pivot

(PT6-WH As of December, 2009 No.2)

USER'S GUIDE

PROGAUGE

STEPPING DRIVE
TACHO METER ø60

Thank you for purchasing PIVOT "PROGAUGE PT6 for Hybrid Cars".
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.
- **During installation be sure to remove the minus cable from the battery**
  So as to prevent fire and damage resulting from shorting of circuits, etc...
- **Do not crush the cable**
  Please be careful that the cable dose 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.

- **Do not use electrotap**
  Wiring should be carried out using the attached "Cut Connector" or by soldering, make sure to securely insulate all wiring parts with insulation tape, and confirm that no wires are sticking out.
- **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.
- **If you are not confident about doing the wiring yourself, please consult your local pro shop or garage**
  When installing this product, we recommend that if technical knowledge becomes necessary please consult a qualified mechanic.
- **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**

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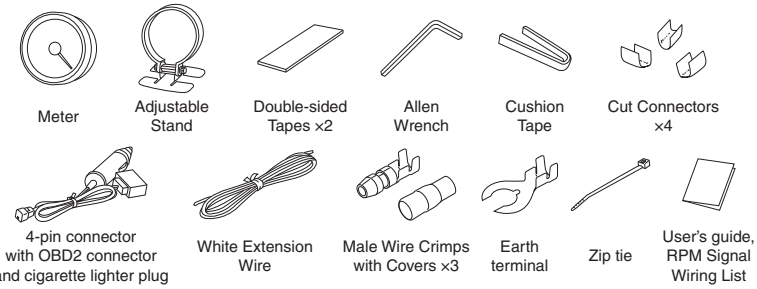


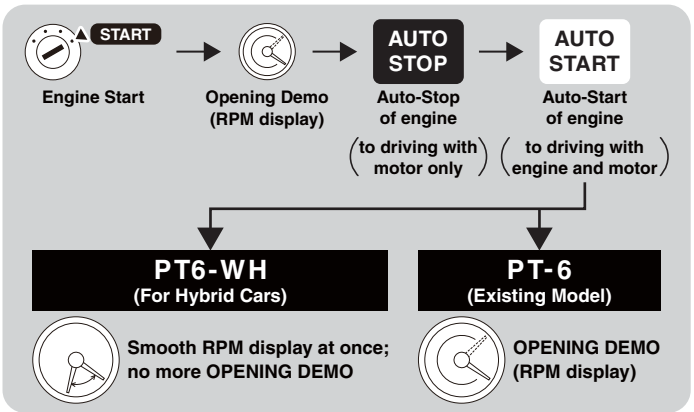
Meter | Adjustable Stand | Double-sided Tapes ×2 | Allen Wrench | Cushion Tape | Cut Connectors ×4

4-pin connector with OBD2 connector and cigarette lighter plug | White Extension Wire | Male Wire Crimps with Covers ×3 | Earth terminal | Zip tie | User's guide, RPM Signal Wiring List

FEATURES

PT6 for Hybrid Cars units can be connected easily to Toyota hybrid cars by simply connecting the coupler to the diagnostic monitor connector and for all other model cars be wired directly.

New Function Smooth RPM display at once; no more OPENING DEMO upon Auto-Start of engine.



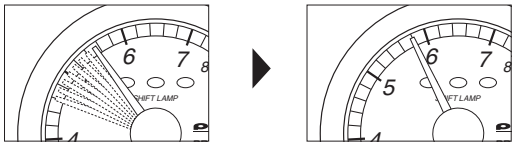
No Wiring Coupler ON	With Toyota hybrid cars it is possible to connect directly using the coupler to the diagnostic monitor connector and cigarette lighter plug.
2 types of Display ●REAL ●PEAK	Two types of display; Real-time / Peak hold.
All-in-one Unit	No separate controller necessary.
No need for Opening Holes	Fastening with double-sided tape means no need for opening holes.
Translucent Illumination	The translucent LED system provides a clear even display.

Display Function **Two types of display**

Two types of display; Real-time / Peak hold.

REAL The engine revolution can be seen in real time. (If driving with the motor only, the needle will point to 0.)

PEAK Show the peak reading after the key switch ON.



Real display | Peak display

PART NAMES

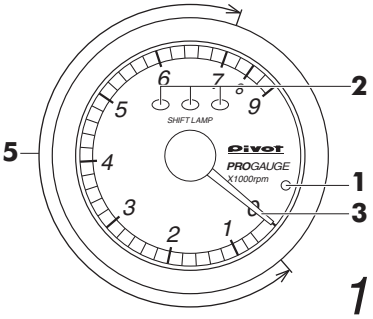
1 Switch
Use to change display and settings.

