Haltech
ENGINE MANAGEMENT SYSTEMS

ELITE 2500

Nissan RB30 Series

(HT-151350)

Terminated Engine Harness

QUICK START GUIDE

WARNING - HALTECH OFF-ROAD USAGE POLICY

It is unlawful to tamper with your vehicle's emissions equipment.

Haltech products are designed and sold for sanctioned off-road/competition non-emissions controlled vehicles only. Using Haltech products for street/road use on public roads is prohibited by law. It is the responsibility of the installer and/or user of this product to ensure compliance with all applicable local and federal laws and regulations. Please check with your local vehicle authority before using any Haltech product

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No responsibility whatsoever is accepted by Haltech for the fitment of Haltech Products. The onus is clearly on the installer to ensure that both their knowledge and the parts selected are correct for that particular application. Any damage to parts or consequential damage or costs resulting from the incorrect installation of Haltech products are totally the responsibility of the installer.

Always disconnect the battery when doing electrical work on your vehicle. Avoid sparks, open flames or use of electrical devices near flammable substances. Do not run the engine with a battery charger connected as this could damage the ECU and other electrical equipment. Do not overcharge the battery or reverse the polarity of the battery or any charging unit. Disconnect the Haltech ECU from the electrical system whenever doing any welding on the vehicle by unplugging the wiring harness connector from the ECU. After completing the ECU installation, make sure there is no wiring left un-insulated. Uninsulated wiring can cause sparks, short circuits and in some cases fire. Before attempting to run the engine ensure there are no leaks in the fuel system. All fuel system components and wiring should be mounted away from heat sources, shielded if necessary and well ventilated. Always ensure that you follow workshop safety procedures. If you're working underneath a jacked-up car, always use safety stands!

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Unless specified otherwise, Haltech warrants its products to be free from defects in material or workmanship for a period of 12 months from the date of purchase, valid in the original country of purchase only. Proof of purchase, in the form of a bill of sale or receipted invoice, which indicates that the product is within the warranty period, must be presented to obtain warranty service. Haltech suggests that the purchaser retain the dealer's dated bill of sale/receipt as evidence of the date of retail purchase. If the Haltech product is found to be defective as mentioned above, it will be replaced or repaired if returned prepaid along with proof of purchase. This shall constitute the sole liability of Haltech. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representations, either expressed or implied, including any implied warranty of merchantability or fitness. In no event shall Haltech be liable for special or consequential damages.

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Please include a copy of the original purchase invoice along with the unused, undamaged product and its original packaging. Any product returned with missing accessory items or packaging will incur extra charges to return the item to a re-saleable condition. All product returns must be sent via a freight method with adequate tracking, insurance and proof of delivery services. Haltech will not be held responsible for product returns lost during transit. The sale of any sensor or accessory that is supplied in sealed packaging is strictly non-refundable if the sealed packaging has been opened or tampered with. This will be clearly noted on the product packaging. If you do not accept these terms please return the sensor in its original unopened packaging within 30 days for a full refund.

Returning a sensor or accessory product within 30 days of purchase: Product may be returned for credit or full refund. (Any sealed packaging must not have been opened or tampered with)

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ELITE 2500
Nissan RB30 Series Terminated Engine Harness
Quick Start Guide

Congratulations on purchasing a Haltech Engine Management Terminated Engine Harness. This *Plug and Play* product allows you to be up and running in a few hours.

The Harness when installed in conjunction with a Haltech Elite 2500 opens the door to virtually limitless performance modification and tuning of your vehicle. Programmable systems allow you to extract all the performance from your engine by delivering precisely the required amount of fuel and ignition timing that your engine requires for maximum output under all operating conditions.

This quick start guide will walk you through installation of the Haltech Nissan RB30 Series Terminated Engine Harness into a vehicle. This guide is accompanied by the full service manual located on the software USB key provided with the ECU that you or your tuner will need to refer to before completing your installation and configuration.
The Manual is located within the ESP software Help.

