

HOW TO OBTAIN FTO DIAGNOSTIC INFORMATION

There are many ways to obtain the diagnostic information from your fto, you will find in this guide the specialist equipment that can be used .

You will also find in this guide the most common code errors and a way to read them without the use of one of the specialist diagnostic tools.

The FTO's engine ECU monitors everything from sensors to injectors, solenoid valves to ignition. If it notices a problem, it records this in the form of a diagnostic code. A Mitsubishi dealer equipped with the right MUT-II diagnostic setup is capable of accessing these codes.

MUT-II



DESCRIPTION

The MUTII Tester is offered to the aftermarket in the same specification that is currently supplied to MITSUBISHI franchised dealers. The MUTII can complete coverage all of MITSUBISHI car systems past and present coupled with the knowledge that the developments will continue well into the future .

Test function:

Read faulty code

Clear faulty code

Data stream

Activate state

Programming and coding control unit

Component test

Data stream

MUT III



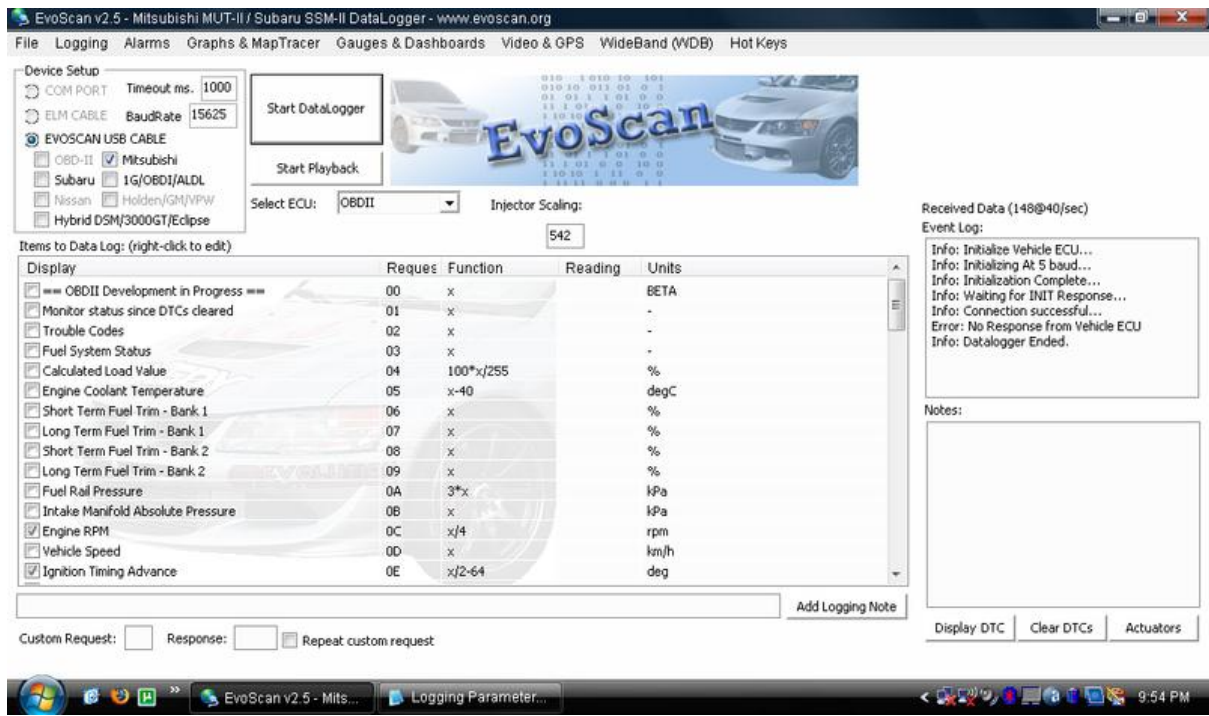
DESCRIPTION

In accordance with releasing new products that introduce can communications systems, mmc has developed the mut-iii as a next generation diagnosis tester for servicing these new and future vehicles.

A personal computer (pc) is connected to the mut iii unit and used as a system's control terminal, and communicates with a vehicle ecu through the v.c.i.. In addition to being able to handle all diagnosis functions covered by the conventional mut-ii tester, the mut-iii system can display data as easy-to-understand diagrams and graphs on a large screen of the pc. Unlike the mut-ii, the mut-iii can retain data on all vehicles, from old to new models, classified according to destination in the pc's hard disk. This eliminates the awkward but essential job with the mut-ii, of switching the data list (communications protocol data and diagnosis item list database) by replacing the rom pack with another according to the vehicle model and year model.

New functions that make use of the advantages of the pc are also being developed. For example, the workshop manual viewer is a useful function for mechanics as they no longer have to carry around a thick manual and search for relevant pages while working on a vehicle. The workshop manual viewer is currently available for certain vehicle models, and allows users to retrieve the pages containing the failure code for a particular problem at the push of a button.

EVO SCAN



DESCRIPTION

To use evo scan You will require a potable pc, fto obd lead and evo scan software

Display and record engine data onto your PC at the highest speeds ever seen. High Speed Data logging - 200 data items per second!

If your car has faulty sensors, and is displaying a Check Engine Light (CEL) on your dashboard, you can use Evo Scan to read and identify Diagnostic Trouble Codes (DTCs) You will be able to Read and Clear DTCs for heaps of protocols such as EvoX, SST, ABS, AYC, ACD, SSMII, OBDII, EVOX CAN, OBDII CAN.(SAE/ISO/KWP2000)

Record and Display air/fuel ratios and engine timing values on the colourful Map Tracer Graph with pin point precision.

