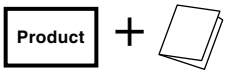
USER'S MANUAL

Thank you for purchasing this PIVOT product.
Please read this manual carefully before installation and use.
Please keep this manual for future reference.

●If this product is given to another user, make sure to include this User's Manual.

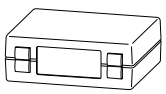


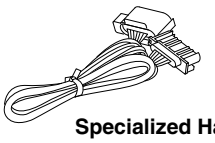
3 drive · COMPACT MAZDA

THROTTLE CONTROLLER PULSE Type

This product is designed for use with MAZDA pulse model cars only; it cannot be used with other type cars.

Please check the contents of the package


Unit
[60×22×55 (D) mm]


Specialized Harness


Extension Cable (Black)


Double-sided Tapes [25×35 mm] ×2


Cut Connectors ×4


Male Connectors ×2, Male Sleeves ×2


Zip Tie


User's Manual (This Book)

Contents

▶After installation, make sure to carry out "Initial Settings" (⇒Page 5) before using the product.

- If the "Initial Settings" are not carried out, a **CHECK Lamp** may go on. Also, the unit will remain in **NORMAL** mode even if the Mode is switched.
- If the product is re-installed in a different car, make sure to carry out "Initial Settings" before using.

▶Worried about Installation?

If you are worried about carrying out wiring or other installation procedures please consult your dealer.

▶Do not use together with another company' s product.

The 3-drive main unit and specialized harness are designed to be used together; the guarantee does not cover use of either part with another company' s product.

▶When uninstalling the product, make sure to return it to NORMAL Mode before carrying out any work.

▶This product cannot be installed in the following cars;

- **The ECU is different from the standard for that model.**
- **If a sub-computer is being used.**

⚠WARNING

Improper use or disregard of these warnings may result in the injury or death of people.

- ●When making initial settings make sure to stop the engine.
- ●Do not work in areas where there is excessive exhaust.
- ●While driving DO NOT operate switches or pay prolonged attention to the display.
- ●Make sure to carry out wiring so as not to obstruct driving or cause a short.
- ●Do not, in any manner, take apart or make changes to this product.

⚠CAUTION

Improper use or disregard of these warnings may cause injury to persons, damage the product and / or other things.

- ●Misuse of the product may cause breakdown or trouble; please use properly.
- ●PIVOT Corporation accepts no responsibility for any troubles that are the result of the misuse of this product.
- ●Do not use electrotap.
- ●Please check the details for compatible car models in "Fitting List" before purchasing.

Control Acceleration and Fuel Efficiency!

SPORTS Mode is for higher response driving.

ECO Mode is for better fuel efficiency, more comfort or when on slippery roads.

Select the kind of response to match your driving.

3-drive・COMPACT enables changing the response for electronic throttle car models and gives you, the driver, the freedom to select the type of acceleration response you need or desire: quick acceleration for speedy driving to slower acceleration for ECO-driving.

BASIC FEATURES

SPORTS Mode High response for sporty situations. (ideal for circuit, mountain driving, etc...)

ECO Mode Low response for Eco-driving situations. (perfect for city and fuel conscious driving)

NORMAL Mode Regular response for normal conditions.

Acceleration Monitor Displays the amount of pressure on the accelerator and helps to prevent poor fuel efficiency due to over acceleration.

3 Modes 12 Steps One-touch selection between 3 modes and 12 steps. (SPORTS Mode: 7 steps, ECO Mode: 5 steps)

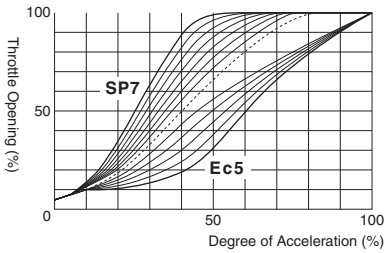
Compact All-in-one Body This compact all-in-one body makes it possible to install in out of the way places such as storage box or near the steering wheel.