Supported Engine

The Haltech Nissan RB30 Series Terminated Engine Harness supports the following engine configurations:

- Nissan RB30 Series Engine

Supported ECU

- Haltech Elite 2500

Included in Haltech ECU Kit (HT-151350)

- Elite 2500 ECU
- Nissan RB30 Series Terminated Engine Harness
- LS1 Coil with built in ignitor
- LS1 Coil Mounting Bracket and spacers
- Deutsch Connector Pack – (Opposing connectors for terminations)
- Haltech Air Temperature Sensor (HT-010200)
- Haltech Coolant Temperature Sensor (HT-010300)

Optional Accessories (Sold Separately)

- WBC1 Single Channel CAN Wideband Controller (HT-059970)
- Wideband Sensor only- Bosch LSU 4.2 (HT-010714)
- 02 Sensor Weldable Fitting Bung and Blanking Plug M18x1.5 (HT-010702)
- Knock Sensor – Genuine Bosch suits 8mm mount (HT-011100)

Harness Overview

The Haltech Nissan RB30 Series Terminated Engine Harness is a plug and play solution for wiring a Nissan RB30 Series Engine.

Installation is simple and easy as the harness is designed for the engine, all lengths are correct and all wires are clearly labeled.

Notes on installation:

- Make sure your Engine is grounded directly to the chassis of the vehicle.
  A heavy gauge ground / earthing strap should be used to ground your engine to the chassis of the vehicle. The Haltech Terminated Engine harness **does not** ground your engine.

> WARNING!
> Damage can occur to your harness and / or ECU if you do not ground your engine properly. Please ensure heavy gauge cable is used.

- Keep all wires away from the Exhaust manifold.
- A Haltech throttle position sensor or similar variable resistance TPS is required to be fitted to the OEM throttle body for correct operation.
  The OEM (manual transmission) TPS is **NOT** a variable resistance sensor.
- A Haltech Coolant Temperature Sensor (HT-010300) is required to be fitted,
  This sensor replaces the OEM sensor.
- Connect the internal ECU MAP sensor via silicon hose or alternatively fit a Haltech 3Bar MAP sensor to the harness connector labeled MAP.
- Basemaps are available on the website www.haltech.com.au
  or by emailing sales@haltech.com.au or usa@haltech.com

Termination Descriptions

The Haltech RB30 terminated harness utilizes the following terminated connections

Engine Coolant Temperature Sensor (ECT)

The Engine Coolant Temperature Sensor provides the ECU with a signal that allows the ECU to know the current engine temperature.
A Haltech Coolant temperature sensor (HT-010300) is required to be fitted in the OEM location for correct operation and connection.

OEM Coolant Temperature Sensor Gauge (ECT GAUGE)

Provisions have been made in the harness to accommodate the OEM cluster temperature gauge. A wire has been run from the gauge to the in cabin harness labeled ECT gauge. Connect to the OEM coolant gauge sensor and the dash cluster for correct operation of the cluster gauge.

Knock Sensor (KNOCK)

The knock sensor input connects to a compatible knock sensor mounted to the block of the engine. The signal is used by the ECU Knock control function to detect knock events within the engine. A Haltech knock sensor (HT-011100) is required to be fitted (optional).

Intake Air Temperature Sensor (IAT)

The Intake Air Temperature Sensor provides the ECU with a signal that allows the ECU to know the current intake air temperature.
A Haltech Air temperature sensor (HT-010200) is required to be fitted to your intake manifold to take advantage of this feature and is required for VE tuning of your engine. A high mounting position in your manifold is recommended

Manifold Pressure Sensor (MAP)

The MAP sensor measures changes in the intake manifold pressure which result from engine load and RPM changes and converts these into a voltage output so the ECU knows the manifold pressure.