2 Shift Lamp (LED)
Blinks at the set rpm.

3 Needle
Show the current values.

4 Illumination (night illumination)
Normally illuminated when on display. (Not illuminated when only parking lights are on.)

5 Wide Scale Display
The display has been made easier to read by enlarging the 500 to 7000 rpm area.



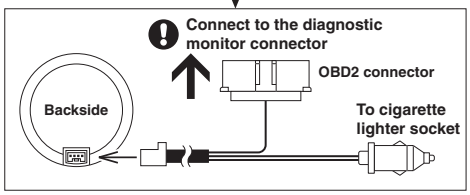
CONNECTING THE WIRES

PREPARATION Before installation, please check the installation method is proper for the model of car.

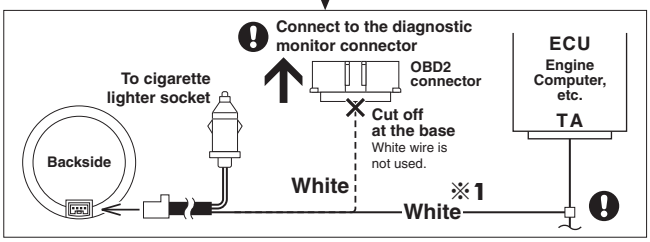
Basic Wiring

■ = Use cut connector (or solder) ▬◀ = Connector (wire crimps)

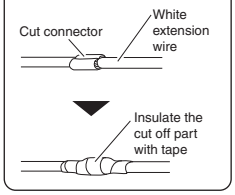
Type A : TOYOTA Hybrid Cars or Car models with a ● or ○ mark in the "RPM Signal Wiring List"



Type B : For Popular Models (other than Toyota and Daihatsu)



※1 If the white wire is not long enough, please use the white wire provided in this package to extend the length.
See【Reference 2】

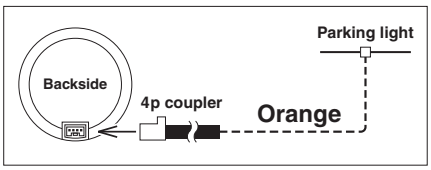


Explanation of wires

Color	Wiring place	Details
Red	ACC／IGN	12V with ACC or key switch ON (Not as normal power source)
Black	GND	Screw to gain earth, etc
White	TA	RPM signal
Orange	Illumi	12V with parking lights ON

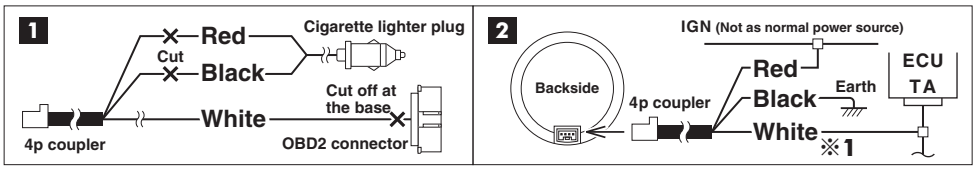
Orange wire
(There is usually no need to make wire)

This wiring is to use the lowest brightness for the shift lamp when only the parking lights are on; hence neither the dial or the needle will be it up when running with parking lights on.



! at times like this

If you are not using the diagnostic monitor connector or cigarette lighter socket



! at times like this

When another device is already connected to the RPM signal from the ECU

... and that device works properly keep that wiring.

... and the meter or other device stops working properly or sometimes becomes unstable disconnect from the ECU wire and get the RPM from the minus terminal of ignition coil or diagnosis.

! at times like this

When use in conjunction with other PIVOT diagnostic monitor connected product (Not compatible another company's product)

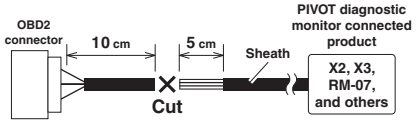
⚠ Insert while the engine is running

In order to prevent making mistakes when inserting the coupler, make sure to insert while the engine is running. Also, if the battery terminals have been disconnected, please disconnect the connector and re-connect again.

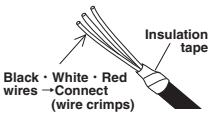
Type A : Some models of Toyota hybrid cars

1 Cut the wires coming from the OBD2 connector and properly connect the wires using a connector.

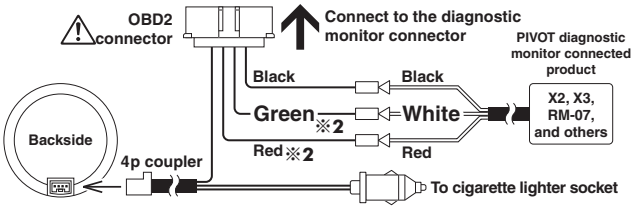
① Disconnect the OBD2 connector from the diagnostic monitor connector on the car.
② Cut at about 10 cm from the connector.
③ Remove about 5 cm of sheath from where it has been cut.



