USER'S GUIDE

HYBRID GAUGE
PLUG IN & SENSOR **52H**

EURO SPEC

Thank you for purchasing PIVOT "52H-BM1" for BMW 135 & 335.
Please read these instructions carefully before installing or using this device.
Please do not lose this user's guide, as you will held liable for the cost of reissuing it.

⚠ CAUTION

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

Do not work in areas where there is excessive exhaust
Due to vehicle exhaust emission poisoning or fire may result in a damage to humans.

Please securely fasten the product to a stable place
It is very dangerous if, while in use, the product falls off and interferes with braking.

Do not crush the cable
Please be careful that the cable does not get crushed by the seat rail or car door steel plate, nor cut by any sharp steel plate as this may cause a poor connection or an electric short leading to fire or other danger.

Do not operate while driving
Operating or checking the display during driving may cause an accident; please use with the utmost consideration for safety.

Please be sure to store bundle away all wires with tape, etc...
It is very dangerous to pull tangled wires by force or allow tangled wires to interfere with driving.

⚠ NOTE

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

This product is for DC12V cars;
Installation cannot be carried out on cars with other voltage batteries.

Just after installation do not exert any strong force on the product
When double-sided tape is used for an installation be warned that when hot the tape temporarily losses adhesiveness.

Do Not Use Chemical Cleansers
If the unit gets dirty do not use chemical cleansers such as thinner, benzene, or alcohol; please wipe with a soft cloth to remove any dirt.

Do not install the product in any place subject to high temperature or any place where water may be splashed

Make sure to replace all screws and parts to their original place

Do not install the product in a place where it will cause distraction

Do not, in any manner, process, take apart, or make changes to this product

⚠

1. The display will not be proper if the ECU being used is not the standard one or if a sub-computer is being used, even in compatible car models.
2. Cannot be used in combination with products that use another company's diagnostic monitoring connectors.
3. For details about using in combination with other PIVOT products please see our Web Site at *http://pivotjp.com/information/obd_conjunction-e.html*.
4. During installation be sure to remove the minus cable from the battery.

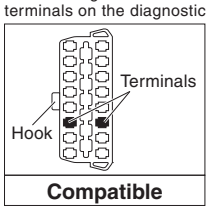
Compatible Car Models

BMW 135 (all models), 335 (2008.4- ※)

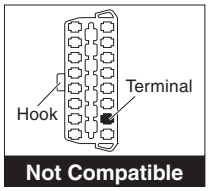
Due to minor changes in design, it may be impossible to install in some models even though the year and model may fit the specifications.

※About compatibility with model 335

If you are unsure of the year of your model car, please check the figure below to confirm the position of the terminals on the diagnostic monitor connector.



Compatible



Not Compatible

Check the contents

Boost Gauge | Water Temp Gauge | Exhaust Temp Gauge | CAN Server (with OBD2 Connector) | Boost Server

Peak Switch | Fuse Power Cable | Gauge Cables ×3 | Cut Connectors ×3 | Male Wire Crimp | Nylon Hose (2m) | I-Joint | Conversion Joint

Rubber Hose (1m) | T-Joint | Double-sided tape for Peak Switch | Cushion Tapes ×3 | Zip ties | Large ×2 Small ×7 | User's Guide

Other Necessary Items (sold separately)
Triple Gauge Meter Hood by 3D Design Corporation

FEATURES

The 52H is an easy-to-install yet high-class triple gauge that provides you with all the most important data for your BMW turbo engine. (Not for use with incompatible models)

Triple Gauge	Simultaneous display of three types of data: Boost, Water Temperature and Exhaust Temperature
Peak Hold	Simultaneous display of peak values after engine start. (The switch is a compact stick-on type)
Easy Install	For Water and Exhaust Temperature: Simple Connection to the Diagnostic Monitoring Connector For Boost: Easy Piping to Pressure Output
LED Illumination	Illumination by high contrast highly luminous white LED
Stepping Motor Drive	Stepping motor drive brings you a high-performance display with no hunching or overshooting

