

# Marlin 5EXi wiring loom

Version 5.24

Steve Gray  
15 August 2011  
© stsa.co.uk

<http://www.stsa.co.uk/projectEXi>

## Contents

Wiring notes, hints and tips .....	3
Notes.....	24
Figure 1 : Wiring route and overview .....	5
Figure 2 : Key.....	6
Figure 3 : Fuse Panel .....	7
Figure 4 : VAG Battery Fuse plate .....	8
Figure 5 : Starting and ignition system .....	9
Figure 6 : ECU Power.....	10
Figure 7 : ECU Donor Connections (Cheating Resistors).....	11
Figure 8 : Radiator Fan control .....	12
Figure 9 : Windscreen wipers & wash.....	13
Figure 10 : Wash/Wipe with Auto-Park .....	14
Figure 11 : Brake lights and warning system .....	15
Figure 12 : Reversing lights .....	16
Figure 13 : Side/Head/Main beam lights .....	17
Figure 14 : Horn and Fog Lights .....	18
Figure 15 : Indicator and Hazard lights .....	19
Figure 16 : HP & LP Fuel Pumps .....	20
Figure 17 : VAG Accelerator "Fly by Wire".....	21
Figure 18 : Dashboard gauges and warning lights .....	22
Figure 19 : Battery Isolator .....	23

## Wiring notes, hints and tips

- Be aware that as this is a 5EXi Kit Car loom, it is not possible to provide you with a 100% complete loom, each builder makes the car slightly differently to the next builder. This loom aims to get you started on what is seen by most builders as their most daunting task, even though it isn't!!
- Do not treat the bundle of wires as a single "lump". Each circuit is simple in its operation (Generally Power -> switch -> load -> ground). A load is a motor (as in fuel pump motor or radiator fan) or a lamp (headlight bulb). All are Simple circuits in reality; it is just there are lots of them.
- The loom is supplied in different sections for ease of understanding and installation of the loom in your kit car.

1 - Lighting circuit	White, Yellow, Purple wires
2 - Operational circuit	Red, Brownwires
3 - VAG specific circuits	Green wires
4 - Sensors and senders	Grey wires
5 – Fuse to Relay links	50cm long mix of colours
6 – Black wires	Ground connections
- All black wires are for Chassis Ground connections
- Each wire is a primary colour to quickly identify its function. Each coloured wire is also identified with a slide on wire marker to identify its role. **Be careful** that this does not fall off or get lost!! If you do lose it, you will have to work out what wire it is from the diagrams.
- Start with the operational circuits. Red wires provide power to different components, brown for vehicle components like radiator fan, fuel pumps, wipers etc. Lay this out as per the overview sheet.
- You may have more than one wire that is the same colour and same number, e.g.. Yellow 3 or Yellow 4 (indicator circuit, one for each indicator lamp). All these wires are connected to the same circuit, to minimise the length of the wire supplied these joins have been marked with tape labelled "JOIN". You should connect together with a suitable connection, preferably solder and heat shrink..

- Overlay the lighting circuits loom, white wires are for white lights, yellow for indicators (yellow lamps) purple for red lamps (brake, fog etc except for reverse lamp & front side lamps which are paired up with the rear side lights)
- Overlay the VAG wires, (Green for VAG fly-by-wire, grey for sensor pickups).
- The loom package supplied contains a number of short (50cm) coloured and labelled wires. Use these, and any off cuts remaining to connect fuses to relay.
- Identify suitable points for the chassis ground, a minimum of 2 are required. One at the rear of the car (Near the battery, rear bulkhead) and one at the front (Front bulkhead). For each circuit that requires a ground connection, use a black wire (at least the same size as the supply) and connect to the earth point. E.g. 2mm thick white wire for the headlights should have a 2mm thick black wire to the ground point). Black wires are not supplied cut, so you can determine what you feel is the most suitable places for your chassis grounds. Depending on where you locate the ground connections you may need additional black wiring.
- An alternative to the individual cable runs for chassis ground is to use a larger main cable (4mm<sup>2</sup>) and run one length through the main bulk of the loom, then use smaller (1 or 2mm<sup>2</sup>) sections supplied and connect these to the larger ground. This would make your loom lighter and simpler. But involves more a little more work to make the connections.
- You may need to extend the wires supplied, in which case solder the joint and cover with heat shrink.
- Remove the tape holding the individual parts of the loom together and replace with your own fixing (every 15cm or so) to hold ALL the wires in place.
- It is also advised that you wrap the loom with loom tape to protect the wiring once it is installed and all circuits are operating correctly
- Crimped joints are acceptable, but soldered joints are better, as they also prevent water ingress and premature ageing/failing of the joint.
- It is recommended that you obtain a copy of ELSA Win (VAG service manual) and check ALL connections for your engine type
  
- A later version of the wiring diagrams may be available from <http://www.stsa.co.uk/content/projectExi>,

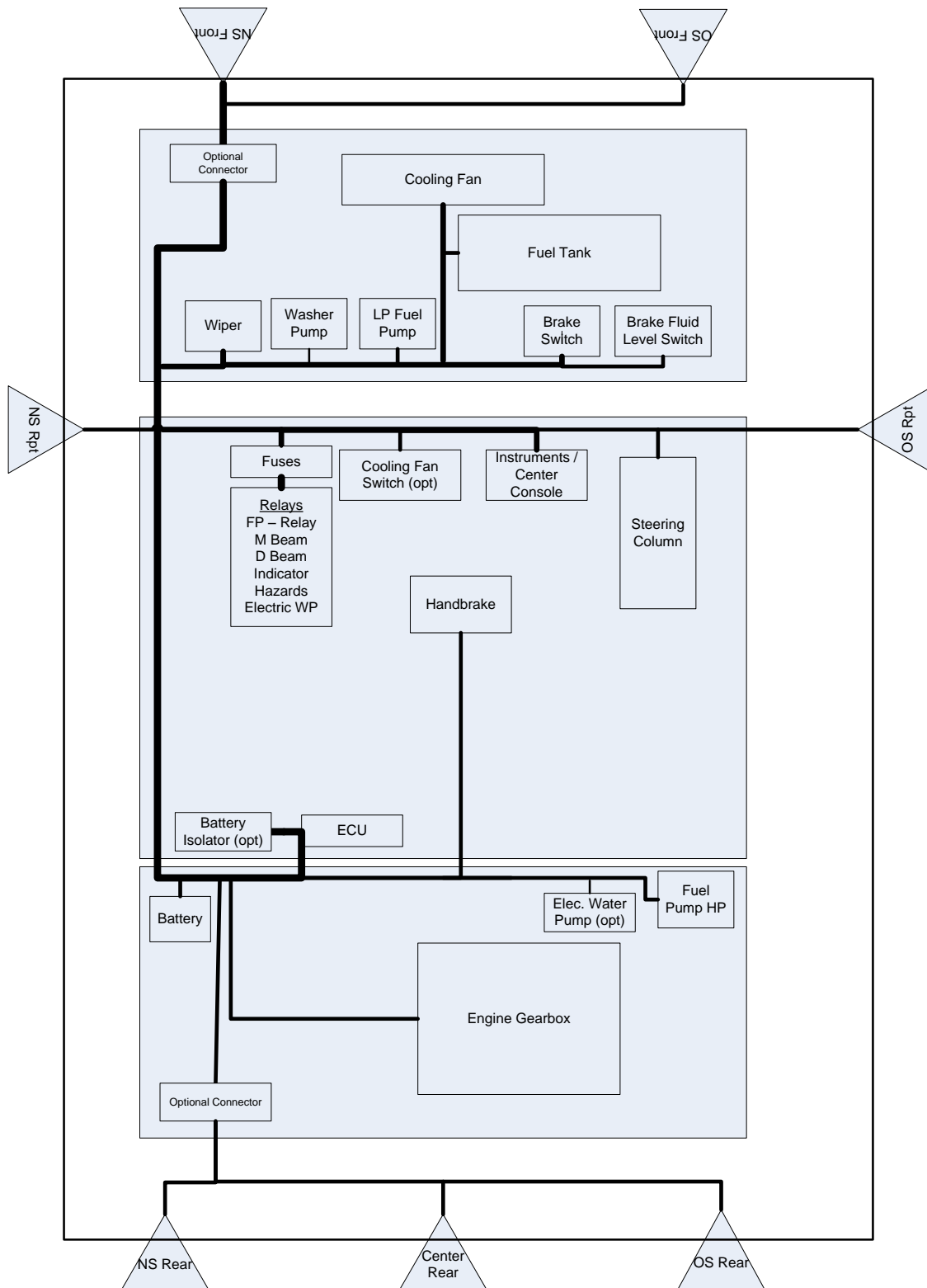
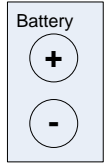
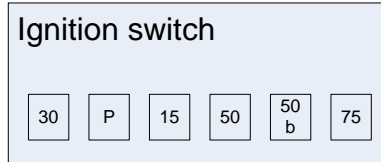


Figure 1 : Wiring route and overview

--- Outline of BodyWork  
 - - - Optional item (Not part of standard loom)



