

Pictorial Guide – How to install a Innovate Wideband O2 Sensor in a Clio 2 RS

I installed my LC-1 wide band O2 sensor purchased from Fastchip. Here's a quick summary with pictures of the install.

I am pleased to say it all work perfectly first time. I had the bung fitted when I had the new exhaust system fitted. This LC-1 install requires reading the manual / instructions, planning the job well and stepping through one step at a time. Don't rush it, nothing is better rushed.

Fitting to another Renault Sport vehicle would be very similar in principle.

Here is the LC-1 kit with my bag of bits to conduct the work (cable ties, crimps, lugs, solder, heat shrink):



Basic Tools required:

- Good wire strippers
- Soldering iron & extension lead
- Heat gun for setting heat shrink
- Drill with small hole saw or big drill bit to suit cable gland
- Small drill (4mm or so) to drill hole to mount indicator LED
- Multi-meter

- Pliers – pointed nose pliers
- Spanner to tighten sensor in threaded hole
- Small work surface like a small table to keep your bits on
- Old blanket or similar to lie on under the car

Knowledge required:

- Basic understanding of electrical circuits
- Ability to read, understand and follow a simple manual / instructions
- Reasonable hand skills to drill hole in correct locations
- An understanding of what you are aiming to achieve

Parts required:

- LC-1 kit includes threaded bung to exhaust fitting and all cabling
- Solder
- Heat shrink
- Cable gland to suit cable size
- Cable ties – most small – one large
- Electrical tape
- 2 x small round pin crimp lugs
- 1 x larger ring type crimp lug to secure 0V wires in and connect to chassis
- Small gauge hook up wire

Installation

Pulling the shroud off from around the gear lever

The panelling all comes away easily with all fixings either clips or Velcro

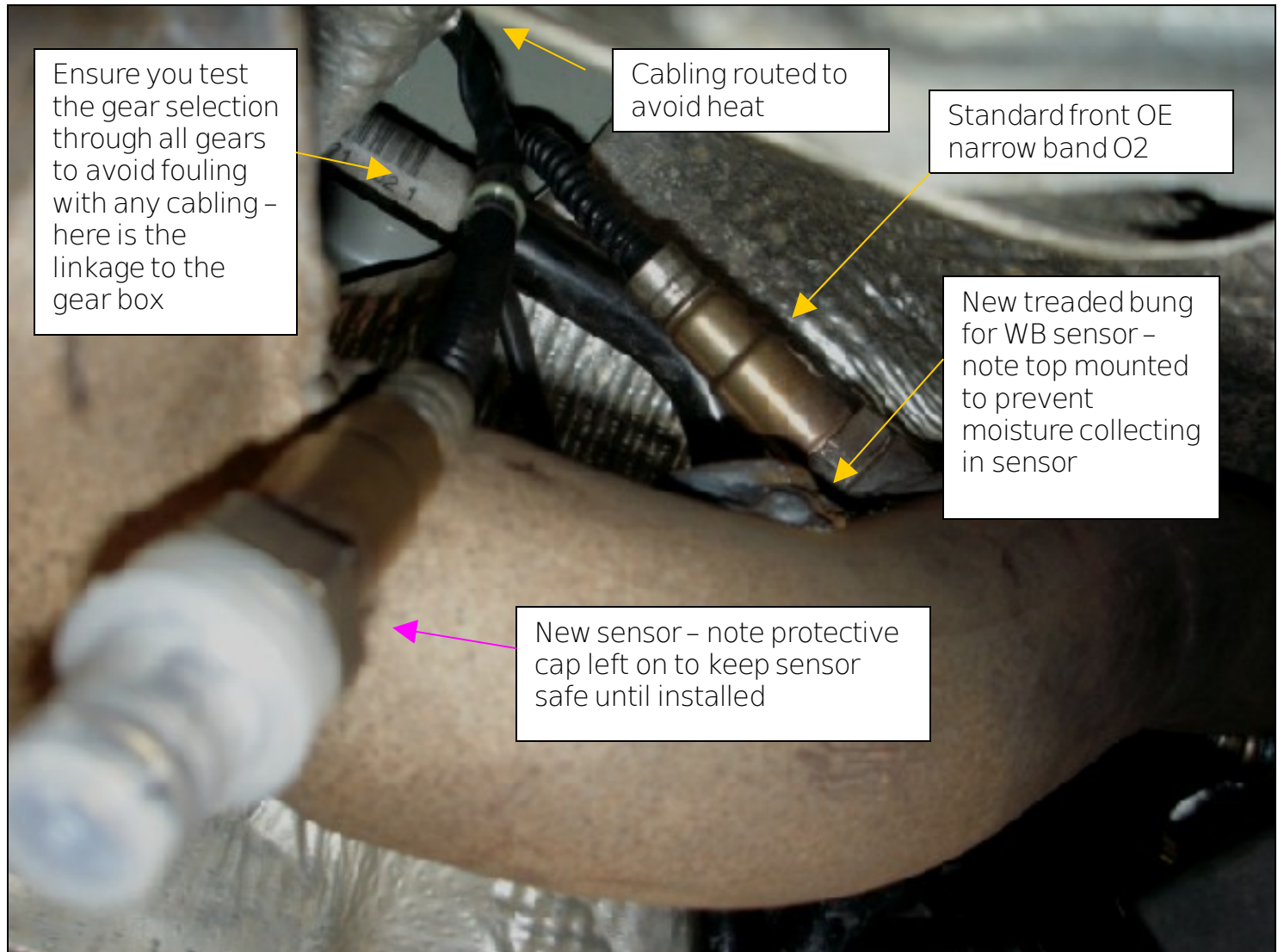
Take care unclipping the gear lever boot - easy to break retaining tab