The terminated harness is provisioned with the ability to connect an external MAP sensor, if the internal ECU MAP sensor is not used.
Mount a Haltech 3 Bar GM MAP sensor (HT-010104) and connect it to the harness via this pre terminated connector.

Fuel Pressure Sensor (Fuel-P)

The Fuel-P labeled connector connects directly to a Haltech fuel pressure sensor. This will enable the user to know the current fuel pressure of the vehicle.
An optional fuel pressure sensor must be fitted. (HT-010904)
Fuel Pressure is allocated to Analogue Voltage Input 3 (AVI3) on the Haltech Elite 2500.

Oil Pressure Sensor (Oil-P)

The Oil-P labeled connector connects directly a Haltech oil pressure sensor.
This will enable the user to know the current oil pressure of the vehicle.
An optional oil pressure sensor must be fitted. (HT-010904)
Oil Pressure is allocated to Analogue Voltage Input 4 (AVI4) on the Haltech Elite 2500 ECU.

OEM Oil Pressure Sensor Switch and Gauge (Oil-P Switch, Oil-P Gauge)

Provisions have been made in the harness to accommodate the OEM cluster oil pressure switch and oil pressure gauge. Wires have been run from the gauge to the in cabin harness labeled Oil-P Switch and Oil-P Gauge. Connect these wires to the OEM oil pressure sensor and the dash cluster for correct operation of the cluster gauge and oil pressure light if required. Insulate and isolate if not used.

Camshaft Position Sensor Input (CRANK CAM)

The Camshaft Position Sensor is used to determine crankshaft position and stroke of the engine. Connect this directly to the 4 pin sensor connector located on the distributor.

Throttle Position Sensor (TPS)

The Throttle Position Sensor measures the throttle butterfly rotation.
A Haltech throttle position sensor or similar variable resistance TPS is required to be fitted to the OEM throttle body for correct operation.
The OEM (manual transmission) TPS is not a variable resistance sensor.

Starter Signal (STS)

The Starter Signal connects directly to the starter motor solenoid.
This will supply 12V to the solenoid on receiving a start signal from the ignition switch when in the start position.

Please ensure you supply a main power connection to the starter motor and a main earth strap to the engine to ensure correct operation of the starter motor, and to avoid damage to your terminated harness and ECU.

Alternator (ALT)

The Alternator output connects directly to the OEM Alternator.
The +12V signal and alternator warning light wires are pre-wired into the loom.
Connection of the warning light is required for correct operation of the alternator.
The warning light cable can be found in the in cabin harness, and is labeled as "Alt Light". Connect this to the negative side of your warning light from your dash.
Alternatively connect a 470R resistor between the Alt Light and +12VDC Switched labeled wires in the cabin harness if a warning light is not required.

Please ensure you supply a main power connection to the Alternator
Heavy gauge wire must be used

Auxiliary Air Control Valve (AAC)

The Auxiliary Air Control Valve (AAC) is used to control the Idle speed of the engine.
Connect the AAC labeled wires to the AAC valve. (Polarity not important)
The AAC is controlled by a Digital Pulsed Output (INJ8) on the Haltech Elite 2500 ECU.

Fuel Pump Output (Fuel Pump +15A Max)

The Fuel Pump Output can be connected directly to the positive (+) side of the fuel pump and is fused via fuse 4 within the fuse box. This output is limited to 15A continuous current draw.
If large pumps or twin pump setups are required please use this output to trigger a relay capable of supplying the current required for your setup.

Flex Fuel Input (SPI3)

A Flex Fuel Composition Sensor is used to monitor the ethanol content of the fuel.
It Can be used with your Elite ECU for Flex Fuel tuning to suit a varying blend of ethanol in the fuel, for data-logging, and for Engine Protection purposes.
The Haltech Flex Fuel Composition Sensor uses a digital frequency to report ethanol percentage to the Elite ECU.
The Digital Output from the Flex Fuel Sensor can be wired Directly into the SPI3 channel.

