CIRCUIT OPERATION

Blower (Heater Only)

With the Ignition Switch (X134) in ON, battery voltage is applied to the Heater And A/C Load Relay (K124). The relay is energized, applying battery voltage to the Fan Speed Switch (X179) and Function Switch (X182). When the Speed Switch is in position 1 (low), battery voltage is applied to the Heater Blower Motor (M111) through two resistors in series. The Blower Motor then runs at low speed. When the Speed Switch is in position II (medium), battery voltage is applied to the Blower Motor through one of the series resistors while bypassing the other. The Blower Motor runs at medium speed. With the Speed Switch in position III (high), battery voltage is sent directly to the Blower Motor. The Blower Motor runs at high speed. When the Function Switch is in position 1 (fresh), the Heater Air Recirculation Solenoid (K123) remains unenergized, allowing fresh air to enter the vehicle. When the function switch is in position 2 (recirculate), the Recirculation Solenoid is energized, closing the fresh air inlet and allowing the Blower Motor to recirculate air within the vehicle cabin.

Blower (Standard and Optional A/C)

With the Ignition Switch (X134) in ON, battery voltage is applied to the Heater And A/C Load Relay (K124). The relay is energized, applying battery voltage to the Fan Speed Switch (X179). When the Speed Switch is in position 1 (low), battery voltage is applied to the Heater Blower Motor (M111) through 2 resistors in series contained within the Blower Resistor Unit (Z112) and through the normally closed contacts of the Heater Or A/C Relay (K125). The Blower Motor then runs at low speed. When the Speed Switch is in position II (medium), battery voltage is applied to the Blower Motor through one of the series resistors through the Heater Or A/C Relay. The Blower Motor runs at medium speed. With the Speed Switch in position III (high), battery voltage is sent through the Heater Or A/C Relay to the Blower Motor. The Blower Motor runs at high speed. The Air Supply Selector Switch (X180) and the Fascia Vent Switch (X181), control the air flow routing through the A/C system. With the Speed Switch not in position 0 (off), battery voltage is supplied to the Selector Switch and the Vent Switch.

Outside Air Mode

With the Fan Speed Switch (X179) in position I, II or III, the Vent Switch in position 1, and the Air Supply Selector Switch (X180) in the outside air position, the Vent Switch supplies battery voltage to the 2 A/C Blower Motors (M101) through a resistor in the Blower Resistor Unit (Z112). The A/C Blower Motors run recirculating air within the vehicle, while the Heater Blower Motor (M111) runs as described earlier, to bring outside air into the vehicle. With the Speed Switch not in position 0 (off), the Vent Switch in position 0, and the Selector Switch in the outside air position, the Heater Blower Motor runs as described earlier, to bring outside air into the vehicle.

Recirculate Mode

With the Fan Speed Switch (X179) in position I, II or III, the Fascia Vent Switch (X181) in position 1, and the Air Supply Selector Switch (X180) in the recirculate air position, the Vent Switch supplies battery voltage to the two A/C Blower Motors (M101) through a resistor in the Blower Resistor Unit (Z112). The A/C Blower Motors run recirculating air within the vehicle. At the same time, the Air Supply Selector Switch (X180) supplies battery voltage to the Heater Air Recirculation Solenoid (K123). The Recirculation Solenoid is energized, closing the fresh air inlet allowing the Heater Blower Motor to also recirculate air within the vehicle cabin. If the Vent Switch is moved to position 0, battery voltage is removed from the A/C Blower Motors.

A/C With Heater Mode

With the Fan Speed Switch (X179) in position I, II or III, the Air Supply Selector Switch (X180) in the combination A/C and Heater Mode, battery voltage is supplied to the Fascia Vent Switch (X181). When the Vent Switch is in position 0 battery voltage is supplied to the A/C Blower Motors (M101) through a resistor in the Blower Resistor Unit (Z112) from the Air Supply Selector Switch. When the Vent Switch is in position 1 battery voltage is supplied to the A/C Blower Motors through a resistor in the Blower Resistor Unit from the Fan Speed Switch (X179).

A/C Mode

With the Fan Speed Switch (X179) in position I, II or III, the Air Supply Selector Switch (X180) in the air conditioning mode, battery voltage is supplied to the Heater Or A/C Relay (K125). The Relay is energized, diverting battery voltage from the Heater Blower Motor (M111) via the normally closed relay contacts to the A/C Blower Motors (M101). The Heater Blower Motor stops running. The A/C Blower Motors take the place of the Heater Blower Motor and run at the speed selected by the Speed Switch as described above.

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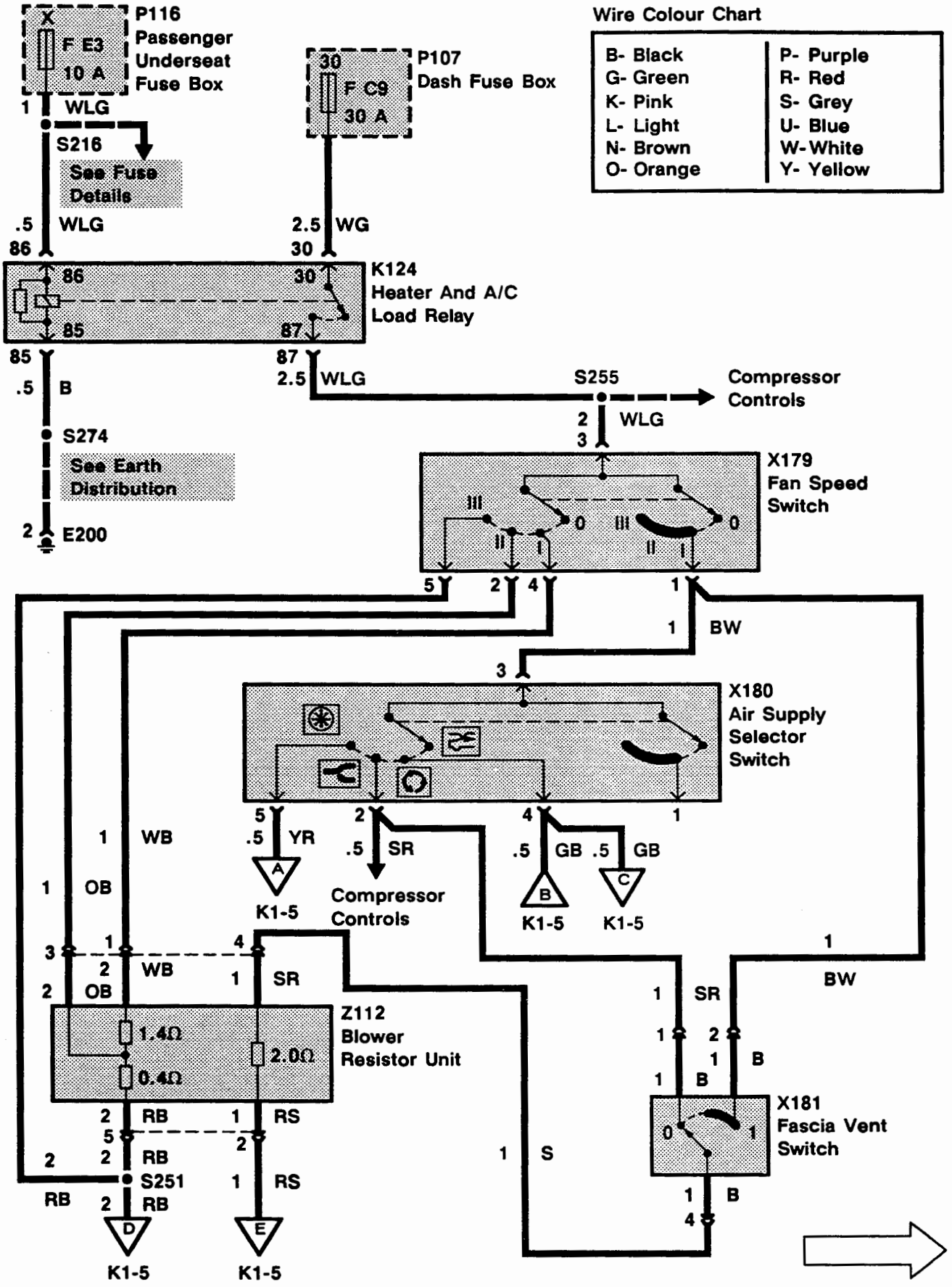
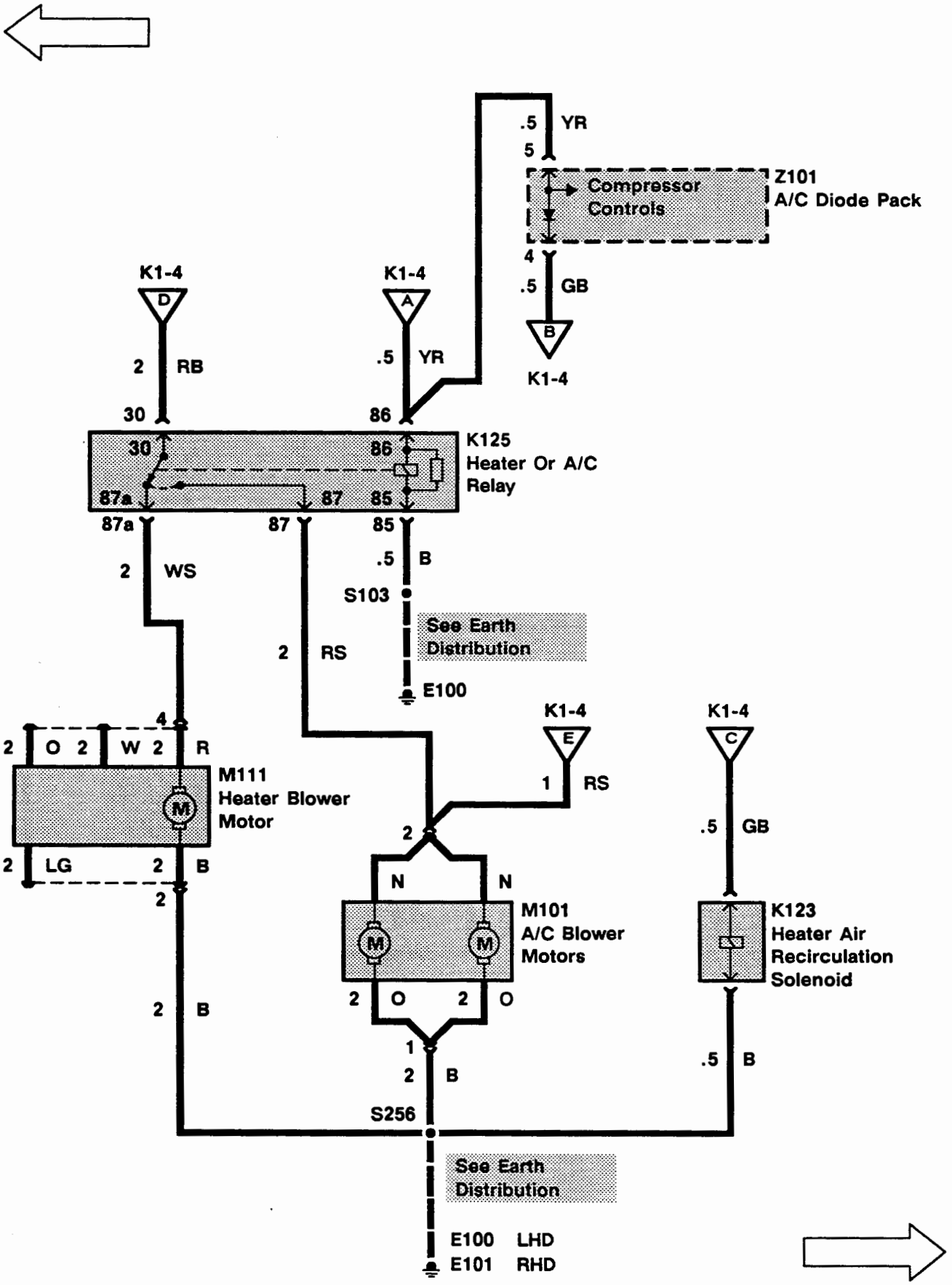
K1 ETM

1992 RANGE ROVER



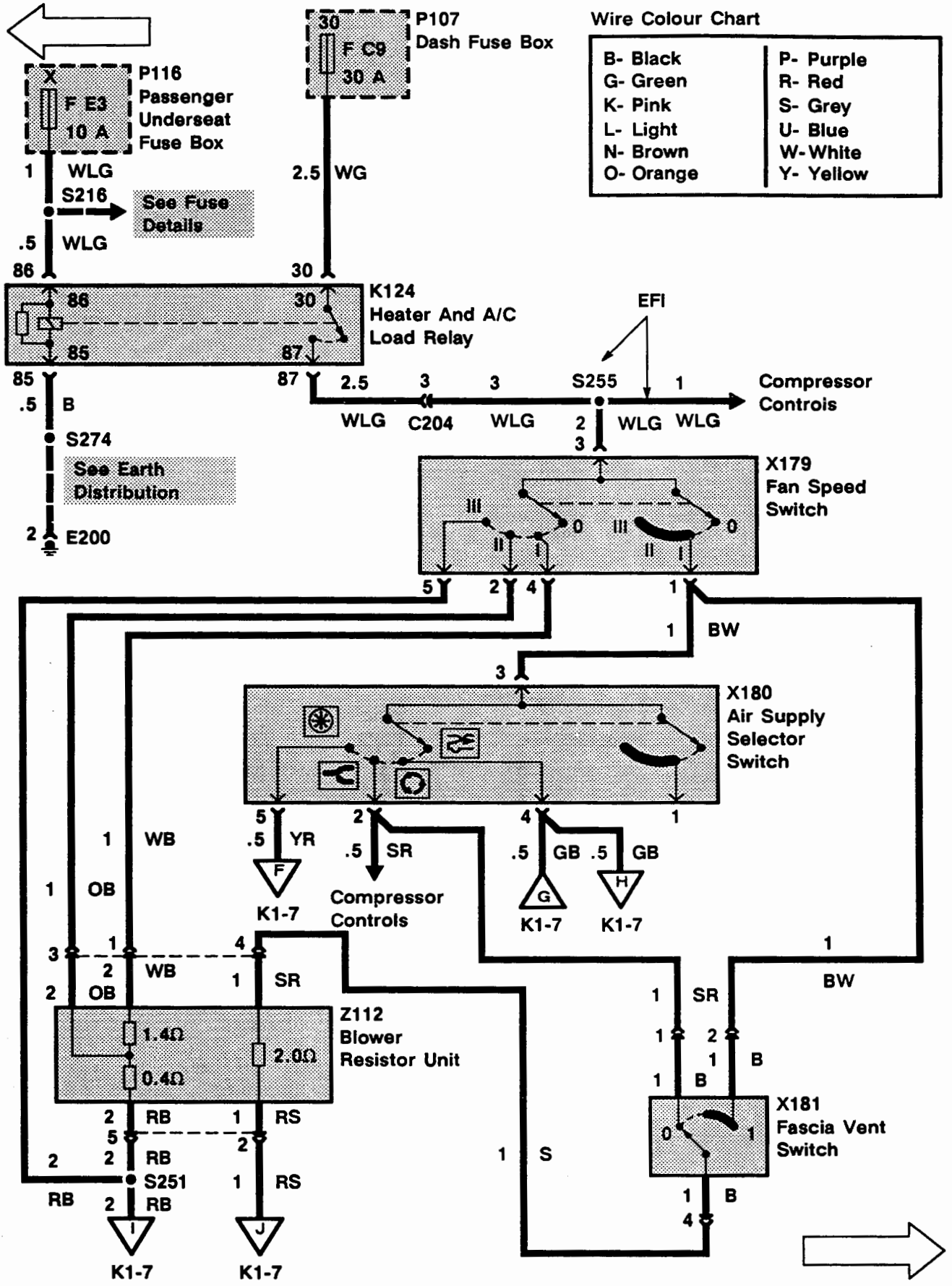
Wire Colour Chart

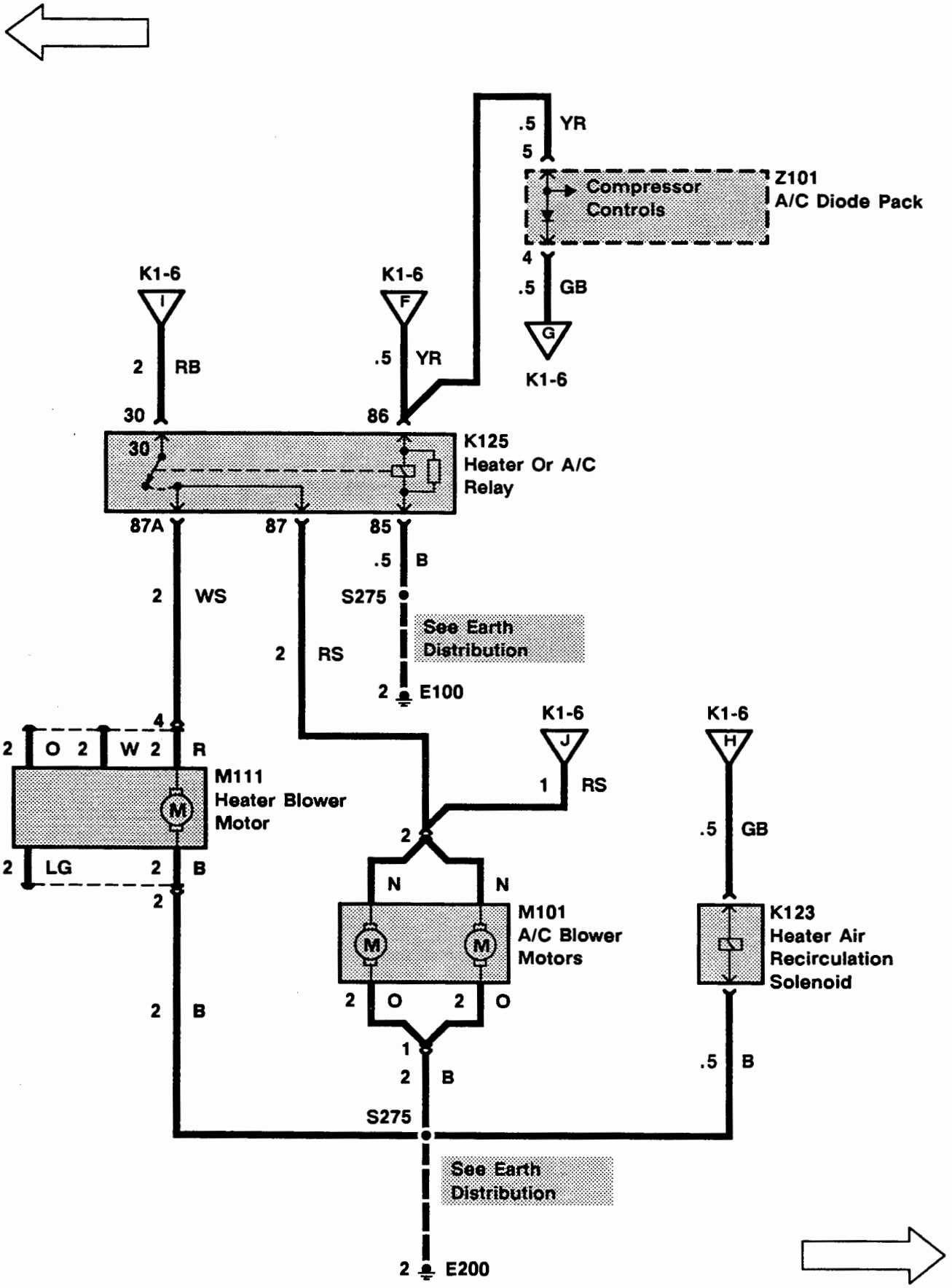
B- Black	P- Purple
G- Green	R- Red
K- Pink	S- Grey
L- Light	U- Blue
N- Brown	W- White
O- Orange	Y- Yellow


.5 YR
5
Compressor Controls
Z101
A/C Diode Pack
4
.5 GB
B
K1-4
K1-4 D
2 RB
30
K1-4 A
.5 YR
86
K125
Heater Or A/C Relay
30
86
87a
87
85
87a
87
85
2 WS
.5 B
S103
See Earth Distribution
2 RS
E100
4
2 O 2 W 2 R
M111
Heater Blower Motor
2 LG 2 B
2
K1-4 E
1 RS
2
N N
M101
A/C Blower Motors
2 O 2 O
1
2 B
S256
K1-4 C
.5 GB
K123
Heater Air Recirculation Solenoid
.5 B
2 B
See Earth Distribution
E100 LHD
E101 RHD