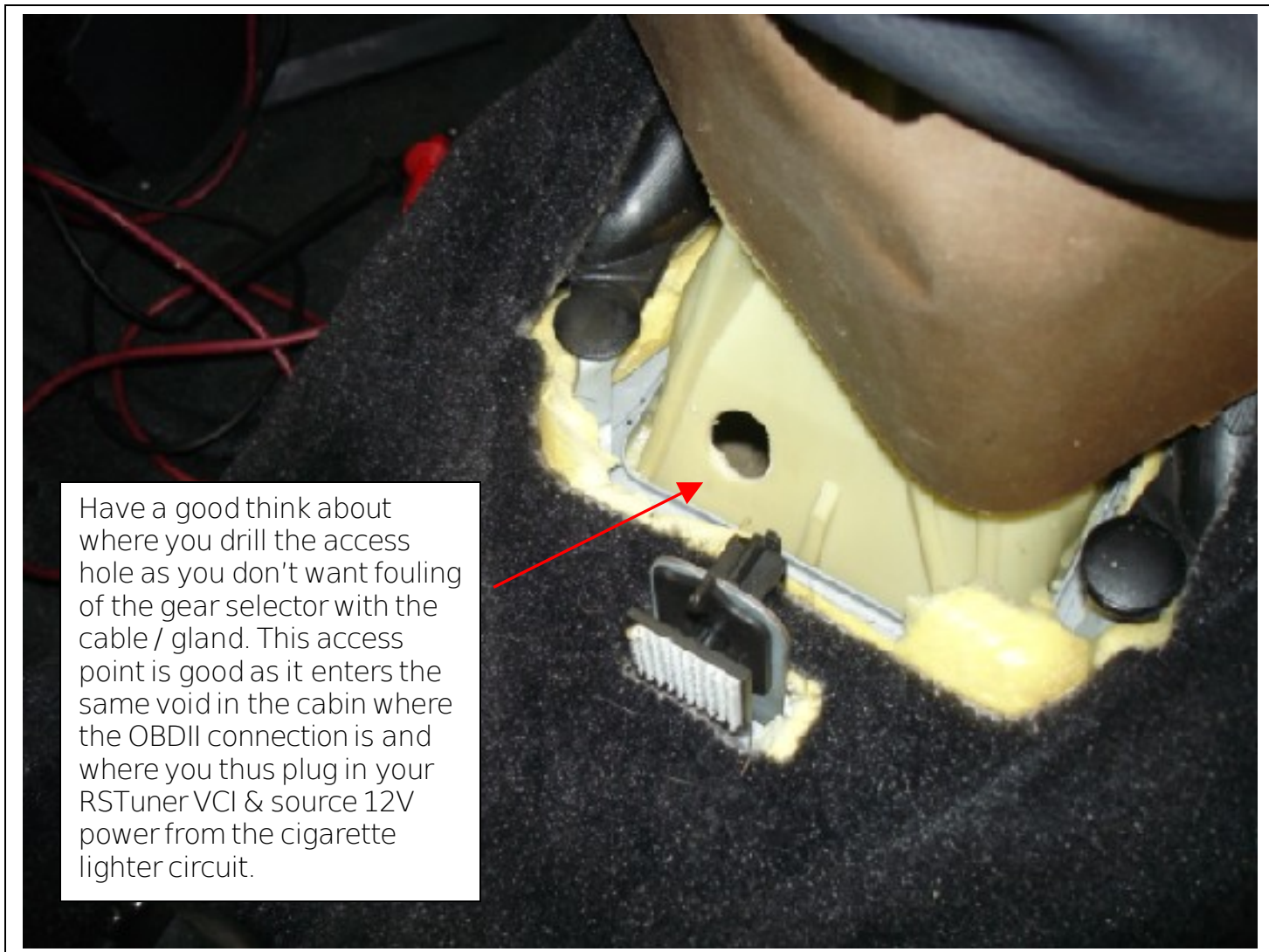
Getting the car up on ramps to get sufficient space under the car to work
Obviously a vehicle hoist would be the go.



