

RANGE ROVER



Electrical troubleshooting manual

Elektrische diagnoseprocedure—handboek

Manuel de dépannage électrique

Handbuch zur Fehlersuche bei elektrischen Bauteilen

Manuale per l'individuazione dei guasti elettrici

Manual de localización de averías eléctricas

Manual de diagnóstico de averías eléctricas



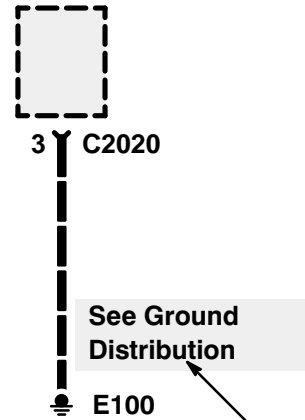
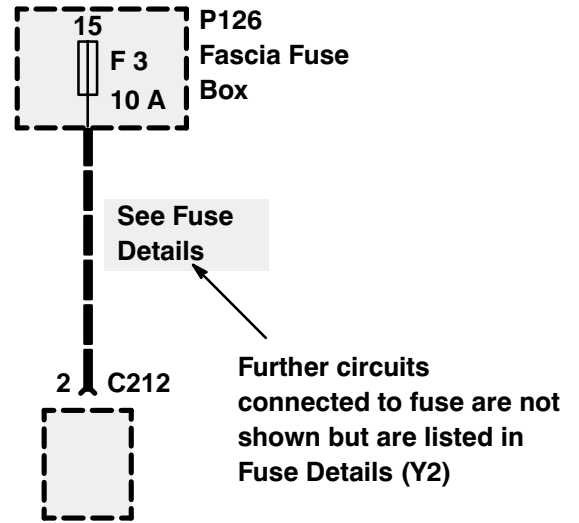
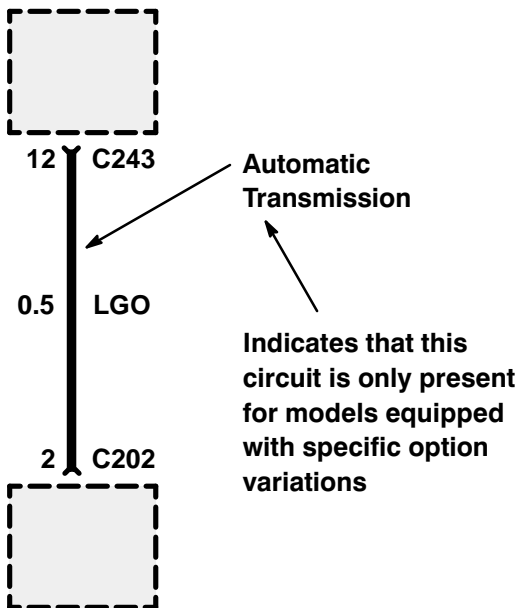
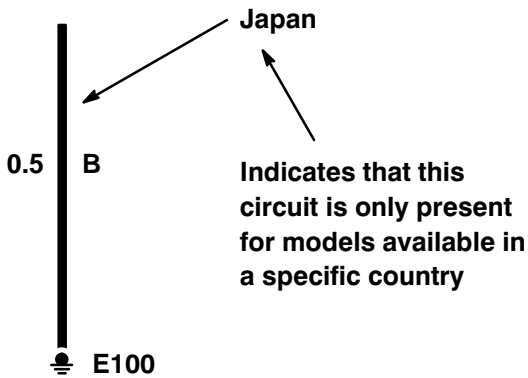
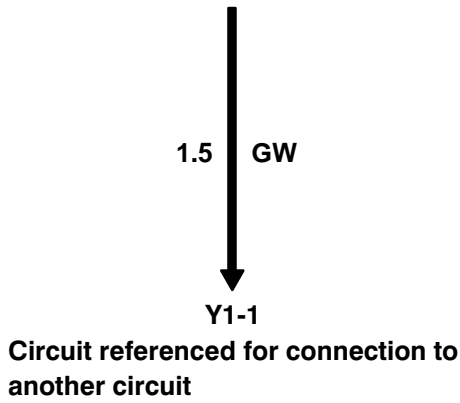
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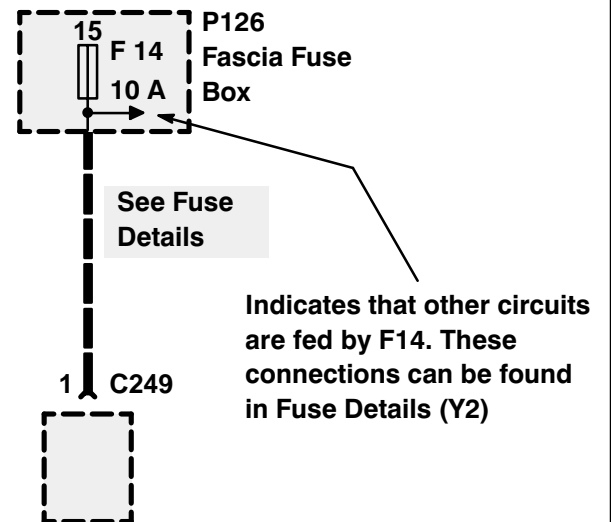


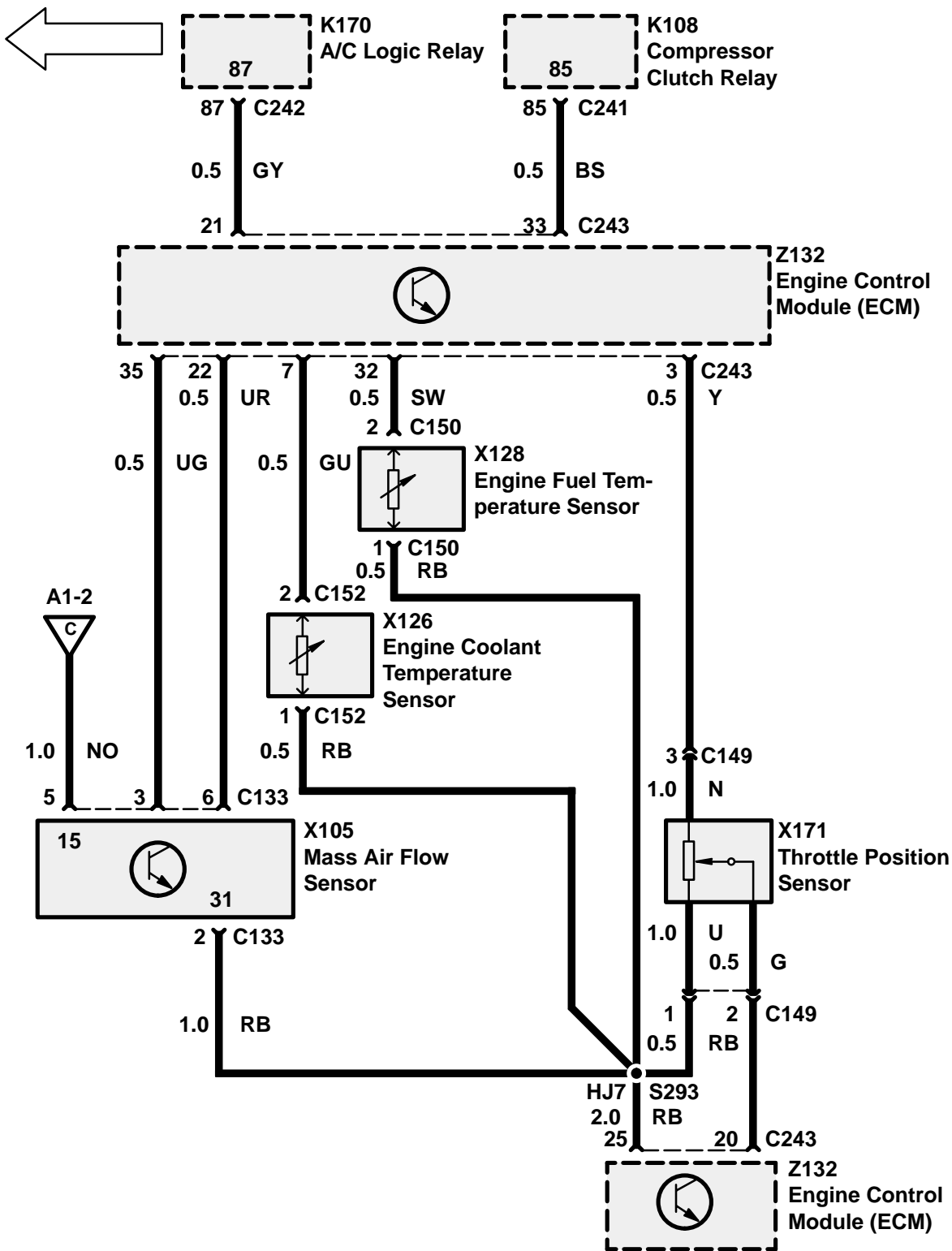
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Further circuits connected at ground are not shown but are listed under Ground Distribution





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 manual transmission Japan vehicles, the Central Locking Unit (Z113) 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).

On automatic transmission Japan vehicles, the Central Locking Unit (Z113) provides this 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 or Central Locking 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.

1B

2B

CONDITIONS

- Ignition Switch
Position: III

RESULTS
Less than 0.5V

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

- OK** PROBLEM CAUSE
- Starter Solenoid
 - Starter

Test C

1C

1C

CONDITIONS

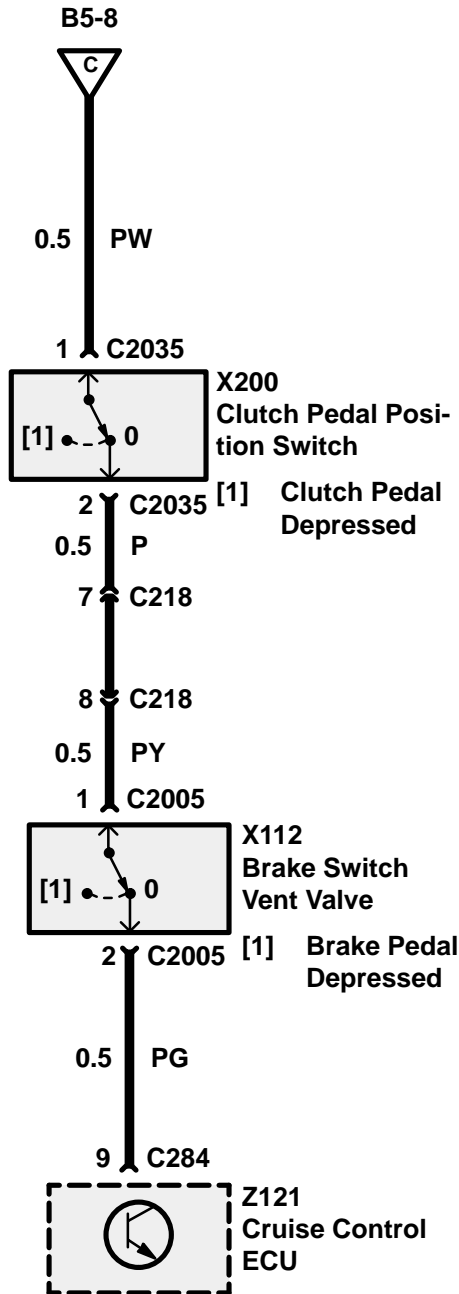
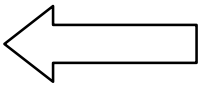
- Ignition Switch
Position: II

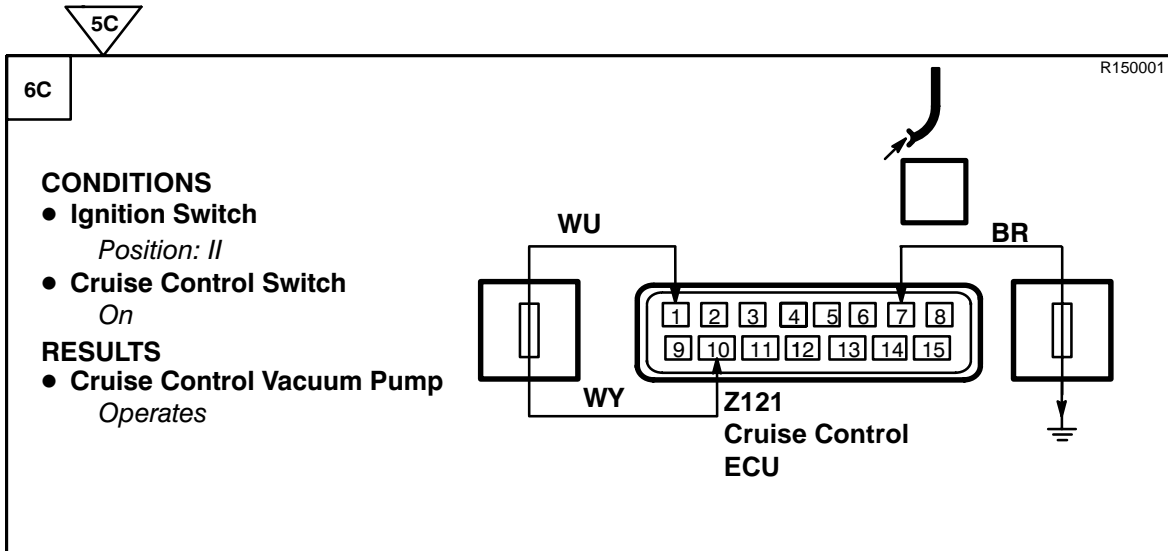
RESULTS
BAT VOLT

Z106
Generator

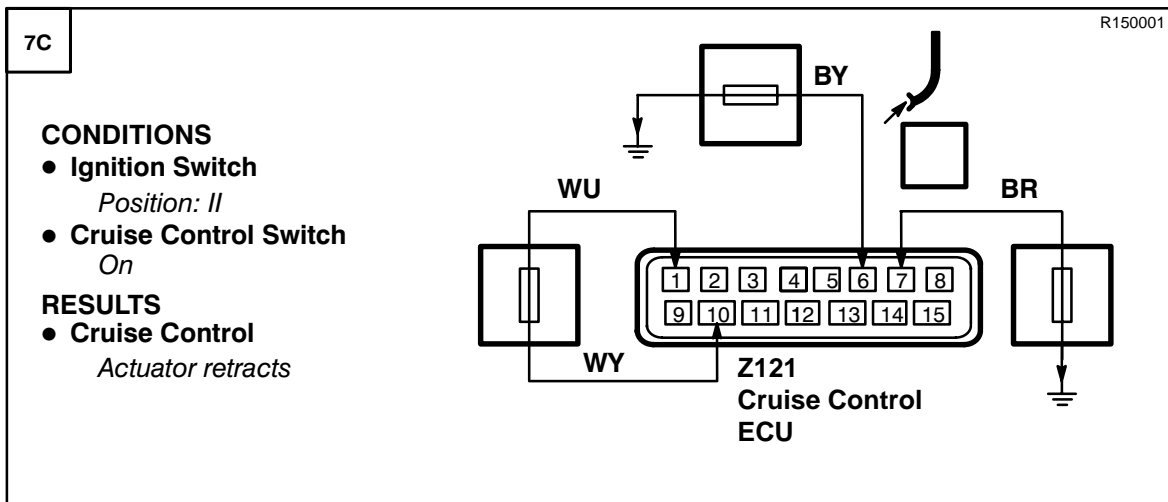
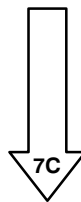
- OK** PROBLEM CAUSE
- NY Wire
 - Bulb
 - Instrument Cluster

- OK** PROBLEM CAUSE
- Generator





GO TO TEST D



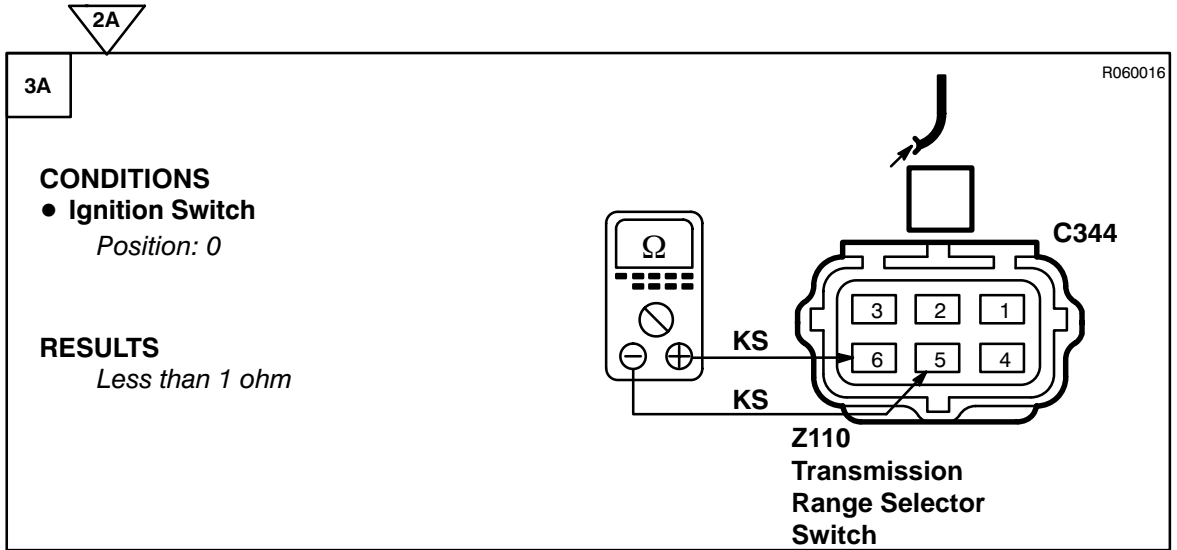
GO TO TEST D



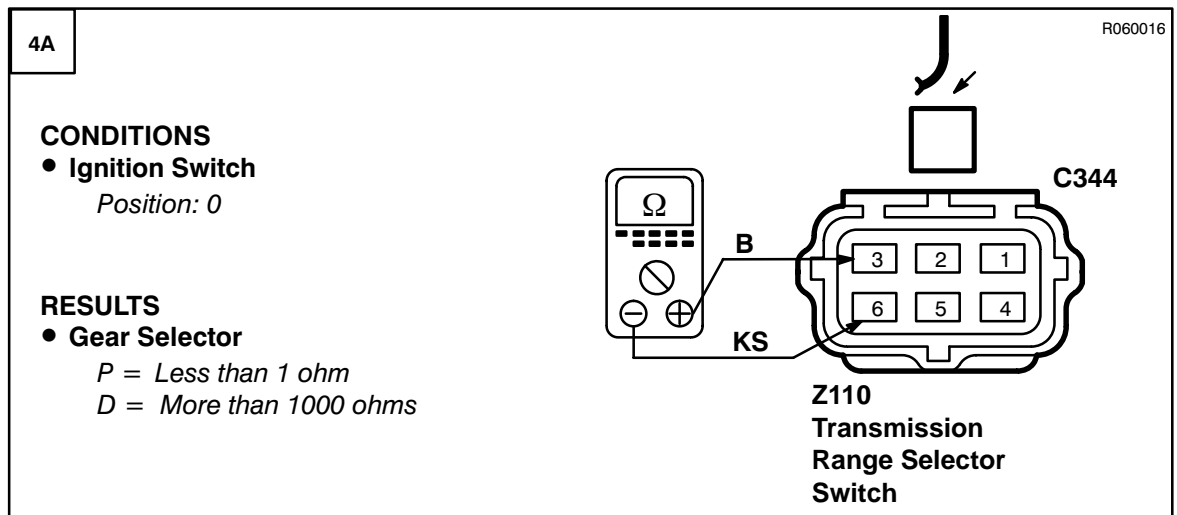
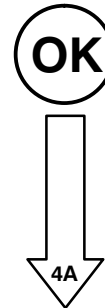
PROBLEM CAUSE
- Cruise Control
ECU

