



Support Tool

GReddy e-Manage Support Tool v1.10

Instruction Manual

The GReddy logo is displayed in a bold, italicized, sans-serif font.

1. 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 and use 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.
- When using a soldering iron or other tools for installation, make sure you read and understand the tool's user manual. Mis-use of these tools can cause serious injuries.
- 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.
- Make sure there are no leaks in the fuel system and that all of the connections are secure.

1. Important Information

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.
- The communication cable is not a repairable item, so please take care of it. When disconnecting from the PC (laptop), pull holding the connector. Never pull on the cord.

Please

- The product and the instruction manual are subject to change without notice.

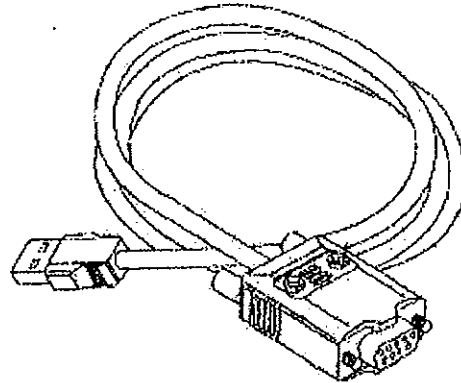
2. Parts List

Please

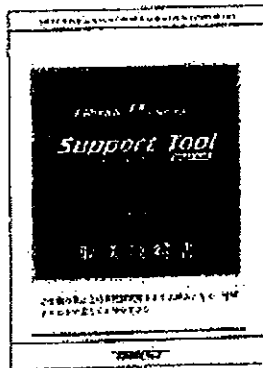
- Check the parts list and make sure you have received all the items in the list.



CD ROM x1



Communication Cable x1



Instruction Manual x1

3. Product Features

This product will allow the tuner to program GReddy e-Manage functions, by linking the e-Manage and a Windows® based PC. This product is only for the vehicles equipped with GReddy e-Manage.

Features:

- **Air Flow Adjustment Map**
This 16 x16 (rpm x throttle position) table is used to fine-tune the input signal of the Air Flow Meter or MAP Sensor to the ECU for fuel enrichment.
- **Upgrade Injectors**
Controls upgrade injectors. (up to 150% larger than factory)
- **Upgrade Airflow meters**
Controls upgrade Airflow meters.
- **Boost limiter cut feature**
Eliminates factory boost limiter.
- **Anti Engine Stall feature**
This is used to stabilize the rough idle due to turbo compressor surge, Blow-off valve vented out to the atmosphere or use of a high lift camshaft.
- **VTEC® Setting**
This is used to set the VTEC setting without going in to the Main Unit.
- **Map Trace feature**
This allows the tuner to pin point the current location on any map table.
- **Real Time Display feature**
This allows the tuner to monitor the engine condition in real time.
- **Real Time Communication**
This allows the PC and e-Manage to communicate at real time. Any changes made on the computer screen is sent to e-Manage with in 2-3 sec.
- **Data Logging feature**
This allows the tuner to view the data recorded and saved during the real-time mode in graph form.
- **Security Setting feature**
This allows the tuner set up a password to apply a security lock to the data in the main unit.

Optional Parts:

- **Harness Kit (Injector control)**
This harness is used when controlling main injectors or sub injectors
- **Harness Kit (Ignition Timing Control)**
This Harness is used when controlling the ignition timing.
- **GReddy Pressure Sensor**
GReddy pressure sensor can be used for the scale of each Map table. This is used when the factory system exceeds the Air Flow Meter or MAP sensor capacity.

4. Before Installation

Before installation of the software, please make sure that the PC is set up correctly. This product will only operate on Windows®95, 98, Me, or 2000, that meets the requirements listed below.

System Requirements

- Intel® Pentium® 166MHz or faster processor
- At least 32MB of RAM (64MB recommended)
- A hard drive with at least 50MB of free space.
- A SVGA monitor (800x600) and a 16bit (high color) display
- A 3.5inch 1.44MB floppy disk drive
- A CD-ROM drive
- Serial port with RS-232C D-Sub 9 pin connector (male)

Important

- If the Serial port is not D-Sub 9 pin connector (male), an adapter will be necessary to connect the communication cable.
- For computers that are not equipped with a Serial port, a USB to Serial adapter is required. Do not use USB to USB cable.

If your computer meets the requirement listed above, the basic features of this program will operate, but to use the "Real Time Monitor" feature requires the following.

Required to use the "Real Time Monitor"

- Intel® Pentium® II® 266MHz or faster processor
- At least 128MB of random-access memory (RAM)

As for the setup and installation of the Windows®, please refer to the "Getting Started" manual included in the Windows® Software.

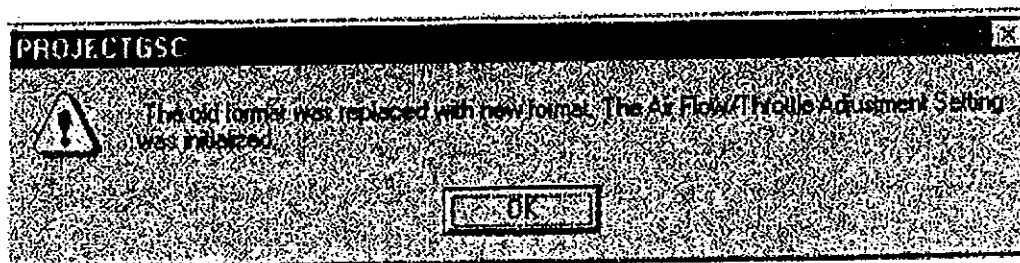
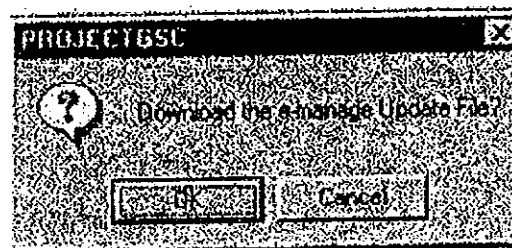
4. Before Installation

Basic PC Operation

This system will basically operate the same as any other Windows® based software, such as changing window size, closing window, mouse operation, quitting, and etc. For further information, please refer to the "Getting Started" manual included with the Windows® Software.

