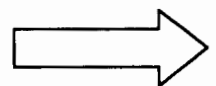
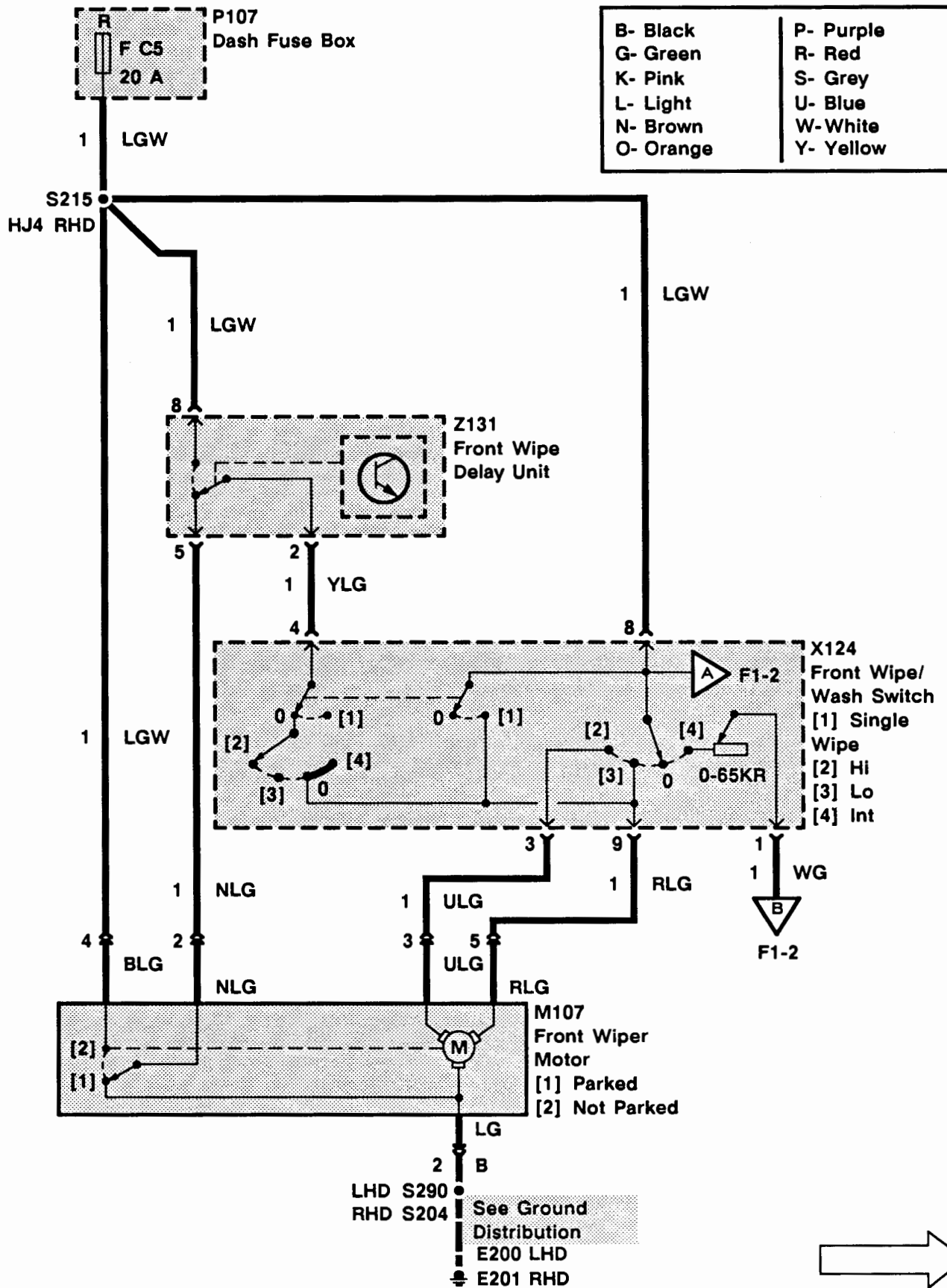
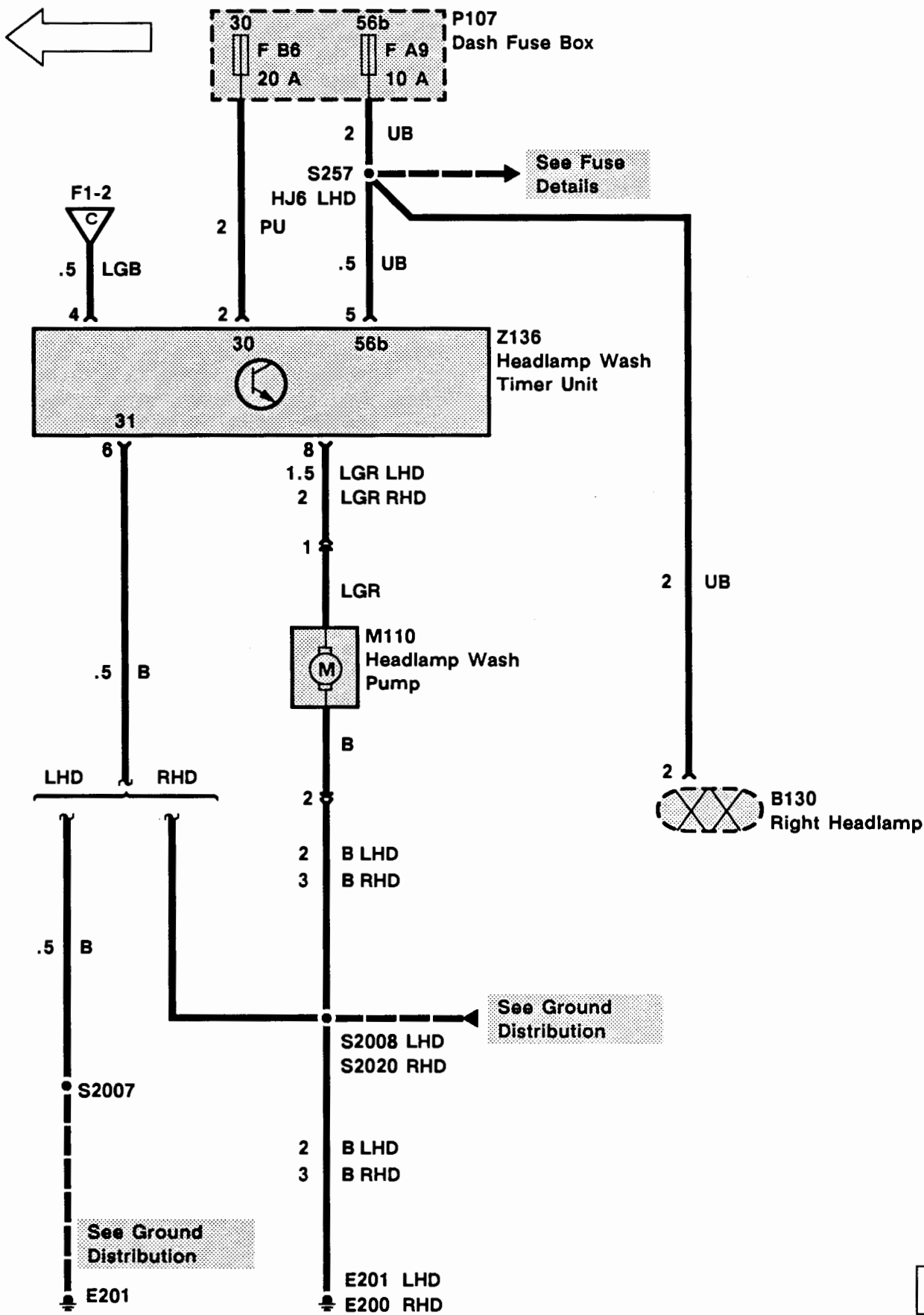


