

BOSS GARAGE

Honduino MPFI V3

Before connecting the ECU to the car

1) Download TunerStudio software: [LINK](#)

Connectivity:

- **Bluetooth:** Connect via USB to power the ECU and pair the Bluetooth
- **USB:** Unplug the Bluetooth module and connect via the USB

2) Create a project and detect firmware

Create New Project

New TunerStudio Project

Project Configuration

Project Name
HONDINHA DO AÇO

Project Directory
documents\TunerStudioProjects\HONDINHA DO AÇO **Browse**

Firmware
[Red Arrow] **Detect**

☐ Other / Browse

☐ Show Advanced / Offline Setup

Project Description

Cancel **Next >**

Trigger Settings

Trigger Pattern → Dual Wheel

Primary base teeth → 24

Primary trigger speed → Cam Speed

Missing teeth 1

Trigger angle multiplier 0

Trigger Angle (Deg) 0

This number represents the angle ATDC when tooth #1 passes the primary sensor.

Skip Revolutions(cycles) 1

Note: This is the number of revolutions that will be skipped during cranking before the injectors and coils are fired

Trigger edge RISING

Secondary trigger edge RISING

Level for 1st phase Low

Missing Tooth Secondary type Single tooth cam

Trigger Filter Off

Re-sync every cycle → Yes

4) Ignition (Distributor / COP)

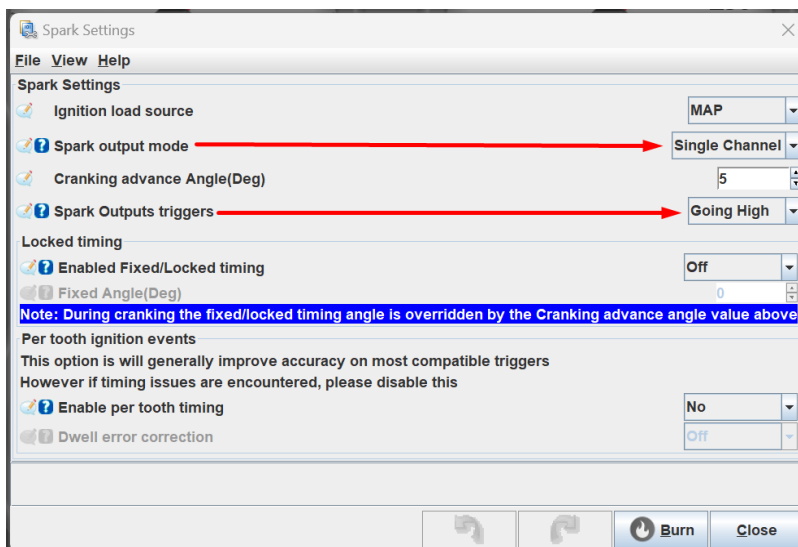
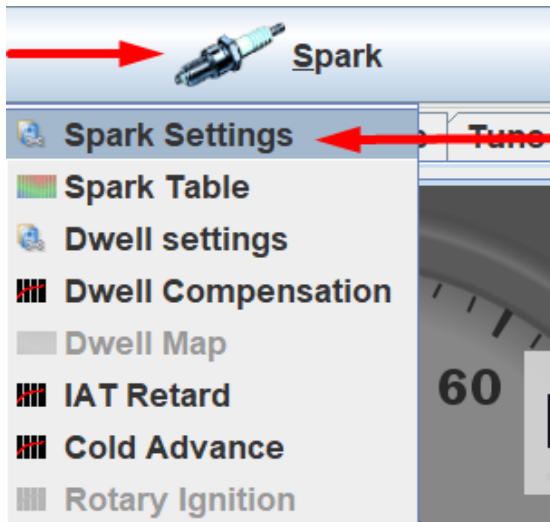
If you're running **stock distributor ignition** go to the topic 4.1), if you want to convert to **coil on plug ignition** go to the topic 4.2)

DISTRIBUTOR IGNITION

4.1.1) On the board, select the 12V signal for the coils through the jumper JP1.



4.1.2) Select **Single channel** and **Going High**



4.1.3) When changing to distributor or coil on plug ignition, the base timing always needs to be resynced.

See topic 10) to learn how to adjust the base timing.

COIL ON PLUG IGNITION

4.2.1) Disconnect the signal wire of the distributor coil (A21/A22)

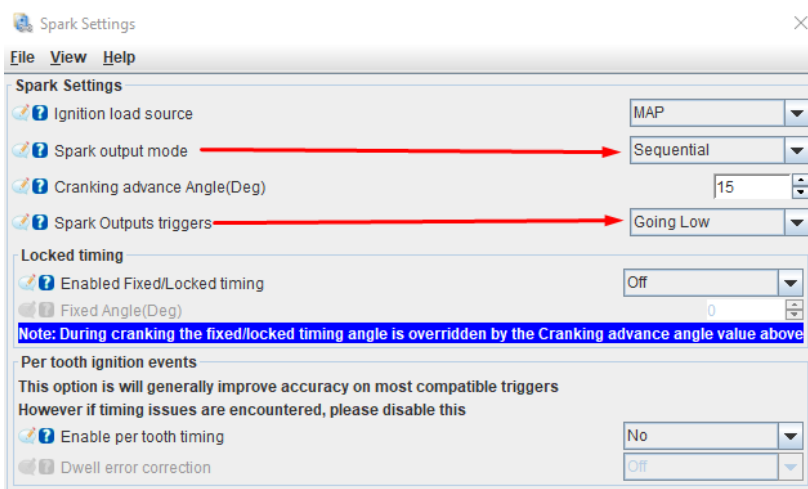
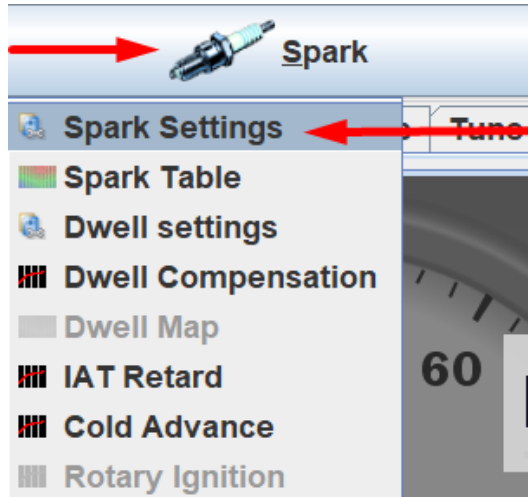
4.2.2) On the board, select the 5V signal for the coils through the jumper JP1.