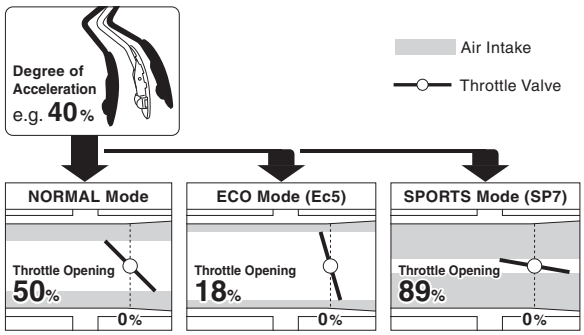
Mode Memory & Safety Start Select from three modes in which to start the engine: “Same as Last” Mode, “Normal” Mode or in “Safety” Mode which restarts the engine in SP3 mode when the setting is SP4 or above.

Easy Installation Easy installation using car model specific coupling harness (included).

Initial Setting Method Stable balanced control is possible by running the “Initial Settings” program after having finished installation; this will help reduce troubles caused by voltage (pulse) differences found in each car model.

Examples of Changes in Throttle Opening ※1





※1 The measurements for standard response were taken with a Suzuki Swift model car and depending on your model may differ.

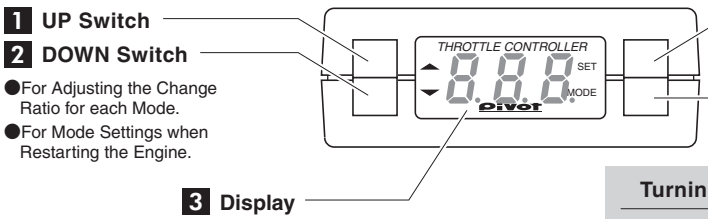
※In some car models with a Valvematic engine, control is carried out by the exhaust valve rather than the throttle valve.

Safety

1. Prevents sudden starts by reverting to same response as under normal setting.
2. Normal Control when in Reverse. (wiring where necessary)
3. Returns to Normal in case of faulty wiring or circuitry. ※2
4. Discrete 2 Signal Control for Safety.

※2 When using the Diagnostic Monitoring Connector for running tests, disconnecting the OBD2 connector will not cause any harm to the car.

Part Names



1 UP Switch

2 DOWN Switch

- For Adjusting the Change Ratio for each Mode.
- For Mode Settings when Restarting the Engine.

3 Display

- Mode Display
- Degree of Acceleration Display (10 - 100%)
- Settings Displays

4 SET Switch

- For Settings

5 MODE Switch

- For Switching Modes

Turning off the Display

※This product is interlocked with the ECU (engine computer) power. Depending on the model of car, the display may remain on for up to 15 minutes even after the engine has been turned off; this is normal. (For connection using the OBD2 connector or for connection to Normal Power)

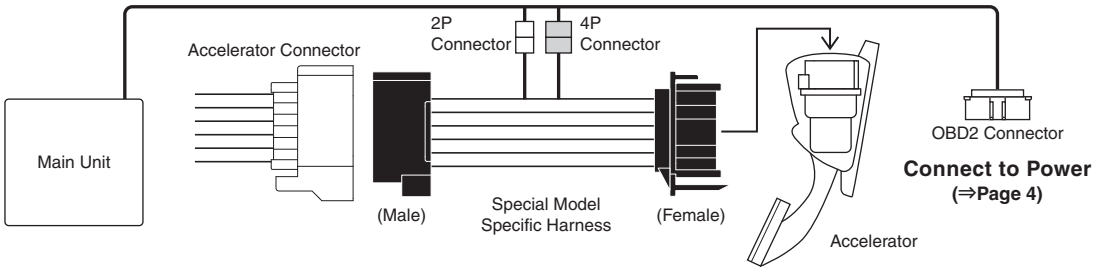
Installation, Initial Settings and fastening the product

Please make sure to follow all directions for installation, initial settings and fastening the product from procedure 1 to procedure 3 as written in this Manual.

procedure 1 Connecting The Wires

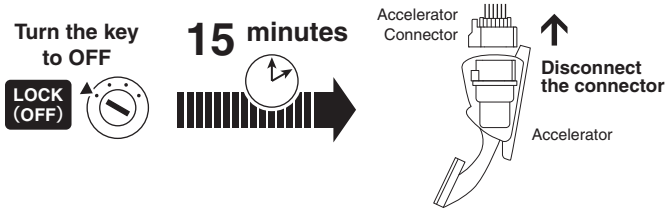
Basic Wiring

When installing make sure to use the specialized harness (included).