You can easily customise the gauges and layout to suit your own style and preferences. Make your own awesome gauges using the easy built-in gauge designer.

Chart your vehicle data in real time or slice and dice the logs afterwards.

ALTERNATIVE METHOD OF CODE READING

DISCLAIMER: DO NOT ATTEMPT ANY WIRING MODIFICATIONS YOURSELF WITHOUT (A) CHECKING THE CONNECTIONS, WIRE COLOURS, ETC. ON YOUR OWN VEHICLE, AND (B) KNOWING WHAT YOU ARE DOING. I TAKE NO RESPONSIBILITY FOR ANY COOKED WIRING, ECUS OR ANYTHING ELSE YOU MAY FEEL LIKE PLAYING WITH. ANY WORK DONE ON YOUR OWN VEHICLE IS DONE SO AT YOUR OWN RISK...

The first step is to remove the panel underneath the steering wheel. This simply requires the removal of four screws. Note that the bonnet release cable and lever will still be connected to this panel - just drop the panel down and keep it out of the way.

Now if you crawl under there, you will notice an interface socket on the left hand side, about level with the bottom left screw you removed a moment ago. You can click on the image (right) to enlarge...

This is the location of the diagnosis connector and where a MUT-II, MUT-III or EVO SCAN unit can be connected.



STEP 1

Earth No. 1 terminal (diagnostic control terminal) of the diagnostic connector.

STEP 2

Turn on the ignition switch.



The picture is oriented to the rear of the vehicle. the strange circular thing in the centre of the frame is simply the alarm's glass breakage sensor.

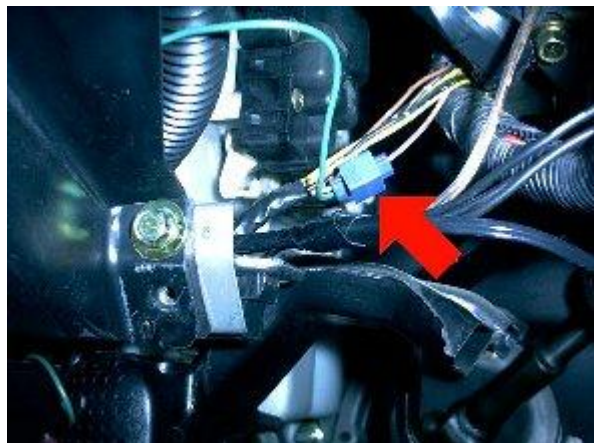
As noted before, we must earth **No. 1 terminal** on this connector. The pin in question is the bottom right one in the picture - highlighted.

All we have to do is ground out this pin by using a single cable. With the engine ignition switch on, the computer will flash the engine warning light to indicate any stored diagnostic code(s).

At the back of the diagnostic plug, it was clear to see that the relevant pin was connected to an easily accessible lead (grey with red stripe) on this 1995 GPX, but can be a different colour on some other FTOs.

a standard patch connector was used to attach an extra wire to the relevant lead (see image to right, highlighted).

Now it is simply a matter of grounding out the permanent diagnostic lead stowed under the dash.



WHAT DOES THE ECU DIAGNOSTIC CODE LOOK LIKE WHEN IT IS DISPLAYED?

The light you need to look at on the speedo cluster is the engine management warning light shown below:



The light will flash in a sequence very similar to Morse code.

This diagnostic code 31 would be shown by;

blinking the engine warning light for 3 long flashes and 1 short flash.

If no codes are currently stored, it will simply flash continually, once per second.

I assume that if more than one code is stored, it will display each one in a repeating sequence, eg. 31, 52, 64, 31, 52, 64...

To clear the codes, simply disconnect the car battery for 20 seconds or so.

GEARBOX ECU CODE READING



For the tiptronic gear box codes watch the flashes of the 'N' on the dash board. The first part of the code is represented by long flashes while the second part is represented by short flashes. For example, if we take error code 23 (Output shaft speed sensor), you would see 2 long flashes followed by 3 short ones.

COMMON ERROR CODES

<u>NO</u>	<u>ENGINE CODE</u>	<u>NO</u>	<u>GEARBOX CODE</u>
11	Oxygen Sensor	15	Oil temperature sensor
12	Air Flow Sensor	22	Input shaft speed sensor
13	Intake air temperature sensor	23	Output shaft speed sensor
14	Throttle position sensor	31	Low and reverse solenoid valve
15	ISC Motor Position Sensor	32	Under drive and reverse solenoid valve
21	Engine coolant temperature sensor	33	Second solenoid valve
22	Crank angle sensor	34	Overdrive solenoid valve
23	Camshaft position sensor	35	Reduction solenoid valve
24	Vehicle speed sensor	36	Damper clutch control solenoid valve
25	BARO Sensor	52	Damper clutch control solenoid valve
31	Detonation sensor		
32	Vacuum sensor		
36	Ignition Timing Adjustment Signal		
39	Oxygen Sensor		
41	Injector system		
42	Fuel Pump		
43	EGR		
44	Ignition coil and power transistor unit (Cylinder 1 & 4)		
52	Ignition coil and power transistor unit (Cylinder 2 & 5)		
53	Ignition coil and power transistor unit (Cylinder 3 & 6)		
55	Idle Air Control Valve/Servo Valve Position Sensor		
61	Communications wire with A/T-ECU		
62	Intake air control valve position sensor		
64	Alternator FR terminal		
71	Vacuum control solenoid valve (TCL)		
72	Ventilation control solenoid valve (TCL)		