NAME OF PRODUCT	GT Suction Intake Kit
PART NUMBER	７００２５－ＡＴ００１
APPLICATION	TOYOTA 86 ZN6 SUBARU BRZ ZC6
ENGINE	FA20D
YEAR	2012 ～

Published in March, 2014 by HKS Co., Ltd.

NOTICE

This manual assumes that you have and know how to use the tools and equipment necessary to safely perform service operations on your vehicle. This manual assumes that you are familiar with typical automotive systems and basic service and repair procedures. Do not attempt to carry out the operations shown in this manual unless these assumptions are correct. Always have access to a factory repair manual. To avoid injury, follow the safety precautions contained in the factory service manual.

- 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.
- HKS will not be responsible for any damage caused by incorrect installation and/or use of this product.
- HKS will not be responsible for any labor expenses, related fees or losses incurred during vehicle downtime.
- This product was designed based on installing it onto a factory vehicle. The performance and/or safety cannot be guaranteed if this product was installed onto other inapplicable vehicles.
- The specifications of this product are subject to be changed without notice.
- This manual is subject to be revised without notice.
- For any lost parts, consumables or manual, please contact an Authorized HKS Dealer.

SAFETY PRECAUTIONS

WARNING

- To prevent electrical damage/burns/fire, always:
  - Disconnect the negative terminal of the battery before beginning installation.
  - When disconnecting wires/connectors, take extra care to avoid breaking/snapping the connectors.

CAUTION

- Do not misuse this product.
  - Misuse of this product may lead to engine damage.
  - Misuse of this product may lead to loss of its original function.
- Prior to installation, make sure the engine bay temperature has cooled to approximately 40℃ /104°F.
  - Failure to let the engine cool down properly can lead to severe burns.
- Insert clean rags into open piping to prevent contaminants from entering the pipes.
  - If neglected, contaminants in the piping can lead to engine damage.

- Make sure that all of the parts listed in the Parts List are included in the kit.
- Reference the factory service manual for the vehicle when removing factory parts.
- Be careful when handling this product; avoid dropping or subjecting it to excessive impact. Failure to do so may result in product damage or improper installation.
- Use the proper tools when tightening nuts and bolts. If over tightened, the bolts may become damaged.
- Keep the removed factory parts in a safe place for ease of re-installation at a later date (if necessary). When reinstalling the removed factory parts, make sure to reinstall them correctly.

CAUTION

● Replace the air filter element at regular intervals:
(Recommended) Replace every 3,000~5,000 km/2,000-3,200 miles or every 3~6 months.
Replacement air filter elements are sold separately.

※ Do not wash the air filter elements as the filtration properties will be degraded.
・ There are certain conditions where, depending on dirt buildup, the filter may need to be cleaned/replaced earlier than the above recommended intervals.

※ If the vehicle and the product are not maintained properly as mentioned above, the product may not perform properly and the airflow meter sensor may not be able to detect the intake air volume accurately; it can lead to engine damage or faulty conditions.

ADVICE:

- ● This product was designed based on and for the factory vehicle; however, additional fuel settings may be necessary depending on vehicle application.
- ● If the airflow meter intake air temperature sensor is dirty (blackened, no visible shine) it can be assumed that the sensor itself is also dirty. Using the automotive parts cleaner, carefully clean the sensor.

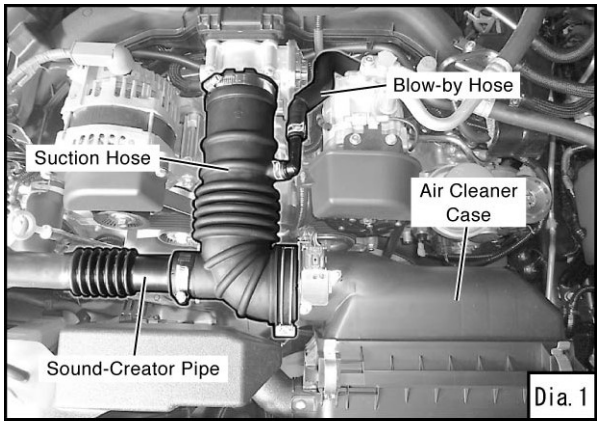
INSTALLATION PROCEDURE

1. REMOVAL OF FACTORY PARTS

(1) Disconnect the negative terminal of the vehicle's battery.

(2) Disconnect the blow-by hose and the sound-creator pipe from the suction hose. (Dia.1)

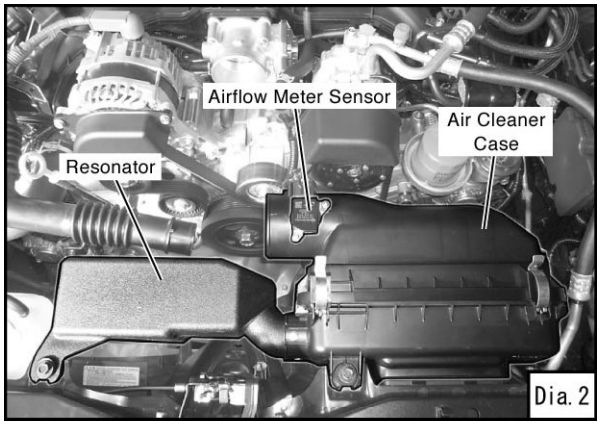
(3) Loosen the hose clamp to remove the suction hose. (Dia.1)



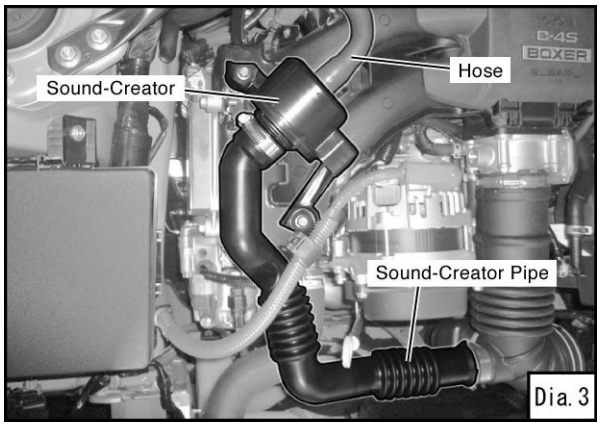
Dia. 1

(4) Disconnect the airflow meter sensor connector. (Dia.2)

(5) Remove the bolt to remove the resonator , the air cleaner case and the airflow meter sensor together. (Dia.2)

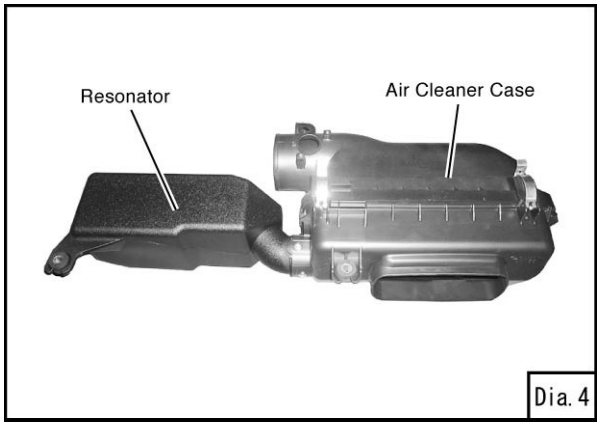


(6) Remove the bolt to remove the sound-creator pipe and the sound-creator. (Dia.3)
It is not necessary to remove the hose.



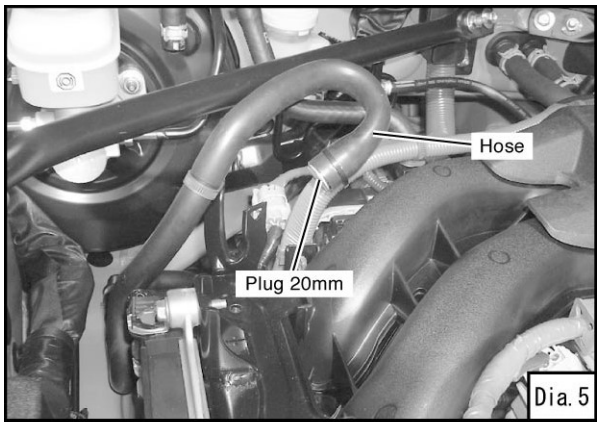
(7) Remove the airflow meter sensor from the air cleaner case. (Dia.2)

(8) Remove the resonator from the air cleaner case. (2 rivets) (Dia.4)



2. INSTALLING THE KIT

(1) Insert the 20mm plug to the factory hose, and secure the hose using tie wraps. (Dia.5)

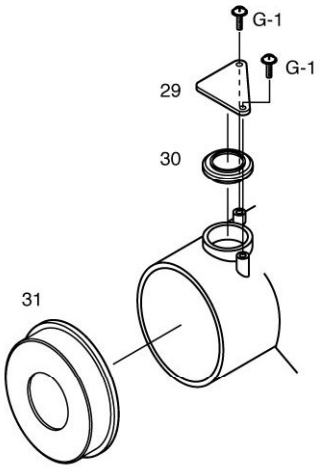


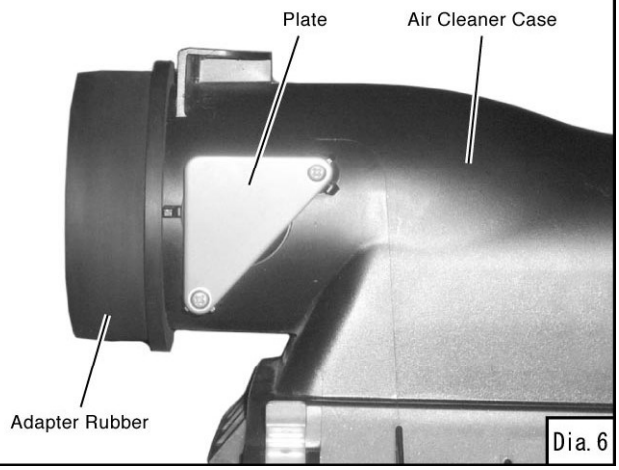
Dia. 5

(2) Install the grommet to the air cleaner case.
Hold the grommet down to the case using a plate. (Dia.6)

(3) Install the adapter rubber to the air cleaner case. (Dia.6)

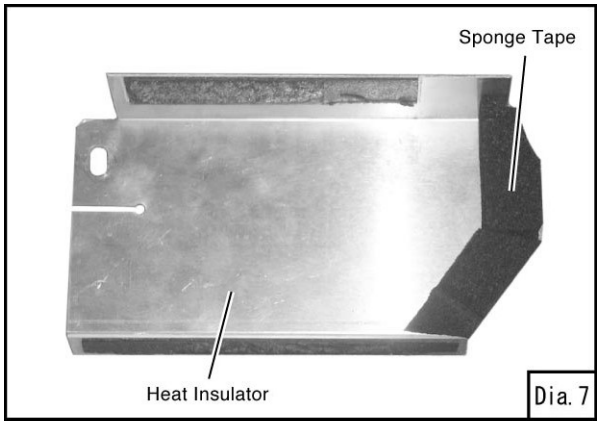
29. Plate
30. Grommet
31. Adapter Rubber
G-1. Bolt (Factory)