Important Notice about Removing Accelerator Connector

Only disconnect the accelerator connector after having waited at least 15 minutes from the time that the key was turned OFF. Depending on the model of car, removing the connector immediately may cause the CHECK Lamp to come on.

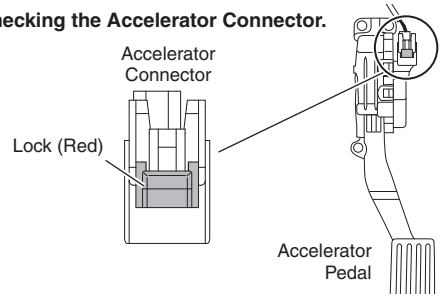


⚠

- If for some reason the CHECK Lamp does come on, please see "How to Turn Off the CHECK Lamp" on Page 8.
- Using a harness other than the one which is supplied with this product may cause malfunction or damage; use only the supplied harness.

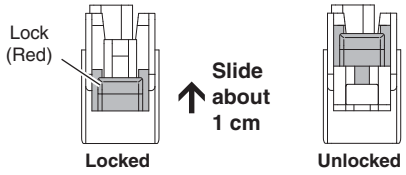
Installing The Specialized Harness

1 **Checking the Accelerator Connector.**



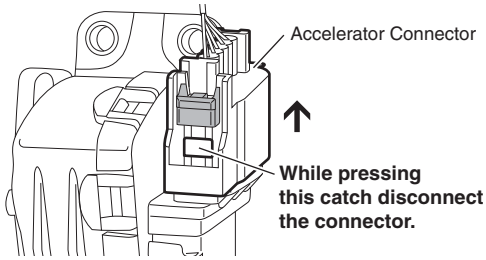
2 **If there is lock (Red) on the accelerator connector, unlock as shown in the figure below.**

※ If there is no lock, move to step 3.

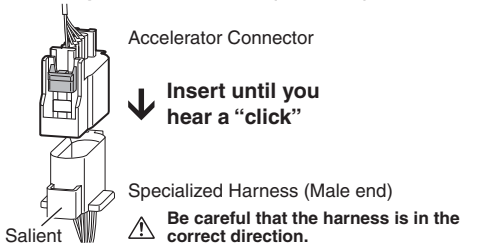


3 **While pressing down on the catch as shown in the diagram below, pull to remove the accelerator connector.**

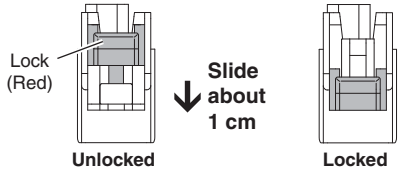
※Even if there is no lock remove in the same manner.



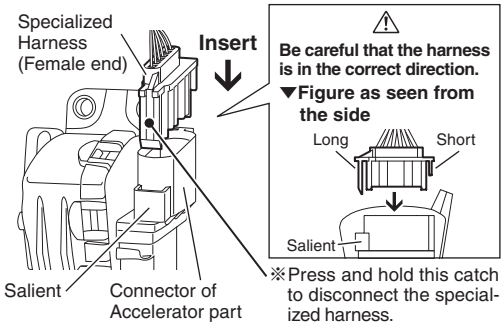
4 **Insert the disconnected accelerator connector into the specialized harness (Male end).**



※If there is a lock (Red), after inserting, make sure to re-lock the unit by sliding the lock back into the locked position.