Please Note

- The Support Tool v1.10 software has a Main Unit (e-Manage) Update v1.20 program that will automatically detect and update an old version unit when the Main Unit is linked with the PC.

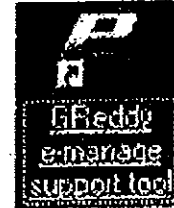


5. Software Installation

Follow the instructions listed below to install the Support Tool software.

Software Installation

1. Turn Personal Computer "ON"
2. Insert the Support Tool CD-ROM in the CD-ROM drive. This software is a self installing software, so installation will begin soon as the CD-ROM is inserted. Follow the instruction on the screen.
3. After the installation is complete, GReddy e-Manage short cut icon will appear on the desktop.



Important

- If the self installation fails
Depending on the computer's settings, it will not allow self installation. When this happens, double click the "setup.exe" in the "DISK1" folder in the CD-ROM to install the software.
- If the program does not operate properly
Uninstall the program, and reinstall the program.
- If communication feature does not operate
Uninstall the program, and reinstall the program.

To uninstall

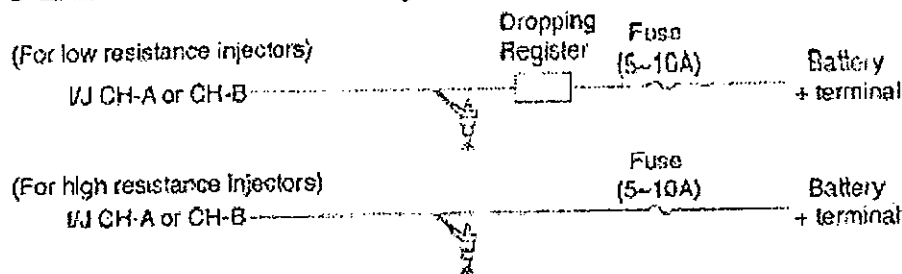
1. Click on the "ADD/REMOVE PROGRAM" in the "CONTROL PANEL".
2. From "ADD/REMOVE PROGRAM" list, select "GReddy e-Manage Support Tool", then click on "ADD / REMOVE" button.
3. Click "OK"
4. When it return to the "ADD/REMOVE PROGRAM" window click "OK" to go back to "CONTROL PANEL".
5. Close the "CONTROL PANEL" window.

Wire diagram for Injector Signal

6. Wire Diagram Information

Wire diagram for 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".



Important

- If the vehicle does not have the same number of injector signal wire as the number of the engine's cylinders, group 2 wires in to one.

Wire diagram for Ignition Signal

- Please read the instructions included with the Ignition Harness Kit, and proceed with the wiring only if you fully understand the instructions.
- Connect to the vehicle's ignition signal wires. Refer to the "ECU wire location chart" in this manual for the proper location of each wire.
- Connect the ignition channel wire in the engine's firing order.

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 (JCSE)	tT			tL		
13B (FD3S)	tT1	tT2	tL			

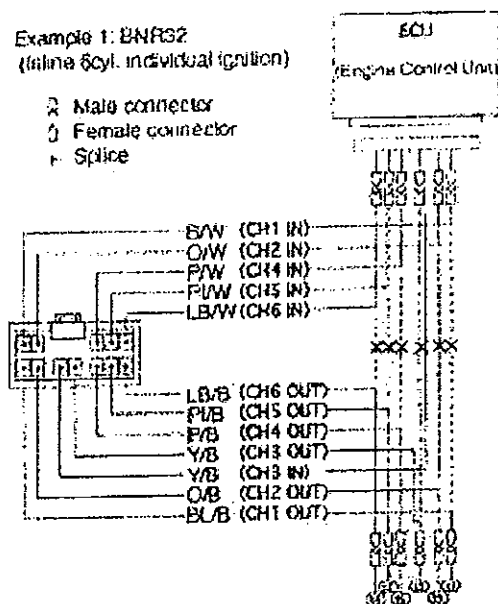
Important

- Make sure that wires are connected in the firing order and jumper setting is correct. Improper wiring and setting can damage the ignition coil.

6. Wire Diagram Information

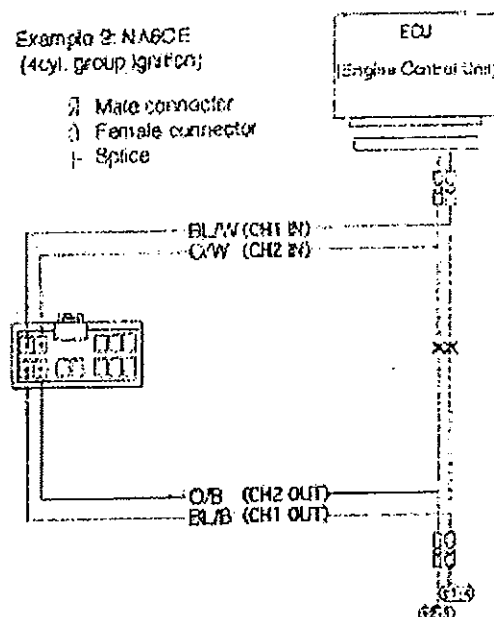
Example 1: BNR32
(In-line 6cyl. individual ignition)

- Male connector
- Female connector
- Splice

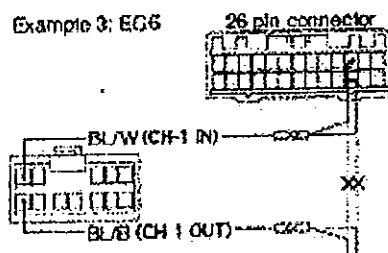


Example 2: NA60E
(4cyl. group ignition)

