



Porsche 991.2 Turbo S7D

This document is intended for use by a technical audience and describes a number of procedures that are potentially hazardous. Installations should be carried out by competent persons only.

Syvecs and the author accept no liability for any damage caused by the incorrect installation or configuration of the equipment.

Please Note that due to frequent firmware changes certain windows might not be the same as the manual illustrates. If so please contact the Syvecs Tech Team for Assistance.

Support@Syvecs.com



Contents

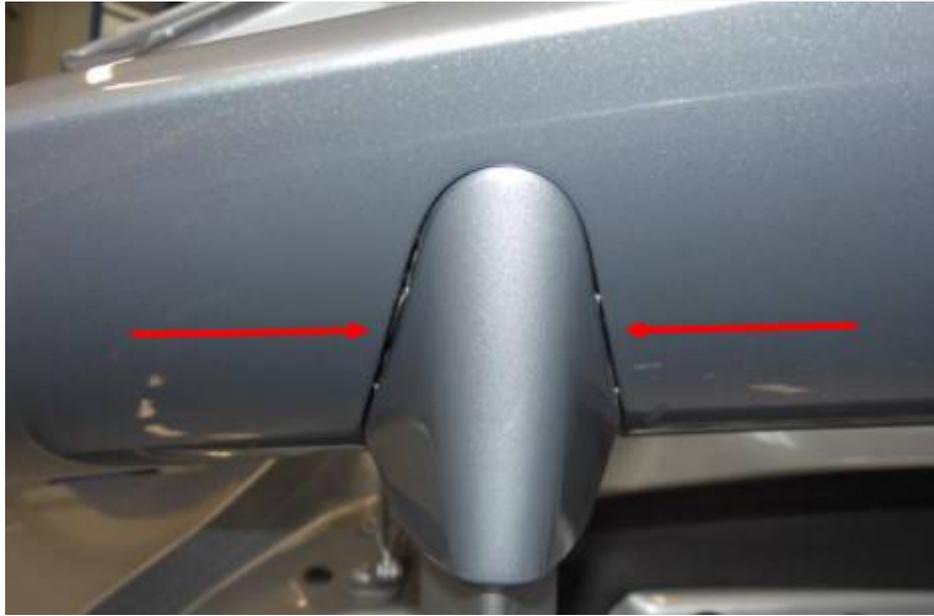
1 x S7D Ecu
1 x 991.2 Loom Adaptor

Installation

- 1.) Remove the Negative Terminal from the battery on the Vehicle which is found in the Front under hood compartment.
- 2.) In order to gain access to the OEM Ecu the Rear Spoiler needs to be removed from the car, open the rear engine bay and start by removing the OEM Air Intake Grate and Small Fans as shown below



3.) Next remove the Spoiler leg covers to access the Torque fitting which hold the top spoiler on



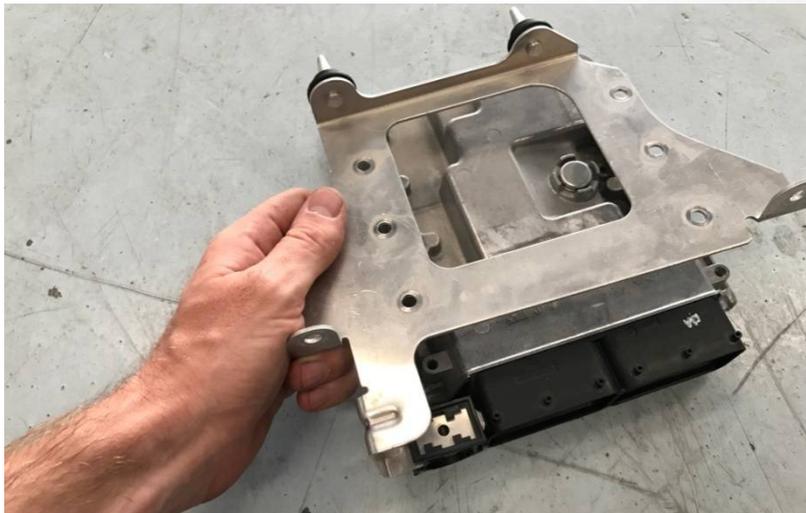
4.) Lift the top Spoiler of the legs and then slide the bottom part of the spoiler up and over the legs also



5.) Unbolt the items marked in Red and unplug the 2 electrical connectors for the spoiler assembly. Then lift the frame out and the OEM Ecu can be accessed easily under the area marked below with a red circle.

