

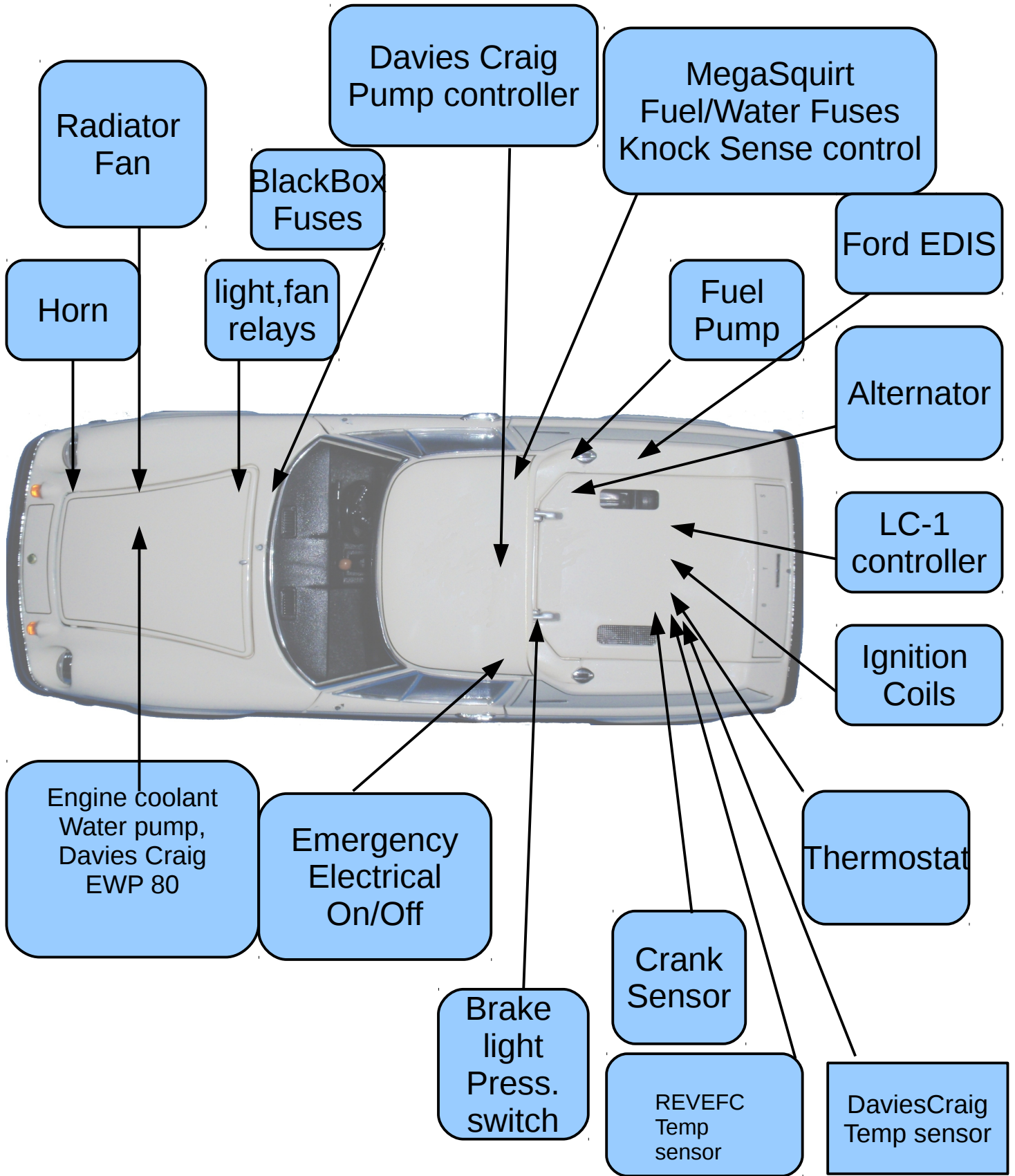
Lotus Europa 2037R Wiring



August 25, 2012
Updated January 15, 2018.

[europawire2018.odg](#)

Major Component Locations

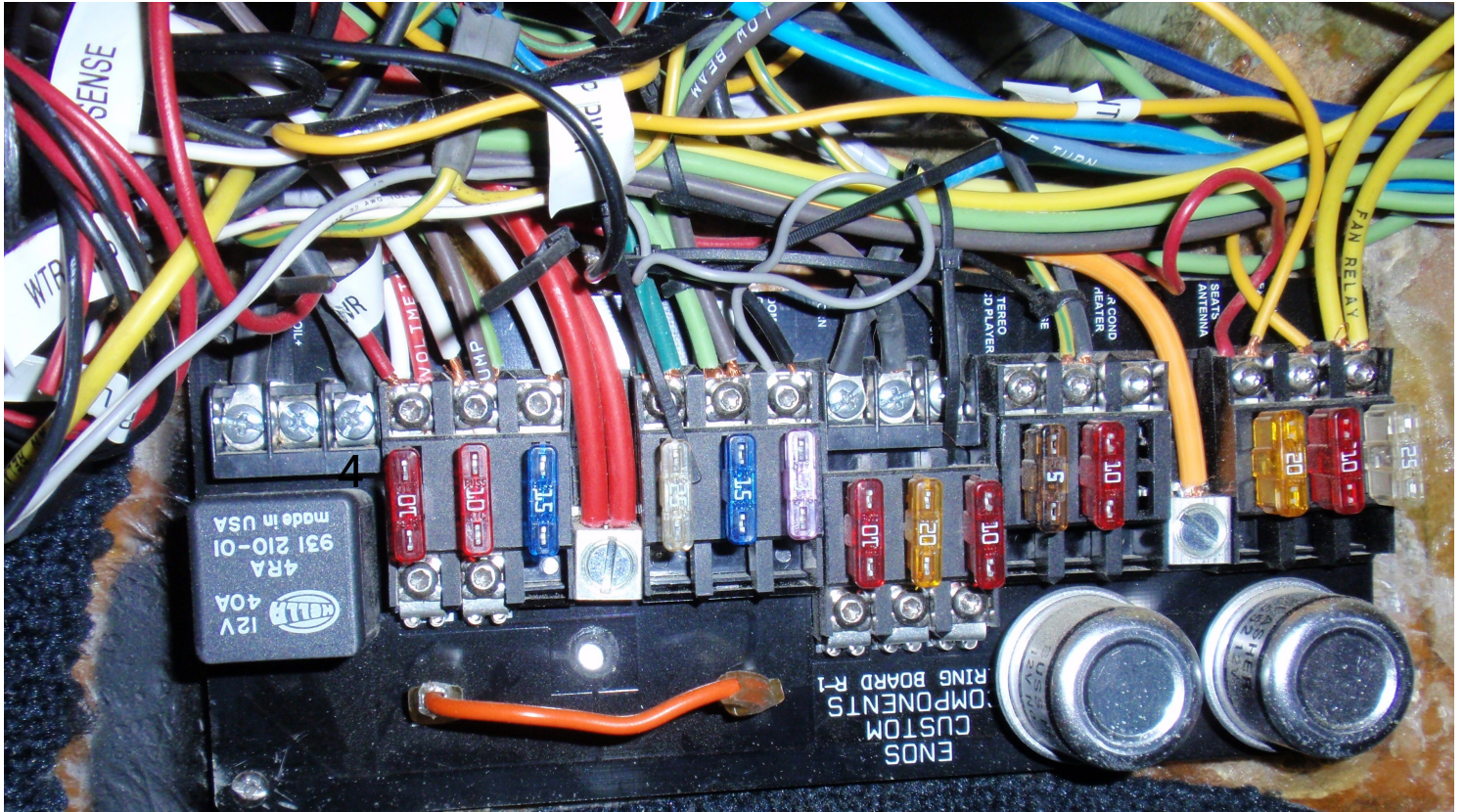


The BlackBox fuse panel (abbreviated here as BB) is from Enos Custom Components, EnosCustom.com. The LC-1 is by Innovate and It interfaces between the wide-band air/fuel(λ) sensor And Megasquirt.

Much of the wire is labeled every 4 inches and comes from Enos Custom Components. Some of the wire is ordinary auto store wire but has labels I attached at each end. None of the wire follows British color coding standards. Nearly all of the wire is rather larger than Lotus standard automotive usage!.

Unfortunately some of the Enos wires such as Horn Switch are black (though labeled every 4 inches). In addition wires to an external-power-socket near the BlackBox (to drive a phone charger or GPS device) are black. Really only ground wires should be black.