Sensor hanging ready to screw into the threaded bung pre catalytic convertor



Drilling the hole in the gear lever mounting moulding (carefully selected to avoid fouling with the mechanical linkages underneath)



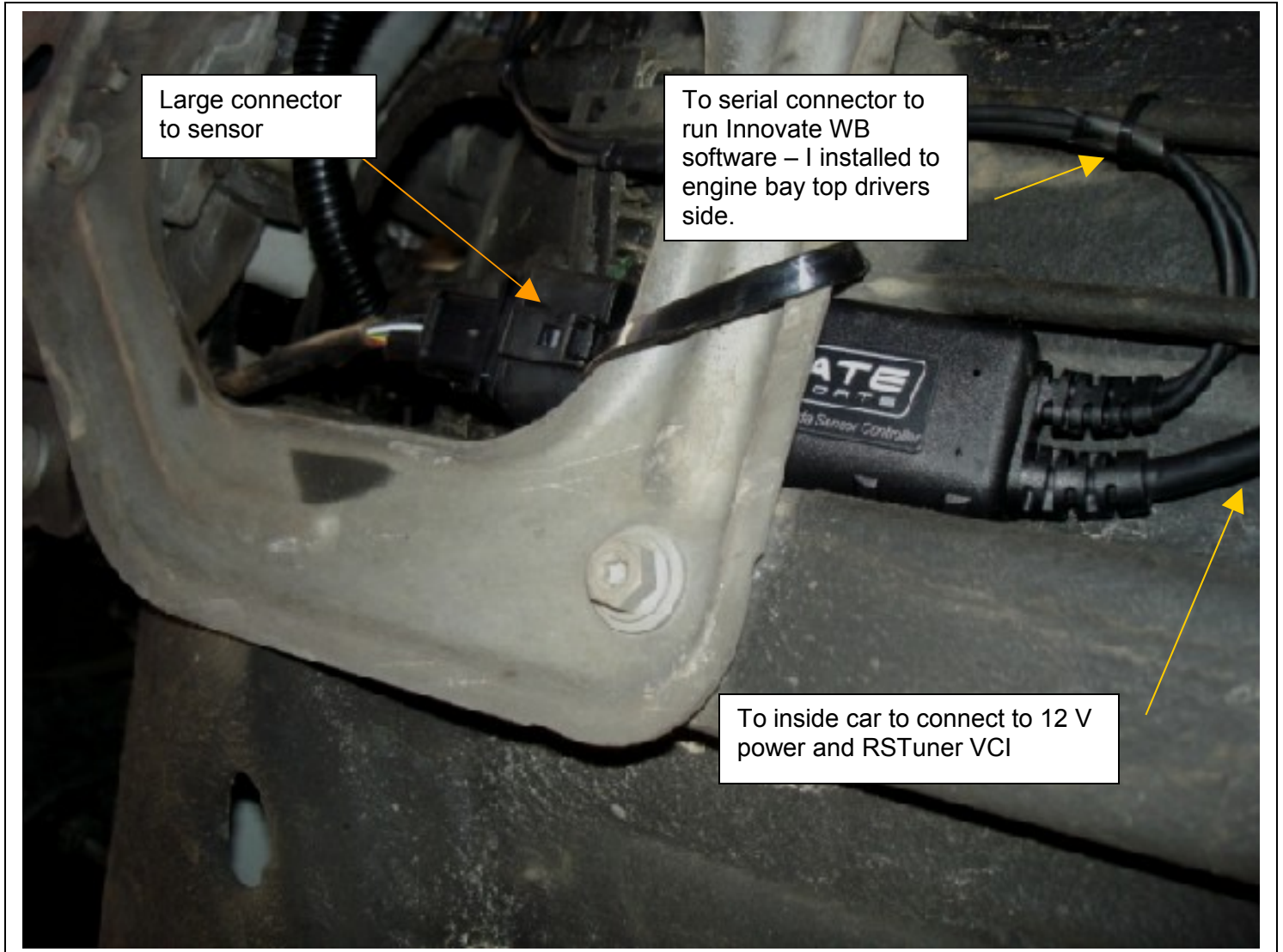
Feeding in the cable loom through the cable gland



