

# Subaru Stand Alone Interface Box

## Overview - Installation and Operating Instructions

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## Overview

The Subaru Interface box is designed to make the installation and running of a Subaru engine easier and neater in a stand alone type installation (such as a VW conversion).

To run a Subaru engine stand alone, the best way is to use the original harness and computer (ECU). There are also a few extra components required (and sometimes on the original harness). These extra components include relays, fuses, diagnostic ports and connectors. Further to this, some extra components are required, which often are not on the main harness, including main fuses, radiator fan and A/C relays.

The Subaru Stand Alone Interface Box houses all the fuses (with some spares), relays, and diagnostic connections all in one enclosure. It also provides an easy connection point for where the Subaru harness joins the rest of the vehicle wiring. There is now no need to cut, join or extend existing vehicle wiring to the Subaru wiring. Most wiring is wired directly to the interface box.

For later model Subaru systems, the interface box can be equipped with a Canbus emulator and has provisions for a fuel pump control module delete.

The wiring to the interface box is split into two sections:

**The Subaru harness side** is wired with crimped white molex multipole connectors which plug into the interface board. This wiring can be completed by a harness modifier or DIY with a molex crimp tool. The molex plugs and crimp pins are included with the interface box.

**The vehicle side** is wired into screw clamp terminals. In most cases these are the “phoenix style” removable terminal blocks. The higher current connections for the radiator fans and incoming power are fixed to the board.

Once the Subaru harness connections are complete, the engine in most cases can be run via the interface box with just a few connections on the vehicle side. These mandatory connections include:

- The main Battery supply (70Amp)
- The ignition switch (black coil +ve wire in a VW),
- Starter motor trigger
- Ground connection
- Fuel pump power.

If you want to run the engine for any time however, we recommend you hook up the radiator fans.

An information display and dashboard mimic panel are also included in the interface box and includes vital engine warning lamps such as Oil Pressure, Charge fail, and Malfunction Indicator Lamp (MIL). It also has status of the fuel pump, fan and A/C relays and shows status of the ignition switch, immobiliser, and speed sensor inputs (if used).

An on board OBDII port is provided to remove the loose OBDII port on the Subaru harness. Some early looms may not be compatible with the OBDII protocol and if this is the case it would still be wise to keep the original SSM diagnostic port on the Subaru harness.

Three switches are provided underneath the OBDII port. These switches replace the loose connectors on the Subaru harness used to engage **Read Memory** or **Test Mode**. Read Memory mode signals to the ECU to flash the MIL light with a certain code if there is any malfunctions present.

The test mode can be used while the ignition is ON and the engine is not running and it will continually cycle through various outputs, including the fuel pump, radiator fan and A/C relays. You can use this mode to test your fuel pump and radiator fan operation. The radiator fan sequence will start off at the first stage, second stage, third stage (if used) and then off. You will also hear clicking from the engine from various solenoids such as the purge solenoid.

A good position to mount the interface box is on top of the ECU. For Canbus models the Body Integrated Unit (BIU) can also be mounted in the same position.

The interface box is housed in a robust plastic enclosure with a hinged clear lid. We add three 25mm holes in each side of the enclosure for running of wires. Extra holes can be drilled to suit the end application. The circuit board can be unscrewed and removed from the enclosure which can help with the bulk of the wiring and the base unit can be screwed down onto a bracket.

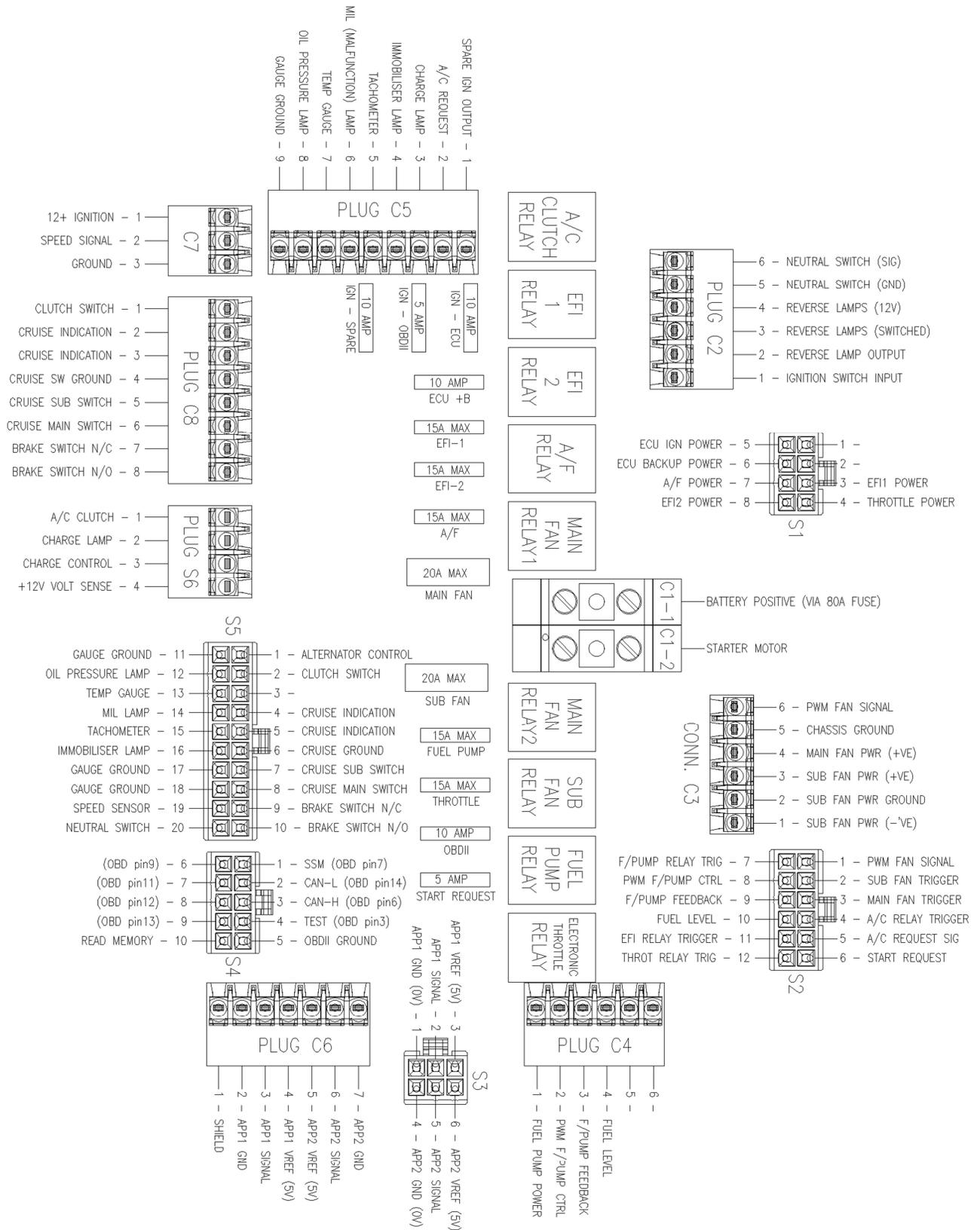
The top lid is removed by placing a screwdriver or key in the slot at the side hinge.

