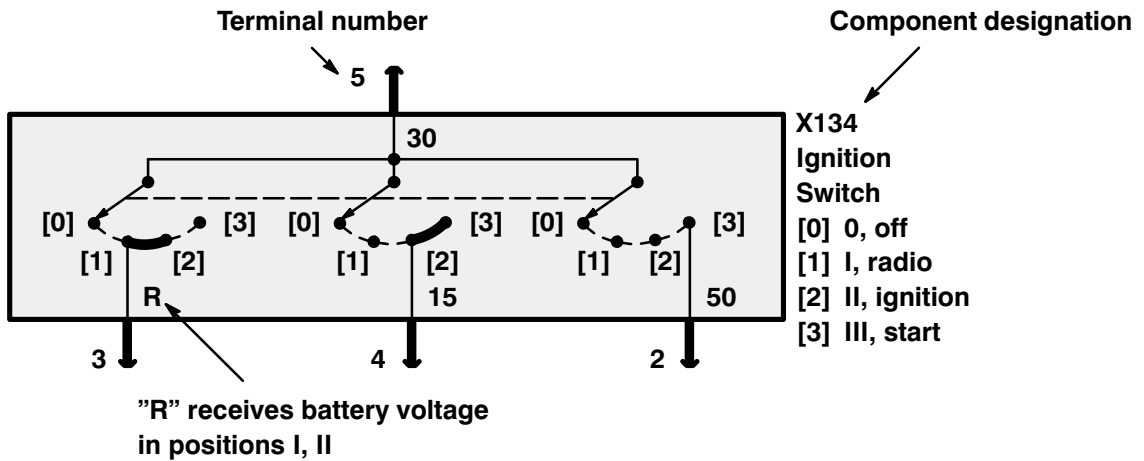
Antenna











| Terminal number | Designation  | Terminal number | Designation   |
|-----------------|--|-----------------|---|
| 50              | Battery voltage: Ignition Switch in position III       | X               | Switched battery voltage through the ignition load relay; ignition switch is in position II or III. |
| 30              | Battery voltage: supplied constantly                   | 49              | Flasher unit input  |
| 15              | Battery voltage: Ignition Switch in position II or III | 49a             | Flasher unit output   |
| R               | Battery voltage: Ignition Switch in positions I, II    | 56a             | High beam   |
| 31              | Ground   | 56b             | Low beam  |
|                 |  | 85              | End of relay coil   |
|                 |  | 86              | Start of relay coil   |
|                 |  | 87              | Relay contact   |
|                 |  | 87a             | Relay contact   |

### Definition of Vehicle Component Codes

All components are identified by a letter followed by an arbitrary number assigned to the component. The letter assigned to the component indicates the type of component.

|          |  |
|----------|--|
| <b>B</b> | <b>Bulbs, Heated Screens, Mirror Demisters, Cigar Lighters, and Heated Washer Jets</b> |
| <b>K</b> | <b>Relays, Solenoids, Speakers, and Resistors</b>                                      |
| <b>M</b> | <b>Motors</b>  |
| <b>P</b> | <b>Fuse Boxes and Fusible Links</b>  |
| <b>X</b> | <b>Switches and Sensors</b>  |
| <b>Z</b> | <b>Electronic Control Units, Modules, Shields, Diodes, and Capacitors</b>              |

### Wire Colours

All wires are identified by letters which indicate a certain colour. Wire colour and size will only be shown once if it does not change throughout the circuit. The following chart explains the wire colour abbreviations.

#### Wire Colour Chart

|                   |                   |
|-------------------|-------------------|
| <b>B - Black</b>  | <b>P - Purple</b> |
| <b>G - Green</b>  | <b>R - Red</b>    |
| <b>K - Pink</b>   | <b>S - Grey</b>   |
| <b>L - Light</b>  | <b>U - Blue</b>   |
| <b>N - Brown</b>  | <b>W - White</b>  |
| <b>O - Orange</b> | <b>Y - Yellow</b> |

**Circuit Qualifiers**

Certain abbreviations are used throughout the Electrical Troubleshooting Manual as circuit qualifiers. The following list explains all abbreviations used as qualifiers in the Circuit Diagrams.

|                            |   |
|----------------------------|---|
| <b>ABS</b>                 | <b>Anti-Lock Braking System</b>                           |
| <b>CPU</b>                 | <b>Central Processing Unit</b>                            |
| <b>LHD</b>                 | <b>Lefthand Drive</b>                                     |
| <b>RHD</b>                 | <b>Righthand Drive</b>                                    |
| <b>LWB</b>                 | <b>Long Wheel Base</b>                                    |
| <b>SWB</b>                 | <b>Short Wheel Base</b>                                   |
| <b>NAS</b>                 | <b>North American Countries</b>                           |
| <b>MFI-V8</b>              | <b>Multiport Fuel Injection (MFI-V8)</b>                  |
| <b>MFI-T16</b>             | <b>Multiport Fuel Injection (MFI-T16)</b>                 |
| <b>300 Tdi</b>             | <b>Tdi Diesel</b>   |
| <b>300 Tdi with EGR</b>    | <b>Tdi Diesel with Exhaust Gas Recirculation (EGR)</b>    |
| <b>300 Tdi without EGR</b> | <b>Tdi Diesel without Exhaust Gas Recirculation (EGR)</b> |
| <b>300 Tdi with EDC</b>    | <b>Tdi Diesel with Electronic Diesel Control (EDC)</b>    |
| <b>300 Tdi without EDC</b> | <b>Tdi Diesel without Electronic Diesel Control (EDC)</b> |

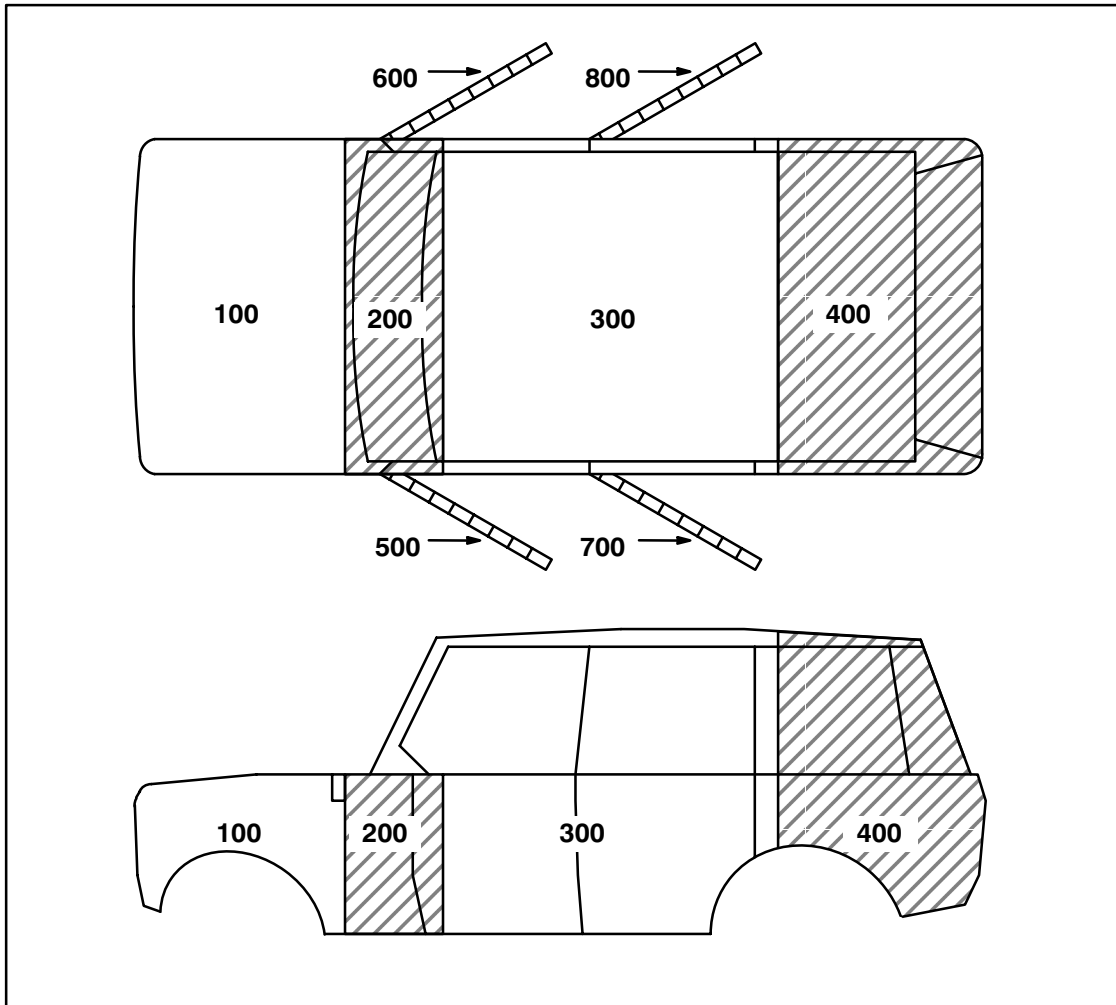
**Switch Positions**

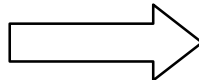
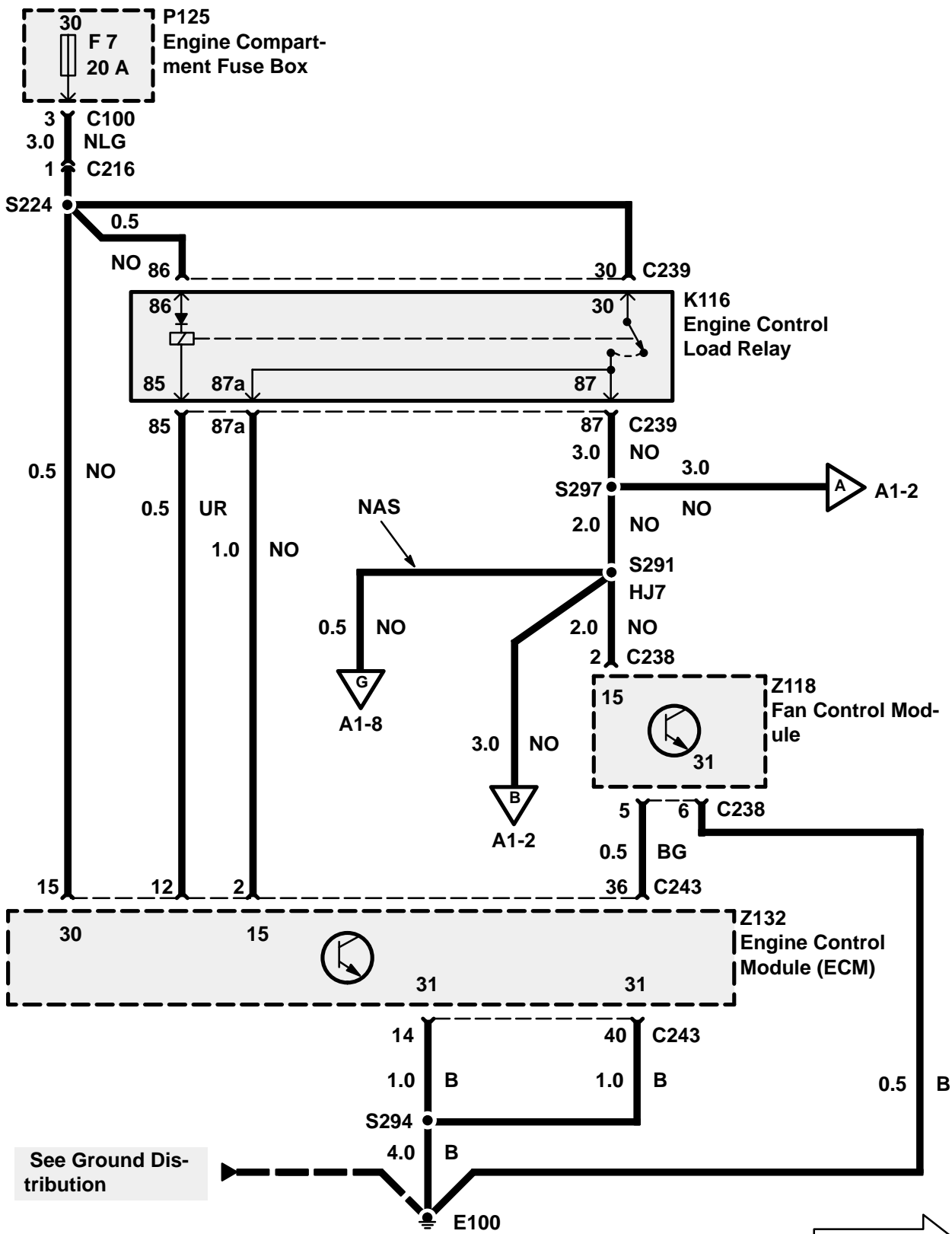
Certain abbreviations are used throughout the Electrical Troubleshooting Manual as Switch Position notes. The following list explains all abbreviations used as Switch Position notes in the Circuit Diagrams.

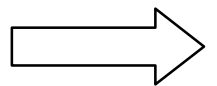
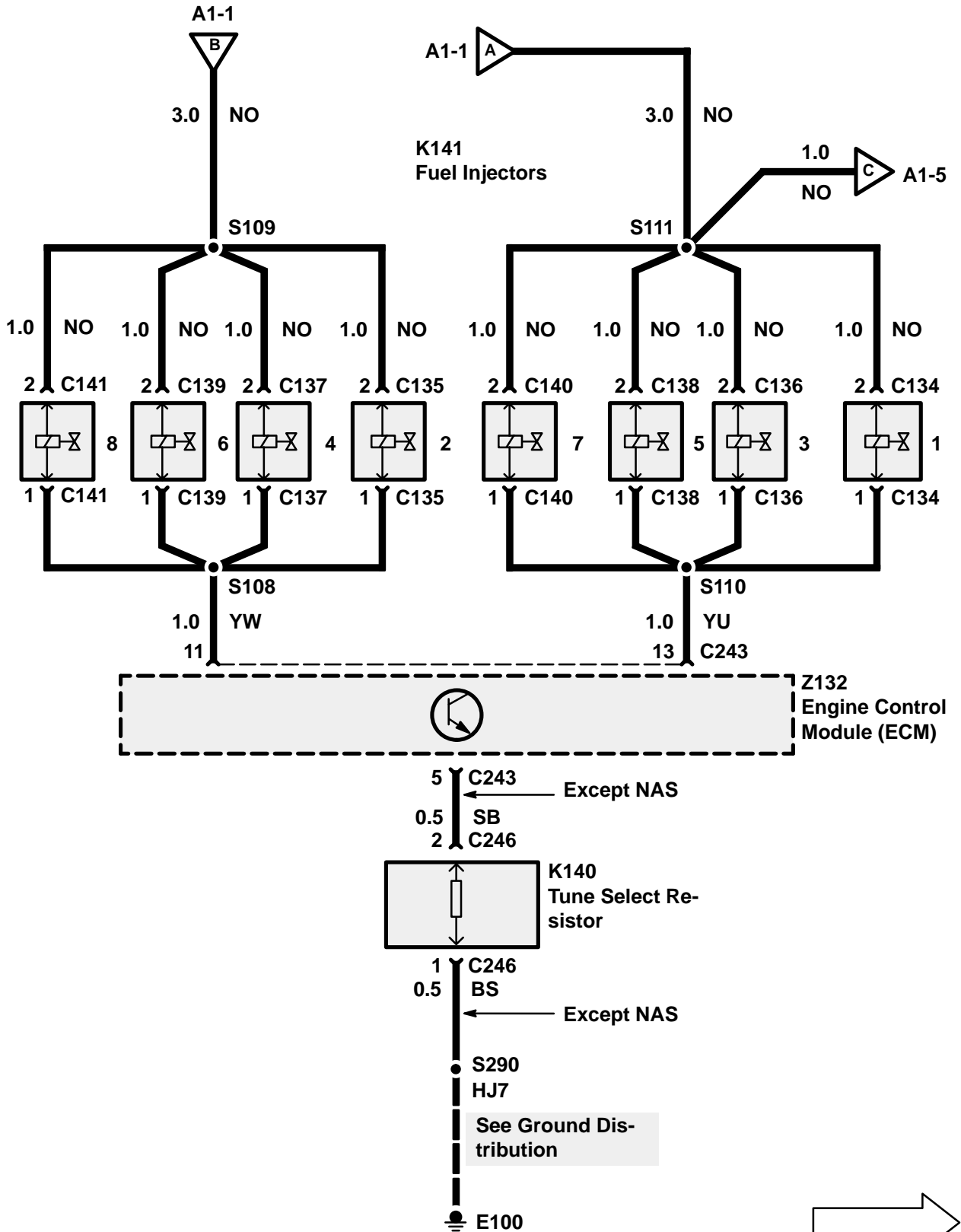
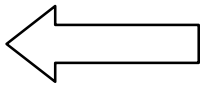
|                  |                       |
|------------------|-----------------------|
| <b>&lt; 100°</b> | <b>Less than 100°</b> |
| <b>&gt; 100°</b> | <b>More than 100°</b> |

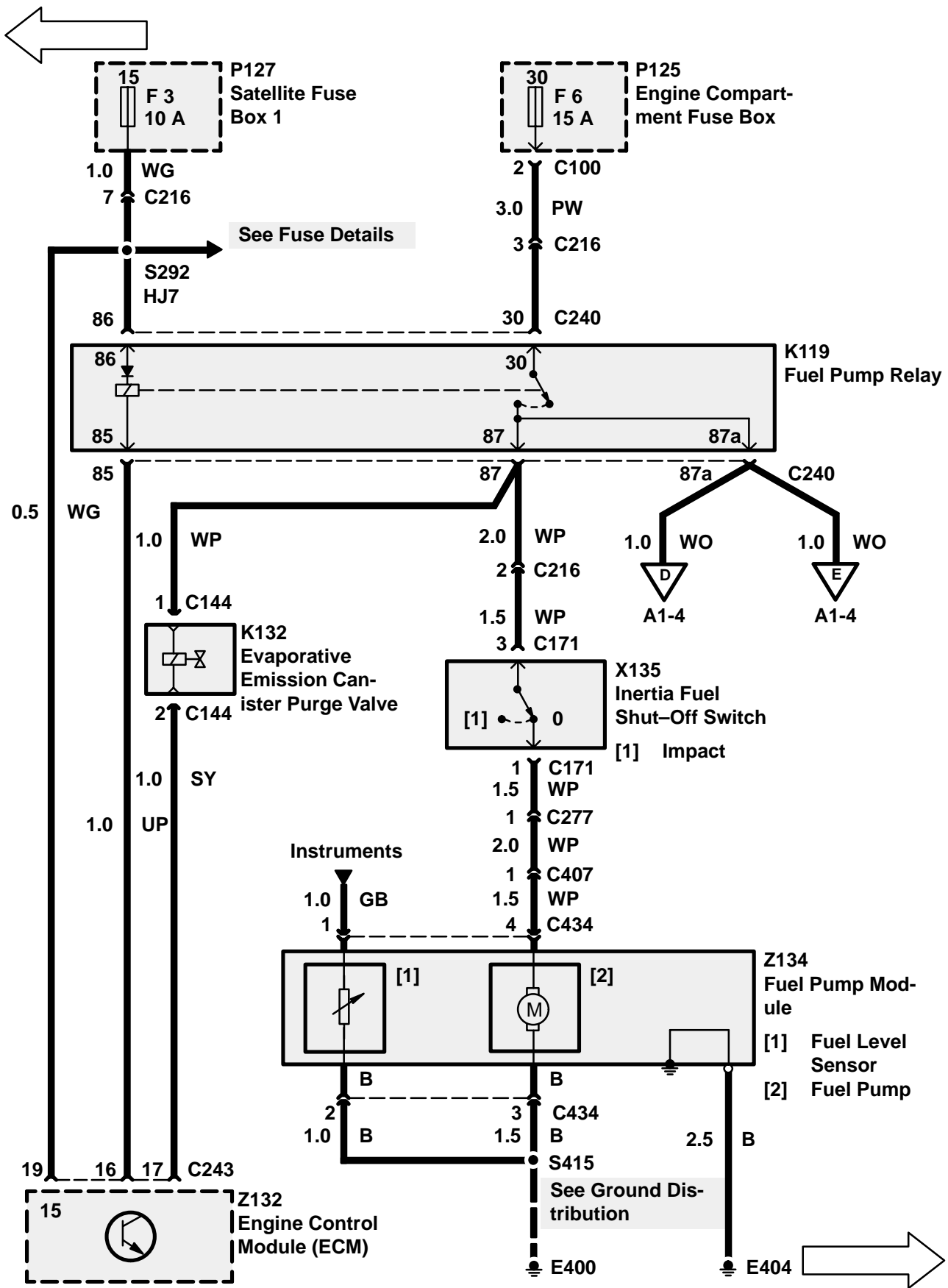
Connectors, Grounds, and Splices are identified by a letter followed by a number. Connectors are identified by C, grounds by E, and splices by S. Some splices are contained in junction connectors. These splices are identified by the prefix "HJ" below the splice's reference number. The number assigned to the connector, ground, or splice corresponds to its location in the vehicle.

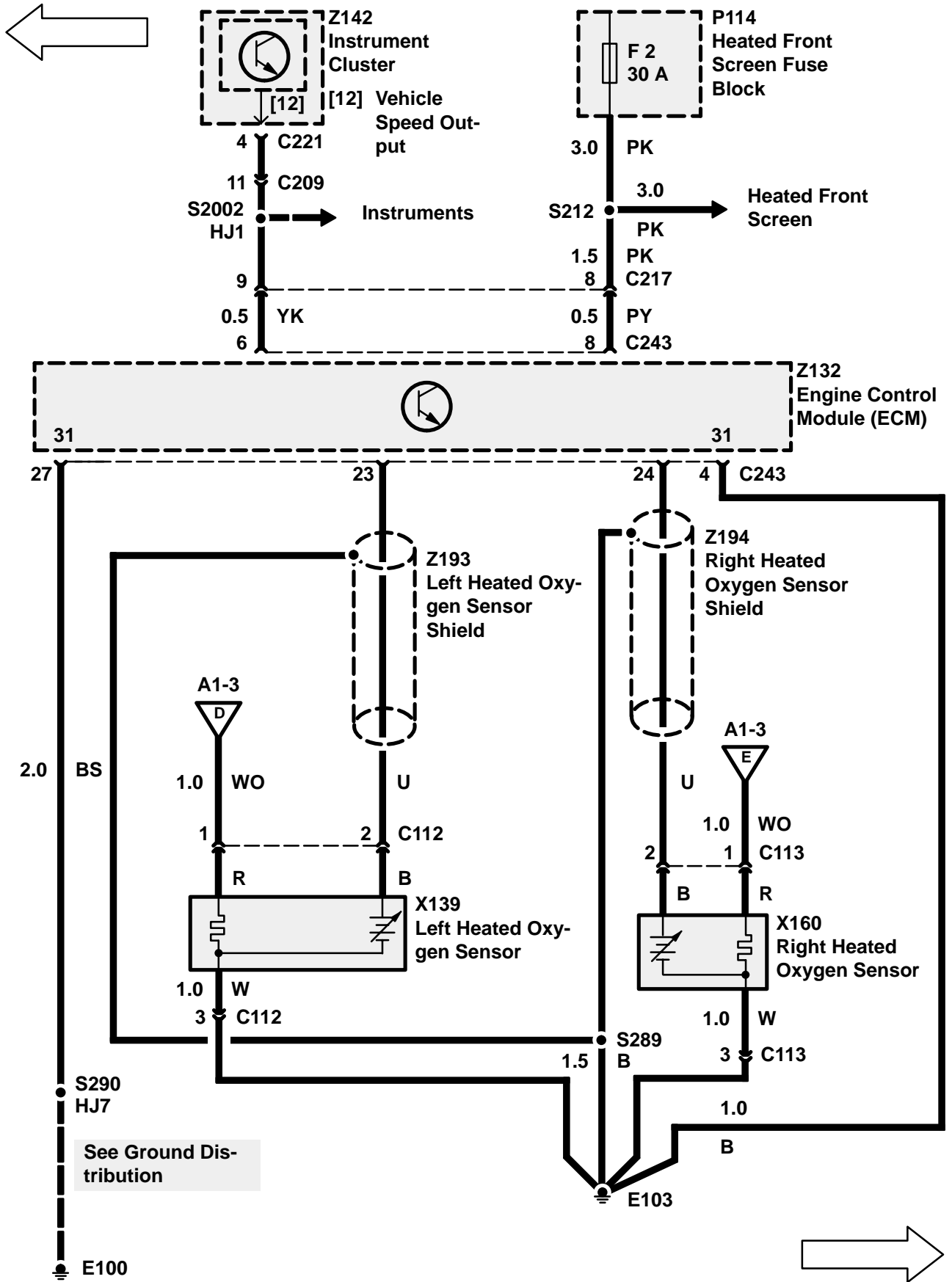
#### Connector, Ground, and Splice Identification by Location



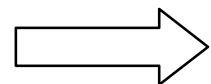
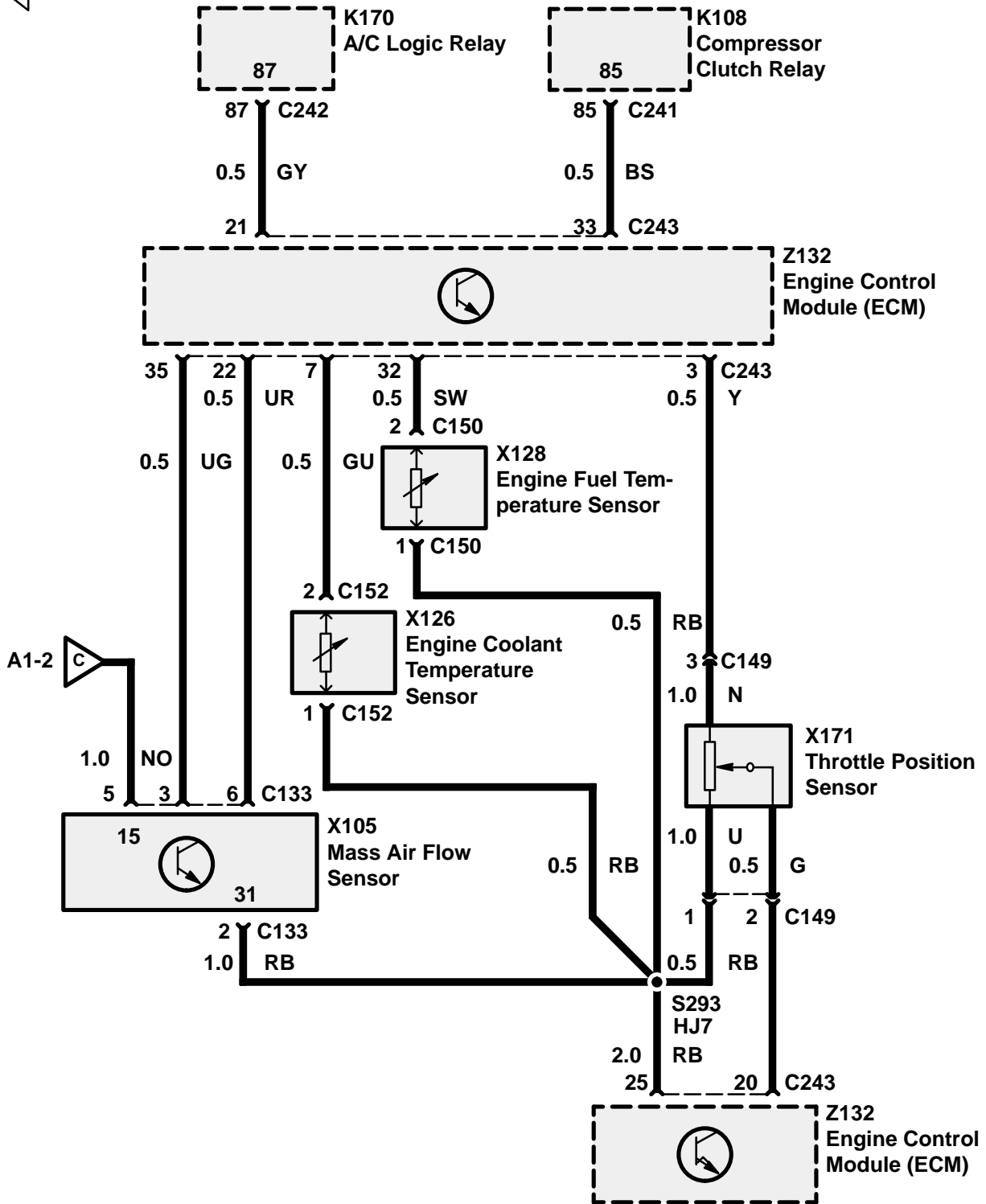
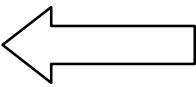






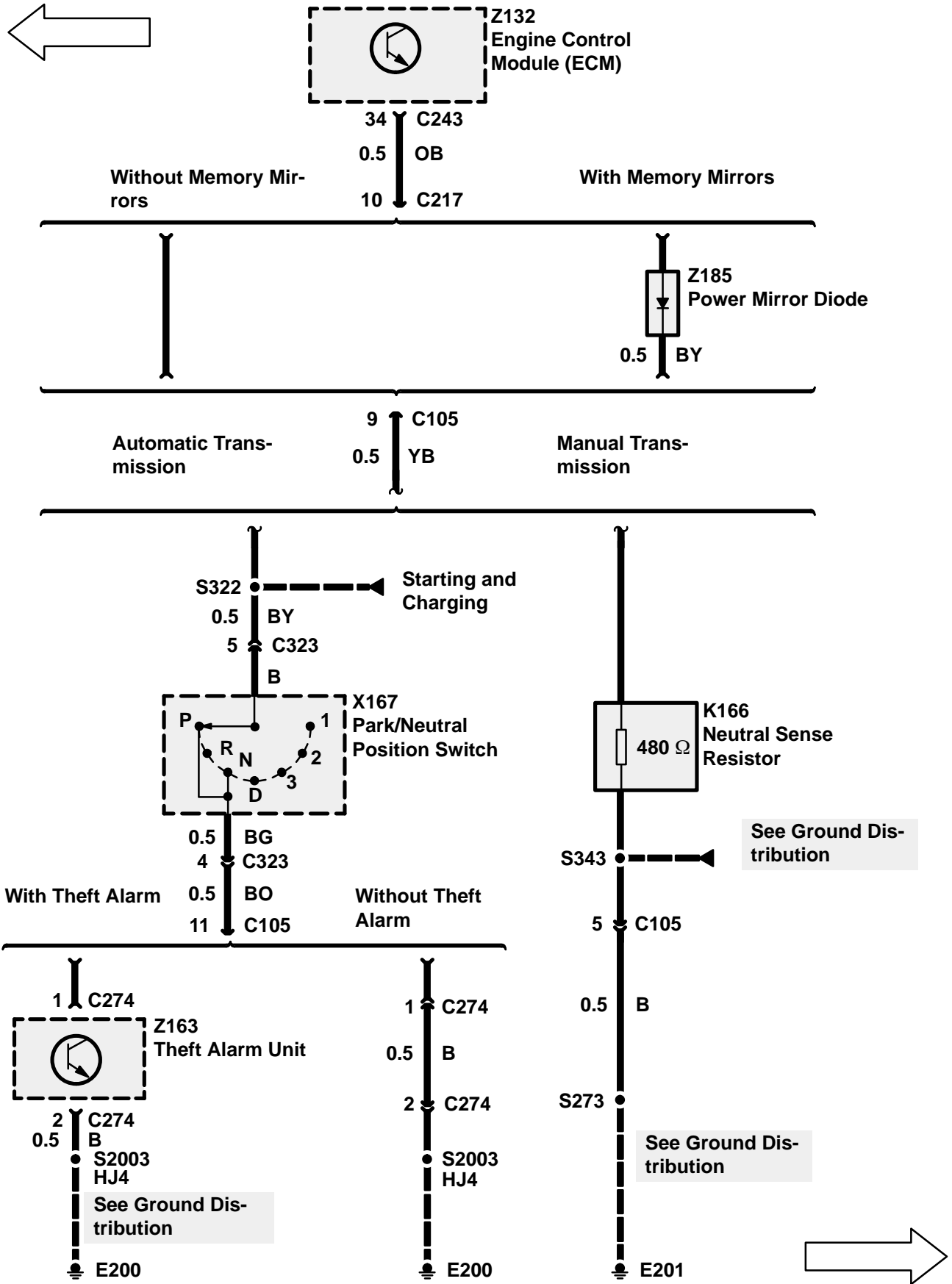


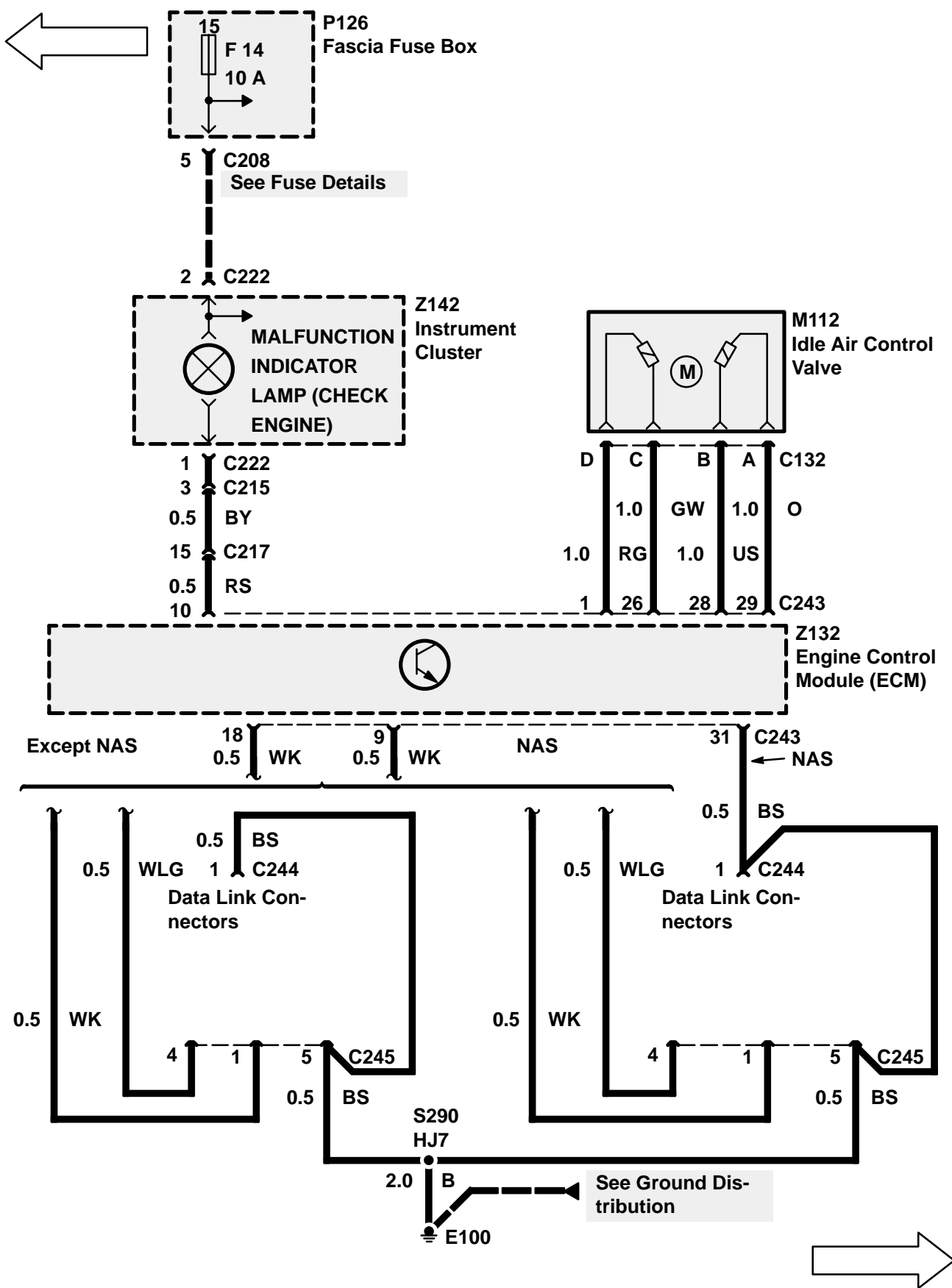


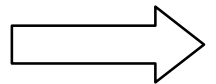
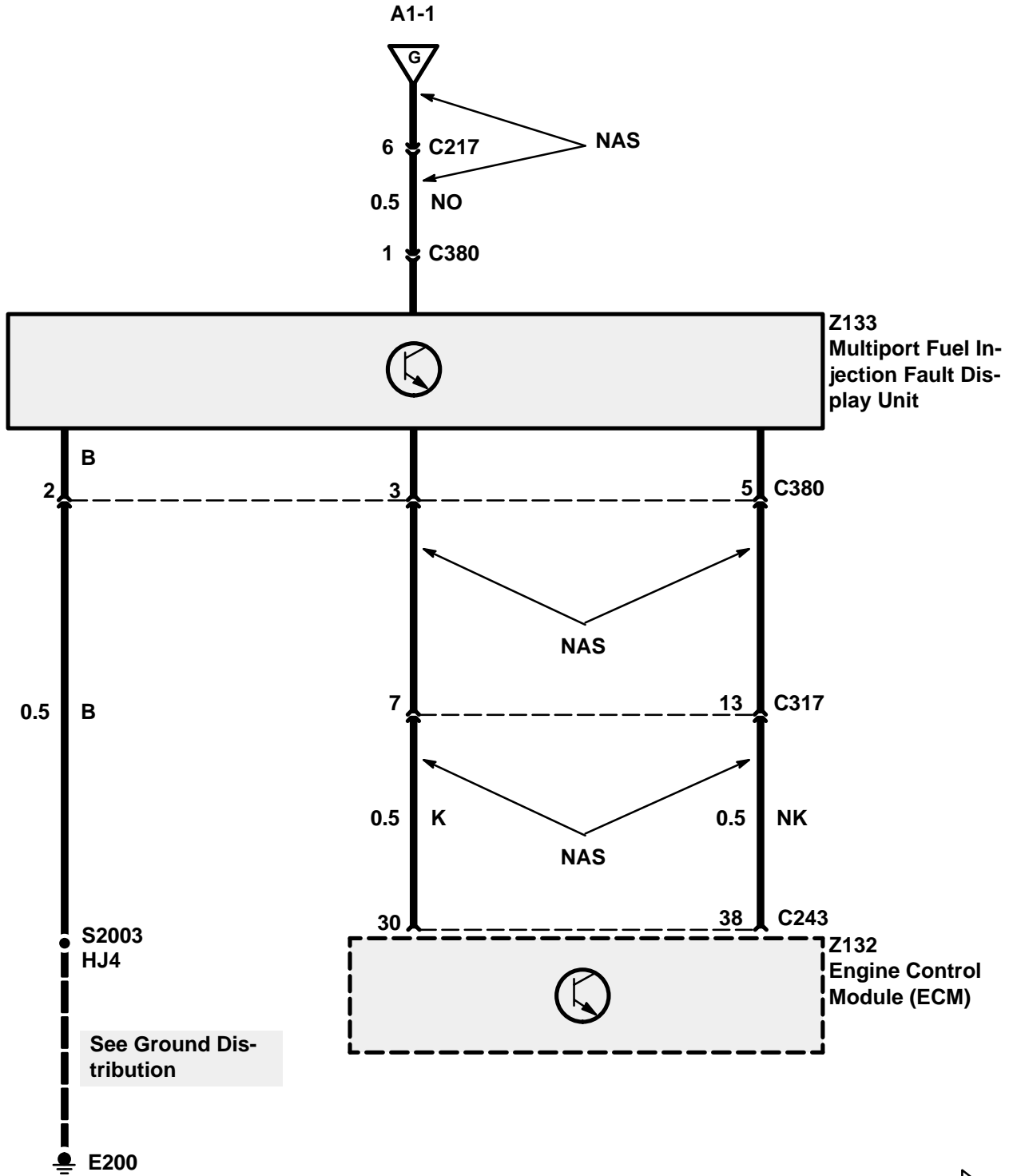
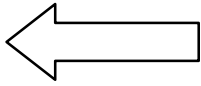


# A1 ETM

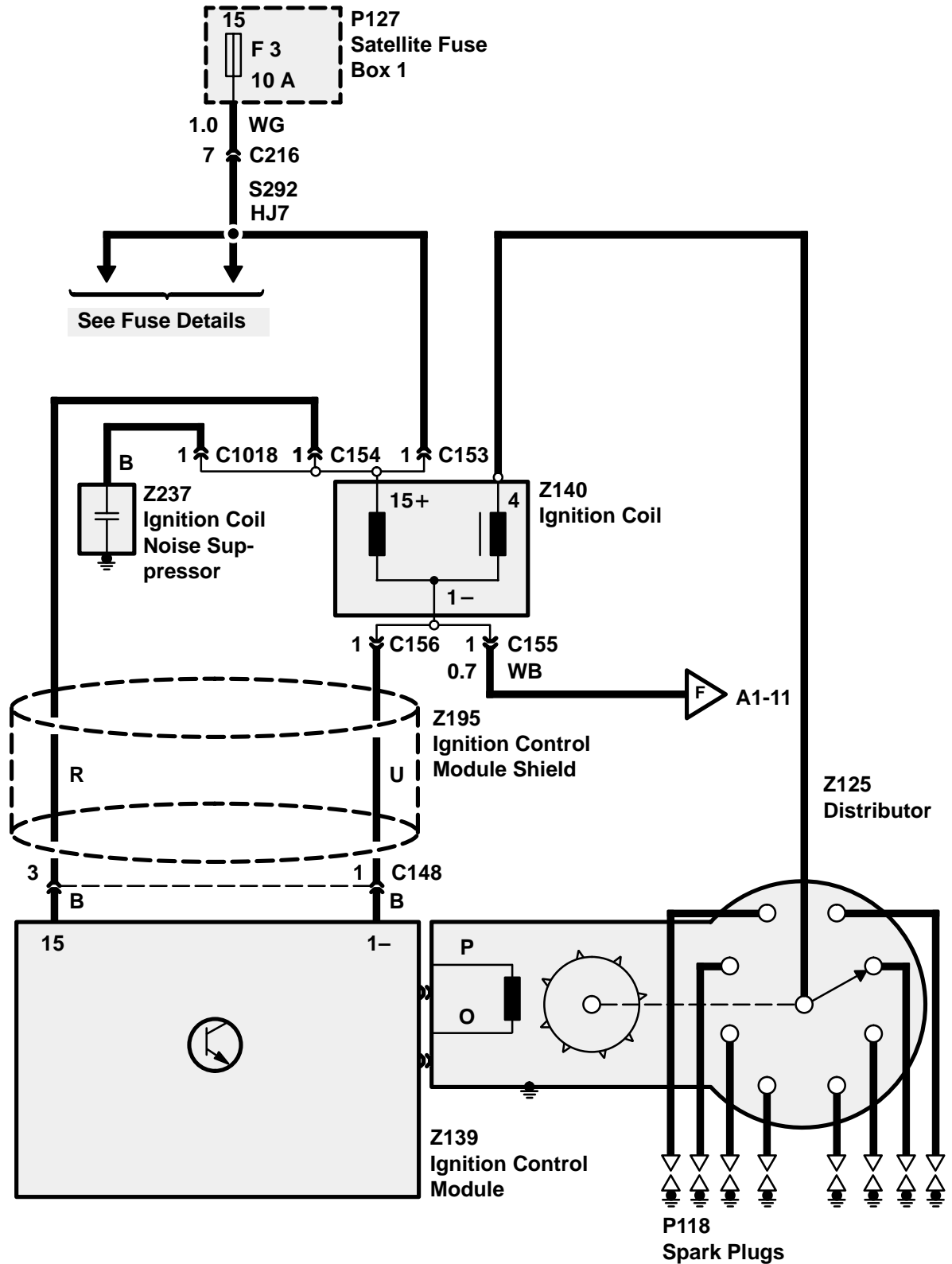
## 1995 RANGE ROVER



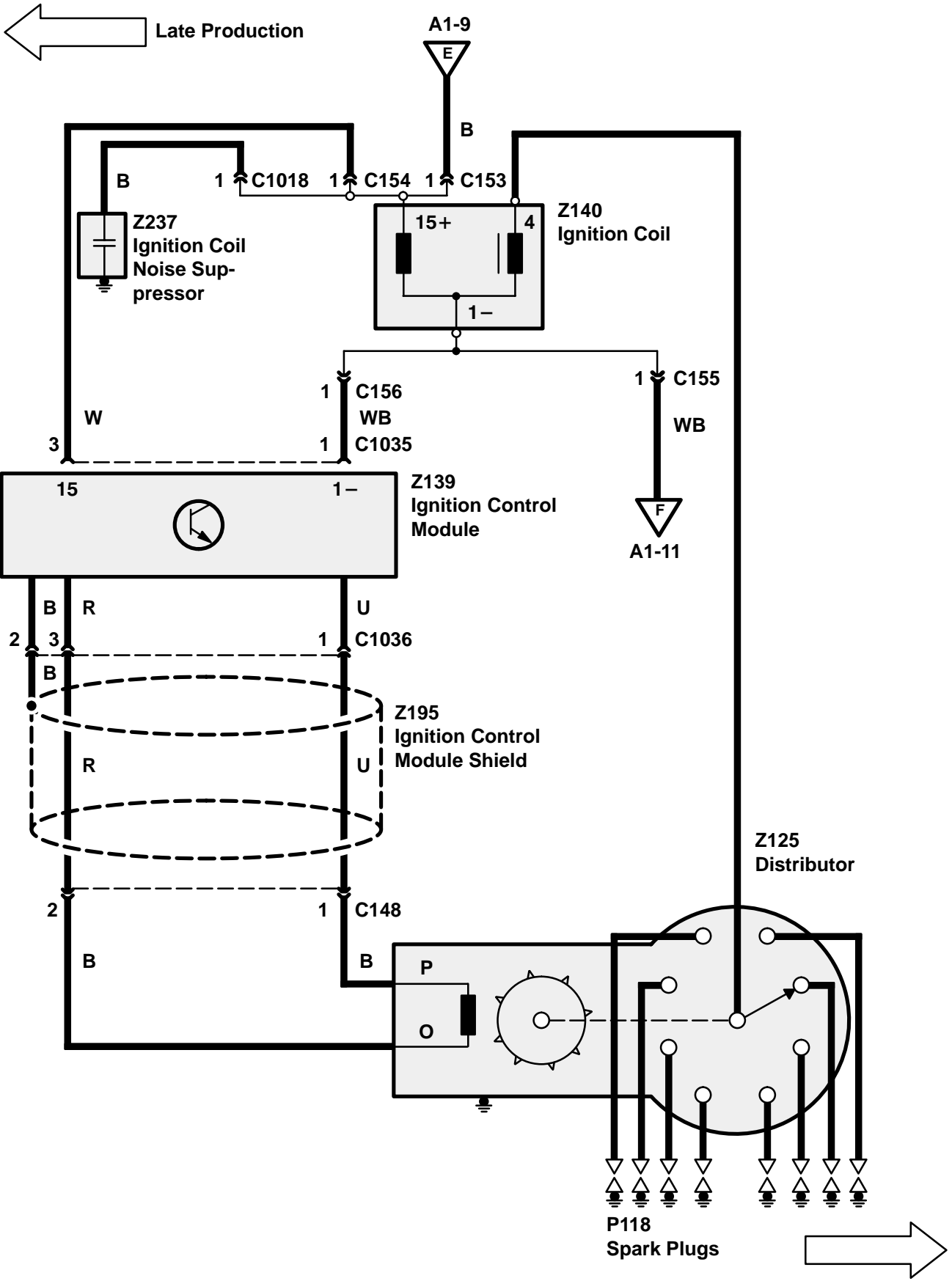


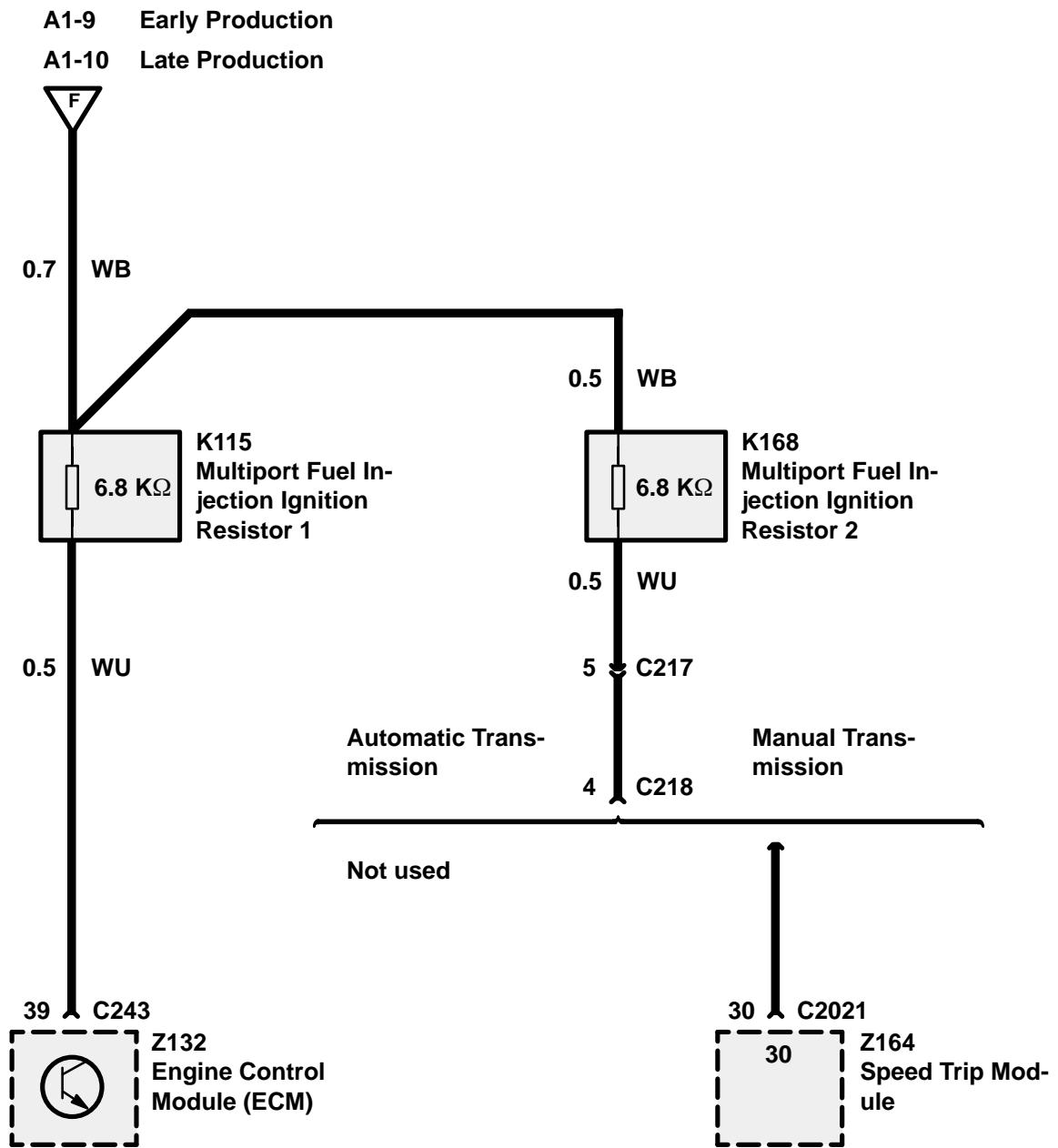
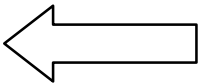


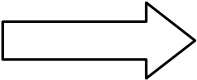
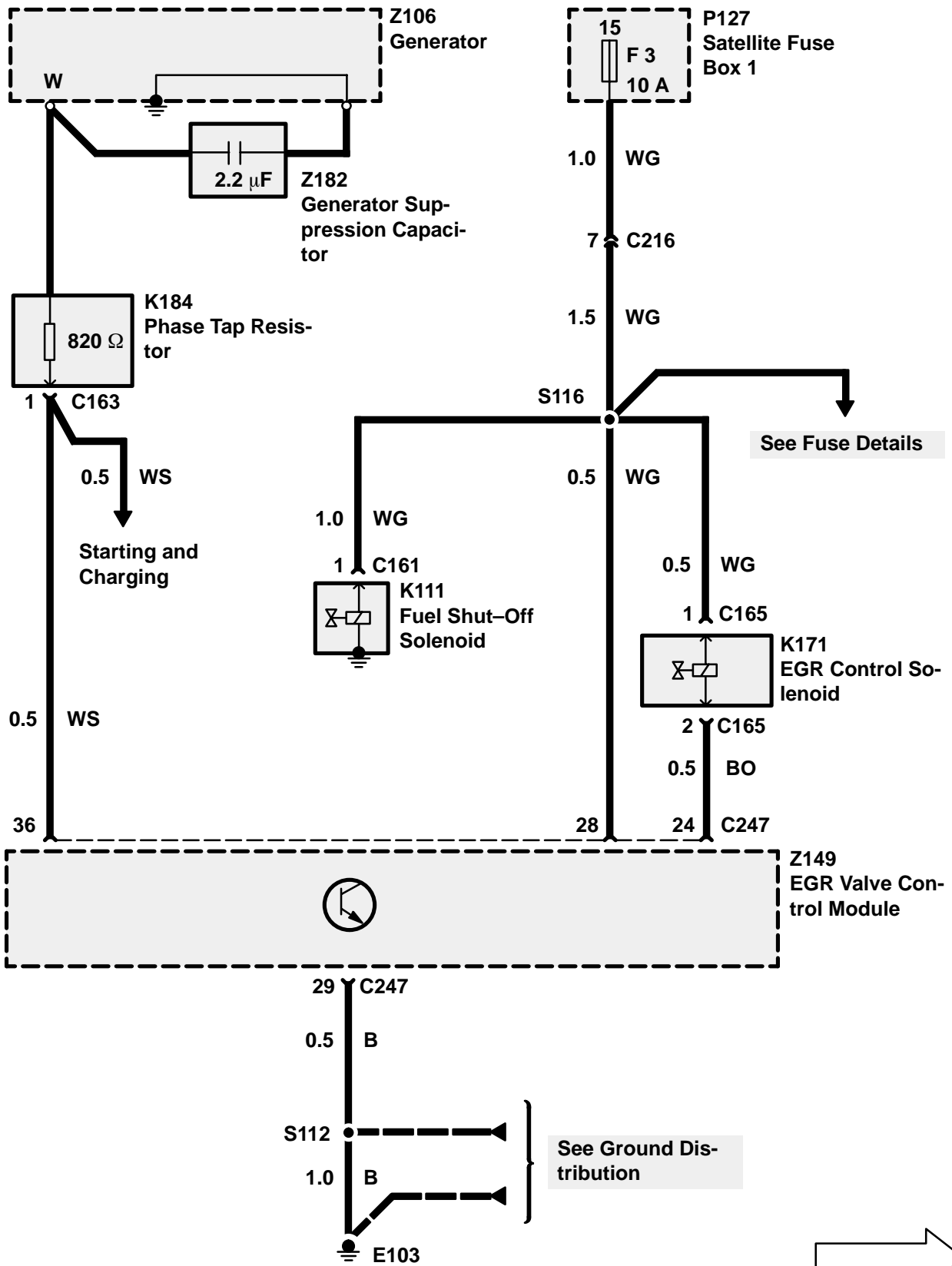
← Early Production



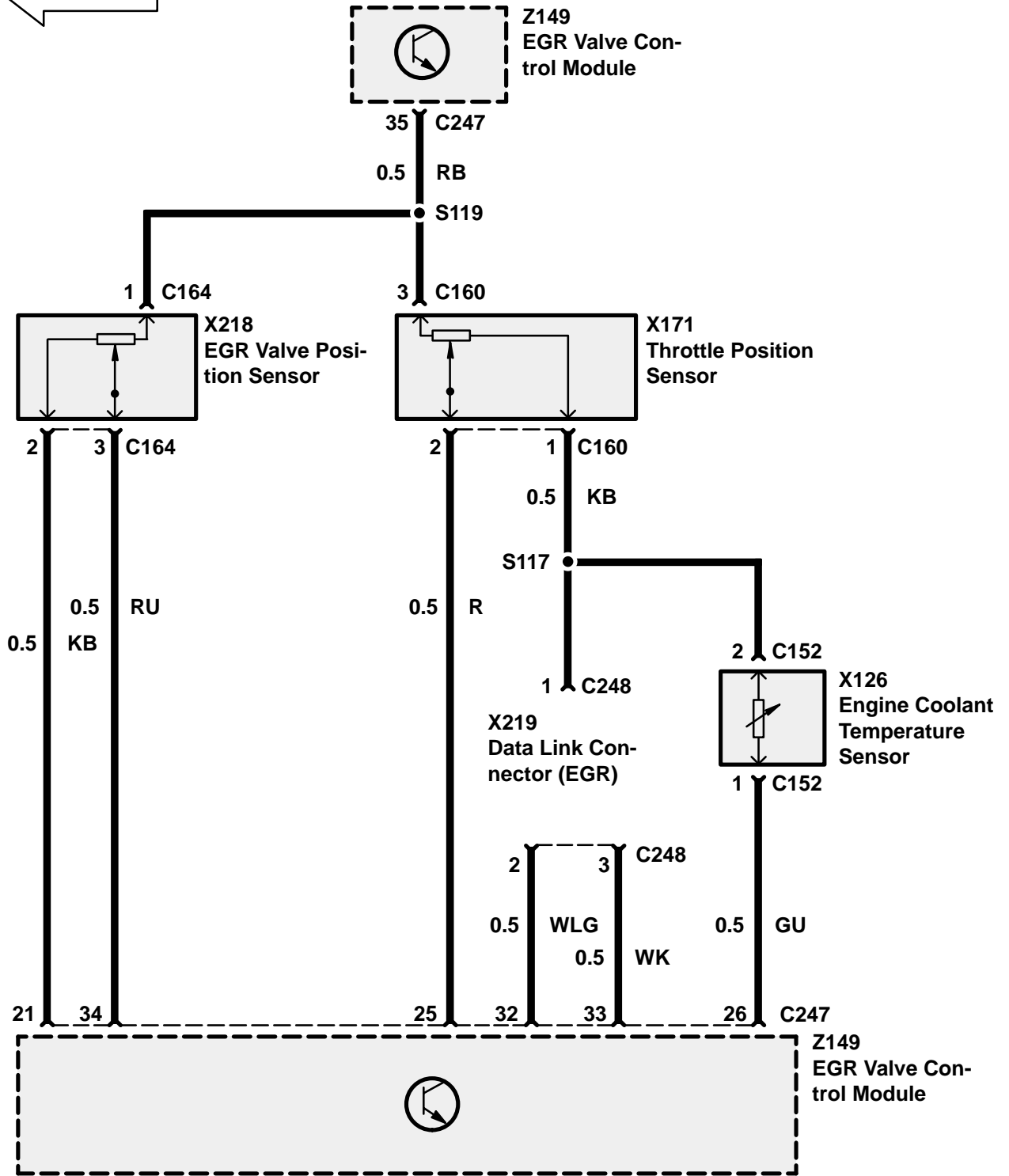
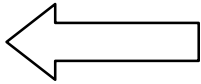
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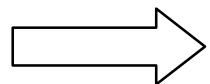
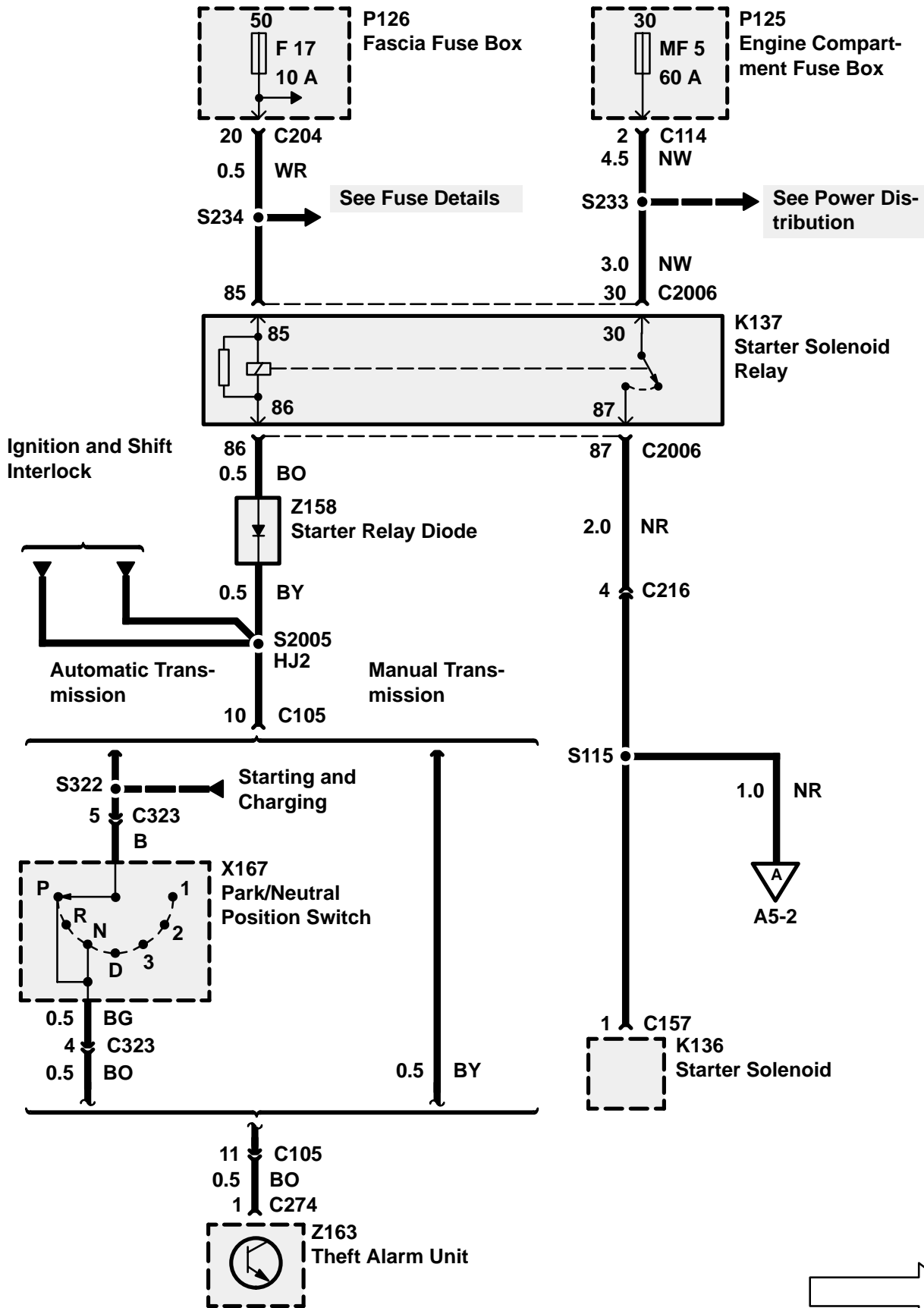


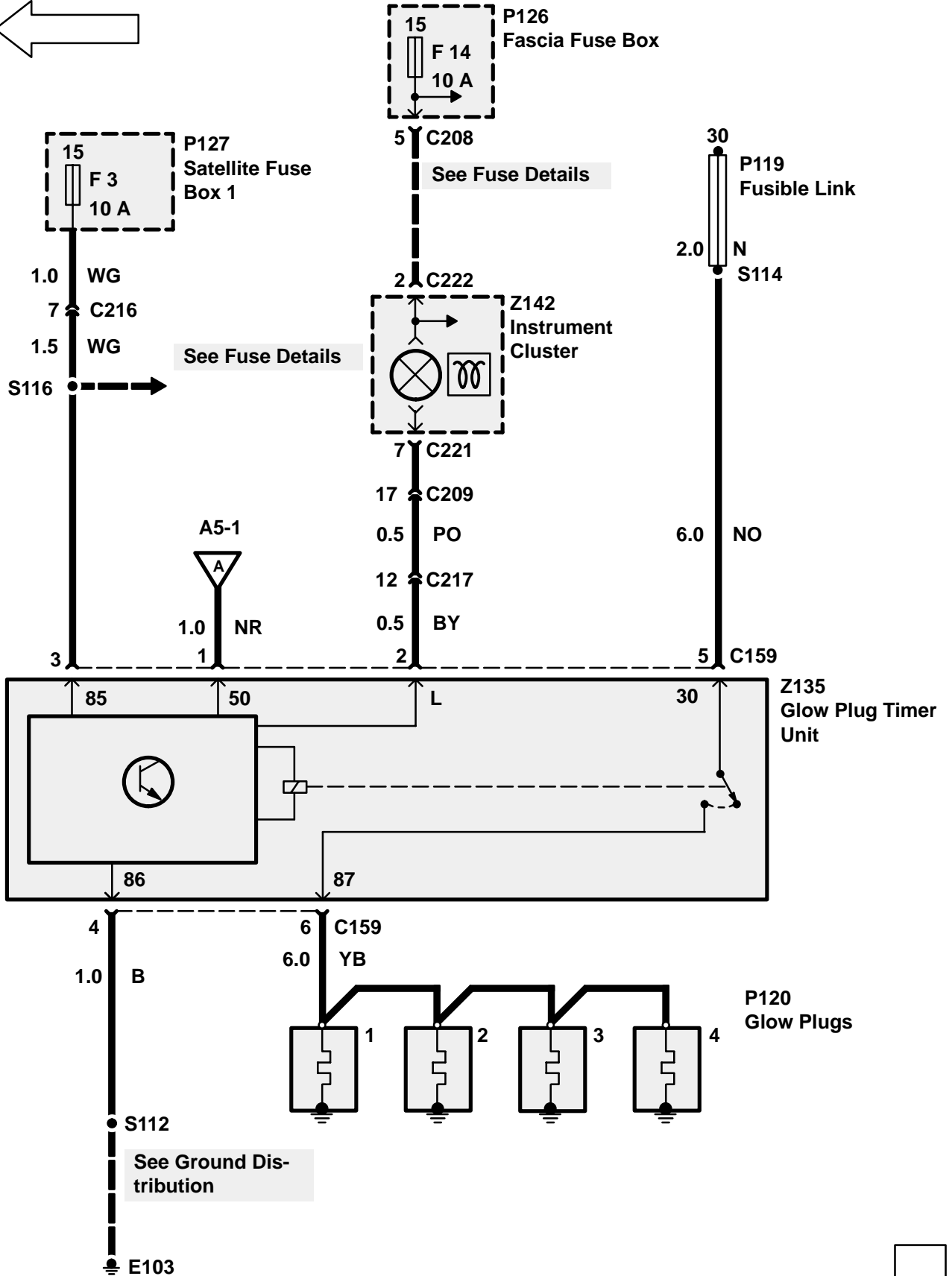
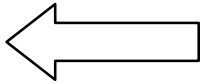












**CIRCUIT OPERATION****Starting System**

Putting the Ignition Switch (X134) in position III applies battery voltage to the Starter Solenoid Relay (K137). The Starter Solenoid Relay (K137) energizes and applies battery voltage to the Starter Solenoid (K136) and Starter (M134).

On manual transmission vehicles equipped with a theft alarm, the Theft Alarm Unit (Z163) provides a ground circuit to the Starter Solenoid Relay's (K137) 86 terminal.

On automatic transmission vehicles equipped with a theft alarm, the Theft Alarm Unit (Z163) provides a ground circuit to the Starter Solenoid Relay's (K137) 86 terminal via the Park/Neutral Position Switch (X167).

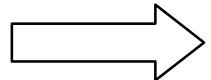
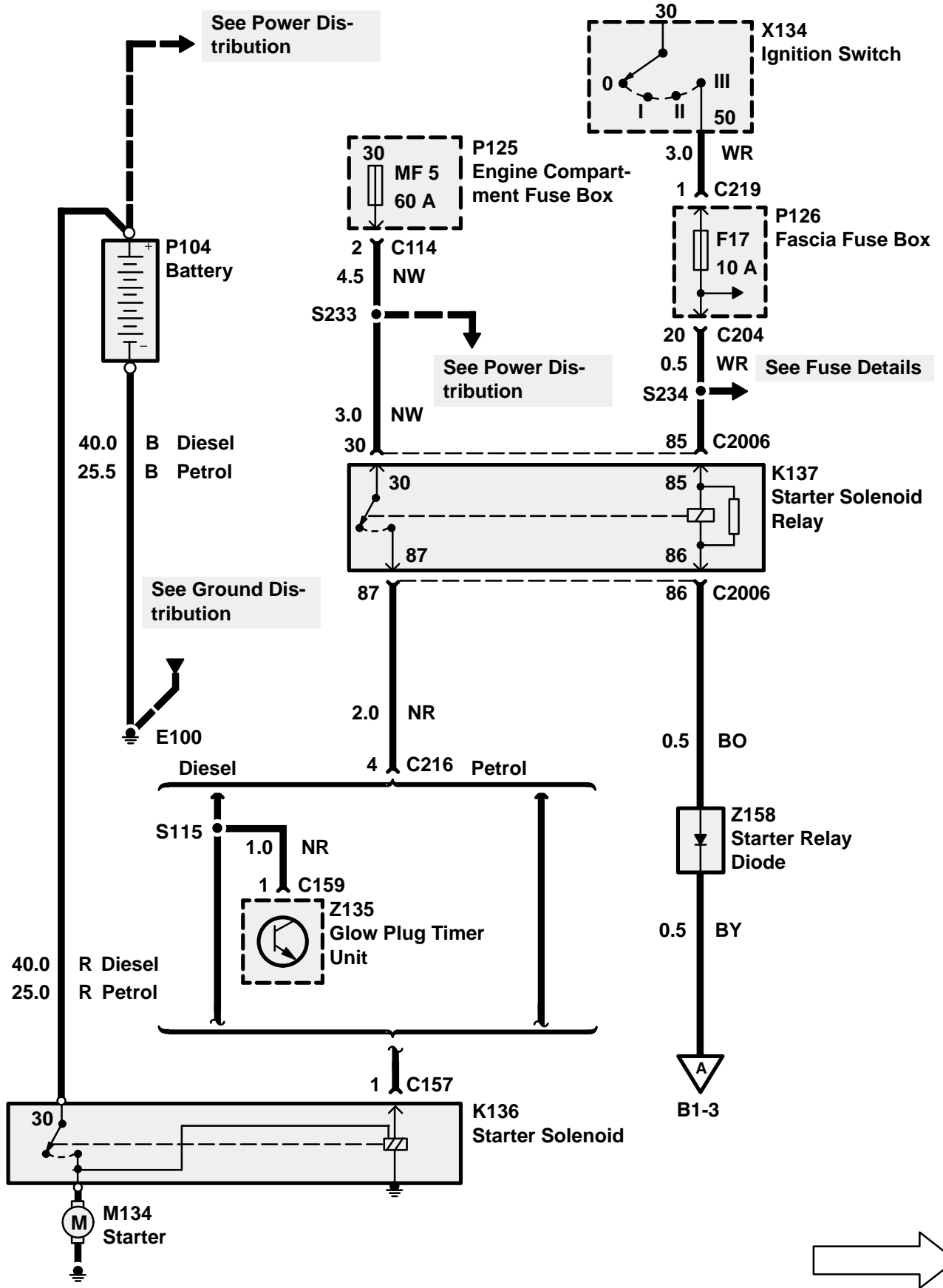
If the theft alarm is activated, the Theft Alarm Unit (Z163) will interrupt the Starter Solenoid Relay's (K137) ground path and prevent starting the engine.

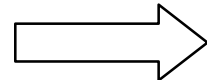
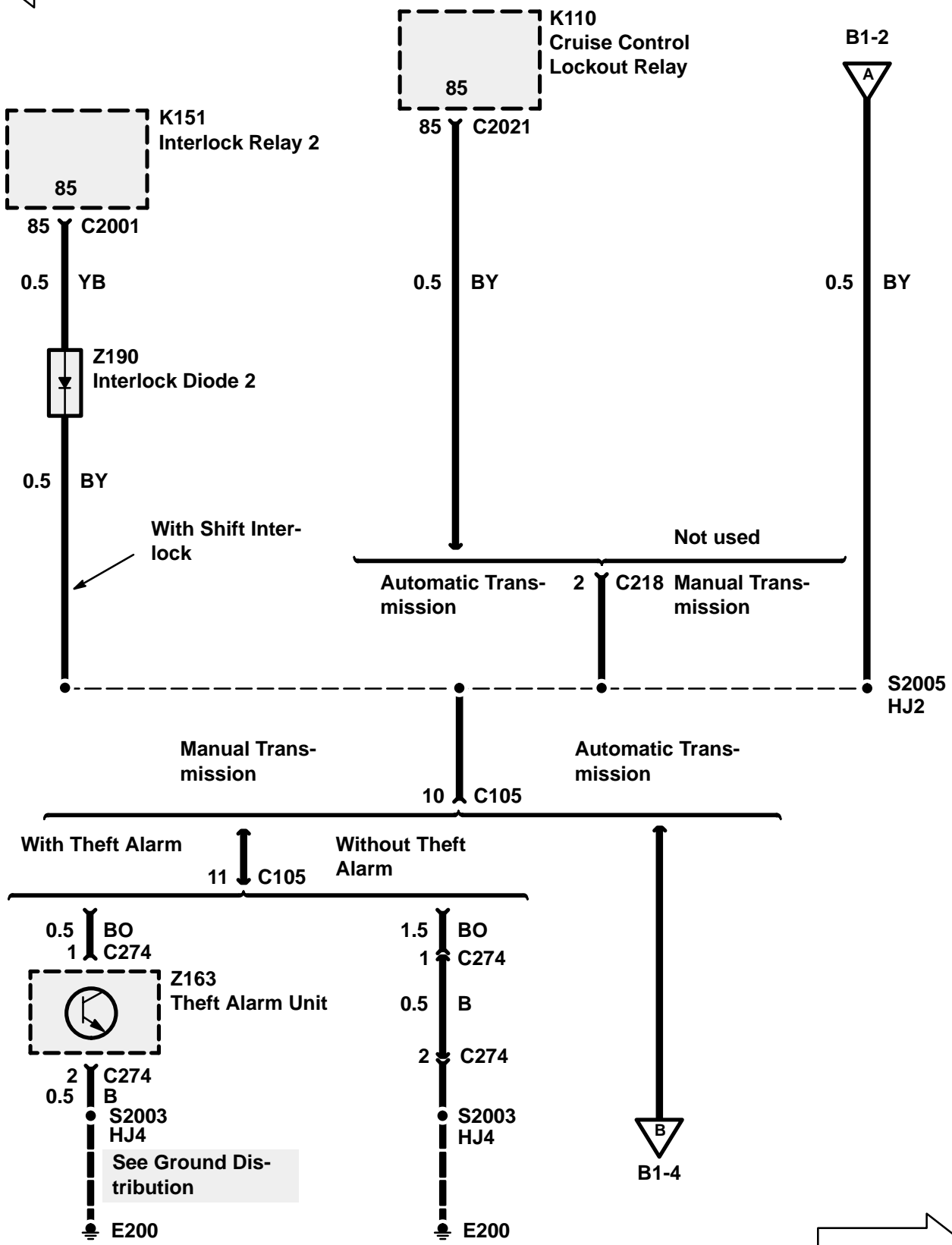
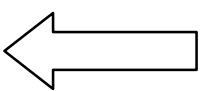
For vehicles not equipped with Theft Alarm, a black wire is used to short pins 1 and 2 of C274.

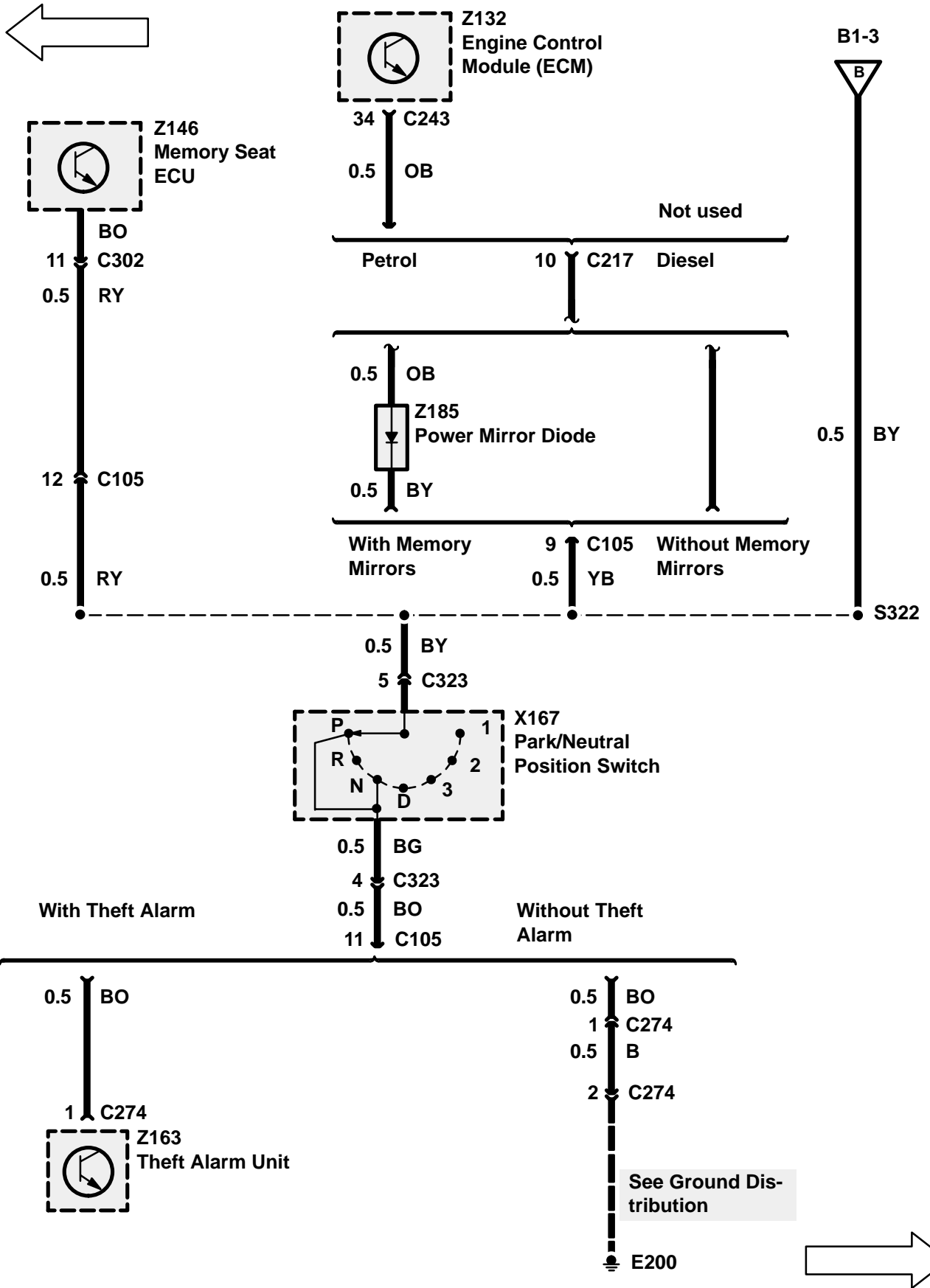
**Charging System**

When the Ignition Switch (X134) is in position II, battery voltage is applied to the charging system fault light. When the Generator (Z106) is being turned by the engine, its stator windings are excited by voltage applied to the Generator (Z106) via the charging system fault light. The Generator (Z106) begins to produce electricity in order to charge the vehicle Battery (P104). If the Generator (Z106) fails to produce power, the Generator (Z106) grounds the fault light control wire, causing the charging system fault light to glow.

The tachometer displays engine speed in rpm. Voltage pulses are taken from the Generator (Z106) and are generated when the engine drive belt turns the Generator pulley. The tachometer responds to the frequency of the voltage pulses, which increases proportionally to that of the engine speed.





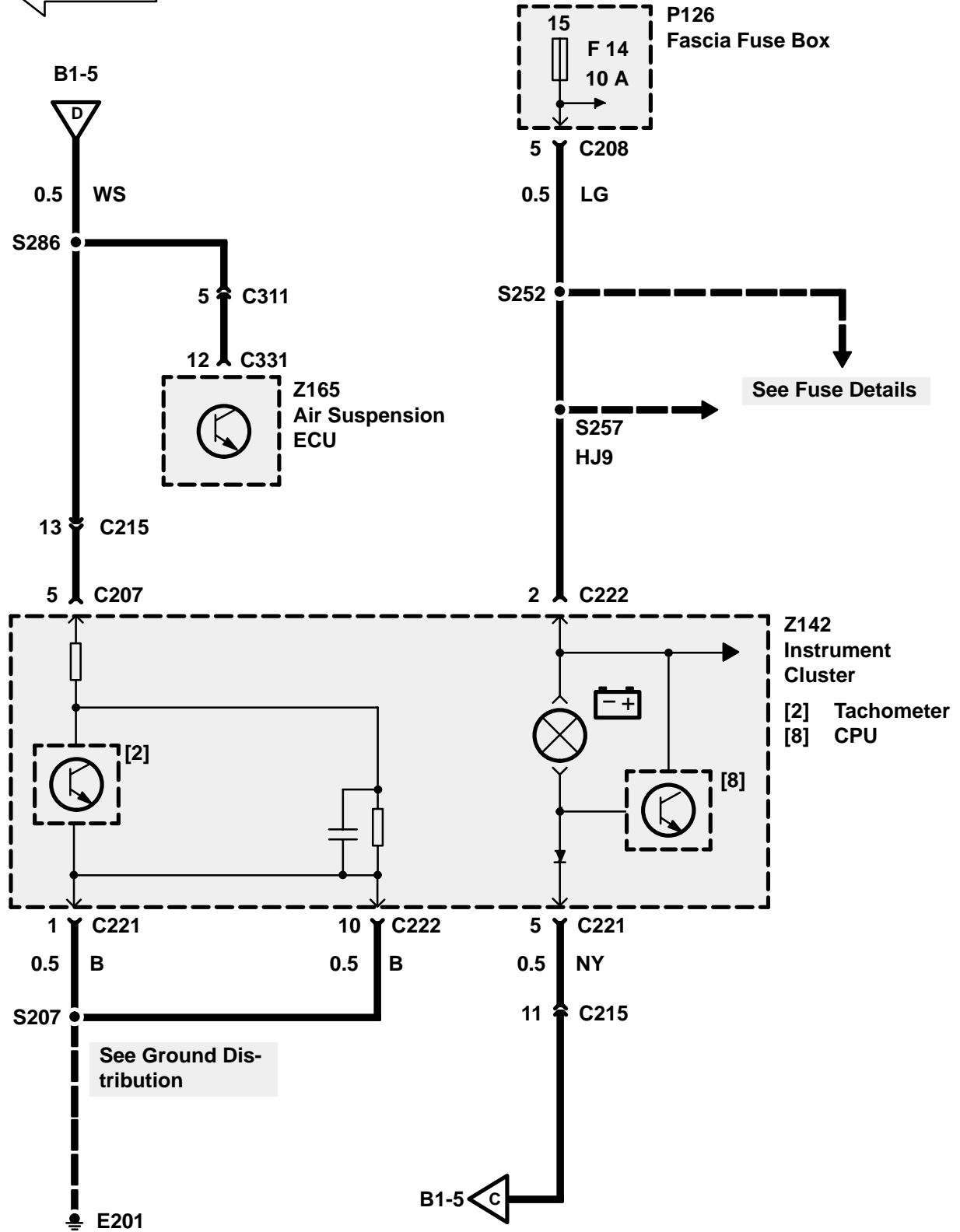
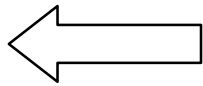






# B1 ETM

## 1995 RANGE ROVER



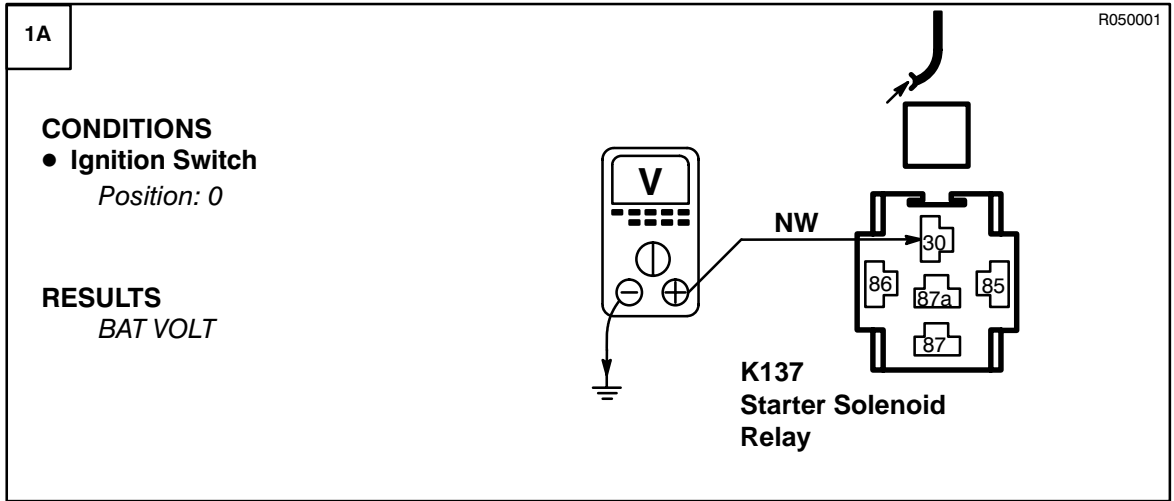
**TROUBLESHOOTING HINTS**

1. If the Starter Solenoid (K136) does not click and the vehicle is equipped with a memory seat, check seat operation. If the seat does not operate, check the Park/Neutral Position Switch (X167) and the Theft Alarm Unit (Z163).

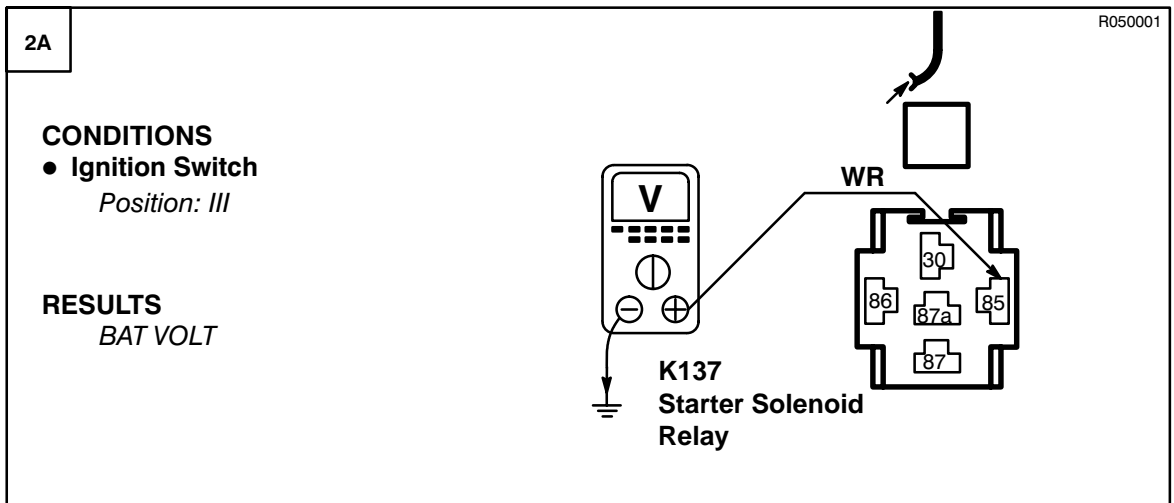
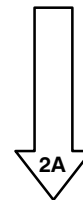
**SYSTEM DIAGNOSIS**

1. If the Starter Solenoid (K136) does not click and the engine does not crank, do Test A.
2. If the Starter Solenoid (K136) clicks but the engine does not crank or cranks slowly, do Test B.
3. If the charge warning light does not light with the engine off and the Ignition Switch (X134) in position II, do Test C.
4. If the charge warning light stays lit with the engine running, do Test D.

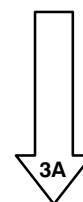
Test A

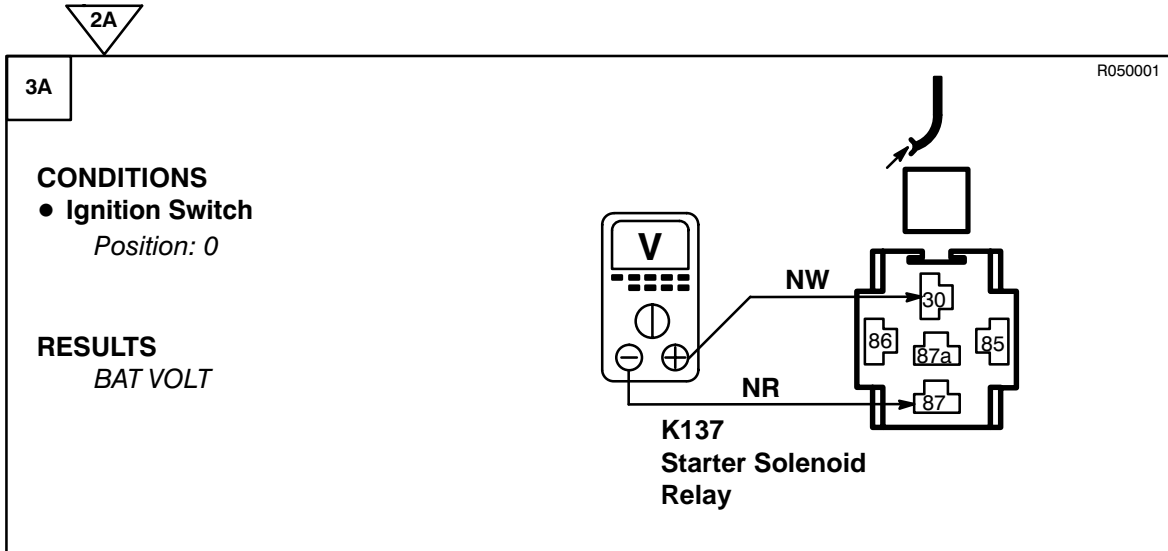


**PROBLEM CAUSE**  
- NW Wire



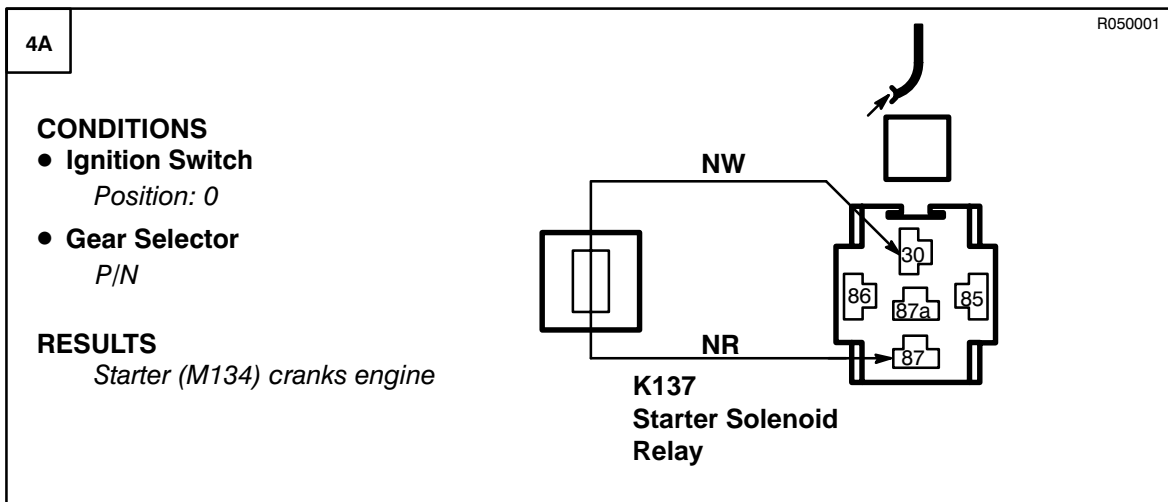
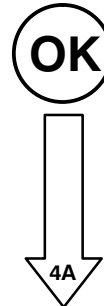
**PROBLEM CAUSE**  
- F17 Fuse  
- WR Wire  
- Ignition Switch





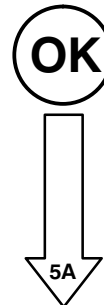
**OK** PROBLEM CAUSE

- NR Wire
- Starter Solenoid



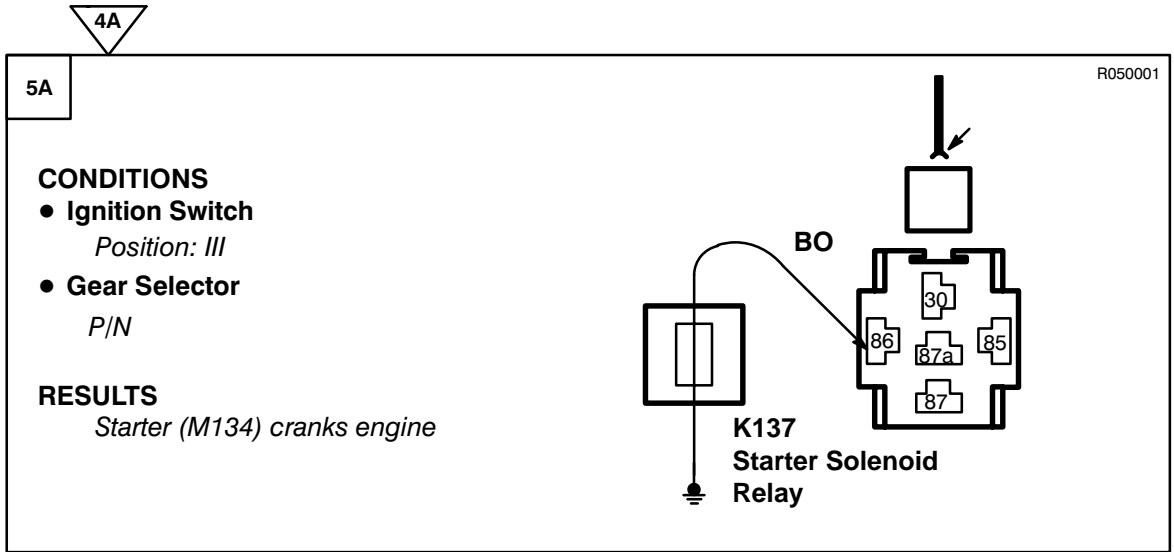
**OK** PROBLEM CAUSE

- NR Wire
- Starter Solenoid
- Starter



# B1 ETM

## 1995 RANGE ROVER



**PROBLEM CAUSE**

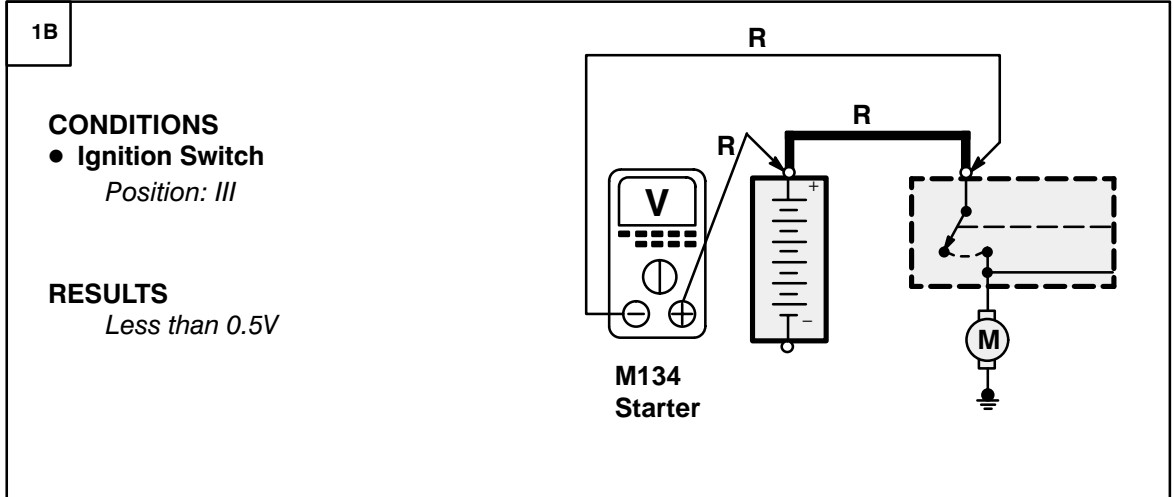
- BY, BO Wire
- Starter Relay Diode
- Theft Alarm Unit
- Park/Neutral Position Switch



**PROBLEM CAUSE**

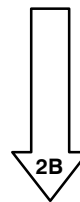
- Starter Solenoid Relay

### Test B



**PROBLEM CAUSE**

- R Wire
- Battery Terminal Connection
- Starter Solenoid (K136) terminal connection



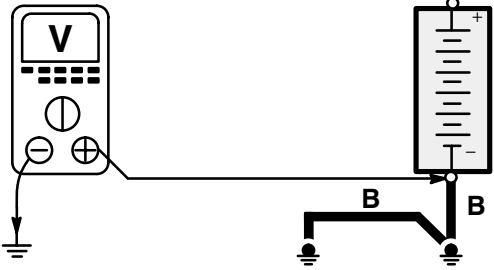
1B

2B

**CONDITIONS**

- Ignition Switch  
*Position: III*

**RESULTS**  
*Less than 0.5V*



- OK** PROBLEM CAUSE
- B Wire
  - Ground Connections
  - Battery Terminal Connection

- OK** PROBLEM CAUSE
- Starter Solenoid
  - Starter

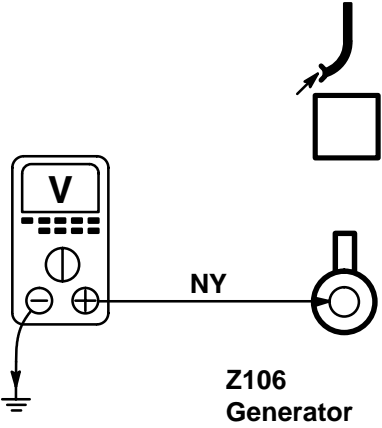
**Test C**

1C

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*



Z106  
Generator

- OK** PROBLEM CAUSE
- NY Wire
  - Bulb
  - Instrument Cluster

- OK** PROBLEM CAUSE
- Generator

Test D

1D

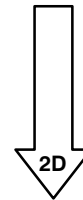
**CONDITIONS**  
Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

Z106  
Generator



**PROBLEM CAUSE**  
- N Wire



2D

**CONDITIONS**  
● Ignition Switch  
*Position: 0*

**RESULTS**  
*More than 1000 ohms*

Z106  
Generator



**PROBLEM CAUSE**  
- NY Wire  
- Instrument Cluster



**PROBLEM CAUSE**  
- Generator

## CIRCUIT OPERATION

With the Cruise Control Switch (X115) on, voltage from Fuse F18 is applied to the Cruise Control ECU (Z121), Cruise Control Vacuum Pump (M103), Steering Wheel Cruise Switches (X266) through the WY wire, Rotary Coupler (Z104) and PB wire. The Cruise Control ECU (Z121) is grounded at terminal 8 through the B wire to E200.

### Cruise Control Vacuum Pump (M103)

With the Cruise Control Switch (X115) on, voltage is applied to the Cruise Control Vacuum Pump (M103) through the WU wire. When a cruise speed is set, the Cruise Control ECU (Z121) applies ground through the BR wire to operate the pump motor and applies ground through the BY wire to close the normally open solenoid valve in the pump. The pump applies vacuum to the actuator.

### SET/ACCEL

To set a cruise speed, the Cruise Control Switch (X115) must be on and vehicle speed must exceed 28 mph (45 km/h). When the SET/ACCEL Switch is depressed under these conditions, voltage from Fuse F18 is applied to terminal 3 of the Cruise Control ECU (Z121) through the closed Cruise Control Switch (X115) and Steering Wheel Cruise Switches (X266), causing the vacuum pump to operate. When the SET/ACCEL Switch is released, voltage is removed from terminal 3, signalling the ECU to set the speed.

### RES/DECEL

When the RES/DECEL Switch is depressed, voltage is applied to terminal 4 of the Cruise Control ECU (Z121). This voltage signals the ECU to disengage the system and the vehicle slows down. When the switch is depressed a second time, voltage is again applied to the ECU and the vehicle returns to the previously set speed.

### Speed Input

Terminal 11 of the Cruise Control ECU (Z121) monitors the Vehicle Speed output signal from the Instrument Cluster (Z142) through the YK wire. This signal is a pulsing voltage and its frequency changes with vehicle speed.

### System Disable

The Cruise Control System can be disabled in one of four ways:

1. The Cruise Control Switch (X115) is put in the 0 position, removing power from the Cruise Control ECU (Z121) and vacuum pump, and erasing the set speed memory.
2. The RES/DECEL Switch is depressed, signalling the Cruise Control ECU (Z121) to disengage the system.
3. The brake pedal is depressed and a vacuum valve in the Brake Switch Vent Valve opens (X112). This vents vacuum to the actuator valve and releases the throttle.



4. The Voltage applied to Cruise Control ECU (Z121) terminal 9 is interrupted, causing the Cruise Control ECU (Z121) to turn off the vacuum pump and de-energize the vacuum solenoid valve. This voltage path is interrupted when the brake pedal is depressed, the Clutch Pedal is depressed, or the vehicle is in Park or Neutral. With the brake pedal depressed, the Brake Switch Vent Valve (X112) moves to 1 and the circuit is interrupted. With the vehicle in Park or Neutral the Park/Neutral Position Switch (X167) energizes the Cruise Control Lockout Relay (K110) by grounding the relay's coil. The relay then opens its contacts, interrupting the circuit. With the clutch pedal depressed, the Clutch Switch (X200) moves to 1 and the circuit is interrupted.

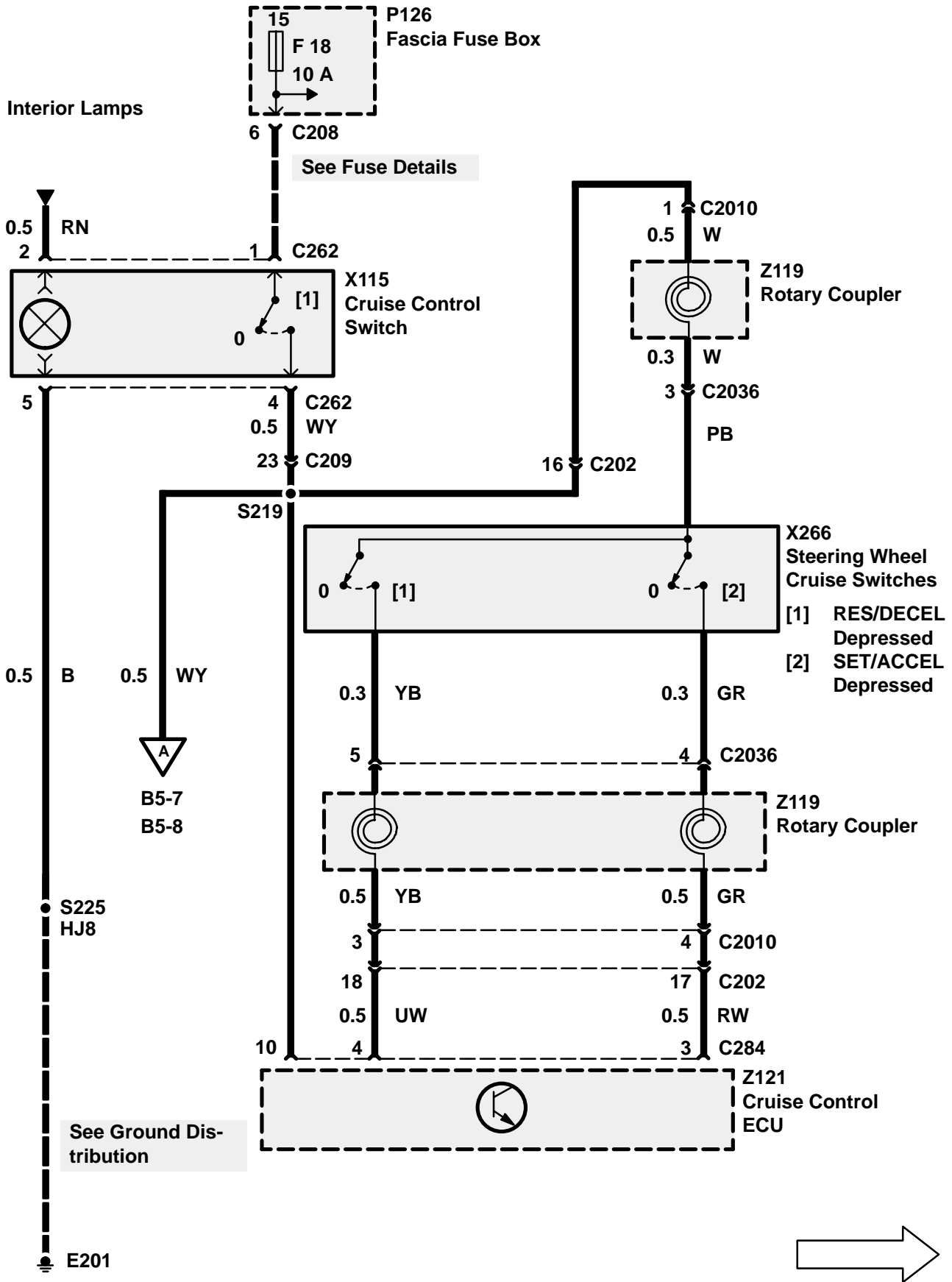
#### Road Test

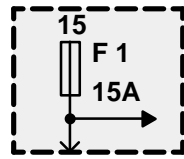
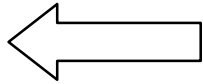
**CAUTION: DO NOT ENGAGE CRUISE CONTROL WHEN VEHICLE IS BEING USED IN LOW TRANSFER GEARS**

**WARNING:** The use of cruise control is not recommended on winding, snow covered or slippery roads, or in heavy traffic conditions where a constant speed cannot be maintained.

1. Start the engine and depress the Cruise Control Switch (X115) to activate the Cruise Control System. Accelerate to approximately 30 mph (50 km/h) and press the SET/ACCEL Switch. Immediately release the switch and remove foot from the accelerator pedal. The vehicle should maintain the speed at which the SET/ACCEL Switch was pressed.
2. Press the SET/ACCEL Switch and hold at that position. The vehicle should accelerate smoothly until the switch is released. The vehicle should now maintain the new speed at which the SET/ACCEL Switch was released.
3. Press the RES/DECEL Switch while the vehicle is in the cruise control mode. The cruise control should disengage. Slow to approximately 35 mph (55 km/h) and press the RES/DECEL Switch. Immediately release the switch and remove foot from the accelerator. The vehicle should smoothly accelerate to the previously set speed. Increase speed using the accelerator pedal. Releasing the pedal should return the vehicle to the previously set speed.

4. Depressing the brake pedal should immediately disengage the Cruise Control System and return the vehicle to driver's control at accelerator pedal. Press the RES/DECEL Switch and the vehicle should accelerate to the previously set speed without operation of the accelerator pedal.
5. Press the RES/DECEL Switch and allow the vehicle to decelerate to below 26 mph (42 km/h). Press the RES/DECEL Switch and the Cruise Control System should remain disengaged.
6. Press the SET/ACCEL Switch below 28 mph (45 km/h) and the Cruise Control System should remain disengaged. Accelerate the vehicle above 28 mph (45 km/h), press the RES/DECEL Switch and remove foot from the accelerator pedal. The vehicle should smoothly adjust to the previously memorized speed.
7. Pressing the Cruise Control Switch (X115) should immediately disengage the Cruise Control System and erase the previously set speed from ECU memory.

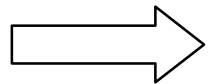
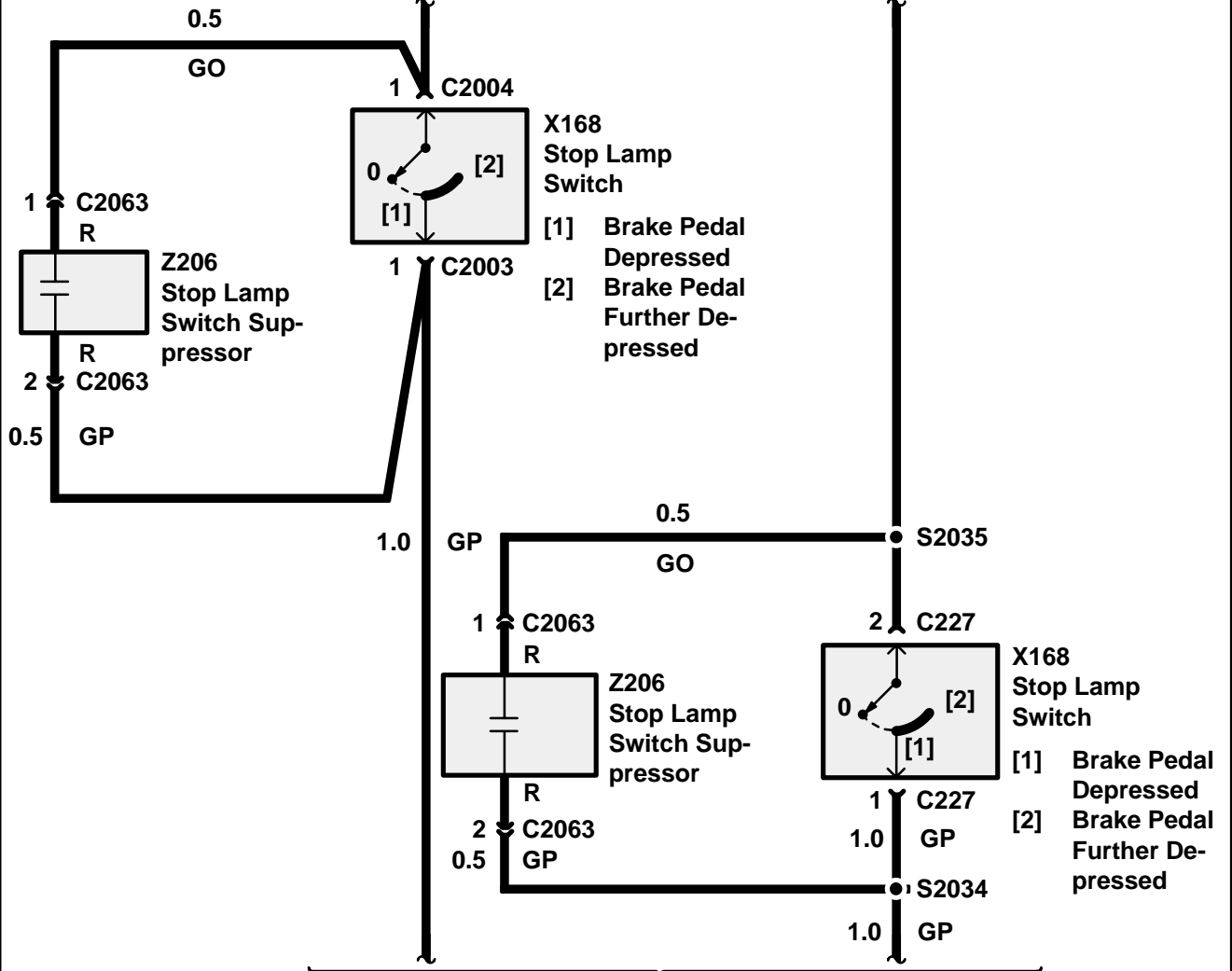


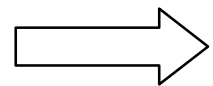
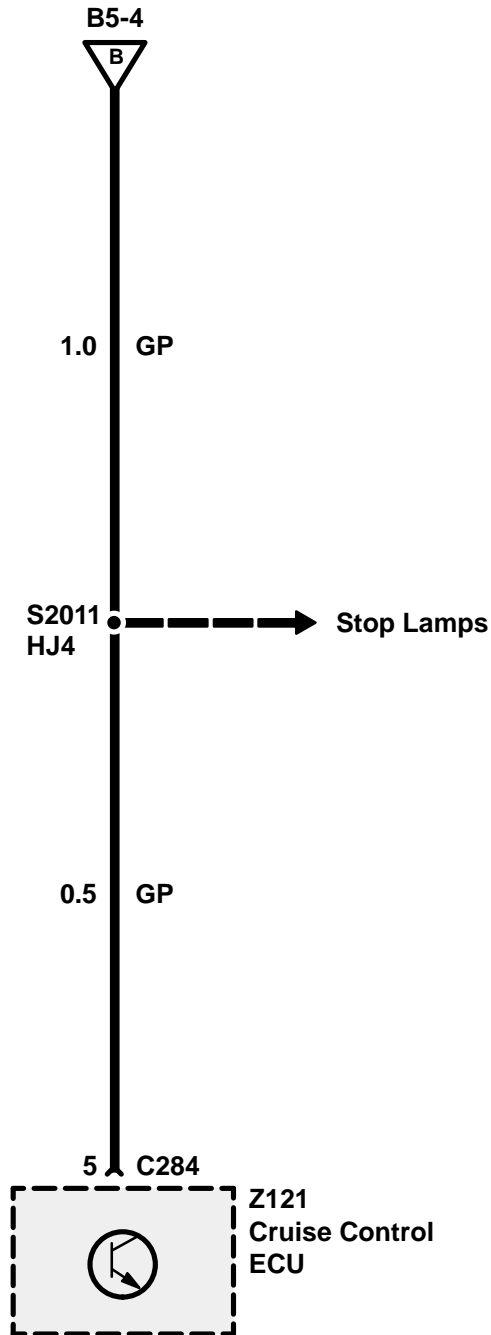
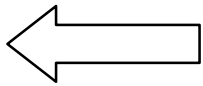


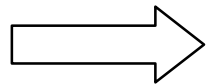
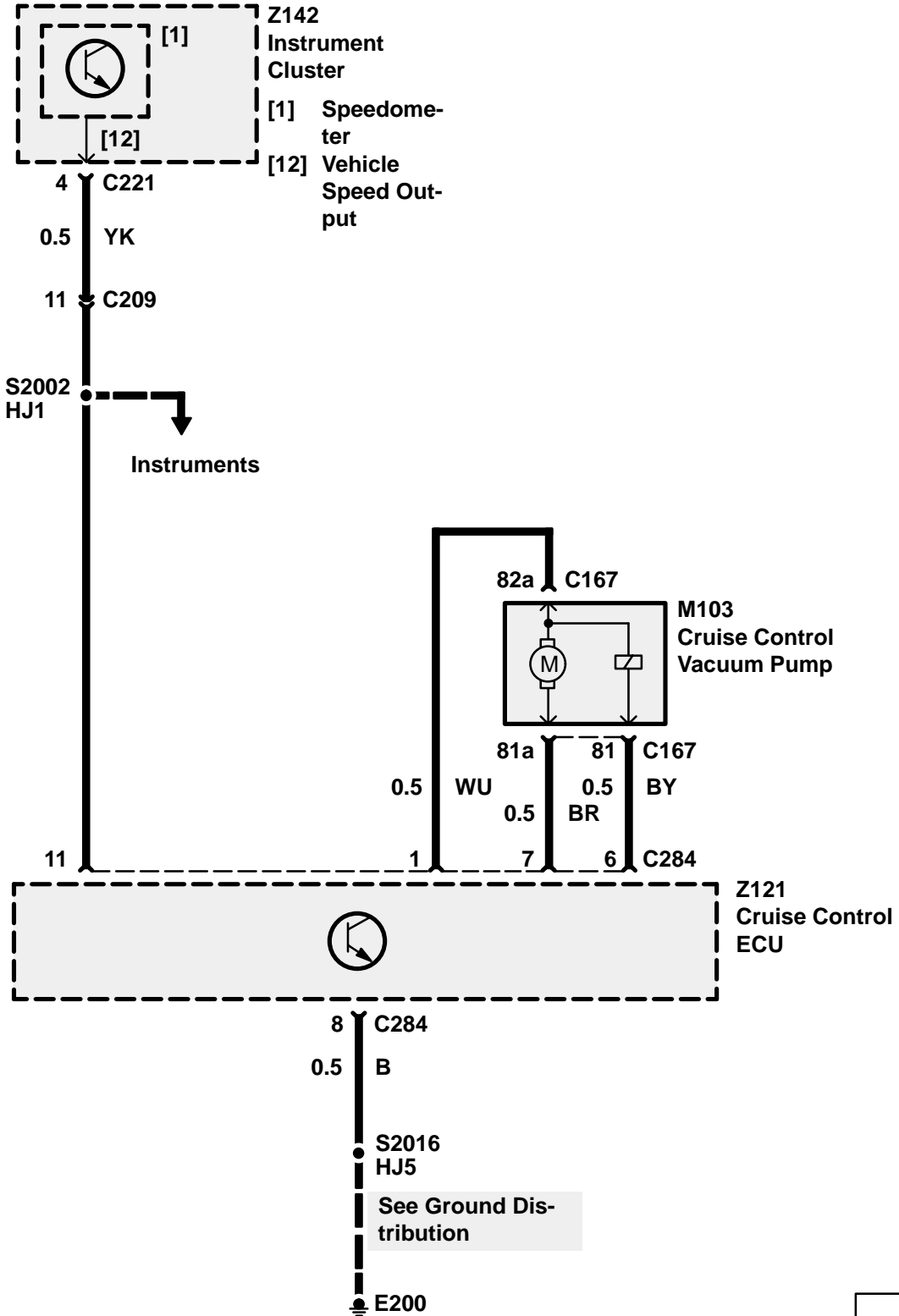
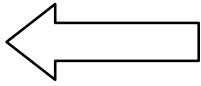
1.0 GO

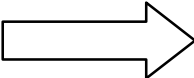
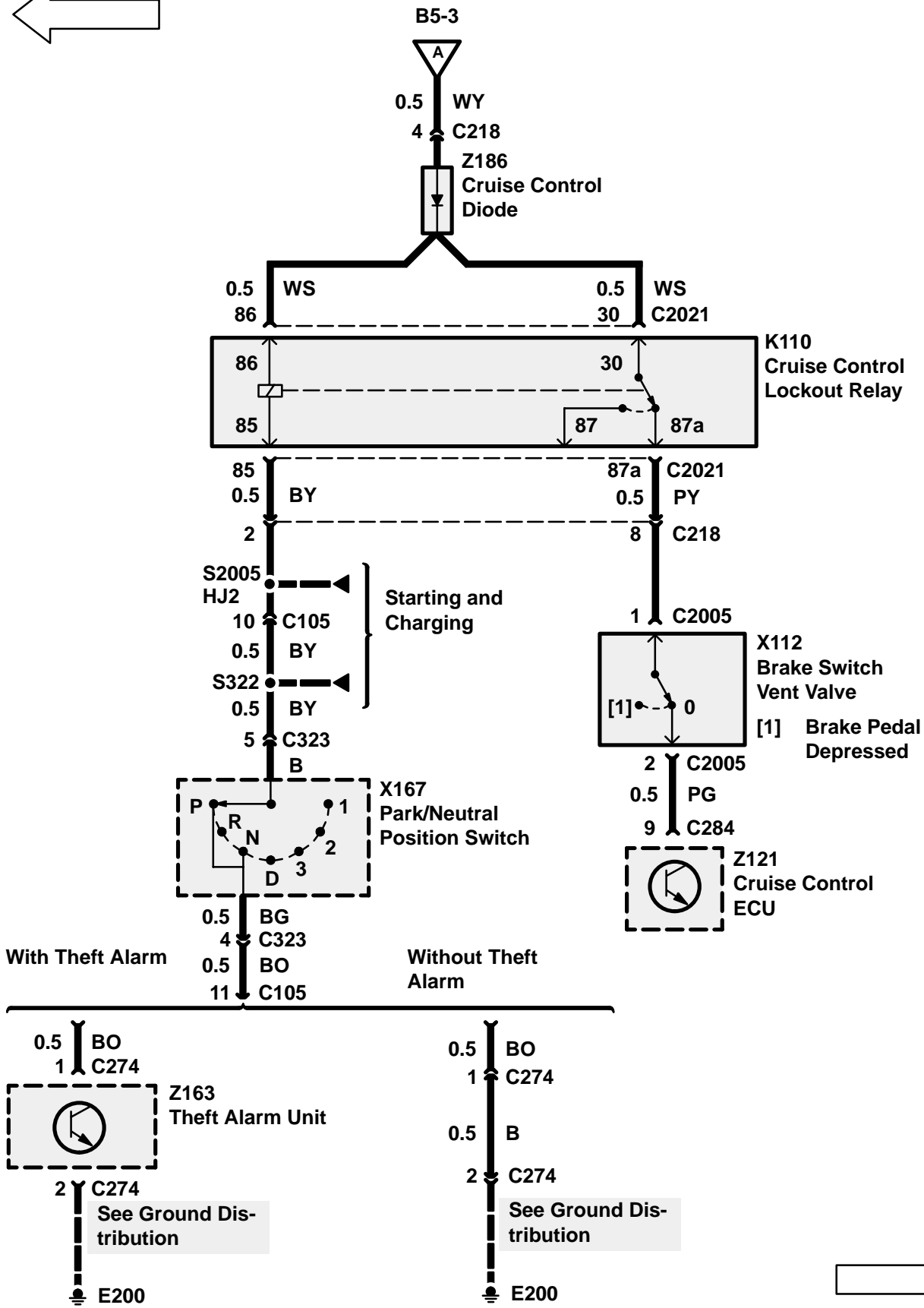
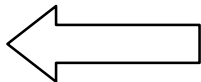
Without ABS

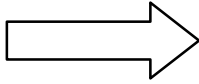
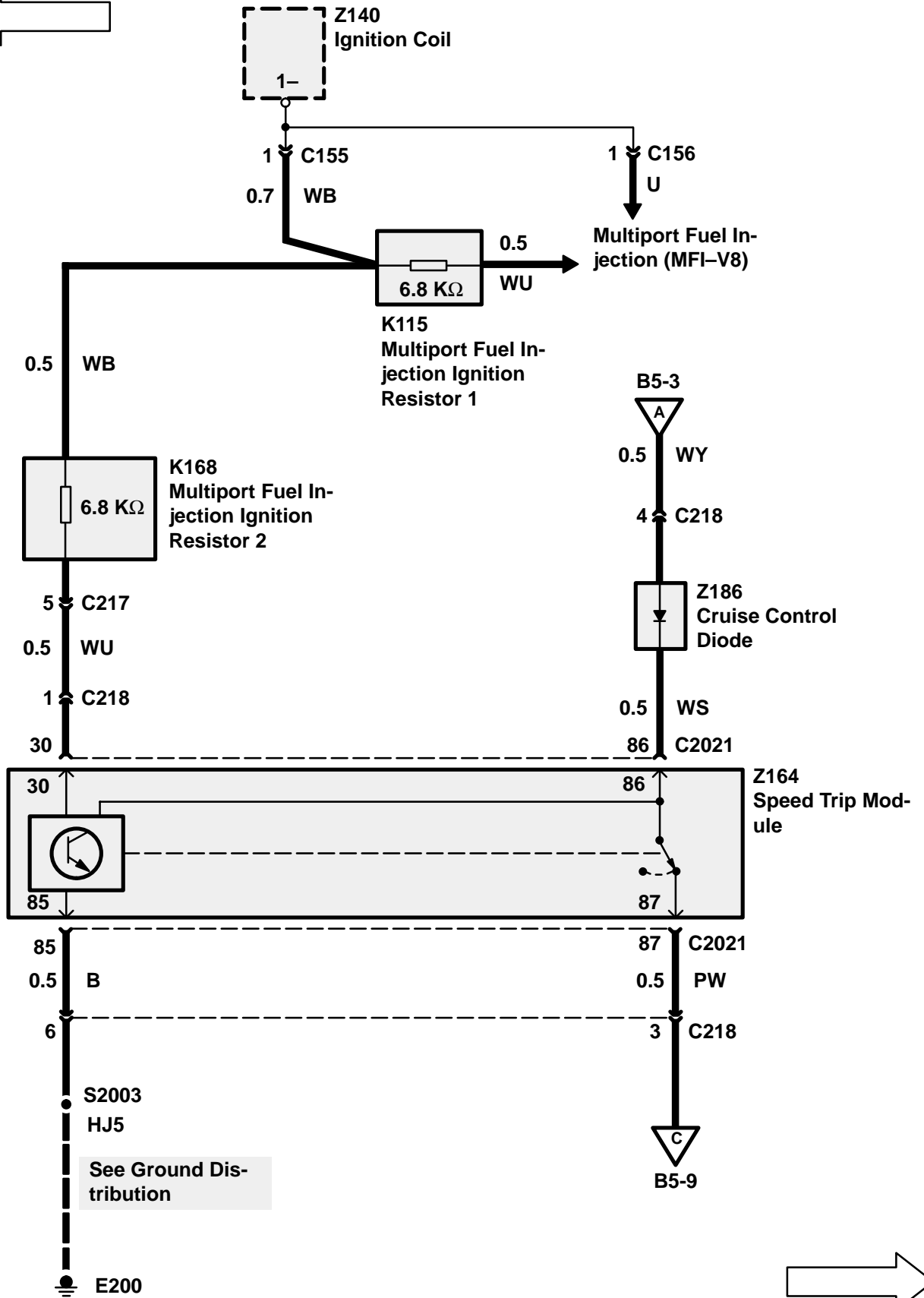
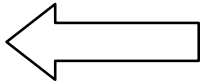
With ABS

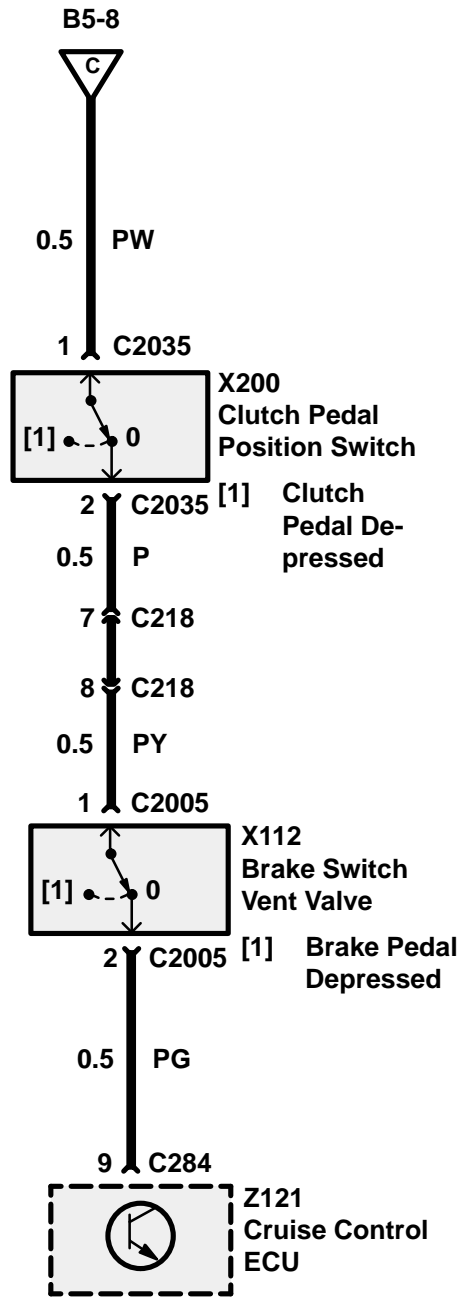
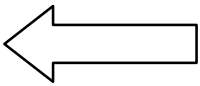














**TROUBLESHOOTING HINTS**

1. If the cruise control system operates but the cruise control switch light does not illuminate, check the bulb, B wire and RN wire.
2. Inspect vacuum hoses for kinks and restrictions.
3. Inspect actuator linkage for restrictions and adjustment.

**SYSTEM DIAGNOSIS**

1. If the cruise control system does not operate correctly and the vehicle is equipped with a manual transmission, do Test A.
2. If the cruise control system does not operate correctly and the vehicle is equipped with an automatic transmission, do Test B.

**Test A**

R150001

1A

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Cruise Control Switch

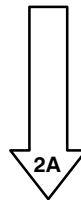
|            |            |
|------------|------------|
| <i>On</i>  | = BAT VOLT |
| <i>Off</i> | = 0V       |

Z121  
Cruise Control  
ECU



**PROBLEM CAUSE**

- F 18 Fuse
- WY Wire
- GLG Wire
- Cruise Control Switch



R150001

2A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Cruise Control Switch

*On*

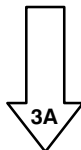
- Engine running

**RESULTS**

- Brake Switch Vent Valve
- Clutch Pedal Position Switch

*BAT VOLT = Released*  
*0V = Depressed*

Z121  
Cruise Control  
ECU



GO TO TEST C

R020051

2A

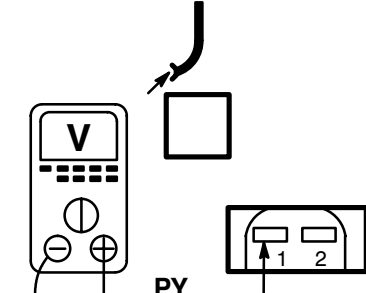
3A

**CONDITIONS**

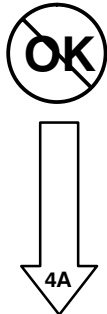
- Ignition Switch  
*Position: II*
- Cruise Control Switch  
*On*
- Engine running

**RESULTS**

- Clutch Pedal Position Switch  
*BAT VOLT = Released*  
*0V = Depressed*



X112  
Brake Switch  
Vent Valve



OK

**PROBLEM CAUSE**

- PG Wire
- Brake Switch Vent Valve

R020051

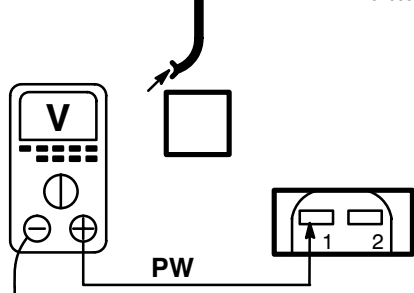
4A

**CONDITIONS**

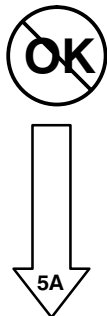
- Ignition Switch  
*Position: II*
- Cruise Control Switch  
*On*
- Engine running

**RESULTS**

*BAT VOLT*



X200  
Clutch Pedal  
Position Switch



OK

**PROBLEM CAUSE**

- P Wire
- PY Wire
- Clutch Pedal Position Switch

4A

**5A**

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Cruise Control Switch  
*On*
- Engine running

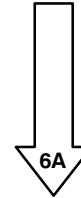
**RESULTS**  
*BAT VOLT*

Z164  
Speed Trip Module



**PROBLEM CAUSE**

- WU, WB Wire
- Multiport Fuel Injection Ignition Resistor 2
- WS, WY Wire
- Cruise Control Diode



**6A**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 1 ohm*

Z164  
Speed Trip Module



**PROBLEM CAUSE**

- Speed Trip Module



**PROBLEM CAUSE**

- PW Wire
- B Wire

**Test B**

1B R150001

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

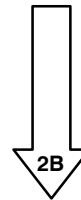
- Cruise Control Switch

*On* = BAT VOLT  
*Off* = 0V



**PROBLEM CAUSE**

- F18 Fuse
- WY Wire
- GLG Wire
- Cruise Control Switch



2B R150001

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Cruise Control Switch

*On*

- Gear Selector  
*D*

**RESULTS**

- Brake Switch Vent Valve  
*BAT VOLT = Released*  
*0V = Depressed*



**GO TO TEST C**

R020051

2B
3B

**CONDITIONS**

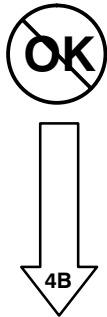
- Ignition Switch  
*Position: II*
- Gear Selector  
*D*

**RESULTS**

- Cruise Control Switch

*On* = BAT VOLT  
*Off* = 0V

X112  
Brake Switch Vent Valve



- OK** PROBLEM CAUSE
- PG Wire
  - Brake Switch Vent Valve

R050001

4B

**CONDITIONS**

- Ignition Switch  
*Position: II*

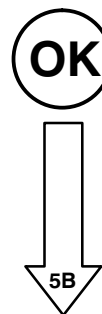
**RESULTS**

- Cruise Control Switch

*On* = BAT VOLT  
*Off* = 0V

K110  
Cruise Control Lockout Relay

- OK** PROBLEM CAUSE
- WS Wire
  - WY Wire
  - Cruise Control Diode



R050001

4B

5B

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- Gear Selector
 

|                      |                      |
|----------------------|----------------------|
| <i>P = 0-1 Ω</i>     | <i>3 = &gt;100 Ω</i> |
| <i>R = &gt;100 Ω</i> | <i>2 = &gt;100 Ω</i> |
| <i>N = 0-1 Ω</i>     | <i>1 = &gt;100 Ω</i> |
| <i>D = &gt;100 Ω</i> |                      |

**K110**  
Cruise Control Lockout Relay



**PROBLEM CAUSE**

- BY Wire
- BO Wire
- Park/Neutral Position Switch



**PROBLEM CAUSE**

- PY Wire
- Cruise Control Lockout Relay

**Test C**

R150001

1C

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Cruise Control Switch  
*On*

**RESULTS**

- Steering Wheel Cruise Switches
- Cruise Control Switch
- SET/ACCEL Switch

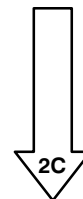
|            |                   |
|------------|-------------------|
| <i>On</i>  | <i>= BAT VOLT</i> |
| <i>Off</i> | <i>= 0V</i>       |

**Z121**  
Cruise Control ECU



**PROBLEM CAUSE**

- RW, W Wire
- PB Wire
- WY, GR Wire
- Rotary Coupler
- Steering Wheel Cruise Switches



R150001

**1C**

**2C**

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

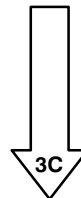
- Brake Pedal  
*BAT VOLT = Depressed*  
*0V = Released*

**Z121**  
Cruise Control  
ECU



**PROBLEM CAUSE**

- GP Wire
- F1 Fuse
- GO Wire
- Stop Lamp Switch



R150001

**3C**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

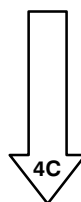
*0-1 Ω*

**Z121**  
Cruise Control  
ECU



**PROBLEM CAUSE**

- B Wire





R150001

3C

4C

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Cruise Control Switch  
  
*On*

**RESULTS**

- Steering Wheel Cruise Switches
- RES/DECEL Switch

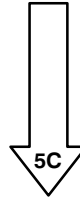
*Off* = 0V  
*On* = BAT VOLT

Z121  
Cruise Control  
ECU



**PROBLEM CAUSE**

- UW, YB Wire
- WY, W Wire
- Rotary Coupler
- Steering Wheel Cruise Switches



R150001

5C

5C

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Right rear wheel on ground
- Rotate left rear wheel  
= 0V - BAT VOLT

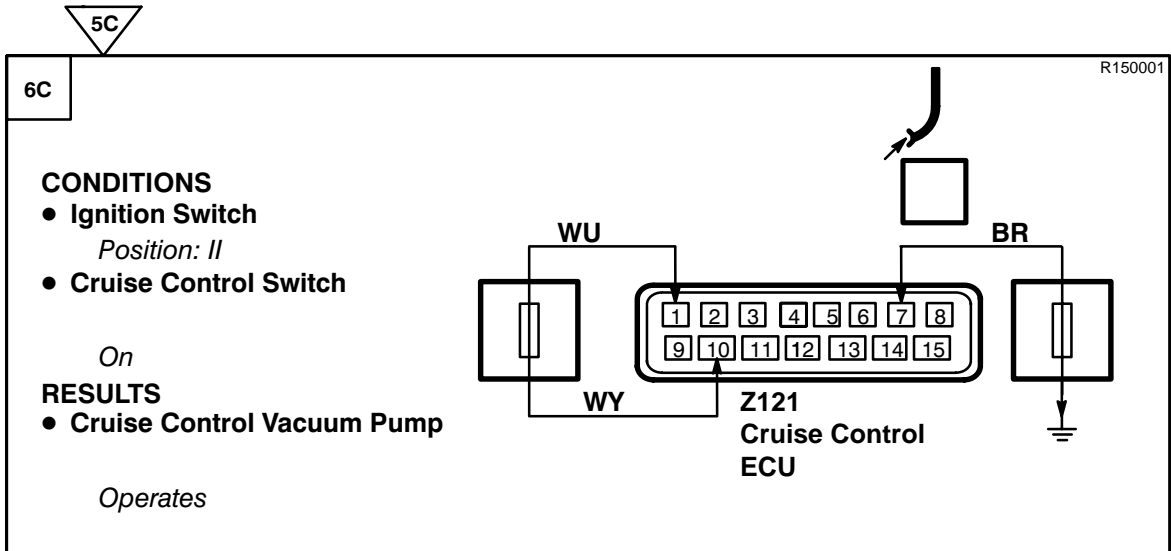
Z121  
Cruise Control  
ECU



**PROBLEM CAUSE**

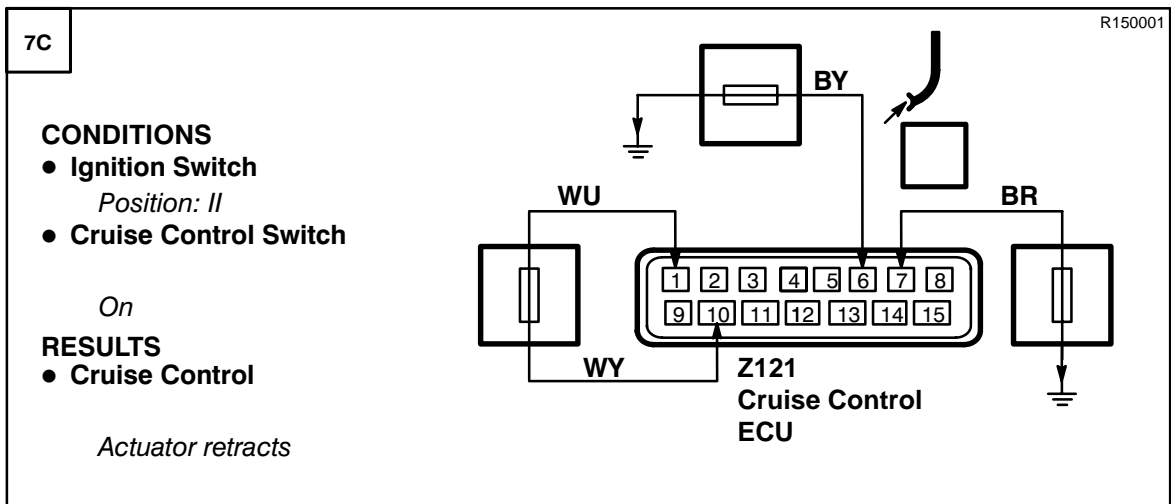
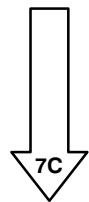
- YK Wire





~~OK~~ GO TO TEST D

OK



~~OK~~ GO TO TEST D

OK PROBLEM CAUSE  
- Cruise Control ECU

Test D

R030023

1D

**CONDITIONS**

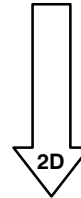
- Ignition Switch  
*Position: II*
- Cruise Control Switch  
*On*

**RESULTS**  
*BAT VOLT*

**M103  
Cruise Control  
Vacuum Pump**



**PROBLEM CAUSE**  
- WU Wire



R030031

2D

**CONDITIONS**

- Ignition Switch  
*Position: 0*

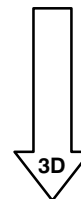
**RESULTS**

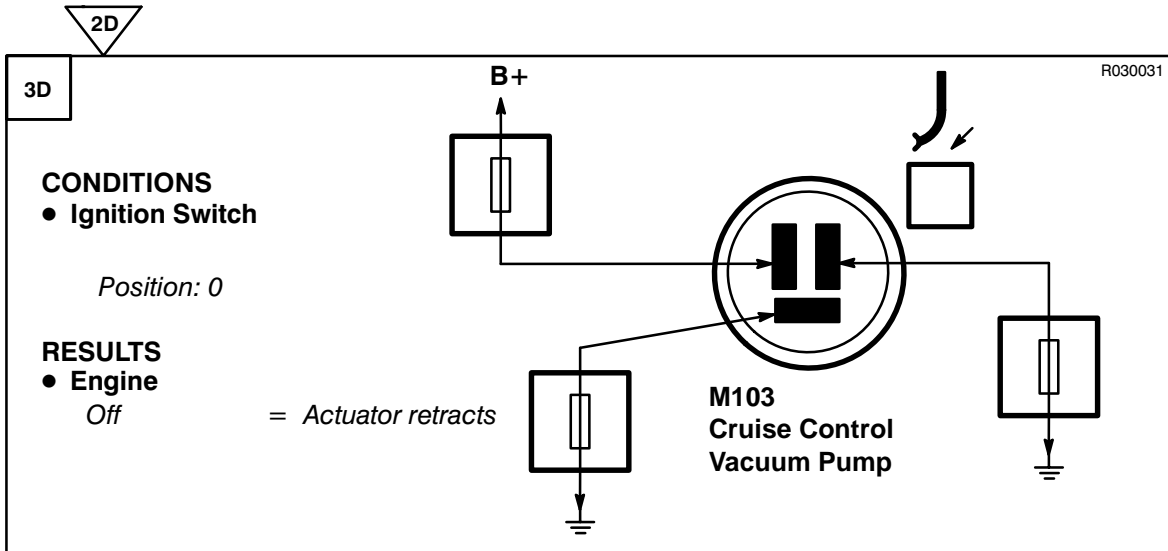
- Cruise Control Vacuum Pump  
*Operates*

**M103  
Cruise Control  
Vacuum Pump**



**PROBLEM CAUSE**  
- BR Wire  
- Cruise Control  
Vacuum Pump





**PROBLEM CAUSE**

- Vacuum leak or restriction
- Brake Switch Vent Valve
- Cruise Control Vacuum Pump



**PROBLEM CAUSE**

- BY Wire

**CIRCUIT OPERATION****Selector Interlock**

When the gear selector is in the park position, the solenoid inside the Transmission Range Selector Switch (Z110) is de-energized and prevents the selector from being moved into another gear. To free the selector, the Ignition Switch (X134) must be in position II and the brake pedal must be depressed. When this occurs, voltage from Fuse F1 is applied to the Transmission Range Selector through the closed Stop Lamp Switch (X168). The solenoid inside the Transmission Range Selector Switch is grounded at E200 through the selector switch, the KS wire and the B wire. The solenoid then energizes, freeing the selector.

**Ignition Key Interlock**

On vehicles equipped with the interlock safety feature the vehicle must be in park and the transfer case in high or low gear before the key can be removed from the ignition. If the gear selector or transfer gear are out of gear, the key must be cycled before removal.

If the vehicle is not in park, voltage from Fuse F12 is applied to the Key Barrel Switch (X230) through the closed contacts of the Transmission Range Selector Switch (Z110). When the Ignition Switch is placed in the 0 position, the Key Barrel Switch (X230) closes to energize the solenoid and prevent key removal.

If the key is in the ignition and the transfer box is in the neutral position, Interlock Relay 1 (K153) is de-energized since the relay coil is not grounded by the Transfer Box Position Switch (X175). When the relay is de-energized, voltage is applied to the Key Barrel Switch (X230) through the relay's switch contacts and the Key-In Switch (X229) causing the solenoid to energize and prevent key removal.

If the transfer box is in the "H" or "L" position, the Interlock Relay 1 (K153) is energized, since the relay coil is grounded by the Transfer Box Position Switch (X175). When the relay is energized, voltage to the Key Barrel Switch (X230) is interrupted. The Ignition Key Lock Solenoid (K191) is then disabled, allowing removal of the key.

If the Transfer Box is switched to "N" position, the Transfer Box Warning Relay (K186) is de-energized, providing ground to the Multifunction

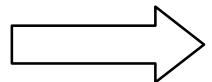
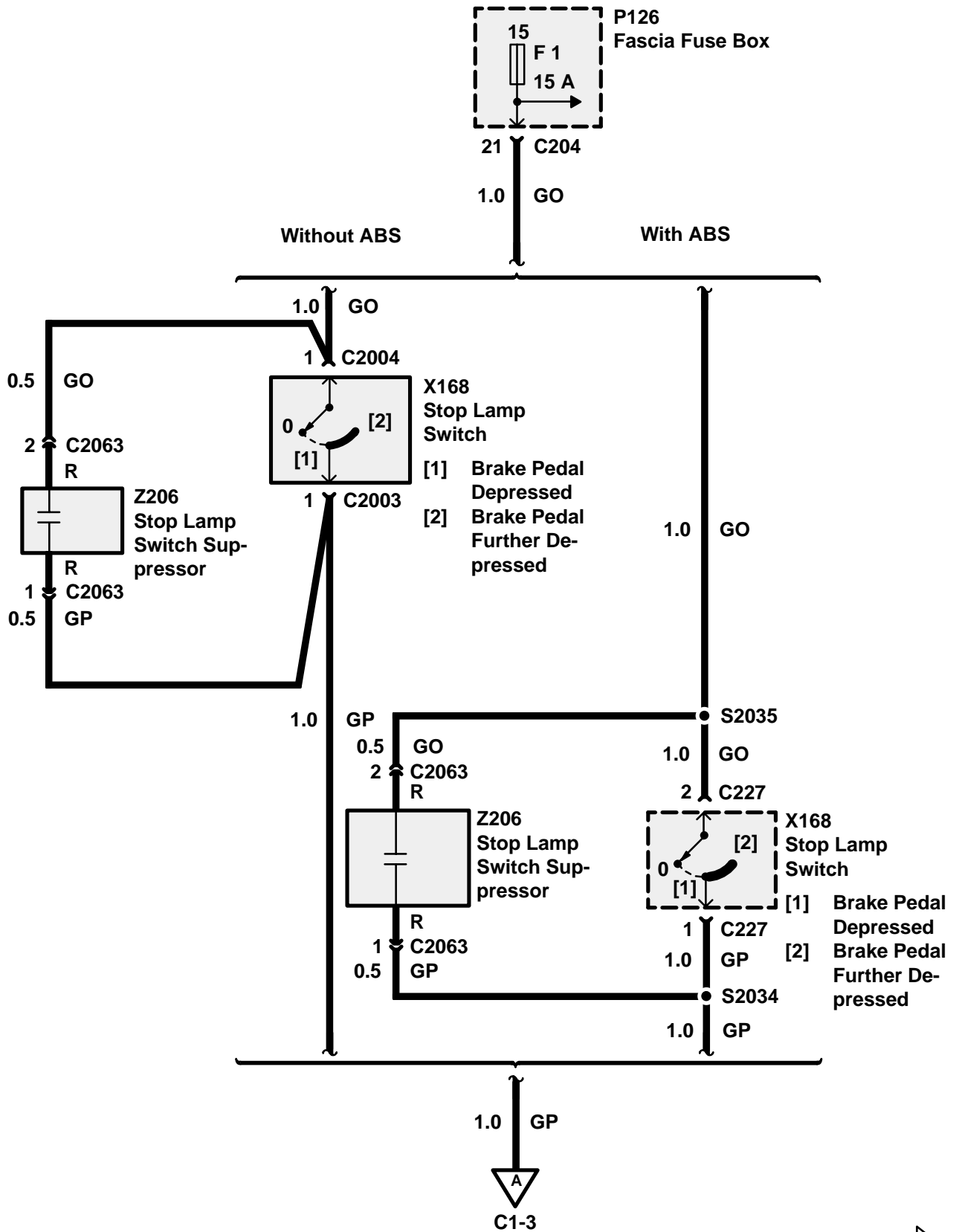
Unit (Z148). An internal sounder provides a warning chime to the driver.

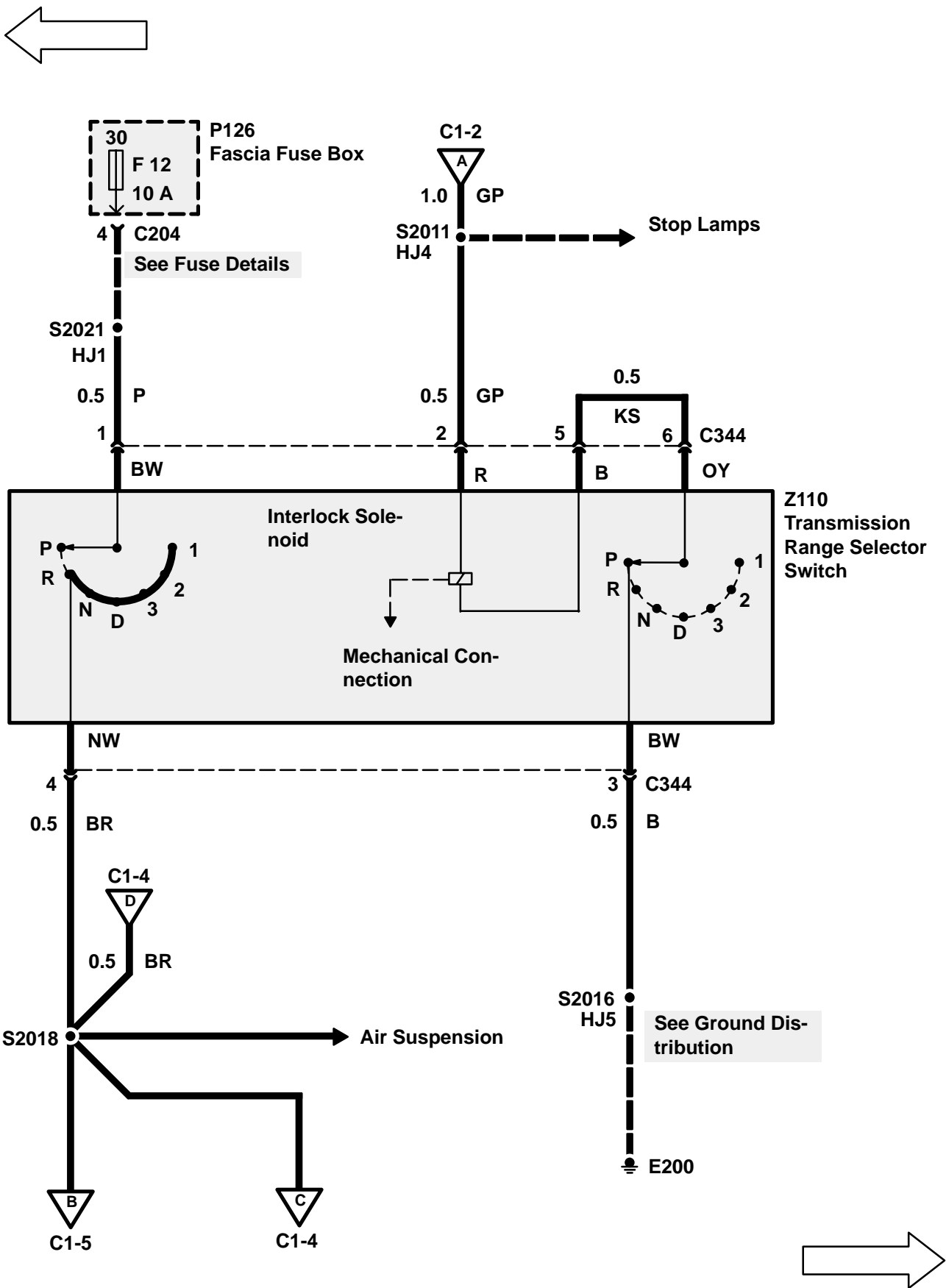
**Transfer Box Interlock**

The Transfer Box Interlock Safety feature is designed to prevent the transfer case shifter from being shifted out of "H" or "L" unless the vehicle's gear selector is in the neutral position.

When the gear selector is placed in the neutral position, voltage is applied to the Interlock Relay 2's coil through the Transmission Range Selector Switch (Z110). The relay's coil is grounded through the Park/Neutral Position Switch (X167).

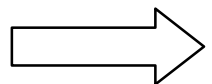
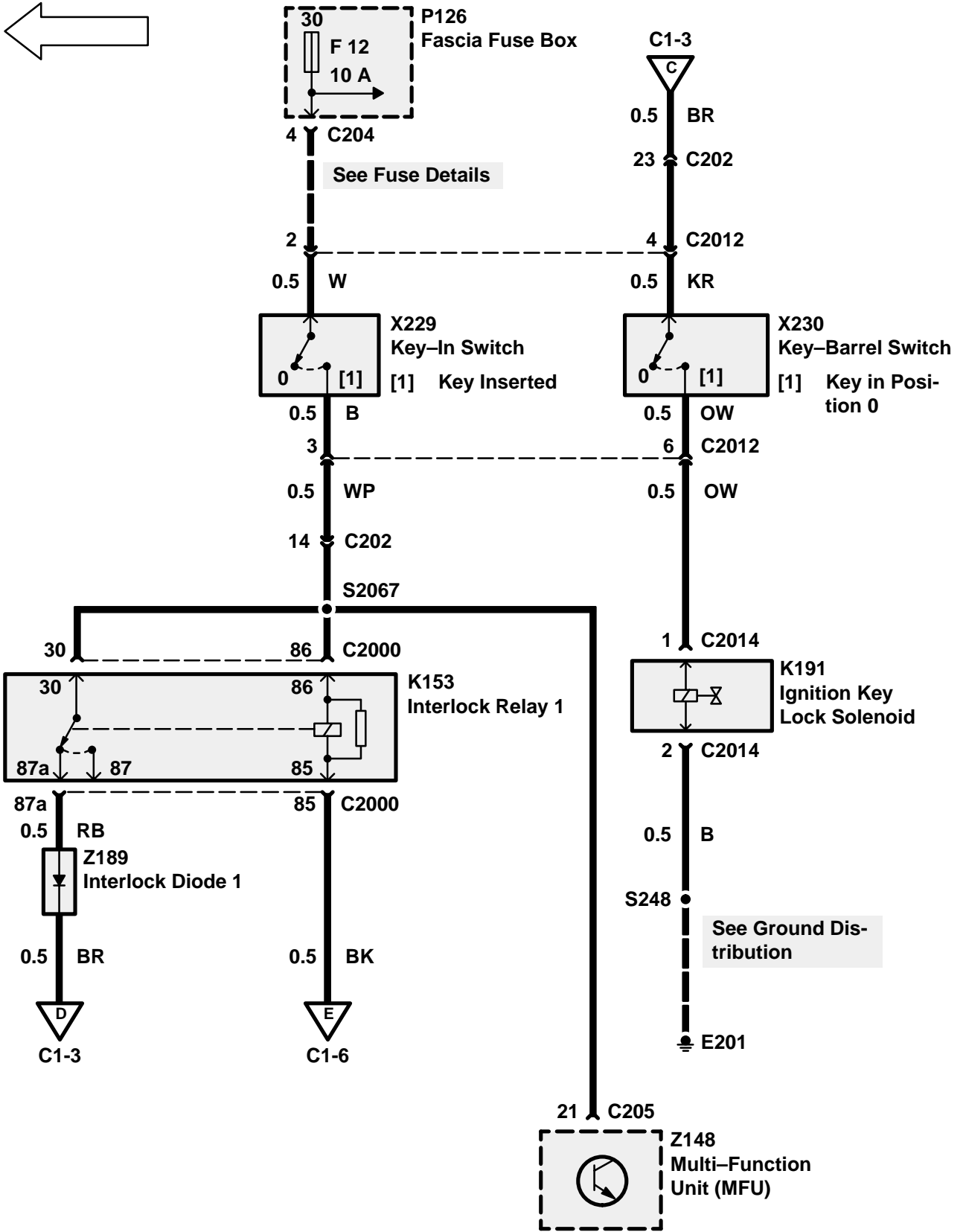
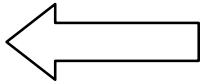
Interlock Relay 2 now energizes and applies voltage from Fuse F13 to the Transfer Box Solenoid (K154). When the Transfer Box Solenoid (K154) is energized the transfer box shifter can be operated.



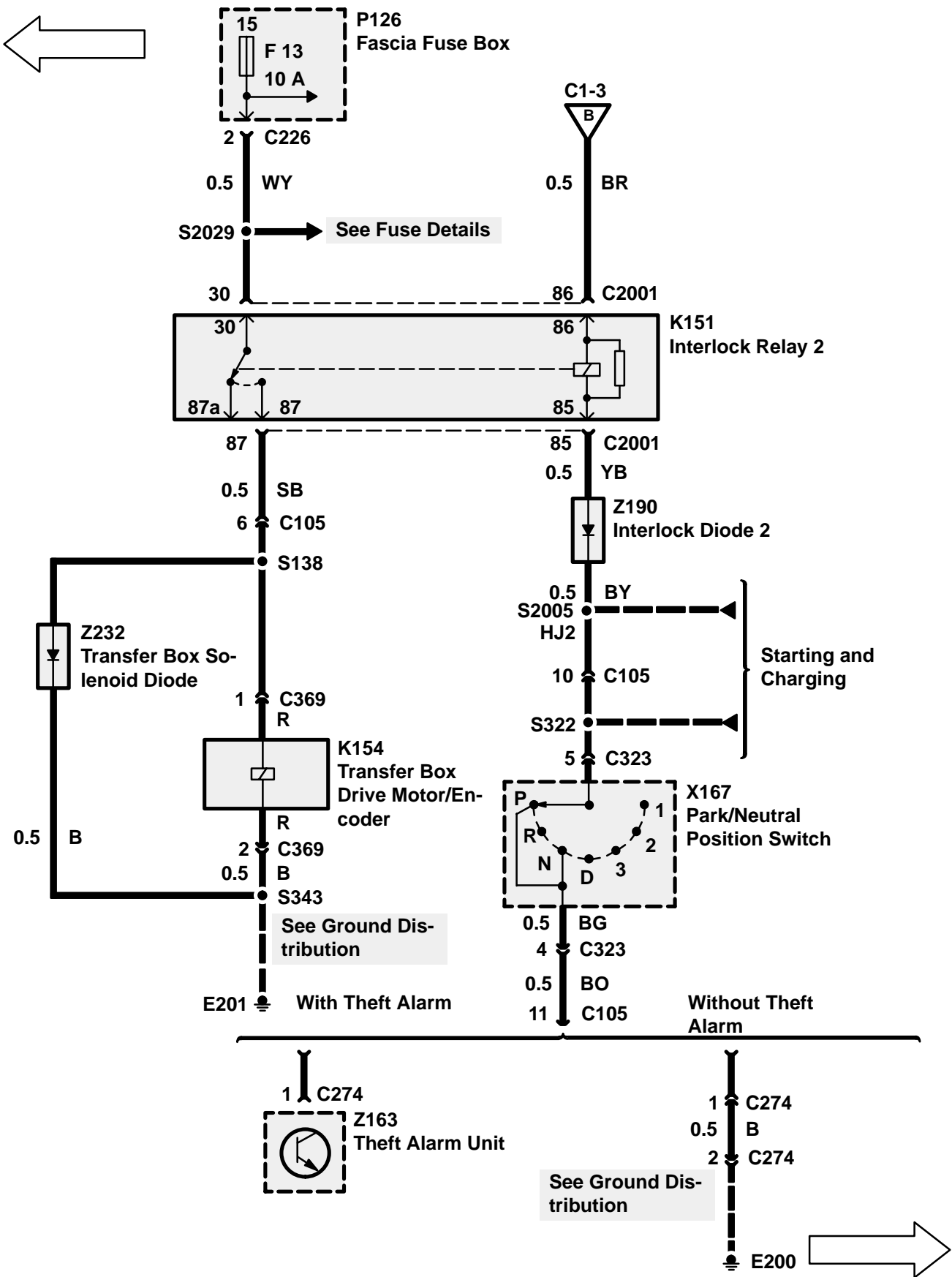


# C1 ETM

## 1995 RANGE ROVER









**SYSTEM DIAGNOSIS**

5. If the transmission range selector cannot be shifted out of park, do Test A.
6. If the ignition key cannot be removed with the transmission range selector in park and the transfer box is in "H" or "L", do Test B.
7. If the transfer box can be shifted out of "H" or "L" while in any gear except neutral, do Test C.
8. If the ignition key can be removed with the transmission range selector in any gear except park or with the transfer box in the neutral position, do Test D.
9. If the transfer box cannot be shifted into "N", "H", or "L", with the ignition key inserted and gear selector in "N", do Test F.

### Test A

R060016

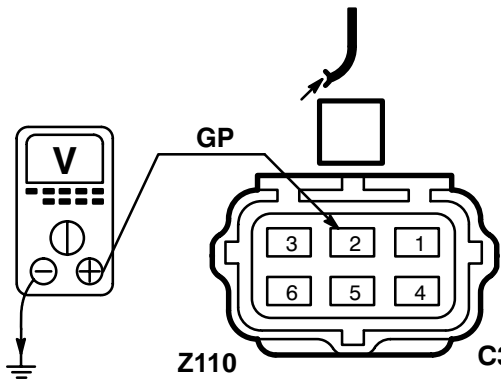
1A

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Brake Pedal  
*BAT VOLT= Depressed*
- Brake Pedal  
*0V= Released*



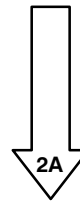
Z110  
Transmission  
Range Selector  
Switch

C344



**PROBLEM CAUSE**

- GP Wire
- GO Wire
- F1 Fuse
- Stop Lamp Switch



R060016

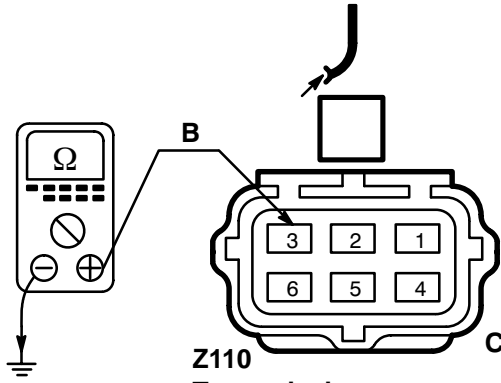
2A

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

*Less than 1 ohm*



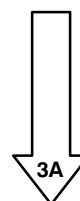
Z110  
Transmission  
Range Selector  
Switch

C344



**PROBLEM CAUSE**

- B Wire



2A

**3A**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

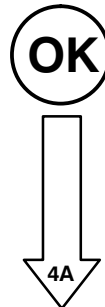
**RESULTS**

*Less than 1 ohm*

Z110  
Transmission  
Range Selector  
Switch

R060016

~~OK~~ **PROBLEM CAUSE**  
- KS Wire



**4A**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- Gear Selector  
*P = Less than 1 ohm*  
*D = More than 1000 ohms*

Z110  
Transmission  
Range Selector  
Switch

R060016

~~OK~~ **PROBLEM CAUSE**  
- Microswitch  
(Gear Selector)

~~OK~~ **PROBLEM CAUSE**  
- Interlock Sole-  
noid

### Test B

R020022

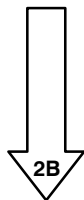
1B

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Gear Selector  
*P*
- Transfer Box Position Switch  
*H or L*

**K191  
Ignition Key  
Lock Solenoid**

**RESULTS**  
*0V*



**PROBLEM CAUSE**  
- Ignition Key  
Lock Solenoid

R060016

2B

**CONDITIONS**

- Ignition Switch  
*Position: 0*

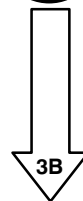
**RESULTS**

- Gear Selector  
*P = More than 10K ohms*

**Z110  
Transmission  
Range Selector  
Switch**



**PROBLEM CAUSE**  
- Transmission  
Range Selector  
Switch



2B

3B

R050001

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Transfer Box Position Switch

*H or L*

**RESULTS**  
*BAT VOLT*

**K153**  
Interlock Relay 1



**PROBLEM CAUSE**

- BK Wire
- WP Wire
- B Wire
- Key-In Switch
- Transfer Box Position Switch



**PROBLEM CAUSE**

- Interlock Relay 1

**Test C**

1C

R050001

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*

**K151**  
Interlock Relay 2



**PROBLEM CAUSE**

- Interlock Relay 2



**PROBLEM CAUSE**

- BY Wire
- YB Wire
- Transfer Box Drive Motor/Encoder
- Park/Neutral Position Switch

### Test D

R020022

1D

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Gear Selector  
*P*

**RESULTS**

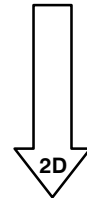
- Transfer Box Position Switch

*N = BAT VOLT*

**K191  
Ignition Key  
Lock Solenoid**



GO TO TEST E



R020022

2D

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Transfer Box Position Switch  
*H or L*

**RESULTS**

- Gear Selector  
*P = 0 VOLTS*  
*R, N, D, 3, 2, 1 = BAT VOLT*

**K191  
Ignition Key  
Lock Solenoid**



**PROBLEM CAUSE**

- BR Wire
- OW Wire
- Transmission Range Selector Switch
- Key-Barrel Switch

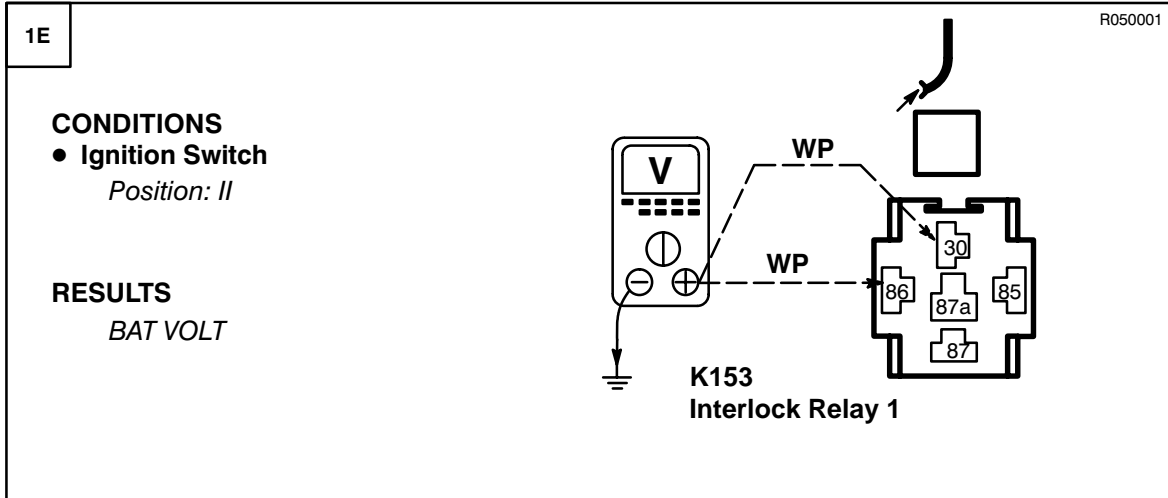


**PROBLEM CAUSE**

- Ignition Key Lock Solenoid

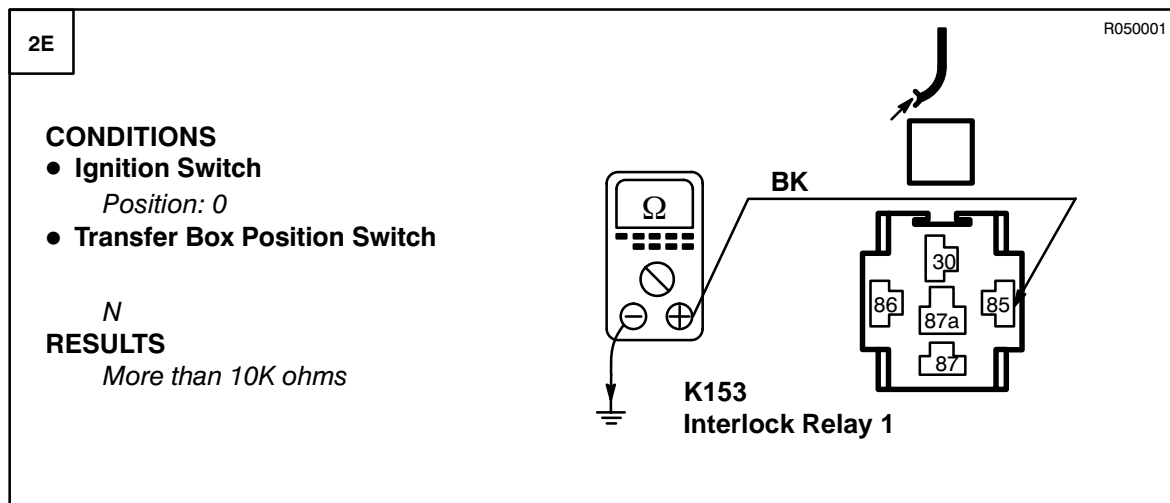
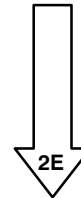


**Test E**



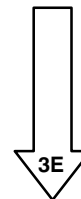
**PROBLEM CAUSE**

- WP Wire
- Key-In Switch



**PROBLEM CAUSE**

- BK Wire
- Transfer Box Position Switch



# C1 ETM

## 1995 RANGE ROVER

2E

3E

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Gear Selector  
*P*

**RESULTS**  
*Ignition key cannot be removed*

R050001

**K153 Interlock Relay 1**

**OK**

**PROBLEM CAUSE**

- RB Wire
- BR Wire
- Interlock Diode 1

**OK**

**PROBLEM CAUSE**

- Interlock Relay 1

### Test F

1F

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Gear Selector  
*N = BAT VOLT*

R050001

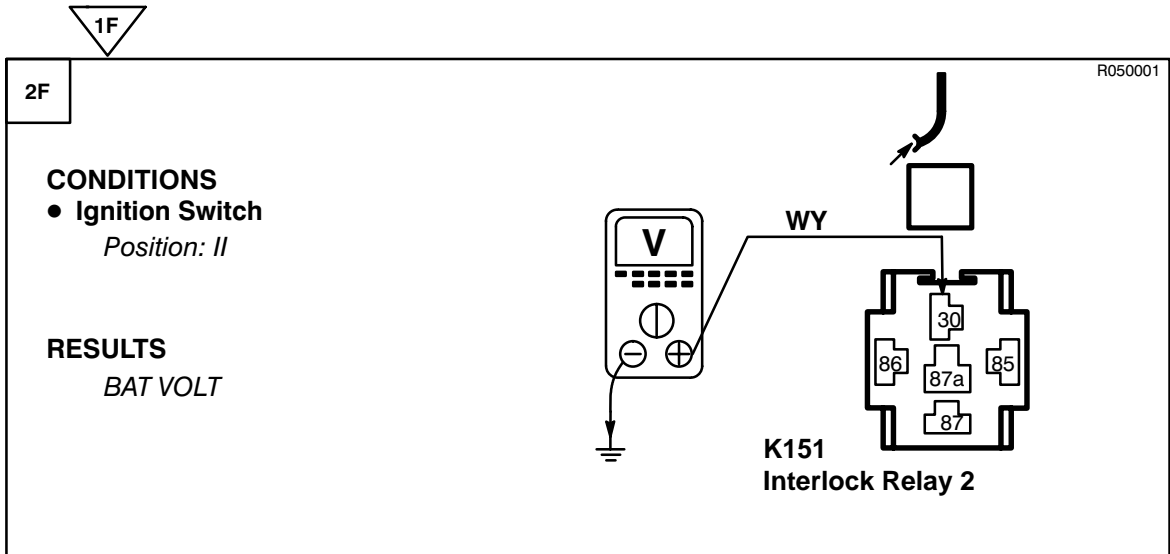
**K151 Interlock Relay 2**

**OK**

**PROBLEM CAUSE**

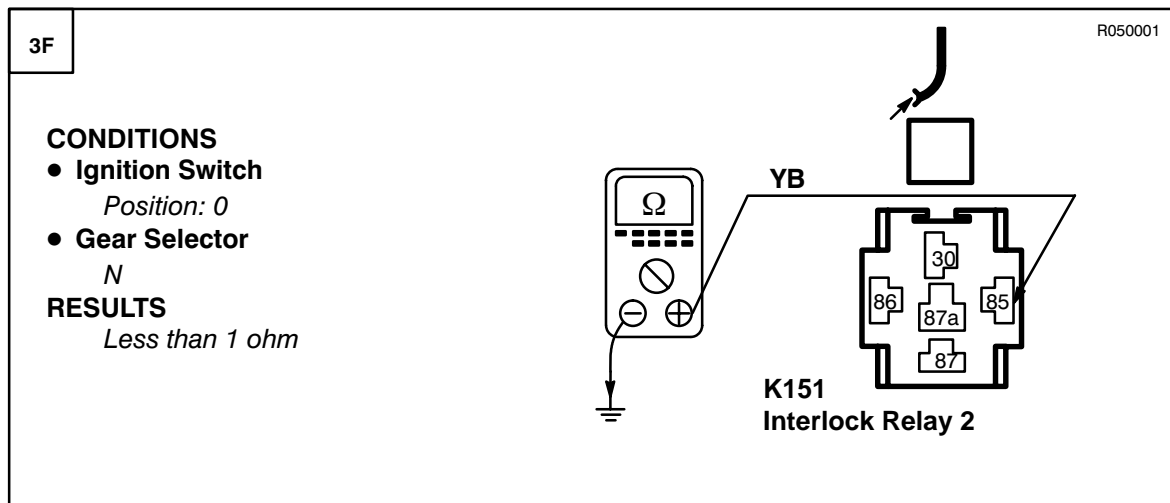
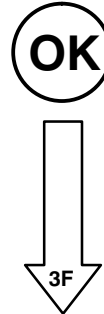
- BR Wire
- Transmission Range Selector Switch

**OK**



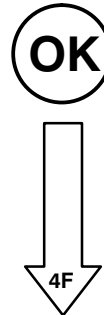
**OK** PROBLEM CAUSE

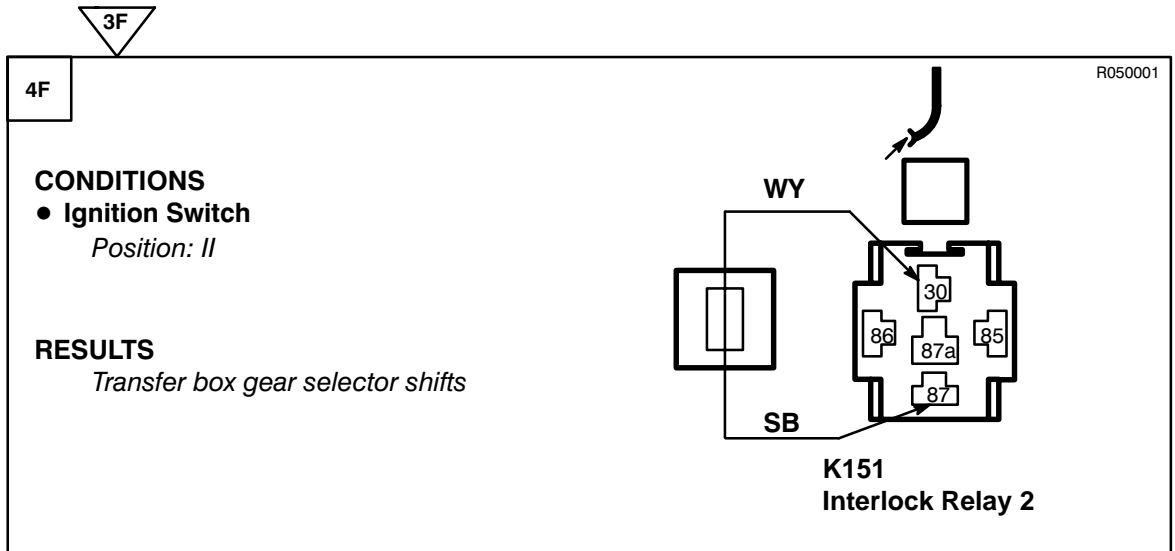
- F13 Fuse
- WY Wire



**OK** PROBLEM CAUSE

- YB Wire
- BY Wire
- Interlock Diode 2
- BO Wire
- Park/Neutral Position Switch





**PROBLEM CAUSE**

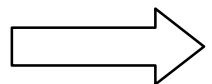
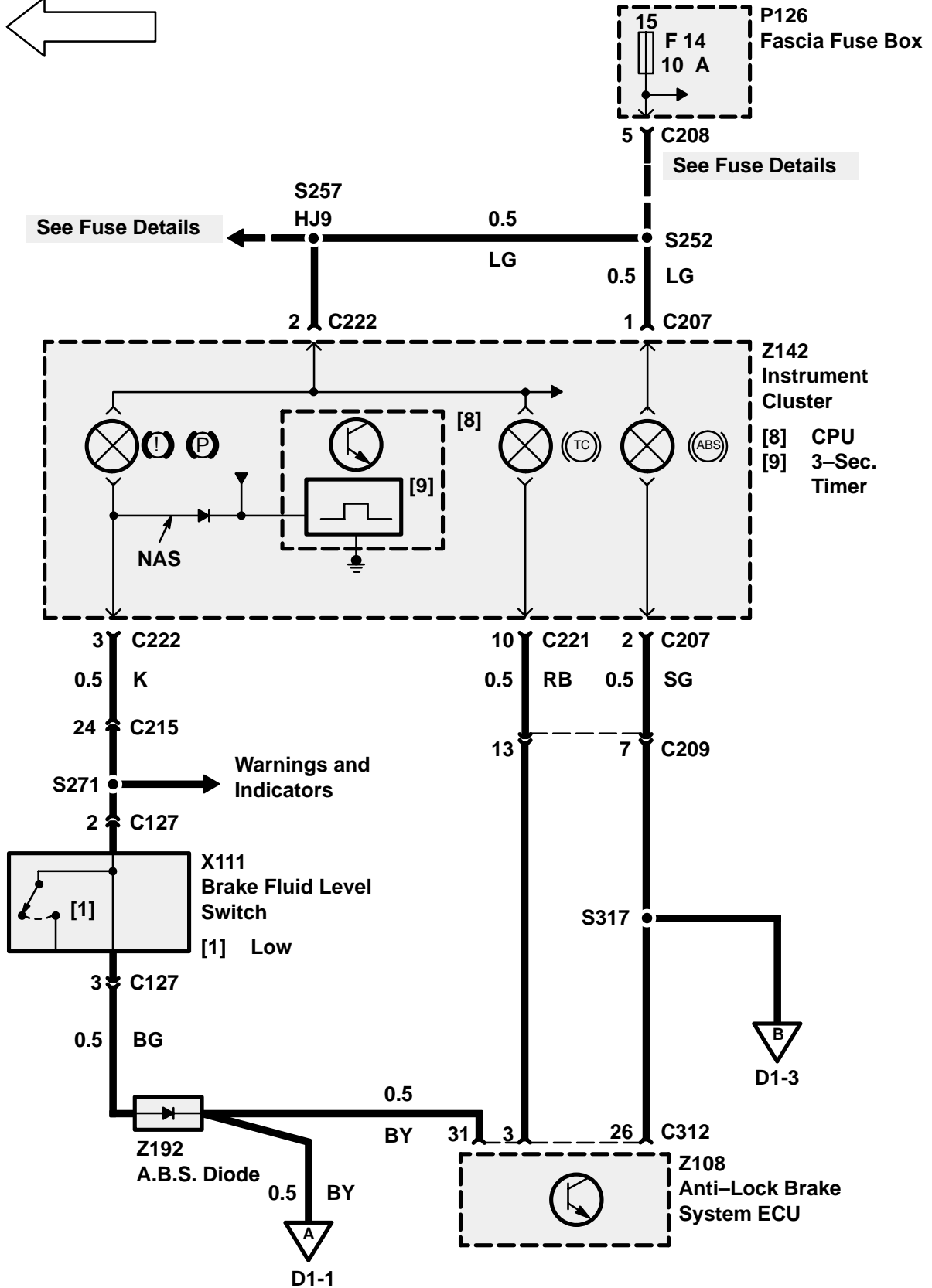
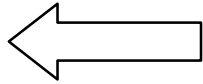
- SB Wire
- B Wire
- Transfer Box Drive Motor/Encoder

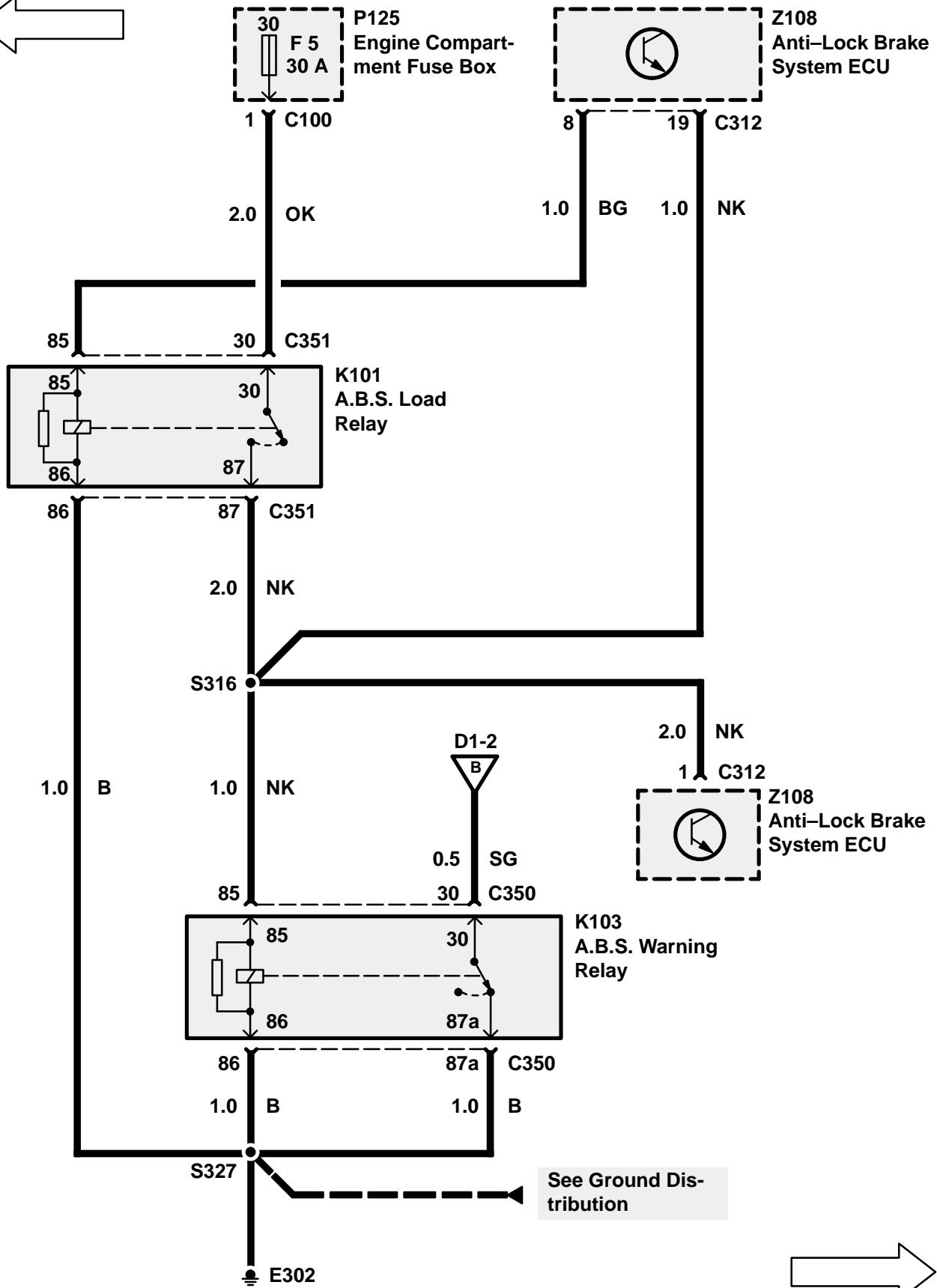
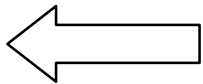


**PROBLEM CAUSE**

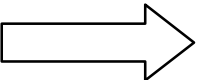
- Interlock Relay 2

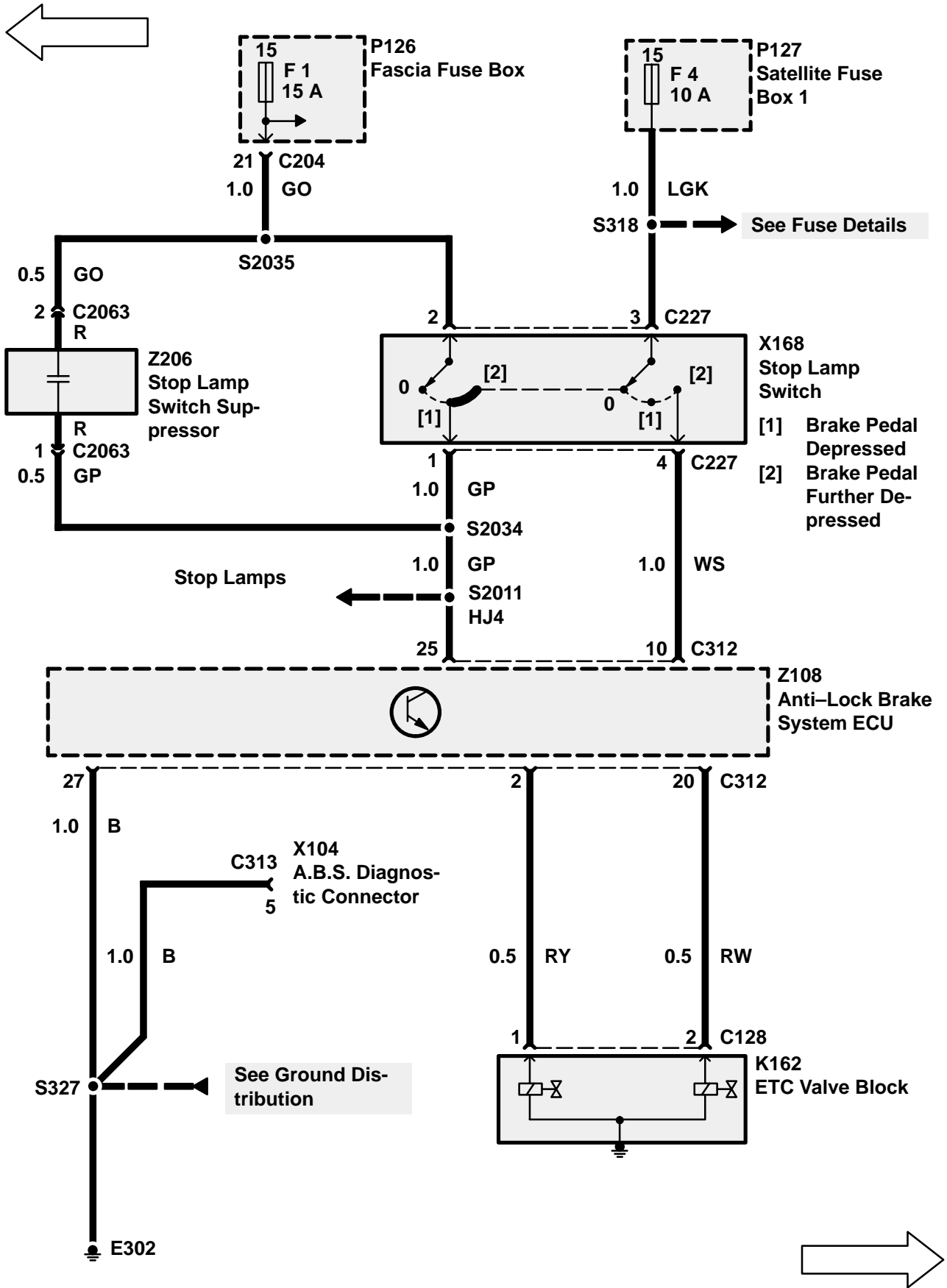




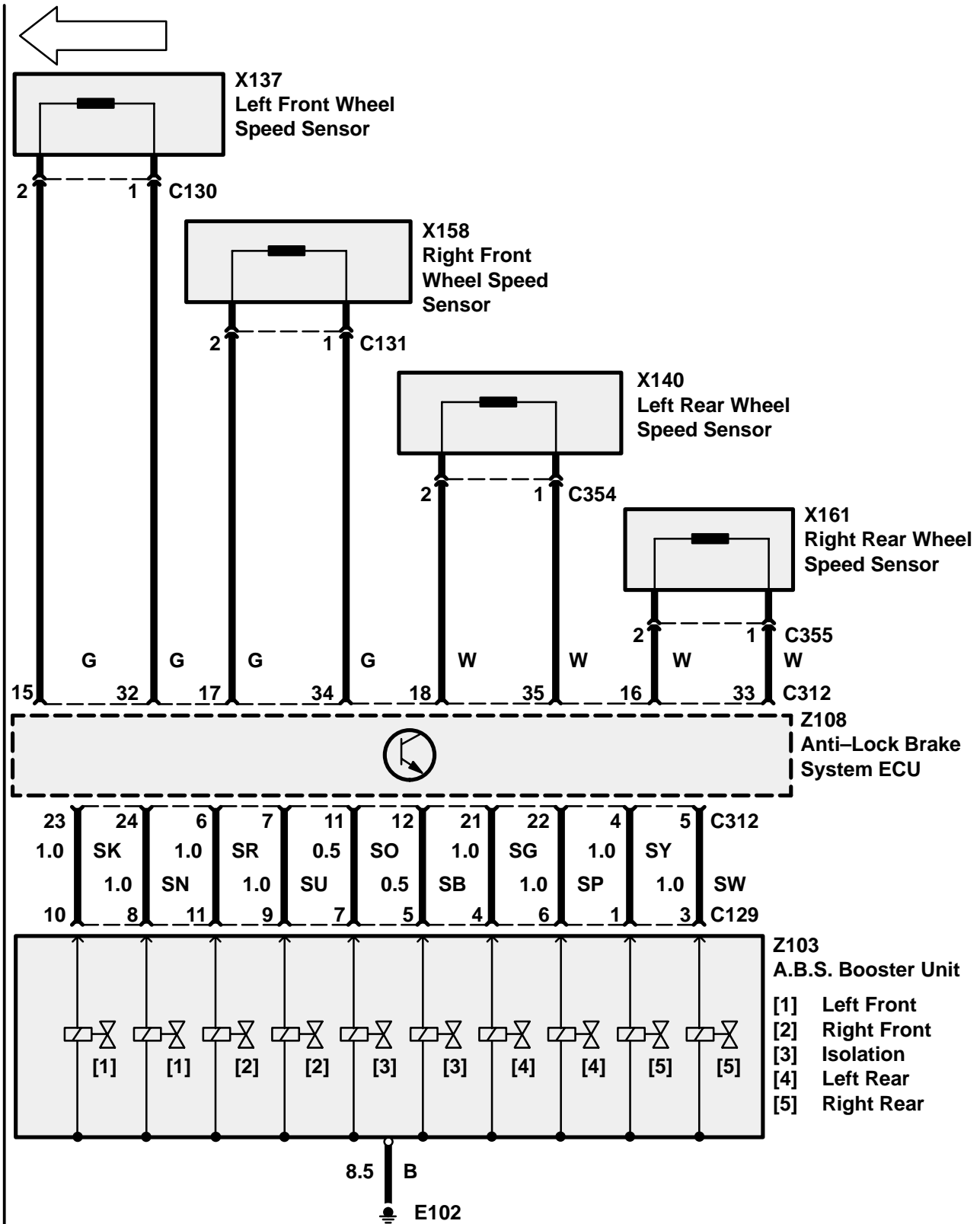


See Ground Dis-  
tribution









**CIRCUIT OPERATION****Engine Coolant Temperature Gauge**

The Engine Coolant Temperature Gauge Sensor (X114) has approximately 200 ohms resistance when the coolant temperature is low. As coolant temperature increases, the resistance of the sensor decreases. This varying resistance causes the current through the sensor to change and the gauge to register the temperature. When the coolant is hot, the resistance of the sensor is approximately 10 ohms.

**Fuel Gauge**

When the fuel tank level is low, the resistance of the fuel gauge sender is approximately 220 ohms. As the fuel level increases, the resistance of the sender decreases, causing the gauge to register the change. When the fuel tank is full, the resistance of the sender is approximately 10 ohms. When the fuel gauge sender's resistance falls below approximately 25 ohms (6 liters/1.5 US gallons), the fuel warning light will illuminate to warn the driver.

**Speedometer**

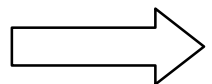
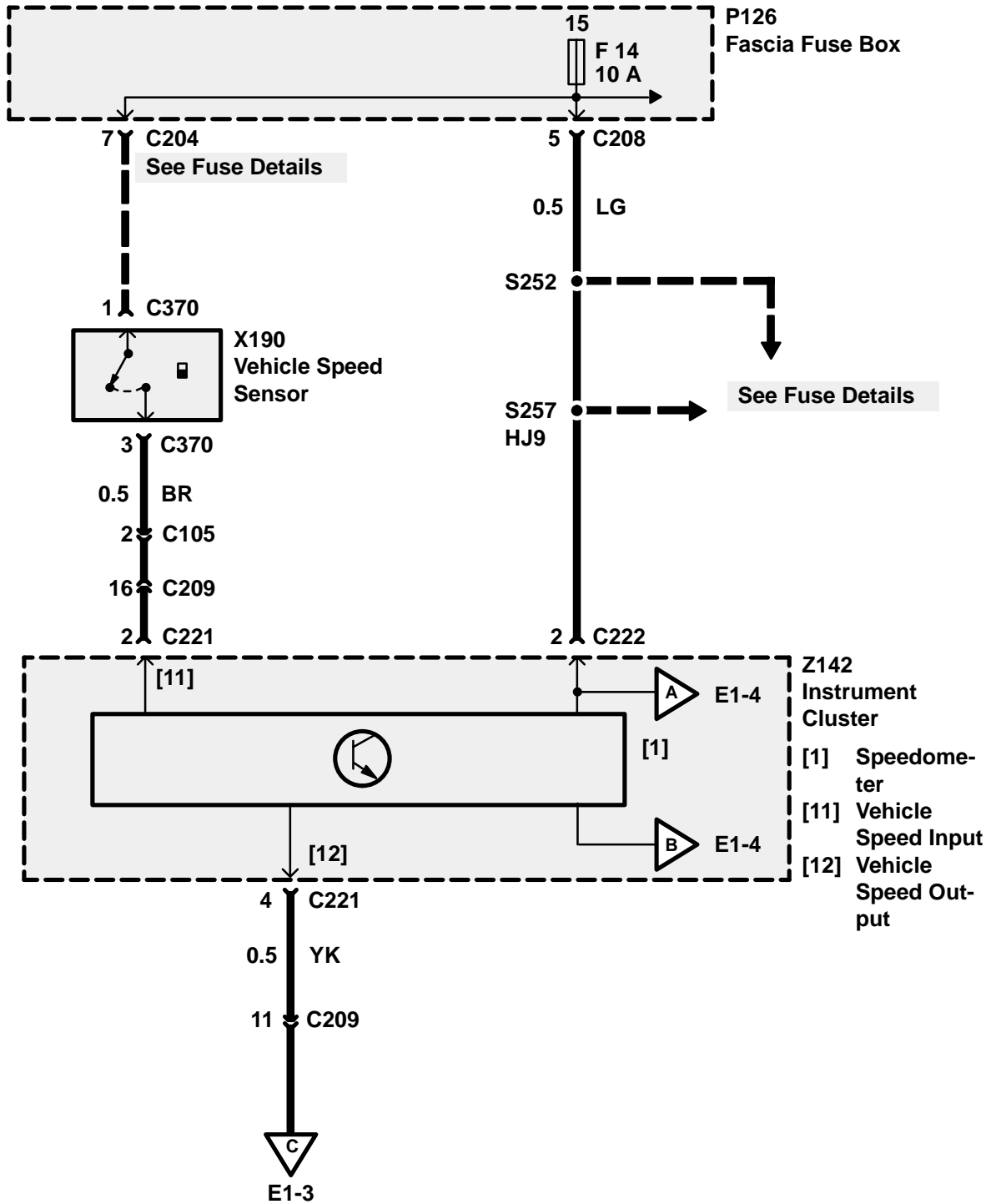
The Vehicle Speed Sensor (X190) sends a signal to the speedometer in the form of voltage pulses. The pulses are filtered by a Vehicle Speed Sensor Buffer inside the speedometer. The voltage alternates between battery voltage and 0 volts 6 times per wheel revolution. The speed sensor signal is also sent to the Cruise Control ECU (Z121), Engine Control Module (Z132), Memory Seat ECU (Z146), Air Suspension ECU (Z165), the Service Reminder Unit (NAS) (Z126), and the Multifunction Unit (MFU) (Z148) (Persian Gulf Countries).

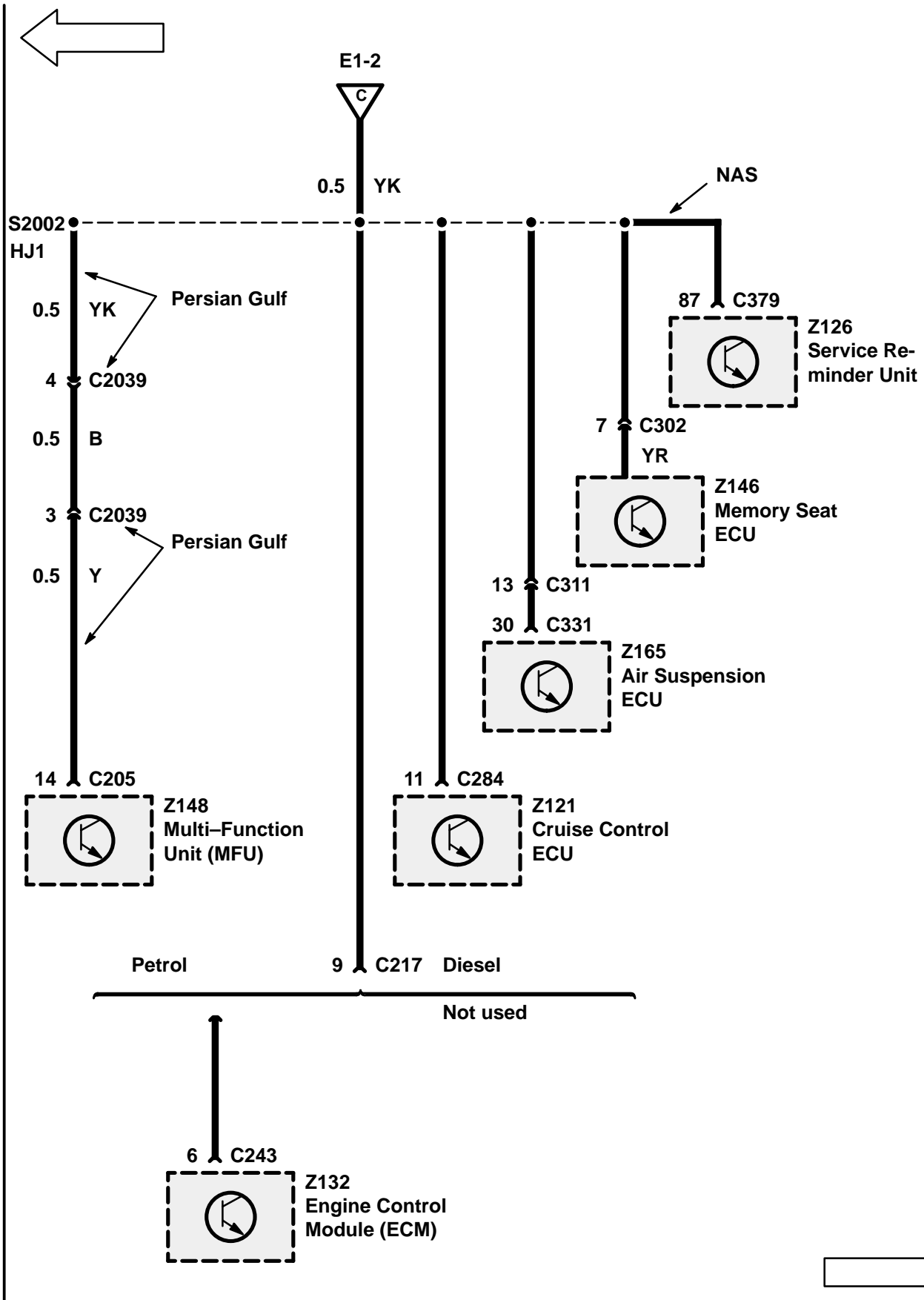
**Tachometer**

The tachometer displays engine speed in rpm. Voltage pulses are taken from the Generator (Z106) and are generated when the engine drive belt turns the Generator pulley. The tachometer responds to the frequency of the voltage pulses, which increases proportionally to that of the engine speed.

# E1 ETM

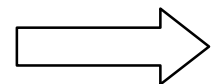
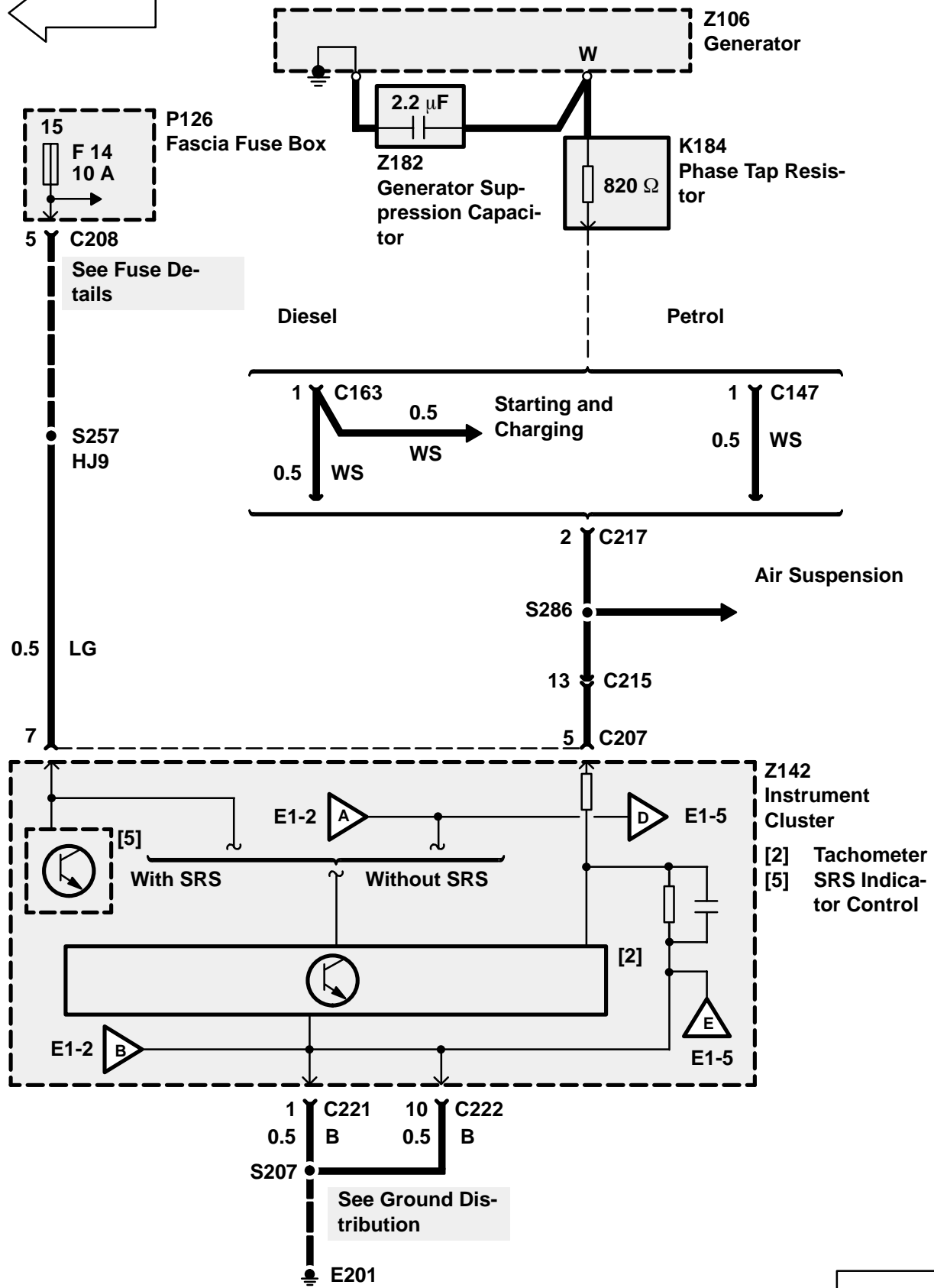
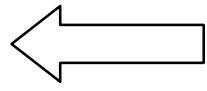
## 1995 RANGE ROVER





# E1 ETM

## 1995 RANGE ROVER

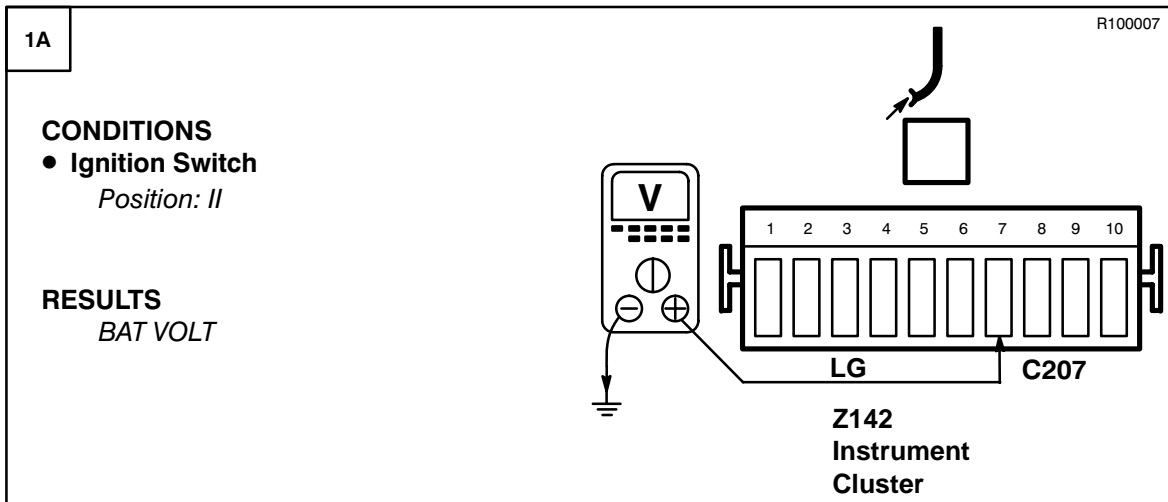




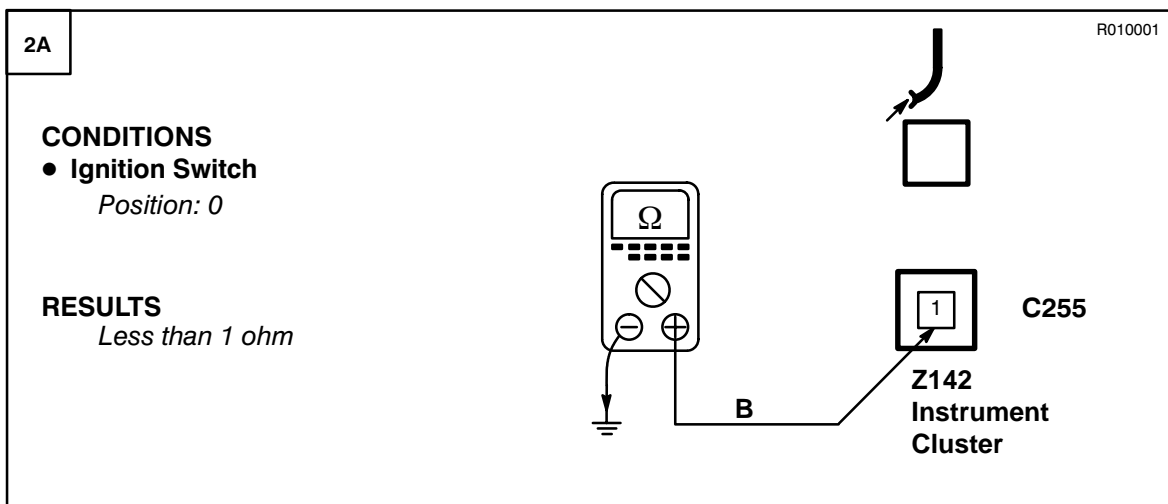
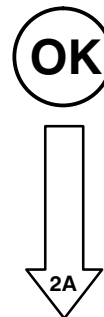
**SYSTEM DIAGNOSIS**

10. If no instruments operate, do Test A.
11. If the coolant temperature gauge reads hot with coolant cool, do Test B.
12. If the coolant temperature gauge reads cool with coolant hot, do Test B.
13. If the fuel gauge reads empty with fuel in the tank, do Test C.
14. If the fuel gauge reads full when the tank is empty, do Test C.
15. If the speedometer does not operate, do Test D.
16. If the tachometer does not operate, do Test E.

**Test A**



~~OK~~ **PROBLEM CAUSE**  
 - LG Wire  
 - F14 Fuse



~~OK~~ **PROBLEM CAUSE**  
 - B Wire

**OK** **PROBLEM CAUSE**  
 - Instrument  
 Cluster



### Test B

R010001

1B

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

**X114**  
Engine Coolant  
Temperature  
Gauge Sensor



- PROBLEM CAUSE**
- GU Wire
  - Instrument Cluster
  - Coolant Temperature Gauge



- PROBLEM CAUSE**
- Engine Coolant Temperature Gauge Sensor

### Test C

R040001

1C

**CONDITIONS**

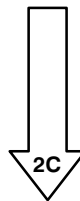
- Ignition Switch  
*Position: II*

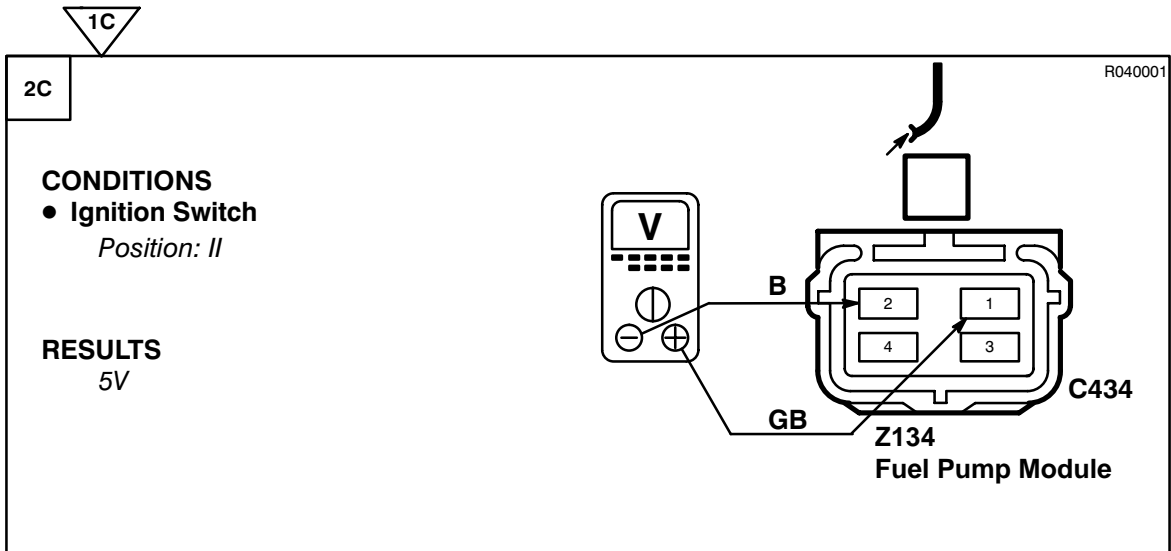
**RESULTS**  
*5V*

**Z134**  
Fuel Pump Module



- PROBLEM CAUSE**
- GB Wire
  - Instrument Cluster
  - Fuel Gauge

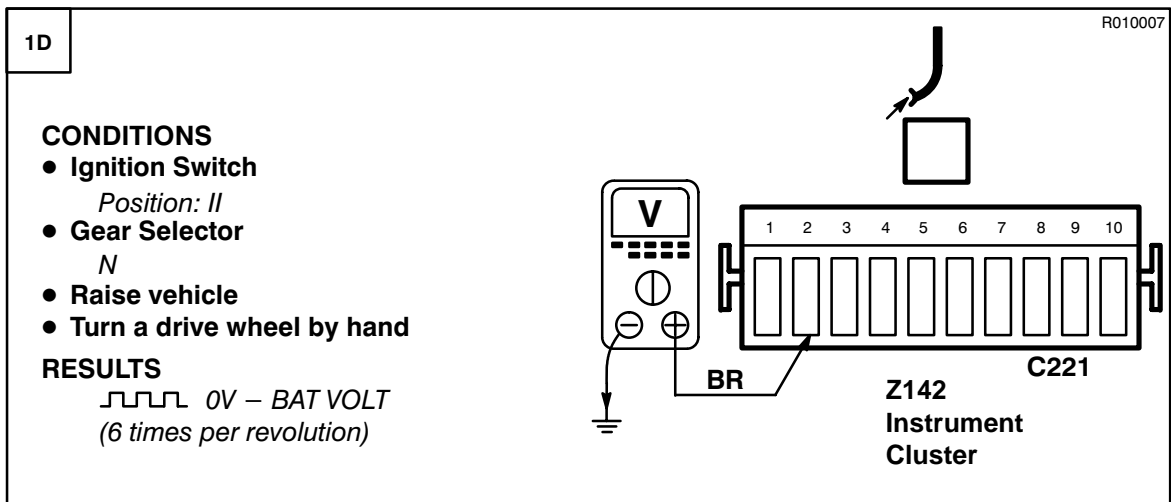




**OK** PROBLEM CAUSE  
- B Wire

**OK** PROBLEM CAUSE  
- Fuel Pump Module

**Test D**



**OK** PROBLEM CAUSE  
- GY Wire  
- BR Wire  
- Vehicle Speed Sensor

**OK** PROBLEM CAUSE  
- Instrument Cluster  
- Speedometer

**Test E**

R010001

1E

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Engine  
*On* = 7V

K184  
Phase Tap Resistor



- PROBLEM CAUSE**
- Generator
  - Phase Tap Resistor



- PROBLEM CAUSE**
- WS Wire
  - Tachometer
  - Instrument Cluster

**CIRCUIT OPERATION****Charge Warning Light**

The charge warning light receives battery voltage with the Ignition Switch (X134) in position II. This warning light is grounded by the Generator (Z106) if the Generator is not producing normal power output or the Generator stops turning.

**ABS Warning Light**

The ABS warning light receives battery voltage with the Ignition Switch (X134) in position II. It is grounded by the Anti-Lock Brake System ECU (Z108) or the ABS Warning Relay (K103) in the event of an ABS problem.

**Brake Warning Light**

The brake warning light receives battery voltage with the Ignition Switch (X134) in position II. It is grounded by the Brake Fluid Level Switch (X111) when the brake fluid level is low. It may also be grounded through the Right Front and Right Rear Inboard Brake Pads (B129, B155), and the Handbrake Diode (Z197) when the Handbrake Switch (X191) is closed. The warning light is also grounded by the Anti-Lock Brake System ECU (Z108) or by the ABS Pressure Switch Unit (Z104) in the event of an ABS system problem. When the Right Front or Right Rear Inboard Brake Pad (B129, B135) is in need of replacement, the brake warning light is grounded through the Right Front or Right Rear Inboard Brake Pad (B129, B135).

**Oil Pressure Warning Light**

The oil pressure warning light receives battery voltage with the Ignition Switch (X134) in position II. If the engine oil pressure is very low, the Oil Pressure Switch (X149) will apply ground to the warning light.

**Transmission/Transfer Box Oil Temperature Warning Light**

The transmission/transfer box oil temperature warning light is grounded by the Automatic Transmission Oil Temperature Switch (X108) when the temperature of the transmission fluid exceeds 130°C (266°F). The warning light is also grounded by the Transfer Box Oil Temperature Switch (X174)

when the temperature of the transfer box fluid exceeds 145°C (266°F). The Bulb Check Relay (K173) will illuminate the warning light when the vehicle is first started to test the bulb.

**Petrol****Malfunction Indicator Lamp (Check Engine)**

The Malfunction Indicator Lamp (Check Engine) is grounded by the Engine Control Module (ECM) (Z132) when a diagnostic trouble code is set.

**Diesel****Glow Plug Indicator**

The Glow Plug Indicator is grounded by the Glow Plug Timer Unit (Z135) to indicate that the Glow Plugs have been activated.

**Hazard Indicator**

If the Hazard Switch (X220) is depressed, a pulsing voltage is applied to the Hazard Indicator which is permanently grounded by ground E200.

**Direction Indicator**

If the Direction Indicator Switch (X116) is turned on, a pulsing voltage is applied from the Flasher Unit (Z128) to the Direction Indicator which is permanently grounded by ground E200.

**Trailer Indicator**

With the Direction Indicator Switch (X116) turned on, the Flasher Unit (Z128) also applies a pulsing voltage to the Trailer Indicator which is permanently grounded by ground E200.

**SRS Indicators**

The SRS Indicators are controlled by the Air Bag Diagnostic Control Module (Z151) and the SRS Indicator Control Circuit of the Instrument Cluster (Z142) to indicate SRS System faults.

**Low Fuel Warning Indicator**

When the fuel gauge sender's resistance falls below approximately 25 Ohms (6 liters/1.5 US gallons), the Low Fuel Warning Indicator will illuminate to warn the driver.

**Main Beam Indicator**

With the Headlamps turned on the Main Lighting Switch (X145), battery voltage is applied to the Main Beam Indicator which is also permanently grounded by ground E200.

**TC Warning Light**

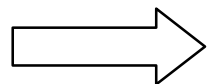
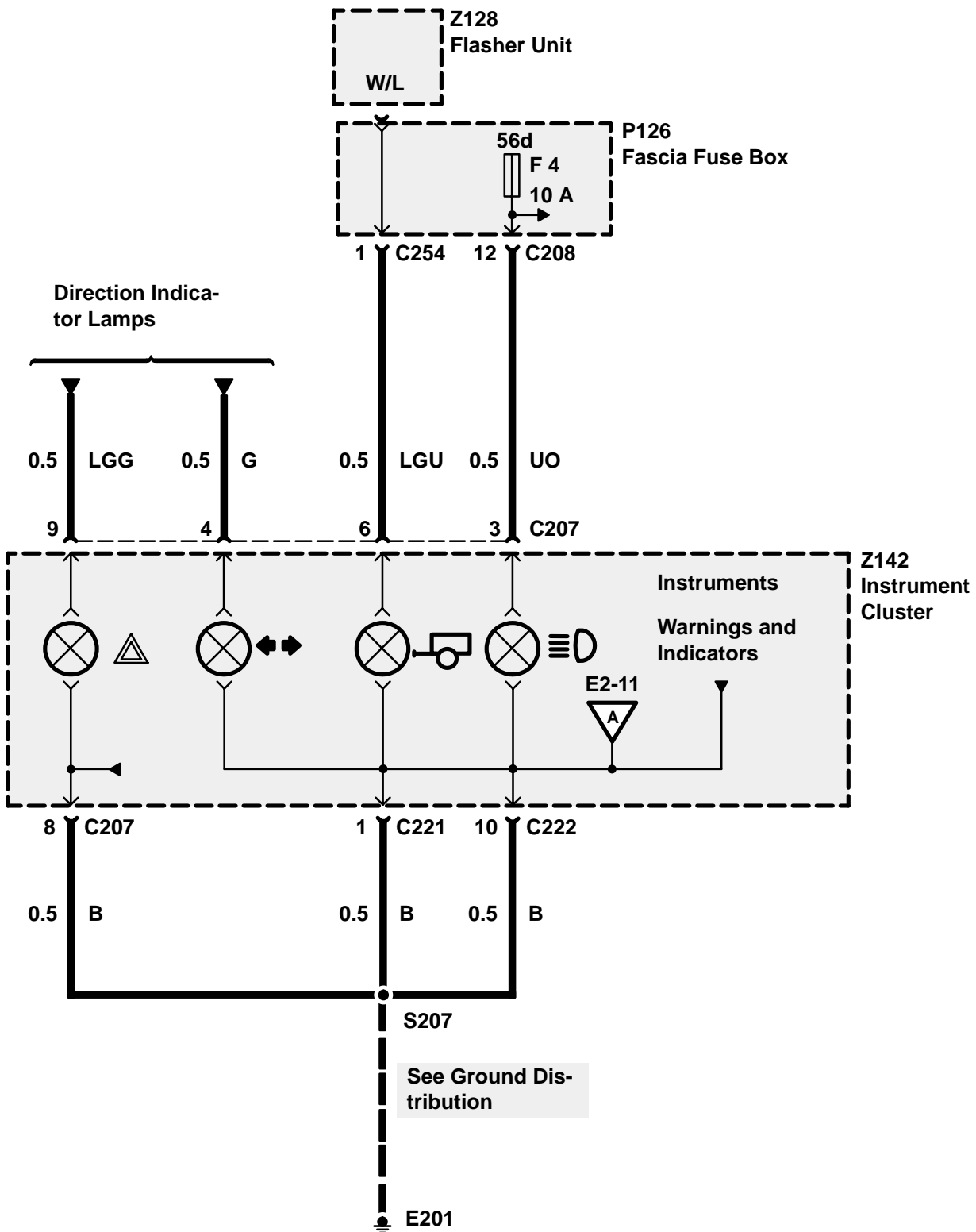
The TC warning light will be on for up to 60 seconds while the system is active. After 60 seconds of TC operation, the TC warning light will begin to flash to inform the driver that the system has been shut down to allow the brakes to cool. If the TC warning light stays on continuously for more than 60 seconds, a fault in the system is indicated. The TC warning light receives battery voltage with the Ignition Switch (X134) in position II. A ground supply is provided by the A.B.S. ECU (Z108) when the TC system is active.

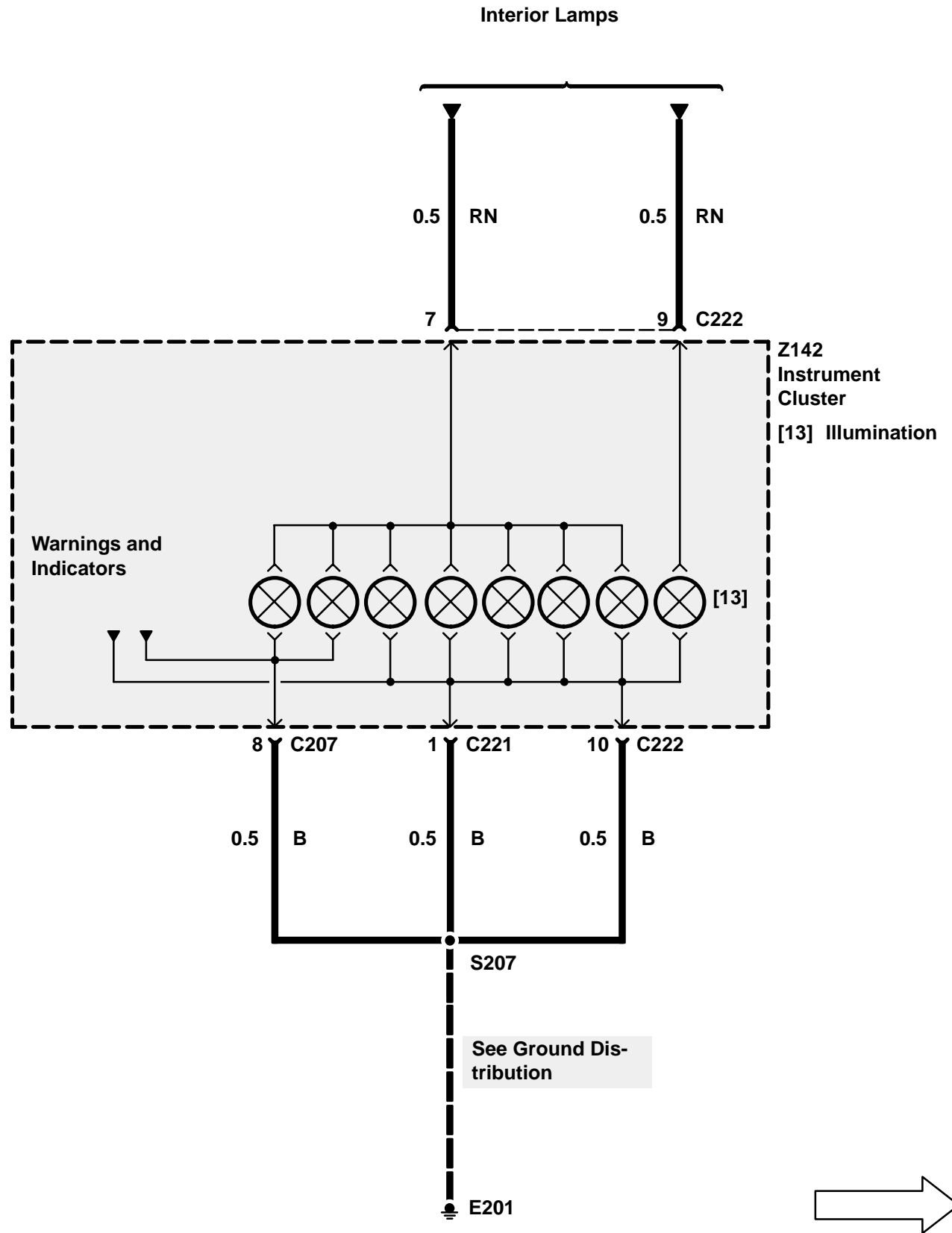
**Air Suspension Indicator**

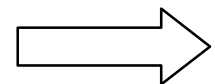
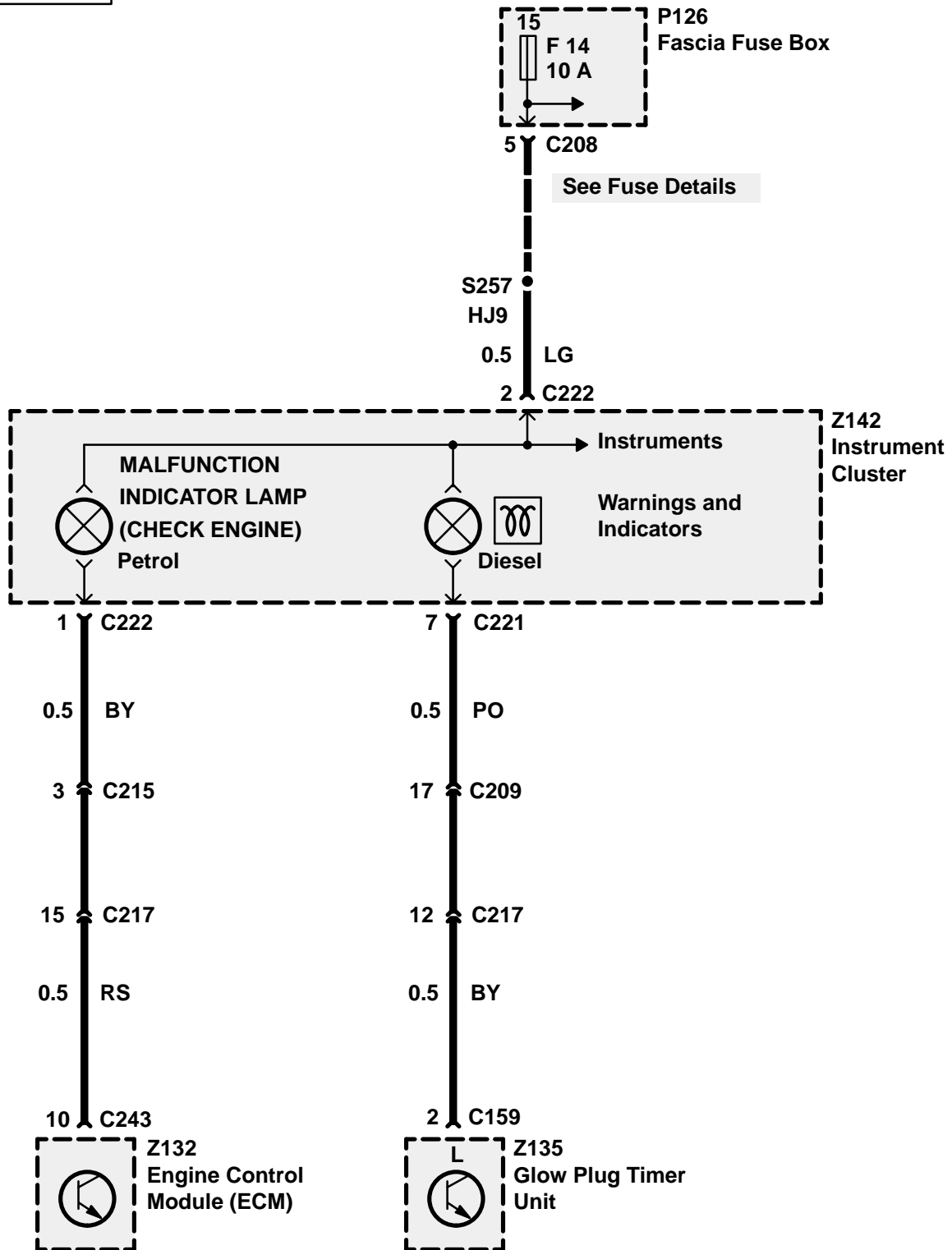
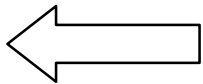
If the Air Suspension ECU (Z165) detects a fault in the system, the ECU will inform the driver by intermittently grounding the Warning Lamp Relay (K155) for 30 seconds. This causes the Air Suspension Indicator to flash for 30 seconds. After 30 seconds the indicator will remain on until the repair is made.

**Fasten Seat Belt Indicator**

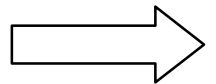
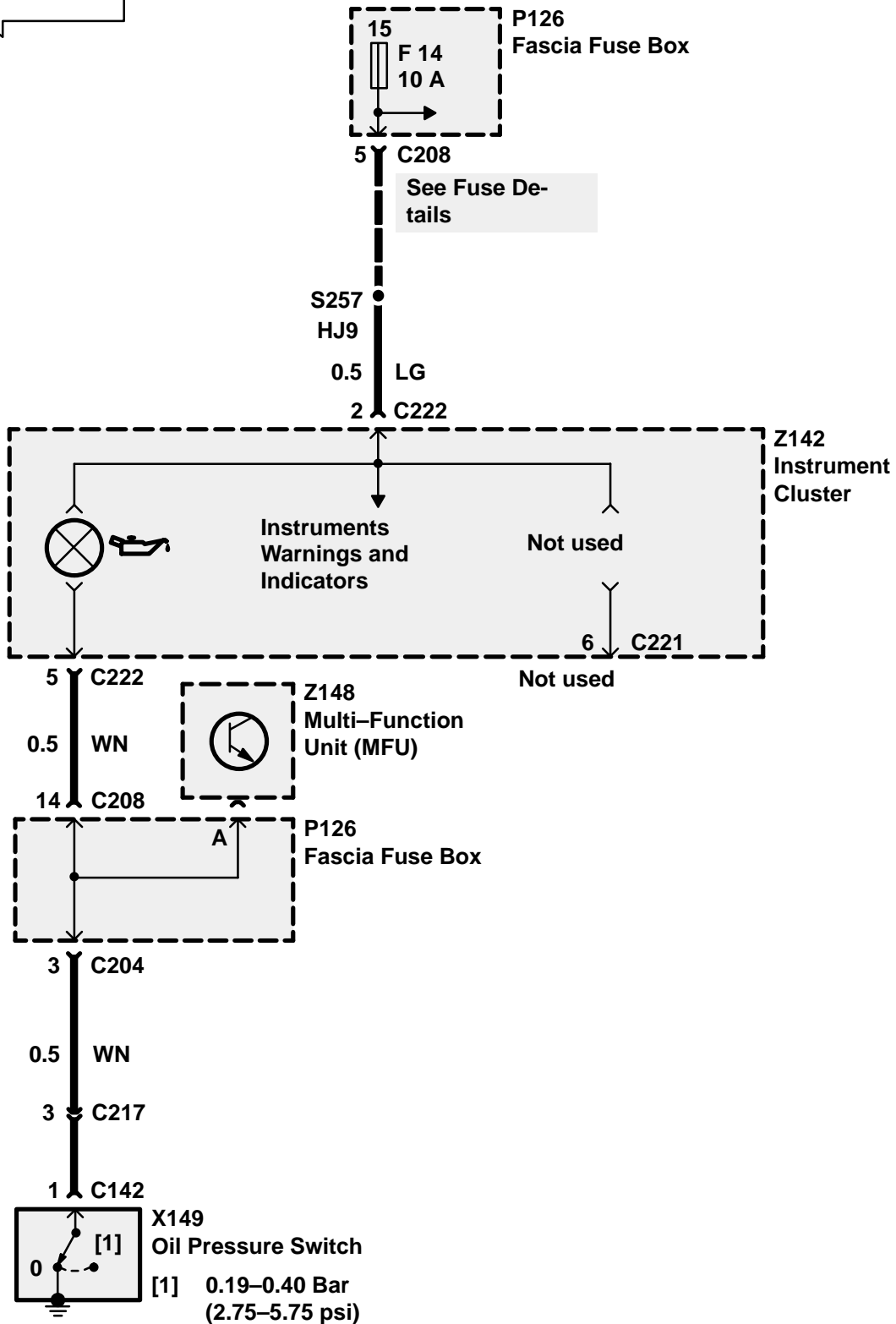
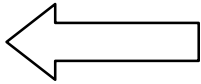
The Fasten Seat Belt Indicator receives battery voltage with the Ignition Switch (X134) in position II. The indicator is also grounded through the Multifunction Unit (MFU) (Z148) and the Driver's Seat Buckle Switch (X120). If the Driver's Seat Belt is buckled the Driver's Seat Belt Buckle Switch opens and the Indicator turns off.

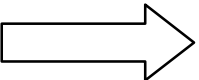
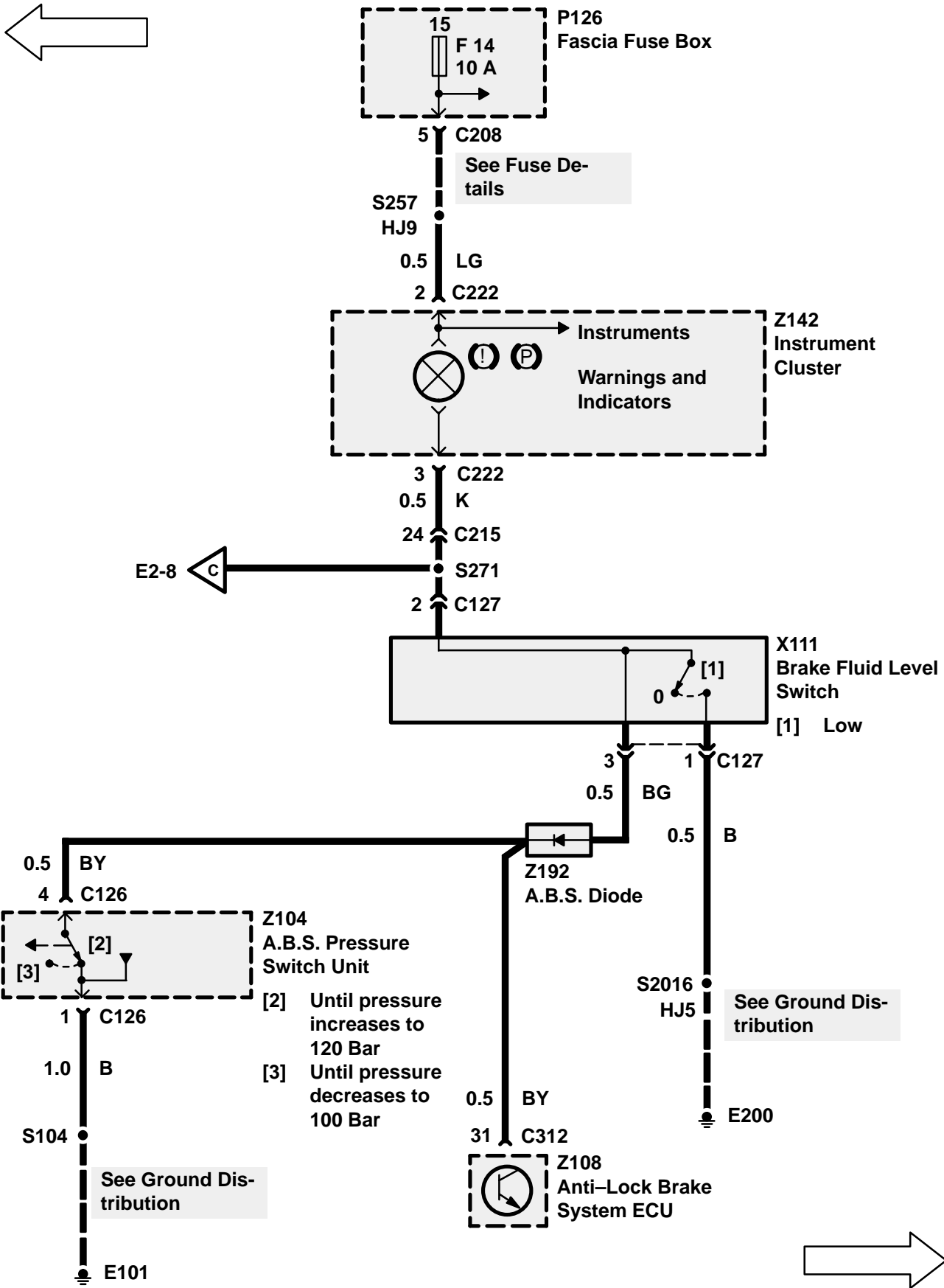
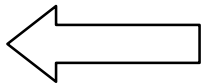






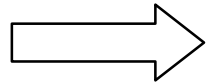
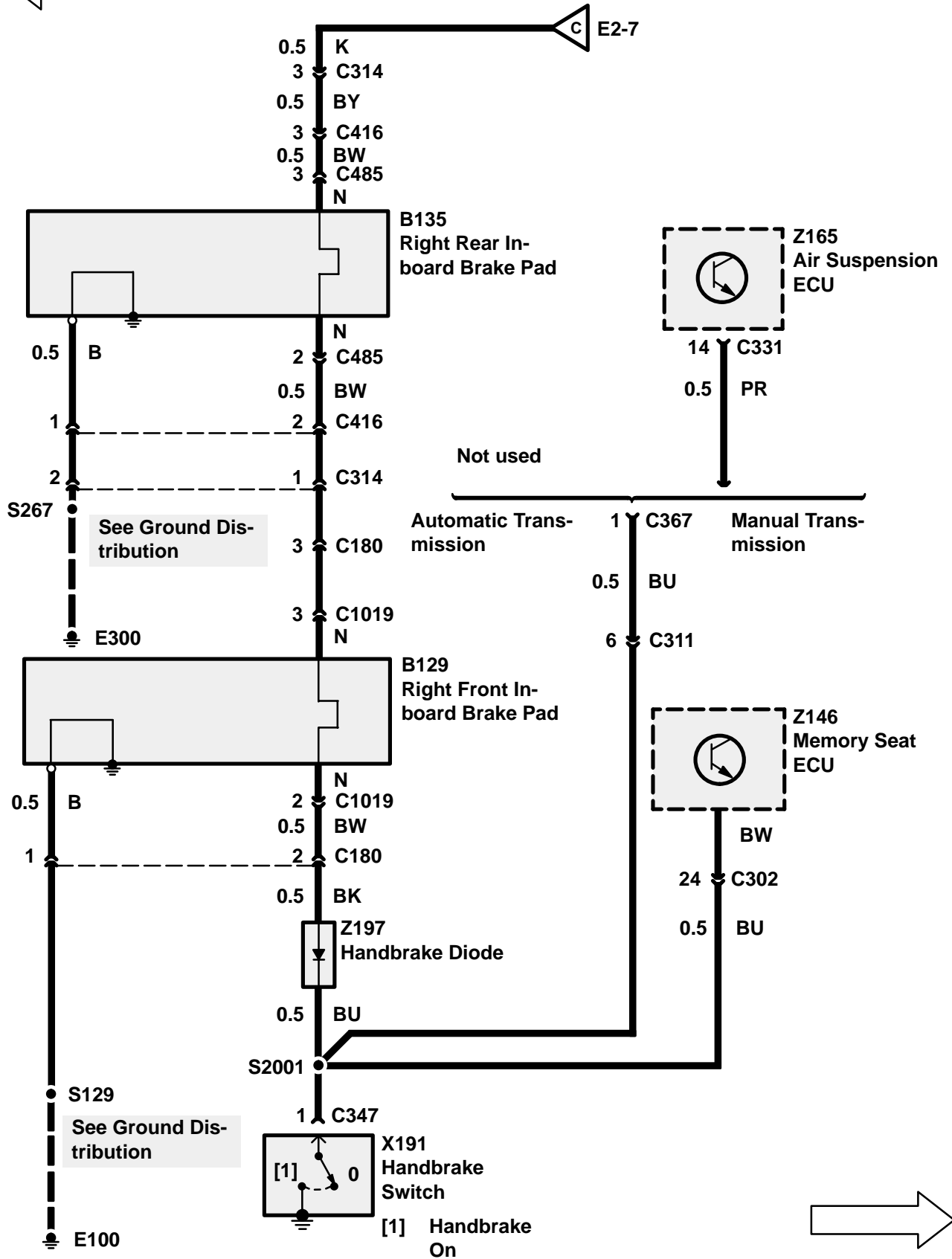
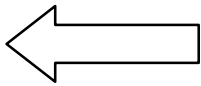


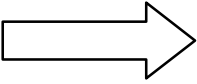
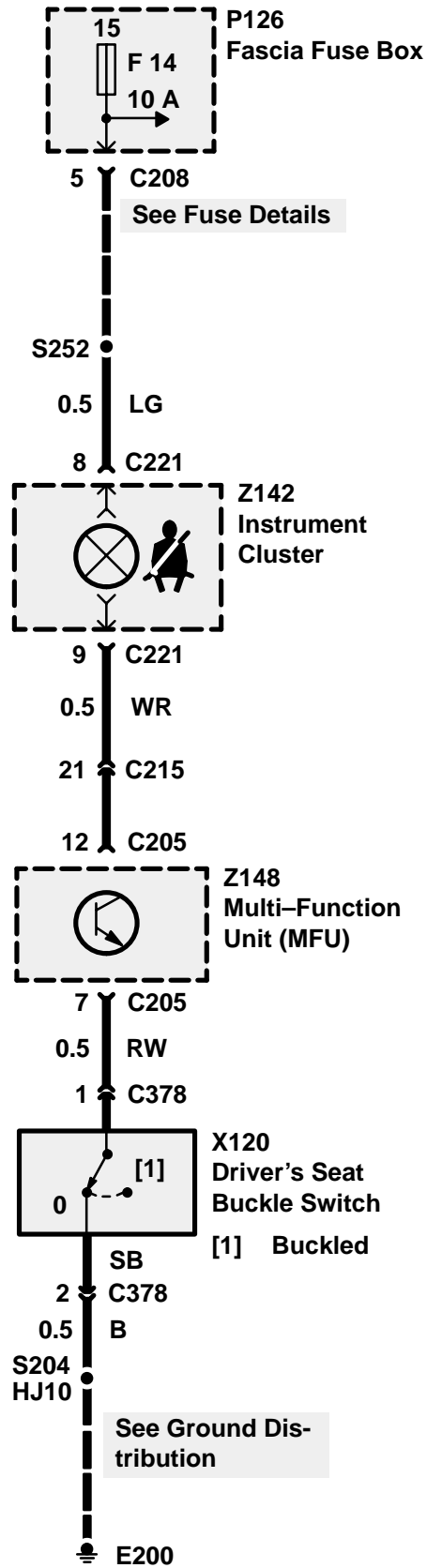
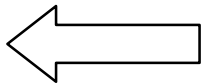


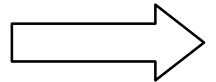
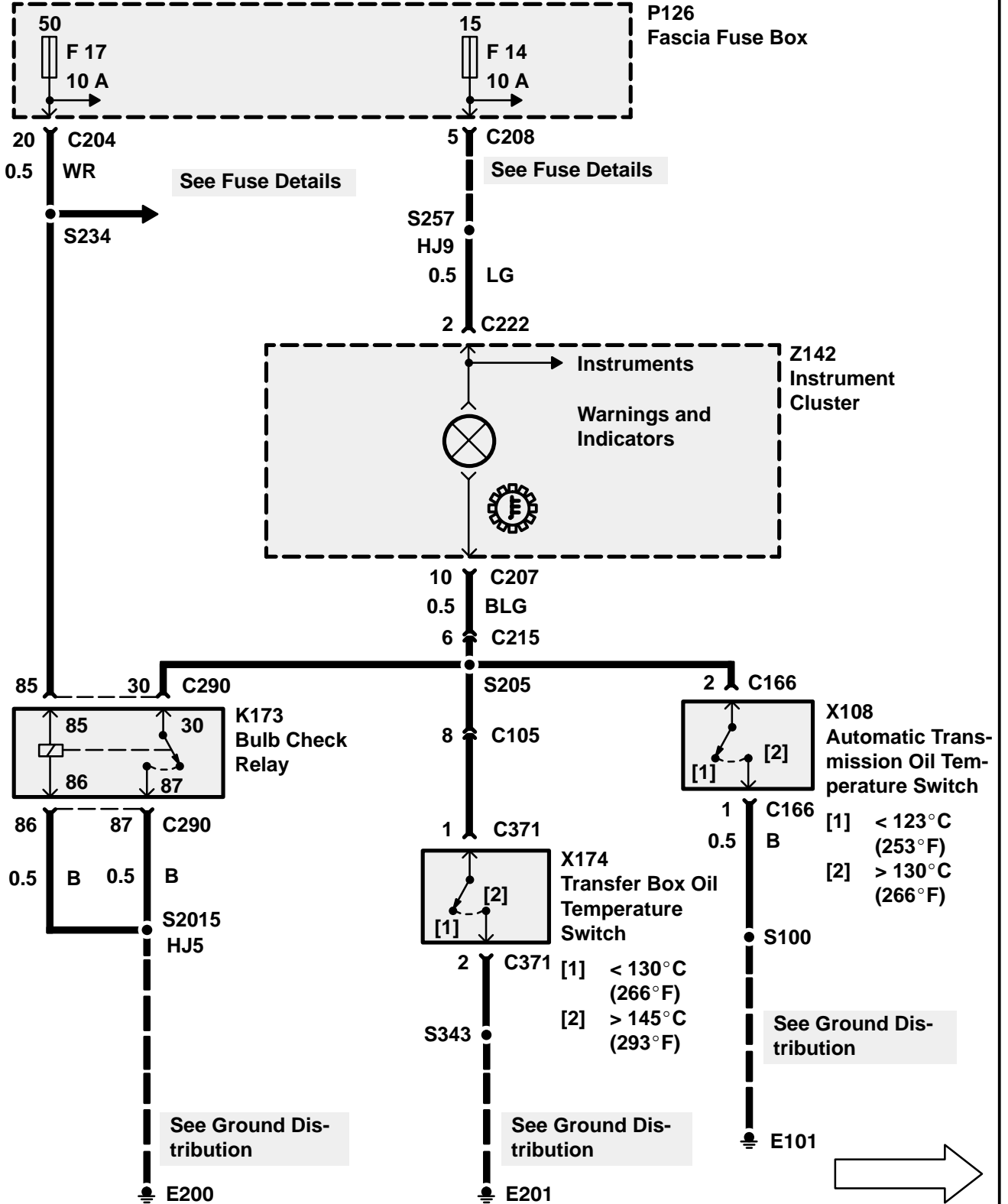
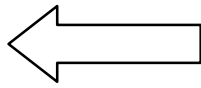


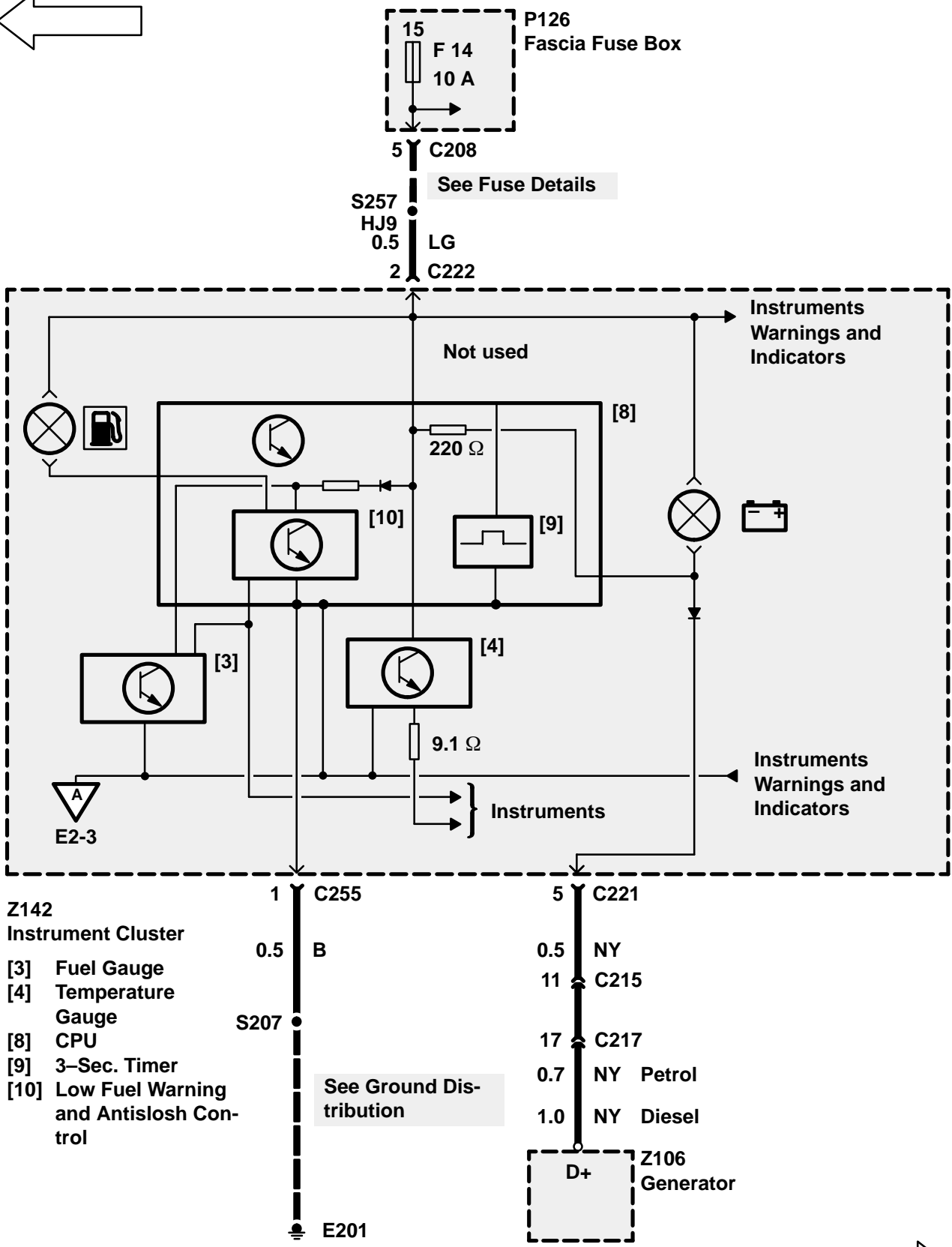
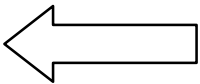
# E2 ETM

## 1995 RANGE ROVER



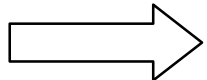


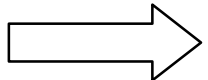
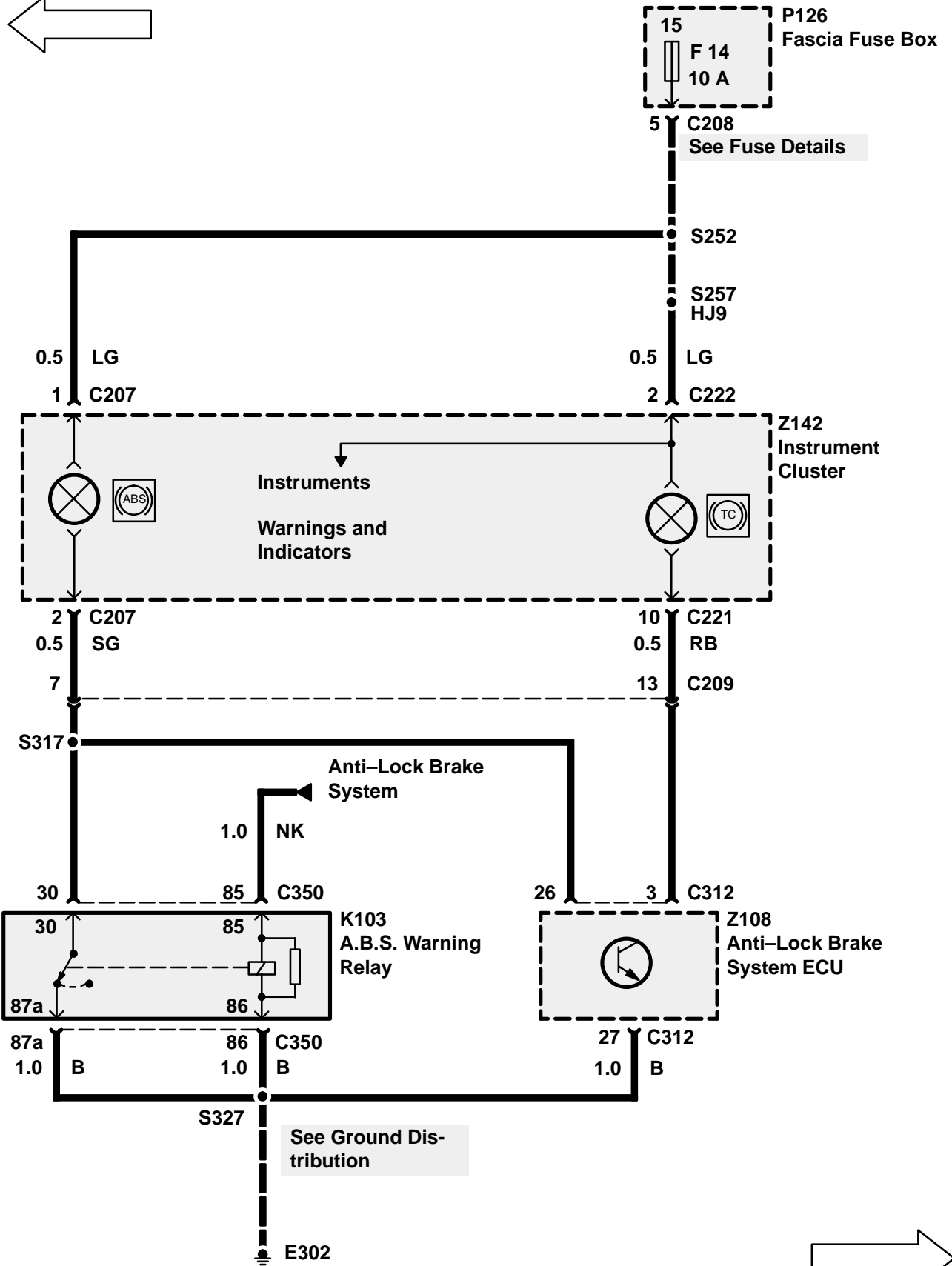
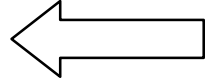


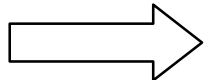
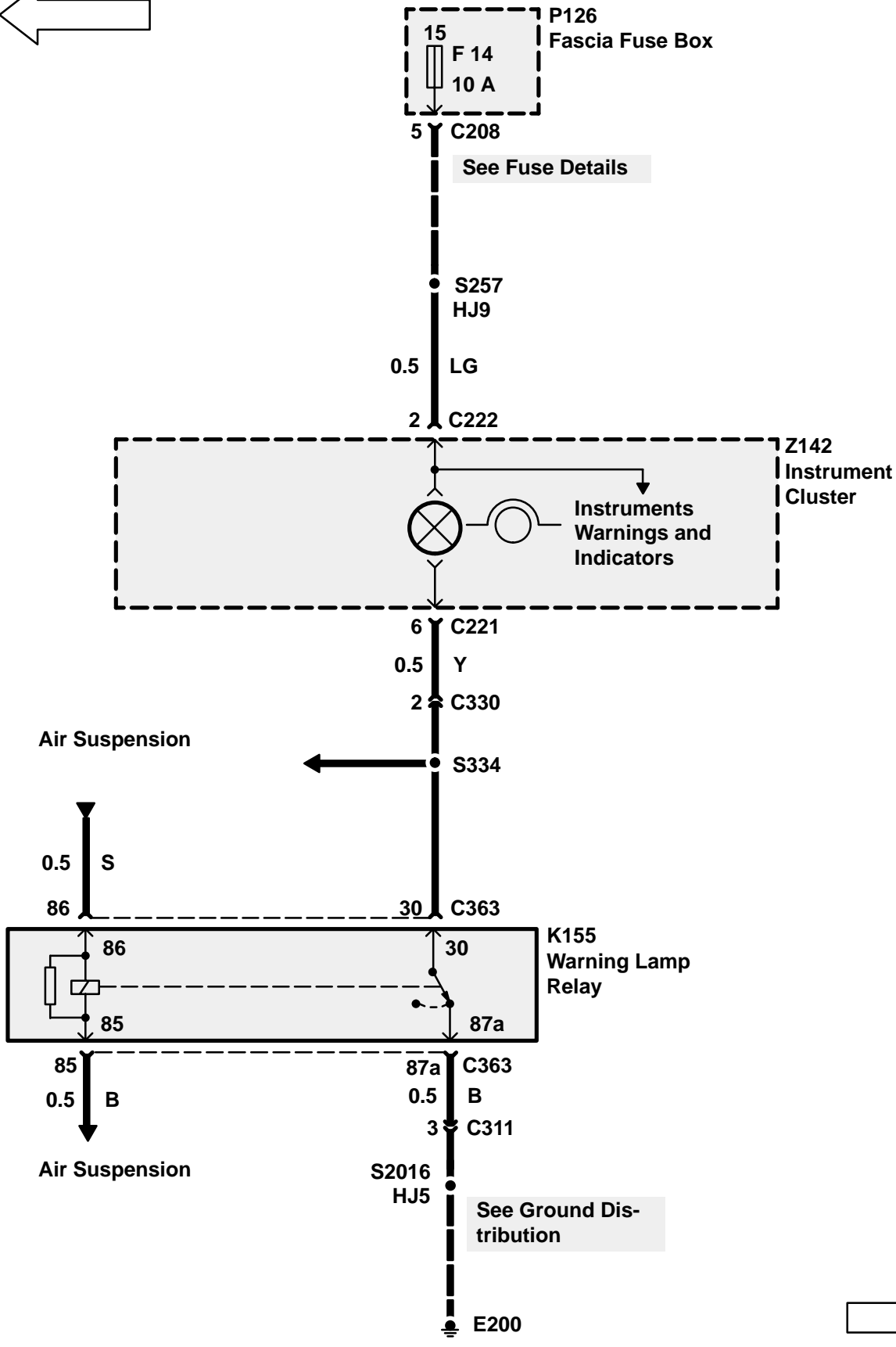
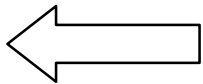


- Z142  
Instrument Cluster
- [3] Fuel Gauge
  - [4] Temperature Gauge
  - [8] CPU
  - [9] 3-Sec. Timer
  - [10] Low Fuel Warning and Antislosh Control

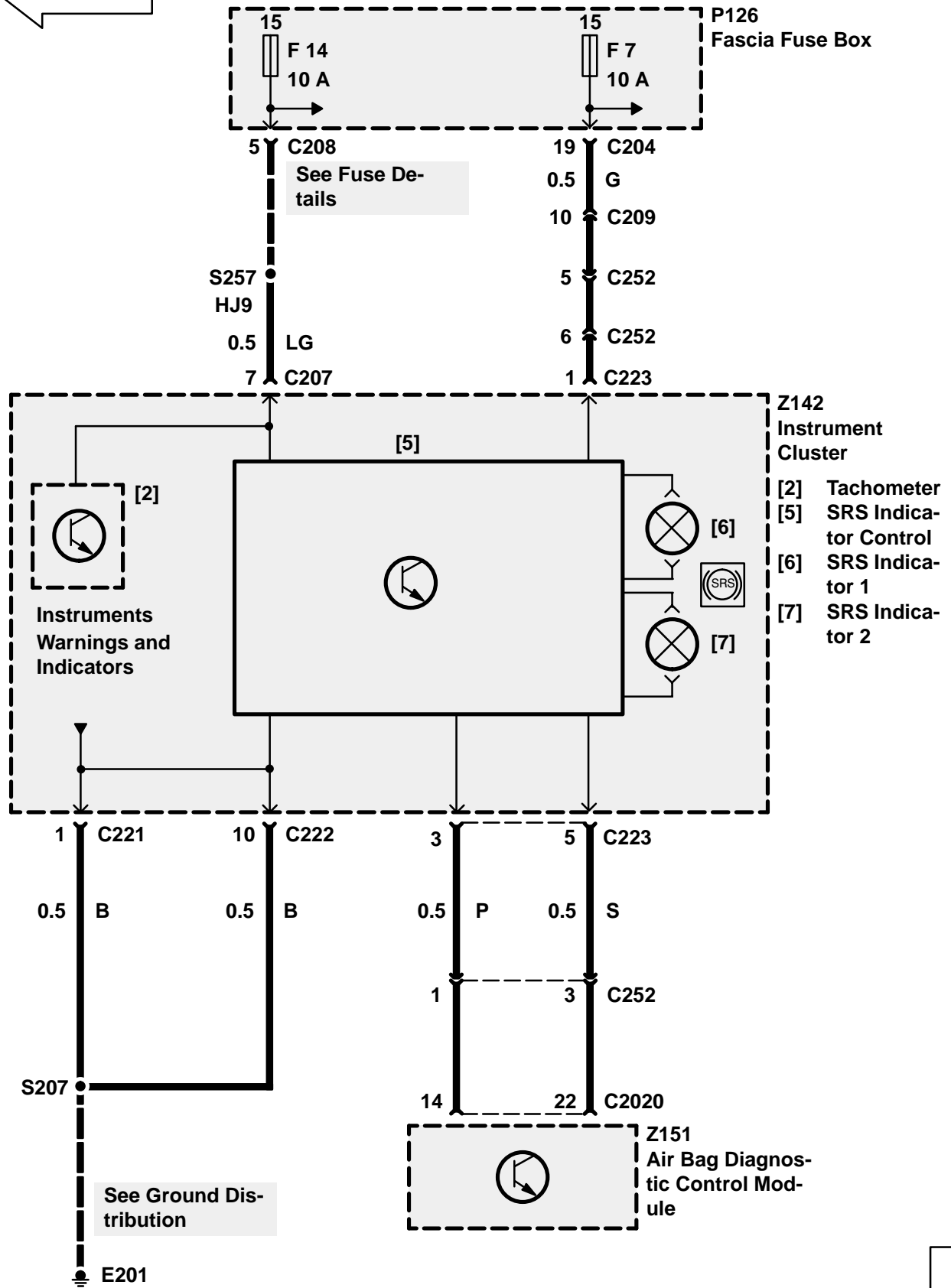
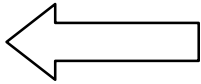
See Ground Distribution











**TROUBLESHOOTING HINTS**

If more than one warning light is out, check power and ground wires common to all affected warning lights. If they are OK, replace Instrument Cluster (Z142).

If the Brake Warning Light does not operate at all, check Instrument Cluster (Z142) and K Wire.

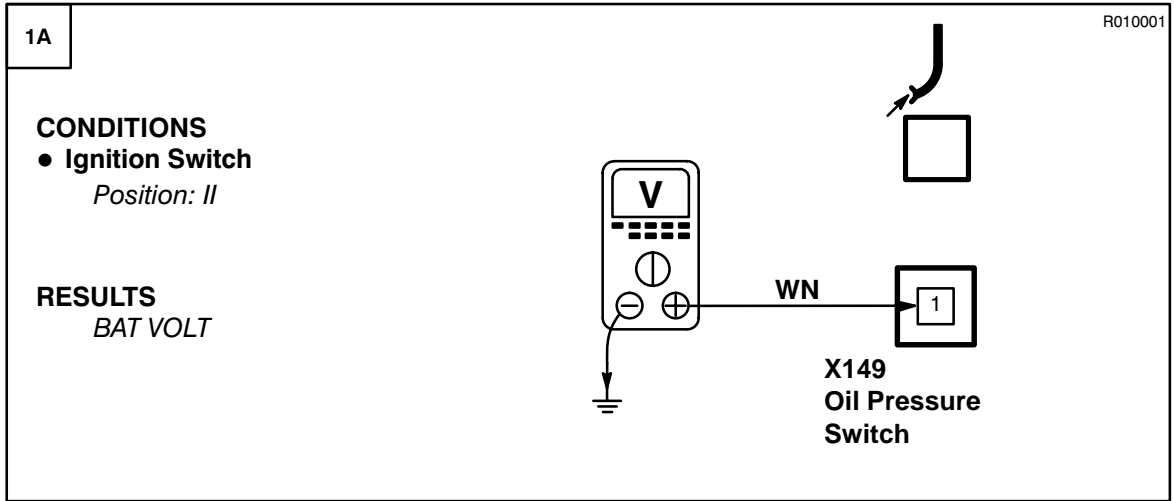
For Australian Vehicles:

If the Brake Warning Light, the Catalyst Warning Indicator, and the Transmission Box Oil Temperature Warning Light don't illuminate, as a bulb test, with ignition on, replace Instrument Cluster (Z142). If all three indicators don't turn off with the engine running, replace Instrument Cluster (Z142).

**SYSTEM DIAGNOSIS**

17. If the Charge Warning Light does not operate, go to Section B1.
18. If the Oil Pressure Warning Light remains illuminated with the oil pressure OK, do Test A.
19. If the Malfunction Indicator Lamp (Check Engine) does not operate, do Test B.
20. If the Glow Plug Indicator does not operate, do Test C.
21. If the Brake Warning Light does not operate with the brake fluid level low, do Test D.
22. If the Brake Warning Light does not operate with an ABS problem, do Test E.
23. If the Brake Warning Light does not operate with the handbrake applied, do Test F.
24. The Transmission/Transfer Box Oil Temperature Warning Light is illuminated as a bulb test with the Ignition Switch (X134) in position III. If the light does not illuminate, do Test G.
25. If the Transmission/Transfer Box Oil Temperature Warning Light is illuminated with both the Transfer Box Oil Temperature and the Automatic Oil Temperature OK, do Test H.
26. If the Fasten Seat Belt Indicator does not operate with the Ignition on, do Test I.
27. If a warning light exhibits any symptom not mentioned above, check the associated bulb, wires, switches, and components.