Wire Colour Chart

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





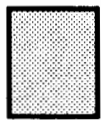
1993 RANGE ROVER

KEY INFORMATION

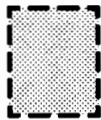
CIRCUIT DIAGRAMS

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

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

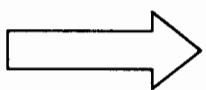
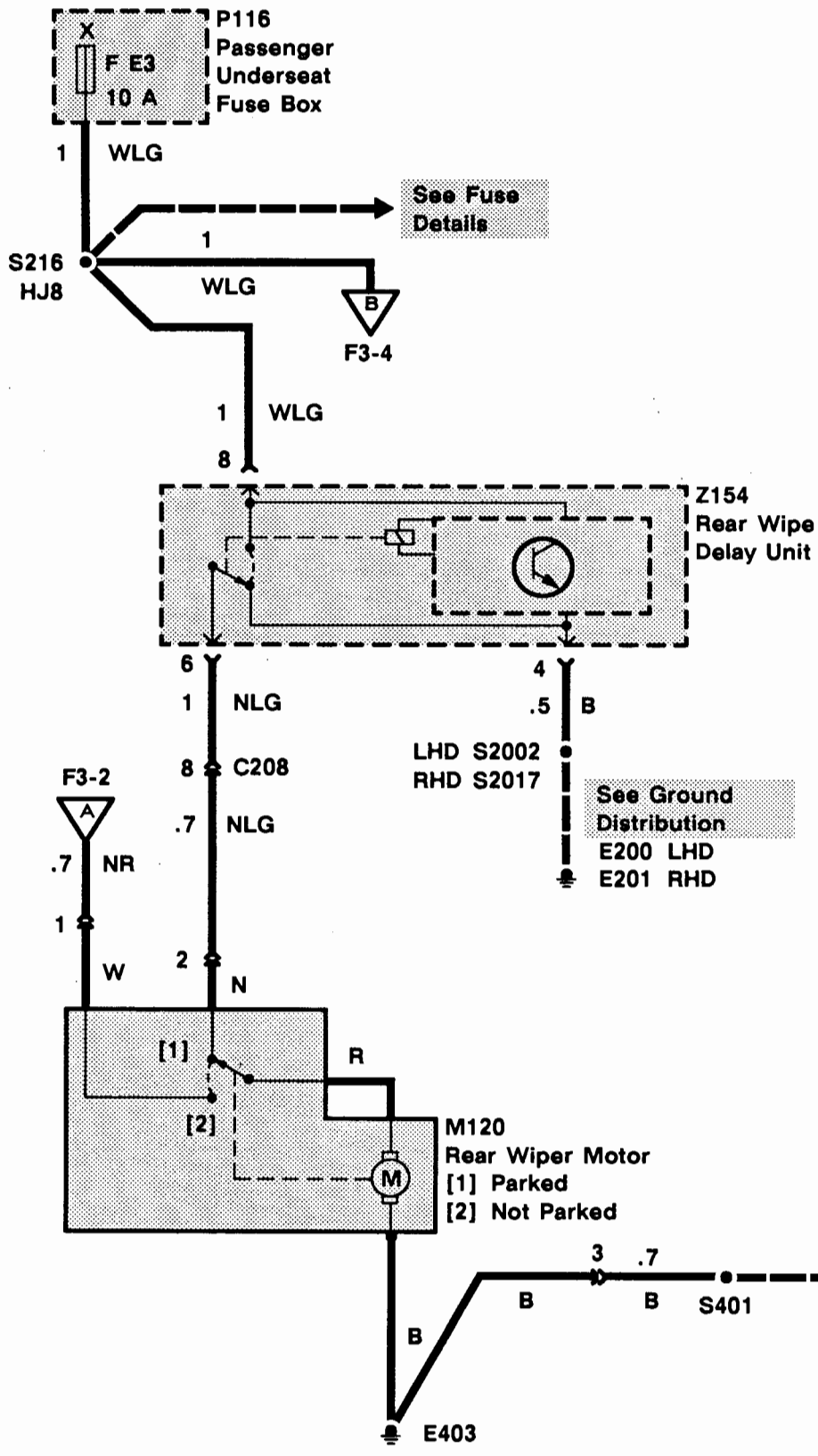
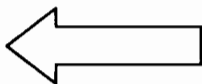
CIRCUIT OPERATION**Washer**

