Installing EL ECU into EA-ED

This guide outlines the steps involved in fitting an EL ECU into an EA-ED Falcon. Doing this provides several benefits, including:

- Larger memory capacity
- Faster ECU
- Better idle control
- Better spark control
- Better automatic transmission control
- BBM control
- Thermofan control
- More current definitions

Note: Fitting an EL ECU into EA-EB (Pre-Smartlock vehicles) requires the use of a J3 chip to disable the Smartlock function in the ECU. This can be done with a J3 Chip by T.I. Performance.

Fitting the ECU

Parts required:

- EL ECU
- Phillips head screwdriver
- 10mm Socket

1. Remove the passenger side kick panel and unscrew the bracket holding the ECU in. Then, using a 10mm socket, unscrew the connector and remove the old ECU from the car.

2. If you plan on fitting a J3 Chip, you should clean the service port of the new ECU ready to accommodate the chip. To the right is a bare, uncleaned service port. Remove the white paste with a rag and methylated spirits. Next, clean the protective lacquer which the PCB is coated with from the factory off the J3 terminals using a blunt screwdriver. This will take some patience!
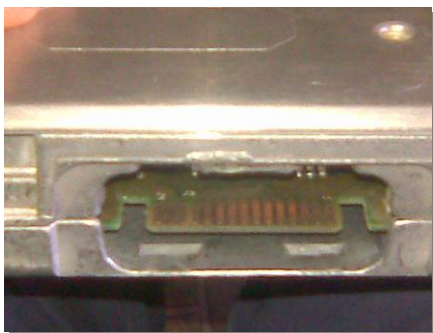
3. Once you have removed all of this lacquer, use some sandpaper (600 grade works well) to bring the terminals up to a shine. Finish it off by giving it a good clean with a rag and some methylated sprits as per the picture (left). **Note: Failure to follow these steps will lead to issues with the connection!**

4. Try to start the vehicle to test the ECU works. If the fuel pump runs constantly when the ignition is in ON, the ECU is faulty and should be replaced. If the vehicle does not have Smartlock, you will not be able to start the car.

5. Next, install the chip. Attempt to start the vehicle again. If the vehicle won't start, ensure the chip has the Smartlock switch disabled. If the fuel pump runs constantly when the ignition is on, please follow the troubleshooting section of the chip fitting guide.

6. Bolt the ECU back into the vehicle, and refit the kick panel.

Trip Computer Wiring (where fitted)

If you have a trip computer fitted to your vehicle, the wiring must be changed to suit the EL ECU. It can stay this way if you switch back to the EA-ED ECU.

1. Remove the kick panel for access to the ECU loom.

2. Locate the wire on Pin 34 (PWM Output). You will need to cut this wire.
3. Locate the wire on Pin 58 (Injector Pulse).
4. Join the wire (from the car side) which went to Pin 34 of the ECU to Pin 58. Tape off the ECU side wire.

After this, the trip computer should work again. Credit to this Fordmods for this fix. See here for EL ECU pinouts and here for EB ECU pinouts.

Recirc Door Wiring (Non Electronic Climate Control only)

Due to a change in the way the EEC can override Recirc mode in the manual climate cars, a small change must be made to the wiring to enable normal climate control function. The wire to Pin 32 should be cut and taped to re-enable normal recirc function. Thanks to EB Pete on www.boostedfalcon.net for this fix.

Thermo fan Control

One optional feature when running an EL ECU is to enable control of EL Thermo Fans. Parts required:

- Installed EL ECU
- Spare ECU connector pins x2
- EL Thermo fans
- EL Thermo fan Relay Unit (located behind passenger headlight) with loom to battery.

The simplest way to get them running off the EL ECU is to take the fans & relay unit (including its loom) from a wrecked EL. You will need to wire a 40A fused lead to the positive connection of the relay unit, and also a solid earth. You will need to run two wires to the ECU to switch on the fans:

ECU Pin 33 Fan Output 2 – To switch relays 2 & 3
ECU Pin 53 Fan Output 1 – To switch relay 1

See here for thermofan wiring information, here for EL ECU pinouts and here for EB ECU pinouts.

BBM Control

Parts required:

- Installed EL ECU
- Spare ECU connector pin x 1
- Installed BBM
- BBM Solenoid (located behind washer bottle) inc. vacuum hoses and 1 way valve (IMPORTANT!)

You will need to install the BBM Solenoid behind the washer bottle (or elsewhere if you have Cruise Control). Ensure you have correctly connected the one-way valve in-line to the solenoid vacuum. You will then need to run an ignition switched positive for the solenoid, and a wire to the ECU as below:

ECU Pin 15 – BBM Output (>3800V 12V)

See here for EL ECU pinouts and here for EB ECU pinouts.

Power/Economy Switch

The operation of the Power/Economy mode switch and dash light for the gearbox is reversed when fitting an EL ECU into an EBII-ED with EEC based transmission control.

Happy Tuning!