Fitting the LC-1 electronics under the car running the cabling to avoid heat where appropriate and also fixing the LC-1's water proof electronics up somewhere safe and secure



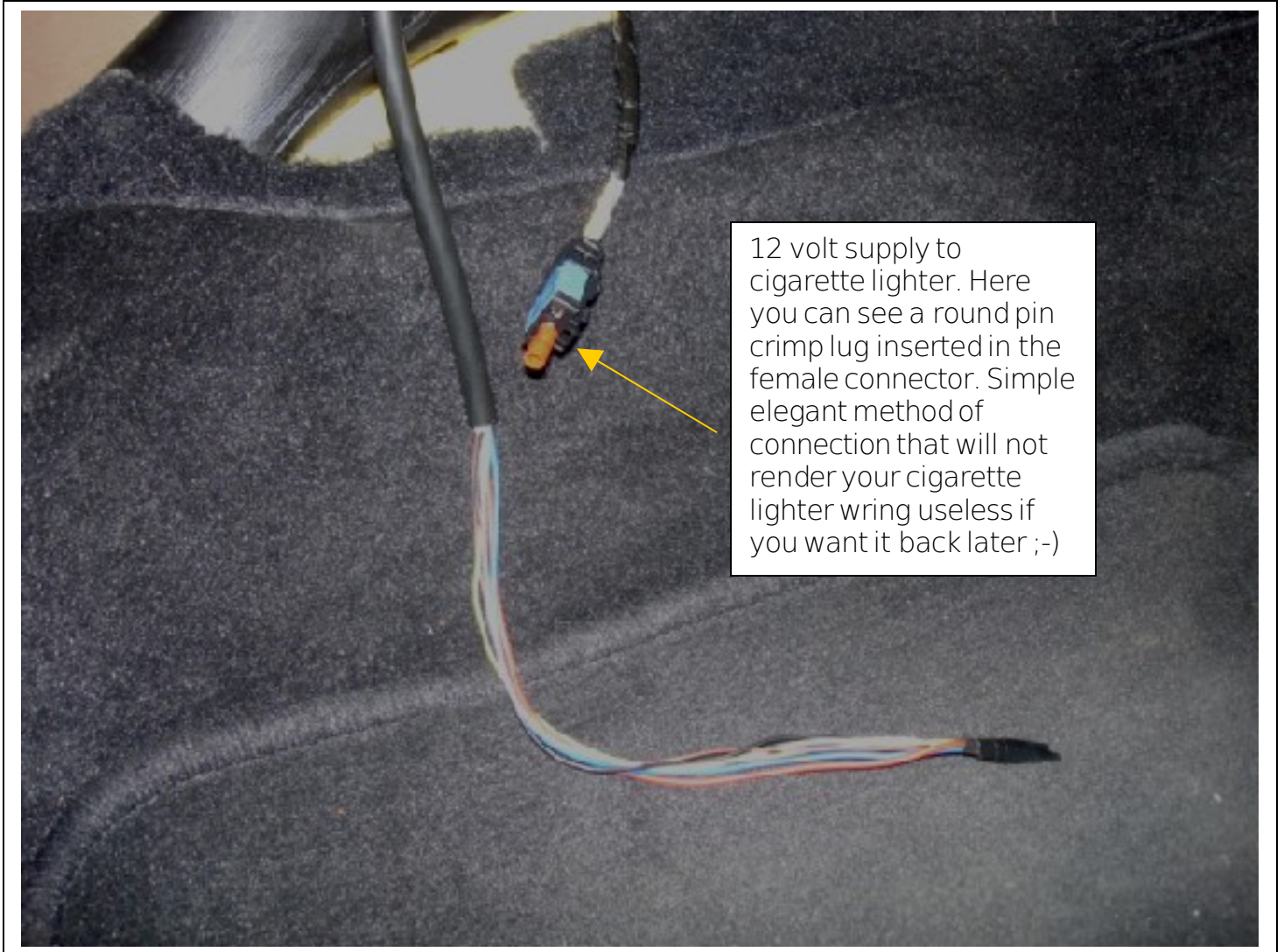
See...nice and safe & simple securing method – 150 Kg cable tie
Of course you may choose to install the LC-1 electronics where the lead length will allow
such as further up in the engine bay or even inside the car,
However you will need to allow a hole into the cabin big enough for either the sensor or the plug connector
to the LC-1 itself.
I went for somewhere nice and cool and easy to fit. Remember the LC-1 electronics is designed
to fit under the car in the weather.