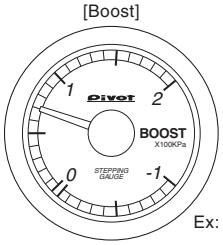
Displays and Uses

Boost (Absolute pressure display※)

▶ **Display** -100～154 KPa

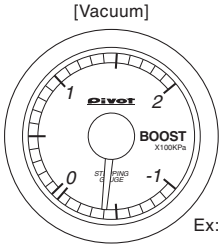
▶ **Use** ●Check Boost ●For Eco-driving [Vacuum]

[Boost]



Ex: 70Kpa

[Vacuum]

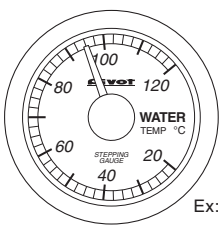


Ex: -40Kpa

Water Temperature

▶ **Display** 20℃～120℃

▶ **Use** ●Prevention of overheating
●Check Heating etc.

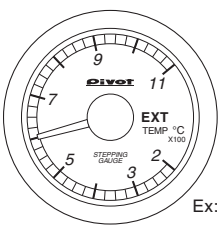


Ex: 95˚C

Exhaust Temperature

▶ **Display** 200℃～1100℃

▶ **Use** ●Check air-fuel ratio etc.



Ex: 600˚C

Peak Hold

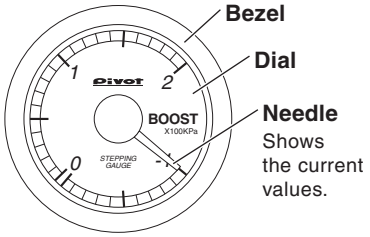
▶ **Use** ●Check Momentary Maximum Boost
●Check Highest Water Temperature
●Check Highest Exhaust Temperature

Opening Demo

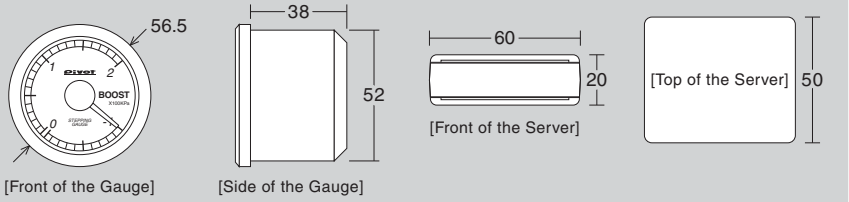
During the opening demo, the needle will move to minus several times, then to the maximum value and finally to reading for each measurement item. (Due to product characteristics the opening demo may not work simultaneously for all three gauges.)

PART NAMES and SIZE

●Gauge

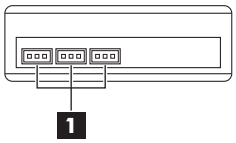


■SIZE [Unit : mm]

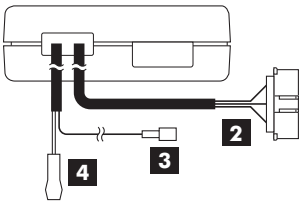


●CAN Server

(View from Gauge Connection)



(View from Car Connection)



1 **Gauge Output Coupler**
Connect the Gauge Cables from the Water Temperature and Exhaust Temperature Gauges.

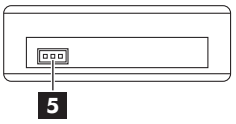
2 **OBD2 Connector**
Connect to get Communication Signal

3 **1-pin Coupler (Male side)**
Connect the 1-pin Coupler of the Fuse Power Cable

4 **1-pin Coupler (Female side)**
Connect the 1-pin Coupler of the Peak Switch

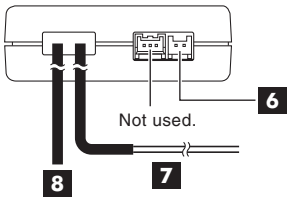
●Boost Server

(View from Gauge Connection)



※The sensor is built into the Boost Server, so there is no need to purchase separately.