- Male connector
- Female connector
- Splice

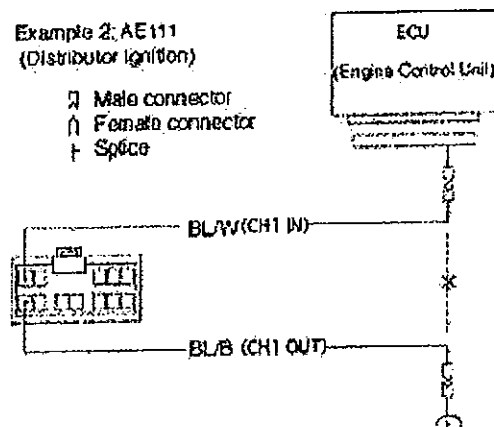


Example 3: EG6



Example 2: AE111
(Distributor Ignition)

- Male connector
- Female connector
- Splice



* 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.

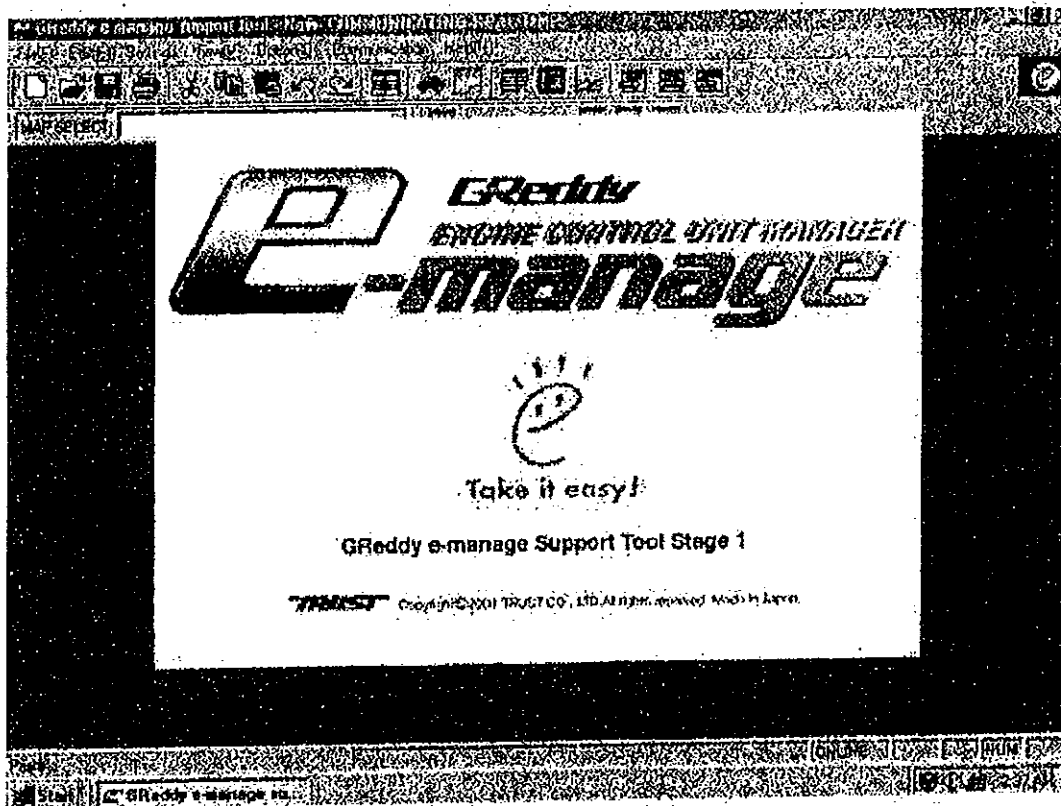
Important

- On Honda, set the jumper pins JP 1 and JP2 to 2-3.
- After wiring, if the tachometer, or not firing occurs, set the jumper pin JP2 to 2-3. (especially on Toyotas)

7. Before you begin

Starting the application

1. With the IG key in "OFF" position, connect the the PC, and e-Manage using the Communication Cable. D-Sub 9pin connector to PC and USB to the e-Manage.
2. Turn the IG key to the "ON" position, then double click on the e-Manage short cut icon on the desktop.
3. When the application opens, you see the following.

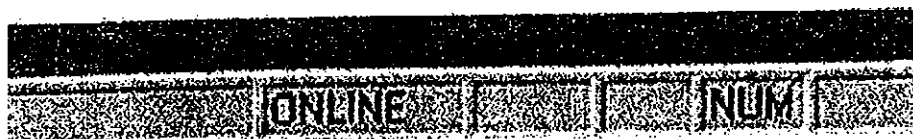


Please

- Use only the provided communication cable. If a different cable is used, it might damage the PC or/and the e-Manage.

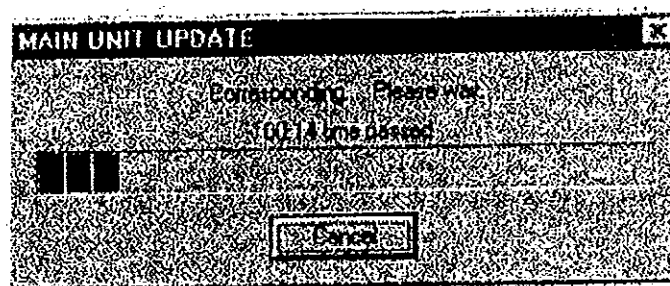
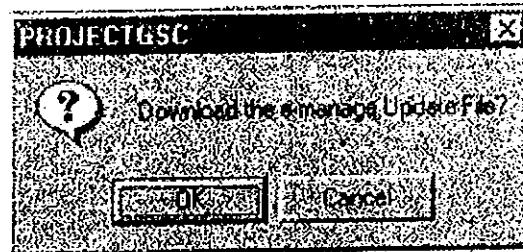
Download the communication Program (Main Unit Update)

1. Always disconnect the 12 pin connector on the main unit.
2. Check and make sure that the status bar is displaying "ONLINE". If it does not show "ONLINE", Check the COM port setting.