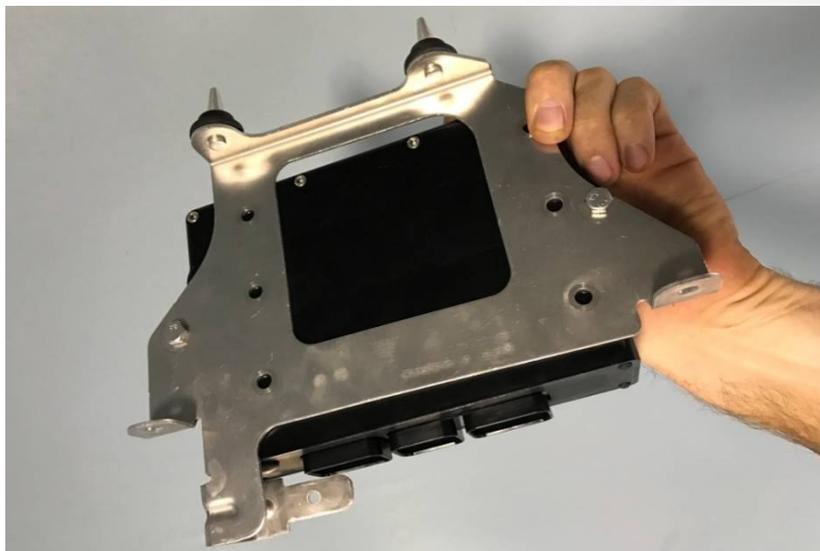


3.) Remove the Factory Ecu by removing the 2x 10mm nuts holding it in place



4.) Remove the 6 x Hex bolts to remove the Oem ECU from its cradle

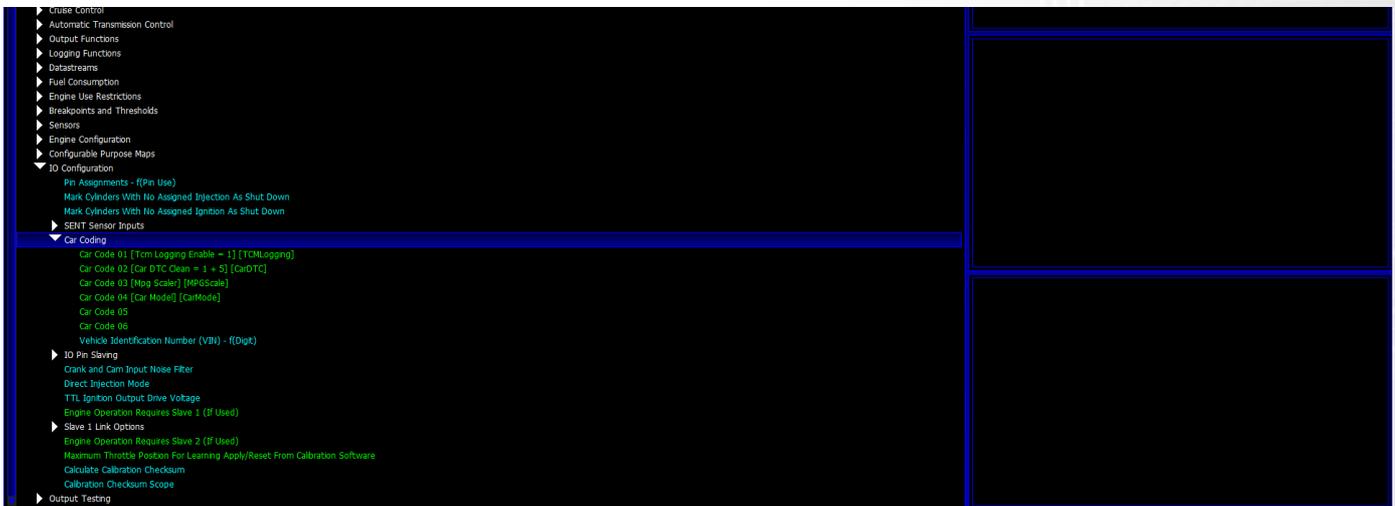
5.) Fit the Syvecs ecu in its place with 2 x M6 bolts