④ Leaving the black, white and red wires, cut off wires and securely insulate with insulation tape.
⑤ Properly connect the black, white and red wires using a connector. See【Reference 2】



2 Please follow the wiring directions as written below.

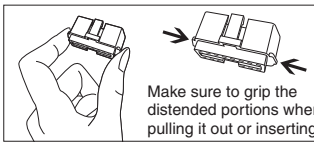


※2 Remove the red and green insulation caps and insert the male connector.

Green = Diagnostic monitor signal

Type B : Other than Type A → **Follow the directions as found in Basic Wiring above by cutting the OBD2 connector of the PT6 and connecting all necessary wires to use any other additional products.**

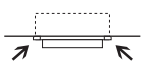
【REFERENCE 1】Notes about using the OBD2 connector

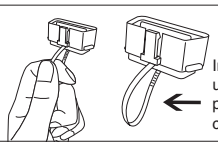


Make sure to grip the distended portions when pulling it out or inserting it.

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.





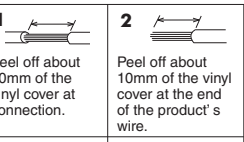
In such cases, use a lock tie to push or pull the connector.

⚠ NOTE

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

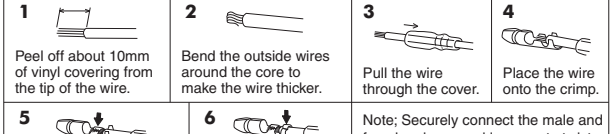
【REFERENCE 2】How to use the connectors

How to use the cut connectors



※Use a crushing tool to press the cut connector, if you do not have such a tool, use pliers or such to fold and crush the connector together for a secure contact.
※After covering, make sure to insulate properly with vinyl tape.

How to use the male wire crimps



【REFERENCE 3】
How to use provided earth terminal

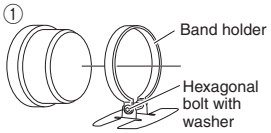
1. Peel off about 10mm of vinyl covering from the tip of the black wire.
2. Bend the outside wires around the core to make the wire thicker.
3. Crimp down on the earth terminal.
4. Connect it to a earth screw.

METER INSTALLATION

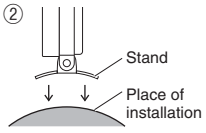
Install in an easy-to-view location.

A Install with the adjustable stand

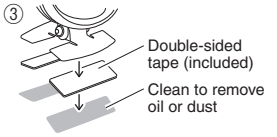
Fasten using the double-sided tape.

① 

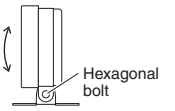
Slightly loosen the screw and install the gauge into the band holder.

② 

Bend the stand to securely fit the place of installation.

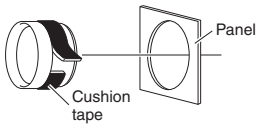
③ 

Fasten using the double-sided tape. (Clean the surface; removing all oil or dust.)

④ 

After deciding the position and angle of the meter face, fasten the hexagonal bolts on both sides to secure.

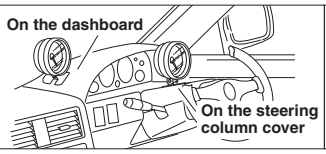
B Installation with the cushion tape



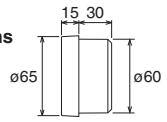
Wrap the cushion tape around the base of the meter and forcibly insert into the 60 mm hole in the panel.

Can be mounted in various places

Mount almost anywhere using the double-sided tape. After mounting it is possible to for easy-reading.

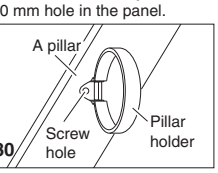


Meter Dimensions (unit; mm)



※ If you wish to open holes to fasten the unit to the pillar or column cover, please purchase and use the separately sold pillar holder.

Pillar holder for ø60 PH-60 ¥1,480



SETTINGS

PREPARATION Please check the number of cylinders and cycles for the model car being used.

SETTING A Cylinder Number Setting

Set the cylinder number for the car being used.
The number of cylinders is set by the shift lamp pattern.

