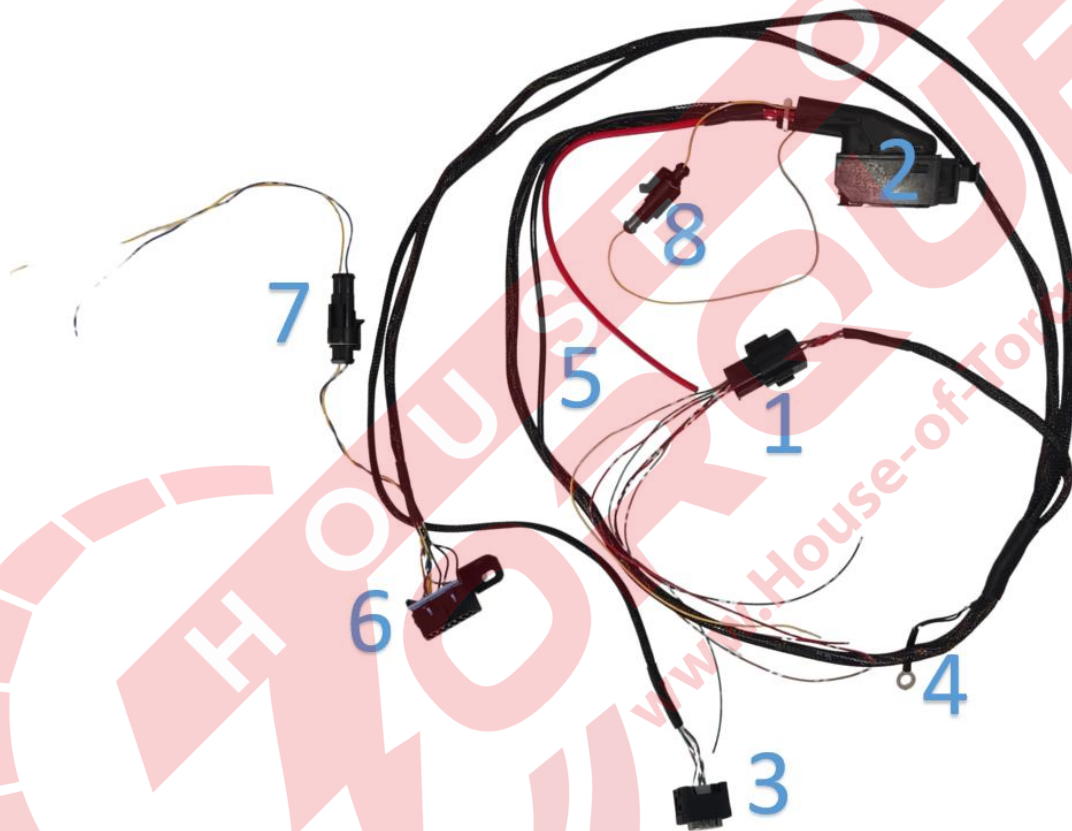


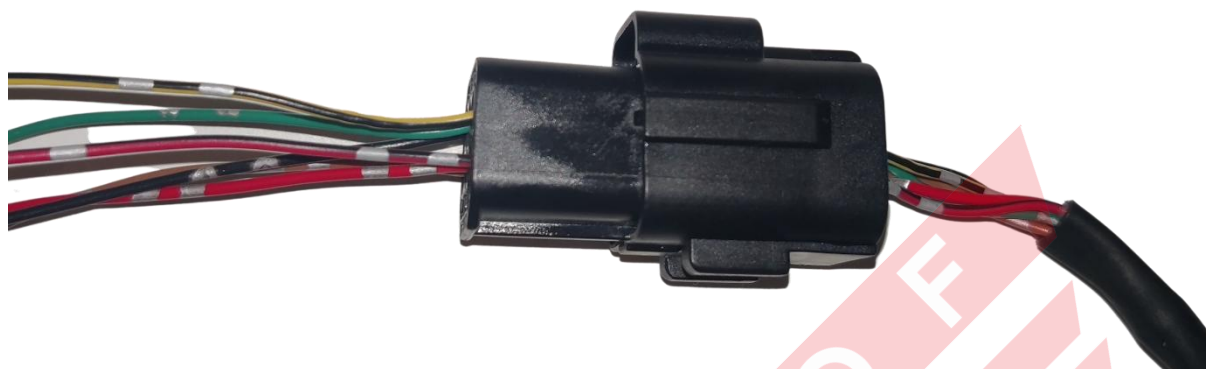
## Installation Instructions – BMW M57/47N Stand Alone Harness