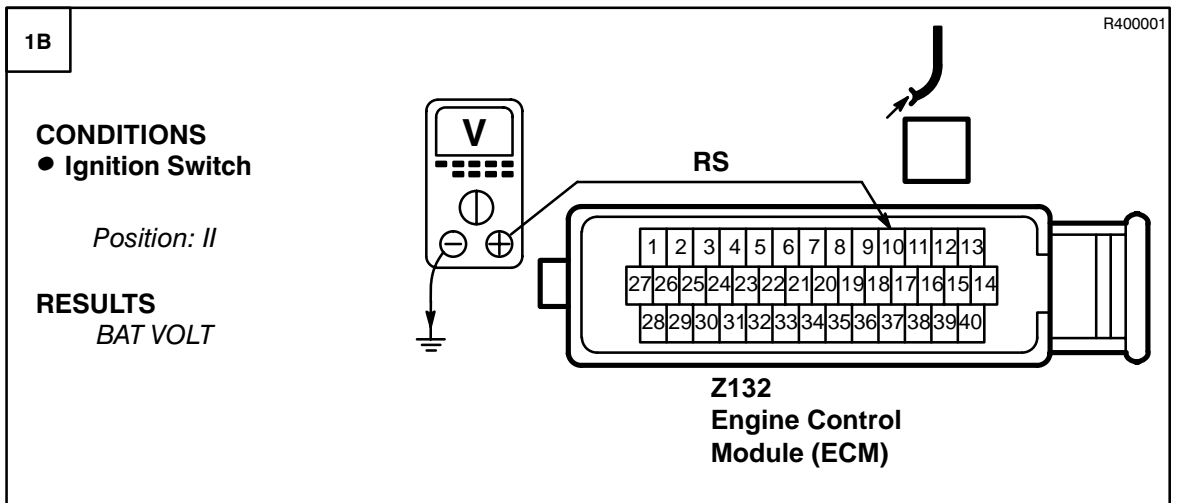
**Test A**



**OK** PROBLEM CAUSE  
- WN Wire

**OK** PROBLEM CAUSE  
- Oil Pressure  
Switch

**Test B**

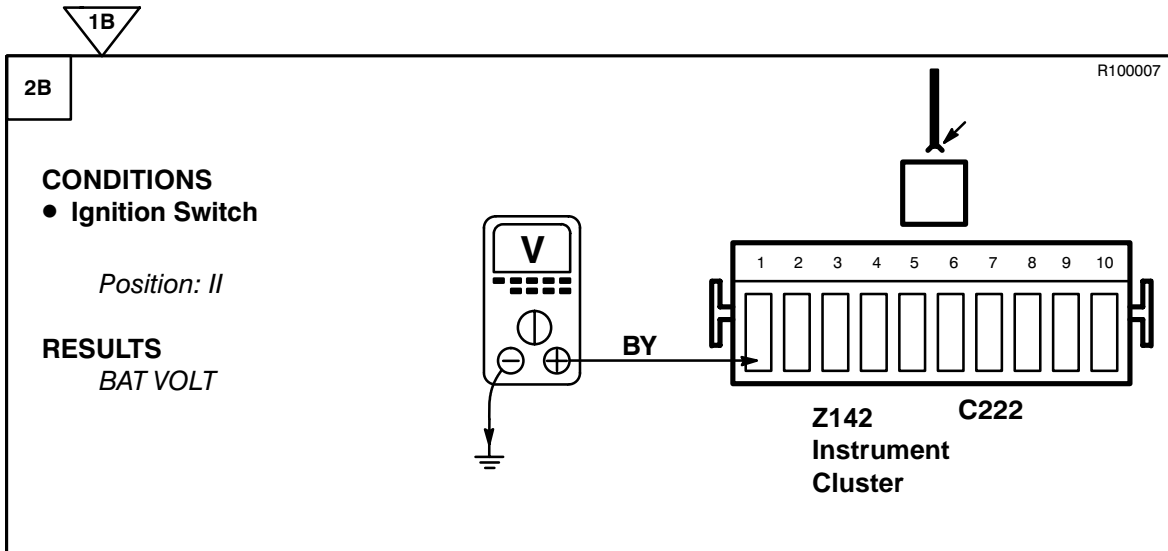


**OK**

↓

2B

**OK** PROBLEM CAUSE  
- Engine Control  
Module (ECM)



**PROBLEM CAUSE**

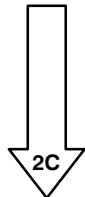
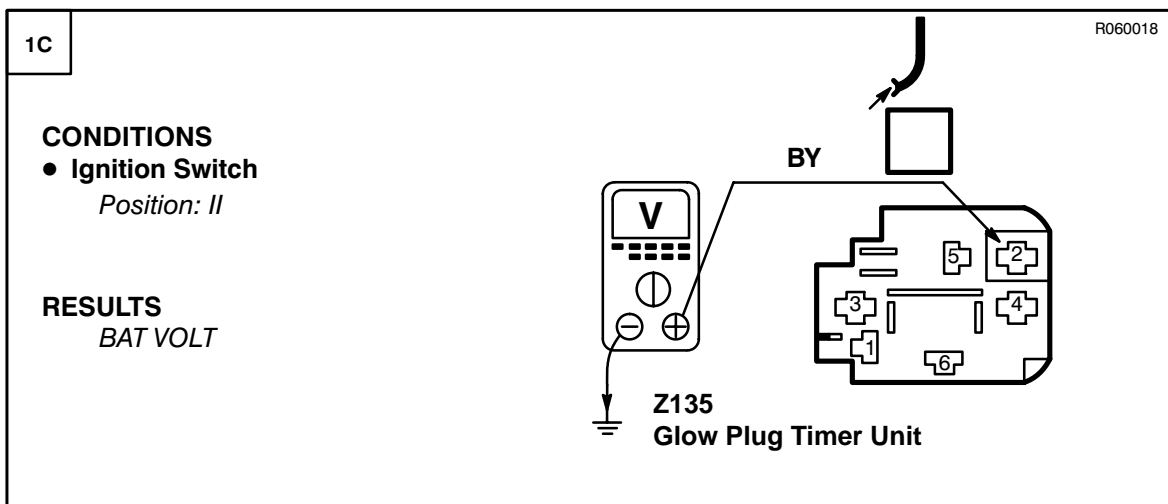
- Bulb
- Instrument Cluster



**PROBLEM CAUSE**

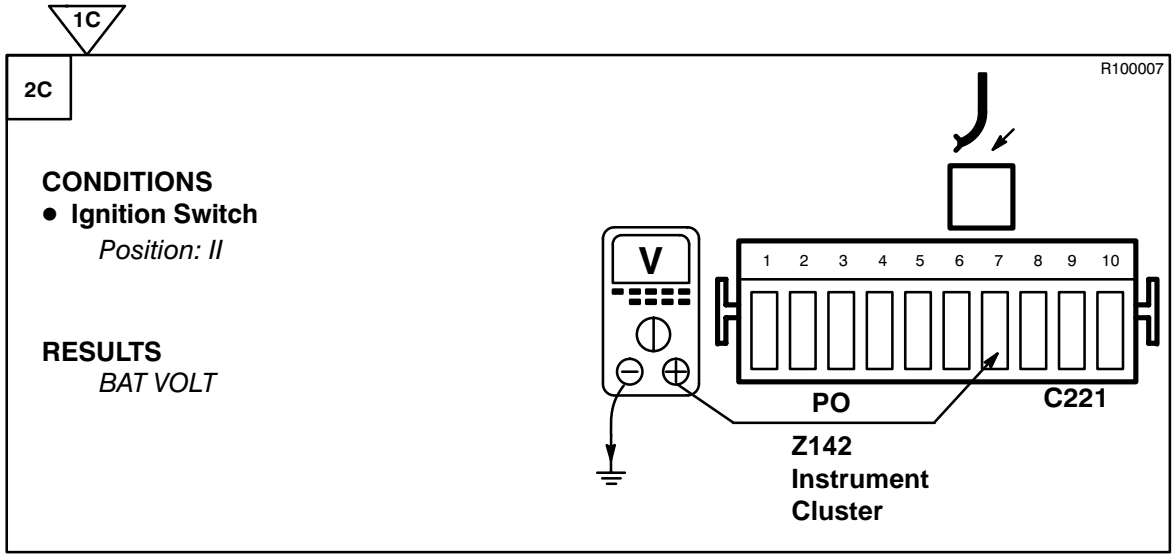
- BY Wire
- RS Wire

**Test C**



**PROBLEM CAUSE**

- Glow Plug Timer Unit



**PROBLEM CAUSE**

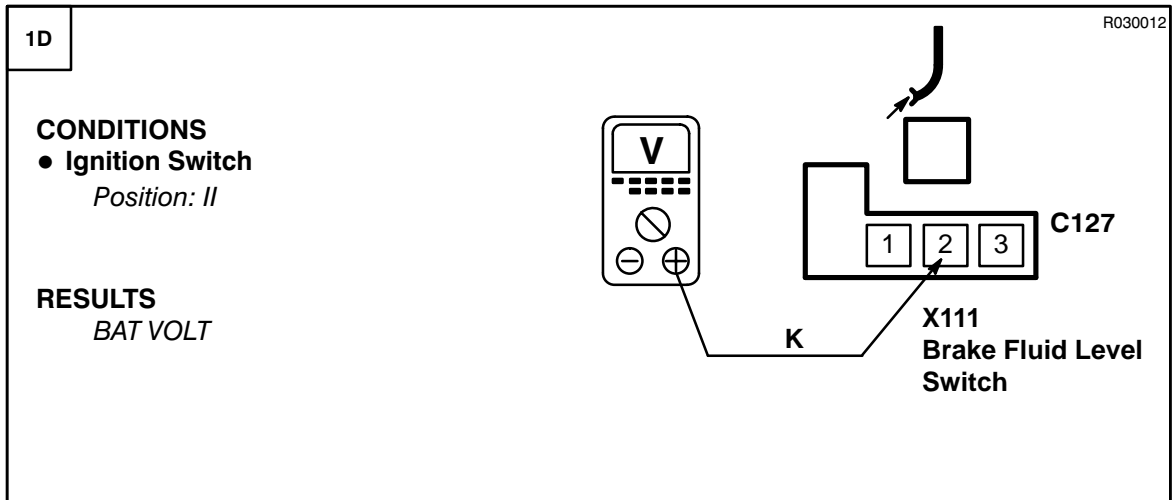
- Bulb
- Instrument Cluster



**PROBLEM CAUSE**

- PO Wire
- BY Wire

**Test D**



**PROBLEM CAUSE**

- K Wire
- Bulb
- Instrument Cluster



**PROBLEM CAUSE**

- B Wire
- Brake Fluid Level Switch

**Test E**

R030012

1E

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

X111  
Brake Fluid Level  
Switch



- PROBLEM CAUSE**
- K Wire
  - Bulb
  - Instrument Cluster
  - Brake Fluid Level Switch



- PROBLEM CAUSE**
- BG, BY Wire
  - A.B.S. Diode
  - Anti-Lock Brake System ECU
  - A.B.S. Pressure Switch Unit

**Test F**

R010001

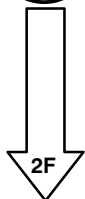
1F

**CONDITIONS**

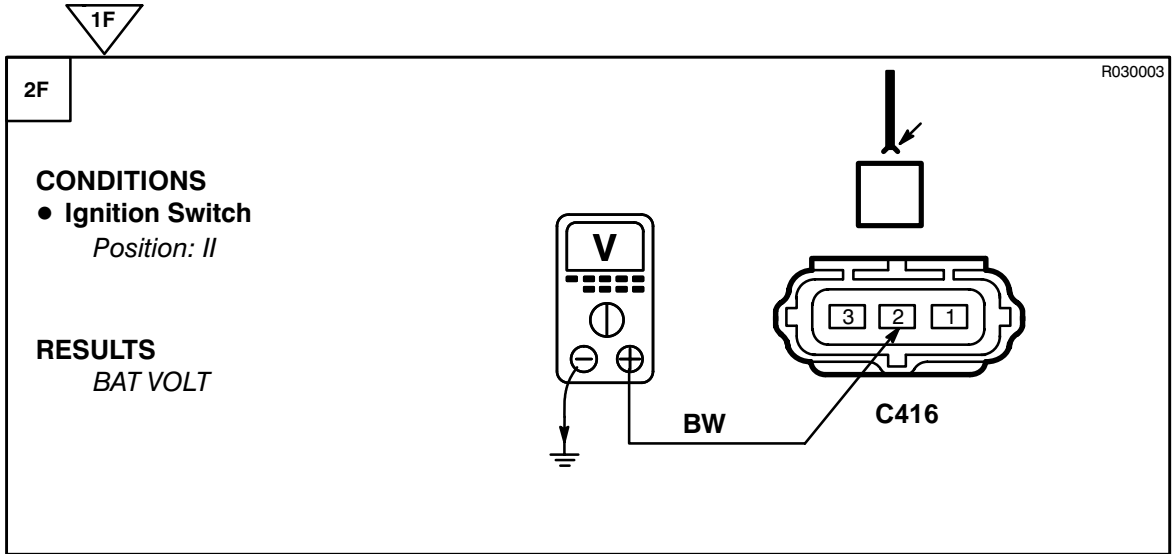
- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

X191  
Handbrake  
Switch



- PROBLEM CAUSE**
- Handbrake Switch

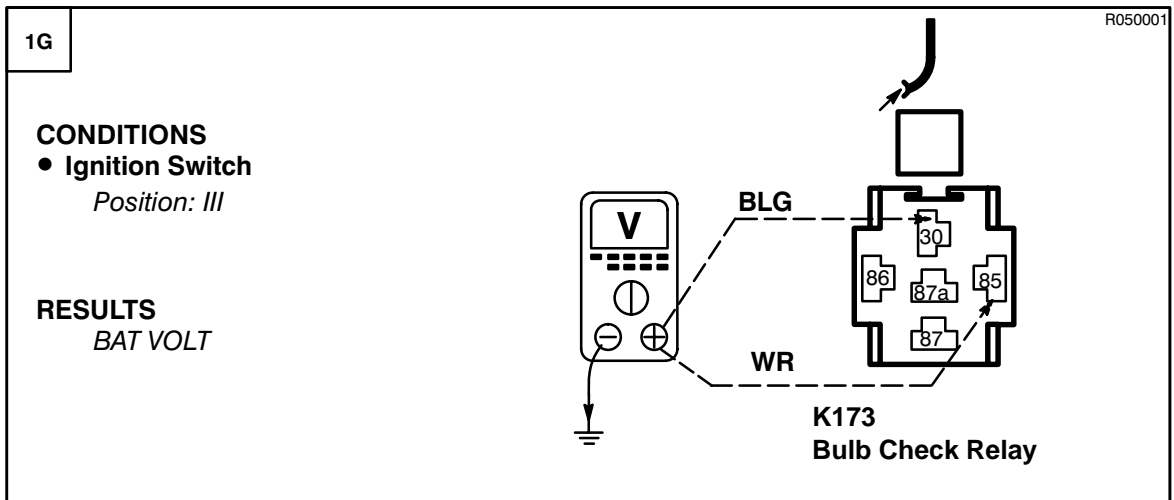


- PROBLEM CAUSE**
- BY Wire
  - K, BW Wire
  - Right Rear In-board Brake Pad



- PROBLEM CAUSE**
- BW Wire
  - BK, BU Wire
  - Handbrake Diode
  - Right Front In-board Brake Pad

**Test G**



- PROBLEM CAUSE**
- BLG Wire
  - WR Wire
  - Instrument Cluster



- PROBLEM CAUSE**
- B Wire
  - Bulb Check Relay

**Test H**

R050001

1H

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*More than 10K ohms*

**K173  
Bulb Check  
Relay**



**PROBLEM CAUSE**

- Bulb Check Relay



**PROBLEM CAUSE**

- BLG Wire
- Transfer Box Oil Temperature Switch
- Automatic Transmission Oil Temperature Switch

**Test I**

R240003

1I

**CONDITIONS**

- Ignition Switch  
*Position: II*

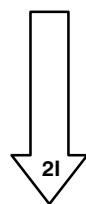
**RESULTS**  
*BAT VOLT*

**Z148  
Multi-Function  
Unit (MFU)**

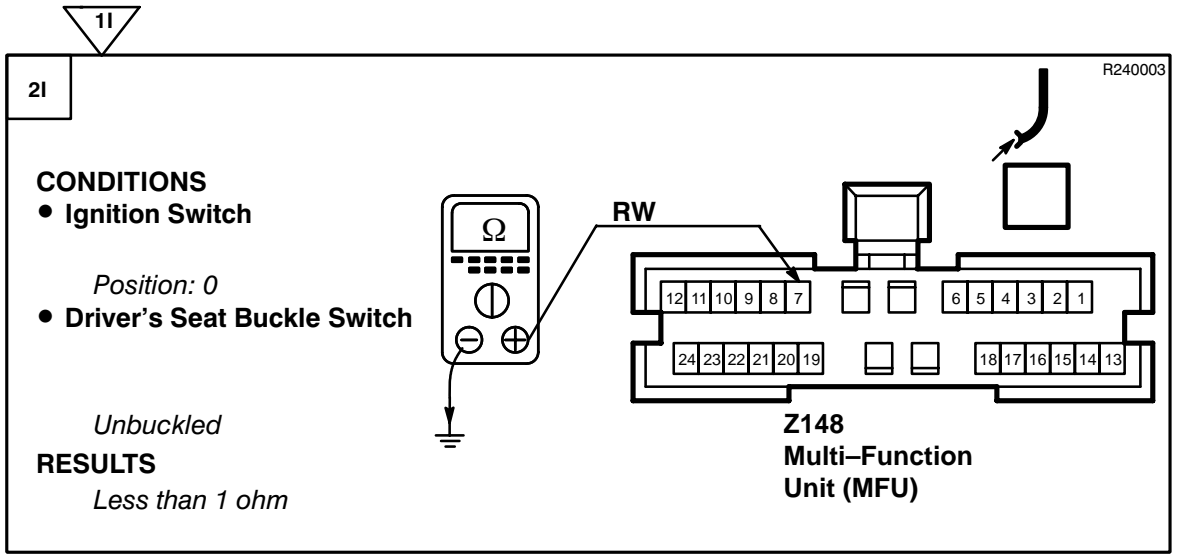


**PROBLEM CAUSE**

- WR Wire
- LG Wire
- Instrument Cluster







**PROBLEM CAUSE**

- RW Wire
- B Wire
- Driver's Seat Buckle Switch



**PROBLEM CAUSE**

- Multi-Function Unit (MFU)

**CIRCUIT OPERATION****Charge Warning Light**

The charge warning light receives battery voltage with the Ignition Switch (X134) in position II. This warning light is grounded by the Generator (Z106) if the Generator is not producing normal power output or the Generator stops turning.

**ABS Warning Light**

The ABS warning light receives battery voltage with the Ignition Switch (X134) in position II. It is grounded by the Anti-Lock Brake System ECU (Z108) or the ABS Warning Relay (K103) in the event of an ABS problem.

**Brake Warning Light**

The brake warning light receives battery voltage with the Ignition Switch (X134) in position II. It is grounded by the Brake Fluid Level Switch (X111) when the brake fluid level is low. It may also be grounded through the Right Front and Right Rear Inboard Brake Pads (B129, B155), and the Handbrake Diode (Z197) when the Handbrake Switch (X191) is closed. The warning light is also grounded by the Anti-Lock Brake System ECU (Z108) or by the ABS Pressure Switch Unit (Z104) in the event of an ABS system problem. When the Right Front or Right Rear Inboard Brake Pad (B129, B135) is in need of replacement, the brake warning light is grounded through the Right Front or Right Rear Inboard Brake Pad (B129, B135). The brake warning light is grounded by a 3 second timer as a bulb check.

**Oil Pressure Warning Light**

The oil pressure warning light receives battery voltage with the Ignition Switch (X134) in position II. If the engine oil pressure is very low, the Oil Pressure Switch (X149) will apply ground to the warning light.

**Transmission/Transfer Box Oil Temperature Warning Light**

The transmission/transfer box oil temperature warning light is grounded by the Automatic Transmission Oil Temperature Switch (X108) when

the temperature of the transmission fluid exceeds 130°C (266°F). The warning light is also grounded by the Transfer Box Oil Temperature Switch (X174) when the temperature of the transfer box fluid exceeds 145°C (266°F). The Bulb Check Relay (K173) will illuminate the warning light when the vehicle is first started to test the bulb.

**Malfunction Indicator Lamp (Check Engine)**

The Malfunction Indicator Lamp (Check Engine) is grounded by the Engine Control Module (ECM) (Z132) when a diagnostic trouble code is set.

**Service Reminder Indicator**

The Service Reminder Indicator receives battery voltage with the Ignition Switch (X134) in position II. The Service Reminder Unit (Z126) grounds the Service Reminder Indicator when the vehicle requires service. The Service Reminder Indicator is also grounded by a 3 second timer as a bulb check.

**Hazard Indicator**

If the Hazard Switch (X220) is depressed, a pulsing voltage is applied to the Hazard Indicator which is permanently grounded by ground E200.

**Direction Indicator**

If the Direction Indicator Switch (X116) is turned on, a pulsing voltage is applied from the Flasher Unit (Z128) to the Direction Indicator which is permanently grounded by ground E200.

**Trailer Indicator**

With the Direction Indicator Switch (X116) turned on, the Flasher Unit (Z128) also applies a pulsing voltage to the Trailer Indicator which is permanently grounded by ground E200.

**SRS Indicators**

The SRS Indicators are controlled by the Air Bag Diagnostic Control Unit (Z151) and the SRS Indicator Control Circuit of the Instrument Cluster (Z142) to indicate SRS System faults.

**Low Fuel Warning Indicator**

When the fuel gauge sender's resistance falls below approximately 25 Ohms (6 liters/1.5 US gallons), the Low Fuel Warning Indicator will illuminate to warn the driver. The Low Fuel Warning Indicator is grounded by a 3 second timer as a bulb check.

**Main Beam Indicator**

With the Headlamps turned on the Main Lighting Switch (X145), battery voltage is applied to the Main Beam Indicator which is also permanently grounded by ground E200.

**ETC Warning Light**

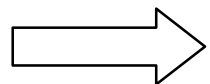
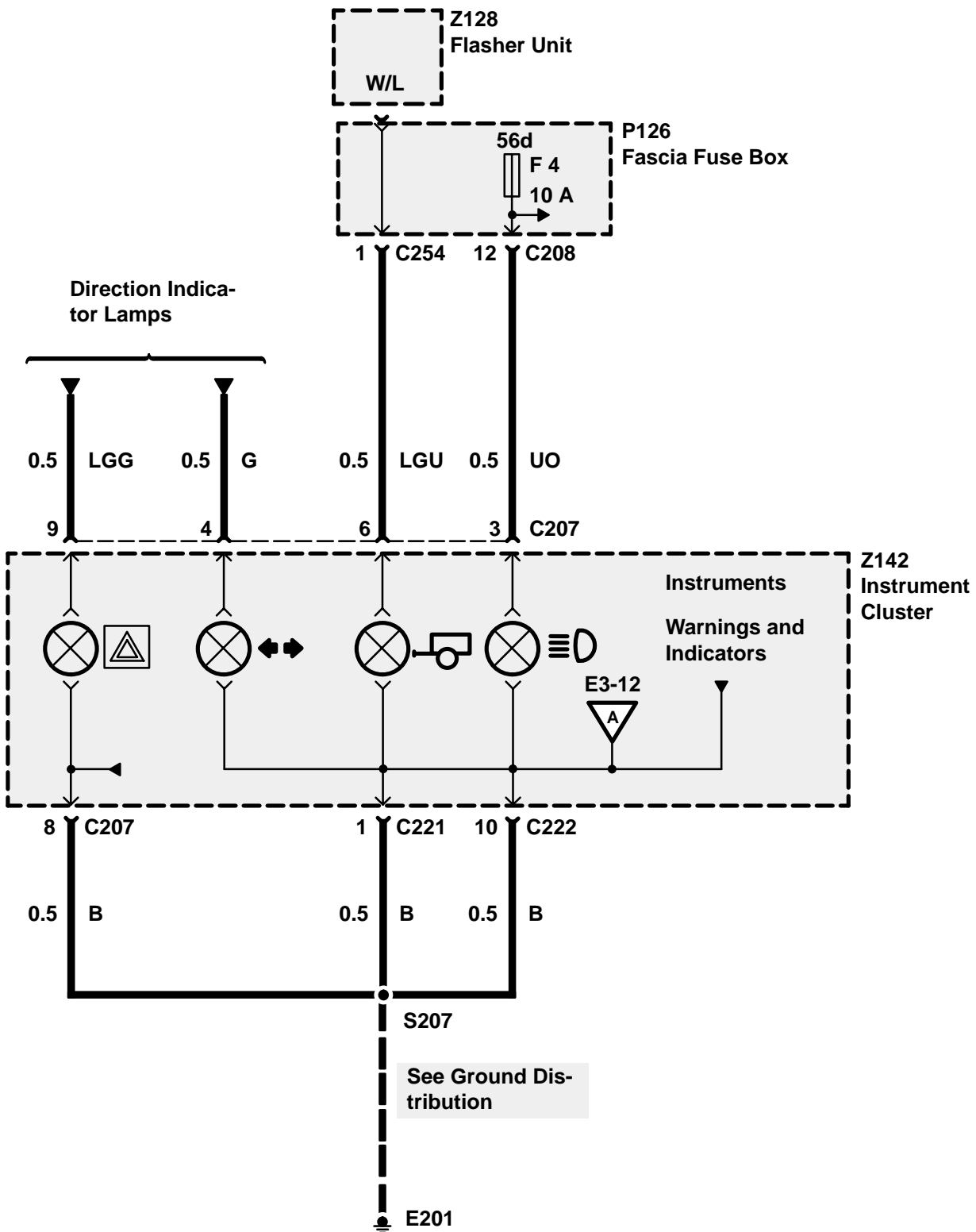
The ETC warning light will be on for up to 60 seconds while the system is active. After 60 seconds of ETC operation, the ETC warning light will begin to flash to inform the driver that the system has been shut down to allow the brakes to cool. If the ETC warning light stays on continuously for more than 60 seconds, a fault in the system is indicated.

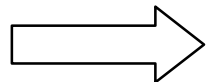
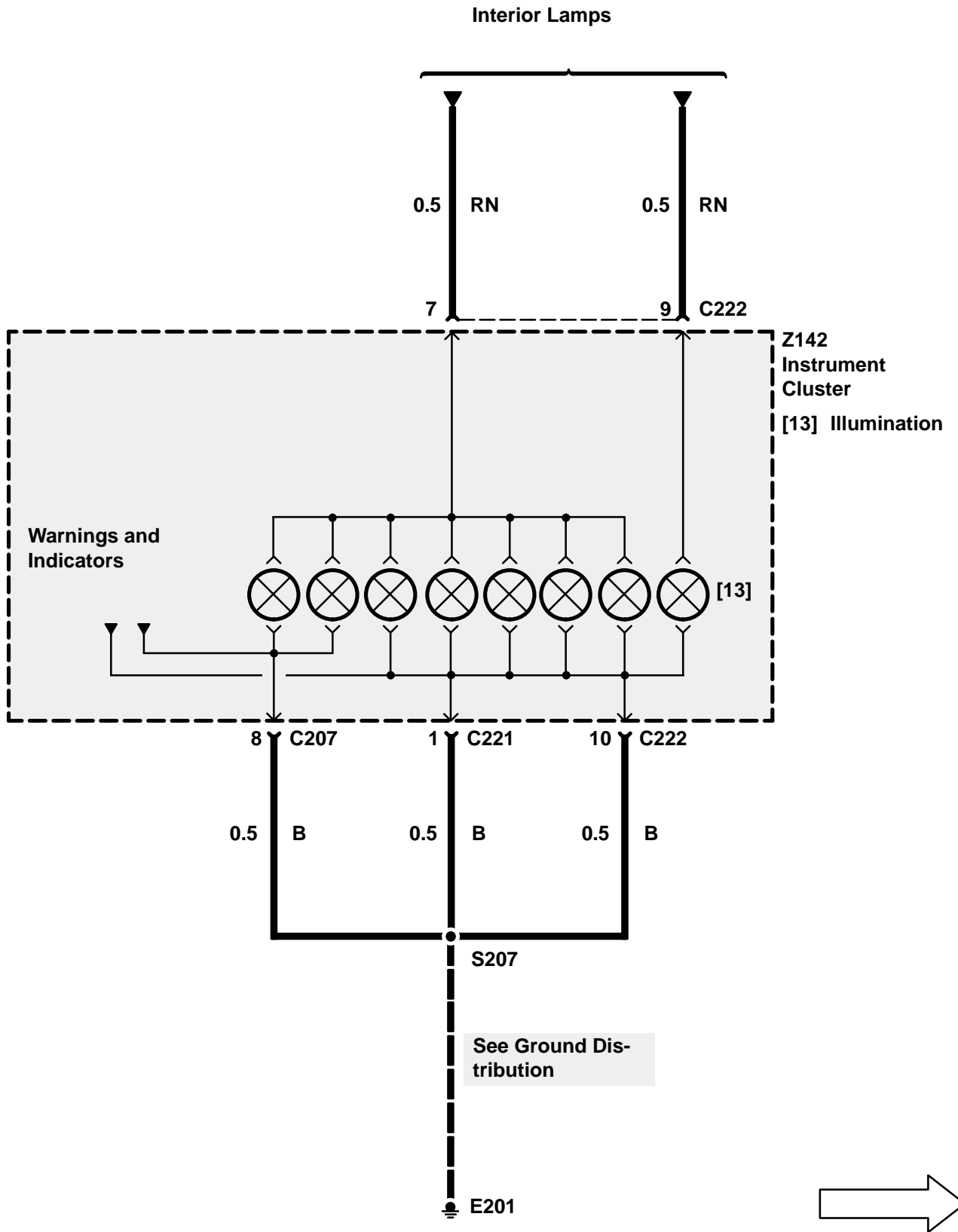
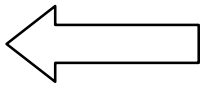
**Air Suspension Indicator**

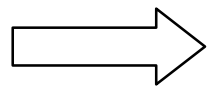
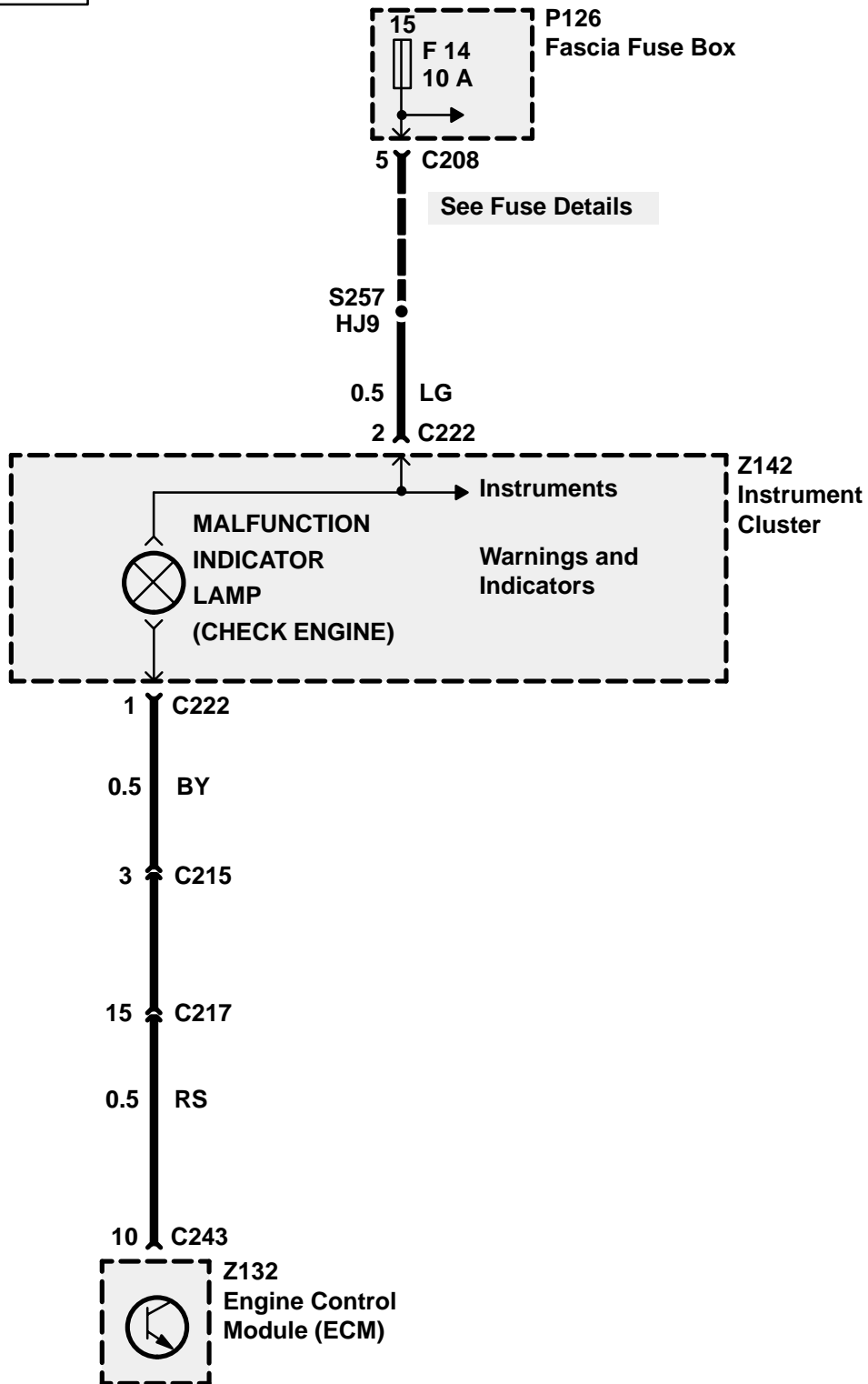
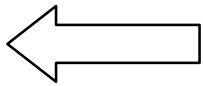
If the Air Suspension ECU (Z165) detects a fault in the system, the ECU will inform the driver by intermittently grounding the Warning Lamp Relay (K155) for 30 seconds. This causes the Air Suspension Indicator to flash for 30 seconds. After 30 seconds the indicator will remain on until the repair is made.

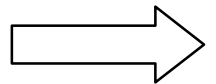
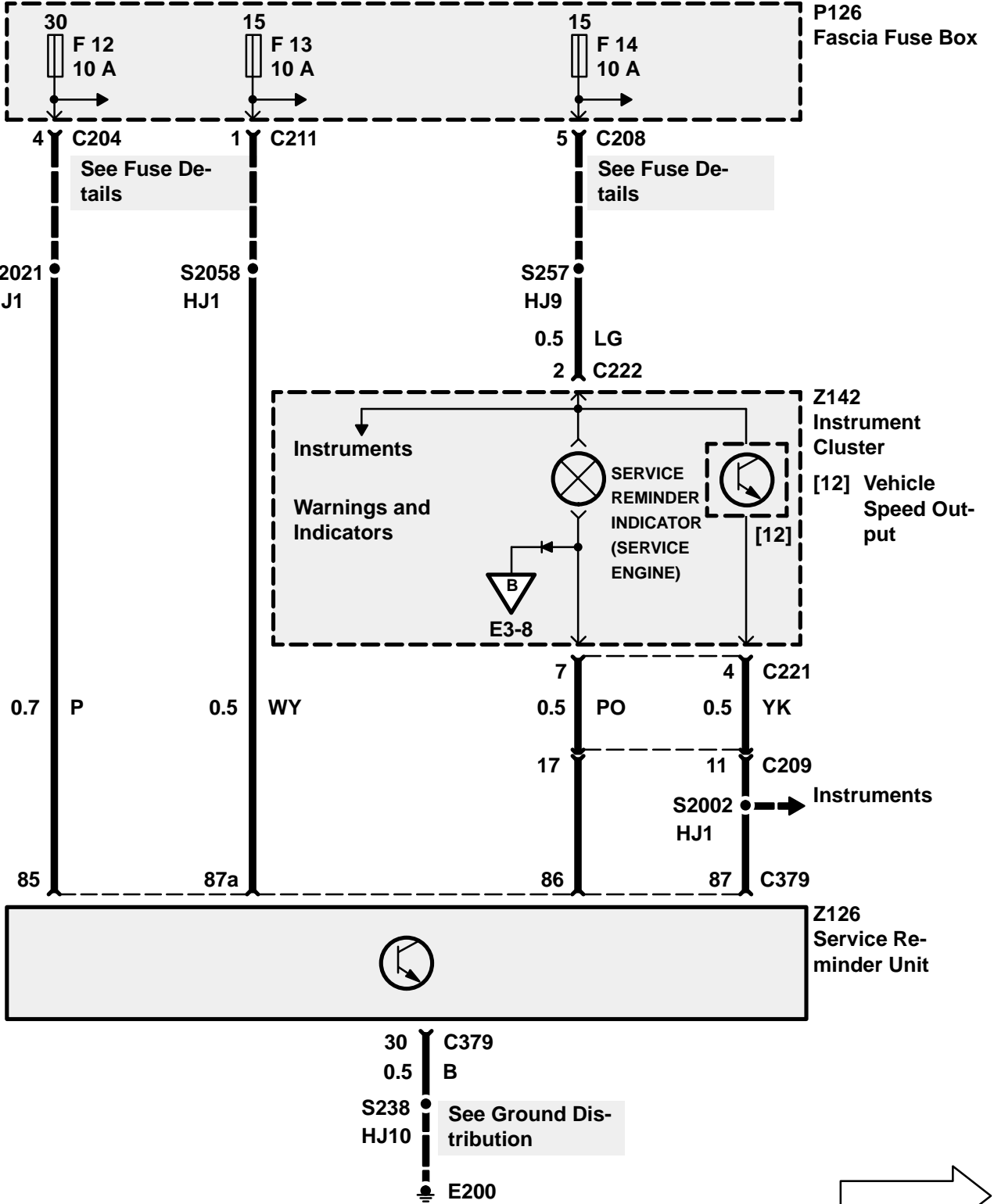
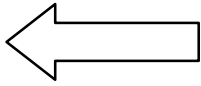
**Fasten Seat Belt Indicator**

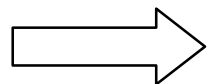
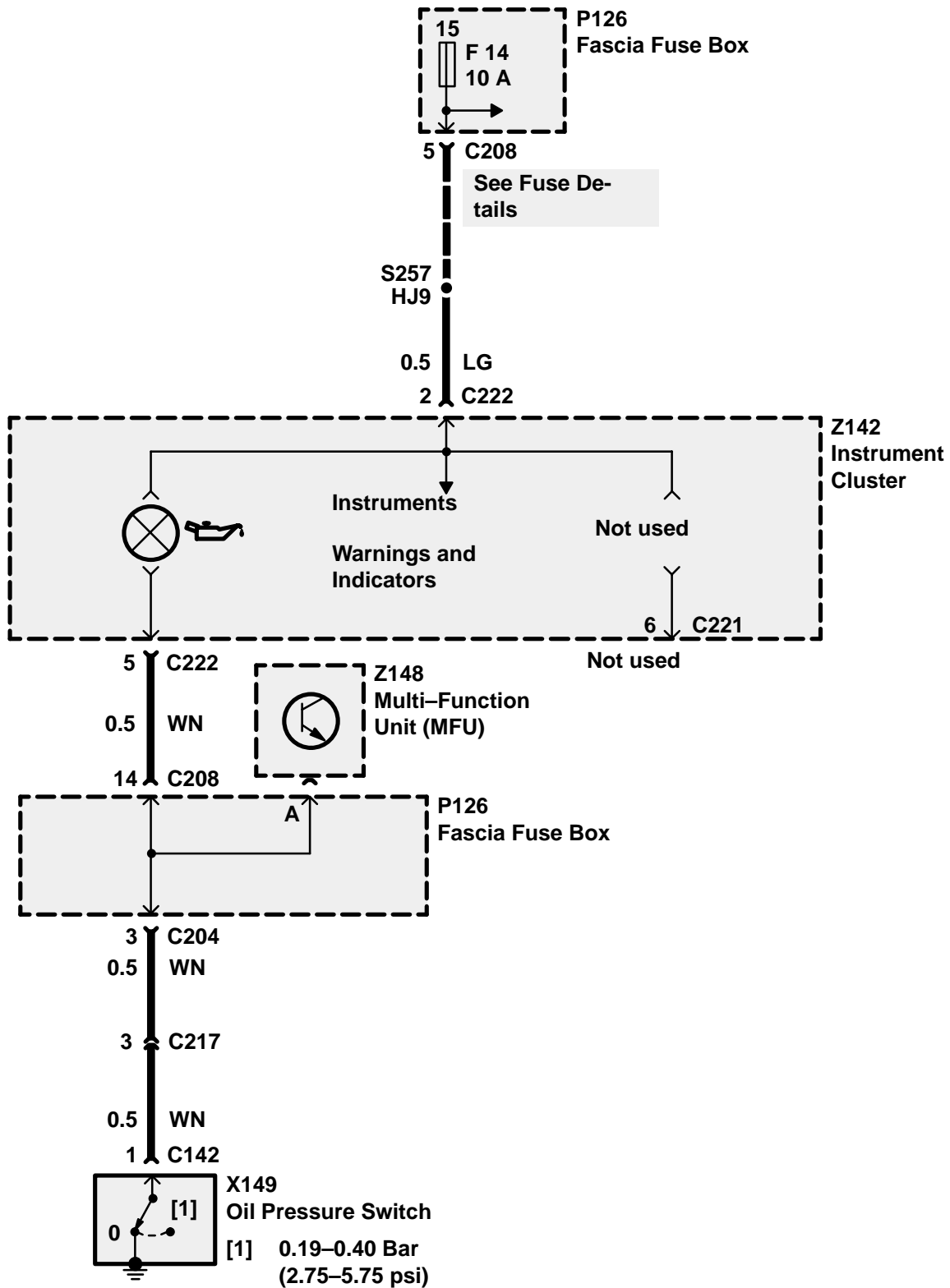
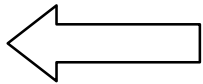
The Fasten Seat Belt Indicator receives battery voltage with the Ignition Switch (X134) in position II. The indicator is also grounded through the Multifunction Unit (MFU) (Z148) and the Driver's Seat Buckle Switch (X120). If the Driver's Seat Belt is buckled the Driver's Seat Belt Buckle Switch opens and the Indicator turns off.



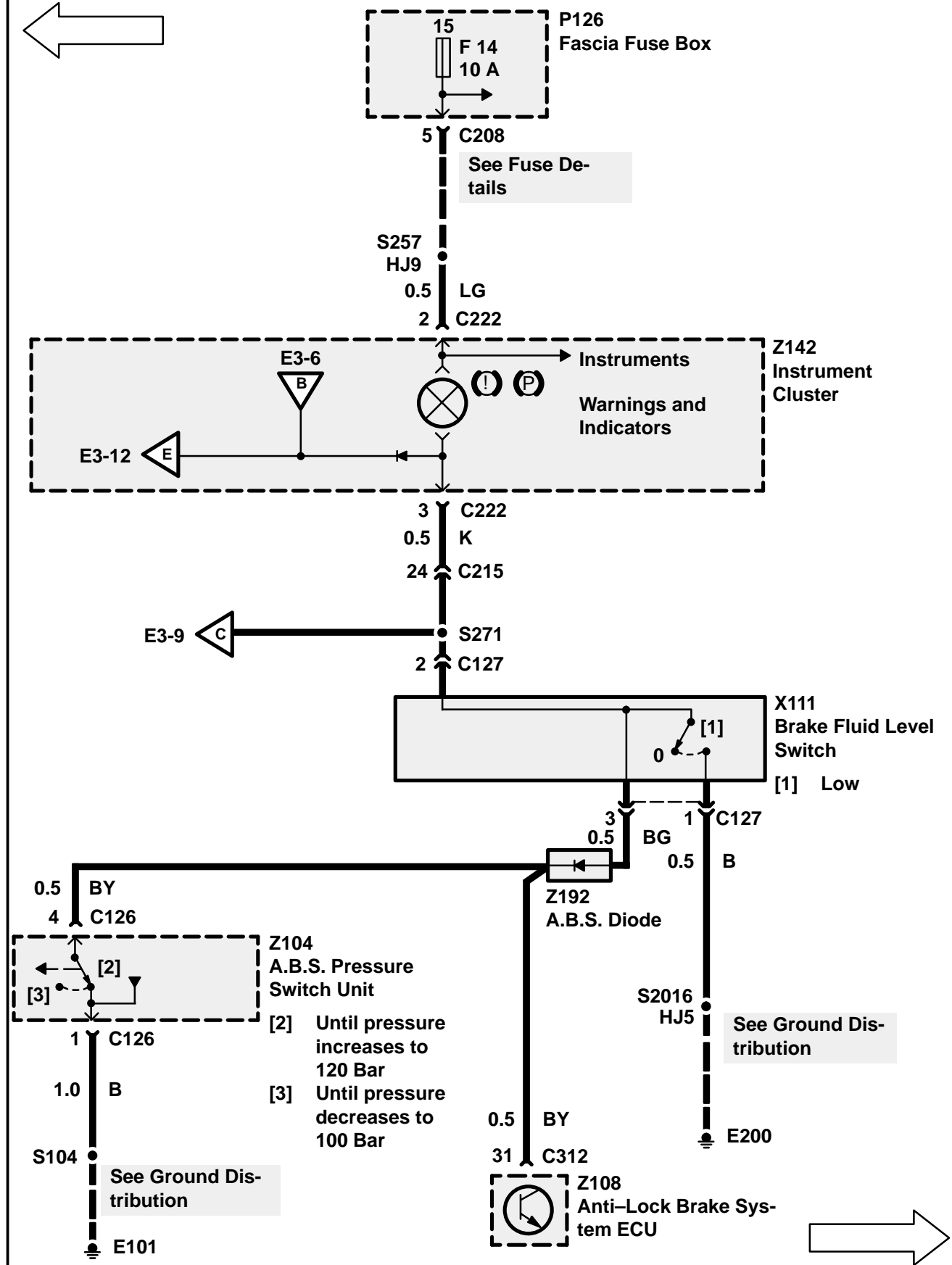


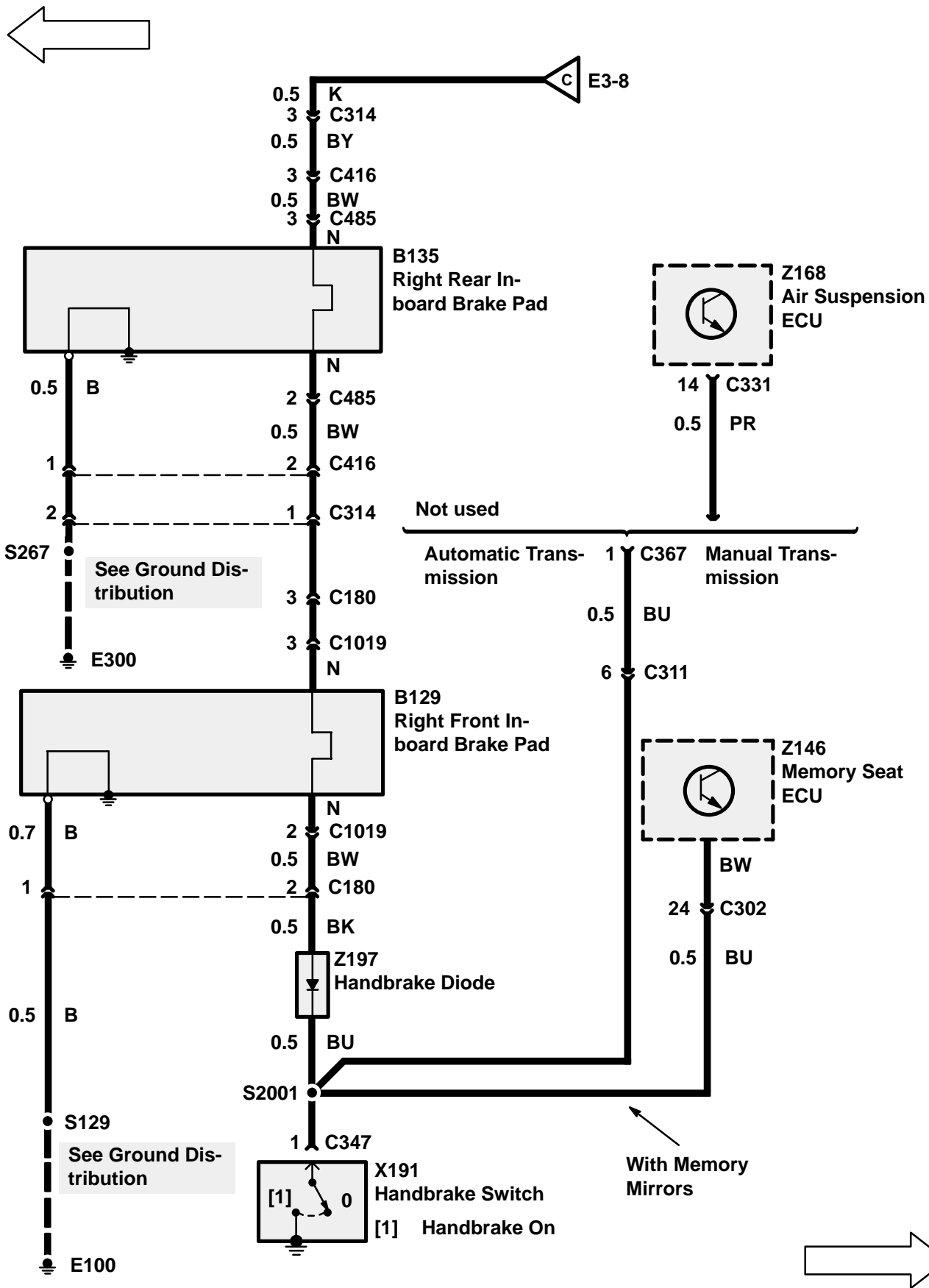


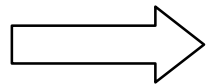
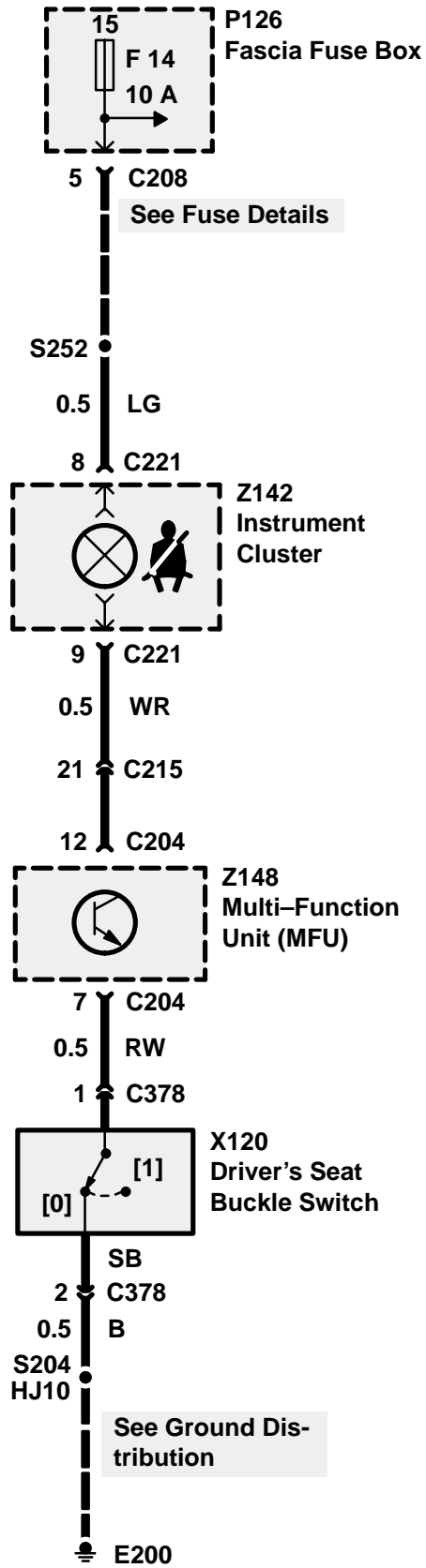
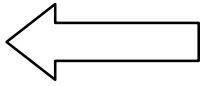


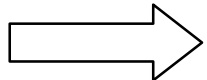
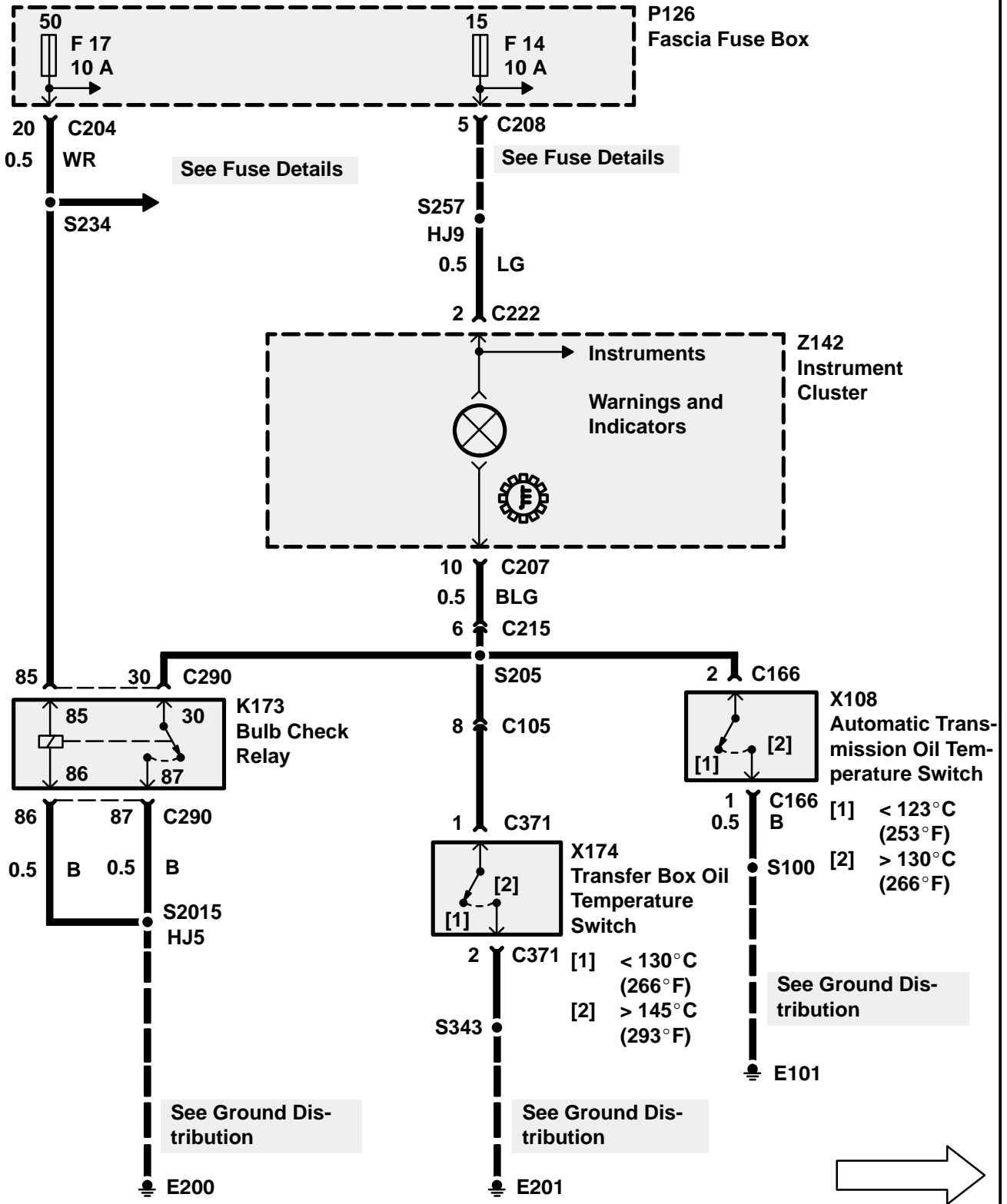
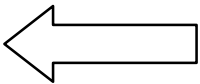


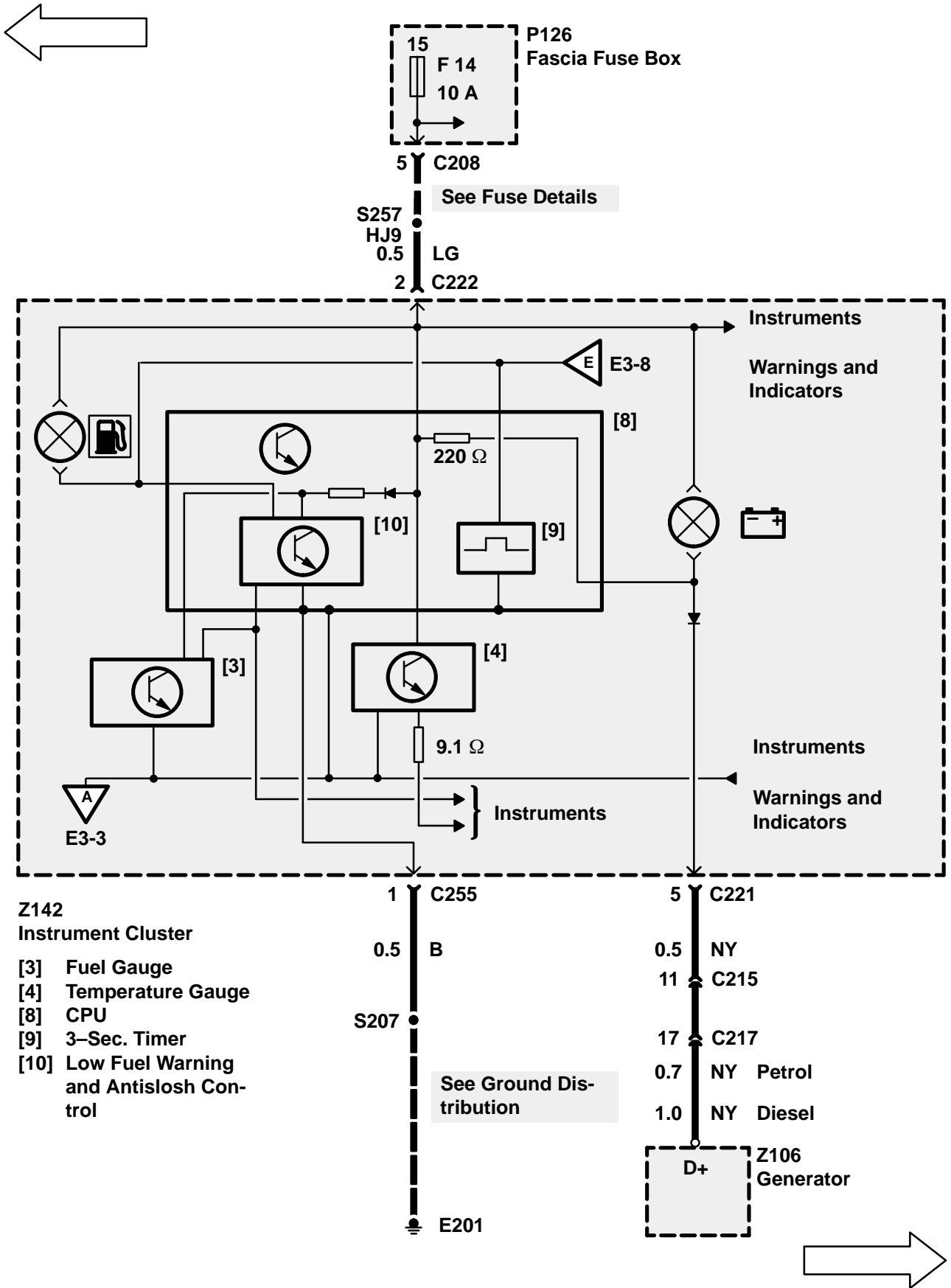


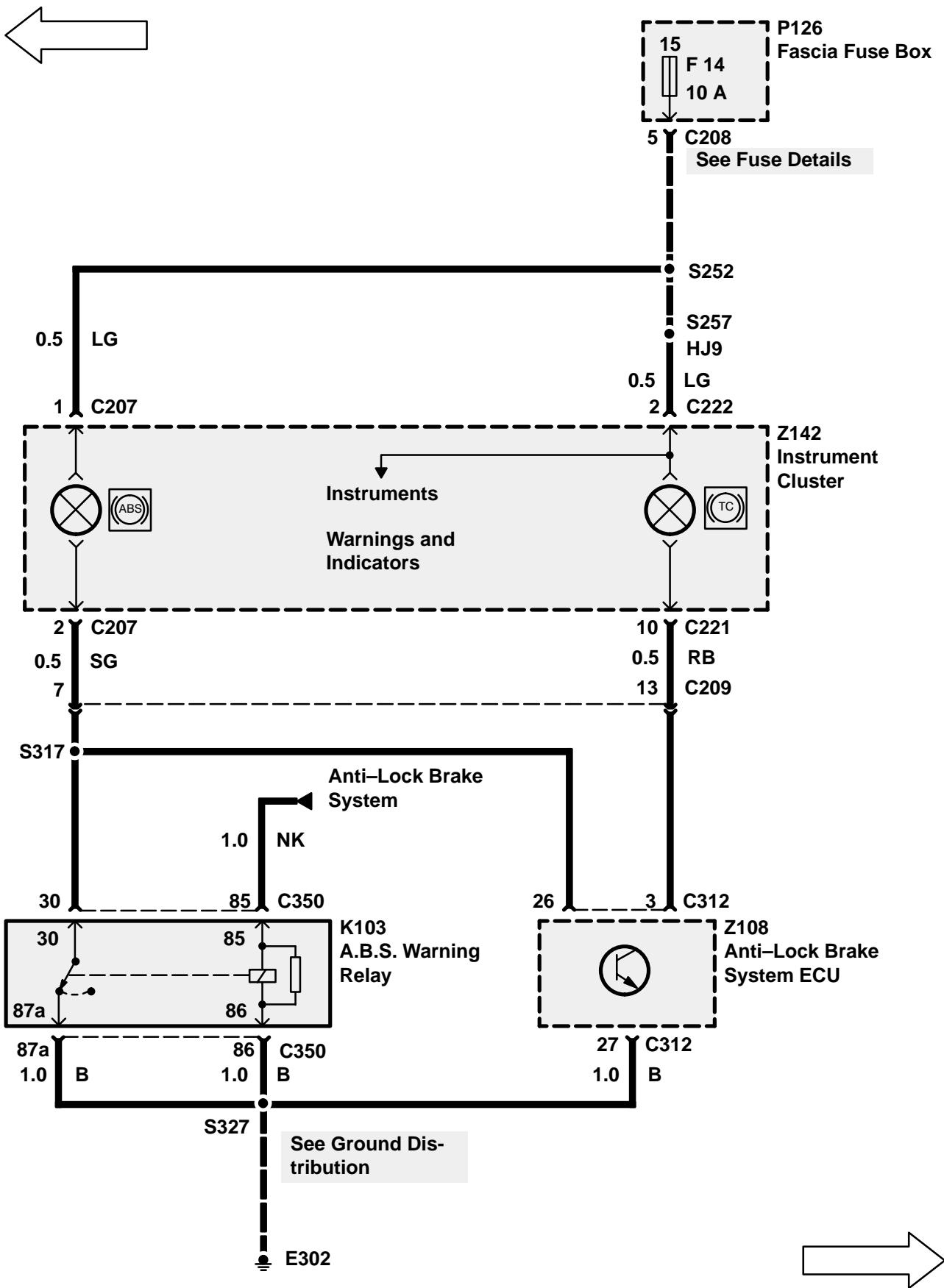


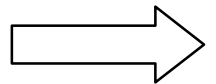
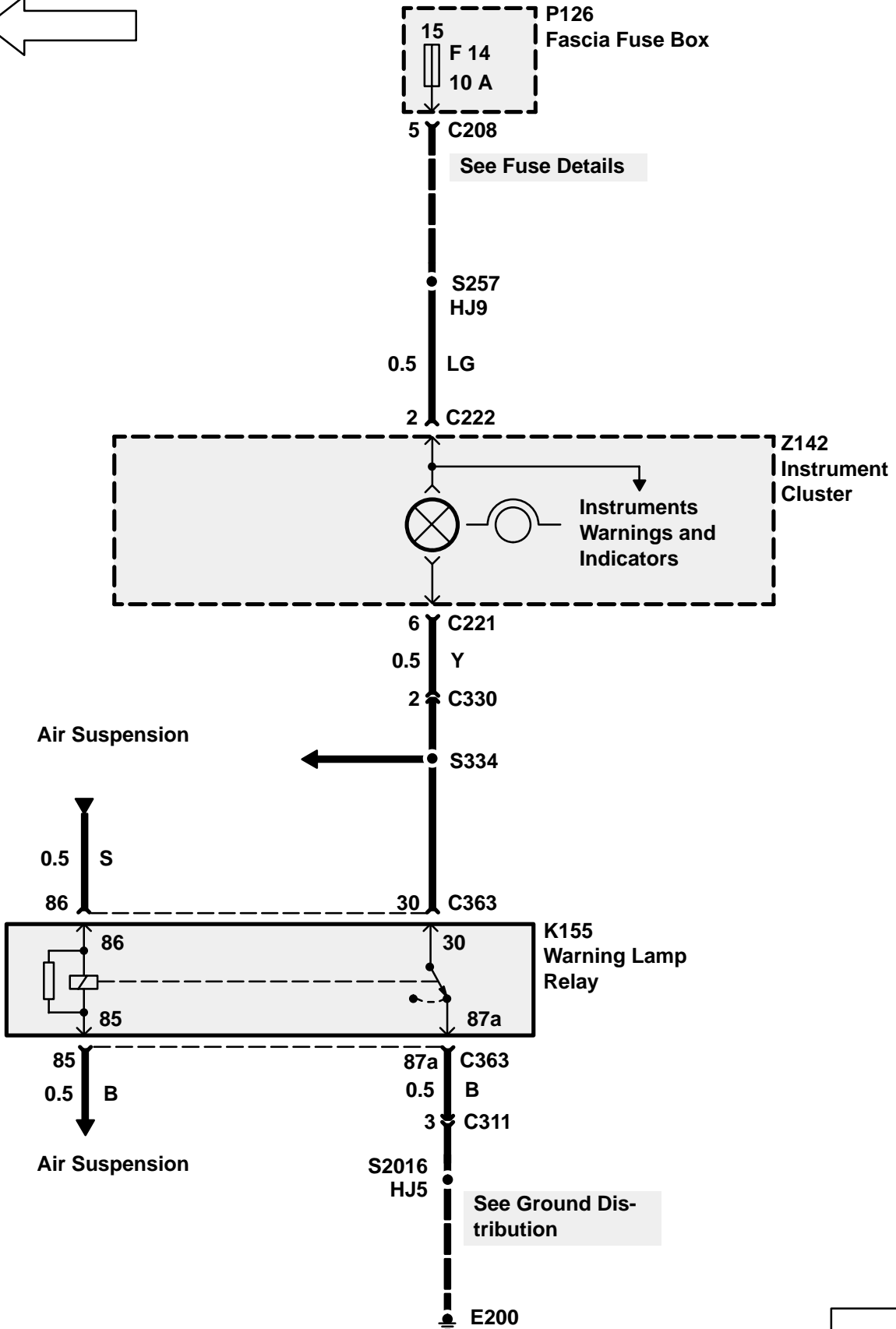
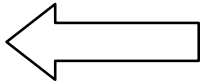


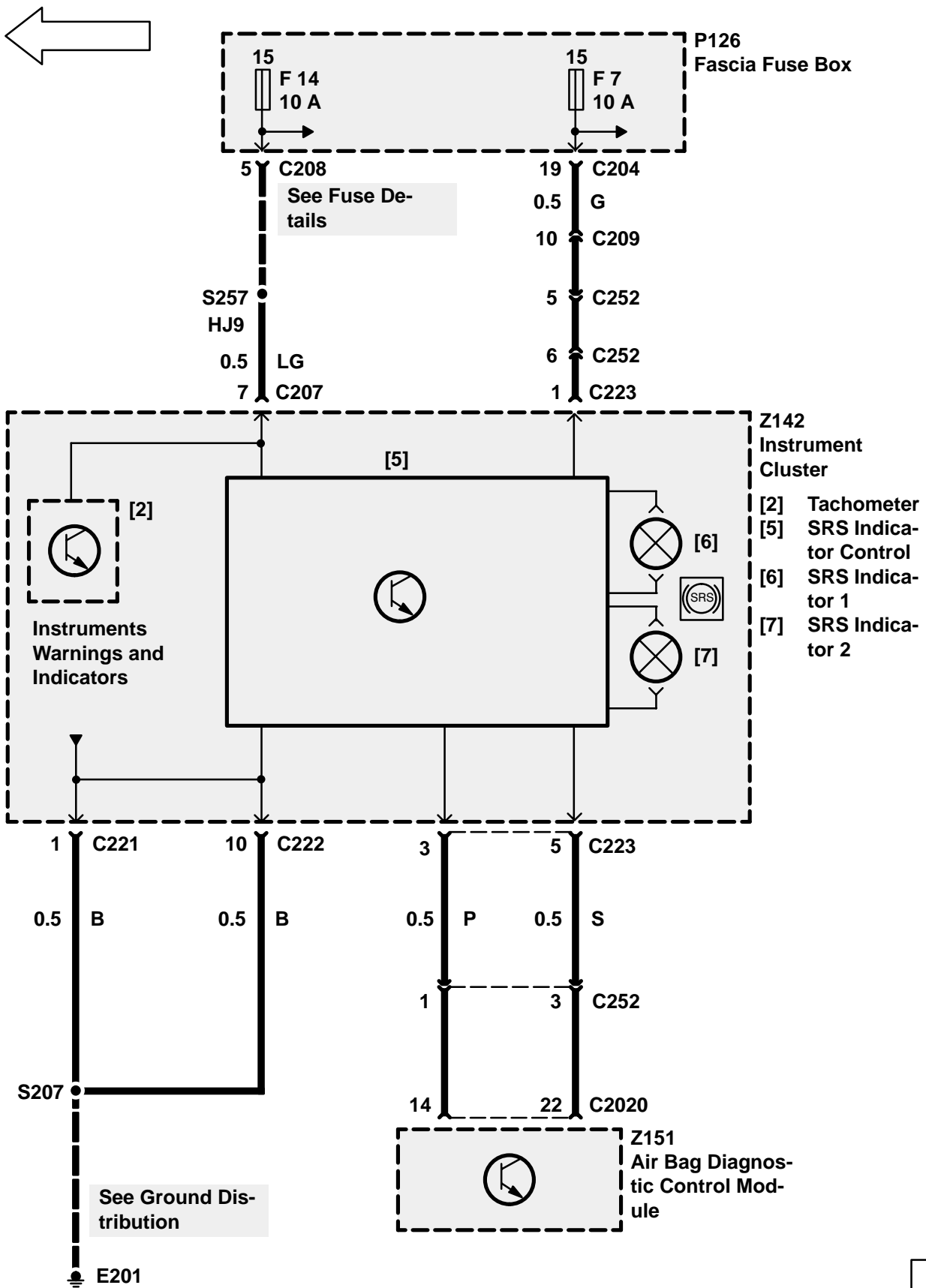














**TROUBLESHOOTING HINTS**

If more than one warning light is out, check power and ground wires common to all affected warning lights. If they are OK, replace Instrument Cluster (Z142).

If the Brake Warning Light does not operate at all, check Instrument Cluster (Z142) and K Wire.

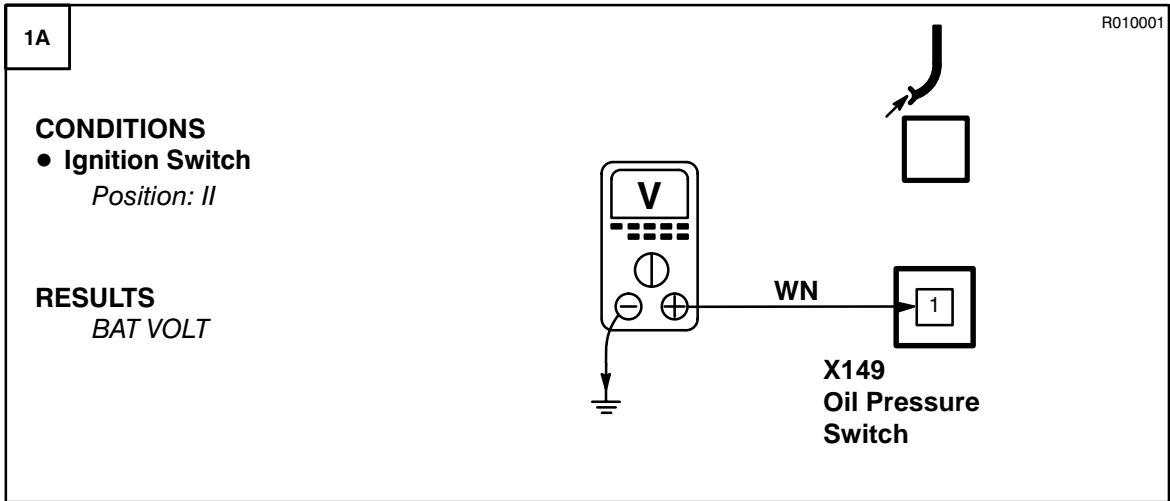
For Australian Vehicles:

If the Brake Warning Light, the Catalyst Warning Indicator, and the Transmission Box Oil Temperature Warning Light don't illuminate, as a bulb test, with ignition on, replace Instrument Cluster (Z142). If all three indicators don't turn off with the engine running, replace Instrument Cluster (Z142).

**SYSTEM DIAGNOSIS**

28. If the Charge Warning Light does not operate, go to Section B1.
29. If the Oil Pressure Warning Light remains illuminated with the oil pressure OK, do Test A.
30. If the Check Engine Warning Light does not operate, do Test B.
31. If the Service Reminder Indicator (Service Engine) does not operate, do Test C.
32. If the Brake Warning Light does not operate with the Brake Fluid Level low, do Test D.
33. If the Brake Warning Light does not operate with an ABS problem, do Test E.
34. If the Brake Warning Light does not operate with the handbrake applied, do Test F.
35. The Transmission/Transfer Box Oil Temperature Warning Light is illuminated as a bulb test with the Ignition Switch (X134) in position III. If the light does not illuminate, do Test G.
36. If the Transmission/Transfer Box Oil Temperature Warning Light is illuminated with both the Transfer Box Oil Temperature and the Automatic Oil Temperature OK, do Test H.
37. If the Fasten Seat Belt Indicator does not operate with the ignition on, do Test I.
38. If a warning light exhibits any symptom not mentioned above, check the associated bulb, wires, switches, and components.

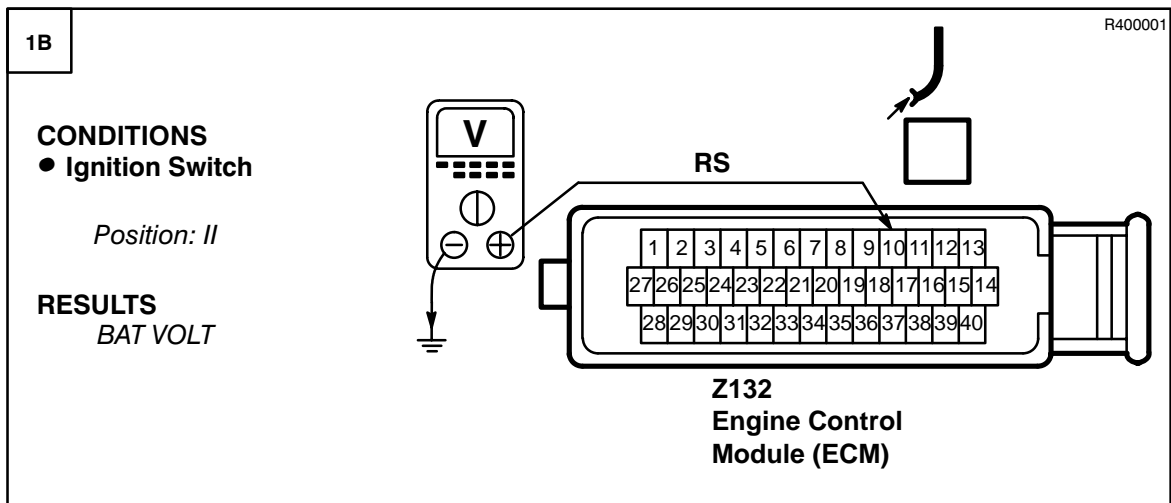
**Test A**



**OK** PROBLEM CAUSE  
- WN Wire

**OK** PROBLEM CAUSE  
- Oil Pressure  
Switch

**Test B**

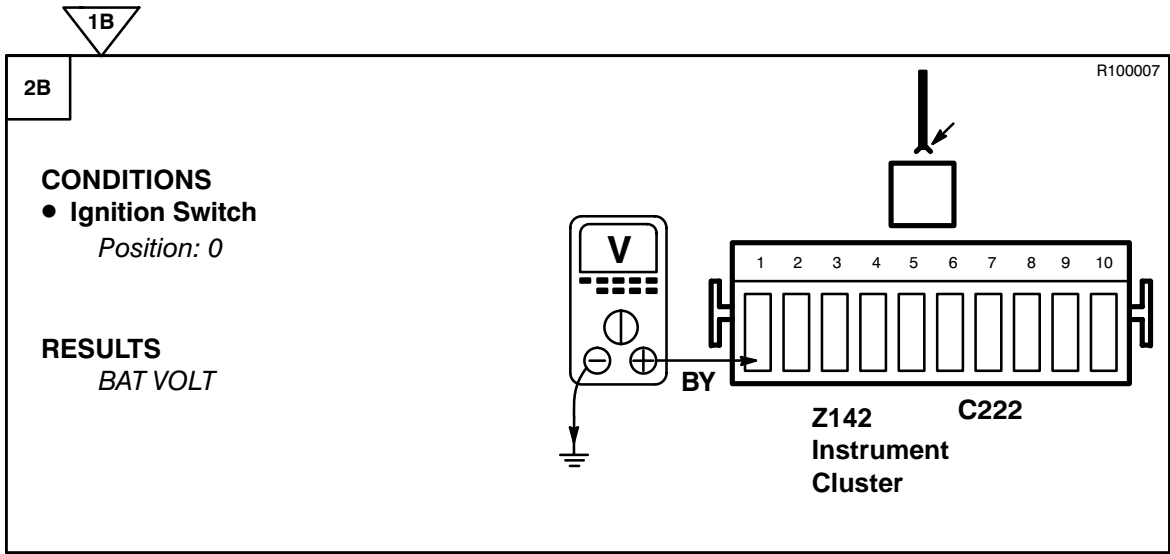


**OK**

↓

2B

**OK** PROBLEM CAUSE  
- Engine Control  
Module (ECM)



**PROBLEM CAUSE**

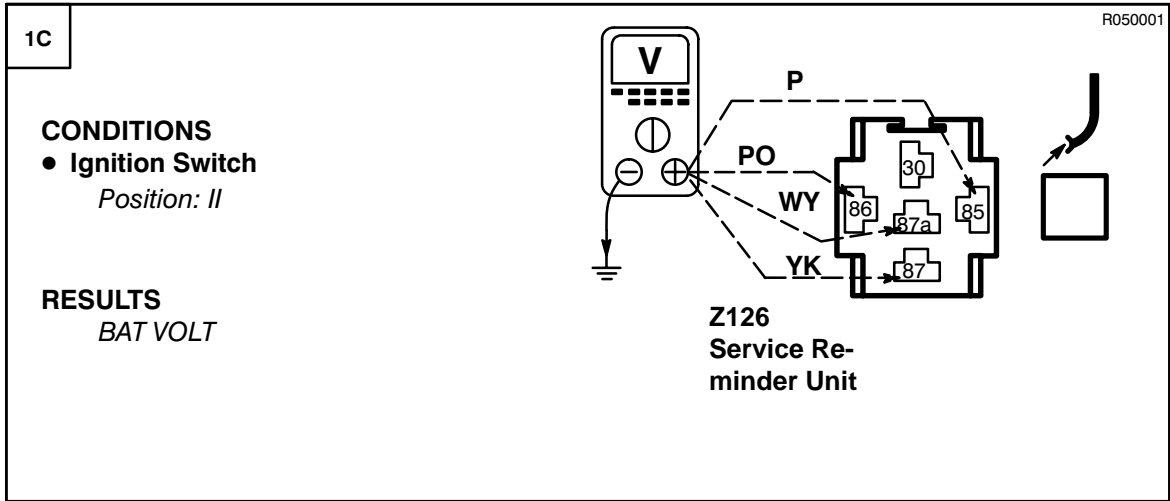
- Bulb
- Instrument Cluster



**PROBLEM CAUSE**

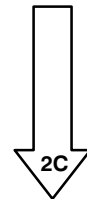
- BY Wire
- RS Wire

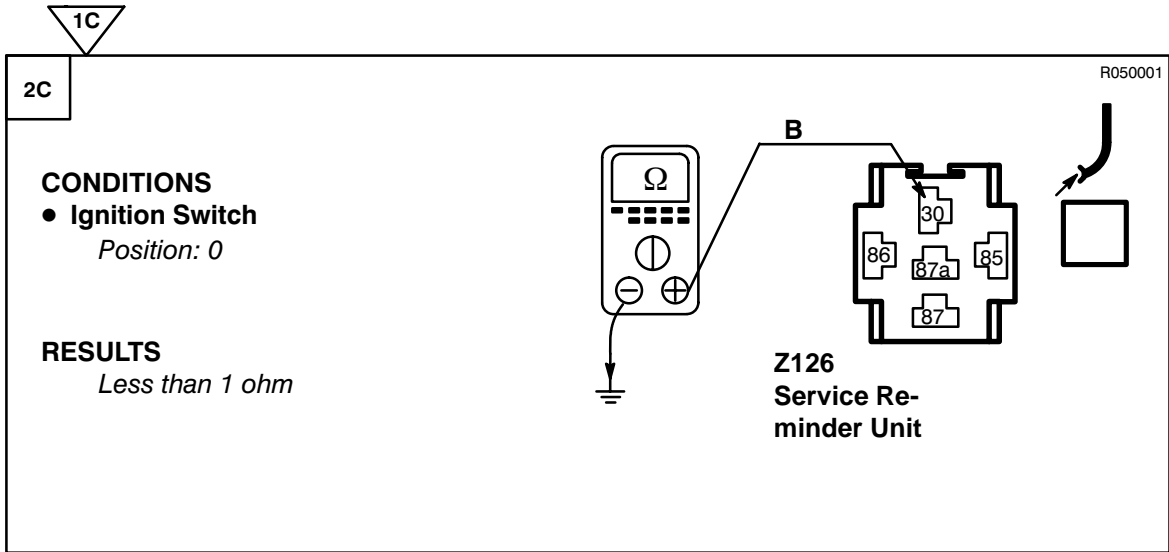
**Test C**



**PROBLEM CAUSE**

- PO, YK Wire
- WY, P Wire
- Instrument Cluster



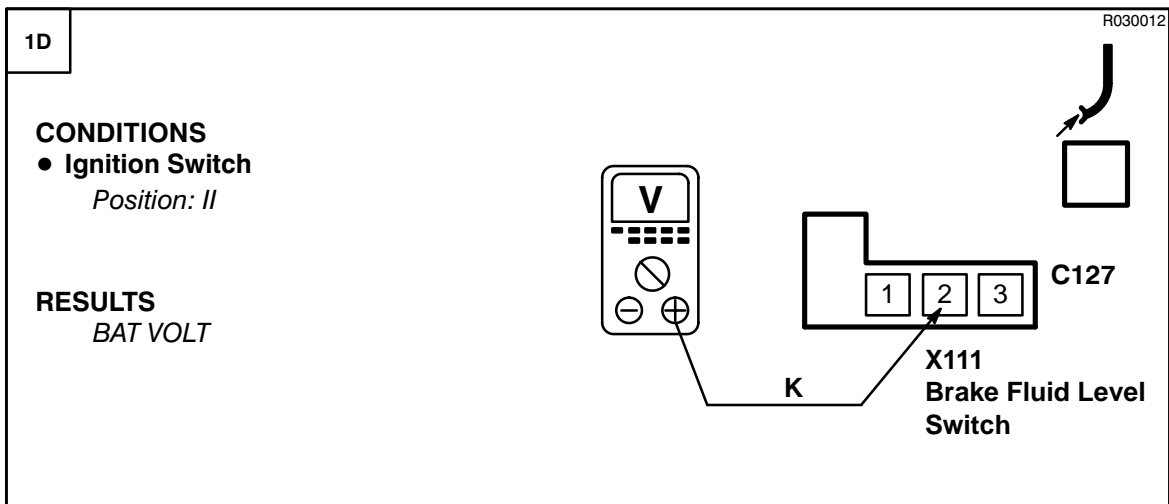


**PROBLEM CAUSE**  
 - B Wire



**PROBLEM CAUSE**  
 - Service Re-  
minder Unit

**Test D**



**PROBLEM CAUSE**  
 - K Wire  
 - Bulb  
 - Instrument  
Cluster



**PROBLEM CAUSE**  
 - B Wire  
 - Brake Fluid Level  
Switch

**Test E**

R030012

1E

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

**X11**  
Brake Fluid Level Switch



- PROBLEM CAUSE**
- K Wire
  - Bulb
  - Instrument Cluster
  - Brake Fluid Level Switch



- PROBLEM CAUSE**
- BG, BY Wire
  - A.B.S. Diode
  - Anti-Lock Brake System ECU
  - A.B.S. Pressure Switch Unit

**Test F**

R010001

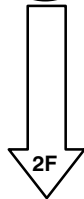
1F

**CONDITIONS**

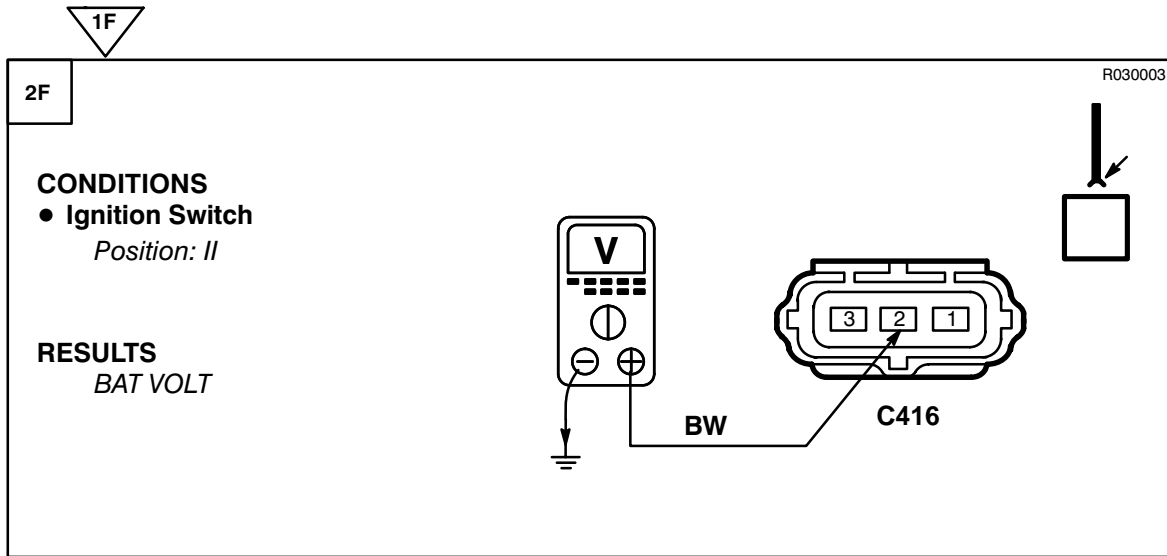
- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

**X191**  
Handbrake Switch



- PROBLEM CAUSE**
- Handbrake Switch



**PROBLEM CAUSE**

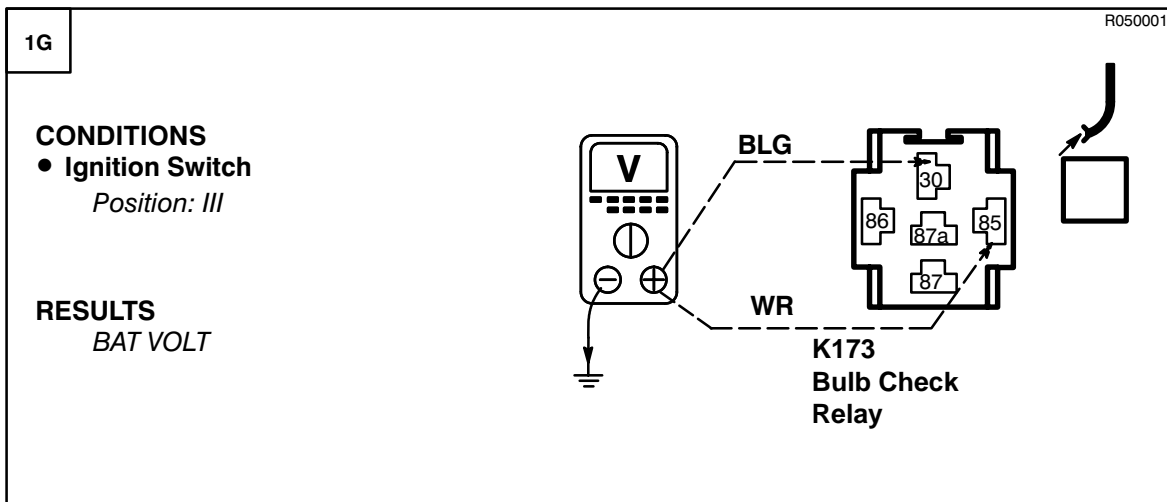
- BY Wire
- K, BW Wire
- Right Rear In-board Brake Pad



**PROBLEM CAUSE**

- BY Wire
- BW Wire
- BK, BU Wire
- Handbrake Diode
- Right Front In-board Brake Pad

**Test G**



**PROBLEM CAUSE**

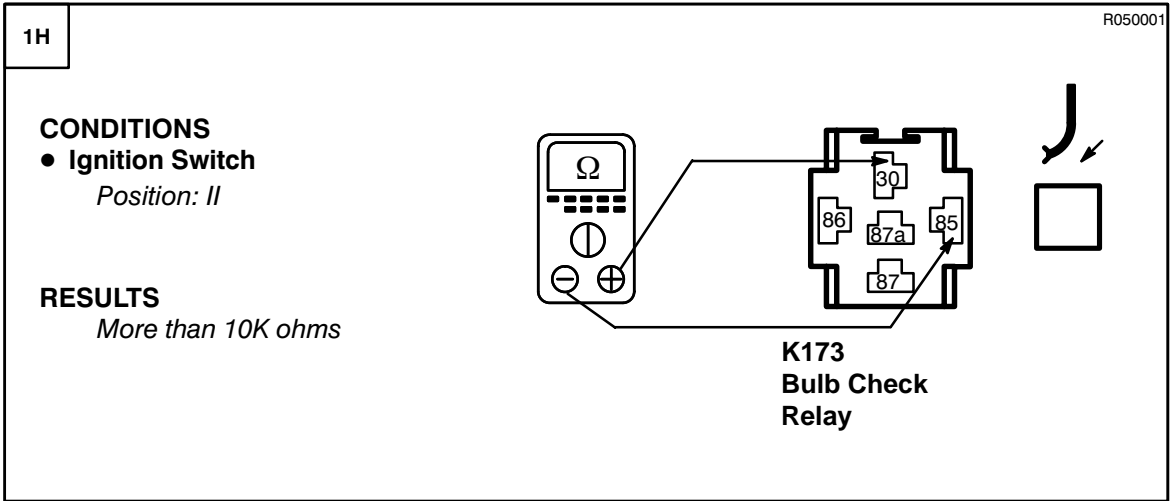
- BLG Wire
- WR Wire
- Instrument Cluster



**PROBLEM CAUSE**

- B Wire
- Bulb Check Relay

**Test H**



**PROBLEM CAUSE**

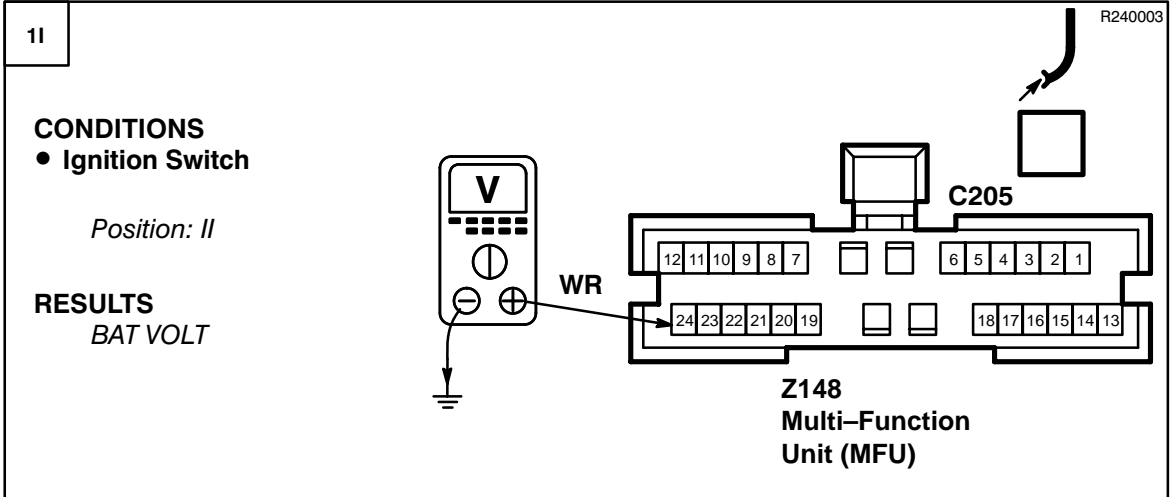
- Bulb Check Relay



**PROBLEM CAUSE**

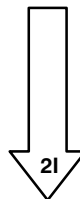
- BLG Wire
- Transfer Box Oil Temperature Switch
- Automatic Transmission Oil Temperature Switch

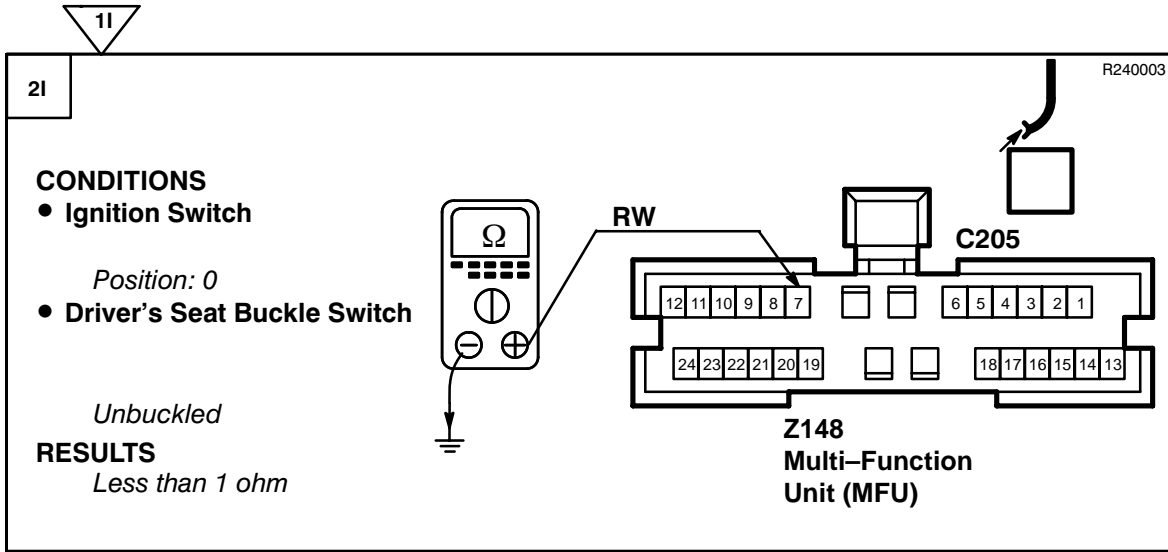
**Test I**



**PROBLEM CAUSE**

- WR Wire
- LG Wire
- Instrument Cluster





**PROBLEM CAUSE**

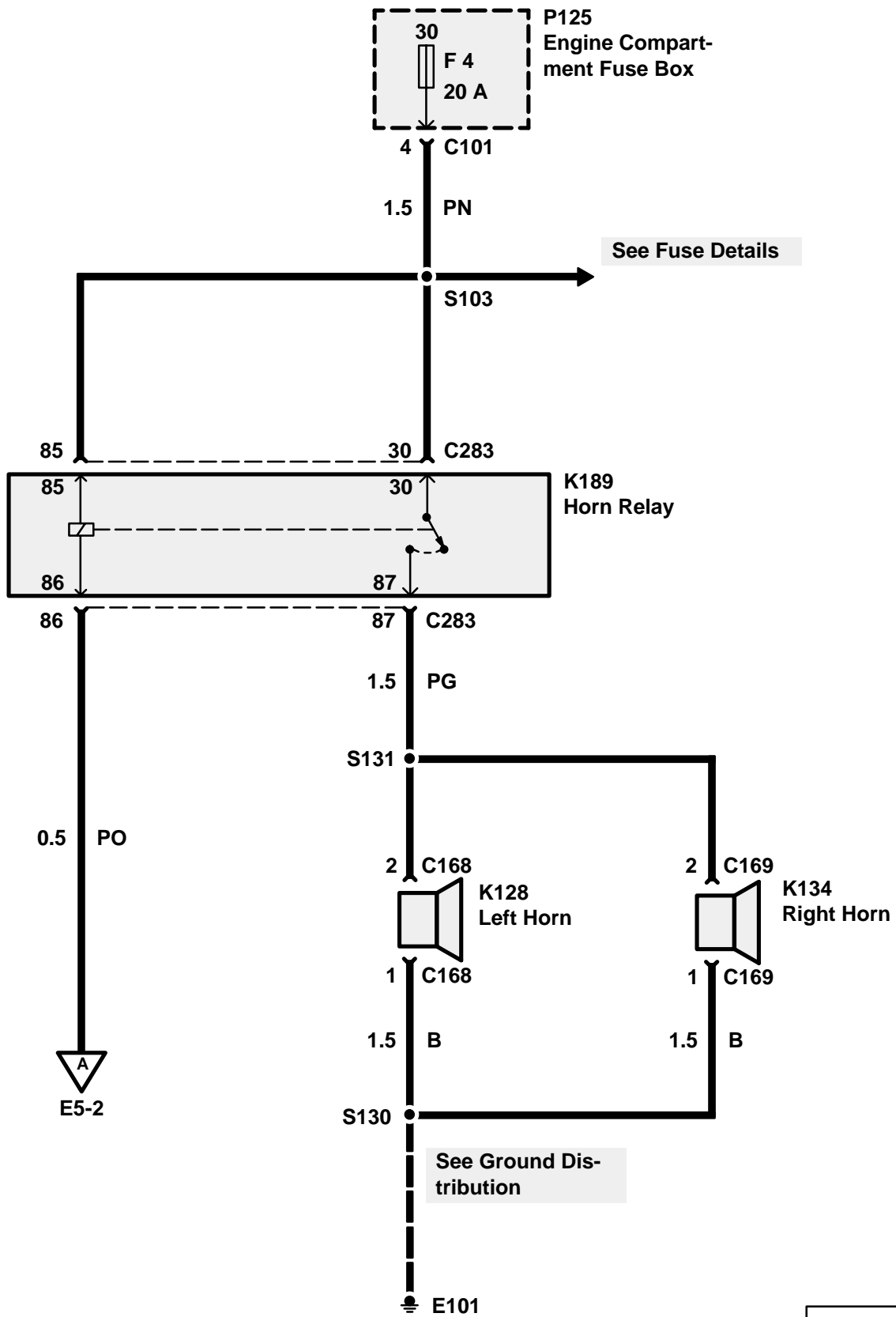
- RW Wire
- B Wire
- Driver's Seat Buckle Switch

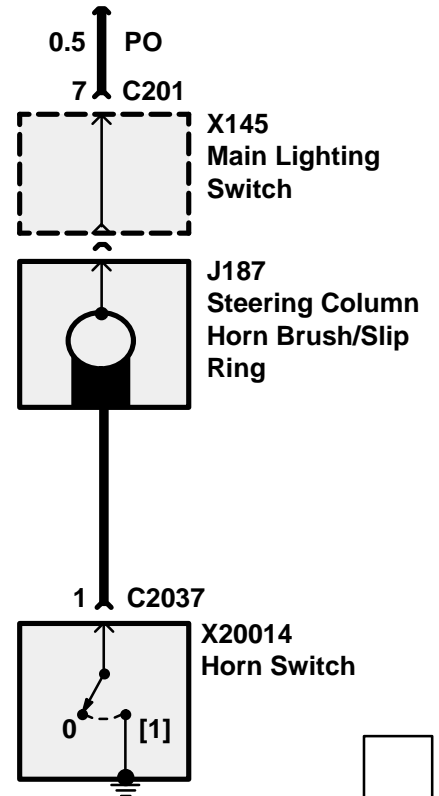
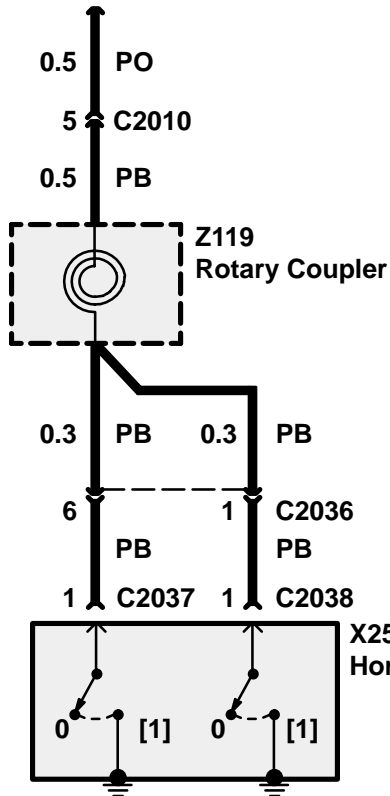
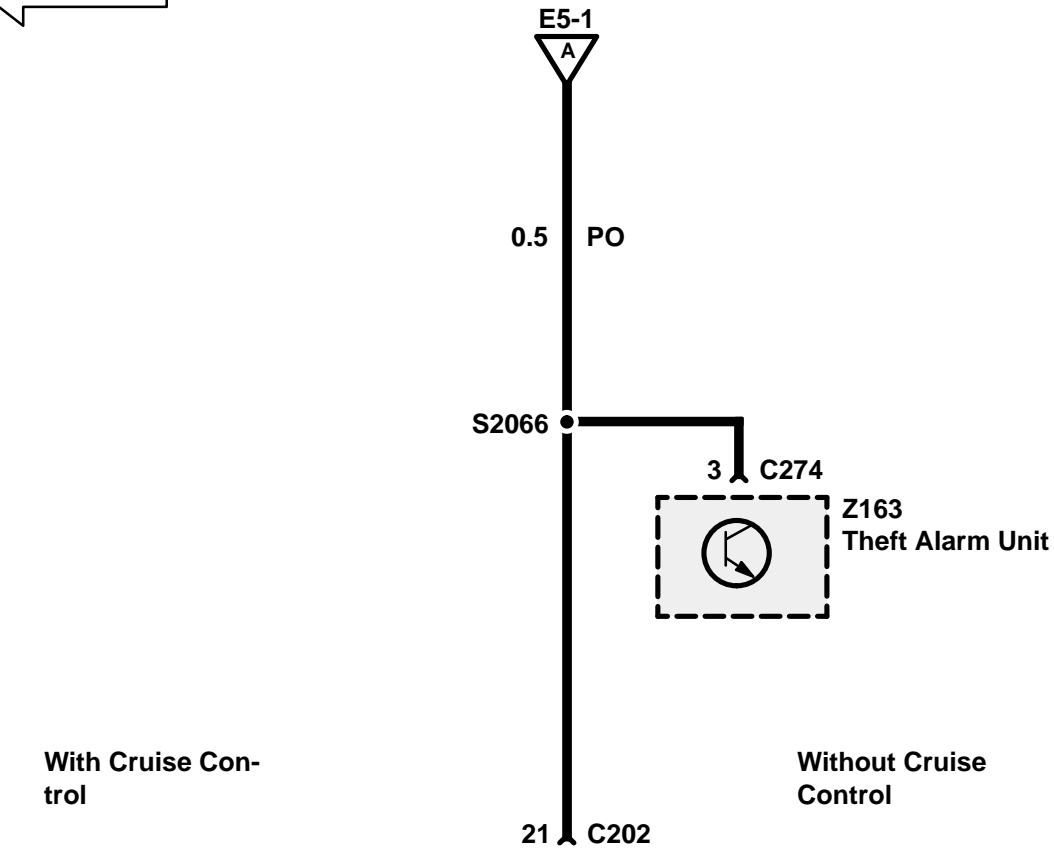
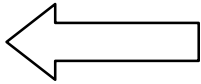


**PROBLEM CAUSE**

- Multi-Function Unit (MFU)







## CIRCUIT OPERATION

Battery voltage is provided to the radio at all times through the PN wire. In addition to the anti-theft feature, this input voltage keeps the preset station memory alive. Whenever battery power to the unit is lost, the anti-theft code must be entered and the preset stations must be reprogrammed.

When the Radio (Z111) and the ignition are turned on, the voltage signal through the LGO wire to the control head 'wakes up' the unit. The Radio (Z111) plays, the VF display comes on and the control unit buttons illuminate. When the park lamps or headlamps are turned on, a voltage signal is sent through the RN wire to dim the VF display and control buttons for night driving.

Radio (Z111) signals are received via a coaxial cable from the side screen and Antenna Amplifier. The amplifier filters and boosts the signal from the side screen.

The CD Changer (Z114) is operated from the Radio (Z111) when "CD" is selected. The Radio communicates with the changer via a DIN cable.

Power is supplied to the Radio (Z111) and Subwoofer Amplifiers (Z176) when the ignition is on. The amplifiers are enabled when the Radio is turned on and applies voltage to the amplifier through the PY wires.

For 1995 model year three levels of factory fitted in car entertainment are available.

New features are as follows:

Side screen antenna, new head units, subwoofer assembly, new speakers and new CD auto-changer.

The mid/low line radio has the following features: Radio data system (RDS), electronic tuning, one touch memory, automatic programme control (APC), Dolby, subwoofer line output, CATS coded, manual tape deck.

High line radio is as above with the following exceptions:

Logic tape deck, blank skip/repeat, 5 channel line output, CD ready (this unit is fitted when the CD option is called for).

## Subwoofer

The subwoofer unit is located in the right hand side of the luggage compartment. It amplifies

frequencies between 20 and 150 Hz to give an enhanced bass sound.

## Subwoofer Amplifier

The amplifier is fitted on top of the subwoofer unit.

## Speaker Amplifier

A remote 4 x 20 amp speaker amplifier is part of high line ICE specification. This is also fitted on top of the subwoofer.

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**Side Screen Antenna**

The antenna is now printed into the rear side screen on four door models. For America and Japan the element is fitted in both rear side screens, known as diversity antenna system. Other markets have a single element in the right hand side screen only. Diversity reception means that if vehicle movement results in a loss of signal due to reflections from buildings (known as multipath distortion), the radio will switch to the antenna receiving the strongest signal. This results in less interference and better stereo performance.

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**Antenna Amplifier**

New antenna amplifiers are located behind the headlining above the side screen antenna(s). Right hand side fitment is an FM + AM amplifier, left hand side, diversity, is an FM only amplifier.

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**Speakers**

Trim level 1 – Two door vehicles have two front twin cone speakers. Four door vehicles have two coaxial front speakers and two twin cone rear speakers.

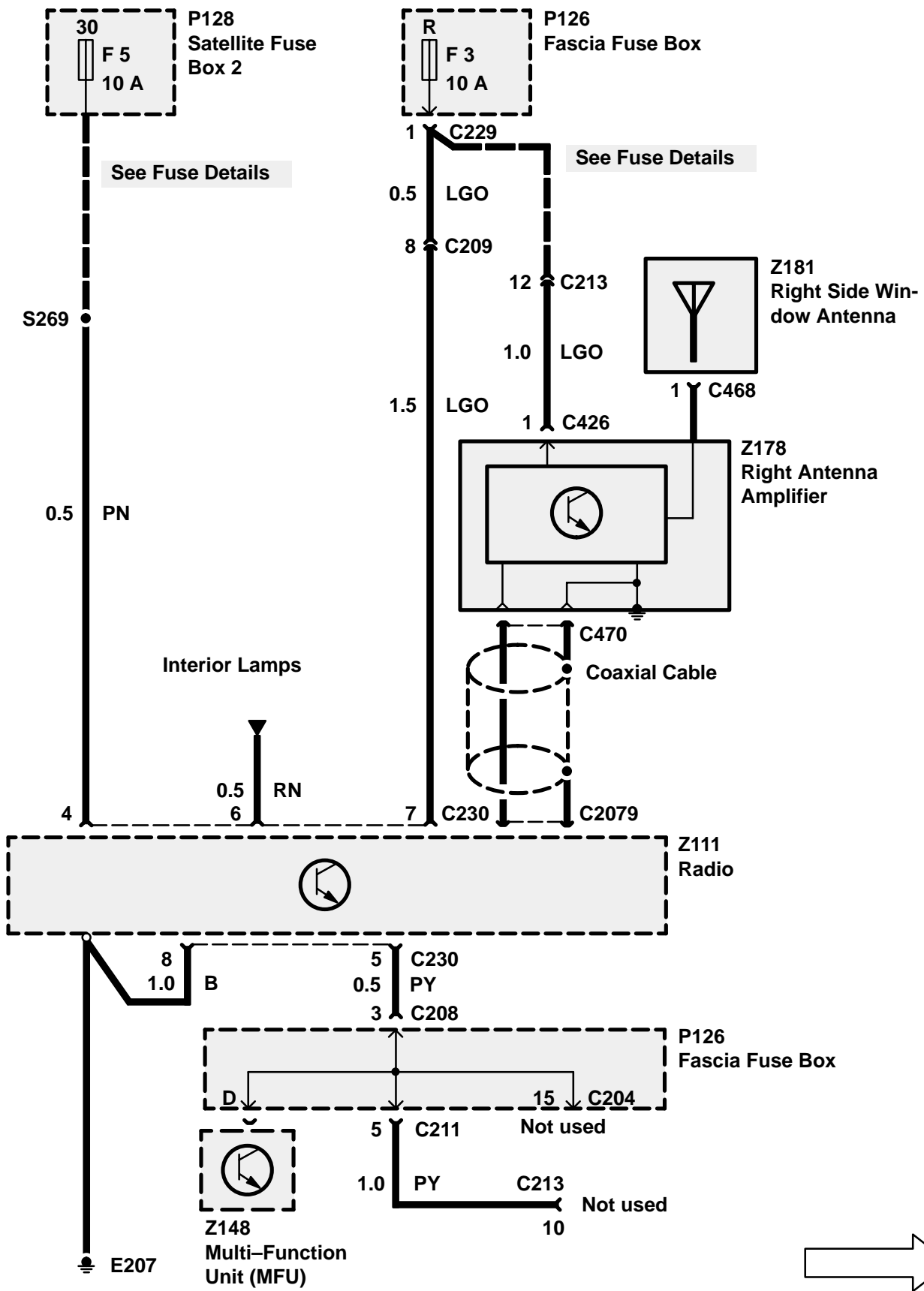
Trim level 2 – Four coaxial speakers, two front, two rear and a subwoofer.

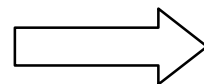
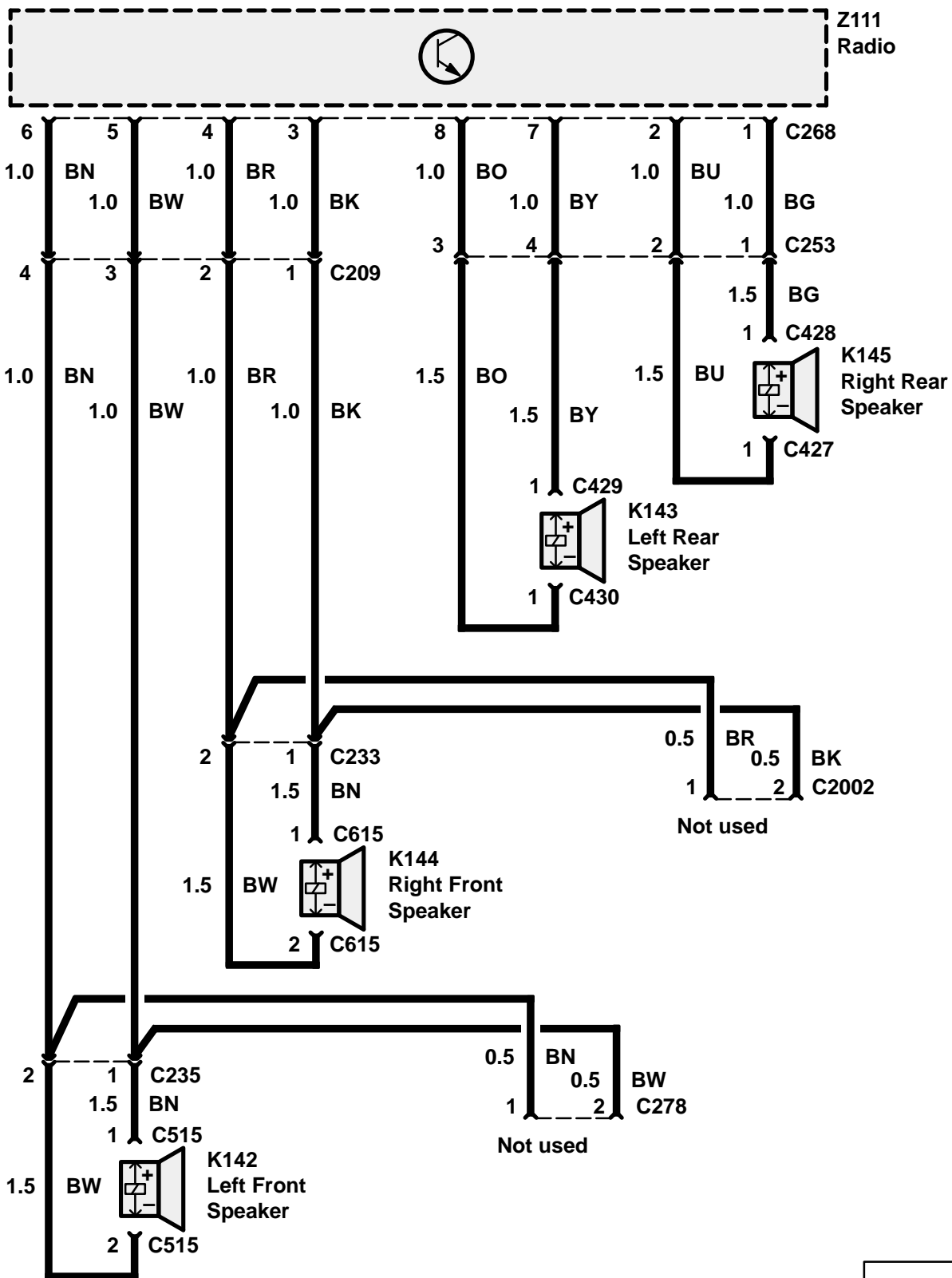
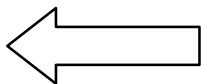
Trim level 3 – Four coaxial speakers, two front, two rear, two bass speakers and front crossover unit, a subwoofer and amplifier. Twin cone speakers have a mid range and tweeter cone driven by the same coil. Coaxial speakers have two cones and two coils. Where front doors have bass speakers a crossover unit is fitted which effectively splits the frequency between bass and coaxial.

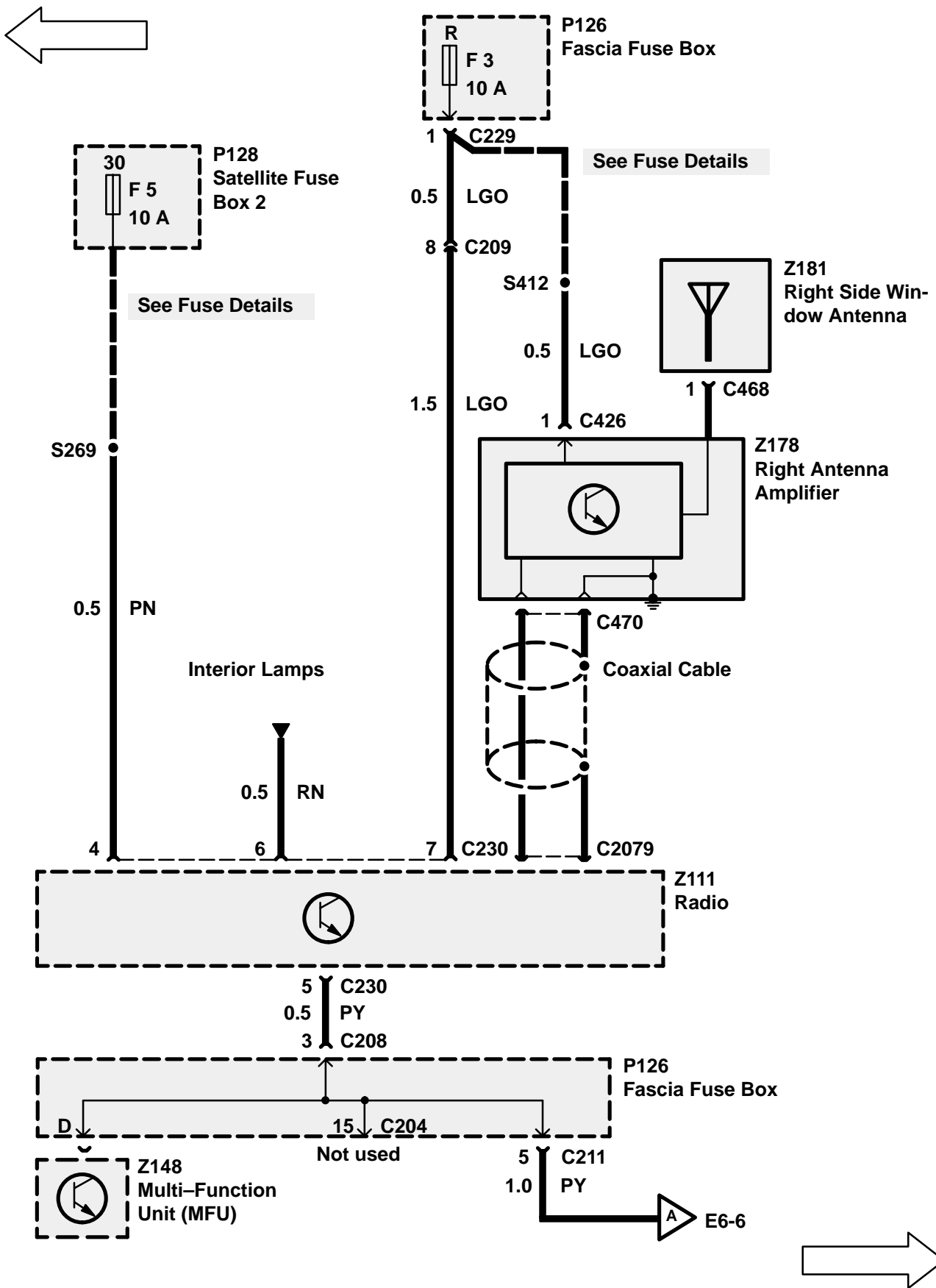
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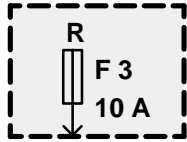
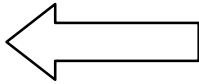
**CD autochanger**

The CD autochanger is fitted underneath the subwoofer unit.

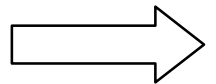
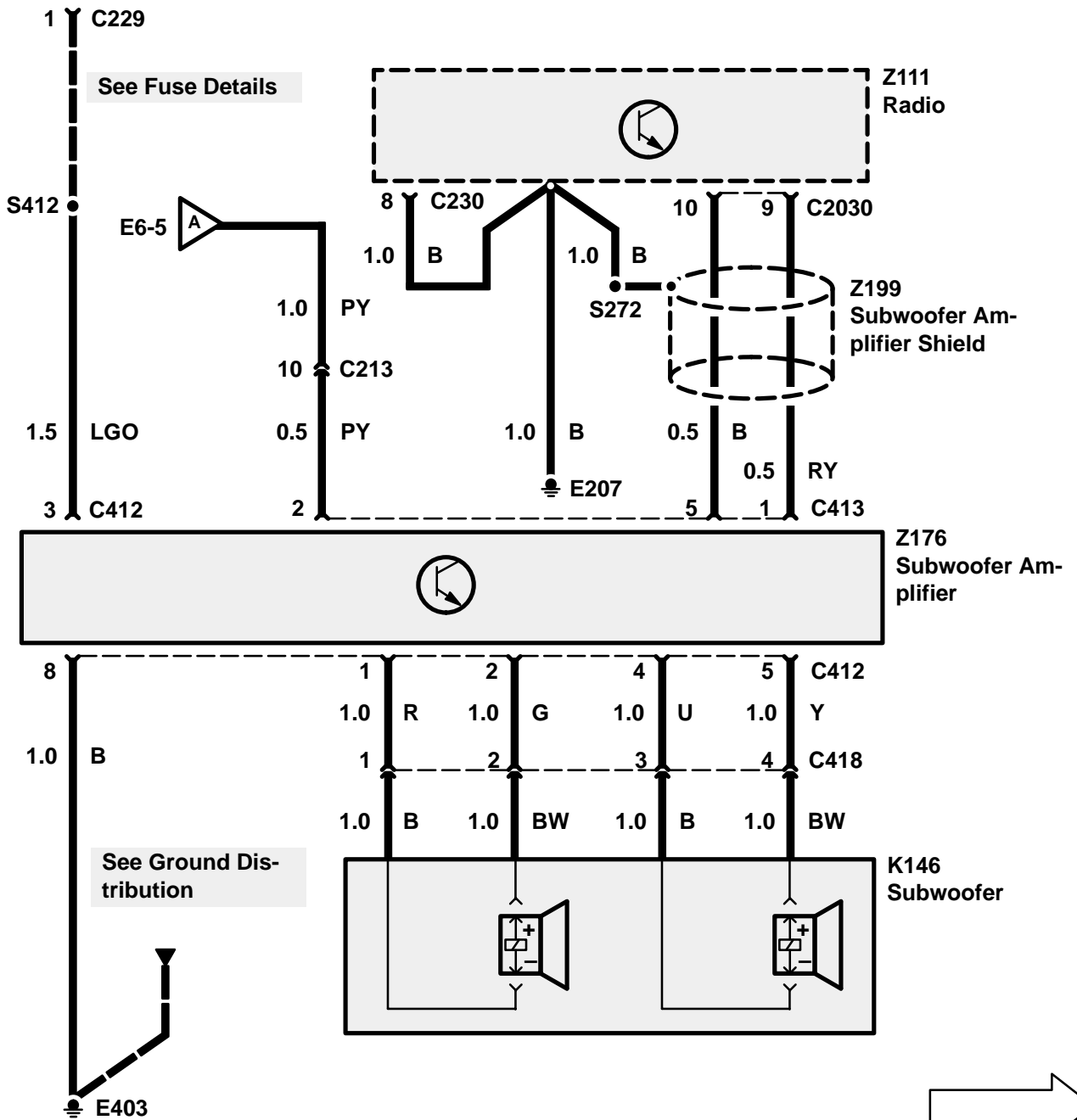




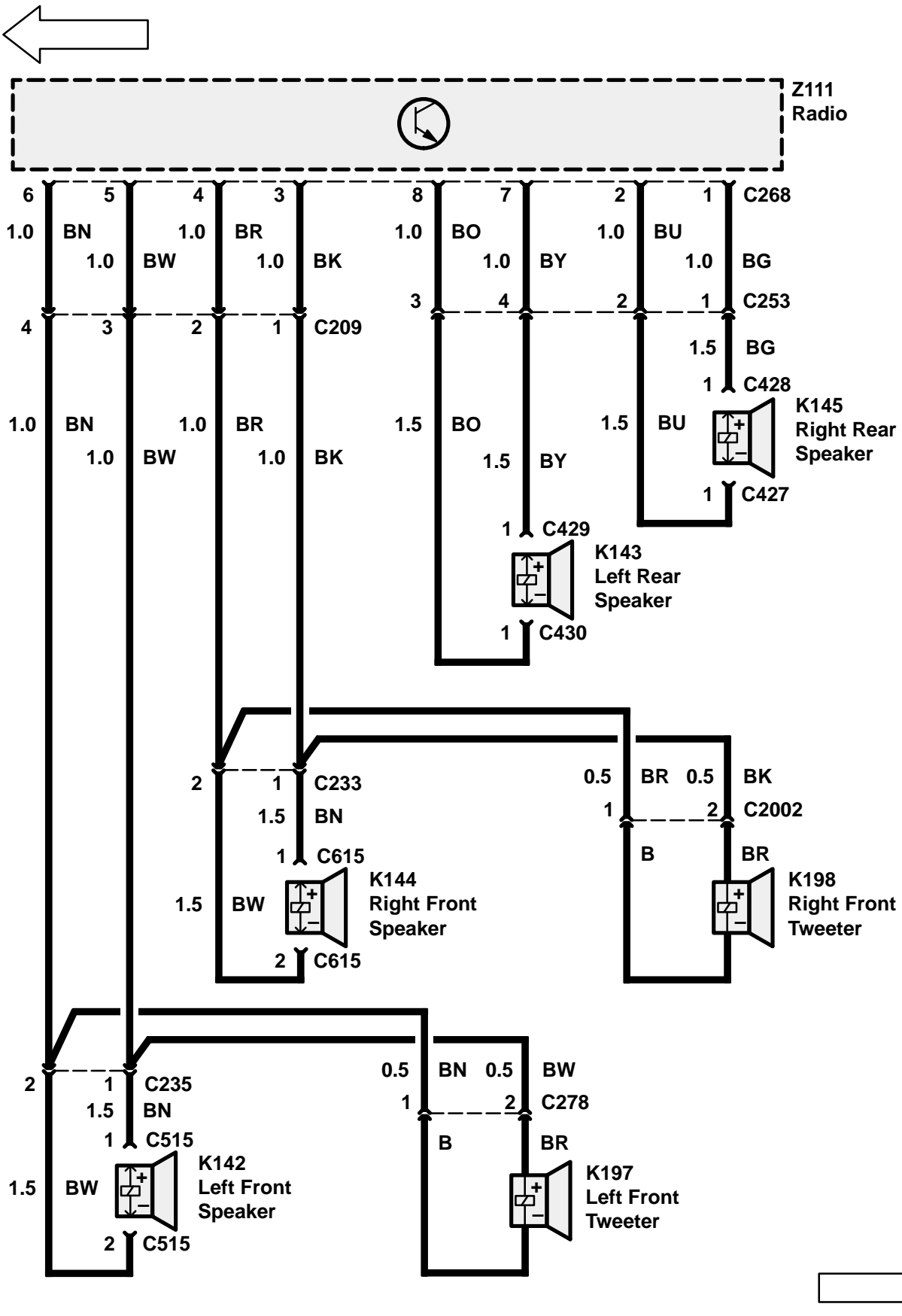




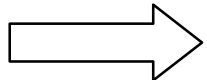
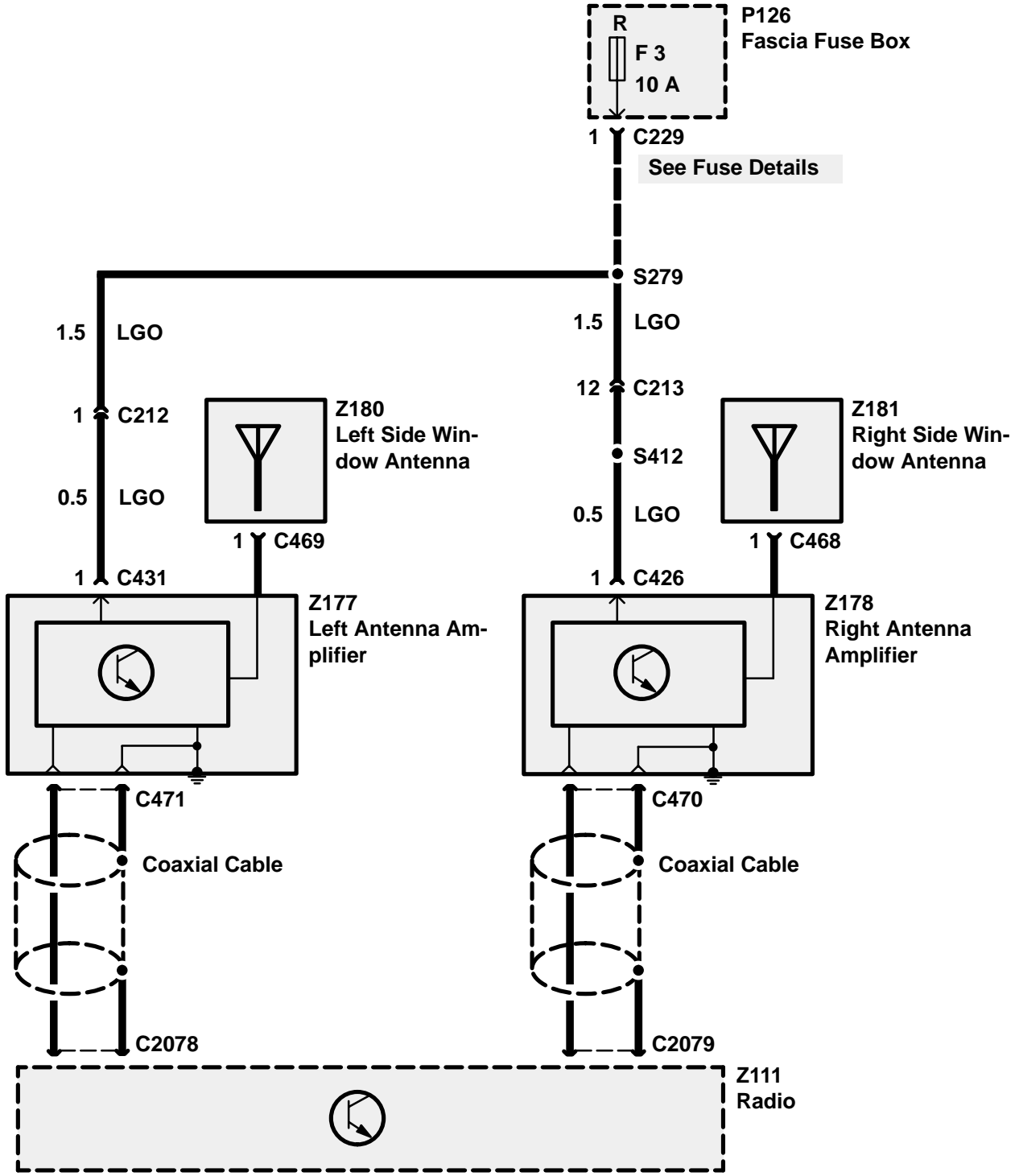
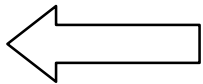
P126  
Fascia Fuse Box

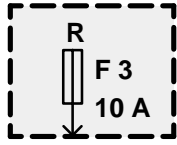
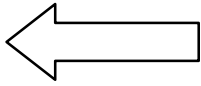








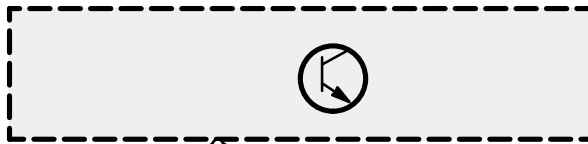




P126  
Fascia Fuse Box

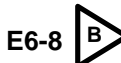
1 C229

See Fuse Details



Z111  
Radio

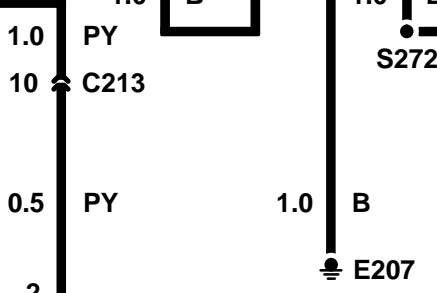
S412



E6-8

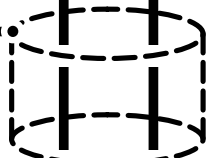


8 C230 10 C2030 9 C2030

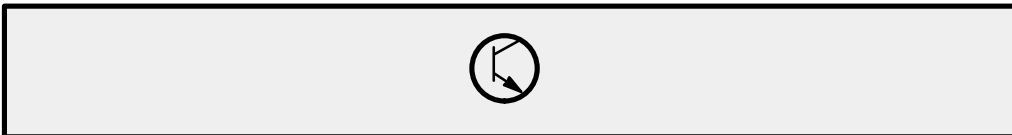


1.0 PY 1.0 B 1.0 B 1.0 B 0.5 PY 1.0 B 0.5 B 0.5 RY 2 C213 3 C412 5 C413

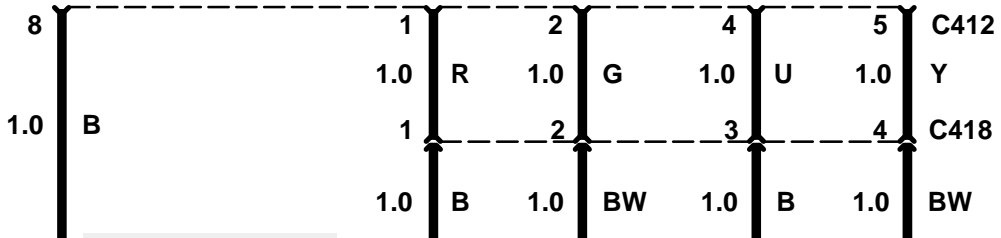
E207



Z199  
Subwoofer Amplifier Shield

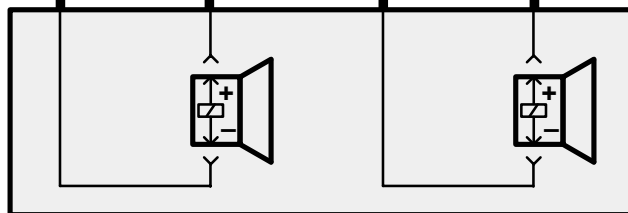


Z176  
Subwoofer Amplifier



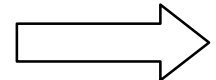
8 1 2 4 5 C412  
1.0 B 1.0 R 1.0 G 1.0 U 1.0 Y  
1 2 3 4 C418  
1.0 B 1.0 BW 1.0 B 1.0 BW

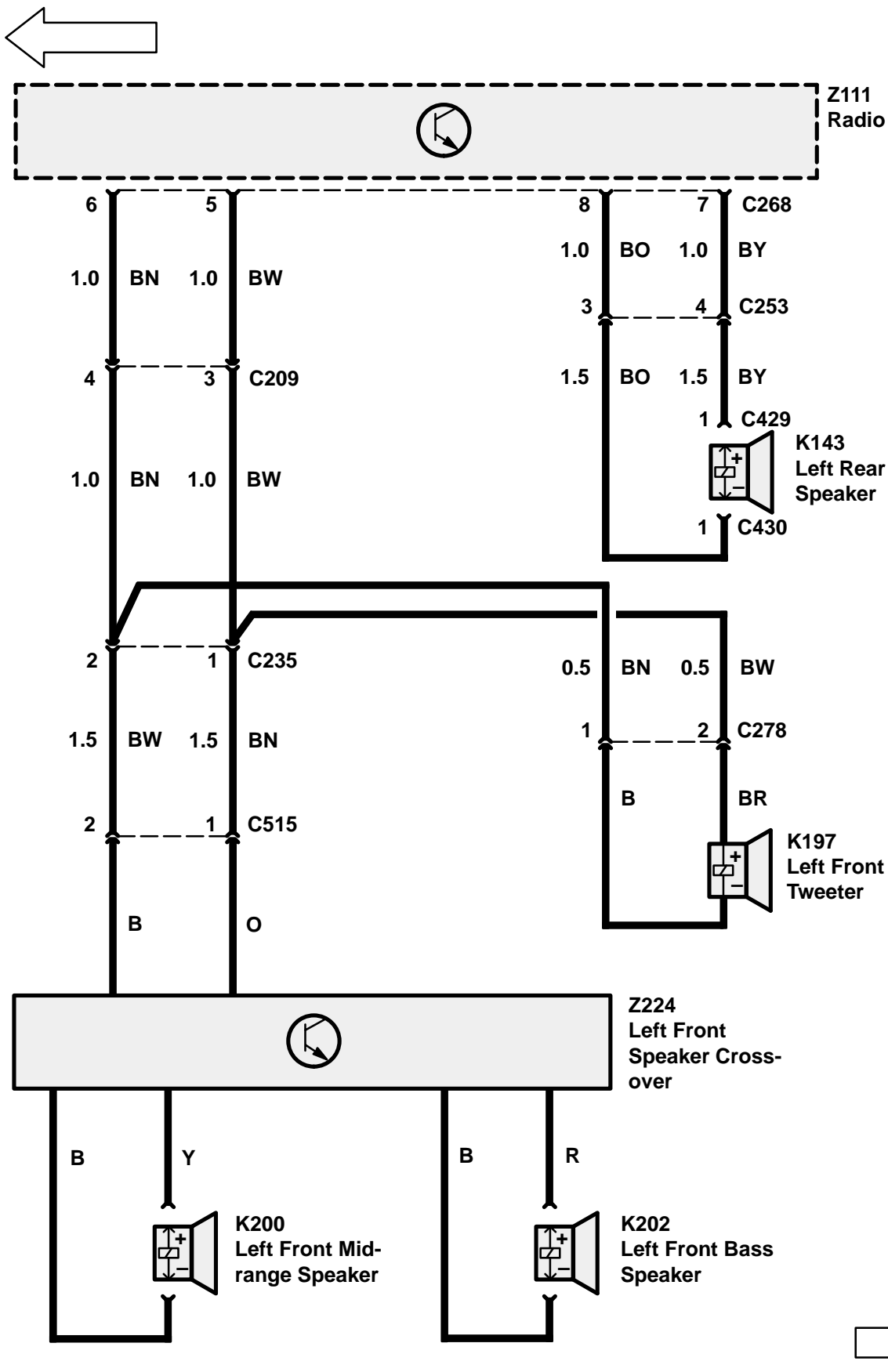
See Ground Distribution

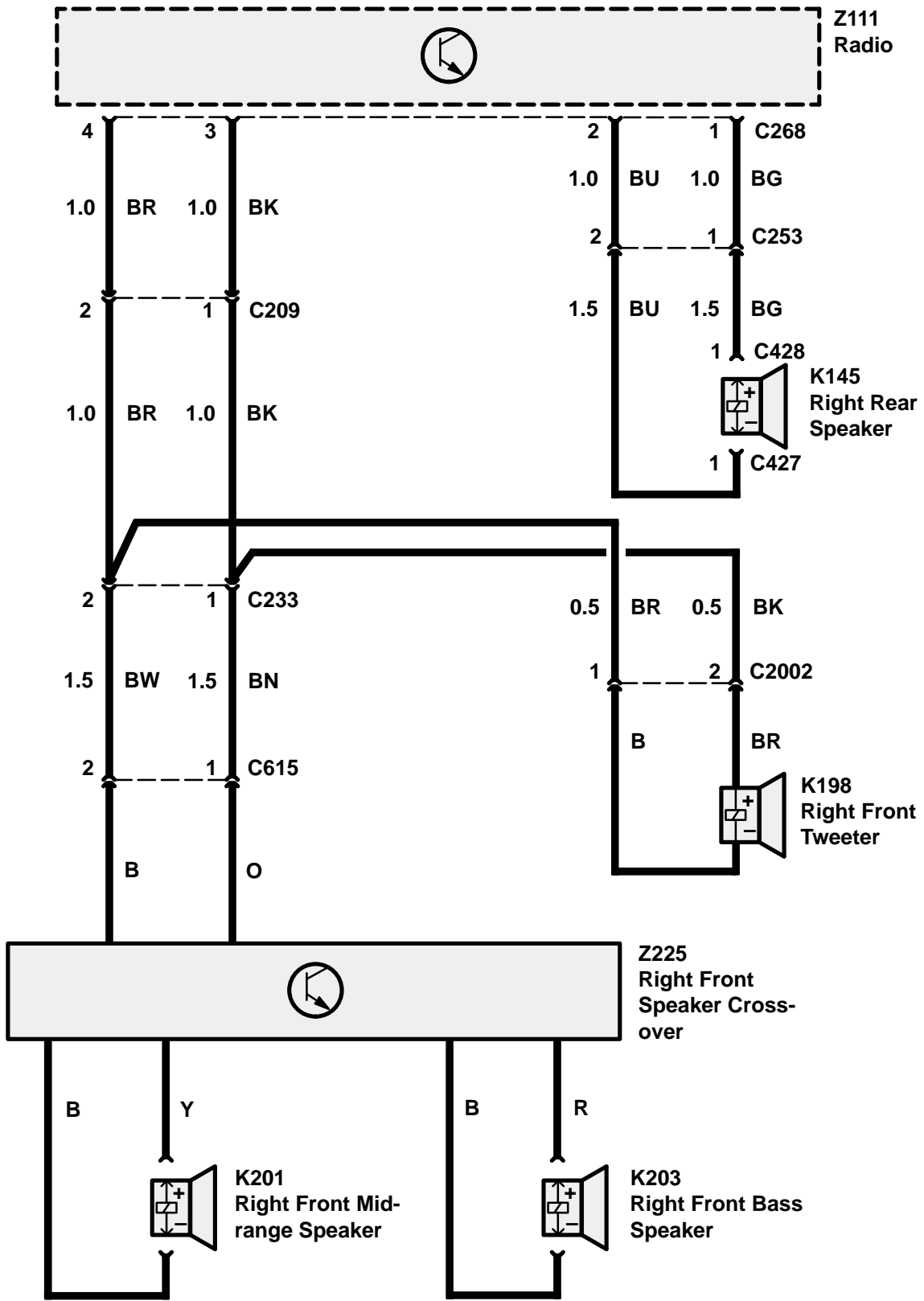
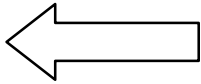


K146  
Subwoofer

E403







**TROUBLESHOOTING HINTS**

1. Check fuse F5 of Satellite Fusebox 2 (P128) and fuse F3 of Fascia Fusebox (P126).
2. Check that Radio (Z111) connectors and coaxial cable are tight and properly connected.
3. For proper Radio (Z111) noise diagnosis, take the vehicle outside where signals are strong. Close the hood and keep away from metal buildings or other sources of Radio interference.
4. If Radio (Z111) noise is excessive when an accessory is on, install a Radio noise suppression capacitor to the power lead of that accessory.
5. If Radio (Z111) noise is excessive at all times, check antenna wiring. If OK, check spark plugs, spark plug wiring and wiring close to the ignition system which could transmit noise to the Radio (Z111) wiring.
6. If only the CD Changer (Z114) does not operate, check power, ground, and DIN cable. If OK, check Radio and CD Changer.
7. If the Radio (Z111) is inoperative and 'code' is being shown on the display, follow the instructions below.

**Security Code Instructions**

1. Obtain 5-digit security code from vehicle owner or manufacturer.
2. Enter the code number using the Radio (Z111) push-button selectors.

NOTE: If the correct code is not entered in 3 successive attempts, the Radio (Z111) will not accept another entry until the Radio has been left on for 1 hour with the ignition on.

NOTE: When entering the code, be sure to complete the sequence numbering of that 5-digit code even if you made a mistake. For example, if the correct code number sequence is 43215 and you mistakenly enter 42 instead of 43, continue the code number sequence of 215 to complete that entry. A 'beep' will sound, 'code' will still be displayed and the Radio will not operate. Re-enter the correct code 43215 and the Radio will operate.

NOTE: If an audible 'beep' is heard while entering the code, STOP immediately. Begin entering the code again, starting with the first number of the 5-digit code.

NOTE: If a push-button is touched accidentally when the ignition is off, a warning tone will sound. Turn the ignition on and the tone will stop.

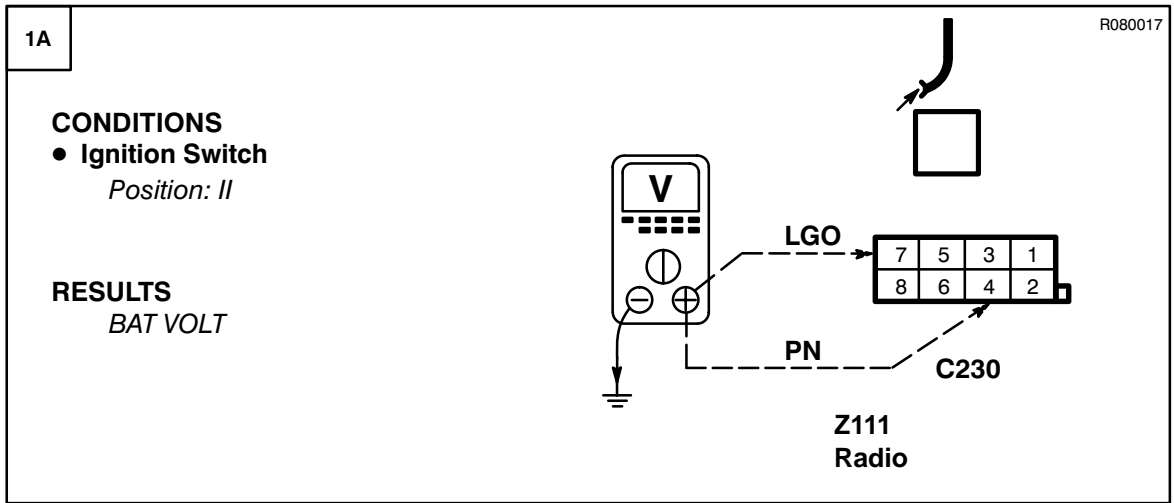
**SYSTEM DIAGNOSIS**

1. If Radio (Z111) does not operate at all, do Test A.
2. If Radio scans past all frequencies when in seek mode and hiss is present over most stations, do Test B.
3. If VF display does not dim when headlamps or park lamps are turned on, do Test C.
4. If one or more speakers do not operate, do Test D.
5. If the Subwoofer (K146) does not operate, do Test E.
6. If midrange and bass speakers do not operate on a vehicle equipped with speaker crossovers, check these speakers with Test D. If OK, replace speaker crossover.

# E6 ETM

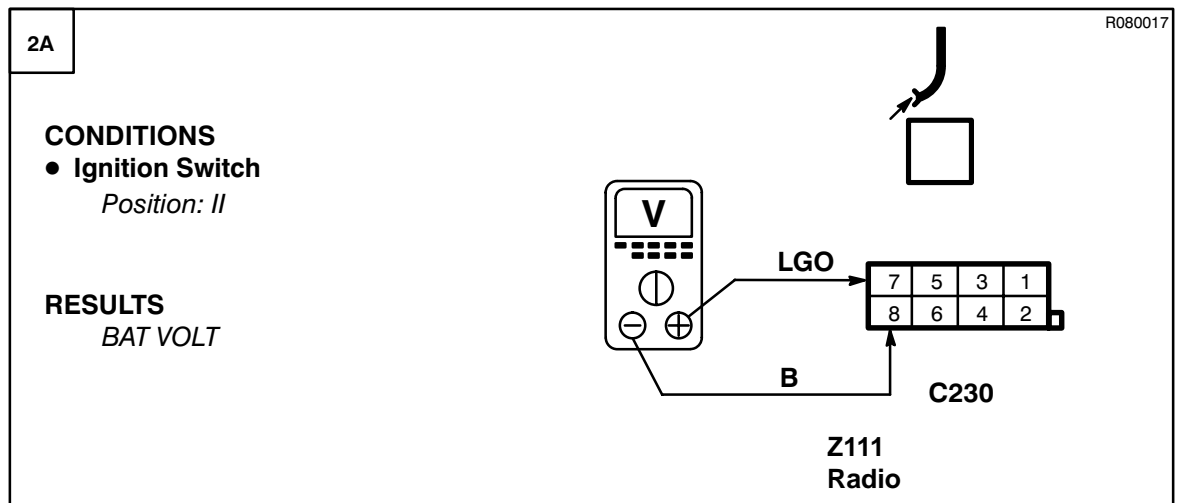
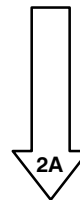
## 1995 RANGE ROVER

### Test A



**PROBLEM CAUSE**

- PN Wire
- LGO Wire
- F5 Fuse
- F3 Fuse



**PROBLEM CAUSE**

- B Wire

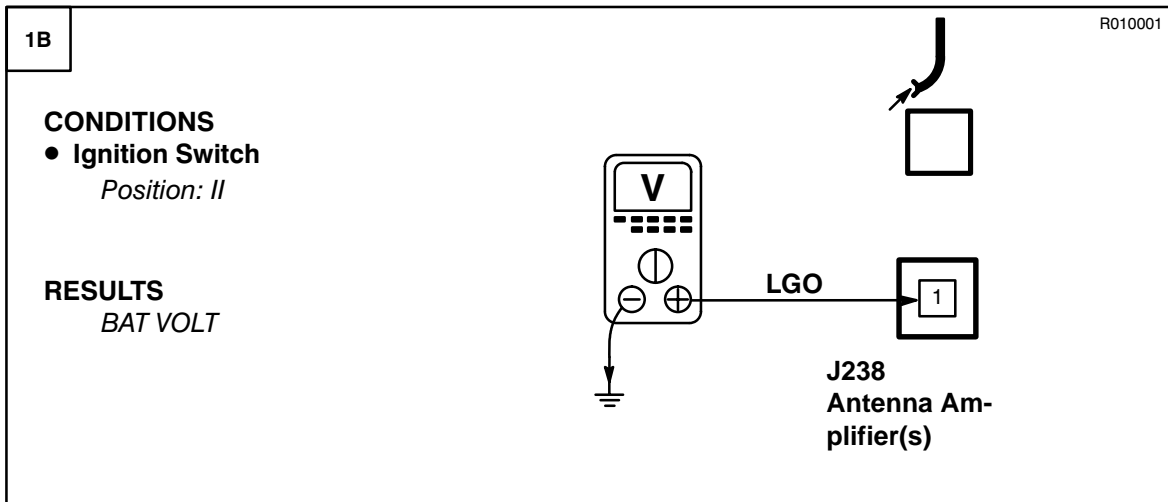


**PROBLEM CAUSE**

- Radio



**Test B**

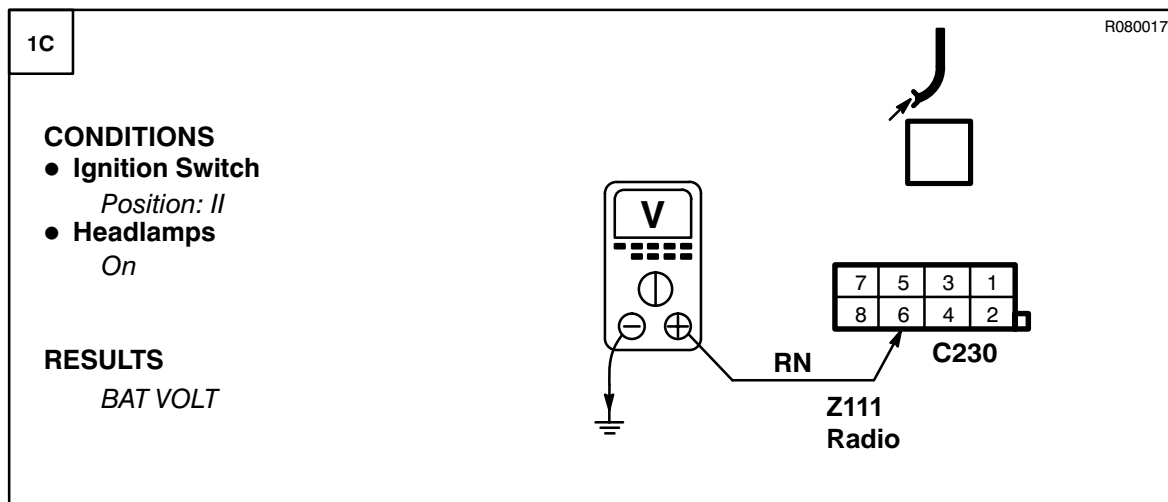


**PROBLEM CAUSE**  
- LGO Wire



**PROBLEM CAUSE**  
- Coaxial Cable  
- Radio  
- Antenna Am-  
plifier(s)

**Test C**



**PROBLEM CAUSE**  
- RN Wire



**PROBLEM CAUSE**  
- Radio

Test D

1D R010001

**CONDITIONS**

- Connect for less than 1 second
- Connect at suspect connector

**RESULTS**  
*Speaker 'pops'*

**J2120  
Speaker**



**PROBLEM CAUSE**  
- Speaker



**PROBLEM CAUSE**  
- Speaker Wiring  
- Radio

Test E

1E R080004

**CONDITIONS**

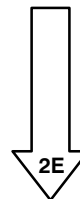
- Ignition Switch  
*Position: I*

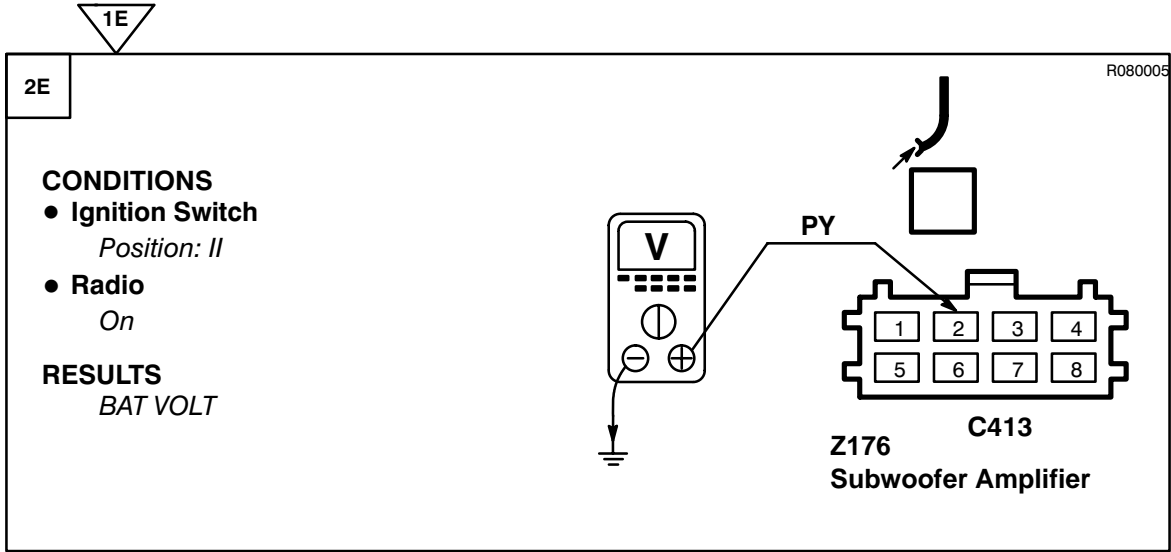
**RESULTS**  
*BAT VOLT*

**C412  
Z176  
Subwoofer Amplifier**

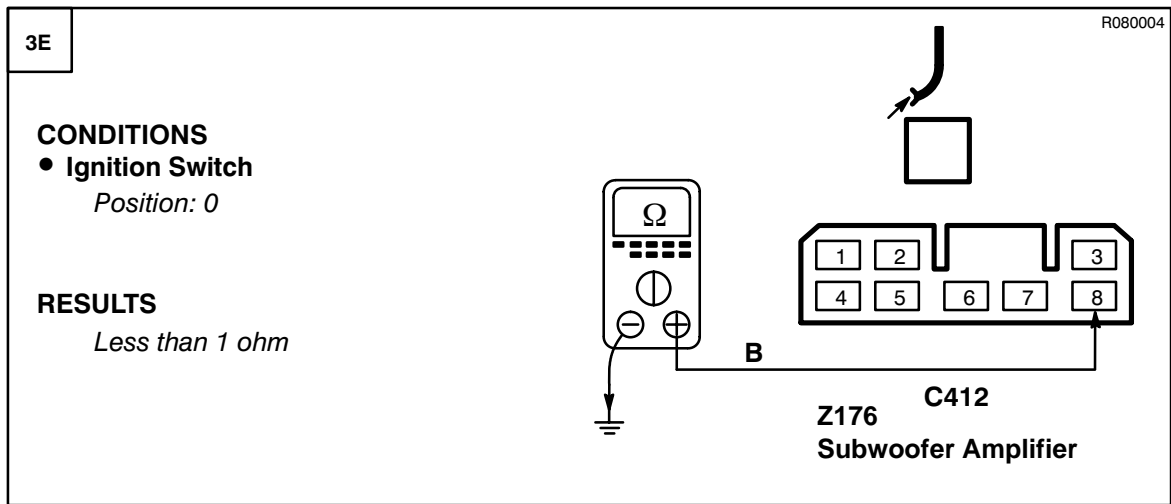
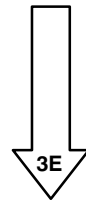


**PROBLEM CAUSE**  
- LGO Wire

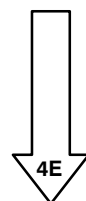




- PROBLEM CAUSE**
- PY Wire
  - Fascia Fuse Box
  - Radio



- PROBLEM CAUSE**
- B Wire



**E6 ETM**

1995 RANGE ROVER

3E

4E R080005

**CONDITIONS**

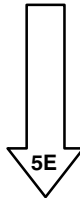
- Ignition Switch  
*Position: 0*
- Radio  
*Disconnected*

**RESULTS**  
*More than 10K ohms*



**PROBLEM CAUSE**

- RY Wire
- B Wire



5E R100011 R080005

**CONDITIONS**

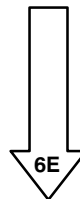
- Ignition Switch  
*Position: 0*

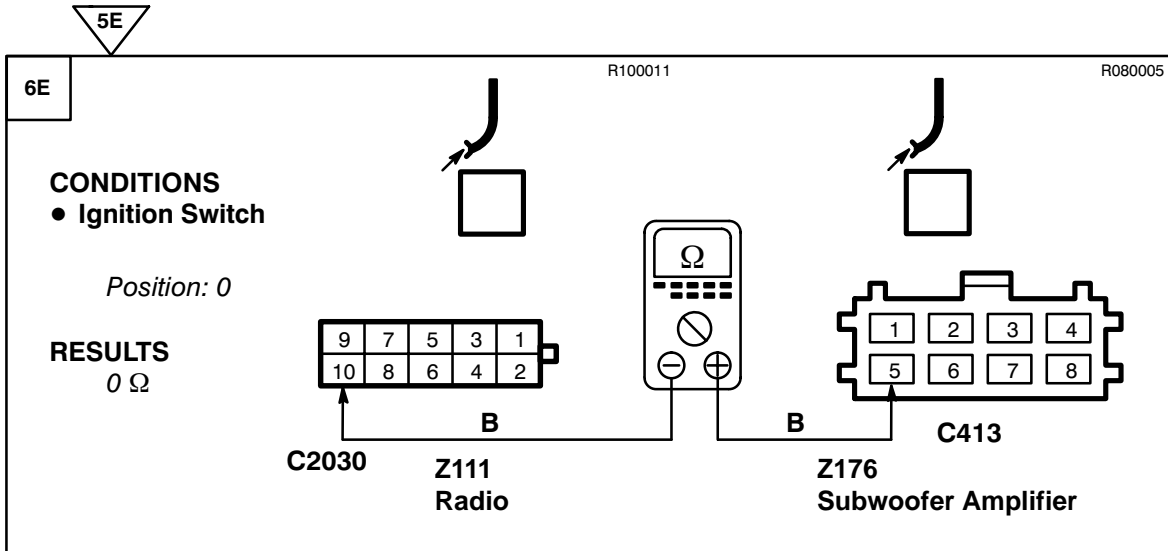
**RESULTS**  
*0 Ω*



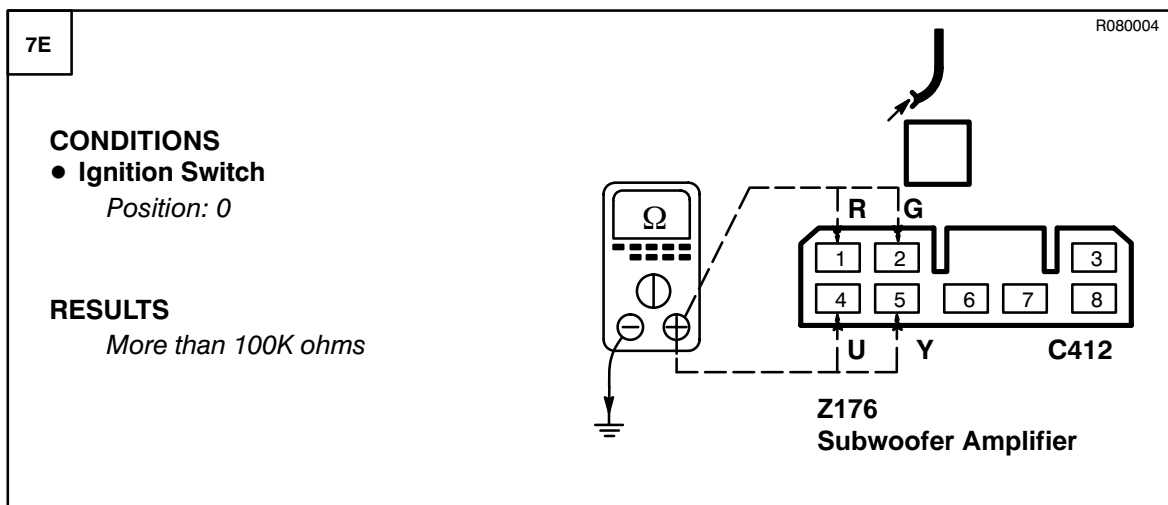
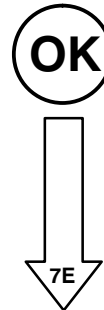
**PROBLEM CAUSE**

- RY Wire

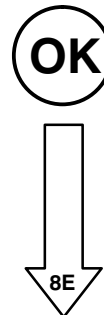


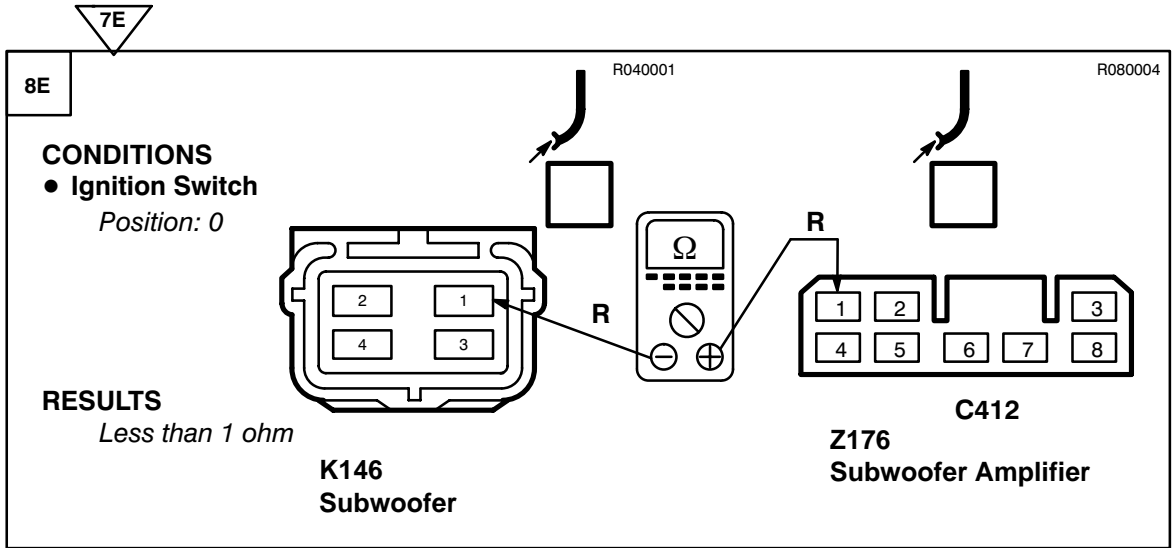


~~OK~~ **PROBLEM CAUSE**  
- B Wire



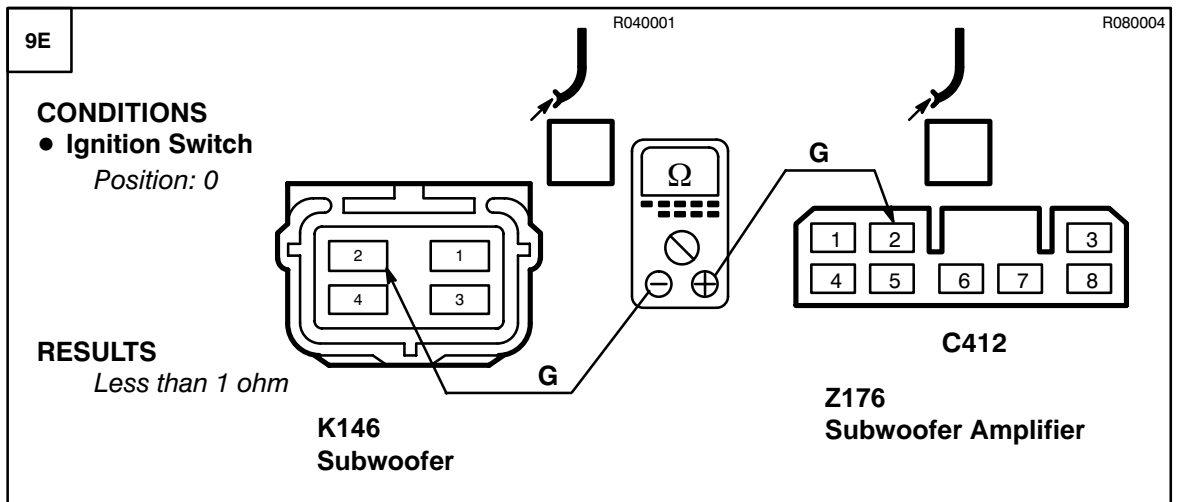
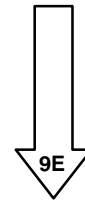
~~OK~~ **PROBLEM CAUSE**  
- Wire (short)  
- Subwoofer





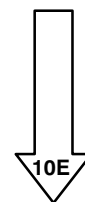
~~OK~~ PROBLEM CAUSE  
- R Wire

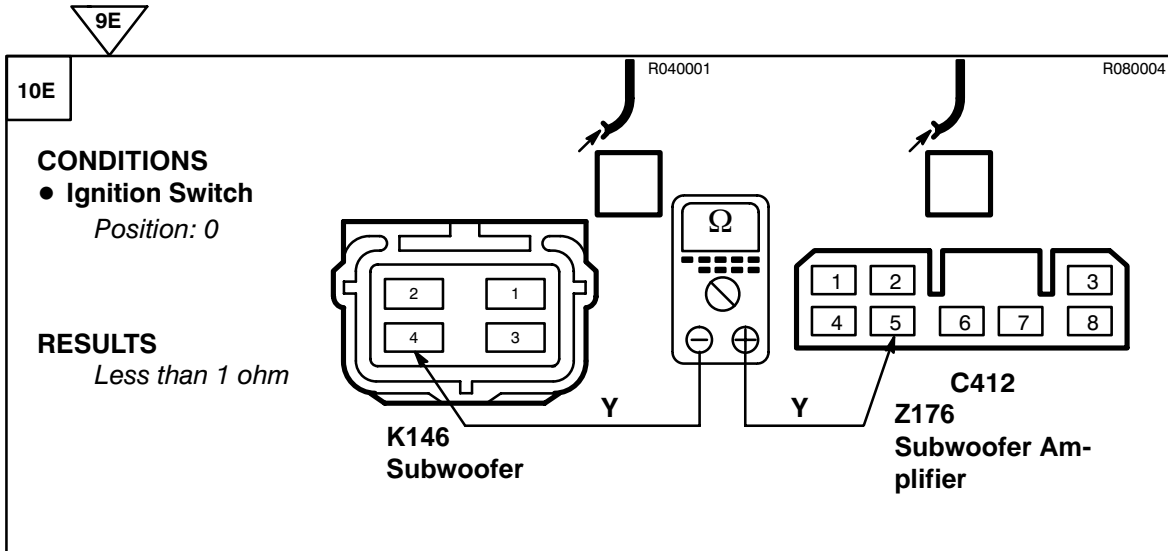
OK



~~OK~~ PROBLEM CAUSE  
- G Wire

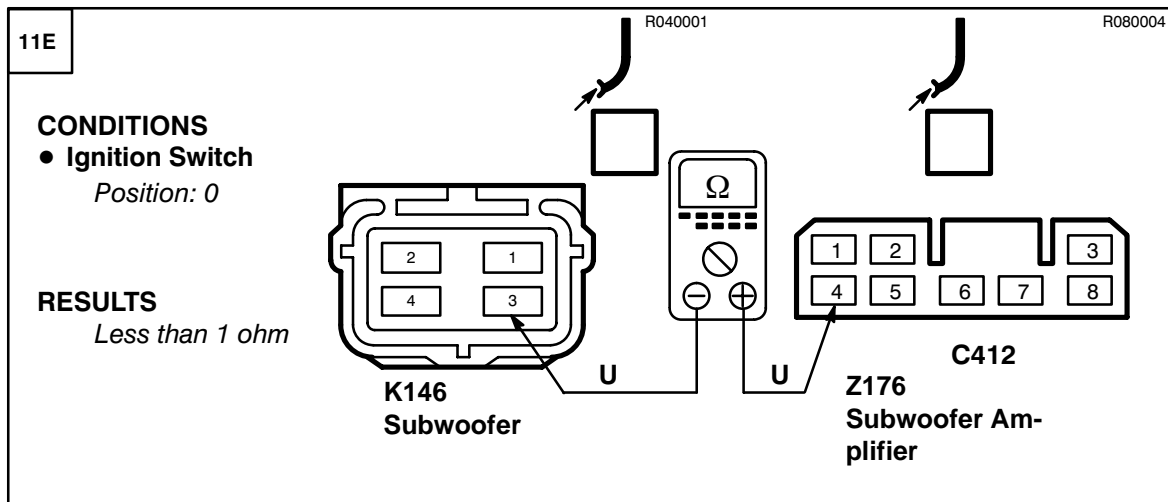
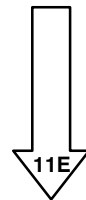
OK





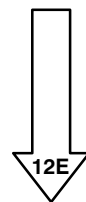
~~OK~~ PROBLEM CAUSE  
 - Y Wire

OK



~~OK~~ PROBLEM CAUSE  
 - U Wire

OK



11E

12E

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Install a known good Subwoofer
- Radio  
*On*

**RESULTS**

- Subwoofer Speakers  
*Operate*

**PROBLEM CAUSE**

- Radio
- Subwoofer Amplifier

**PROBLEM CAUSE**

- Subwoofer



## CIRCUIT OPERATION

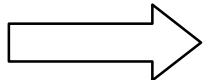
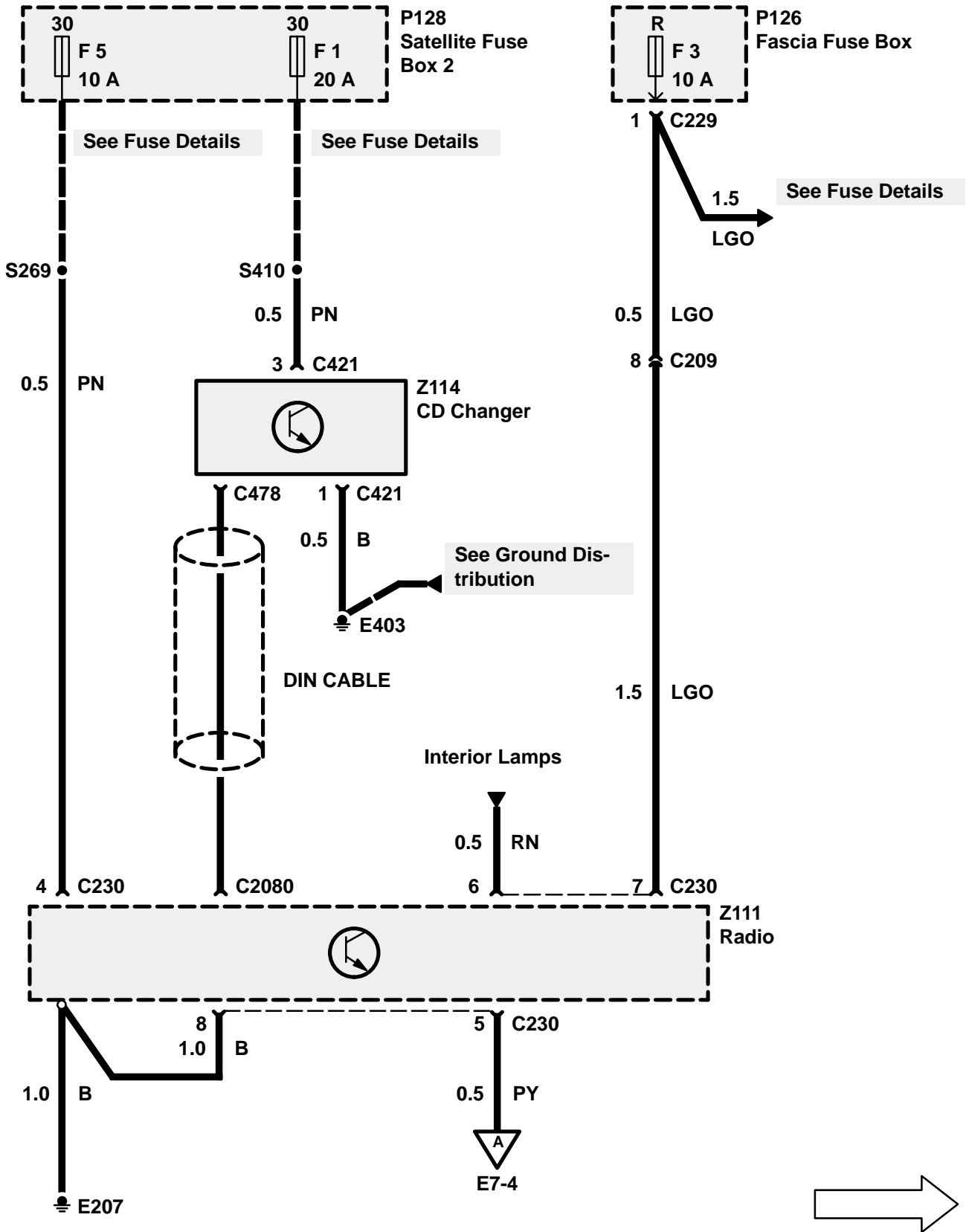
The NAS/JAPAN audio system consists of a new head unit, two Antenna Amplifiers, an Amplifier (Z175), a CD Changer (Z114) and a subwoofer. The control head is equipped with an anti-theft feature which makes the unit inoperative once battery power is removed. A security code must be entered to restore power to the unit. The system is equipped with two rear speakers, two bass front and two midrange front speakers and two front tweeters.

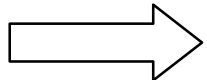
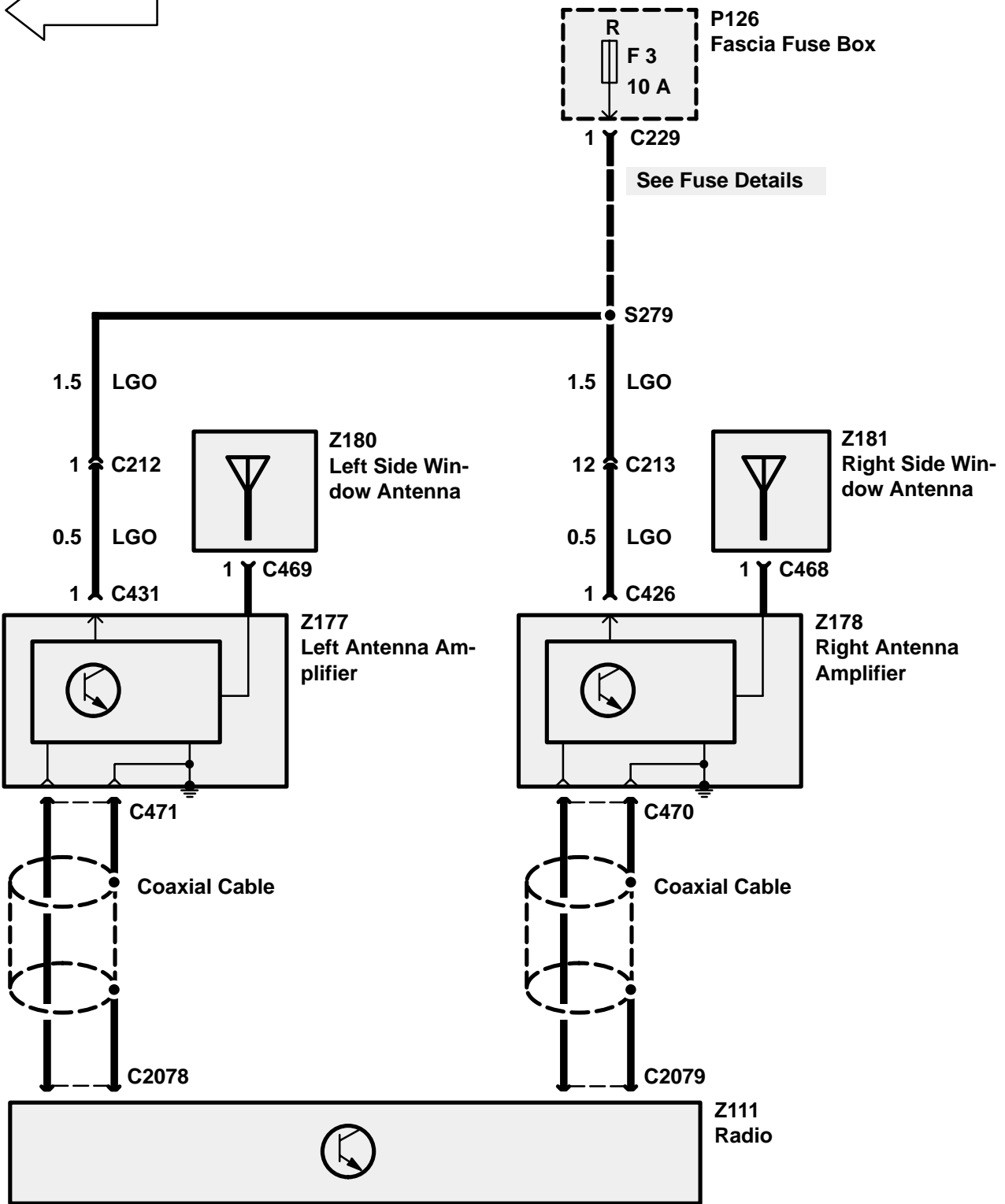
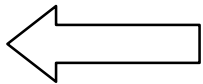
Battery voltage is provided to the control head at all times through the PN wire. In addition to monitoring the anti-theft feature, this input keeps the preset station memory alive. Whenever battery power to the unit is lost, the anti-theft code must be entered and the preset stations must be reprogrammed.

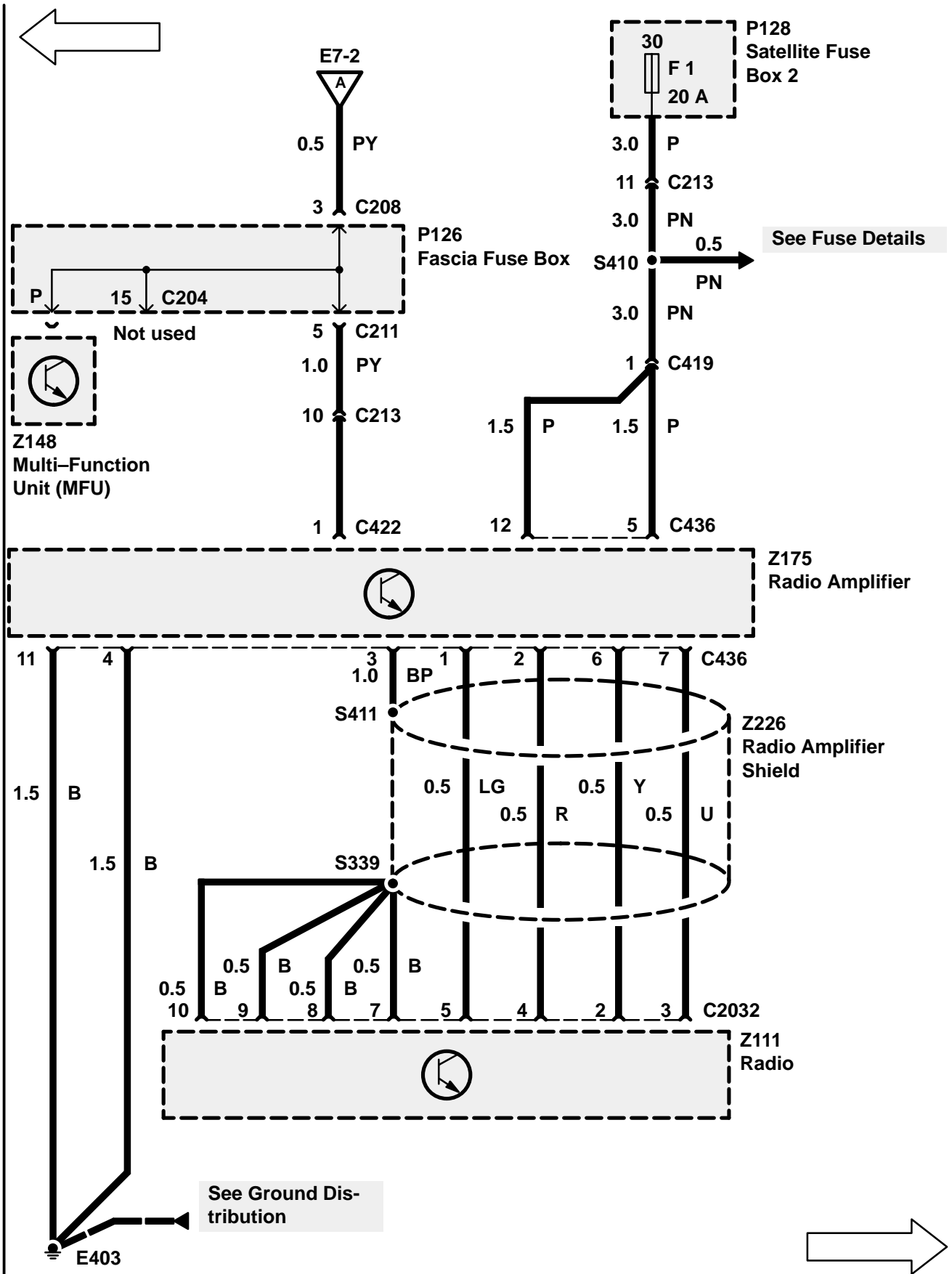
When the Radio (Z111) and the ignition are turned on, the voltage signal through the LGO wire and the control head 'wakes up' the unit. The Radio (Z111) plays, the VF display comes on and the control unit buttons illuminate. The VF display is dimmed when the headlights or park lights are turned on. When the lights are on, voltage from fuse F8 of the Fascia Fusebox (P126) is applied to the Radio (Z111) terminal 6, Connector 230 signalling the Radio (Z111) to dim the display. Radio (Z111) signals are received via a coaxial cable from the side screens and Antenna Amplifiers. The amplifier filters and boosts the signal from the rear side screens.

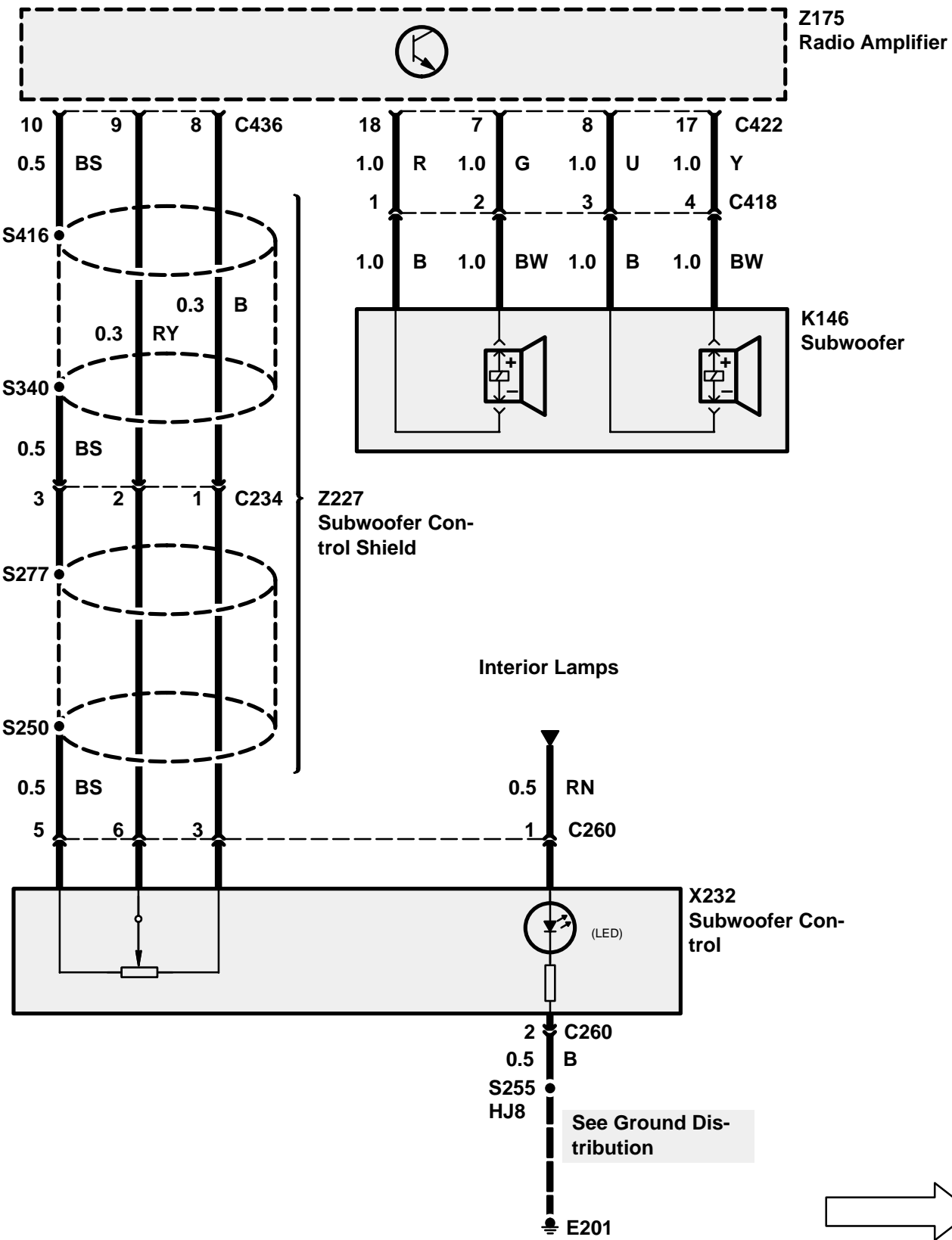
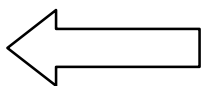
Power is available to the CD Changer (Z114) at all times. It is operated from the control head when 'CD' is selected. The control head communicates with the Changer (Z114) via a DIN cable.

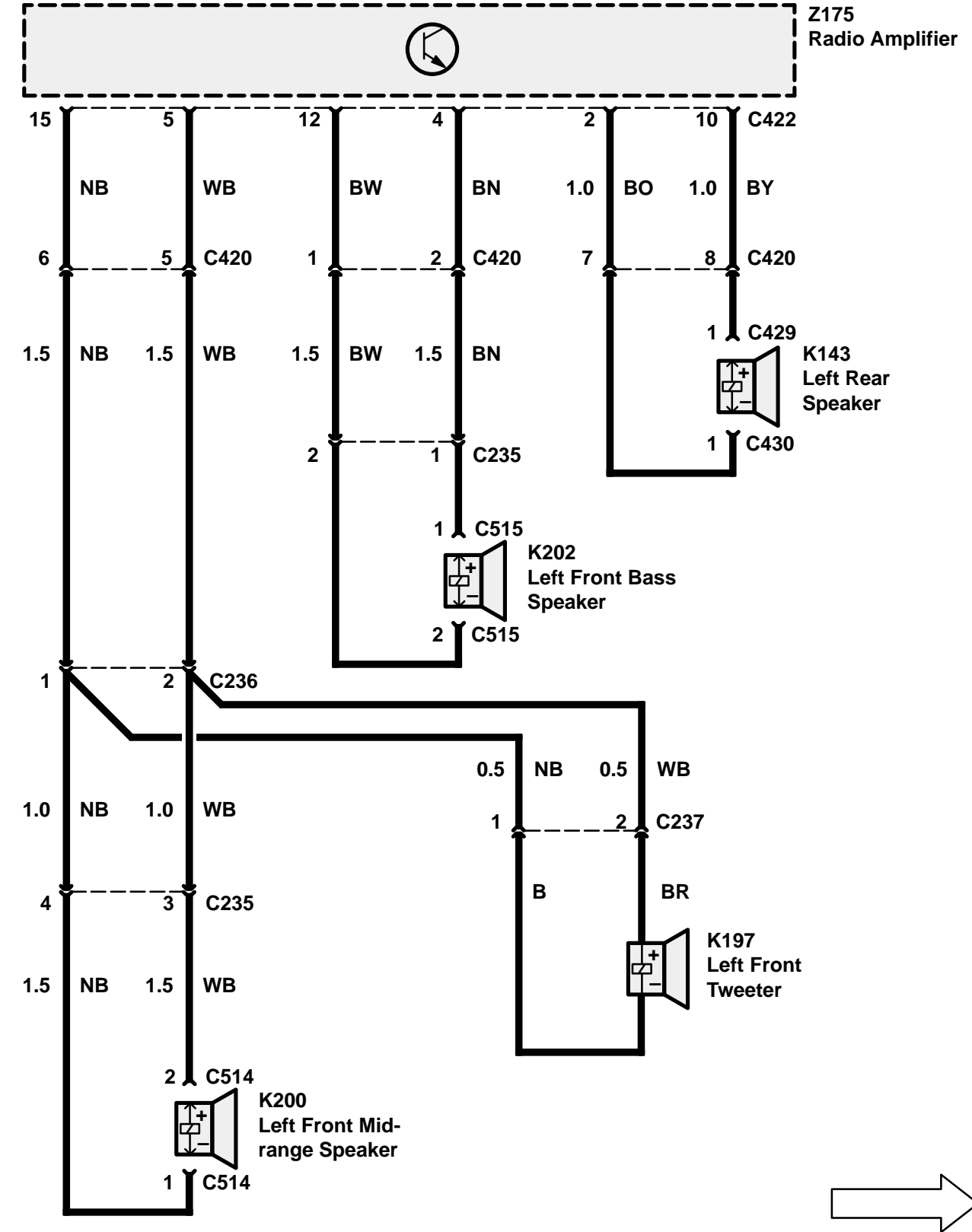
The amplifier receives power with the ignition on. It is enabled when the Radio (Z111) is turned on, sending a voltage signal through the PY wire.

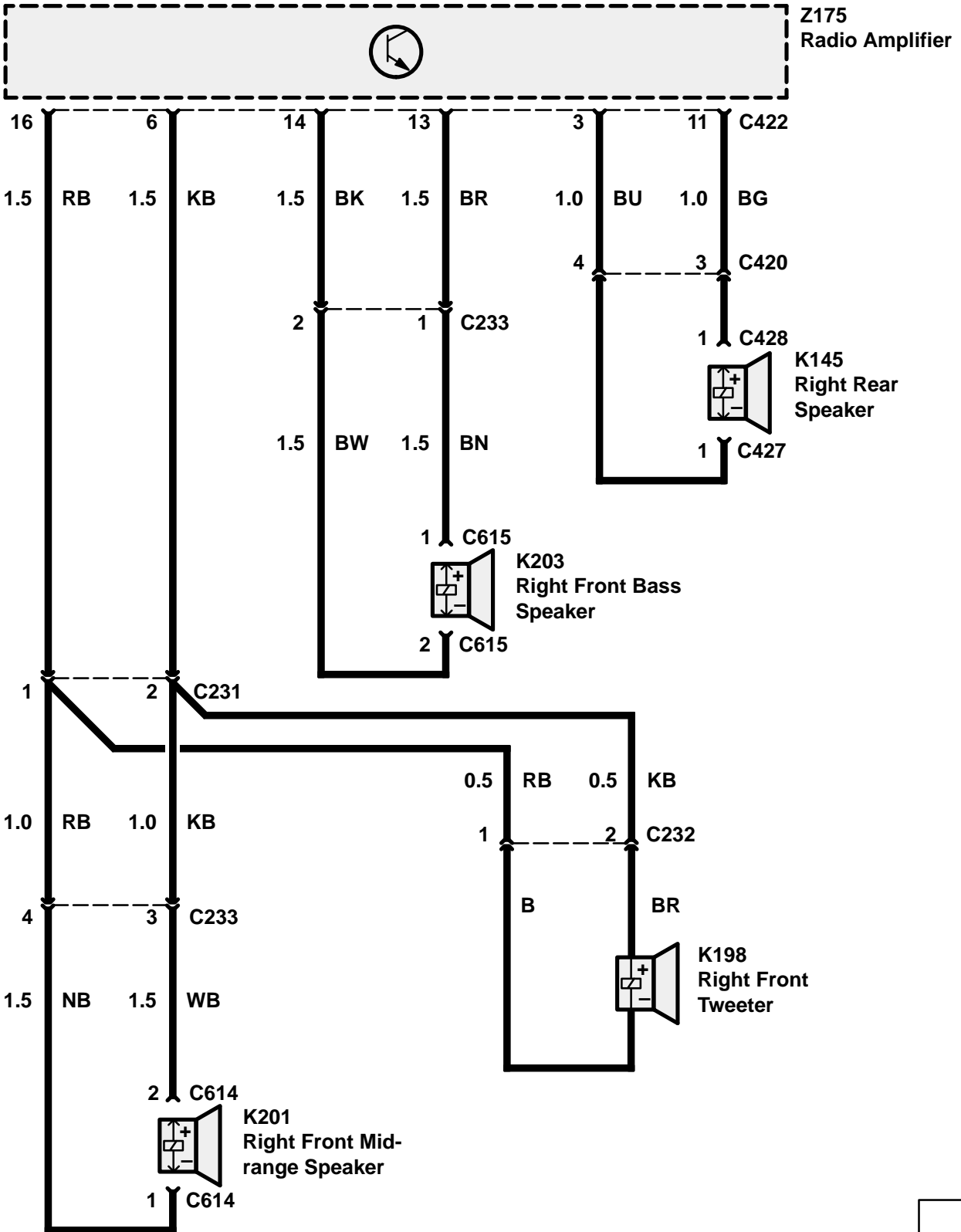
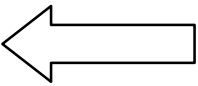












**TROUBLESHOOTING HINTS**

39. Check fuses F5 and F1 of Satellite Fusebox 2, and fuse F3 of Fascia Fusbox.
40. Check that Radio (Z111) connectors and coaxial cable are tight and properly connected.
41. For proper Radio (Z111) noise diagnosis, take the vehicle outside where signals are strong. Close the hood and keep away from metal buildings or other sources of Radio interference.
42. If Radio (Z111) noise is excessive when an accessory is on, install a Radio noise suppression capacitor to the power lead of that accessory.
43. If Radio (Z111) noise is excessive at all times, check antenna wiring. If OK, check spark plugs (P118), spark plug wiring and wiring close to the ignition system which could transmit noise to the Radio wiring.
44. If the Radio (Z111) is inoperative and 'code' is being shown on the display, follow the instructions below.

**Security Code Instructions**

1. Obtain 5-digit security code from vehicle owner or manufacturer.
2. Enter the code number using the Radio (Z111) push-button selectors.

NOTE: If the correct code is not entered in 3 successive attempts, the Radio (Z111) will not accept another entry until the Radio has been left on for 1 hour with the ignition on.

NOTE: When entering the code, be sure to complete the sequence numbering of that 5-digit code even if you made a mistake. For example, if the correct code number sequence is 43215 and you mistakenly enter 42 instead of 43, continue the code number sequence of 215 to complete that entry. A 'beep' will sound, 'code' will still be displayed and the Radio will not operate. Re-enter the correct code 43215 and the Radio will operate.

NOTE: If an audible 'beep' is heard while entering the code, STOP immediately. Begin entering the code again, starting with the first number of the 5-digit code.

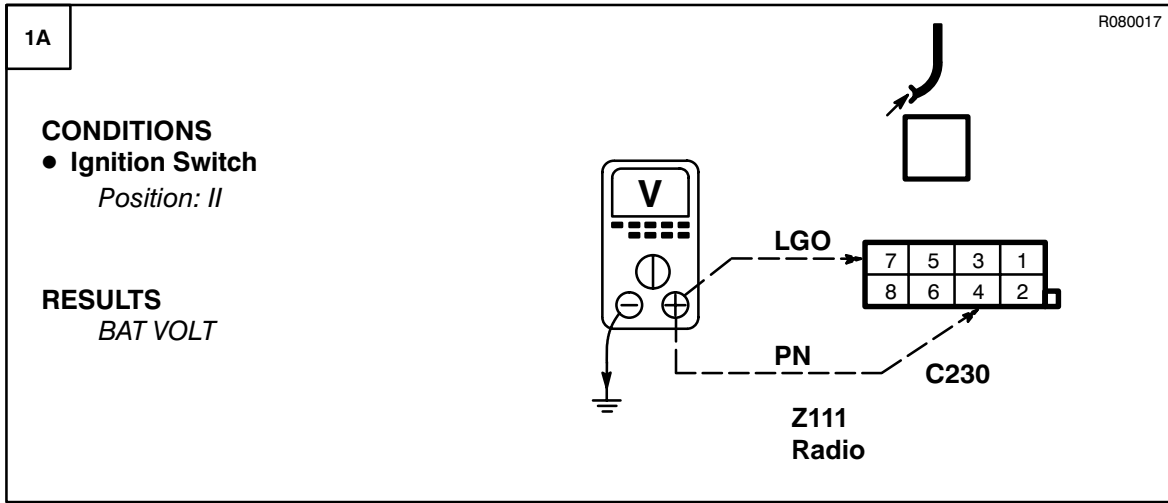
NOTE: If a push-button is touched accidentally when the ignition is off, a warning tone will sound. Turn the ignition on and the tone will stop.

**SYSTEM DIAGNOSIS**

1. If Radio (Z111) and cassette do not operate at all, do Test A.
2. If Radio (Z111) scans past all frequencies when in seek mode and hiss is present over most stations, do Test B.
3. If VF display intensity does not dim when the headlights are on, do Test C.
4. If one or more (but not all) speakers do not operate, do Test D.
5. If only the CD Changer (Z114) does not operate, do Test E.
6. If the Subwoofer (K146) does not operate, do Test F.
7. If the subwoofer control does not dim when the headlights are on, do test G.

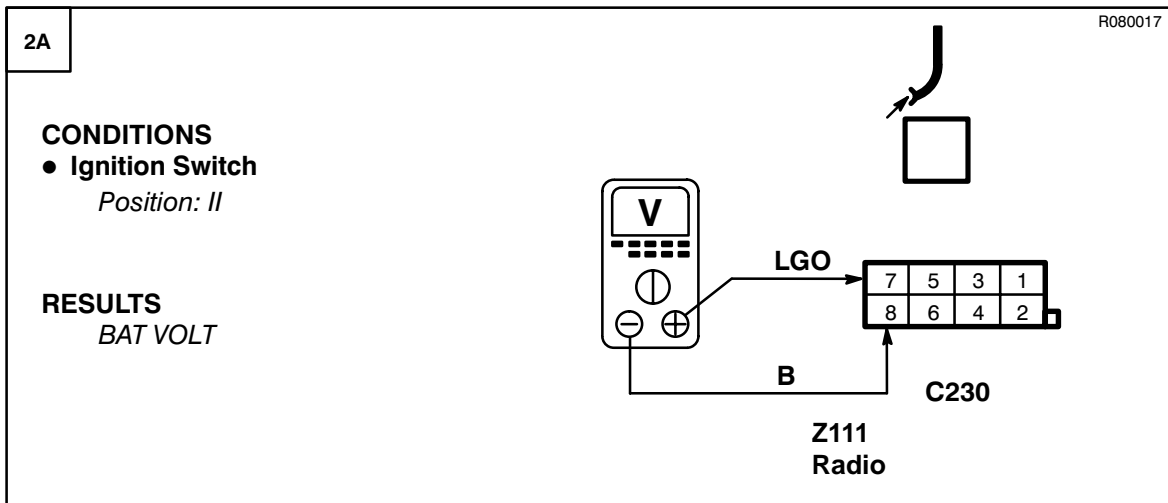
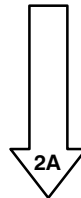


**Test A**



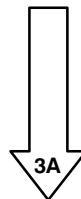
**PROBLEM CAUSE**

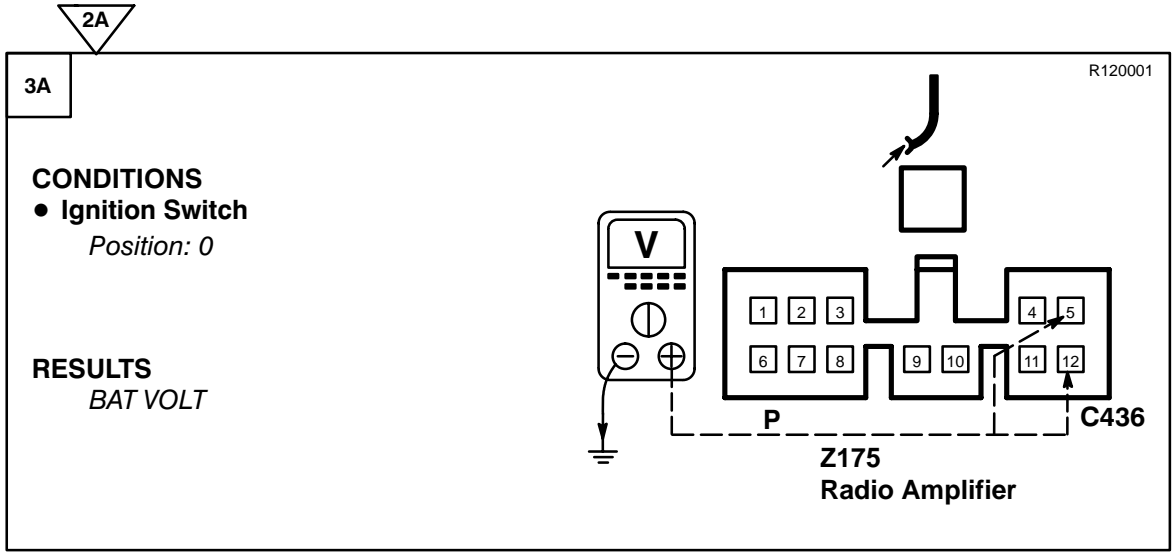
- PN Wire
- LGO Wire
- F5 Fuse
- F3 Fuse



**PROBLEM CAUSE**

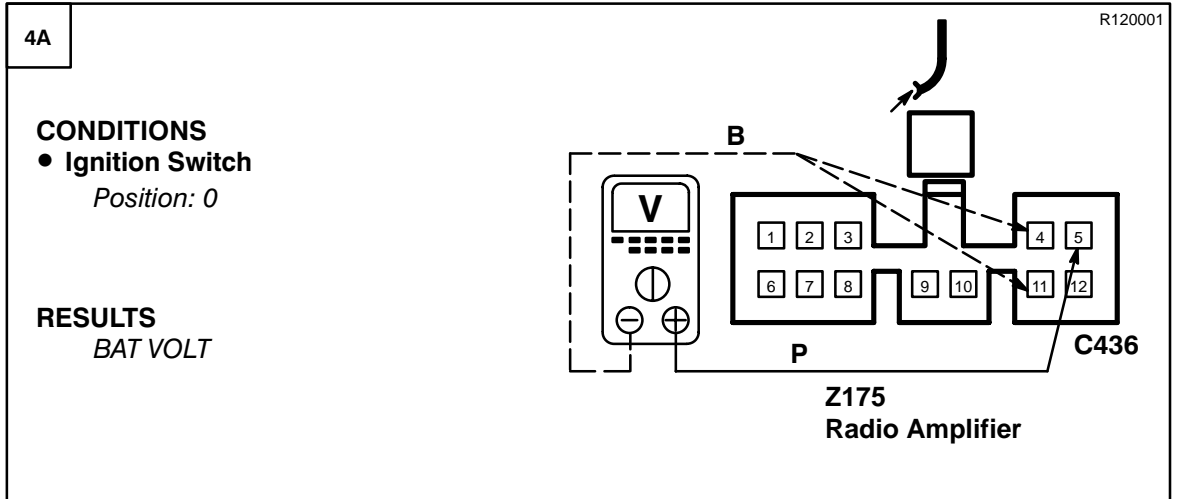
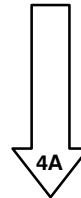
- B Wire





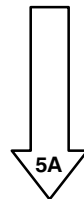
**PROBLEM CAUSE**

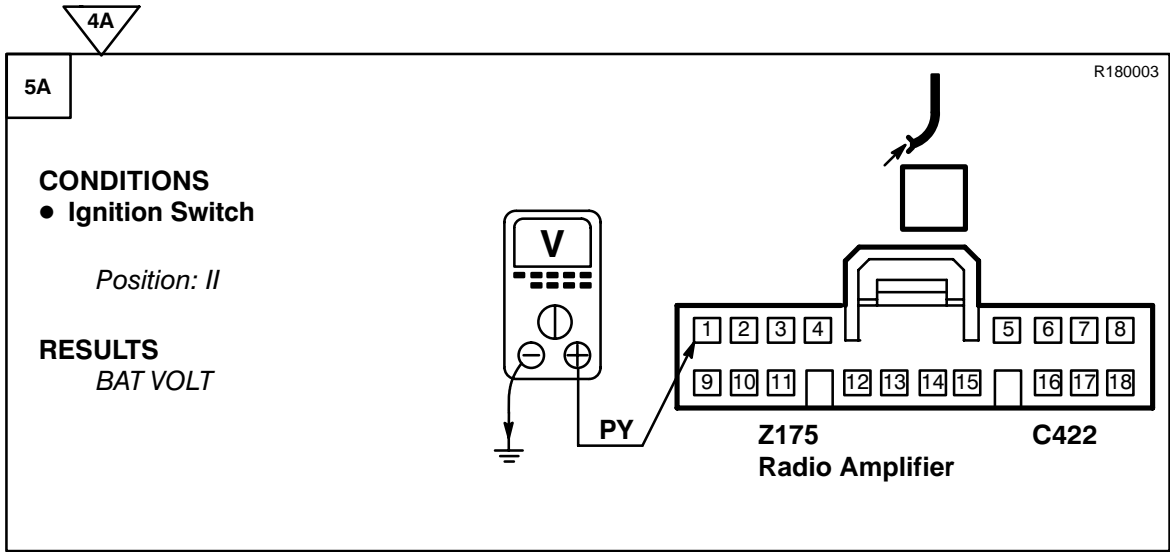
- PN Wire
- F1 Fuse
- P Wire



**PROBLEM CAUSE**

- B Wire



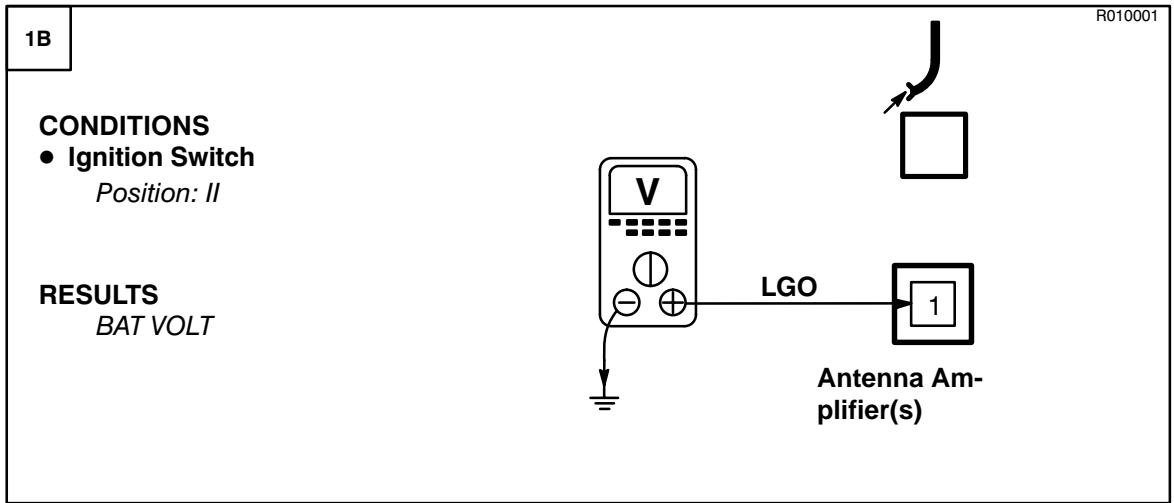


- PROBLEM CAUSE**
- PY Wire
  - Radio
  - Fascia Fuse Box



- PROBLEM CAUSE**
- Radio Amplifier

**Test B**



**PROBLEM CAUSE**

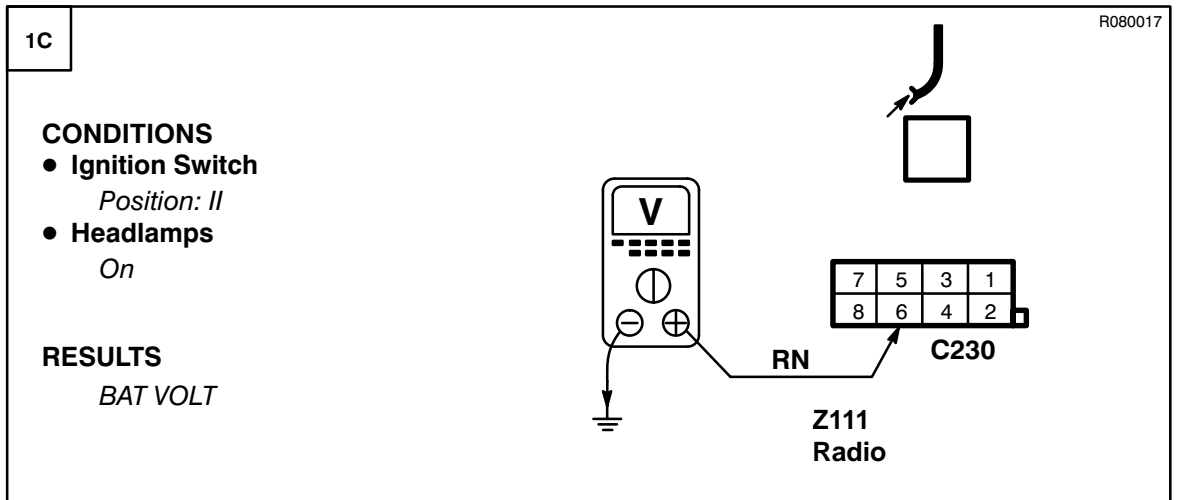
- LGO Wire



**PROBLEM CAUSE**

- Coaxial Cable
- Radio
- Antenna Amplifier(s)

**Test C**



**PROBLEM CAUSE**

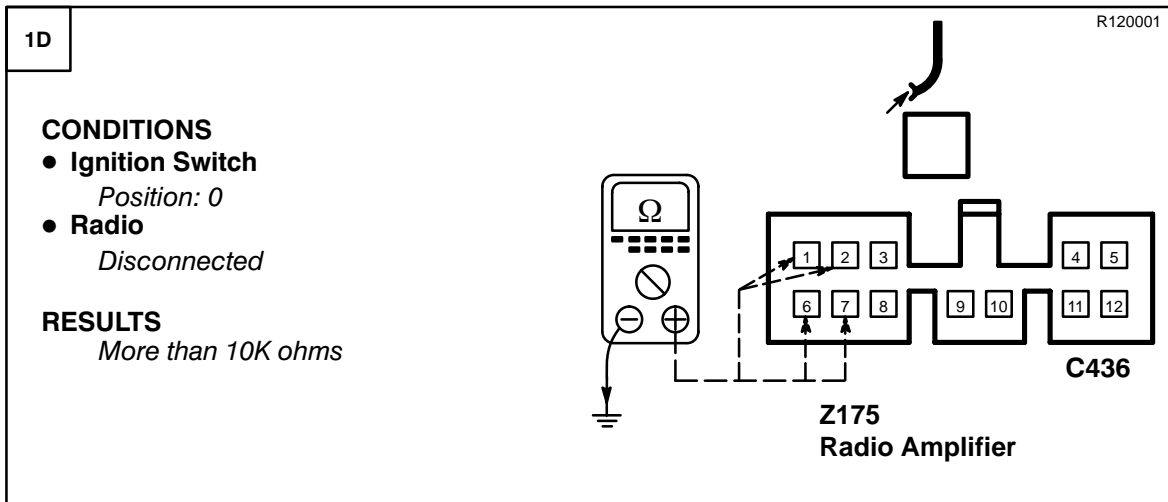
- RN Wire



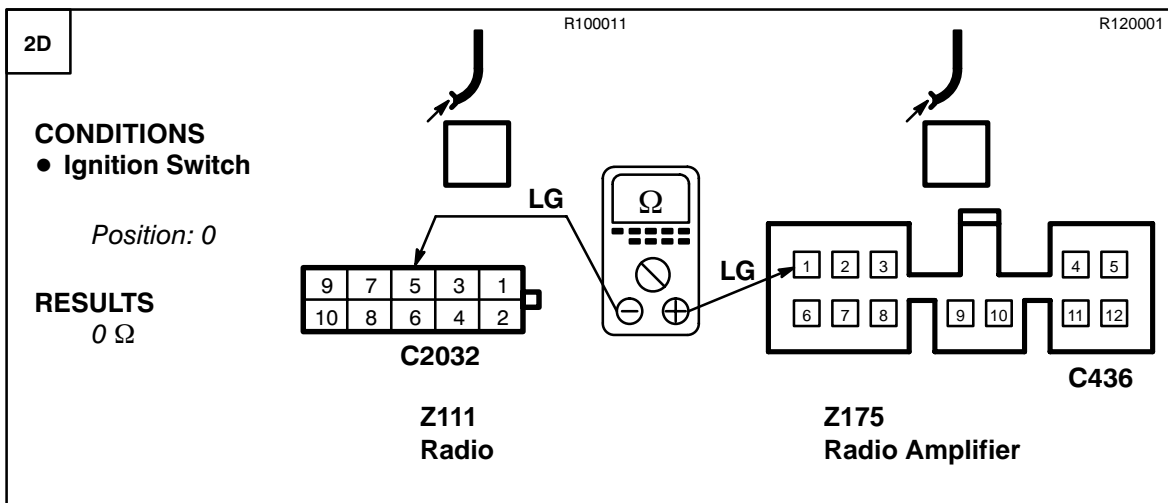
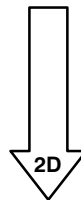
**PROBLEM CAUSE**

- Radio

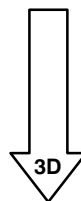
**Test D**

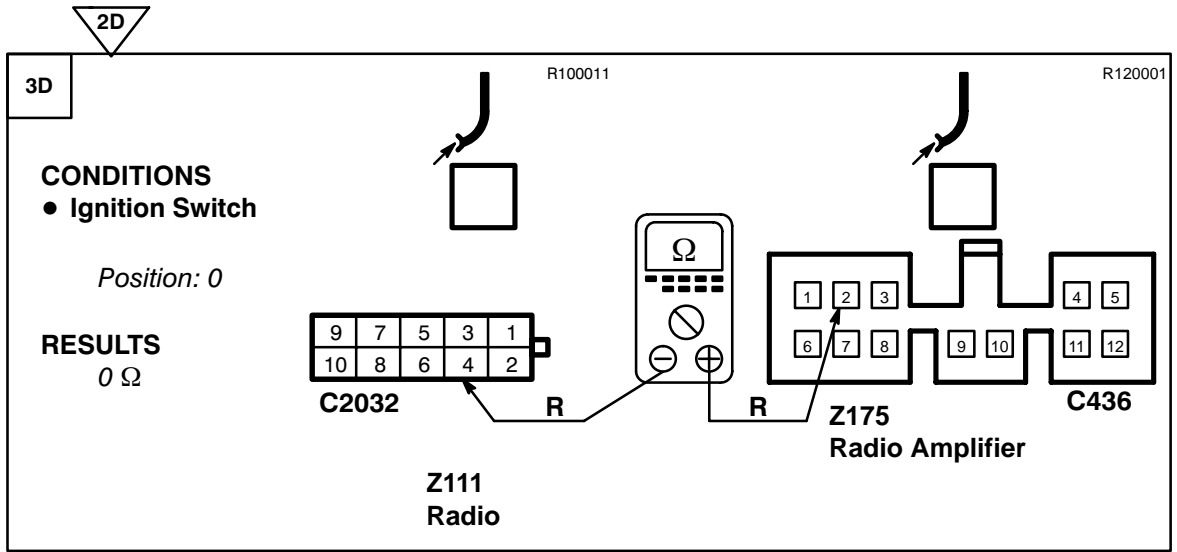


**PROBLEM CAUSE**  
- Wire (short)

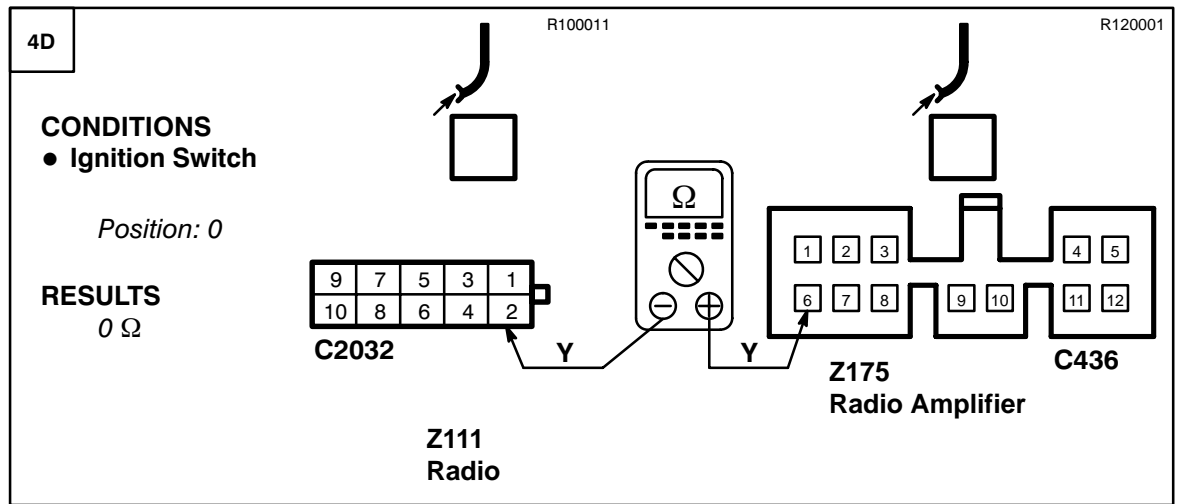
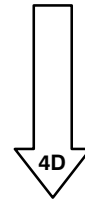


**PROBLEM CAUSE**  
- LG Wire

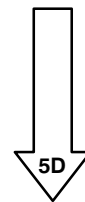


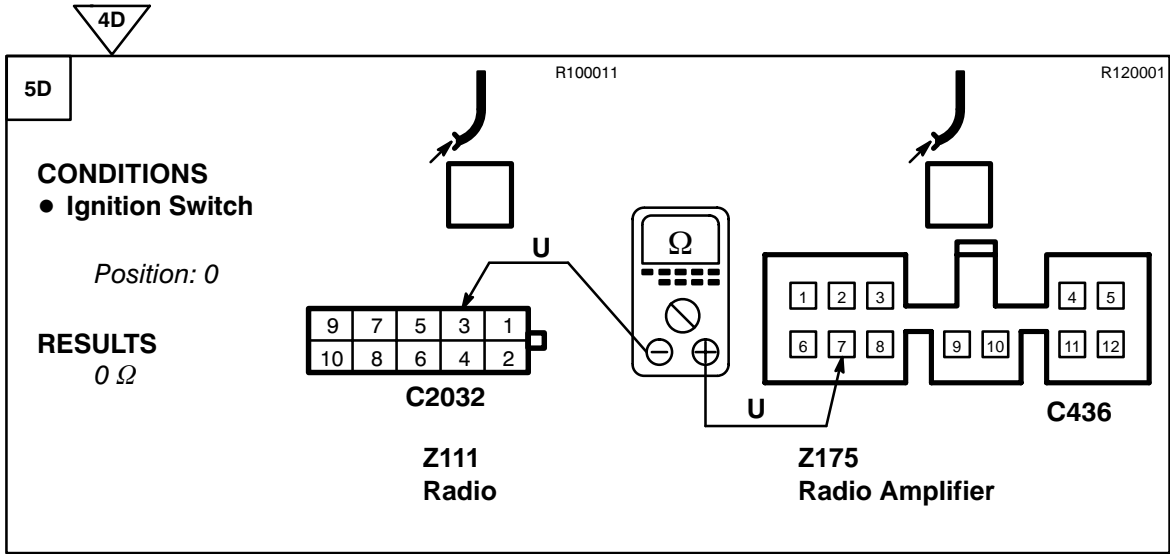


**PROBLEM CAUSE**  
- R Wire

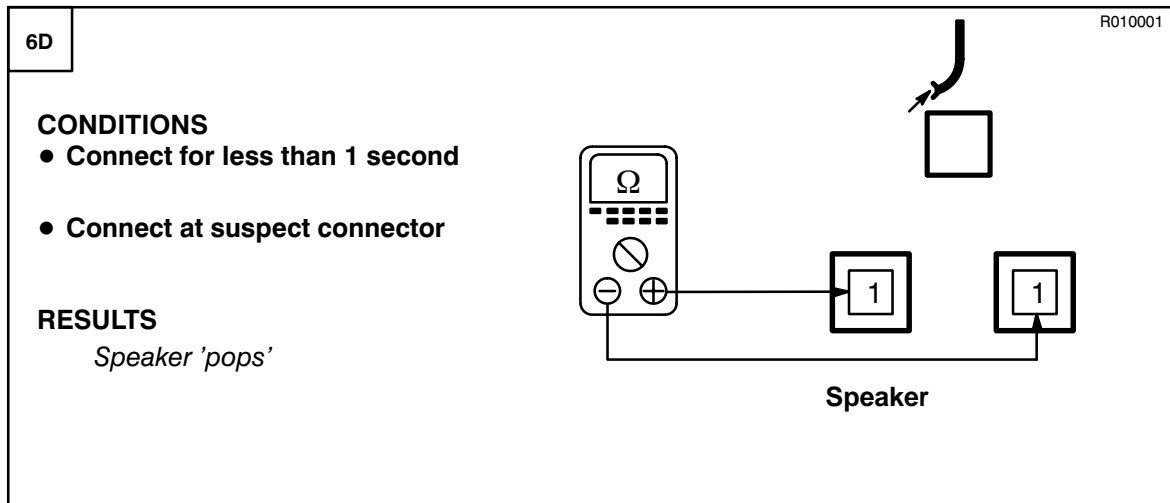
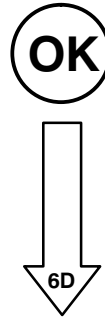


**PROBLEM CAUSE**  
- Y Wire





~~OK~~ PROBLEM CAUSE  
- U Wire



~~OK~~ PROBLEM CAUSE  
- Speaker

OK PROBLEM CAUSE  
- Speaker Wiring  
- Radio Amplifier

Test E

1E

R030029

**CONDITIONS**

- Ignition Switch  
*Position: II*

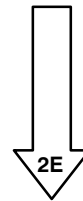
**RESULTS**  
*BAT VOLT*

PN

Z114  
CD Changer



**PROBLEM CAUSE**  
- PN Wire



2E

R030029

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

PN

B

Z114  
CD Changer



**PROBLEM CAUSE**  
- B Wire



**PROBLEM CAUSE**  
- DIN CABLE  
- CD Changer  
  
- Radio



**Test F**

1F

R060002

**CONDITIONS**

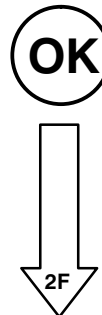
- Ignition Switch  
*Position: 0*
- Amplifier  
*Disconnected*

**RESULTS**  
*More than 10K ohms*

**X232  
Subwoofer Control**

~~OK~~ **PROBLEM CAUSE**

- RY Wire
- B Wire



2F

R120001

R060002

**CONDITIONS**

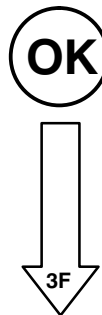
- Ignition Switch  
*Position: 0*

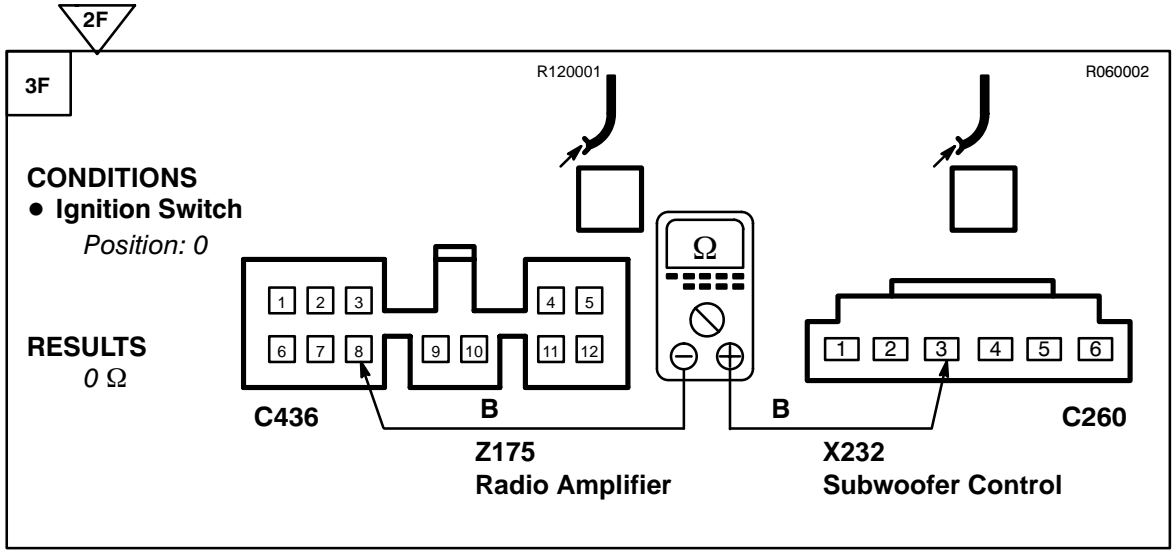
**RESULTS**  
*0 Ω*

**C436**      **Z175  
Radio Amplifier**      **X232  
Subwoofer Control**

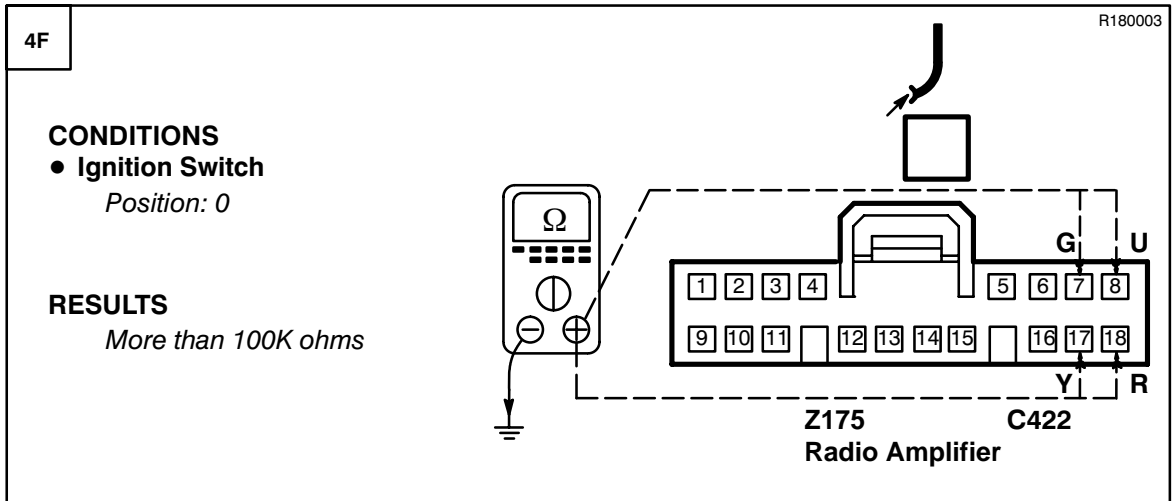
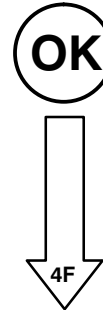
~~OK~~ **PROBLEM CAUSE**

- RY Wire

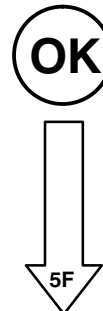


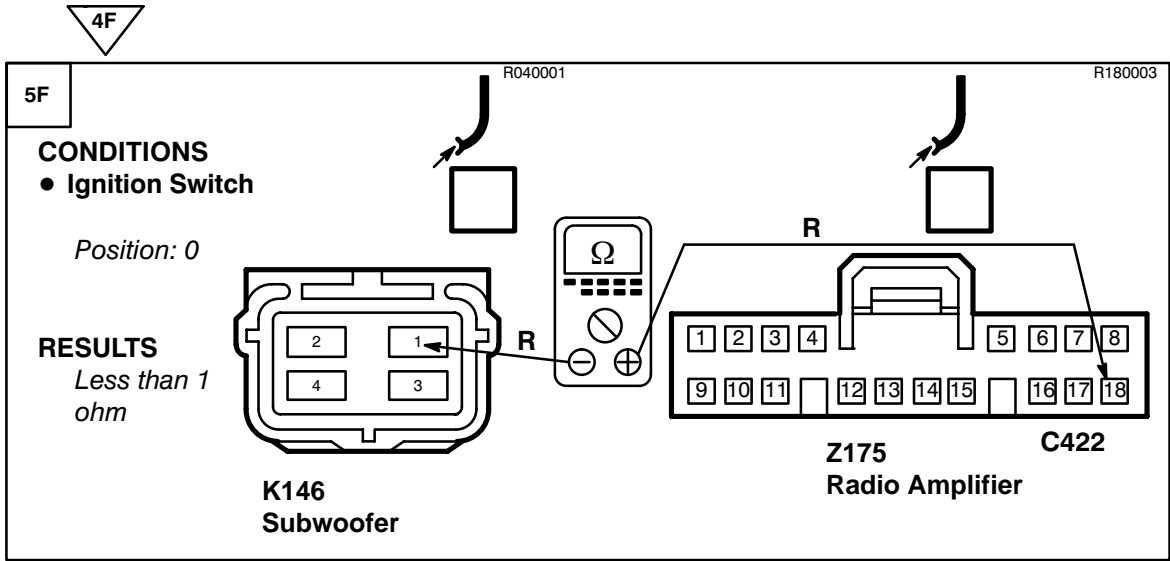


**OK** PROBLEM CAUSE  
 - B Wire



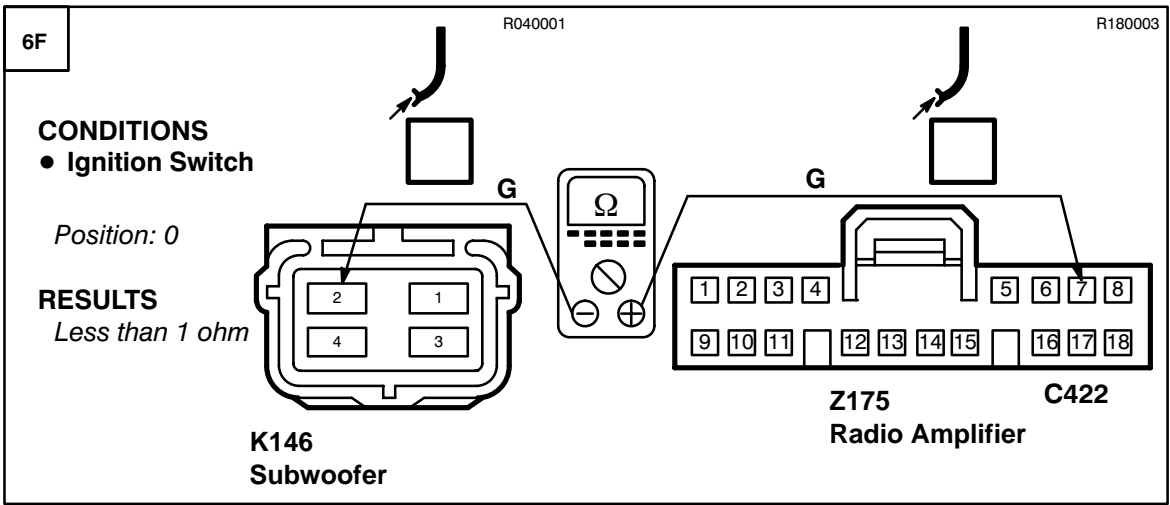
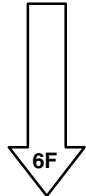
**OK** PROBLEM CAUSE  
 - Wire (short)  
 - Subwoofer





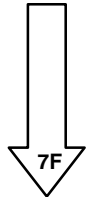
~~OK~~ **PROBLEM CAUSE**  
- R Wire

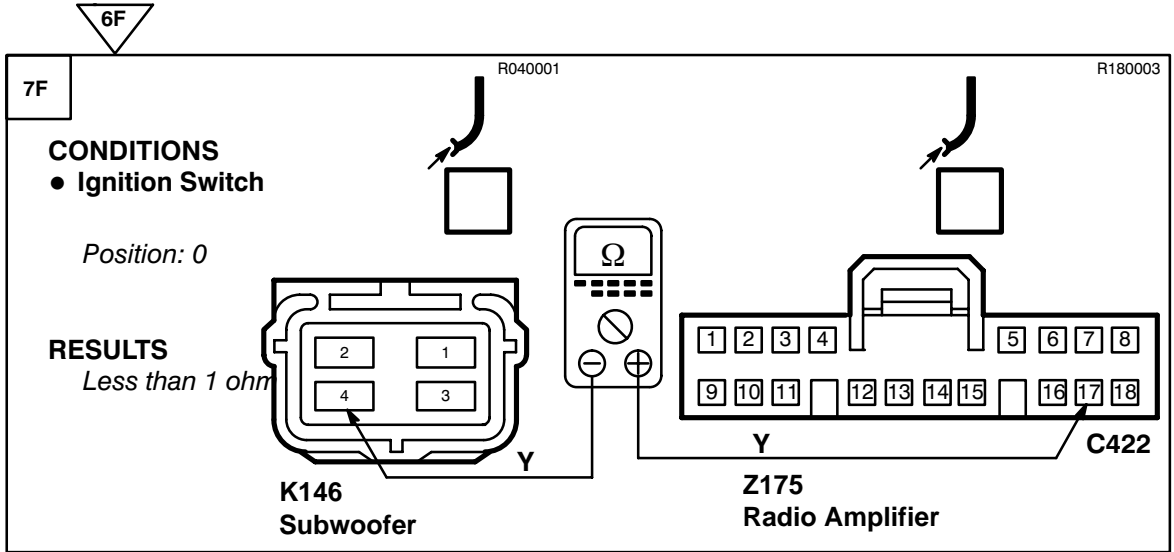
**OK**



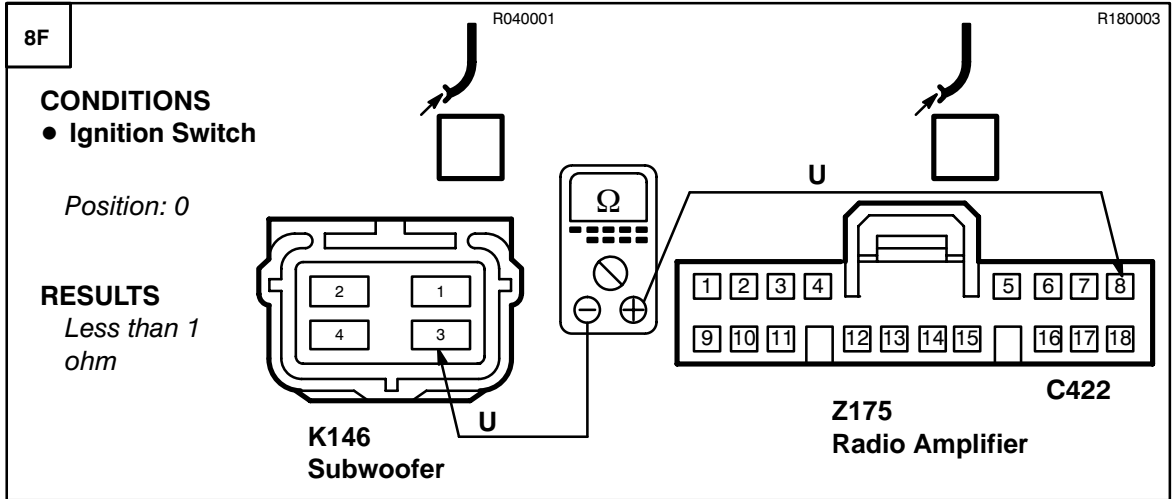
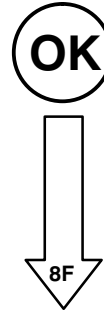
~~OK~~ **PROBLEM CAUSE**  
- G Wire

**OK**

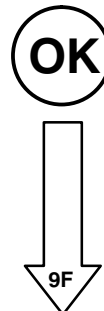




~~OK~~ PROBLEM CAUSE  
- Y Wire



~~OK~~ PROBLEM CAUSE  
- U Wire



8F

9F

R060002

**CONDITIONS**

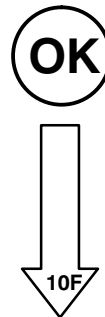
- Ignition Switch  
*Position: 0*

**RESULTS**

*Less than 1 ohm*

X232  
Subwoofer Control  
C260

~~OK~~ PROBLEM CAUSE  
- B Wire



10F

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Install a known good Subwoofer
- Radio  
*On*

**RESULTS**

- Subwoofer Speakers  
*Operate*

~~OK~~ PROBLEM CAUSE  
- Radio Amplifier  
- Subwoofer Control

OK PROBLEM CAUSE  
- Subwoofer

**Test G**

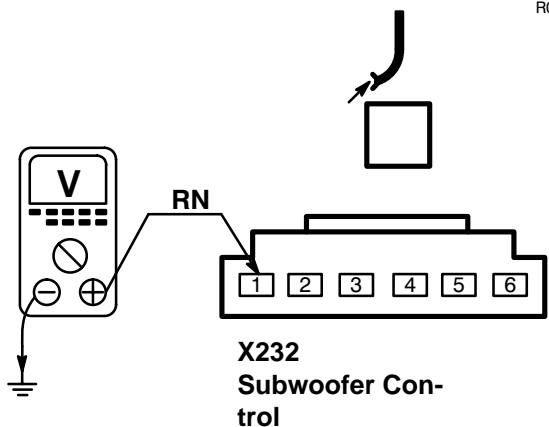
1G

**CONDITIONS**

- Ignition Switch  
*Position: I*
- Headlamps  
*With Subwoofer*

**RESULTS**  
*BAT VOLT*

R060002



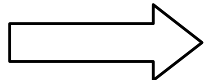
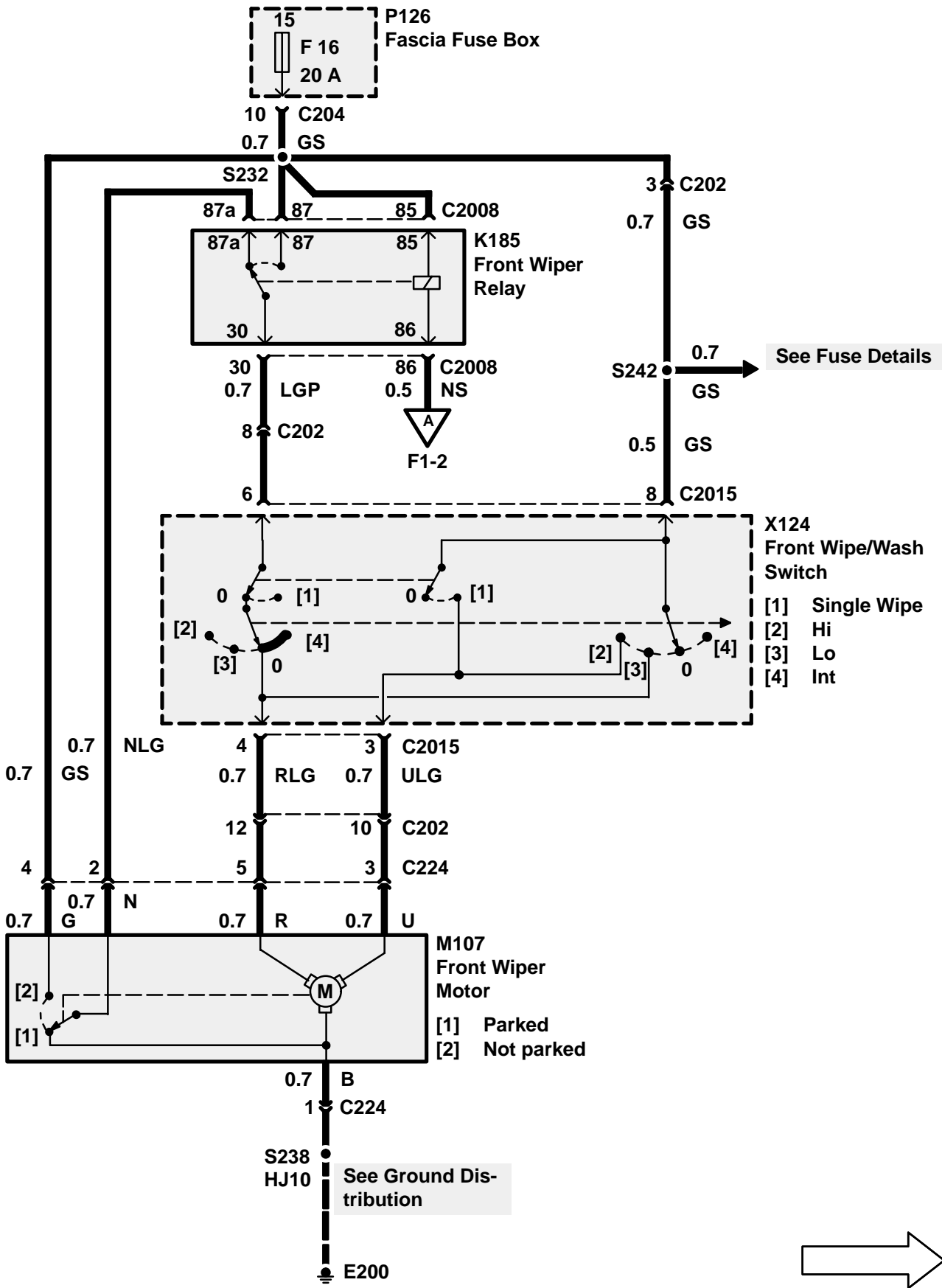
**X232  
Subwoofer Control**



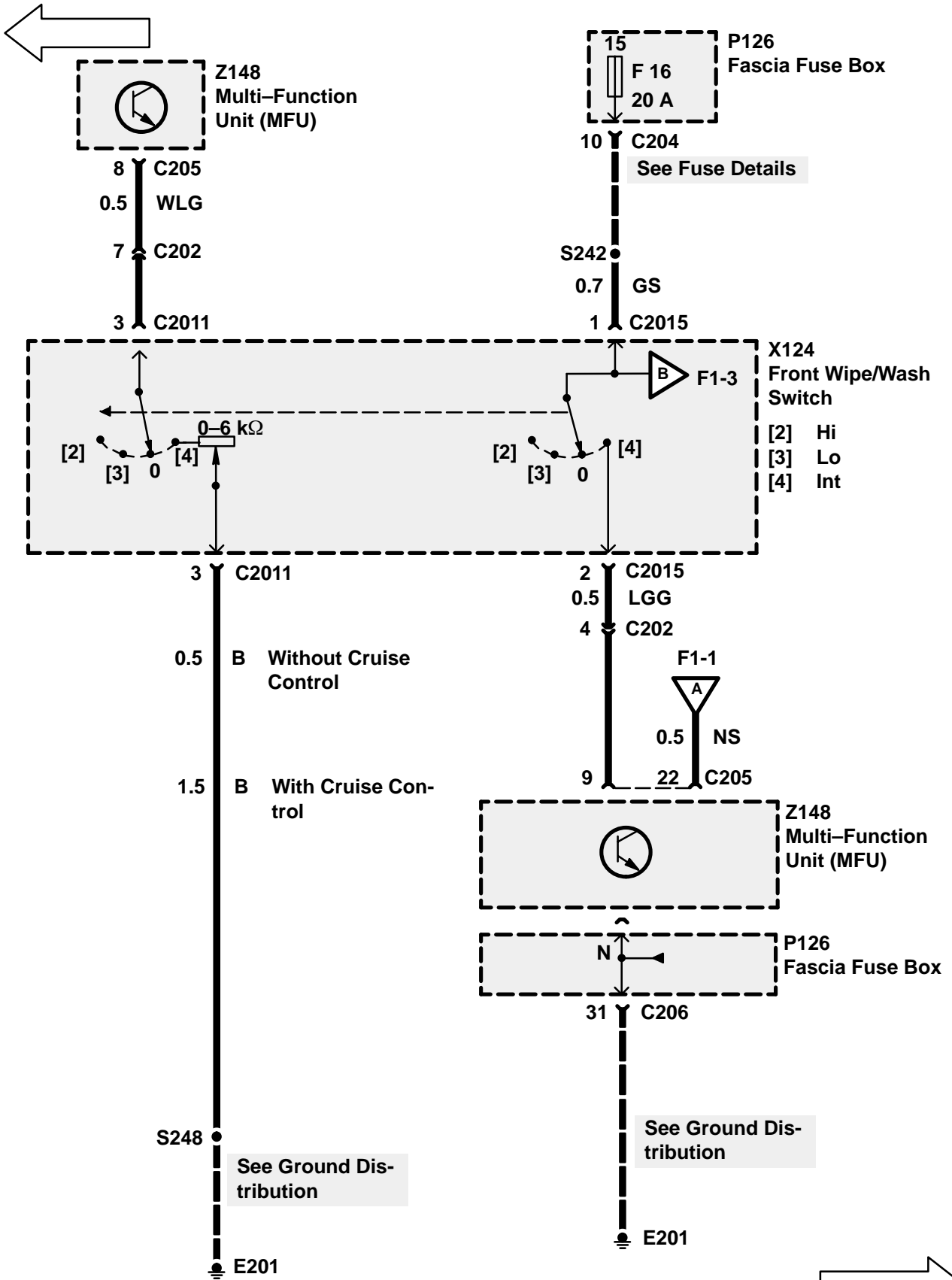
**PROBLEM CAUSE**  
- RN Wire



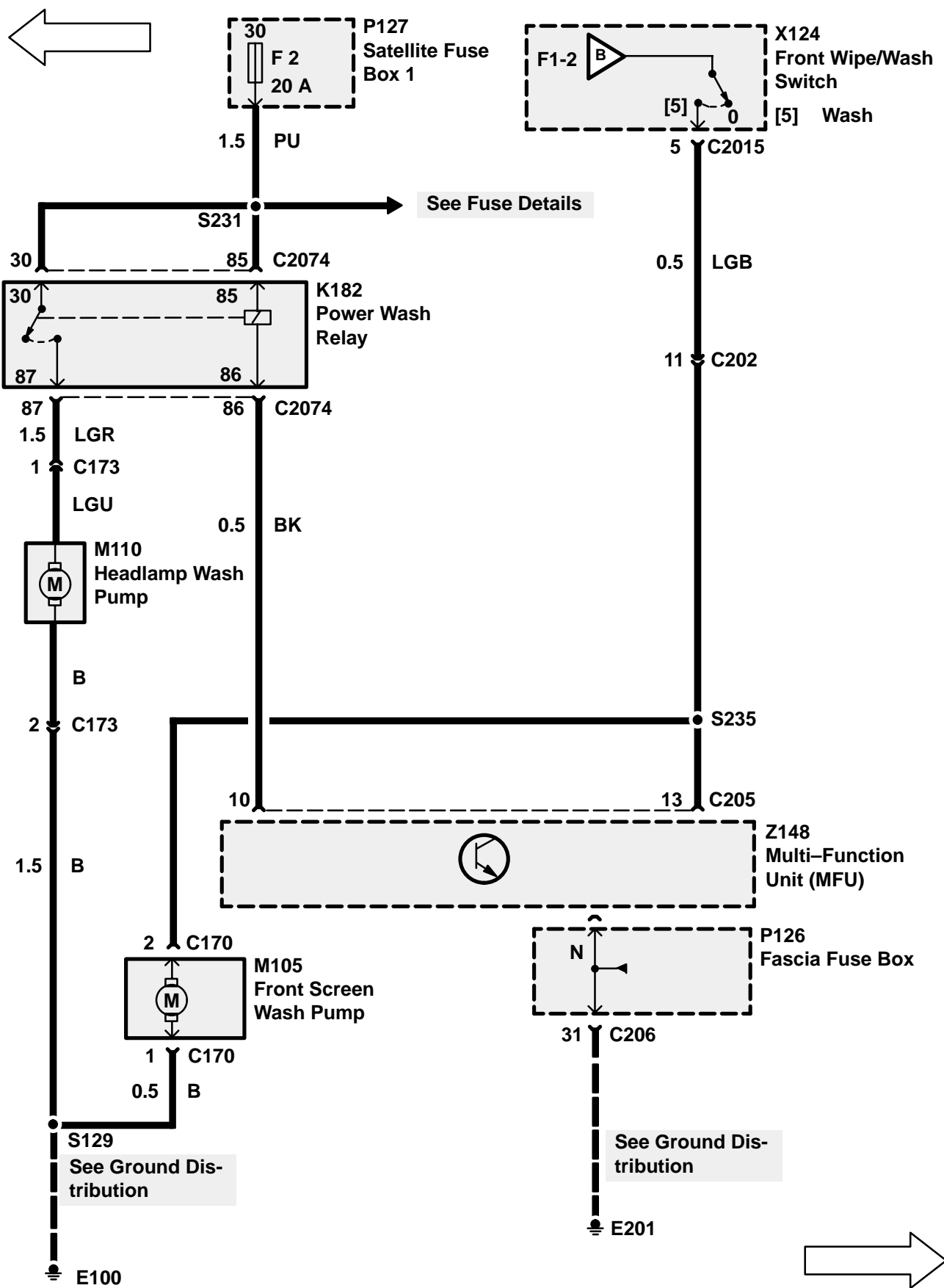
**PROBLEM CAUSE**  
- Subwoofer Control

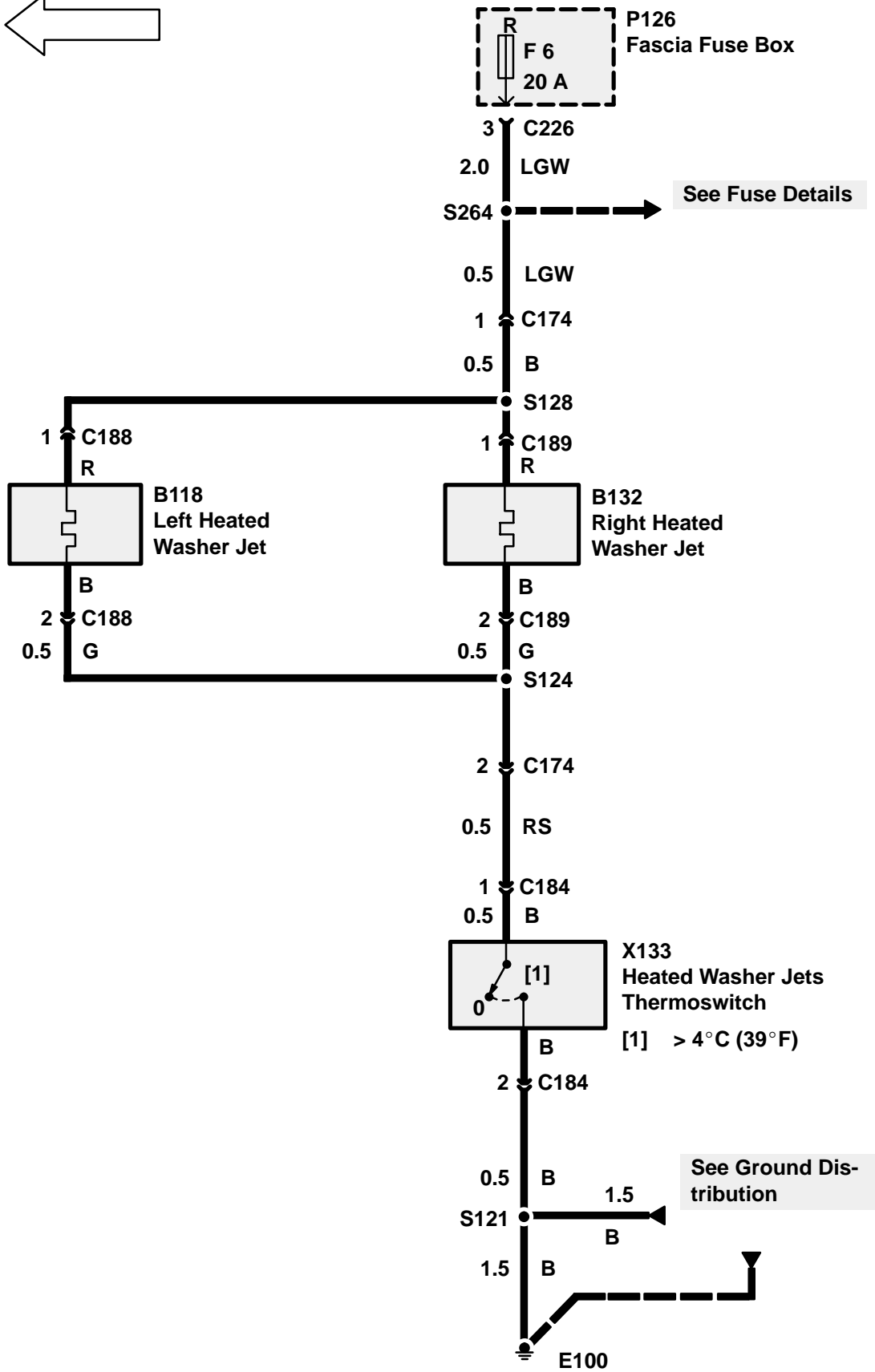
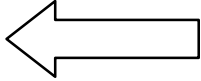


# F1 ETM







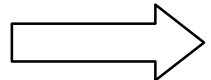
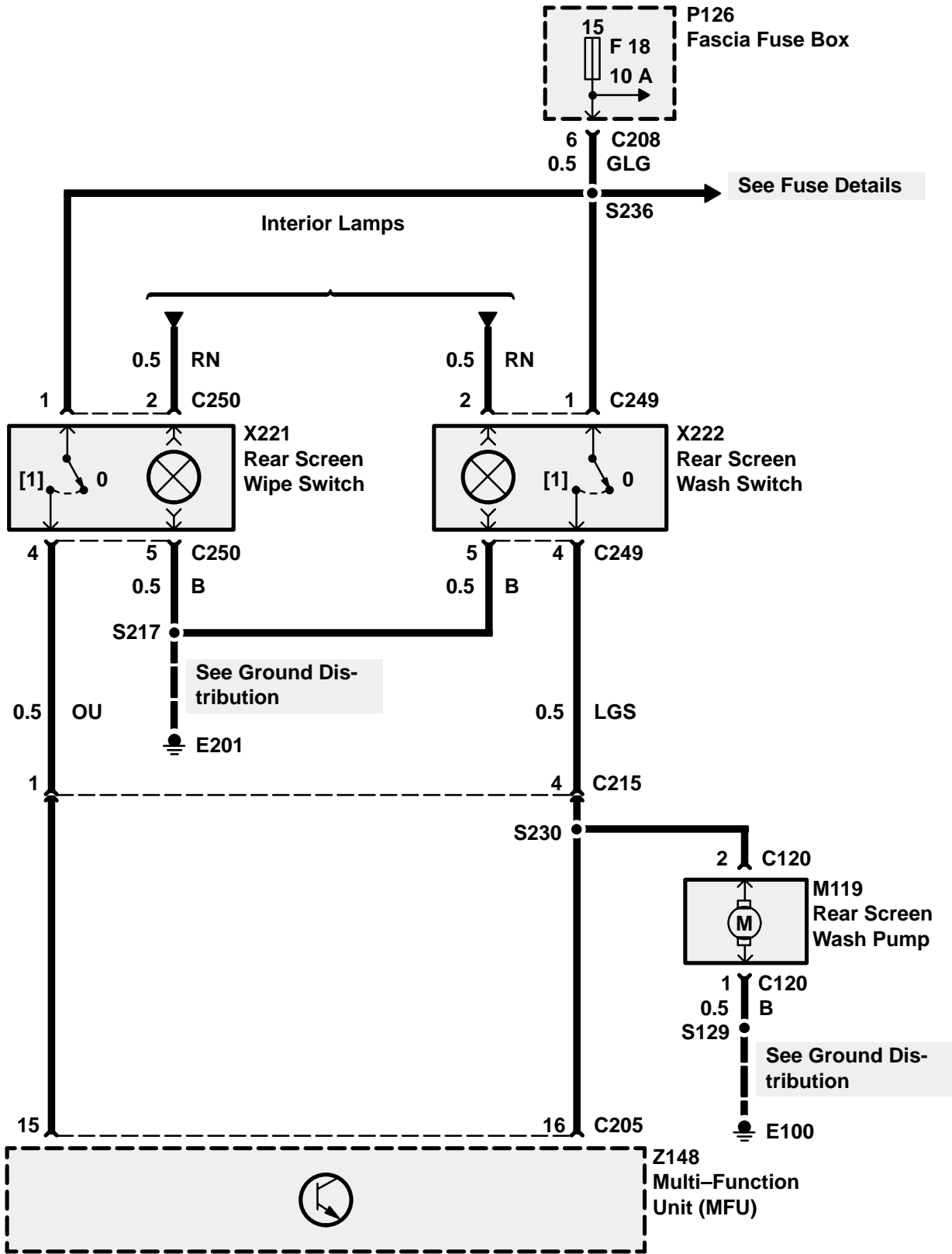


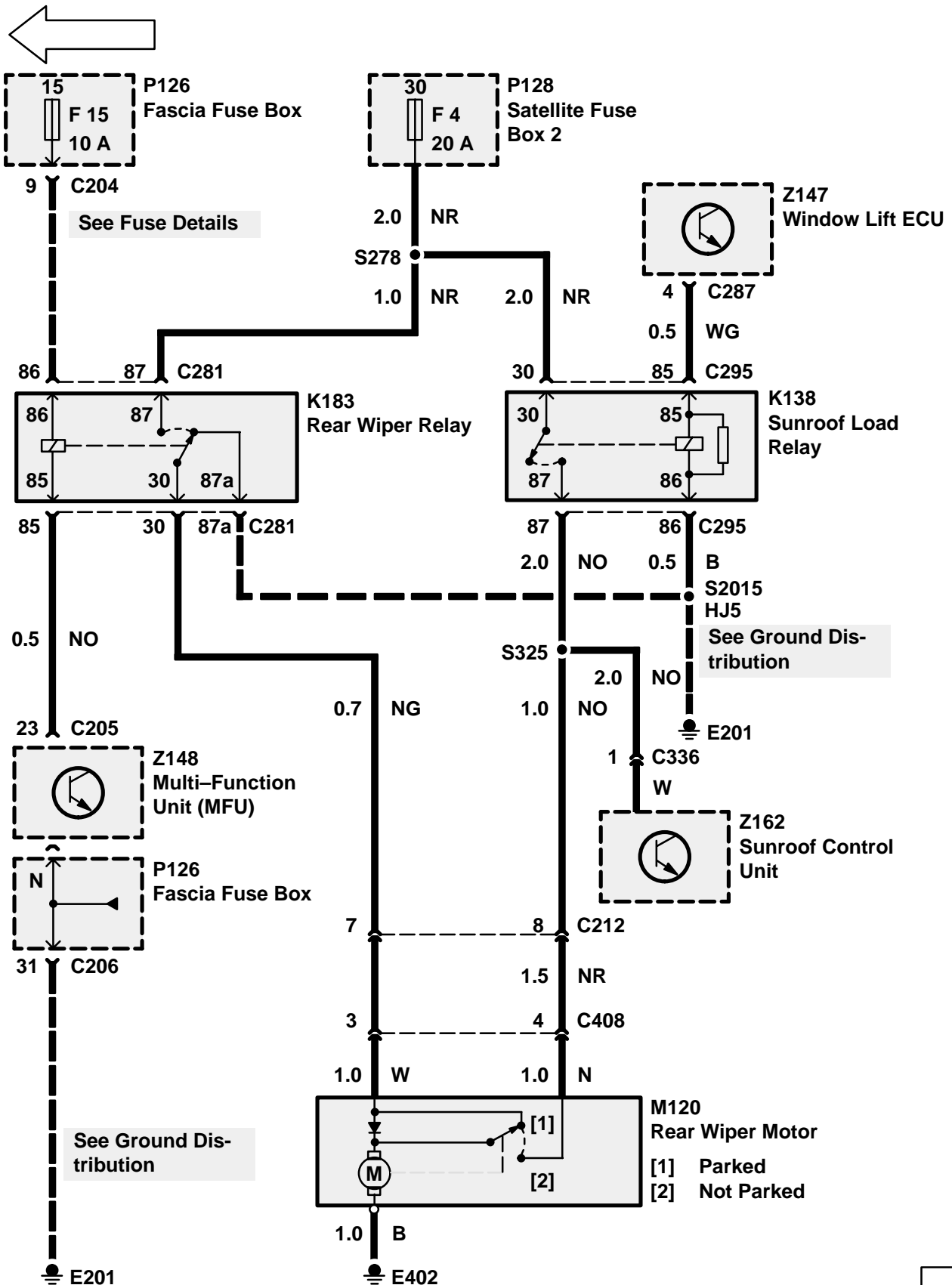
**CIRCUIT OPERATION****Washer**

The Rear Screen Wash Pump (M119) motor is grounded at all times. The motor runs when battery voltage is applied to the motor through the Rear Wash Switch (X222) when the switch is switched to the WASH position.

**Wiper**

When the Rear Wipe Switch (X221) is pulled to the WIPE position, the Multifunction Unit (MFU) (Z148) applies ground to the Rear Wipe Relay (K183). Battery voltage is then applied to the Rear Wiper Motor (M120) from Fuse F4. If the wiper is turned off, battery voltage is no longer supplied from Fuse F4. To allow the wiper to return to his parked position, the windowlift ECU (Z147) supplies terminal 87a of the Rear Wiper Relay (K183) with battery voltage for 30 seconds after the Ignition has been turned off.





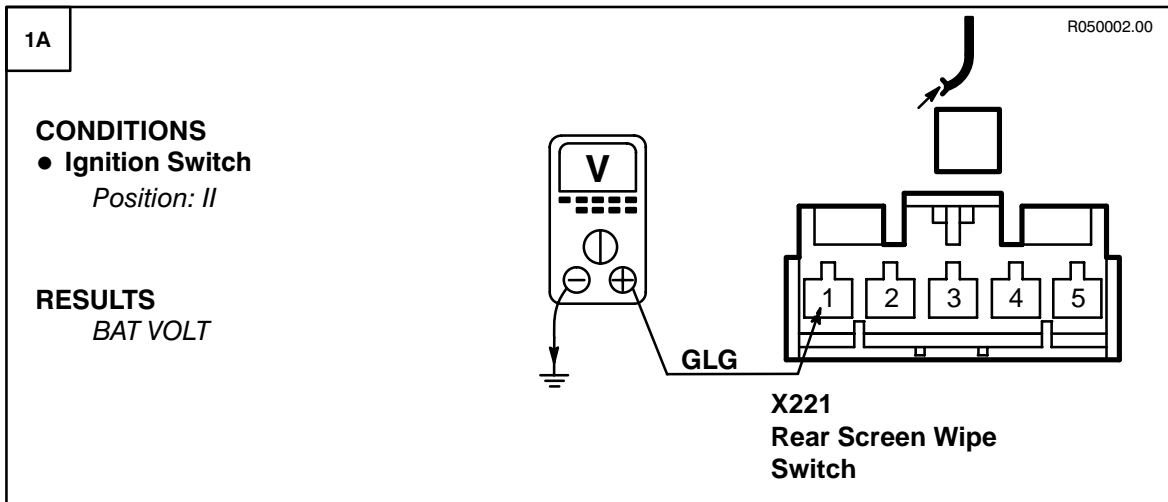
**TROUBLESHOOTING HINTS**

8. If the washer does not operate, check the washer fluid hoses for kinks or blockage.
9. If the wiper does not operate only when washer is requested, check LGS wire and Multifunction Unit (MFU) (Z148).
10. If the wiper operates with tailgate open, check Tailgate Switch (X170) and PB wires.
11. If the sunroof operates, see section L4, Sunroof.
12. If the washer runs continuously, replace the Rear Wash Switch (X222).
13. If wiper and washer do not operate, check GLG wire and fuse F18.
14. If the wiper will not return to it's parked position when the ignition switch is turned off, check sunroof operation within 45 seconds after turning the ignition off. If the sunroof does not operate check Sunroof Load Relay (K138) and Window Lift ECU (Z147), otherwise check Rear Wiper Motor (M120).

**SYSTEM DIAGNOSIS**

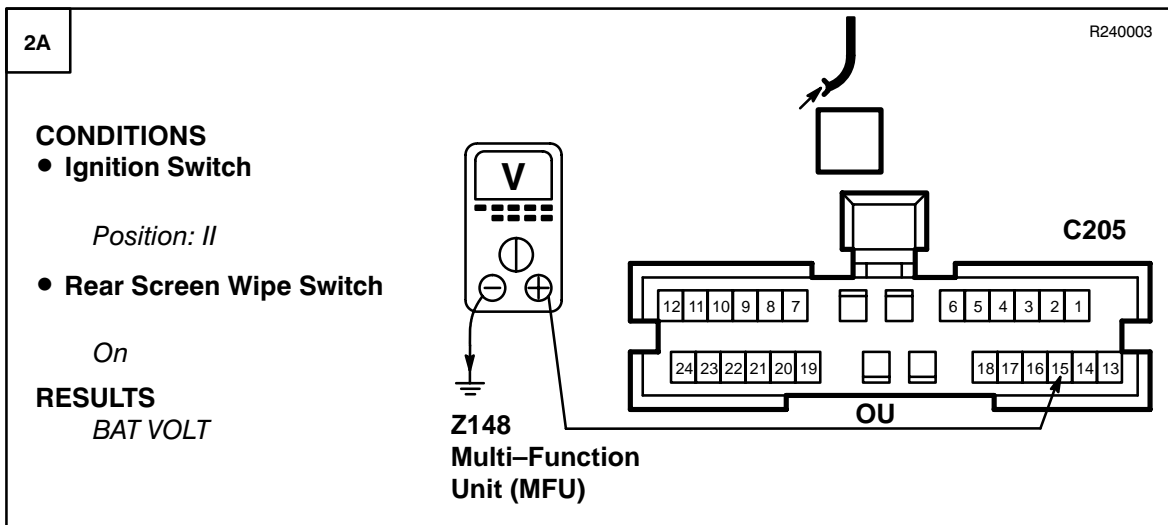
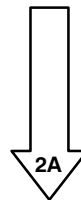
1. If the wiper does not operate, do Test A.
2. If the washer does not operate, do Test B.
3. If the wiper runs with Rear Wipe Switch (X221) off, do Test C.

