

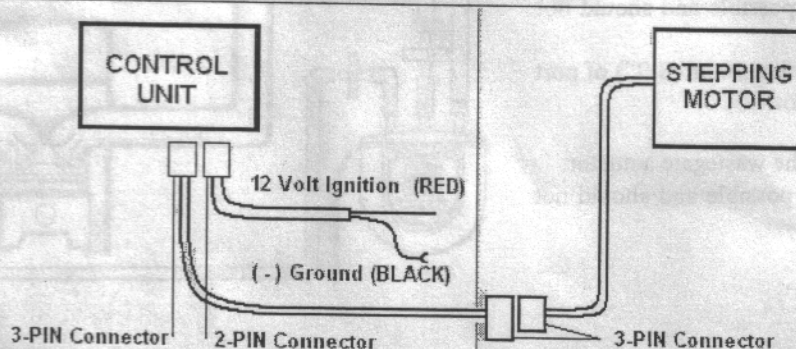
### NOTICE

Read this entire manual to understand how the EVC functions before beginning the installation process. Do not attempt to install or adjust the EVC without thorough knowledge of how this unit works. This manual assumes that you have the knowledge in the operation of tools and equipment that are necessary to safely perform service operations on your vehicle. This manual also assumes that you are familiar with typical automotive systems and basic service and repair procedures. Always have access to a factory repair manual as some of the procedures and specifications required for the proper installation of this product may be referenced to the factory repair manual. To avoid the risk of personal injury, follow the lifting, supporting, and safety precautions contained in the factory repair manual.

### USER NOTES

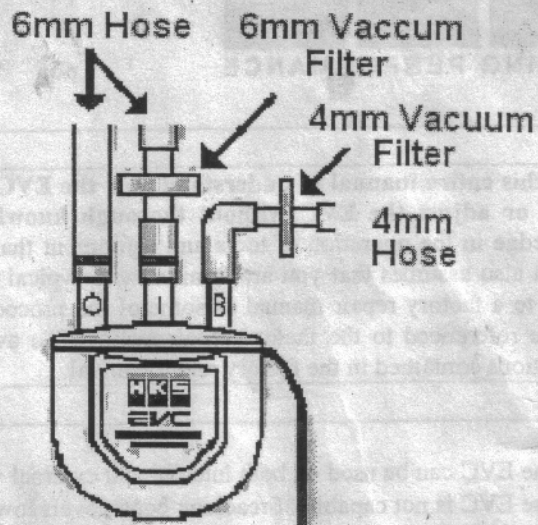
- The EVC can be used on both internal and external wastegate type turbochargers.
- The EVC is not capable of reaching boost levels lower than stock (OEM) levels.
- The EVC will maintain its programming even if the vehicle's battery is disconnected or the head unit is unplugged.
- The serial numbers must match on the control unit and the stepping motor in order for the unit to function properly.
- The EVC is a sensitive electronic component and must be handled with extreme care. Mis-wiring or shock will damage the unit. Do not place near extreme heat, water, or areas prone to dirt and dust.
- Most factory turbocharged vehicles come equipped with a secondary boost limiting system (fuel-cut system or pop-off valve) to protect against wastegate failure. Due to this, the EVC alone will not be able to raise the boost pressure beyond the point of the factory limit. If this condition occurs, consult your HKS distributor for information regarding products that can assist in this situation (HKS Fuel Cut Defencer, HKS Vein Pressure Converter, HKS Programmed Fuel Computer, etc.).
- If the vehicle has a fuel cut defense system such as the HKS FCD, make certain that the vehicle's boost pressure is not raised excessively, as this will lead to engine and/or turbocharger damage. HKS will not warranty any damage caused by excessive boost levels.
- Make sure the vehicle has a proper fuel management system that can handle higher boost pressures than stock (OEM) levels. HKS will not warranty damage caused by improper fuel management (lean air/fuel ratio).
- The EVC cannot control boost pressure above the maximum efficiency point of the turbocharger. Boost pressure drop at high rpm may not be totally eliminated. The EVC will not be able to compensate for pressure loss due to turbocharger sizing. Boost creep or boost spikes due to inadequate wastegate flow capacity, lean air/fuel ratio, poor compressor design, or excessive backpressure may not be fully alleviated.
- Increasing the boost pressure will also increase the intake air temperature. If the intake air pressure exceeds 220 degrees Fahrenheit (100 deg. Celsius), performance increases may be minimal and detonation may occur.
- For best performance and to safeguard against detonation, always use the highest octane gasoline available (91-octane minimum).
- Do not rely on the factory boost meter (if equipped) when adjusting the maximum boost pressure. Install an HKS auxiliary boost pressure meter to monitor manifold boost pressure levels.
- The utilization of an HKS A/F Knock Amp (air/fuel ratio meter) or an HKS exhaust gas temperature (EGT) meter is recommended to monitor engine (rich or lean) conditions.
- Mount the EVC control unit, display unit and harness away from high-power amplifiers, two-way radios, mobile phones, and their respective antenna cables to prevent malfunction of the EVC unit.