Dia. 6

(4) Attach the sponge tape to the heat insulator. (Dia.7)

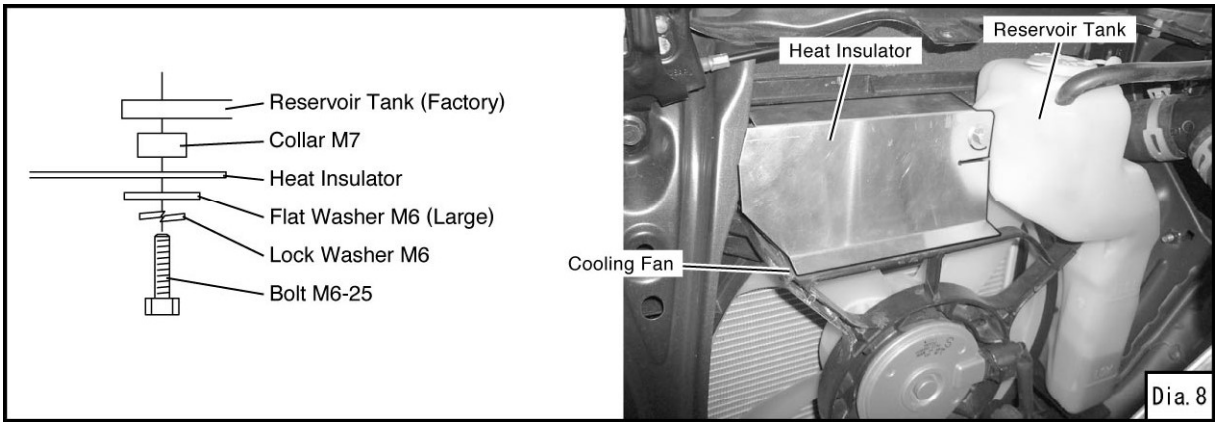


Dia. 7

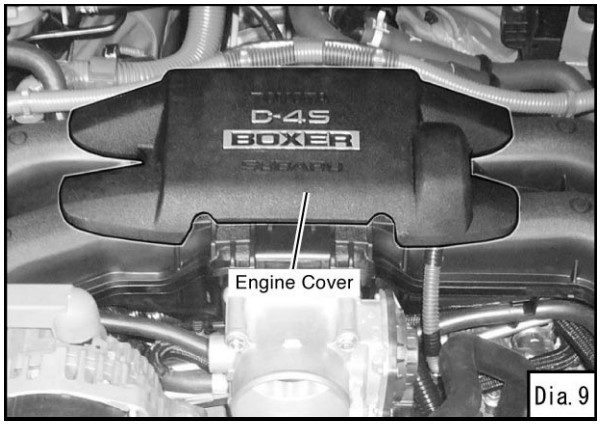
(5) Remove the release paper of the double-sided tape on the heat insulator.

(6) Remove the bolt from the reservoir tank. Attach the heat insulator to the cooling fan using kit parts and tighten the bolts. (Dia.8)

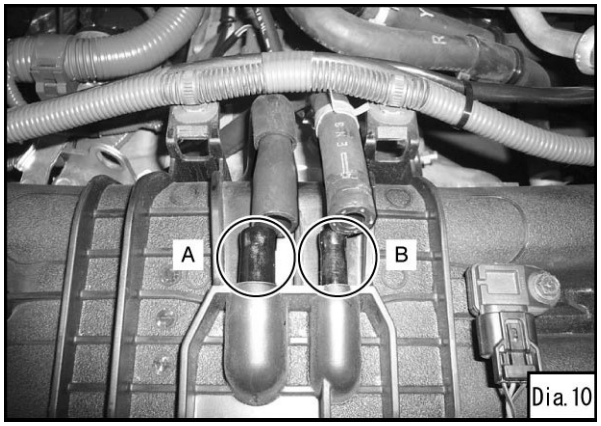
ADVICE:
Remove dust and/or oil from the surface of the cooling fan to attach the heat insulator.



(7) Remove the engine cover. (Dia.9)

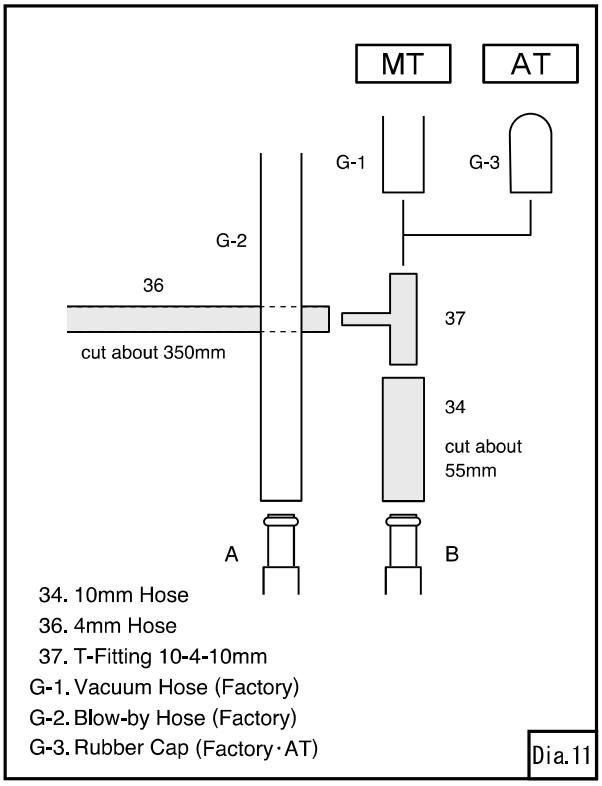


(8) Disconnect the vacuum hose and the blow-by hose. Automatic-transmission Vehicle : Remove the rubber cap from “B”. (Dia.10)



(9) Connect the 10mm hose and the 4mm hose to the T-fitting (10-4-10mm). (Dia.11)

(10) Connect the hoses as shown in Diagram 11.
Automatic-transmission Vehicle : Install the factory rubber cap to the T-fitting(10-4-10mm). (Dia.11)

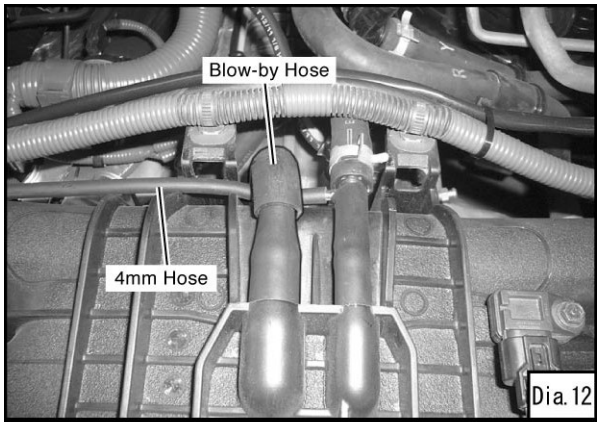


34. 10mm Hose
36. 4mm Hose
37. T-Fitting 10-4-10mm
G-1. Vacuum Hose (Factory)
G-2. Blow-by Hose (Factory)
G-3. Rubber Cap (Factory·AT)

Dia.11

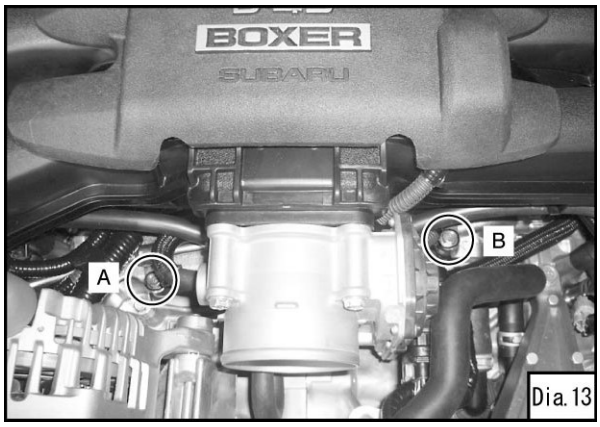
(11) Reconnect the blow-by hose.
Make sure the 4mm hose routes under the blow-by hose. (Dia.11, 12)

(12) Reinstall the engine cover.



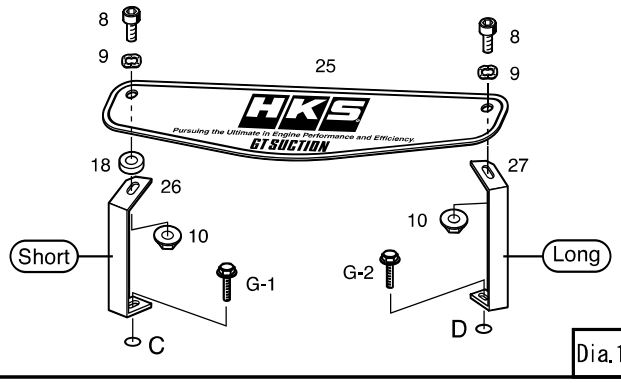
Dia.12

(13) Install the head louver. (Dia.13, 14, 15)



Dia.13

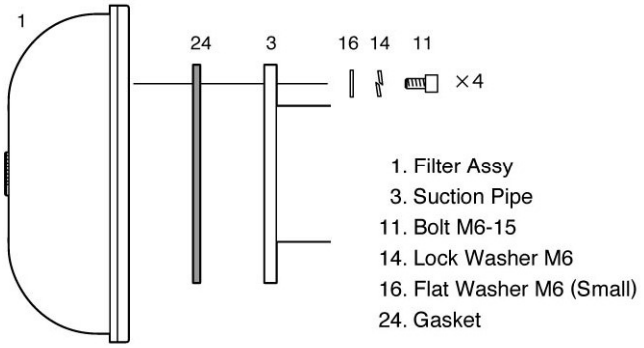
8. Bolt M8-15
9. Wave Washer M8
10. Flange Nut M8
18. Rubber Bushing
25. Head Louver
26. Head Louver Bracket No.1
27. Head Louver Bracket No.2
G-1. Bolt (Factory・C)
G-2. Bolt (Factory・D)



Dia.14

Dia.15

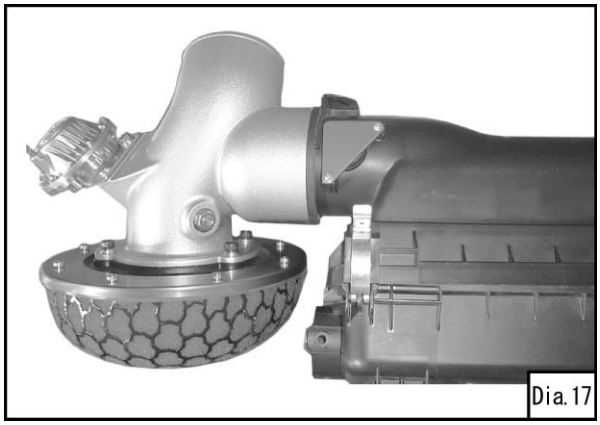
(14) Install the filter assy to the suction pipe. (Dia.16)



1. Filter Assy
3. Suction Pipe
11. Bolt M6-15
14. Lock Washer M6
16. Flat Washer M6 (Small)
24. Gasket

Dia.16

(15) Install the suction pipe to the air cleaner case. (Dia.17)



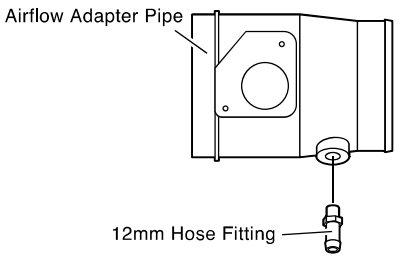
Dia.17

(16) Install the supplied 12mm hose fitting to the airflow adapter pipe. Wrap the threaded section with Teflon tape to prevent air leakage. (Dia.18)

ADVICE:
After tightening the hose fitting by hand, tighten it another one to two turns using the appropriate tools. (It is not necessary to tighten the fittings to the point where the nut touches the pipe.)