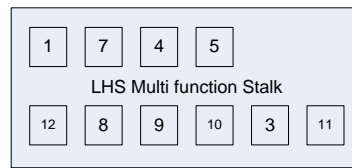
Vehicle battery



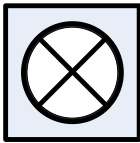
VAG Ignition switch



Yellow Lamp



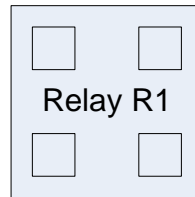
VAG LHS steering  
 colum stalk  
 (Indicators/Main  
 Beam)



White Lamp



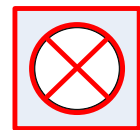
Green Lamp



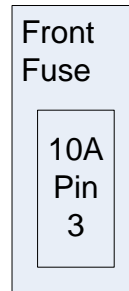
4 Pin Make/Break relay



Blue Lamp



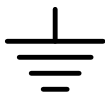
Red Lamp



Blade Fuse holder  
 Location and rating



Electronic Guage



Chassis earth



Wire colour and Identity

Figure 2 : Key

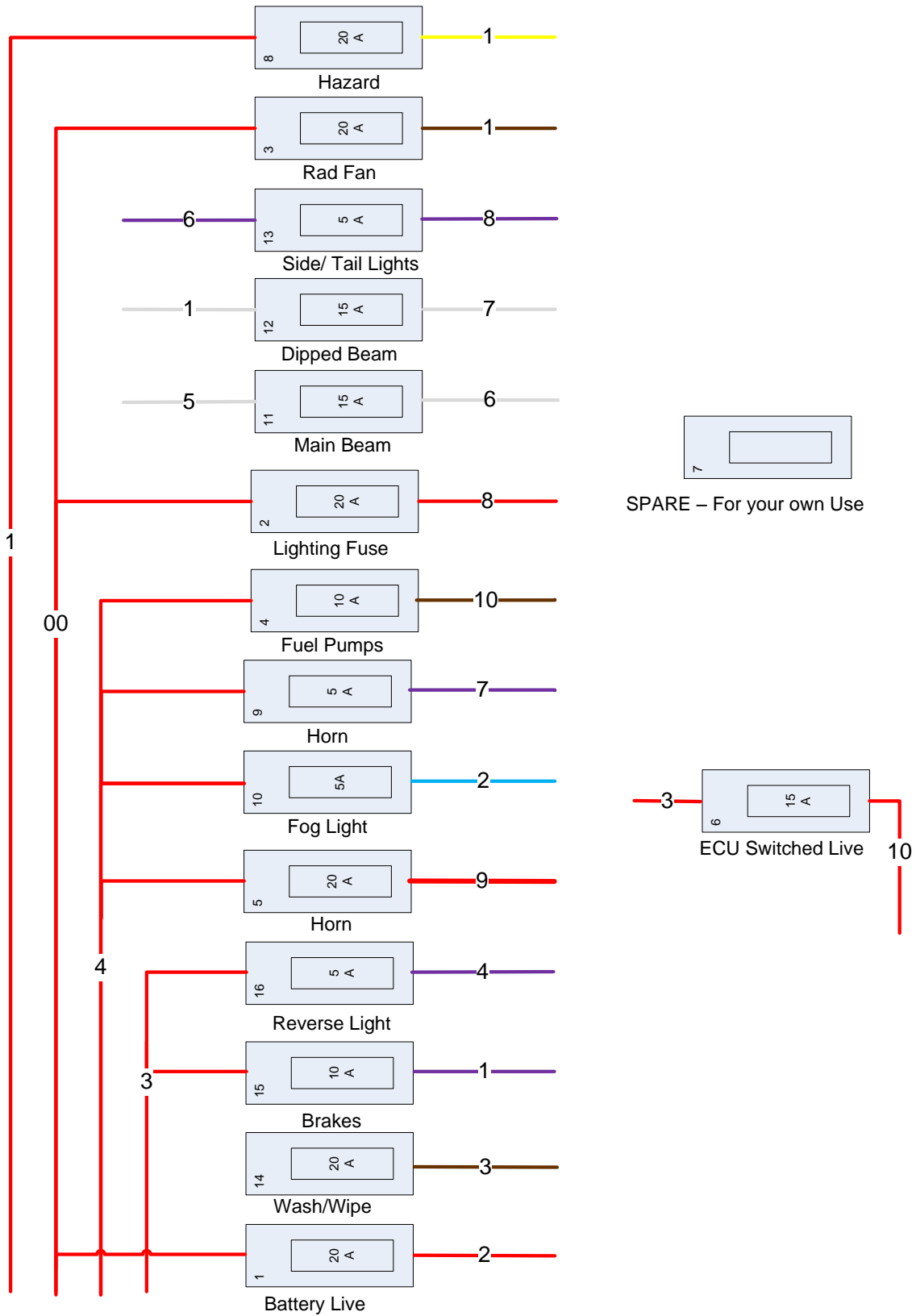


Figure 3 : Fuse Panel

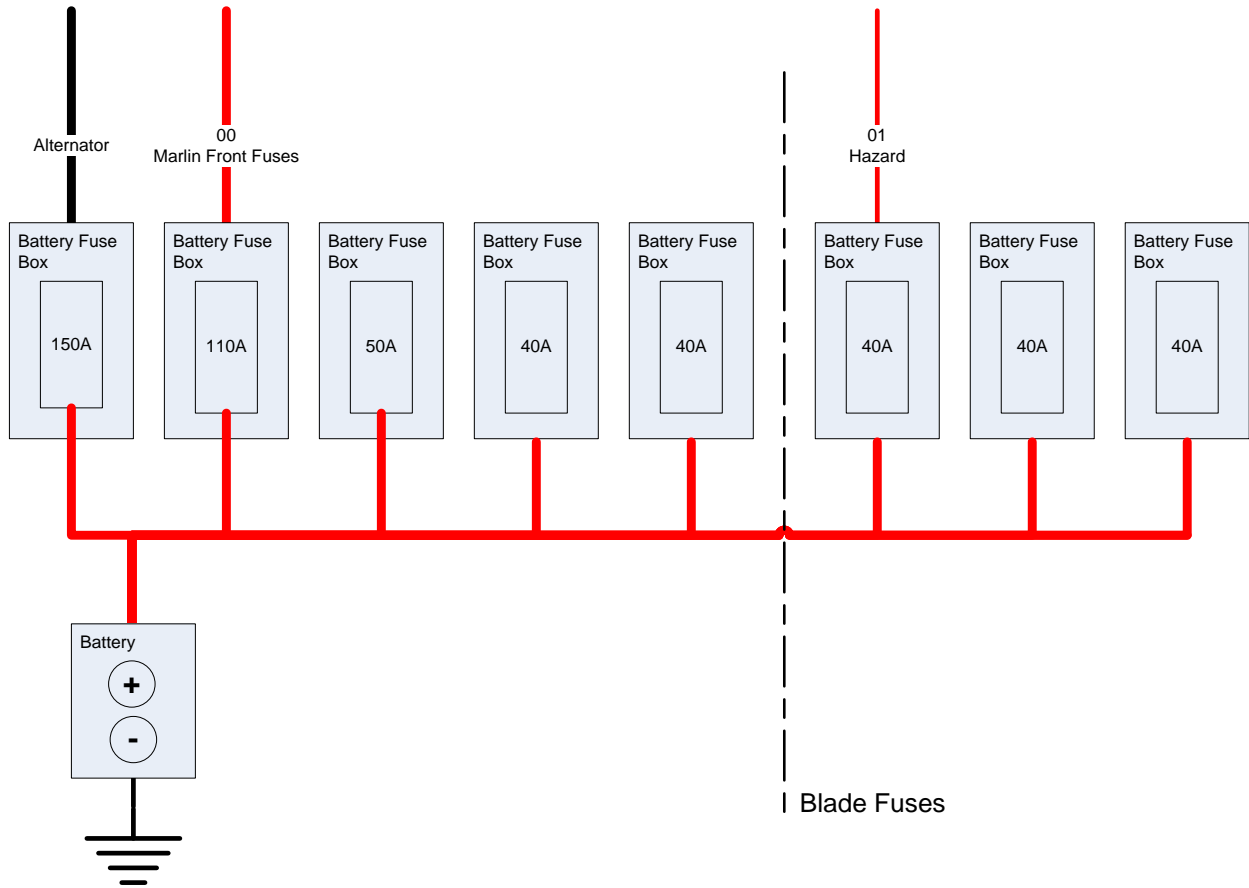


Figure 4 : VAG Battery Fuse plate



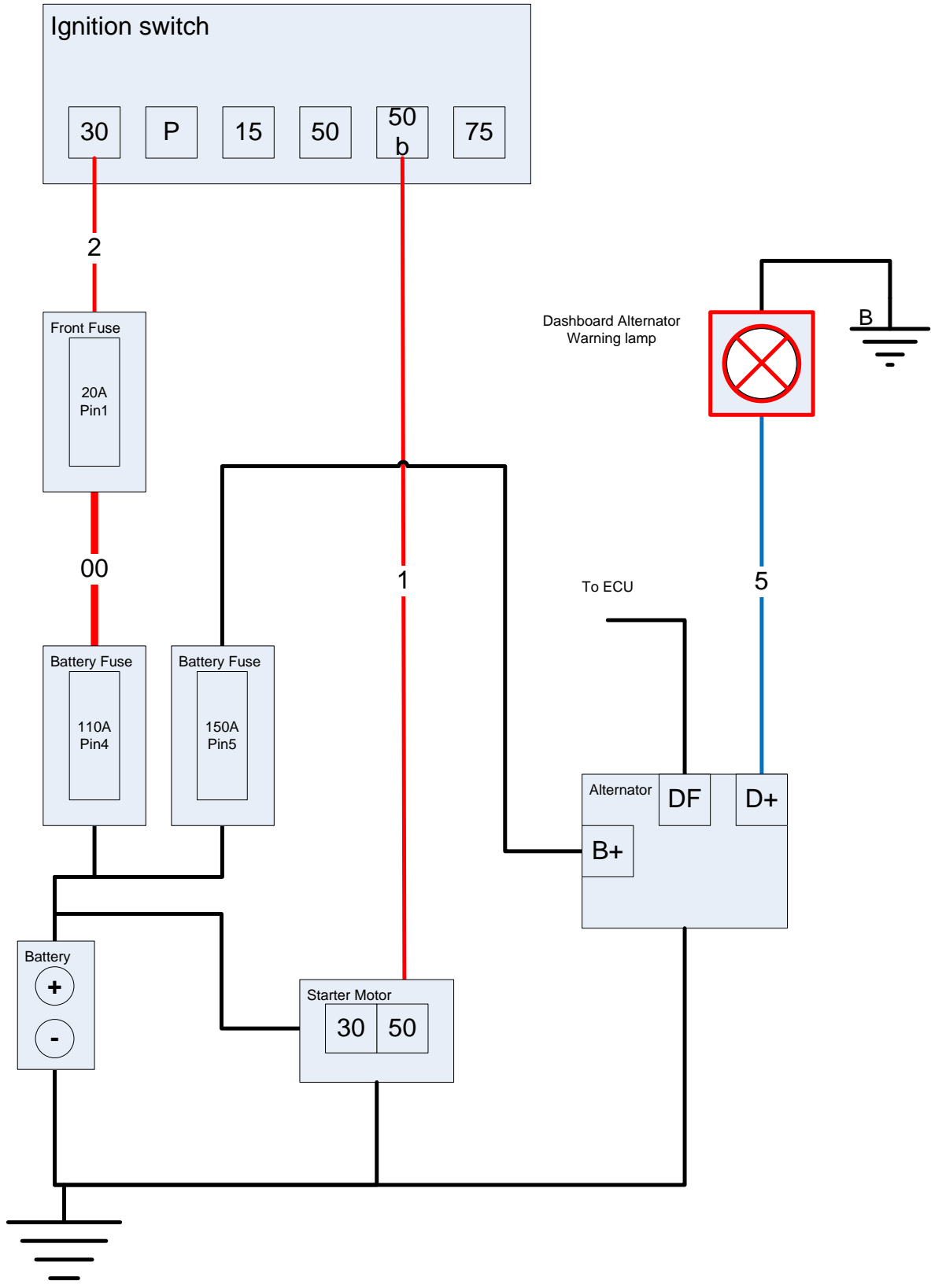


Figure 5 : Starting and ignition system

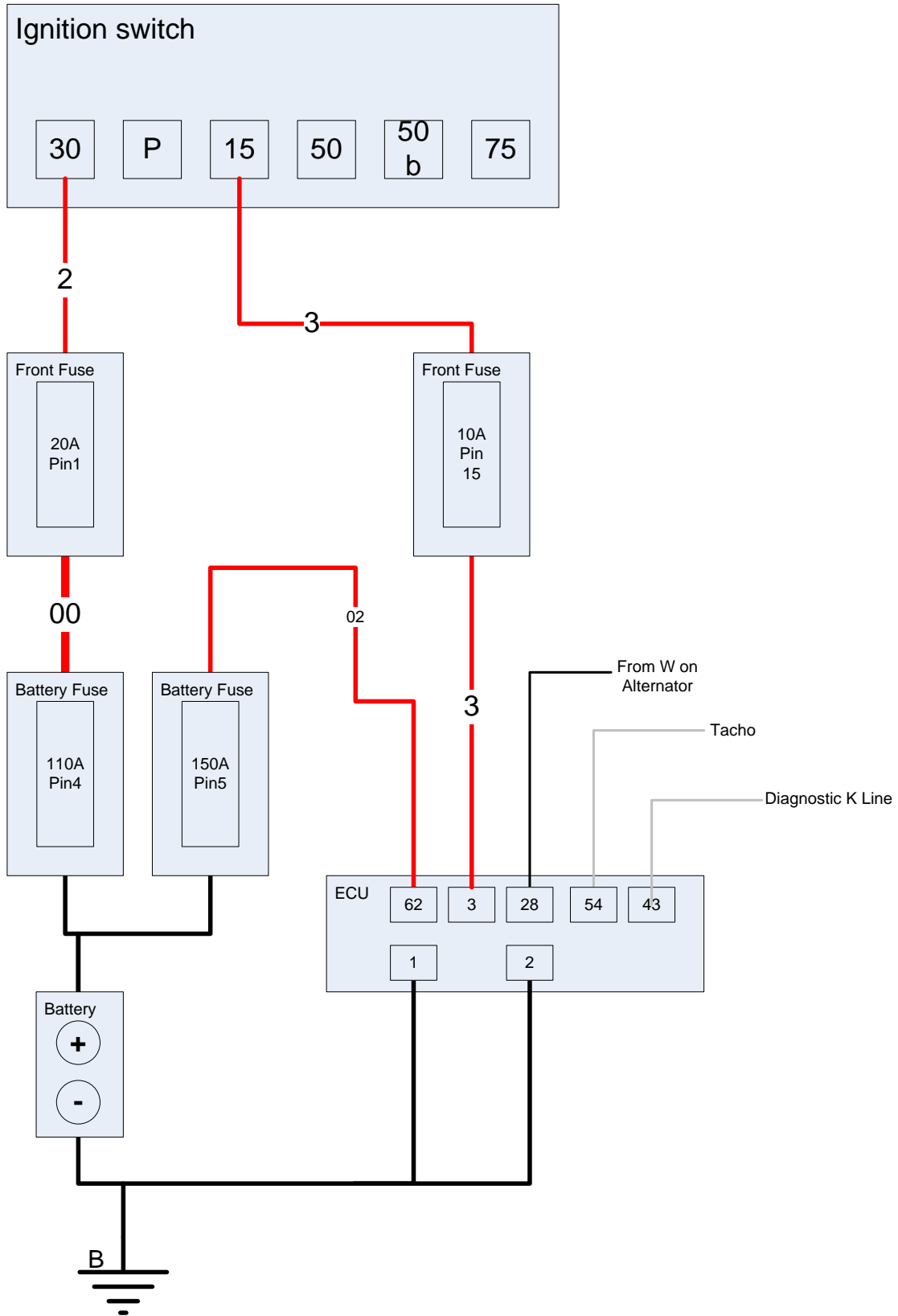


Figure 6 : ECU Power

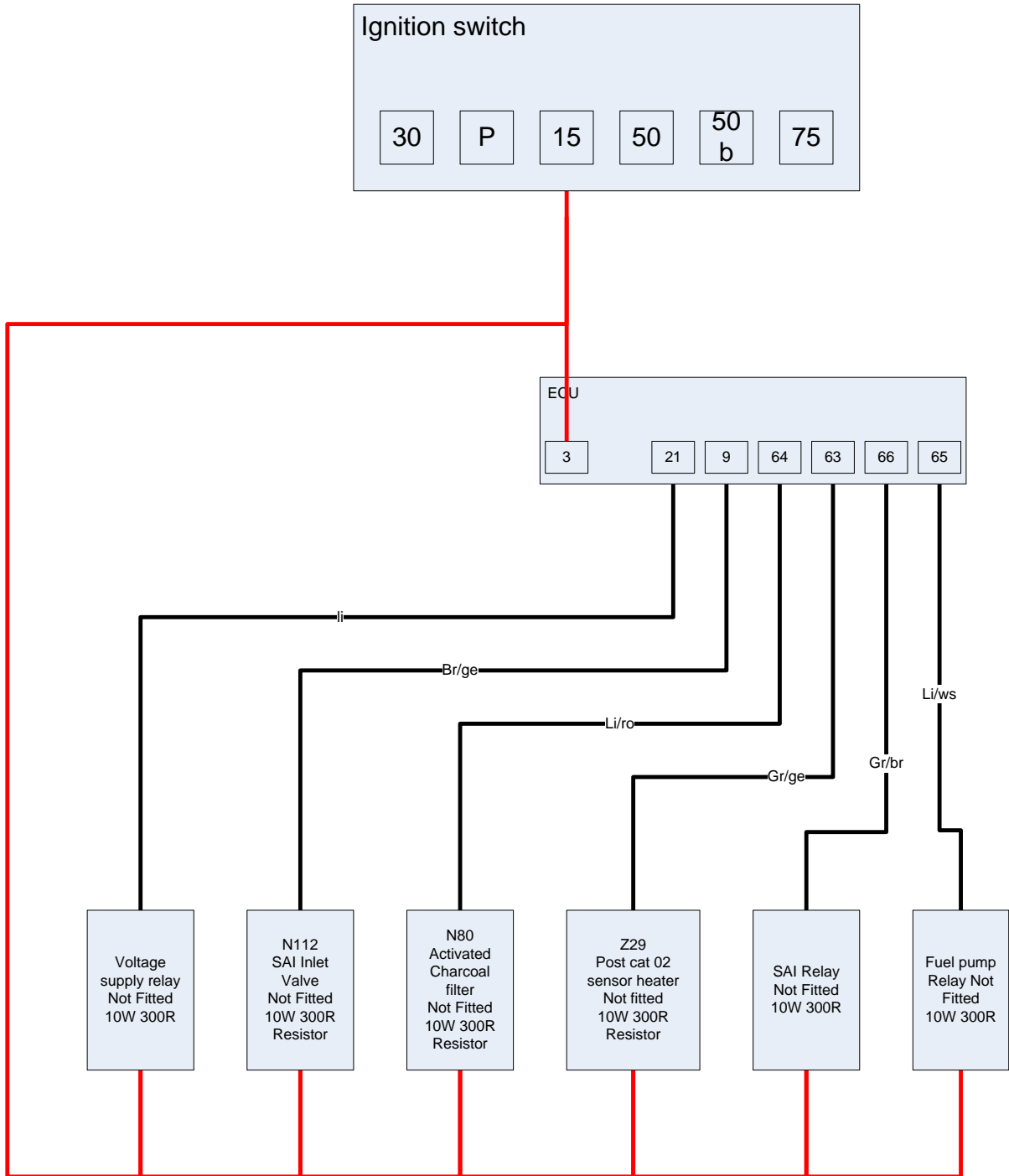


Figure 7 : ECU Donor Connections (Cheating Resistors)

