

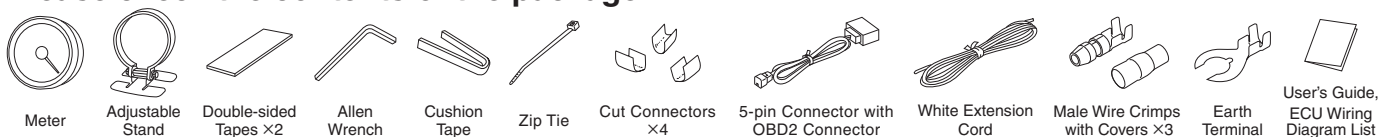
USER'S GUIDE

PROGAUGE

STEPPING DRIVE
 TACHOMETER $\varnothing 80$

Thank you for purchasing PIVOT "PROGAUGE". 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.

Please check the contents of the package



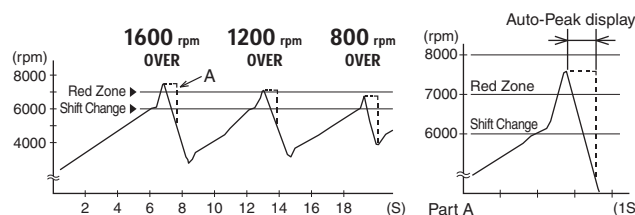
<p>CAUTION Improper use or disregard of these warnings may result in the injury or death of people.</p> <ul style="list-style-type: none"> ● Do not work in areas where there is excessive exhaust Due to vehicle exhaust emission poisoning or fire may result in a damage to humans. ● Please securely fasten 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 \ominus cable from the battery So as to prevent fire and damage resulting from the shorting of circuits, etc... ● 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. 	<p>NOTE Improper use or disregard of these warnings may cause injury to persons, damage the product and / or other things.</p> <ul style="list-style-type: none"> ● Do not use electrotape 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 loses 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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FEATURES

PT \varnothing 80 Series units can be connected easily to Toyota, Daihatsu and MINI models by simply connecting the coupler to the diagnostic monitor connector and for all other model cars can be wired directly for easy installation.

World's First Auto-Peak Display provides Accurate Peak Numbers with each and every Shift.

By setting to "Auto-Peak" Mode the reading will be held for one second whenever revolutions exceed the set shift point; making it easy to see when an over-rev has occurred. It is also possible to set the optimum shift point so as never to enter the red zone. (patent pending)



<p>World's First AUTO PEAK Holding peak for one second upon exceeding set shift point.</p>	<p>No Wiring Coupler On With some Toyota and Daihatsu models it is possible to connect directly using the coupler to the diagnostic monitoring connector.</p>	<p>1 ▶ 8 Cylinder All 1-8 cylinder cars compatible. Compatible with wide range</p>	<p>3 Types of Display Three types of display; Real / Auto-Peak / Peak.</p>
<p>World's Lightest Body Extra lightweight means less vibration; only 107 grams (unit only).</p>	<p>All-in-One Unit No separate controller necessary.</p>	<p>No need for Opening Holes Fastening with double-sided tape means no need for opening holes.</p>	<p>Translucent Illumination The translucent LED system provides a clear even display.</p>

SHIFT LAMP
The sequential lamp system gives you warning lights as you approach the set rpm.

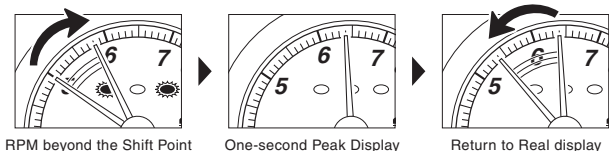
FUNCTION

Three Types of Display

Three Types of Display: Real-time, Auto-peak and Peak hold.

REAL Normal Real Display for All Areas.

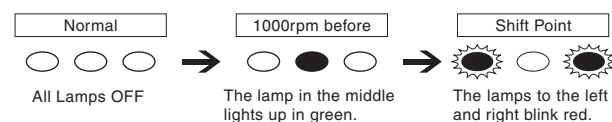
AUTO PEAK
Below the shift point = Real Display
Above the shift point = After holding the peak reading for one second, the real time display allows you to check for over-revs.



PEAK Shows the peak reading after the engine begins running

Shift Lamp
 Setting Range ●PT2 : 3000 - 10000rpm, 200rpm unit
 ●PTX : 3000 - 9000rpm, 200rpm unit

Shows the peak reading after the engine begins running In order to prevent over-revving while shifting, an F-1 sequential type shift has been included, which shows a green lamp 1000 rpm before the set engine rpm and a red lamp at the shift point.



ADVICE Some Tips for Setting the Shift Point!

For Sports Driving

The shift point should be calculated by subtracting the over-rev at shifting from the rpm at which the maximum engine torque occurs.

※ The over-rev at shifting should be decided by actually measuring in Auto-peak mode.
 ※ In general it would be about 90% near the red-zone. (EX: If the red zone is 9,000 rpm, then use 8,000 rpm.)