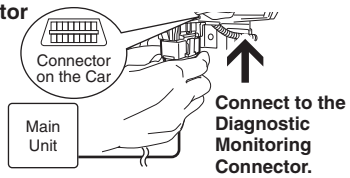
5 **Insert the specialized harness (Female end) into the car side of the accelerator connector.**



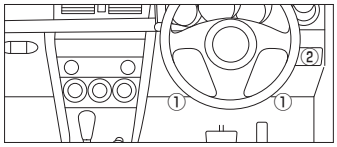
Connect to Power

Connect the OBD2 Connector with key switch OFF.

※When using the Diagnostic Monitoring Connector for running tests, disconnecting the OBD2 connector will not cause any harm to the car.



【Data】Placement Diagram for Diagnostic Monitoring Connector

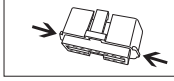


① At the right and left foot of the driver seat (with lid)

② Panel to right of steering wheel (upper part of small storage box)

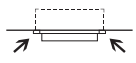
【Reference 1】Notes about using the OBD2 Connector.

Make sure to grip the distended portions when pulling it out or inserting it.

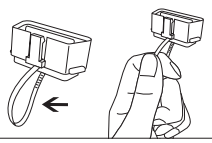


If you unable to get a grip on the distended portions.

With some car models it may be difficult to get a good grip on the connector.



In such case, pull out the connector by pulling on the end of the zip tie.



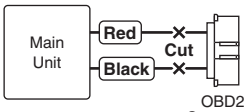
⚠CAUTION

Do not pull on the wires when trying to remove the connector; the wires may become disconnected.

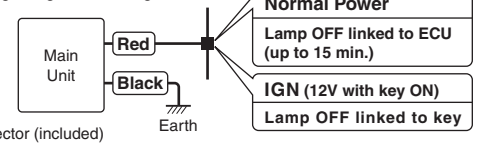
Connecting to Power to Other Than The Diagnostic Monitoring Connector

If you do not wish to or cannot use the Diagnostic Monitoring Connector, carry out wiring using the following directions.

1 Cut the **Red** and **Black** wires coming from the OBD2 connector.



2 As necessary, wire as shown in the diagram.



■: Use Cut Connector (included)

About Wiring for Reverse Gear

By wiring to reverse, it is possible when in SPORTS Mode to automatically switch to NORMAL Mode when the gear is put into **R** (Reverse).

⚠ Usually there is no need to wire to reverse.

Usually when using reverse the degree of acceleration is at most about 10%; in this range there is hardly any change so it is not necessary to wire for using reverse.

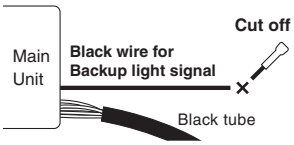
Wiring place: Backup Light Signal	Check Wiring
When key is ON (engine not running) and in **P** (Parking) or **N** (Neutral) = **0v** **R** (Reverse) = **12v**	8.8.8. When the reverse signal is input, no matter which mode it is in the dot will light up; only when in SPORTS Mode will it switch to NORMAL Mode.

Wiring Method

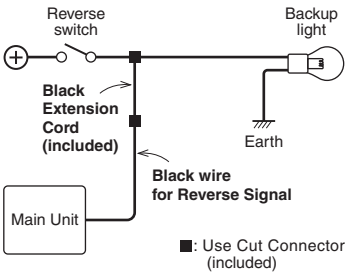
①Pull out the black wire from the black tube in which the wires are bundles.

②Cut off the shrink tube at the tip and connect the supplied extension wire to the cut off black wire.

③Wire to signal for the backup light.

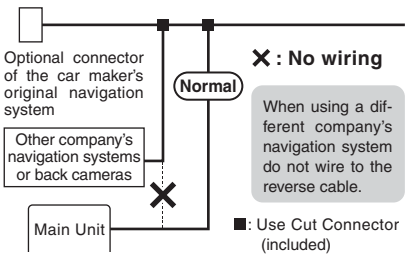


●If wiring to the backup light signal



■: Use Cut Connector (included)

●If wiring to the optional connector of the genuine navigation system



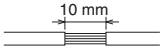
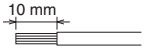
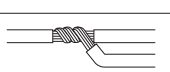
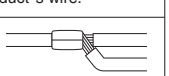
✕: No wiring

When using a different company's navigation system do not wire to the reverse cable.