**Test A**



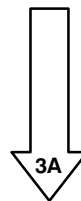
~~OK~~ **PROBLEM CAUSE**  
- GLG Wire

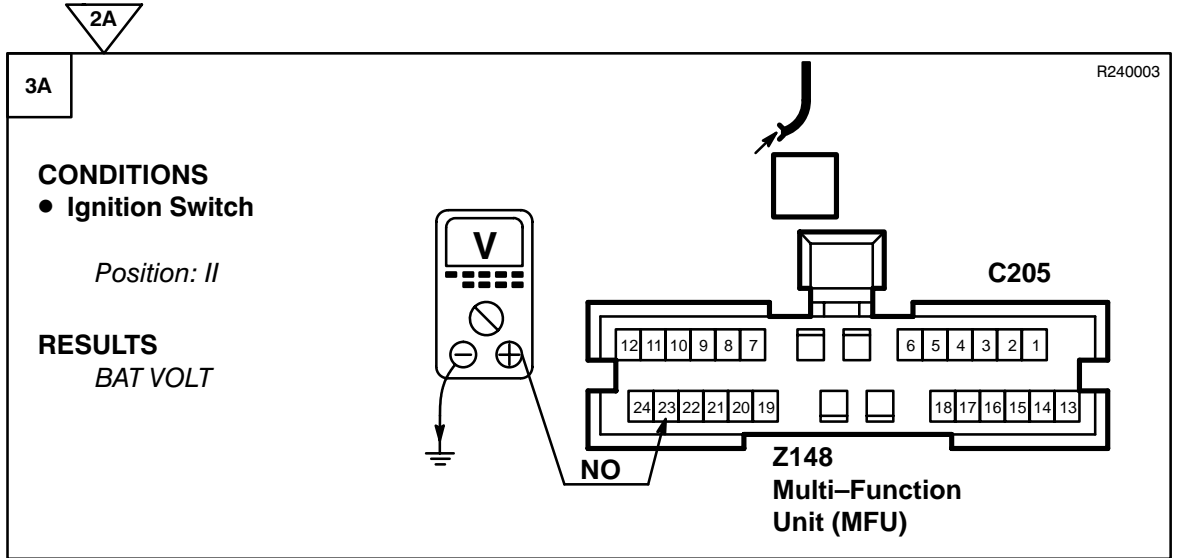
**OK**



~~OK~~ **PROBLEM CAUSE**  
- OU Wire  
- Rear Screen Wipe Switch

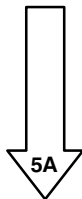
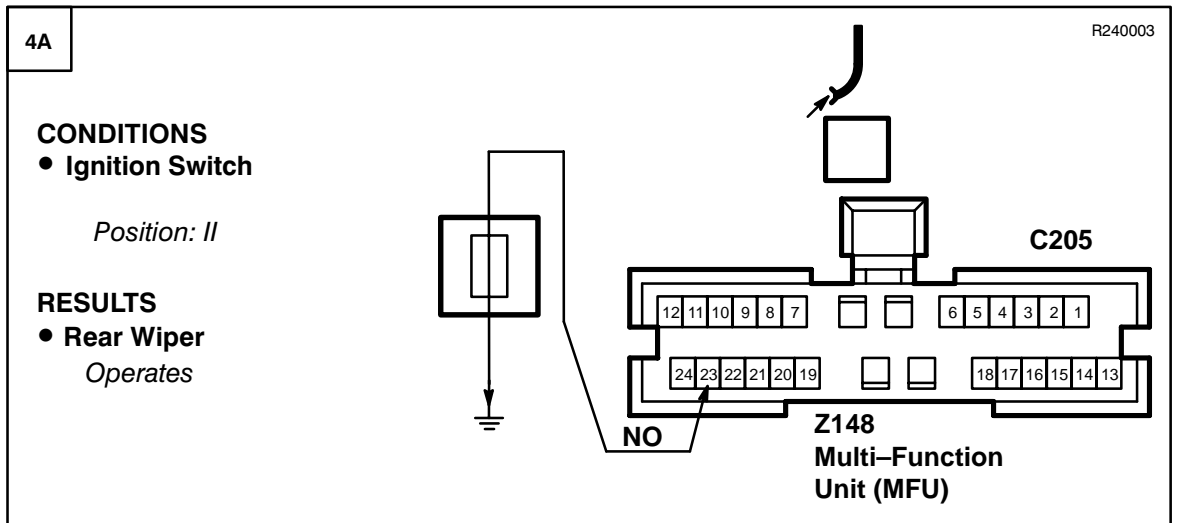
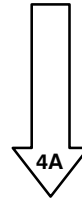
**OK**





**PROBLEM CAUSE**

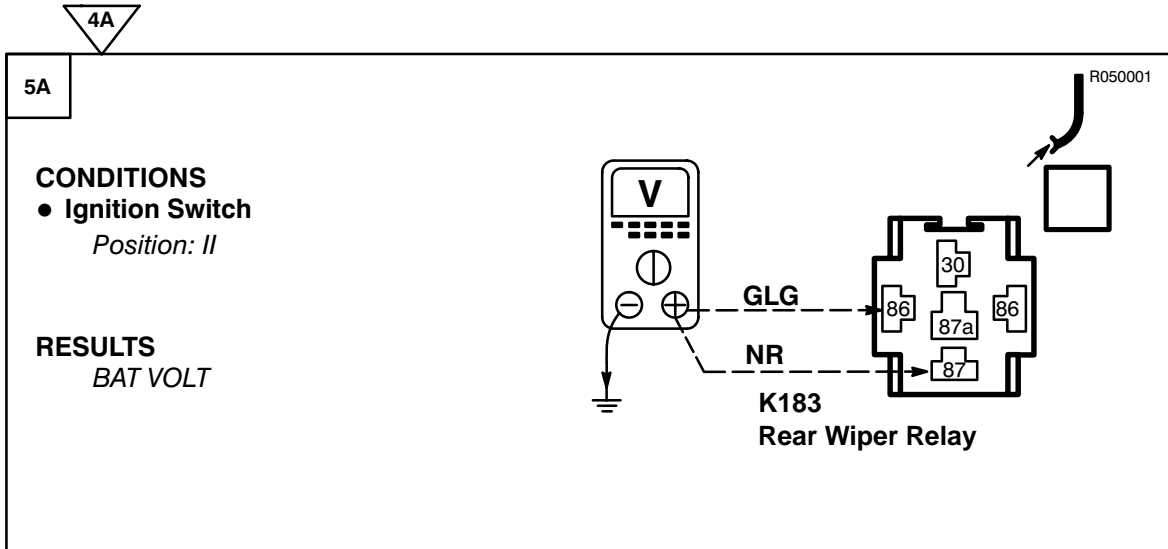
- GLG Wire
- NO Wire
- Rear Wiper Relay



**PROBLEM CAUSE**

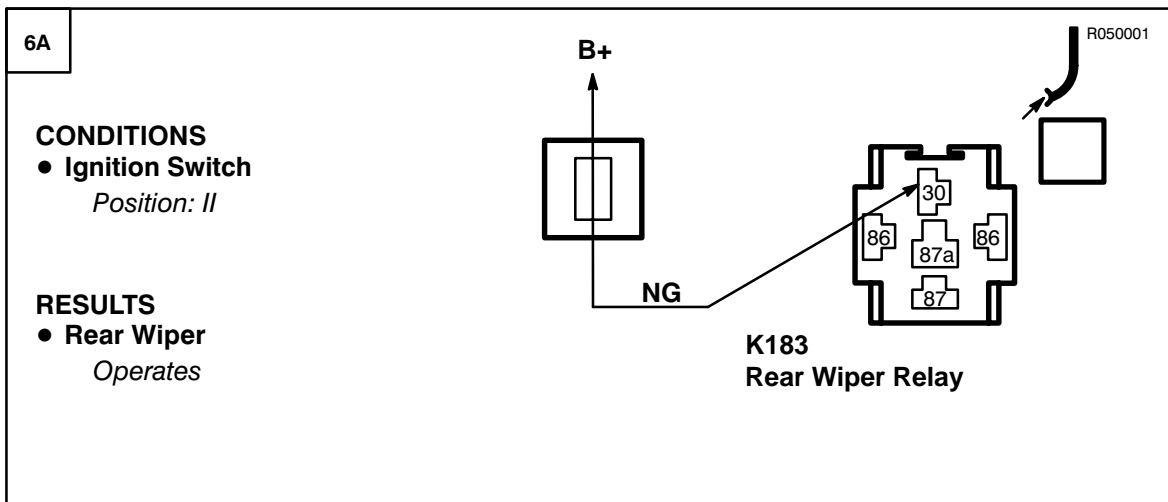
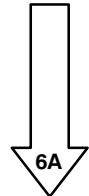
- B Wire
- Multi-Function Unit (MFU)
- Fascia Fuse Box





**PROBLEM CAUSE**

- NR Wire
- GLG Wire
- F15 Fuse
- F4 Fuse



**PROBLEM CAUSE**

- NG Wire
- B Wire
- Rear Wiper Motor



**PROBLEM CAUSE**

- Rear Wiper Relay

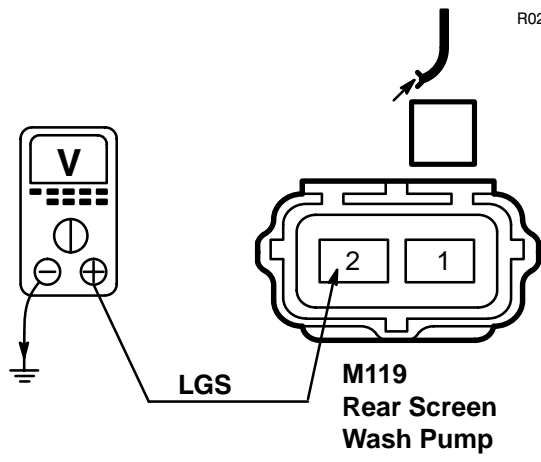
Test B

1B R020037

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Rear Screen Wash Switch  
*WASH*

**RESULTS**  
*BAT VOLT*



M119  
Rear Screen  
Wash Pump



**PROBLEM CAUSE**

- GLG Wire
- LGS Wire
- Rear Screen Wash Switch

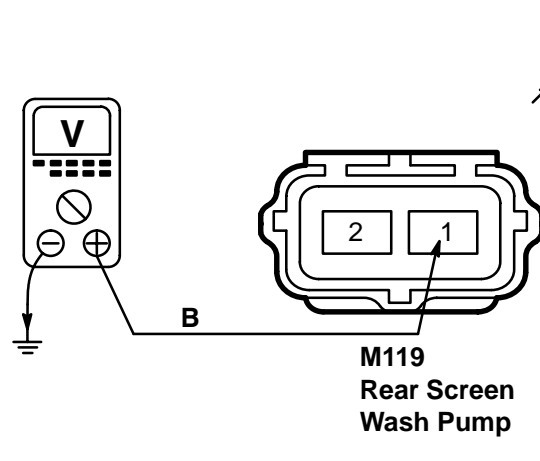


2B R020037

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 2 ohms*



M119  
Rear Screen  
Wash Pump



**PROBLEM CAUSE**

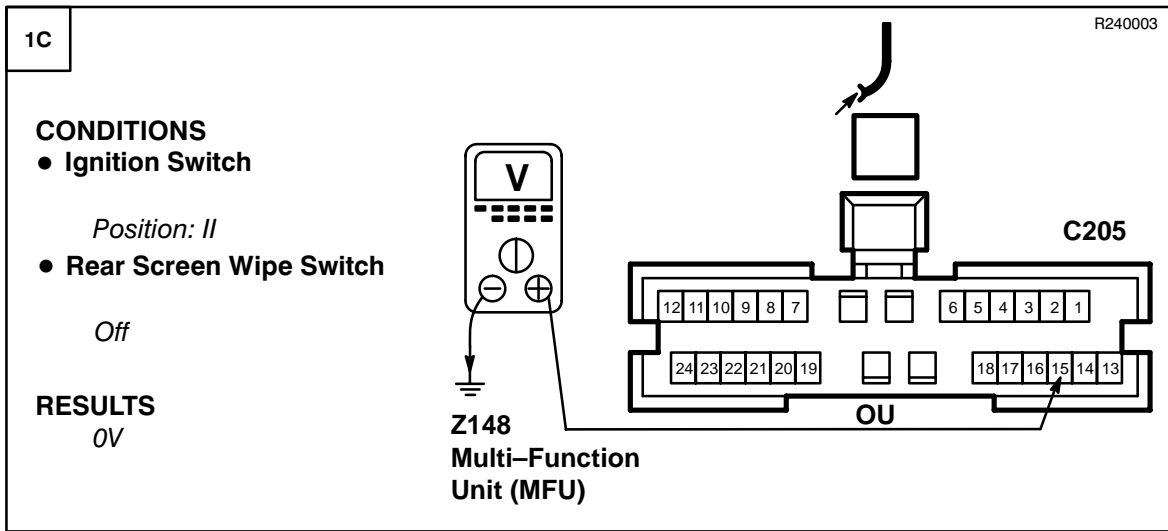
- B Wire



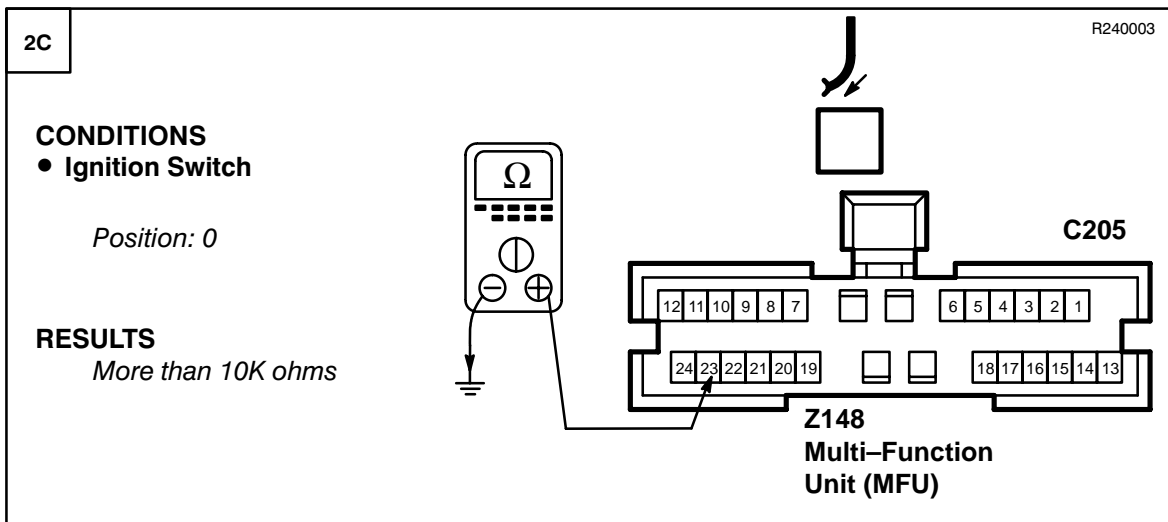
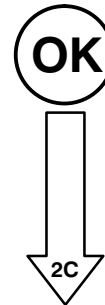
**PROBLEM CAUSE**

- Rear Screen Wash Pump

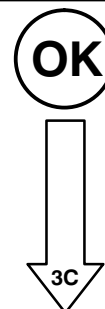
**Test C**

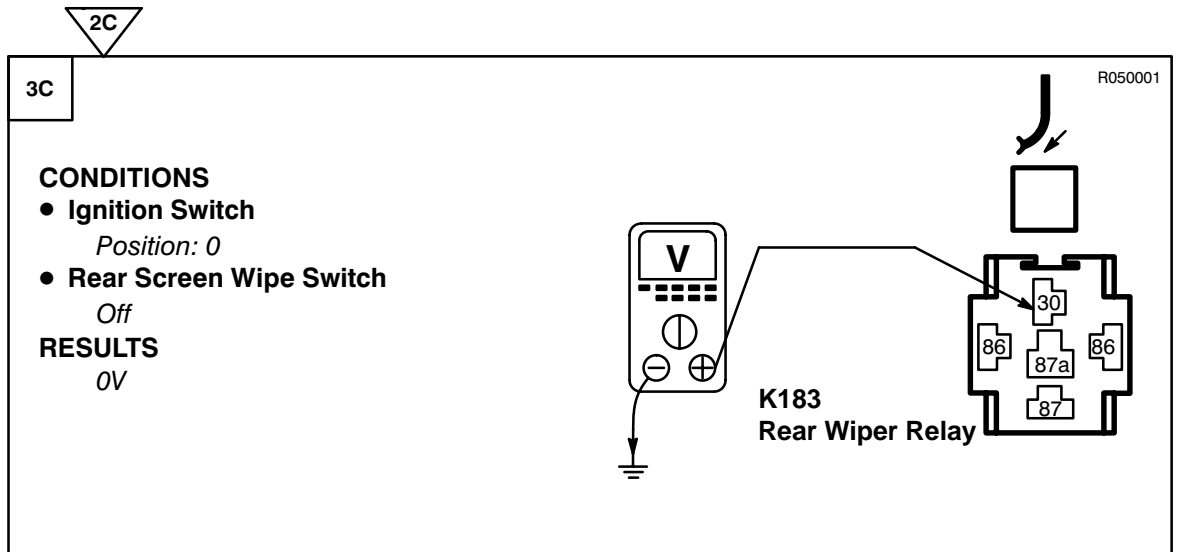


**OK** PROBLEM CAUSE  
- Rear Screen Wipe Switch



**OK** PROBLEM CAUSE  
- Multi-Function Unit (MFU)

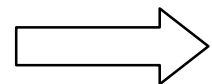
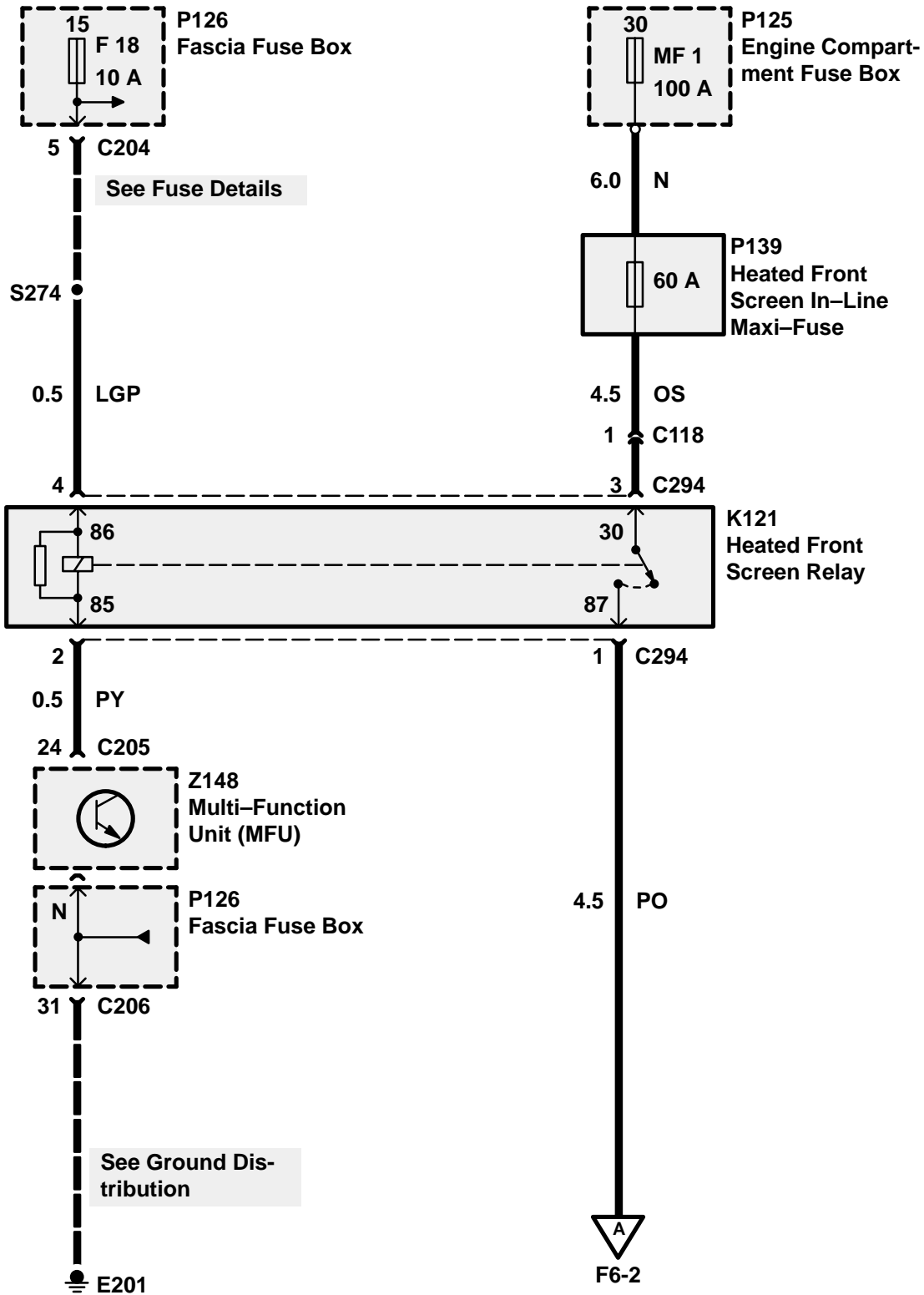


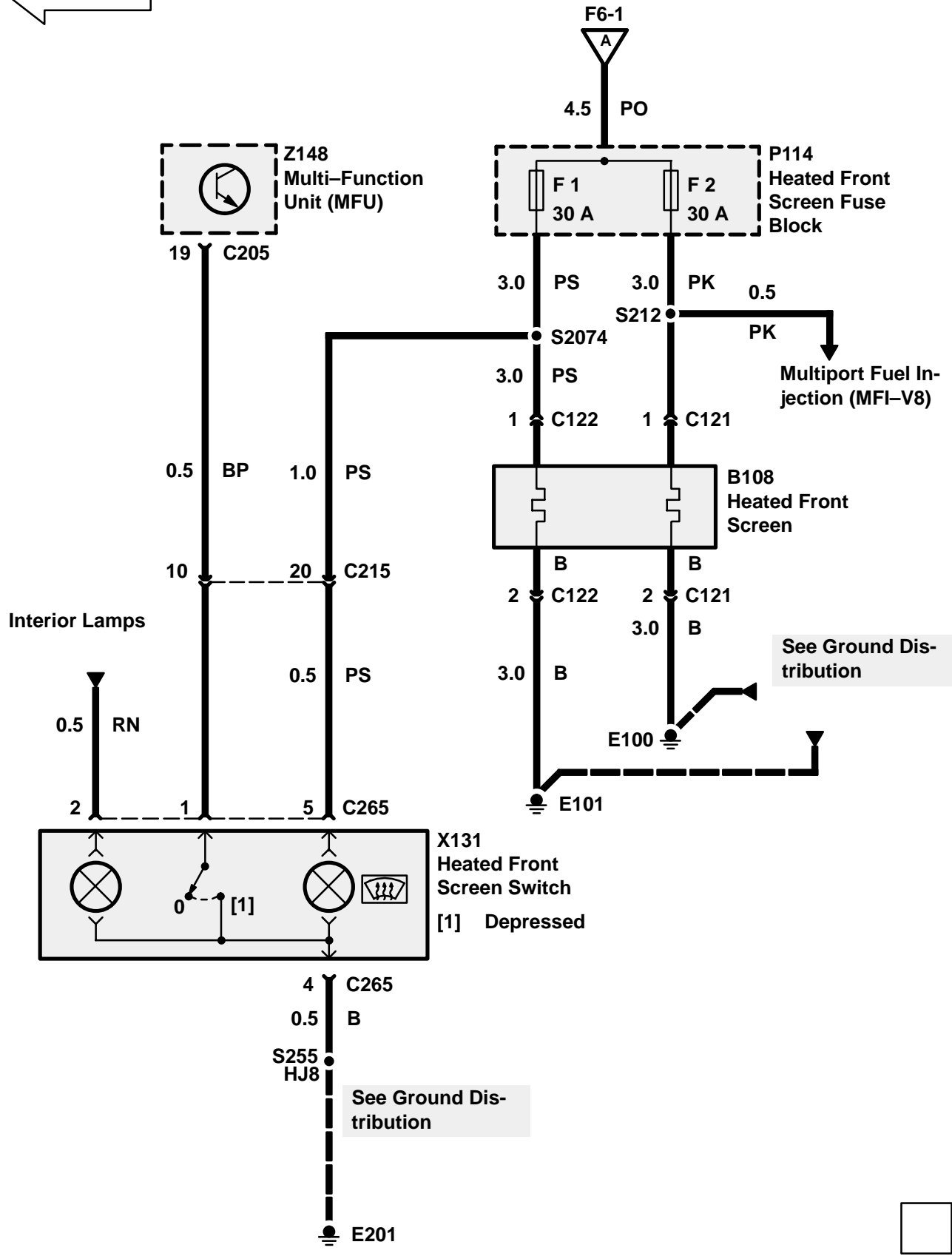
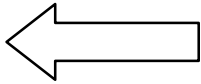


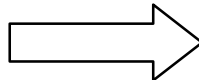
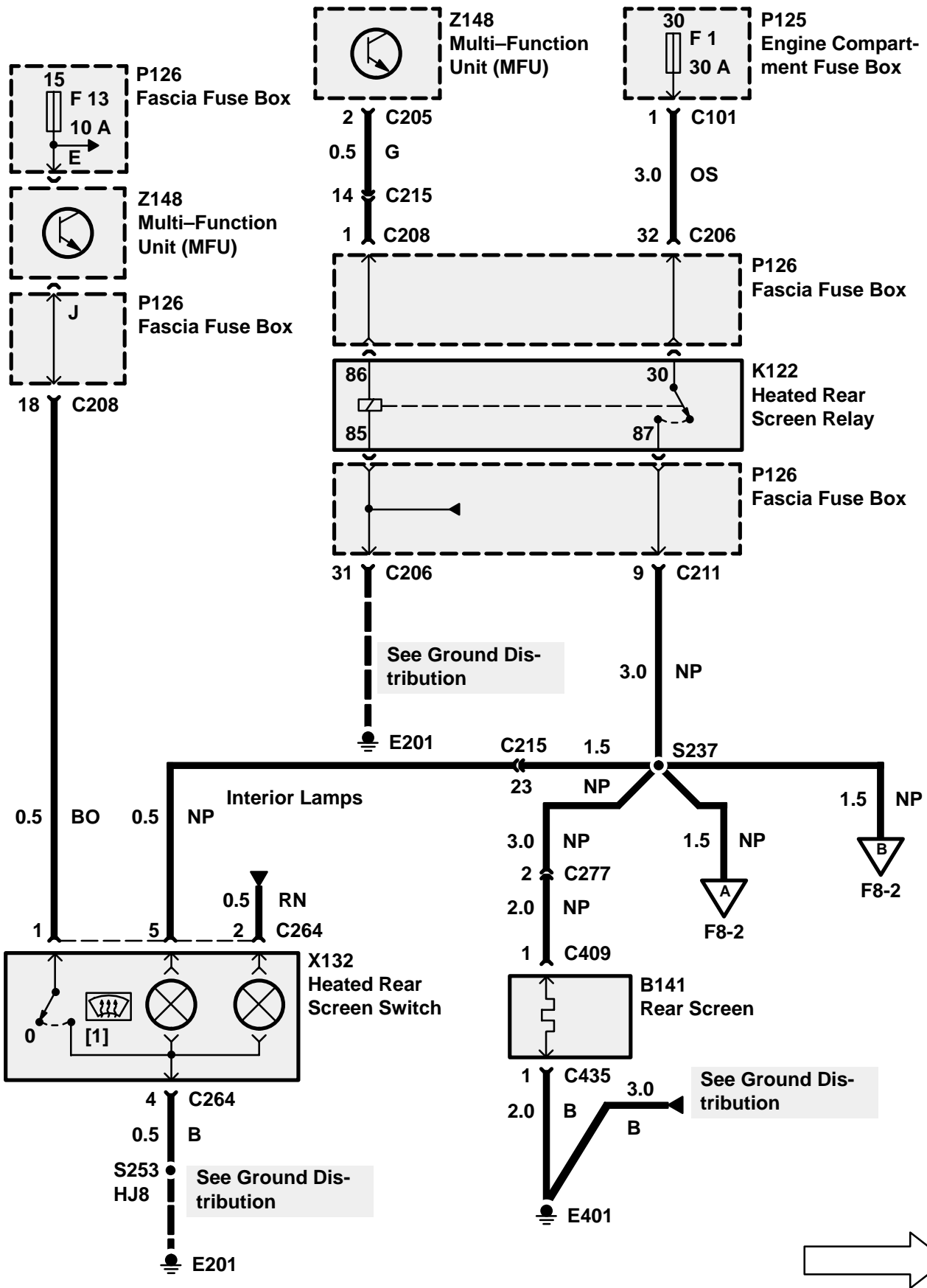
**PROBLEM CAUSE**  
- Rear Wiper Relay

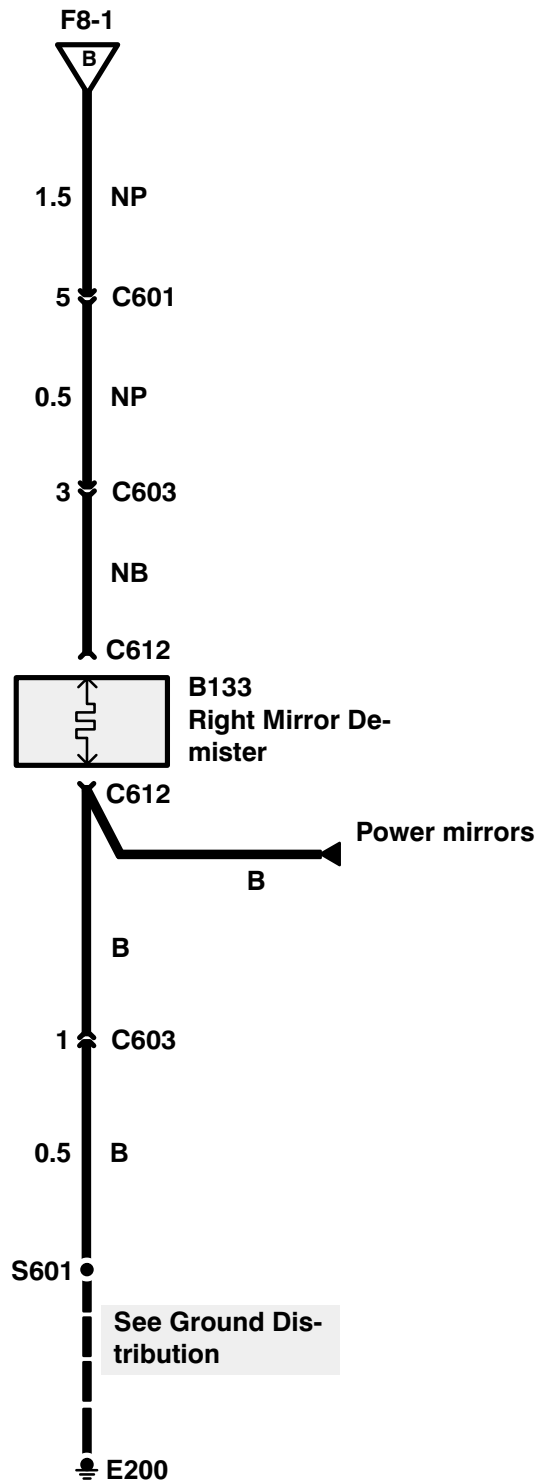
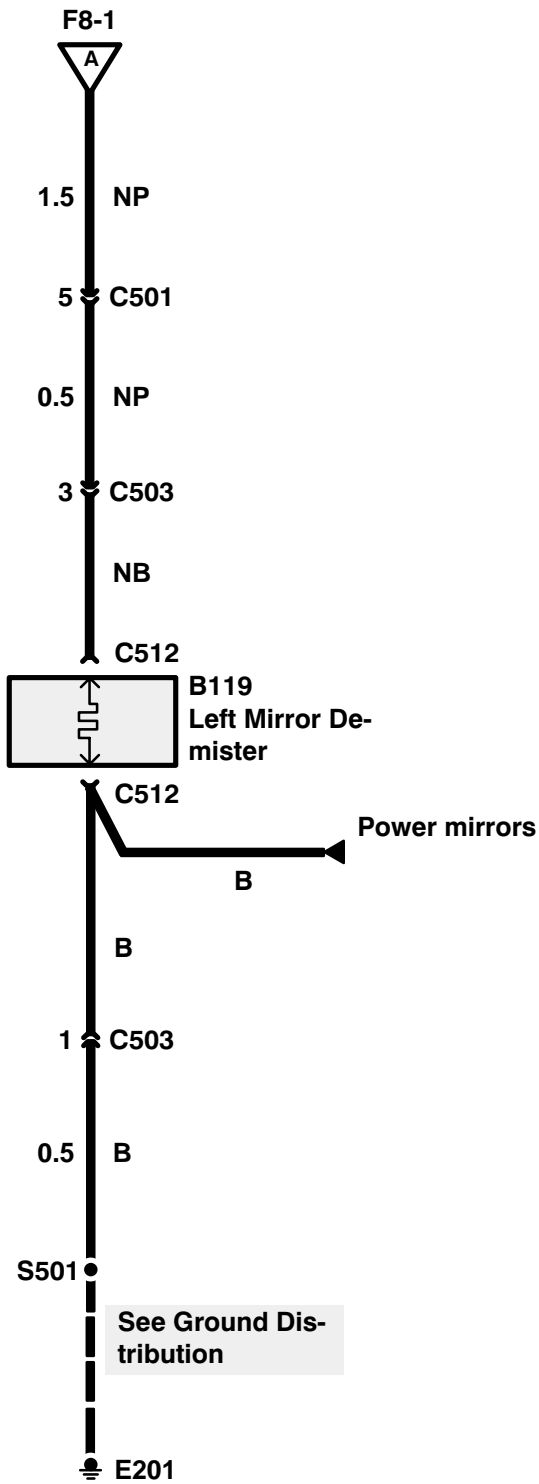
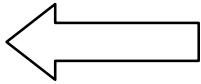


**PROBLEM CAUSE**  
- Window Lift ECU

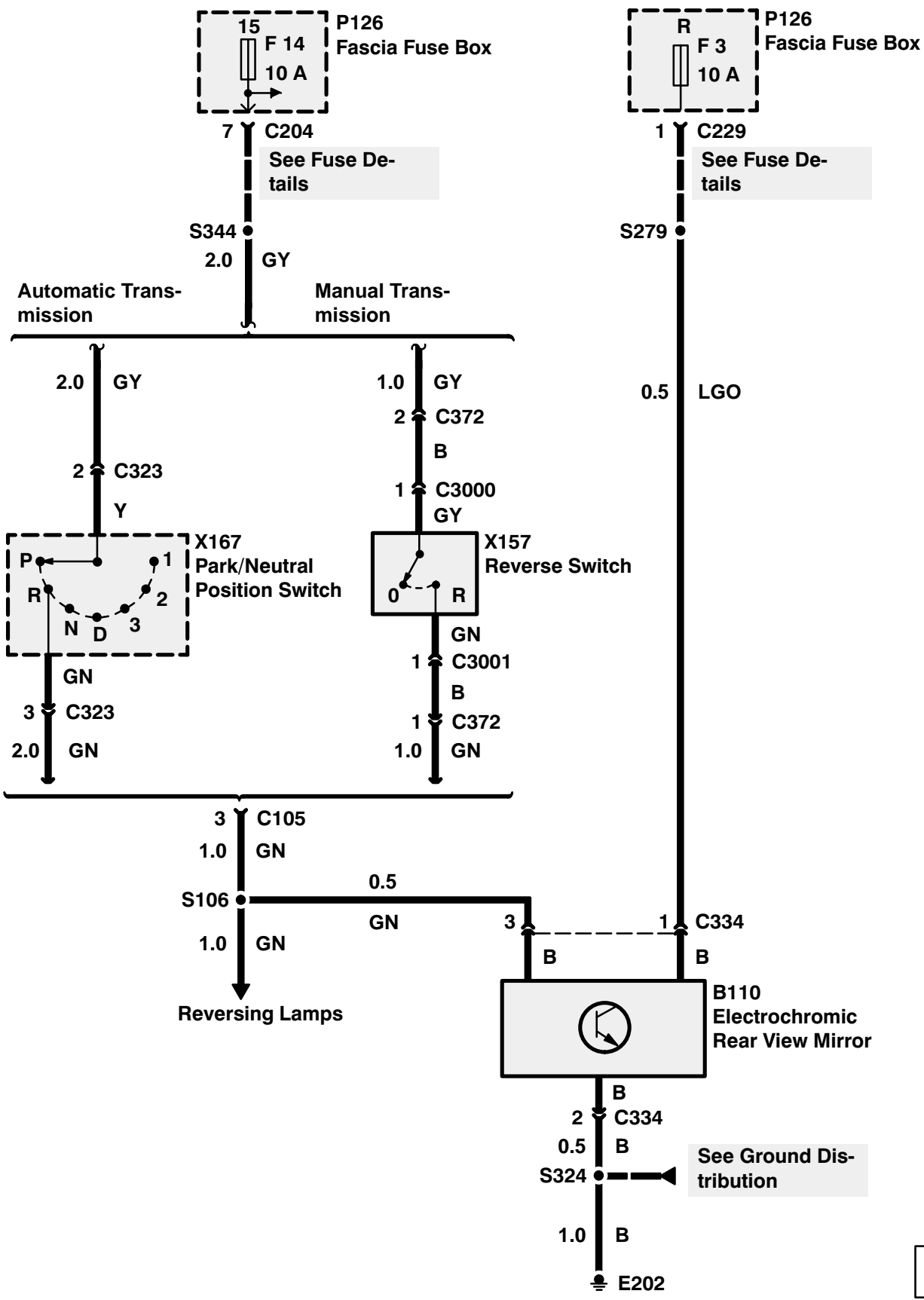


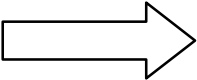
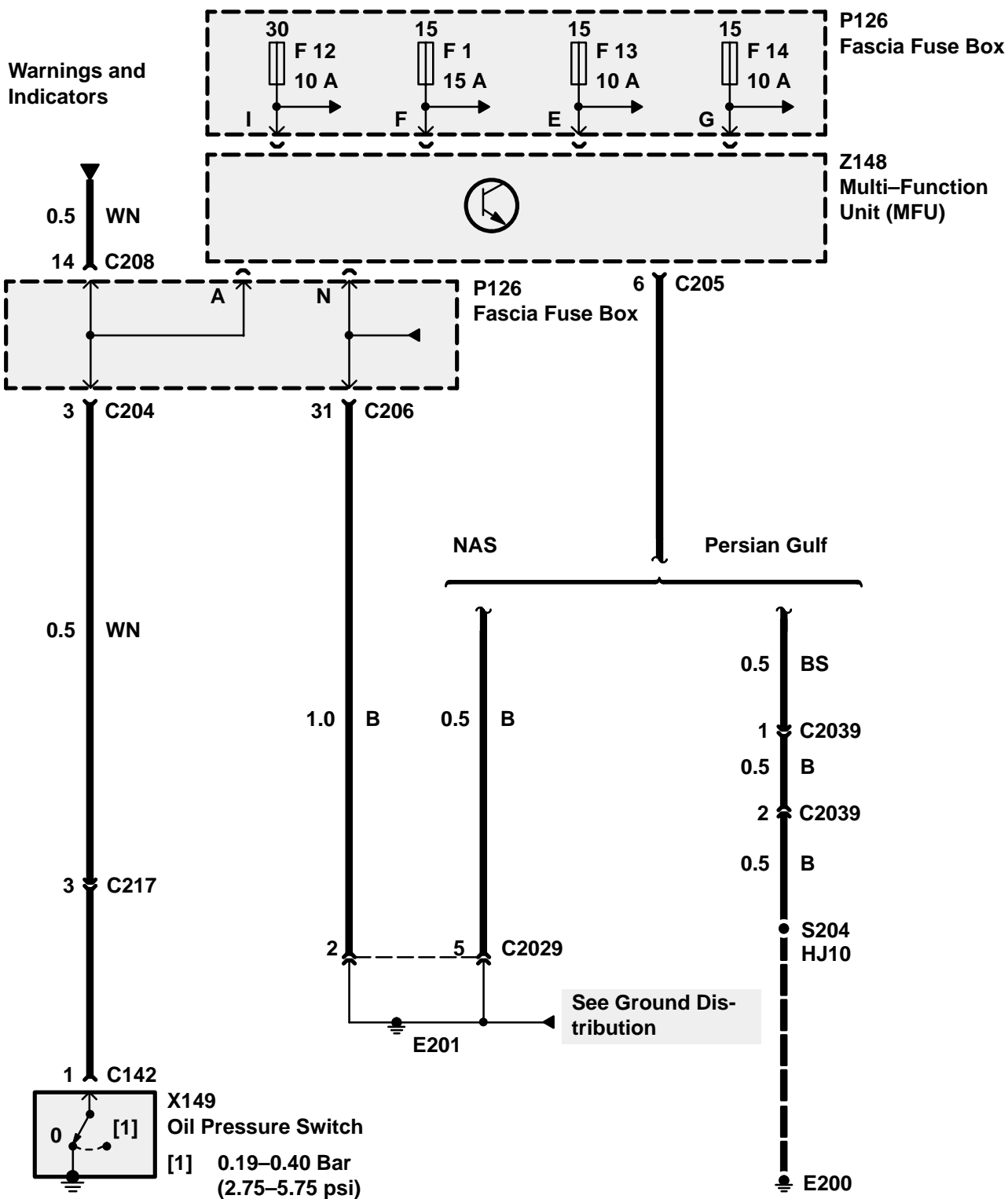


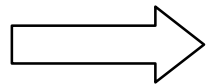
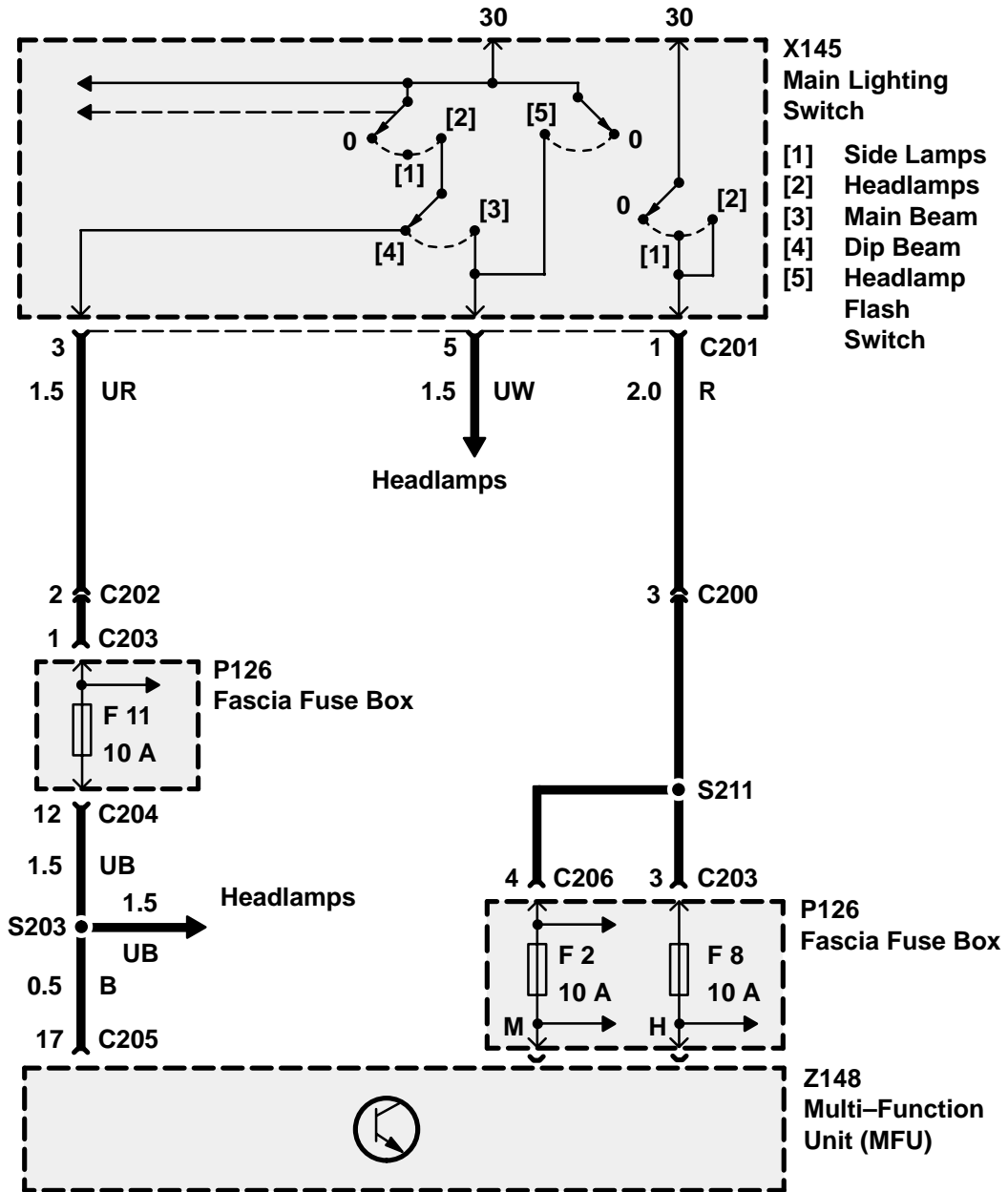
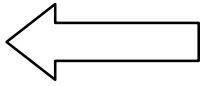


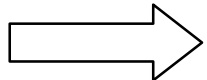
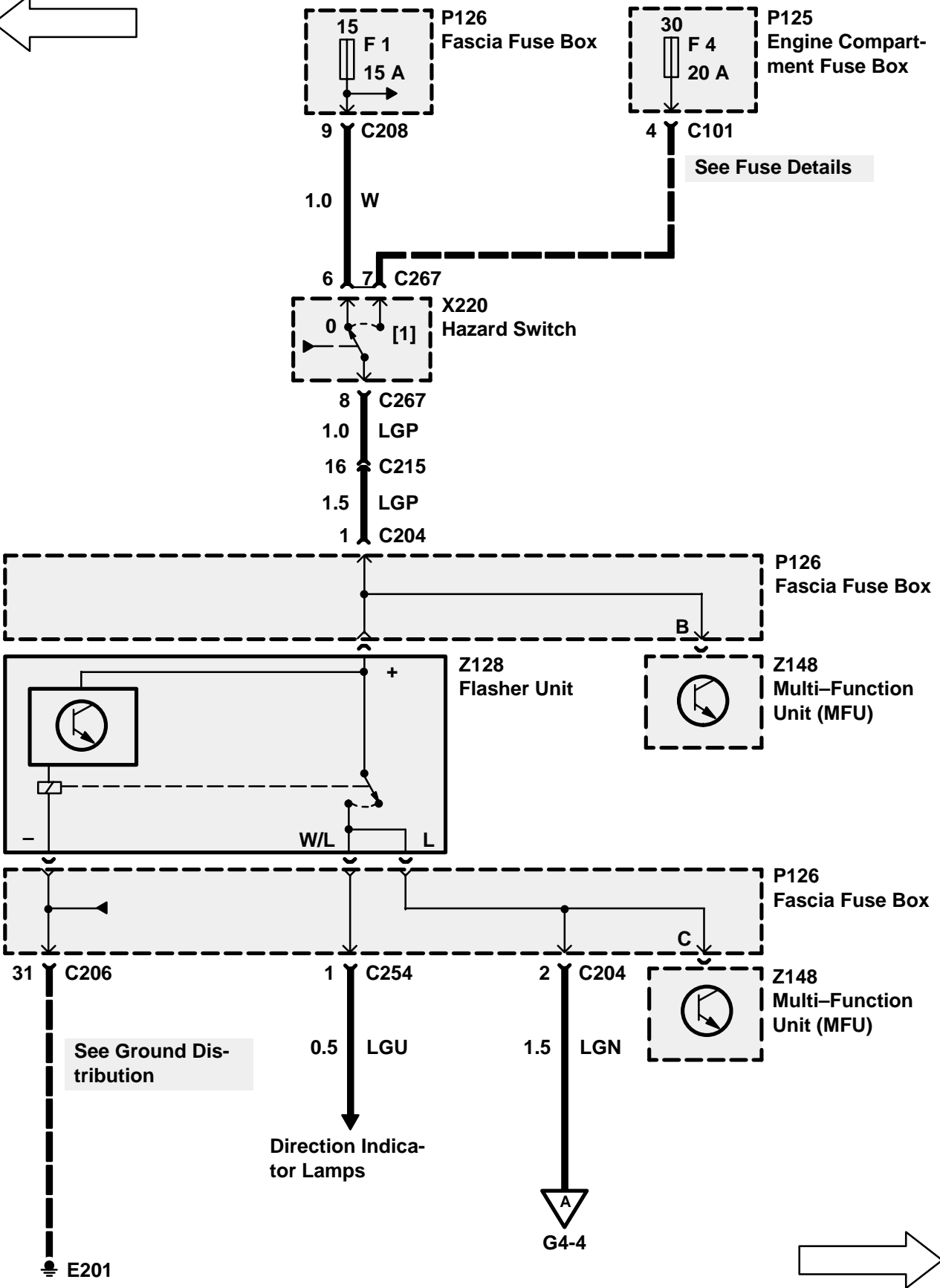
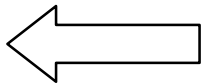


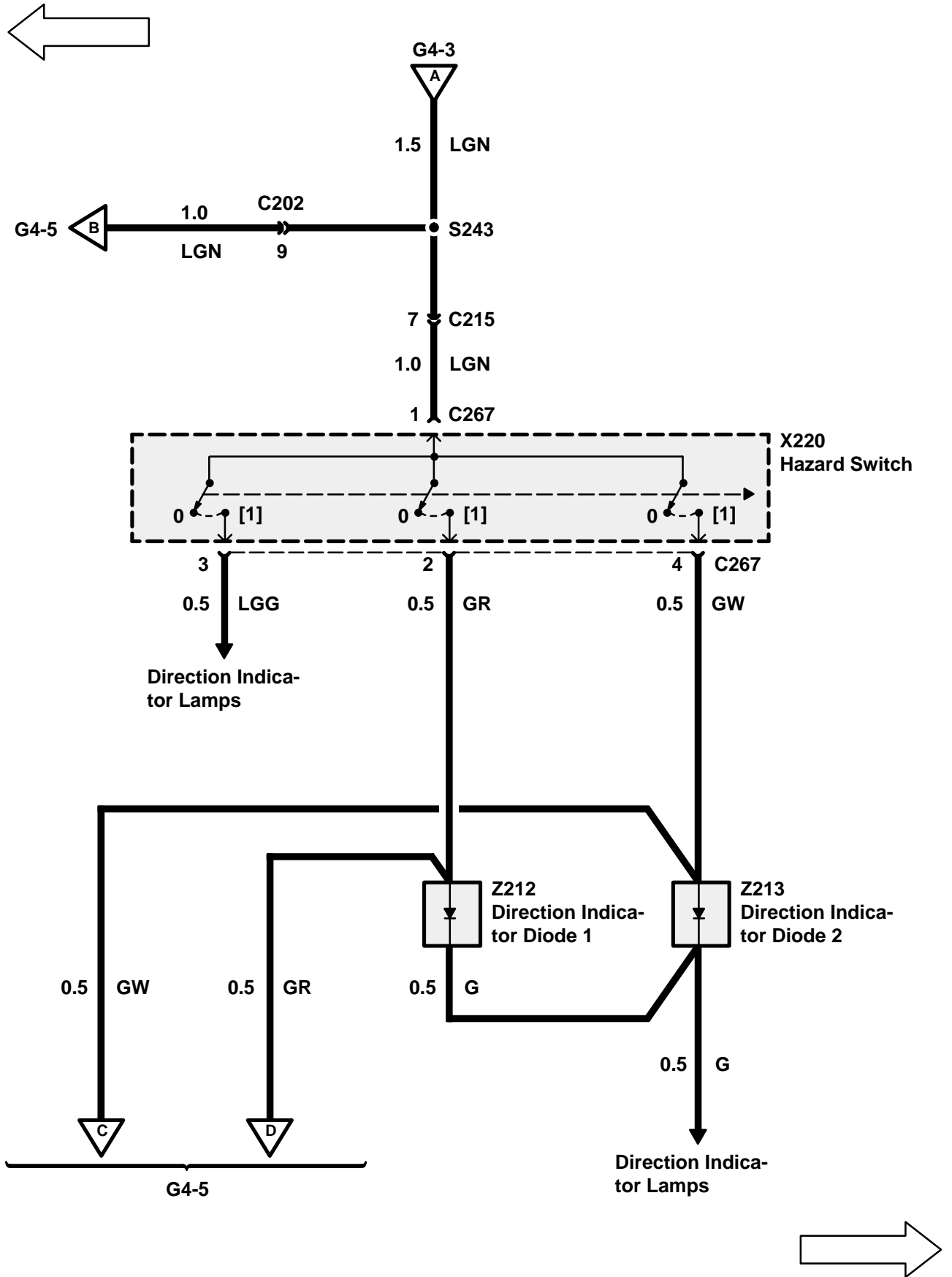


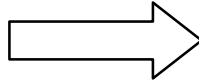
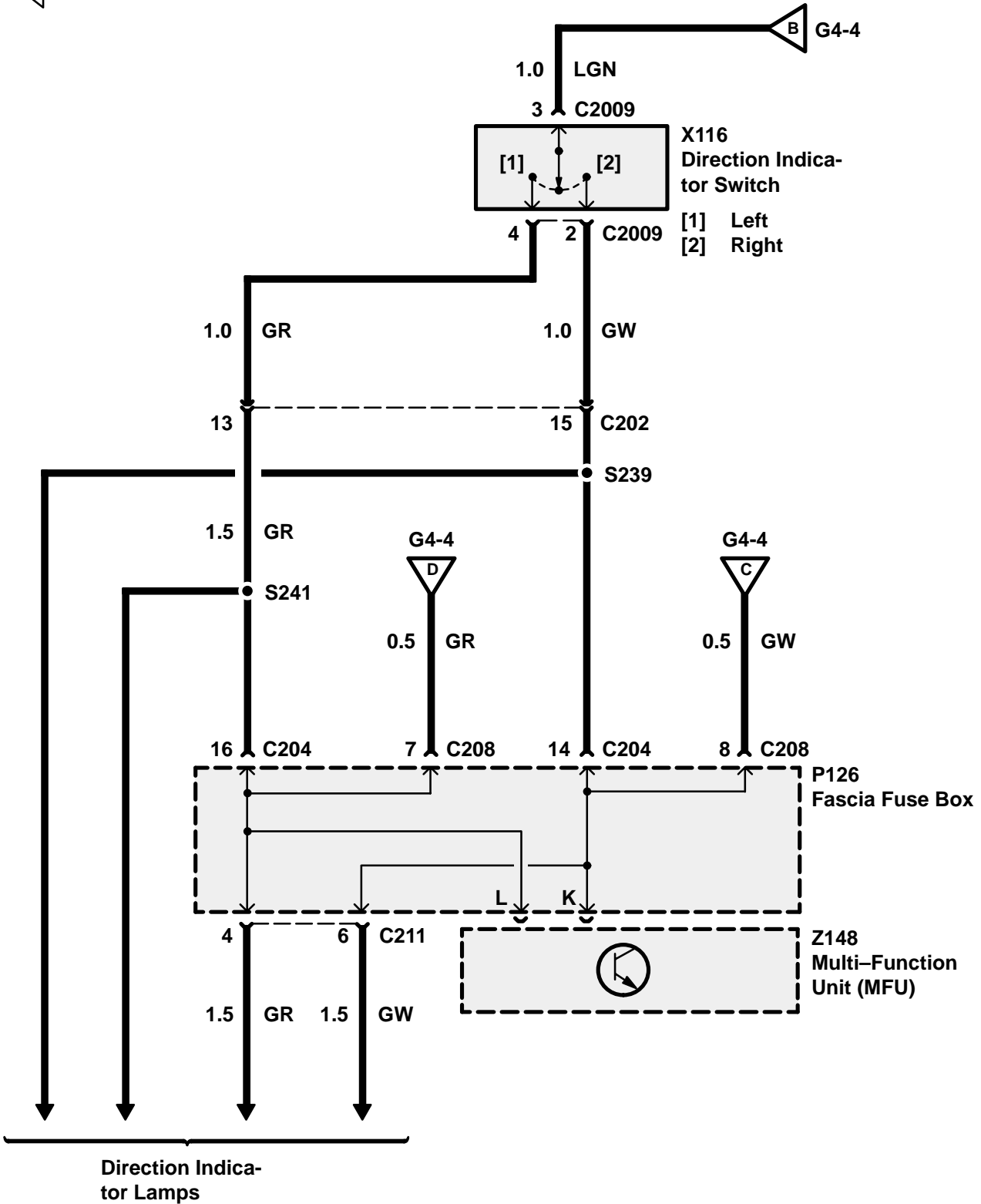
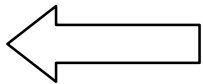


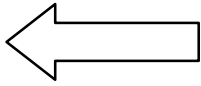




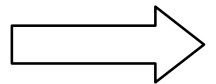
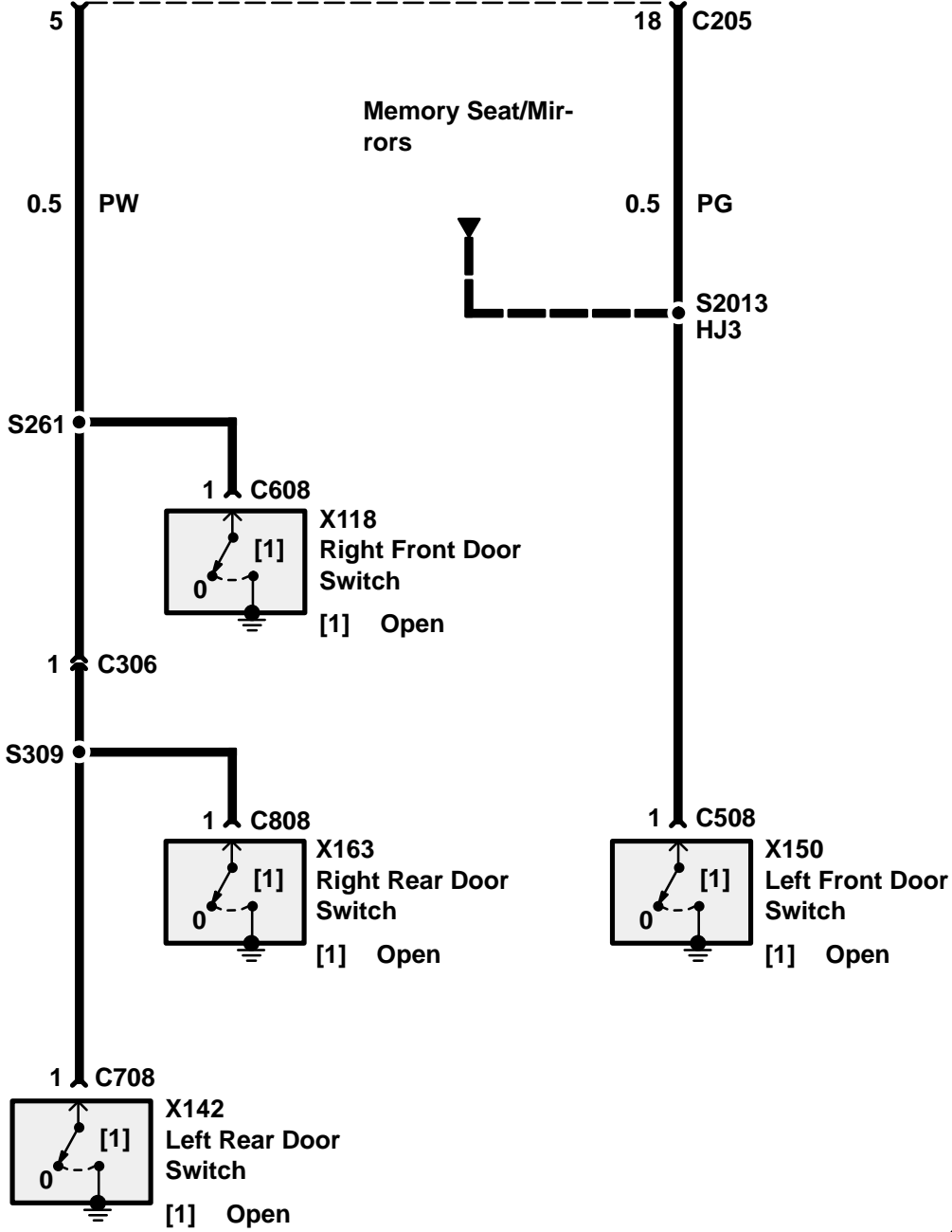
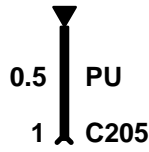


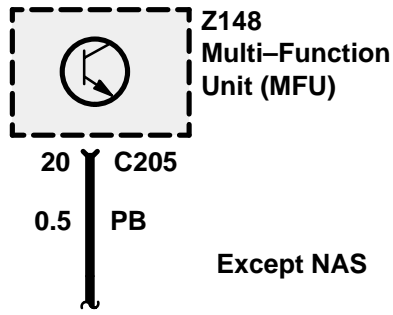
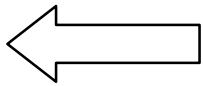






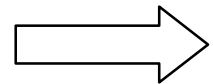
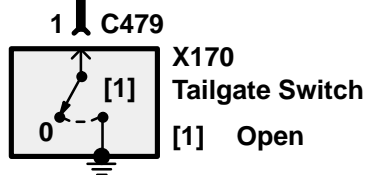
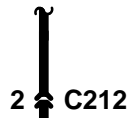
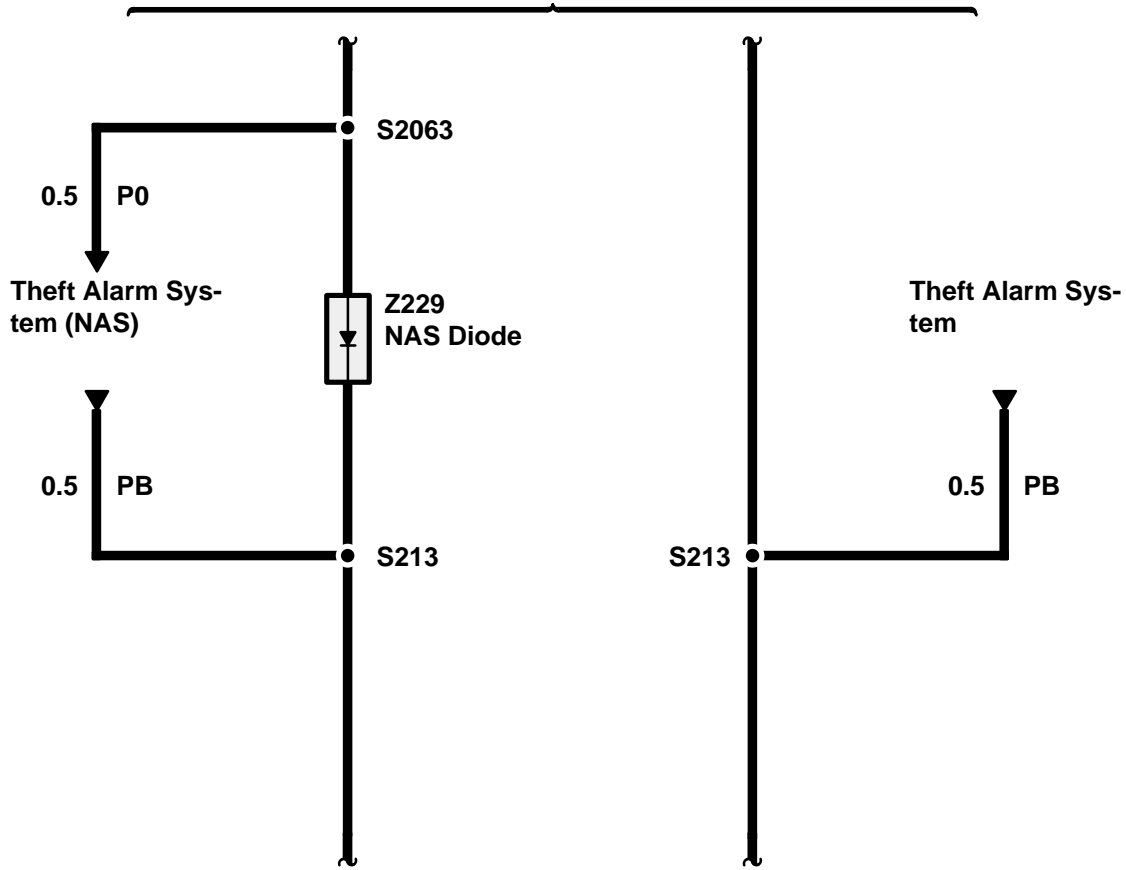
Interior Lamps



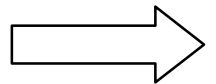
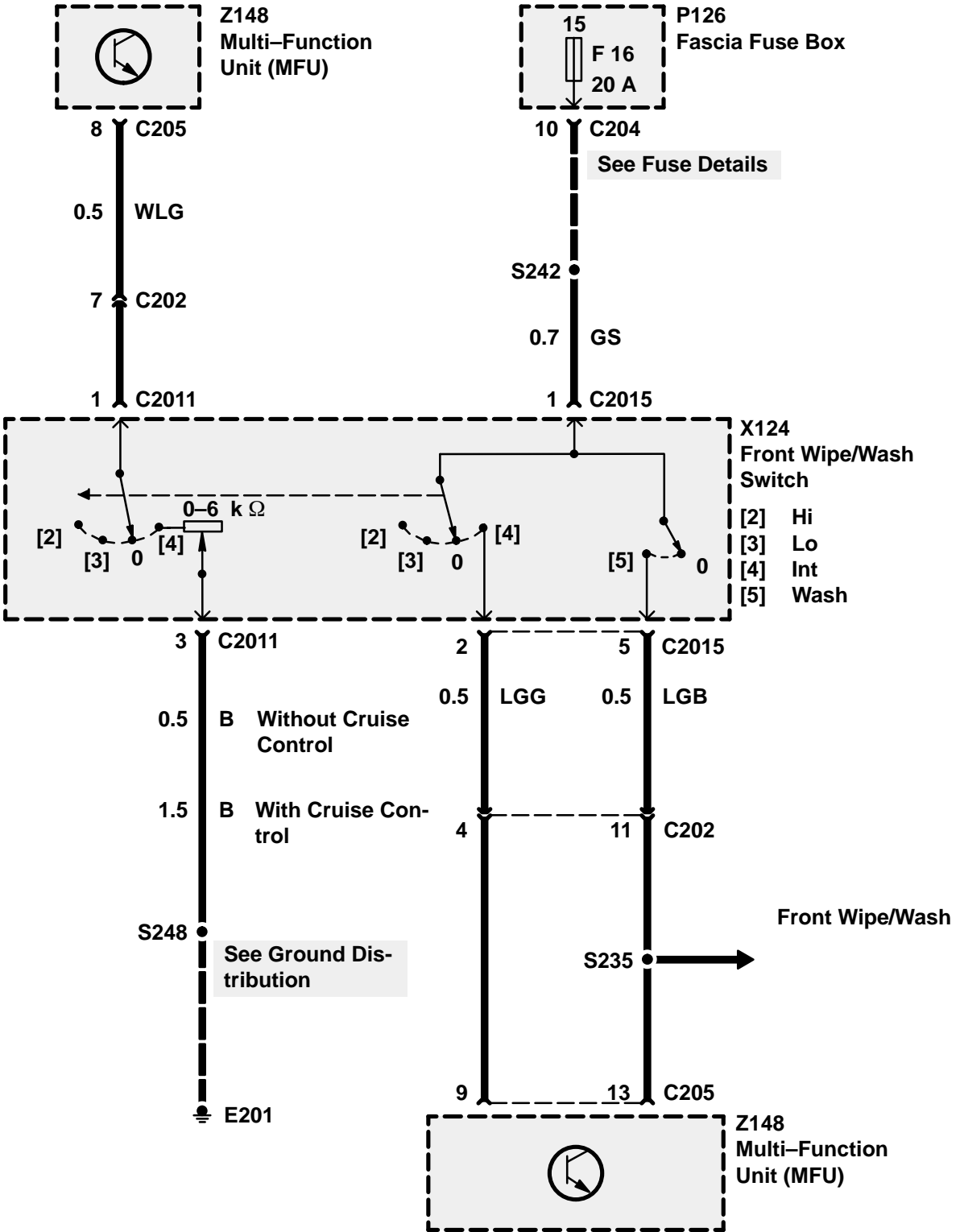
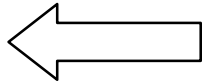


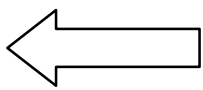
NAS

Except NAS

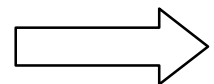
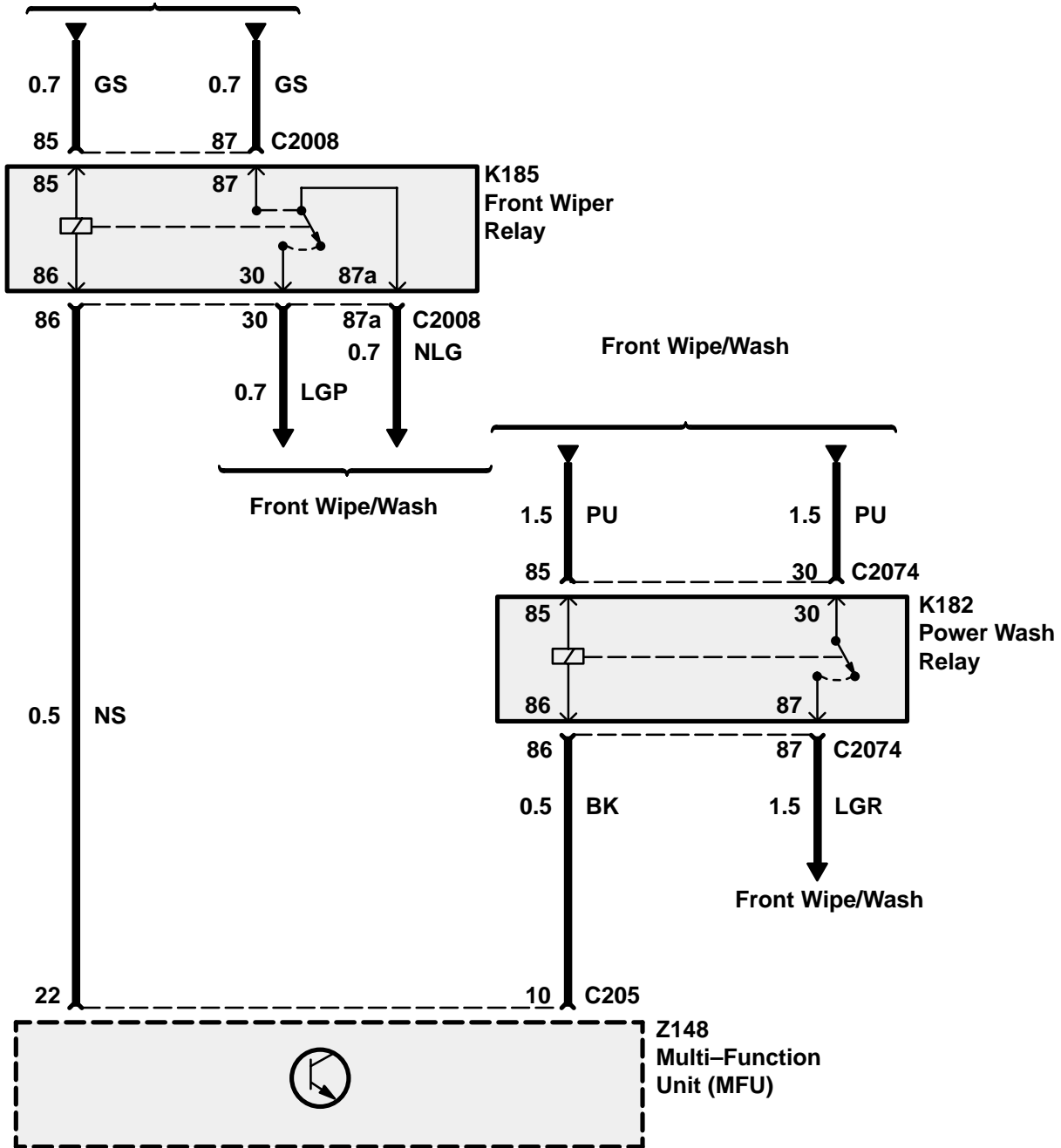


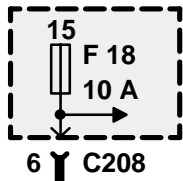
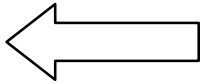






Front Wipe/Wash

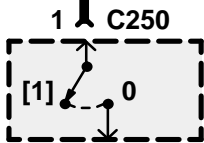




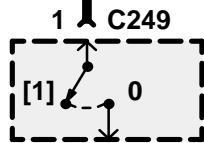
P126  
Fascia Fuse Box

See Fuse Details

S236



X221  
Rear Screen  
Wipe Switch



X222  
Rear Screen  
Wash Switch

4 C250

0.5 OU

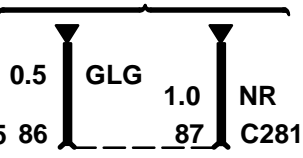
4 C249

0.5 LGS

Rear Wipe/Wash

1

4 C215



K183  
Rear Wiper Relay

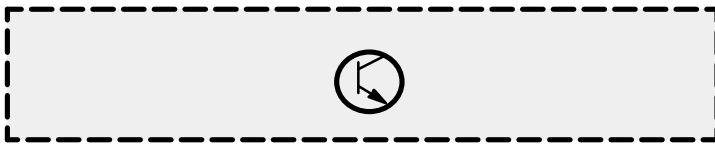
Rear Wipe/Wash

Rear Wipe/Wash

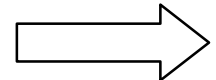
15

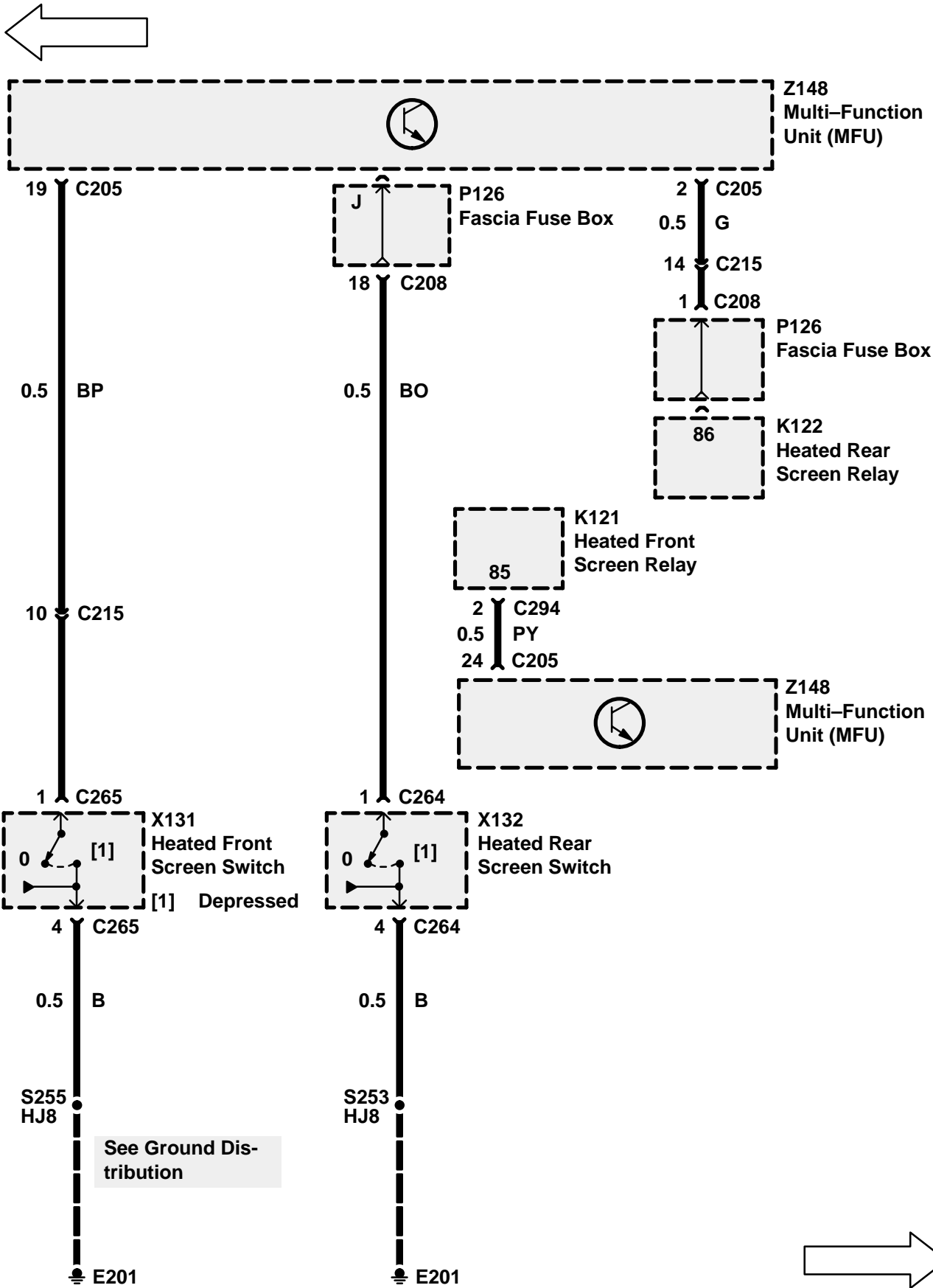
16

23 C205

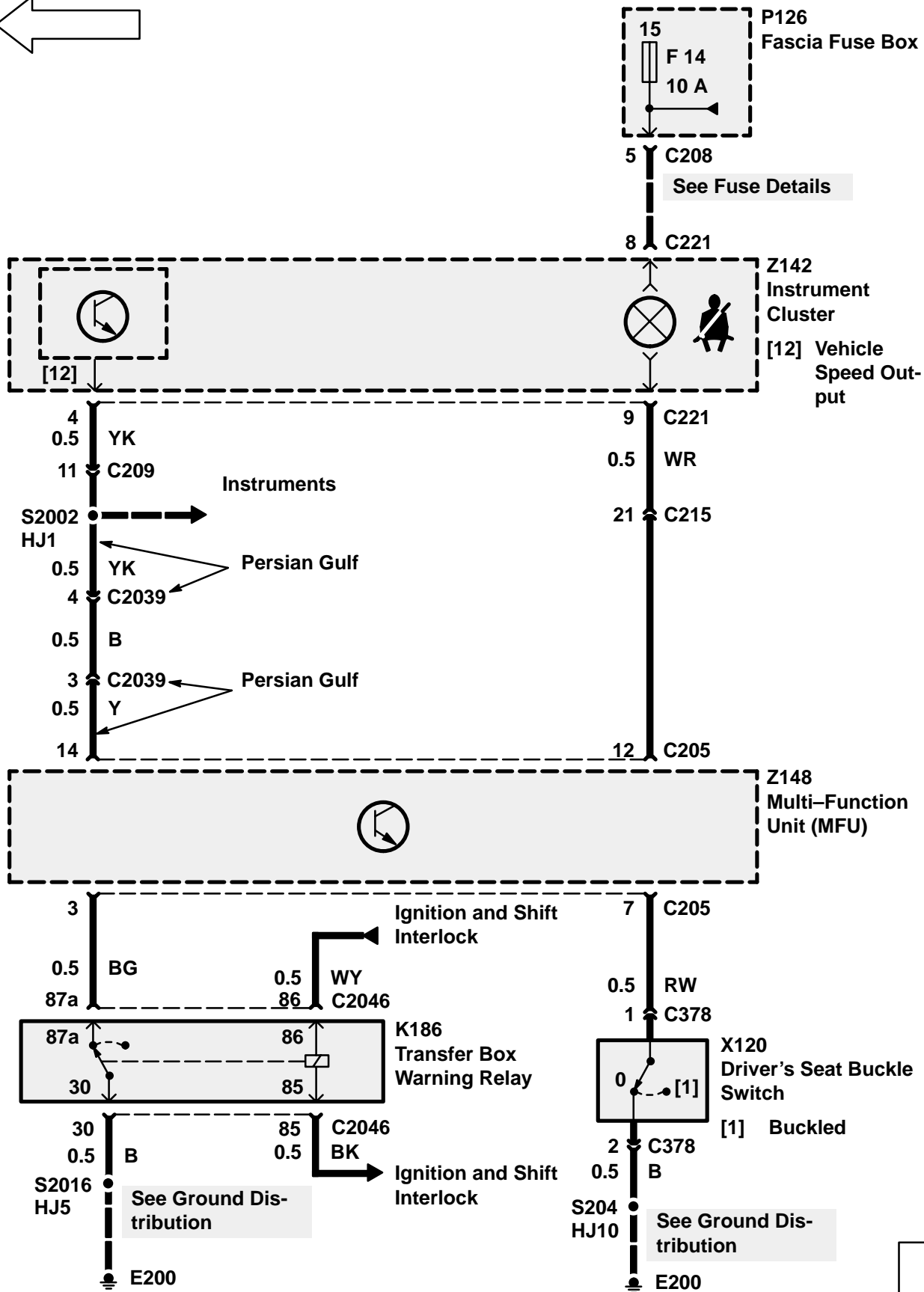
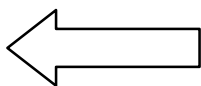


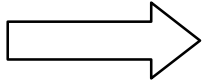
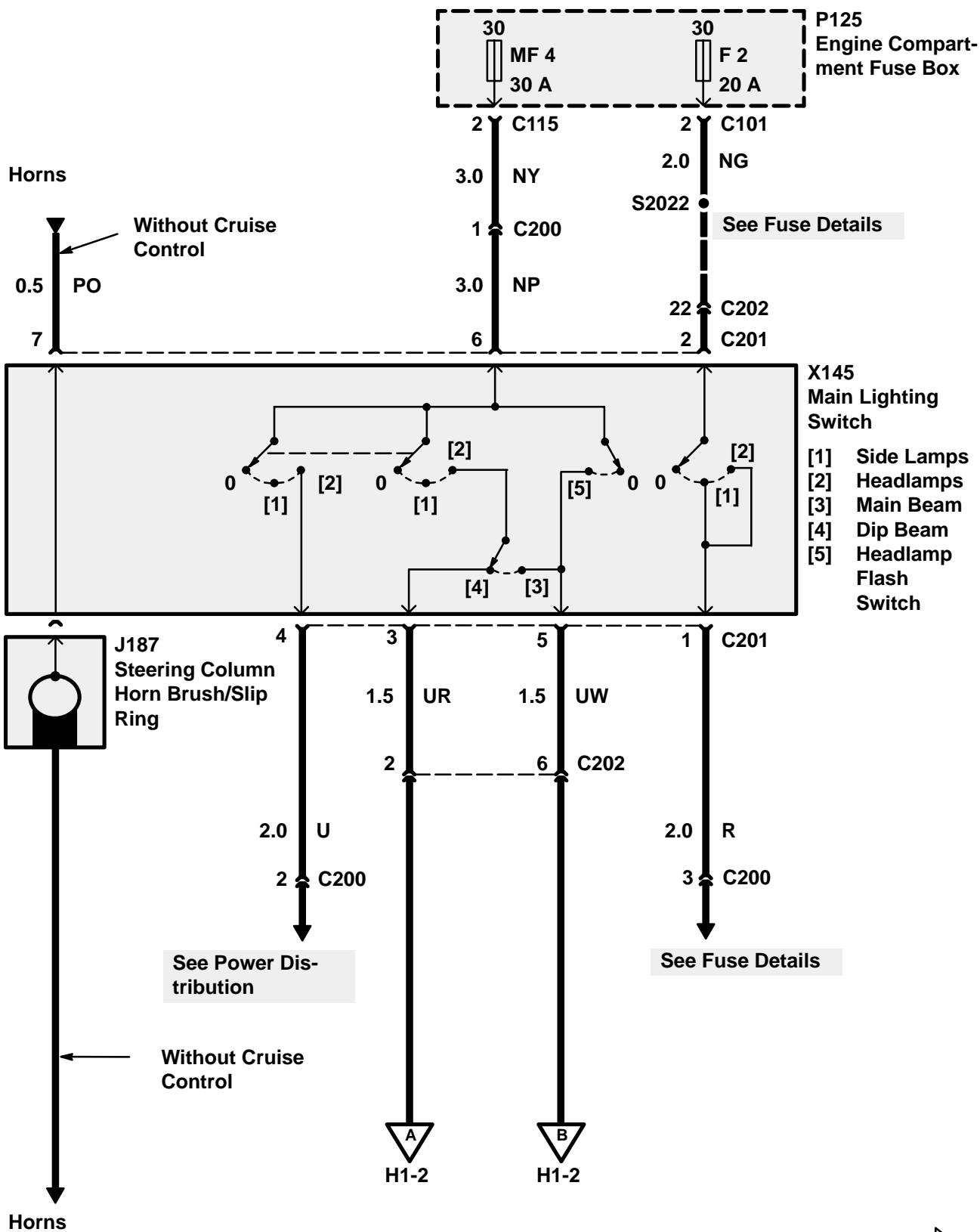
Z148  
Multi-Function  
Unit (MFU)

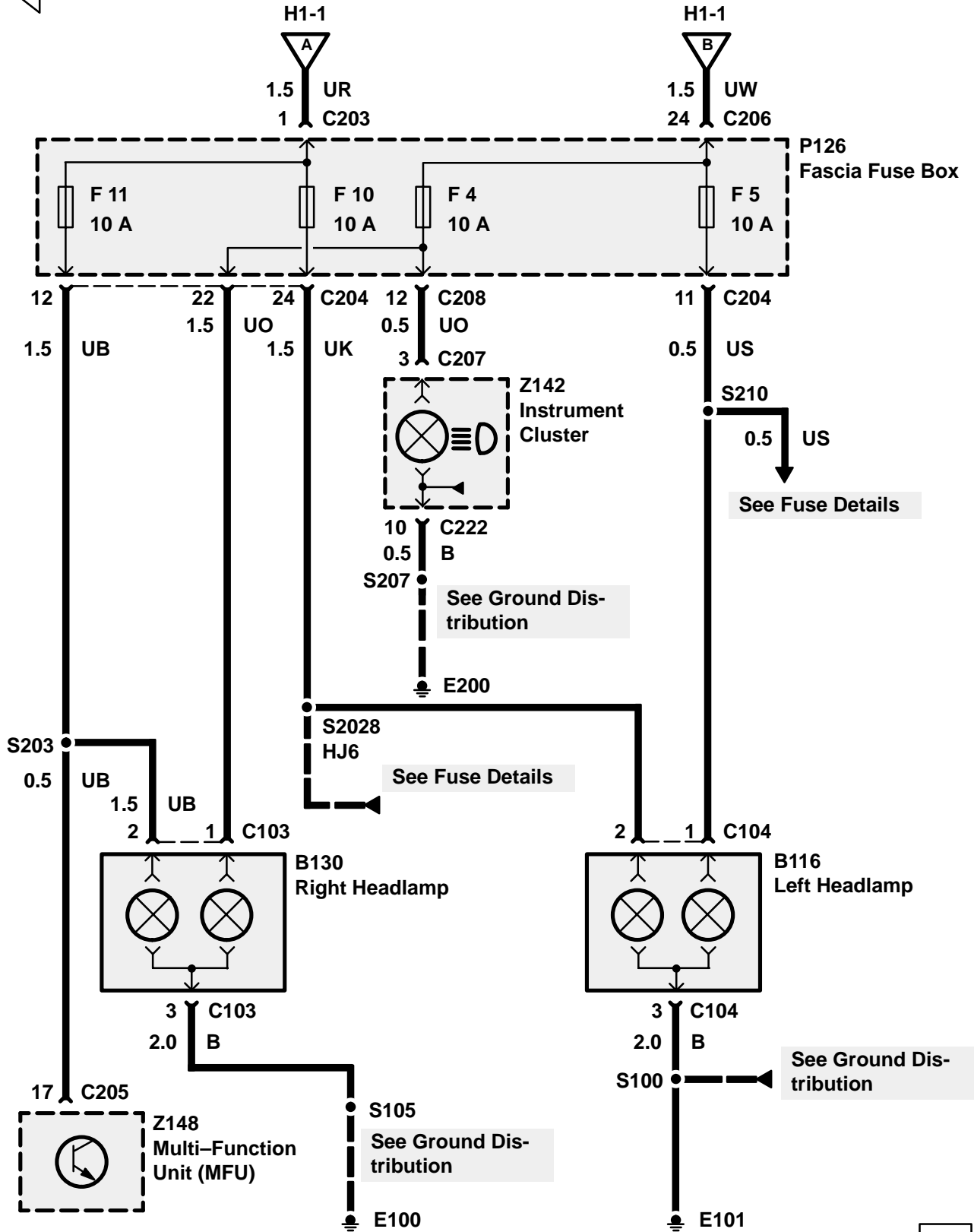
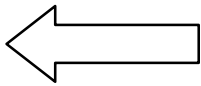




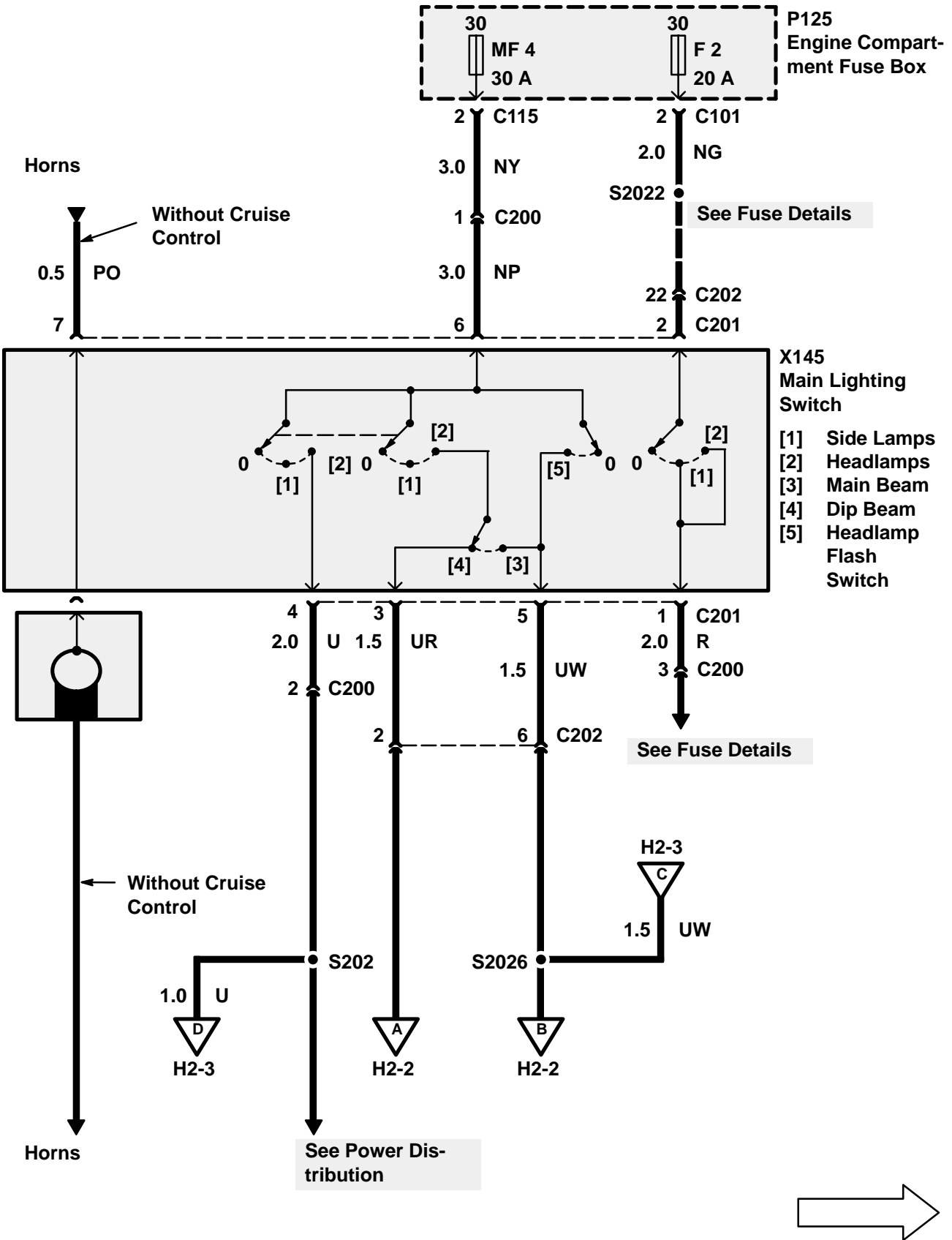


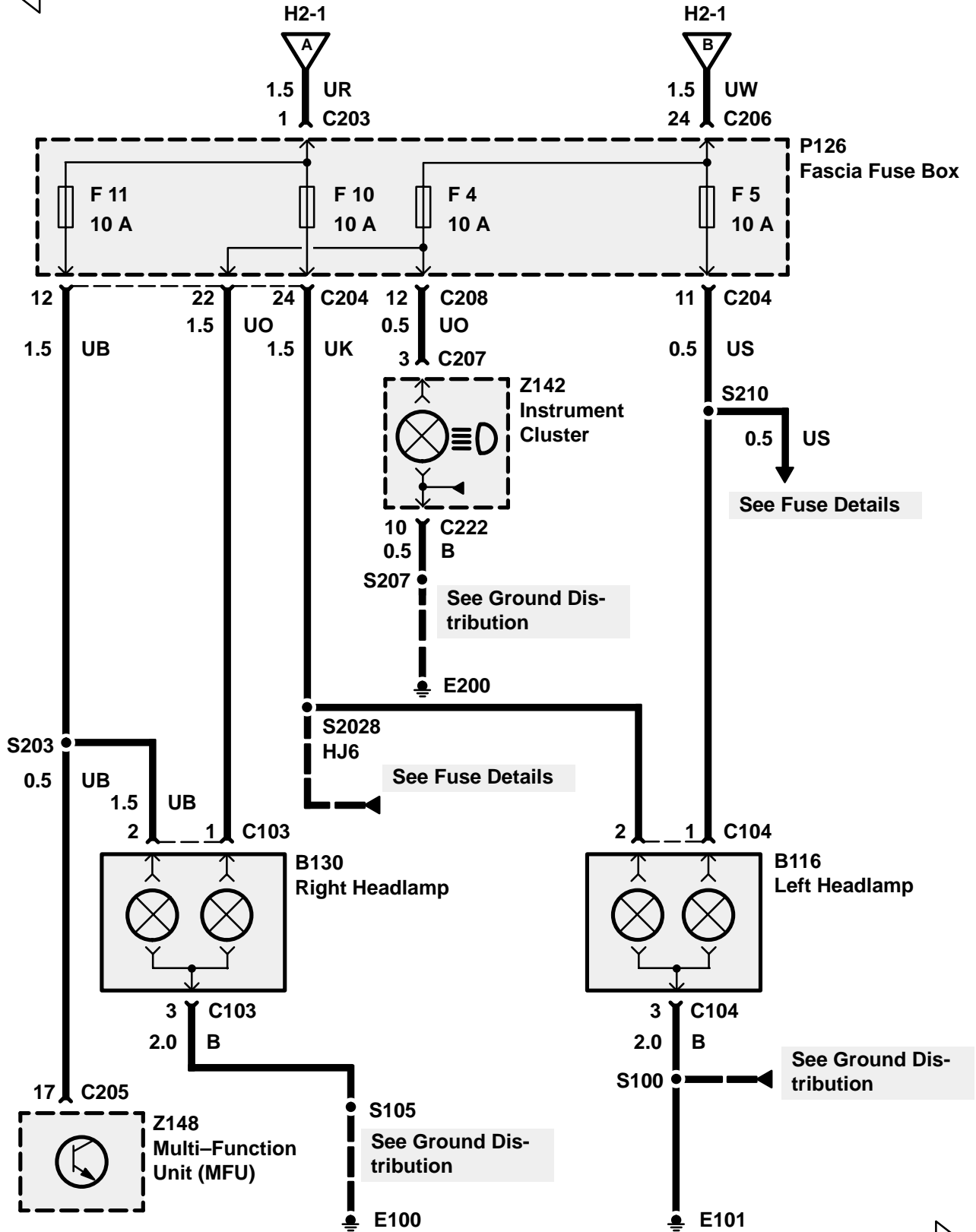
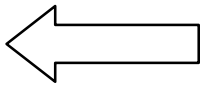










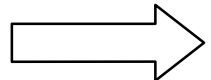


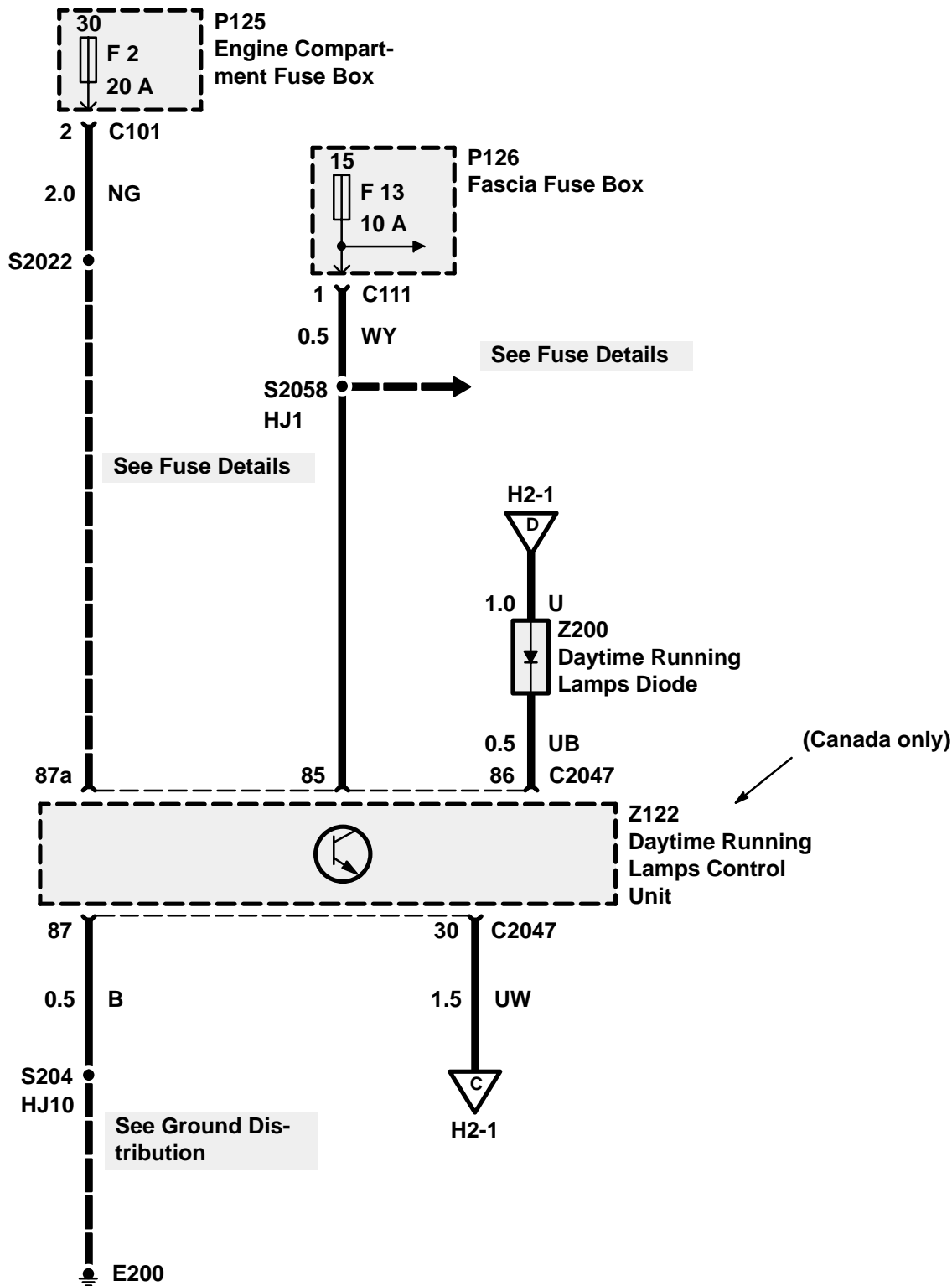
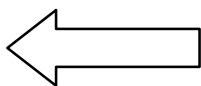
See Fuse Details

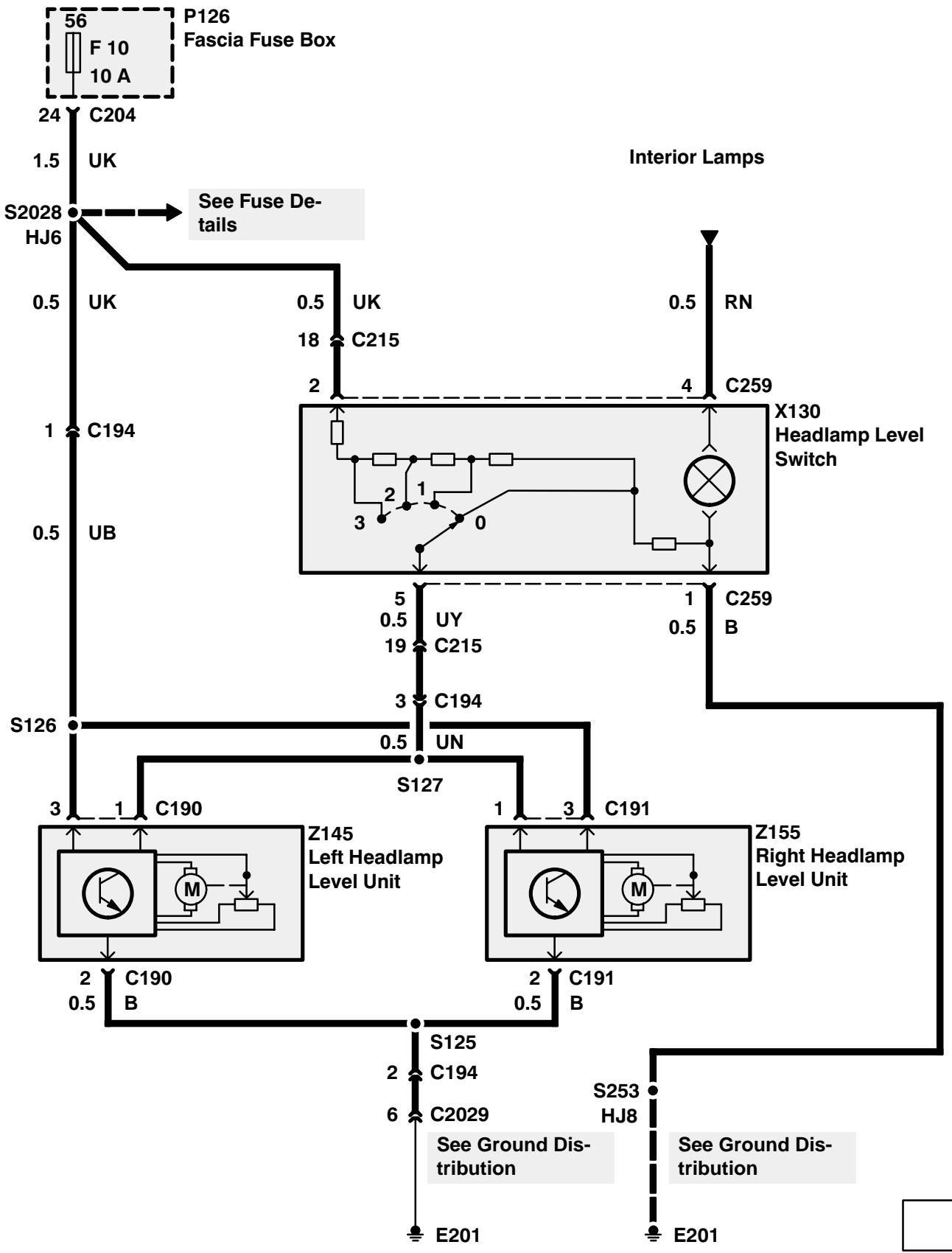
See Ground Dis-tribution

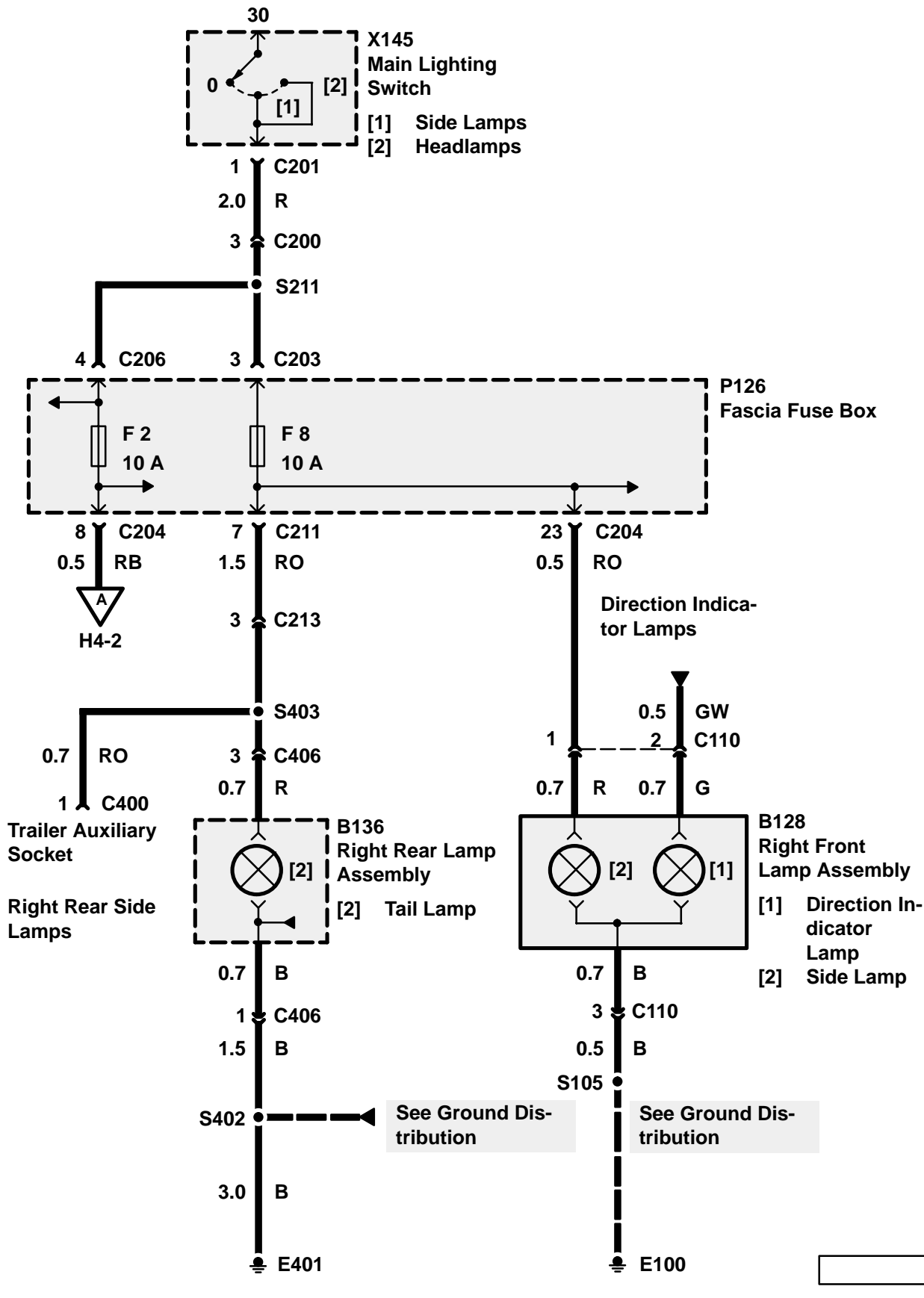
See Fuse Details

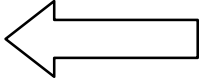
See Ground Dis-tribution



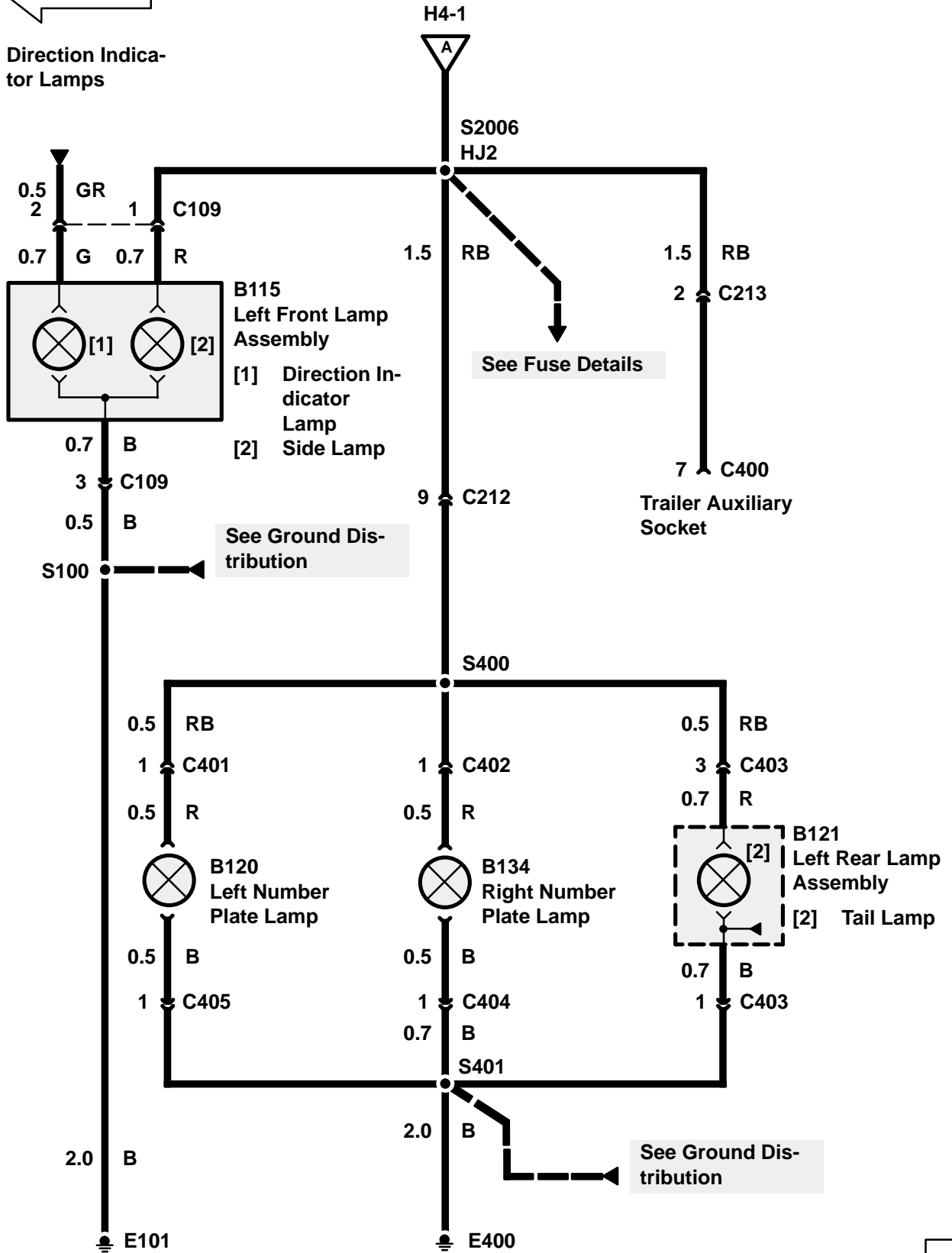


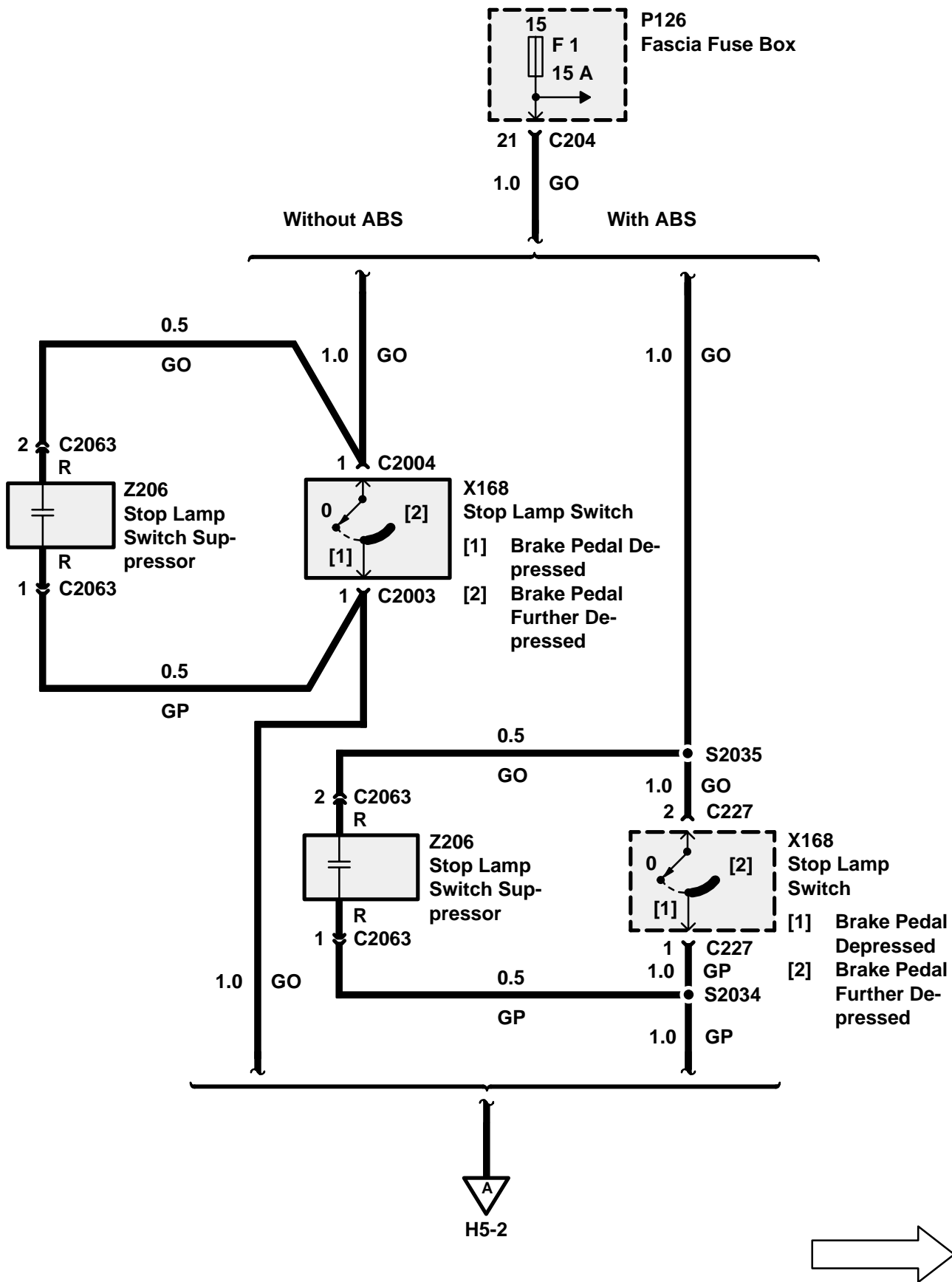


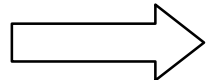
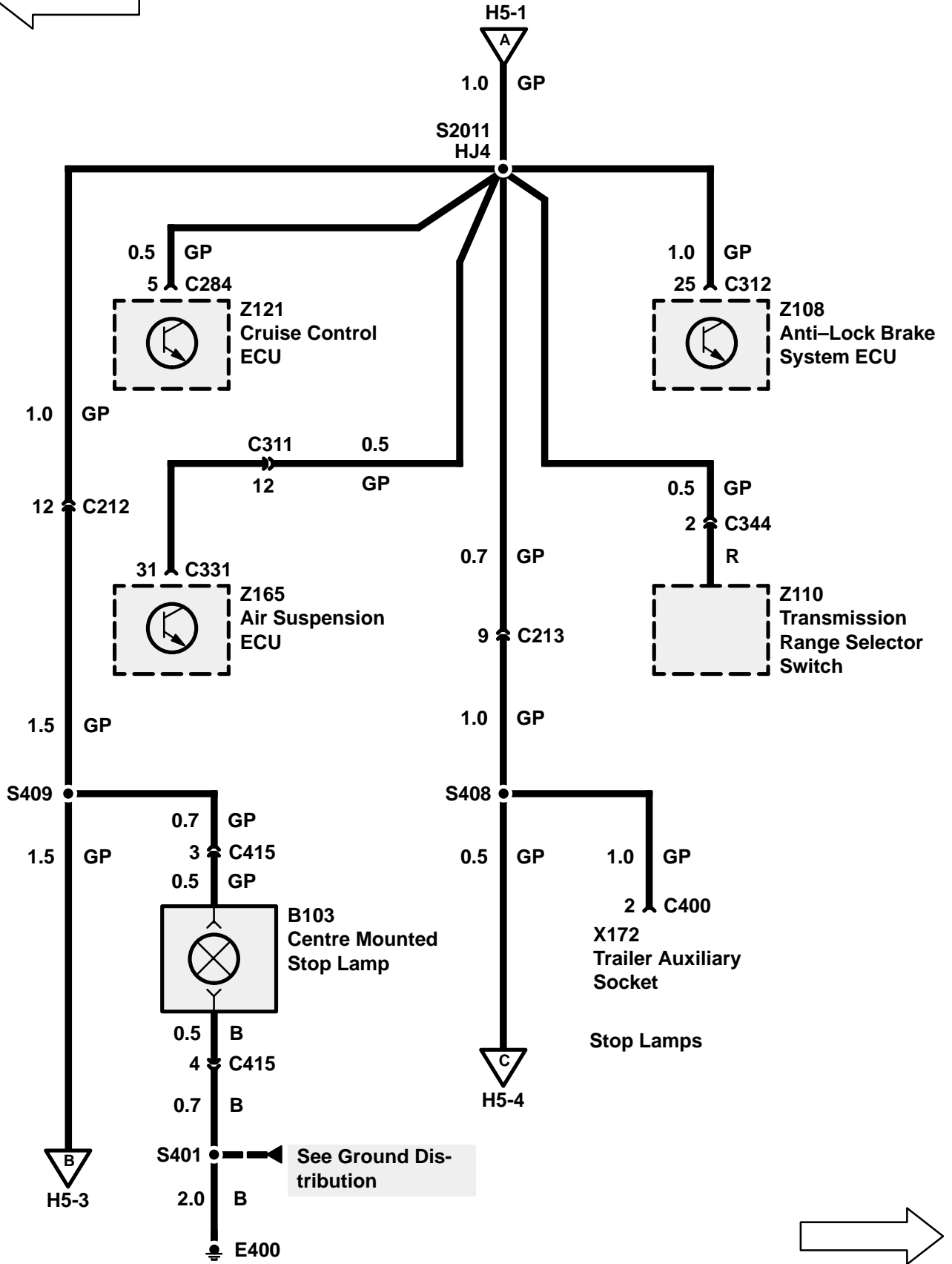
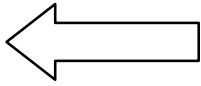




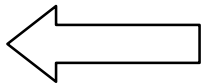
Direction Indicator Lamps



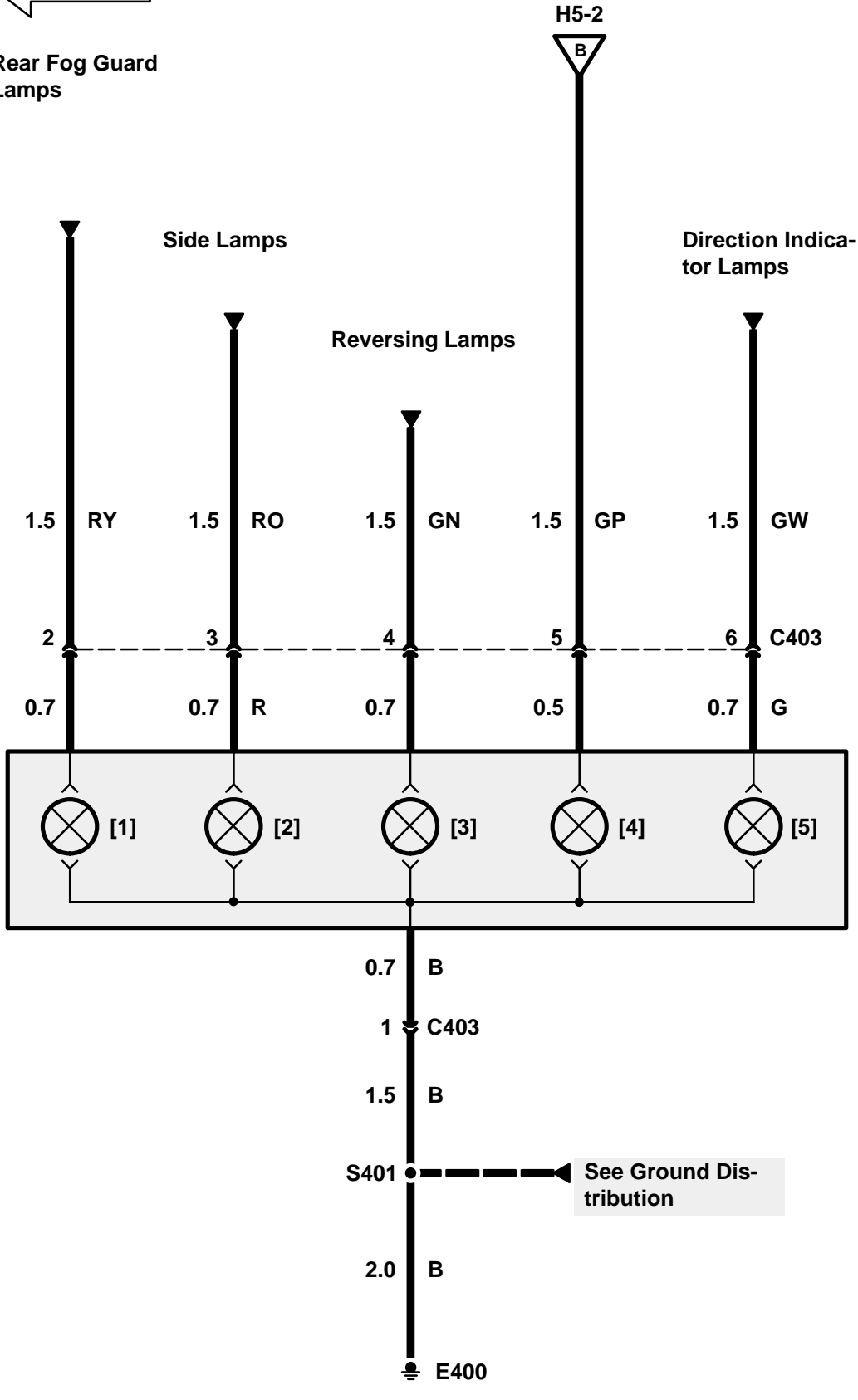






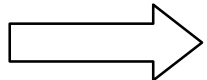


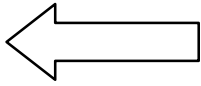
Rear Fog Guard Lamps



- B121  
Left Rear Lamp  
Assembly**
- [1] Rear Fog Lamp
  - [2] Tail Lamp
  - [3] Reverse Lamp
  - [4] Stop Lamp
  - [5] Indicator Lamp

See Ground Distribution





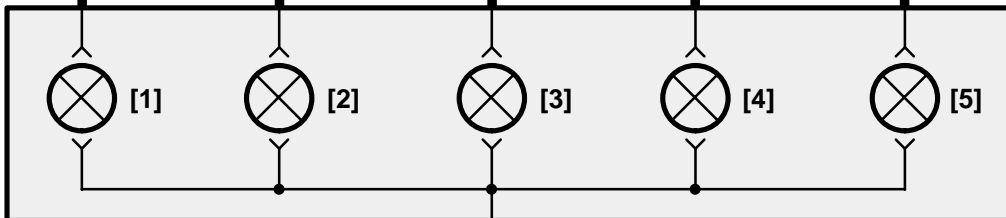
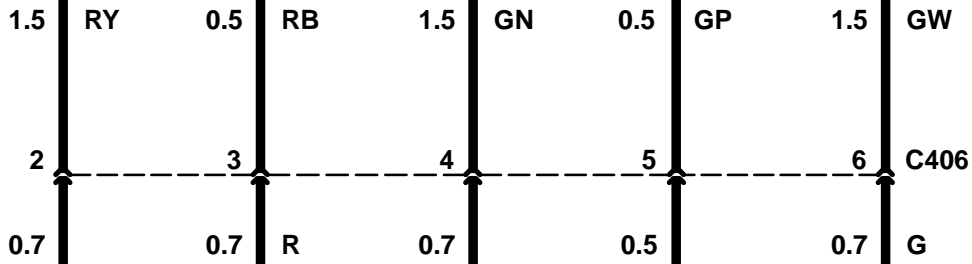
Rear Fog Guard Lamps



Side Lamps

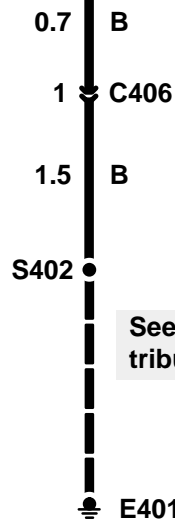
Direction Indicator Lamps

Reversing Lamps



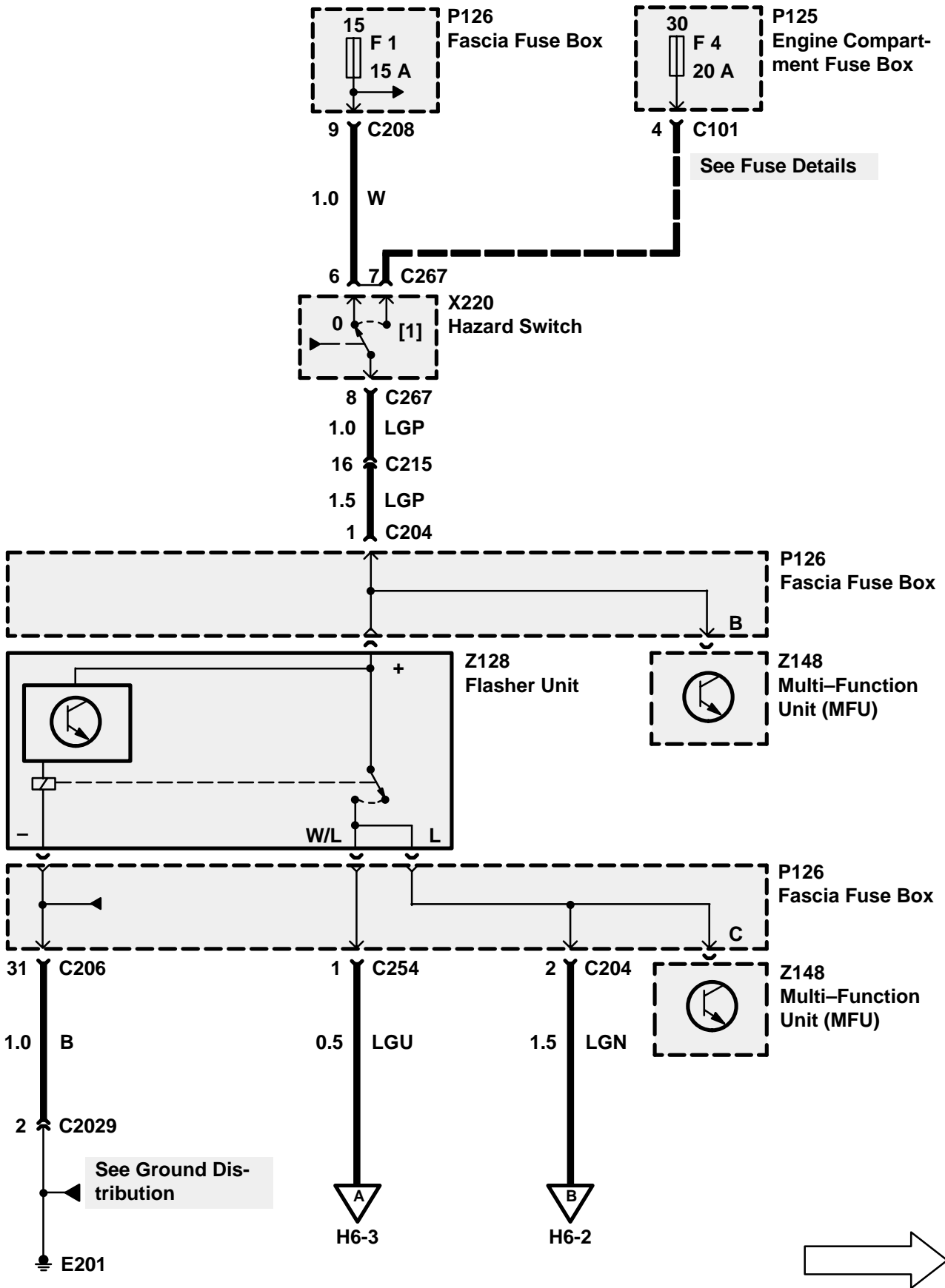
B136 Right Rear Lamp Assembly

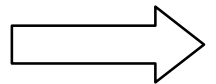
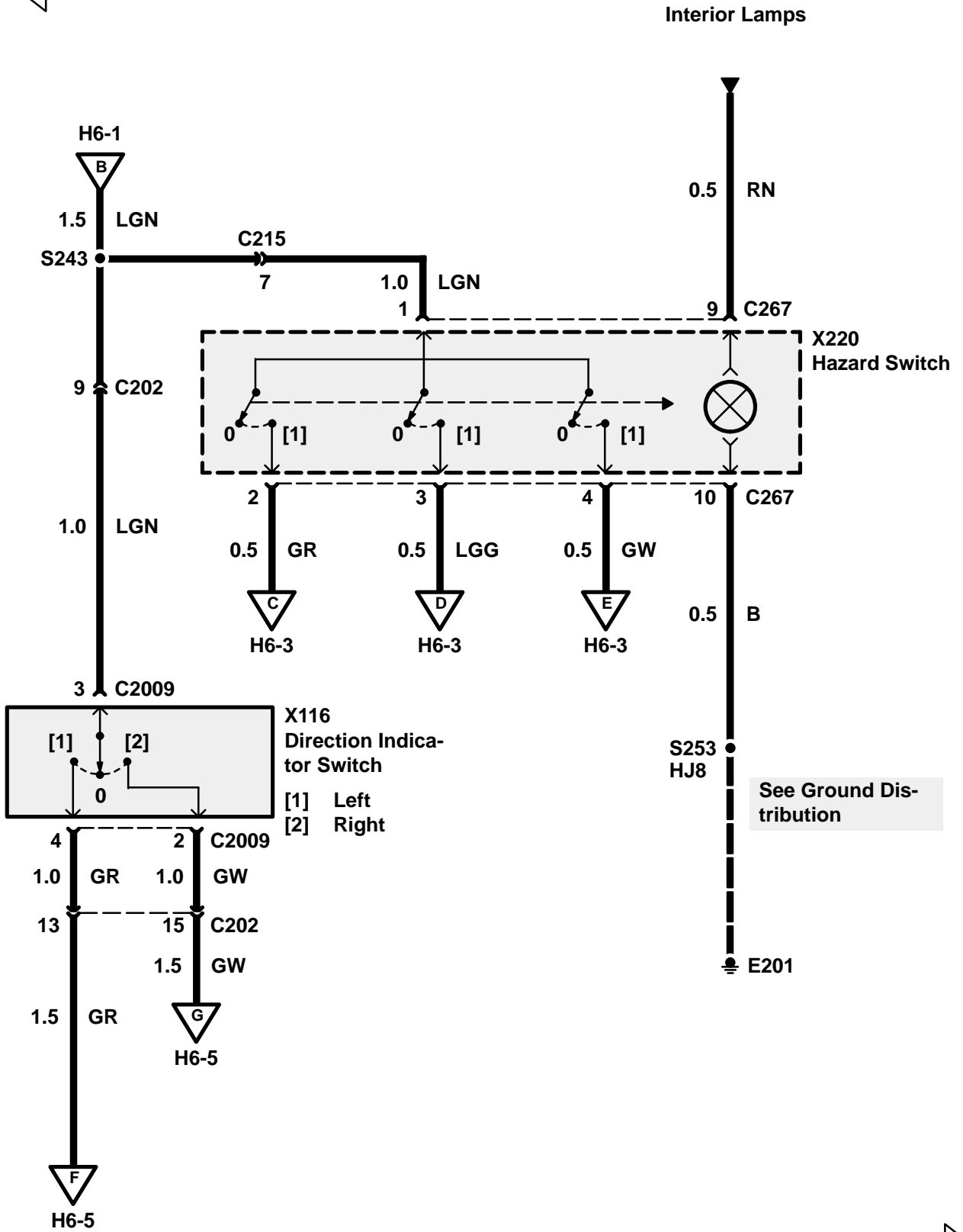
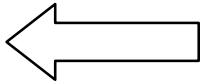
- [1] Rear Fog Lamp
[2] Tail Lamp
[3] Reverse Lamp
[4] Stop Lamp
[5] Indicator Lamp

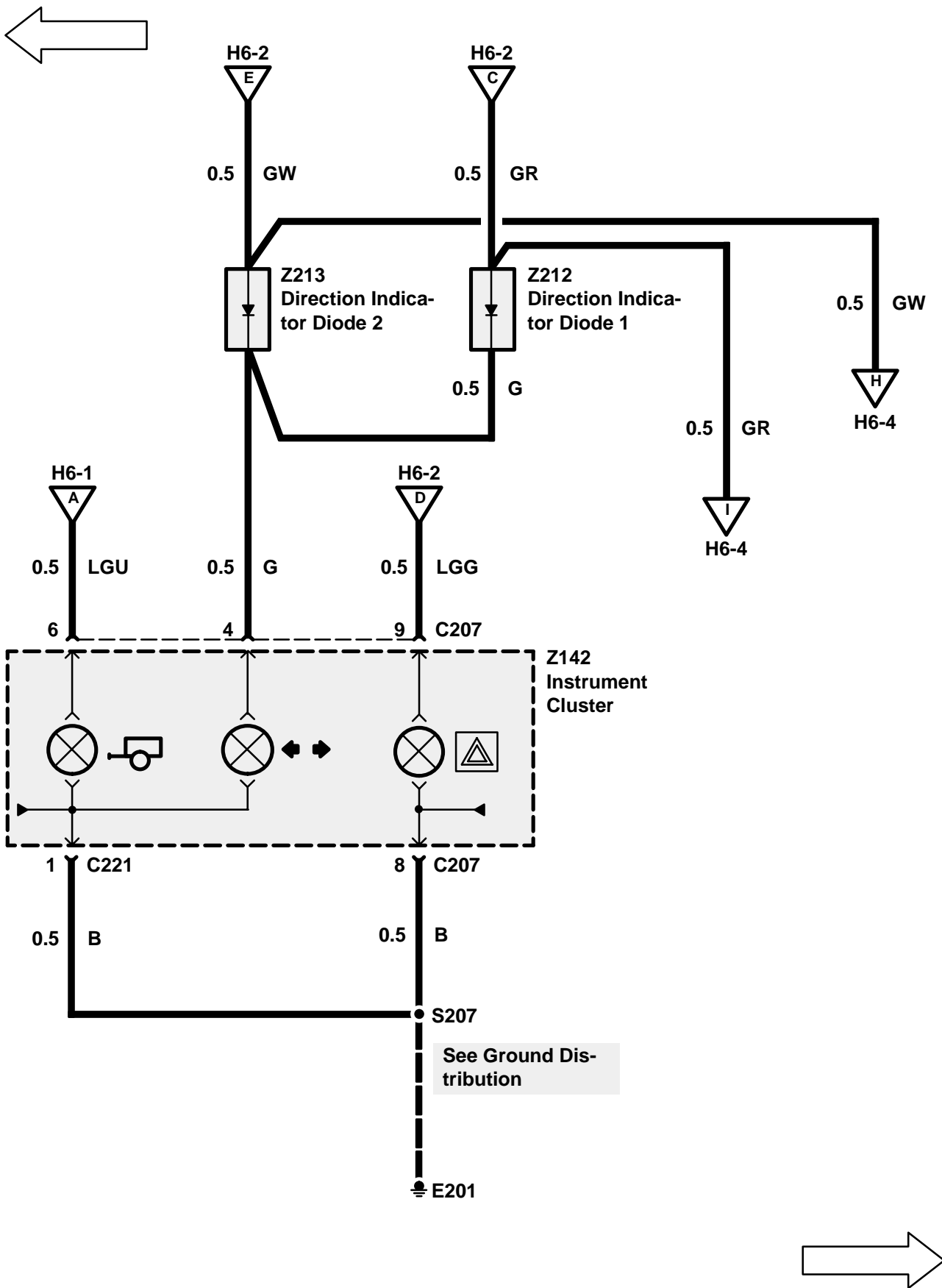


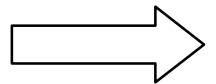
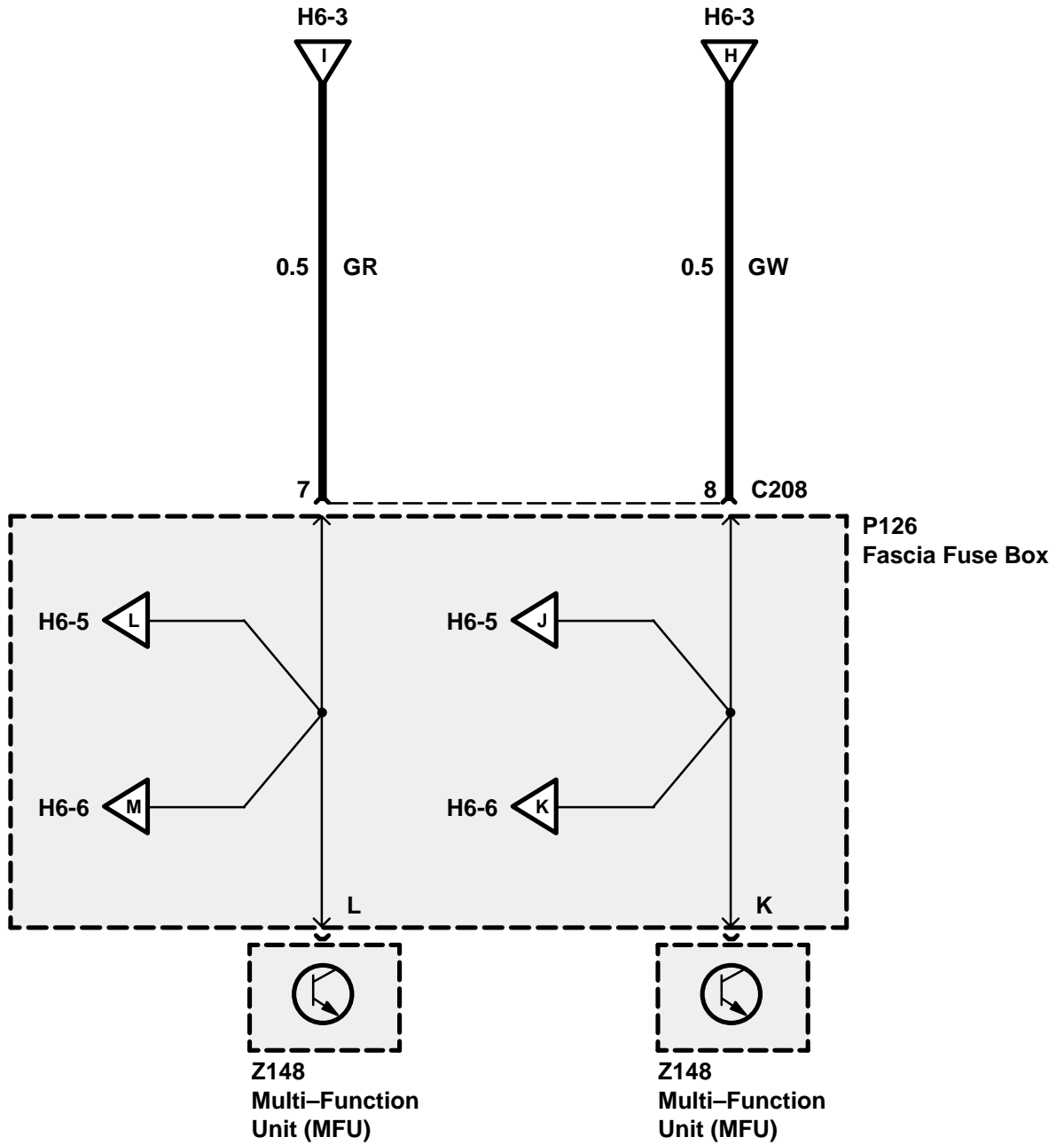
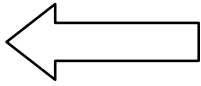
See Ground Distribution

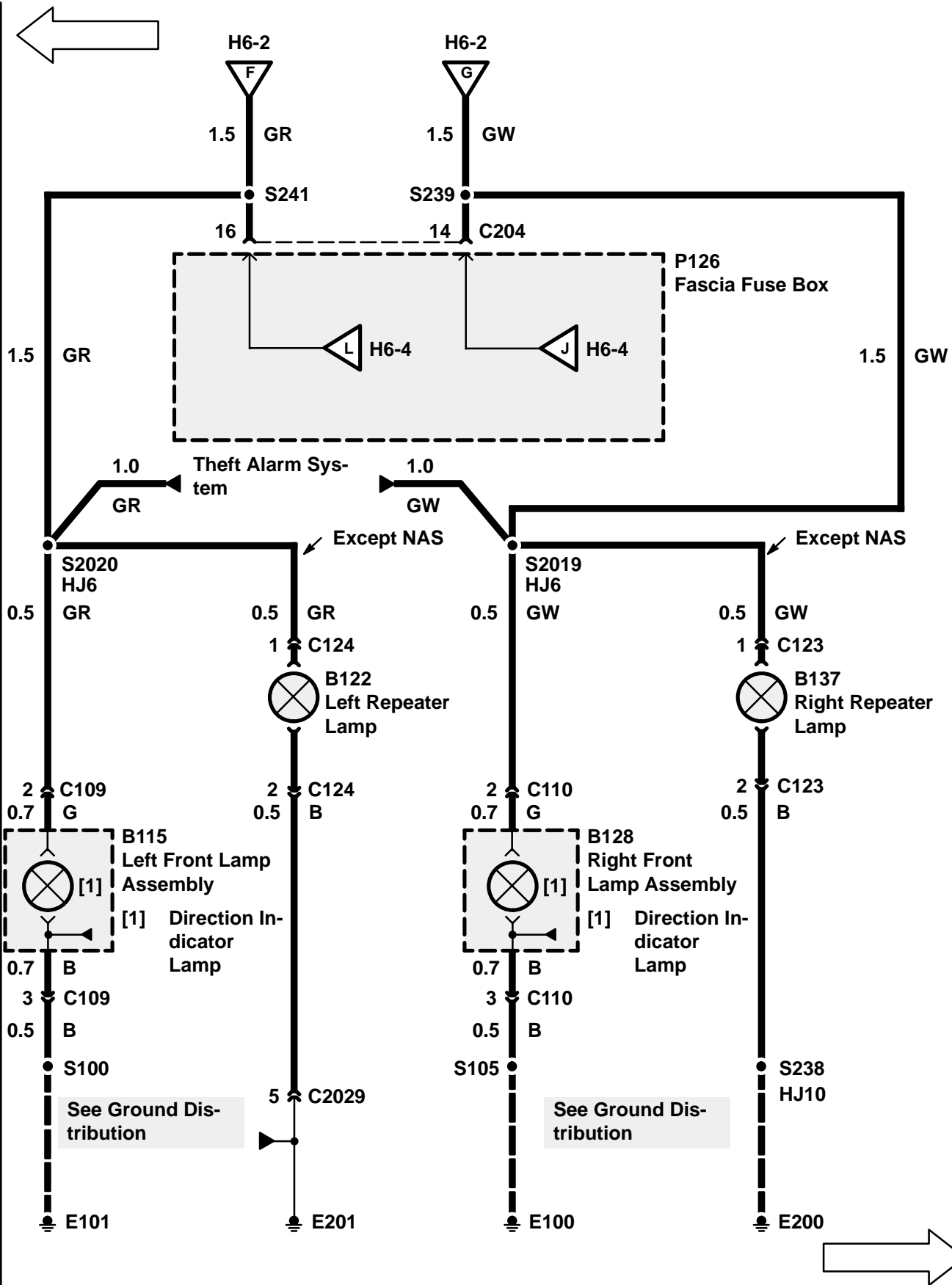


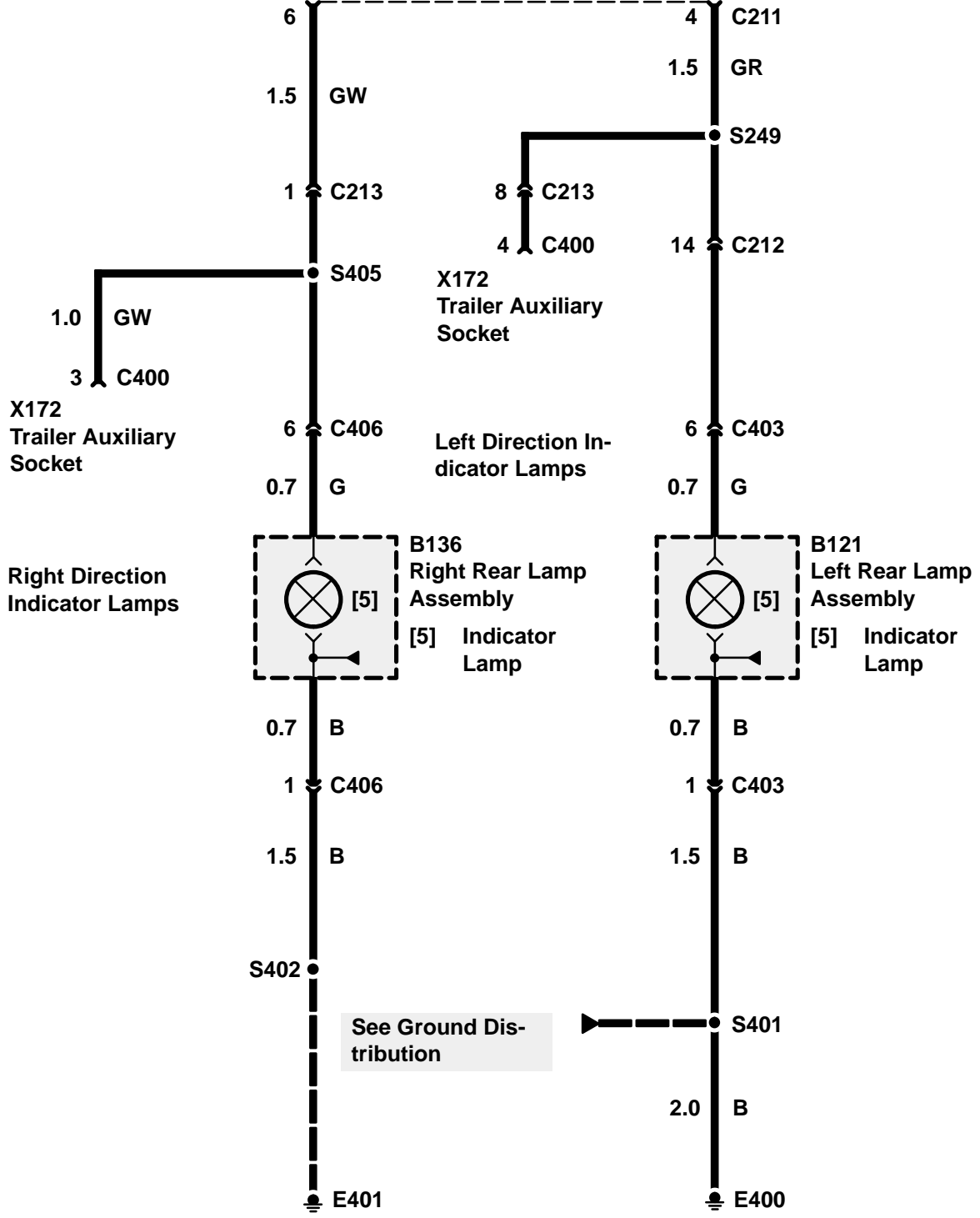
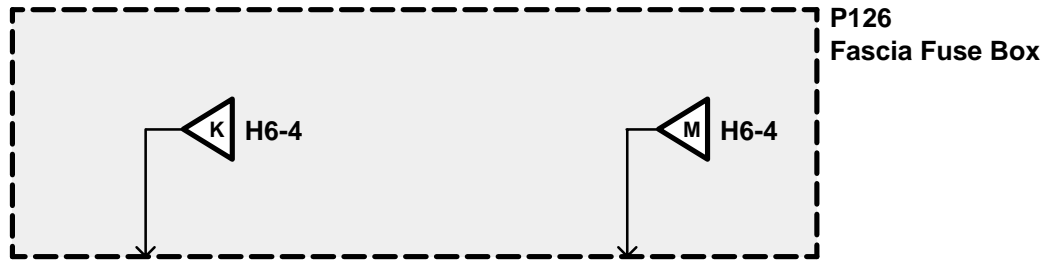
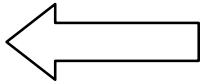




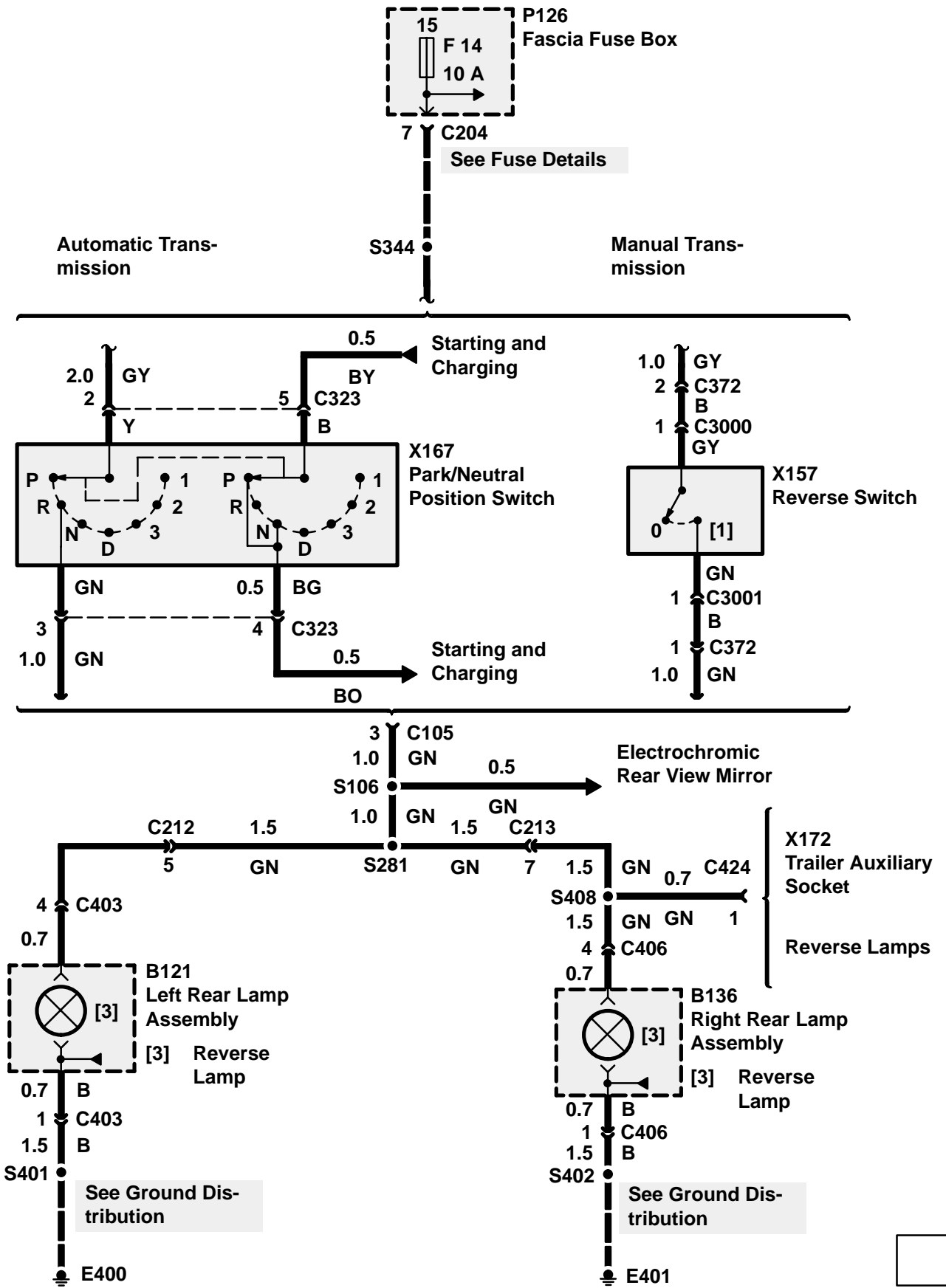


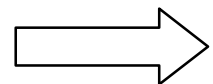
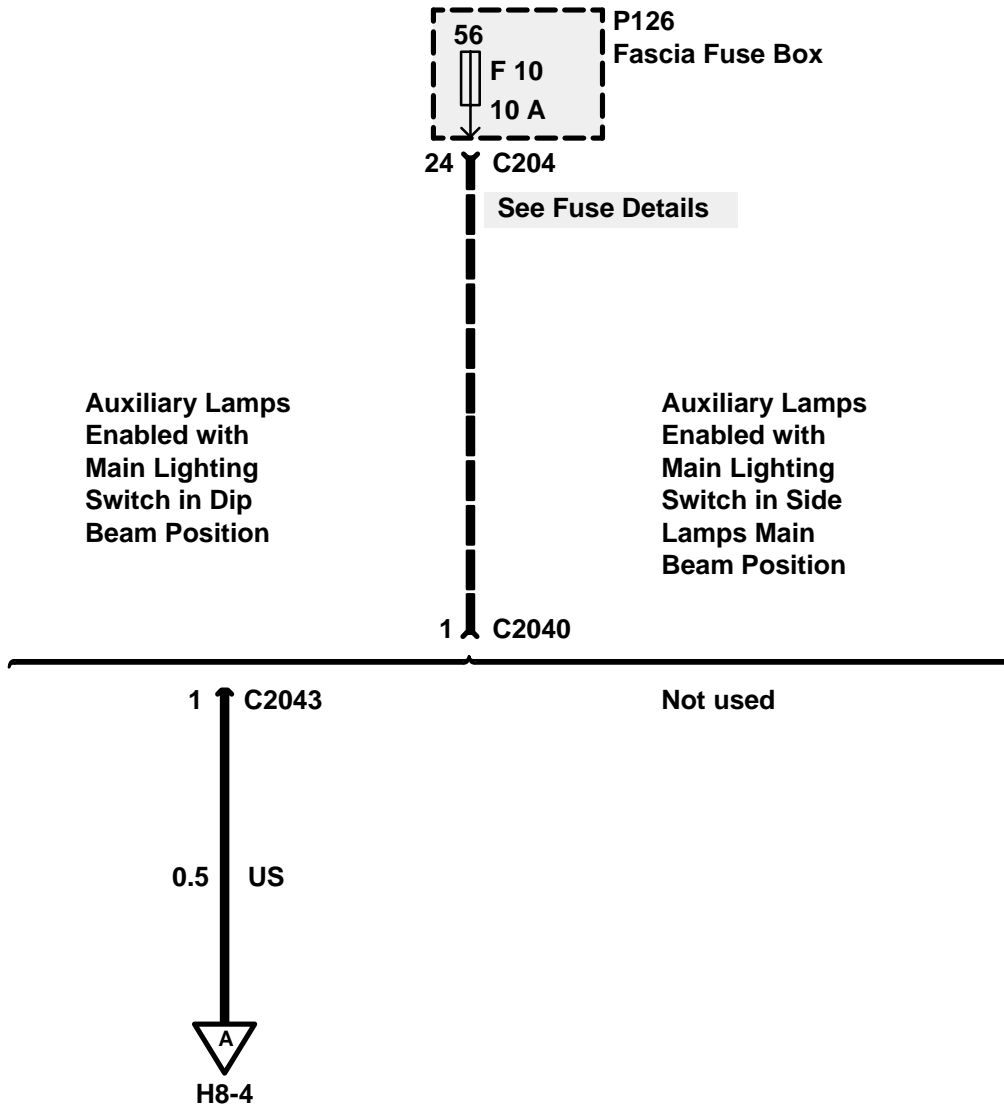


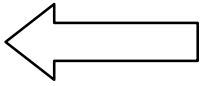












See Fuse Details

Auxiliary Lamps Enabled with Main Lighting Switch in Main Beam Position

Auxiliary Lamps Enabled with Main Lighting Switch in Dip Beam or Side Lamps Position

1 C2041

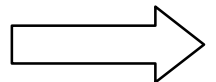
1 C2043

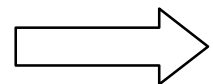
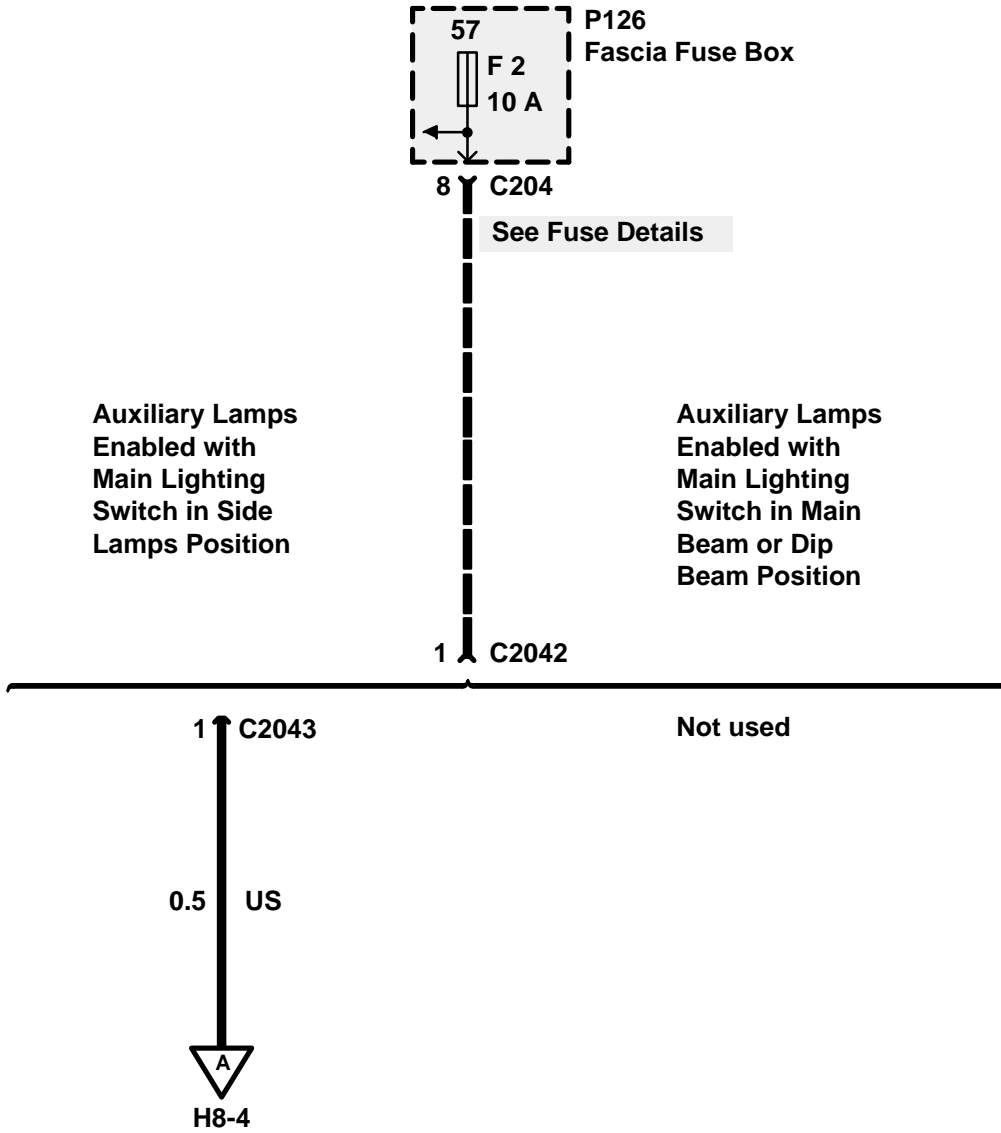
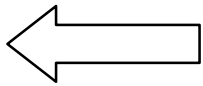
Not used

0.5 US



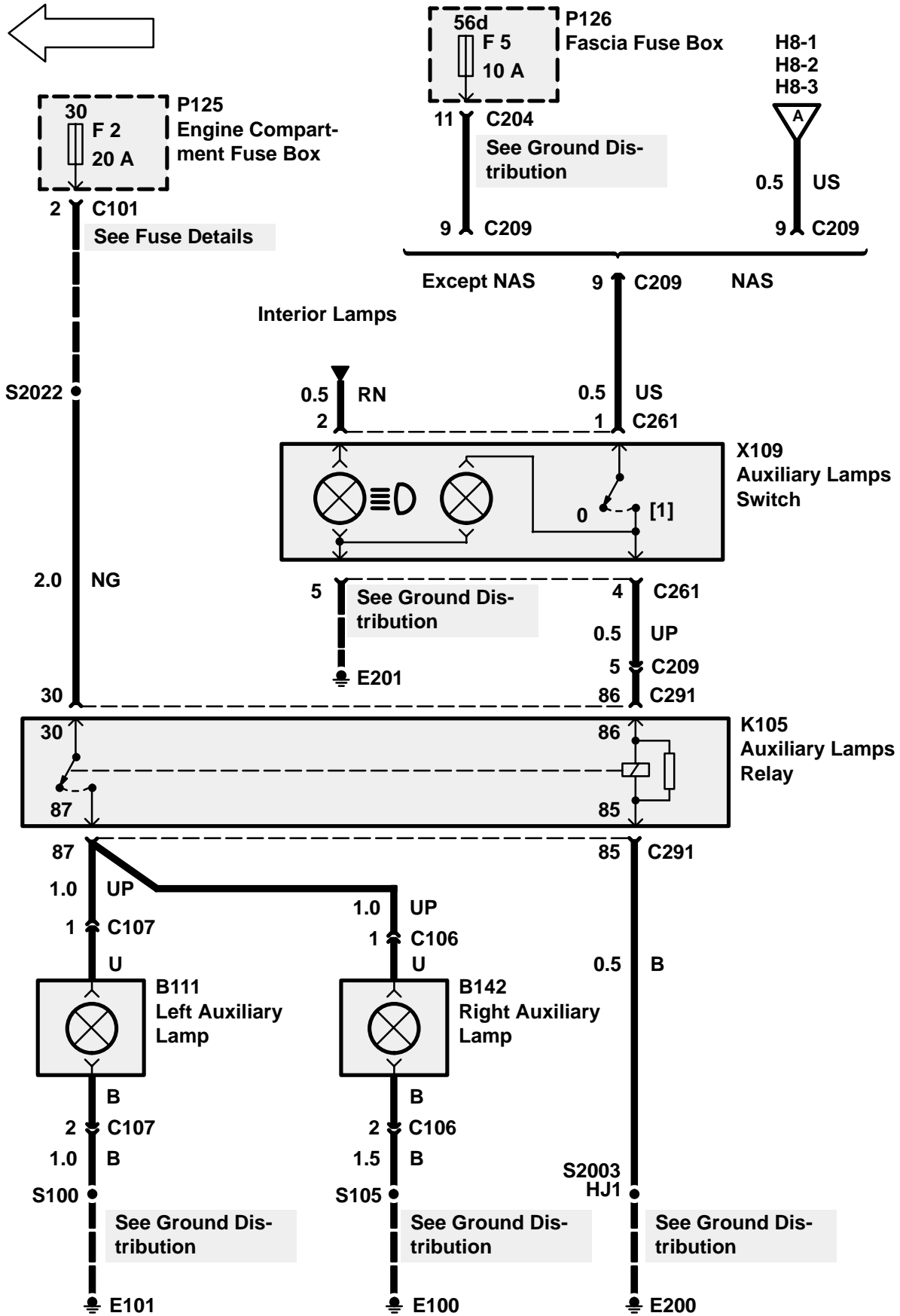
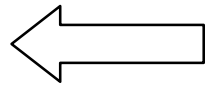
H8-4



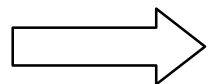
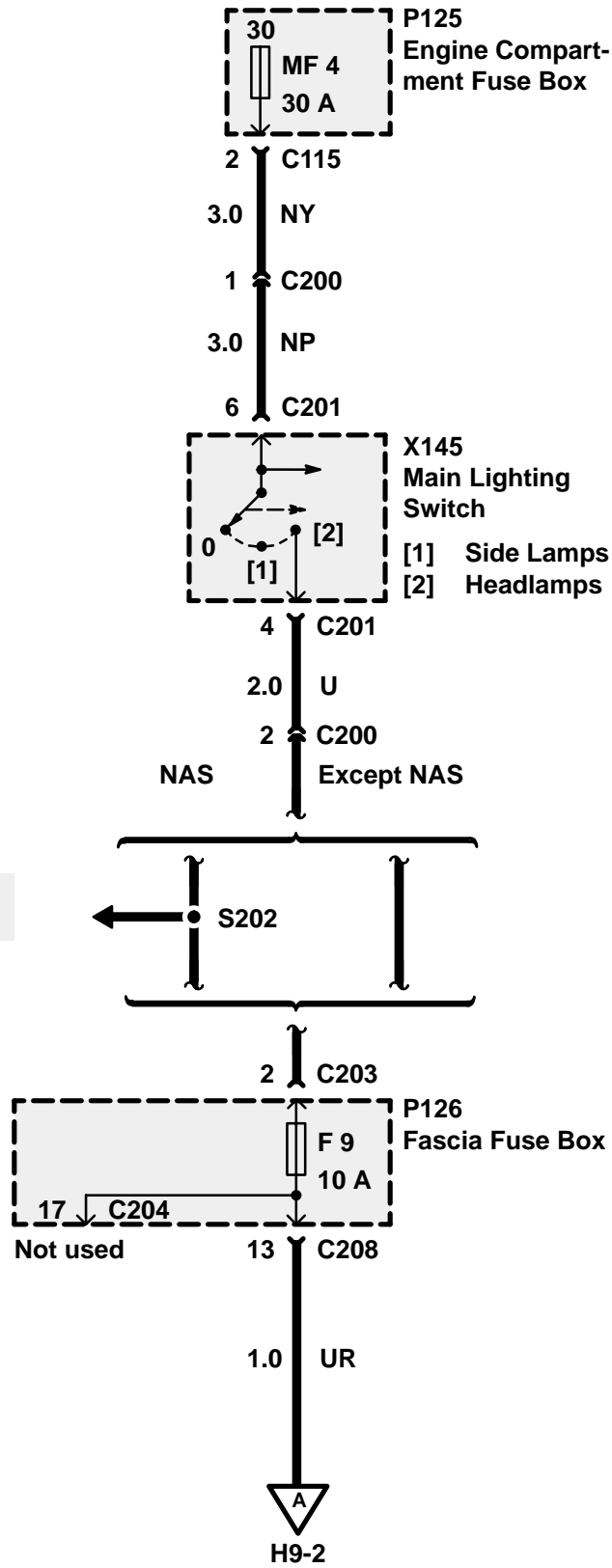


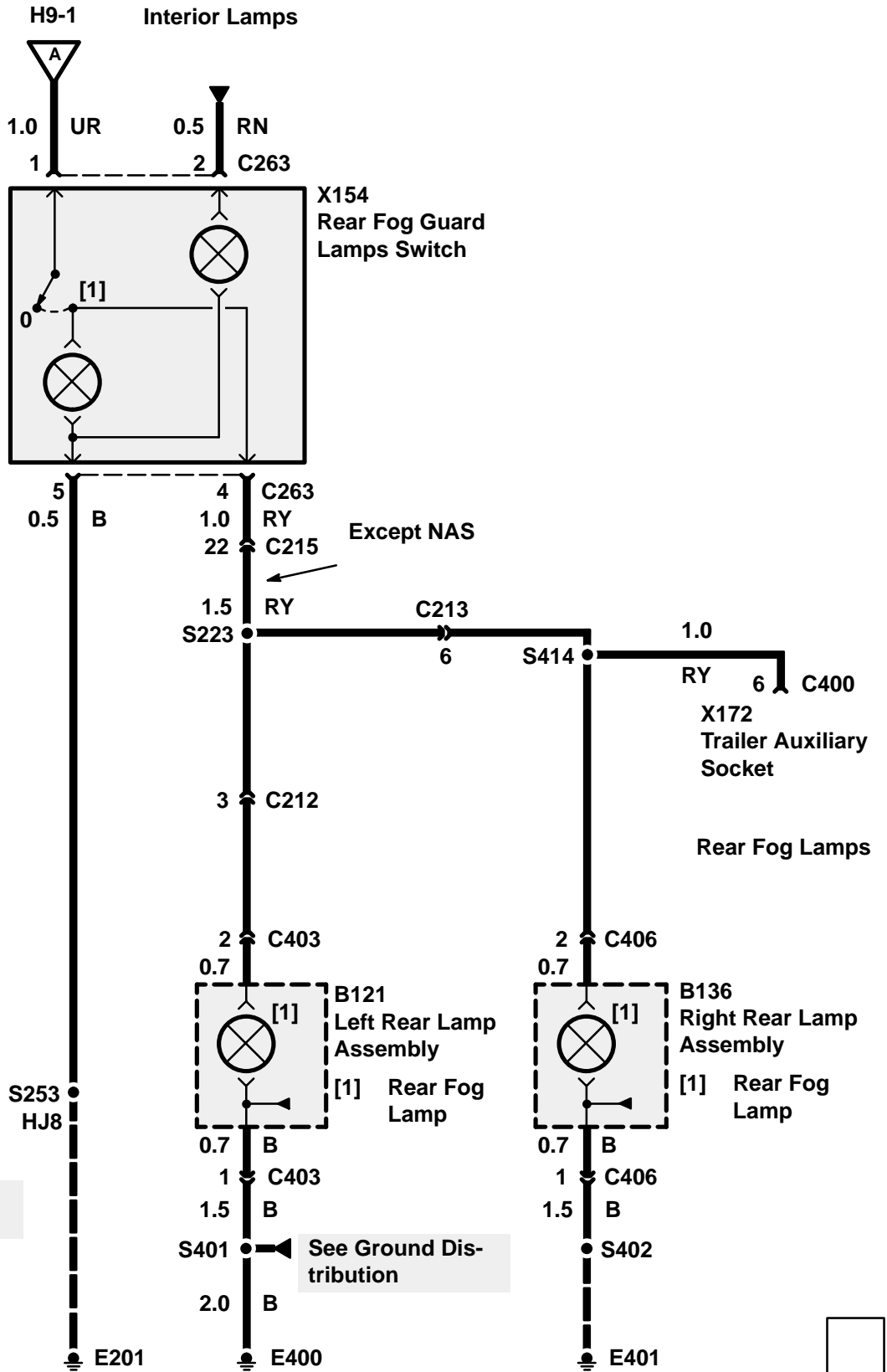
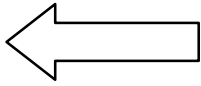
# H8 ETM

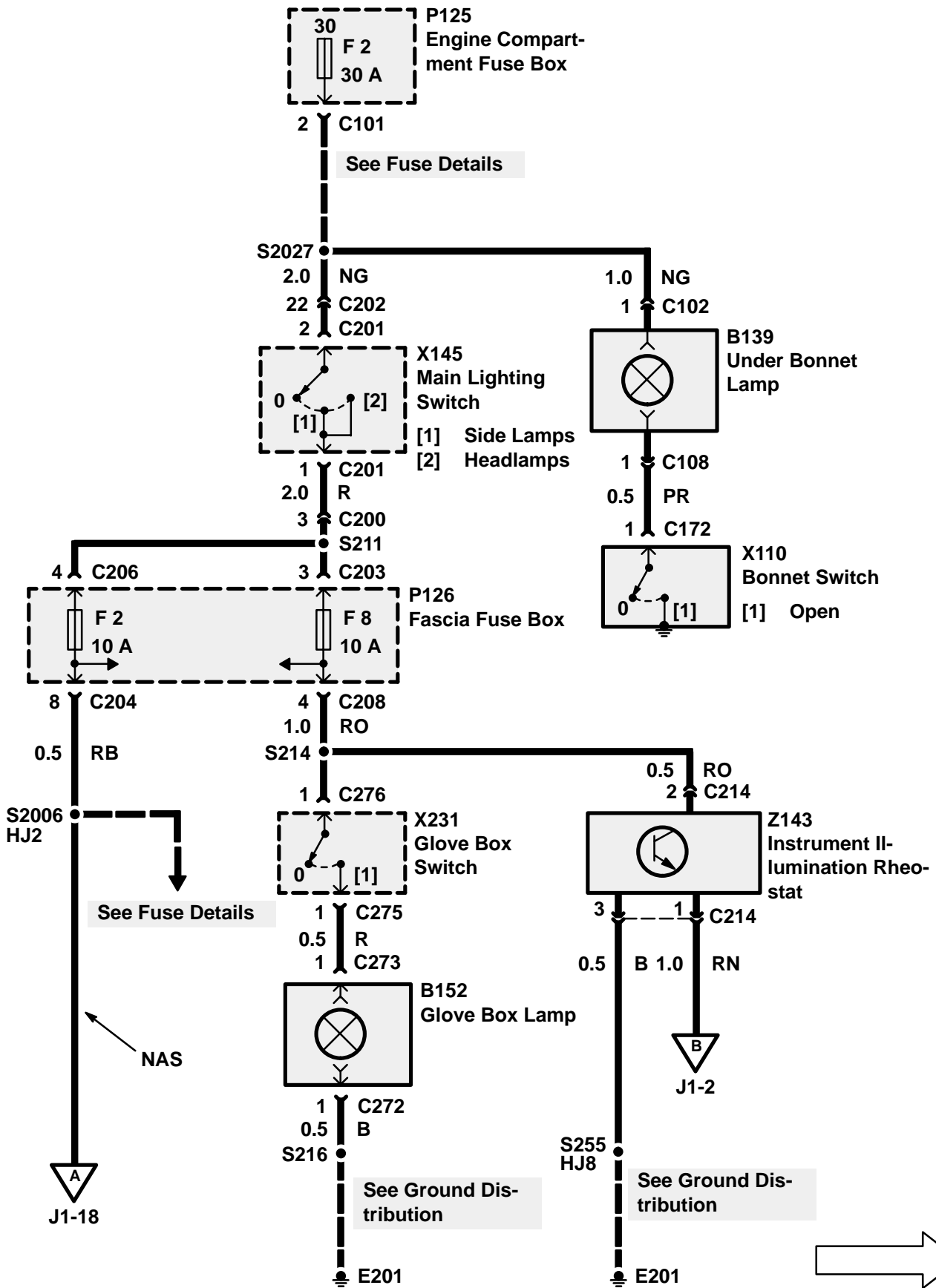
## 1995 RANGE ROVER



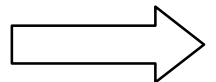
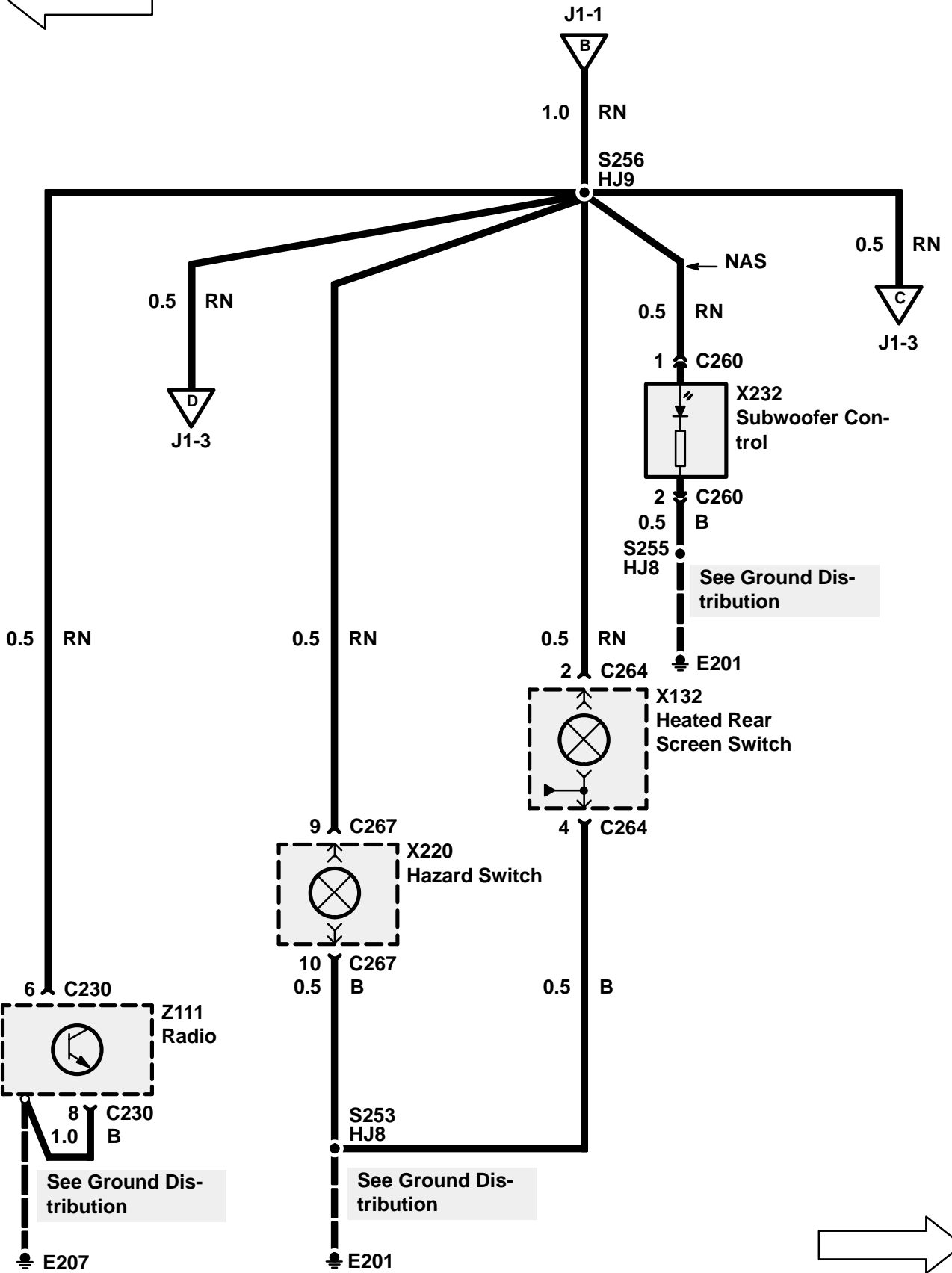
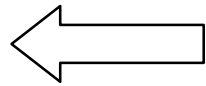
See Power Dis-  
tribution

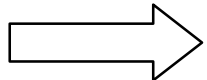
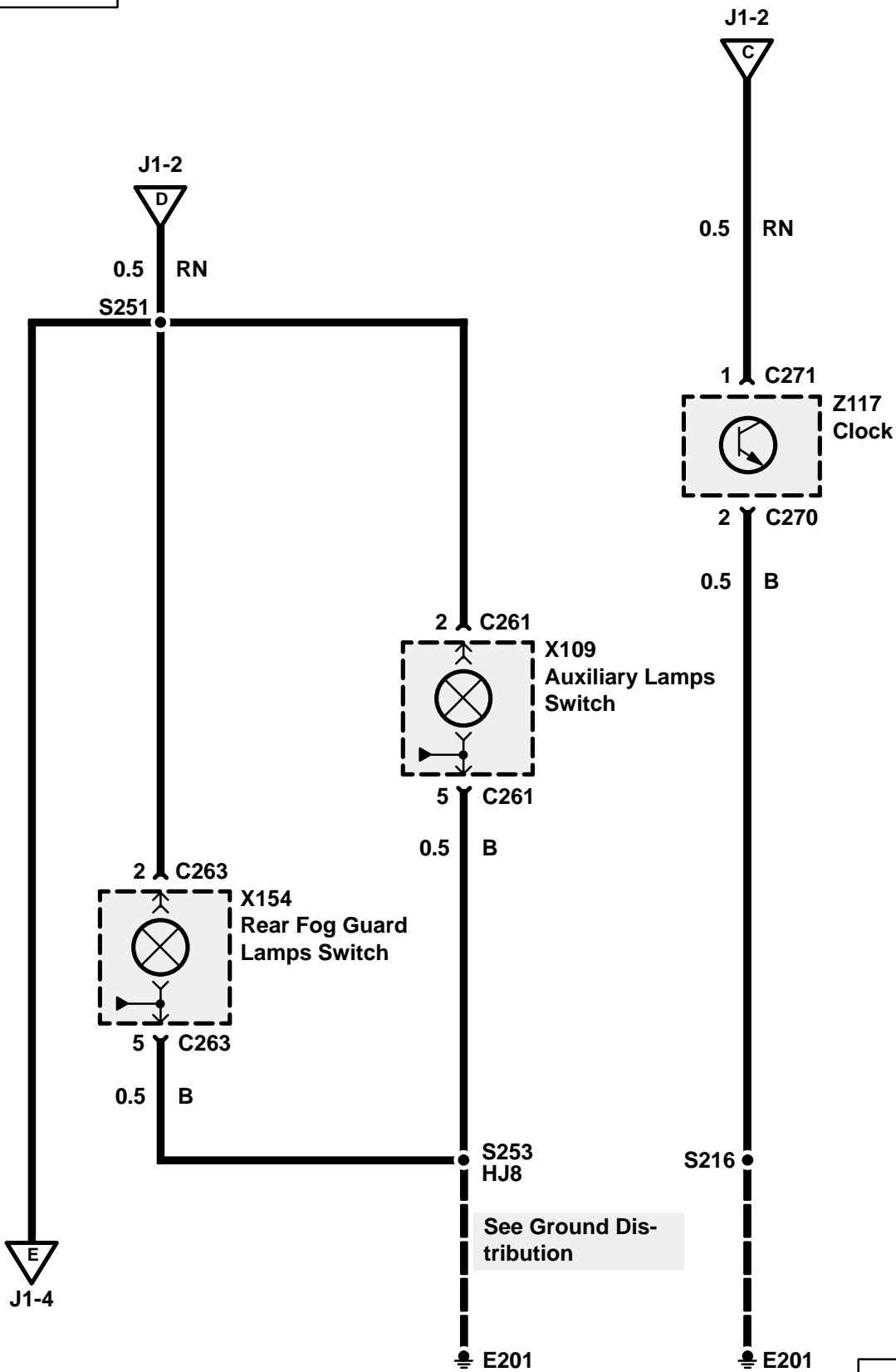
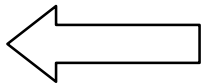






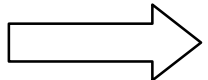
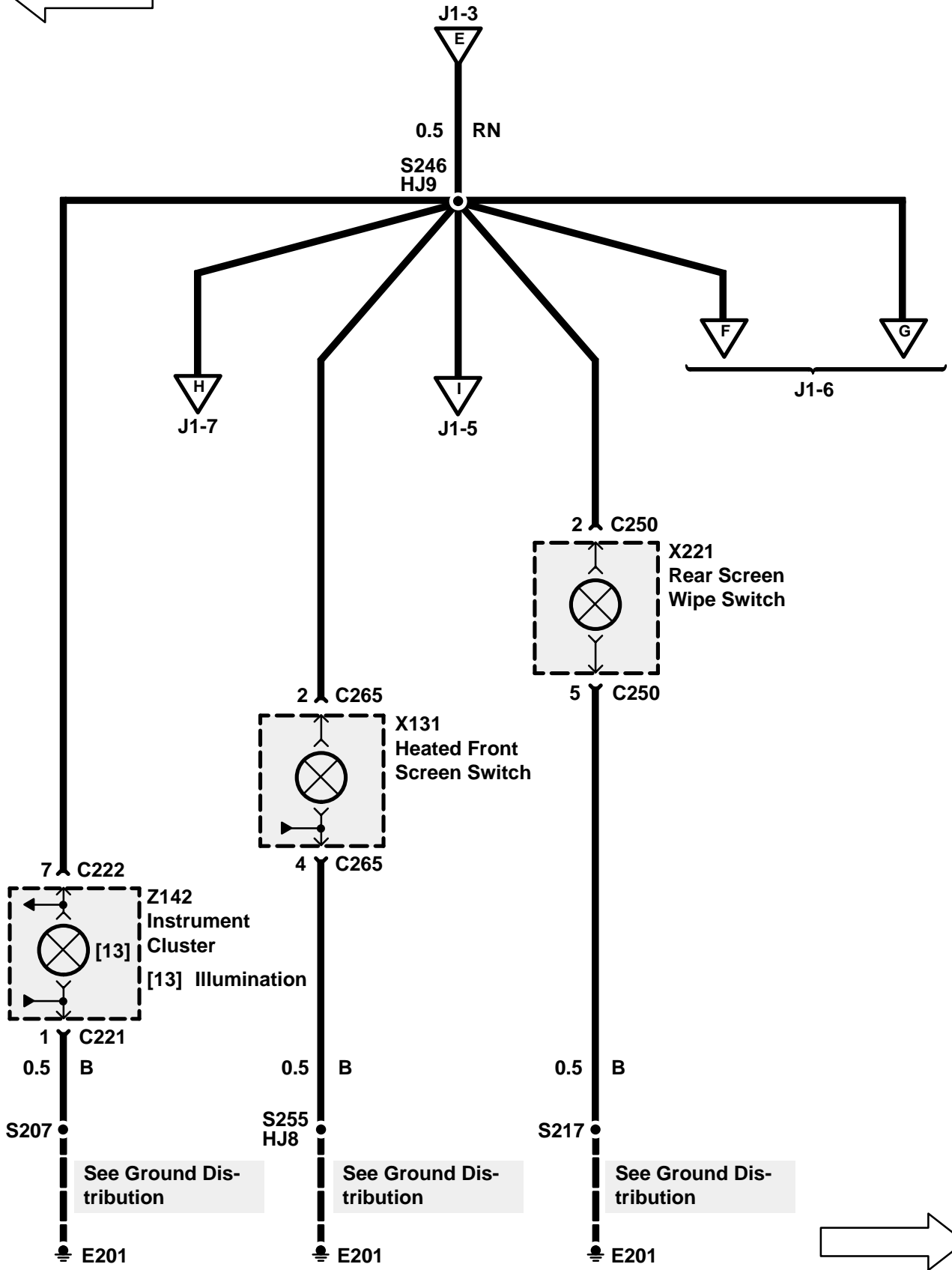
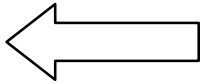


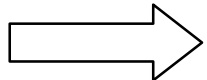
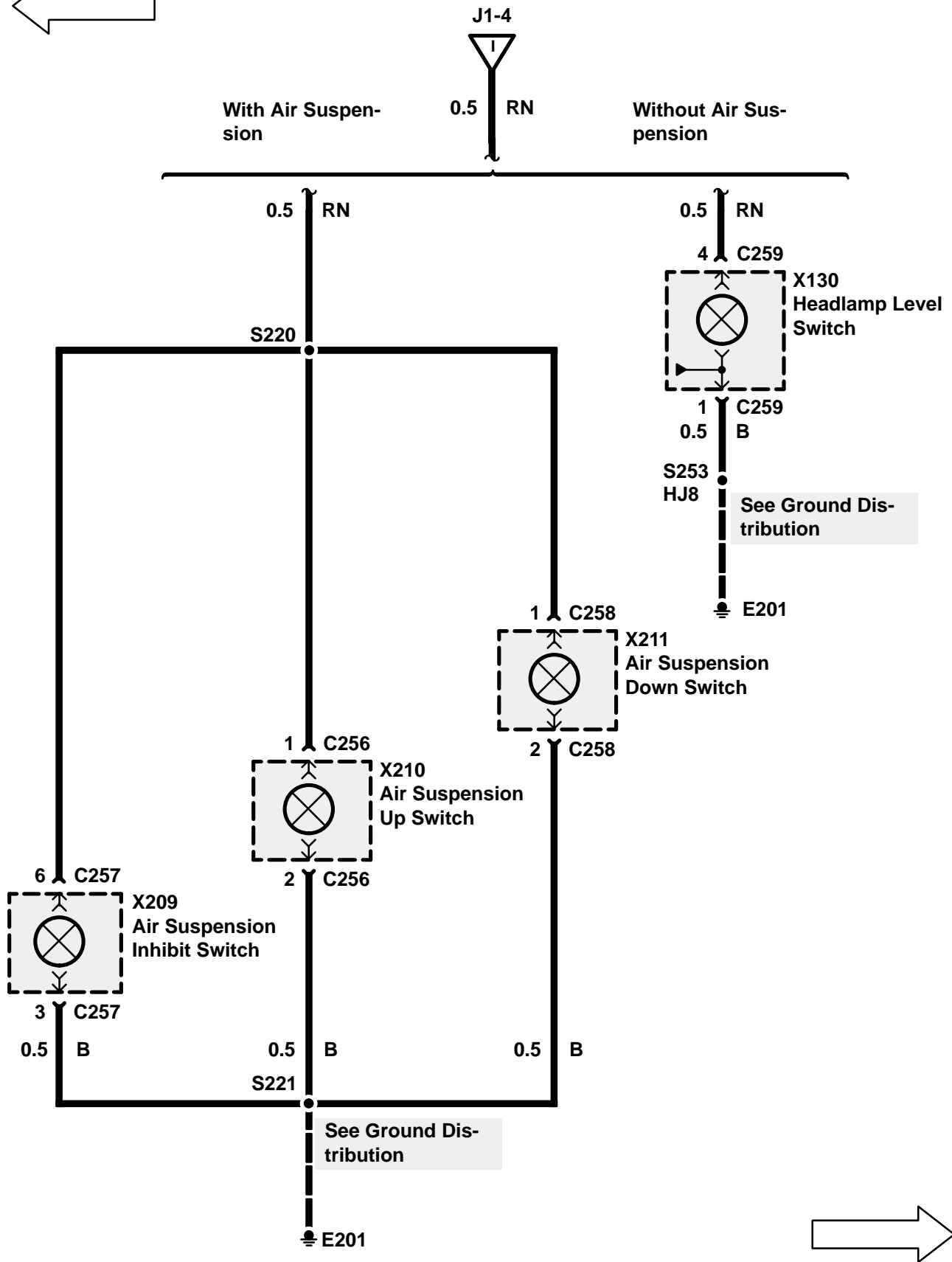
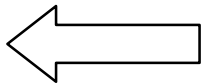




# J1 ETM

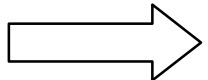
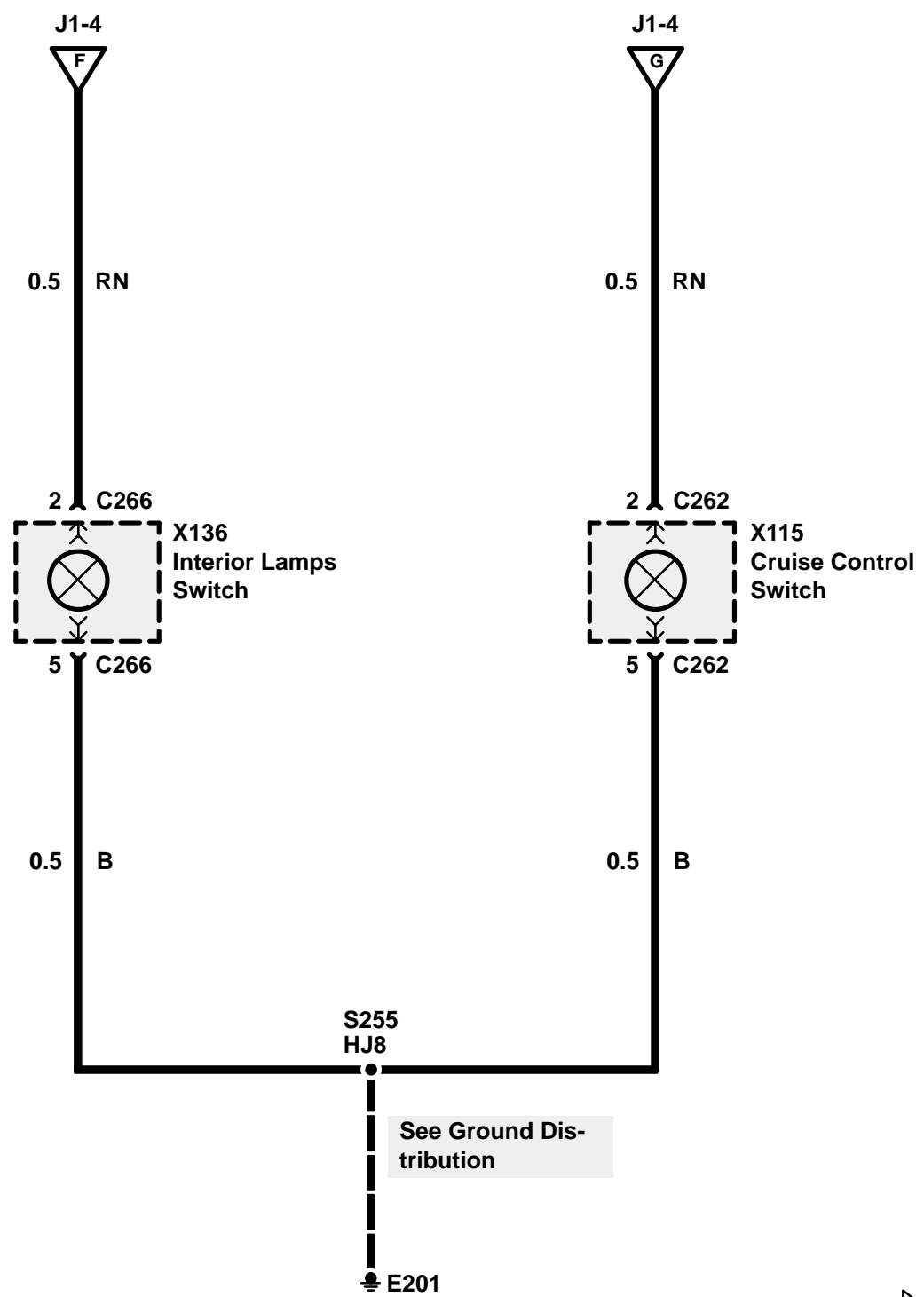
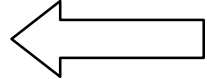
## 1995 RANGE ROVER

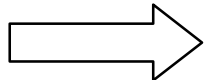
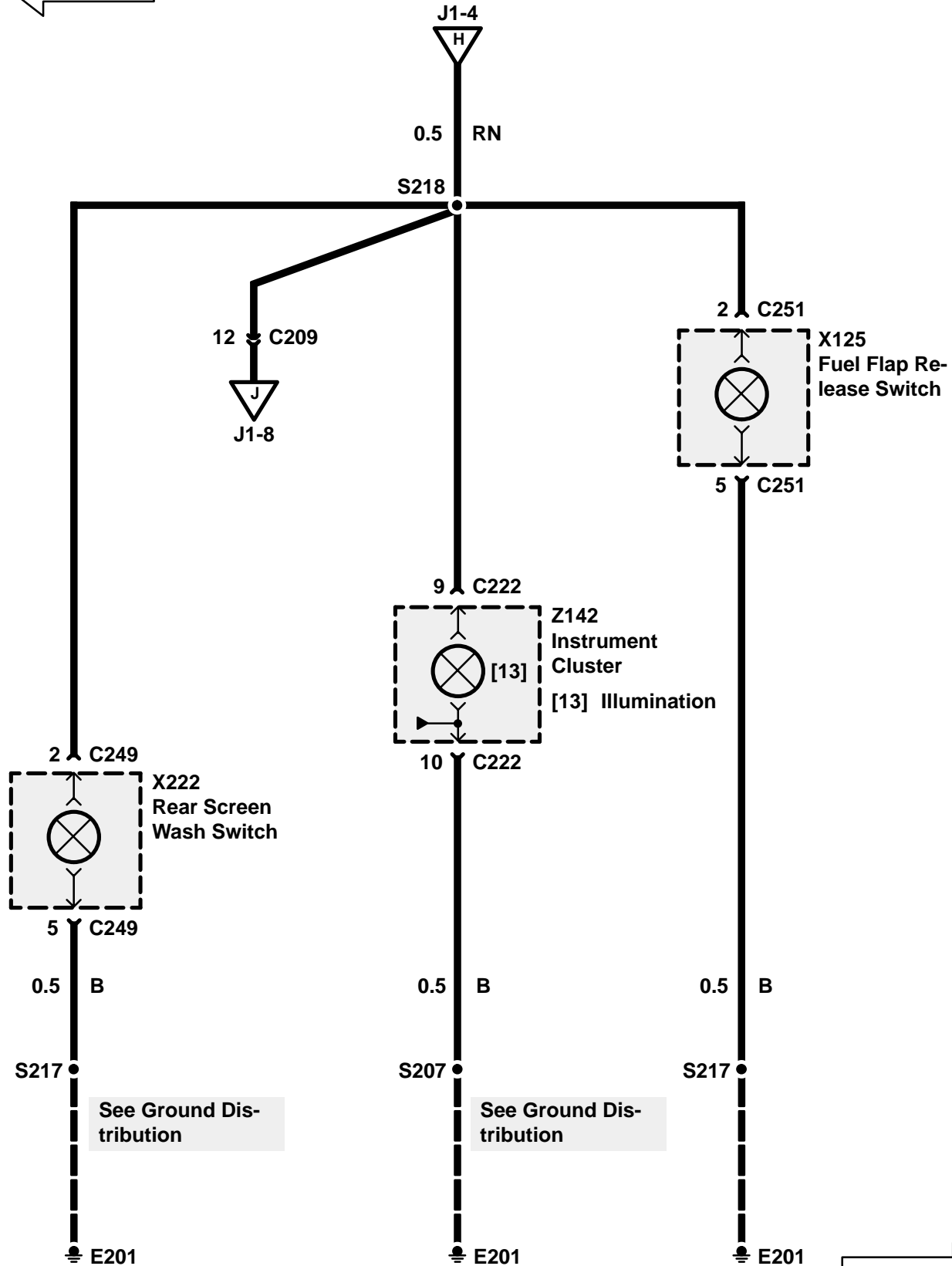
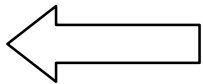


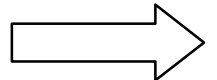
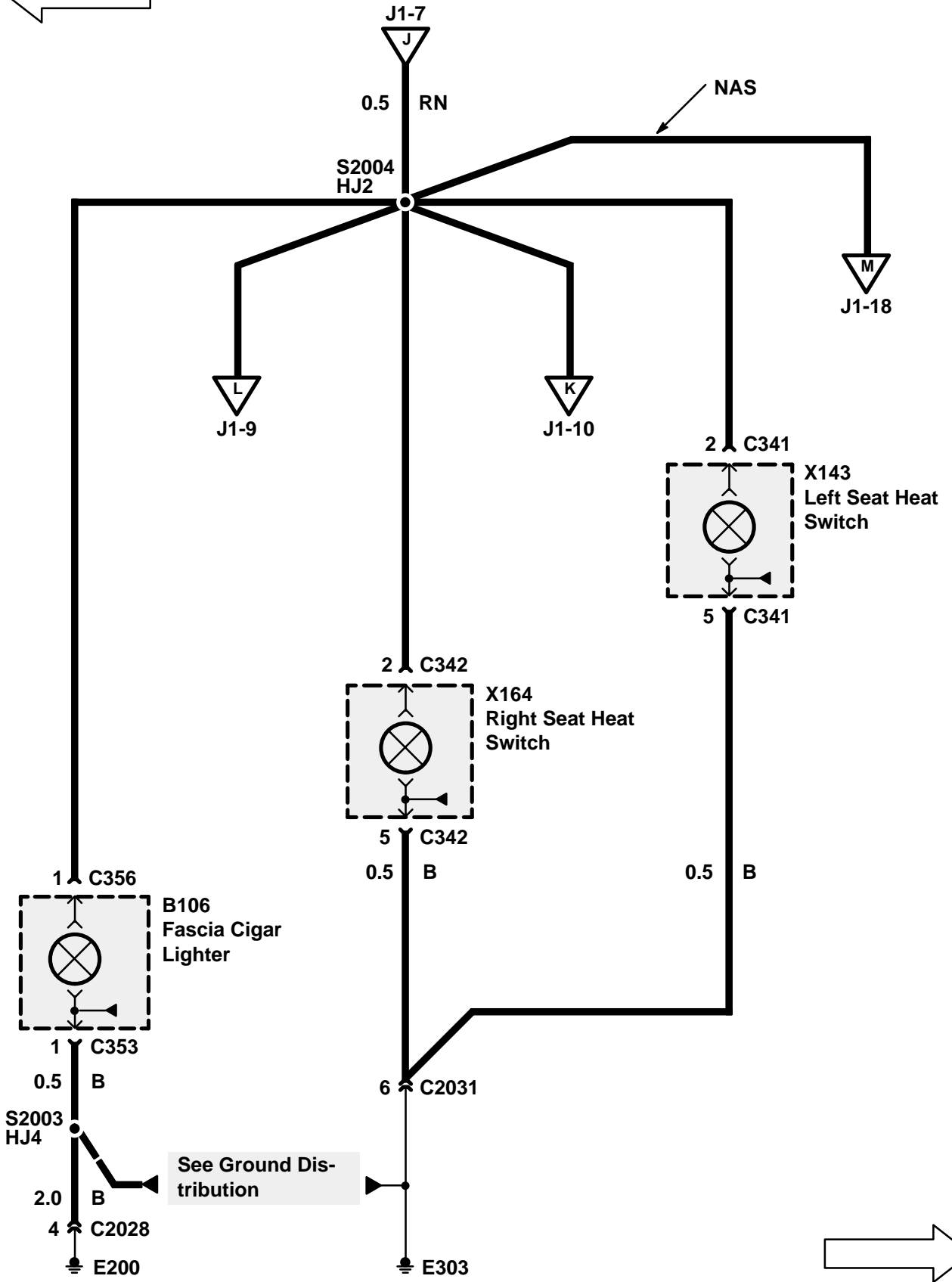
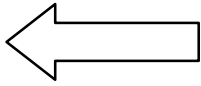


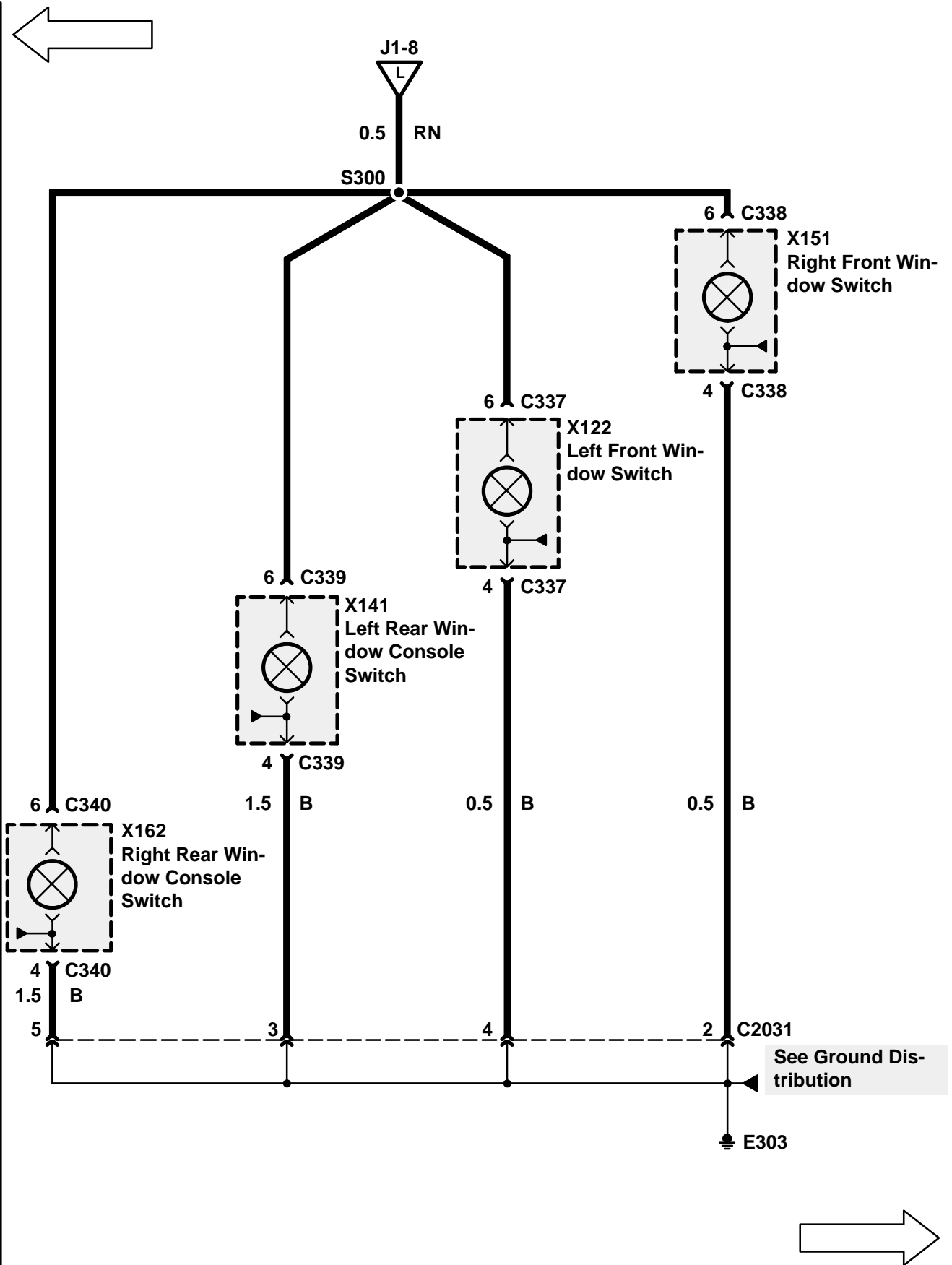
# J1 ETM

## 1995 RANGE ROVER





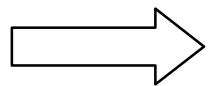
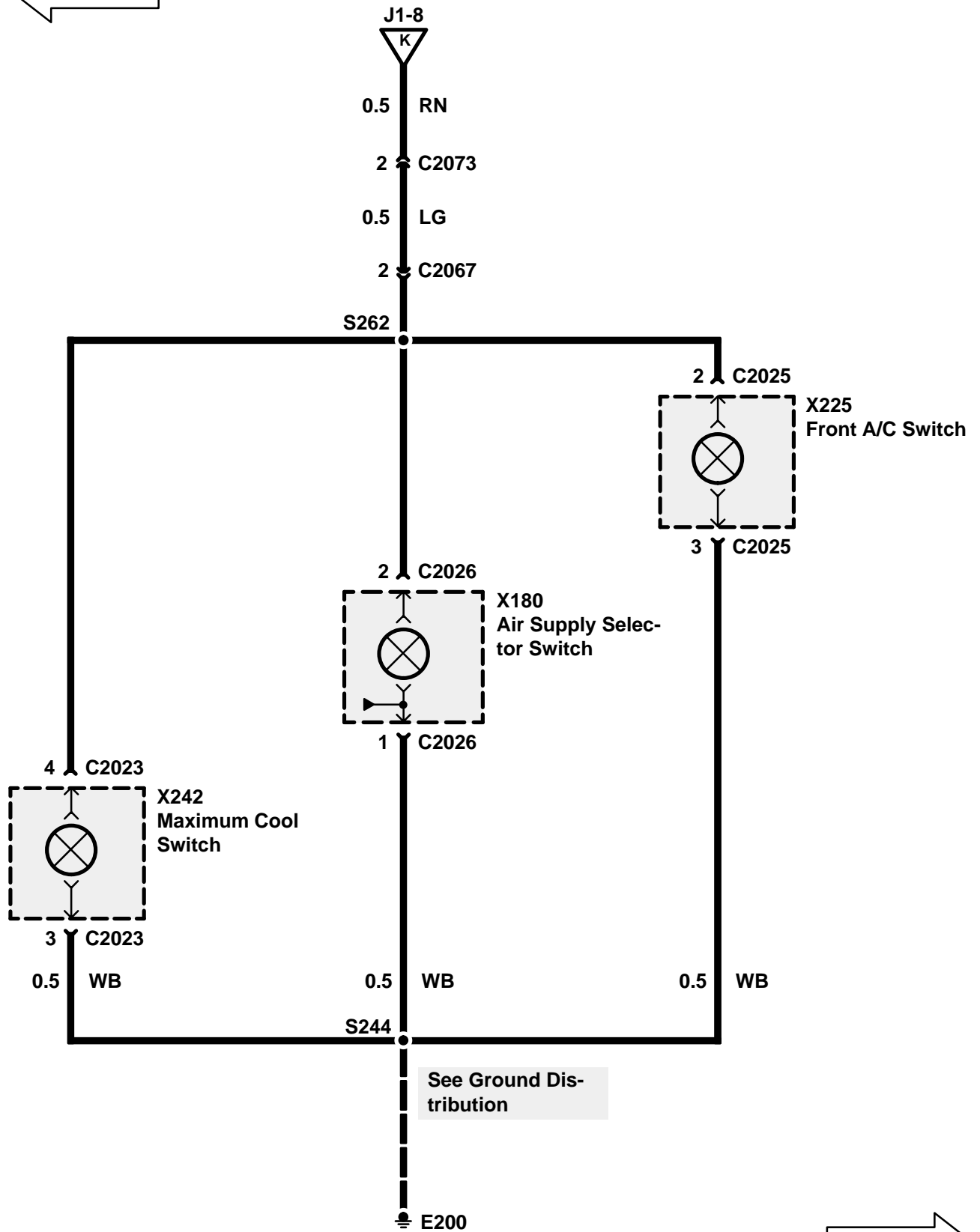
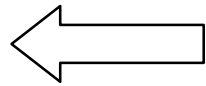


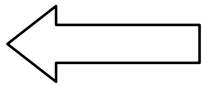




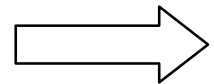
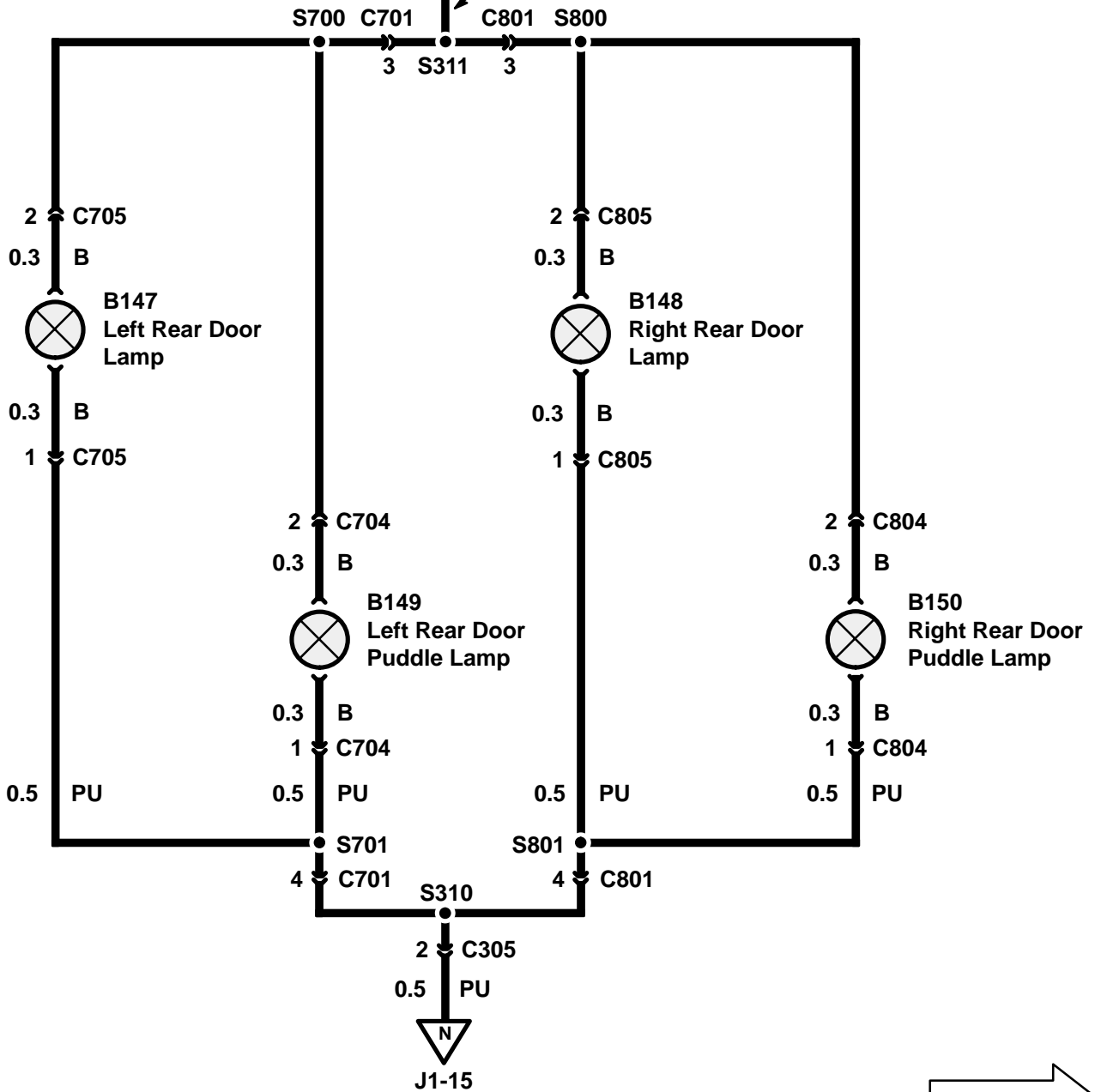
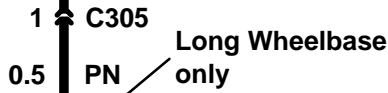
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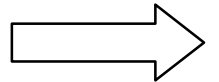
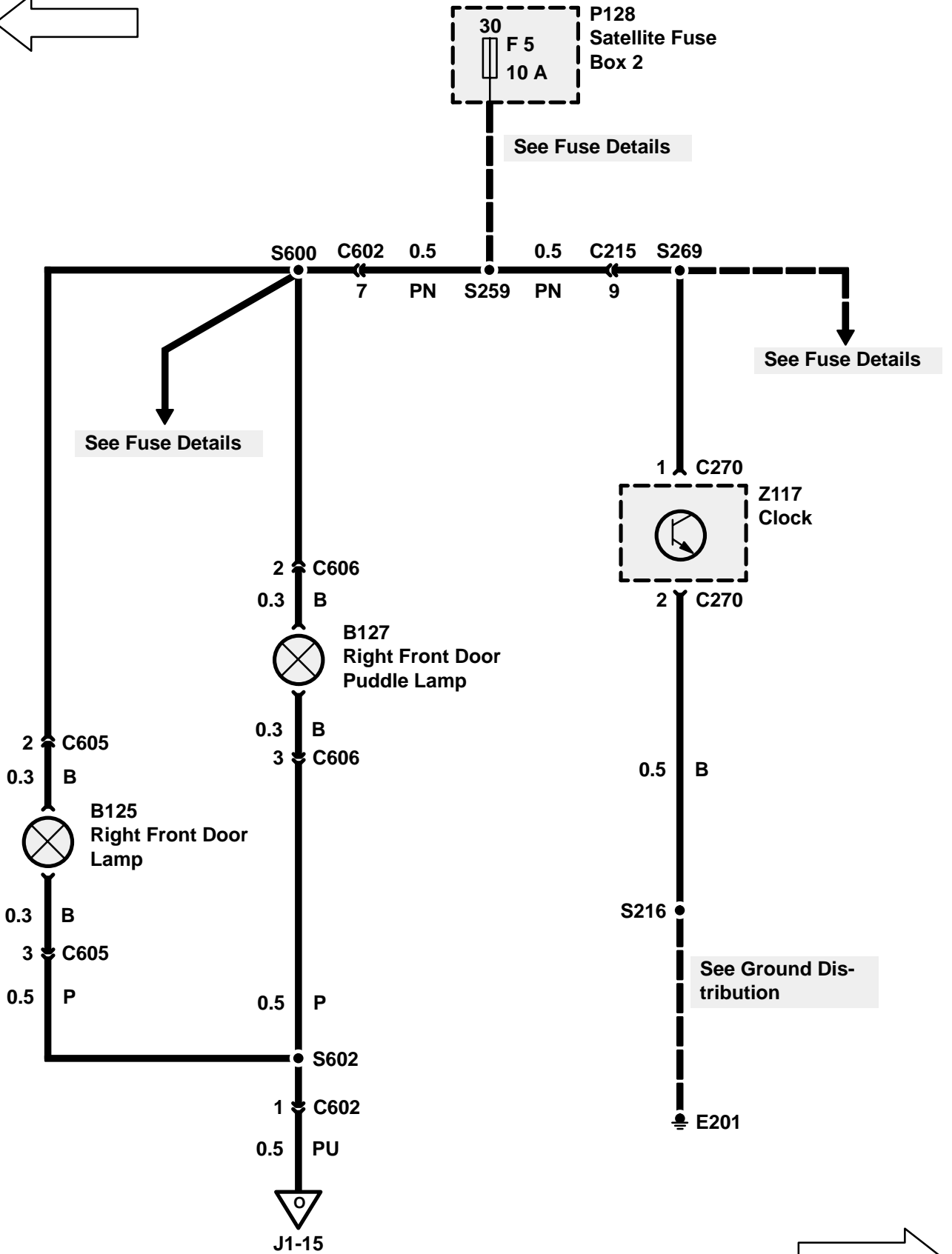
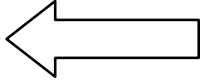
## 1995 RANGE ROVER

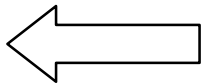




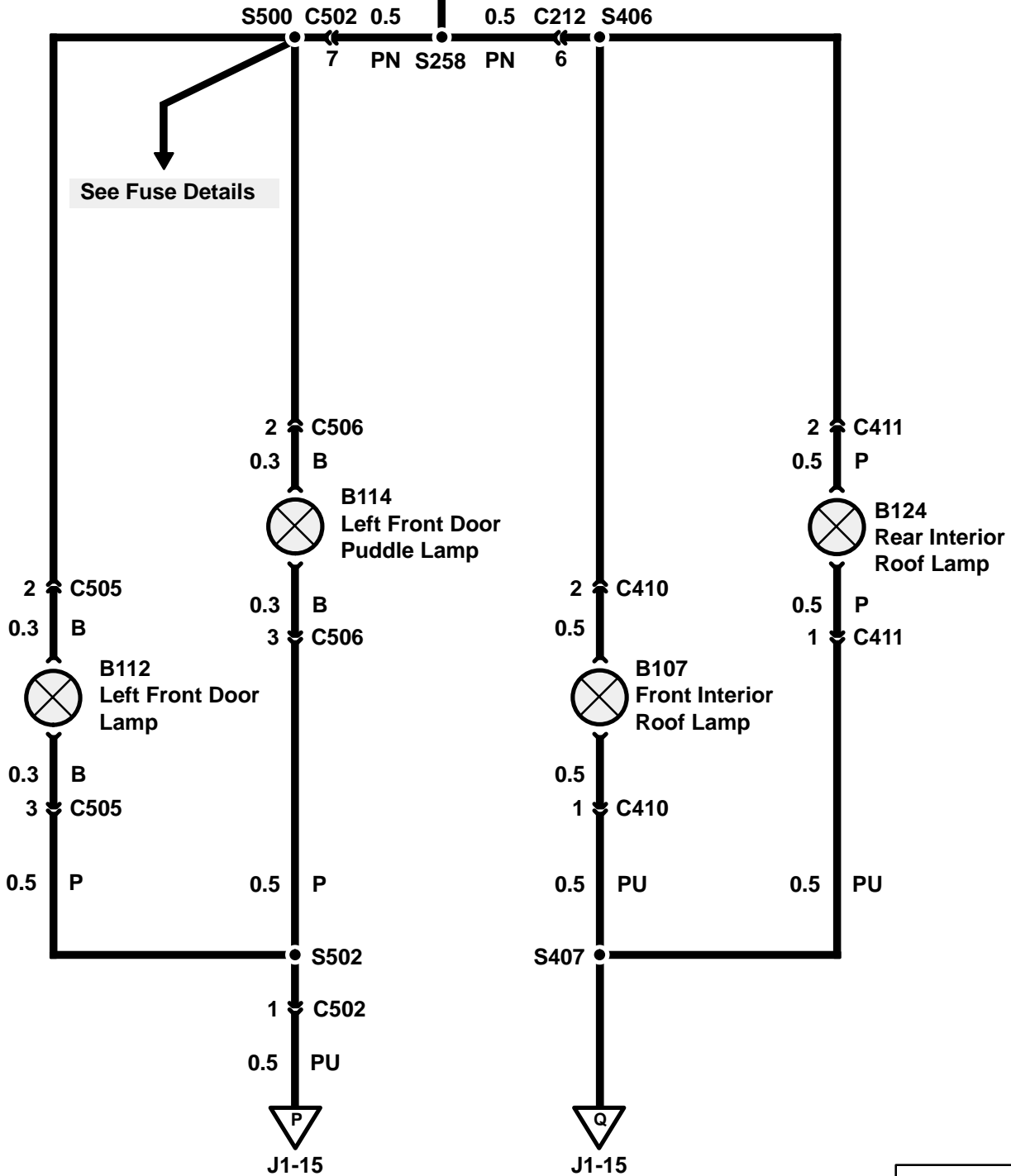
See Fuse Details



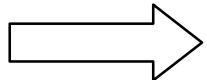


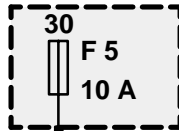
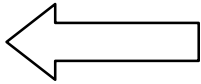


See Fuse Details



See Fuse Details





P128  
Satellite Fuse  
Box 2

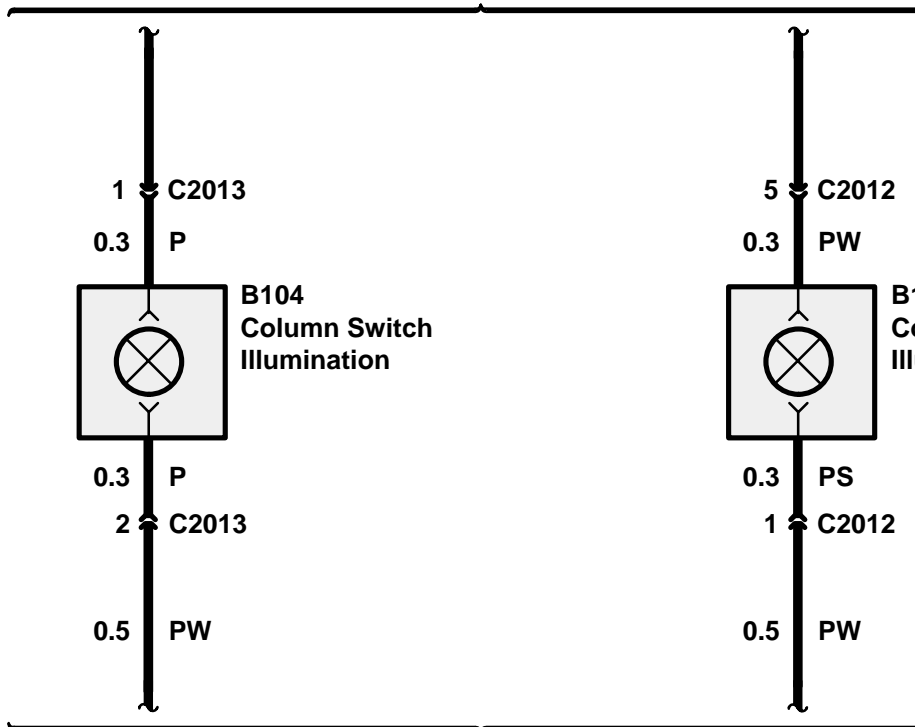
See Fuse Details

19 C202

0.5 PN

Without Shift In-  
terlock

With Shift Inter-  
lock



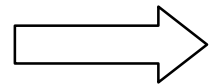
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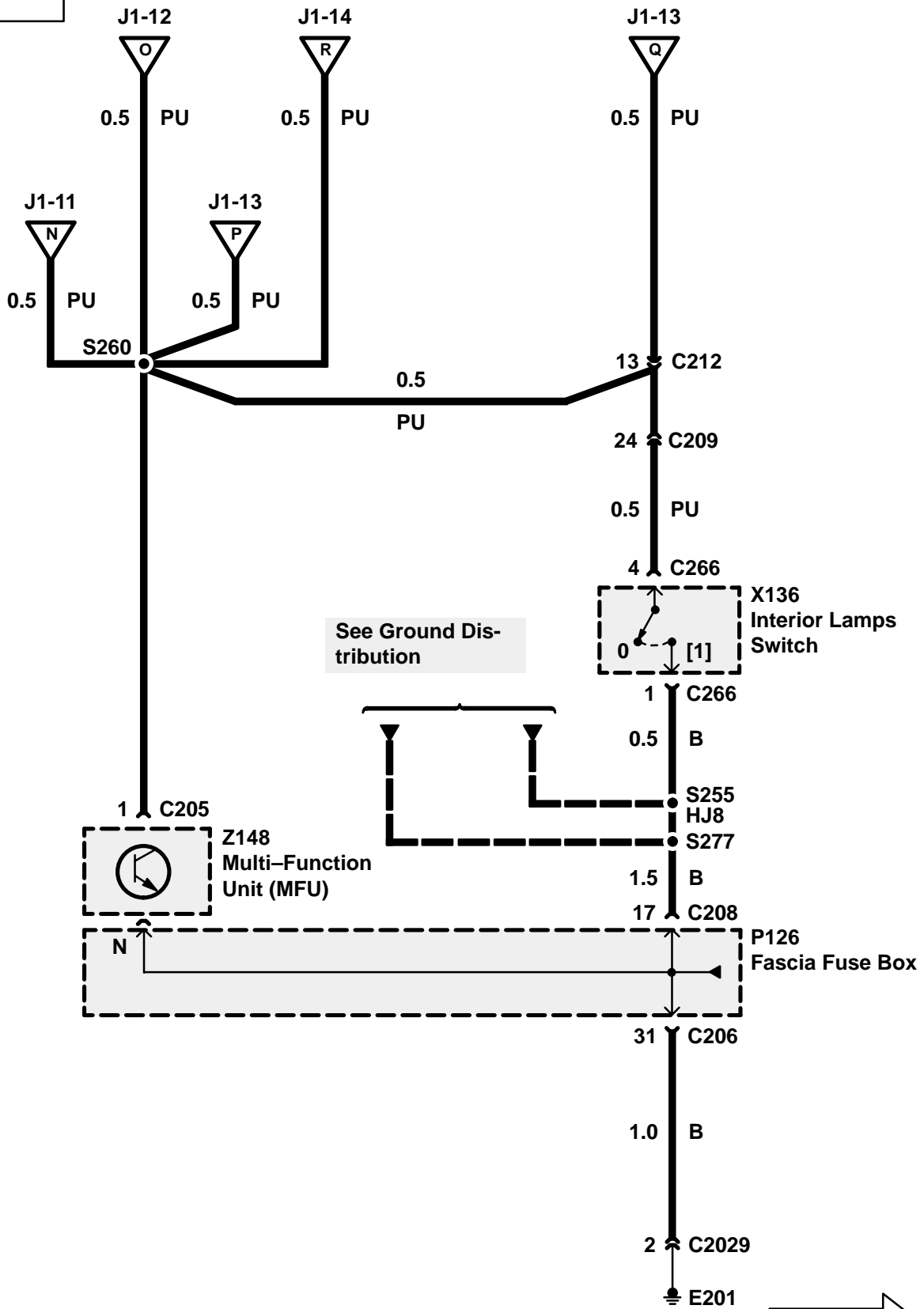
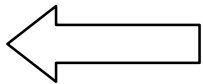
20 C202

0.5 PU

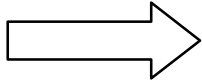


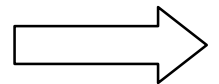
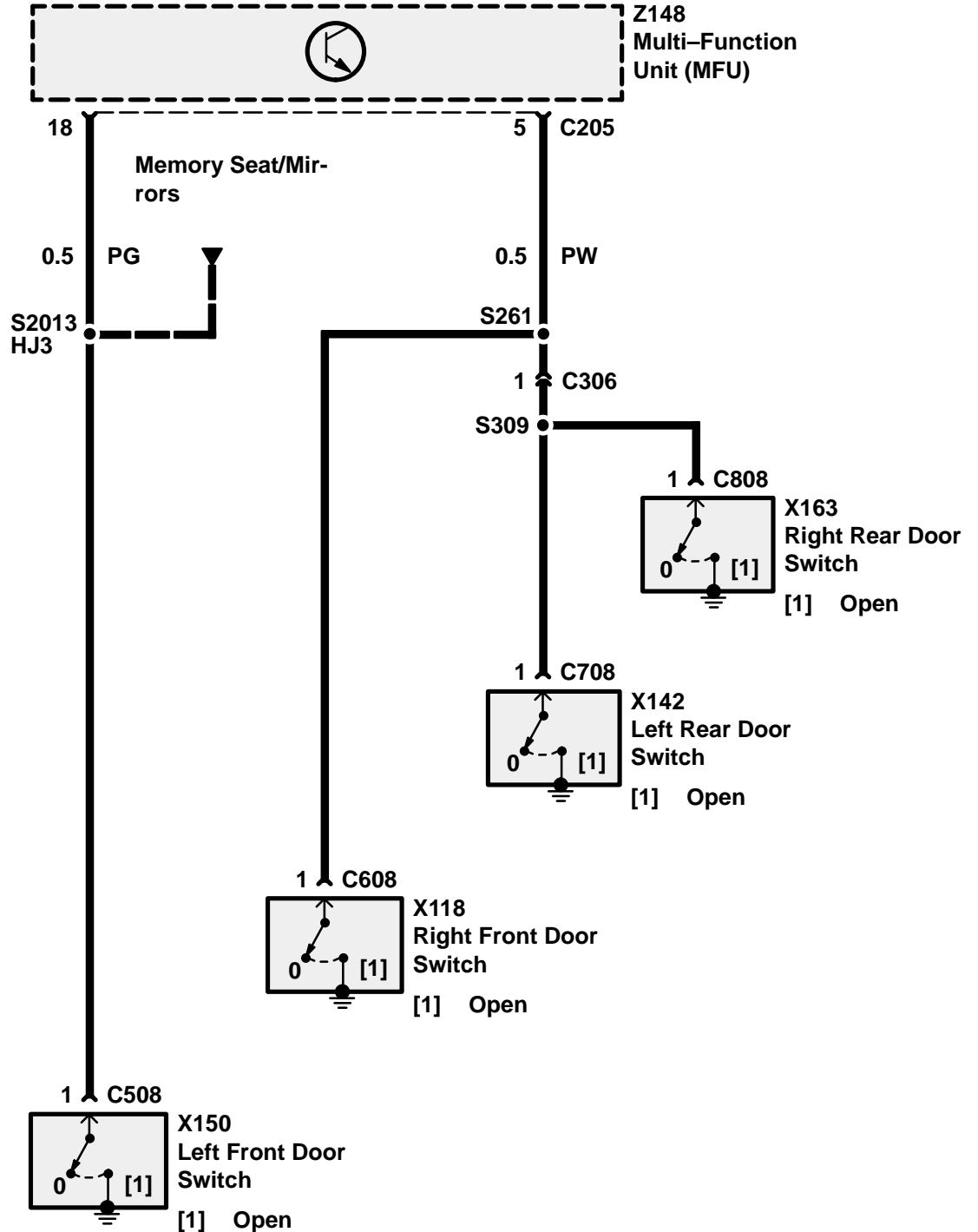
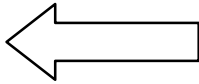
J1-15

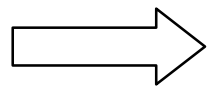
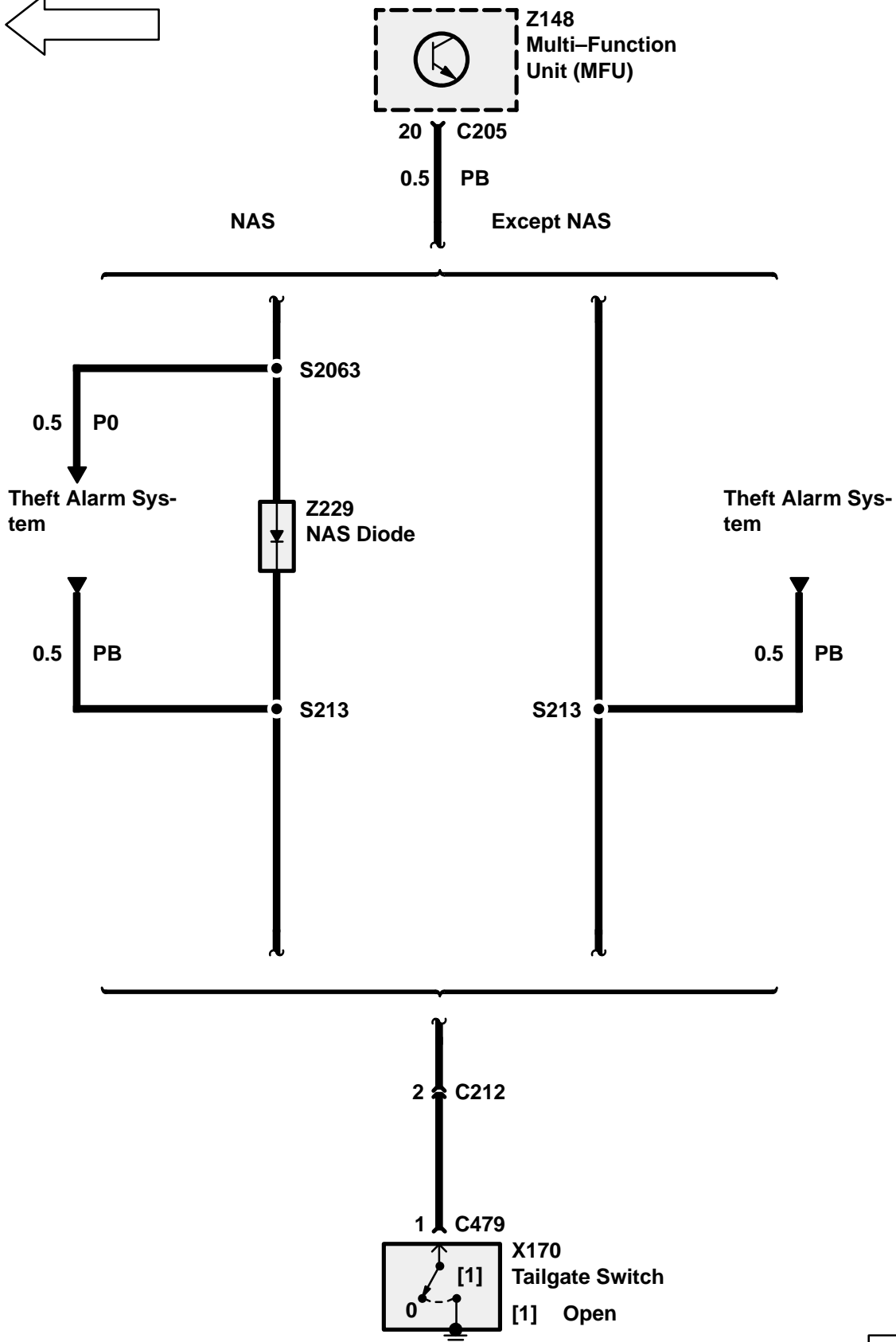
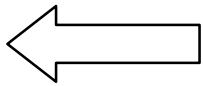




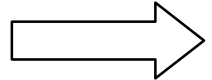
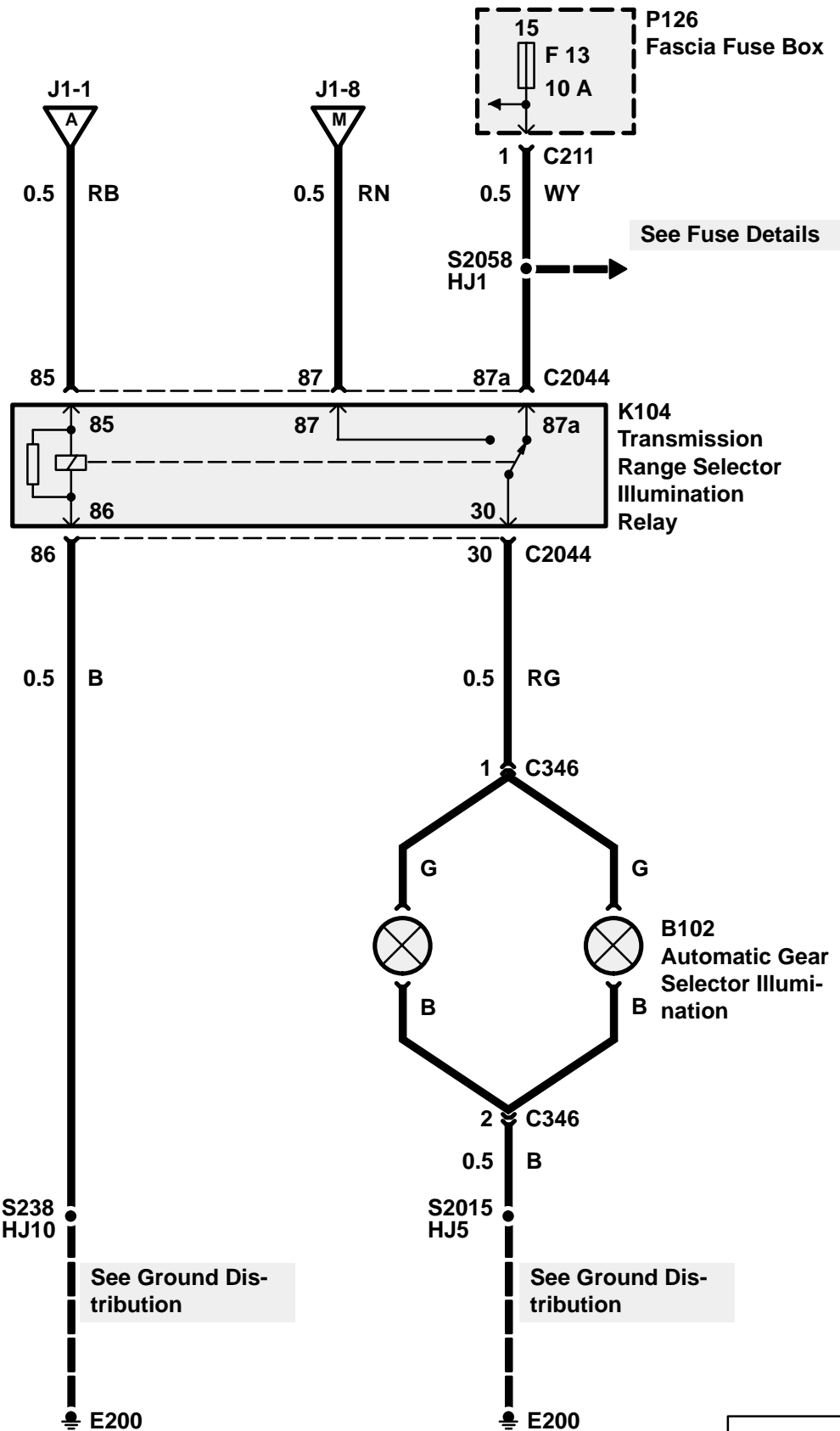
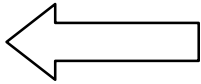
See Ground Distribution

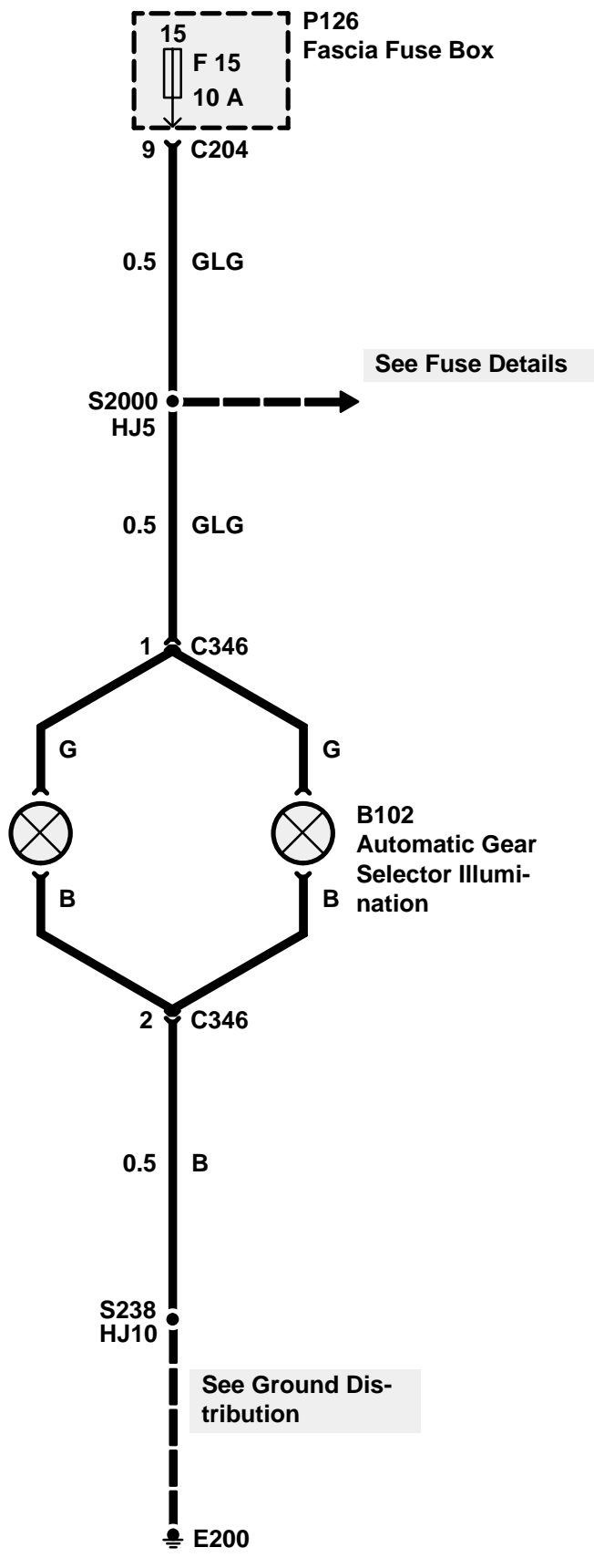
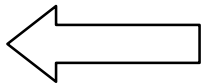


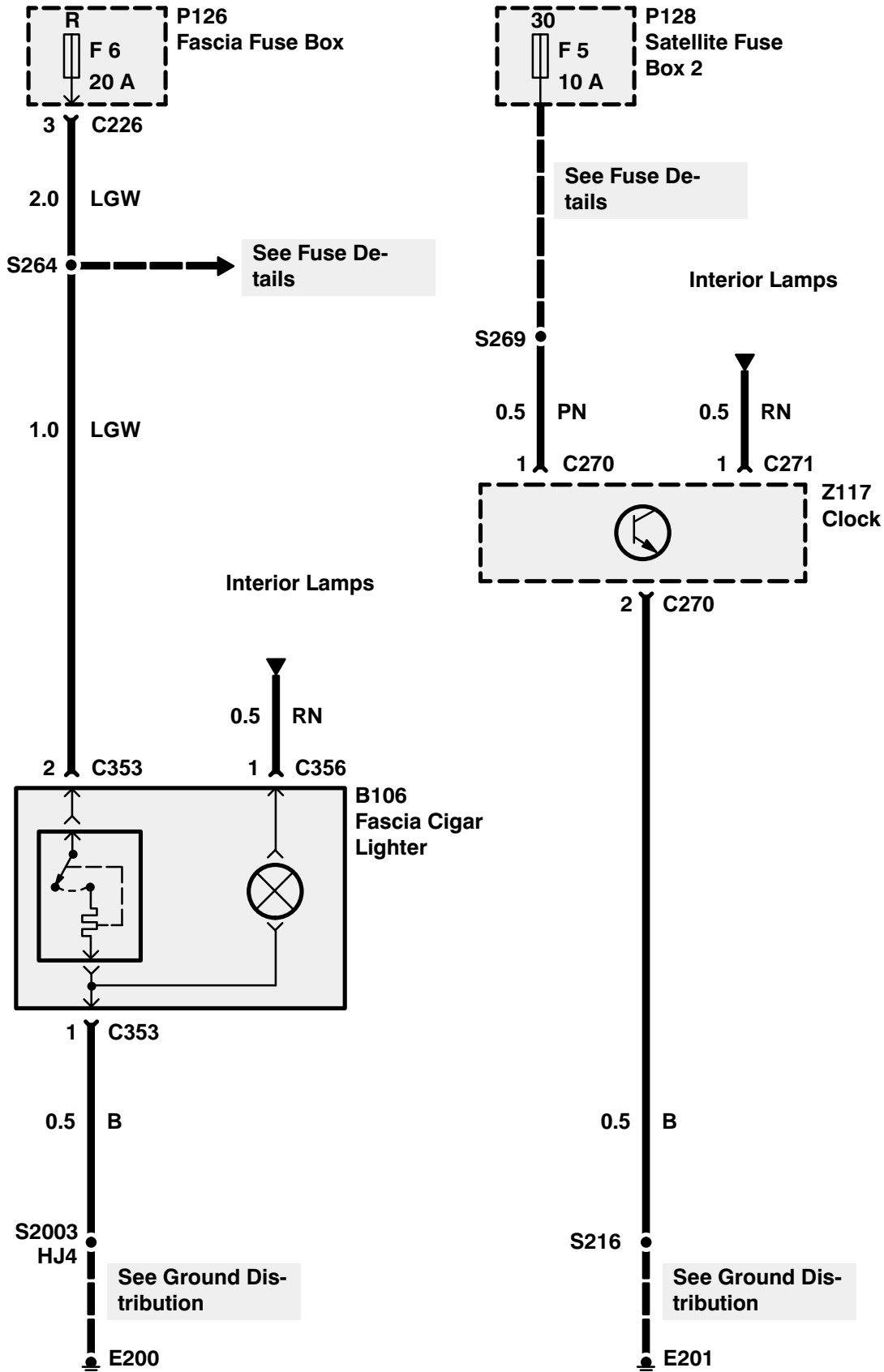












**CIRCUIT OPERATION****Front Blower**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Blower Motor Relay (K188).

When the Fan Speed Switch (X179) is turned to position I, ground is applied to terminal 85 of the Blower Motor Relay (K188). The relay is energized, applying battery voltage to terminal 2 of the Front Blower Motor (M101). Ground is applied to the Front Blower Motor (M101) through all three resistors of the Blower Resistor Unit (Z112). The Front Blower Motor (M101) then runs at low speed. When the Fan Speed Switch (X179) is turned to position II, the Blower Motor Relay (K188) remains energized. Battery voltage is still applied to terminal 2 of the Front Blower Motor (M101). Ground is now applied to the Front Blower Motor (M101) through two resistors of the Blower Resistor Unit (Z112) and the Fan Speed Switch (X179). The motor then runs at the low-medium speed. When the Fan Speed Switch (X179) is turned to position III, the Blower Motor Relay (K188) remains energized. Ground is now applied to the Front Blower Motor (M101) through one resistor of the Blower Resistor Unit (Z112) and the Fan Speed Switch (X179). The motor then runs at the medium-high speed. When the Fan Speed Switch (X179) is turned to position IV, the Blower Motor Relay (K188) remains energized. Ground is now applied directly to the Front Blower Motor (M101) through the Fan Speed Switch (X179). The motor then runs at high speed.

**Fresh Air Mode**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Air Recirculation Solenoid In-Line Fuse (P138) and Air Recirculation Solenoid (K123). The solenoid now opens the fresh air intake flap allowing fresh air to enter the vehicle cabin. When the fresh air intake flap has been fully opened, the microswitch inside the Air Recirculation Solenoid (K123) moves to the Fresh Air position interrupting the ground supply. The solenoid now stops and remains in the Fresh Air position.

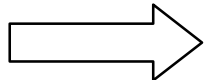
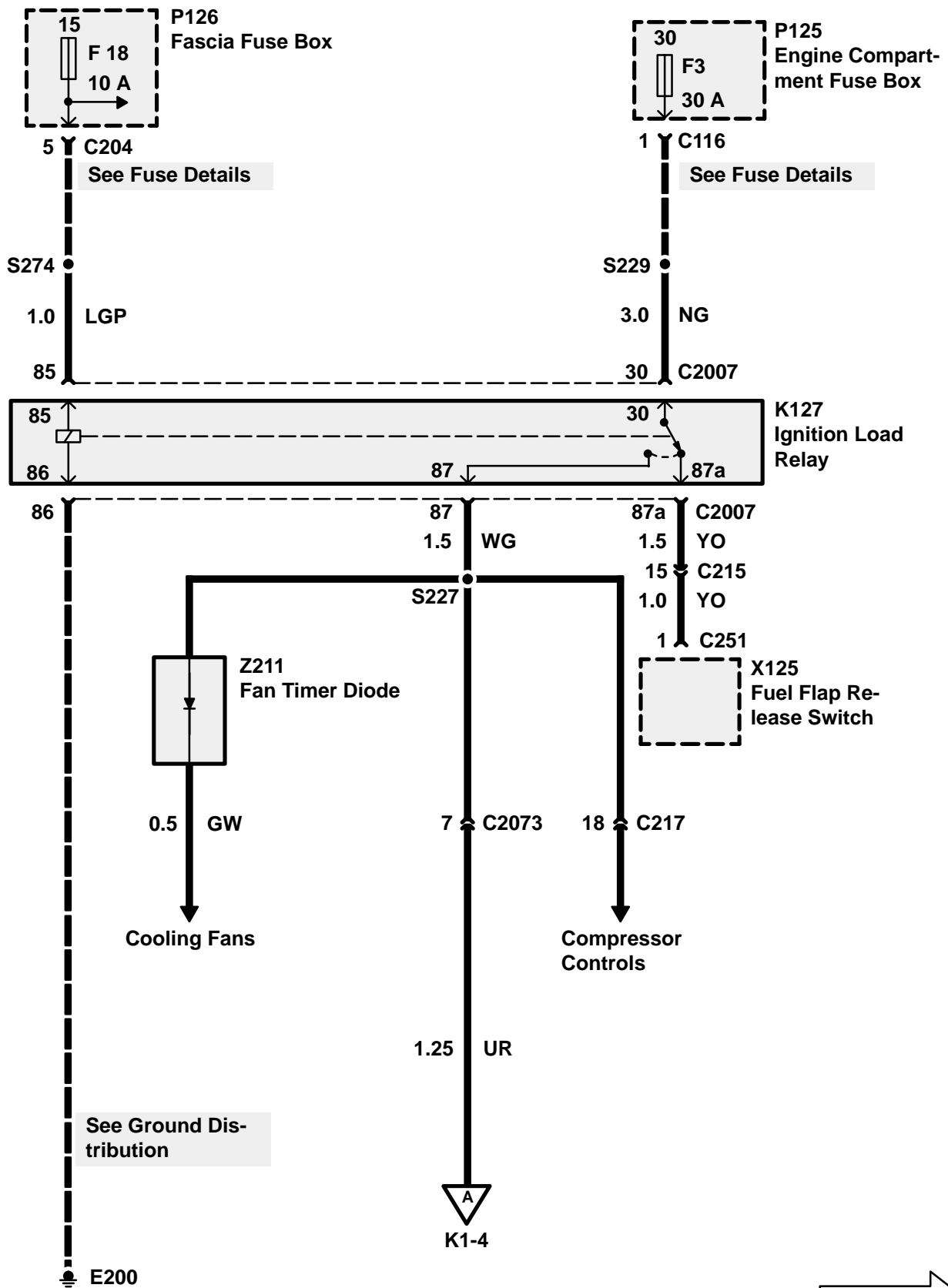
**Recirculated Air Mode**

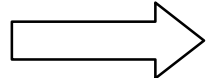
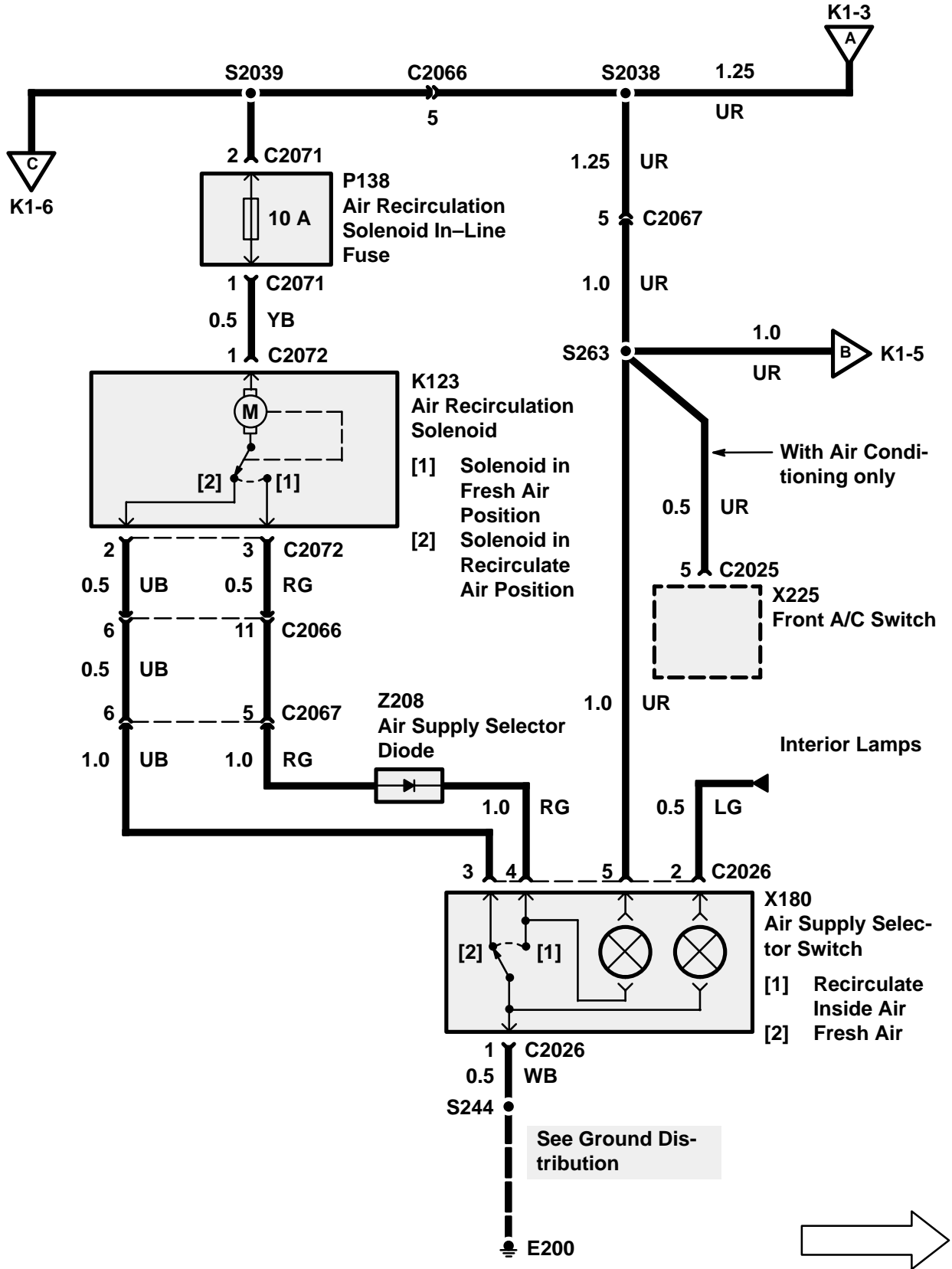
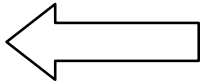
With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Air Recirculation Solenoid In-Line Fuse (P138) and Air Recirculation Solenoid (K123). When the Air Supply Selector Switch is moved to Recirculate Air position, ground is applied to the Air Recirculation Solenoid (K123). The solenoid now closes the fresh air intake flap allowing only the air inside the vehicle cabin to circulate. When the fresh air intake flap has been fully closed, the microswitch inside the Air Recirculation Solenoid (K123) moves to the Recirculate Air position interrupting the ground supply. The solenoid now stops and remains in the Recirculate Air position.

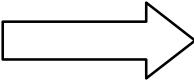
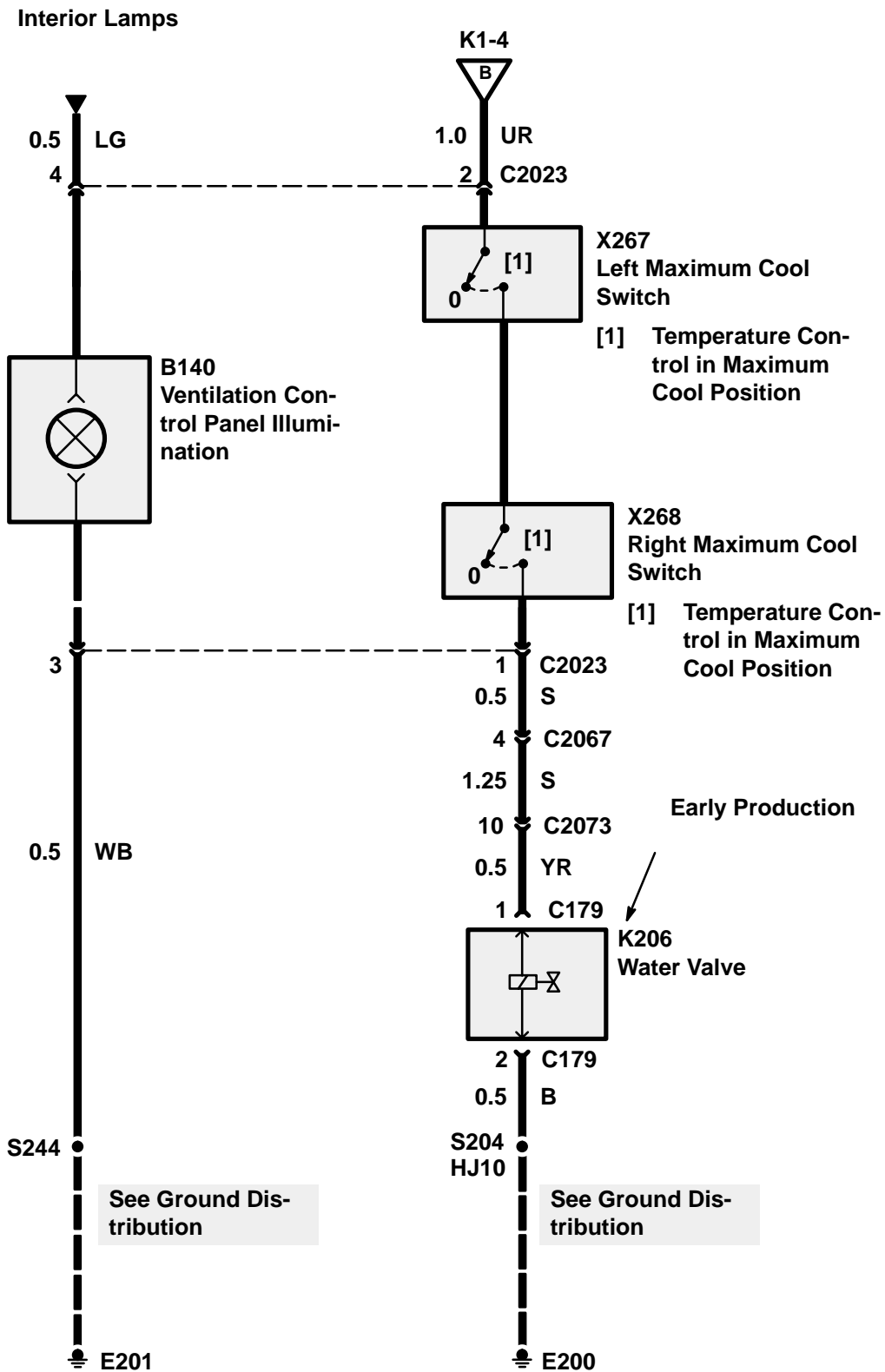
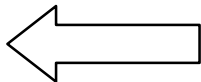
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**Heated Air**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Left Maximum Cool Switch (X267). When the Left and Right Temperature Controls are turned to the maximum cool position, the Left Maximum Cool Switch (X267) and Right Maximum Cool Switch (X268) close. Battery voltage is now applied to the Water Valve (K206). The Water Valve (K206) closes and prevents heated engine coolant from entering the heater matrix. When one or both of the Temperature Controls are not in the maximum cool position, battery voltage is not applied to the Water Valve (K206). The valve then opens and allows heated engine coolant to enter the heater matrix.











**TROUBLESHOOTING HINTS**

4. Check Maxi-Fuse<sup>®</sup> MF2 and Fuse F3 of the Engine Compartment Fuse Box (P125).
5. Check Fuse F18 of the Fascia Fuse Box (P126).
6. If the Front Blower Motor (M101) does not stop running with the Fan Speed Switch (X179) in Position 0, replace the Fan Speed Switch (X179).
7. If fresh air does not enter the vehicle cabin with the Air Supply Selector Switch (X180) in the Outside Air position, check the Air Recirculation Solenoid (K123) and linkage for sticking or binding.
8. If the blower motor(s) operate with the ignition key removed, replace the Ignition Load Relay (K127).
9. If the blower motor(s) run but not at the speed indicated by the Fan Speed Switch (X179), replace the Fan Speed Switch.

**SYSTEM DIAGNOSIS**

1. If the Front Blower Motor (M101) does not run at any speed, do Test A.
2. If the Front Blower Motor (M101) runs in some but not all Fan Speed Switch (X179) positions, do Test B.
3. If the Air Supply Selector Switch (X180) does not allow the driver to change between recirculation and fresh air modes, do Test C.
4. With the engine running and the Fan Speed Switch (X179) in position III, put the Air Supply Selector Switch (X180) to Recirculation mode. Place a piece of paper in front of the fresh air intake vents on the vehicle hood. If the paper is drawn toward the vents, do Test C.
5. With the engine running and the Fan Speed Switch (X179) in position III, put the Air Supply Selector Switch (X180) to A/C mode. Place a piece of paper in front of the exterior fresh air intake vents. If the paper is drawn toward the intake, do Test C.

### Test A

R050001

1A

**CONDITIONS**

- Ignition Switch  
*Position: II*

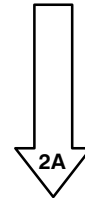
**RESULTS**  
*BAT VOLT*

**K127**  
Ignition Load Relay



**PROBLEM CAUSE**

- F18 Fuse
- LGP Wire
- B Wire



R050001

2A

**CONDITIONS**

- Ignition Switch  
*Position: 0*

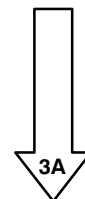
**RESULTS**  
*BAT VOLT*

**K127**  
Ignition Load Relay



**PROBLEM CAUSE**

- F3 Fuse
- NG Wire



R050001

2A

3A

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: III*

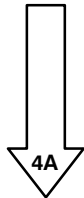
**RESULTS**

- Front Blower Motor  
*Operates*

K127  
Ignition Load  
Relay



**PROBLEM CAUSE**  
- Ignition Load Relay



R050016

4A

**CONDITIONS**

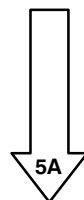
- Ignition Switch  
*Position: 0*

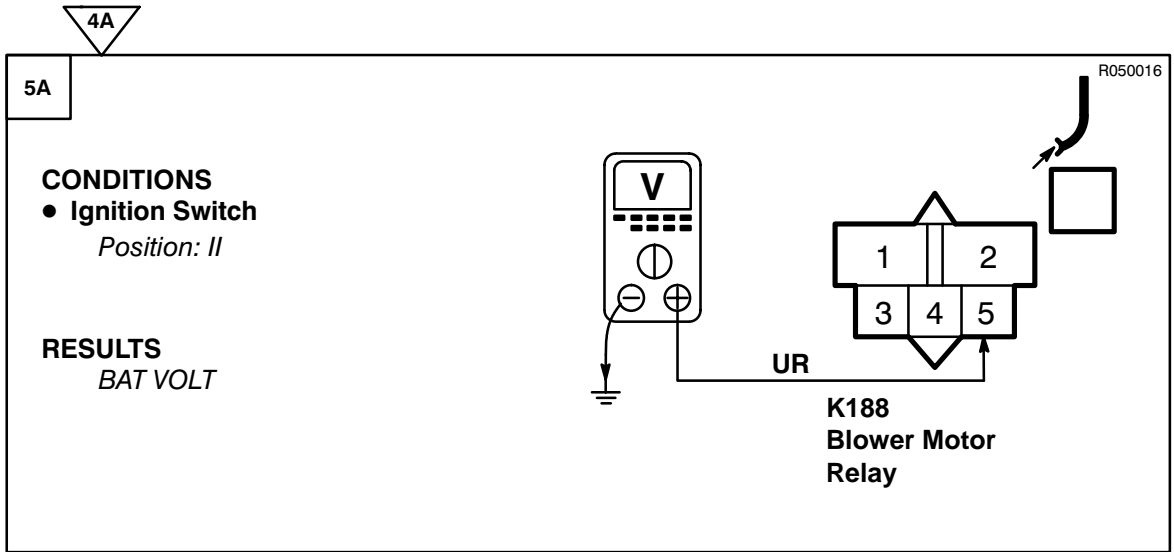
**RESULTS**  
*BAT VOLT*

K188  
Blower Motor  
Relay



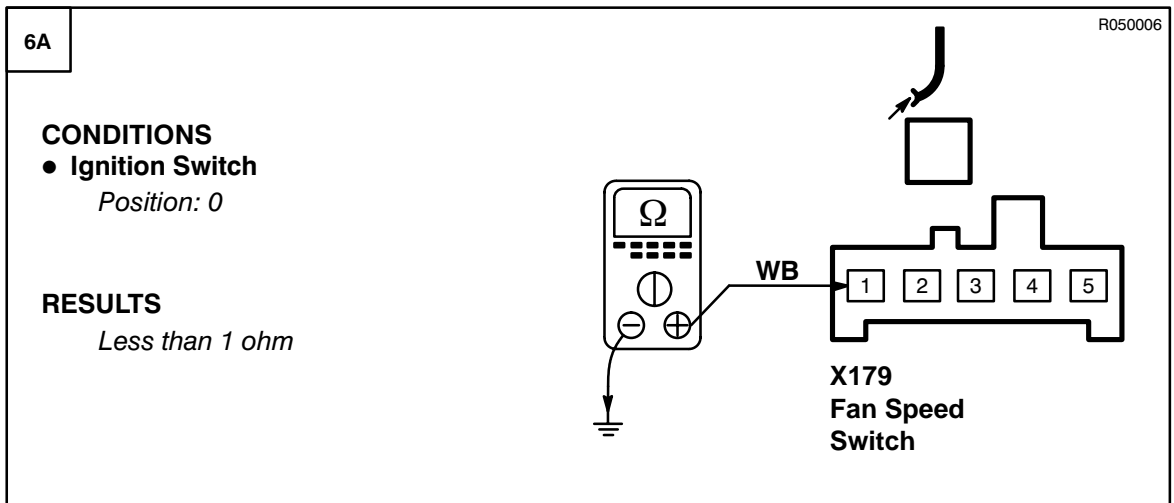
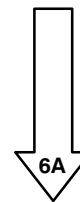
**PROBLEM CAUSE**  
- MF2 Maxi-Fuse  
- NK Wire  
- R Wire





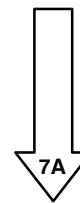
**PROBLEM CAUSE**

- WG Wire
- UR Wire



**PROBLEM CAUSE**

- WB Wire
- B Wire



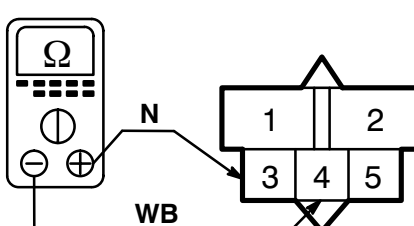
R050016

6A
7A

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: I*  
*Position: II*  
*Position: III*  
*Position: IV*

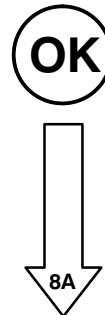
**RESULTS**  
*Less than 1 ohm*



**K188  
Blower Motor  
Relay**

**OK** PROBLEM CAUSE

- N Wire
- WB Wire
- Fan Speed Switch



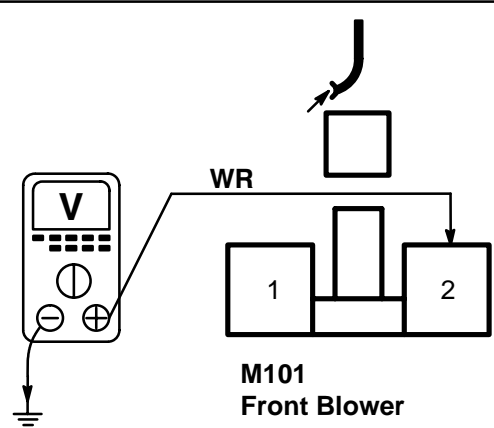
R020049

8A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*

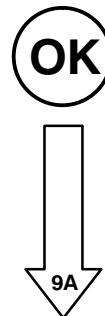
**RESULTS**  
*BAT VOLT*



**M101  
Front Blower  
Motor**

**OK** PROBLEM CAUSE

- WR Wire
- Blower Motor Relay



R040028

8A

9A

**CONDITIONS**

- Ignition Switch  
*Position: 0*

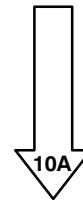
**RESULTS**

*Less than 1 ohm*

**Z112  
Blower Resistor  
Unit**



**PROBLEM CAUSE**  
- WB Wire



R040028

10A

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- Front Blower Motor  
*Operates*

**Z112  
Blower Resistor  
Unit**

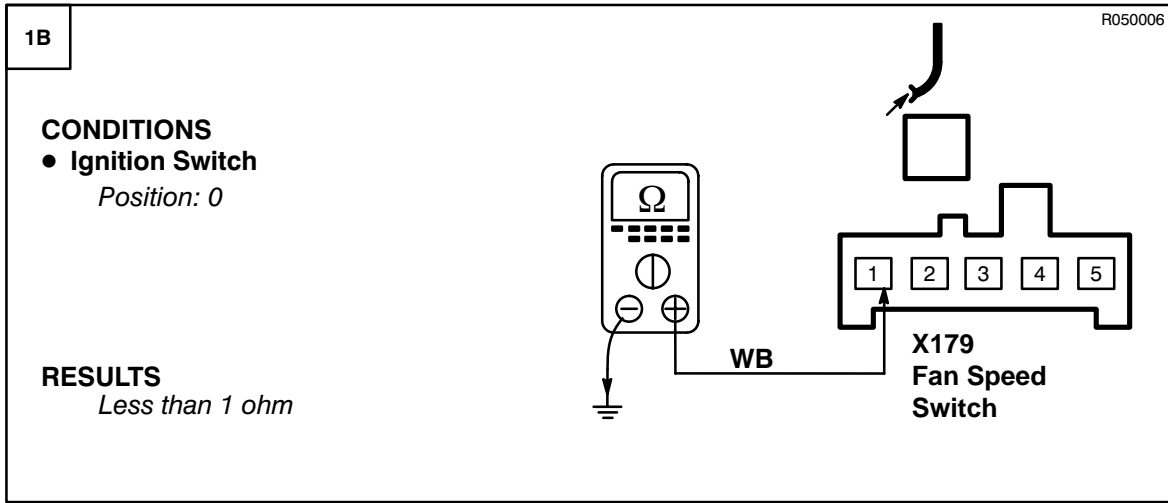


**PROBLEM CAUSE**  
- BO Wire  
- Front Blower  
Motor



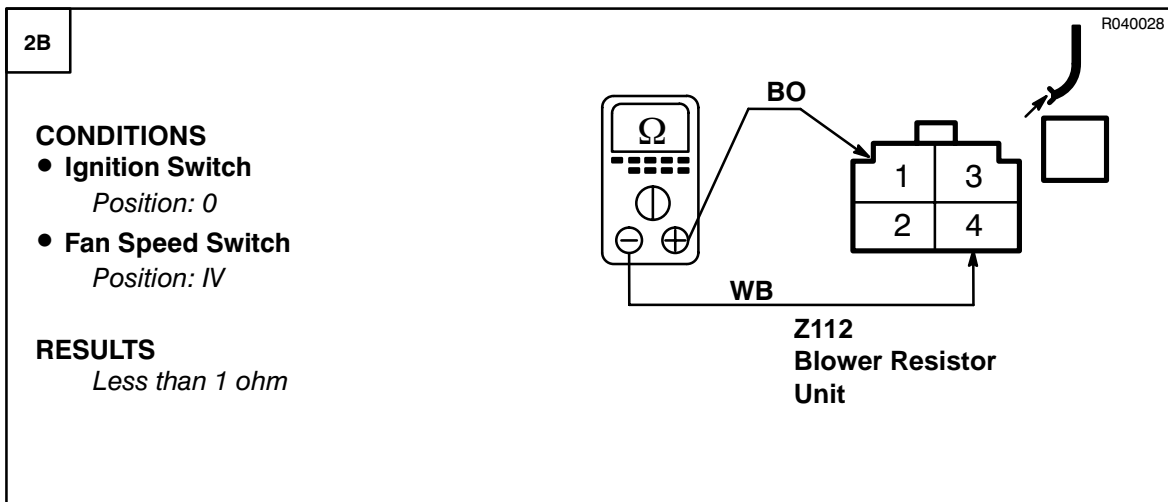
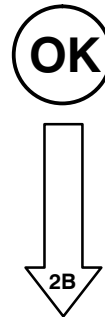
**PROBLEM CAUSE**  
- Blower Resistor  
Unit

**Test B**



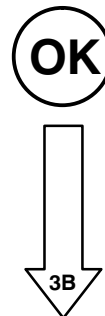
~~OK~~ **PROBLEM CAUSE**

- WB Wire
- B Wire



~~OK~~ **PROBLEM CAUSE**

- BO Wire
- WB Wire
- Fan Speed Switch





R040028

2B

3B

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: III*

**RESULTS**  
*Less than 1 ohm*

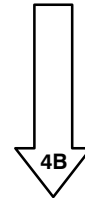
G

Z112  
Blower Resistor  
Unit



**PROBLEM CAUSE**

- G Wire
- Fan Speed Switch



R040028

4B

4B

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: II*

**RESULTS**  
*Less than 1 ohm*

PU

Z112  
Blower Resistor  
Unit



**PROBLEM CAUSE**

- PU Wire
- Fan Speed Switch



**PROBLEM CAUSE**

- Blower Resistor Unit

**Test C**

1C

R040029

**CONDITIONS**

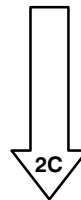
- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*



**PROBLEM CAUSE**

- UR Wire
- YB Wire
- Air Recirculation Solenoid In-Line Fuse



2C

R050002.00

**CONDITIONS**

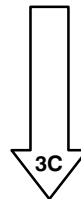
- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 1 ohm*



**PROBLEM CAUSE**

- WB Wire
- B Wire



2C
R040029

3C

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Air Supply Selector Switch  
*Fresh Air Mode*

**RESULTS**  
*Less than 1 ohm*

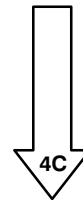
UB

**K123**  
Air Recirculation Solenoid



**PROBLEM CAUSE**

- UB Wire
- Air Supply Selector Switch



4C
R040029

4C

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Air Supply Selector Switch  
*Recirculation Mode*

**RESULTS**  
*Less than 1 ohm*

RG

**K123**  
Air Recirculation Solenoid



**PROBLEM CAUSE**

- RG Wire
- Air Supply Selector Switch
- Air Supply Selector Diode



**PROBLEM CAUSE**

- Air Recirculation Solenoid

**CIRCUIT OPERATION****Compressor Control (Petrol)**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Compressor Clutch Relay (K108) and the A/C Logic Relay (K170). When the Fan Speed Switch (X179) is turned to positions I, II, III, or IV and the Front A/C Switch (X225) is turned On, ground is provided to terminal 86 of the A/C Logic Relay (K170) through the closed contacts of the A/C Dual Pressure Switch (X102) and the Front A/C Evaporator Temperature Switch (X101).