(View from Car Connection)



5 **Gauge Output Coupler**
Connect the Gauge Cable from the Boost Gauge.

6 **Peak Switch Coupler**
Connect the 2-pin Coupler of the Peak Switch

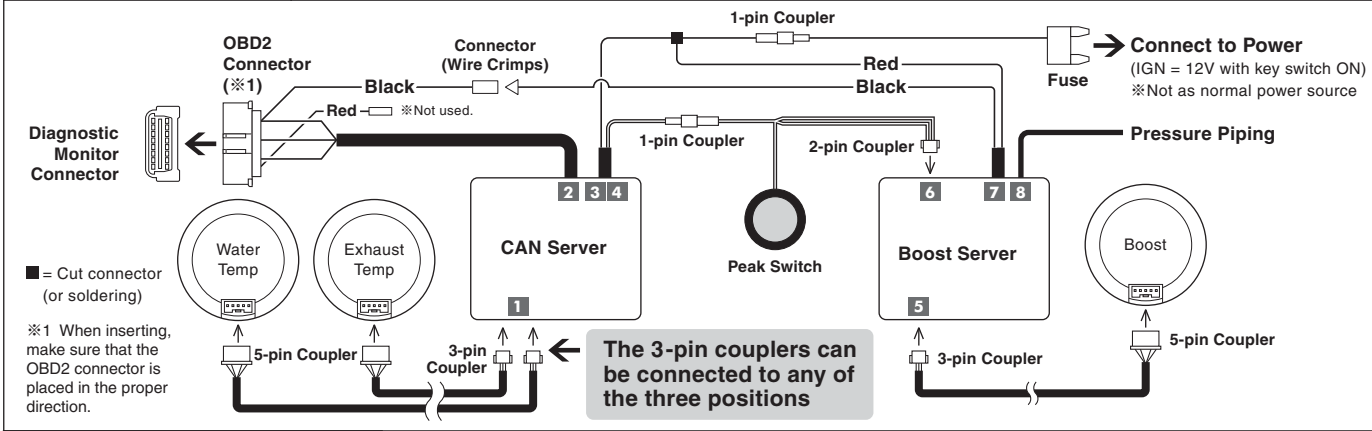
7 **Power Cable**
Connect to a Power Source

