
Reddy
ENGINE CONTROL UNIT MANAGER
e-manage

Instruction Manual

Reddy

Important Information

Please read this instruction manual carefully, and proceed with the installation ONLY if you fully understand this manual. Make sure to pay attention to all the "Important!" "Warning!" and "Caution!" messages through out the manual.

Important!

- This product is legal for sale or use in California only on vehicles which may never be driven on a public highway.
- This product is only for vehicles with 12V (battery) systems.

Warning!

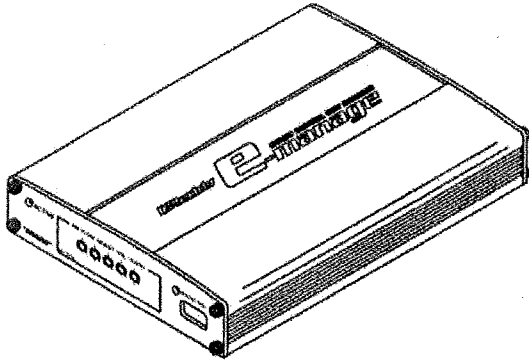
- Installation of this product should only be performed by a trained specialist, who is very familiar with the automobile's mechanical, electrical, and fuel management systems. If installed by untrained person, it may cause damage to the unit as well as the vehicle.
- Never tune the E-manage while the vehicle is moving.
- Never tune the e-Manage on public highways. This can be dangerous to you and others on the road.
- When tuning and operating the vehicle in a garage, make sure that the garage is equipped with a proper ventilation system.
- After installation and tuning, make sure to clean up every thing that would interfere the driver. Wires, tools, and laptop computer may interfere with the driver and cause accidents.
- Avoid open sparks, flames, or operation of electrical device near flammable substances.

Caution!

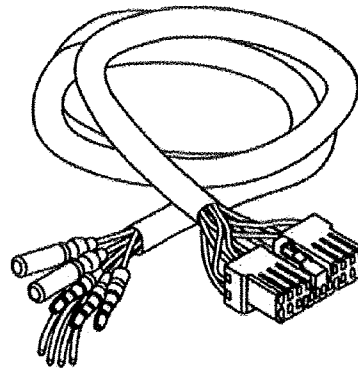
- **Improper tuning of the e-Manage can cause damage to the engine.**
- **GReddy Performance Products, Inc. will not take any responsibility of damage caused by improper installation or tuning.**
- Tuning should be performed only by a technician who fully understand the vehicle's fuel management and ignition timing requirement for the engine being tuned.
- Always use a proper air/fuel ratio meter when tuning the e-Manage.
- Installation of this product requires modification of the vehicle's electrical system.
- When making wire connections, be sure to remove the key from the ignition, and disconnect the negative terminal of the battery.
- Never short out the system. It can damage the unit as well as the vehicle's electrical system.
- Read and fully understand the wiring diagram before making any wire connection.
- When connecting the connector, push it in all the way until you hear them click in together.

Parts List

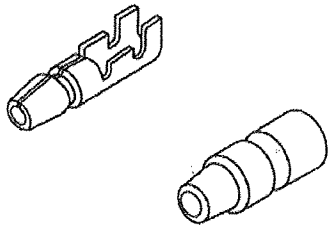
*Make sure to check that all the following products listed are included in the box.



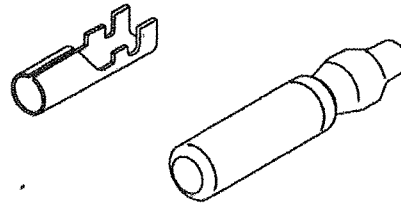
Main Unit x1



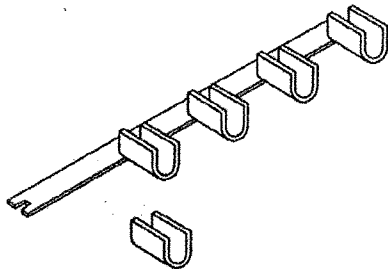
Main Harness x1



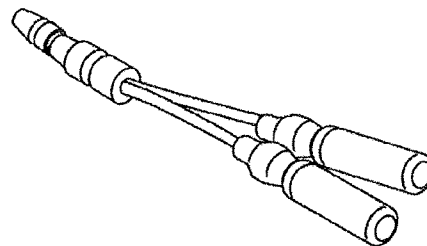
Male connector x2
Male Connector Sleeve x2



Female connector x 3
Female Connector sleeve x3

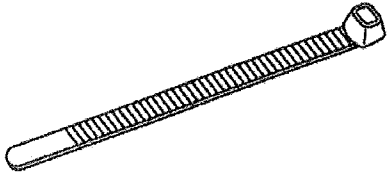


Splice x5

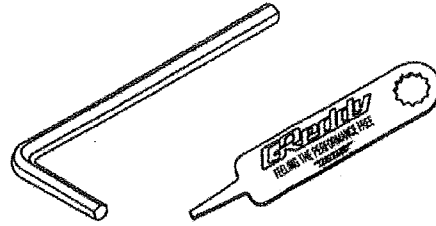
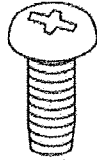


Split harness x1

Parts List



Tie Wrap 150mm x3
M4 screw x4



Hex wrench x1
Adjustment tool x1



Instruction Manual x1

Necessary Basic tools	Other helpful items
<p>Voltage meter Cutter + & - Screw driver Crimping tool</p>	<p>Soldering Iron Drill Rag, cleaner, water Electrical tape Shrink-wrap</p>

Features

- This unit is designed for 12V system.
- This unit is designed to control the factory injectors at 5 RPM points with the airflow meter or MAP signal inputs.
- The built-in VTEC controller allows the adjustment of the VTEC shifting RPM point.
- With the “Self troubleshooting” feature, the unit will notify any errors in the system.
- ★ With the Communication software (Sold Separately), the unit can be fine-tuned.
 - Data logging and real time monitoring is possible by connecting with a PC (Windows)
 - Fine fuel tuning with an additional 16 RPM points.
 - Ability to control larger injectors and Airflow meters.
 - With the “DATA Protection” feature, the system can prevent any dangers of data changes.
- ★ With the Option Harness kit (Sold separately), more function can be added to the system.
 - Ability to control the injector duty cycle, and Ignition Timing.
 - Ability to control up to 2 sub-injectors
 - Ability to trace the fuel map on real time monitoring mode

*[VTEC] is a registered trademark of American Honda Motor Co., Inc.

Installation

Please read this instruction manual carefully, and proceed with the installation **ONLY** if you fully understand this manual. Make sure you read all the "Important!", "Warning!" and "Caution!" messages through out the manual.

Important!

- Installation of this product should only be performed by a trained specialist, who is very familiar with the automobile mechanical and electrical systems. If installed by untrained person, it may cause damage to the unit as well as the vehicle.
- When using soldering iron and other tools for installation, make sure you read and understand the tools user manual. Miss use of these tools can cause injuries.
- When mounting the main unit, make sure it gets mounted in a safe area that will not interfere with the driver. Improper mounting of the unit may interfere with the driver and it can cause accidents.

Caution!

- When making wire connections, be sure to remove the key from the ignition, and disconnect the negative terminal of the battery.
- Never short out the system. It can damage the unit as well as the vehicle's electrical system.
- Read and fully understand the wiring diagram before making wire connection.
- When connecting the connectors, push in all the way until you hear them click in together.

Please

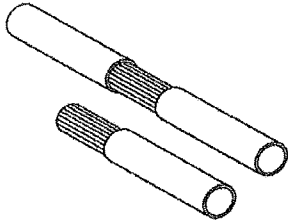
- Be sure to wrap the spliced and soldered areas with electrical tape or with a shrink-wrap.

Installation

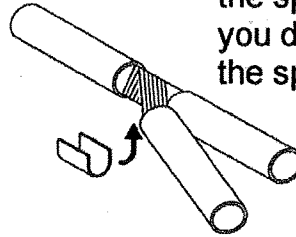
- Disconnect the negative terminal of the battery.
- Locate the vehicle's ECU and disconnect the harness.
- Splice the E-manage harness to the ECU harness power, ground and RPM input source. Refer to the ECU diagram on Page 26-31, For splicing instruction, please refer to page 7.
- Cut the Airflow meter or MAP signal wire and install the male and female connector on the cut end. (For RB26DETT, there are 2 signal wire, so cut and install the connector on both wires) For male/female connector installation instruction, please refer to page 7.
- Connect the airflow input/output signal wire from the E-manage harness to the cut wires.
 - For Hot-wire, Flap or MAP type sensors, refer to the diagram on page 8.
 - For Karman Vortex type sensor, refer to the diagram on page 8.
 - For RB26DETT, refer to the diagram on page 9.
 - For VETC equipped vehicle, refer to the diagram on page 9.
- Make sure to wrap all the area that was spliced or soldered with electrical tape.
- Reconnect the ECU harness, and reinstall all the parts that were removed for the installation.
- Reconnect the negative terminal of the battery.

How to splice or solder wires

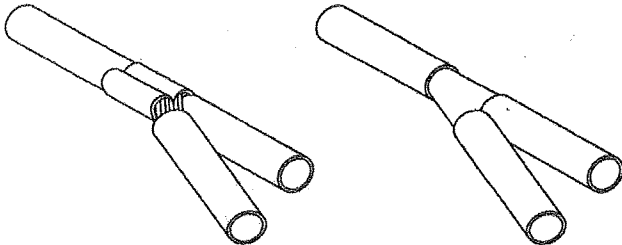
1. Strip the cover off the wire as shown.