The Rear Screen Washer Pump (M119) motor is grounded at all times. The motor runs when battery voltage is applied to the motor through the Rear Wipe/Wash Switch (X155) when the switch is held in the WASH position.

Wiper

When the Rear Wipe/Wash Switch (X155) is pulled momentarily to the WIPE position, the Rear Wipe Delay Unit (Z154) applies battery voltage to the Rear Wiper Motor (M120). The motor leaves the PARK position and receives battery power from the 'ignition on' wire. The wiper then makes 2 sweeps across the rear screen every 10 seconds. When the switch is pulled momentarily to WIPE, the wiper makes 1 sweep across the rear screen and then stops when the motor's internal cam switch moves to the PARK position.

When the washer is requested, battery voltage is applied to the Rear Wipe Delay Unit (Z154). The unit applies battery voltage to the Rear Wiper Motor (M120) as described above. The motor runs as long as the switch is held in WASH or for a few sweeps across the screen. If the tailgate is open, the Tailgate Switch (X170) applies ground to the Interior Lamps Delay Unit (Z144). The Interior Lamps Delay Unit (Z144) then signals the Rear Wipe Delay Unit (Z154), which then removes battery voltage from the Rear Wiper Motor (M120).

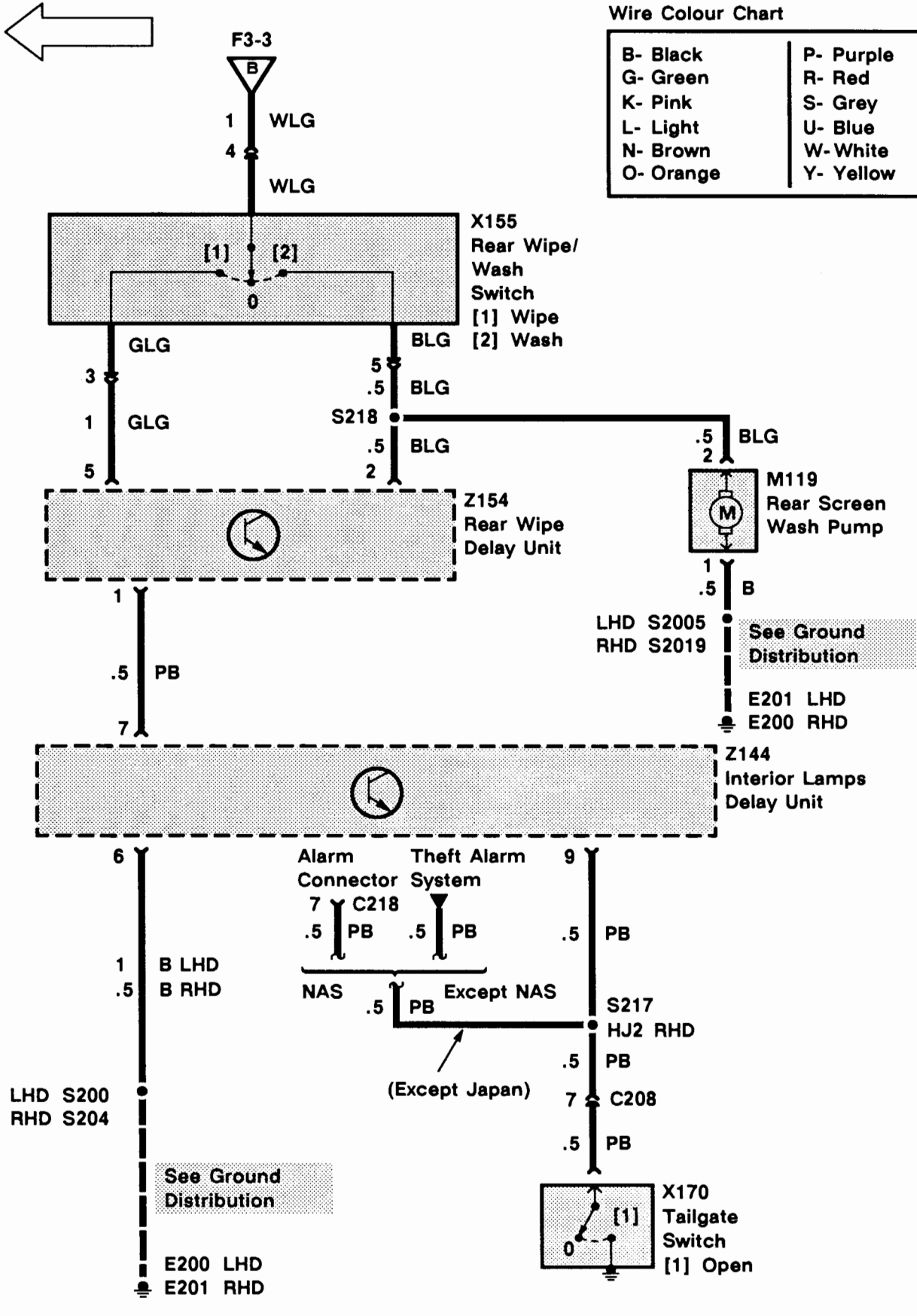


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1993 RANGE ROVER

Wire Colour Chart

| | |
|-----------|-----------|
| B- Black | P- Purple |
| G- Green | R- Red |
| K- Pink | S- Grey |
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| N- Brown | W- White |
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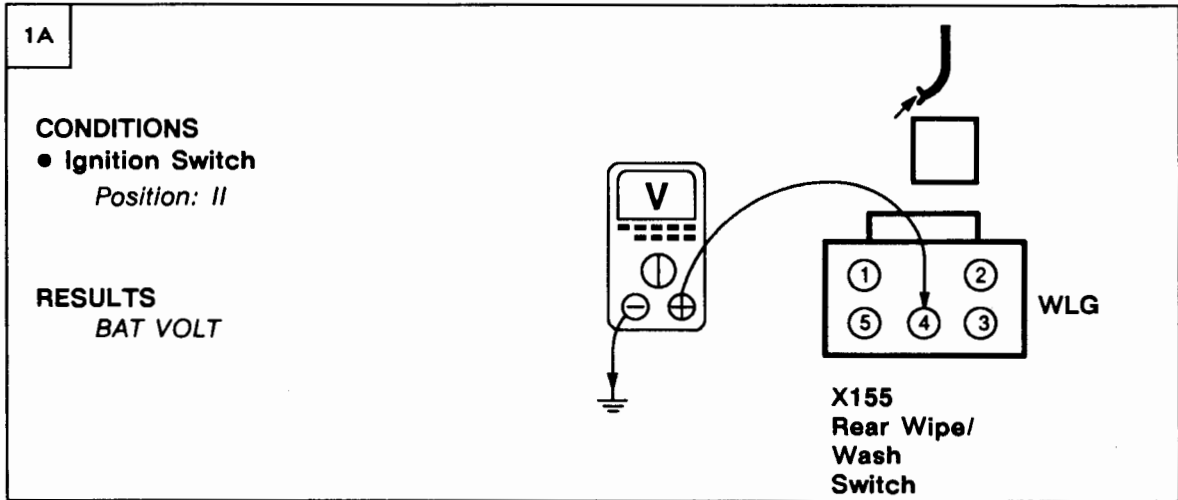
TROUBLESHOOTING HINTS

1. If the washer does not operate, check the washer fluid hoses for kinks or blockage.
2. If the wiper does not operate only when washer is requested, check BLG wire and Rear Wipe Delay Unit (Z154).
3. If the wiper operates with tailgate open, check Tailgate Switch (X170) and PB wires.
4. If the sunroof operates, see section L4, Sunroof.
5. If the washer runs continuously, replace the Rear Wipe/Wash Switch (X155).

SYSTEM DIAGNOSIS

1. If wiper and washer do not operate, do Test A.
2. If the wiper does not operate but washer and sunroof are OK, do Test B.
3. If the washer does not operate but wiper is OK, do Test C.
4. If the wiper runs with Rear Wipe/Wash Switch (X155) off, do Test D.