7. Before you begin

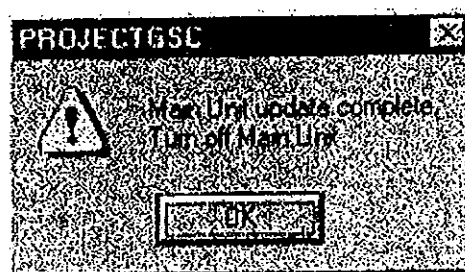
3. The program will automatically detect a unit with old system program. When the update window shows up on the screen,, click "OK" to start downloading the update. Download will take about 2 min.



Please

- Do not disconnect the communication cable during the communication. PC and the e-Manage will not function properly.

4. When the updating is complete, the following window will pop up. Turn the IG key to "OFF" position and click "OK".



Important

- The updated program will confirm once the unit is turned "OFF".
- When the unit is turned back "ON", the following message will come up. "The data in the Main Unit was lost! Please export data." this shows that the unit was properly updated.

5. This completes the update of the communication program. If the 12 pin connector was disconnected, please reconnect it back.

8. Main Unit Setting Information Confirmation



Main Unit Setting Information Confirmation

1. Turn the IG key to "ON" position and check to make sure that the status bar is displaying "ONLINE". If it does not show "ONLINE", Check the COM port setting.
2. To confirm the Main Unit Setting Information, select the "Main Unit Setting Information" in the "Setting" or click on the "Main Unit Setting Information" icon.

*Changes can not be made in this window.

MAIN UNIT SETTING INFORMATION			
Rotary SW1	2	Ignition Input Jumper Setting	Pull-down
Rotary SW2	8	Ignition Output Jumper Setting	5V
Rotary SW3	A		
Airflow Meter 1	In use	Airflow Meter 1	
Airflow Meter 2	In use	Airflow Meter 2	VTEC out
Airflow Meter Pulse Input	In use	Airflow Meter Pulse Input	VTEC in
Airflow Meter Pulse Output	In use	Airflow Meter Pulse Output	VTEC out
A.A.V. Value			
	2000	2000	3000
	0	0	0

- For the Rotary switches 1-3 setting information please refer to the e-Manage manual.
- For the Ignition Ignition Input Jumper Setting, refer to the "Wire diagram for Ignition Harness" on page ____.
- Air Flow Meter 1 -----Used for Hot wire, flap type airflow meters, or MAP sensors
- Air Flow Meter 2 -----Used for GTR(Skyline), or VTEC
- Airflow Meter Pulse Input- --Used for Karman type airflow meters or VTEC
- Airflow Meter Pulse Output - Used for Karman type airflow meters or VTEC
- A.A.V. Value ----- Displays the Main Unit's AAV settings.

9. Parameter Setting



Parameter Setting

This window allows you to change Airflow Meters, Injectors, set the Throttle, and select which map to use.

- To read the program in the Main Unit, select the "Import Data" in the "Communication" menu bar or click on the "Import Data" icon.



- To show the Parameter Setting, select the "Parameter Setting" in the "Settings" menu bar or click on the "Parameter Setting" icon.



PARAMETER SETTING

Memo

Air Flow Meter Change

HN_PR-1 [Main Unit Setting]

☐ GFI Sensor Pressure Sensor
 ☐ Absolute Pressure Change

A/V RPM Setup

	Start Point	Point 1	Point 2	Point 3	Point 4	Point 5	
rpm	2000	2000	3000	4000	5000	6000	100rpm

Injector Change

240

310

0.774

Injector Size Before / Injector Size After * Correction Factor

Map Select

☒ Ignition Timing Adjustment Map
 ☒ Additional Injection Map
 ☐ Sub Injector Map
 ☒ VTEC Setting
 ☐ Boost Limiter C/L Setting
 ☒ Air Flow Adjustment Map
 ☒ Anti Engine Stall Setting

Engine Model

H22A F22A S16B B16A B18 F4

Throttle Setting

Confirm

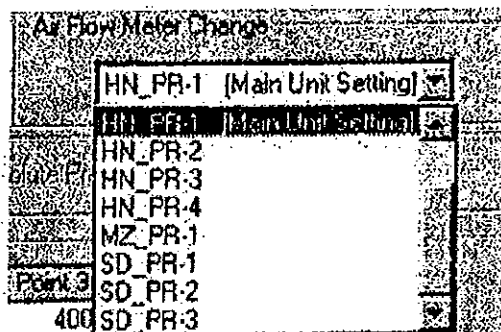
Cancel

9. Parameter Setting

Parameter Setting

Air Flow Meter Change

- When the Airflow meter or MAP sensor is upgraded, check the Sensor Type from the "Vehicle Specific ECU wire location chart", and select it from the pull down menu.
- The Airflow Type programmed with the Main unit's rotary switch will display as "Main Unit Setting" in the pull down menu.
- * When the airflow meter is upgraded, the airflow signal value will change. Make sure to check Air/Fuel Ratio with a proper equipment to ensure proper fuel mixture.



GReddy Pressure Sensor

- Choose this box when an optional GReddy pressure sensor will be used for the scale of each Map tables.
- This function is used when the system exceeds the Air Flow Meter's capacity. The factory ECU will continue to read off the Air Flow Meter, but the e-Manage system will work off the GReddy pressure sensor.
- In the Sub Injector Map, the injectors can be controlled by rpm and the GReddy pressure sensor signal.