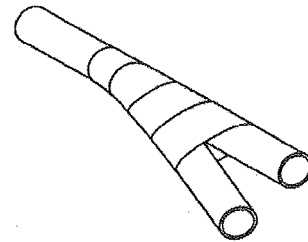
- Twist the striped wires to gather, and set the splice. If soldering, you do not need to use the splice.



3. Crimp the splice or solder the twisted wires.

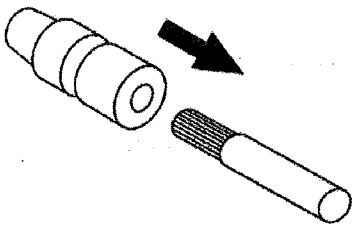


4. Wrap the area with electrical tape.

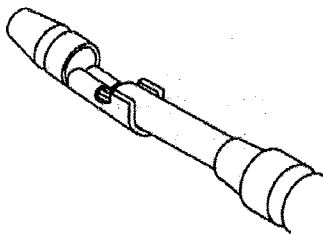


How to use the male/female connectors

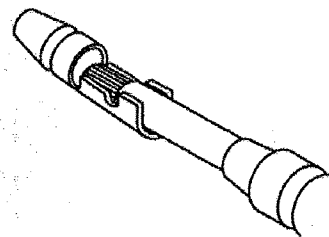
- Strip the cover off the wire and install the sleeve on as shown.



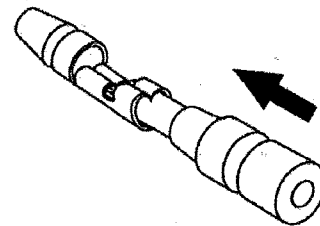
3. Crimp the inside of the connector with the exposed wire