C1 ETM

1995 RANGE ROVER

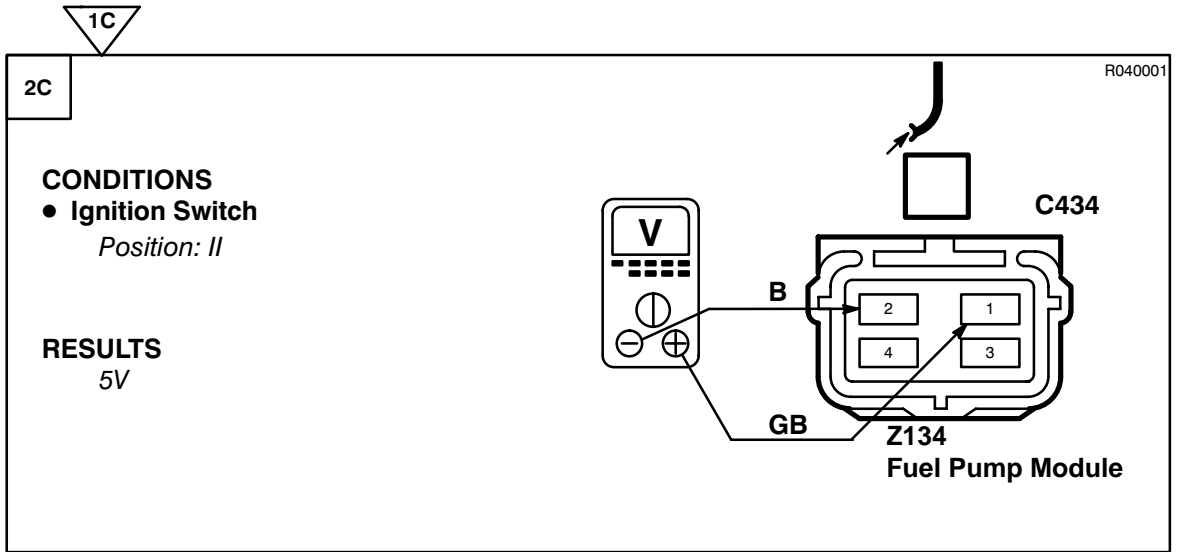


~~OK~~ PROBLEM CAUSE
- KS Wire



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

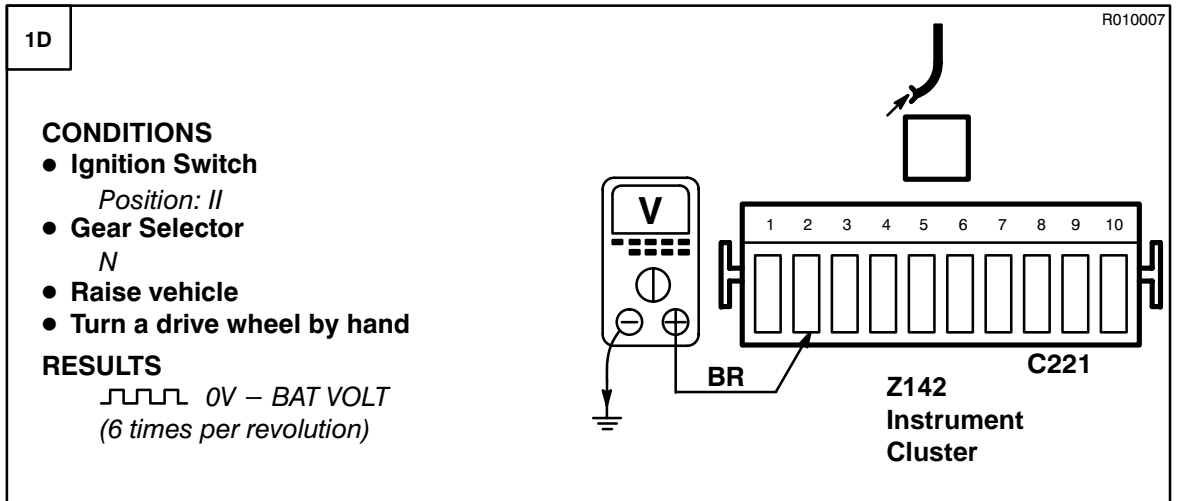
OK PROBLEM CAUSE
- Interlock Solenoid



OK PROBLEM CAUSE
- B Wire

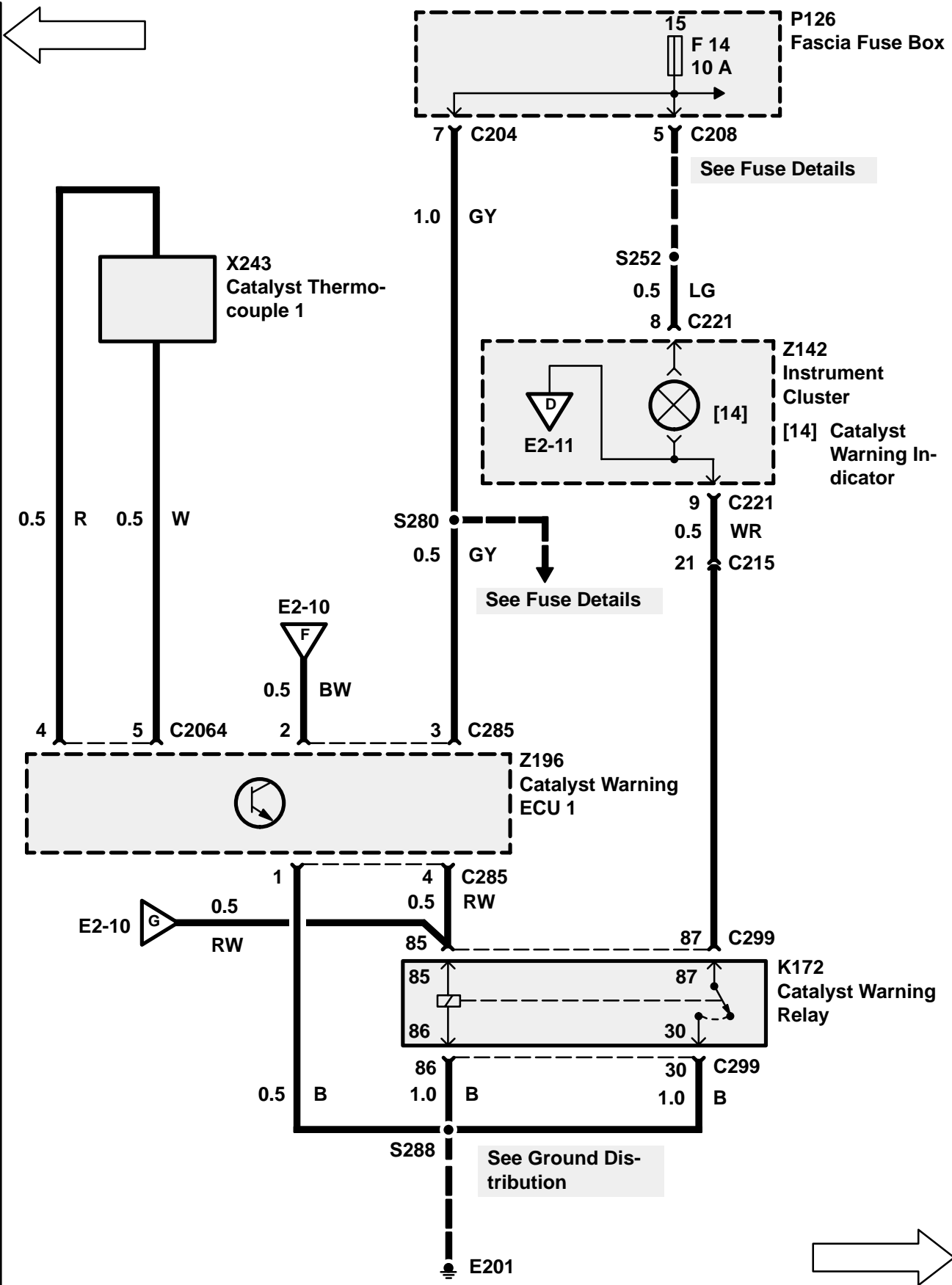
OK PROBLEM CAUSE
- Fuel Pump Module

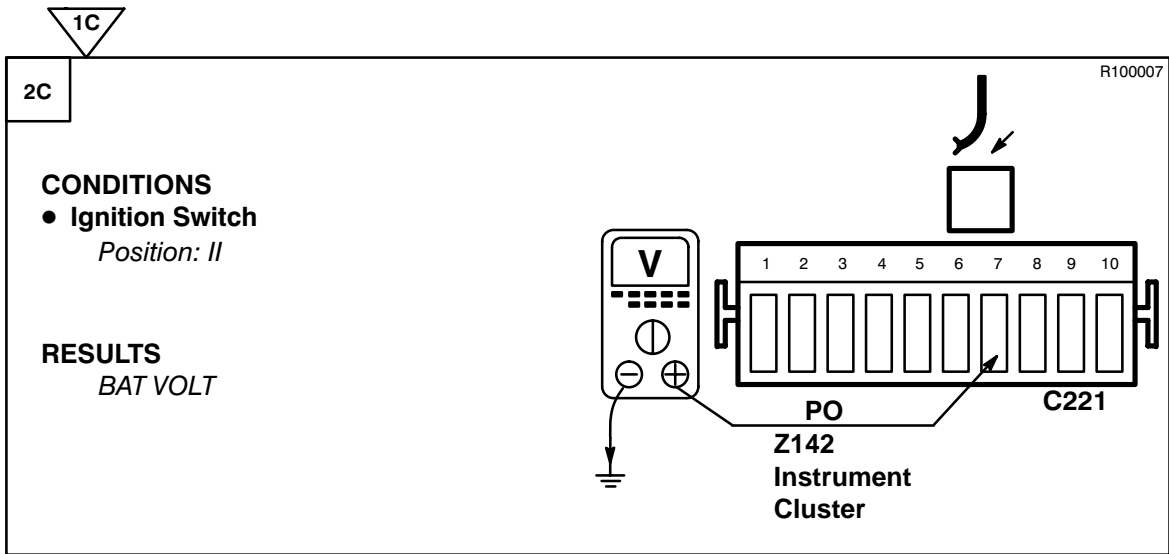
Test D



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

OK PROBLEM CAUSE
- Instrument Cluster
- Speedometer



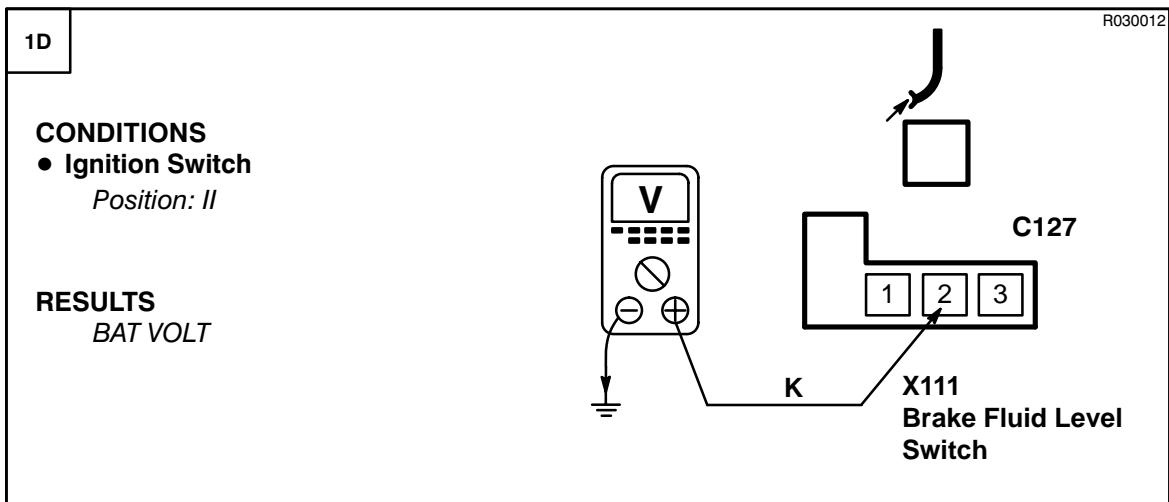


- PROBLEM CAUSE**
- Bulb
 - Instrument Cluster



- PROBLEM CAUSE**
- PO Wire
 - BY Wire

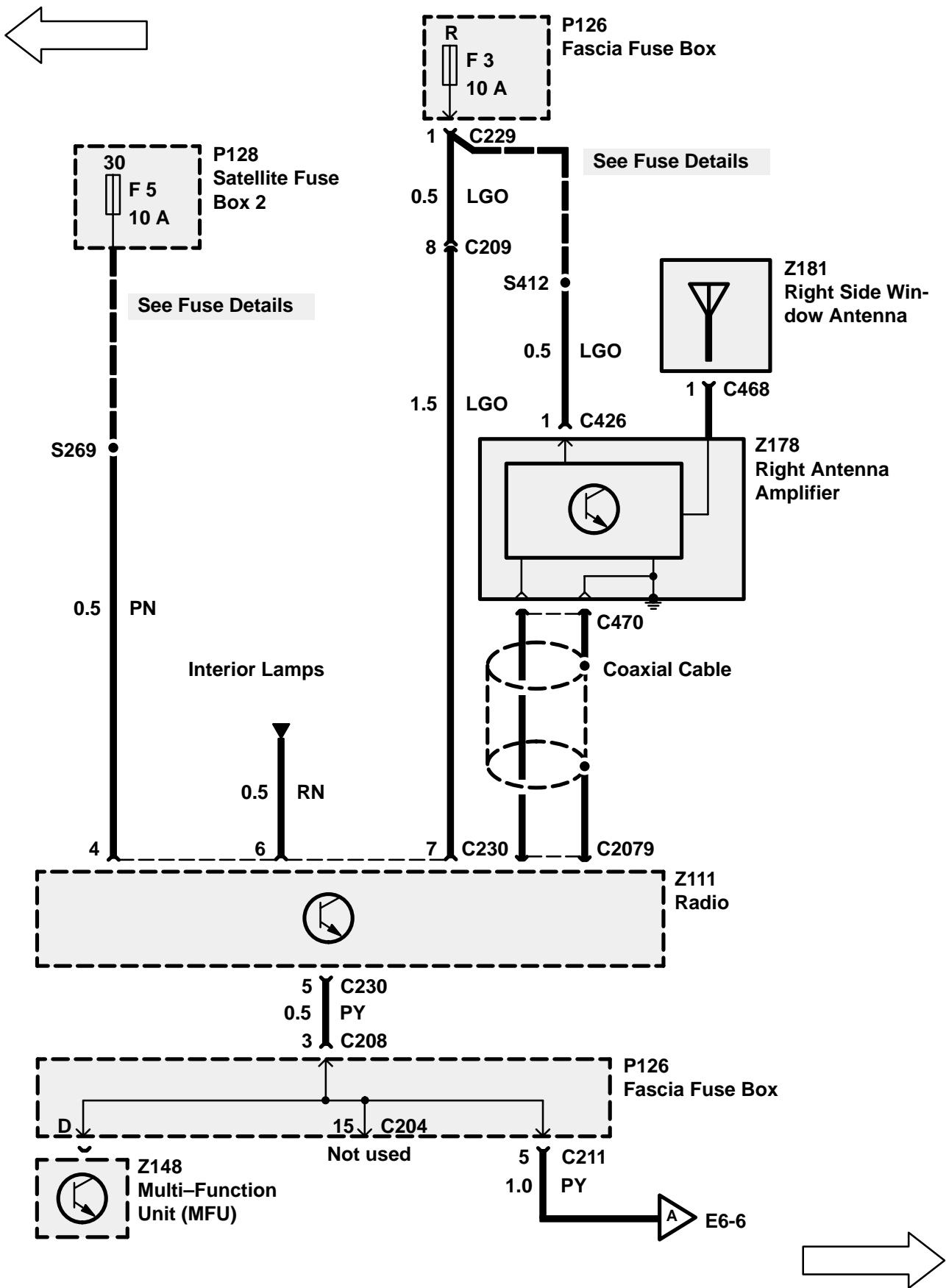
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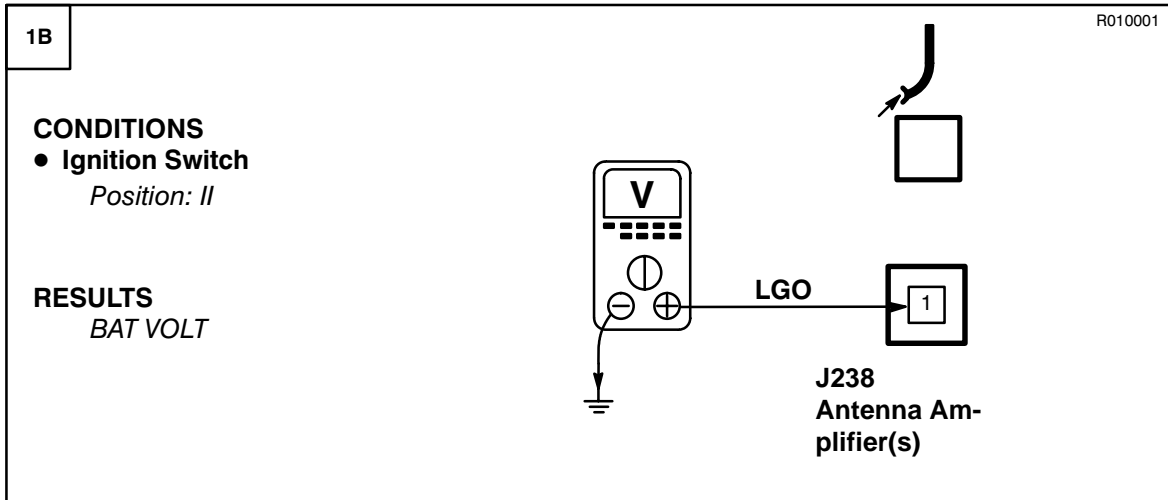
- PROBLEM CAUSE**
- K Wire
 - Bulb
 - Instrument Cluster



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



Test B

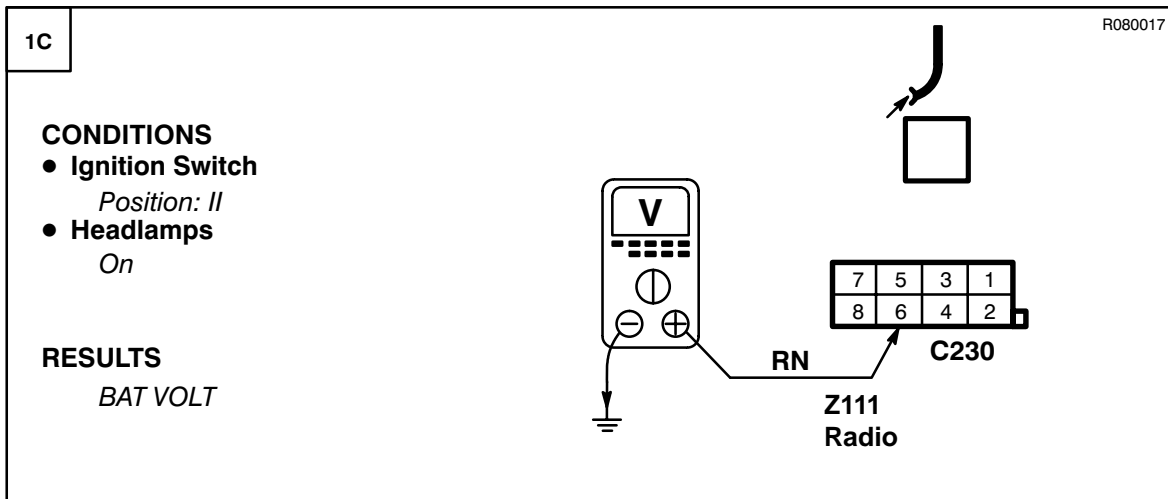


PROBLEM CAUSE
- LGO Wire



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

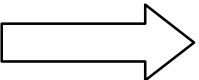
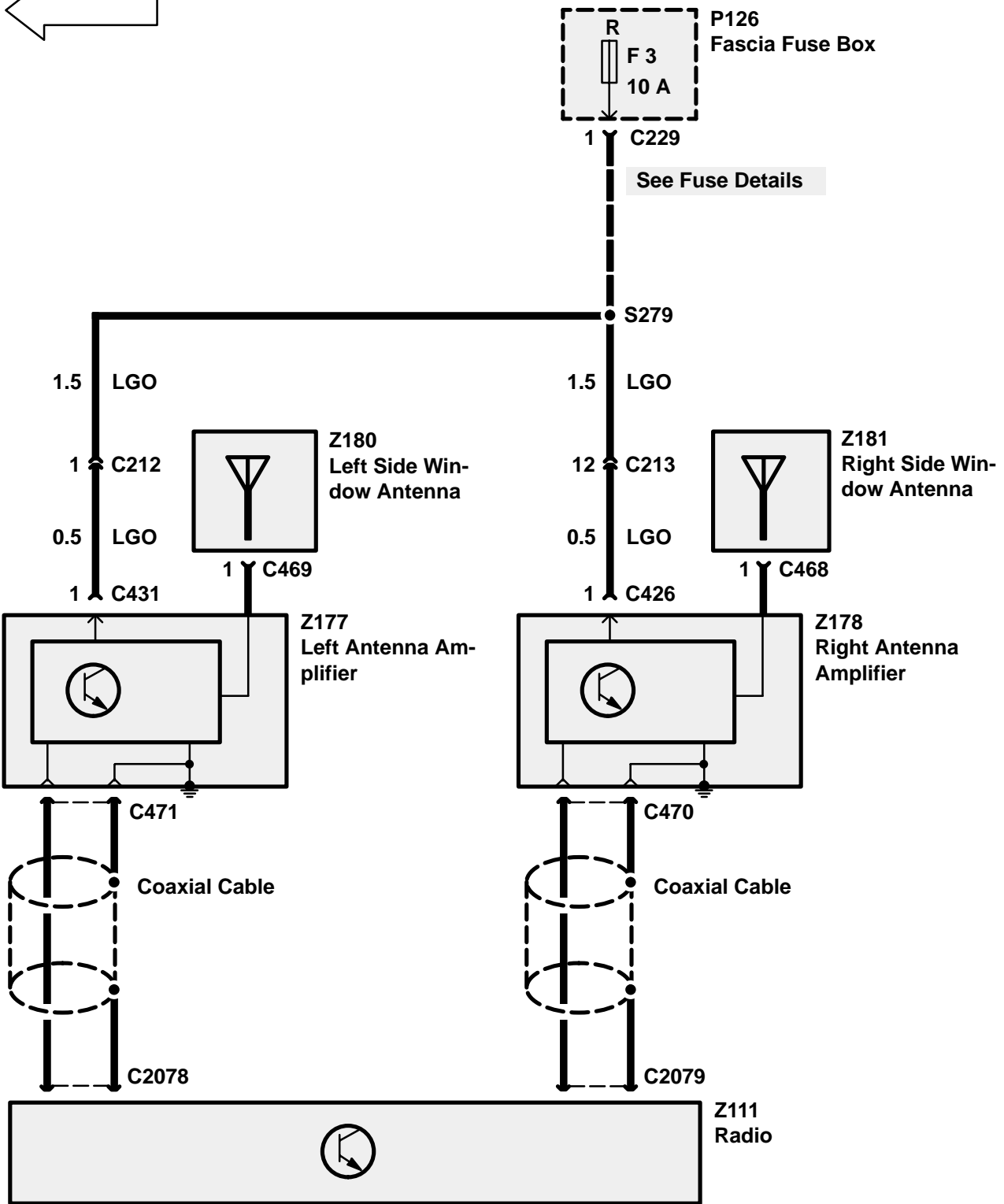
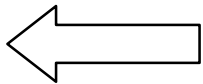
Test C



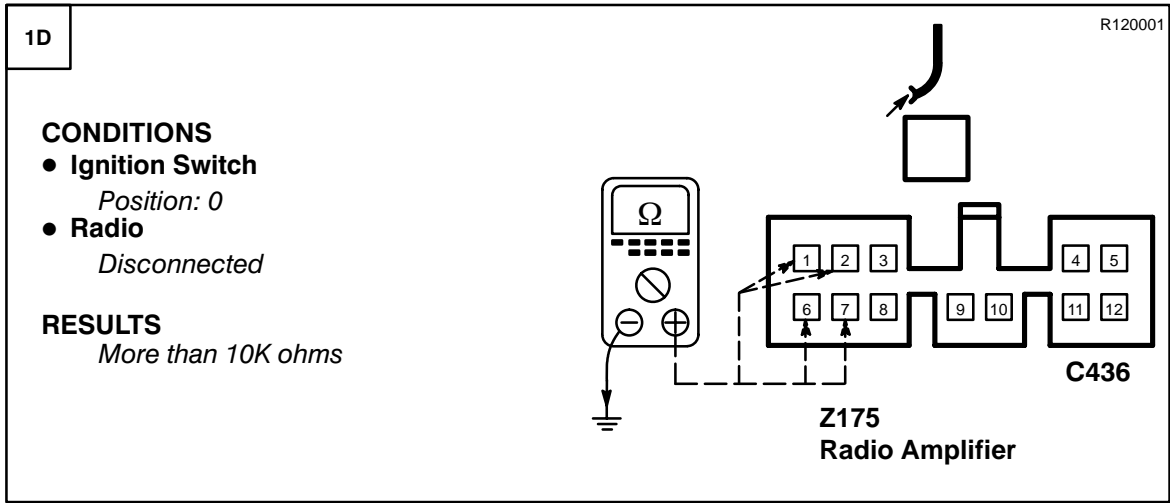
PROBLEM CAUSE
- RN Wire



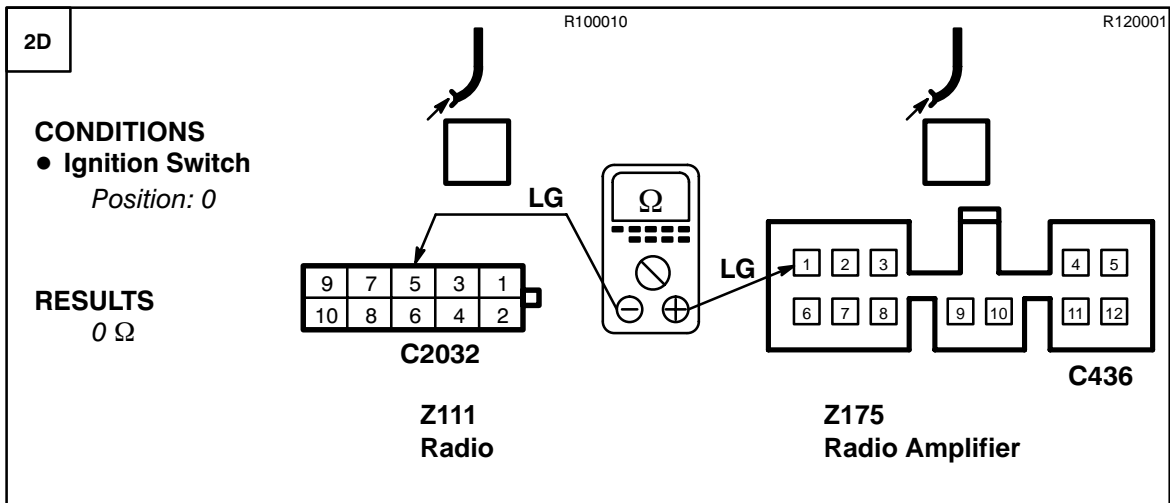
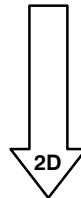
PROBLEM CAUSE
- Radio