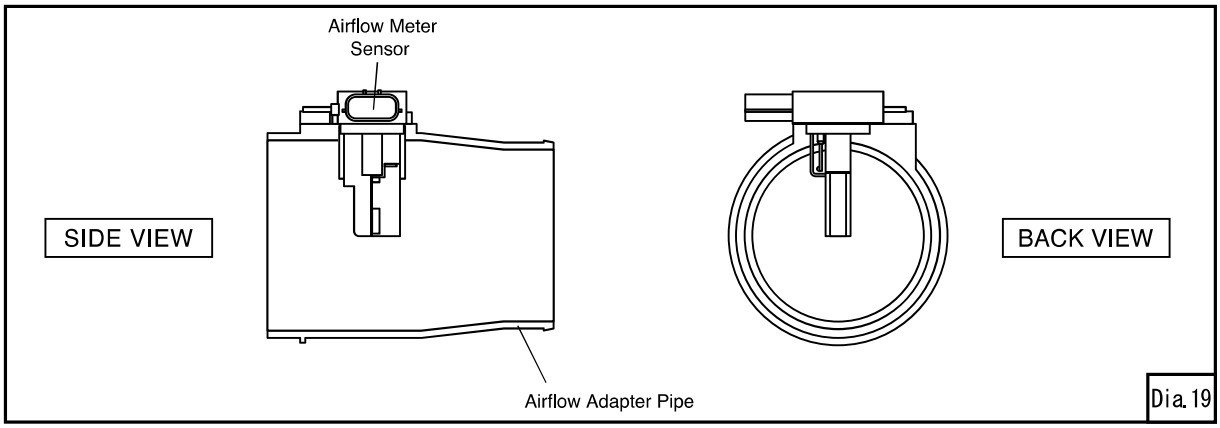
When intalling the hose fittings, wrap the threaded section with Teflon tape to prevent air leakage,

After tightening the hose fitting by hand, tighten it another one to two turns using the appropriate tools.
(It is not necessary to tighten the fittings to the point where the nut touches the pipe.)



Dia.18

(17) Assemble the airflow meter sensor as illustrated in Diagram 20. Ensure that the factory airflow meter sensor's O-Ring is seated correctly, making sure it does not get pinched in the suction pipe. Tighten with the supplied M4 screws. Do not over-tighten. Tightening torque: 2.0~3.0 N-m (0.2~0.3 kg-m). (Dia.19, 20)

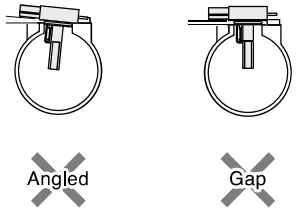


Dia.19

⚠ CAUTION

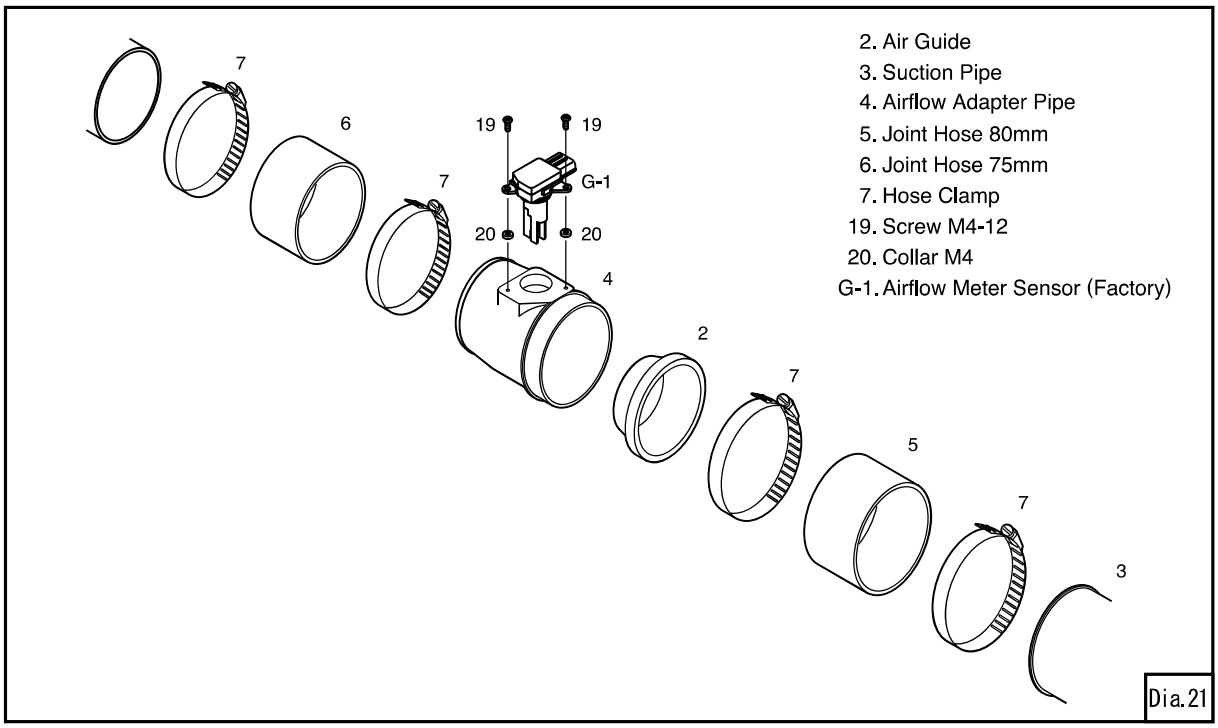
To avoid engine malfunction or damage, please install the airflow meter sensor correctly.

Airflow Meter Sensor Mounting



(18) Temporarily install the airflow adapter pipe. (Dia.20, 21)

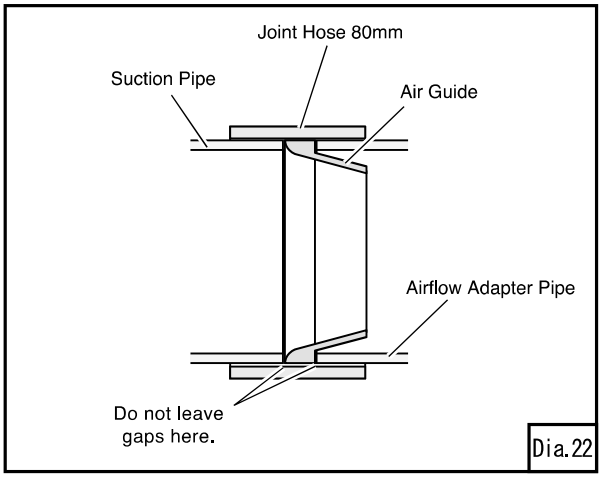
Dia.20



Dia.21

(19) Install joint hose 80mm to the airflow adapter pipe. (Dia.21, 22)

(20) Press and insert the air guide into the joint hose. (Dia.22) Make sure not to leave any gaps between the airflow adapter pipe and air guide.



Dia.22

(21) Temporarily install the suction pipe and the air cleaner case. (Dia.21, 23)
Make sure not to leave any gaps between the suction pipe and air guide.

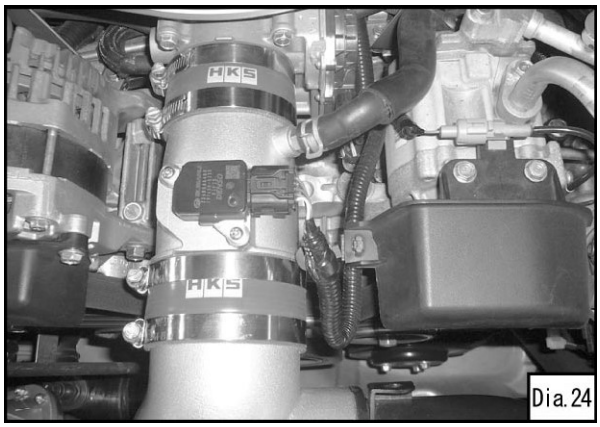
ADVICE:
For easier installation, tilt the airflow adaptor pipe and insert the factory air duct first.


Dia.23

(22) Position the air cleaner to the vehicle, avoiding unnecessary contact with other parts of the vehicle. Once the position is determined, secure the air cleaner to the vehicle using the supplied hose clamps.

(23) Secure the air cleaner case using factory bolts.

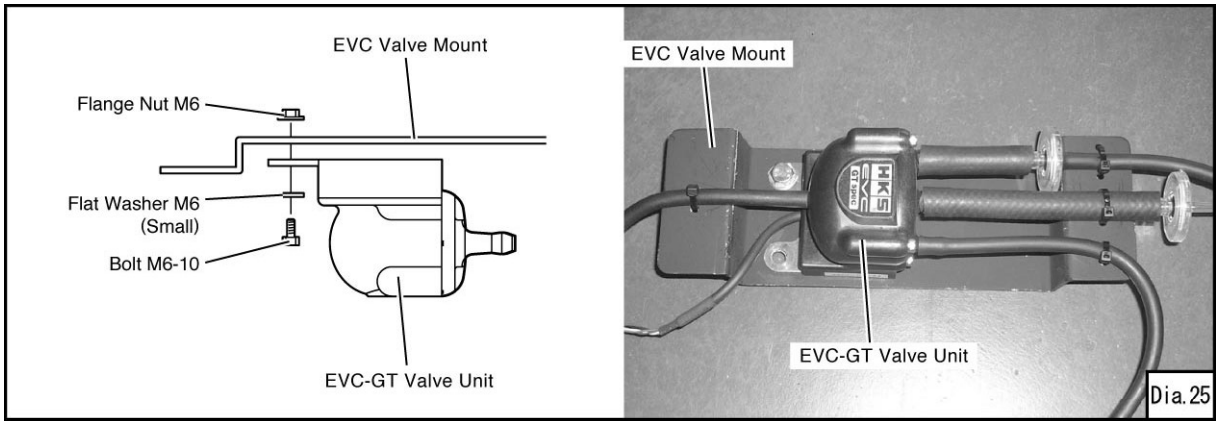
(24) Connect the blow-by hose to the airflow adapter pipe. (Dia.24)