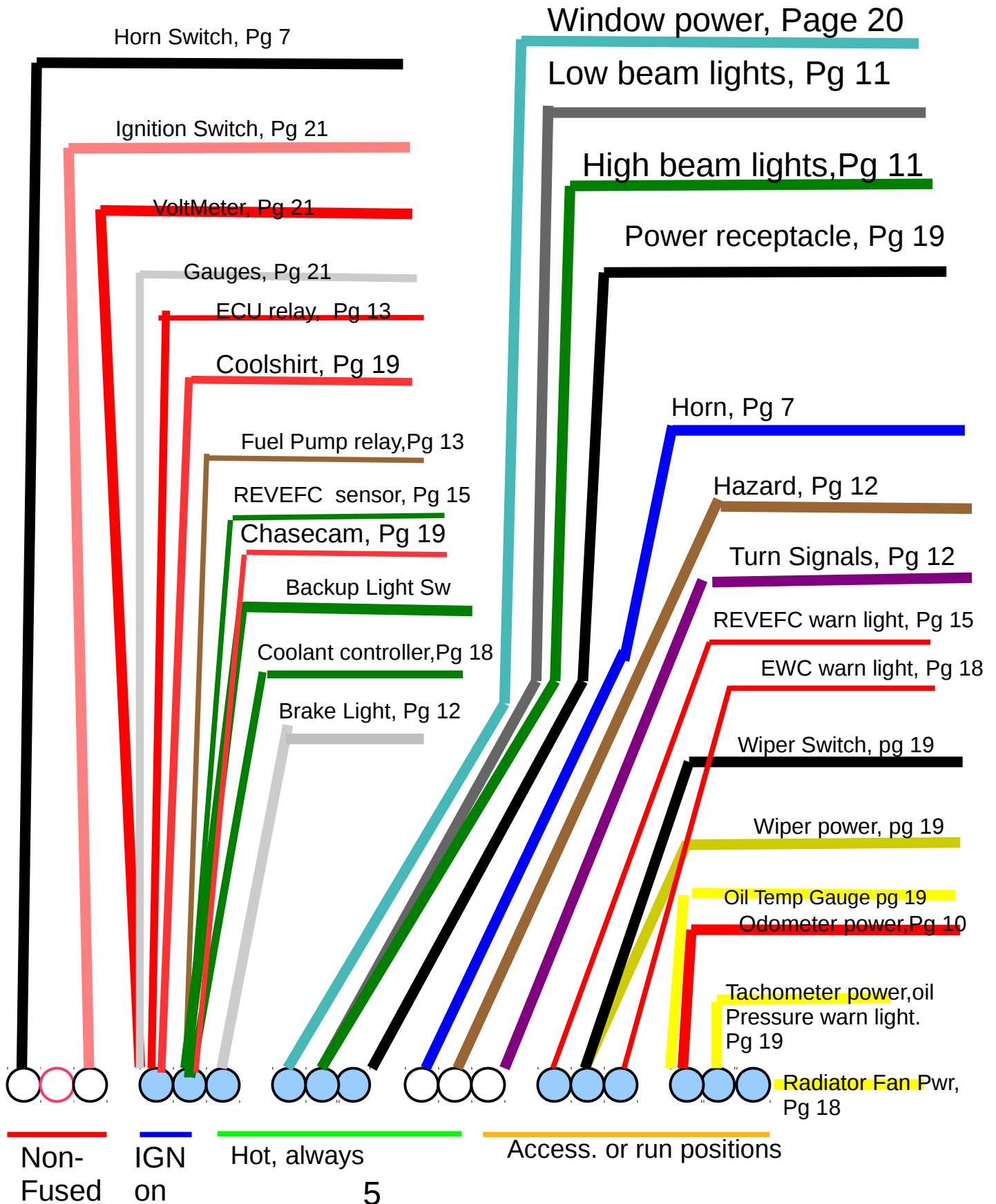
Here is the BlackBox in the passenger footwell – with the cover removed. The two large red wires with the big screw are power from the battery and from the blackbox to the ignition key. So the big red wires are hot (unless the battery disconnect switch is turned to off). The single large yellow wire comes from the ignition key and it is hot when the ignition key is turned as far as the accessory position.



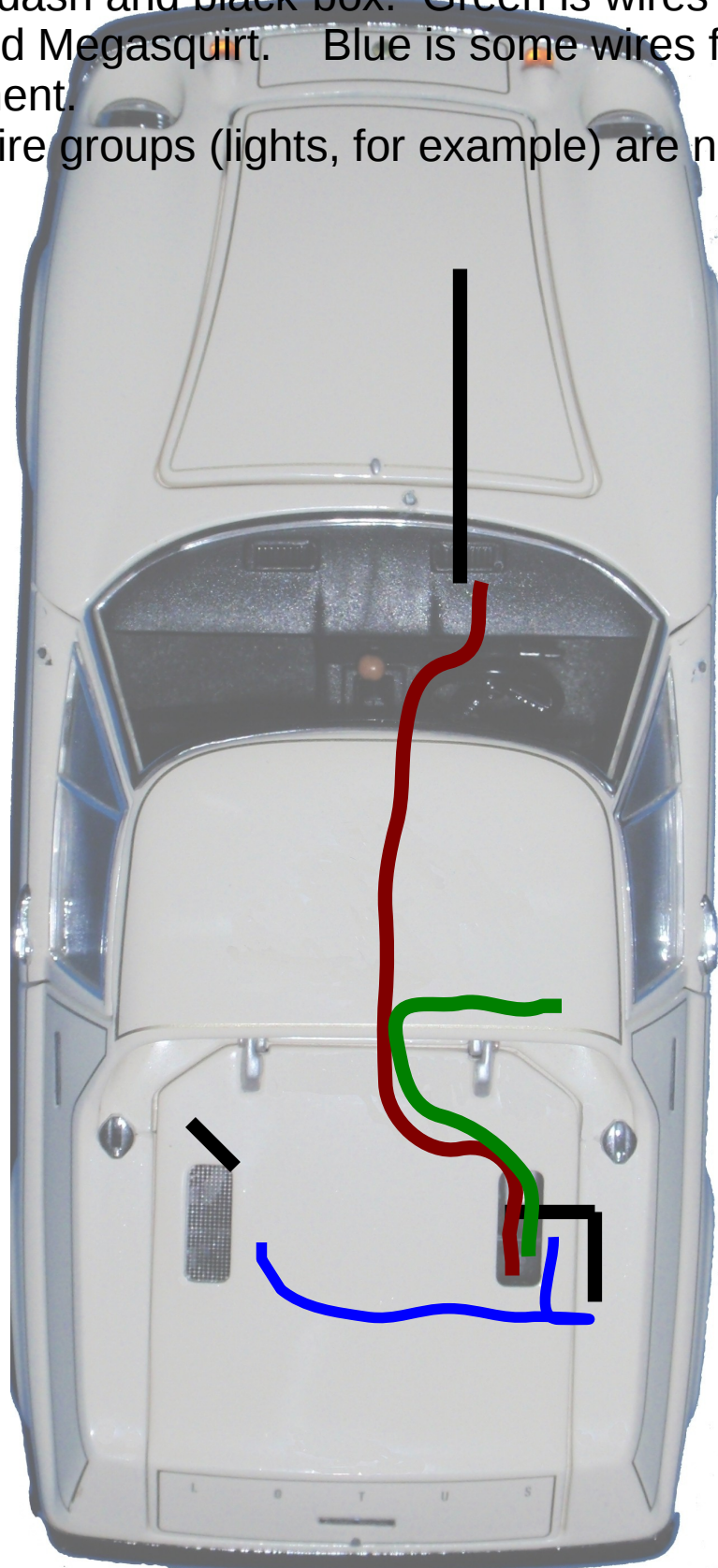
The square relay is the Horn relay. Of the two round flasher relays the left one is the hazard flasher and the right one is the turn signal flasher. The horizontal orange wire replaces a resistor as the ignition runs at a full 12 volts not the 6 volts used on many older cars (we use electronics here).

On other pages the black box is generally indicated by a rectangular square with the words Black Box at the top and the Block positions hinted at. See Page 5 for the actual Black Box Connection positions, .

Here is the black box (BB) outputs connection information. As BB installed in right footwell, viewing from right-hand door. The red Non-fused connection point seems dead.

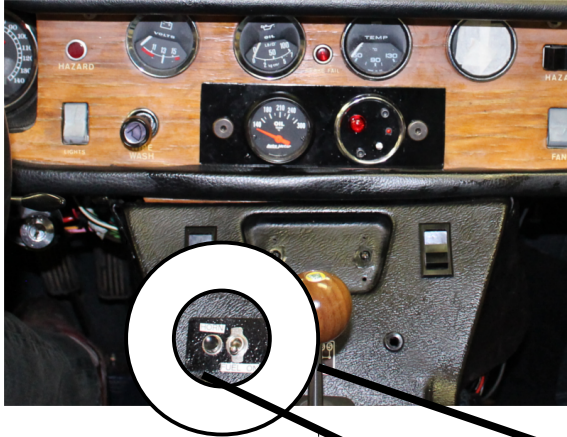


This indicates the major wiring positions. Black here are the major ground wires. Red is the main bundle of wires from the dash and black-box. Green is wires between engine and Megasquirt. Blue is some wires for engine management. Various wire groups (lights, for example) are not shown here.



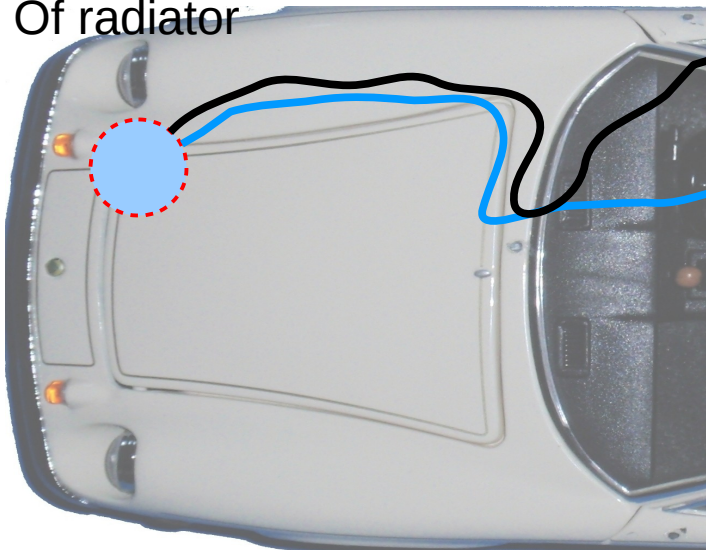
The HornSwitch position on Black Box runs to the Horn button then to ground.