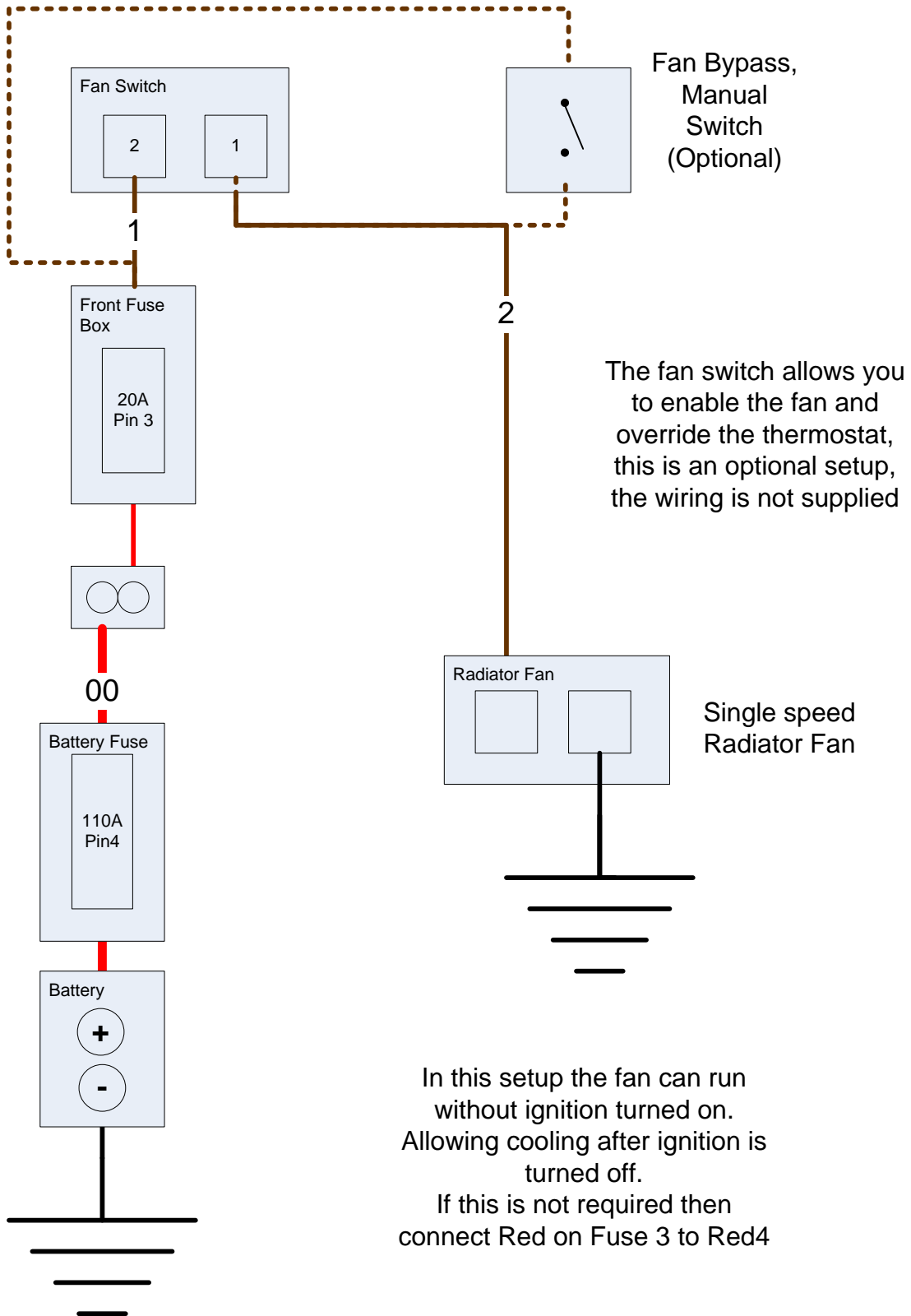


Figure 8 : Radiator Fan control

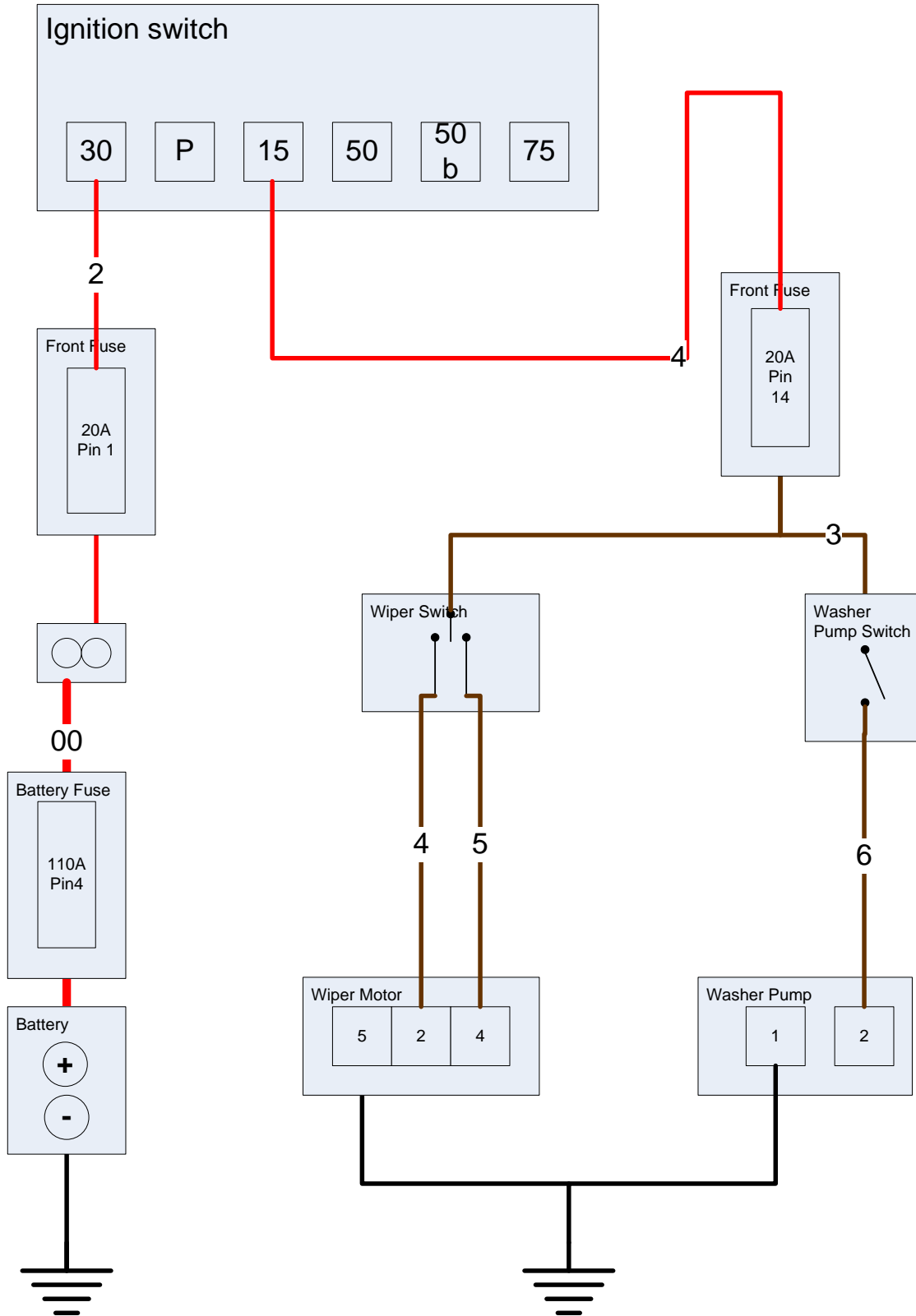


Figure 9 : Windscreen wipers & wash

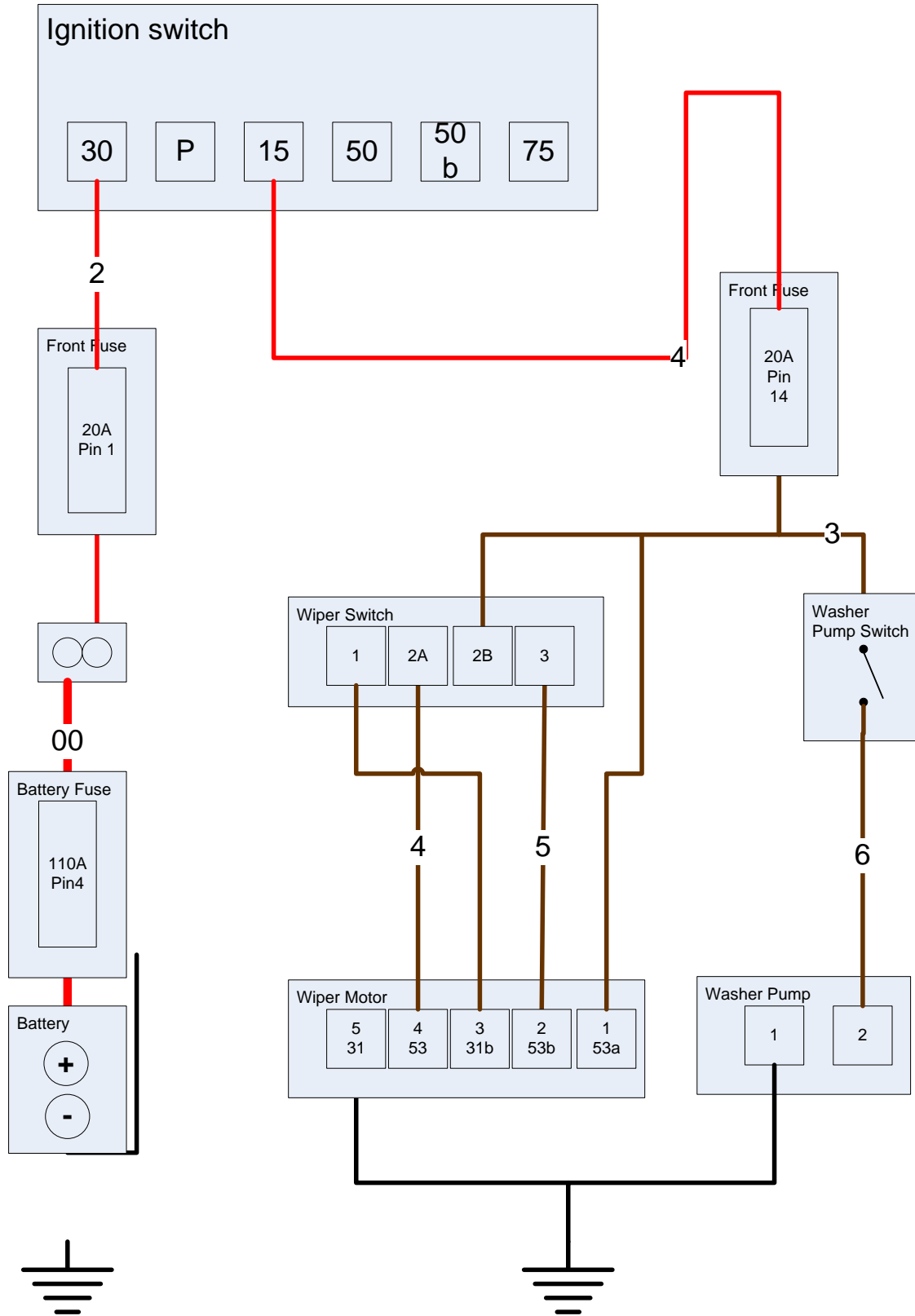