### CONNECTION DIAGRAM



## INSTALLATION

1. Disconnect the negative battery cable from the battery.
2. EVC stepping motor installation-
  - Determine an ideal mounting location for the stepping motor.
  - Mount the stepping motor to the chassis using the hardware provided with this kit.
  - Do not install the stepping motor close to the exhaust manifold or any area of high temperature.
  - Do not install the stepping motor where it will be exposed to water or moisture.
  - Ports 1 (B), 2 (I), and 3 (O) must face upward.
  - Lengths on all hoses must be kept as short as possible.



3. Vacuum Filter Installation-
  - Install vacuum filters per diagram to the right. Make sure the filters are within 10cm (3.9") length from the stepping motor.
  - The 6mm vacuum filter should be installed with the short side facing the stepping motor.
  - Inspect the filters every 3000 miles. They must be clean for the EVC to function correctly. If the filter is contaminated or dirty, replace with a new (4mm) 4599-RA017, or (6mm) 4599-RA016. Do not attempt to clean the vacuum filter. If the filters frequently need replacement, relocating the pressure source may solve the problem.
4. Connect the red wire (2-pin harness) from the EVC to a 12-volt ignition source. Utilizing a voltmeter, find a wire that receives at least 12 volts with the key in the "IGNITION" position.
5. Connect the black wire (2-pin harness) from the EVC to a chassis ground. Make sure there is no paint or rust on the ground surface. If there is, sand the surface until bare metal is exposed.

- Determine if the vehicle is equipped with an internal wastegate (single port actuator), dual port actuator, or an external wastegate, then proceed to the corresponding installation instructions.

## INTERNAL WASTEGATE (SINGLE PORT ACTUATOR) INSTALLATION INSTRUCTIONS

Port #1 (B) - Connect to an uninterrupted intake manifold pressure source after the throttle body such as a compressor bypass signal line using the 4mm hose.