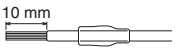
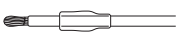
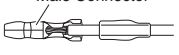
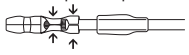
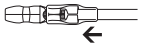
■: Use Cut Connector (included)

【Reference 2】How to use the Connectors

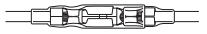
How to use the Cut Connectors

1  Peel off of the vinyl cover at connection.	2  Peel off of the vinyl cover at the end of the product' s wire.
3  Wrap around both wire coils.	4  Close tightly with cut connector.
5  Insulate with vinyl tape.	※When crimping, please use crimpers or use pliers to bend and then solder together.

How to use the Male Connectors

1  Pull the cable through the male sleeve.	2  Remove about 10 mm of the cable casing.	3  Turn back the tip of the wires.
4  Connect the male connector to the end of the cable.	5  Crimp down with crimpers to make sure that the inner wires are firmly connected to the inner part of the connector and that the cable section is connected to the outer part of the connector.	6  Affix the male sleeve to the places as mentioned above.

※After connecting the male and female connectors, make sure to firmly twist the male sleeve inside the female sleeve.



procedure 2

Initial Settings (Degree of Acceleration Setting)

Make sure to carry out these settings.

When installing for the first time → **Initial Settings**

When installing into a different car → **Initial Settings**

- **This operation sets the car' s accelerator characteristics into the controller unit.**
- **If the "Initial Settings" are not carried out, the unit will remain in NORMAL Mode even if the Mode is switched.**
- **If this settings have been improperly made a CHECK Lamp may go on.**

Before making the "Initial Settings"

⚠ **1. Make settings only after having completed all wiring (connector installation).**

2. Make settings with the key in the ON (engine not running) position and the gear in P (Parking) or N (Neutral).

【Making the Settings】

Operational Procedure	Main Unit Display Area
1 **Key ON.** ※1 ON — Engine not running	nor ("nor" Display) ※Make sure to only use NORMAL Mode when carrying this out. ※If either SP or Ec is shown in the display, press down on the MODE switch until nor appears.
2 **Press down on the SET switch for 12 seconds or longer to change the display to "0" .** ※Upon reaching "0" , a clicking sound can be heard. SET — Press until "0" appears	cAr Blink ⇩ - 5 - - 4 - ⋮ - 0 - Count down from 5 to 0 after the "cAr" blink.
3 **When "0" appears release the SET switch.** SET — Release	(e.g.)※2 L 1.5 Voltage Display (e.g., L1.5)
4 **Pedal is not pressed down.** **(Release the accelerator to 0%)** 0%	(e.g.)※2 L 1.5 Voltage Display (e.g., L1.5)
5 **Press the SET switch.** SET — Press → Set to 0%	SEt ("SEt" Display)
6 **Pedal is completely pressed down.** **(Press in on the accelerator to 100%)** 100%	(e.g.)※2 H 4.5 Voltage Display (e.g., H4.5)

Operational Procedure	Main Unit Display Area
7 **With the accelerator at 100%, press the SET switch.** ※When "nor" is displayed, a clicking sound can be heard. SET — Press → Set to 100%	SEt ("SEt" Display) ⇩ nor ("nor" will be displayed for 1 second ⇩ 100 ("100" Display)
8 **Once the display changes to 100 release the accelerator.**	100 ("100" Display) ⇩ nor ("nor" Display)

9 **Setting Completed**

⚠ **If the device is re-installed into a different vehicle, make sure to carry out these settings again.**

After having disconnected the OBD2 connector or the battery for running tests there is not need to carry out the "Initial Settings" again.

Check the Settings

※If the display is incorrect start again from step 2 above.