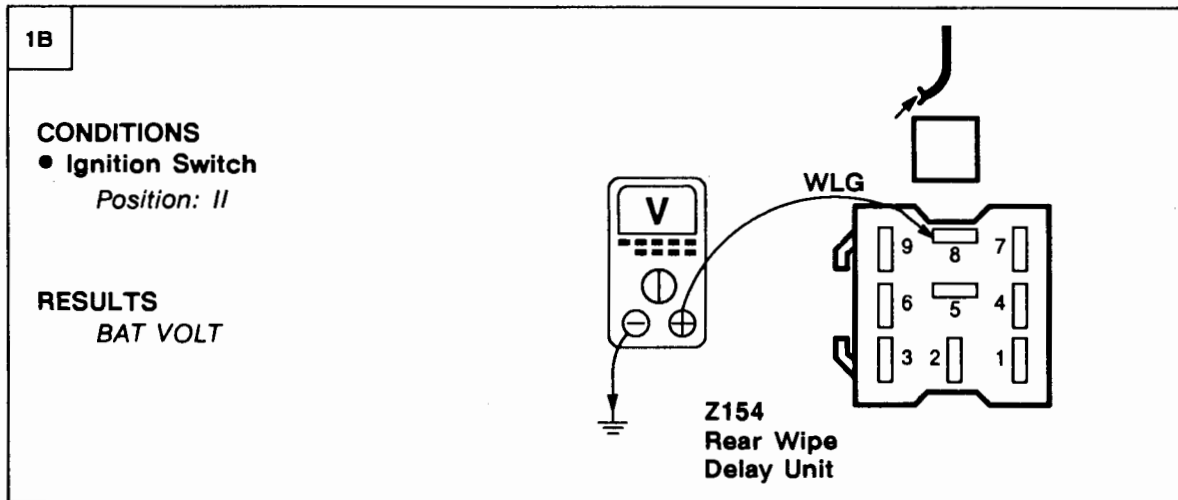
Test A



OK PROBLEM CAUSE
 - WLG Wire
 - F E3 Fuse

OK PROBLEM CAUSE
 - Rear Wipe/Wash Switch

Test B

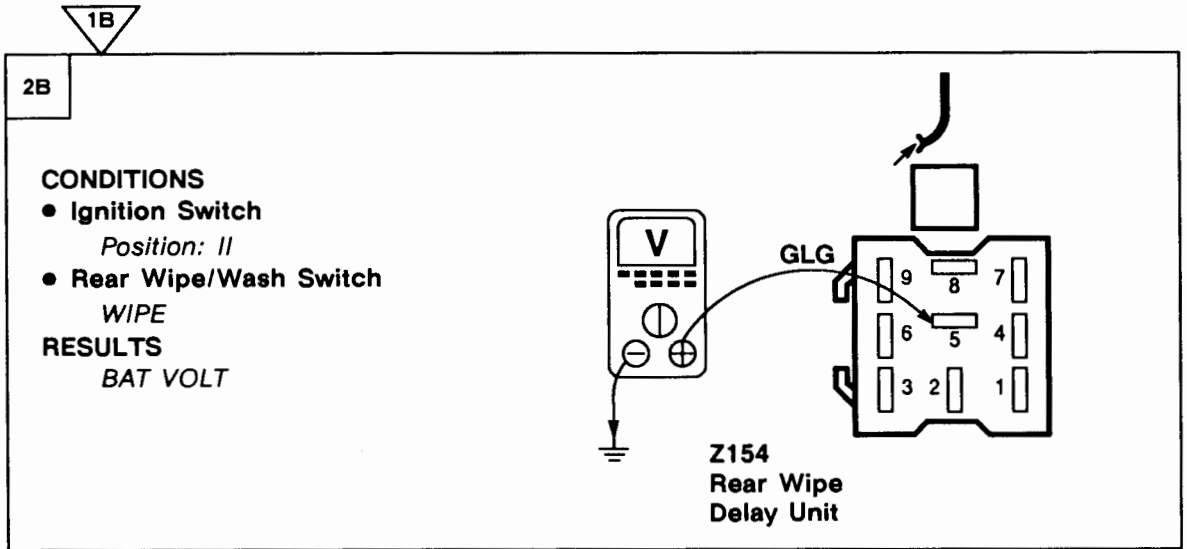


OK PROBLEM CAUSE
 - WLG Wire

OK

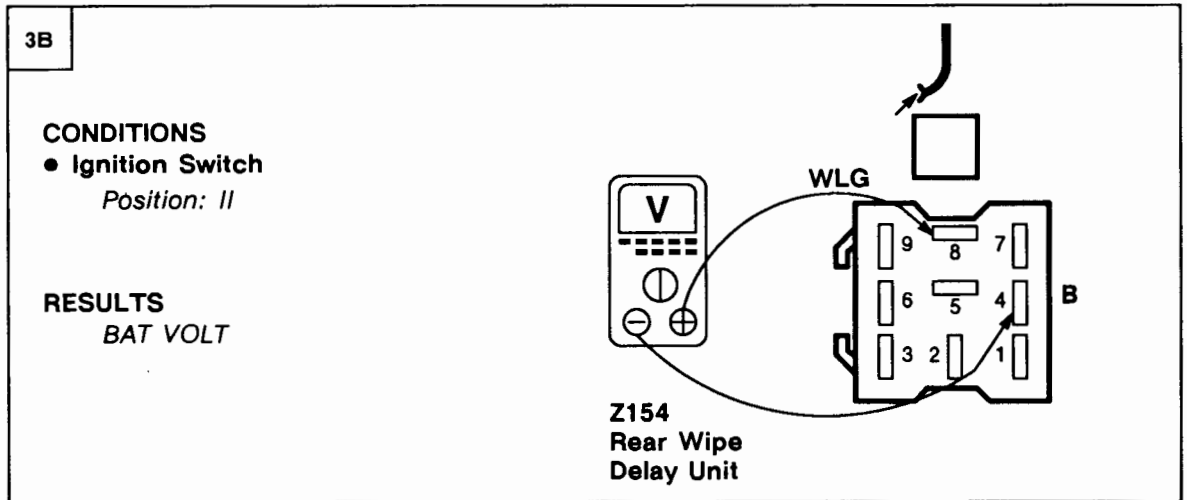
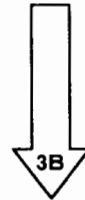
↓