2. Set the wire in to the connector.

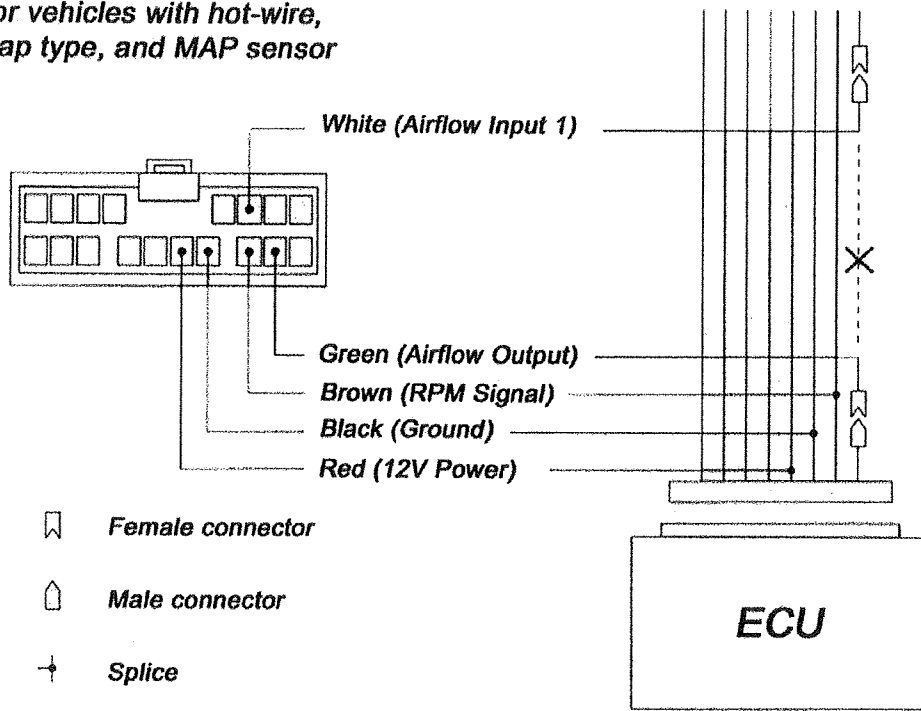


4. Crimp the outside with the sleeve and wire.

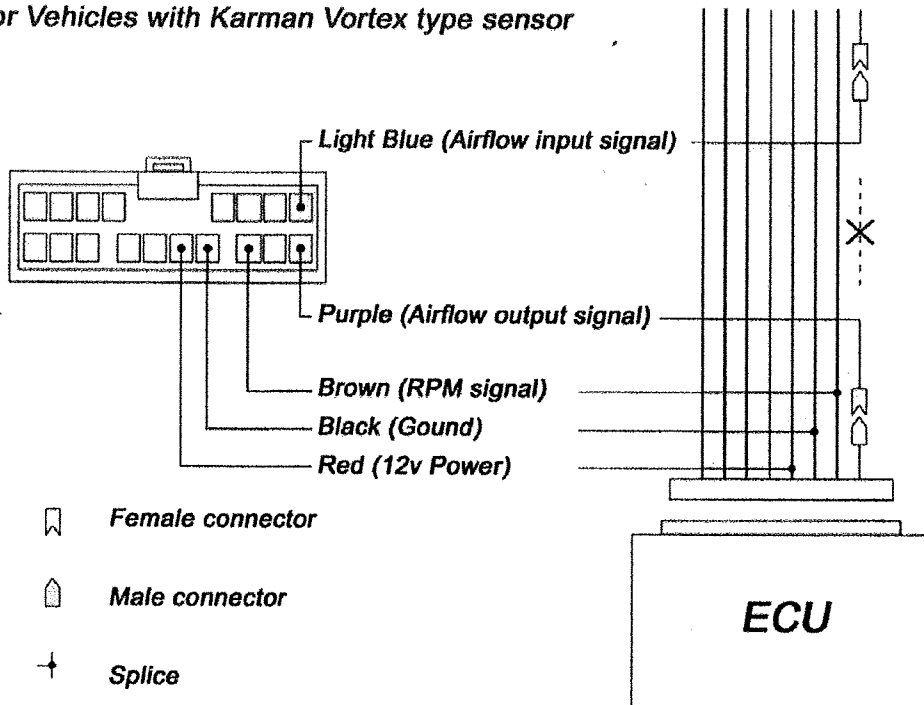


Wiring Diagram

For vehicles with hot-wire, Flap type, and MAP sensor

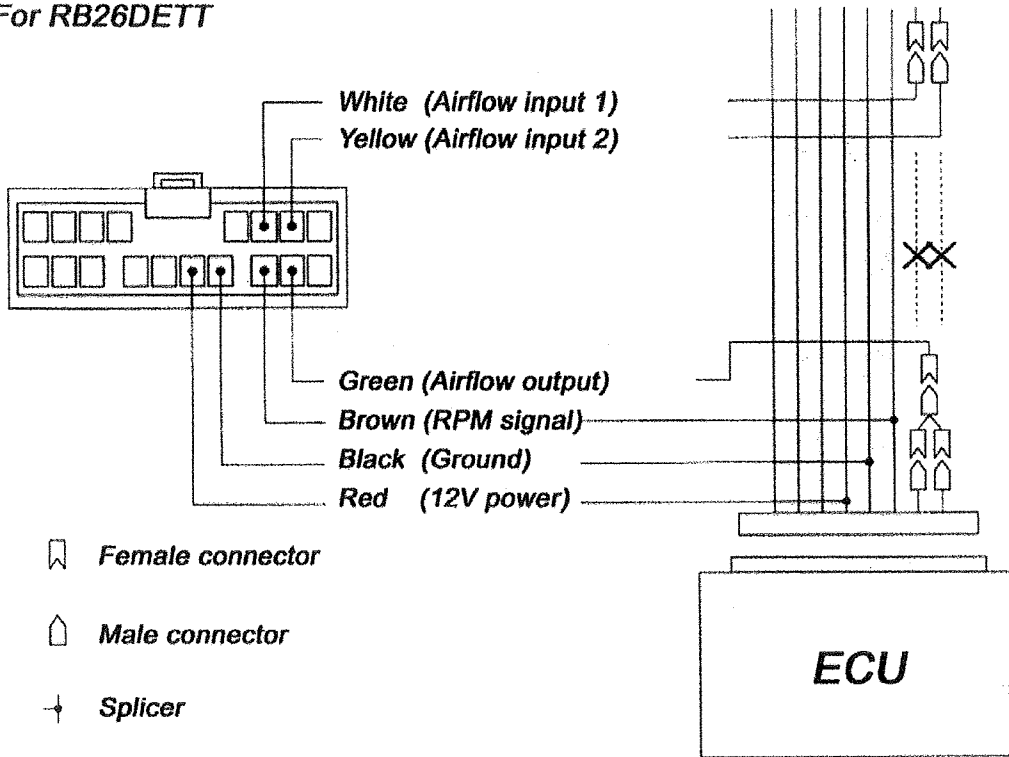


For Vehicles with Karman Vortex type sensor

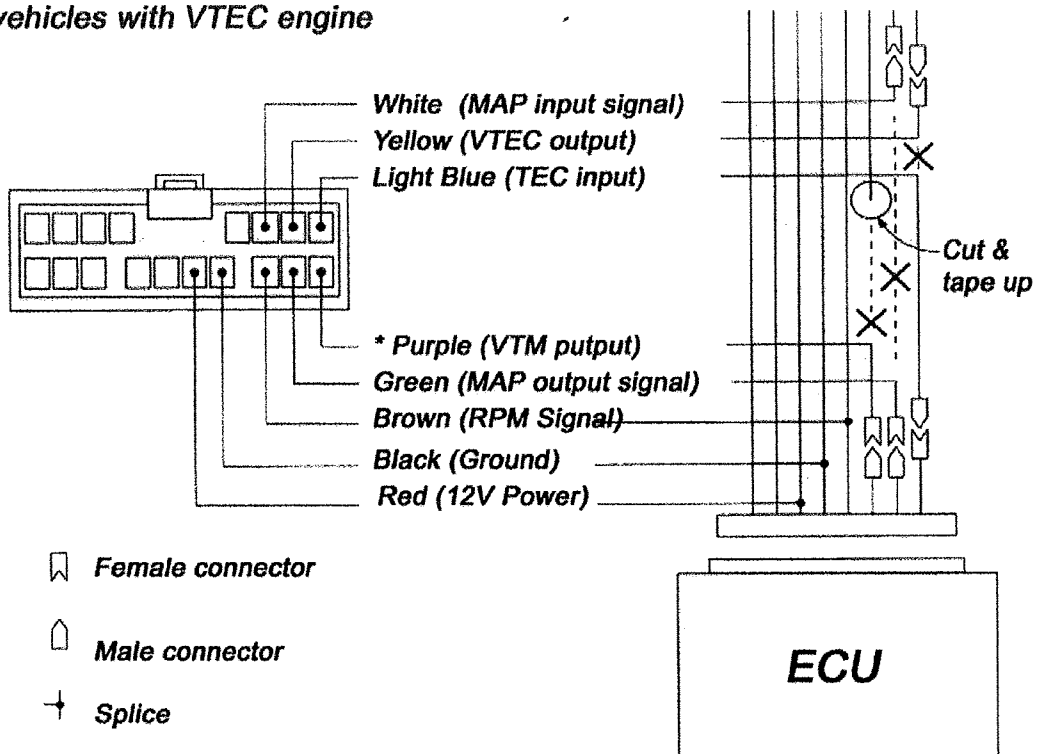


Wiring Diagram

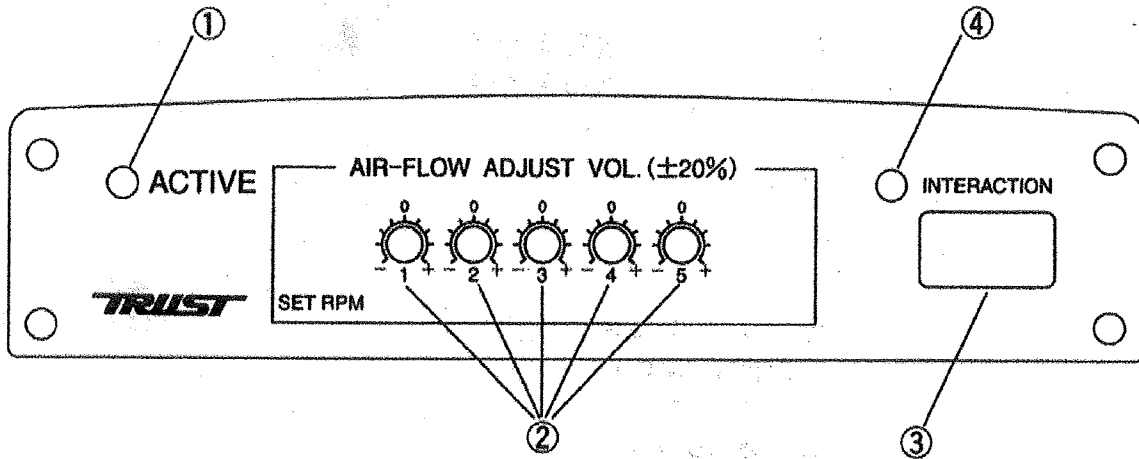
For RB26DETT



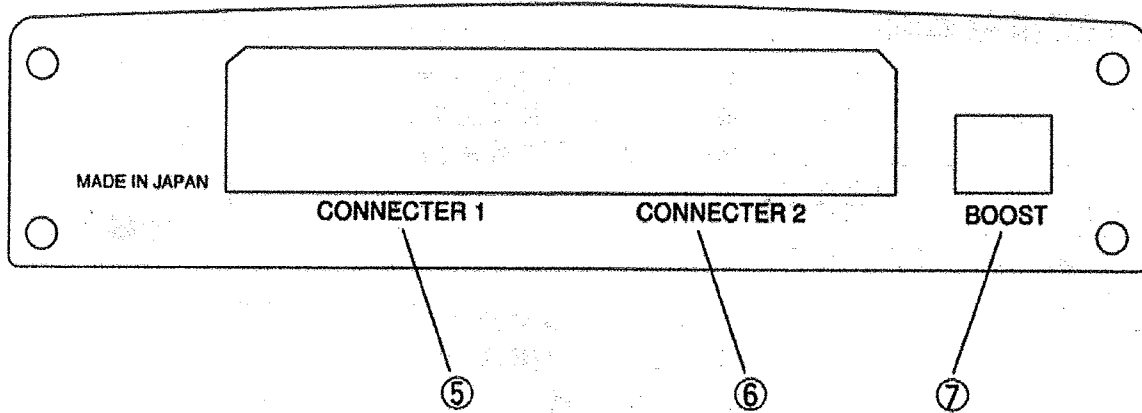
For vehicles with VTEC engine



Description



Front Panel



Rear Panel

Description

① ACTIVE L.E.D.

- When the ignition is turned on, it will illuminate and flash GREEN.
- When it reaches to the A.A.V. setting RPM range, it will illuminate and flash ORANGE.

② AIR-FLOW ADJUST VOLUME (A.A.V.)

- This is used to set the 5 PRM points for fuel tuning.

③ INTERACTION

- This is the port to communicate with PC using the optional software that will be sold separately.

④ INTERACTION L.E.D.

1. This will illuminate when there is a connection with PC.

⑤ CONNECTOR 1

- This is the port for the harness that is included with the unit.

⑥ CONNRCTOR 2

- This port is used for the optional harness that is sold separately, to add more features to this unit.

⑦ Pressure sensor connection port

- Pressure sensor can be added to the system to add more features with the use of the software (sold separately)

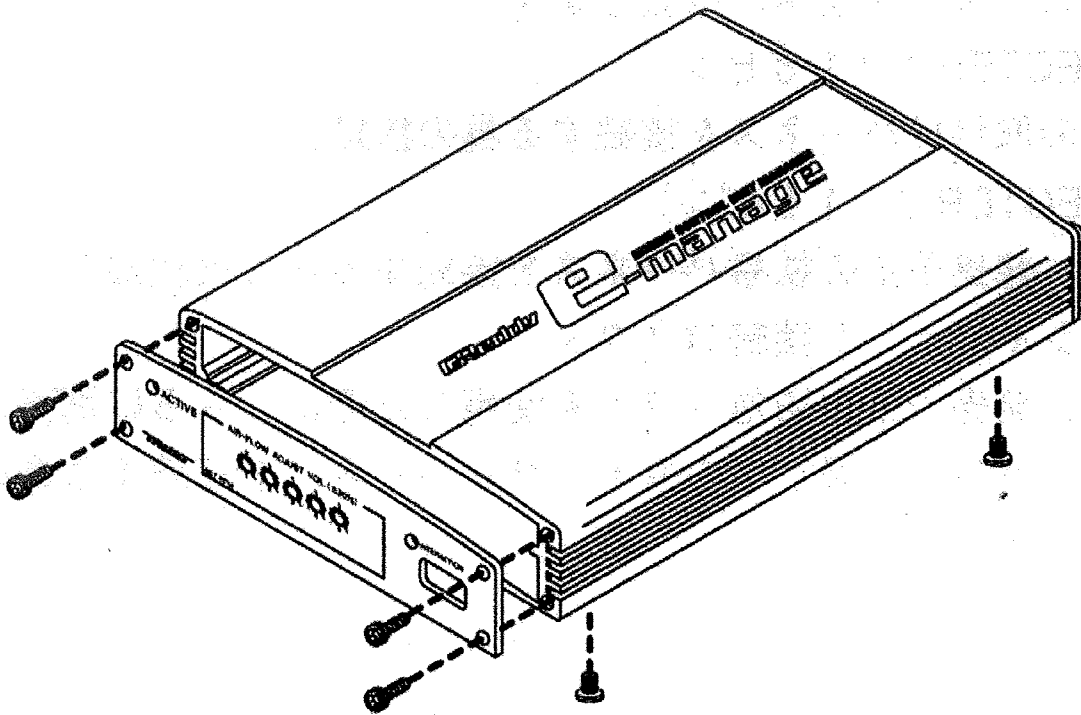
Initial Setup

Caution!

Make sure to perform the initial setting before starting the vehicle.

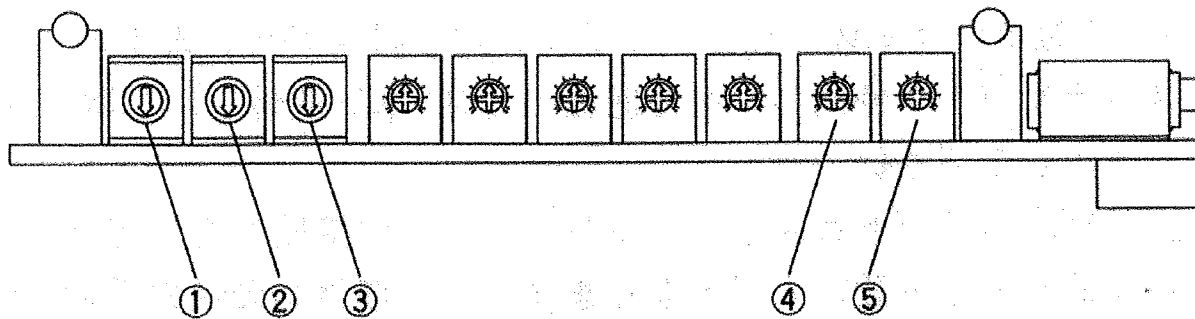
Rotary switch setting

- First, using the Hex wrench supplied with the unit, remove the front cover of the unit.
- From the list of ECU Wire Location Chart on page 26-31, look up you vehicle and set the first three left rotary switches.