1 **Press the switch** → ON
While holding down the switch, turn the key switch ON

2 **OPENING DEMO**

3 **Cylinder display** ○ ● ●
(The factory default setting is for a four-cylinder engine)

4 **Press the switch once**
Press the switch to change the pattern and set to the proper one.

Turn 4-cylinder ▷ 5 ▷ 6 ▷ 8 ▷ Special A ▷ 1 ▷ 2 ▷ 3

Patterns for cylinder settings display

●= On ✹= Blink ○= Off

Shift Lamp	Number of cylinders	Car models
● ○ ○	1	Some models of NISSAN or MAZDA ※
○ ● ○	2	Some models of MAZDA or SUBARU ※
※For one and two cylinder engines, set the signal level switch to two. ⇒See "Setting E How to switch signal level" for details.		
○ ○ ●	3	Three-cylinder
○ ● ●	4	Four-cylinder (PRIUS, ESTIMA, ALPHARD), Rotary engine
● ● ○	5	Five-cylinder
● ● ●	6	Six-cylinder (HARRIER, KLUGER)
● ○ ●	8	Eight-cylinder
✹ ○ ○	Special A	Some models of NISSAN, etc.

※If the engine is a two cycle engine, multiply the number of cylinder by two.
(Ex; For a two-cycle three-cylinder engine the setting would be six.)

5 **With no operation for 5 seconds**

6 **OPENING DEMO**

7 **The needle will show the set shift point**
✹ ○ ✹ The shift lamps blink red

8 **Tachometer display**

SETTING B Peak reading display and re-set

Peak values will be reset when the key is turned OFF and when the signal level has been changed.

1 **Press the switch once**
While the tachometer is being displayed, press the switch once.

2 **Peak reading display**
If no operation is carried out for 5 seconds, the real display will return to view.

3 **Press the switch for 2 seconds**
Pressing the switch will re-set the peak reading.

4 **The needle will show "0"**
● ● ● The shift lamps will all come on

5 **Tachometer display**

SETTING C Shift Point Setting

Make RPM setting for turning on the shift lamp. (setting range = 3000-9000 rpm)

1 **Press the switch for 3 seconds**
While the tachometer is being displayed, press the switch for long.

2 **First the peak value will be shown and three seconds later the needle will show the set shift point**
✹ ○ ✹ The lamps blink red

3 **Press the switch**
While holding down the switch, change the RPM setting
Each pressing of the switch will raise, the setting 200 rpm; at 9000 rpm it will return to 3000 rpm.
※By continually pressing down on the switch the needle will move to 9000 rpm.

4 **With no operation for 5 seconds**

5 **Tachometer display**

SETTING D Shift lamp brightness setting

Make setting to change the shift lamp brightness.

1 **Press the switch for 6 seconds**
While the tachometer is being displayed, press the switch for long.

2 **Peak value is displayed, three seconds later shift point is shown, and six seconds later**
● ● ● The shift lamps will all come on

3 **Press the switch** Bright ■ Dark (2 steps)
Each pressing will change the brightness.

4 **With no operation for 5 seconds**

5 **Tachometer display**

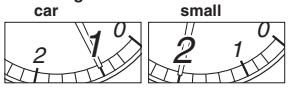
SETTING E Switching the signal level

For models where the signal level must be changed see the attached "RPM Signal Wiring List". (If the signal level has been changed the peak value will be reset.)

1 **Press the switch for 9 seconds**
While the tachometer is being displayed, press the switch for long.

2 **Peak Value is shown, after nine seconds the needle will move to either 1 or 2**
✹ ○ ✹ The shift lamps blink red

3 **Press the switch**
Set the signal detection level by pressing the switch to change the needle position to the correct setting.
1= If the generic car *2*= If the level is small



4 **With no operation for 5 seconds**

5 **Display off**

6 **OPENING DEMO**

7 **Tachometer display**

BASIC OPERATION

Basic operation from engine start to stopping.

1 START

Start the engine.

2 **OPENING DEMO**

3 **The needle will show the set shift point**

Shift lamp will light up at night.

4 **Current RPM display (Driving with engine and motor)**

5 **AUTO STOP** **Auto-Stop of engine (To driving with motor only)**

If driving with the motor only, the needle will point to "0".