Spare Digital Pulsed Output (DPO-1, DPO-2, INJ-7)

Spare Digital Pulsed Outputs are located throughout the terminated harness
When the output is activated by the ECU the output will switch to ground.
Solenoid valves and shift lights etc can be run directly from the output, however high current devices such as thermo fans and additional fuel pumps must be activated through a relay. A Relay can be wired between the DPO and the supplied +12V DC on the connectors. This way the output is only switching the relay and not a high current draw device. (***The Digital Pulsed Outputs are limited to 1A Max current draw).***

Analogue Voltage Inputs (AVI1, AVI2, AVI5)

The Analogue Voltage Inputs can accept variable voltage inputs from 0V to 5V.
These inputs can also accept switch inputs that change between two different voltage levels. The on voltage and off voltage define what the thresholds are between the on and off states.

The AVI-1, AVI-2 and AVI-5 labeled wires are spare Analogue Voltage Inputs.
These inputs can be programmed within the ESP Software to read variable voltage inputs such as:

- 02 Sensors, Pressure Sensors, Temperature Sensors, Various Switches

For a full list of input options and explanations please go to the help within the ESP Software.

Ignition

The Ignition wiring within the Haltech RB30 series terminated harness has been wired to allow the user to keep the standard distributor ignition setup or upgrade to direct fire ignition.

Ignition Option 1 (Distributor Ignition using LS1 Coil)

Replace the OEM coil with the supplied LS1 Coil and mounting bracket.
Connect the harness to the coil via the pre-terminated connector on the harness labeled “IGN-LS1”
Connect the high tension lead from the distributor to the coil.
Your installation is complete

Ignition Option 2 (Direct fire ignition)

Create a custom harness using the Haltech 6 Channel flying lead harness (HT-045504) which connects to the 8 pin deutsch ignition breakout connector located on the Haltech RB30 Series terminated harness near the firewall.

Many options for coil and ignitor combinations are available.
Please consult your tuner for the best direct fire ignition system that will suit your application.
The Ignition breakout connector pinout is shown below

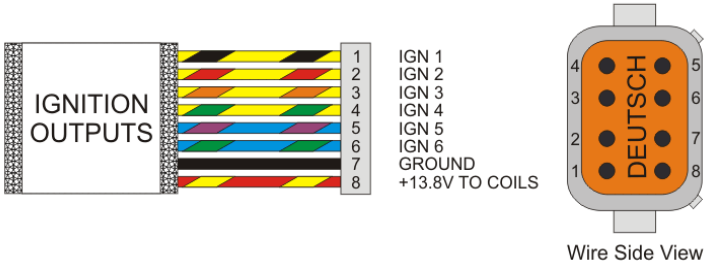


Figure 1 – Ignition Breakout Connector wiring

Injection 1-6 (INJ1, INJ2, INJ3, INJ4, INJ5, INJ6,)

The injector outputs connect directly to the injectors.
Please ensure the correct injector output is connected to the corresponding injector in the engine. Please refer to the label on the harness for correct injector allocation.

Ground (GND)

The Ground cable connects directly to the engine intake manifold or head.
Warning this in **NOT** the earth cable for the engine, please ensure that you earth the engine with an earth strap from the block of the engine to the chassis of the car.
Ensure that the chassis of the car is connected to the battery negative (-) terminal with heavy gauge cable or earthing strap.
Damage to the ECU and or terminated harness may result if this is not done.

Wideband 02 Input (WIDEBAND 02)

Wideband 02 sensors accurately measure the Air/Fuel ratio of the engine which is required for precise tuning and control of the engine.

The Terminated harness has been integrated with the Haltech WBC1 wiring harness allowing a quick installation of a Haltech WBC1 and Wideband O2 Sensor.

Connect your optional Haltech wideband sensor (HT-010714) directly to the supplied connector labeled O2 in the engine bay. Mount the sensor in the exhaust manifold

Connect the Haltech WBC1 to the allocated corresponding connector located near the main ECU connectors labeled O2,

Connect the Haltech WBC1 to the Haltech Sport ECU directly via the supplied CAN Cable.