4.2.3) Connect each coil signal wires to the following pins:

Cylinder	OBD1 connector
1	A21
2	A17
3	A18
4	A19

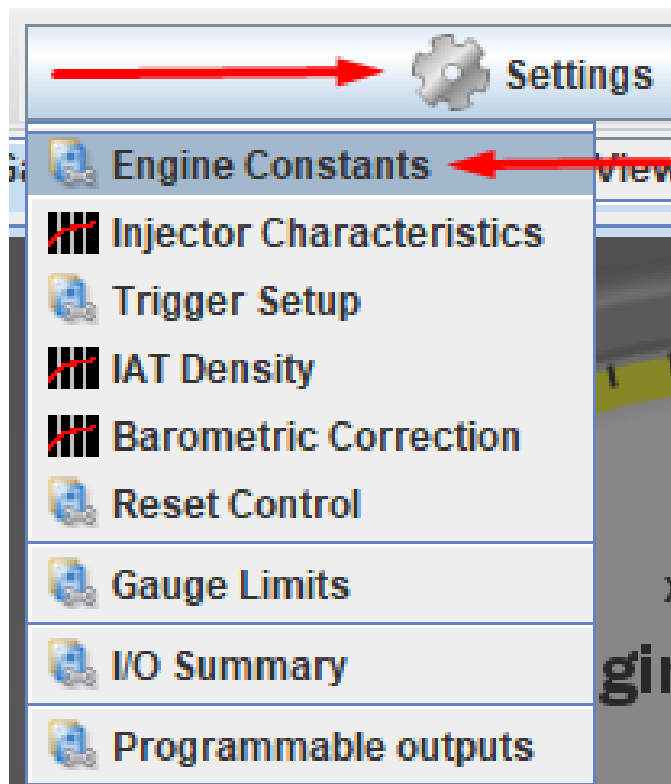
4.2.4) Select **Sequential** and **Going Low**



4.2.5) When changing to coil on plug ignition, the base timing always needs to be resynced. See topic 10) to learn how to adjust the base timing.

5) Injection:

WARNING: Use only high impedance injectors (> 8 ohm) or low impedance with resistor box.



Calculate Required Fuel

Required Fuel... 14.0
(ms) 14.0

Control Algorithm MAP

Squirts Per Engine Cycle 2

Injector Staging Alternating

Engine Stroke Four-stroke

Number of Cylinders 4

Injector Port Type Port

Number of Injectors 4

Engine Type Even fire

Speeduino Board

This is a critical setting!

Outputs WILL NOT work if incorrect board is selected

Board Layout Speeduino v0.4

Stoichiometric ratio(:1) 14.7

Injector Layout Sequential

Injector Pairing 1+3 & 2+4

MAP Sample method Cycle Average

MAP Sample switch point(RPM) 1800

Change the engine displacement and injector flow rate

Required Fuel Calculator

Engine Displacement	1600
Number of Cylinders	4
Injector Flow	240
Air-Fuel Ratio	14.7

Units

☐ CID ☒ CC
☐ lb/hr ☒ cc/min

Ok Cancel

Connect the ECU to the car

6) Calibrate TPS

Tools Help

- Protocol Stats
- Update / Install Firmware
- Add Custom Channel Wizard
- Custom Channel Editor
- Action Management
- Calculators
- TunerStudio Plug-ins
- Calibrate TPS**

Calibrate Throttle Position Sensor

Calibrate Throttle

Closed throttle ADC count 19 Get Current

Full throttle ADC count 205 Get Current

Accept Cancel

Click on closed throttle "Get current" button.

Then press the throttle and click on the full throttle "Get current" button.

Now, click "Accept" to save.

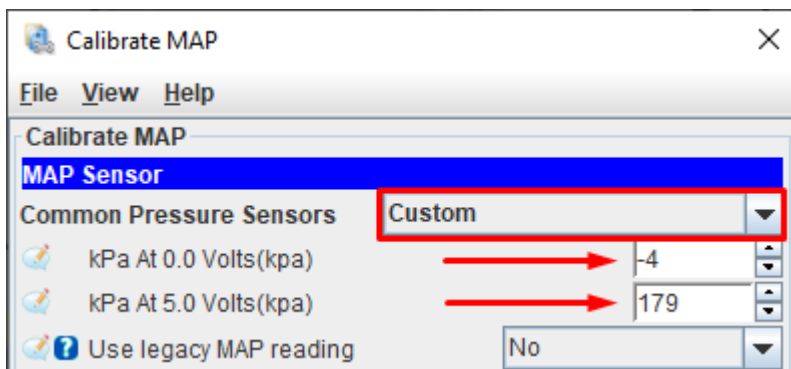
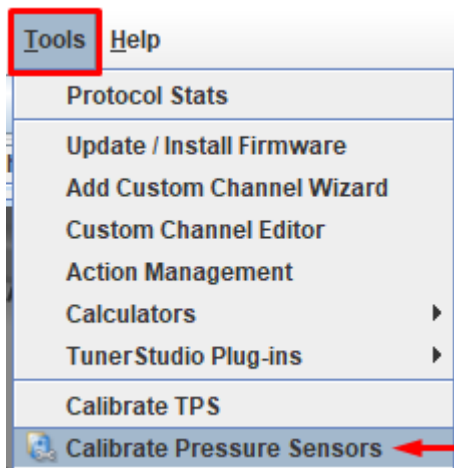
7) Calibrate MAP

You can choose the map sensor through the **MAP SW** jumper.

