

**The 7th generation**

# **EVC**

**ELECTRONIC VALVE CONTROLLER**

## Instruction Manual



Product	EVC7
Use	Boost Controller- Automotive Turbocharged Engine
Application	Vehicle that operates on a DC 12V negative ground.
Part No.	45003-AK013
Remarks	<ul style="list-style-type: none"><li>• A fuel-ignition Correction device (e.g. HKS F-CON etc) is required in order to use this product.</li><li>• Hose set is required in order to install this product to a vehicle with poppet valve, twin turbo engine, or 4mm hose piping. Hose set is available separately.</li><li>• When you increase the boost, some vehicles will have a fuel cut. When the fuel cut is released, be sure to use the fuel increase device together.</li></ul>

**Installation should be performed by a professional.  
Prior to installation and use, thoroughly read the  
instruction manual. Retain this instruction manual for  
later reference.**

### HKS EVC7

Read this instruction manual prior to installation to ensure safe and correct usage and optimal product performance,

The HKS EVC7 enables the adjustment of the boost setting from inside the vehicle. Utilizing a stepping motor, it stimulates boost increase and attains the designated boost value without over-shooting.

This product was developed to improve engine output and was designed to be used for racing in a closed circuit. Improving engine output may affect oil and/or water temperature and oil pressure. To preserve engine performance, regularly monitor engine conditions before driving.

To use this product on public roads, follow the necessary procedures if there are any regulations for a tuned/modified vehicle.

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- This manual indicates items you need to pay attention to in order to install this product safely and lists precautions to avoid any possible damage and/or accidents.
- Please contact your dealer for purchasing consumable parts and lost or missing part.
- To use this product on the public road, follow the necessary procedures if there are any regulations for a tuned vehicle.
- HKS will not be responsible for any damage caused by incorrect use or use after modification and/or dismantling of this product.
- This product was designed for installation and use on a factory vehicle or a vehicle using other HKS products. The performance and/or safety cannot be guaranteed if this product is installed onto inapplicable vehicle.
- This product is applicable for vehicles that operate on DC12V negative ground.
- The specifications of this product including installation are subject to change without prior notice.
- This manual is subject to revise without prior notice.

## Product Introduction

### ● Compact Design

Its compact designed display and Valve Unit enable a versatile installation into the vehicle interior and the engine compartment.

### ● Wide Boost Range

The boost level can be controlled from baseline boost to 300kPa (43.0PSI).

### ● Simple Boost Setting

Just directly input the desired boost value to modes A, B and C, and let EVC7 control the boost.

### ● Return Function

Once EVC7 is turned off, the boost level returns to the baseline value. For some vehicles, the boost may become lower than the the stock settings after EVC7 is off.

### ● Scramble Function

With the scramble function, the boost can be increased by a designated value above the set boost value. The increase in boost is obtained while pressing button① of the display or the optional external scramble switch (using the provided harness).

The time span of the boost increase after the release of the botton can also be set.

### ● QuadrupleBoost Mode Settings

A, B, C and D Mode are the 4 user specified preset boost level selections. Each mode can be used for a different purpose or situation.

### ● Warning Function

If the boost exceeds the user selectable warning value, EVC7 notifies the user with an audible beep and visible warning display. Simultaneously, it lowers the boost to the baseline boost value or a user preset point. This function prevents damage to the engine and/or the turbine from excessive boost.

### ● Throttle Position Input

With the throttle position sensor signal input, boost characteristics can be tuned in relation to throttle percentage. This is an optional function.

### ● RPM Signal Input

With the engine RPM signal input, boost characteristics can be tuned in relation to RPM level. This feature works on engines from 1 to 8 cylinders and operates up to 12,000 RPM.

### ● Speed Signal Input

With the vehicle speed signal input, boost characteristics can be tuned in relation to vehicle speed. This feature works on applications that utilize speed pulses between 2 to 16 and have the maximum speed capacity of 500km/h.

### ● Map Adjustment Function

Input of the throttle signal and the engine RPM or vehicle speed signals can draw a 3D map by using 2 these signals as axes. Using the 3D map enables easy control of the boost characteristics. (The setting range must be within -300 Point~300 Point to the ValveControl Value setting.) This function is user selectable to be on or off.

### ● Digital Triple Data Meter

3 digital data readings of the surge tank pressure, throttle percentage, and engine RPM or vehicle speed can be displayed.

● **Data Memory Function**

All set values are saved in the internal memory of EVC7. Therefore, these settings are protected when the ignition is off or if the battery is disconnected.

● **Exhaust Bypass (wastegate type) Selection**

EVC7 can work with both internal and external wastegate types.

● **Pressure Unit of Measure Selection**

The unit of measure for pressure can be selected from kPa or PSI.

● **Dimmer Function**

The brightness of the display unit is adjustable.

● **Data Lock Function**

To prevent accidental change of data settings, the unit can be locked with a code

● **Large Full-Color Display**

Utilizing a large full-color display enables clear day and night viewing. The display also enables simultaneous data recognition.

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Below are symbols used in this manual to highlight areas where



### **Warning**

–Risk of severe injury or death may result if warning is not acknowledged or followed.



### **Caution**

–Risk of injury to self, damage to vehicle or property may result if caution is not taken.



### **Warning**

- Make sure to work on the vehicle in a well-ventilated area to prevent possible explosion or fire.
- Do not mount the unit where it can distract driving.
- Do not install this product on a 24V vehicle. It is designed for use on a 12V vehicle.
- Make sure to remove the cable from the negative terminal of the battery to avoid possible damage to other electronics during installation.
- Make sure to hold connectors when removing them to avoid possible damage to other electronic parts caused by disconnections or by a short circuit.
- Stop using the product if any unusual conditions are noticed; it may cause a fire or an electrical shock. Consult an authorized dealer immediately.
- Do not operate the EVC7 while driving to avoid the possibility of an accident.



## Caution

- Do not install this product by yourself unless you know how to use the tools and equipment necessary to safely perform service operations on your vehicle.
- Do not modify, disassemble and/or remodel this product and any of its attached parts.
- Handle the parts with caution at all times.
- Avoid allowing oil and/or water from entering the unit. It may cause damage to the engine.
- Prior to installation, make sure that the engine bay temperature has cooled. Failure to let the engine cool can lead to severe burns.
- Select the appropriate exhaust bypass type. Selecting the wrong type may cause damage to the vehicle.
- Install the unit away from excessive heat or water to avoid possible malfunction and damage to the engine.
- Do not tie or bundle a vehicle fuel line with any of the other hoses and/or harnesses. It may cause severe damage to the vehicle.
- Make sure all connections and wiring are not disconnected, short circuited or incorrect. It may cause an electrical shock or damage to the vehicle.
- Use the provided splices and install them to the correct positions. If not, it may cause serious damage to the vehicle.
- Insert the vacuum filter and replace it at regular intervals. If not, it may cause damage to the vehicle.
- When installing the vacuum filter, make sure no oil or lubricants are existant to cause the hose to come off. If a hose comes off, it may cause damage to the vehicle.
- Replace the vacuum filter earlier than the regular interval if there is excessive build up. Dirt build up may cause an inability to control boost, which may cause damage to the engine.
- Install the air relief valve of the Valve Unit downward to avoid allowing oil and/or water from entering the valve. It may cause damage to the vehicle.

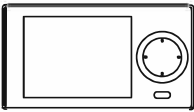




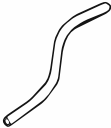
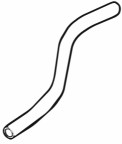
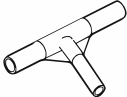
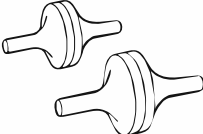

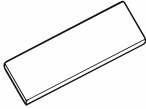
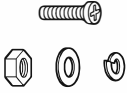



## **Caution**

- Do not raise the boost excessively. It may cause damage to the engine and/or the turbocharger.
  - The warning function must be activated to prevent any damage to the engine caused by over-boosting.
  - Do not test the product on the vehicle on a public road.
  - If this product or the vehicle does not perform properly, consult your authorized dealer immediately.
  - Do not repair the product by yourself.
  - If an unusual noise, smell and/or vibration is noticed, take the necessary measurements referring to the user's manual.
  - Insulate wires left on the vehicle after removal of the product. It may cause damage to the electronic parts.
- 
- Daily check-up of the vehicle must be done by the owner.
  - This manual shows a typical installation. Actual installations may vary depending on the vehicle application.
  - Refer to the factory manual when removing the factory parts.
  - Make sure all connections and wiring are correct.
  - Do not lose and/or damage any removed parts.
  - Use the appropriate tools to tighten bolts and nuts with the correct torque specs to avoid damage.
  - Make sure not to disconnect any wiring from the vehicle when installing the product.
  - For a vehicle equipped with a boost control solenoid valve, remove the connector or hose to deactivate its function.
  - There might be a dot that doesn't light and a dot that always lights in the display. This is due to the characteristic of the liquid crystal panel, and it is not malfunction.



## Parts List

This product consists of the below-mentioned part. Please verify that all parts are in proper conditions before installation.

			
1 Display Unit	2 Valve Unit	3 Main Harness	4 Power Harness
1	1	1	1
			
1m 1 for Speed or RPM, 1 for Throttle signal	1m	1m	4-4-4mm
5 Input Signal Harness	6 4mm Hose	7 6mm Hose	8 T-Fitting
1set	18003- AK001 1	18003- AK002 1	18006- AK001 1
			
4mm, 6mm 1 each			M6 Bolt and Nut M6 Flat Washer M6 Lock Washer 1 each
9 Vacuum Filter	10 Splice	11 Double-Sided Tape	12 Hardware Set
6mm.....4599-RA016 4mm.....4599-RA017 1each	3	1	1set
			
100mm			
13 Tie Wrap	14 Instruction Manual	15 Sticker	
5	1	1	

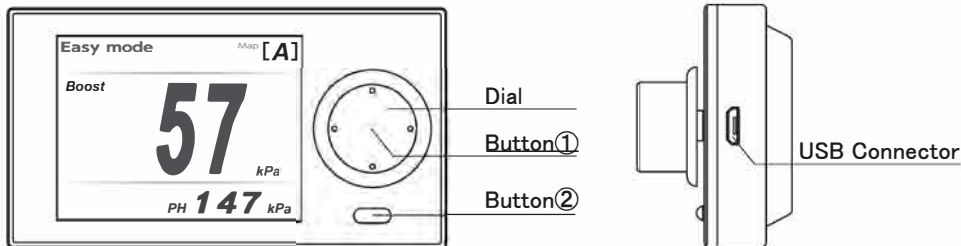
● Tools required for installation: Circuit Tester or Volt Meter, Screwdriver, Socket Wrench, Wire Cutters, Hose Cutters and Pliers.