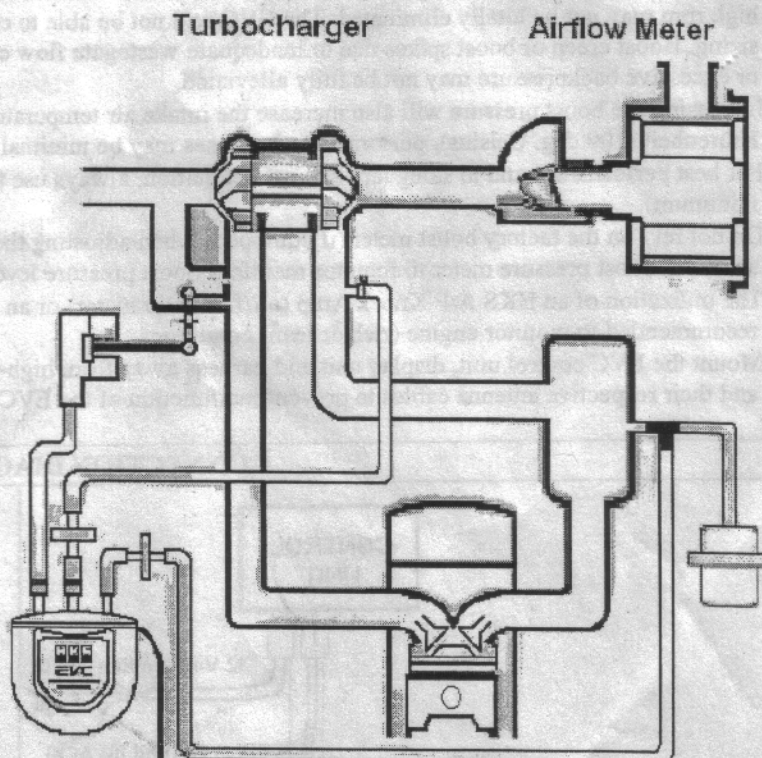
- Do not connect port #1 to the line that operates the fuel pressure regulator unless the supplemental instructions tell you to do so.
- This hose should be as short as possible and should not exceed 100cm (3'4").
- Install the 4mm vacuum filter within 10cm (3.9") of port #1 on the EVC stepping motor.

Port #2 (I) - Connect to a source of pressurized air such as a turbocharger compressor housing (discharge side) or compressor outlet pipe (before the intercooler) using the 6mm hose.

- This hose should be as short as possible and should not exceed 100cm (3'4").
- Install the 6mm vacuum filter within 10cm (3.9") of port #2 (In) on the EVC stepping motor.

Port #3 (O) - Connect to the port on the wastegate actuator.

- This hose should be as short as possible and should not exceed 100cm (3'4").





## EXTERNAL WASTEGATE/DUAL PORT ACTUATOR INSTALLATION INSTRUCTIONS

Port #1 (B) - Connect to an uninterrupted intake manifold pressure source after the throttle body such as a compressor bypass signal line using the 4mm hose.

- Do not connect port #1 to the line that operates the fuel pressure regulator unless the supplemental instructions tell you to do so.
- This hose should be as short as possible and should not exceed 100cm (3'4").
- Install the 4mm vacuum filter within 10cm (3.9") of port #1 on the EVC stepping motor.

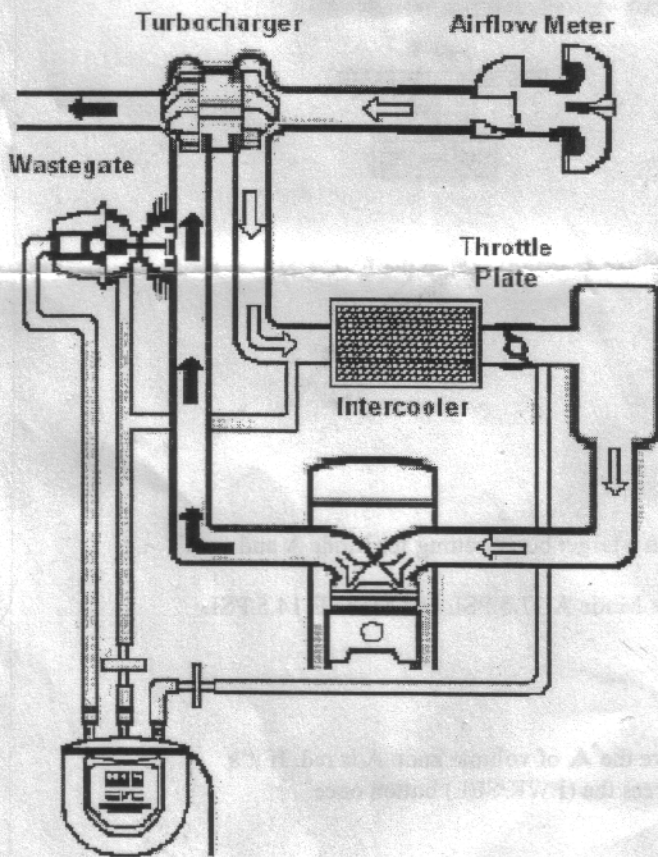
Port #2 (I) - Connect to a source of pressurized air such as the turbocharger compressor housing (discharge side) or compressor outlet pipe (before the intercooler) using the 6mm hose. Use the tee fitting supplied with this kit to connect a pressure line to the secondary port on the wastegate actuator.