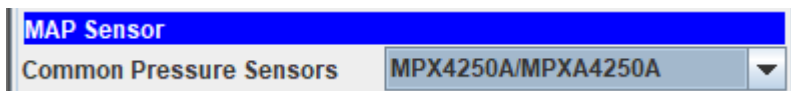
STOCK = Sensor in the engine bay

MPX = Map sensor on the board

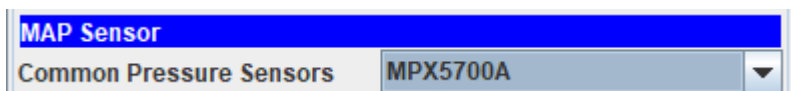
Stock map sensor configurations:



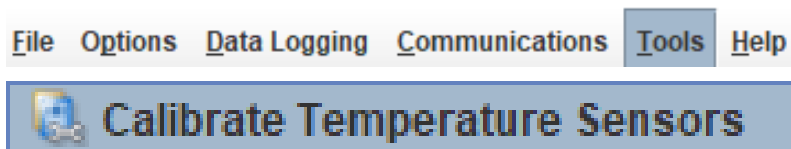
If it uses a map sensor on the board:
MPX42050AP



MPX5700AP



8) Calibrate temperature sensors



Calibrate Thermistor Tables.

Sensor Table
Coolant Temperature Sensor

Table Input Solution
3 Point Therm Generator

Thermistor Measurements
Common Sensor Values Mitsuru

Bias Resistor Value (Ohms) 2490.0

☐ Fahrenheit ☒ Celsius

Temperature(°C)	Resistance (Ohms)
-40.0	100490.0
30.0	1875.0
99.0	125.0

Select settings, click
"Write to Controller"

Write to Controller

Calibrate Thermistor Tables.

Sensor Table
Air Temperature Sensor

Table Input Solution
3 Point Therm Generator

Thermistor Measurements
Common Sensor Values Mitsuru

Bias Resistor Value (Ohms) 2490.0

☐ Fahrenheit ☒ Celsius

Temperature(°C)	Resistance (Ohms)
-40.0	100490.0
30.0	1875.0
99.0	125.0

Select settings, click
"Write to Controller"

Write to Controller

9) Electric Fan

You can control the electric fan on OBD1 / OBD2 engines.
Also you can convert your OBD0 fan to be controlled by the ECU.



Fan Settings

Fan Mode: On/Off

Allow fan when off: Yes

Allow fan when cranking: No

Fan output pin: Board Default

Fan Output Inverted: No

Fan switching temperature(C): 84

Fan hysteresis(C): 5

10) Base timing

To sync the ignition timing with the engine, it's necessary to be adjusted with help of a [Timing Light gun](#).

Export the VE Table (for later importing)



VE Table ☐ 3D View

	100	71	72	74	77	80	81	80	80	82	84	86	89	91	91	90	91
F	96	70	72	75	78	80	80	80	79	80	83	86	89	91	90	89	89
u	90	69	71	75	80	81	81	80	79	79	82	85	88	90	89	87	87
e	86	67	69	74	79	81	81	79	78	78	80	84	86	87	86	85	86
I	80	65	68	72	77	79	79	78	76	76	78	82	83	84	83	83	83

Zero all the table or disconnect the injectors, so while cranking doesn't inject fuel

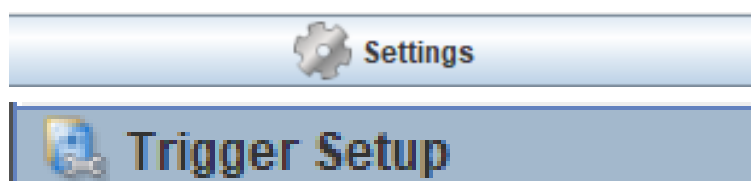
Fuel Load : kpa	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	96	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	↩	500	700	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500
RPM																	

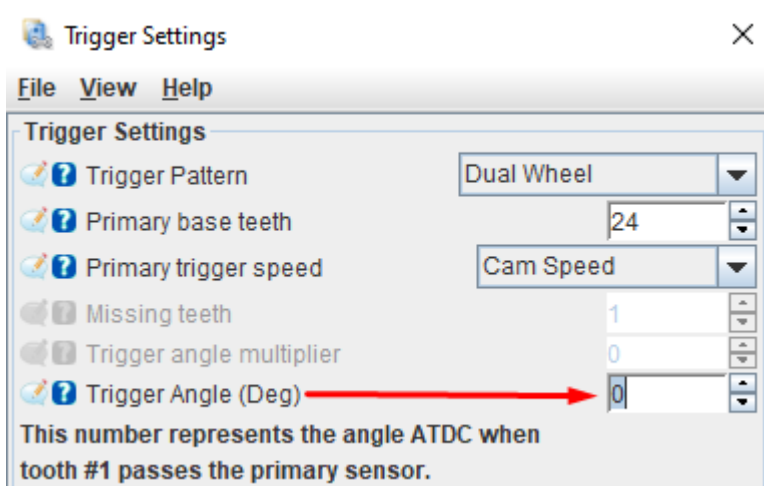
Lock the timing



In the crank there is 4 marks, which are 18, 16, 14 and 0 degrees.
The alone mark is the 0 degrees, mark it with a white highlighter.