Enable the Haltech WBC1 in your map using ESP software.

Your Haltech ECU will now have access to correct Air /Fuel Ratio readings allowing precise tuning and control of your engine.

Main Power Connections

The following cables will connect directly to the main power on the vehicle

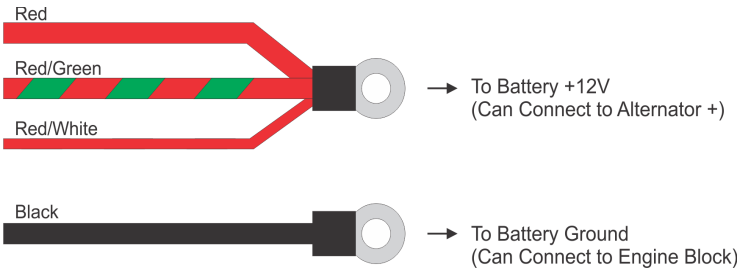
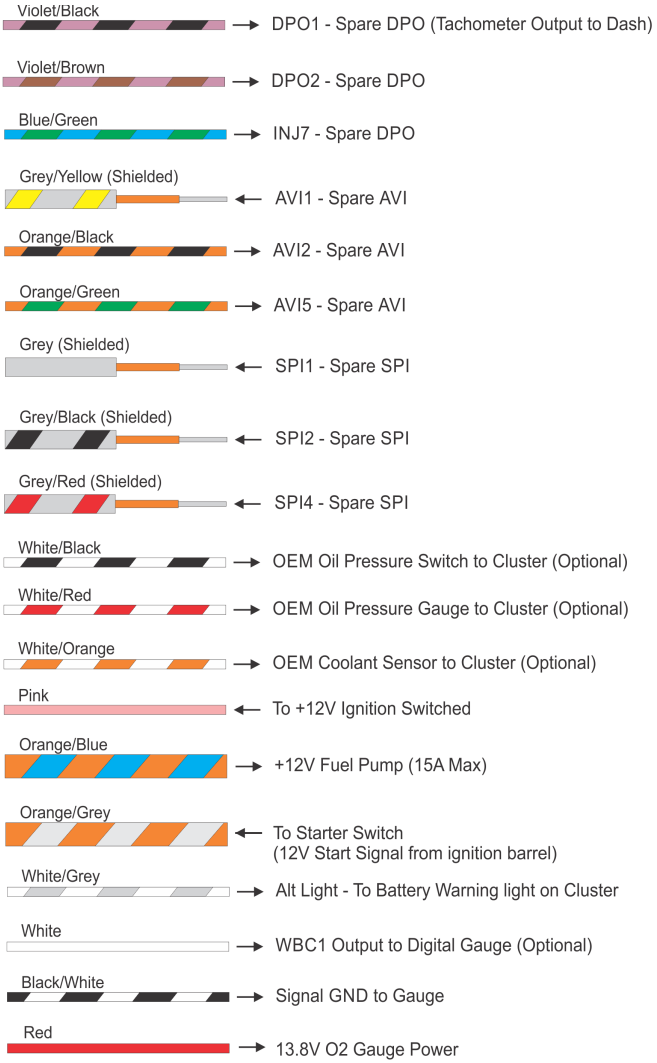


Figure 2 – Main Power wiring

In Cabin Wiring

The In cabin wiring is made up of multiple inputs and outputs. Correct connection of these wires is essential for proper operation of the harness.
All wires have been labeled and required cables should be connected as outlined below.



WARNING
Isolate and insulate all spare inputs and outputs to avoid damage to ECU and harness

Figure 3 – In Cabin harness wiring

Fuse Box

The Haltech fuse box is connected to the harness.
Contained within the Haltech Fuse box is 6 fuses and 6 relays, each fuse protects the corresponding relay output (ie fuse #1 protects relay ouput #1, fuse #2 protects relay output #2 etc).