Remove the front cover

Initial Setup



Rotary Switch Setting

① Number of cylinder selector

② Air-flow Type Selector

③ Air-flow Type Selector

Set the above selector according to the Vehicle Signal Location Chart.

④ VTEC Point Volume (VPV)

This volume switch is used to change the VTEC change over point.

⑤ VTEC Airflow Adjust Volume (VAAV)

This volume switch is used to compensate for the difference in the fuel map caused by the adjustment in the VTEC change over point.

Warning!

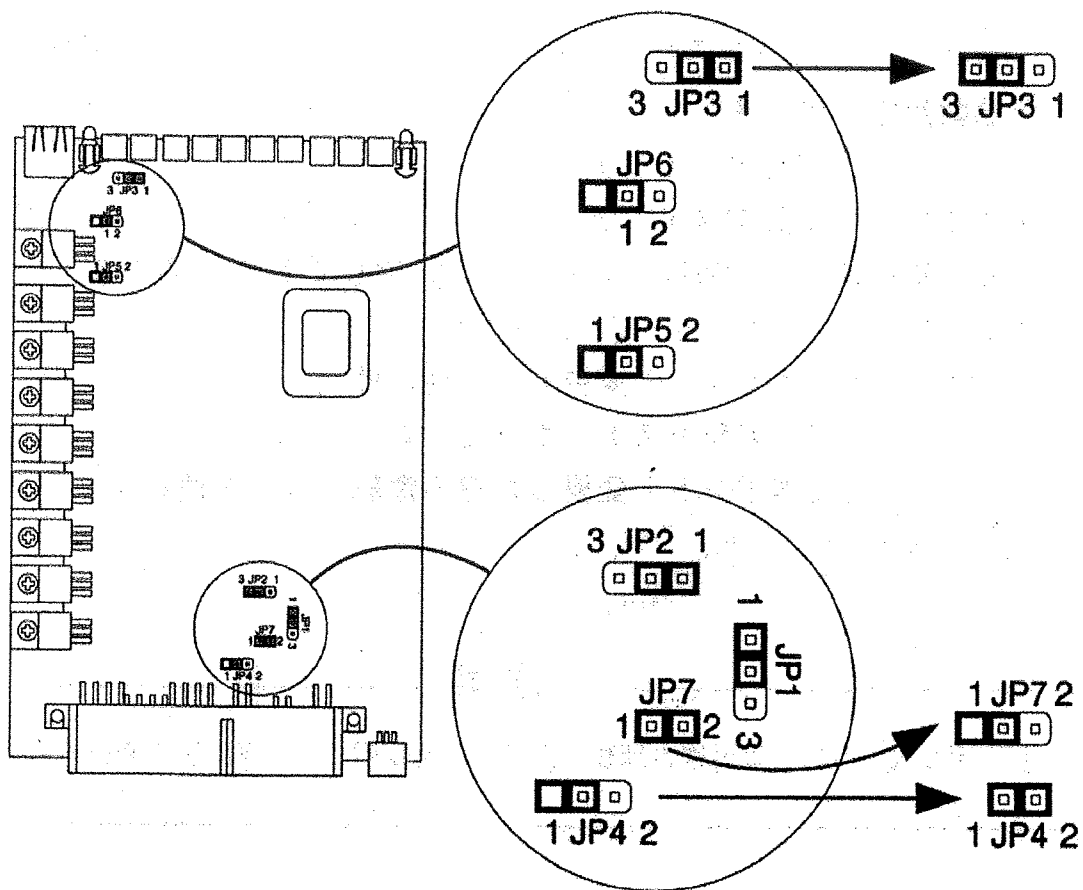
The rotary switches are very sensitive, make sure to use the supplied tool to turn the switches, and do not use excessive force.

- Vehicles with out VTEC, this completes the initial setup. Place the front cover back on.
- For the vehicle equipped with VTEC, follow the next procedure.

Initial Setup

Set up for VTEC equipped vehicle

- To set the unit for the VTEC, the jumper on the circuit board inside the casing needs to be set.
- Remove the circuit board, by removing the 2 screws on the bottom, and carefully pull it out.
- By following the diagram on this page and chart on the next page, set the jumper pins accordingly.
- After the all the jumpers are correctly set, reinstall the circuit board back in to the casing. This completes the set up for VTEC equipped vehicle.



Caution!

Make sure all the jumper setting is correct. Improper jumper installation can cause damage to the unit as well as the vehicle.

Initial Setup

<i>Jumper #</i>	<i>Vehicle with Air-flow meter, MAP sensor (Setting from Factory)</i>	<i>Vehicle with VTEC Engines</i>
JP1	1 — 2	←
JP2	1 — 2	←
JP3	1 — 2	2 — 3
JP4	OPEN	1 — 2
JP5	OPEN	←
JP6	OPEN	←
JP7	1 — 2	OPEN

By following the diagram on the previous page and chart on this page, set the jumper pins on the JP3, JP4, and JP7.

For the location that shows "1-2" or "2-3" in the chart, place the jumper to the pins to the indicated location so that the corresponding pin numbers are jumped (connected).

For the location that shows "OPEN" in the chart, do not jump the pins at the indicated location.

*When removing the Jumper to "OPEN" a connection, place the Jumper on to one side of the pin to prevent the Jumper from getting lost.

Mounting the Main Unit

Important!

When mounting the main unit, make sure it gets mounted in a safe area that will not interfere with the driver. Improper mounting of the unit may cause damage to the vehicle as well as the unit. It can also cause accidents.

Caution!

- **Avoid mounting the main unit in the area where there are excessive dust, and moisture. Also avoid a direct sun light, and area that will get direct heater airflow.**
- **Try not to just cover the unit up with floor mat or carpet.**

Please!

If you are using a double-sided tape, make sure you clean the surface with a cleaner to remove any oil and dust.

- Mounting procedure

By using the provided screws and some kind of brackets, secure the main unit on the floorboard.

Final Check

This completes the installation and initial settings, please check the following.

2. Make sure all the wire connections are correct and secure.
3. Make sure that the wires are neatly secured and tucked away.
4. Make sure the main unit is securely mounted.
5. Make sure all the parts that was removed to perform this installation are reinstalled.
6. Turn the ignition to "ON" position, and confirm that the ACTIVE L.E.D. lights up "GREEN". If it doesn't, check the Troubleshooting Guide" section.
7. Start the engine and confirm that the ACTIVE L.E.D. is "NOT" displaying any error code.
8. Make sure that the negative battery is securely connected, and close the hood.

About the Fuel Adjustment

This unit reads the airflow or pressure sensor input signal of the factory system, and calculates the intake air volume. Then with the front panel adjustment setting, it corrects the airflow signal to the ECU to achieve the desired fuel delivery.

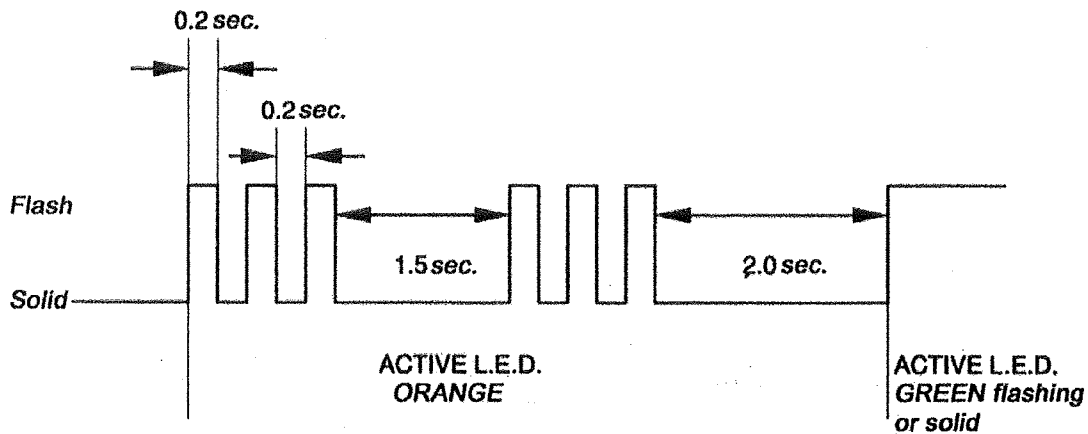
- About the AIR-FLOW ADJUST VOLUME switch (A.A.V.)
- 1. When the unit is powered up, the ACTIVE L.E.D. illuminate "GREEN" (solid)
- By using the supplied adjustment tool, turn the A.A.V. clockwise (+ adjustment) or counter clockwise (- adjustment), the unit will go in to "Adjustment Mode". The adjustment range is $\pm 20\%$ (at 1% increments).
- If you turn the A.A.V. to the desired setting, the ACTIVE L.E.D. will illuminate (solid). When the A.A.V. is turned back to 0%, the ACTIVE L.E.D. will flash "ORANGE"
- If do not make any adjustment for over 2 sec. The ACTIVE L.E.D. will flash the current setting in "ORANGE" twice. Then it will go back to "GREEN" and lock in the setting.
- To adjust to the desired setting, repeat the steps 3 ~ 4.