K1 ETM

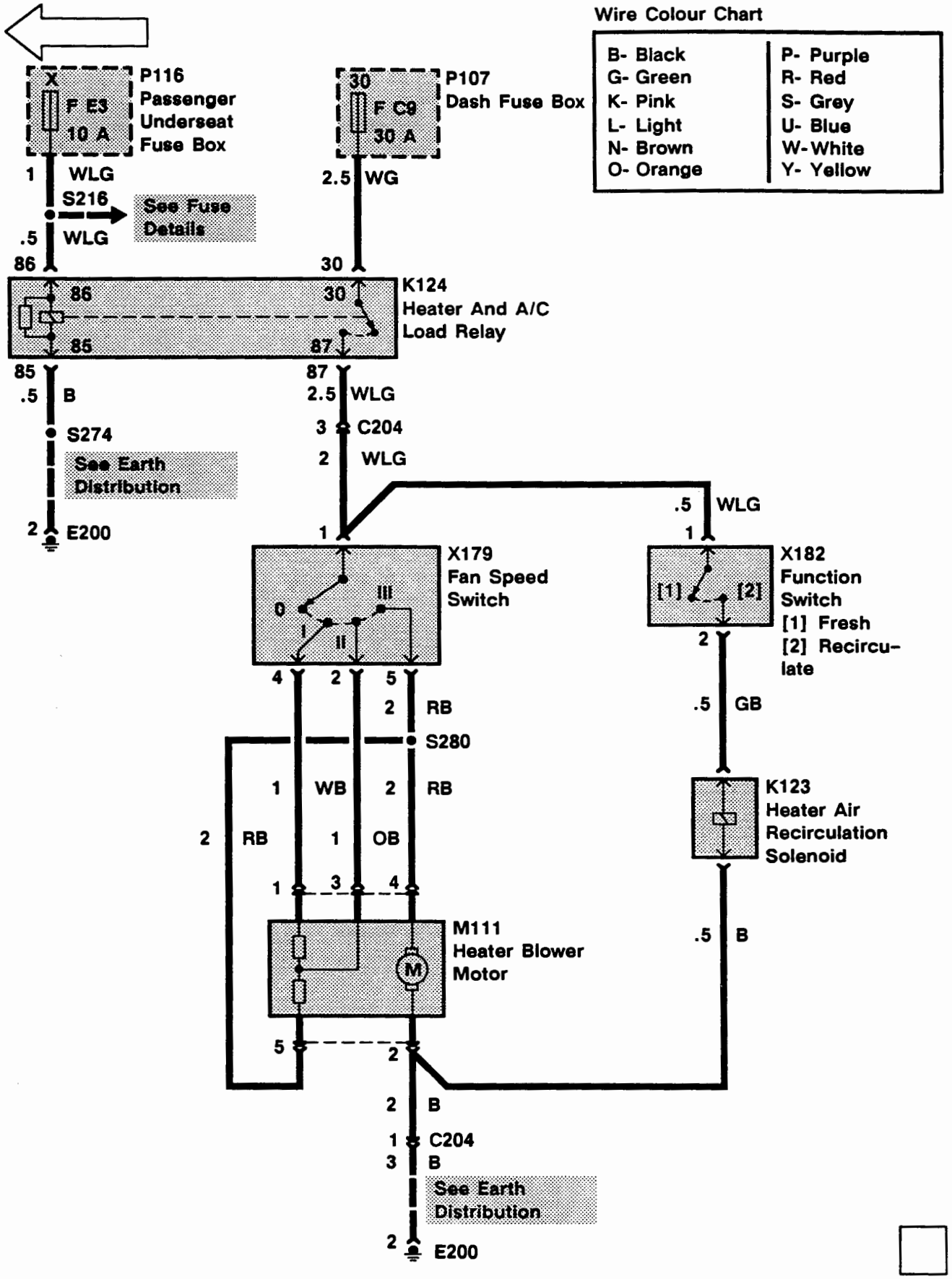
1992 RANGE ROVER




.5 YR
5
Compressor Controls
Z101 A/C Diode Pack
4
.5 GB
G
K1-6
K1-6 I
2 RB
30
K1-6 F
.5 YR
86
30
K125 Heater Or A/C Relay
87A
87
85
.5 B
2 WS
S275
See Earth Distribution
2 RS
2 E100
4
2 O 2 W 2 R
M111 Heater Blower Motor
2 LG 2 B
2
K1-6 J
1 RS
2
K1-6 H
.5 GB
N N
M101 A/C Blower Motors
2 O 2 O
1
2 B
2 B
.5 B
K123 Heater Air Recirculation Solenoid
S275
See Earth Distribution
2 E200

K1 ETM

1992 RANGE ROVER



TROUBLESHOOTING HINTS

1. If the Heater Blower Motor (M111) does not stop running with the Fan Speed Switch (X179) in Position 0, replace the Fan Speed Switch (X179).
2. If fresh air does not enter the vehicle cabin with the Air Supply Selector Switch (X180) in the Outside Air position, check the Heater Air Recirculation Solenoid (K123) and linkage for sticking or binding.
3. If the blower motor(s) operate with the ignition key removed, replace the Heater And A/C Load Relay (K124).
4. 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 (HEATER ONLY SYSTEM)

1. If the Heater Blower does not run at any speed, do Test A.
2. If the Heater Blower does not run in all Fan Speed Switch (X179) positions, do Test B.
3. If the Function Switch (X182) does not allow the driver to change between recirculation and fresh air modes, do Test C.

SYSTEM DIAGNOSIS (STANDARD AND OPTIONAL A/C SYSTEMS)

1. Put the Ignition Switch (X134) in position II. Move the Fan Switch to Position I, Position II, and Position III. If the Heater Blower does not work in any position, do Test D.
2. If the Heater Blower works in one but not all of the 3 fan speed positions, do Test E.
3. With the Ignition Switch (X134) in position II. Move the Fan Speed Switch (X179) to position I and put the Air Supply Selector Switch (X180) to the A/C position. If the A/C Blower Motors (M101) do not run at low speed, do Test F.
4. With the Ignition Switch (X134) in position II and the Fan Speed Switch (X179) in position I, put the Air Supply Selector Switch (X180) to the Outside air position. Put the Fascia Vent Switch (X181) to Position I. If the A/C Blower Motors (M101) do not run at low speed, do Test G.
5. With the Ignition Switch (X134) in position II and the Fan Speed Switch (X179) in position I, put the Air Supply Selector Switch (X180) to the A/C with Heater Mode. Put the Fascia Vent Switch (X181) to Position 0. If the A/C Blower Motors (M101) do not run at low speed, do Test H.
6. 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 I.
7. 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 I.

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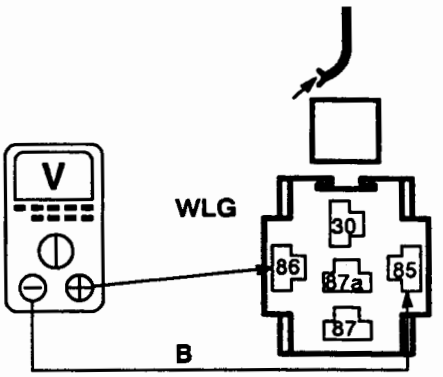
Test A

1A

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



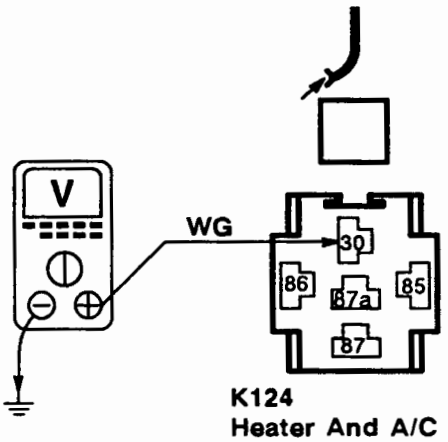
OK **PROBLEM CAUSE**
- WLG Wire
- B Wire

OK → 2A

2A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- WG Wire
- F C9 Fuse

OK → 3A

K1 ETM

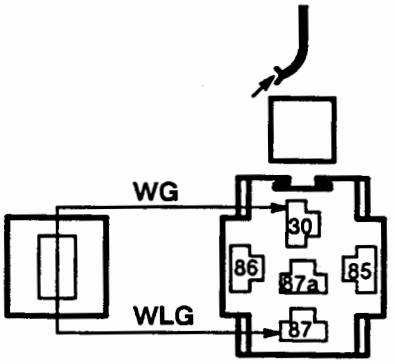
1992 RANGE ROVER

2A

3A

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

RESULTS
- **Heater Blower Motor**
  Operates



K124
Heater And A/C Load Relay

OK

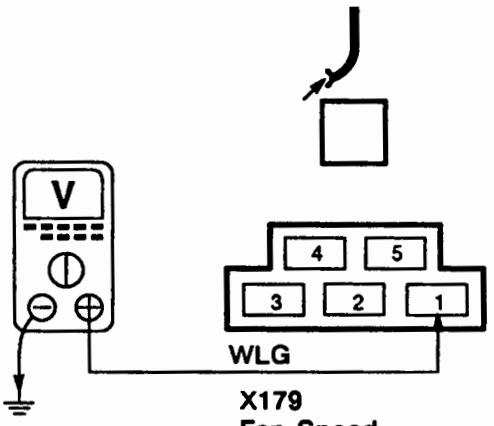
OK **PROBLEM CAUSE**
- **Heater And A/C Load Relay**

4A

4A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Heater And A/C Load Relay**
  Connected

RESULTS
BAT VOLT



X179
Fan Speed Switch

OK **PROBLEM CAUSE**
- **WLG Wire**

OK

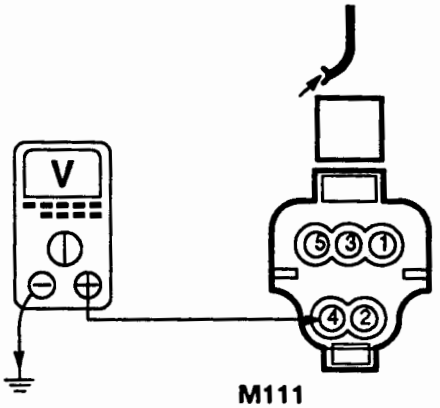
5A

4A

5A

CONDITIONS
- Ignition Switch
  Position: II
- Fan Speed Switch
  Position: III

RESULTS
BAT VOLT



M111
Heater Blower
Motor

OK PROBLEM CAUSE
- RB Wire
- Fan Speed Switch

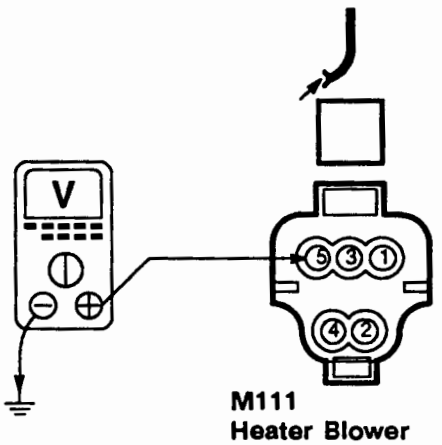
OK PROBLEM CAUSE
- B Wire
- Heater Blower Motor

Test B

1B

CONDITIONS
- Ignition Switch
  Position: II
- Fan Speed Switch
  Position: III

RESULTS
BAT VOLT



M111
Heater Blower
Motor

OK PROBLEM CAUSE
- RB Wire
- Fan Speed Switch

OK

2B

K1 ETM

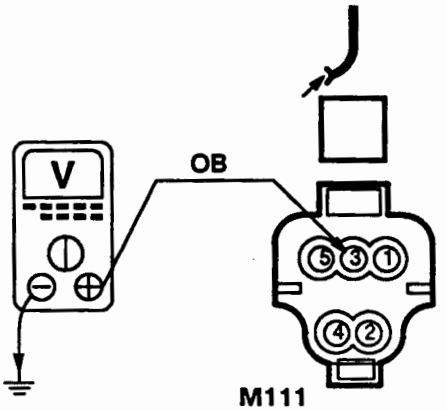
1992 RANGE ROVER

1B

2B

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

RESULTS
BAT VOLT



M111
Heater Blower
Motor

OK **PROBLEM CAUSE**
- **OB Wire**
- **Fan Speed Switch**

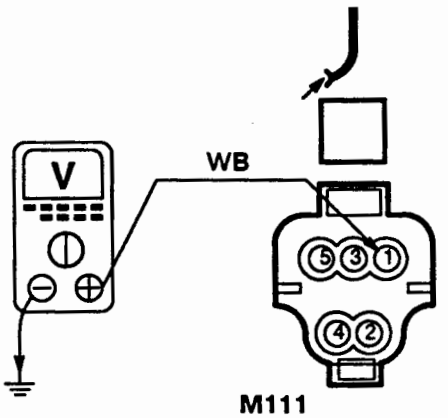
OK

3B

3B

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

RESULTS
BAT VOLT



M111
Heater Blower
Motor

OK **PROBLEM CAUSE**
- **WB Wire**
- **Fan Speed Switch**

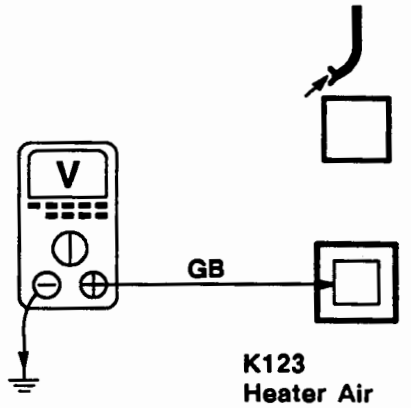
OK **PROBLEM CAUSE**
- **Heater Blower Motor**

Test C

1C

CONDITIONS
- **Ignition Switch**
  Position: II
- **Function Switch**
  2

RESULTS
BAT VOLT



K123
Heater Air Recirculation Solenoid

OK **PROBLEM CAUSE**
- **GB Wire**
- **WLG Wire**
- **Function Switch**

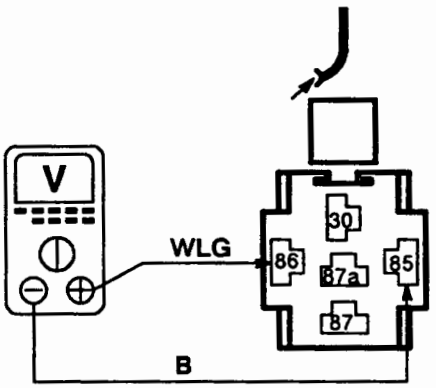
OK **PROBLEM CAUSE**
- **B Wire**
- **Heater Air Recirculation Solenoid**

Test D

1D

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



K124
Heater And A/C Load Relay

OK **PROBLEM CAUSE**
- **WLG Wire**
- **B Wire**

OK

2D

K1 ETM

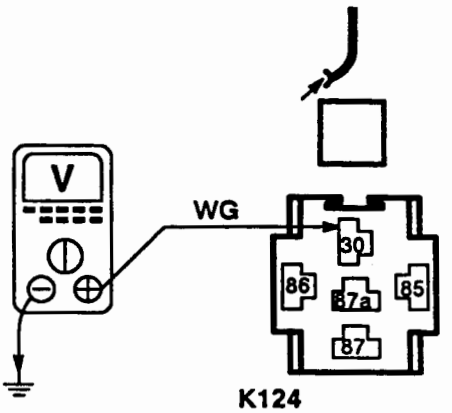
1992 RANGE ROVER

1D

2D

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



K124
Heater And A/C
Load Relay

OK **PROBLEM CAUSE**
- **WG Wire**
- **F C9 Fuse**

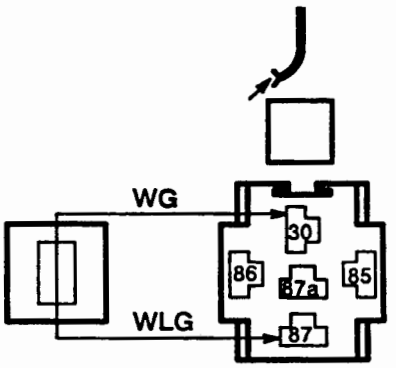
OK

3D

3D

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

RESULTS
Operates



K124
Heater And A/C
Load Relay

OK

4D

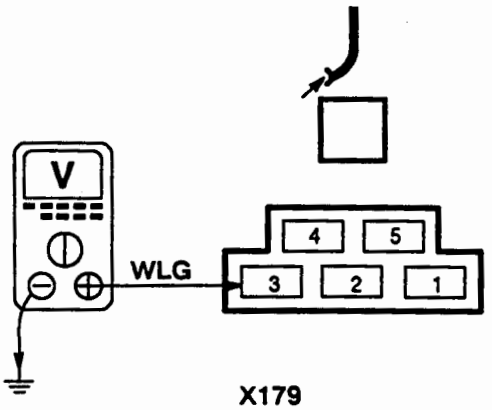
OK **PROBLEM CAUSE**
- **Heater And A/C Load Relay**

3D

4D

CONDITIONS
- **Ignition Switch**
  Position: II
- **Heater And A/C Load Relay**
  Connected

RESULTS
BAT VOLT



X179
Fan Speed Switch

OK **PROBLEM CAUSE**
- **WLG Wire**

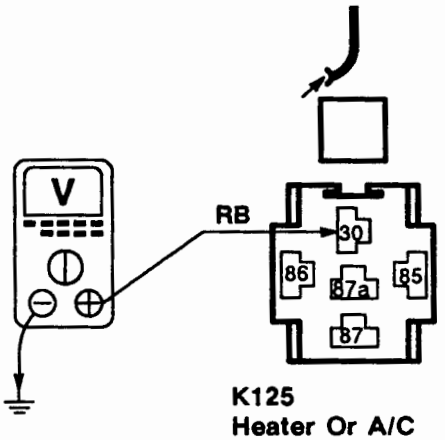
OK

5D

5D

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: III

RESULTS
BAT VOLT



K125
Heater Or A/C Relay

OK **PROBLEM CAUSE**
- **RB Wire**
- **Fan Speed Switch**

OK

6D

K1 ETM

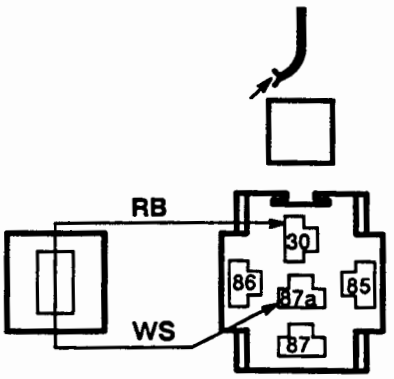
1992 RANGE ROVER

5D

6D

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: III

RESULTS
- **Heater Blower Motor**
  Operates



K125
Heater Or A/C
Relay

OK **PROBLEM CAUSE**
- WS Wire
- B Wire
- Heater Blower Motor

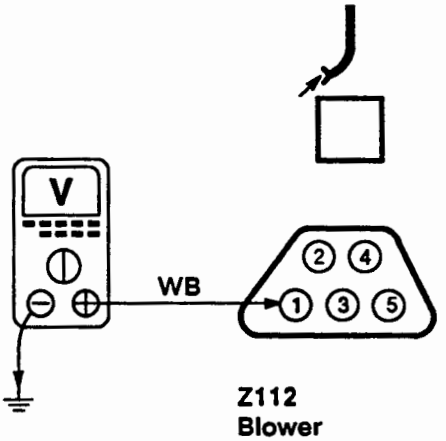
OK **PROBLEM CAUSE**
- Heater Or A/C Relay

