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Couple of folk have asked me about fitting the air/fuel ratio meter, obviously having not noticed the posts tacked onto the end of other threads... so here's a new thread. :)

I used an Autometer 5775 gauge from JW racing, catalogue @

http://www.j-w-racing.co.uk/acatalog/gauges.html

cost was £55.68 inc. VAT.

Ideally i'd have liked one with a black face and black surround, but it seems the only Autometer air/fuel gauge with black face has a polished silver surround which didn't match my boost gauge so the white/black was next best.

Fitting needs 3 wires, ignition switched +12v, ground and the lambda sensor output.

With the Dawes gauge i'd tried initially (which wasn't compatabible with the coupe) it's very specific that the meter ground connection should be taken direct from the battery and not a general chassis ground point within the car near the gauge, due to the fact that the ECU measures the lambda signal as the voltage between the probe output and battery ground. So to get the most accurate and consistent measurement you should connect the gauge in the same way.

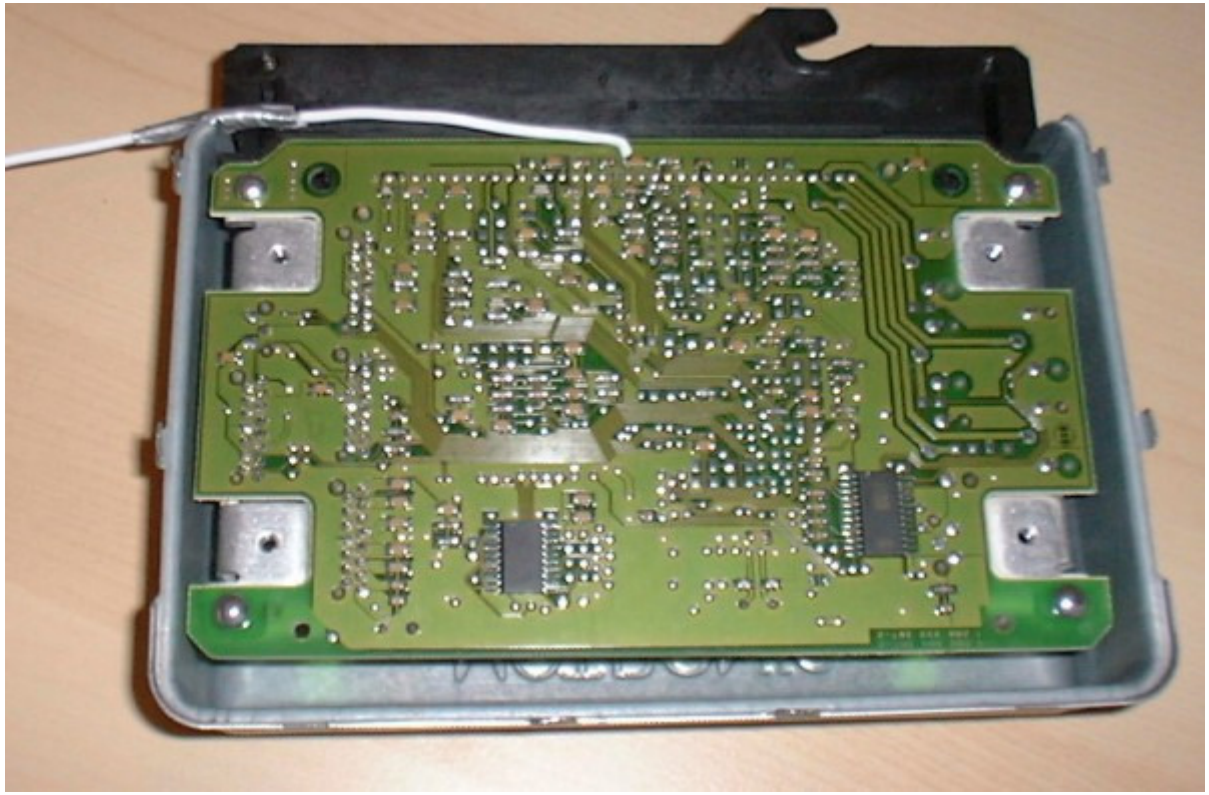
The autometer fitting instructions didn't mention this, but i thought it would be a good idea anyways. My headunit was already connected direct to the battery so i just ran the autometer gauge ground off the same direct battery connection as the headunit which seems to work fine.

Easiest source for an ignition switched +12v is from the back of the cigar lighter - i'm already running a radar detector and origin blue unit from there so it was no problem to hookup the autometer gauge there also. If you're doing this for the first time then solder a fairly heavy duty cable to the back of the cigar lighter power connection and run it back to a plastic inline fuse connector with a relatively low fuse installed (say 5A or 10A). That way you've always got access to a nice, easy fused +12v ignition switched supply on a screw connection without having to do any more soldering!

So that sorted out the power/gnd connections, next was the actual lambda sensor output... this can be taken either direct from the black wire on the sensor under the bonnet (maybe even from where it's connector joins into the main loom next to the battery?) or from the ECU itself. I decided on the latter option 'cause it would be easier than running another cable back through the firewall from the engine.

I'd read in another thread that the lambda sensor output connected to pin 10 on the ECU, so wired it up to that point at first, but it didn't work. The sensor output actually goes into pin 28 of the ECU. You can try locating the correct wire within the loom and stripping/soldering or using a scotchlok to connect onto it, or remove the ECU and solder directly onto pin 28 on the lower side of the PCB.

Here's how i did it:



You have to remove the ECU (4 x 10mm bolts) and disconnect the main loom connector, then twist up the metal tags and unscrew the bottom metal panel from the ECU.

This requires mini "star" bits, if you don't already have some then order the "security bit set" from Screwfix for £9.99, online @ Screwfix

(Also handy for opening Xbox's etc. too!)

I soldered the wire onto the edge of the resistor connected through to pin 28 (see first pic) 'cause it was slighty bigger than the exposed end of the pin. The pins are marked on the connection side so you can verify with a meter that you have the correct one.

You'll have to bend the metal case slightly to allow your wire to exit without rubbing. It's also a good idea to tape the wire up with some duct tape around the exit point (see first + second pics) just to be 100% sure it isn't going to short later due to any movement etc.

Above pic shows wire exiting ECU.

As with the boost gauge i just used a holesaw to go straight through the dash! Just make sure there are no wires behind it, depending how the loom has been installed by Fiat their may be wires for the alarm or lighting behind this section of dash!

Next pic shows the holesaw (fits to any standard drill) and section cut from dash. It makes a reasonably neat job, just a little trimming/tidying up with scissors might be required on the vinyl face around the hole. I think the gauges are a standard size (52mm?) and the holesaw i used was 53mm which was fine. I fixed the gauge in place with a little hot glue on the top, left and right sides, then just pushed it into position. The bottom edge of the gauge didn't go completely flush with the dash due to the angle it sloped away at, but the autometer gauge comes with a black rubber "band" surround which blanks it off quite nicely so you don't notice that it isn't totally flush unless you're looking from beneath the gauge.

And the final pic shows the gauge in place, below my boost gauge:

At idle or partial throttle the gauge shows fuelling flicking between lean and slightly rich every second or so, showing that the lambda sensor is doing it's job correctly. At wide open throttle it shows slightly rich, again as expected. The gauge does tend to flash a lot, which is kinda distracting, so the position hidden behind the wheel is ideal allowing you to check the gauge when required without it sitting in view all the time which i'd think would be annoying after a while, particularly on a long journey at night.

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black = earth
red = power (instructions state to add a 5amp fuse inline with it)
purple = connects to lambda sensor wire