6.) Mount the cradle then back where the OEM Ecu came from

- 7.) Plug in the Loom and secure carefully
- 8.) Connect the Battery back, connect the ethernet cable to your laptop and load the supplied base calibration.
- 9.) Set the Car Type In Scal Software - i/o Configuration - Car Coding - Car Code4

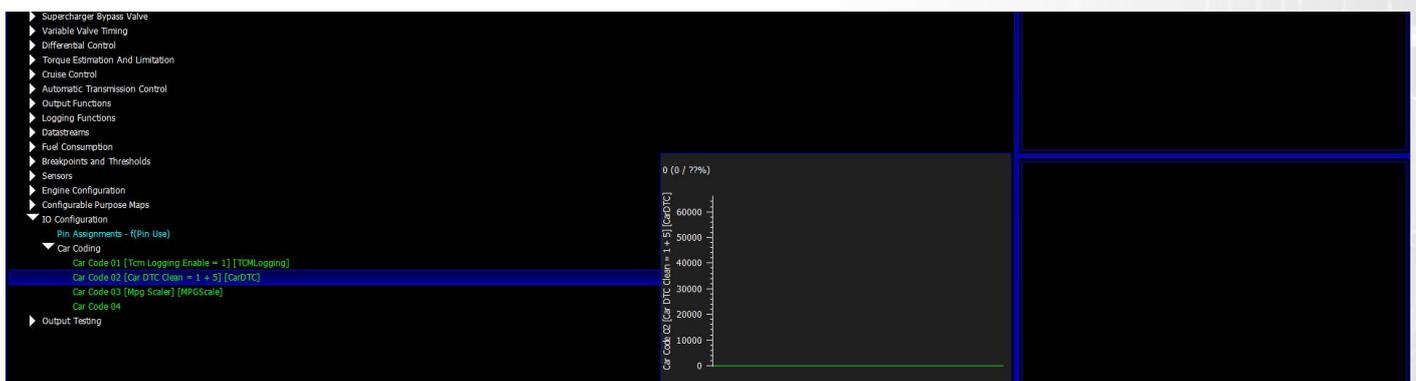
- 0 - Turbo S
- 1- Turbo
- 2 - Cayman S
- 3 - Cayman
- 4 - Boxster
- 5 - GT2RS (991.2 Kit)
- 6 - Spare
- 7 - Turbo S with ACC
- 8 - Turbo with ACC



You may find you have Diff errors on the dash after the installation if the Car Code 4 was incorrect at first key on, if you have these errors you can clear them in Scal by going down to i/o Configuration - Car Coding Set Car Code1 = 0

After Set CarCode 2 = 1 , Wait 2 seconds then set at 5, then back to 1 and Finally 0

You can also clear the DTC at Key on by holding down the Brake and Accelerator pedal for 5 seconds After Set Car Code = 1 to get TCM Logging working



- Calibration Switch changing is done via the OEM Cruise Lever, Push up to enable Cal Up Request and Down to enable Cal Down Request.. Users need to turn on the Cruise Stalk by pressing the end button to activate these mode changes.