Test E

1E

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

RESULTS
BAT VOLT



Z112
Blower
Resistor Unit

OK **PROBLEM CAUSE**
- WB Wire
- Fan Speed Switch

OK

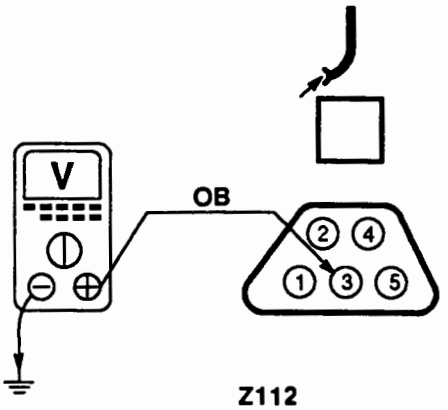
2E

E1

E2

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

RESULTS
BAT VOLT



Z112
Blower
Resistor Unit

OK **PROBLEM CAUSE**
- **OB Wire**
- **Fan Speed Switch**

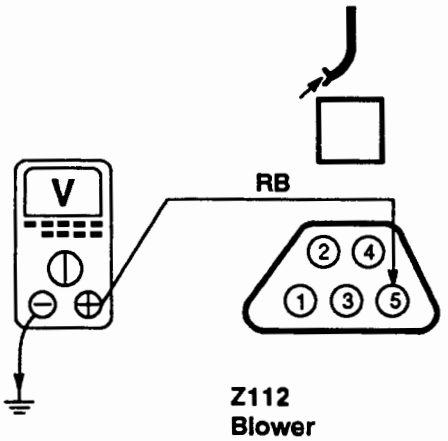
OK

3E

3E

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: III

RESULTS
BAT VOLT



Z112
Blower
Resistor Unit

OK **PROBLEM CAUSE**
- **RB Wire**
- **Fan Speed Switch**

OK **PROBLEM CAUSE**
- **Blower Resistor Unit**

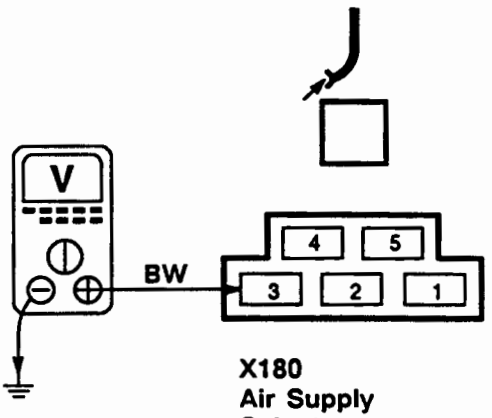
K1 ETM

Test F

1F

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

RESULTS
BAT VOLT



X180
Air Supply Selector Switch

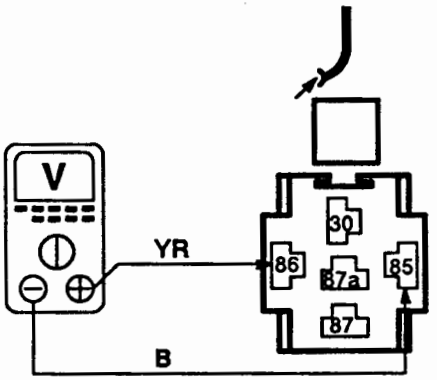
OK **PROBLEM CAUSE**
- BW Wire
- Fan Speed Switch

OK → 2F

2F

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  Microswitch (Gear Selector)

RESULTS
BAT VOLT



K125
Heater Or A/C Relay

OK **PROBLEM CAUSE**
- B Wire
- YR Wire
- Air Supply Selector Switch

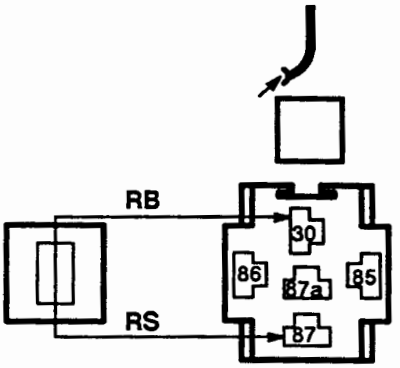
OK → 3F

2F

3F

CONDITIONS
- Ignition Switch
  Position: II
- Fan Speed Switch
  Position: III

RESULTS
- A/C Blower Motors
  Operate



K125
Heater Or A/C
Relay

OK PROBLEM CAUSE
- RS Wire
- B Wire
- A/C Blower Motors

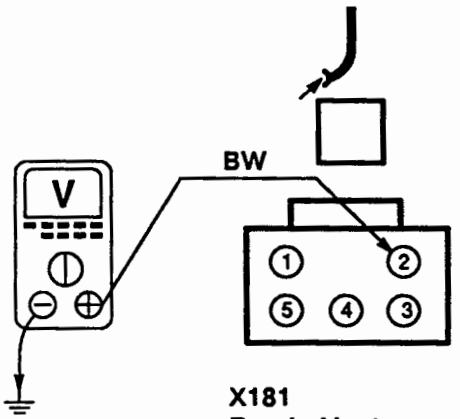
OK PROBLEM CAUSE
- Heater Or A/C Relay

Test G

1G

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

RESULTS
BAT VOLT



X181
Fascia Vent
Switch

OK PROBLEM CAUSE
- BW Wire

OK

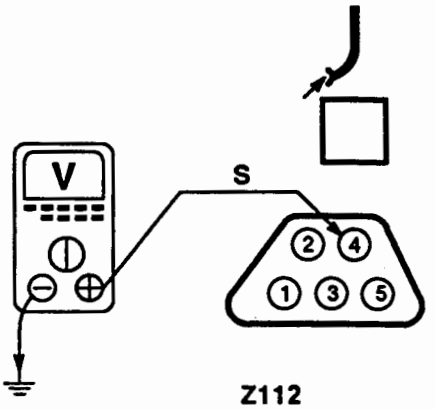
2G

1G

2G

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

RESULTS
BAT VOLT



Z112
Blower
Resistor Unit

OK **PROBLEM CAUSE**
- S Wire
- Fascia Vent Switch

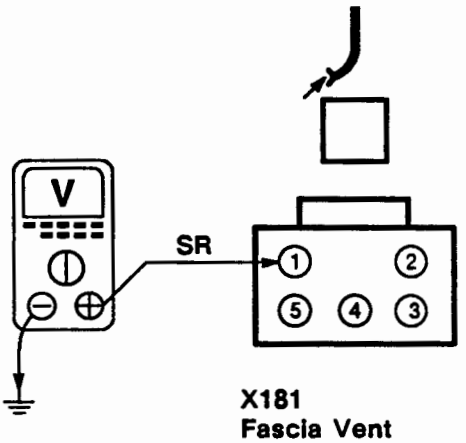
OK **PROBLEM CAUSE**
- RS Wire
- Blower Resistor Unit

Test H

1H

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C with Heat mode

RESULTS
BAT VOLT



X181
Fascia Vent
Switch

OK **PROBLEM CAUSE**
- SR Wire
- Air Supply Selector Switch

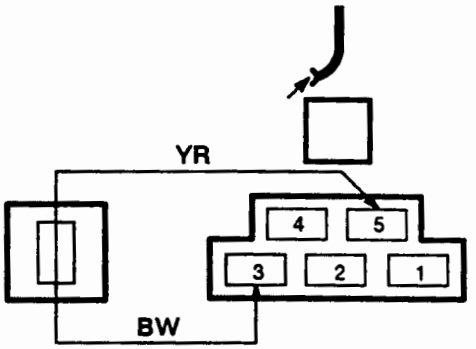
OK **PROBLEM CAUSE**
- Fascia Vent Switch

Test I

1I

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

RESULTS
- **Heater Air Recirculation Solenoid**
  Door closes



X180
Air Supply Selector Switch

OK

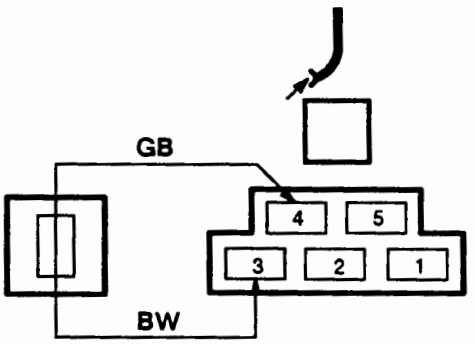
2I

OK **PROBLEM CAUSE**
- Air Supply Selector Switch

2I

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

RESULTS
- **Heater Air Recirculation Solenoid**
  Door closes



X180
Air Supply Selector Switch

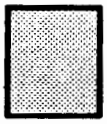
OK **PROBLEM CAUSE**
- GB Wire
- B Wire
- Vacuum hose
- Heater Air Recirculation Solenoid

OK **PROBLEM CAUSE**
- YR Wire
- GB Wire
- A/C Diode Pack

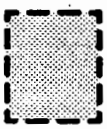
KEY INFORMATION

CIRCUIT DIAGRAMS

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

- 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

CIRCUIT OPERATION

Standard System

With the Ignition Switch (X134) in position 1, battery voltage is applied to the Heater And A/C Load Relay (K124). The relay is energized, applying battery voltage to the Compressor Clutch Relay (K108) and Fan Speed Switch (X179). When the Fan Speed Switch is not in position 0 (off), battery voltage is supplied to the Air Supply Selector Switch (X180). When the selector switch is in the A/C And Heat Mode or in the A/C Mode, battery voltage is sent through the A/C Diode Pack (Z101) to the A/C Thermostat Unit (Z102), signaling the Thermostat Unit that compressor operation has been requested. The Thermostat Unit then applies battery voltage to the Fuel Injection ECU (Z132) through the A/C High and Low Pressure Switches (X102, X103). The ECU then applies earth to the Compressor Clutch Relay coil. The relay energizes, applying battery voltage to the Compressor Clutch (K107).

If the High Pressure Switch senses pressure above 25.9 bar (375 psi), it opens. Battery voltage is removed from the ECU, which then removes earth from the Compressor Clutch Relay, disengaging the Compressor Clutch. If the Low Pressure Switch senses pressure below 2.07 bar (30 psi), it opens. Battery voltage is removed from the ECU, which then removes earth from the Compressor Clutch Relay, disengaging the Compressor Clutch.

The Thermostat Unit receives a temperature control signal from the Temperature Selector Control (X183) and a temperature input signal from the A/C Evaporator Temperature Sensor (X101). The Thermostat Unit uses these inputs to determine how often to signal the Fuel Injection ECU to cycle the Compressor Clutch.

Optional System (Diesel)

With the Ignition Switch (X134) in position 1, battery voltage is applied to the Heater And A/C Load Relay (K124). The relay is energized, applying battery voltage to the Fan Speed Switch (X179). When the Fan Speed Switch is not in position 0 (off), battery voltage is supplied to the Air Supply Selector Switch (X180). When the Air Supply Selector Switch is in the A/C And Heat Mode or in the A/C Mode, battery voltage is sent through the A/C Diode Pack (Z101) to the A/C Thermostat Unit (Z102), signaling the Thermostat Unit that compressor operation has been requested. The Thermostat Unit then applies battery voltage to the Compressor Clutch Relay (K108) through the A/C High and Low Pressure Switches (X102, X103). The Compressor Clutch Relay energizes, applying battery voltage to the Compressor Clutch (K107).

If the High Pressure Switch senses pressure above 25.9 bar (375 psi), it opens. Battery voltage is removed from the Compressor Clutch Relay, disengaging the Compressor Clutch. If the Low Pressure Switch senses pressure below 2.07 bar (30 psi), it opens. Battery voltage is removed from the Compressor Clutch Relay, disengaging the Compressor Clutch.

The Thermostat Unit receives a temperature control signal from the Temperature Selector Control (X183) and temperature input signal from the A/C Evaporator Temperature Sensor (X101). The Thermostat Unit uses these inputs to determine how often to cycle the Compressor Clutch.

Optional System (EFI)

With the Ignition Switch (X134) in position 1, battery voltage is applied to the Heater And A/C Load Relay (K124). The relay is energized, applying battery voltage to the Fan Speed Switch (X179) and through the A/C High and Low Pressure Switches (X102, X103) to the Compressor Clutch Relay (K108). When the Fan Speed Switch is not in position 0 (off), battery voltage is supplied to the Air Supply Selector Switch (X180). When the Air Supply Selector Switch is in the A/C And Heat Mode or in the A/C Mode, battery voltage is sent through the A/C Diode Pack (Z101) to the A/C Thermostat Unit (Z102), signaling the Thermostat Unit that compressor operation has been requested. The Thermostat Unit then applies battery voltage to the Fuel Injection ECU (Z132) . The ECU then applies earth to the Compressor Clutch Relay coil. The Compressor Clutch Relay energizes, applying battery voltage to the Compressor Clutch (K107).

If the High Pressure Switch senses pressure above 25.9 bar (375 psi) it opens. Battery voltage is removed from the Compressor Clutch Relay, disengaging the Compressor Clutch. If the Low Pressure Switch senses pressure below 2.07 bar (30 psi) it opens. Battery voltage is removed from the Compressor Clutch Relay, disengaging the Compressor Clutch.

The Thermostat Unit receives a temperature control signal from the Temperature Selector Control (X183) and temperature input signal from the A/C Evaporator Temperature Sensor (X101). The Thermostat Unit uses these inputs to determine how often to signal the Fuel Injection ECU to cycle the Compressor Clutch.

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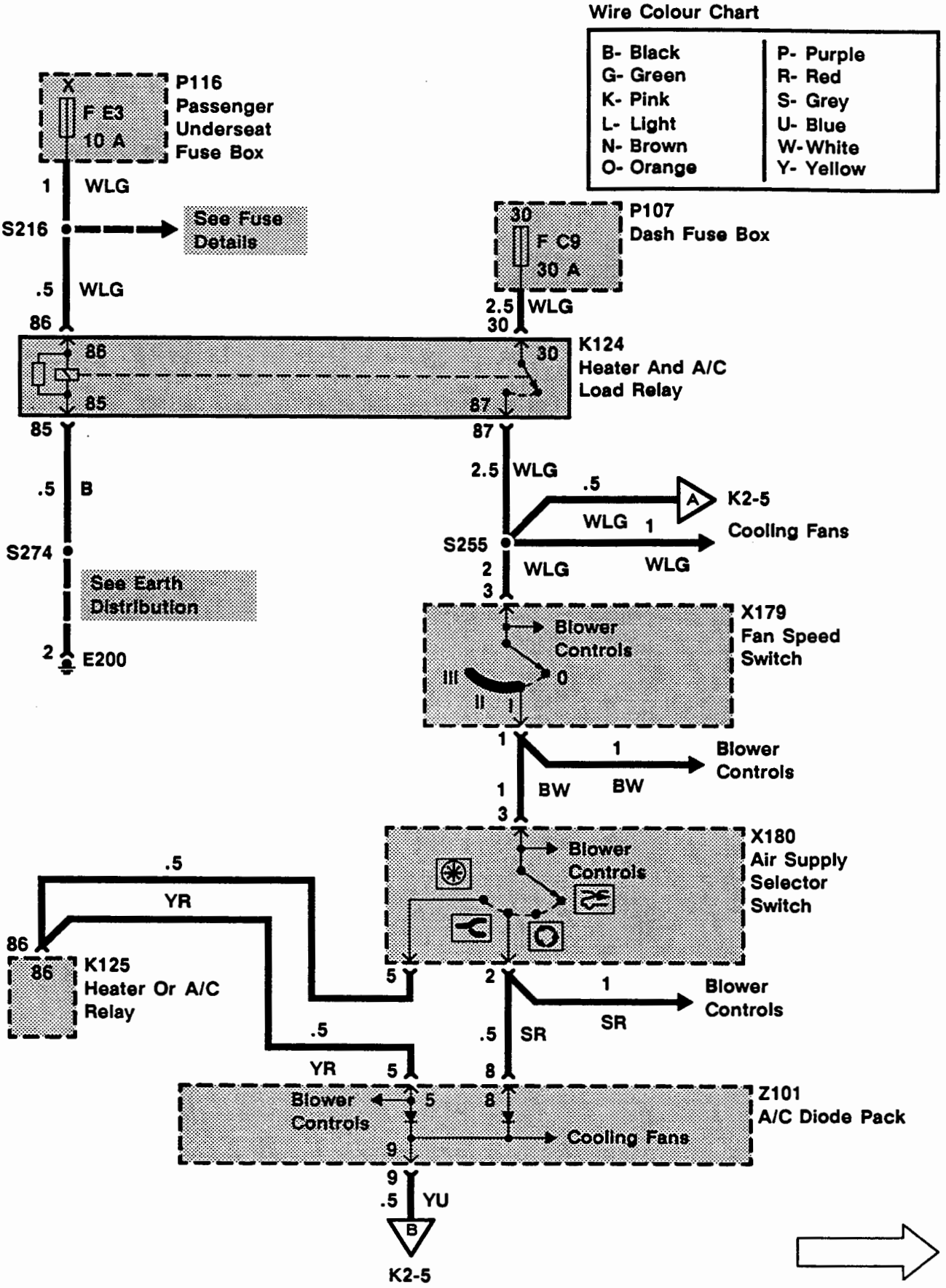
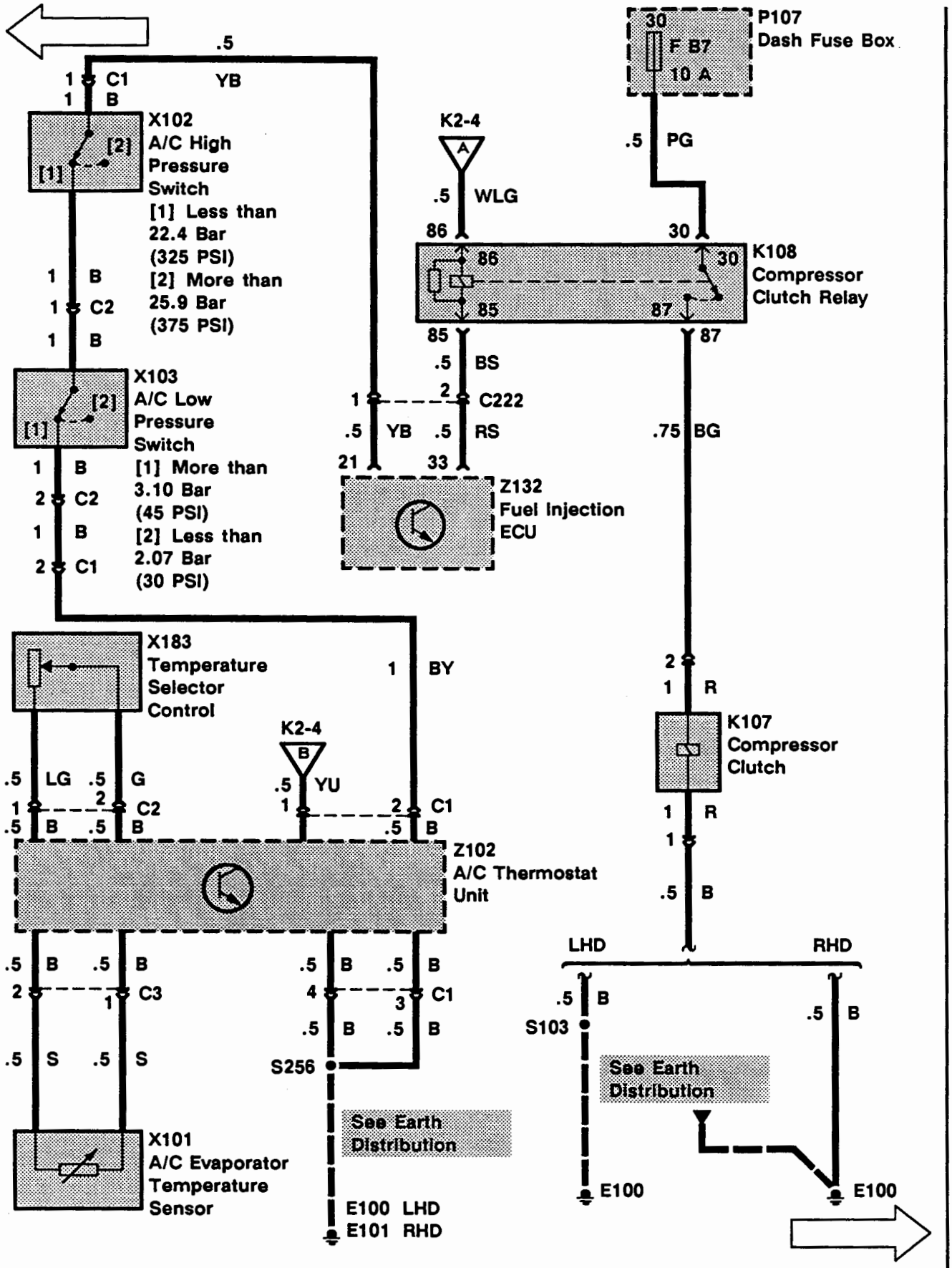
K2 ETM