- Both lines should be as short as possible and should not exceed 100cm (3'4").
- Install the 6mm vacuum filter within 10cm (3.9") of port #2 (In) on the EVC stepping motor.

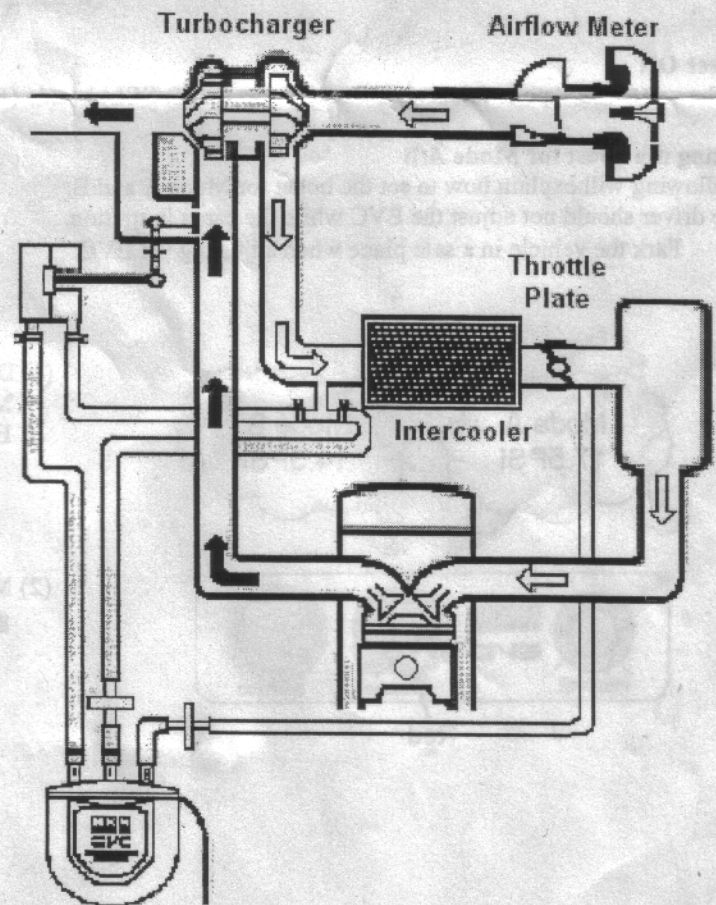
Port #3 (O) - Connect to the port above the diaphragm on the wastegate actuator or wastegate.

- This hose should be as short as possible and should not exceed 100cm (3'4").

### External Wastegate



### Dual Port Actuator



## SET-UP

### 1. Connect boost gauge

In order to correctly check the boost level, an accurate boost gauge or EVC (PSI) display unit (p/n 45999-BK001) is required.

### 2. Ignition ON

Turn the key so the ignition is in the "ON" position. There is no need to start the engine.