The wiring loom supplied has 7 connectors:

1. Plug for the Body Loom
2. ECU Connector
3. Throttle Pedal
4. Earth Ring
5. ECU supply & Ground
6. OBD II Connector (For diagnostic purposes)
7. CANbus connection
8. Fuel pump relay connector



## Body Loom Connection



The wires used to connect to the body loom are shown in the table below. These must be securely connected through the appropriate protection.

| Body Loom Connector |                   | Wire Colour  | Connection                                           |
|---------------------|-------------------|--------------|------------------------------------------------------|
| Pin 1               | Constant 12v      | Yellow/Black | 5A Fused                                             |
| Pin 2               | Ignition 12v      | Red/Black    | 5A Fused                                             |
| Pin 3               | RPM               | Green        | Output to standard rpm gauge                         |
| Pin 4               | Oil Pressure Lamp | Red          | Connect to +12v through bulb                         |
| Pin 5               | Brake switch NO   | Black        | Connection to brake switch or controller (if fitted) |
| Pin 6               | Brake switch NC   | Brown        | Connection to brake switch or controller (if fitted) |

- Pin 1 is a constant 12 volt supply from the car battery, this must supply power after the ignition is turned off. This should be fused to 5 Amps.
- Pin 2 is an ignition 12 volt and should be fused to 5 Amps.
- Pin 3 is an output RPM signal from the ECU.
- Pin 4 is an output from the loom to power an oil pressure lamp, this lights if the engine suffers a significant loss in oil pressure. Note, this may not work on all engines so we recommend checking that it works. If it doesn't, we recommend fitting an aftermarket oil pressure gauge.
- Pin 5 is explained below.
- Pin 6 is explained below.

## Brake Switches

Pins 5 and 6 are for brake switches. These are required if fitting cruise control or if fitting an automatic transmission.

BMW, as standard, uses a brake switch with 2 different outputs. The logic that this follows is:

|                                        | Brake pedal not operated | Brake pedal operated |
|----------------------------------------|--------------------------|----------------------|
| Status, brake-light switch (NC)        | Closed                   | Open                 |
| Status of brake-light test switch (NO) | Open                     | Closed               |

When closed, the brake-light switch connects to earth (B-), the brake-light test switch connects to B+ (+12v).

This is quite confusing, and can be challenging to wire up manually as you would need 2 switches, or a relay.

To combat this, we have made a board which takes a single 12v input and converts it into the 2 signals that the ECU wants to see. These are available here: <https://house-of-torque.com/product/brake-switch-converter/>

Alternatively, it is possible to use the original BMW brake switch:



If you are using this, the pinout is as follows:

| Brake switch pin | Function                | Connect to                |
|------------------|-------------------------|---------------------------|
| 1                | Power                   | 12v Supply                |
| 2                | Ground                  | Ground                    |
| 3                | Brake Light Test Switch | Body loom connector pin 5 |
| 4                | Brake Light Switch      | Body loom connector pin 6 |

## Bosch Engine ECU Connection

This connector connects directly to the Engine ECU as shown in the picture below.