Put the timing light clamp on the spark plug wire number 1
(with the direction of the arrow pointing the spark plug)

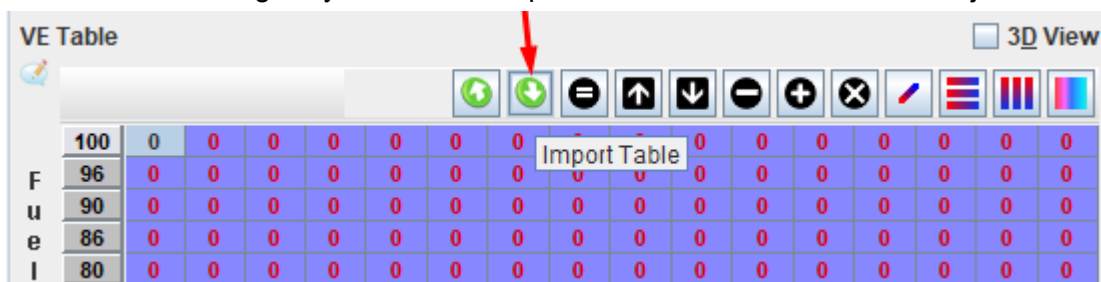




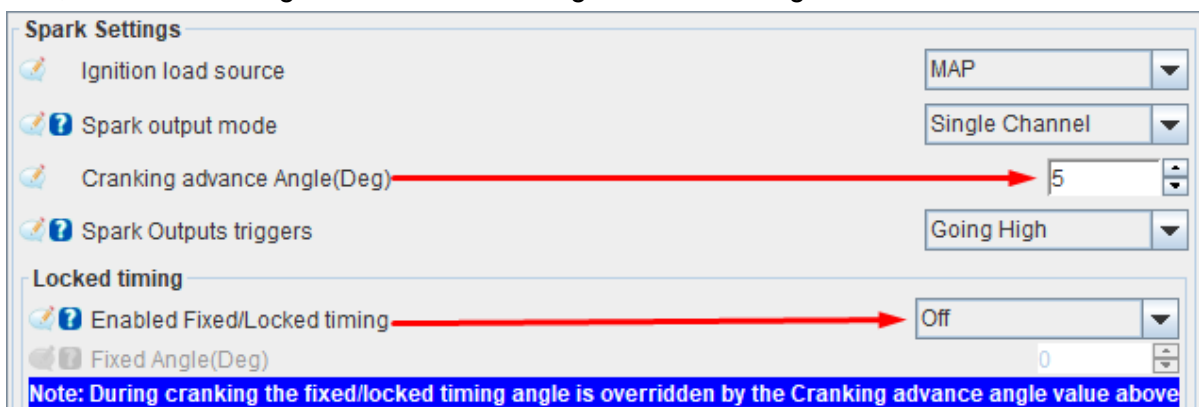
Crank the engine and see if you can see the 0-degree mark...
If you can't, adjust 30° in 30° in **trigger angle** settings until you see it.

Then make fine adjustments until the crank mark lines up with the distribution cover mark.

After the base timing is synchronized, import the VE table or connect the injectors.



Now, unlock the timing and insert 5 to 10 degrees for cranking



Now, start your car 🚗🚗🚗

11) Idle control



Idle Control

Idle Settings

Idle control type

PWM Open loop

Crank to run taper(S)

8.0

Fast Idle

Fast idle temp(C)

215

PWM Idle

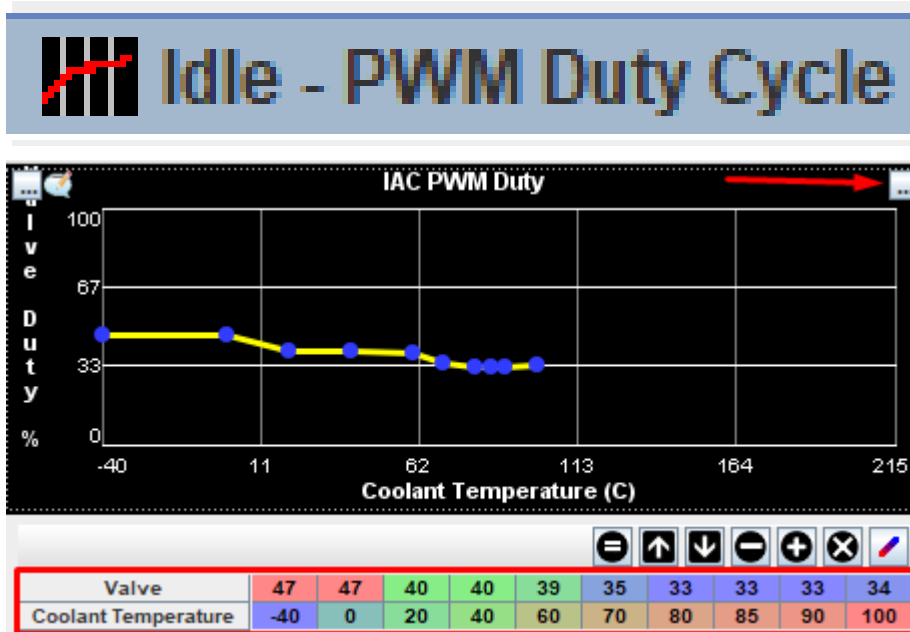
Number of outputs

1

Idle valve frequency(Hz)

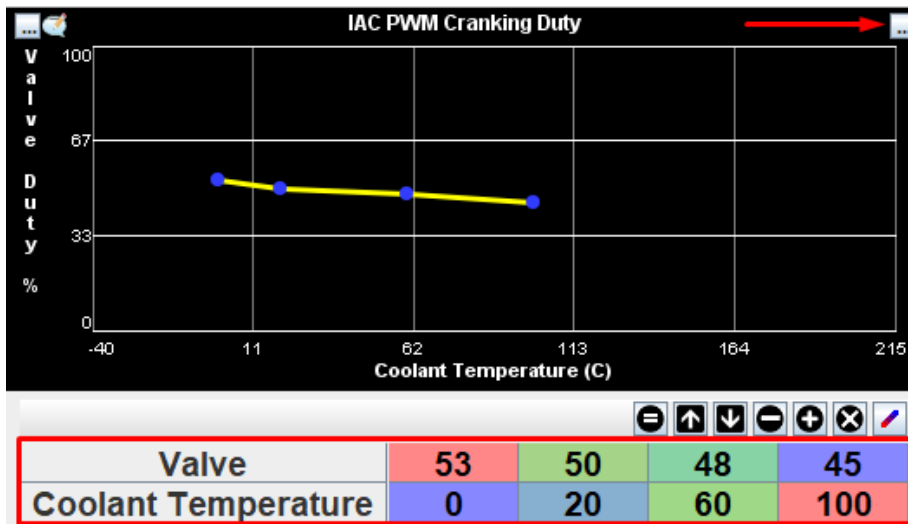
500

Adjust the duty cycle when the engine is running



Adjust the duty cycle while cranking





12) VTEC

Accessories

VVT Control

VVT Control

VVT Control Enabled On ▼

VVT Minimum CLT(C)