● Retain all unused parts.

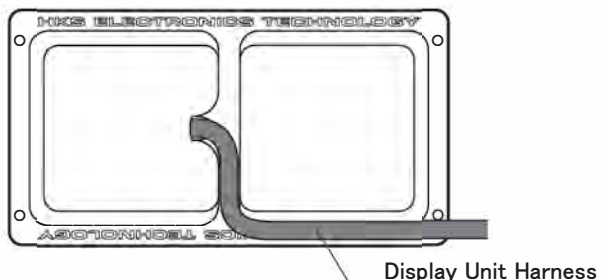
# 1. Features and Functions

## ◆ Display Unit

Front Panel



Rear Panel



Name	Function
Dial	By turning the dial left or right, you can switch the map when the main screen is displayed, select each item and change the set value when the setting screen is displayed.
Button①	The dial functions as a button when pressed. When the main screen is displayed, a short press activates the scramble function. A long press switches to the valve control value change mode. On other setting screens, press the button for a short time to determine the setting value change.
Button②	When the main screen is displayed, press briefly to switch to each MENU screen. Press briefly in each setting screen to move to the upper screen and return to the main screen. Furthermore, if you press briefly while changing the set value on each setting screen, it will be canceled. Press and hold when the main screen is displayed to switch to the peak hold value reset mode. Press button ① briefly to reset. Pressing button ② briefly during reset mode cancels the reset.
USB Connector	MicroB connector to connect Easy Writer.
Display Unit Harness	This harness is used to connect the display unit with the main harness, power harness and each input signal harness.

## ◆ Display (Main Screen)

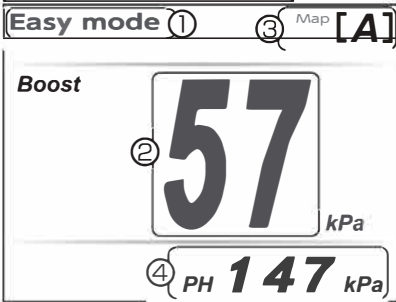
The main screen has two types, Type A and Type B.

Type A: The boost value is displayed in uppercase.

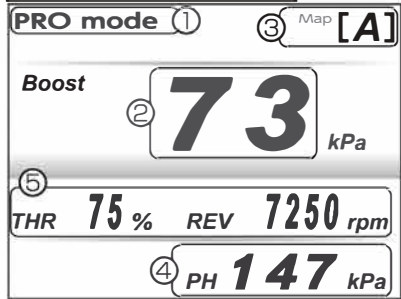
Type B: The boost value is displayed in middle letters, and the value of the input signal for map correction is displayed in the lower row.

\* Displays only the input signal selected on the map axis.

### Type A display example

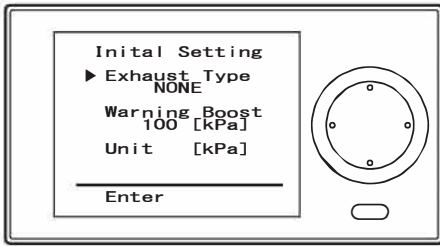


### Type B display example



	Name	Function
(1)	Action mode	There are two operation modes, Easy mode and PRO mode.
(2)	Boost pressure	Displays the current boost pressure.
(3)	Boost settings	Select from valve control value maps [A] to [D]. [OFF] stops the EVC function and returns to normal boost.
(4)	Peak hold value of boost pressure	Stores and displays the past maximum boost pressure.
(5)	Input signal value	Displays the input value when a throttle signal, rotation or vehicle speed signal is input.

## Initial setting screen

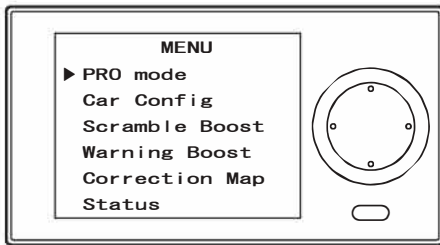


After purchase, the initial setting screen is displayed only at the time of the first startup. After setting the exhaust bypass type, warning boost value and unit, select Enter and short press button ①.

Exhaust Type : Exhaust bypass type  
Warning Boost: Warning boost value  
Unit : Unit

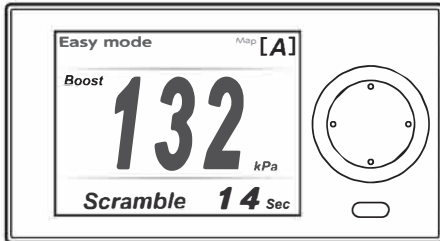
\* The exhaust bypass type can be set only on the initial setting screen. If you change it, an all reset of the main unit will be executed.

## Menu screen



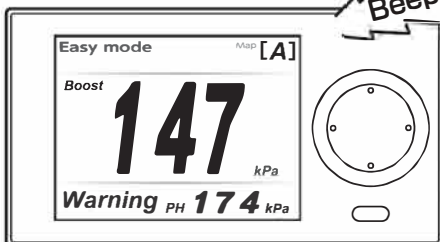
Various settings are made by operating the dial, button ① and button ②.

## Scramble Boost Activated



[Scramble] and the remaining scramble time are displayed.

## Warning Function Triggered



The built-in buzzer sounds and [Warning] and boost pressure are displayed in red.

## 2. Installation

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### **Warning**

- This product was designed to be used with vehicles using a DC12V negative ground. Do not use on a vehicle with a 24V ground.

- This manual shows a typical installation. Actual installation may vary depending on the vehicle application.

#### 1. Removal of Battery Terminal

- (1) Disconnect the negative terminal from the battery.

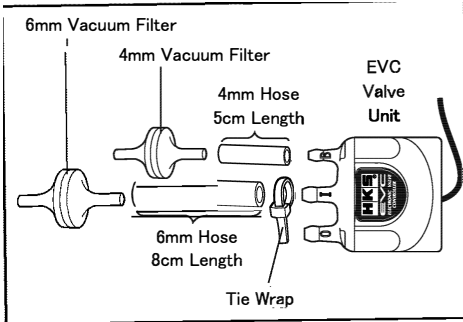
#### 2. Hose Connection Layout

- (1) Determine appropriate layout of the display unit and EVC Valve Unit considering the length of the hose and/or harness.

#### **Advice**

- Leave some slack for the harness & hoses to avoid tension during engine movement.
- Display Unit  
It is recommended to use this unit at an ambient temperature 65°C or below, and avoid direct sunlight.
- EVC Valve Unit  
It is recommended to use this unit at an ambient temperature 85°C or below.  
Do not install this unit with its back-cover facing up.

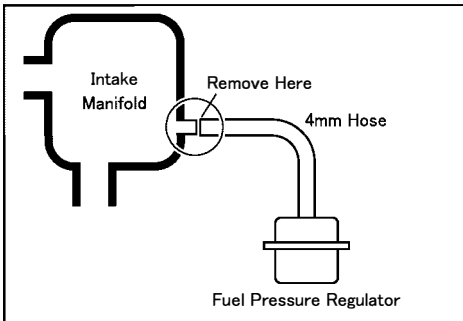
## 2. 1. Valve Unit and 4mm Hose



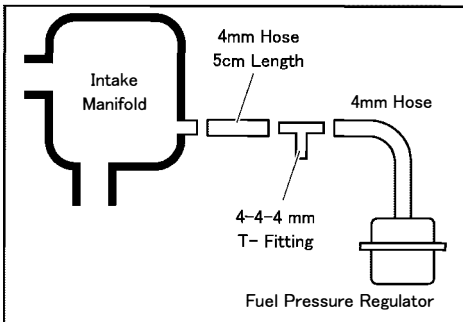
- (1) Cut the 4mm and 6mm Hose and connect them to the respective 4mm and 6mm vacuum filters as shown in the diagram on the left.

### Advice

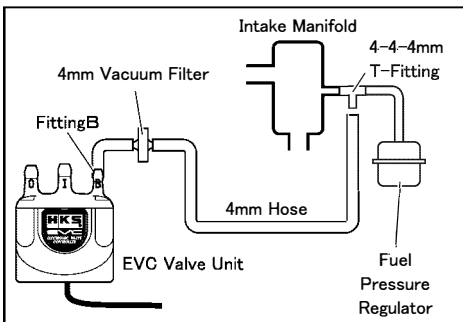
- Cut the 4mm and 6mm hose to different lengths so that the vacuum filters do not come in contact with each other.
- Do not put any oil and/or lubricants on or in the hose and vacuum filter.



- (2) Remove the hose that connects to the fuel pressure regulator from the intake manifold side.



- (3) Cut the provided 4mm hose to 5cm and connect it to the T-Fitting as shown in the diagram on the left.



- (4) Connect the T-fitting and the 4mm vacuum filter from the fitting "B" of the EVC Valve Unit using the remaining 4mm hose as shown in the diagram on the left.