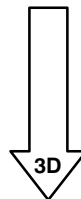
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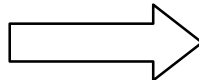
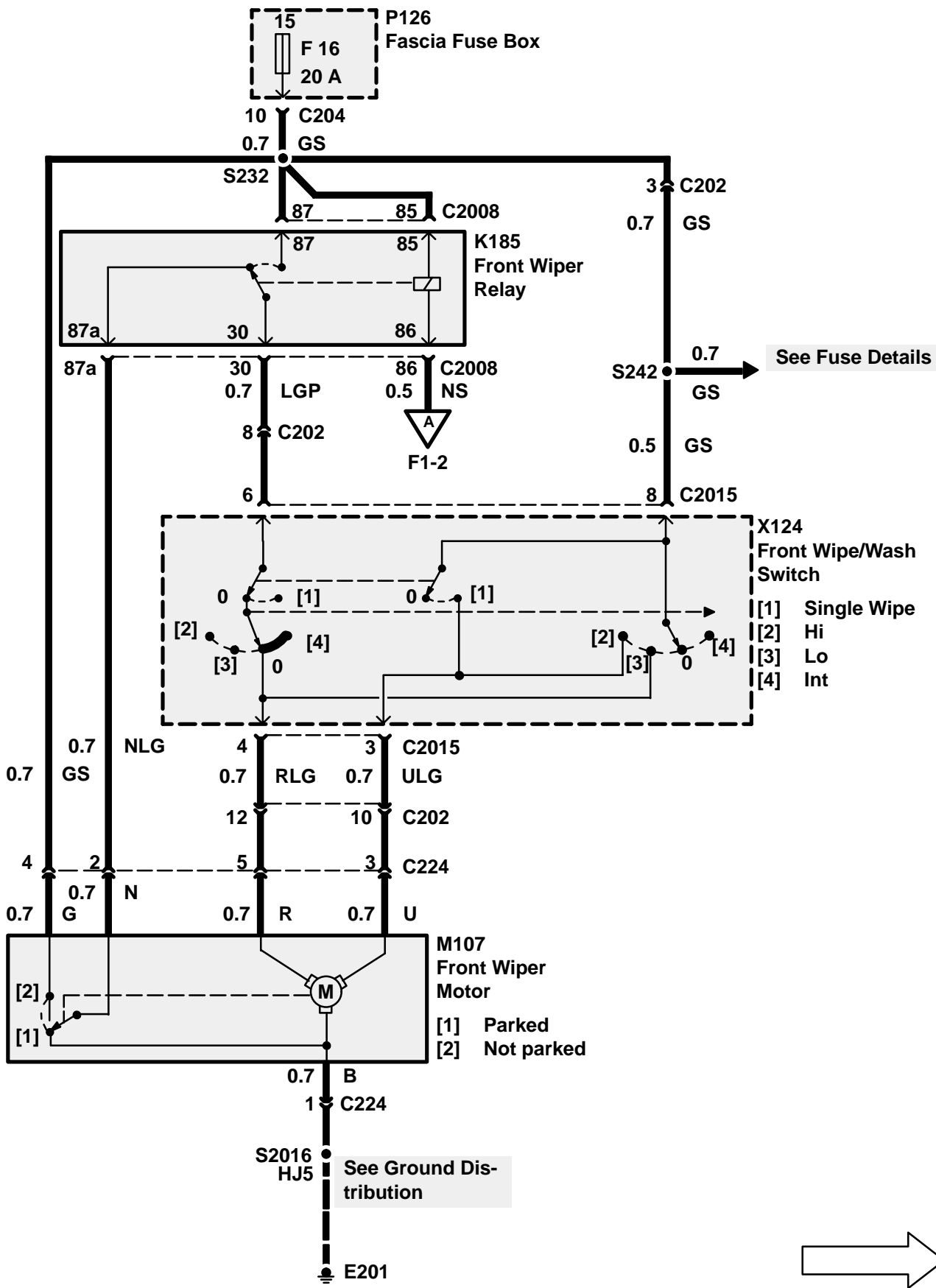


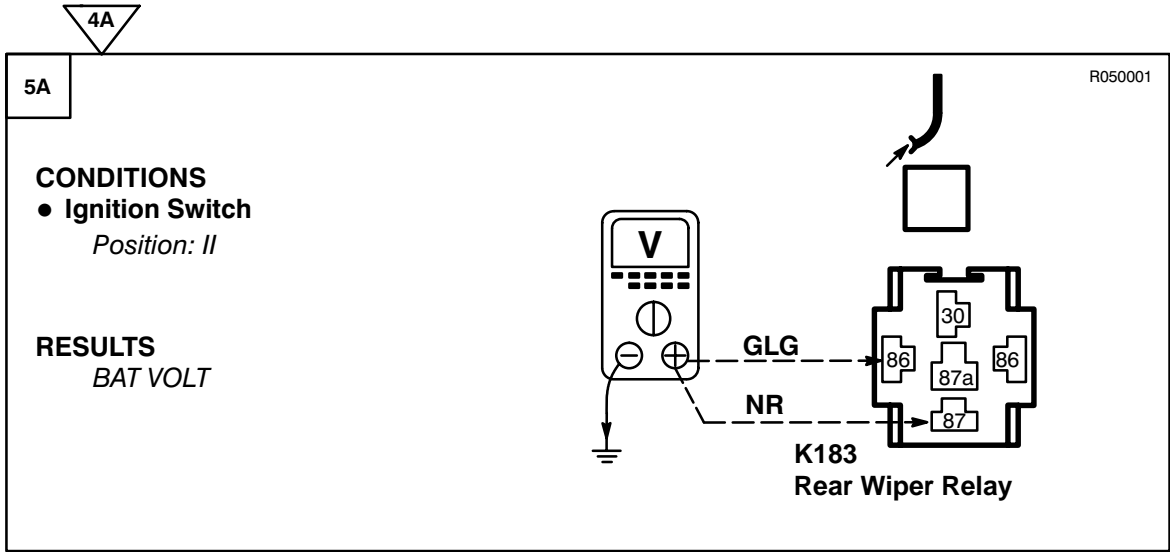
PROBLEM CAUSE
- Wire Wire (short)



PROBLEM CAUSE
- LG Wire

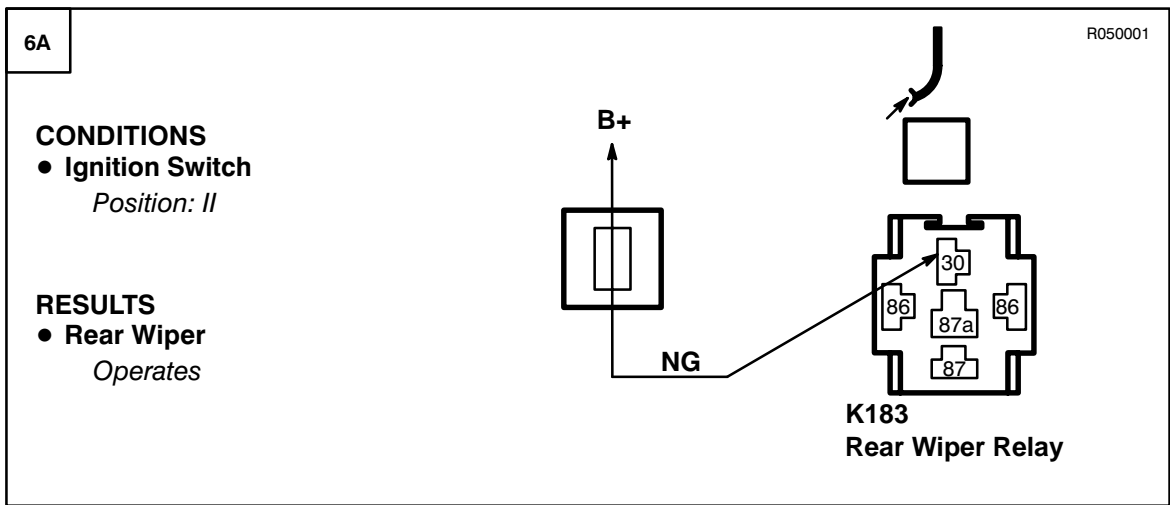
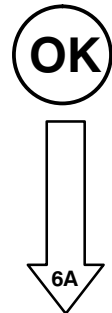






OK PROBLEM CAUSE

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

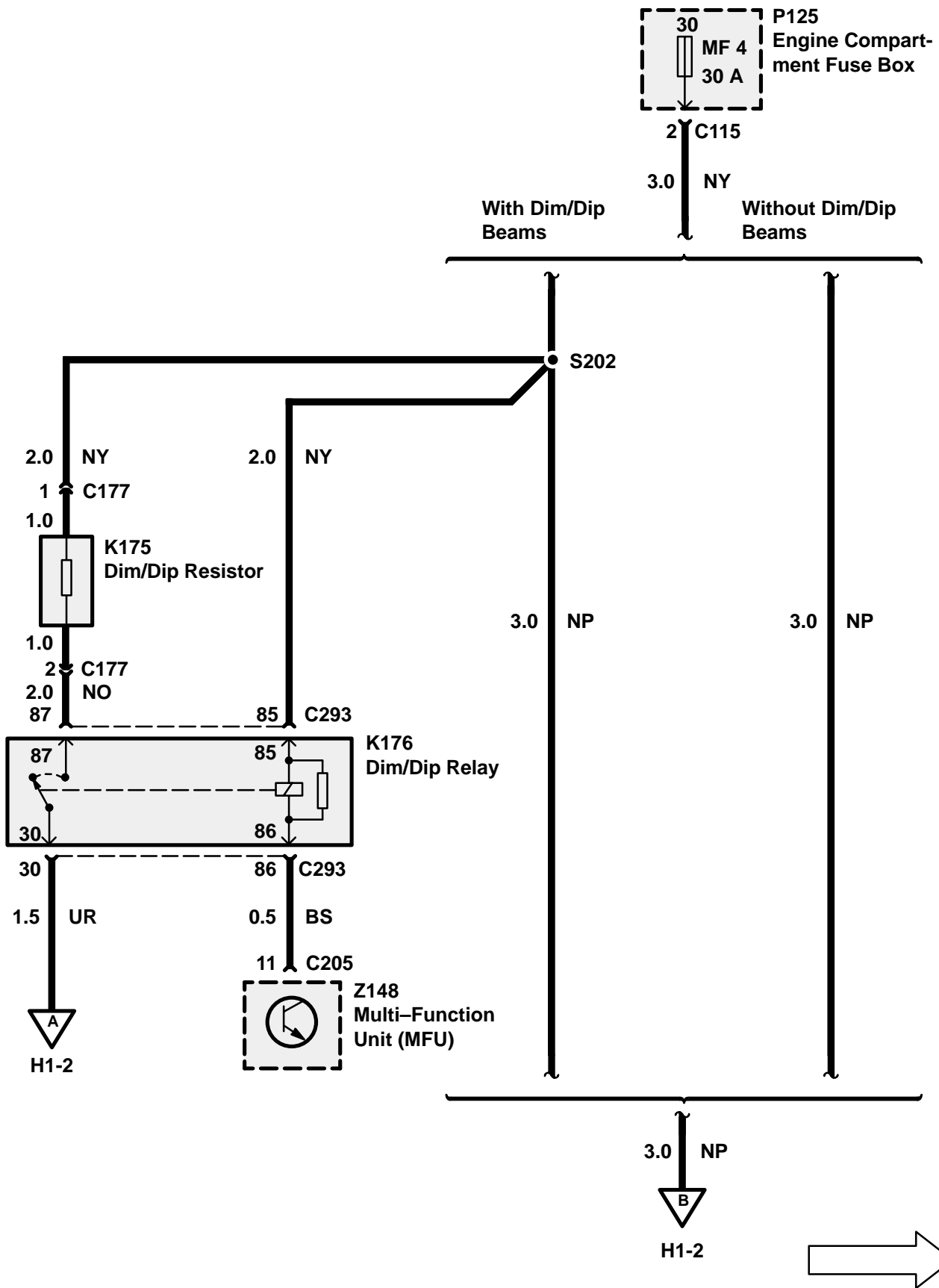


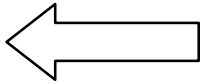
OK PROBLEM CAUSE

- NG Wire
- B Wire
- Rear Wiper Motor

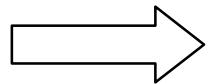
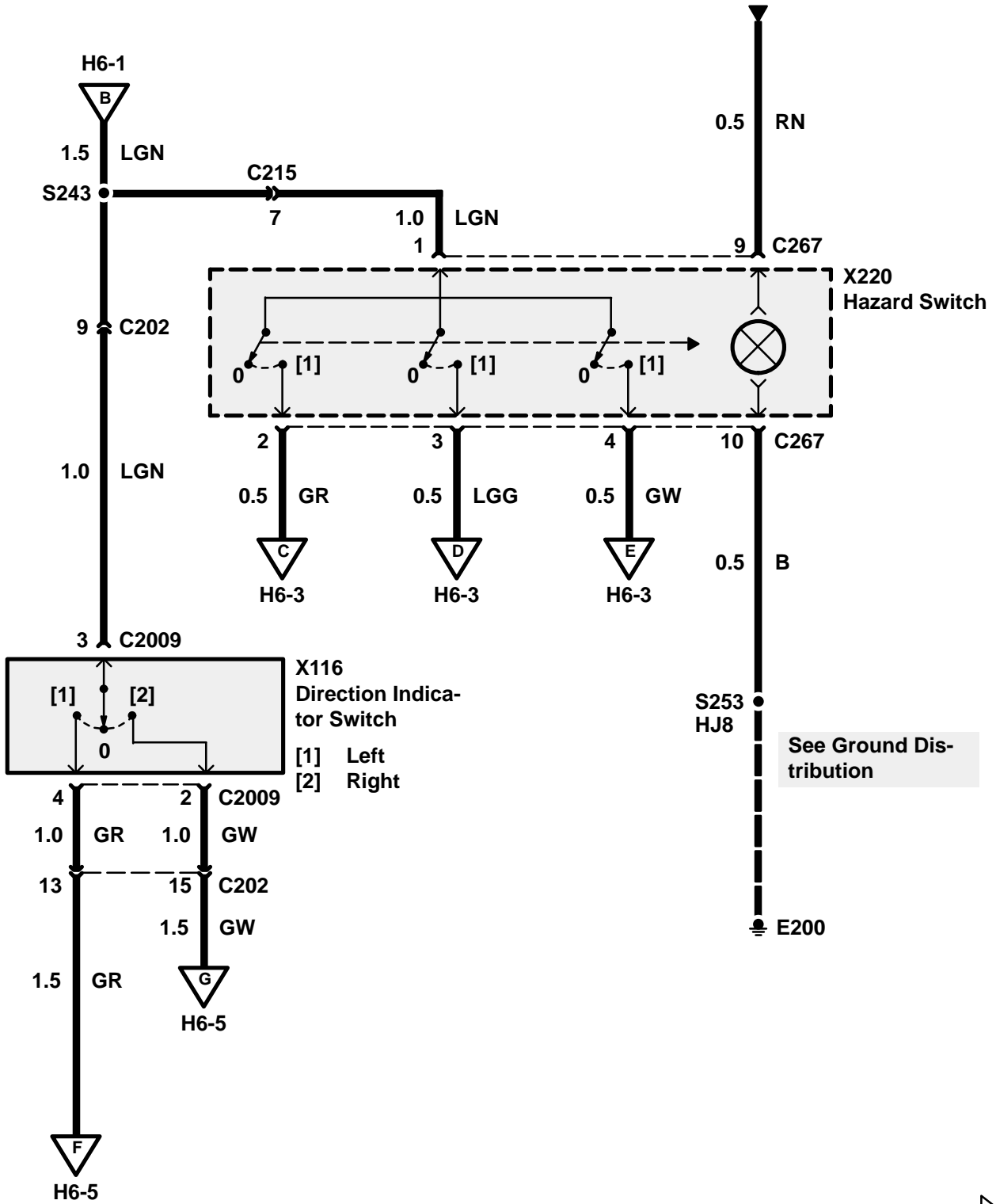
OK PROBLEM CAUSE

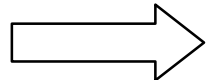
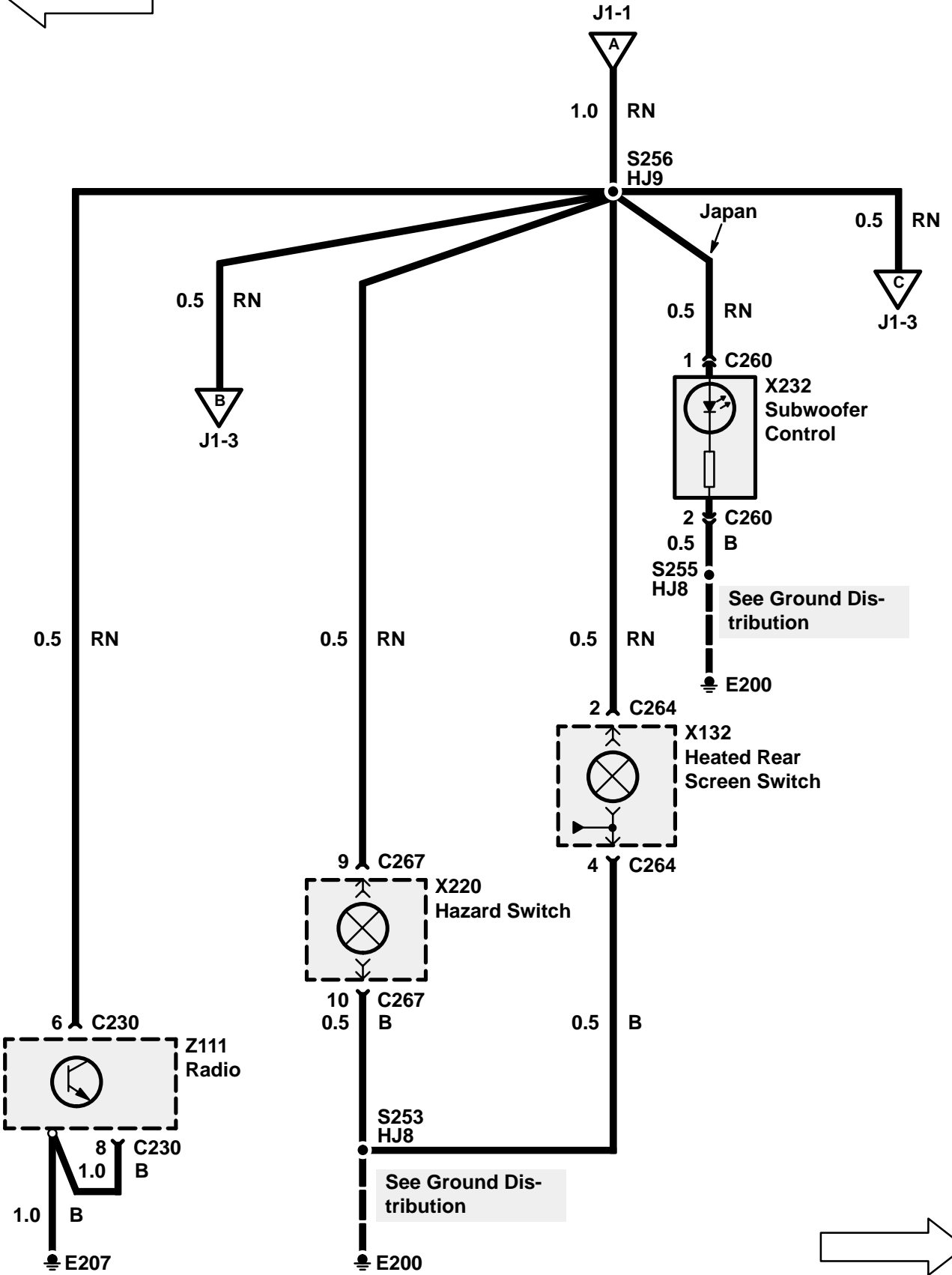
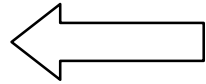
- Rear Wiper Relay

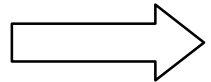
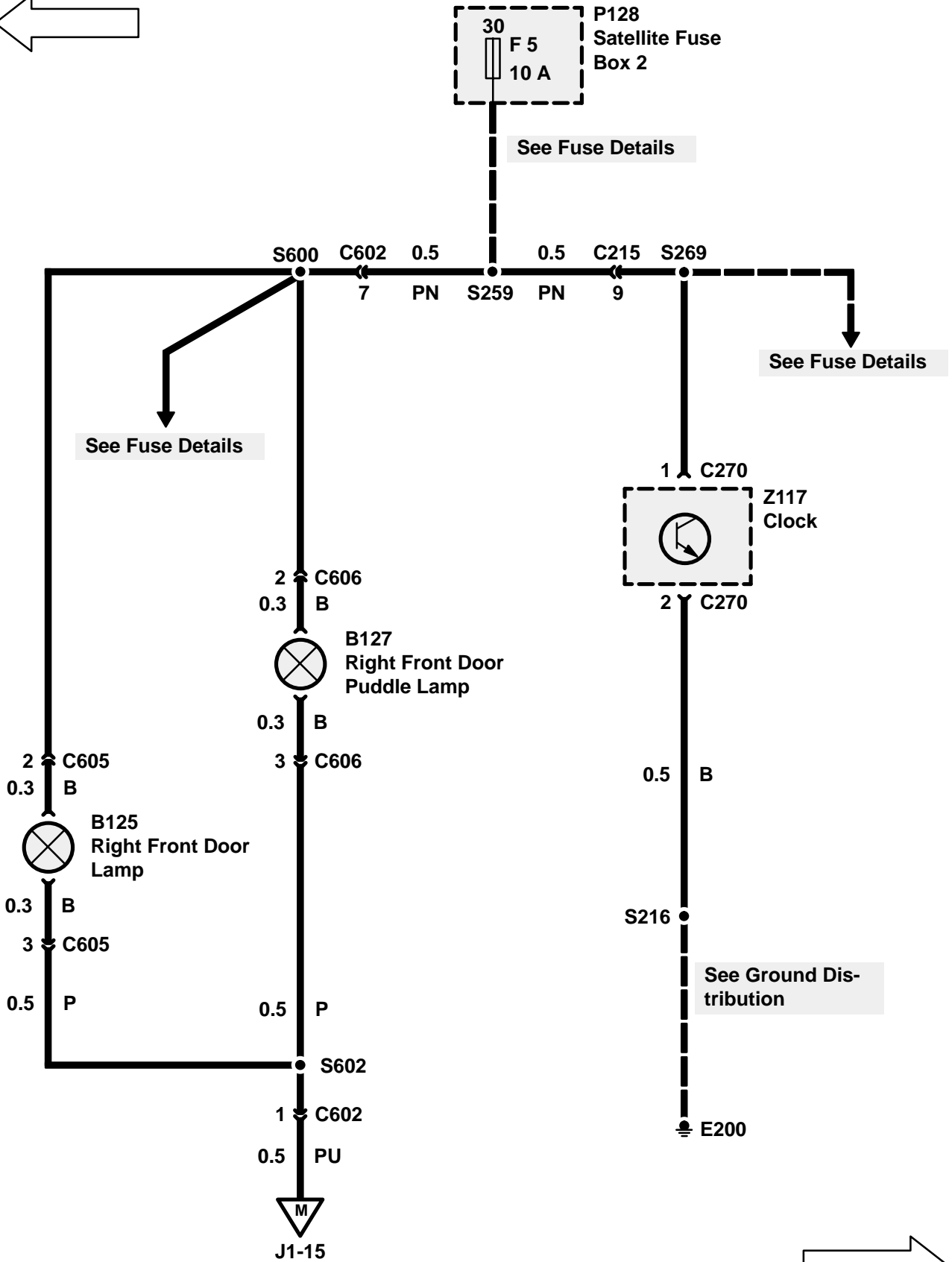
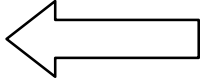