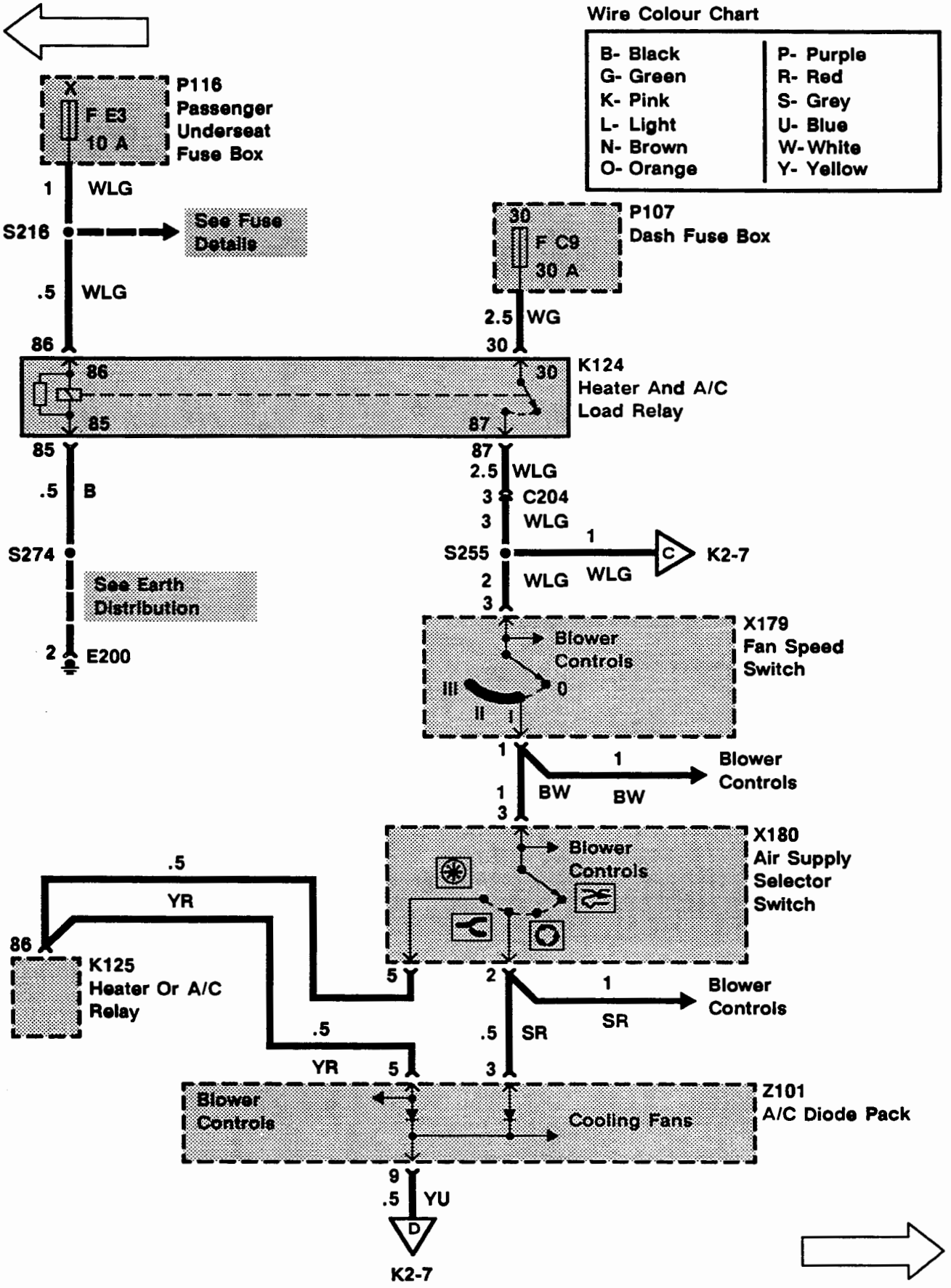
1992 RANGE ROVER

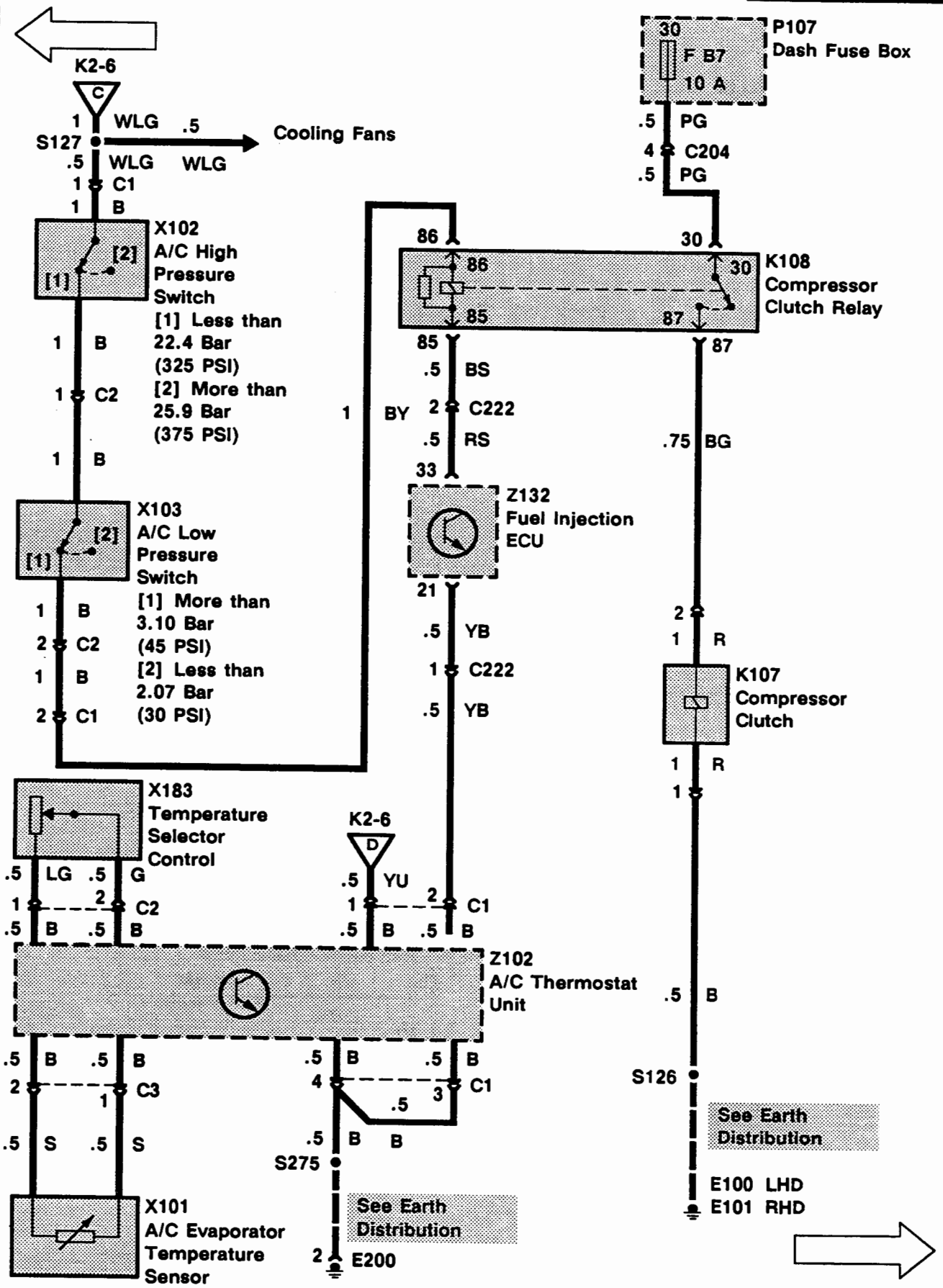



P107
Dash Fuse Box
30
F B7
10 A
.5 PG
K2-4
A
.5 WLG
86
30
K108
Compressor
Clutch Relay
86
30
85
87
85
87
.5 BS
2
C222
1
.5 YB
.5 RS
21
33
Z132
Fuel Injection
ECU
.75 BG
.5
1 C1
1 B
YB
X102
A/C High
Pressure
Switch
[1] Less than
22.4 Bar
(325 PSI)
[2] More than
25.9 Bar
(375 PSI)
[1]
[2]
1 B
1 C2
1 B
X103
A/C Low
Pressure
Switch
[1] More than
3.10 Bar
(45 PSI)
[2] Less than
2.07 Bar
(30 PSI)
1 B
2 C2
1 B
2 C1
X183
Temperature
Selector
Control
1 BY
2
1 R
K107
Compressor
Clutch
K2-4
B
.5 LG
.5 G
2
1 C2
.5 B
.5 B
.5 YU
1
2 C1
.5 B
1 R
1
.5 B
Z102
A/C Thermostat
Unit
LHD
RHD
.5 B
.5 B
2
1 C3
.5 S
.5 S
.5 B
.5 B
4
3 C1
.5 B
.5 B
S256
S103
.5 B
.5 B
See Earth
Distribution
See Earth
Distribution
X101
A/C Evaporator
Temperature
Sensor
E100 LHD
E101 RHD
E100
E100

K2 ETM

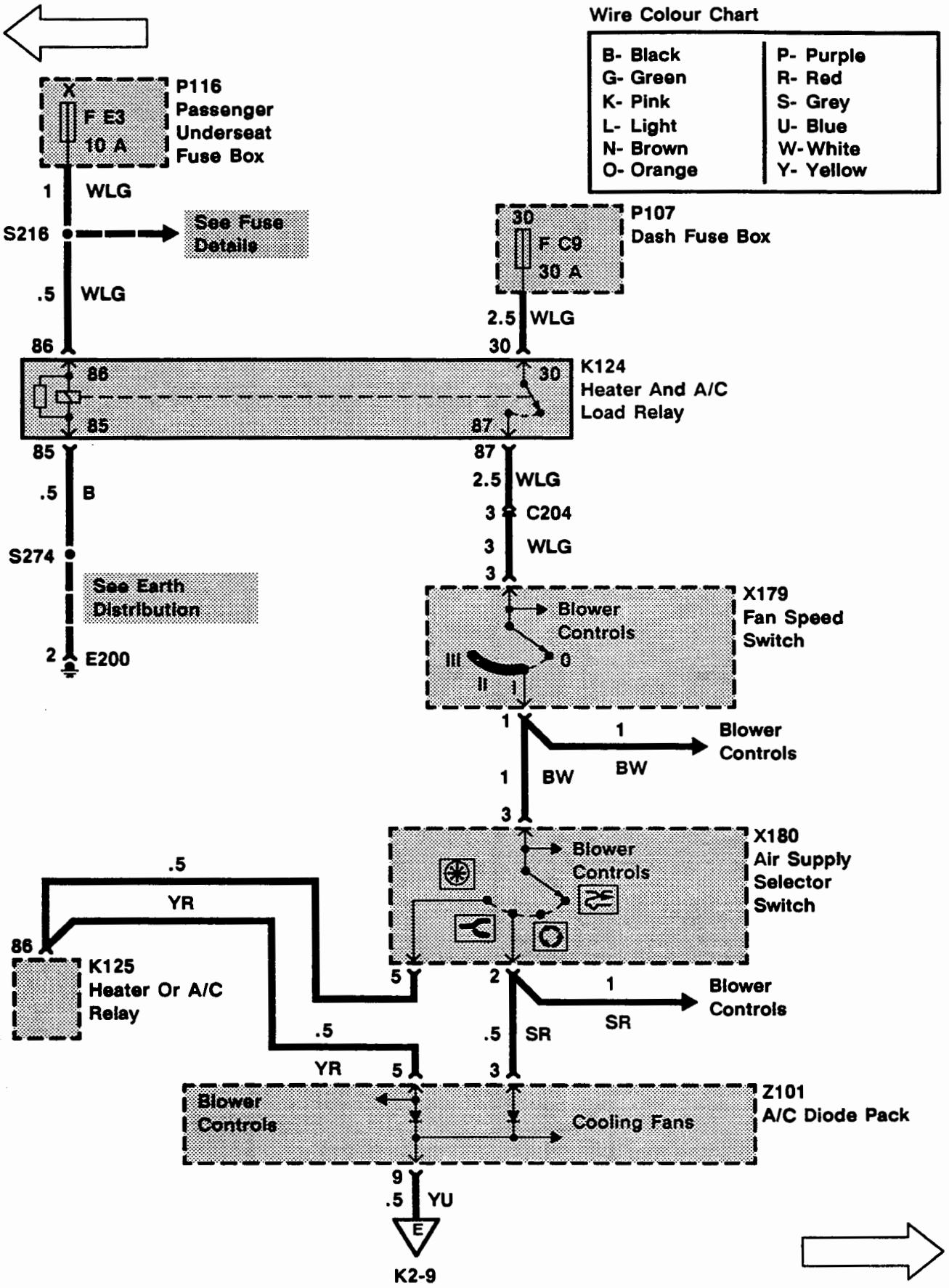
1992 RANGE ROVER

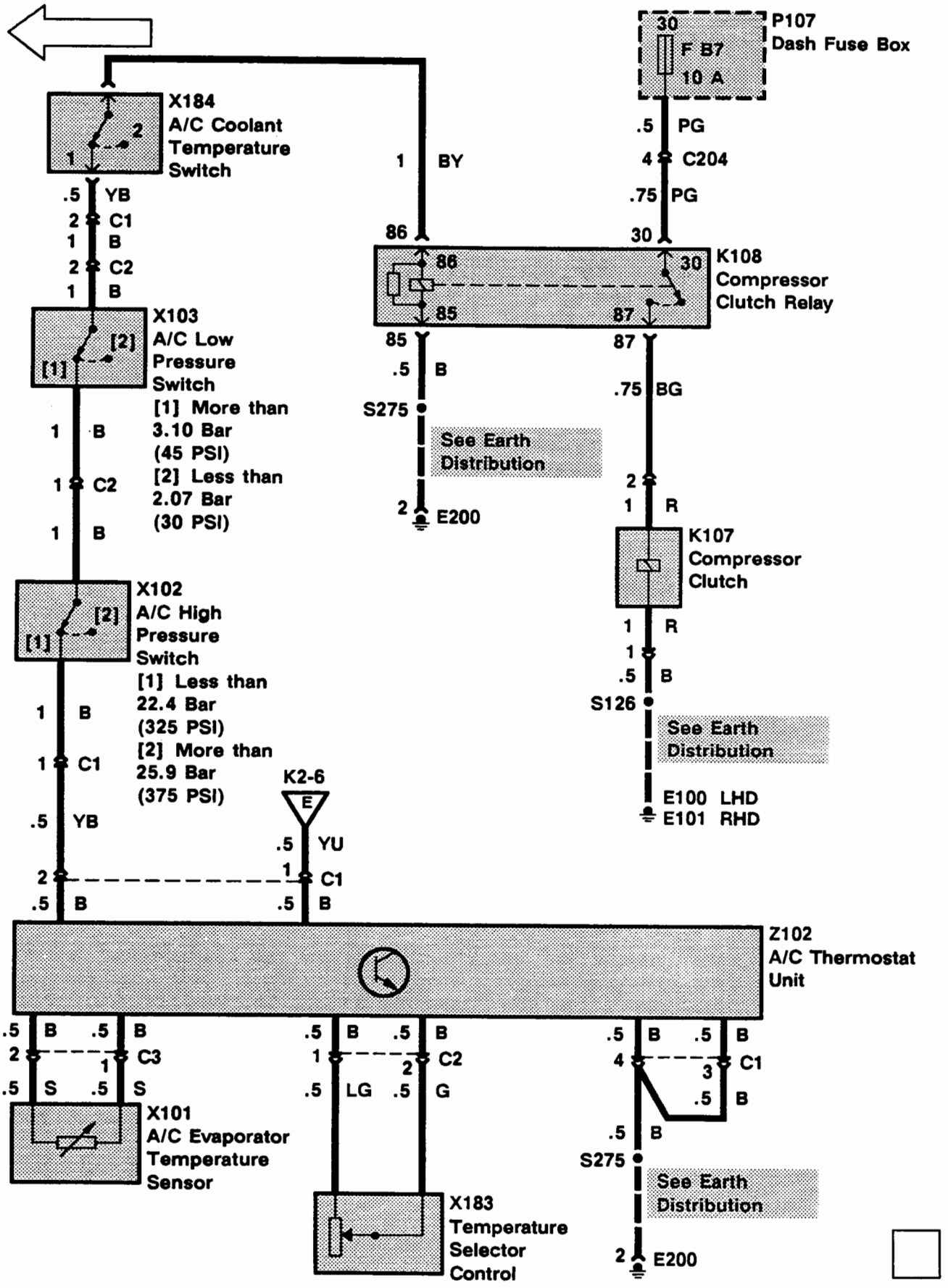



K2-6
C
1 WLG .5
S127
.5 WLG WLG
1 C1
1 B
Cooling Fans
X102
A/C High Pressure Switch
[1] Less than 22.4 Bar (325 PSI)
[2] More than 25.9 Bar (375 PSI)
1 B
1 C2
1 B
X103
A/C Low Pressure Switch
[1] More than 3.10 Bar (45 PSI)
[2] Less than 2.07 Bar (30 PSI)
1 B
2 C2
1 B
2 C1
X183
Temperature Selector Control
.5 LG .5 G
1 2 C2
.5 B .5 B
K2-6
D
.5 YU
1 2 C1
.5 B .5 B
Z102
A/C Thermostat Unit
.5 B .5 B
2 1 C3
.5 S .5 S
X101
A/C Evaporator Temperature Sensor
.5 B .5 B
4 3 C1
.5
.5 B B
S275
See Earth Distribution
2 E200
86
86
85
85 BS
2 C222
1 BY
.5 RS
33
Z132
Fuel Injection ECU
21
.5 YB
1 C222
.5 YB
30
P107
Dash Fuse Box
30 F B7 10 A
.5 PG
4 C204
.5 PG
30
30
K108
Compressor Clutch Relay
87
87
.75 BG
2
1 R
K107
Compressor Clutch
1 R
1
.5 B
S126
See Earth Distribution
E100 LHD
E101 RHD

K2 ETM

1992 RANGE ROVER




X184
A/C Coolant
Temperature
Switch
.5 YB
2 C1
1 B
2 C2
1 B
X103
A/C Low
Pressure
Switch
[1] More than
3.10 Bar
(45 PSI)
[2] Less than
2.07 Bar
(30 PSI)
1 B
1 C2
1 B
X102
A/C High
Pressure
Switch
[1] Less than
22.4 Bar
(325 PSI)
[2] More than
25.9 Bar
(375 PSI)
1 B
1 C1
.5 YB
2
.5 B
K2-6
E
.5 YU
1 C1
.5 B
1 BY
86
85
.5 B
S275
See Earth
Distribution
2 E200
P107
Dash Fuse Box
30
F B7
10 A
.5 PG
4 C204
.75 PG
30
K108
Compressor
Clutch Relay
86
85
30
87
87
.75 BG
2
1 R
K107
Compressor
Clutch
1 R
1
.5 B
S126
See Earth
Distribution
E100 LHD
E101 RHD
Z102
A/C Thermostat
Unit
.5 B .5 B
2 C3 1
.5 S .5 S
X101
A/C Evaporator
Temperature
Sensor
.5 B .5 B
1 C2 2
.5 LG .5 G
X183
Temperature
Selector
Control
.5 B .5 B
4 C1 3
.5 B
.5 B
S275
See Earth
Distribution
2 E200

TROUBLESHOOTING HINTS

1. If the Heater Blower (M111) or A/C Blower Motors (M101) do not operate normally, refer to Blower Controls, Section K1.
2. Verify that refrigerant pressure is OK before preceding with the following diagnostic text.