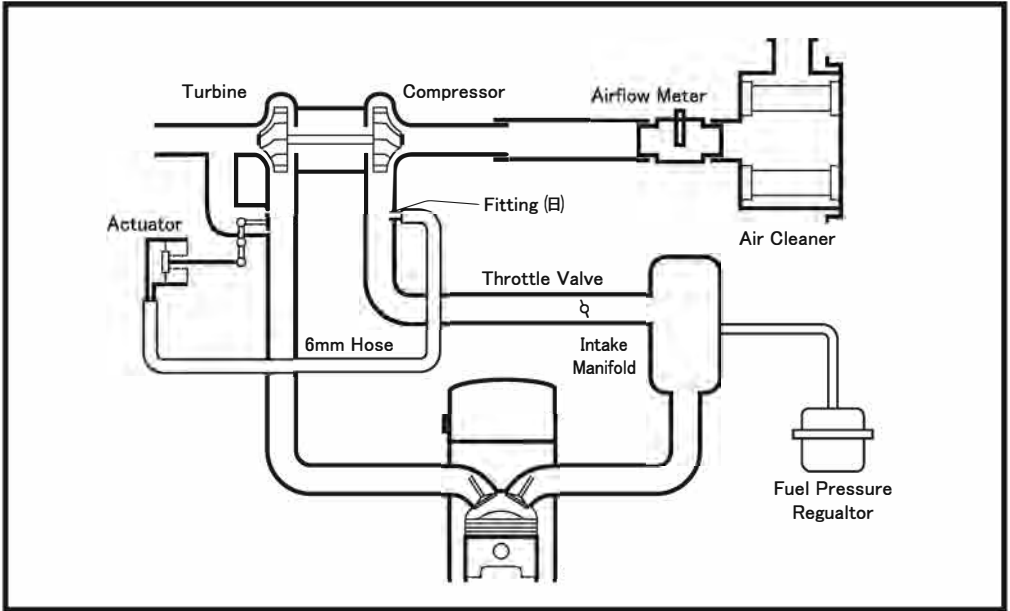
### Advice

- Make the hose length as short as possible.
- Do not put any oil and/or lubricants on or in the hose and vacuum filter.
- Fitting of the EVC Valve Unit must face upward to avoid any oil or water from entering.

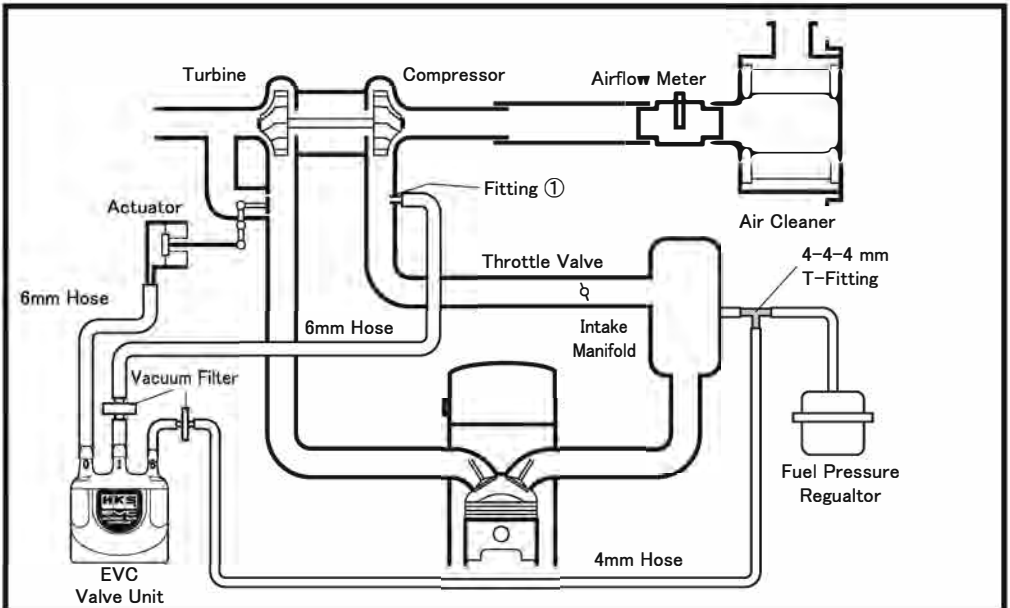
## 2. 2. Swing Valve Type

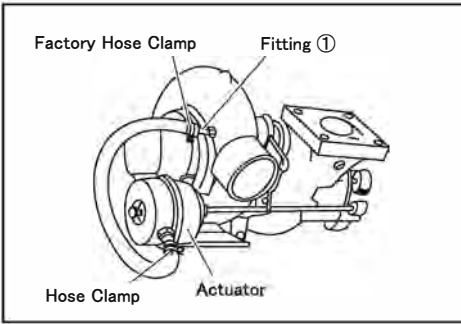
### 2. 2. 1. For Applications without a Boost Solenoid Valve

Before Installation (Basic Connection Layout)



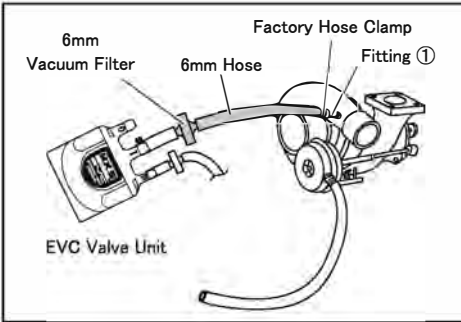
After Installation



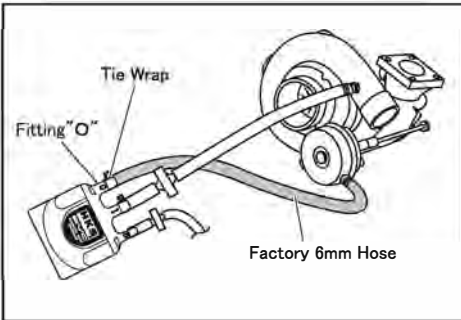


(1) Remove the hose that is connected to the actuator from the factory Fitting ① on the compressor side.

- The position of Fitting ① on the compressor may vary depending on vehicle.
- Reuse the factory hose clamp.



(2) Connect the fitting ① to the 6mm vacuum filter from the fitting "I" of the EVC Valve Unit using the provided 6mm hose.



(3) Connect the factory hose, which is connected to the actuator to the fitting "O" of the EVC Valve Unit.

## Advice

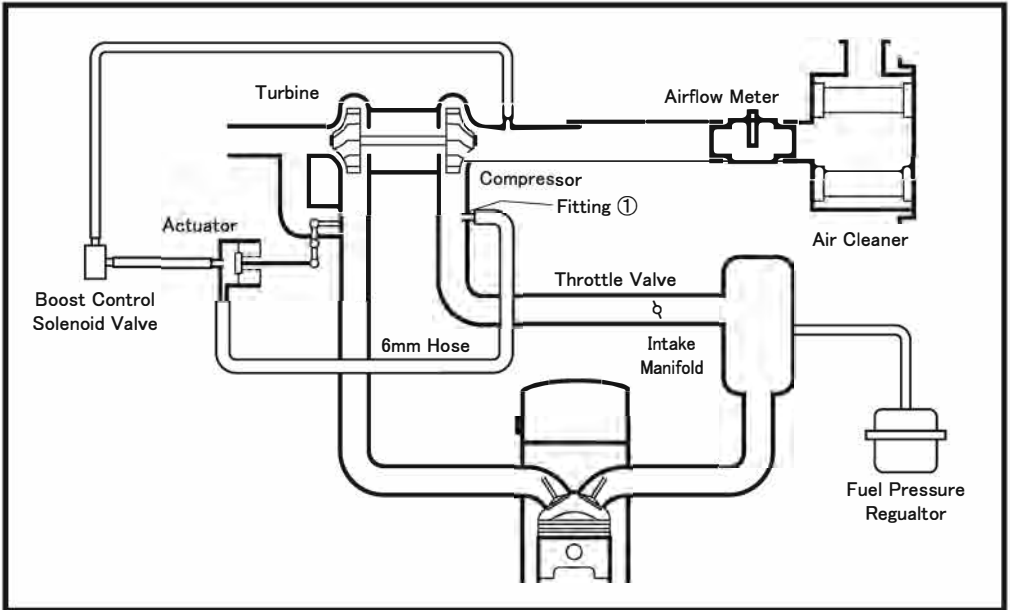
- Do not put any oil and/or lubricants on or in the hose and vacuum filter.
- Use the tie wrap to secure the 6mm hose and the 6mm vacuum filter.
- If the factory hose's length is not long enough to connect, use the optional oil-resistant hose. This optional oil-resistant hose is available separately. (Refer to the Optional Parts list in this manual)



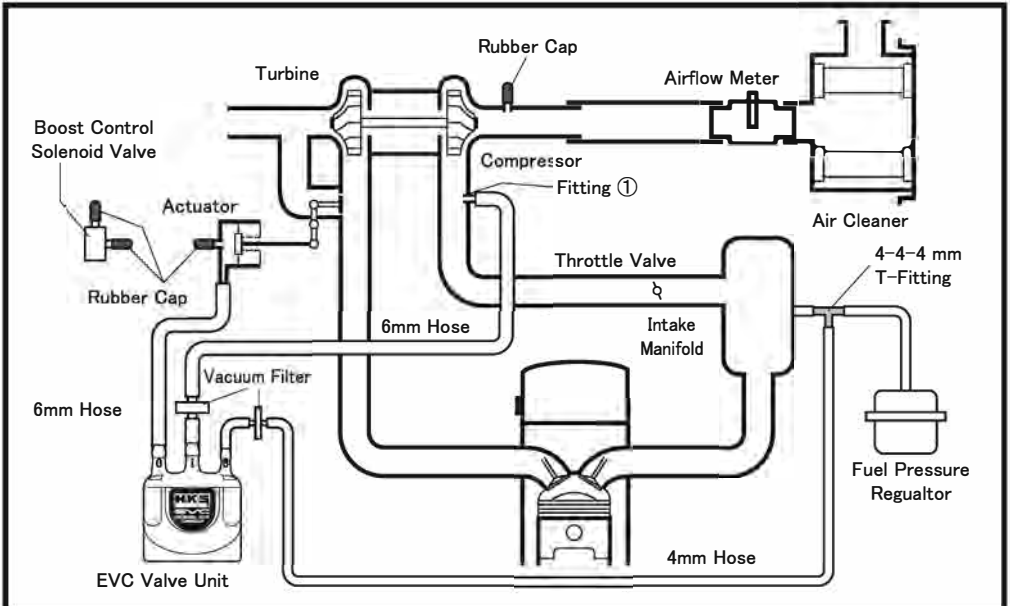
## 2. 2. 2. For Applications with a Boost Control Solenoid - 1

- Bypass the function of the boost control solenoid valve by removing the connector or hose.