Figure 10 : Wash/Wipe with Auto-Park

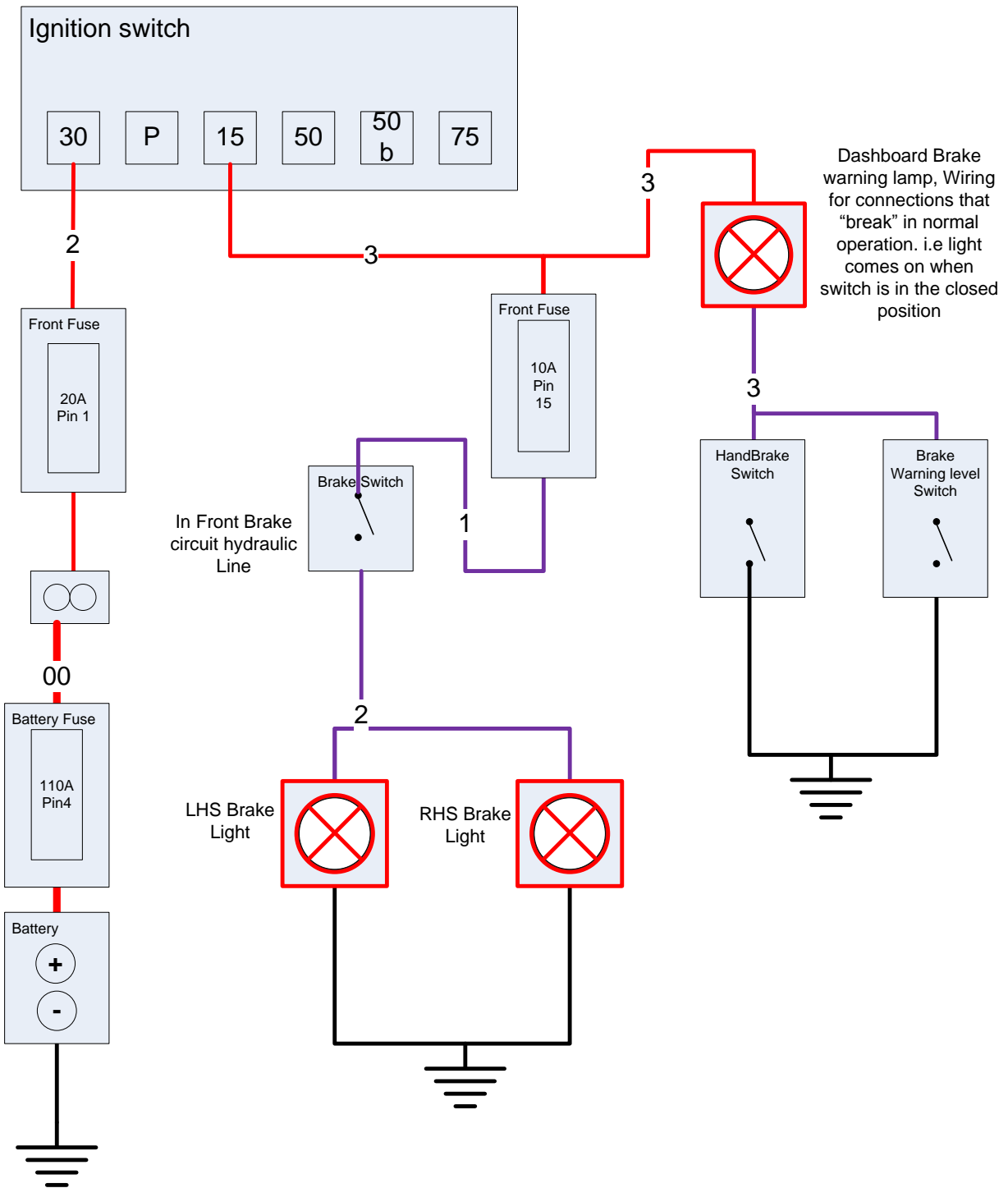


Figure 11 : Brake lights and warning system

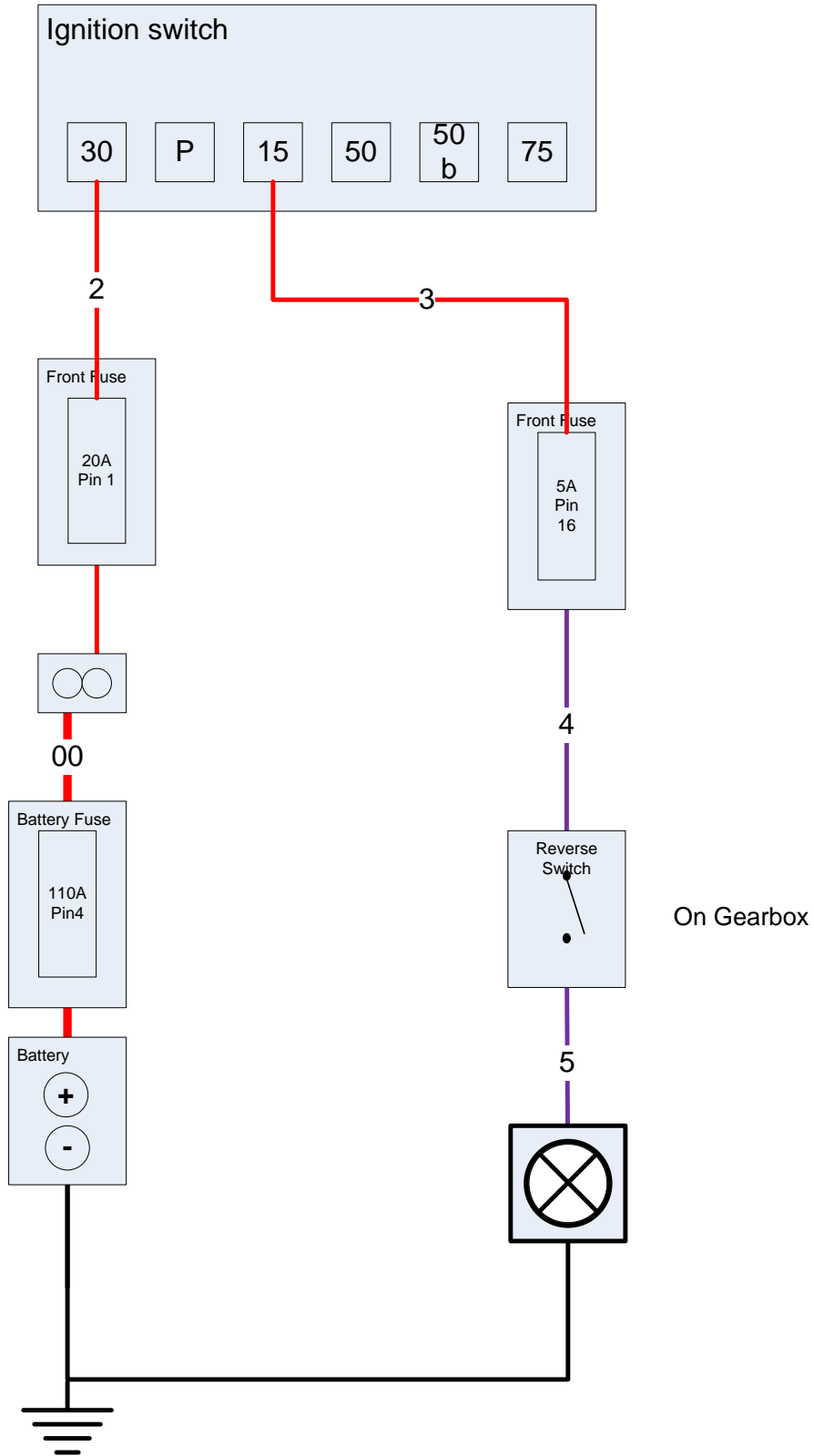