This manual is split into two sections. The first section concentrates on the wiring to the Subaru side and includes details on connecting to the OEM Subaru harness. This is easiest done out of the vehicle on the bench, or via an auto electrician or “Subaru harness modifier” if you do not feel confident with the Subaru harness.

The second section concentrates on the wiring within the vehicle and is relatively simple and describes how to hook the interface unit to the required components of the Subaru engine install, such as the power supply, fuel pumps and radiator fans. It also shows the wiring to various extra or optional wiring, such as A/C, cruise control and indication.

It is recommended to read through the whole manual to get an overall understanding of what is required and how it all works.

# Interface Board Layout



# Installation – Subaru Engine Side

## Engine ECU Power wiring Plug S1

This plug provides various power sources to the Subaru Engine ECU and engine. There are two IGNITION SWITCH and CONSTANT 12V (BACKUP) powers. Only one of each is needed for most engine setups. The second pair can be used for other purposes, such as body ecu (BIU) if required.

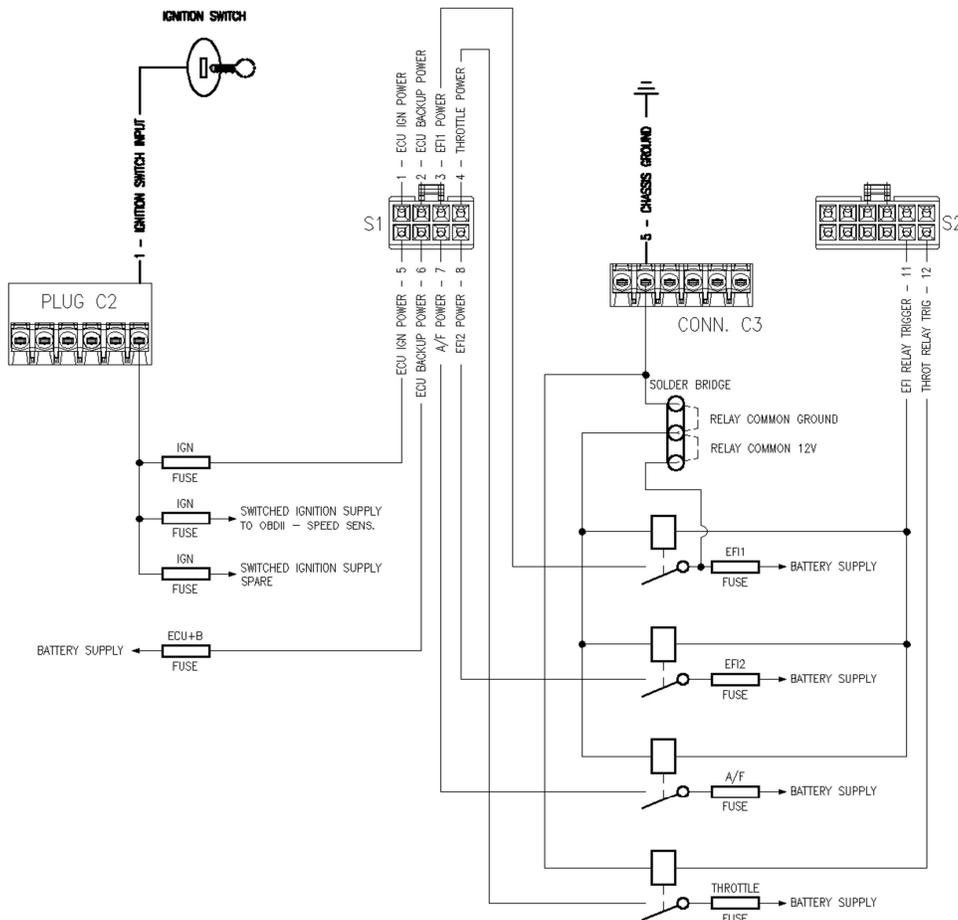
EFI1, EFI2 and the A/F power supplies are each supplied from the EFI1, EFI2 and A/F Relays. They are each fused by a 15Amp fuse and all relays are controlled together via the ECU output (Plug S2-11).

**EFI1** is the supply from the EFI1 relay. This usually powers up the engine ECU, sensors, and injectors.

**EFI2** is the supply from the EFI2 relay. This usually powers up the ignition coils.

**A/F** is the supply from the A/F relay and provides power to the A/F (or O<sup>2</sup> oxygen) sensor heater circuits.

**The Throttle Power** is supplied from the Throttle Relay, controlled by the engine ecu. It is only used in drive by wire systems.



ENGINE POWER SUPPLY CIRCUIT DIAGRAM

## Relay / Fan / Fuel Pump control wiring Plug S2

This plug provides the control for all the relays by the engine ecu, including the EFI/AF/Throttle relays as mentioned above, and the radiator fan relays, fuel pump relay and air conditioner control relays. It also has some other associated wiring for fuel pump and A/C.

### **Plug S2 Pin1 – Fan PWM Control (6cylinder only) or A/C Mid Pressure Switch**

This provides a connection or the PWM Fan speed controller (6cylinder models only), alternatively it can be used for the AC Mid pressure switch on some models. It is connected to plug C3 Pin6

### **Plug S2 Pin2 – Sub Fan Relay Trigger**

This is a ground switching output from the ECU. In a multistage fan system, this should be the fan trigger that operates first (at the lowest temperature). If the ECU only has one FAN output this should be bridged to pin 2 and 3.

### **Plug S2 Pin3 – Main Fan Relay Trigger**

This is a ground switching output from the ECU. In a multistage fan system, this should be the fan trigger that operates second (at a higher temperature than the sub fan). If the ECU only has one FAN output this should be bridged to pin 2 and 3.

### **Plug S2 Pin4 – A/C Relay Trigger**

This is a ground switching output from the ECU. It controls the air conditioning clutch relay, which then provides power to the air conditioning clutch of the compressor.

### **Plug S2 Pin5 – A/C Request**

This is a ground switching input to ECU. It signals to the ECU that the A/C system would like to engage the A/C clutch (A/C button pressed, evaporator above freezing and refrigerant gas pressure healthy. This signal usually comes from the Subaru A/C panel, however, can also be obtained from aftermarket A/C systems, such as the Vintage Air unit.

### **Plug S2 Pin6 – Start Request (fused)**

This can be used to provide a thin wire start request signal to the ECU. It is sourced from the large START SWITCH terminal that is to be connected to the Starter Motor Solenoid circuit. It is fused by a nominal 5 or 7.5A fuse inline to the START switch terminal. If the Subaru Wiring system has a large cable running to the ECU directly, then this connection is not required, and the connection can be joined with the starter circuit in the large START SWITCH terminal.