Absolute Pressure Sensor Change

- This function is used when the system exceeds the factory MAP Sensor capacity. The factory ECU will continue to read off the factory MAP sensor, but the e-Manage system will use the calculated absolute pressure from the factory and GReddy pressure sensor.
- * Use Absolute Pressure Sensor when setting the vacuum as "0" value.
- * Use Relative Pressure Sensor when setting atmospheric pressure as "0" value.

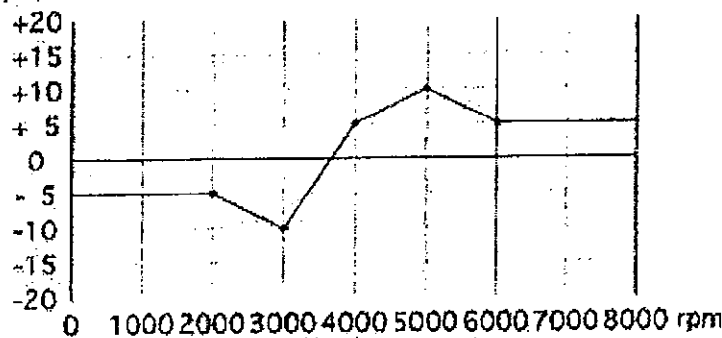
9. Parameter Setting

A.A.V. RPM Setup

- The rpm points of the AIR FLOW ADJUST VOL. (A.A.V.) on the front panel of the Main Unit can be changed in this window.
(From 0-10000rpm in 100rpm increments)
- If you set the start Point=Point 1, the value in the rpm below Point 1 will be set to the Point 1 value.
- This is used when you do not need the air flow adjustment during idle.

(Example 1) Factory setting is set to Start Point=Point 1

Adjustment

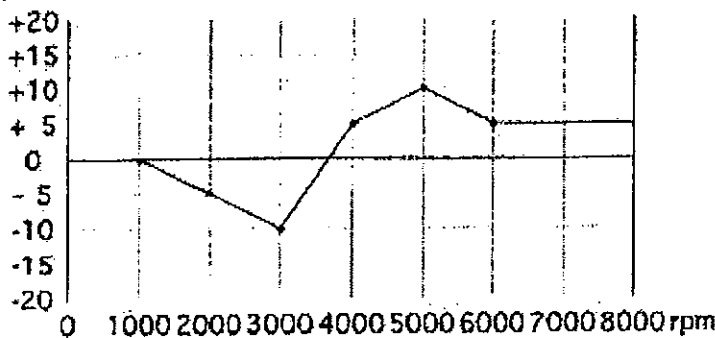


Start Point = Point 1

A.A.V. RPM Setup						
	Start Point	Point 1	Point 2	Point 3	Point 4	Point 5
rpm	2000	2000	3000	4000	5000	6000

(Example 2) Set the Start Point to 1000rpm, to start the adjustment at 1000rpm.

Adjustment



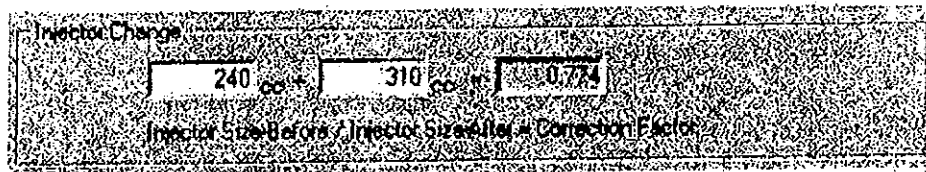
Start Point Point 1

A.A.V. RPM Setup						
	Start Point	Point 1	Point 2	Point 3	Point 4	Point 5
rpm	1000	2000	3000	4000	5000	6000

9. Parameter Setting

Injector Change

- When upgrading the injectors, this feature calculates the difference of the two sizes and trims the whole fuel map (factory map) for proper idling and drivability.
- Input the factory injector size and the upgrade injector size.
- This system can control up to 150% larger injectors than the factory. Too large of an injectors can cause problems performing properly.
- * When the injectors are upgraded, the injector signal value is being altered. Make sure to check the Air/Fuel Ratio with a proper equipment to ensure proper fuel mixture



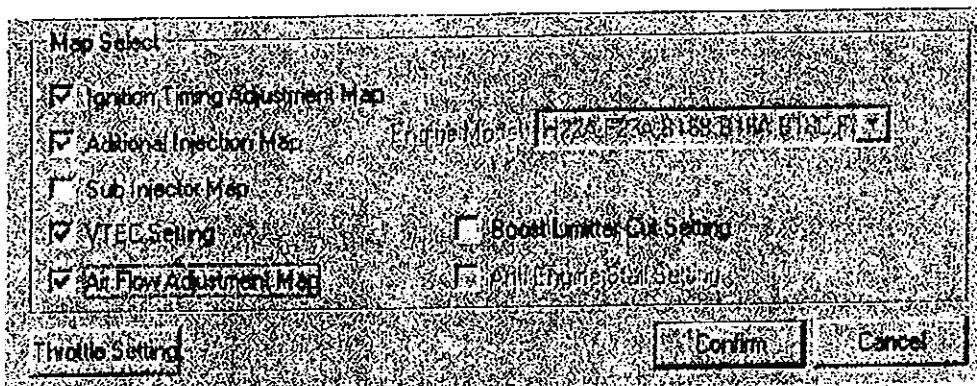
Injector Change

240 cc → 310 cc → 0.774

Injector Size Before / Injector Size After / Correction Factor

Map Select

- Place check marks on the features you need to program.
- * On certain applications, you will need to select the proper engine type from the Engine Model pull down menu next to the Additional Injection Map. This sets the system up for the proper numbers of cylinders, and sensors being used. If it does not allow you to make a selection, skip this step. This means that the system already has the proper setting.