SYSTEM DIAGNOSIS

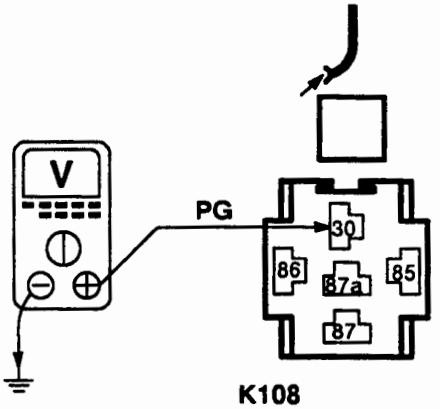
1. If the A/C Compressor Clutch (K107) does not engage in any mode, do Test A (Standard A/C), Test C (EFI with Optional A/C) or Test E (Diesel with Optional A/C)
2. If the A/C Compressor Clutch (K107) does not engage in the A/C With Heat Mode but does engage in the A/C Mode, do Test B.
3. Diesel Vehicles With Standard A/C and EFI Vehicles: If the Compressor Clutch (K107) remains engaged with the A/C off, do Test G.
4. Diesel Vehicles With Optional A/C: If the Compressor Clutch (K107) remains engaged with the A/C off, do Test H.

Test A

1A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



K108
Compressor
Clutch Relay

OK **PROBLEM CAUSE**
- F B7 Fuse
- PG Wire

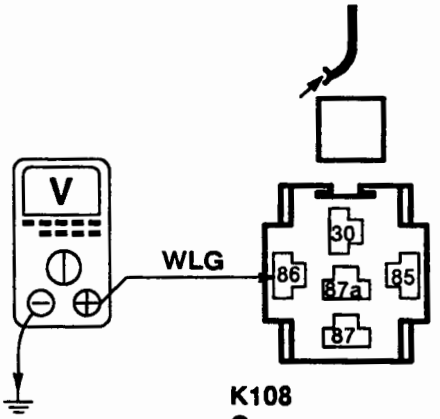
OK

2A

2A

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



K108
Compressor
Clutch Relay

OK **PROBLEM CAUSE**
- WLG Wire

OK

3A

K2 ETM

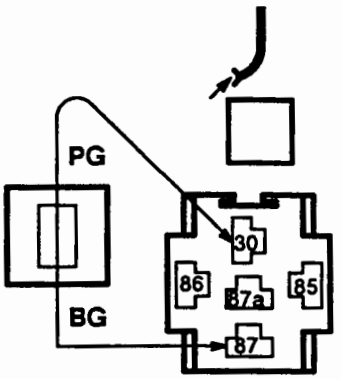
1992 RANGE ROVER

2A

3A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Compressor Clutch**
  Operates



K108 Compressor Clutch Relay

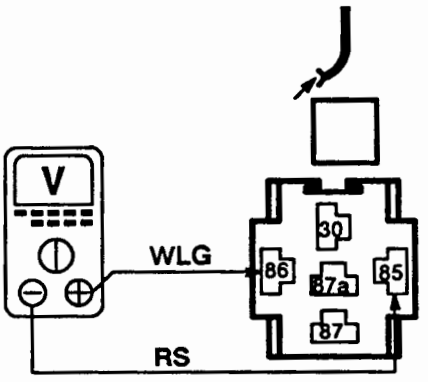
OK — **PROBLEM CAUSE**
- BG Wire
- B Wire
- Compressor Clutch

OK → 4A

4A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Engine**
  ON
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



K108 Compressor Clutch Relay

OK → 5A

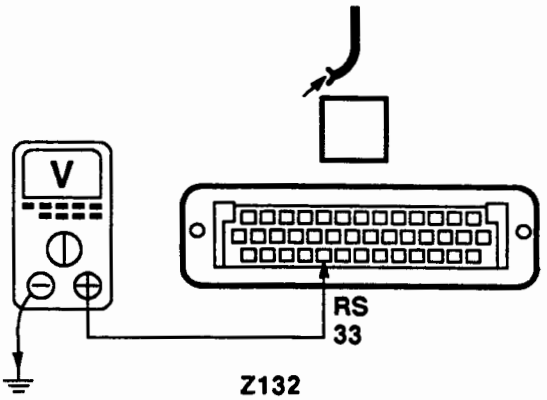
OK — **PROBLEM CAUSE**
- Compressor Clutch Relay

4A

5A

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- RS Wire

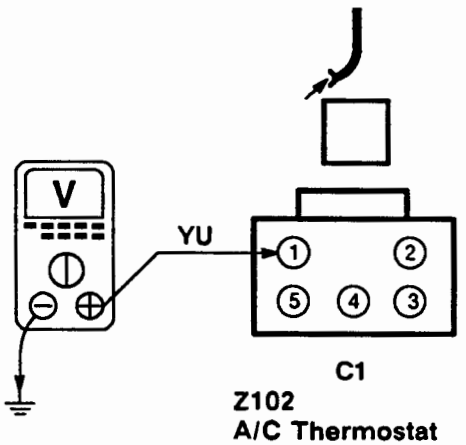
OK

6A

6A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- YU Wire
- YR Wire
- A/C Diode Pack

OK

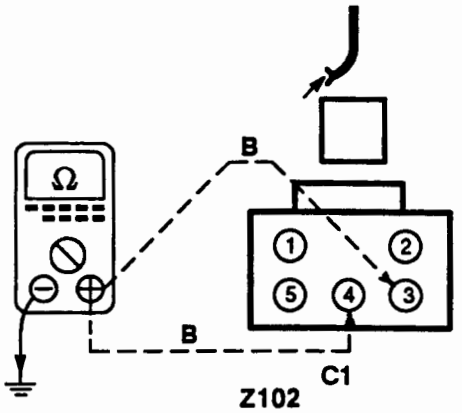
A7

6A

7A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



Z102
A/C Thermostat Unit

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

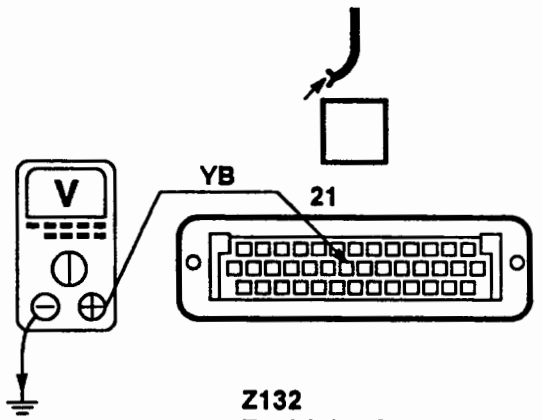
OK

8A

8A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



Z132
Fuel Injection ECU

OK

9A

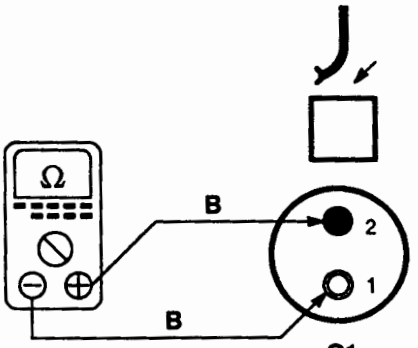
OK **PROBLEM CAUSE**
- **Fuel Injection ECU**

8A

9A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



X102
A/C High Pressure Switch

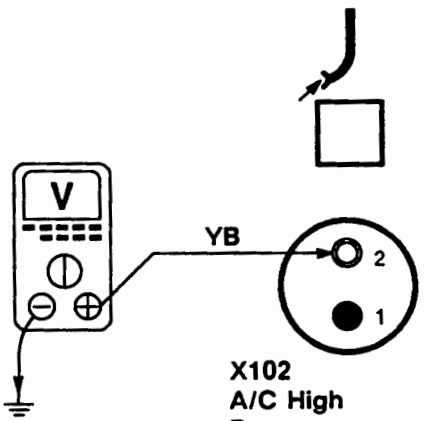
OK **PROBLEM CAUSE**
- **B Wire**
- **A/C High Pressure Switch**
- **A/C Low Pressure Switch**

OK → 10A

10A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



X102
A/C High Pressure Switch

OK → 11A

OK **PROBLEM CAUSE**
- **YB Wire**

K2 ETM

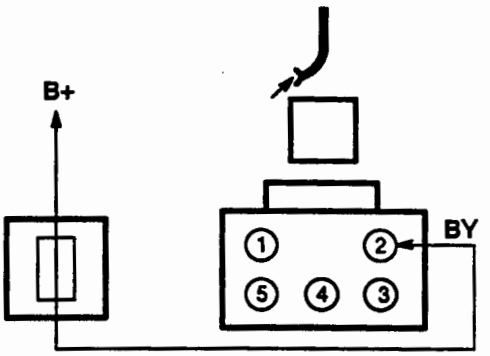
1992 RANGE ROVER

10A

11A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Engine**
  ON

RESULTS
- **Compressor Clutch**
  Operates



OK **PROBLEM CAUSE**
- **BY Wire**

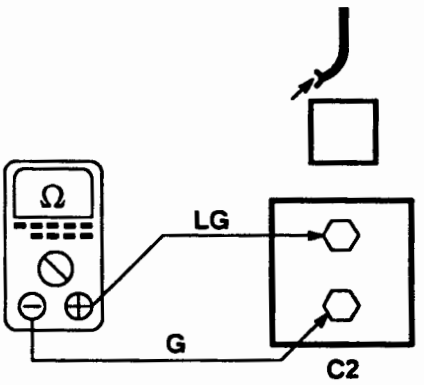
OK

12A

12A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Move Temperature Selector Control (X183) lever from maximum cool to minimum cool**
- **Resistance changes smoothly as lever is moved**



OK **PROBLEM CAUSE**
- **Temperature Selector Control**

OK

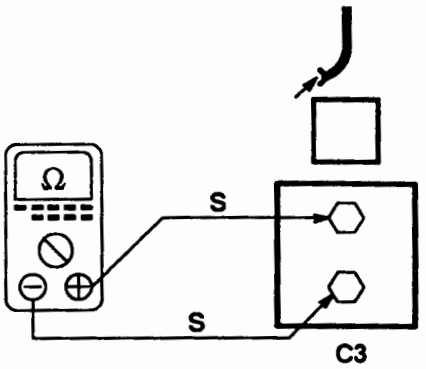
13A

12A

13A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Less than 1 ohm**
  More than 10K ohms



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **A/C Evaporator Temperature Sensor**

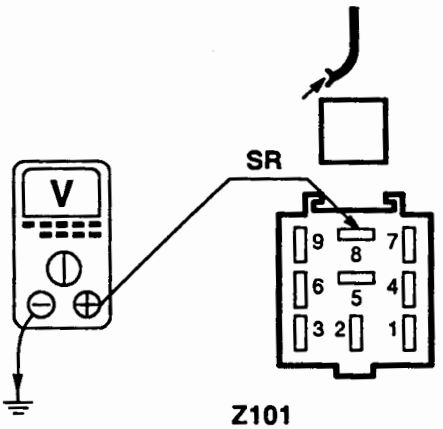
OK **PROBLEM CAUSE**
- **A/C Thermostat Unit**

Test B

1B

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C with Heat mode

RESULTS
BAT VOLT



Z101
A/C Diode Pack

OK **PROBLEM CAUSE**
- **SR Wire**

OK **PROBLEM CAUSE**
- **A/C Diode Pack**

K2 ETM

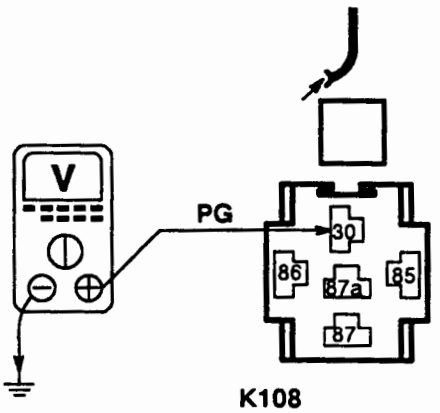
1992 RANGE ROVER

Test C

1C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



K108 Compressor Clutch Relay

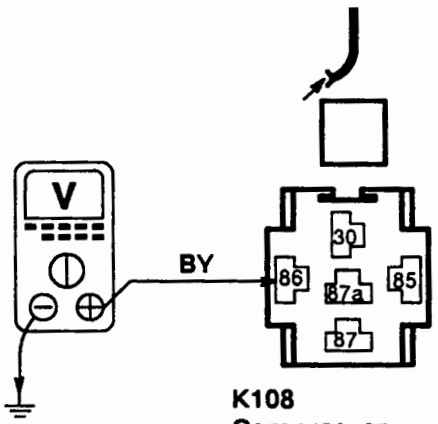
OK **PROBLEM CAUSE**
- **F B7 Fuse**
- **PG Wire**

OK → 2C

2C

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



K108 Compressor Clutch Relay

OK **GO TO TEST D**

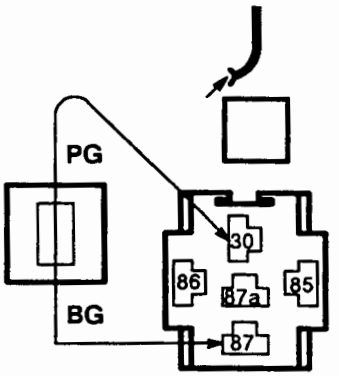
OK → 3C

2C

3C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Compressor Clutch**
  Operates



K108
Compressor
Clutch Relay

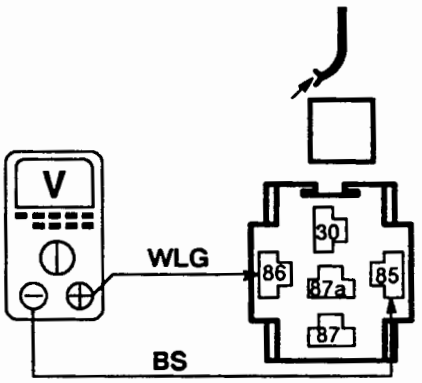
OK **PROBLEM CAUSE**
- **BG Wire**
- **B Wire**
- **Compressor Clutch Relay**

OK → 4C

4C

CONDITIONS
- **Ignition Switch**
  Position: II
- **Engine**
  ON
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



K108
Compressor
Clutch Relay

OK → 5C

OK **PROBLEM CAUSE**
- **Compressor Clutch Relay**

K2 ETM

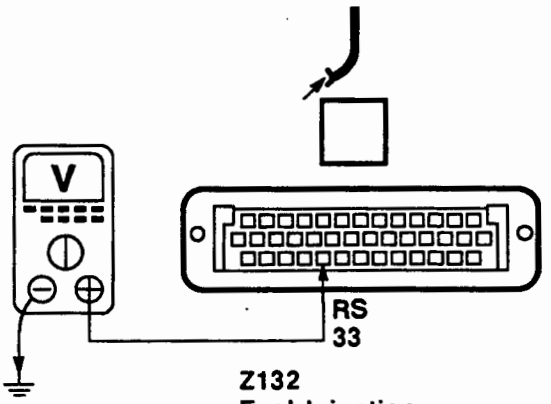
1992 RANGE ROVER

4C

5C

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- RS Wire

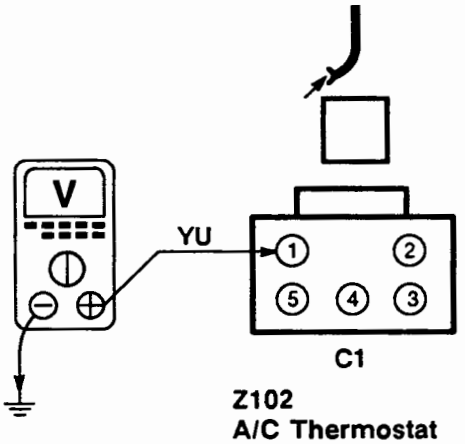
OK

6C

6C

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- YU Wire
- YR Wire
- A/C Diode Pack

OK

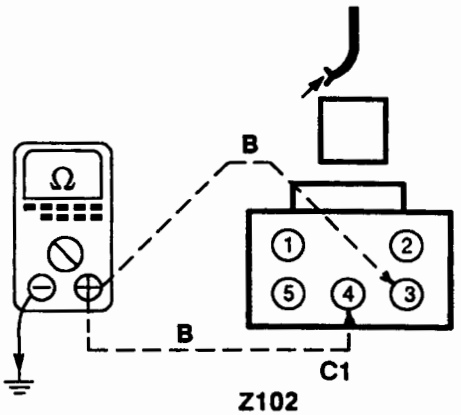
7C

6C

7C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



Z102
A/C Thermostat Unit

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

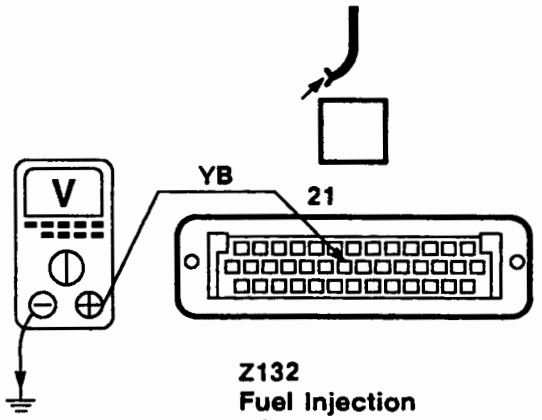
OK

8C

8C

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



Z132
Fuel Injection ECU

OK

OK **PROBLEM CAUSE**
- **Fuel Injection ECU**

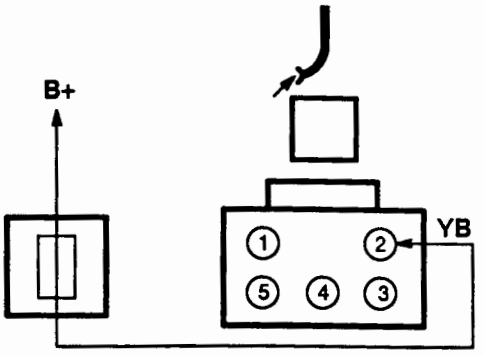
9C

8C

9C

CONDITIONS
- **Ignition Switch**
  Position: II
- **Engine**
  ON

RESULTS
- **Compressor Clutch**
  Operates



C1
Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **YB Wire**

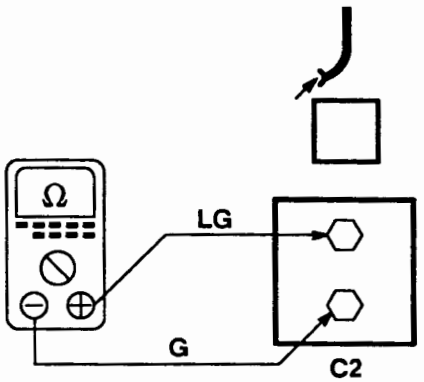
OK

10C

10C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Move Temperature Selector Control (X183) lever from maximum cool to minimum cool**
- **Resistance changes smoothly as lever is moved**



C2
Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **Temperature Selector Control**

OK

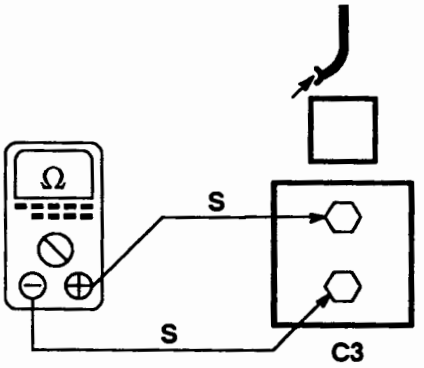
11C

10C

11C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Less than 1 ohm**
  More than 10K ohms



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **A/C Evaporator Temperature Sensor**

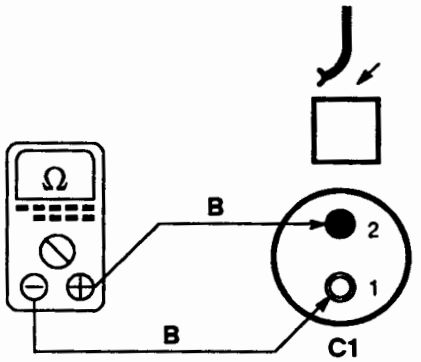
OK **PROBLEM CAUSE**
- **A/C Thermostat Unit**

Test D

1D

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



X102
A/C High Pressure Switch

OK **PROBLEM CAUSE**
- **B Wire**
- **A/C High Pressure Switch**
- **A/C Low Pressure Switch**