VVT Delay(S)

VVT Mode On/Off ▼

Load source MAP ▼

VVT output pin

VVT solenoid freq.(Hz)

Configure the table

VVT Target/Duty

VVT control Table ☐ 3D View



V	100	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
V	80	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
T	70	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
L	60	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
o	50	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
a	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
d	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
:	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
:	↑	1000	3500	4000	4800	5600	6000	7000	8000

0 = VTEC OFF

100 = VTEC ON

13) 3 stage VTEC

This feature is only for engines with two solenoids (VTEC-E and VTEC)

Normally, the engine runs with 16 valves.

With VTEC A, it uses only 12 valves (VTEC-E)

With VTEC B, it uses 16 valves and a bigger cam lobe. (VTEC)

Activate VTEC B


Accessories

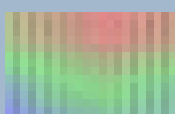

VVT Control

Second VVT output


WT2 Control Enabled


WT2 output pin

Configure the table:


VVT2 Target/Duty

VVT2 control Table 3D View



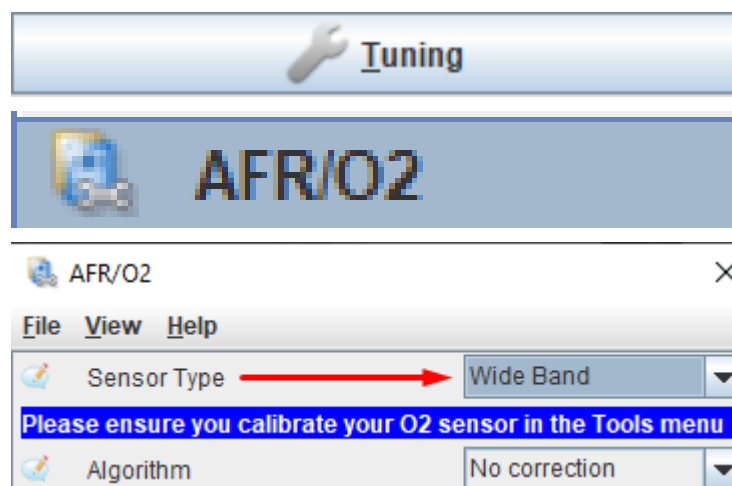
V	100	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
V	80	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
T	70	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
L	60	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
a	50	0.0	0.0	0.0	100.0	100.0	100.0	100.0	100.0
d	30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
:	10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
:	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
:	↩	1000	3500	4000	4800	5600	6000	7000	8000

Extra features

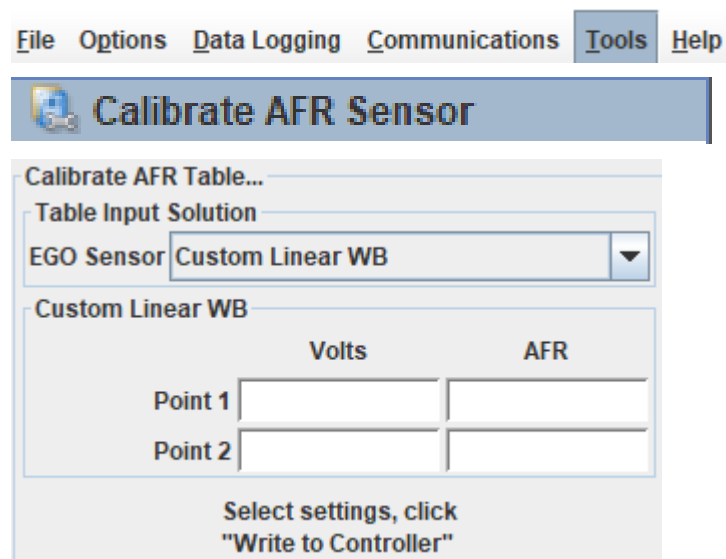
14) Wideband

Connect the 0-5V analog wire from the wideband controller to the OBD1 D14.

Activate the wideband:



Calibrate the sensor settings:



Choose your wideband from the list.

If it's not there, choose "Custom Linear WB" and setup the wideband controller values.

15) Launch control

Some cars have clutch switch, but most of them needs to be wired a switch that sends ground to the pin OBD1 B7 when the clutch is pressed.

Accessories

Launch Control / Flat Shift

Launch Control

- Enable Launch: Yes
- TPS threshold(%TPS): 1.0
- Soft rev limit(rpm): 6400
- Soft limit absolute timing(deg): 6
- Hard rev limit(rpm): 6500
- Fuel adder during launch(%): 15

Clutch input

- Clutch Input Pin: 51
- Clutch enabled when signal is: LOW
- Clutch Pullup Resistor: Pullup

16) Boost control

Connect the negative wire of the [boost controller valve](#) to pin OBD1 B3

Accessories

Boost Control

Boost Control

- Boost Control Enabled: On
- Boost control type: Open Loop
- Boost output pin: 7
- Boost solenoid freq.(Hz): 300

Boost Cut

- Enable Boost limit: On
- Boost Limit(kPa): 150

PROTECTION: Enable boost cut to when the value is reached

To use a boost by gear, you need to set up first the VSS.