Before Installation (Basic Connection Layout)



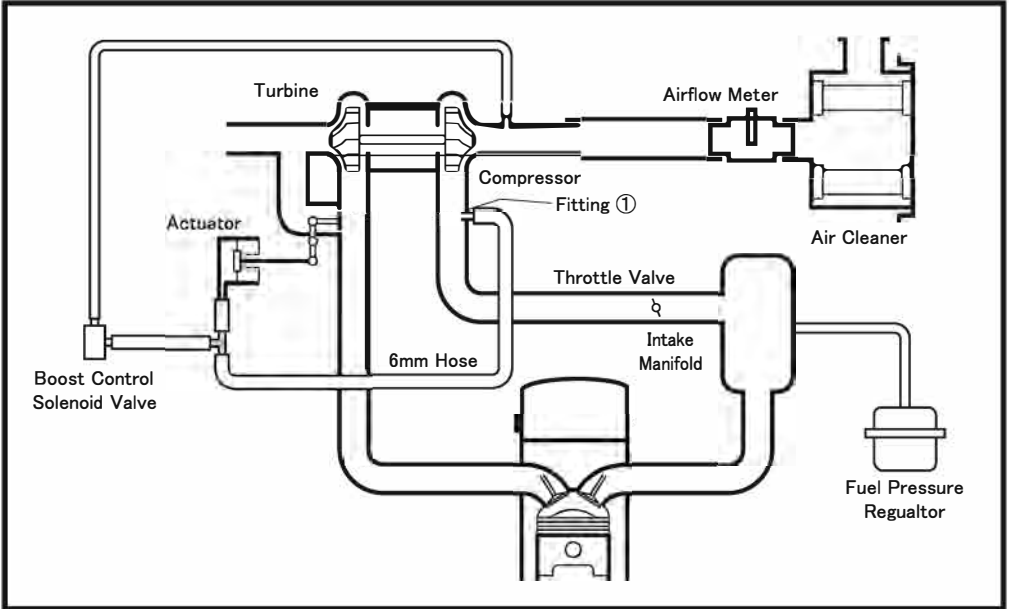
After Installation



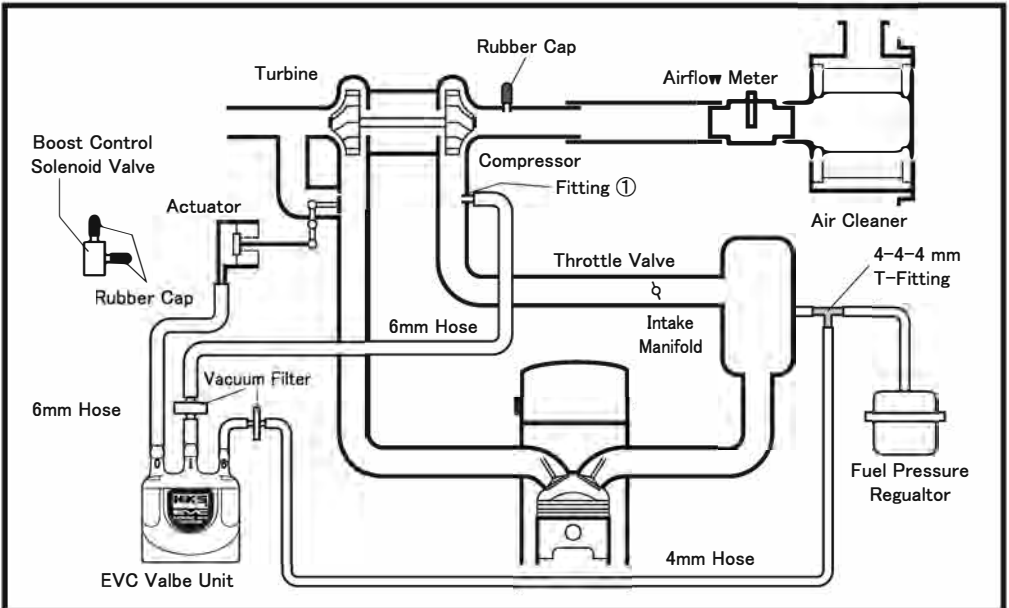
### 2. 2. 3. For Applications with a Boost Control Solenoid – 2

- Bypass the function of the boost control solenoid valve by removing the connector or hose.

Before Installation (Basic Connection Layout)



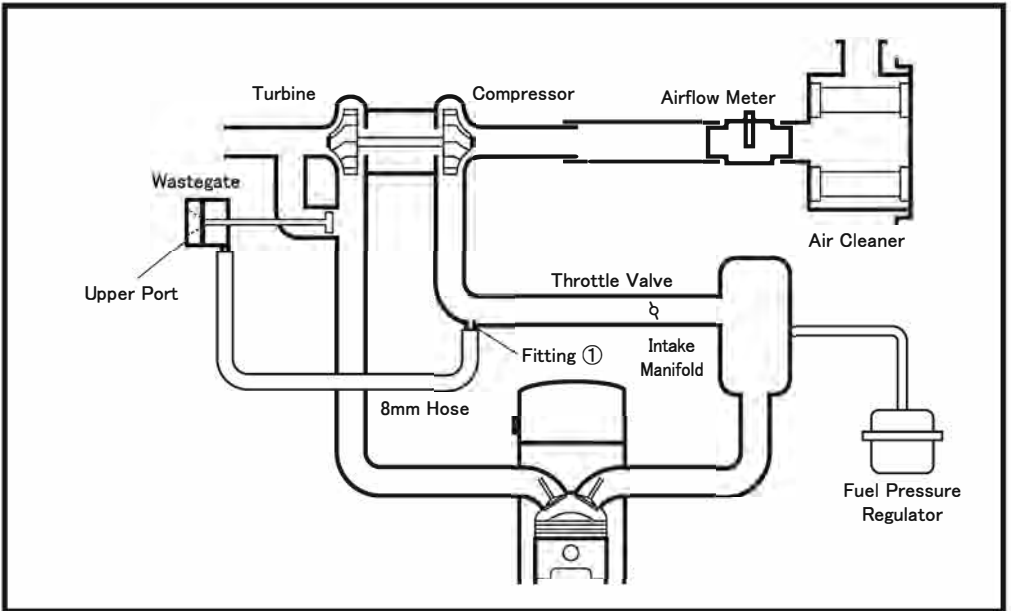
After Installation



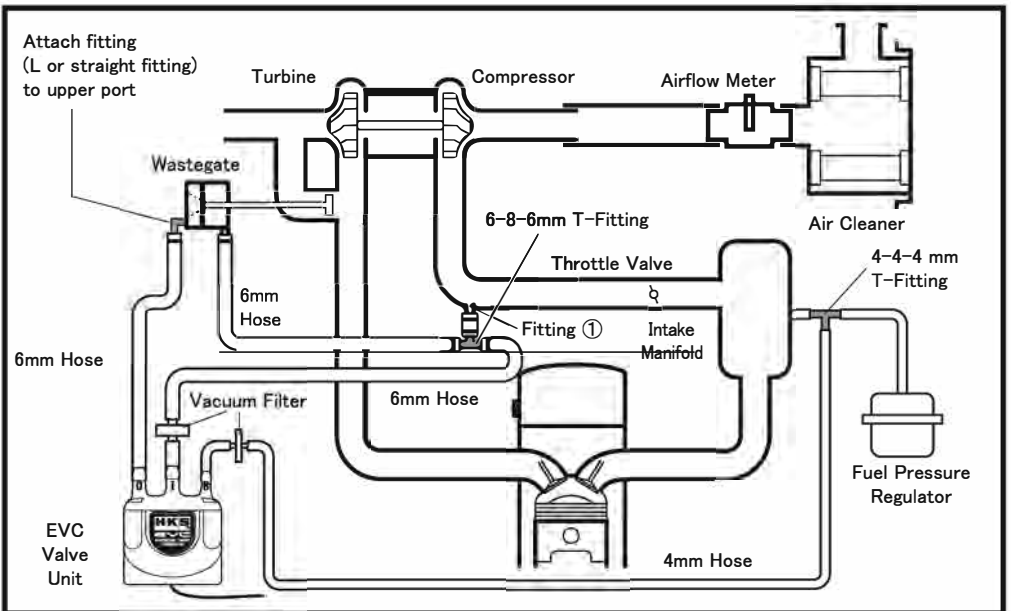
## 2. 3. Poppet Valve Type

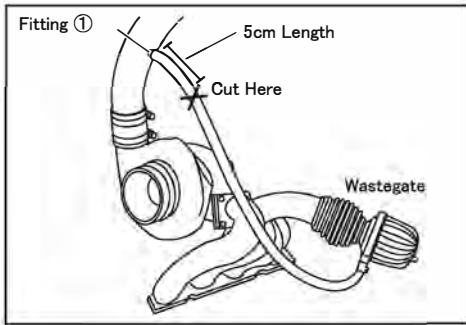
- When installing on a poppet valve car, 6mm Hose, 8mm Hose, 6mm Hose Clamp, 8mm Hose Clamp, 6-8-6mm T-Fitting, 6mm Fitting(straight or L- Shaped) are required separately.

Before Installation



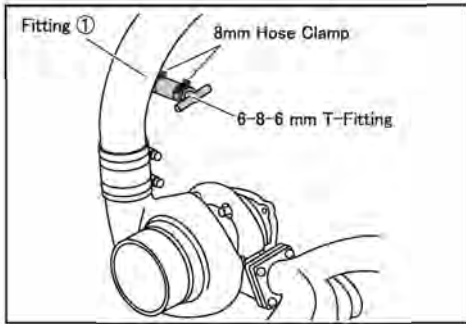
After Installation



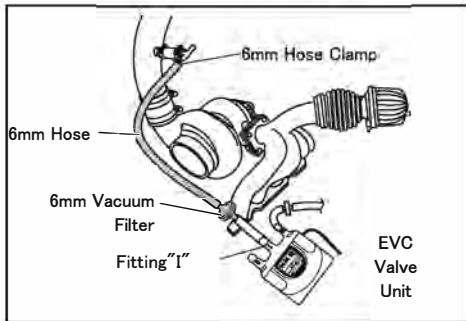


- (1) Cut the 8mm hose at the point of 5cm from the compressor's Fitting ①. Remove the remaining 8mm hose and 8mm nipple from the wastegate.

- The position of Fitting ① on the compressor may vary depending on the vehicle.