8 **Hose**
For Boost Connection

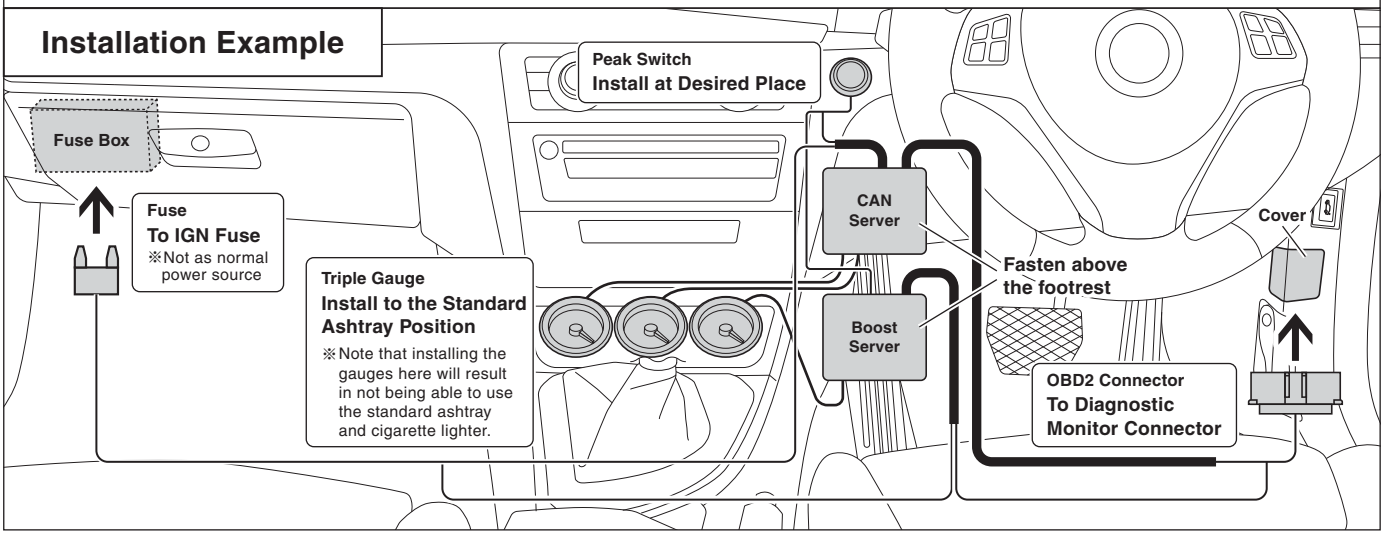
BASIC WIRING and INSTALLATION EXAMPLE

BASIC WIRING

Please carry out wiring with the engine turned OFF and the key removed.



Installation Example



WIRING METHOD and INSTALLATION

The following is just one example of a BMW 135 / 335 (2008 model, steering wheel on right). If your model is different and you are unsure of how to connect please contact your dealer.

1 Connecting for Boost

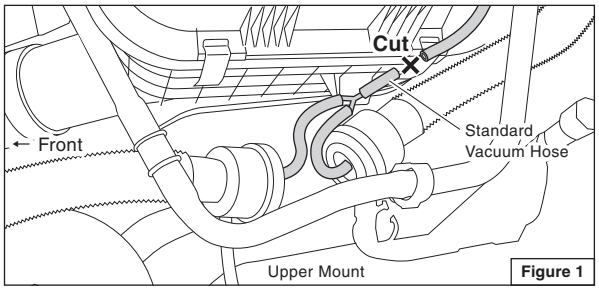


Figure 1

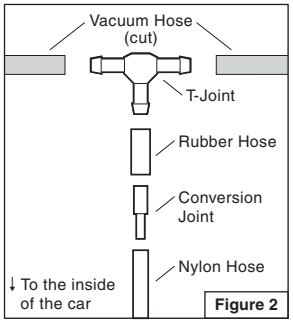


Figure 2

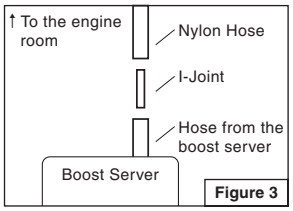


Figure 3

1. Be sure install the boost server on the inside of the car. (Not in the engine room)

2. Stretch the hose that comes out from the boost server but do not pull it off.

① Cut the manifold vacuum hose. (Figure 1)

② Insert a T-joint and connect the various hoses and joints as shown in figure 2.

③ Pull the nylon hose to the inside of the car.

④ Using the I-joint, connect the nylon hose to the boost server. (Figure 3)

Make sure that all hose and joint connections are securely fastened so as not to disconnect or cause pressure loss. (Depending on the conditions, it may be necessary to take some action to prevent loosening and disconnection of the various connection points.)

2 Installing the Meter Hood

① Remove the undercover from beneath the steering wheel.

② Fasten the meter hood according to directions in the User's Manual from 3D Design.

③ Pull the cables from each of the gauges to foot area of the driver's seat. (At this point make sure to mark the boost gauge cable so as to distinguish it from the other two.)

④ As you pull the gauge cables through the meter hood, return the center console to its original position.

⑤ Affix the cushion tape that comes with the gauges and insert each cable's 5-pin coupler into each gauge.

⑥ Fix the gauges by pressing them into place in the meter hood. (Adjust the gauges to a position which makes them easy-to-read.)

3 Connecting the Fuse and OBD2 Connector

① Remove the glove box hook or the rear cover of the glove box so as to be able to see the interior fuse box. (See your car's User's Manual for details)

② Pull out the IGN fuse and replace it with the supplied fuse power connector making sure the wire is at the top.

③ Connect the CAN Server to the 1-pin coupler or the fuse power connector.