The Haltech fuse box can handle a maximum continuous current draw of 70AMP, exceeding this value may cause damage to the fuse box therefore please ensure all auxiliary devices, fans and fuel pumps connected do not exceed the supplied fuse current limits.

The functions of each of the relays are outlined below:

Fuse #	Relay #	Function	Fuse Required
F1	R1	+12V Output to ECU	10A
F2	R2	+12V Output to Injectors	20A
F3	R3	+12V Output to Ignition	15A
F4	R4	+12V Output to Fuel Pump	20A
F5	R5	+12V Output to Accessories	10A
F6	R6	Unpopulated	-

Figure 4 – Haltech fuse box relay allocation table

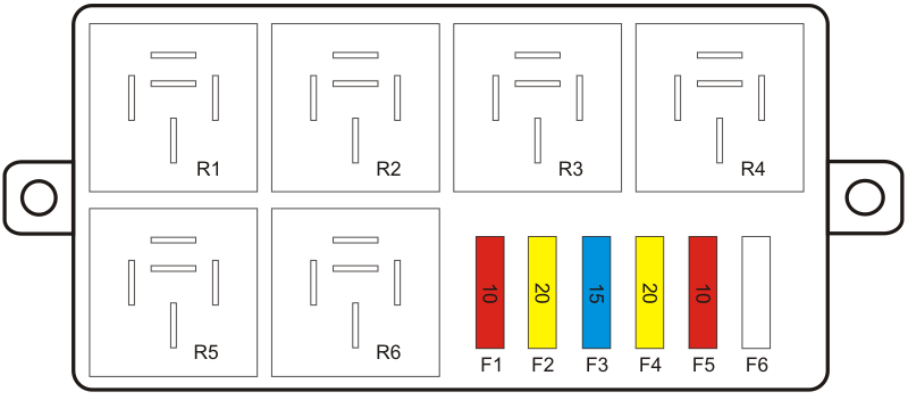
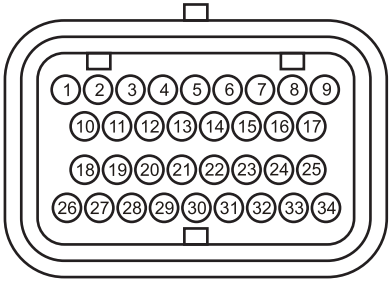
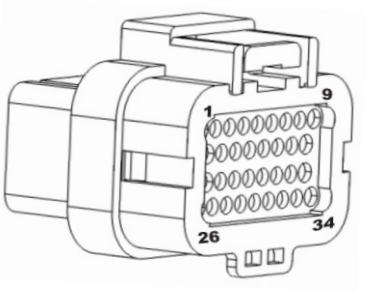


Figure 5 – Haltech fuse box layout

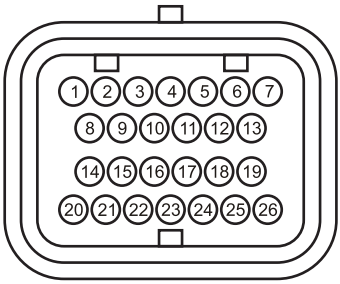
Harness Pinout

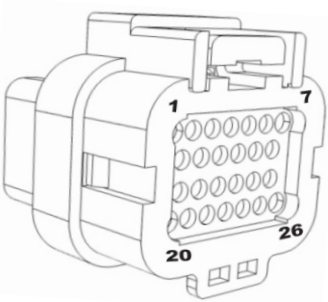




ECU CONNECTOR (34 PIN)