The Oil pressure Gauge will show the Active Cal Position number when changing Cals

- Pushing the Cruise Lever forward activates Cruise Control

- Pulling the Cruise Lever Back towards the Driver activates the Cal Override which is assigned to Rolling Antilag on the Kit currently

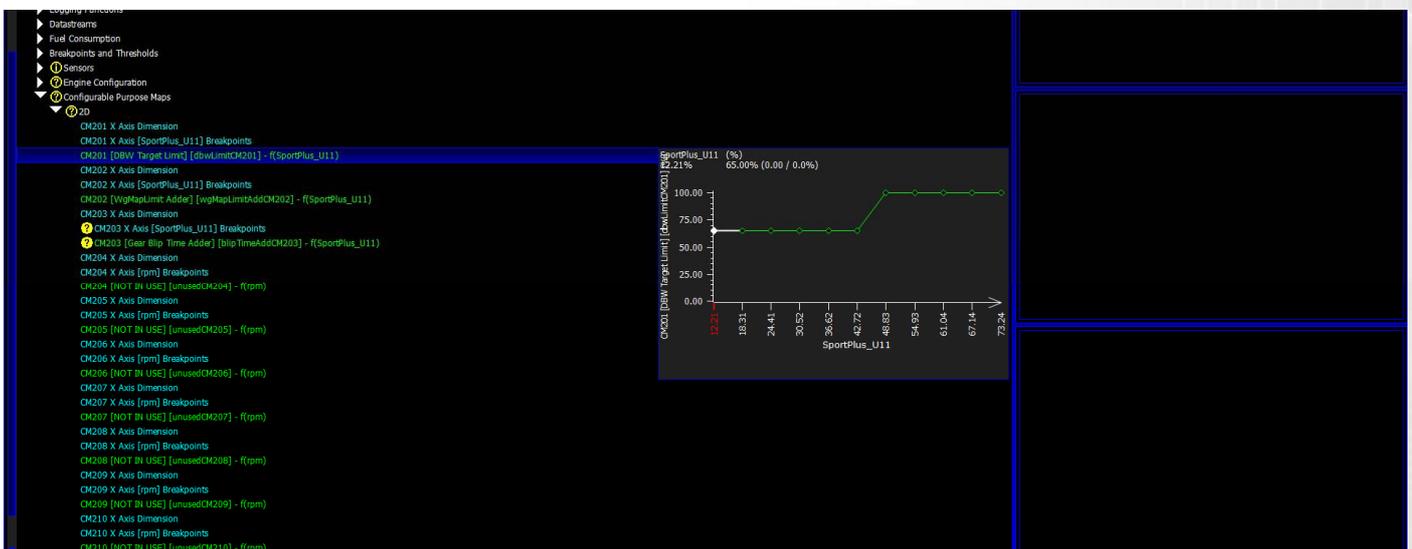


- Injector Scaling for MPG Counter is done via Car Code 3 under Pin Assignments
 - Car Code1 Activates the Clutch A and B Pressure Logging



The Sport mode settings from the TCM also come into the Syvecs which can be used for altering DBW Limit, Wastegate Targets etc. The Base map already has a DBW Limit of 60% when in Normal Mode but users can set up other Comp maps for the Input SportPlus_U11

- Normal = 0%
- I = 25% (2017 models only)
- Sport = 50%
- Sport plus = 100%



Frequently Asked Questions

Q) Do you control the OEM VTG Turbos

A) Yes, This is done via a Custom Base map to suit the PWM based VTG control

Q) Where do you adjust the High pressure pump settings

A) Output Functions - Closed Loop PWM(991 High Pressure)

Q) Do you control the OEM Engine fan

A) Yes, This is adjustable in Output Function – Fan4

Q) How is the OEM TurboStat controlled

A) This is found in Output Functions – Fan5(thermostat)

Q) The Oil pressure is higher with Syvecs compared to OEM ecu, Can we control the pressure?

A) The pump control is available on slave out 4 (H-bridge4)

You can setup a custom table to control and send duty to lower the pressure but just so you are aware Porsche do this for emission purposes and care is needed if the car is launching with sticky tyres with the bypass solenoid controlled because the oil pressure will surge and trip oil pressure cut on ecu.