④ Using one of the supplied "cut connectors" (or by soldering) connect the red wire from the CAN Server that was connected in ③ to the red wire of the Boost Server. (Figure4)

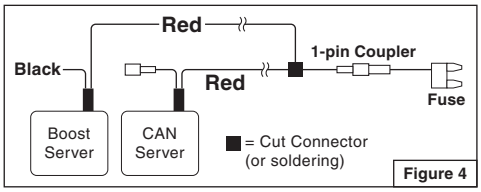
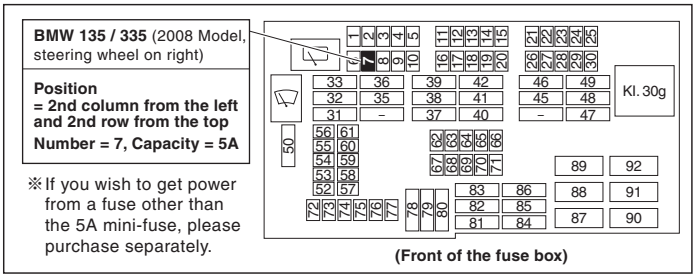


Figure 4

【REFERENCE 1】



※If you wish to get power from a fuse other than the 5A mini-fuse, please purchase separately.

⑤ Place a male connector on the black wire that is leading from the black tube on the Boost Server and using one of the supplied connectors connect that black wire to the black wire coming from the OBD2 Connector.

⑥ Remove the cover from the diagnostic monitor connector found at the bottom right of the driver's seat and fully insert the OBD2 connector that is coming from the CAN Server.

4 Installing the Peak Switch and Fastening the Servers

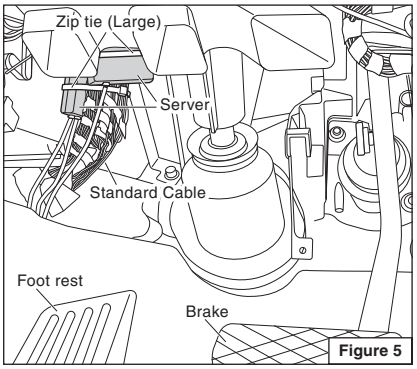


Figure 5

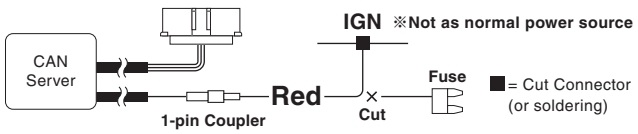
① Insert the 2-pin coupler from the peak switch into the Boost Server and connect the 1-pin coupler to the 1-pin coupler coming from the CAN Server.

② Position the Peak Switch in the desired place and affix with double-sided tape.

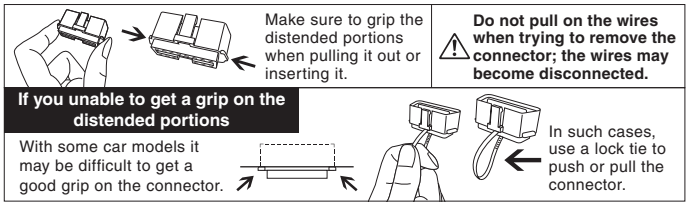
③ Using the large lock ties that came with the servers, bundle the standard cables and wires above the footrest as shown in figure 5.

④ Bundle up all loose wires and replace everything to its original position.

If you are unable to get power from the fuse box, please wire directly to IGN (12V with key in ON position).



【REFERENCE 1】 Notes about using the OBD2 connector



at times like this

When use in conjunction with the PIVOT's 3-drive series

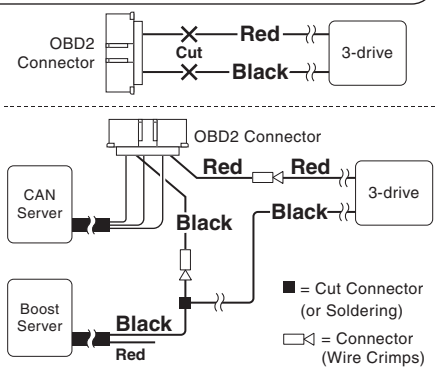
① Disconnect the OBD2 connector from the diagnostic monitor connector on the car.