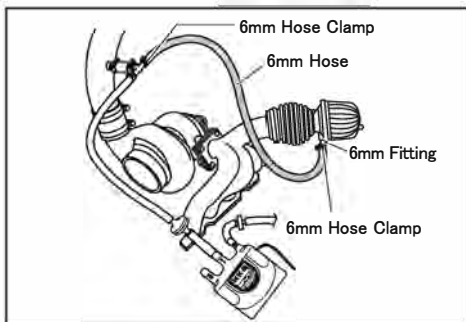
- (2) Install the 6-8-6mm T-Fitting using the 8mm Hose Clamp.



- (3) Connect the 6mm Vacuum Filter of the EVC Valve Unit Fitting "I" to the T-Fitting using the 6mm hose.

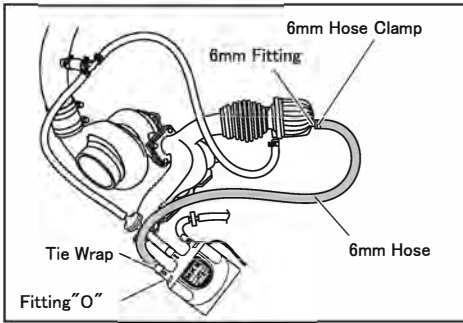
### Advice

- Do not put any oil and/or lubricants on or in the hose or vacuum filter.



- (4) After removing the 8mm fitting from the wastegate, install the 6mm fitting (straight or L-Shaped).
- (5) Install the included 6mm hose as shown in the diagram on the left.

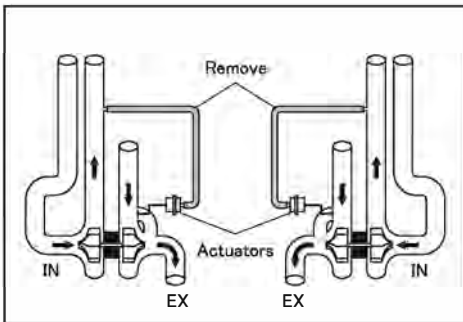
Use the hose clamps to connect the 8mm hose and the 8mm fitting, and the 6mm hose and the 6mm fitting.



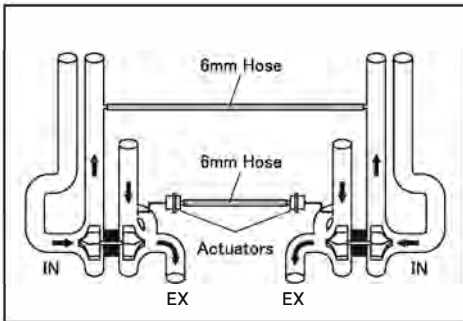
- (6) Install the 6mm fitting (straight or L-shaped) to the wastegate's upper port.
- (7) Connect fitting "O" of the EVC Valve Unit to the 6mm fitting installed in (6) using the 6mm hose.

## 2. 4. Twin Turbo Applications (Swing Valve Type)

● To install this unit on to a twin turbo vehicle, the hose set for the twin turbo vehicle is required. The basic hose layout procedure is similar as for the swing valve.



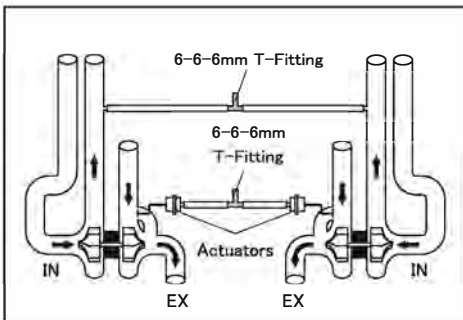
- (1) Remove the factory hoses between each turbocharger's compressor and actuators.



- (2) Connect both actuators of the turbochargers using the 6mm hose as shown in the diagram on the left.
- (3) Connect both compressors of the turbochargers using the 6mm hose as shown in the diagram on the left.

### Advice

- Use the 6mm hose and 6mm hose clamps.

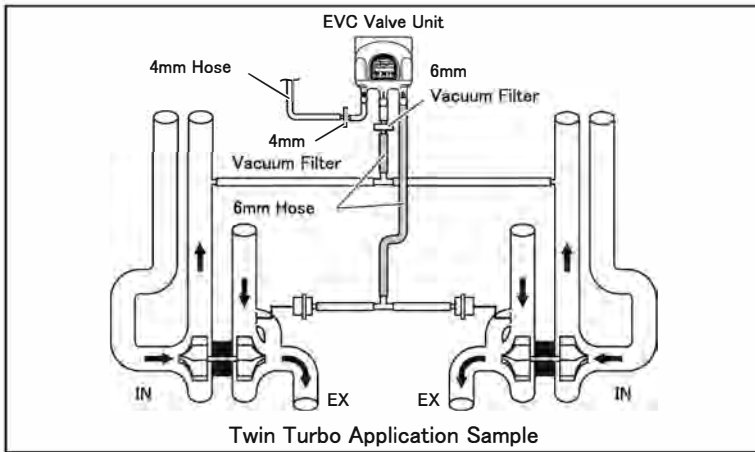


- (4) Cut the 6mm hoses in the middle, and insert the 6-6-6mm T-Fittings as shown in the diagram on the left.

### Advice

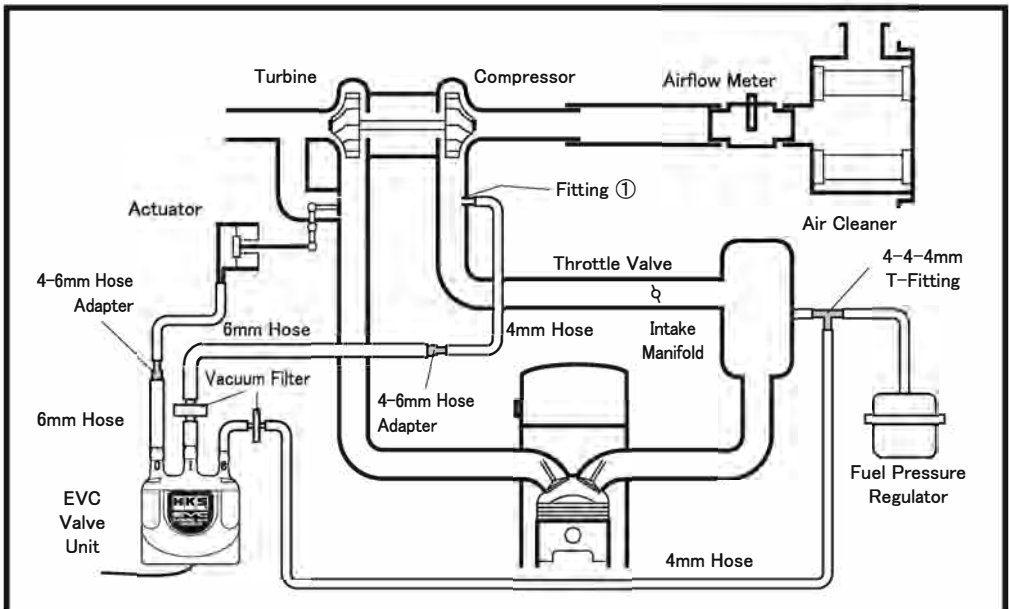
- Use 6mm hose clamps to secure hoses.

- (5) Follow the instructions of Section 2.2 Swing Valve Type for remaining steps.



## 2. 5. 4mm Hose Layout Application

- To install this unit on a 4mm hose equipped vehicle, the 4mm hose set is required. The basic hose layout procedure is the same as for the swing valve type.



- (1) Use the 4mm hose included in the 4mm hose set instead of the included 6mm hose on points where the 6mm hoses are supposed to be used.
- (2) Connect the 6mm hose to the 6mm vacuum filter using the 4mm-6mm hose adapter included in the 4mm hose set.

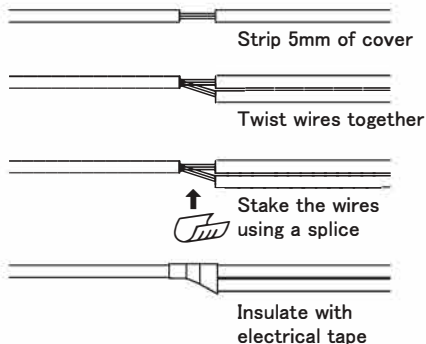
### Advice

- Use the 6mm hose included in this product.
- Do not put any oil and/or lubricant on or in the hose and the vacuum filter.

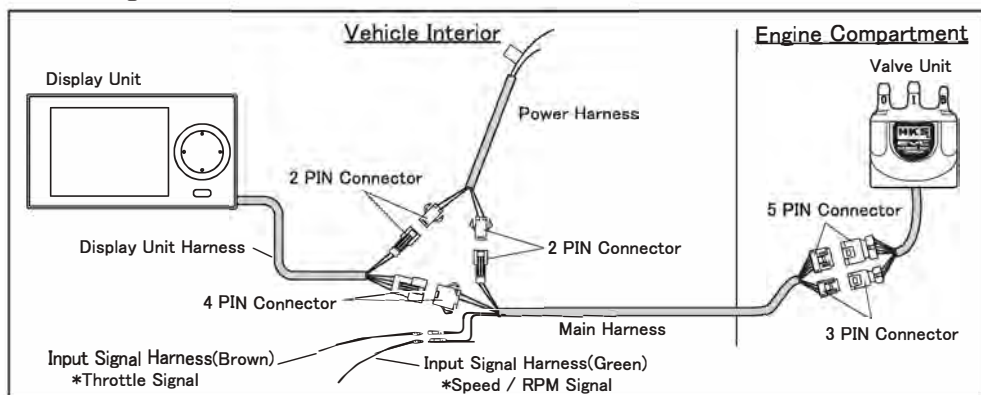
### 3. Wiring

#### 3. 1. Installing Splices

- ① Strip 5mm of the wiring insulator for wiring.
- ② Connect another wire to the uncovered portion by twisting the wires together.
- ③ Stake the twisted wires using a splice.
- ④ Cover the splice and wires with electrical tape to insulate.



#### 3. 2. Wirting



#### [Engine Compartment]

- (1) Connect the Valve Unit and the 3 PIN / 5 PIN Connector of the Main Harness respectively.