6 **AUTO START** **Auto-Start of engine (To driving with engine and motor)**

Smooth RPM display at once; no more OPENING DEMO

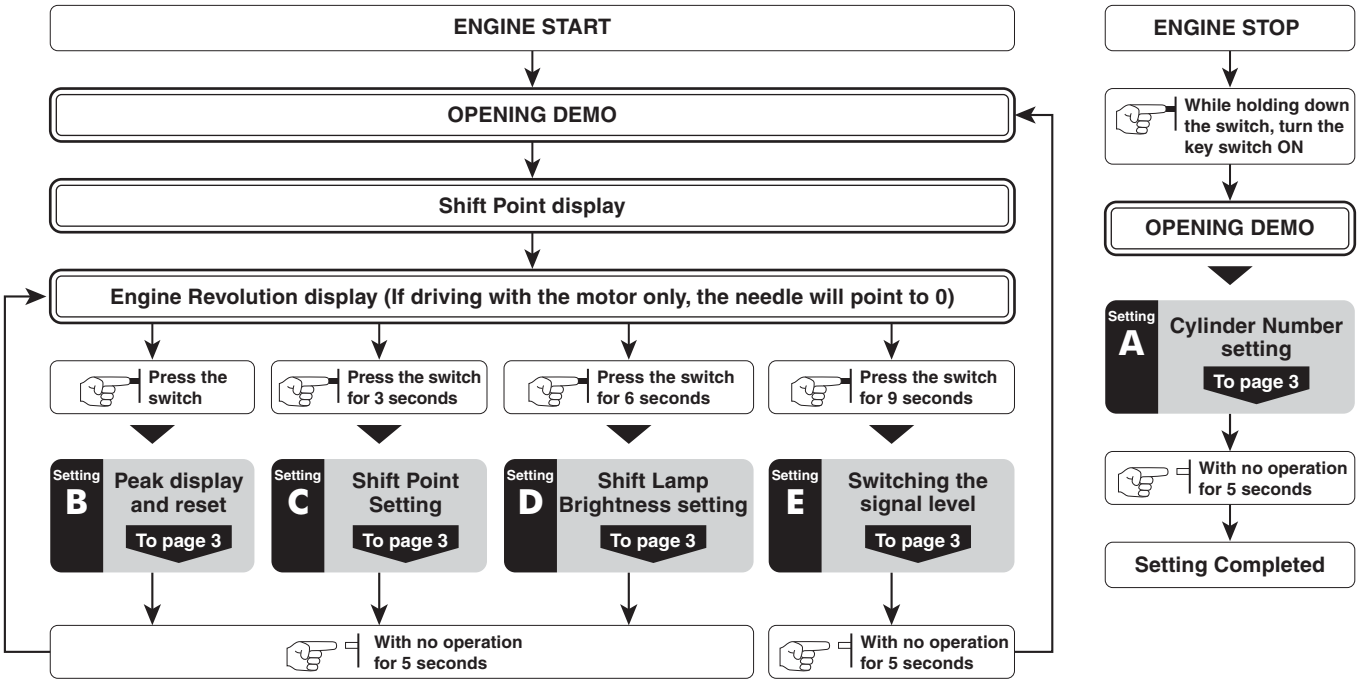
7 OFF **Key switch OFF**

8 **Meter off**

Due to characteristics of the gauge, even though the engine is off and the gauge is not measuring, the needle will not return to "0".

BASIC FLOW OF OPERATIONS

For details about settings see each [SETTINGS].



TROUBLESHOOTING

Trouble	Possible Causes	Possible Solutions
Engine is running but the tachometer does not work.	Poor connection of 4p coupler cable or OBD2 connector or cigarette lighter plug.	Check the coupler connections or conditions.
	Poor connection of each wire.	Check the wire connections or conditions.
	The signal detection level is not correct.	See page 3 [SETTING E] and [RPM Signal Wiring List], make any necessary changes.
The car' s tachometer and PT6 reading are very different.	The cylinder setting is wrong.	Due to difference in accuracy, readings may not be the same as those on the standard tachometer. See page 3 [SETTING A] and make any necessary changes.
	The signal detection level is not correct.	See page 3 [SETTING E] and [RPM Signal Wiring List], make any necessary changes.
The shift lamp does not light up.	The engine rpm has not reached the set shift point.	See page 3 [SETTING C] and make any necessary changes in the rpm shift point.
Even with the parking lights on, brightness of the shift lamp does not decrease.	Poor connection of orange wire (12V with parking lights ON).	Check the orange wire connections or conditions.
	The shift lamp brightness setting is set too low.	See page 3 [SETTING D], please check the setting.
Even with the key OFF the lamps do not turn off.	The power is connected to the normal power source (12V even with key OFF).	Change the power to IGN or ACC.
With the key off, the needle does not rest on "0".	This is a special characteristic of the meter' s movement and is not a malfunction.	
The auto-power window function and/or other electronic devices are re-set.	This is due to the minus terminal on the battery being disconnected.	Re-connect the minus terminal and follow re-setting instructions for any affected devices.

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