Horn sw
Position
Black B

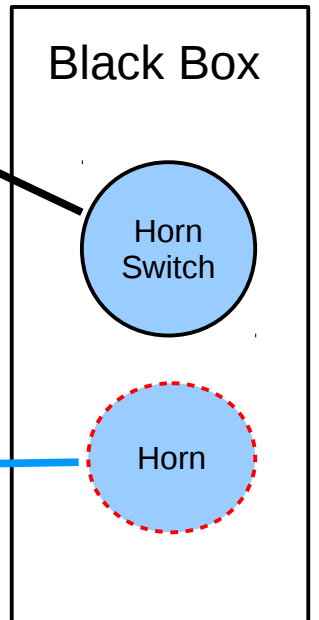


Horn Button
On Dash

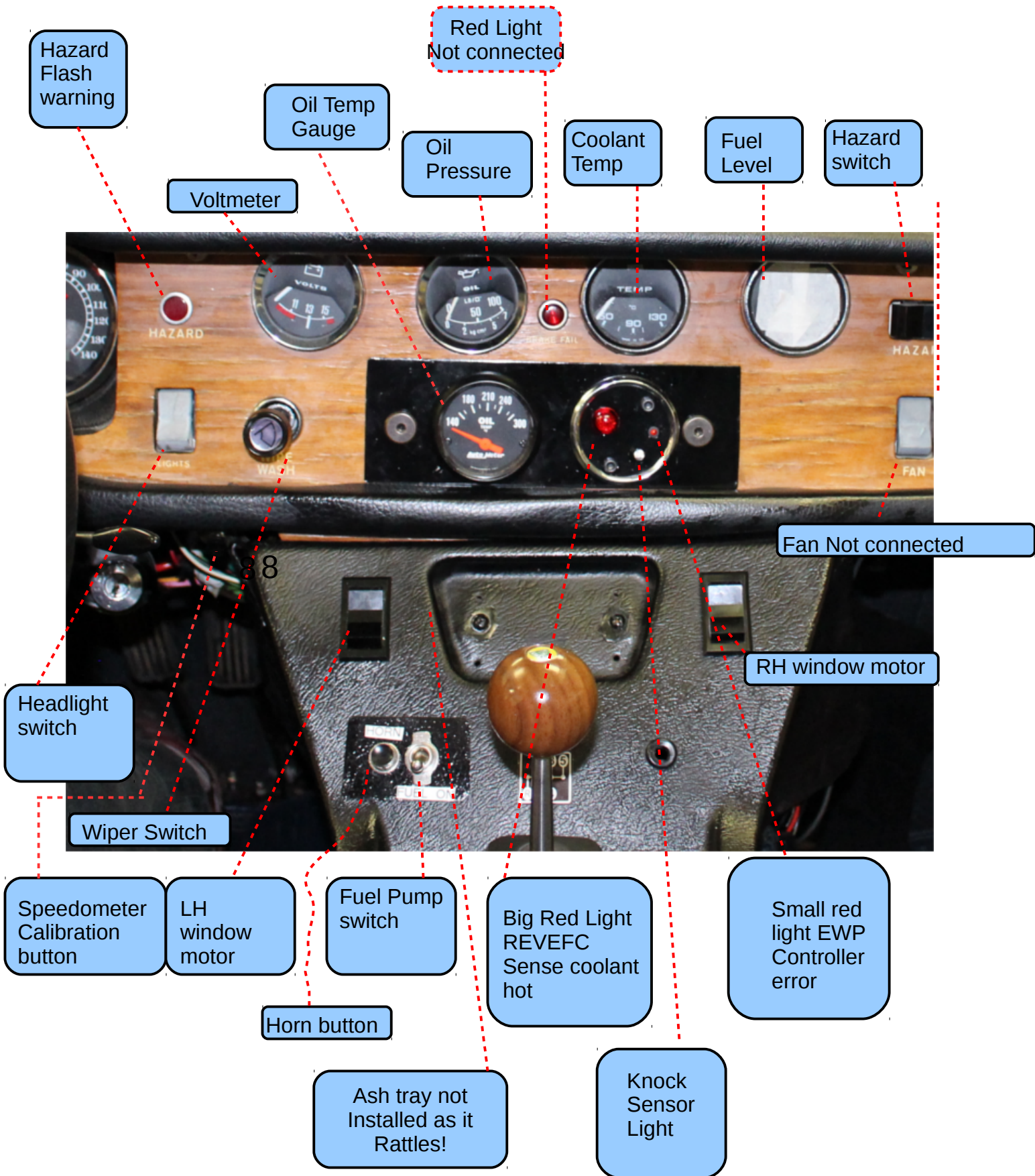
Horn in front
Of radiator

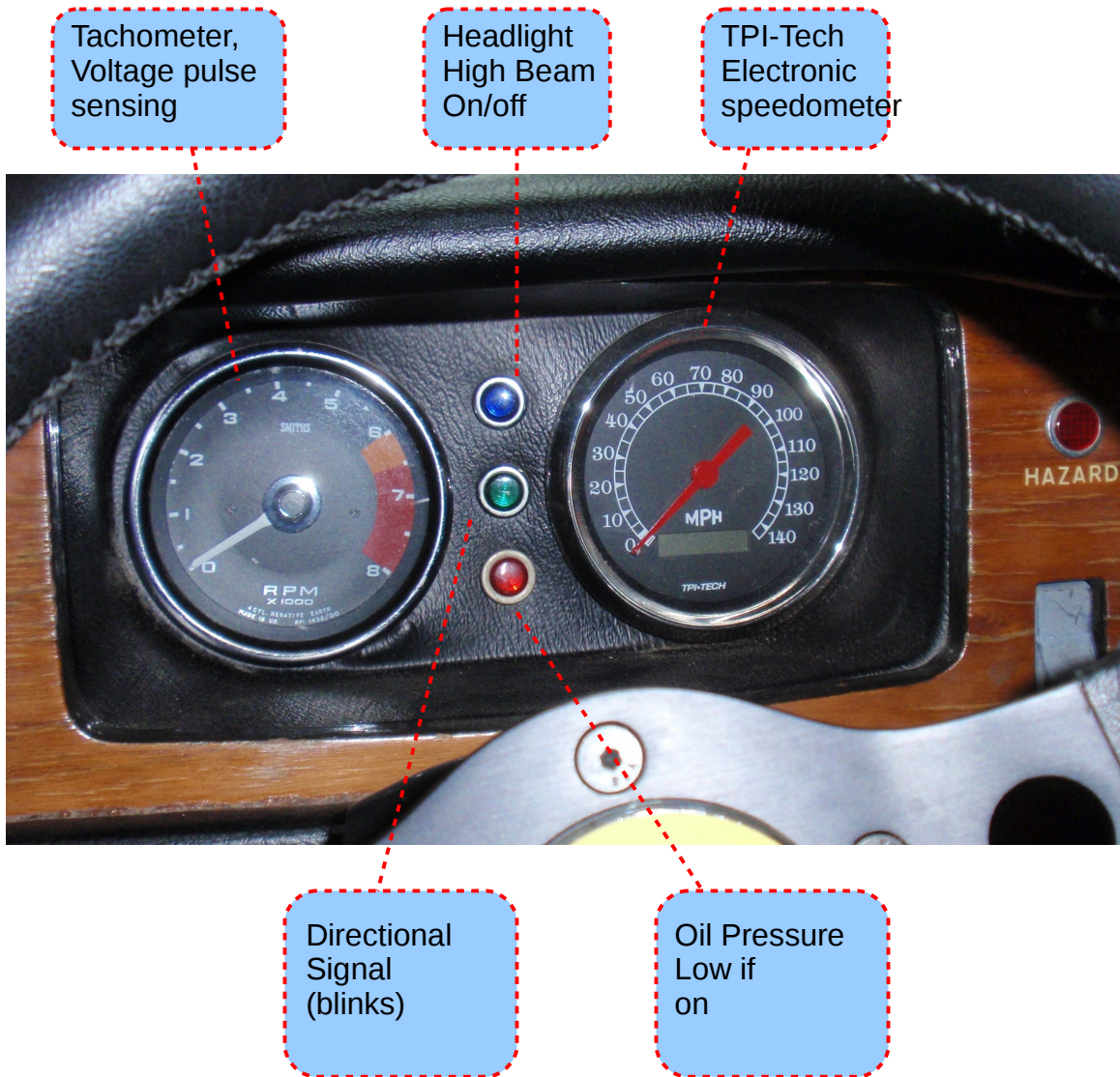


Ground

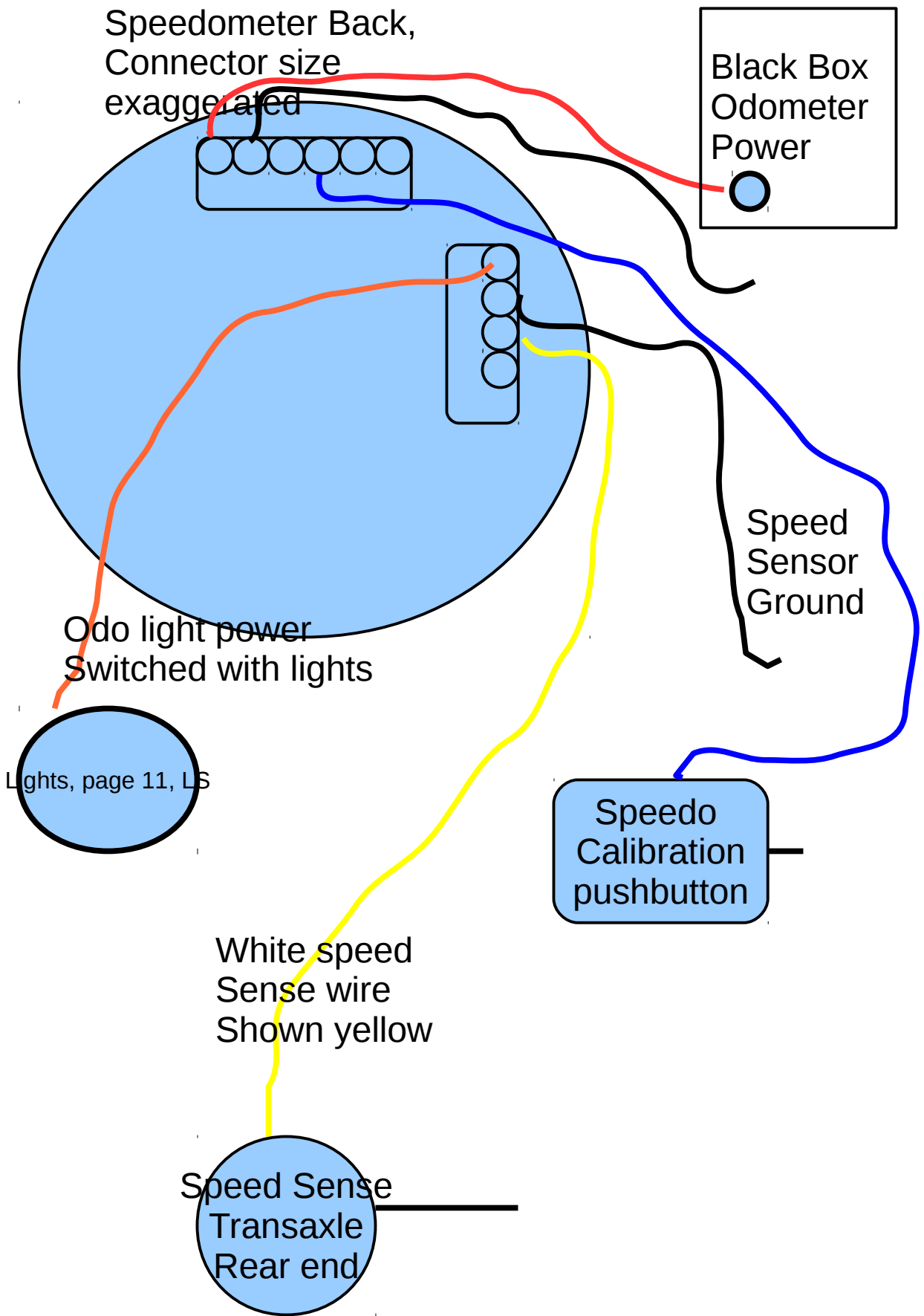


Black Box provides the relay
And fuse for the horn.