### **Plug S2 Pin7 – Fuel Pump Relay Trigger**

This is a ground switching output from the ECU. It controls the fuel pump relay, which then provides power to the fuel pump. This connection needs to be grounded on 6cylinder and 02+ Turbo models that are retaining the fuel pump speed controller, to energise the fuel pump relay at any time the ignition is turned on. If the speed controller emulator option is chosen, pin7 is not required to be connected.

**Plug S2 Pin8– Fuel Pump PWM control (6cylinder and 02+ turbo)**

This is the PWM speed control signal from the ECU. It is wired directly to plug C4 Pin2 to provide the speed control signal. It will also control the fuel pump speed emulator if fitted.

**Plug S2 Pin9– Fuel Pump PWM feedback (6cylinder and 02+ turbo)**

This is the PWM feedback signal to the ECU. It is wired directly to plug C4 Pin3 to provide the speed control feedback. It shall also be wired if the fuel pump speed control delete is fitted.

**Plug S2 Pin10– Fuel Level (~05 onwards)**

This connection provides a fuel level connection to the ECU (or BIU), it is required to prevent an engine trouble code from appearing. It is wired to C4 Pin4. An optional resistance to ground by an on-board resistor can be installed, simulating a valid fuel level and eliminating the need to connect to an actual fuel level sensor.

**Plug S2 Pin11 – EFI (and A/F) Relay Trigger**

Depending on the system, this can be either a ground triggered or +’ve triggered signal from the ECU to turn the EFI relays and A/F Relays on. A solder bridge on the circuit board is used to configure if the relays are ground or +’ve switching.

Early Subaru harnesses are +’ve switched. This can be confirmed by checking the existing wiring (or diagrams) and checking that the opposite side of the relay coil to the ECU trigger wire is connected to ground.

Later Subaru harnesses are ground switched. This can be confirmed by checking the existing wiring (or diagrams) and checking that the opposite side of the relay coil to the ECU trigger wire is connected to a positive supply source.

Refer to the wiring diagrams later in this manual for further details.

**Plug S2 Pin12 – Throttle Relay Trigger (Drive by wire systems)**

This is a ground switching output from the ECU. It controls the Throttle Relay, which then provides power to the electronic throttle system within the ECU.

## Accelerator Pedal Wiring Plug S3 (Drive by Wire models)

This plug provides a straight through connection point to the accelerator pedal. Each pin is wired directly to plug C6. The function of each APP1 wire is not always able to be determined from the wiring diagrams. The Subaru ECM I/O table within the workshop manual lists each function, or it can be determined from the wiring to the existing accelerator pedal connector as shown below.

**Plug S3 Pin1 – APP1 Ground (0V)**

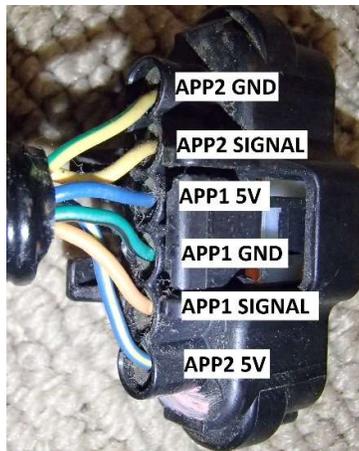
**Plug S3 Pin2 – APP1 Signal**

**Plug S3 Pin3 – APP1 Vref (5V)**

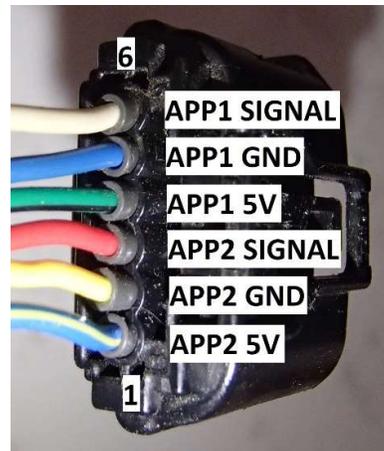
**Plug S3 Pin4 – APP2 Ground (0V)**

**Plug S3 Pin5 – APP2 Signal**

**Plug S3 Pin6 – APP2 Vref (5V)**



**Early Model Pedal Plug Wiring**



**Late Model Pedal Plug Wiring**

## OBDII and Test Connector wiring S4

This plug provides a wiring to the OBDII port and test connectors. The connections vary year to year Canbus/Non Canbus, and in most harnesses, only approximately half of the 10pins of plug S4 will be used.

**\*\* Note: Some Subaru wiring diagram have the pin numbers on the OBDII diagnostic port reversed (rotated). The Standard for OBDII wiring has 12V power as pin1 and Ground at 4&5. If your wiring diagram lists 12V power to pin 8, then the pin numbering is mirrored. So 8 is 1, 1 is 8, 8 is 2 etc. 16 is 9, 9 is 16 etc etc.**

The 12V power to the original OBDII plug does not need to be wired to plug S4, as the power source is obtained from within the interface board.

**Plug S4 Pin1 – SSM (Subaru Select Monitor) – OBDII pin7 – Present on most looms**

**Plug S4 Pin2 – Canbus-Low – OBDII pin 14 – Canbus models only**

**Plug S4 Pin3 – Canbus-High – OBDII pin 6 – Canbus models only**

**Plug S4 Pin4 – Test Connector + OBDII pin3 – Present on most looms**

**Plug S4 Pin5 – OBDII Ground – OBDII pins 4&5**

**Plug S4 Pin6 – OBDII pin9 (used on some early models)**

**Plug S4 Pin7 – OBDII pin11 (used on some early models)**

**Plug S4 Pin8 – OBDII pin12 (used on some early models)**

**Plug S4 Pin9 – OBDII pin13 (used on some early models)**

**Plug S4 Pin10 – Read Memory Connector (used on some early models)**

## Dash (front wiring) and Gearbox Connector wiring S5

This plug predominantly provides wiring to the front of the vehicle for dash board warning lights, gauges and wiring for optional cruise control (cruise control switches, brake and clutch switches). Most of the connections are wired direct to the engine ECU with the exception of the oil pressure and temperature gauge.

Plug S5 also has the wiring for the speed sensor and Neutral switch wiring to the ECU.

Cruise control wiring can change model to model. Most of the cruise connections on S7 are wired directly to pins on plug C7. Unused pins can also be used as custom uses (signalling only, 2Amps maximum).