Q) How is the Electronic Blow of Valve controlled

A) This is found in Output Functions – EGR Control

Q) Can you replaced the OEM Map Sensor?

A) The OEM Map sensor is a SENT Protocol based Sensor so wiring a 0-5v analog sensor to the same pin wont work. Need to wire to a different Input on the ECU

Q) Can I install different in tank pump?

A) Yes, the Syvec's communicates with the OEM Fuel Pump Ecu to allow PWM Control of the Pump so it can be adjusted to suit your new pump. This is found in Output Function – Fuel Pump

Q) What of the original features will now now work?

A) Only AutoStart Function

Q) Can we use the OBD port still to Log, Read Codes and Clear them on other ecus on the car like ABS?

A) Yes via the Use on Piwis

Q) Where do you adjust the Intake Lift cam solenoids?

A) Output Functions - Variable intake control

Q) Does Cruise control work?

A) Yes, even adjustable speed control if on Firmware 1.674 and above

Q) Where do you adjust the fuel evap solenoid duty?

A) Output Functions - Fan6(Evap)

Q) Can you Log clutch pressure and clear TCM DTC from Syvecs Software?

A) Yes,

IO Configuration - Car Code 1 Needs to be = 1 in order for TCM Logging to be ON -- BUT SET TO 0 IF WANTING TO GEARBOX RELEARN, DTC CLEAR via OEM Diagnostic TOOLS

- Car Code 2 is for DTC Clearing With IGNITION ON Only - Set to 1 to first enable the Clearing mode and then change to 5 for Clearing of all Modules, When finished put back to 1 for 2 seconds and then 0.

You can also Clear DTC without the Laptop by pressure Brake and Accelerator pedal fully down for 5 seconds with just ignition on

Q) If running additional 6 port injections how do you setup the fueling?

A) First set the Secondary Injector Opening times in RunMode Fueling – Corrections

After you need to set the Secondary multiplier difference between the DI and Port under Run mode fueling – Correction – Secondary Multiplier

OEM DI Injectors flow around 750cc.. So do $750 / (\text{Port Injectors cc})$ to give a good starting point on Secondary multiplier Ensure that the Secondary Injection Opening Time values are correct from your manufacture.

After Start the engine up and monitor the Lambda1 Value and FuelMltCll1 Value. Now go to Injector Split1 and increase the values up to 50% in the area and around that the tracer is showing the engine is current at.

As the Ports start to blend in and you have the Split at 50% you need to be monitoring the Lambda1 and FuelMltCll1. If the values are different compared to before when split was at 0% then adjust the Secondary multiplier live until they are the same with the split present.. Once that is good, set the Split back to 0%,

When the OEM DI Injectors now reach their limit the Syvecs ecu will automatically bring the ports in to maintain the desired fuel requirements, If you wish to bring the port injectors in sooner then set the split table as required.