The TPI (aka Daytona) speedometer is just slightly larger diameter than the Stock instrument. Recalibration is a bit fiddly as there is just a single button, (see previous page for location), but it is only needed if changing tire size. The light inside the Speedo is a bit dim and the digits are a bit small.



Speedometer Back,
Connector size
exaggerated

Black Box
Odometer
Power

Odo light power
Switched with lights

Lights, page 11, LS

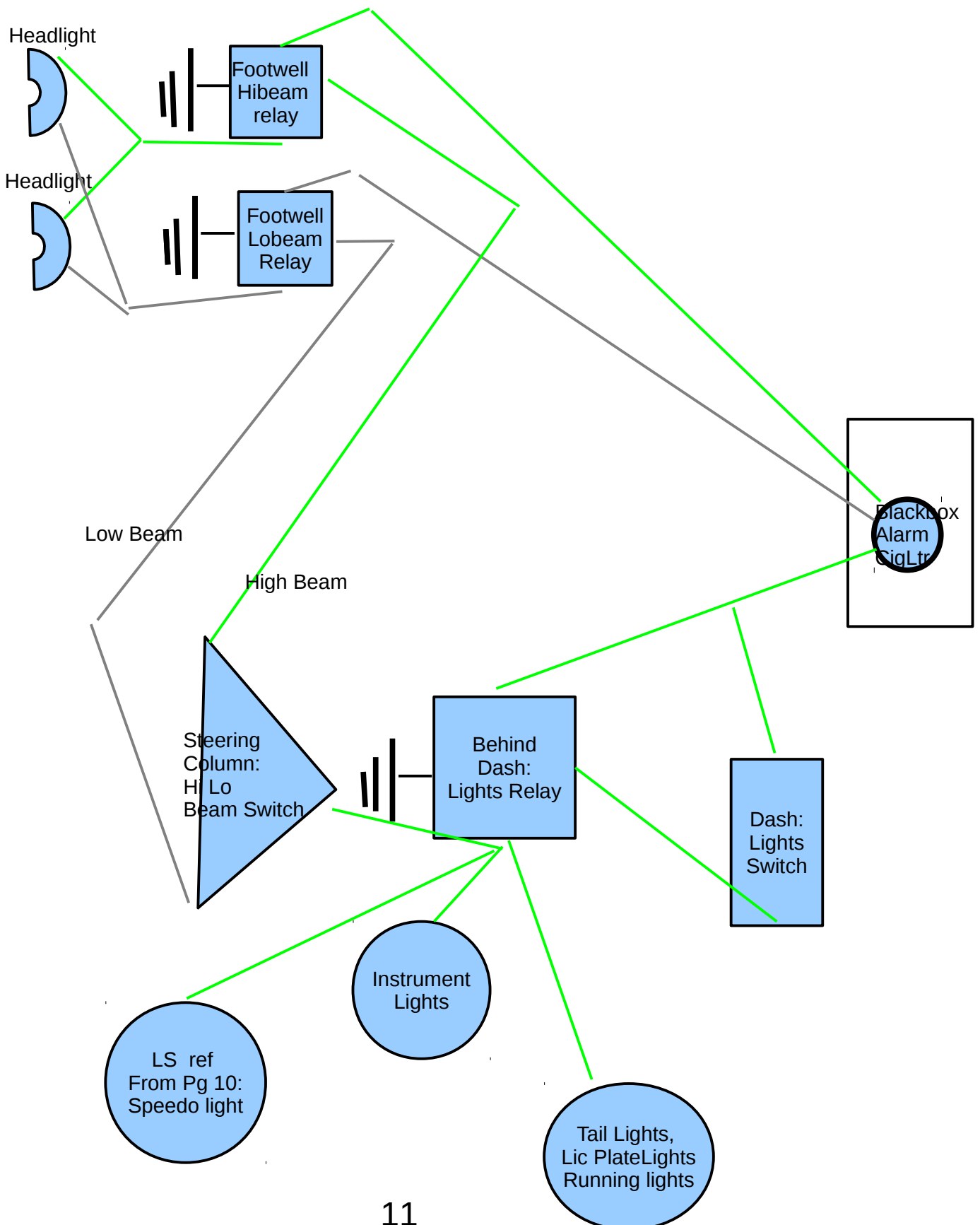
Speed
Sensor
Ground

Speedo
Calibration
pushbutton

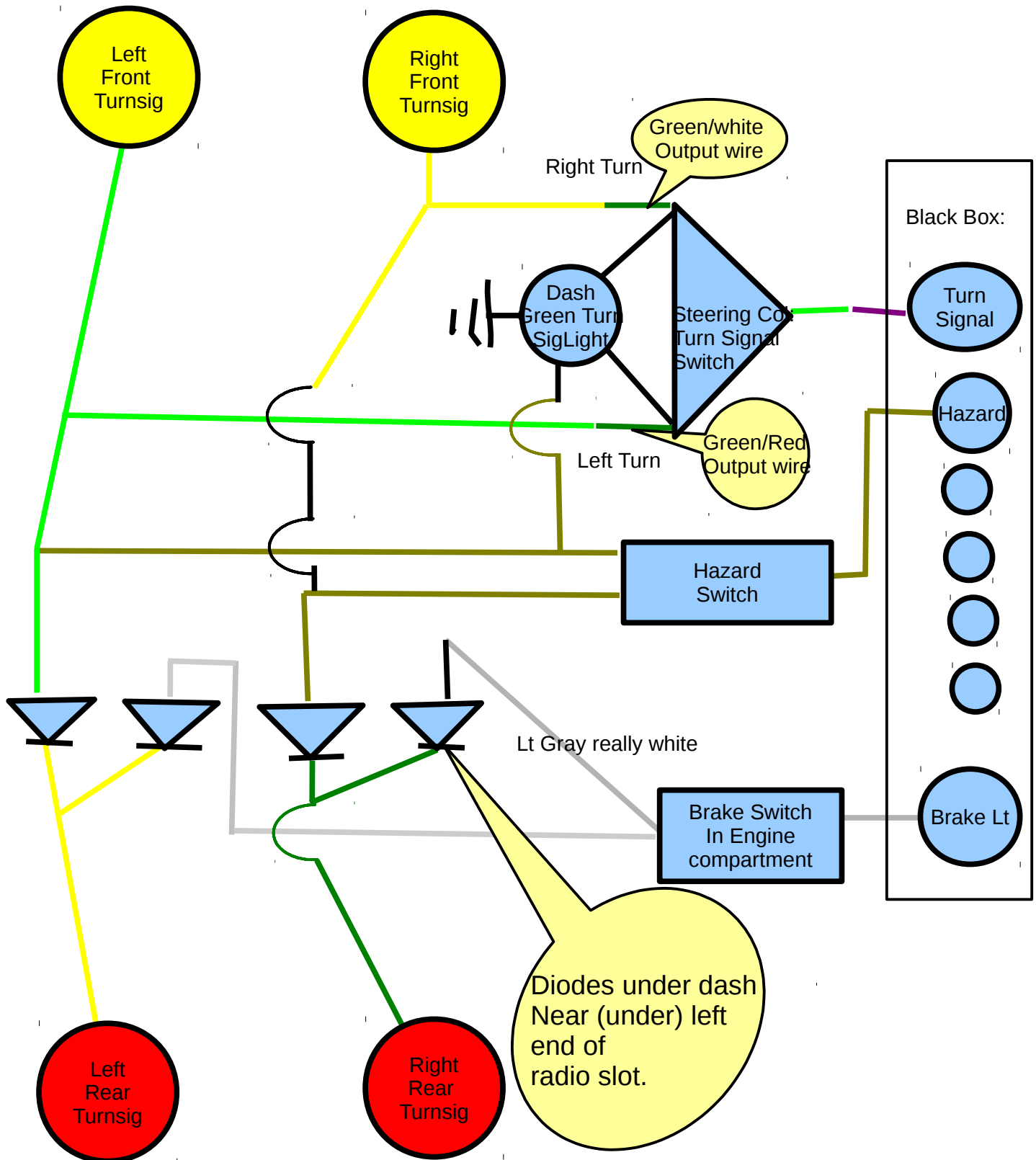
White speed
Sense wire
Shown yellow

Speed Sense
Transaxle
Rear end

Lights circuits are complicated. This is this begins the power side. The power is from black box 'alarm cig lighter' which is always hot. Three wires out. Dark Gray (labeled low beam). Two greens labeled High Beam. Relays ensure only low power goes through switches.