Do not press in on pedal

0% → nor ("nor" Display)

Press down on pedal

100% → 100 ("100" Display)

※Depending on characteristics of the accelerator or on how the accelerator is stepped on the display may read "A99" (99%).

⚠ **If Err is displayed at 7**

If after the "Err" is shown the display returns to as shown in 4 ("L1.5" or so on), it means that the degree of acceleration settings have not been confirmed properly. Re-do the settings from step 4 .

※1 If the car has standard push start system, follow the User' s Manual of the car to turn the Key to ON.
※2 The values shown in the display will vary depending on the type of car.

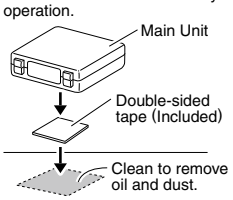
procedure 3 Installing The Product

Do not use magnetic holders, such as for a smartphone, to prevent malfunction.

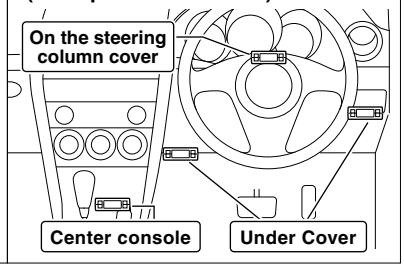
⚠ **Please be sure to bundle away all wires with tape not to get damaged by any steel plate or screws as this may cause short circuit.**

(How to Install)

Affix with double-sided tape to a position which is easy to see and which allows for easy operation.



(Example of Installation)



How to Operate

⚠ **After completing operations do not turn the key OFF for at least 2 seconds. The settings will not be saved.**

Switching Response Levels

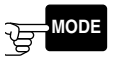
Make settings for response in each Mode.

Switching the Mode

Switch between 3 modes: SPORTS Mode (Higher Response), ECO Mode (Lower Response), and NORMAL Mode (Standard Response).

1 **Key ON.** (Engine Start)

2 **The mode will change with each pressing of the "MODE" switch.**



ECO Mode (Ec) ↔ NORMAL Mode (nor) ↔ SPORTS Mode (SP)

※For safety, when changing modes always go through nor (NORMAL) one time.
About the Relay sound: When switching to nor for safety reasons the relay will go into operation and you will hear a clicking sound.

Adjusting the Change Ratio for each Mode

Switch the change ratios within SPORTS Mode (SP) and ECO Mode (Ec).

⚠
- **When making adjustments to the change ratios, begin at the lowest setting and slowly make changes while continually checking acceleration.**
- **Saving Settings:** All settings are saved even after the engine has been turned off. However, if the engine is turned off in 2 seconds or less after the last setting operation was carried out, the settings will not be saved.

●Switching the Change Ratio for ECO Mode

Ec is displayed, the ratio will change with each pressing of the ▲(UP) / ▼(DOWN) switch.

Ec 5 ↔ Ec 4 ↔ Ec 3 ··· Ec 1

Greatest Change Ratio (-50%) (-40%) (-30%) Smallest Change Ratio (-10%)

●Switching the Change Ratio for SPORTS Mode

SP is displayed, the ratio will change with each pressing of the ▲(UP) / ▼(DOWN) switch.

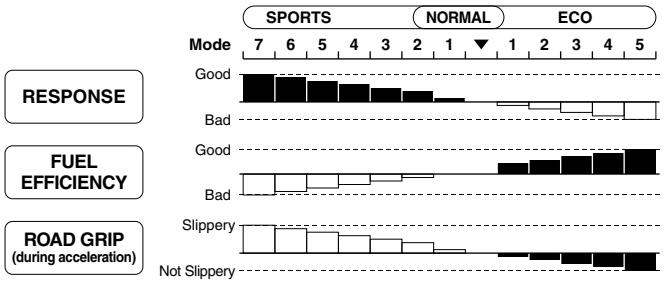
SP 1 ↔ SP 2 ↔ SP 3 ··· SP 7

Smallest Change Ratio (+10%) (+20%) (+30%) Greatest Change Ratio (+70%)

⚠ **Even if the mode is switched the respective change ratio settings will not be changed.**
For more details about the modes for when restarting the engine see P. 7 "Mode Settings for when Restarting the Engine".