About the Fuel Adjustment

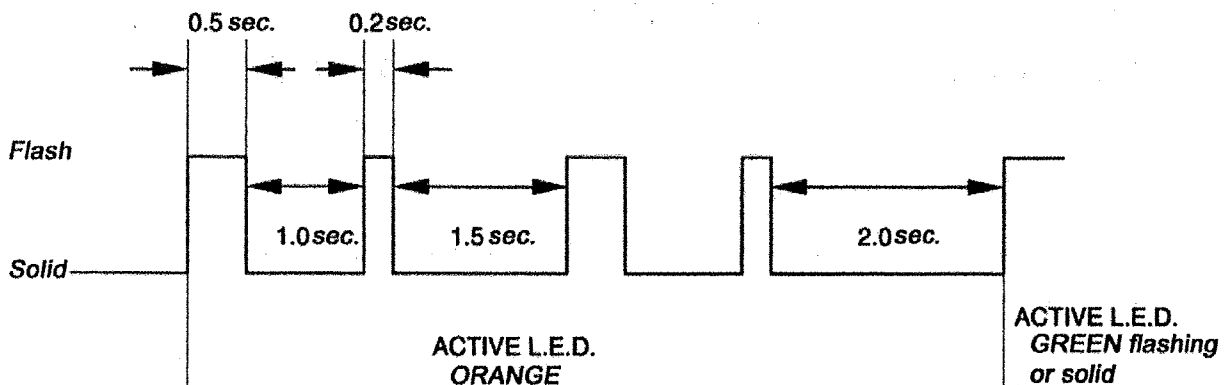
About the ACTIVE L.E.D.

1. When the engine RPM reaches the set RPM range, the "GREEN" L.E.D. will turn "ORANGE".
(At 2000, 3000, 4000, 5000, 6000 rpm, it will turn "ORANGE")
2. When in "Adjustment Mode", ACTIVE L.E.D. will flash.
When adjusting 1% ~ 10% range, it will flash.
When Adjusting 10% ~ 20% range, it will start to flash faster.

- How to read the current setting flashes
When displaying 3%



When displaying 11%

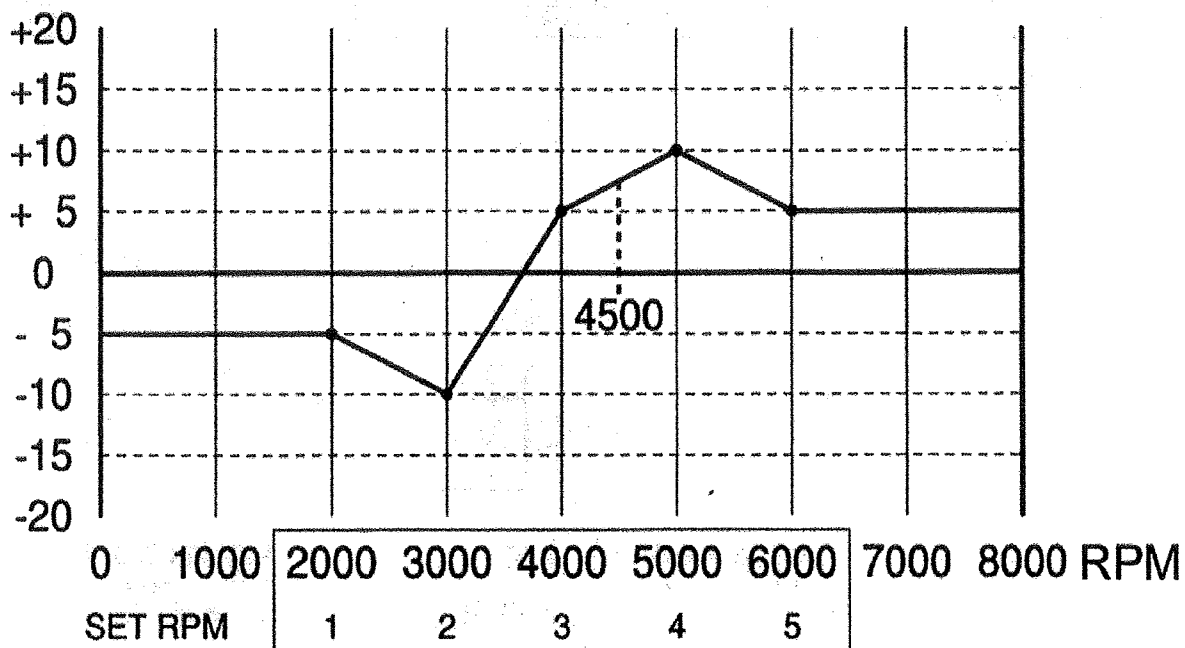


About the Fuel Adjustment

Example: When the A.A.V. SET RPM and Adjustment is set as following:

SET RPM	1	2	3	4	5
	2000rpm	3000rpm	4000rpm	5000rpm	6000rpm
Adjustment	-5%	-10%	+5%	+10%	+5%

Adjustment



The fuel adjustment will be as shown in the graph above.

The rpm between the A.A.V. Adjustment points will be calculated with the before and after of the adjustment points.

Example: From the graph above, the 4500 rpm points will be between A.A.V. 3 and A.A.V. 4. So, the adjustment point will be +7.5%.

Also, the adjustment before 2000rpm will be the A.A.V. 1 value, and above 6000rpm will be the A.A.V. 5 value.

About the Fuel Adjustment

- **Changing VTEC shift point**

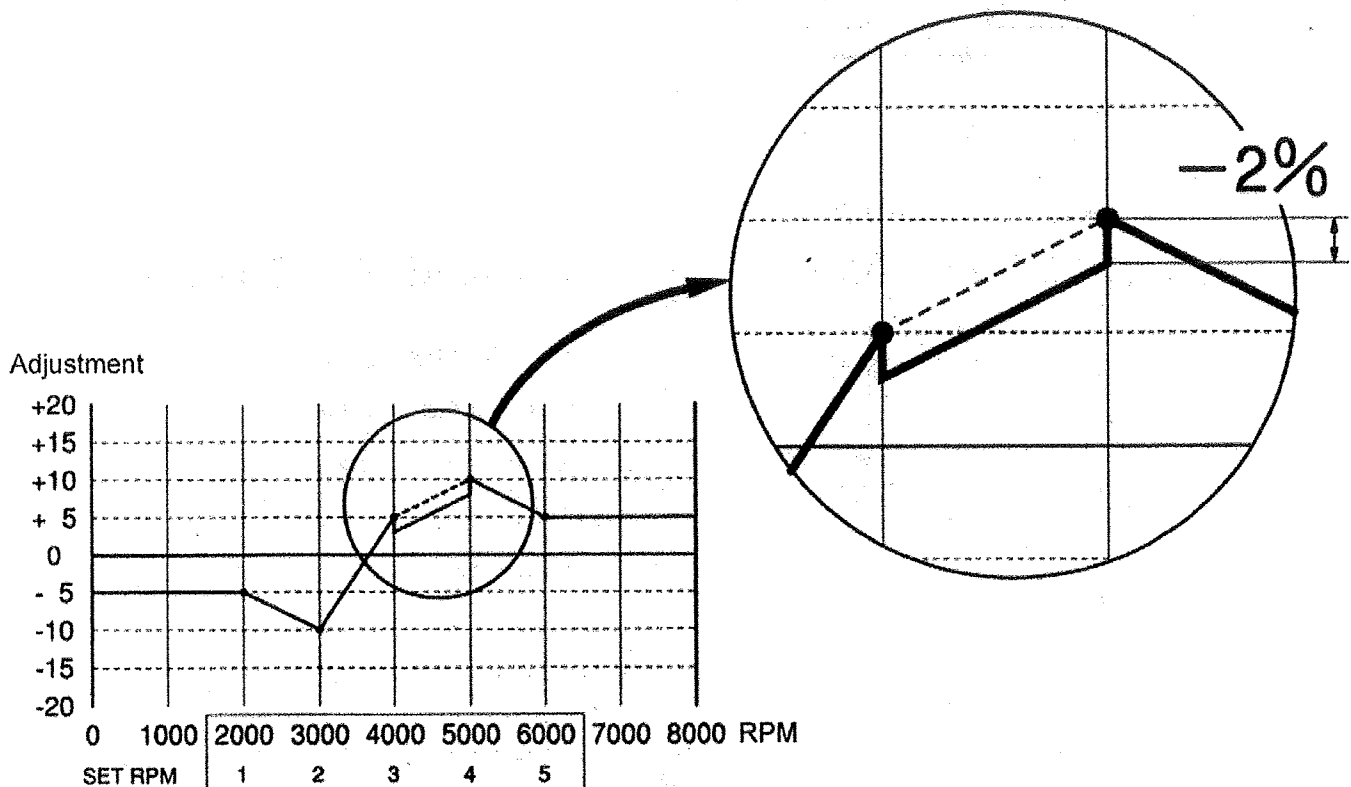
The VTEC shift point can be adjusted $\pm 1000\text{rpm}$ (100rpm increments) by turning the V.P.V. on the front panel.

- **VTEC Airflow Adjustment**

When adjusting the factory VTEC shift point, there will be a difference in the ECU VTEC signal and the actual shift signal. This difference affects the fuel injection as well. This feature can be used to fine-tune the VTEC system by adjusting fuel to compensate for the difference.

Use the V.A.A.V. to adjust $\pm 10\%$ (1% increments) .