Figure 12 : Reversing lights



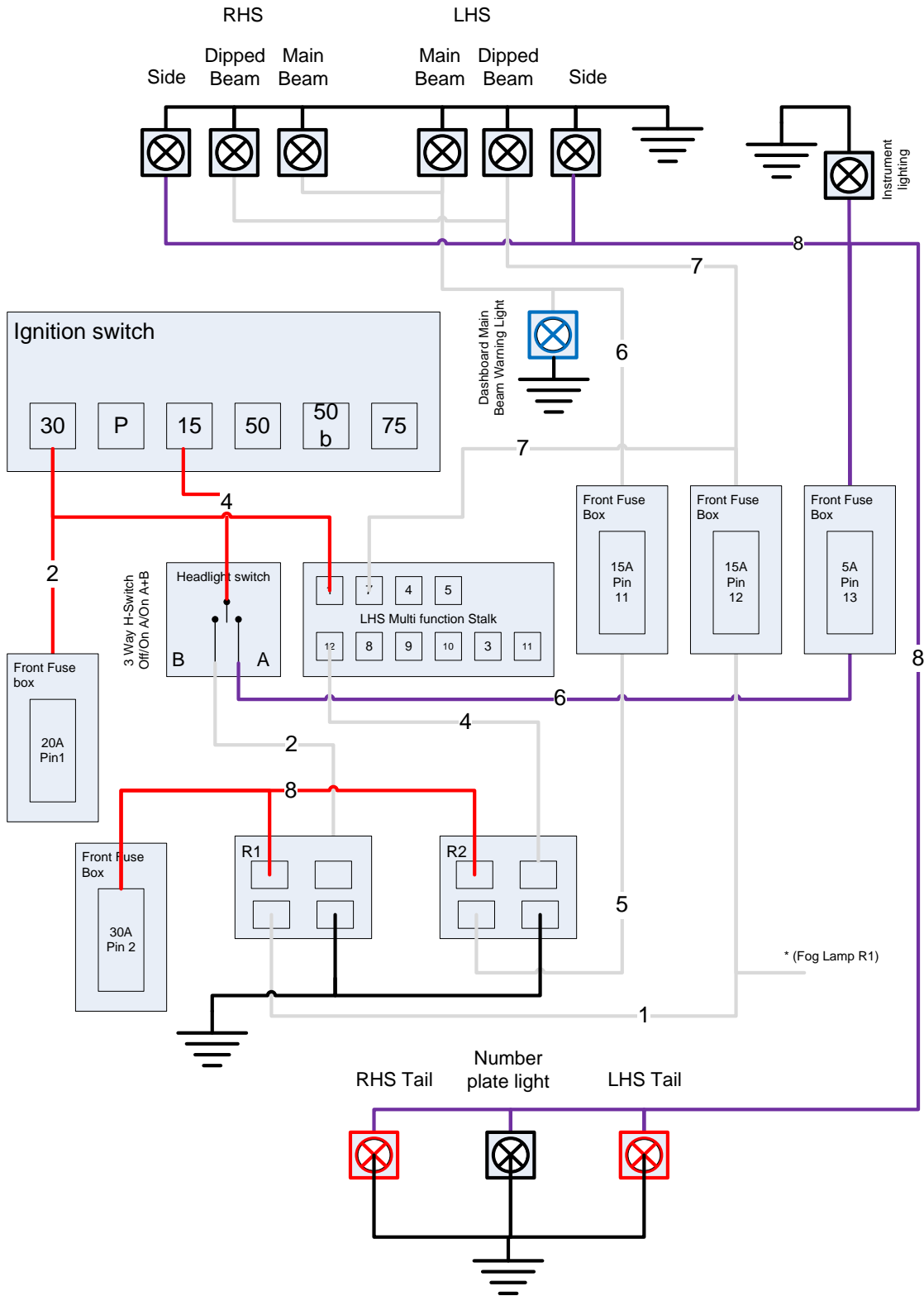


Figure 13 : Side/Head/Main beam lights

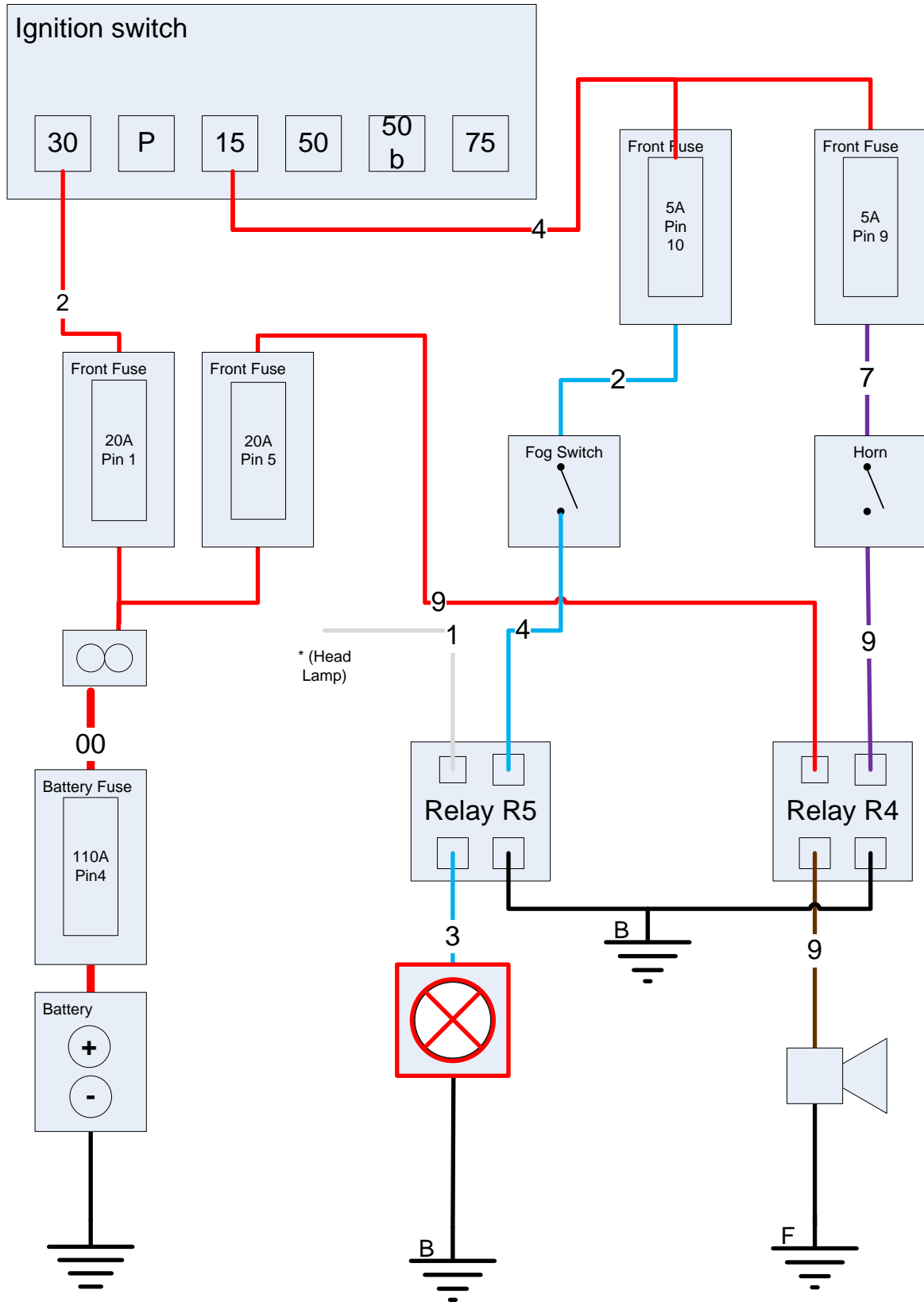


Figure 14 : Horn and Fog Lights