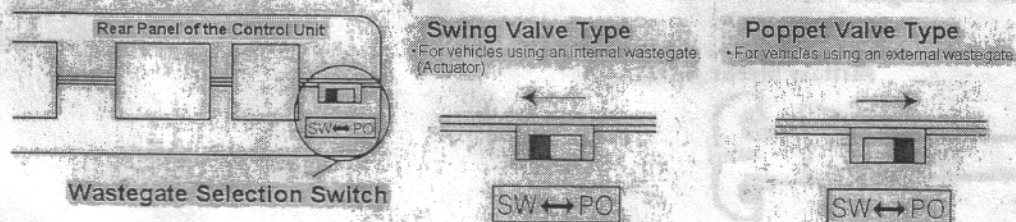
### 3. Power OFF

If the power of the EVC is ON, hold down the (PWR/SEL) button (for more than 1second) to turn the EVC OFF.



### 4. Set the wastegate selection switch (SW or PO).

Refer to the diagram below:



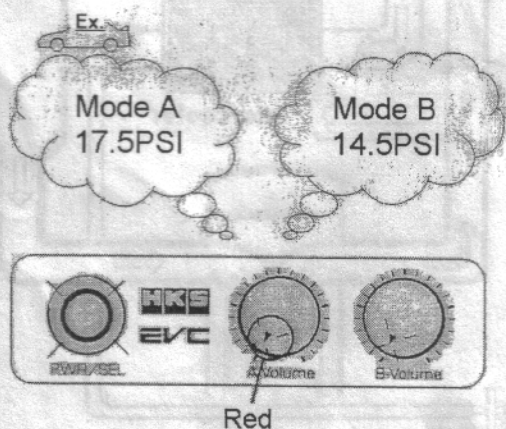
### 5. Power ON

After the wastegate type is selected, hold down the (PWR/SEL) button (for more than 1second) to turn the EVC ON.

### 6. Setting the boost for Mode A/B

The following will explain how to set the boost for Mode A and B.

- The driver should not adjust the EVC while the car is in motion.
  - Park the vehicle in a safe place when adjusting the EVC.



- (1) Decide on a target boost setting for Mode A and Mode B.  
Example: Mode A 17.5 PSI, and Mode B 14.5 PSI.

- (2) Make sure the ▲ of volume knob A is red. If it's green, press the (PWR/SEL) button once.

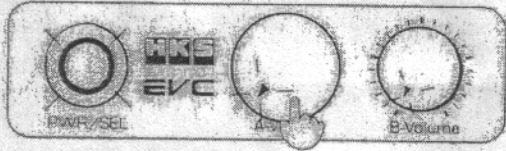




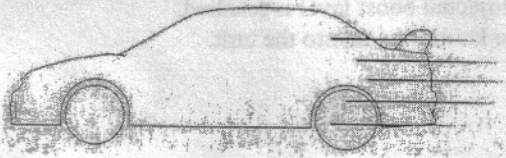
- (3) Lightly press volume knob A to pop up the knob. Turn the knob full counter-clockwise.

**Note:**

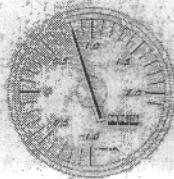
- As a safety feature, when the ▲ of the volume knob blinks, it's acting as a lock for the previous boost setting. If a boost setting is attempted while the volume knob is blinking, it will not change the boost.
- In order to adjust the boost level, turn the knob full clockwise and then full counter-clockwise.



- (4) Slowly turn volume knob A clockwise to increase to the desired boost level.



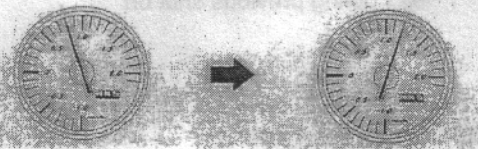
- (5) Use the highest gear possible (3<sup>rd</sup> or 4<sup>th</sup> gear) in order to apply the greatest amount of load at wide open throttle.



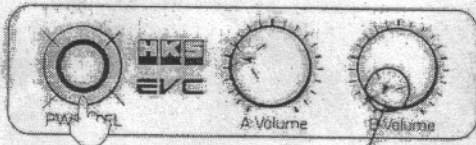
- (6) Verify the peak boost level with the analog boost gauge.