The relay is energized, applying battery voltage to terminal 21 of the Engine Control Module (ECM) (Z132), signalling the ECM that compressor operation has been requested. The ECM then provides ground to the coil of the Compressor Clutch Relay (K108). The relay is energized, applying battery voltage to the Compressor Clutch (K107). Compressor Clutch operation is now controlled by the status of the A/C Dual Pressure Switch (X102) and the Front A/C Evaporator Temperature Switch (X101).

The Front A/C Evaporator Temperature Switch (X101) is fitted in the airflow out of the front evaporator to sense the temperature of the exterior fins. Should ice begin to form, due to low temperature, the switch will open. The A/C Dual Pressure Switch (X102) monitors refrigerant pressure in the high pressure line, should pressure become too high or too low the switch will open. When one or both of these switches open the ground supply to terminal 86 of the A/C Logic Relay (K170) will be interrupted. The relay de-energizes, removing battery voltage from the Engine Control Module (ECM) (Z132), signalling the ECM that compressor operation should be turned off. The ECM removes the ground supply to the coil of the Compressor Clutch Relay (K108). The relay then de-energizes, removing battery voltage from the Compressor Clutch (K107), disengaging the Compressor.

**Compressor Control (Diesel)**

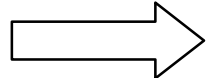
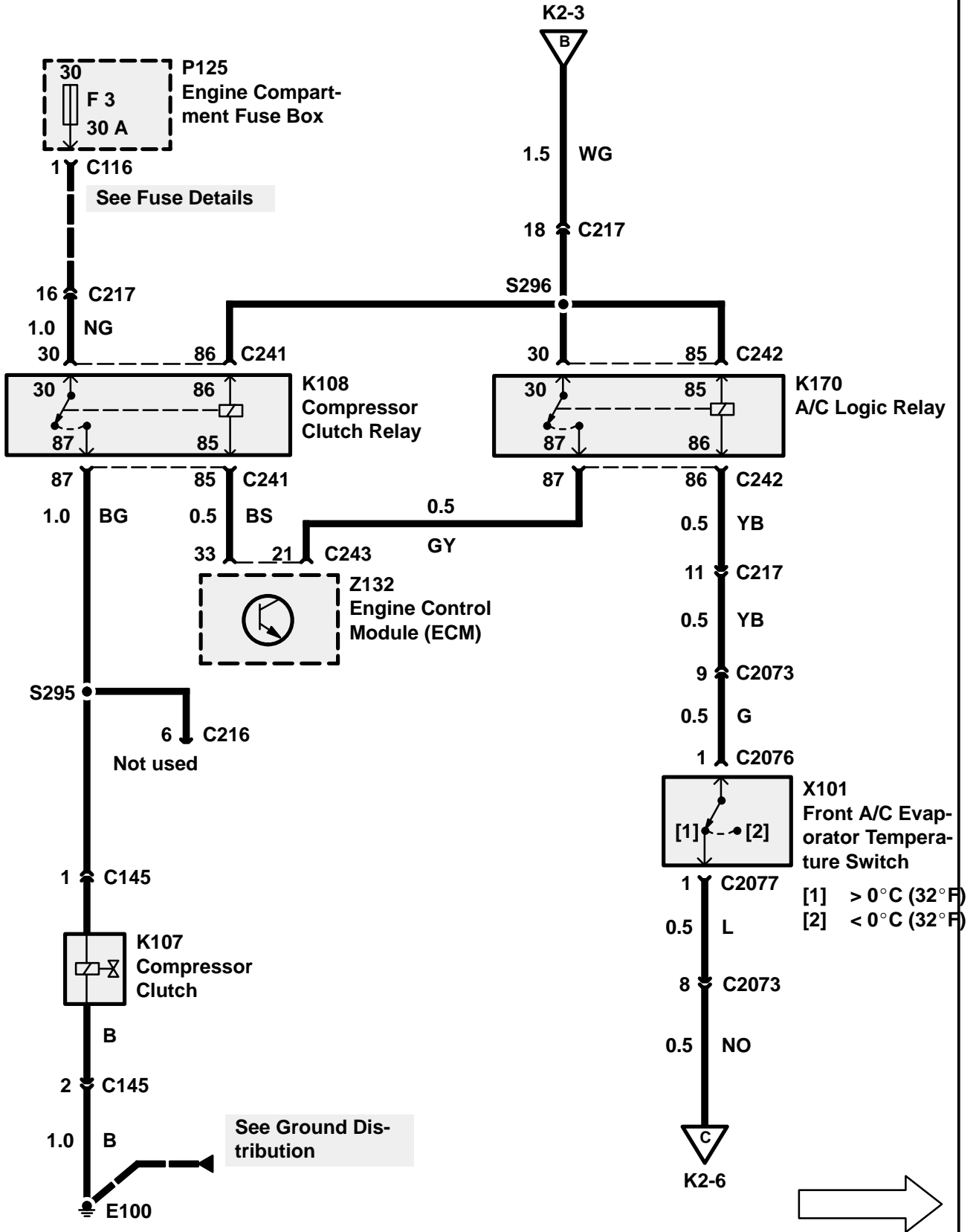
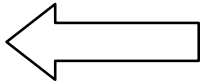
With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Compressor Clutch Relay (K108).

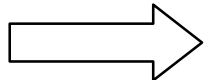
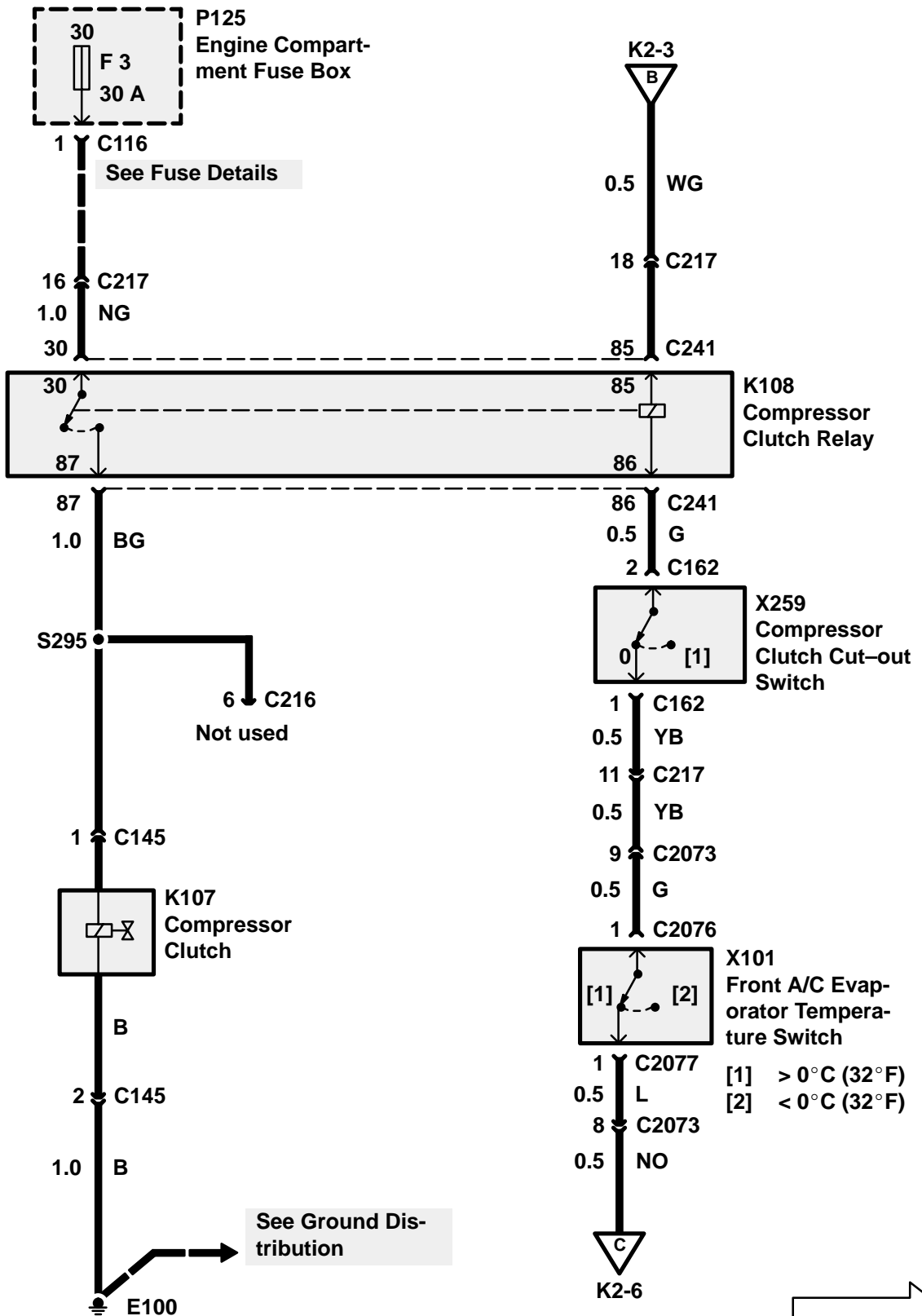
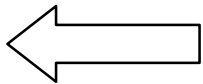
When the Fan Speed Switch (X179) is turned to positions I, II, III, or IV and the Front A/C Switch (X225) is turned On, ground is provided to terminal 86 of the Compressor Clutch Relay (K108) through the closed contacts of the A/C Dual Pressure Switch (X102), The Front A/C Evaporator Temperature Switch (X101), and the Compressor Clutch Cut-out Switch (X259).

The relay is energized, applying battery voltage to the Compressor Clutch (K107). Compressor Clutch operation is now controlled by the status of the A/C Dual Pressure Switch (X102), the Front A/C Evaporator Temperature Switch (X101) and the Compressor Clutch Cut-out Switch (X259).

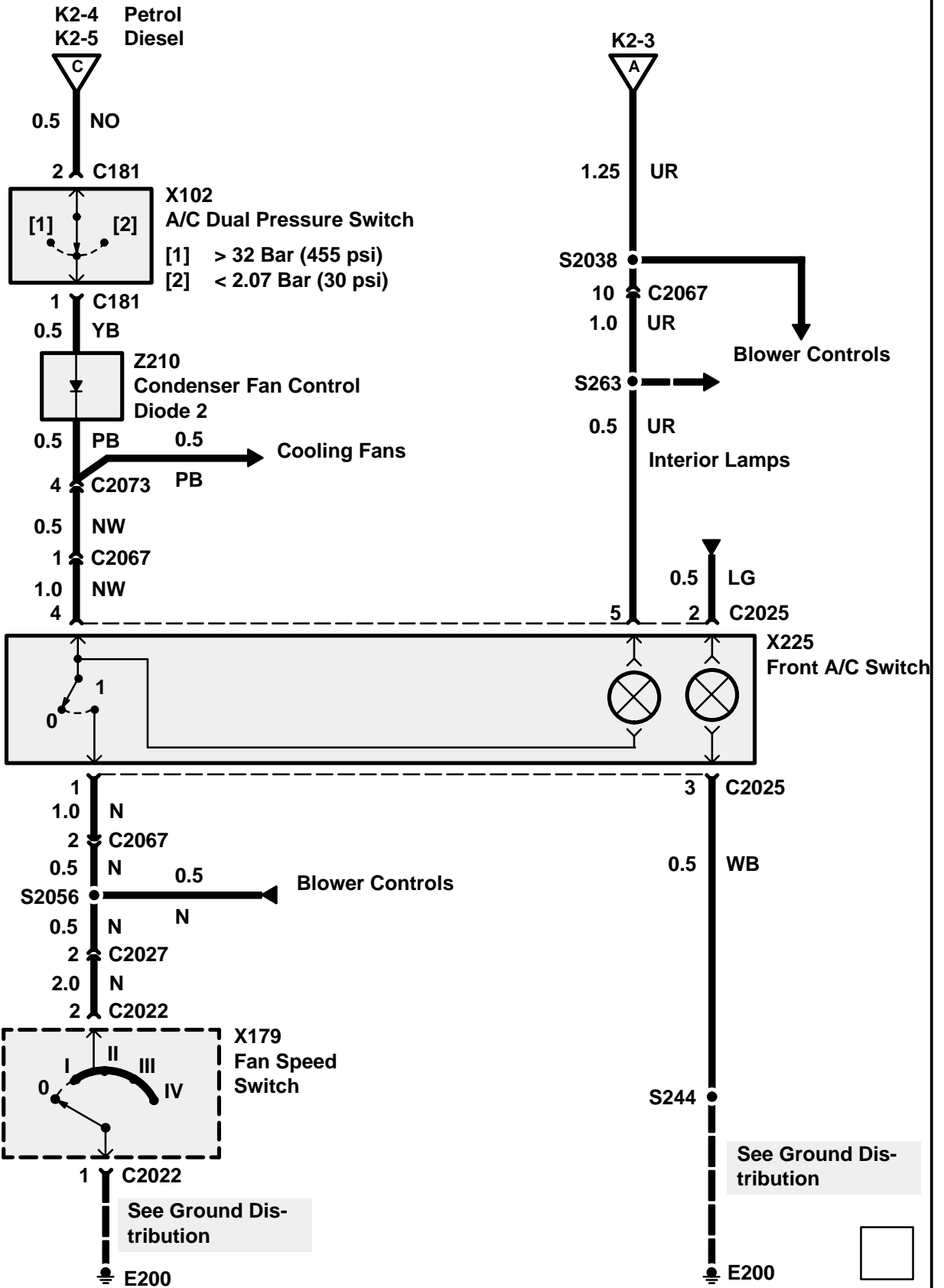
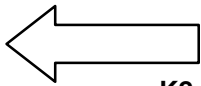
The Front A/C Evaporator Temperature Switch (X101) is fitted in the airflow out of the front evaporator to sense the temperature of the exterior fins. Should ice begin to form, due to low temperature, the switch will open. The A/C Dual Pressure Switch (X102) monitors refrigerant pressure in the high pressure line, should pressure become too high or too low the switch will open. When one or more of these switches open, the ground supply to terminal 86 of the Compressor Clutch Relay (K108) will be interrupted. The relay de-energizes, removing battery voltage from the Compressor Clutch (K107), disengaging the Compressor.











**TROUBLESHOOTING HINTS**

6. If the Front Blower Motor (M101) does not operate normally, refer to Blower Controls, Section K1.
7. Check Fuse F3 of the Engine Compartment Fuse Box (P125) and Fuse F18 of the Fascia Fuse Box (P126).
8. Verify that refrigerant pressure is OK before preceeding with the following diagnostic text.

**SYSTEM DIAGNOSIS (PETROL)**

1. If the A/C Compressor Clutch (K107) does not engage in any mode, do Test A.
2. If the Compressor Clutch (K107) remains engaged with the A/C off, do Test D.

**SYSTEM DIAGNOSIS (DIESEL)**

1. If the A/C Compressor Clutch (K107) does not engage in any mode, do Test B.
2. If the Compressor Clutch (K107) remains engaged with the A/C off, do Test E.

### Test A

R050001

**1A**

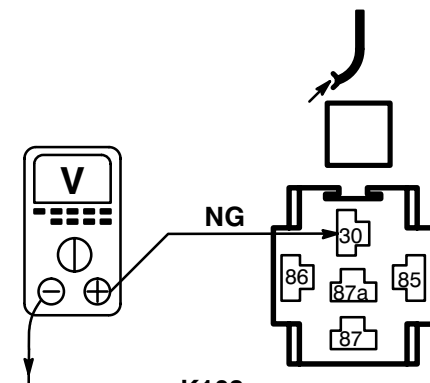
**Petrol**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

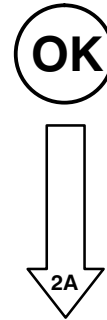
*BAT VOLT*



**K108**  
Compressor Clutch  
Relay

~~OK~~

**PROBLEM CAUSE**  
 - F3 Fuse  
 - NG Wire



R050001

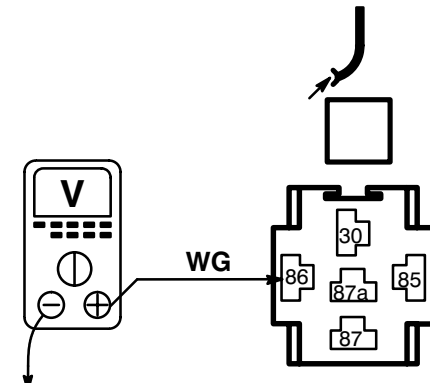
**2A**

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

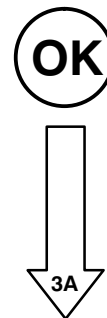
*BAT VOLT*



**K108**  
Compressor Clutch  
Relay

~~OK~~

**PROBLEM CAUSE**  
 - WG Wire



R050001

**3A**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

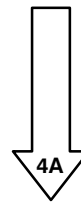
- Compressor Clutch  
*Operates*

**K108  
Compressor  
Clutch Relay**



**PROBLEM CAUSE**

- BG Wire
- B Wire
- Compressor Clutch



R050001

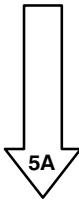
**4A**

**CONDITIONS**

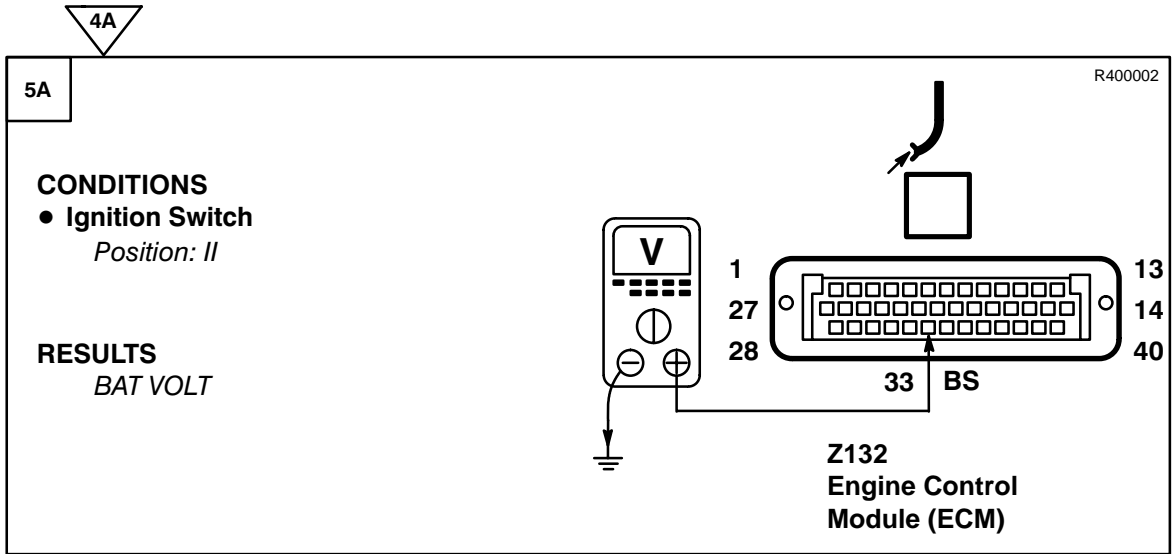
- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*On*

**RESULTS**  
*BAT VOLT*

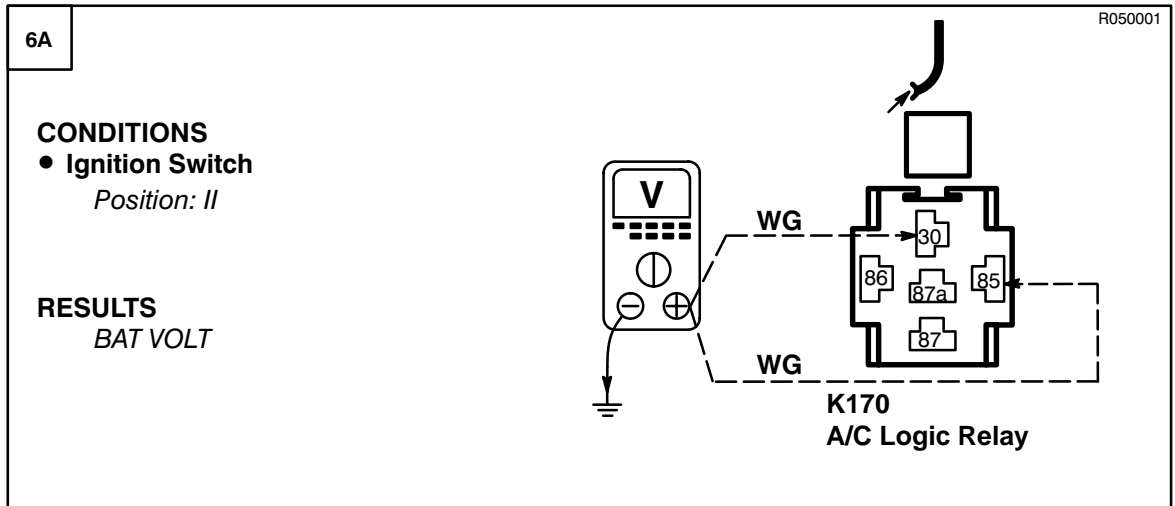
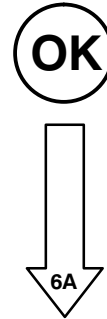
**K108  
Compressor  
Clutch Relay**



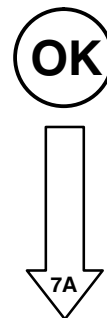
- PROBLEM CAUSE**
- Compressor Clutch Relay

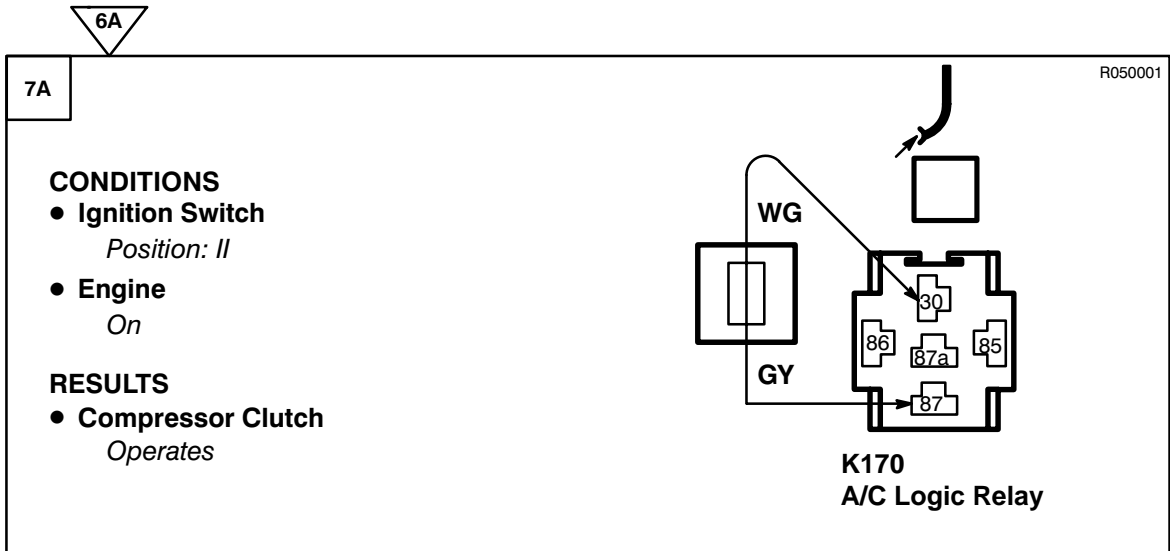


~~OK~~ PROBLEM CAUSE  
- BS Wire



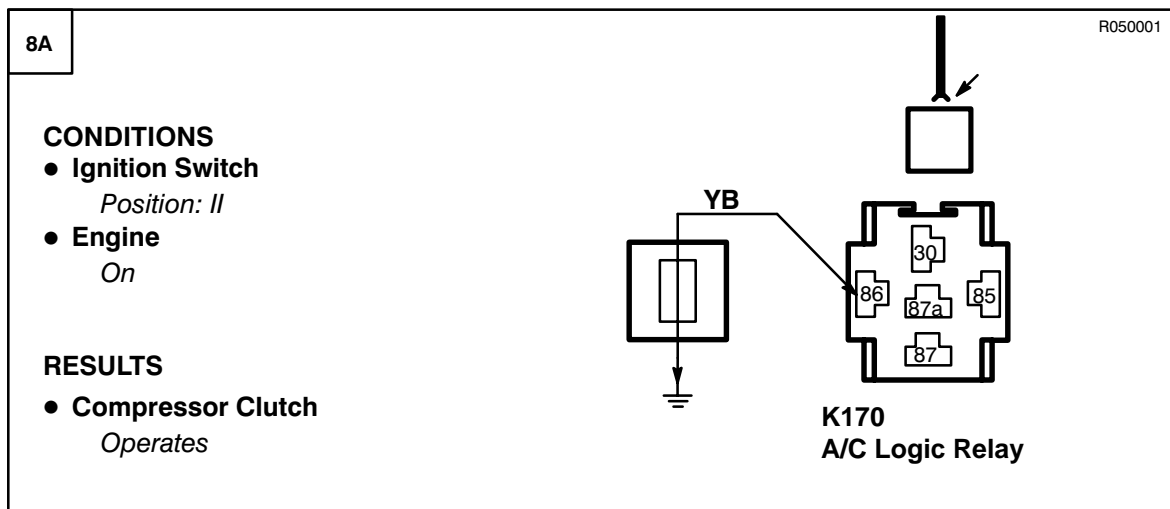
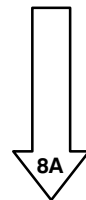
~~OK~~ PROBLEM CAUSE  
- WG Wire





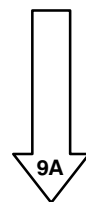
**PROBLEM CAUSE**

- GY Wire
- Engine Control Module (ECM)



**PROBLEM CAUSE**

- A/C Logic Relay



8A

9A

R010002

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*On*

**RESULTS**  
*Less than 2 ohms*

**X101**  
Front A/C Evaporator Temperature Switch

~~OK~~ GO TO TEST C

**OK** PROBLEM CAUSE

- G Wire
- YB Wire
- Front A/C Evaporator Temperature Switch

### Test B

1B Diesel

R050001

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

**K108**  
Compressor Clutch Relay

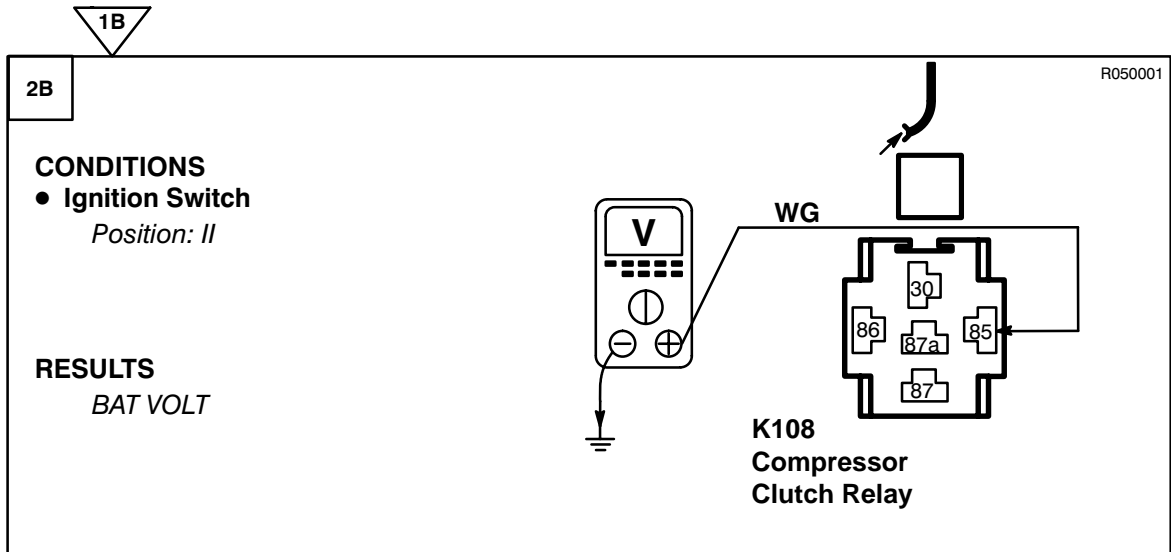
~~OK~~ PROBLEM CAUSE

- F3 Fuse
- NG Wire

**OK**

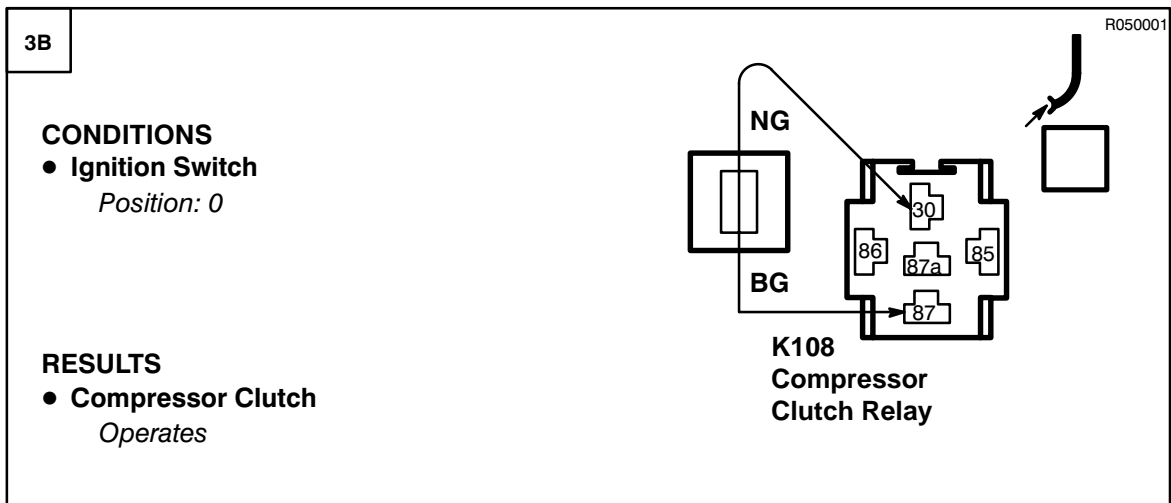
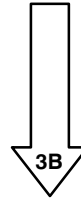
↓

2B



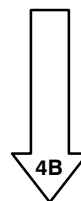
~~OK~~ **PROBLEM CAUSE**  
- WG Wire

OK



~~OK~~ **PROBLEM CAUSE**  
- BG Wire  
- B Wire  
- Compressor Clutch

OK





3B

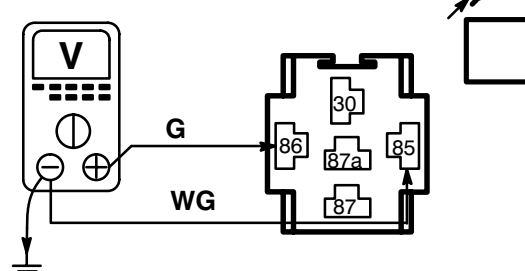
4B

R050001

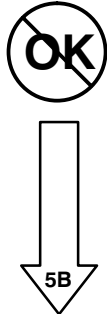
**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*On*

**RESULTS**  
BAT VOLT



**K108**  
Compressor Clutch  
Relay



**OK** PROBLEM CAUSE  
- Compressor  
Clutch Relay

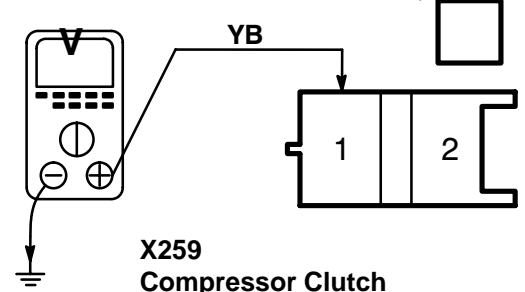
5B

R020003

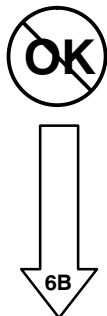
**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*On*

**RESULTS**  
BAT VOLT



**X259**  
Compressor Clutch  
Cut-out Switch



**OK** PROBLEM CAUSE  
- G Wire  
- Compressor  
Clutch Cut-out  
Switch

R010002

5B

6B

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
  
*On*

**RESULTS**  
*Less than 2 ohms*

X101  
Front A/C Evaporator Temperature Switch



GO TO TEST C



**PROBLEM CAUSE**

- YB Wire
- G Wire
- Front A/C Evaporator Temperature Switch

**Test C**

R020027

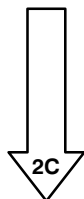
1C

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
  
*On*

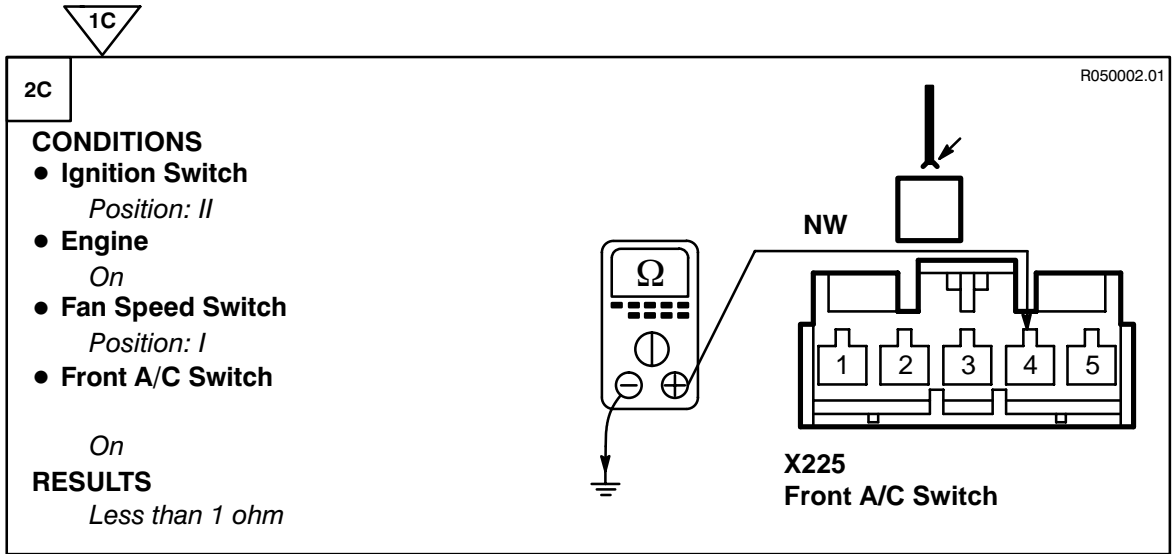
**RESULTS**  
*Less than 2 ohms*

X102  
A/C Dual Pressure Switch



**PROBLEM CAUSE**

- NO Wire
- L Wire
- A/C Dual Pressure Switch



- PROBLEM CAUSE**
- N Wire
  - Front A/C Switch



- PROBLEM CAUSE**
- YB Wire
  - PB Wire
  - NW Wire
  - Condenser Fan Control Diode 2

**Test D**

1D

**Petrol**

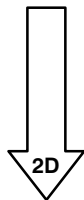
R050001

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*0V*

**K108**  
Compressor  
Clutch Relay



**PROBLEM CAUSE**  
- Compressor  
Clutch Relay

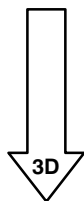
2D

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*0V*

**Z132**  
Engine Control  
Module (ECM)



**PROBLEM CAUSE**  
- GY Wire  
- Engine Control  
Module (ECM)

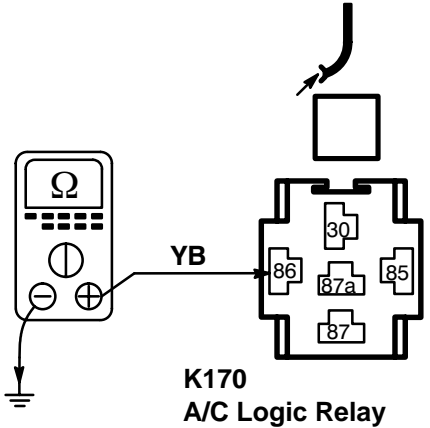
2D

3D R050001

**CONDITIONS**

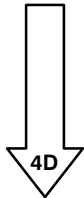
- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*



YB

**K170  
A/C Logic Relay**



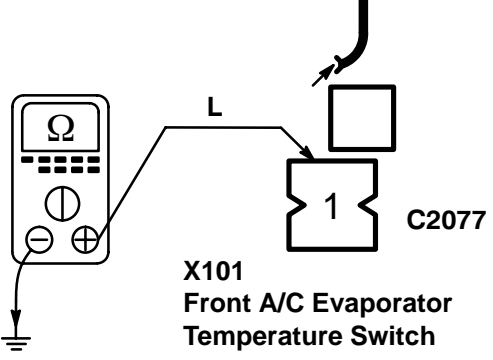
**PROBLEM CAUSE**  
- A/C Logic Relay

4D R010002

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*



L

**X101  
Front A/C Evaporator  
Temperature Switch**

C2077



**GO TO TEST F**



**PROBLEM CAUSE**  
- YB Wire  
- G Wire  
- Front A/C Evaporator Temperature Switch

**Test E**

1E

**Diesel**

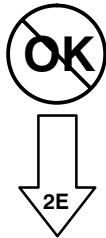
**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*0V*

R050001

**K108**  
Compressor  
Clutch Relay



**OK** **PROBLEM CAUSE**

- Compressor Clutch Relay

2E

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*

R010002

**X101**  
Front A/C Evap-  
orator Tempera-  
ture Switch

**OK** **GO TO TEST F**

**OK** **PROBLEM CAUSE**

- G Wire
- YB Wire
- Compressor Clutch Cut-out Switch
- Front A/C Evaporator Temperature Switch

**Test F**

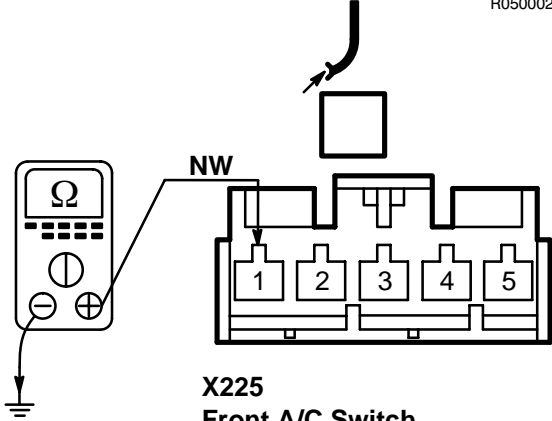
R050002.02

1F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Fan Speed Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*



**X225**  
Front A/C Switch

**PROBLEM CAUSE**

- N Wire
- Fan Speed Switch

**PROBLEM CAUSE**

- L Wire
- NO Wire
- YB Wire
- PB Wire
- NW Wire
- A/C Dual Pressure Switch
  
- Condenser Fan Control Diode 2
  
- Front A/C Switch

**CIRCUIT OPERATION****Condenser Fan Operation (Petrol)**

The Condenser Fans Motors (M113, M121) on vehicles equipped with Petrol engines operate when any of the following conditions occur:

3. Coolant temperature exceeds 100°C (212°F).
4. The air conditioning system is operating.
5. The Engine Control Module (ECM) (Z132) determines that fuel temperature exceeds 70°C and coolant temperature exceeds 110°C after engine shutdown. When this occurs, the fans are turned on for approximately 10 minutes after the engine is shut off.

**Operation with High Coolant Temperature (Petrol)**

When the Ignition Switch (X134) is in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Condenser Fan Relay (K109) and the Fan Control Module (Z118). If the coolant temperature exceeds 100°C (212°F), the Condenser Fan Coolant Temperature Switch (X113) closes and energizes the Condenser Fan Relay (K109) by applying ground to the relay's coil. When the relay is energized, voltage from fuse F3 is applied to the Condenser Fan Motors (M113, M121) through the relay's contacts.

**Fan Operation with A/C (Petrol)**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Condenser Fan Relay (K109). When the Front A/C Switch (X225) is turned on and the Fan Speed Switch (X179) is turned to positions I, II, III, or IV, ground is applied to terminal 86 of the Condenser Fan Relay. The relay energizes, applying battery voltage from fuse F3 to the Condenser Fan Motors (M113, M121).

**Operation with the Engine Off (Petrol)**

The Engine Control Module (Z132) monitors fuel temperature and coolant temperature through sensors. When the ECM determines that fuel temperature is above 70°C and coolant

temperature exceeds 110°C after engine shutdown, the ECM will command fan operation for approximately 10 minutes. The ECM turns on the fans by momentarily grounding the Fan Control Module (Z118) through the BG wire. When the timer unit is grounded, it starts a solid state timer and begins to apply ground from its terminal 9 to the Condenser Fan Relay (K109) through the BP wire. With the Condenser Fan Relay energized, voltage from fuse F3 is applied to the Condenser Fan Motors (M113, M121) through the relay contacts.



**Condenser Fan Operation (Diesel)**

The Condenser Fan Motors (M113, M121) on vehicles equipped with diesel engines operate when any one of the following conditions occur:

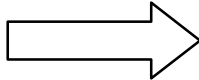
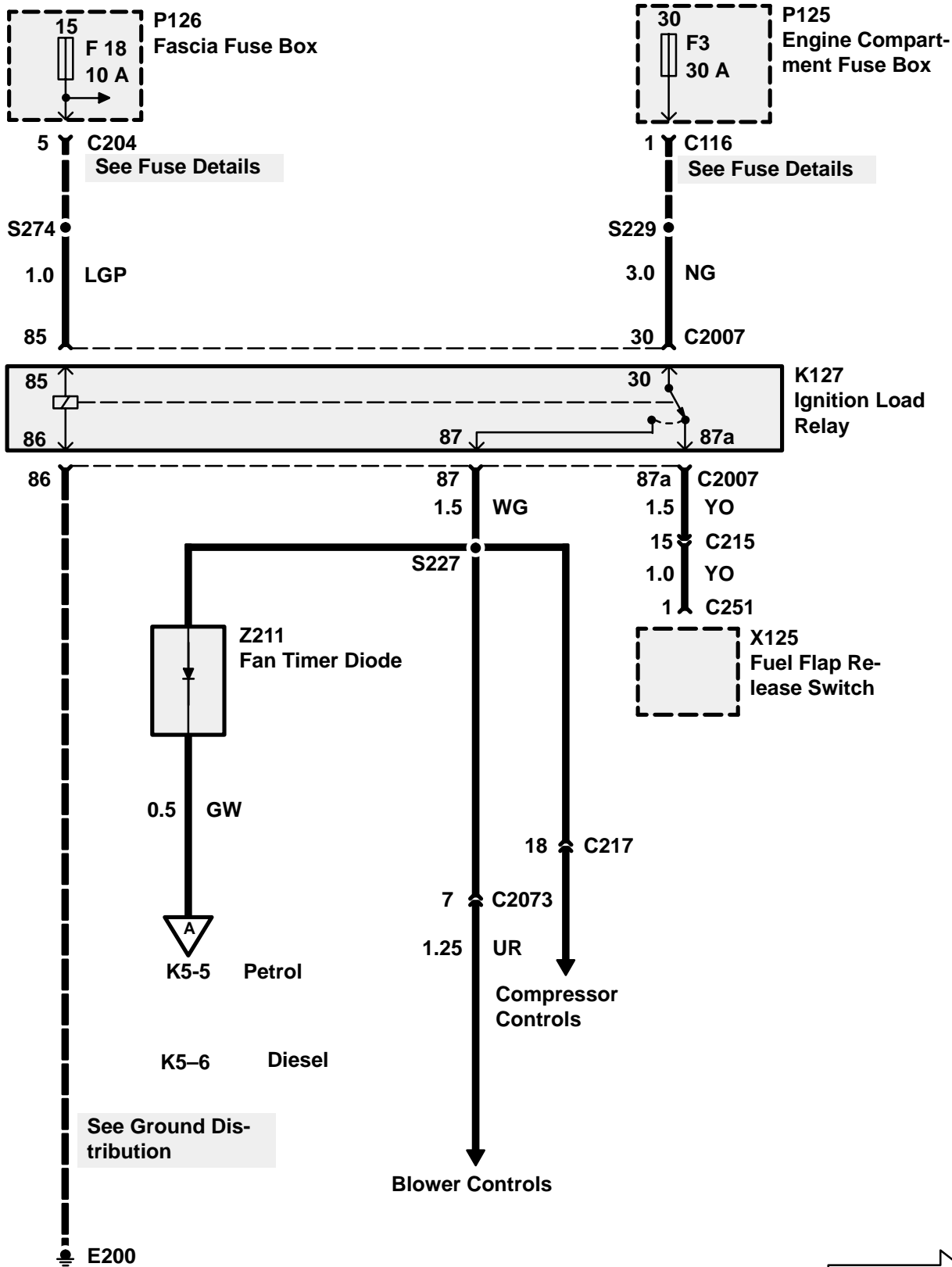
1. Coolant temperature exceeds 100°C (212°F).
2. The A/C is operating.

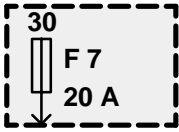
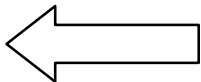
**Condenser Fan with High Coolant Temperature Operation (Diesel)**

When the Ignition Switch (X134) is in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Condenser Fan Relay (K109). If the coolant temperature exceeds 100°C (212°F), the Condenser Fan Coolant Temperature Switch (X113) closes and energizes the Condenser Fan Relay (K109) by applying ground to the relay's coil. When the relay is energized, voltage from fuse F3 is applied to the Condenser Fan Motors (M113, M121) through the relay's contacts.

**Fan Operation with A/C (Diesel)**

With the Ignition Switch (X134) in position II, battery voltage is applied to the Ignition Load Relay (K127). The relay is energized, applying battery voltage to the Condenser Fan Relay (K109) when the Front A/C Switch (X225) is turned on and the Fan Speed Switch (X179) is turned to positions I, II, III, or IV, ground is applied to terminal 86 of the Condenser Fan Relay (K109). The relay energizes, applying battery voltage from fuse F3 to the Condenser Fan Motors (M113, M121).





P125  
Engine Compartment  
Fuse Box

3 C100

See Fuse Details

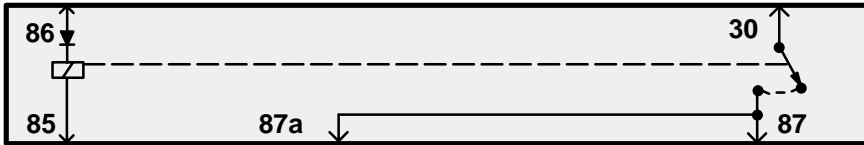


0.5 NO

3.0 NLG

86

30 C239



K116  
Engine Control  
Load Relay

85

87a

87 C239

0.5 UR

1.0 NO

3.0 NO

2.0 NO

S291 HJ7

3.0 NO

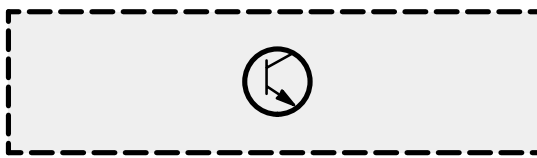
0.5 NO

NAS

Multipoint Fuel In-  
jection (MFI-V8)

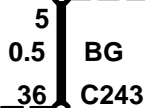
2.0 NO

2 C238



Z118  
Fan Control Mod-  
ule

12



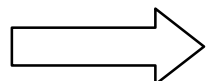
Z132  
Engine Control  
Module (ECM)

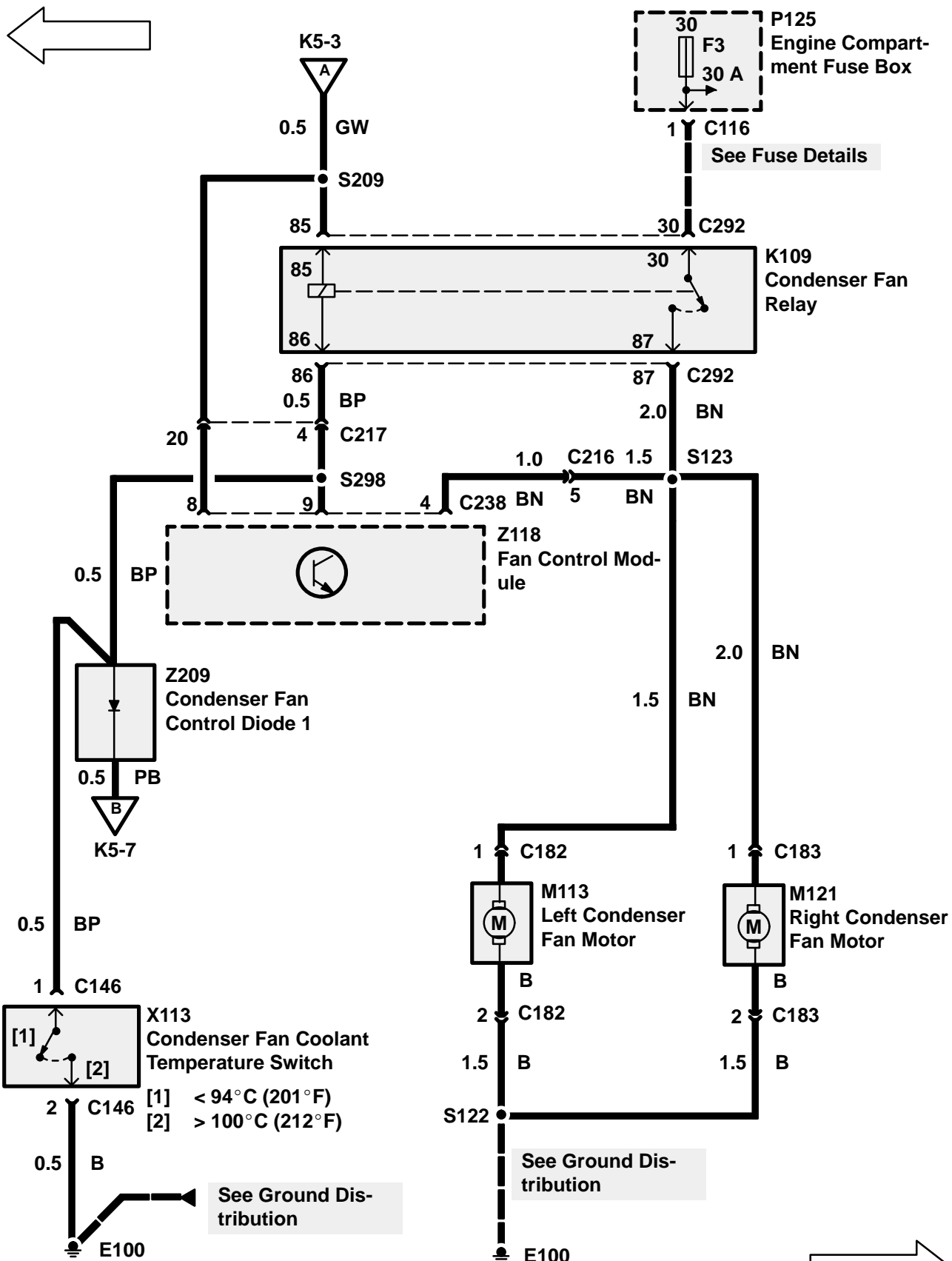
6 C238

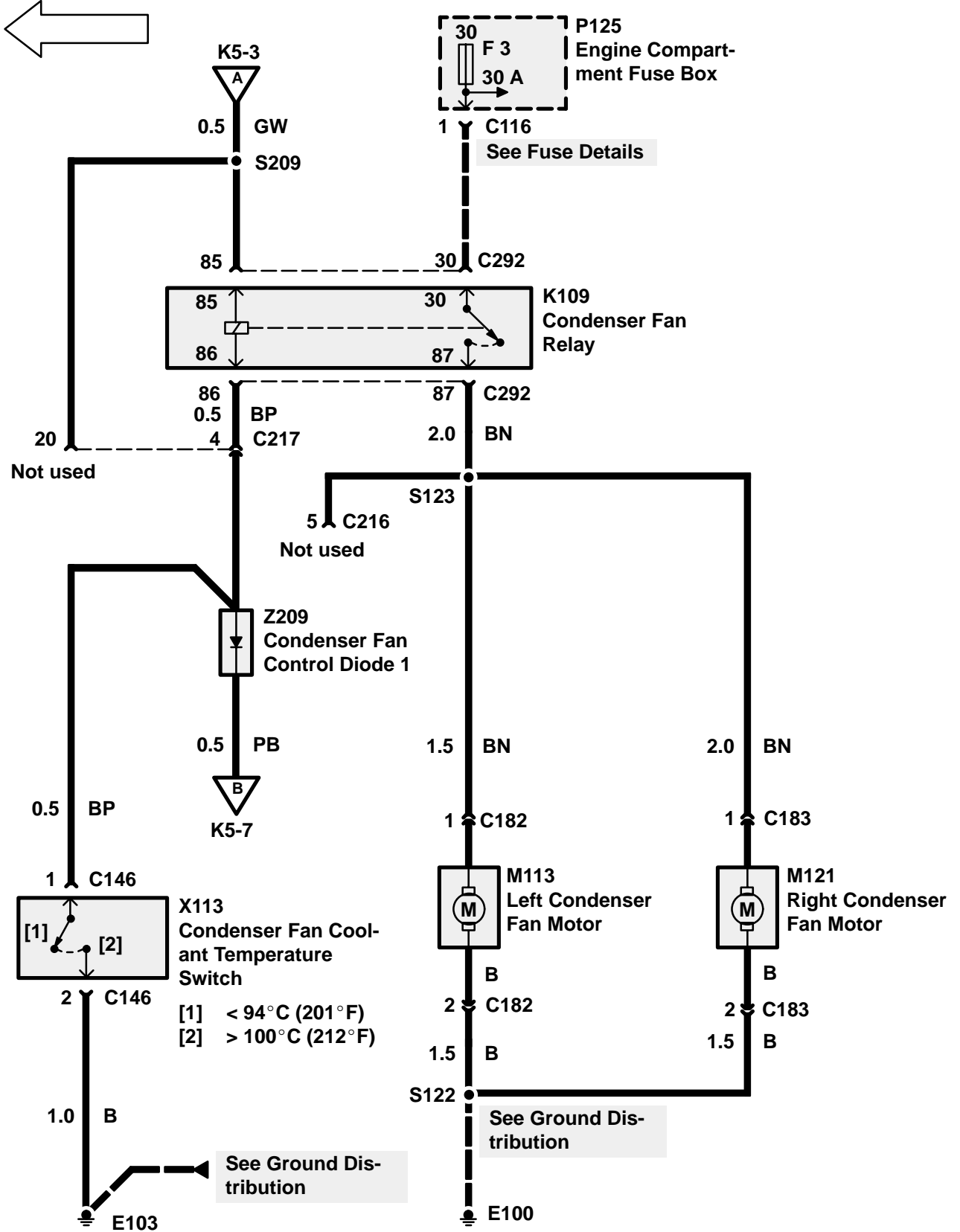
0.5 B

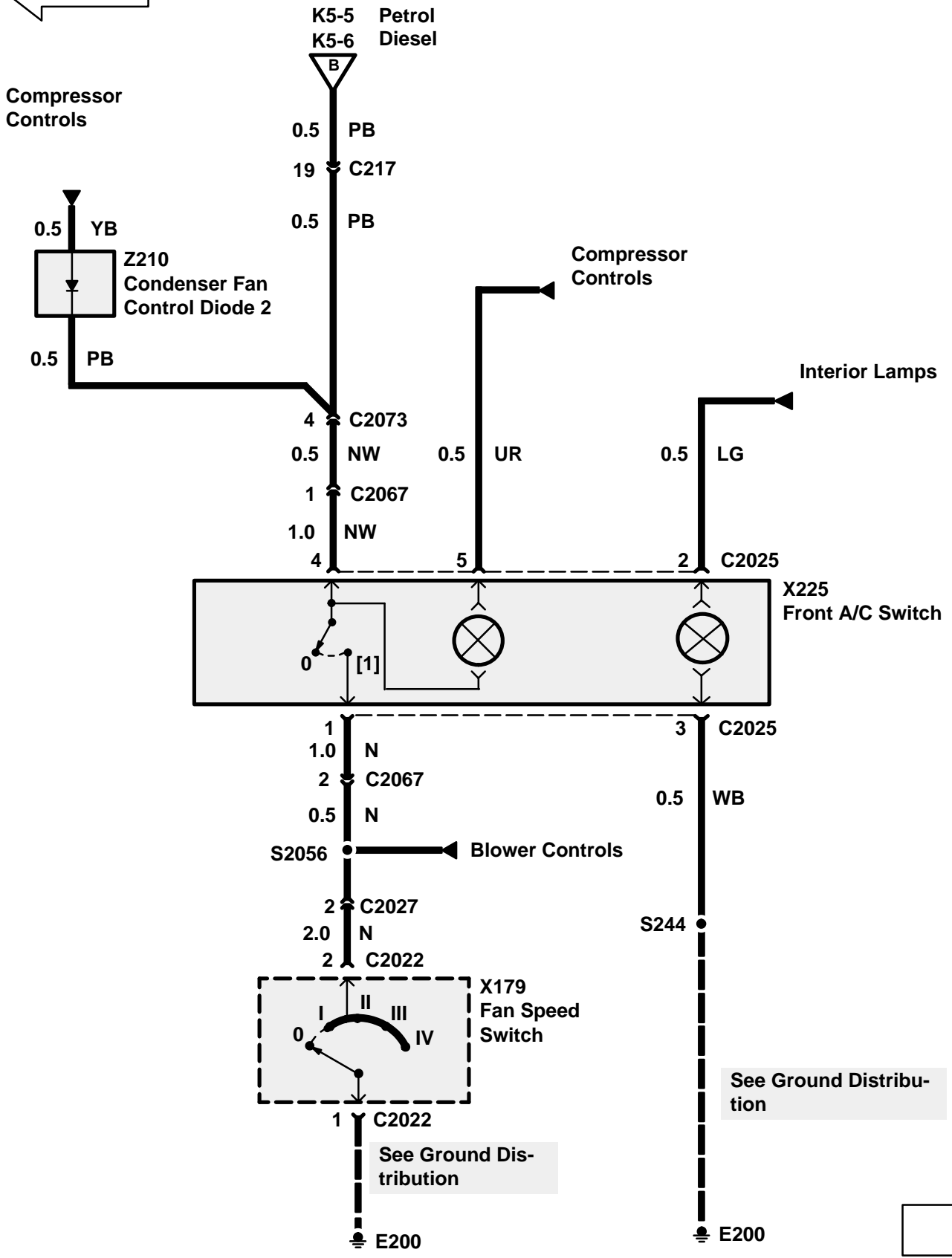
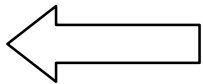
See Ground Dis-  
tribution

E100









**TROUBLESHOOTING HINTS**

3. Check Fuses F3, and F7 in the Engine Compartment Fuse Box (P125).
4. Check Fuse F18 in the Fascia Fuse Box.
5. If the Front Blower Motor (M101) does not operate normally, refer to Blower Controls, Section K1.

**SYSTEM DIAGNOSIS**

1. If the Condenser Fans do not turn on when the A/C is turned on, do Test A for Petrol Engines or Test B, the Condenser Fan Relay (K109) test, for Diesel Engines.
2. If only one of the Condenser Fans operates, do Test E, the Condenser Fan Motor (M113, M121) test.
3. If the Condenser Fans do not turn on when coolant temperature exceeds 100°C (212°F), do Test F, the Temperature Switch (X113) test.
4. On Petrol Engines, if the Condenser Fans do not stay on after the ignition has been turned off, fuel temperature exceeds 70°C and coolant temperature exceeds 110°C, do Test G, the Fan Control Module (Z118) test.

Test A

**1A** **Condenser Fan Relay Test**  
**Petrol**

**CONDITIONS**  
• Ignition Switch  
*Position: 0*

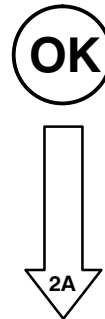
**RESULTS**  
*BAT VOLT*

NG

K109  
Condenser Fan  
Relay

R050001

~~OK~~ **PROBLEM CAUSE**  
- F3 Fuse  
- NG Wire



**2A**

**CONDITIONS**  
• Ignition Switch  
*Position: II*  
• Engine  
*On*

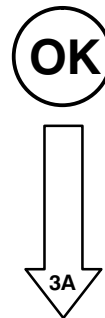
**RESULTS**  
*BAT VOLT*

GW

K109  
Condenser Fan  
Relay

R050001

~~OK~~ **PROBLEM CAUSE**  
- GW Wire





3A
2A
R090002

**CONDITIONS**

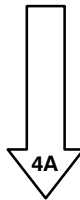
- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
  
*A/C Mode*

**RESULTS**  
*Less than 1 ohm*

Z118  
Fan Control Module

~~OK~~ GO TO TEST C

OK



4A
R050001

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- M113, M121 Condenser Fan Motors  
  
*Operate*

K109  
Condenser Fan Relay

~~OK~~ PROBLEM CAUSE  
- BN Wire

OK PROBLEM CAUSE  
- Condenser Fan Relay

**Test B**

R050001

**1B**

**Condenser Fan Relay Test  
Diesel**

**CONDITIONS**

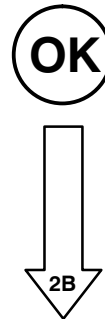
- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

K109  
Condenser Fan  
Relay

~~OK~~ **PROBLEM CAUSE**

- F3 Fuse
- NG Wire



R050001

**2B**

**CONDITIONS**

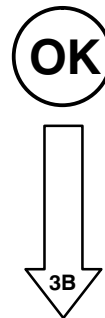
- Ignition Switch  
*Position: II*
- Engine  
*On*

**RESULTS**  
*BAT VOLT*

K109  
Condenser Fan  
Relay

~~OK~~ **PROBLEM CAUSE**

- GW Wire



2B

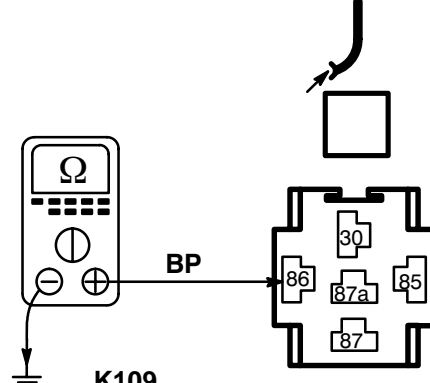
3B

R050001

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
  
*A/C Mode*

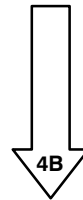
**RESULTS**  
*Less than 1 ohm*



**K109**  
Condenser Fan  
Relay

~~OK~~ GO TO TEST D

OK



4B

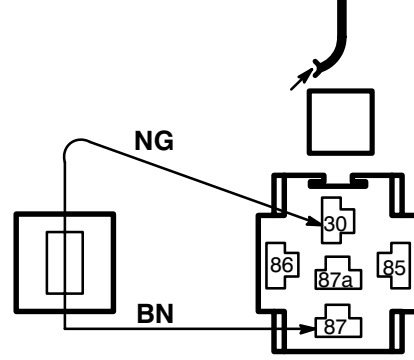
R050001

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- M113, M121 Condenser Fan Motors  
  
*Operate*



**K109**  
Condenser Fan  
Relay

~~OK~~ PROBLEM CAUSE  
- BN Wire

OK PROBLEM CAUSE  
- Condenser Fan  
Relay

**Test C**

**1C A/C Mode**

**CONDITIONS**

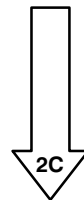
- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*A/C Mode*

**RESULTS**

- Compressor Clutch  
*On*
- Front Blower Motor  
*On*

~~OK~~ GO TO SECTION K1

OK



**2C**

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
*A/C Mode*

**RESULTS**

- M113, M121 Condenser Fan Motors  
*Operate*

~~OK~~ PROBLEM CAUSE  
- BP Wire

OK PROBLEM CAUSE  
- PB Wire  
- Condenser Fan Control Diode 1

### Test D

1D

A/C Mode

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch

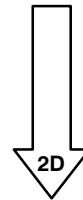
*A/C Mode*

**RESULTS**

- Compressor Clutch  
*On*
- Front Blower Motor  
*On*



GO TO SECTION K1



2D

R200003

**CONDITIONS**

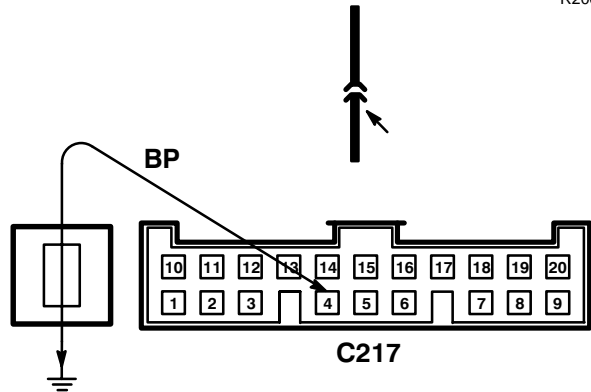
- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch

*A/C Mode*

**RESULTS**

- M113, M121 Condenser Fan Motors

*Operate*



**PROBLEM CAUSE**  
- BP Wire



**PROBLEM CAUSE**  
- PB Wire  
- Condenser Fan Control Diode 1

**Test E**

R020011

1E

### Condenser Fan Motor Test

**CONDITIONS**

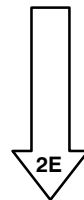
- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: I*
- Front A/C Switch  
  
*A/C Mode*

**RESULTS**  
*BAT VOLT*

M113, M121 Condenser Fan Motor

~~OK~~ PROBLEM CAUSE  
- BN Wire

OK



R020011

2E

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 1 ohm*

M113, M121 Condenser Fan Motor

~~OK~~ PROBLEM CAUSE  
- B Wire  
- E100

OK PROBLEM CAUSE  
- M113, M121 Condenser Fan Motor

### Test F

R020003

1F

### Temperature Switch Test

**CONDITIONS**

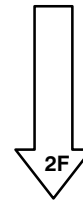
- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

**X113**  
Condenser Fan Coolant  
Temperature Switch



**PROBLEM CAUSE**  
- BP Wire



R020003

2F

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- M113, M121 Condenser Fan Motors  
*Operate*

**X113**  
Condenser Fan Coolant  
Temperature Switch



**PROBLEM CAUSE**  
- B Wire  
- E100, E103



**PROBLEM CAUSE**  
- Condenser Fan  
Coolant Tem-  
perature Switch

**Test G**

1G
R090002

### Fan Timer Test

**CONDITIONS**

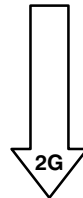
- Ignition Switch  
*Position: II*
- Engine  
*On*

**RESULTS**  
*BAT VOLT*

Z118  
Fan Control Mod-  
ule

~~OK~~ PROBLEM CAUSE  
- NO Wire

OK



2G
R090002

### Fan Timer Test

**CONDITIONS**

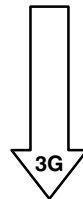
- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 1 ohm*

Z118  
Fan Control Mod-  
ule

~~OK~~ PROBLEM CAUSE  
- B Wire  
- E100

OK





**3G**

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- M113, M121 Condenser Fan Motors

*Operate*

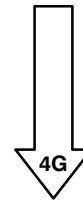
R090002

**Z118  
Fan Control Module**



**PROBLEM CAUSE**

- BP Wire
- B Wire



**4G**

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Engine  
*On*

**RESULTS**

- M113, M121 Condenser Fan Motors

*Operate*

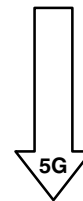
R090002

**Z118  
Fan Control Module**



**PROBLEM CAUSE**

- BN Wire



4G
R090002

5G

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Fan Speed Switch  
*Position: 0*
- Front A/C Switch  
  
*Off*

**RESULTS**  
*Condenser fan operates for 10 minutes*

**Z118 Fan Control Module**

**OK** PROBLEM CAUSE  
- Fan Control Module

**OK** PROBLEM CAUSE  
- BG Wire  
- Engine Control Module (ECM)

## CIRCUIT OPERATION

Voltage for window lift and sunroof operation is provided to the Window Lift ECU (Z147) from fuses F2 and F3. The Window Lift ECU is grounded through the B wire at ground E200.

### Timeout Feature

Fuse F18 applies voltage to the Window Lift ECU terminal 3 when the ignition switch is on. When the ignition switch is turned off, the absence of voltage at terminal 3 signals the Window Lift ECU to start the timeout feature. When the timeout feature is activated, the Window Lift ECU will allow window and sunroof operation for an additional 45 seconds.

The timeout feature will be cancelled if the driver's door is opened and then closed. The Window Lift ECU monitors the driver's door position at terminal 7.

### Front Window Operation

When a Front Window Switch is operated, the switch grounds one of four Window Lift ECU input terminals. This signals the Window Lift ECU to apply voltage and ground to the respective window motor. If the front window switch is held in the down position for more than 1/2 second, the express down feature is activated. The Window Lift ECU will operate the window motor until it is completely lowered.

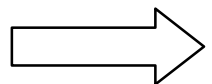
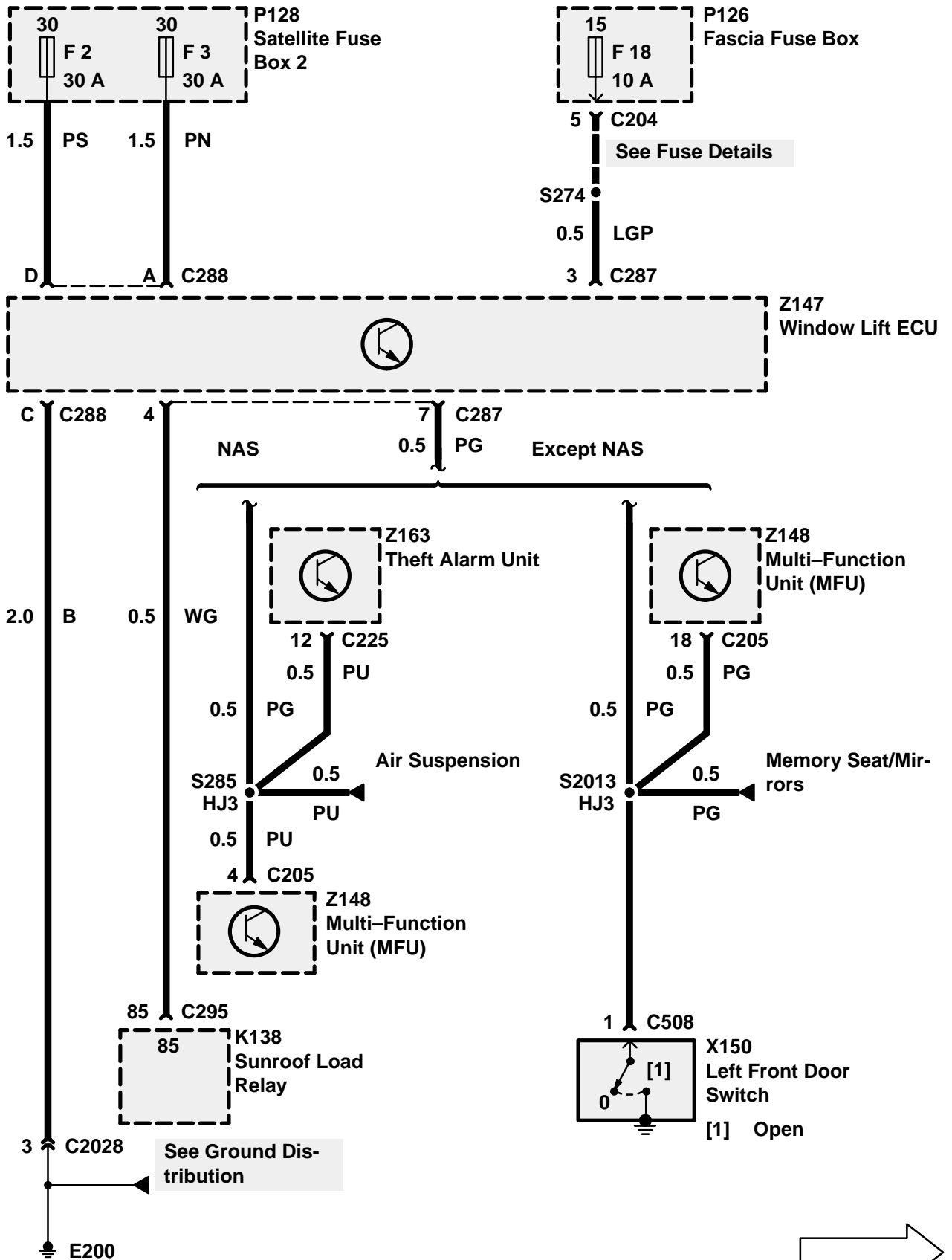
### Rear Window

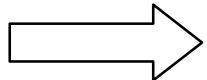
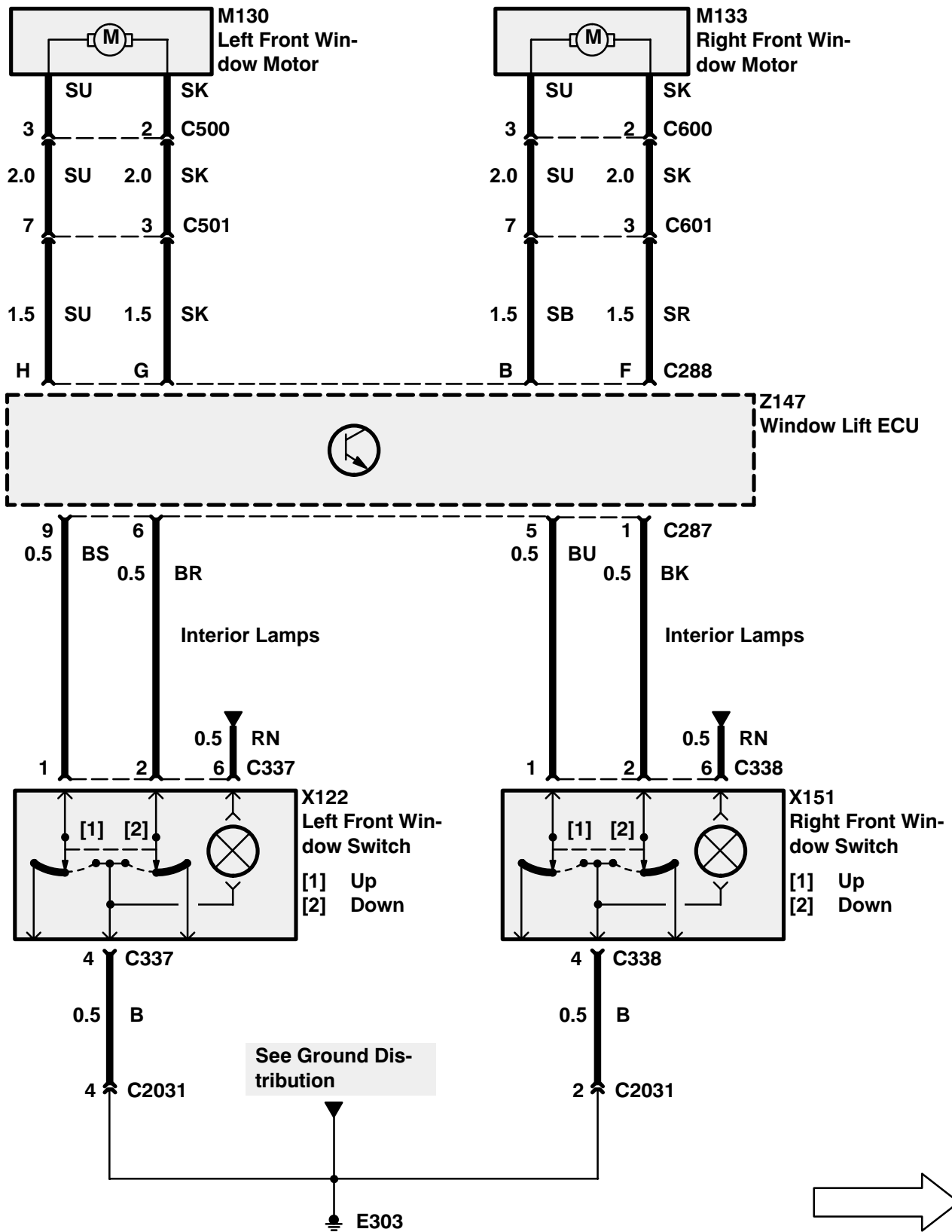
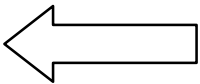
The Window Lift ECU terminal E supplies voltage to the Rear Window Console and door switches for rear window operation.

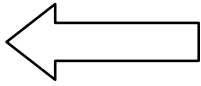
When a window console switch is in the 'DOWN' position, voltage is applied to the window motor through the 'up' switch contacts. The window motors operate because they are grounded through the 'down' contacts of the window console switch. When a switch is in the UP position, the polarity applied to the window motor is reversed, causing the motor to run in the opposite direction and the window to close.

### Rear Window Isolation Switch (X187)

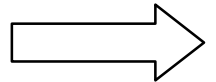
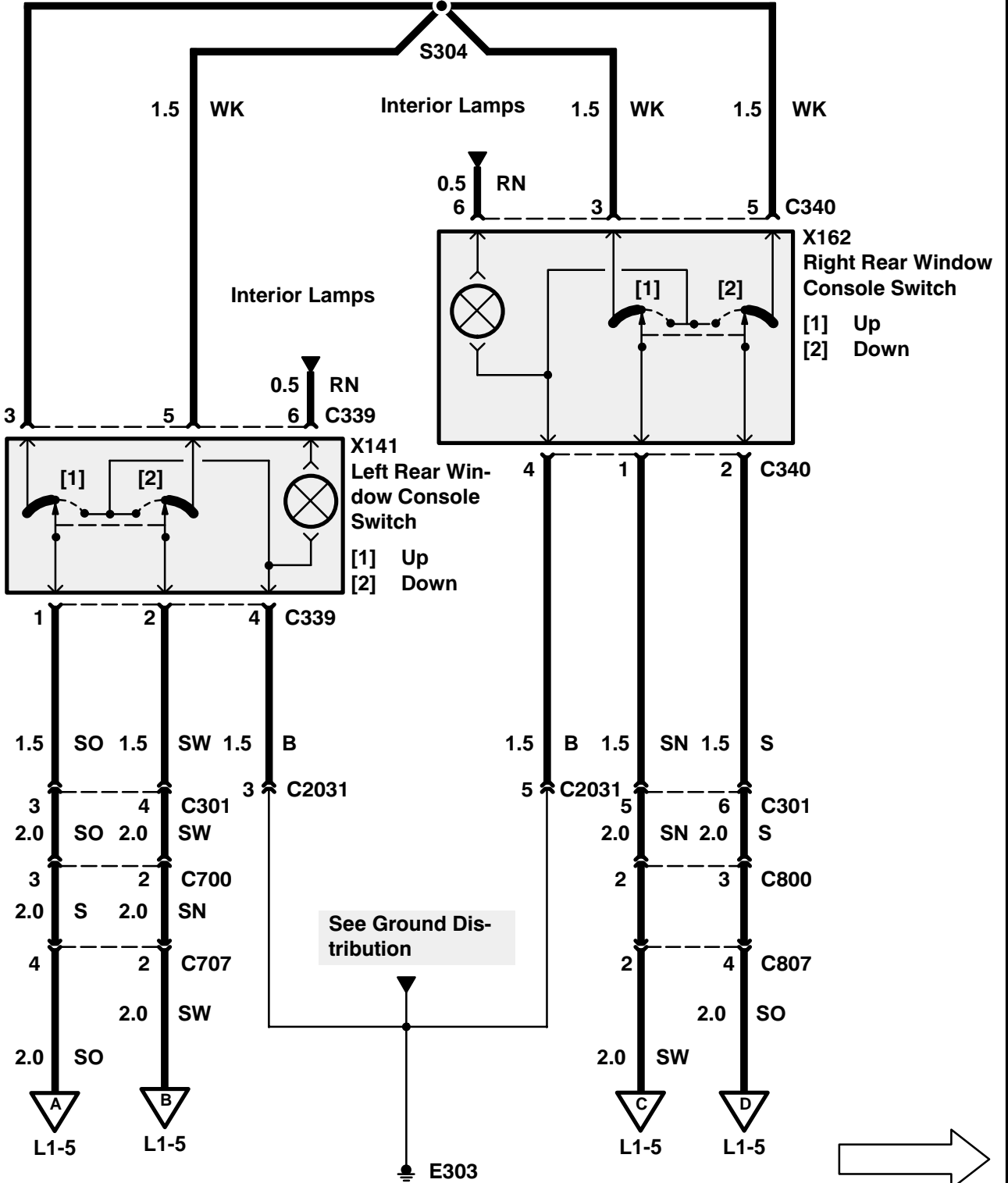
The Rear Window Isolation Switch (X187) is placed in series with the ground supply to the Rear Window Door Switches (X188, X189). If the isolation switch is opened, the ground supply is interrupted, preventing rear window operation using the rear door switches.

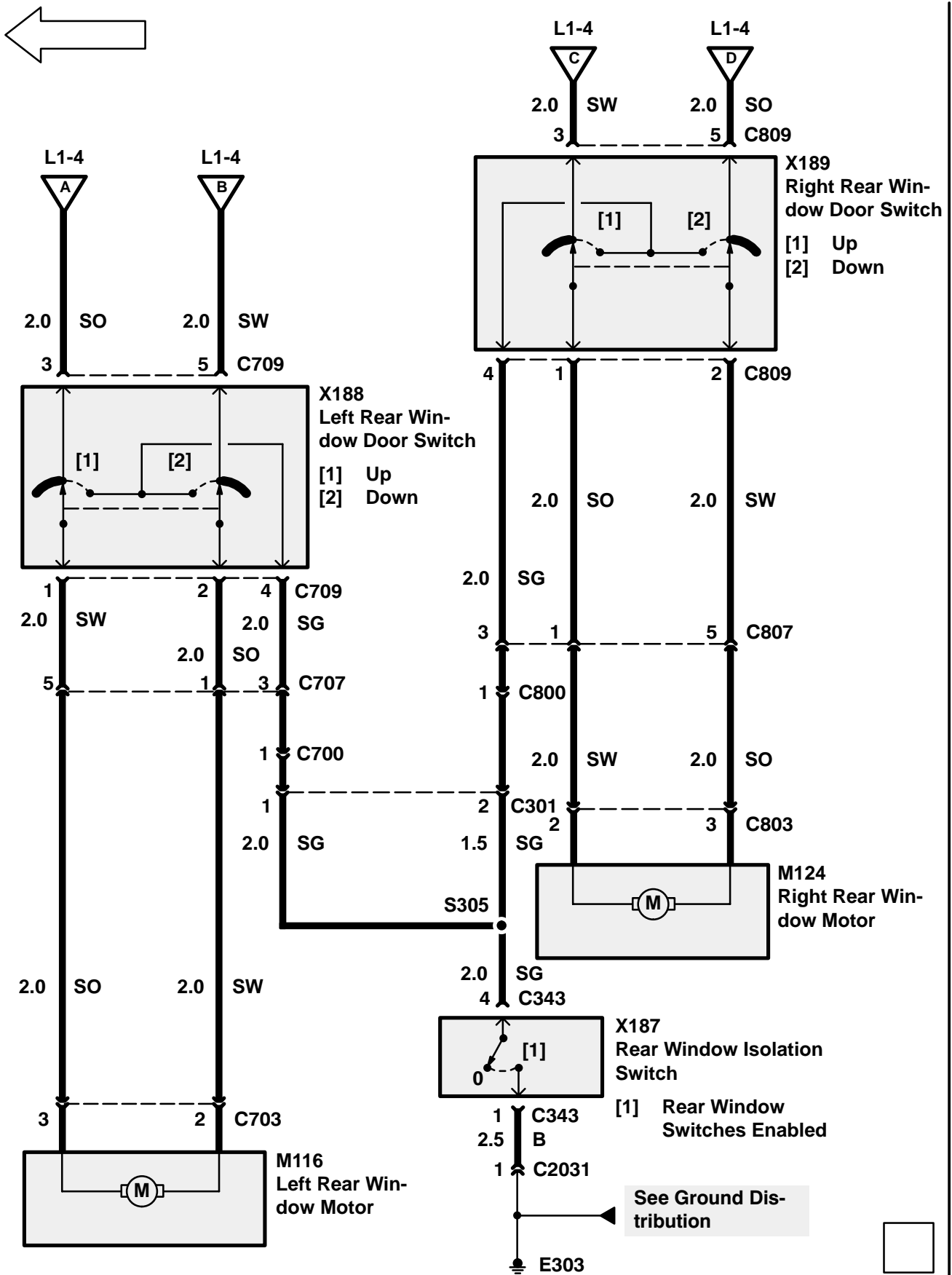






E C288  
2.0 WK





**TROUBLESHOOTING HINTS**

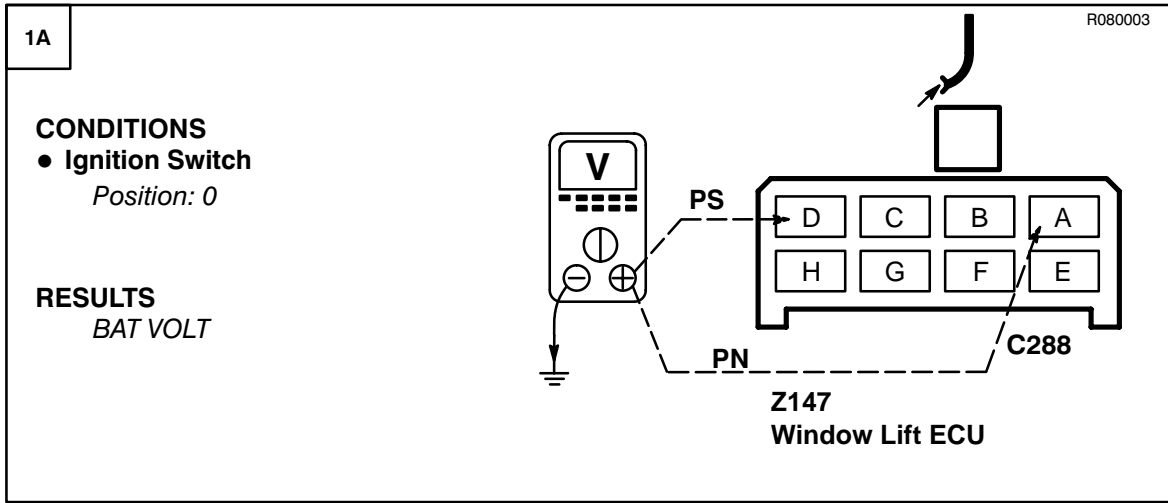
5. If the one touch window feature does not operate but the window operates, replace the Window Lift ECU (Z147).

**SYSTEM DIAGNOSIS**

1. If none of the windows operate, do Test A.
2. If both rear windows do not operate from the rear door switches but do operate when the centre console switches are used, do test B.
3. If the rear windows do not operate from the centre console switches and the rear door switches, do Test C.
4. If one rear window does not operate from the centre console and door switch, do Test D.
5. If a rear window does not operate using the door switch but does operate from the centre console switch, do Test F.
6. If a rear window does not operate from the centre console switch but does work when the door switch is used, do Test E.
7. If a front window does not operate, do Test G.
8. If the window timeout feature does not operate, do test H.

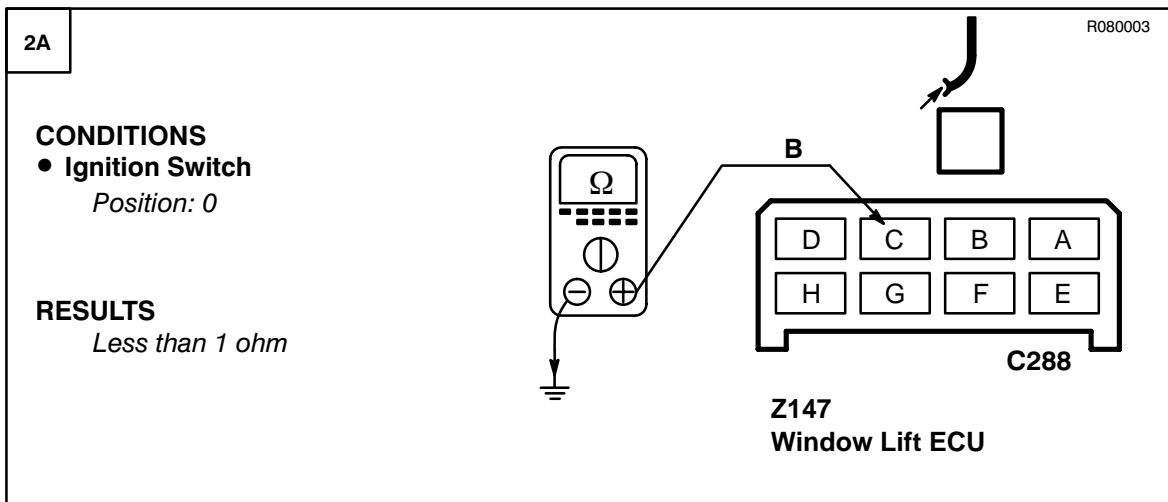
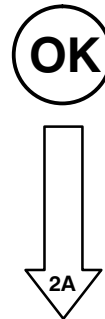


**Test A**



**OK** PROBLEM CAUSE

- F2 Fuse
- PS Wire
- F3 Fuse
- PN Wire



**OK** PROBLEM CAUSE

- B Wire

**OK** PROBLEM CAUSE

- Window Lift ECU

**Test B**

R060019

1B

**CONDITIONS**

- Ignition Switch  
*Position: I*
- Rear Window Isolation Switch  
  
*On*

**RESULTS**  
*Less than 1 ohm*

**X187**  
Rear Window Isolation  
Switch

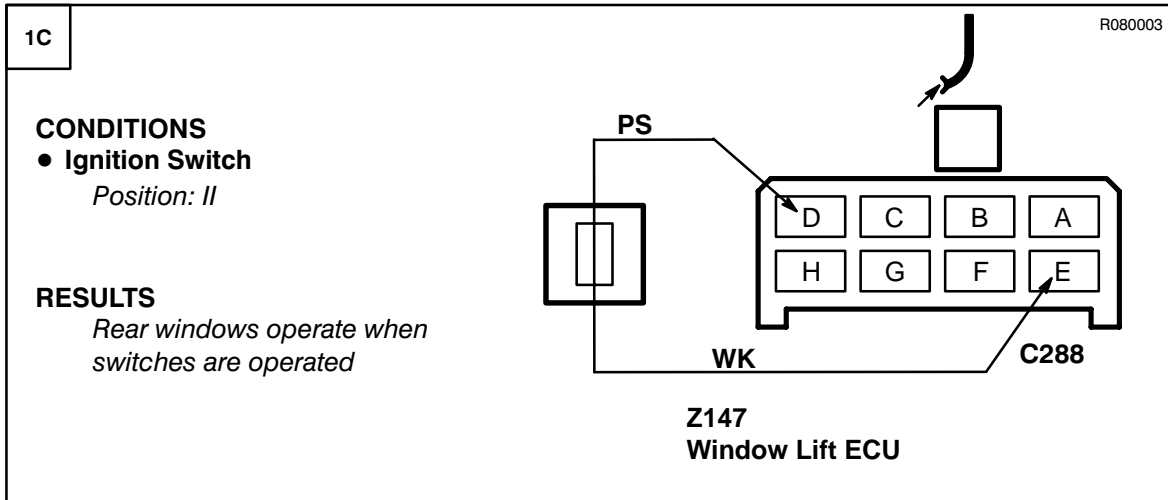


**PROBLEM CAUSE**  
- Rear Window  
Isolation Switch



**PROBLEM CAUSE**  
- B Wire  
- SG Wire

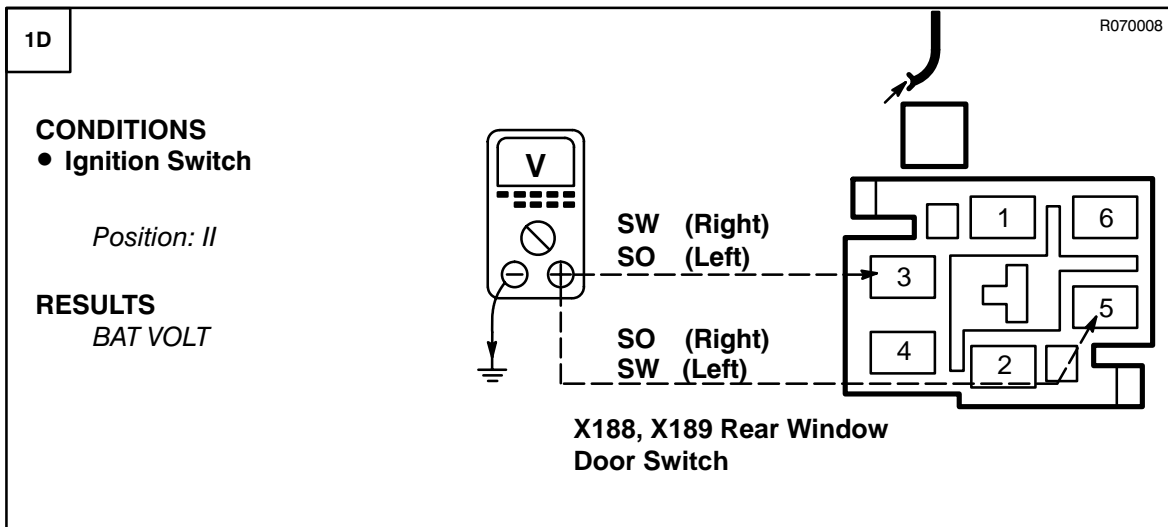
**Test C**



**OK** PROBLEM CAUSE  
 - WK Wire

**OK** PROBLEM CAUSE  
 - Window Lift ECU

**Test D**



**OK** GO TO TEST E

**OK**  
 ↓  
 2D

R030021

1D

2D

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**  
*BAT VOLT*

**M116, M124 Rear Window Motor**



**PROBLEM CAUSE**

- SW Wire
- SO Wire
- X188, X189 Rear Window Door Switch



R030021

3D

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- X188, X189 Rear Window Door Switch

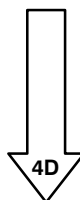
$\downarrow$  = 0 VOLT  
*Off* = BAT VOLT

**M116, M124 Rear Window Motor**



**PROBLEM CAUSE**

- SW Wire
- SO Wire
- X188, X189 Rear Window Door Switch



3D

4D

R030021

**CONDITIONS**

- Ignition Switch  
*Position: II*

**RESULTS**

- X188, X189 Rear Window Door Switch

▲ = 0 VOLT  
 Off = BAT VOLT

M116, M124 Rear Window Motor



**PROBLEM CAUSE**

- SO Wire
- SW Wire
- X188, X189 Rear Window Door Switch



**PROBLEM CAUSE**

- M116, M124 Rear Window Motor

**Test E**

1E

R070008

**PROBLEM CAUSE**

- Ignition Switch  
*Position: II*

**RESULTS**

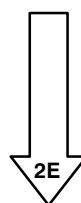
BAT VOLT

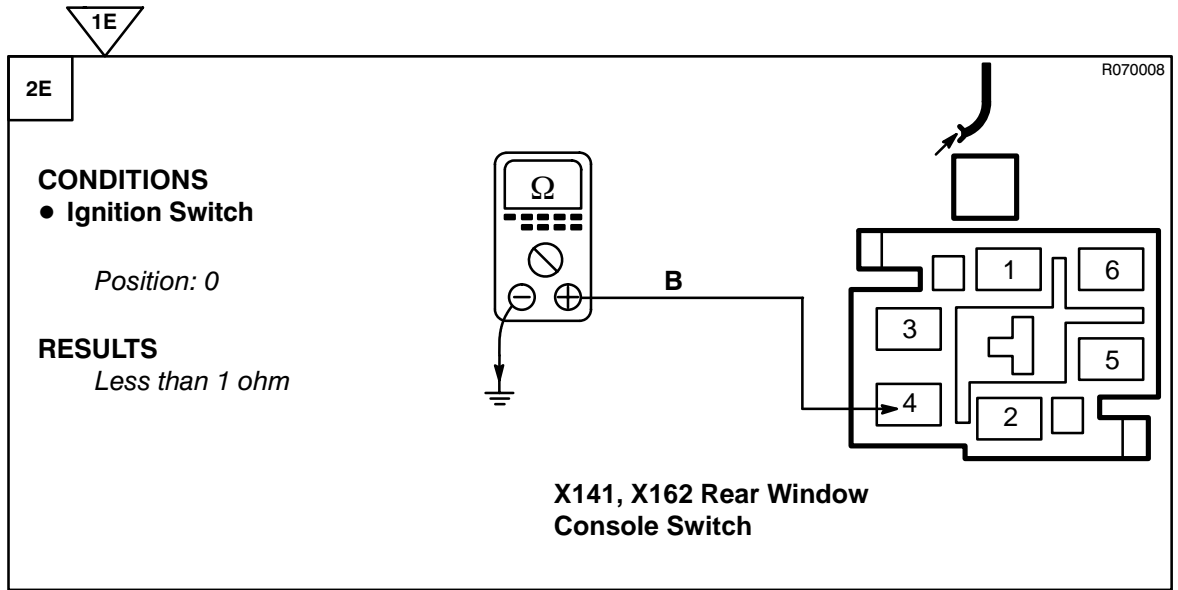
X141, X162 Rear Window Console Switch



**PROBLEM CAUSE**

- WK Wire



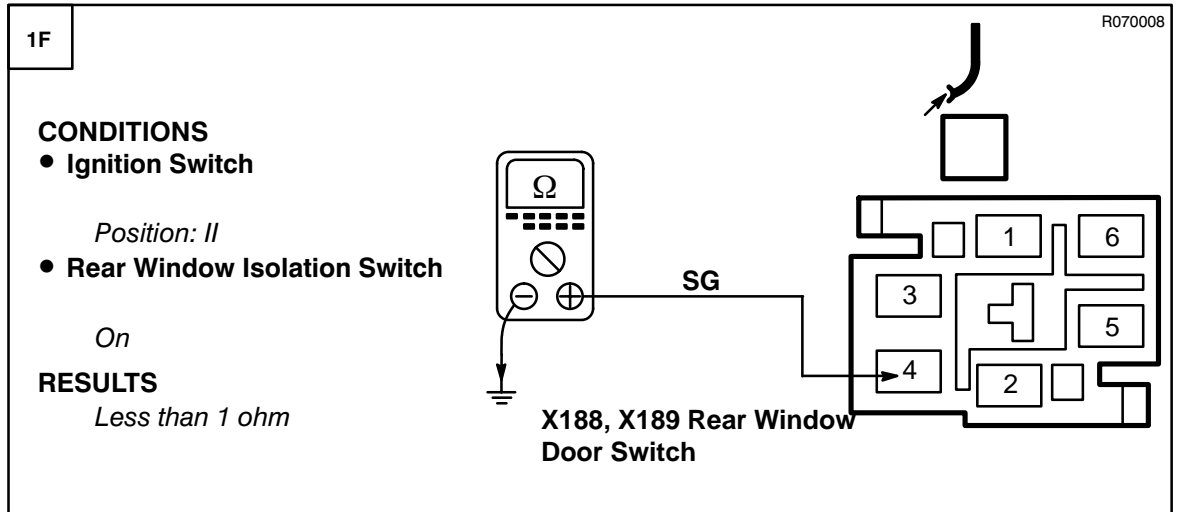


**PROBLEM CAUSE**  
- B Wire



**PROBLEM CAUSE**  
- S, SO Wire  
- SN, SW Wire  
- X141, X162 Rear Window Console Switch

**Test F**



**PROBLEM CAUSE**  
- SG Wire



**PROBLEM CAUSE**  
- X188, X189 Rear Window Door Switch

**Test G**

1G

R100005

**CONDITIONS**

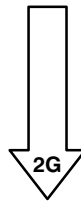
- Ignition Switch  
*Position: 0*

**RESULTS**

- X122, X151 Front Window Switch
  - ⬆ = Less than 1 ohm
  - ⬇ = More than 10K ohms



GO TO TEST H



2G

R100005

**CONDITIONS**

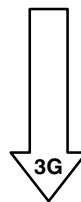
- Ignition Switch  
*Position: 0*

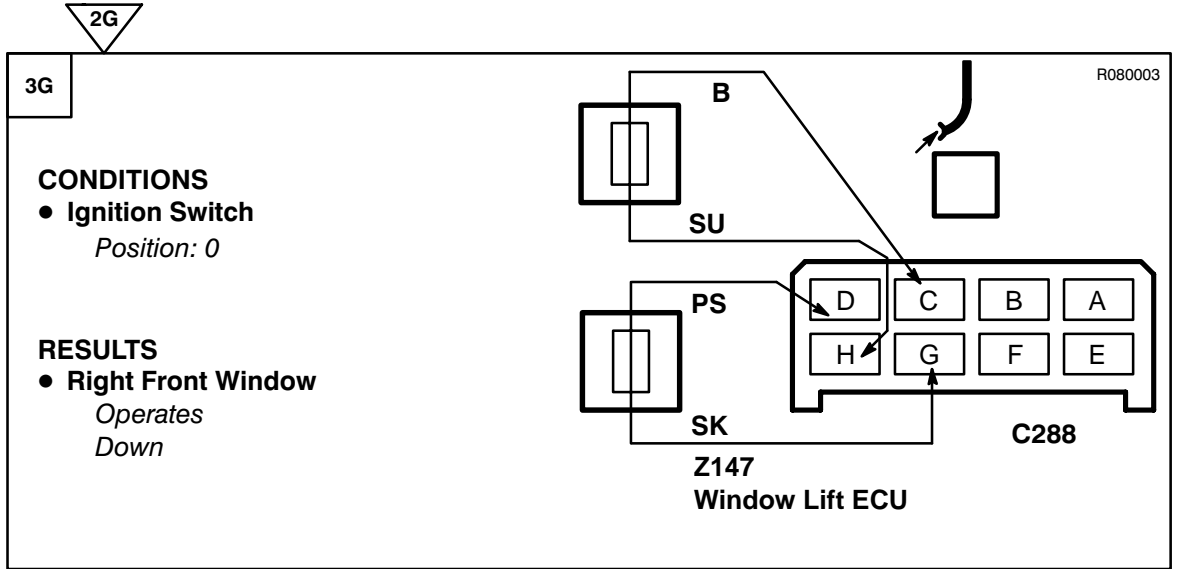
**RESULTS**

- X122, X151 Front Window Switch
  - ⬆ = Less than 1 ohm
  - ⬆ = More than 10K ohms



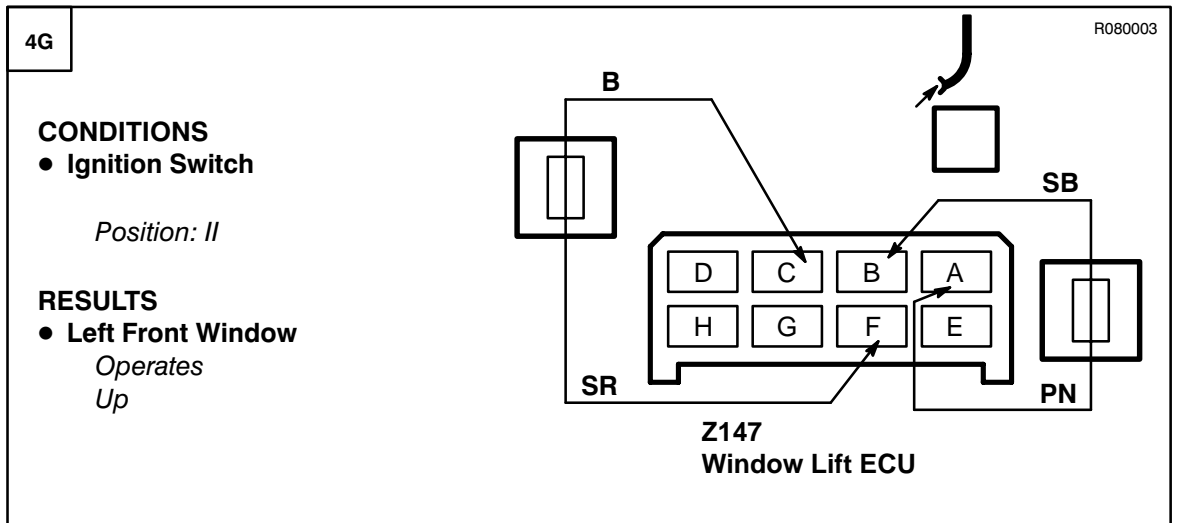
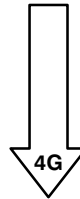
GO TO TEST H





**PROBLEM CAUSE**

- SU Wire
- SK Wire
- Right Front Window Motor



**PROBLEM CAUSE**

- SB Wire
- SR Wire
- Left Front Window Motor



**PROBLEM CAUSE**

- Window Lift ECU



**Test H**

R100005

1H

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- Left Front Door  
*Open = Less than 1 ohm*  
*Closed = More than 10K ohms*

**Z147**  
**Window Lift ECU**



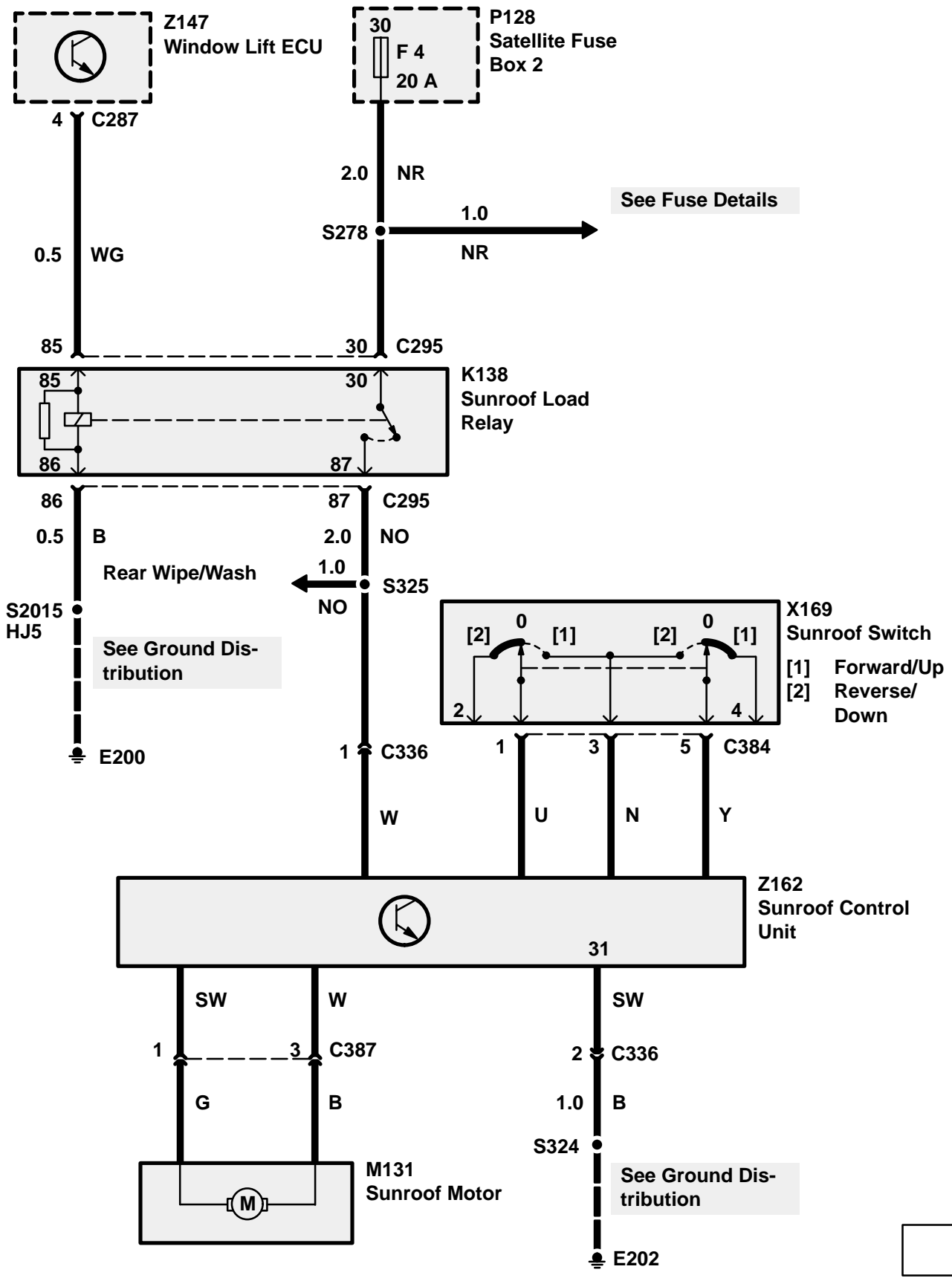
**PROBLEM CAUSE**

- PG Wire
- NAS PU Wire
- NAS Multi-Function Unit (MFU)
- Left Front Door Switch



**PROBLEM CAUSE**

- Window Lift ECU



## CIRCUIT OPERATION

Fuses F1 and F5 supply voltage to the Central Locking Control Unit (Z113). The control unit is grounded at terminal 11 to ground E200.

### Inputs

The Central Locking Control Unit (Z113) monitors the position of the front door locks through input switches that are part of the Front Door Lock Actuators (M114, M122). When the control unit sees an input switch change position, the control unit responds by locking or unlocking the doors and the tailgate.

### Lock

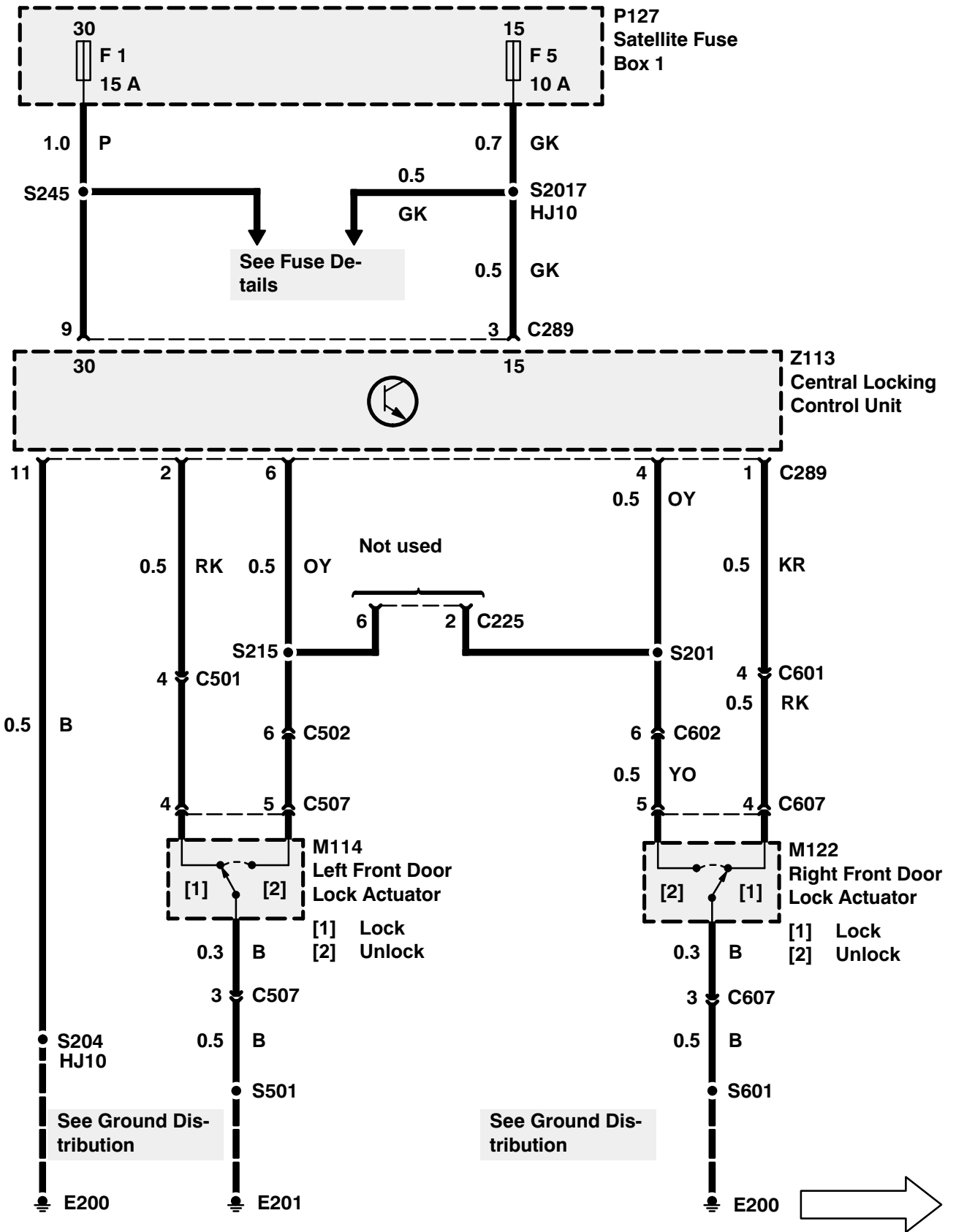
The Central Locking Control Unit (Z113) locks the doors and the tailgate by momentarily applying battery voltage to the actuators through the K wire. The lock actuators are grounded by the Central Locking Control Unit through the O wire. The actuators now move to the locked position.

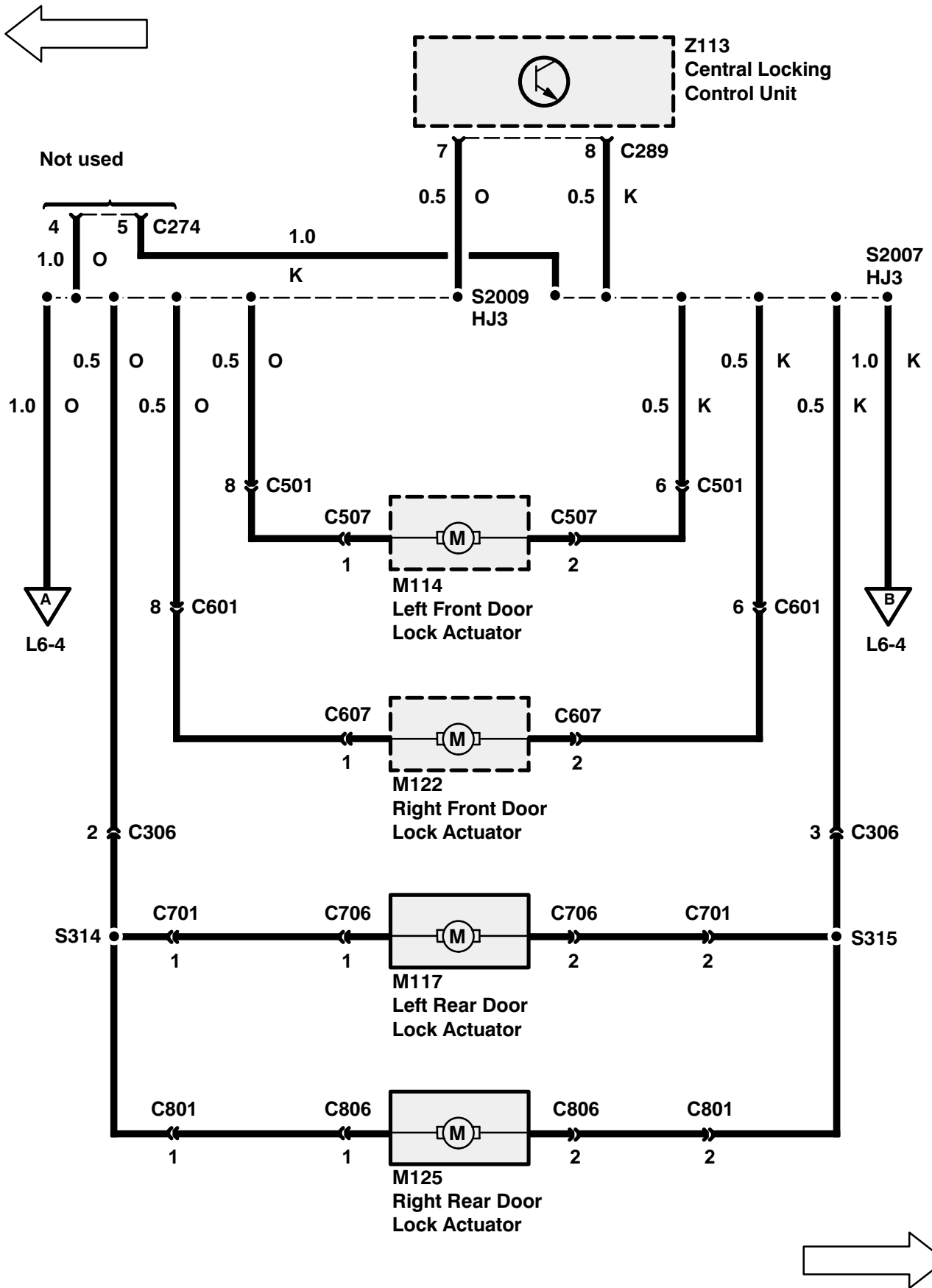
### Unlock

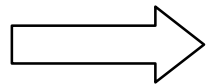
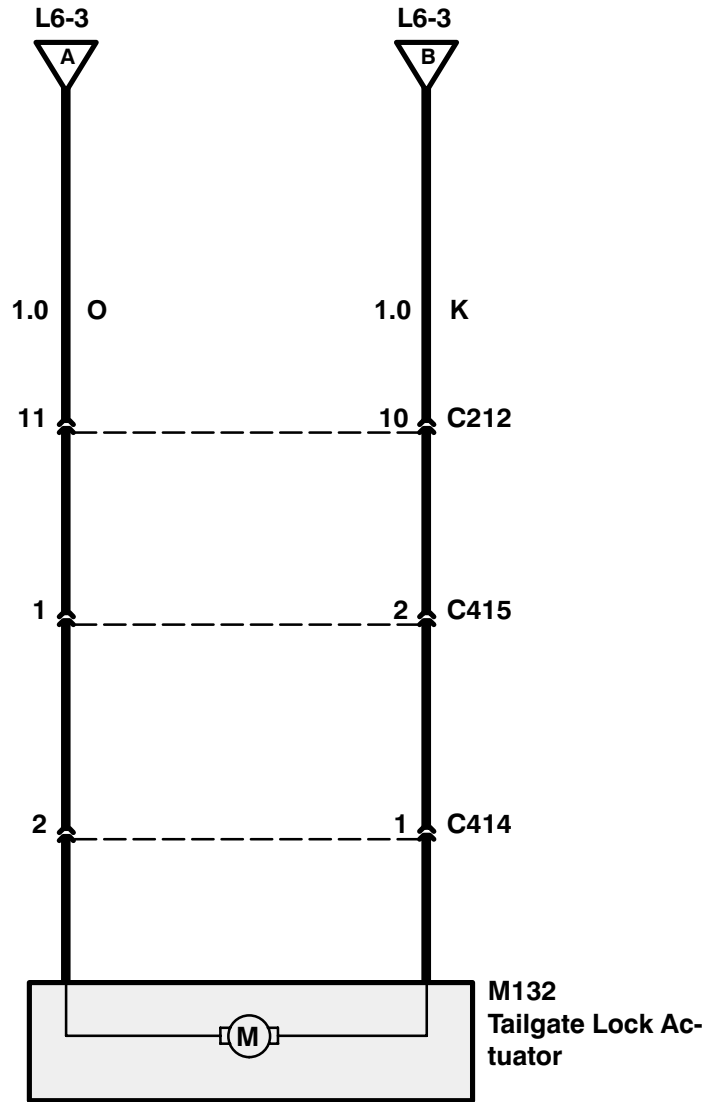
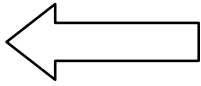
To unlock the doors and the tailgate the Central Locking Control Unit (Z113) momentarily applies battery voltage to the actuators through the O wire. The actuators are grounded by the Central Locking Control Unit through the K wire. The lock actuators now unlock.

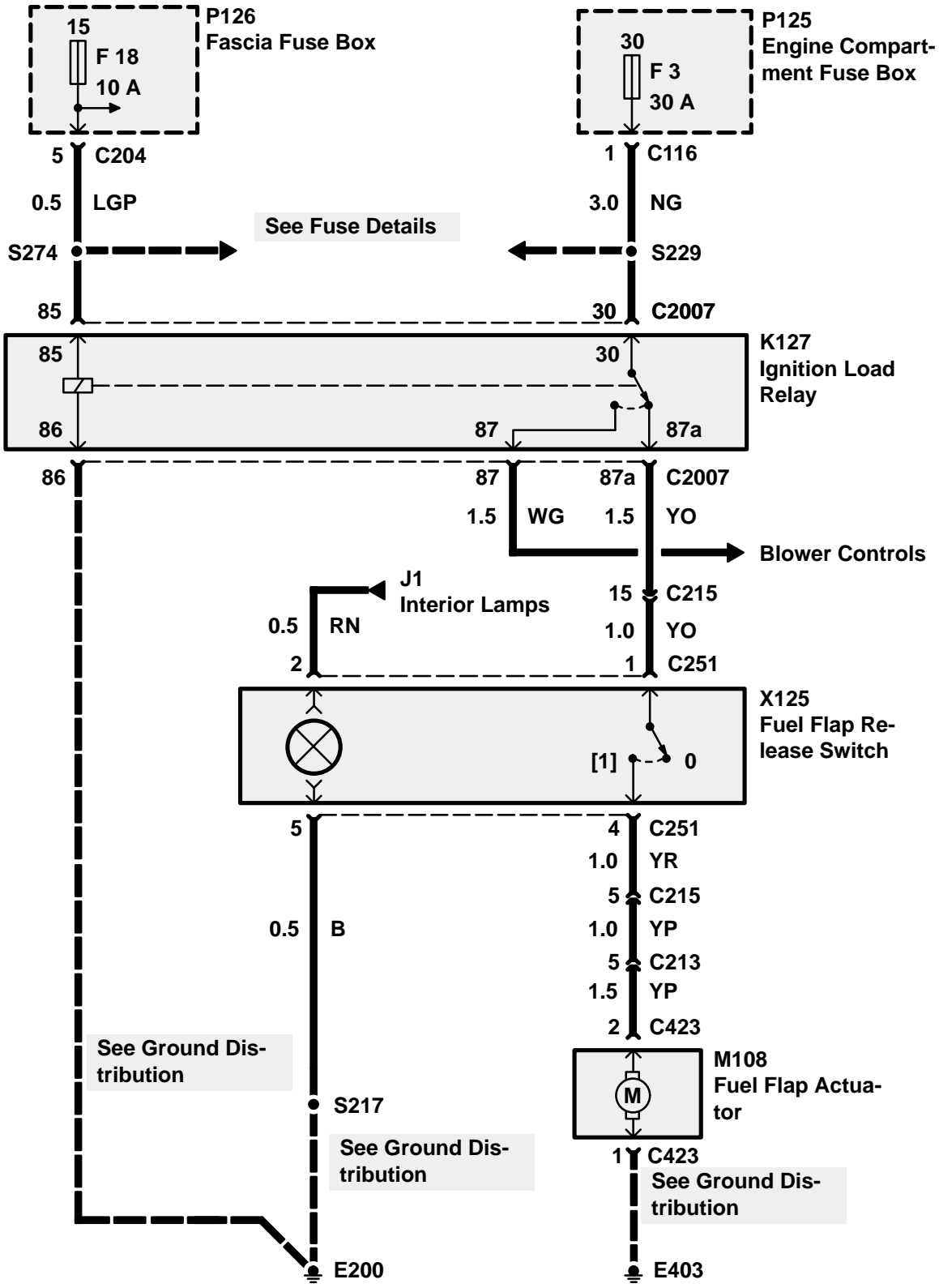
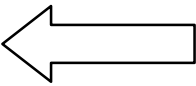
### Fuel Flap

When the Fuel Flap Release Switch (X125) is operated, voltage from the Ignition Load Relay (K127) is applied to the Fuel Flap Actuator (M108) through the switch, the YR wire and the YP wire. Voltage is only applied when the Ignition Switch is not in Position II, to keep the fuel flap from being opened while driving. The actuator is grounded to ground E403.









**TROUBLESHOOTING HINTS**

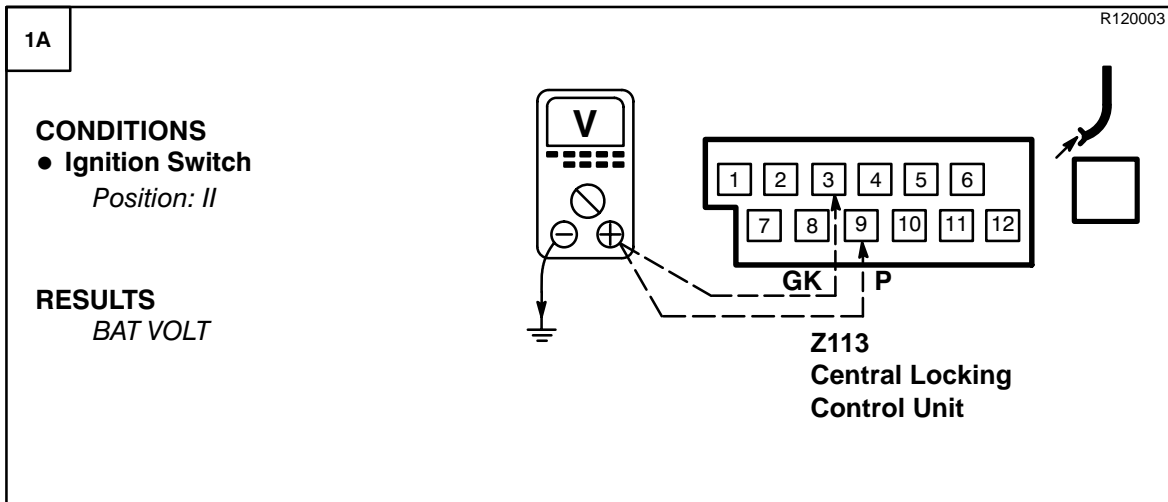
1. Check fuses F1, F5 in Satellite Fuse Box 1.
2. Check fuse F18 in Fascia Fuse Box and F3 in Engine Compartment Fuse Box for Fuel Flap problems.
3. If the interior lights do not come on when door is open, check suspect door switch and associated wiring.

**SYSTEM DIAGNOSIS**

1. If the central locking function does not operate at all, do Test A.
2. If a Front Door Lock Actuator (M114, M122) does not operate, do Test B.
3. If the doors relock or unlock themselves after operating the door locks, do Test C.
4. If the central locking function does not operate from one of the front doors, do Test D.
5. If the Tailgate Lock Actuator (M132) does not operate, do Test E.
6. If both Rear Door Lock Actuators (M117, M125) do not operate, do Test F.
7. If the Fuel Flap does not release when operated, do Test G.

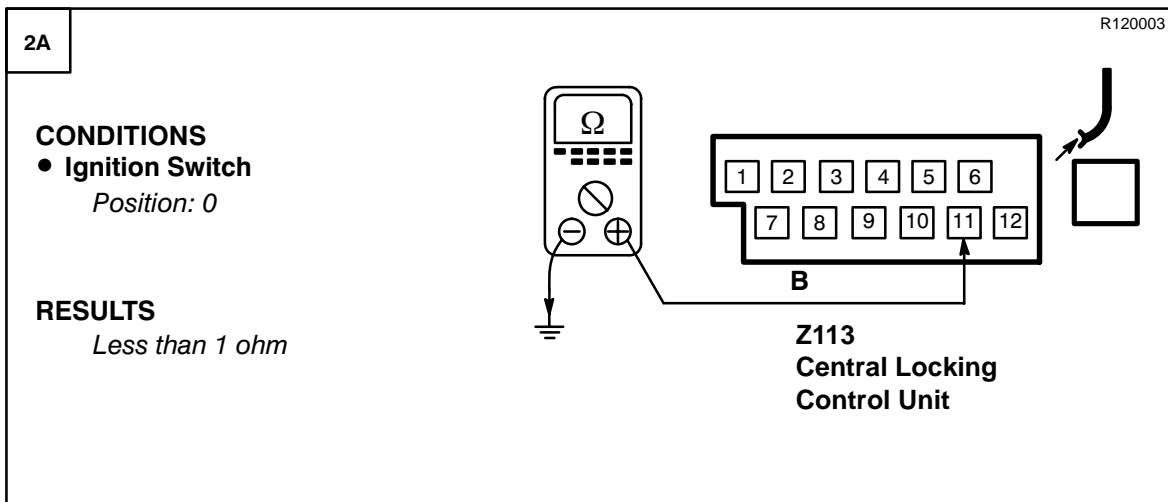
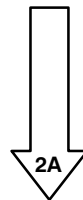


**Test A**



**PROBLEM CAUSE**

- F1 Fuse
- F5 Fuse
- GK Wire
- P Wire



**PROBLEM CAUSE**

- B Wire



**PROBLEM CAUSE**

- O Wire
- K Wire
- Central Locking Control Unit

### Test B

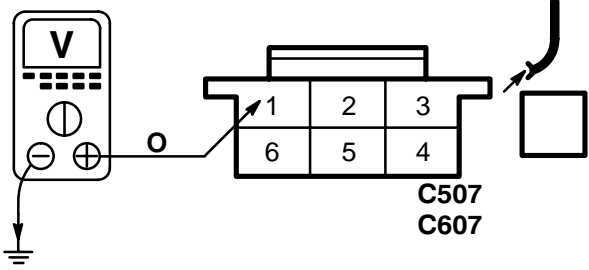
R060009

1B

**CONDITIONS**

- Ignition Switch  
*Position: II*
- All doors  
*Locked*
- Unlock a front door

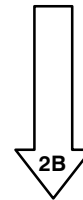
**RESULTS**  
*BAT VOLT (Momentary)*



**M114, M122 Front Door Lock Actuator**



**PROBLEM CAUSE**  
- O Wire



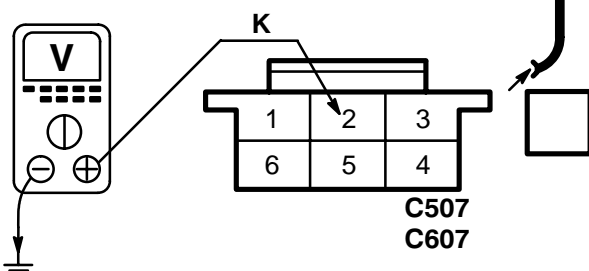
R060009

2B

**CONDITIONS**

- Ignition Switch  
*Position: II*
- All doors  
*Unlocked*
- Lock a front door

**RESULTS**  
*BAT VOLT (Momentary)*



**M114, M122 Front Door Lock Actuator**



**PROBLEM CAUSE**  
- K Wire



**PROBLEM CAUSE**  
- M114, M122 Front Door Lock Actuator

**Test C**

R120003

1C

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*

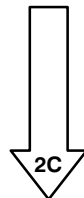
**RESULTS**  
*More than 1000 ohms*

**Z113**  
Central Locking Control Unit



**PROBLEM CAUSE**

- RK Wire
- KR Wire
- M114, M122 Front Door Lock Actuator



R120003

2C

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*

**RESULTS**  
*More than 1000 ohms*

**Z113**  
Central Locking Control Unit



**PROBLEM CAUSE**

- YO Wire
- OY Wire
- M114, M122 Front Door Lock Actuator



**PROBLEM CAUSE**

- Central Locking Control Unit

### Test D

R120003

1D

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*

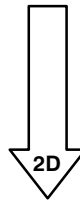
**RESULTS**

*Less than 1 ohm*

**Z113**  
Central Locking Control Unit



GO TO TEST 3D



R120003

2D

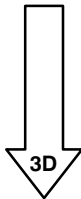
**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*

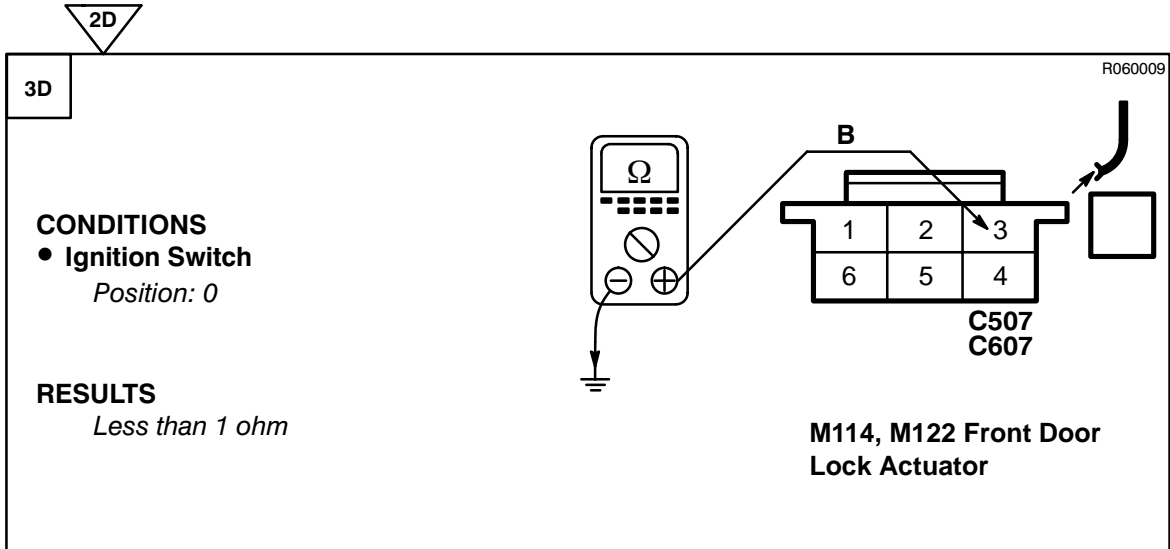
**RESULTS**

*Less than 1 ohm*

**Z113**  
Central Locking Control Unit

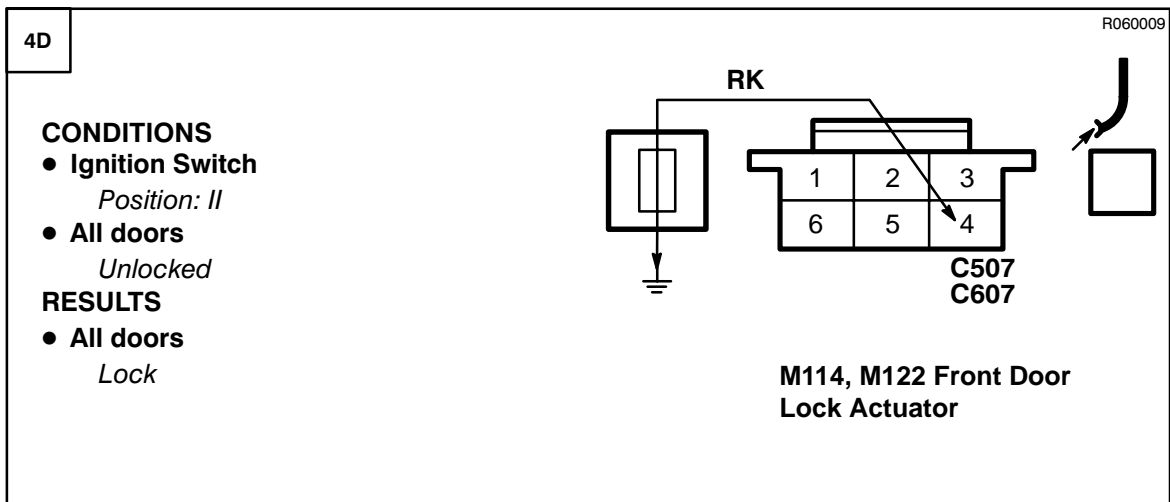
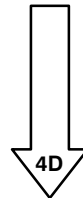


**PROBLEM CAUSE**  
- Central Locking Control Unit



~~OK~~ **PROBLEM CAUSE**  
- B Wire

OK



~~OK~~ **PROBLEM CAUSE**  
- RK, KR Wire  
- Central Locking Control Unit

OK



4D
R060009

5D

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*

**RESULTS**

- All doors  
*Unlock*

M114, M122 Front Door Lock Actuator



**PROBLEM CAUSE**

- YO, OY Wire
- Central Locking Control Unit



**PROBLEM CAUSE**

- M114, M122 Front Door Lock Actuator

### Test E

1E
R020029

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

**RESULTS**

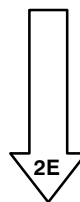
*BAT VOLT (Momentary)*

Tailgate Lock Actuator



**PROBLEM CAUSE**

- K Wire

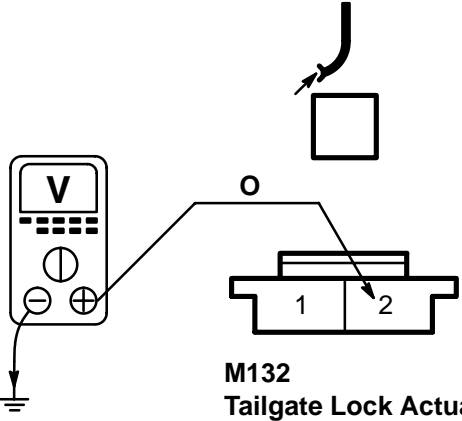


1E
2E
R020029

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*
- Unlock a front door

**RESULTS**  
*BAT VOLT (Momentary)*



**M132**  
Tailgate Lock Actuator

**OK** PROBLEM CAUSE  
- O Wire

**OK** PROBLEM CAUSE  
- Tailgate Lock Actuator

### Test F

R020029

1F

**CONDITIONS**

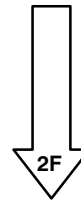
- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

**RESULTS**  
*BAT VOLT (Momentary)*

M117, M125 Rear Door Lock Actuator



**PROBLEM CAUSE**  
- K Wire



R020029

2F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*
- Unlock a front door

**RESULTS**  
*BAT VOLT (Momentary)*

M117, M125 Rear Door Lock Actuator



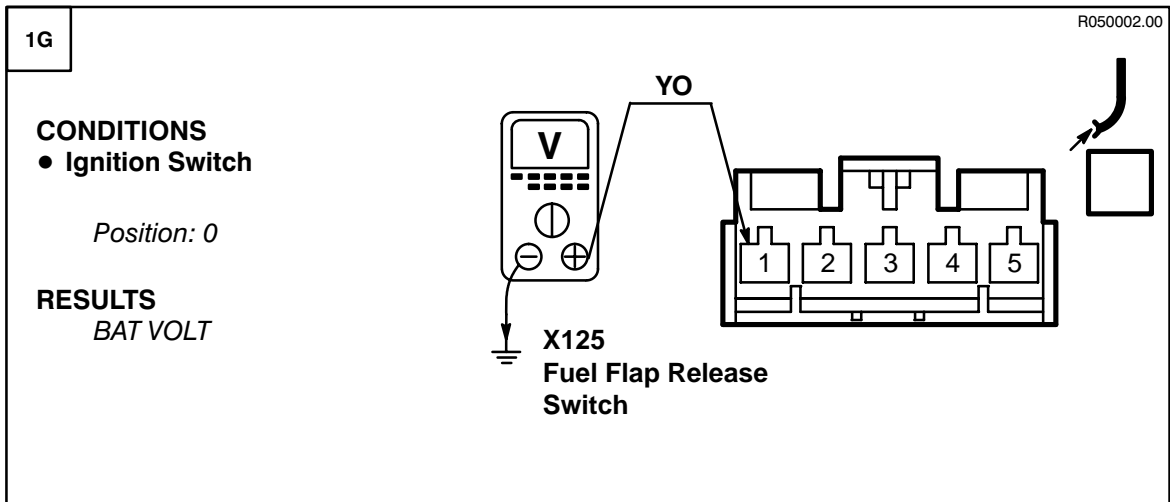
**PROBLEM CAUSE**  
- O Wire



**PROBLEM CAUSE**  
- M117, M125 Rear Door Lock Actuator

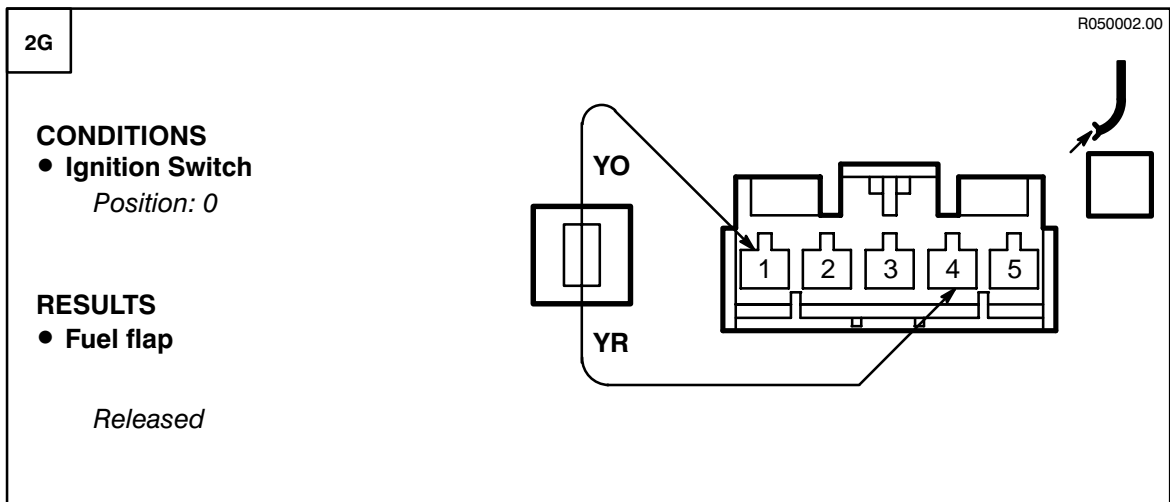
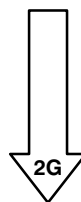


**Test G**



**PROBLEM CAUSE**

- F 3 Fuse
- YO Wire
- NG Wire
- Ignition Load Relay



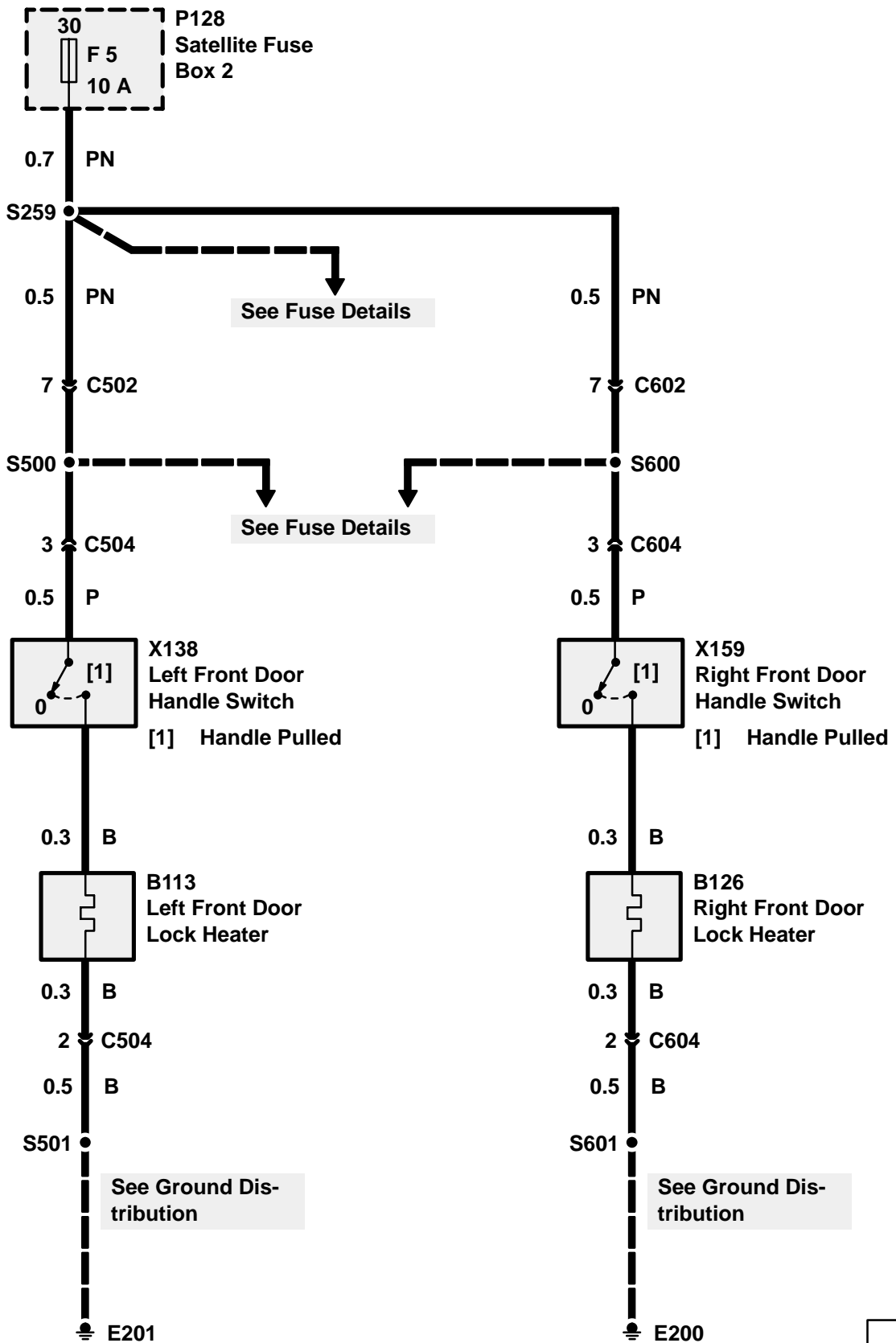
**PROBLEM CAUSE**

- YR Wire
- YP Wire
- B Wire
- Fuel Flap Actuator



**PROBLEM CAUSE**

- Fuel Flap Release Switch



**CIRCUIT OPERATION**

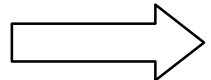
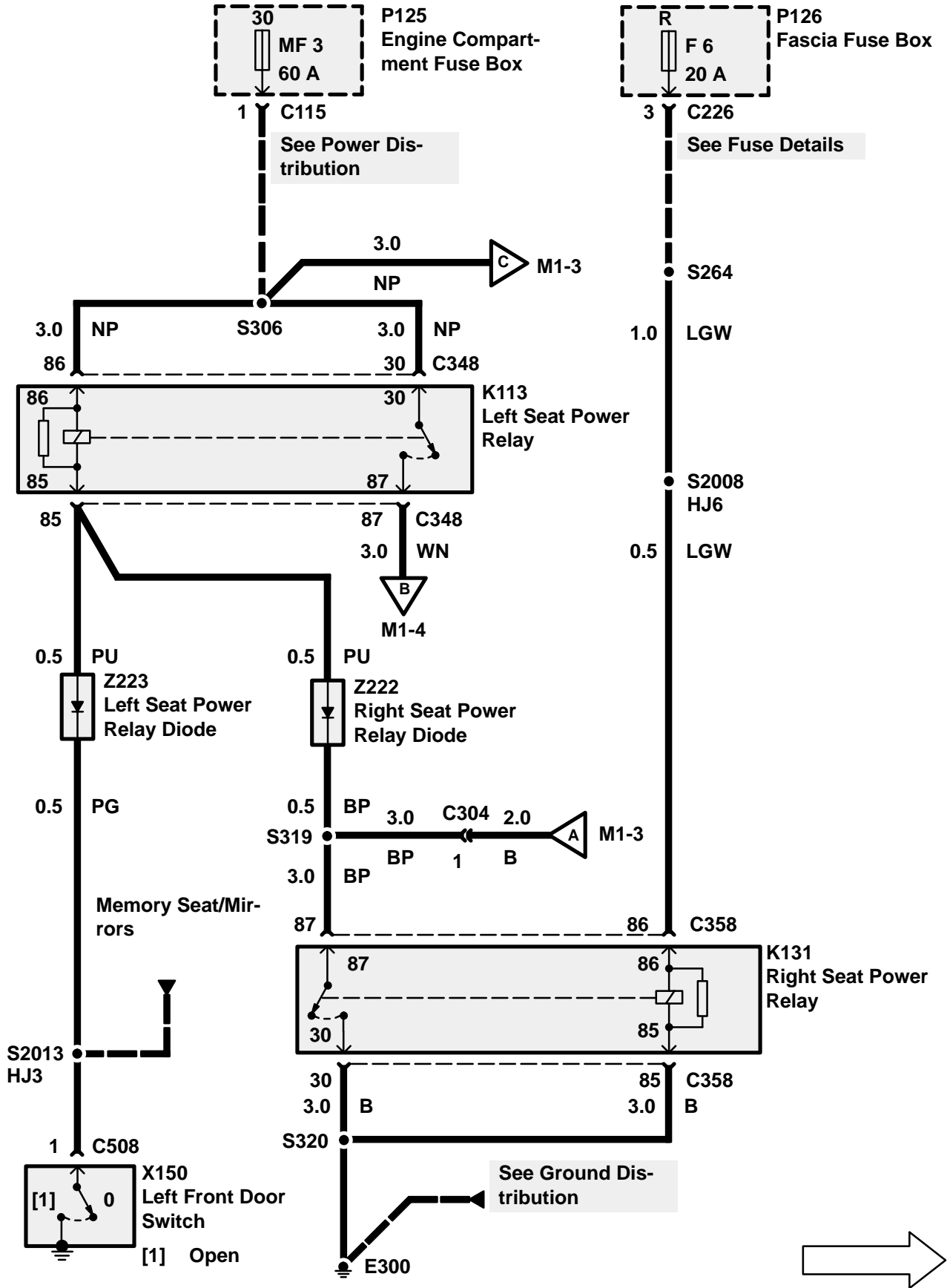
When the Ignition Switch (X134) is in position I or II, the Right Seat Power Relay (K131) is energized, applying ground to the Left Seat Power Relay (K113).

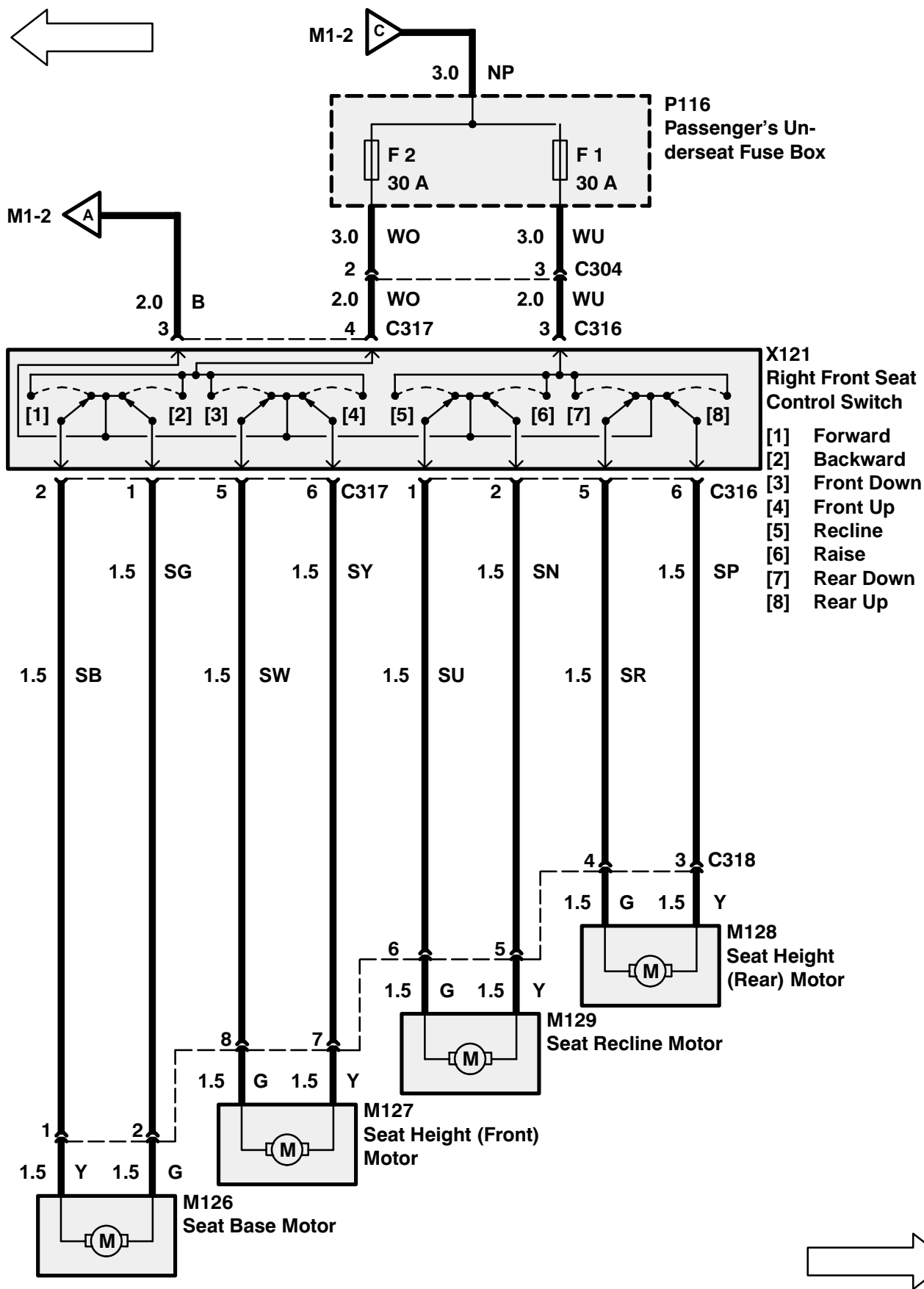
The Left Seat Power Relay (K113) energizes, applying battery voltage to the Left Front Seat Control Switch (X152).

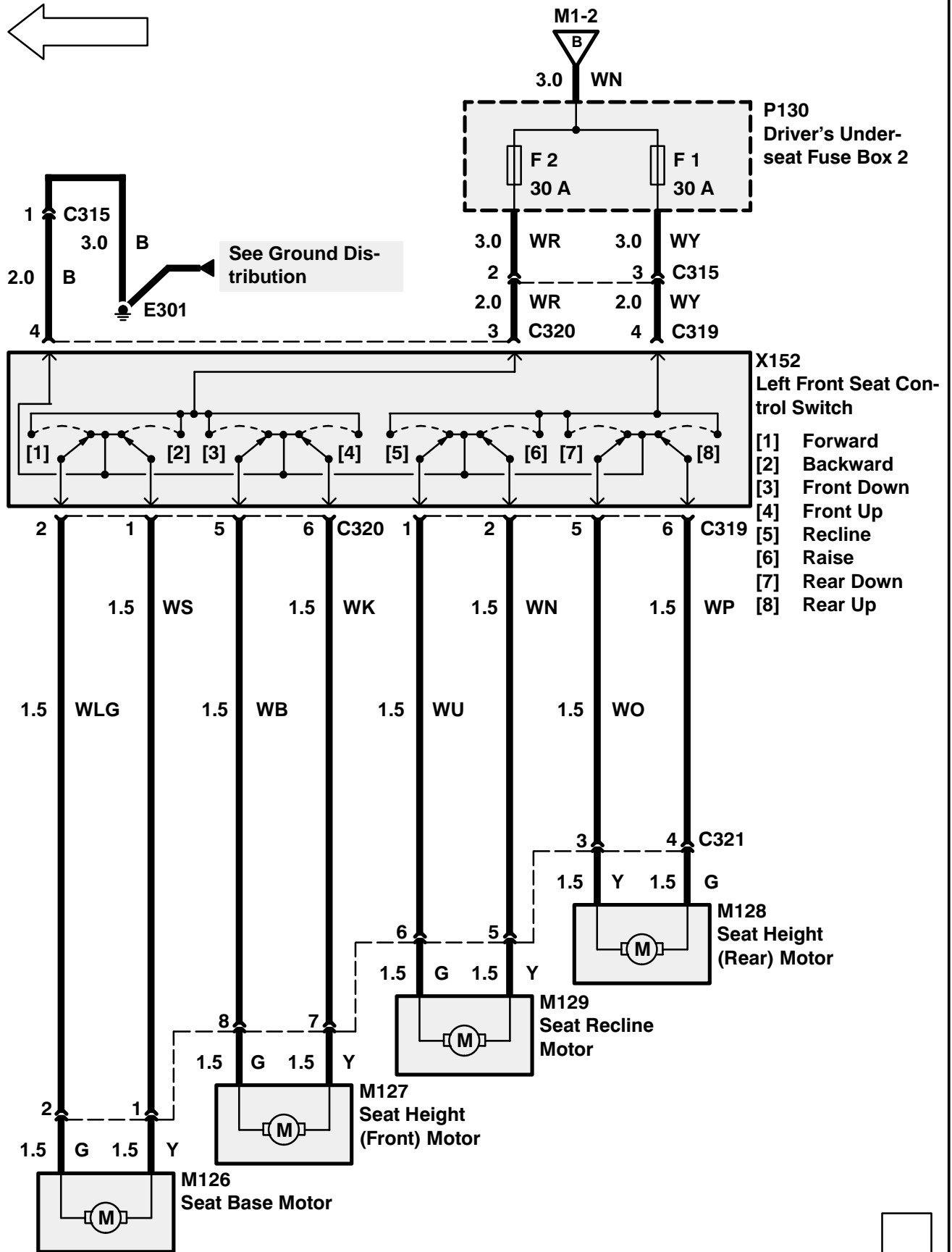
The Left Front Seat Control Switch (X152) controls 4 seat control motors via 8 switches. When each switch is moved to operate its corresponding motor, one seat switch applies ground while the other applies battery voltage to the respective seat motor. The motor turns to adjust the seat in the requested direction.

**Passenger Seat**

Battery voltage is applied to the Right Front Seat Control Switch (X121) at all times. When the Ignition Switch (X134) is in position I or II, the Right Seat Power Relay (K131) is energized, applying ground to the Right Front Seat Control Switch (X121). The Right Front Seat Control Switch (X121) controls 4 seat control motors via 8 switches. When each switch is moved to operate its corresponding motor, one seat switch applies ground while the other applies battery voltage to the respective seat motor. The motor turns to adjust the seat in the requested direction.







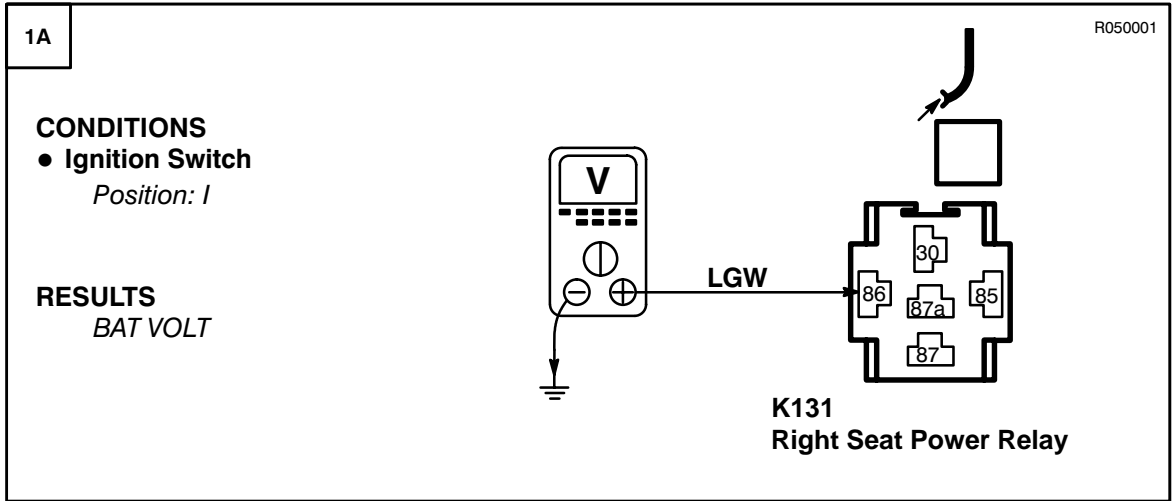
**TROUBLESHOOTING HINTS**

9. If the Right Front seat does not operate, check Maxi Fuse<sup>®</sup> MF3 of the Engine Compartment Fusebox (P125), Fuses F1 and F2 of Passenger's Underseat Fusebox (P116) and Fuse F6 of Fascia Fusebox (P126).
10. If the Left Front seat does not operate, check Maxi Fuse<sup>®</sup> MF3 of the Engine Compartment Fuse Box (P125) and Fuses F1, F2 of the Driver's Underseat Fuse Box (P130).
11. If both seats do not operate with the Left Front door closed, check Right Seat Power Relay (K131), B and BP wire.

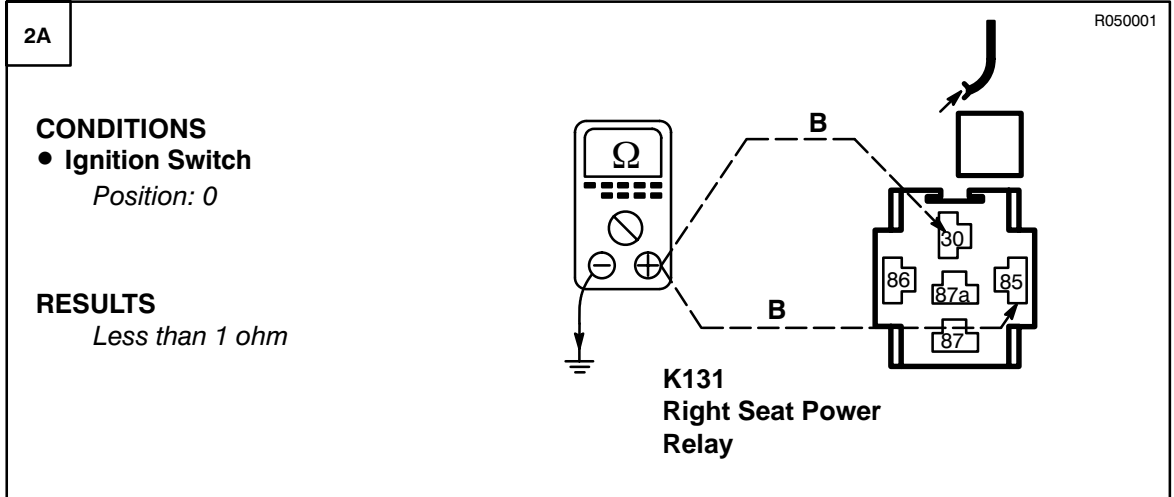
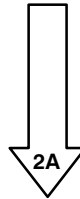
**SYSTEM DIAGNOSIS**

1. If the Right Front seat does not move in any direction, do Test A.
2. If some, but not all, of the Right Front power seat functions operate, do Test B.
3. If the Right Front seat is not moving forward or backward, do Test C.
4. If the rear of the Right Front seat does not move up or down, do Test D.
5. If the Right Front seatback does not move forward or recline, do Test E.
6. If the front of the Right Front seat does not move up or down, do Test F.
7. If the Left Front seat does not move in any direction, do Test G.
8. If some, but not all, of the Left Front seat functions operate, do Test H.
9. If the Left Front seat is not moving forward or backward, do Test I.
10. If the rear of the Left Front seat does not move up or down, do Test J.
11. If the Left Front seatback does not move forward or recline, do Test K.
12. If the front of the Left Front seat does not move up or down, do Test L.

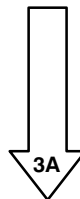
Test A



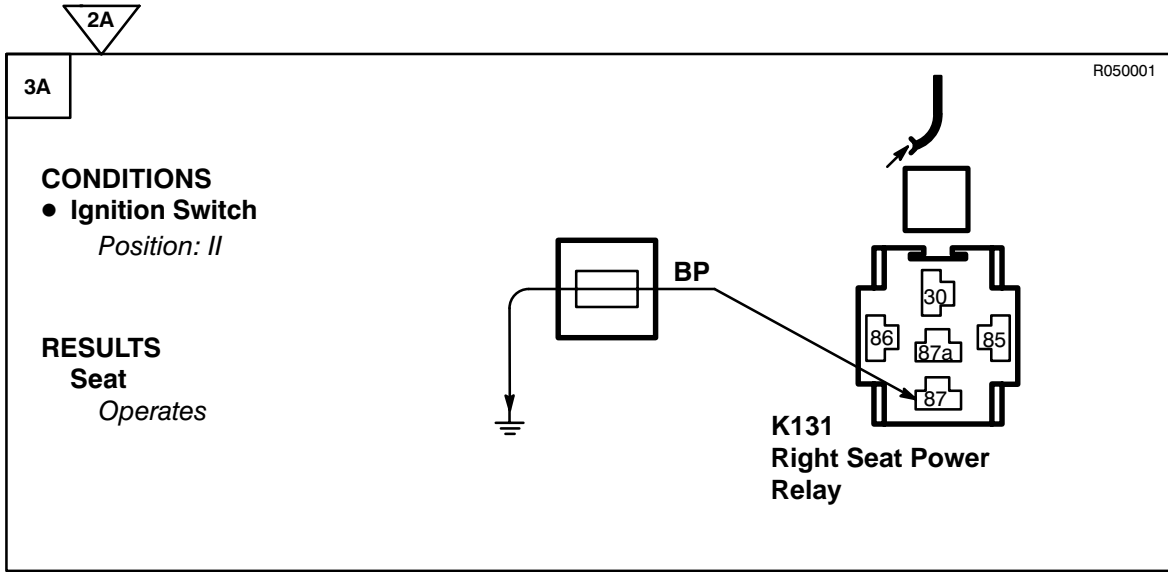
**PROBLEM CAUSE**  
 - LGW Wire  
 - F6 Fuse



**PROBLEM CAUSE**  
 - B Wire  
 - Ground Connections







**PROBLEM CAUSE**

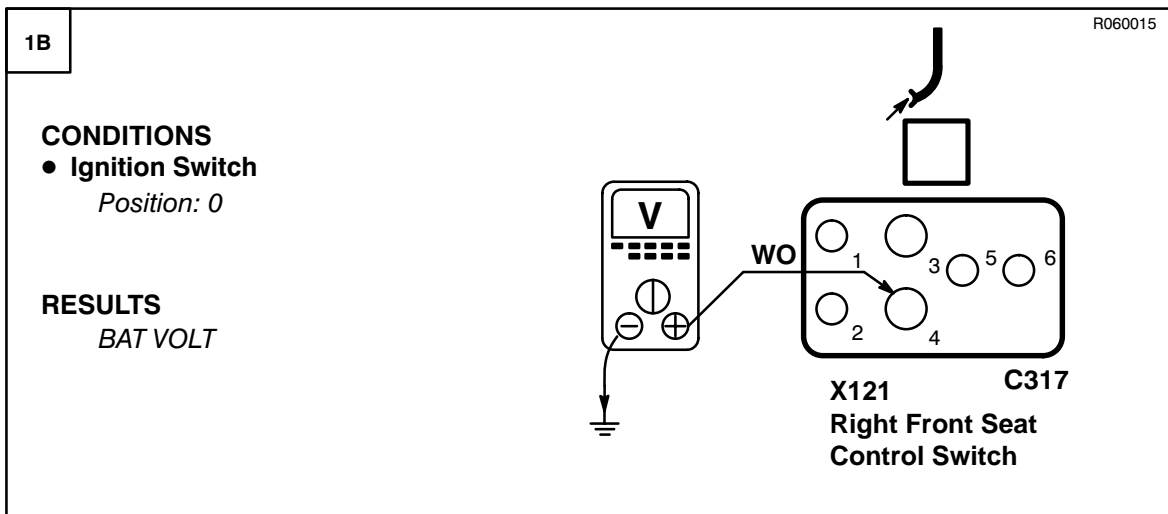
- BP Wire
- B Wire



**PROBLEM CAUSE**

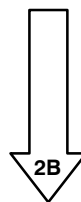
- Right Seat Power Relay

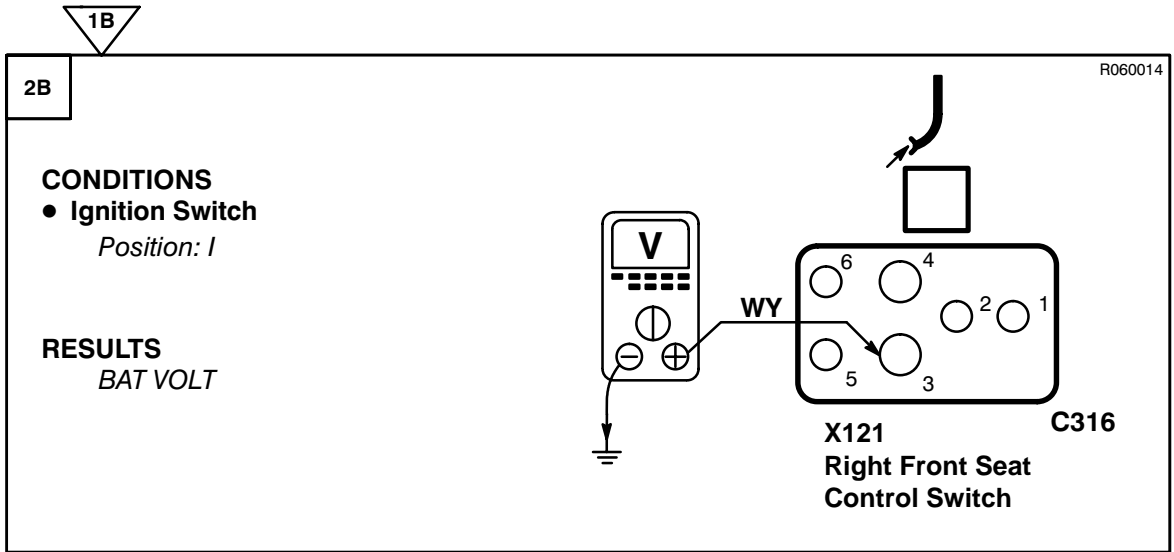
**Test B**



**PROBLEM CAUSE**

- F2 Fuse
- WO Wire





**PROBLEM CAUSE**

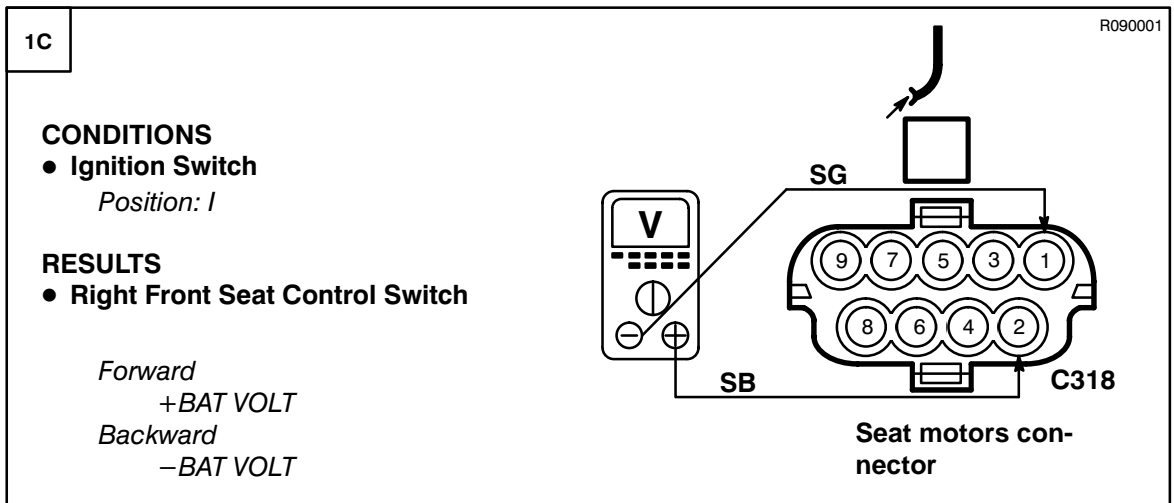
- F1 Fuse
- WU Wire



**PROBLEM CAUSE**

- Right Front Seat Control Switch

**Test C**



**PROBLEM CAUSE**

- SG Wire
- SB Wire
- Right Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Base Motor

**Test D**

1D

R090001

**CONDITIONS**

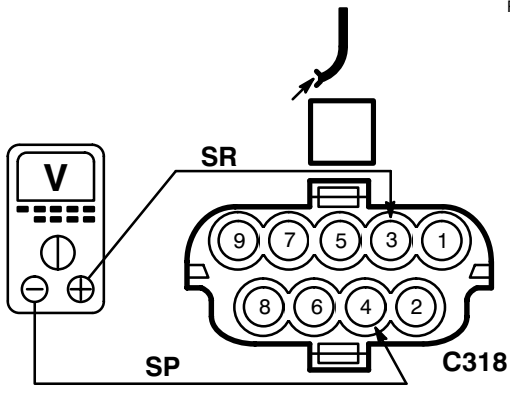
- Ignition Switch  
*Position: I*

**RESULTS**

- Right Front Seat Control Switch

*Rear up*  
-BAT VOLT

*Rear down*  
+BAT VOLT



Seat motors connector

- OK** PROBLEM CAUSE
- SR Wire
  - SP Wire
  - Right Front Seat Control Switch

- OK** PROBLEM CAUSE
- Seat Height (Rear) Motor

**Test E**

1E

R090001

**CONDITIONS**

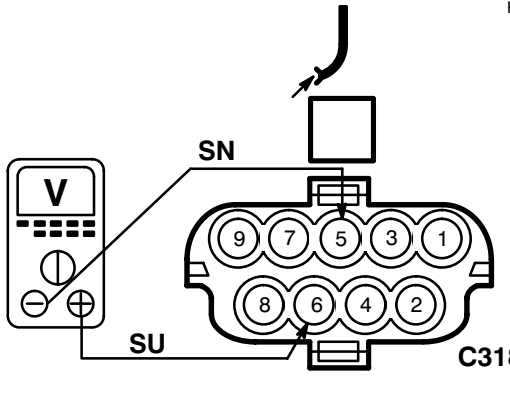
- Ignition Switch  
*Position: I*

**RESULTS**

- Right Front Seat Control Switch

*Recline*  
+BAT VOLT

*Raise*  
-BAT VOLT



Seat motors connector

- OK** PROBLEM CAUSE
- SN Wire
  - SU Wire
  - Right Front Seat Control Switch

- OK** PROBLEM CAUSE
- Seat Recline Motor

Test F

R090001

1F

**CONDITIONS**

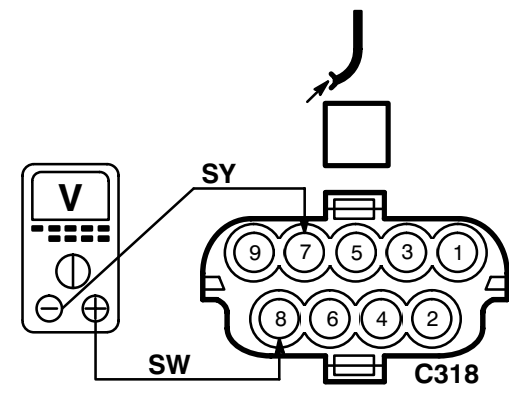
- Ignition Switch  
*Position: I*

**RESULTS**

- Right Front Seat Control Switch

*Front down  
+BAT VOLT*

*Front up  
-BAT VOLT*



Seat motors connector



**PROBLEM CAUSE**

- SY Wire
- SW Wire
- Right Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Height (Front) Motor

**Test G**

1G

R050001

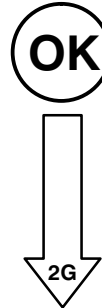
**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

**K113**  
Left Seat Power Relay

**OK** PROBLEM CAUSE  
- NP Wire



2G

R050001

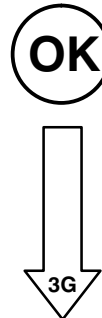
**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Left Front Door  
*Closed*

**RESULTS**  
*Less than 1 ohm*

**K113**  
Left Seat Power Relay

**OK** PROBLEM CAUSE  
- PU Wire  
- PG Wire  
- Left Seat Power Relay Diode  
  
- Left Front Door Switch



R050001

2G

3G

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Left Front Door  
*Open*

**RESULTS**  
*Less than 1 ohm*

PU

**K113**  
Left Seat Power Relay



**PROBLEM CAUSE**

- BP Wire
- PU Wire
- Right Seat Power Relay Diode



**PROBLEM CAUSE**

- Left Seat Power Relay

**Test H**

R060015

1H

**CONDITIONS**

- Ignition Switch  
*Position: I*

**RESULTS**  
*BAT VOLT*

WR

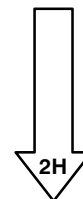
**C320**

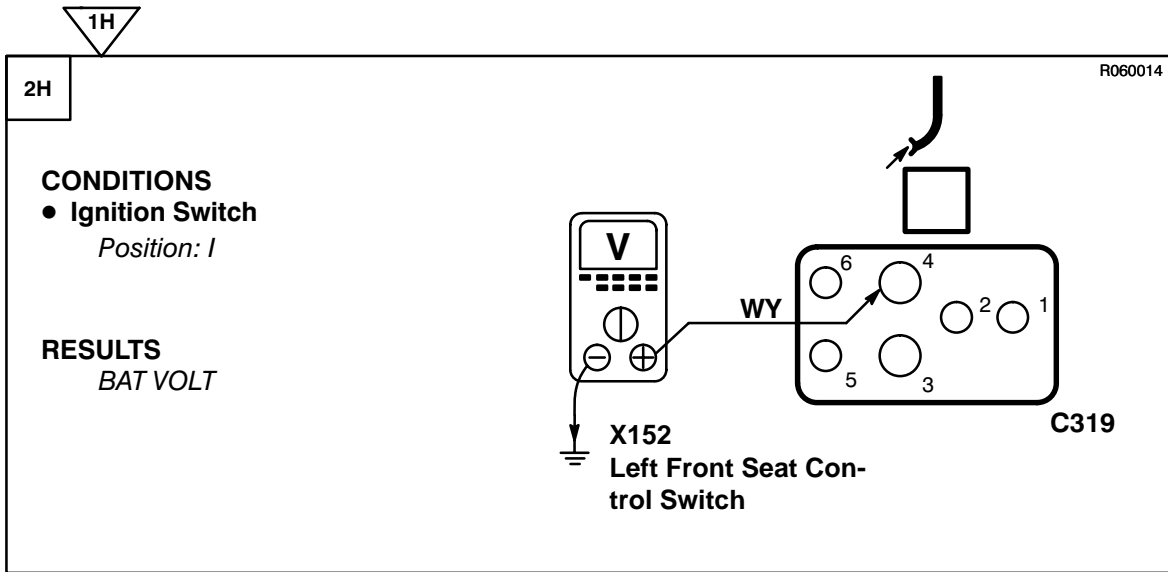
**X152**  
Left Front Seat Control Switch



**PROBLEM CAUSE**

- F2 Fuse
- WR Wire





**PROBLEM CAUSE**

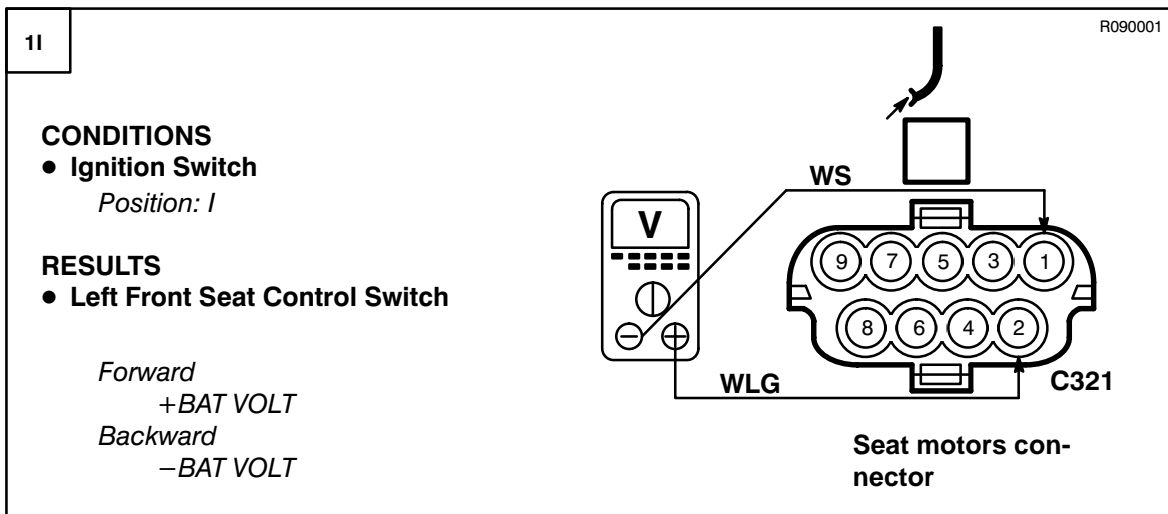
- F1 Fuse
- WY Wire



**PROBLEM CAUSE**

- Left Front Seat Control Switch

**Test I**



**PROBLEM CAUSE**

- WLG Wire
- WS Wire
- Left Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Base Motor

**Test J**

R090001

1J

**CONDITIONS**

- Ignition Switch  
*Position: I*

**RESULTS**

- Left Front Seat Control Switch

*Rear up*  
-BAT VOLT

*Rear down*  
+BAT VOLT

Seat motors connector



**PROBLEM CAUSE**

- WP Wire
- WO Wire
- Left Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Height (Rear) Motor

**Test K**

R090001

1K

**CONDITIONS**

- Ignition Switch  
*Position: I*

**RESULTS**

- Left Front Seat Control Switch

*Recline*  
+BAT VOLT

*Raise*  
-BAT VOLT

Seat motors connector



**PROBLEM CAUSE**

- WU Wire
- WN Wire
- Left Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Recline Motor



**Test L**

1L

R090001

**CONDITIONS**

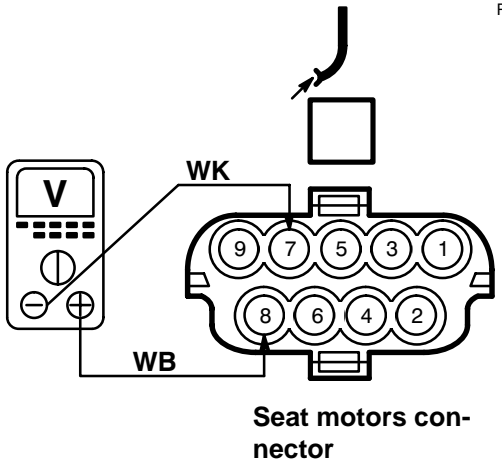
- Ignition Switch  
*Position: I*

**RESULTS**

- Left Front Seat Control Switch

*Front down*  
+BAT VOLT

*Front up*  
-BAT VOLT



Seat motors con-  
nector



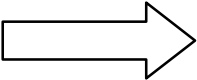
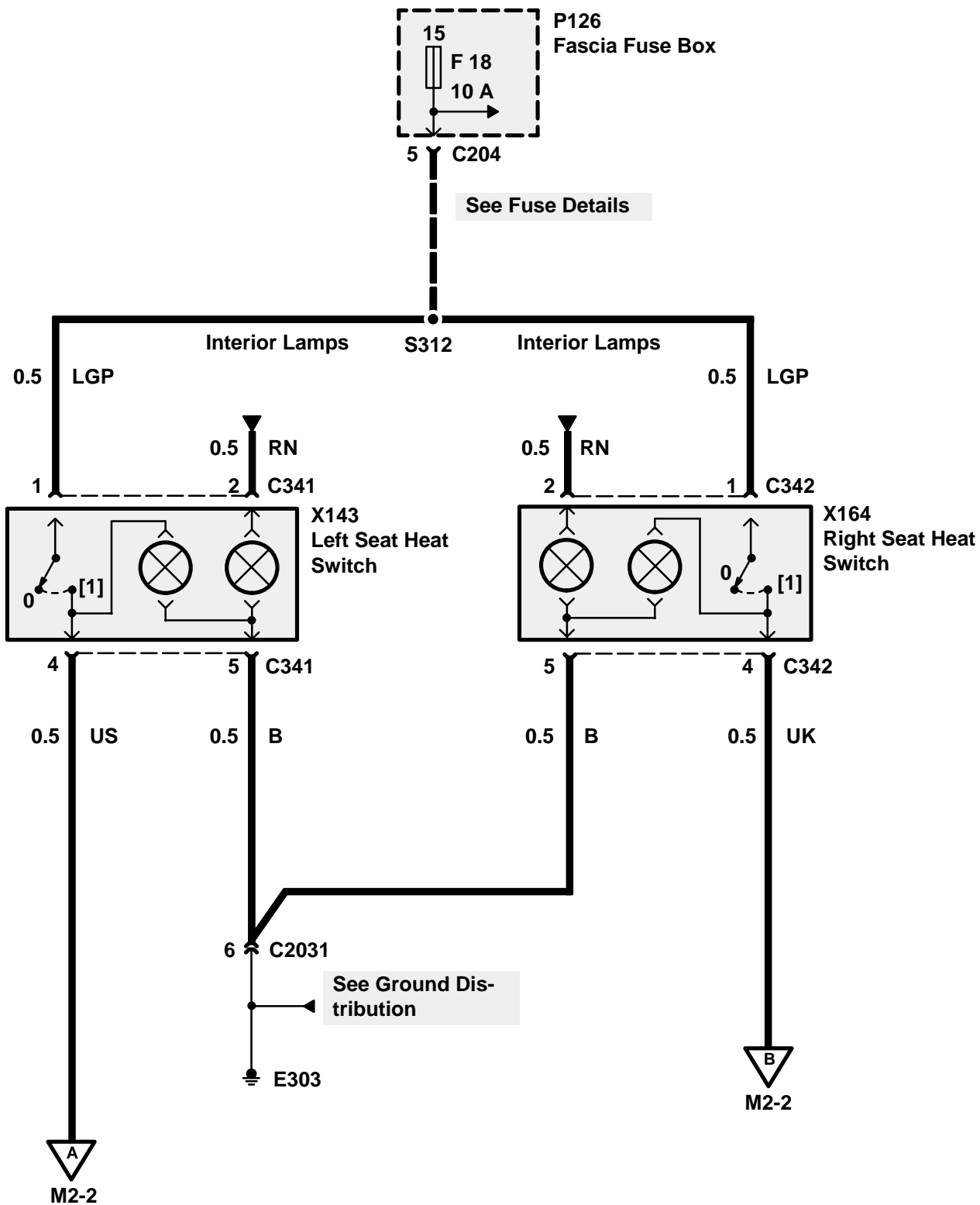
**PROBLEM CAUSE**

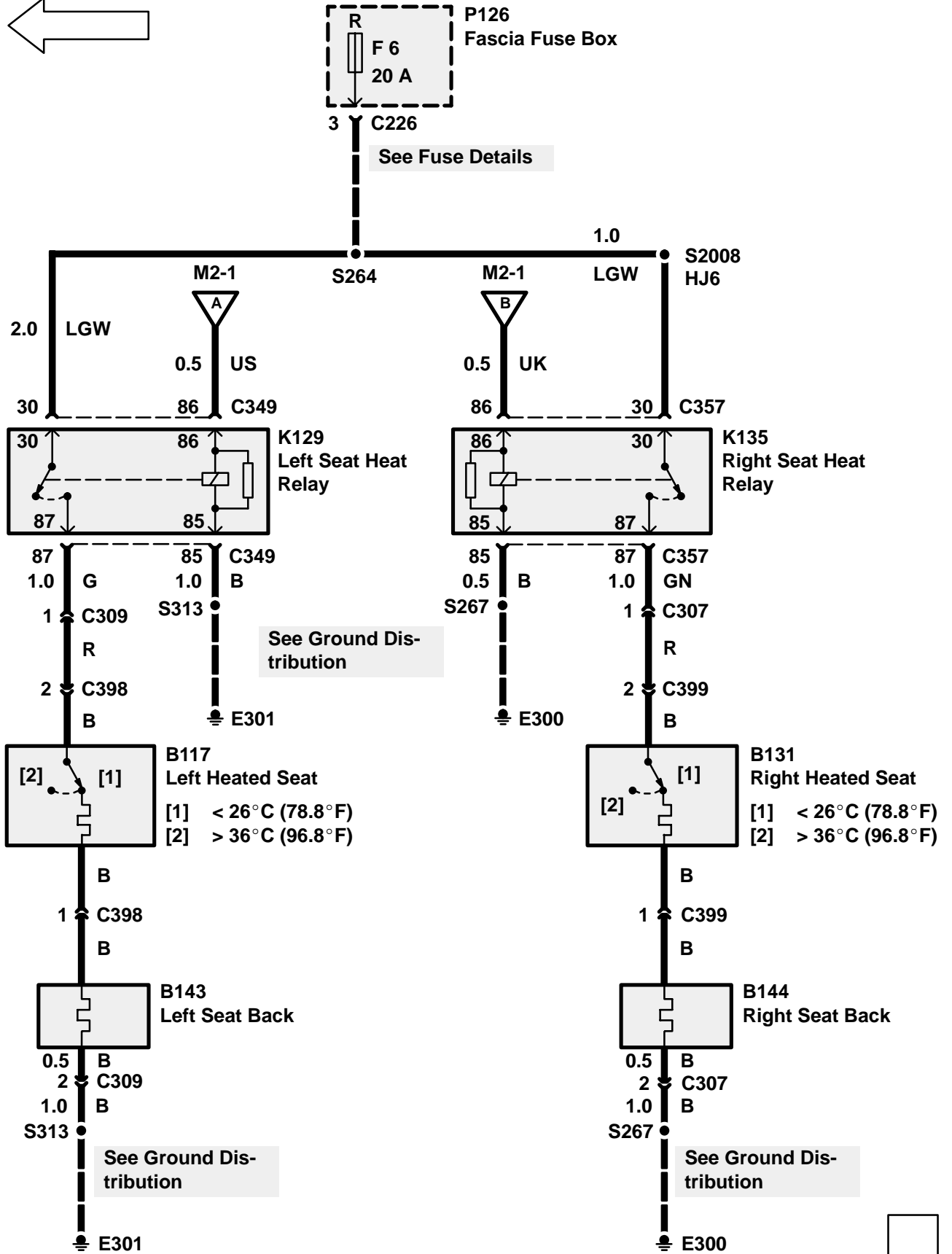
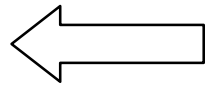
- WB Wire
- WK Wire
- Left Front Seat Control Switch



**PROBLEM CAUSE**

- Seat Height (Front) Motor





## CIRCUIT OPERATION

When the Ignition Switch (X134) is in Position II, voltage is supplied to the power mirrors circuit by fuse F15.

### Left/Right Movement

When a selected mirror is moved to the left by the Mirror Adjustment Switch (X146) the internal contacts move to the "Left/Right Select" and "Move Left or Up" position. The internal solenoid of the selected mirror actuators (M115, M123) is grounded at E201 through the PW, WP, BK and BN wires, the switch contacts, and the B wire. The solenoid is de-energized because the other side of the coil is also grounded at E200 or E201 through the B wire. The de-energized solenoid engages the motor in the actuator with the Left/Right Gearbox. Voltage is applied to the selected mirror actuator's motor at terminal 4 through the SW and PR wires. The selected mirror actuator's motor is grounded at E201 through the PU, BU and BP wires, the switch contacts, and the B wire. The mirror now moves left.

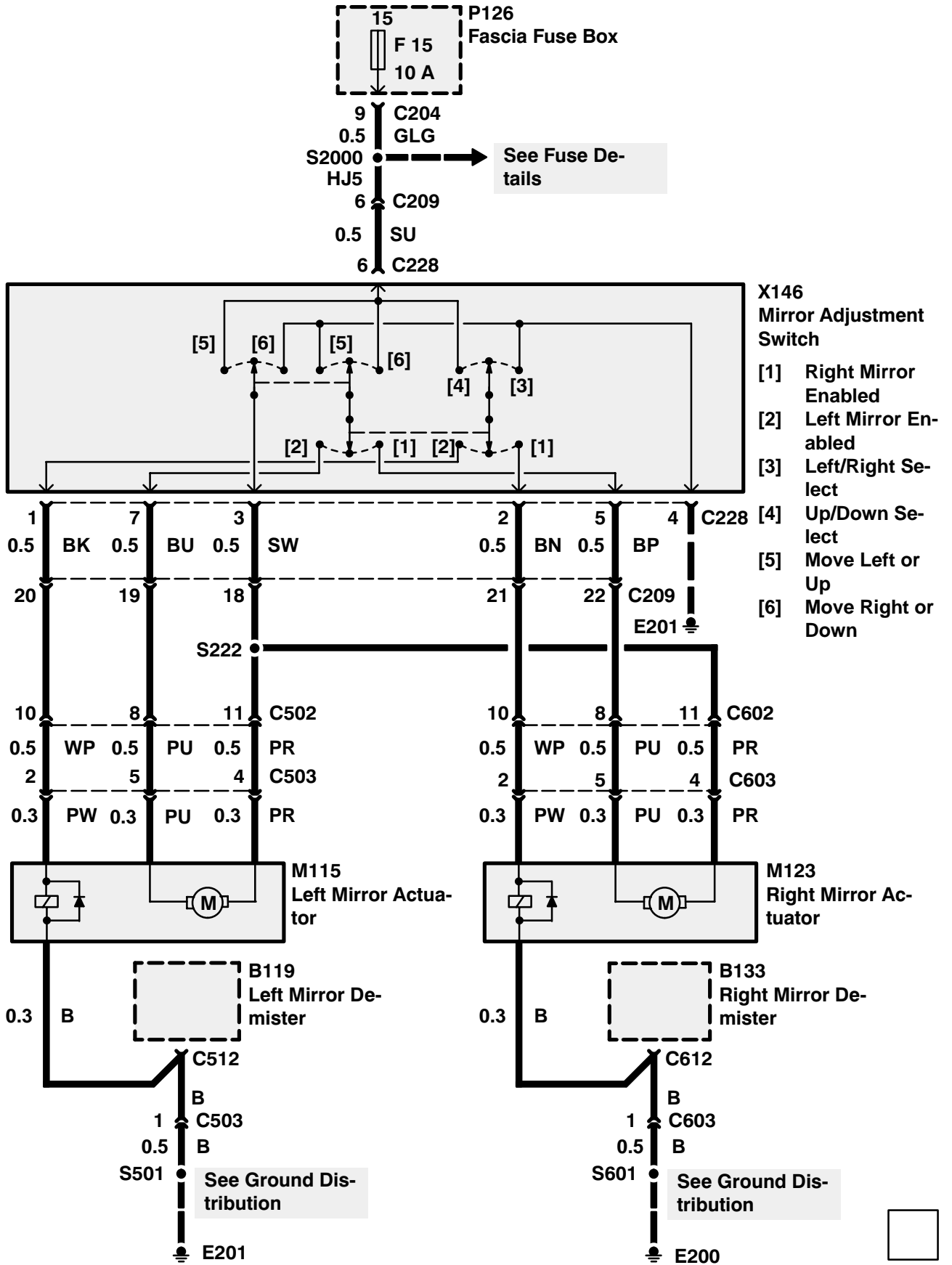
When a selected mirror is moved to the right by the Mirror Adjustment Switch (X146) the internal contacts remain in the "Left/Right Select" position but move to the "Move Right or Down" position. The internal solenoid of the selected mirror actuator (M112, M113) remains de-energized. Voltage is now applied to the selected mirror actuator's motor at terminal 5 through the PU, BU and PB wires. The selected mirror actuator's motor is now grounded at E201 through the PR and SW wires, the switch contacts, and the B wire. Since the polarity of the voltage to the motor has been reversed, the mirror now moves right.

### UP/Down Movement

When a selected mirror is moved up by the Mirror Adjustment Switch (X146) the internal contacts move to the "Up/Down Select" and "Move Left or Up" position. Voltage is applied to the internal solenoid of the selected mirror actuator through the BN, BK, WP, and PW wires. The solenoid energizes because the other side of the coil is grounded at E200 or E201 through the B wire. The energized solenoid engages the motor in the actuator with the Up/Down Gearbox. Voltage is

applied to the selected mirror actuator's motor at terminal 4 through the SW and PR wires. The selected mirror actuator's motor is grounded at E201 through the BU, PU and BP wires, the switch contacts, and the B wire. The mirror now moves up.

When a selected mirror is moved down by the Mirror Adjustment Switch (X146) the internal contacts remain in the "Up/Down Select" position but move to the "Move Right or Down" position. The internal solenoid remains energized. Voltage is now applied to the selected mirror actuator's motor at terminal 5 through the BU, PU and BP wires. The selected mirror actuator's motor is now grounded at E201 through the PR and SW wires, the switch contacts, and the B wire. Since the polarity of the voltage to the motor has been reversed, the mirror now moves down.



**SYSTEM DIAGNOSIS**

1. If the mirrors do not operate at all, do Test A.
2. If only one mirror does not operate, do Test B, the Mirror Actuator (M115, M123) test.

Test A

R080015

1A

**CONDITIONS**

- Ignition Switch  
*Position: II*

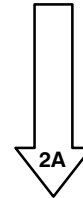
**RESULTS**  
*BAT VOLT*

**X146  
Mirror Adjust-  
ment Switch**



**PROBLEM CAUSE**

- F15 Wire
- GLG Wire
- SU Wire



R080015

2A

**CONDITIONS**

- Ignition Switch  
*Position: II*

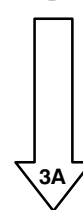
**RESULTS**  
*Less than 1 ohm*

**X146  
Mirror Adjust-  
ment Switch**



**PROBLEM CAUSE**

- B Wire
- Ground Connections



R050020.01

**2A**

**3A**

**CONDITIONS**

- Ignition Switch  
*Position: II*

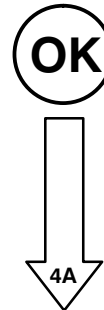
**RESULTS**

- Mirror Adjustment Switch  
*Move Left or Up*  
*BAT VOLT*  
*Neutral*  
*0V*

**C503**  
**C603**  
**M115, M123 Mirror Actuator**

**OK** PROBLEM CAUSE

- SW Wire
- PR Wire
- Mirror Adjust-ment Switch



R050020.01

**4A**

**CONDITIONS**

- Ignition Switch  
*Position: II*

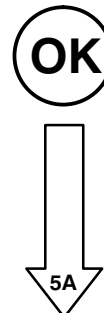
**RESULTS**

- Mirror Adjustment Switch  
*Move Right or Down*  
*Less than 1 ohm*  
*Neutral*  
*More than 10K ohms*

**C503**  
**C603**  
**M115, M123 Mirror Actuator**

**OK** PROBLEM CAUSE

- Mirror Adjust-ment Switch





R050020.01

4A

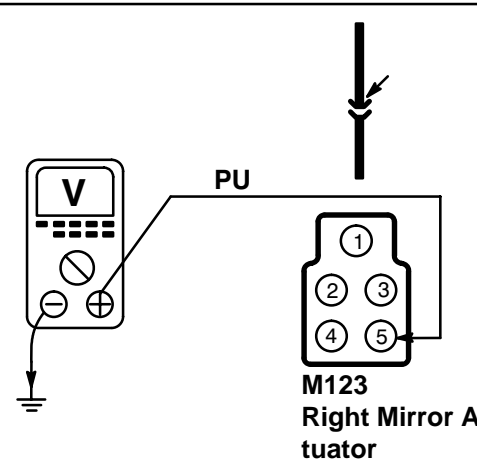
5A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Right Mirror Enabled*

**RESULTS**

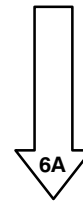
- Mirror Adjustment Switch  
*Move Right or Down*  
*BAT VOLT*  
*Neutral*  
*0V*





**PROBLEM CAUSE**

- BU Wire
- PU Wire
- Mirror Adjust-ment Switch



R050020.01

6A

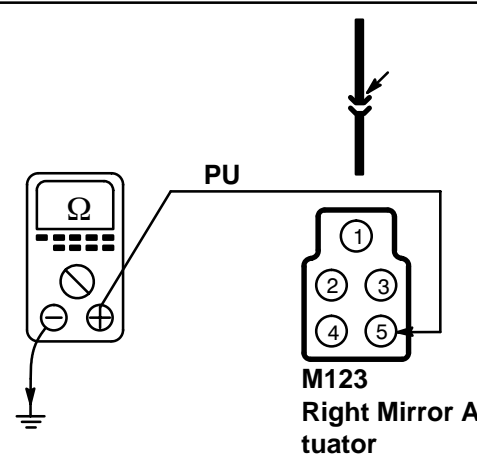
6A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Right Mirror Enabled*

**RESULTS**

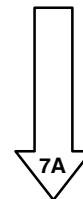
- Mirror Adjustment Switch  
*Move Left or Up*  
*Less than 1 ohm*  
*Neutral*  
*More than 10K ohms*





**PROBLEM CAUSE**

- Mirror Adjust-ment Switch



R050020.01

**6A**

**7A**

**CONDITIONS**

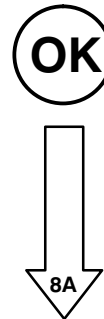
- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Right Mirror Enabled*

**RESULTS**

- Mirror Adjustment Switch  
*Move Up or Down*  
*BAT VOLT*  
*Neutral*  
*0V*

~~OK~~ **PROBLEM CAUSE**

- BN Wire
- WP Wire
- Mirror Adjustment Switch



R050020.01

**8A**

**CONDITIONS**

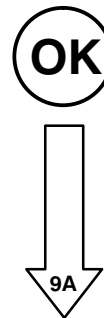
- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Right Mirror Enabled*

**RESULTS**

- Mirror Adjustment Switch  
*Move Left or Right*  
*Less than 1 ohm*  
*Neutral*  
*More than 10K ohms*

~~OK~~ **PROBLEM CAUSE**

- Mirror Adjustment Switch



R050020.01

8A

9A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Left Mirror Enabled*

**RESULTS**

- Mirror Adjustment Switch  
*Move Right or Down*  
BAT VOLT  
*Neutral*  
0V

PU

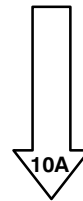
M115  
Left Mirror Actuator

C503



**PROBLEM CAUSE**

- BU Wire
- PU Wire
- Mirror Adjustment Switch



R050020.01

10A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Left Mirror Enabled*

**RESULTS**

- Mirror Adjustment Switch  
*Move Left or Up*  
Less than 1 ohm  
*Neutral*  
More than 10K ohms

PU

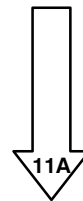
M115  
Left Mirror Actuator

C503



**PROBLEM CAUSE**

- Mirror Adjustment Switch



R050020.01

10A

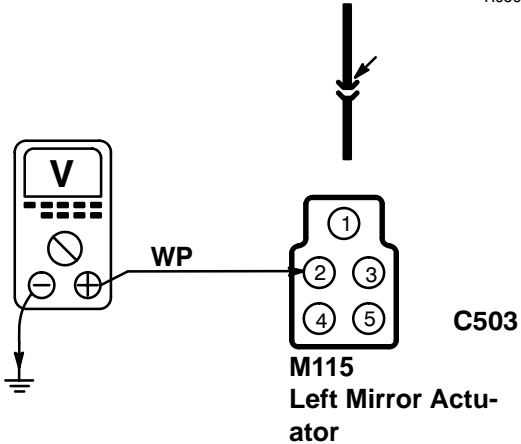
11A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Left Mirror Enabled*

**RESULTS**

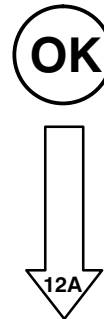
- Mirror Adjustment Switch  
*Move Up or Down*  
*BAT VOLT*  
*Neutral*  
*0V*



**M115**  
Left Mirror Actuator

~~OK~~ **PROBLEM CAUSE**

- BK Wire
- WP Wire
- Mirror Adjustment Switch



R050020.01

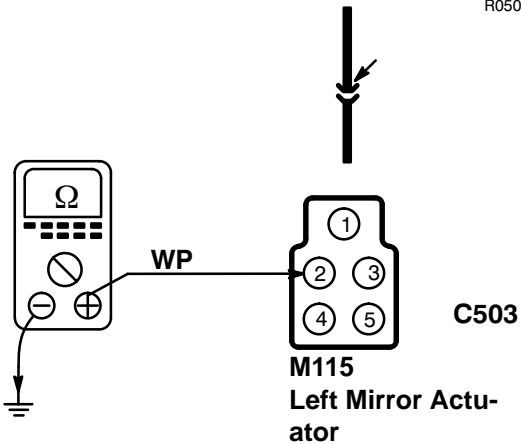
12A

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Left Mirror Enabled*

**RESULTS**

- Mirror Adjustment Switch  
*Move Left or Right*  
*Less than 1 ohm*  
*Neutral*  
*More than 10K ohms*



**M115**  
Left Mirror Actuator

~~OK~~ **PROBLEM CAUSE**

- Mirror Adjustment Switch

OK **PROBLEM CAUSE**

- M115, M123 Mirror Actuator

Test B

1B R050020.01

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 1 ohm*

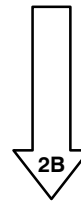
**C503  
C603**

**M115, M123 Mirror Actuator**



**PROBLEM CAUSE**

- B Wire
- Ground Connections



2B R050020.01

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Select suspect mirror*

**RESULTS**

- Mirror Adjustment Switch  
*Move Right or Down  
BAT VOLT*
- Mirror Adjustment Switch  
*Move Left or Up  
0V*

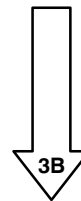
**C503  
C603**

**M115, M123 Mirror Actuator**



**PROBLEM CAUSE**

- BU Wire
- PU Wire
- Mirror Adjustment Switch



R050020.01

**2B**

**3B**

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Select suspect mirror*

**RESULTS**

- Mirror Adjustment Switch  
*Move Left or Up*  
BAT VOLT
- Move Right or Down*  
0V

**C503**  
**C603**

**M115, M123 Mir-  
ror Actuator**

**OK** PROBLEM CAUSE

- SW Wire
- PR Wire
- Mirror Adjust-  
ment Switch

**OK**

↓

**4B**

R050020.01

**4B**

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Mirror Adjustment Switch  
*Select suspect mirror*

**RESULTS**

- Mirror Adjustment Switch  
*Move Up or Down*  
BAT VOLT
- Move Left or Right*  
0V

**C503**  
**C603**

**M115, M123 Mir-  
ror Actuator**

**OK** PROBLEM CAUSE

- BK Wire
- WP, BN Wire
- Mirror Adjust-  
ment Switch

**OK** PROBLEM CAUSE

- M115, M123 Mir-  
ror Actuator

**CIRCUIT OPERATION****Power and Ground**

Fuse F4 applies battery voltage to retain the memory circuit of the Memory Seat ECU (Z146) at all times. Voltage to operate the seat motors (M126, M127, M128, M129) and the mirror actuators (M115, M123) is supplied to the Memory Seat ECU from fuses F2 and F3. The Maxi Fuse MF3 supplies voltage to fuses F2 and F3 whenever the Left Seat Power Relay (K113) is energized. The relay is energized when the driver's door is open, causing the Left Front Door Switch (X150) to ground the relay's coil, or when the ignition is in position II, causing the Right Seat Power Relay (K131) to ground the Left Seat Power Relay. The Memory Seat ECU is grounded at ground E300 through the B wires.

**Inhibit Inputs**

The Memory Seat ECU (Z146) will not permit movement to the memorized position when the ignition is in position II unless the handbrake is applied and vehicle speed is below 6 kmh. Vehicles equipped with an automatic transmission must also be in PARK or NEUTRAL for operation to occur.

The ECU monitors the Handbrake Switch (X191) position at terminal C302/24. When the handbrake is in position 1, the brake is applied and ground is applied to the ECU terminal C302/24.

Vehicle speed is monitored by the ECU at terminal C302/7 through the vehicle speed output signal supplied by the Instrument Cluster (Z142).

The ECU monitors gear position through the Park/Neutral Position Switch (X167). The switch grounds the ECU at terminal C302/11 when the transmission is in PARK or NEUTRAL.

**Seat Motors**

4 reversible motors control seat position, with each motor controlling 1 plane of movement. The Memory Seat ECU (Z146) applies both voltage and ground to the motors based on the position of the Driver Seat Control Switch (X121) or the execution of a memory position.

**Memory Mirror Actuators (M115, M123)**

Each Memory Mirror Actuator contains 2 motors which controls 1 plane of movement. The Memory Seat ECU (Z146) applies both voltage and ground to the motors based on the position of the Mirror Adjustment Switch (X146) or the execution of a memory position.

### Setting Memory

When the round, green memory set button is depressed, terminal C324/1 of the Memory Seat ECU (Z146) is grounded through the switch contacts. This signals the ECU to record the seat position as reported through the seat position sensors (X194, X195, X196, X197) and the mirror positions through the potentiometers of the Memory Mirror Actuators (M115, M123).

When memory seat position switch 1 or 2 is depressed, ECU terminals C324/3 or C324/2 are grounded through the switch. This signals the ECU to record the current position as position '1' or '2'. Subsequent depressions of memory seat position switch 1 or 2 will cause the ECU to move the seat and mirrors to the position retained in memory. The memory can be cleared by setting a new position or by removing Fuse F4 of the Driver's Underseat Fuse Box (P108).

### SELF TEST MODE

The Self Test Mode is a test routine the Memory Seat ECU (Z146) performs when initialized. When the ECU is commanded into the Self Test Mode, it operates the seats and the mirrors in all planes of travel. Perform the self test before attempting any diagnosis of the memory seat and mirror system. The cause of a system fault can be narrowed down through observation of the seats and mirrors during the Self Test Mode. Before starting the Self Test Mode, be sure to clear away everything from the pathway of the seats.

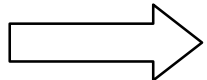
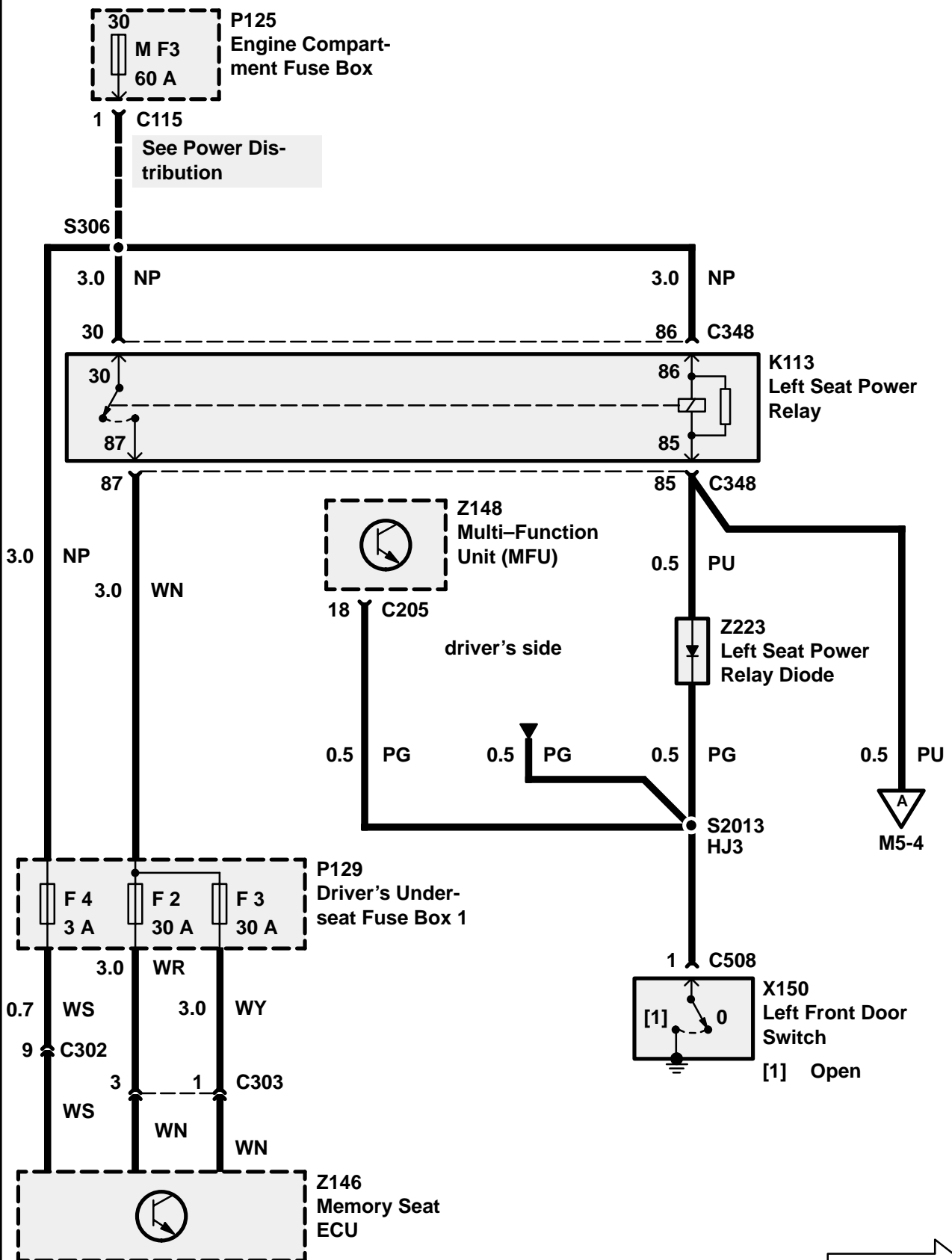
To initialize the Self Test Mode, do the following:

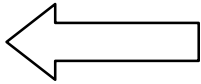
1. Park vehicle and open driver's door.
2. Press round, green memory button 5 times.
3. Press seat position buttons 1 and 2 in the following sequence:  
2-1-1-2

Seat and mirrors will now move. The test is completed when the seat and mirrors stop in the mid-travel position.

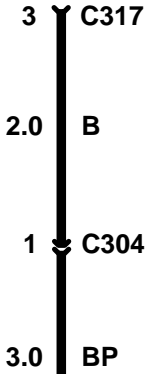
If a motor did not operate at all during the test sequence, that motor or its wiring is faulty. If a motor moves in a plane and then suddenly stops, a loss of the feedback position is indicated. Proceed to the System Diagnosis for further testing.







X121  
Right Front Seat  
Control Switch



M5-3



0.5 PU



0.5 BP

S319

3.0 BP

87

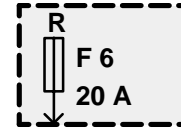


30

3.0 B

S320

E300



P126  
Fascia Fuse Box

3 C226

See Fuse Details

S264

1.0 LGW

S2008  
HJ6

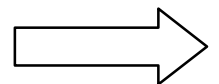
0.5 LGW

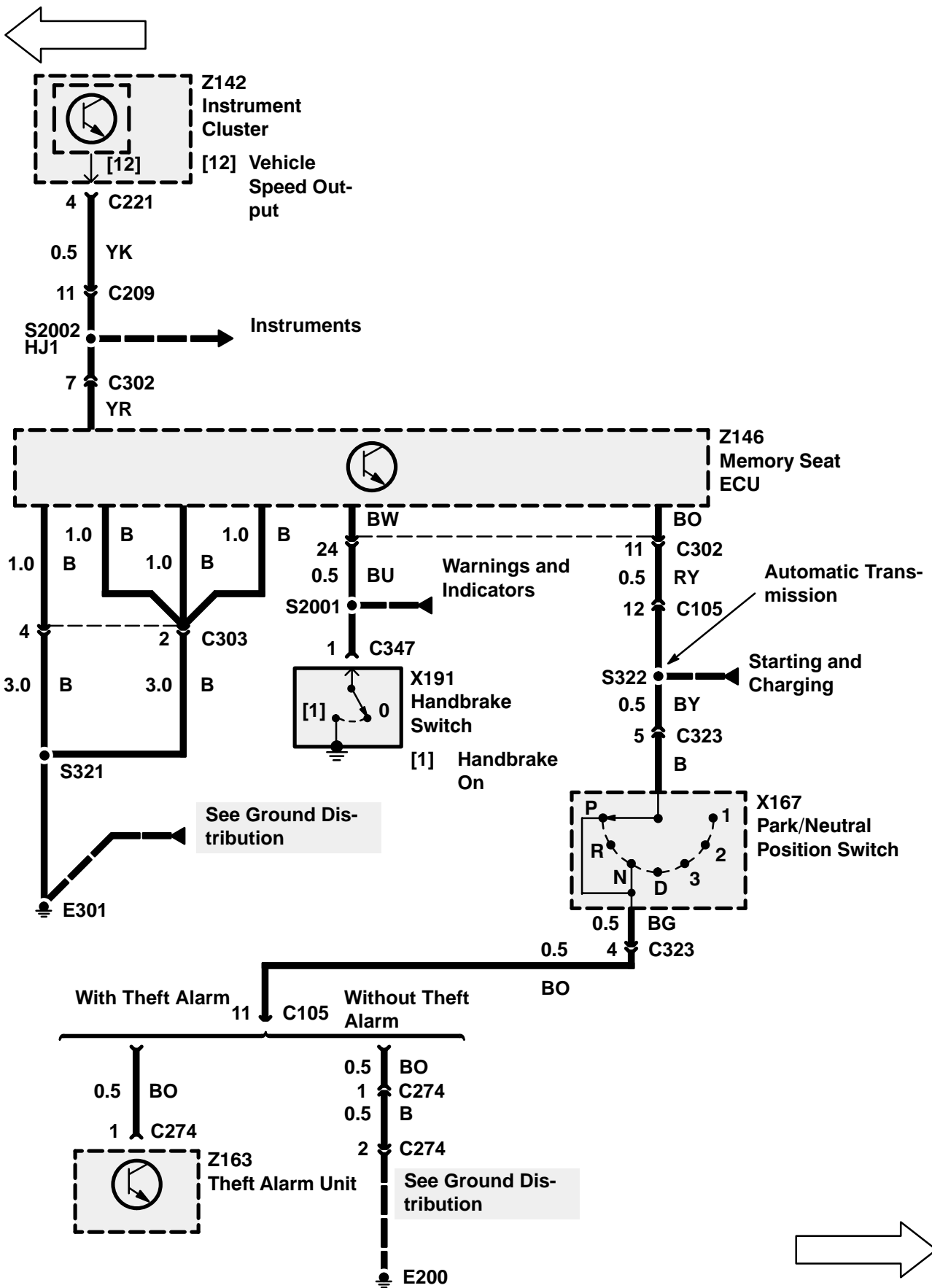
86 C358

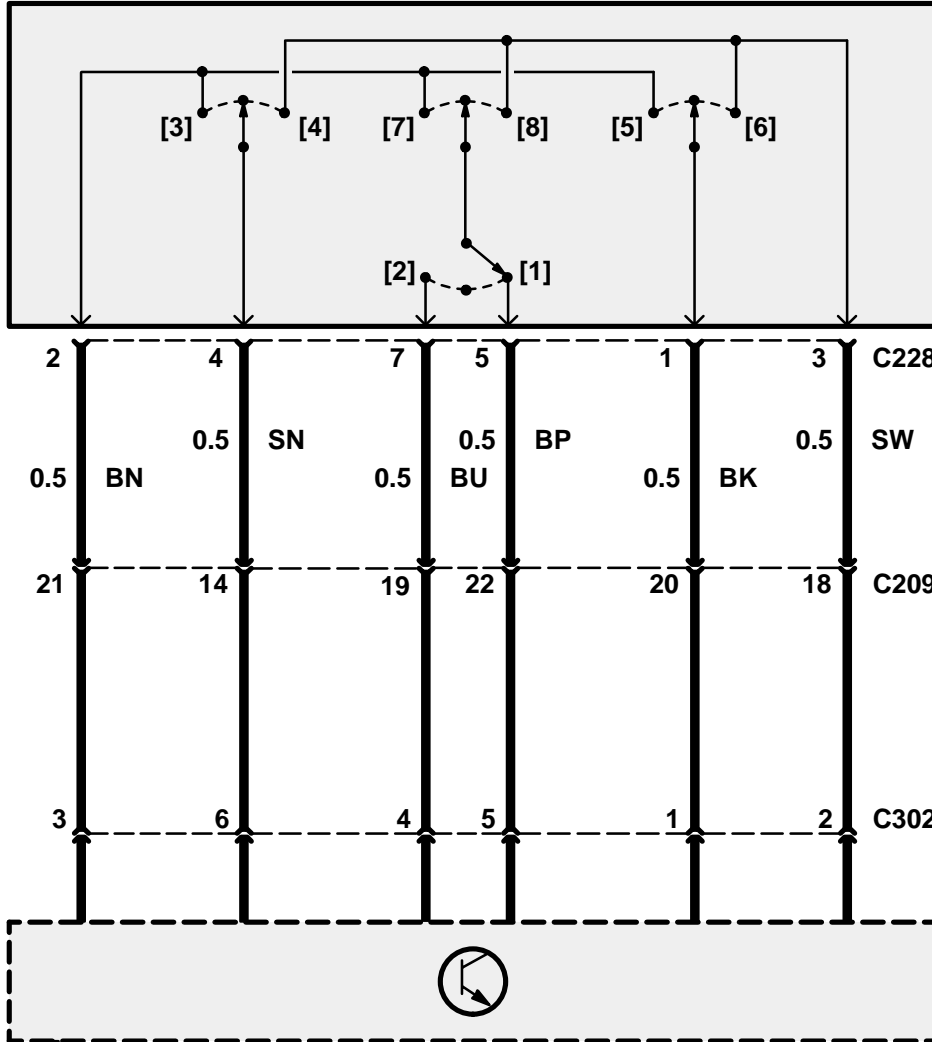
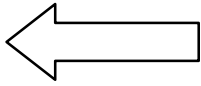
85 C358

3.0 B

See Ground Dis-  
tribution



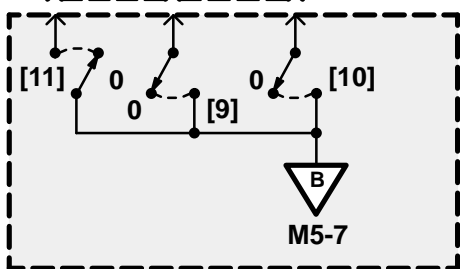
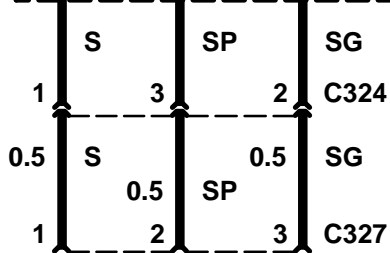




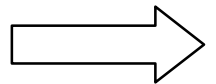
- X146a  
Mirror Adjust-  
ment Switch**
- [1] Right Mirror Enabled
  - [2] Left Mirror Enabled
  - [3] Move Right
  - [4] Move Left
  - [5] Move Up
  - [6] Move Down
  - [7] Move Up or Right
  - [8] Move Down or Left

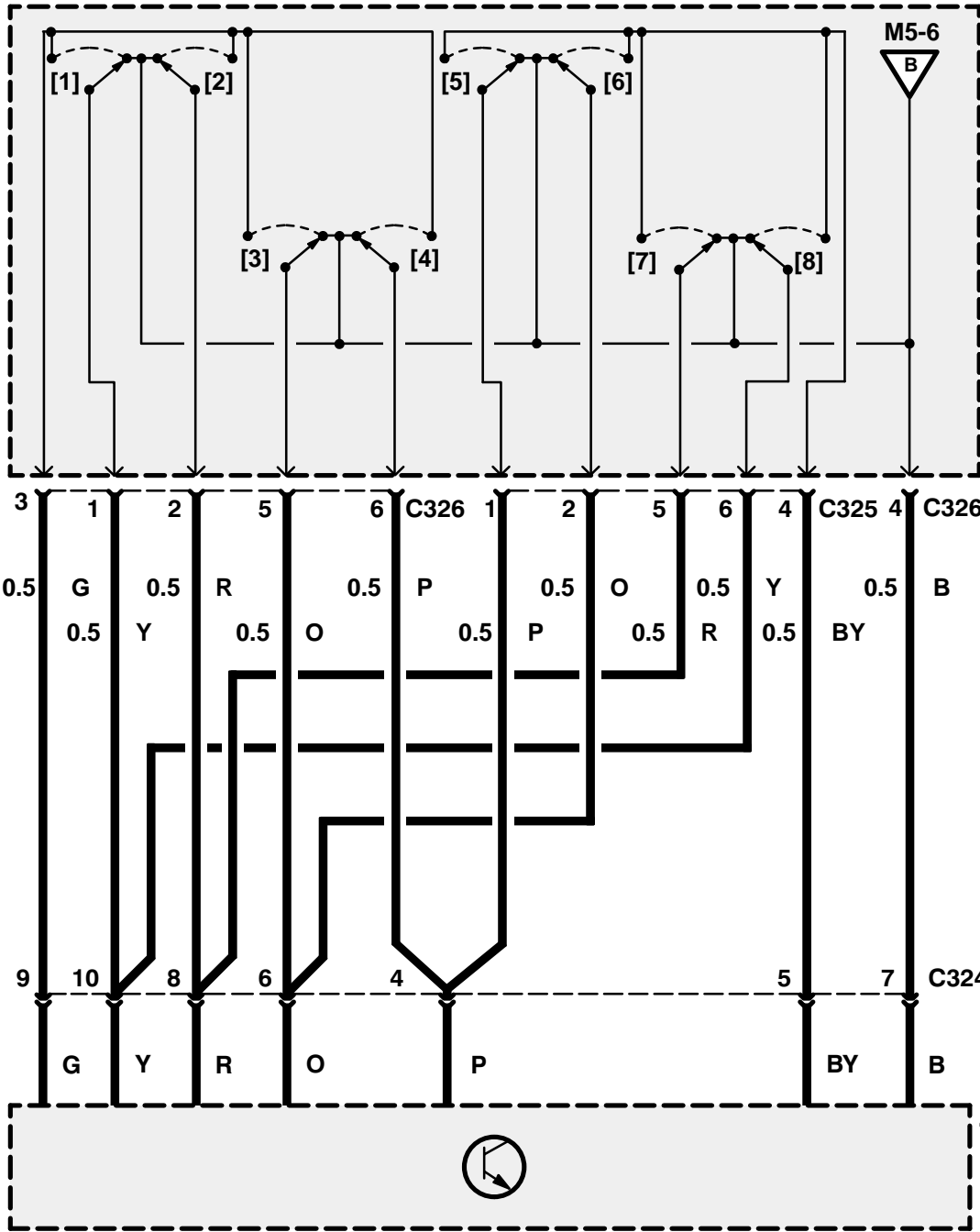
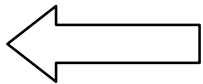


**Z146  
Memory Seat  
ECU**

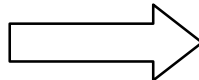


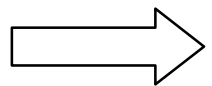
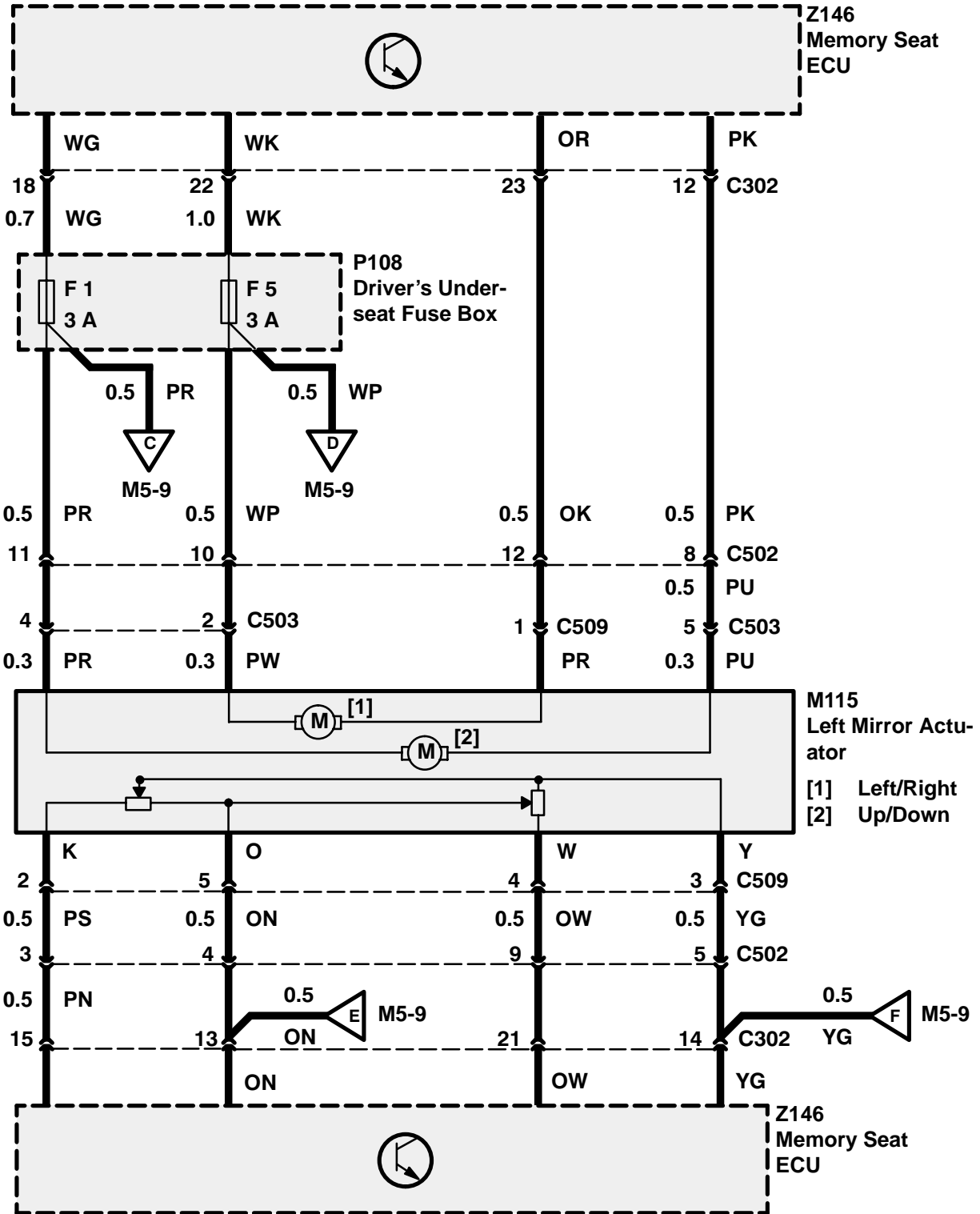
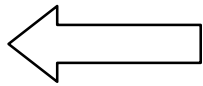
- X152  
Left Front Seat  
Control Switch**
- [9] Memory 1
  - [10] Memory 2
  - [11] Memory Store

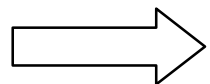
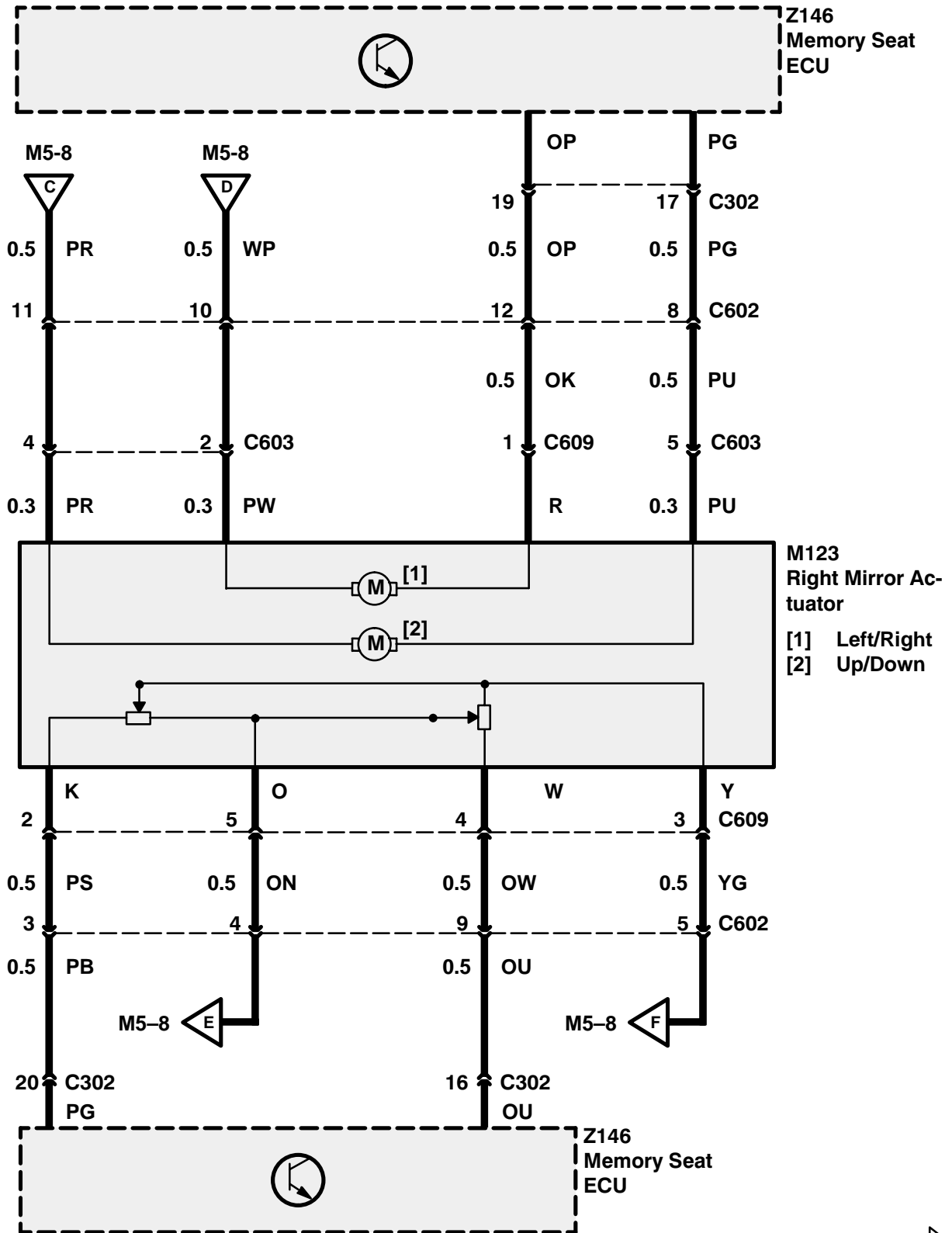
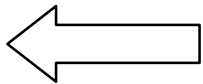


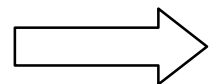
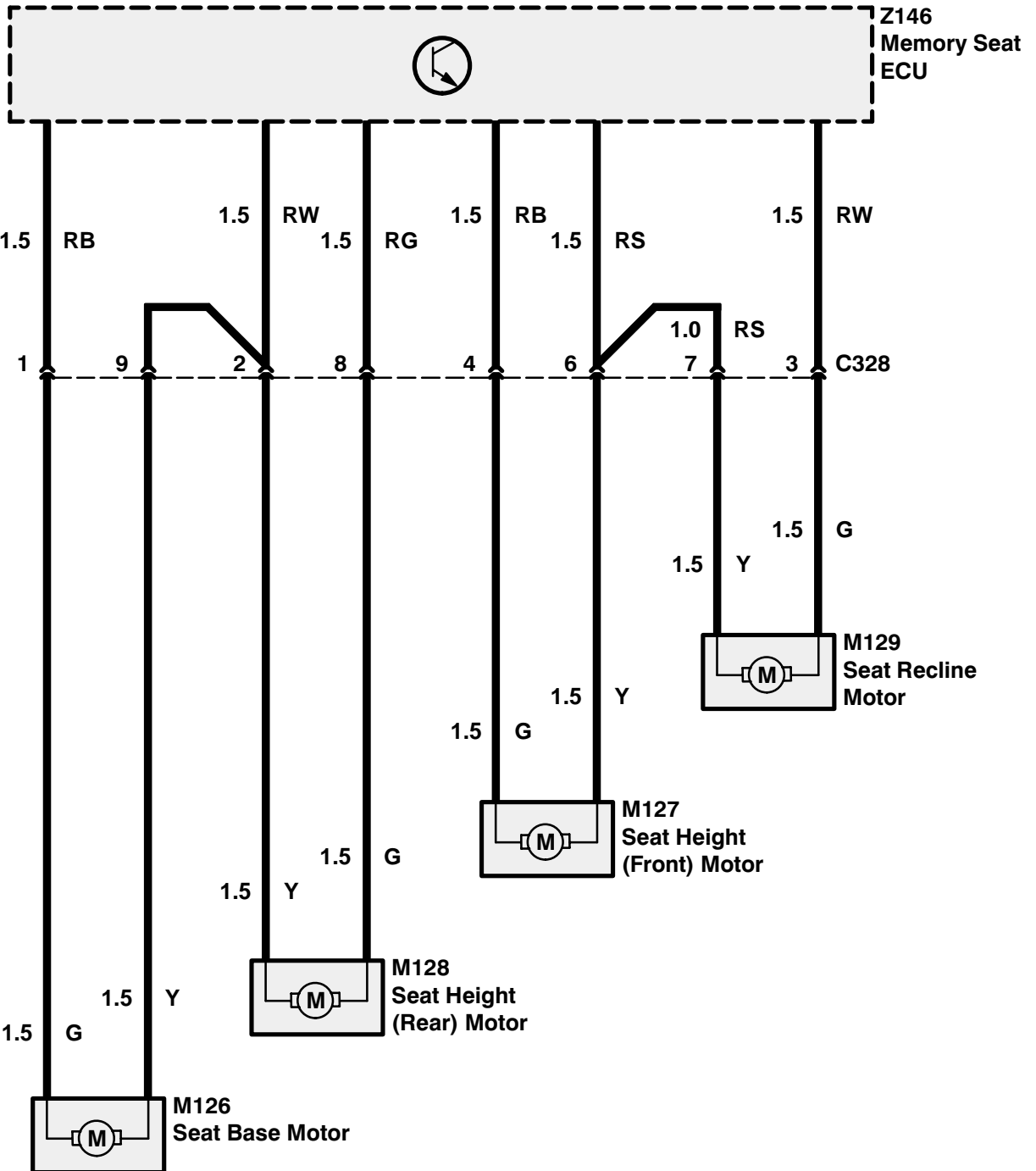
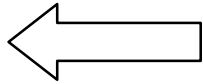


- X152  
Left Front Seat Control Switch
- [1] Forward
  - [2] Backward
  - [3] Front Down
  - [4] Front Up
  - [5] Recline
  - [6] Raise
  - [7] Rear Down
  - [8] Rear Up

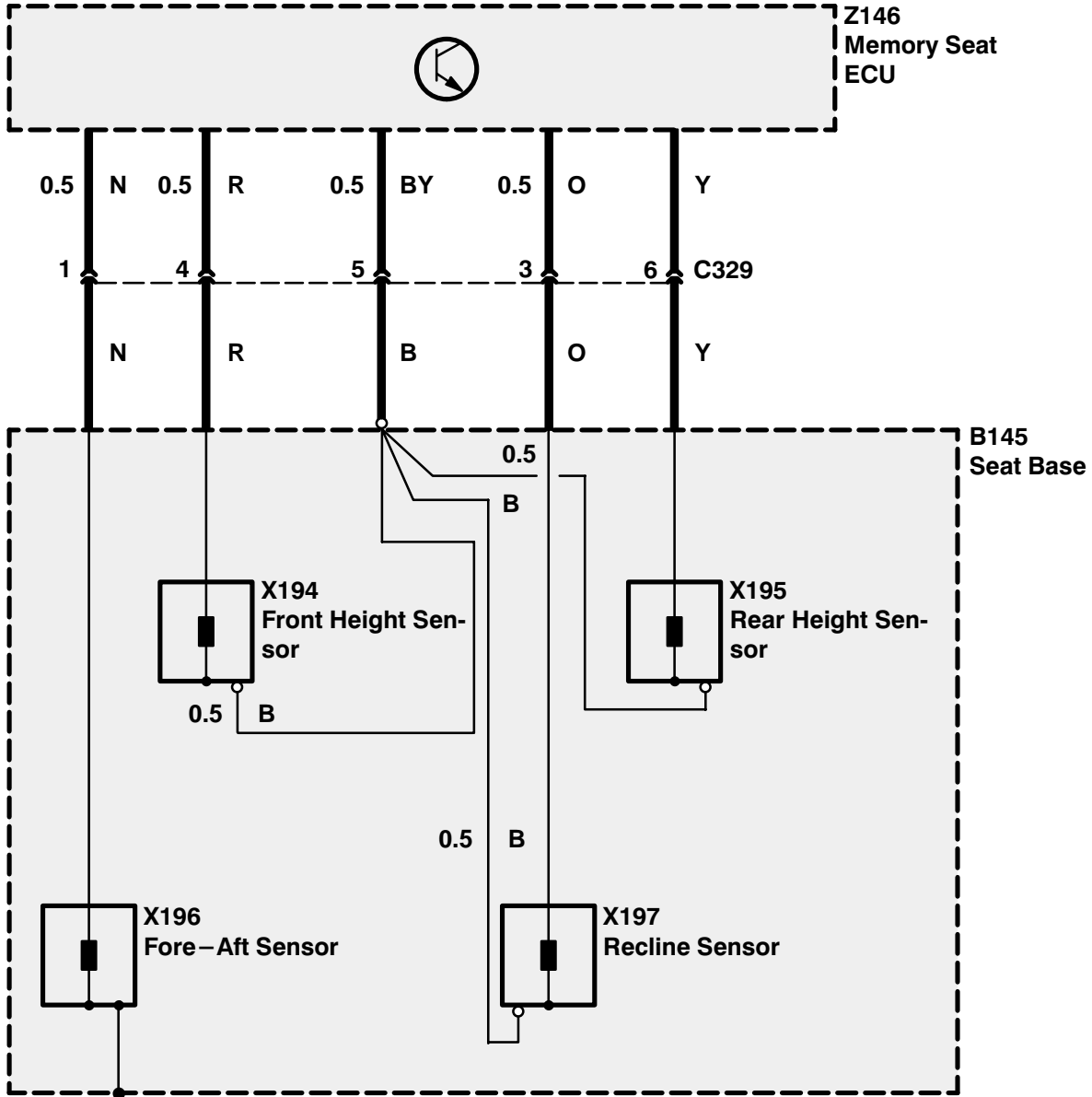
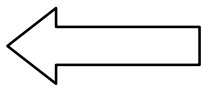










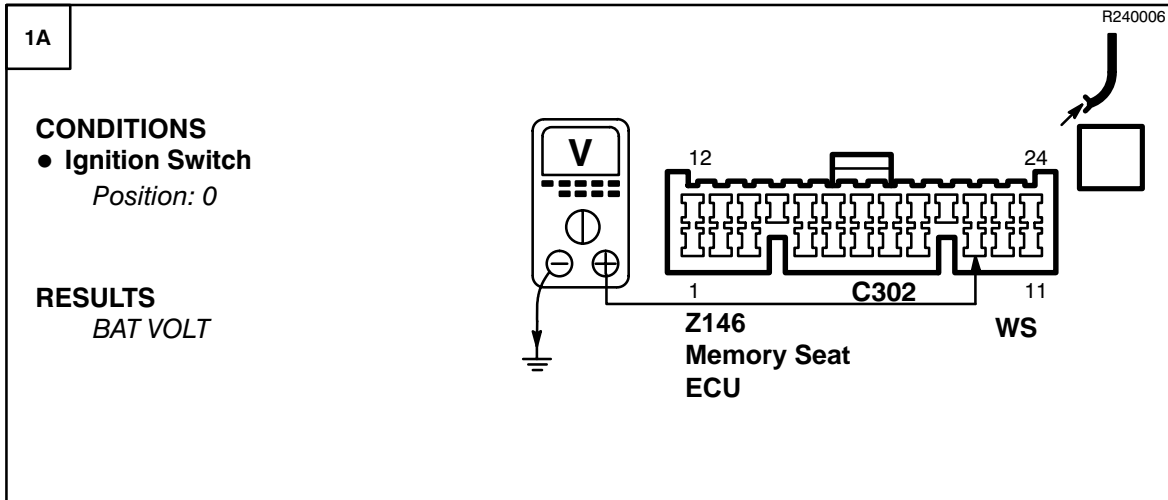


**SYSTEM DIAGNOSIS**

NOTE: Perform the Self Test before performing any diagnosis on the memory seats and mirrors.

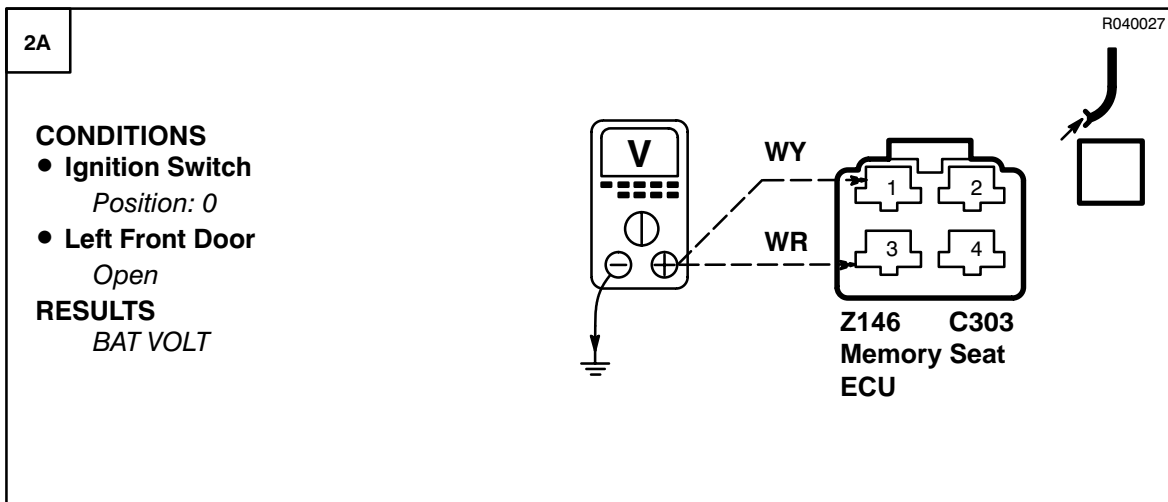
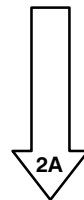
1. If the system will not perform the Self Test, do Test E, Left Front Seat Control Switch (X121) test.
2. If manual and memory seat functions are totally inoperative, check Maxi-Fuse® MF3 of the Engine Compartment Fuse Box (P125), and Fuses F2 and F3 of the Driver's Underseat Fuse Box (P108). Do Test A if the fuses are OK.
3. If the system does not retain memory seat or mirror positions, do Test A, Memory Seat ECU (Z146) power test.
4. If the memory seat system does not operate when the ignition is in position II and the handbrake is applied, do Test B (manual transmission) or Test C (automatic transmission).
5. If memory seat and mirror functions do not operate but the seat does operate in some modes manually, do Test E, Left Front Seat Control Switch (X121) test.
6. If all seat motors operate during the Self Test but do not operate when the Left Front Seat Control Switch (X121) is used, do Test F.
7. If all mirror motors operate during the Self Test but do not operate when the Mirror Adjustment Switch (X146) is used, do Test G.
8. If a seat motor moves during the Self Test and then stops, replace the defective seat sensor (X194, X195, X196, X197).
9. If a seat motor (M126, M127, M128, M129) does not move at all during the Self Test, do Test J.
10. If a mirror motor does not move at all during the Self Test, do Test K (Left Memory Mirror Actuator, M115) or Test L (Right Memory Mirror Actuator, M123).
11. If a mirror motor moves during the Self Test and then stops, do Test H (Left Memory Mirror Actuator, M115) or Test I (Right Memory Mirror Actuator, M123).