If while in NORMAL Mode, the SET switch is pressed in for a long time the unit will go to "Initial Settings", and if in SPORTS Mode the SET switch is pressed in for a long time, the unit will go to "Mode Settings for when Restarting the Engine"; if this happens stop all operations and return to the normal display.

【Reference 3】Examples of changes in fuel consumption and response depending on change ratios

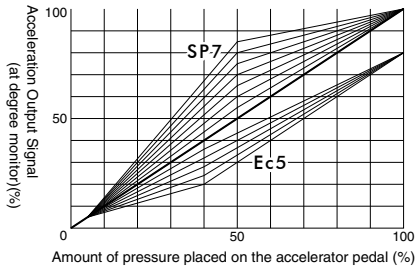


※In ECO Mode, because response is less than the standard fuel efficiency can be improved. However, if rapid acceleration is purposefully carried out fuel efficiency will be reduced.
※The changes in response will be greater as the vehicle's power is greater.

【Reference 4】Basic Control Features

The changes throughout each Mode will be controlled smoothly without perceptible steps.

Acceleration output signal based on amount of pressure placed on accelerator pedal



Mode Settings for when Restarting the Engine [Safety Start Settings]

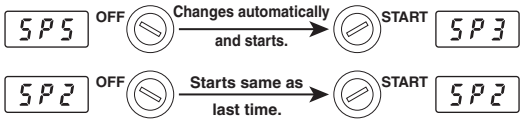
Select from 3 modes in which to start the engine: “Same as Last” Mode, “Normal” Mode or “Safety” Mode.

Display	Name	Status at Engine Restart
Loc	Lock	Change Ratios and Modes when Key is turned OFF.
nor	Normal	NORMAL Mode.
SAF	Safety Mode	When the key is turned OFF and SPORTS Mode had been set at SP4 or higher it will automatically change to SP3.

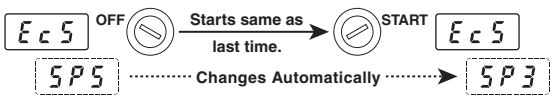
About Safety Mode

If the change ratio for SPORTS Mode has been set at SP4 or higher, when the key is turned OFF, to improve safety the ratio will be changed to SP3 when the engine is restarted.
The change ratio in SPORTS Mode will automatically changed from SP4 or higher to SP3 even if when the key is turned OFF the unit is in NORMAL Mode or ECO Mode.

●In SPORTS Mode when key is turned OFF



●In NORMAL or ECO Mode when key is turned OFF



Operational Procedure	Main Unit Display Area
1 Setting into SP Mode.	SP
2 Press down on the SET Switch for at least 6 seconds.  Press the switch for 6 seconds	iGn Blink ⇩ (e.g.) nor After “iGn” has flashed for 3 seconds the current setting will be displayed. (Factory setting: Normal Mode)
3 The mode will change with each pressing of the UP/DOWN switch.  UP DOWN	Loc (Lock) DOWN ↓ ↑ UP nor (Normal) DOWN ↓ ↑ UP SAF (Safety Mode)
4 If no operation is carried out for 5 seconds, the display returns to show the mode.	SP
5 Setting Completed	

Degree of Acceleration Monitor

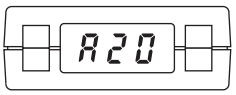
Displays the amount of pressure placed on the accelerator pedal. (output signal) [10 - 100%, 1% unit]

●Degree of Acceleration Monitor shows the rate of acceleration output to the ECU where 0 represents the pedal not being pressed in and 100 equals when the pedal is fully pressed down.

●The display will show when degree is above 10%.

※When in ECO Mode, even if the accelerator is stepped on a full 100% the output signal will only be 80%. Depending on characteristics of the accelerator or on how the accelerator is stepped on the display may only read up to 79%.

※In both Normal Mode and Sports Mode the display may only read up to 99%.