Sourcing 12V & 0 V from the cigarette lighter circuit (cigarette lighter now defunct)

The voltage supply only need be sufficient to run the O2 sensor heater plus electronics. Obviously the cigarette lighter circuit is suitable.

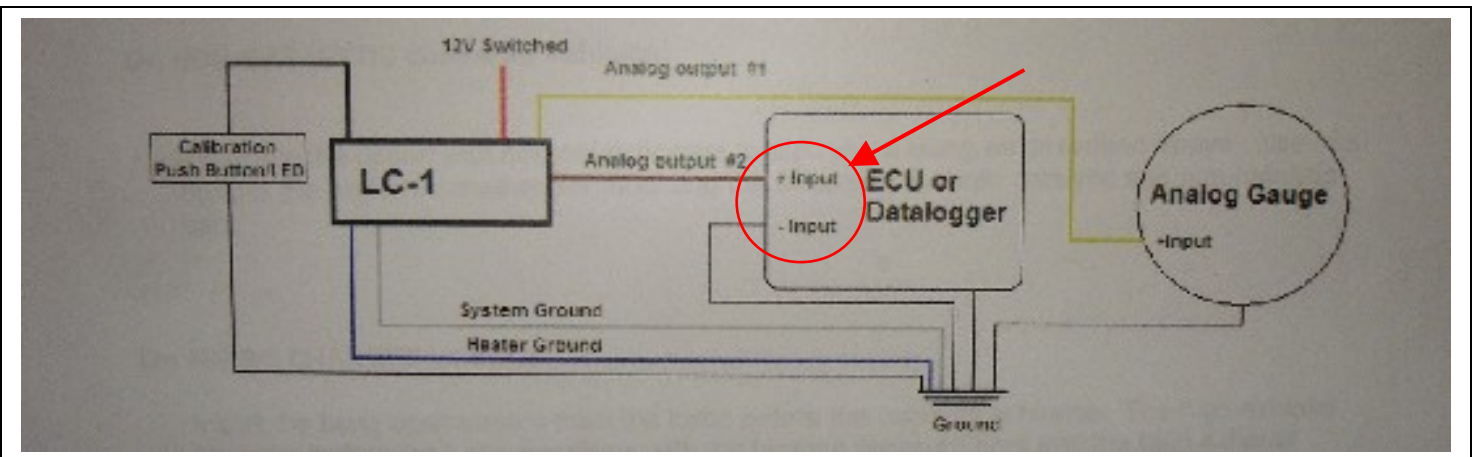
When you compare vehicle circuit fuse rating for the cigarette lighter and max current load by the LC-1. Remember to insulate well all connections, crimp or solder always and never leave exposed copper.