**Test A**

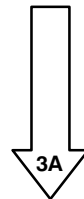


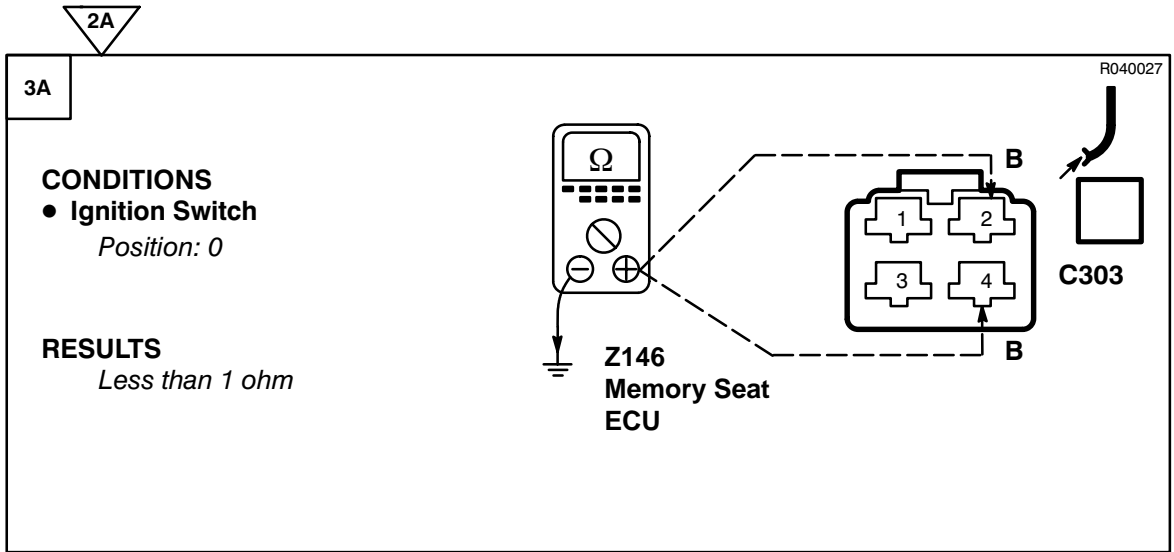
**PROBLEM CAUSE**

- WS Wire
- F4 Fuse
- MF3 Maxi-Fuse



**GO TO TEST D**



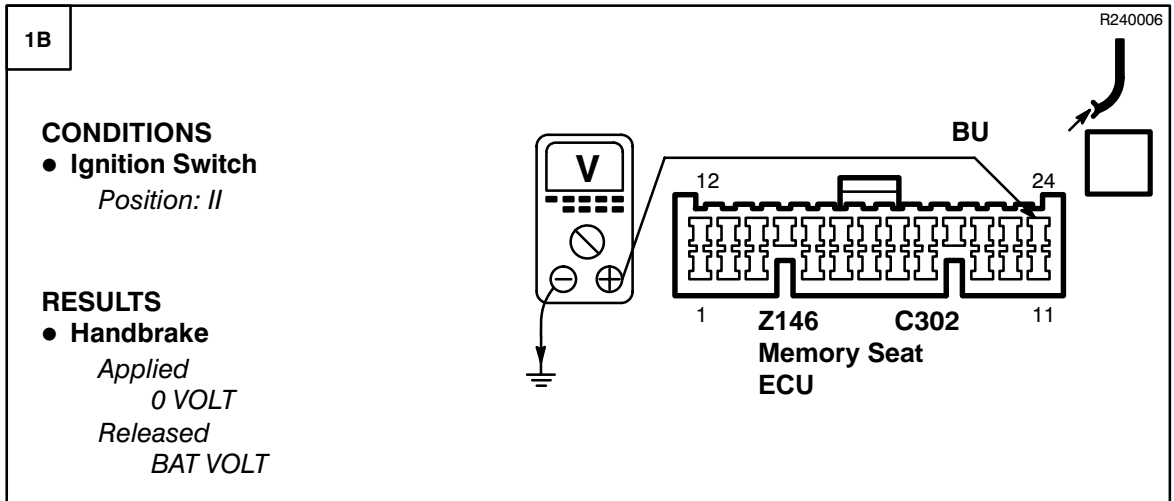


**PROBLEM CAUSE**  
- B Wire



**PROBLEM CAUSE**  
- Memory Seat  
ECU

**Test B**



**PROBLEM CAUSE**  
- BU Wire  
- Handbrake  
Switch



**PROBLEM CAUSE**  
- Memory Seat  
ECU

**Test C**

R240006

1C

**CONDITIONS**

- Ignition Switch  
*Position: II*

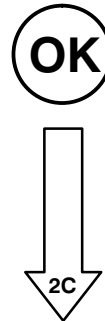
**RESULTS**

- Handbrake  
*Applied*  
0 VOLT  
*Released*  
BAT VOLT

Z146  
Memory Seat  
ECU

**OK** PROBLEM CAUSE

- BU Wire
- Handbrake Switch



R240006

2C

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Gear Selector  
*P/N*

**RESULTS**

*Less than 1 ohm*

Z146  
Memory Seat  
ECU

**OK** PROBLEM CAUSE

- RY Wire
- BO, BY Wire
- Park/Neutral Position Switch
- Theft Alarm Unit

**OK** PROBLEM CAUSE

- Memory Seat ECU

Test D

R050001

1D

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

**K113**  
**Left Seat Power**  
**Relay**



**PROBLEM CAUSE**

- NP Wire
- MF3 Maxi-Fuse



R050001

2D

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

**K113**  
**Left Seat Power**  
**Relay**



**PROBLEM CAUSE**

- NP Wire
- MF3 Maxi-Fuse



R050001

2D

3D

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Left Front Door  
*Open*

**RESULTS**

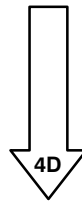
*Test Lamp Illuminates*

**K113**  
Left Seat Power  
Relay



**PROBLEM CAUSE**

- PU Wire
- PG Wire
- Left Seat Power Relay Diode
- Left Front Door Switch



R050001

4D

**CONDITIONS**

- Ignition Switch  
*Position: II*
- Left Front Door  
*Closed*

**RESULTS**

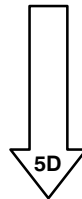
*Test Lamp Illuminates*

**K113**  
Left Seat Power  
Relay



**PROBLEM CAUSE**

- PU Wire
- Right Seat Power Relay Diode
- BP Wire
- F6 Fuse
- Right Seat Power Relay



4D

5D

R050001

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- Seat Memory  
*Operates*

**K113**  
Left Seat Power Relay



**PROBLEM CAUSE**

- F2 Fuse
- F3 Fuse
- WN Wire



**PROBLEM CAUSE**

- Left Seat Power Relay

**Test E**

1E

R100013

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

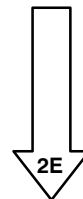
- Green Memory Button  
*Depressed*  
*Less than 1 ohm*  
*Released*  
*More than 10K ohms*

**Z146**  
Memory Seat ECU



**PROBLEM CAUSE**

- S Wire
- B Wire
- Left Front Seat Control Switch





R100013

**1E**

**2E**

**CONDITIONS**

- Ignition Switch  
*Position: II*

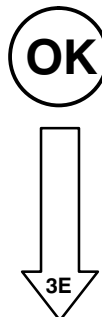
**RESULTS**

- Position 1 button  
*Depressed*  
*Less than 1 ohm*  
*Released*  
*More than 10K ohms*

**Z146**  
**Memory Seat ECU**

**OK** PROBLEM CAUSE

- SP Wire
- Left Front Seat Control Switch



R100013

**3E**

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**

- Position 2 button  
*Depressed*  
*Less than 1 ohm*  
*Released*  
*More than 10K ohms*

**Z146**  
**Memory Seat ECU**

**OK** PROBLEM CAUSE

- SG Wire
- Left Front Seat Control Switch

**OK** PROBLEM CAUSE

- Memory Seat ECU

Test F

1F

**CONDITIONS**

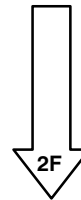
- Ignition Switch  
*Position: 0*

**RESULTS**  
*More than 10K ohms*



**PROBLEM CAUSE**

- BY Wire
- G Wire
- Left Front Seat Control Switch



2F

**CONDITIONS**

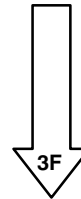
- Ignition Switch  
*Position: 0*

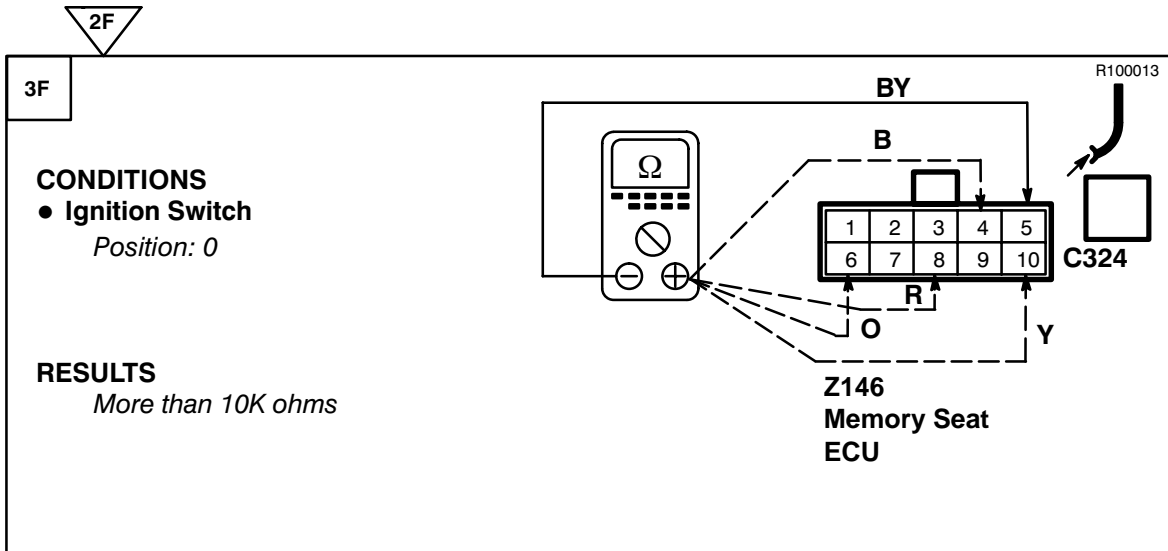
**RESULTS**  
*More than 10K ohms*



**PROBLEM CAUSE**

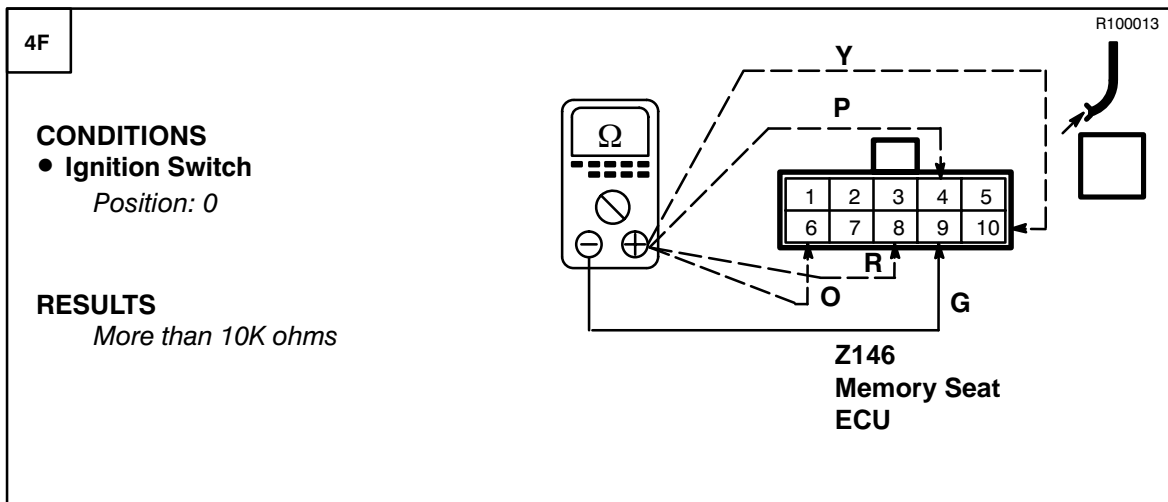
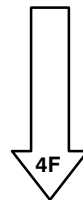
- Left Front Seat Control Switch





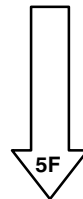
**PROBLEM CAUSE**

- R Wire
- P Wire
- Y Wire
- O Wire
- Left Front Seat Control Switch



**PROBLEM CAUSE**

- Y Wire
- R Wire
- O Wire
- P Wire
- Left Front Seat Control Switch



R100013

4F

5F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Raise*

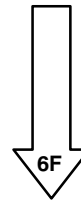
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**



**PROBLEM CAUSE**

- G Wire
- Y Wire
- Left Front Seat Control Switch



R100013

6F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Backward*

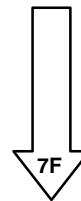
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**



**PROBLEM CAUSE**

- R Wire
- Left Front Seat Control Switch



6F

7F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Front down*

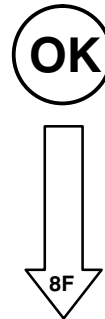
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**

R100013

~~OK~~ **PROBLEM CAUSE**

- O Wire
- Left Front Seat Control Switch



8F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Front up*

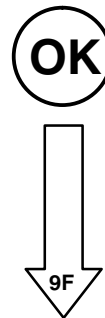
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**

R100013

~~OK~~ **PROBLEM CAUSE**

- P Wire
- Left Front Seat Control Switch



8F

9F

R100013

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Recline*

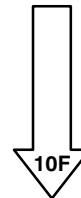
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**



**PROBLEM CAUSE**

- BY Wire
- P Wire
- Left Front Seat Control Switch



10F

R100013

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Raise*

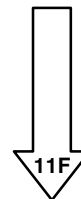
**RESULTS**  
*Less than 1 ohm*

**Z146  
Memory Seat ECU**



**PROBLEM CAUSE**

- O Wire
- Left Front Seat Control Switch



10F

11F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Rear down*

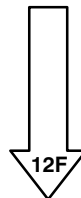
**RESULTS**  
*Less than 1 ohm*

Z146  
Memory Seat ECU



**PROBLEM CAUSE**

- R Wire
- Right Front Seat Control Switch



12F

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Right Front Seat Control Switch

*Rear up*

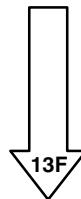
**RESULTS**  
*Less than 1 ohm*

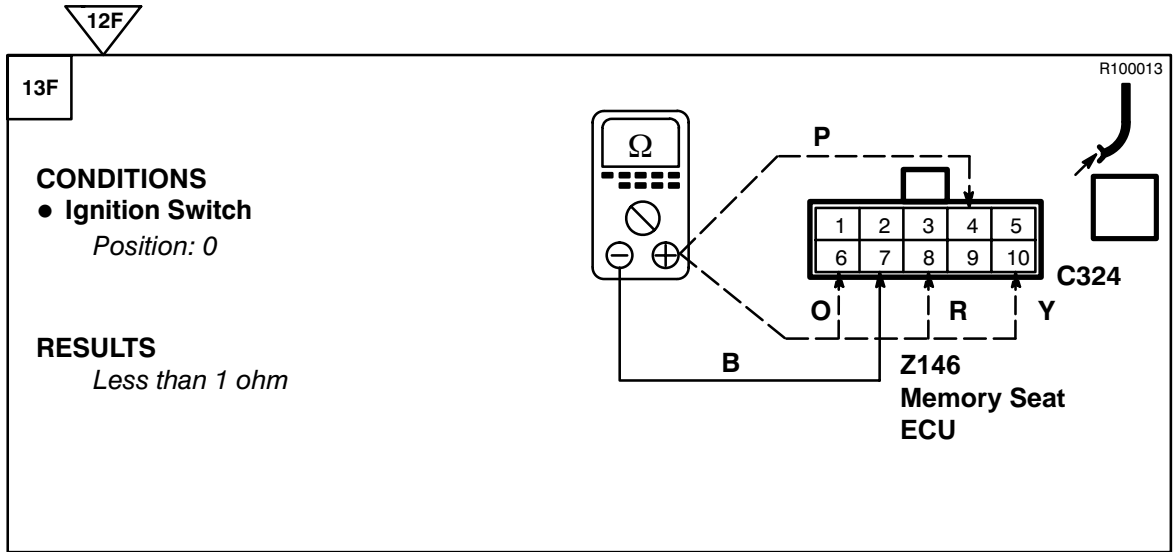
Z146  
Memory Seat ECU



**PROBLEM CAUSE**

- Y Wire
- Right Front Seat Control Switch





**PROBLEM CAUSE**  
- Left Front Seat  
Control Switch



**PROBLEM CAUSE**  
- Memory Seat  
ECU



**Test G**

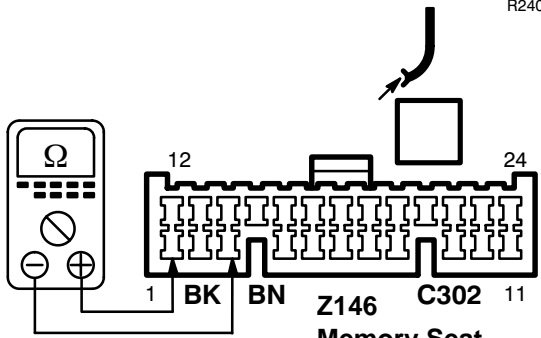
R240006

1G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Up*

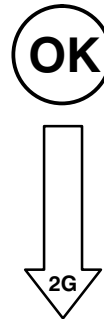
**RESULTS**  
*Less than 1 ohm*



12 24  
1 BK BN Z146 C302 11  
Memory Seat ECU

~~OK~~ **PROBLEM CAUSE**

- BK Wire
- BN Wire
- Mirror Adjustment Switch



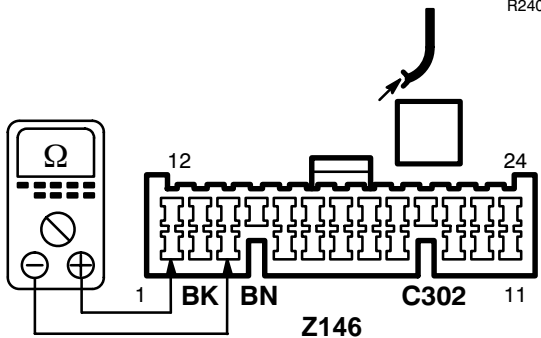
R240006

2G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Down*

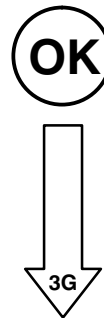
**RESULTS**  
*More than 10K ohms*



12 24  
1 BK BN C302 11  
Z146 Memory Seat ECU

~~OK~~ **PROBLEM CAUSE**

- Mirror Adjustment Switch



R240006

2G

3G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Up*

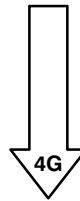
**RESULTS**  
*More than 10K ohms*

Z146  
Memory Seat  
ECU



**PROBLEM CAUSE**

- SW Wire
- Mirror Adjust-  
ment Switch



R240006

4G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Down*

**RESULTS**  
*Less than 1 ohm*

Z146  
Memory Seat  
ECU



**PROBLEM CAUSE**

- Mirror Adjust-  
ment Switch



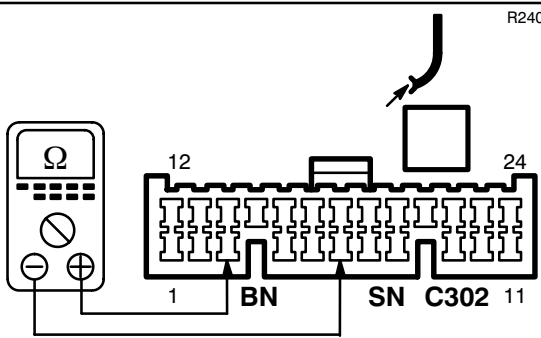
4G

5G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Right*

**RESULTS**  
*Less than 1 ohm*

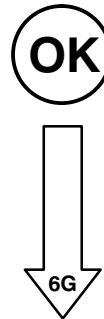


R240006

Z146  
Memory Seat ECU

~~OK~~ **PROBLEM CAUSE**

- SN, B Wire
- Mirror Adjust-ment Switch



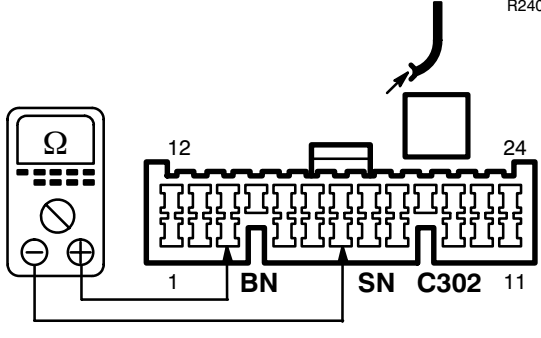
6G

6G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Left*

**RESULTS**  
*More than 10K ohms*

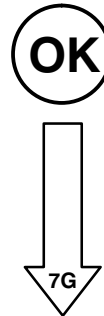


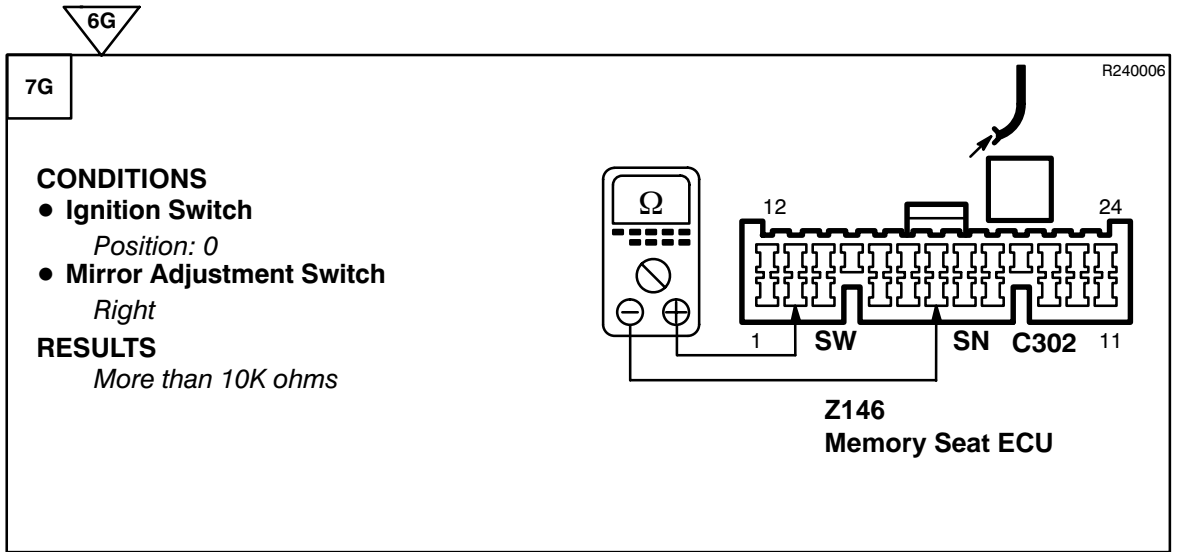
R240006

Z146  
Memory Seat ECU

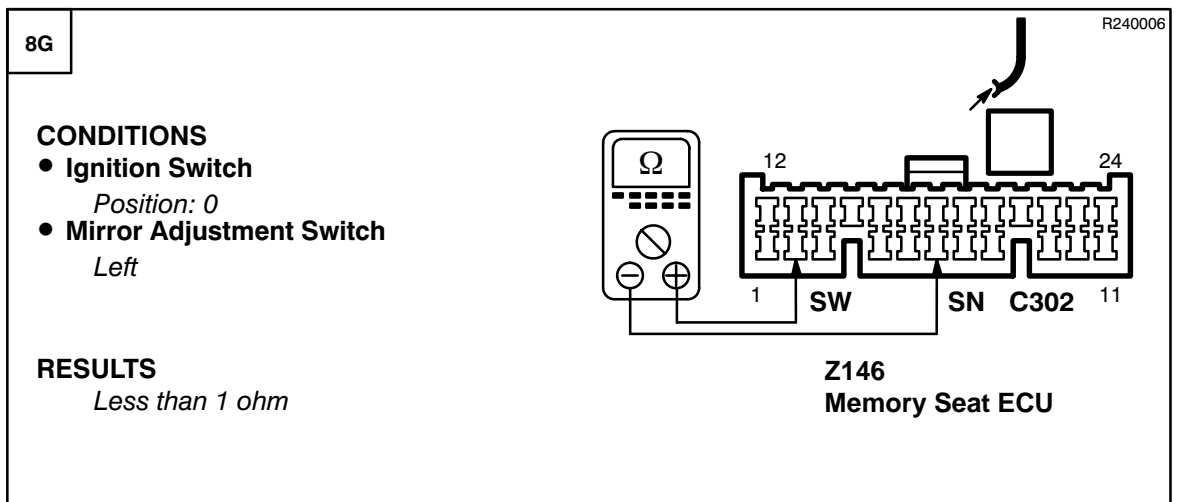
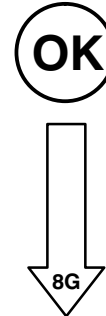
~~OK~~ **PROBLEM CAUSE**

- Mirror Adjust-ment Switch

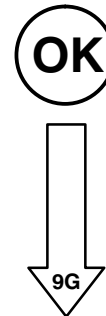




**OK** PROBLEM CAUSE  
- Mirror Adjust-  
ment Switch



**OK** PROBLEM CAUSE  
- Mirror Adjust-  
ment Switch



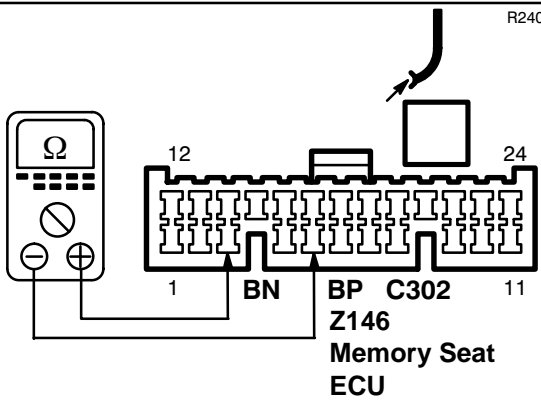
8G

9G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Right Mirror Enabled  
Move Right or Down*

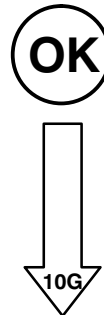
**RESULTS**  
*Less than 1 ohm*



R240006

**OK** PROBLEM CAUSE

- BP Wire
- Mirror Adjust-ment Switch

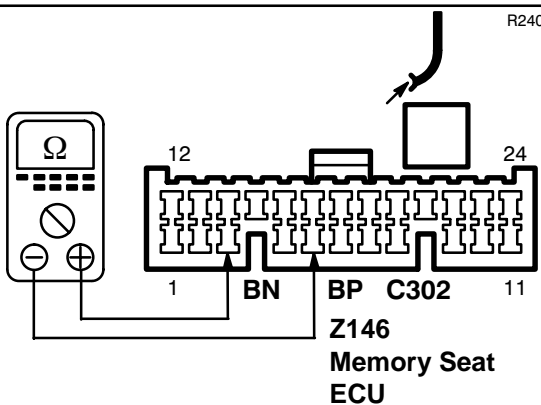


10G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Right Mirror Enabled  
Move Left or Up*

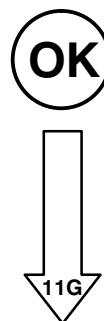
**RESULTS**  
*More than 10K ohms*



R240006

**OK** PROBLEM CAUSE

- Mirror Adjust-ment Switch



R240006

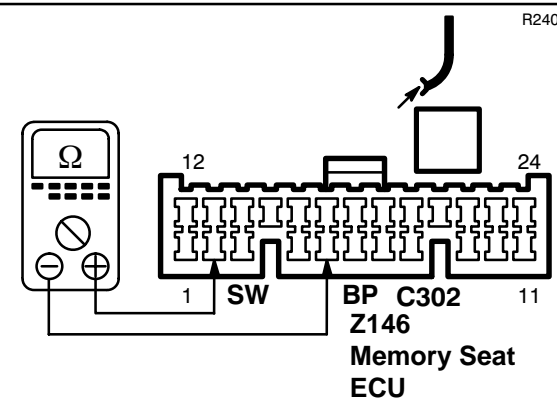
10G

11G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Right Mirror Enabled  
Move Right or Down*

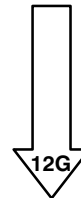
**RESULTS**  
*More than 10K ohms*





**PROBLEM CAUSE**

- Mirror Adjust-ment Switch



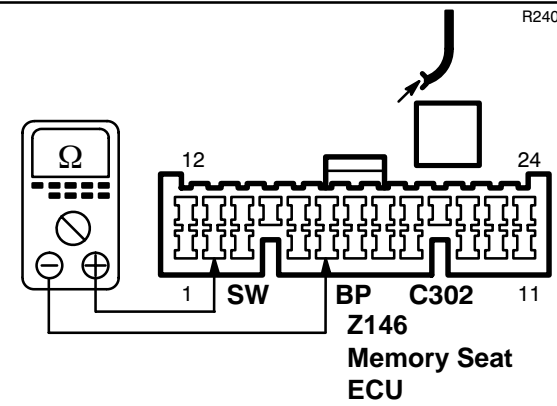
R240006

12G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Right Mirror Enabled  
Move Left or Up*

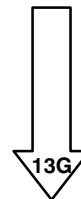
**RESULTS**  
*Less than 1 ohm*





**PROBLEM CAUSE**

- Mirror Adjust-ment Switch



R240006

**12G**

**13G**

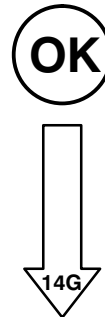
**CONDITIONS**

- **Ignition Switch**  
*Position: 0*
- **Mirror Adjustment Switch**  
*Left Mirror Enabled  
Move Right or Down*

**RESULTS**  
*Less than 1 ohm*

**OK** PROBLEM CAUSE

- BU Wire
- Mirror Adjust-ment Switch



R240006

**14G**

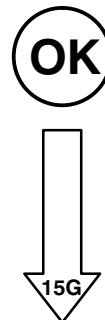
**CONDITIONS**

- **Ignition Switch**  
*Position: 0*
- **Mirror Adjustment Switch**  
*Left Mirror Enabled  
Move Left or Up*

**RESULTS**  
*More than 10K ohms*

**OK** PROBLEM CAUSE

- Mirror Adjust-ment Switch



R240006

14G

15G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Left Mirror Enabled  
Move Right or Down*

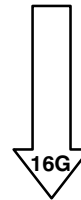
**RESULTS**  
*More than 10K ohms*

12 24  
1 SW BU C302 11  
Z146  
Memory Seat  
ECU



**PROBLEM CAUSE**

- Mirror Adjust-ment Switch



R240006

16G

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- Mirror Adjustment Switch  
*Left Mirror Enabled  
Move Left or Up*

**RESULTS**  
*Less than 1 ohm*

12 24  
1 SW BU C302 11  
Z146  
Memory Seat  
ECU



**PROBLEM CAUSE**

- Mirror Adjust-ment Switch



- PROBLEM CAUSE**
- Memory Seat ECU



**Test H**

1H

R240006

**CONDITIONS**

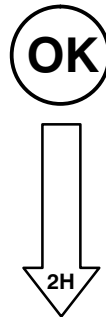
- Ignition Switch  
*Position: 0*

**RESULTS**  
*More than 1000 ohms*

**Z146  
Memory Seat  
ECU**

- PROBLEM CAUSE**

  - YG Wire
  - OW Wire
  - PS Wire
  - ON Wire
  - Left Mirror Actuator



2H

R240006

**CONDITIONS**

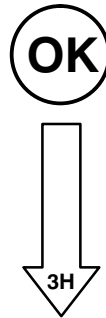
- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 50K ohms*

**Z146  
Memory Seat  
ECU**

- PROBLEM CAUSE**

  - Left Mirror Actuator



R240006

2H

3H

**CONDITIONS**

- Ignition Switch  
Position: 0

**RESULTS**

Less than 50K ohms

**Z146  
Memory Seat  
ECU**



**PROBLEM CAUSE**  
- Left Mirror Actuator



**PROBLEM CAUSE**  
- Memory Seat ECU

**Test I**

R240006

11

**CONDITIONS**

- Ignition Switch  
Position: 0

**RESULTS**

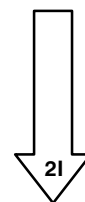
More than 1000 ohms

**Z146  
Memory Seat  
ECU**



**PROBLEM CAUSE**

- OU, OW Wire
- ON Wire
- YG Wire
- PB, PS Wire
- Right Mirror Actuator



R240006

11

21

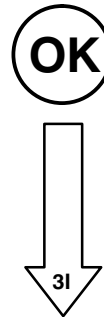
**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 50K ohms*

Z146  
Memory Seat  
ECU

~~OK~~ **PROBLEM CAUSE**  
- Right Mirror Actuator



R240006

31

31

**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*Less than 50K ohms*

Z146  
Memory Seat  
ECU

~~OK~~ **PROBLEM CAUSE**  
- Right Mirror Actuator

**OK** **PROBLEM CAUSE**  
- Memory Seat ECU

Test J

1J

R090003

**CONDITIONS**

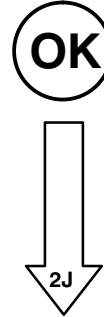
- Ignition Switch  
*Position: I*
- Left Front Door  
*Open*

**RESULTS**

- Left Front Seat Control Switch  
*Forward*  
+BAT VOLT
- Backward*  
-BAT VOLT

RB  
RW  
C328  
Z146  
Memory Seat  
ECU

~~OK~~ PROBLEM CAUSE  
- Memory Seat  
ECU



2J

R090003

**CONDITIONS**

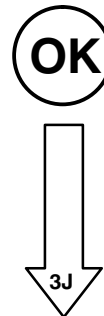
- Ignition Switch  
*Position: I*
- Left Front Door  
*Open*

**RESULTS**

- Left Front Seat Control Switch  
*Rear up*  
-BAT VOLT
- Rear down*  
+BAT VOLT

RW  
RG  
C4  
Z146  
Memory Seat  
ECU

~~OK~~ PROBLEM CAUSE  
- Memory Seat  
ECU



R090003

2J

3J

**CONDITIONS**

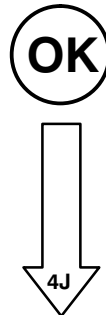
- Ignition Switch  
*Position: I*
- Left Front Door  
*Open*

**RESULTS**

- Left Front Seat Control Switch  
*Recline*  
+BAT VOLT  
*Raise*  
-BAT VOLT

Z146  
Memory Seat  
ECU

~~OK~~ PROBLEM CAUSE  
- Memory Seat  
ECU



R090003

4J

**CONDITIONS**

- Ignition Switch  
*Position: I*
- Left Front Door  
*Open*

**RESULTS**

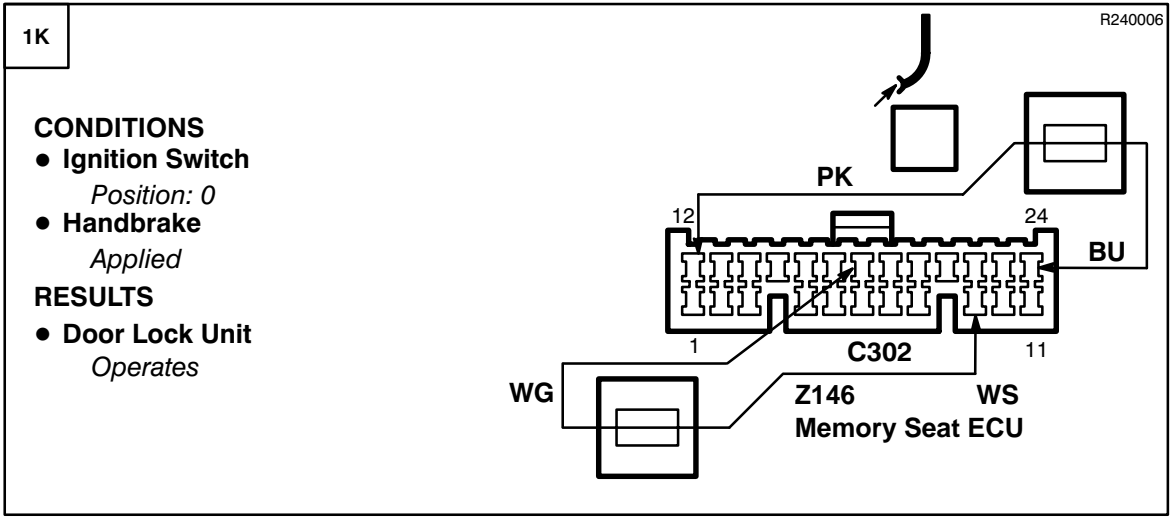
- Left Front Seat Control Switch  
*Front up*  
+BAT VOLT  
*Front down*  
-BAT VOLT

Z146  
Memory Seat  
ECU

~~OK~~ PROBLEM CAUSE  
- Memory Seat  
ECU

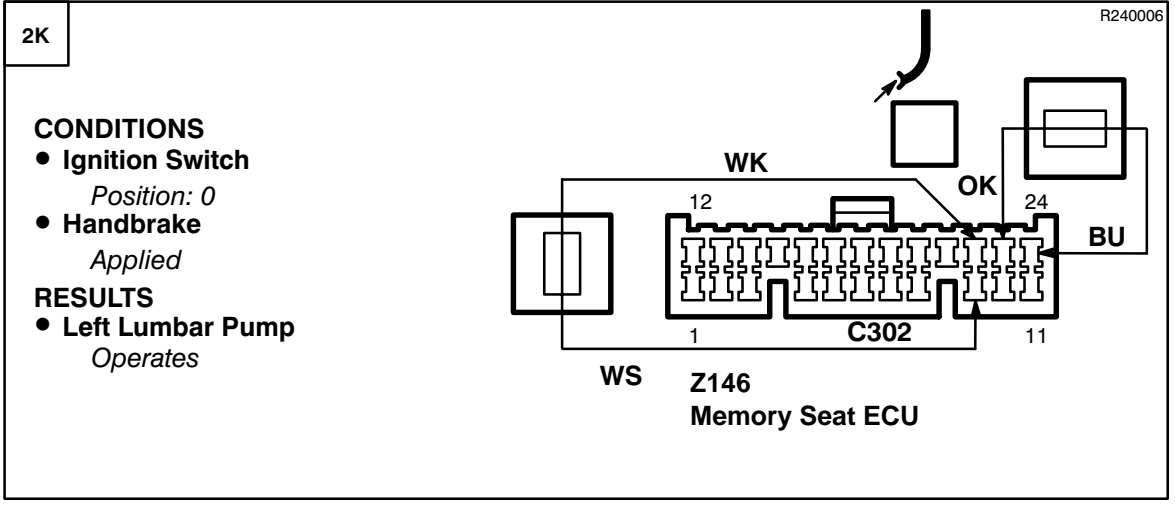
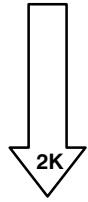
OK PROBLEM CAUSE  
- Seat Motors

Test K



**PROBLEM CAUSE**

- WG, PR Wire
- PK, PU Wire
- Left Mirror Actuator



**PROBLEM CAUSE**

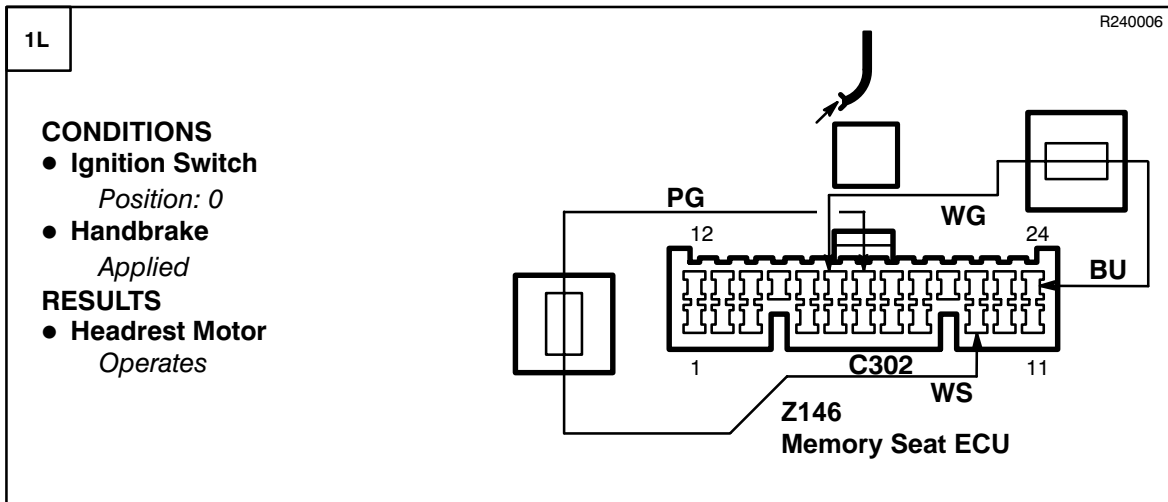
- WK, WP Wire
- OK Wire
- Left Mirror Actuator



**PROBLEM CAUSE**

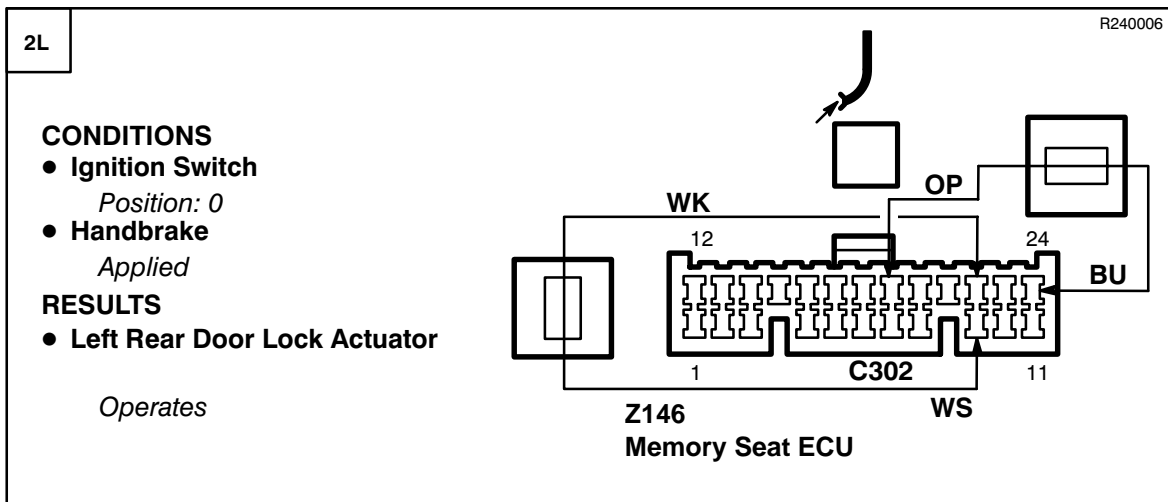
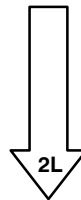
- Memory Seat ECU

**Test L**



**PROBLEM CAUSE**

- PU, PG Wire
- PR Wire
- Right Mirror Actuator



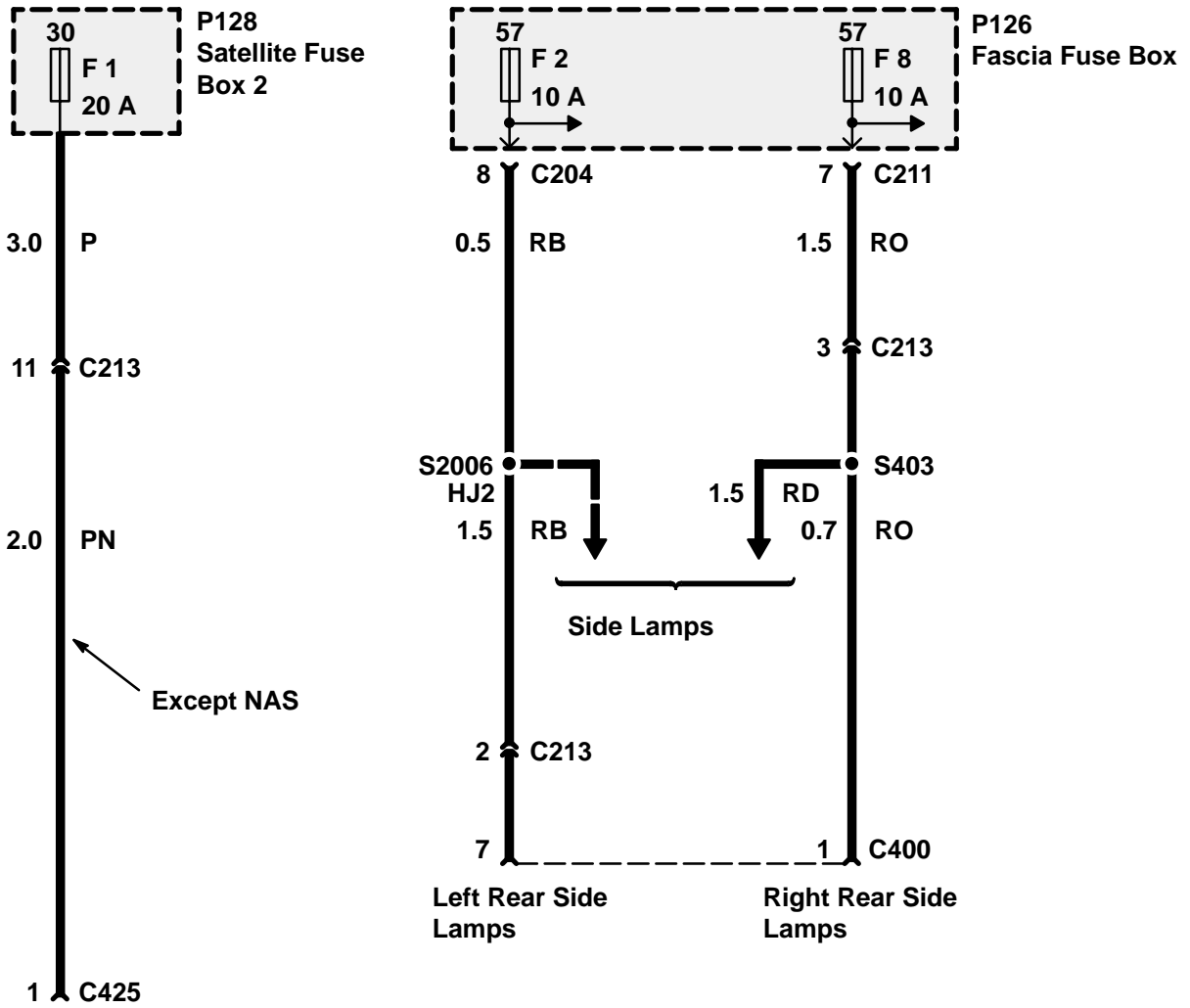
**PROBLEM CAUSE**

- OP, OK Wire
- WP Wire
- Right Mirror Actuator

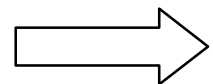
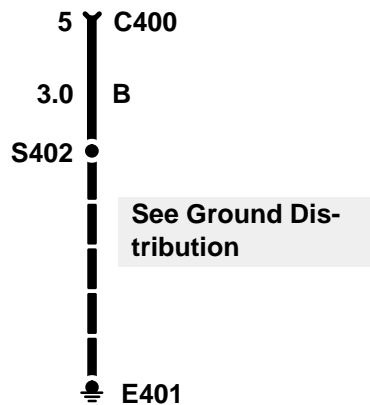


**PROBLEM CAUSE**

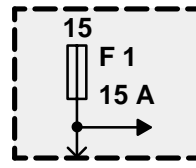
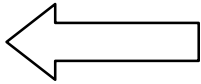
- Memory Seat ECU



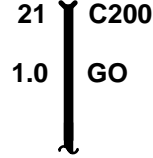
X172  
Trailer Auxiliary  
Socket





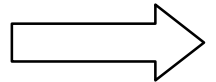
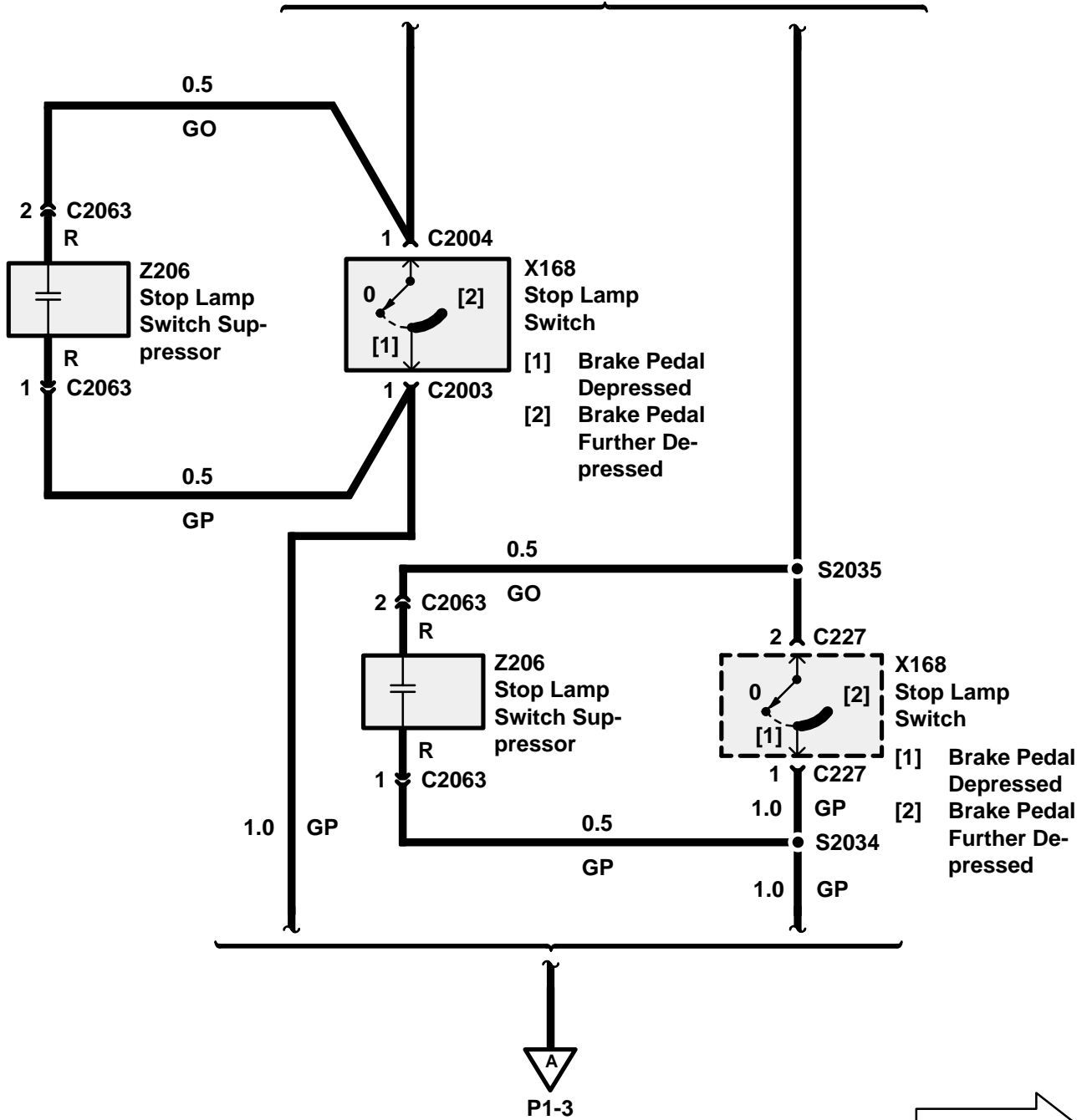


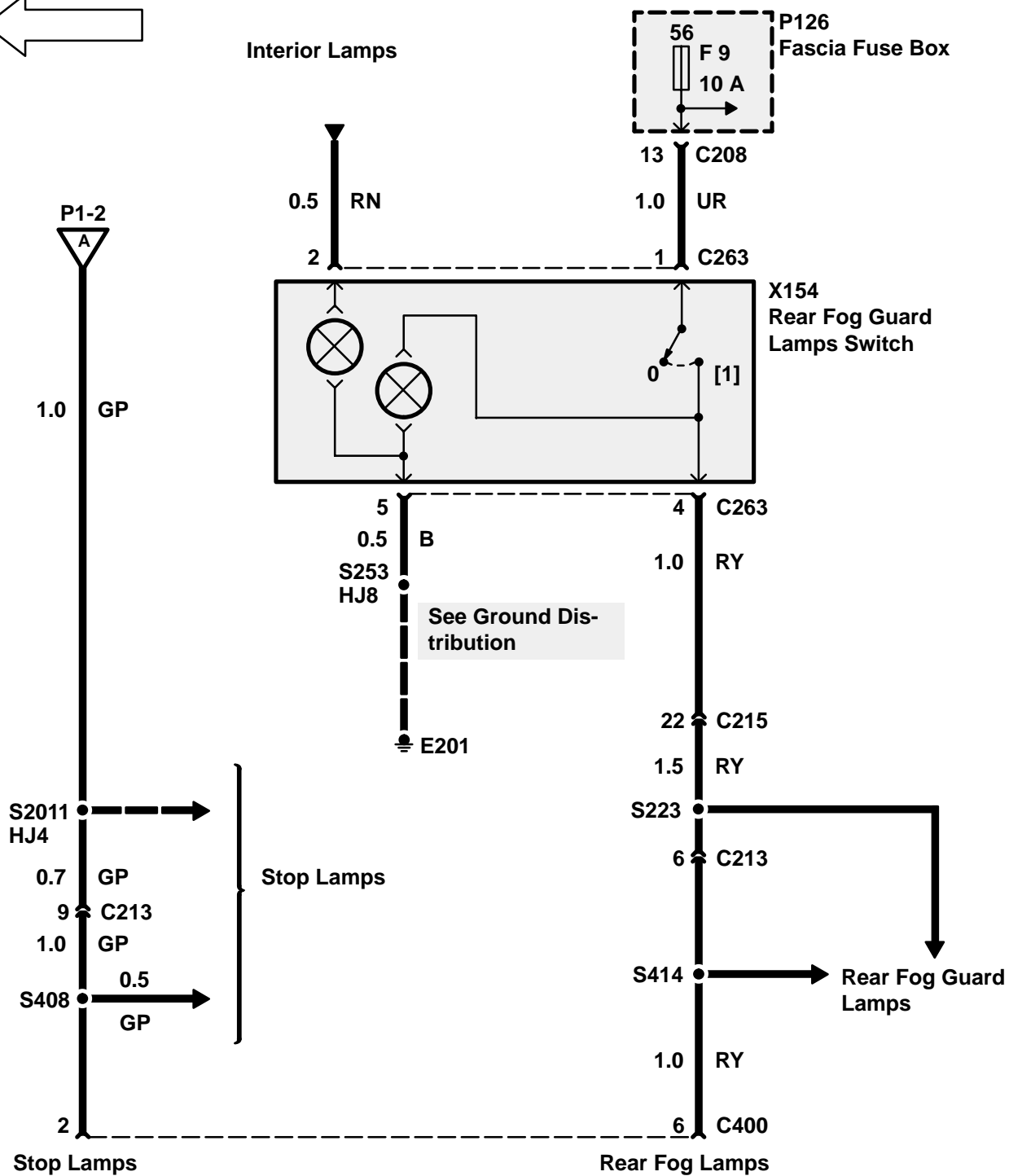
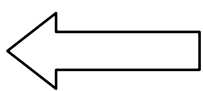
P126 Fascia Fuse Box



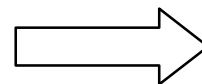
Without ABS

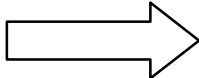
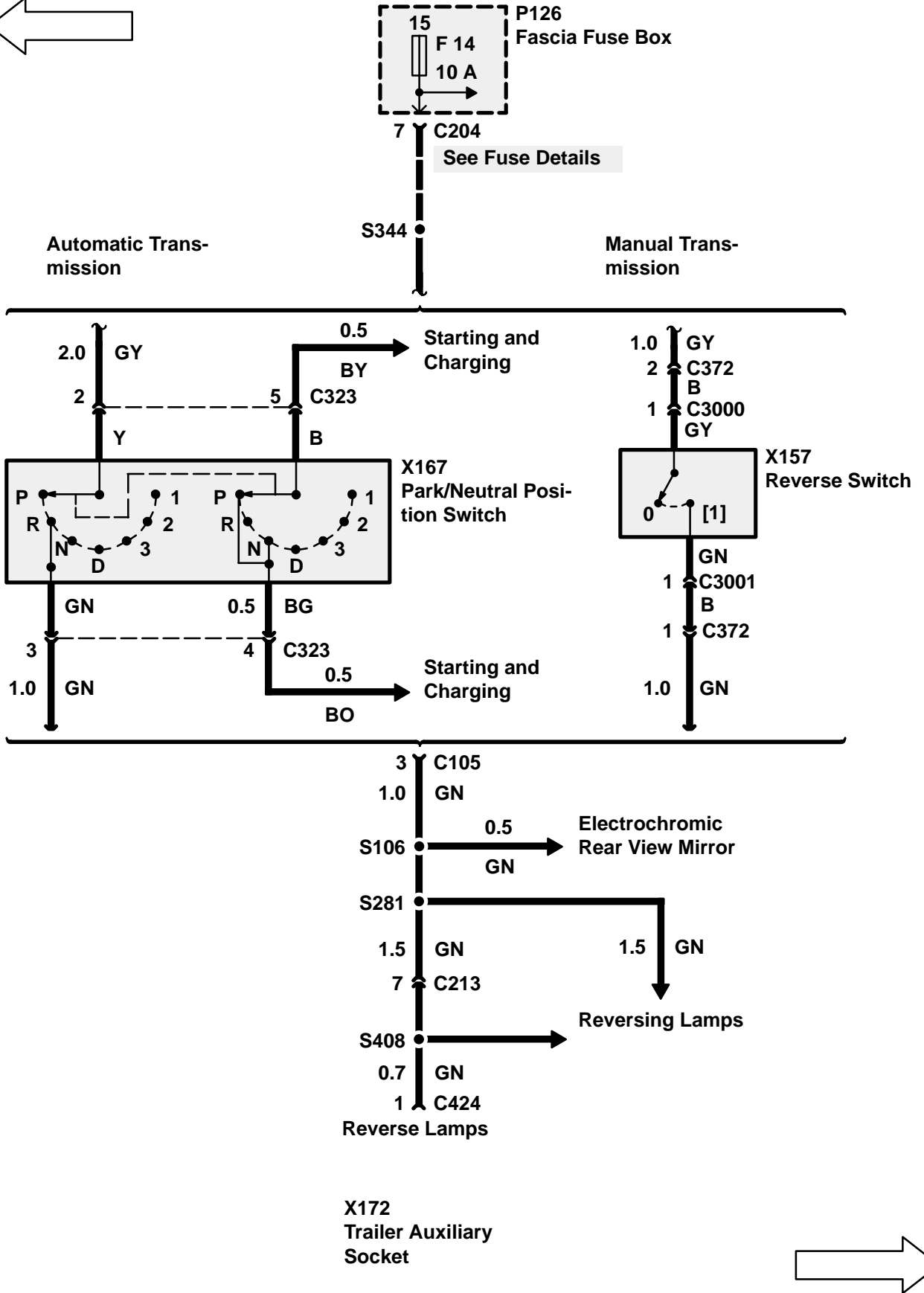
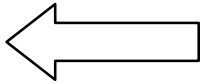
With ABS

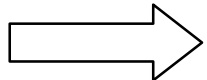
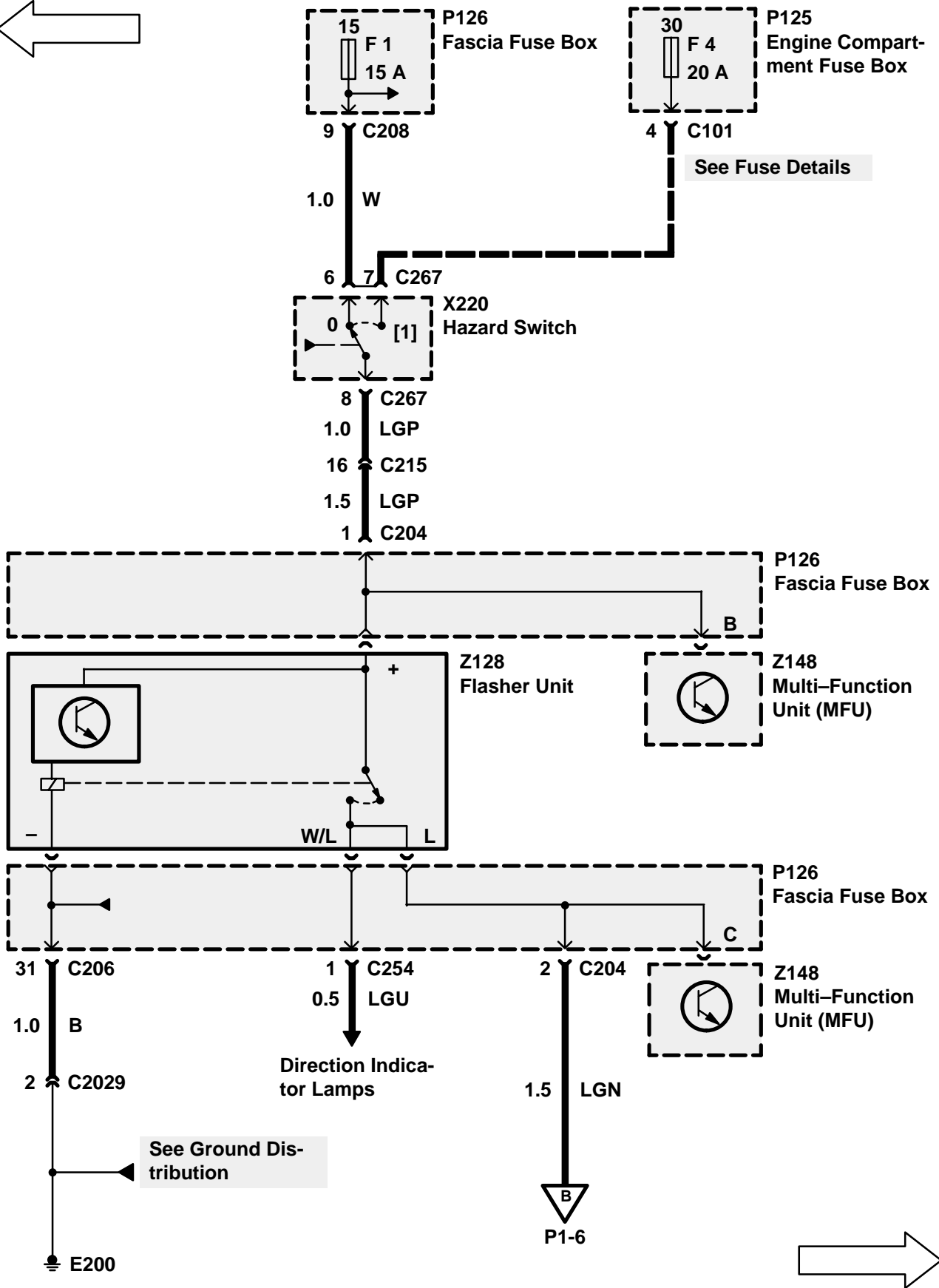
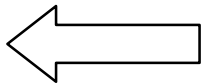




X172 Trailer Auxiliary Socket

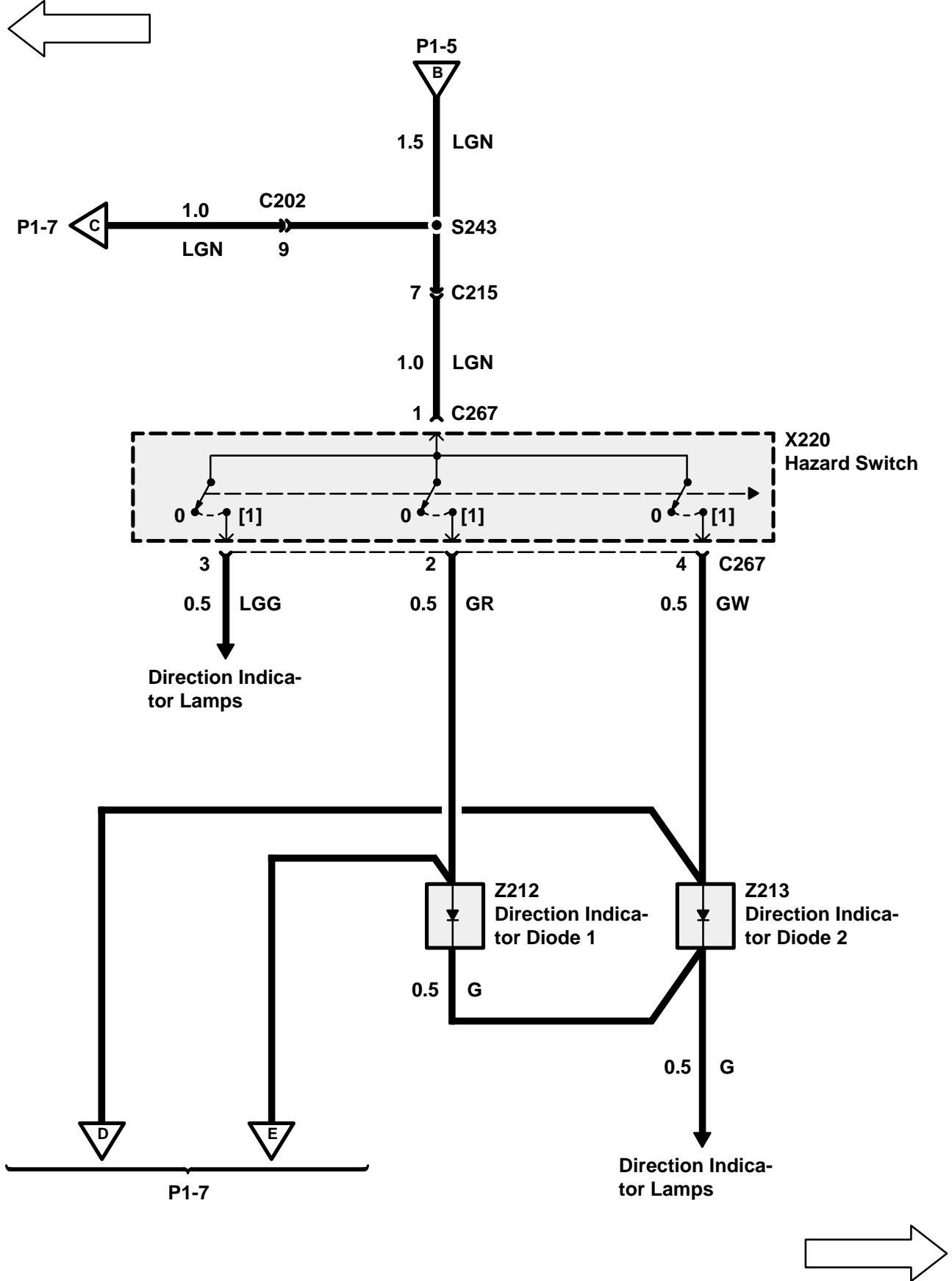


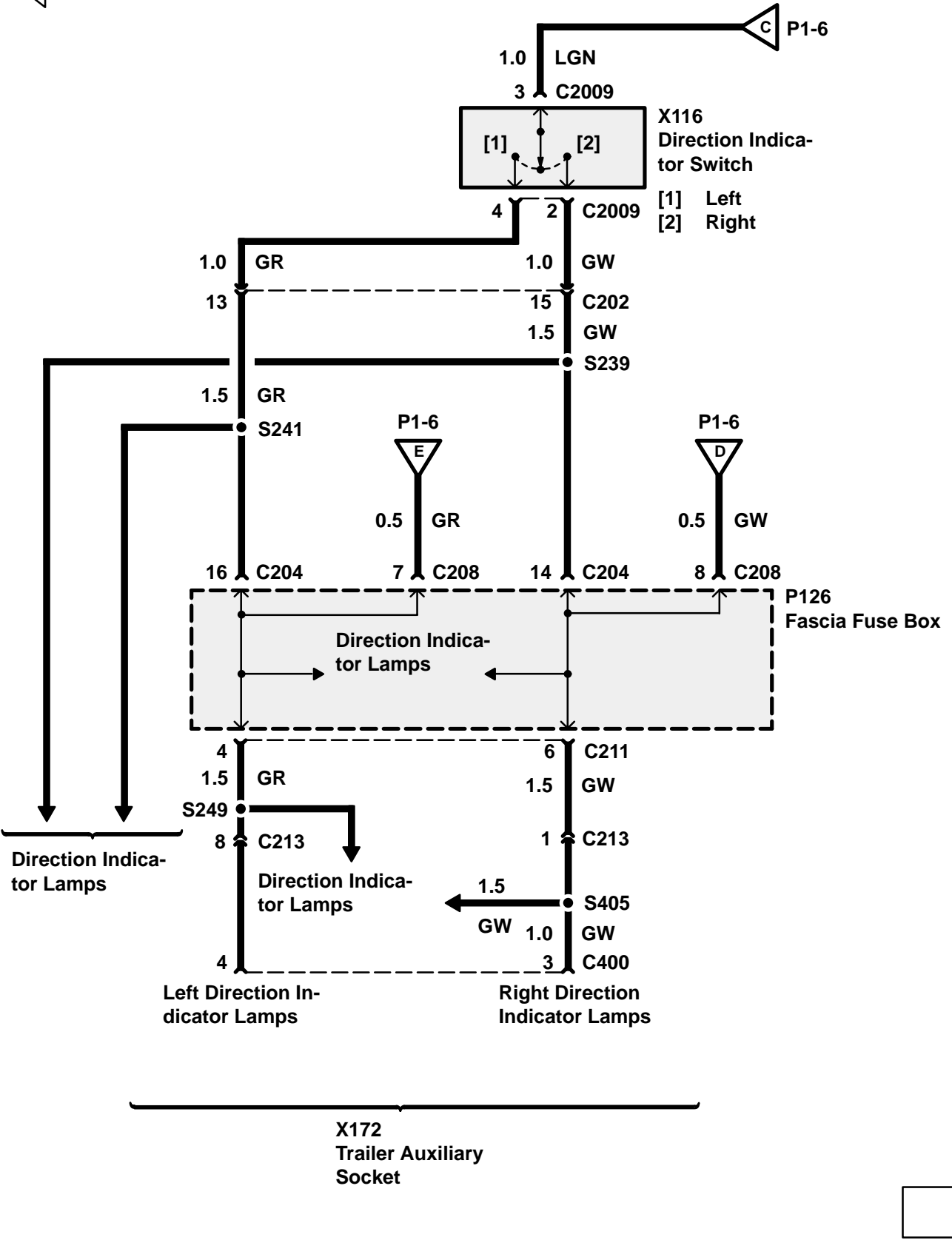
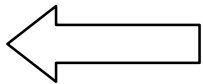


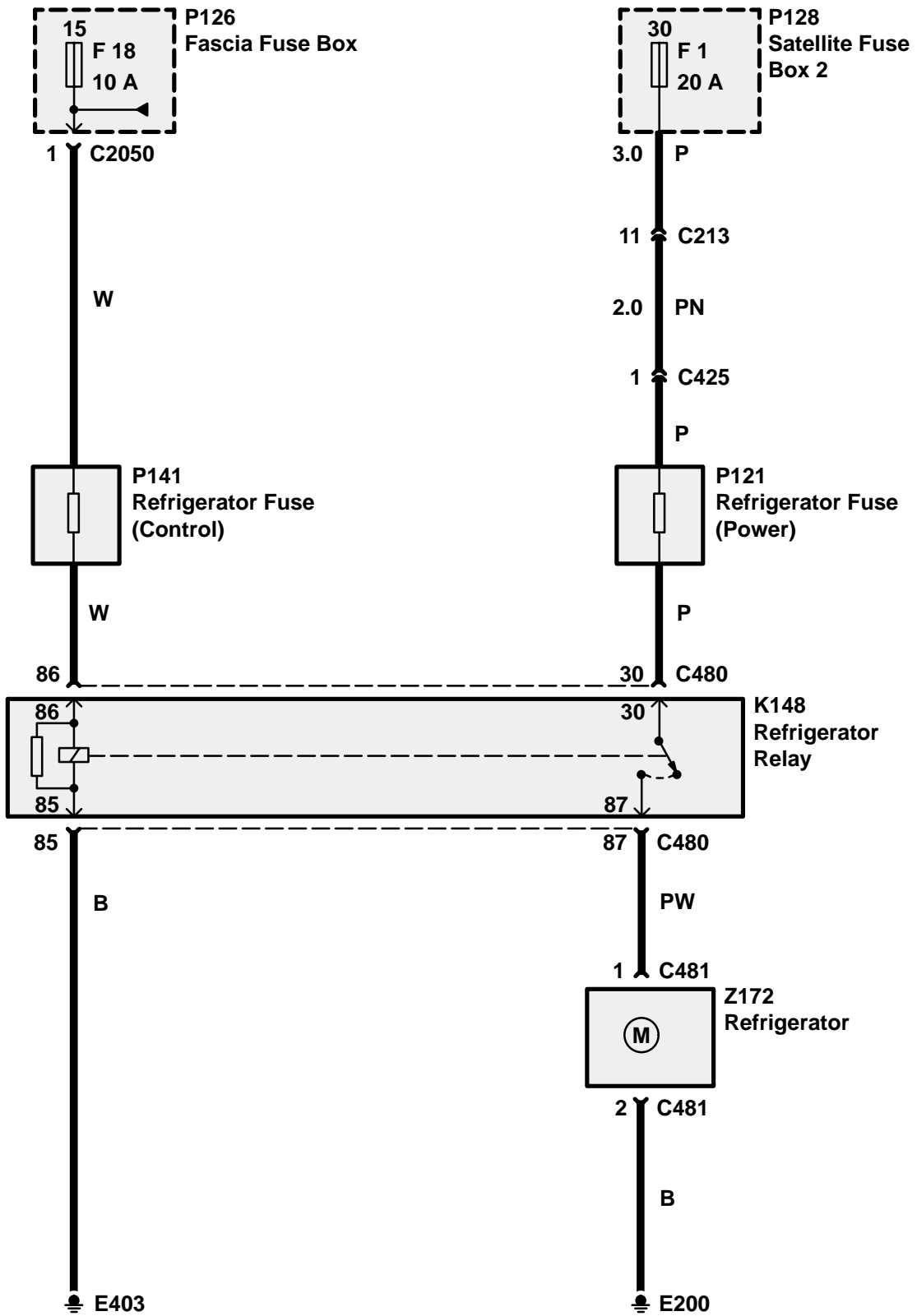


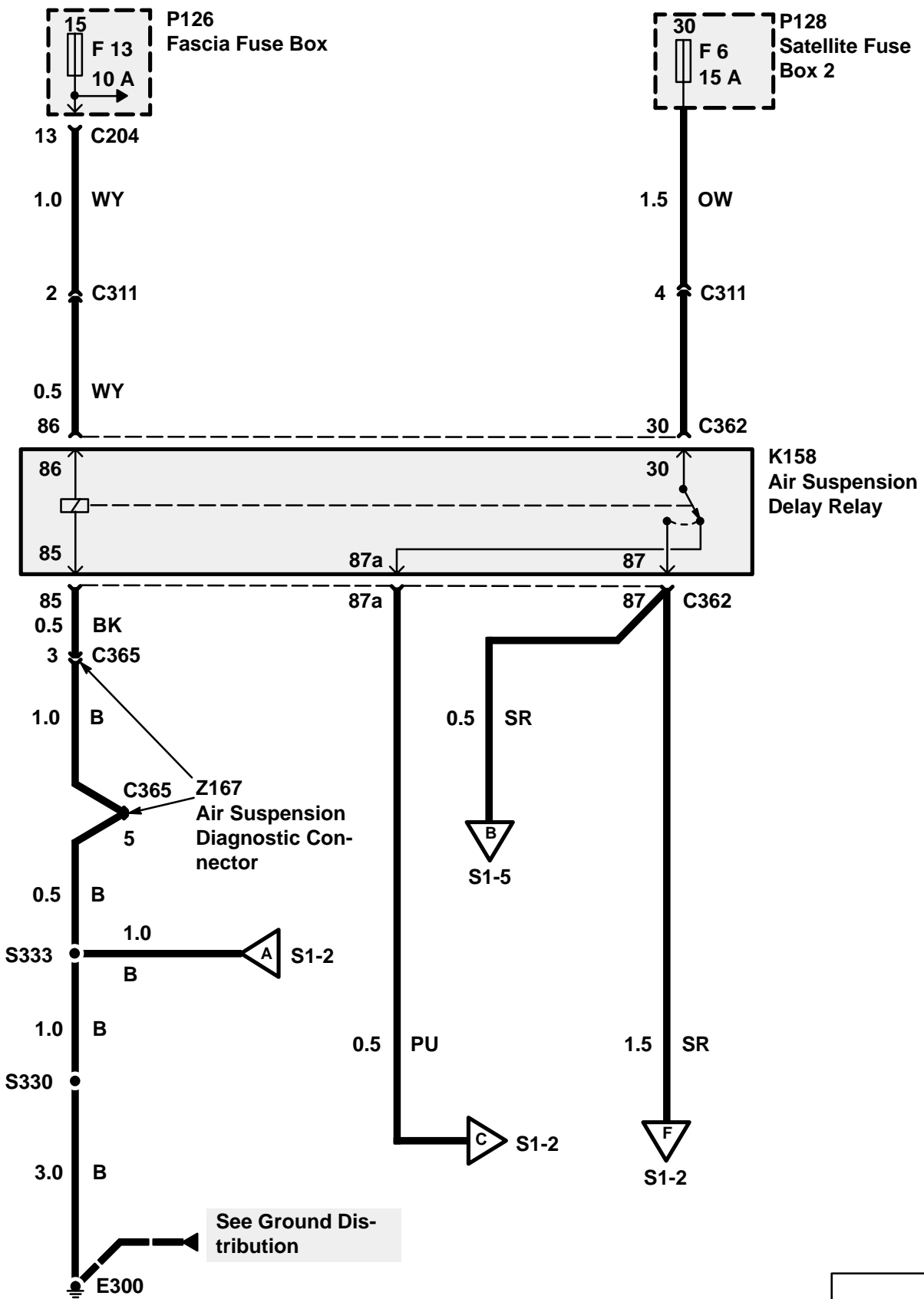
# P1 ETM

## 1995 RANGE ROVER

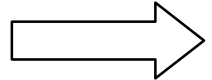
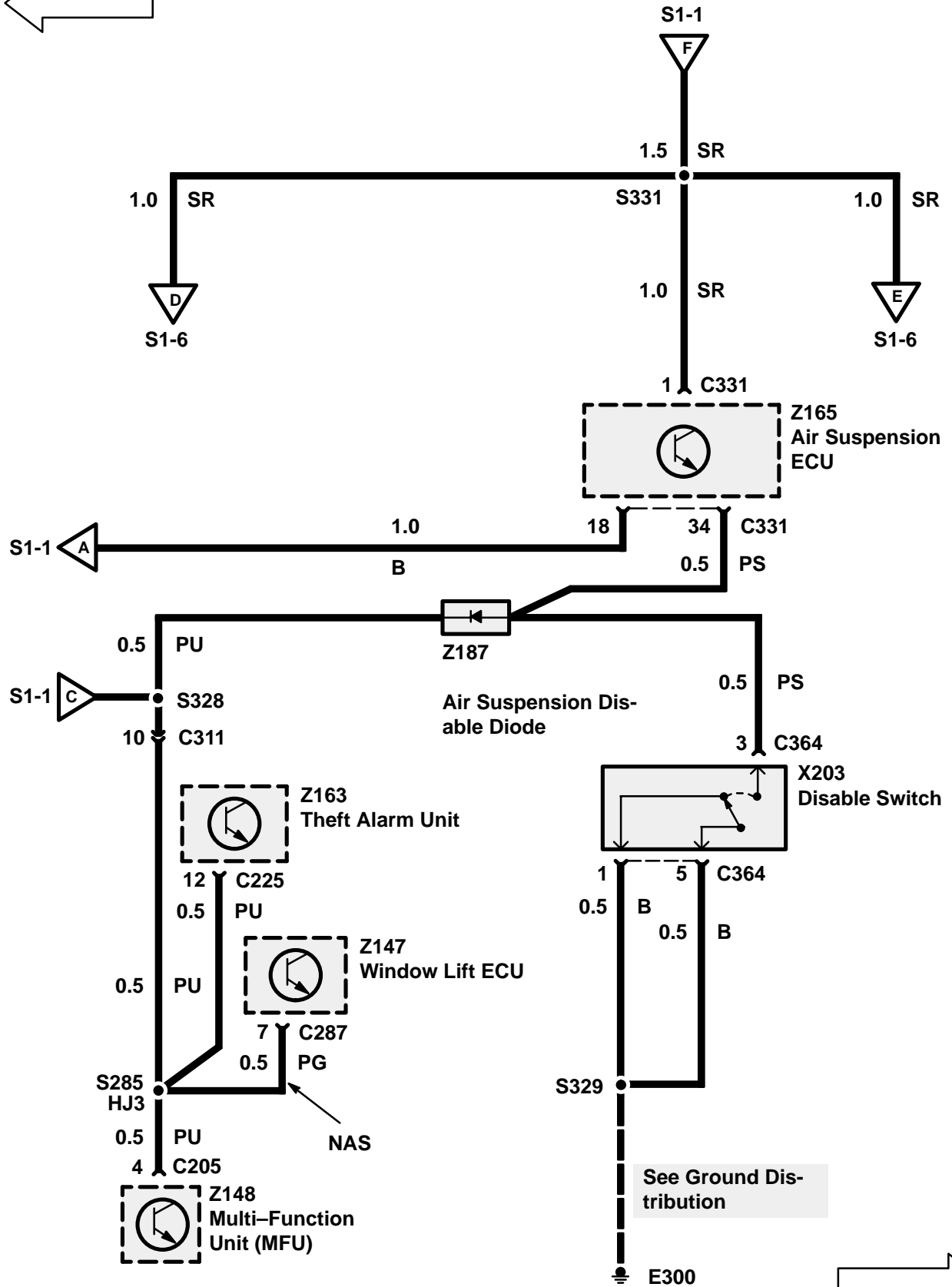
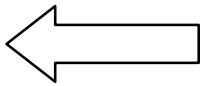


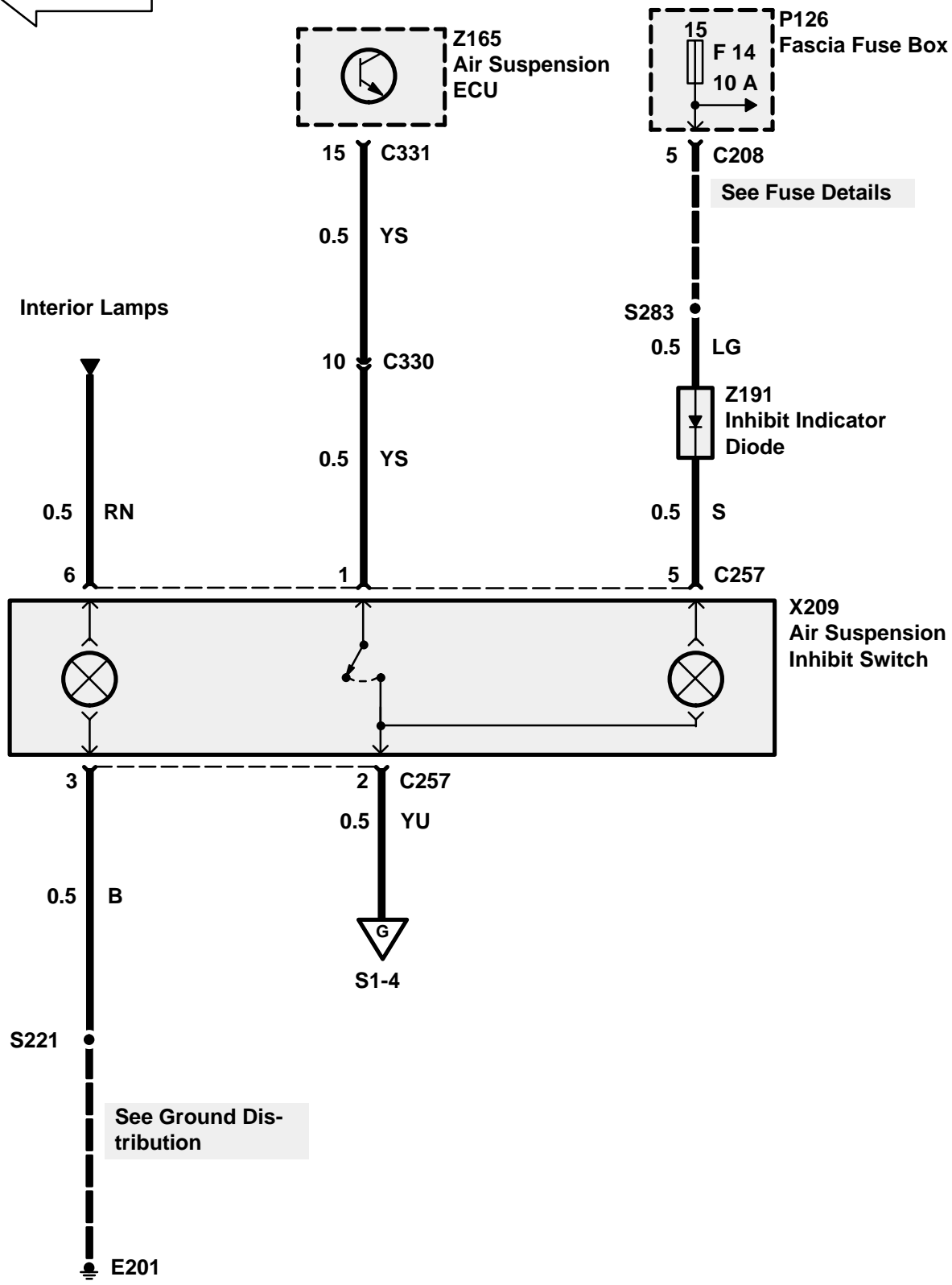
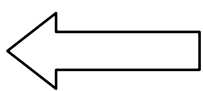






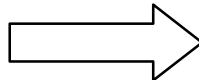


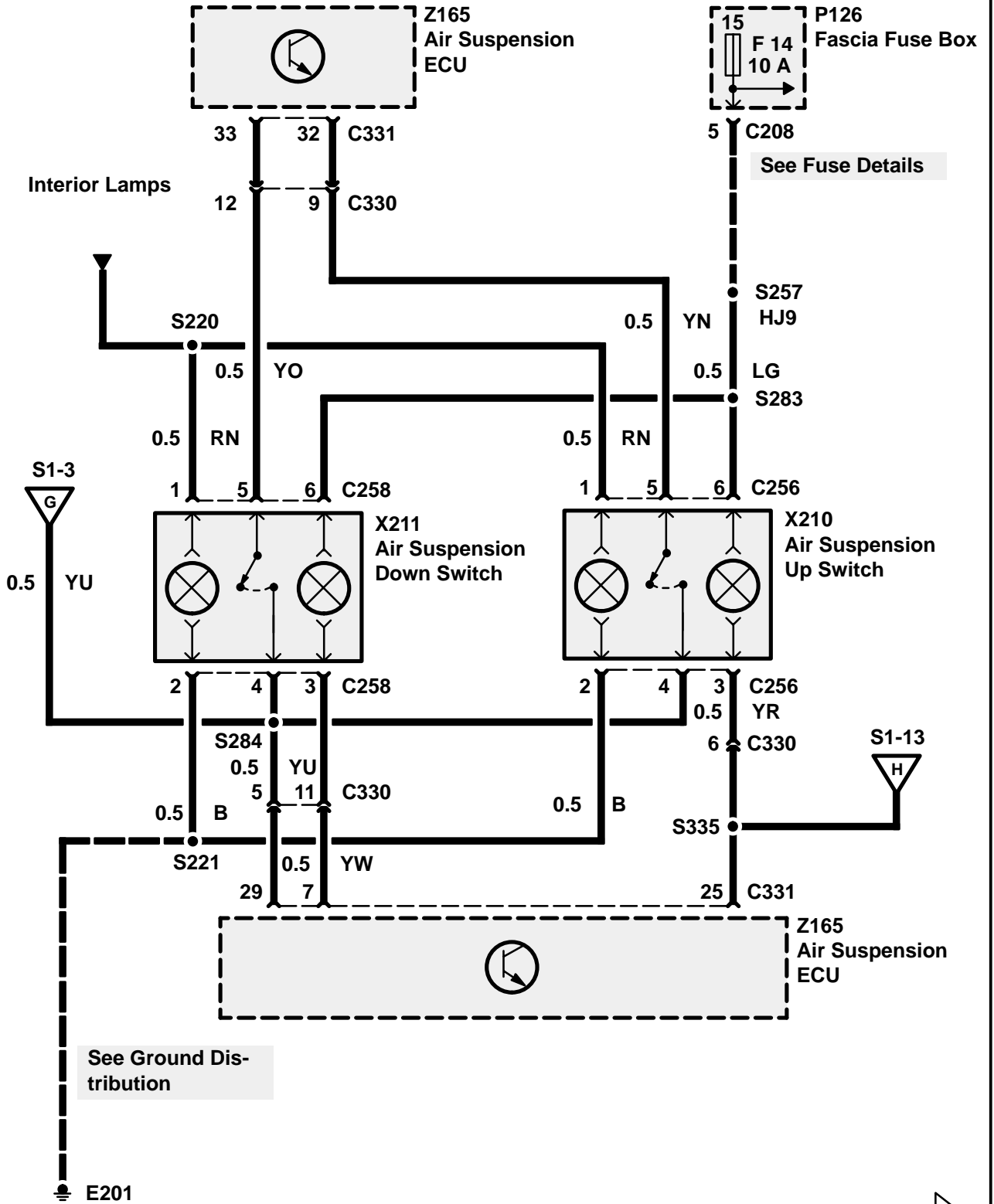
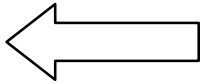




See Fuse Details

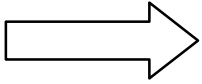
See Ground Dis-  
tribution

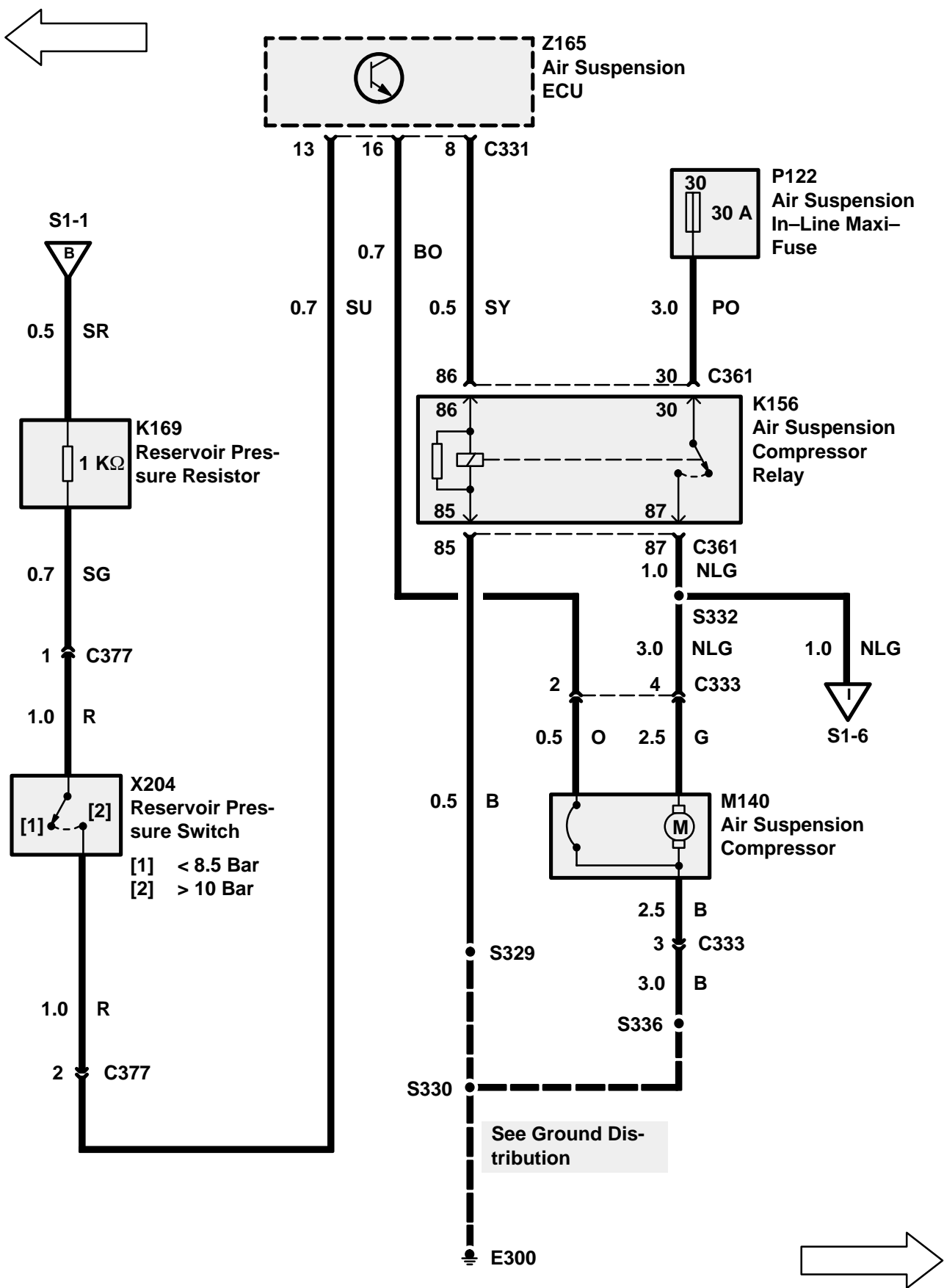


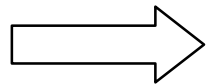
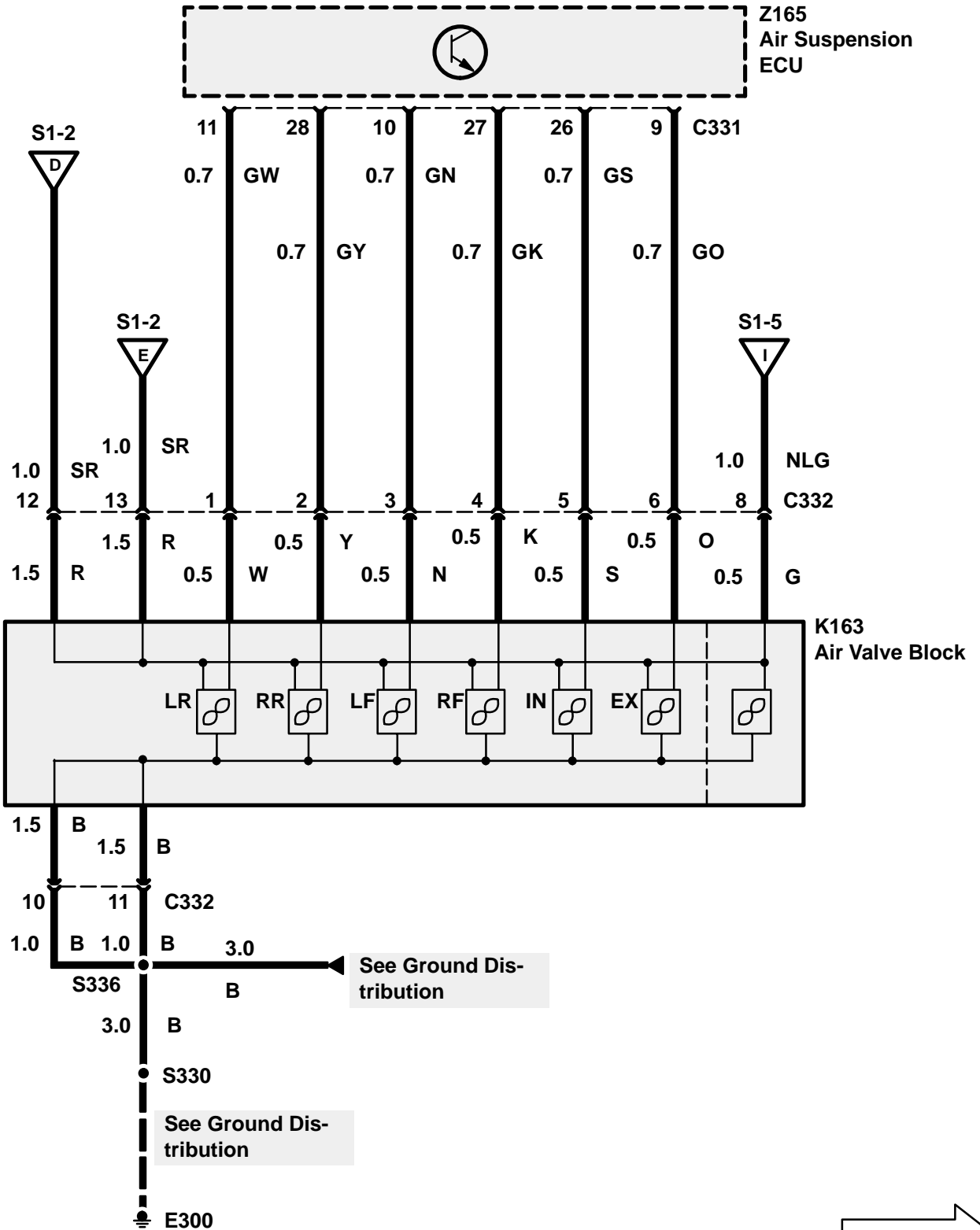
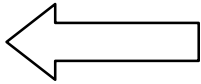


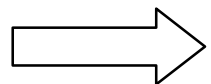
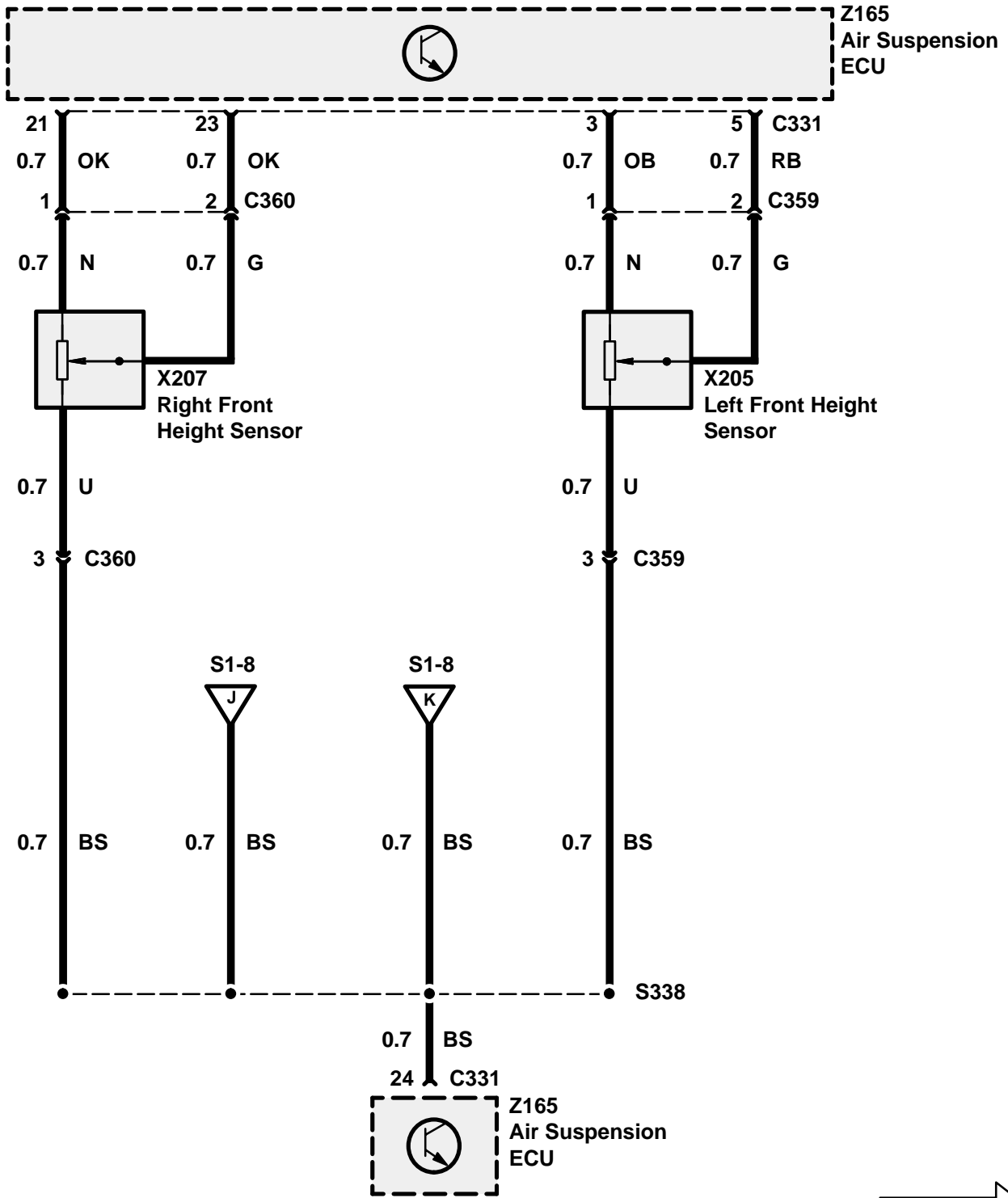
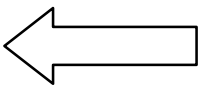
See Fuse Details

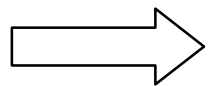
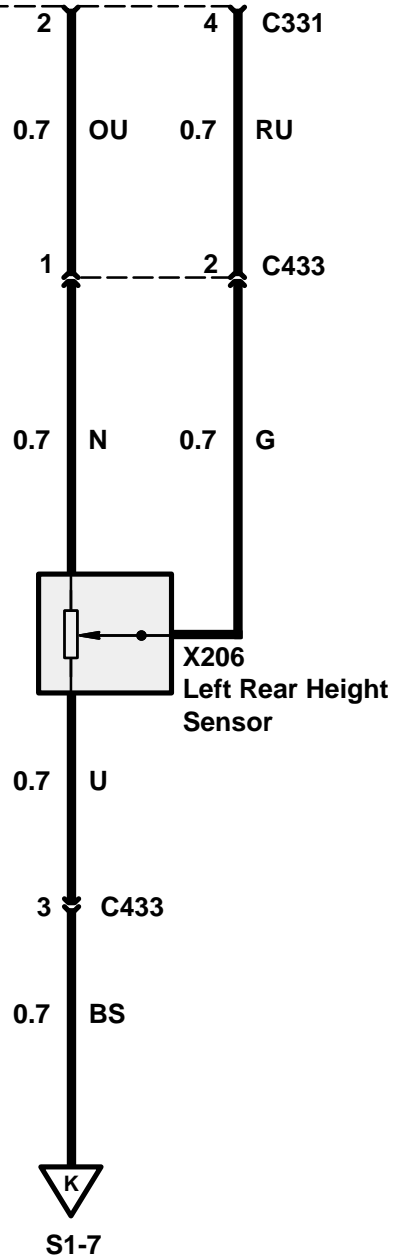
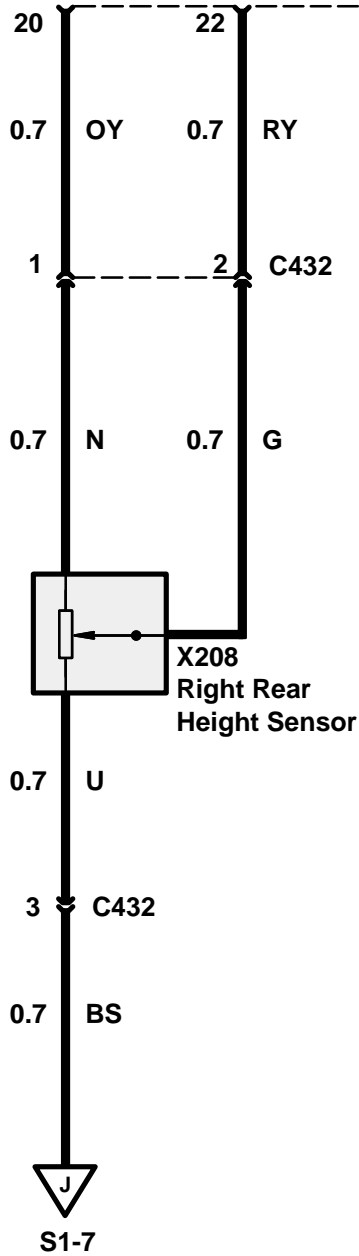
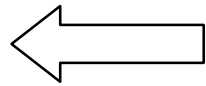
See Ground Distribution

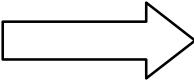
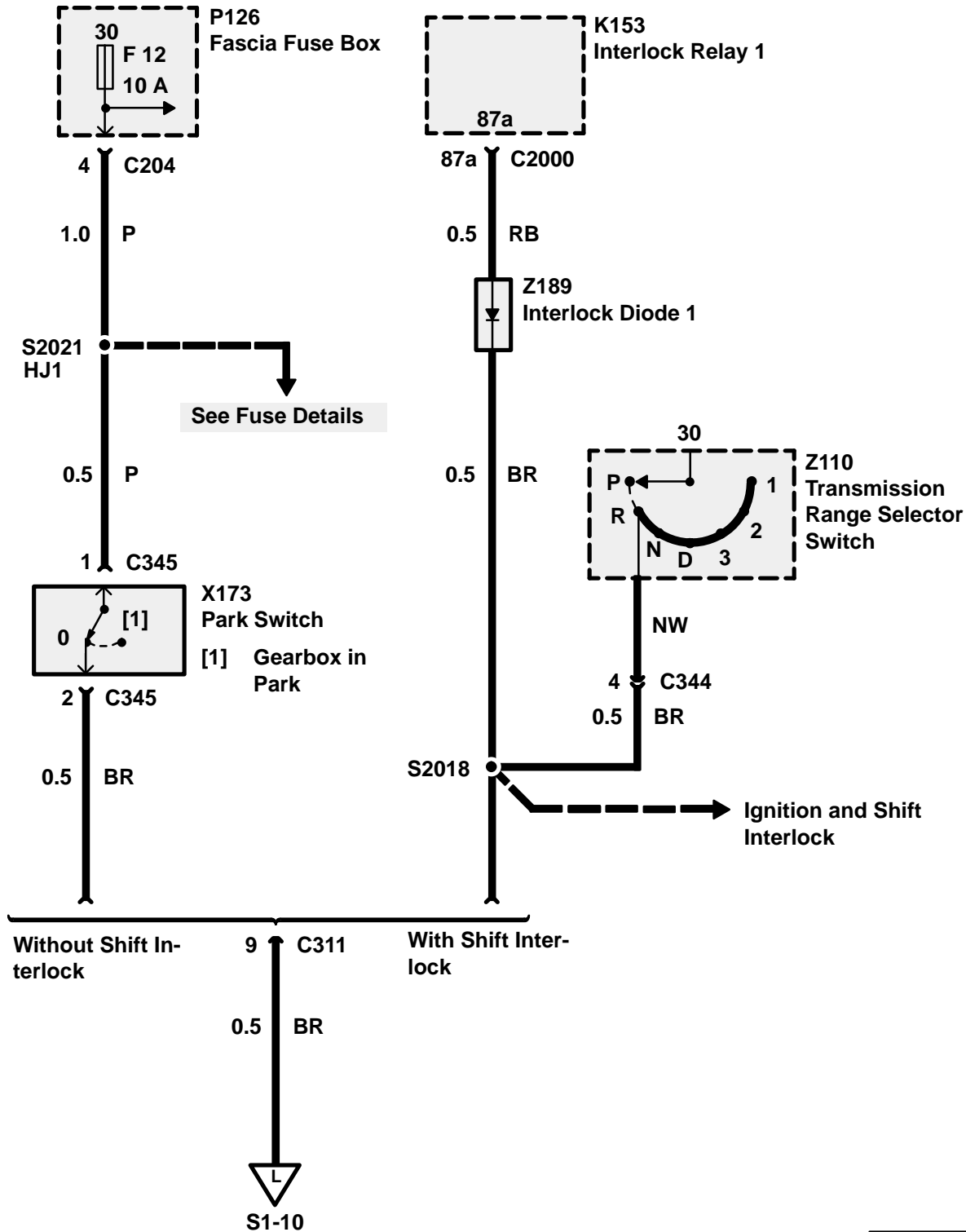
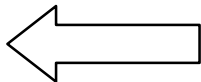




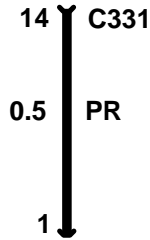
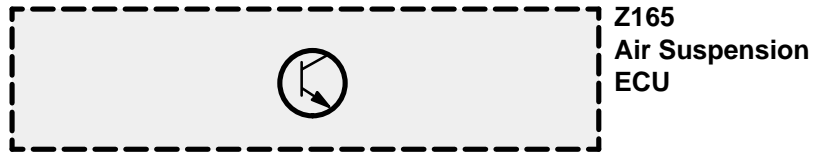
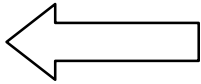






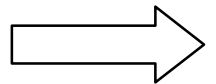
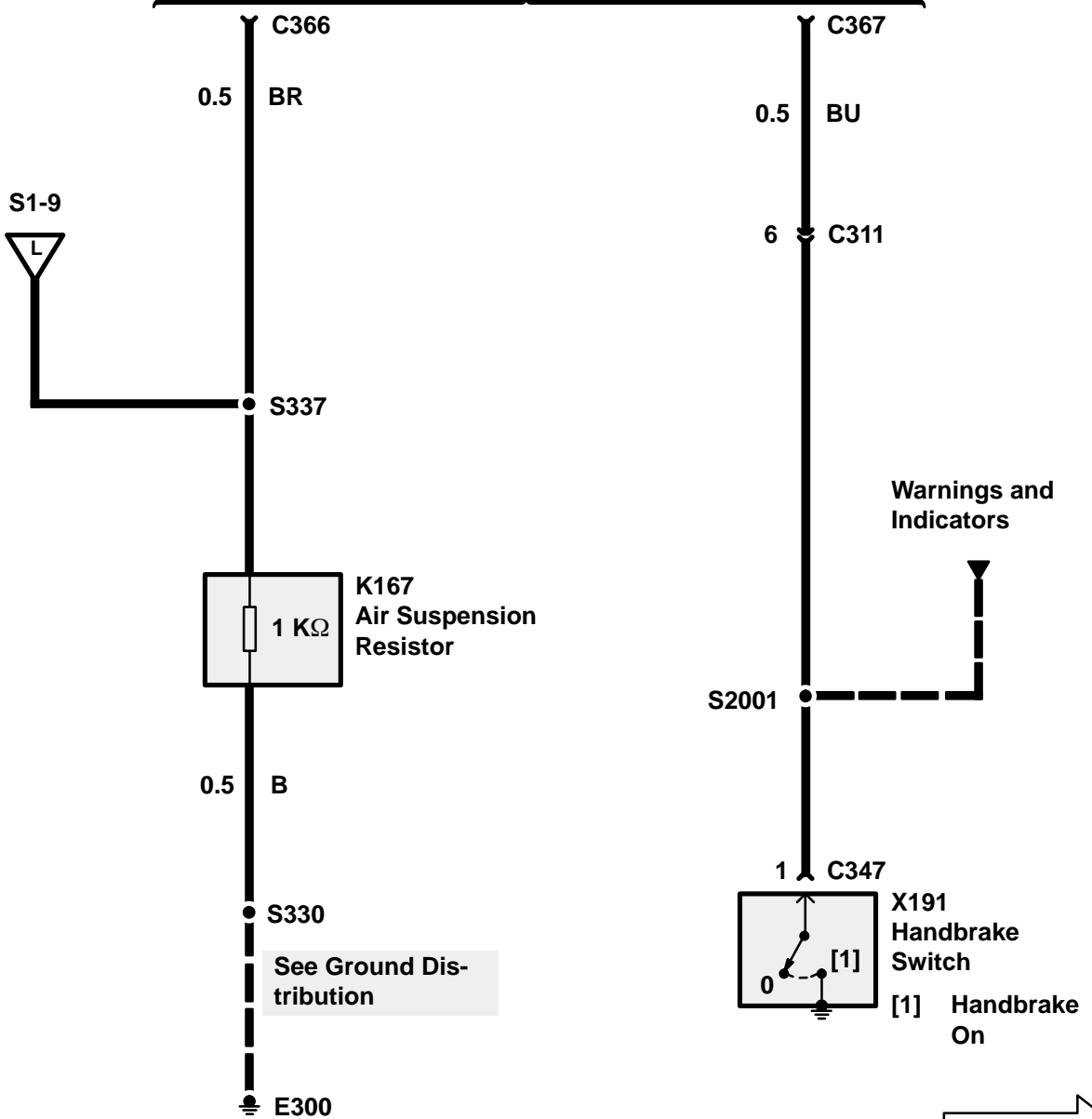


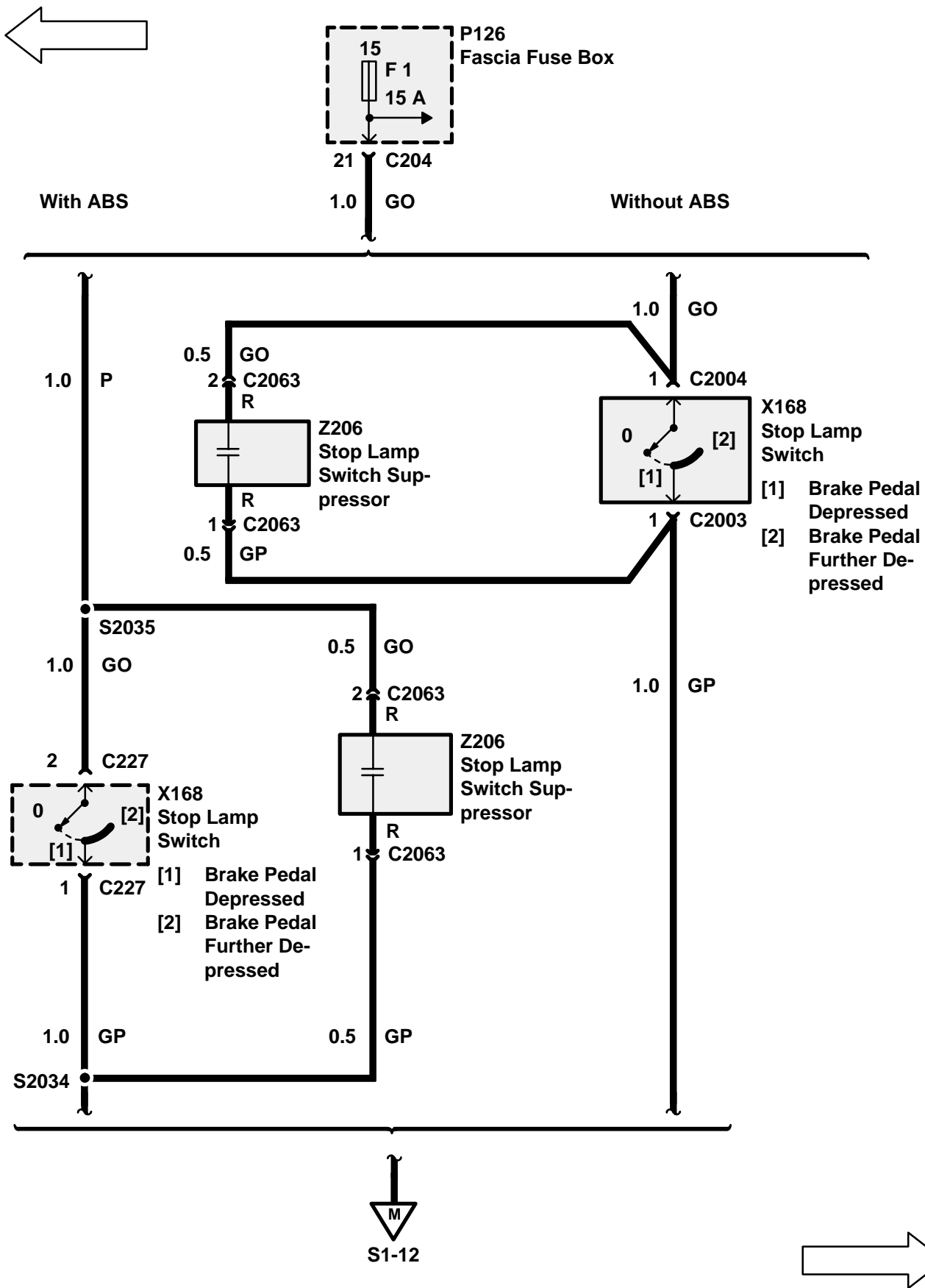


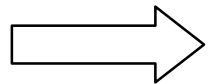
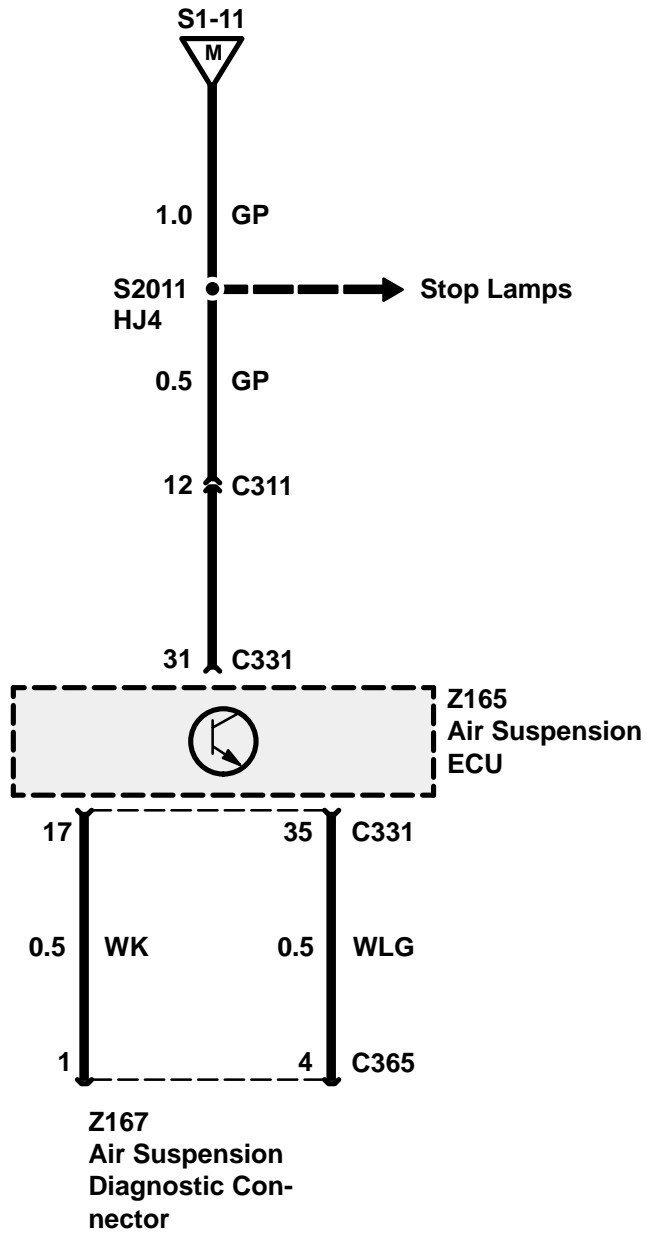
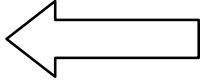


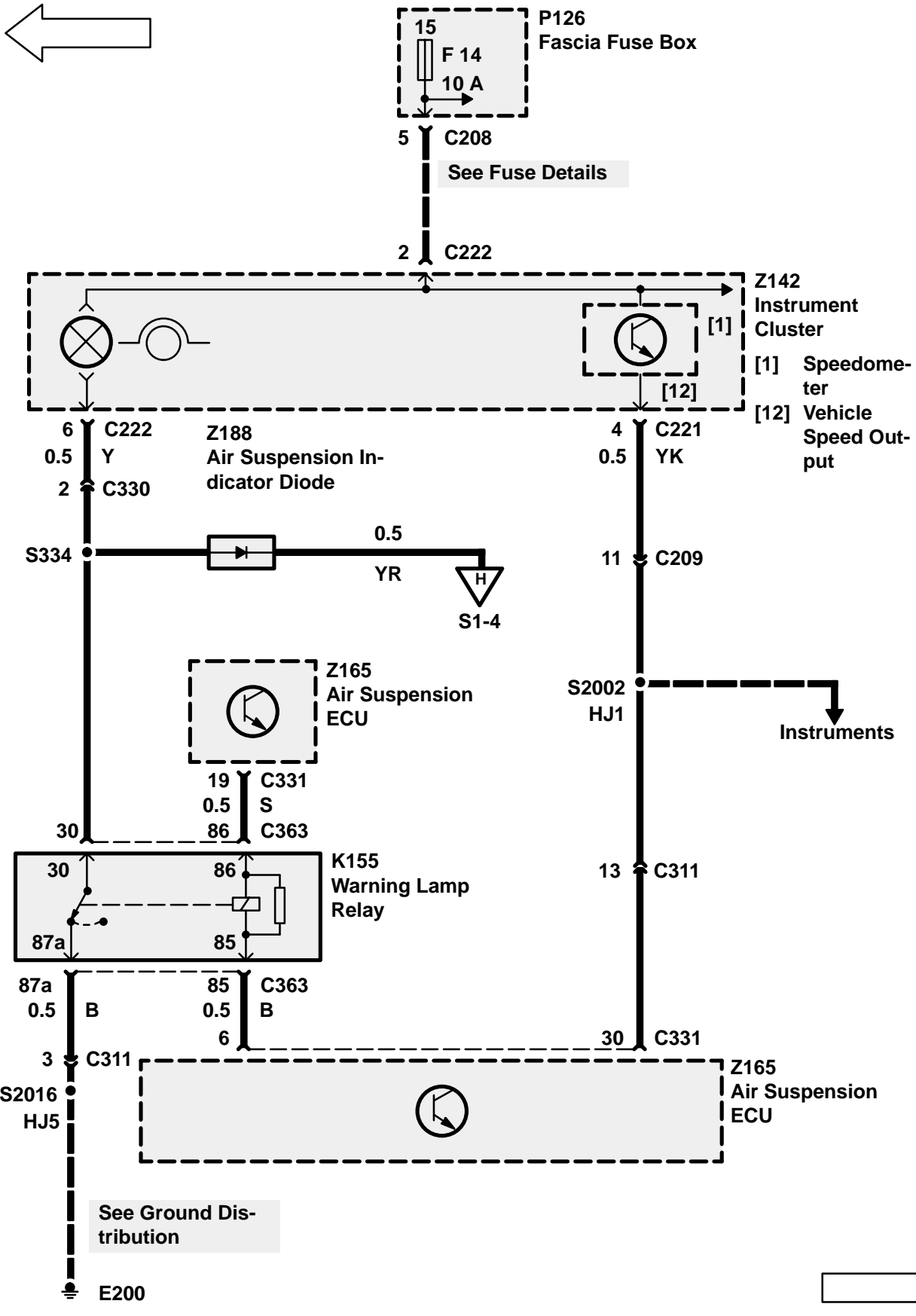
Automatic Trans-  
mission

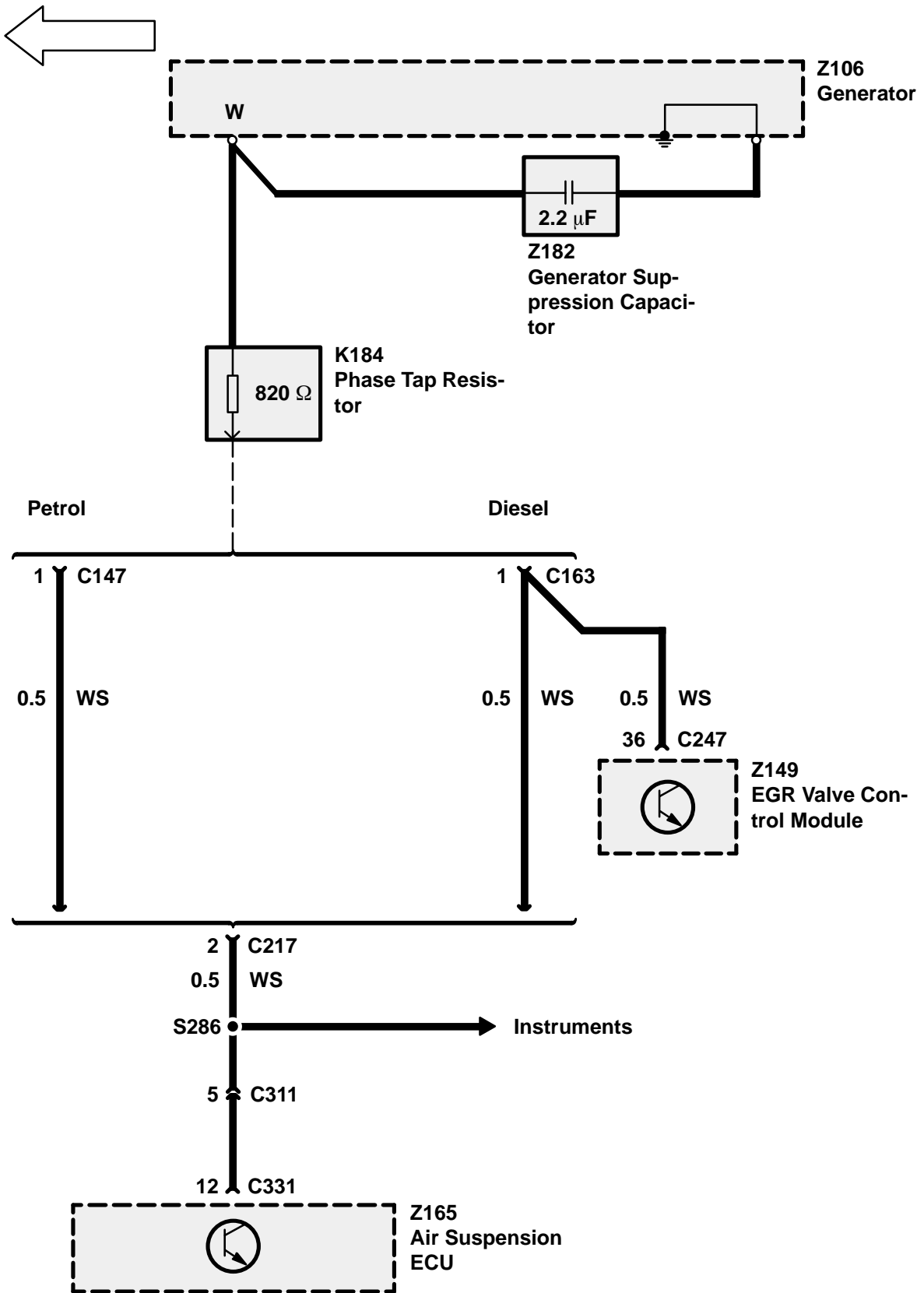
Manual Trans-  
mission











## CIRCUIT OPERATION

For 1995 models a vehicle alarm system is available as original equipment. The main function of the system is to offer easy-to-use remote locking and unlocking of the vehicle without having to actively select the alarm function.

## ALARM COMPONENTS

3. Theft Alarm Unit (Z163) and Theft Alarm Relay (K159)
4. Alarm Bonnet Switch (X212)
5. Tailgate Switch (X170)
6. Horns (K128, K134) and Horn Relay (K189)
7. Theft Alarm LED (B151)
8. Alarm Sensor (X213) (Not on all vehicles!)
9. Front Door Key Switches (X201, X202)
10. Lock Actuators (M114, M122, M117, M125, M132)
11. Handset Transmitter (two supplied)

## ANTI-THEFT SYSTEM FUNCTION

### Perimetric Protection

Using the key in the correct sequence will turn on and off perimetric protection only. When fully perimetrically armed, all doors, tailgate, and bonnet are protected against unauthorized access. If the door key is used in the normal manner the driver will be unaware of the door key sequence. The time taken to lock or unlock with the key must be less than 5 seconds. To prevent unauthorized tampering, the alarm will sound if the key is held in the unlocked position for longer than 5 seconds when armed. Cranking is disabled when perimetric protection is armed.

NOTE: When key is turned left or right, the keyswitch input will be activated, in conjunction with the sill button switch when links are operated.

### Volumetric Protection

Using the handset transmitter will turn On and Off volumetric protection. In volumetric mode the vehicle interior is protected using the Alarm Sensor (X213). Using the handset also arms and disarms the vehicle perimetrically. Cranking is disabled

when volumetric and perimetric protection is armed.

NOTE: If armed volumetrically, the vehicle CANNOT be disarmed using the key.

### Horns

When an intrusion is detected the horn will sound intermittently (Switzerland and Denmark continuous horn sound) and the hazard lights flash (where territorial regulations allow) for 30 seconds. The alarm must be retriggered before the horn will sound again.

### Vehicle Status Indication

Vehicle status is indicated by up to three devices: (a) horn, (b) hazard lights, (c) Theft Alarm LED (B151). When the vehicle arms in either mode, the hazard lights will flash three times and the LED will flash rapidly for 10 seconds. LED will then flash at a slower rate while vehicle is armed. When the vehicle disarms, hazard lights will flash once and LED will extinguish. If LED remains lit, it indicates that the alarm has been triggered. Turning on ignition or arming the alarm will extinguish LED. The LED will give a long pulse flash to indicate the Alarm Sensor (X213) being activated.

### Central Locking

Central Locking is controlled by the Theft Alarm Unit (Z163) and may be operated by the key, sill button(s) or handset. The system works on both front doors on four door vehicles or driver's door on two door vehicles.

NOTE: The central door locking system will shut down for a period after more than 15 consecutive operations.

### Inertia Switch

An inertia switch is incorporated in the Theft Alarm Unit (Z163). If ignition is on and the vehicle receives an impact sufficient to activate the inertia switch, the unit will signal to unlock central locking actuators and flash hazard lights. Central locking will remain disabled for 30 seconds. To reset, turn ignition off and then on after the 30 second period has elapsed.

### Alarm Sensor (X213)

The sensor operates by emitting an air pressure carrier wave and receiving the wave back. Any disturbance within the vehicle which disturbs the wave will be detected, triggering the alarm. When the volumetric sensor is activated it monitors movement within the vehicle for 15 seconds before detecting and responding to intrusions. If the sensor detects movement within the vehicle it delays arming until a 15 seconds quiet period has elapsed. If continuous movement is detected, the alarm will not arm volumetrically.

### Radio Frequency System

The RF system uses four frequencies according to market. If the coaxial aerial is not fitted system performance will be impaired. Both ECU and handset have a colour-coded label.

Frequency Colour Territory ECU/Handset:

418.0 MHz, Pink/pink: UK, Ireland

224.5 MHz, Yellow/yellow: France

433.92 MHz, Blue/blue: Europe (not France, Switzerland, Italy, Denmark)

433.92 MHz, White/blue: Switzerland, Denmark

315.0 MHz, Green/green: Rest of World, Italy, Australia

315.0 MHz, Orange/green: Gulf, Japan

### Partially armed mode

If a door, tailgate or bonnet is left open when the system is armed, the LED will not light for 10 seconds indicating a mislock condition. Hazard lights will not flash. If an open door or tailgate is causing the mislock, the starter motor is disabled. The alarm will sound if ignition is turned to start position. If an open bonnet is causing the mislock the starter motor is disabled. The alarm will arm the volumetric part of the system. If the door tailgate or bonnet is subsequently closed, after a 5 second delay, the doors will unlock and immediately lock, and the system will fully arm.

### Handset Transmitter

The handset LED will give one flash when button is pressed momentarily. If button is held down the LED will light again after 2 seconds for 2 seconds, and extinguish until button is released and repressed. The handset contains unique information distinguishing it from other transmitters. It also contains a set of 'random' rolling codes programmed into the ECU before leaving the factory. Each time the handset is pressed a different code is transmitted to the ECU.

If the handset is operated more than four times outside the vehicle range (6 metres) or power supply is removed, it will be necessary to re-synchronise handset and the ECU by pressing the handset three times within range and within 5 seconds.

NOTE: If both handsets are lost or damaged when system is armed, it will be necessary to fit a new ECU with two matching handsets.

### Handset Batteries

If handset LED flashes continuously when button is pressed, the batteries need replacing. The hazard lights will flash one 3 second pulse, instead of three times upon arming vehicle.

### Power Up Mode

The alarm system always remembers the state it was left in when power was removed. If the alarm powers up in an armed state and is subsequently triggered, it will give a warning that it will fully trigger unless disarmed. This warning consists of

short horn pulses every two seconds for 15 seconds.

### New Born Mode

When the ECU is first produced, it will be in its 'new born' mode. In this mode it will respond to any remote of the right frequency. This mode will be cancelled when the ECU has received ten valid handset signals without power interruption.

### Engine Cranking

It is only possible to crank the engine when ignition is ON and alarm disabled.



**BUILT IN TEST PROCEDURE**

The built in test procedure is accessed as follows:

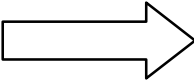
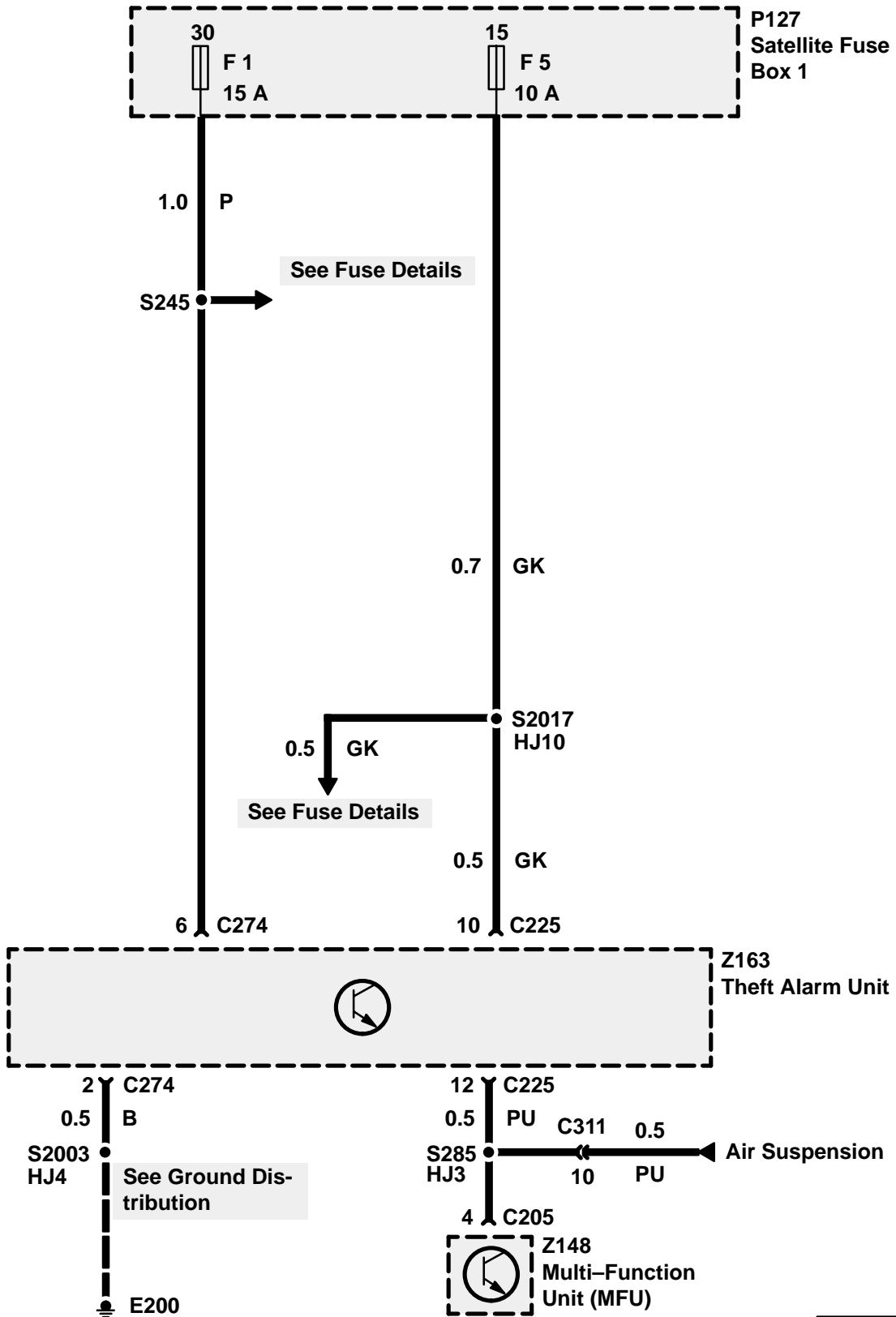
1. Starting conditions: ignition off, doors unlocked, bonnet switch depressed.
2. Carry out instructions 3 to 7 within 8 seconds.
3. Release bonnet switch.
4. Switch ignition ON.
5. Lock doors.
6. Switch ignition OFF.
7. Switch ignition ON.

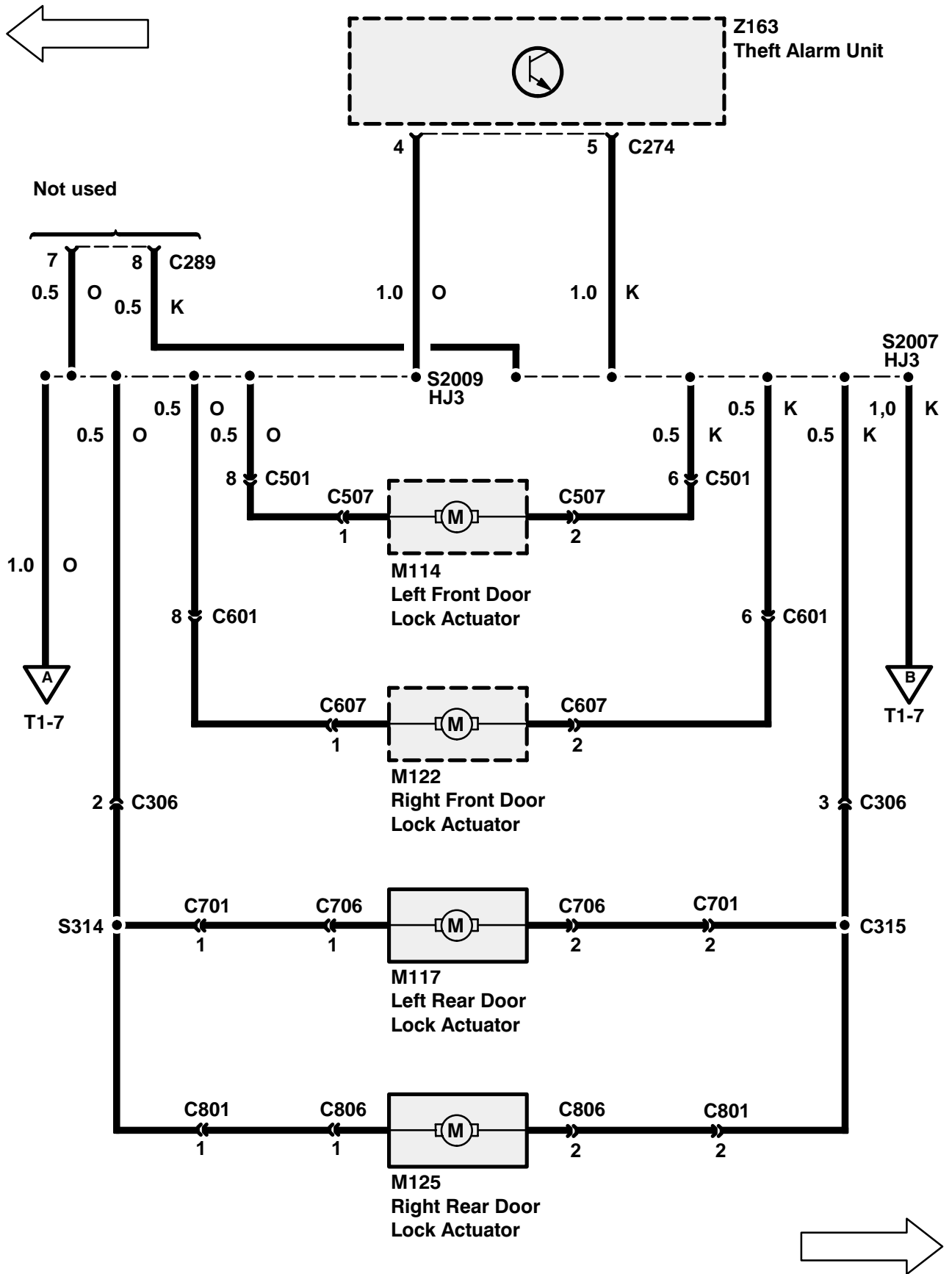
If alarm is correctly accessed, horn will sound and LED will flash. The following checks can be made:

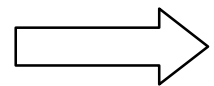
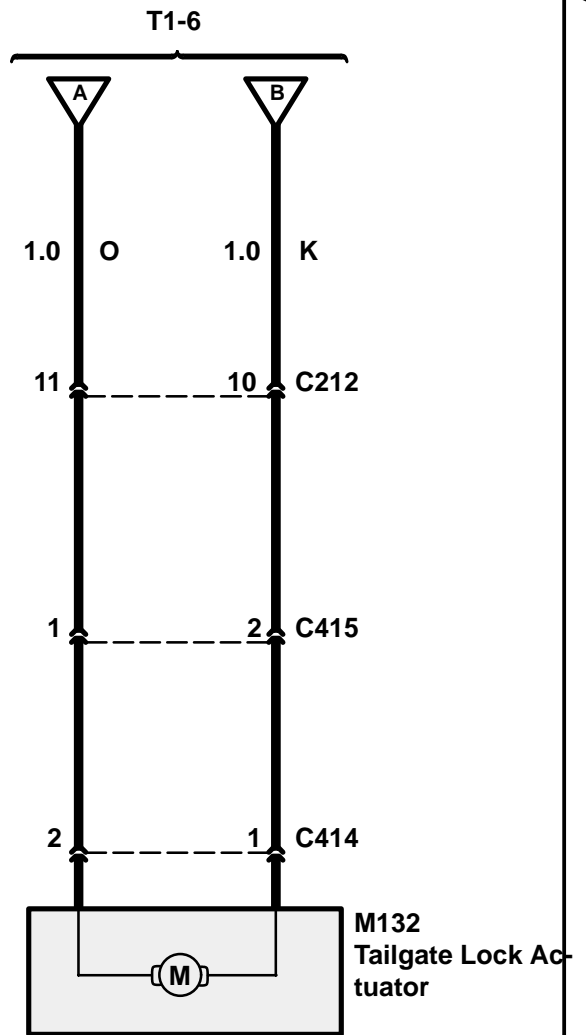
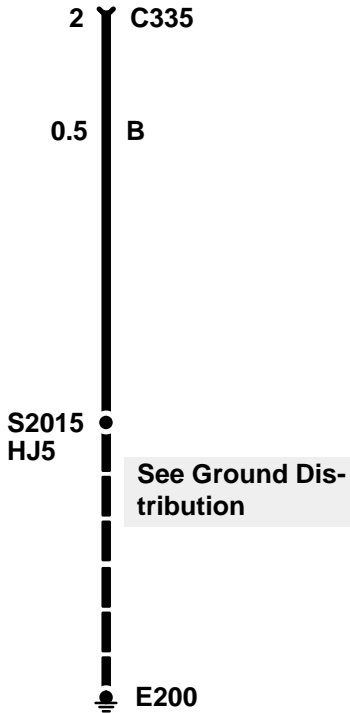
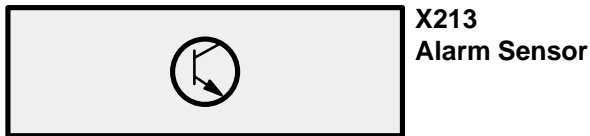
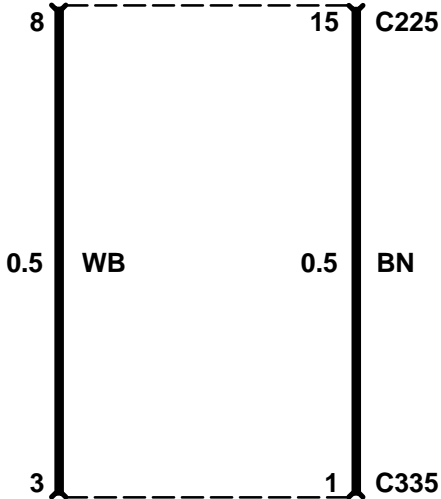
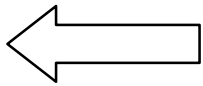
8. Open and close any door or tailgate – LED will light.
9. Depress bonnet switch – hazards will flash.
10. Check engine cranking is disabled. Do not turn off ignition.
11. Check ultrasonic by operating handset, LED will emit one 5 second flash, and will flash if interior is disturbed.

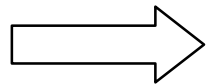
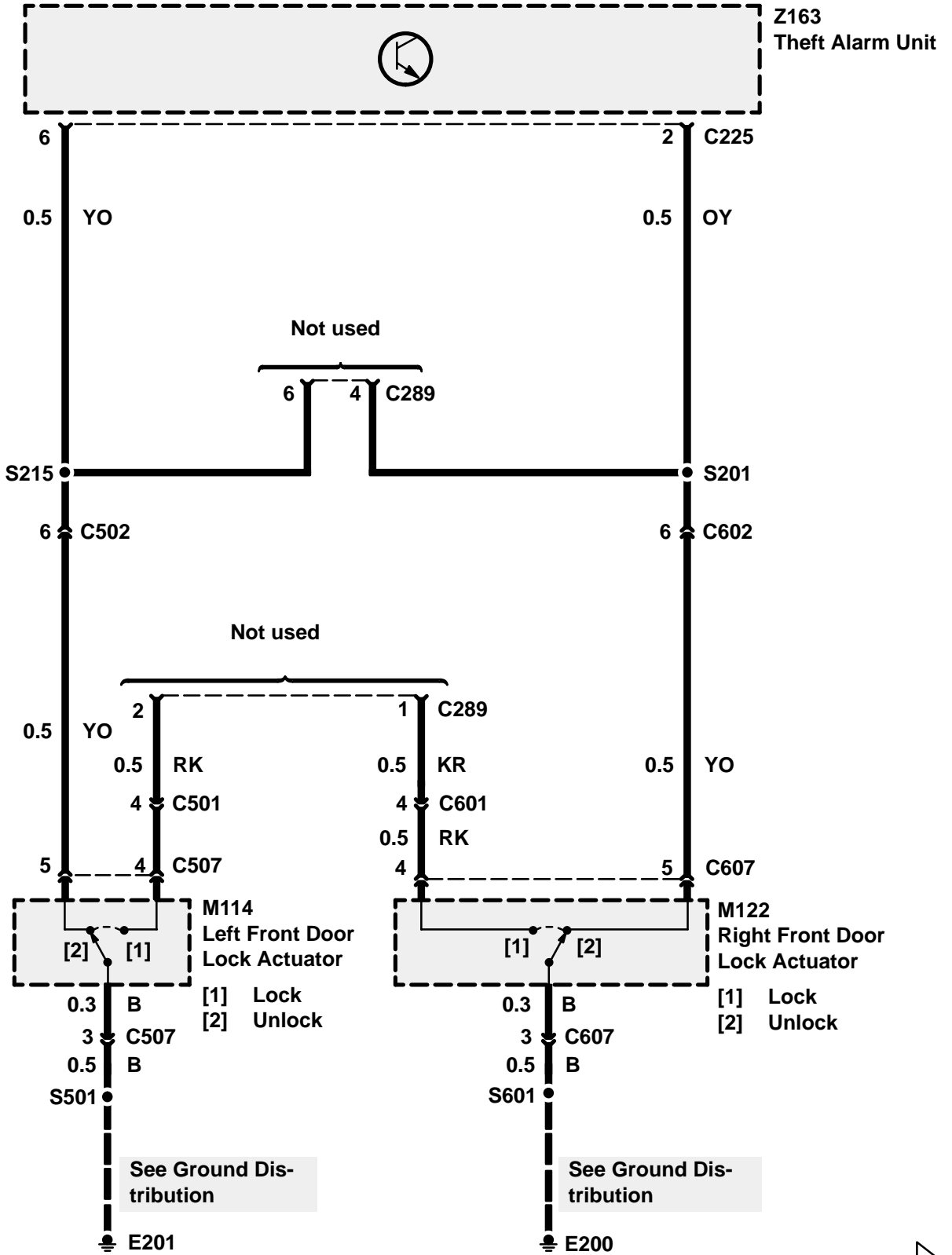
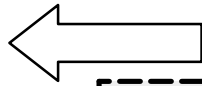
NOTE: If ECU is in new born mode, any handset of the right frequency will work. If not, initialised handset is required. See Handset Initialisation.

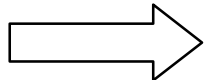
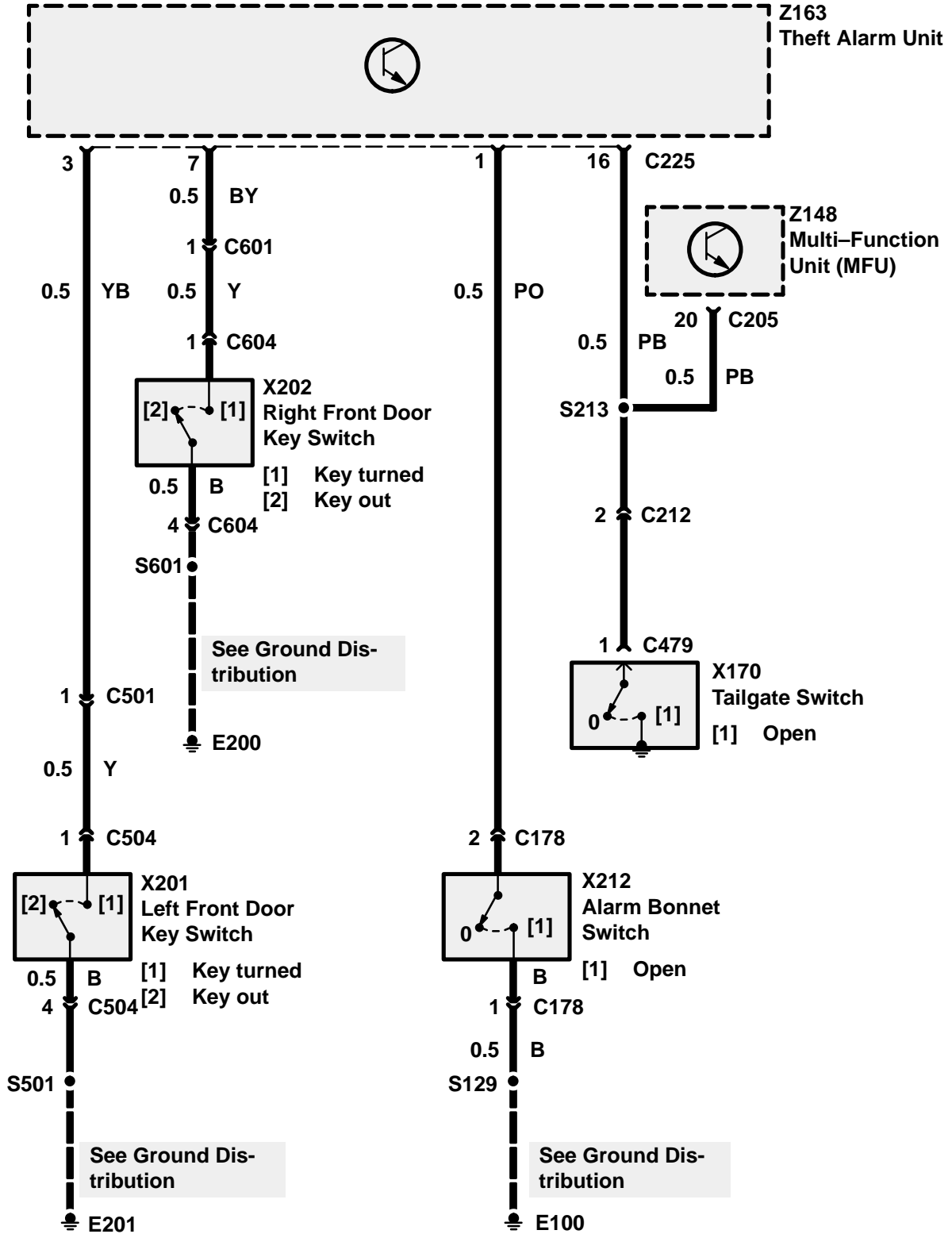
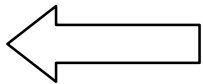
12. Turn OFF ignition or press handset to end test procedure. Horn will sound as before to indicate end of test mode.

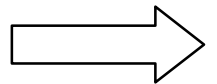
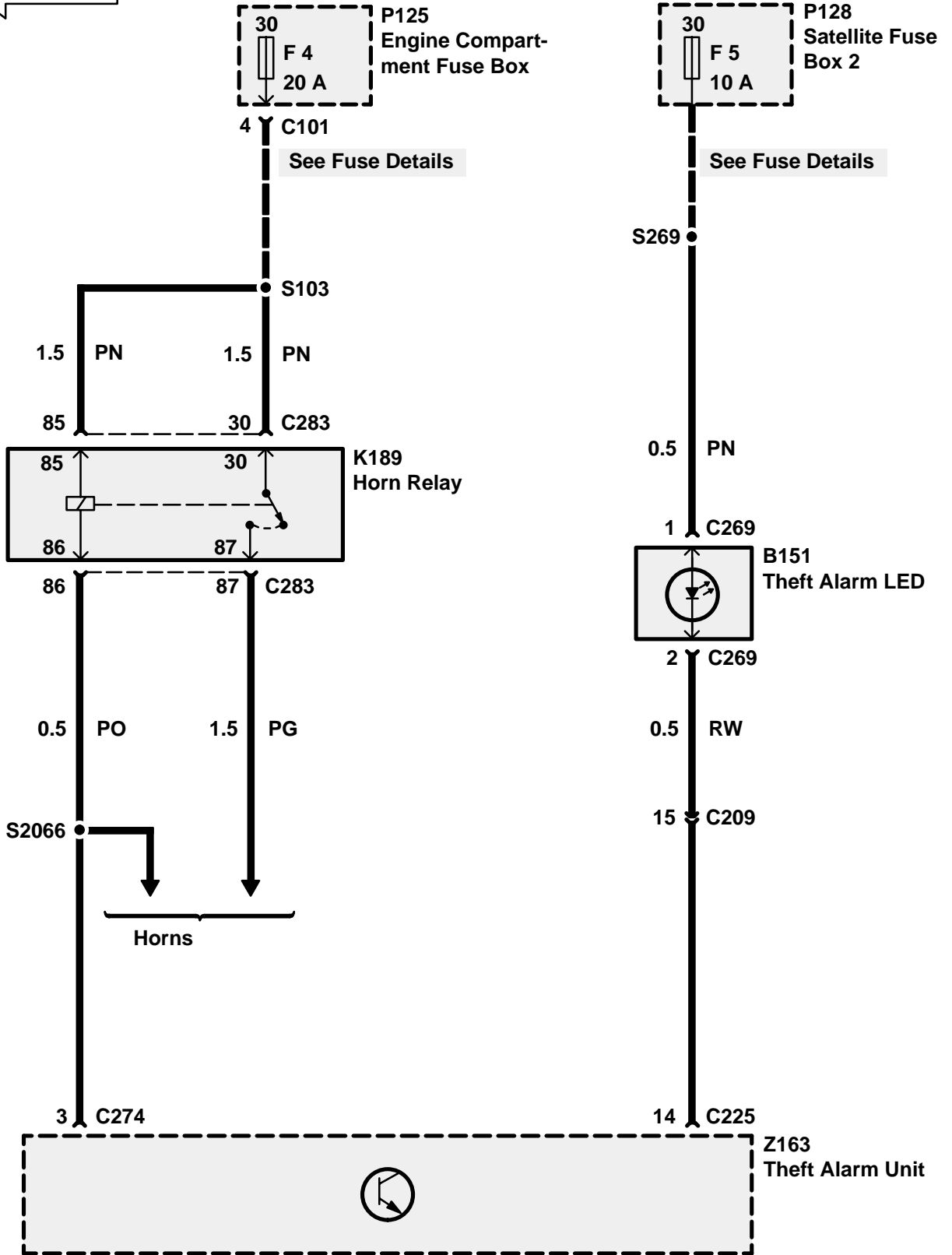
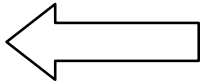










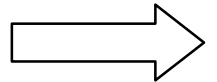
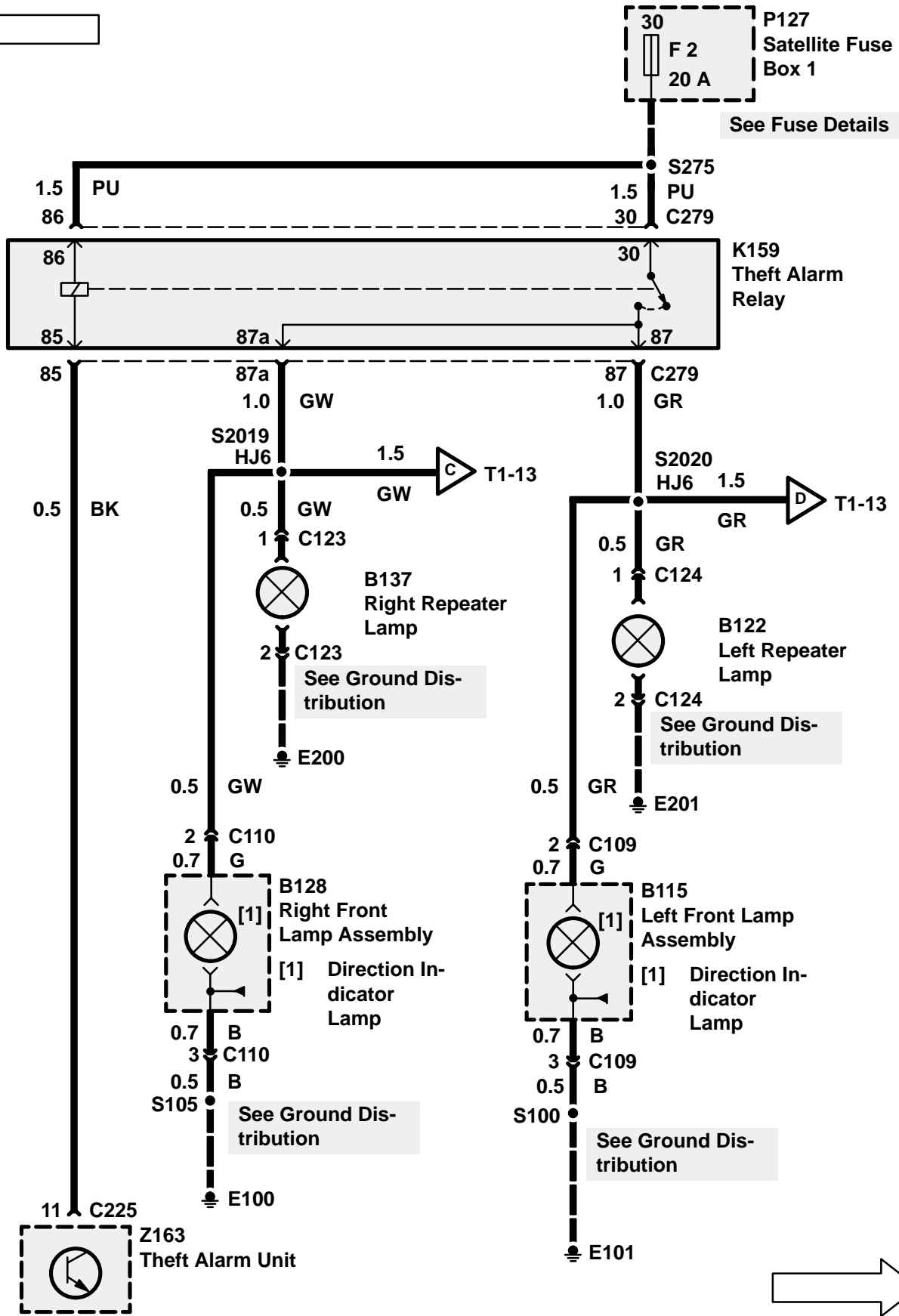
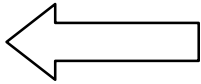


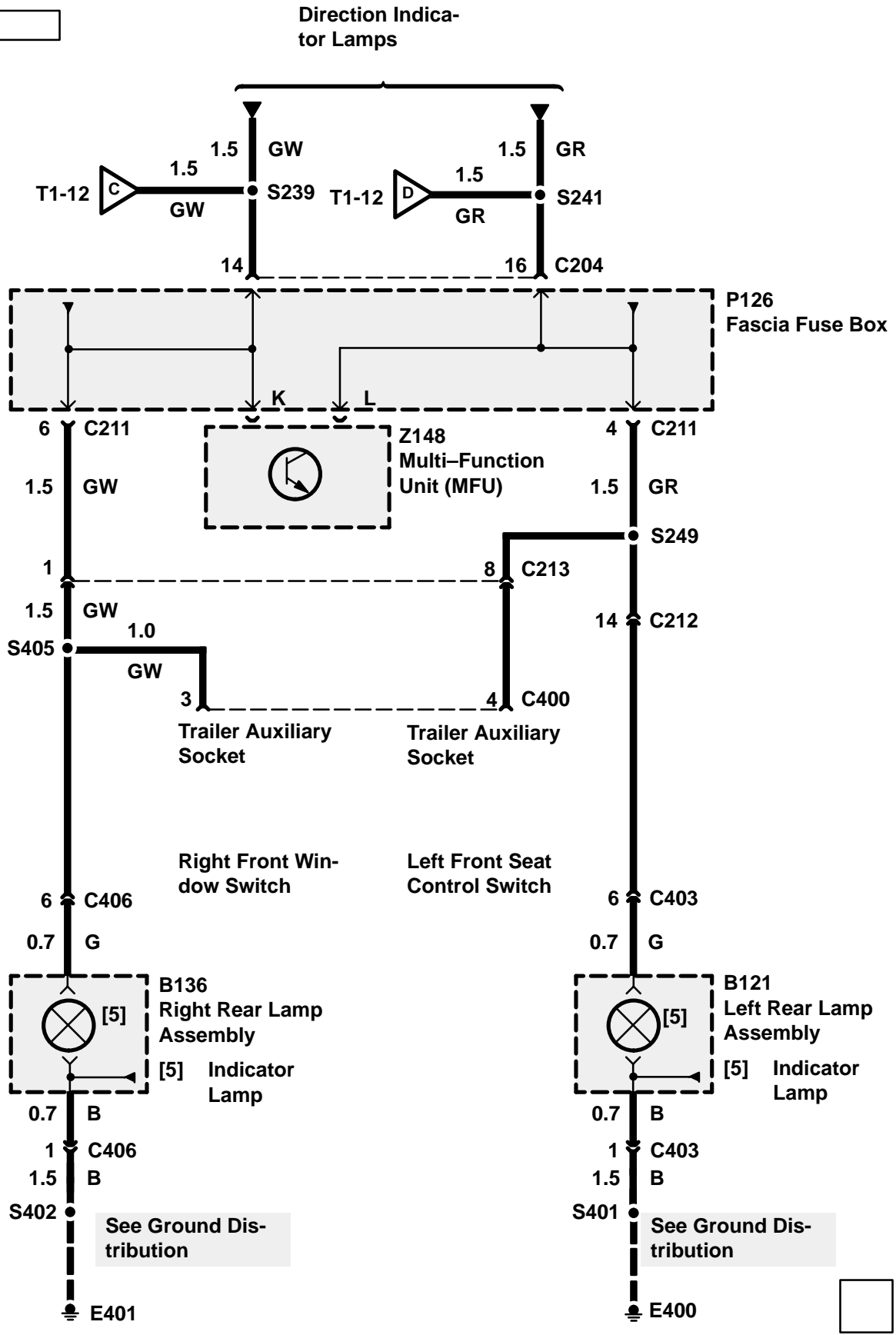
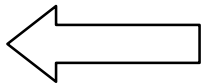




# T1 ETM

## 1995 RANGE ROVER





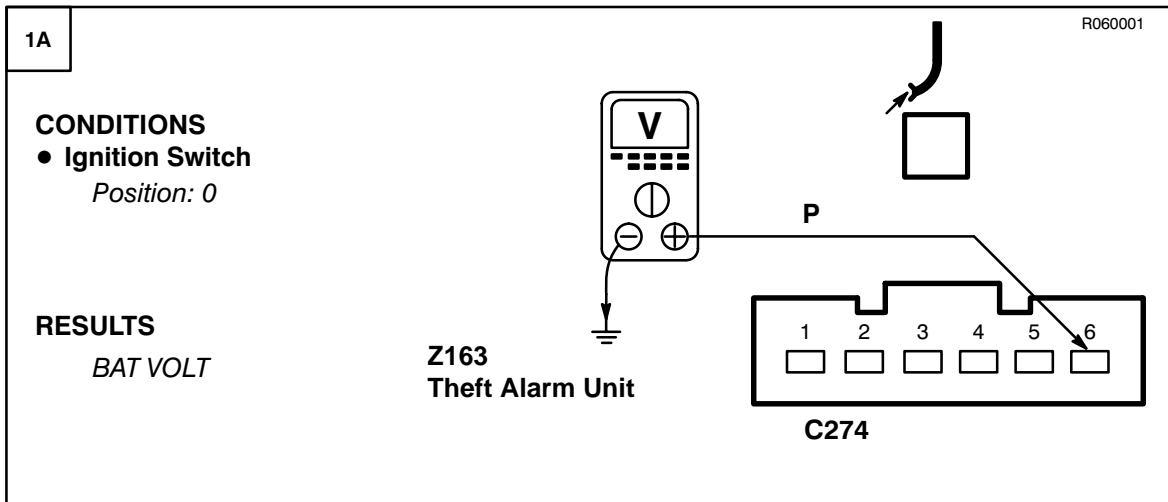
**TROUBLESHOOTING HINTS**

13. Check Fuses F1, F2 and F5 in Satellite Fuse Box 1.
14. Check Fuse F5 in Satellite Fuse Box 2.
15. Check Fuse F4 in Engine Compartment Fuse Box.
16. If the interior lights do not come on when a door is open, check suspect door switch and associated wiring.
17. If none of the Lock Actuators does operate check O and K wire. If OK, replace Theft Alarm Unit (Z163).

**SYSTEM DIAGNOSIS**

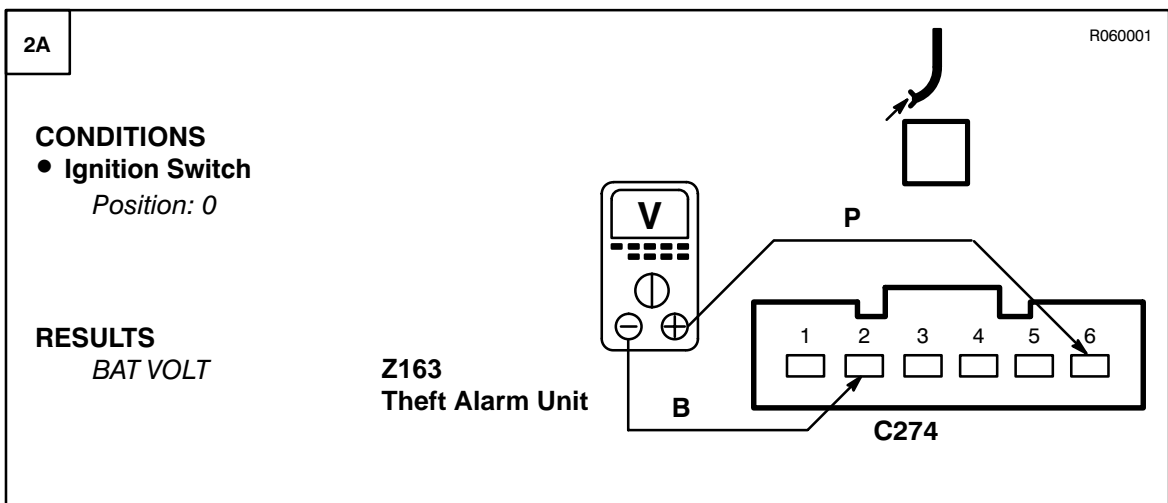
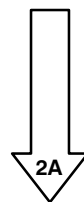
1. If the system will not arm, do Test A.
2. If the system arms, but will not trigger at all, do Test B.
3. If the Horns (K128, K134) do not sound when triggered, do Test B.
4. If the hazard lights do not flash when triggered, do Test E.
5. If the system will not trigger when the bonnet is open, do Test F.
6. If the system will not trigger when the tailgate is open, do Test H.
7. If the alarm is set using the remote and the system does not trigger the alarm when there is motion inside the vehicle, do Test G.
8. If the Theft Alarm LED (B151) does not operate, do Test C.
9. If the Horns (K128, K134) sound continuously, do Test D.
10. If the system will not disarm, do Test A.
11. If a Front Door Lock Actuator (M114, M122) does not operate, do Test I.
12. If the doors unlock themselves after operating the door locks, do Test J.
13. If the central locking function does not operate from one of the front doors, do Test K.
14. If the Tailgate Lock Actuator (M132) does not operate, do Test L.
15. If both Rear Door Lock Actuators (M117, M125) do not operate, do Test M.

**Test A**



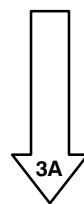
~~OK~~ PROBLEM CAUSE  
- P Wire

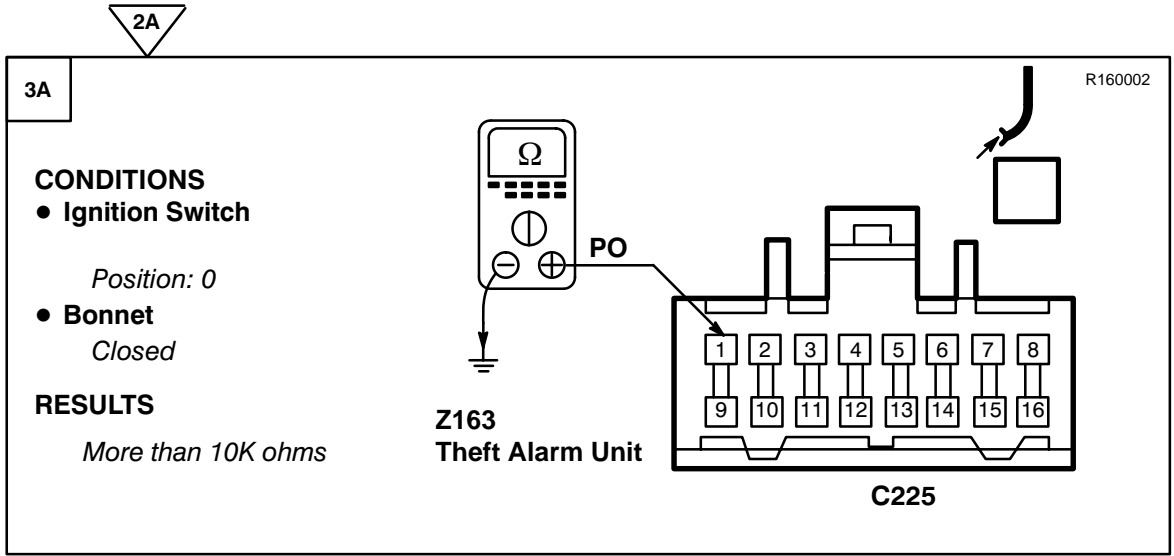
OK



~~OK~~ PROBLEM CAUSE  
- B Wire

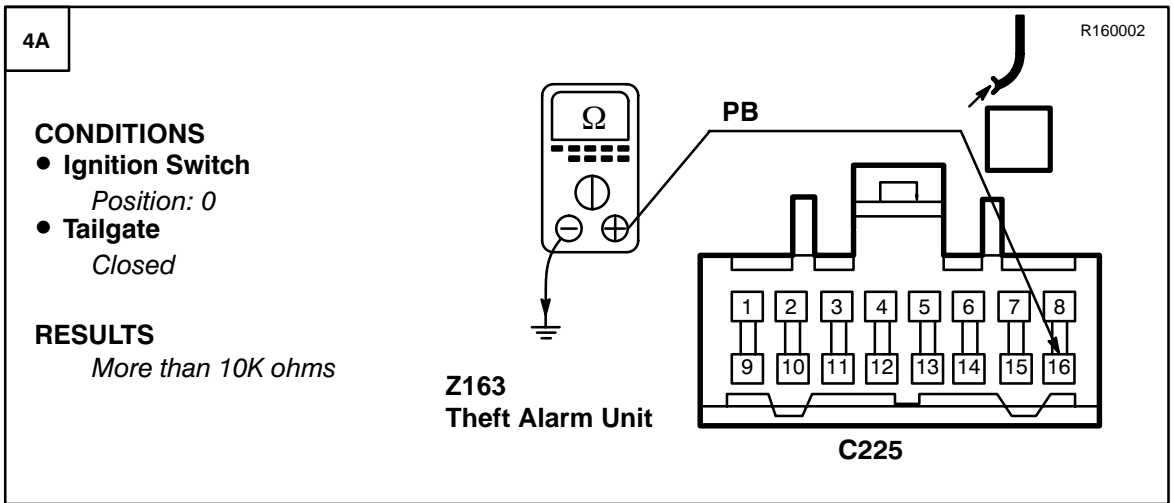
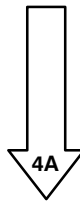
OK





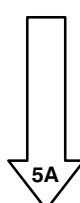
**PROBLEM CAUSE**

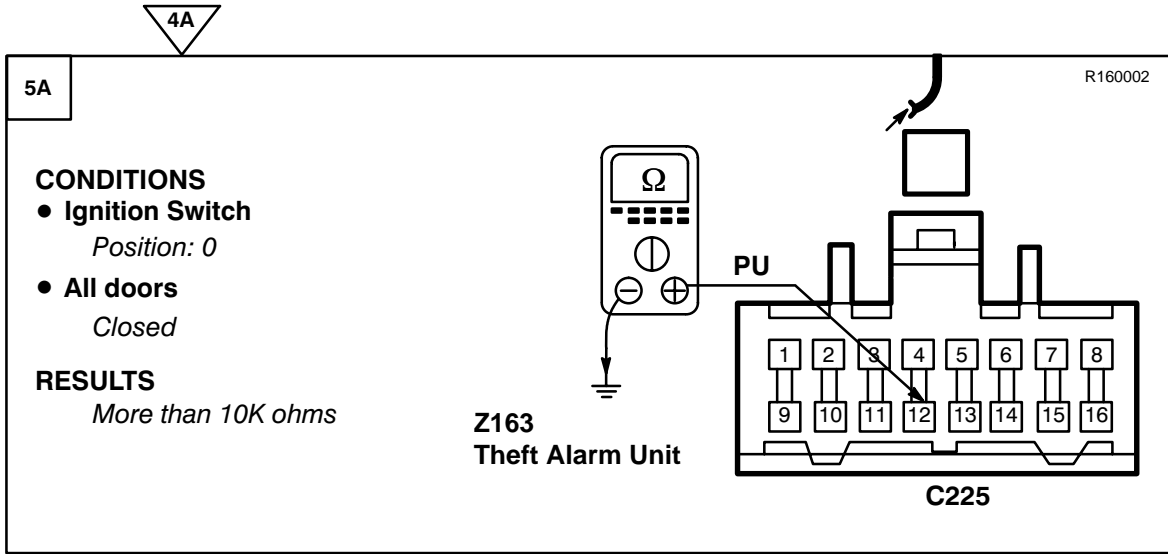
- PO Wire
- Alarm Bonnet Switch



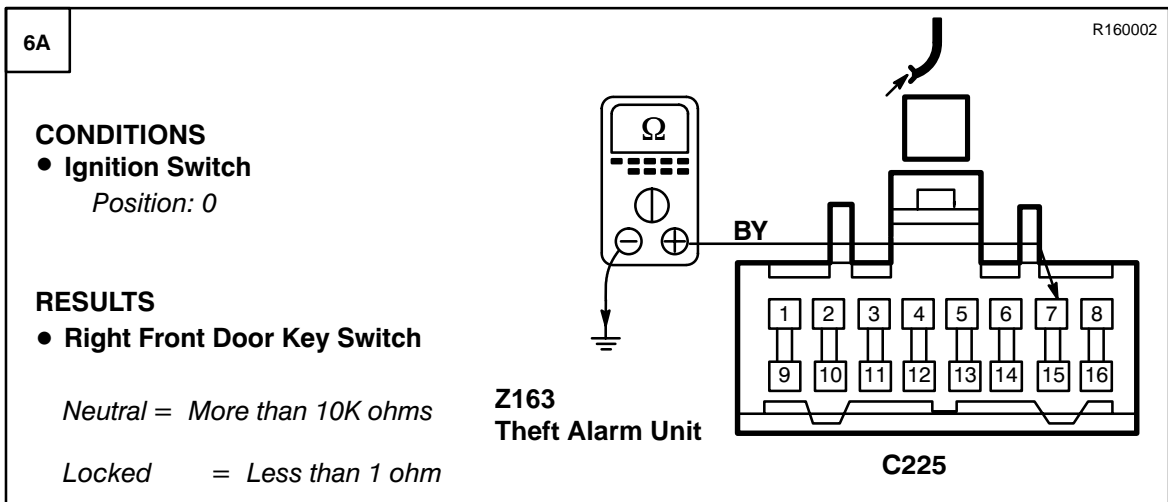
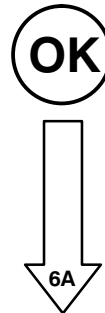
**PROBLEM CAUSE**

- PB Wire
- Tailgate Switch

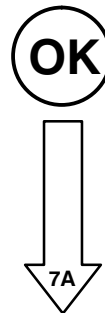


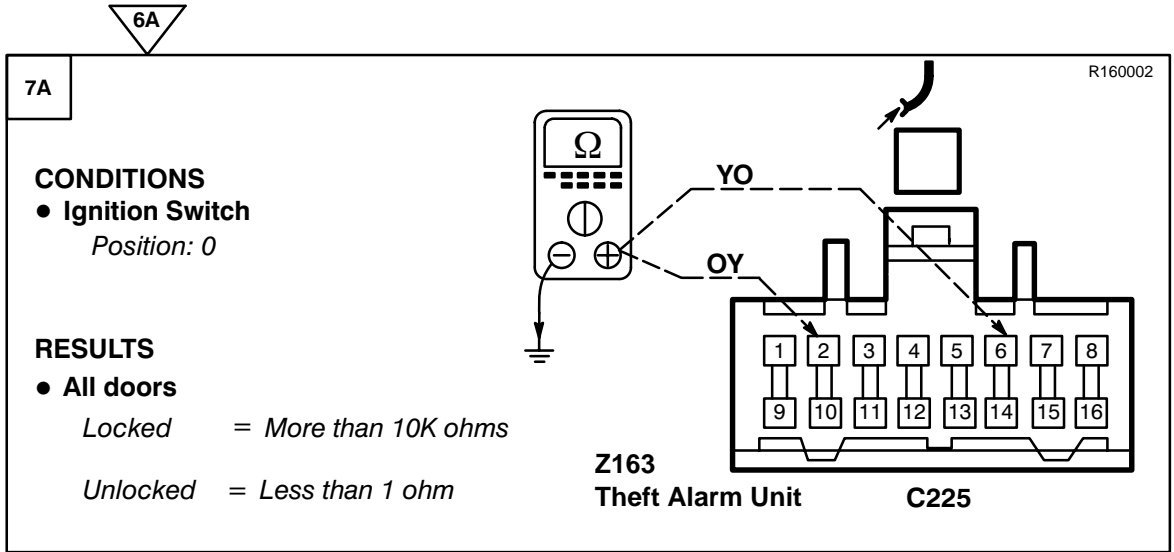


~~OK~~ PROBLEM CAUSE  
- PU Wire



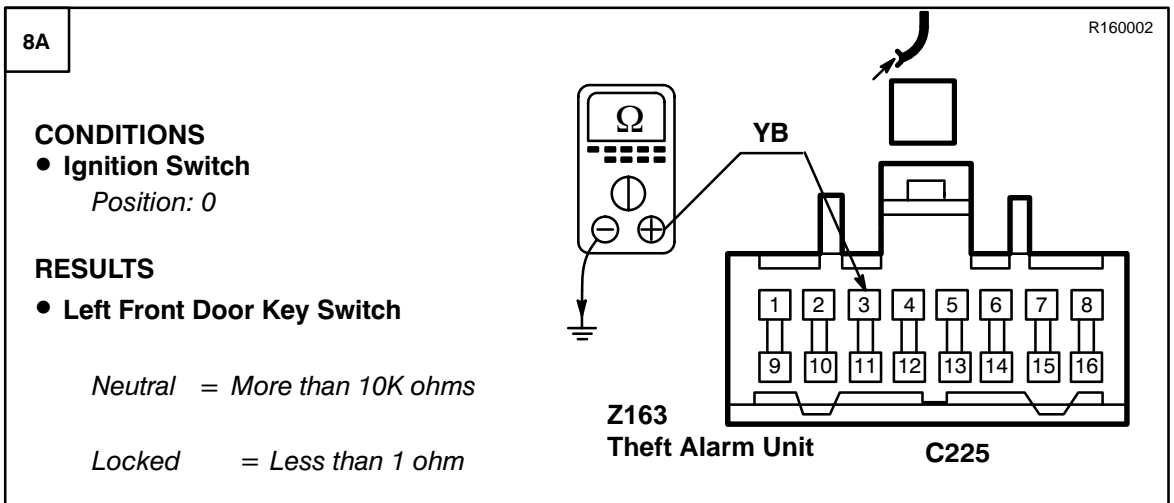
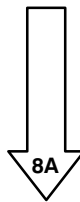
~~OK~~ PROBLEM CAUSE  
- BY Wire  
- Y Wire  
- B Wire  
- Right Front Door Key Switch





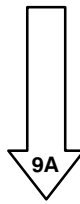
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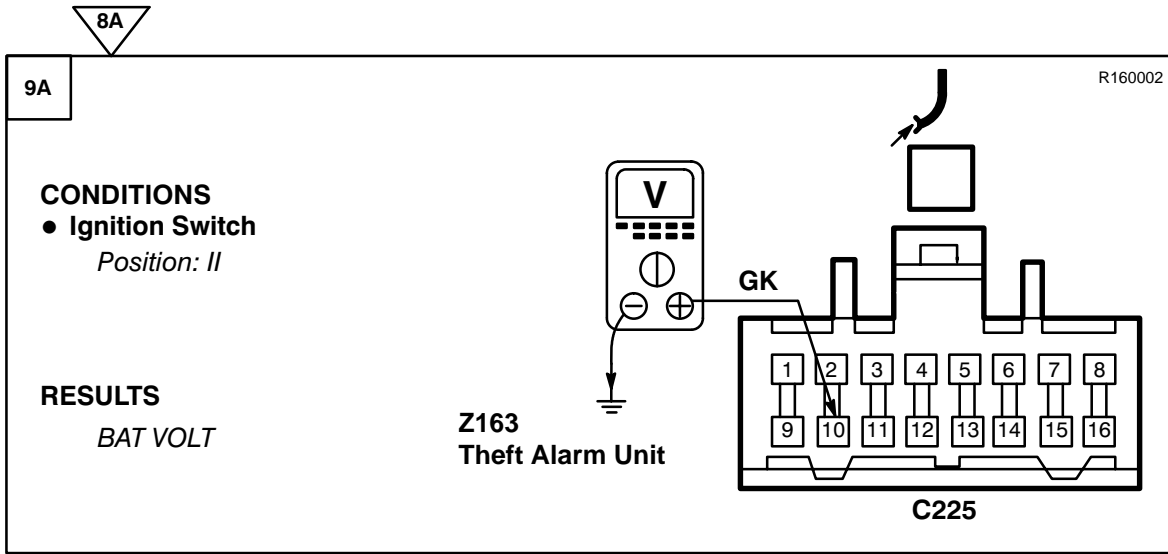
- OY Wire
- YO Wire
- B Wire



**PROBLEM CAUSE**

- YB Wire
- Y Wire
- B Wire
- Left Front Door Key Switch

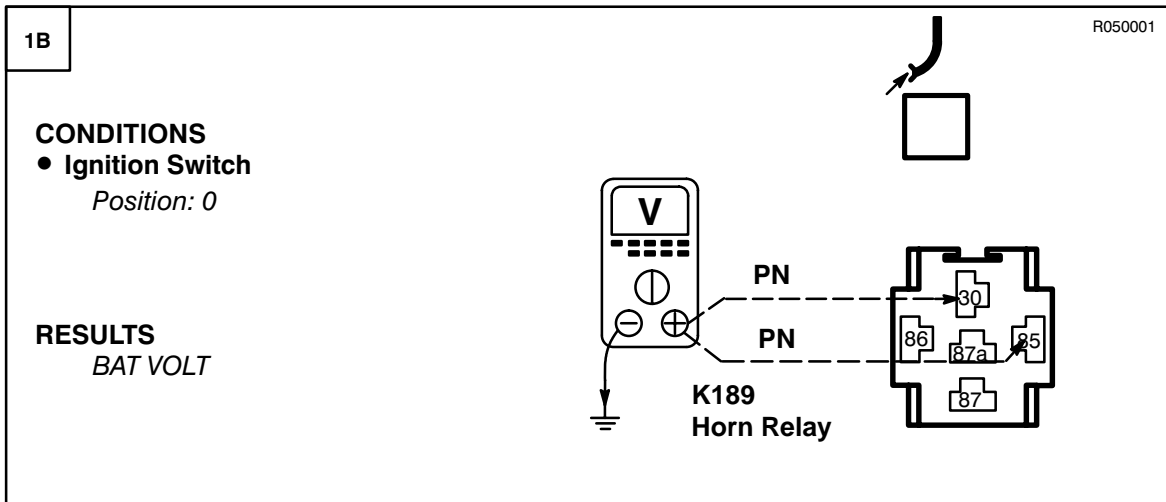




~~OK~~ PROBLEM CAUSE  
 - GK Wire

OK PROBLEM CAUSE  
 - Theft Alarm Unit

**Test B**



~~OK~~ PROBLEM CAUSE  
 - PN Wire

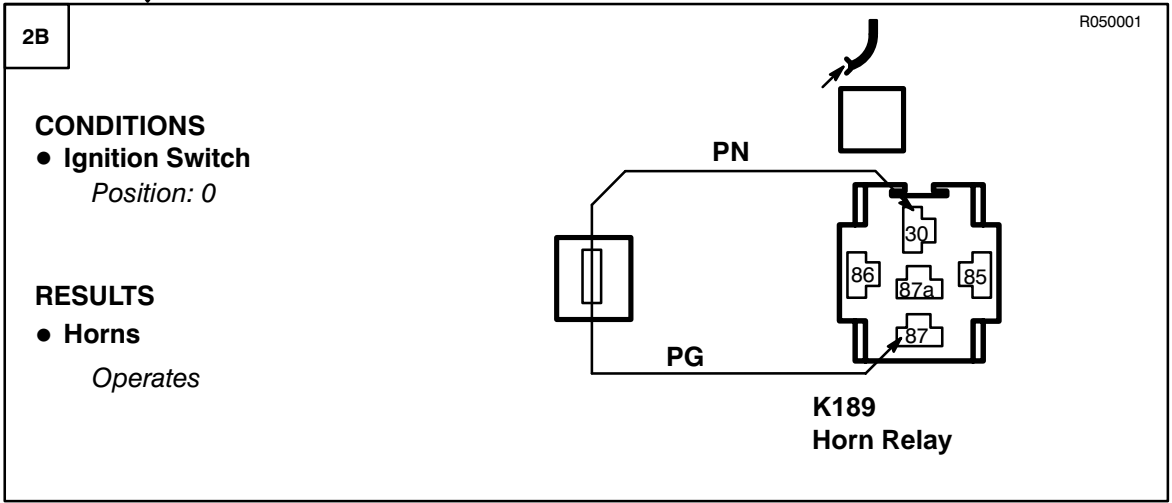
OK

↓

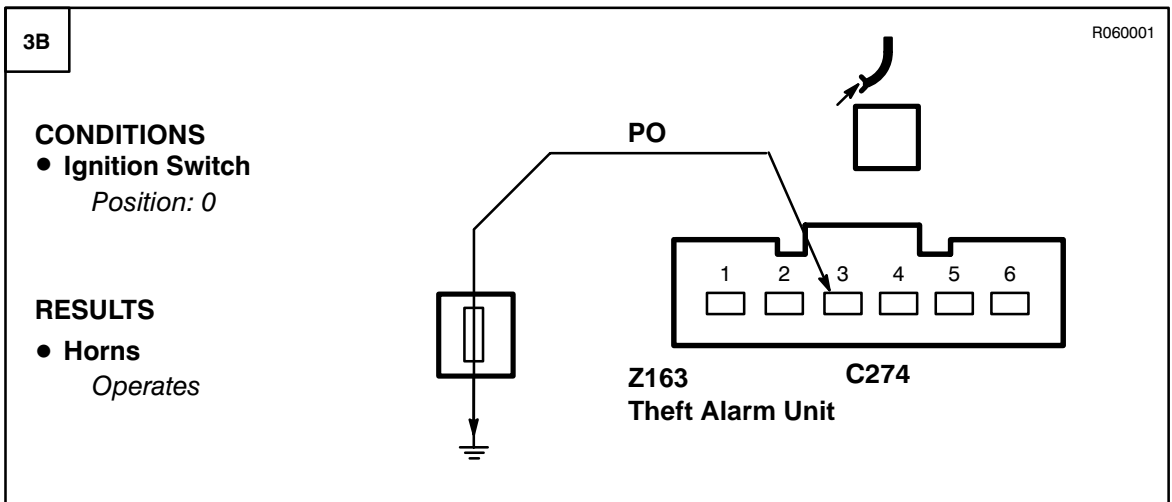
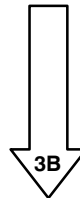
2B



1B



**PROBLEM CAUSE**  
- PG Wire  
- Horns

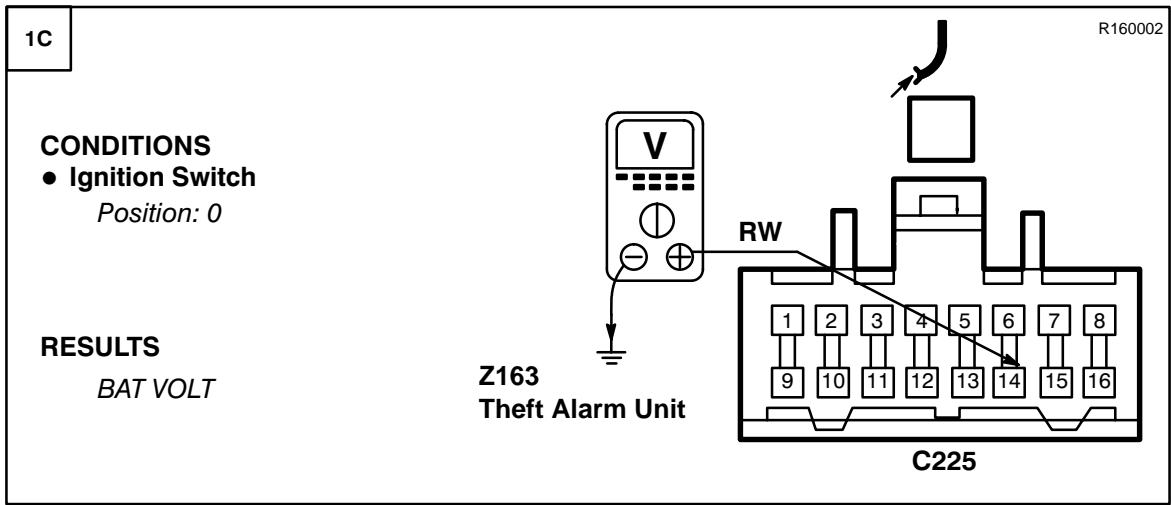


**PROBLEM CAUSE**  
- PO Wire  
- Horn Relay



**PROBLEM CAUSE**  
- Theft Alarm Unit

**Test C**



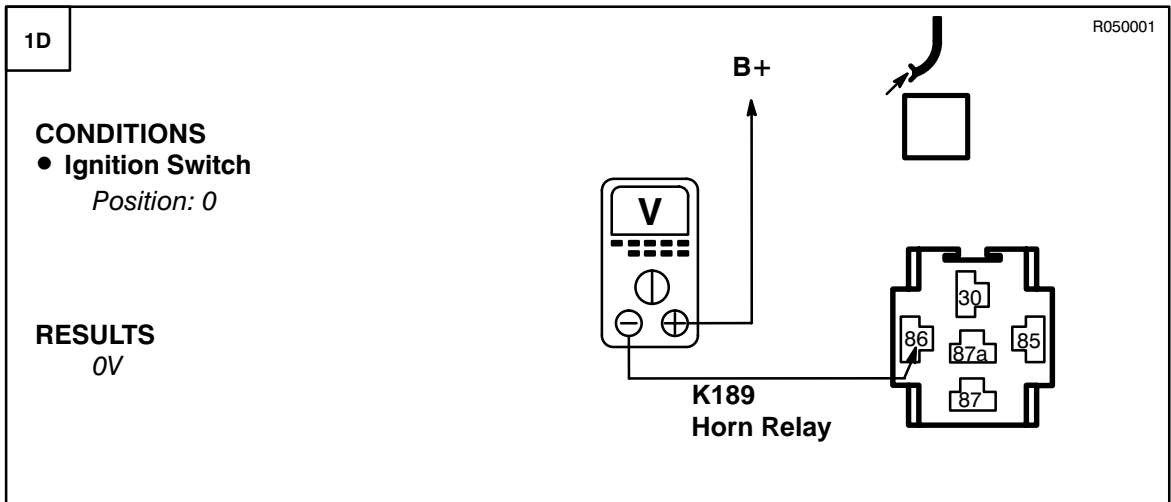
**OK** PROBLEM CAUSE

- RW Wire
- PN Wire
- Theft Alarm LED

**OK** PROBLEM CAUSE

- Theft Alarm Unit

**Test D**



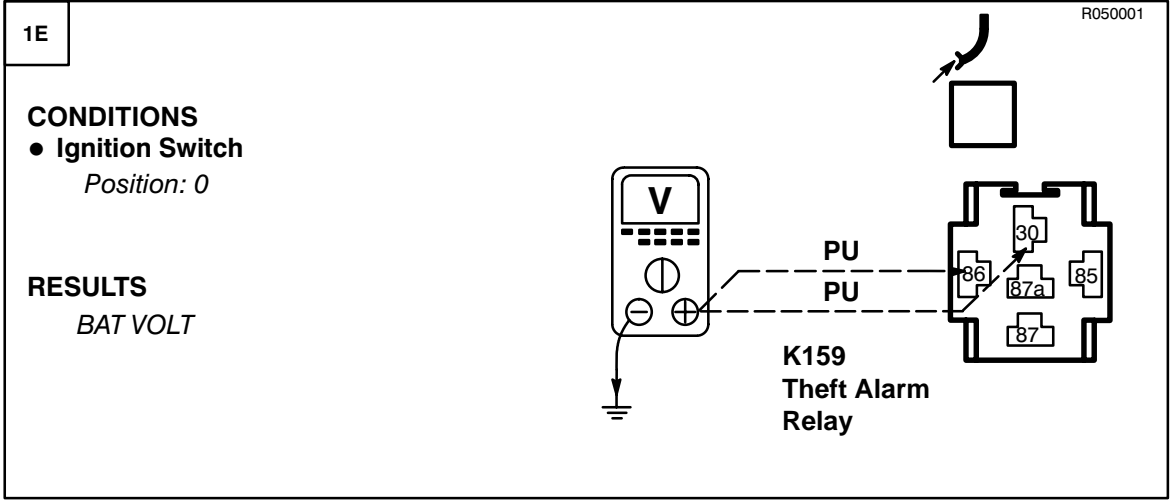
**OK** PROBLEM CAUSE

- PO Wire
- Theft Alarm Unit

**OK** PROBLEM CAUSE

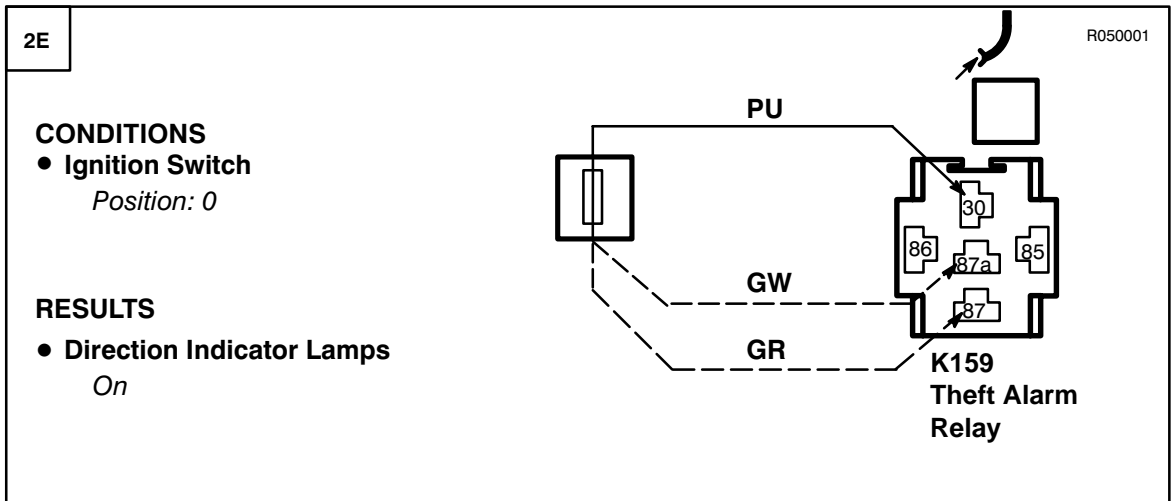
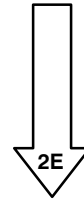
- Horn Relay

### Test E



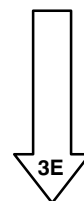
~~OK~~ PROBLEM CAUSE  
- PU Wire

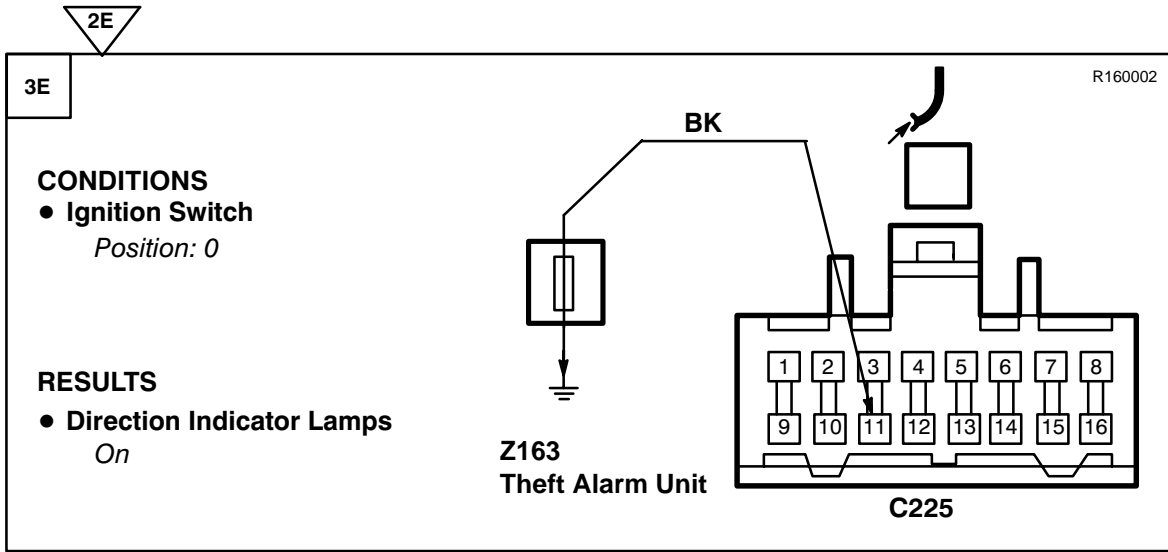
OK



~~OK~~ PROBLEM CAUSE  
- GR Wire  
- GW Wire

OK





**CONDITIONS**  
 • Ignition Switch  
*Position: 0*

**RESULTS**  
 • Direction Indicator Lamps  
*On*

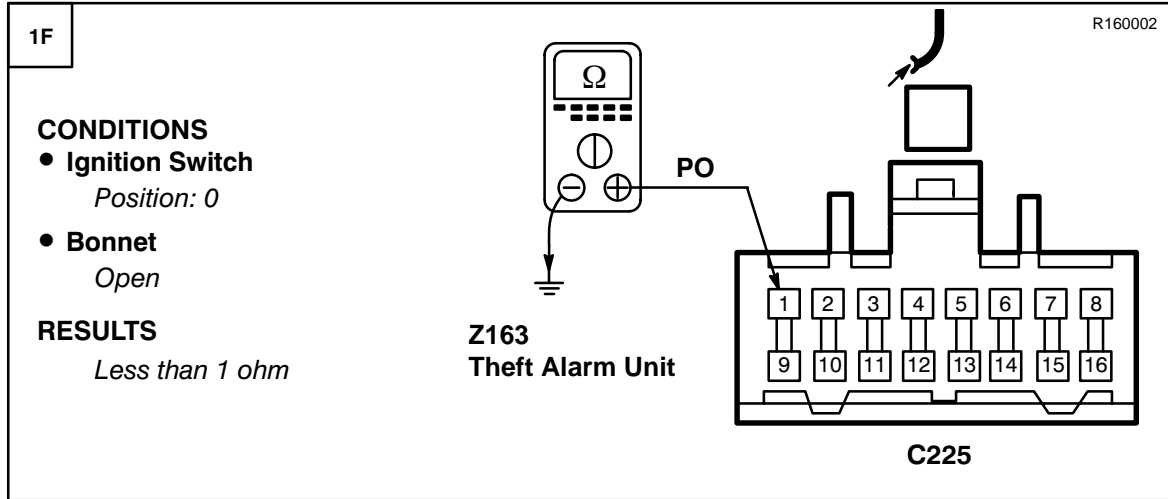


**PROBLEM CAUSE**  
 - BK Wire  
 - Theft Alarm Relay



**PROBLEM CAUSE**  
 - Theft Alarm Unit

**Test F**



**CONDITIONS**  
 • Ignition Switch  
*Position: 0*  
 • Bonnet  
*Open*

**RESULTS**  
*Less than 1 ohm*



**PROBLEM CAUSE**  
 - PO Wire  
 - B Wire  
 - Alarm Bonnet Switch



**PROBLEM CAUSE**  
 - Theft Alarm Unit

Test G

1G R040006

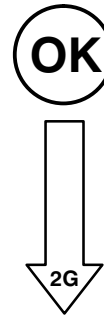
**CONDITIONS**

- Ignition Switch  
*Position: 0*

**RESULTS**  
*BAT VOLT*

**X213  
Alarm Sensor**

~~OK~~ **PROBLEM CAUSE**  
- WB Wire  
- Theft Alarm Unit



2G R040006

**CONDITIONS**

- Ignition Switch  
*Position: 0*

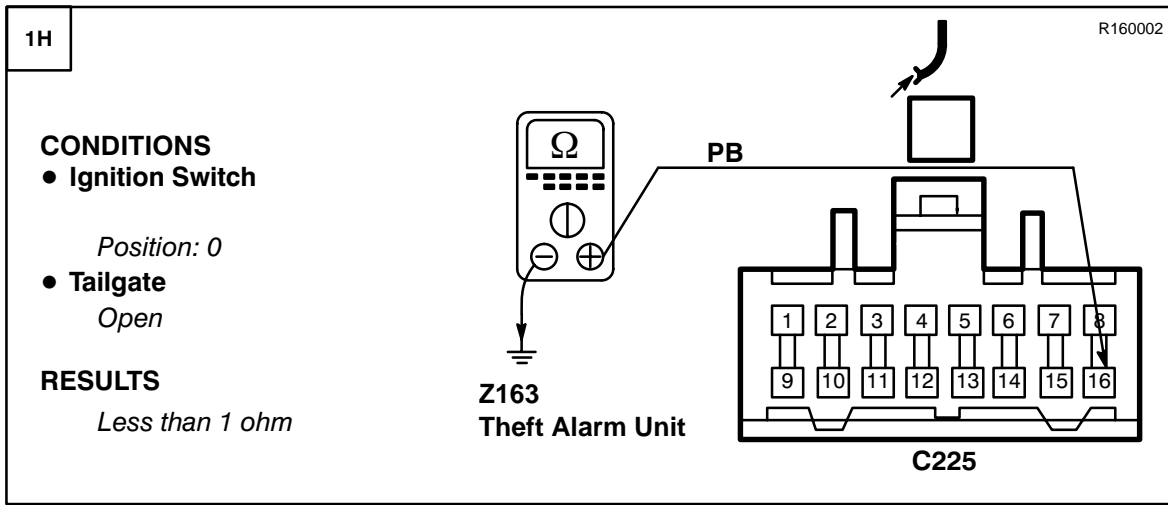
**RESULTS**  
*Less than 1 ohm*

**X213  
Alarm Sensor**

~~OK~~ **PROBLEM CAUSE**  
- B Wire

OK **PROBLEM CAUSE**  
- BN Wire  
- Alarm Sensor  
- Theft Alarm Unit

**Test H**



**PROBLEM CAUSE**

- PB Wire
- Tailgate Switch



**PROBLEM CAUSE**

- Theft Alarm Unit

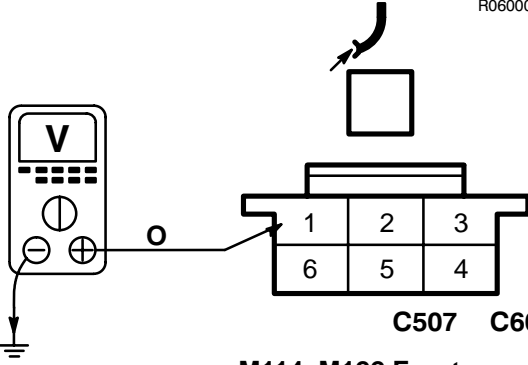
Test I

R060009

11

**CONDITIONS**

- Ignition Switch  
*Position: II*
- All doors  
*Locked*
- Unlock a front door

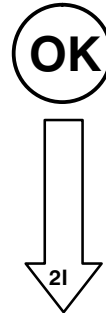


C507 C607

M114, M122 Front Door Lock Actuator

**RESULTS**  
*BAT VOLT (Momentary)*

**OK** PROBLEM CAUSE  
- O Wire

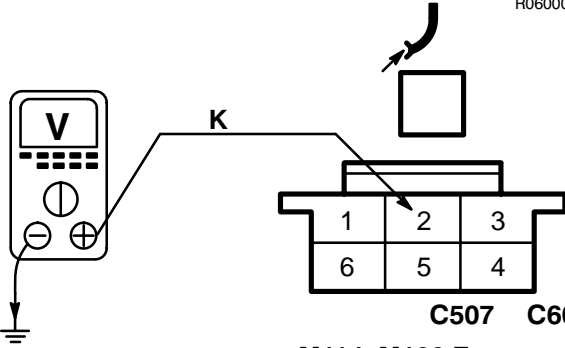


R060009

21

**CONDITIONS**

- Ignition Switch  
*Position: II*
- All doors  
*Unlocked*
- Lock a front door



C507 C607

M114, M122 Front Door Lock Actuator

**RESULTS**  
*BAT VOLT (Momentary)*

**OK** PROBLEM CAUSE  
- K Wire

**OK** PROBLEM CAUSE  
- M114, M122 Front Door Lock Actuator

**Test J**

1J

R160002

**CONDITIONS**

- Ignition Switch

*Position: 0*

- All doors

*Locked*

**RESULTS**

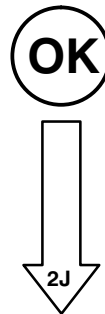
*More than 1000 ohms*

Z163  
Theft Alarm Unit

C225

**OK** PROBLEM CAUSE

- OY Wire
- M114, M122 Front Door Lock Actuator



2J

R050001

**CONDITIONS**

- Ignition Switch

*Position: 0*

- All doors

*Locked*

**RESULTS**

*More than 1000 ohms*

Z163  
Theft Alarm Unit

C225

**OK** PROBLEM CAUSE

- YO Wire
- M114, M122 Front Door Lock Actuator

**OK** PROBLEM CAUSE

- Central Locking Control Unit



Test K

1K

R160002

**CONDITIONS**

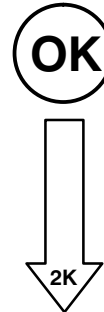
- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*

**RESULTS**  
*Less than 1 ohm*

Z163 Theft Alarm Unit

C225

~~OK~~ GO TO TEST 3K



2K

R160002

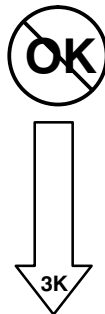
**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*

**RESULTS**  
*Less than 1 ohm*

Z163 Theft Alarm Unit

C225



~~OK~~ **PROBLEM CAUSE**  
 - YO Wire  
 - Central Locking Control Unit

R060009

2K
3K

**CONDITIONS**

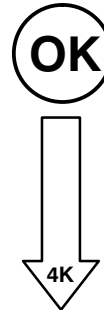
- Ignition Switch  
*Position: 0*

**RESULTS**

*Less than 1 ohm*

**M114, M122 Front Door Lock Actuator**

~~OK~~ **PROBLEM CAUSE**  
- B Wire



R060009

4K

**CONDITIONS**

- Ignition Switch  
*Position: II*
- All doors  
*Lock*

**RESULTS**

*Unlocked*

**M114, M122 Front Door Lock Actuator**

~~OK~~ **PROBLEM CAUSE**  
- YO Wire  
- OY Wire (Left)  
- Central Locking Control Unit

**OK** **PROBLEM CAUSE**  
- M114, M122 Front Door Lock Actuator

Test L

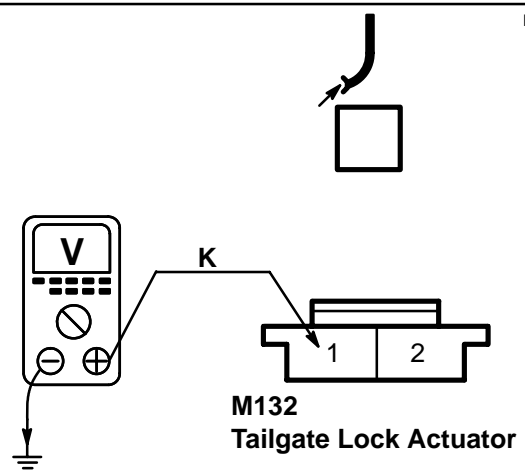
R020029

1L

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

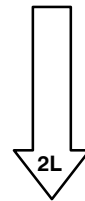
**RESULTS**  
*BAT VOLT (Momentary)*



M132  
Tailgate Lock Actuator



**PROBLEM CAUSE**  
- K Wire



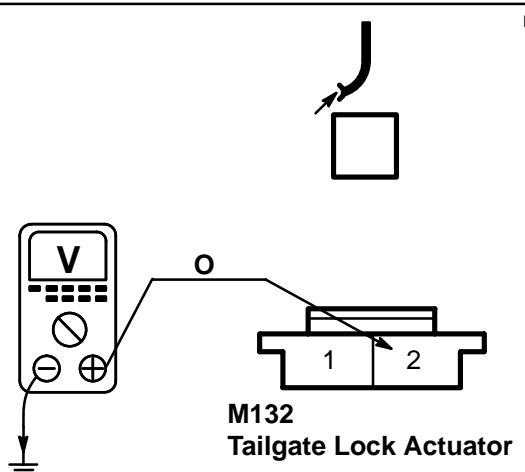
R020029

2L

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*
- Unlock a front door

**RESULTS**  
*BAT VOLT (Momentary)*



M132  
Tailgate Lock Actuator



**PROBLEM CAUSE**  
- O Wire



**PROBLEM CAUSE**  
- Tailgate Lock Actuator

**Test M**

R160002

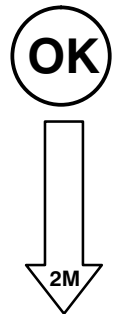
1M

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

**RESULTS**  
*BAT VOLT (Momentary)*

~~OK~~ PROBLEM CAUSE  
- K Wire



R050001

2M

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

**RESULTS**  
*BAT VOLT (Momentary)*

~~OK~~ PROBLEM CAUSE  
- O Wire

**OK** PROBLEM CAUSE  
- M117, M125 Rear Door Lock Actuator

## CIRCUIT OPERATION

For 1995 models a vehicle alarm system is available as original equipment. The main function of the system is to offer easy-to-use remote locking and unlocking of the vehicle without having to actively select the alarm function.

## ALARM COMPONENTS

16. Theft Alarm Unit (Z163) and Theft Alarm Relay (K159)
17. Alarm Bonnet Switch (X212)
18. Tailgate Switch (X170)
19. Horns (K128, K134) and Horn Relay (K189)
20. Theft Alarm LED (B151)
21. Alarm Sensor (X213) (Not on all vehicles!)
22. Front Door Key Switches (X201, X202)
23. Lock Actuators (M114, M122, M117, M125, M132)
24. Handset Transmitter (two supplied)

## ANTI-THEFT SYSTEM FUNCTION

### Perimetric Protection

Using the key in the correct sequence will turn on and off perimetric protection only. When fully perimetrically armed, all doors, tailgate, and bonnet are protected against unauthorized access. If the door key is used in the normal manner the driver will be unaware of the door key sequence. The time taken to lock or unlock with the key must be less than 5 seconds. To prevent unauthorized tampering, the alarm will sound if the key is held in the unlocked position for longer than 5 seconds when armed. Cranking is disabled when perimetric protection is armed.

NOTE: When key is turned left or right, the keyswitch input will be activated, in conjunction with the sill button switch when links are operated.

### Volumetric Protection

Using the handset transmitter will turn On and Off volumetric protection. In volumetric mode the vehicle interior is protected using the Alarm Sensor (X213). Using the handset also arms and disarms the vehicle perimetrically. Cranking is disabled

when volumetric and perimetric protection is armed.

NOTE: If armed volumetrically, the vehicle CANNOT be disarmed using the key.

### Horns

When an intrusion is detected the horn will sound intermittently (Switzerland and Denmark continuous horn sound) and the hazard lights flash (where territorial regulations allow) for 30 seconds. The alarm must be retriggered before the horn will sound again.

### Vehicle Status Indication

Vehicle status is indicated by up to three devices: (a) horn, (b) hazard lights, (c) Theft Alarm LED (B151). When the vehicle arms in either mode, the hazard lights will flash three times and the LED will flash rapidly for 10 seconds. LED will then flash at a slower rate while vehicle is armed. When the vehicle disarms, hazard lights will flash once and LED will extinguish. If LED remains lit, it indicates that the alarm has been triggered. Turning on ignition or arming the alarm will extinguish LED. The LED will give a long pulse flash to indicate the Alarm Sensor (X213) being activated.

### Central Locking

Central Locking is controlled by the Theft Alarm Unit (Z163) and may be operated by the key, sill button(s) or handset. The system works on both front doors on four door vehicles or driver's door on two door vehicles.

NOTE: The central door locking system will shut down for a period after more than 15 consecutive operations.

### Inertia Switch

An inertia switch is incorporated in the Theft Alarm Unit (Z163). If ignition is on and the vehicle receives an impact sufficient to activate the inertia switch, the unit will signal to unlock central locking actuators and flash hazard lights. Central locking will remain disabled for 30 seconds. To reset, turn ignition off and then on after the 30 second period has elapsed.

### Alarm Sensor (X213)

The sensor operates by emitting an air pressure carrier wave and receiving the wave back. Any disturbance within the vehicle which disturbs the wave will be detected, triggering the alarm. When the volumetric sensor is activated it monitors movement within the vehicle for 15 seconds before detecting and responding to intrusions. If the sensor detects movement within the vehicle it delays arming until a 15 seconds quiet period has elapsed. If continuous movement is detected, the alarm will not arm volumetrically.

### Radio Frequency System

The RF system uses four frequencies according to market. If the coaxial aerial is not fitted system performance will be impaired. Both ECU and handset have a colour-coded label.

Frequency Colour Territory ECU/Handset:

418.0 MHz, Pink/pink: UK, Ireland

224.5 MHz, Yellow/yellow: France

433.92 MHz, Blue/blue: Europe (not France, Switzerland, Italy, Denmark)

433.92 MHz, White/blue: Switzerland, Denmark

315.0 MHz, Green/green: Rest of World, Italy, Australia

315.0 MHz, Orange/green: Gulf, Japan

### Partially armed mode

If a door, tailgate or bonnet is left open when the system is armed, the LED will not light for 10 seconds indicating a mislock condition. Hazard lights will not flash. If an open door or tailgate is causing the mislock, the starter motor is disabled. The alarm will sound if ignition is turned to start position. If an open bonnet is causing the mislock the starter motor is disabled. The alarm will arm the volumetric part of the system. If the door tailgate or bonnet is subsequently closed, after a 5 second delay, the doors will unlock and immediately lock, and the system will fully arm.

### Handset Transmitter

The handset LED will give one flash when button is pressed momentarily. If button is held down the LED will light again after 2 seconds for 2 seconds, and extinguish until button is released and repressed. The handset contains unique information distinguishing it from other transmitters. It also contains a set of 'random' rolling codes programmed into the ECU before leaving the factory. Each time the handset is pressed a different code is transmitted to the ECU.

If the handset is operated more than four times outside the vehicle range (6 metres) or power supply is removed, it will be necessary to re-synchronise handset and the ECU by pressing the handset three times within range and within 5 seconds.

NOTE: If both handsets are lost or damaged when system is armed, it will be necessary to fit a new ECU with two matching handsets.

### Handset Batteries

If handset LED flashes continuously when button is pressed, the batteries need replacing. The hazard lights will flash one 3 second pulse, instead of three times upon arming vehicle.

### Power Up Mode

The alarm system always remembers the state it was left in when power was removed. If the alarm powers up in an armed state and is subsequently triggered, it will give a warning that it will fully trigger unless disarmed. This warning consists of

short horn pulses every two seconds for 15 seconds.

### New Born Mode

When the ECU is first produced, it will be in its 'new born' mode. In this mode it will respond to any remote of the right frequency. This mode will be cancelled when the ECU has received ten valid handset signals without power interruption.

### Engine Cranking

It is only possible to crank the engine when ignition is ON and alarm disabled.

**BUILT IN TEST PROCEDURE**

The built in test procedure is accessed as follows:

1. Starting conditions: ignition off, doors unlocked, bonnet switch depressed.
2. Carry out instructions 3 to 7 within 8 seconds.
3. Release bonnet switch.
4. Switch ignition ON.
5. Lock doors.
6. Switch ignition OFF.
7. Switch ignition ON.

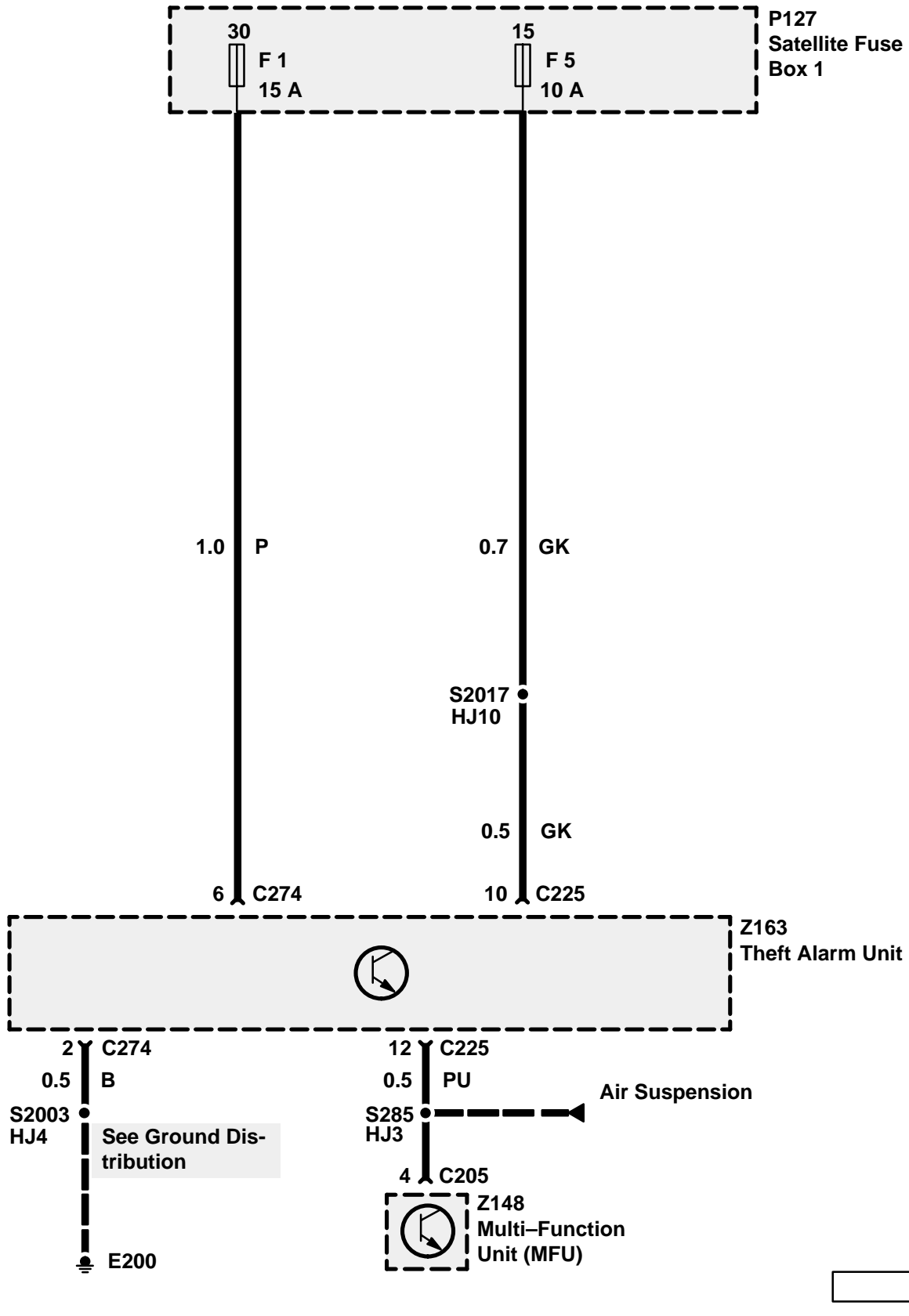
If alarm is correctly accessed, horn will sound and LED will flash. The following checks can be made:

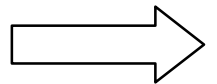
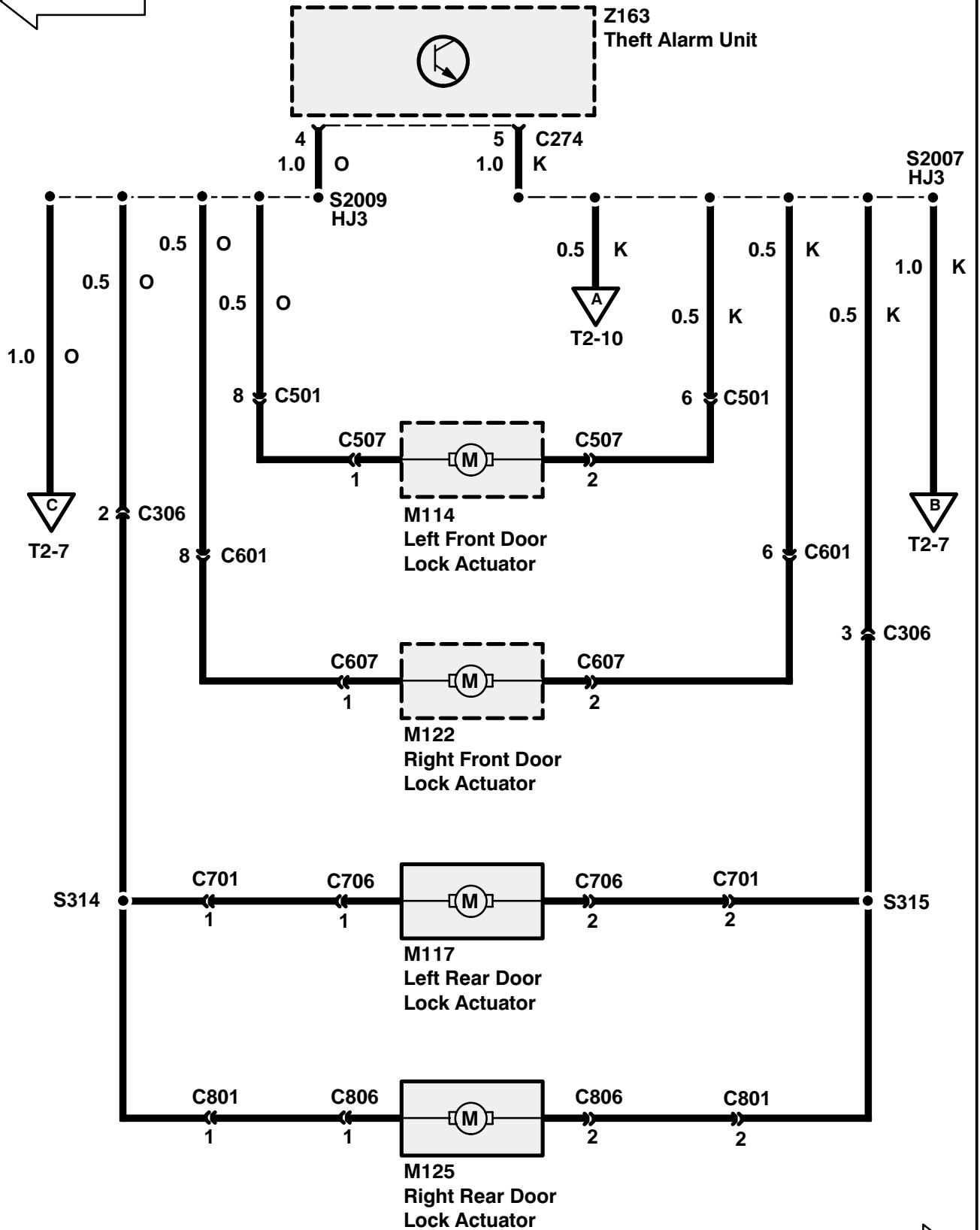
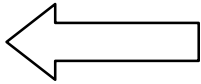
8. Open and close any door or tailgate – LED will light.
9. Depress bonnet switch – hazards will flash.
10. Check engine cranking is disabled. Do not turn off ignition.
11. Check ultrasonic by operating handset, LED will emit one 5 second flash, and will flash if interior is disturbed.

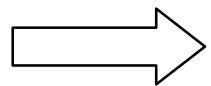
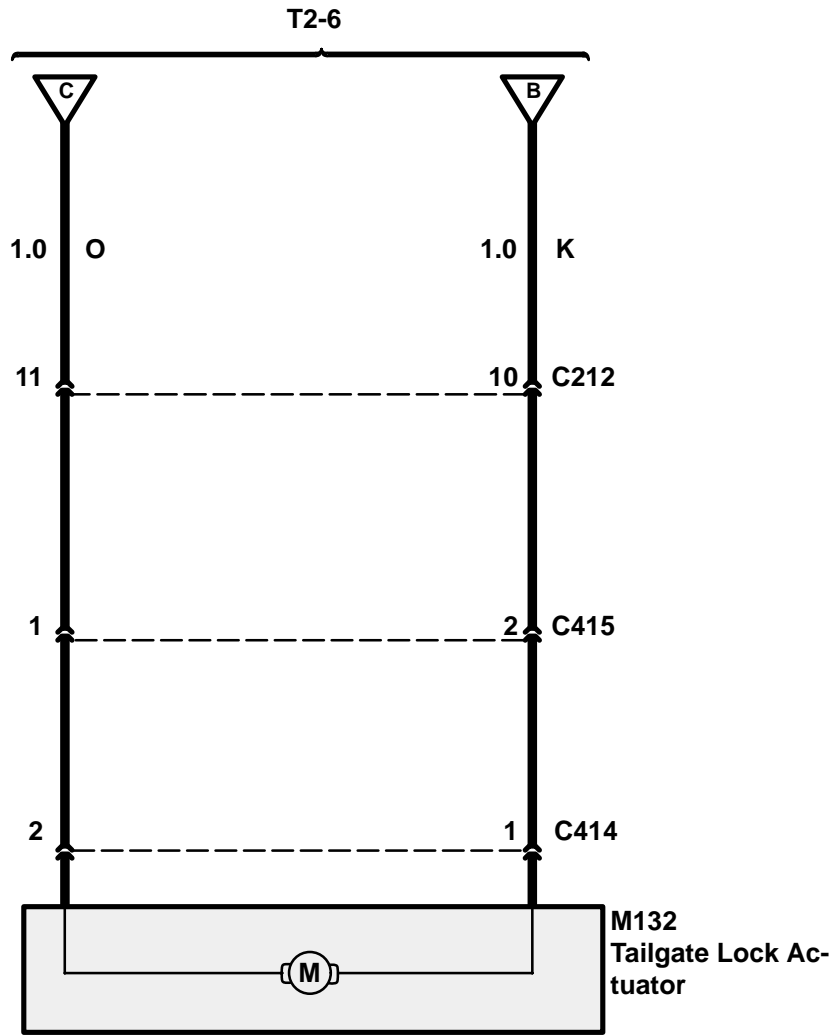
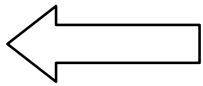
NOTE: If ECU is in new born mode, any handset of the right frequency will work. If not, initialised handset is required. See Handset Initialisation.

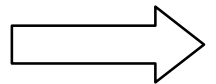
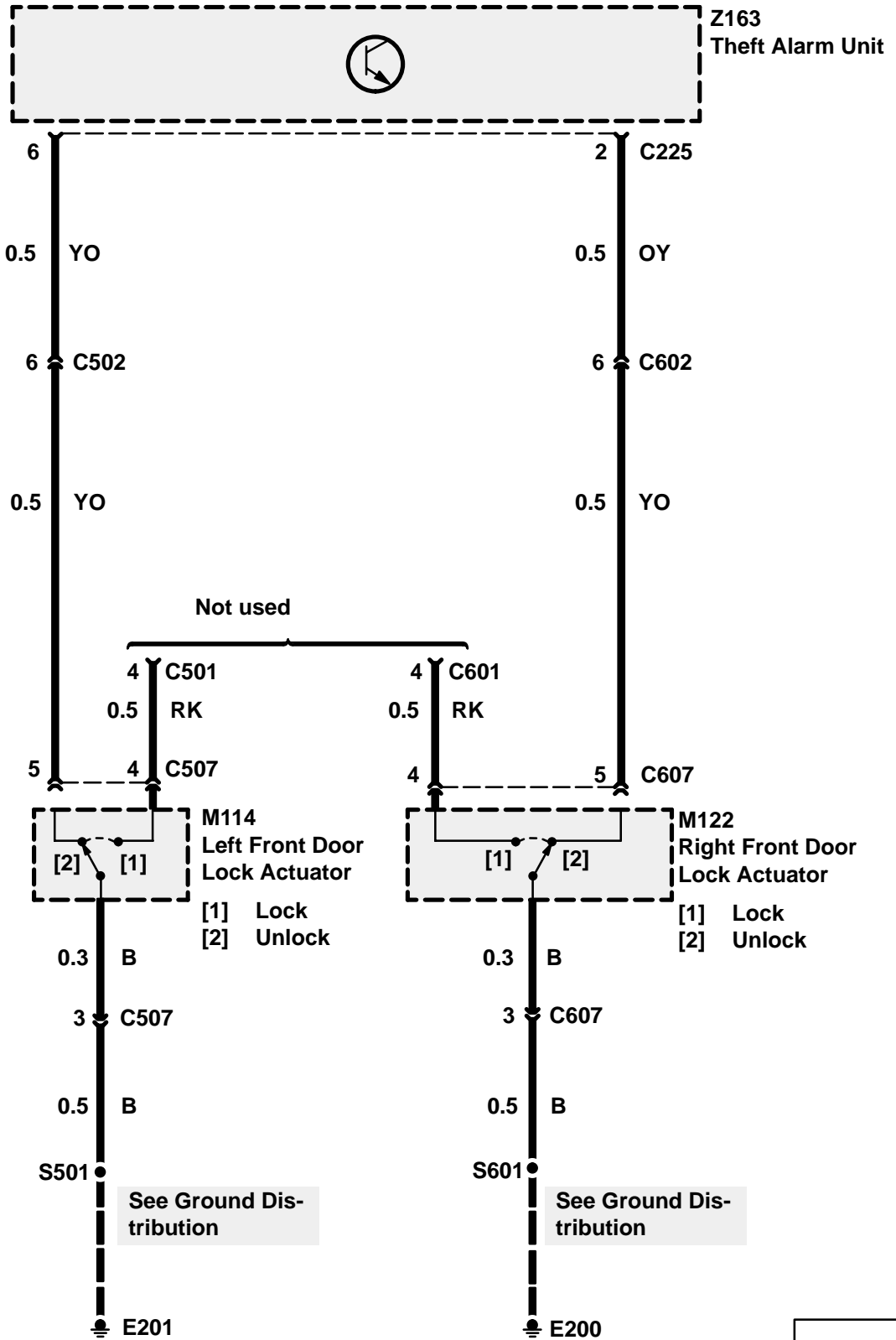
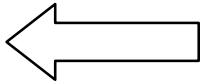
12. Turn OFF ignition or press handset to end test procedure. Horn will sound as before to indicate end of test mode.

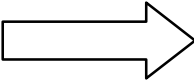
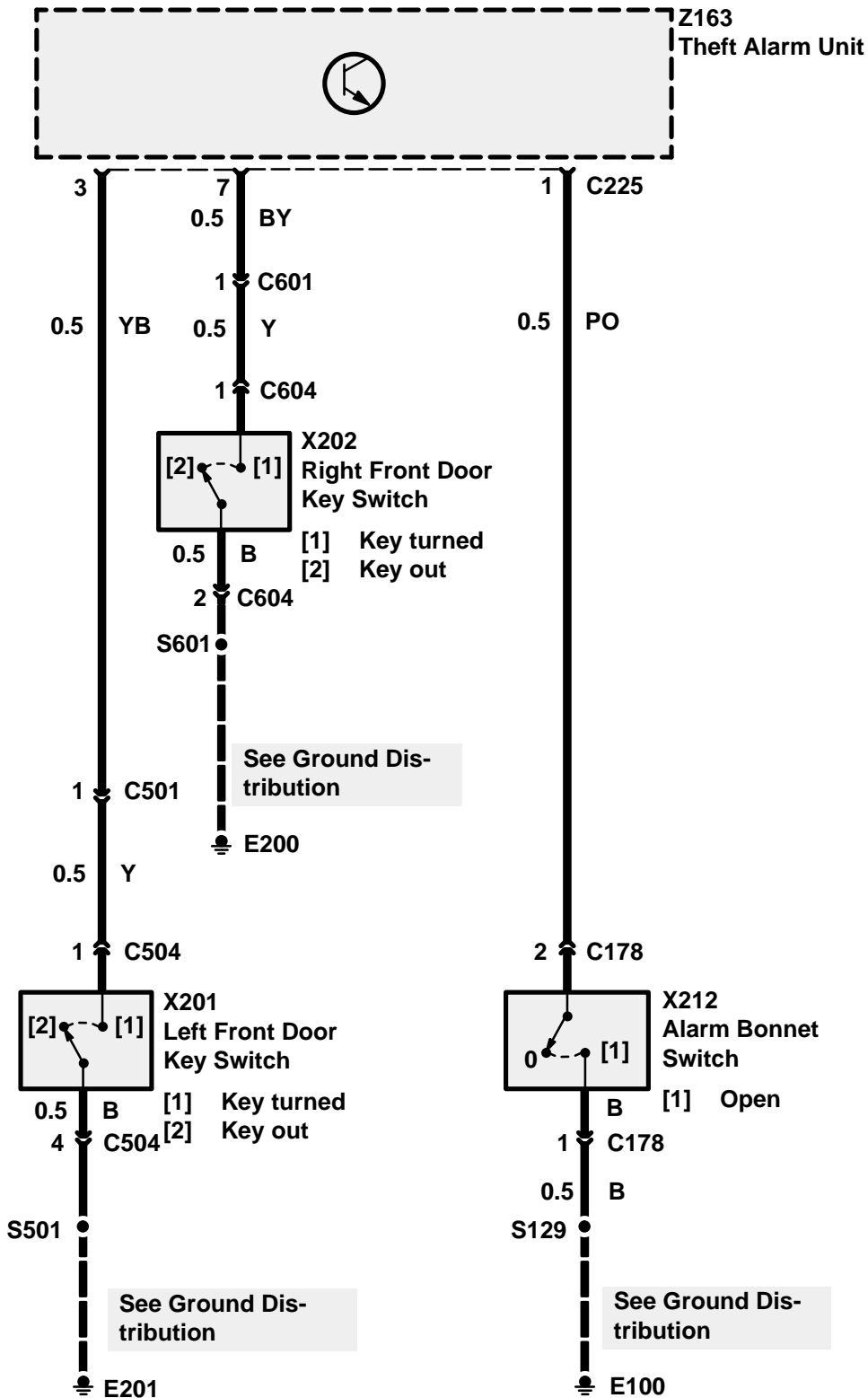
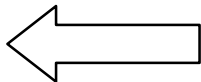


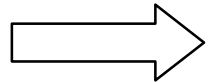
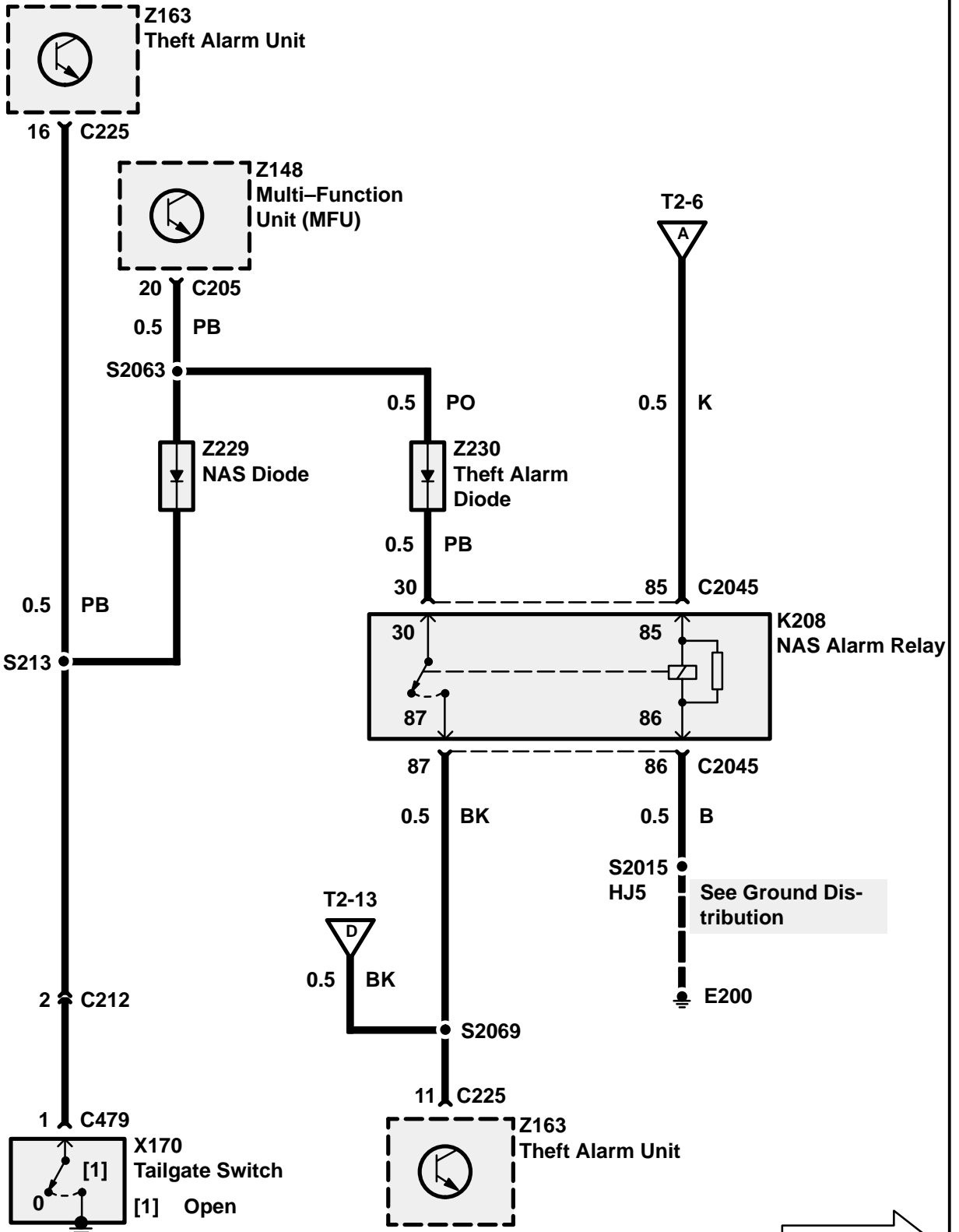
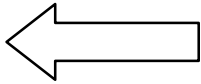


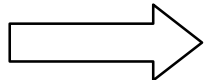
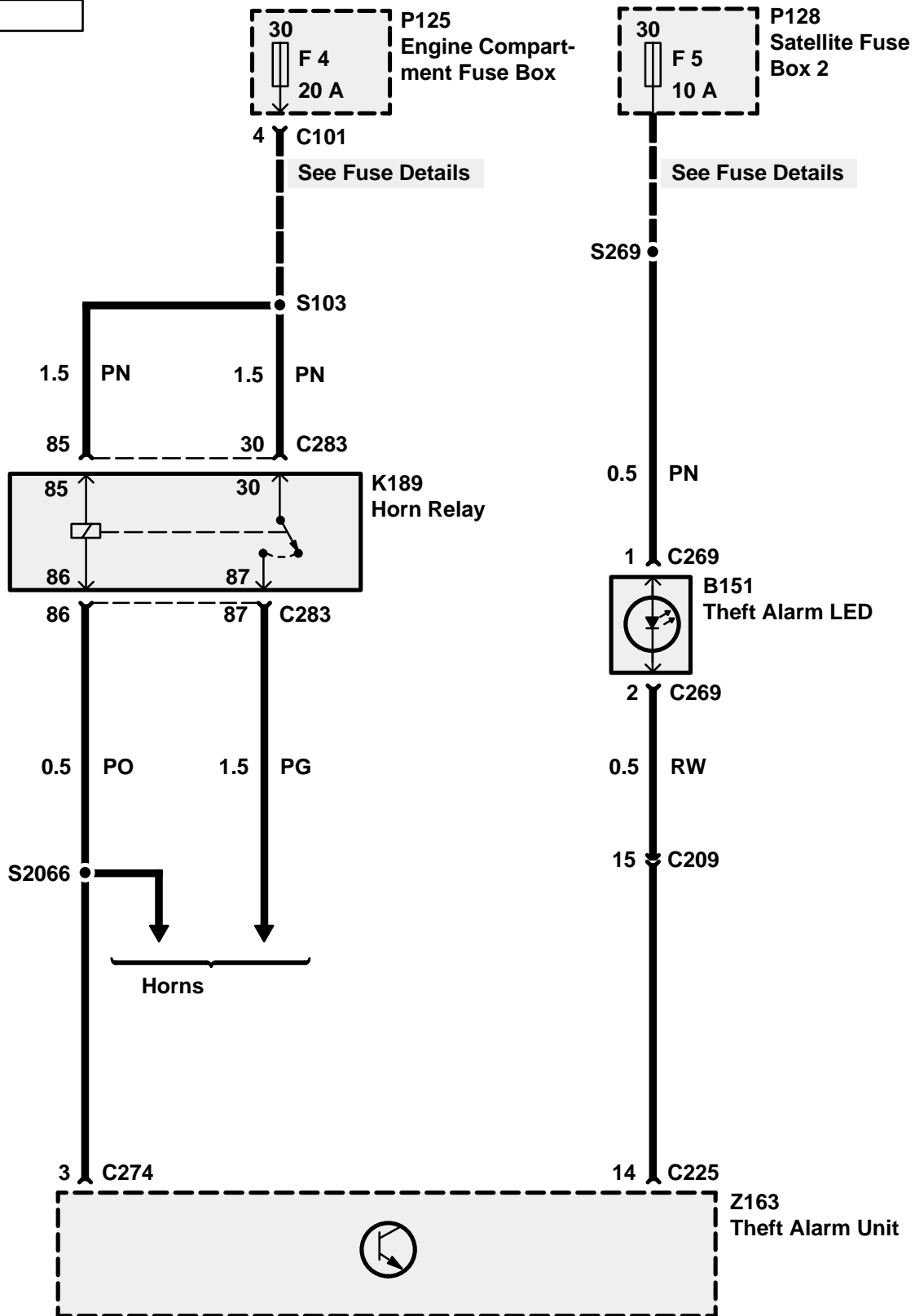
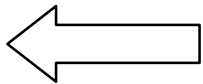


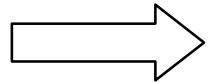
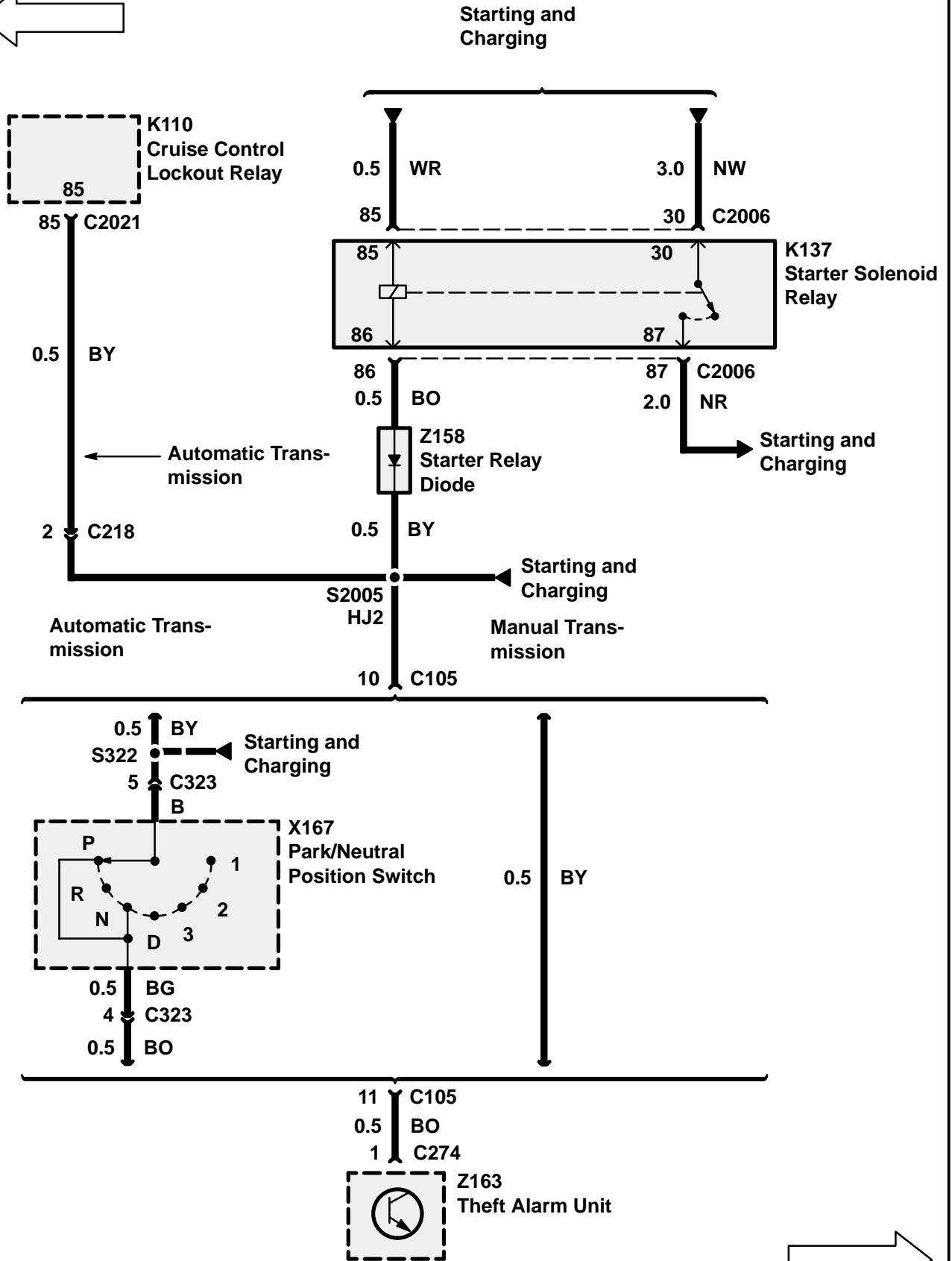
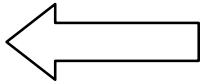




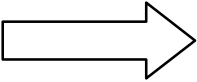
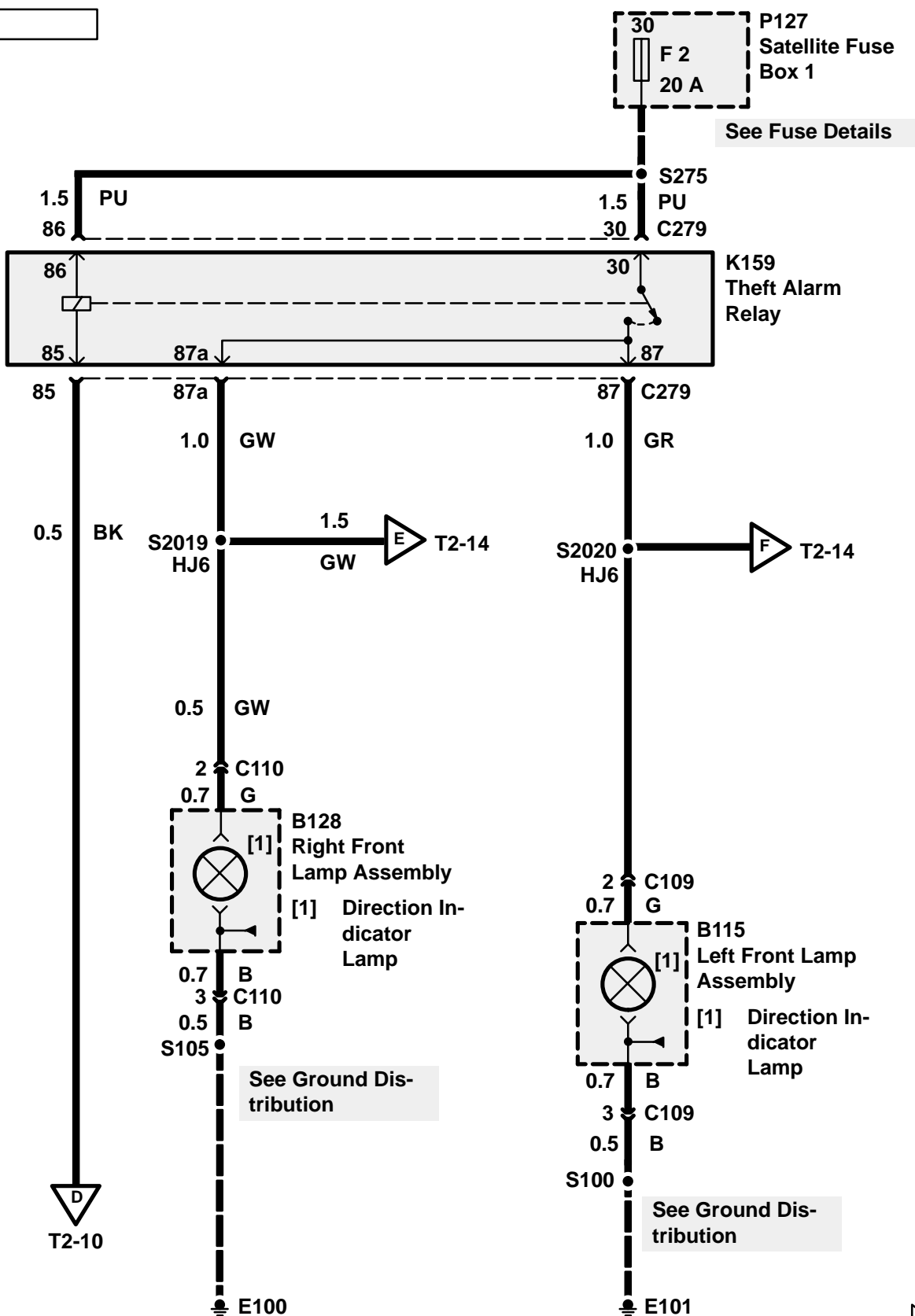
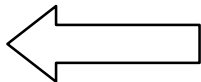


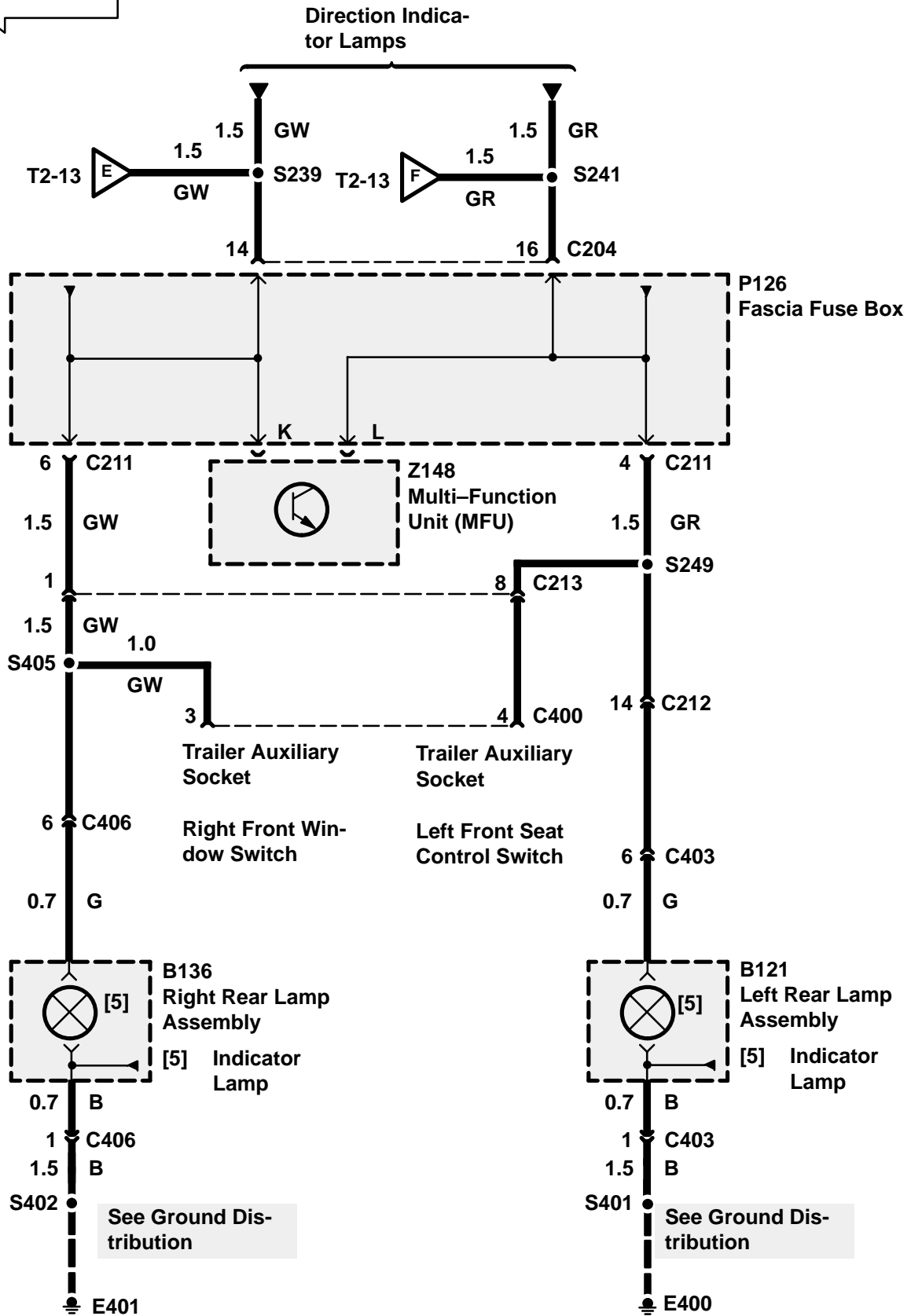
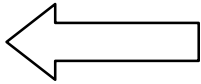












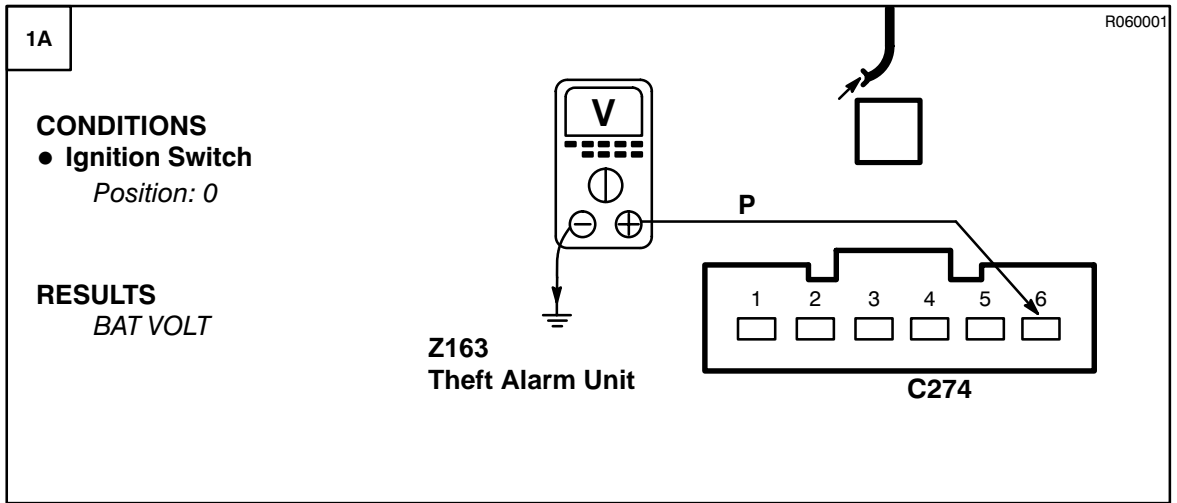
**TROUBLESHOOTING HINTS**

13. Check Fuses F1, F2 and F5 in Satellite Fuse Box 1.
14. Check Fuse F5 in Satellite Fuse Box 2.
15. Check Fuse F4 in Engine Compartment Fuse Box.
16. If the interior lights do not come on when a door is open, check suspect door switch and associated wiring.
17. If none of the lock actuators operate, check O and K Wire. If OK, replace Theft Alarm Unit (Z163).

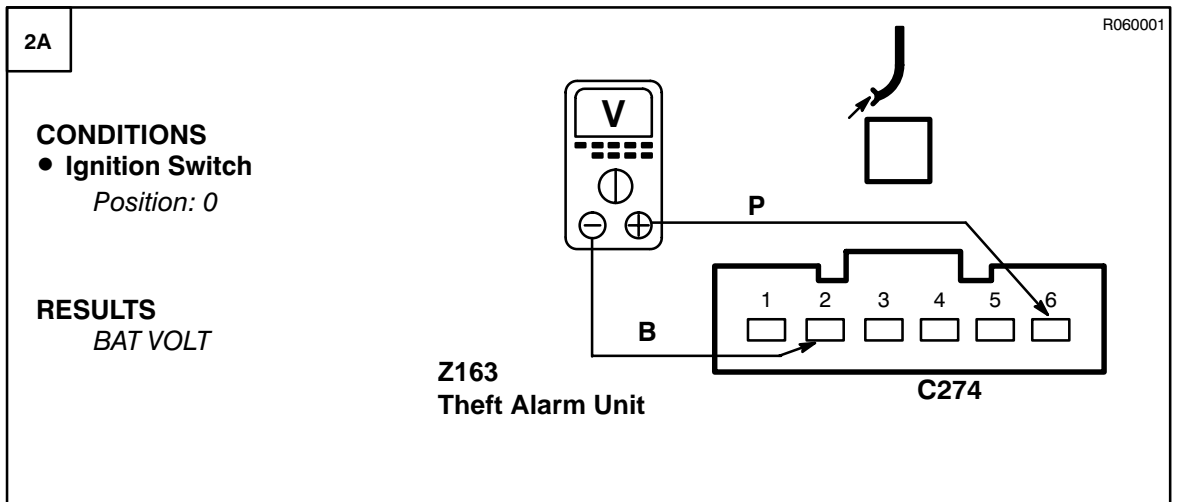
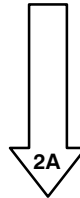
**SYSTEM DIAGNOSIS**

1. If the system arms, but will not trigger at all, do Test B.
2. If the Horns (K128, K134) do not sound when triggered, do Test B.
3. If the hazard lights do not flash when triggered, do Test E.
4. If the system will not trigger when the bonnet is open, do Test F.
5. If the system will not trigger when the tailgate is open, do Test G.
6. If the Theft Alarm LED (B151) does not operate, do Test C.
7. If the Horns (K128, K134) sound continuously, do Test D.
8. If the system will not disarm, do Test A.
9. If a Front Door Lock Actuator (M114, M122) does not operate, do Test H.
10. If the doors unlock themselves after operating the door locks, do Test I.
11. If the central locking function does not operate from one of the front doors, do Test J.
12. If the Tailgate Lock Actuator (M132) does not operate, do Test K.
13. If both Rear Door Lock Actuators (M117, M125) do not operate, do Test L.