#### [Vehicle Interior]

- (2) Pull the 2 PIN / 4 PIN Connector side of the Main Harness from the Engine Compartment into the room and connect it to the 4 PIN Connector of the Display Unit Harness.
- (3) Connect the 2 PIN Connector of the Display Unit Harness and the Main Harness to the 2 PIN Connector of the Power Harness.
- (4) Splice the red wire of the Power Harness to the IG Wire (Ignition Wire).
- (5) Splice the black wire of the Power Harness to the GND Wire (Earth Wire).

#### [When using the Correction Map function]

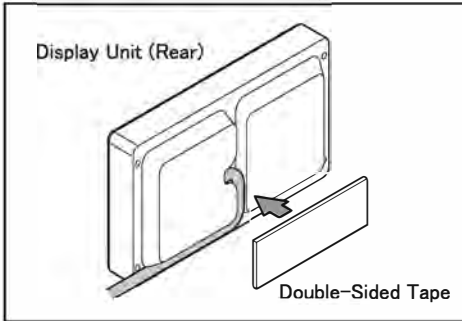
- (6) Check the positions of the throttle signal line and the engine speed signal line or the vehicle speed signal line of the vehicle harness connected to the ECU Connect to the signal line.

### Advice

- If a speed limiter release device such as HKS SLD or HKS VAC is already installed on the vehicle, connect the white wire of the input signal harness to the vehicle's harness.
- Do not connect unused signal lines.

## 4. Mounting of Components

### 4. 1. Mounting the Display Unit

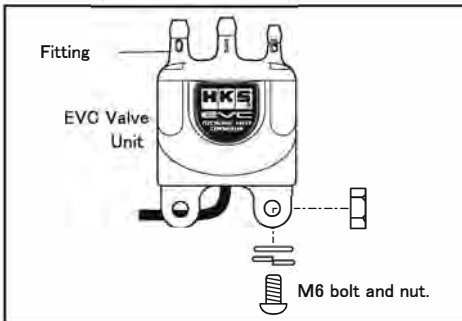


- (1) Remove any dirt, dust and/or oil from the area the unit is going to be mounted to.
- (2) Secure the display unit using the included double-sided tape. The sides of the display unit can be switched. Select a preferred side and change the position. The change will be implemented after starting-up this product.

#### Advice

- The display may be difficult to view due to the mounting angle. Adjust the mounting angle to view the display clearly and properly.

### 4. 2. Mounting the Valve Unit



- (1) Mount the EVC Valve Unit using the M6 bolt and nut.  
Tightening Torque 5.2[N·m]

#### Caution

- Make sure to secure the EVC Valve Unit facing the fitting upward to prevent oil and/or water from entering to this motor.
- Do not install EVC Valve Unit with its back-cover facing up.

### 4. 3. Securing the Hose and Harness

- (1) Secure hoses and harnesses using the included tie-wraps.

#### Advice

- Leave slack in the hose and harness to absorb engine vibration and movement.



## 5. Post Installation

- (1) Reinstall all removed factory parts.
- (2) Reconnect the negative battery cable to the battery terminal.

## Post Installation Checks

Check the following after the installation process is complete.

### 1. Check the following BEFORE starting the engine

Items to check	Checked
Make sure all hoses are routed and connected correctly.	
Make sure all hoses do not have too much slack.	
Make sure all hoses are not damaged.	
Make sure all hose clamps are secure and tight	
Make sure all bolts and nuts are properly tightened.	
Make sure hoses, harnesses & installed components do not contact other parts.	
Make sure hoses and harnesses are secured properly.	
Make sure wiring is done correctly.	
Make sure all connectors and splices are connected securely.	
Make sure all splices are the included ones and stalked properly.	
Make sure the unit or components are mounted securely and don't disturb driving.	
Make sure the negative cable terminal is securely attached to the battery.	
Make sure the boost control solenoid valve is bypassed.	

### 2. Check the following AFTER starting the engine

#### **Advice**

- Do not raise the engine RPM right after starting engine. (Let it idle)

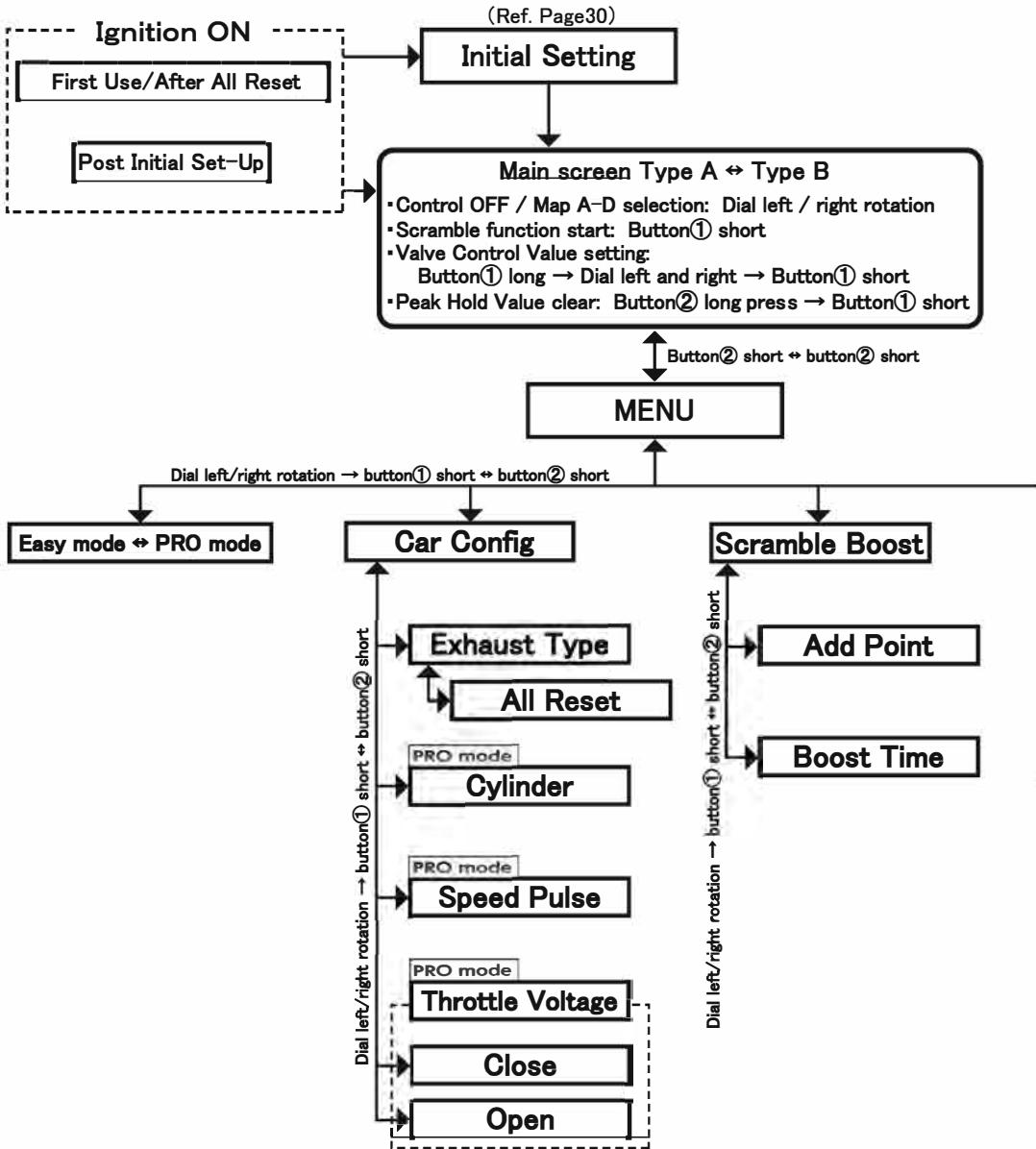
Items to check	Checked
Make sure there is no air leakage.	
Make sure there is no air leakage after revving the engine in neutral 2-3 times.	
Make sure installed parts are not in contact with each other.	
Make sure there is no excessive stress on hoses or harnesses.	
Make sure there are no parts that have loosened after stopping the engine.	

**EVC**

# **操作方法**

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Set the basic status of EVC7	

# Operation outline diagram



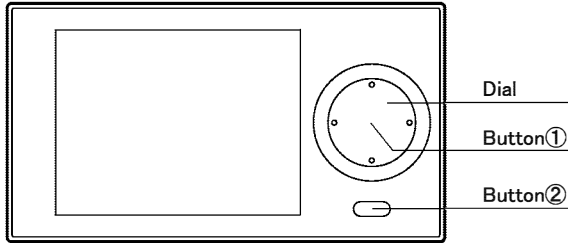
## PRO mode

\* This label shows the setting screen that can be displayed and selected only in PRO mode.

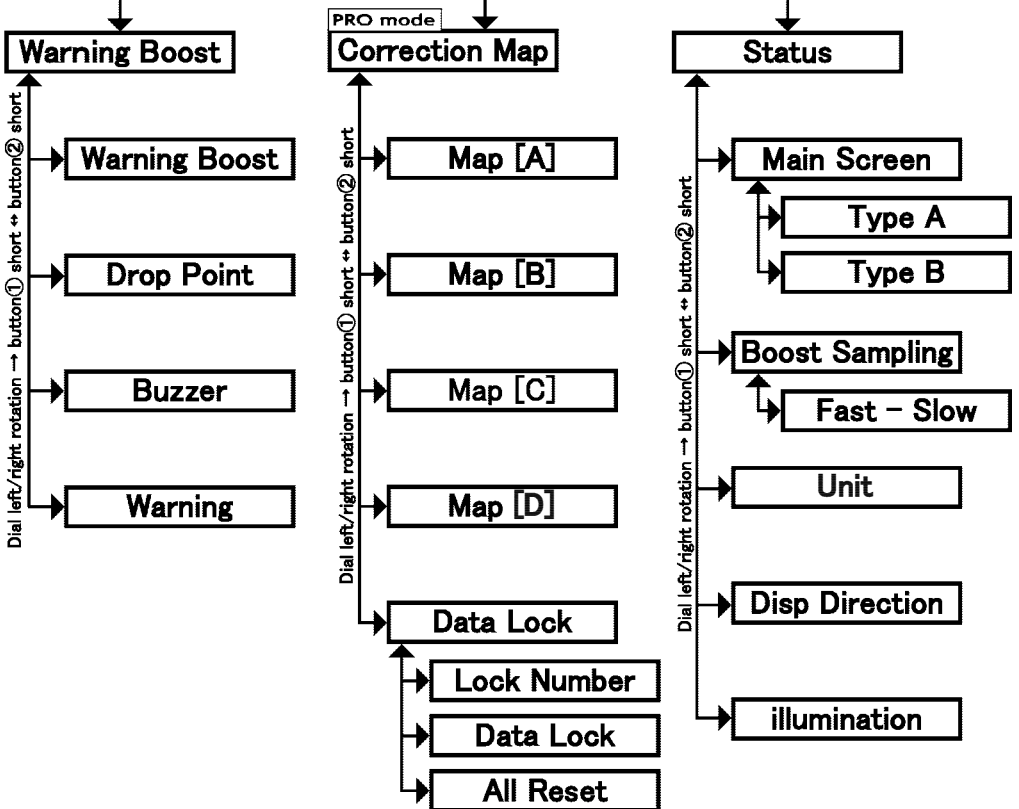
# 1. Initial Use of EVC7

- The Initial Setting Screen is displayed when the ignition is turned on after using the product for the first time after purchase or after performing all reset on the display unit. Set the Exhaust bypass type, Earning boost value, and unit.