**Plug S5 Pin1 – Alternator Control** – Used on later model systems with 3 wires in the green oval shaped alternator plug. This connection is to the engine ECU and allows the engine ECU to have some control over the alternator charge rate. (Connected to S6 pin3)

**Plug S5 Pin2 – Clutch Switch** – If equipped

**Plug S5 Pin3** – Spare

**Plug S5 Pin4 – Cruise Indication** (wired to plug C8 pin2)

**Plug S5 Pin5 – Cruise Indication** (wired to plug C8 pin3)

**Plug S5 Pin6 – Cruise Switch Ground** (Connected to C8 pin4)

**Plug S5 Pin7 – Cruise Sub Switch** (Connected to C8 pin5)

**Plug S5 Pin8 – Cruise Main Switch** (Connected to C8 pin6)

**Plug S5 Pin9 – Brake Switch N/C** (normally closed) (Connected to C8 pin7)

**Plug S5 Pin10 – Brake Switch N/O** (normally open) (Connected to C8 pin8)

**Plug S5 Pin11 – Temperature Gauge Ground** – From Engine (if equipped) (Connected to C5 pin9)

**Plug S5 Pin12 – Oil Pressure Lamp** (Connected to C5 pin8 + onboard display)

**Plug S5 Pin13 – Temperature Gauge** (if equipped) (Connected to C5 pin7)

**Plug S5 Pin14 – Malfunction Indicator Lamp (MIL)** (Connected to C5 pin6 + onboard display)

**Plug S5 Pin15 – Tachometer Signal** (Connected to C5 pin5)

**Plug S5 Pin16 – Immobiliser Lamp** (Connected to C5 pin4 + onboard display)

**Plug S5 Pin17** – Spare

**Plug S5 Pin18** – Spare

**Plug S5 Pin19 – Speed Sensor** (Non Canbus systems) (Connected to C7 Pin2 + onboard display)

**Plug S5 Pin20 – Neutral Switch** (Connected to C2 pin1)

## Alternator & A/C Compressor wiring S6

This plug is for the separate Alternator and Air Conditioning compressor harness. It comprises of up to 3 pins for the alternator, and one pin for the A/C clutch.

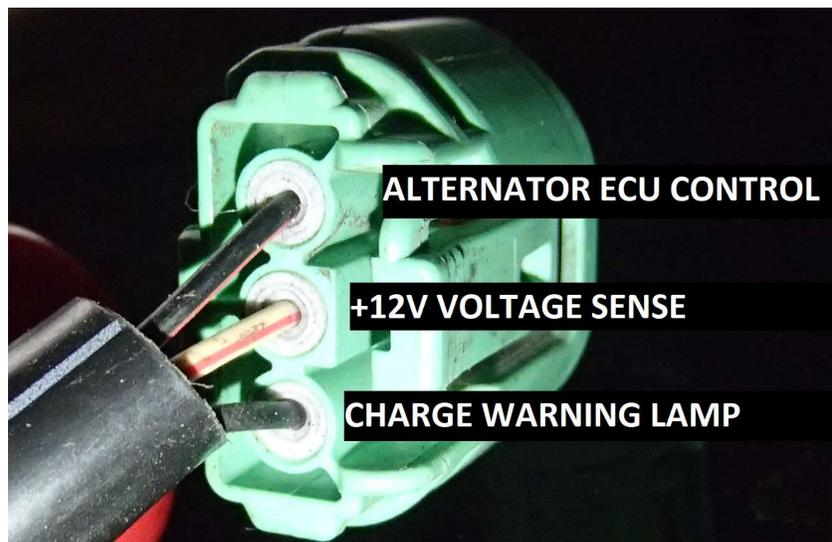
In most Subaru Harnesses, the Alternator and A/C harness is segregated from the rest of the harness and wires directly into the engine bay fusebox. It therefore needs extending about a couple of metres to reach the interface box.

**Plug S6 Pin1 – A/C Clutch Power** – From the A/C relay, this provides 12V to the compressor clutch when the relay is energised via the clutch relay control.

**Plug S6 Pin2 – Alternator Charge Lamp** (Connected to C5 pin3 + onboard display)

**Plug S6 Pin3 – Alternator Control Signal** (Connected to S5 pin1)

**Plug S6 Pin4 – Alternator Voltage Sense** – This provides a 12V constant power battery voltage reference voltage to the alternator. Sourced from Fuse OBDII



Typical late model Alternator plug (with all 3 connections)

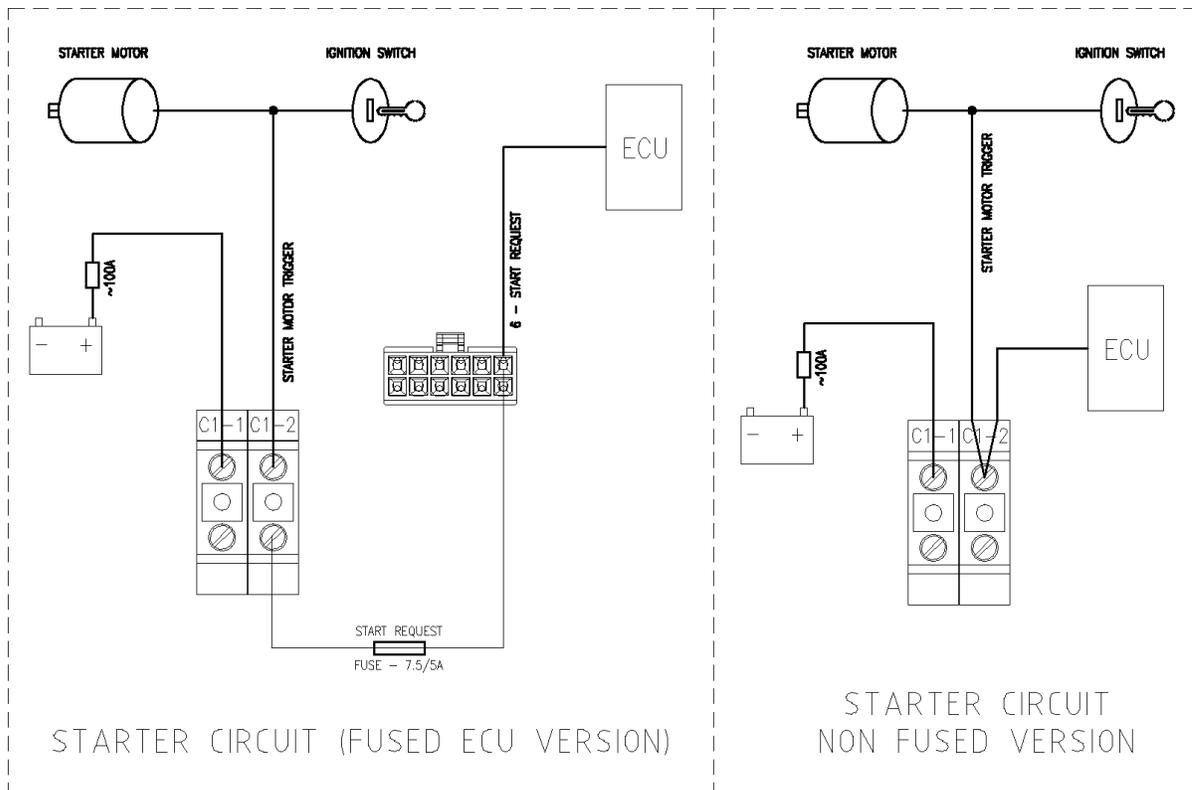
# Installation – Vehicle (chassis) Side

## Battery Power and Starter Solenoid (trigger) Connector C1

The Interface provides power to a number of devices, including the engine components, fuel pump and radiator fans. The power supply needs to be connected to the battery via a decent cable rated to at least 70Amps (10mm<sup>2</sup> or 8Gauge). Often you can re-use the thick cable used in the Subaru wiring loom that wired from the engine-bay fusebox to the Ignition Switch (often white in colour).