A	DESCRIPTION	CONNECTOR A
	PART NUMBER	4-1437290-0
	NOTES:	34 Way - Key1

Syvecs Description	Syvecs S7D Pinout	Function	Notes
PWR CTR OUT	A1	MAIN RELAY OUTPUT	Linked to Power Control IN on C28, Will pull to Ground when C28 is above 5v
H-Bridge1	A2	H-Bridge1	DBW
H-Bridge2	A3	H-Bridge2	DBW
H-Bridge3	A4	H-Bridge3	Thermostat
H-Bridge4	A5	H-Bridge4	Oil Pressure Valve
H-Bridge5	A6	H-Bridge5	DI Pump
H-Bridge6	A7	H-Bridge6	Rad Fans
H-Bridge7	A8	H-Bridge7	Valve Lift
H-Bridge8	A9	H-Bridge8	Starter Motor Relay
GDI LS1	A10	Fuel 1 / Low Side GDI 1	Injector 1
GDI LS2	A11	Low Side GDI 2	Injector 4
GDI LS3	A12	Fuel 3 / Low Side GDI 3	Injector 3
GDI LS4	A13	Low Side GDI 4	Injector 6
GDI LS5	A14	Fuel 5 / Low Side GDI 5	Fuel Pump 2 GTR2s
GDI LS6	A15	Low Side GDI 6	Injector 5
GDI LS7	A16	Fuel 7 / Low Side GDI 7	Exhaust Flap
GDI LS8	A17	Low Side GDI 8	Injector 2
GDI HS1/2	A18	GDI Hi Side 1-2	High Side Direct Injection Output to be paired with Low Side 1 and 2 (A10/A11)
GDI HS3/4	A19	GDI Hi Side 3-4	High Side Direct Injection Output to be paired with Low Side 3 and 4 (A12/A13)
GDI Pump 1 HS	A20	GDI Pump 1 Hi Side	DI Pump 1 High Side
GDI HS5/6	A21	GDI Hi Side 5-6	High Side Direct Injection Output to be paired with Low Side 5 and 6 (A14/A15)
GDI HS7/8	A22	GDI Hi Side 7-8	High Side Direct Injection Output to be paired with Low Side 7 and 8 (A16/A17)
GDI Pump 2 HS	A23	GDI Pump 2 Hi Side	DI Pump 2 High Side
Fuel15 Output	A24	Fuel15 Output	Boost Pressure Adjuster 1
Fuel16 Output	A25	Fuel16 Output	Boost Pressure Adjuster 2
IGN1	A26	CYL 1 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
IGN2	A27	CYL 2 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
IGN3	A28	CYL 3 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
IGN4	A29	CYL 4 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
IGN5	A30	CYL 5 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
IGN6	A31	CYL 6 IGNITION OUTPUT	TTL or IGBT Available, Default TTL
PWRGND	A32	POWER GROUND	LINKED POWER GROUND
PWRGND	A33	POWER GROUND	LINKED POWER GROUND
PWRGND	A34	POWER GROUND	LINKED POWER GROUND

B	DESCRIPTION	CONNECTOR B
	PART NUMBER	3-1437290-7
	NOTES:	26 Way - Key1

PWRGND	B1	POWER GROUND	
CAN2 L	B2	Can 2	
CAN2 H	B3	Can 2	
KNOCK 1	B4	KNOCK 1	
KNOCK 2	B5	KNOCK 2	
PVBAT	B6	CONSTANT 12V	Battery Supply, used for holding Main Relay Control
IVBAT	B7	12v	12v
LAM1A	B8	Lamv / LamD1+ / LamLun1	Nernst Cell - Black
LAM1B	B9	Lami / LamD1- / LamIP1	Ion Pump - Red
LAM1C	B10	LamLIA1	Cal Trim Resistor - Extra Wire (pink)
LAM1D	B11	LamGND / LamLVM1	Virtual Ground - Yellow
LAM1HEATER	B12	LAMBDA HEATER	Lam Htr - White
IVBAT	B13	12V	12v
LAM2A	B14	Lamv / LamD1+ / LamLun1	Nernst Cell - Black
LAM2B	B15	Lami / LamD1- / LamIP1	Ion Pump - Red
LAM2C	B16	LamLIA1	Cal Trim Resistor - Extra Wire (pink)
LAM2D	B17	LamGND / LamLVM1	Virtual Ground - Yellow
LAM2HEATER	B18	LAMBDA HEATER	Lam Htr - White
IVBAT	B19	12V	12v
KLINE	B20	KLINE	K-Line or LIN Output
RS232RX	B21	RS232RX	
RS232TX	B22	RS232TX	
LANRX-	B23	Cat5 Pin2	Orange/White
LANRX+	B24	Cat5 Pin1	White/Orange
LANTX-	B25	Cat5 Pin6	Green/White
LANTX+	B26	Cat5 Pin3	White/Green