Position	Connection	Function	Description
A1	DPO 2	DPO 2	In Engine Bay
A2	AVI 4	Oil Pressure	Fitment of Oil Pressure Sensor (HT-010904) Required
A3	IGN 1	IGN 1	LS1 Coil & Ign Connector Pin 1
A4	IGN 2	IGN 2	Ign Connector Pin 2
A5	IGN 3	IGN 3	Ign Connector Pin 3
A6	IGN 4	IGN 4	Ign Connector Pin 4
A7	IGN 5	IGN 5	Ign Connector Pin 5
A8	IGN 6	IGN 6	Ign Connector Pin 6
A9	+5V	+5V	+5V DC Sensor Supply
A10	BATTERY GROUND	BATTERY GROUND	To Battery Ground Terminal
A11	BATTERY GROUND	BATTERY GROUND	To Battery Ground Terminal
A12	Not Used	Not Used	-
A13	IGNITION INPUT	IGNITION INPUT	For ECU Ignition Sense
A14	AVI 10	TPS Signal	Fitment of TPS (HT-010402) Required
A15	AVI 9	MAP Signal	Fitment of 3 Bar Map Sensor (HT-010104) Required
A16	AVI 2	Spare AVI	In Cabin Loom
A17	AVI 3	Fuel Pressure	Fitment of Fuel Pressure Sensor (HT-010904) Required
A18	DPO 1	Tach Out	In Cabin Loom
A19	INJ 1	INJ 1	Injector #1
A20	INJ 2	INJ 2	Injector #2
A21	INJ 3	INJ 3	Injector #3
A22	INJ 4	INJ 4	Injector #4
A23	DPO 3	DPO 3	In Engine Bay
A24	DPO 5	Fuelb Pump Relay	To Fuel Pump (+) 15A Max Current
A25	DPO 6	Engine Control Relay	To Fuse Box
A26	+12V (INJ)	Injector Power Input	Fused Power
A27	INJ 5	INJ 5	Injector #5
A28	INJ 6	INJ 6	Injector #6
A29	INJ 7	Spare DPO	In Cabin Loom
A30	INJ 8	AAC Valve	OEM ACC Valve
A31	Not Used	Not Used	-
A32	Not Used	Not Used	-
A33	Not Used	Not Used	-
A34	Not Used	Not Used	-





ECU CONNECTOR (26 PIN)

Position	Connection	Function	Notes
B1	TRIGGER +	Cam/Ref Signal	To Distributor
B2	HOME +	Cam/Rsynch Signal	To Distributor
B3	AVI 7	IAT Signal	Fitment of Sensor (HT-010200) Required
B4	AVI 8	CTS Signal	Fitment of Sensor (HT-010300) Required
B5	Not Used	Not Used	-
B6	Not Used	Not Used	-
B7	SPI 4	Spare SPI	In Cabin Loom
B8	SPI 1	Spare SPI	In Cabin Loom
B9	SPI 2	Spare SPI	In Cabin Loom
B10	SPI 3	Flex Fuel Input	For Optional Flex Fuel Senosr (HT-011000)
B11	+12V (ECU)	Fused Power	To Battery +
B12	AVI 6	Not Used	-
B13	AVI 1	AVI 1	In Cabin Loom
B14	SIGNAL GROUND	Signal Ground	To Sensor Grounds
B15	SIGNAL GROUND	Signal Ground	To Sensor Grounds
B16	SIGNAL GROUND	Signal Ground	To Sensor Grounds
B17	IGN 7	Not Used	-
B18	IGN 8	Not Used	-
B19	DPO 4	DPO 4	In Engine Bay
B20	AVI 5	Spare AVI	In Cabin Loom
B21	KNOCK 1	Knock #1 Sensor	Fitment of Haltech Sensor (HT-011100) Required
B22	KNOCK 2	Not Used	-
B23	CAN HIGH	CAN Communications	To CAN Connector
B24	CAN LOW	CAN Communications	To CAN Connector
B25	DBW 1	Not Used	-
B26	DBW 2	Not Used	-

Notes:

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ENGINE MANAGEMENT SYSTEMS

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