Map Select

☒ Ignition Timing Adjustment Map

☒ Additional Injection Map Engine Model: H22A, F20A, B188, B18A, C13C, F1.7

☐ Sub Injector Map

☒ VTEC Setting ☐ Boost Limits Cut Setting

☒ Air Flow Adjustment Map ☐ Full Throttle Cut Setting

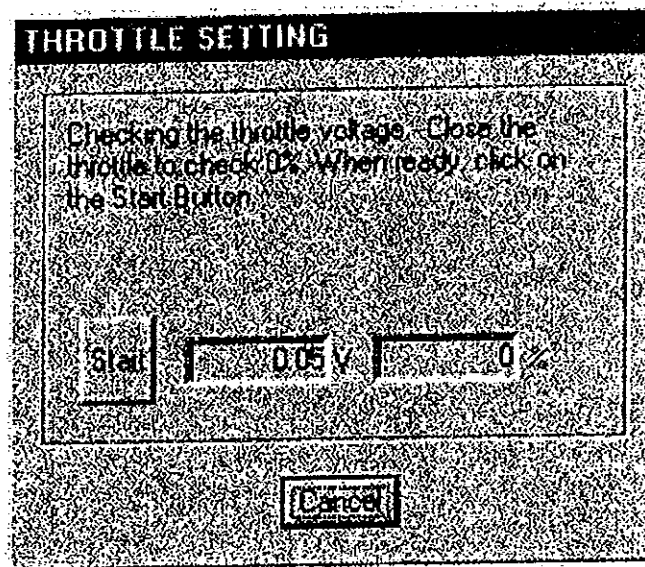
Throttle Setting

Confirm Cancel

9. Parameter Setting

Throttle Setting

- Click on the "Throttle Setting" button on the bottom left corner, to calibrate the throttle position signal. Follow the procedure on the screen.
- * If the Throttle Setting is not properly programmed, the Anti Engine Stall and Air Flow Adjustment Map will not function properly.
- * When performing the Throttle Setting, make sure that the IG key is turned to the "ON" position. (engine should be "OFF")



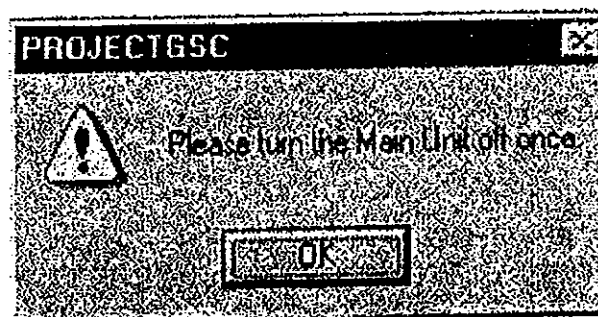
- After the Throttle Setting is complete, confirm that wide open throttle shows 100% and fully closed shows 0%. If not perform the setting again, or check the throttle signal wire.

Important

- On the vehicle without throttle position sensor, or with only a throttle switch will not be able to set this and the related feature.

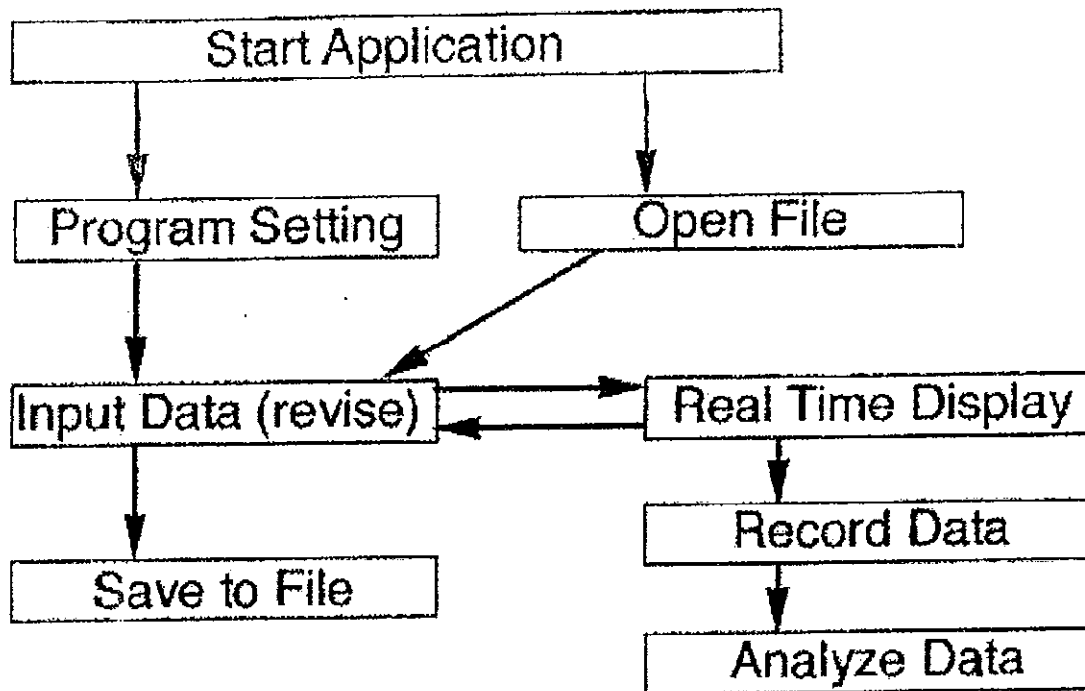
Confirm settings

Once all of the settings in the Parameter Setting is complete, click on "Confirm" to send the data to the Main Unit. Then turn the IG key to "OFF" position.