Dia.24

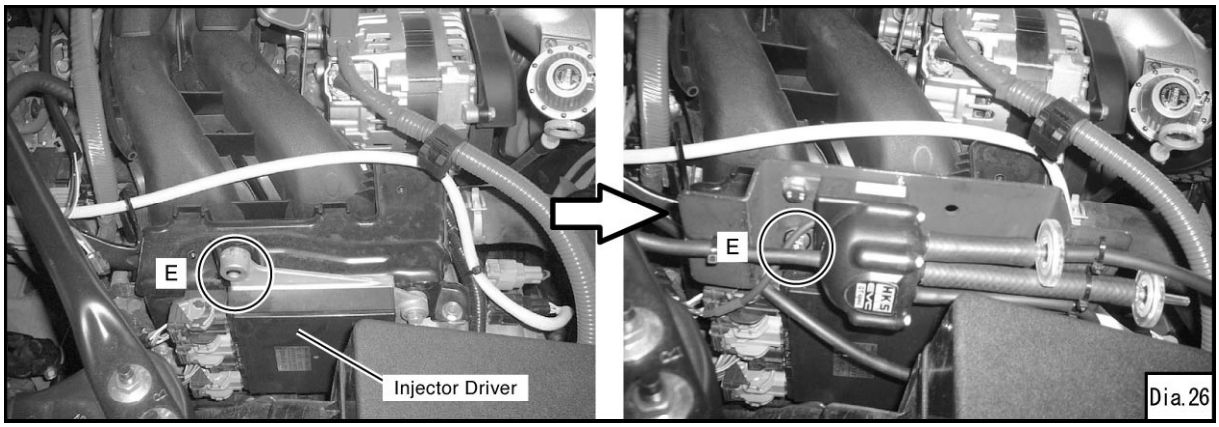
(25) Reconnect the airflow meter sensor connector.

(26) Install the EVC-GT valve unit to the EVC valve mount. (Dia.25)

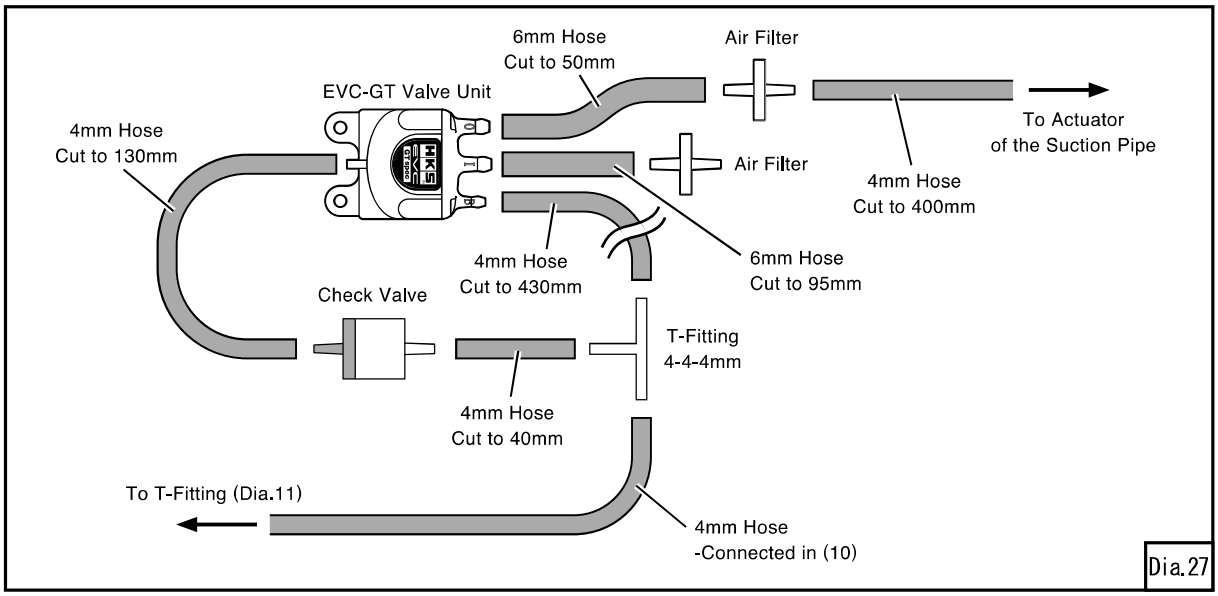


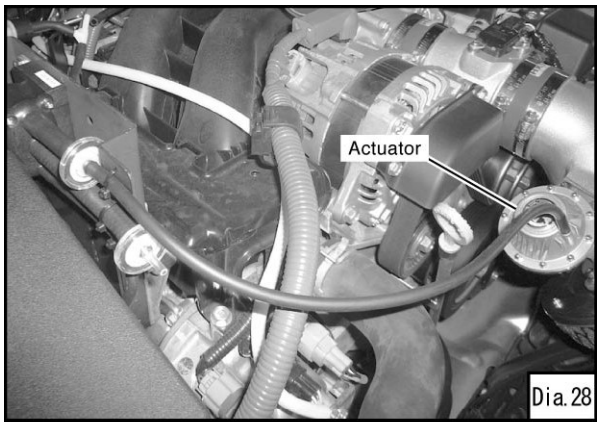
Dia.25

(27) Install the EVC valve mount and the injector driver together to “E” using the factory bolt. (Dia.26)



(28) Connect the hoses to the EVC-GT valve unit. (Dia.27, 28)



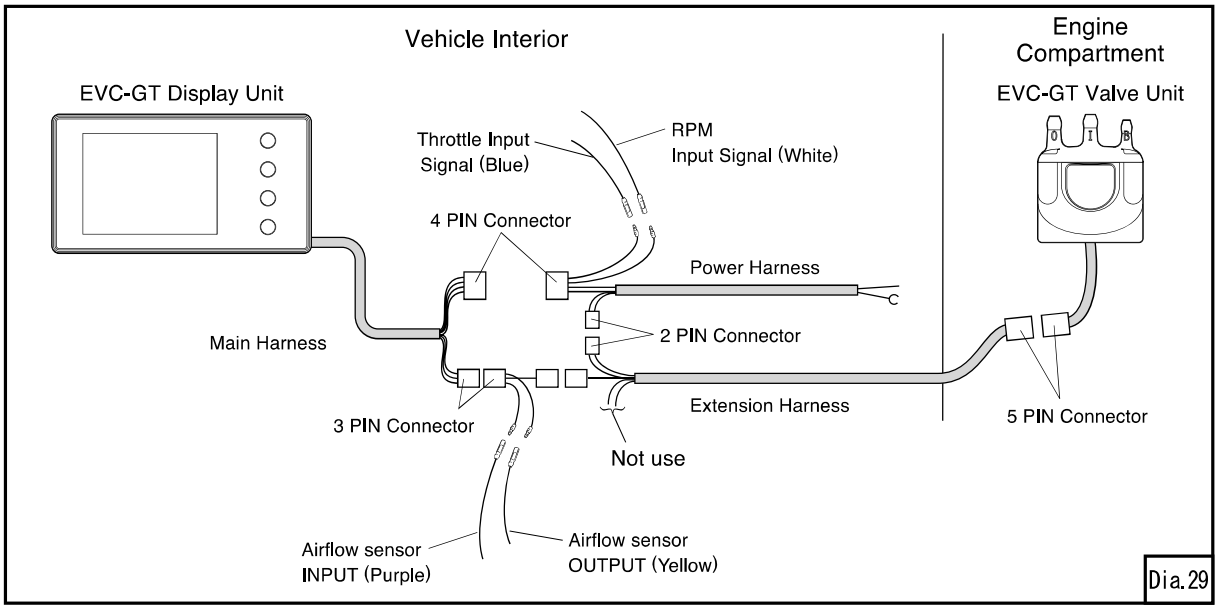


(29) Connect the extension harness to the 5 PIN Connector of the EVC-GT valve unit.

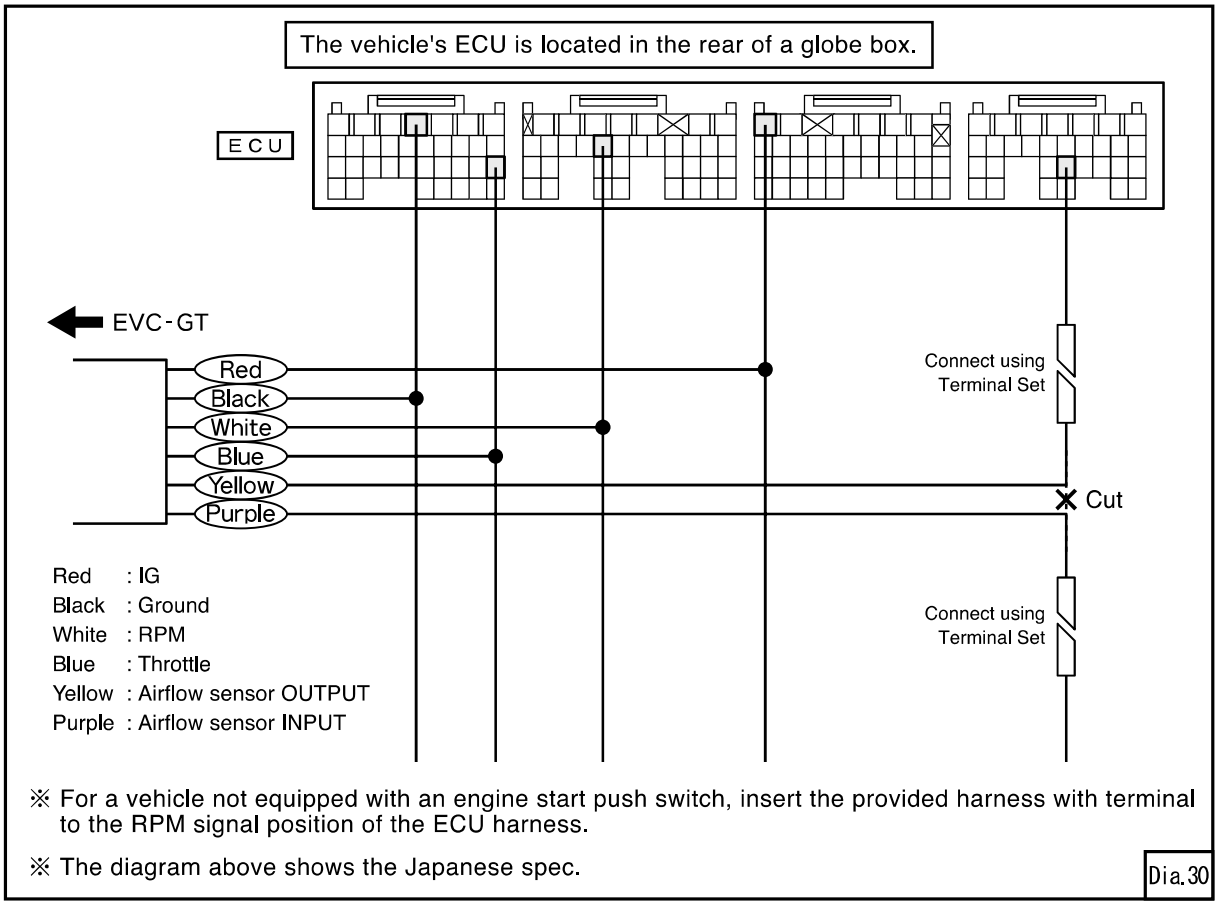
(30) Pull the extension harness from the engine compartment into the vehicles interior.