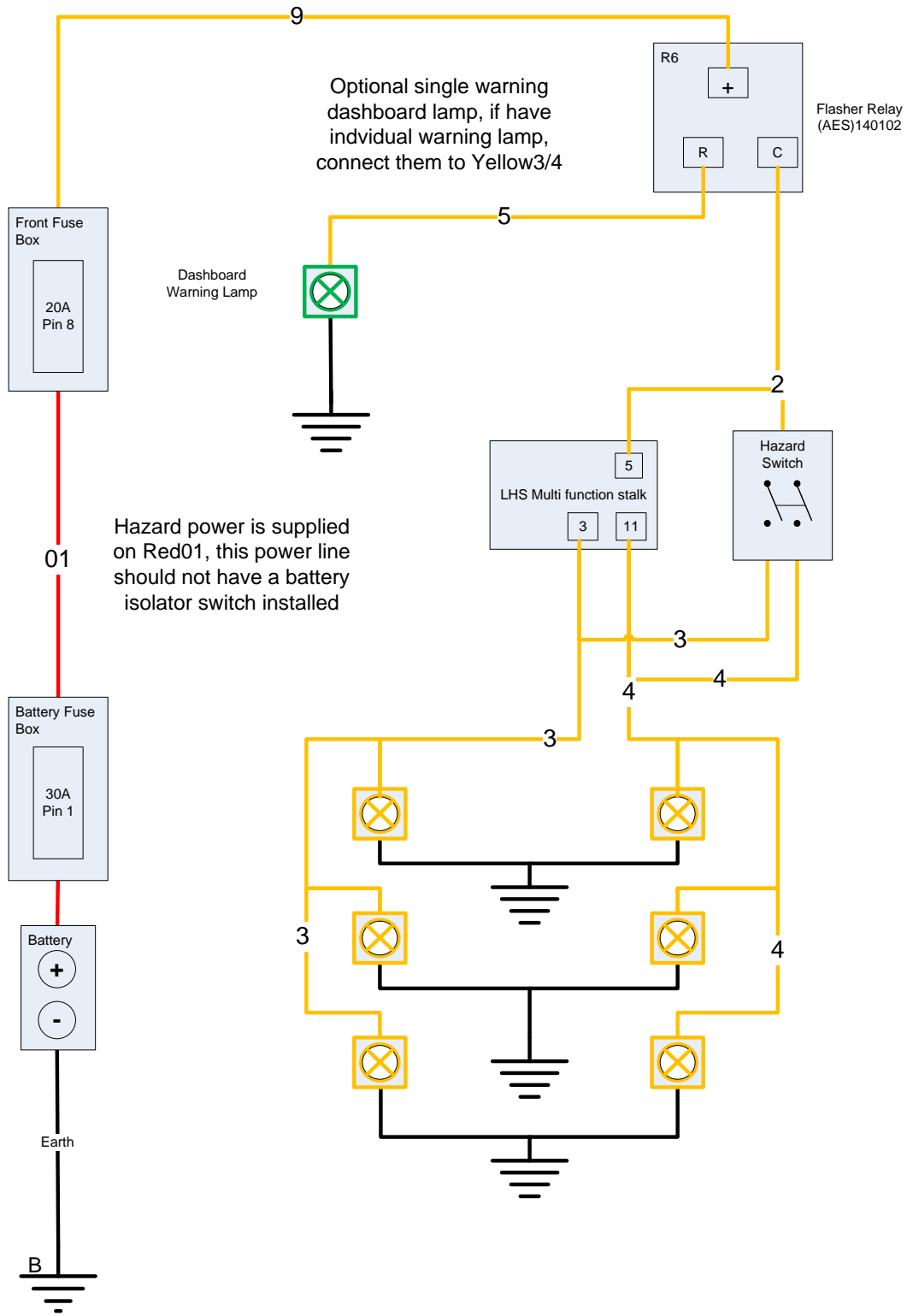
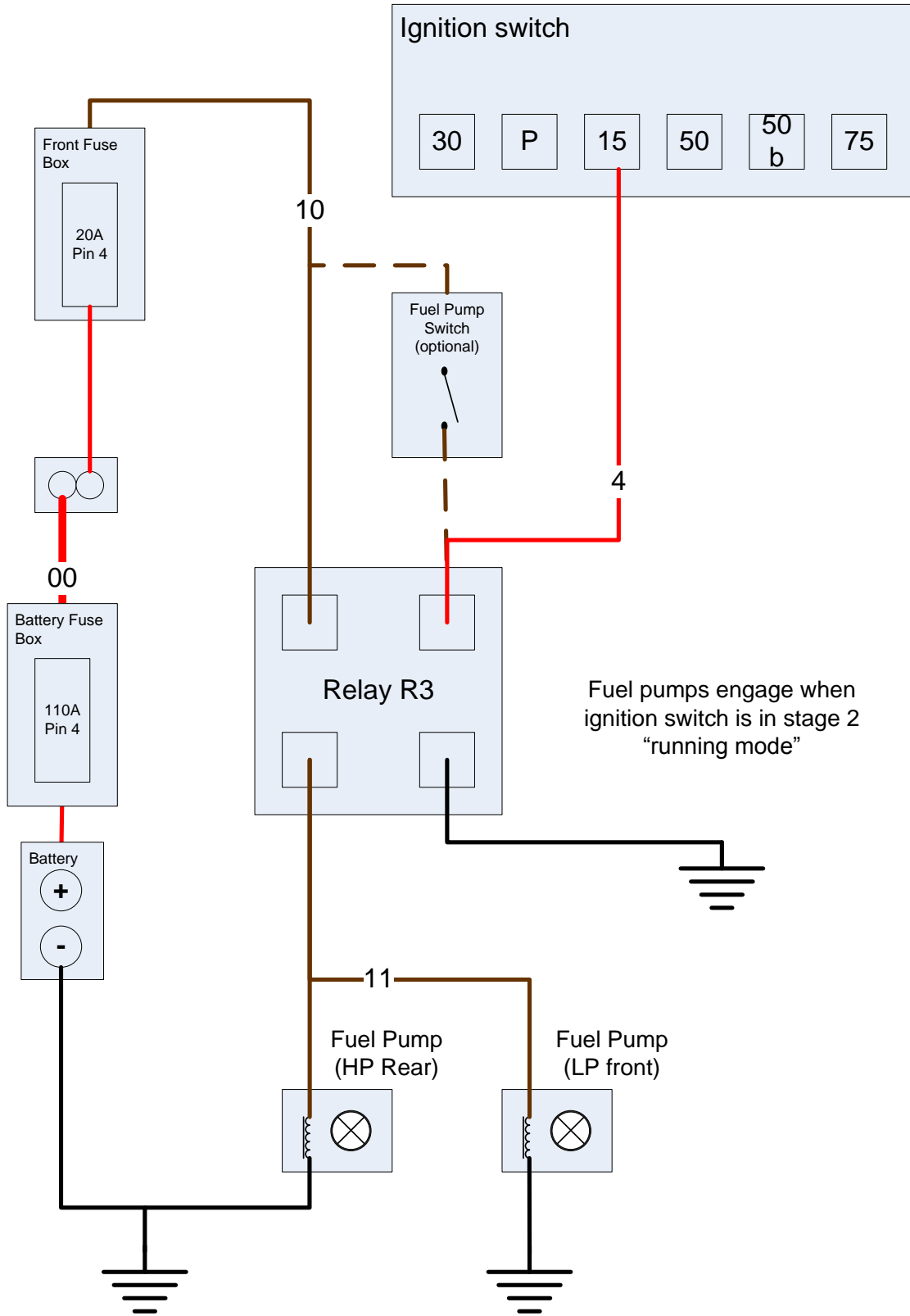


Figure 15 : Indicator and Hazard lights



Fuel pumps engage when ignition switch is in stage 2 "running mode"