Example: Factory VTEC shift point 5000rpm
Change shift point to 4000rpm, and V.A.A.V. to -2% .
2% will be subtracted from the 4000rpm to 5000rpm of the A.A.V. (shown in dotted line)

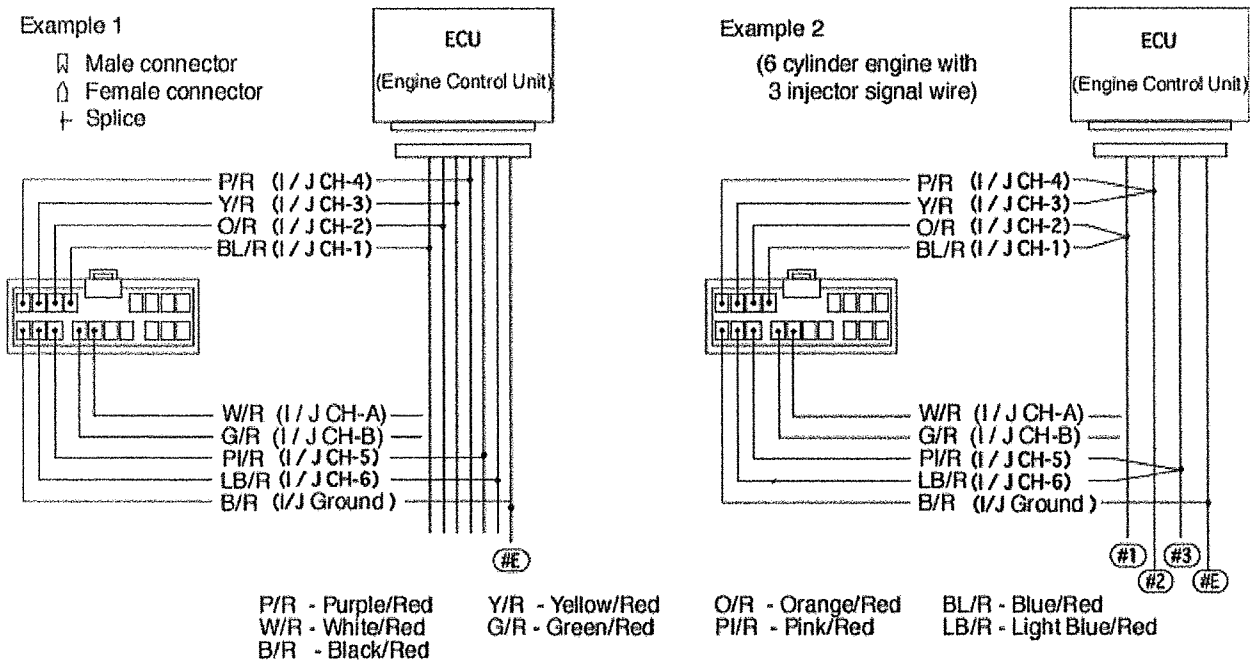


Wire Diagram for the Optional Injector Harness (sold separately)

To control the main injectors, and sub injectors, e-Manage Injector Harness is required along with the e-Manage Support Tool software, and Windows base P.C.(laptop).

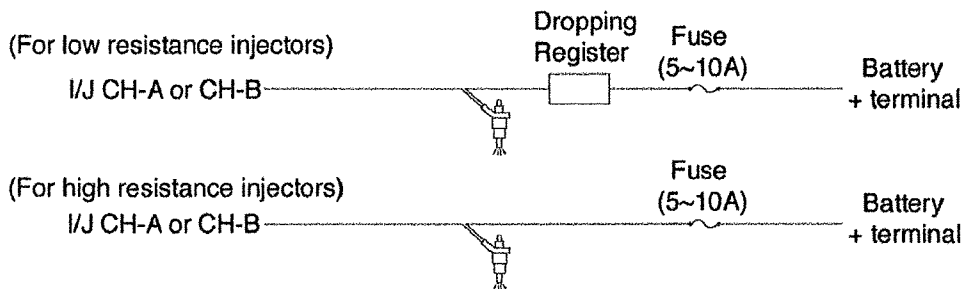
Injector Signal

- Connect to the vehicle's Injector signal wires. Refer to the "Vehicle Specific ECU wire location chart" at the end of this manual for the proper location of each wire. Make sure that you connect the same number of wires as the engine's cylinder number. (Excludes Rotary engines)
- For Rotary engines, you can wire only the primary or secondary injector signal or both.
- If the vehicle does not have the same number of injector signal wire as the number of the engine's cylinder number, group 2 wires in to one. See the example diagram below.



Sub Injector Signal

- When using the I/J CH-A, I/J CH-B for sub injectors, set the jumper JP5 and JP6 in the e-manage main unit to "1-2" from "Open".
- When using low resistance injectors dropping register is required in-line as shown below.



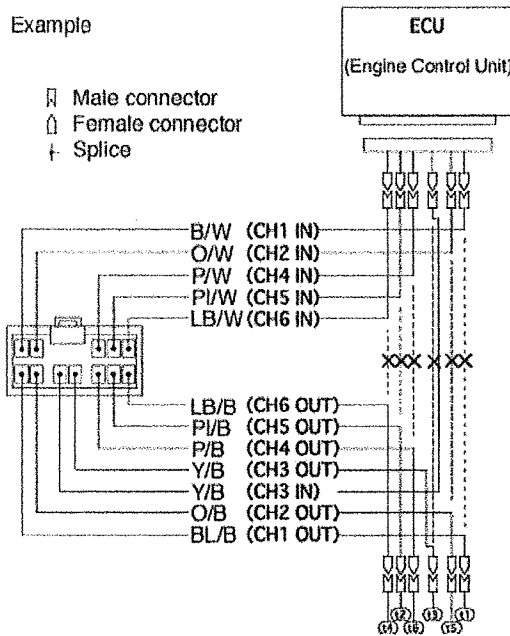
Wire Diagram for the Optional Ignition Harness (sold separately)

To control the ignition timing, e-Manage Ignition Harness is required along with the e-Manage Support Tool software, and Windows base P.C.(laptop).

Wire diagram for Ignition Signal

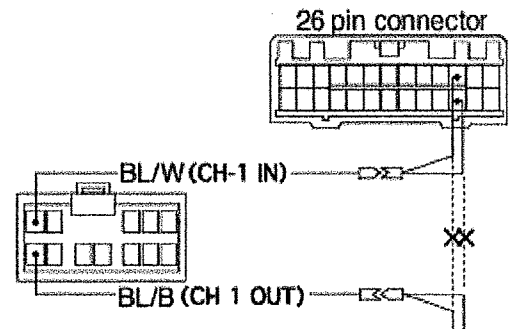
- Please read the instruction included with the Ignition harness kit, and proceed with the wiring only if you fully understand the instruction.
- Connect to the vehicle's Ignition signal wires. Refer to the "Vehicle Specific ECU wire location chart" at the end of this manual for the proper location of each wire. Connect the ignition channel wire in the engine's firing order.
- Make sure that wires are connected in the firing order and jumper setting is correct. Improper wiring and setting can damage the ignition coil.

Example



e-manage I/G Channel	CH-1	CH-2	CH-3	CH-4	CH-5	CH-6
3, 4, 6, 8 cylinder distributor	t					
Inline 4 cylinder group ignition	t1,4	t2,3				
Horizontally opposed 4 cylinder	t1,2	t3,4				
Inline 4 cylinder individual ignition	t1	t3	t4	t2		
Horizontally opposed 4 cylinder	t1	t3	t2	t4		
Inline 6 cylinder group ignition	t1,6	t5,2	t3,4			
V6 group ignition	t1,4	t2,5	t3,6			
Inline 6 cylinder individual ignition	t1	t5	t3	t6	t2	t4
V6 individual ignition	t1	t2	t3	t4	t5	t6
13B (FC3S, JC3SE)	tT	tL				
20B (JCESE)	tT			tL		
13B (FD3S)	tT1	tT2	tL			

- On Hondas set the jumper pins JP 1 and JP2 to 2-3. (see Page 14-15)
- After wiring, if the tachometer, or not firing occurs, set the jumper pin JP2 to 2-3. (Specially on Toyota)
- On Honda EG type vehicles, the bottom third pin from the right on the 26 pin is also an ignition signal. Group the 2 wire together.



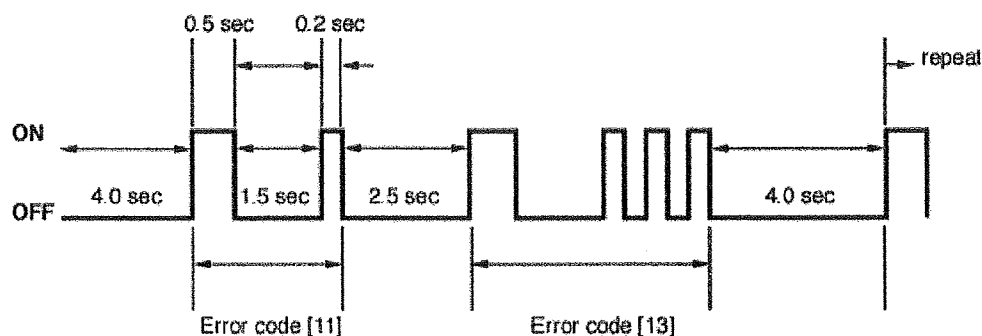
Error Code Chart

How to read the error codes

When there is a system error, the ACTIVE L.E.D. will change to RED and start flash rapidly.

1. If this occurs, shut down the engine immediately. Turn the IG key to the "ON" position to go the Check Mode.
2. While in check mode, the red flashes will start to flash all the stored codes.
3. Count the red flashes to check the code.
4. Turn the IG key to "OFF" position, and fix the problem.

* When the Support Tool (sold separately) is used to tune the e-Manage, check the Error Code Chart on the Support Tool Manual.



CODE	Error	Error description
11	Airflow Signal 1 input error	Incorrect wiring or disconnected Airflow Signal 1
12	Airflow Signal 2 input error	Incorrect wiring or disconnected Airflow Signal 2. Incorrect Jumper setting (JP3).
13	Karman Vortex sensor input error	Incorrect wiring or disconnected Karman Signal. Incorrect Jumper setting (JP4).
14	VTEC Signal input error	Incorrect VTEC signal input wiring. Incorrect Jumper setting (JP4).
15	Airflow voltage output error	Incorrect Airflow signal output wiring.
16	VTEC Signal output error	Incorrect VTEC signal output wiring. Incorrect Jumper setting (JP3).