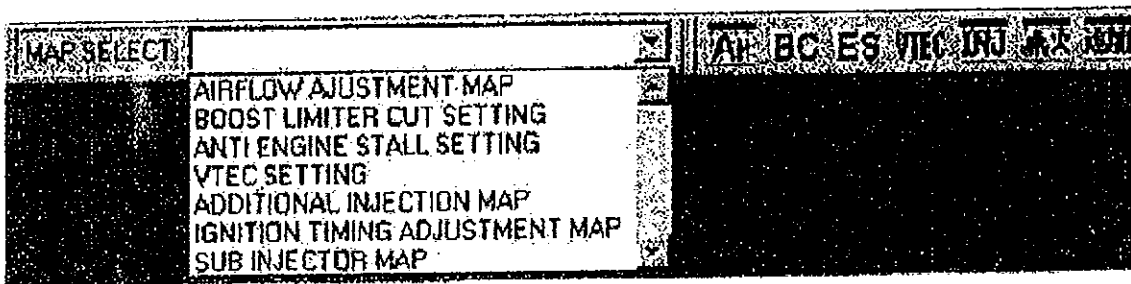
10. Programming Procedure

Basic Programming procedure



Setting and Opening map table

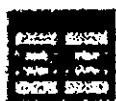
- Open the desired map tables by selecting from the MAP SELECT pull down menu or click on the appropriate icons.



10. Programming Procedure

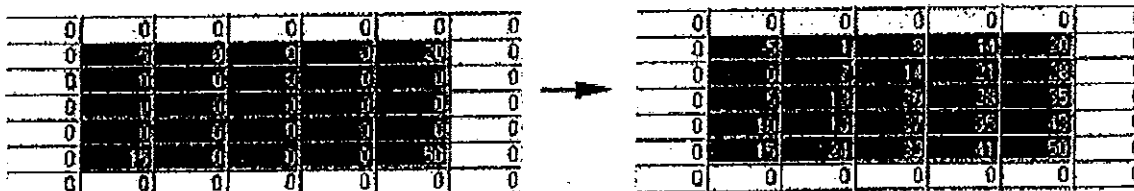
Inputting values

- To input a value in a desired cell, click on the cell to high light it, then input a numerical value.
- To input the same value into a whole column(s) or row(s), click on the blue axis cell to high light the entire the column(s) or row(s).
- To input a value into a block of cells, high light the desired block of cells.
- By using "pg up" key, you can increase the input value in the selected cells.
- By using "pg dn" key, you can decrease the input value in the selected cells.
- Use the "undo" in the "Edit" pull down menu or icon to cancel the last change.
- If a improper value such as too large of a value was inputted, error message or the closest value will be inputted.



Interpolate

- Use the "Interpolate" button to fill in the values between two cells, or four cells in the corners of a block.



Initial Programming (Map Clear)

- Select create new file from the menu and export it to the Main Unit. This will clear any program in the e-Manage. This cannot change the switch setting on the e-Manage.



- This feature can be used when the Main Unit is used on a different vehicle.

11. Set-up and Map Window Information

BC Boost Limiter Cut Setting

- This is used to eliminate the factory fuel cut by ECU due to the increase of the intake air flow.
- The Air Flow Meter or MAP sensor input signal to the ECU can be clamped. However, since ECU can not recognize the amount of increase of the intake air flow over the clamped signal, compensation (increased fuel) in the Additional Injector Map is recommended.

(To set up)

1. In the data logging feature (Data Analysis), record the rpm point and air flow meter/MAP sensor voltage and injector duty cycle where the boost limit occurred.
2. Input the clamping value. Input a value slightly lower than the point where injector duty cycle becomes 0% in the data.

BOOST LIMITER CUT SETTING															F10 24	
Pressure sensor (V)					rpm/100 increment					Clamp value (0.05V/cm)						
500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	80	
5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5	

rpm:

Input range: 0 ~ 10000rpm, 100rpm increments

Clamp Value: This will automatically change according to the sensor type.

Input range: 0 ~ 5V, 0.05V increments (Air Flow, or MAP type:V)

Input range: 0 ~ 3150Hz, 50Hz increments (Karman type :Hz)



Take it easy!

- This feature is not used for the vehicles that does not have a boost limiter.

11. Set-up and Map Window Information

ES Anti Engine Stall Setting

- This feature is used to stabilize the rough idle due to the turbo compressor surge, blow-off valve vented out to the atmosphere or use of a high lift camshaft.
- Input the Throttle Position in degrees. This will allow the values below the inputted value (throttle opening) to be recognized as accelerator OFF (fully closed).
- The Airflow Meter or MAP sensor input signal to the ECU can be clamped at a desired voltage at 8 different rpm points to prevent engine stall or rough idle.

(To set up)

1. In the data logging feature (Data Analysis), record the rpm point, air flow meter/MAP sensor voltage and injector duty cycle where the engine stalls.
 2. Input the rpm points where the airflow voltage fluctuates and input the airflow clamping value.
- * This feature will only work when a T.P. value is inputted.

ANTI ENGINE STALL SETTING								
Throttle Position (%) 1% increment Accelerator OFF below the inputted value								
<input type="text" value="0"/>								
Clamp Value (V) 0.02 increment								
	500	600	700	800	900	1000	1200	1500
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Throttle Position: %

Input range : 0 ~ 10%, 1% increments

rpm:

Input range: 0 ~ 8000rpm, 50rpm increments

Clamp Value: This will automatically change according to the airflow type.