**Connector C1-1** provides a heavy-duty screw terminal for this cable to terminate into. It is also good practice to fuse the cable at the battery via a fuse of around 80-100Amps.

**Connector C1-2** provides a connection or joining facility for the starter motor circuit. In most cases the ECU is required to know when the engine is being started. In older wiring this is done via branch of the starter solenoid circuit to the Engine ECU. This branch can be done via C1-2 to join the wires from the key switch, the starter motor, and the ECU. In later model, the Start motor branch to the ECU is fused so a thin wire can be run to the ECU. The fused starter circuit is then wired to the ECU via plug S2.



## Gearbox + Ignition Switch Connector C2

This connector is used for the gearbox Neutral and Reverse Switch, Reverse Lamps and Ignition Switch inputs. The neutral and reverse switches are only used if using a Subarugears Gearbox, however you can rewire the VW gearbox reverse switch through the interface box to provide a separately fused supply to the reverse lamp circuit.

### Connector C2-1– Ignition Switch Input

Connect this to the original ignition switch (engine run wire). This is the wire that originally went to the coil +’ve wire in the VW and is usually black in colour.

### Connector C2-2 – Reverse Lamp Output

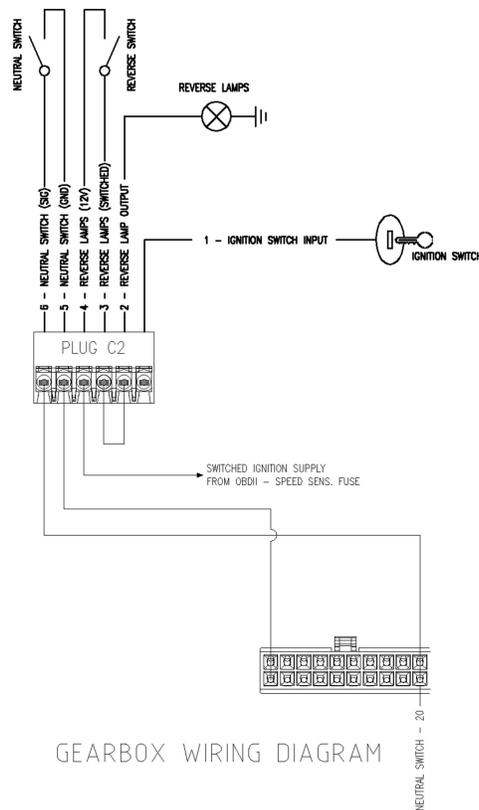
If using the Subarugears gearbox, connect this wire to wiring that connects the vehicles reverse lamps.

**Connector C2-3 – Reverse lamp switch.** This is wired to one side of the reverse lamp switch.

**Connector C2-4 – Reverse lamp switch.** This is wired to the other side of the reverse lamp switch.

**Connector C2-5 – Neutral Switch.** This is wired to one side of the neutral switch.

**Connector C2-6 – Neutral Switch.** This is wired to the other side of the neutral switch.



## Radiator Fan and Ground Connector C3

### Fan Connection techniques.

There are a few different ways to hook up the radiator fans and each way can be determined by the fan type and personal preference.

**DUAL STAGE FANS.** This setup is used in later model Subaru's where the radiator fans are two 2wire matching sized fans. In this mode 1<sup>st</sup> stage (low temp) the two fans are configured so they are powered up in series with the fan relays. Both fans run at approximately half speed (6Volts each). This usually provides enough cooling power in non extreme conditions with the advantage of less electrical load and fan noise, while also forcing the air through the entire radiator. This mode is engaged by the ECU grounding the FAN1 output only.

In the dual stage fan setup, if the ECU output FAN2 is energised, one fan will turn off and the other fan will be at full speed. If the ECU outputs FAN1 and FAN2 are energised, then BOTH fans will be full speed.

Wiring for this setup requires the -'ve of one fan to be wired to connector C3 along with a decent (20Amp rated) ground to pin2 of connector C3. The -'ve of the MAIN fan is wired directly to chassis ground (usually at the FAN location). The +'ve of each fan is wired to the corresponding +'ve of connector C3.

Even though this setup is used in later model Subaru's, it can be used on earlier model ECU's, as long as the ECU's FAN1/SUB FAN output (connected to S2 pin2) turns on first.

**For dual stage fans MAIN FAN RELAY2 must be installed and must be a changeover SPDT type (5pin). In the Subaru fusebox, these 5pin relays are typically brown in colour. Standard 4pin relays are typically grey or black**

**SINGLE STAGE FANS.** This simpler setup is used in earlier model Subaru's, where FAN1 turns one fan on full speed, and FAN2 turns the 2<sup>nd</sup> fan on full speed. This will need to be used if different sized fans are used. The ground for each fan should be connected in the vicinity of the fan motor.

**SINGLE FAN.** If a single fan is used, you must join the FAN1/FAN2 inputs from the ECU together and join the MAIN FAN +'ve and SUB FAN +'ve together to power the fans positive connection. This provides a power of up to 40Amps (2x20Amp) to the one fan.

**NOTE:** The fan outputs are protected by 20Amps fuses. The default Subaru fans are 120Watt and consume approximately 10Amps each in normal steady state conditions.

**Plug C3-1 – Sub Fan Power (-'ve side of motor).**

This connection is used in dual stage fan mode. This connection goes to the -'ve side of the SUB FAN motor.

**Plug C3-2 – Sub Fan Power GROUND.**

This connection is used in dual stage fan mode. It provides the ground for the two fans powered in series. This Ground cable should be rated to 20Amps and connected to a good ground point on the vehicle.

**Plug C3-3 – Sub Fan Power +VE.**

This connection powers the +ve terminal of the Sub Fan.