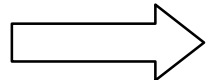
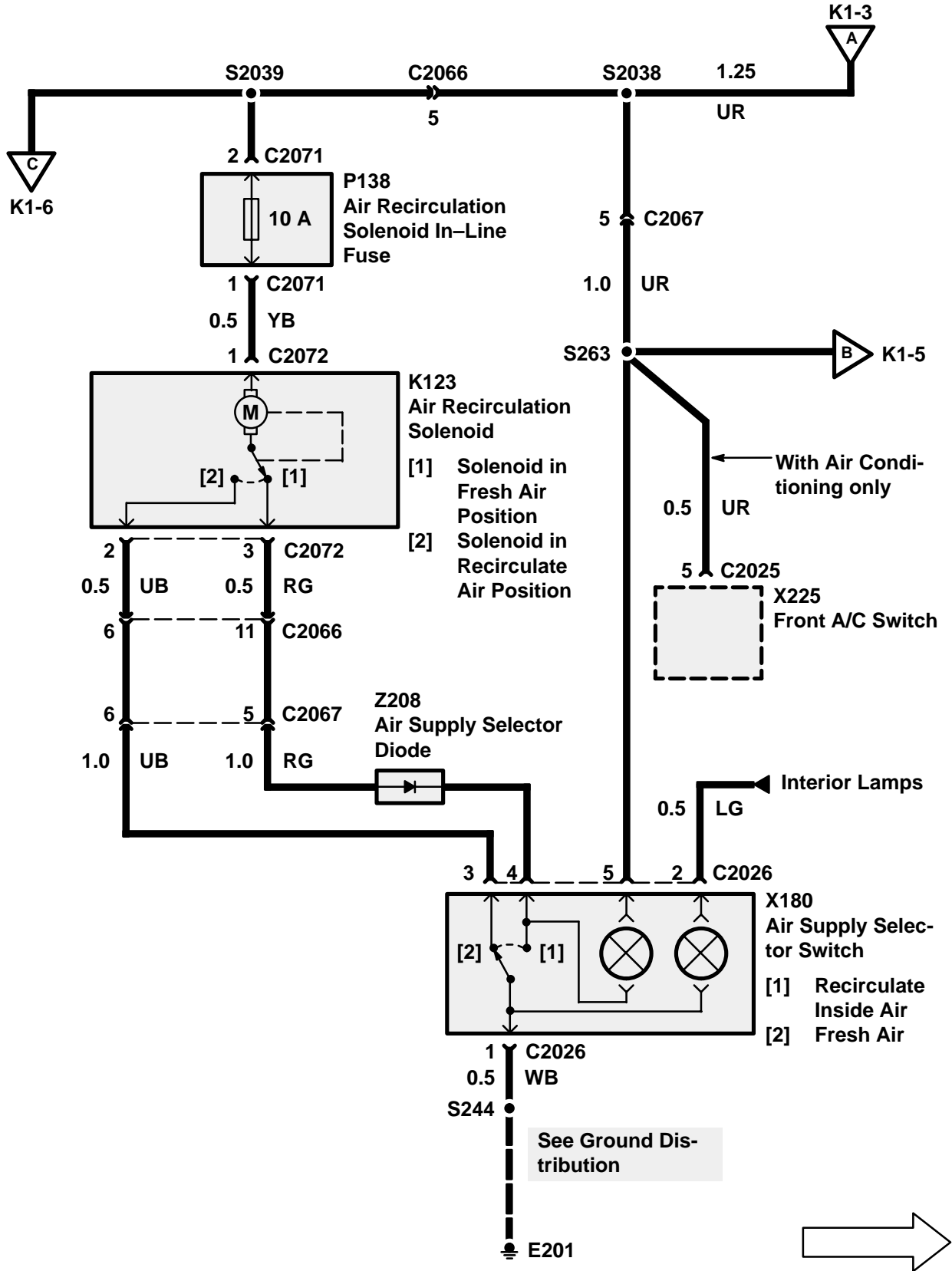
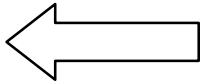


Interior Lamps







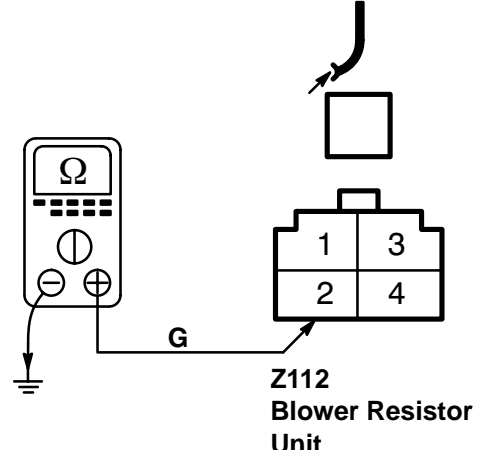


3B
2B
R040028

CONDITIONS

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

RESULTS
Less than 1 ohm

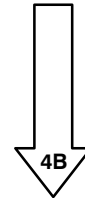


**Z112
Blower Resistor
Unit**



PROBLEM CAUSE

- G Wire
- Fan Speed Switch

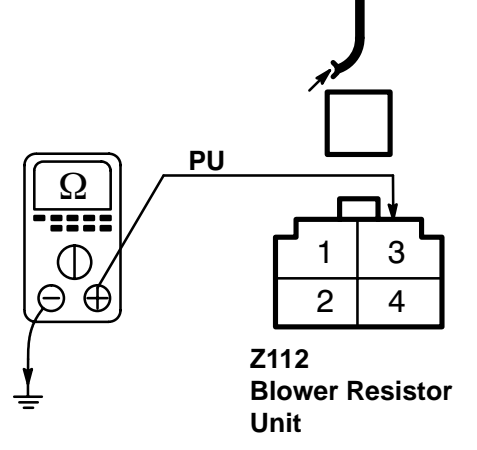


4B
R040028

CONDITIONS

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

RESULTS
Less than 1 ohm



**Z112
Blower Resistor
Unit**



PROBLEM CAUSE

- PU Wire
- Fan Speed Switch



PROBLEM CAUSE

- Blower Resistor Unit

Test A

R050001

1A **Petrol**

CONDITIONS

- Ignition Switch
Position: 0

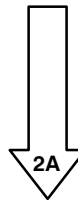
RESULTS
BAT VOLT

K108
Compressor
Clutch Relay



PROBLEM CAUSE

- F3 Fuse
- NG Wire



R050001

2A

CONDITIONS

- Ignition Switch
Position: II

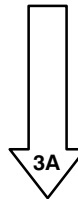
RESULTS
BAT VOLT

K108
Compressor
Clutch Relay



PROBLEM CAUSE

- WG Wire



R050001

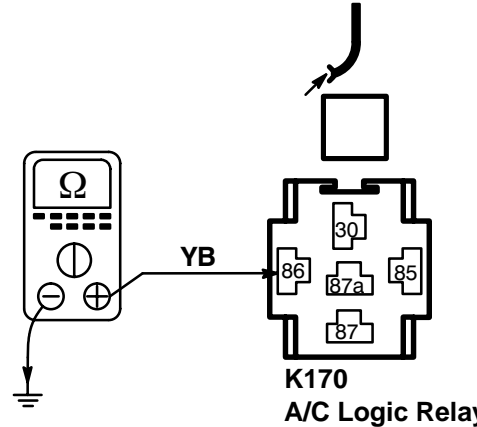
2D

3D

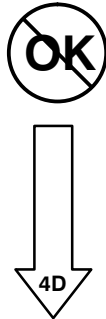
CONDITIONS

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

RESULTS
More than 10K ohms



K170
A/C Logic Relay



OK

PROBLEM CAUSE
- A/C Logic Relay

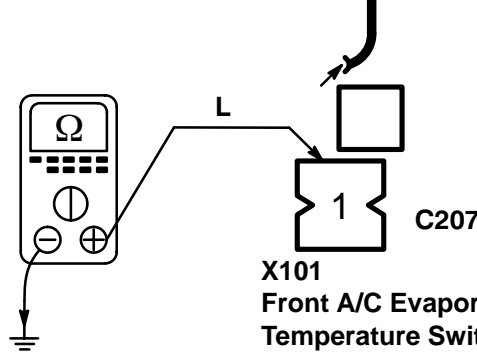
R010002

4D

CONDITIONS

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

RESULTS
More than 10K ohms



X101
Front A/C Evaporator
Temperature Switch

OK

GO TO TEST F

OK

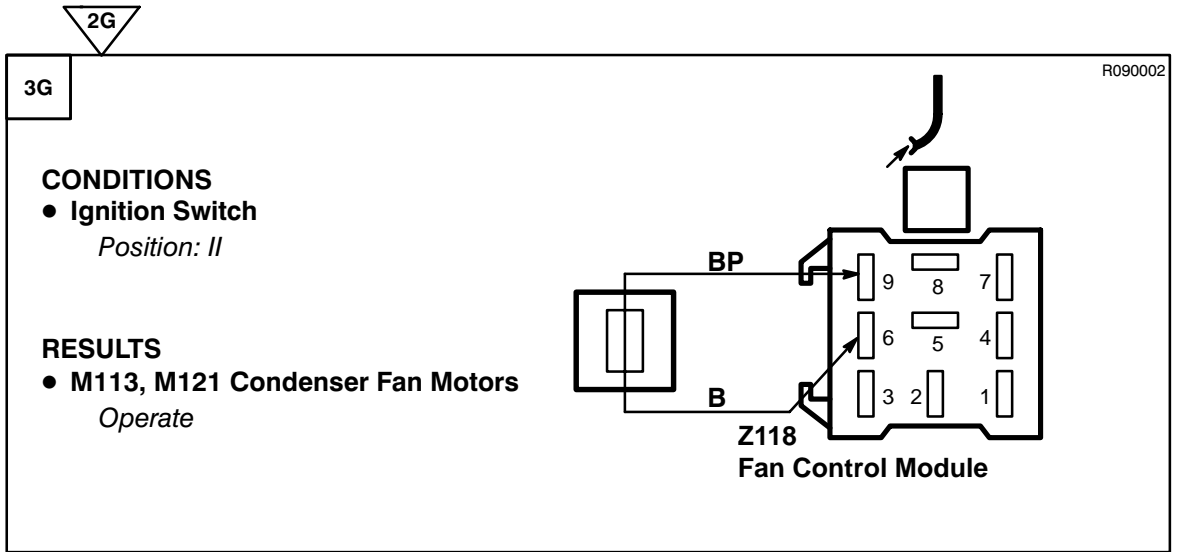
PROBLEM CAUSE
- YB Wire
- G Wire
- Front A/C Evaporator
Temperature Switch

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.

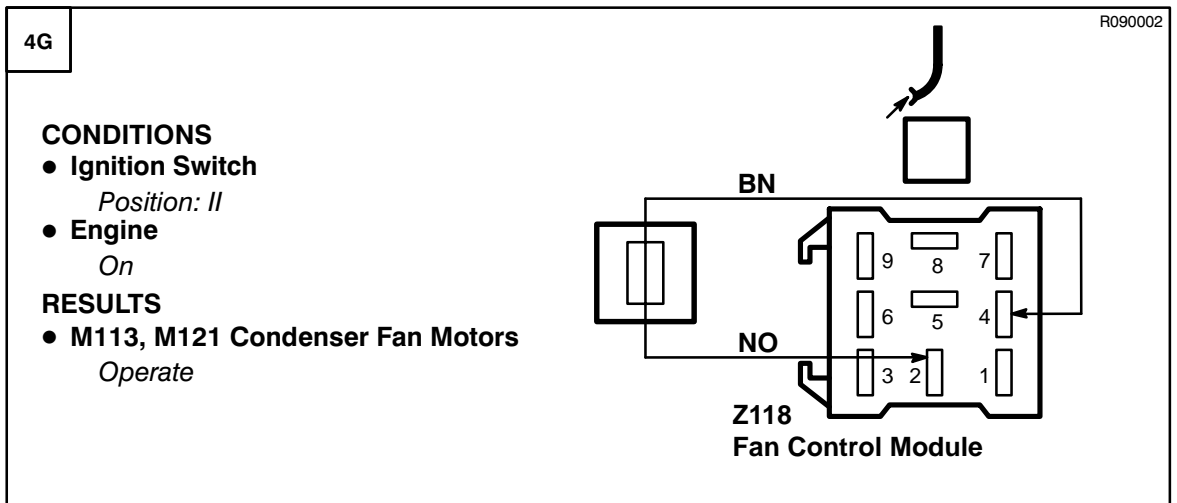
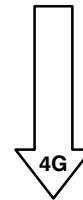
SYSTEM DIAGNOSIS

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.



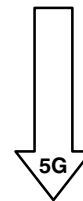
PROBLEM CAUSE

- BP Wire
- B Wire

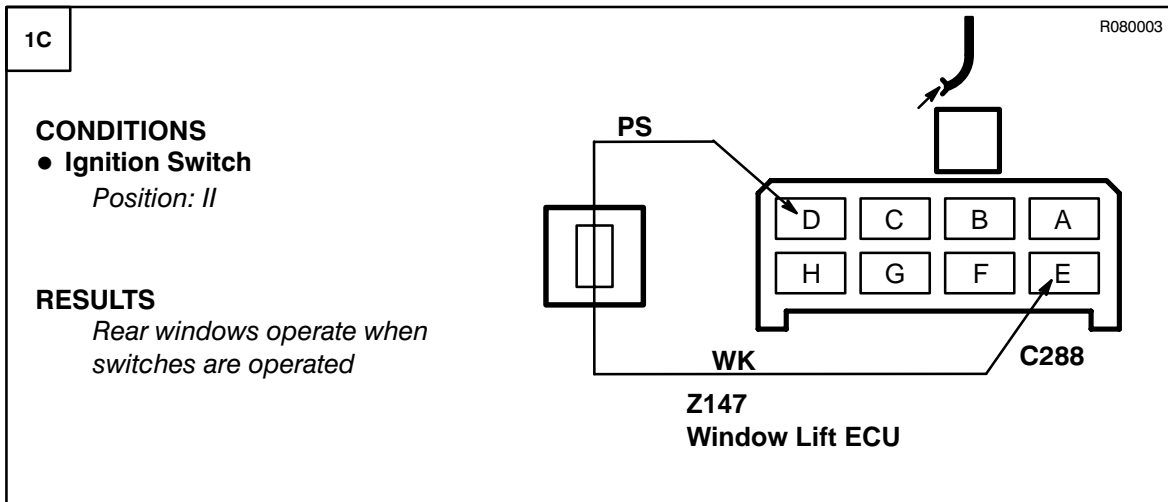


PROBLEM CAUSE

- BN Wire



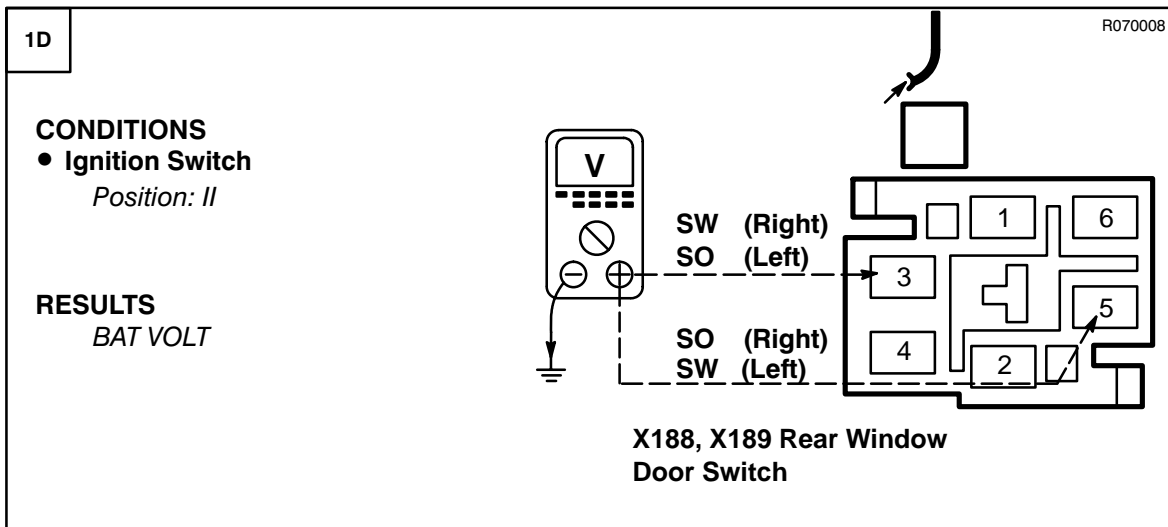
Test C



OK PROBLEM CAUSE
 - WK Wire

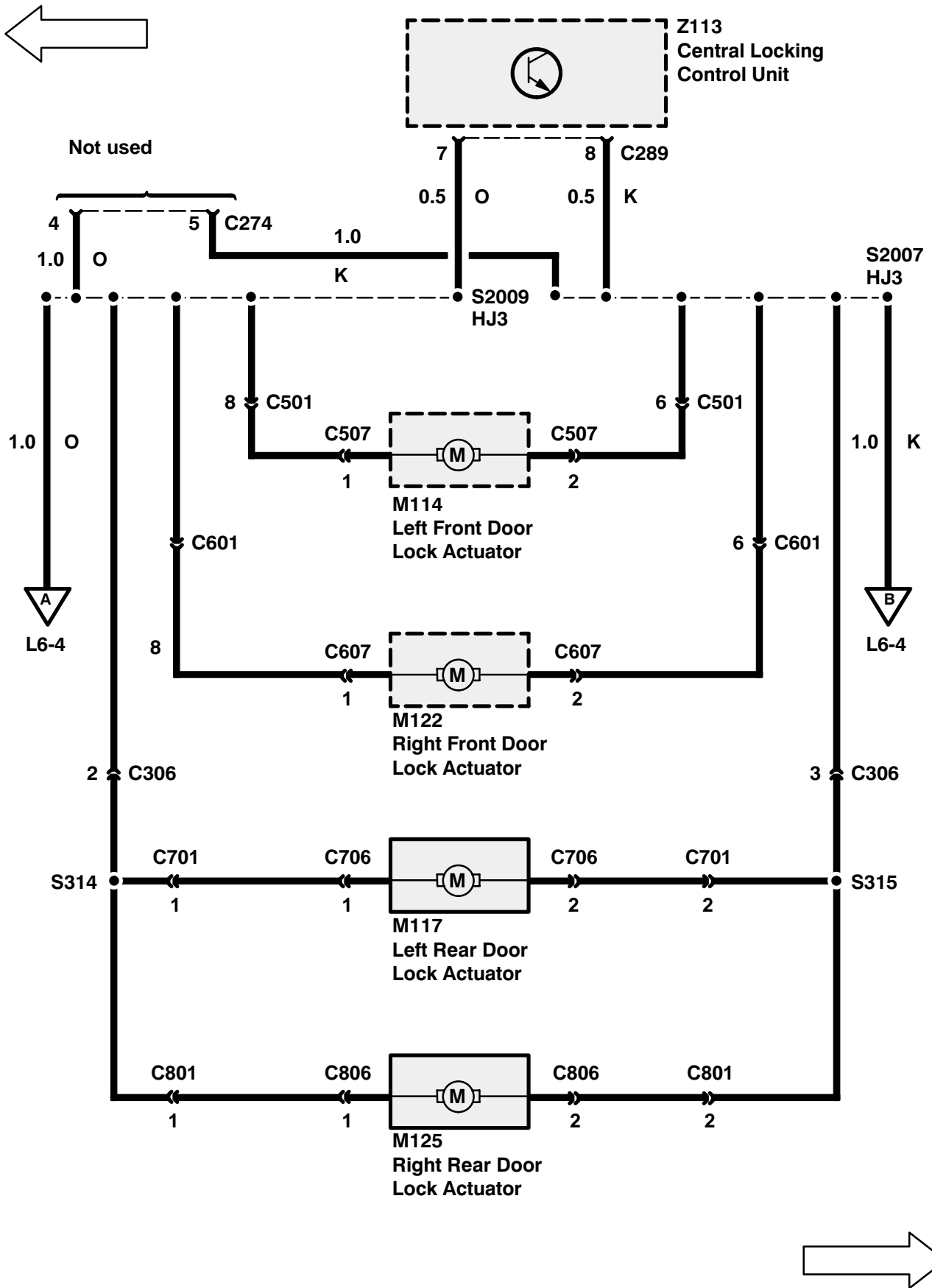
OK PROBLEM CAUSE
 - Window Lift ECU

Test D



OK GO TO TEST E

OK
 ↓
 2D



1E
R020029

2E

M132
Tailgate Lock Ac-
tuator

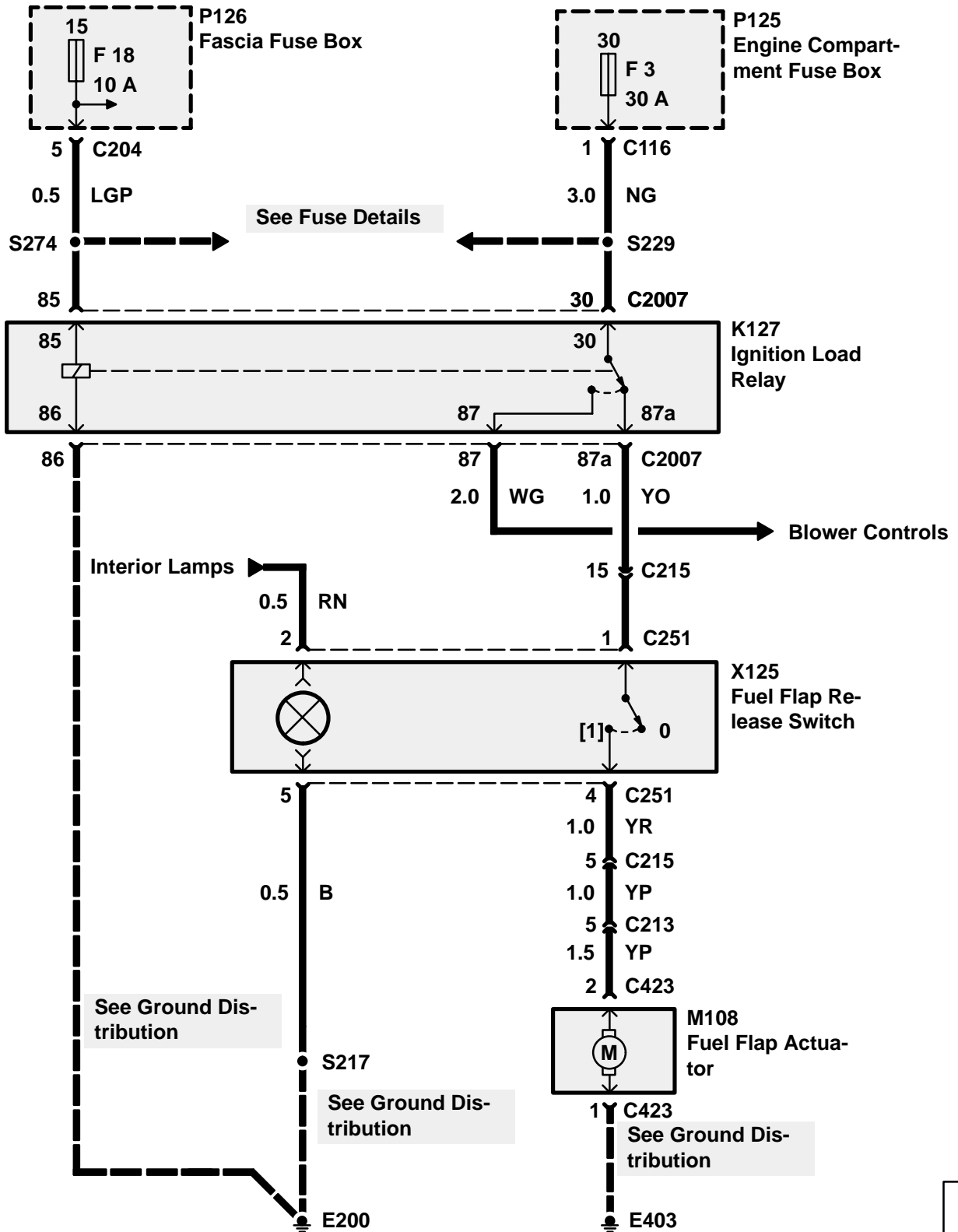
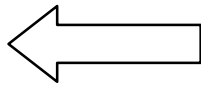
CONDITIONS

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

RESULTS
BAT VOLT (Momentary)

