Installing a Haltech E6X on a 2000 MX5 Miata (US Federal)

We take absolutely no responsibility for any problems or damage that may occur as a result of using any of the information contained in this article. Use the information at your own risk.

The following inputs can be run in parallel with the stock ECU

CAS Cam sensor
CKP Crank position sensor
Front HO2 Air/Fuel sensor

NOTE: I hooked up all sensors to make sure that the Haltech was reading correctly.

TPS didn't work out; it would calibrate and then show a fault over time.

My car has AC so the Haltech ECU could not be mounted behind the glove box.

I elected to place in under the steering column, just above the plastic steering column removable panel.

The longest part of the install was cutting most of the large rubber jacket over the E6X harness and sorting through the wires to determine which ones would hook up near the stock ECU and which ones would go through the firewall.

I only left about 4" of the large rubber jacket near the plug. This allowed the harness to bend more.

I removed the cassette player because who plays them anymore. I made a plastic panel and installed 3 Autometer gauges. I moved the CD player down and put the gauge panel above it.

So now I have AC control with CD player above and gauges above it.

The harness points to the right. The relays and fuse block, etc. are behind where the Bose CD player used to be (behind gauge panel). The 2 relays actually hang down in an opening just to the right of the CD player.

The main plug is right under the steering column and the connectors face towards the front of the car.

I drilled a 7/8" hole just above where the throttle cable passes through the firewall, and next to one of the heater hoses.

I used a grommet to protect the wires. I ran wires through the firewall for:

MAP sensor 3 wires (1 is a ground and the second is 5 volt sensor power. The 3rd is the MAP signal)

NOTE: I tapped into the ground wire for other sensor grounds and into the 5 volt wire for other sensor power (i.e. TPS)

Air temperature sensor 1 wire (Gray) Used common ground (black)
Coolant temperature 1 wire (Violet) Used common ground (black)

TPS 1 wire (White) Used common ground (black) and common 5 volt sensor supply from MAP (Orange)

Idle motor 4 wires (Not used yet)

The remaining connections were made at the stock ECU, ignition switch and fuel pump relay. All of which are conveniently located near the steering column.

Just to the left of the steering column is the stock ECU. It has 3 green connectors attached to it. To remove the connectors, you have to push in on the tab (on right side of connector) and then pull out the connector.

It is a bit of a PITA, working under the dash, but it is doable.

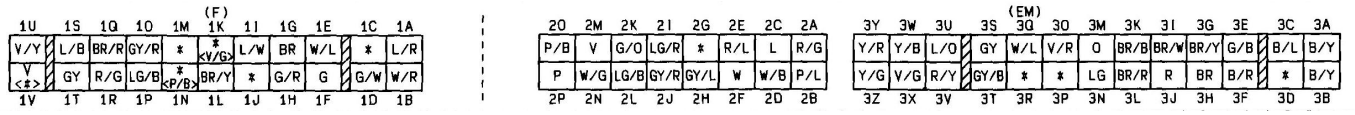
Remember to disconnect the battery negative terminal.

Start by removing the lowest green connector and then the second and finally the uppermost.

The stock harness must also be unhooked from a stud in order for the harness and connectors to drop down enough to work on them.

To unhook it, pull down slightly until you see where it is hooked, and then slide it back (towards back of car).

From the Mazda wiring manual, here is a diagram of the connectors.



The connector at the far left has terminals that begin with 1. This connector is not used.

The middle connector (with 2A to 2P) is the second one up on the ECU, and the last connector (3A to 3Z) is the uppermost connector on the ECU.

Note that the wires on the stock ECU are also color coded.

Hooking up the inputs in parallel to the stock ECU. I used quick splice (18 gauge) connectors, which allow you to tap into a wire while leaving it connected to the stock ECU.

Here is how I wired the inputs

Haltech E6X		Stock ECU (terminal on connector)
O2 sensor wire (gray shielded)	to	2C (Blue)
Haltech Home (green wire shielded)	to	2H (Gray w/blue)
Haltech Trigger (Yellow wire shielded)	to	2J (Gray w/red)
Haltech TPS signal (white)	to	3E (Green w/black)
		NOTE: Kept getting fault so I removed this

Here is how I wired the outputs. NOTE: Wires to stock ECU must be cut.

Haltech E6X	Stock ECU (terminal on connector)
Ignition 1 (Light green)	3G (Brown w/yellow)
Ignition 2 (White w/black)	3H (Brown)

Wiring injectors for sequential Note: Connect E6X Injectors 1,2,3,4 to firing order 1,3,4,2

Injector # 1 (Light blue)	3W (Yellow/black)
Injector # 2 (Blue w/red)	3Y (Yellow/red)
Injector # 3 (Green w/red)	3Z (Yellow/green)
Injector # 4 (Pink)	3X (Violet/green)

For batch mode, you would connect E6X 1,2,3,4 to 1,4,3,2

Connecting the main power:

Haltech main power (red) is spliced into ignition switch (White/red)
Haltech switched 12v (Gray) is spliced into ignition switch (Red/black)

The main ground wire(s) can be connected to a common chassis ground that is located to the left of the steering column. (Use a large ring terminal)

Connecting the fuel pump relay:

Haltech fuel pump supply (Orange) is connected to White/blue wire between main and fuel pump relay. NOTE: Wire no longer connects to fuel pump relay.

Haltech (Orange/gray) from Haltech fuel pump relay is connected to Red/blue wire from stock relay to pump. Note: cut wire from stock fuel relay.

E6X Software notes:

Main page setup:

Cylinders :4
Load sensing by : Manifold
Map sensor: 2 (Match to the sensor that you purchased and installed)
RPM mode: 10500 rpm
ECU ID: E6X
System mode: Advanced

Ignition setup:

Trigger and Home inputs are set to hall effect, edge is rising.
Trigger angle: around 70
Trigger type: Mazda A
Spark mode: Distributor Internal toggle: ON (Cannot be set until fuel setup is set to sequential)
Engine type: Piston
Output type: Constant charge
Coil charge time: 1.3 (This has been working for me, even as low as .8)
Output edge: falling

Fuel Setup:

Ign /By : 1
Injection mode: Sequential

Installing the Haltech TPS on a 2000 Miata

The end of the stock throttle body shaft measures approx. 1.5mm x 10mm

The Haltech TPS has a hole that is 8mm in diameter with a 2mm high flat.

I made a plate and an adaptor to suit. See pictures below:

This is the stock throttle shaft

This is the Haltech TPS

Adaptor (notice 8mm w/flat)

Plate & adaptor

Adaptor installed in TPS

Other side of plate

The result was zero play n TPS and smooth operation. While the plate could just be flat 1/8" material, I could not think of a simpler adaptor at the time.