② Cut the wires from the connector.

③ Place a male connector on the red wire and connect with a cut connector to the red wire coming from the CAN Server.

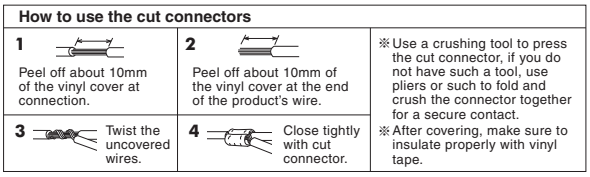
④ Using a cut connector (or by soldering) connect the black wire to the black wire coming from the Boost Server.

⑤ Connect the OBD2 connector to the diagnostic monitor connector.

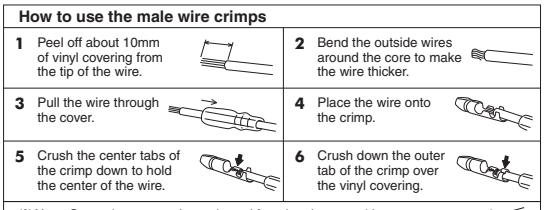


【REFERENCE 3】 How to use the connectors

How to use the cut connectors



How to use the male wire crimps



BASIC OPERATION

Basic operation from engine start to stopping.

1 

Key ON
(Engine start)

2 

Opening Demo
(Due to product characteristics the opening demo may not work simultaneously for all three gauges.)

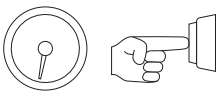
3 

Real Display
Each gauge will display actual measurements.

4 

Key OFF (Engine stop)
The needle stops at the key OFF position.

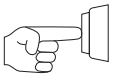
DISPLAY and RE-SET OF THE PEAK READINGS

1 

Press the Peak Switch during Real Display

2 **Display Peak Readings** — Simultaneous display of all 3 gauges 

With no operation 5 seconds →  **Return to Real Display**



Press the Peak Switch for 3 Seconds

3 **Re-set Peak Readings** — All 3 gauges are simultaneously re-set. → **Will return automatically after re-set**

※Peak readings are reset when the key is turned OFF.

TROUBLESHOOTING

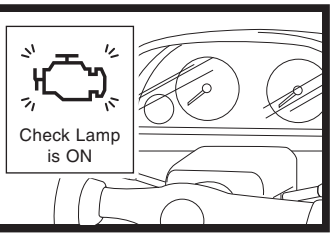
Trouble	Possible Causes	Possible Solutions
Don't operate when the engine is started (all three).	Poor connection of the OBD2 connector or IGN fuse.	Please check the connections for both the OBD2 connector and IGN fuse to make sure they are proper and well connected.
	If wiring has been direct to power the red wire may have been improperly wired or there is a poor connection.	Please check the connections for the red wire to make sure it is proper and well connected.
Boost Gauge doesn't operate when engine is started.	Either the black and red wires on the boost server are misconnected or there is a poor connection.	Please check the connections for both the red and black wires of the boost server to make sure they are proper and well connected.
When engine is started, the opening demo comes on but the water temperature and exhaust temperature gauges don't work.	The temperature is not high enough yet to be displayed.	Please run the car until temperatures reach display level.
	The OBD2 Connector is poorly connected.	Please re-insert the OBD2 connector.
	The unit has been installed into an incompatible car model.	Please check the list of compatible car models.
When engine is started, the opening demo comes on but the boost gauge doesn't work.	There is a poor hose connection or a hose is being compressed.	Please check the boost hose connections.
The boost pressure display is different from the standard or other gauges.	This product's boost gauge reads relative pressure and may differ from a gauge using absolute pressure.	
Even if I press the Peak Switch, the peak value is not displayed.	The Peak Switch connection is poor.	Please check the Peak Switch connections.
The auto-power window function and/or other electronic devices are re-set.	The may occur because the minus terminal of the car battery was disconnected.	Please re-connect the minus terminal and follow re-setting instructions in User's Manuals for any affected devices.

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 minus 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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