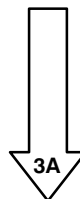
### Test A

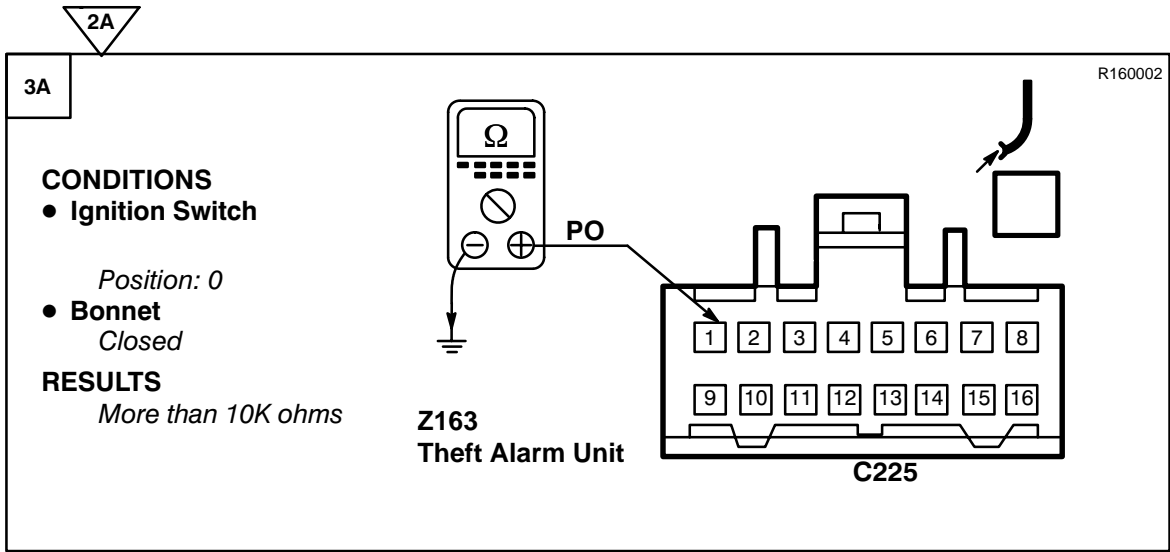


**PROBLEM CAUSE**  
- P Wire



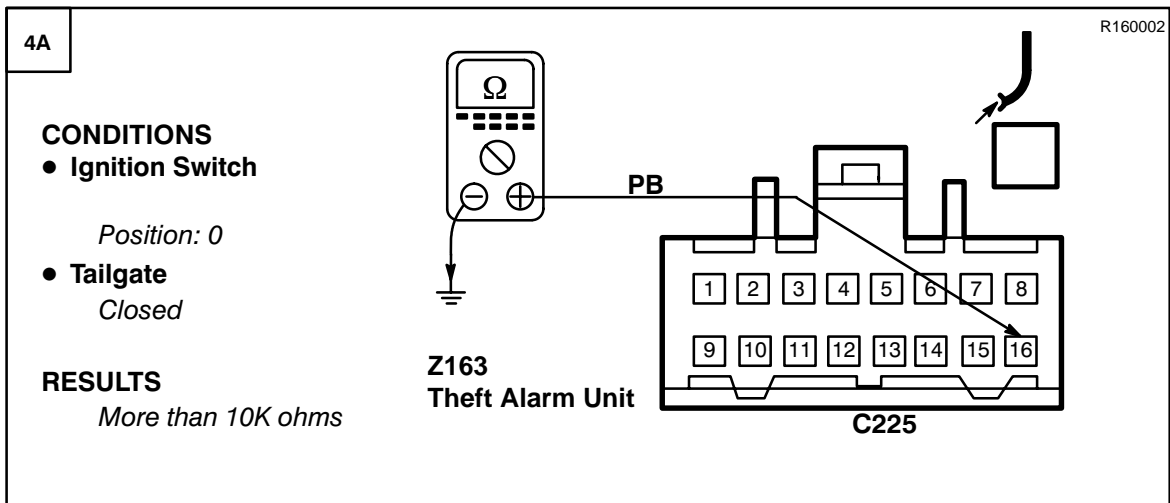
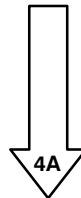
**PROBLEM CAUSE**  
- B Wire





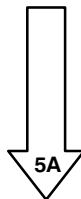
**PROBLEM CAUSE**

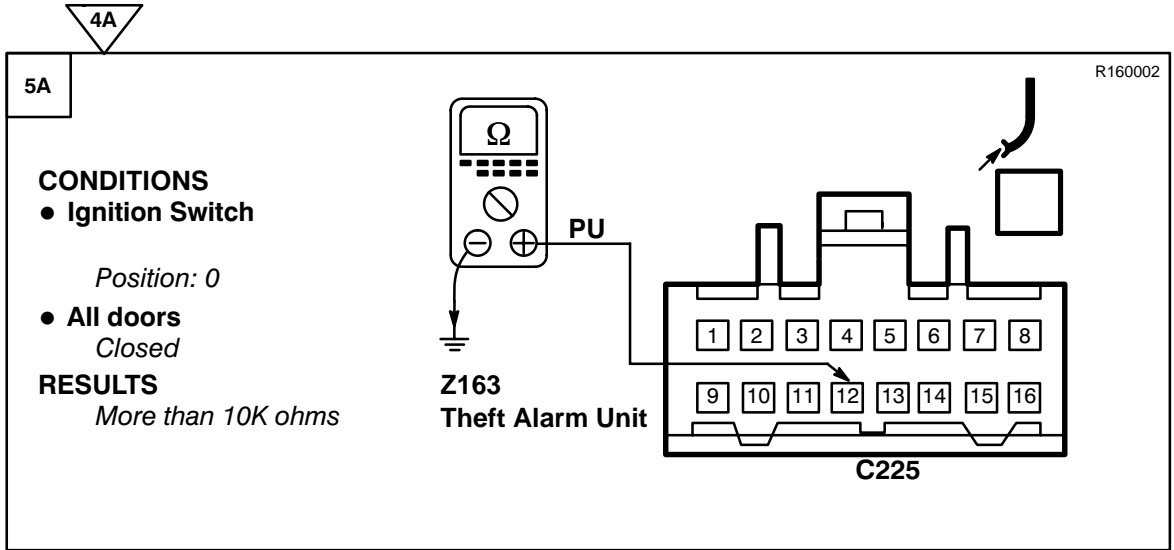
- PO, B Wire
- Alarm Bonnet Switch



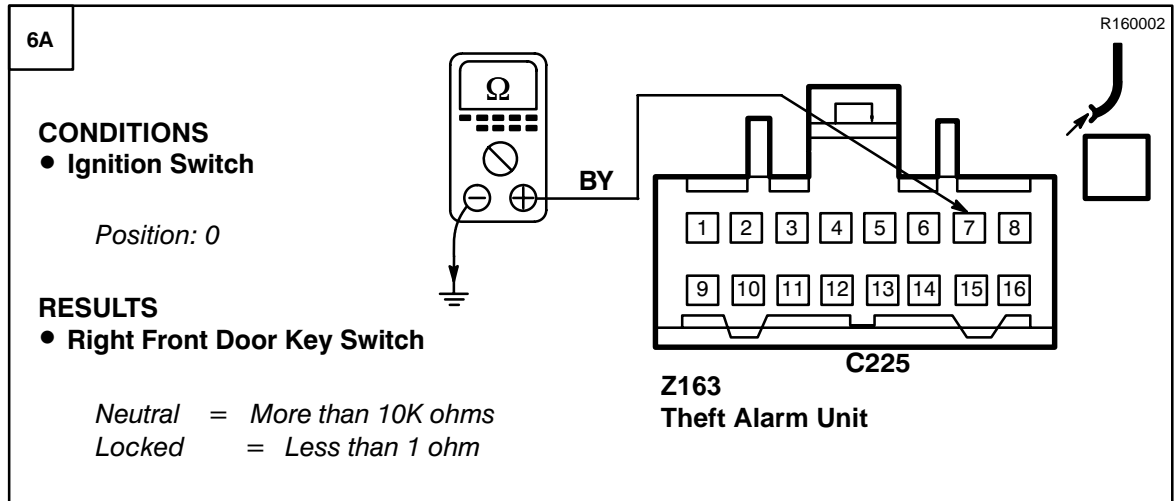
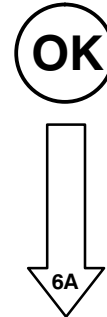
**PROBLEM CAUSE**

- PB Wire
- Tailgate Switch



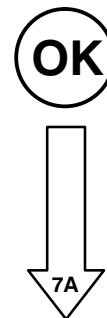


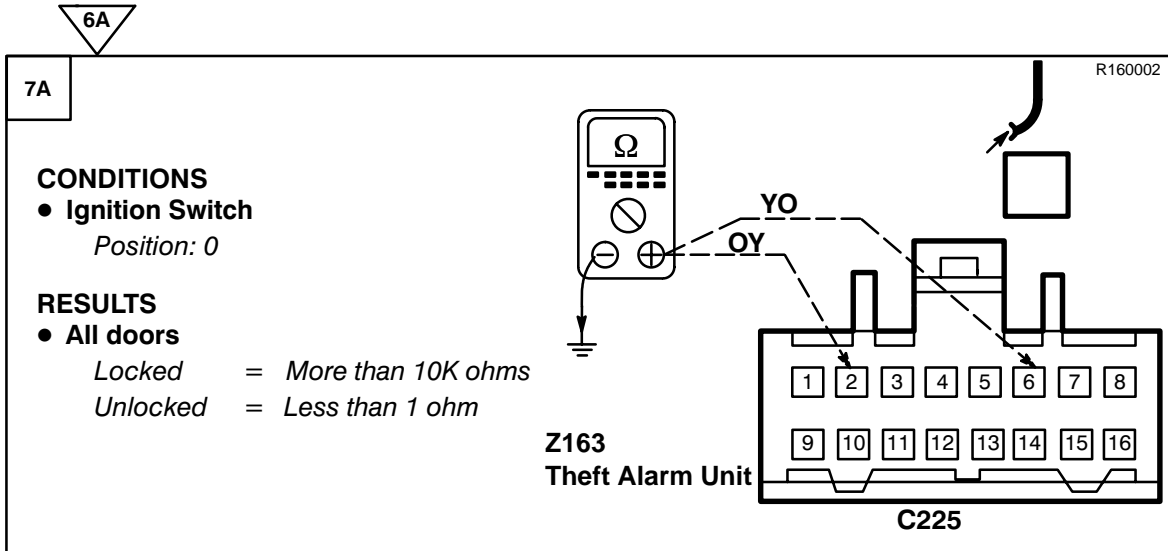
**OK** PROBLEM CAUSE  
- PU Wire



**OK** PROBLEM CAUSE

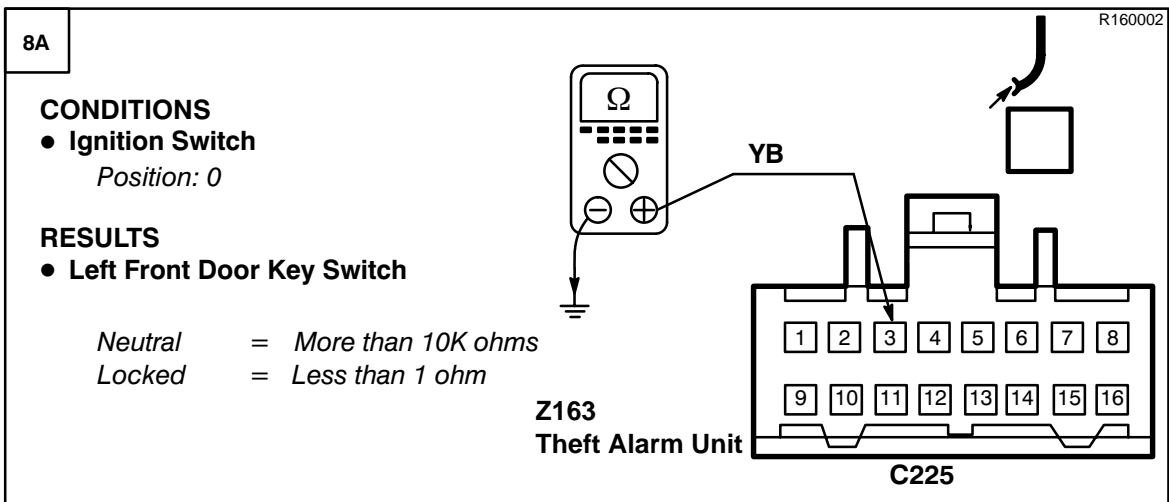
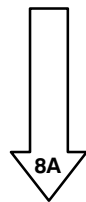
- BY Wire
- Y Wire
- B Wire
- Right Front Door Key Switch





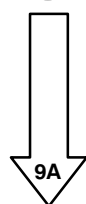
**PROBLEM CAUSE**

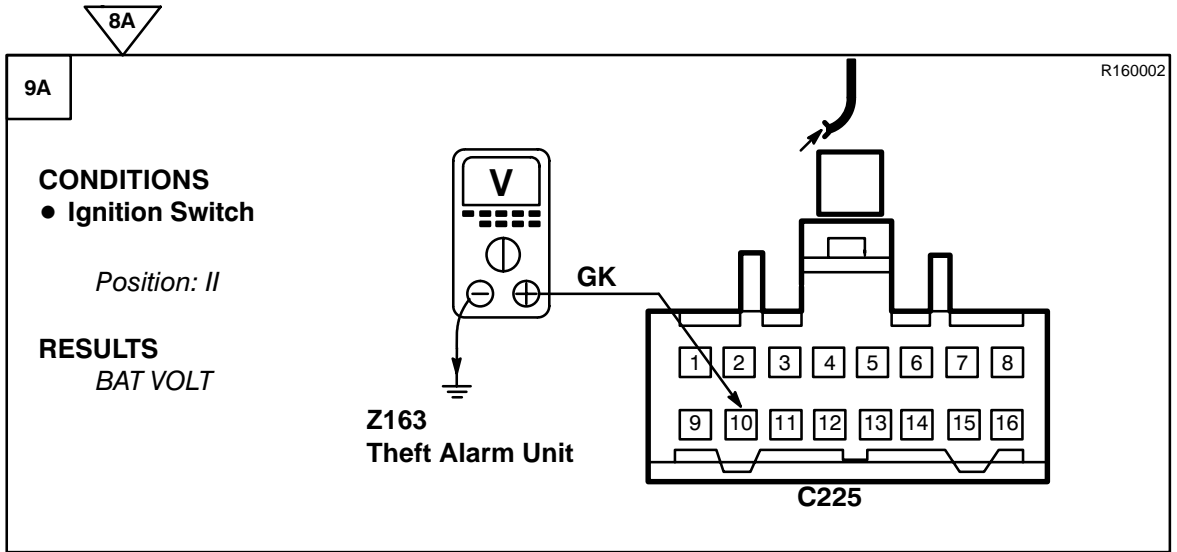
- OY Wire
- YO Wire
- B Wire



**PROBLEM CAUSE**

- YB Wire
- Y Wire
- B Wire
- Left Front Door Key Switch



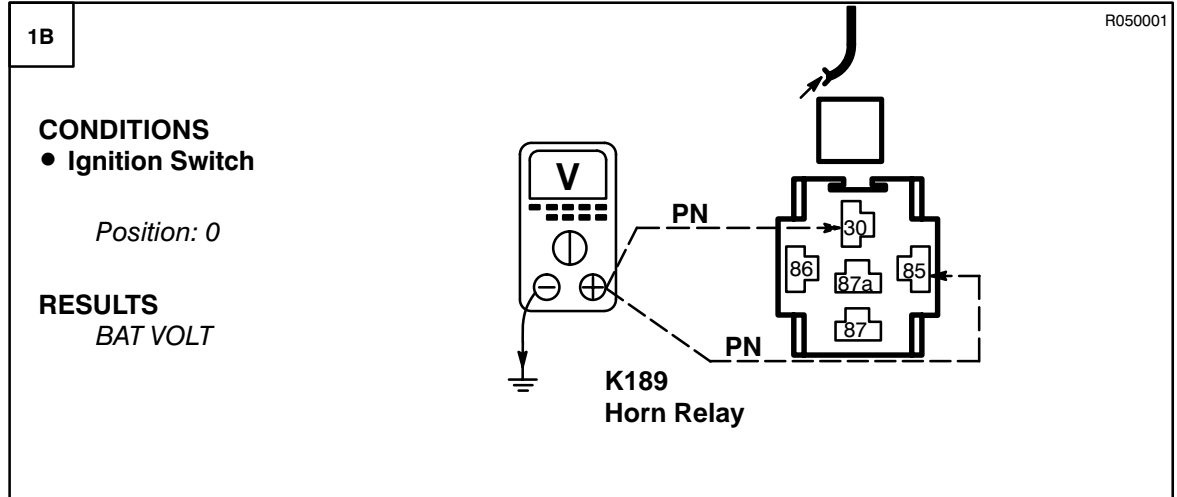


**PROBLEM CAUSE**  
- GK Wire

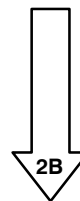


**PROBLEM CAUSE**  
- Theft Alarm Unit

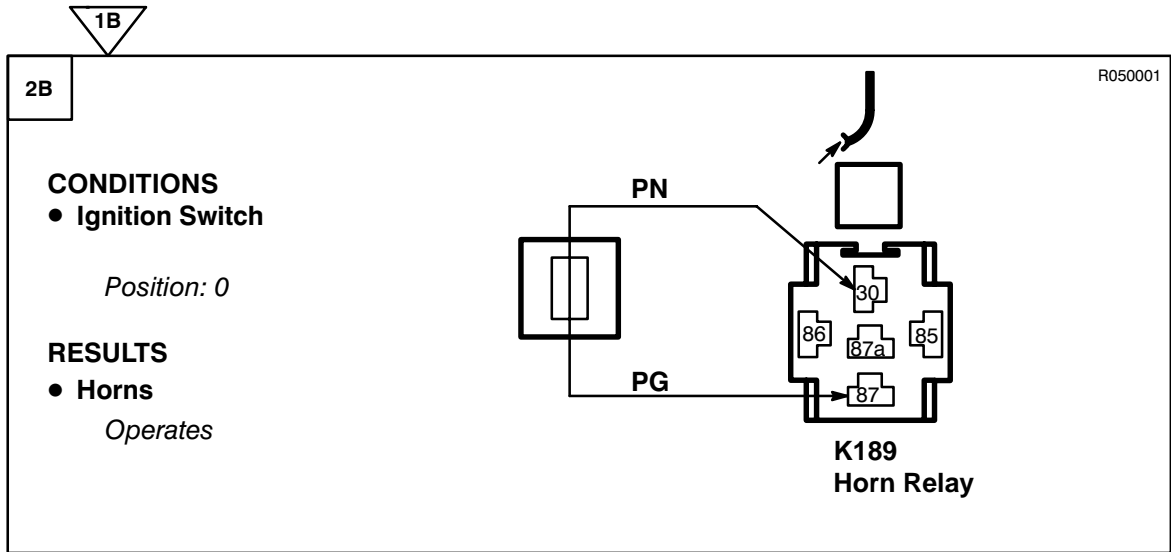
### Test B



**PROBLEM CAUSE**  
- PN Wire

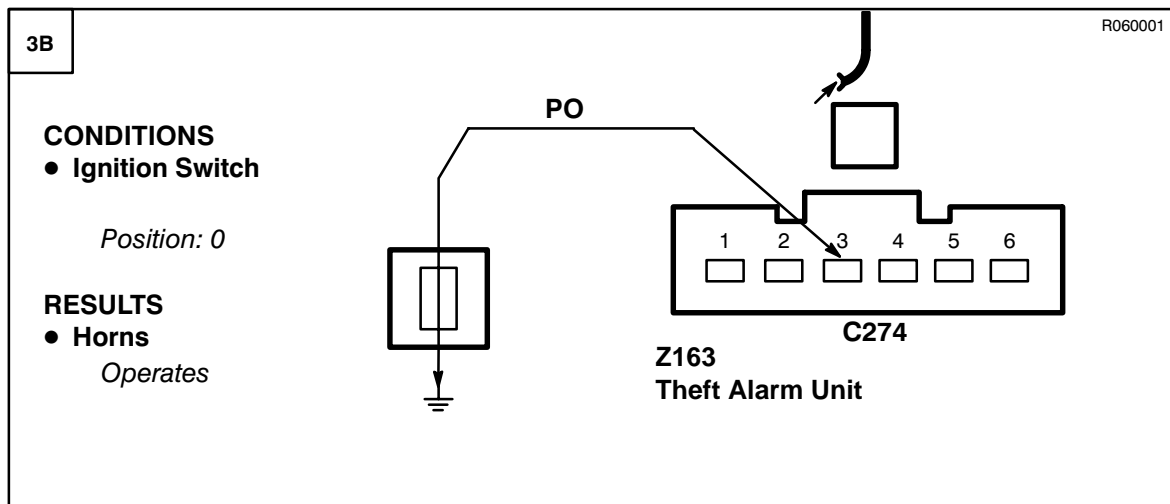
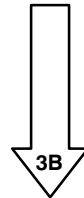






**PROBLEM CAUSE**

- PG Wire
- Horns



**PROBLEM CAUSE**

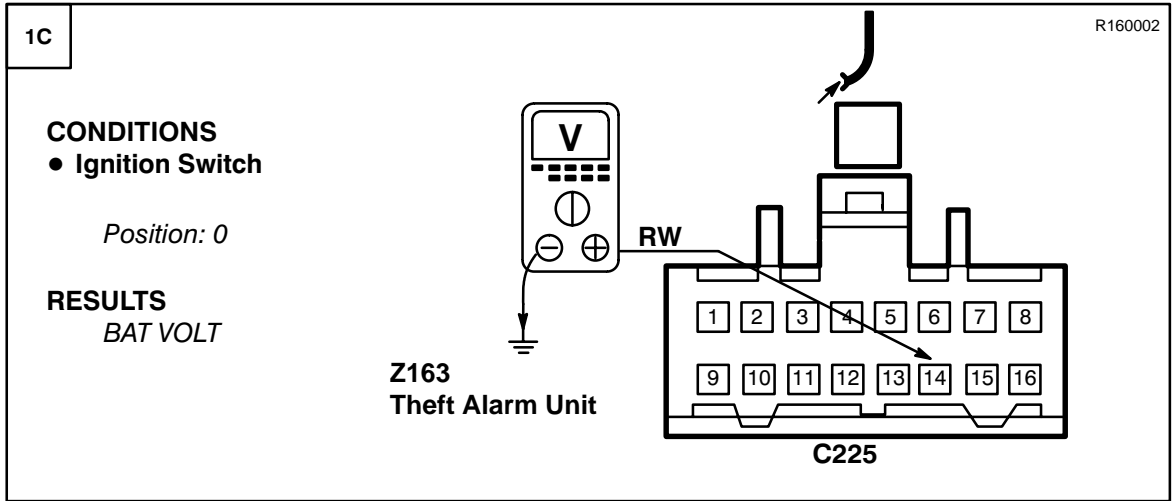
- PO Wire
- Horn Relay



**PROBLEM CAUSE**

- Theft Alarm Unit

### Test C



**PROBLEM CAUSE**

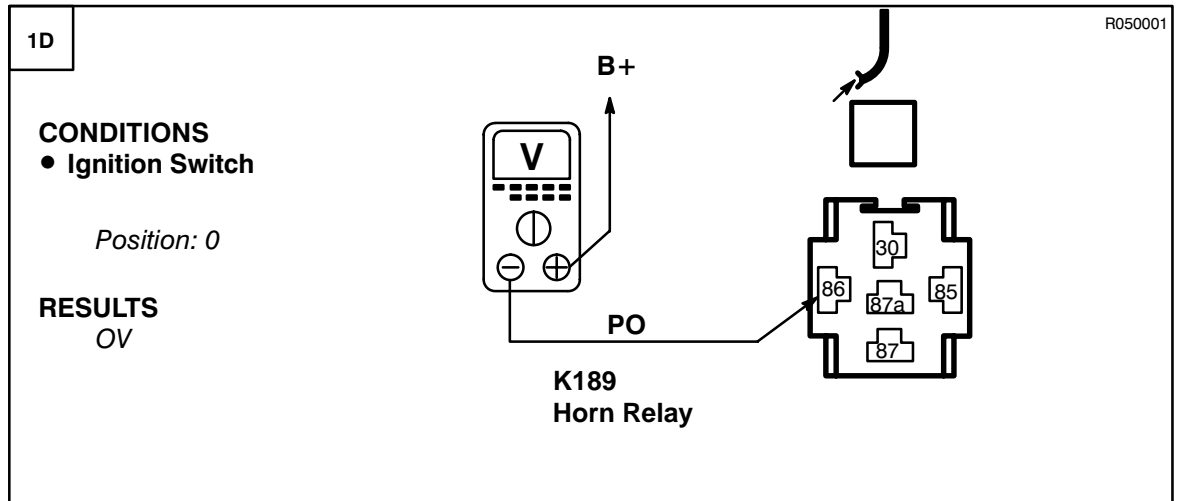
- RW Wire
- PN Wire
- Theft Alarm LED



**PROBLEM CAUSE**

- Theft Alarm Unit

### Test D



**PROBLEM CAUSE**

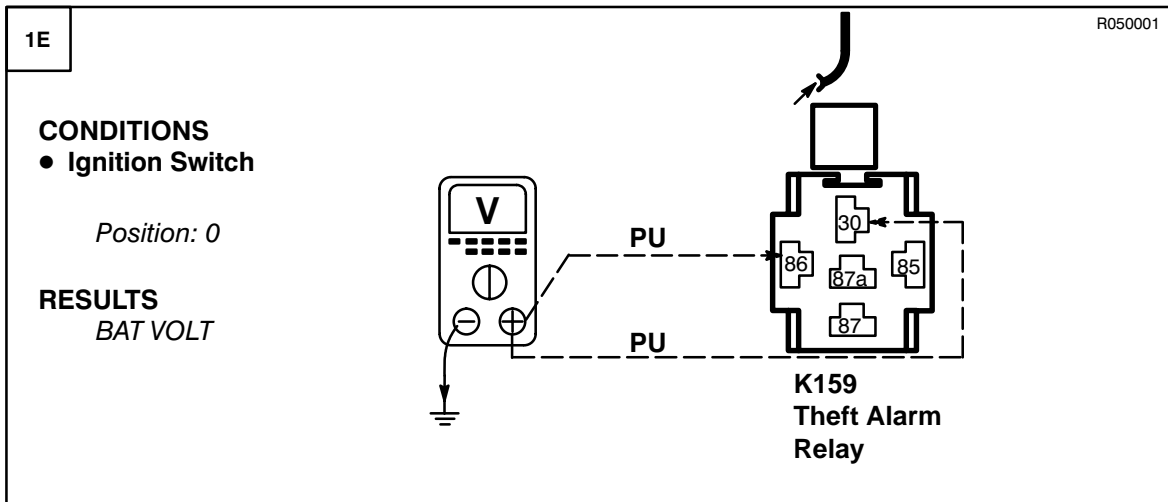
- PO Wire
- Theft Alarm Unit



**PROBLEM CAUSE**

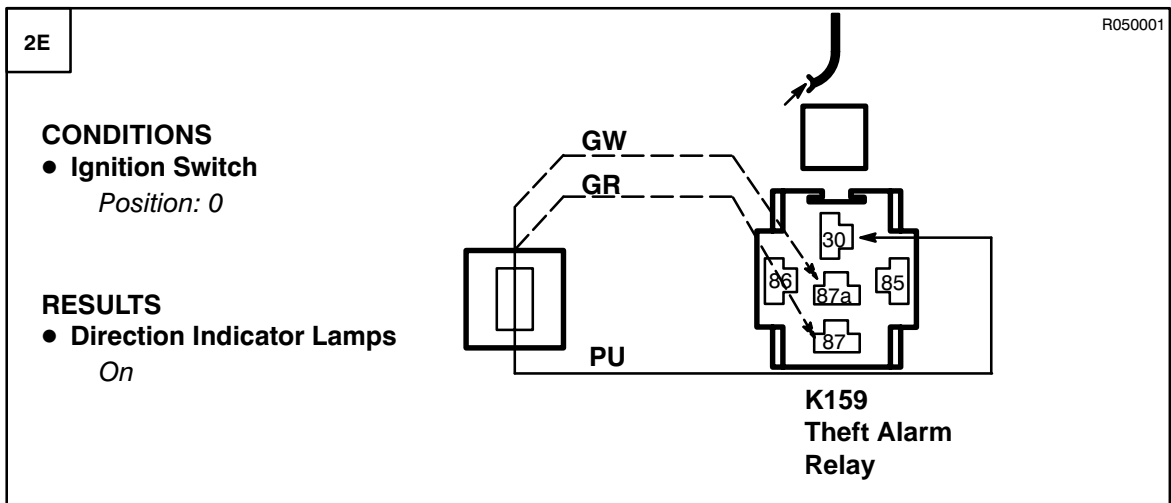
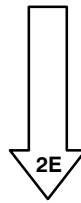
- Horn Relay

**Test E**



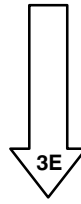
~~OK~~ **PROBLEM CAUSE**  
- PU Wire

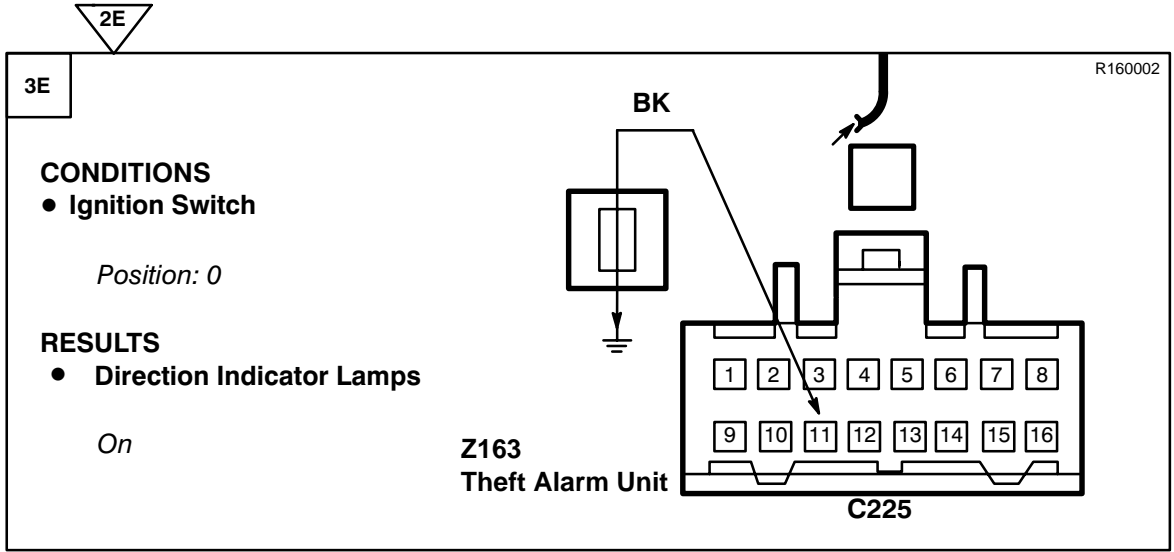
OK



~~OK~~ **PROBLEM CAUSE**  
- GR Wire  
- GW Wire  
- B Wire

OK





**PROBLEM CAUSE**

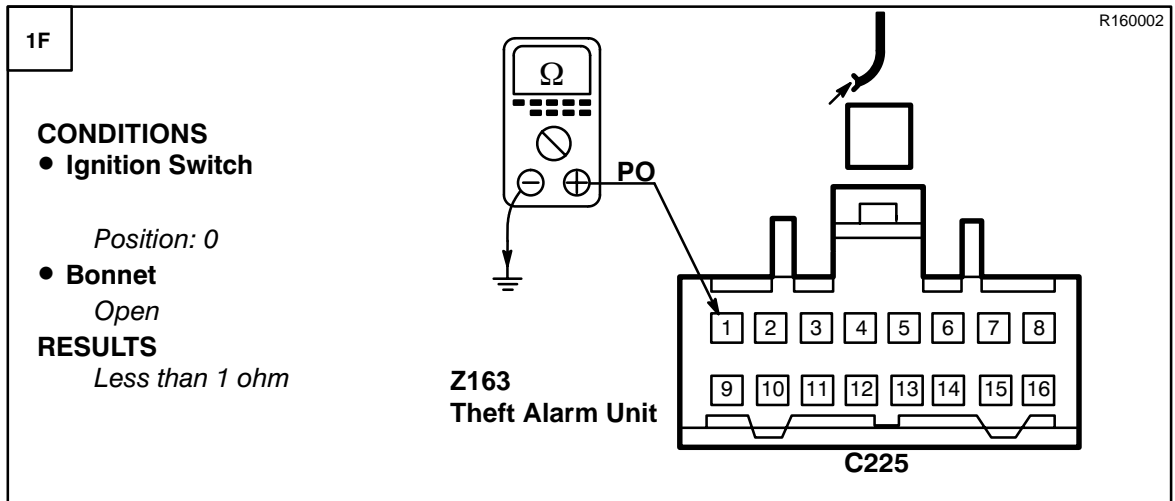
- BK Wire
- Theft Alarm Relay



**PROBLEM CAUSE**

- Theft Alarm Unit

### Test F



**PROBLEM CAUSE**

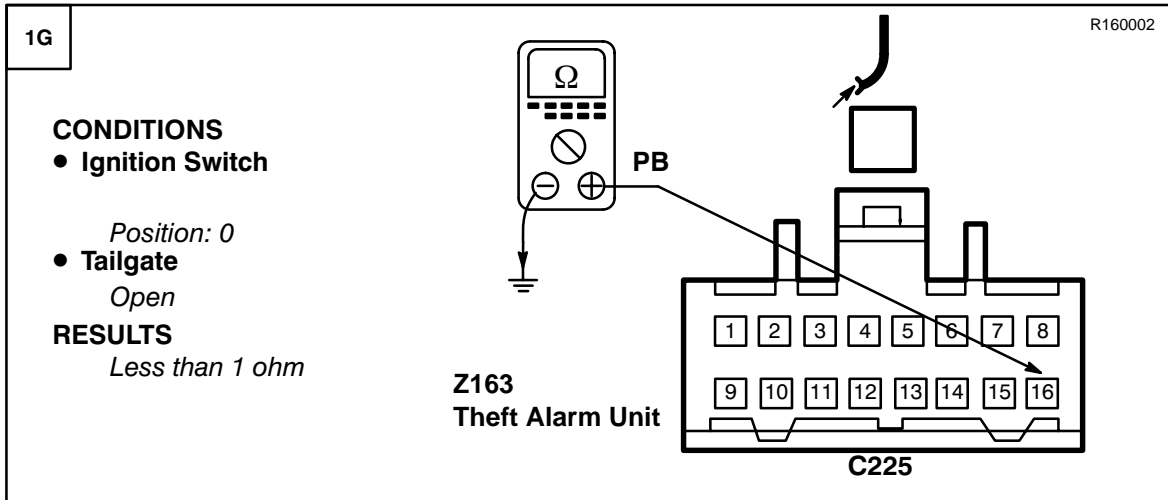
- PO Wire
- B Wire
- Alarm Bonnet Switch



**PROBLEM CAUSE**

- Theft Alarm Unit

**Test G**



**PROBLEM CAUSE**

- PB Wire
- Tailgate Switch



**PROBLEM CAUSE**

- Theft Alarm Unit

### Test H

R060009

1H

**CONDITIONS**

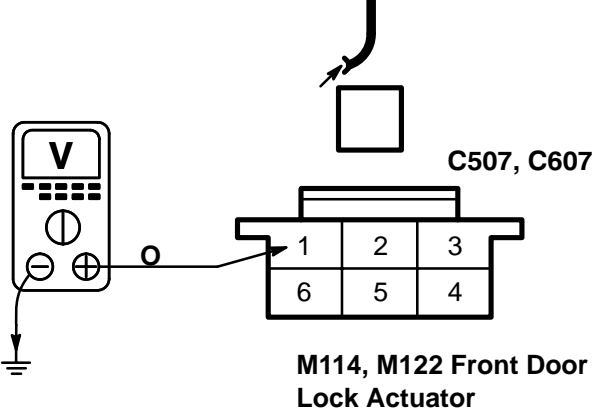
- Ignition Switch

*Position: II*

- All doors

*Locked*

- Unlock a front door



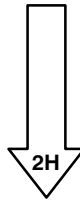
**RESULTS**

*BAT VOLT (Momentary)*



**PROBLEM CAUSE**

- O Wire



R060009

2H

**CONDITIONS**

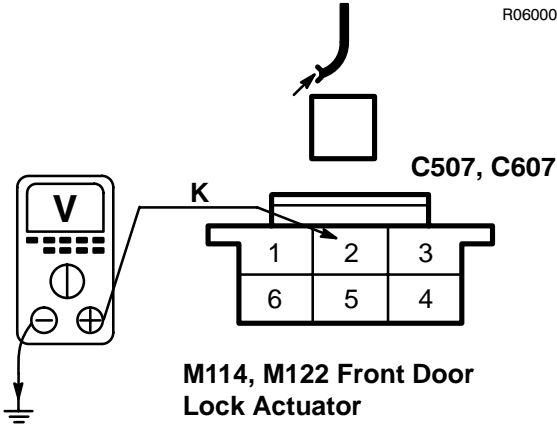
- Ignition Switch

*Position: II*

- All doors

*Unlocked*

- Lock a front door



**RESULTS**

*BAT VOLT (Momentary)*



**PROBLEM CAUSE**

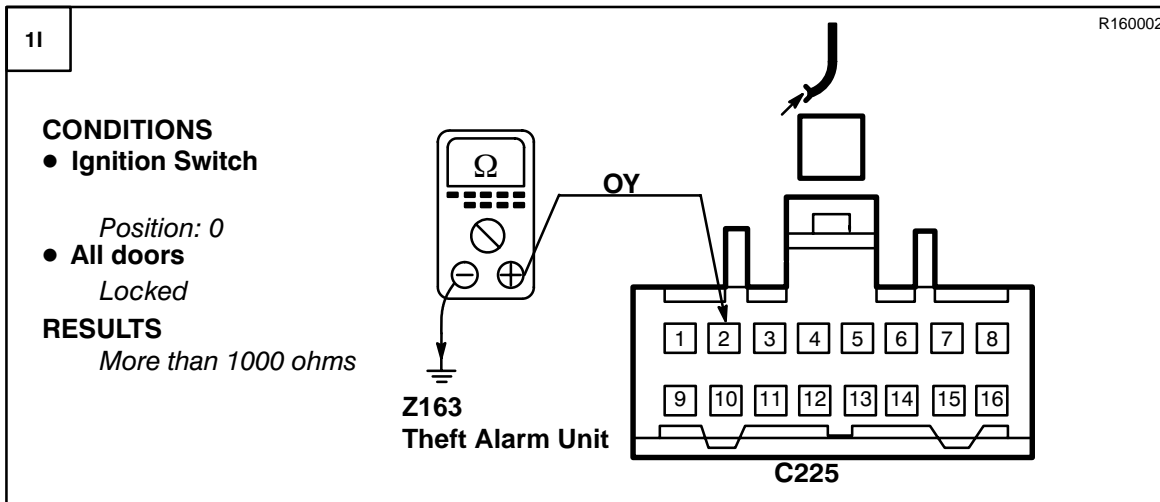
- K Wire



**PROBLEM CAUSE**

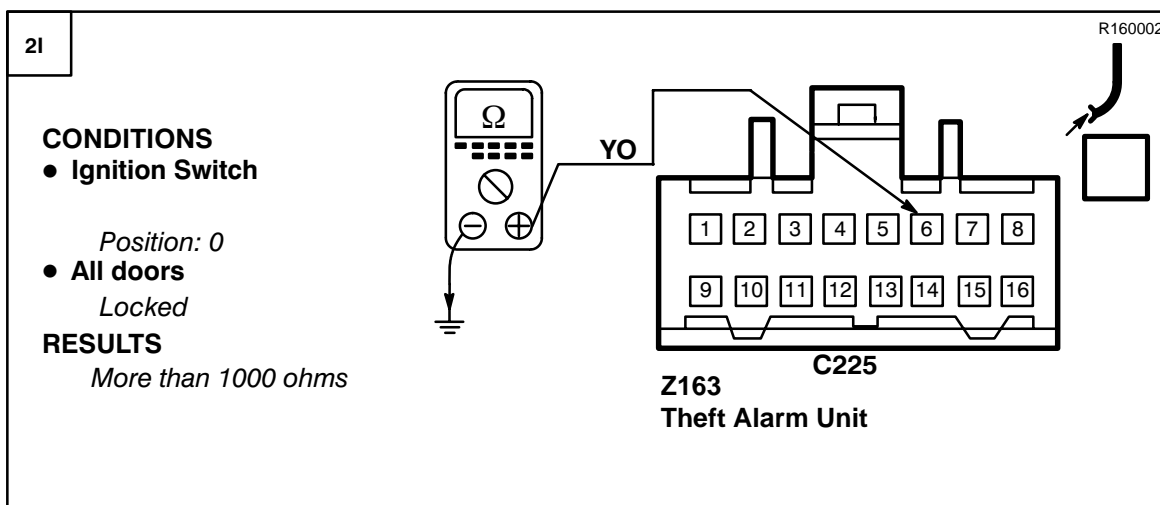
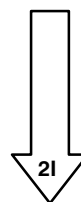
- M114, M122 Front Door Lock Actuator

**Test 1**



**PROBLEM CAUSE**

- OY Wire
- YO Wire
- M114, M122 Front Door Lock Actuator



**PROBLEM CAUSE**

- YO Wire
- OY Wire
- M114, M122 Front Door Lock Actuator



**PROBLEM CAUSE**

- Theft Alarm Unit

Test J

1J R160002

**CONDITIONS**

- Ignition Switch

*Position: 0*

- All doors  
*Unlocked*

**RESULTS**  
*Less than 1 ohm*

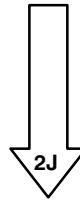
Z163  
Theft Alarm Unit

OY

C225



GO TO TEST 3J



2J R160002

**CONDITIONS**

- Ignition Switch

*Position: 0*

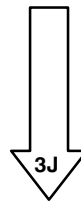
- All doors  
*Unlocked*

**RESULTS**  
*Less than 1 ohm*

Z163  
Theft Alarm Unit

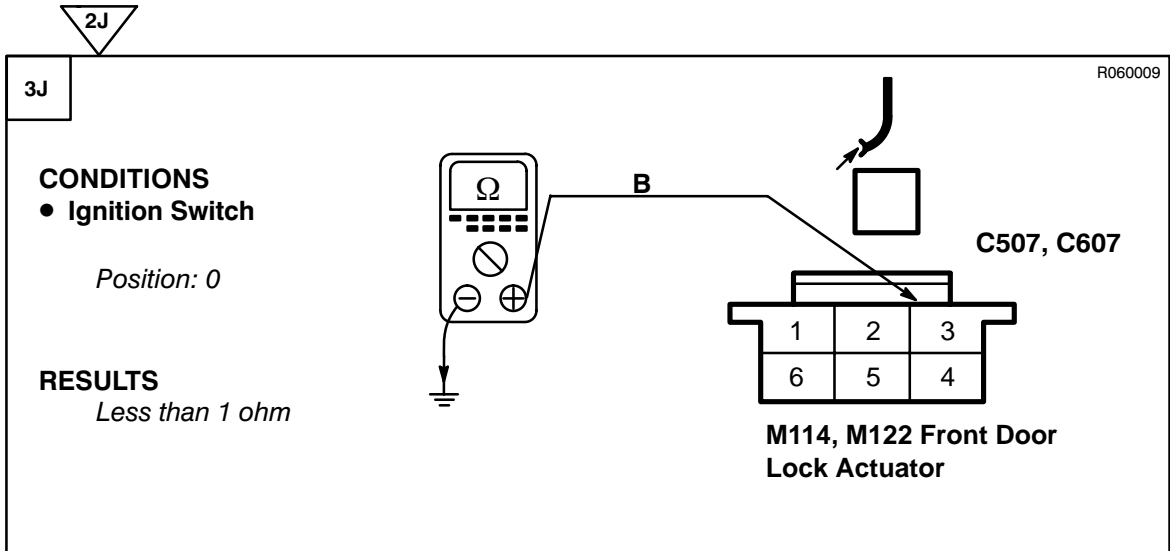
YO

C225

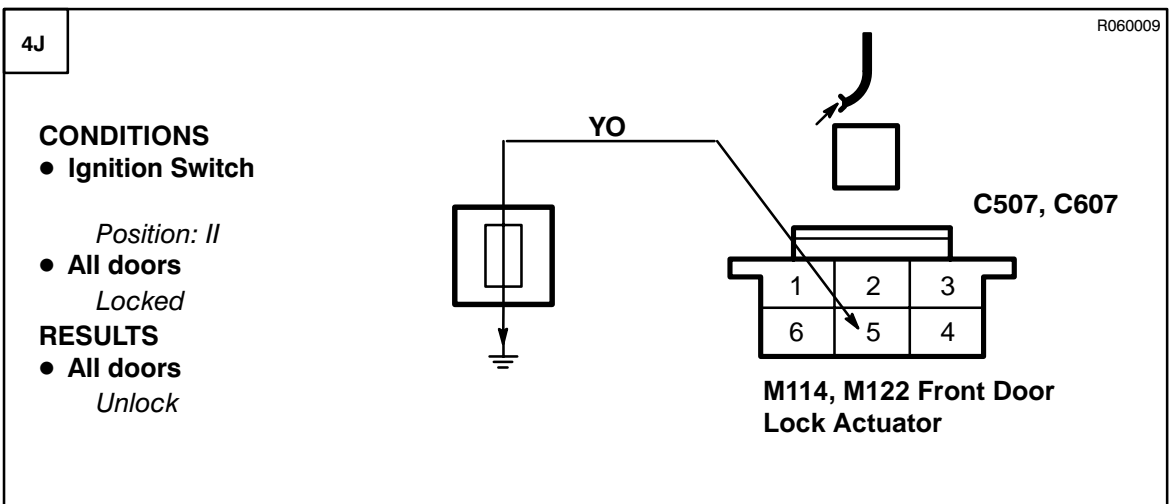
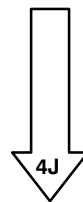


**PROBLEM CAUSE**  
- Theft Alarm Unit





**PROBLEM CAUSE**  
- B Wire



**PROBLEM CAUSE**  
- YO Wire  
- OY Wire (Right)  
- Theft Alarm Unit



**PROBLEM CAUSE**  
- M114, M122 Front Door Lock Actuator

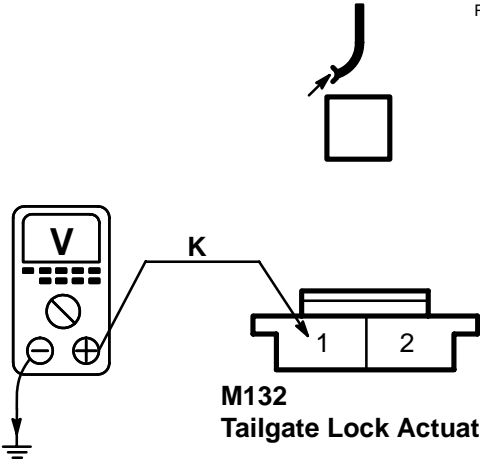
Test K

R020029.00

1K

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

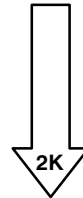


M132  
Tailgate Lock Actuator

**RESULTS**  
*BAT VOLT (Momentary)*



**PROBLEM CAUSE**  
- K Wire

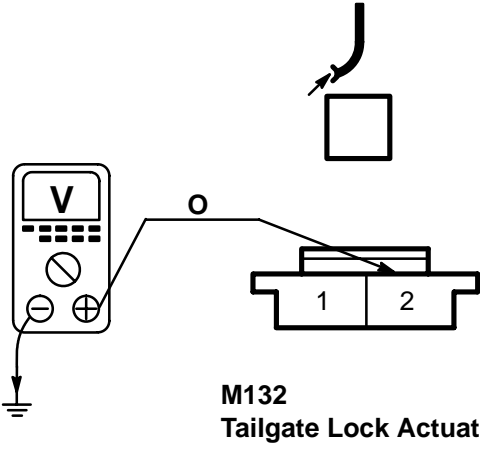


R020029.00

2K

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*
- Unlock a front door



M132  
Tailgate Lock Actuator

**RESULTS**  
*BAT VOLT (Momentary)*



**PROBLEM CAUSE**  
- O Wire



**PROBLEM CAUSE**  
- Tailgate Lock Actuator

**Test L**

**1L**

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Unlocked*
- Lock a front door

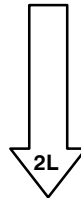
**RESULTS**  
*BAT VOLT (Momentary)*

R020029

**M117, M125 Rear Door Lock Actuator**



**PROBLEM CAUSE**  
- K Wire



**2L**

**CONDITIONS**

- Ignition Switch  
*Position: 0*
- All doors  
*Locked*
- Unlock a front door

**RESULTS**  
*BAT VOLT (Momentary)*

R020029

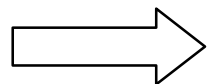
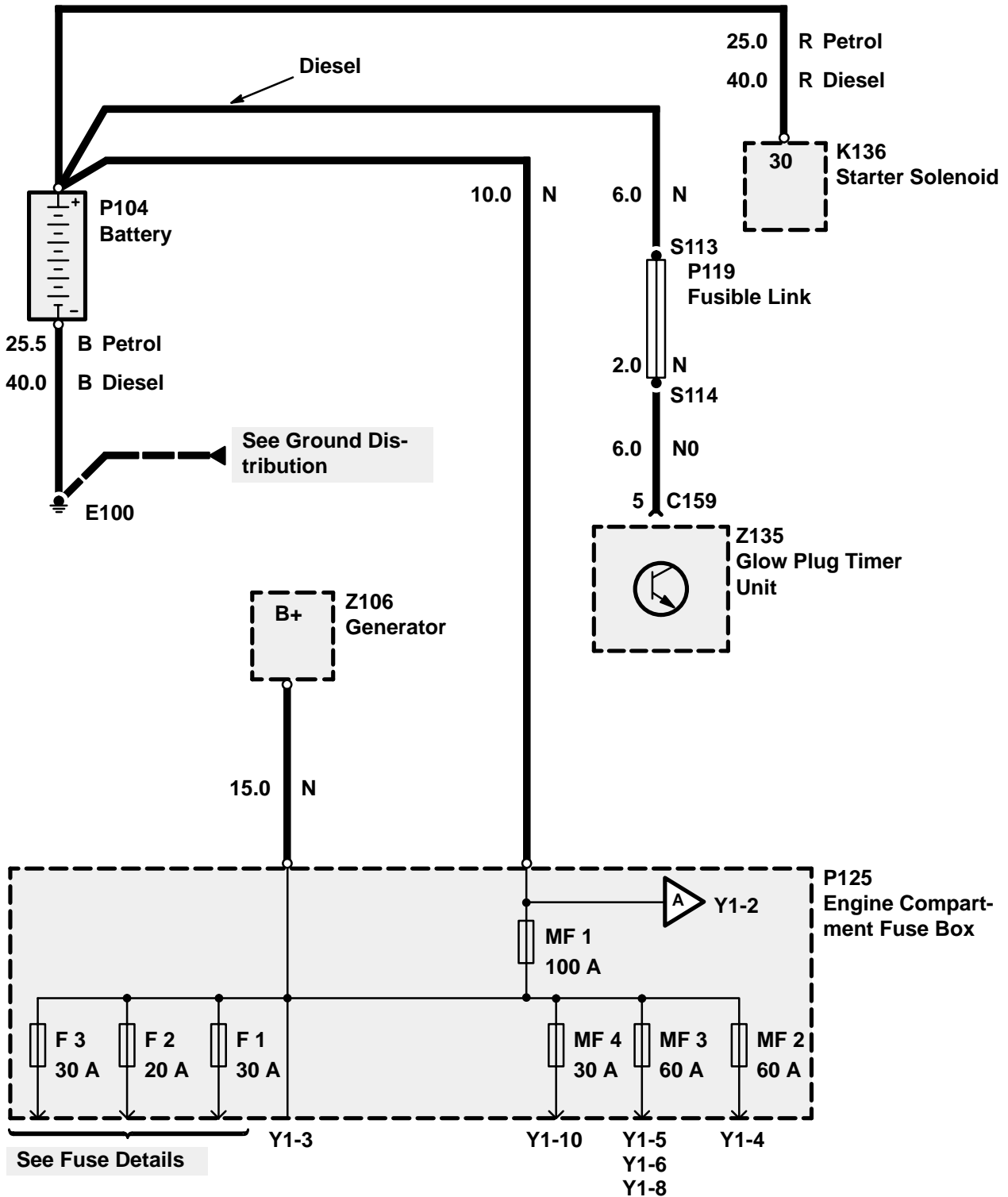
**M117, M125 Rear Door Lock Actuator**



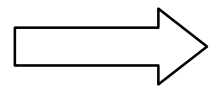
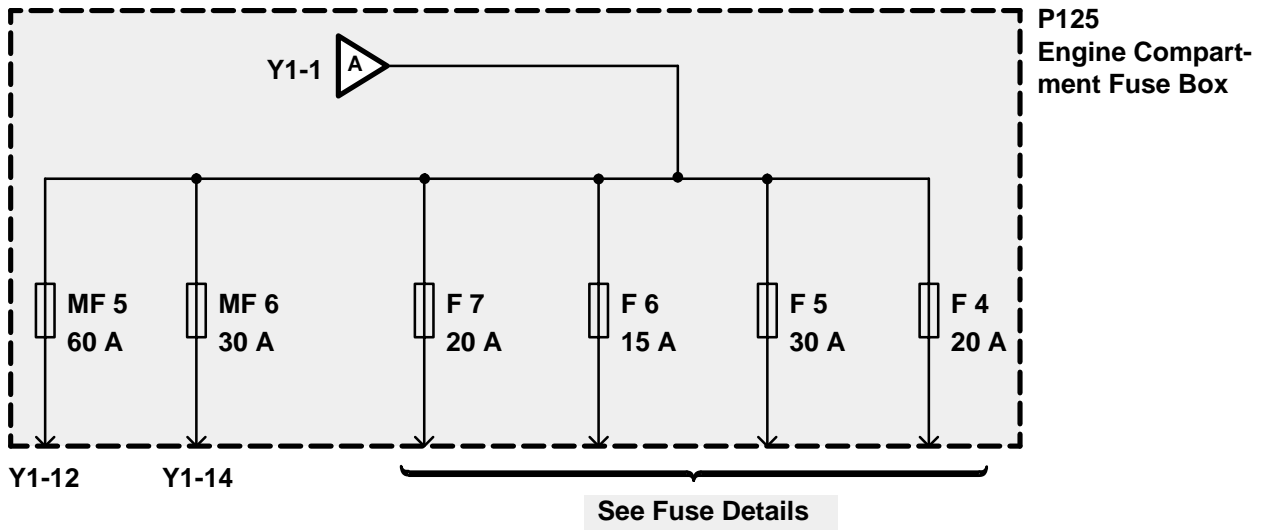
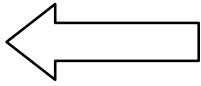
**PROBLEM CAUSE**  
- O Wire

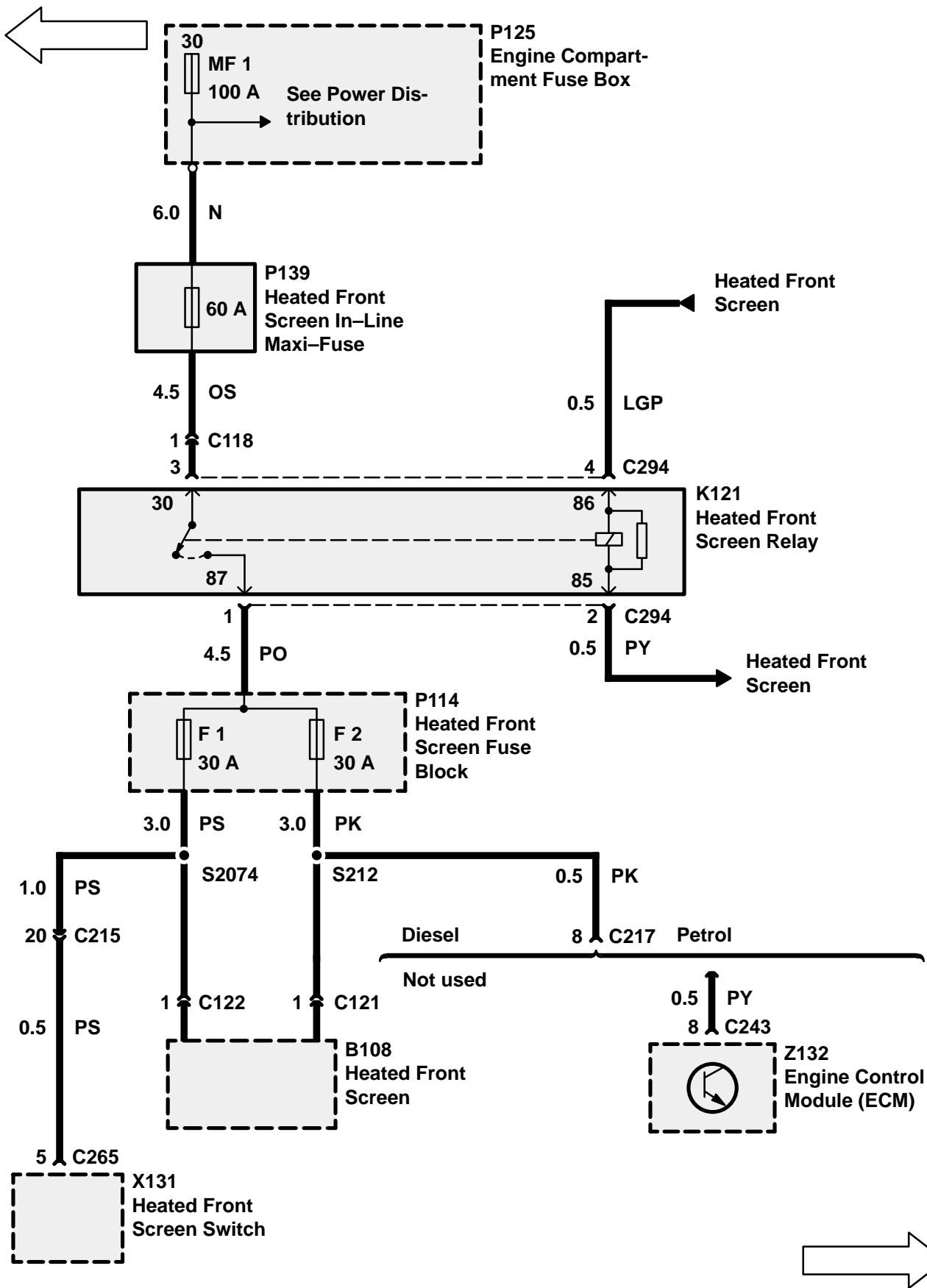


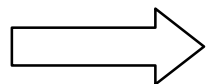
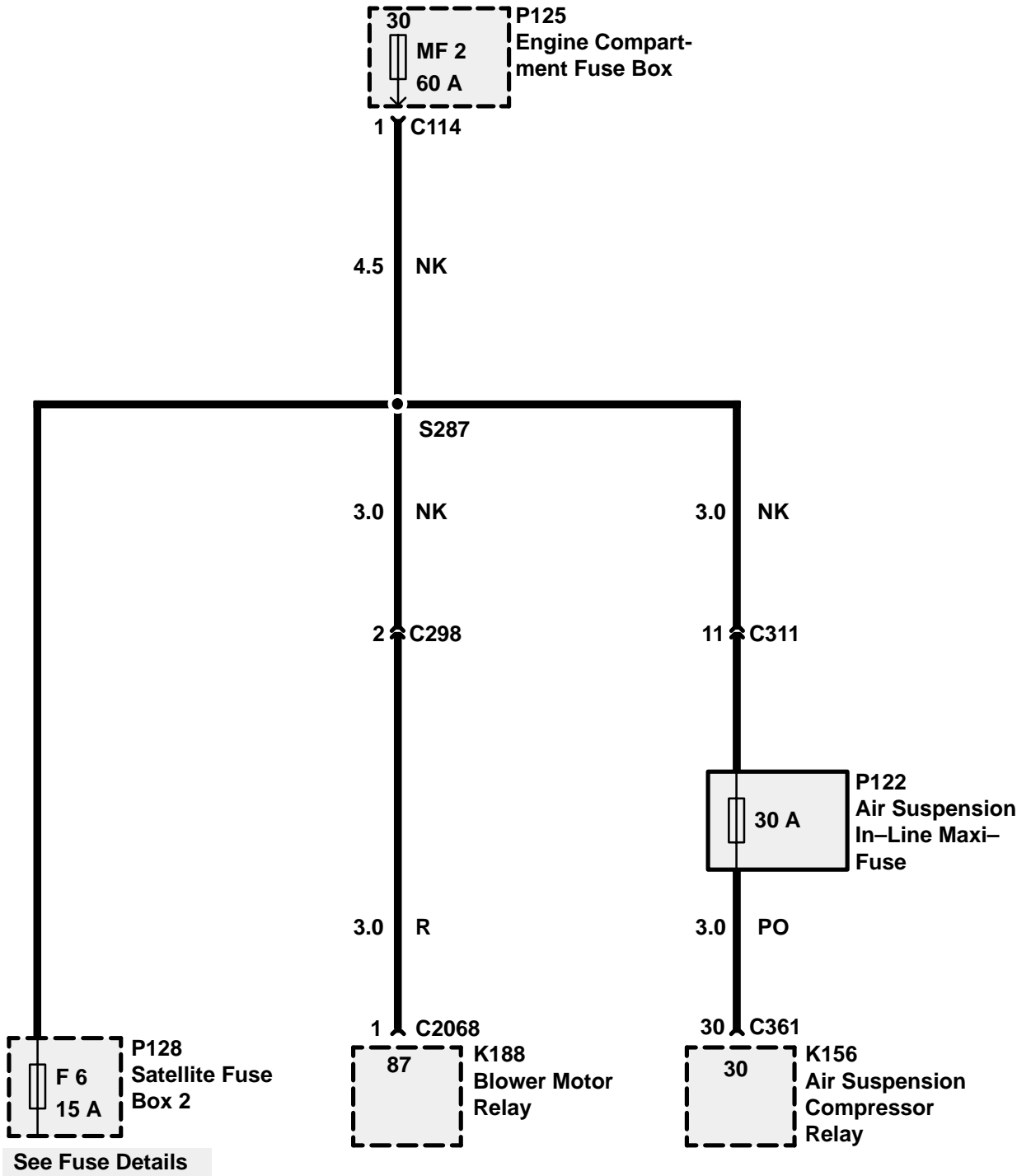
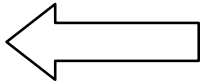
**PROBLEM CAUSE**  
- M117, M125 Rear Door Lock Actuator

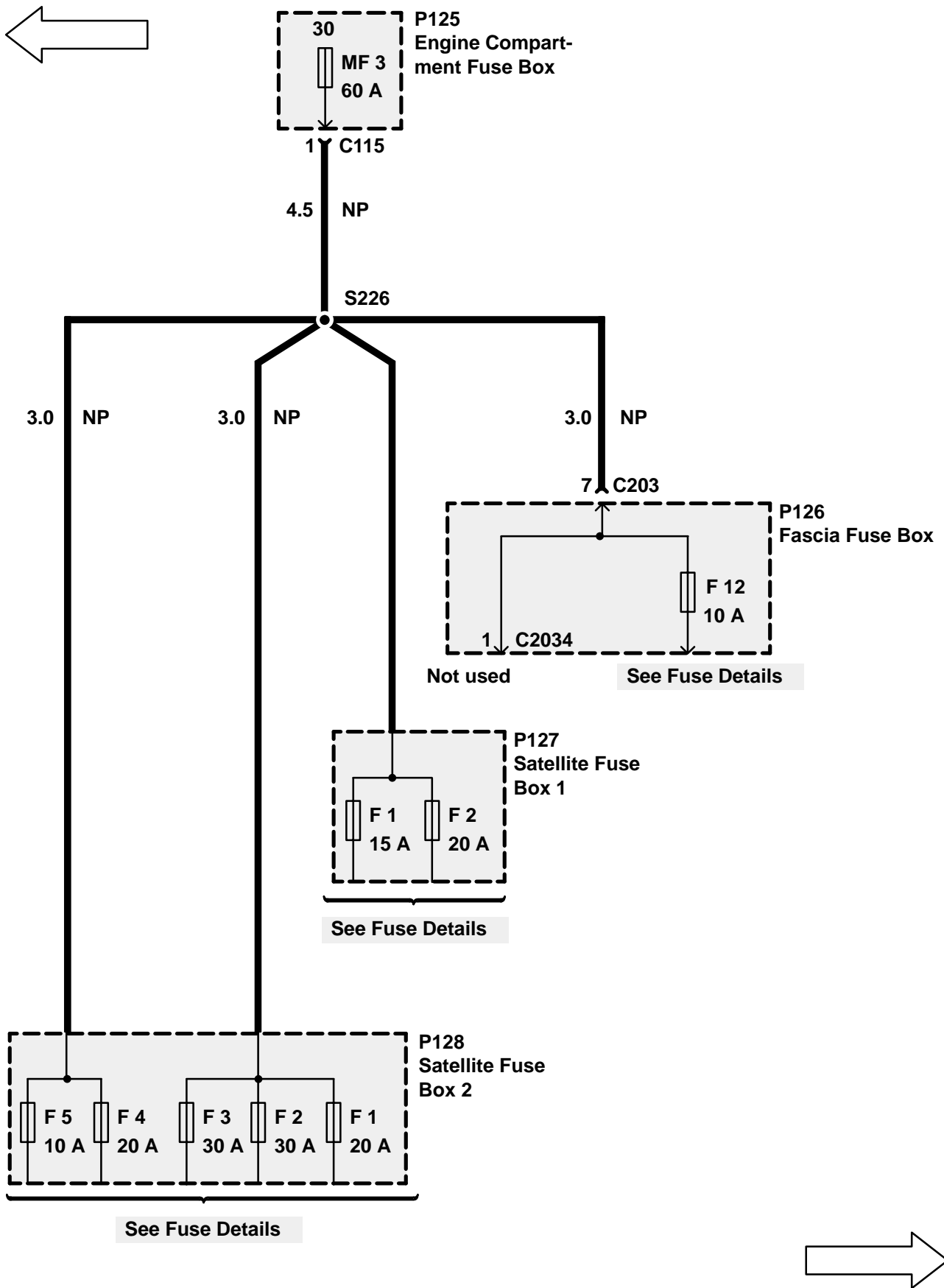


# Y1 ETM





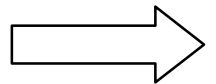
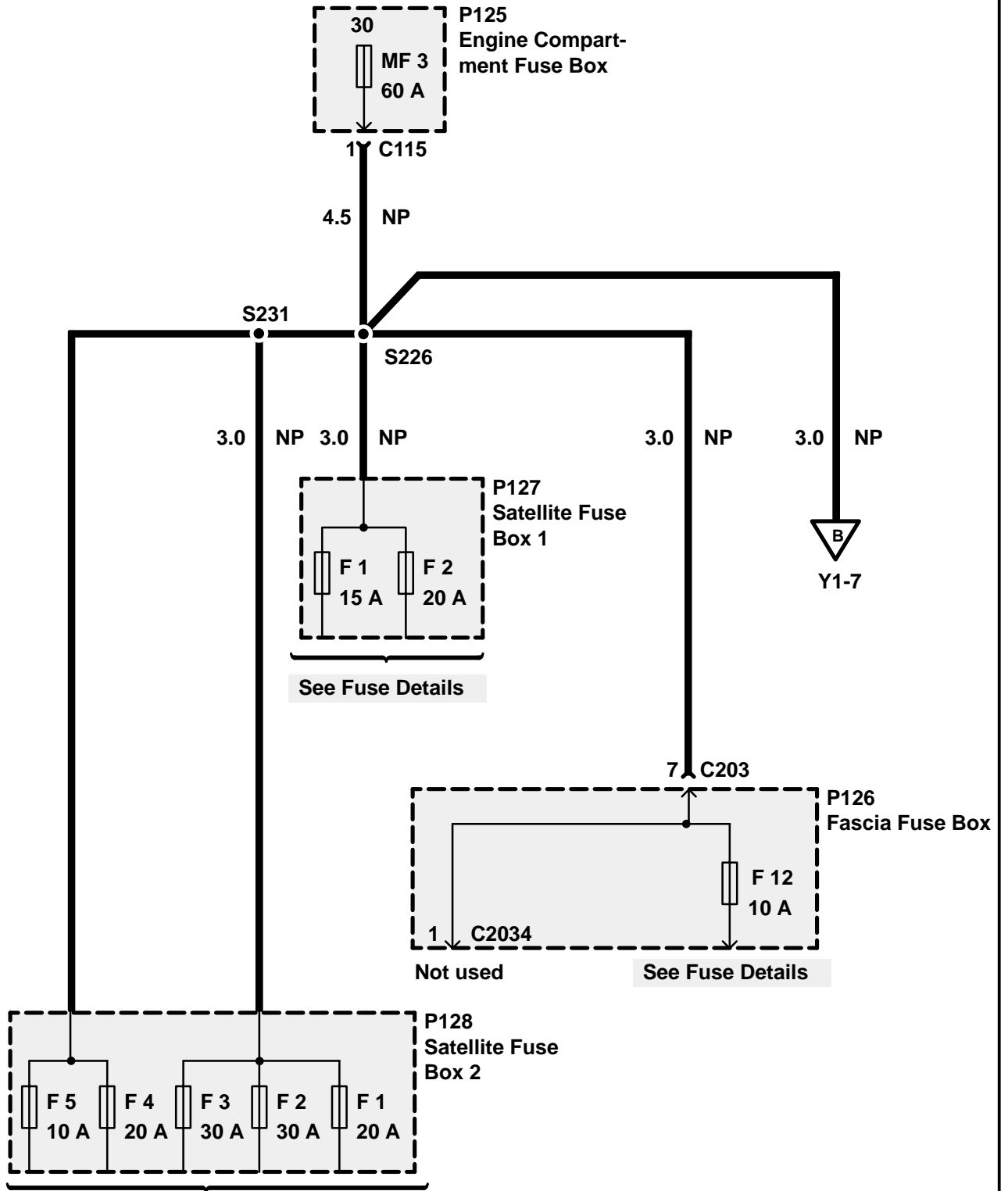
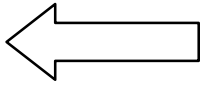


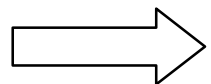
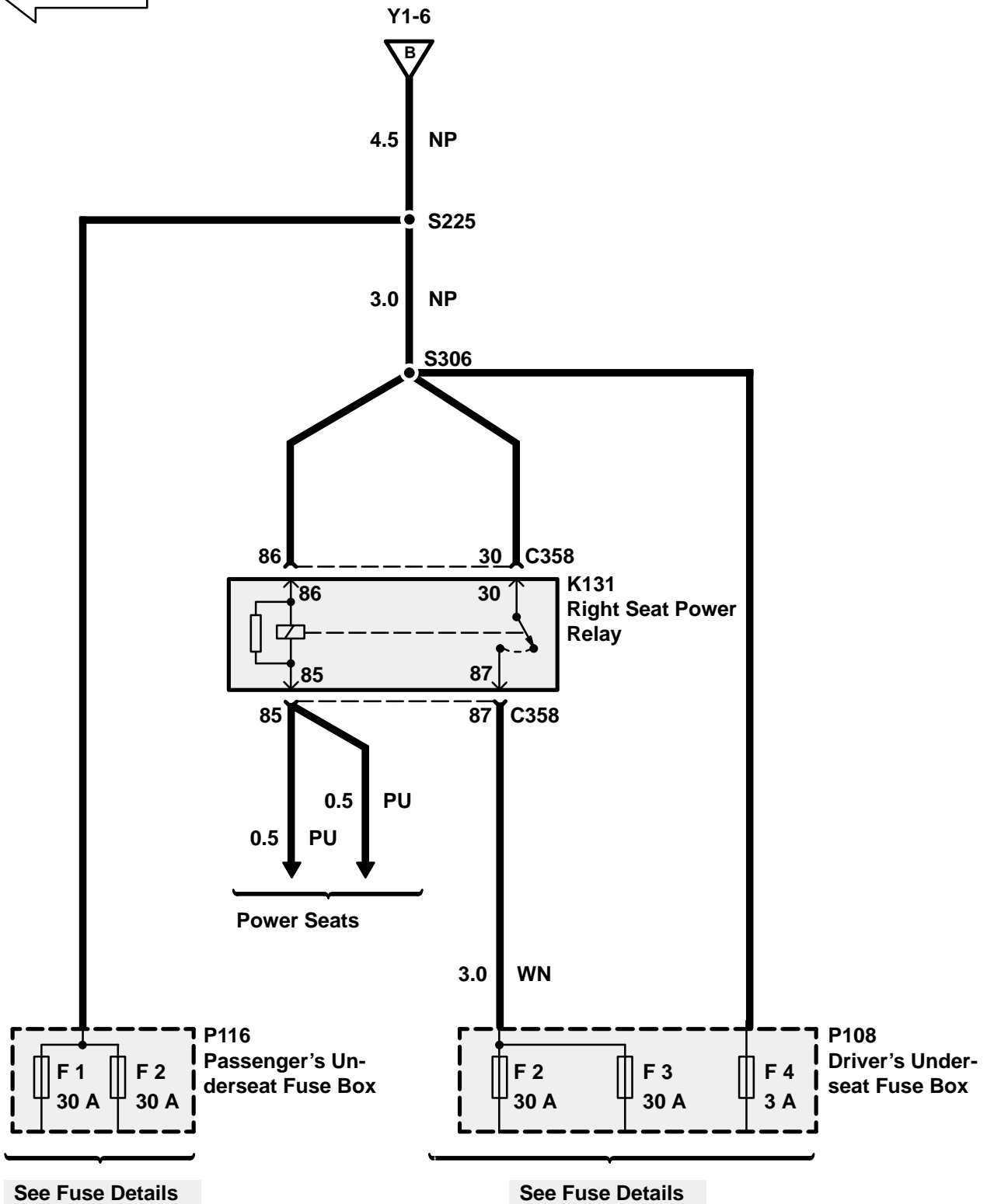
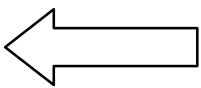




# Y1 ETM

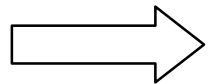
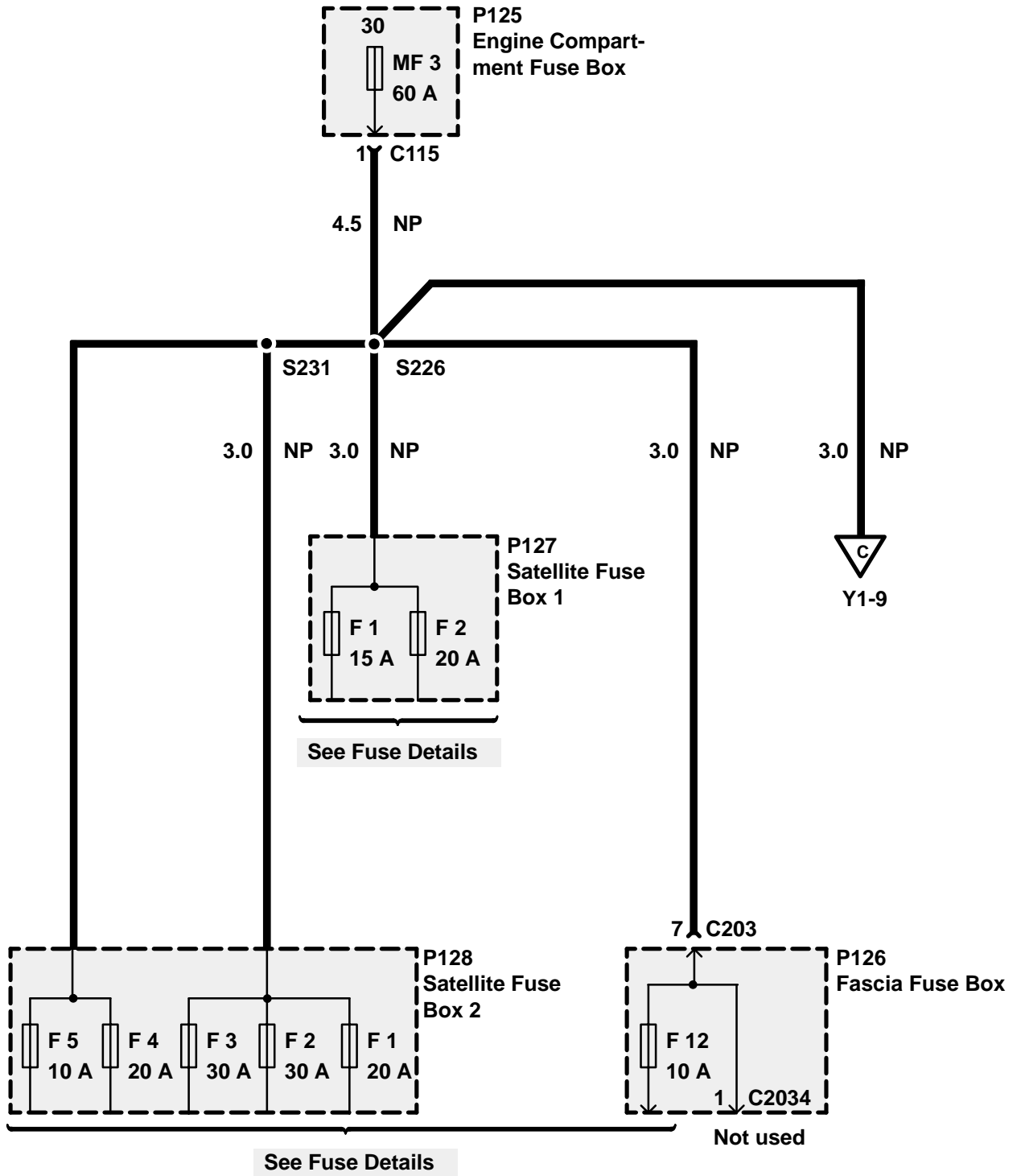
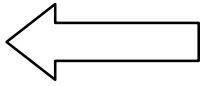
## 1995 RANGE ROVER

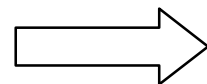
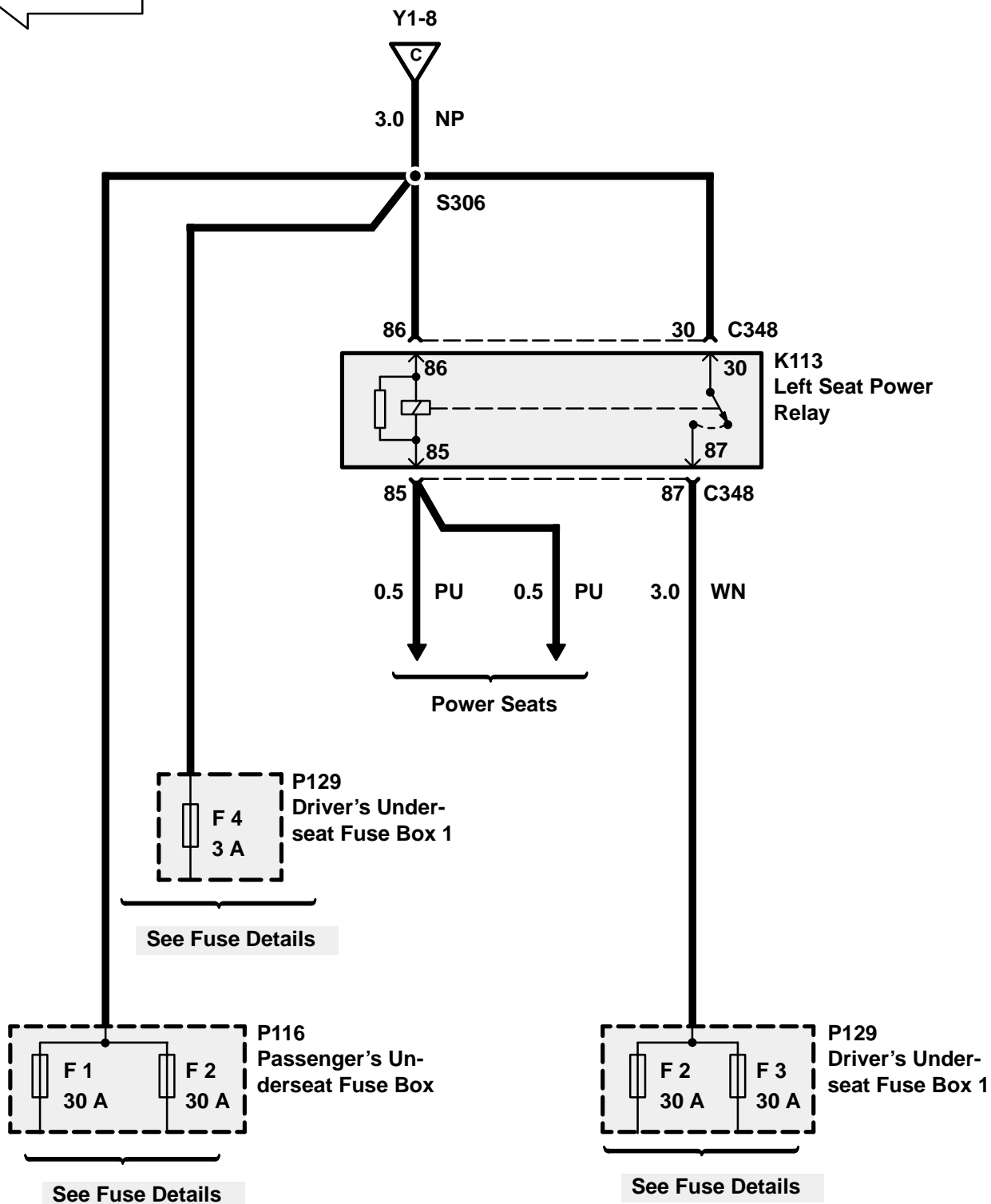
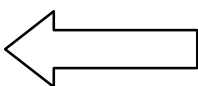


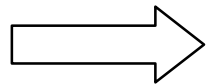
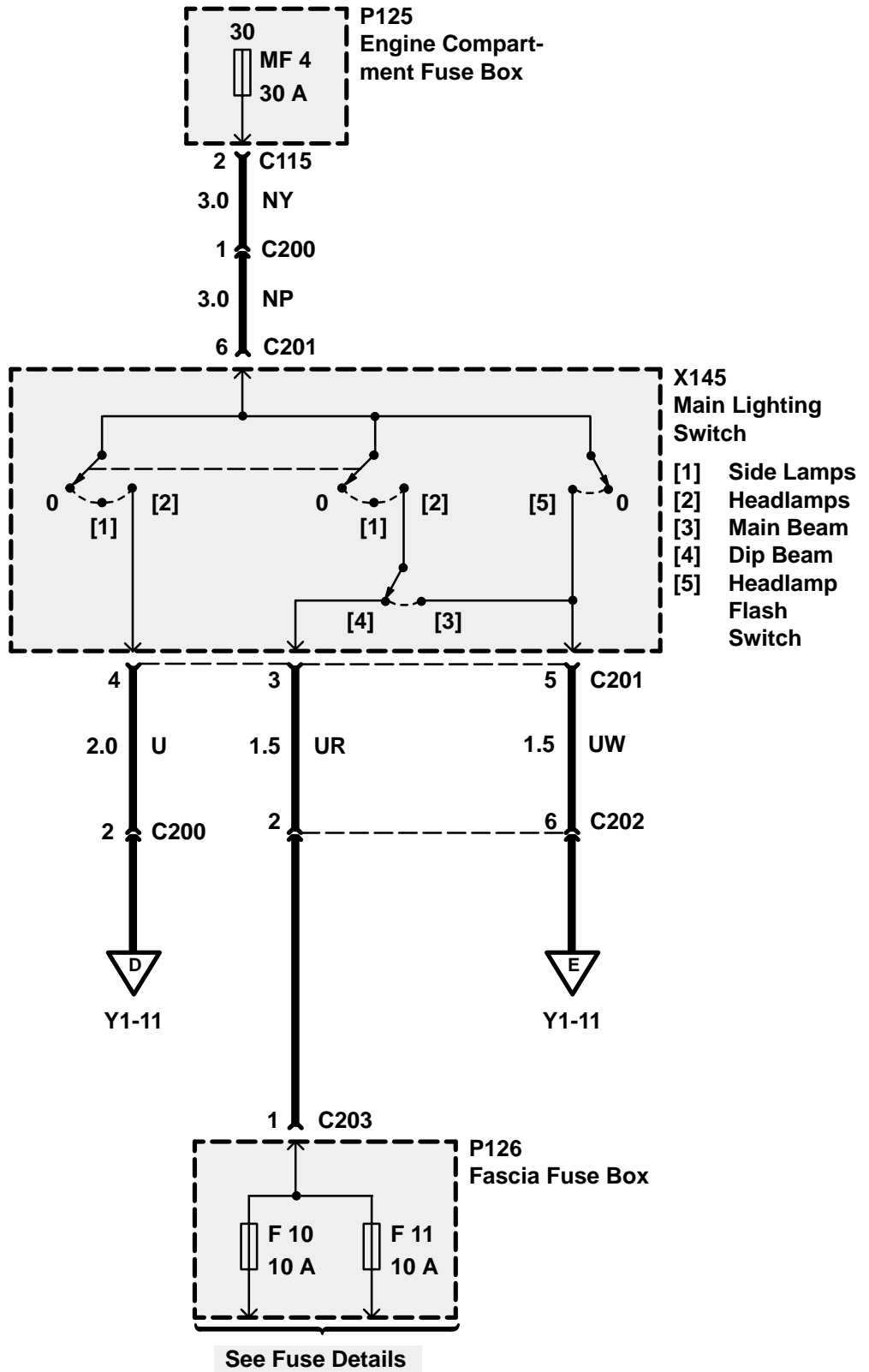
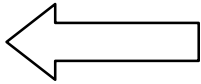


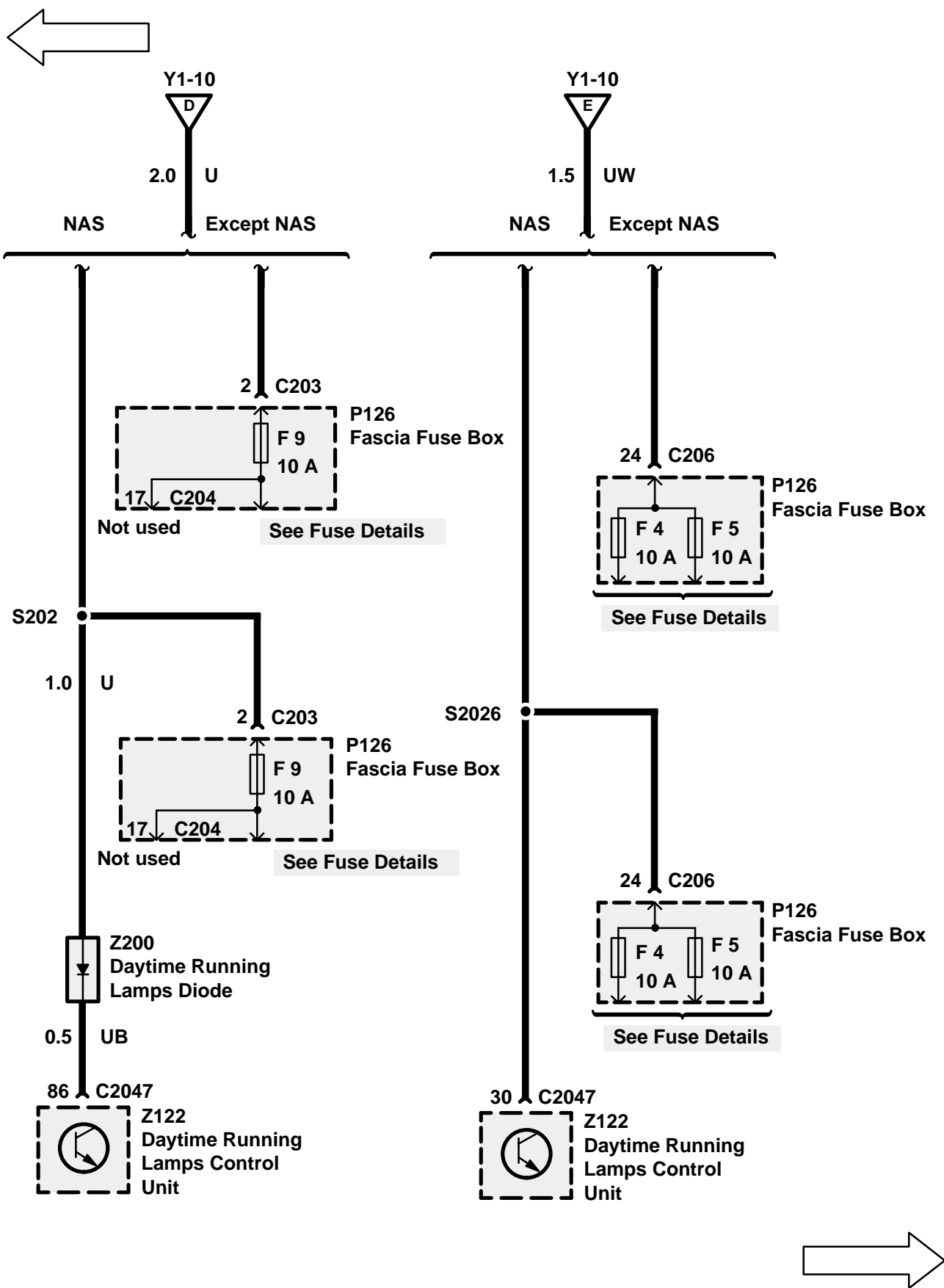
# Y1 ETM

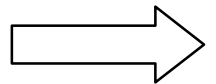
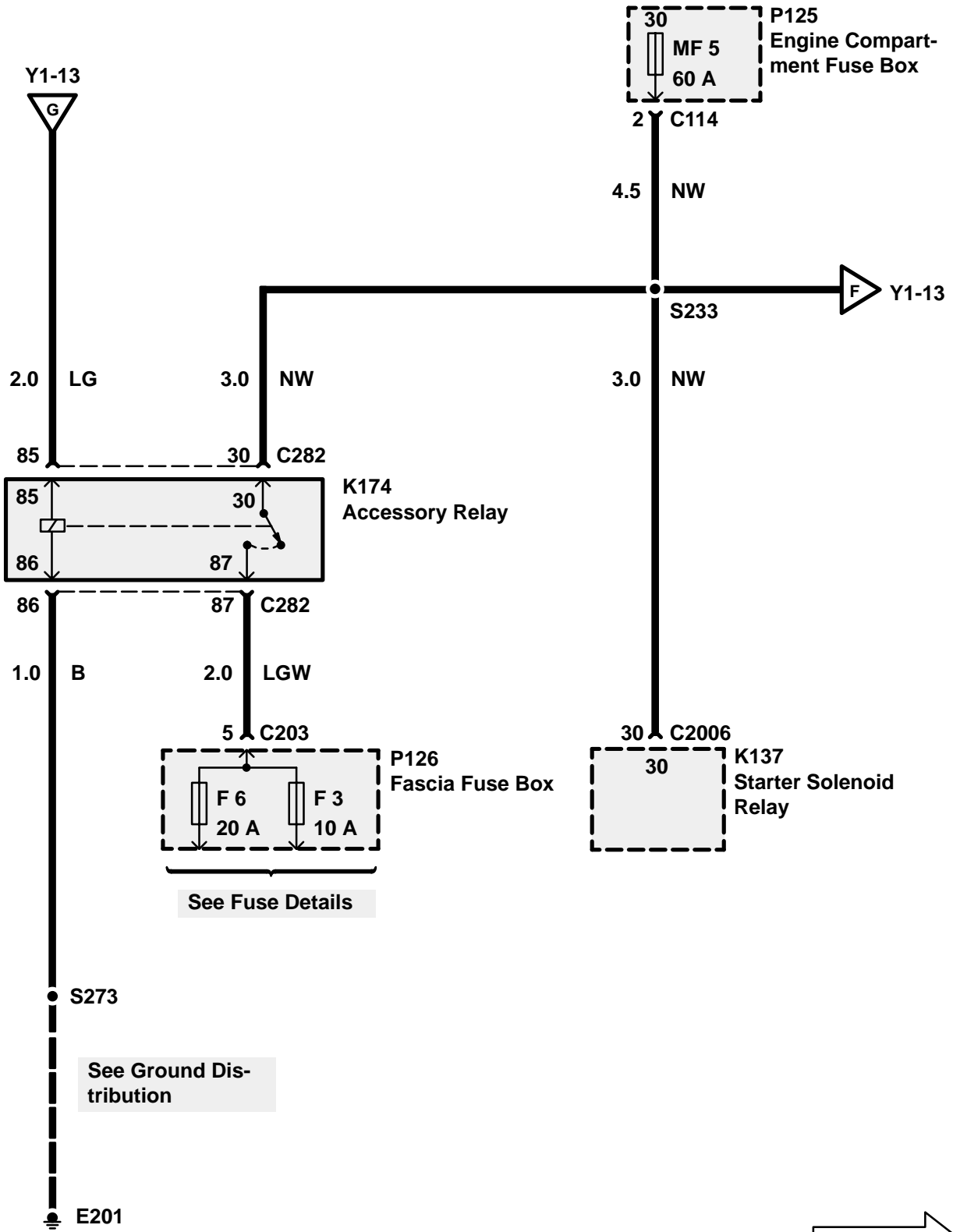
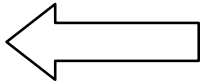
## 1995 RANGE ROVER

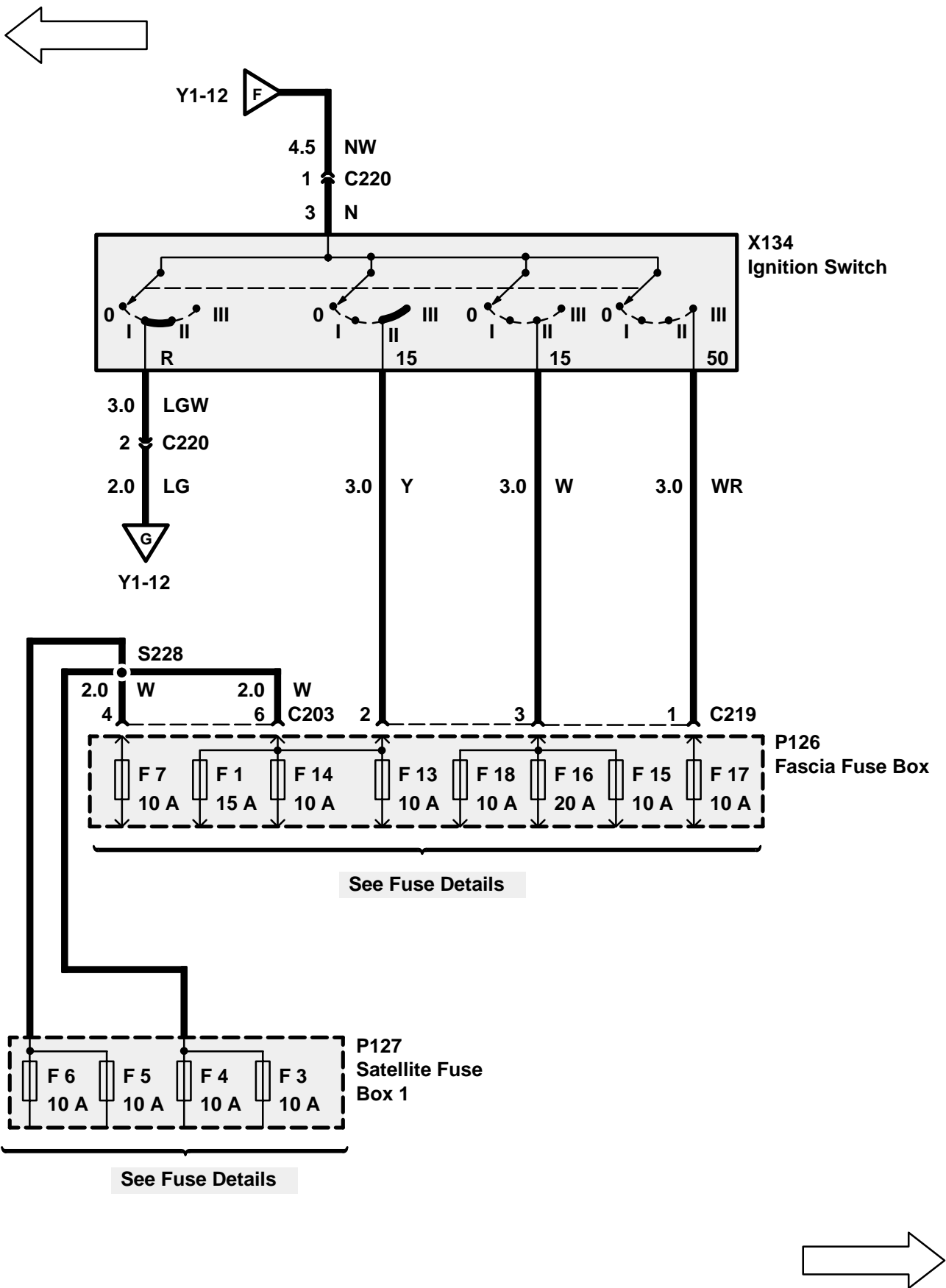




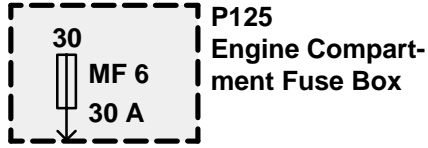
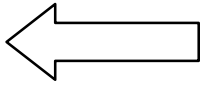








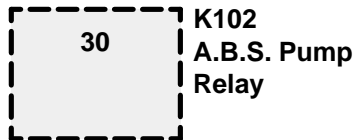


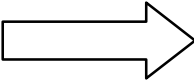
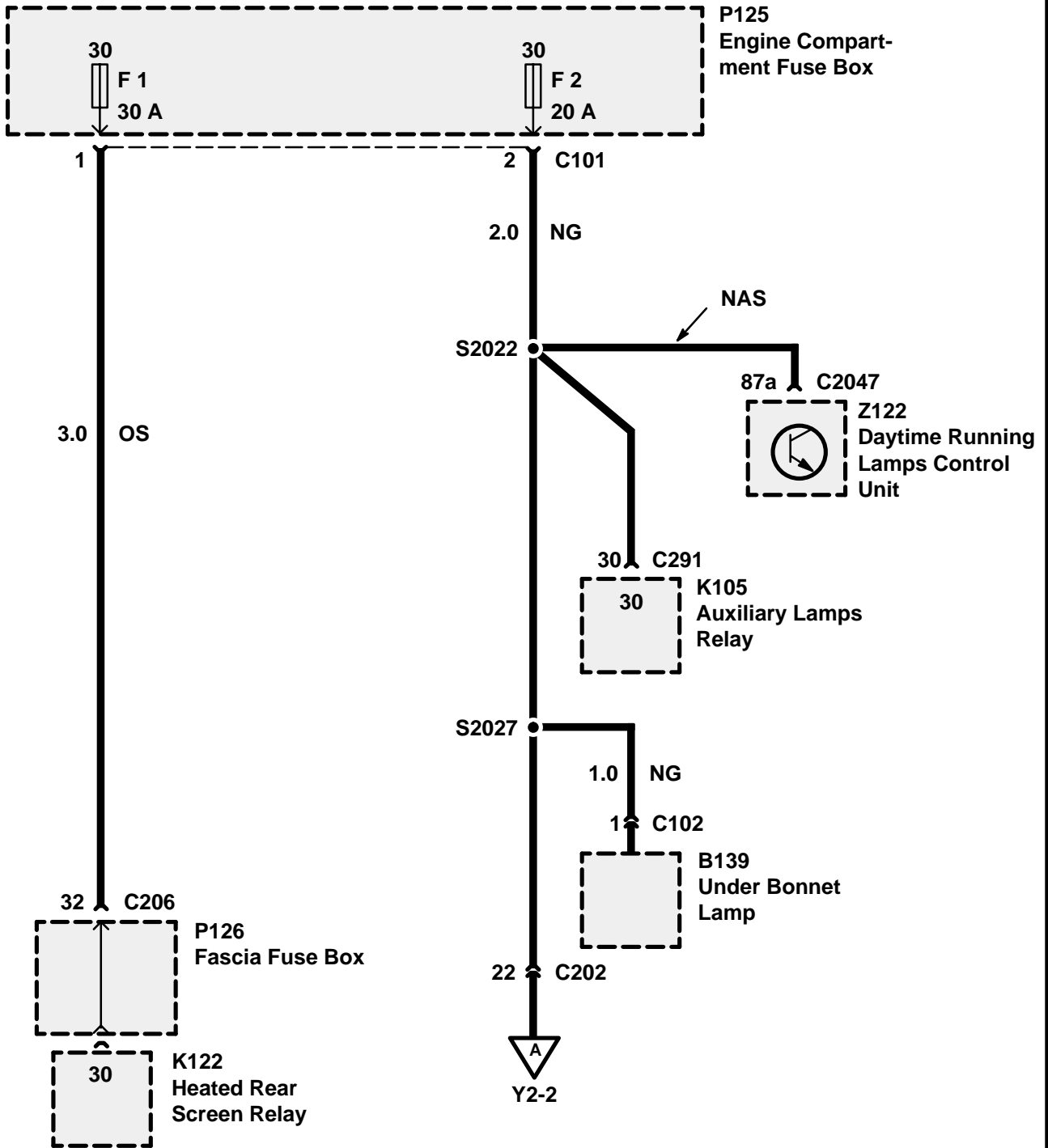


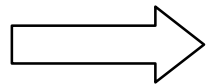
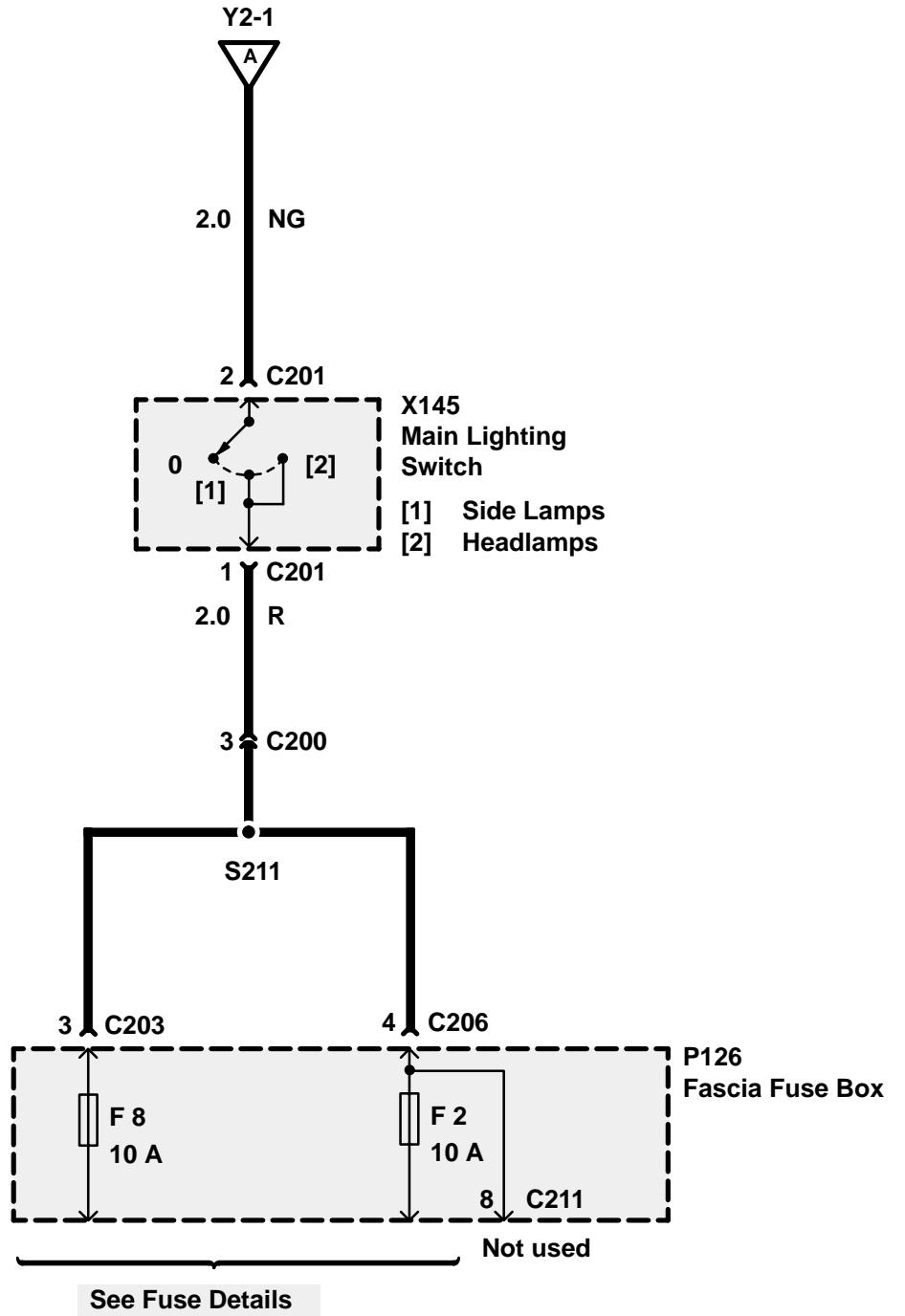
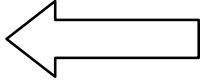
30 C115

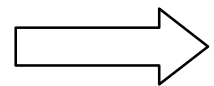
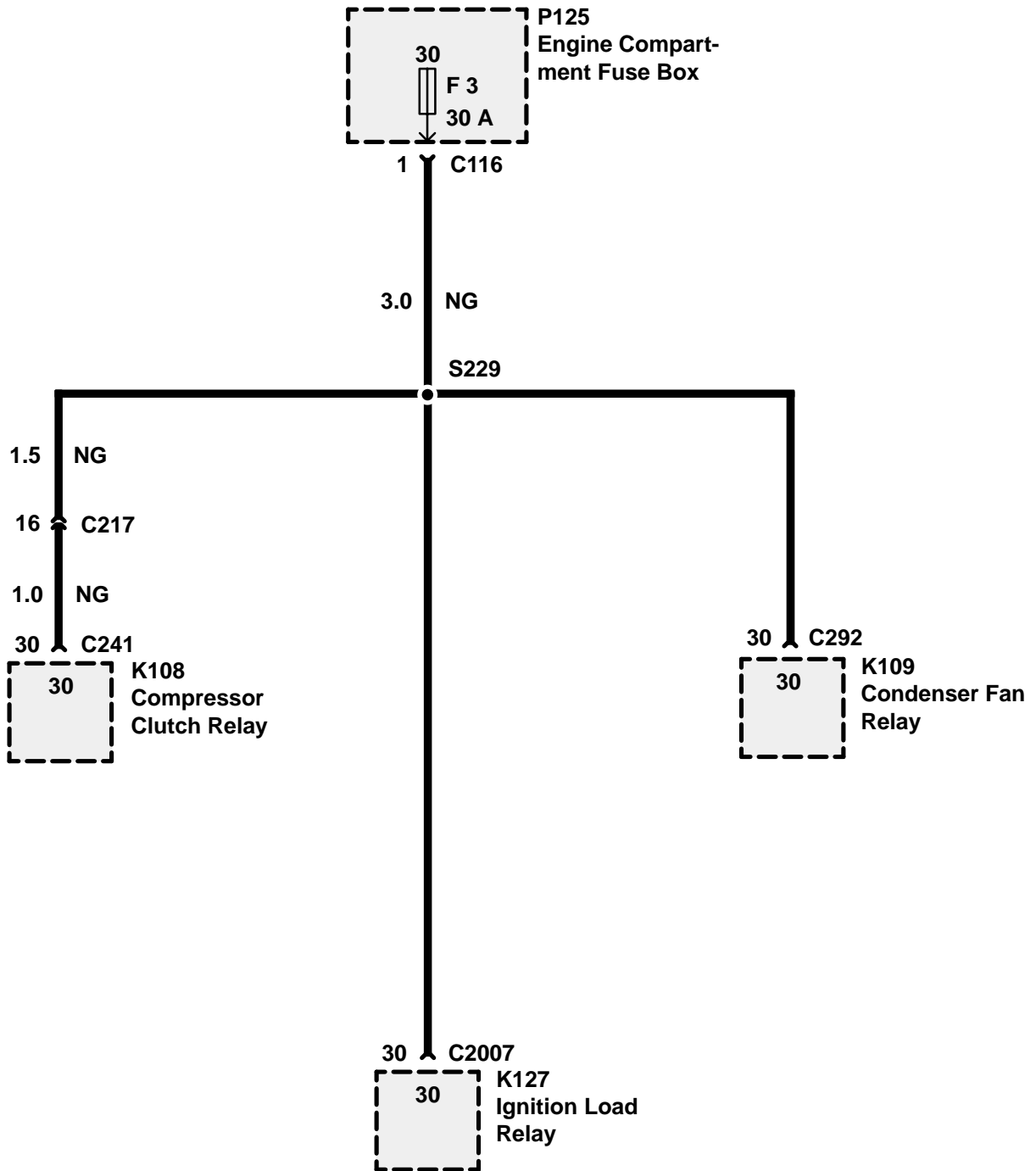
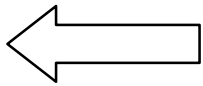
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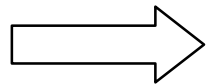
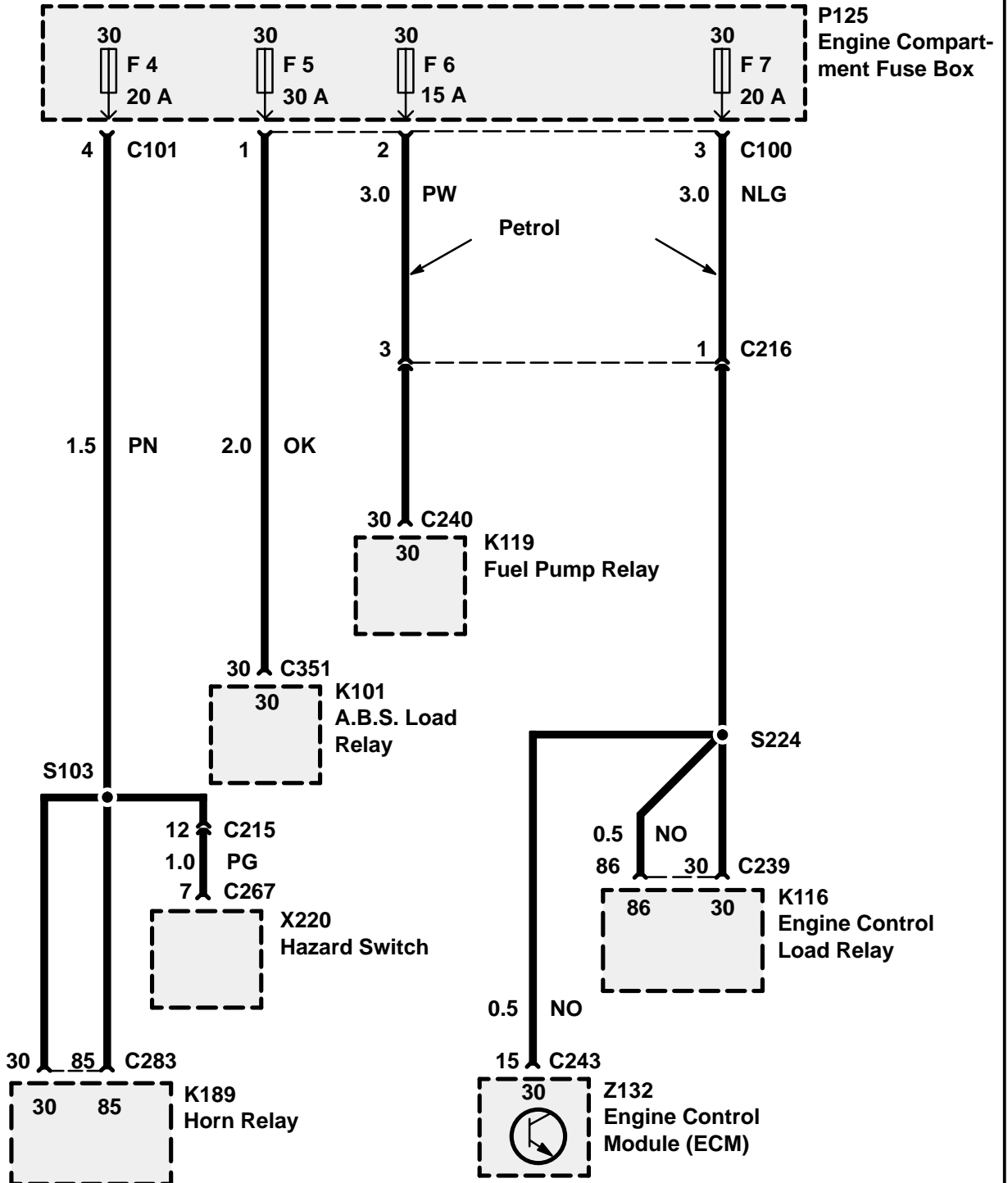
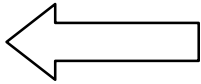
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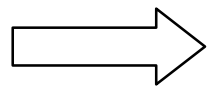
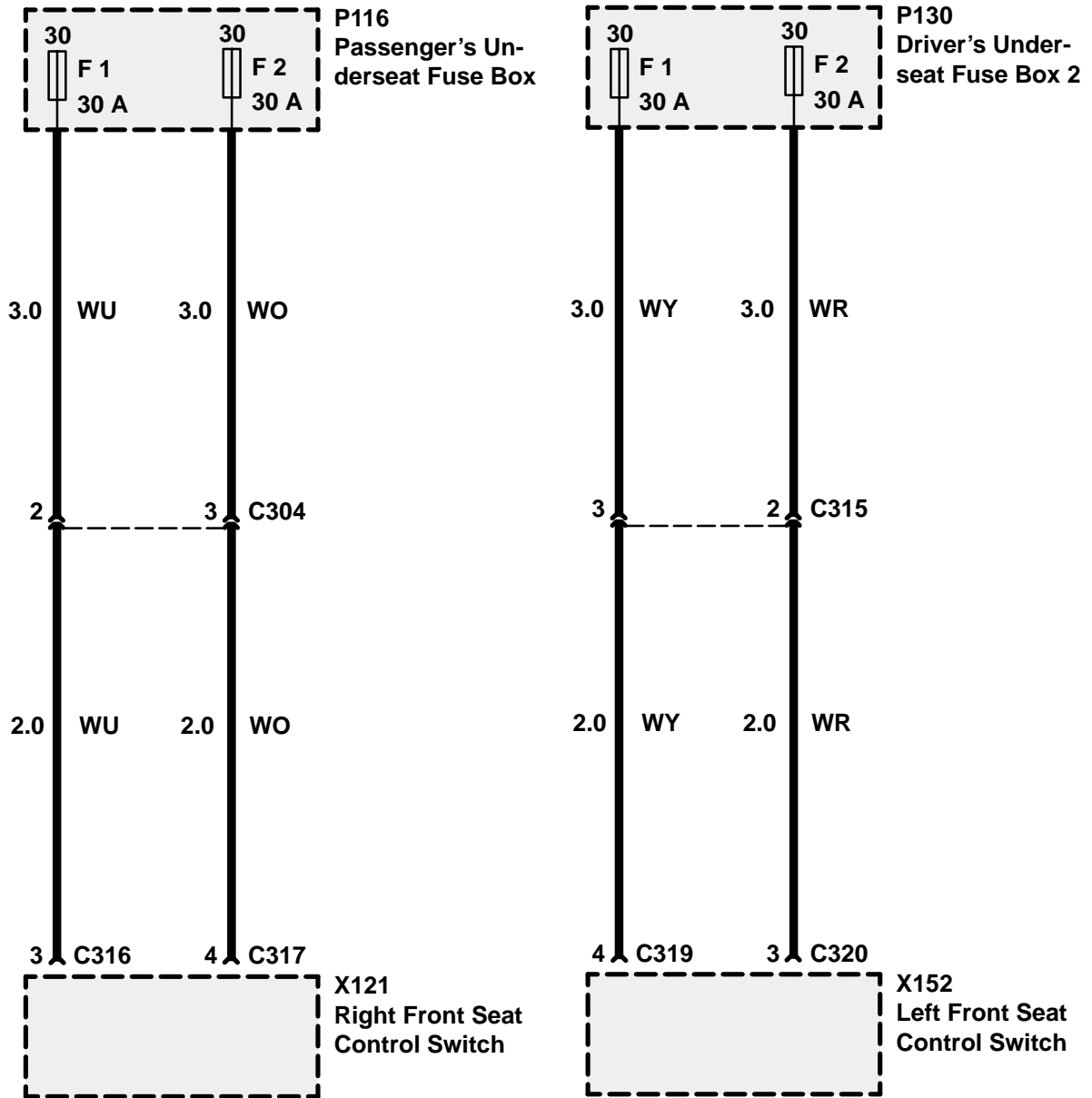
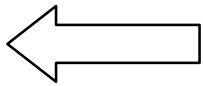


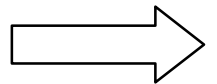
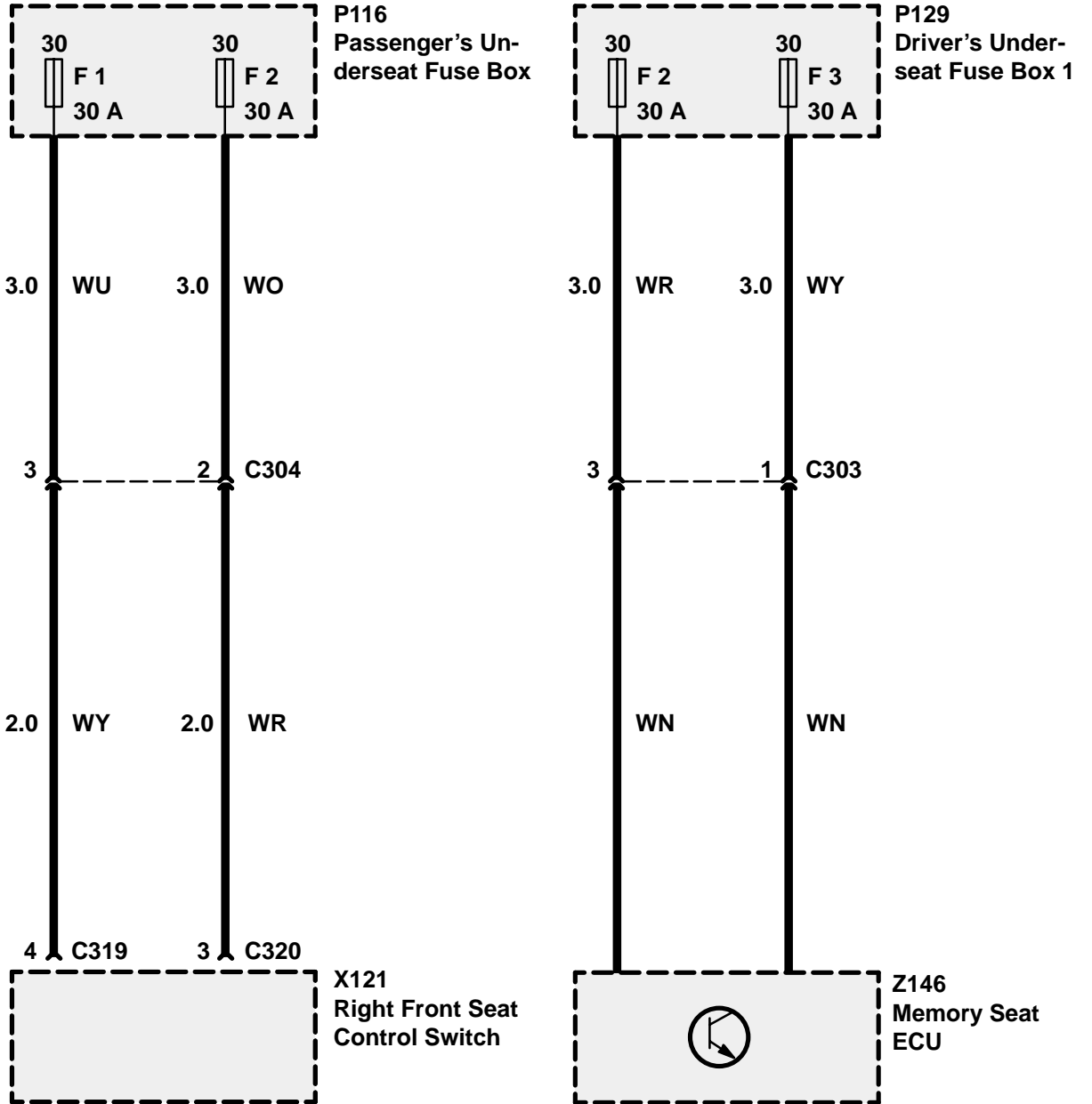
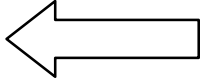


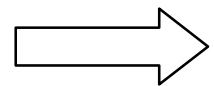
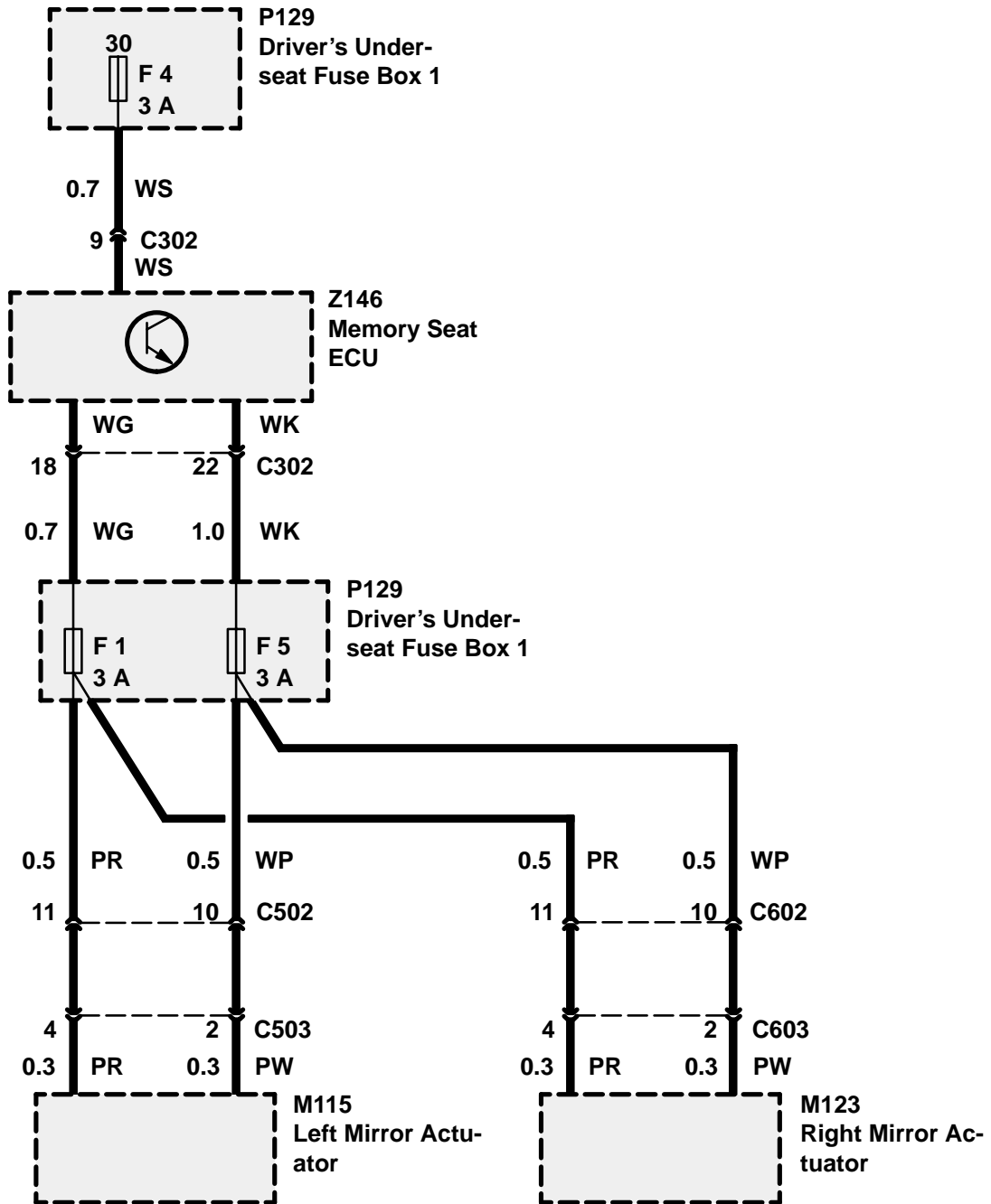
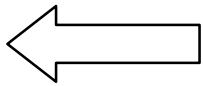




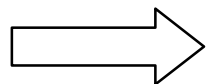
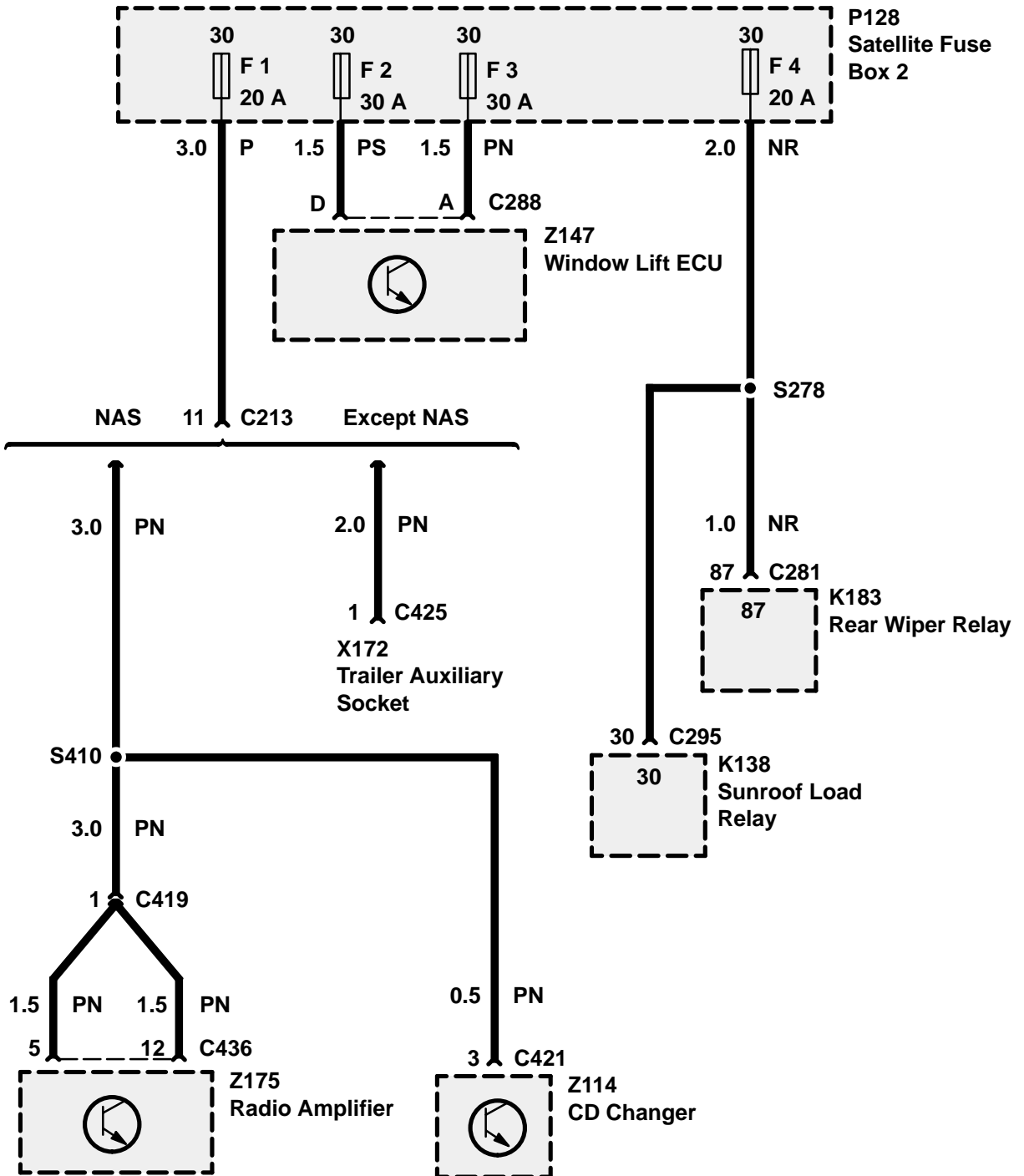
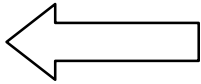


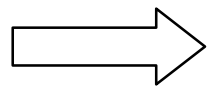
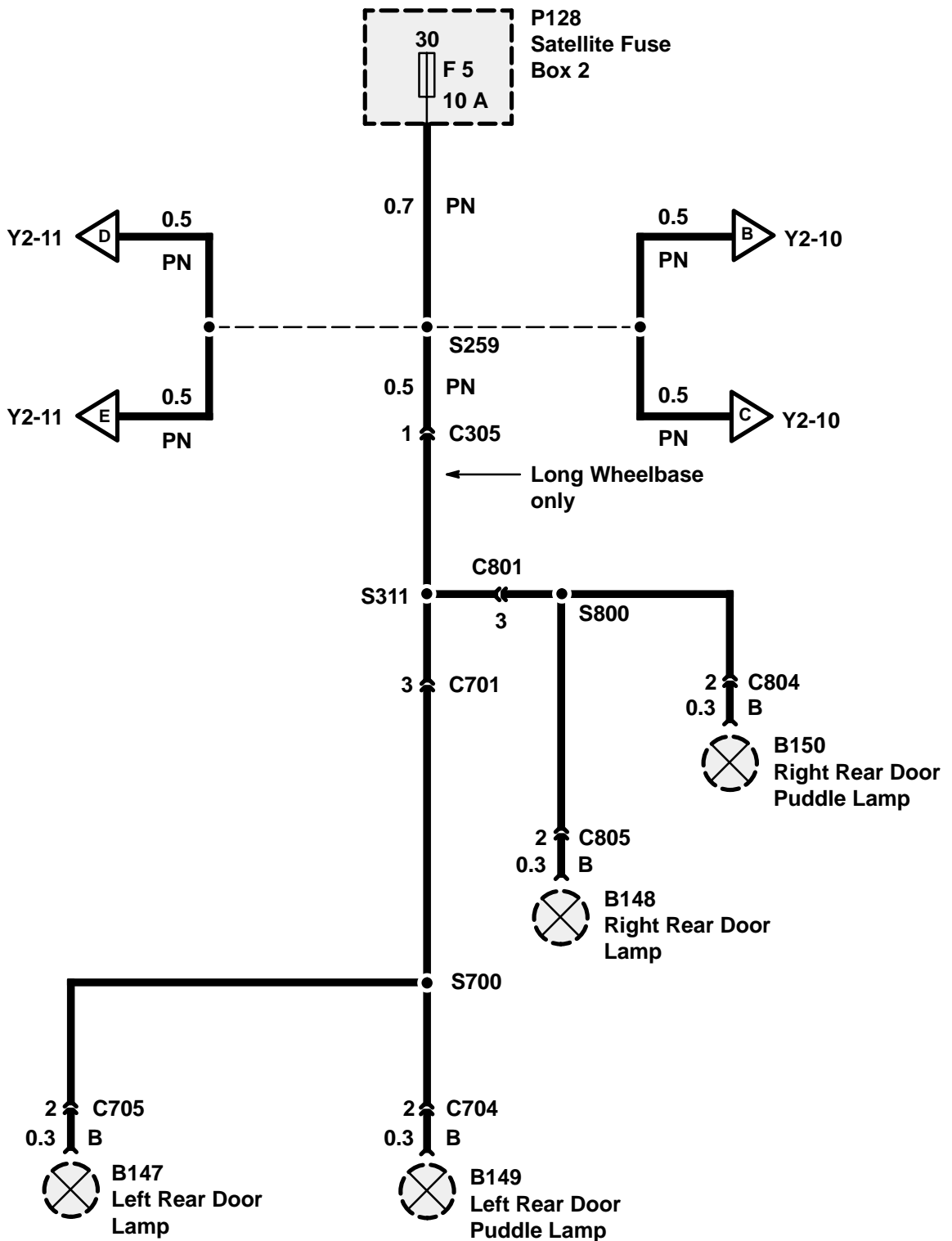
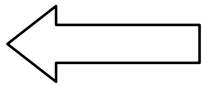


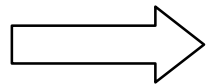
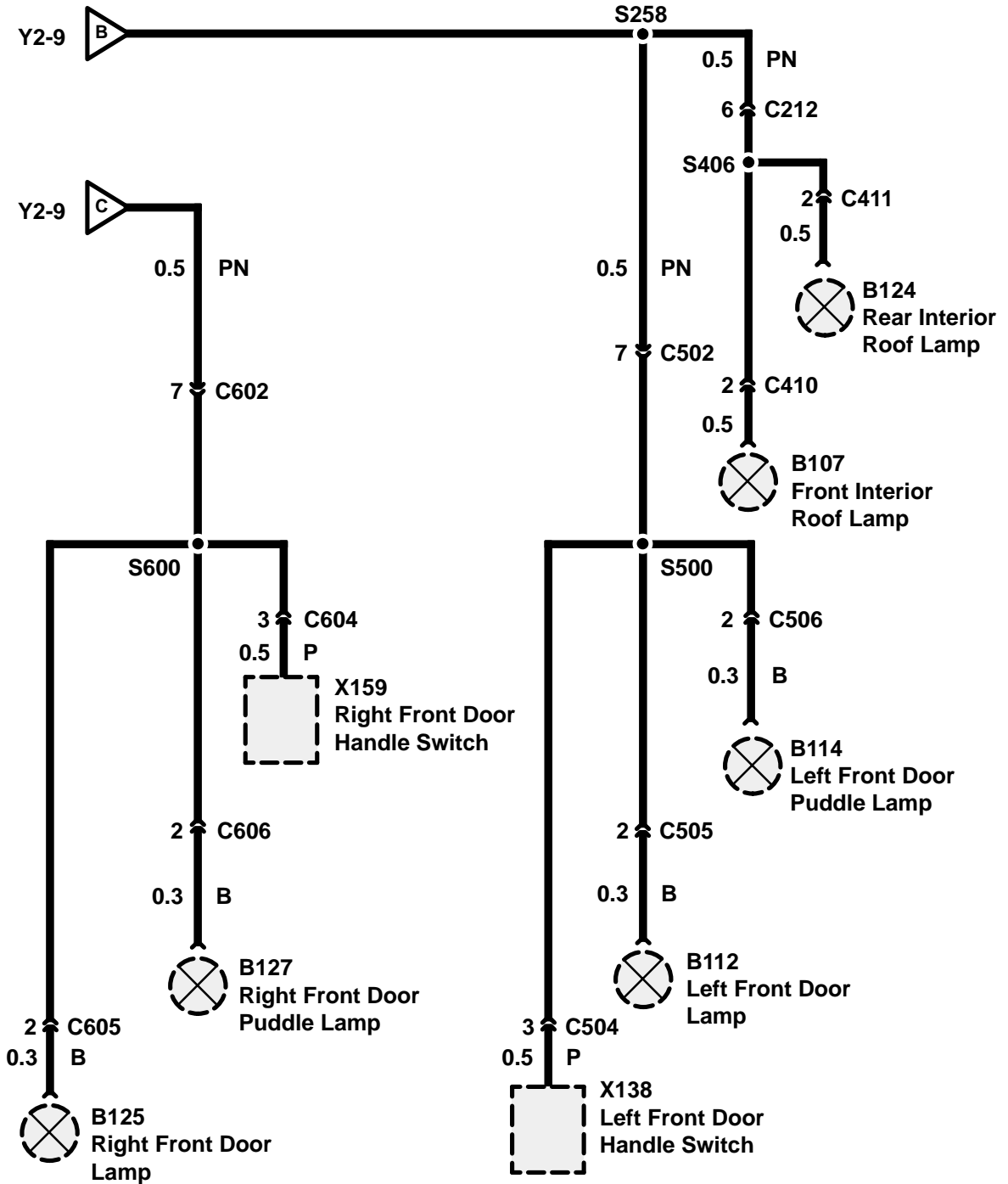
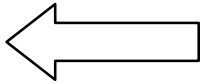


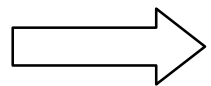
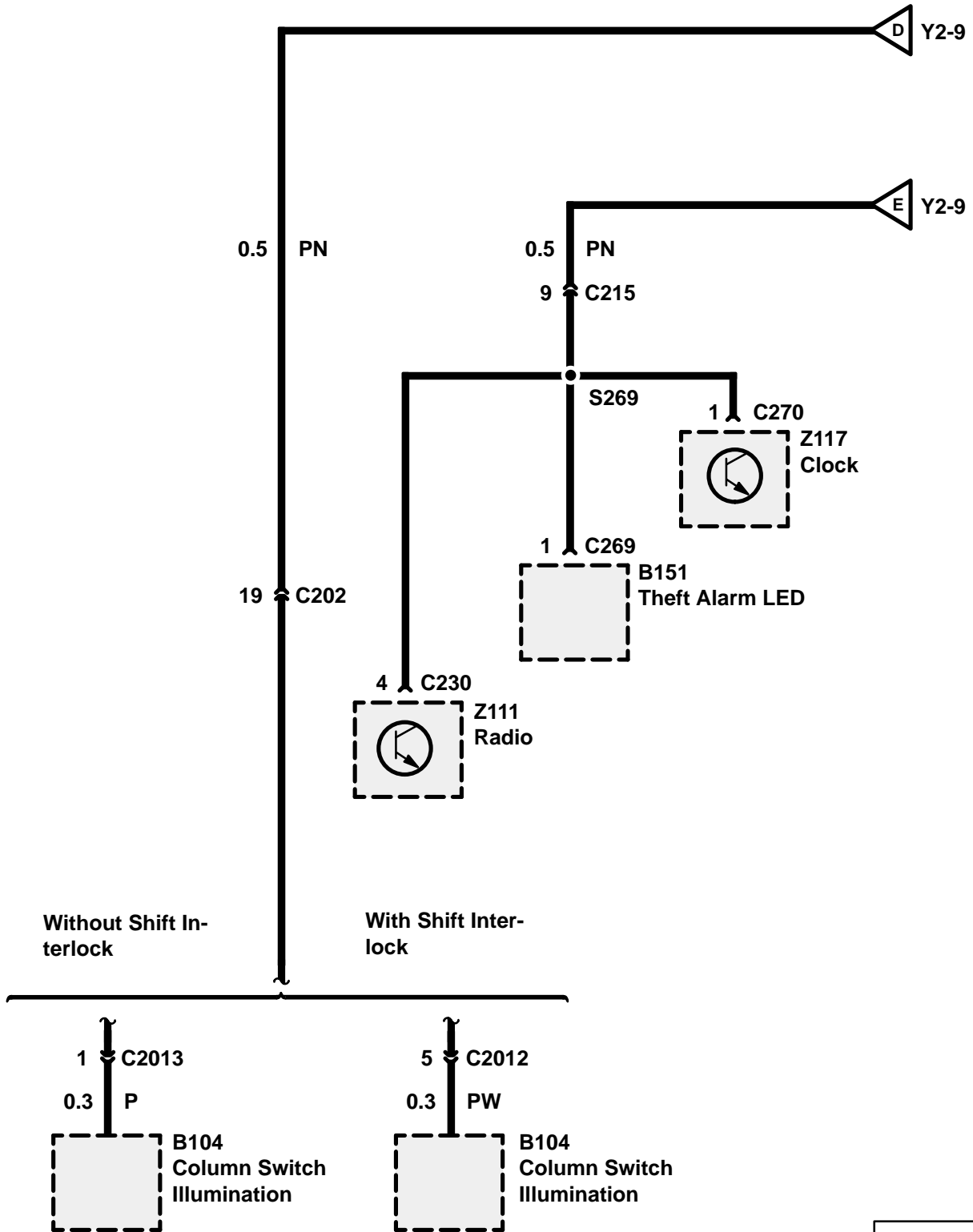
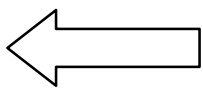


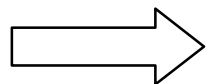
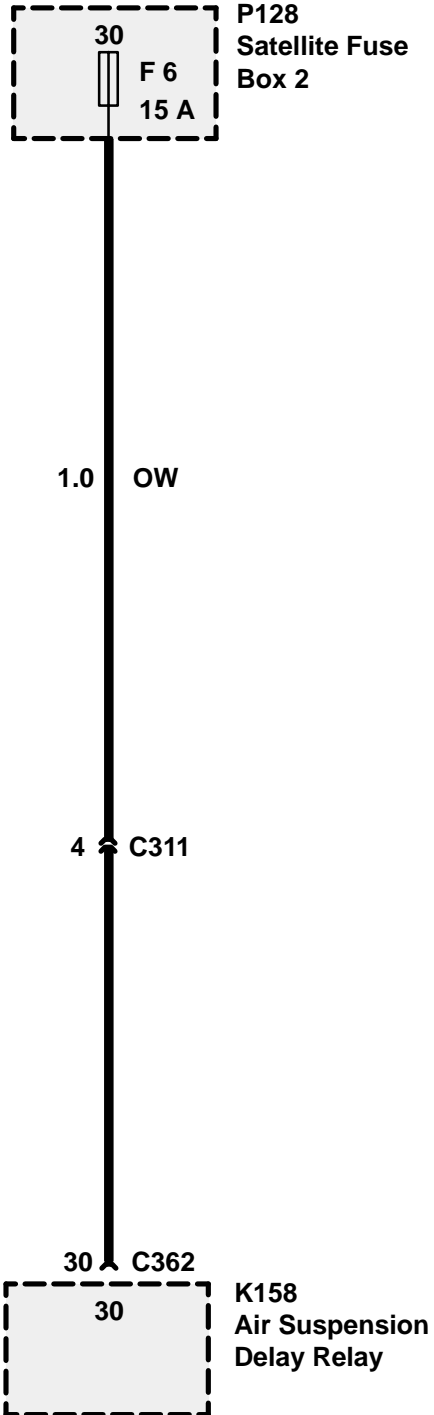
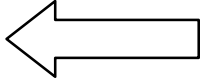


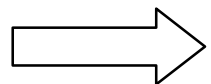
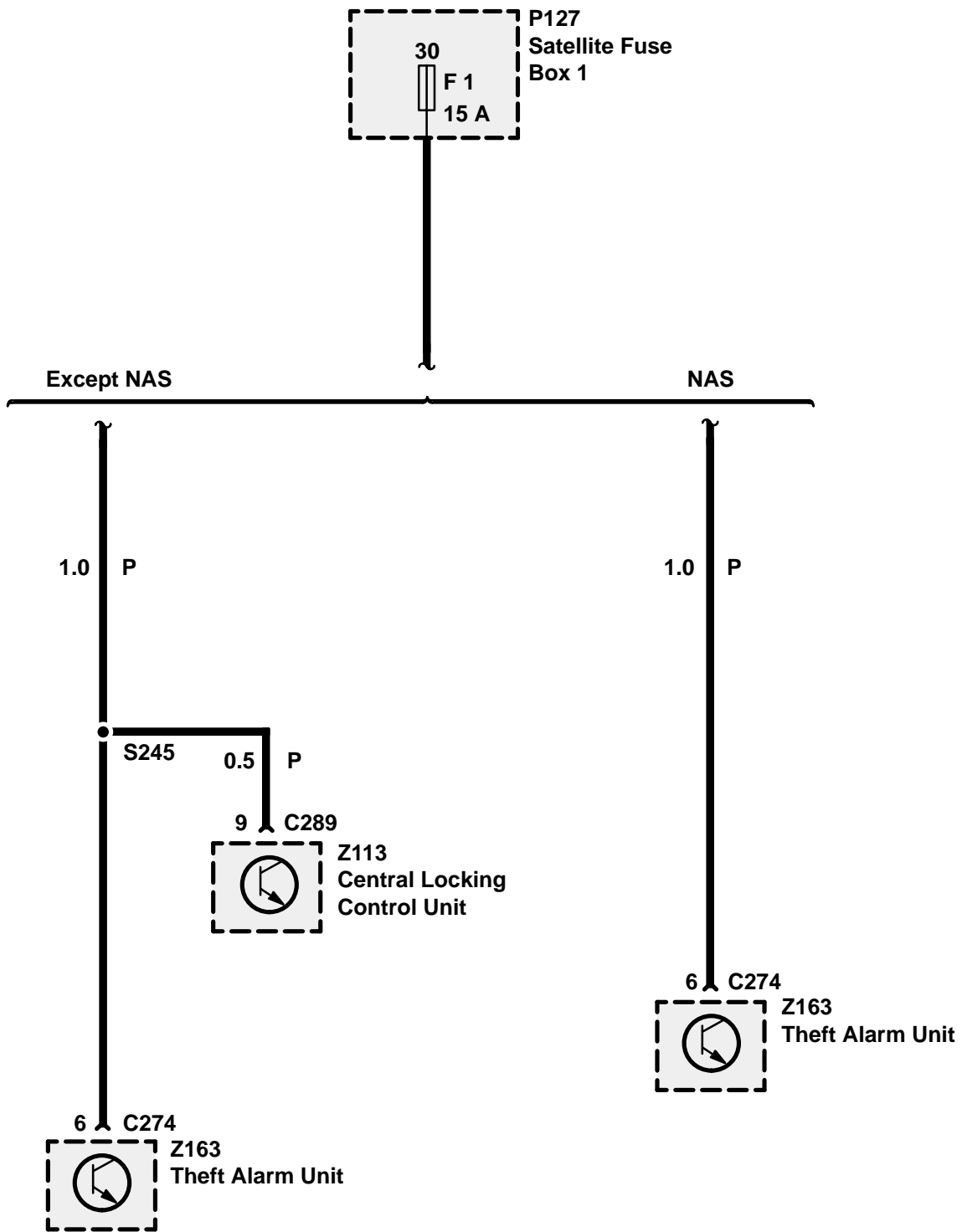
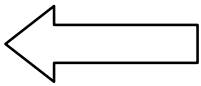


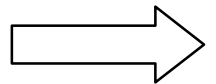
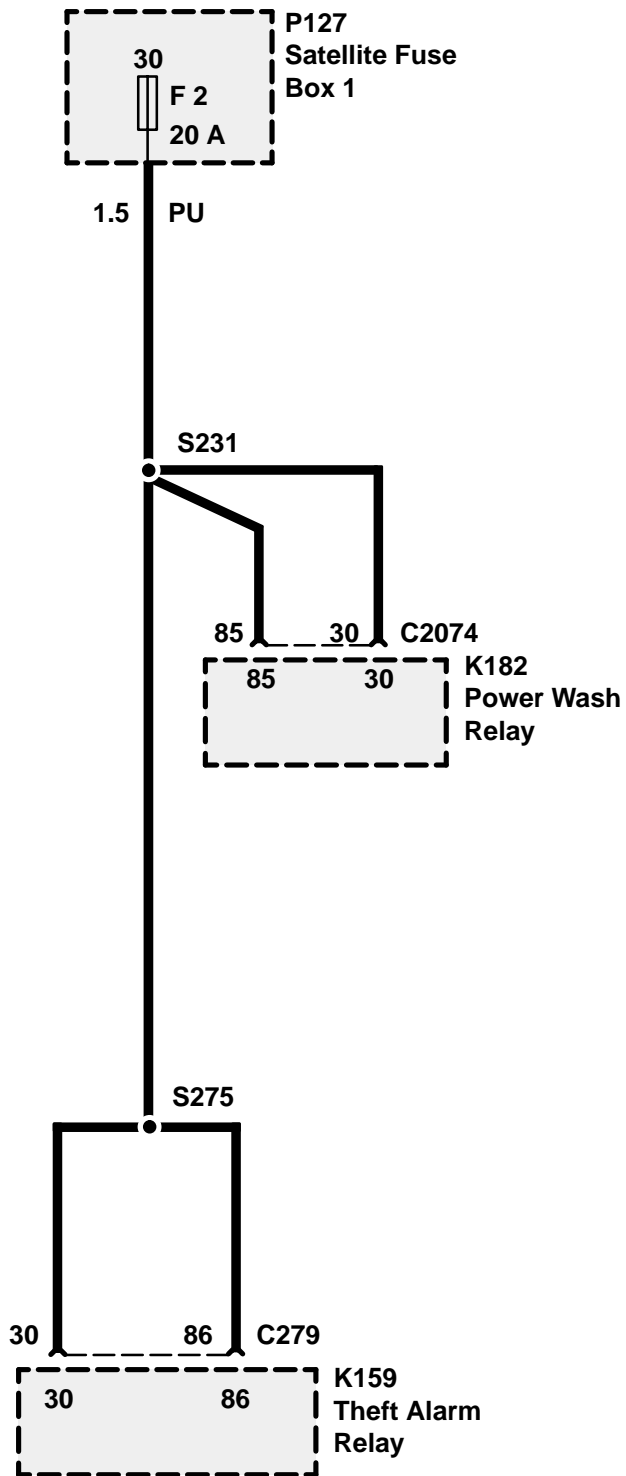
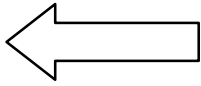


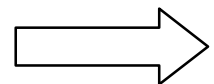
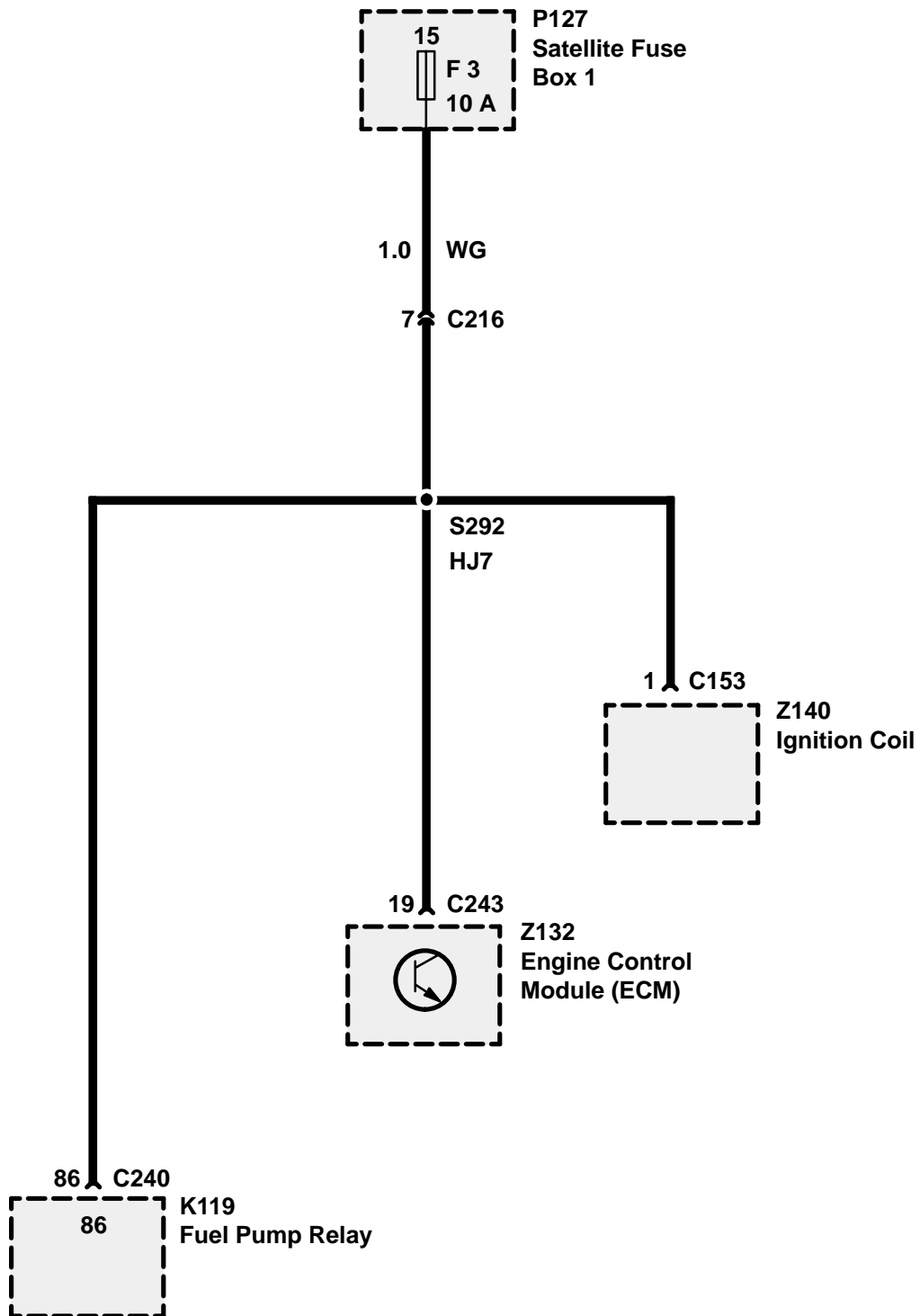
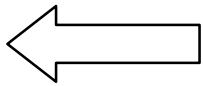




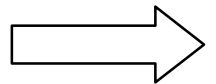
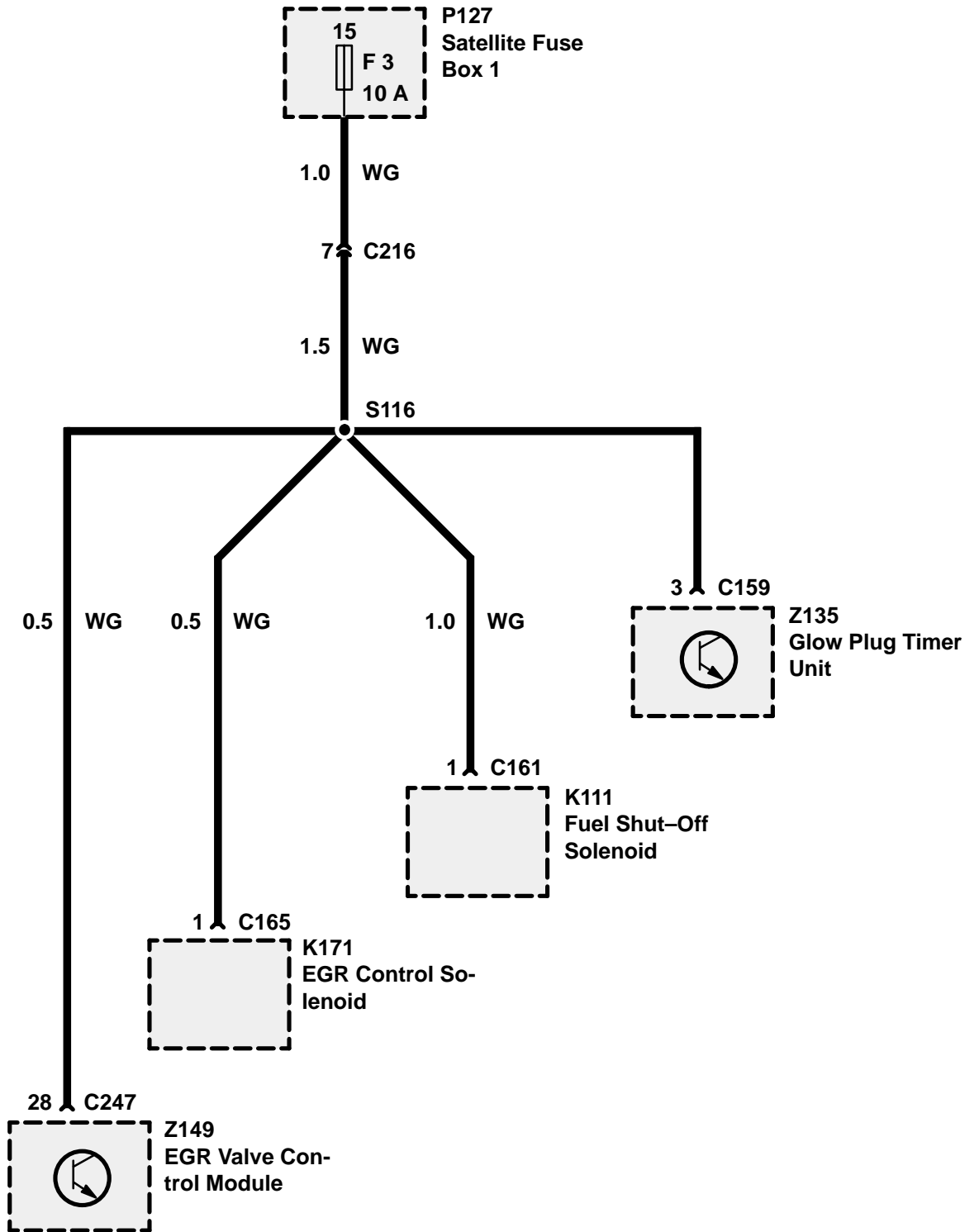
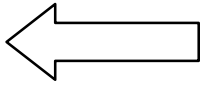


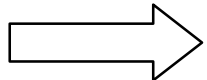
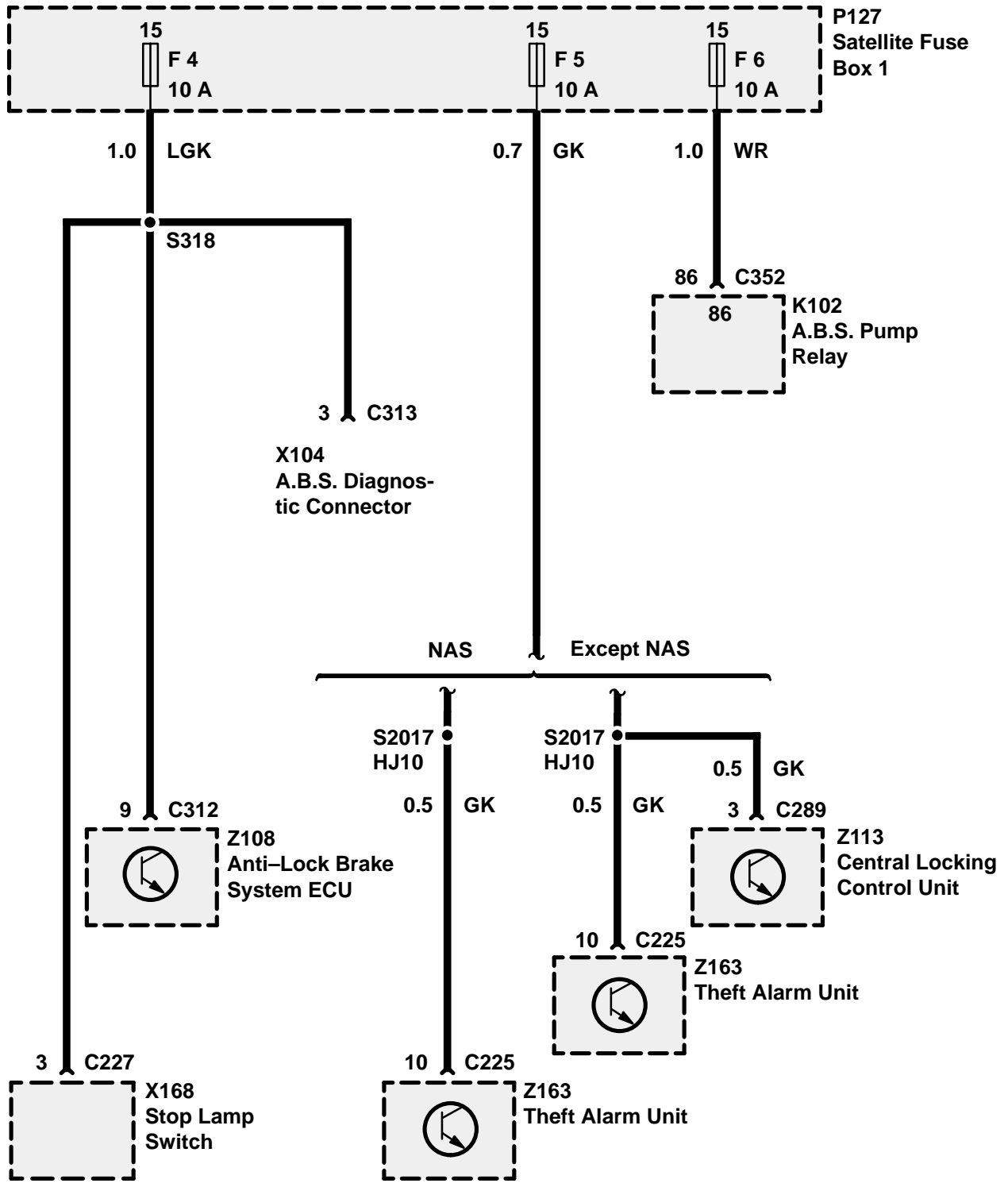
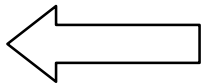


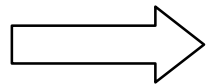
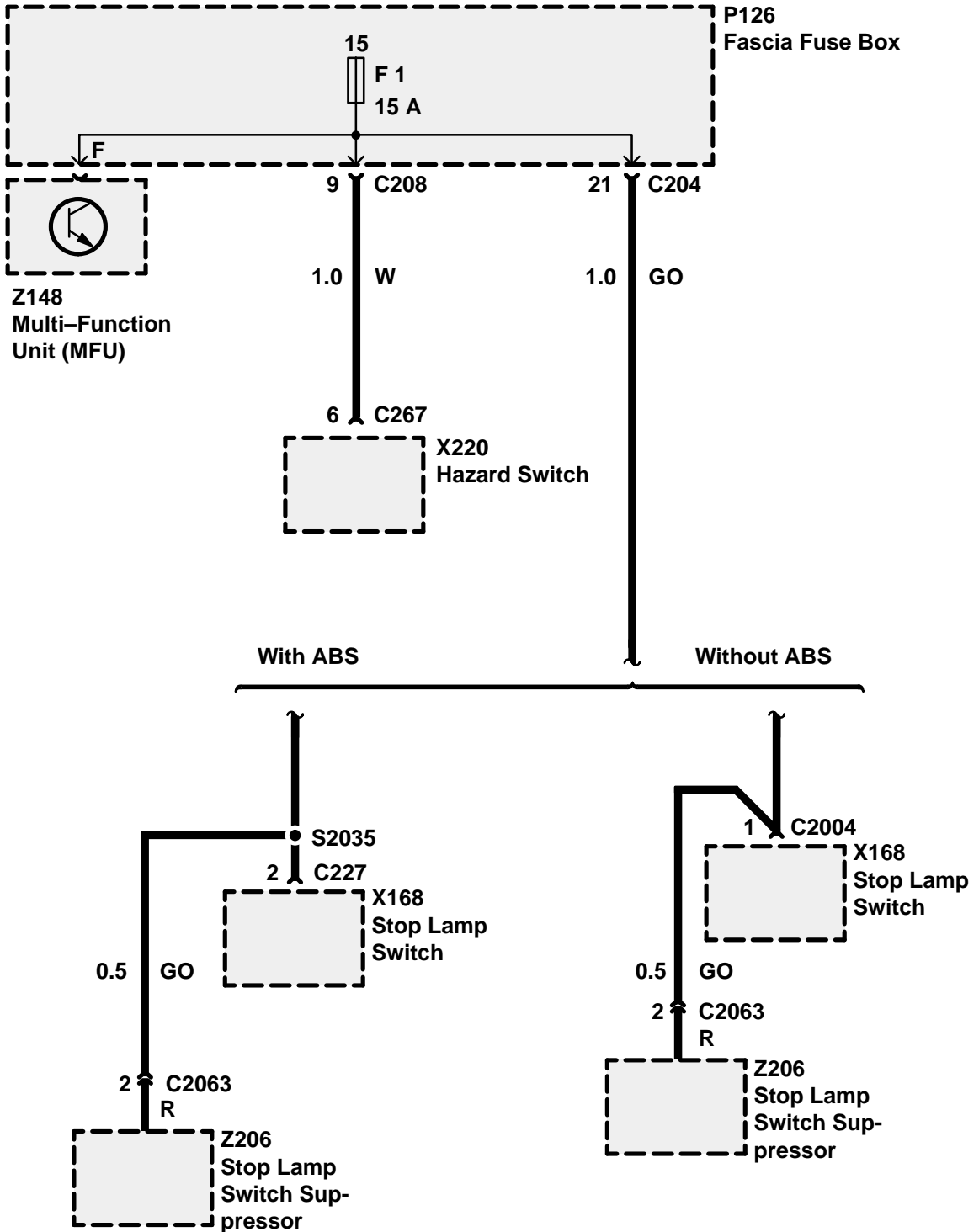
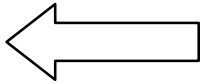


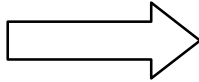
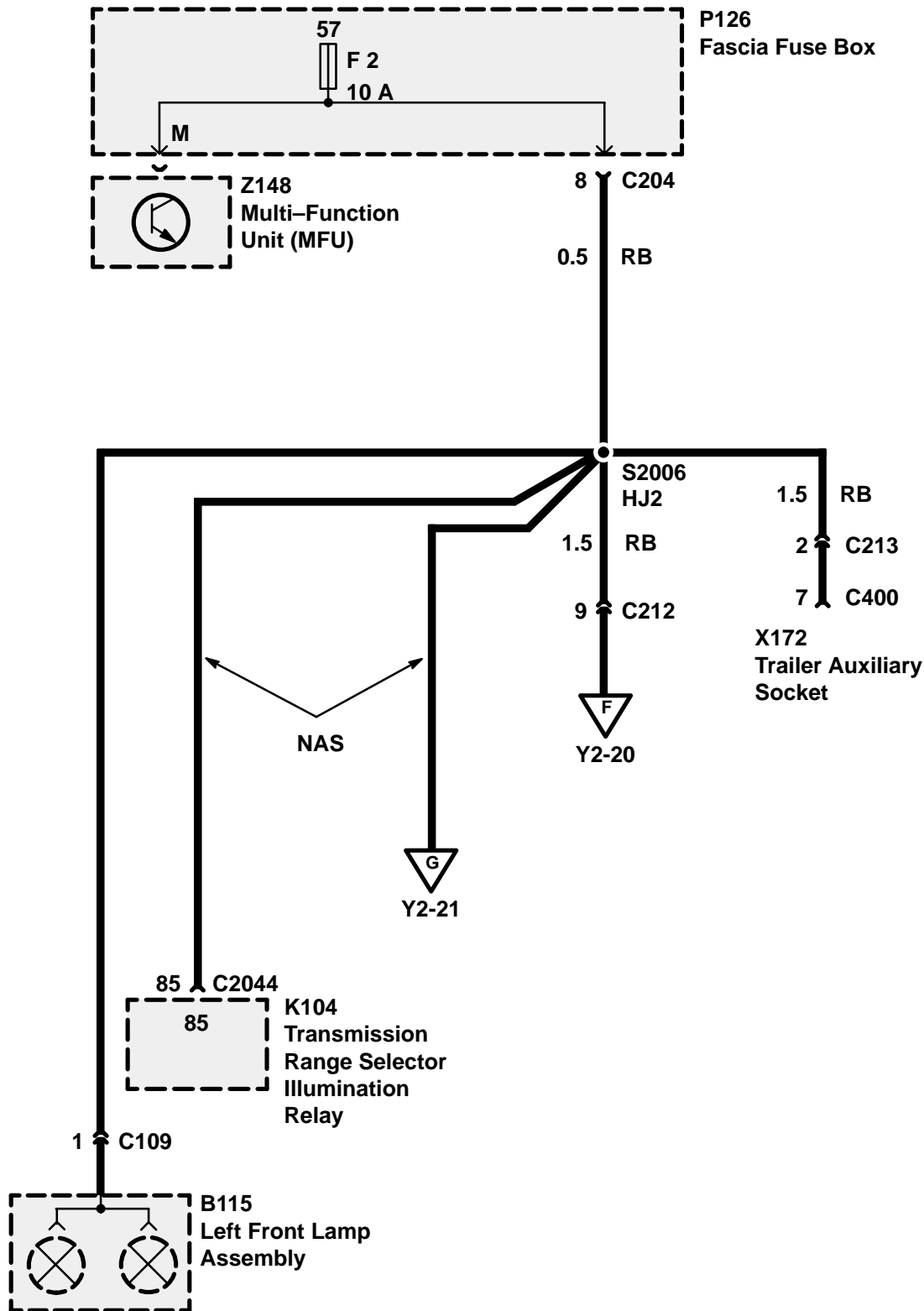
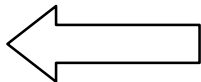


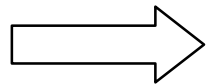
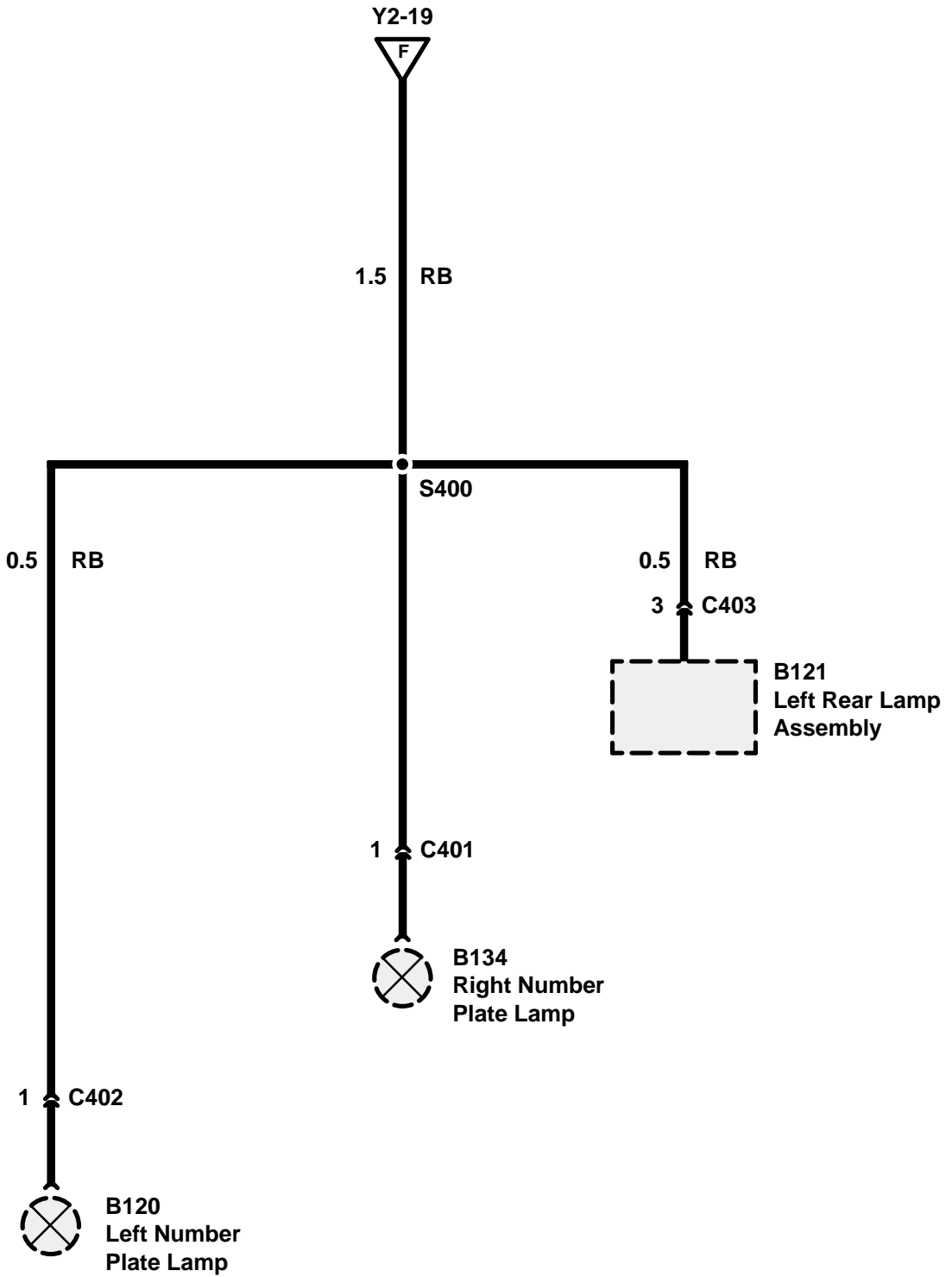
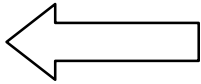


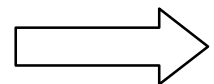
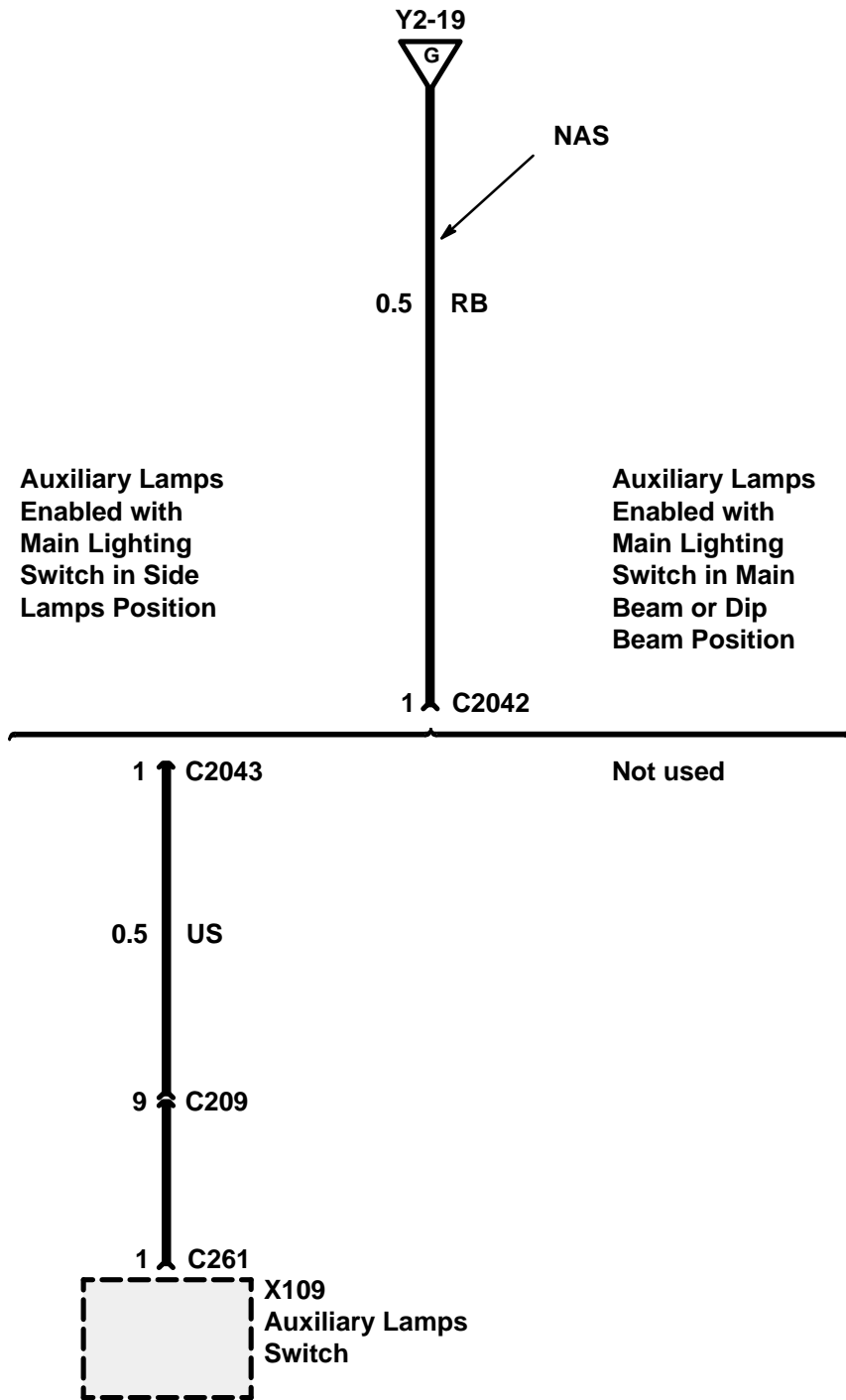
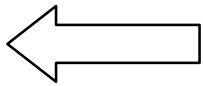


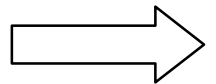
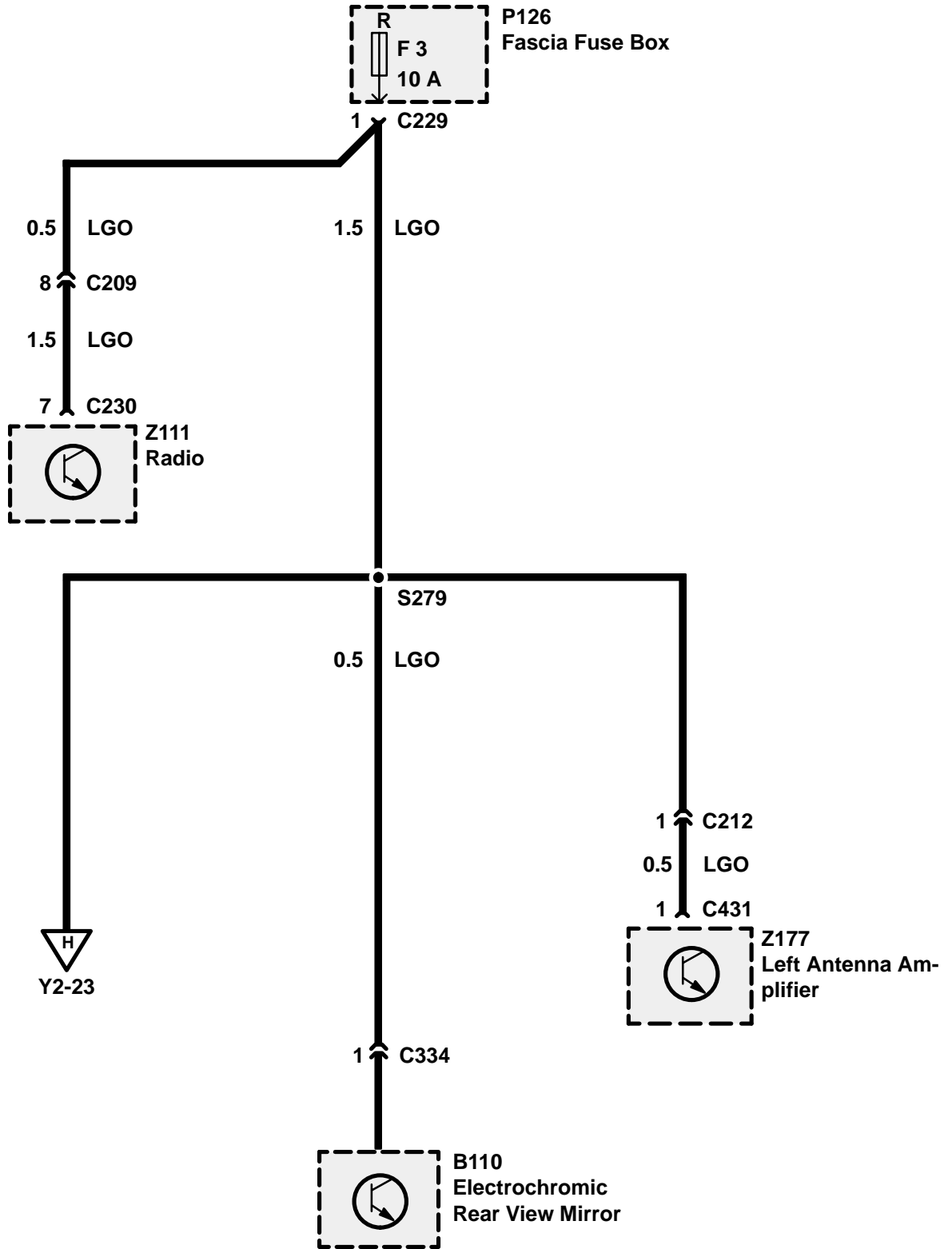
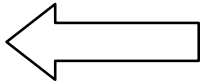


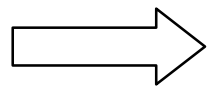
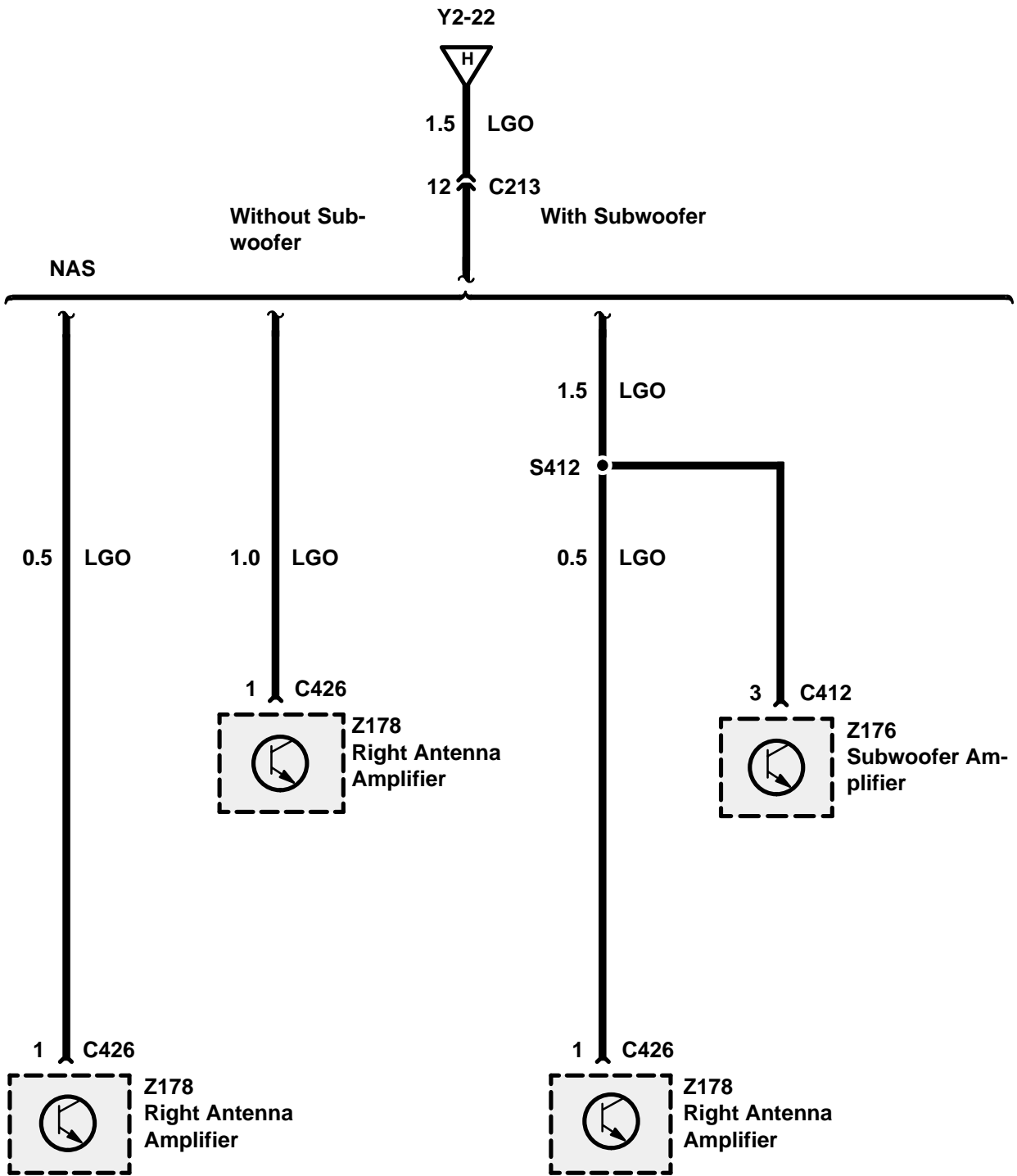
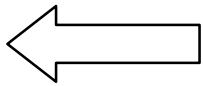




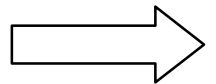
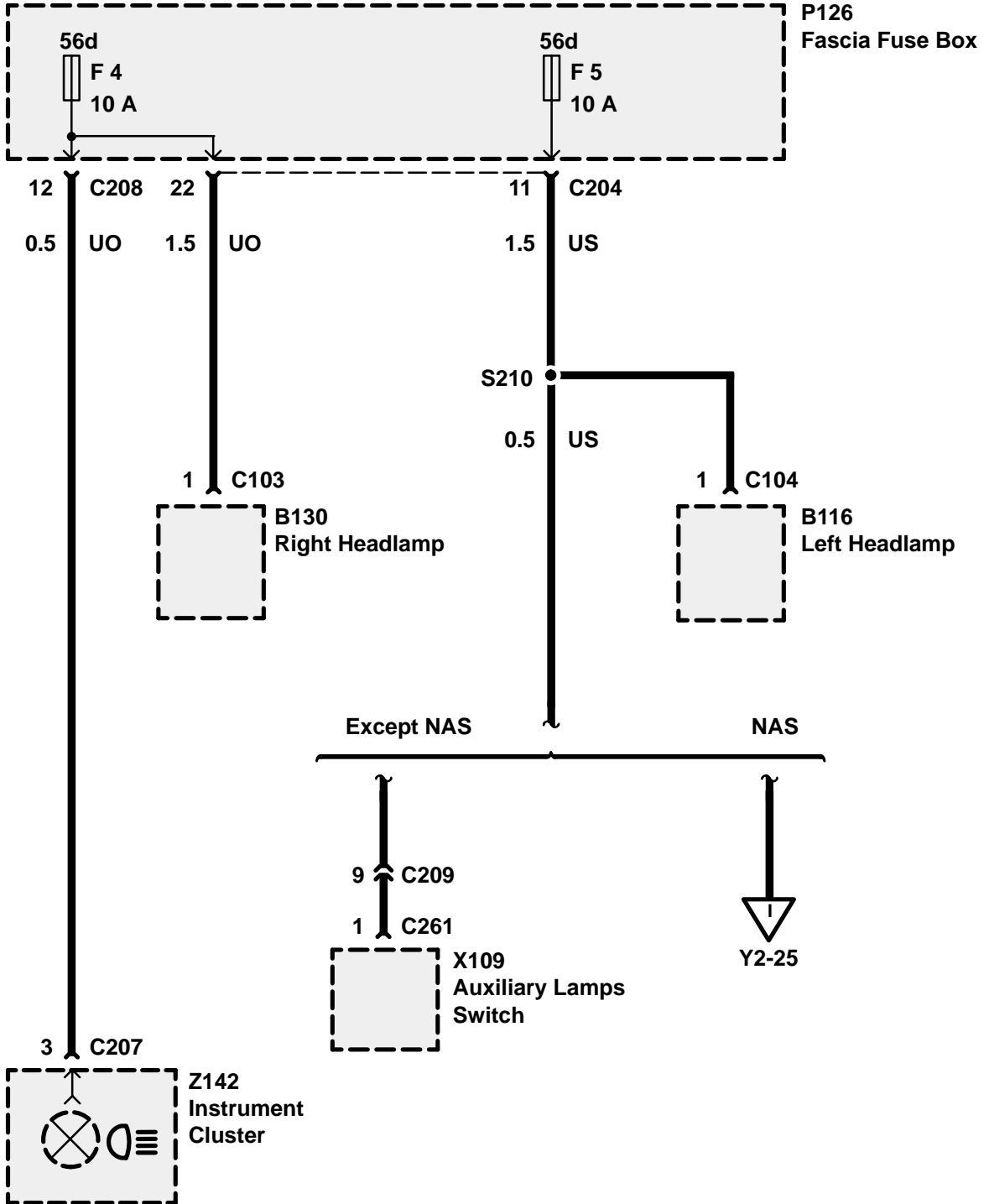
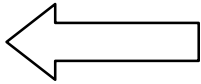


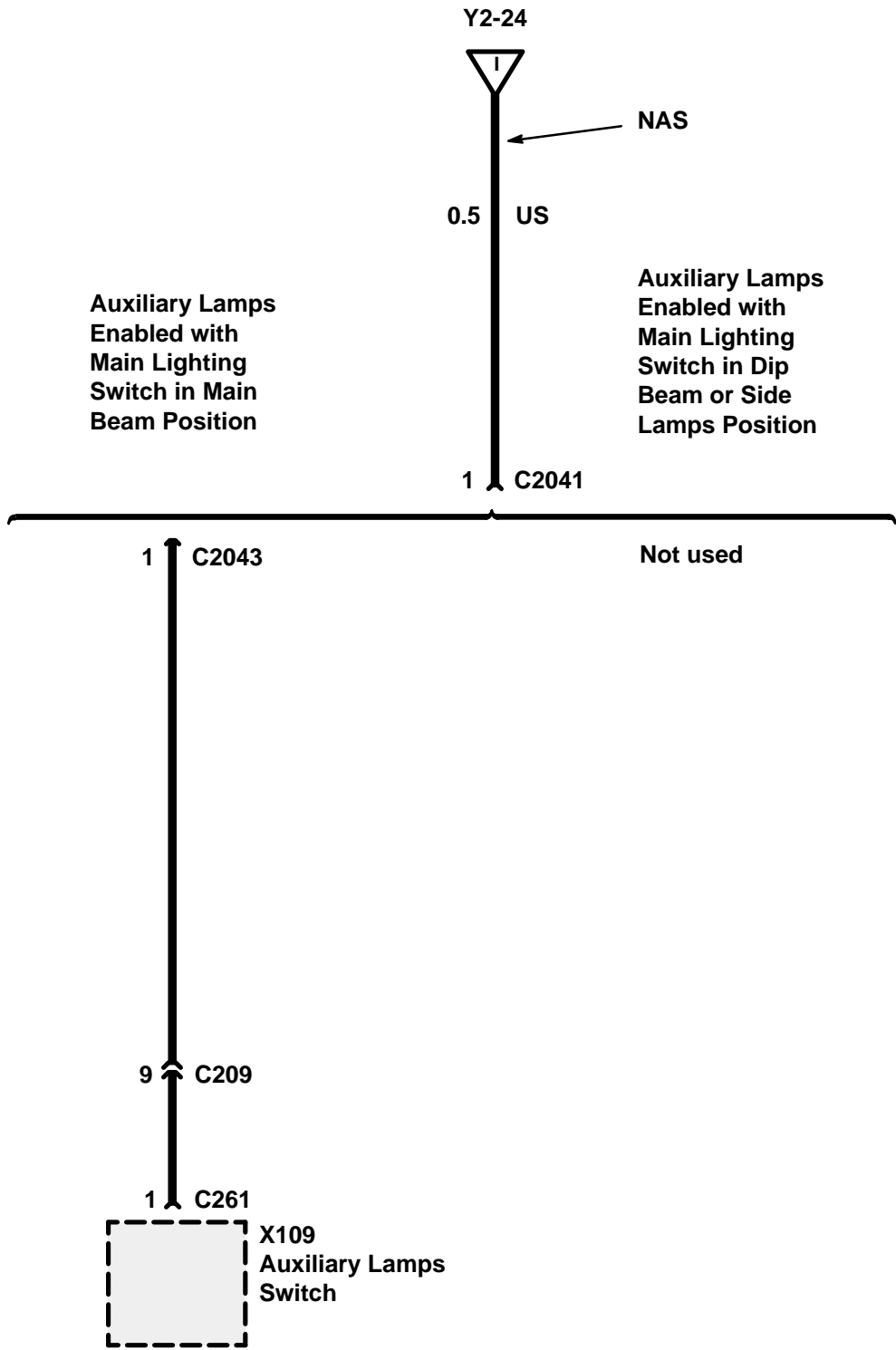
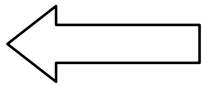






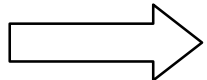


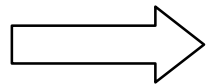
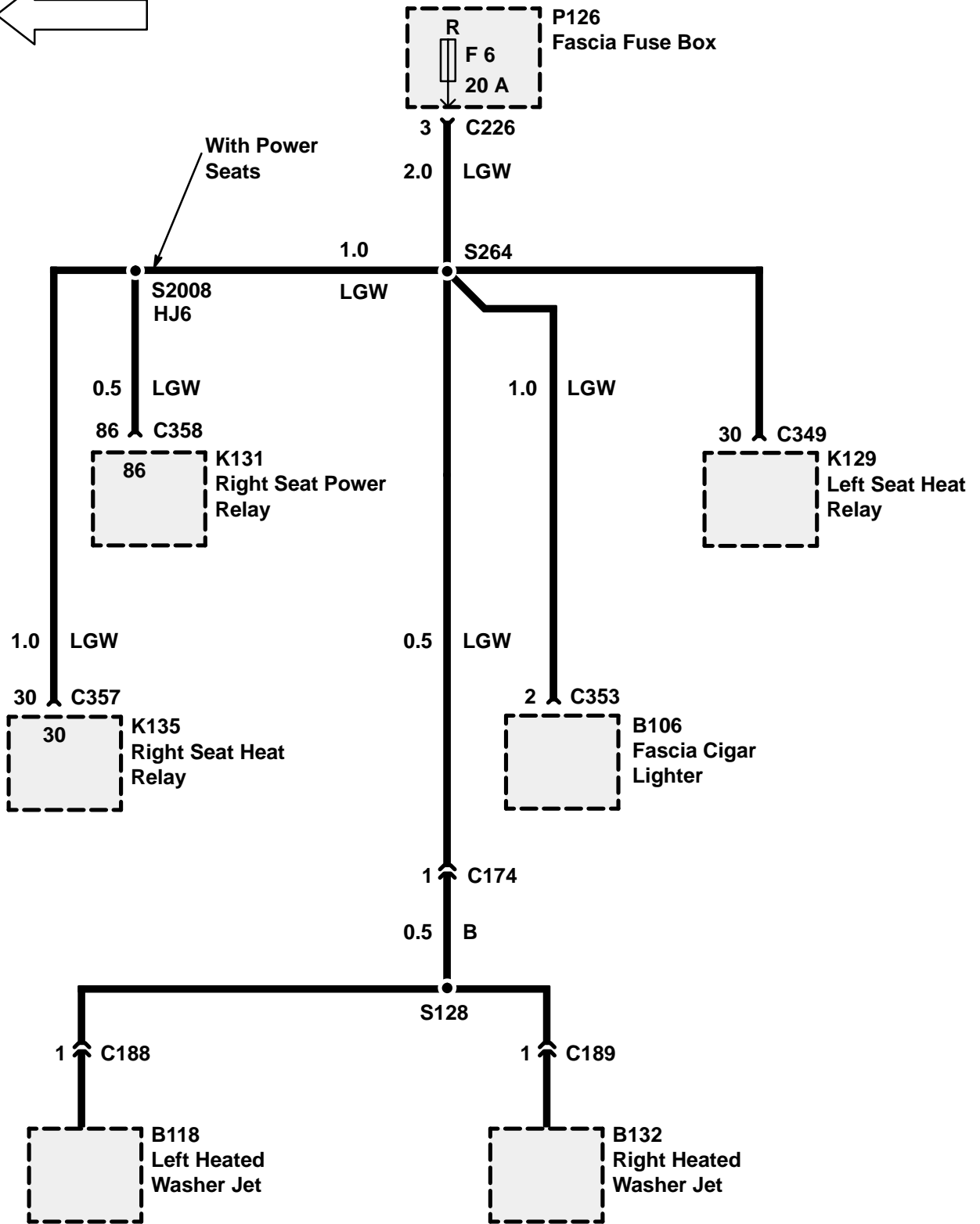
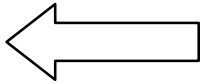


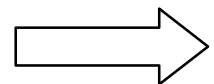
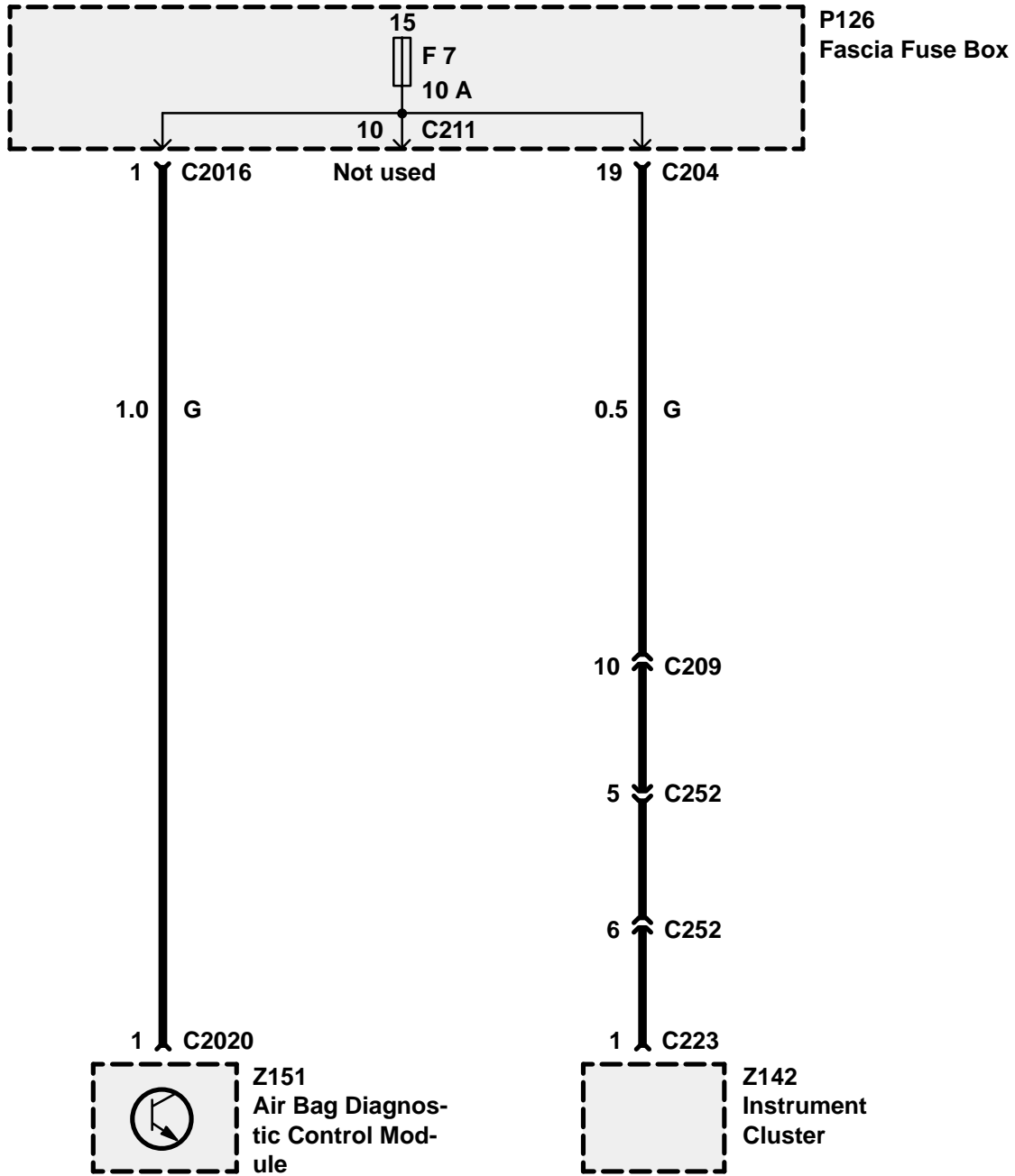
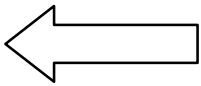


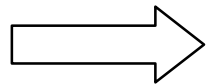
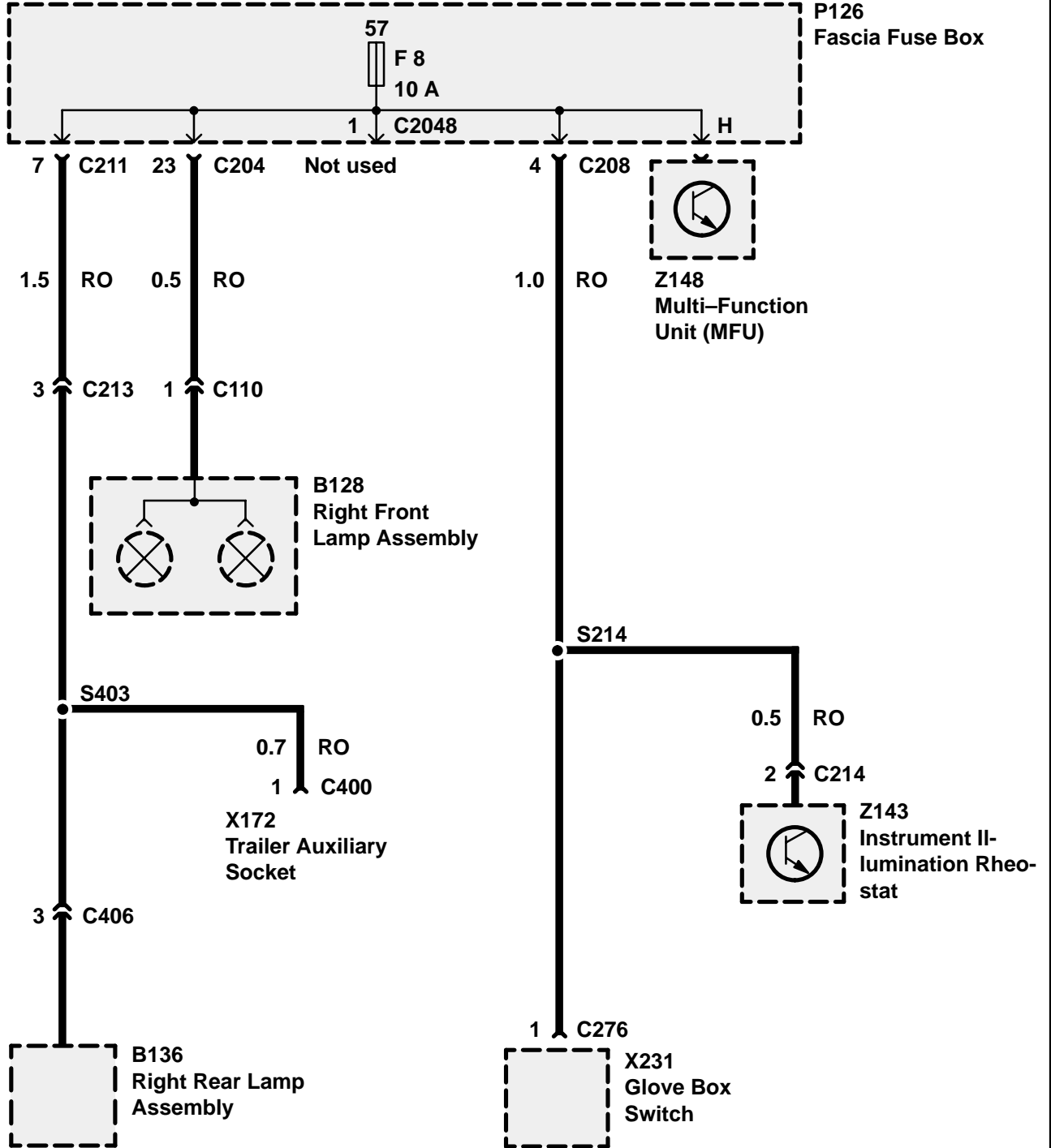
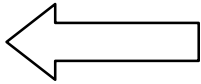
Auxiliary Lamps Enabled with Main Lighting Switch in Main Beam Position

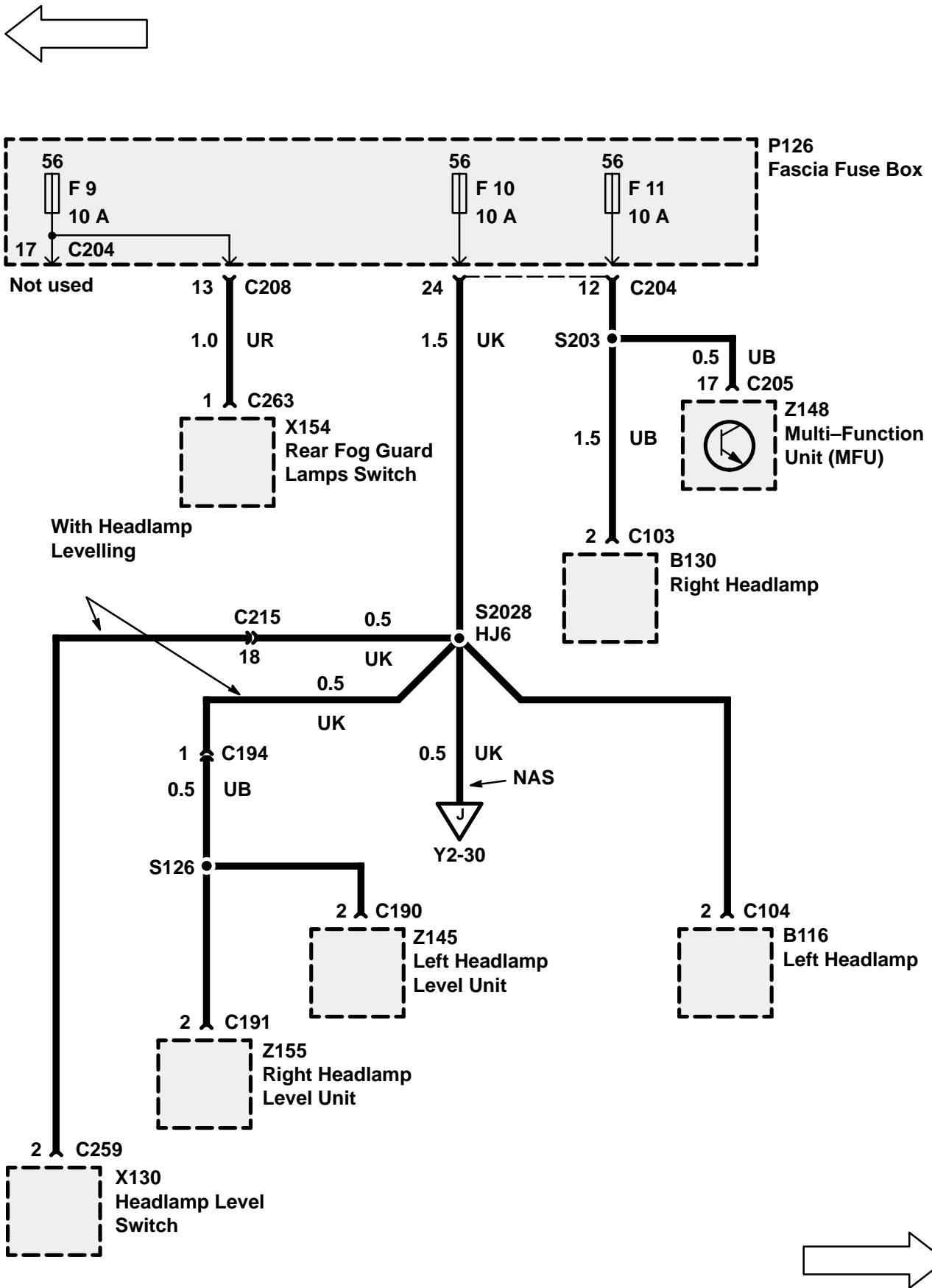
Auxiliary Lamps Enabled with Main Lighting Switch in Dip Beam or Side Lamps Position

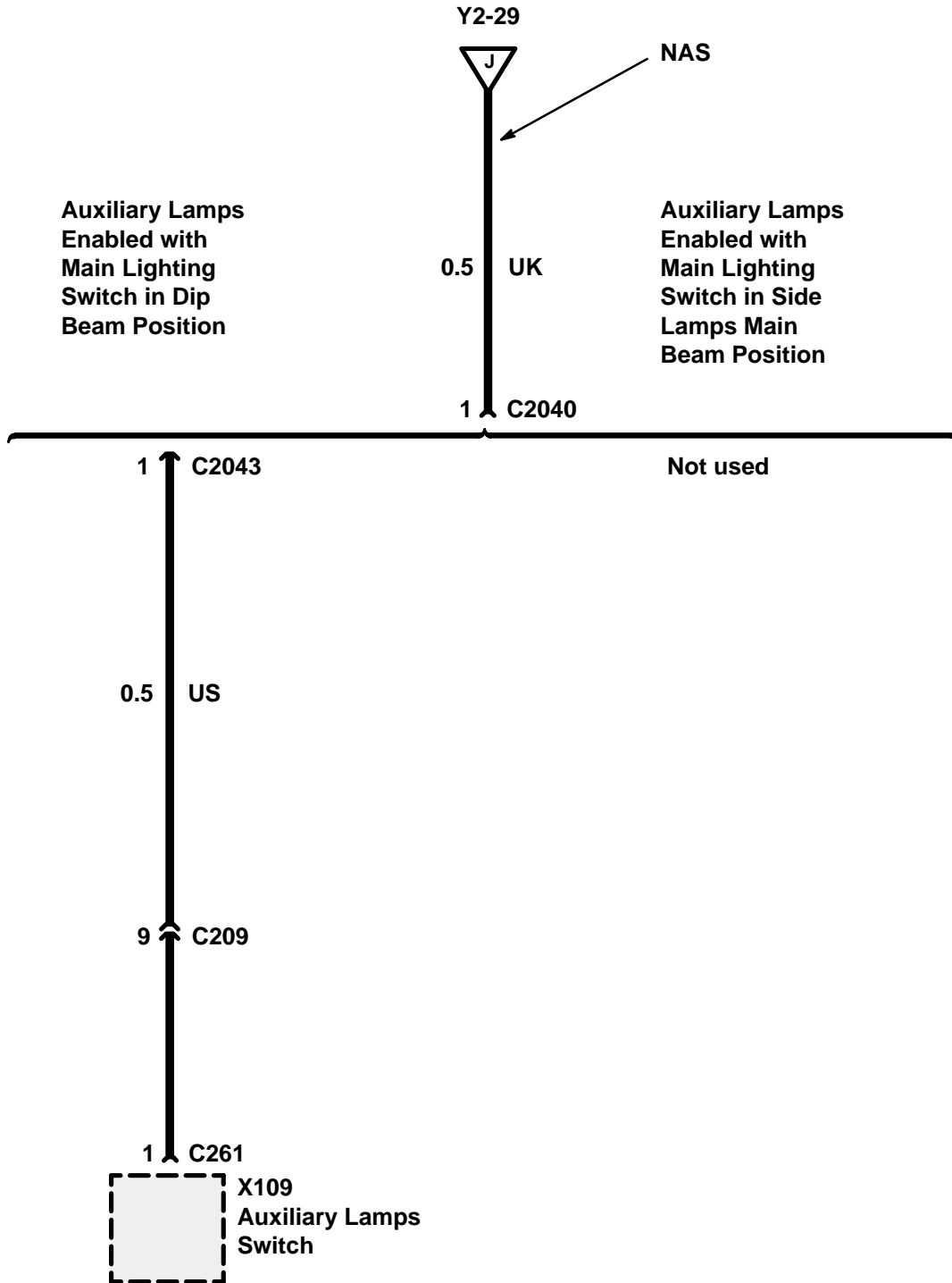
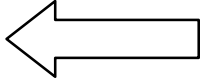






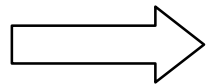


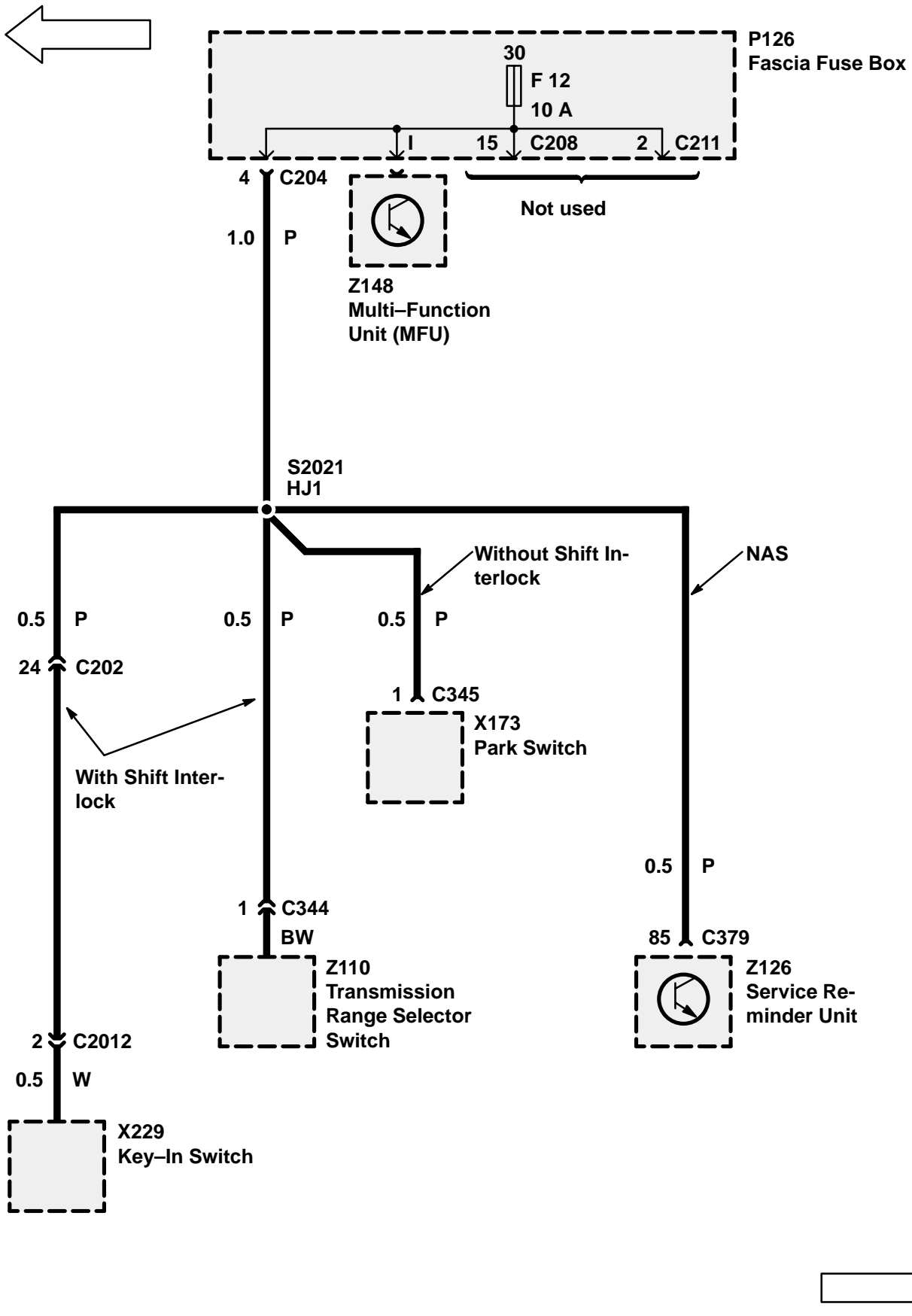




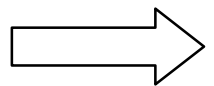
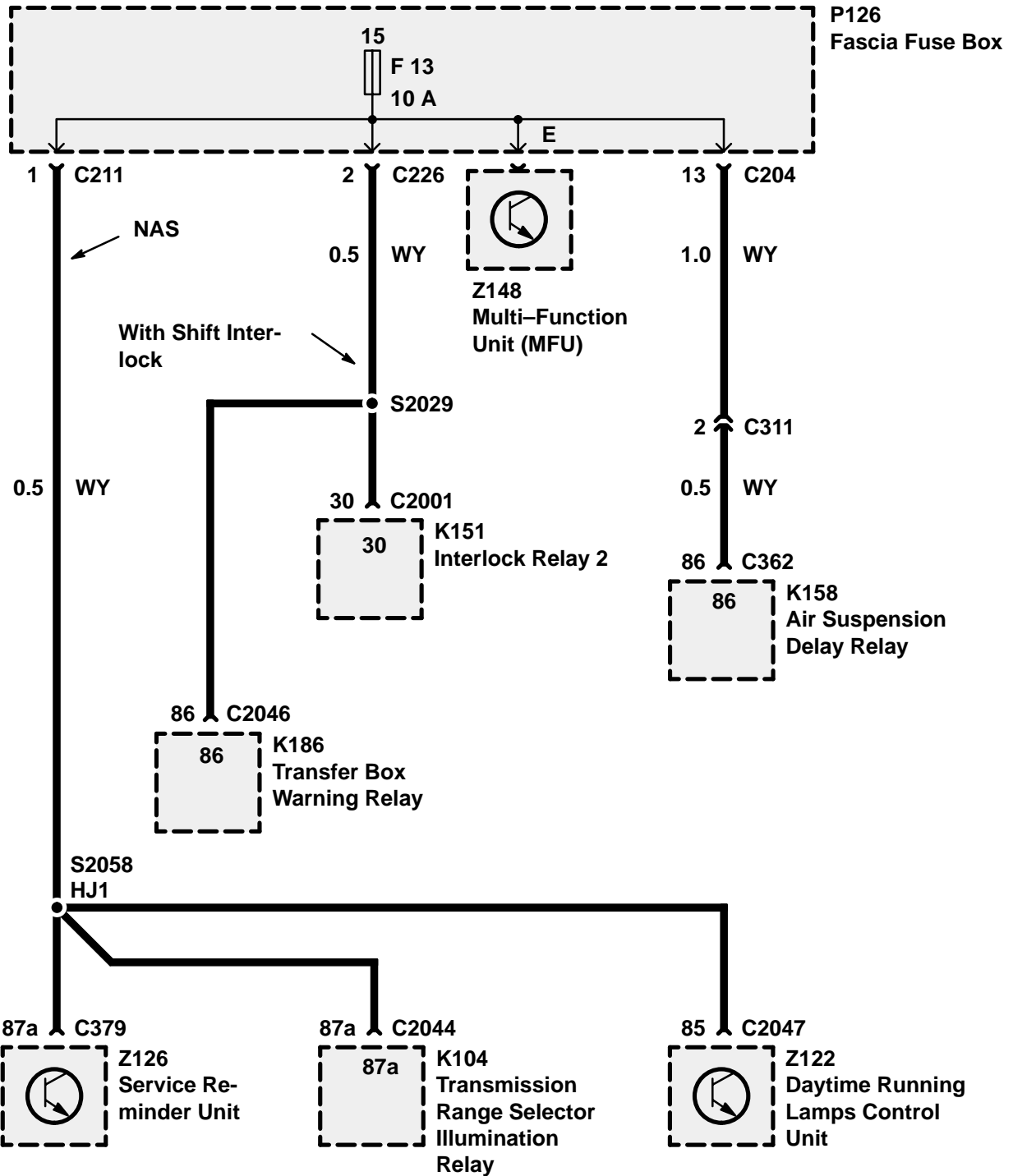
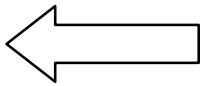
Auxiliary Lamps Enabled with Main Lighting Switch in Dip Beam Position

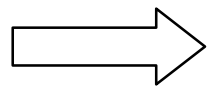
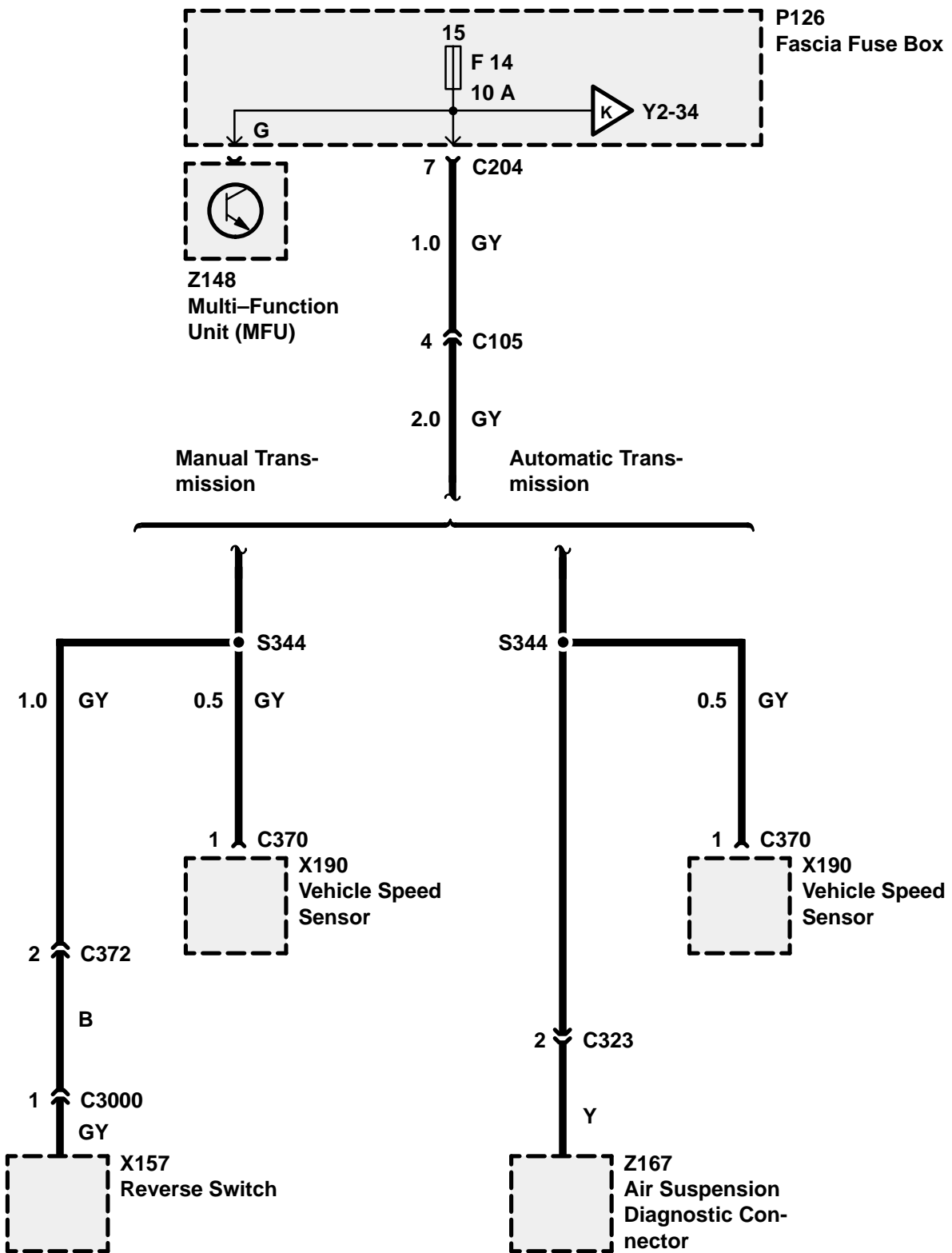
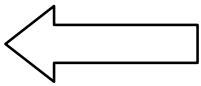
Auxiliary Lamps Enabled with Main Lighting Switch in Side Lamps Main Beam Position





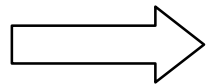
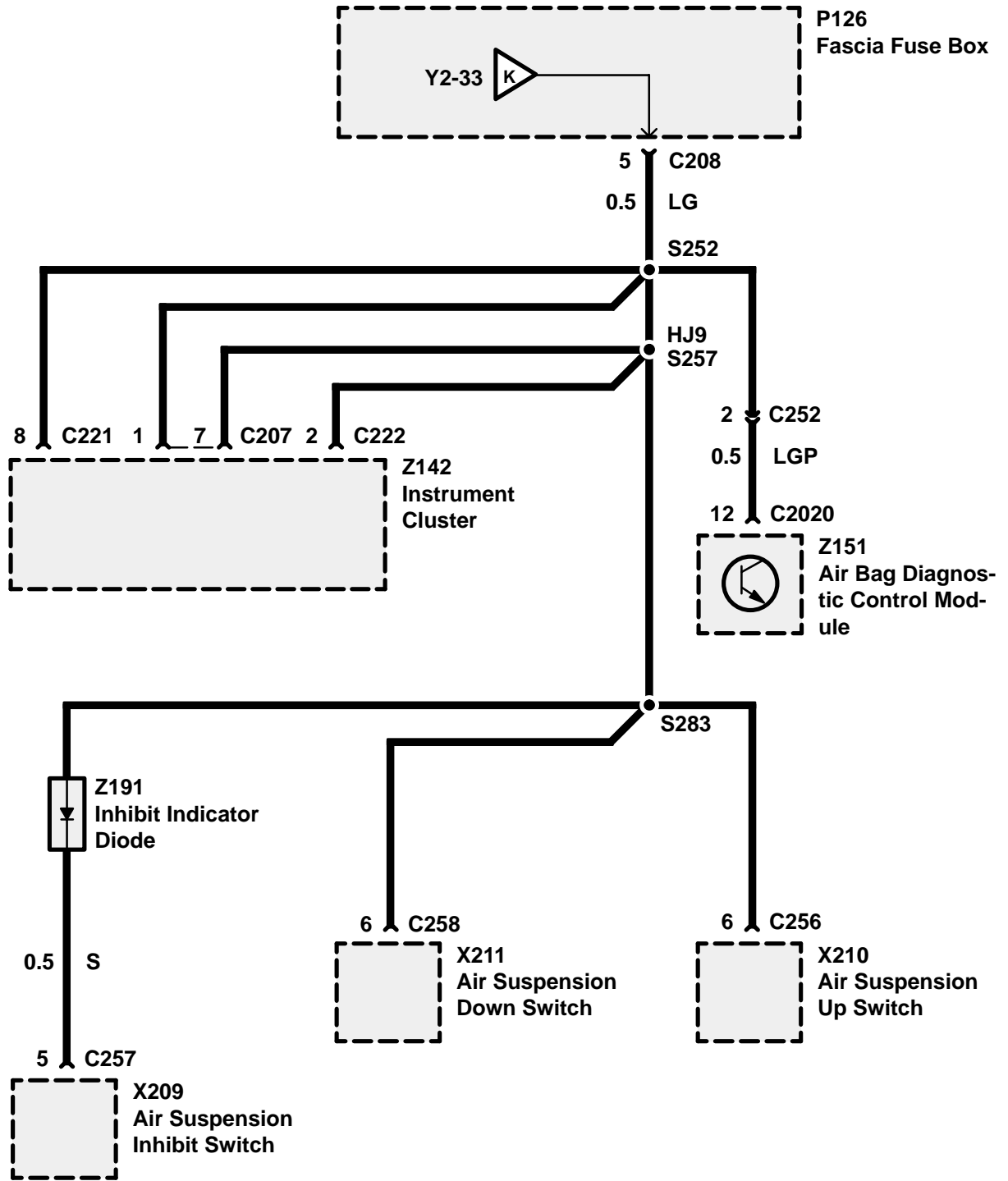
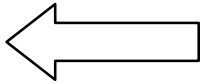






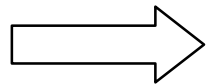
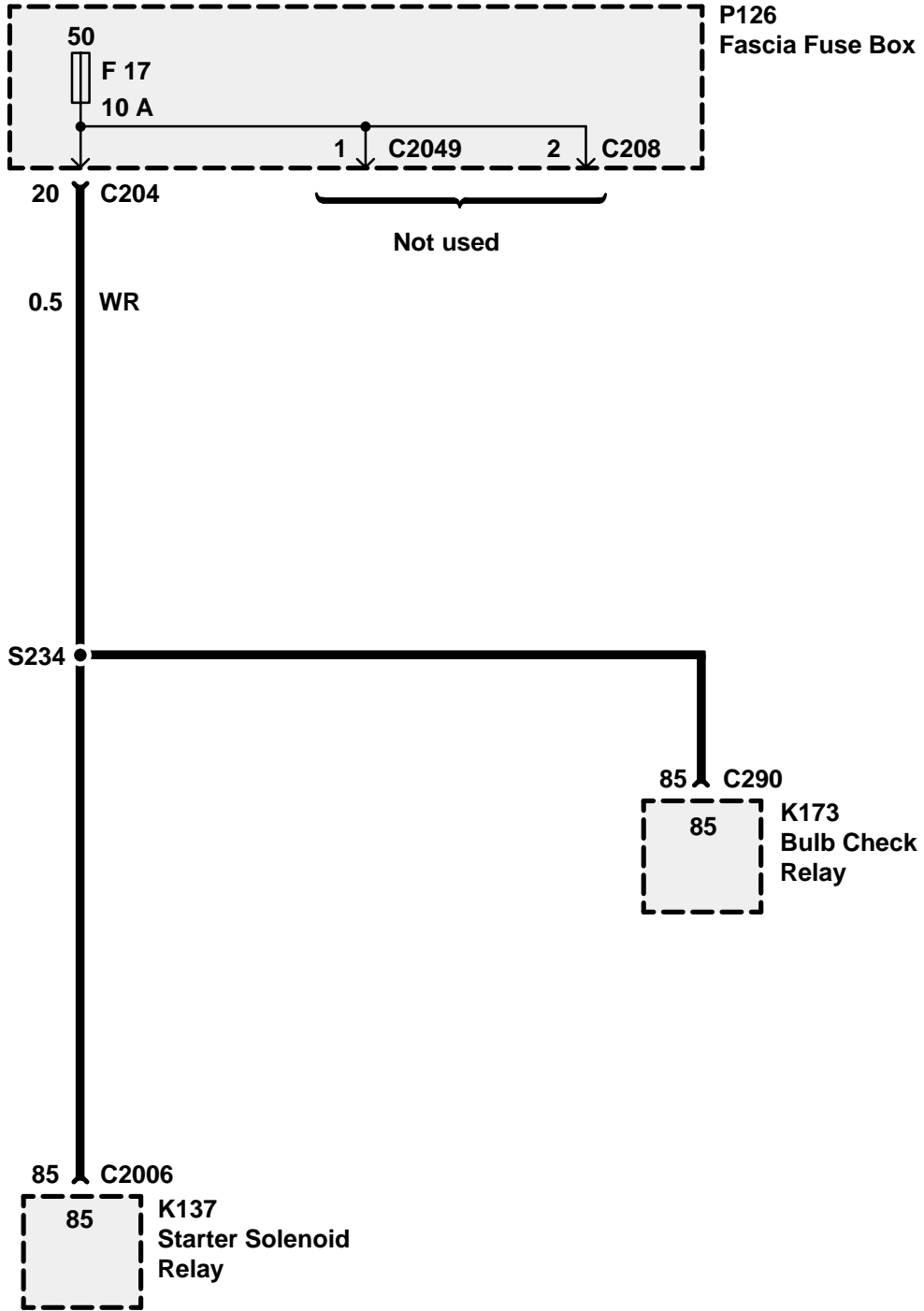
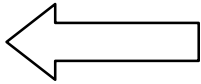
# Y2 ETM

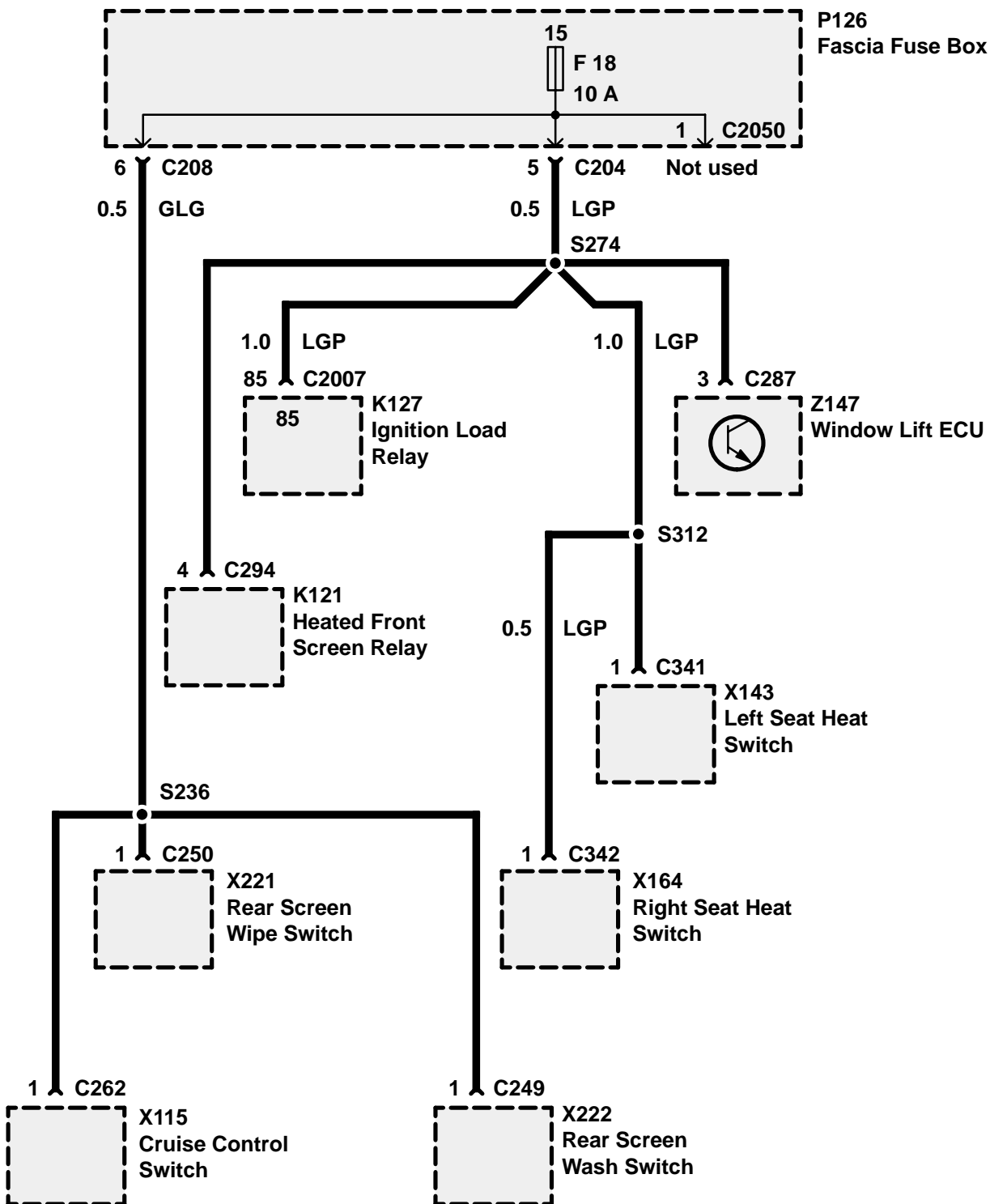
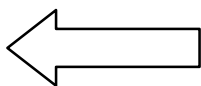
## 1995 RANGE ROVER





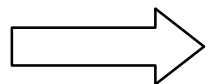
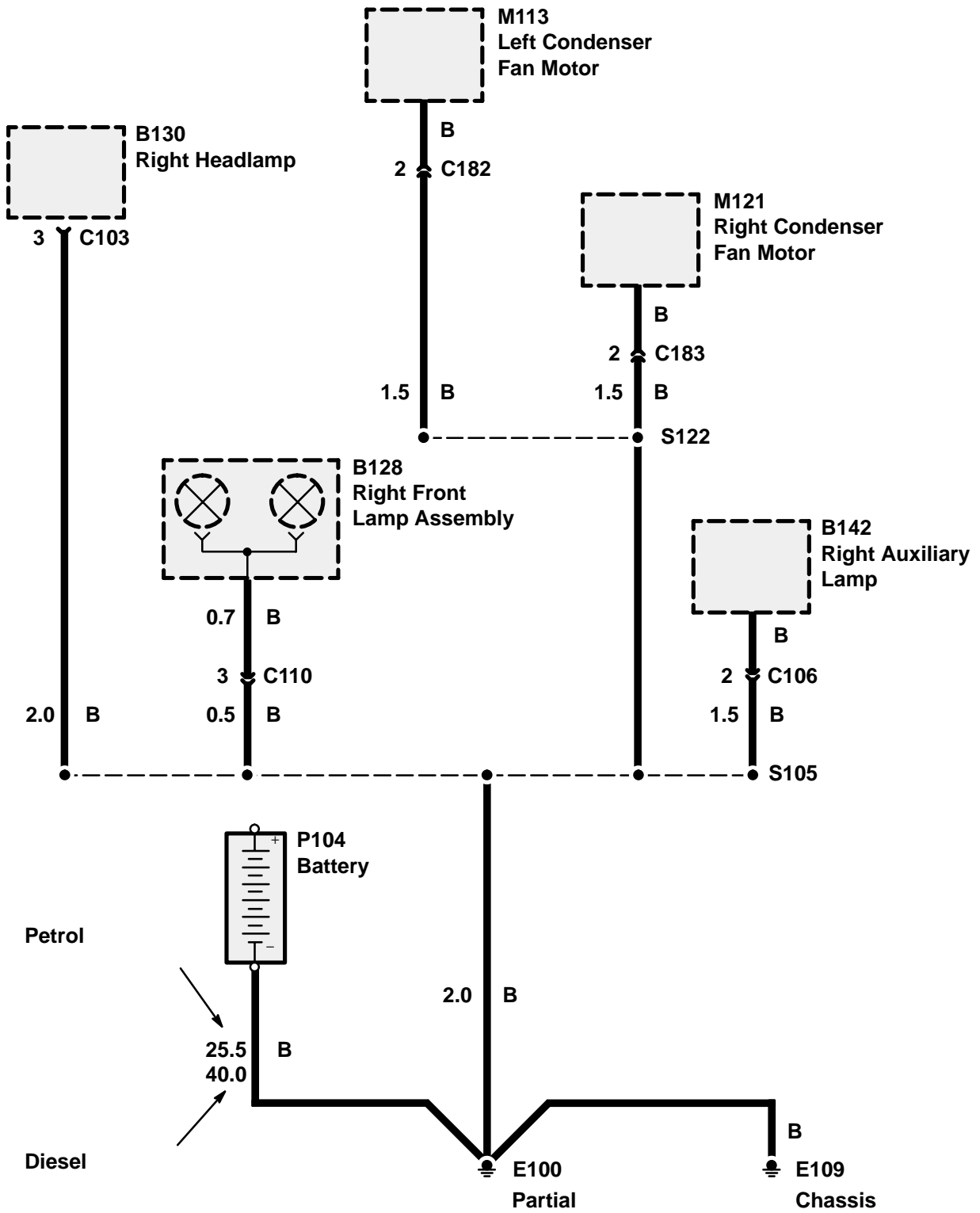
# Y2 ETM



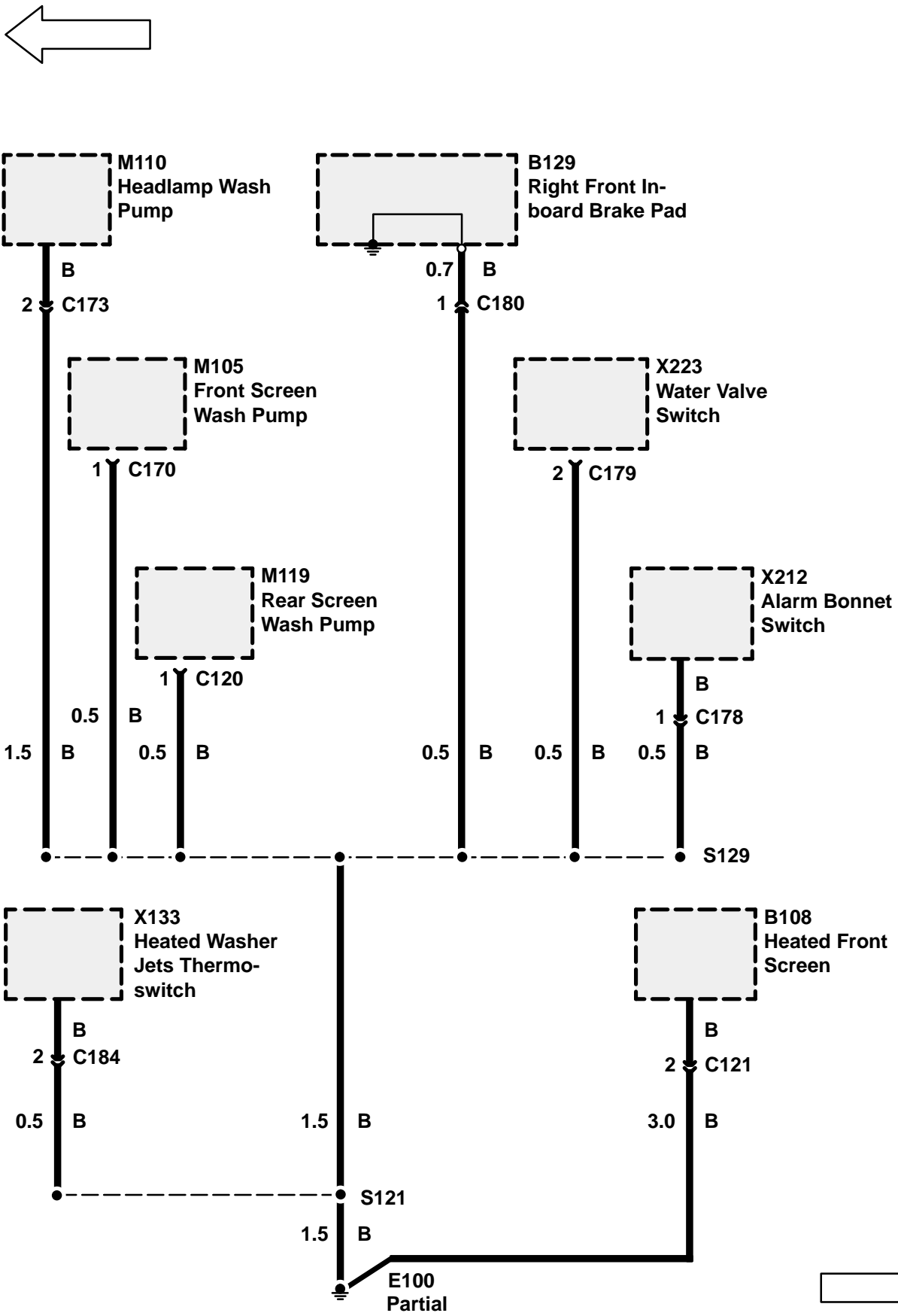


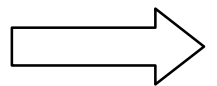
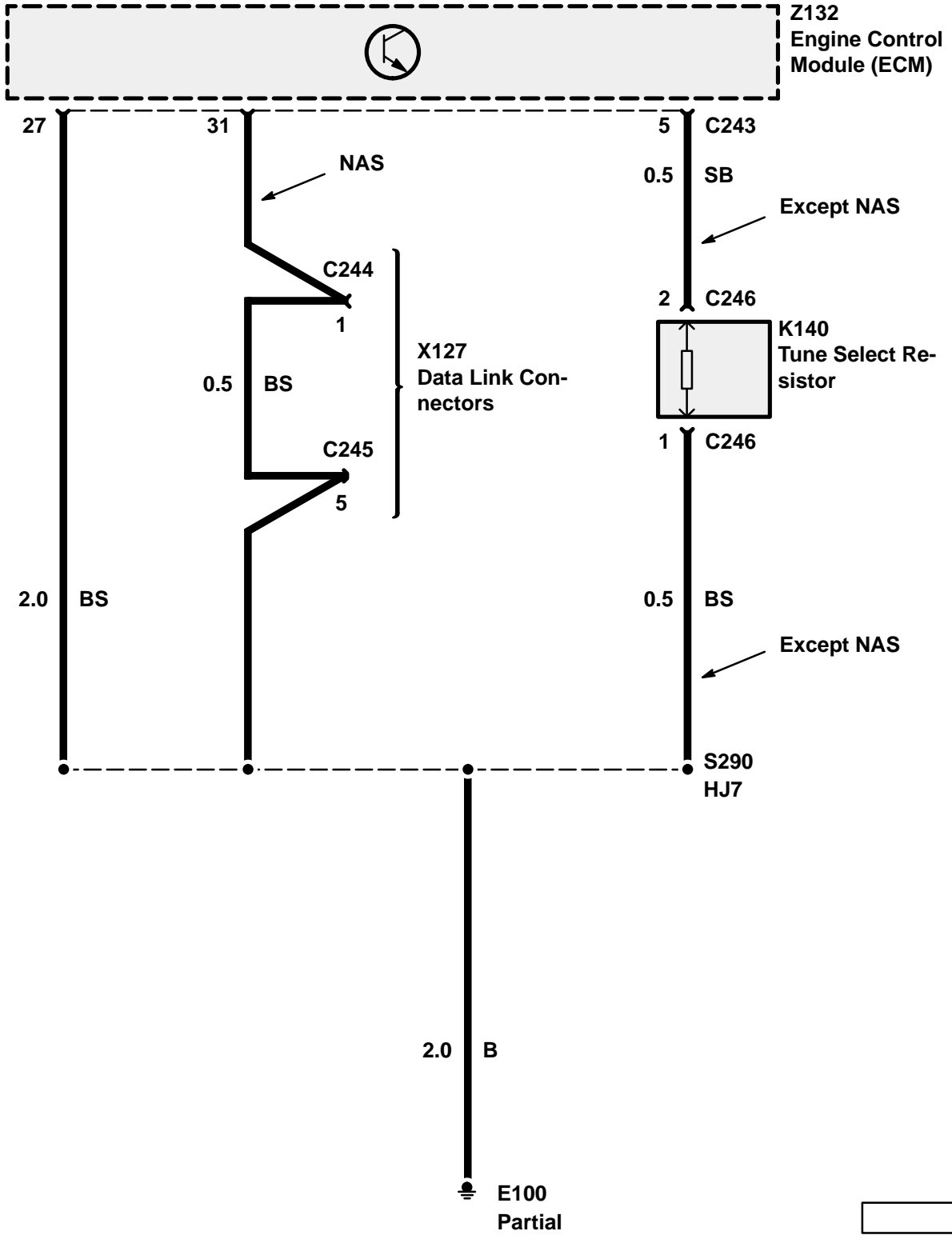
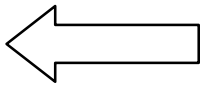
GROUND AND SPLICE INDEX

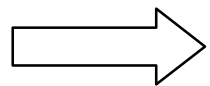
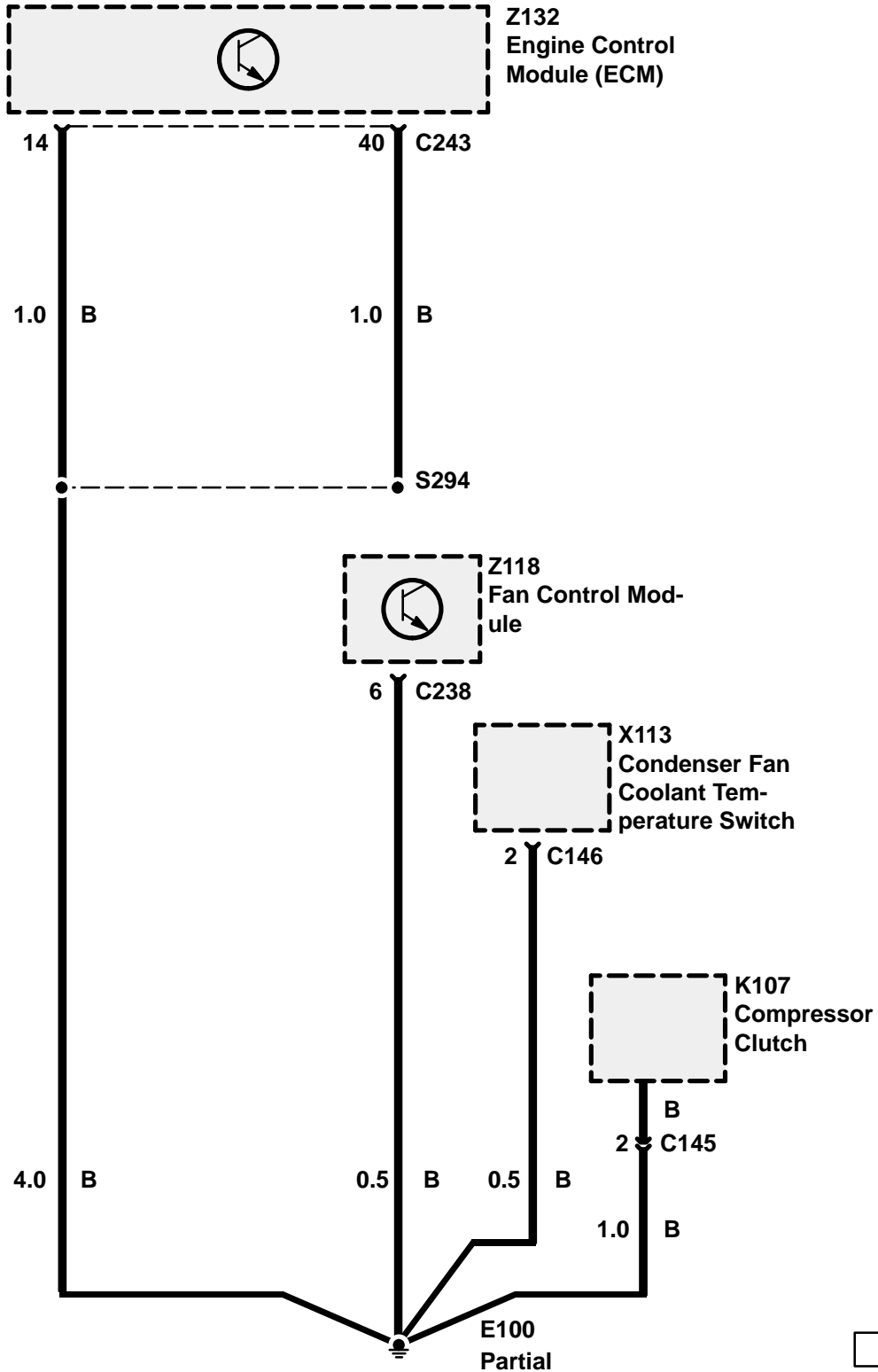
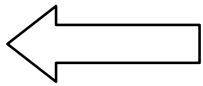
| Ground      | Page  | Splice    | Page      |
|-------------|---|-----------|-----------|
| E100        | Y5-2, 3, 4, 5                                   | S100      | Y5-6      |
| E101        | Y5-6  | S104      | Y5-6      |
| E102        | Y5-9  | S105      | Y5-2      |
| E103 Petrol | Y5-7  | S112      | Y5-8      |
| E103 Diesel | Y5-8  | S121      | Y5-3      |
| E104        | Y5-9  | S122      | Y5-2      |
| E105        | Y5-9  | S125      | Y5-22     |
| E106        | Y5-9  | S129      | Y5-3      |
| E107        | Y5-7  | S130      | Y5-6      |
| E108        | Y5-9  | S204/HJ10 | Y5-17     |
| E109        | Y5-2  | S207      | Y5-21     |
| E110        | Y5-9  | S216      | Y5-20     |
| E200        | Y5-10, 11, 12, 13,<br>14, 15, 16, 17            | S217      | Y5-19     |
| E201        | Y5-18, 19, 20, 21,<br>22, 23, 24, 25,<br>26, 27 | S221      | Y5-18     |
| E202        | Y5-28   | S238/HJ10 | Y5-16     |
| E207        | Y5-28   | S244      | Y5-12     |
| E300        | Y5-29, 30, 31, 32,<br>33                        | S248      | Y5-26     |
| E301        | Y5-34   | S253/HJ8  | Y5-20     |
| E302        | Y5-35   | S255/HJ8  | Y5-21     |
| E303        | Y5-36   | S266      | Y5-10     |
| E400        | Y5-37   | S267      | Y5-29     |
| E401        | Y5-38   | S272      | Y5-28     |
| E403        | Y5-39   | S273      | Y5-27     |
| E404        | Y5-37   | S277      | Y5-21     |
|             |   | S289      | Y5-7      |
|             |   | S290/HJ7  | Y5-4      |
|             |   | S294      | Y5-5      |
|             |   | S2003/HJ4 | Y5-13     |
|             |   | S2015/HJ5 | Y5-15     |
|             |   | S2016/HJ5 | Y5-14     |
|             |   | S2018     | Y5-30     |
|             |   | S313      | Y5-34     |
|             |   | S320      | Y5-29     |
|             |   | S321      | Y5-34     |
|             |   | S324      | Y5-28     |
|             |   | S327      | Y5-35     |
|             |   | S329      | Y5-33     |
|             |   | S330      | Y5-33     |
|             |   | S333      | Y5-32     |
|             |   | S336      | Y5-33     |
|             |   | S337      | Y5-31     |
|             |   | S343      | Y5-24, 25 |
|             |   | S401      | Y5-37     |
|             |   | S402      | Y5-38     |
|             |   | S415      | Y5-37     |
|             |   | S501      | Y5-27     |
|             |   | S601      | Y5-11     |

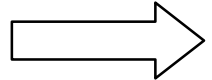
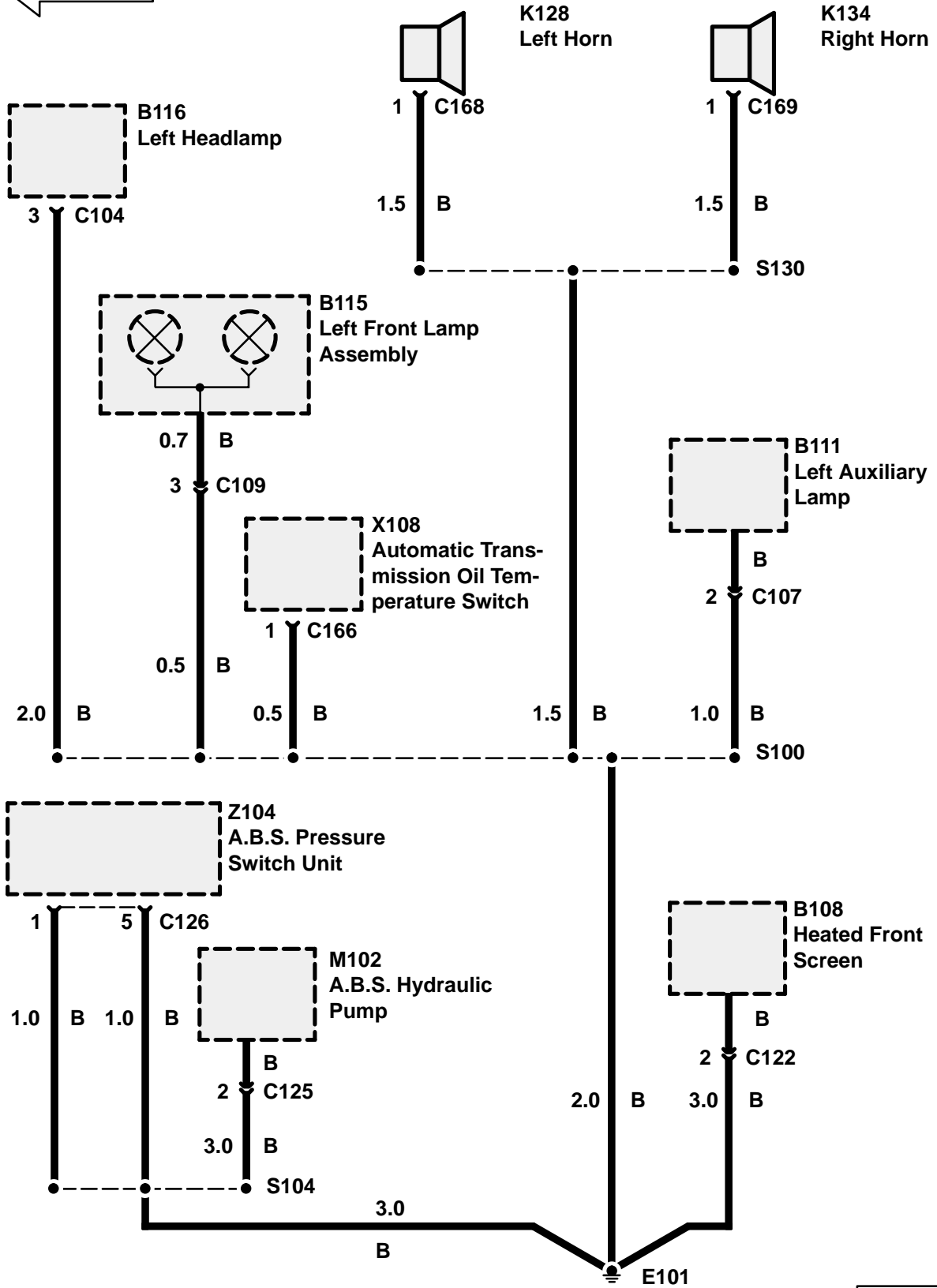
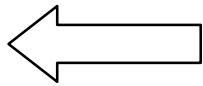


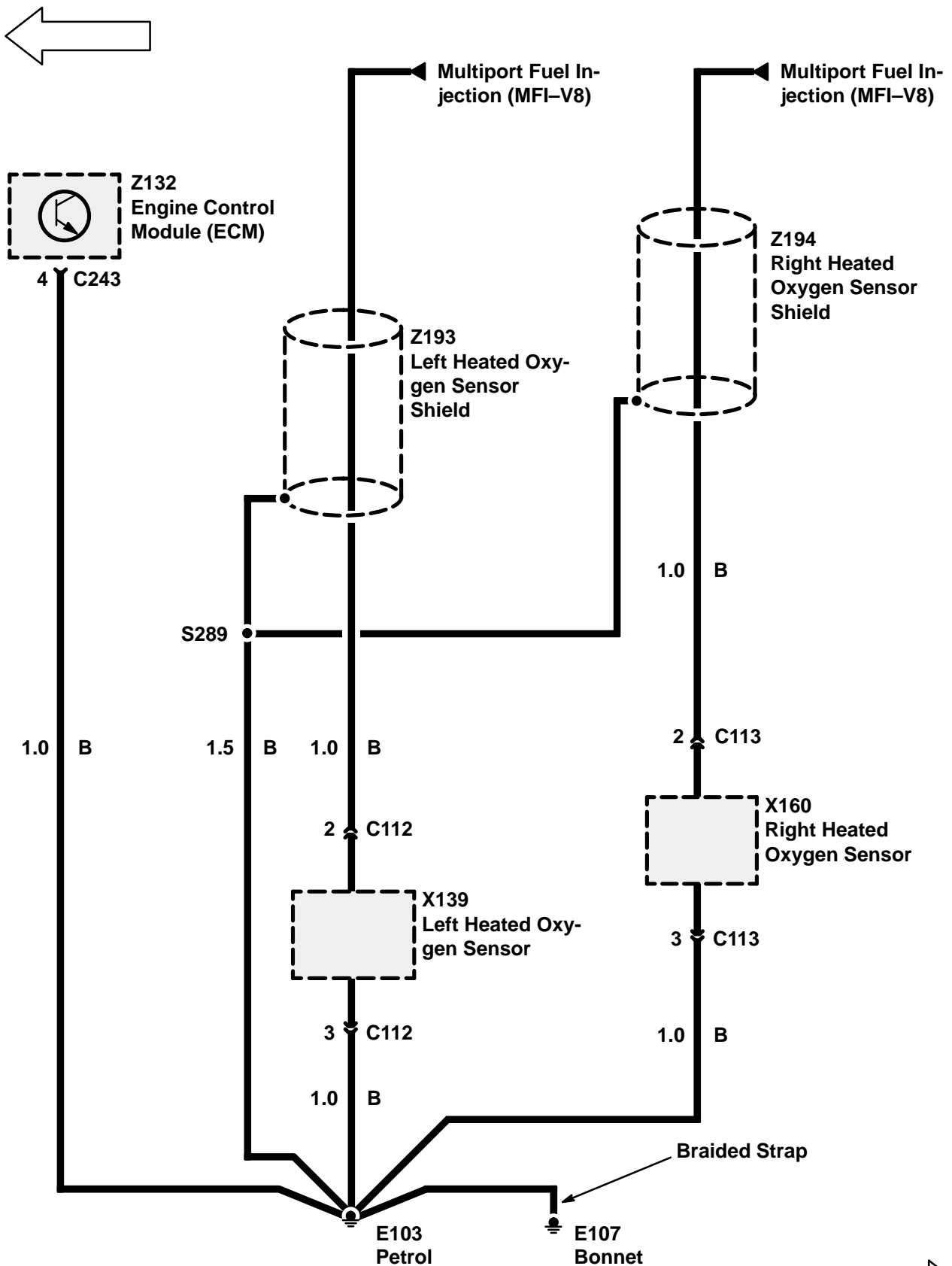






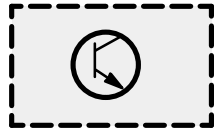
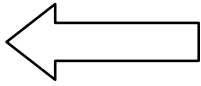




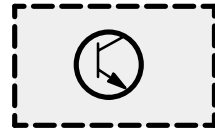


# Y5 ETM

## 1995 RANGE ROVER



Z135  
Glow Plug Timer  
Unit



Z149  
EGR Valve Control  
Module

4 C159

29 C247

1.0 B

0.5 B

S112



K107  
Compressor  
Clutch



X113  
Condenser Fan  
Coolant Tem-  
perature Switch

B  
2 C145

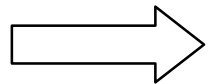
2 C146

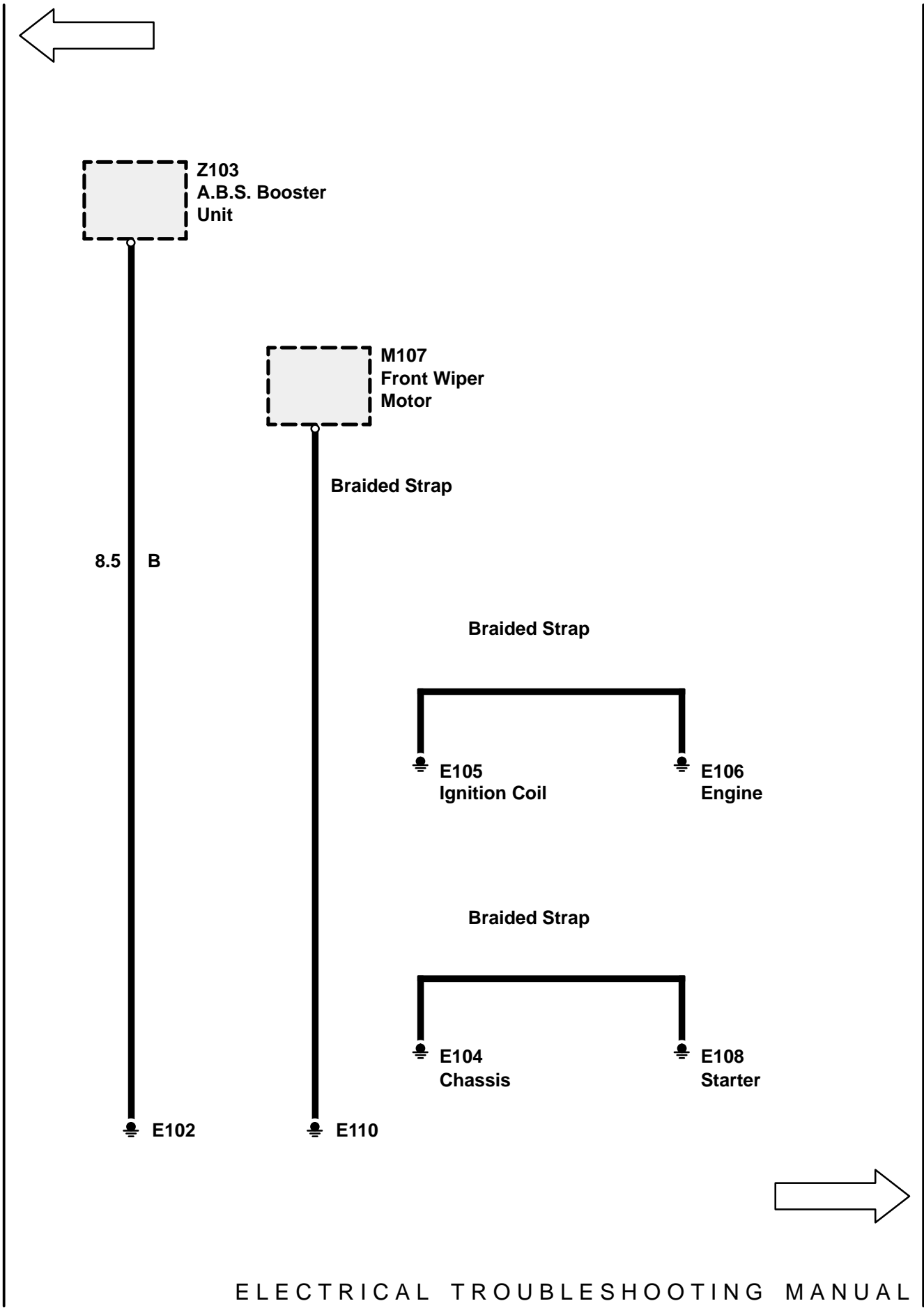
1.0 B

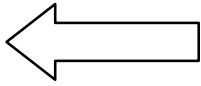
1.0 B

1.0 B

E103  
Diesel







X179  
Fan Speed  
Switch

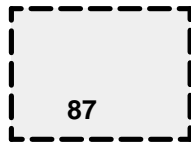


Z112  
Blower Resistor  
Unit

1 C2022

4 C2070

1 C2027



K188  
Blower Motor  
Relay

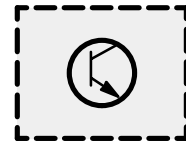
87

4 C2068

7 C2066

S266

3.0 WB



Z147  
Window Lift ECU

C C288

2 C298

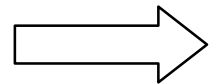
3.0 B

2.0 B

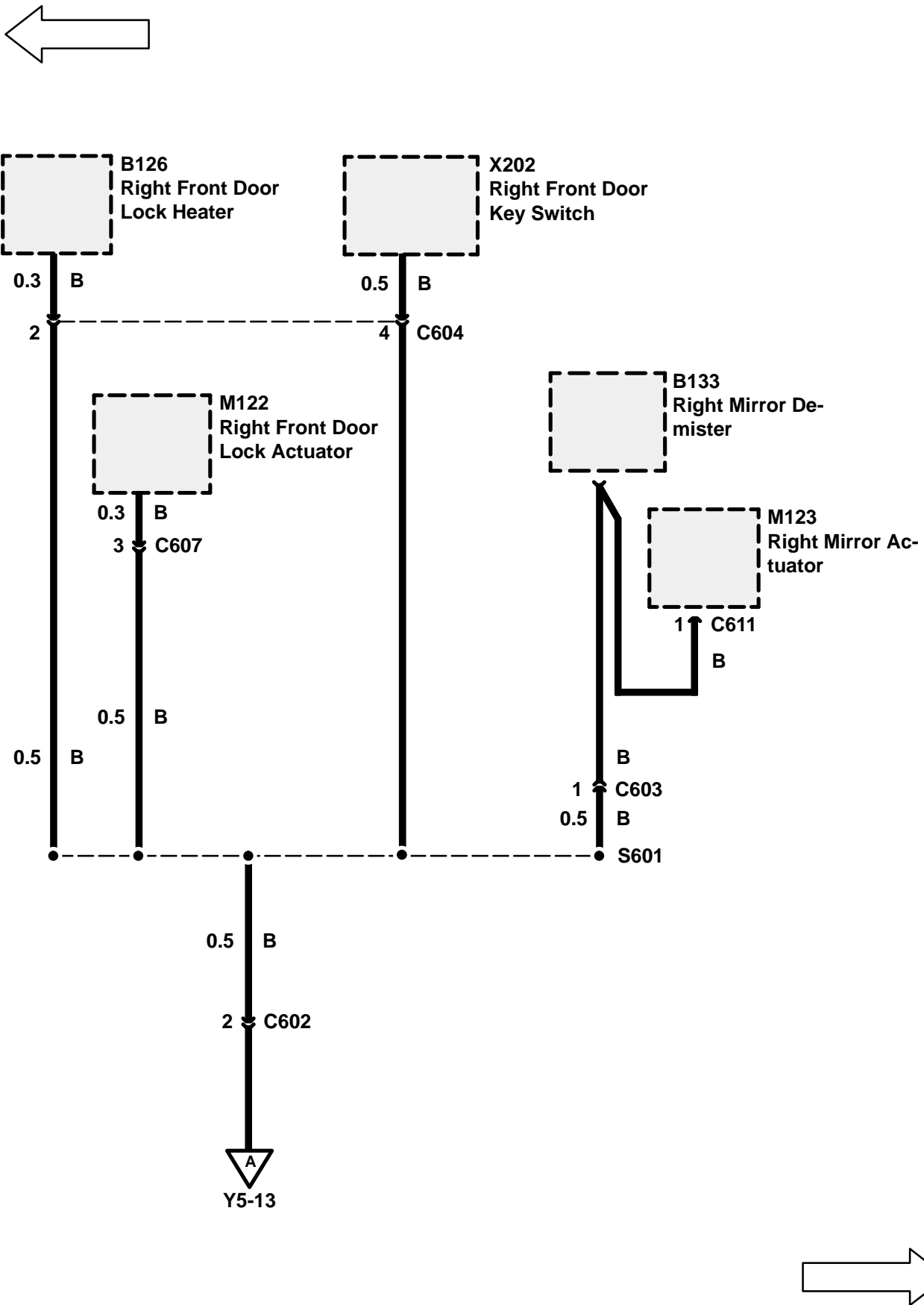
2

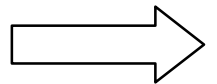
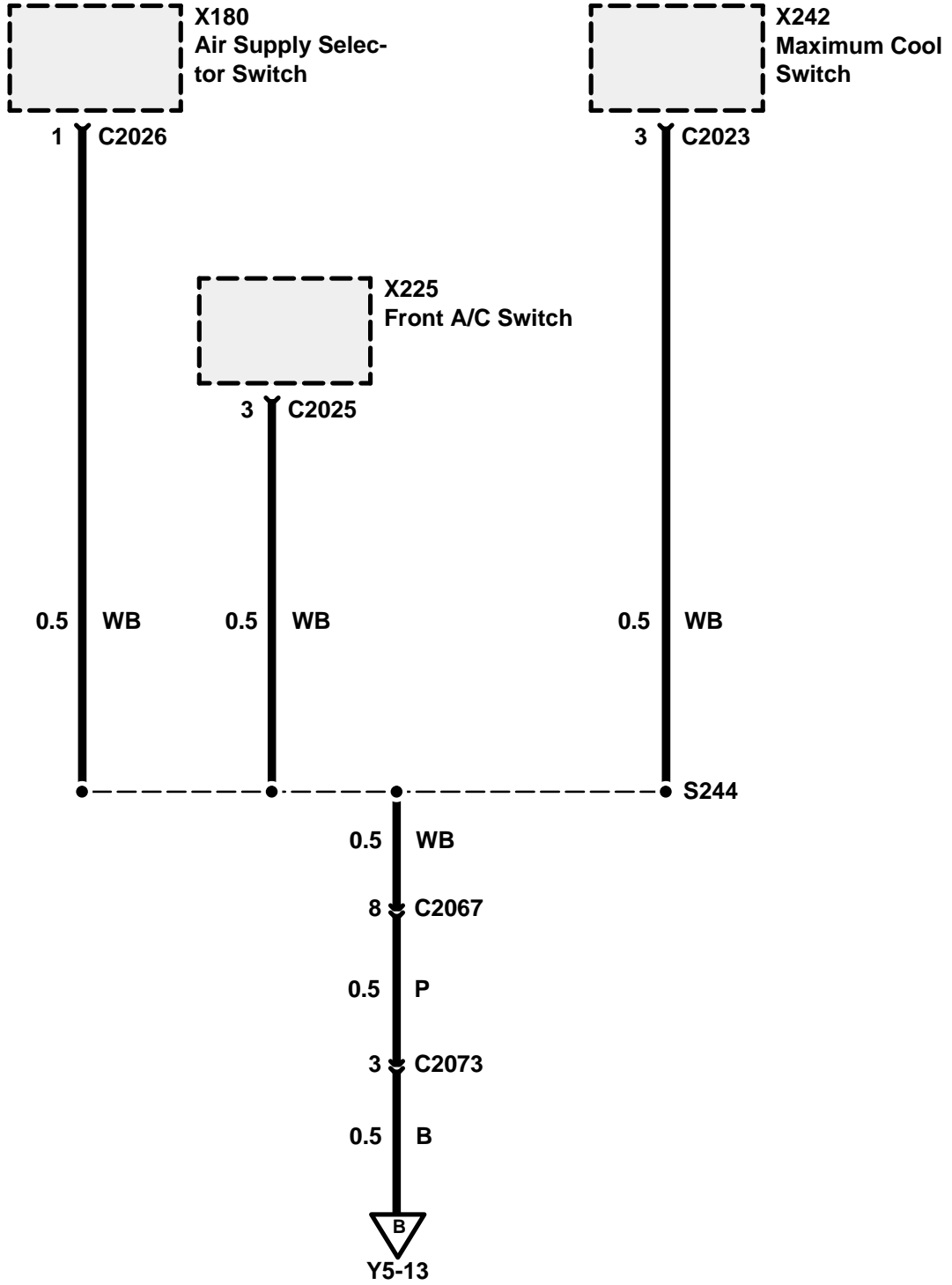
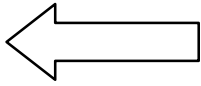
3 C2028

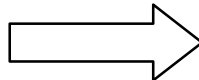
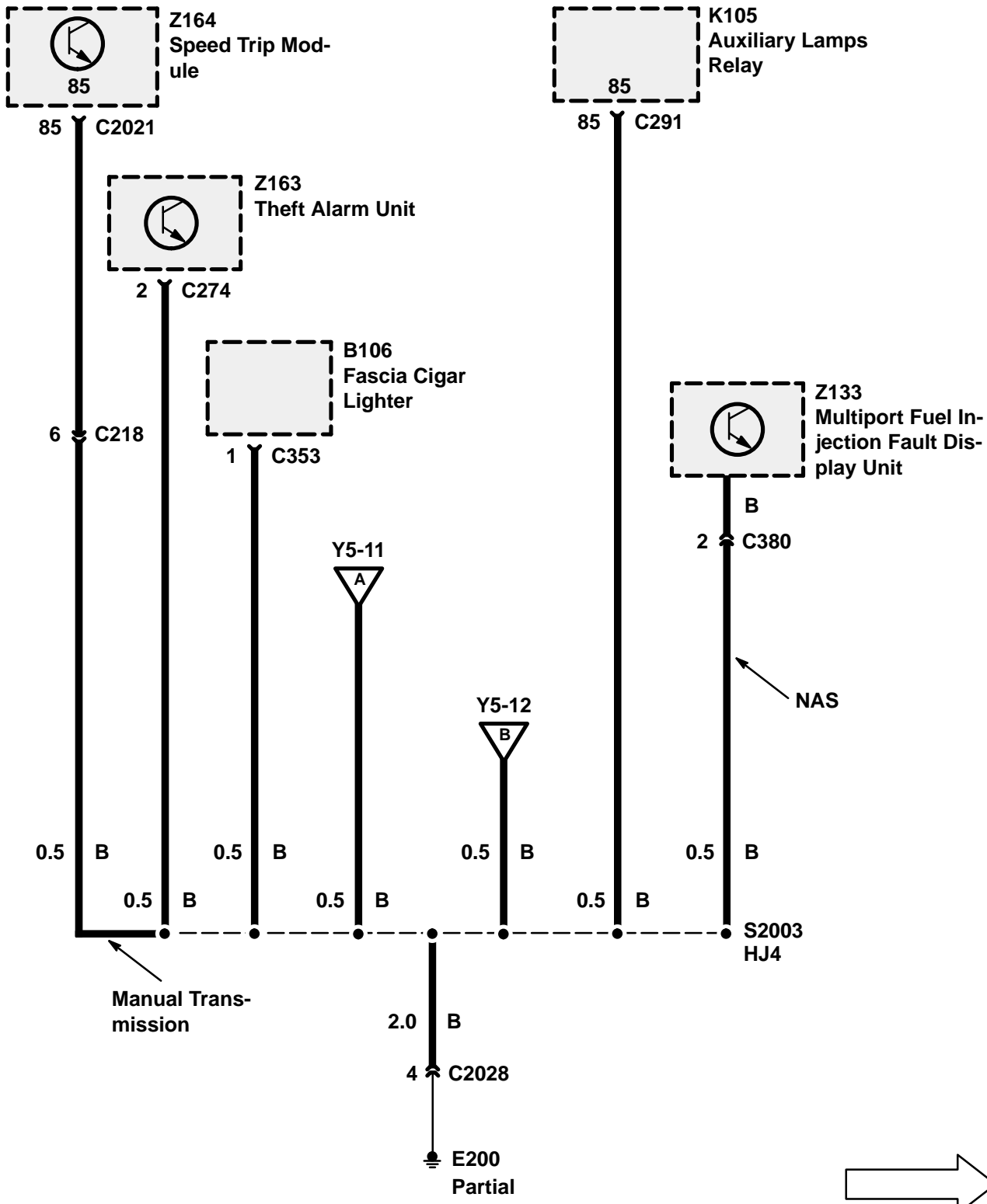
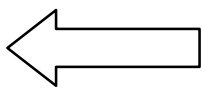
E200  
Partial



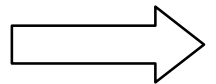
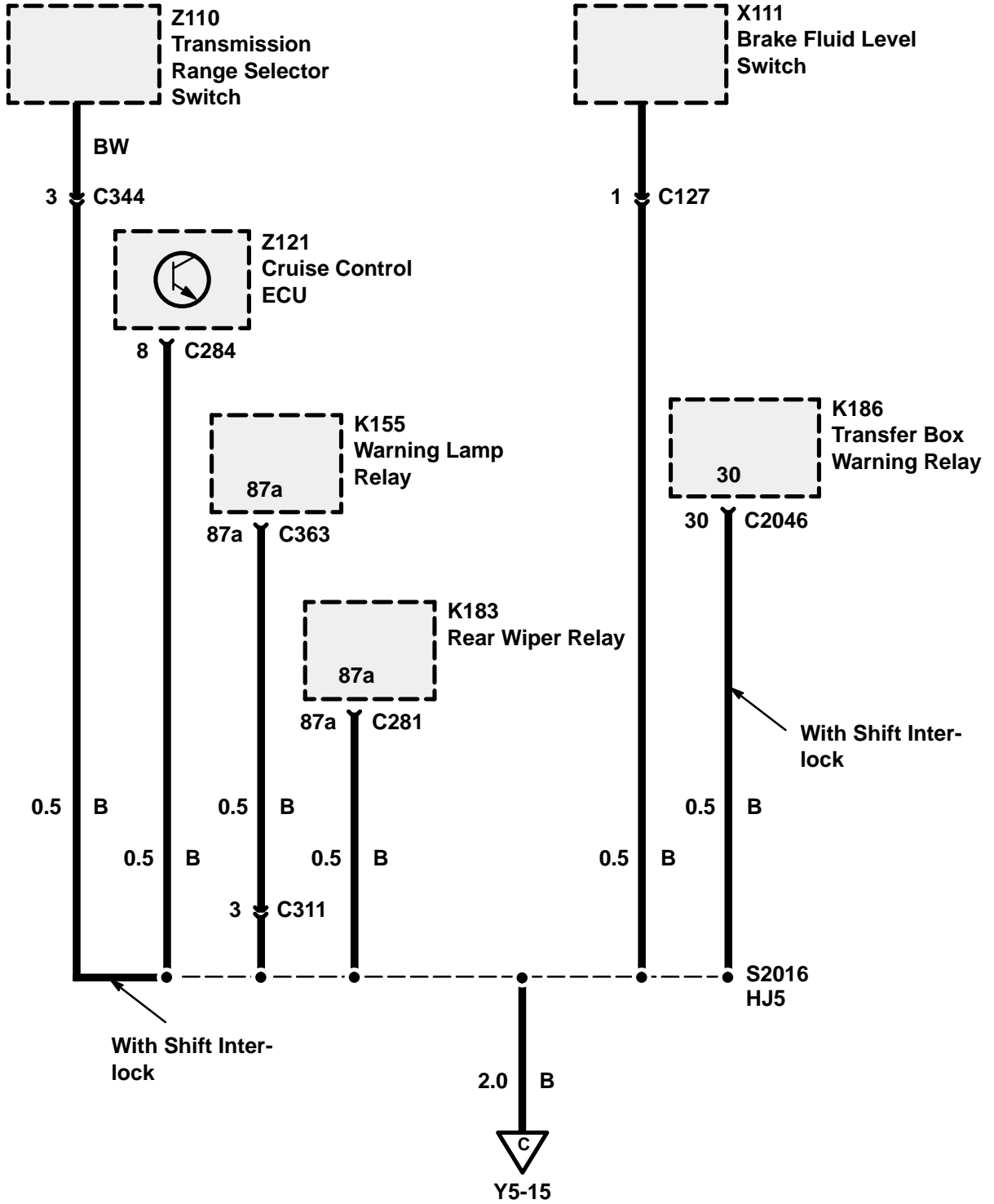
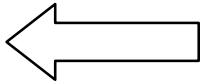


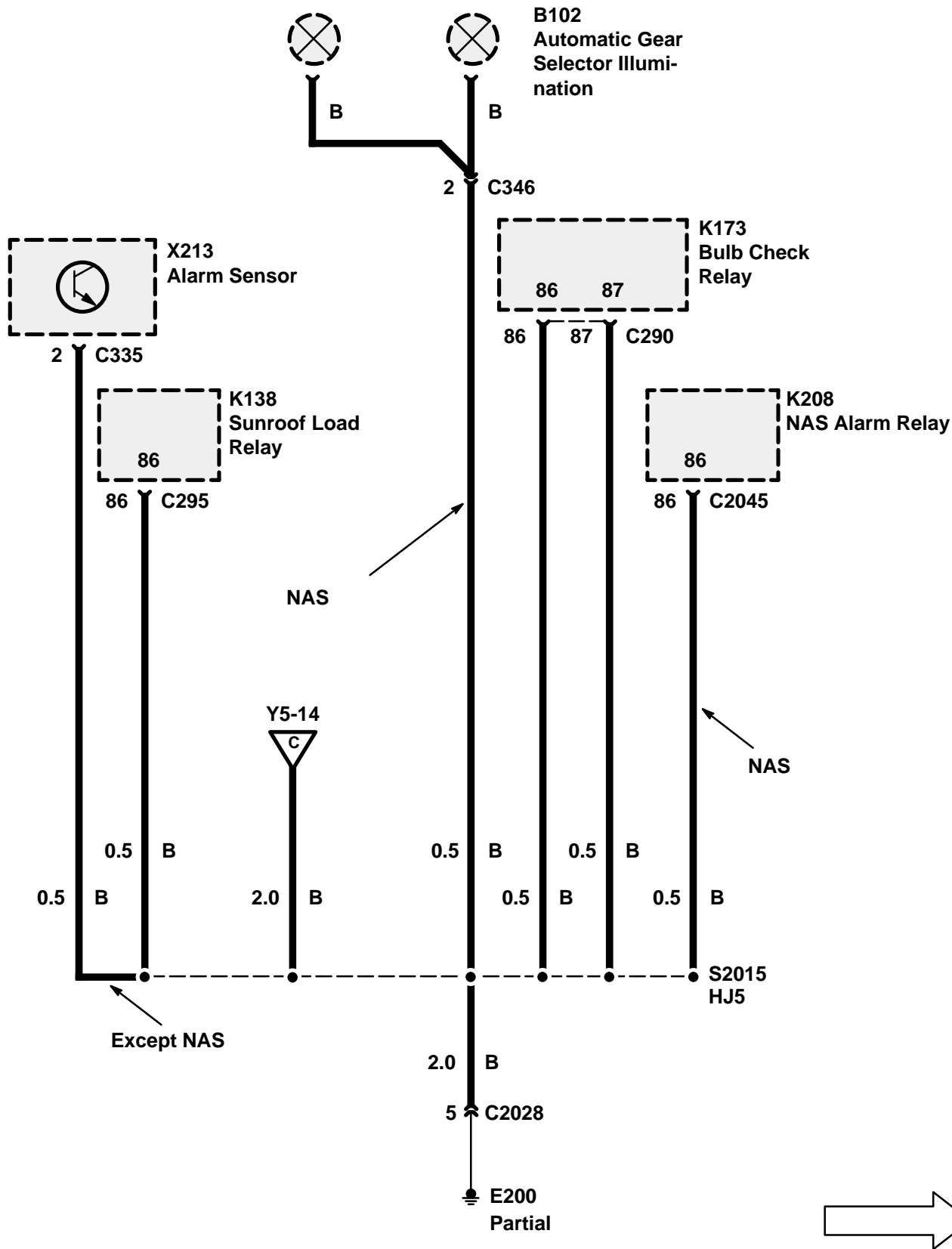
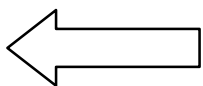






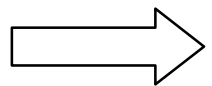
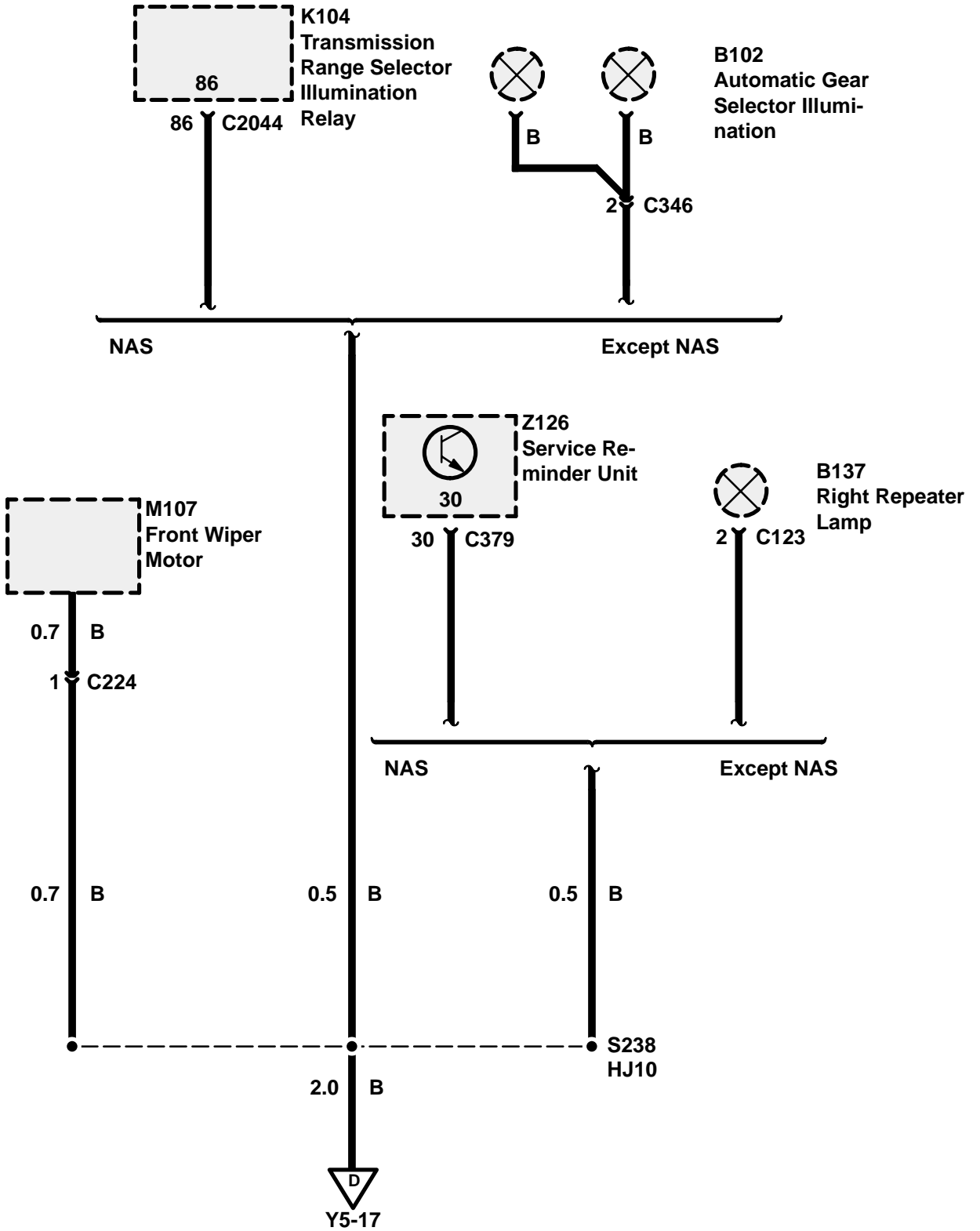
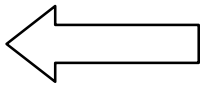
# Y5 ETM

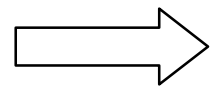
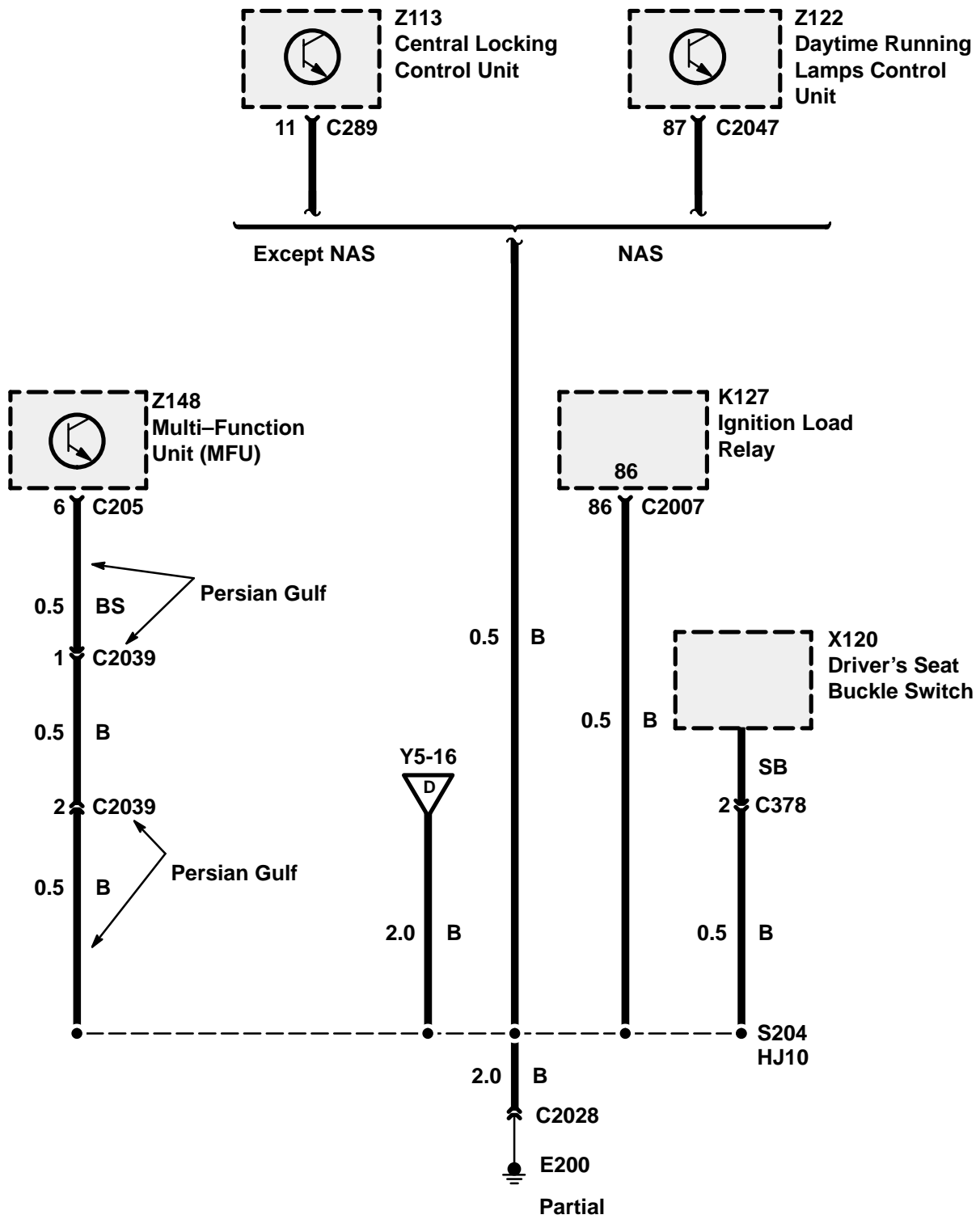
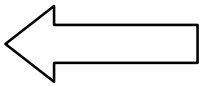