**Plug C3-4 – Main Fan Power +VE.**

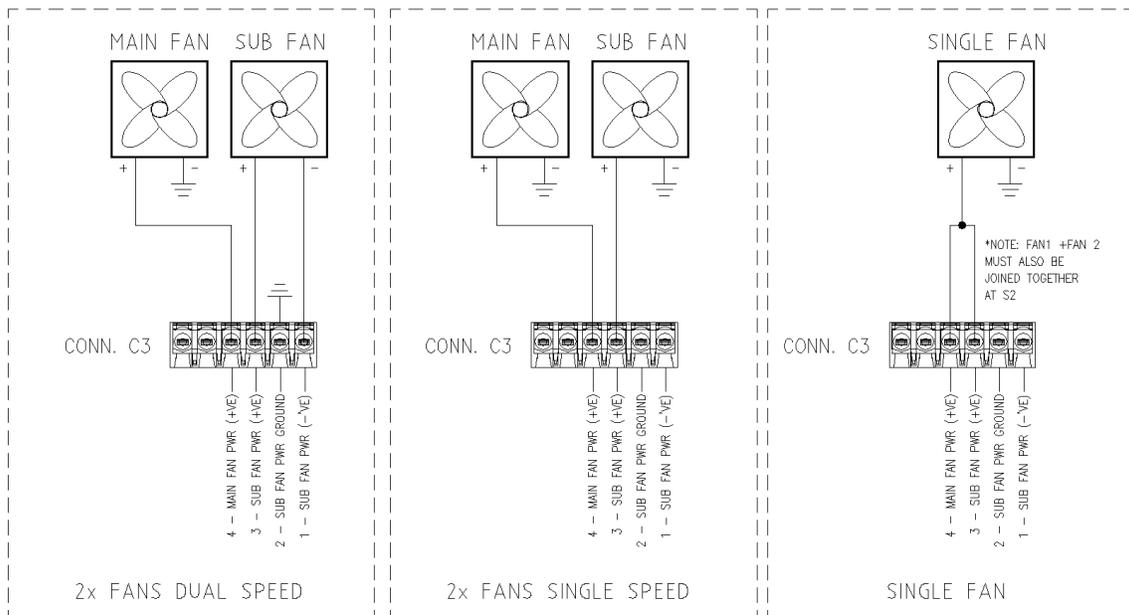
This connection powers the +ve terminal of the Main Fan.

**Plug C3-5 – Chassis Ground.**

This connection is a signal ground for the interface unit. It should be connected to the chassis of the vehicle and wired in cable rated to at least 10Amps. It is not part of the radiator fan system.

**Plug C3-6 – PWM Fan Signal (6cylinder only)**

This provides a connection for the PWM fan speed controller (6cylinder models only). It is connected to plug S2 Pin1. It can also be used for connection of other signals for 4cylinder models, such as the A/C mid-pressure switch.



## Fuel Pump / Fuel system connector C4

**Connector C4-1 Fuel Pump Power.** This connection provides a 15Amp power supply to the fuel pump or fuel pump controller via the fuel pump relay.

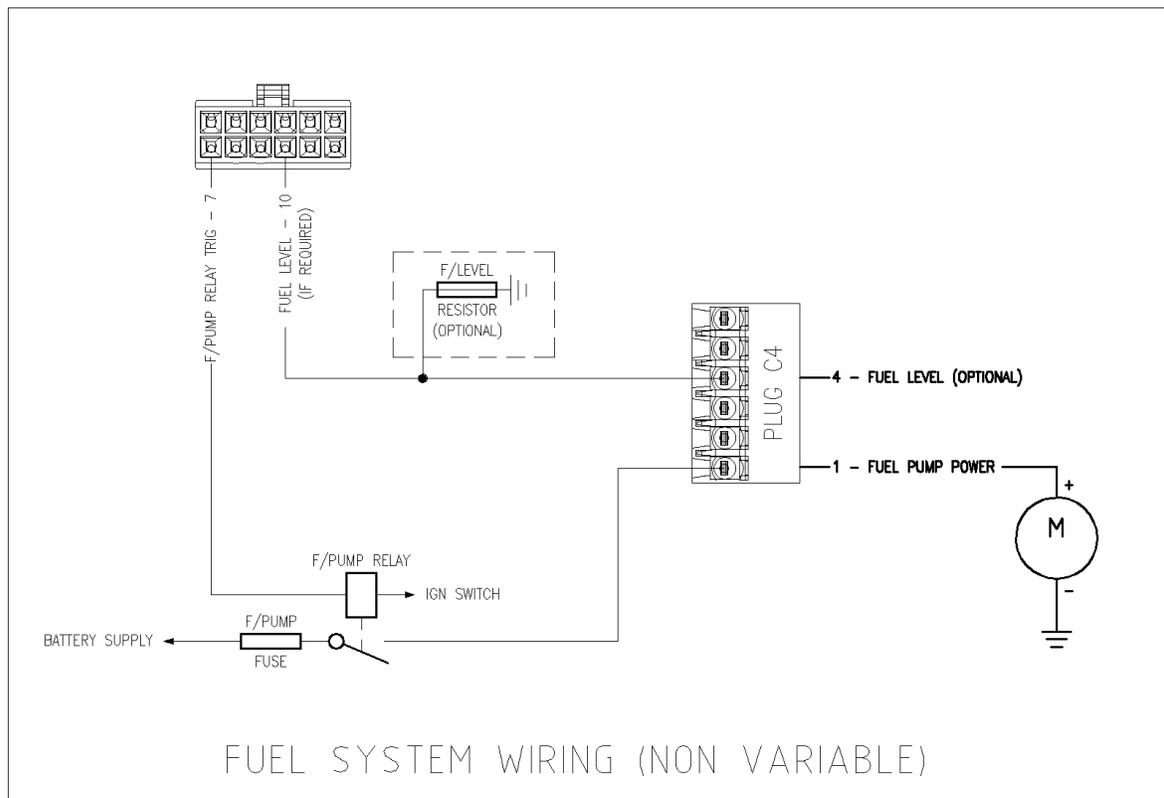
**Connector C4-2 PWM Fuel Pump Control.** This connection is used on O2+ turbo and H6 engines that retain the fuel pump controller. It is connected to Plug S2 pin8. It can also be used for other functions if required.