OK PROBLEM CAUSE
- O Wire

OK PROBLEM CAUSE
- Tailgate Lock Ac-
tuator



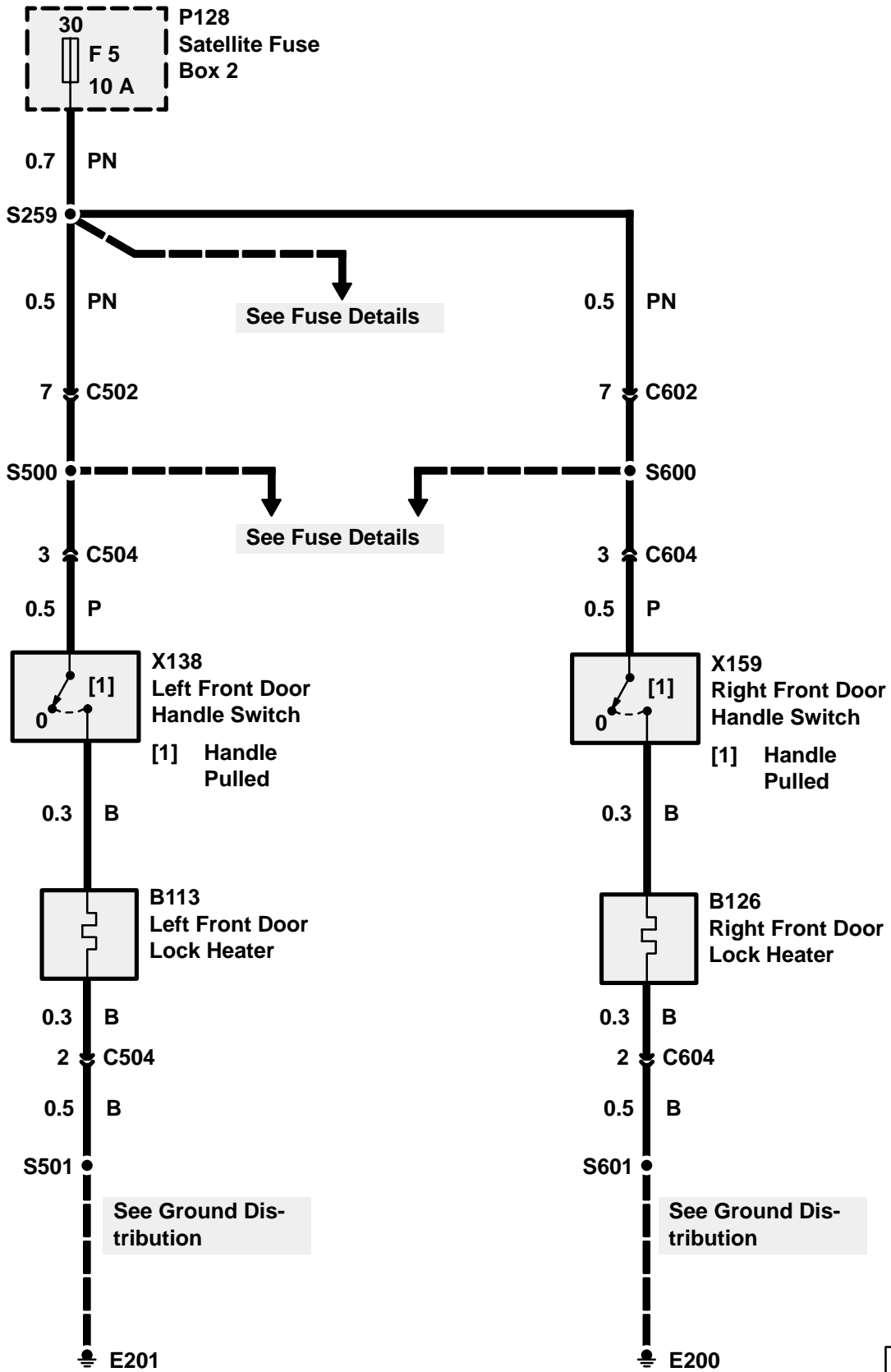
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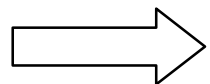
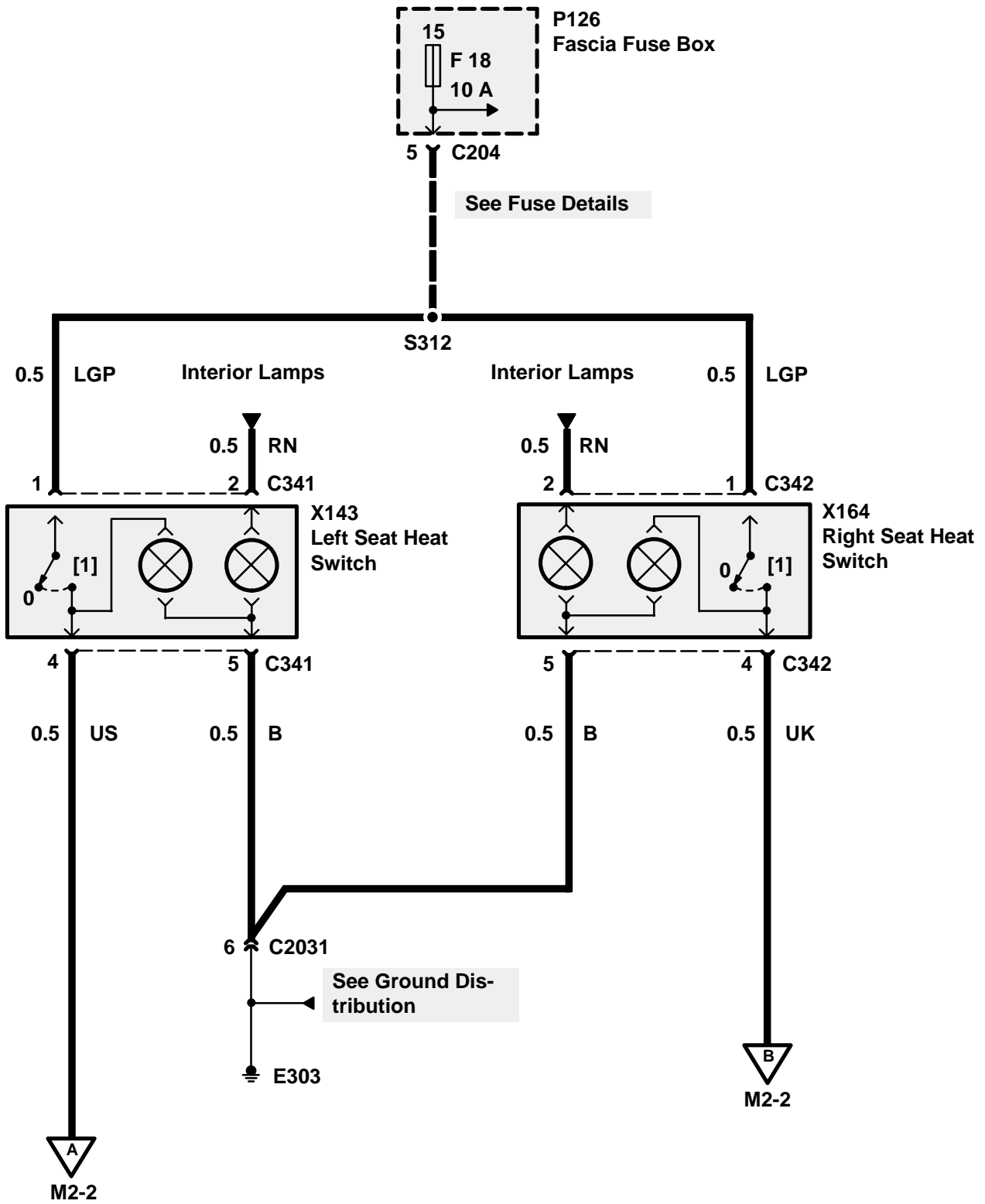
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R050020.00

10A

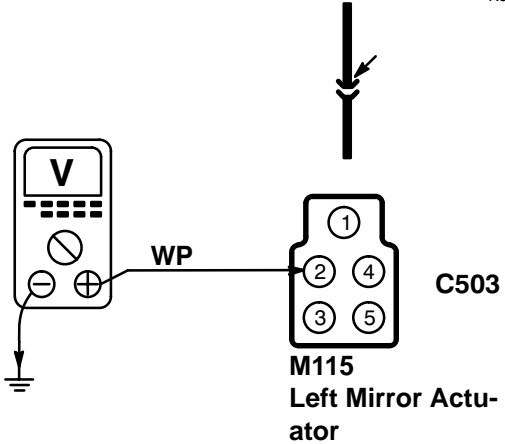
11A

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

OK

↓

12A

R050020.00

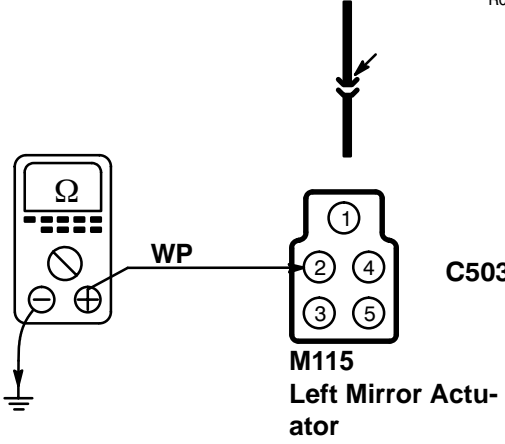
12A

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



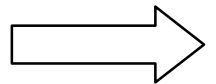
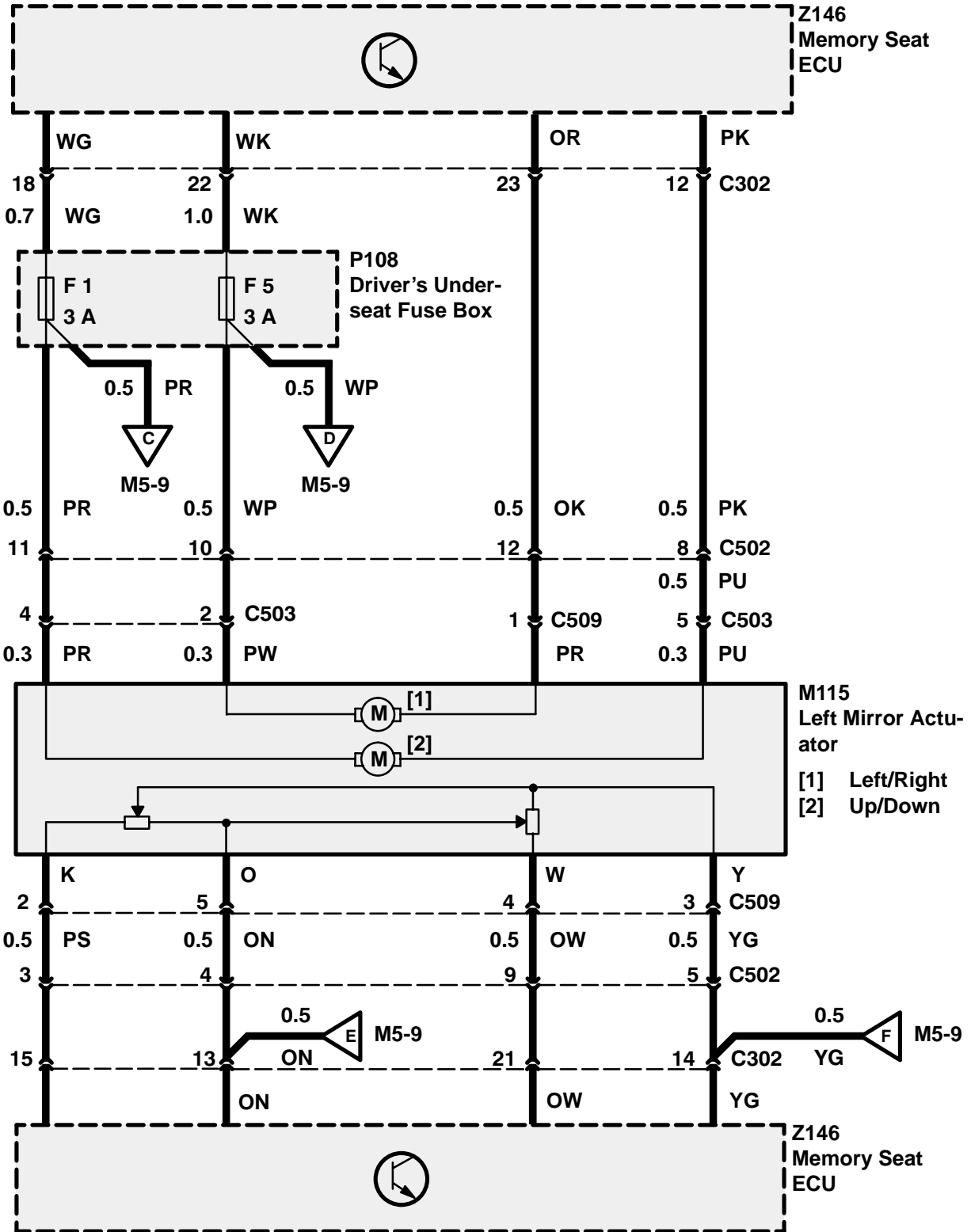
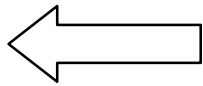
M115
Left Mirror Actuator

~~OK~~ **PROBLEM CAUSE**

- Mirror Adjustment Switch

OK **PROBLEM CAUSE**

- M115, M123 Mirror Actuator



4D

5D

R050001

CONDITIONS

- Ignition Switch
Position: 0

RESULTS

- Seat Memory
Operates

K131
Right Seat Power Relay



PROBLEM CAUSE

- F2 Fuse
- F3 Fuse
- WN Wire



PROBLEM CAUSE

- Right Seat Power Relay

Test E

1E

R100013

CONDITIONS

- Ignition Switch
Position: 0

RESULTS

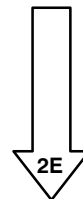
- Green Memory Button
Depressed
Less than 1 ohm
Released
More than 10K ohms

Z146
Memory Seat ECU



PROBLEM CAUSE

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



R240006

2G

3G

CONDITIONS

- Ignition Switch
Position: 0
- Mirror Adjustment Switch
Up

RESULTS
More than 10K ohms

BK 1 SW Z146 C302 11
Memory Seat ECU



PROBLEM CAUSE

- SW Wire
- Mirror Adjustment Switch



R240006

4G

4G

CONDITIONS

- Ignition Switch
Position: 0
- Mirror Adjustment Switch
Down

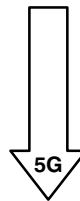
RESULTS
Less than 1 ohm

BK 1 SW Z146 C302 11
Memory Seat ECU



PROBLEM CAUSE

- Mirror Adjustment Switch



Test J

R090003

1J

CONDITIONS

- Ignition Switch
Position: I
- Right Front Door
Open

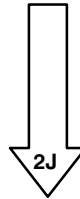
RESULTS

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

Z146
Memory Seat
ECU



PROBLEM CAUSE
- Memory Seat
ECU



R090003

2J

CONDITIONS

- Ignition Switch
Position: I
- Right Front Door
Open

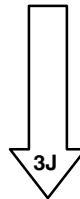
RESULTS

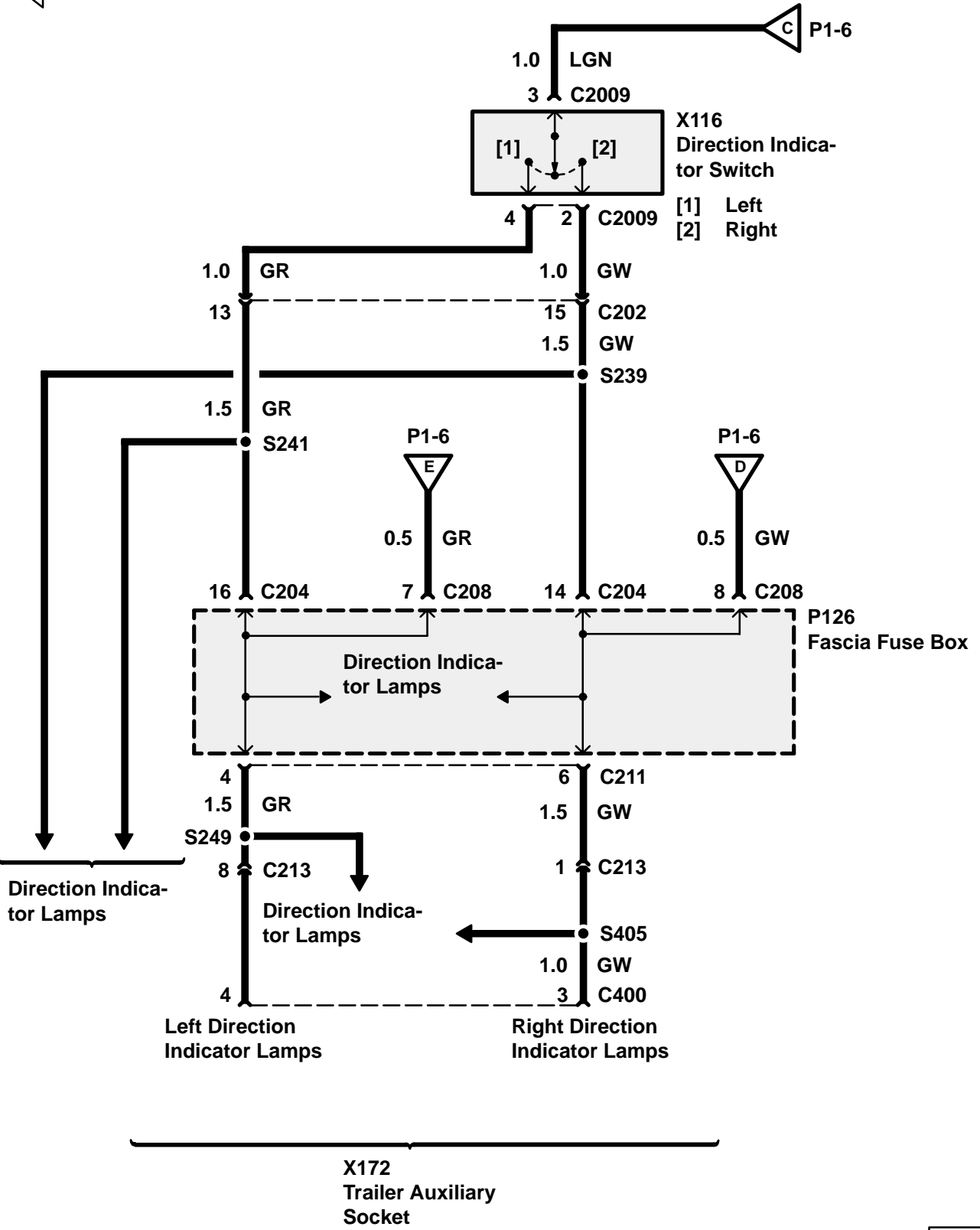
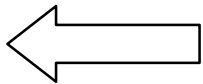
- Right Front Seat Control Switch
Rear up
-BAT VOLT
- Rear down*
+BAT VOLT

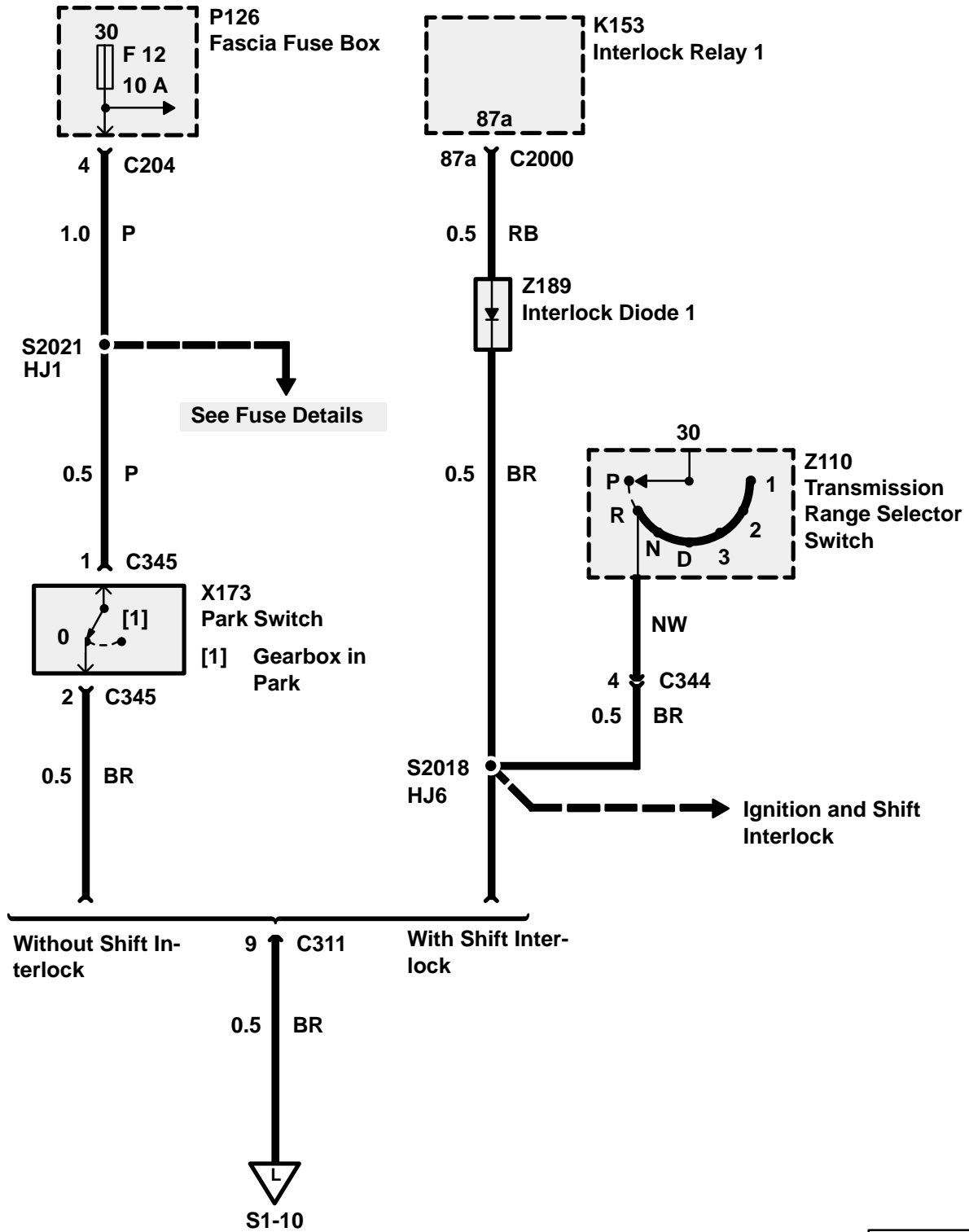
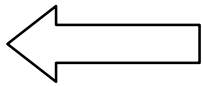
Z146
Memory Seat
ECU



PROBLEM CAUSE
- Memory Seat
ECU





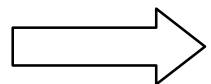


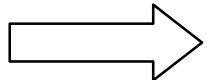
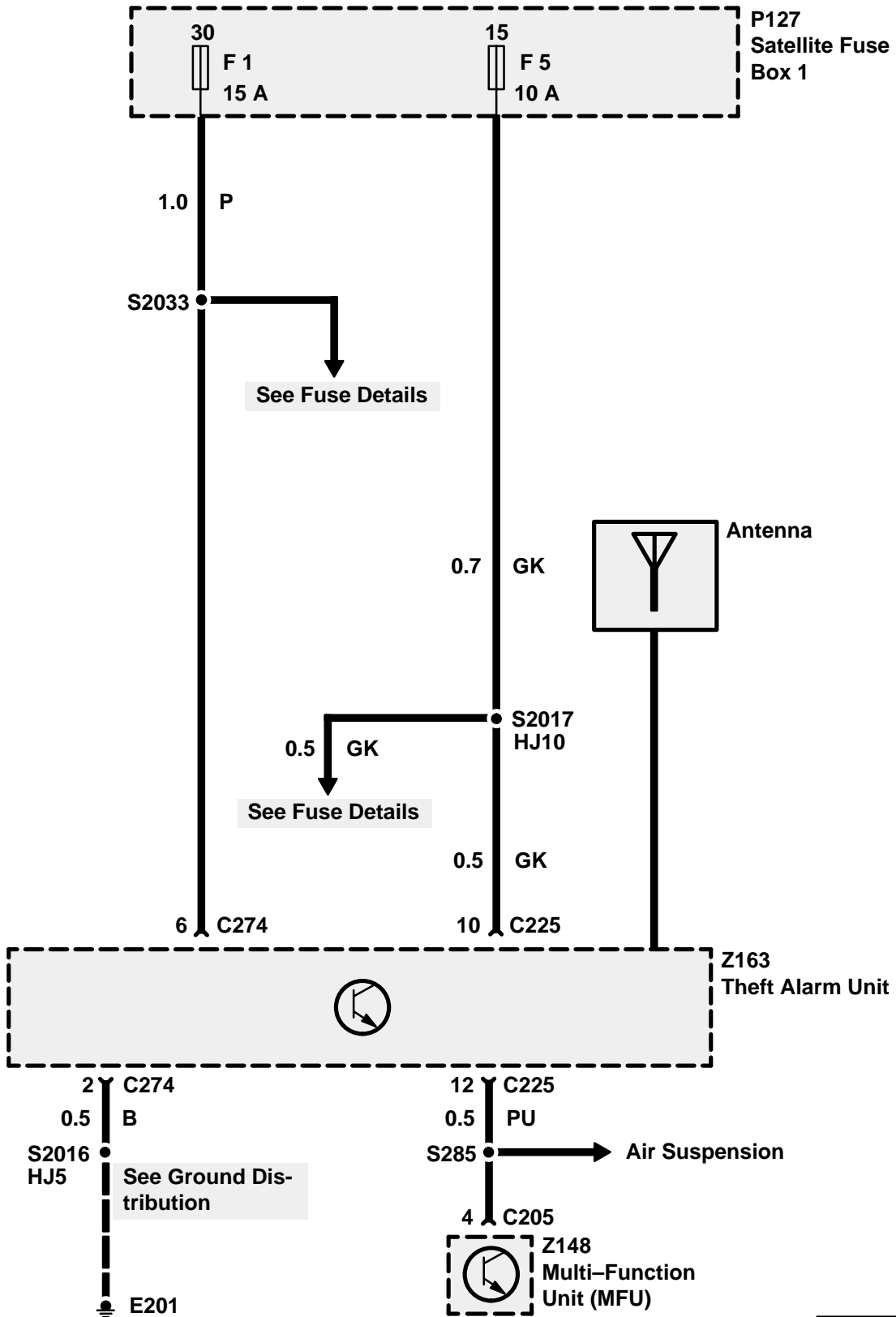
See Fuse Details