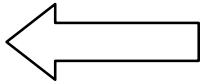
# Y5 ETM

## 1995 RANGE ROVER





# Y5 ETM



X209  
Air Suspension  
Inhibit Switch

3 C257



X130  
Headlamp Level  
Switch

1 C259



X210  
Air Suspension  
Up Switch

2 C256

0.5 B



X211  
Air Suspension  
Down Switch

2 C258

0.5 B

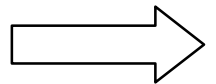
0.5 B

S221

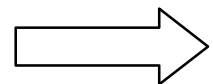
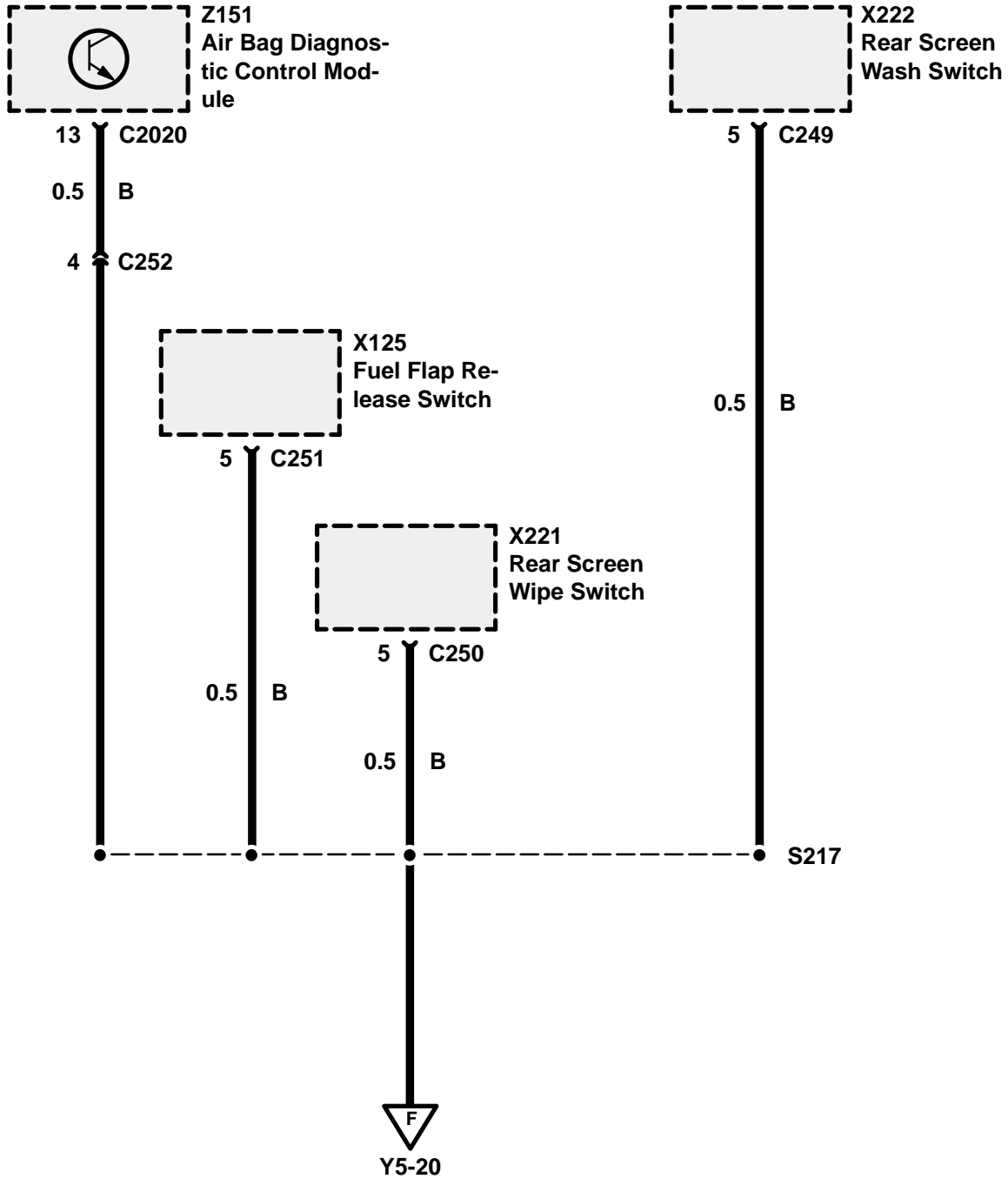
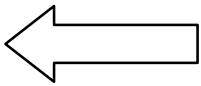
0.5 B



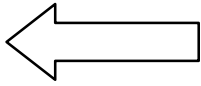
Y5-20





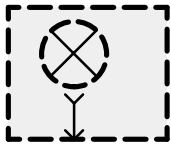


# Y5 ETM



Z117  
Clock

2 C270



B152  
Glove Box Lamp

1 C272

0.5 B

0.5 B

S216



X220  
Hazard Switch

10 C267

Y5-18

E



X132  
Heated Rear  
Screen Switch

4 C264

Y5-19

F



X109  
Auxiliary Lamps  
Switch

5 C261

0.5 B

0.5 B

0.5 B

0.5 B

0.5 B

0.5 B

0.5 B



X154  
Rear Fog Guard  
Lamps Switch

5 C263

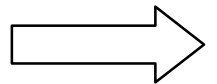
0.5 B

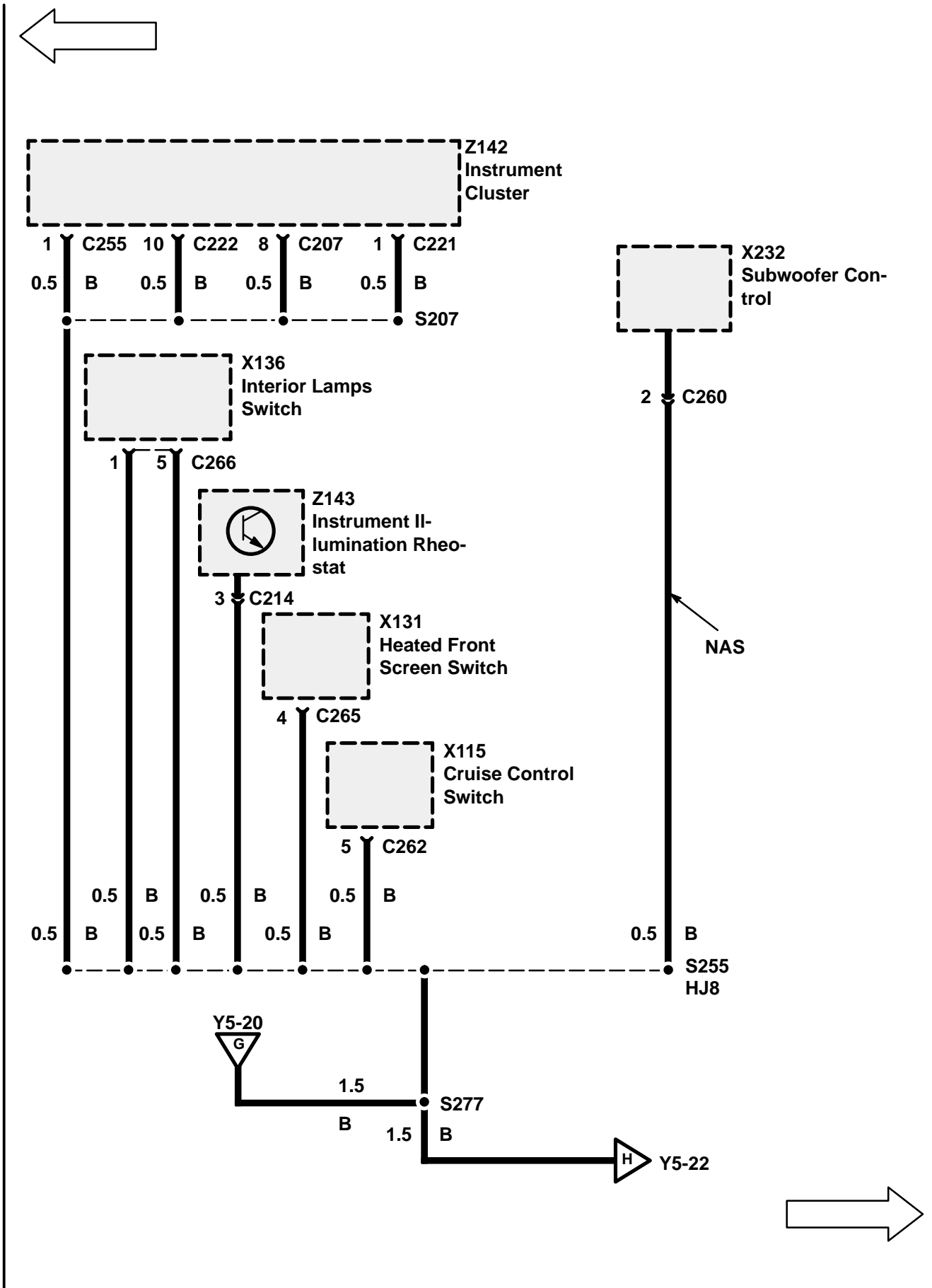
S253  
HJ8

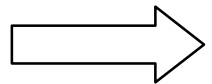
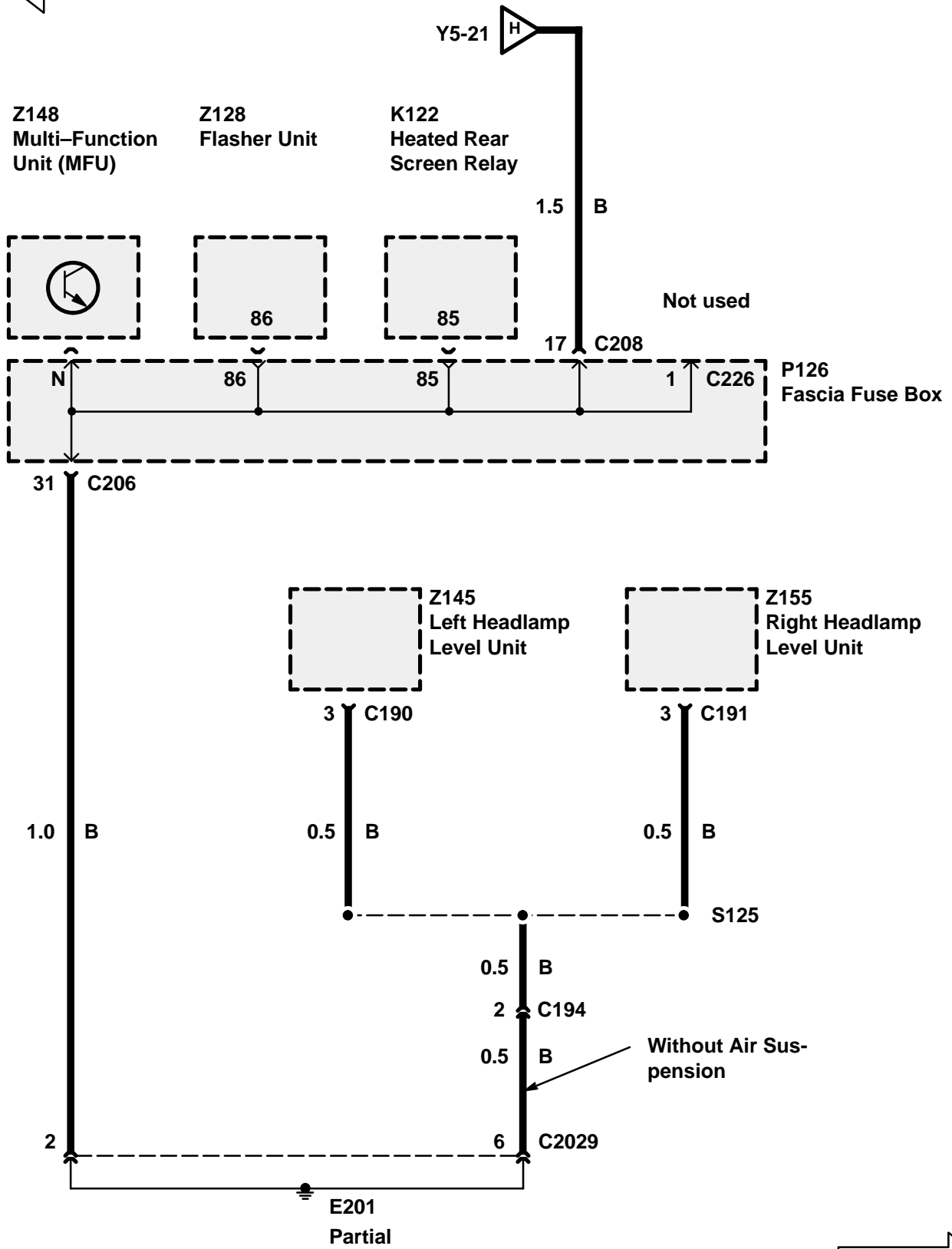
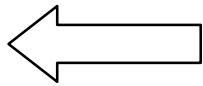
1.5 B

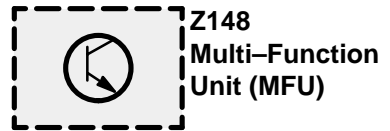
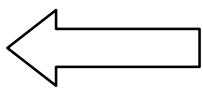
G

Y5-21



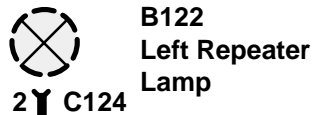






4 C228

6 C205



2 C124

0.5 SN

14 C209

0.5 B

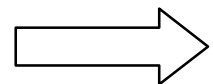
Except NAS NAS

Without Memory Mirrors

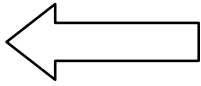
0.5 B

3

5 C2029



# Y5 ETM



**K154**  
Transfer Box  
Drive Motor/En-  
coder



**X174**  
Transfer Box Oil  
Temperature  
Switch

R  
2 C369

2 C371



**X175**  
Transfer Box  
Position Switch

Not used

LGY  
2 C368

1 C374



**Z232**  
Transfer Box So-  
lenoid Diode

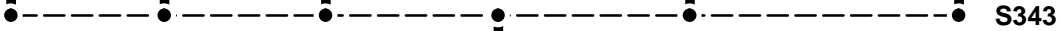
0.5 B

0.5 B

0.5 B

0.5 B

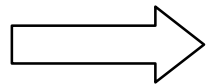
0.5 B

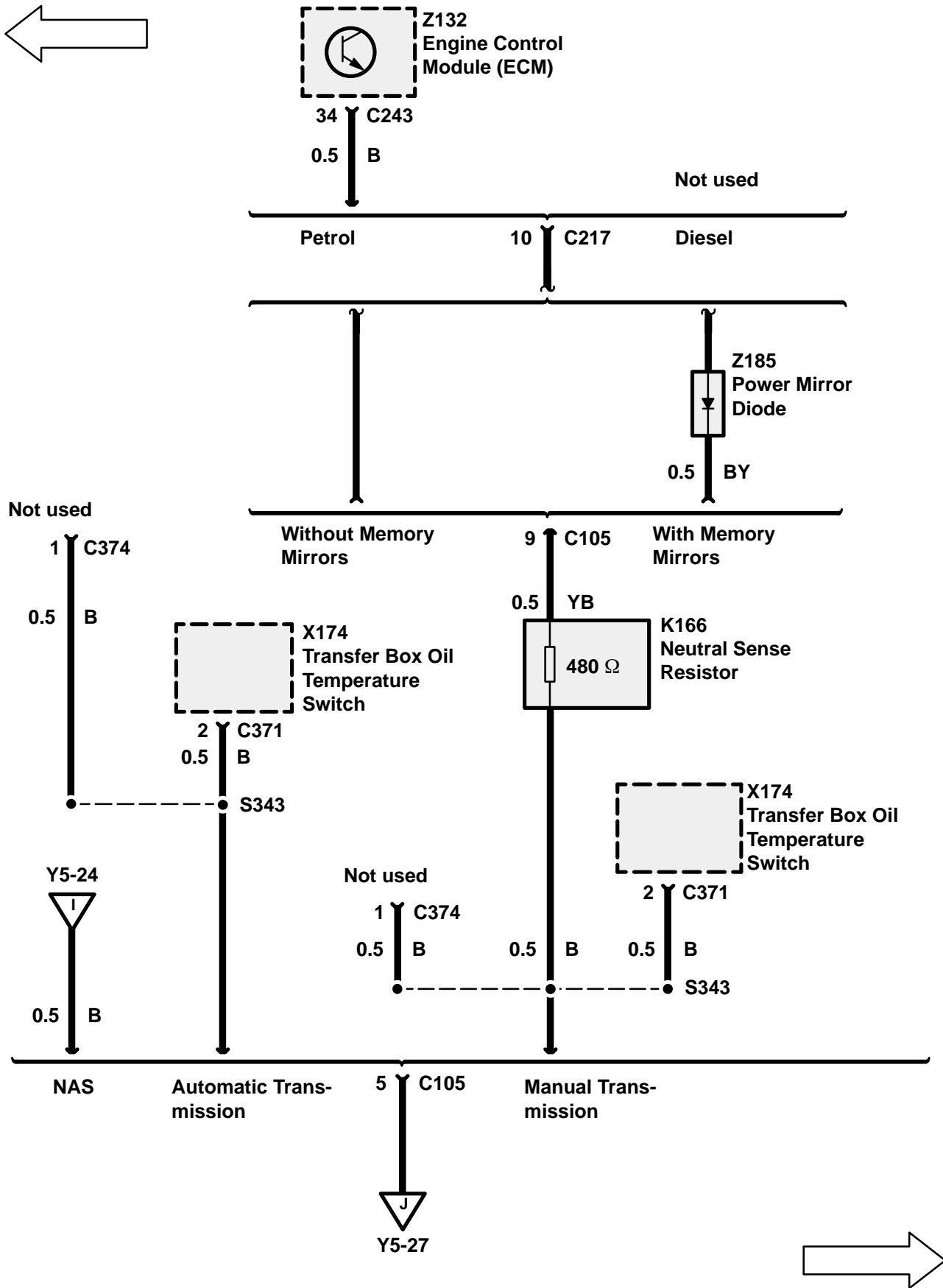


0.5 B



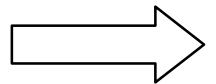
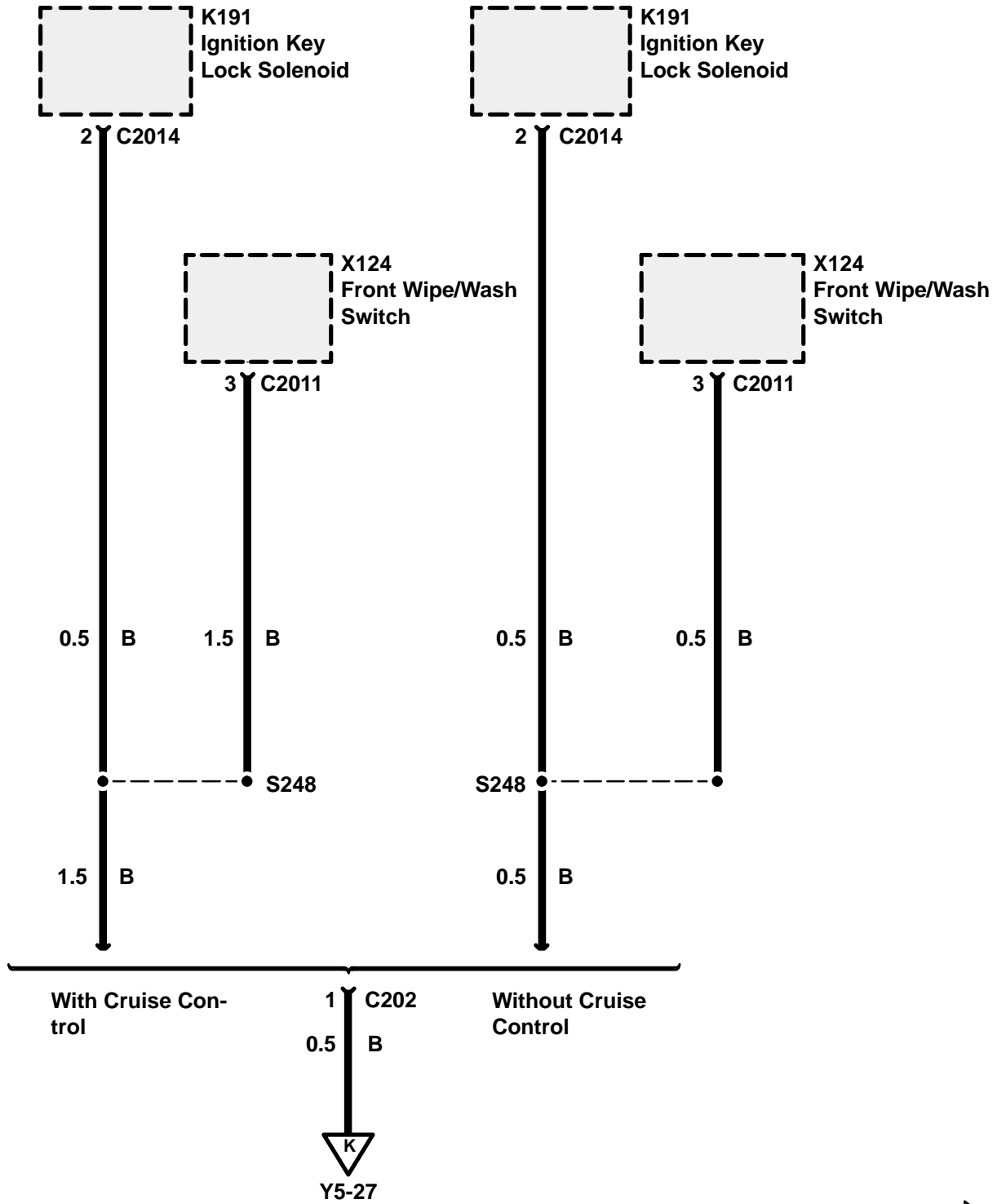
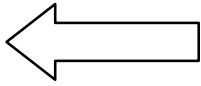
Y5-25



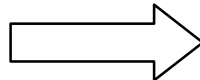
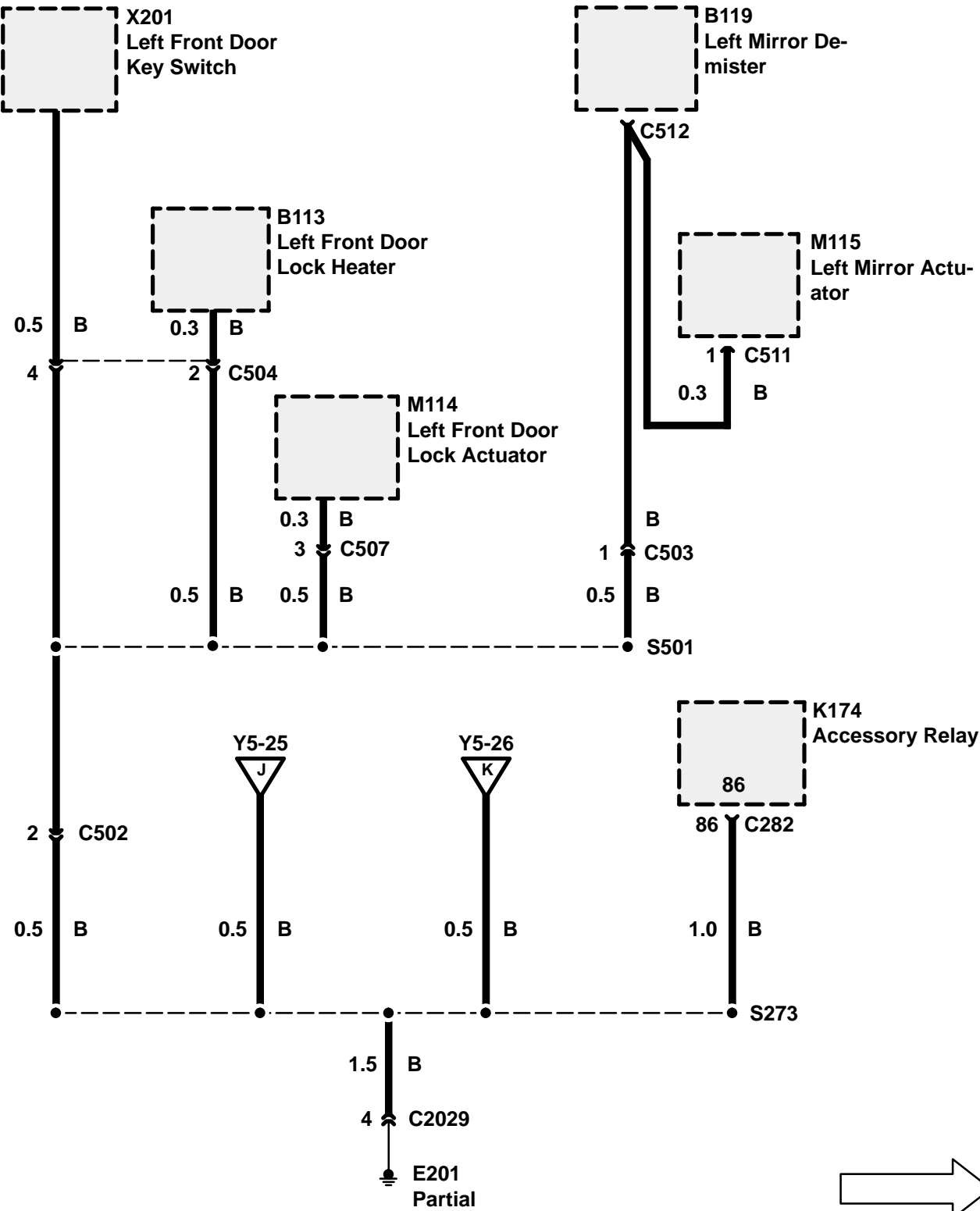
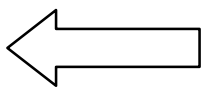


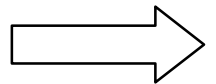
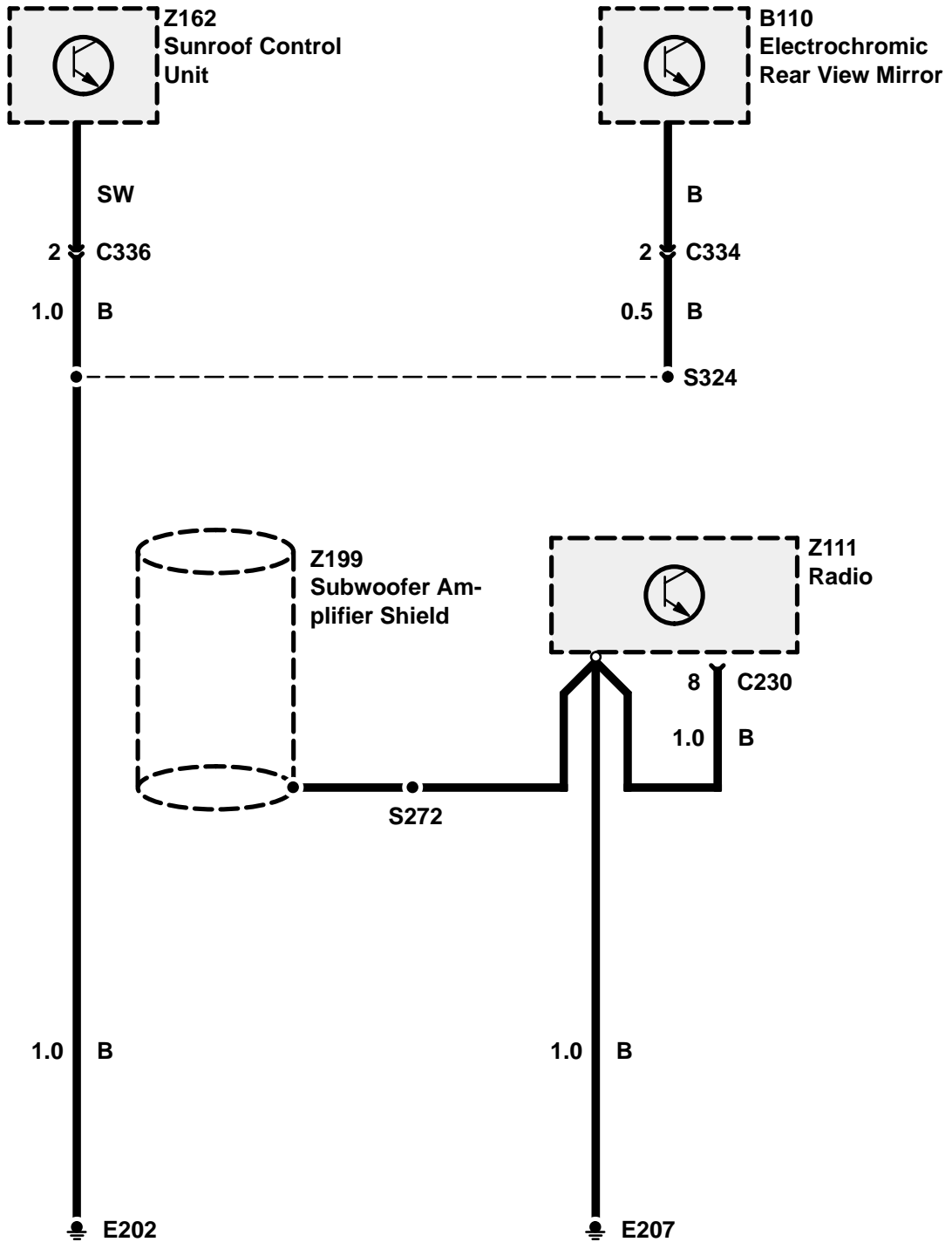
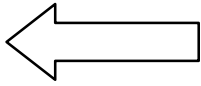
# Y5 ETM

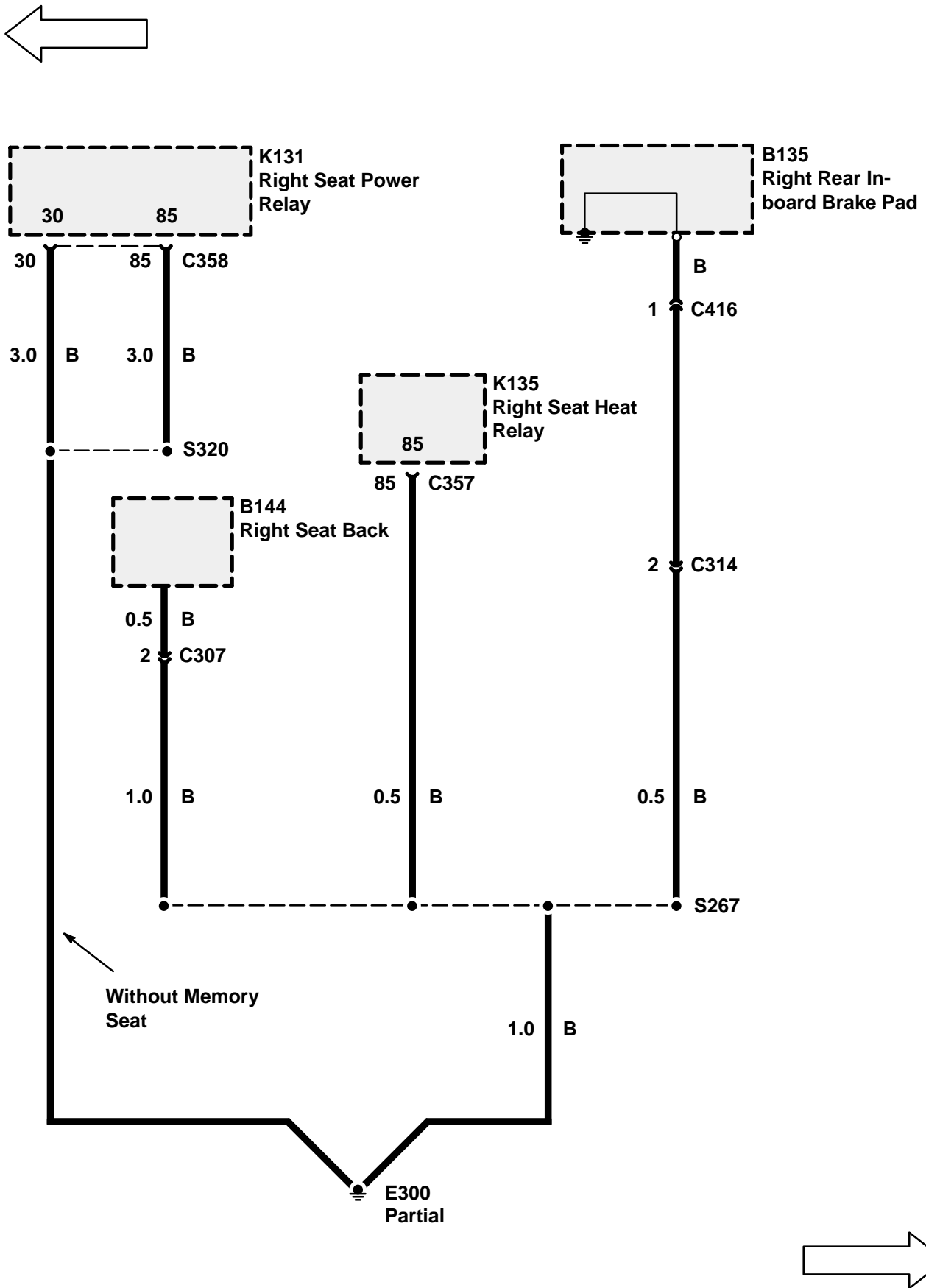
## 1995 RANGE ROVER

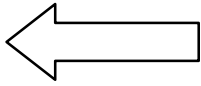












K153  
Interlock Relay 1



X230  
Key-Barrel  
Switch

87a C2000

0.5 KR

0.5 RB

4 C2012

0.5 BR



Z110  
Transmission  
Range Selector  
Switch

Z189  
Interlock Diode 1

4 C344

23 C202

0.5 BR

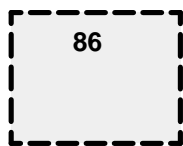
0.5 BR

0.5 BR

S2018

0.5 BR

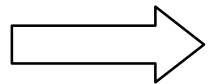
86 C2001

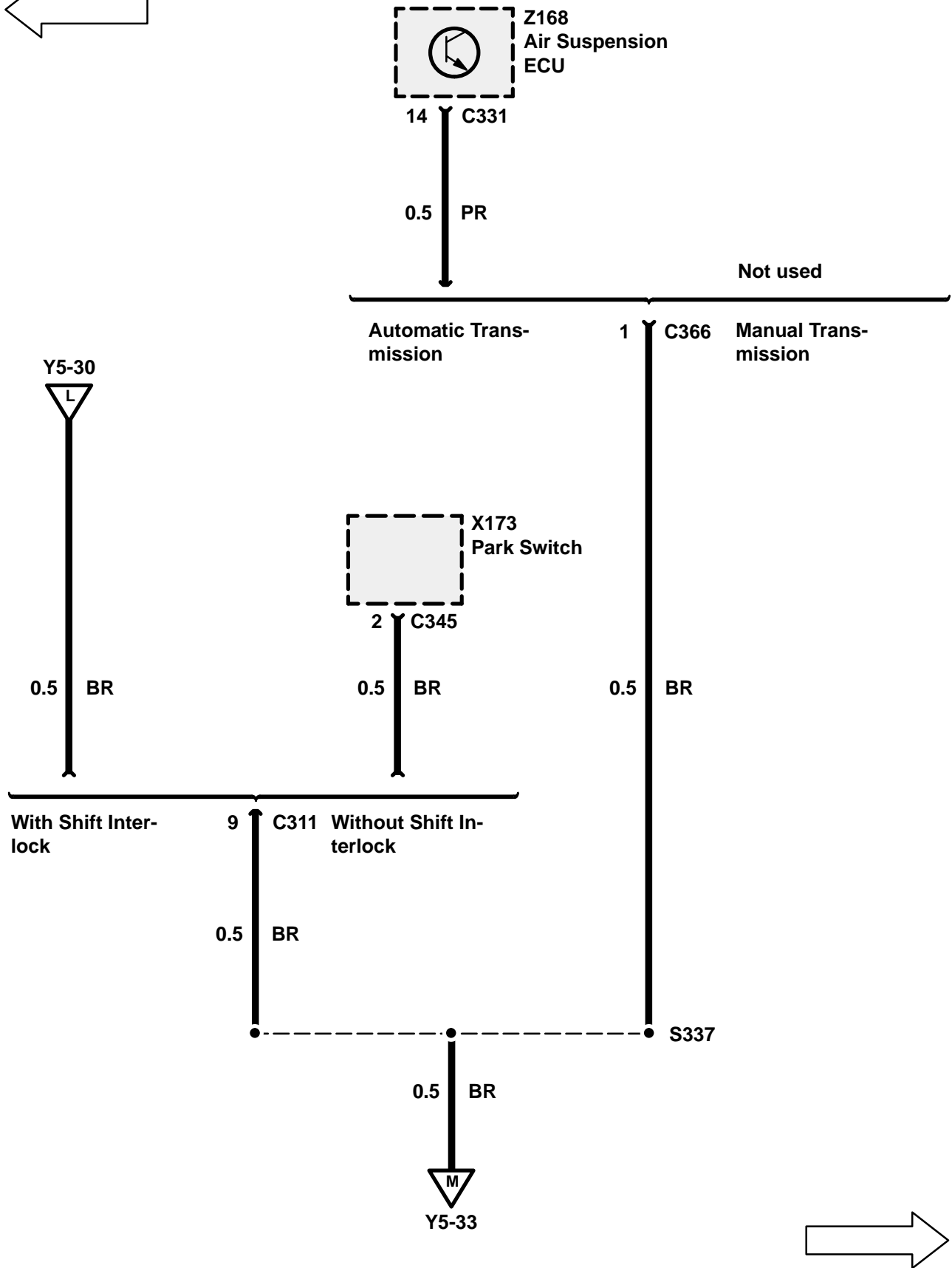
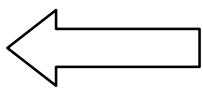


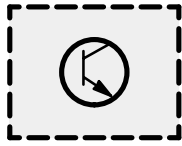
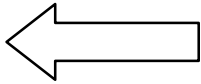
K151  
Interlock Relay 2



Y5-31







Z168  
Air Suspension  
ECU

18 C331



K158  
Air Suspension  
Delay Relay

85 C362

0.5 BK

3

1.0 B

1.0 B

X176  
Air Suspension  
Diagnostic Con-  
nector

5 C365

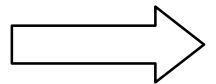
0.5 B

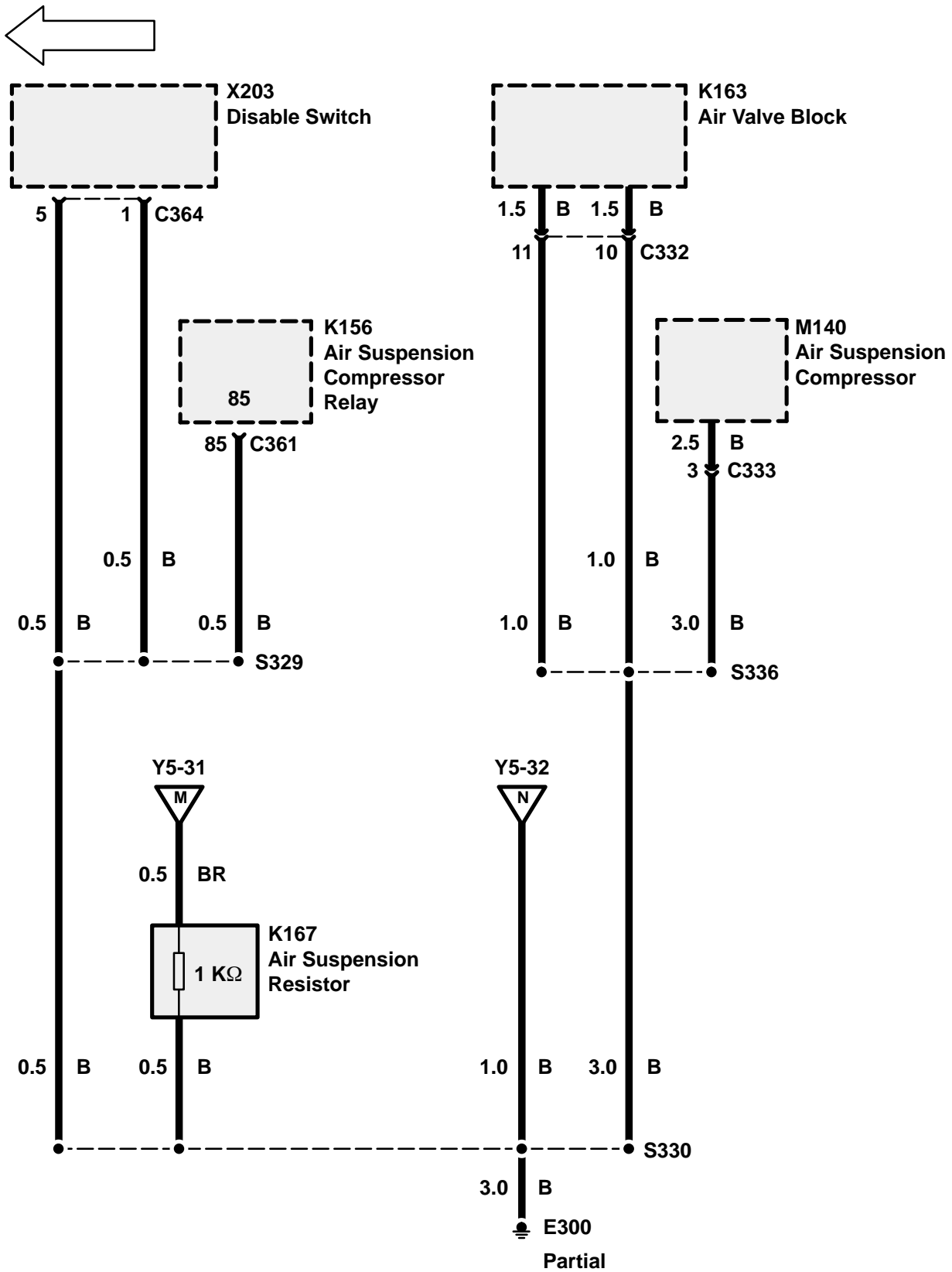
S333

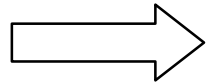
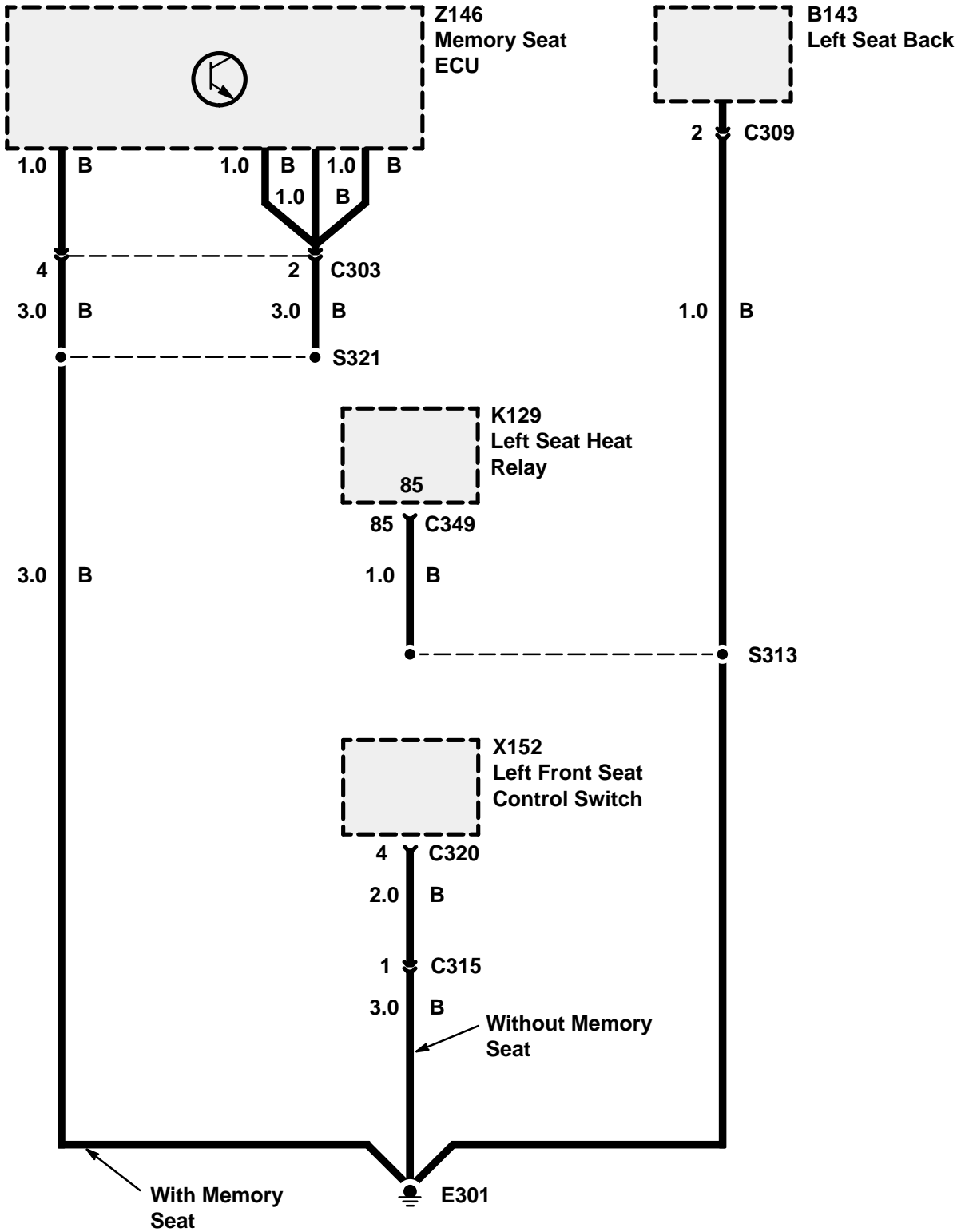
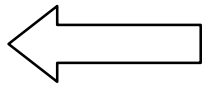
1.0 B



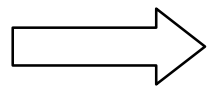
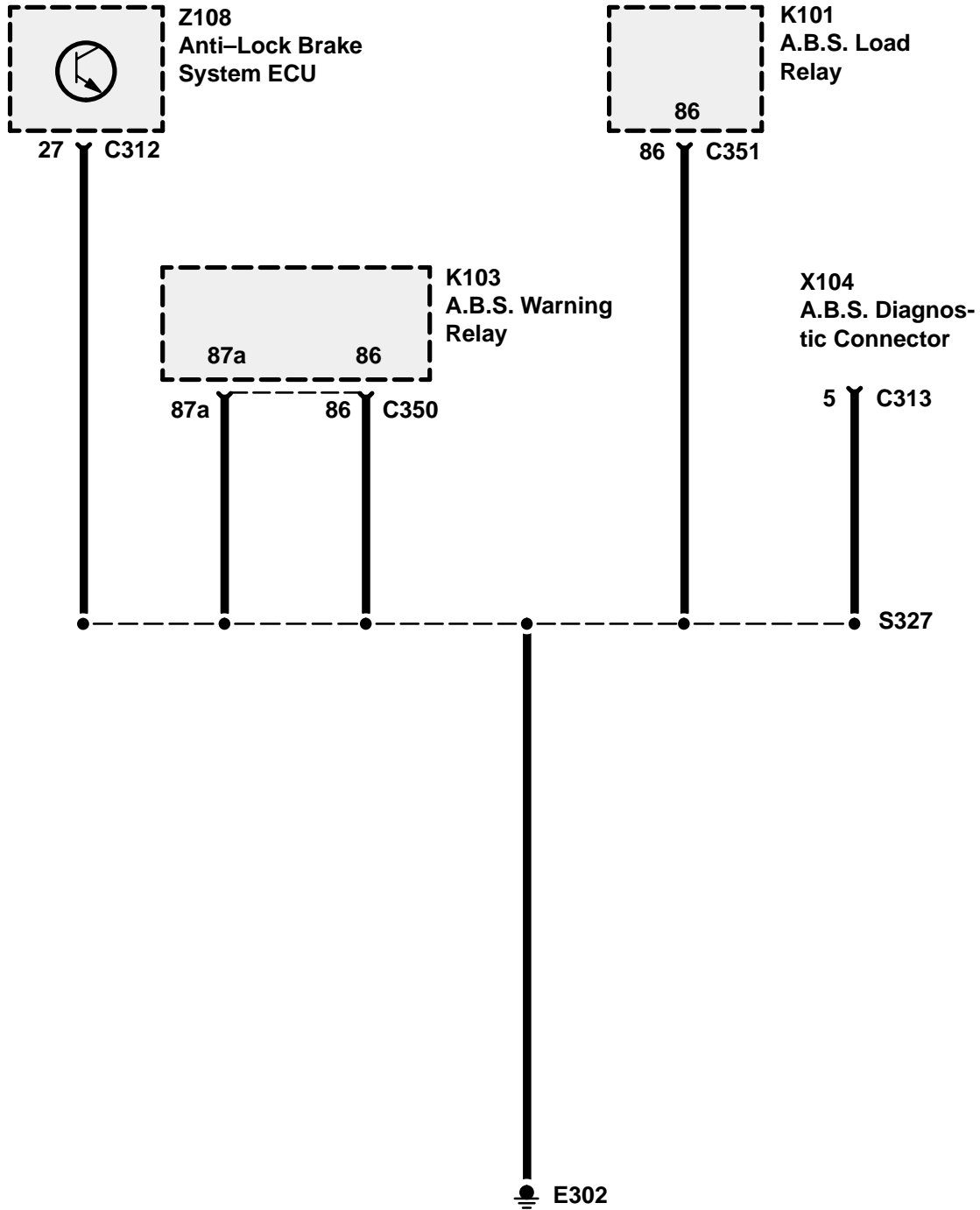
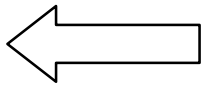
Y5-33

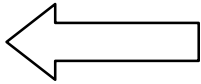












X122  
Left Front Win-  
dow Switch

4 C337



X143  
Left Seat Heat  
Switch

5 C341



X151  
Right Front Win-  
dow Switch

4 C338



X164  
Right Seat Heat  
Switch

5 C342

0.5 B



X141  
Left Rear Win-  
dow Con-  
sole  
Switch

4 C339

0.5 B



X162  
Right Rear Window  
Console Switch

4 C340

0.5 B

1.5 B



X187  
Rear Window  
Isolation Switch

1 C343

0.5 B

1.5 B

2.5 B

4

2

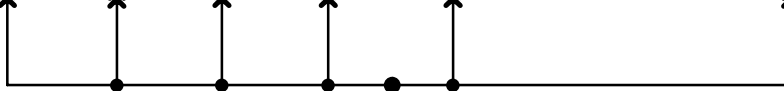
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5

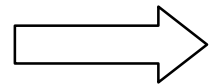
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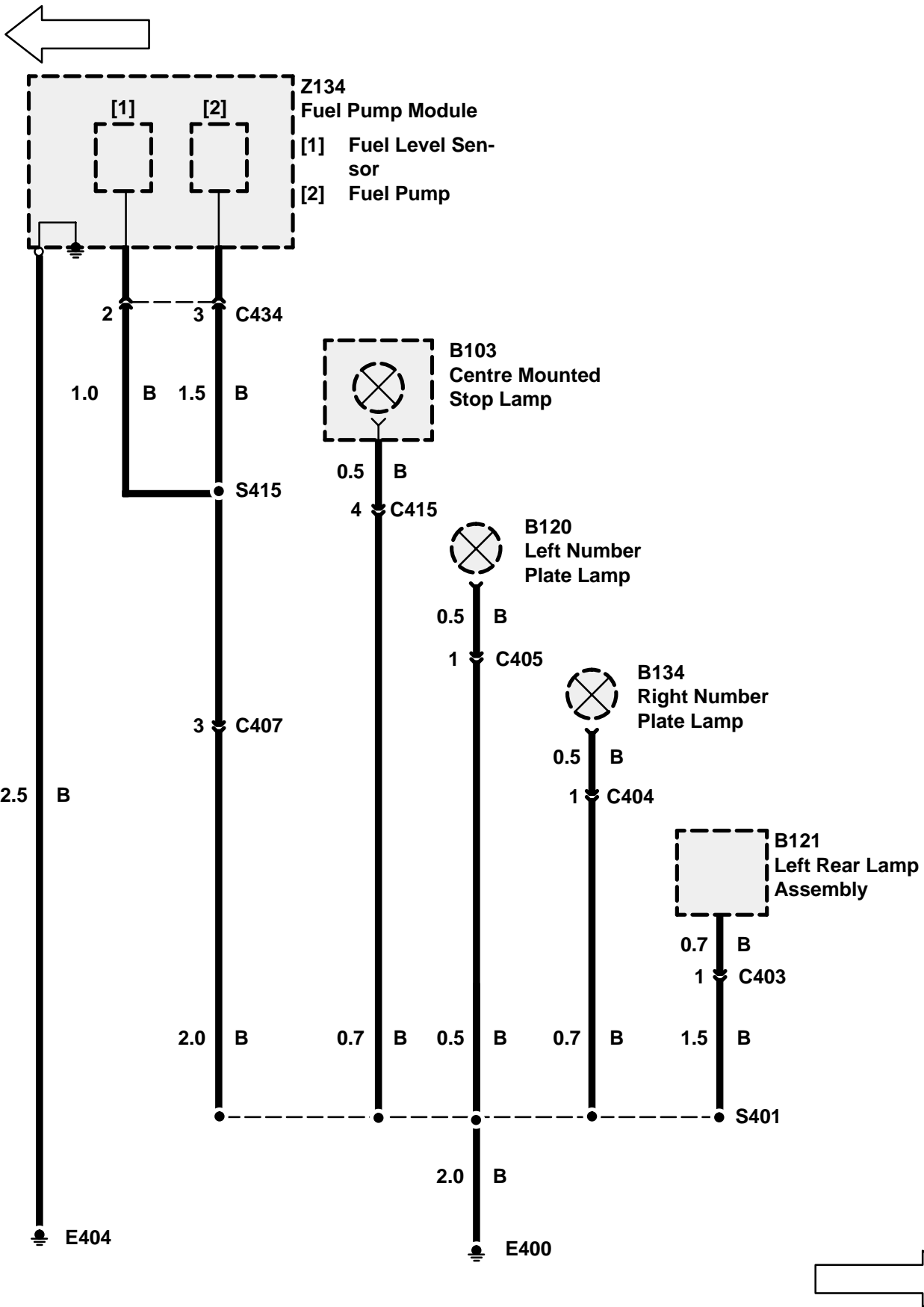
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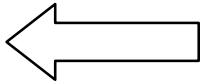
C2031



E303







B136  
Right Rear Lamp  
Assembly

0.7 B  
1 C406

1.5 B

X172  
Trailer Auxiliary  
Socket

5 C400

3.0 B

S402



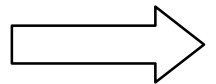
B141  
Rear Screen

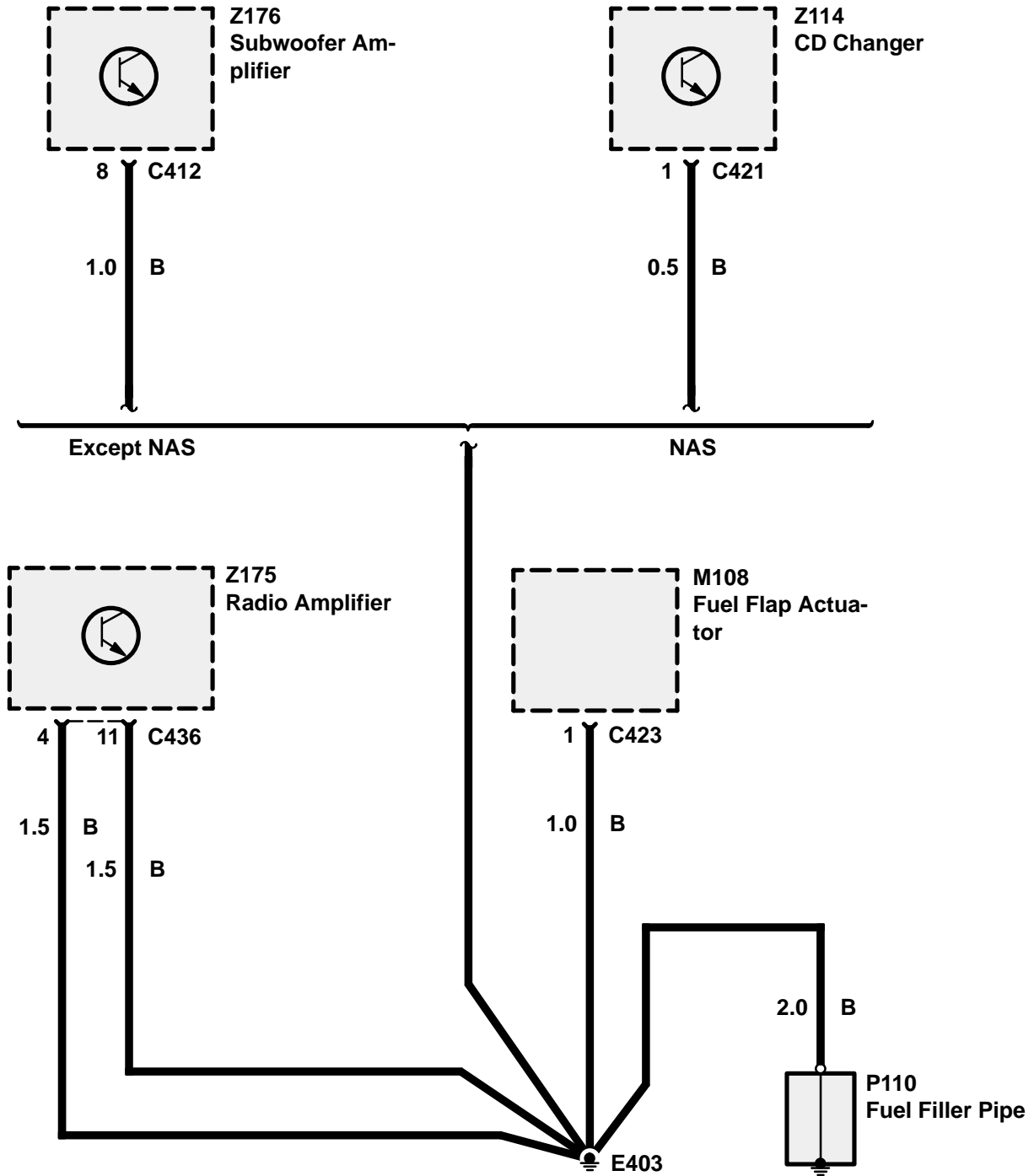
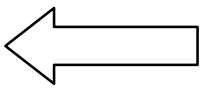
1 C435

2.0 B

3.0 B

E401





| Component  | Location   | Manual       | View |
|--|--|--------------|------|
| A.B.S. Booster Unit (Z103) . .                           | LH rear corner of engine compartment . . . . .                       | 70 . . . . . | 6    |
| A.B.S. Diagnostic Connector (X104) . . . . .             | beneath LH front seat . . . . .                                      | 70 . . . . . | 169  |
| A.B.S. Diode (Z192) . . . . .                            | beneath LH front seat . . . . .                                      | 70 . . . . . | 167  |
| A.B.S. Hydraulic Pump (M102) . . . . .                   | LH rear corner of engine compartment . . . . .                       | 70 . . . . . | 5    |
| A.B.S. Load Relay (K101) . . .                           | beneath LH front seat . . . . .                                      | 70 . . . . . | 168  |
| A.B.S. Pressure Switch Unit (Z104) . . . . .             | LH rear corner of engine compartment . . . . .                       | 70 . . . . . | 5    |
| A.B.S. Pump Relay (K102) . .                             | beneath LH front seat . . . . .                                      | 70 . . . . . | 168  |
| A.B.S. Warning Relay (K103)                              | beneath LH front seat . . . . .                                      | 70 . . . . . | 169  |
| Accessory Relay (K174) . . . . .                         | behind LH footwell trim panel . . . . .                              | 86 . . . . . | 71   |
| A/C Dual Pressure Switch (X102) . . . . .                | RH rear corner of engine compartment . . . . .                       | 82 . . . . . | 52   |
| A/C Logic Relay (K170) . . . . .                         | behind RH footwell trim panel . . . . .                              | 82 . . . . . | 146  |
| Air Bag Diagnostic Control Module (Z151) . . . . .       | beneath centre console . . . . .                                     | 76 . . . . . | 115  |
| Air Recirculation Solenoid In-Line Fuse (P138) . . . . . | behind RH side of fascia . . . . .                                   | 82 . . . . . | 126  |
| Air Recirculation Solenoid (K123) . . . . .              | behind RH side of fascia LH side of heater evaporator unit . . . . . | 82 . . . . . | 120  |
| Air Supply Selector Diode (Z208) . . . . .               | behind LH side of fascia LH side of heater evaporator unit . . . . . | 82 . . . . . | 94   |
| Air Supply Selector Switch (X180) . . . . .              | centre of fascia . . . . .   | 82 . . . . . | 106  |
| Air Suspension Compressor (M140) . . . . .               | beneath RH side of vehicle . . . . .                                 | 68 . . . . . | 198  |
| Air Suspension Compressor Relay (K156) . . . . .         | beneath RH front seat . . . . .                                      | 68 . . . . . | 182  |
| Air Suspension Delay Relay (K158) . . . . .              | beneath RH front seat . . . . .                                      | 68 . . . . . | 181  |
| Air Suspension Diagnostic Connector (Z167) . . . . .     | beneath RH front seat . . . . .                                      | 68 . . . . . | 180  |
| Air Suspension Disable Diode (Z187) . . . . .            | beneath RH front seat . . . . .                                      | 68 . . . . . | 184  |
| Air Suspension Down Switch (X211) . . . . .              | centre of fascia . . . . .   | 86 . . . . . | 102  |
| Air Suspension ECU (Z165) .                              | beneath RH front seat . . . . .                                      | 68 . . . . . | 184  |
| Air Suspension Indicator Diode (Z188) . . . . .          | beneath RH front seat . . . . .                                      | 68 . . . . . | 180  |
| Air Suspension Inhibit Switch (X209) . . . . .           | centre of fascia . . . . .   | 86 . . . . . | 101  |
| Air Suspension In-Line Maxi-Fuse (P122) . . . . .        | beneath RH front seat . . . . .                                      | 68 . . . . . | 181  |

| <b>Component</b>                                     | <b>Location</b>  | <b>Manual</b> | <b>View</b> |
|--|--|---------------|-------------|
| Air Suspension Resistor (K167)                       | beneath RH front seat                                      | 68            | 184         |
| Air Suspension Up Switch (X210)                      | centre of fascia   | 86            | 102         |
| Air Valve Block (K163)                               | beneath RH side of vehicle                                 | 68            | 198         |
| Alarm Bonnet Switch (X212)                           | RH rear corner of engine compartment                       | 86            | 51          |
| Alarm Sensor (X213)                                  | front centre of roof                                       | 86            | 116         |
| Anti-Lock Brake System ECU (Z108)                    | beneath LH front seat                                      | 70            | 167         |
| Automatic Transmission Oil Temperature Switch (X108) | lower LH front of engine compartment                       | 86            | 33          |
| Auxiliary Lamps Relay (K105)                         | behind RH side of fascia on bracket                        | 86            | 139         |
| Auxiliary Lamps Switch (X109)                        | centre of fascia   | 86            | 98          |
| Blower Motor Relay (K188)                            | behind RH side of fascia                                   | 82            | 120         |
| Blower Resistor Unit (Z112)                          | behind RH side of fascia LH side of heater evaporator unit | 80            | 119         |
| Bonnet Switch (X110)                                 | LH rear corner of engine compartment                       | 86            | 2           |
| Brake Fluid Level Switch (X111)                      | LH rear corner of engine compartment                       | 70            | 4           |
| Brake Switch Vent Valve (X112)                       | behind LH side of fascia on brake pedal support            | 19            |             |
| Bulb Check Relay (K173)                              | behind RH side of fascia on bracket                        | 86            | 141         |
| CD Changer (Z114)                                    | RH rear of luggage compartment                             | 86            |             |
| Central Locking Control Unit (Z113)                  | behind RH side of fascia on bracket                        | 86            | 131         |
| Clock (Z117)   | centre of fascia   | 86            | 97          |
| Clutch Pedal Position Switch (X200)                  | behind LH side of fascia near steering column              | 86            |             |
| Column Switch Illumination (B104)                    | top of steering column on Ignition Switch                  | 86            | 84          |
| Compressor Clutch (K107) Diesel                      | RH side of engine on front of A/C compressor               | 82            | 38          |
| Compressor Clutch (K107) Petrol                      | RH side of engine on front of A/C compressor               | 82            | 46          |
| Compressor Clutch Cut-out Switch (X259)              | RH front of engine   | 82            | 39          |
| Compressor Clutch Relay (K108)                       | behind RH footwell trim panel                              | 82            | 143         |
| Condenser Fan Control Diode 1 (Z209)                 | behind RH side of fascia                                   | 82            |             |
| Condenser Fan Control Diode 2 (Z210)                 | behind RH side of fascia                                   | 82            | 125         |

| Component  | Location   | Manual | View |
|--|--|--------|------|
| Condenser Fan Coolant Temperature Switch (X113) Diesel | RH front of engine   | 82     | 40   |
| Condenser Fan Coolant Temperature Switch (X113) Petrol | top centre front of engine                                       | 82     | 23   |
| Condenser Fan Relay (K109)                             | behind RH side of fascia on bracket                              | 86     | 141  |
| Cruise Control Diode (Z186)                            | behind RH side of fascia   | 19     | 138  |
| Cruise Control ECU (Z121)                              | behind RH side of fascia on bracket                              | 19     |      |
| Cruise Control Lockout Relay (K110)                    | behind RH side of fascia on bracket                              | 19     | 137  |
| Cruise Control Switch (X115)                           | centre of fascia   | 19     | 99   |
| Cruise Control Vacuum Pump (M103)                      | LH front corner of engine compartment                            | 19     | 20   |
| Data Link Connector (EGR) (X219) Diesel                | behind RH side of fascia   | 19     | 122  |
| Data Link Connectors (X127) Petrol                     | behind RH side of fascia   | 19     | 123  |
| Daytime Running Lamps Control Unit (Z122)              | behind RH side of fascia on bracket                              | 86     |      |
| Daytime Running Lamps Diode (Z200)                     | behind RH side of fascia near Daytime Running Lamps Control Unit | 86     |      |
| Direction Indicator Diode 1 (Z212)                     | behind instrument cluster  | 86     | 89   |
| Direction Indicator Diode 2 (Z213)                     | behind instrument cluster  | 86     | 89   |
| Direction Indicator Switch (X116)                      | top of steering column   | 86     | 85   |
| Disable Switch (X203)                                  | beneath RH front seat  | 68     | 183  |
| Distributor (Z125)                                     | top centre front of engine                                       | 86     | 23   |
| Driver's Underseat Fuse Box (P108)                     | beneath LH front seat  | 86     |      |
| EGR Control Solenoid (K171)                            | LH front corner of engine compartment                            | 19     | 18   |
| EGR Valve Control Module (Z149)                        | behind RH side of fascia   | 19     | 132  |
| EGR Valve Position Sensor (X218)                       | LH side of engine  | 19     | 12   |
| Engine Compartment Fuse Box (P125)                     | RH front of engine compartment                                   | 86     | 34   |
| Engine Control Load Relay (K116)                       | behind RH footwell trim panel                                    | 19     | 148  |
| Engine Control Module (ECM) (Z132)                     | behind RH side of fascia   | 19     | 132  |
| Engine Coolant Temperature Gauge Sensor (X114) Diesel  | RH front of engine   | 86     | 39   |



| Component   | Location   | Manual | View |
|---|--|--------|------|
| Engine Coolant Temperature Gauge Sensor (X114) Petrol | top centre front of engine on intake manifold    | 86     | 14   |
| Engine Coolant Temperature Sensor (X126) Diesel       | top centre front of engine                       | 19     | 24   |
| Engine Coolant Temperature Sensor (X126) Petrol       | top centre front of engine on intake manifold    | 19     | 14   |
| Engine Fuel Temperature Sensor (X128)                 | top centre front of engine                       | 19     | 13   |
| ETC Valve Block (K162)                                | LH rear corner of engine compartment             | 70     | 6    |
| Evaporative Emission Canister Purge Valve (K132)      | RH side of engine compartment                    | 17     | 50   |
| Fan Control Module (Z118)                             | behind RH footwell trim panel                    | 82     | 147  |
| Fan Speed Switch (X179)                               | centre of fascia                                 | 82     | 105  |
| Fan Timer Diode (Z211)                                | behind RH side of fascia                         | 82     |      |
| Fascia Cigar Lighter (B106)                           | in front of centre console                       | 86     | 97   |
| Fascia Fuse Box (P126)                                | behind LH side of fascia left of steering column | 86     | 72   |
| Flasher Unit (Z128)                                   | behind LH side of fascia on Fascia Fuse Box      | 86     | 73   |
| Fore-Aft Sensor (X196)                                | underside of LH front seat                       | 86     | 178  |
| Front A/C Evaporator Temperature Switch (X101)        | LH side of heater evaporator unit                | 82     | 96   |
| Front A/C Switch (X225)                               | centre of fascia                                 | 82     | 105  |
| Front Blower Motor (M101)                             | behind RH side of fascia                         | 82     | 127  |
| Front Height Sensor (X194)                            | underside of LH front seat                       | 86     | 177  |
| Front Interior Roof Lamp (B107)                       | front centre of roof                             | 86     |      |
| Front Screen Wash Pump (M105)                         | RH rear corner of engine compartment             | 84     | 53   |
| Front Wipe/Wash Switch (X124)                         | top of steering column                           | 84     | 83   |
| Front Wiper Motor (M107)                              | LH side of bulkhead                              | 84     |      |
| Front Wiper Relay (K185)                              | behind RH footwell trim panel                    | 84     | 145  |
| Fuel Flap Actuator (M108)                             | RH rear of luggage compartment                   | 86     | 212  |
| Fuel Flap Release Switch (X125)                       | top LH side of fascia left of steering column    | 86     | 79   |
| Fuel Injectors (K141)                                 | top centre front of engine                       | 19     | 15   |
| Fuel Pump Module (Z134)                               | top of fuel tank                                 | 86     | 203  |
| Fuel Pump Relay (K119)                                | behind RH footwell trim panel                    | 86     | 148  |
| Fuel Shut-Off Solenoid (K111)                         | RH side of engine on injector pump               | 19     | 42   |
| Fusible Link (P119)                                   | RH front of engine compartment behind battery    | 86     | 36   |
| Generator (Z106) Diesel                               | lower LH side of engine                          | 86     | 16   |

| <b>Component</b>  | <b>Location</b>  | <b>Manual</b> | <b>View</b> |
|---|--|---------------|-------------|
| Generator (Z106) Petrol . . . . .                       | top centre front of engine . . . . .                             | 86 . . . . .  | 47          |
| Generator Suppression Capacitor (Z182) Diesel . . . . . | lower LH side of engine on Generator . . . . .                   | 86 . . . . .  | 16          |
| Generator Suppression Capacitor (Z182) Petrol . . . . . | top centre front of engine on Generator . . . . .                | 86 . . . . .  | 47          |
| Glow Plug Timer Unit (Z135) . . . . .                   | RH front of engine compartment behind battery . . . . .          | 19 . . . . .  | 36          |
| Glow Plugs (P120) . . . . .                             | RH side of engine . . . . .                                      | 19 . . . . .  | 41          |
| Handbrake Diode (Z197) . . . . .                        | beneath centre console near Handbrake Switch . . . . .           | 86            |             |
| Handbrake Switch (X191) . . . . .                       | beneath centre console on handbrake lever . . . . .              | 86 . . . . .  | 114         |
| Hazard Switch (X220) . . . . .                          | centre of fascia . . . . .                                       | 86 . . . . .  | 98          |
| Headlamp Wash Pump (M110) . . . . .                     | RH rear corner of engine compartment . . . . .                   | 86 . . . . .  | 54          |
| Heated Front Screen Fuse Block (P114) . . . . .         | behind RH side of fascia . . . . .                               | 86 . . . . .  | 121         |
| Heated Front Screen In-Line Maxi-Fuse (P139) . . . . .  | RH front of engine compartment behind battery . . . . .          | 86 . . . . .  | 34          |
| Heated Front Screen Relay (K121) . . . . .              | behind RH side of fascia on bracket . . . . .                    | 86 . . . . .  | 140         |
| Heated Rear Screen Relay (K122) . . . . .               | behind LH side of fascia on Fascia Fuse Box . . . . .            | 86 . . . . .  | 73          |
| Heated Front Screen Switch (X131) . . . . .             | centre of fascia . . . . .                                       | 86 . . . . .  | 100         |
| Heated Rear Screen Switch (X132) . . . . .              | centre of fascia . . . . .                                       | 86 . . . . .  | 100         |
| Heated Washer Jets Thermoswitch (X133) . . . . .        | behind RH side of front grille . . . . .                         | 86 . . . . .  | 28          |
| Horn Relay (K189) . . . . .                             | behind LH footwell trim panel . . . . .                          | 86 . . . . .  | 70          |
| Horn Switches (X258) . . . . .                          | in steering wheel . . . . .                                      | 86 . . . . .  | 82          |
| Idle Air Control Valve (M112) MFI – V8 . . . . .        | top rear of engine . . . . .                                     | 19 . . . . .  | 44          |
| Ignition Coil (Z140) MFI – V8 . . . . .                 | LH front of engine compartment . . . . .                         | 86 . . . . .  | 21          |
| Ignition Coil Noise Suppressor (Z237) . . . . .         | LH front of engine compartment on Ignition Coil . . . . .        | 86 . . . . .  | 21          |
| Ignition Control Module (Z139) . . . . .                | top centre front of engine attached to distributor . . . . .     | 86 . . . . .  | 23          |
| Ignition Key Lock Solenoid (K191) . . . . .             | top of steering column . . . . .                                 | 86 . . . . .  | 87          |
| Ignition Load Relay (K127) . . . . .                    | behind RH footwell trim panel . . . . .                          | 86 . . . . .  | 145         |
| Ignition Switch (X134) . . . . .                        | top of steering column . . . . .                                 | 86 . . . . .  | 86          |
| Inertia Fuel Shut-Off Switch (X135) . . . . .           | RH rear corner of engine compartment . . . . .                   | 19 . . . . .  | 55          |
| Inhibit Indicator Diode (Z191) . . . . .                | Fascia Wire Harness near Air Suspension Inhibit Switch . . . . . | 68            |             |
| Instrument Cluster (Z142) . . . . .                     | top LH side of fascia . . . . .                                  | 86 . . . . .  | 90          |

| Component  | Location  | Manual       | View |
|--|---|--------------|------|
| Instrument Illumination Rheostat (Z143) . . . . .              | top LH side of fascia . . . . .                       | 86 . . . . . | 81   |
| Interior Lamps Switch (X136)                                   | centre of fascia . . . . .                            | 86 . . . . . | 101  |
| Interlock Diode 1 (Z189) . . . . .                             | Main Wire Harness near Cruise Control ECU . . . . .   | 86           |      |
| Interlock Diode 2 (Z190) . . . . .                             | Main Wire Harness near Cruise Control ECU . . . . .   | 86           |      |
| Interlock Relay 1 (K153) . . . . .                             | behind RH side of fascia . . . . .                    | 86 . . . . . | 133  |
| Interlock Relay 2 (K151) . . . . .                             | behind RH side of fascia . . . . .                    | 86 . . . . . | 133  |
| Key-Barrel Switch (X230) . . . . .                             | top of steering column on Ignition Switch . . . . .   | 86 . . . . . | 88   |
| Key-In Switch (X229) . . . . .                                 | top of steering column on Ignition Switch . . . . .   | 86 . . . . . | 86   |
| Left Antenna Amplifier (Z177)                                  | LH rear of roof . . . . .                             | 86 . . . . . | 217  |
| Left Condenser Fan Motor (M113) . . . . .                      | behind front grille . . . . .                         | 86 . . . . . | 26   |
| Left Front Door Handle Switch (X138) . . . . .                 | in top rear of LH front door at door handle . . . . . | 86           |      |
| Left Front Door Key Switch (X201) . . . . .                    | in top rear of LH front door at door handle . . . . . | 86 . . . . . | 157  |
| Left Front Door Lock Actuator (M114) . . . . .                 | in rear of LH front door . . . . .                    | 76 . . . . . | 156  |
| Left Front Door Switch (X150)                                  | front of LH front door jamb . . . . .                 | 86           |      |
| Left Front Height Sensor (X205) . . . . .                      | behind LH front wheel . . . . .                       | 68 . . . . . | 199  |
| Left Front Seat Control Switch (X152) With Memory              | RH side of LH front seat . . . . .                    | 86 . . . . . | 171  |
| Left Front Seat Control Switch (X152) Without Memory . . . . . | RH side of LH front seat . . . . .                    | 86 . . . . . | 170  |
| Left Front Speaker Crossover (Z224) . . . . .                  | in front of LH front door . . . . .                   | 86           |      |
| Left Front Wheel Speed Sensor (X137) . . . . .                 | behind LH front wheel . . . . .                       | 70 . . . . . | 57   |
| Left Front Window Motor (M130) . . . . .                       | in front of LH front door . . . . .                   | 86 . . . . . | 152  |
| Left Front Window Switch (X122) . . . . .                      | in rear of centre console . . . . .                   | 86 . . . . . | 108  |
| Left Headlamp (B116) . . . . .                                 | LH front corner of engine compartment . . . . .       | 86 . . . . . | 29   |
| Left Headlamp Level Unit (Z145) . . . . .                      | behind LH headlamp . . . . .                          | 86           |      |
| Left Heated Oxygen Sensor (X139) . . . . .                     | lower LH side of engine compartment . . . . .         | 19 . . . . . | 56   |
| Left Heated Washer Jet (B118) . . . . .                        | mounted on bonnet (hood) . . . . .                    | 80 . . . . . | 7    |
| Left Horn (K128) . . . . .                                     | LH front corner of engine compartment . . . . .       | 86 . . . . . | 19   |
| Left Maximum Cool Switch (X267) . . . . .                      | behind heater and A/C control panel . . . . .         | 82 . . . . . | 107  |
| Left Mirror Actuator (M115) . . . . .                          | top front of LH front door . . . . .                  | 86           |      |

| Component   | Location  | Manual | View |
|---|---|--------|------|
| Left Rear Door Lock Actuator (M117)                 | inside front of LH rear door                      | 76     | 163  |
| Left Rear Door Switch (X142)                        | in lower part of LH B-post                        | 86     | 160  |
| Left Rear Height Sensor (X206)                      | behind LH rear wheel                              | 68     | 194  |
| Left Rear Wheel Speed Sensor (X140)                 | behind LH rear wheel                              | 68     | 58   |
| Left Rear Window Console Switch (X141)              | in rear of centre console                         | 86     | 109  |
| Left Rear Window Door Switch (X188)                 | in top of LH rear door                            | 86     | 161  |
| Left Rear Window Motor (M116)                       | inside front of LH rear door                      | 86     | 162  |
| Left Repeater Lamp (B122)                           | LH front of vehicle                               | 86     | 31   |
| Left Seat Heat Relay (K129)                         | beneath LH front seat                             | 86     |      |
| Left Seat Heat Switch (X143)                        | in rear of centre console                         | 86     | 111  |
| Left Seat Power Relay (K113)                        | beneath LH front seat                             | 86     |      |
| Left Seat Power Relay Diode (Z223)                  | beneath LH front seat                             | 86     |      |
| Main Lighting Switch (X145)                         | top of steering column                            | 86     | 85   |
| Mass Air Flow Sensor (X105)                         | LH side of engine                                 | 19     | 11   |
| Memory Seat ECU (Z146)                              | underside of LH front seat                        | 86     | 175  |
| Mirror Adjustment Switch (X146)                     | top LH side of fascia left of steering column     | 86     | 79   |
| Multi-Function Unit (MFU) (Z148)                    | behind LH side of fascia on Fascia Fuse Box       | 86     | 75   |
| Multiport Fuel Injection Fault Display Unit (Z133)  | beneath RH front seat                             | 86     | 188  |
| Multiport Fuel Injection Ignition Resistor 1 (K115) | LH front of engine compartment near Ignition Coil | 86     | 21   |
| Multiport Fuel Injection Ignition Resistor 2 (K168) | LH front of engine compartment near Ignition Coil | 86     | 21   |
| NAS Alarm Relay (K208)                              | behind RH side of fascia                          | 86     | 135  |
| NAS Diode (Z229)                                    | behind LH side of fascia near Fascia Fuse Box     | 86     |      |
| Neutral Sense Resistor (K166)                       | Gearbox Wire Harness near C105                    | 86     |      |
| Oil Pressure Switch (X149) Diesel                   | RH side of engine                                 | 86     | 42   |
| Oil Pressure Switch (X149) Petrol                   | lower RH side of engine near oil filter           | 86     | 32   |
| Park/Neutral Position Switch (X167)                 | LH side of transmission                           | 86     | 62   |
| Park Switch (X173)                                  | beneath centre console                            | 86     |      |
| Passenger's Underseat Fuse Box (P116)               | beneath RH front seat                             | 86     | 186  |

| Component                                       | Location  | Manual   | View |
|---|---|----------|------|
| Phase Tap Resistor (K184)<br>Diesel .....       | lower LH side of engine on Generator .....          | 86 ..... | 16   |
| Phase Tap Resistor (K184)<br>Petrol .....       | top centre front of engine on Generator .....       | 86 ..... | 47   |
| Power Mirror Diode (Z185) ..                    | behind RH side of fascia .....                      | 86       |      |
| Power Wash Relay (K182) ..                      | behind LH side of fascia on bracket .....           | 86 ..... | 139  |
| Radio (Z111) .....                              | centre of fascia .....                              | 86 ..... | 103  |
| Radio Amplifier (Z175) .....                    | RH side of luggage compartment on Subwoofer ....    | 86 ..... | 215  |
| Rear Fog Guard Lamps<br>Switch (X154) .....     | centre of fascia .....                              | 86 ..... | 99   |
| Rear Height Sensor (X195) ..                    | underside of LH front seat .....                    | 86 ..... | 179  |
| Rear Interior Roof Lamp<br>(B124) .....         | centre of roof .....                                | 86       |      |
| Rear Screen Wash Pump<br>(M119) .....           | RH rear corner of engine compartment .....          | 86 ..... | 53   |
| Rear Screen Wash Switch<br>(X222) .....         | top LH side of fascia left of steering column ..... | 86 ..... | 80   |
| Rear Screen Wipe Switch<br>(X221) .....         | top LH side of fascia left of steering column ..... | 86 ..... | 80   |
| Rear Window Isolation Switch<br>(X187) .....    | in rear of centre console .....                     | 86 ..... | 110  |
| Rear Wiper Motor (M120) ...                     | centre rear of roof .....                           | 84 ..... | 208  |
| Rear Wiper Relay (K183) ....                    | behind LH footwell trim panel .....                 | 86 ..... | 71   |
| Recline Sensor (X197) .....                     | underside of LH front seat .....                    | 86 ..... | 178  |
| Refrigerator (Z172) .....                       | rear of luggage compartment .....                   | 86       |      |
| Refrigerator Fuse (Control)<br>(P141) .....     | RH side of luggage compartment .....                | 86       |      |
| Refrigerator Fuse (Power)<br>(P121) .....       | RH side of luggage compartment .....                | 86       |      |
| Refrigerator Relay (K148) ...                   | RH side of luggage compartment .....                | 86       |      |
| Reservoir Pressure Resistor<br>(K169) .....     | beneath RH front seat .....                         | 68 ..... | 180  |
| Reservoir Pressure Switch<br>(X204) .....       | beneath LH side of vehicle .....                    | 68 ..... | 193  |
| Reverse Switch (X157) .....                     | LH side of transmission .....                       | 86 ..... | 61   |
| Right Antenna Amplifier<br>(Z178) .....         | RH rear of roof .....                               | 86 ..... | 217  |
| Right Condenser Fan Motor<br>(M121) .....       | behind front grille .....                           | 82 ..... | 27   |
| Right Front Seat Control<br>Switch (X121) ..... | LH side of RH front seat .....                      | 86 ..... | 189  |
| Right Front Door Handle<br>Switch (X159) .....  | in top rear of RH front door .....                  | 86       |      |
| Right Front Door Key Switch<br>(X202) .....     | in top rear of RH front door at door handle .....   | 86 ..... | 157  |

| Component                               | Location                              | Manual | View |
|---|---------------------------------------|--------|------|
| Right Front Door Lock Actuator (M122)   | in rear of RH front door              | 76     | 156  |
| Right Front Door Switch (X118)          | front of RH front door jamb           | 86     |      |
| Right Front Height Sensor (X207)        | behind RH front wheel                 | 68     | 199  |
| Right Front Inboard Brake Pad (B129)    | in RH front brake caliper             | 70     | 59   |
| Right Front Speaker Crossover (Z225)    | in front of RH front door             | 86     |      |
| Right Front Wheel Speed Sensor (X158)   | behind RH front wheel                 | 70     | 57   |
| Right Front Window Motor (M133)         | in front of RH front door             | 86     | 152  |
| Right Front Window Switch (X151)        | in rear of centre console             | 86     | 108  |
| Right Headlamp (B130)                   | RH front of engine compartment        | 86     | 29   |
| Right Headlamp Level Unit (Z155)        | behind RH headlamp                    | 86     |      |
| Right Heated Oxygen Sensor (X160)       | lower RH side of engine               | 19     | 49   |
| Right Heated Washer Jet (B132)          | mounted on bonnet (hood)              | 80     | 8    |
| Right Horn (K134)                       | LH front corner of engine compartment | 86     | 19   |
| Right Maximum Cool Switch (X268)        | behind heater and A/C control panel   | 82     | 107  |
| Right Mirror Actuator (M123)            | top front of RH front door            | 86     |      |
| Right Rear Door Lock Actuator (M125)    | inside front of RH rear door          | 76     | 163  |
| Right Rear Door Switch (X163)           | in lower part of RH B-post            | 86     | 160  |
| Right Rear Height Sensor (X208)         | behind RH rear wheel                  | 68     | 194  |
| Right Rear Inboard Brake Pad (B135)     | in RH rear brake caliper              | 70     | 59   |
| Right Rear Wheel Speed Sensor (X161)    | behind RH rear wheel                  | 70     | 58   |
| Right Rear Window Console Switch (X162) | in rear of centre console             | 86     | 109  |
| Right Rear Window Door Switch (X189)    | in top of RH rear door                | 86     | 161  |
| Right Rear Window Motor (M124)          | inside front of RH rear door          | 86     | 162  |
| Right Repeater Lamp (B137)              | RH front of vehicle                   | 86     | 31   |
| Right Seat Heat Relay (K135)            | beneath RH front seat                 | 86     | 187  |

| Component                                       | Location  | Manual | View |
|---|---|--------|------|
| Right Seat Heat Switch (X164)                   | in rear of centre console                       | 86     | 111  |
| Right Seat Power Relay (K131)                   | beneath RH front seat                           | 86     | 187  |
| Right Seat Power Relay Diode (Z222)             | beneath LH front seat                           | 86     |      |
| Rotary Coupler (Z119)                           | top of steering column                          | 76     | 86   |
| Satellite Fuse Box 1 (P127)                     | behind LH side of fascia on Fascia Fuse Box     | 86     | 72   |
| Satellite Fuse Box 2 (P128)                     | behind LH side of fascia on Fascia Fuse Box     | 86     | 72   |
| Seat Base Motor (M126) With Memory              | underside of respective front seat              | 86     | 174  |
| Seat Base Motor (M126) Without Memory           | underside of respective front seat              | 86     | 172  |
| Seat Height (Front) Motor (M127) With Memory    | underside of respective front seat              | 86     | 174  |
| Seat Height (Front) Motor (M127) Without Memory | underside of respective front seat              | 86     | 172  |
| Seat Height (Rear) Motor (M128) With Memory     | underside of respective front seat              | 86     | 174  |
| Seat Height (Rear) Motor (M128) Without Memory  | underside of respective front seat              | 86     | 172  |
| Seat Recline Motor (M129) With Memory           | underside of respective front seat              | 86     | 174  |
| Seat Recline Motor (M129) Without Memory        | underside of respective front seat              | 86     | 172  |
| Service Reminder Unit (Z126)                    | beneath RH front seat                           | 86     | 188  |
| Speed Trip Module (Z164)                        | behind RH side of fascia on bracket             | 19     | 137  |
| Starter (M134) Diesel                           | lower LH side of engine                         | 86     | 12   |
| Starter (M134) Petrol                           | lower RH side of engine                         | 86     | 48   |
| Starter Relay Diode (Z158)                      | behind RH footwell trim panel                   | 86     | 144  |
| Starter Solenoid (K136) Diesel                  | lower LH side of engine                         | 86     | 12   |
| Starter Solenoid (K136) Petrol                  | lower RH side of engine                         | 86     | 48   |
| Starter Solenoid Relay (K137)                   | behind RH footwell trim panel                   | 86     | 144  |
| Steering Wheel Cruise Switches (X266)           | in steering wheel                               | 19     | 82   |
| Stop Lamp Switch (X168)                         | behind LH side of fascia on brake pedal support | 86     | 77   |
| Stop Lamp Switch Suppressor (Z206)              | behind LH side of fascia near steering column   | 86     | 77   |
| Subwoofer Amplifier (Z176)                      | RH rear of luggage compartment on Subwoofer     | 86     | 213  |
| Subwoofer Control (X232)                        | centre of fascia                                | 86     |      |
| Subwoofer (K146) Except NAS                     | RH rear of luggage compartment                  | 86     | 214  |

| <b>Component</b>   | <b>Location</b>  | <b>Manual</b> | <b>View</b> |
|--|--|---------------|-------------|
| Subwoofer (K146) NAS . . . . .                                     | RH rear of luggage compartment . . . . .                             | 86 . . . . .  | 216         |
| Sunroof Control Unit (Z162) . . . . .                              | front centre of roof . . . . .                                       | 76 . . . . .  | 117         |
| Sunroof Load Relay (K138) . . . . .                                | behind RH side of fascia on bracket . . . . .                        | 76 . . . . .  | 140         |
| Sunroof Motor (M131) . . . . .                                     | front centre of roof . . . . .                                       | 76 . . . . .  | 117         |
| Sunroof Switch (X169) . . . . .                                    | front centre of roof . . . . .                                       | 76 . . . . .  | 116         |
| Tailgate Lock Actuator (M132) . . . . .                            | lower centre of rear screen . . . . .                                | 76 . . . . .  | 210         |
| Tailgate Switch (X170) . . . . .                                   | top LH side of rear screen opening . . . . .                         | 86 . . . . .  | 207         |
| Theft Alarm LED (B151) . . . . .                                   | centre of fascia . . . . .   | 86 . . . . .  | 104         |
| Theft Alarm Relay (K159) . . . . .                                 | behind LH footwell trim panel . . . . .                              | 86 . . . . .  | 70          |
| Theft Alarm Unit (Z163) . . . . .                                  | behind RH side of fascia on bracket . . . . .                        | 86 . . . . .  | 136         |
| Throttle Position Sensor<br>(X171) Diesel . . . . .                | RH side of engine on injector pump . . . . .                         | 19 . . . . .  | 42          |
| Throttle Position Sensor<br>(X171) Petrol . . . . .                | top centre front of engine . . . . .                                 | 19 . . . . .  | 13          |
| Trailer Auxiliary Socket<br>(X172) . . . . .                       | behind RH side of rear bumper . . . . .                              | 86 . . . . .  | 204         |
| Transfer Box Oil Temperature<br>Switch (X174) . . . . .            | top RH side of transfer box . . . . .                                | 86 . . . . .  | 64          |
| Transfer Box Position Switch<br>(X175) . . . . .                   | top RH side of transfer box . . . . .                                | 86 . . . . .  | 65          |
| Transfer Box Solenoid (K154) . . . . .                             | top RH side of transfer box . . . . .                                | 86 . . . . .  |             |
| Transfer Box Solenoid Diode<br>(Z232) . . . . .                    | Gearbox Wire Harness near C105 . . . . .                             | 86 . . . . .  |             |
| Transfer Box Warning Relay<br>(K186) . . . . .                     | behind RH side of fascia . . . . .                                   | 86 . . . . .  | 135         |
| Transmission Range Selector<br>Illumination Relay (K104) . . . . . | behind RH side of fascia . . . . .                                   | 86 . . . . .  | 134         |
| Transmission Range Selector<br>Switch (Z110) . . . . .             | beneath centre console near transmission range<br>selector . . . . . | 86 . . . . .  | 112         |
| Tune Select Resistor (K140) . . . . .                              | behind RH side of fascia . . . . .                                   | 19 . . . . .  | 124         |
| Vehicle Speed Sensor (X190) . . . . .                              | LH side of transfer box . . . . .                                    | 86 . . . . .  | 63          |
| Water Valve (K206) . . . . .                                       | RH rear corner of engine compartment . . . . .                       | 82 . . . . .  | 55          |
| Warning Lamp Relay (K155) . . . . .                                | beneath RH front seat . . . . .                                      | 86 . . . . .  | 182         |
| Window Lift ECU (Z147) . . . . .                                   | behind RH side of fascia on bracket . . . . .                        | 86 . . . . .  | 131         |

| <b>Connector</b>      | <b>Location</b>   | <b>View</b> |
|-----------------------|---|-------------|
| C100 (3-W) . . . . .  | RH front of engine compartment on Engine Compartment Fuse Box . . . . . | 37          |
| C101 (4-W) . . . . .  | RH front of engine compartment on Engine Compartment Fuse Box . . . . . | 37          |
| C102 (1-B) . . . . .  | LH rear corner of engine compartment . . . . .                          | 3           |
| C103 (3-B) . . . . .  | RH front of engine compartment on Right Headlamp . . . . .              | 29          |
| C104 (3-B) . . . . .  | LH front corner of engine compartment on Left Headlamp . . . . .        | 29          |
| C105 (13-B) . . . . . | LH rear corner of engine compartment . . . . .                          | 3           |



| <b>Connector</b>  | <b>Location</b>   | <b>View</b> |
|-------------------|---|-------------|
| C106 (2-B)        | behind RH side of front bumper to Right Auxiliary Lamp                        | 25          |
| C107 (2-B)        | behind LH side of front bumper to Left Auxiliary Lamp                         | 25          |
| C108 (1-B)        | LH rear corner of engine compartment  | 3           |
| C109 (4-B)        | LH front of vehicle to Left Front Lamp Assembly                               | 30          |
| C110 (4-B)        | RH front of vehicle to Right Front Lamp Assembly                              | 30          |
| C112 (3-W)        | LH rear corner of engine to Left Heated Oxygen Sensor                         | 56          |
| C113 (3-W)        | RH rear of engine to Right Heated Oxygen Sensor                               | 44          |
| C114 (2-W)        | RH front of engine compartment on Engine Compartment Fuse Box                 | 37          |
| C115 (3-W)        | RH front of engine compartment on Engine Compartment Fuse Box                 | 37          |
| C116 (1-W)        | RH front of engine compartment on Engine Compartment Fuse Box                 | 37          |
| C118 (1-W)        | RH front of engine compartment behind battery                                 | 34          |
| C120 (2-W)        | RH rear corner of engine compartment on Rear Screen Wash Pump                 | 53          |
| C121 (2-B)        | lower RH side of windscreen to Heated Front Screen                            | 1           |
| C122 (2-B)        | lower LH side of windscreen to Heated Front Screen                            | 1           |
| C123 (2-B)        | RH front of vehicle on Right Repeater Lamp                                    | 31          |
| C124 (2-B)        | LH front of vehicle on Left Repeater Lamp                                     | 31          |
| C125 (2-W)        | LH rear corner of engine compartment to A.B.S. Hydraulic Pump                 | 5           |
| C126 (5-B)        | LH rear corner of engine compartment on A.B.S. Pressure Switch Unit           | 5           |
| C127 (3-B)        | LH rear corner of engine compartment on Brake Fluid Level Switch              | 4           |
| C128 (2-B)        | LH rear corner of engine compartment on ETC Valve Block                       | 6           |
| C129 (12-B)       | LH rear corner of engine compartment on A.B.S. Booster Unit                   | 6           |
| C130 (2-W)        | LH rear of engine compartment to Left Front Wheel Speed Sensor                | 5           |
| C131 (2-W)        | RH side of engine compartment to Right Front Wheel Speed Sensor               | 52          |
| C132 (4-B)        | top rear of engine on Idle Air Control Valve                                  | 44          |
| C133 (6-B)        | LH side of engine on Fuel Injectors   | 11          |
| C134 (2-B)        | LH side of engine on Fuel Injectors   | 15          |
| C135 (2-B)        | RH side of engine on Fuel Injectors   | 45          |
| C136 (2-B)        | LH side of engine on Fuel Injectors   | 15          |
| C137 (2-B)        | RH side of engine on Fuel Injectors   | 45          |
| C138 (2-B)        | LH side of engine on Fuel Injectors   | 15          |
| C139 (2-B)        | RH side of engine on Fuel Injectors   | 45          |
| C140 (2-B)        | LH rear of engine on Fuel Injectors   | 10          |
| C141 (2-B)        | RH side of engine on Fuel Injectors   | 45          |
| C144 (2-RU)       | RH side of engine compartment on<br>Evaporative Emission Canister Purge Valve | 50          |
| C145 (2-W) Diesel | RH side of engine to Compressor Clutch  | 38          |
| C145 (2-W) Petrol | RH side of engine to Compressor Clutch  | 46          |
| C146 (2-B) Diesel | RH front of engine on Condenser Fan Coolant Temperature Switch                | 40          |

| Connector         | Location   | View |
|-------------------|--|------|
| C146 (2-B) Petrol | top centre front of engine on<br>Condenser Fan Coolant Temperature Switch                | 23   |
| C148 (3-B)        | top centre front of engine to Distributor  | 23   |
| C149 (3-B) Petrol | top centre front of engine to Throttle Position Sensor                                   | 13   |
| C150 (2-S)        | top centre front of engine on Engine Fuel Temperature Sensor                             | 13   |
| C152 (2-N) Diesel | top centre front of engine on Engine Coolant Temperature Sensor                          | 24   |
| C152 (2-N) Petrol | top centre front of engine on Engine Coolant Temperature Sensor                          | 14   |
| C153 (1-B)        | LH front of engine compartment on Ignition Coil  | 22   |
| C154 (1-B)        | LH front of engine compartment on Ignition Coil  | 22   |
| C155 (1-B)        | LH front of engine compartment on Ignition Coil  | 22   |
| C156 (1-W)        | LH front of engine compartment on Ignition Coil  | 22   |
| C159 (6-B)        | RH front of engine compartment on Glow Plug Timer Unit                                   | 36   |
| C160 (3-B) Diesel | RH side of engine to Throttle Position Sensor  | 43   |
| C162 (2-B)        | RH front of engine on Compressor Clutch Cut-out Switch                                   | 39   |
| C164 (3-B)        | LH side of engine on EGR Valve Position Sensor   | 12   |
| C165 (2-S)        | LH front corner of engine compartment on EGR Control Solenoid                            | 18   |
| C166 (2-B)        | lower LH front of engine compartment on<br>Automatic Transmission Oil Temperature Switch | 33   |
| C167 (3-B)        | LH front corner of engine compartment on<br>Cruise Control Vacuum Pump                   | 20   |
| C168 (2-B)        | LH front of engine compartment on Left Horn  | 19   |
| C169 (2-B)        | LH front of engine compartment on Right Horn   | 19   |
| C170 (2-B)        | RH rear corner of engine compartment on Front Screen Wash Pump                           | 53   |
| C171 (3-B)        | RH rear corner of engine compartment on Inertia Fuel Shut-Off Switch                     | 55   |
| C173 (2-WR)       | RH rear corner of engine compartment to Headlamp Wash Pump                               | 54   |
| C174 (2-W)        | RH rear corner of engine compartment   | 51   |
| C178 (2-B)        | RH rear corner of engine compartment to Alarm Bonnet Switch                              | 51   |
| C179 (2-U)        | RH rear corner of engine compartment on Water Valve                                      | 55   |
| C180 (3-B)        | RH rear corner of engine compartment   | 52   |
| C181 (2-S)        | RH rear corner of engine compartment on A/C Dual Pressure Switch                         | 52   |
| C182 (2-B)        | behind front grille to Left Condenser Fan Motor  | 26   |
| C183 (2-B)        | behind front grille to Right Condenser Fan Motor   | 27   |
| C184 (2-B)        | RH front of vehicle to Heated Washer Jets Thermoswitch                                   | 28   |
| C188 (2-W)        | mounted on bonnet (hood) to Left Heated Washer Jet                                       | 7    |
| C189 (2-W)        | mounted on bonnet (hood) to Right Heated Washer Jet                                      | 8    |
| C200 (4-W)        | behind LH side of fascia near steering column  | 92   |
| C201 (7-W)        | top of steering column on Main Lighting Switch   | 85   |
| C202 (24-W)       | behind LH side of fascia near steering column  | 92   |
| C203 (7-W)        | behind LH side of fascia on Fascia Fuse Box  | 76   |
| C204 (24-W)       | behind LH side of fascia on Fascia Fuse Box  | 75   |

| <b>Connector</b> | <b>Location</b>  | <b>View</b> |
|------------------|--|-------------|
| C205 (24-B)      | behind LH side of fascia on Multi-Function Unit (MFU)      | 75          |
| C206 (4-W)       | behind LH side of fascia on Fascia Fuse Box                | 76          |
| C207 (10-B)      | on Instrument Cluster                                      | 91          |
| C208 (18-W)      | behind LH side of fascia on Fascia Fuse Box                | 73          |
| C209 (24-G)      | behind LH side of fascia left of steering column           | 93          |
| C211 (10-W)      | behind LH side of fascia on Fascia Fuse Box                | 76          |
| C212 (14-W)      | top of LH A-post   | 66          |
| C213 (14-W)      | top of RH A-post   | 149         |
| C214 (3-B)       | top LH side of fascia on Instrument Illumination Rheostat  | 81          |
| C215 (24-Y)      | behind LH side of fascia left of steering column           | 93          |
| C216 (7-N)       | behind RH side of fascia right of heater evaporator unit   | 130         |
| C217 (20-W)      | behind RH side of fascia right of heater evaporator unit   | 130         |
| C218 (8-W)       | behind RH side of fascia on bracket                        | 138         |
| C219 (4-W)       | behind LH side of fascia on Fascia Fuse Box                | 73          |
| C220 (3-N)       | behind LH side of fascia to Ignition Switch                | 78          |
| C221 (10-W)      | on Instrument Cluster                                      | 90          |
| C222 (10-W)      | on Instrument Cluster                                      | 90          |
| C223 (5-U)       | on Instrument Cluster                                      | 91          |
| C224 (6-W)       | behind LH side of fascia to Front Wiper Motor              | 95          |
| C225 (16-B)      | behind RH side of fascia on Theft Alarm Unit               | 136         |
| C226 (3-W)       | behind LH side of fascia on Fascia Fuse Box                | 76          |
| C227 (4-B)       | behind LH side of fascia on Stop Lamp Switch               | 77          |
| C228 (8-W)       | behind LH side of fascia on Mirror Adjustment Switch       | 79          |
| C229 (1-W)       | behind LH side of fascia on Fascia Fuse Box                | 75          |
| C230 (8-S)       | centre of fascia on Radio                                  | 103         |
| C231 (2-W)       | behind RH footwell trim panel                              |             |
| C232 (2- )       | behind RH side of fascia near Right Front Tweeter          |             |
| C233 (4-W)       | behind RH footwell trim panel                              | 142         |
| C234 (3- )       | centre of fascia   |             |
| C235 (4-W)       | behind LH footwell trim panel                              | 68          |
| C236 (2-W)       | behind LH footwell trim panel                              |             |
| C237 (2- )       | behind LH side of fascia near Left Front Tweeter           |             |
| C238 (9-B)       | behind RH footwell trim panel on Fan Control Module        | 147         |
| C239 (5-B)       | behind RH footwell trim panel on Engine Control Load Relay | 148         |
| C240 (5-U)       | behind RH footwell trim panel on Fuel Pump Relay           | 148         |
| C241 (5-Y)       | behind RH footwell trim panel on Compressor Clutch Relay   | 143         |
| C242 (5-Y)       | behind RH footwell trim panel on A/C Logic Relay           | 146         |
| C243 (40-B)      | behind RH side of fascia on Engine Control Module (ECM)    | 132         |
| C244 (5-W)       | behind RH side of fascia Data Link Connectors              | 123         |

| <b>Connector</b> | <b>Location</b>  | <b>View</b> |
|------------------|--|-------------|
| C245 (5-W)       | behind RH side of fascia Data Link Connectors            | 123         |
| C246 (2-U)       | behind RH side of fascia on Tune Select Resistor         | 124         |
| C247 (16-B)      | behind RH side of fascia on EGR Valve Control Module     | 132         |
| C248 (3-W)       | behind RH side of fascia Data Link Connector (EGR)       | 122         |
| C249 (5-G)       | behind LH side of fascia on Rear Screen Wash Switch      | 80          |
| C250 (5-W)       | behind LH side of fascia on Rear Screen Wipe Switch      | 80          |
| C251 (5-U)       | behind LH side of fascia on Fuel Flap Release Switch     | 79          |
| C252 (6-R)       | behind LH side of fascia near steering column            | 78          |
| C253 (4-W)       | behind LH side of fascia                                 | 74          |
| C254 (1-W)       | behind LH side of fascia on Fascia Fuse Box              | 74          |
| C255 (1-B)       | on Instrument Cluster                                    | 91          |
| C256 (6-R)       | centre of fascia on Air Suspension Up Switch             | 102         |
| C257 (6-W)       | centre of fascia on Air Suspension Inhibit Switch        | 101         |
| C258 (6-G)       | centre of fascia on Air Suspension Down Switch           | 102         |
| C260 (6- )       | centre of fascia to Subwoofer Control                    |             |
| C261 (5-W)       | centre of fascia on Auxiliary Lamps Switch               | 98          |
| C262 (5-U)       | centre of fascia on Cruise Control Switch                | 99          |
| C263 (5-U)       | centre of fascia on Rear Fog Guard Lamps Switch          | 99          |
| C264 (5-U)       | centre of fascia on Heated Rear Screen Switch            | 100         |
| C265 (5-G)       | centre of fascia on Heated Front Screen Switch           | 100         |
| C266 (5-W)       | centre of fascia on Interior Lamps Switch                | 101         |
| C267 (10-W)      | centre of fascia on Hazard Switch                        | 98          |
| C268 (8-N)       | centre of fascia on Radio                                | 103         |
| C269 (2-B)       | centre of fascia on Theft Alarm LED                      | 104         |
| C270 (2-W)       | centre of fascia on Clock                                | 97          |
| C274 (6-W)       | behind RH side of fascia on Theft Alarm Unit             | 136         |
| C277 (2-W)       | top of LH A-post   | 66          |
| C278 (2-S)       | LH A-post  | 67          |
| C279 (5-N)       | behind LH footwell trim panel on Theft Alarm Relay       | 70          |
| C281 (5-G)       | behind LH footwell trim panel on Rear Wiper Relay        | 71          |
| C282 (5-Y)       | behind LH footwell trim panel on Accessory Relay         | 71          |
| C283 (5-Y)       | behind LH footwell trim panel on Horn Relay              | 70          |
| C284 (15-B)      | behind RH side of fascia on Cruise Control ECU           |             |
| C287 (10-W)      | behind RH side of fascia on Window Lift ECU              | 131         |
| C288 (8-W)       | behind RH side of fascia on Window Lift ECU              | 131         |
| C289 (12-B)      | behind RH side of fascia on Central Locking Control Unit | 131         |
| C290 (5-Y)       | behind RH side of fascia on Bulb Check Relay             | 141         |
| C291 (5-Y)       | behind RH side of fascia on Auxiliary Lamps Relay        | 139         |
| C292 (5-Y)       | behind RH side of fascia on Condenser Fan Relay          | 141         |

| <b>Connector</b> | <b>Location</b>  | <b>View</b> |
|------------------|--|-------------|
| C294 (5-B)       | behind RH side of fascia on Heated Front Screen Relay        | 140         |
| C295 (5-Y)       | behind RH side of fascia on Sunroof Load Relay               | 140         |
| C298 (3-W)       | behind RH side of fascia                                     | 127         |
| C301 (6-W)       | beneath centre console                                       | 113         |
| C302 (24-W)      | beneath LH front seat to Memory Seat ECU                     | 175         |
| C303 (4-W)       | beneath LH front seat to Memory Seat ECU                     | 175         |
| C304 (3-W)       | beneath RH front seat  | 186         |
| C305 (2-W)       | beneath centre console                                       | 113         |
| C306 (3-W)       | beneath centre console                                       | 113         |
| C307 (2-W)       | beneath RH front seat  | 186         |
| C309 (2-W)       | beneath LH front seat  |             |
| C311 (14-W)      | beneath RH front seat  | 185         |
| C312 (35-B)      | beneath LH front seat on Anti-Lock Brake System ECU          | 167         |
| C313 (5-U)       | beneath LH front seat A.B.S. Diagnostic Connector            | 169         |
| C314 (3-B)       | beneath RH front seat  | 183         |
| C315 (3-W)       | beneath LH front seat  | 173         |
| C316 (6-B)       | LH side of RH front seat on Right Front Seat Control Switch  | 189         |
| C317 (6-B)       | LH side of RH front seat on Right Front Seat Control Switch  | 189         |
| C318 (9-U)       | Underside of RH Front Seat                                   | 191         |
| C319 (6-B)       | RH side of LH front seat on Left Front Seat Control Switch   | 170         |
| C320 (6-B)       | RH side of LH front seat on Left Front Seat Control Switch   | 170         |
| C321 (9-U)       | underside of LH front seat                                   | 173         |
| C323 (5-B)       | LH side of transmission to Park/Neutral Position Switch      | 62          |
| C324 (10-W)      | underside of LH front seat to Memory Seat ECU                | 176         |
| C325 (6-B)       | RH side of LH front seat on Left Front Seat Control Switch   | 171         |
| C326 (6-B)       | RH side of LH front seat on Left Front Seat Control Switch   | 171         |
| C327 (3-B)       | RH side of LH front seat on Left Front Seat Control Switch   | 171         |
| C328 (9-UB)      | underside of LH front seat                                   | 176         |
| C329 (6-W)       | underside of LH front seat                                   | 177         |
| C330 (13-W)      | beneath RH front seat  | 184         |
| C331 (35-B)      | beneath RH front seat on Air Suspension ECU                  | 184         |
| C332 (13-B)      | beneath RH side of vehicle to Air Valve Block                | 198         |
| C333 (4-B)       | beneath RH side of vehicle to Air Suspension Compressor      | 198         |
| C334 (3-B)       | front centre of roof to Electrochromic Rear View Mirror      | 118         |
| C335 (4-B)       | front centre of roof on Alarm Sensor                         | 116         |
| C336 (2-W)       | front centre of roof to Sunroof Control Unit                 |             |
| C337 (7-G)       | in rear of centre console on Left Front Window Switch        | 108         |
| C338 (7-W)       | in rear of centre console on Right Front Window Switch       | 108         |
| C339 (7-Y)       | in rear of centre console on Left Rear Window Console Switch | 109         |

| Connector                            | Location   | View |
|--------------------------------------|--|------|
| C340 (7-R)                           | in rear of centre console on Right Rear Window Console Switch        | 109  |
| C341 (5-W)                           | in rear of centre console on Left Seat Heat Switch                   | 111  |
| C342 (5-G)                           | in rear of centre console on Right Seat Heat Switch                  | 111  |
| C343 (7-N)                           | in rear of centre console on Rear Window Isolation Switch            | 110  |
| C344 (6-B)                           | beneath centre console to Transmission Range Selector Switch         | 112  |
| C345 (2-B)                           | beneath centre console on Park Switch                                | 114  |
| C346 (2-U)                           | beneath centre console to Automatic Gear Selector Illumination       | 112  |
| C348 (5-Y)                           | beneath LH front seat on Left Seat Power Relay                       |      |
| C349 (5-W)                           | beneath LH front seat on Left Seat Heat Relay                        |      |
| C350 (5-U)                           | beneath LH front seat on A.B.S. Warning Relay                        | 169  |
| C351 (5-B)                           | beneath LH front seat on A.B.S. Load Relay                           | 168  |
| C352 (5-B)                           | beneath LH front seat on A.B.S. Pump Relay                           | 168  |
| C353 (2-W)                           | centre of fascia on Fascia Cigar Lighter                             | 97   |
| C354 (2-W)                           | beneath centre rear of vehicle to Left Rear Wheel Speed Sensor       | 201  |
| C355 (2-W)                           | beneath centre rear of vehicle to Right Rear Wheel Speed Sensor      | 201  |
| C357 (5-W)                           | beneath RH front seat on Right Seat Heat Relay                       | 187  |
| C358 (5-Y)                           | beneath RH front seat on Right Seat Power Relay                      | 187  |
| C359 (3-B)                           | behind LH front wheel to Left Front Height Sensor                    | 195  |
| C360 (3-B)                           | behind RH front wheel to Right Front Height Sensor                   | 197  |
| C361 (5-Y)                           | beneath RH front seat on Air Suspension Compressor Relay             | 182  |
| C362 (5-W)                           | beneath RH front seat on Air Suspension Delay Relay                  | 181  |
| C363 (5-G)                           | beneath RH front seat on Warning Lamp Relay                          | 182  |
| C364 (5-B)                           | beneath RH front seat on Disable Switch                              | 183  |
| C365 (5-B)                           | beneath RH front seat on Air Suspension Diagnostic Connector         | 180  |
| C366 (1-W) Automatic<br>Transmission | beneath RH front seat  | 185  |
| C366 (1-W) Manual<br>Transmission    | beneath RH front seat  | 185  |
| C367 (1-W) Automatic<br>Transmission | beneath RH front seat  | 185  |
| C367 (1-W) Manual<br>Transmission    | beneath RH front seat  | 185  |
| C368 (3-B)                           | top RH side of transfer box to Transfer Box Position Switch          | 65   |
| C369 (2-B)                           | top RH side of transfer box to Transfer Box Solenoid                 |      |
| C370 (3-B)                           | LH side of transfer box on Vehicle Speed Sensor                      | 63   |
| C371 (2-B)                           | top RH side of transfer box on Transfer Box Oil Temperature Switch   | 64   |
| C372 (2-W)                           | LH side of transmission to Reverse Switch                            | 60   |
| C377 (2-B)                           | forward of LH rear wheel to Reservoir Pressure Switch                | 196  |
| C379 (5-N)                           | beneath RH front seat on Service Reminder Unit                       | 188  |
| C380 (5-B)                           | beneath RH front seat on Multiport Fuel Injection Fault Display Unit | 188  |

| <b>Connector</b>      | <b>Location</b>  | <b>View</b> |
|-----------------------|--|-------------|
| C384 (5-W)            | front centre of roof on Sunroof Switch                     | 116         |
| C387 (3-B)            | front centre of roof to Sunroof Motor                      | 118         |
| C398 (2-W)            | underside of LH front seat to Left Heated Seat             | 192         |
| C399 (2-W)            | underside of RH front seat to Right Heated Seat            | 192         |
| C400 (7-B)            | behind RH side of rear bumper Trailer Auxiliary Socket     | 204         |
| C401 (1-B)            | centre of tailgate   | 218         |
| C402 (1-B)            | centre of tailgate   | 218         |
| C403 (6-B)            | LH side of rear bumper                                     | 219         |
| C404 (1-B)            | centre of tailgate   | 218         |
| C405 (1-B)            | centre of tailgate   | 218         |
| C406 (6-B)            | RH side of rear bumper                                     | 219         |
| C407 (3-B)            | beneath LH rear of vehicle near fuel tank                  | 202         |
| C408 (4-W)            | LH rear corner of roof                                     | 206         |
| C410 (2-W)            | front centre of roof to Front Interior Roof Lamp           | 118         |
| C411 (2-W)            | centre of roof to Rear Interior Roof Lamp                  | 205         |
| C412 (8-W)            | RH rear of luggage compartment on Subwoofer Amplifier      | 213         |
| C413 (8-B)            | RH rear of luggage compartment on Subwoofer Amplifier      | 213         |
| C414 (2-W)            | lower centre of rear screen to Tailgate Lock Actuator      | 210         |
| C415 (4-B)            | RH rear of roof  | 209         |
| C416 (3-B)            | beneath centre rear of vehicle                             | 201         |
| C418 (4-B) Except NAS | RH rear of luggage compartment to Subwoofer                | 214         |
| C418 (4-B) NAS        | RH rear of luggage compartment to Subwoofer                | 216         |
| C419 (1-B)            | RH rear of luggage compartment                             | 215         |
| C420 (8-W)            | RH rear corner of roof                                     | 211         |
| C421 (3-W)            | RH rear of luggage compartment on CD Changer               | 215         |
| C422 (18-W)           | RH rear of luggage compartment on Radio Amplifier          | 215         |
| C423 (2-N)            | RH rear of luggage compartment on Fuel Flap Actuator       | 212         |
| C424 (1-B)            | behind RH side of rear bumper Trailer Auxiliary Socket     | 204         |
| C425 (1-B)            | behind RH side of rear bumper Trailer Auxiliary Socket     | 204         |
| C432 (3-W)            | forward of RH rear wheel to Right Rear Height Sensor       | 200         |
| C433 (3-W)            | forward of LH rear wheel to Left Rear Height Sensor        | 196         |
| C436 (12- )           | RH rear of luggage compartment on Radio Amplifier          |             |
| C434 (4-B)            | top of fuel tank to Fuel Pump Module                       | 203         |
| C485 (2-B)            | behind RH rear wheel to Right Rear Inboard Brake Pad       | 59          |
| C500 (3-B)            | in front of LH front door to Left Front Window Motor       | 152         |
| C501 (8-W)            | behind LH footwell trim panel                              | 68          |
| C502 (13-W)           | behind LH footwell trim panel                              | 68          |
| C503 (5-W)            | top front of LH front door to Left Mirror Actuator         | 151         |
| C504 (4-W)            | in top rear of LH front door to Left Front Door Key Switch | 155         |

| <b>Connector</b>                            | <b>Location</b>   | <b>View</b> |
|---|---|-------------|
| C505 (5-B)                                  | in lower portion of LH front door                                 | 158         |
| C506 (5-B)                                  | in lower portion of LH front door                                 | 154         |
| C507 (6-W)                                  | in rear of LH front door to Left Front Door Lock Actuator         | 156         |
| C509 (5-U)                                  | in top front of LH front door to Left Mirror Actuator             | 151         |
| C514 (2-B)                                  | in front of LH front door on Left Front Midrange Speaker          | 153         |
| C515 (2-W) High Line Radio                  | in front of LH front door   | 153         |
| C515 (2-W) Low Line Radio<br>Mid Line Radio | in front of LH front door on Left Front Speaker                   | 153         |
| C515 (2-W) NAS                              | in front of LH front door on Left Front Bass Speaker              | 153         |
| C600 (3-B)                                  | in front of RH front door to Right Front Window Motor             | 152         |
| C601 (8-W)                                  | behind RH footwell trim panel                                     | 142         |
| C602 (13-W)                                 | behind RH footwell trim panel                                     | 142         |
| C603 (5-W)                                  | top front of RH front door to Right Mirror Actuator               | 151         |
| C604 (4-W)                                  | in top rear of RH front door to Right Front Door Key Switch       | 155         |
| C605 (5-B)                                  | in lower portion of RH front door                                 | 158         |
| C606 (5-B)                                  | in lower portion of RH front door                                 | 154         |
| C607 (6-W)                                  | in rear of RH front door to Right Front Door Lock Actuator        | 156         |
| C609 (5-U)                                  | top front of RH front door to Right Mirror Actuator               | 151         |
| C614 (2-B)                                  | in front of RH front door on Right Front Midrange Speaker         | 153         |
| C615 (2-W) High Line Radio                  | in front of RH front door   | 153         |
| C615 (2-W) Low Line Radio<br>Mid Line Radio | in front of RH front door on Right Front Speaker                  | 153         |
| C615 (2-W) NAS                              | in front of RH front door on Right Front Bass Speaker             | 153         |
| C700 (3-W)                                  | in lower part of LH B-post  | 159         |
| C701 (2-W) SWB                              | in lower part of LH B-post  | 159         |
| C701 (4-W) LWB                              | in lower part of LH B-post  | 159         |
| C703 (3-W)                                  | in lower portion of LH rear door to Left Rear Window Motor        | 164         |
| C704 (5-B)                                  | in lower portion of LH rear door                                  | 165         |
| C705 (5-B)                                  | in lower portion of LH rear door                                  | 164         |
| C706 (2-W)                                  | in lower portion of LH rear door to Left Rear Door Lock Actuator  | 162         |
| C707(5-B)                                   | inside front of LH rear door                                      | 166         |
| C709 (5-W)                                  | in top of LH rear door on Left Rear Window Door Switch            | 161         |
| C800 (3-W)                                  | in lower part of RH B-post  | 159         |
| C801 (2-W) SWB                              | in lower part of RH B-post  | 159         |
| C801 (4-W) LWB                              | in lower part of RH B-post  | 159         |
| C803 (3-W)                                  | in lower portion of RH rear door to Right Rear Window Motor       | 164         |
| C804 (5-B)                                  | in lower portion of RH rear door                                  | 165         |
| C805 (5-B)                                  | in lower portion of RH rear door                                  | 164         |
| C806 (2-W)                                  | in lower portion of RH rear door to Right Rear Door Lock Actuator | 162         |



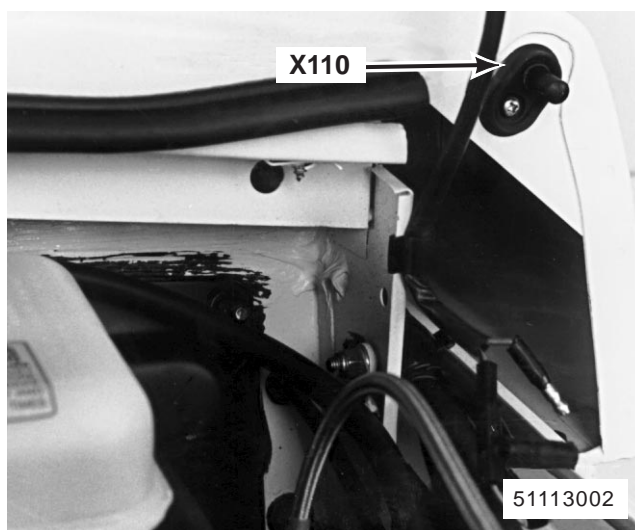
| <b>Connector</b>                   | <b>Location</b>   | <b>View</b> |
|------------------------------------|---|-------------|
| C807 (5-B)                         | inside front of RH rear door                                      | 166         |
| C809 (5-W)                         | in top of RH rear door on Right Rear Window Door Switch           | 161         |
| C1018 (1-W)                        | LH front of engine compartment on Ignition Coil                   | 22          |
| C1019 (2-B)                        | behind RH front wheel to Right Front Inboard Brake Pad            | 59          |
| C1035 (3-B)                        | LH front of engine compartment on Ignition Control Module         | 220         |
| C1036 (3-B)                        | LH front of engine compartment on Ignition Control Module         | 220         |
| C2000 (5-G)                        | behind RH side of fascia on Interlock Relay 1                     | 133         |
| C2001 (5-Y)                        | behind RH side of fascia on Interlock Relay 2                     | 133         |
| C2002 (2-S)                        | RH A-post   | 150         |
| C2005 (2-W)                        | behind LH side of fascia on Brake Switch Vent Valve               |             |
| C2006 (5-Y)                        | behind RH footwell trim panel on Starter Solenoid Relay           | 144         |
| C2007 (5-G)                        | behind RH footwell trim panel on Ignition Load Relay              | 145         |
| C2008 (5-G)                        | behind RH footwell trim panel on Front Wiper Relay                | 145         |
| C2009 (4-W)                        | top of steering column on Direction Indicator Switch              | 85          |
| C2010 (6-W)                        | top of steering column to Rotary Coupler                          | 86          |
| C2011 (6-W)                        | top of steering column on Front Wipe/Wash Switch                  | 83          |
| C2012 (8-W)                        | top of steering column  | 88          |
| C2013 (4-W)                        | top of steering column  | 84          |
| C2014 (2-B)                        | top of steering column on Ignition Key Lock Solenoid              | 87          |
| C2015 (8-W)                        | top of steering column on Front Wipe/Wash Switch                  | 83          |
| C2016 (1-W)                        | behind LH side of fascia on Fascia Fuse Box                       | 74          |
| C2020 (29-R)                       | beneath centre console on Air Bag Diagnostic Control Module       | 115         |
| C2021 (5-B) Automatic Transmission | behind RH side of fascia on Cruise Control Lockout Relay          | 137         |
| C2021 (5-B) Manual Transmission    | behind RH side of fascia on Speed Trip Module                     | 137         |
| C2022 (5-W)                        | behind heater and A/C control panel on Fan Speed Switch           | 105         |
| C2023 (4-W)                        | behind heater and A/C control panel                               | 107         |
| C2025 (5-W)                        | behind heater and A/C control panel on Front A/C Switch           | 105         |
| C2026 (5-B)                        | behind heater and A/C control panel on Air Supply Selector Switch | 106         |
| C2027 (5-W)                        | behind LH side of fascia LH side of heater evaporator unit        | 94          |
| C2028 (6-W)                        | behind RH footwell trim panel on E200                             | 143         |
| C2029 (6-W)                        | behind LH footwell trim panel on E201                             | 69          |
| C2030 (10-K)                       | centre of fascia on Radio   | 103         |
| C2031 (6-W)                        | beneath centre console on E303                                    | 113         |
| C2032 (10- )                       | centre of fascia on Radio   |             |
| C2035 (2-B)                        | behind LH side of fascia on Clutch Pedal Position Switch          |             |
| C2036 (7-B)                        | in steering wheel to Rotary Coupler                               | 82          |
| C2039 (4-B)                        | behind LH side of fascia left of steering column                  | 76          |

| <b>Connector</b>   | <b>Location</b>   | <b>View</b> |
|--------------------|---|-------------|
| C2040 (1-W) .....  | behind LH side of fascia near Fascia Fuse Box                                       |             |
| C2041 (1-W) .....  | behind LH side of fascia near Fascia Fuse Box                                       |             |
| C2042 (1-W) .....  | behind LH side of fascia near Fascia Fuse Box                                       |             |
| C2043 (1-W) .....  | behind LH side of fascia near Fascia Fuse Box                                       |             |
| C2044 (5-G) .....  | behind RH side of fascia on<br>Transmission Range Selector Illumination Relay ..... | 134         |
| C2045 (5-Y) .....  | behind RH side of fascia on NAS Alarm Relay .....                                   | 135         |
| C2046 (5-G) .....  | behind RH side of fascia on Transfer Box Warning Relay .....                        | 135         |
| C2063 (2-B) .....  | behind LH side of fascia to Stop Lamp Switch Suppressor .....                       | 77          |
| C2066 (8-W) .....  | behind RH side of fascia right of heater evaporator unit .....                      | 119         |
| C2067 (10-W) ..... | behind LH side of fascia LH side of heater evaporator unit .....                    | 94          |
| C2068 (5-B) .....  | behind RH side of fascia on Blower Motor Relay .....                                | 120         |
| C2069 (2-B) .....  | behind RH side of fascia on Front Blower Motor .....                                | 127         |
| C2070 (4-B) .....  | behind RH side of fascia on Blower Resistor Unit .....                              | 119         |
| C2071 (2-B) .....  | behind RH side of fascia on Air Recirculation Solenoid In-Line Fuse ..              | 126         |
| C2072 (4-Y) .....  | behind RH side of fascia on Air Recirculation Solenoid .....                        | 120         |
| C2073 (10-W) ..... | behind RH side of fascia right of heater evaporator unit .....                      | 125         |
| C2074 (5-Y) .....  | behind RH side of fascia on Power Wash Relay .....                                  | 139         |
| C2078 (2-W) .....  | centre of fascia on Radio   |             |
| C2079 (2-W) .....  | centre of fascia on Radio   |             |
| C3000 (1-B) .....  | LH side of transmission to Reverse Switch .....                                     | 60          |
| C3001 (1-B) .....  | LH side of transmission to Reverse Switch .....                                     | 60          |
| <b>Ground</b>      | <b>Location</b>   | <b>View</b> |
| E100 Diesel .....  | RH front of engine compartment behind battery .....                                 | 35          |
| E100 Petrol .....  | RH front of engine compartment behind battery                                       |             |
| E101 Diesel .....  | LH front of engine compartment on fender well .....                                 | 18          |
| E101 Petrol .....  | LH front of engine compartment on fender well .....                                 | 17          |
| E102 .....         | LH rear corner of engine compartment .....  | 3           |
| E103 Diesel .....  | RH front of engine compartment behind battery .....                                 | 35          |
| E103 Petrol .....  | LH rear corner of engine below valve cover .....                                    | 9           |
| E104 .....         | lower RH rear of engine compartment on frame rail                                   |             |
| E105 .....         | lower LH front of engine compartment  |             |
| E106 .....         | lower LH rear of engine   |             |
| E107 .....         | mounted on bonnet (hood)  |             |
| E108 .....         | near Starter  |             |
| E109 .....         | LH rear corner of engine  |             |
| E110 .....         | RH side of bulkhead   |             |
| E200 .....         | behind RH footwell trim panel .....   | 143         |

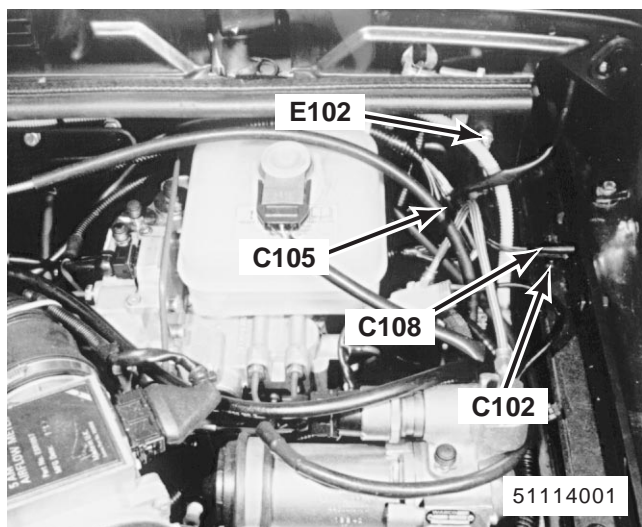
| <b>Ground</b>         | <b>Location</b>                      | <b>View</b> |
|-----------------------|--------------------------------------|-------------|
| E201 .....            | behind LH footwell trim panel .....  | 69          |
| E202 .....            | front centre of roof .....           | 117         |
| E207 .....            | centre of fascia                     |             |
| E300 .....            | beneath RH front seat .....          | 186         |
| E301 .....            | beneath LH front seat .....          | 167         |
| E302 .....            | beneath LH front seat .....          | 167         |
| E303 .....            | beneath centre console .....         | 113         |
| E400 .....            | LH rear corner of roof .....         | 206         |
| E401 .....            | RH rear corner of roof .....         | 211         |
| E402 .....            | centre rear of roof .....            | 208         |
| E403 Except NAS ..... | RH rear of luggage compartment ..... | 214         |
| E403 NAS .....        | RH rear of luggage compartment ..... | 216         |
| <br>                  |                                      |             |
| <b>Splice</b>         | <b>Location</b>                      | <b>View</b> |
| HJ1 (20-S) .....      | behind RH side of fascia .....       | 128         |
| HJ2 (20-S) .....      | behind RH side of fascia .....       | 129         |
| HJ3 (20-U) .....      | behind RH side of fascia .....       | 128         |
| HJ4 (20-S) .....      | behind RH side of fascia .....       | 129         |
| HJ5 (20-S) .....      | behind RH side of fascia .....       | 128         |
| HJ6 (20-G) .....      | behind RH side of fascia .....       | 129         |
| HJ7 (20-U) .....      | behind RH side of fascia .....       | 121         |
| HJ8 (20-S) .....      | behind instrument cluster .....      | 89          |
| HJ9 (20-S) .....      | behind instrument cluster .....      | 89          |
| HJ10 (20-S) .....     | behind RH side of fascia .....       | 129         |



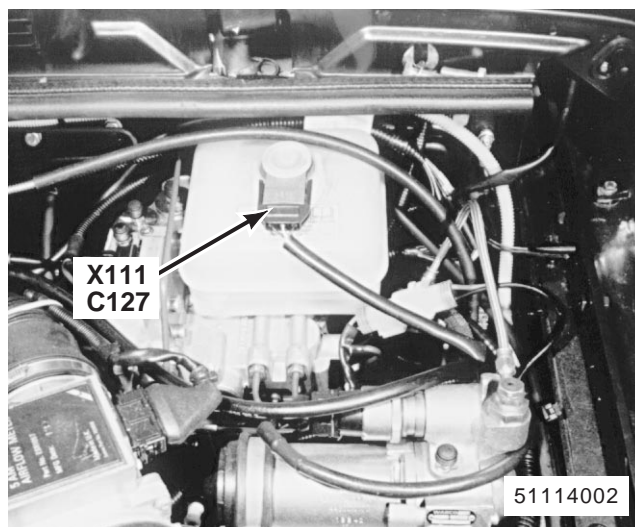
1. lower LH side of windscreen (RH similar)  
 C121 (2-B) (Right)  
 C122 (2-B) (Left)



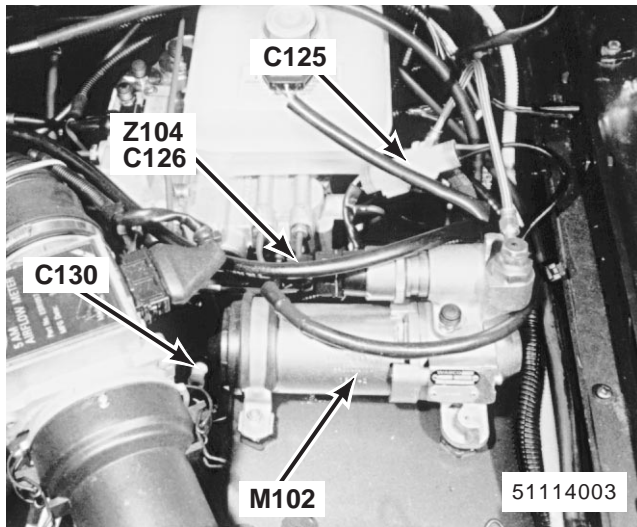
2. LH rear corner of engine compartment  
 X110 Bonnet Switch



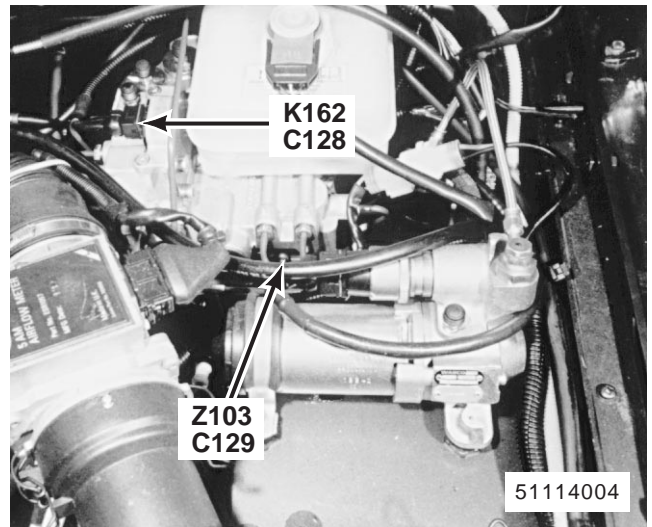
3. LH rear corner of engine compartment  
 C102 (1-B)  
 C105 (13-B)  
 C108 (1-B)  
 E102



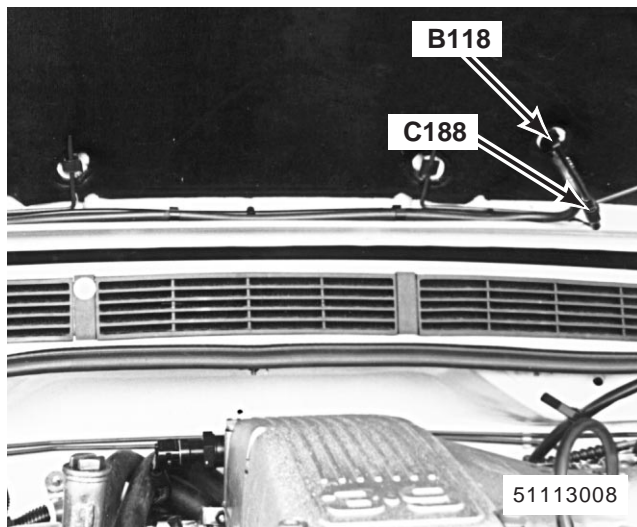
4. LH rear corner of engine compartment  
 X111 Brake Fluid Level Switch  
 C127 (3-B)



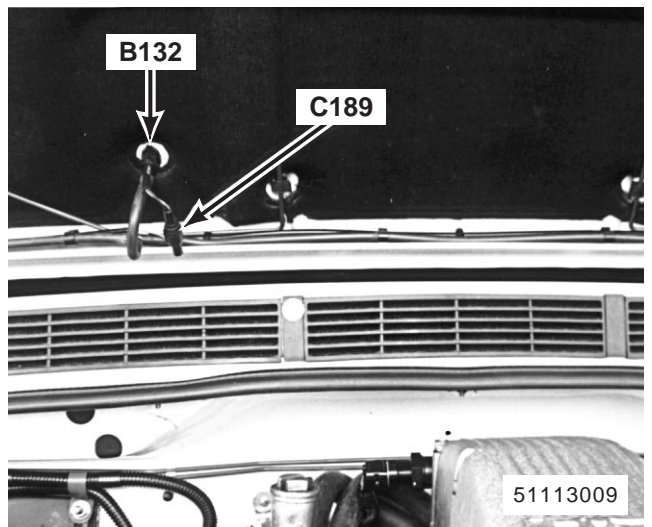
5. LH rear corner of engine compartment  
 M102 A.B.S. Hydraulic Pump  
 Z104 A.B.S. Pressure Switch Unit  
 C125 (2-W)  
 C126 (5-B)  
 C130 (2-W)



6. LH rear corner of engine compartment  
 K162 ETC Valve Block  
 Z103 A.B.S. Booster Unit  
 C128 (2-B)  
 C129 (12-B)

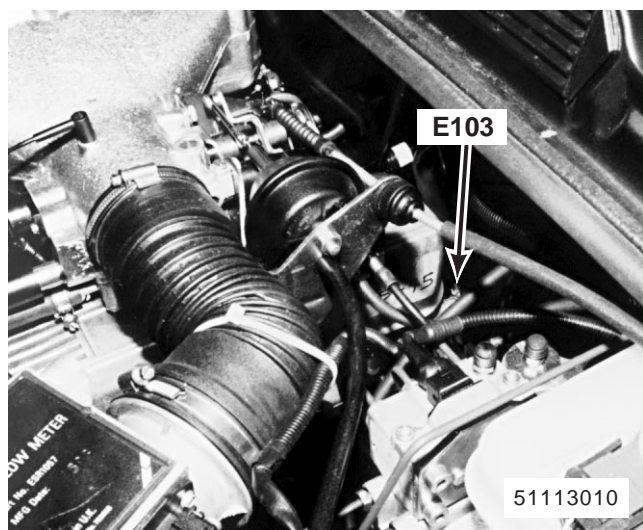


7. rear of engine compartment  
 B118 Left Heated Washer Jet  
 C188 (2-W)

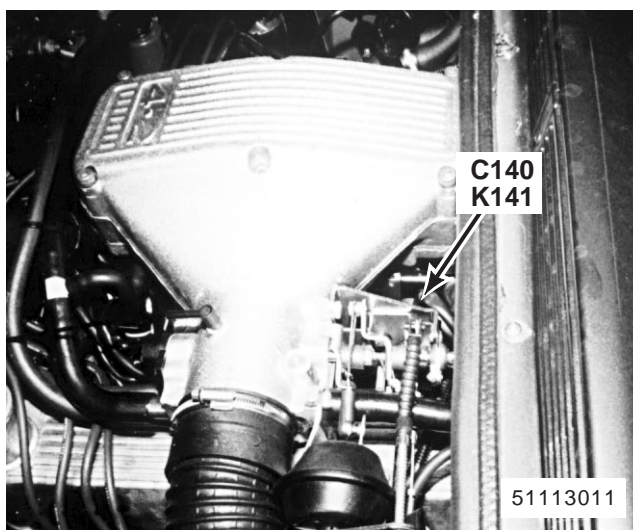


8. rear of engine compartment  
 B132 Right Heated Washer Jet  
 C189 (2-W)

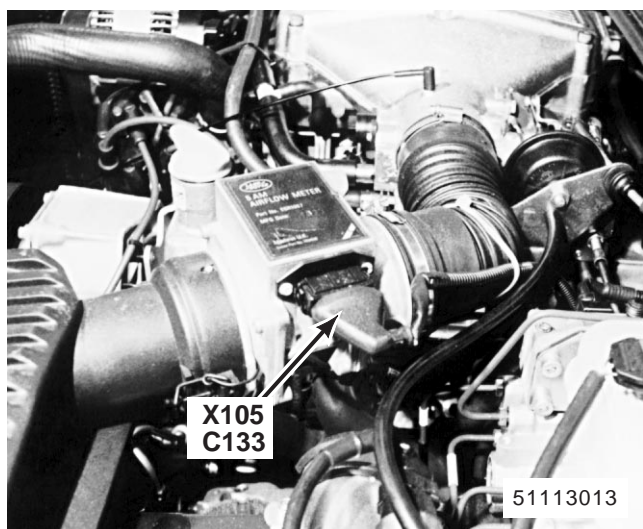




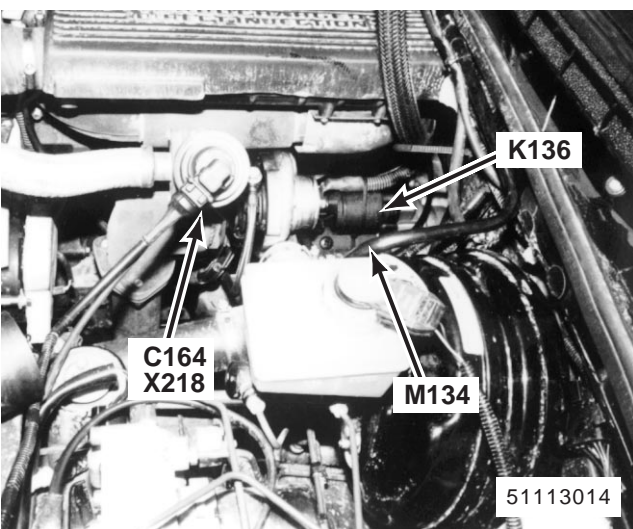
9. LH rear corner of engine Petrol  
E103



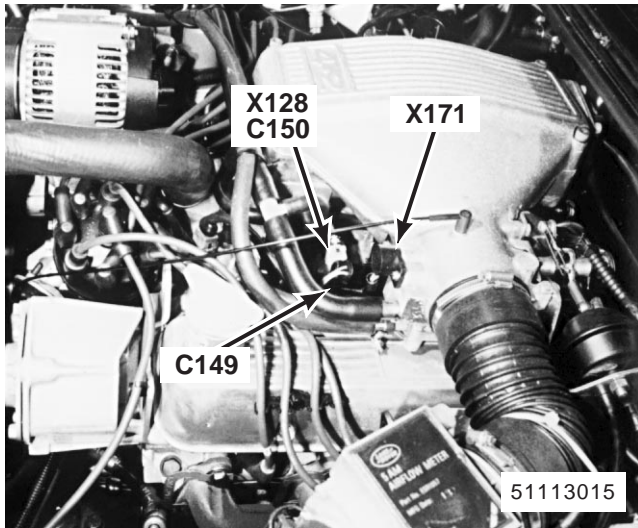
10. LH rear of engine Petrol  
K141 Fuel Injectors  
C140 (2-B)



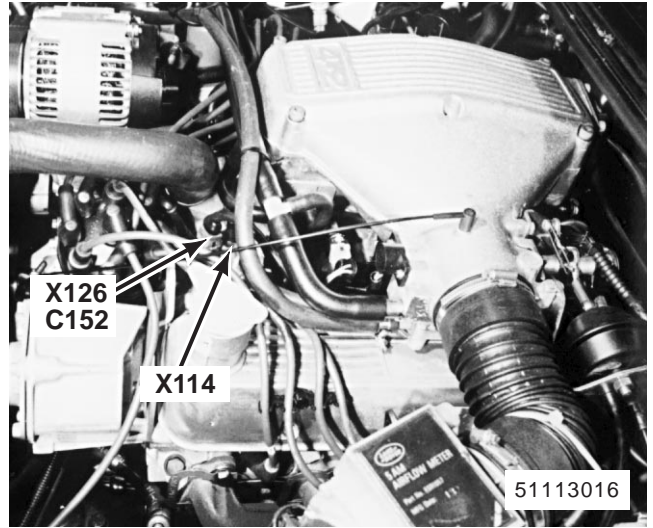
11. LH side of engine Petrol  
X105 Mass Air Flow Sensor  
C133 (6-B)



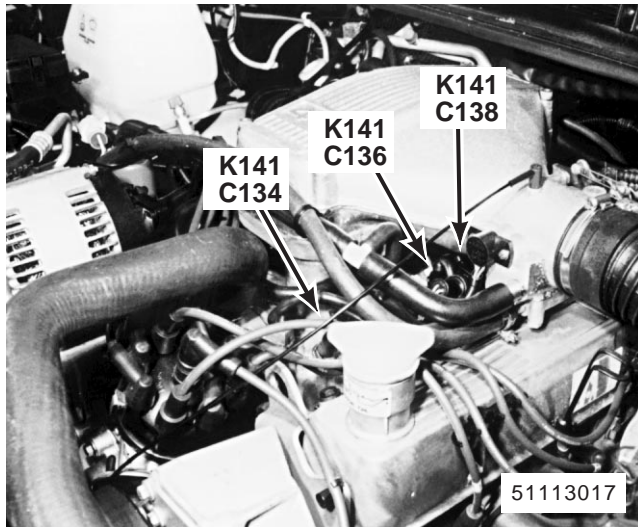
12. lower LH side of engine Diesel  
K136 Starter Solenoid  
M134 Starter  
X218 EGR Valve Position Sensor  
C164 (3-B)



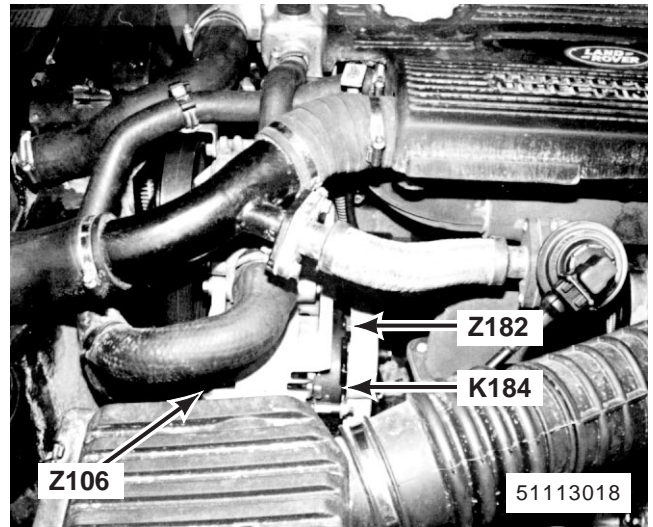
13. LH side of engine Petrol  
 X128 Engine Fuel Temperature Sensor  
 X171 Throttle Position Sensor  
 C149 (3-B)  
 C150 (2-S)



14. LH side of engine Petrol  
 X114 Engine Coolant Temperature Gauge Sensor  
 X126 Engine Coolant Temperature Sensor  
 C152 (2-N)

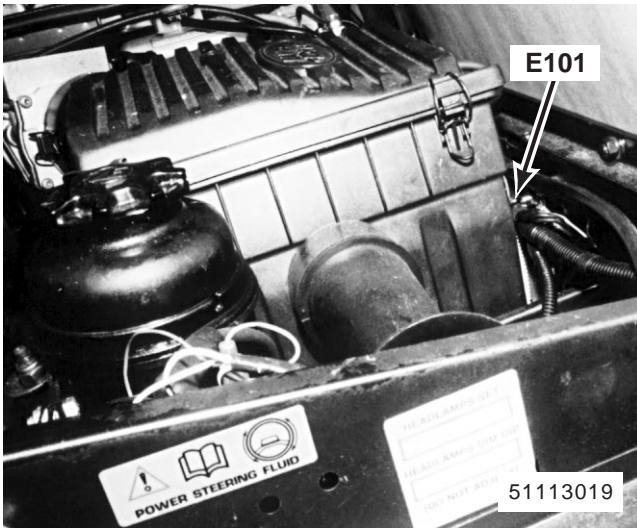


15. LH side of engine Petrol  
 K141 Fuel Injectors  
 C134 (2-B)  
 C136 (2-B)  
 C138 (2-B)

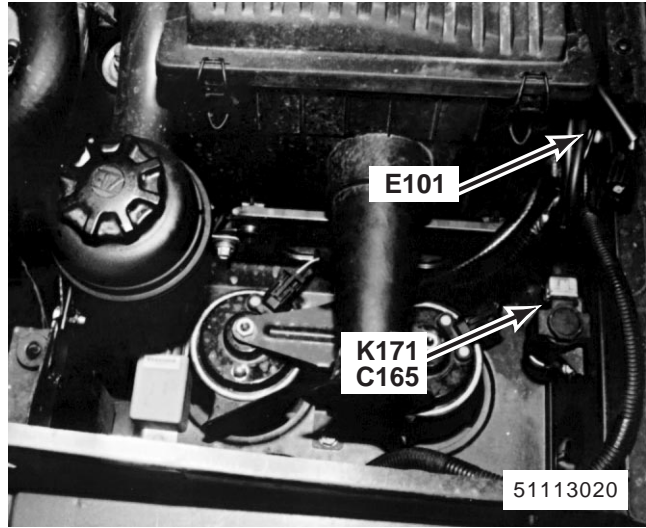


16. lower LH side of engine Diesel  
 K184 Phase Tap Resistor  
 Z106 Generator  
 Z182 Generator Suppression Capacitor

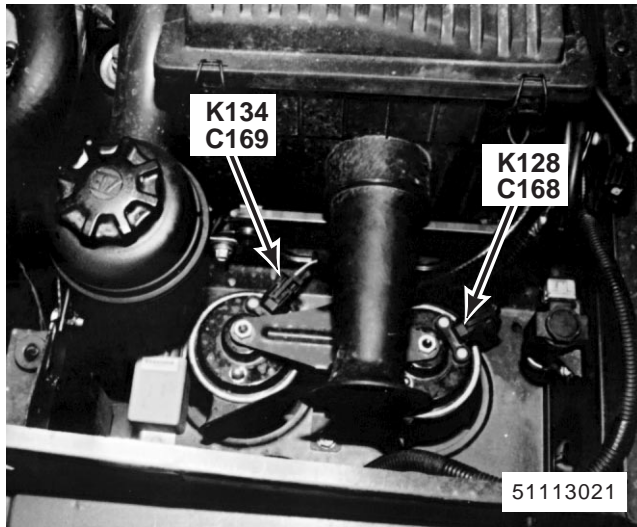




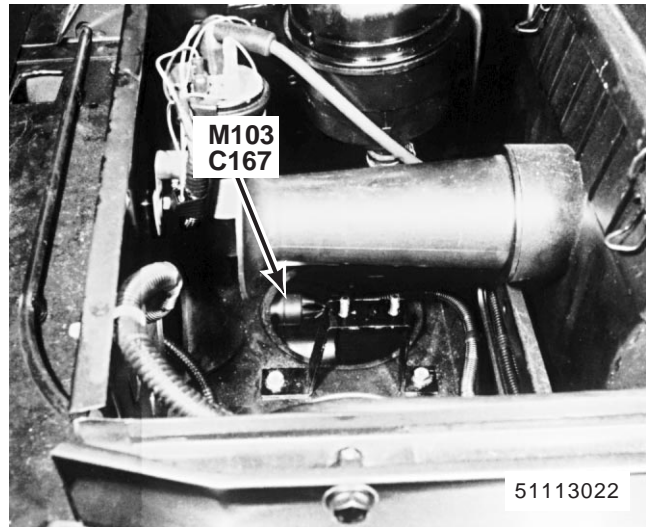
17. LH front corner of engine compartment Petrol  
E101



18. LH front corner of engine compartment Diesel  
K171 EGR Control Solenoid  
C165 (2-S)  
E101

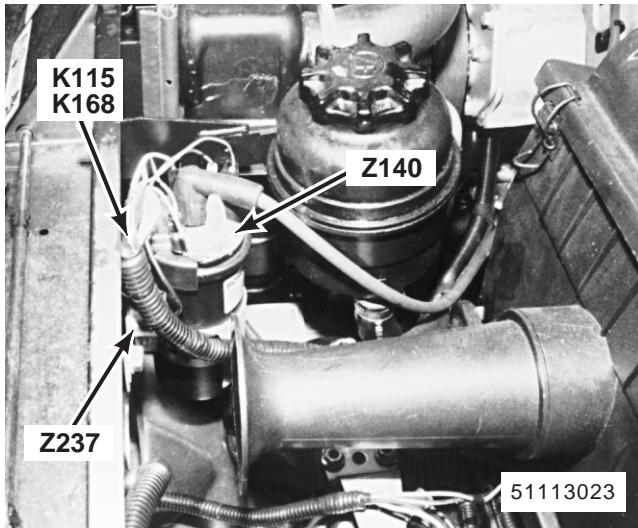


19  
LH front corner of engine compartment (Petrol  
shown; others similar)  
K128 Left Horn  
K134 Right Horn  
C168 (2-B)  
C169 (2-B)

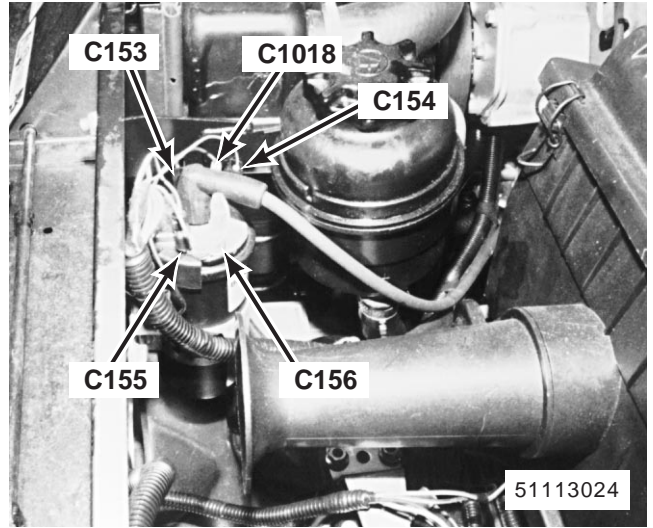


20. LH front corner of engine compartment (Petrol  
shown; others similar)  
M103 Cruise Control Vacuum Pump  
C167 (3-B)

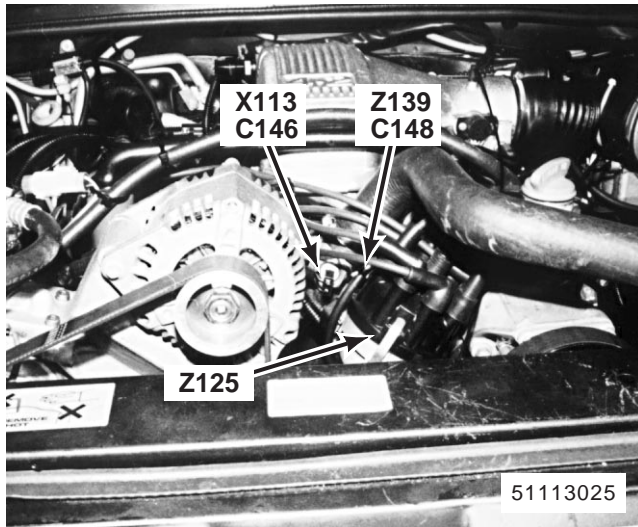




21. LH front of engine compartment Petrol  
 K115 Multiport Fuel Injection Ignition Resistor 1  
 K168 Multiport Fuel Injection Ignition Resistor 2  
 Z140 Ignition Coil  
 Z237 Ignition Coil Noise Suppressor



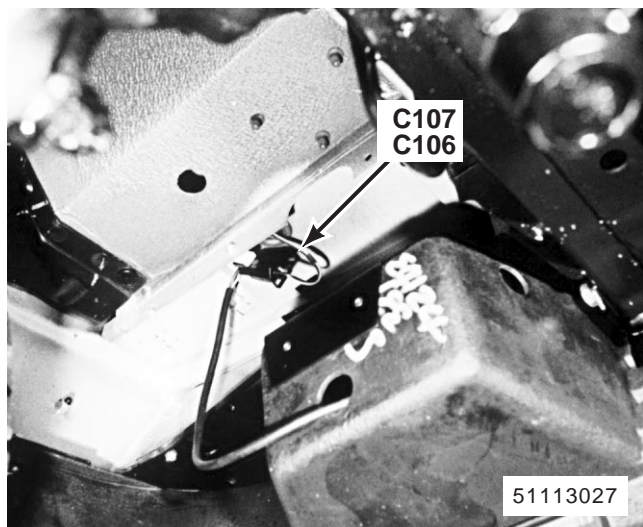
22. LH front of engine compartment Petrol  
 C153 (1-B)  
 C154 (1-B)  
 C155 (1-B)  
 C156 (1-W)  
 C1018 (1-W)



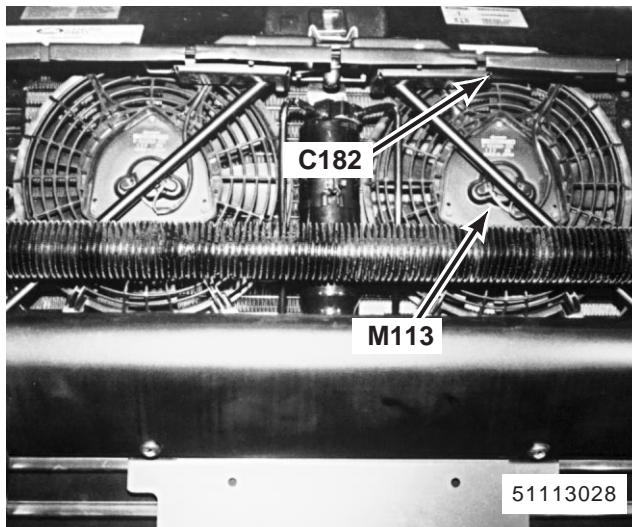
23. top centre front of engine Petrol  
 X113 Condenser Fan Coolant Temperature Switch  
 Z125 Distributor  
 Z139 Ignition Control Module  
 C146 (2-B)  
 C148 (3-B)



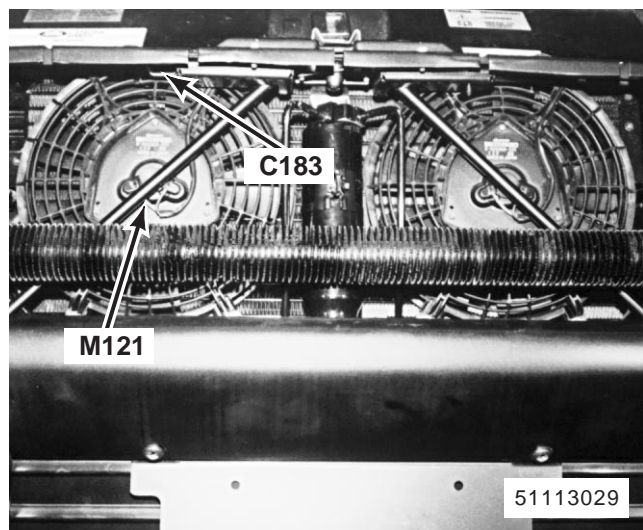
24. top centre front of engine Diesel  
 X126 Engine Coolant Temperature Sensor  
 C152 (2-N)



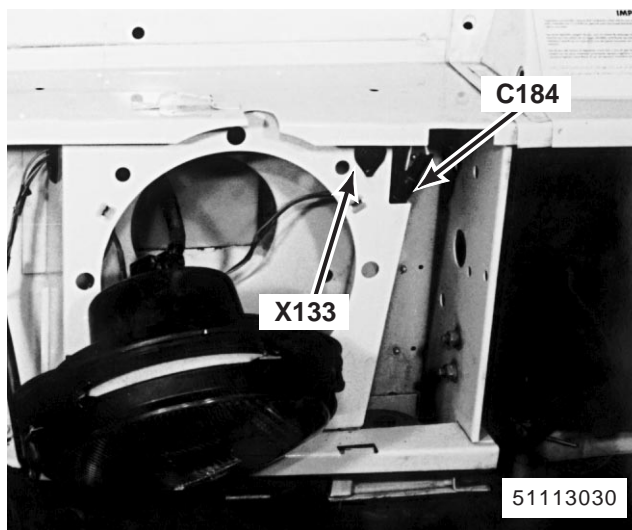
25. behind LH side of front bumper (RH similar)  
C106 (2-B) (Right)  
C107 (2-B) (Left)



26. behind front grille  
M113 Left Condenser Fan Motor  
C182 (2-B)

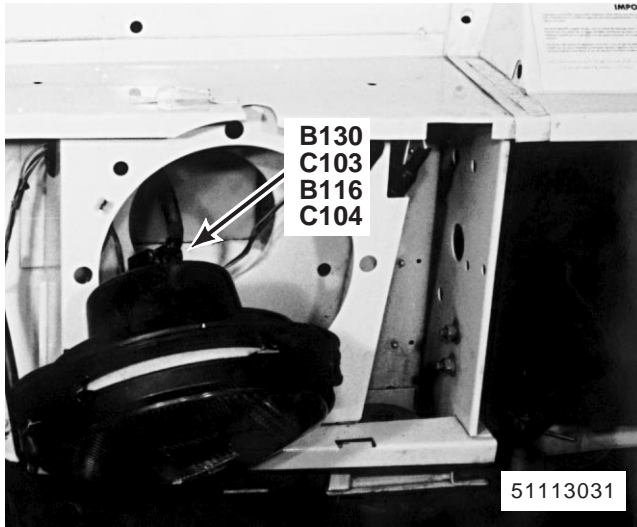


27. behind front grille  
M121 Right Condenser Fan Motor  
C183 (2-B)

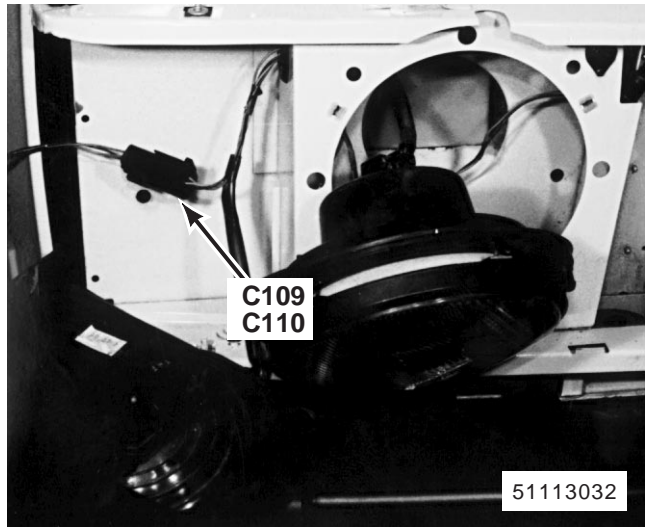


28. RH front of vehicle  
X133 Heated Washer Jets Thermoswitch  
C184 (2-B)

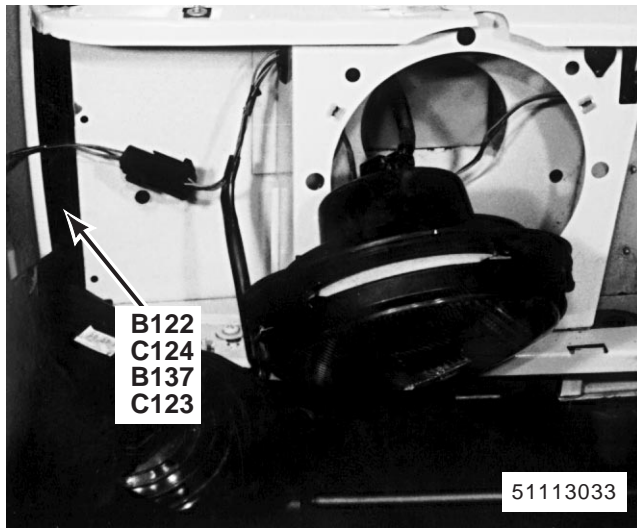




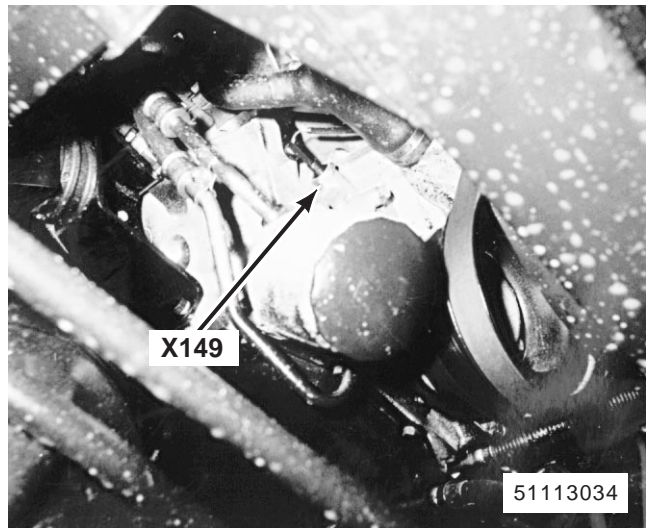
29. RH front of vehicle (LH similar)  
 B116 Left Headlamp  
 B130 Right Headlamp  
 C103 (3-B) (Right)  
 C104 (3-B) (Left)



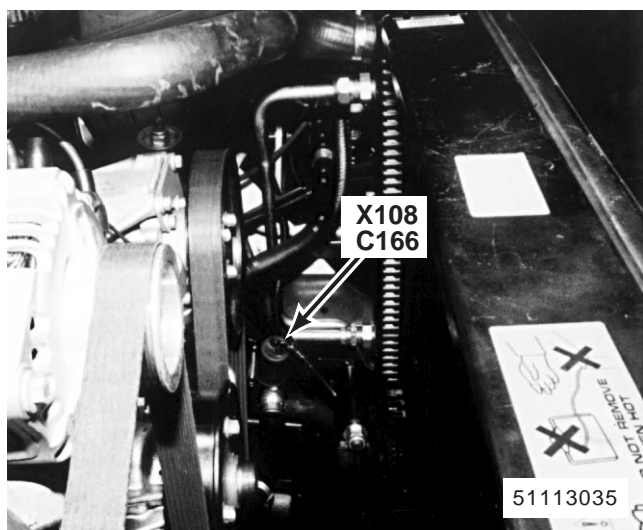
30. RH front of vehicle (LH similar)  
 C109 (4-B) (Left)  
 C110 (4-B) (Right)



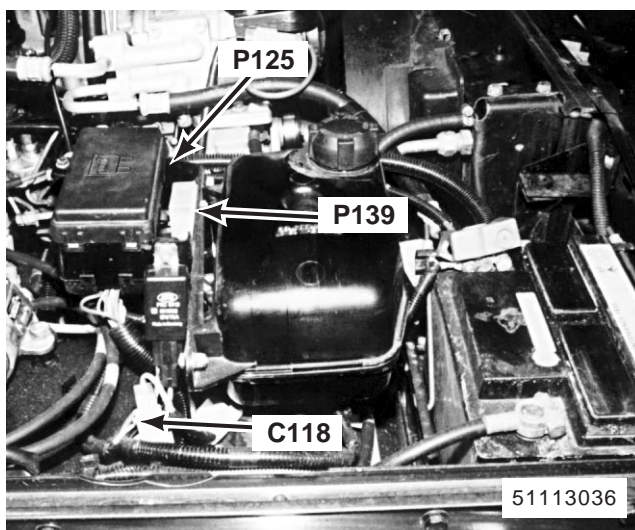
31. RH front of vehicle (LH similar)  
 B122 Left Repeater Lamp  
 B137 Right Repeater Lamp  
 C123 (2-B) (Right)  
 C124 (2-B) (Left)



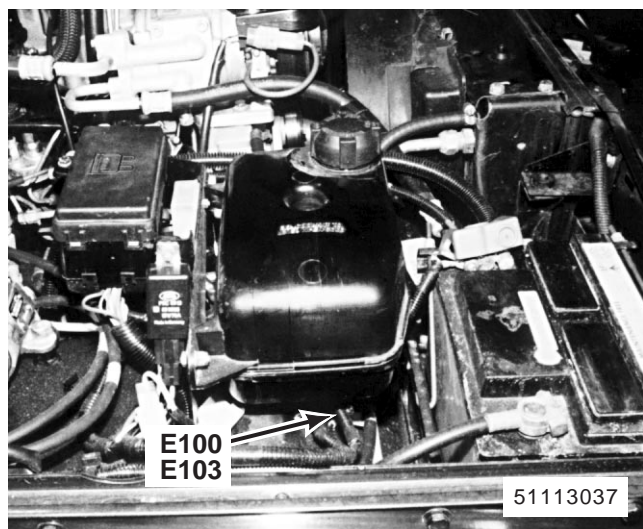
32. lower RH side of engine Petrol  
 X149 Oil Pressure Switch



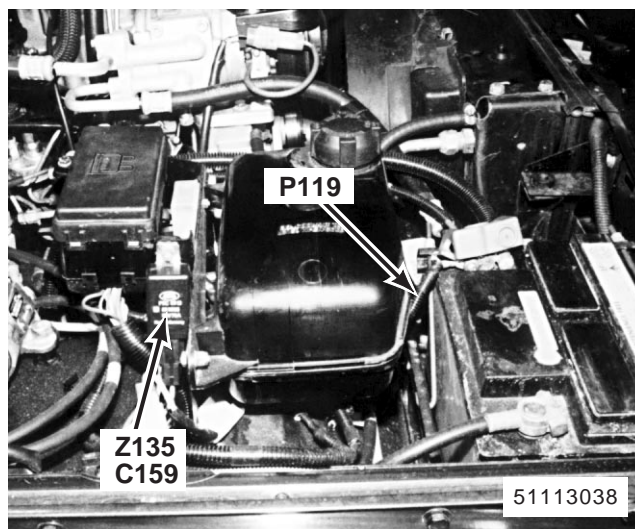
33. lower LH front of engine compartment (Petrol shown; others similar)  
 X108 Automatic Transmission Oil Temperature Switch  
 C166 (2-B)



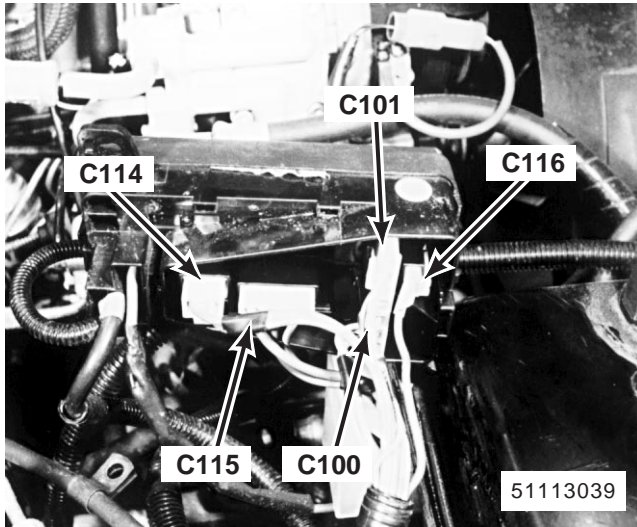
34. RH front of engine compartment  
 P125 Engine Compartment Fuse Box  
 P139 Heated Front Screen In-Line Maxi-Fuse  
 C118 (1-W)



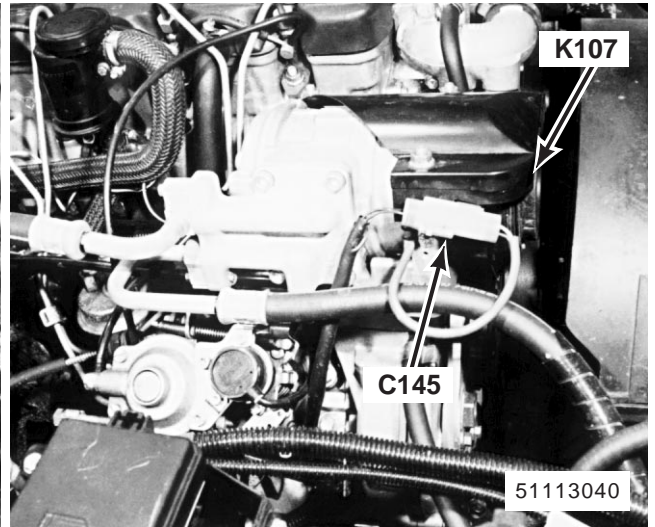
35. RH front of engine compartment  
 E100 Diesel  
 E103 Diesel



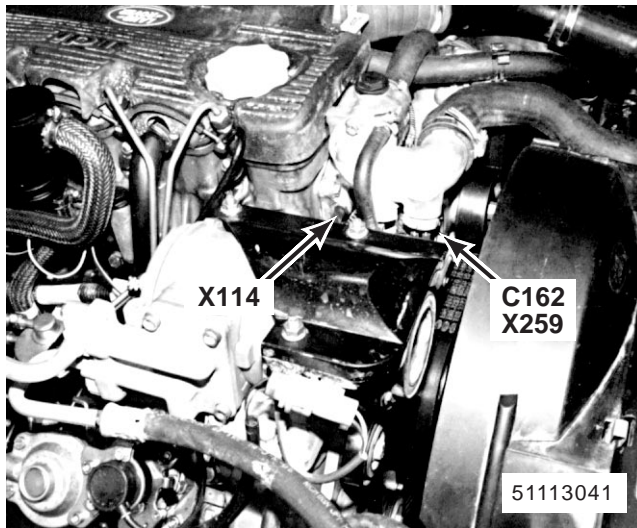
36. RH front of engine compartment  
 P119 Fusible Link  
 Z135 Glow Plug Timer Unit  
 C159 (6-B)



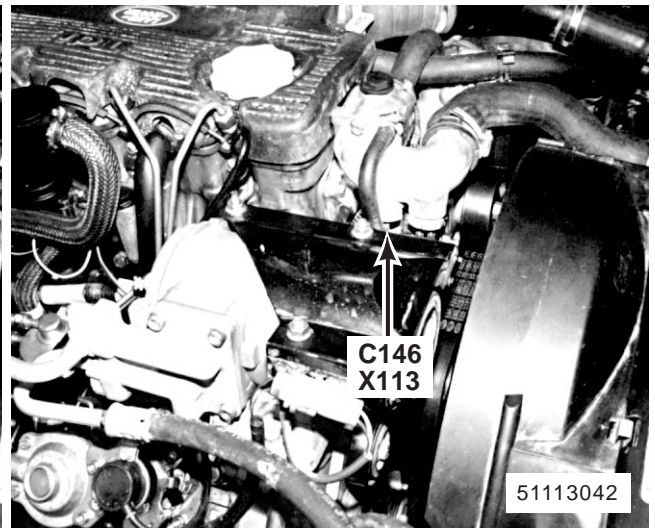
37. RH front of engine compartment  
 C100 (3-W)  
 C101 (4-W)  
 C114 (2-W)  
 C115 (3-W)  
 C116 (1-W)



38. RH side of engine Diesel  
 K107 Compressor Clutch  
 C145 (2-W)

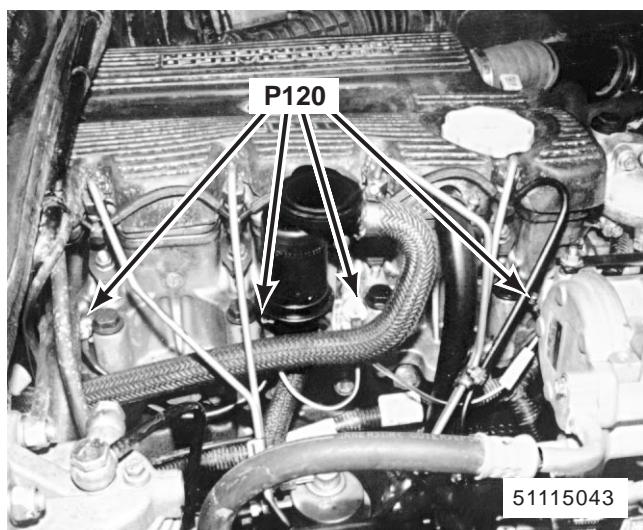


39. RH front of engine Diesel  
 X114 Engine Coolant Temperature Gauge Sensor  
 X259 Compressor Clutch Cut-out Switch  
 C162 (2-B)

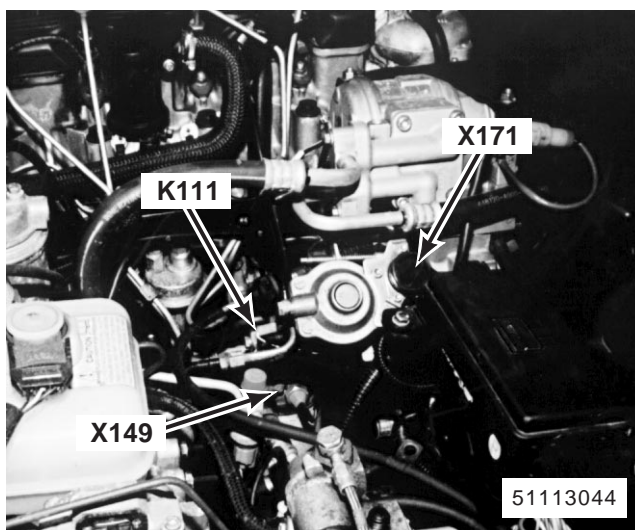


40. RH front of engine Diesel  
 X113 Condenser Fan Coolant Temperature Switch  
 C146 (2-B)

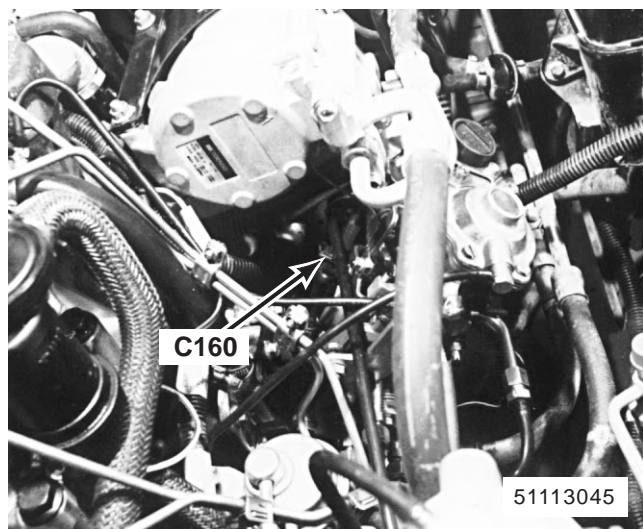




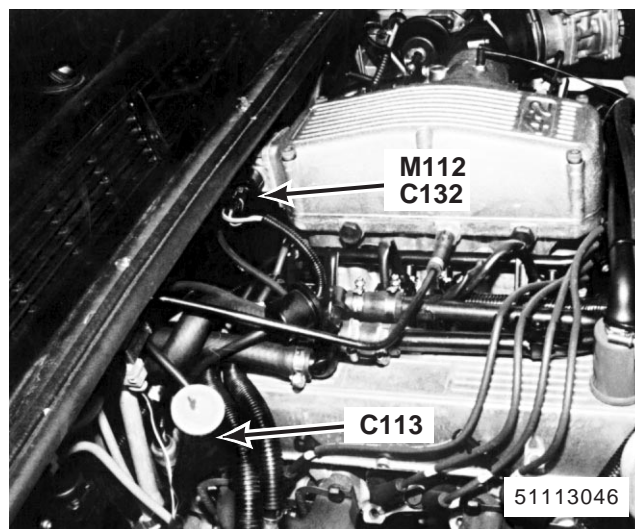
41. RH side of engine Diesel  
P120 Glow Plugs



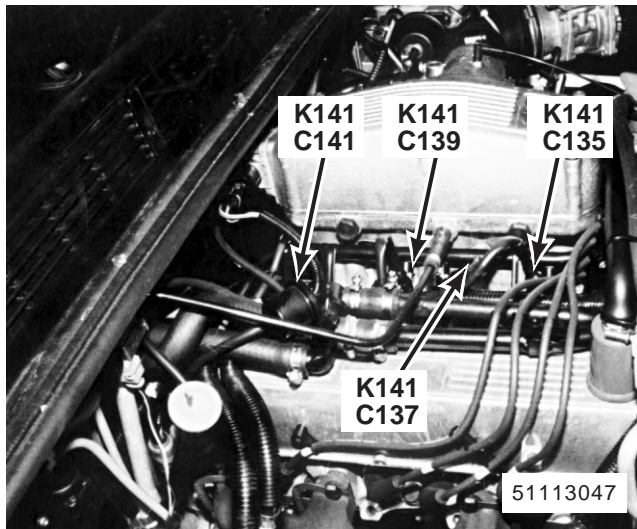
42. RH side of engine Diesel  
K111 Fuel Shut-Off Solenoid  
X149 Oil Pressure Switch  
X171 Throttle Position Sensor



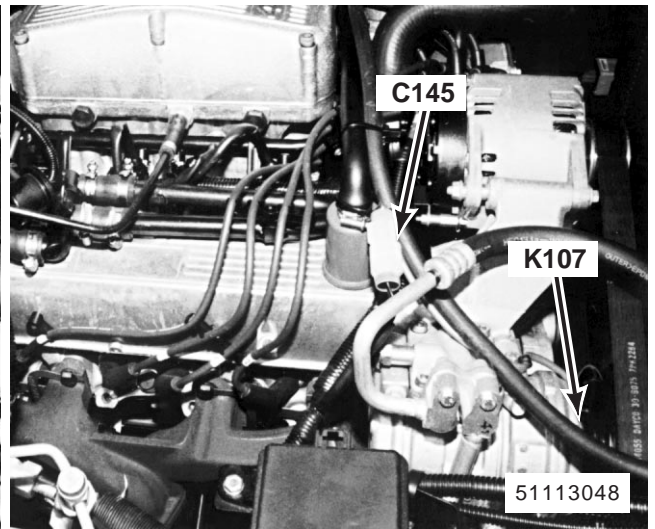
43. RH side of engine Diesel  
C160 (3-B)



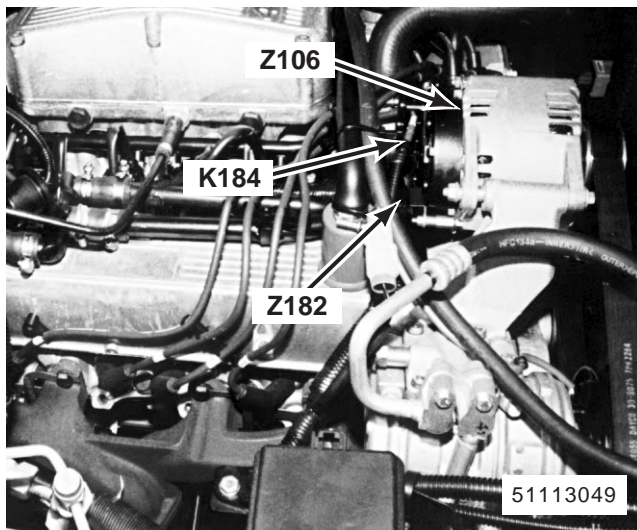
44. RH side of engine Petrol  
M112 Idle Air Control Valve  
C113 (3-W)  
C132 (4-B)



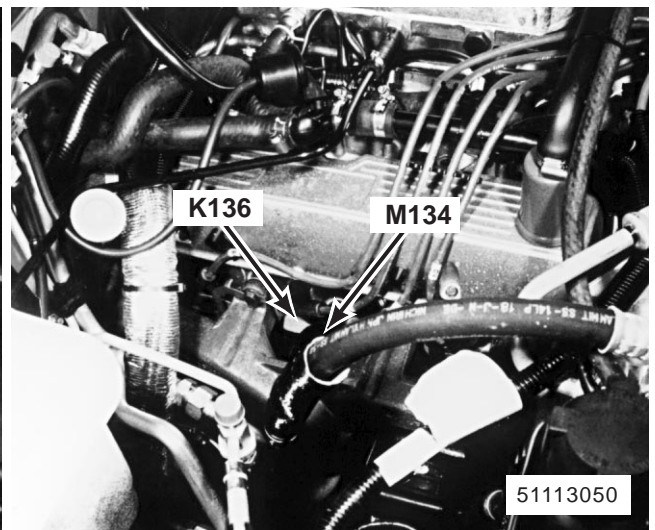
45. RH side of engine Petrol  
 K141 Fuel Injectors  
 C135 (2-B)  
 C137 (2-B)  
 C139 (2-B)  
 C141 (2-B)



46. RH side of engine Petrol  
 K107 Compressor Clutch  
 C145 (2-W)

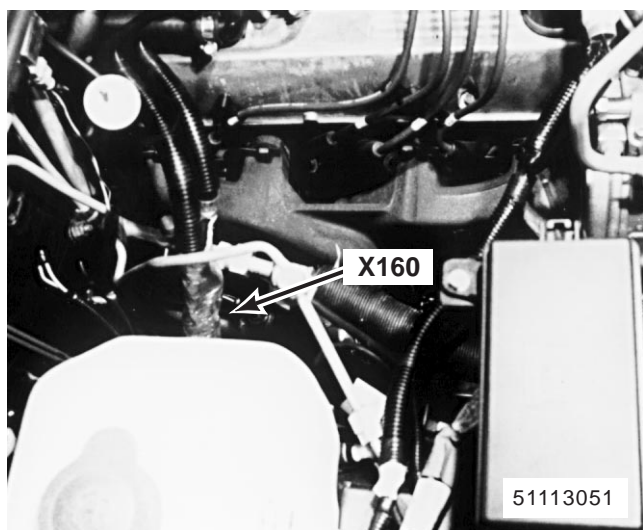


47. RH side of engine Petrol  
 K184 Phase Tap Resistor  
 Z106 Generator  
 Z182 Generator Suppression Capacitor

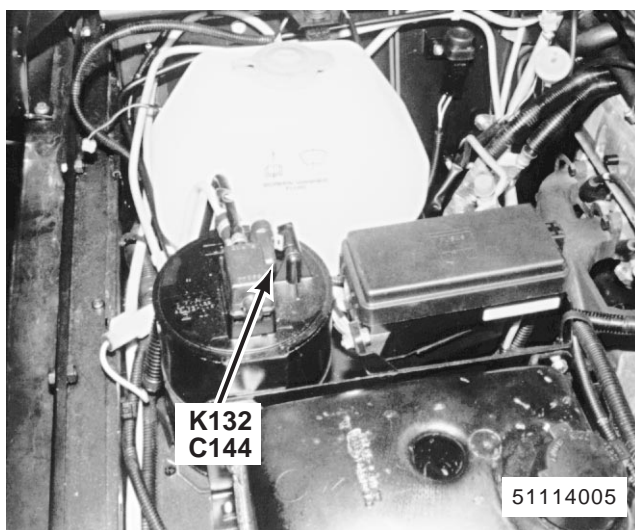


48. lower RH side of engine Petrol  
 K136 Starter Solenoid  
 M134 Starter

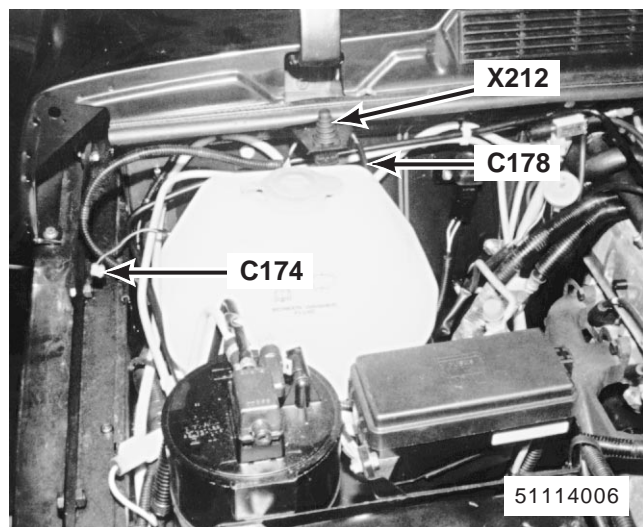




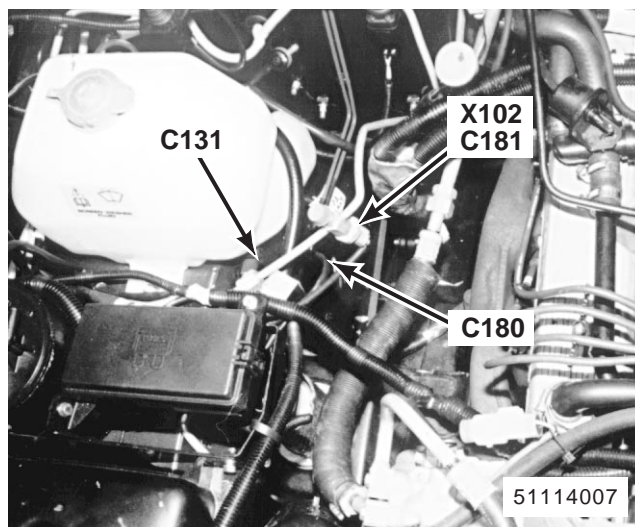
49. lower RH side of engine Petrol  
X160 Right Heated Oxygen Sensor



50. RH rear corner of engine compartment  
K132 Evaporative Emission Canister Purge Valve  
C144 (2-RU)

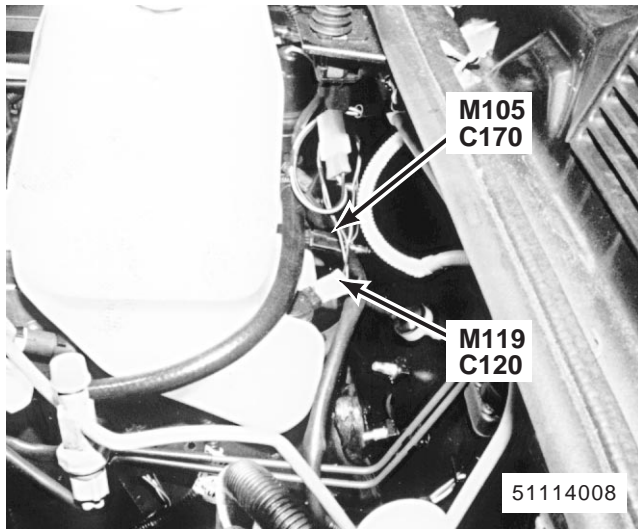


51. RH rear corner of engine compartment  
X212 Alarm Bonnet Switch  
C174 (2-W)  
C178 (2-B)

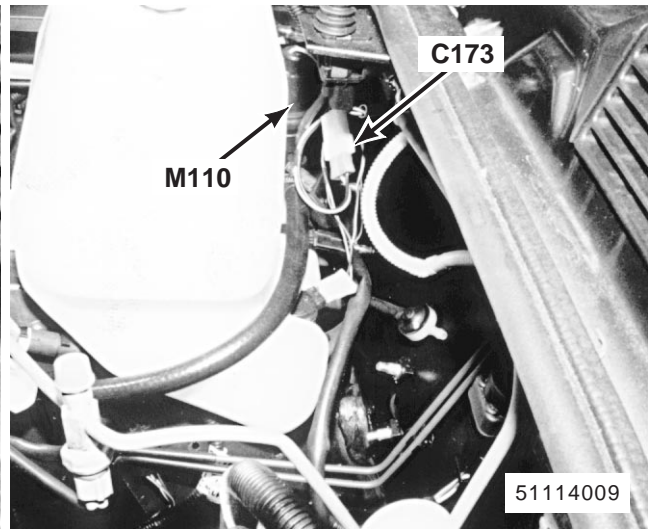


52. RH rear corner of engine compartment  
X102 A/C Dual Pressure Switch  
C131 (2-W)  
C180 (3-B)  
C181 (2-S)

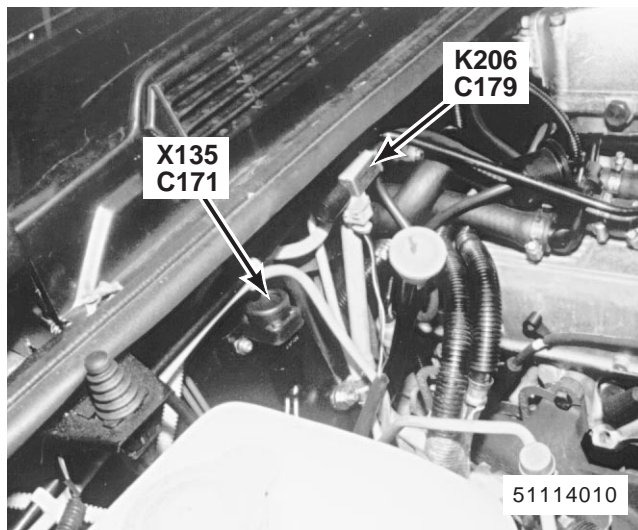




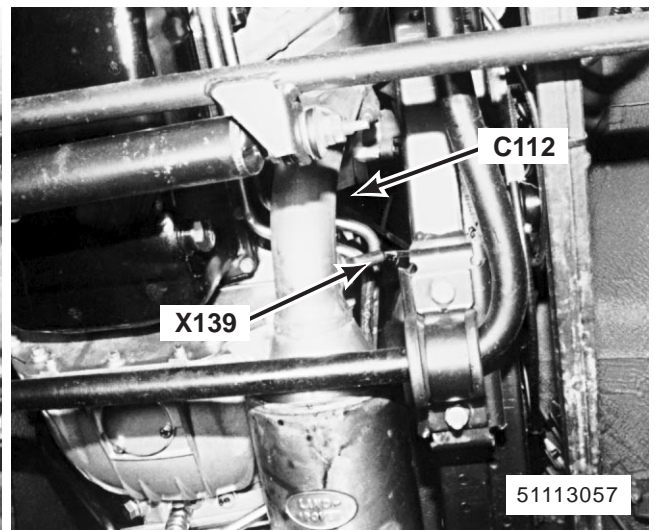
53. RH rear corner of engine compartment  
 M105 Front Screen Wash Pump  
 M119 Rear Screen Wash Pump  
 C120 (2-W)  
 C170 (2-B)



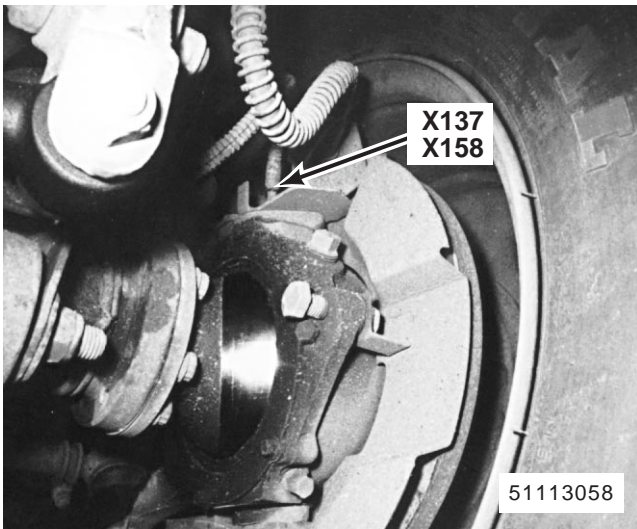
54. RH rear corner of engine compartment  
 M110 Headlamp Wash Pump  
 C173 (2-WR)



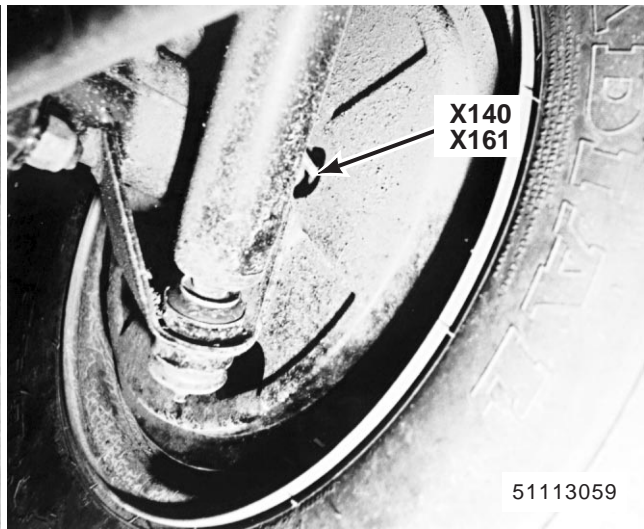
55. RH rear corner of engine compartment  
 K206 Water Valve  
 X135 Inertia Fuel Shut-Off Switch  
 C171 (3-B)  
 C179 (2-U)



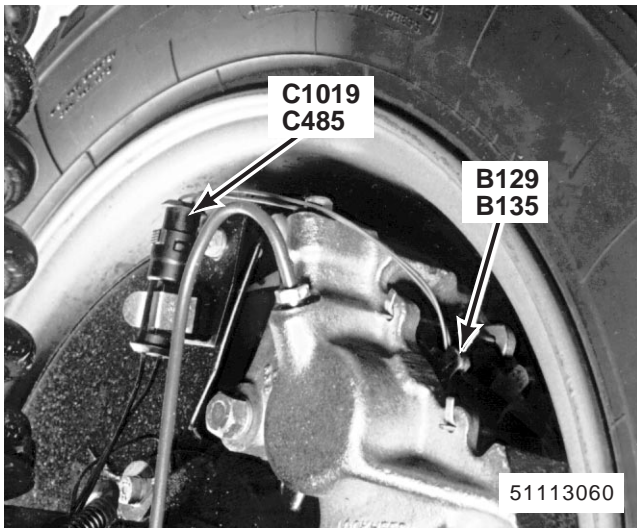
56. lower LH side of engine compartment  
 X139 Left Heated Oxygen Sensor  
 C112 (3-W)



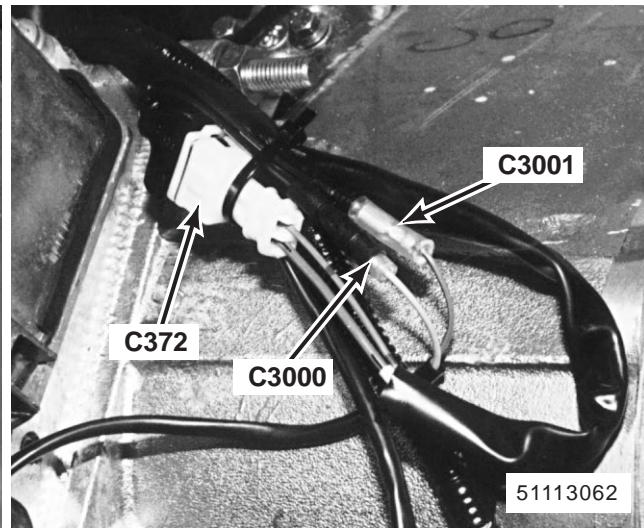
57. behind LH front wheel (RH front wheel similar)  
 X137 Left Front Wheel Speed Sensor  
 X158 Right Front Wheel Speed Sensor



58. behind LH rear wheel (RH rear wheel similar)  
 X140 Left Rear Wheel Speed Sensor  
 X161 Right Rear Wheel Speed Sensor

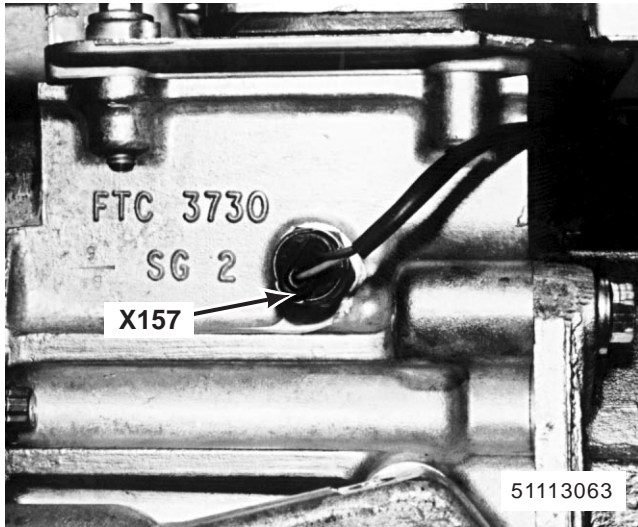


59. behind RH rear wheel (RH front wheel similar)  
 B129 Right Front Inboard Brake Pad  
 B135 Right Rear Inboard Brake Pad  
 C1019 (2-B) Front  
 C485 (2-B) Rear

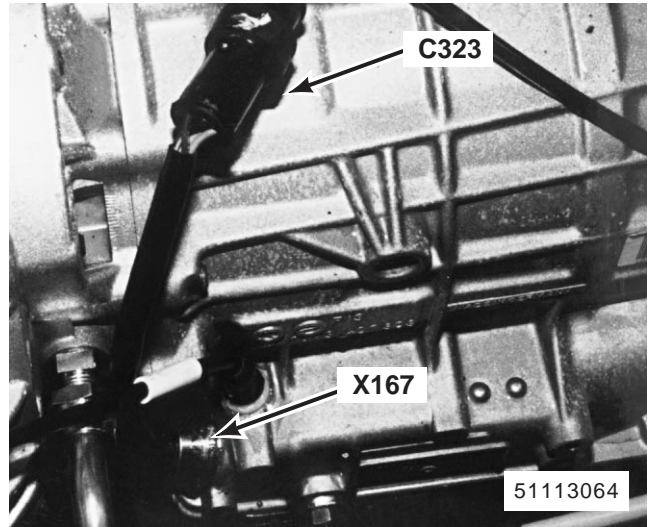


60. LH side of transmission  
 C372 (2-W)  
 C3000 (1-B)  
 C3001 (1-B)

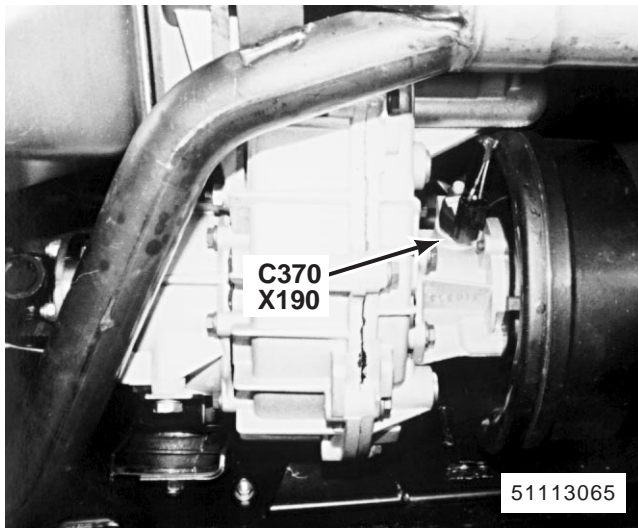




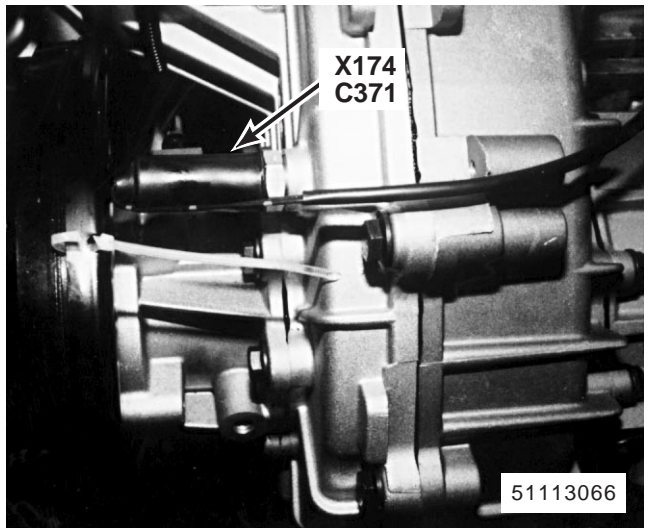
61. LH side of transmission  
X157 Reverse Switch



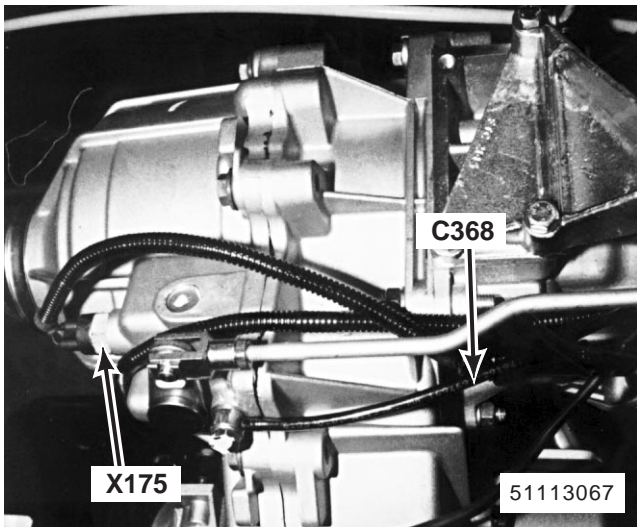
62. LH side of transmission  
X167 Park/Neutral Position Switch  
C323 (5-B)



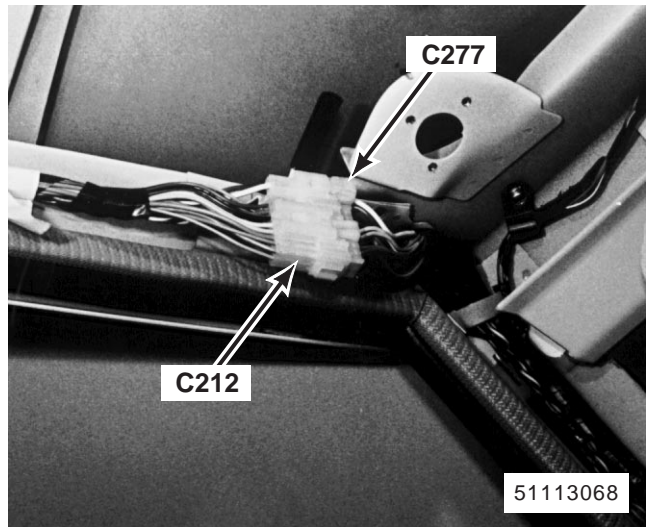
63. beneath centre of vehicle  
X190 Vehicle Speed Sensor  
C370 (3-B)



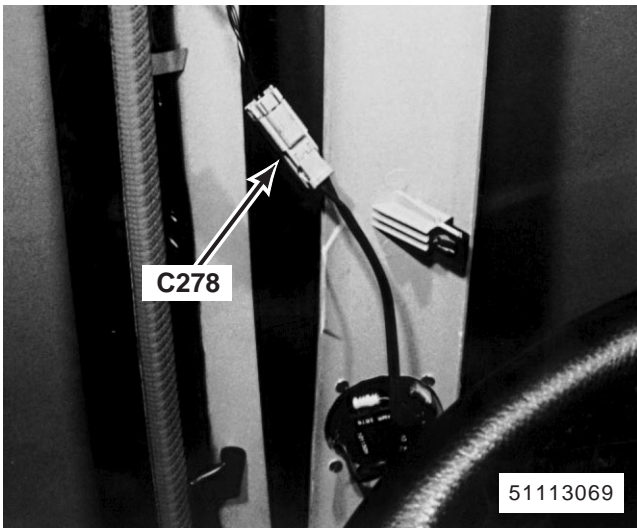
64. top RH side of transfer box  
X174 Transfer Box Oil Temperature Switch  
C371 (2-B)



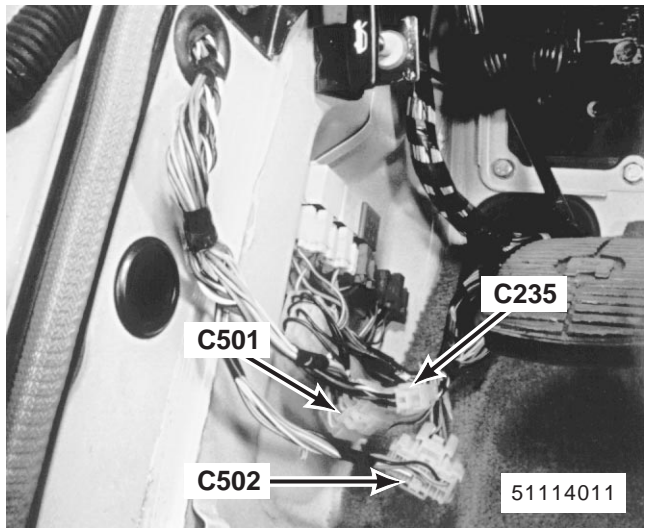
65. top RH side of transfer box  
X175 Transfer Box Position Switch  
C368 (3-B)



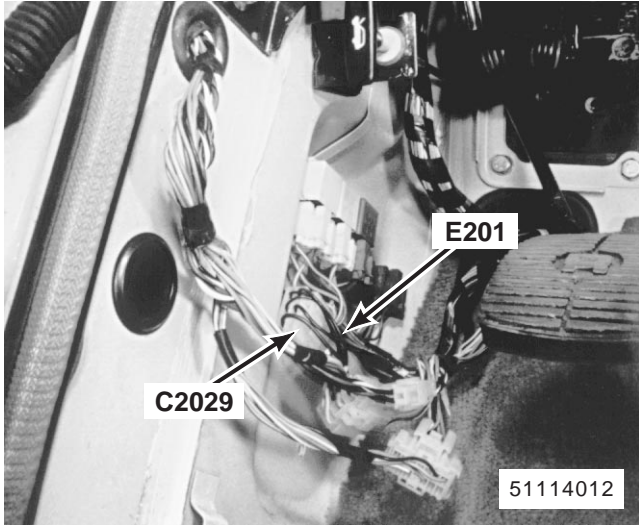
66. LH A-post  
C212 (14-W)  
C277 (2-W)



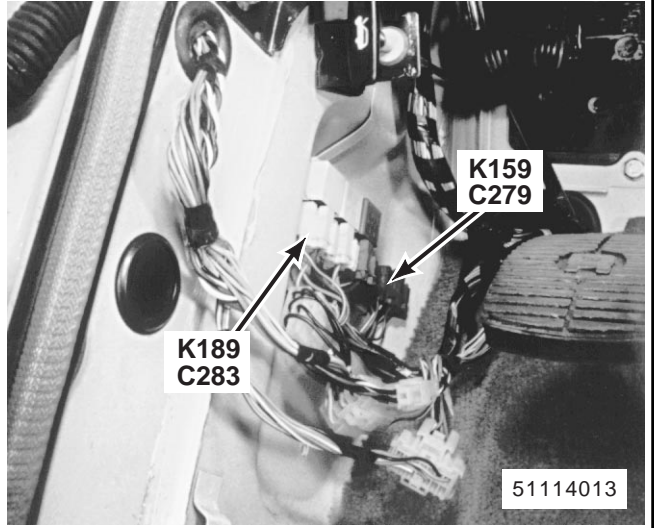
67. LH A-post  
C278 (2-S)



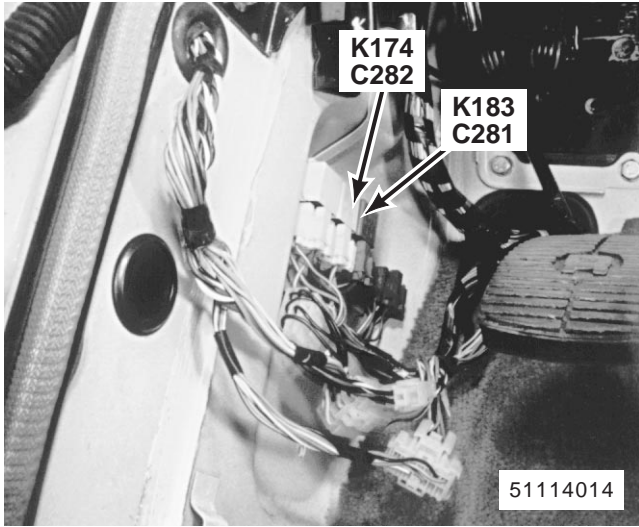
68. behind LH footwell trim panel  
C501 (8-W)  
C502 (13-W)  
C235 (4-W)



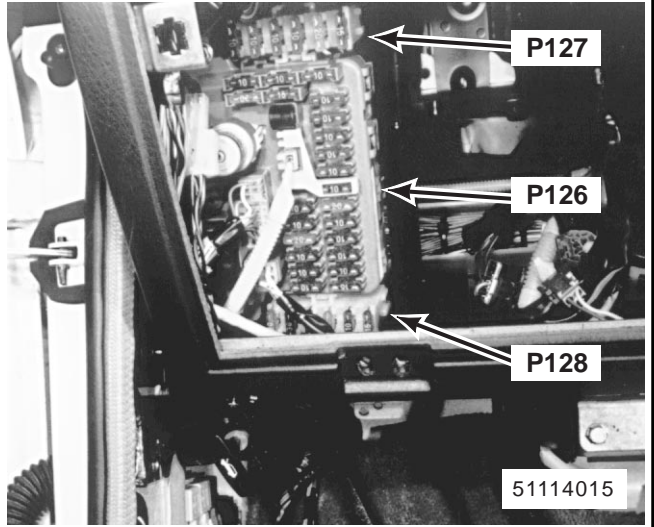
69. behind LH footwell trim panel  
C2029 (6-W)  
E201



70. behind LH footwell trim panel  
K159 Theft Alarm Relay  
K189 Horn Relay  
C279 (5-N)  
C283 (5-Y)

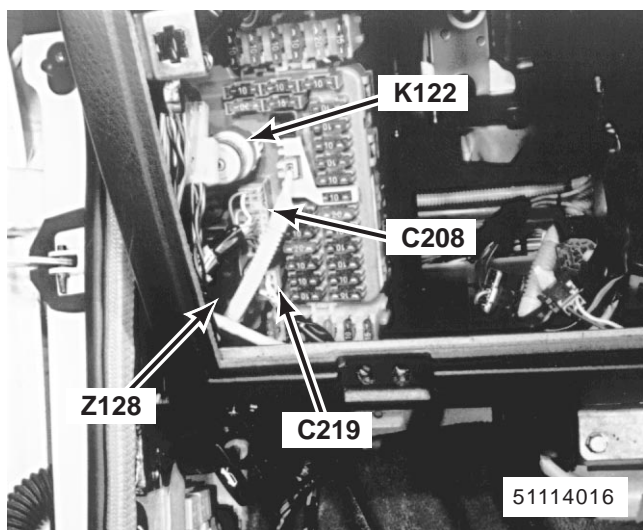


71. behind LH footwell trim panel  
K174 Accessory Relay  
K183 Rear Wiper Relay  
C281 (5-G)  
C282 (5-Y)



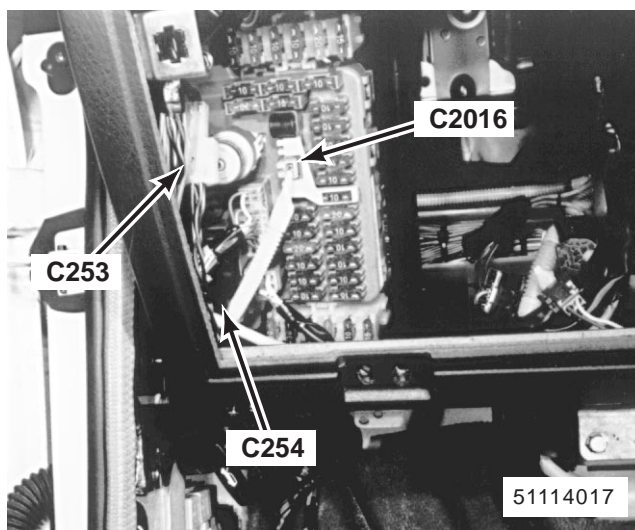
72. behind LH side of fascia left of steering column  
P126 Fascia Fuse Box  
P127 Satellite Fuse Box 1  
P128 Satellite Fuse Box 2





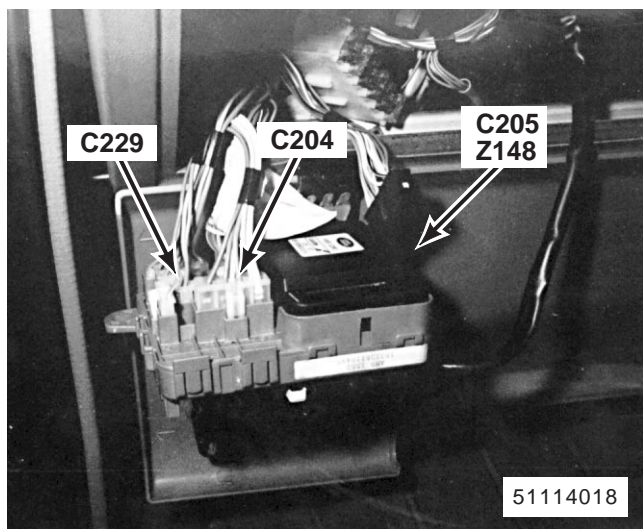
73. behind LH side of fascia left of steering column

- K122 Heated Rear Screen Relay
- Z128 Flasher Unit
- C208 (18-W)
- C219 (4-W)



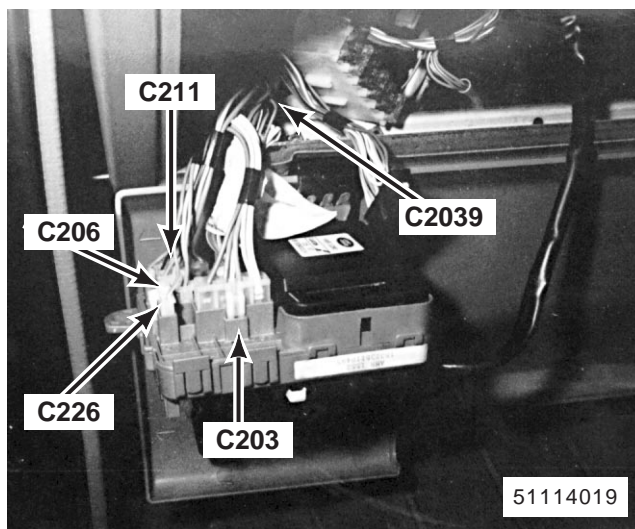
74. behind LH side of fascia left of steering column

- C253 (4-W)
- C254 (1-W)
- C2016 (1-W)



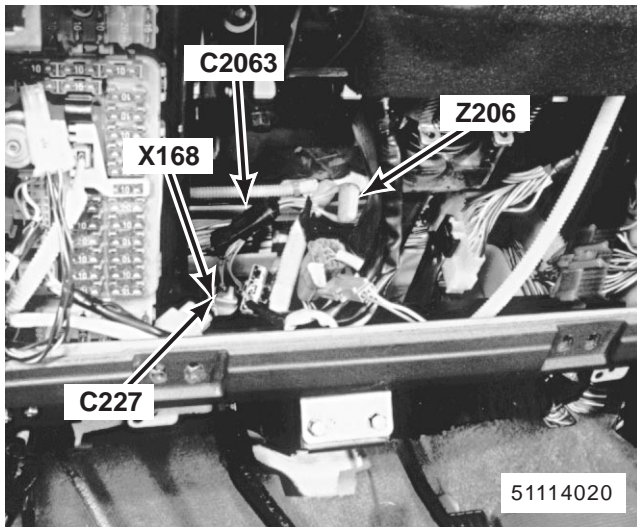
75. behind LH side of fascia rear of Fascia Fuse Box

- Z148 Multi-Function Unit (MFU)
- C204 (24-W)
- C205 (24-B)
- C229 (1-W)

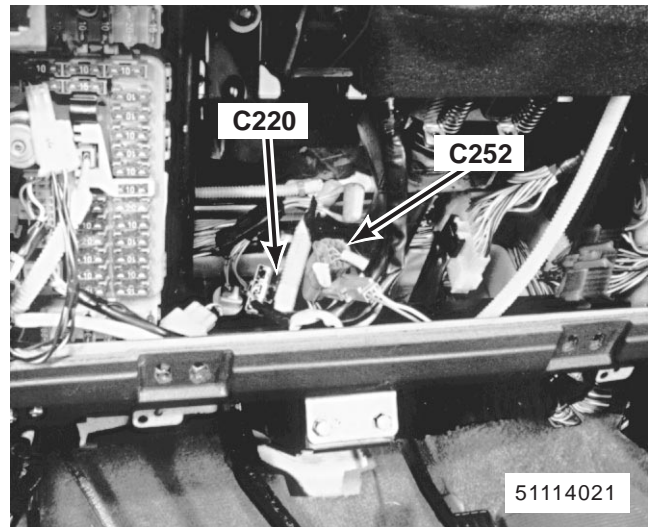


76. behind LH side of fascia rear of Fascia Fuse Box

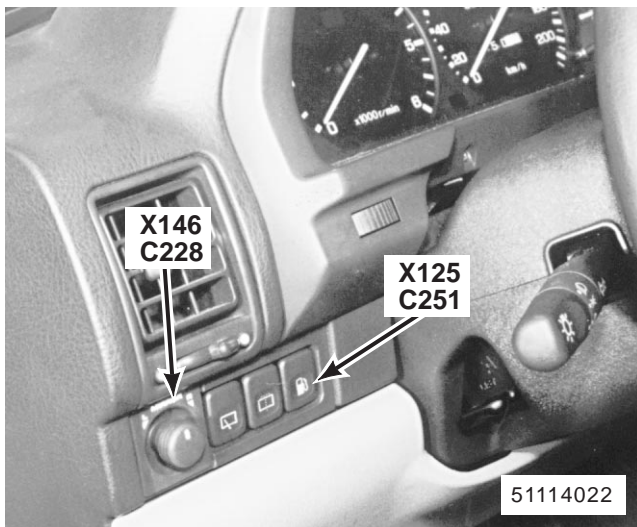
- C203 (7-W)
- C206 (4-W)
- C211 (10-W)
- C226 (3-W)
- C2039 (4-B)



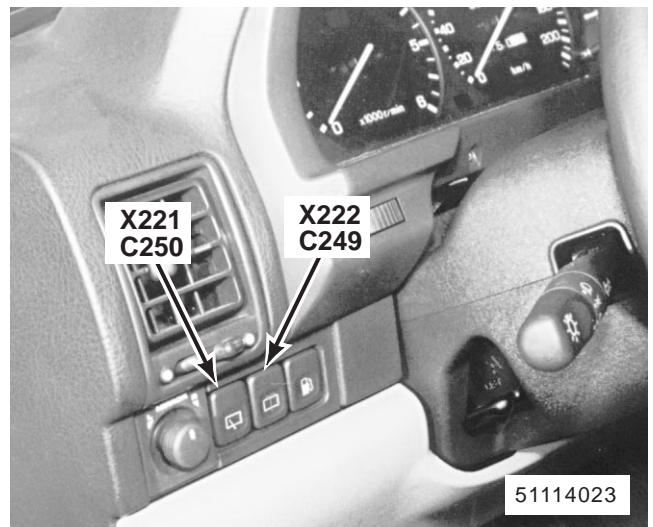
77. behind LH side of fascia left of steering column  
 X168 Stop Lamp Switch  
 Z206 Stop Lamp Switch Suppressor  
 C227 (4-B)  
 C2063 (2-B)



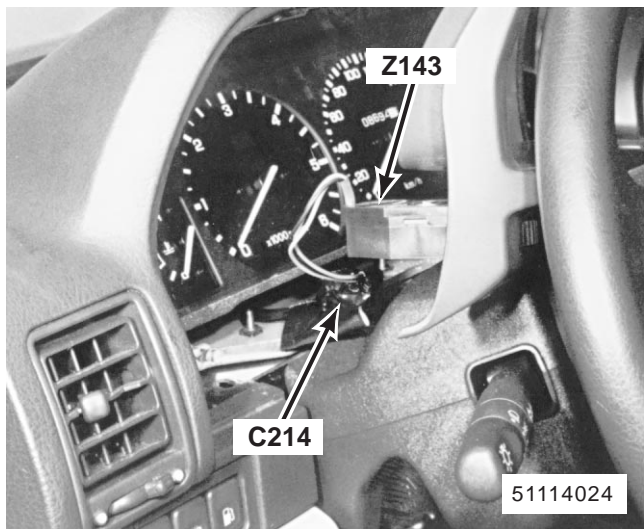
78. behind LH side of fascia left of steering column  
 C220 (3-N)  
 C252 (6-R)



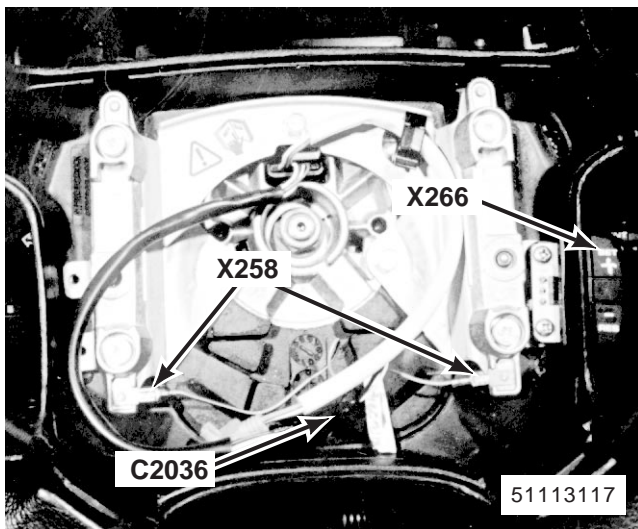
79. top LH side of fascia  
 X125 Fuel Flap Release Switch  
 X146 Mirror Adjustment Switch  
 C228 (8-W)  
 C251 (5-U)



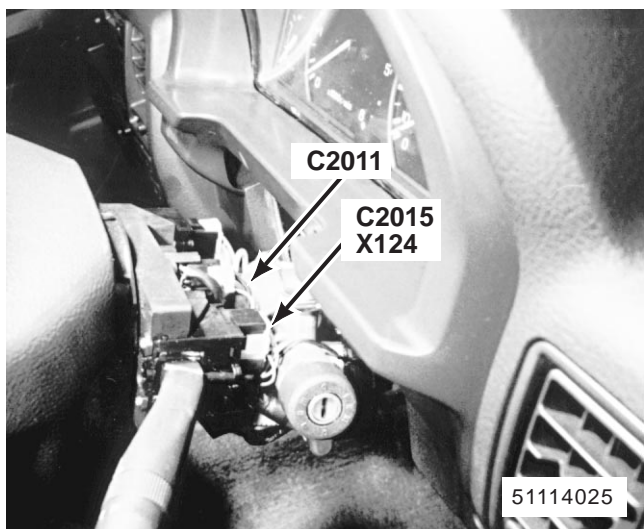
80. top LH side of fascia  
 X221 Rear Screen Wipe Switch  
 X222 Rear Screen Wash Switch  
 C249 (5-G)  
 C250 (5-W)



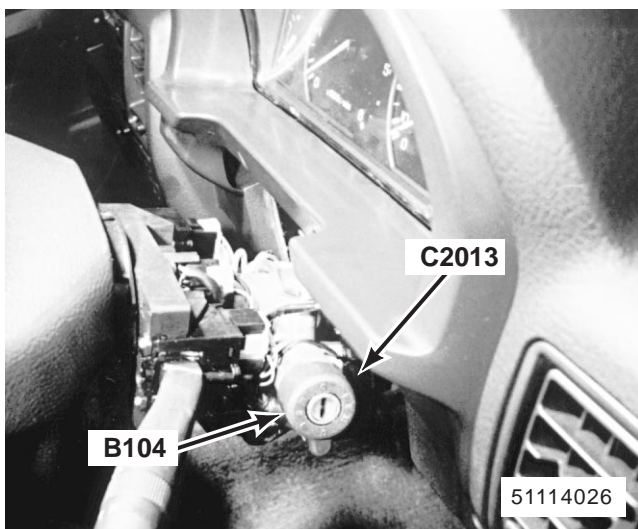
81. top LH side of fascia  
Z143 Instrument Illumination Rheostat  
C214 (3-B)



82. in steering wheel  
X258 Horn Switches  
X266 Steering Wheel Cruise Switches  
C2036 (7-B)

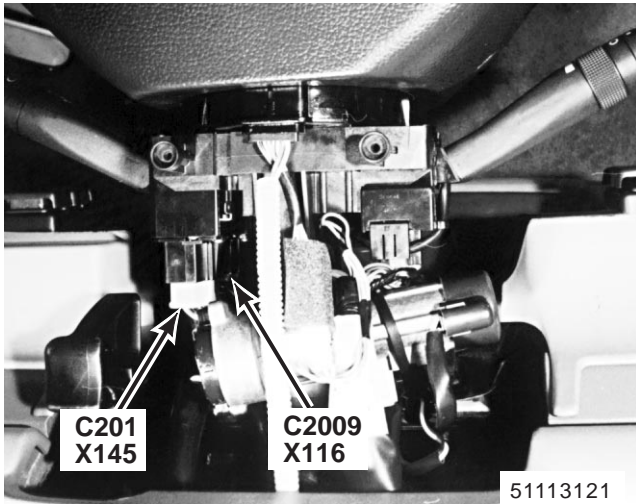


83. top of steering column  
X124 Front Wipe/Wash Switch  
C2011 (6-W)  
C2015 (8-W)

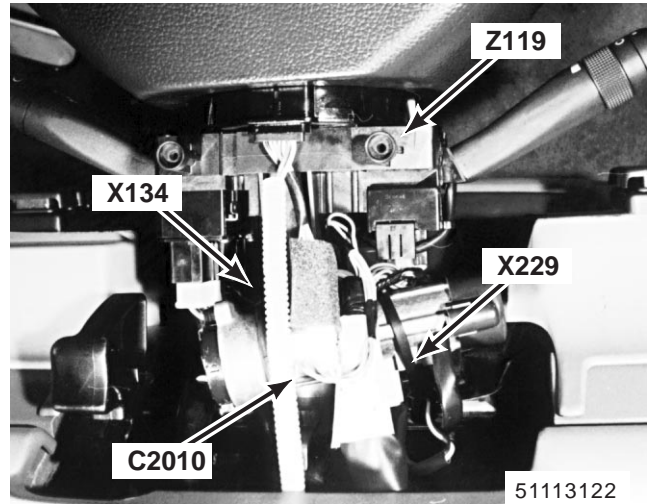


84. top of steering column  
B104 Column Switch Illumination  
C2013 (4-W)

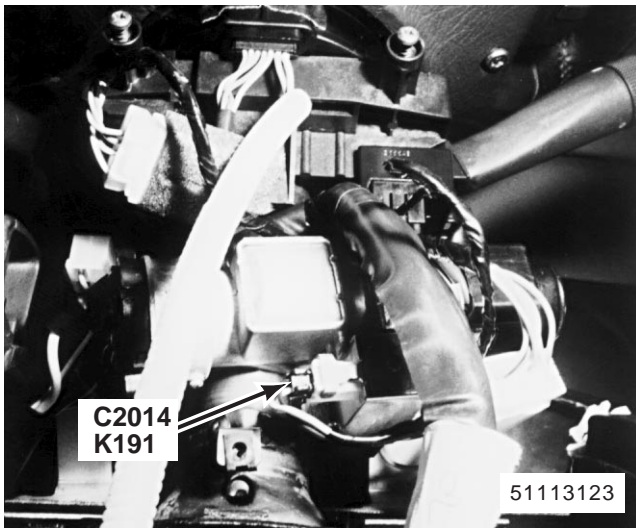




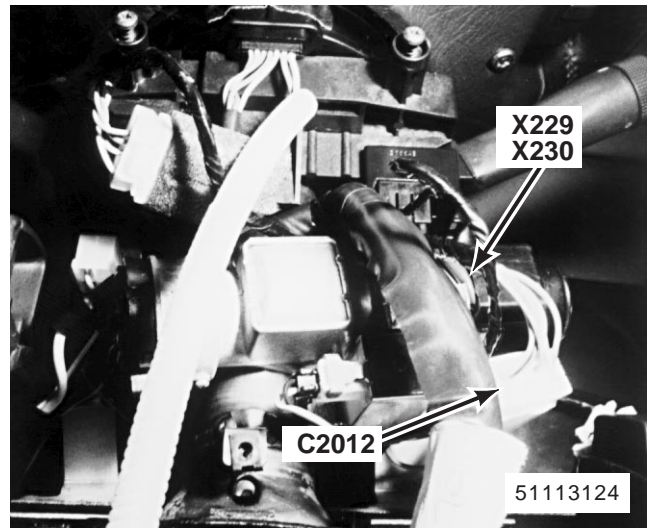
85. underside of steering column  
 X116 Direction Indicator Switch  
 X145 Main Lighting Switch  
 C201 (7-W)  
 C2009 (4-W)



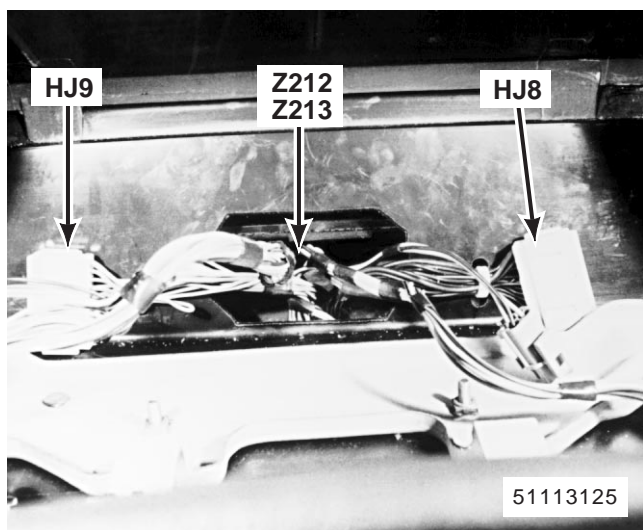
86. underside of steering column  
 X229 Key-In Switch  
 X134 Ignition Switch  
 Z119 Rotary Coupler  
 C2010 (6-W)



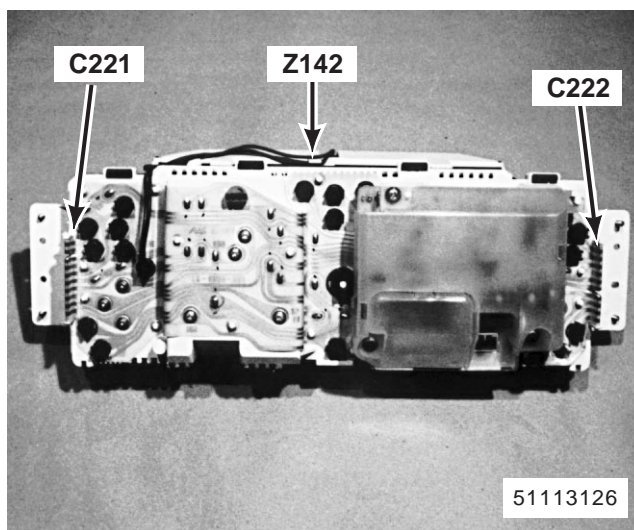
87. underside of steering column  
 K191 Ignition Key Lock Solenoid  
 C2014 (2-B)



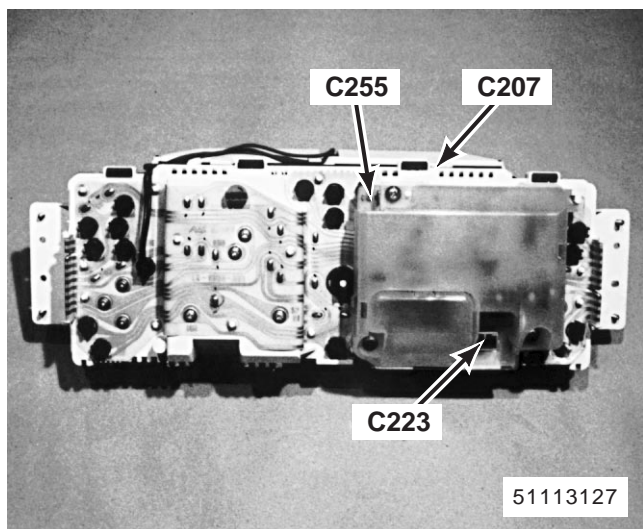
88. underside of steering column  
 X229 Key-In Switch  
 X230 Key-Barrel Switch  
 C2012 (8-W)



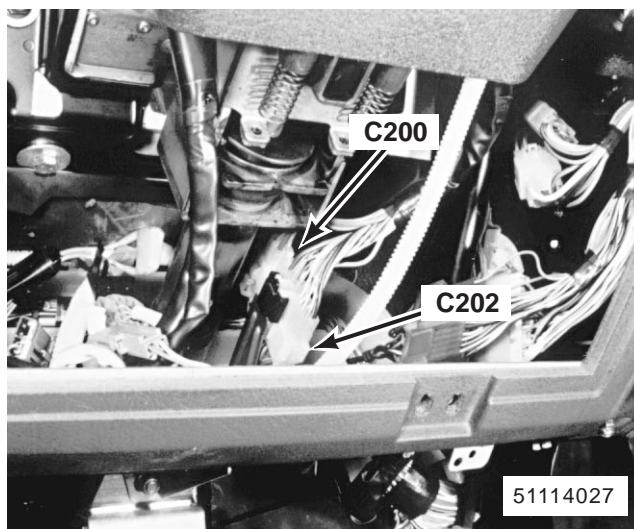
89. behind instrument cluster  
 Z212 Direction Indicator Diode 1  
 Z213 Direction Indicator Diode 2  
 HJ8 (20-S)  
 HJ9 (20-S)



90. rear of Instrument Cluster  
 Z142 Instrument Cluster  
 C221 (10-W)  
 C222 (10-W)

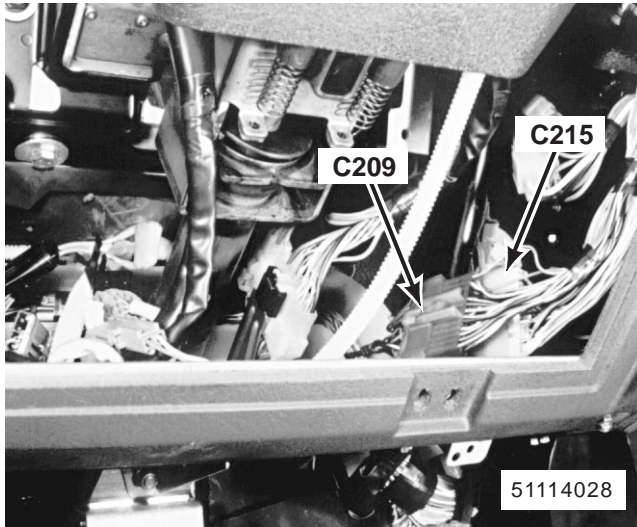


91. rear of Instrument Cluster  
 C207 (10-B)  
 C223 (5-U)  
 C255 (1-B)

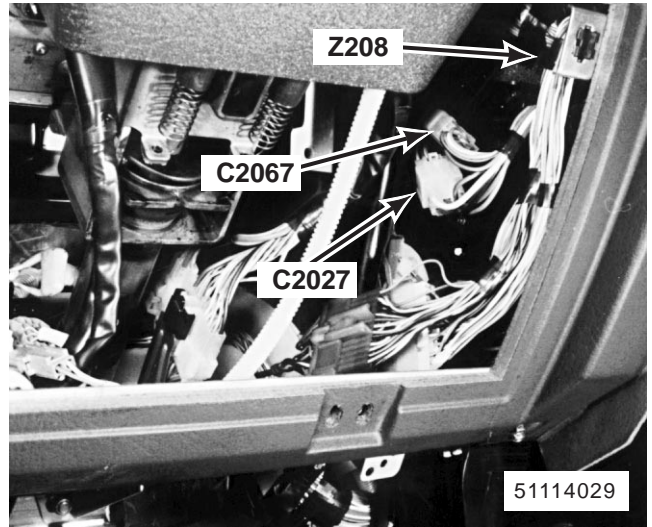


92. behind LH side of fascia right of steering column  
 C200 (4-W)  
 C202 (24-W)

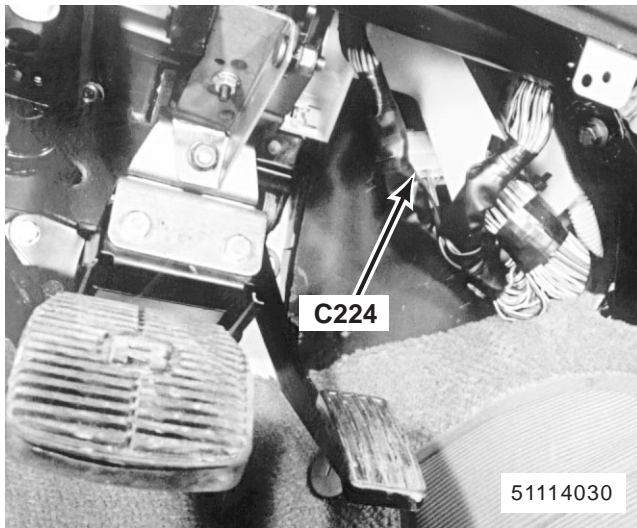




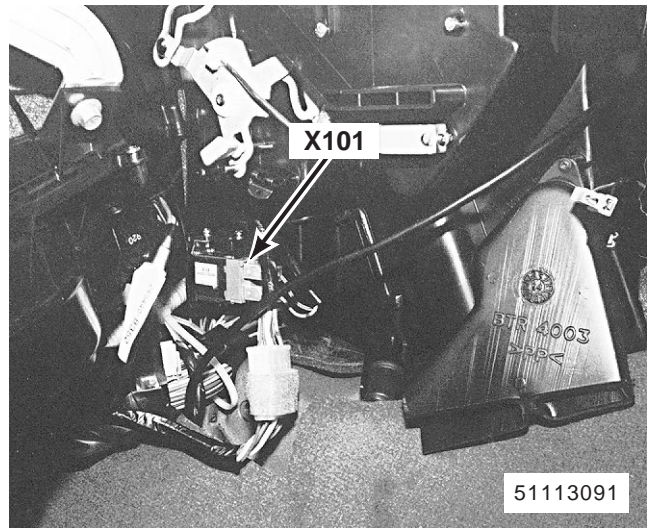
93. behind LH side of fascia LH side of heater evaporator unit  
 C209 (24-G)  
 C215 (24-Y)



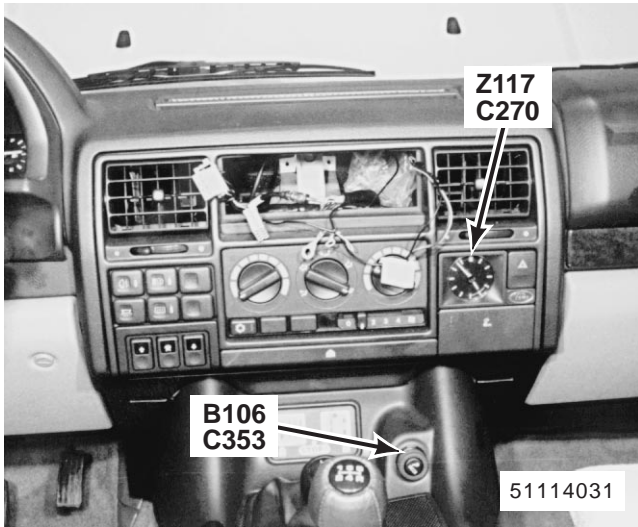
94. behind LH side of fascia LH side of heater evaporator unit  
 Z208 Air Supply Selector Diode  
 C2027 (5-W)  
 C2067 (10-W)



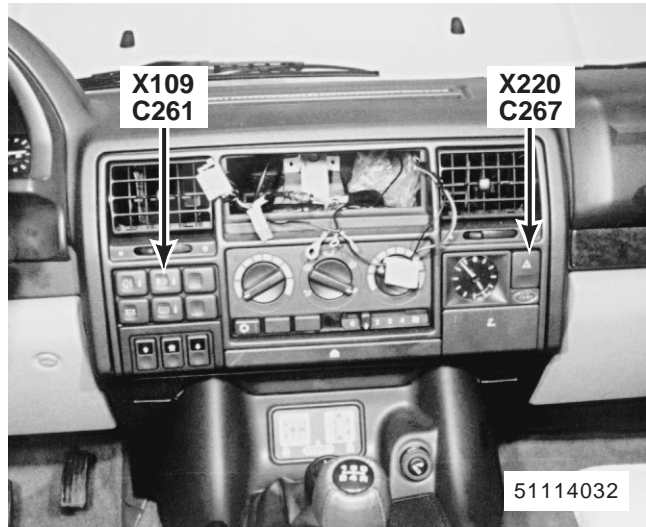
95. behind LH side of fascia  
 C224 (6-W)



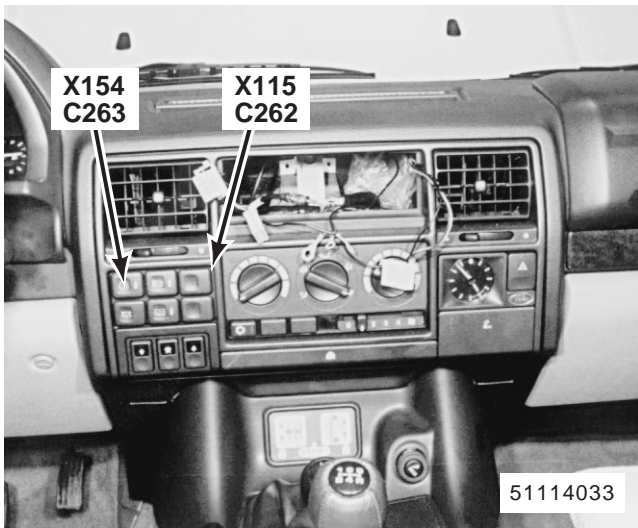
96. LH side of heater evaporator unit  
 X101 Front A/C Evaporator Temperature Switch



97. centre of fascia  
 B106 Fascia Cigar Lighter  
 Z117 Clock  
 C270 (2-W)  
 C353 (2-W)



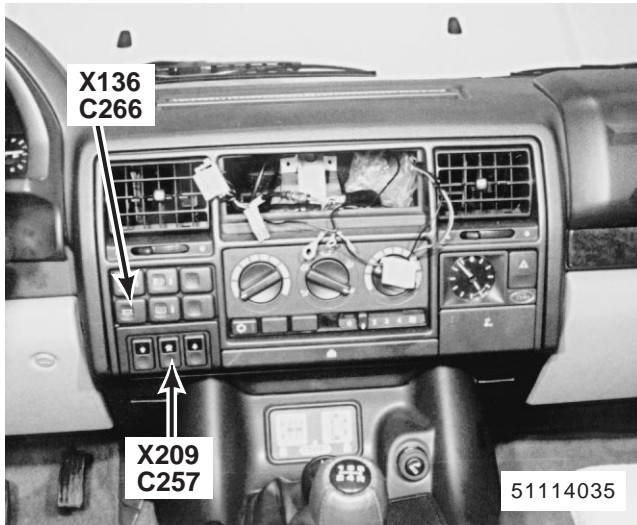
98. centre of fascia  
 X109 Auxiliary Lamps Switch  
 X220 Hazard Switch  
 C261 (5-W)  
 C267 (10-W)



99. centre of fascia  
 X115 Cruise Control Switch  
 X154 Rear Fog Guard Lamps Switch  
 C262 (5-U)  
 C263 (5-U)



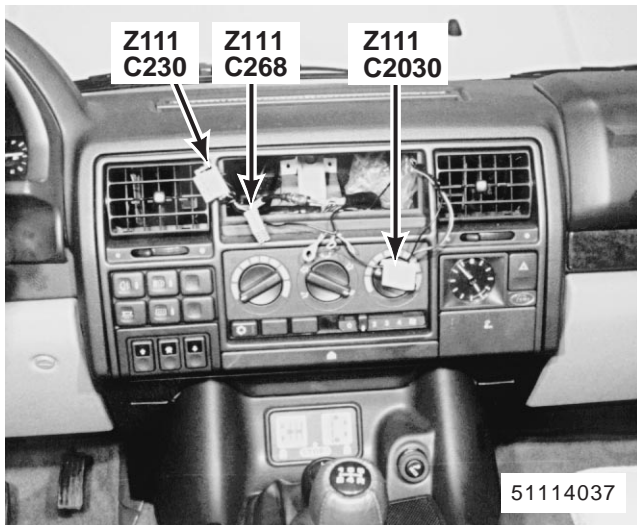
100. centre of fascia  
 X131 Heated Front Screen Switch  
 X132 Heated Rear Screen Switch  
 C264 (5-U)  
 C265 (5-U)



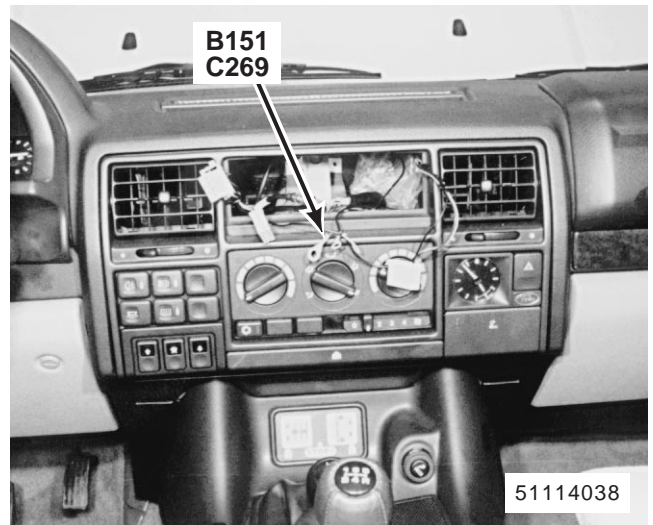
101. centre of fascia  
 X136 Interior Lamps Switch  
 X209 Air Suspension Inhibit Switch  
 C257 (6-W)  
 C266 (5-W)



102. centre of fascia  
 X210 Air Suspension Up Switch  
 X211 Air Suspension Down Switch  
 C256 (6-R)  
 C258 (6-G)

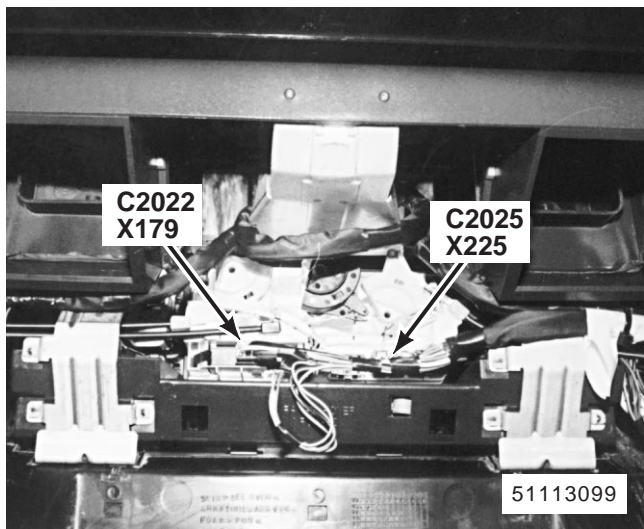


103. centre of fascia  
 Z111 Radio  
 C230 (8-S)  
 C268 (8-N)  
 C2030 (10-K)

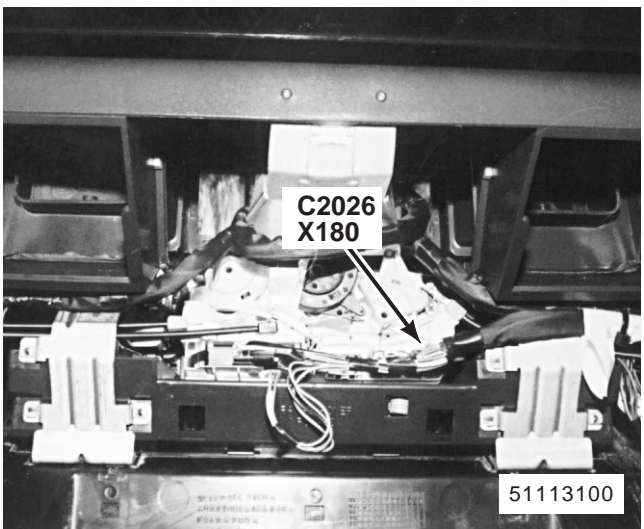


104. centre of fascia  
 B151 Theft Alarm LED  
 C269 (2-B)

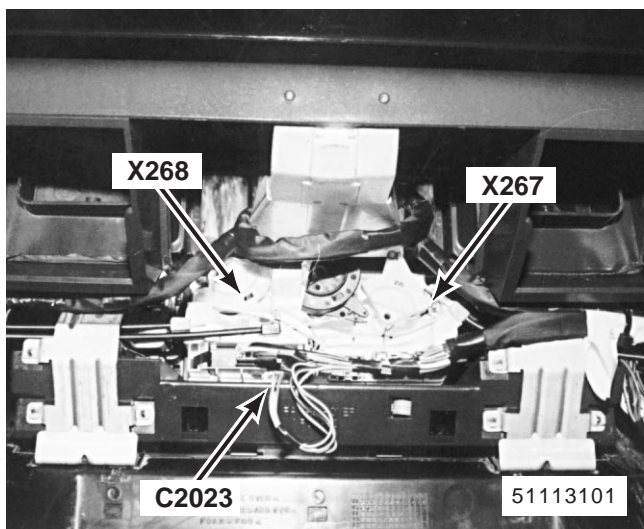




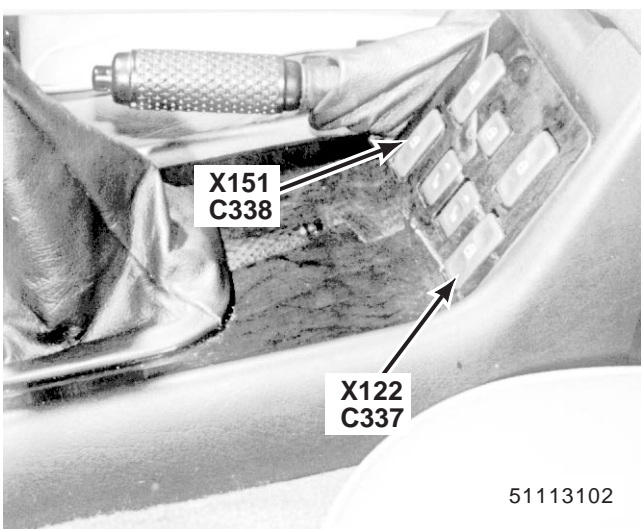
105. behind heater and A/C control panel  
 X179 Fan Speed Switch  
 X225 Front A/C Switch  
 C2022 (5-W)  
 C2025 (5-W)



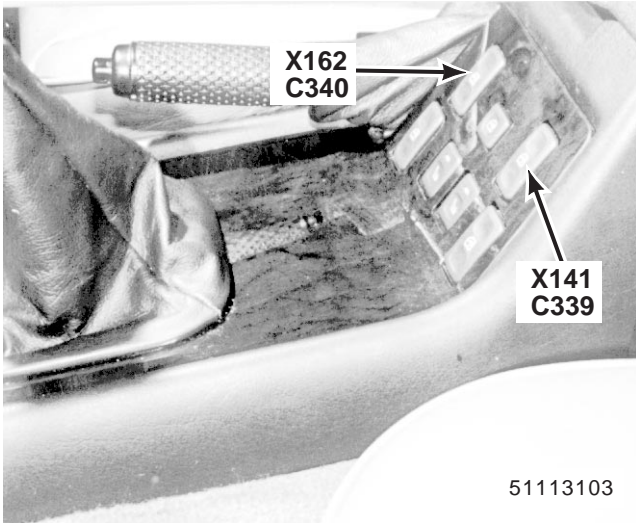
106. behind heater and A/C control panel  
 X180 Air Supply Selector Switch  
 C2026 (5-B)



107. behind heater and A/C control panel  
 X267 Left Maximum Cool Switch  
 X268 Right Maximum Cool Switch  
 C2023 (4-W)

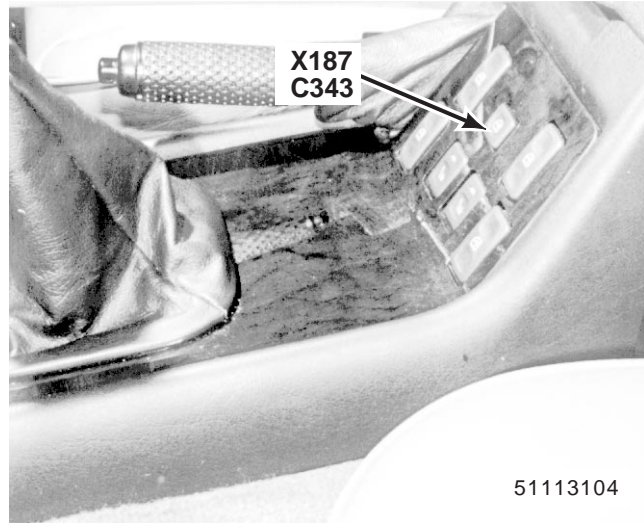


108. in rear of centre console  
 X122 Left Front Window Switch  
 X151 Right Front Window Switch  
 C337 (7-G)  
 C338 (7-W)



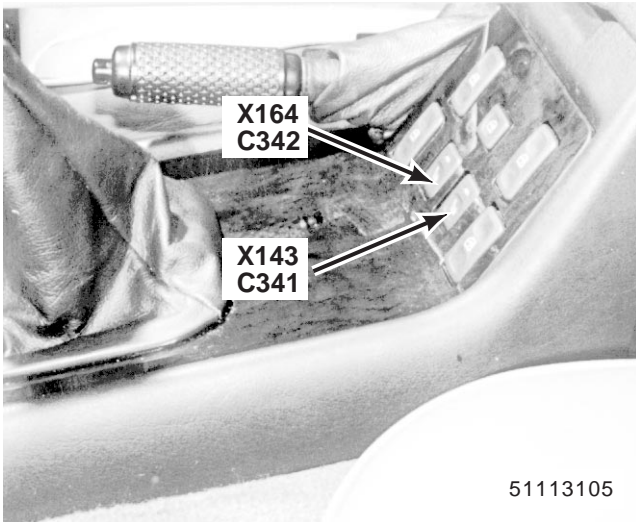
51113103

109. in rear of centre console  
 X141 Left Rear Window Console Switch  
 X162 Right Rear Window Console Switch  
 C339 (7-Y)  
 C340 (7-R)



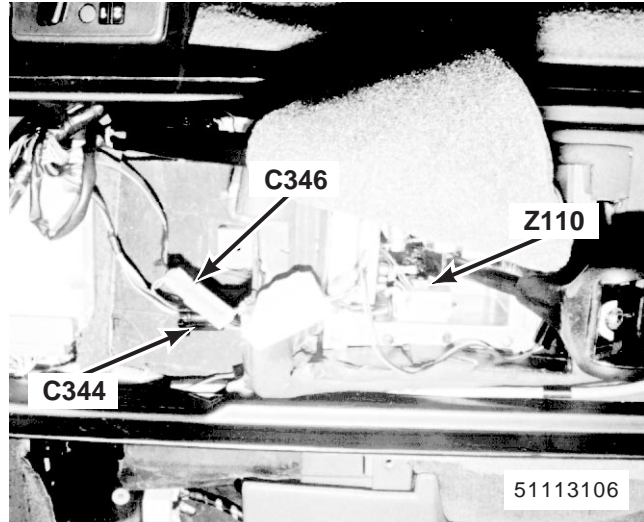
51113104

110. in rear of centre console  
 X187 Rear Window Isolation Switch  
 C343 (7-N)



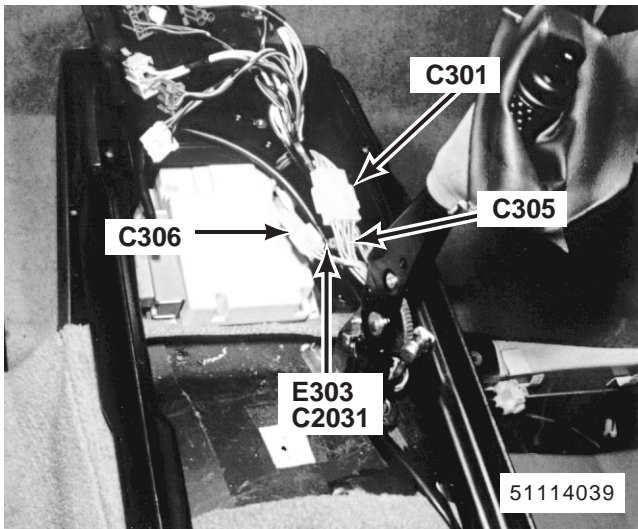
51113105

111. in rear of centre console  
 X143 Left Seat Heat Switch  
 X164 Right Seat Heat Switch  
 C341 (5-W)  
 C342 (5-G)

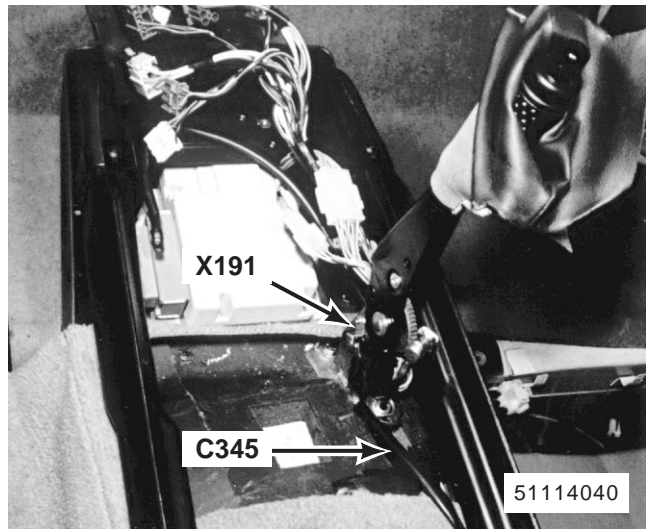


51113106

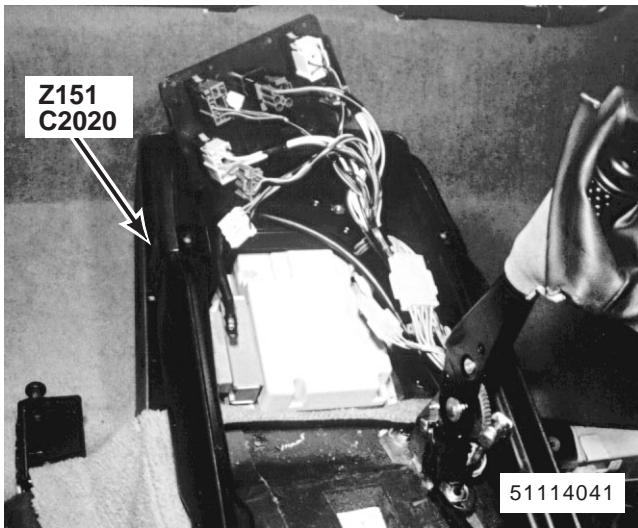
112. beneath centre console  
 Z110 Transmission Range Selector Switch  
 C344 (6-B)  
 C346 (2-U)



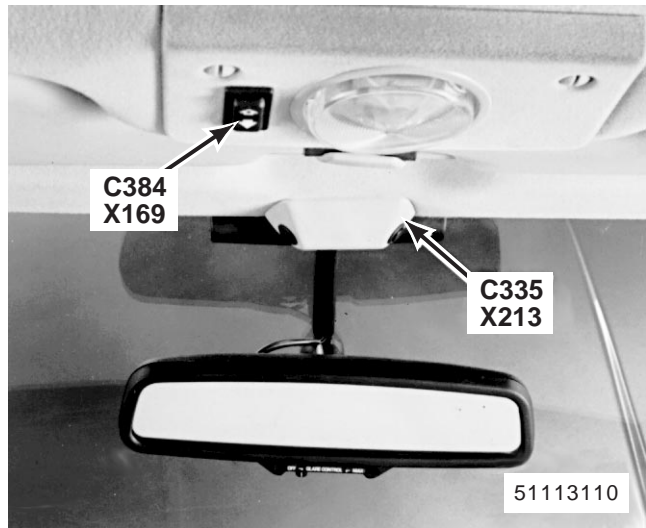
113. beneath centre console  
 C2031 (6-W)  
 C301 (6-W)  
 C305 (2-W)  
 C306 (3-W)  
 E303



114. beneath centre console  
 X191 Handbrake Switch  
 C345 (2-B)

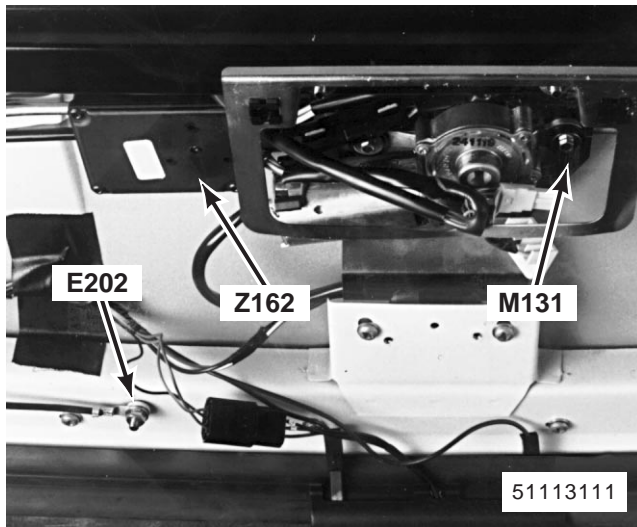


115. beneath centre console  
 Z151 Air Bag Diagnostic Control Module  
 C2020 (29-R)

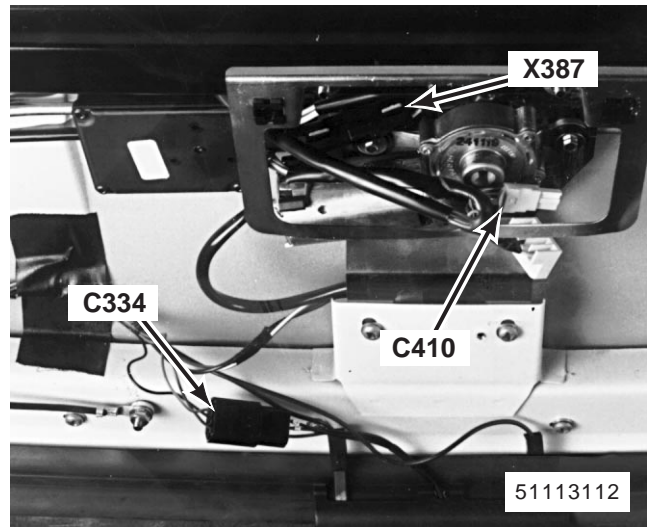


116. front centre of roof  
 X169 Sunroof Switch  
 X213 Alarm Sensor  
 C335 (4-B)  
 C384 (5-W)

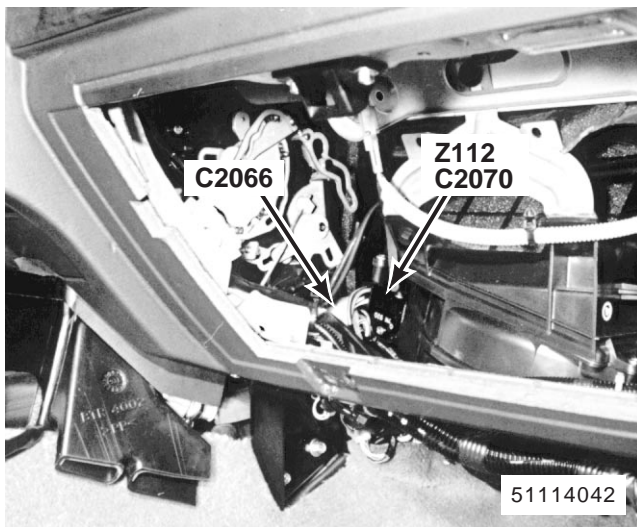




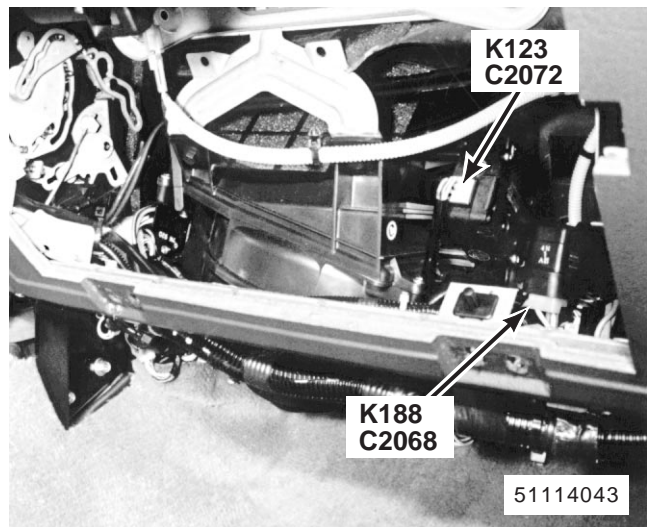
117. front centre of roof  
 M131 Sunroof Motor  
 Z162 Sunroof Control Unit  
 E202