OK

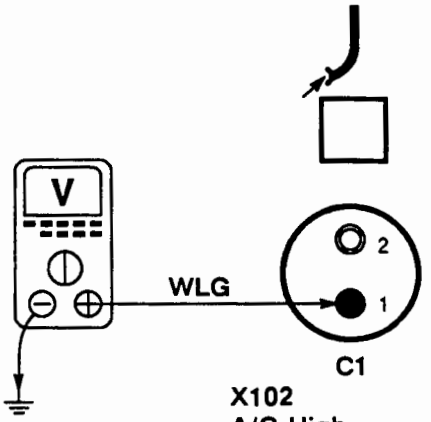
2D

1D

2D

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



X102
A/C High Pressure Switch

OK **PROBLEM CAUSE**
- **WLG Wire**

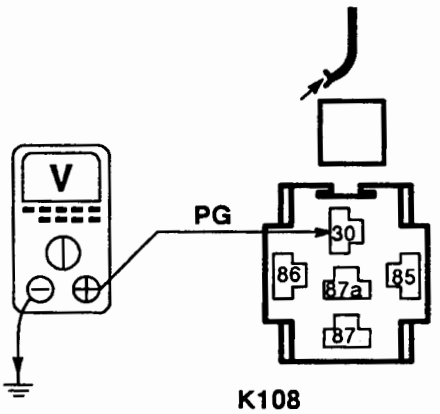
OK **PROBLEM CAUSE**
- **BY Wire**

Test E

1E

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



K108
Compressor Clutch Relay

OK **PROBLEM CAUSE**
- **F B7 Fuse**
- **PG Wire**

OK

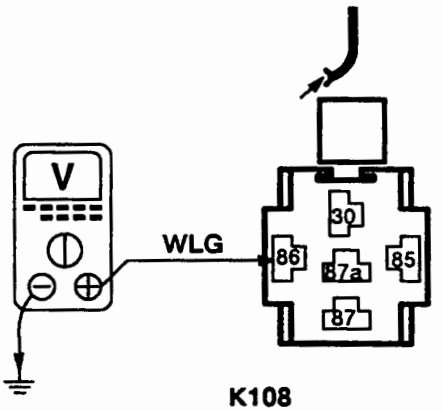
2E

1E

2E

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



K108
Compressor
Clutch Relay

OK - **GO TO TEST F**

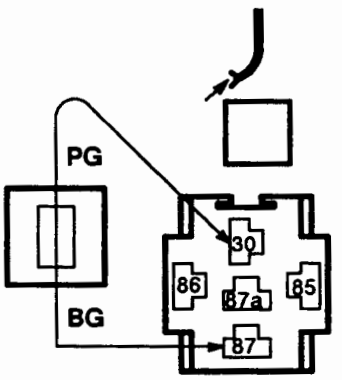
OK

3E

3E

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Compressor Clutch**



K108
Compressor
Clutch Relay

OK **PROBLEM CAUSE**
- **BG Fuse**
- **B Wire**
- **Compressor Clutch Relay**

OK

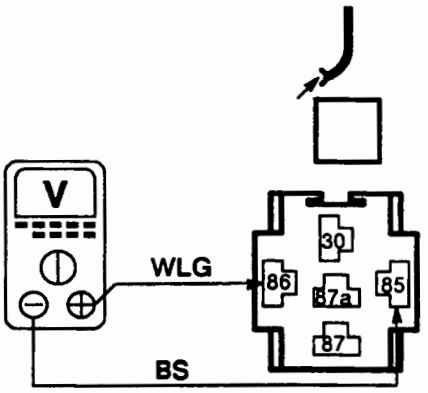
4E

3E

4E

CONDITIONS
- **Ignition Switch**
  Position: II
- **Engine**
  ON
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



OK **PROBLEM CAUSE**
- B Wire

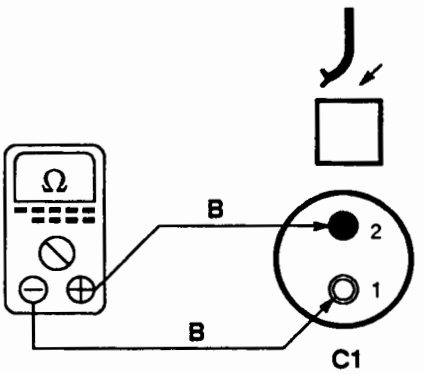
OK **PROBLEM CAUSE**
- Compressor Clutch Relay

Test F

1F

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



OK **PROBLEM CAUSE**
- B Wire
- A/C High Pressure Switch
- A/C Low Pressure Switch

OK

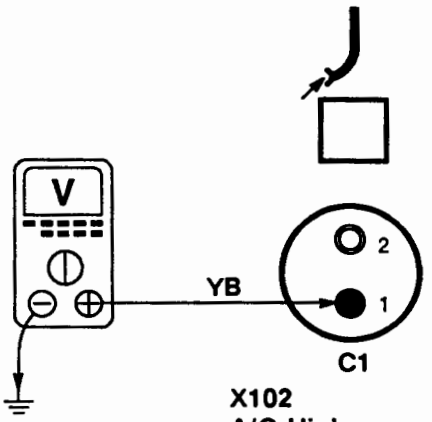
2F

1F

2F

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



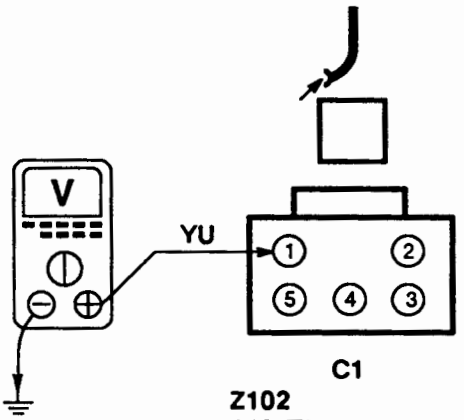
OK → 3F

OK → **PROBLEM CAUSE**
- YB Wire
- BY Wire
- A/C Coolant Temperature Switch

3F

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



OK → **PROBLEM CAUSE**
- YU Wire
- YR Wire
- A/C Diode Pack

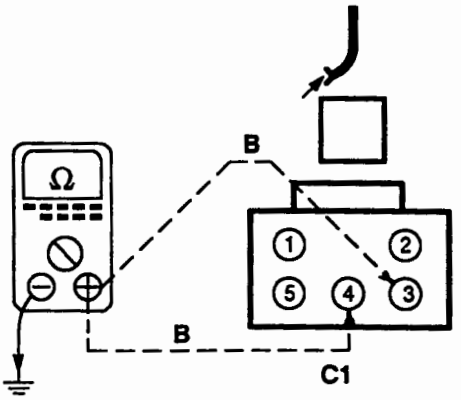
OK → 4F

3F

4F

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 2 ohms



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- B Wire

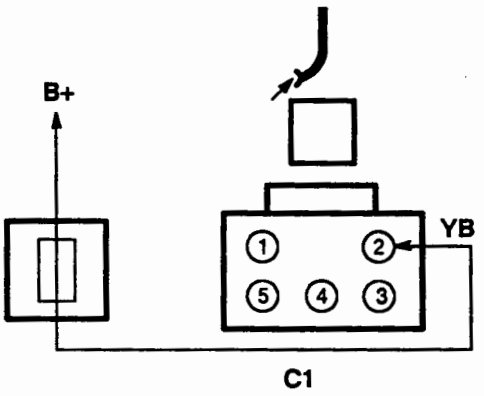
OK

5F

5F

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
- **Compressor Clutch**
  Operates



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- YB Wire

OK

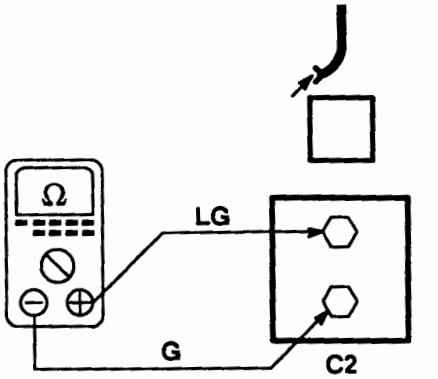
6F

5F

6F

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Move Temperature Selector Control (X183) lever from maximum cool to minimum cool**
- **Resistance changes smoothly as lever is moved**



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **Temperature Selector Control**

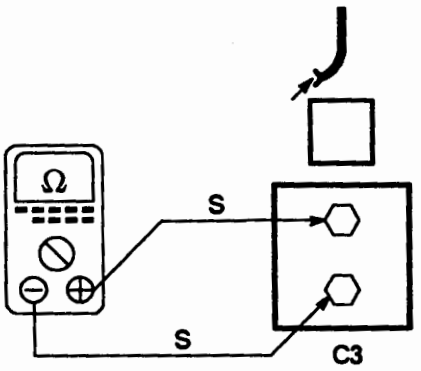
OK

7F

7F

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **Less than 1 ohm**
  More than 10K ohms



Z102
A/C Thermostat Unit

OK **PROBLEM CAUSE**
- **A/C Evaporator Temperature Sensor**

OK **PROBLEM CAUSE**
- **A/C Thermostat Unit**

K2 ETM

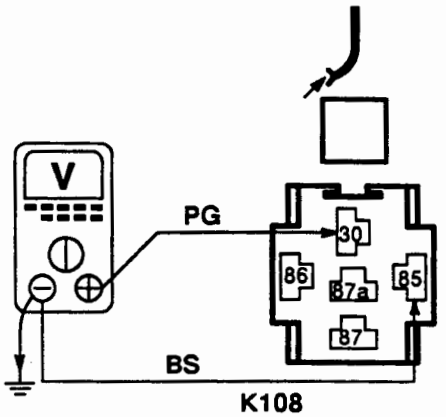
1992 RANGE ROVER

Test G

1G

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

RESULTS
0V



K108
Compressor
Clutch Relay

OK

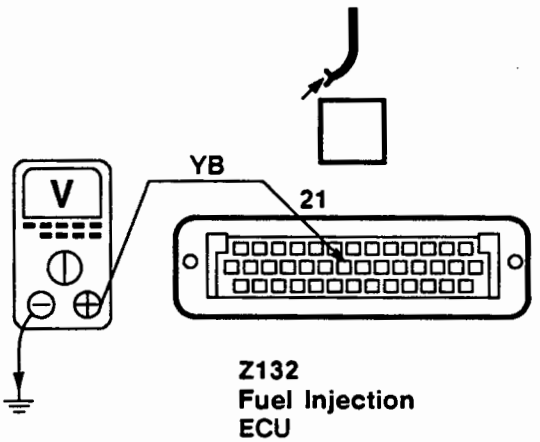
OK **PROBLEM CAUSE**
- **Compressor Clutch Relay**

2G

2G

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

RESULTS
0V



Z132
Fuel Injection
ECU

OK **PROBLEM CAUSE**
- **A/C Thermostat Unit**

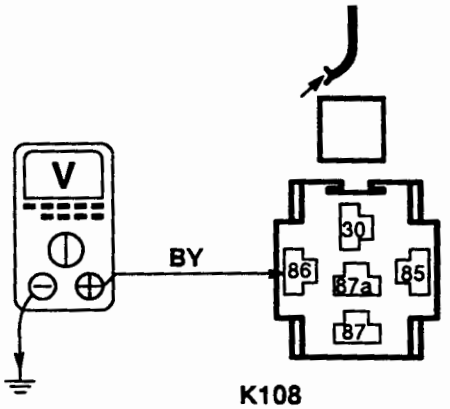
OK **PROBLEM CAUSE**
- **RS Wire**
- **Fuel Injection ECU**

Test H

1H

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

RESULTS
0V



K108
Compressor
Clutch Relay

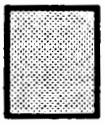
OK **PROBLEM CAUSE**
- **A/C Thermostat Unit**

OK **PROBLEM CAUSE**
- **Compressor Clutch Relay**

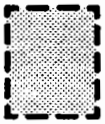
KEY INFORMATION

CIRCUIT DIAGRAMS

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

- 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

CIRCUIT OPERATION

Condenser Fan Operation (EFI)

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

1. Coolant temperature exceeds 100°C (212°F).
2. The air conditioning system is operating.
3. The Fuel Injection ECU (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.

Condenser Fan Operation (Diesel)

The Condenser Fans Motors (M113, M121) on vehicles equipped with the diesel engine and air conditioning operate only when the air conditioning system is on.

Operation With High Coolant Temperature

When the Ignition Switch (X134) is in position II, the Heater And A/C Load Relay (K124) is energized, allowing voltage from fuse F C9 to be applied to the Condenser Fan Coolant Temperature Switch (X113). If the coolant temperature exceeds 100°C (212°F), the switch closes and energizes the Condenser Fan Relay (K109) by applying voltage to the relay's coil. When the relay is energized, voltage from the Fusible Link (P119) is applied to the Condenser Fan Motors (M113, M121) through the relay's contacts and fuses F B8 and F B9.

Fan Operation With A/C

When the A/C is turned on, voltage from fuse F C9 is applied through the energized Heater And A/C Load Relay (K124) to the Fan Speed Switch (X179). The Fan Speed Switch applies voltage to terminal 3 of the Air Supply Selector Switch (X180). The Air Supply Selector Switch applies voltage to energize the Condenser Fan Relay (K109) through the A/C Diode Pack (Z101) when it is in either of the 2 A/C positions. The energized Condenser Fan Relay turns on the fans by allowing voltage to be applied to them.

Operation With The Engine Off

The Fuel Injection ECU (Z132) monitors fuel temperature and coolant temperature through sensors. When the ECU determines that fuel temperature is above 70°C and coolant temperature exceeds 110°C after engine shutdown, the ECU will command fan operation for approximately 10 minutes. The ECU turns on the fans by momentarily earthing the Condenser Fan Timer Unit (Z118) through the BG wire. When the timer unit is earthed, it starts a solid state timer and begins to apply voltage from its terminal 8 to the Condenser Fan Relay (K109) through the WG wire. With the Condenser Fan Relay energized, voltage from the Fusible Link (P119) is applied to the Condenser Fan Motors (M113, M121) through the relay contacts. The Condenser Fan Motors are earthed at E100 or E101 through the B wire.

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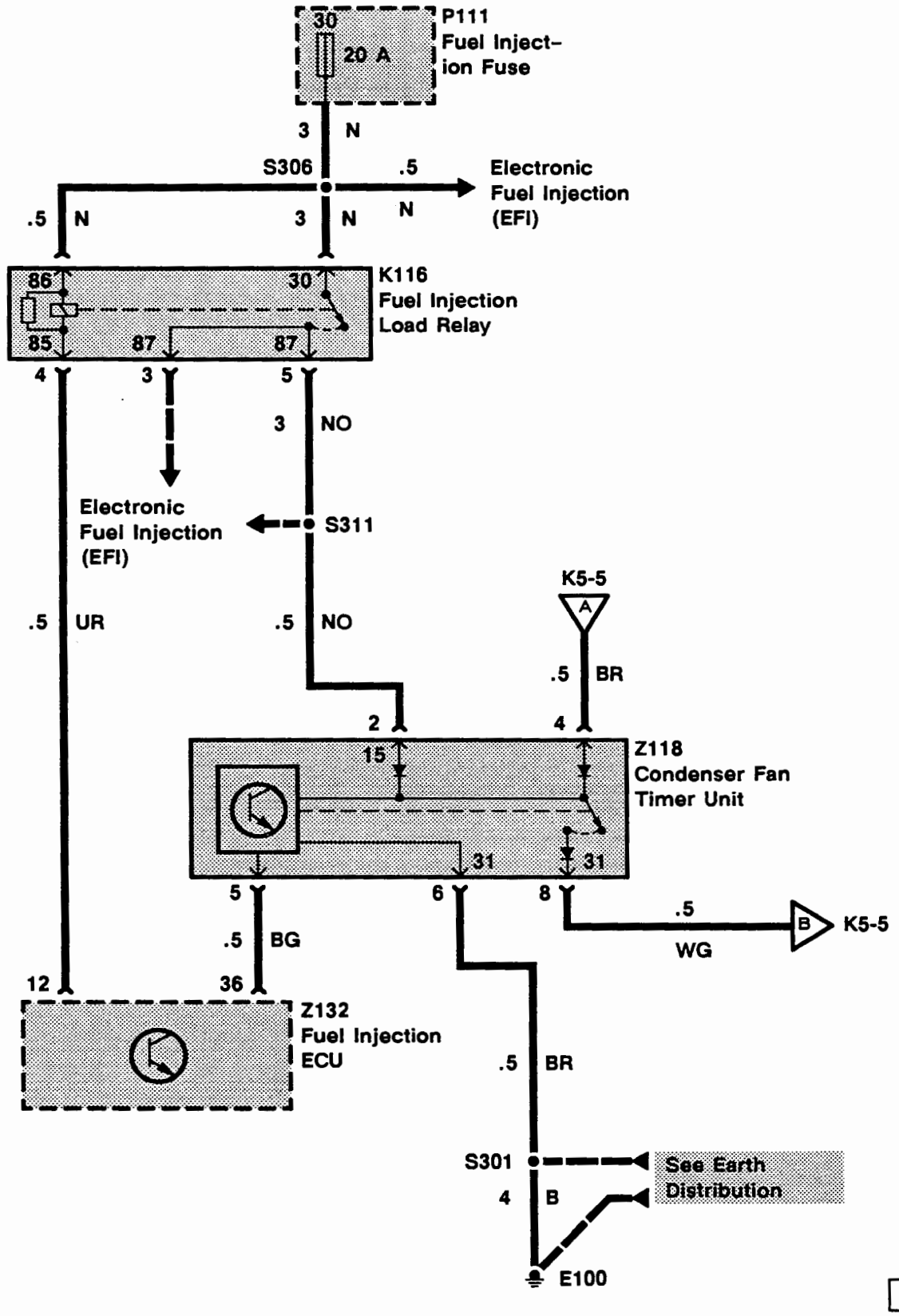
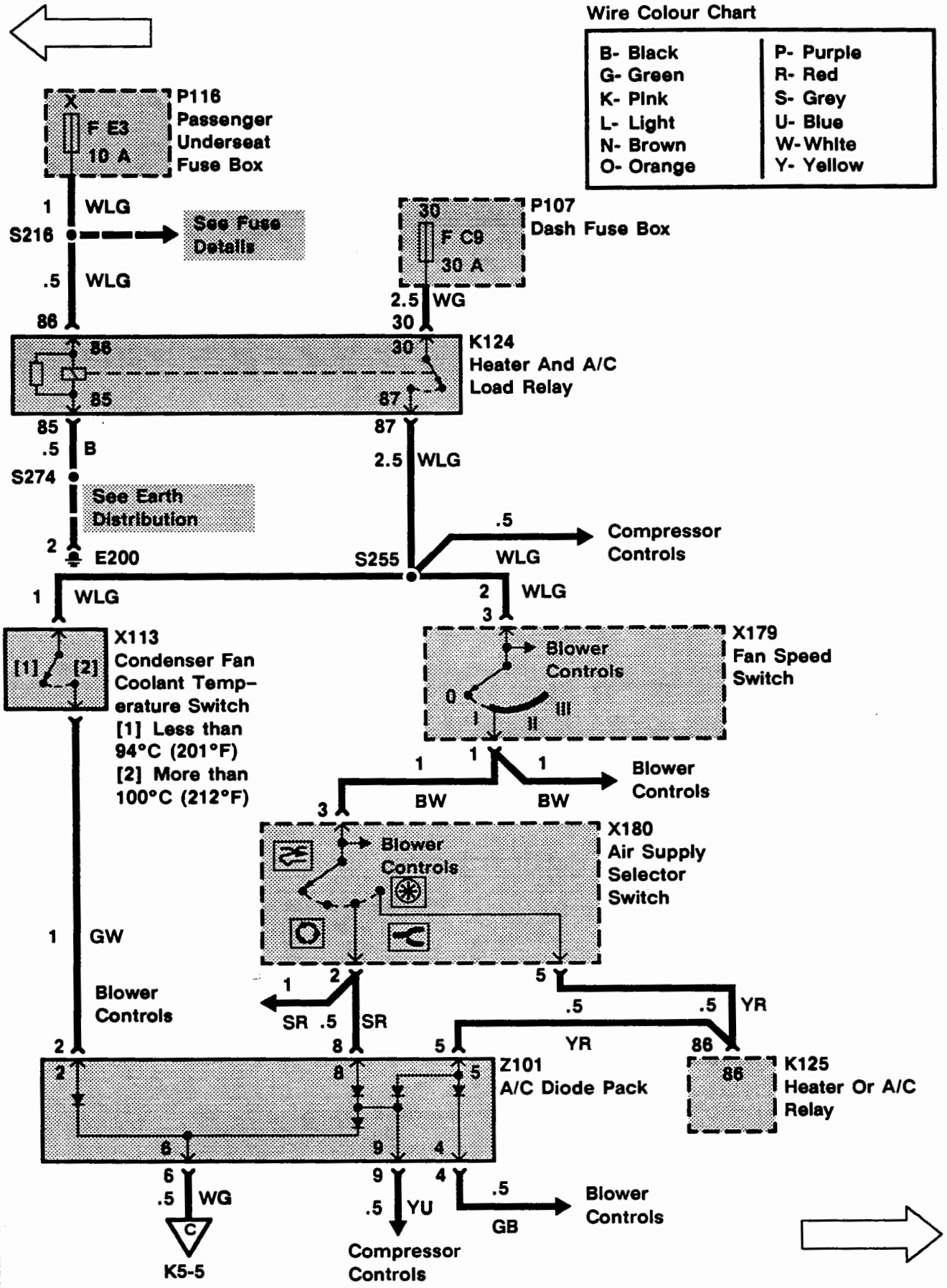
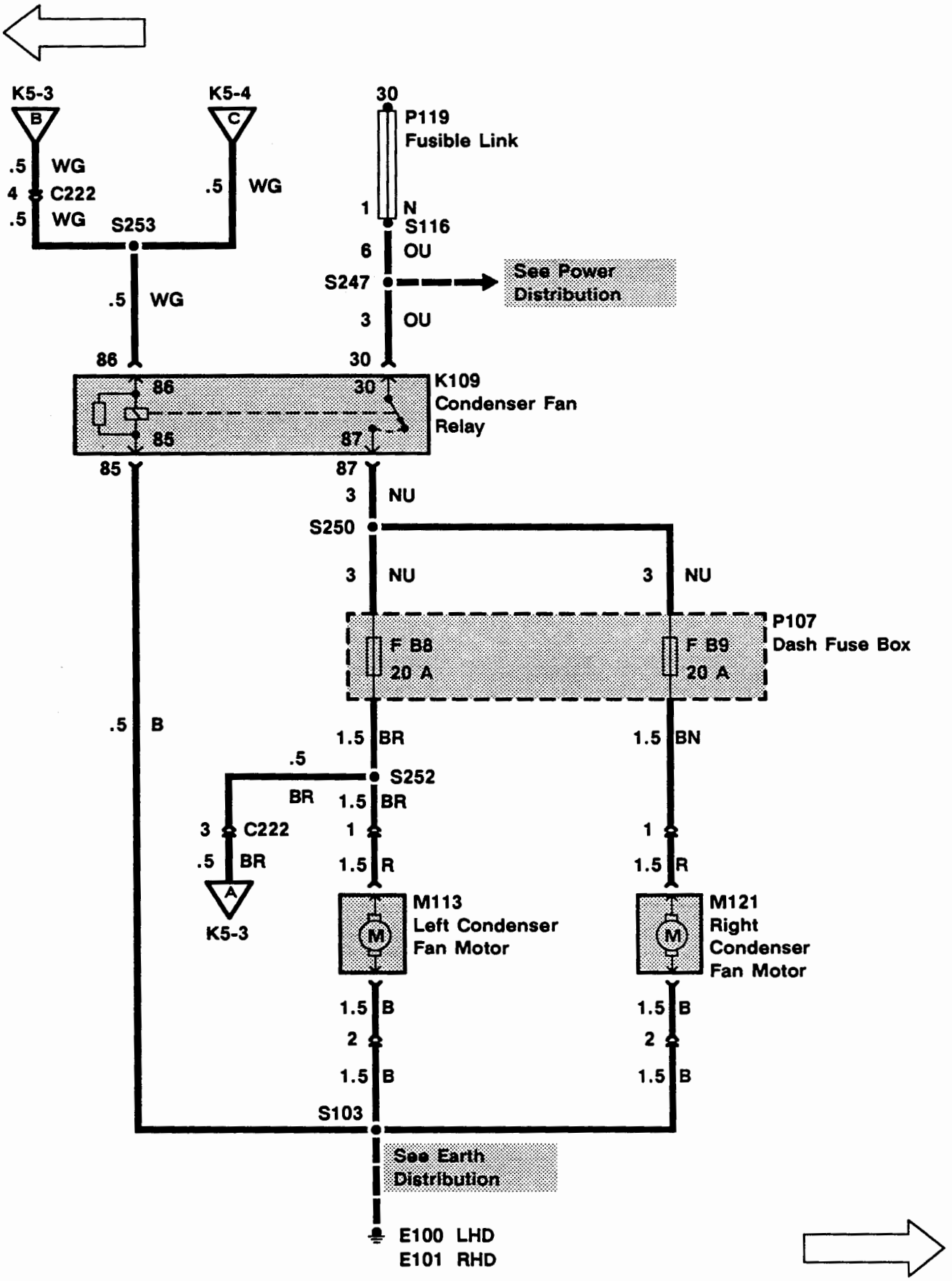