Input range: 0 ~ 5V, 0.05V increments (Air Flow, or MAP type:V)

Input range: 0 ~ 3150Hz, 50Hz increments (Karman type :Hz)



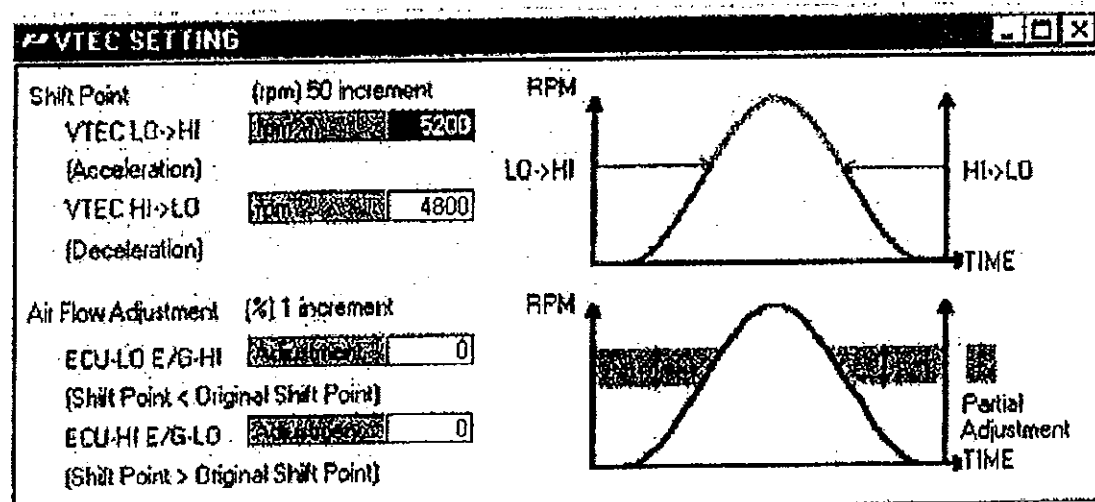
Take it easy!

- This feature is not needed for vehicles that do not have any engine stalling problems.

11. Set-up and Map Window Information

VTEC VTEC Setting

- This is used to set the VTEC setting without going in to the Main Unit.
- The VTEC setting with the PC will over ride the setting on th Main Unit.
- VTEC Lo->Hi is the shift point under acceleration.
- VTEC Hi->Lo is the shift point under deceleration.
- When the VTEC shift point is changed from factory setting, the airflow will need to be adjusted for proper air/fuel ratio.
- When a shift point is set lower than factory, use ECU-Lo E/G-Hi to compensate for the Airflow difference.
- When a shift point is set higher than factory, use ECU-Hi E/G-Lo to compensate for the Airflow difference.



rpm:

Input range: 1500 ~ 7000rpm, 50rpm increments

Adjustment Value: %

Input range : -20 ~ +20%, 1% increments

Input range : 0 ~ 100%, 0.5% increments

11. Set-up and Map Window Information

About scale in Map

Air Flow Adjustment Map
Additional Injection Map
Ignition Timing Adjustment MAP
Sub-Injector MAP

- The value in the scale can be changed, by clicking the "Scale Change" button and inputting a value. After the change is made, click on the "Scale Change" to lock the value.
- Since this is a "piggy back" system, a "zero" value inputted in any map table will be same as the factory ECU setting, and any value other than "zero" is the adjustment to the factory ECU signals or program.

RPM axis: rpm

Input range: 0 ~ 10000rpm, 100rpm increments

Load axis: V, Hz, Absolute Pressure (kPa, kg/cm², mmHg),

Relative Pressure (kPa, kg/cm², mmHg)

Units will automatically change according to the airflow type.

Input range: 0 ~ 5V, 0.05V increments (Air Flow, or MAP type: V)

Input range: 0 ~ 3150Hz, 50Hz increments (Karman type :Hz)

Input range: 0 ~ 5V, 0.05V increments (GRReddy Pressure sensor: V)

Please

- The pressure (kPa) displayed in the load axis scale is converted from the sensors voltage value, and kg/cm² and mmHg display is converted from kPa. When the scale is changed, the system will round off the last digit during the conversion, so to make the proper change, perform the scale change in the voltage scale.

11. Set-up and Map Window Information



Air Flow Adjustment Setting

- This is used to adjust the input signal of the Air Flow Meter or MAP Sensor to the ECU for fuel enrichment.
- 16 points of rpm and throttle position is used for fine tuning.
- This setting will add to the Air-Flow Adjust Volume (A.A.V) RPM Setup on the main unit.
- Input a negative value to take away fuel.
- When programming the Air Flow Adjustment Map with the PC, it is recommended to set all of the Air Flow Adjust Volume (A.A.V) RPM Setup on the Main Unit to "ZERO".
- Since this is a "piggy back" system, a "zero" value inputted in any map table will be same as the factory ECU setting, and any value other than "zero" is the adjustment to the factory ECU signals or program.

AIR FLOW ADJUSTMENT MAP															
Engine Speed		Throttle Position (0.00 to 1.00)													
		0.00	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	0.00	0.10	0.20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	9	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	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	19	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	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	25	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	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	29	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	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	35	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	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	39	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	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	45	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	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	49	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	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	59	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	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	65	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	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	69	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	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	75	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	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	79	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	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	85	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	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	89	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	91	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	92	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	95	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	97	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	98	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	99	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Adjustment Value: %

Input range : -50 ~ +50%, 0.5% increments

Important

- When a substantial adjustment is made, the ignition timing can be change as well. Make sure to check the air/fuel ratio with proper equipment to prevent any detonation.

11. Set-up and Map Window Information



Additional Injection Setting

- This is used to increase the factory injector's fuel injection by adding to the factory programmed injector duty cycle.
- This feature is required if Boost Limiter Cut feature is used.
- The additional range is 0-100%. However, the duty cycle of the injector cannot exceed 100%.
- Since this is a "piggy back" system, a "0" value inputted in any map table will be same as the factory ECU setting, and any value other than "zero" is the adjustment to the factory ECU signals or program.

(Example)

If factory ECU injector duty cycle is 50%, and 30% was inputted in this Additional Injection Map,

$$50 + (50 \times 0.3) = 65\%$$

(To set up)

Input a desired increase rate of the factory duty cycle in the corresponding cells.

** ADDITIONAL INJECTION MAP															
Pressure Sensor (V)								Column 1/100 increase							
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
0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	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	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Adjustment Value: %

Input range : 0 ~ +100%, 0.5% increments

Please

- To take out fuel, make the adjustment in the Air Flow Adjustment Map.