Getting the soldering table sorted to wire up to instructions



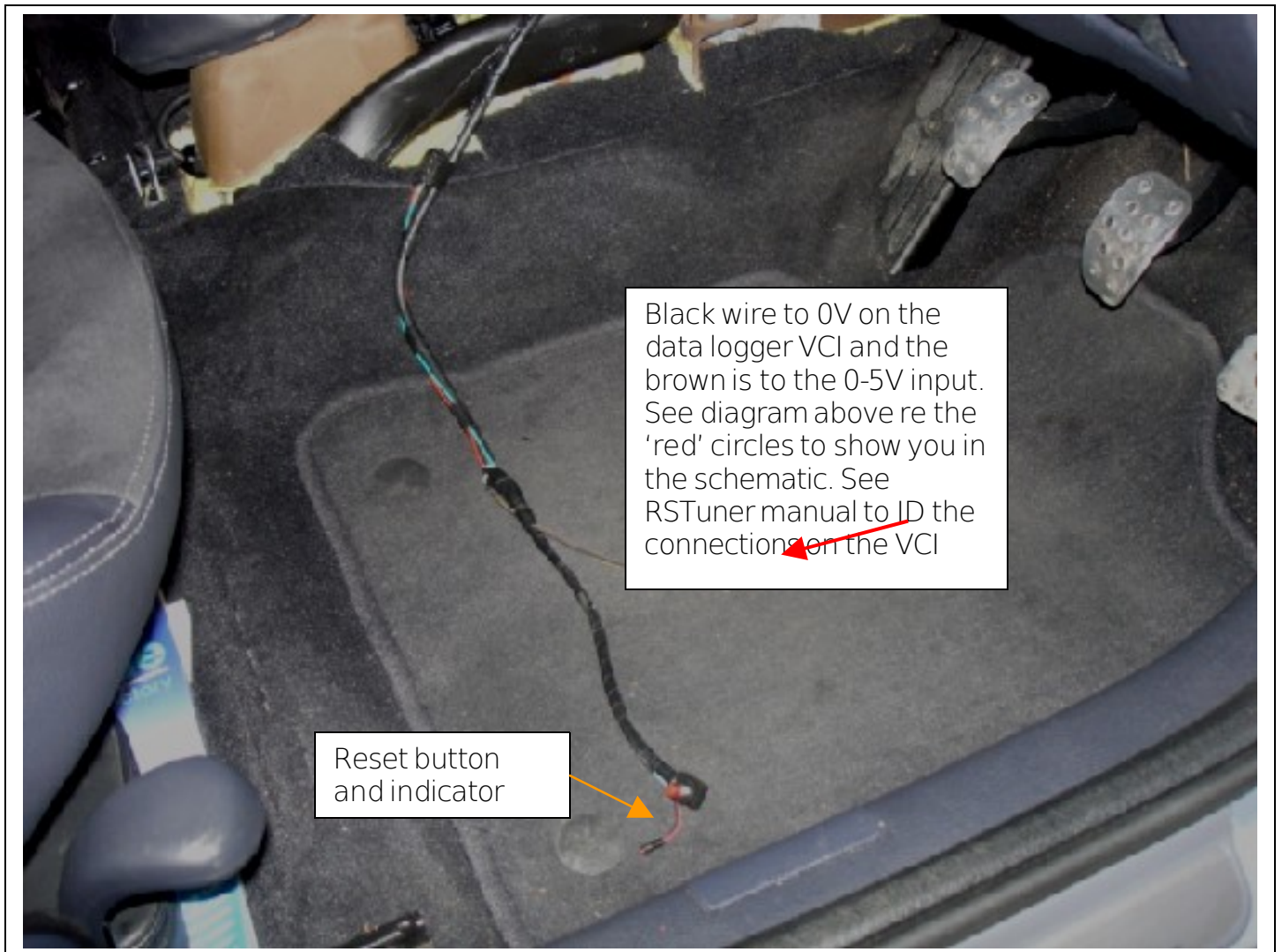
Wiring Diagram – just follow the colours and read the instructions!



Note – most of the wires are for tying system 0V to the cars earth system (vehicle 0V). I soldered all 0V wires Together and then fastened under a ring crimp to a single nut and thread point that secured the air-bag computer