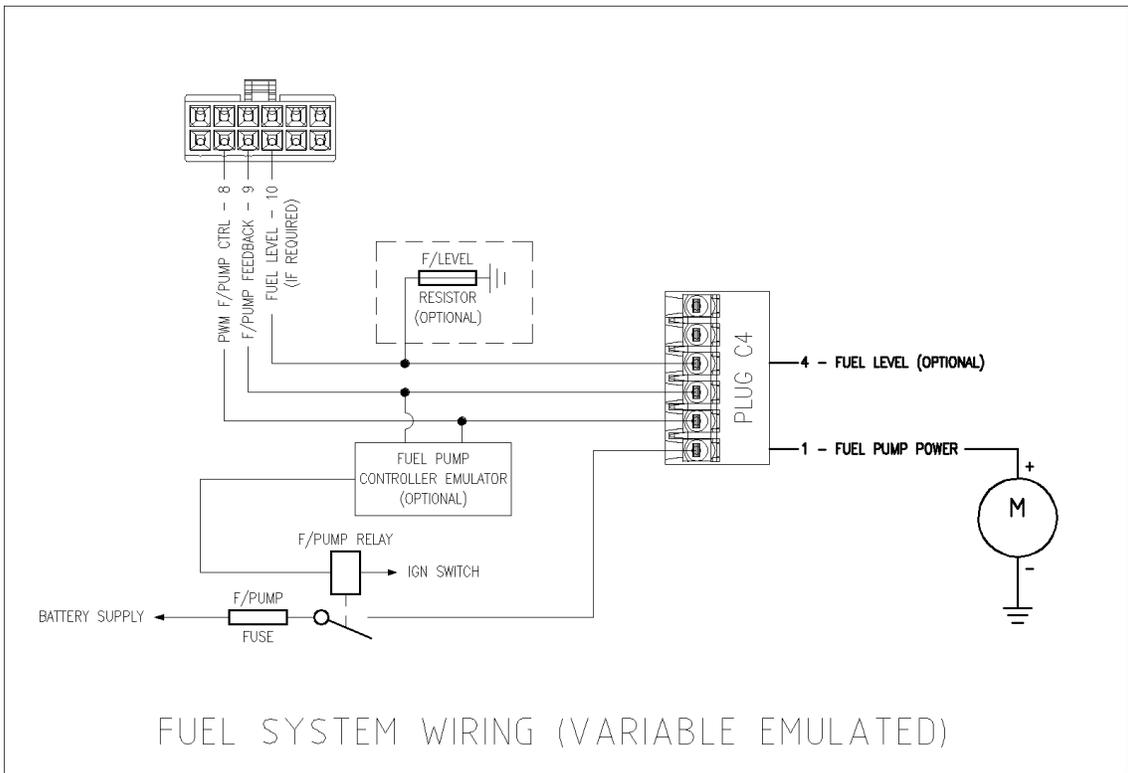
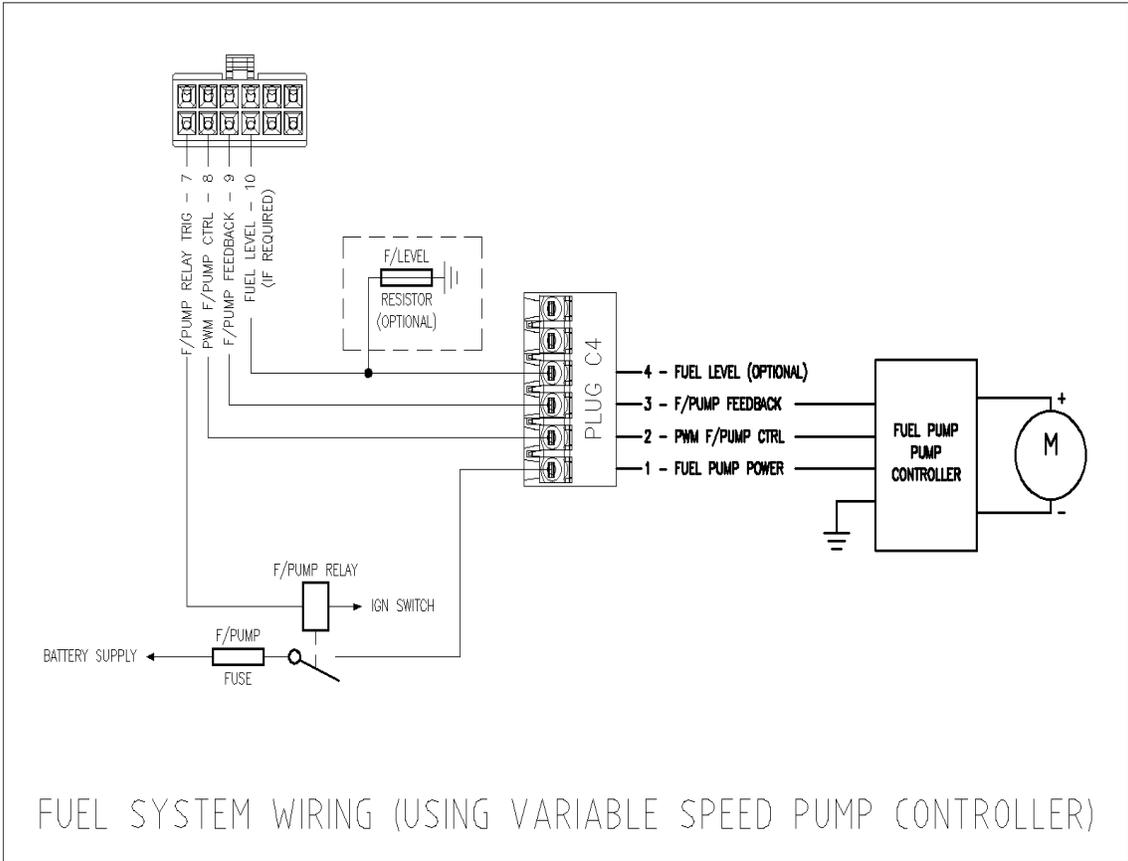
**Connector C4-3 PWM Feedback.** This connection is used on O2+ turbo and H6 engines that retain the fuel pump controller. It is connected to Plug S2 pin9. It can also be used for other functions if required.

**Connector C4-4 Fuel Level.** This connection is used on later model engines that have a fuel level input to the ECU (or BIU) and a compatible fuel level float is used (rather than emulated with the on-board resistor. If real fuel level monitoring is not required, this connection is not needed.

**Connector C4-5 Future.** This connection is not used (for future use).

**Connector C4-6 Future.** This connection is not used (for future use).





## Dash (Indication) Connector C5

The Dash connector C5 provides wiring to the warning lights and gauges of the vehicle as well as the air conditioning control.

**Connector C5-1 – Spare Ignition Output.** This connection is a spare fused ignition switch output and protected by the IGN-SPARE fuse (10Amp max).

**Connector C5-2 – A/C Request.** This is internally connected to S2 Pin5. It is the A/C Request signal from the air conditioning system (A/C switch is ON and evaporator temperature below the threshold temperature). This can be a signal from a Subaru AC unit or aftermarket such as Vintage Air.

**Connector C5-3 – Charge Lamp.** This is internally connected to the alternator harness plug C9 Pin2. It is the charge warning lamp from the alternator and is connected to a warning lamp on the dash. The other side of the lamp is wired to ignition voltage.

**Connector C5-4 – Immobiliser Lamp** (if equipped) - This is internally connected to S5 Pin16. The other side of the lamp is wired to ignition voltage. In normal operation this indicator will flash with the ignition off. It will illuminate solidly if there is an immobiliser issue. This connection is also wired to the internal LED display, so immobiliser diagnostics can be carried out without having to wire up an indicator lamp on the vehicles dash.

**Connector C5-5 – Tachometer.** This is internally connected to S5 Pin15. It can be used to drive a tachometer from the ECU's tachometer output.

**Connector C5-6 – MIL** (Malfunction Indicator / Check Engine Lamp). This is internally connected to S5 Pin14. The other side of the lamp is wired to ignition voltage. This connection is also wired to the internal LED display, so engine diagnostics can be carried out without having to wire up an indicator lamp on the vehicles dash.