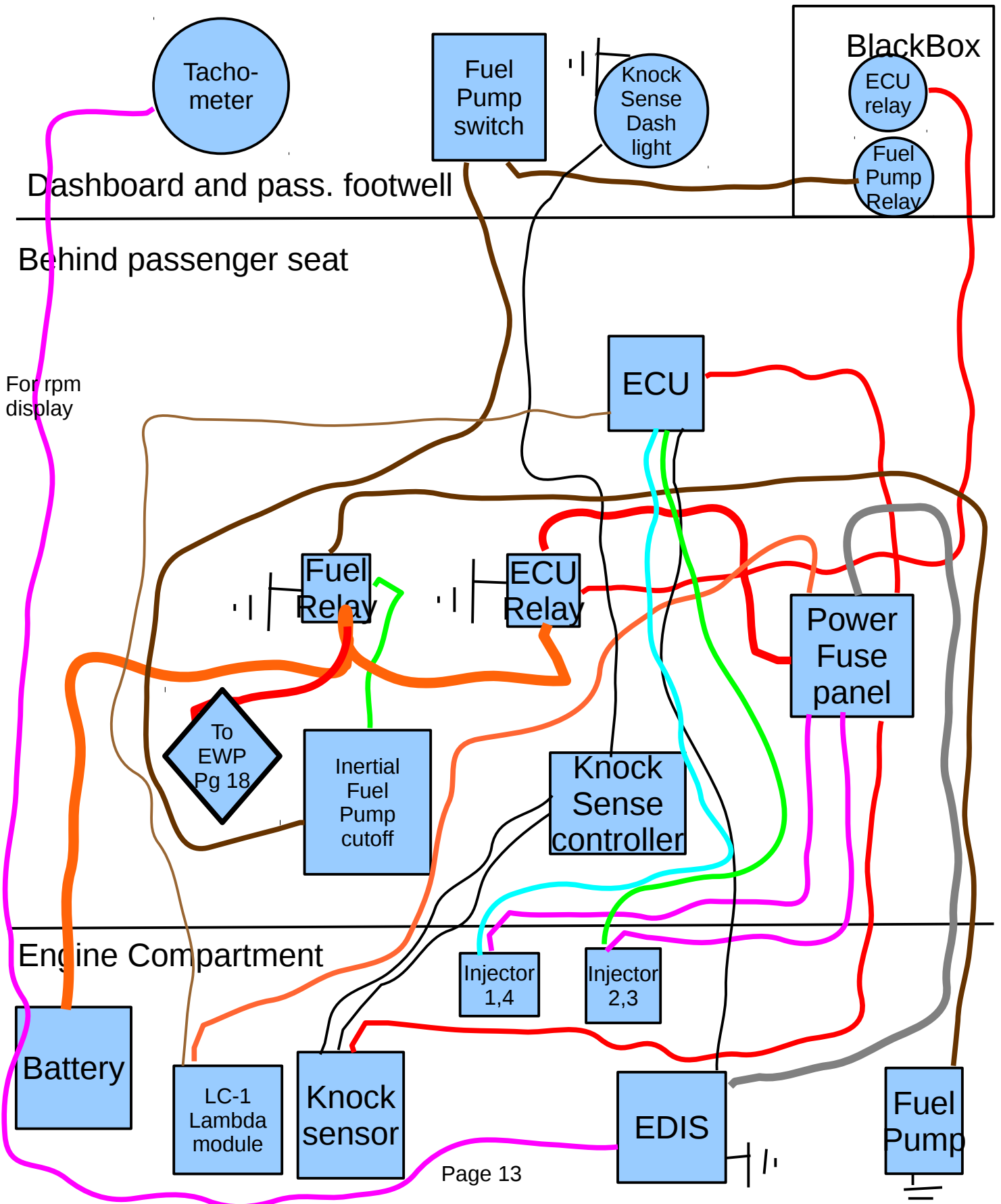
The diodes prevent the brake wires from connecting left and right turn signals. A defect is that if brakes pressed both rears light, no rear turn signal while brakes pressed. Colors to the diodes and wires to the turn signal light were hard to determine (oops).



A pair of xor circuits, one per side, would fix the brake-light overriding turn signal issue.

ECU wiring

Fuses near Power Fuse panel
Not shown



Generic Relay Layout

This shows the pin side of a standard automotive relay
But oversized for clarity. All pins ¼ inch male
Spade connectors.

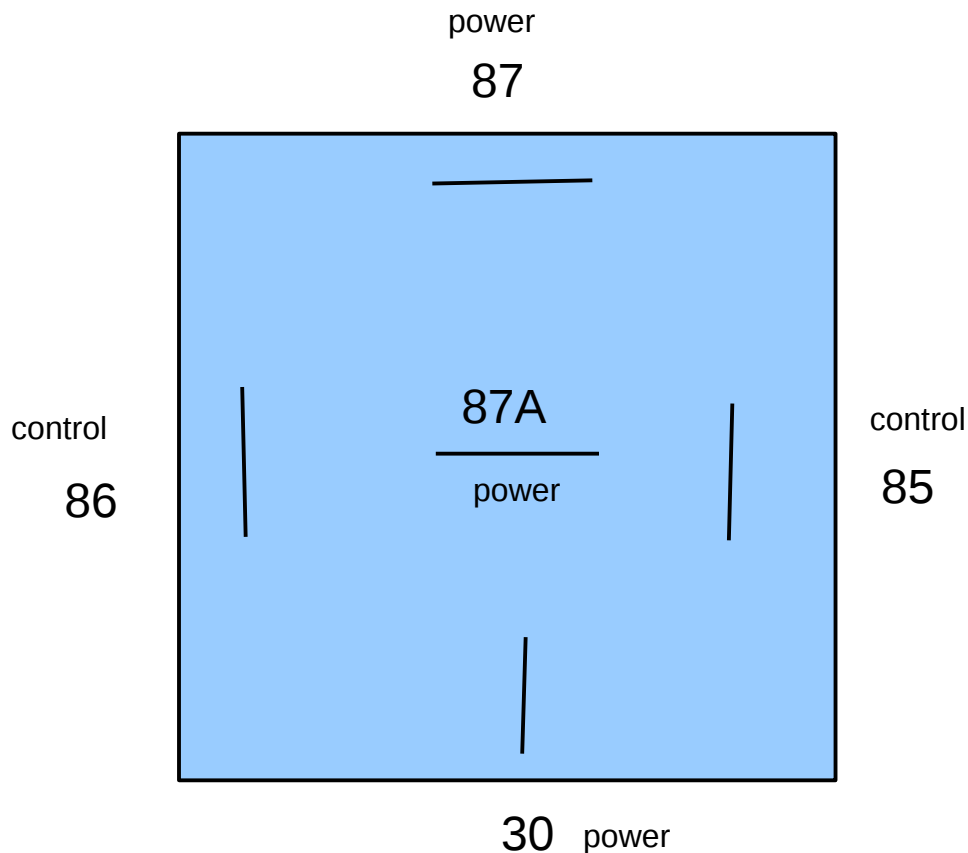
The 5th, center, 87A, pin is 'normally on' and a 4pin relay
Is simply missing the center pin or the center pin
Is cut off..

Where relays used it is usually obvious which
Are the control and which the controlled side.

86 to 85 is the control side. Low power.

30 to 87 is normally off, but turned on by 12volts
Across 86 to 85.

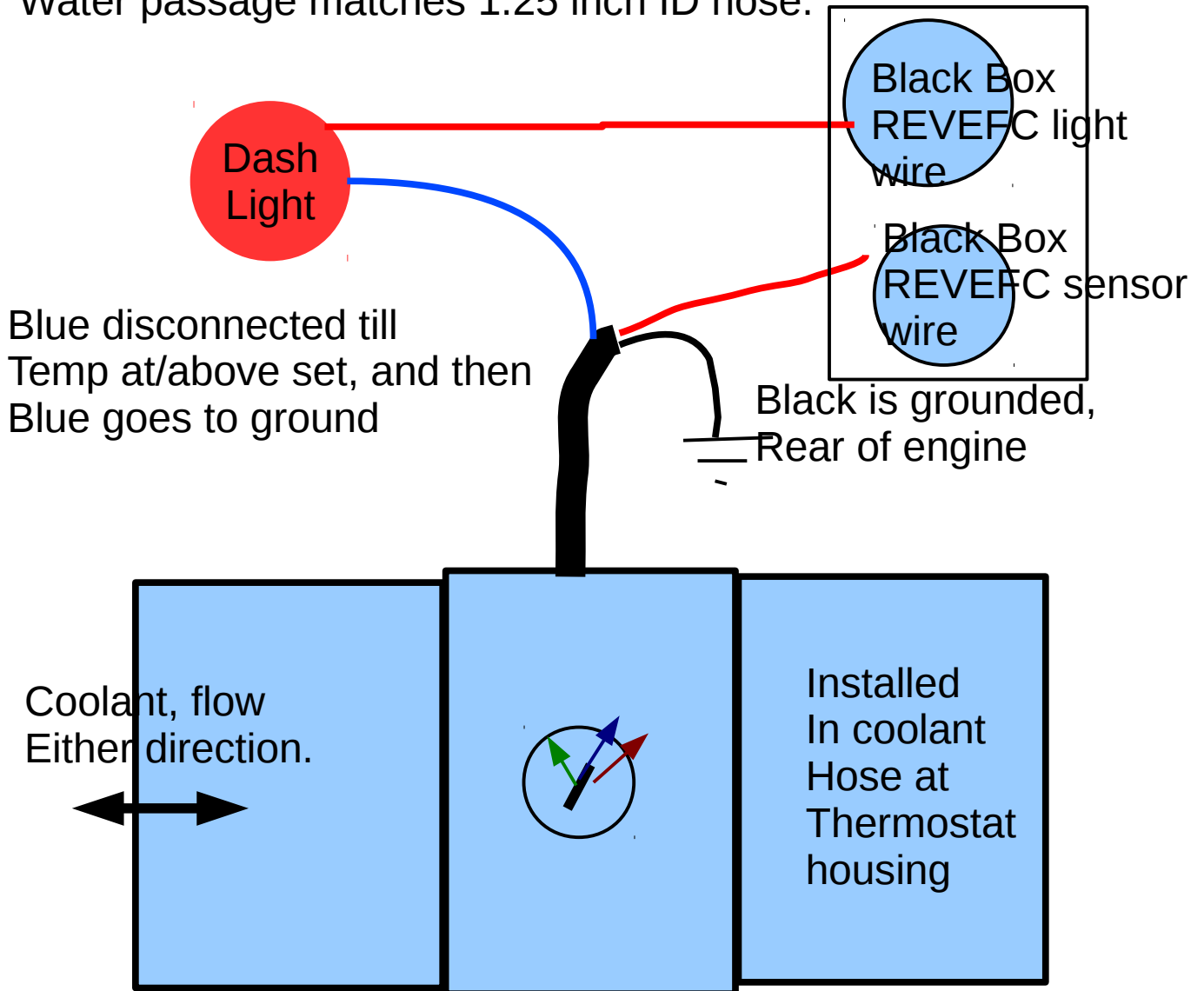
30 to 87A is normally on, but turned off by 12 volts
Across 86 to 85..