Ignition and Shift Interlock

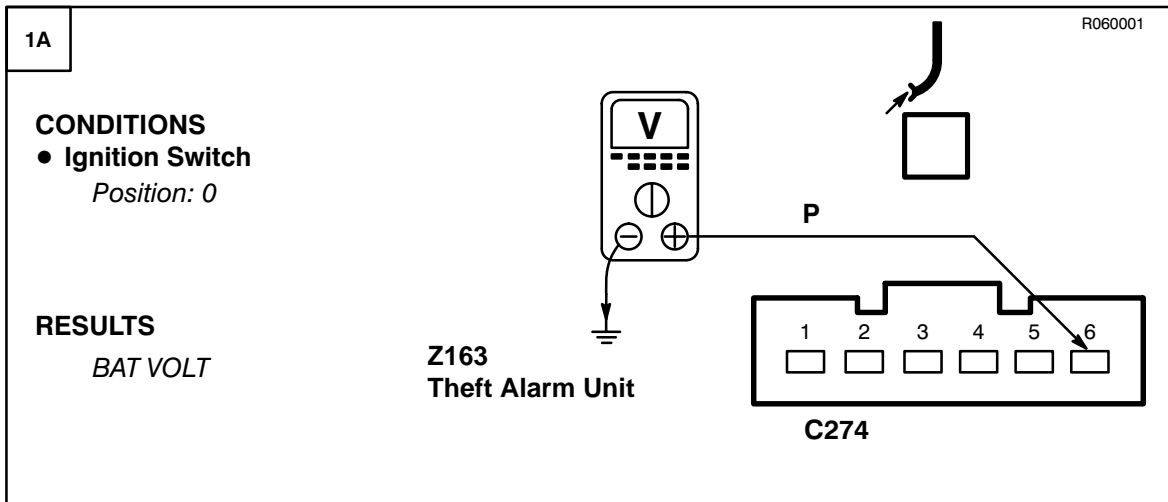
Without Shift Interlock

With Shift Interlock



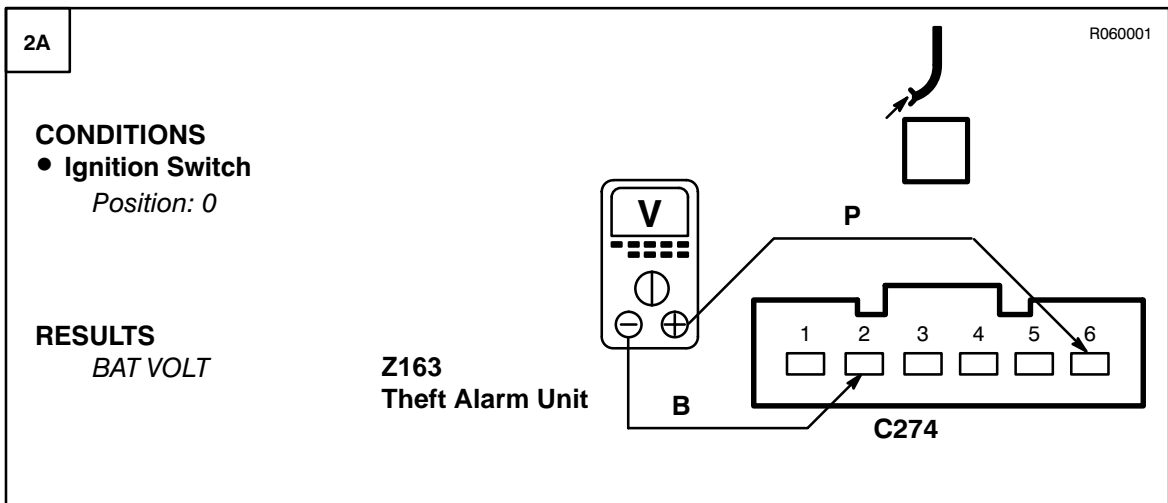
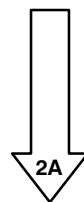


Test A



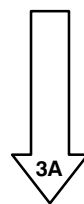
~~OK~~ PROBLEM CAUSE
- P Wire

OK

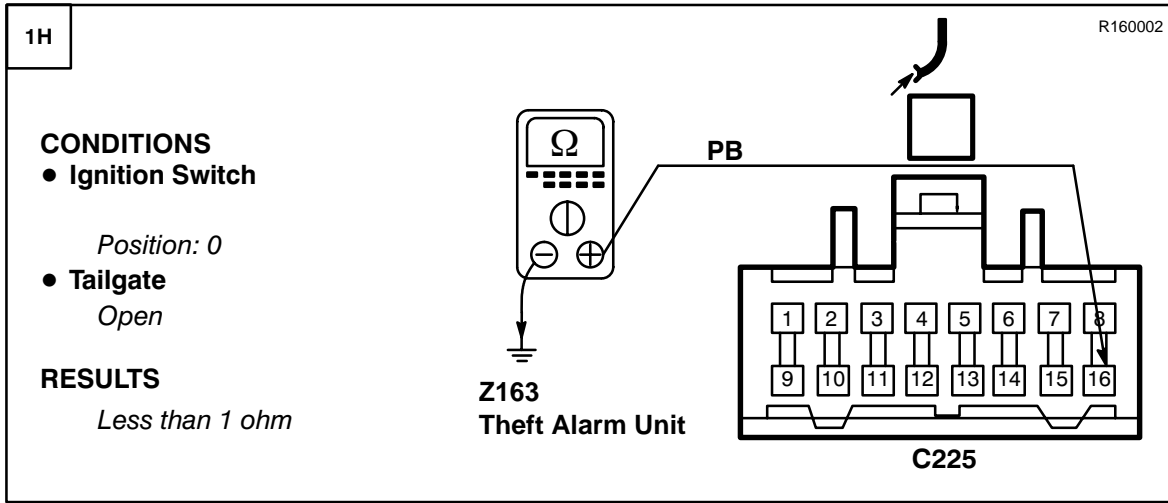


~~OK~~ PROBLEM CAUSE
- B Wire

OK



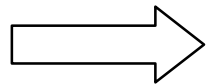
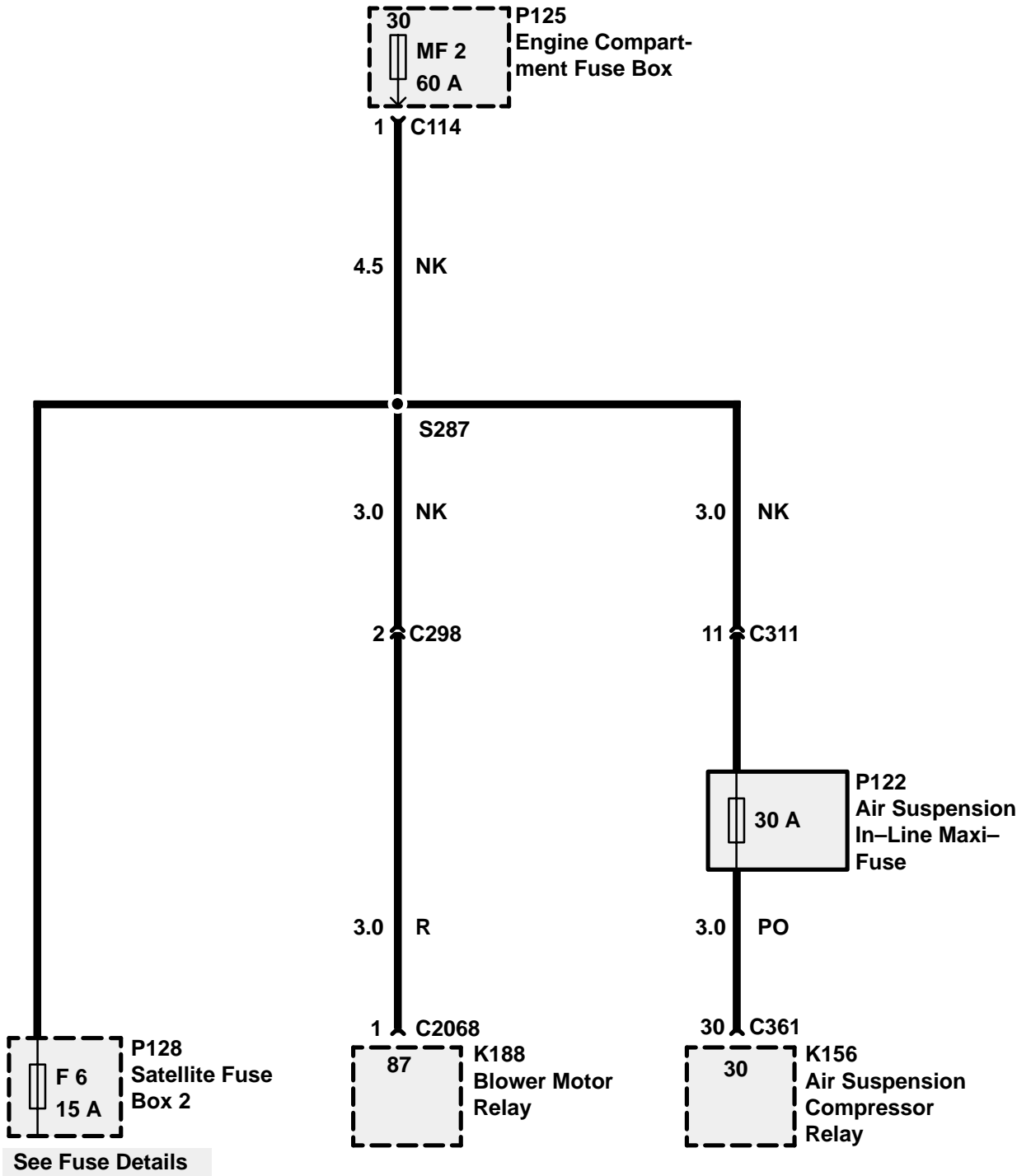
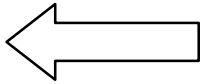
Test H

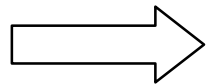
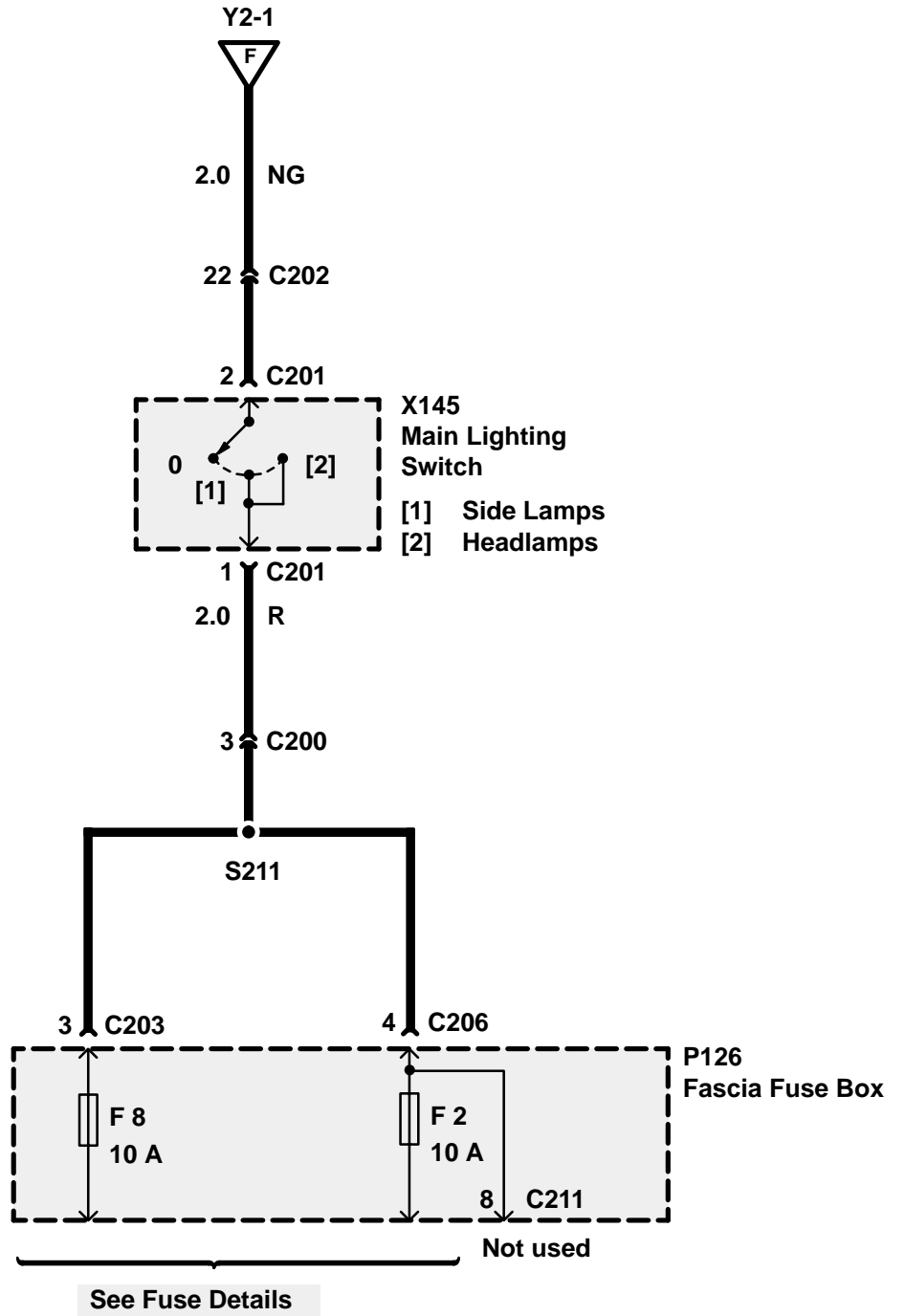
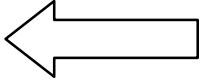


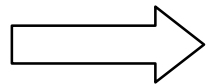
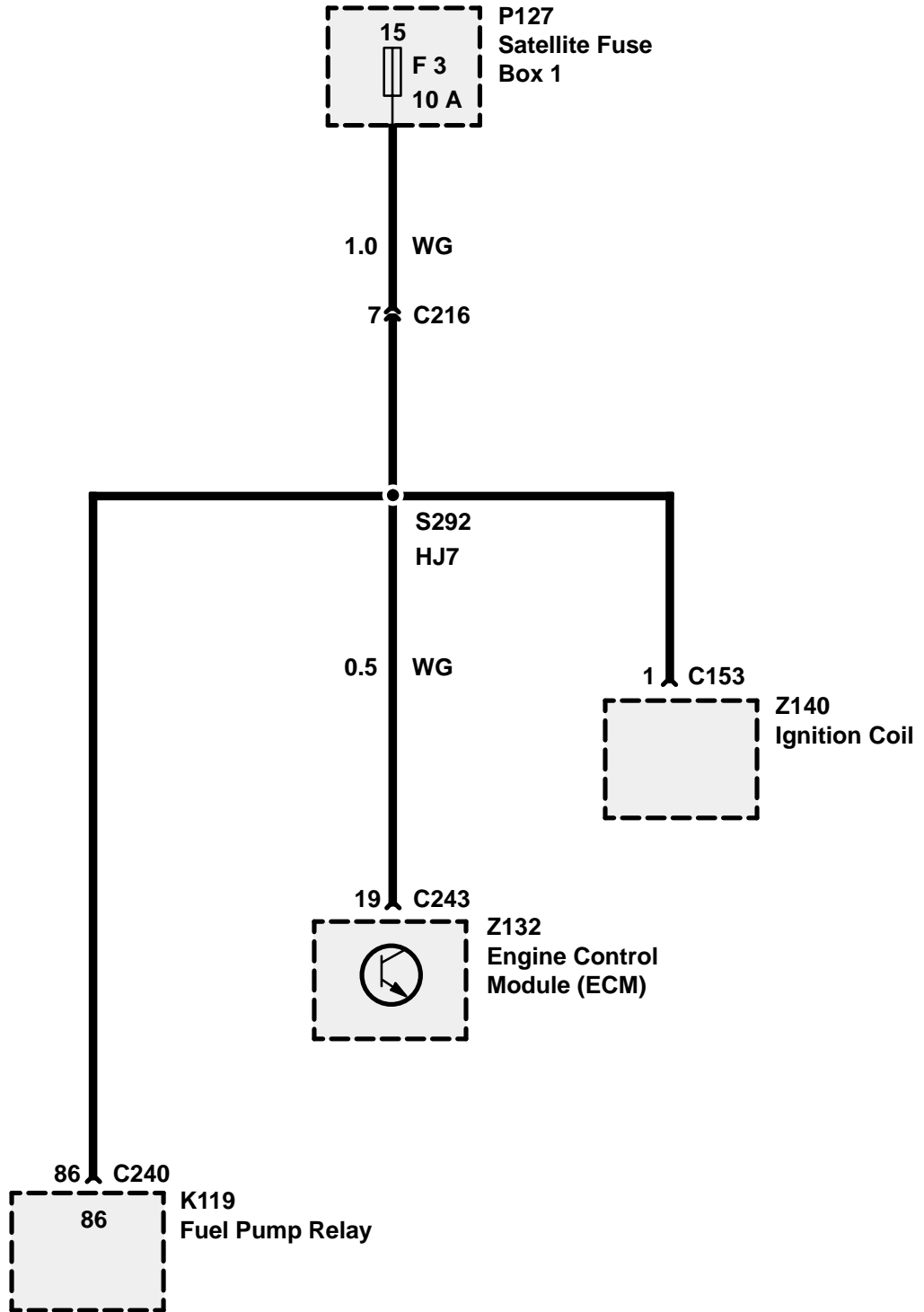
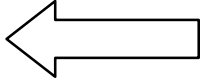
PROBLEM CAUSE
- PB Wire
- Tailgate Switch

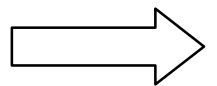
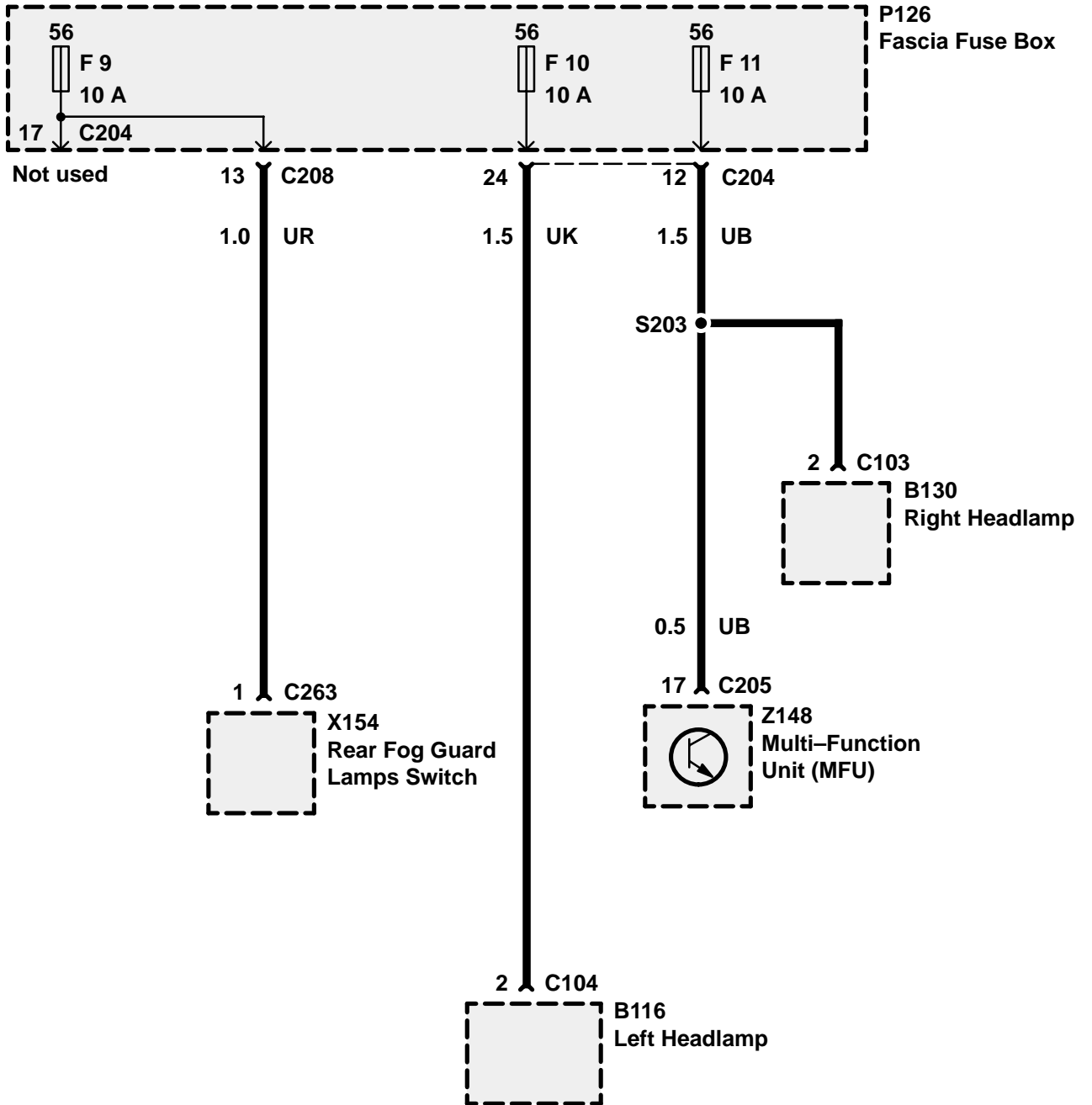
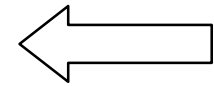