(31) Connect the provided harness to the ECU harness using electro taps and terminal set. (Dia.29, 30)

Make sure to connect all wires correctly to prevent possible malfunctions.



Dia.29



※ For a vehicle not equipped with an engine start push switch, insert the provided harness with terminal to the RPM signal position of the ECU harness.

※ The diagram above shows the Japanese spec.

Dia.30

(32) Connect the extension harness and EVC-GT display unit connector. Mount the EVC-GT display unit in a preferred place in the car interior.

⚠ WARNING

●Do not mount the EVC-GT Display Unit where it can distract driving.

ADVICE:
The EVC-GT display unit may be difficult to view due to the mounting angle. Adjust the mounting angle to view the display clearly and properly.

Refer to the operation manual for EVC-GT for operation procedures of EVC-GT.

(33) Secure the hoses and the extension harness to the appropriate position using Tie Wraps.
Make sure the hoses are not being squeezed.

(34) Reconnect the negative terminal to the vehicle's battery.

CONFIRMATION AFTER INSTALLATION

Check the following after the installation process is complete.

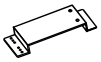
(1) Check the following before starting the engine:
- ● Make sure all pipes and hoses are routed and connected correctly.
- ● Make sure wiring is done correctly.
- ● Make sure electro taps / connectors are connected securely.
- ● Make sure the installed parts are mounted securely and do not interfere with driving.
- ● Make sure all hose clamps are tightened.
- ● Make sure the negative cable terminal is securely attached to the battery.
- ● Make sure all bolts and nuts are tightened.
- ● Make sure all installed components do not come in contact with other parts.

(2) Start the engine and check the following:
- ● Make sure air is not leaking.
- ● Make sure the RPM rises smoothly after revving the engine 2-3 times while in neutral.
- ● Make sure the installed parts are not hitting each other.
- ● Make sure there are no issues idling.
- ● Make sure there are no loose parts after the engine is stopped.

PARTS LIST

No	Description	Qty	Image	Remarks
1	Filter Assy	1		200mm
2	Air Guide	1		
3	Suction Pipe	1		
4	Airflow Adapter Pipe	1		
5	Joint Hose	1		80mm L=55
6	Joint Hose	1		75mm L=55
7	Hose Clamp	4		#48
8	Bolt	2		M8-15
9	Wave Washer	2		M8
10	Flange Nut	2		M8
11	Bolt	4		M6-15
12	Bolt	1		M6-25
13	Bolt	1		M6-10
14	Lock Washer	5		M6
15	Flat Washer	1		M6 Large
16	Flat Washer	5		M6 Small
17	Flange Nut	1		M6
18	Rubber Bushing	1		

No	Description	Qty	Image	Remarks
19	Screw	2		M4-12
20	Collar	2		M4
21	Hose Fitting	1		12mm
22	Plug	1		20mm
23	Collar	1		M7
24	Gasket	1		
25	Head Louver	1		
26	Head Louver Bracket No.1	1		
27	Head Louver Bracket No.2	1		
28	Heat Insulator	1		
29	Plate	1		
30	Grommet	1		
31	Adapter Rubber	1		
32	Air Filter	2		
33	Check Valve	1		
34	Hose	1		10mm L=100
35	Hose	1		6mm L=500
36	Hose	1		4mm L=2000

No	Description	Qty	Image	Remarks
37	T-fitting	1		10-4-10mm
38	T-fitting	1		4-4-4mm
39	Sponge Tape	1		
40	Tie Wrap	10		Large
41	Tie Wrap	20		Small
42	Sticker	1		
43	EVC-GT Display Unit	1		
44	EVC-GT Valve Unit	1		
45	EVC Valve Mount	1		
46	Extension Harness	1		
47	Power Harness	1		
48	Adapter Harness	1		
49	Input Signal Harness	1		Blue White Yellow Purple
50	Harness with Terminal	1		
51	Electro Tap	4		
52	Terminal Set	2		
53	EVC-GT Instruction Manual	1		
54	Instruction Manual	1		

MAINTENANCE

Proper daily maintenance of this product is necessary in order to maintain the safety, reliability, and function of this product.
Maintenance is the responsibility of the driver/owner.

- If work needs to be performed outside the scope of this manual, consult a professional.
- If the vehicle becomes damaged, have the repairs performed by a professional.
- If you experience abnormal noises, scents, or vibrations from the vehicle while driving, refer to the vehicle's Owner's Manual.
- If this product had a resale, please give this Instruction Manual to the new owner.
- When removing this product from the vehicle, please consult a professional.

http://www.hks-power.co.jp/

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EVC-GT
ELECTRONIC VALVE CONTROLLER

Instruction Manual

Product	ＥＶＣ－ＧＴ
Use	For GT Suction Valve Switch Control
Application	Vehicle that operates on a DC 12V negative ground.
Remarks	・This product is only for the butterfly valve switch control of GT Suction Kit. This product cannot be used to control the boost of the turbo engine vehicle.

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

E89581-T25010-00
April, 2014 Ver.3-1.01

Introduction

HKS EVC－GT

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

HKS EVC-GT can discretionally set the butterfly valve switch control timing of GT Suction Kit. This setting can be done in a vehicle. Stepping motor of HKS EVC-GT enables users to adjust the speed to open the butterfly valve and such. The fuel adjustment setting that is required to edit the butterfly valve switch control timing is also possible.

- 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.
- To use this product on the public road, follow the necessary procedures if there are any regulations for a tuned vehicle.
- 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 other vehicles than mentioned above.
- This product is applicable for any vehicle that operates on a 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

EVC-GT is exclusively designed to control the butterfly valve of GT Suction Kit. The switch butterfly valve control of GT Suction Kit opens and closes the actuator by the engine negative pressure.

This product controls the pressure applied to the actuator. To close the butterfly valve, the negative pressure is required; therefore, the butterfly valve is kept opened when the surge tank pressure is not negative even if EVC-GT sets to close the butterfly valve.

When the switch timing is changed from the default, the fuel setting is required since the fuel control may be changed simultaneously.

- **Compact Design**
  Its compact designed display and stepping motor enable a versatile installation into the vehicle interior and the engine compartment.

- **Simple Setting**
  Just directly input the desired value to modes A, B and C, and let EVC-GT control the butterfly valve.

- **Switch Release Function**
  Turning EVC-GT functions off cancels the switch function. The butterfly valve is kept opened unless the switch is turned on again.

- **Triple Mode Settings**
  A, B and C Mode are the 3 user specified preset level selections. Each mode can be used for a different purpose or situation.

- **RPM signal•Throttle Position Input**
  Input the engine RPM signal and throttle position signal enable the display on the digital meter.

- **Map Adjustment Function**
  The butterfly valve control corresponding to the engine RPM and throttle position is possible.

- **Fuel Control Correction Function**
  The fuel control can be corrected in accordance with the individual difference of the vehicle or when the butterfly valve switch control timing is changed.

- **Digital Triple Data Meter**
  3 digital data readings of the surge tank pressure, throttle percentage, and engine RPM can be displayed.

- **Bar Graph Selection**
  The bar graph display can be set for the throttle percentage, and engine RPM.

● **Bar Graph Peak Hold Function**
The peak hold function of the bar graph displays and holds the maximum value achieved for easy instant recognition.
This function is user selectable to be on or off.

● **After Image Display Function**
When the surge tank pressure changes from positive pressure (include 0kPa/0.0PSI) to negative pressure, the maximum positive surge tank pressure value is displayed for a few seconds.
This function is user selectable to be on or off.

● **Data Memory Function**
All set values are saved in the internal memory of EVC-GT. Therefore, these settings are protected when the ignition is off or if the battery is disconnected.

● **Pressure Unit of Measure Selection**
The unit of measure for pressure can be selected between 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 Multi-Display**
Utilizing a large full-color display enables clear day and night viewing. The multi-display also enables simultaneous data recognition.

● **Digital and Analog Boost Monitoring**
The digital data and the bar graph can allow the driver to read and understand the boost conditions intuitively and visually.

Index

Safety Precautions

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 EVC-GT while driving to avoid the possiblity 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.
- 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.
- Used the provided electro taps and install them to the correct positions. If not, it may cause serious damage to the vehicle.
- Connect the ground wire onto a good chassis ground. If not, it may cause damage to the vehicle.
- Insert the air filter and replace it at regular intervals. If not, it may cause damage to the vehicle.
- When installing the air 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 air 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.
- Avoid allowing oil and/or water from entering the valve unit. It may cause damage to the vehicle.

⚠ Caution

- **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.
- 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 mulfunction.

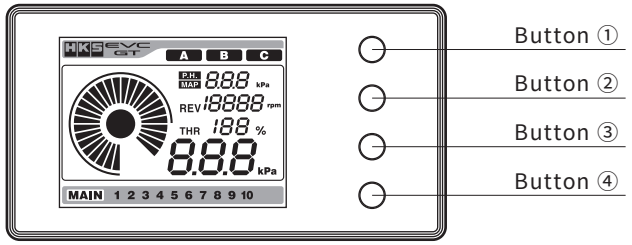
EVC-GT

Features and Functions

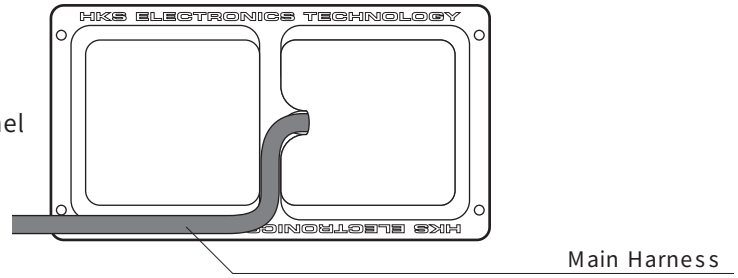
Features and Functions

◆Display Unit

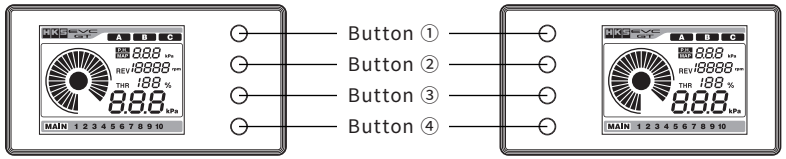
Front Panel



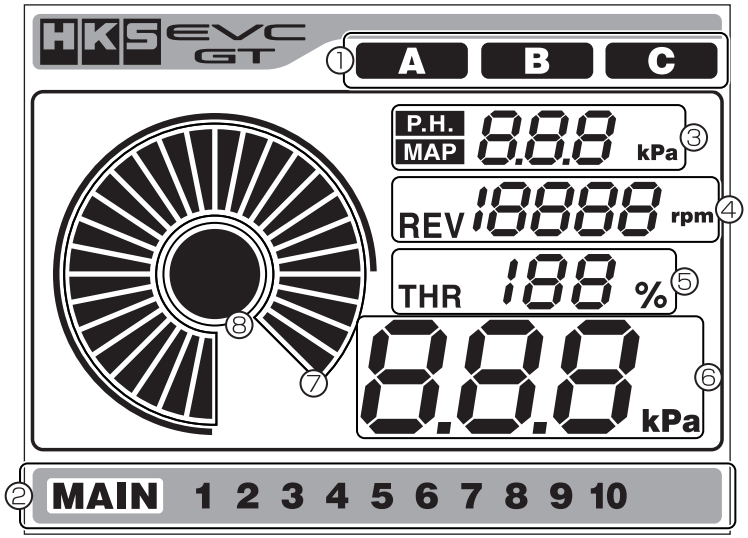
Rear Panel



Name	Function
Button ①	Press this button to move to the Input Mode and enter the input item on each setting page.
Button ②	To select the mode" A ", " B ", or " C " in the **[Main screen]**, press this button for more than 1 second to save the boost mode / the state of on or off of the EVC-GT. Press this button to move the cursor downward and decrease the value on each setting page.
Button ③	Use this button for screen brightness adjustment in the **[Main screen]**. (See page 25 for details.) Press this button for more than 1 second to reset the peak number. Press this button to move the cursor downward and decrease the value on each setting page.
Button ④	Press this button to switch screens. Press this button shortly to move to the next page. Press this button for more than 1 second to move to the previous page.
Main Harness	This harness is to connect the Power Harness, Extension Harness, and each Input Signal Harness.