REVEFC: Revotec Electronic Fan Control EFC32

From BurtonPower.com

Water passage matches 1.25 inch ID hose.



Control is a simple screwdriver slot. Turns about 270 degrees. Above shown at minimum temp ('head' is at lower left).

Rotate clockwise for higher temps.

Head at green(11oclock) about 70 degree C.

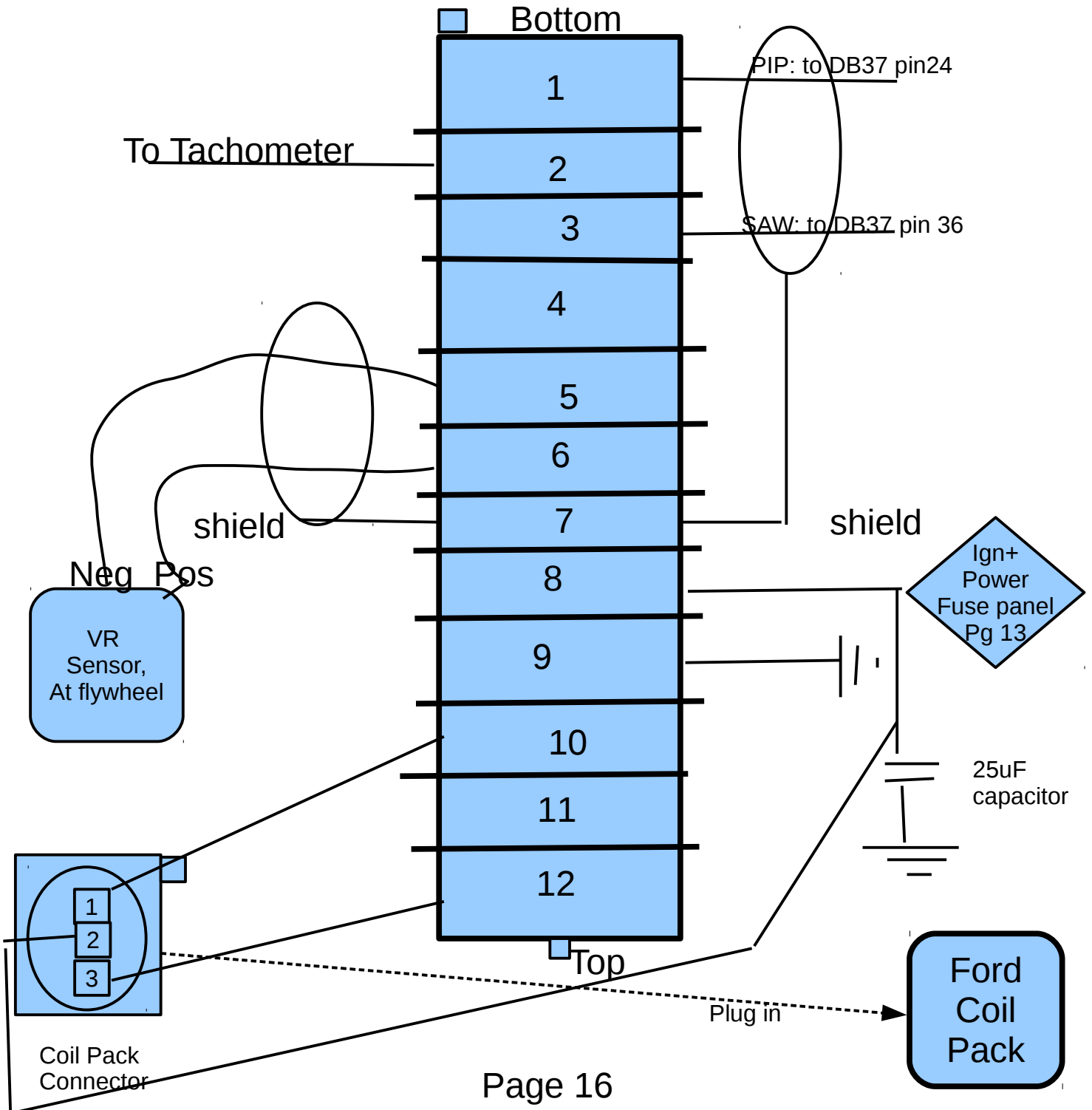
Head at blue (1:30) about 90 degree C.

Head at red (2-2:30) about 95 degree C.

Wires not large, intended to power little light or relay, not Power a fan.

EDIS wiring

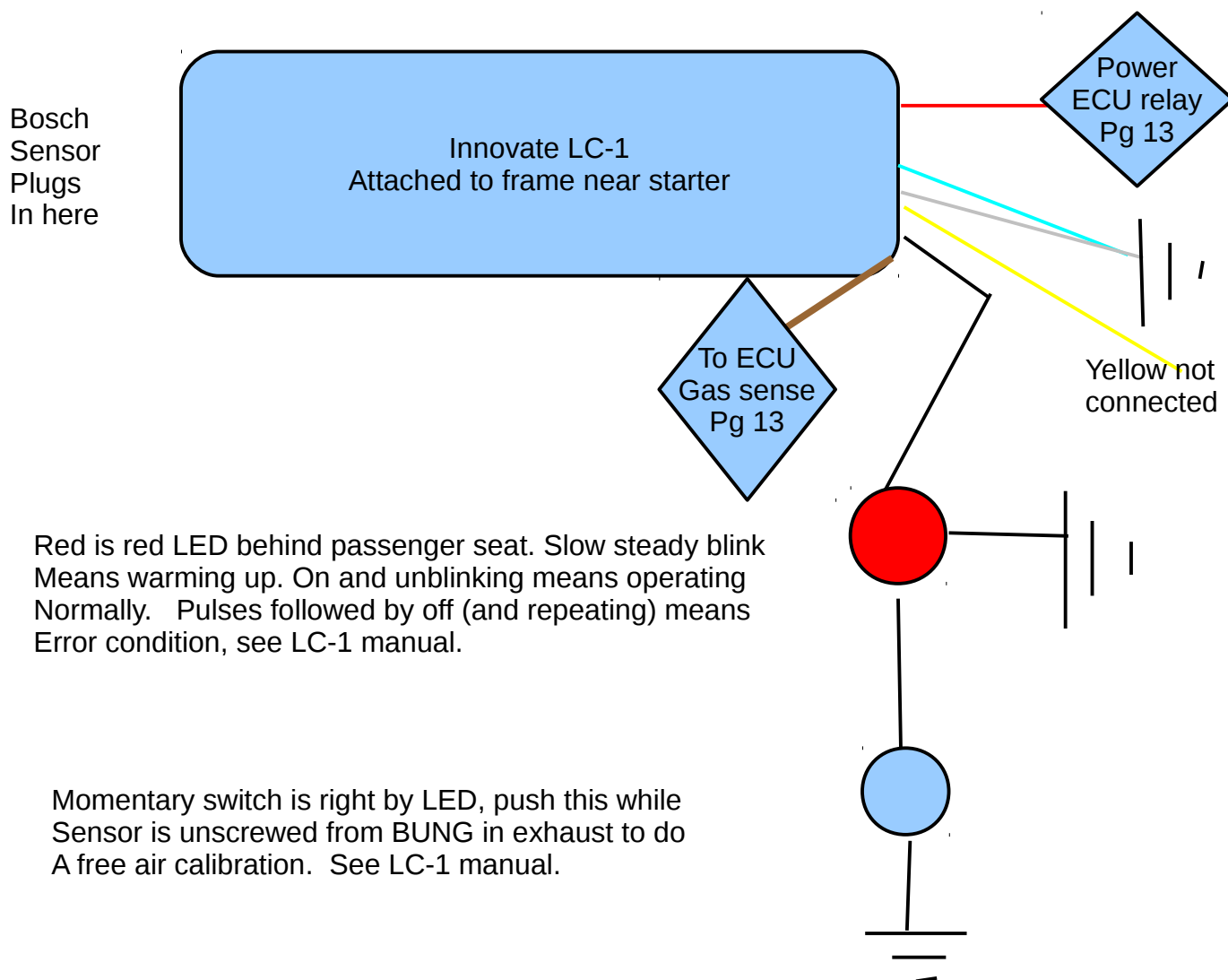
Ford EDIS-4 module is on right side of engine bay between oil filter and fuel filter. Wires for connectors 1,3,5,and 6 are shielded and the shields grounded through connector 7. It is tricky to avoid accidentally grounding the wrong thing. But the EDIS is tough and will survive wiring errors. Physical location of the crank sensor pickup is critical. 20-50 thousandths of an inch from the end of the pickup to the flywheel pins. Use Megatune logging to diagnose errors. View is looking into wiring harness connector.. PIP and SAW are signals between Megasquirt and EDIS. See Megasquirt documentation. As installed, #1 is at the bottom., #12 at the top.



Innovate LC-1 wiring

Innovate LC-1 acts as the intermediary between the exhaust gasses (via a bung in the exhaust) and Megasquirt. It plugs into power, the ECU, and of course the Bosch wide-band exhaust sensor. Never run the engine with the Bosch sensor in the exhaust unless the LC-1 is powered, An unpowered sensor will be destroyed.

The wires (shown right side here) are in a cable that goes to the ECU location in The passenger compartment. The yellow wire is useless. The brown is the signal that Megasquirt wants for the exhaust gas.