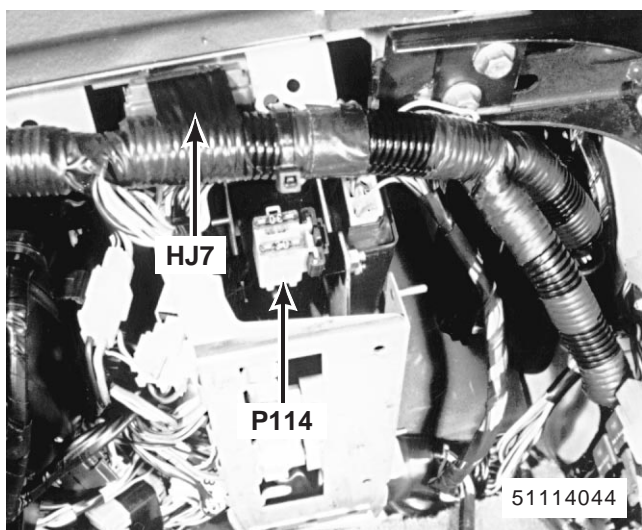
118. front centre of roof  
 C334 (3-B)  
 C387 (3-B)  
 C410 (2-W)



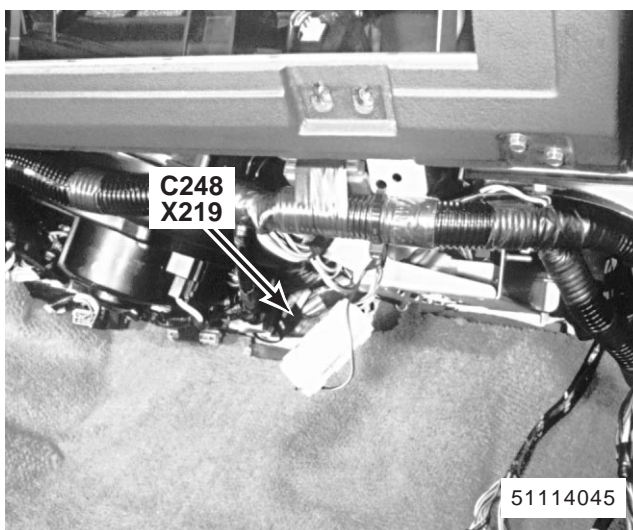
119. behind RH side of fascia right of heater evaporator unit  
 Z112 Blower Resistor Unit  
 C2066 (8-W)  
 C2070 (4-B)



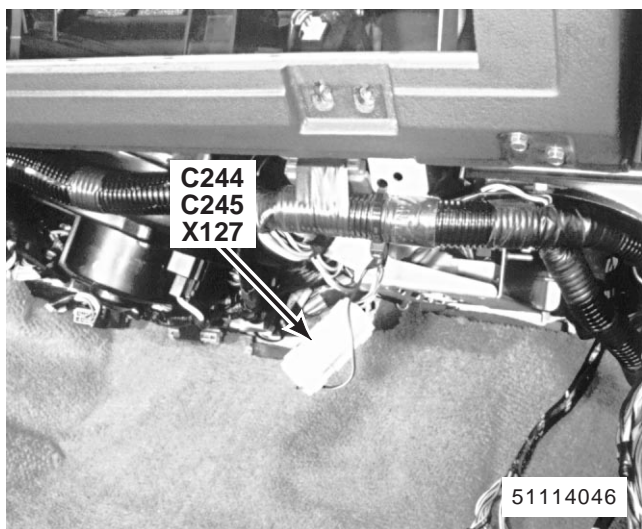
120. behind RH side of fascia  
 K123 Air Recirculation Solenoid  
 K188 Blower Motor Relay  
 C2068 (5-B)  
 C2072 (4-Y)



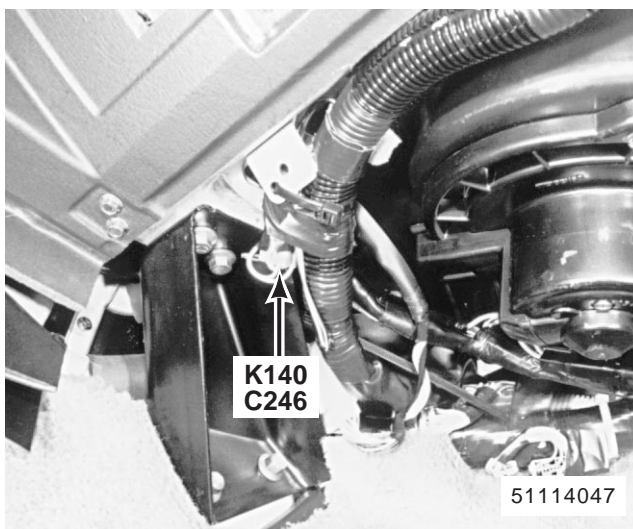
121. behind RH side of fascia  
P114 Heated Front Screen Fuse Block  
HJ7 (20-U)



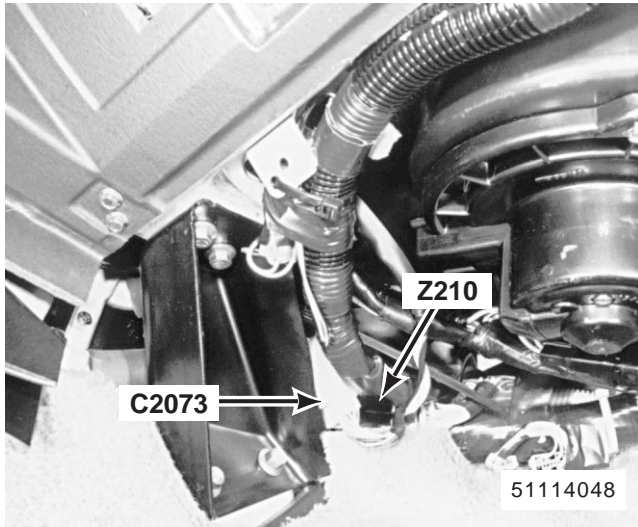
122. behind RH side of fascia Diesel  
X219 Data Link Connector (EGR)  
C248 (3-W)



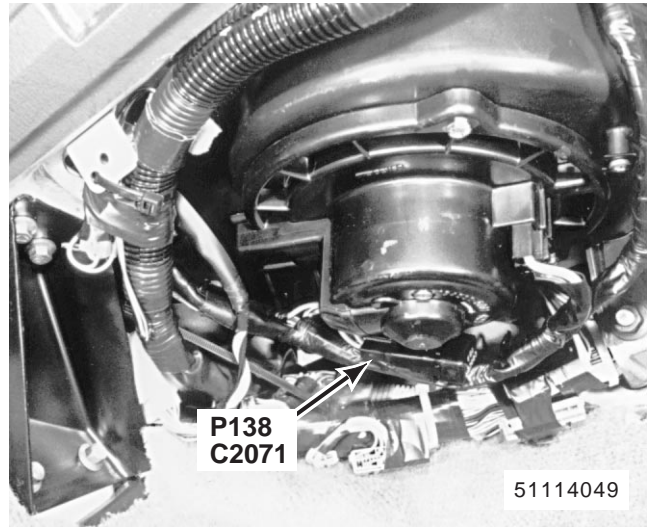
123. behind RH side of fascia Petrol  
X127 Data Link Connectors  
C244 (5-W)  
C245 (5-W)



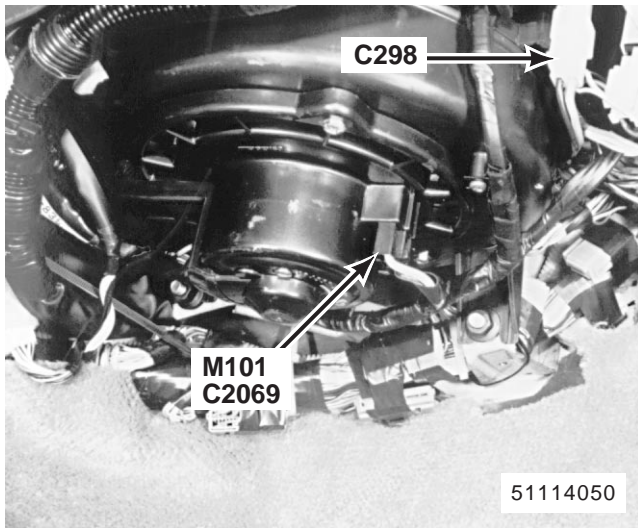
124. behind RH side of fascia  
K140 Tune Select Resistor  
C246 (2-U)



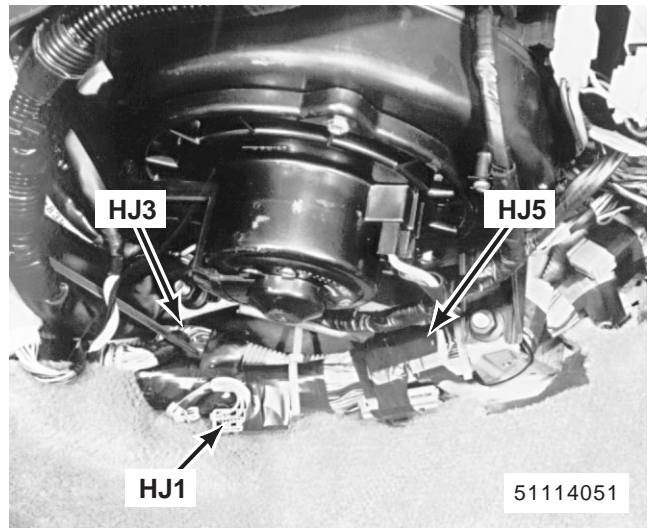
125. behind RH side of fascia  
 Z210 Condenser Fan Control Diode 2  
 C2073 (10-W)



126. behind RH side of fascia  
 P138 Air Recirculation Solenoid In-Line Fuse  
 C2071 (2-B)

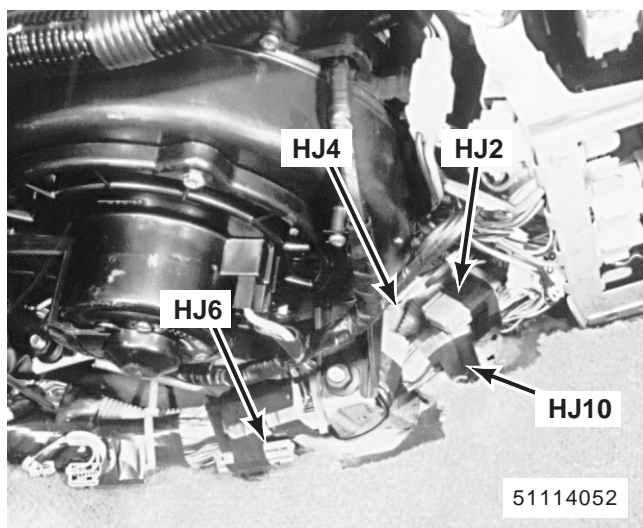


127. behind RH side of fascia  
 M101 Front Blower Motor  
 C298 (3-W)  
 C2069 (2-B)

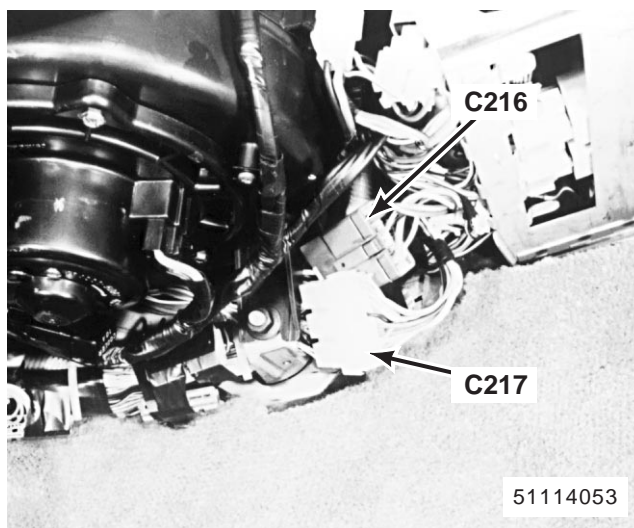


128. behind RH side of fascia  
 HJ1 (20-S)  
 HJ3 (20-U)  
 HJ5 (20-S)

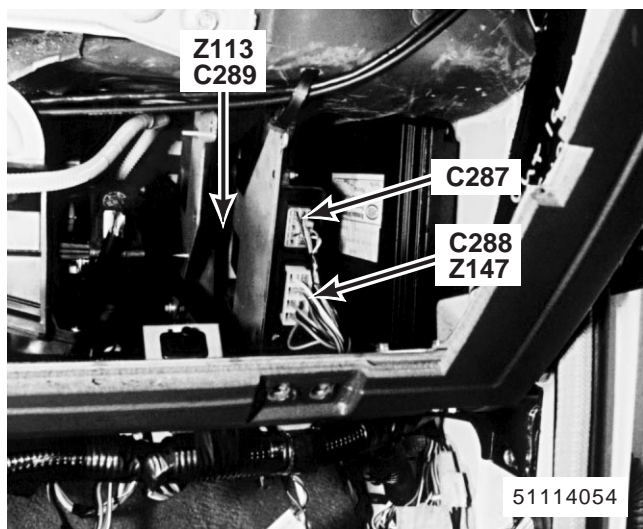




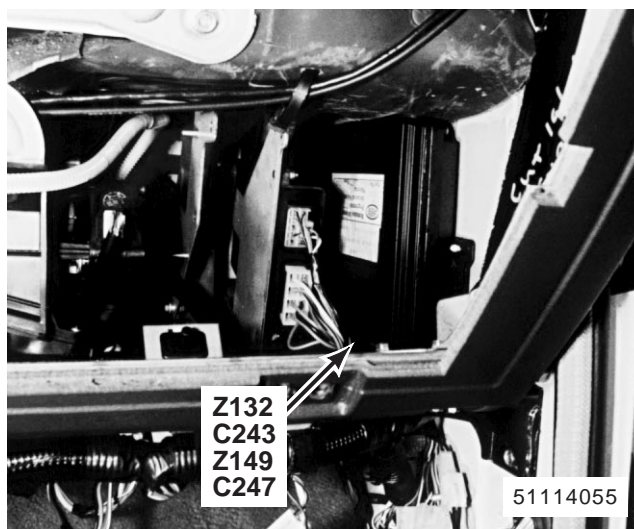
129. behind RH side of fascia  
 HJ2 (20-S)  
 HJ4 (20-S)  
 HJ6 (20-G)  
 HJ10 (20-S)



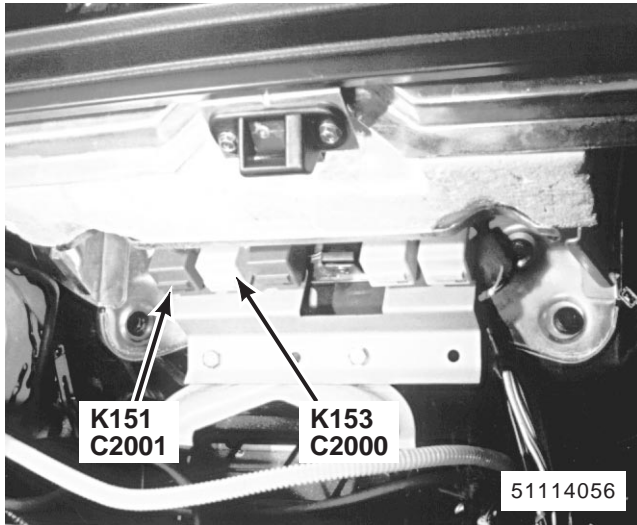
130. behind RH side of fascia  
 C216 (7-N)  
 C217 (20-W)



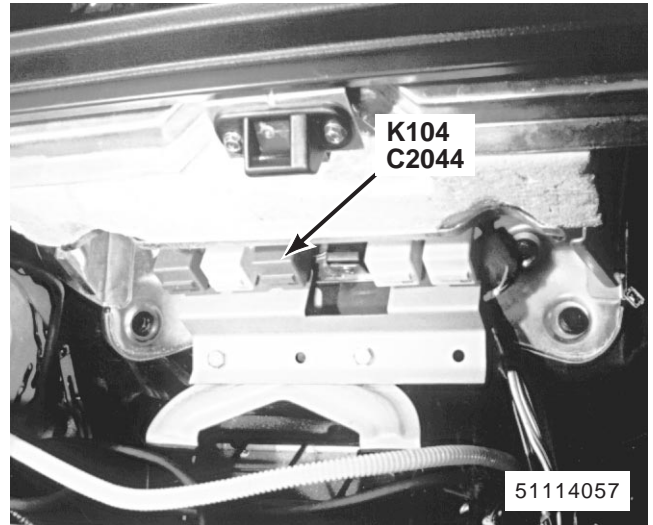
131. behind RH side of fascia  
 Z113 Central Locking Control Unit  
 Z147 Window Lift ECU  
 C287 (10-W)  
 C288 (8-W)  
 C289 (12-B)



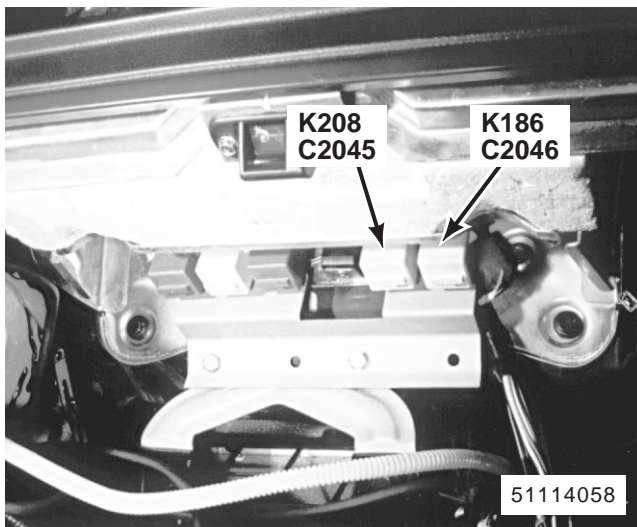
132. behind RH side of fascia  
 Z132 Engine Control Module (ECM)  
 Z149 EGR Valve Control Module  
 C243 (40-B)  
 C247 (16-B)



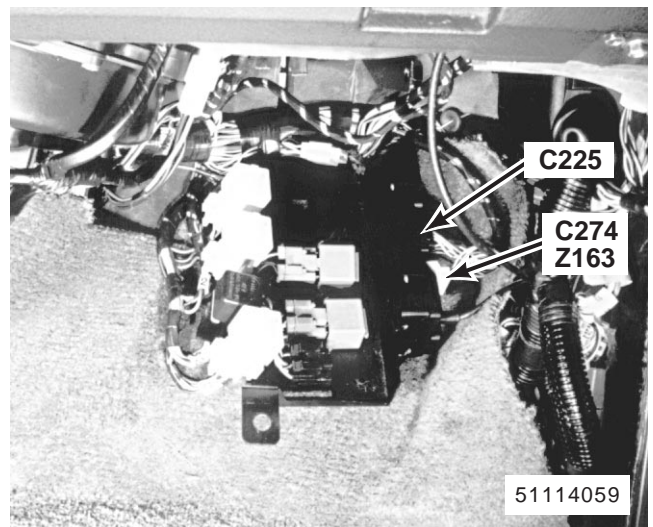
133. behind RH side of fascia  
 K151 Interlock Relay 2  
 K153 Interlock Relay 1  
 C2000 (5-G)  
 C2001 (5-Y)



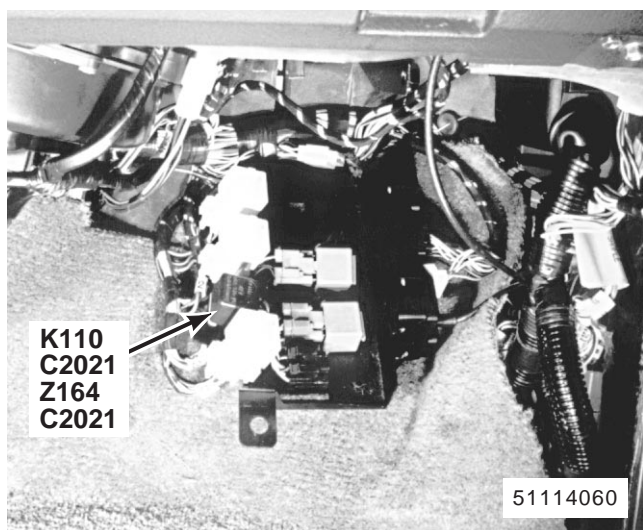
134. behind RH side of fascia  
 K104 Transmission Range Selector Illumination Relay  
 C2044 (5-G)



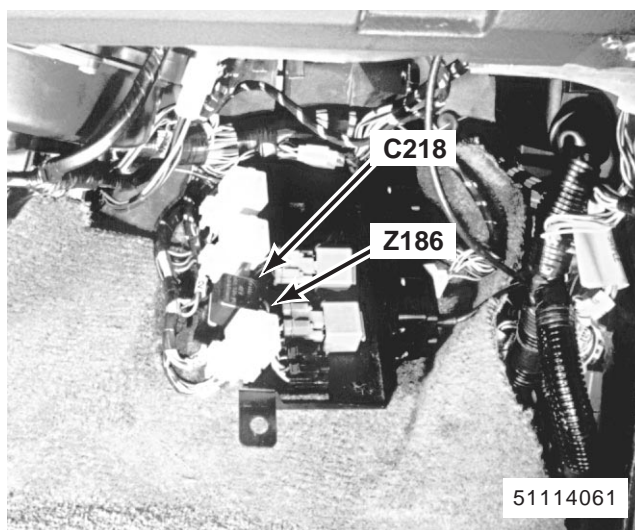
135. behind RH side of fascia  
 K186 Transfer Box Warning Relay  
 K208 NAS Alarm Relay  
 C2045 (5-Y)  
 C2046 (5-G)



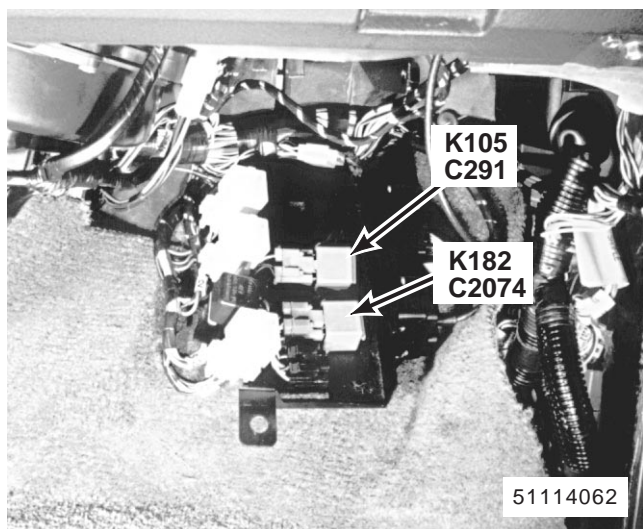
136. behind RH side of fascia  
 Z163 Theft Alarm Unit  
 C225 (16-B)  
 C274 (6-W)



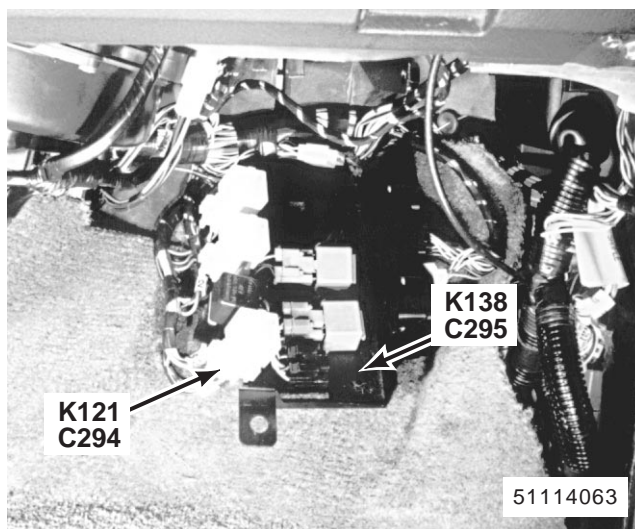
137. behind RH side of fascia  
 K110 Cruise Control Lockout Relay Automatic Transmission  
 Z164 Speed Trip Module Manual Transmission  
 C2021 (5-B)



138. behind RH side of fascia  
 Z186 Cruise Control Diode  
 C218 (8-W)

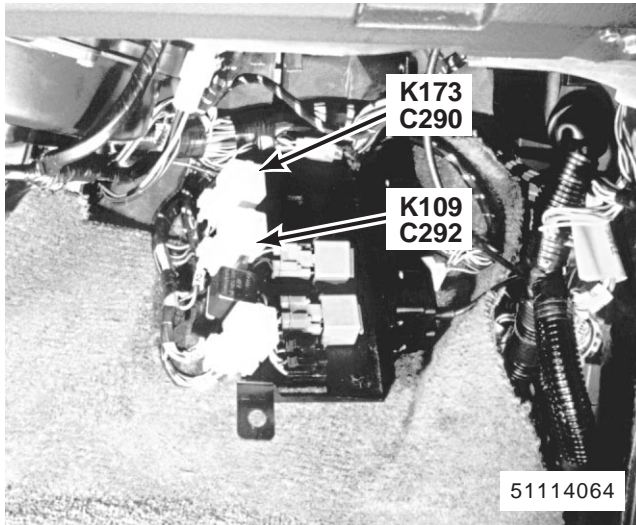


139. behind RH side of fascia  
 K105 Auxiliary Lamps Relay  
 K182 Power Wash Relay  
 C291 (5-Y)  
 C2074 (5-Y)

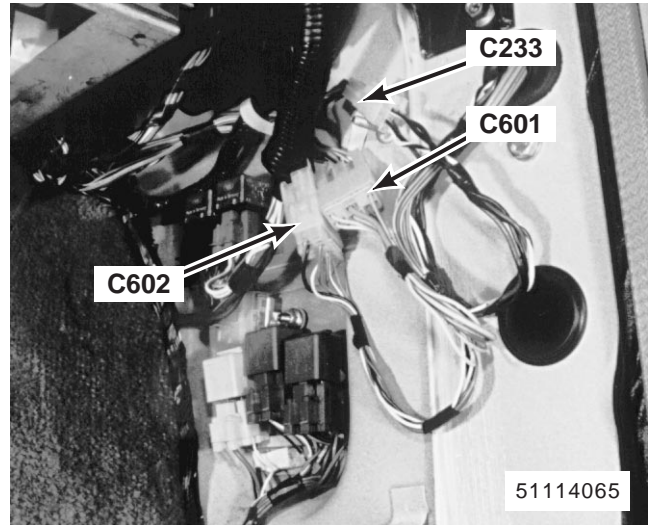


140. behind RH side of fascia  
 K121 Heated Front Screen Relay  
 K138 Sunroof Load Relay  
 C294 (5-B)  
 C295 (5-Y)

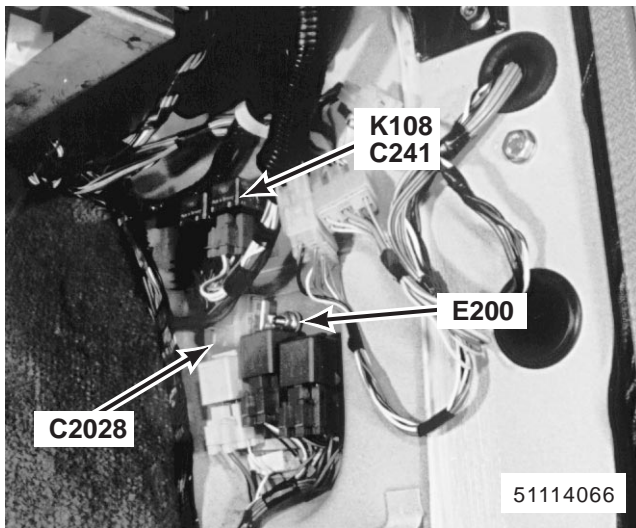




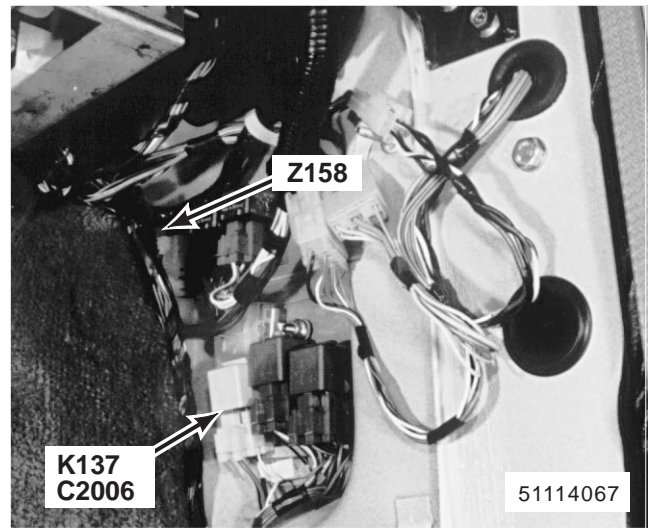
141. behind RH side of fascia  
 K109 Condenser Fan Relay  
 K173 Bulb Check Relay  
 C290 (5-Y)  
 C292 (5-Y)



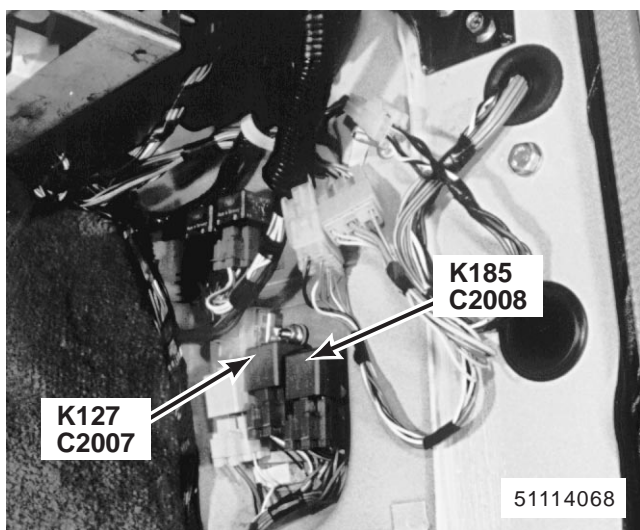
142. behind RH footwell trim panel  
 C233 (4-W)  
 C601 (8-W)  
 C602 (13-W)



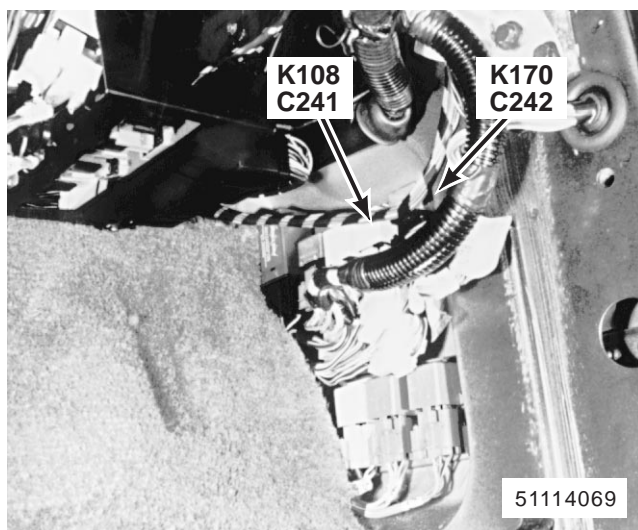
143. behind RH footwell trim panel  
 K108 Compressor Clutch Relay  
 C241 (5-Y)  
 C2028 (6-W)  
 E200



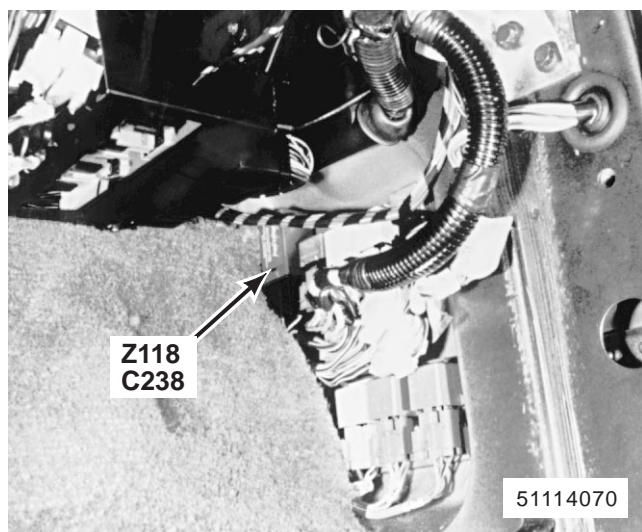
144. behind RH footwell trim panel  
 K137 Starter Solenoid Relay  
 Z158 Starter Relay Diode  
 C2006 (5-Y)



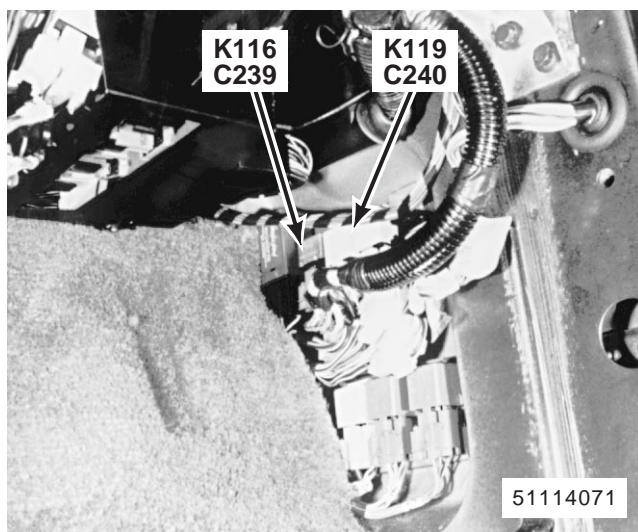
145. behind RH footwell trim panel  
 K127 Ignition Load Relay  
 K185 Front Wiper Relay  
 C2007 (5-G)  
 C2008 (5-G)



146. behind RH footwell trim panel  
 K108 Compressor Clutch Relay  
 K170 A/C Logic Relay  
 C241 (5-Y)  
 C242 (5-Y)

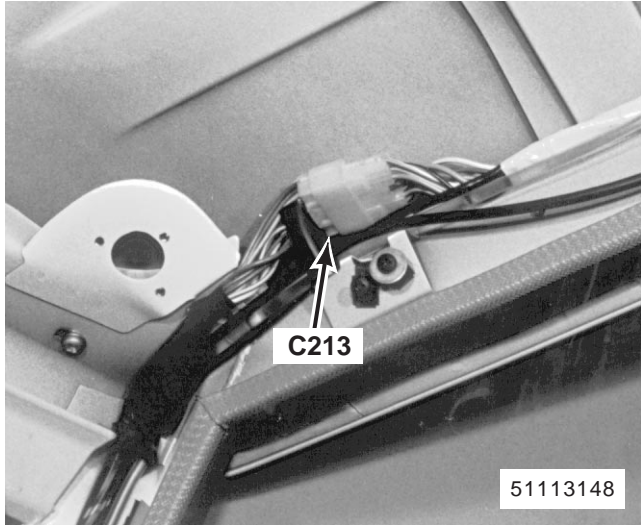


147. behind RH footwell trim panel  
 Z118 Fan Control Module  
 C238 (9-B)

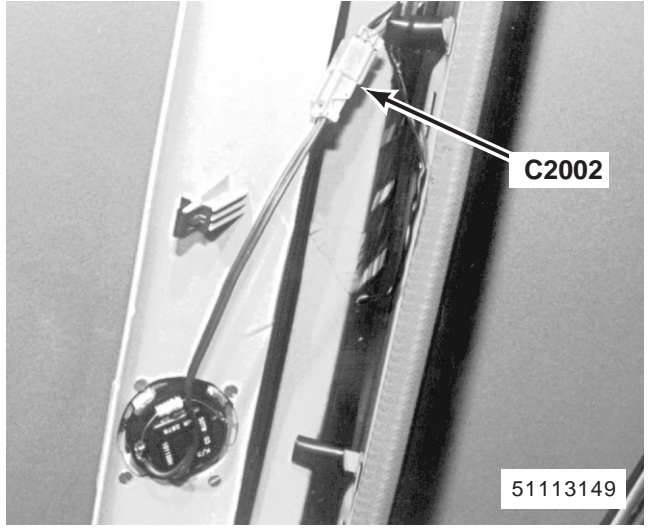


148. behind RH footwell trim panel  
 K116 Engine Control Load Relay  
 K119 Fuel Pump Relay  
 C239 (5-B)  
 C240 (5-U)

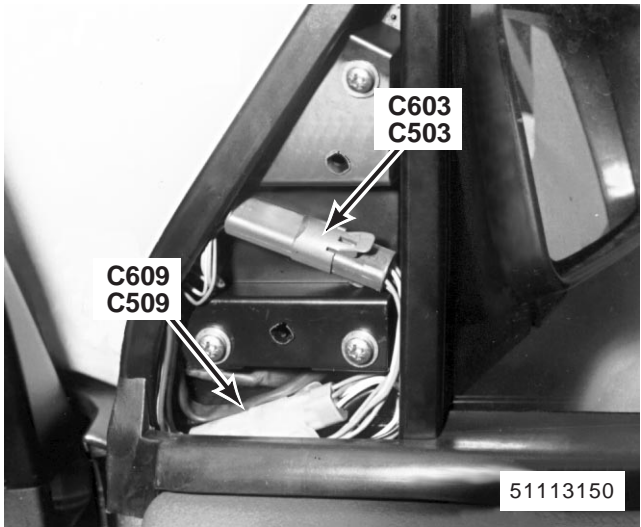




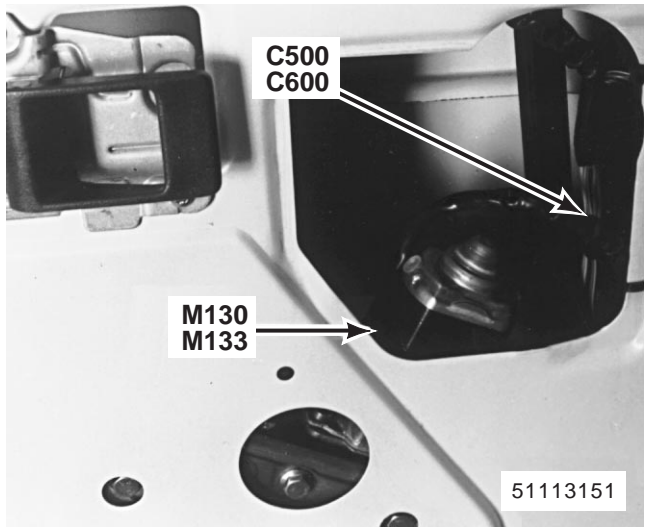
149. RH A-post  
C213 (14-W)



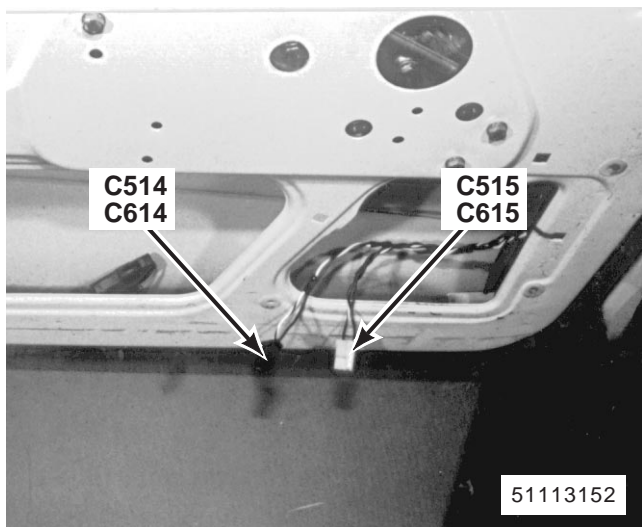
150. RH A-post  
C2002 (2-S)



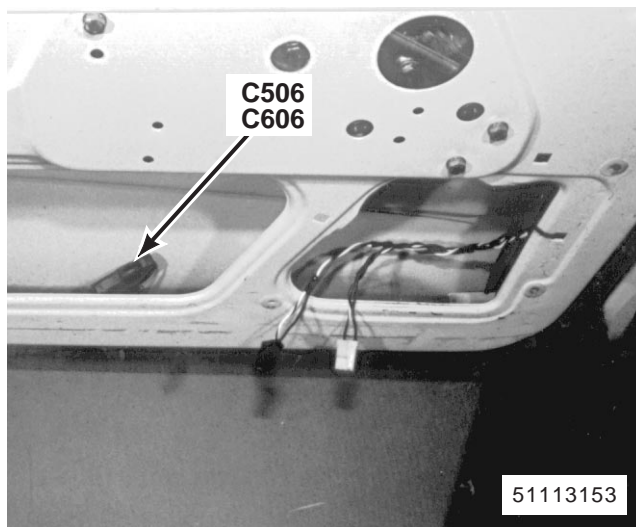
151. top front of RH front door (LH similar)  
C503 (5-W) (Left)  
C509 (5-U) (Left)  
C603 (5-W) (Right)  
C609 (5-U) (Right)



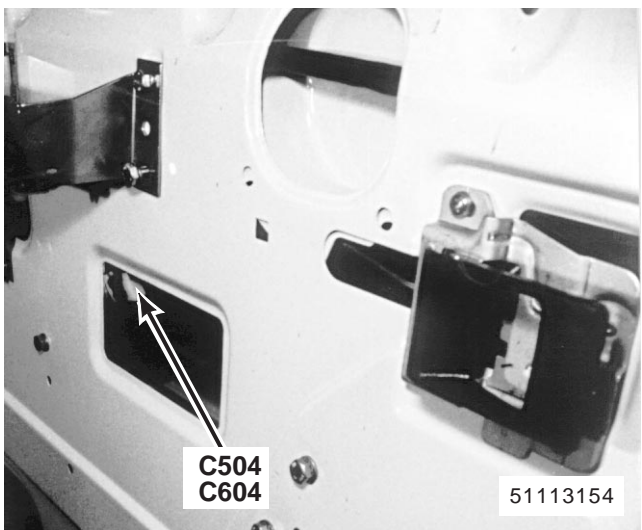
152. in front of LH front door (RH similar)  
M130 Left Front Window Motor  
M133 Right Front Window Motor  
C500 (3-B) (Left)  
C600 (3-B) (Right)



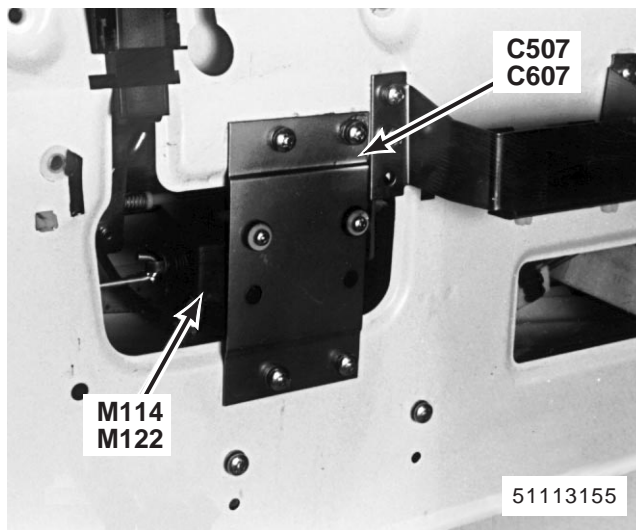
153. in front of LH front door (RH similar)  
 C514 (2-B) (Left)  
 C515 (2-W) (Left)  
 C614 (2-B) (Right)  
 C615 (2-W) (Right)



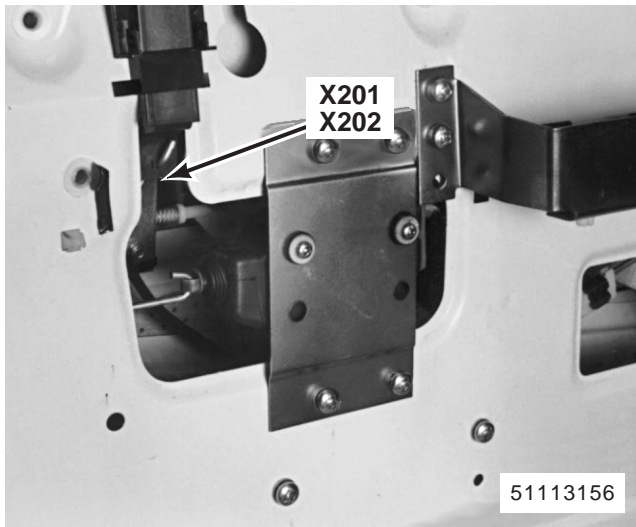
154. in front of LH front door (RH similar)  
 C506 (5-B) (Left)  
 C606 (5-B) (Right)



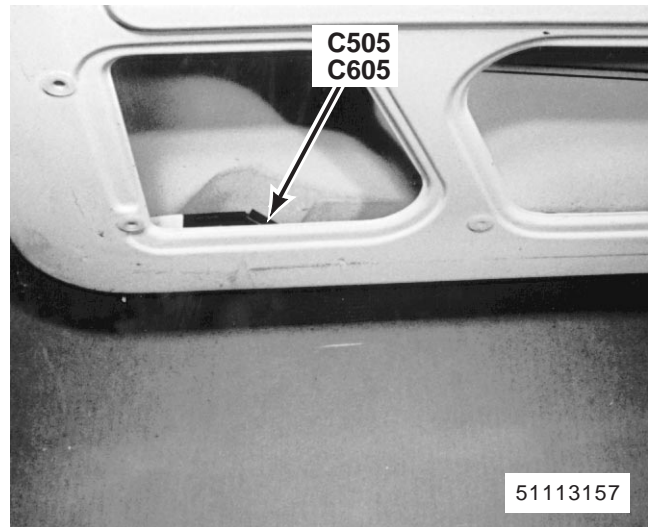
155. in top rear of LH front door (RH similar)  
 C504 (4-W) (Left)  
 C604 (4-W) (Right)



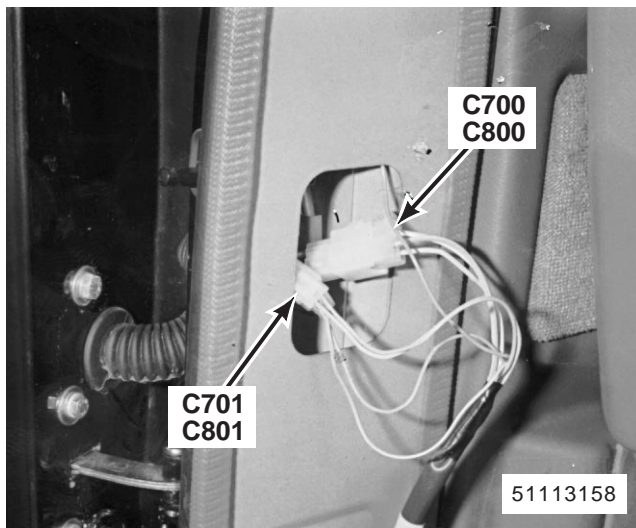
156. in top rear of LH front door (RH similar)  
 M114 Left Front Door Lock Actuator  
 M122 Right Front Door Lock Actuator  
 C507 (6-W) (Left) Behind  
 C607 (6-W) (Right) Behind



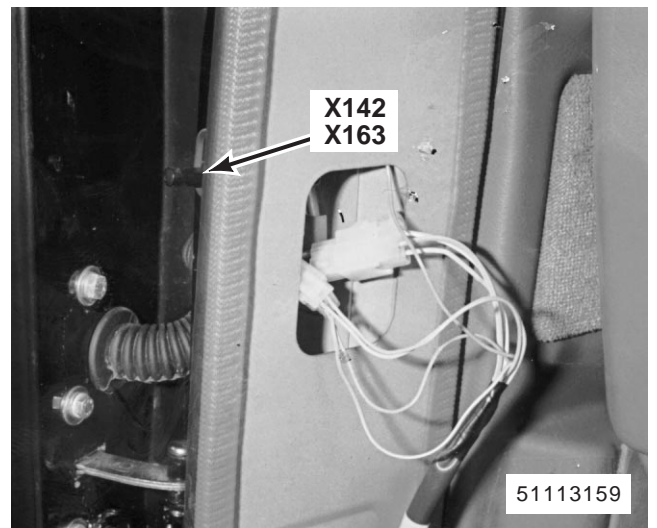
157. in top rear of LH front door (RH similar)  
 X201 Left Front Door Key Switch  
 X202 Right Front Door Key Switch



158. in rear of LH front door (RH similar)  
 C505 (5-B) (Left)  
 C605 (5-B) (Right)

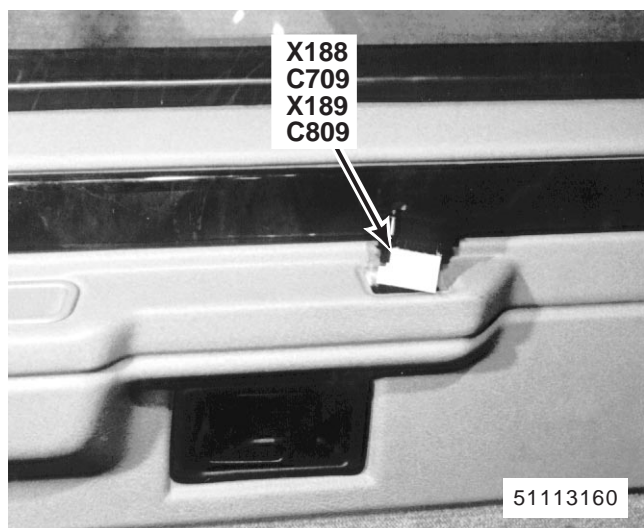


159. in lower part of LH B-post (RH similar)  
 C700 (3-W) (Left)  
 C701 (2-W) (Left) SWB  
 C701 (4-W) (Left) LWB  
 C800 (3-W) (Right)  
 C801 (2-W) (Right) SWB  
 C801 (4-W) (Right) LWB

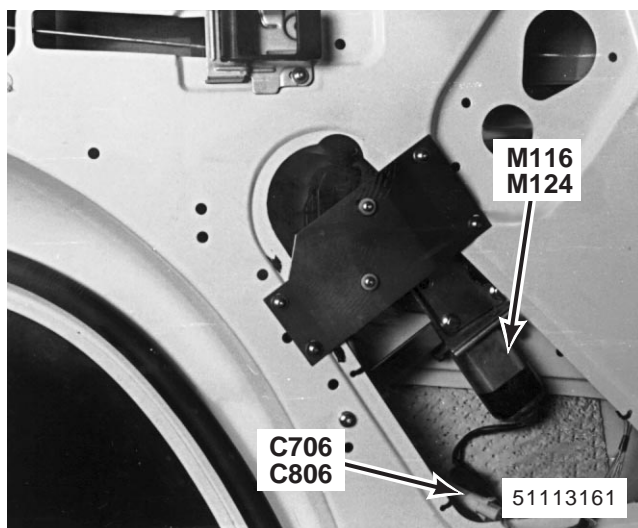


160. in lower part of LH B-post (RH similar)  
 X142 Left Rear Door Switch  
 X163 Right Rear Door Switch

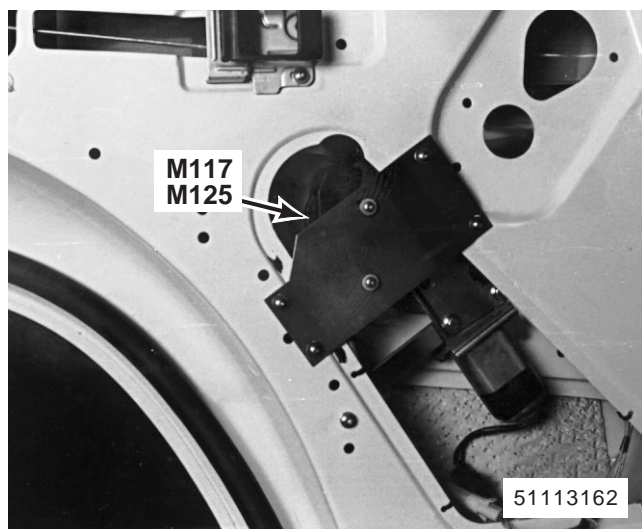




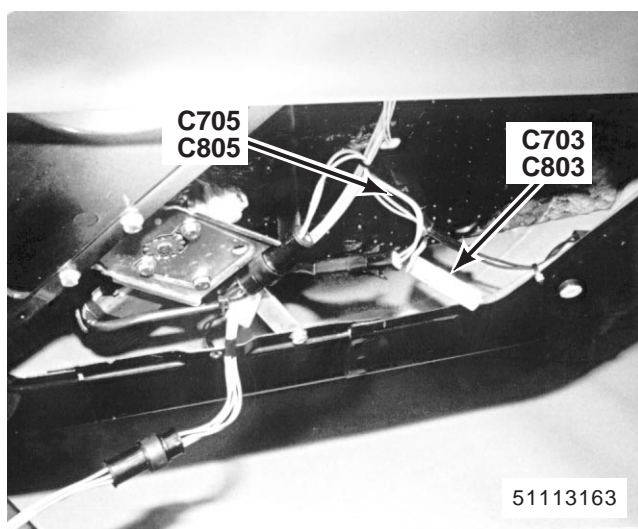
161. in top of LH rear door (RH similar)  
 X188 Left Rear Window Door Switch  
 X189 Right Rear Window Door Switch  
 C709 (5-W) (Left)  
 C809 (5-W) (Right)



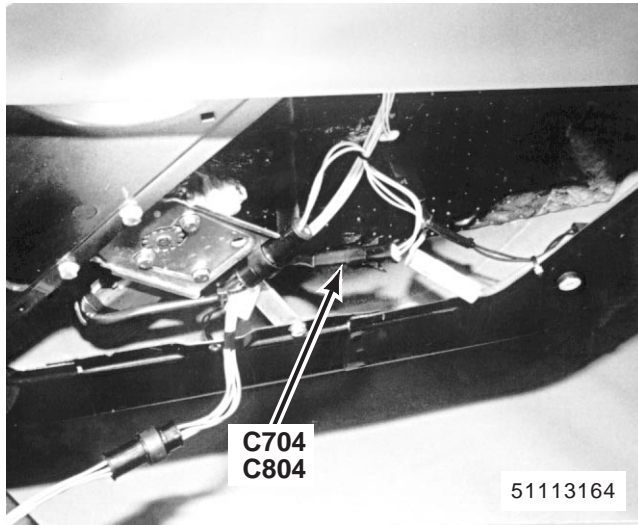
162. inside front of LH rear door (RH similar)  
 M116 Left Rear Window Motor  
 M124 Right Rear Window Motor  
 C706 (2-W) (Left)  
 C806 (2-W) (Right)



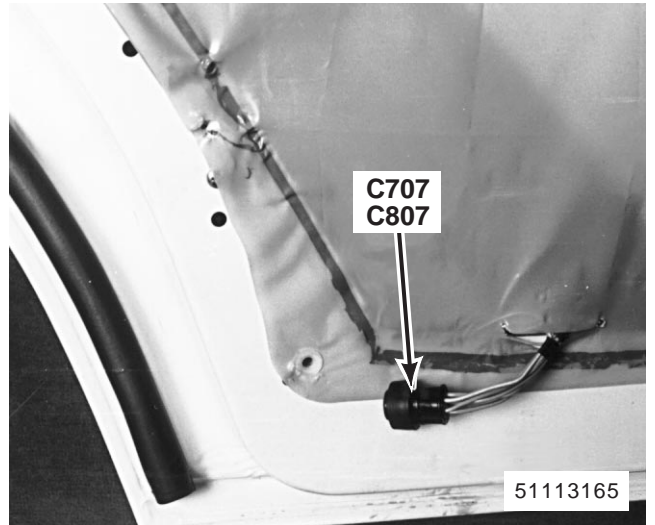
163. inside front of LH rear door (RH similar)  
 M117 Left Rear Door Lock Actuator  
 M125 Right Rear Door Lock Actuator



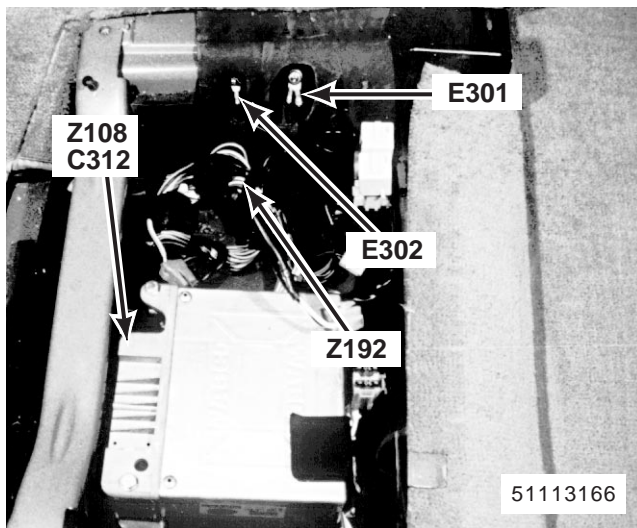
164. in lower portion of LH rear door (RH similar)  
 C703 (3-W) (Left)  
 C705 (5-B) (Left)  
 C803 (3-W) (Right)  
 C805 (5-B) (Right)



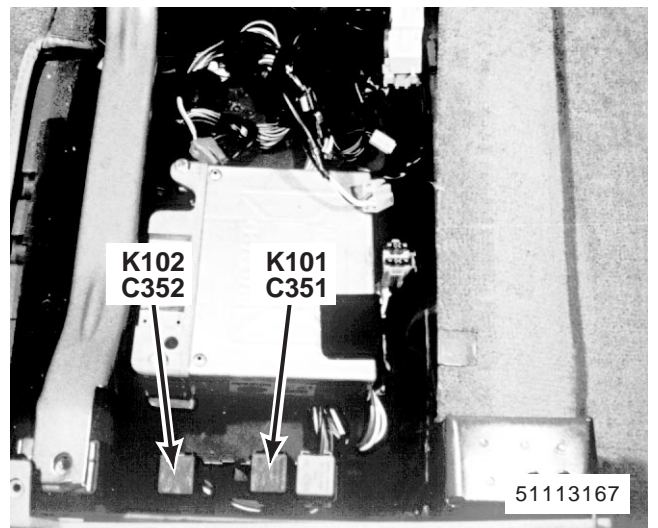
165. in lower portion of LH rear door (RH similar)  
 C704 (5-B) (Left)  
 C804 (5-B) (Right)



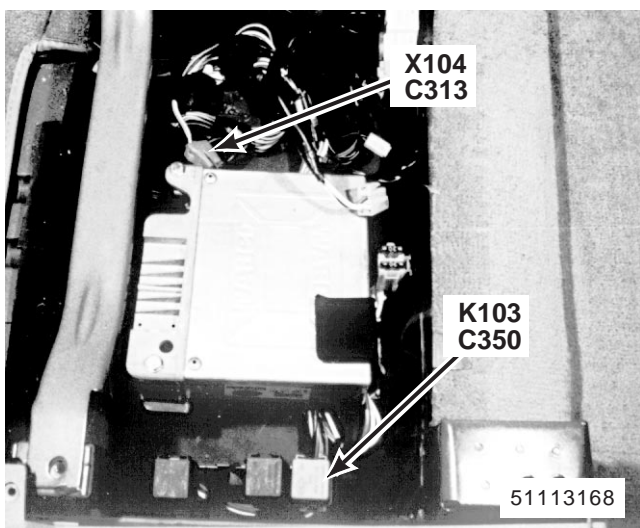
166. inside front of LH rear door (RH similar)  
 C707 (5-B) (Left)  
 C807 (5-B) (Right)



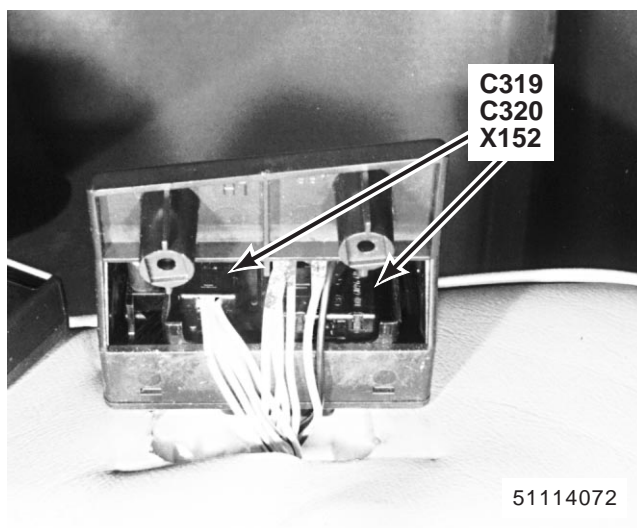
167. beneath LH front seat  
 Z108 Anti-Lock Brake System ECU  
 Z192 A.B.S. Diode  
 C312 (35-B)  
 E301  
 E302



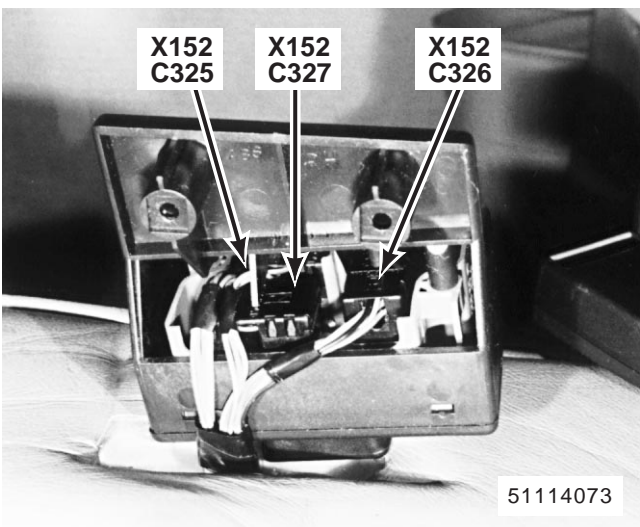
168. beneath LH front seat  
 K101 A.B.S. Load Relay  
 K102 A.B.S. Pump Relay  
 C351 (5-B)  
 C352 (5-B)



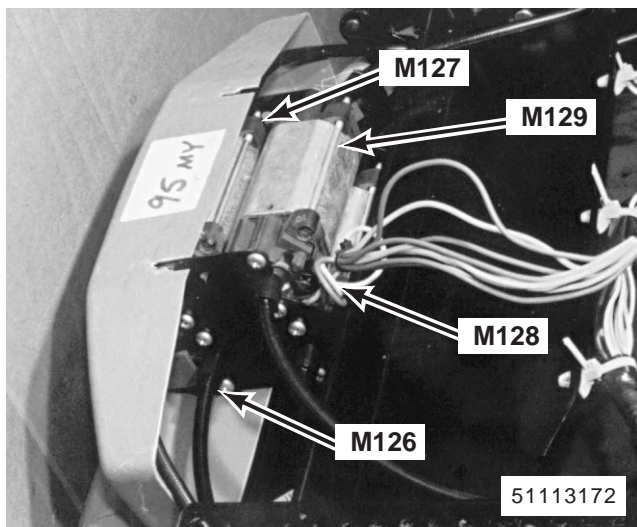
169. beneath LH front seat  
 K103 A.B.S. Warning Relay  
 X104 A.B.S. Diagnostic Connector  
 C313 (5-U)  
 C350 (5-U)



170. RH side of LH front seat Without Memory  
 X152 Left Front Seat Control Switch  
 C319 (6-B)  
 C320 (6-B)



171. RH side of LH front seat With Memory  
 X152 Left Front Seat Control Switch  
 C325 (6-B)  
 C326 (6-B)  
 C327 (3-B)

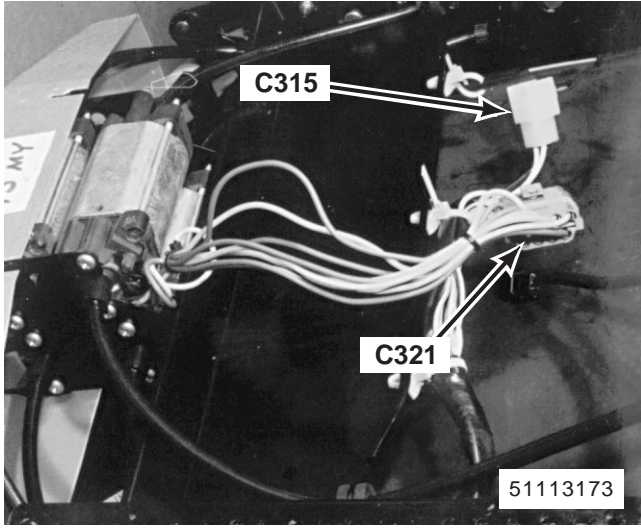


172. underside of LH front seat Without Memory  
 M126 Seat Base Motor  
 M127 Seat Height (Front) Motor  
 M128 Seat Height (Rear) Motor  
 M129 Seat Recline Motor

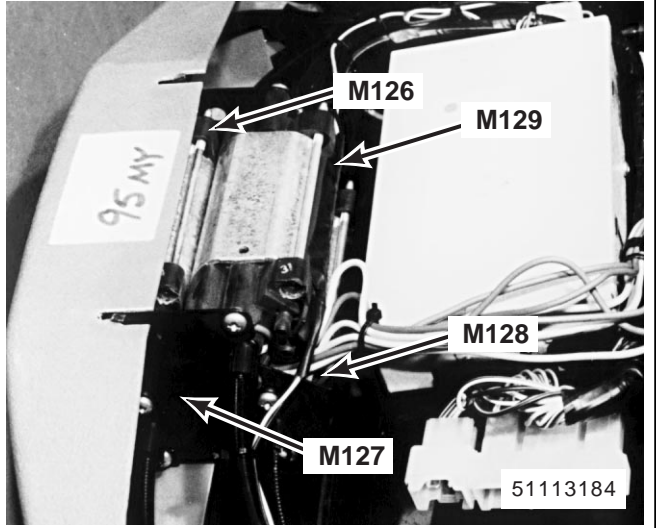


**Z5 ETM**

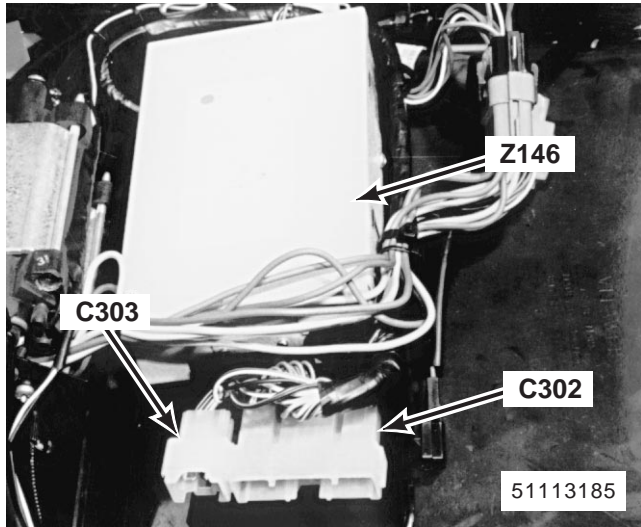
**1995 RANGE ROVER**



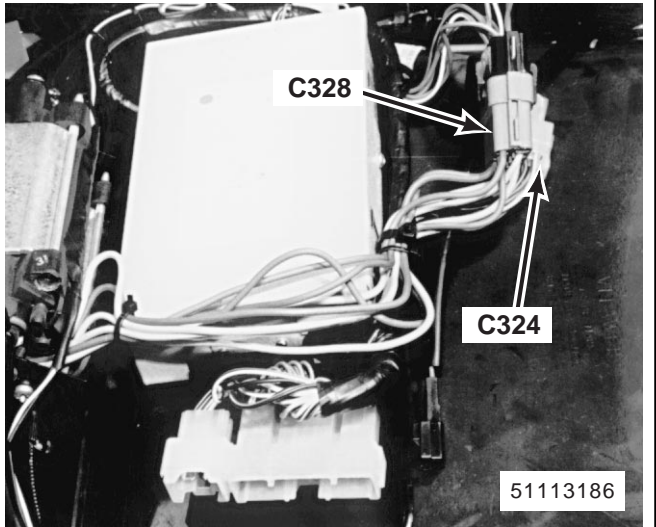
173. underside of LH front seat Without Memory  
 C315 (3-W)  
 C321 (9-U)



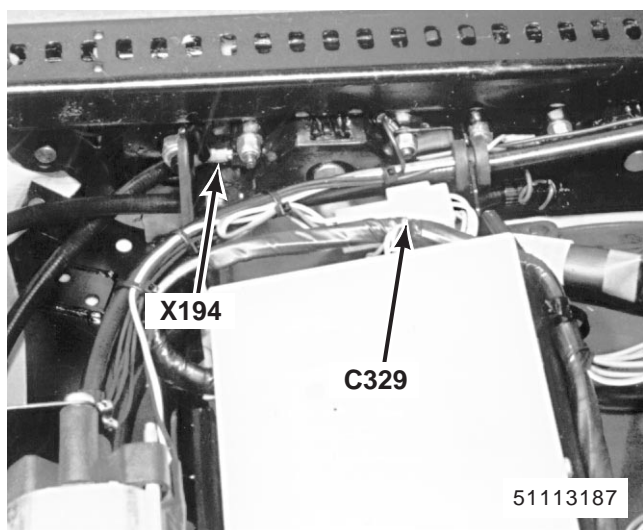
174. underside of LH front seat With Memory  
 M126 Seat Base Motor  
 M127 Seat Height (Front) Motor  
 M128 Seat Height (Rear) Motor  
 M129 Seat Recline Motor



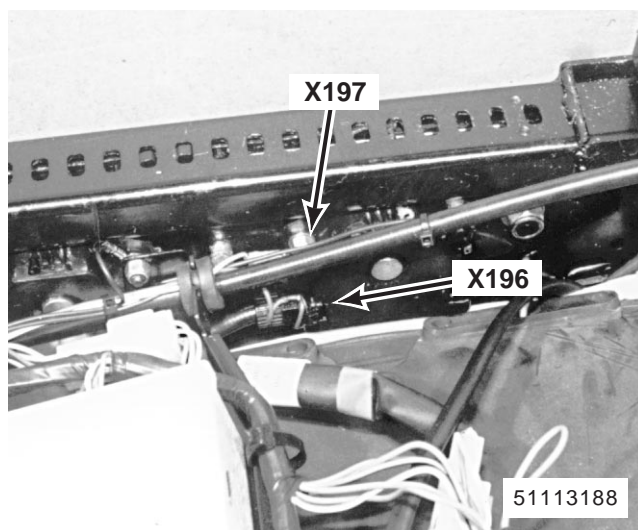
175. underside of LH front seat With Memory  
 Z146 Memory Seat ECU  
 C302 (24-W)  
 C303 (4-W)



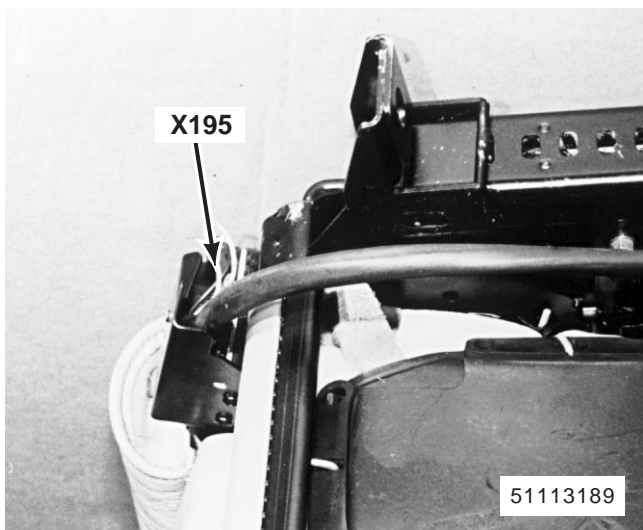
176. underside of LH front seat With Memory  
 C324 (10-W)  
 C328 (9-UB)



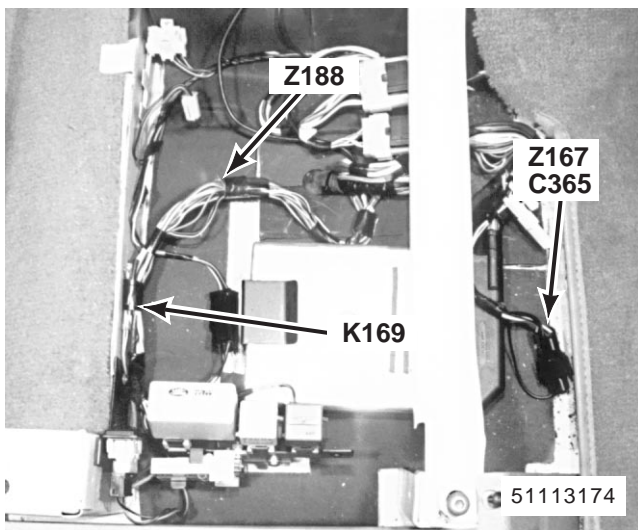
177. underside of LH front seat With Memory  
 X194 Front Height Sensor  
 C329 (6-W)



178. underside of LH front seat With Memory  
 X196 Fore-Aft Sensor  
 X197 Recline Sensor

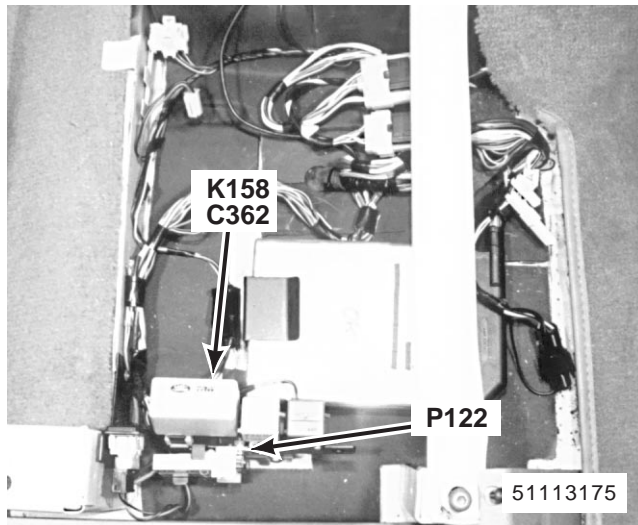


179. underside of LH front seat With Memory  
 X195 Rear Height Sensor

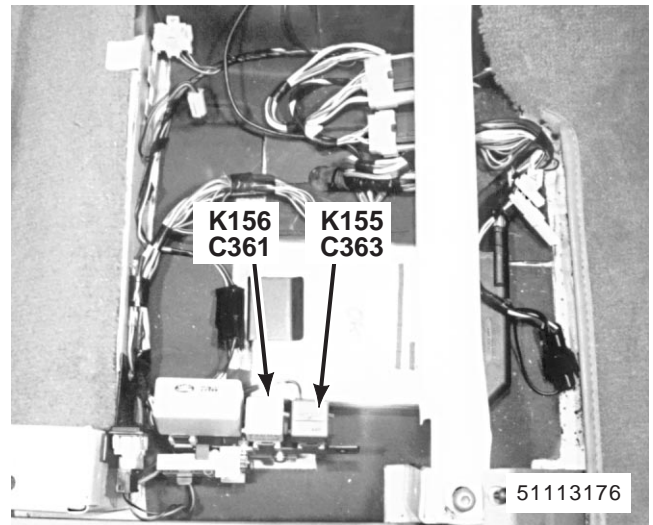


180. beneath RH front seat  
 K169 Reservoir Pressure Resistor  
 Z167 Air Suspension Diagnostic Connector  
 Z188 Air Suspension Indicator Diode  
 C365 (5-B)

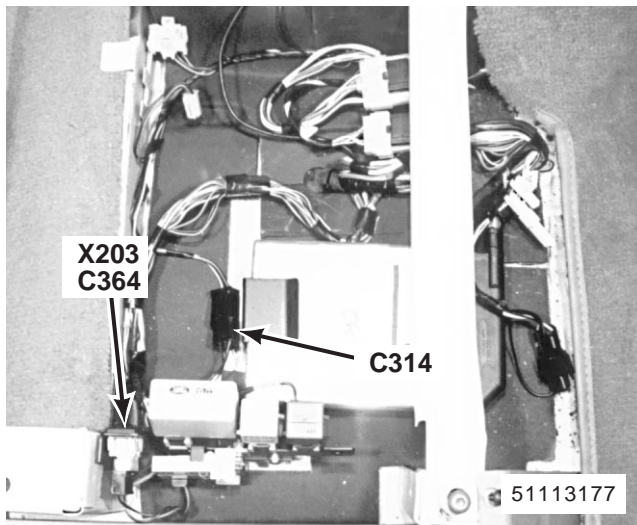




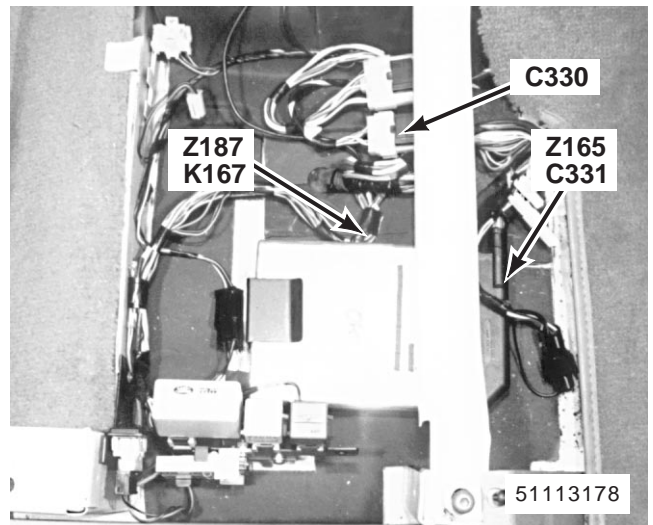
181. beneath RH front seat  
 K158 Air Suspension Delay Relay  
 P122 Air Suspension In-Line Maxi-Fuse  
 C362 (5-W)



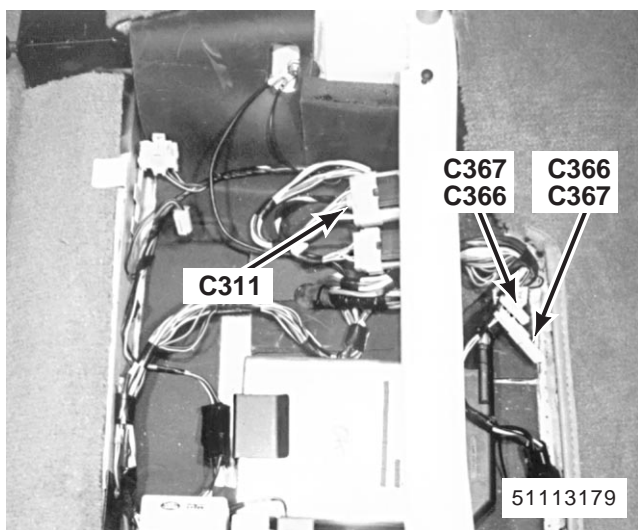
182. beneath RH front seat  
 K155 Warning Lamp Relay  
 K156 Air Suspension Compressor Relay  
 C361 (5-Y)  
 C363 (5-G)



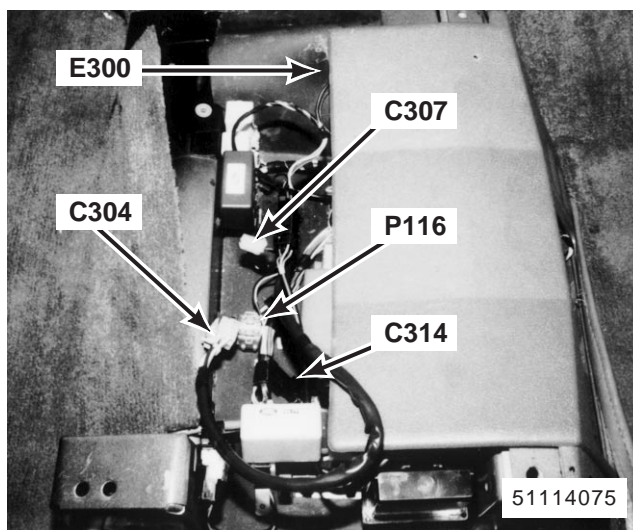
183. beneath RH front seat  
 X203 Disable Switch  
 C314 (3-B)  
 C364 (5-B)



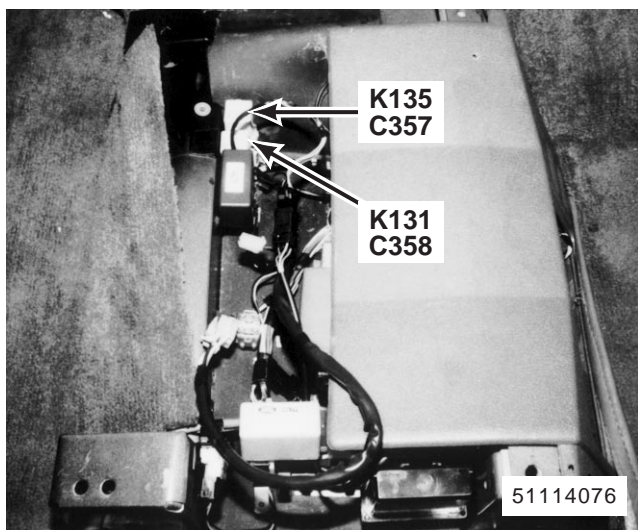
184. beneath RH front seat  
 K167 Air Suspension Resistor  
 Z165 Air Suspension ECU  
 Z187 Air Suspension Disable Diode  
 C330 (13-W)  
 C331 (35-B)



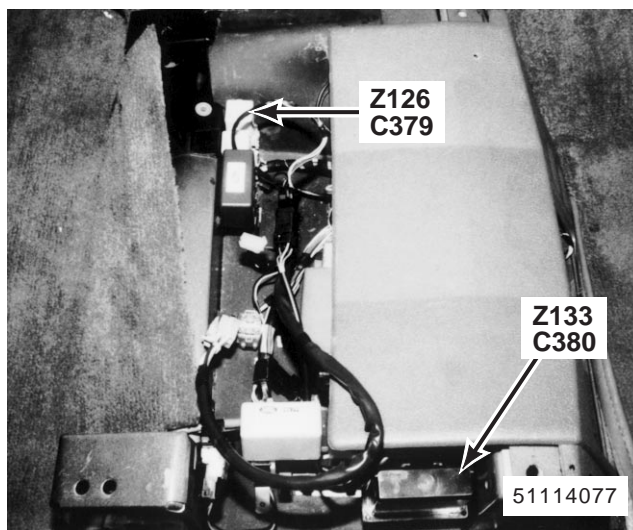
185. beneath RH front seat  
 C311 (14-W)  
 C366 (1-W)  
 C367 (1-W)



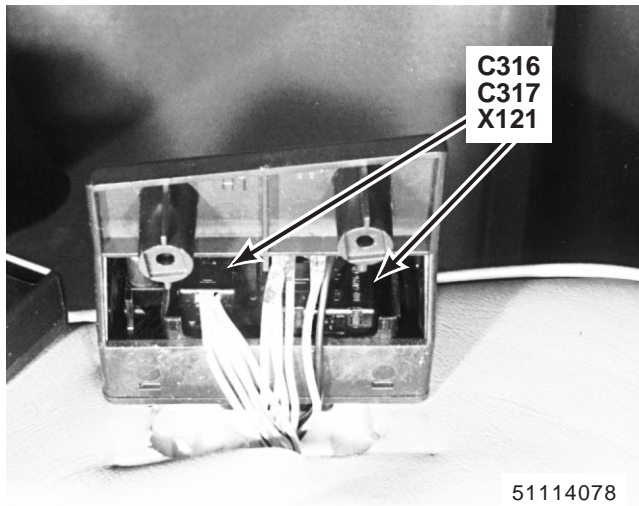
186. beneath RH front seat  
 P116 Passenger's Underseat Fuse Box  
 C304 (3-W)  
 C307 (2-W)  
 C314 (3-B)  
 E300



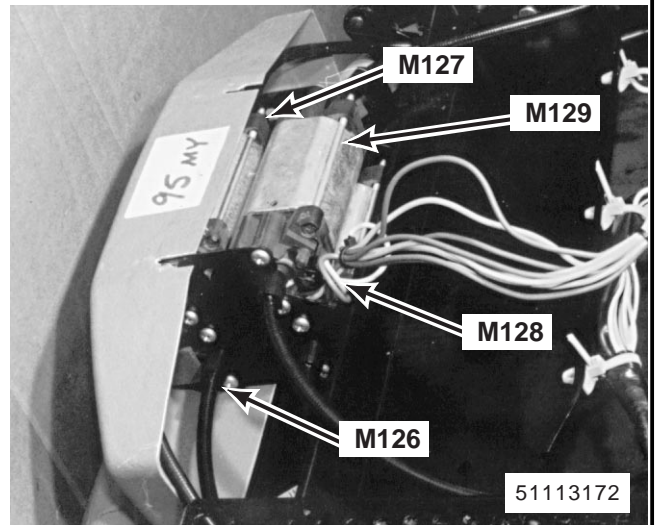
187. beneath RH front seat  
 K131 Right Seat Power Relay  
 K135 Right Seat Heat Relay  
 C357 (5-W)  
 C358 (5-Y)



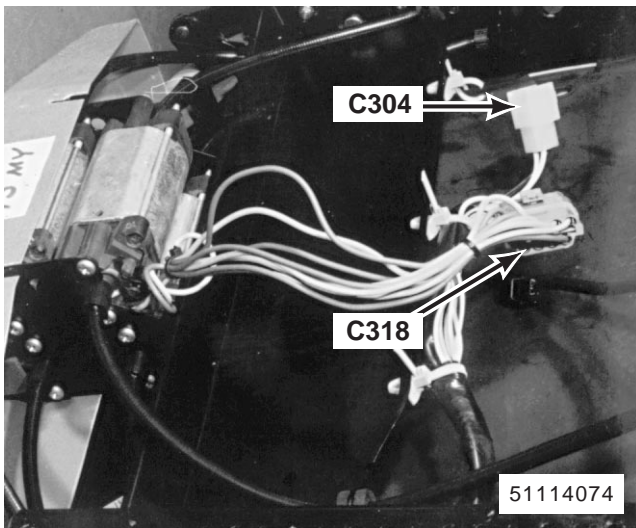
188. beneath RH front seat  
 Z126 Service Reminder Unit  
 Z133 Multiport Fuel Injection Fault Display Unit  
 C379 (5-N)  
 C380 (5-B)



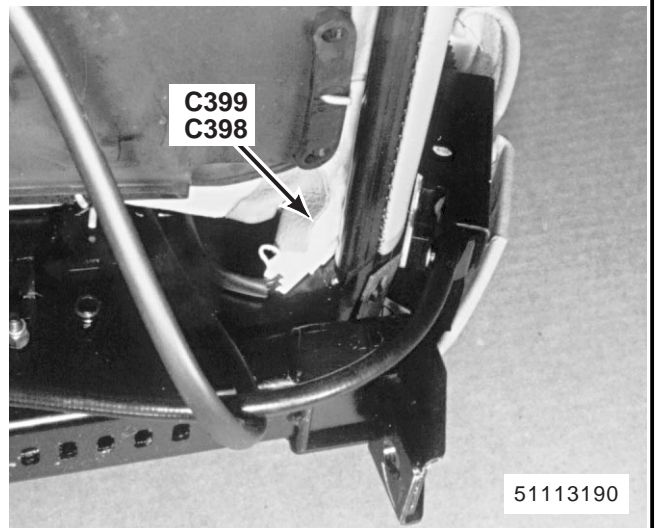
189. LH side of RH front seat  
 X121 Right Front Seat Control Switch  
 C316 (6-B)  
 C317 (6-B)



190. underside of RH front seat  
 M126 Seat Base Motor  
 M127 Seat Height (Front) Motor  
 M128 Seat Height (Rear) Motor  
 M129 Seat Recline Motor



191. underside of RH front seat  
 C304 (3-W)  
 C318 (9-U)

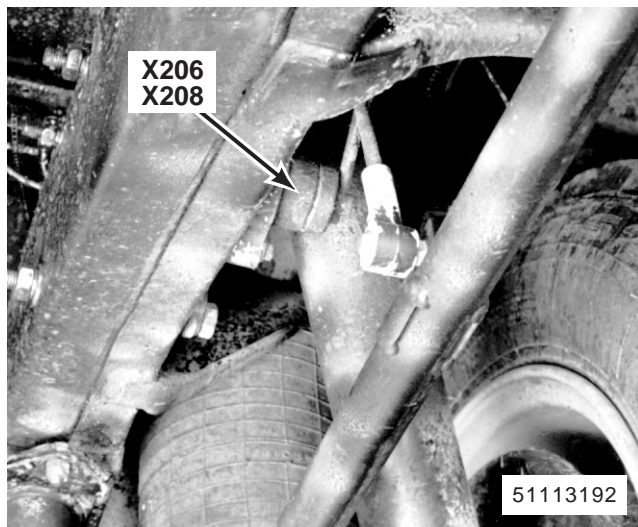


192. underside of LH front seat (RH similar)  
 C398 (2-W) (Left)  
 C399 (2-W) (Right)

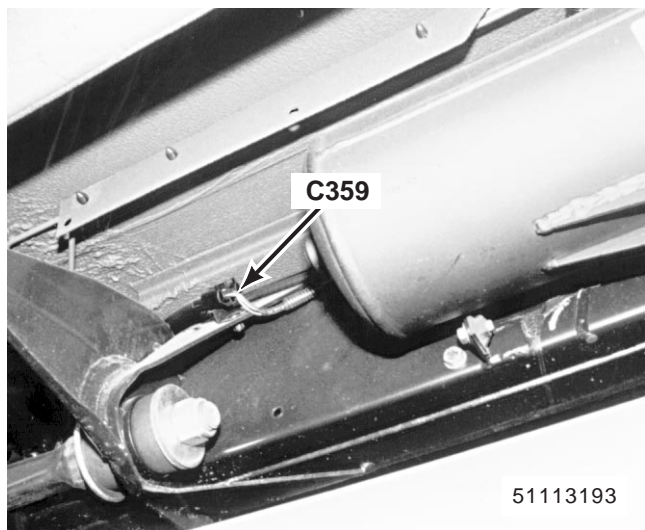




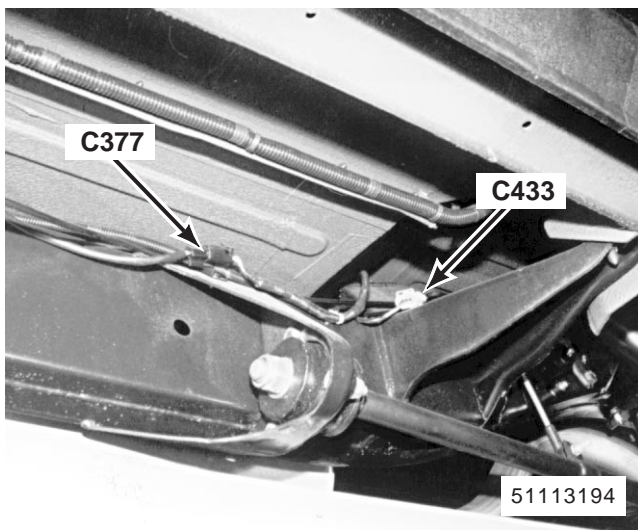
193. beneath LH side of vehicle  
X204 Reservoir Pressure Switch



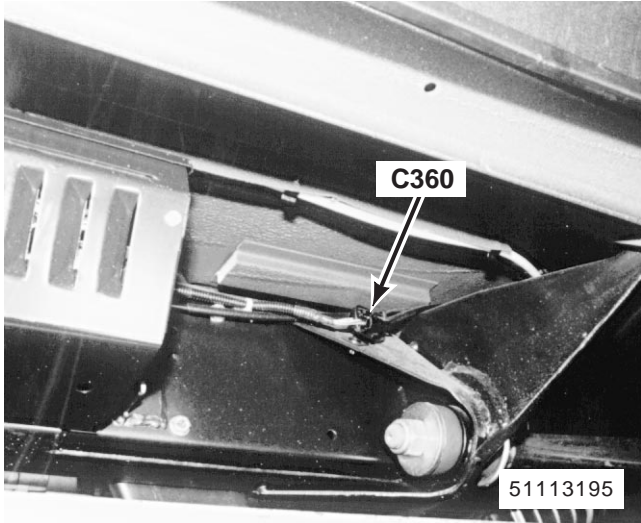
194. behind LH rear wheel (RH similar)  
X206 Left Rear Height Sensor  
X208 Right Rear Height Sensor



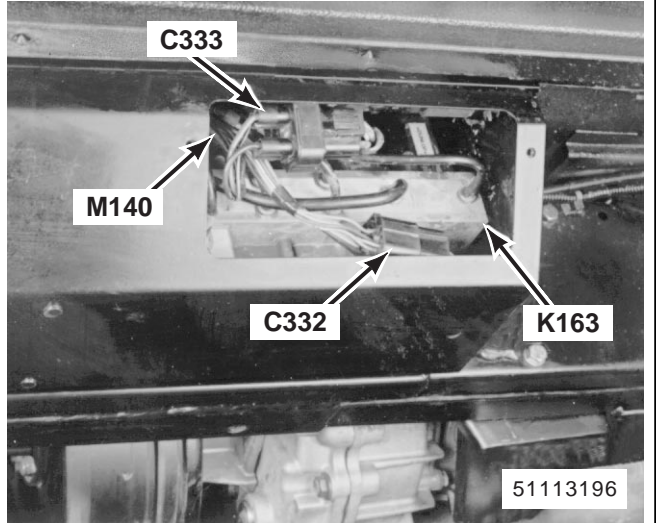
195. beneath LH side of vehicle behind LH front wheel  
C359 (3-B)



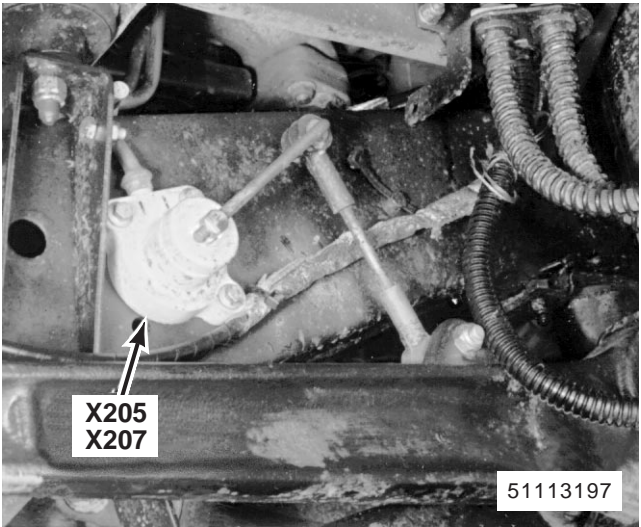
196. beneath LH side of vehicle forward of LH rear wheel  
C377 (2-B)  
C433 (3-W)



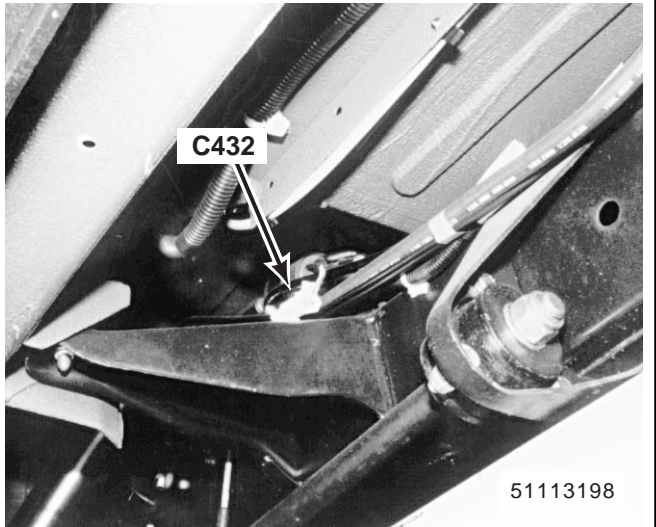
197. beneath RH side of vehicle behind RH front wheel  
C360 (3-B)



198. beneath RH side of vehicle  
K163 Air Valve Block  
M140 Air Suspension Compressor  
C332 (13-B)  
C333 (4-B)

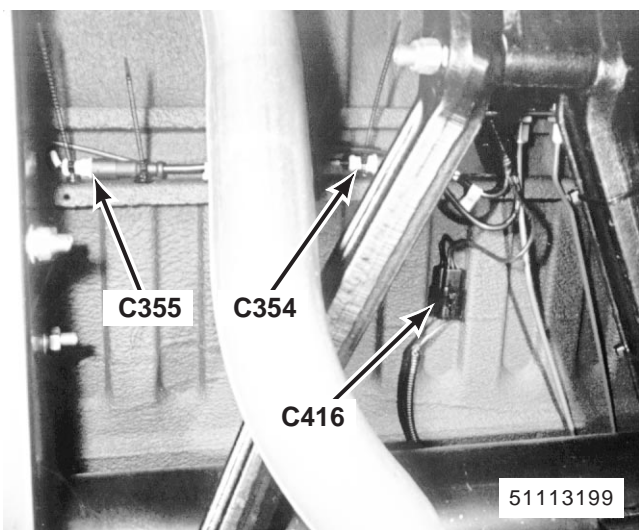


199. behind RH front wheel (LH similar)  
X205 Left Front Height Sensor  
X207 Right Front Height Sensor

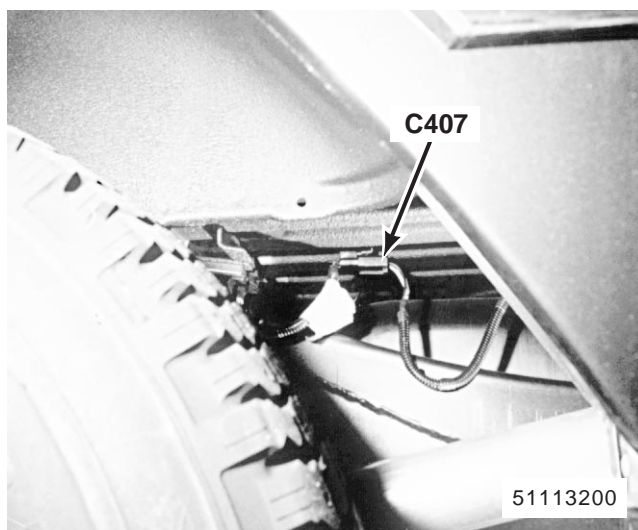


200. beneath RH side of vehicle forward of RH rear wheel  
C432 (3-W)

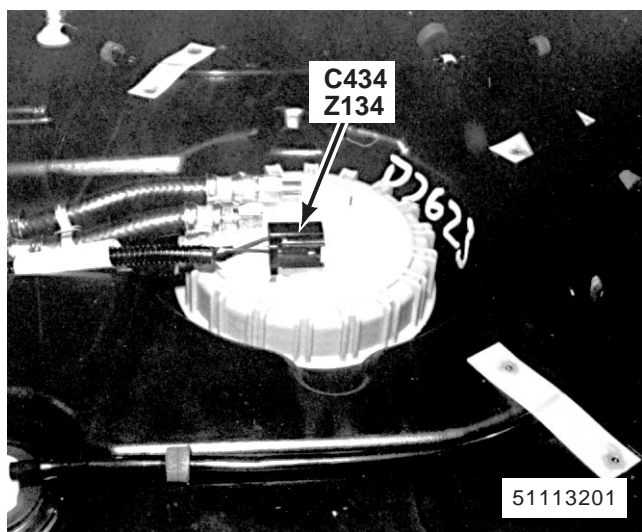




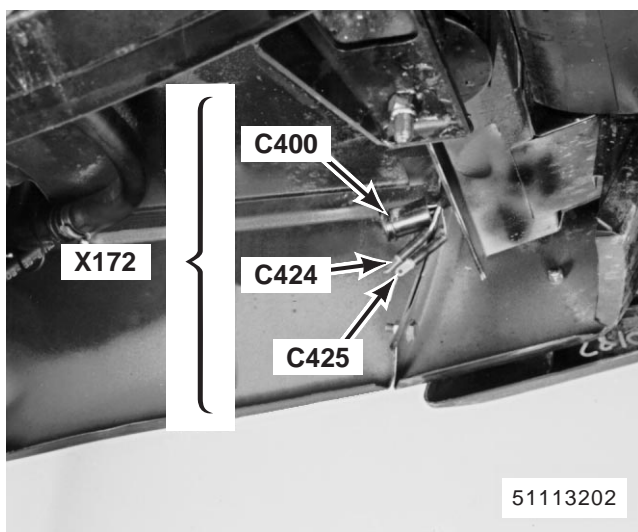
201. beneath centre rear of vehicle  
 C354 (2-W)  
 C355 (2-W)  
 C416 (3-B)



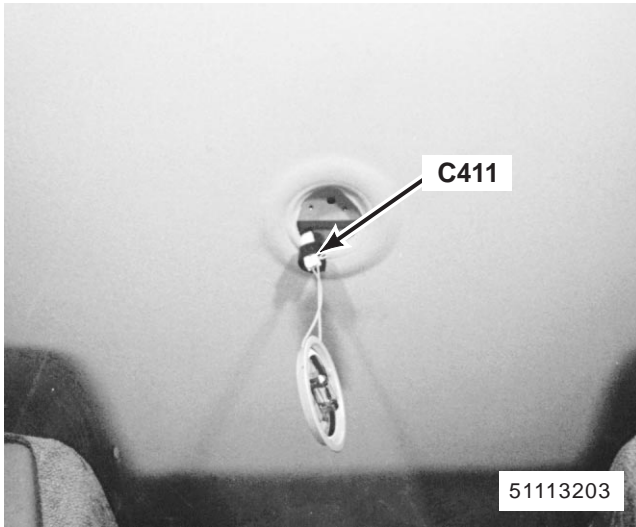
202. beneath LH rear of vehicle near fuel tank  
 C407 (3-B)



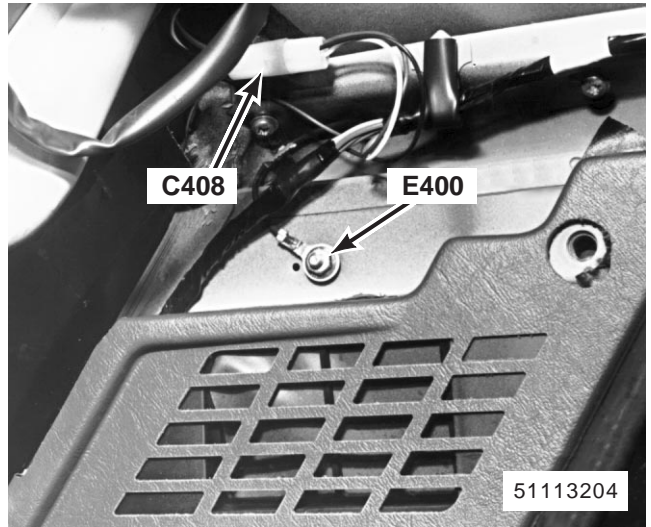
203. top of fuel tank  
 Z134 Fuel Pump Module  
 C434 (4-B)



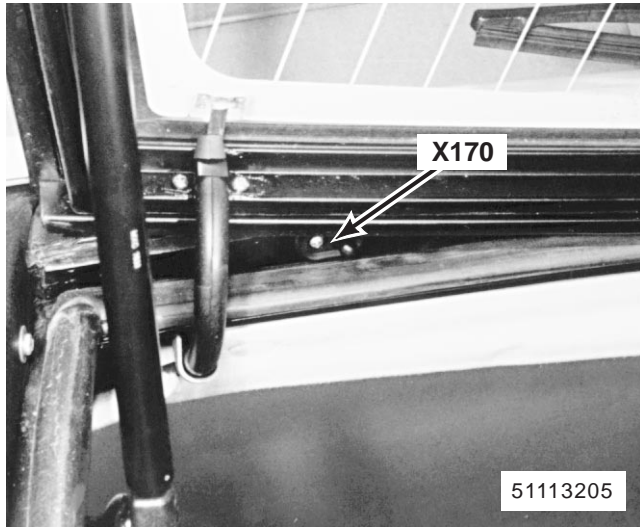
204. behind RH side of rear bumper  
 X172 Trailer Auxiliary Socket  
 C400 (7-B)  
 C424 (1-B)  
 C425 (1-B)



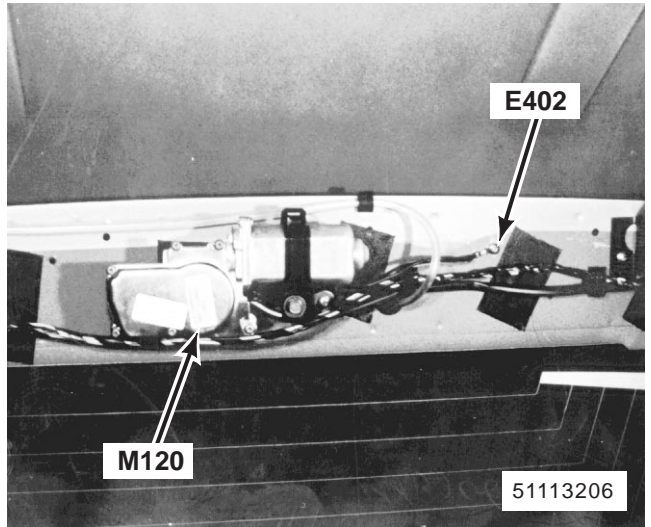
205. centre of roof  
C411 (2-W)



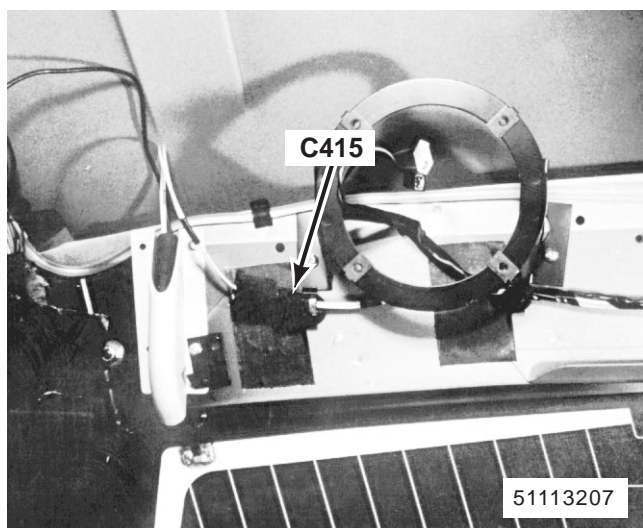
206. LH rear corner of roof  
C408 (4-W)  
E400



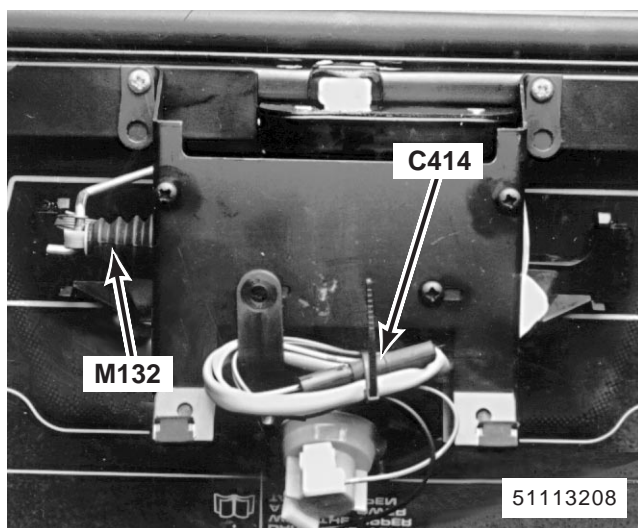
207. top LH side of rear screen opening  
X170 Tailgate Switch



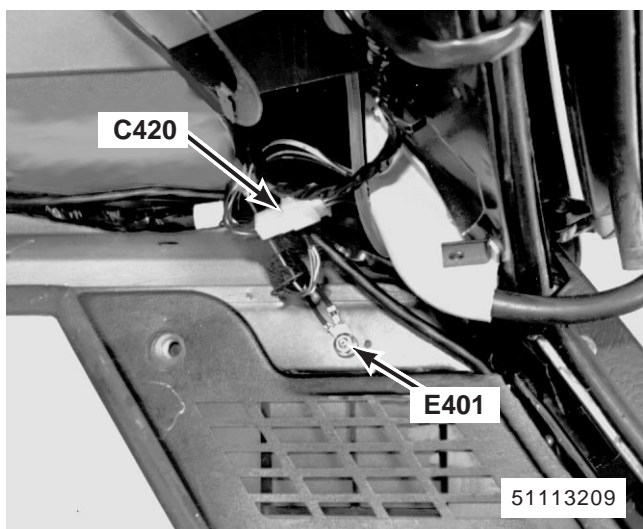
208. centre rear of roof  
M120 Rear Wiper Motor  
E402



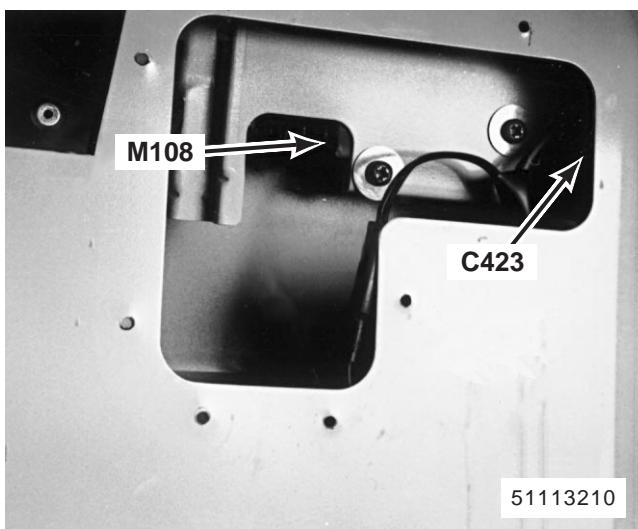
209. RH rear of roof  
C415 (4-B)



210. lower centre of rear screen (cover removed)  
M132 Tailgate Lock Actuator  
C414 (2-W)

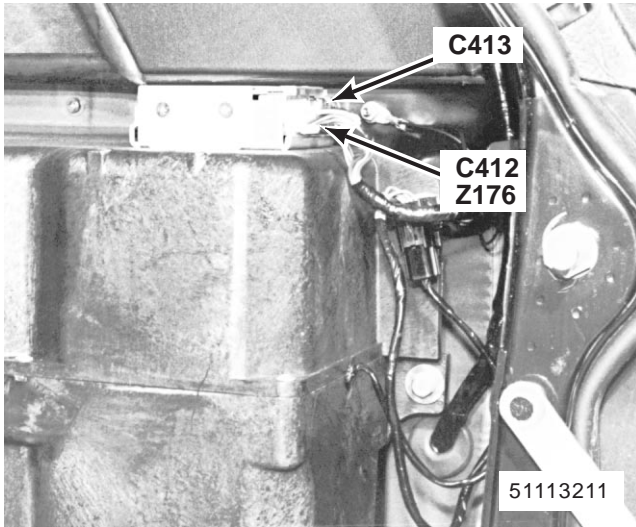


211. RH rear corner of roof  
C420 (8-W)  
E401

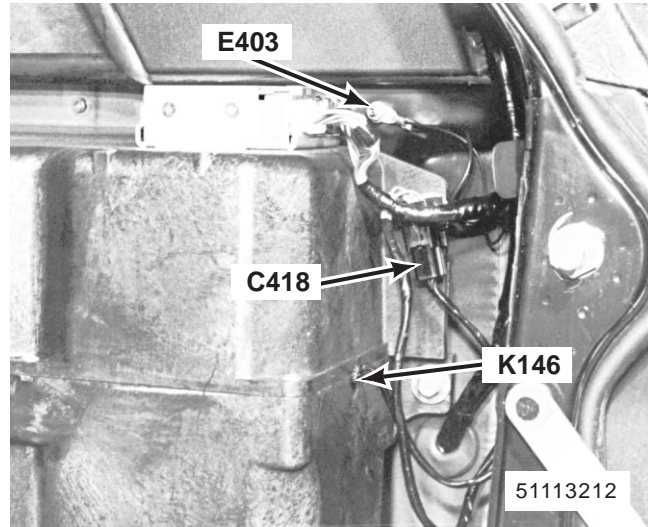


212. RH rear of luggage compartment  
M108 Fuel Flap Actuator  
C423 (2-N)

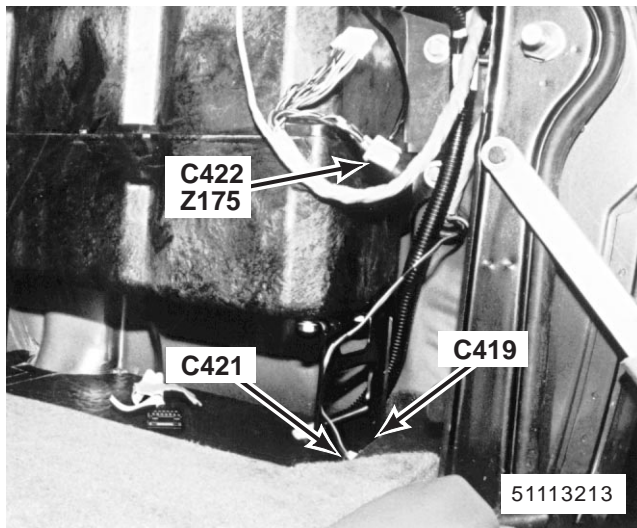




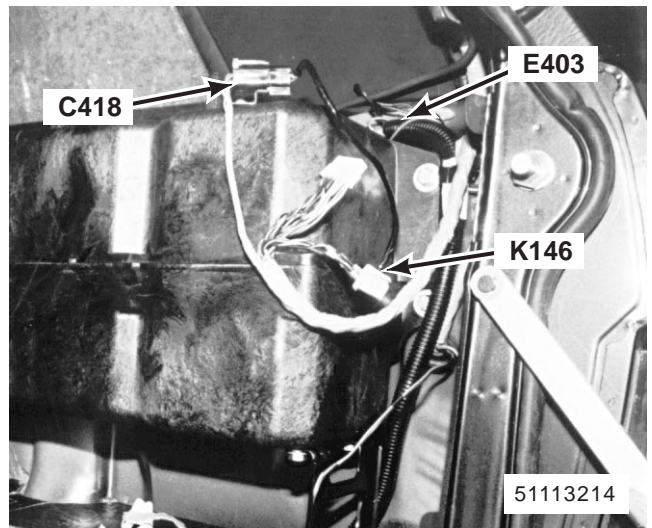
213. RH rear of luggage compartment Except NAS  
Z176 Subwoofer Amplifier  
C412 (8-W)  
C413 (8-B)



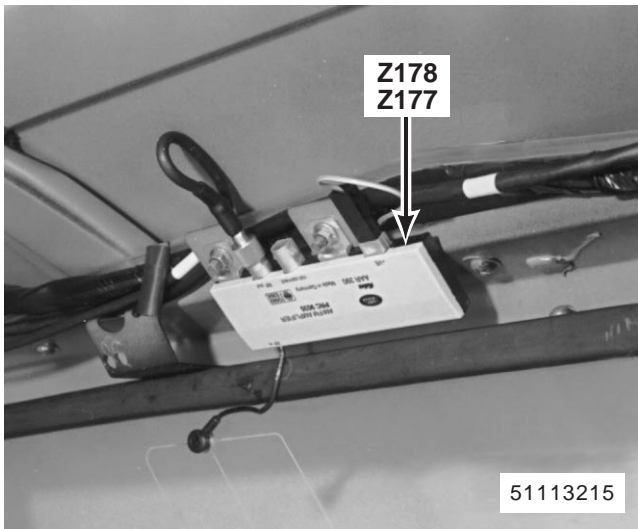
214. RH rear of luggage compartment Except NAS  
K146 Subwoofer  
C418 (4-B)  
E403



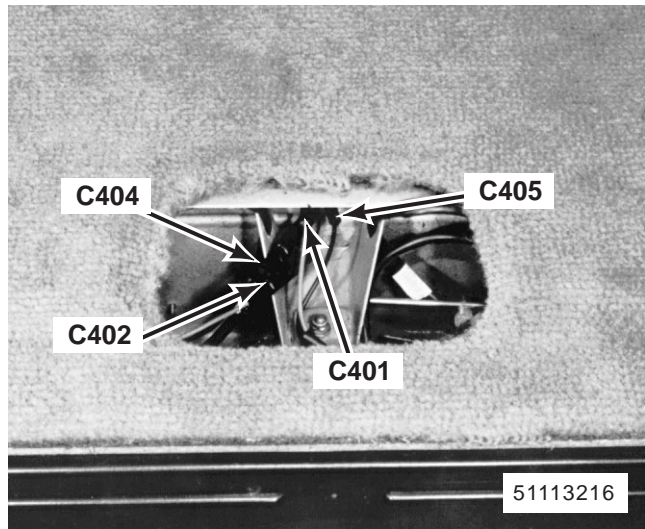
215. RH rear of luggage compartment NAS  
Z175 Radio Amplifier  
C419 (1-B)  
C421 (3-W)  
C422 (18-W)



216. RH rear of luggage compartment NAS  
K146 Subwoofer  
C418 (4-B)  
E403



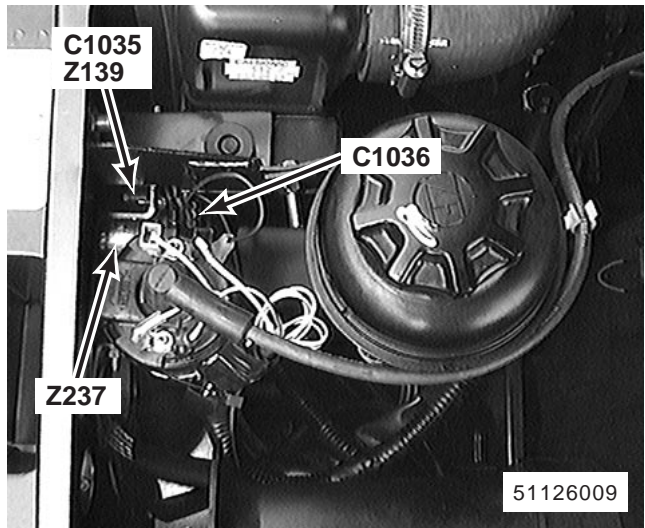
217. RH rear of roof (LH similar)  
 Z177 Left Antenna Amplifier  
 Z178 Right Antenna Amplifier



218. centre of tailgate  
 C401 (1-B)  
 C402 (1-B)  
 C404 (1-B)  
 C405 (1-B)



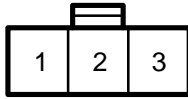
219. LH side of rear bumper (RH similar)  
 C403 (6-B) (Left)  
 C406 (6-B) (Right)



220. LH rear corner of engine compartment MFI-V8  
 Z237 Ignition Coil Noise Suppressor  
 Z139 Ignition Control Module  
 C1035 (3-B)  
 C1036 (3-B)

**C100**

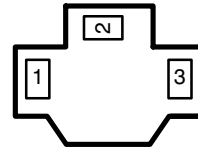
R030016



|   |     |
|---|-----|
| 1 | OK  |
| 2 | PW  |
| 3 | NLG |

**C103**

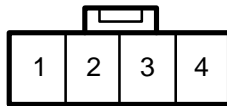
R030005



|   |    |
|---|----|
| 1 | UO |
| 2 | UB |
| 3 | B  |

**C101**

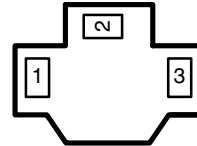
LC00100A  
R040005



|   |    |   |    |
|---|----|---|----|
| 1 | OS | 3 | -  |
| 2 | NG | 4 | PN |

**C104**

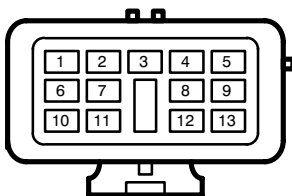
LC00103A  
R030005



|   |    |
|---|----|
| 1 | US |
| 2 | UK |
| 3 | B  |

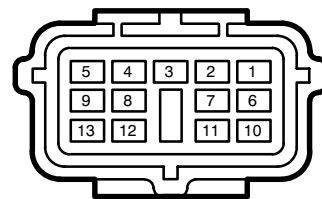
**C105**

LC00101A  
R130001



|   |    |    |     |    |       |
|---|----|----|-----|----|-------|
| 1 | BU | 6  | SB  | 11 | BY/BO |
| 2 | BR | 7  | BK  | 12 | RY    |
| 3 | GN | 8  | BLG | 13 | -     |
| 4 | GY | 9  | YB  |    |       |
| 5 | B  | 10 | BY  |    |       |

LC00104A  
R130002



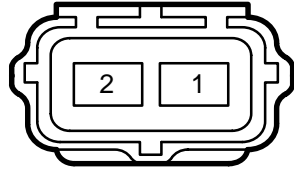
|   |    |    |       |    |    |
|---|----|----|-------|----|----|
| 1 | -  | 6  | SB    | 11 | BO |
| 2 | BR | 7  | BK    | 12 | RY |
| 3 | GN | 8  | BLG   | 13 | -  |
| 4 | GY | 9  | OB/BY |    |    |
| 5 | B  | 10 | BY    |    |    |

LC00105B

LC00105B

**C106**

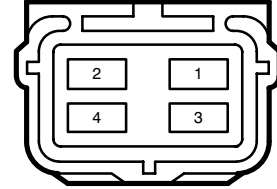
R020037



|   |    |
|---|----|
| 1 | UP |
| 2 | B  |

**C110**

R040001

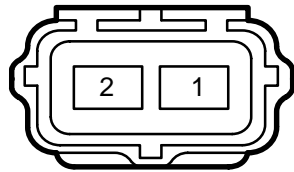


|   |    |   |   |
|---|----|---|---|
| 1 | RO | 3 | B |
| 2 | GW | 4 | - |

**C107**

LC00106B

R020037

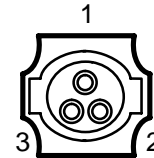


|   |    |
|---|----|
| 1 | UP |
| 2 | B  |

**C112**

LC00110B

R030025

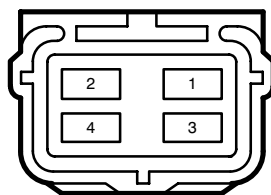


|   |      |
|---|------|
| 1 | WO   |
| 2 | CORE |
| 3 | B    |

**C109**

LC00107B

R040001

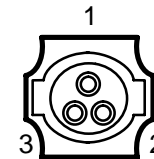


|   |    |   |   |
|---|----|---|---|
| 1 | RB | 3 | B |
| 2 | GR | 4 | - |

**C113**

LC00112B

R030025



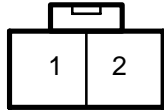
|   |      |
|---|------|
| 1 | WO   |
| 2 | CORE |
| 3 | B    |

LC00109B

LC00113A

**C114**

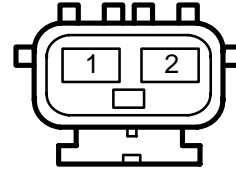
R020023



|   |    |
|---|----|
| 1 | NK |
| 2 | NW |

**C121**

R020044

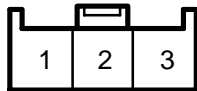


|   |    |
|---|----|
| 1 | PK |
| 2 | B  |

**C115**

LC00114A

R030019

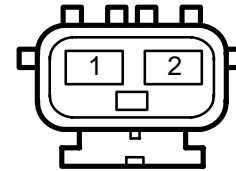


|   |    |
|---|----|
| 1 | NP |
| 2 | NY |
| 3 | NS |

**C122**

LC00121B

R020044

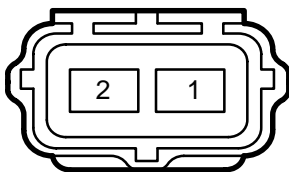


|   |    |
|---|----|
| 1 | PS |
| 2 | B  |

**C120**

LC00115B

R020037

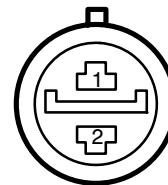


|   |     |
|---|-----|
| 1 | B   |
| 2 | LGS |

**C125**

LC00122B

R020011



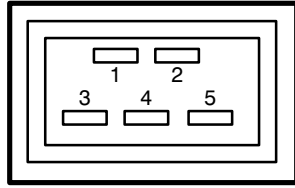
|   |    |
|---|----|
| 1 | NR |
| 2 | B  |

LC00120A

LC00125B

**C126**

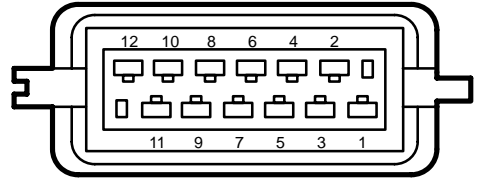
R050004



|   |    |   |    |
|---|----|---|----|
| 1 | -  | 4 | BY |
| 2 | WO | 5 | B  |
| 3 | WB |   |    |

**C129**

R120002

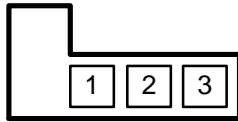


|   |    |   |    |    |    |
|---|----|---|----|----|----|
| 1 | SY | 5 | SB | 9  | SU |
| 2 | -  | 6 | SP | 10 | SK |
| 3 | SW | 7 | SO | 11 | SR |
| 4 | SG | 8 | SN | 12 | -  |

**C127**

LC00126B

R030012

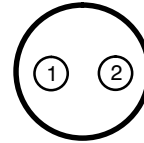


|   |    |
|---|----|
| 1 | B  |
| 2 | K  |
| 3 | BG |

**C130**

LC00129B

R020007

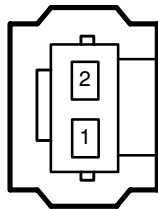


|   |   |
|---|---|
| 1 | G |
| 2 | G |

**C128**

LC00127B

R020038

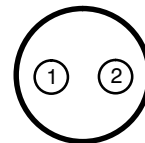


|   |    |
|---|----|
| 1 | RY |
| 2 | RW |

**C131**

LC00130A

R020007



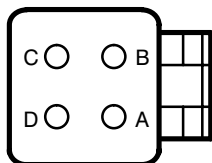
|   |   |
|---|---|
| 1 | G |
| 2 | G |

LC00128B

LC00131A

**C132**

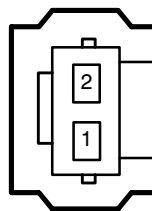
R040019



|   |    |   |    |
|---|----|---|----|
| A | O  | C | GW |
| B | US | D | RG |

**C135**

R020038

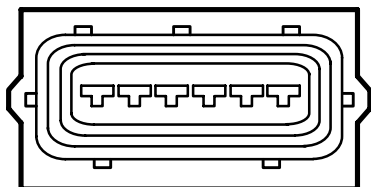


|   |    |
|---|----|
| 1 | NO |
| 2 | YW |

**C133**

LC00132B

R060004

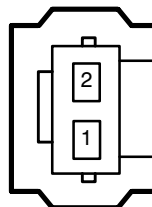


|   |    |   |    |
|---|----|---|----|
| 1 | -  | 4 | -  |
| 2 | RB | 5 | NO |
| 3 | UG | 6 | UR |

**C136**

LC00135B

R020038

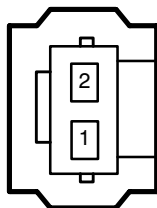


|   |    |
|---|----|
| 1 | NO |
| 2 | YU |

**C134**

LC00133B

R020038

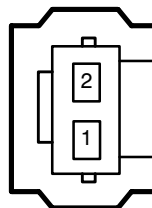


|   |    |
|---|----|
| 1 | NO |
| 2 | YU |

**C137**

LC00136B

R020038



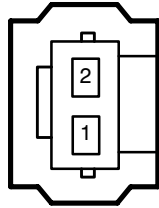
|   |    |
|---|----|
| 1 | YW |
| 2 | NO |

LC00134B

LC00137B

**C138**

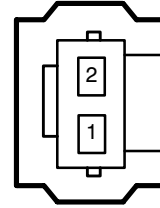
R020038



|   |    |
|---|----|
| 1 | YU |
| 2 | NO |

**C141**

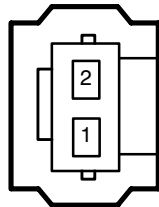
R020038



|   |    |
|---|----|
| 1 | YW |
| 2 | NO |

**C139**

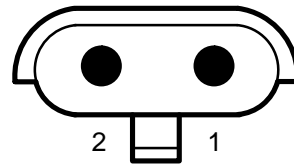
LC00138B  
R020038



|   |    |
|---|----|
| 1 | YW |
| 2 | NO |

**C144**

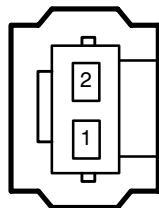
LC00141A  
R020009



|   |    |
|---|----|
| 1 | WP |
| 2 | SY |

**C140**

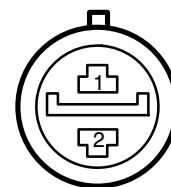
LC00139B  
R020038



|   |    |
|---|----|
| 1 | YU |
| 2 | NO |

**C145**

LC00144B  
R020011



|   |    |
|---|----|
| 1 | BG |
| 2 | B  |

LC00140A

LC00145A



R020020

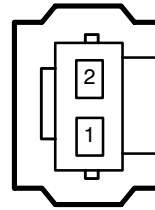
**C146**



|   |    |
|---|----|
| 1 | BP |
| 2 | B  |

R020038

**C150**

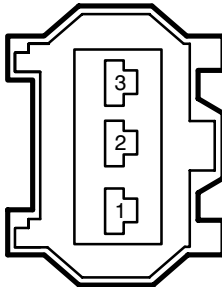


|   |    |
|---|----|
| 1 | RB |
| 2 | SW |

LC00146A

R030002

**C148**

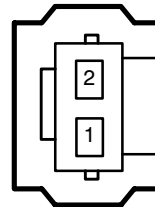


|   |   |
|---|---|
| 1 | U |
| 2 | - |
| 3 | R |

LC00150B

R020038

**C152**

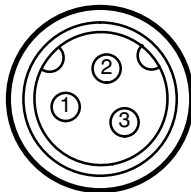


|   |       |
|---|-------|
| 1 | RB/GU |
| 2 | GU/KB |

LC00148A

R030022

**C149**

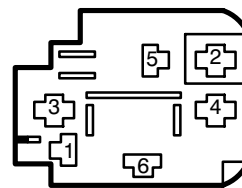


|   |    |
|---|----|
| 1 | RB |
| 2 | R  |
| 3 | Y  |

LC00152B

R060018

**C159**



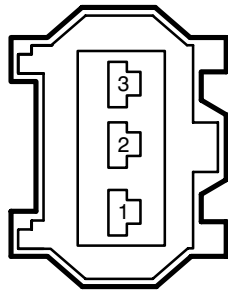
|   |    |   |    |
|---|----|---|----|
| 1 | WR | 4 | B  |
| 2 | BY | 5 | NO |
| 3 | WG | 6 | YB |

LC00149B

LC00159A

**C160**

R030002



|   |    |
|---|----|
| 1 | KB |
| 2 | R  |
| 3 | RB |

LC00160B

R020020

**C162**

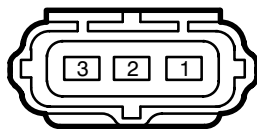


|   |    |
|---|----|
| 1 | YB |
| 2 | G  |

LC00162B

R030002

**C164**

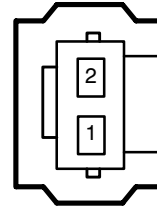


|   |    |
|---|----|
| 1 | RB |
| 2 | KB |
| 3 | RU |

LC00164B

**C165**

R020038

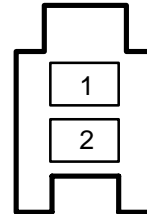


|   |    |
|---|----|
| 1 | WG |
| 2 | BO |

LC00165A

R020019

**C166**

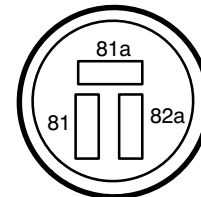


|   |     |
|---|-----|
| 1 | B   |
| 2 | BLG |

LC00166B

R030023

**C167**

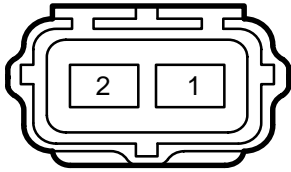


|     |    |
|-----|----|
| 81  | BY |
| 81A | BR |
| 82A | WU |

LC00167A

R020037

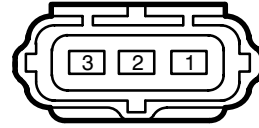
**C168**



|   |    |
|---|----|
| 1 | B  |
| 2 | PG |

R030003

**C171**

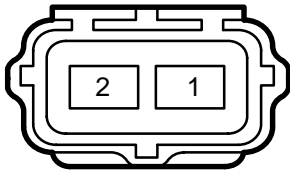


|   |    |
|---|----|
| 1 | WP |
| 2 | -  |
| 3 | WP |

LC00168A

R020037

**C169**

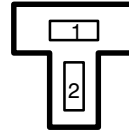


|   |    |
|---|----|
| 1 | B  |
| 2 | PG |

LC00171A

R020015

**C173**

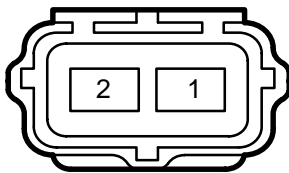


|   |     |
|---|-----|
| 1 | LGR |
| 2 | B   |

LC00169A

R020037

**C170**



|   |     |
|---|-----|
| 1 | B   |
| 2 | LGB |

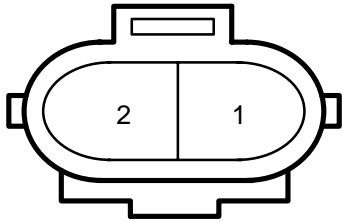
LC00173A

LC00170A

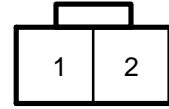
R020043

### C174

R020027



|   |   |
|---|---|
| 1 | B |
| 2 | G |



|   |     |
|---|-----|
| 1 | LGW |
| 2 | RS  |

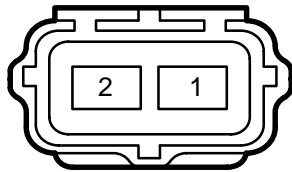
LC00174B

R020037

### C178

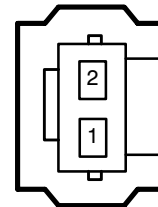
LC00174B

R020038



|   |    |
|---|----|
| 1 | B  |
| 2 | PO |

### C179



|   |    |
|---|----|
| 1 | YR |
| 2 | B  |

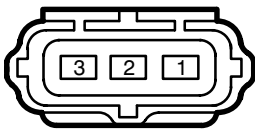
LC00178A

R030003

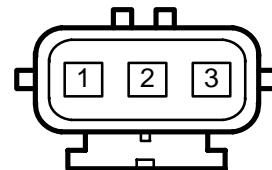
### C180

LC00179B

R030001



|   |    |
|---|----|
| 1 | B  |
| 2 | BK |
| 3 | BW |



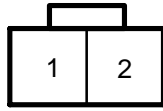
|   |    |
|---|----|
| 1 | -  |
| 2 | BW |
| 3 | BW |

LC00180B

LC00180B

R020027

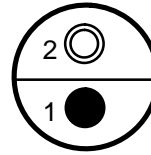
**C181**



|   |    |
|---|----|
| 1 | YB |
| 2 | NO |

R020006

**C184**

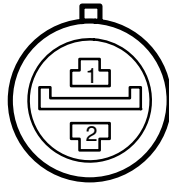


|   |    |
|---|----|
| 1 | RS |
| 2 | B  |

LC00181B

R020011

**C182**

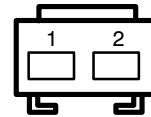


|   |    |
|---|----|
| 1 | BN |
| 2 | B  |

LC00184B

R020035

**C187**

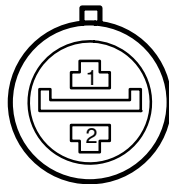


|   |    |
|---|----|
| 1 | OS |
| 2 | N  |

LC00182A

R020011

**C183**

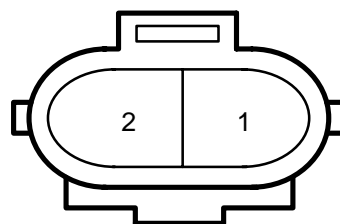


|   |    |
|---|----|
| 1 | BN |
| 2 | B  |

LC00187B

R020043

**C188**



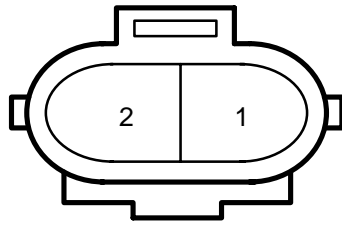
|   |   |
|---|---|
| 1 | B |
| 2 | G |

LC00183A

LC00188B

**C189**

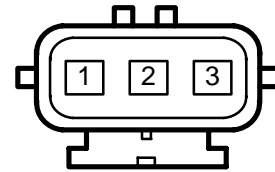
R020043



|   |   |
|---|---|
| 1 | B |
| 2 | G |

**C194**

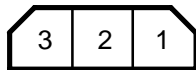
R030001



|   |    |
|---|----|
| 1 | UB |
| 2 | B  |
| 3 | UN |

**C190**

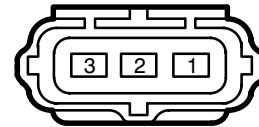
LC00189B  
R030011



|   |    |
|---|----|
| 1 | UN |
| 2 | B  |
| 3 | UB |

**C194**

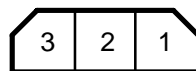
LC00194D  
R030003



|   |    |
|---|----|
| 1 | UK |
| 2 | B  |
| 3 | UY |

**C191**

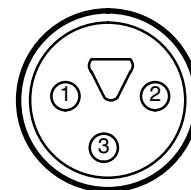
LC00190D  
R030011



|   |    |
|---|----|
| 1 | UN |
| 2 | B  |
| 3 | UB |

**C1019**

LC00194D  
R030030



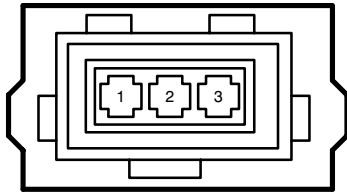
|   |    |
|---|----|
| 1 | -  |
| 2 | BW |
| 3 | BW |

LC00191D

LC010019B

**C1035**

R030041

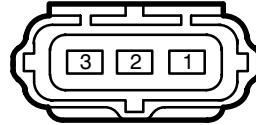


|   |    |
|---|----|
| 1 | WB |
| 2 | -  |
| 3 | W  |

R040018

**C1036**

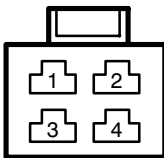
R030003



|   |   |
|---|---|
| 1 | U |
| 2 | B |
| 3 | R |

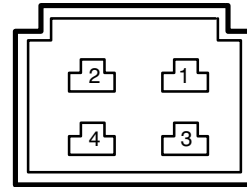
R040015

**C200**



|   |    |   |   |
|---|----|---|---|
| 1 | NY | 3 | R |
| 2 | U  | 4 | - |

LC00200B

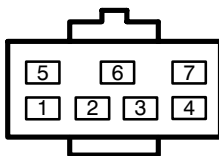


|   |    |   |   |
|---|----|---|---|
| 1 | NP | 3 | R |
| 2 | U  | 4 | - |

LC00200B

**C201**

R070011



|   |    |   |    |
|---|----|---|----|
| 1 | R  | 5 | UW |
| 2 | NG | 6 | NP |
| 3 | UR | 7 | PO |
| 4 | U  |   |    |

LC00201A

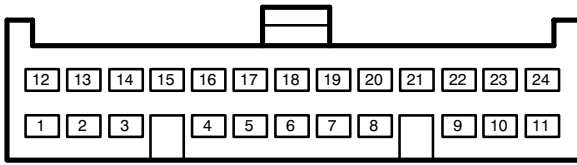
# Z6 ETM

## 1995 RANGE ROVER

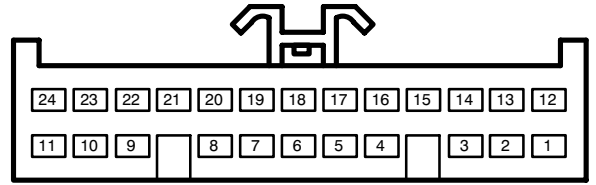
R240004

### C202

R240001



|   |     |    |     |    |    |    |    |
|---|-----|----|-----|----|----|----|----|
| 1 | B   | 7  | WLG | 13 | GR | 19 | PN |
| 2 | UR  | 8  | LGP | 14 | WP | 20 | PU |
| 3 | GS  | 9  | LGN | 15 | GW | 21 | PO |
| 4 | LGG | 10 | ULG | 16 | WY | 22 | NG |
| 5 | -   | 11 | LGB | 17 | RW | 23 | BR |
| 6 | UW  | 12 | RLG | 18 | UW | 24 | P  |

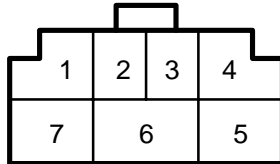


|   |     |    |     |    |    |    |    |
|---|-----|----|-----|----|----|----|----|
| 1 | B   | 7  | WLG | 13 | GR | 19 | PN |
| 2 | UR  | 8  | LGP | 14 | WP | 20 | PW |
| 3 | GS  | 9  | LGN | 15 | GW | 21 | PO |
| 4 | LGG | 10 | ULG | 16 | WY | 22 | NG |
| 5 | -   | 11 | LGB | 17 | RW | 23 | BR |
| 6 | UW  | 12 | RLG | 18 | UW | 24 | P  |

LC00202D

R070005

### C203

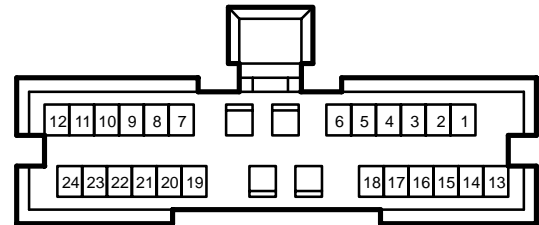


|   |    |   |     |
|---|----|---|-----|
| 1 | UR | 5 | LGW |
| 2 | U  | 6 | W   |
| 3 | R  | 7 | NP  |
| 4 | W  |   |     |

LC00202D

R240003

### C205

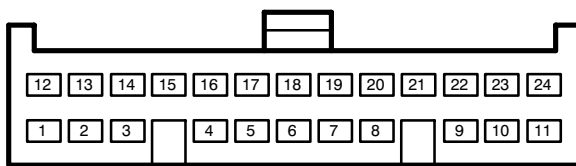


|   |    |    |     |    |     |    |       |
|---|----|----|-----|----|-----|----|-------|
| 1 | PU | 7  | RW  | 13 | LGB | 19 | BP    |
| 2 | G  | 8  | WLG | 14 | Y   | 20 | PB/PO |
| 3 | BG | 9  | LGG | 15 | OU  | 21 | WP    |
| 4 | PU | 10 | BK  | 16 | LGS | 22 | NS    |
| 5 | PW | 11 | -   | 17 | UB  | 23 | NO    |
| 6 | B  | 12 | WR  | 18 | PG  | 24 | PY    |

LC00203A

R240004

### C204



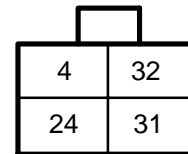
|   |     |    |     |    |    |    |    |
|---|-----|----|-----|----|----|----|----|
| 1 | LGP | 7  | GY  | 13 | WY | 19 | GR |
| 2 | LGN | 8  | RB  | 14 | GW | 20 | WR |
| 3 | WN  | 9  | GLG | 15 | -  | 21 | GO |
| 4 | P   | 10 | GS  | 16 | GR | 22 | UO |
| 5 | LGP | 11 | US  | 17 | -  | 23 | RD |
| 6 | -   | 12 | UB  | 18 | -  | 24 | UK |

LC00204B

LC00205D

R040014

### C206



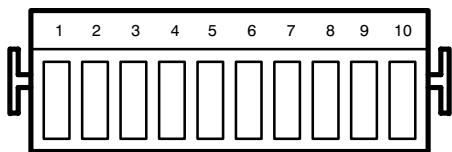
|    |    |    |    |
|----|----|----|----|
| 4  | R  | 31 | B  |
| 24 | UW | 32 | OS |

LC00206A



R100007

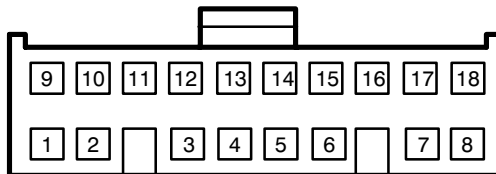
**C207**



|   |    |   |    |   |     |    |     |
|---|----|---|----|---|-----|----|-----|
| 1 | LG | 4 | G  | 6 | LGU | 8  | B   |
| 2 | SG | 5 | WS | 7 | LG  | 9  | LGG |
| 3 | UO |   |    |   |     | 10 | BLG |

R180001

**C208**

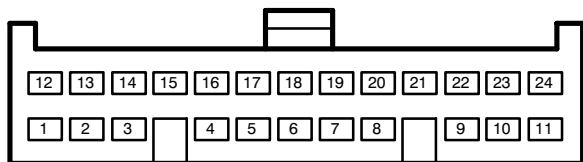


|   |    |    |     |    |    |    |    |
|---|----|----|-----|----|----|----|----|
| 1 | G  | 6  | GLG | 11 | -  | 16 | -  |
| 2 | -  | 7  | GR  | 12 | UO | 17 | B  |
| 3 | PY | 8  | GW  | 13 | UR | 18 | BO |
| 4 | RO | 9  | W   | 14 | WN |    |    |
| 5 | LG | 10 | -   | 15 | -  |    |    |

LC00207B

R240004

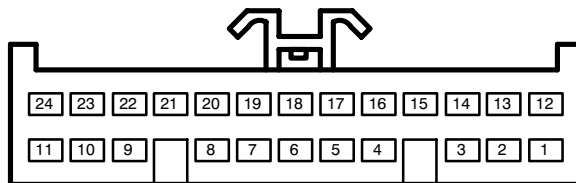
**C209**



|   |     |    |     |    |      |    |    |
|---|-----|----|-----|----|------|----|----|
| 1 | BK  | 7  | SG  | 13 | RB   | 19 | BU |
| 2 | BR  | 8  | LGO | 14 | B/SN | 20 | BK |
| 3 | BW  | 9  | US  | 15 | RW   | 21 | BN |
| 4 | BN  | 10 | G   | 16 | BR   | 22 | BP |
| 5 | UP  | 11 | YK  | 17 | PO   | 23 | WY |
| 6 | GLG | 12 | RN  | 18 | SW   | 24 | PU |

LC00208B

R240001

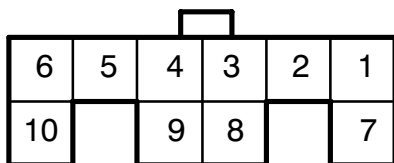


|   |    |    |     |    |    |    |    |
|---|----|----|-----|----|----|----|----|
| 1 | BK | 7  | SG  | 13 | RB | 19 | BU |
| 2 | BR | 8  | LGO | 14 | SN | 20 | BK |
| 3 | BW | 9  | US  | 15 | RW | 21 | BN |
| 4 | BN | 10 | G   | 16 | BR | 22 | BP |
| 5 | UP | 11 | YK  | 17 | PO | 23 | WY |
| 6 | SU | 12 | RN  | 18 | SW | 24 | PU |

LC00209B

R100010

**C211**



|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | WY | 4 | GR | 6 | GW | 8  | -  |
| 2 | -  | 5 | PY | 7 | RO | 9  | NP |
| 3 | -  |   |    |   |    | 10 | -  |

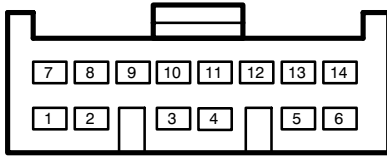
LC00209B

LC00211D

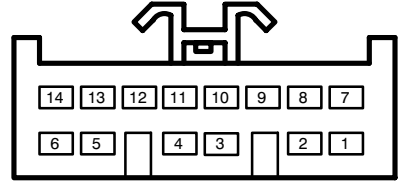
R140006

### C212

R140001



|   |     |    |    |    |    |
|---|-----|----|----|----|----|
| 1 | LGO | 6  | PN | 11 | O  |
| 2 | PB  | 7  | NG | 12 | GP |
| 3 | RY  | 8  | NO | 13 | PU |
| 4 | GB  | 9  | RB | 14 | GR |
| 5 | GN  | 10 | K  |    |    |



|   |     |    |    |    |    |
|---|-----|----|----|----|----|
| 1 | LGO | 6  | PN | 11 | O  |
| 2 | PB  | 7  | NG | 12 | GP |
| 3 | RY  | 8  | NR | 13 | PU |
| 4 | GB  | 9  | RB | 14 | GR |
| 5 | GN  | 10 | K  |    |    |

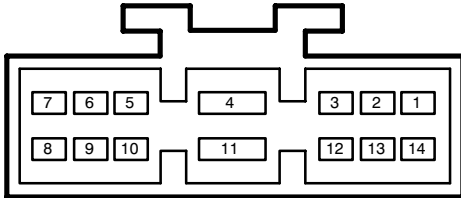
LC00212B

R140003

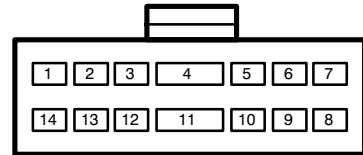
### C213

LC00212B

R140005



|   |    |    |    |    |     |
|---|----|----|----|----|-----|
| 1 | GW | 6  | RY | 11 | PN  |
| 2 | RB | 7  | GN | 12 | LGO |
| 3 | RO | 8  | GR | 13 | -   |
| 4 | -  | 9  | GP | 14 | -   |
| 5 | YP | 10 | PY |    |     |



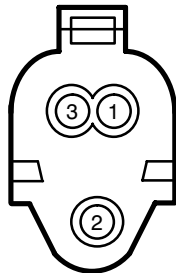
|   |    |    |    |    |     |
|---|----|----|----|----|-----|
| 1 | GW | 6  | RY | 11 | P   |
| 2 | RB | 7  | GN | 12 | LGO |
| 3 | RO | 8  | GR | 13 | -   |
| 4 | -  | 9  | GP | 14 | -   |
| 5 | YP | 10 | PY |    |     |

LC00213B

R030026

### C214

LC00213B



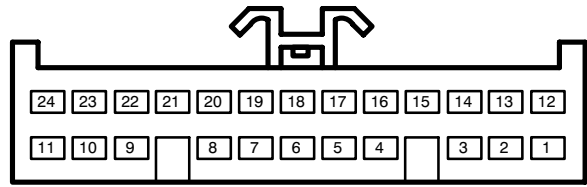
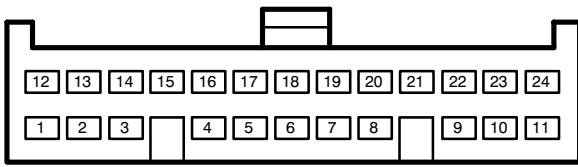
|   |    |
|---|----|
| 1 | RN |
| 2 | RO |
| 3 | B  |

LC00214A

R240004

R240001

**C215**



|   |     |    |     |    |     |    |    |
|---|-----|----|-----|----|-----|----|----|
| 1 | OU  | 7  | LGN | 13 | WS  | 19 | UY |
| 2 | GU  | 8  | -   | 14 | G   | 20 | PS |
| 3 | BY  | 9  | PN  | 15 | YO  | 21 | WR |
| 4 | LGS | 10 | BP  | 16 | LGP | 22 | RY |
| 5 | YR  | 11 | NY  | 17 | GB  | 23 | NP |
| 6 | BLG | 12 | PG  | 18 | UK  | 24 | K  |

|   |     |    |     |    |     |    |    |
|---|-----|----|-----|----|-----|----|----|
| 1 | OU  | 7  | LGN | 13 | WS  | 19 | UY |
| 2 | GU  | 8  | -   | 14 | G   | 20 | PS |
| 3 | BY  | 9  | PN  | 15 | YO  | 21 | WR |
| 4 | LGS | 10 | BP  | 16 | LGP | 22 | RY |
| 5 | YP  | 11 | NY  | 17 | GB  | 23 | NP |
| 6 | BLG | 12 | PN  | 18 | UK  | 24 | K  |

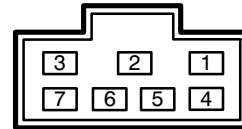
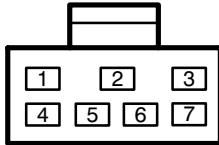
LC00215D

LC00215D

R070010

R070004

**C216**



|   |     |   |    |
|---|-----|---|----|
| 1 | NLG | 5 | BN |
| 2 | WP  | 6 | -  |
| 3 | PW  | 7 | WG |
| 4 | NR  |   |    |

|   |     |   |    |
|---|-----|---|----|
| 1 | NLG | 5 | BR |
| 2 | WP  | 6 | BG |
| 3 | PW  | 7 | WG |
| 4 | NR  |   |    |

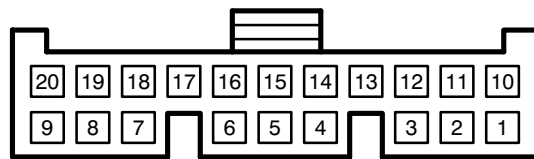
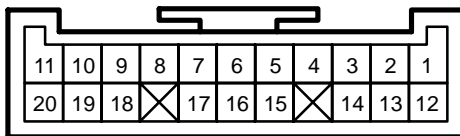
LC00216B

LC00216B

R200002

R200006

**C217**



|   |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| 1 | GU | 6  | NO | 11 | YB | 16 | NG |
| 2 | WS | 7  | K  | 12 | BY | 17 | NY |
| 3 | WN | 8  | PY | 13 | NK | 18 | WG |
| 4 | BP | 9  | YK | 14 | -  | 19 | PB |
| 5 | WU | 10 | OB | 15 | RS | 20 | GW |

|   |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| 1 | GU | 6  | NO | 11 | YB | 16 | NG |
| 2 | WS | 7  | K  | 12 | PO | 17 | NY |
| 3 | WN | 8  | PK | 13 | YK | 18 | WG |
| 4 | BP | 9  | YK | 14 | -  | 19 | PB |
| 5 | WU | 10 | OB | 15 | BY | 20 | GW |

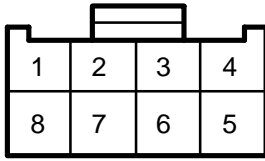
LC00217D

LC00217D

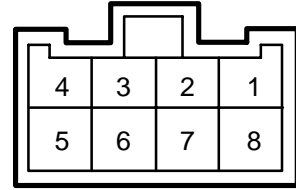
R080012

### C218

R080011



|   |    |   |    |
|---|----|---|----|
| 1 | WU | 5 | -  |
| 2 | BY | 6 | B  |
| 3 | PW | 7 | P  |
| 4 | WY | 8 | PY |



|   |    |   |    |
|---|----|---|----|
| 1 | -  | 5 | -  |
| 2 | BY | 6 | -  |
| 3 | -  | 7 | -  |
| 4 | WY | 8 | PY |

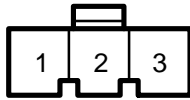
LC00218B

R030017

### C220

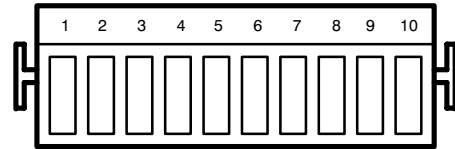
LC00218B

R100007



|   |    |
|---|----|
| 1 | NW |
| 2 | LG |
| 3 | -  |

### C222



|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | BY | 4 | -  | 6 | Y  | 8  | GU |
| 2 | LG | 5 | WN | 7 | RN | 9  | RN |
| 3 | K  |   |    |   |    | 10 | B  |

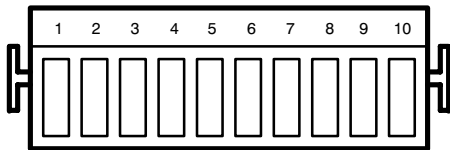
LC00220A

R100007

### C221

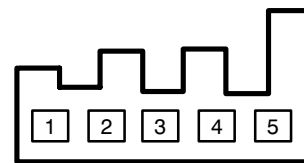
LC00222B

R050005



|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | B  | 4 | YK | 6 | -  | 8  | LG |
| 2 | BR | 5 | NY | 7 | PO | 9  | WR |
| 3 | GB |   |    |   |    | 10 | RB |

### C223



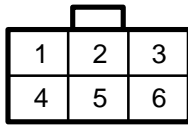
|   |   |   |   |
|---|---|---|---|
| 1 | G | 4 | - |
| 2 | - | 5 | S |
| 3 | P |   |   |

LC00221B

LC00223A

**C224**

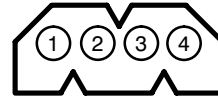
R060008



|   |     |   |     |
|---|-----|---|-----|
| 1 | B   | 4 | GS  |
| 2 | NLG | 5 | RLG |
| 3 | ULG | 6 | -   |

**C227**

R040007

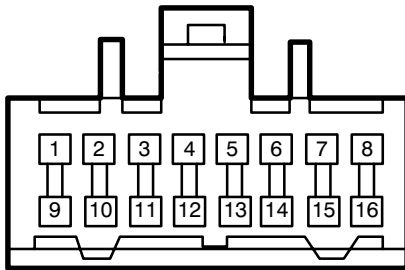


|   |    |   |     |
|---|----|---|-----|
| 1 | GP | 3 | LGK |
| 2 | GO | 4 | WS  |

**C225**

LC00224A

R160002

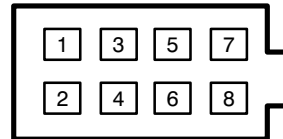


|   |    |   |    |    |    |    |    |
|---|----|---|----|----|----|----|----|
| 1 | PO | 5 | -  | 9  | -  | 13 | -  |
| 2 | OY | 6 | YO | 10 | GK | 14 | RW |
| 3 | YB | 7 | BY | 11 | BK | 15 | BN |
| 4 | -  | 8 | WB | 12 | PU | 16 | PB |

**C228**

LC00227B

R080015



|   |    |   |    |
|---|----|---|----|
| 1 | BK | 5 | BP |
| 2 | BN | 6 | SU |
| 3 | SW | 7 | BU |
| 4 | SN | 8 | -  |

**C226**

LC00225B

R030019

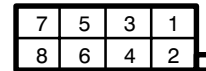


|   |     |
|---|-----|
| 1 | -   |
| 2 | WY  |
| 3 | LGW |

**C230**

LC00228B

R080017



|   |    |   |     |
|---|----|---|-----|
| 1 | -  | 5 | PY  |
| 2 | -  | 6 | RN  |
| 3 | -  | 7 | LGO |
| 4 | PN | 8 | B   |

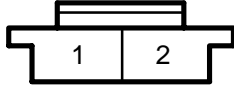
LC00226A

LC00230B

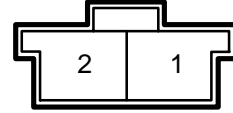
R020029

**C231**

R020013



|   |    |
|---|----|
| 1 | RB |
| 2 | KB |



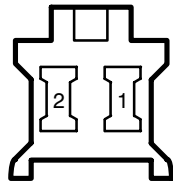
|   |    |
|---|----|
| 1 | RB |
| 2 | KB |

LC00231B

R020040

LC00231B

**C232**



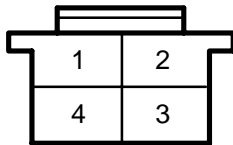
|   |    |
|---|----|
| 1 | UB |
| 2 | RB |

LC00232B

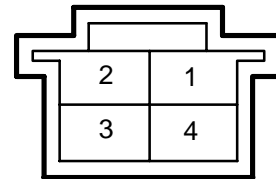
R040011

**C233**

R040017



|   |    |   |    |
|---|----|---|----|
| 1 | BN | 3 | WB |
| 2 | BW | 4 | NB |



|   |       |   |    |
|---|-------|---|----|
| 1 | BR/BK | 3 | KB |
| 2 | BK/BR | 4 | RB |

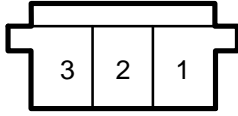
LC00233D

LC00233D

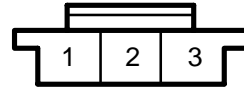
R030009

**C234**

R030010



|   |    |
|---|----|
| 1 | B  |
| 2 | RY |
| 3 | BS |



|   |    |
|---|----|
| 1 | B  |
| 2 | RY |
| 3 | BS |

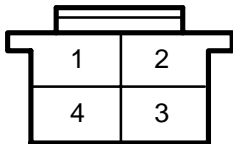
LC00234B

R040011

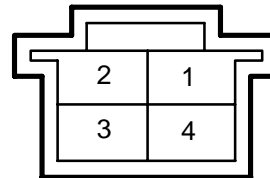
**C235**

LC00234B

R040017



|   |    |   |    |
|---|----|---|----|
| 1 | BN | 3 | WB |
| 2 | BW | 4 | NB |



|   |       |   |    |
|---|-------|---|----|
| 1 | BN/BW | 3 | WB |
| 2 | BW/BN | 4 | NB |

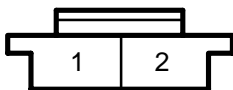
LC00235D

R020029

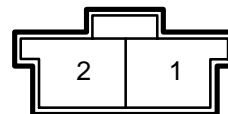
**C236**

LC00235D

R020013



|   |    |
|---|----|
| 1 | NB |
| 2 | WB |



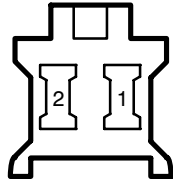
|   |    |
|---|----|
| 1 | NB |
| 2 | KB |

LC00236B

LC00236B

**C237**

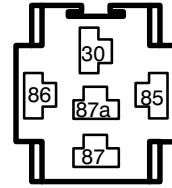
R020040



|   |    |
|---|----|
| 1 | WB |
| 2 | NB |

**C240**

R050001

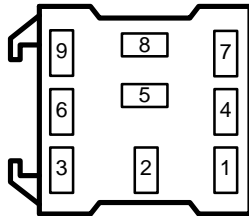


|    |    |     |    |
|----|----|-----|----|
| 30 | PW | 87  | WP |
| 85 | UP | 87A | WO |
| 86 | WG |     |    |

**C238**

LC00237B

R090002

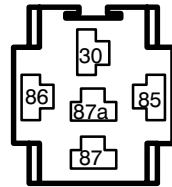


|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 1 | -  | 4 | BR | 7 | -  |
| 2 | NO | 5 | BG | 8 | GW |
| 3 | -  | 6 | B  | 9 | PB |

**C241**

LC00240A

R050001

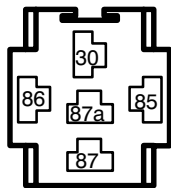


|    |       |     |    |
|----|-------|-----|----|
| 30 | NG    | 87  | BG |
| 85 | BS/WG | 87A | -  |
| 86 | WG/G  |     |    |

**C239**

LC00238B

R050001

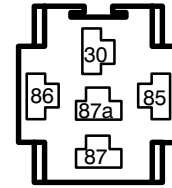


|    |     |     |    |
|----|-----|-----|----|
| 30 | NLG | 87  | NO |
| 85 | UR  | 87A | NO |
| 86 | NO  |     |    |

**C242**

LC00241B

R050001



|    |    |     |    |
|----|----|-----|----|
| 30 | WG | 87  | GY |
| 85 | WG | 87A | -  |
| 86 | YB |     |    |

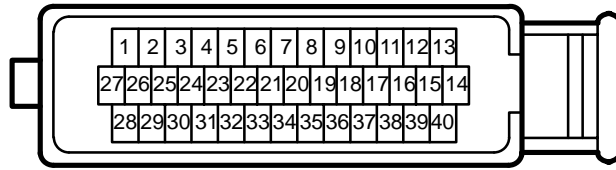
LC00239B

LC00242B



R400001

**C243**

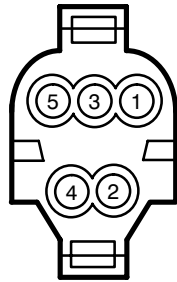


|   |    |    |     |    |    |    |      |    |    |    |    |    |    |
|---|----|----|-----|----|----|----|------|----|----|----|----|----|----|
| 1 | RG | 7  | GU  | 13 | YU | 19 | WG   | 25 | RB | 31 | BS | 37 | -  |
| 2 | NO | 8  | PY  | 14 | B  | 20 | R    | 26 | GW | 32 | SW | 38 | NK |
| 3 | Y  | 9  | WLG | 15 | NO | 21 | GY   | 27 | BS | 33 | BS | 39 | WU |
| 4 | B  | 10 | RS  | 16 | UP | 22 | UR   | 28 | US | 34 | OB | 40 | B  |
| 5 | SB | 11 | YW  | 17 | SY | 23 | LORE | 29 | O  | 35 | UG |    |    |
| 6 | YK | 12 | WR  | 18 | WK | 24 | LORE | 30 | K  | 36 | BG |    |    |

LC00243B  
R020033

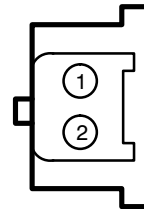
**C244**

R050012



|   |    |   |   |
|---|----|---|---|
| 1 | BS | 4 | - |
| 2 | -  | 5 | - |
| 3 | -  |   |   |

**C246**

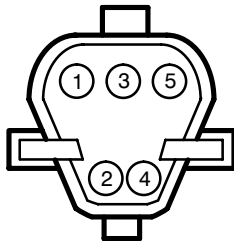


|   |    |
|---|----|
| 1 | BS |
| 2 | SB |

LC00244A  
R050013

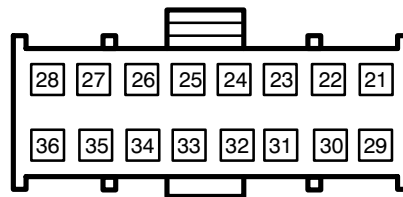
LC00246A  
R160003

**C245**



|   |    |   |     |
|---|----|---|-----|
| 1 | WK | 4 | WLG |
| 2 | -  | 5 | BS  |
| 3 | -  |   |     |

**C247**



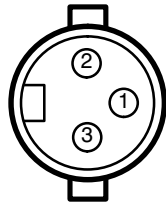
|    |    |    |    |    |     |    |    |
|----|----|----|----|----|-----|----|----|
| 21 | KB | 25 | R  | 29 | B   | 33 | WK |
| 22 | -  | 26 | GU | 30 | -   | 34 | RU |
| 23 | -  | 27 | -  | 31 | -   | 35 | RB |
| 24 | BO | 28 | WG | 32 | WLG | 36 | WS |

LC00245B

LC00247A

**C248**

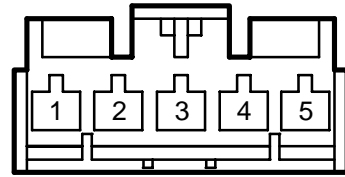
R030024



|   |     |
|---|-----|
| 1 | KB  |
| 2 | WLG |
| 3 | WK  |

**C250**

R050002.00

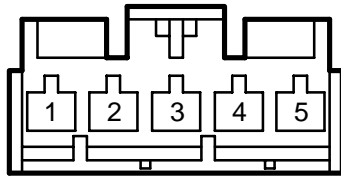


|   |     |   |    |
|---|-----|---|----|
| 1 | GLG | 4 | OU |
| 2 | RN  | 5 | B  |
| 3 | -   |   |    |

**C249**

LC00248A

R050002.03

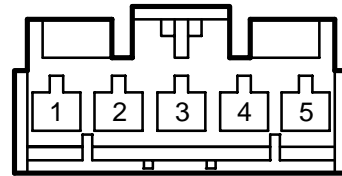


|   |     |   |     |
|---|-----|---|-----|
| 1 | GLG | 4 | LGS |
| 2 | RN  | 5 | B   |
| 3 | -   |   |     |

**C251**

LC00250A

R050002.00



|   |    |   |    |
|---|----|---|----|
| 1 | YO | 4 | YR |
| 2 | RN | 5 | B  |
| 3 | -  |   |    |

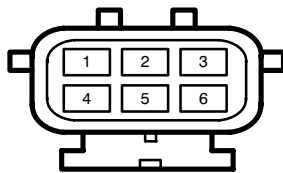
R060017

LC00249A

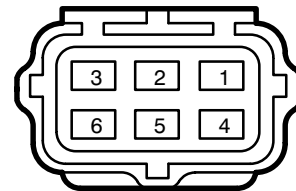
**C252**

LC00251B

R060016



|   |     |   |   |
|---|-----|---|---|
| 1 | P   | 4 | B |
| 2 | LGP | 5 | G |
| 3 | S   | 6 | G |



|   |    |   |   |
|---|----|---|---|
| 1 | P  | 4 | B |
| 2 | LG | 5 | G |
| 3 | S  | 6 | G |

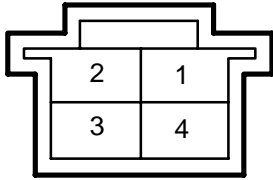
LC00252B

LC00252B

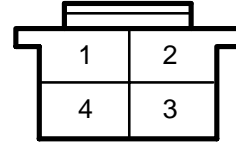
R040017

**C253**

R040011



|   |    |   |    |
|---|----|---|----|
| 1 | BG | 3 | BO |
| 2 | BU | 4 | BY |



|   |    |   |    |
|---|----|---|----|
| 1 | BG | 3 | BO |
| 2 | BU | 4 | BY |

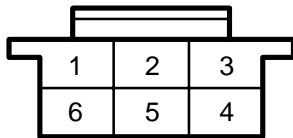
LC00253B

**C256**

R060009

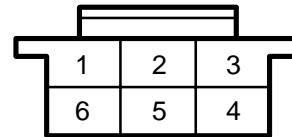
LC00253B

R060009



|   |    |   |    |
|---|----|---|----|
| 1 | RN | 4 | YU |
| 2 | B  | 5 | YN |
| 3 | YR | 6 | LG |

**C258**



|   |    |   |    |
|---|----|---|----|
| 1 | RN | 4 | YU |
| 2 | B  | 5 | YO |
| 3 | YW | 6 | LG |

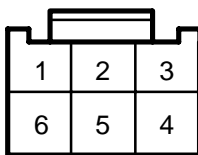
LC00256B

**C257**

R060022

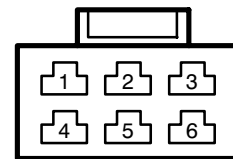
LC00258B

R060007



|   |    |   |    |
|---|----|---|----|
| 1 | YS | 4 | -  |
| 2 | YU | 5 | S  |
| 3 | B  | 6 | RN |

**C259**



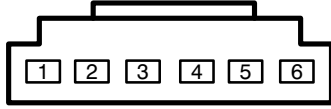
|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | RN |
| 2 | UK | 5 | UY |
| 3 | -  | 6 | -  |

LC00257B

LC00259B

**C260**

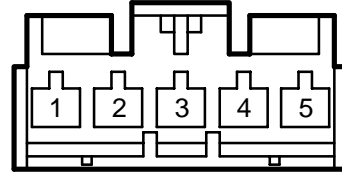
R060002



|   |    |   |    |
|---|----|---|----|
| 1 | PN | 4 | -  |
| 2 | B  | 5 | RS |
| 3 | B  | 6 | RY |

**C263**

R050002.01

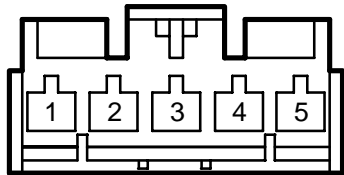


|   |    |   |    |
|---|----|---|----|
| 1 | UR | 4 | RY |
| 2 | RN | 5 | B  |
| 3 | -  |   |    |

**C261**

LC00260B

R050002.00

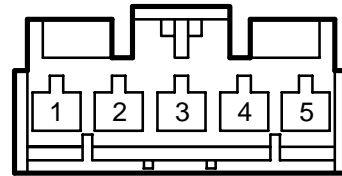


|   |    |   |    |
|---|----|---|----|
| 1 | US | 4 | UP |
| 2 | RN | 5 | B  |
| 3 | -  |   |    |

**C264**

LC00263A

R050002.00

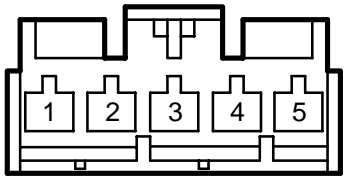


|   |    |   |    |
|---|----|---|----|
| 1 | BO | 4 | B  |
| 2 | RN | 5 | NR |
| 3 | -  |   |    |

**C262**

LC00261B

R050002.02

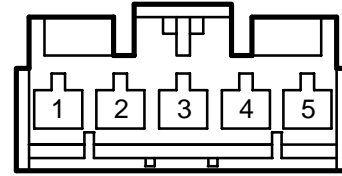


|   |     |   |    |
|---|-----|---|----|
| 1 | GLG | 4 | WY |
| 2 | RN  | 5 | B  |
| 3 | -   |   |    |

**C265**

LC00264B

R050002.00



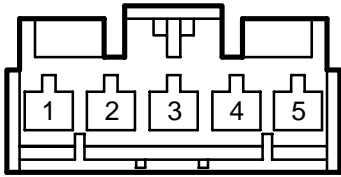
|   |    |   |    |
|---|----|---|----|
| 1 | BO | 4 | B  |
| 2 | RN | 5 | NR |
| 3 | -  |   |    |

LC00262A

LC00265B

**C266**

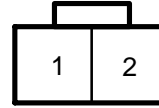
R050002.00



|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | PU |
| 2 | RN | 5 | B  |
| 3 | -  |   |    |

**C269**

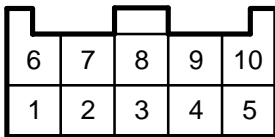
R020027



|   |    |
|---|----|
| 1 | PN |
| 2 | RW |

**C267**

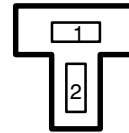
LC00266B  
R100008



|   |     |   |    |   |    |    |     |
|---|-----|---|----|---|----|----|-----|
| 1 | LGN | 4 | GW | 6 | W  | 8  | LGP |
| 2 | GR  | 5 | -  | 7 | PG | 9  | RN  |
| 3 | LGG |   |    |   |    | 10 | B   |

**C270**

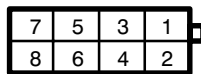
LC00269B  
R020015



|   |    |
|---|----|
| 1 | PN |
| 2 | B  |

**C268**

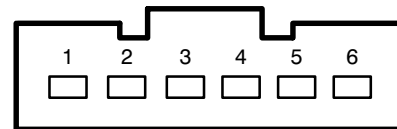
LC00267B  
R080016



|   |    |   |    |
|---|----|---|----|
| 1 | BG | 5 | BW |
| 2 | BU | 6 | BN |
| 3 | BR | 7 | BY |
| 4 | BR | 8 | BO |

**C274**

LC00270B  
R060001



|   |    |   |   |
|---|----|---|---|
| 1 | BO | 4 | O |
| 2 | B  | 5 | K |
| 3 | PO | 6 | P |

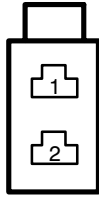
LC00268B

LC00274B

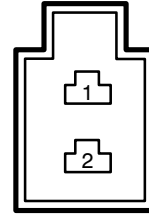
R020016

### C277

R020017



|   |    |
|---|----|
| 1 | WP |
| 2 | NP |



|   |    |
|---|----|
| 1 | WP |
| 2 | NP |

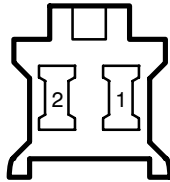
LC00277B

R020040

### C278

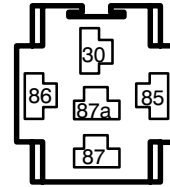
LC00277B

R050001



|   |    |
|---|----|
| 1 | BN |
| 2 | BW |

### C281



|     |    |    |     |
|-----|----|----|-----|
| 30  | NG | 86 | GLG |
| 85  | NO | 87 | NR  |
| 87A | B  |    |     |

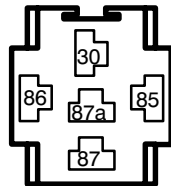
LC00278B

R050001

### C279

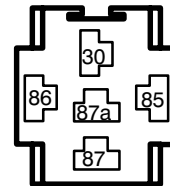
LC00281B

R050001



|     |    |    |    |
|-----|----|----|----|
| 30  | PU | 86 | PU |
| 85  | BK | 87 | GR |
| 87A | GW |    |    |

### C282



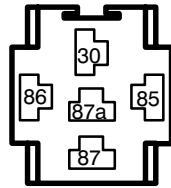
|     |    |    |     |
|-----|----|----|-----|
| 30  | NW | 86 | LG  |
| 85  | B  | 87 | LGW |
| 87A | -  |    |     |

LC00279A

LC00282A

R050001

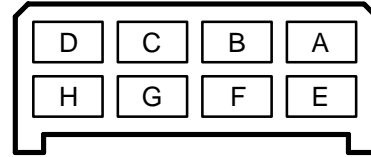
**C283**



|     |    |    |    |
|-----|----|----|----|
| 30  | PN | 86 | PO |
| 85  | PN | 87 | PG |
| 87A | -  |    |    |

R080003

**C288**

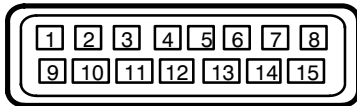


|   |    |   |    |
|---|----|---|----|
| A | PN | E | WK |
| B | SB | F | SR |
| C | B  | G | SK |
| D | PS | H | SU |

LC00283A

R150001

**C284**

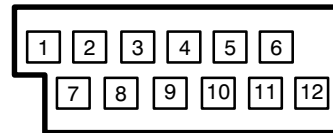


|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | WU | 6  | BY | 11 | YK |
| 2 | -  | 7  | BR | 12 | -  |
| 3 | RW | 8  | B  | 13 | -  |
| 4 | UW | 9  | PG | 14 | -  |
| 5 | GP | 10 | WY | 15 | -  |

LC00288A

R120003

**C289**

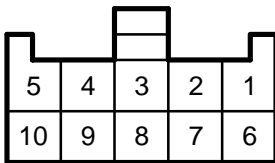


|   |    |   |    |    |   |
|---|----|---|----|----|---|
| 1 | KR | 5 | -  | 9  | P |
| 2 | RK | 6 | YO | 10 | - |
| 3 | GK | 7 | O  | 11 | B |
| 4 | OY | 8 | K  | 12 | - |

LC00284A

R100005

**C287**

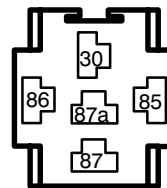


|   |     |   |    |   |    |    |    |
|---|-----|---|----|---|----|----|----|
| 1 | BK  | 4 | WG | 6 | BR | 8  | -  |
| 2 | -   | 5 | BU | 7 | PG | 9  | BS |
| 3 | LGP |   |    |   |    | 10 | -  |

LC00289B

R050001

**C290**



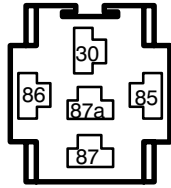
|     |     |    |    |
|-----|-----|----|----|
| 30  | BLG | 86 | B  |
| 85  | WR  | 87 | PG |
| 87A | -   |    |    |

LC00287B

LC00290B

**C291**

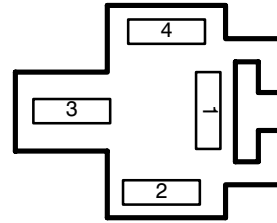
R050001



|     |    |    |    |
|-----|----|----|----|
| 30  | NG | 86 | UP |
| 85  | B  | 87 | UP |
| 87A | -  |    |    |

**C294**

R040025



|   |    |   |     |
|---|----|---|-----|
| 1 | PO | 3 | OS  |
| 2 | PY | 4 | LGP |

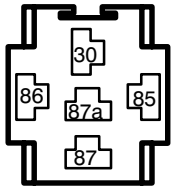
LC00291B

LC00294B

R050001

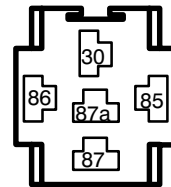
R050001

**C292**



|     |    |    |    |
|-----|----|----|----|
| 30  | NG | 86 | BP |
| 85  | GW | 87 | BN |
| 87A | -  |    |    |

**C295**



|     |    |    |    |
|-----|----|----|----|
| 30  | NR | 86 | B  |
| 85  | WG | 87 | NO |
| 87A | -  |    |    |

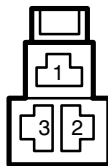
LC00292A

LC00295B

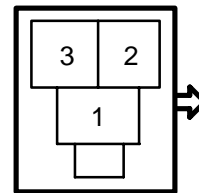
R030007

R030004

**C298**



|   |   |
|---|---|
| 1 | - |
| 2 | B |
| 3 | R |



|   |    |
|---|----|
| 1 | -  |
| 2 | WB |
| 3 | R  |

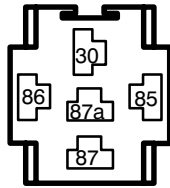
LC00298A

LC00298A



R050001

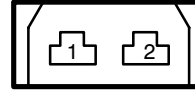
**C2000**



|     |    |    |    |
|-----|----|----|----|
| 30  | WP | 86 | WP |
| 85  | BK | 87 | RB |
| 87A | -  |    |    |

R020032

**C2005**

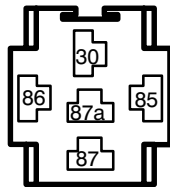


|   |    |
|---|----|
| 1 | PY |
| 2 | PG |

LC02000A

R050001

**C2001**

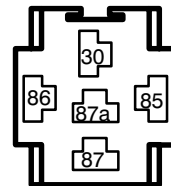


|     |    |    |    |
|-----|----|----|----|
| 30  | WY | 86 | BR |
| 85  | YB | 87 | SB |
| 87A | -  |    |    |

LC02005A

R050001

**C2006**

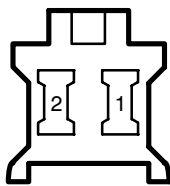


|     |    |    |    |
|-----|----|----|----|
| 30  | NW | 86 | BO |
| 85  | WR | 87 | NR |
| 87A | -  |    |    |

LC02001A

R020040

**C2002**

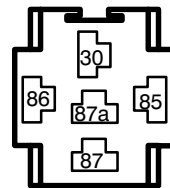


|   |    |
|---|----|
| 1 | BR |
| 2 | BK |

LC02006A

R050001

**C2007**



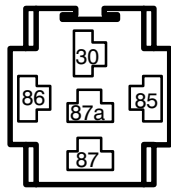
|     |     |    |    |
|-----|-----|----|----|
| 30  | NG  | 86 | B  |
| 85  | LGP | 87 | WG |
| 87A | YO  |    |    |

LC02002B

LC02007B

### C2008

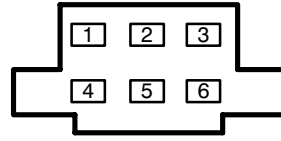
R050001



|     |     |    |    |
|-----|-----|----|----|
| 30  | LGP | 86 | NS |
| 85  | GS  | 87 | GS |
| 87A | NLG |    |    |

### C2011

R060013

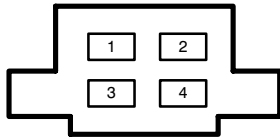


|   |     |   |   |
|---|-----|---|---|
| 1 | WLG | 4 | - |
| 2 | -   | 5 | - |
| 3 | B   | 6 | - |

### C2009

LC02008A

R040012

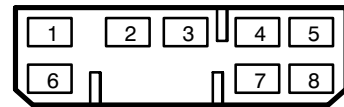


|   |    |   |     |
|---|----|---|-----|
| 1 | -  | 3 | LGN |
| 2 | GW | 4 | GR  |

### C2012

LC02011A

R080006

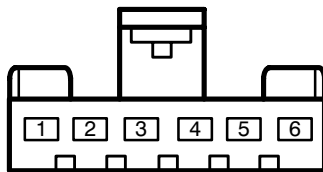


|   |    |   |    |
|---|----|---|----|
| 1 | PW | 5 | PN |
| 2 | P  | 6 | OW |
| 3 | WP | 7 | -  |
| 4 | BR | 8 | -  |

### C2010

LC02009A

R060005

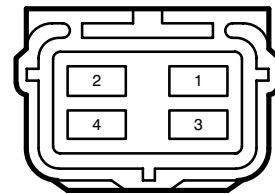


|   |    |   |    |
|---|----|---|----|
| 1 | WY | 4 | RW |
| 2 | -  | 5 | PO |
| 3 | UW | 6 | -  |

### C2013

LC02012A

R040001



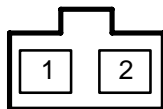
|   |    |   |    |
|---|----|---|----|
| 1 | PN | 3 | B  |
| 2 | PW | 4 | WP |

LC02010A

LC02013A

**C2014**

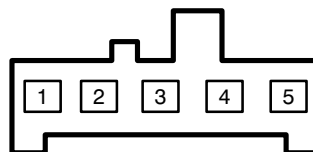
R020022



|   |    |
|---|----|
| 1 | OW |
| 2 | B  |

**C2022**

R050006

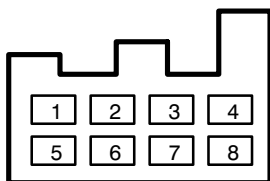


|   |    |   |    |
|---|----|---|----|
| 1 | WB | 4 | PU |
| 2 | BO | 5 | N  |
| 3 | G  |   |    |

**C2015**

LC02014A

R080009

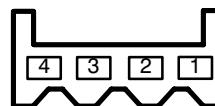


|   |     |   |     |
|---|-----|---|-----|
| 1 | GS  | 5 | LGB |
| 2 | LGG | 6 | LGB |
| 3 | ULG | 7 | -   |
| 4 | RLG | 8 | GS  |

**C2023**

LC02022A

R040004

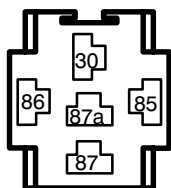


|   |    |   |    |
|---|----|---|----|
| 1 | S  | 3 | WB |
| 2 | UR | 4 | LG |

**C2021**

LC02015A

R050001

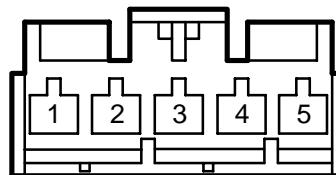


|     |       |    |    |
|-----|-------|----|----|
| 30  | WS/WU | 86 | WS |
| 85  | BY/B  | 87 | PW |
| 87A | PY    |    |    |

**C2025**

LC02023A

R050002.02



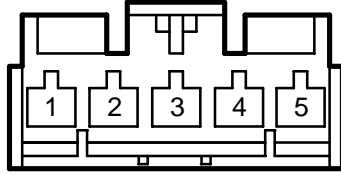
|   |    |   |    |
|---|----|---|----|
| 1 | N  | 4 | NW |
| 2 | LG | 5 | UR |
| 3 | WB |   |    |

LC02021A

LC02025A

R050002.00

**C2026**



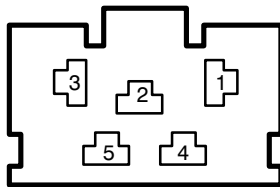
|   |    |   |    |
|---|----|---|----|
| 1 | WB | 4 | RG |
| 2 | LG | 5 | UR |
| 3 | UB |   |    |

LC02026A

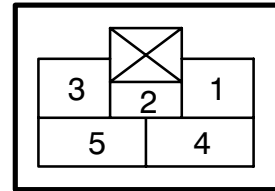
R050003

**C2027**

R050018



|   |    |   |    |
|---|----|---|----|
| 1 | WB | 4 | G  |
| 2 | N  | 5 | BO |
| 3 | PU |   |    |



|   |    |   |    |
|---|----|---|----|
| 1 | WB | 4 | G  |
| 2 | N  | 5 | BO |
| 3 | PU |   |    |

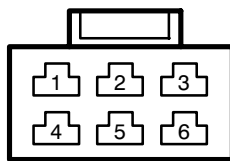
LC02027A

R060007

**C2028**

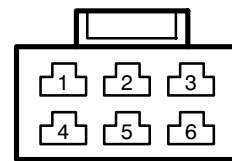
LC02027A

R060007



|   |   |   |   |
|---|---|---|---|
| 1 | B | 4 | B |
| 2 | B | 5 | B |
| 3 | B | 6 | B |

**C2029**



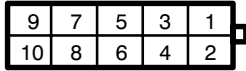
|   |   |   |   |
|---|---|---|---|
| 1 | B | 4 | B |
| 2 | B | 5 | B |
| 3 | B | 6 | B |

LC02028A

LC02029A

**C2030**

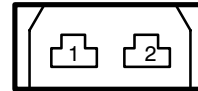
R100011



|   |   |   |   |   |   |    |    |
|---|---|---|---|---|---|----|----|
| 1 | - | 4 | - | 6 | - | 8  | -  |
| 2 | - | 5 | - | 7 | - | 9  | RY |
| 3 | - |   |   |   |   | 10 | B  |

**C2035**

R020032

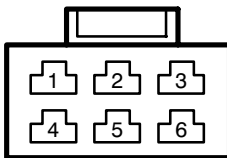


|   |    |
|---|----|
| 1 | PW |
| 2 | P  |

**C2031**

LC02030B

R060007

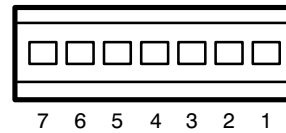


|   |   |   |   |
|---|---|---|---|
| 1 | B | 4 | B |
| 2 | B | 5 | B |
| 3 | B | 6 | B |

**C2036**

LC02035A

R070001

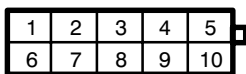


|   |    |   |    |
|---|----|---|----|
| 1 | PB | 5 | YB |
| 2 | W  | 6 | PB |
| 3 | R  | 7 | PB |
| 4 | GR |   |    |

**C2032**

LC02031B

R100014



|   |   |   |    |   |   |    |   |
|---|---|---|----|---|---|----|---|
| 1 | - | 4 | R  | 6 | - | 8  | B |
| 2 | Y | 5 | LG | 7 | B | 9  | B |
| 3 | U |   |    |   |   | 10 | B |

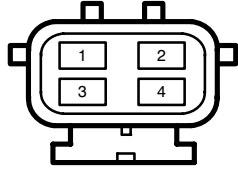
LC02032B

LC02036A

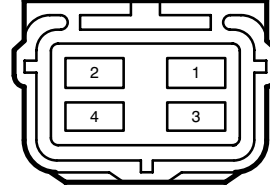
R040002

### C2039

R040001



|   |   |   |   |
|---|---|---|---|
| 1 | B | 3 | B |
| 2 | B | 4 | B |

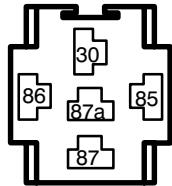


|   |    |   |    |
|---|----|---|----|
| 1 | BS | 3 | Y  |
| 2 | B  | 4 | YK |

LC02039D

R050001

### C2044

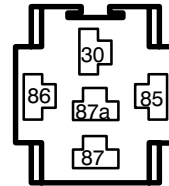


|     |    |    |    |
|-----|----|----|----|
| 30  | RG | 86 | B  |
| 85  | RB | 87 | RN |
| 87A | WY |    |    |

LC02039D

R050001

### C2046

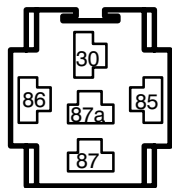


|     |    |    |    |
|-----|----|----|----|
| 30  | B  | 86 | WY |
| 85  | BK | 87 | -  |
| 87A | BG |    |    |

LC02044D

R050001

### C2045

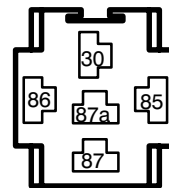


|     |    |    |    |
|-----|----|----|----|
| 30  | BP | 86 | B  |
| 85  | K  | 87 | BK |
| 87A | -  |    |    |

LC02046B

R050001

### C2047



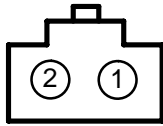
|     |    |    |    |
|-----|----|----|----|
| 30  | UW | 86 | UB |
| 85  | WY | 87 | B  |
| 87A | NG |    |    |

LC02045D

LC02047D

R020026

**C2063**



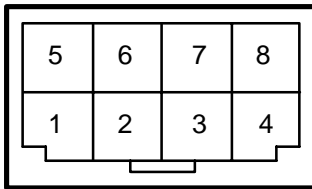
|   |    |
|---|----|
| 1 | GP |
| 2 | GO |

LC02063B

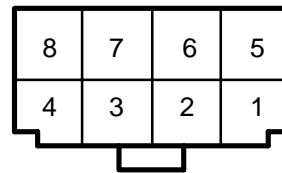
R080001

**C2066**

R080002



|   |    |   |    |
|---|----|---|----|
| 1 | BO | 5 | UR |
| 2 | G  | 6 | UB |
| 3 | PU | 7 | WB |
| 4 | N  | 8 | RG |



|   |    |   |    |
|---|----|---|----|
| 1 | BO | 5 | UR |
| 2 | G  | 6 | UB |
| 3 | PU | 7 | WB |
| 4 | N  | 8 | RG |

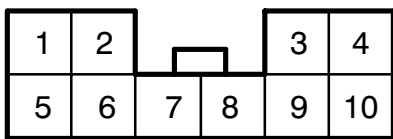
LC02066A

R100003

**C2067**

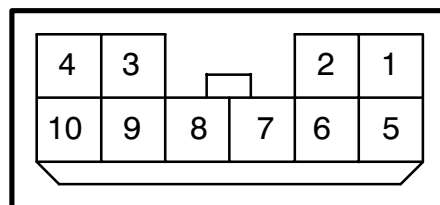
LC02066A

R100001



|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | NW | 4 | S  | 6 | UB | 8  | WB |
| 2 | N  | 5 | RG | 7 | UW | 9  | W  |
| 3 | LG |   |    |   |    | 10 | UR |

LC02067A

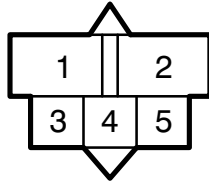


|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | NW | 4 | S  | 6 | UB | 8  | WB |
| 2 | N  | 5 | RG | 7 | UW | 9  | W  |
| 3 | LG |   |    |   |    | 10 | UR |

LC02067A

### C2068

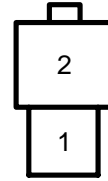
R050016



|   |    |   |    |
|---|----|---|----|
| 1 | R  | 4 | WB |
| 2 | WR | 5 | UR |
| 3 | N  |   |    |

### C2071

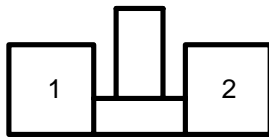
R020046



|   |    |
|---|----|
| 1 | YB |
| 2 | UR |

### C2069

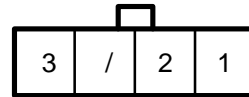
LC02068A  
R020049



|   |    |
|---|----|
| 1 | BO |
| 2 | WR |

### C2072

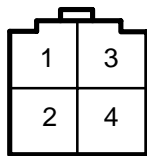
LC02071A  
R030015



|   |    |
|---|----|
| 1 | YB |
| 2 | UB |
| 3 | RG |

### C2070

LC02069A  
R040022



|   |    |   |    |
|---|----|---|----|
| 1 | BO | 3 | PU |
| 2 | G  | 4 | WB |

LC02072A

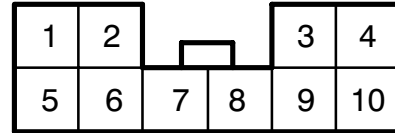
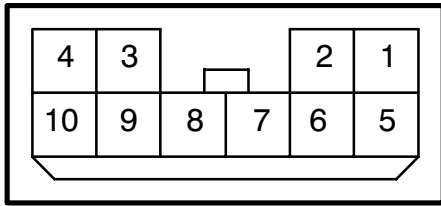
LC02070A



R100001

R100003

**C2073**



|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | UW | 4 | NW | 6 | -  | 8  | L  |
| 2 | LG | 5 | W  | 7 | UR | 9  | OG |
| 3 | P  |   |    |   |    | 10 | S  |

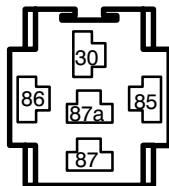
|   |    |   |    |   |    |    |    |
|---|----|---|----|---|----|----|----|
| 1 | -  | 4 | PB | 6 | -  | 8  | NO |
| 2 | RN | 5 | -  | 7 | WG | 9  | YB |
| 3 | B  |   |    |   |    | 10 | YR |

LC02073B

LC02073B

R050001

**C2074**



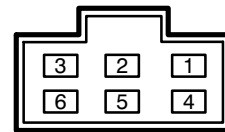
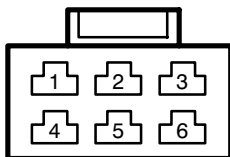
|     |    |    |     |
|-----|----|----|-----|
| 30  | PU | 86 | BK  |
| 85  | PU | 87 | LGR |
| 87A | -  |    |     |

LC02074A

R060007

R060006

**C301**



|   |    |   |    |
|---|----|---|----|
| 1 | SG | 4 | SW |
| 2 | SG | 5 | SN |
| 3 | SO | 6 | S  |

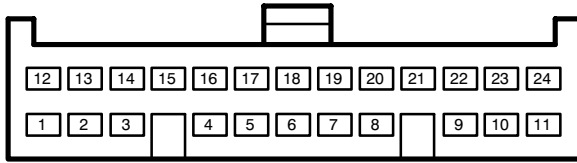
|   |    |   |    |
|---|----|---|----|
| 1 | SG | 4 | SW |
| 2 | SG | 5 | SN |
| 3 | SO | 6 | S  |

LC00301A

LC00301A

R240004

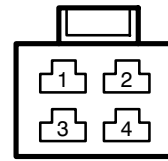
### C302



|   |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| 1 | BK | 7  | YK | 13 | ON | 19 | OP |
| 2 | SW | 8  |    | 14 | YG | 20 | PB |
| 3 | BN | 9  | WS | 15 | PN | 21 | OW |
| 4 | BU | 10 |    | 16 | OU | 22 | WK |
| 5 | BP | 11 | RY | 17 | PG | 23 | OK |
| 6 | SN | 12 | PK | 18 | WG | 24 | BU |

R040018

### C303

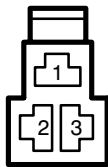


|   |    |   |    |
|---|----|---|----|
| 1 | WY | 3 | WR |
| 2 | B  | 4 | B  |

LC00302B

R030008

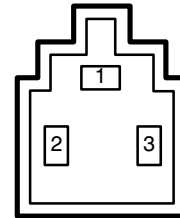
### C304



|   |    |
|---|----|
| 1 | BP |
| 2 | WO |
| 3 | WU |

LC00303B

R030006

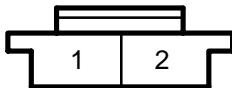


|   |    |
|---|----|
| 1 | B  |
| 2 | WO |
| 3 | WU |

LC00304D

R020029

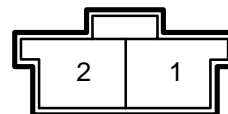
### C305



|   |    |
|---|----|
| 1 | PN |
| 2 | PU |

LC00304D

R020013



|   |    |
|---|----|
| 1 | PN |
| 2 | PU |

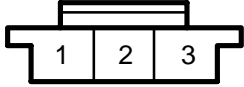
LC00305B

LC00305B

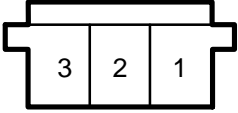
R030010

**C306**

R030009



|   |    |
|---|----|
| 1 | PW |
| 2 | O  |
| 3 | K  |



|   |    |
|---|----|
| 1 | PW |
| 2 | O  |
| 3 | K  |

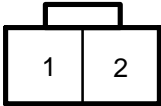
LC00306A

R020027

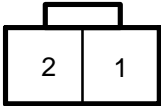
**C307**

LC00306A

R020027



|   |    |
|---|----|
| 1 | GN |
| 2 | B  |



|   |    |
|---|----|
| 1 | GN |
| 2 | B  |

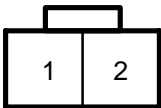
LC00307B

R020027

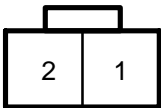
**C309**

LC00307B

R020027



|   |    |
|---|----|
| 1 | GR |
| 2 | B  |



|   |    |
|---|----|
| 1 | GR |
| 2 | B  |

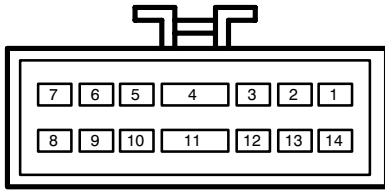
LC00309B

LC00309B

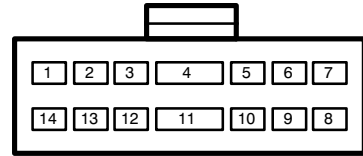
R140004

### C311

R140005



|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | -  | 6  | BU | 11 | NK |
| 2 | WY | 7  | -  | 12 | GP |
| 3 | B  | 8  | -  | 13 | YK |
| 4 | OW | 9  | BR | 14 | -  |
| 5 | WS | 10 | PU |    |    |



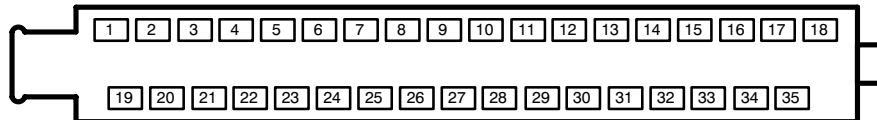
|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | -  | 6  | BU | 11 | NK |
| 2 | WY | 7  | -  | 12 | GP |
| 3 | B  | 8  | -  | 13 | YK |
| 4 | OW | 9  | BR | 14 | -  |
| 5 | WS | 10 | PU |    |    |

LC00311B

### C312

LC00311B

R350002

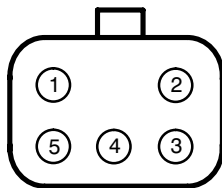


|   |    |    |     |    |    |    |    |    |    |    |    |    |    |
|---|----|----|-----|----|----|----|----|----|----|----|----|----|----|
| 1 | NK | 6  | SR  | 11 | SO | 16 | W  | 21 | SG | 26 | SG | 31 | BY |
| 2 | RY | 7  | SU  | 12 | SB | 17 | G  | 22 | SP | 27 | B  | 32 | G  |
| 3 | RB | 8  | BG  | 13 | WK | 18 | W  | 23 | SK | 28 | -  | 33 | W  |
| 4 | SY | 9  | LGK | 14 | BK | 19 | NK | 24 | SN | 29 | -  | 34 | G  |
| 5 | SW | 10 | WS  | 15 | G  | 20 | RW | 25 | GP | 30 | WB | 35 | W  |

R050014

### C313

LC00312B



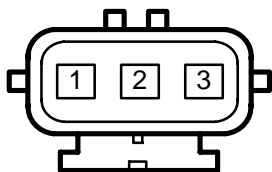
|   |     |   |   |
|---|-----|---|---|
| 1 | WK  | 4 | - |
| 2 | BK  | 5 | B |
| 3 | LGK |   |   |

LC00313B

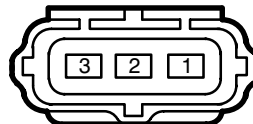
R030001

**C314**

R030003



|   |    |
|---|----|
| 1 | BW |
| 2 | B  |
| 3 | BY |



|   |    |
|---|----|
| 1 | BW |
| 2 | B  |
| 3 | K  |

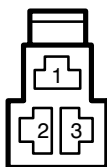
LC00314B

R030008

**C315**

LC00314B

R030007



|   |    |
|---|----|
| 1 | B  |
| 2 | WR |
| 3 | WY |



|   |    |
|---|----|
| 1 | B  |
| 2 | WR |
| 3 | WY |

LC00315D

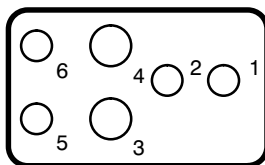
R060014

**C316**

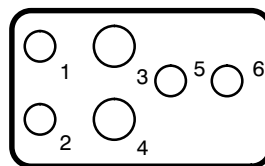
LC00315D

R060015

**C317**



|   |    |   |    |
|---|----|---|----|
| 1 | SU | 4 | -  |
| 2 | SN | 5 | SR |
| 3 | WU | 6 | SP |



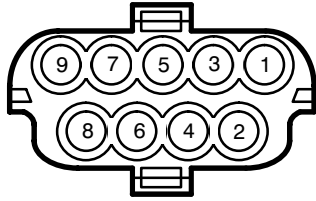
|   |    |   |    |
|---|----|---|----|
| 1 | SG | 4 | WO |
| 2 | SB | 5 | SW |
| 3 | B  | 6 | SY |

LC00316D

LC00317D

**C318**

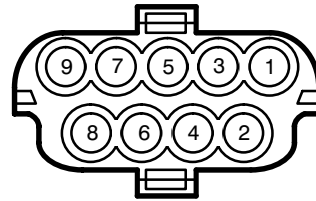
R090001



|   |    |   |    |   |    |
|---|----|---|----|---|----|
| 1 | SB | 4 | SR | 7 | SY |
| 2 | SG | 5 | SN | 8 | SW |
| 3 | SP | 6 | SU | 9 | -  |

**C321**

R090001

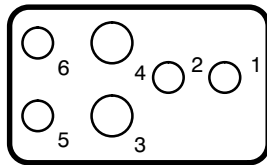


|   |     |   |    |   |    |
|---|-----|---|----|---|----|
| 1 | WS  | 4 | WP | 7 | WK |
| 2 | WLG | 5 | WN | 8 | WB |
| 3 | WO  | 6 | WU | 9 | -  |

**C319**

LC00318B

R060014

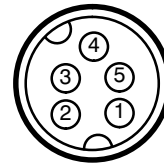


|   |    |   |    |
|---|----|---|----|
| 1 | WU | 4 | WY |
| 2 | WN | 5 | WO |
| 3 | -  | 6 | WP |

**C323**

LC00321B

R050009

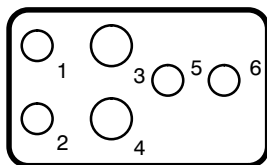


|   |    |   |    |
|---|----|---|----|
| 1 | -  | 4 | BO |
| 2 | GY | 5 | BY |
| 3 | GN |   |    |

**C320**

LC00319B

R060015

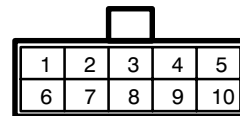


|   |     |   |    |
|---|-----|---|----|
| 1 | WS  | 4 | B  |
| 2 | WLG | 5 | WB |
| 3 | WR  | 6 | WK |

**C324**

LC00323A

R100013



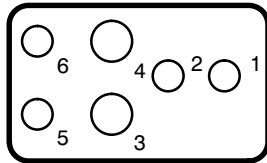
|   |    |   |    |   |   |    |   |
|---|----|---|----|---|---|----|---|
| 1 | S  | 4 | P  | 6 | O | 8  | R |
| 2 | SG | 5 | BY | 7 | B | 9  | G |
| 3 | SP |   |    |   |   | 10 | Y |

LC00320B

LC00324B

R060014

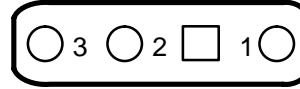
**C325**



|   |    |   |   |
|---|----|---|---|
| 1 | P  | 4 | - |
| 2 | O  | 5 | Y |
| 3 | BY | 6 | R |

R030013

**C327**



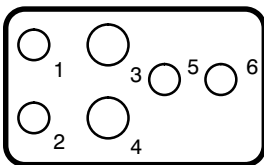
|   |    |
|---|----|
| 1 | S  |
| 2 | SP |
| 3 | SG |

LC00325B

LC00327B

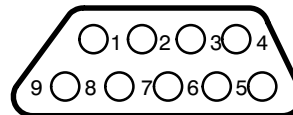
R060015

**C326**



|   |   |   |   |
|---|---|---|---|
| 1 | Y | 4 | B |
| 2 | R | 5 | O |
| 3 | G | 6 | P |

**C328**



|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1 | G | 4 | G | 7 | Y |
| 2 | Y | 5 | - | 8 | G |
| 3 | G | 6 | Y | 9 | Y |

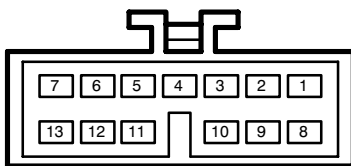
LC00326B

LC00328B

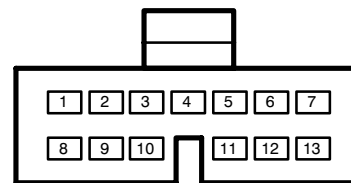
R130003

R130008

**C330**



|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | -  | 6  | YR | 11 | YW |
| 2 | Y  | 7  | -  | 12 | YO |
| 3 | -  | 8  | -  | 13 | -  |
| 4 | -  | 9  | YN |    |    |
| 5 | YU | 10 | YS |    |    |



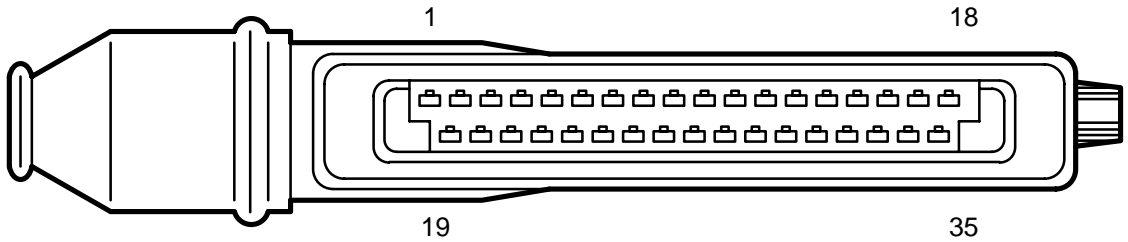
|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | -  | 6  | YR | 11 | YW |
| 2 | Y  | 7  | -  | 12 | YO |
| 3 | -  | 8  | -  | 13 | -  |
| 4 | -  | 9  | YN |    |    |
| 5 | YU | 10 | YS |    |    |

LC00330B

LC00330B

R350001

### C331

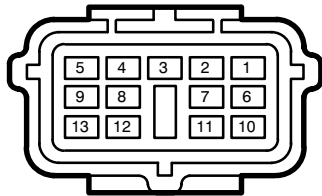


|   |    |    |    |    |    |    |    |    |    |    |    |    |     |
|---|----|----|----|----|----|----|----|----|----|----|----|----|-----|
| 1 | SR | 6  | BY | 11 | GW | 16 | BO | 21 | OK | 26 | GS | 31 | GP  |
| 2 | OU | 7  | YW | 12 | WS | 17 | WK | 22 | RY | 27 | GK | 32 | YN  |
| 3 | OB | 8  | SY | 13 | SU | 18 | B  | 23 | RK | 28 | GY | 33 | YO  |
| 4 | RU | 9  | GO | 14 | PR | 19 | S  | 24 | BS | 29 | YU | 34 | PS  |
| 5 | RB | 10 | GN | 15 | YS | 20 | OY | 25 | YR | 30 | YK | 35 | WLG |

LC00331B

R130002

### C332

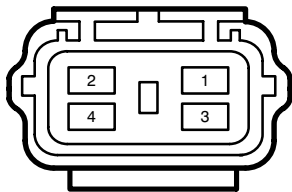


|   |    |    |     |    |    |
|---|----|----|-----|----|----|
| 1 | GW | 6  | GO  | 11 | B  |
| 2 | GY | 7  | -   | 12 | SR |
| 3 | GN | 8  | NLG | 13 | SR |
| 4 | GK | 9  | -   |    |    |
| 5 | GS | 10 | B   |    |    |

LC00332B

R040003

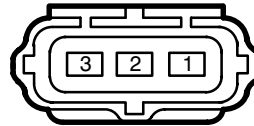
### C333



|   |    |   |     |
|---|----|---|-----|
| 1 | -  | 3 | B   |
| 2 | BO | 4 | NLG |

LC00333B

### C334



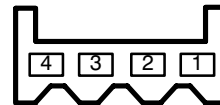
|   |     |
|---|-----|
| 1 | LGO |
| 2 | B   |
| 3 | GN  |

R030003

LC00334B

R040006

### C335



|   |    |   |    |
|---|----|---|----|
| 1 | BN | 3 | WB |
| 2 | B  | 4 | -  |

LC00335B

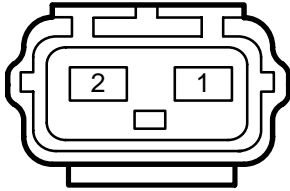


R020042

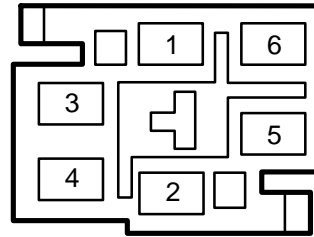
R070008

**C336**

**C339**



|   |    |
|---|----|
| 1 | NO |
| 2 | B  |



|   |    |   |    |
|---|----|---|----|
| 1 | SO | 5 | WK |
| 2 | SW | 6 | RN |
| 3 | WK | 7 | -  |
| 4 | B  |   |    |

LC00336B

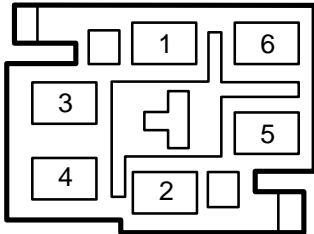
LC00339B

R070008

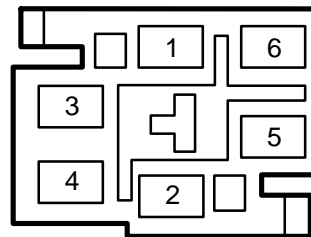
R070008

**C337**

**C340**



|   |    |   |    |
|---|----|---|----|
| 1 | BS | 5 | -  |
| 2 | BR | 6 | RN |
| 3 | -  | 7 | -  |
| 4 | B  |   |    |



|   |    |   |    |
|---|----|---|----|
| 1 | SN | 5 | WK |
| 2 | S  | 6 | RN |
| 3 | WK | 7 | -  |
| 4 | B  |   |    |

LC00337A

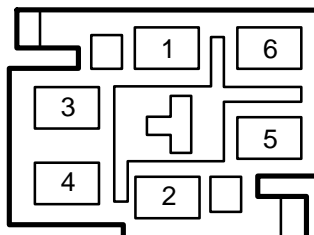
LC00340B

R070008

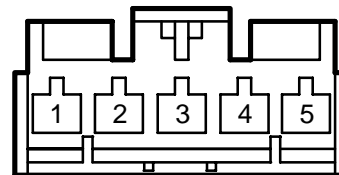
R050002.00

**C338**

**C341**



|   |    |   |    |
|---|----|---|----|
| 1 | BU | 5 | -  |
| 2 | BK | 6 | RN |
| 3 | -  | 7 | -  |
| 4 | B  |   |    |



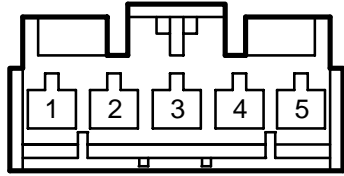
|   |     |   |    |
|---|-----|---|----|
| 1 | LGP | 4 | US |
| 2 | RN  | 5 | B  |
| 3 | -   |   |    |

LC00338A

LC00341B

**C342**

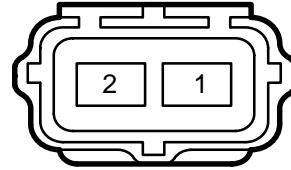
R050002.00



|   |     |   |    |
|---|-----|---|----|
| 1 | LGP | 4 | UK |
| 2 | RN  | 5 | B  |
| 3 | -   |   |    |

**C345**

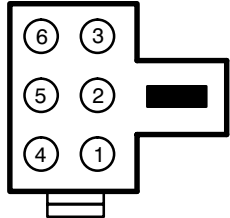
R020037



|   |    |
|---|----|
| 1 | P  |
| 2 | GR |

**C343**

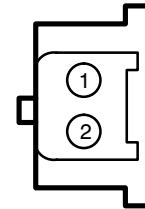
LC00342B  
R060019



|   |   |   |    |
|---|---|---|----|
| 1 | B | 4 | SG |
| 2 | - | 5 | -  |
| 3 | - | 6 | -  |

**C346**

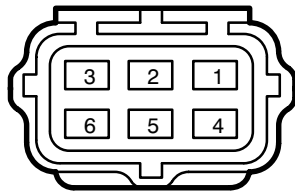
LC00345B  
R020033



|   |        |
|---|--------|
| 1 | RG/CLG |
| 2 | B      |

**C344**

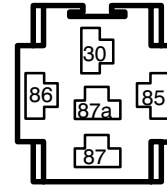
LC00343A  
R060016



|   |    |   |    |
|---|----|---|----|
| 1 | P  | 4 | BR |
| 2 | GP | 5 | KS |
| 3 | B  | 6 | KS |

**C348**

LC00346B  
R050001



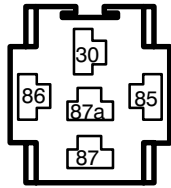
|     |    |    |    |
|-----|----|----|----|
| 30  | NP | 86 | NP |
| 85  | PU | 87 | WN |
| 87A | -  |    |    |

LC00344A

LC00348D

R050001

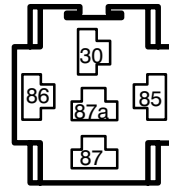
**C349**



|     |     |    |    |
|-----|-----|----|----|
| 30  | LGW | 86 | US |
| 85  | B   | 87 | GR |
| 87A | -   |    |    |

R050001

**C352**

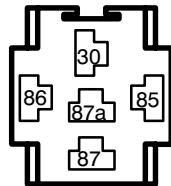


|     |    |    |    |
|-----|----|----|----|
| 30  | NS | 86 | WR |
| 85  | WO | 87 | NR |
| 87A | -  |    |    |

LC00349B

R050001

**C350**

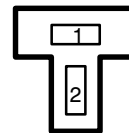


|     |    |    |   |
|-----|----|----|---|
| 30  | SG | 86 | B |
| 85  | NK | 87 | - |
| 87A | B  |    |   |

LC00352B

R020015

**C353**

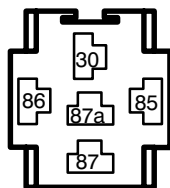


|   |     |
|---|-----|
| 1 | B   |
| 2 | LGW |

LC00350B

R050001

**C351**

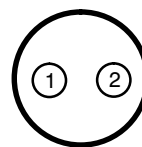


|     |    |    |    |
|-----|----|----|----|
| 30  | OK | 86 | B  |
| 85  | BG | 87 | NK |
| 87A | -  |    |    |

LC00353A

R020007

**C354**



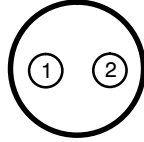
|   |   |
|---|---|
| 1 | W |
| 2 | W |

LC00351B

LC00354A

### C355

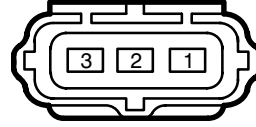
R020007



|   |   |
|---|---|
| 1 | W |
| 2 | W |

### C359

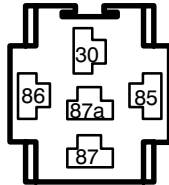
R030003



|   |    |
|---|----|
| 1 | OB |
| 2 | RB |
| 3 | BS |

### C357

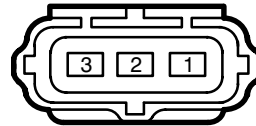
LC00355A  
R050001



|     |     |    |    |
|-----|-----|----|----|
| 30  | LGW | 86 | UK |
| 85  | B   | 87 | GN |
| 87A | -   |    |    |

### C360

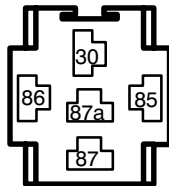
LC00359B  
R030003



|   |    |
|---|----|
| 1 | OK |
| 2 | RK |
| 3 | BS |

### C358

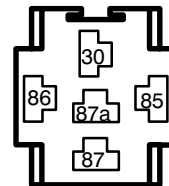
LC00357B  
R050001



|     |   |    |     |
|-----|---|----|-----|
| 30  | B | 86 | LGW |
| 85  | B | 87 | BP  |
| 87A | - |    |     |

### C361

LC00360B  
R050001



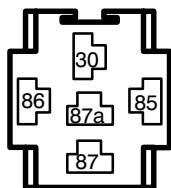
|     |    |    |     |
|-----|----|----|-----|
| 30  | PO | 86 | SY  |
| 85  | B  | 87 | NLG |
| 87A | -  |    |     |

LC00358D

LC00361B

R050001

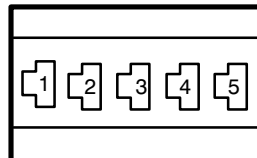
**C362**



|     |    |    |    |
|-----|----|----|----|
| 30  | OW | 86 | WY |
| 85  | BK | 87 | SR |
| 87A | PU |    |    |

R050008

**C364**

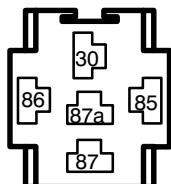


|   |    |   |   |
|---|----|---|---|
| 1 | B  | 4 | - |
| 2 | -  | 5 | B |
| 3 | PS |   |   |

LC00362B

R050001

**C363**



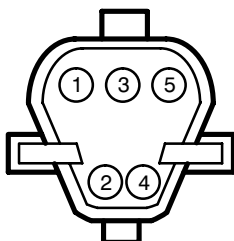
|     |    |    |   |
|-----|----|----|---|
| 30  | Y  | 86 | S |
| 85  | BY | 87 | - |
| 87A | B  |    |   |

LC00364B

LC00363B

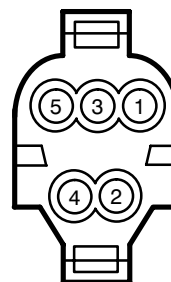
R050013

**C365**



|   |    |   |     |
|---|----|---|-----|
| 1 | WK | 4 | WLG |
| 2 | -  | 5 | B   |
| 3 | BK |   |     |

R050012



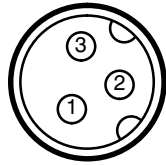
|   |   |   |   |
|---|---|---|---|
| 1 | - | 4 | - |
| 2 | - | 5 | - |
| 3 | B |   |   |

LC00365B

LC00365B

**C368**

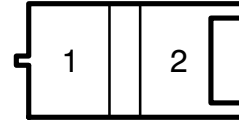
R030021



|   |    |
|---|----|
| 1 | -  |
| 2 | B  |
| 3 | BK |

**C371**

R020003

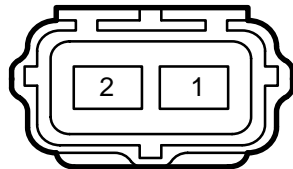


|   |     |
|---|-----|
| 1 | BLG |
| 2 | B   |

**C369**

LC00368A

R020037

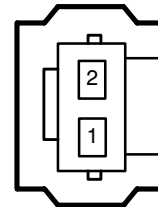


|   |    |
|---|----|
| 1 | SB |
| 2 | B  |

**C372**

LC00371A

R020038

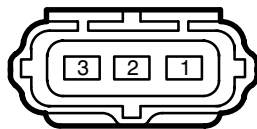


|   |    |
|---|----|
| 1 | GN |
| 2 | GY |

**C370**

LC00369A

R030003

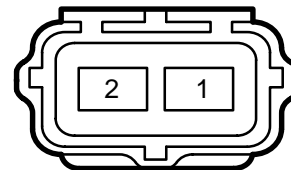


|   |    |
|---|----|
| 1 | GY |
| 2 | -  |
| 3 | BR |

**C377**

LC00372A

R020037



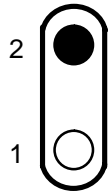
|   |    |
|---|----|
| 1 | SG |
| 2 | SU |

LC00370A

LC00377B

**C378**

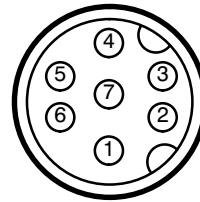
R020004



|   |    |
|---|----|
| 1 | RW |
| 2 | B  |

**C400**

R070003

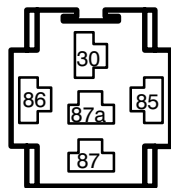


|   |    |   |    |
|---|----|---|----|
| 1 | RO | 5 | B  |
| 2 | GP | 6 | RY |
| 3 | GW | 7 | RB |
| 4 | GR |   |    |

**C379**

LC00378D

R050001

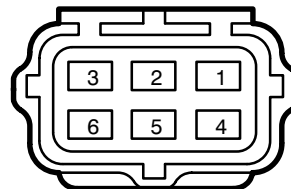


|    |    |     |    |
|----|----|-----|----|
| 30 | B  | 87  | YK |
| 85 | P  | 87A | WY |
| 86 | PO |     |    |

**C403**

LC00400A

R060016

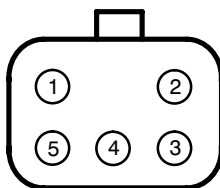


|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | GN |
| 2 | RY | 5 | GP |
| 3 | RB | 6 | GR |

**C380**

LC00379D

R050014

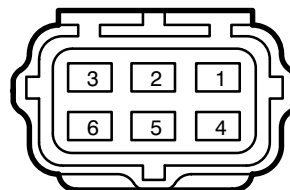


|   |    |   |    |
|---|----|---|----|
| 1 | NO | 4 |    |
| 2 | B  | 5 | NK |
| 3 | K  |   |    |

**C406**

LC00403B

R060016



|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | GN |
| 2 | RY | 5 | GP |
| 3 | RO | 6 | GW |

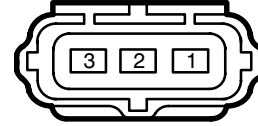
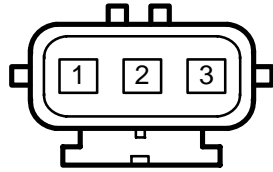
LC00380D

LC00406B

R030001

R030003

### C407



|   |    |
|---|----|
| 1 | WP |
| 2 | GB |
| 3 | B  |

|   |    |
|---|----|
| 1 | WP |
| 2 | GB |
| 3 | B  |

LC00407A

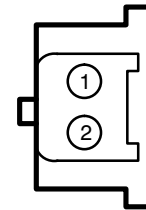
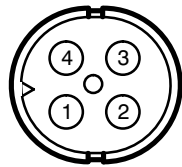
LC00407A

R040009

R020033

### C408

### C411



|   |   |   |    |
|---|---|---|----|
| 1 | - | 3 | NG |
| 2 | - | 4 | NR |

|   |    |
|---|----|
| 1 | PU |
| 2 | PN |

LC00408B

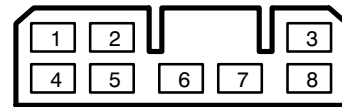
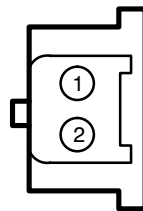
LC00411B

R020033

R080004

### C410

### C412



|   |    |
|---|----|
| 1 | PU |
| 2 | PN |

|   |     |   |   |
|---|-----|---|---|
| 1 | R   | 5 | Y |
| 2 | G   | 6 |   |
| 3 | LGO | 7 |   |
| 4 | U   | 8 | B |

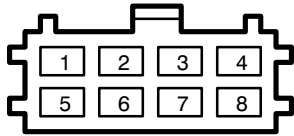
LC00410B

LC0041B



**C413**

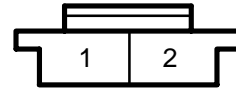
R080005



|   |    |   |   |
|---|----|---|---|
| 1 | RY | 5 | B |
| 2 | PY | 6 | - |
| 3 | -  | 7 | - |
| 4 | -  | 8 | - |

**C414**

R020029



|   |   |
|---|---|
| 1 | K |
| 2 | O |

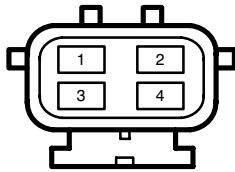
LC00413B

LC00414B

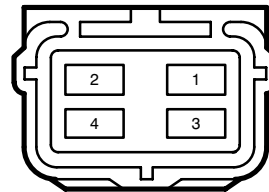
R040002

R040001

**C415**



|   |   |   |    |
|---|---|---|----|
| 1 | O | 3 | GP |
| 2 | K | 4 | B  |



|   |   |   |    |
|---|---|---|----|
| 1 | O | 3 | GP |
| 2 | K | 4 | B  |

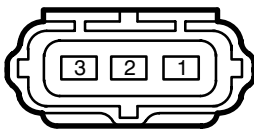
LC00415B

LC00415B

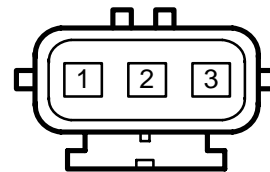
R030003

R030001

**C416**



|   |    |
|---|----|
| 1 | B  |
| 2 | BW |
| 3 | BY |



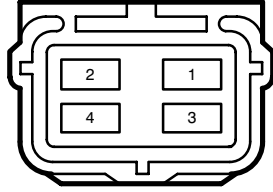
|   |    |
|---|----|
| 1 | -  |
| 2 | BW |
| 3 | BW |

LC00416B

LC00416B

### C418

R040001



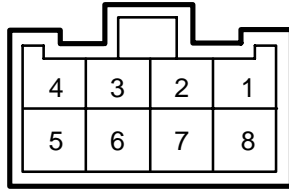
|   |     |   |     |
|---|-----|---|-----|
| 1 | Y/R | 3 | R/U |
| 2 | G   | 4 | U/Y |

LC00418D

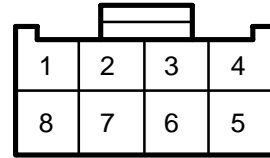
R080011

R080012

### C420



|   |    |   |    |
|---|----|---|----|
| 1 | BW | 5 | WB |
| 2 | BN | 6 | NB |
| 3 | BG | 7 | BO |
| 4 | BU | 8 | BY |



|   |    |   |    |
|---|----|---|----|
| 1 | BW | 5 | WB |
| 2 | BN | 6 | NB |
| 3 | BG | 7 | BO |
| 4 | BK | 8 | BY |

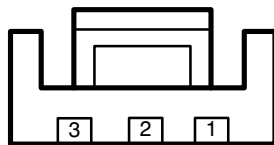
LC00420B

R030018

LC00420B

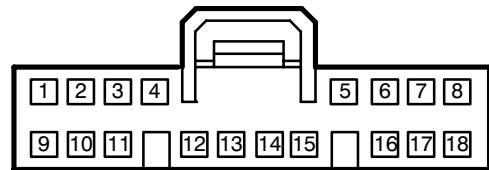
R180003

### C421



|   |    |
|---|----|
| 1 | B  |
| 2 | -  |
| 3 | PN |

### C422



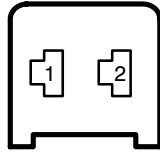
|   |    |    |    |    |    |    |    |
|---|----|----|----|----|----|----|----|
| 1 | PY | 6  | KB | 11 | BG | 16 | RB |
| 2 | BO | 7  | G  | 12 | BW | 17 | Y  |
| 3 | BU | 8  | U  | 13 | BR | 18 | R  |
| 4 | BN | 9  | -  | 14 | BK |    |    |
| 5 | WB | 10 | BY | 15 | NB |    |    |

LC00421B

LC00422B

**C423**

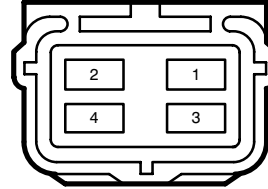
R020039



|   |    |
|---|----|
| 1 | B  |
| 2 | YP |

**C434**

R040001

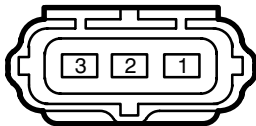


|   |    |   |    |
|---|----|---|----|
| 1 | GB | 3 | B  |
| 2 | B  | 4 | WP |

**C432**

LC00423B

R030003

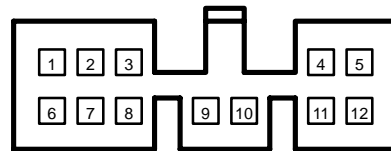


|   |    |
|---|----|
| 1 | OY |
| 2 | RY |
| 3 | BS |

**C436**

LC00434A

R120001

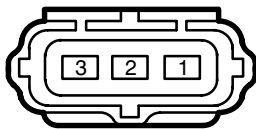


|   |    |   |   |    |    |
|---|----|---|---|----|----|
| 1 | LG | 5 | P | 9  | RY |
| 2 | R  | 6 | Y | 10 | BS |
| 3 | BP | 7 | U | 11 | B  |
| 4 | B  | 8 | B | 12 | P  |

**C433**

LC00432B

R030003

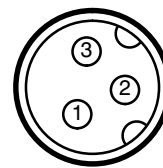


|   |    |
|---|----|
| 1 | OU |
| 2 | RU |
| 3 | BS |

**C500**

LC00436B

R030021



|   |    |
|---|----|
| 1 | -  |
| 2 | SK |
| 3 | SU |

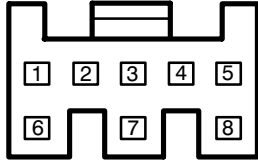
LC00433B

LC00500B

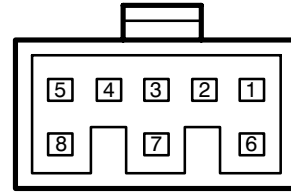
R080010

### C501

R080007



|   |    |   |    |
|---|----|---|----|
| 1 | Y  | 5 | NP |
| 2 | -  | 6 | K  |
| 3 | SK | 7 | SU |
| 4 | RK | 8 | O  |



|   |    |   |    |
|---|----|---|----|
| 1 | BY | 5 | NP |
| 2 | -  | 6 | K  |
| 3 | SK | 7 | SU |
| 4 | RK | 8 | O  |

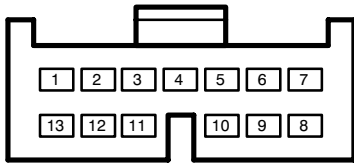
LC00501D

R130007

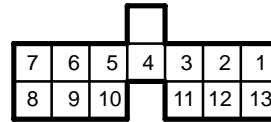
### C502

LC00501D

R130005



|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | P  | 6  | YO | 11 | PR |
| 2 | B  | 7  | PN | 12 | OK |
| 3 | PS | 8  | PU | 13 | -  |
| 4 | ON | 9  | OW |    |    |
| 5 | YG | 10 | WP |    |    |



|   |    |    |       |    |       |
|---|----|----|-------|----|-------|
| 1 | PU | 6  | YO    | 11 | SW/WR |
| 2 | B  | 7  | PN    | 12 | -     |
| 3 | PN | 8  | BU/PK | 13 | -     |
| 4 | ON | 9  | OW    |    |       |
| 5 | YG | 10 | BK/WP |    |       |

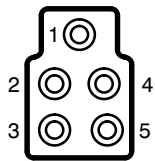
LC00502D

R050010

### C503

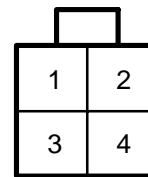
LC00502D

R040016



|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | PR |
| 2 | WP | 5 | PU |
| 3 | NP |   |    |

### C504



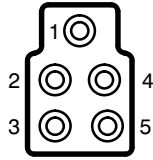
|   |   |   |    |
|---|---|---|----|
| 1 | Y | 3 | PN |
| 2 | B | 4 | B  |

LC00503B

LC00504B

**C505**

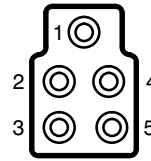
R050010



|   |    |   |   |
|---|----|---|---|
| 1 | -  | 4 | - |
| 2 | PN | 5 | - |
| 3 | P  |   |   |

**C509**

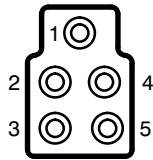
R050010



|   |    |   |    |
|---|----|---|----|
| 1 | OK | 4 | OW |
| 2 | PS | 5 | ON |
| 3 | YG |   |    |

**C506**

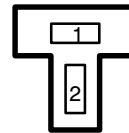
LC00505B  
R050010



|   |    |   |   |
|---|----|---|---|
| 1 | -  | 4 | - |
| 2 | PN | 5 | - |
| 3 | P  |   |   |

**C514**

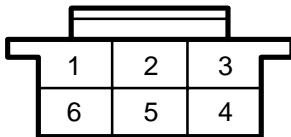
LC00509B  
R020015



|   |    |
|---|----|
| 1 | NB |
| 2 | WB |

**C507**

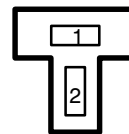
LC00506B  
R060009



|   |   |   |    |
|---|---|---|----|
| 1 | O | 4 | RK |
| 2 | K | 5 | YO |
| 3 | B | 6 | -  |

**C515**

LC00514B  
R020015



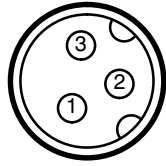
|   |    |
|---|----|
| 1 | BN |
| 2 | BW |

LC00507B

LC00515B

### C600

R030021



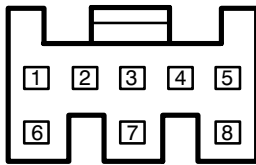
|   |    |
|---|----|
| 1 | -  |
| 2 | SK |
| 3 | SU |

LC00600B

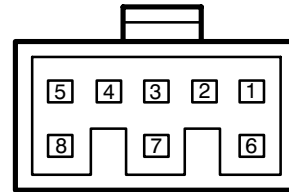
R080010

### C601

R080007



|   |    |   |    |
|---|----|---|----|
| 1 | Y  | 5 | NP |
| 2 | -  | 6 | K  |
| 3 | SK | 7 | SU |
| 4 | RK | 8 | O  |



|   |    |   |    |
|---|----|---|----|
| 1 | BY | 5 | NP |
| 2 | -  | 6 | K  |
| 3 | SR | 7 | SB |
| 4 | KR | 8 | O  |

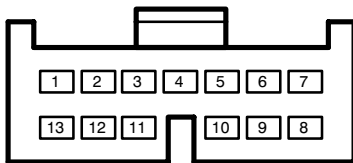
LC00601D

R130007

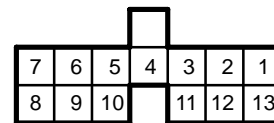
### C602

LC00601D

R130005



|   |    |    |    |    |    |
|---|----|----|----|----|----|
| 1 | P  | 6  | YO | 11 | PR |
| 2 | B  | 7  | PN | 12 | OK |
| 3 | PS | 8  | PU | 13 | -  |
| 4 | ON | 9  | OW |    |    |
| 5 | YG | 10 | WP |    |    |



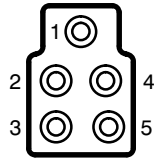
|   |    |    |       |    |    |
|---|----|----|-------|----|----|
| 1 | PU | 6  | YO    | 11 | SW |
| 2 | B  | 7  | PN    | 12 | OP |
| 3 | PB | 8  | PG/BP | 13 | -  |
| 4 | ON | 9  | OU    |    |    |
| 5 | YG | 10 | WP/BN |    |    |

LC00602B

LC00602B

R050010

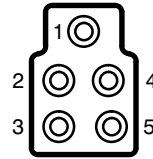
**C603**



|   |    |   |    |
|---|----|---|----|
| 1 | B  | 4 | PR |
| 2 | WP | 5 | PU |
| 3 | NP |   |    |

R050010

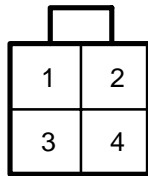
**C606**



|   |    |   |   |
|---|----|---|---|
| 1 | -  | 4 | - |
| 2 | PN | 5 | - |
| 3 | P  |   |   |

LC00603B

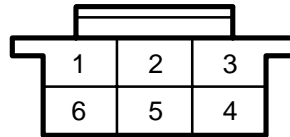
**C604**



|   |   |   |    |
|---|---|---|----|
| 1 | Y | 3 | PN |
| 2 | B | 4 | B  |

R040016

**C607**



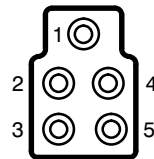
|   |   |   |    |
|---|---|---|----|
| 1 | O | 4 | RK |
| 2 | K | 5 | YO |
| 3 | B | 6 | -  |

LC00606B

R060009

LC00604B

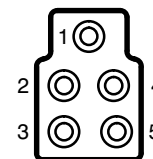
**C605**



|   |    |   |   |
|---|----|---|---|
| 1 | -  | 4 | - |
| 2 | PN | 5 | - |
| 3 | P  |   |   |

R050010

**C609**



|   |    |   |    |
|---|----|---|----|
| 1 | OK | 4 | OW |
| 2 | PS | 5 | ON |
| 3 | YG |   |    |

LC00607B

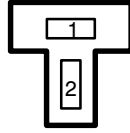
R050010

LC00605B

LC00609B

### C614

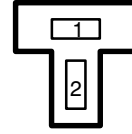
R020015



|   |    |
|---|----|
| 1 | NB |
| 2 | WB |

### C615

R020015



|   |    |
|---|----|
| 1 | BN |
| 2 | BW |

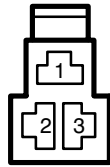
LC00614B

LC00615B

R030008

R030007

### C700



|   |    |
|---|----|
| 1 | SG |
| 2 | SN |
| 3 | S  |



|   |    |
|---|----|
| 1 | SG |
| 2 | SW |
| 3 | SO |

LC00700B

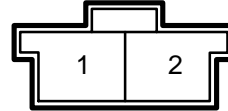
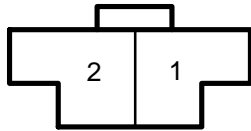
LC00700B



R020028.01

R020013

**C701**



|   |   |
|---|---|
| 1 | O |
| 2 | K |

|   |   |
|---|---|
| 1 | K |
| 2 | O |

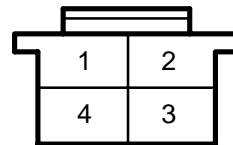
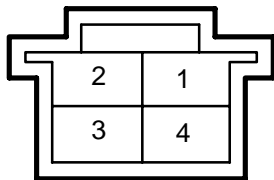
LC00701B

LC00701B

R040017

R040011

**C701**



|   |   |   |    |
|---|---|---|----|
| 1 | O | 3 | PN |
| 2 | K | 4 | PU |

|   |   |   |    |
|---|---|---|----|
| 1 | O | 3 | PN |
| 2 | K | 4 | PU |

LC00701B

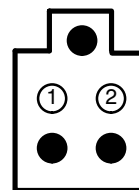
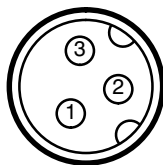
LC00701B

R030021

R050011

**C703**

**C704**



|   |    |
|---|----|
| 1 | -  |
| 2 | SW |
| 3 | SO |

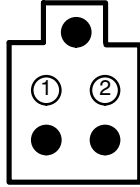
|   |    |   |   |
|---|----|---|---|
| 1 | PU | 4 | - |
| 2 | PN | 5 | - |
| 3 | -  |   |   |

LC00703B

LC00704B

### C705

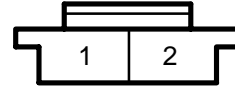
R050011



|   |    |   |   |
|---|----|---|---|
| 1 | PU | 4 | - |
| 2 | PN | 5 | - |
| 3 | -  |   |   |

### C706

R020029



|   |   |
|---|---|
| 1 | O |
| 2 | K |

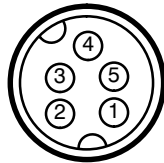
LC00705B

LC00706B

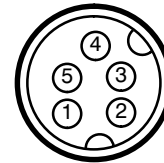
R050009

R050021

### C707



|   |    |   |    |
|---|----|---|----|
| 1 | SW | 4 | S  |
| 2 | SN | 5 | SO |
| 3 | SG |   |    |



|   |    |   |    |
|---|----|---|----|
| 1 | SW | 4 | S  |
| 2 | SN | 5 | SO |
| 3 | SG |   |    |

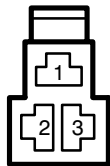
LC00707B

LC00707B

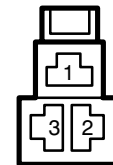
R030008

R030007

### C800



|   |    |
|---|----|
| 1 | SG |
| 2 | SN |
| 3 | S  |



|   |    |
|---|----|
| 1 | SG |
| 2 | SN |
| 3 | S  |

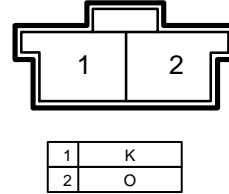
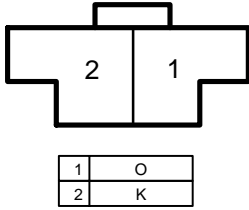
LC00800B

LC00800B

R020028.00

R020013

**C801**



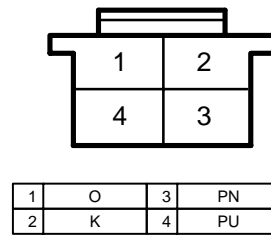
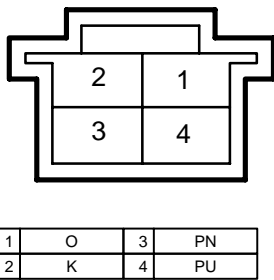
LC00801B

LC00801B

R040017

R040011

**C801**



LC00801B

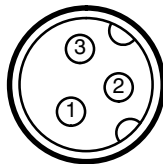
LC00801B

R030021

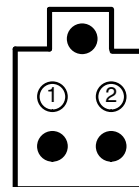
R050011

**C803**

**C804**



|   |    |
|---|----|
| 1 | -  |
| 2 | SW |
| 3 | SO |



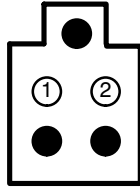
|   |    |   |   |
|---|----|---|---|
| 1 | PU | 4 | - |
| 2 | PN | 5 | - |
| 3 | -  |   |   |

LC00803B

LC00804B

### C805

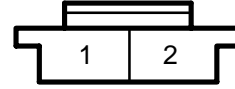
R050011



|   |    |   |   |
|---|----|---|---|
| 1 | PU | 4 | - |
| 2 | PN | 5 | - |
| 3 | -  |   |   |

### C806

R020029



|   |   |
|---|---|
| 1 | O |
| 2 | K |

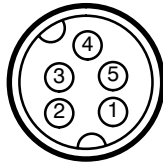
LC00805B

LC00806B

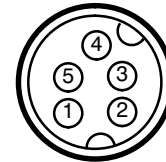
R050009

R050021

### C807



|   |    |   |    |
|---|----|---|----|
| 1 | SW | 4 | S  |
| 2 | SN | 5 | SO |
| 3 | SG |   |    |



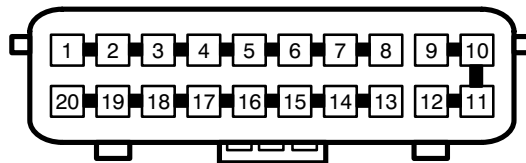
|   |    |   |    |
|---|----|---|----|
| 1 | SW | 4 | S  |
| 2 | SN | 5 | SO |
| 3 | SG |   |    |

LC00807B

LC00807B

R200001

### HJ1



### S2058

|   |    |
|---|----|
| 1 | -  |
| 2 | WY |
| 3 | WY |
| 4 | -  |
| 5 | WY |
| 6 | WY |
| 7 | -  |
| 8 | -  |

### S2021

|    |   |
|----|---|
| 9  | P |
| 10 | P |
| 11 | P |
| 12 | P |

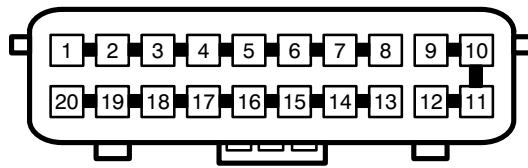
### S2002

|    |    |
|----|----|
| 13 | -  |
| 14 | YK |
| 15 | YK |
| 16 | YK |
| 17 | YK |
| 18 | YK |
| 19 | YK |
| 20 | YK |

LC00HJ1D

R200001

**HJ2**



**S2004**

|   |    |
|---|----|
| 1 | RN |
| 2 | RN |
| 3 | -  |
| 4 | RN |
| 5 | RN |
| 6 | RN |
| 7 | RN |
| 8 | RN |

**S2005**

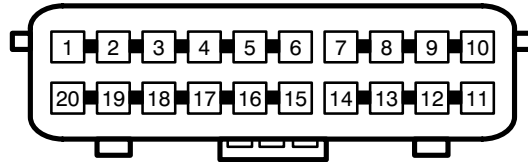
|    |    |
|----|----|
| 9  | BY |
| 10 | BY |
| 11 | BY |
| 12 | BY |

**S2006**

|    |    |
|----|----|
| 13 | RB |
| 14 | -  |
| 15 | RB |
| 16 | -  |
| 17 | RB |
| 18 | RB |
| 19 | RB |
| 20 | RB |

LC00HJ2D  
R200008

**HJ3**



**S2009**

|   |   |
|---|---|
| 1 | O |
| 2 | O |
| 3 | O |
| 4 | O |
| 5 | O |
| 6 | O |

**S285**

|    |    |
|----|----|
| 7  | PU |
| 8  | PU |
| 9  | PU |
| 10 | PG |

**S2013**

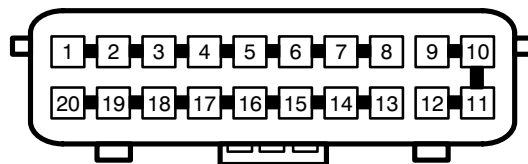
|    |    |
|----|----|
| 11 | PG |
| 12 | PG |
| 13 | PG |
| 14 | PG |

**S2007**

|    |   |
|----|---|
| 15 | K |
| 16 | K |
| 17 | K |
| 18 | K |
| 19 | K |
| 20 | K |

LC00HJ3D  
R200001

**HJ4**



**S2011**

|   |    |
|---|----|
| 1 | GP |
| 2 | GP |
| 3 | GP |
| 4 | GP |
| 5 | GP |
| 6 | GP |
| 7 | GP |
| 8 | GP |

**S209**

|    |     |
|----|-----|
| 9  | BLG |
| 10 | BLG |
| 11 | BLG |
| 12 | BLG |

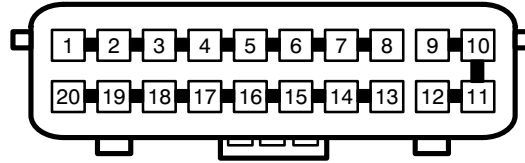
**S2003**

|    |   |
|----|---|
| 13 | B |
| 14 | B |
| 15 | B |
| 16 | B |
| 17 | B |
| 18 | B |
| 19 | B |
| 20 | B |

LC00HJ4D

R200001

### HJ5



#### S2016

|   |   |
|---|---|
| 1 | B |
| 2 | B |
| 3 | B |
| 4 | B |
| 5 | B |
| 6 | - |
| 7 | B |
| 8 | B |

#### S2000

|    |     |
|----|-----|
| 9  | GLG |
| 10 | GLG |
| 11 | GLG |
| 12 | GLG |

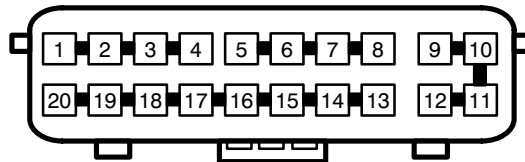
#### S2015

|    |   |
|----|---|
| 13 | B |
| 14 | B |
| 15 | B |
| 16 | B |
| 17 | B |
| 18 | B |
| 19 | B |
| 20 | B |

LC00HJ5D

R200009

### HJ6



#### S2019

|   |    |
|---|----|
| 1 | GW |
| 2 | GW |
| 3 | GW |
| 4 | GW |

#### S2020

|   |    |
|---|----|
| 5 | GR |
| 6 | GR |
| 7 | GR |
| 8 | GR |

#### S2008

|    |     |
|----|-----|
| 9  | LGW |
| 10 | LGW |
| 11 | LGW |
| 12 | -   |

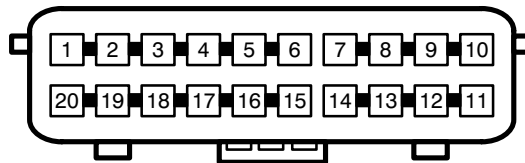
#### S2028

|    |    |
|----|----|
| 13 | UK |
| 14 | UK |
| 15 | UK |
| 16 | UK |
| 17 | UK |
| 18 | -  |
| 19 | -  |
| 20 | -  |

LC00HJ6D

R200008

### HJ7



#### S290

|   |    |
|---|----|
| 1 | BS |
| 2 | BS |
| 3 | BS |
| 4 | BS |
| 5 | -  |
| 6 | BS |

#### S291

|    |    |
|----|----|
| 7  | NO |
| 8  | NO |
| 9  | NO |
| 10 | NO |

#### S292

|    |    |
|----|----|
| 11 | WG |
| 12 | WG |
| 13 | WG |
| 14 | WG |

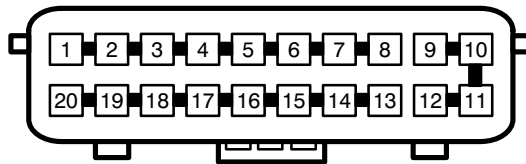
#### S293

|    |    |
|----|----|
| 15 | RB |
| 16 | RB |
| 17 | RB |
| 18 | RB |
| 19 | RB |
| 20 | -  |

LC00HJ7B

R200001

**HJ8**



**S253**

|   |   |
|---|---|
| 1 | B |
| 2 | B |
| 3 | B |
| 4 | B |
| 5 | B |
| 6 | B |
| 7 | B |
| 8 | B |

**S254**

|    |   |
|----|---|
| 9  | - |
| 10 | - |
| 11 | - |
| 12 | - |

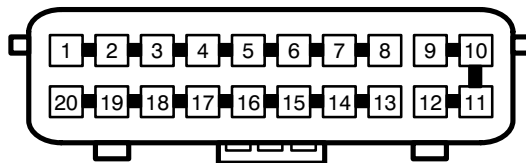
**S255**

|    |   |
|----|---|
| 13 | B |
| 14 | B |
| 15 | B |
| 16 | B |
| 17 | B |
| 18 | B |
| 19 | B |
| 20 | B |

LC00HJ8B

R200001

**HJ9**



**S256**

|   |    |
|---|----|
| 1 | RN |
| 2 | RN |
| 3 | RN |
| 4 | RN |
| 5 | -  |
| 6 | RN |
| 7 | RN |
| 8 | RN |

**S257**

|    |    |
|----|----|
| 9  | LG |
| 10 | LG |
| 11 | LG |
| 12 | LG |

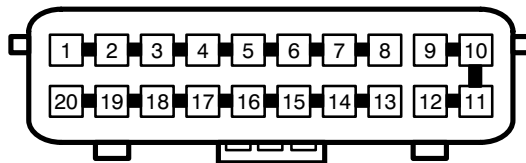
**S255**

|    |    |
|----|----|
| 13 | RN |
| 14 | RN |
| 15 | RN |
| 16 | RN |
| 17 | RN |
| 18 | RN |
| 19 | RN |
| 20 | RN |

LC00HJ9B

R200001

**HJ10**



**S204**

|   |   |
|---|---|
| 1 | B |
| 2 | B |
| 3 | - |
| 4 | - |
| 5 | B |
| 6 | B |
| 7 | B |
| 8 | B |

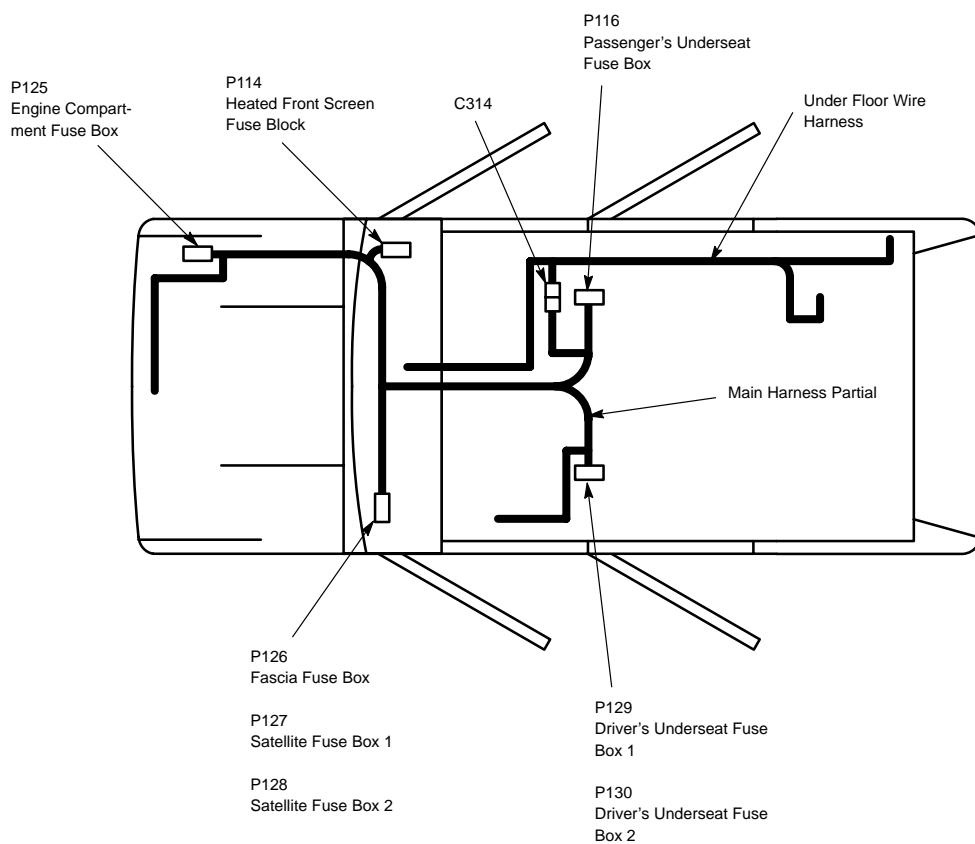
**S2017**

|    |    |
|----|----|
| 9  | GK |
| 10 | GK |
| 11 | GK |
| 12 | -  |

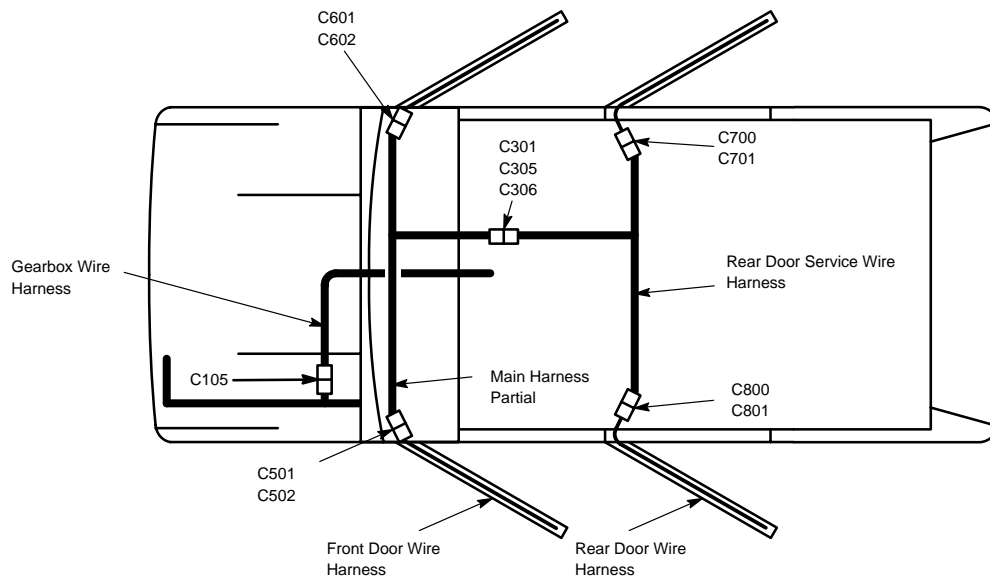
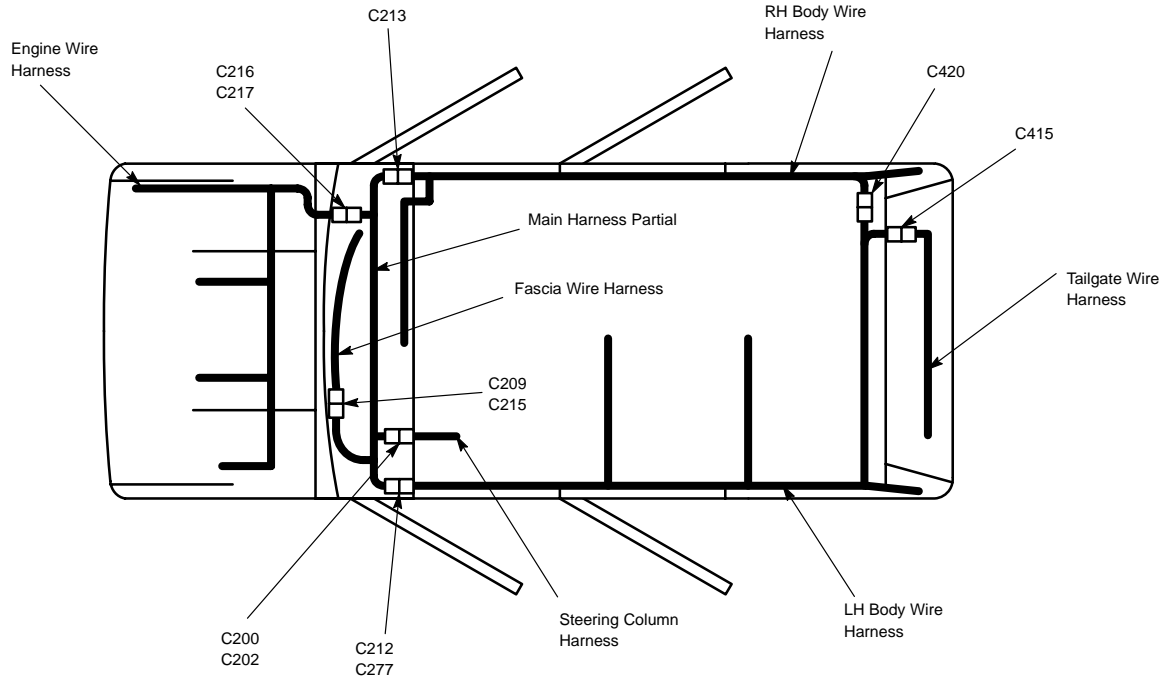
**S238**

|    |   |
|----|---|
| 13 | B |
| 14 | B |
| 15 | - |
| 16 | - |
| 17 | - |
| 18 | - |
| 19 | B |
| 20 | B |

LC0HJ10B







|  |       |
|--|-------|
| Air Recirculation Solenoid In-Line Fuse (P138) ..... | K1-4  |
| Air Suspension .....                                 | S1-1  |
| Anti-Lock Brake System .....                         | D1-1  |
| Auxiliary Lamps .....                                | H8-1  |
| Blower Controls .....                                | K1-1  |
| Central Locking .....                                | L6-1  |
| Cigar Lighter/Clock .....                            | J2-1  |
| Component Location Table .....                       | Z4-1  |
| Component Location Views .....                       | Z5-1  |
| Compressor Controls .....                            | K2-1  |
| Connector Views .....                                | Z6-1  |
| Cooling Fans .....                                   | K5-1  |
| Cruise Control .....                                 | B5-1  |
| Direction Indicator Lamps .....                      | H6-1  |
| Door Lock Heaters .....                              | L8-1  |
| Electrochromic Rear View Mirror .....                | G1-1  |
| Front Wipe/Wash .....                                | F1-1  |
| Fuse Details .....                                   | Y2-1  |
| Driver's Underseat Fuse Box 1 (P129)                 |       |
| F1 .....   | Y2-7  |
| F2 .....   | Y2-6  |
| F3 .....   | Y2-6  |
| F4 .....   | Y2-7  |
| F5 .....   | Y2-7  |
| Driver's Underseat Fuse Box 2 (P130)                 |       |
| F1 .....   | Y2-5  |
| F2 .....   | Y2-5  |
| Engine Compartment Fuse Box (P125)                   |       |
| F1 .....   | Y2-1  |
| F2 .....   | Y2-1  |
| F3 .....   | Y2-3  |
| F4 .....   | Y2-4  |
| F5 .....   | Y2-4  |
| F6 .....   | Y2-4  |
| F7 .....   | Y2-4  |
| Fascia Fuse Box (P126)                               |       |
| F1 .....   | Y2-18 |
| F2 .....   | Y2-19 |
| F3 .....   | Y2-22 |
| F4 .....   | Y2-24 |

|   |          |
|---|----------|
| F5 .....                                      | Y2-24    |
| F6 .....                                      | Y2-26    |
| F7 .....                                      | Y2-27    |
| F8 .....                                      | Y2-28    |
| F9 .....                                      | Y2-29    |
| F10 .....                                     | Y2-29    |
| F11 .....                                     | Y2-29    |
| F12 .....                                     | Y2-31    |
| F13 .....                                     | Y2-32    |
| F14 .....                                     | Y2-33    |
| F15 .....                                     | Y2-35    |
| F16 .....                                     | Y2-35    |
| F17 .....                                     | Y2-36    |
| F18 .....                                     | Y2-37    |
| Passenger's Underseat Fuse Box (P116)         |          |
| F1 .....                                      | Y2-5,6   |
| F2 .....                                      | Y2-5,6   |
| Satellite Fuse Box 1 (P127)                   |          |
| F1 .....                                      | Y2-13    |
| F2 .....                                      | Y2-14    |
| F3 .....                                      | Y2-15,16 |
| F4 .....                                      | Y2-17    |
| F5 .....                                      | Y2-17    |
| F6 .....                                      | Y2-17    |
| Satellite Fuse Box 2 (P128)                   |          |
| F1 .....                                      | Y2-8     |
| F2 .....                                      | Y2-8     |
| F3 .....                                      | Y2-8     |
| F4 .....                                      | Y2-8     |
| F5 .....                                      | Y2-9     |
| F6 .....                                      | Y2-12    |
| Ground Distribution .....                     | Y5-1     |
| Harness Routing .....                         | Z8-1     |
| Headlamp Leveling .....                       | H3-1     |
| Headlamps (except NAS) .....                  | H1-1     |
| Headlamps (NAS) .....                         | H2-1     |
| Heated Front Screen .....                     | F6-1     |
| Heated Rear Screen and Mirror Demisters ..... | F8-1     |
| Heated Seats .....                            | M2-1     |
| Horns .....                                   | E5-1     |

|   |          |
|---|----------|
| Ignition and Shift Interlock .....            | C1-1     |
| Instruments .....                             | E1-1     |
| Interior Lamps .....                          | J1-1     |
| Introduction .....                            | i-1      |
| Lights  |          |
| Auxiliary Lamps .....                         | H8-1     |
| Direction Indicator Lamps .....               | H6-1     |
| Fascia Cigar Lighter (B106) .....             | J2-1     |
| Front Interior Roof Lamp (B107) .....         | J1-13    |
| Glove Box Lamp (B152) .....                   | J1-1     |
| Headlamps (except NAS) .....                  | H1-1     |
| Headlamps (NAS) .....                         | H2-1     |
| Interior Lamps .....                          | J1-1     |
| Left Front Door Lamp (B112) .....             | J1-13    |
| Left Front Door Puddle Lamp (B114) .....      | J1-13    |
| Left Number Plate Lamp (B120) .....           | H4-2     |
| Left Rear Door Lamp (B147) .....              | J1-11    |
| Left Rear Door Puddle Lamp (B149) .....       | J1-11    |
| Left Repeater Lamp (B122) .....               | H6-4     |
| Rear Fog Guard Lamps .....                    | H9-1     |
| Rear Interior Roof Lamp (B124) .....          | J1-13    |
| Reversing Lamps .....                         | H7-1     |
| Right Front Door Lamp (B125) .....            | J1-12    |
| Right Front Door Puddle Lamp (B127) .....     | J1-12    |
| Right Number Plate Lamp (B134) .....          | H4-2     |
| Right Rear Door Lamp (B148) .....             | J1-11    |
| Right Rear Door Puddle Lamp (B150) .....      | J1-11    |
| Right Repeater Lamp (B137) .....              | H6-4     |
| Side Lamps .....                              | H4-1     |
| Stop Lamps .....                              | H5-1     |
| Under Bonnet Lamp (B139) .....                | J1-1     |
| Memory Seat/Mirrors .....                     | M5-1     |
| Multi-Function Unit (MFU) .....               | G4-1     |
| Multiport Fuel Injection (MFI - V8) .....     | A1-1     |
| Power Distribution .....                      | Y1-1     |
| Air Suspension In-Line Maxi-Fuse (P122) ..... | Y1-4     |
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| MF 1 .....                                    | Y1-3     |
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