2B



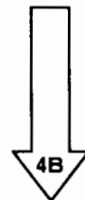
PROBLEM CAUSE

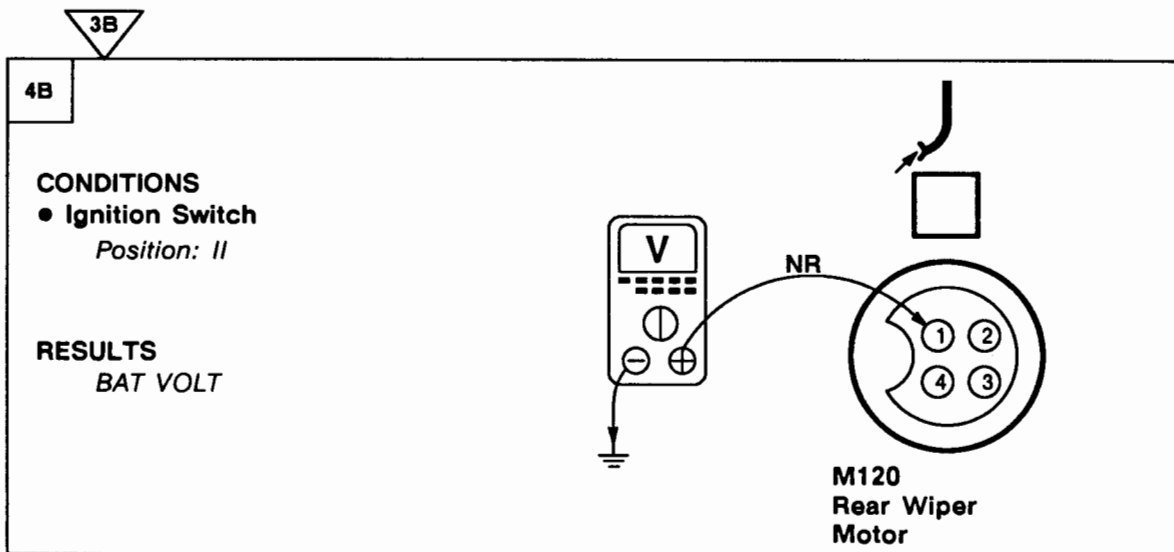
- GLG Wire
- Rear Wipe/Wash Switch



PROBLEM CAUSE

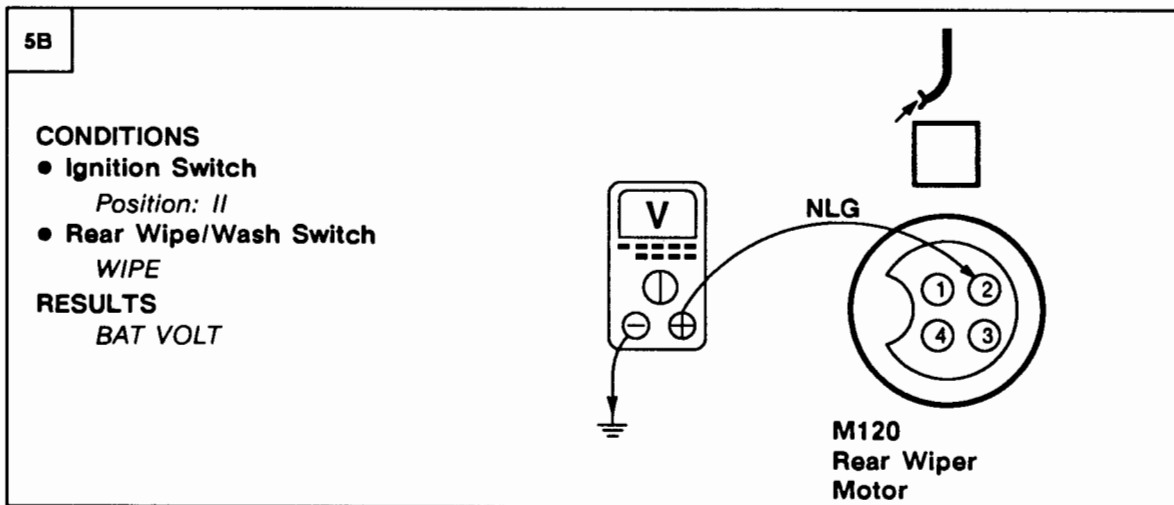
- B Wire





~~OK~~ **PROBLEM CAUSE**
- NR Wire

OK



~~OK~~ **PROBLEM CAUSE**
- NLG Wire
- Rear Wipe Delay Unit

OK **PROBLEM CAUSE**
- R Wire
- B Wire
- Rear Wiper Motor

Test C

1C

CONDITIONS

- Ignition Switch
Position: II
- Rear Wipe/Wash Switch
WASH

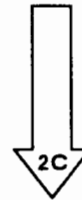
RESULTS
BAT VOLT

M119
Rear Screen