Boost by Gear

Enable Boost by Gear Off

Gear 1 Off

Gear 2 Multiplied %

Gear 3 Constant limit

Gear 4 14

Gear 5 14

Gear 6 14

Configure the table:

Boost Targets/Duty

Mode Open Loop

Primary Boost table

In open loop mode, the values in this table are duty cycle %

Boost Duty / Target 3D View

t	100.0	0	0	0	0	0	0	0	0
h	80.0	0	0	0	0	0	0	0	0
r	60.0	0	0	0	0	0	0	0	0
o	40.0	0	0	0	0	0	0	0	0
t	30.0	0	0	0	0	0	0	0	0
t	20.0	0	0	0	0	0	0	0	0
l	10.0	0	0	0	0	0	0	0	0
e	5.0	0	0	0	0	0	0	0	0
:		1500	2000	2500	3000	3500	4000	4500	5000
		rpm							

18) Nitro control

Connect a ground wire through a switch to the terminal OBD1 B8 which activates the nitro. Connect the ground wire of the nitro solenoid to the terminal OBD1 A10.

Active nitro settings, set the input/output, and the other configurations as you like.

Accessories

Nitrous

Nitrous

Settings

Nitrous Mode → 1 Stage

Arming Pin → 24

Nitrous is armed when pin is LOW

Minimum CLT(C) 60

Minimum TPS(%TPS) 50.0

Maximum MAP(kPa) 250

Leanest AFR 17.0

Leanest Lambda 1.156

Stage 1

Nitrous Output Pin → 25

Minimum Engage RPM 3000

Maximum Engage RPM 6000

Fuel adder @ Min RPM(ms) 6.0

Fuel adder @ Max RPM(ms) 3.0

Ignition retard when active(Deg) 5

19) CEL / Shift light

You can use the engine light as a shift light or as you like through a programmable output.



Programmable outputs

Select Rule Number 1

Rule 1

Output Pin Num → 26

Rule Alias SHIFT LIGHT

Output Polarity Active high

Set 0.0 to disable the delay

Activation Delay(S) 0.0

2nd Condition Disabled

Condition 1

RPM >= (greater/equal) 7000

Condition 2

seconds == (equal) -1

Limit time active

Set 0.0 to disable the limit

Minimum output time(S) 0.0

20) A/C control

Setup input and output and customize as you like.

 **Accessories**

 **Air Conditioning Control**

Air Conditioning
 **Air Conditioning Enable** On
 **A/C Request Input Pin** 21
 **A/C Compressor Output Pin** 22
 **A/C Request Input Polarity** Normal
 **A/C Comp. Output Polarity** Normal
 **A/C Comp. On Delay (During Operation)(s)** 1.0
 **A/C Initial Delay After Cranking(s)** 5.0
RPM Limiting
 **Min. RPM for A/C Operation(RPM)** 500
 **Max. RPM for A/C Operation(RPM)** 4000
 **Lockout time after high/low RPM(s)** 10.0
TPS Limiting
 **Cut A/C at TPS Position(%)** 50.0
 **Lockout time after high TPS(s)** 10.0
Coolant Temp. Limiting
 **Coolant A/C Cutout Temp.(C)** 95
 **Run Engine Cooling Fan with A/C** Yes
 **Min. Duty for PWM Cooling Fan(%)** 30.0
 **Stand-Alone A/C Fan** Disabled
 **Stand-Alone A/C Fan Output Pin** Unused
 **Stand-Alone A/C Fan Output Polarity** Normal
Idle Up When A/C Compressor On
 **Idle-Up Amount(%/Steps)** 0
 **Idle-Up RPM Adder(Added Target RPM)** 0

Also, you can control an A/C dedicated fan, select pin 23, and wire the ground for the FAN2 relay on terminal OBD1 D18.

 **Stand-Alone A/C Fan** Enabled
 **Stand-Alone A/C Fan Output Pin** 23

21) VSS

Drive at 60km/h and click the button to calibrate vehicle speed

Accessories

VSS and Gear detection

VSS Input Mode	Pulses per KM
VSS Pin	20
VSS Aux in Channel	Aux0
VSS Calibration	
Pulses Per KM/VSS ratio(pulses)	0
60km/h auto-calibrate	
Smoothing Factor(%)	50
Gear Detection	
After setting 'Pulses per km/mile' above Drive in each gear (any speed) and press appropriate button	
Speed ratio 1(km/h per 1000rpm)	0.0 Set Gear 1
Speed ratio 2(km/h per 1000rpm)	0.0 Set Gear 2
Speed ratio 3(km/h per 1000rpm)	0.0 Set Gear 3
Speed ratio 4(km/h per 1000rpm)	0.0 Set Gear 4
Speed ratio 5(km/h per 1000rpm)	0.0 Set Gear 5
Speed ratio 6(km/h per 1000rpm)	0.0 Set Gear 6

22) Tachometer

If you use the stock distributor, the tachometer signal is sent by the distributor coil.
But if you convert the ignition to coil on plug or want the signal controlled by the ECU, it needs modifications.