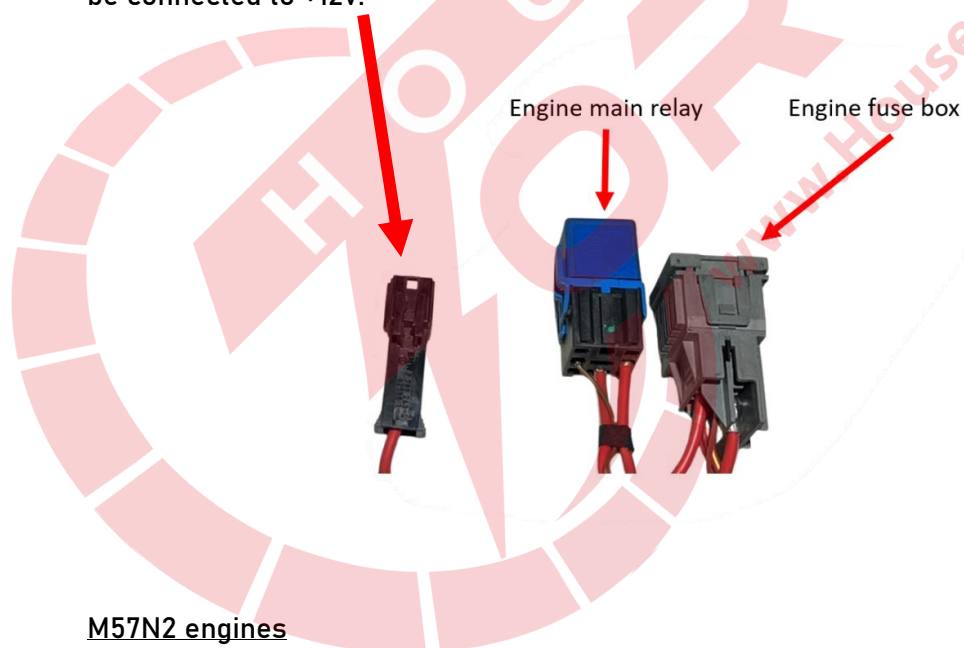


## ECU Power

### M57N engines

The free length **RED cable** at ECU connector must be connected to the **thick red/blue cable** exiting the engine harness. This feed is supplied by the blue DDE main relay built into the engine harness.

Additionally, the feed into the main relay is usually a single thick red/white wire, this should be connected to +12v:

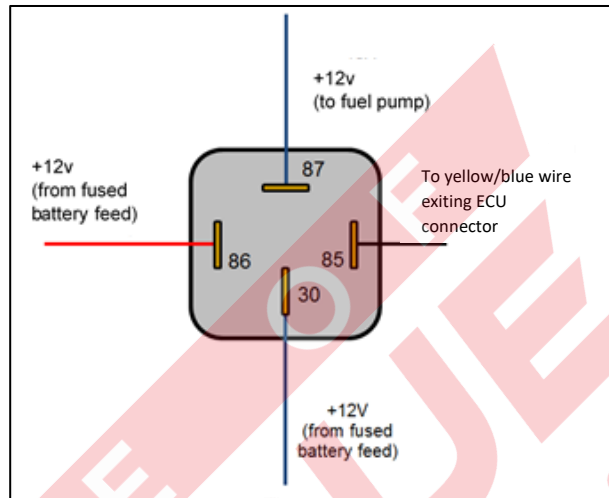
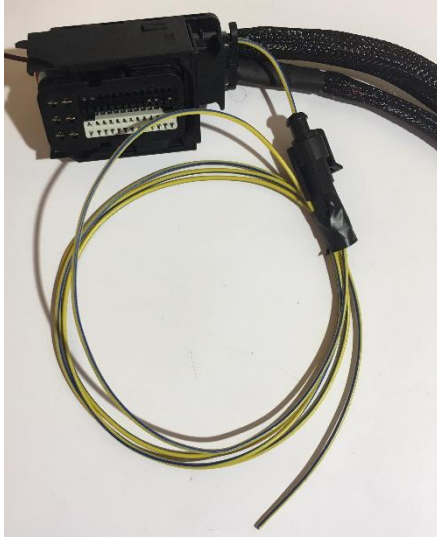


### M57N2 engines

See final pages of this guide as the ECU power supply varies from model to model.

## Fuel Pump

The Yellow/Blue wire provides fuel pump control on DDE5 ECUs. It is an ECU switched earth for a Fuel Pump Relay which in turn powers the fuel pump. Connect constant fused 12v to the '86' pin and the '85' to the yellow/blue wire.