Figure 16 : HP & LP Fuel Pumps

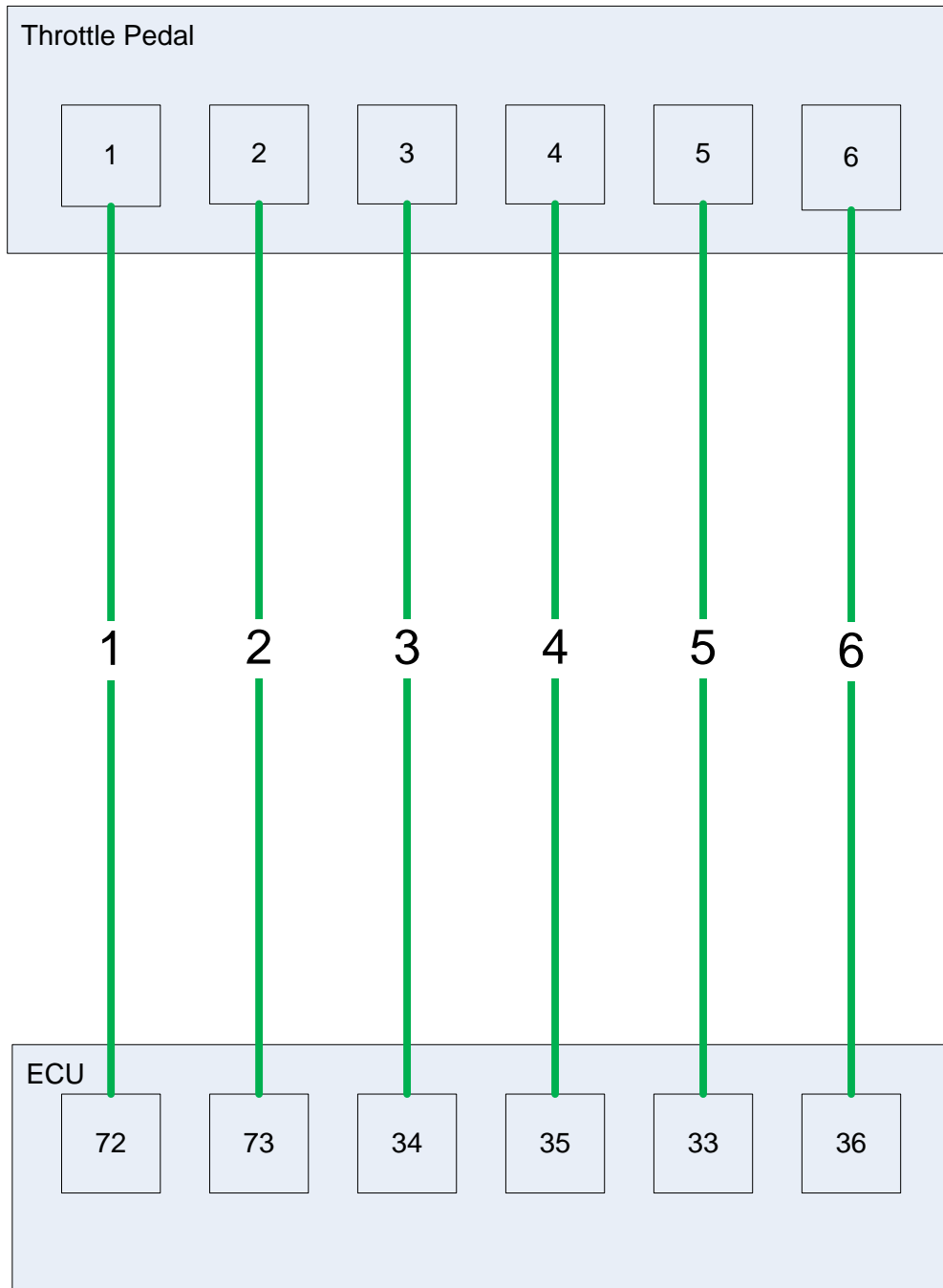
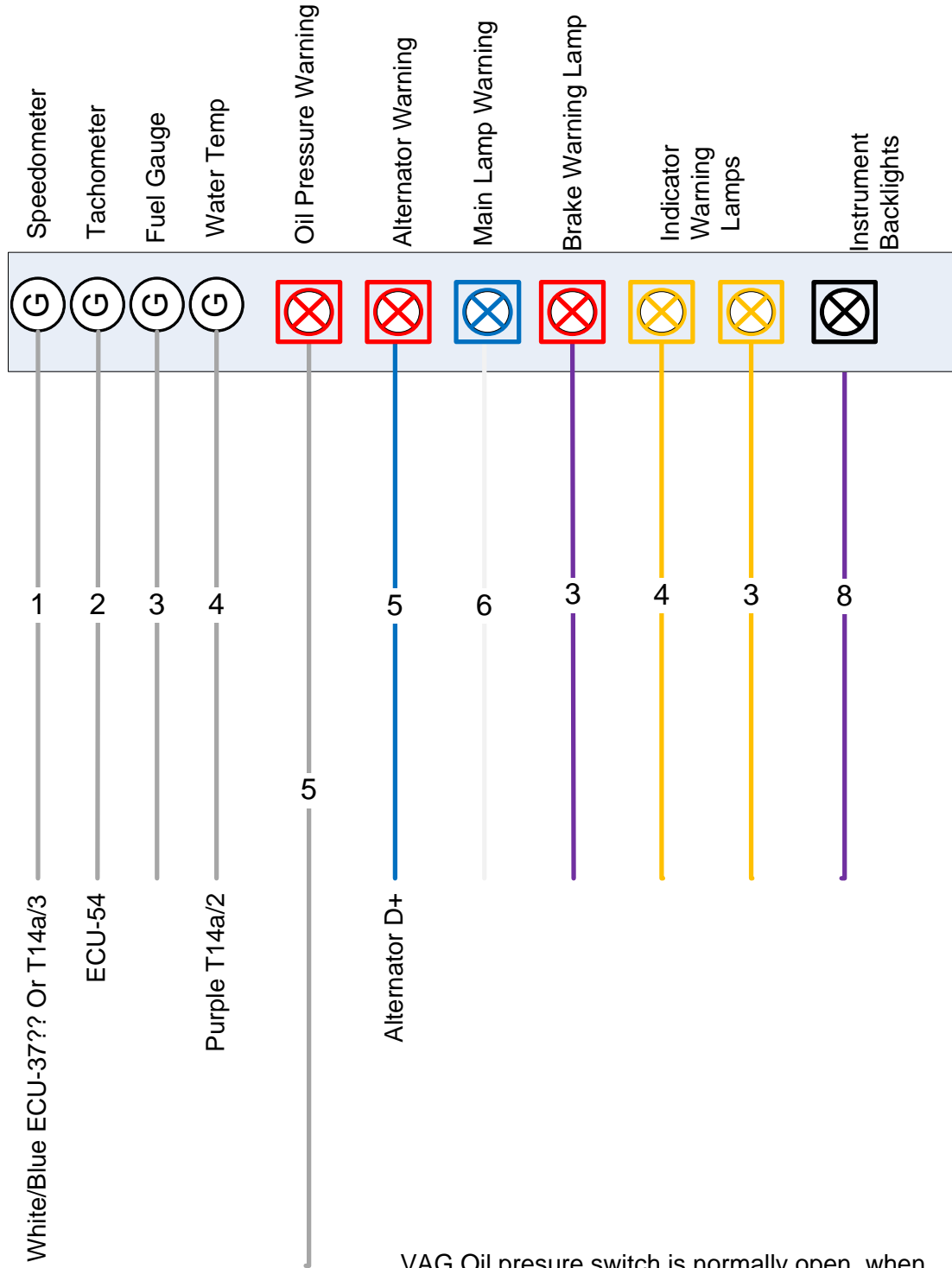
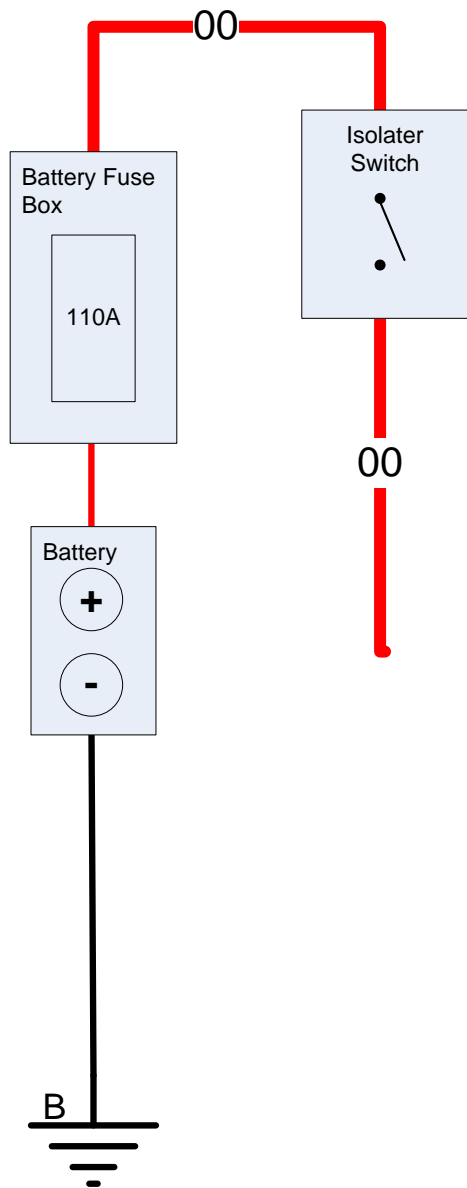


Figure 17 : VAG Accelerator "Fly by Wire"



VAG Oil pressure switch is normally open, when pressure is achieved the switch closes, this switch may need to be swapped for a normally closed switch which opens when the pressure is reached.

Figure 18 : Dashboard gauges and warning lights



Battery Isolater is optional. Depending on the type of Isolater chosen it should be placed in line with the Positive and Main feed for the fuse box, as illustrated. Check with Manufacturer recommendations for you chosen Isolater

If you fit a Battery Isolater pre IVA test. The HAZARD circuit will still need to function even when the ISOLATER is switched off, Therefore the isolater should be placed inline with red cable 00 only

Figure 19 : Battery Isolator