- (7) If the target boost level is not reached, repeat steps (4) ~ (6) until the target boost is obtained.



- (8) When the projected boost level is reached, press volume knob A back into the unit.



- (9) Press the (PWR/SEL) button to set Mode B. Make sure the ▲ of volume knob B is red.

Red



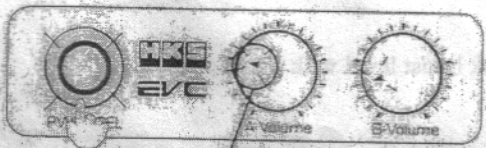
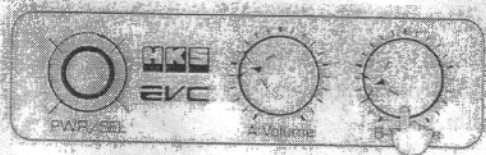
(10) Lightly press volume knob B to pop-up the knob. Turn the knob full counter-clockwise.



(11) Like the setup for Mode A, repeat steps (4) ~ (6) until the target boost is obtained.



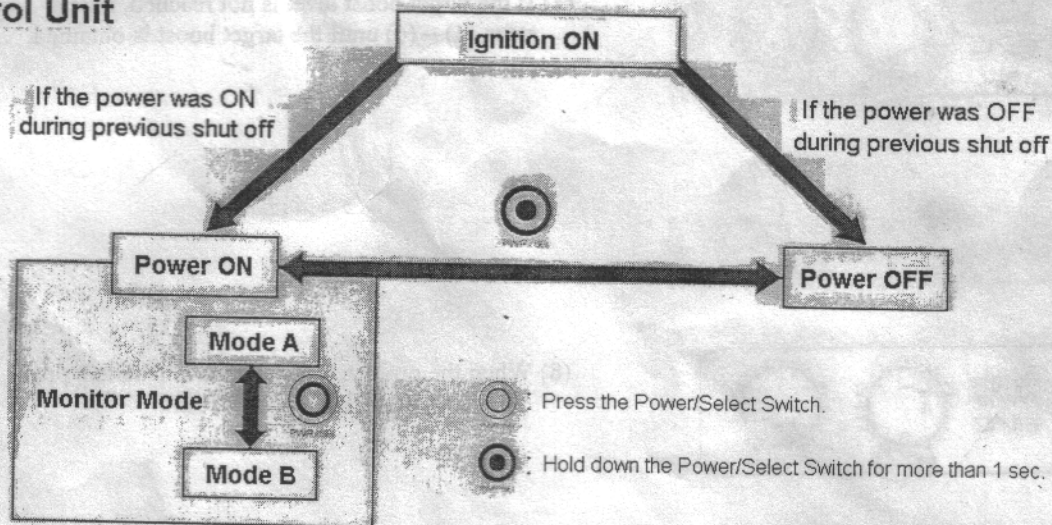
(12) When the projected boost level is reached, press volume knob B back into the unit.



Red












(13) Press the (PWR/SEL) button to enable the boost setting for Mode A, otherwise the boost setting for Mode B will be activated.  
Ex. Diagram shows when enabling Mode A.

### Control Unit





Parts List

No	Description	Qty	Image	Remarks
1	Control Unit	1		
2	Stepping Motor	1		
3	Harness	1		L= 2.7m (106in.)
4	Power Harness	1		L= 1.5m (59in.)
5	Hose 4mm	1		L=1m (40in.)
6	Hose 6mm	1		L=1m (40in.)
7	T-Fitting	1		4×4×4 p/n:1806-SA030
8	Vacuum Filter 4mm	1		p/n: 4599-RA017
9	Vacuum Filter 6mm	1		p/n: 4599-RA016
10	Hose Clamp	2		p/n:1805-SA013
11	Splice	1		
12	Double Sided Tape	1		
13	Bolt M6	1		
14	Nut M6	1		
15	Plain Washer M6	1		
16	Lock Washer M6	1		
17	Tie Wrap	5	