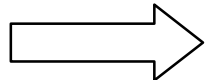
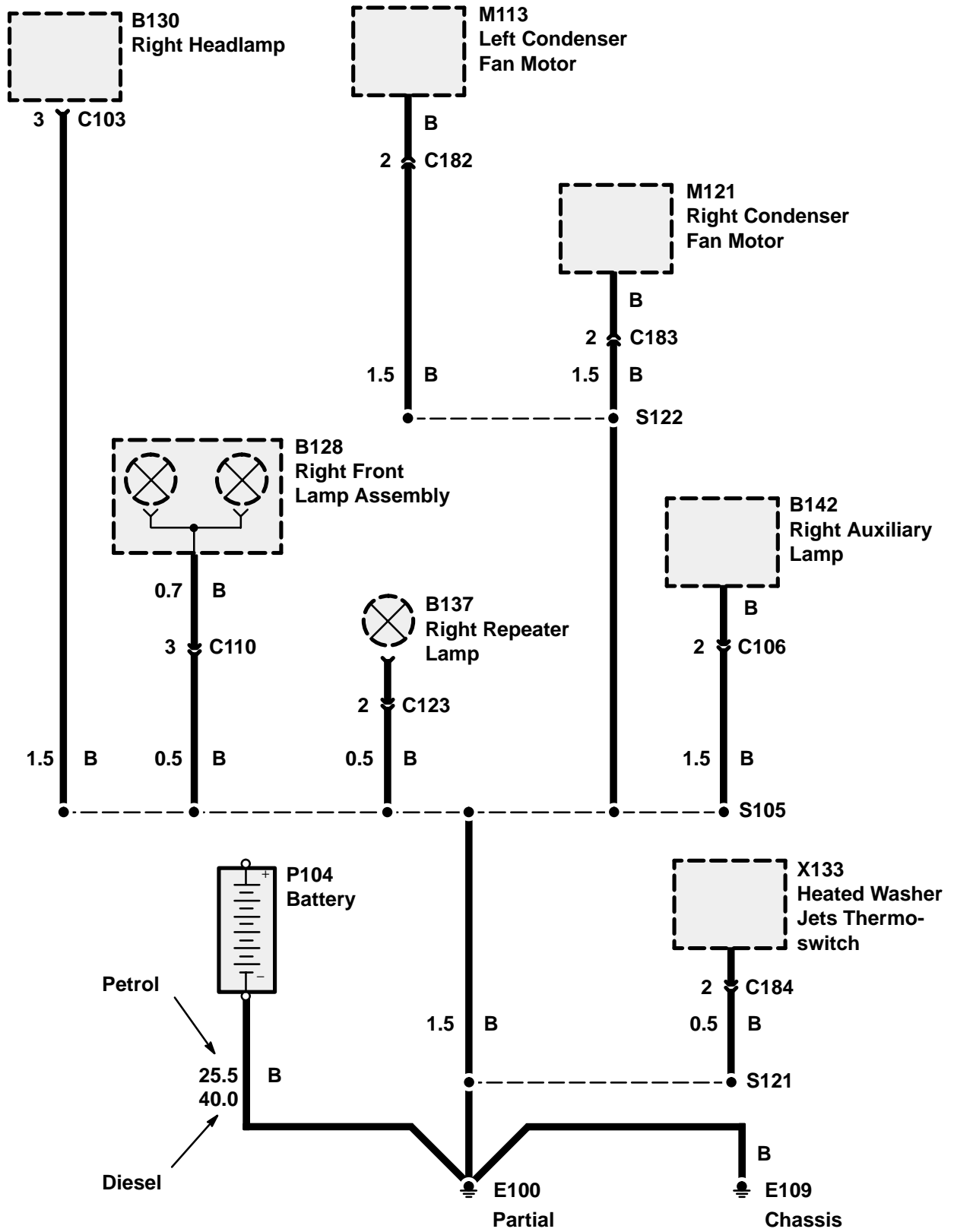
PROBLEM CAUSE
- Theft Alarm Unit

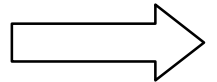
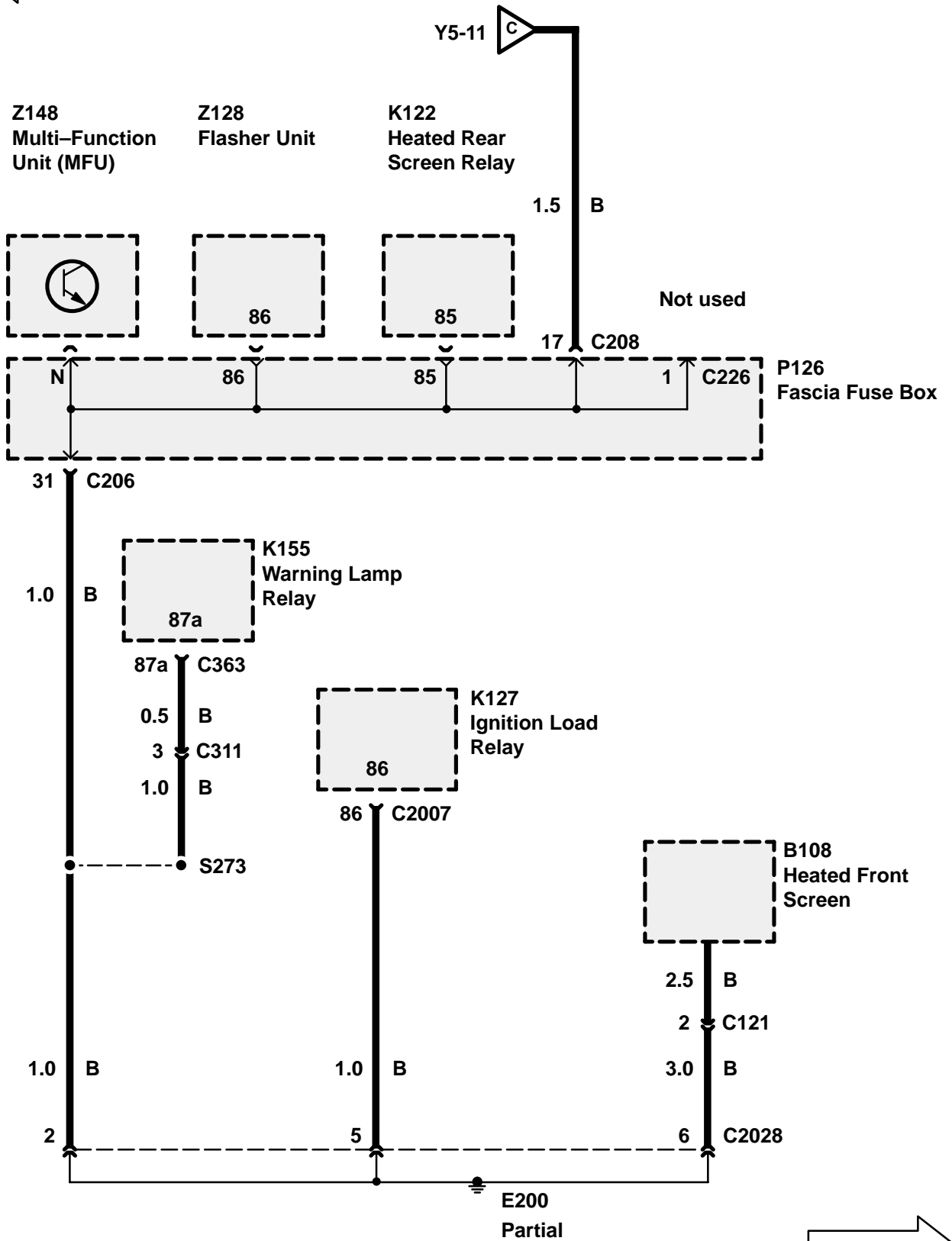
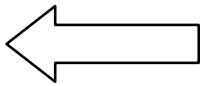


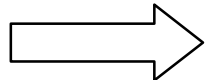
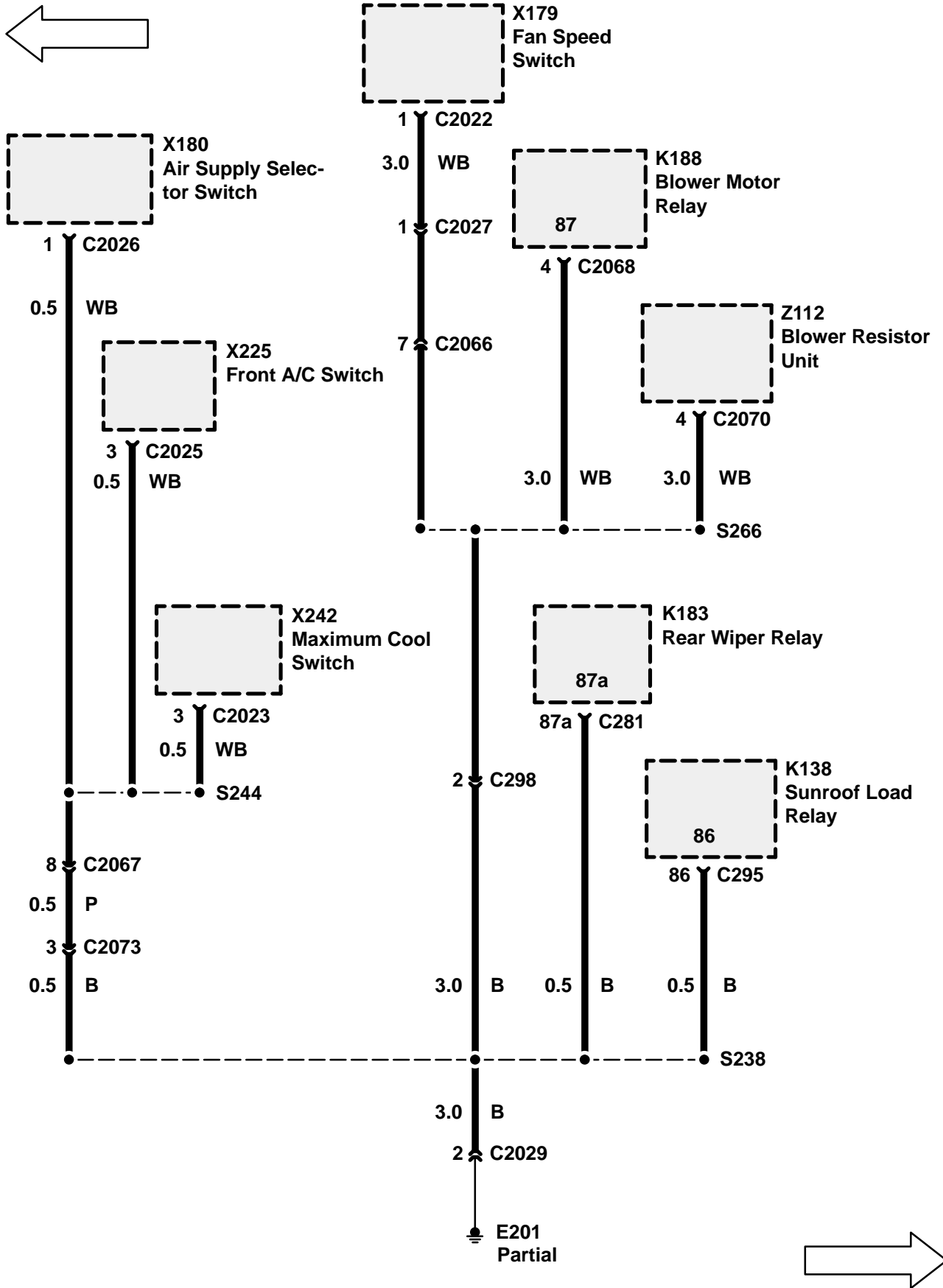
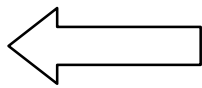


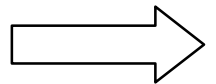
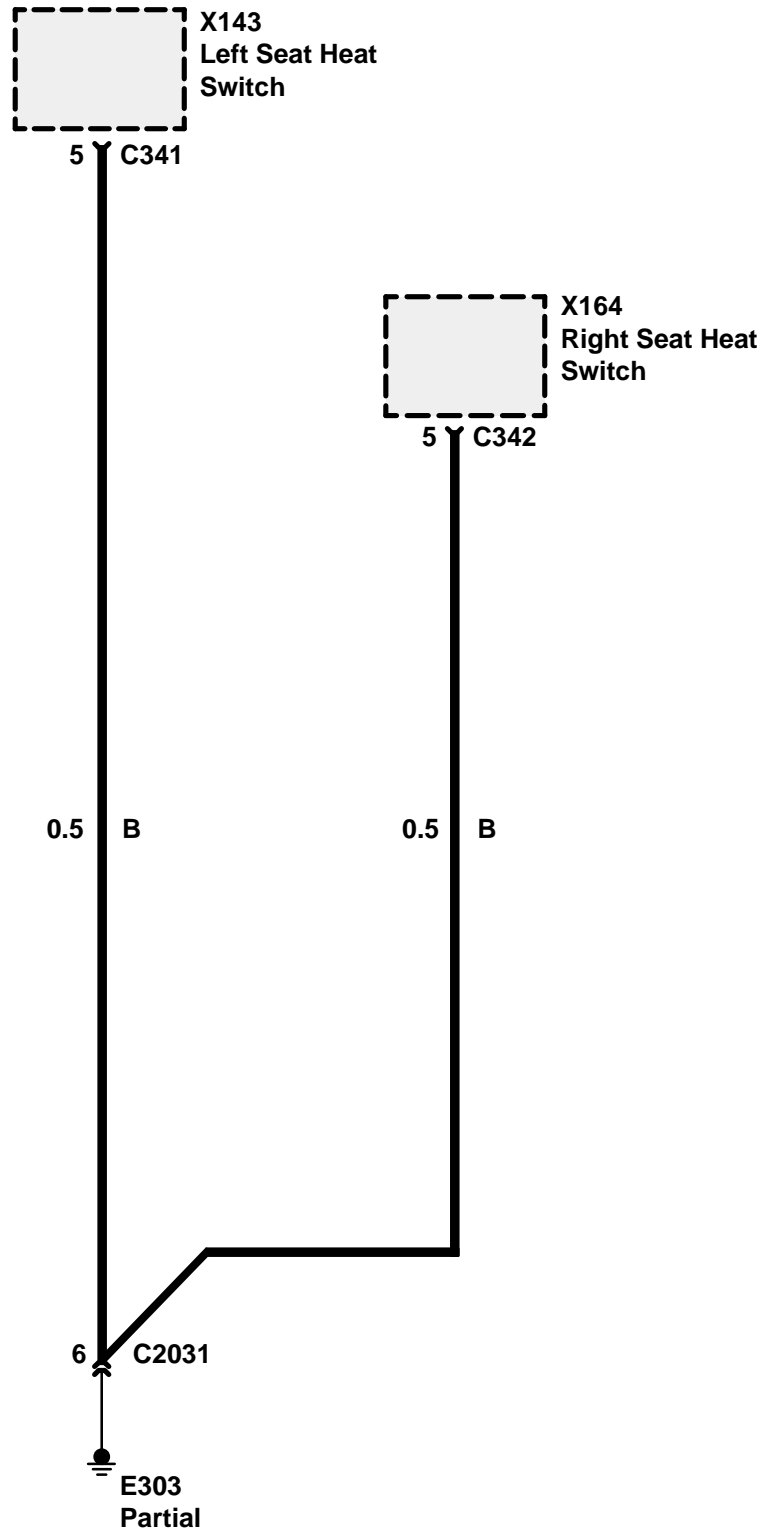
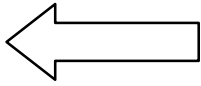






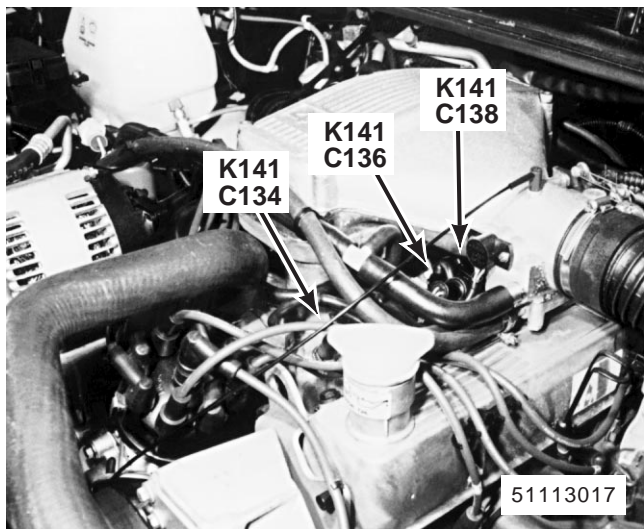




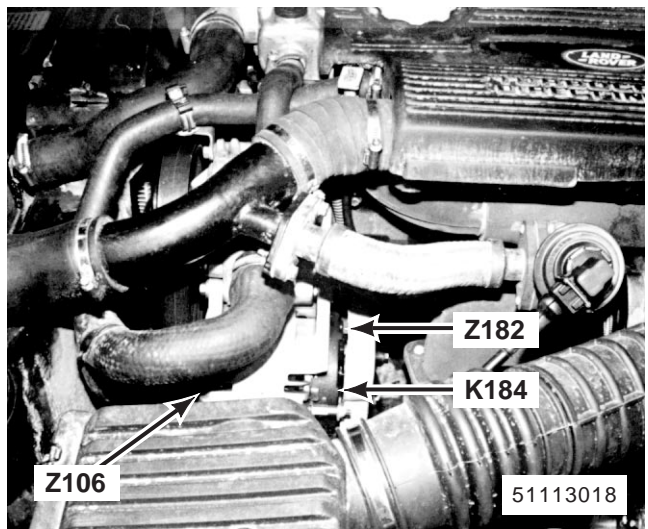


Component	Location	Manual	View
Left Heated Washer Jet (B118)	mounted on bonnet (hood)	80	8
Left Horn (K128)	LH front corner of engine compartment	86	21
Left Maximum Cool Switch (X267)	behind heater and A/C control panel	82	101
Left Mirror Actuator (M115)	top front of LH front door	86	
Left Rear Door Lock Actuator (M117)	inside front of LH rear door	76	162
Left Rear Door Switch (X142)	in lower part of LH B-post	86	159
Left Rear Height Sensor (X206)	behind LH rear wheel	68	192
Left Rear Wheel Speed Sensor (X140)	behind LH rear wheel	68	59
Left Rear Window Console Switch (X141)	in rear of centre console	86	103
Left Rear Window Door Switch (X188)	in top of LH rear door	86	160
Left Rear Window Motor (M116)	inside front of LH rear door	86	161
Left Repeater Lamp (B122)	LH front of vehicle	86	33
Left Seat Heat Relay (K129)	beneath LH front seat	86	170
Left Seat Heat Switch (X143)	in rear of centre console	86	105
Left Seat Power Relay (K113)	beneath LH front seat	86	170
Left Seat Power Relay Diode (Z223)	beneath RH front seat	86	180
Main Lighting Switch (X145)	top of steering column	86	121
Mass Air Flow Sensor (X105)	LH side of engine	19	13
Memory Seat ECU (Z146)	underside of RH front seat	86	185
Mirror Adjustment Switch (X146)	top RH side of fascia right of steering column	86	137
Multi-Function Unit (MFU) (Z148)	behind RH side of fascia on Fascia Fuse Box	86	134
Multiport Fuel Injection Ignition Resistor 1 (K115)	LH front of engine compartment near Ignition Coil	86	23
Multiport Fuel Injection Ignition Resistor 2 (K168)	LH front of engine compartment near Ignition Coil	86	23
Neutral Sense Resistor (K166)	Gearbox Wire Harness near C105	86	
Oil Pressure Switch (X149) Diesel	RH side of engine	86	44
Oil Pressure Switch (X149) Petrol	lower RH side of engine near oil filter	86	34
Park Switch (X173)	beneath centre console	86	
Park/Neutral Position Switch (X167)	LH side of transmission	86	64

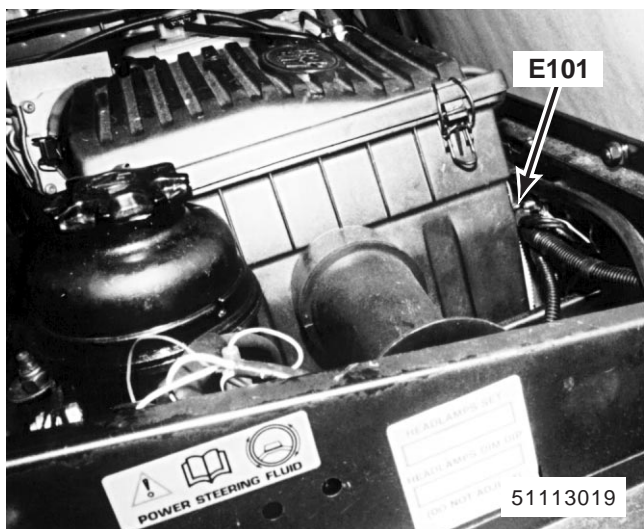
Connector	Location	View
C350 (5-U)	beneath LH front seat on A.B.S. Warning Relay	168
C351 (5-B)	beneath LH front seat on A.B.S. Load Relay	167
C352 (5-B)	beneath LH front seat on A.B.S. Pump Relay	167
C353 (2-W)	centre of fascia on Fascia Cigar Lighter	92
C354 (2-W)	beneath centre rear of vehicle to Left Rear Wheel Speed Sensor	199
C355 (2-W)	beneath centre rear of vehicle to Right Rear Wheel Speed Sensor	199
C357 (5-W)	beneath RH front seat on Right Seat Heat Relay	181
C358 (5-Y)	beneath RH front seat on Right Seat Power Relay	181
C359 (3-B)	behind LH front wheel to Left Front Height Sensor	193
C360 (3-B)	behind RH front wheel to Right Front Height Sensor	195
C361 (5-Y)	beneath RH front seat on Air Suspension Compressor Relay	176
C362 (5-W)	beneath RH front seat on Air Suspension Delay Relay	175
C363 (5-G)	beneath RH front seat on Warning Lamp Relay	176
C364 (5-B)	beneath RH front seat on Disable Switch	177
C365 (5-B)	beneath RH front seat on Air Suspension Diagnostic Connector	174
C366 (1-W) Automatic Transmission	beneath RH front seat	179
C366 (1-W) Manual Transmission	beneath RH front seat	179
C367 (1-W) Automatic Transmission	beneath RH front seat	179
C367 (1-W) Manual Transmission	beneath RH front seat	179
C368 (3-B)	top RH side of transfer box to Transfer Box Position Switch	67
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	65
C371 (2-B)	top RH side of transfer box on Transfer Box Oil Temperature Switch	66
C372 (2-W)	LH side of transmission to Reverse Switch	62
C377 (2-B)	forward of LH rear wheel to Reservoir Pressure Switch	194
C384 (5-W)	front centre of roof on Sunroof Switch	110
C387 (3-B)	front centre of roof to Sunroof Motor	112
C398 (2-W)	underside of LH front seat to Left Heated Seat	190
C399 (2-W)	underside of RH front seat to Right Heated Seat	190
C400 (7-B)	behind RH side of rear bumper Trailer Auxiliary Socket	202
C401 (1-B)	centre of tailgate	216
C402 (1-B)	centre of tailgate	216
C403 (6-B)	LH side of rear bumper	217
C404 (1-B)	centre of tailgate	216
C405 (1-B)	centre of tailgate	216
C406 (6-B)	RH side of rear bumper	217



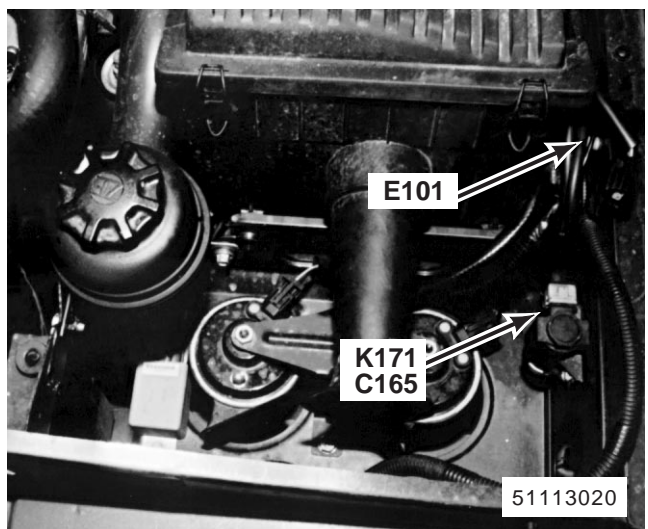
17. LH side of engine Petrol
 K141 Fuel Injectors
 C134 (2-B)
 C136 (2-B)
 C138 (2-B)