30
20 A
P111
Fuel Inject-
ion Fuse
3
N
S306
.5
Electronic
Fuel Injection
(EFI)
.5
N
3
N
N
86
30
K116
Fuel Injection
Load Relay
85
87
87
4
3
5
3
NO
Electronic
Fuel Injection
(EFI)
S311
K5-5
A
.5
UR
.5
NO
.5
BR
2
4
15
Z118
Condenser Fan
Timer Unit
31
31
5
6
8
.5
B
K5-5
.5
BG
WG
12
36
Z132
Fuel Injection
ECU
.5
BR
S301
See Earth
Distribution
4
B
E100

K5 ETM

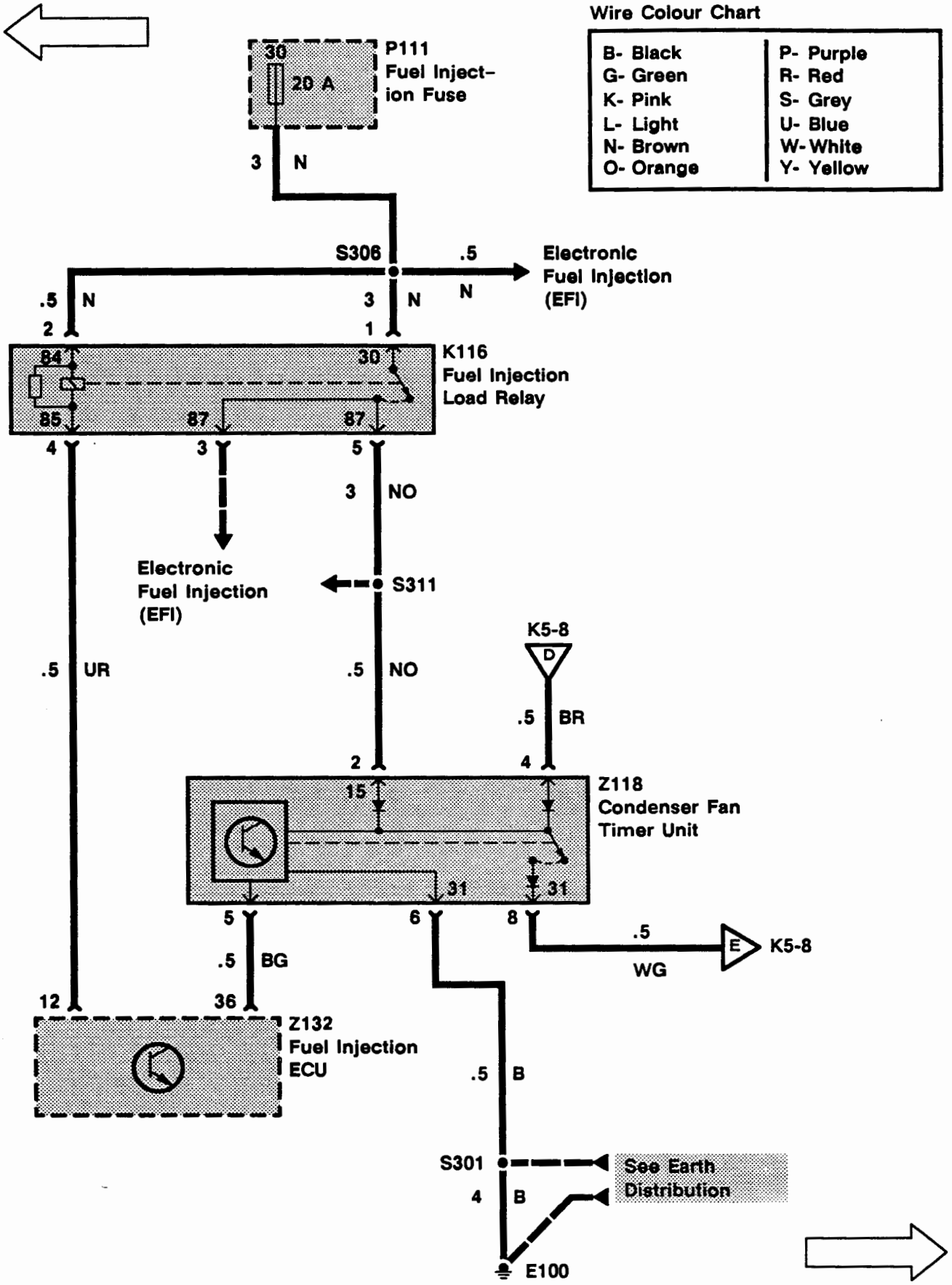
1992 RANGE ROVER

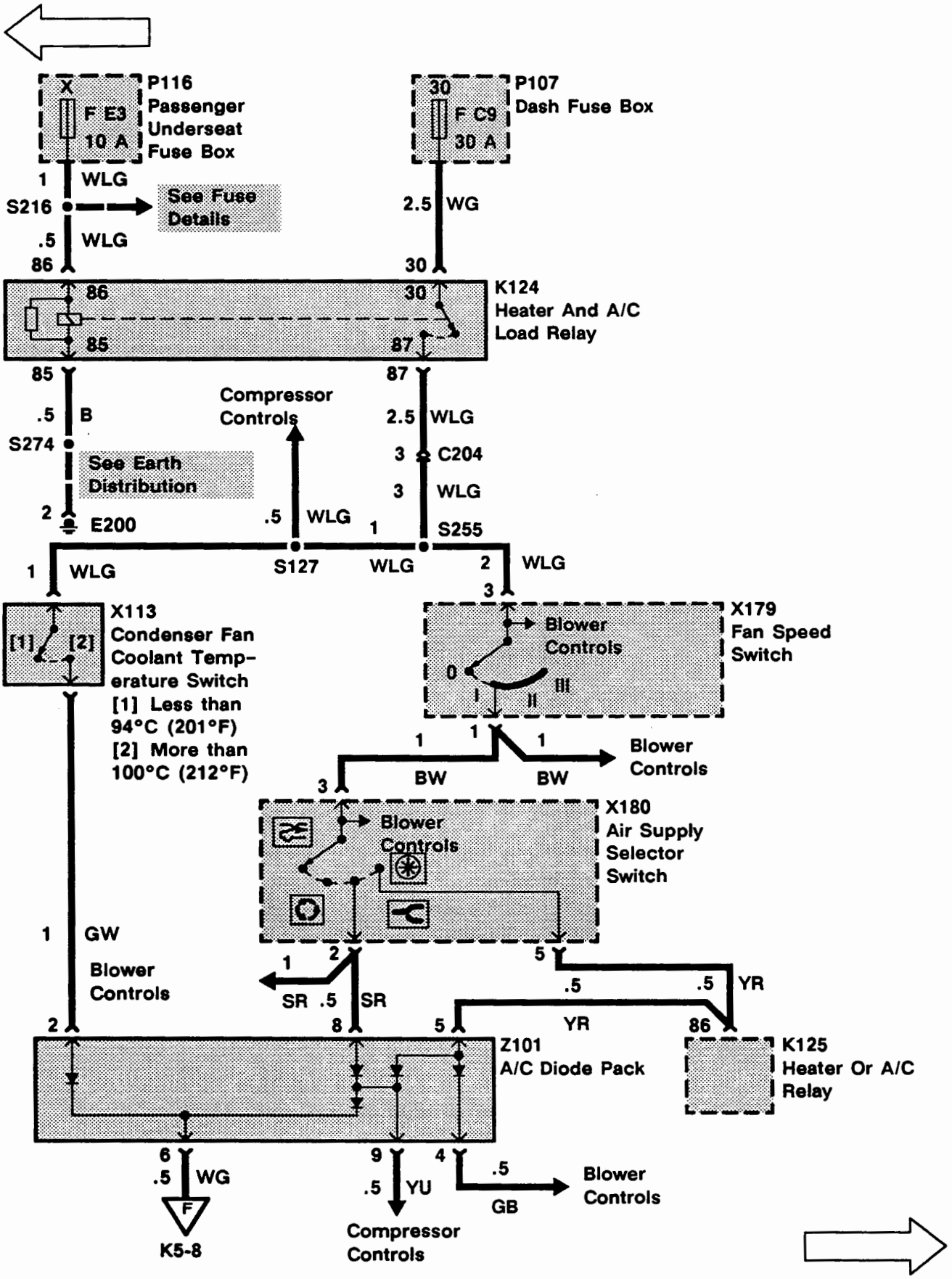



K5-3
B
.5 WG
4 C222
.5 WG
K5-4
C
.5 WG
S253
30
P119
Fusible Link
1 N
S116
6 OU
S247
See Power Distribution
3 OU
.5 WG
86
30
86
30
K109
Condenser Fan
Relay
85
87
85
87
3 NU
S250
3 NU
3 NU
P107
Dash Fuse Box
F B8
20 A
F B9
20 A
.5 B
1.5 BR
1.5 BN
.5
S252
BR
1.5 BR
3 C222
1
1
.5 BR
1.5 R
1.5 R
A
K5-3
M113
Left Condenser
Fan Motor
M121
Right
Condenser
Fan Motor
1.5 B
2
1.5 B
1.5 B
2
1.5 B
S103
See Earth Distribution
E100 LHD
E101 RHD

K5 ETM

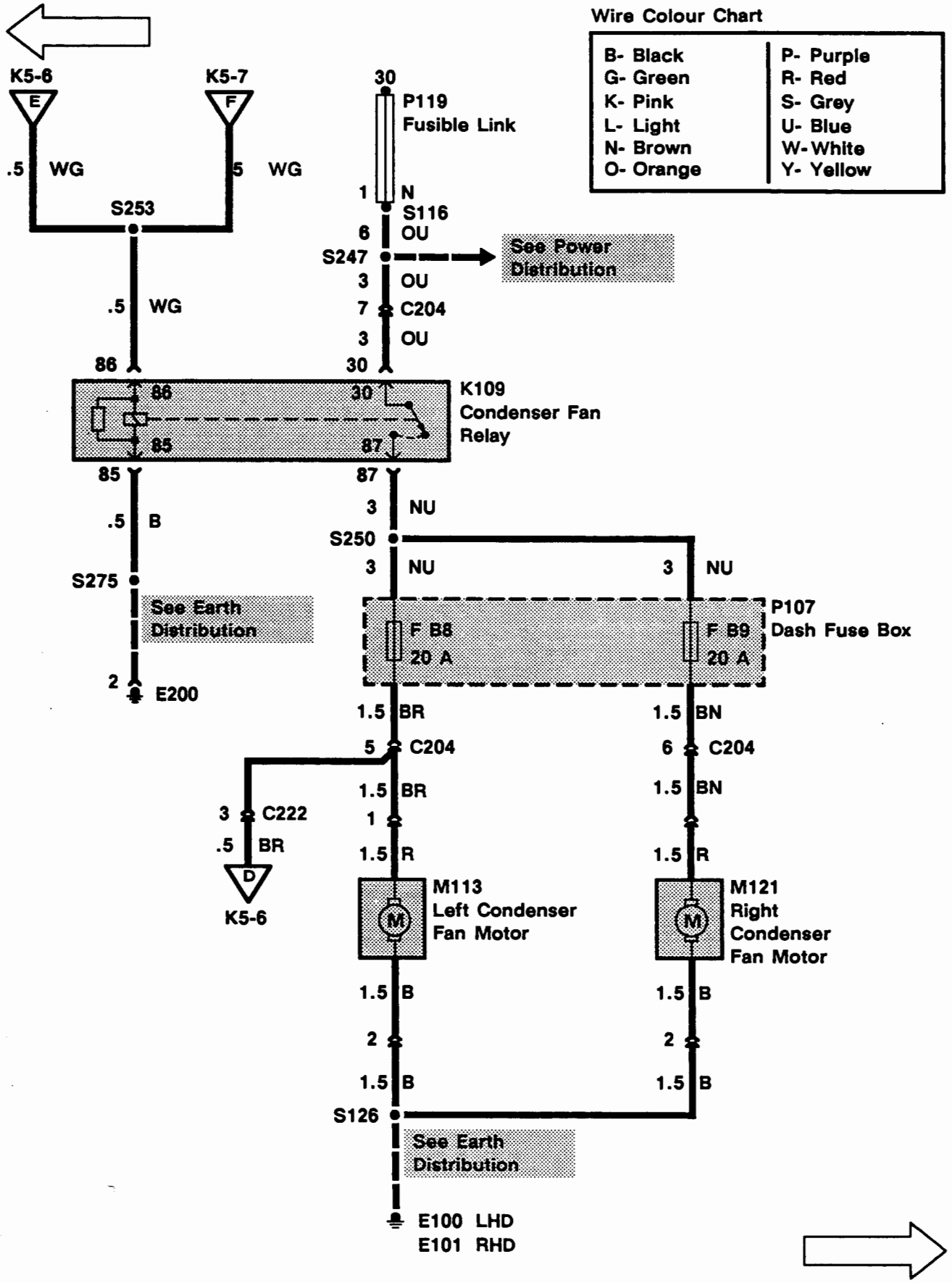
1992 RANGE ROVER

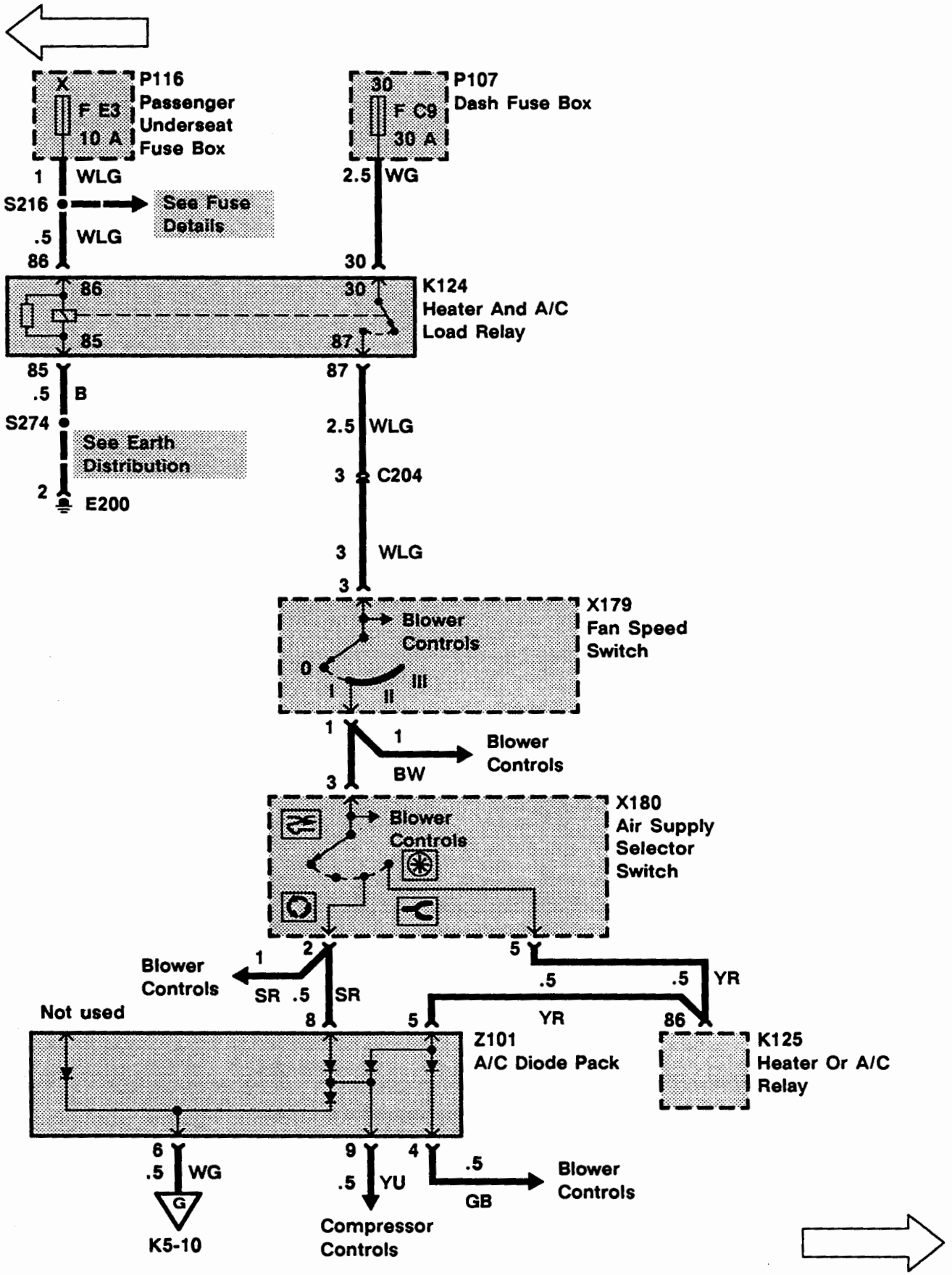



X
F E3
10 A
P116
Passenger
Underseat
Fuse Box
30
F C9
30 A
P107
Dash Fuse Box
1
WLG
S216
See Fuse
Details
.5
WLG
86
2.5
WG
30
86
85
86
30
87
K124
Heater And A/C
Load Relay
85
.5
B
S274
See Earth
Distribution
2
E200
Compressor
Controls
.5
WLG
87
2.5
WLG
3
C204
3
WLG
1
S255
1
WLG
S127
WLG
2
WLG
3
[1]
[2]
X113
Condenser Fan
Coolant Temp-
erature Switch
[1] Less than
94°C (201°F)
[2] More than
100°C (212°F)
Blower
Controls
0
I
II
III
X179
Fan Speed
Switch
1
1
1
BW
BW
Blower
Controls
3
Blower
Controls
X180
Air Supply
Selector
Switch
1
GW
Blower
Controls
1
2
SR
.5
SR
5
.5
.5
YR
2
8
5
YR
86
Z101
A/C Diode Pack
K125
Heater Or A/C
Relay
6
.5
WG
F
K5-8
9
.5
YU
Compressor
Controls
4
.5
GB
Blower
Controls