C	DESCRIPTION	CONNECTOR C	
	PART NUMBER	4-1437290-1	
	NOTES:	34 Way - Key2	
KNOCKGND	C1	KNOCKGND	
ANGND	C2	SENSOR GND	
ANGND	C3	SENSOR GND	
ANGND	C4	SENSOR GND	External 500mm DTM Pin 2
5V OUT	C5	5V OUT	
5V OUT	C6	5V OUT	
5V OUT	C7	5V OUT	External 500mm DTM Pin 1
CAN1 L	C8	Can 1 Low	
CAN1 H	C9	Can 1 High	
AN01	C10	BI-POLAR INPUTS	Crank Sensor
AN02	C11	BI-POLAR INPUTS	VVT1IN
AN03	C12	BI-POLAR INPUTS	VVT2IN
AN04	C13	BI-POLAR INPUTS	
AN05	C14	UNI-POLAR INPUTS	Pre Throttle Pressure
AN06	C15	UNI-POLAR INPUTS	Ex Map Sensor
AN07	C16	UNI-POLAR INPUTS	PPS2
AN08	C17	UNI-POLAR INPUTS	PPS1
AN09	C18	VOLT-INPUTS	DI Pressure
AN10	C19	VOLT-INPUTS	Engine Oil Pressure
AN11	C20	VOLT-INPUTS	TPS1A
AN12	C21	VOLT-INPUTS	TPS1B
AN13	C22	RESISTIVE INPUTS	Ex Air Charge Temp
AN14	C23	RESISTIVE INPUTS	Coolant temp
AN15	C24	RESISTIVE INPUTS	Brake
AN16	C25	RESISTIVE INPUTS	Clutch
EGT1-	C26	EGT1 -	
EGT1+	C27	EGT1 +	
PWR CTR IN	C28	MAIN RELAY INPUT SW	12v Ignition
AN S1	C29	UNI-POLAR INPUTS	GTR2RS
AN S2	C30	UNI-POLAR INPUTS	
AN S3	C31	UNI-POLAR INPUTS	BSD Map Sensor
AN S4	C32	UNI-POLAR INPUTS	Engine Comp Temp
AN S5	C33	UNI-POLAR INPUTS	Oil Temp
AN S6	C34	UNI-POLAR INPUTS	Oil Level

D	DESCRIPTION	CONNECTOR D	
	PART NUMBER	3-1437290-8	
	NOTES:	26 Way - Key2	
DVBAT1	D1	GDI Power Supply	Required
DVBAT2	D2	GDI Power Supply	Required
DVBAT3	D3	GDI Power Supply	Required
DVBAT4	D4	GDI Power Supply	Required
FUEL9	D5	PWM / FUEL OUTPUT	Port Injector 1
FUEL10	D6	PWM / FUEL OUTPUT	Port Injector 2
FUEL11	D7	PWM / FUEL OUTPUT	Port Injector 3
FUEL12	D8	PWM / FUEL OUTPUT	Port Injector 4
FUEL13	D9	PWM / FUEL OUTPUT	Port Injector 5
FUEL14	D10	PWM / FUEL OUTPUT	Port Injector 6
LSO1	D11	PWM OUTPUT	VVT1
LSO2	D12	PWM OUTPUT	VVT2
LSO3	D13	PWM OUTPUT	Tank Vent
LSO4	D14	PWM OUTPUT	Engine Bay Fan
LSO5	D15	PWM OUTPUT	Divertor Valve
LSO6	D16	PWM OUTPUT	Fuel Pump Low pressure on 991
EGT2-	D17	EGT2 -	K-Type ThermoCoupler Input
EGT2+	D18	EGT2 +	K-Type ThermoCoupler Input
NC	D19	NC	NC
NC	D20	NC	NC
NC	D21	NC	NC
NC	D22	NC	NC
CAN3L	D23	CAN3L	
CAN3H	D24	CAN3H	
PWRGND	D25	POWER GROUND	POWER GROUND
PWRGND	D26	POWER GROUND	POWER GROUND