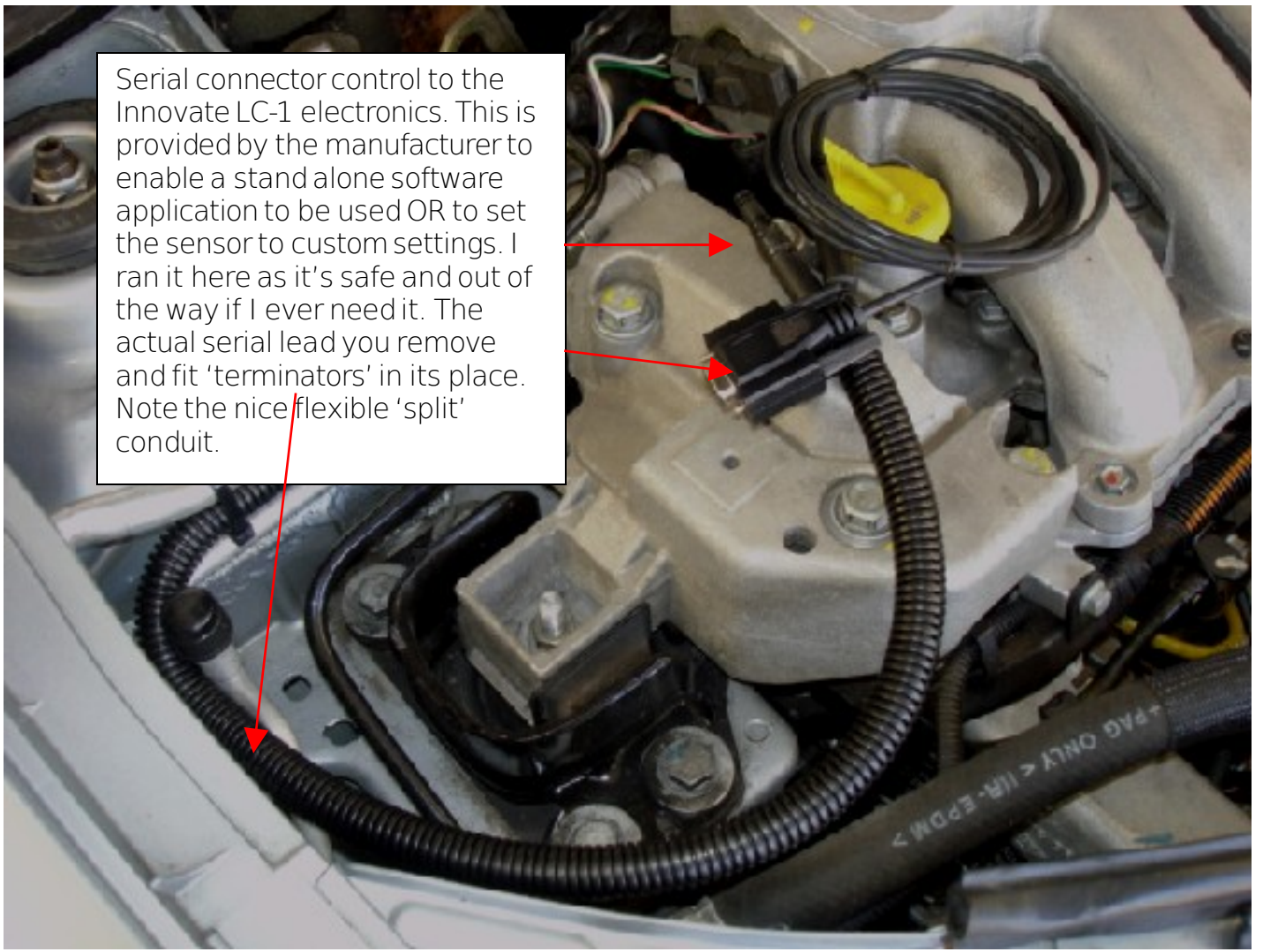
module in place. Ensures you don't get fluctuating voltages. System will also support a stand alone gauge!

Soldering / looming finished with split to Fastchip VCI analogue inputs / 02 calibrate button and operational LED / error code display.



Serial program & interconnect leads run under bonnet (only for supplied software or firmware Upgrades / customisation. Again run cabling avoiding heat, sharp edges. Cable tie into place