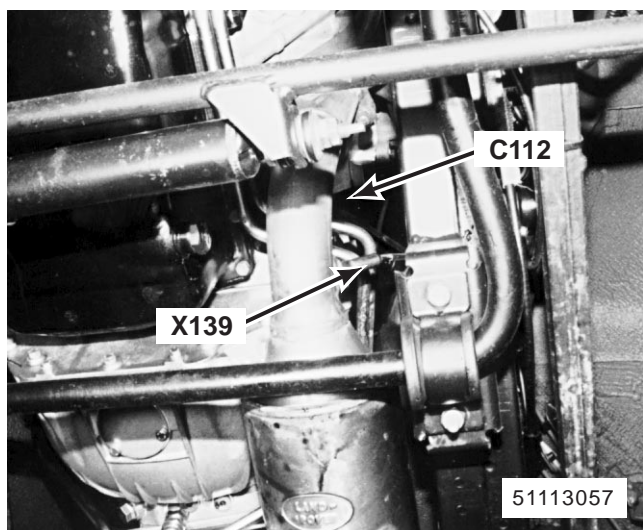
18. lower LH side of engine Diesel
 K184 Phase Tap Resistor
 Z106 Generator
 Z182 Generator Suppression Capacitor



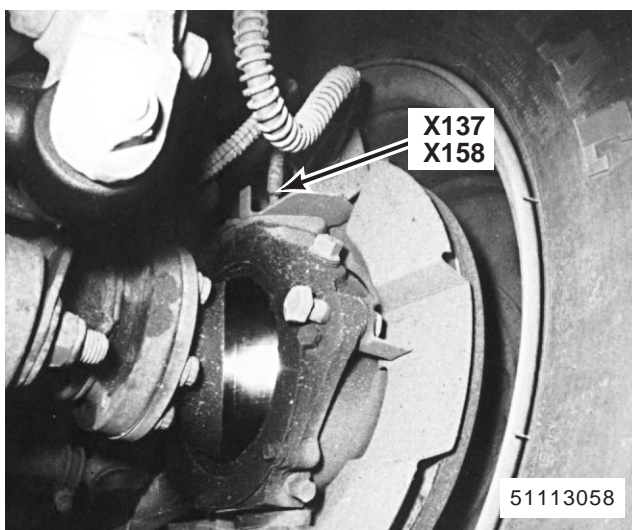
19. LH front corner of engine compartment Petrol
 E101



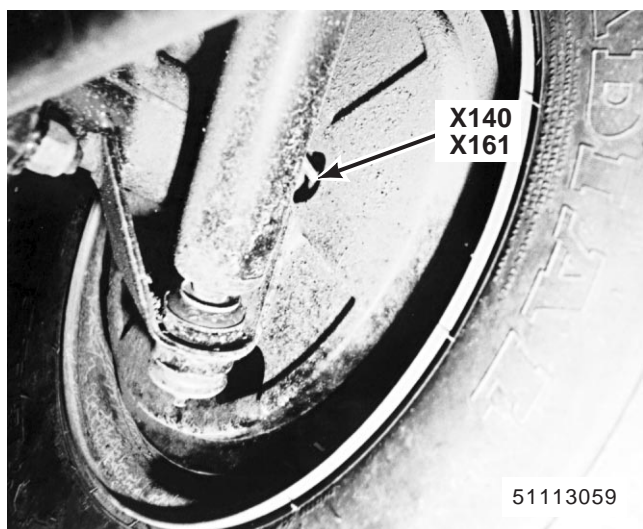
20. LH front corner of engine compartment Diesel
 K171 EGR Control Solenoid
 C165 (2-S)
 E101



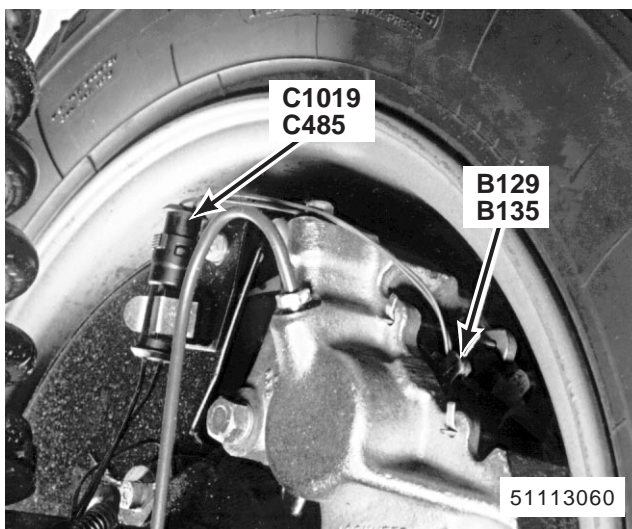
57. lower LH side of engine compartment Petrol
X139 Left Heated Oxygen Sensor
C112 (3-W)



58. behind LH front wheel (RH front wheel similar)
X137 Left Front Wheel Speed Sensor
X158 Right Front Wheel Speed Sensor



59. behind LH rear wheel (RH rear wheel similar)
X140 Left Rear Wheel Speed Sensor
X161 Right Rear Wheel Speed Sensor



60. beneath vehicle 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



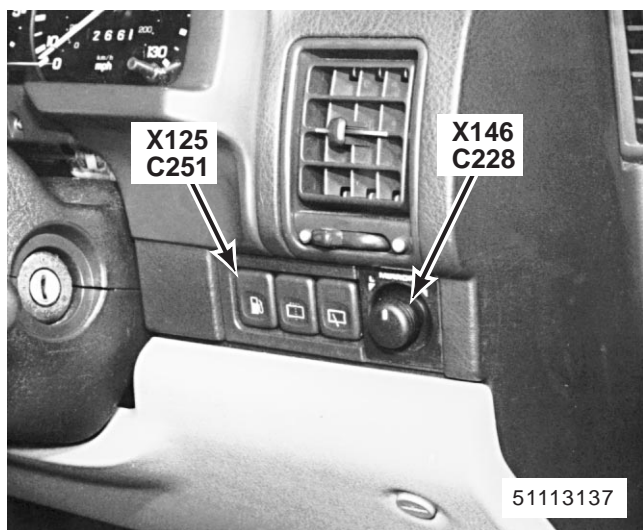
97. centre of fascia
 X210 Air Suspension Up Switch
 X211 Air Suspension Down Switch
 C256 (6-R)
 C258 (6-G)

98. centre of fascia
 X209 Air Suspension Inhibit Switch
 C257 (6-W)

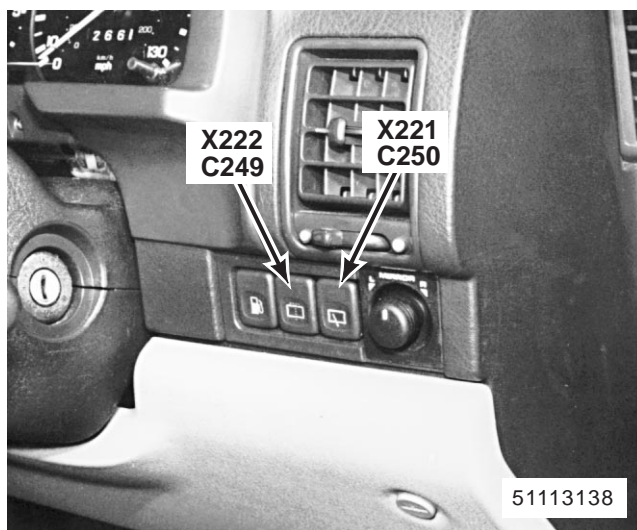


99. behind heater and A/C control panel
 X179 Fan Speed Switch
 X225 Front A/C Switch
 C2022 (5-W)
 C2025 (5-W)

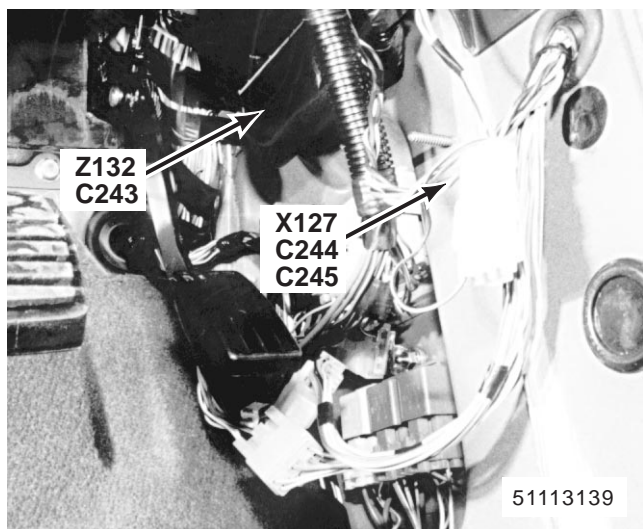
100. behind heater and A/C control panel
 X180 Air Supply Selector Switch
 C2026 (5-B)



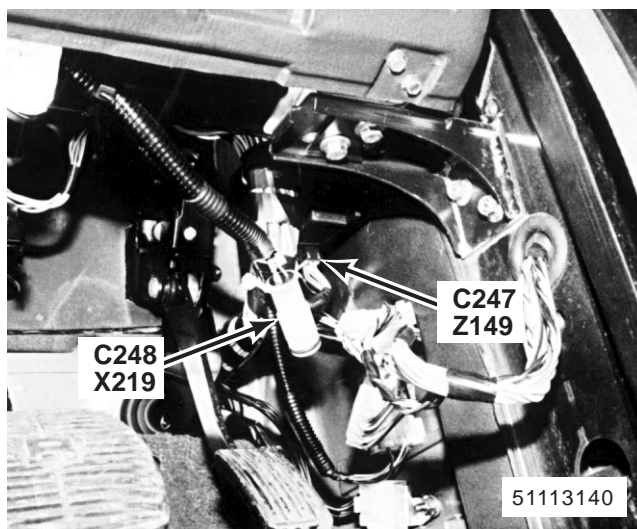
137. top RH side of fascia right of steering column
 X125 Fuel Flap Release Switch
 X146 Mirror Adjustment Switch
 C228 (8-W)
 C251 (5-U)



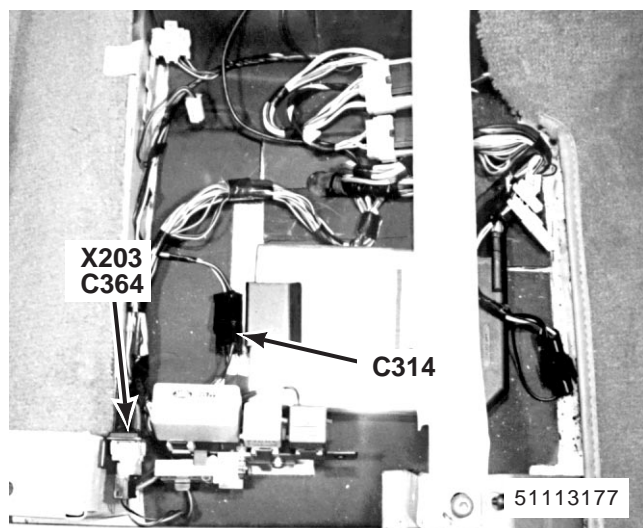
138. top RH side of fascia right of steering column
 X221 Rear Screen Wipe Switch
 X222 Rear Screen Wash Switch
 C249 (5-G)
 C250 (5-W)



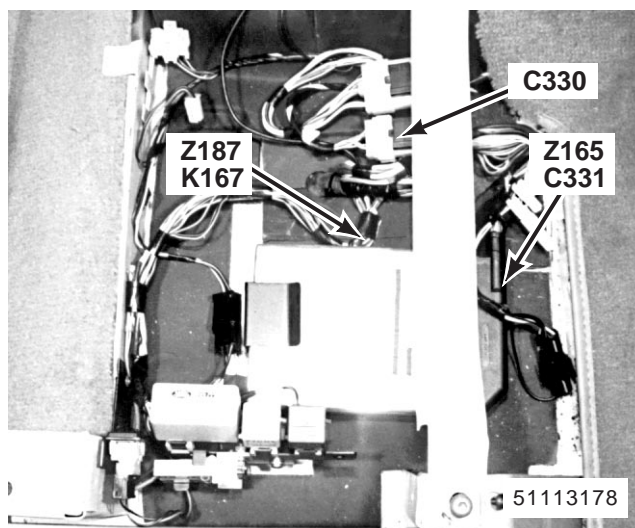
139. behind RH footwell trim panel
 X127 Data Link Connectors
 Z132 Engine Control Module (ECM)
 C243 (40-B)
 C244 (5-W)
 C245 (5-W)



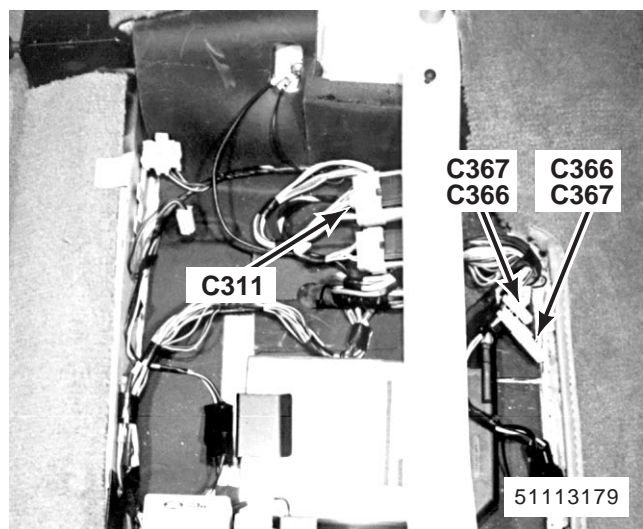
140. behind RH footwell trim panel
 X219 Data Link Connector (EGR)
 Z149 EGR Valve Control Module
 C248 (3-W)
 C247 (16-B)



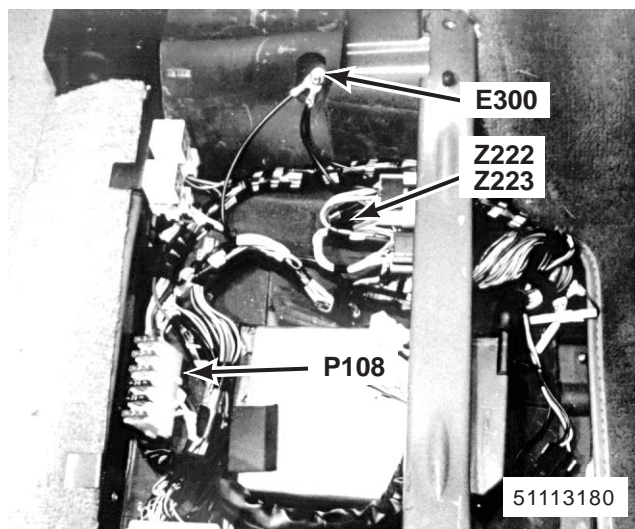
177. beneath RH front seat
 X203 Disable Switch
 C314 (3-B)
 C364 (5-B)



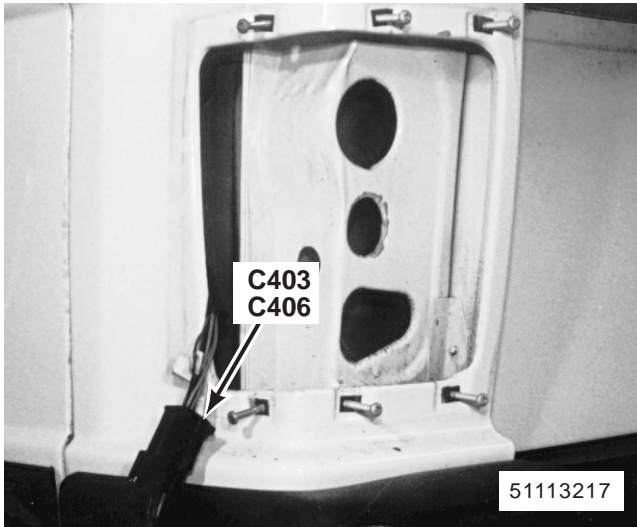
178. beneath RH front seat
 K167 Air Suspension Resistor
 Z165 Air Suspension ECU
 Z187 Air Suspension Disable Diode
 C330 (13-W)
 C331 (35-B)



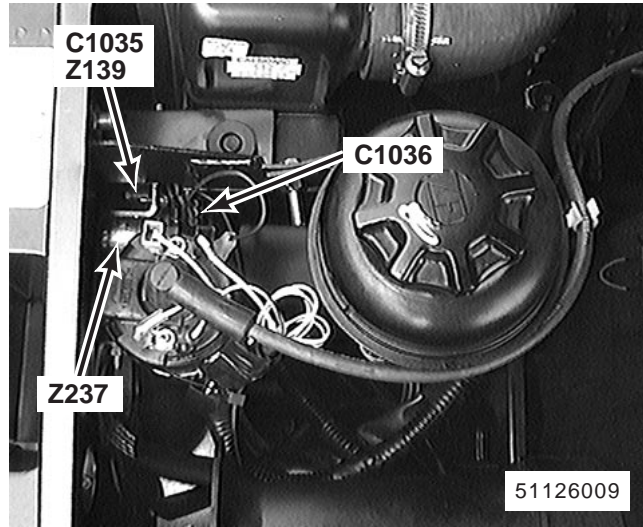
179. beneath RH front seat
 C311 (14-W)
 C366 (1-W)
 C367 (1-W)



180. beneath RH front seat
 P108 Driver's Underseat Fuse Box
 Z222 Right Seat Power Relay Diode
 Z223 Left Seat Power Relay Diode
 E300



217. LH side of rear bumper (RH similar)
 C403 (6-B) (Left)
 C406 (6-B) (Right)

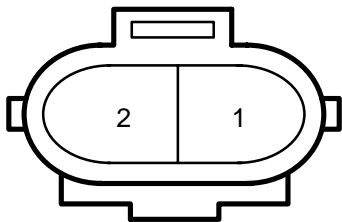


218. LH front of engine compartment (MFI-V8)
 Z139 Ignition Control Module
 Z237 Ignition Coil Noise Suppressor
 C1035 (3-B)
 C1036 (3-B)

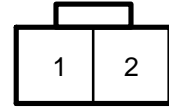
R020043

C174

R020027



1	B
2	G



1	LGW
2	RS

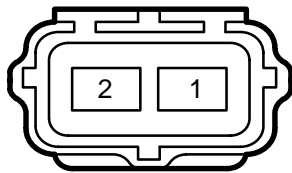
LC00174B

R020037

C177

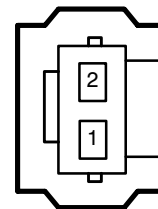
LC00174B

R020038



1	NY
2	NO

C179



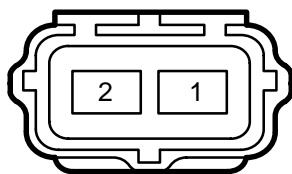
1	YR
2	B

LC00177E

R020037

C178

LC00179B



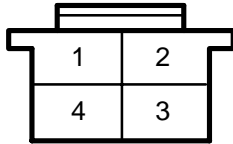
1	B
2	PO

LC00178A

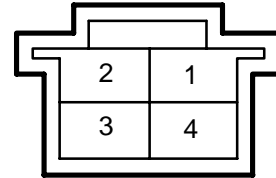
R040011

C233

R040017



1	BN	3	WB
2	BW	4	NB



1	BR/BK	3	KB
2	BK/BR	4	RB

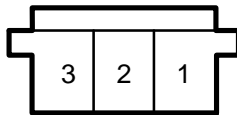
LC00233E

R030009

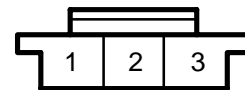
C234

LC00233E

R030010



1	B
2	RY
3	BS



1	B
2	RY
3	BS

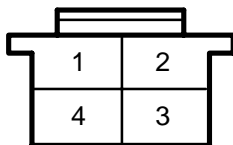
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R040011

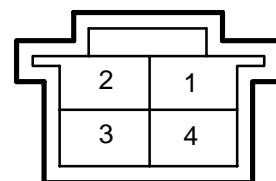
C235

LC00234B

R040017



1	BN	3	WB
2	BW	4	NB



1	BN/BW	3	WB
2	BW/BN	4	NB

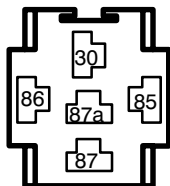
LC00235E

LC00235E

R050001

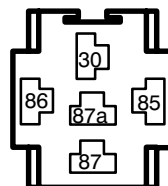
R050001

C293



30	UR	86	BS
85	NY	87	NO
87A	-		

C295



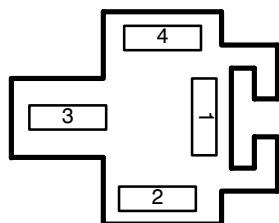
30	NR	86	B
85	WG	87	NO
87A	-		

LC00293E

LC00295B

R040025

C294



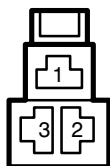
1	PO	3	OS
2	PY	4	LGP

LC00294B

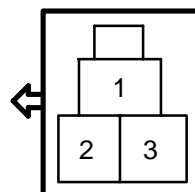
R030007

R030004

C298



1	-
2	B
3	R



1	-
2	WB
3	R

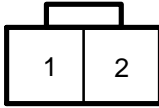
LC00298A

LC00298A

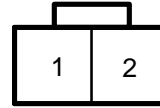
R020027

R020027

C307



1	GN
2	B



1	GN
2	B

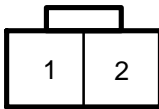
LC00307B

LC00307B

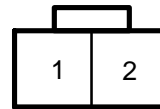
R020027

R020027

C309



1	GR
2	B



1	GR
2	B

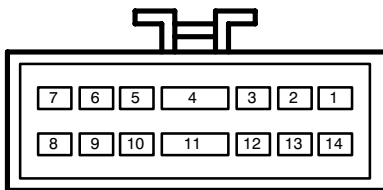
LC00309B

LC00309B

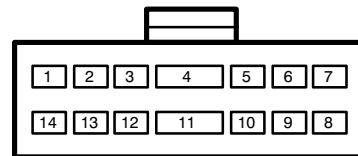
R140004

R140005

C311



1	-	6	BU	11	NK
2	WY	7	-	12	GP
3	B	8	-	13	YK
4	OW	9	BR	14	-
5	WS	10	PU		



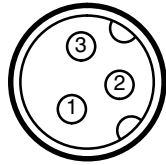
1	-	6	BU	11	NK
2	WY	7	-	12	GP
3	B	8	-	13	YK
4	OW	9	BR	14	-
5	WS	10	PU		

LC00311B

LC00311B

C368

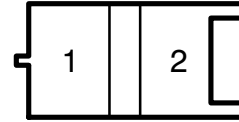
R030021



1	-
2	B
3	BK

C371

R020003

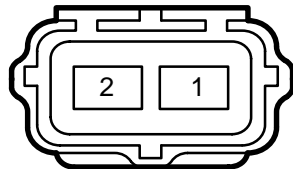


1	BLG
2	B

C369

LC00368A

R020037

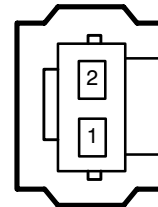


1	SB
2	B

C372

LC00371A

R020038

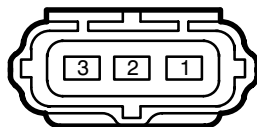


1	GN
2	GY

C370

LC00369A

R030003

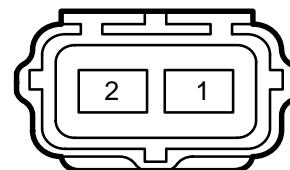


1	GY
2	-
3	BR

C377

LC00372A

R020037



1	SG
2	SU

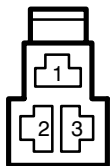
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LC00377B

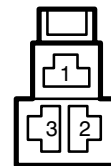
R030008

C700

R030007



1	SG
2	SN
3	S



1	SG
2	SW
3	SO

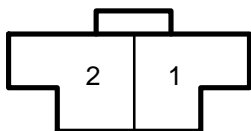
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R020028.01

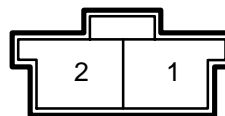
C701

LC00700B

R020013



1	O
2	K



1	K
2	O

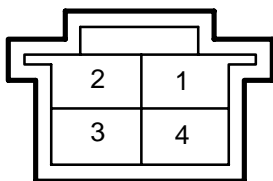
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R040017

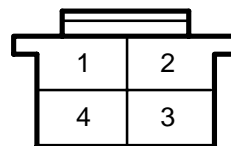
C701

LC00701B

R040011



1	O	3	PN
2	K	4	PU



1	O	3	PN
2	K	4	PU

LC00701B

LC00701B

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