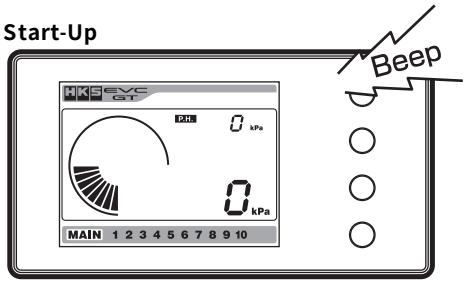
Button Oparation	Function
Button ①+② [Main Screen]	In the **[Main screen]**, press the Button① for more than 1 second pressing the Button② to switch the EVC-GT on or off. When the power is on, the EVC-GT control becomes active. When the power is off, the butterfly valve is fully open, and is not controlled by the EVC-GT. To turn on the EVC-GT and keep it on, or vice versa, press the Button② for more than 1 second to save the condition.
Button ①+③ [Main Screen]	In the **[Main screen]**, press the Button① for more than 1 second pressing the Button③ to switch the screen position as shown below. To save the condition, press the Button② for more than 1 second. 
Button ②+③ [Main Screen]	In the **[Main screen]**, press the Button③ for more than 1 second pressing the Button② to display the Start-Up screen. EVC-GT is still functioning while the Start-Up screen appears.
Button ③+④ [All Pages]	Press the Button③ and ④ together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

◆Display Unit (Main Screen)



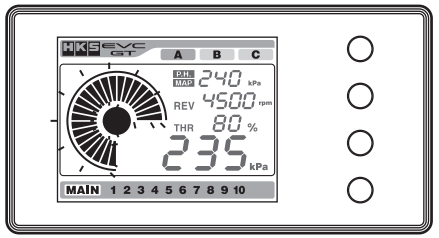
	Name	Function
①	Mode	The indicators of A,B and C show the selected preset setting. The selected mode is shown on each setting page.
②	Page	The current page is displayed with reversed characters.
③	Digital Display (S)	In this display, the preset warning value, peak hold value, or scramble countdown time is shown.
④	RPM Display	In this display, RPM is shown.
⑤	Throttle Opening Percentage	In this display, throttle opening percentage is shown.
⑥	Digital Display (L)	In this display, the surge tank pressure is shown.
⑦	Bar Graph Display	In this display, a bar graph of the following can be shown : surge tank pressure, RPM, throttle opening percentage. A scale of one bar's cell varies depending on the maximum setting value of each mode.
⑧	Butterfly Valve Signal	This indicator is turned on when the butterfly valve value exceeds the set value.

Start-Up



The unit beeps, and the Start-Up screen appears; then the Main screen appears.

Butterfly Valve Activated



The bar graph and the Butterfly Valve signal will appear.

Advice

The LCD of the display unit may have a black line. This is caused by static electricity, and it does not affect the functions or performance of the unit. To remove the line, wipe the display with an antistatic cloth or a cloth with the antistatic solution.

EVC-GT Operation

Operation

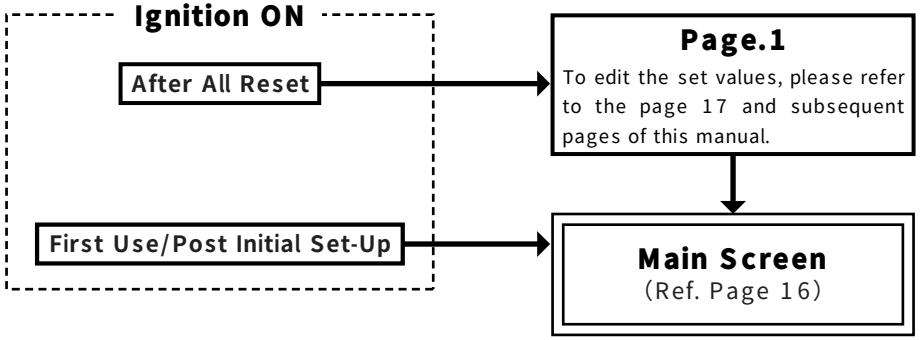
1. Initial Use of EVC-GT

●**[Main Screen]** appears at initial use of this product or turning on the ignition after resetting all data in the display unit.

Basic data is preprogrammed. To edit the set values, please refer to the page 17 and subsequent pages of this manual.

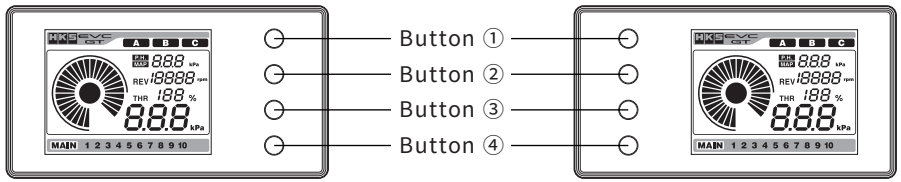
To change the unit of pressure, reset all settings and perform the initial setting. The edited set values are saved to EVC-GT once **[Main Screen]** is displayed after the initial setting is completed.

●Initial Set-Up Configuration: unit of measure for pressure, throttle position parameter. The characteristics of each vehicle can be memorized by the EVC-GT.



●In the **[Main screen]**, press the Button① for more than 1 second pressing the Button③ to switch the screen position as shown below.

To save the condition, press the Button② for more than 1 second.



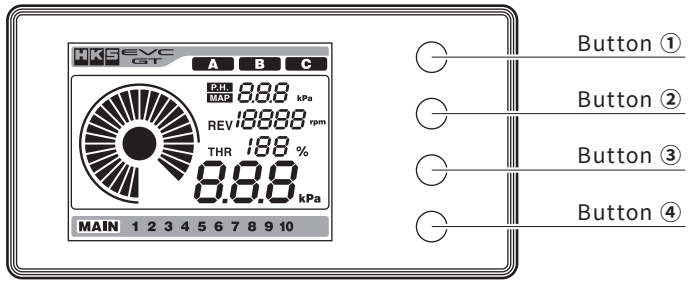
●EVC-GT functions cannot be activated by turning on the power on for the first time.

To switch the EVC-GT on or off, press the Button① for more than 1 second pressing the Button② in the **[Main screen]**.

When the EVC-GT is OFF,「Boost Mode(A B C)」in the **[Main screen]** is not shown.

To turn on the EVC-GT and keep it on, or vice versa, press the Button② for more than 1 second to save the condition.

2. Main Screen

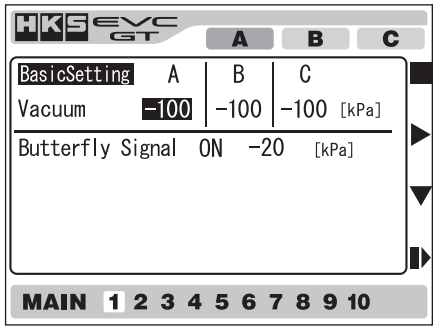


See the page 11 for details of items on the screen.

Button Oparation	Function
Button ①	Do not use.
Button ②	To select the mode“ A ”,“ B ”, or“ C ”in the **[Main screen]**. Press this button for more than 1 second to save the boost mode / the state of on or off of the EVC-GT.
Button ③	Use this button for screen brightness adjustment in the Main screen. (See page 25 for details.) Press this button for more than 1 second to reset the peak number.
Button ④	Press this button shortly to move to **[Page.1]**. Press this button for more than 1 second to **[Page.10]**.
Button ①+②	In the **[Main screen]**, press the Button① for more than 1 second pressing the Button② to switch the EVC-GT on or off. When the power is on, the EVC-GT control becomes active. When the power is off, the butterfly valve is fully open, and which is not controlled by the EVC-GT. To turn on the EVC-GT and keep it on, or vice versa, press the Button② for more than 1 second to save the condition.
Button ②+③	Press the Button③ for more than 1 second pressing the Button② to display the Start-Up screen. EVC-GT is still functioning while the Start-Up screen appears.

3. Page. 1

Set the vacuum values for A/B/C modes in the Standard Mode.



Advice

- The basic setting values of the vacuum must be lower than the surge tank pressure at idling.

- **Vacuum**

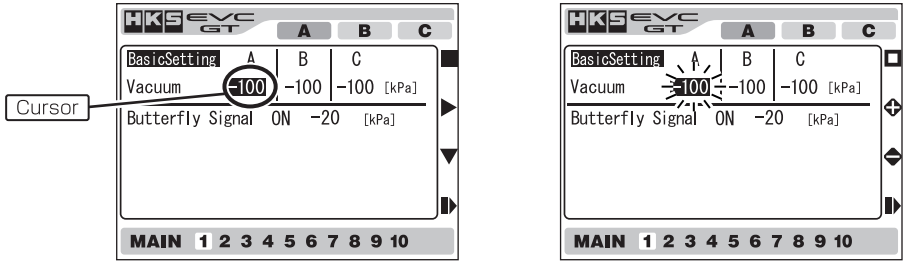
  This is to set the standard vacuum pressure of A to C of each mode. EVC-GT controls the actuator pressure to completely close the butterfly valve, which is not the same condition of fully closed butterfly valve, by the set value. The butterfly valve is fully closed when the pressure is at -100kPa (-14.5PSI). When the butterfly valve is not actually fully closed, editing this set value adjusts it to the optional position.

  The value may not exactly the same as the set value depending on the vehicle 's condition.

- **Butterfly Signal**

  The butterfly valve signal comes on when the value becomes the set value.

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.



-Input Mode-

(3) When returning to the **[Main screen]**, the edited items are saved on the ROM.