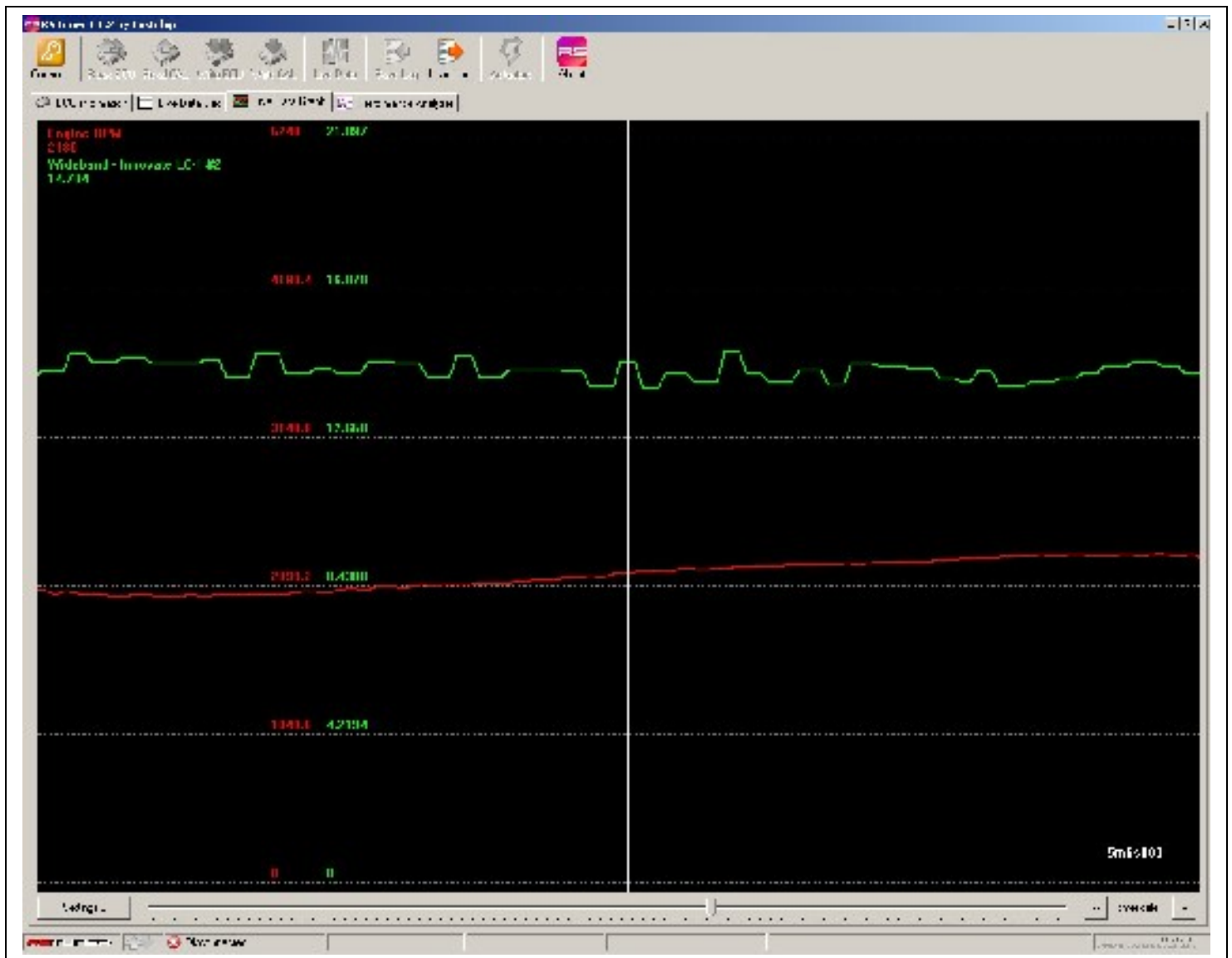
Serial connector control to the Innovate LC-1 electronics. This is provided by the manufacturer to enable a stand alone software application to be used OR to set the sensor to custom settings. I ran it here as it's safe and out of the way if I ever need it. The actual serial lead you remove and fit 'terminators' in its place. Note the nice flexible 'split' conduit.



All back together. Sorry about the picture quality! I permanently connected these two wires (black & brown) to the RSTuner VCI plug connector (female pins). This means I can just plug it in / out as required and the wires remain safe from shorting out. If you don't do this then make certain you prevent shorting!



Example of data log using WB LC-1 O2 sensor mapped against RPM using the RSTuner data logger



Another example: a 3rd gear 'power run'



Summary

All told this took about 3.5 hrs being very careful and around \$300 including kit, bits & installation of bung. You have to follow a step by step calibration for the O2 sensor in 'free air' before screwing it into the exhaust. After 6 months you recalibrate by un-screwing the sensor, dangling it in free air, pushing the reset button for 3 seconds and screwing it back in. Easy!

Now I can do full data logging with AFR's in WOT 'open loop' conditions and have a map written specifically for the new exhaust system. I can also monitor the condition of the engines fuelling and general health. All in all a good addition to any serious tuning activity. It completes the picture and allows for fitting of cams down the track or tuning further to any other breathing modifications.

A good little project and very worth while. I hope some people gain some insight from reading my little 'how to' pictorial guide.

Editor: Jamie Masefield
OZ Renault Sport Forum Australia