**Connector C5-7 – Temperature Gauge.** This is internally connected to S5 Pin13. It is usually connected to the engine's temperature gauge sender on non-Canbus models. If not using the Subaru gauge cluster, the Subaru sender will need to be swapped out to a sender compatible with the gauge you are using. For Canbus models, there is no temperature gauge sender. If you are not using the Canbus cluster you will need to install a suitable sender and wire the sender to plug S5 pin13.

**Connector C5-8 – Oil Pressure Lamp.** This is internally connected to S5 Pin12. It is wired to the Oil Pressure warning light switch on the engine. The other side of the lamp is wired to ignition voltage. This connection is also wired to the internal LED display, so engine diagnostics can be carried out without having to wire up an indicator lamp on the vehicles dash.

**Connector C5-9 – Gauge Ground (optional).** This is internally connected to S5 Pin11. It is wired to the engine ground and is used if the temperature gauge has an engine ground reference input (usually the Subaru gauge cluster have this reference).

## Accelerator Pedal Connector C6 (Drive by Wire models only)

The accelerator pedal has two Accelerator Pedal Position (APP) circuits labelled APP1 and APP2. Each APP circuit three connections, a 5Volt power supply, a ground, and the varying signal (approximately 0.5volts at idle and 4Volts at full pedal). The pedal wire designations may not be easily determined from just the wiring diagrams. The ECU pinout diagram will tell you what wire is for what function. The APP2 ground and APP2 5V (Vref) wires can sometimes be connected to other engine sensors, so make sure you do not cut the wires to the other sensors. The 5Volt and ground supplies are sourced from the engine ECU.

There are two different plugs used for the Accelerator Pedal Position sensor, the large early model and the smaller late model, as shown below. The wiring colours to each pin can vary model to model, however the functions are the same on each plug.

**Connector C6-1 Shied.** This connection is for the outer screen of the APP1 cable. The shield is connected to the internal ground reference of the interface board.

*Note: The shield cables should only connected to ground at one end. The shield of the cable at the pedal end does not connect to anything. It should be cut off and insulated to prevent shorting to any adjacent wiring.*

**Connector C6-2 – APP1 Ground.** This is internally connected to S3 Pin1.

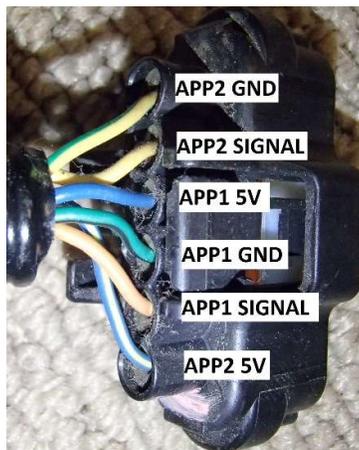
**Connector C6-3 – APP1 Signal.** This is internally connected to S3 Pin2.

**Connector C6-4 – APP1 Vref (5V).** This is internally connected to S3 Pin3.

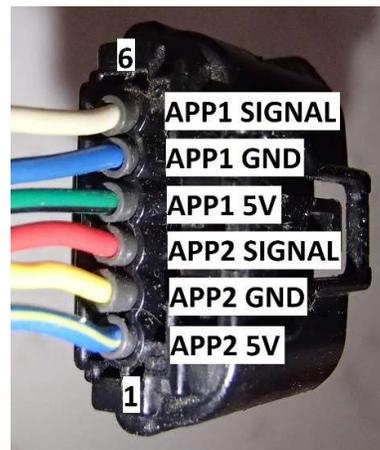
**Connector C6-5 – APP2 Vref(5V).** This is internally connected to S3 Pin6.

**Connector C6-6 – APP2 Signal.** This is internally connected to S3 Pin5.

**Connector C6-7 – APP2 Ground.** This is internally connected to S3 Pin4.



Early Model Pedal Plug Wiring



Late Model Pedal Plug Wiring

## Speed Sensor Connector C7

The speed sensor is required on most non-Canbus Subaru systems apart from the real early models to prevent idle and stalling and error codes from occurring.

The speed sensor can be the 3pin Subaru sender (if using a Subarugears box) or the cheap “ebay” style 3pin proximity sensors (ground switching NPN type). A lamp on the LED panel of the interface board shows the status of the speed sensor and should flash on and off with wheel rotation.

**Connector C7-1 – 12V IGN supply.** This connection is for the 12V supply to the sensor. It is fed from the Ignition switch via the IGN-OBDI fuse.

**Connector C7-2 – Speed Signal.** This connection is to the signal wire of the sensor. It is connected to plug S5 pin19. It is also connected to the speed sender LED.

**Connector C7-3 – Ground.** This connection is the ground for the sensor. It is internally connected to the Interface boards ground supply and connected to connector C3-5.

## Cruise Control Connector C8 (optional)

The cruise control connector is used if cruise control is to be used (and if the Subaru model & wiring supports cruise control). The connections of C8 are directly wired to the corresponding pins of plug S5. Wiring from this connector is generally wired to switches/indication on the dashboard of the vehicle.

**Connector C8-1 – Clutch Switch.** This is internally connected to S5 Pin2. It is usually 12V with the clutch pedal released and 0V when the clutch pedal is pressed.

**Connector C8-2 – Cruise Indication (1).** This is internally connected to S5 Pin4. It can be used for the CRUISE ON or CRUISE SET indication. It is also connected to the Canbus emulator expansion socket for future Canbus emulator cruise control indication.

**Connector C8-3 – Cruise Indication (2).** This is internally connected to S5 Pin5. It can be used for the CRUISE ON or CRUISE SET indication. It is also connected to the Canbus emulator expansion socket for future Canbus emulator cruise control indication.

**Connector C8-4 – Cruise Switch Ground.** This is internally connected to S5 Pin6.

**Connector C8-5 – Cruise Sub Switch.** This is internally connected to S5 Pin7. It is the ON/OFF switch signal.

**Connector C8-6 – Cruise Main Switch.** This is internally connected to S5 Pin8. It is the signal from the +,- SET, CANCEL buttons etc.

**Connector C8-7 – Brake Switch N/C.** This is internally connected to S5 Pin9. It is a normally closed switch contact and is 12V with brake switch NOT pressed, and 0V when the brake switch is pressed. It is the inverse of the brake switch N/O input.

**Connector C8-8 – Brake Switch N/O.** This is internally connected to S5 Pin10. It is a normally open switch contact and is 12V with brake switch PRESSED, and 0V when the brake switch is NOT pressed. It is also the same signal that turns on the vehicles brake lights.

## Examples



2014 Forester FB25 (cluster not shown)



2006 Forester EJ25



2014 Impreza FB20  
(extended pedal and alternator harnesses shown)



2008 Liberty EJ25  
(extended pedal harness shown - powered up)