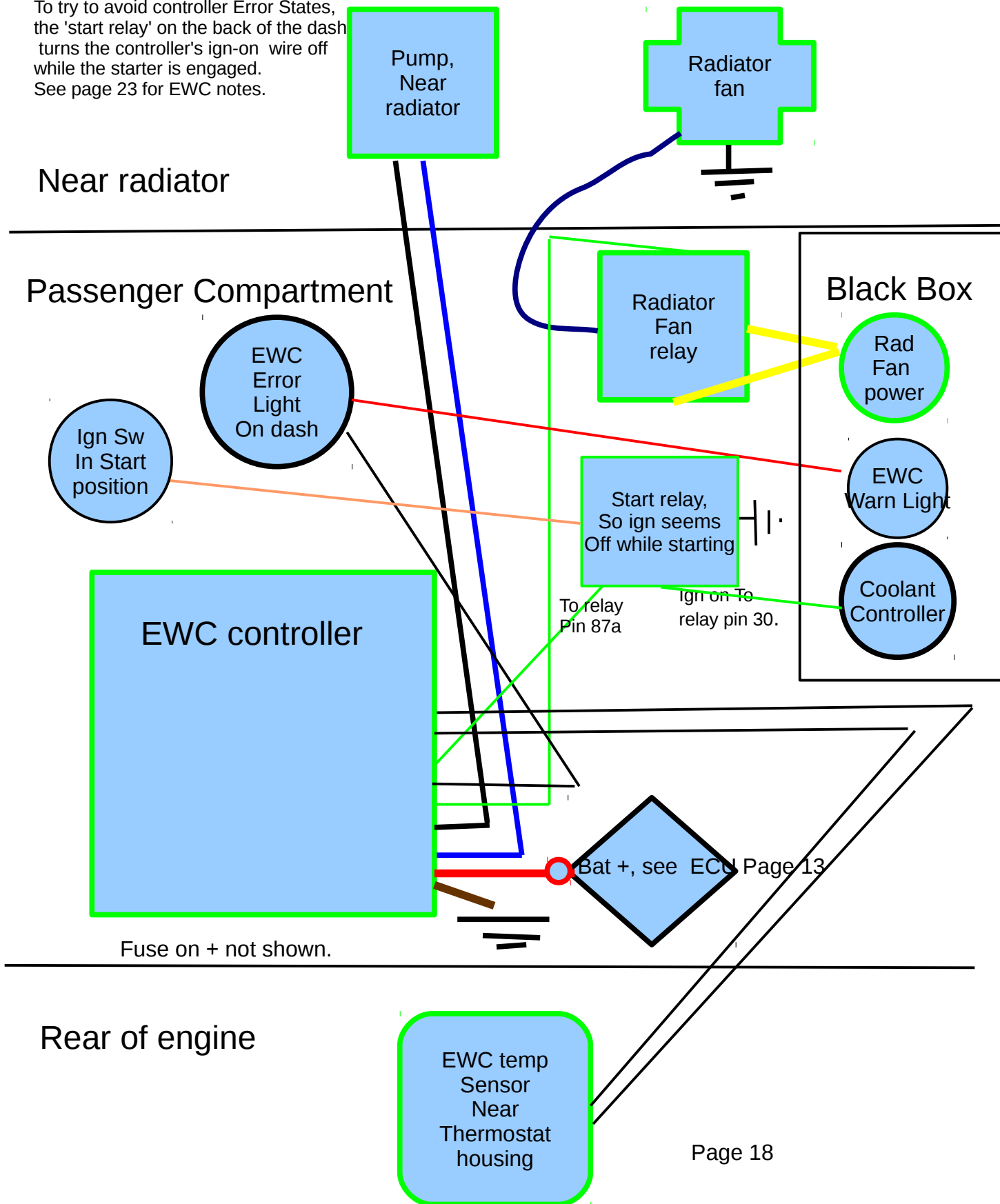


Red is red LED behind passenger seat. Slow steady blink Means warming up. On and unblinking means operating Normally. Pulses followed by off (and repeating) means Error condition, see LC-1 manual.

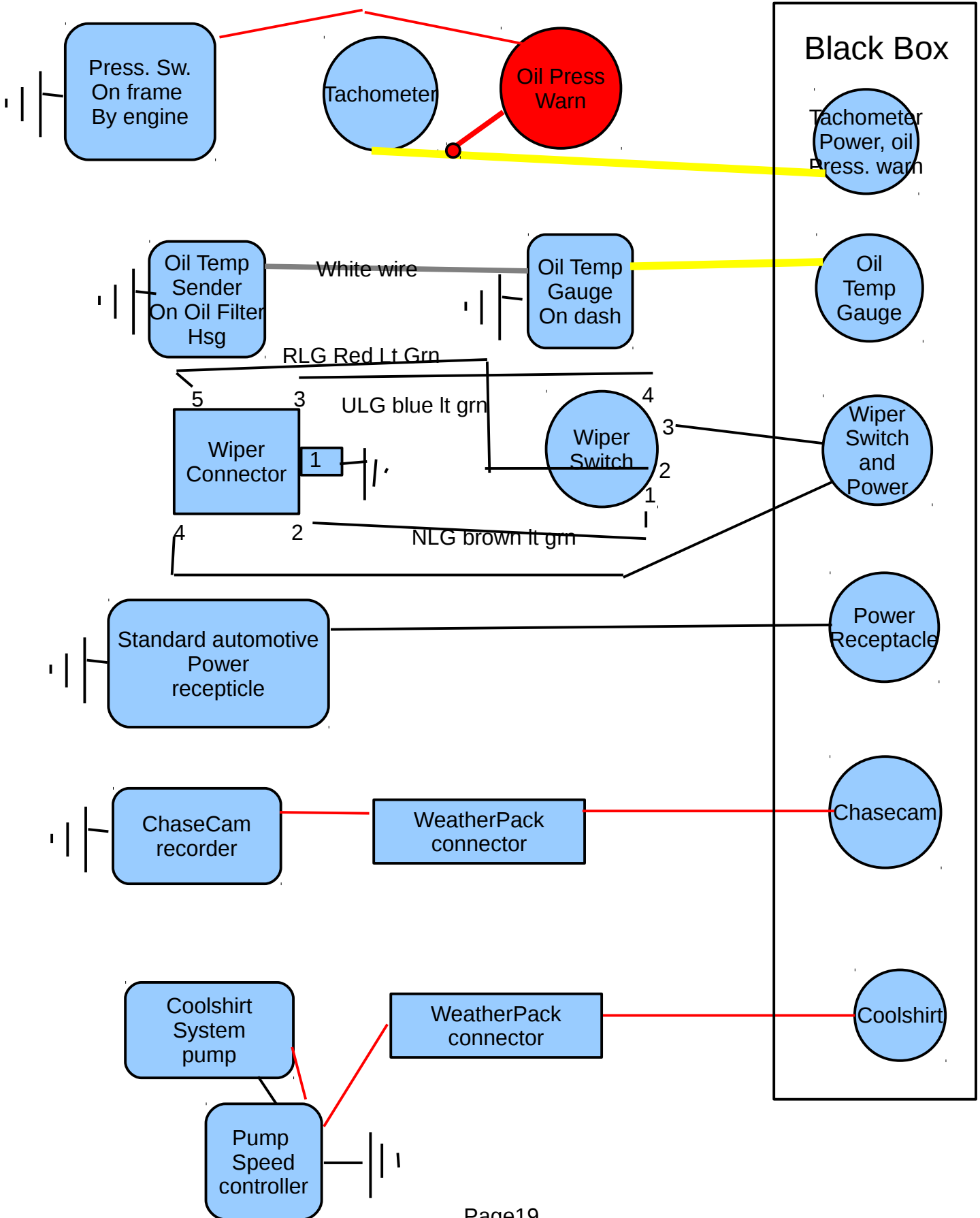
Momentary switch is right by LED, push this while Sensor is unscrewed from BUNG in exhaust to do A free air calibration. See LC-1 manual.

Davies Craig Coolant System Wiring EWP-80 and EWP Digital controller

To try to avoid controller Error States, the 'start relay' on the back of the dash turns the controller's ign-on wire off while the starter is engaged. See page 23 for EWC notes.