Activate tacho output and tacho sweep effect on boot:

Accessories

Tacho Output

Tacho

Output pin: 49

Tacho pulse mode: Fixed Duration

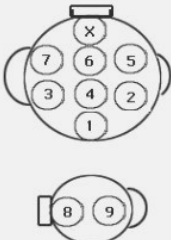
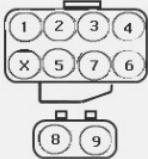
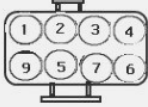
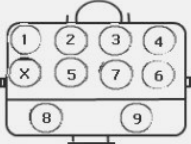
Output speed: Normal

Pulse duration(ms): 1

Tacho sweep on boot: On

Tacho sweep Max RPM: 9000

Connect the pin **OBD1 B6** from ECU to the connector that the distributor connects: **Engine speed output**

OBD/Model	Plug Type (all plugs are shown from wired side)	Wiring Color and Wire Function (Wire colors may vary pay attention more to the number positions)
OBD0 (except Civic DPFI Models) 1988- 1991		1. Large White (Ign input signal) 2. Orange (Crank position output) 3. Orange/Blue (TDC output) 4. Blue/Green (CYP output) 5. White (Crank position ground) 6. Blue/Yellow (CYP ground) 7. White/Blue (TDC ground) 8. Blue (Speed output) → 9. Black/Yellow (Ign input)
OBD1 1992- 1995		1. Yellow/Green (Ign input signal) 2. Blue/Green (Crank position output) 3. Orange/Blue (TDC output) 4. Orange (CYP output) 5. Blue/Yellow or White (Crank position ground) 6. White or Black (CYP ground) 7. White/Blue or Red (TDC ground) 8. Blue (Engine speed output) → 9. Blk/Yellow (Ign Input) - X- blank spot
OBD2b Civic (except HX and Si) 1996+		1. Yellow/Green (Ign input signal) 2. Lt blue or blue (Crank position output) 3. Orange/Blue or Green (TDC output) 4. Orange or Yellow (CYP output) 5. White (Crank position ground) 6. Black (CYP ground) 7. White/Blue or Red (TDC ground) 8. Blue (Engine speed output) → 9. Black/Yellow (Ign input) - X- blank spot
OBD2a Civic OBD2b Civic Civic HX and Si OBD2a and OBD2b Integra	1996+ 	1. Yellow/Green (Ign input signal) 2. Blue/ Green (Crank Position output) 3. Orange/Blue (TDC output) 4. Orange (CYP output) 5. Blue/Yellow (Crank Position Ground) 6. White (CYP ground) 7. White/Blue (TDC ground) 8. Blue (Engine speed output) → 9. Black/Yellow (Ign input) - X- blank spot

Some OBD2b engines also have this wire connected to the ECU, it's the pin OBD2b A19. You can connect it to the OBD1 B6 terminal but don't forget to unplug the "engine speed output" wire in the distributor connector.

23) Pinout OBD1 + AUX I/O

OBD1 – P06/P28/P30/etc. – D15B7, D15Z1, D15Z3 & D16Z6/Z9 & B16A2 etc.

ECM-connector A, 26

1 INJ1 Brn	3 INJ2 Red	5 INJ3 Lt. Bl	7 FLR1 Gr/Yl	9 IACV Gr/Wht	11*** ES Or/Bl	13 MIL Gr/Or	15 ACC BkRd	17 [ATLSA] Gr/Bk	19 [ATLSB] Yel	21 ICM1 Rd/Gr	23 PG1 Blk	25 IGP1 Yl/Bk
2 INJ4 Yel	4 VTS Or/Wht	6 PO2H Or/Bk	8 FLR2 Gr/Yl	/	12* FAN C Yl/Gn	/	16* ALTC Wht/Yl	/	20 PCS Red	22 ICM2 Rd/Gr	24 PG2 Blk	26 LG1 BkRd

ECM-connector B, 16

1 IGP2 Yl/Bk	3 [ATD3] Gr/Bl	5 ACS Bl/Rd	7** CLSW [ATNP] Pk/Bk [Gm]	9 STS Bl/Wht	11 CYPP Om	13 TDCP Or/Bl	15 CKPP Bl/Gr
2 LG2 Bn/Bk	4 [ATD4] Gr/Bk	/	8** PSW Br/Rd	10 VSS Yl/Bl	12 CYPM Wht	14 TDCM Wht/Bl	16 CKPM Bl/Yl

ECM-connector D, 22

1 VBU Wht/Bl	3*** (LABEL) Bl/Yl	/	7 DLC Lt. Bl Purple	9 ALT-F Pnk	11 TPS Rd/Bl Pk/Bk L/G	13 ECT Rd/Wht	15 IAT Rd/Yl	17 MAP Wht Pk/Wht	19 VCC1 Yl/Gr	21 SG1 Gr/Bl
2* BK-SW Gr/Wht	4 SCS Brn	6 VTM Or/Bl	8*** (VS+) Wht/Bl	10** EL Gr/Rd	12*** EGR L Wht/Bk	14 PO2S (IP+) Wht Gr/Bl	16*** (IP-) (VS-) Bl/Gr	18** SIL [SLU] Pk/Gr Wht/Rd	20 VCC2 Yl/Wht	22 SG2 Gr/Wht

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INPUTS	ECU terminal	Tunerstudio pin
AC signal	OBD1 B5	21
Clutch input / Launch control	OBD1 B7	51
Nitro switch	OBD1 B8	24
Auxiliary temperature 1	OBD1 D4	A9
Auxiliary temperature 2	OBD1 D7	A10
Auxiliary analog 1	OBD1 D8	A11
0-5V wideband signal	OBD1 D14	A8
Intake air temperature	OBD1 D15	A0
Auxiliary analog 2	OBD1 D16	A12
Stock MAP sensor	OBD1 D17	A3

OUTPUTS	ECU terminal	Tunerstudio pin
VTEC A / high side switch (12v)	OBD1 A4	4
Fuel pump relay / low side switch	OBD1 A7	45
IACV / low side switch	OBD1 A9	5
Nitro solenoid / low side switch	OBD1 A10	25
FAN relay / low side switch	OBD1 A12	47
CEL / low side switch	OBD1 A13	26
VTEC B / high side switch (12v)	OBD1 A14	48
AC clutch relay / low side switch	OBD1 A15	22
COIL 2	OBD1 A17	x
COIL 3	OBD1 A18	x
COIL 4	OBD1 A19	x
COIL 1	OBD1 A21	x
Boost solenoid / low side switch	OBD1 B3	7
Tachometer	OBD1 B6	49
FAN2 relay / low side switch	OBD1 D18	23

Low side switch = sends a ground to activate a relay

High side switch = sends 12V to activate a solenoid

24) Pinout OBD0, OBD2a, OBD2b

The Honduino ECU has a similar pinout to the P28 OBD1 stock ECU and with conversion cables, it works also with OBD0, OBD2a, and OBD2b multipoint injection engines.