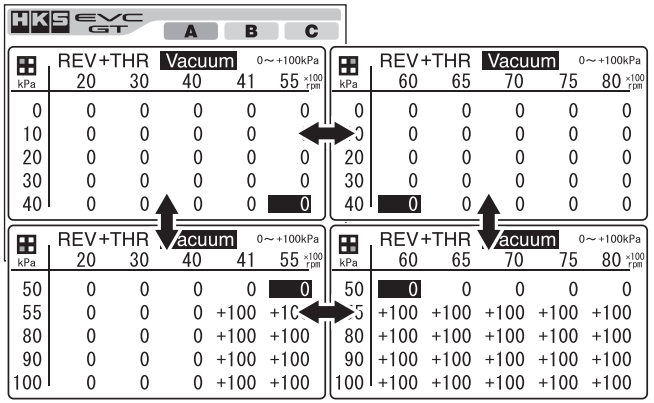
Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.2]**. Press this button for more than 1 second to move to the **[Page.10]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

4. Page. 2

Set the vacuum correction values for A/B/C modes.

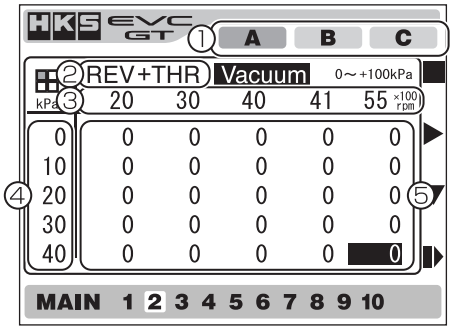
Advice

- The correction map consists of 10x10 cells.
  Move the cursor using the Button② and ③ to change the display range.



continues to next page..

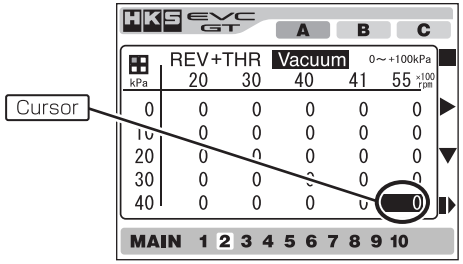
4. Page. 2 (continuation)

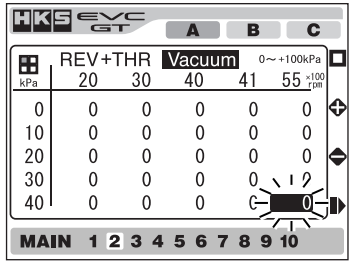


- ① **Select the Mode**
  Move the cursor, and select the mode to set using the Button①.
- ② **Select the Axis**
  Locate the cursor and push the Button①, select input singal function [Throttle opening %] or [REV+Throttle opening %].
- ③ **REV Axis Grid Point (10points)**
  Change the REV axis grid point for the map.
- ④ **Throttle Axis Grid Point (10points)**
  Change the throttle axis grid point (division point of the map by throttle opening %) for the map.
- ⑤ **Correction Values**
  Change the correction values.

This correction value is corresponding to the set standard vacuum pressure. The final target actuator pressure is the sum of the standard vacuum pressure and correction vacuum pressure. The set values may not be achieved depending on the vehicles conditions.

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.





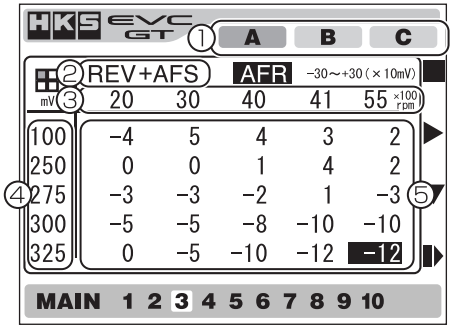
-Input Mode-

(3) When returning to the **[Main screen]**, the edited items are saved on the ROM.

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.3]**. Press this button for more than 1 second to move to the **[Page.1]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

4. Page. 3

Perform a setting of the airflow sensor correction map.
When the airflow sensor output value is changed by changing the open/close points of GT Suction, setting is required here.

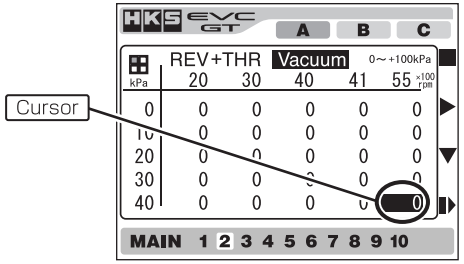


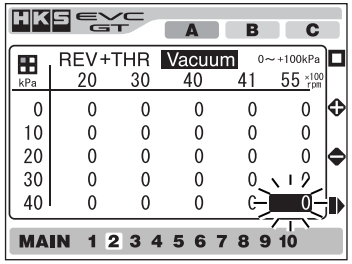
- ① **Select the Mode**
  Move the cursor, and select the mode to set using the Button①.
- ② **Select the Axis**
  Locate the cursor and push the Button①, select input singal function [REV] or [REV+Airflow sensor].
- ③ **REV Axis Grid Point (10points)**
  Change the REV axis grid point for the map.
- ④ **Airflow Sensor Axis Grid Point (10points)**
  Change the Airflow sensor axis grid point for the map.
- ⑤ **Correction Values**
  Change the correction values.

Advice

- The correction map consists of 10x10 cells.
  Move the cursor using the Button② and ③ to change the display range.

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.





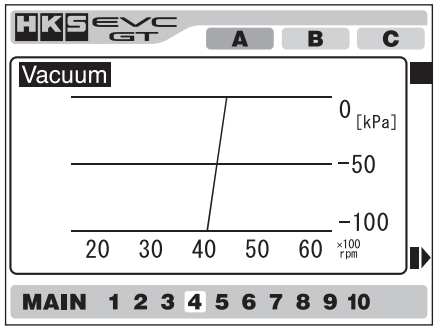
-Input Mode-

(3) When returning to the **[Main screen]**, the edited items are saved on the ROM.

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.4]**. Press this button for more than 1 second to move to the **[Page.2]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

6. Page. 4

Display the vacuum/airflow sensor correction values in the graph.



The values entered to set the axis grip point in **[Page.2]**, **[Page.3]** are shown.

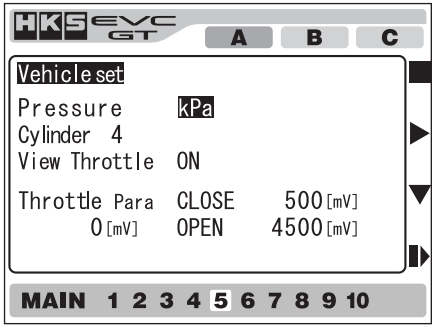
Button Oparation	Function
Button ①	Select the vacuum correction map or the airflow sensor correction map.
Button ②	Change the mode.
Button ③	Do not use.
Button ④	Press this button shortly to move to the **[Page.5]**. Press this button for more than 1 second to move to the **[Page.3]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

7. Page. 5

Set the Vehicle Set-Up.
Vehicle Set-Up is very important to determine the vehicle's characteristics.

⚠ Caution

●Settings must be done with the engine OFF.



- **Pressure**
  Select the pressure unit of measure from [kPa] or [PSI].

- **Cylinder**
  Select the number of cylinders.

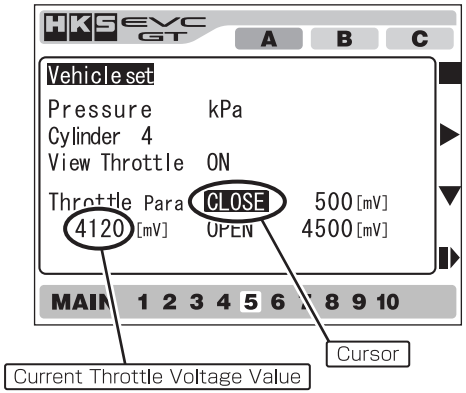
Advice

- Once the unit of pressure is set, it cannot be changed. To change the unit again, all settings has to be reset.

continues to next page..

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.6]**. Press this button for more than 1 second to move to the **[Page.4]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

7. Page. 5 (continuation)



•View Throttle
Display the throttle opening % in the **[Main screen]**.

•Throttle Para
To use the throttle signal input of the EVC-GT, setting of the Full Throttle・Throttle-Off voltage value is required.

○Throttle-Off Voltage Set Mode
(1) Locate the cursor to [CLOSE].
(2) To ensure that the throttle is completely closed, step on the accelerator pedal and then release. After confirming that it is closed, press the Button① to set the value.
(3) The EVC-GT will beep and the voltage value is now set.

○The throttle-off voltage value can also be manually inputed.
(1) Locate the cursor to the number next to [CLOSE], and press the Button①.
(2) The cursor blinks. Edit the value using the Button② and ③. Press the Button① to set the value.

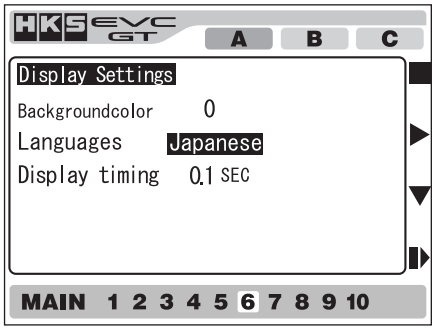
○Full Throttle Voltage Set Mode
(1) Locate the cursor to [OPEN].
(2) With the engine OFF, firmly step on the accelerator pedal until it reaches the stopper. After confirming that it is fully open, press the Button① to set the value.
(3) The EVC-GT will beep and the voltage value is now set.

○The full throttle voltage value can also be manually inputed.
(1) Locate the cursor to the number next to [OPEN], and press the Button①.
(2) The cursor blinks. Edit the value using the Button② and ③. Press the Button① to set the value.

When returning to the **[Main screen]**, these changes are saved on ROM.

8. Page. 6

Set the EVC-GT Display's function.

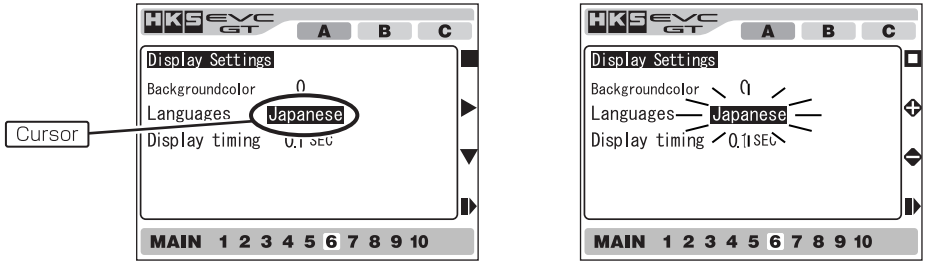


•Background color
Select the background color from 8 colors.

•Languages
Select from[Japanese] or [English].

•Display timing
Set the drawing speed of Digital Display (L・S), RPM Display and Throttle Opening Percentage of the **[Main screen]**.

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.