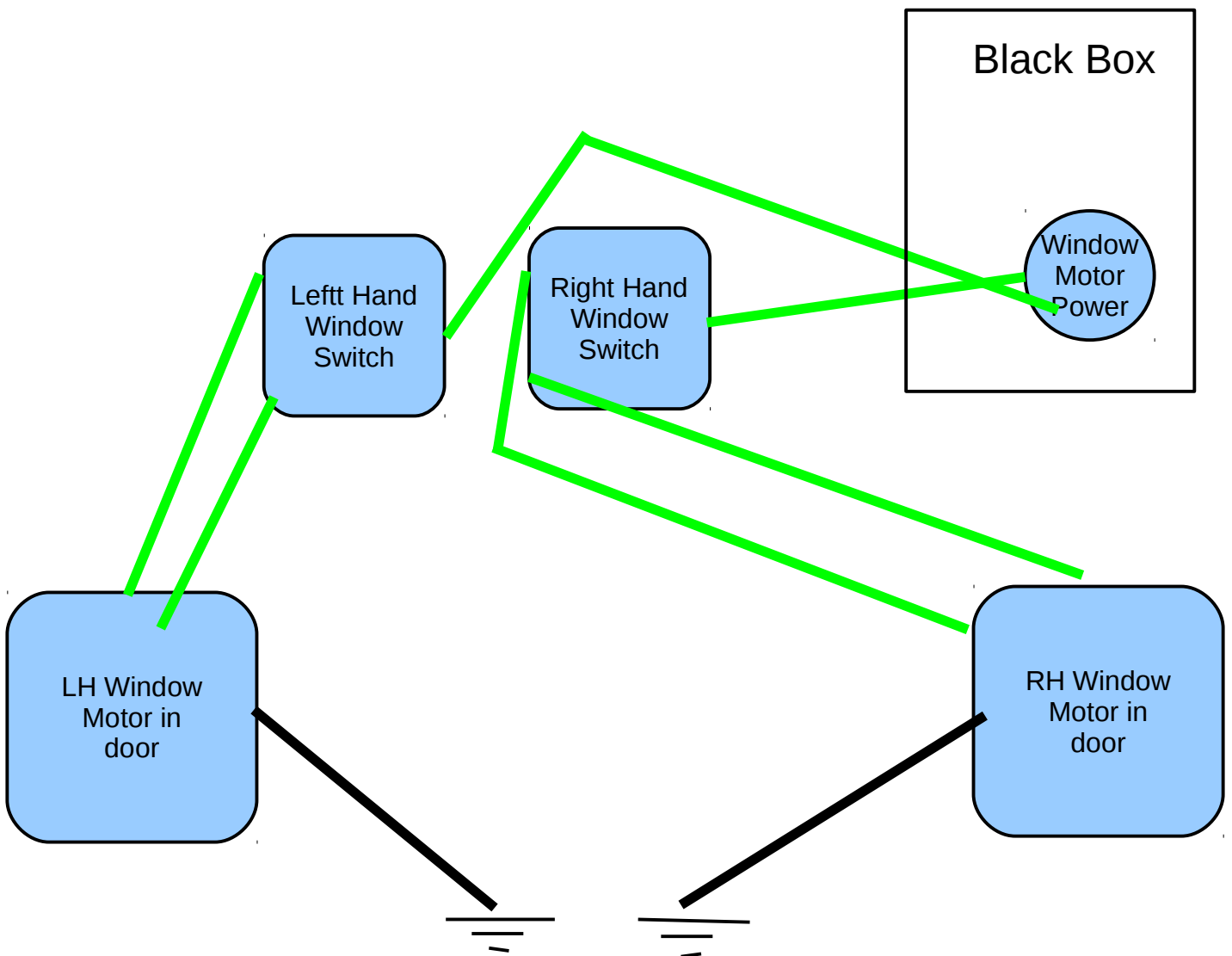


Miscellaneous Circuits



Windows

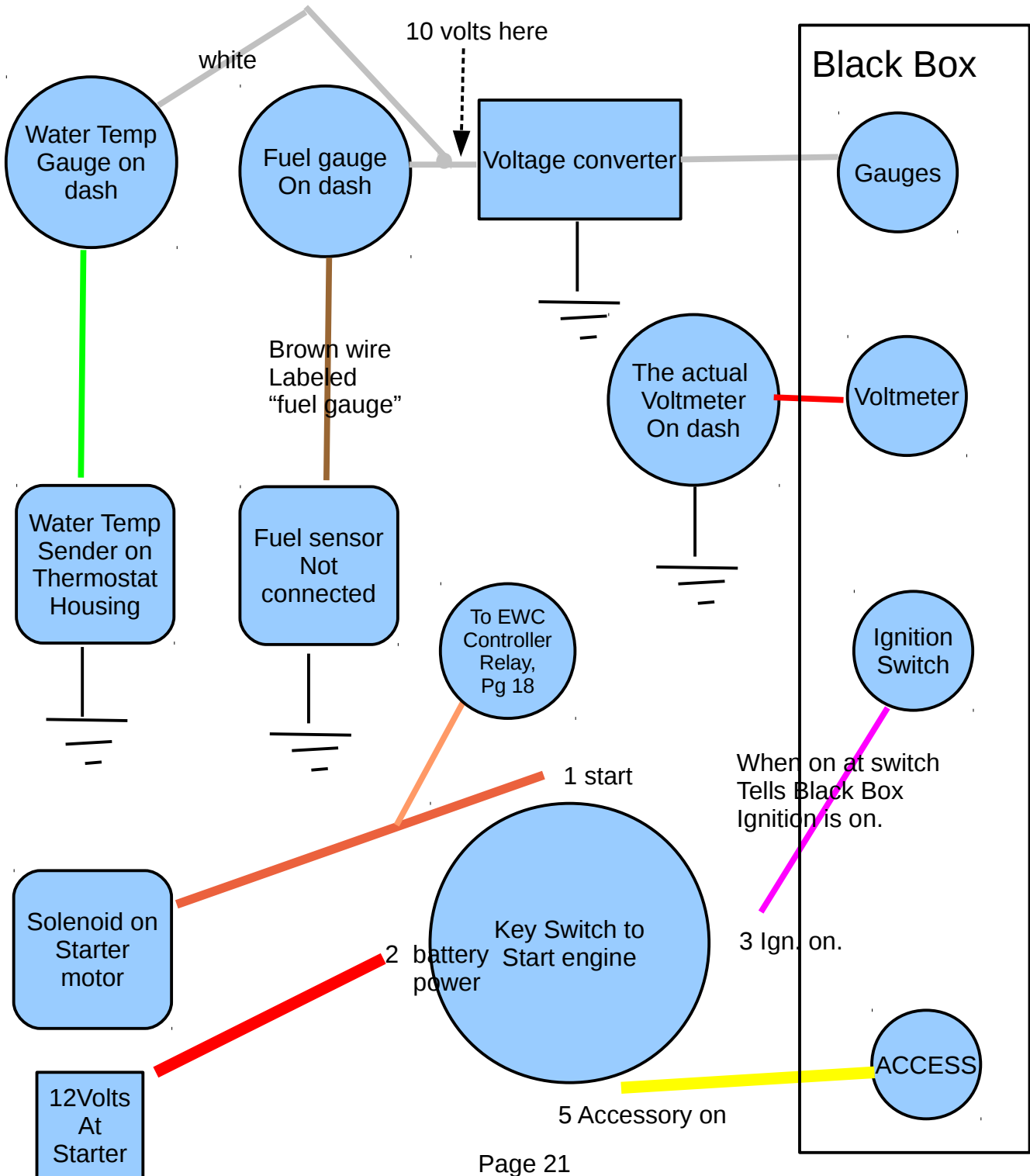
The window motors don't have external relays, that turns out to be unnecessary for good Window performance. The wires are substantial and both circuits in each switch are used in Parallel. Even though the glass was quite tight in the frames the windows moved very Fast in the frames..



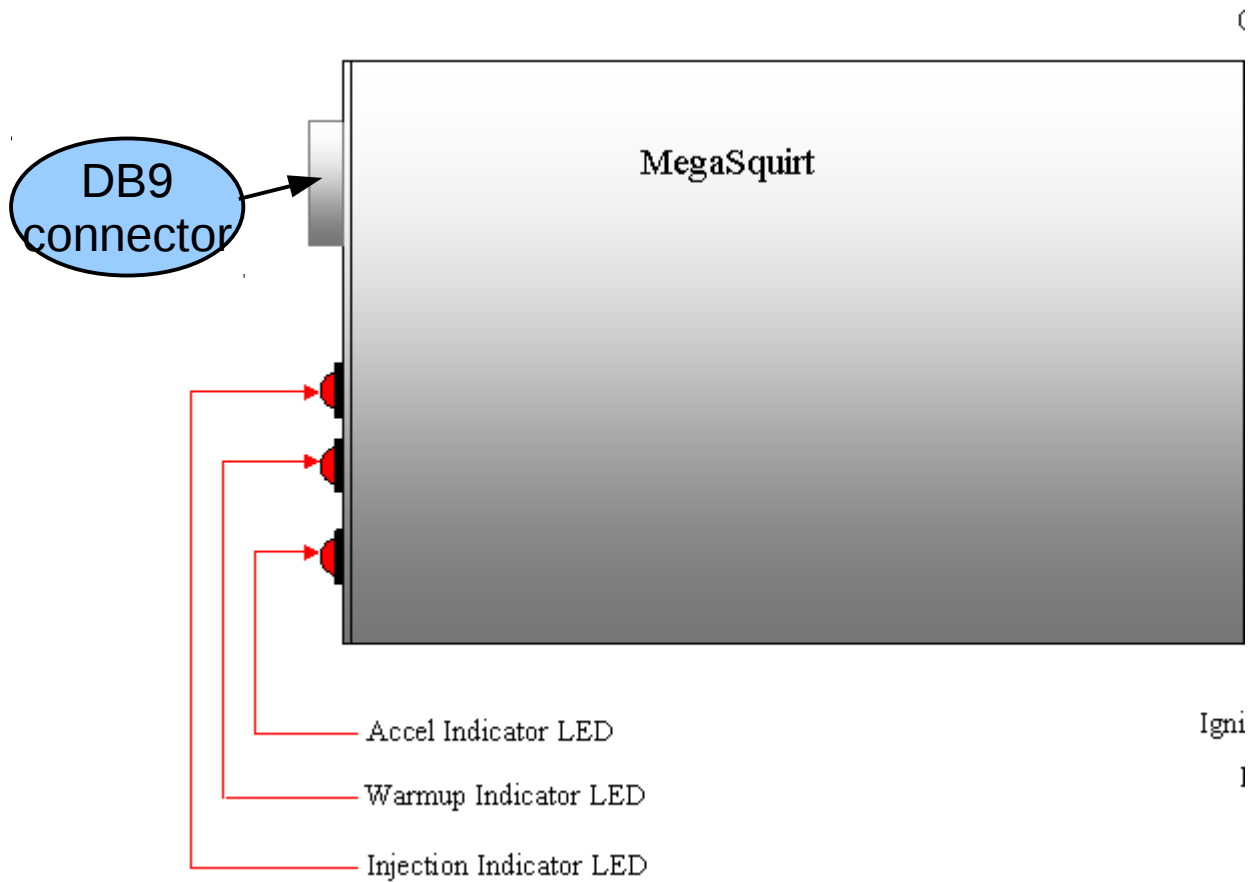
Gauges, Voltmeter

Gauge and voltmeter circuits are all between the black box and the gauges on the dash.

White gauge power wires here all labeled "gauge" on the wire itself.



In case you wonder what the lights on the MS II Ecu are....



EWC Controller notes:

If the engine is cold and the EWC is powered the EWC will go into an error condition after a couple minutes, flashing lights. EWC expects the temperatures to get above 86 degrees F within the initial couple of minutes. See the EWC book for additional error conditions.