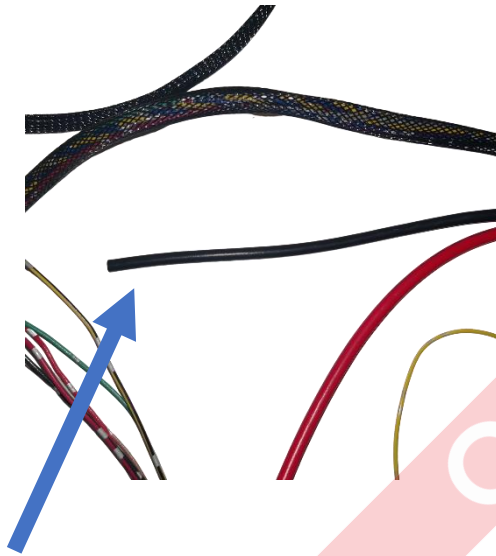
DDE 6 ECUs would have used a canbus based fuel pump controller and as such this output may not work. In this case we recommend running the fuel pump from an ignition feed.

## Throttle Pedal Connection

This connector connects directly to the Throttle Pedal as shown in the picture below.



### Main Ground Connector\*



The free length of black wire exiting the main ECU connector should be connected to ground. This MUST be a secure and strong connection to ground to avoid problems later on. The ground terminal must be clean of rust, paint and dirt to ensure a solid ground connection is made.

\*From April 2024 this wire is Blue

### OBD Ground - Black Ring Terminal\*

This ring terminal should be attached to a constant ground e.g. Battery (-) Terminal. This MUST be a secure and strong connection to ground. The ground terminal must be clean of rust, paint and dirt to ensure a solid ground connection is made.



\*From April 2024 this has been removed and no longer required.

## OBD II Connector

The OBD port is used for diagnostics and should be located inside the vehicle. It does not need to be connected to anything for the loom to function.

The 2 pin connector provides an optional connection to the engine CAN Bus.

|       |                         |
|-------|-------------------------|
| Pin 1 | Yellow - CAN High       |
| Pin 2 | Green or blue - CAN Low |



In addition, we have added an extra grey CAN Bus connector which can be used as an extra spur or to fit terminating resistors.

## Other engine harness connections:

The following pages contain some example diagrams primarily for M57N2. Not every model is listed and there may be some differences from the diagrams. However, all engine looms follow the same principle, and in general, the wire colours will match in most cases.

The starter motor is always a thick black wire. If you are unsure, check with a multimeter for continuity.

Some early engines do not need power connecting to the MAF. Check that the MAF has 12v on pin 1.

We have a diagram for the E53 M57n engine harness connections here:

[https://house-of-torque.com/enigne\\_conversion\\_wiring/](https://house-of-torque.com/enigne_conversion_wiring/)

Once you have everything wired up, there are a few quick checks that we recommend making with a multimeter, this requires the ignition to be on and the ecu connected.

-MAF pin 1 should have 12v.

-Turbo pin 1 should have 12v (if it has an electronic actuator)

-Turbo pin 2 should have continuity to ground (if it has an electronic actuator)

If any of these are missing, then it gives a clear indication that either a live or ground feed is missing from the engine harness.