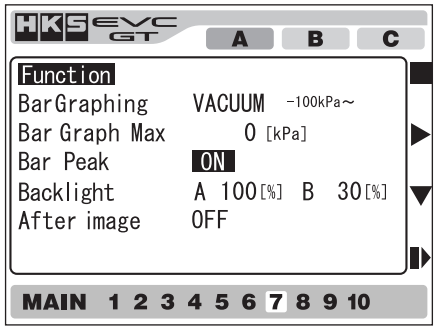
-Input Mode-

(3) When returning to the **[Main screen]**, the edited items are saved on the ROM.

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.7]**. Press this button for more than 1 second to move to the **[Page.5]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

9. Page. 7

Set the [**Main screen**]'s function.



- **Backlight**
  Setting the backlight's brightness. This function is not linked to the vehicle's headlight illumination or dimmer system.

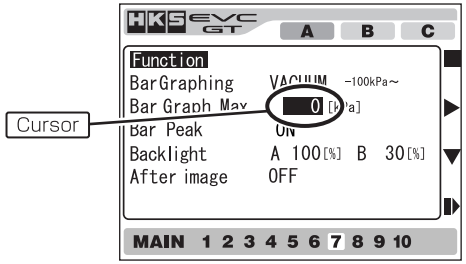
- **Bar Graphing**
  Select the data to be displayed in the bar graph in the **[Main screen]**.

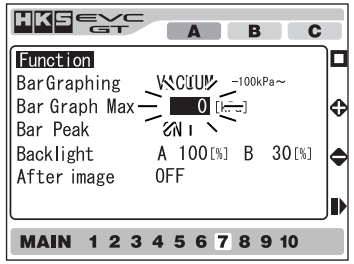
- **Bar Graph Max**
  Set the maximum value of the bar graph.

- **Bar Peak**
  Set the bar graph to display the peak value. When the bar graph display value decreses, the bar point of the maximum value remains.

- **After image**
  This mode is to set the digital display (L) to blink and show the max surge tank pressure achieved for 3 seconds when the surge tank pressure changes from positive pressure to negative pressure.

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.



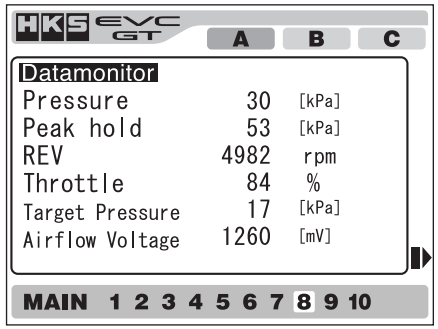


-Input Mode-

(3) When returning to the **[Main screen]**, the edited items are saved on the ROM.

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press this button shortly to move the cursor to the right, and press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.8]**. Press this button for more than 1 second to move to the **[Page.6]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

10. Page. 8

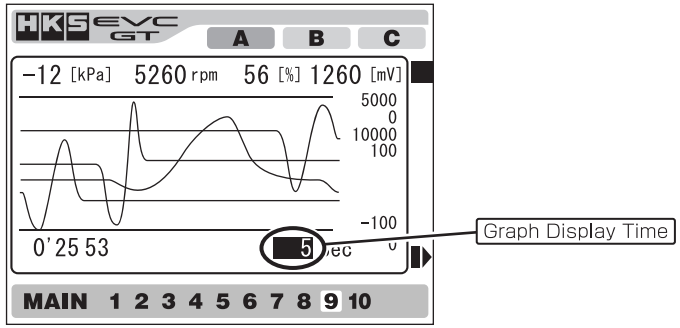


- The pressure set value is calculated as follows:
  Basic Vacuum Set Value + Vacuum Correction Value = Pressure Set Value

Button Oparation	Function
Button ①	Do not use.
Button ②	Press this button shortly to select the mode from A, B, or C.
Button ③	Do not use.
Button ④	Press this button shortly to move to the **[Page.9]**. Press this button for more than 1 second to move to the **[Page.7]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

11. Page. 9

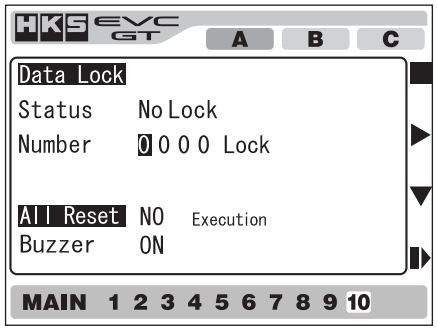
The graph of various data is shown. Pressing the Button① can change the display time of the graph.



Button Oparation	Function
Button ①	Press this button shortly to change the display time of the graph.
Button ②	Pause / Start
Button ③	Press this button to clear the displayed graph, and redisplay the graph.
Button ④	Press this button shortly to move to the **[Page.10]**. Press this button for more than 1 second to move to the **[Page.8]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

12. Page. 10

Set the data lock function with a personal code number to prevent accidental changes to the settings.

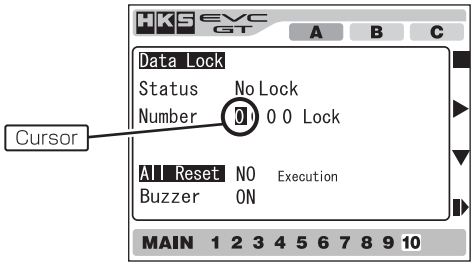


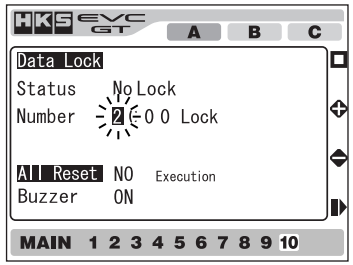
•Status
The status of the data lock function. When the data are locked, the status shows " Locked "and the personal code number is shown as [————].

•Number
Enter a personal code number. When a code number is not entered, the personal code number is shown as [0000].

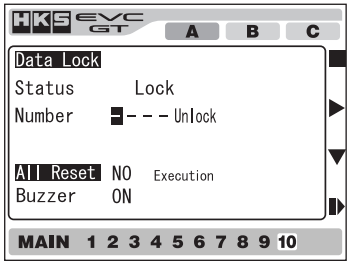
○To Use the Data Lock Function

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.
(3) Locate the cursor to [Lock] and press the Button①. Number on the screen shows [————], and Status shows [Lock].





-Input Mode-



○To Release the Data Lock

(1) Move the cursor using the Button② and ③. Press the Button① when the cursor moves on the item to edit to go to the Input Mode.
(2) The cursor blinks on the selected item. Edit the value using the Button② and ③. Press the Button① to input the edited value.
(3) After entering the correct personal code number, locate the cursor to [Unlock] and press the Button ! . Number on the screen shows [0000], and Status shows [No Lock].

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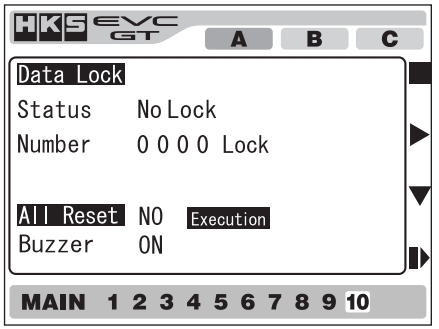
12. Page. 10 (continuation)

Advice

•After a password is entered, any set value except for **[Page.5]**, **[Page.7]** cannot be edited. To edit the set value, unlock the data lock.
•If the code number is lost for forgotten, reset the EVC-GT accordingly to the procedures in **All Reset** Mode. Please note that an All Reset will clear all inputed settings, and the EVC-GT's initial setup will need to be redone.



•All Reset
Locate the cursor to [NO] and press the Button① to change it to [YES]. Select and set [Execution] to reset all set values to defaults. The screen shows **[Page.1]**.

Advice

•Use this mode to reset initial settings or when the lock code is lost or forgotten.

•Buzzer
Select whether the display unit beeps or not during operation.

Button Oparation	Function
Button ①	Use this button to move to the Input Mode and input the edited items.
Button ②	Press the button more than 1 second to move the cursor to the left. Use this button to increase the value in the Input Mode. Pressing this button long can increase the value by 10.
Button ③	Press this button shortly to move the cursor downward, and press the button more than 1 second to move the cursor upward. Use this button to decrease the value in the Input Mode. Pressing this button long can decrease the value by 10.
Button ④	Press this button shortly to move to the **[Page.1]**. Press this button for more than 1 second to move to the **[Page.9]**.
Button ③+④	Press these buttons together to display the **[Main screen]**. Setting changes are saved on ROM. Setting cannot be changed without saving.

Optional Parts List

The following option parts are available.

No.	Part No.	Description	Remarks
1	1410-SA008	Air Filter	Super SQV Replacement Air Filter

Maintenance

⚠ Caution

●Do not operate this unit in any manner not described in this manual. Consult HKS Dealer if you are unsure.

●Replace the air filter before the regular interval if the dirt buildup is excessive.
Dirt buildup in the air filter can cause improper EVC-GT control which may lead to GT Suction Kit/vehicle 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 air filter builds up in an extremely short period of time, replace the hose outlet on the vehicle side.
●If the air 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; EVC-GT doesn't turn on	Bad 12V connection	Check for correct power and ground points
	Bad ground connection	Check wire connections and ground surface
Error message on display	Bad unit communication	Turn ignition OFF. Check valve and harnesses are connected properly and then turn the ignition ON again
The butterfly valve does not open at the RPM set value. Uncontrollable	The sum of the basic vacuum set value and correction vacuum set value is not close to the atmospheric pressure.	Reset within the settable range.
	Physical issue of the actuator and butterfly valve.	Inspect the surroundings of the actuator and butterfly valve.
	Incorrect initial setup	Do a Reset All and redo the Initial Setup
	Hose is cracked or come off	Check hoses, replace if necessary
	Air filter is blocked	Replace the air filter
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 ····· DC9V～16V
- ●Operating Temperature
  - Display Unit ····· −30～65℃(Operational Temperature Range)
    Can not be operated over 70℃
    (temperature declines below 65℃, it recovers automatically.)
    When the ambient temperature declines
    below −20℃, there is a decrease in the LCD rate.
  - Valve Unit ····· −30～105℃(Continuous Operating Temperature)
- ●Strage Temperature
  - Display Unit ····· −20～75℃
  - Valve Unit ····· −40～125℃

◆Specifications

- ●Minimum Operating Voltage ····· 8.5V or more
- ●Overvoltage Protection Voltage ····· 24V～26V
- ●Rated Current(Vcc=13.5V) ····· 220mA±50mA
- ●LCD ····· 240×320(dot) Color TFT
- ●The flash ROM rewrite limit to save the start-up screen is guaranteed for at least 500 times.
- ●The flash ROM rewrite limit to save the setting data is guaranteed for at least 10,000 times.

◆General Restrictions

- ●Display Unit
  - ・It is recommended to use this unit at an ambient temperature：65℃ or below and avoid direct sunlight.
  - ・Liquid crystal panel cannot be operated over 70℃. When the ambient temperature declines below 65℃, it recovers automatically.
  - ・Backlight becomes darkened when the power-supply voltage is reduced to 9.5V or less.
- ●Valve Unit
  - ・It is recommended to use this unit at an ambient temperature：85℃ or below.
  - ・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 9.5V or less ; it also may reduce the control speed.