Wash Pump



PROBLEM CAUSE

- BLG Wire
- Rear Wipe/Wash Switch



2C

CONDITIONS

- Ignition Switch
Position: 0

RESULTS
Less than 2 ohms

M119
Rear Screen
Wash Pump



PROBLEM CAUSE

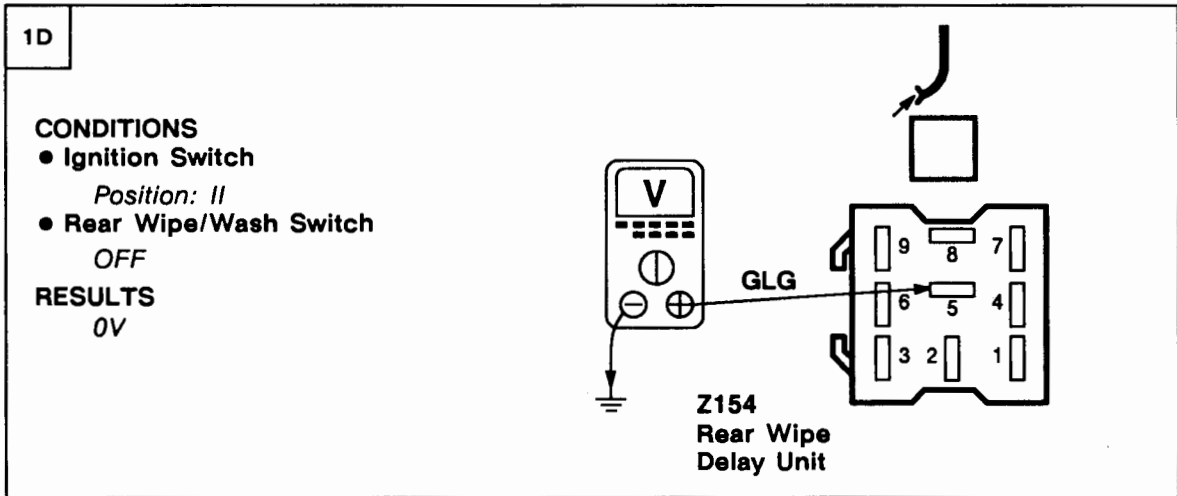
- B Wire



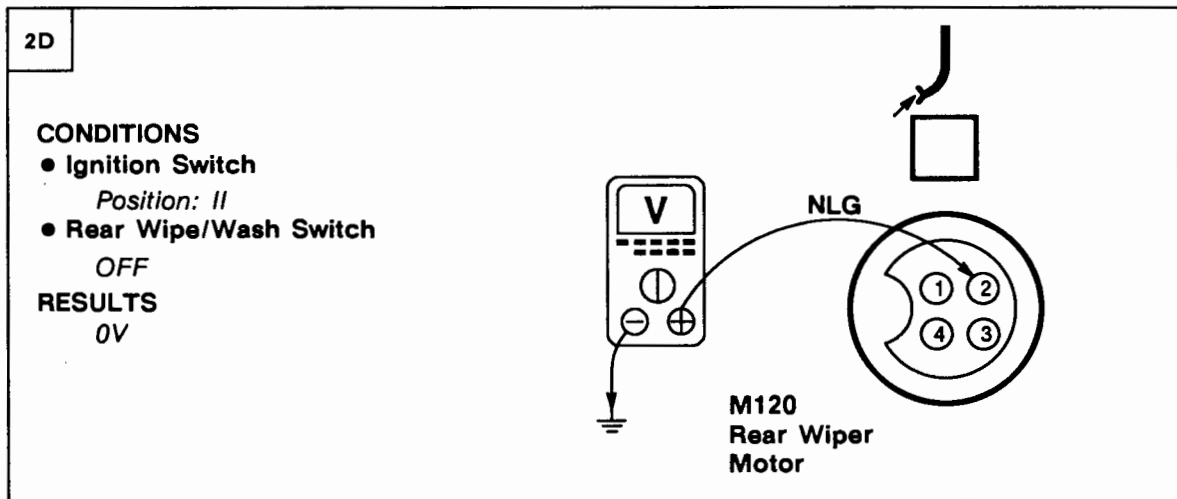
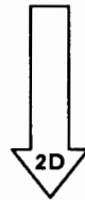
PROBLEM CAUSE

- Rear Screen Wash Pump

Test D



PROBLEM CAUSE
- Rear Wipe/Wash Switch



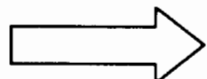
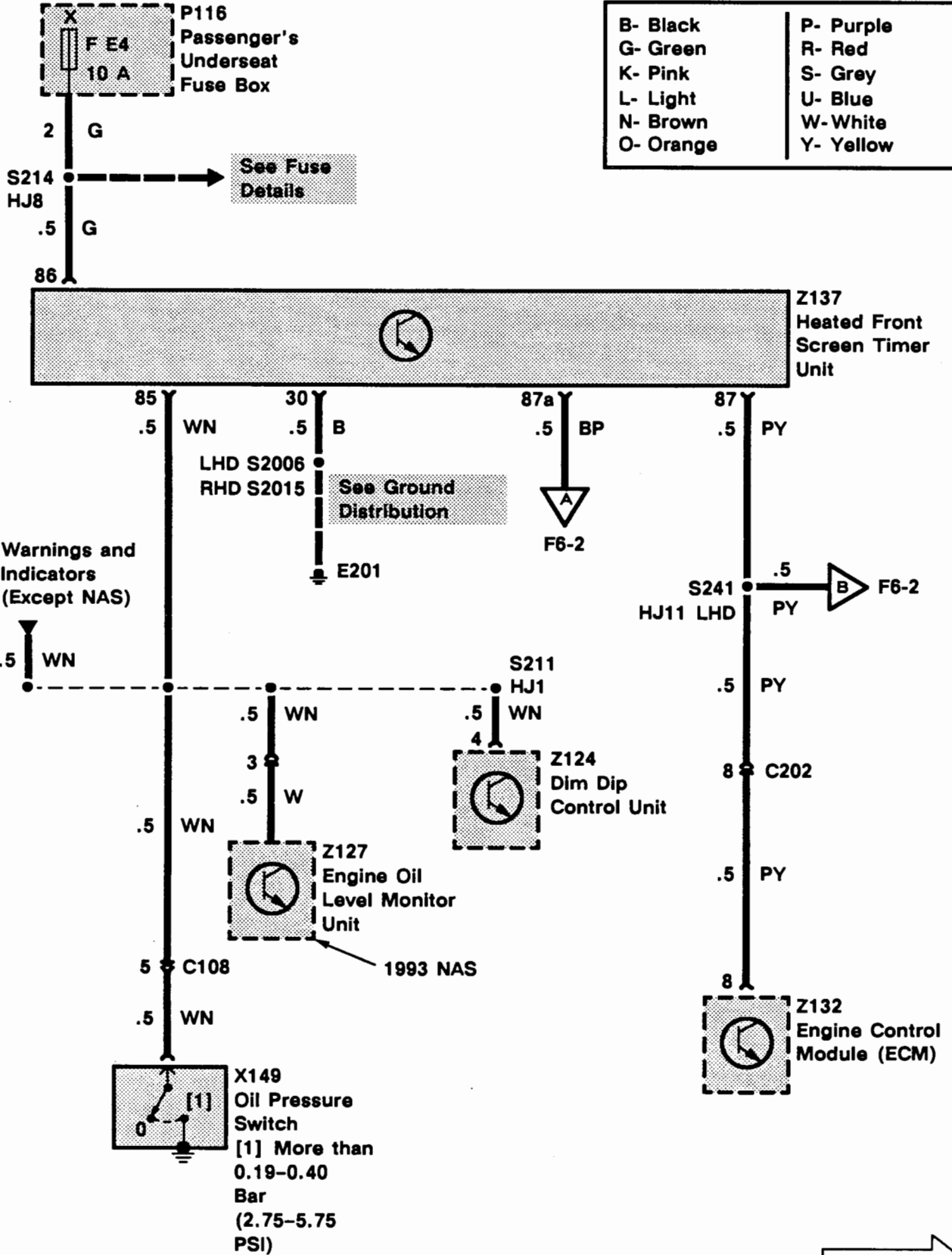
PROBLEM CAUSE
- Rear Wipe Delay Unit