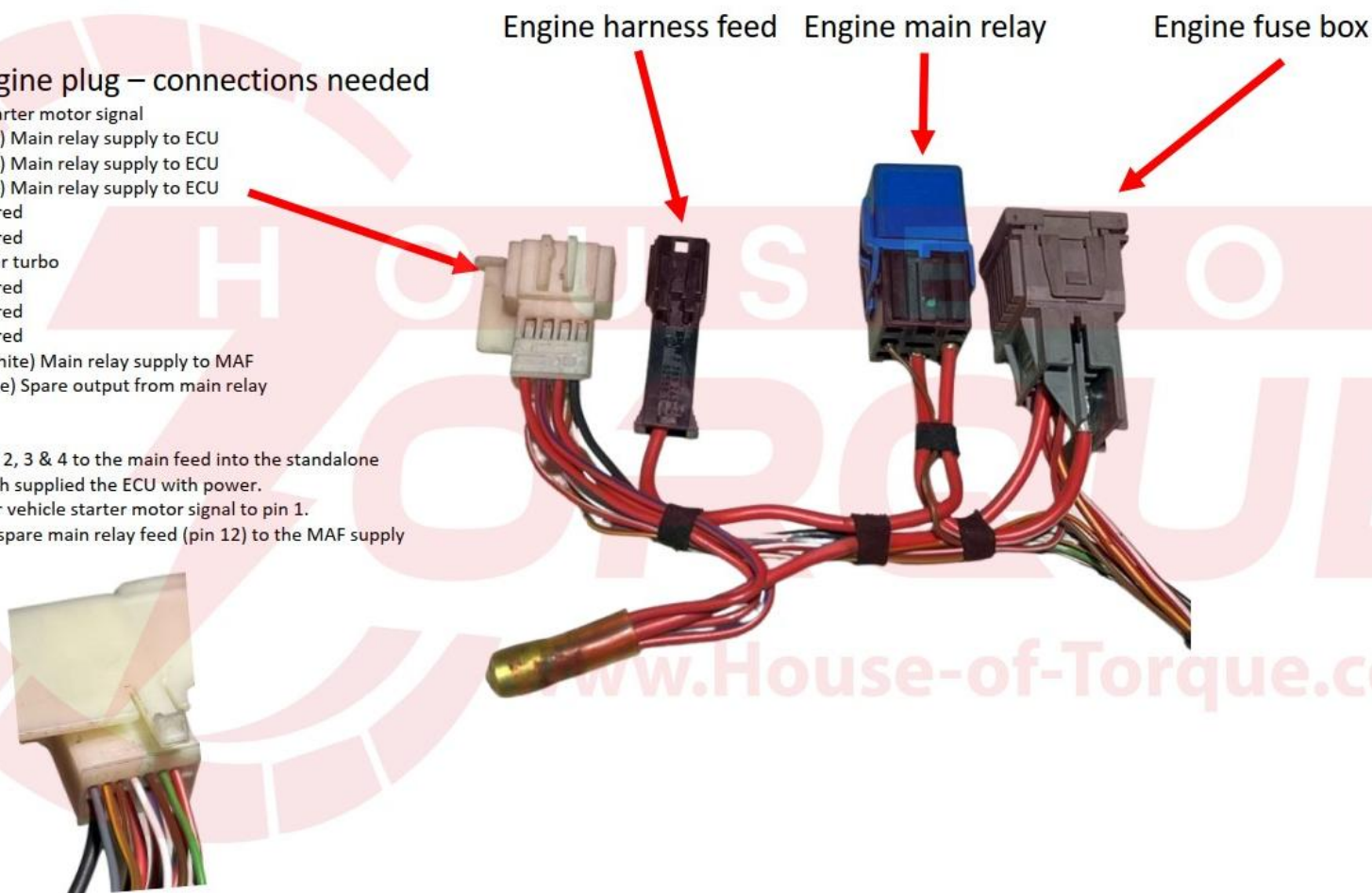
## E60 TU2 Engine

### A6011 Engine plug – connections needed

1. (Black) Starter motor signal
2. (Red/Blue) Main relay supply to ECU
3. (Red/Blue) Main relay supply to ECU
4. (Red/Blue) Main relay supply to ECU
5. Not required
6. Not required
7. Ground for turbo
8. Not required
9. Not required
10. Not required
11. (Green/white) Main relay supply to MAF
12. (Red/white) Spare output from main relay

#### Instructions:

- Connect pins 2, 3 & 4 to the main feed into the standalone harness which supplied the ECU with power.
- Connect your vehicle starter motor signal to pin 1.
- Connect the spare main relay feed (pin 12) to the MAF supply (pin 11)



## E70 TU2 Engine

### A6011 Engine plug – connections needed

1. (Red/Blue) Main relay supply to ECU
2. (Black) Starter motor signal
3. (Red/Blue) Main relay supply to ECU
4. (Red/Blue) Main relay supply to ECU
5. (Green) Main relay supply to MAF
6. Not required
7. Not required
8. Not required
9. Not required
10. Not required
11. (Red/white) Spare output from main relay
12. Not required

#### Instructions:

- Connect pins 1, 3 & 4 to the main feed into the standalone harness which supplied the ECU with power
- Connect your vehicle starter motor signal to pin 2
- Connect the spare main relay feed (pin 11) to the MAF supply (pin 5)