OBD0

OBD0 - PM7/PW0 – D16A9/D16Z5/B16A1

ECM-connector A, 18

1 INJ 1 Brn	3 INJ 2 Red	5 INJ 3 Lt. Blu	7 INJ 4 Yel		11 IACV Gr/Wht	13 IGP1 Y/Bk	15 IGP2 Y/Bk	/
2 PG1 Blk	4 PG2 Blk	(6) (PCS) (Red?)	(8) (VTS) (?)	(10) (?) (?)	12 FLR1 Gr/Bk	14 FLR2 Gr/Bk	16 LG2 Bn/Bk	18 LG1 Bk/Rd

ECM-connector B, 20

1 VBU Wht/Gr	3 ACC Yel	(5) (VTM) (Lt Bl?)	/	/	/	13 STS Bl/Wht	15 ICM1 Wht	17 ICM2 Wht	/
2 DSCV Blu	/	6 MIL Gr/Or	8 ACS Bl/Rd	10 CKP P Orn	12 CKP M Wht	14 ALT F Blu	16 VSS Y/Rd	/	20 IMA (ITAC) Brn

ECM-connector C, 16

1 CYP P Bl/Gr	3 TDC P Or/Bl	5 IAT Rd/Y	7 TPS Rd/Bl	9 PA Rd/Wht	11 MAP Wht	13 VCC2 Y/Wht	15 VCC1 Y/Rd
2 CYP M Bl/Y	4 TDC M Wht/Bl	6 ECT Rd/Wht	(8) (SO2S) (Rd/Bl)	/	12 SG2 Gr/Wht	14 SG1 Gr/Wht	16 ITAC (PO2S) Bn (Wht)

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[OBD2a](#)

OBD2a – D15Z6, D16Y5, D16Y7, D16Y8, B16A2 (EDM/USDM/JDM mixed)

ECM-connector A, 32

1 INJ4 Yel	2 INJ3 Blu	3 INJ2 Red	4 INJ1 Brn		5 SO2H ?	6 PO2H Bk/Wht	7 ESOL Red		8 VTS Gr/Yl	9 LG1 Bn/Bk	10 PG1 Blk	11 IGP1 Yl/Bk
12 IACV Bk/Bl	13* IACV N Orn	14* IACV P Bk/Bl	15 PCS Rd/Yl Red	16 FLR Gr/Yl	17 ACC Bk/Rd	18 MIL Gr/Orn	19 ALT C Wht/Gr	20 ICM Yl/Gr	21 VTS B ?	22 LG2 Bn/Bk	23 PG2 Blk	24 IGP2 Yl/Bk
		/	26 IAB ?	27 FAN C Grn		/	/	30 ECO- NO Wht/Rd	/		/	

ECM-connector C, 31

1 CKF P Bl/Rd	2 CKP P Blu	3 TDC P Grn	4 CYP P Yel		5 ACS Bl/Rd	6 STS Bl/Orn	7 SCS Brn		8 DLC Lt. Bl	9 FAS TMA? Grey	10 VBU Wht/Bl
11 CKF M Wht/Rd	12 CKP M Wht	13 TDC M Red	14 CYP M Blk	15 VTM ?	16 PSP- SW Grn	17 ALT F Wht/Rd	18 VSS Bl/Wht	/	/	/	22 IMO Red
	/	/	/		/	/	/	/	/	/	/

ECM-connector D, 16

1 TPS Rd/Bk		2 ECT Rd/Wht	3 MAP Rd/Gr	4 VCC1 Yl/Rd		5 BK- SW Gr/Wht
6 KS Rd/Bl	7 PO2S Wht	8 IAT Rd/Yl	9 EGR Wht/Bk	10 VCC2 Yl/Bl	11 SG2 Gr/Bk	12 SG1 Gr/Wht
/	14 SO2S /	/		16 ELD Gr/Rd		

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OBD2b

OBD2b – P2Y – D15Z6 (EDM)

ECM-connector A, 32

			4* Eco Wt/Rd				6 PCS Rd/Yl				10 SCS Brn			
12* IMO LMP Pnk	13* IMO LMP Blu		15 FLR Gr/Yl		17 ACC Bk/Rd	18 MIL Gr/On	19 NEP Blu	20 FAN C Gm	21 DLC Lt. Bl				24 STS Bl/Wt	
			25* INO CD Red	26 PSP SW Gm	27 ACS Bl/Rd				30 ELD Gr/Rd				32 BK SW Gr/Wt	

ECM-connector B, 25

1 IGP1 Yl/Bk	2 PG1 Blk				3 INJ 2 Red	4 INJ 3 Blu	5 INJ 4 Yel				7* ESOL Red			
9 IGP2 Yl/Bk	10 PG2 Blk	11 INJ 1 Brn	12 VTS Gr/Yl	13 ICM Yl/Gr										
		20 LG1 Bn/Bk			21 VBU Wt/Bl	22 LG2 Bn/Bk			23 IACV Bk/Bl					

ECM-connector C, 31

						5 ALT F	6* EGRL	7 SG1			8 CKP P	9 CKP M			
						Wt/Rd	Wt/Bk	Gr/Wt			Blu	Wht			
						16 PO2S	17 MAP	18 SG2	19 VCC1	20 TDC P	21 TDC M	22* CKF P			
						Wht	Rd/Gr	Gr/Bk	Y/Rd	Grn	Red	Bl/Rd			
						23 VSS					25 IAT				
						Bk/Wt					Rd/Y				
						26 ECT	27 TPS	28 VCC2			29 CYP P	30 CYP M	31* CKF M		
						Rd/Wt	Rd/Bk	Yel/Pl			Yel	Blk	Wt/Rd		