K5 ETM

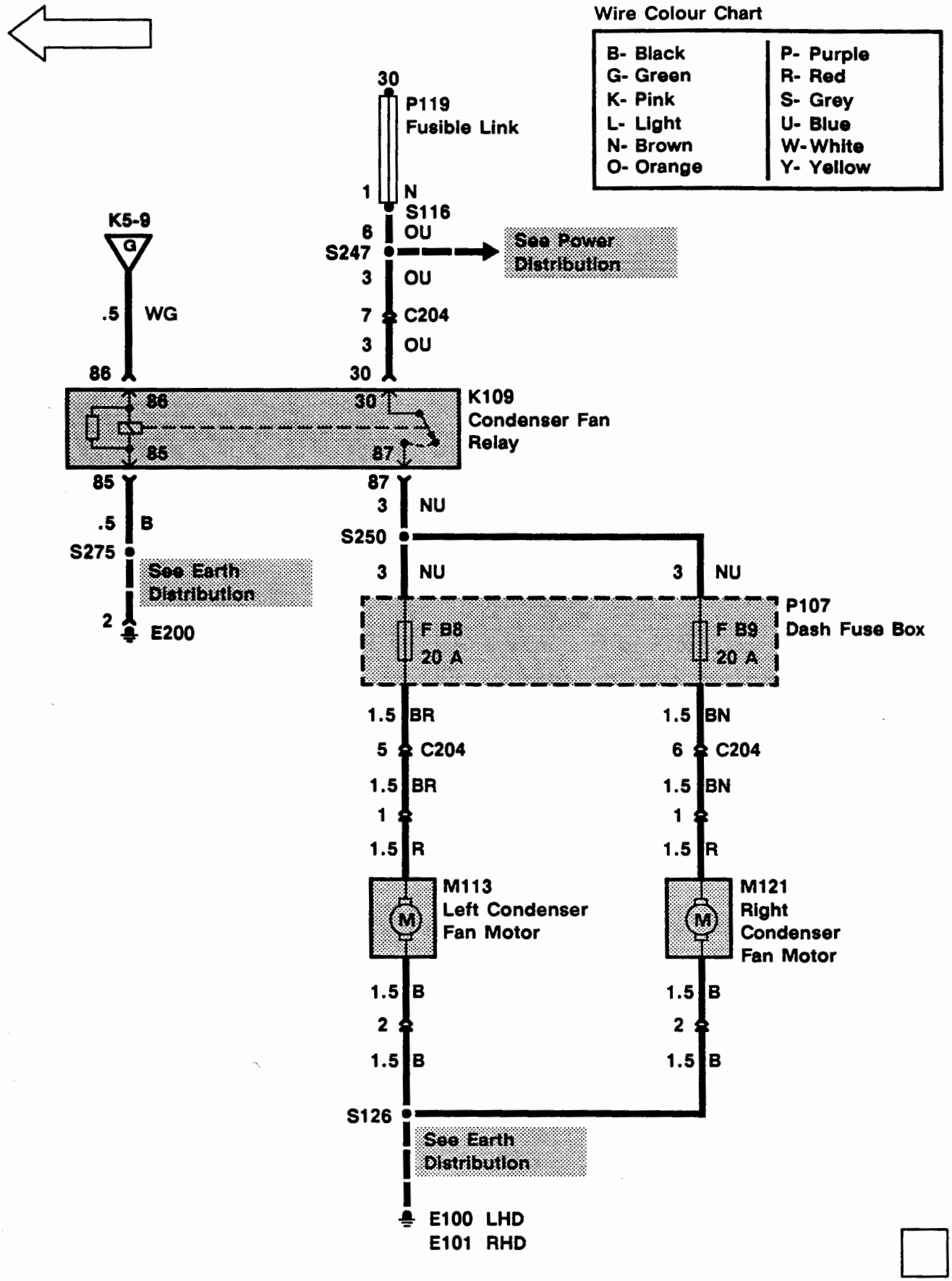
1992 RANGE ROVER




X
F E3
10 A
P116
Passenger
Underseat
Fuse Box
30
F C9
30 A
P107
Dash Fuse Box
1
WLG
S216
See Fuse
Details
.5
WLG
86
2.5
WG
30
86
85
30
87
K124
Heater And A/C
Load Relay
85
.5
B
S274
See Earth
Distribution
2
E200
87
2.5
WLG
3
C204
3
WLG
3
Blower
Controls
0
I
II
III
X179
Fan Speed
Switch
1
1
BW
Blower
Controls
3
Blower
Controls
X180
Air Supply
Selector
Switch
2
1
Blower
Controls
SR
.5
SR
8
5
.5
YR
.5
YR
5
86
Not used
Z101
A/C Diode Pack
K125
Heater Or A/C
Relay
6
.5
WG
G
K5-10
9
.5
YU
Compressor
Controls
4
.5
GB
Blower
Controls

K5 ETM

1992 RANGE ROVER



SYSTEM DIAGNOSIS

1. If the Condenser Fans do not turn on when the A/C is turned on, do Test A, the Condenser Fan Relay (K109) test.
2. If only one of the Condenser fans operate, do Test C, 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 D, the Condenser Fan Coolant Temperature Switch (X113) test.
4. 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 E, the Condenser Fan Timer Unit (Z118) Test.
5. If the Condenser fans stay on for more than 10 minutes after the ignition has been turned off, do Test F.

K5 ETM

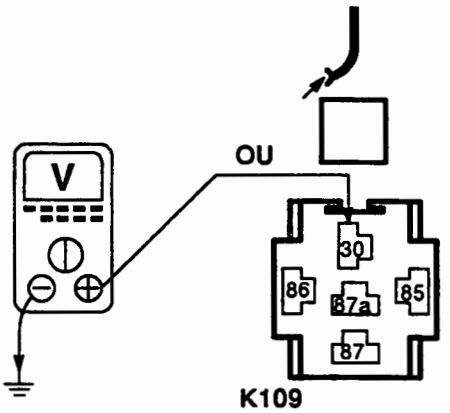
1992 RANGE ROVER

Test A

1A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
BAT VOLT



K109
Condenser Fan
Relay

OK **PROBLEM CAUSE**
- Fusible Link
- OU Wire

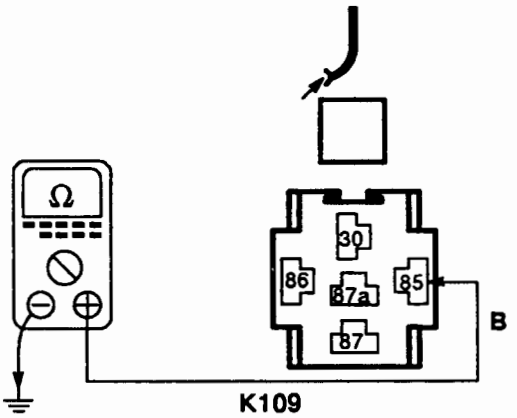
OK

2A

2A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 1 ohm



K109
Condenser Fan
Relay

OK **PROBLEM CAUSE**
- B Wire

OK

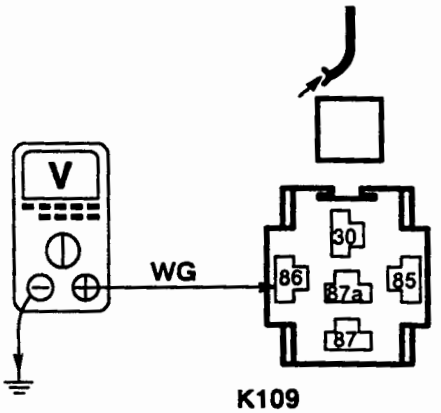
3A

2A

3A

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



K109 Condenser Fan Relay

OK **GO TO TEST B**

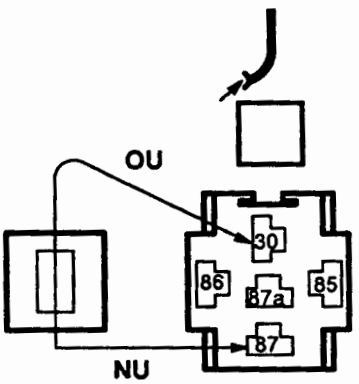
OK

4A

4A

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
- **M113, M121 Condenser Fan Motors**
  Operate



K109 Condenser Fan Relay

OK **PROBLEM CAUSE**
- **NU Wire**

OK **PROBLEM CAUSE**
- **Condenser Fan Relay**

K5 ETM

Test B

1B

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
- **Compressor Clutch**
  ON
- **A/C Blower Motors**
  ON

OK **GO TO SECTION K1**

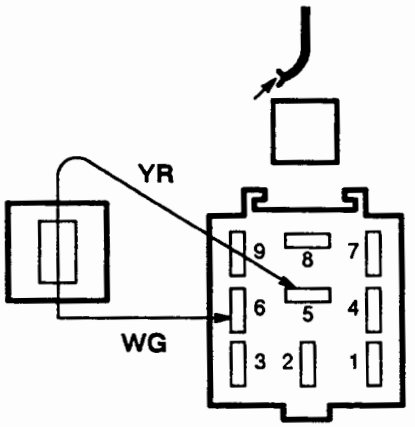
OK

2B

2B

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
- **M113, M121 Condenser Fan Motors**
  Operate



Z101
A/C Diode Pack

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

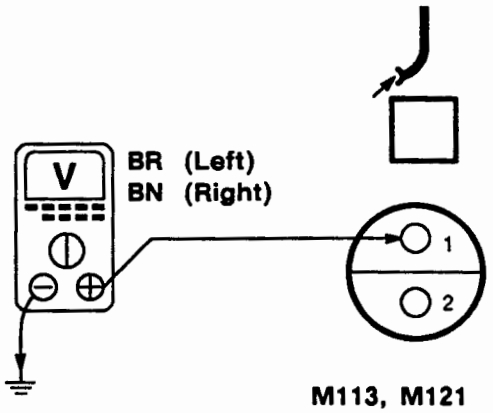
OK **PROBLEM CAUSE**
- **A/C Diode Pack**

Test C

1C

CONDITIONS
- **Ignition Switch**
  Position: II
- **Fan Speed Switch**
  Position: I
- **Air Supply Selector Switch**
  A/C mode

RESULTS
BAT VOLT



M113, M121 Condenser Fan Motor

OK **PROBLEM CAUSE**
- F B8/F B9 Fuse
- BR/BN Wire

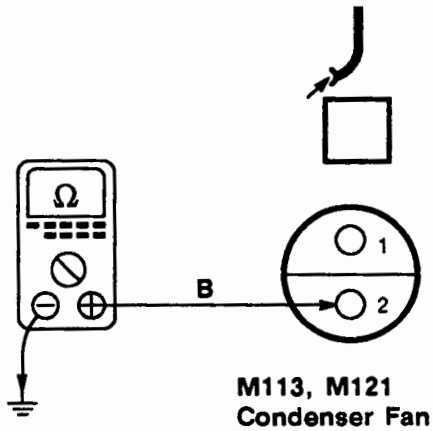
OK

2C

2C

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 1 ohm



M113, M121 Condenser Fan Motor

OK **PROBLEM CAUSE**
- B Wire
- E100 (LHD)
- E101 (RHD)

OK **PROBLEM CAUSE**
- M113, M121 Condenser Fan Motor

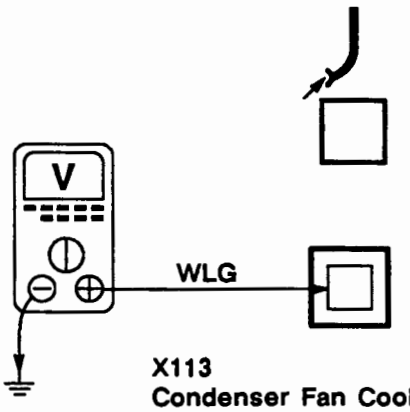
K5 ETM

Test D

1D

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



X113
Condenser Fan Coolant Temperature Switch

OK **PROBLEM CAUSE**
- **WLG Wire**

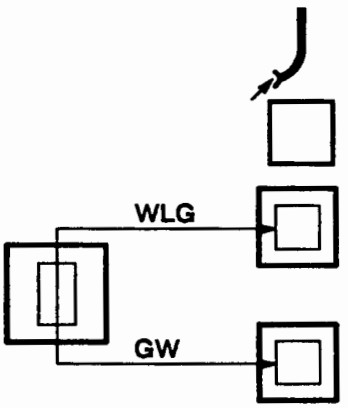
OK

2D

2D

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
- **M113, M121 Condenser Fan Motors**
  Operate



X113
Condenser Fan Coolant Temperature Switch

OK **PROBLEM CAUSE**
- **GW Wire**
- **A/C Diode Pack**

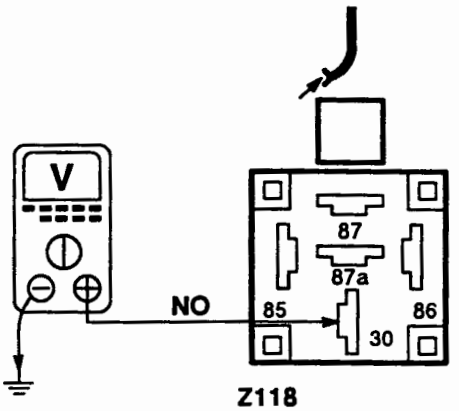
OK **PROBLEM CAUSE**
- **Condenser Fan Coolant Temperature Switch**

Test E

1E

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
BAT VOLT



Z118
Condenser Fan
Timer Unit

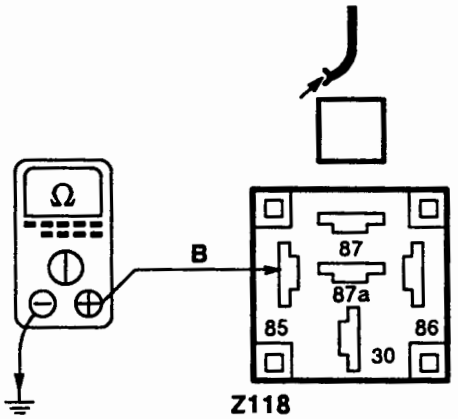
OK **PROBLEM CAUSE**
- **NO Wire**

OK → 2E

2E

CONDITIONS
- **Ignition Switch**
  Position: 0

RESULTS
Less than 1 ohm



Z118
Condenser Fan
Timer Unit

OK **PROBLEM CAUSE**
- **B Wire**
- **E100**

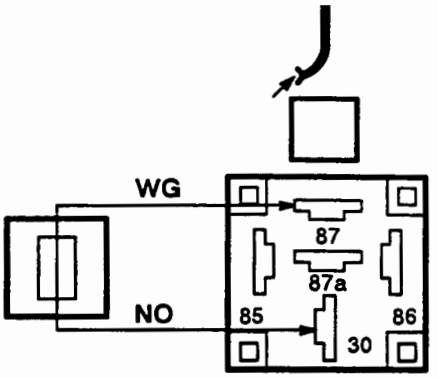
OK → 3E

2E

3E

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
- **M113, M121 Condenser Fan Motors**
  Operate



Z118
Condenser Fan
Timer Unit

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

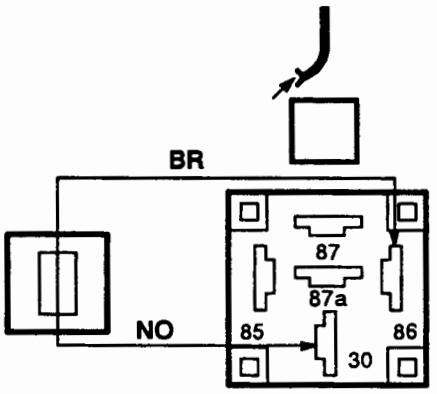
OK

4E

4E

CONDITIONS
- **Ignition Switch**
  Position: II

RESULTS
- **M113, M121 Condenser Fan Motors**
  Operate



Z118
Condenser Fan
Timer Unit

OK **PROBLEM CAUSE**
- **BR Wire**

OK

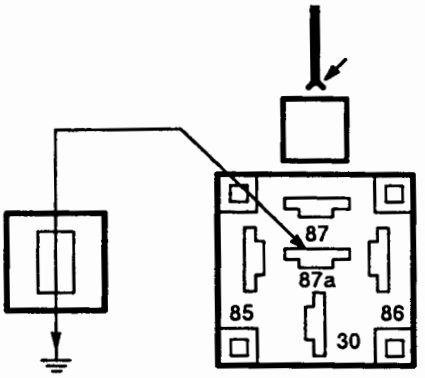
5E

4E

5E

CONDITIONS
1. Ignition Switch
   Position: II
2. A/C
   OFF
3. Ignition Switch
   Position: 0

RESULTS
Rear



Z118
Condenser Fan
Timer Unit

OK PROBLEM CAUSE
- Condenser Fan Timer Unit

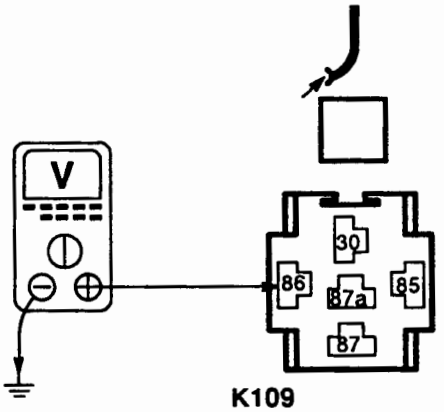
OK PROBLEM CAUSE
- BG Wire
- Fuel Injection ECU

Test F

1F

CONDITIONS
- Ignition Switch
  Position: 0
- Disconnect and reconnect
  Condenser Fan Timer Unit (Z118)

RESULTS
0V



K109
Condenser Fan
Relay

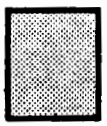
OK PROBLEM CAUSE
- WG Wire

OK PROBLEM CAUSE
- NU Wire
- Condenser Fan Relay

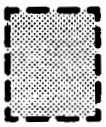
KEY INFORMATION

CIRCUIT DIAGRAMS

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

- 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