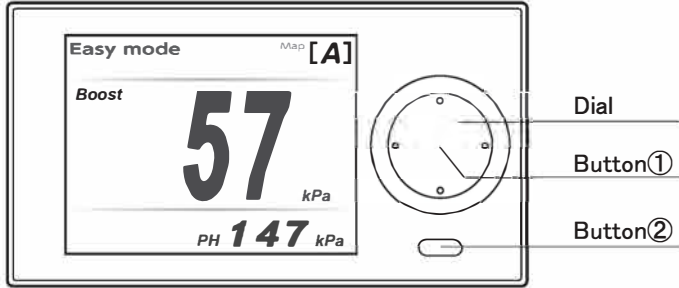
If you complete the initial settings and display the [Main Sreen] at least once, the next time the ignition is turned on, the startup screen will be displayed and then the [Main Screen] will be displayed.



Dial left/right rotation → button① short ↔ button② short



## 2. Main Screen



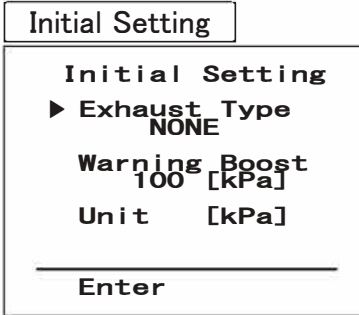
Name	Function
Dial	By turning the dial left or right, you can switch the map when the main screen is displayed, select each item and change the set value when the setting screen is displayed.
Button①	The dial functions as a button when pressed. When the main screen is displayed, press it shortly to activate the scramble function. Press and hold to shift to the valve control value change mode. After changing the control value, press briefly to confirm. On other setting screens, press the button for a short time to determine the setting value change.
Button②	When the main screen is displayed, press briefly to switch to the MENU screen. Press briefly in each setting screen to move to the upper screen and return to the main screen. Furthermore, if you press briefly while changing the set value on each setting screen, it will be canceled.  Press and hold when the main screen is displayed to switch to the peak hold value reset mode. Further press button ① to reset. Pressing button② briefly during reset mode cancels the reset.

**All values and states set and determined for each item are stored in the valve unit when the boost becomes 0 [kPa / PSI] or less.  
This is when the engine is stopped or idling.**

### 3. Initial Setting

Perform initial settings.

Initial setting screen



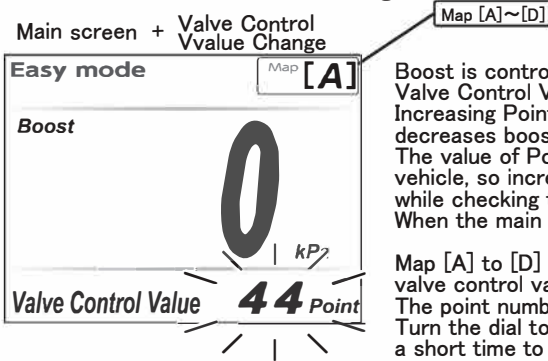
After purchase, the initial setting screen is displayed only at the time of the first startup. Set the exhaust bypass type, warning boost value, unit, and select Enter.

- ▶ Exhaust Type :  
Exhaust bypass type SWING ↔ POPET
- ▶ Warning Boost:  
Warning boost value 10 ~ 300 [kPa]
- ▶ Unit:  
Pressure unit [kPa] ↔ [PSI]

\* For the exhaust bypass type, only the initial setting screen can be set.

### 4. Valve Control Value Point setting

Main screen + Valve Control Value Change



Boost is controlled by increasing or decreasing the Point of Valve Control Value. Increasing Point increases boost, decreasing Point decreases boost.

The value of Point to be set differs depending on the vehicle, so increase the Point little by little and decide while checking the actual vehicle condition. When the main screen is displayed, turn the dial to select

Map [A] to [D] and press and hold button ① to display the valve control value change area.

The point number flashes.

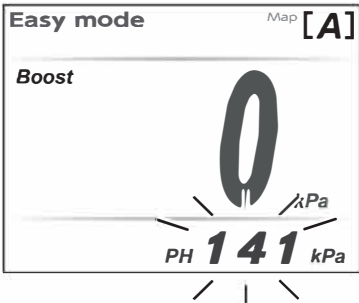
Turn the dial to change the value, then press button ① for a short time to confirm and return to the main screen only display.

You can enter four control values from Map [A] ~ [D]. After setting, turn the dial and select Map.

Valve Control Value : 0 ~ 300 [Point]

### 5. Clear Peak Hold value

Main screen + Peak Hhold Value clear



When the main screen is displayed, press and hold button ② to blink the peak hold value.

When button ① is pressed for a short time, the value is cleared and the blinking ends and the operation is completed.

## 6. Menu screen settings

**MENU** Menu screen operation method

- While the main screen is displayed, short press button ② to move to the menu screen.
- Use the dial to change the item and numerical value, then press button ① to confirm.
- When the menu screen is displayed, press button ② briefly to return to the main screen.

## 7. Switching between Easy mode and PRO mode

**Easy mode ↔ PRO mode**

**MENU**

▶ Easy mode  
Car Config  
Scramble Boost  
Warning Boost  
Correction Map  
Status

↔

**MENU**

▶ PRO mode  
Car Config  
Scramble Boost  
Warning Boost  
Correction Map  
Status

- ▶ Easy mode: No map correction
- ▶ PRO mode: With map correction

• Use the dial to select from menu items, and short-press button ① to switch.

## 8. Car Config

**Car Config**

**Car Config**

▶ Exhaust Type  
**SWING**

---

Cylinder 4

Speed Pulse 4

---

Throttle Voltage

Close 500 [mV]  
Open 4500 [mV]  
Current 2400 [mV]

- ▶ Exhaust Type:  
Exhaust bypass type setting SWING ↔ POPET

After selecting All Reset twice on the Change Exhaust Type? Screen, All Reset is executed and the screen moves to the initial setting screen.  
After all settings are cleared, you can set the exhaust bypass type.

**Change Exhaust Type?**

[SWING] now

---

Cancel

▶ All Reset

---

After all reset.  
Exhaust type  
can be changed.



## Car Config

Car Config		
Exhaust Type SWING		
▶ Cylinder	4	
Speed Pulse	4	
Throttle Voltage		
Close	500	[mV]
Open	4500	[mV]
Current	2400	[mV]

- ▶ Cylinder (Only for PRO mode) :  
Select the number of cylinders (1 / 2 / 3 / 4 / 5 / 6 / 8)
- ▶ Speed Pulse (Only for PRO mode) :  
Select the speed pulse setting (2 / 4 / 8 / 16)  
Nissan cars have 2 pulses (16 pulses in some cases), and other domestic cars have 4 pulses. Set it to match the speedometer display on the vehicle.

### Throttle Voltage

- ▶ Close (Only for PRO mode) :  
Voltage setting when throttle is closed 0~5000 [mV]
- ▶ Open (Only for PRO mode) :  
Voltage setting at throttle open 0~5000 [mV]  
Current: Current throttle voltage (Only for PRO mode)

When Close or Open is selected (when the number is red background), press and hold button ① to reflect the current throttle voltage.

Opening and closing the accelerator while the engine is stopped and reflecting the voltage can make setting easier.

## 9. Scramble function setting

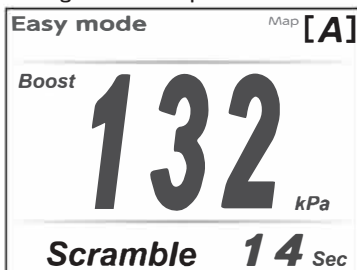
### Scramble Boost

Scramble Boost	
▶ Add Point	0 [Point]
Boost Time	0 [Sec]

- ▶ Add Point :  
Addition Point setting during Scramble Boost 0 ~ 300 [Point]
- ▶ Boost Time :  
Set time to continue Scramble Boost 0 ~ 60 [Sec]

\* Total valve control value = Valve Control Value + Add Point

### During scramble operation



- When the main screen is displayed, short press button ① to start scramble boost.
- Start countdown and return to normal operation when the count reaches "0".

10. Warning function setting

**Warning Boost**

**Warning Boost**

▶ **Warning Boost**  
100 [kPa]

**Drop Point**  
-100 [Point]

---

**Buzzer**      ON

**Warning**     ON

- ▶ **Warning Boost:**  
Warning boost value setting 10 ~ 300 [kPa]
- ▶ **Drop Point:**  
Set subtraction Point at warning -300 ~ 0 [Point]
- \* **Total valve control value**  
= **Valve Control Value** + **Drop Point**
- ▶ **Buzzer:**  
Buzzer sound setting when a warning occurs ON ↔ OFF
- ▶ **Warning:**  
Warning detection setting ON ↔ OFF

Easy mode Map [A]

Boost **147** kPa

Warning PH **174** kPa

BeepBeepBeep...