PROBLEM CAUSE
- Rear Wiper Motor

Wire Colour Chart

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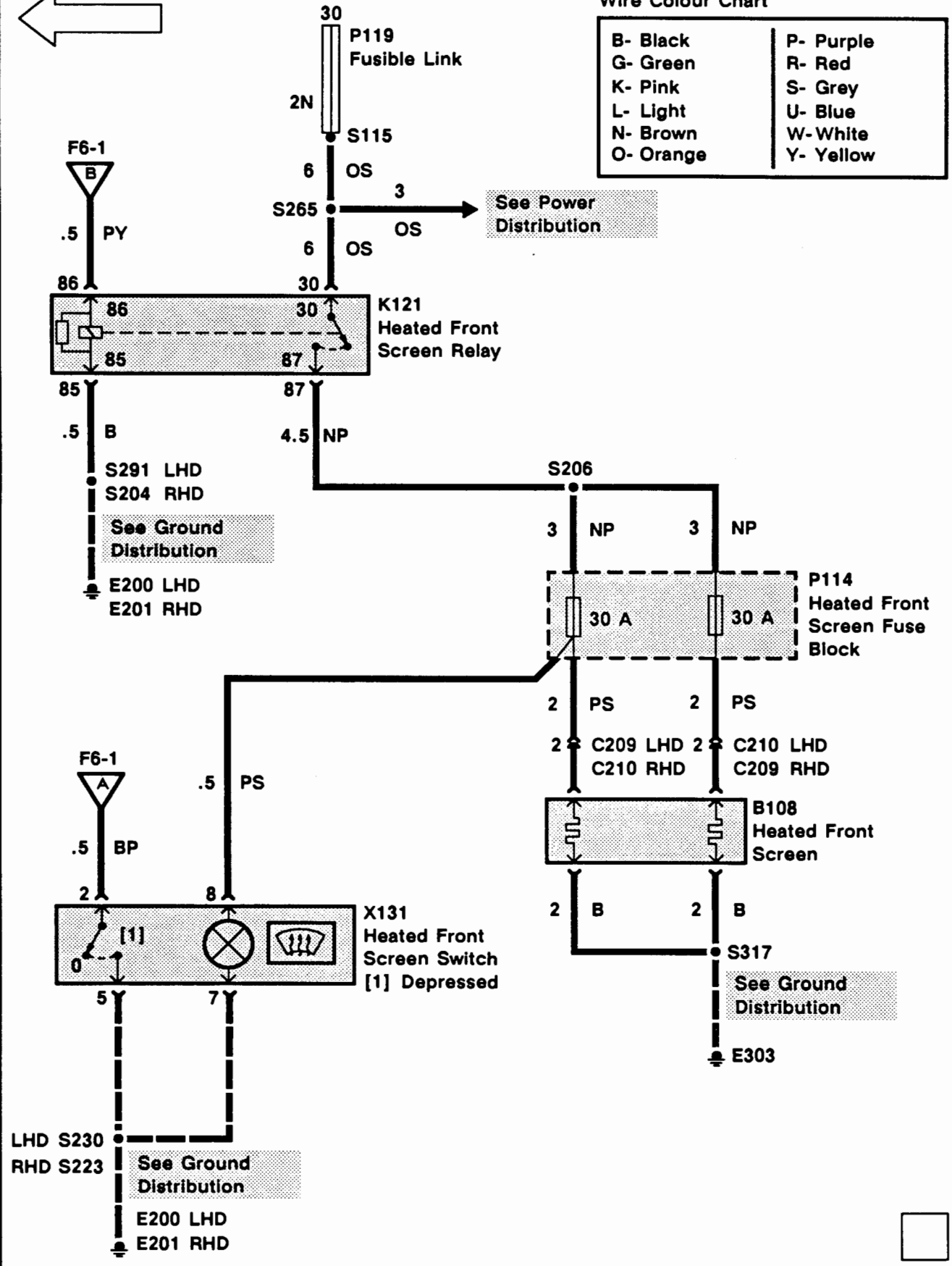
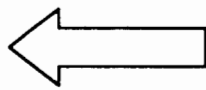
REV: AUG 93

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1993 RANGE ROVER

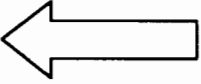
Wire Colour Chart

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Wire Colour Chart

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