Degree of Acceleration (output) 20%

USE 1 Check acceleration during ECO-driving

To ensure reduced fuel consumption during acceleration the degree of acceleration should be between 15% and 25%. To further improve results use ECO Mode when wishing to save fuel.

USE 2 Check acceleration during regular driving

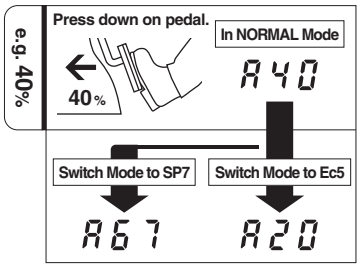
Please use to check the degree of acceleration for any type of driving, not just ECO Mode.

USE 3 Check control status

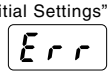
With the key in the ON (engine not running) position and under NORMAL Mode press in the pedal until it reaches 40% (A40), if the Mode is changed to SP7 the display should read 67% (A67) and if placed in Ec5 the display should change to 20% (A20).

[⇒Refer to the Graph of “Basic Control Features” on Page 6]

※The actual display may differ slightly.



Troubleshooting

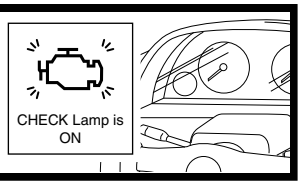
Trouble	Possible Causes	Possible Solutions
The key switch is set to ON but the display will not light up. 	Poor connection of OBD2 connector.	Please reconfirm whether wiring and connections are correct or not.
	If wiring has been direct to power the **Red** and **Black** wires may have been improperly wired or there is a poor connection.	
	Poor connection of **Specialized Harness**.	
A CHECK lamp in vehicle has gone on. 	The accelerator connector was disconnected within 15 minutes after having turned the key to OFF.	Follow the instructions in this Manual (⇒Page 3) to connect to Accelerator Connector, and follow the directions "How to Turn Off the CHECK Lamp" as bellow to turn off the lamp.
	With the key switch in the ON position disconnect the accelerator connector or the connector attached to the unit.	Re-connect the disconnected connector and follow the directions "How to Turn Off the CHECK Lamp" as bellow to turn off the lamp.
	The "Initial Settings" have not been properly carried out.	Make the settings by following the directions under procedure 2 "Initial Settings" found on Page 5 of this Manual, and follow the directions "How to Turn Off the CHECK Lamp" as bellow to turn off the lamp.
While making "Initial Settings" an Err appears in the display. 	The "Initial Settings" have not been properly carried out.	Make the settings by following the directions under procedure 2 "Initial Settings" found on Page 5 of this Manual.
Even if the Mode is changed, the changes cannot be felt.	The "Initial Settings" have not been properly carried out.	Make the settings by following the directions under procedure 2 "Initial Settings" found on Page 5 of this Manual.
The engine seems to stall easily.	The change ratio under ECO Mode is too great.	Set the change ratio under ECO Mode to a smaller value.
While in SPORTS Mode, when put into reverse nor (dot blink) does not appear in the display. 	The wiring to reverse was carried out improperly or there is a bad connection.	Please reconfirm whether wiring and connections are correct or not.
	The unit is connected to the reverse wire of a navigation system from another company.	Follow the instructions for wiring to reverse found in this Manual (⇒Page 4).
	The backup lights have been changed to LED lamps.	●Replace the backup lights with the car maker's original lights. ●Do not carry out wiring for Reverse Gear.
The Mode and/or the setting of change ratios can not be saved.	The key has been turned OFF immediately after having finished the setting of change ratios or changing the Mode.	After having made settings of change ratios or changing the Mode, wait for at least 2 seconds before turning the key OFF.

Note

How to Turn Off the CHECK Lamp

If the CHECK Lamp comes on due to some operational mistake, please follow the directions below to turn it off.

① Under normal conditions, start and stop the engine several times.
② If that does not turn off the lamp, disconnect the cable from ⊖ terminal of the battery for about 10 minutes.
③ If that does not turn off the lamp, please consult your local car dealer and have them turn it off.



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