At the time of warning operation

11-1. Map correction settings

**Correction Map**

**Correction Map**

▶ **Map [A]**  
**Map [B]**  
**Map [C]**  
**Map [D]**

**Data Lock [OFF]**

- ▶ **Map [A] ~ [D] (Only for PRO mode):**  
3D Map [A]~[D] 4 grids with 10 vertical axis × 10 horizontal axis grid
- You can set the throttle opening on the vertical axis and the number of revolutions or vehicle speed on the horizontal axis.
  - Throttle opening 0 ~ 100 [%]
  - Engine speed 0 ~ 12000 [rpm]
  - Vehicle speed 0 ~ 500 [km]
  - Correction Point -300 ~ 300 [Point]
- You can also set a two-dimensional map by throttle opening, rotation speed or vehicle speed.

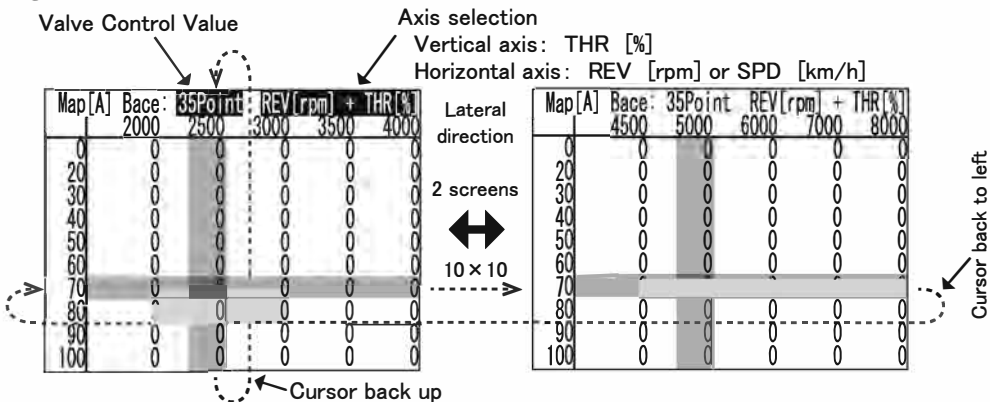
\* Map correction will not work unless the throttle signal line and the engine speed signal line or vehicle speed signal line are connected.

Boost map correction [A] ~ [D]      10x10 3D Map

Throttle Open	RPM Speed	10x10 3D Map									
		1	2	3	4	5	6	7	8	9	10
0	1000 rpm	30 Point	30	0	0	0	0	0	0	0	0
20	2000	30	0	0	0	0	0	0	0	0	0
30	3000	0	0	0	0	0	0	0	0	0	0
40	4000	0	0	0	0	0	0	0	0	0	0
50	5000	0	0	0	0	0	0	0	0	0	0
60	6000	0	0	0	0	0	0	0	0	0	0
70	7000	0	0	0	0	0	0	0	0	0	0
80	8000	0	0	0	0	0	0	0	0	0	0
90	9000	0	0	0	0	0	0	0	0	0	0
100	10000	0	0	0	0	0	0	0	0	0	0

Labels: THR (points to Throttle Open column), SPD/REV (points to RPM Speed header), Correction Point (points to 30 Point cell)

- ▶ Map [A] ~ [D]: Map correction setting method
- Display a map with 10 vertical axes × 10 horizontal axes using two screens
- The Valve Control Value can be corrected using the rotation signal or vehicle speed signal + throttle signal.



- Turn the dial to the left to move the cursor vertically (down), and return to the top when it reaches the bottom.
- Turn the dial to the right to move the cursor horizontally (right), and to the right to return to the left.
- Short press button ① to select the cross part of the cursor and change the value or axis.
- Press button ① again to confirm.

\* Total valve control value [Point] = Valve Control Value + Point of correction map

### Advice

The set axis, correction point, etc. are determined by a short press of button ①, and are not stored in the main body as it is.  
Press the button ② briefly to return to the main screen. It will be remembered at that point.  
Please be careful.

## 11-2. Data lock setting

### Data Lock

**Correction Map**

Map [A]  
Map [B]  
Map [C]  
Map [D]

▶ Data Lock [ON]

Map [A] ~ [D]  
Cannot be selected

- ▶ Data Lock [OFF] ↔ [ON]

Data Lock is turned on by inputting an arbitrary 4-digit number and selecting Set, and you will not be able to view map corrections.  
Enter the PIN for Data Lock while locked and select Set to turn off Data Lock and view map corrections.

**Data Lock**

**Lock Number**

1 2 3 4 **Set**

▶ Data Lock [OFF]  
All Reset

### Advice

If you have forgotten your locked 4-digit password, you can reset it to the factory default with All Reset. \* However, all setting data will be deleted.

## 12. Status settings

### Status

**Status**

- ▶ Main Screen [A]
- Boost Sampling [4]
- Unit [kPa]
- Disp Direction [A]
- illumination [100]

---

Soft Version

Display: EVC7\_D.003

Valve: EVC7\_V.003

Type A display example

Easy mode Map [A]

Boost

57

kPa

---

PH 147 kPa

Type B display example

PRO mode Map [A]

Boost

73

kPa

---

THR 75% REV 7250 rpm

---

PH 147 kPa

#### ▶ Main Screen:

There are two types of main screens, Type A and Type B, to be selected.

Type A: Displays the boost value in uppercase.

Type B: The boost value is displayed in middle letters, and the value of the input signal for map correction is displayed in the lower row.

\* Only the input signal selected on the map axis is displayed.

**Main Screen**

- ▶ Type A
- Type B

#### ▶ Boost Sampling:

Normally, it is not necessary to set, but change it if the boost is not stable due to hunting.

4 is set by default.

**Boost Sampling**

Fast Slow

1 2 3 **4** 5 6 7 8

#### ▶ Unit:

Pressure unit switching [kPa] ↔ [PSI]

#### ▶ Disp Direction:

Screen upside down Normal rotation [A] ↔ Reverse [B]

#### ▶ illumination:

Backlight brightness setting

Minimum brightness [5] ~ Maximum brightness [100]

#### • Soft Version: Displays the software version.

Display Unit software Ver: EVC7\_D.003

Valve Unit software Ver: EVC7\_V.003

## Advice

The setting value is not stored in the main unit as it is after it is determined by a single press of button①.

Return to the main screen with a single press of button②. It will be remembered at that point. Please be careful.

## Optional Parts List

The following option parts are available.

No.	Part No.	Description	Remarks
1	4599-RA009	Hose Set for Twin Turbo car	
2	4599-RA010	4mm Hose Set	
3	4599-RA017	4mm Vacuum Filter	
4	4599-RA016	6mm Vacuum Filter	
5	53002-AK001	Display Stand	

## Maintenance



### Caution

- Do not operate this unit in any manner not described in this manual.  
Consult HKS Dealer if you are unsure.
- Replace the vacuum filter before the regular interval if the dirt buildup is excessive.  
Dirt buildup in the air filter can cause improper boost control which may lead to engine damage.
- Daily inspection of the vehicle is required for the optimum operating conditions.
- Clean hands and remove any oil or dirt before handling the product to prevent any possible discoloration of the outer case.
- Do not use solvents such as alcohol, thinner, benzene, glass cleaner, or oil to clean this product. Clean the unit with a dry soft cloth.
- If dirt in the vacuum filter builds up in an extremely short period of time, replace the hose outlet on the vehicle side.
- If the vacuum filter still becomes dirty easily after replacement of the hose outlet, it may be a result of an issue with turbo or engine. Consult your dealer for inspection and/or maintenance.

## Troubleshooting

Refer to the following trouble shooting guide to remedy issues that described below.

Symptoms	Cause	Solution
No power; EVC7 doesn't turn on	Bad 12V connection	Securely connect splices
	Bad ground connection	
Error message on display	Bad unit communication	Turn ignition OFF. Check valve and harnesses are connected properly and then turn the ignition ON again
Boost can not be stabilized / Boost can not reach target boost	EVC7 function is not activated	Turn the EVC7 on (Ref. Page 30)
	The standard maximum boost and the target boost are same value	Set the target boost value higher than the standard maximum boost value (Ref. Page 30)
	Actuator incapacity Insufficient valve area/stroke Insufficient turbo output capacity	Check the vehicle / engine's specifications and characteristics, and reperform the appropriate data settings
	Only the primary turbo is operating (sequential twins)	Check the operation of the secondary Turbocharger
Uncontrollable boost	Incorrect initial setup	Reset and redo the Initial Setup
	Incorrect exhaust bypass valve type selected	Check that the correct exhaust bypass valve type is selected in (Page. 30)
	Hose is cracked or come off	Check hoses. Replace if necessary
	Vacuum filter is blocked	Replace the vacuum filter
Warning function works	Warning value is lower than set boost	Adjust the warning set value accordingly
(improperly in scramble)	Scramble value is too high	Decrease the scramble set value
Set values can not be changed	Data lock function is active	Unlock the data lock function

## Product Specifications

### ◆ Use Conditions

● Power Source	.....	DC12V Negative ground
● Rated Voltage	.....	DC13.5V
● Operating Voltage	.....	DC10V~16V
● Operating Temperature	Display Unit	..... -30~65°C (Operational Temperature Range)
	Valve Unit	..... -30~100°C (Continuous Operating Temperature)
● Storage Temperature	Display Unit	..... -20~75°C
	Valve Unit	..... -40~120°C

### ◆ Specifications

● Minimum Operating Voltage	.....	9.5V or more
● Overvoltage Protection Voltage	.....	~18V
● Rated Current (Vcc=13.5V)	.....	210mA±50mA
● Pressure Control Capacity	.....	Baseline Boost~300kPa
● LCD	.....	240×320(dot) Color TFT

### ◆ General Restrictions

#### ● Display Unit

- It is recommended to use this unit at an ambient temperature: 65°C or below and avoid direct sunlight.

#### ● Valve Unit

- It is recommended to use this unit at an ambient temperature: 85°C or below
- Make sure to secure the EVC Stepping Motor facing the fitting upward to prevent oil and/or water from entering to this motor.
- Do not install this item with its back-cover facing up.
- The motor torque may be reduced when the power-supply voltage is reduced to 10V or less ; it also may reduce the control speed.