ECU Wire Location Chart

Use the following Table and Wire Diagram to set the e-Manage initial setup and properly wire the harness.

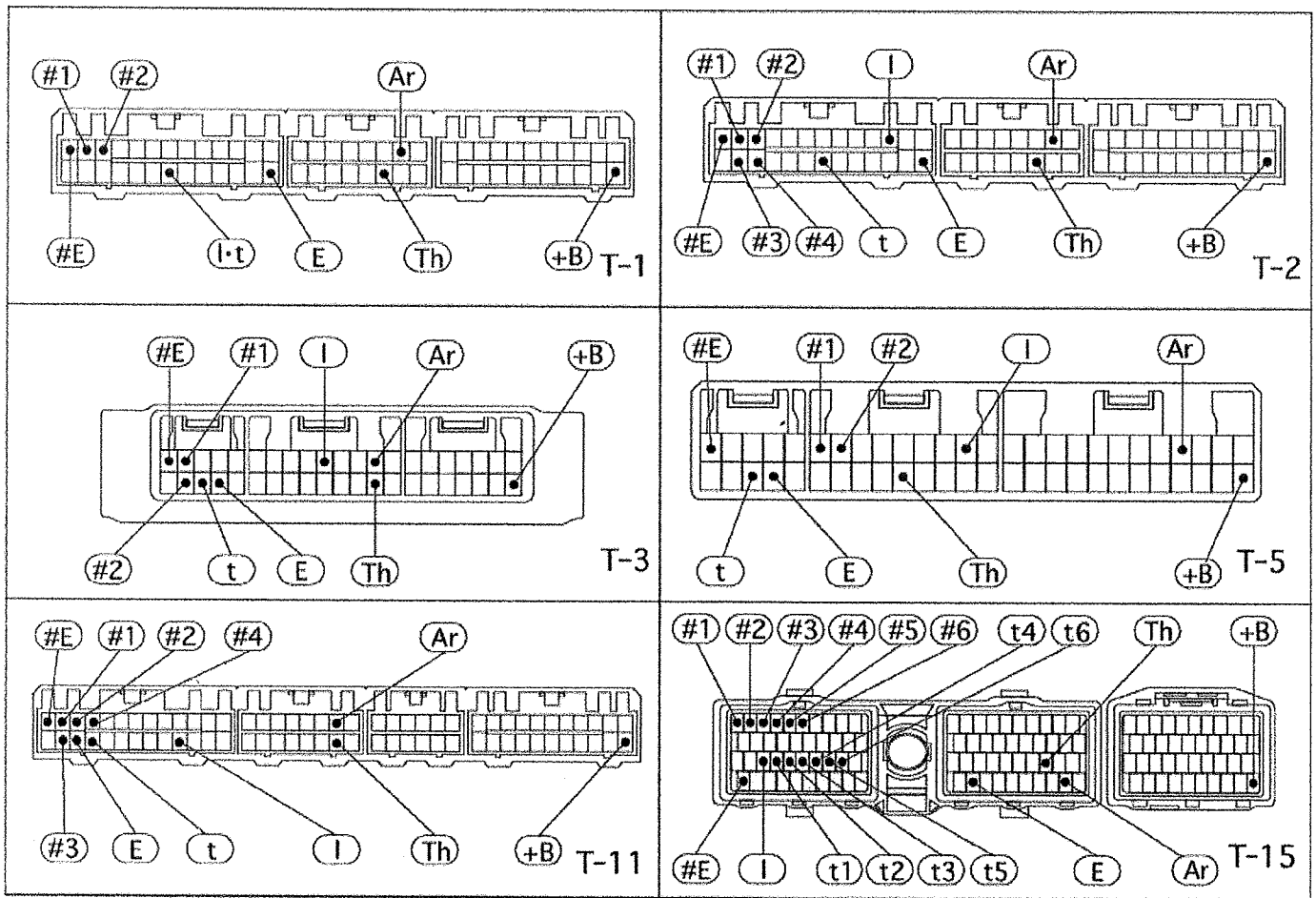
* If your vehicle is not listed in the chart, contact the GReddy Product Support Dealer near you or GReddy Performance Product.

+B ← Power	#※ ← NO. ※ Injector Signal
E ← Ground	t※ ← NO. ※ Ignition Signal
I ← RPM Signal	I · t ← RPM & Ignition Signal
Th ← Throttle Signal	t※ · ※ ← NO. ※ & NO. ※ Ignition Signal
Ar ← Airflow/Pressure signal	tL ← Leading Ignition Signal
VT ← VTEC Signal	tT※ ← NO. ※ Trailing Ignition Signal
VM ← VTM Signal	#P※ ← NO. ※ Primary Injector Signal
#E ← Injector Ground	#S※ ← NO. ※ Secondary Injector Signal

ECU Wire Location Chart

TOYOTA

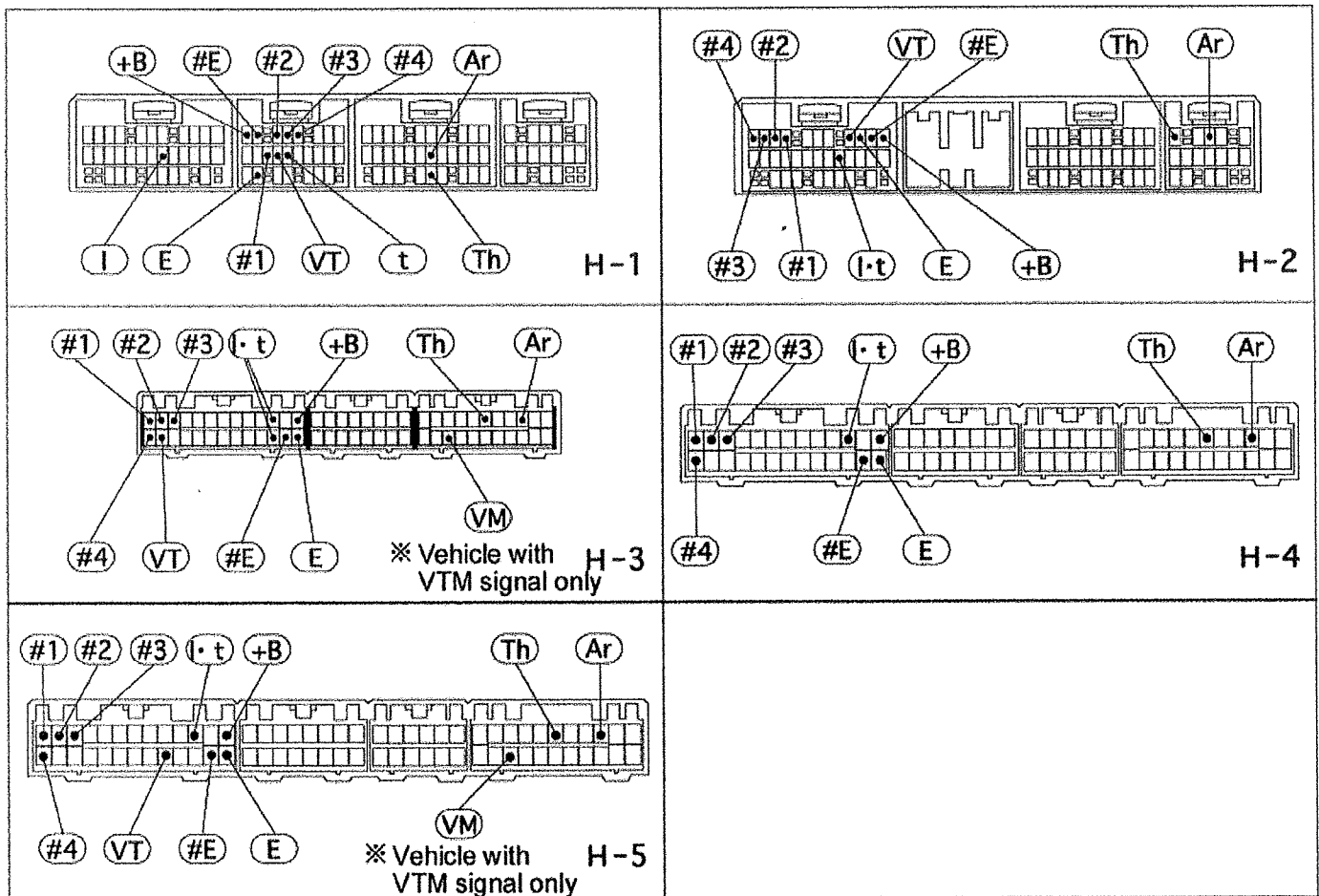
Model	Chassis Code	Year	Engine Code	Sensor Type	Switch setting			CPU #	ECU Location
					1	2	3		
Supra	JZA80	93.5~97.7	2JZ-GTE	TY_PR-1	7	4	0	T-15	5
Celica	ST205	94.2~99.7	3S-GTE	TY_PR-2	2	4	1	T-2	2
MR-2	SW20	93.10~99.7	3S-GTE	TY_PR-2	2	4	1	T-2	10
		89.10~93.9		TY_FL-2	2	4	8		
	AW11	86.8~89.9	4A-GZE	TY_FL-4	2	4	A	T-5	
		84.6~89.9	4A-GE	TY_PR-3	2	4	2	T-3	
Corolla	AE86	83.5~87.4	4A-GE	TY_PR-3	2	4	2	T-3	4



ECU Wire Location Chart

HONDA/ACURA

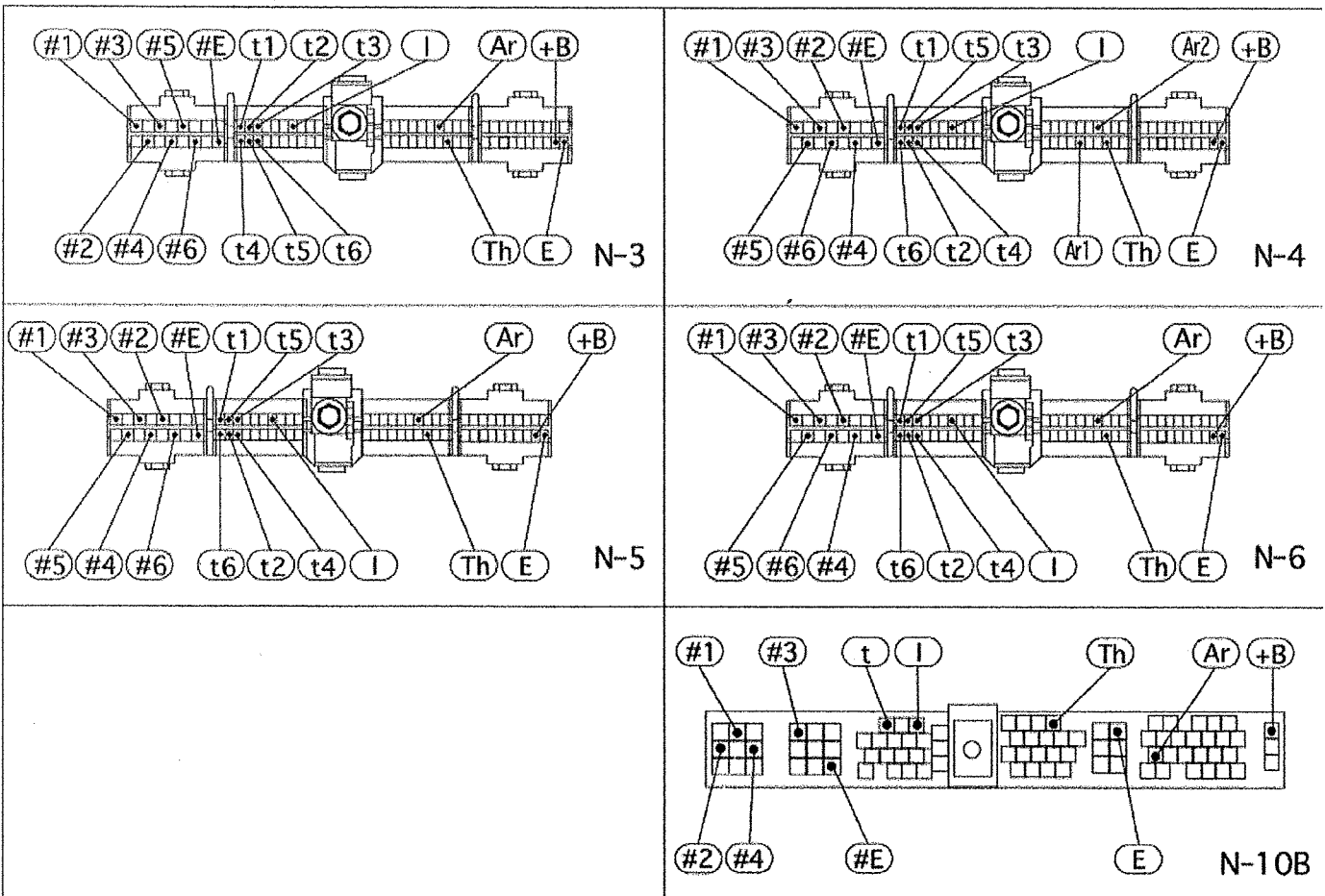
Model	Chassis Code	Year	Engine Code	Sensor Type	Switch setting			CPU #	ECU Location
					1	2	3		
Civic	EM1 (si)	99 ~ 00	B16A	HN_PR-1	2	8	A	H-1	4
	EJ6	96 ~ 00	D16Y					H-2	
	EJ7							H-2	
	EJ8							H-2	
	EJ1	92 ~ 95	D16Z					H-3	
	EH3							H-3	
	EG9							H-3	
Integra	DC2/DB8	96 ~ 01	B18C	HN_PR-1	2	8	A	H-2	4
		94 ~ 95	B18C(M/T)					H-3	
Prelude	BB6/BB8	97 ~ 01	H22A	HN_PR-1	2	8	A	H-2	5
Accord	CF4	97.9~	F20B	HN_PR-1	2	8	A	H-1	5
	CD5	93.9~97.8	F22B					H-3	



ECU Wire Location Chart

NISSAN

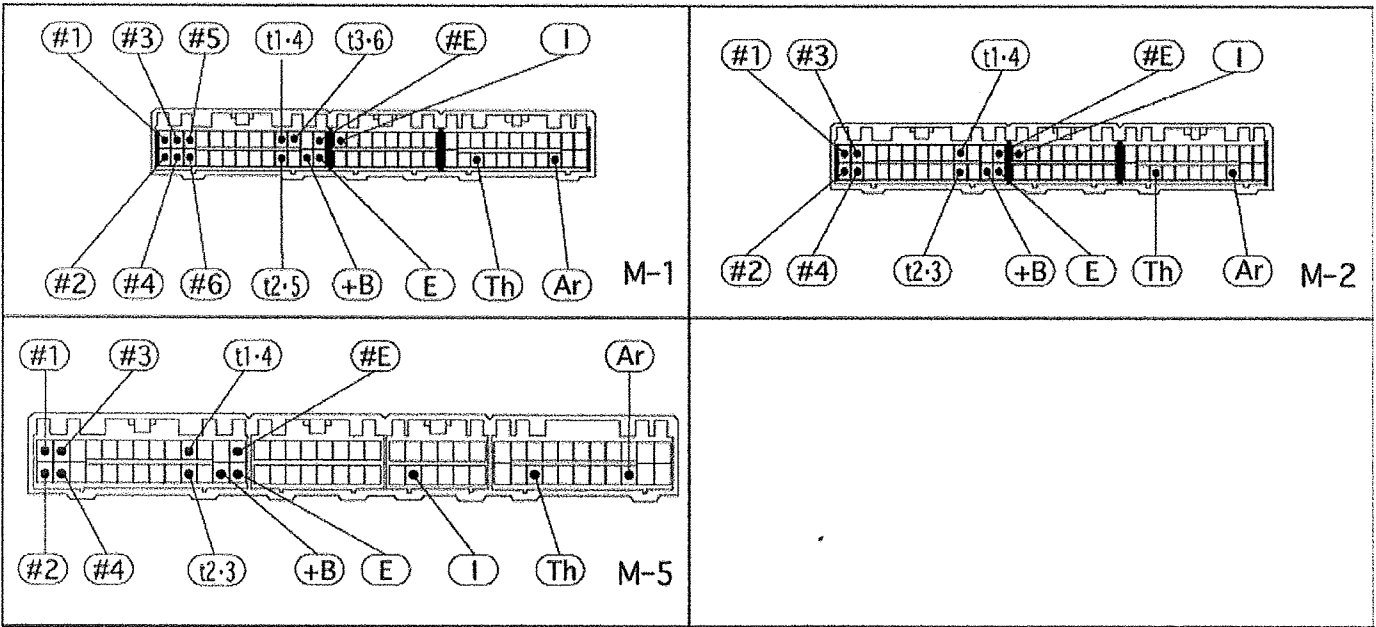
Model	Chassis Code	Year	Engine Code	Sensor Type	Switch setting			CPU #	ECU Location
					1	2	3		
300ZX	Z32	90 ~ 95	VG30DETT	NS_HW-2	7	0	1	N-3	5
			VG30DE						
SKYLINE	BNR34	99.1~	RB26DETT	NS_HW-6	7	0	5	N-4	4
	BCNR33	95.1~98.12	RB26DETT	NS_HW-6	7	0	5	N-4	
	ECR33	95.1~98.4	RB25DET	NS_HW-5	7	0	4	N-6	
		93.8~94.12		NS_HW-3	7	0	2		
	BNR32	89.8~94.12	RB26DETT	NS_HW-6	7	0	5	N-4	
HCR32	89.5~93.7	RB20DET	NS_HW-3	7	0	2	N-5		
240SX	S14	95 ~ 98	KA24DE	NS_HW-7	2	0	6	N-10B	4



ECU Wire Location Chart

MITSUBISHI

Model	Chassis Code	Year	Engine Code	Sensor Type	Switch setting			CPU #	ECU Location
					1	2	3		
3000GT	Z16A	90 ~ 98	6G72	MT_KR-2	6	8	4	M-1	2
Eclipse	D32/D33	95 ~ 99	4G63	MT_KR-1	3	8	3	M-5	4
	D22/D27	98 ~ 94						M-2	



ECU Wire Location Chart

MAZDA

Model	Chassis Code	Year	Engine Code	Sensor Type	Switch setting			CPU #	ECU Location
					1	2	3		
RX-7	FD3S	93 ~ 96						MA-3	4
	FC3S	89 ~ 92	13B	MZ_FL-2	B	A	A	MA-6	5
MIATA	NB8C ※	98.1~00.6	BP-ZE	MZ_HW-1	3	A	0	MA-5	5
	NB6C ※	98.1~	B6-ZE						
	NAGCE	89.9~93.7		MZ_FL-4	3	A	C	MA-7	

※ Adaptor required (Japanese spec only)