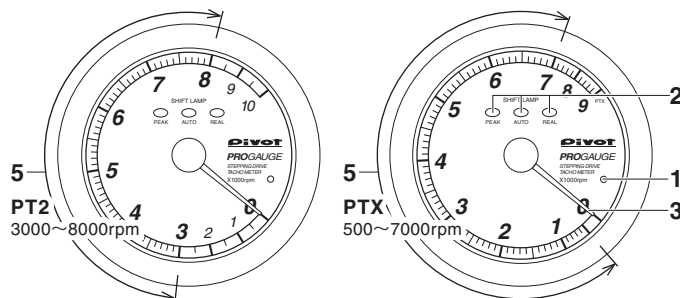
For Eco-driving

When using for eco-driving, it is best to use a lower rpm point as the shift point, so set the point at 1000 rpm higher than normal and shift when the green lamp comes on.

NOTE : The above is for your reference only; please make settings as desired.

PART NAMES AND FUNCTIONS

- Switch** Use to change modes and/or settings.
- Shift Lamp (LED)** Blinks at the set rpm.
- Needle** Show the current values.
- Illumination (night illumination)** Normally illuminated when on display. (Not illuminated when only parking lights are on.)
- Wide Range Display** The display has been made easier to read by enlarging the a part of range.



CONNECTING THE WIRES

PREPARATION

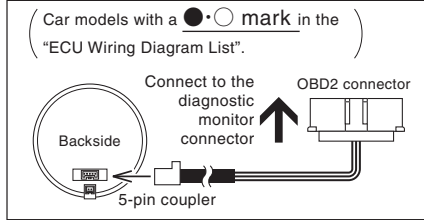
Before installation, please check the installation method is proper for the model of car.

□ = Use cut connector (or solder)

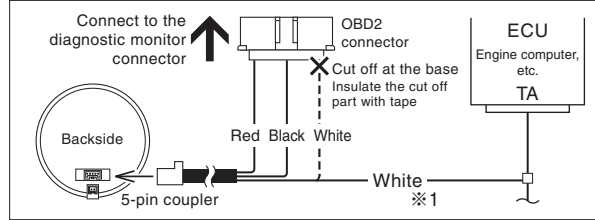
◻ = Connector (wire crimps)

Basic Wiring

For Toyota, Daihatsu and MINI



For Popular Models (other than Toyota, Daihatsu and MINI)



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.

⇒ **Wiring Method 2** //

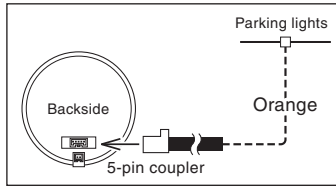
▶▶ If you are not using the diagnostic monitor connector ⇒ **Wiring Method 1** //

Explanation of wires

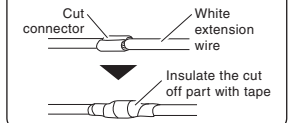
Color	Wiring place	Details
Red	IGN	12V with key switch ON (or Normal power)
Black	GND	Ground screw, etc.
White	TA	RPM signal
Orange	Illumi	12V with parking light ON

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.



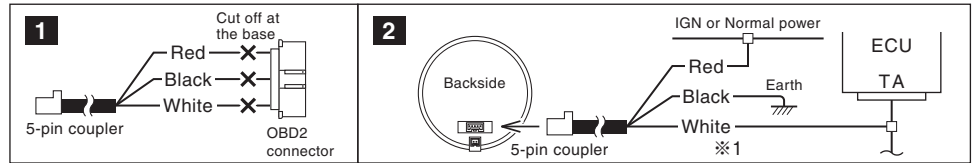
※1 If the white wire is not long enough, please use the white wire provided in this package to extend the length. ⇒ See [Reference 1]



Wiring Method 1

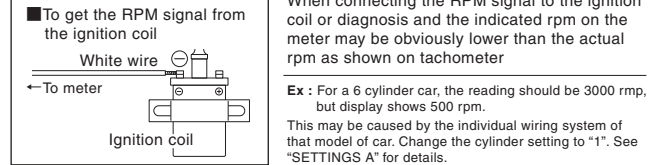
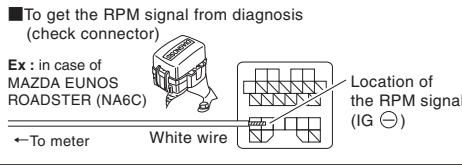
If you are not using the diagnostic monitor connector

If you are wiring directly cut off and insulate all wires at the base of the OBD2 connector.



Wiring Method 2

To get the RPM signal from other than the ECU



When connecting the RPM signal to the ignition coil or diagnosis and the indicated rpm on the meter may be obviously lower than the actual rpm as shown on tachometer

Ex : For a 6 cylinder car, the reading should be 3000 rpm, but display shows 500 rpm. This may be caused by the individual wiring system of that model of car. Change the cylinder setting to "1". See "SETTINGS A" for details.

! at times like this

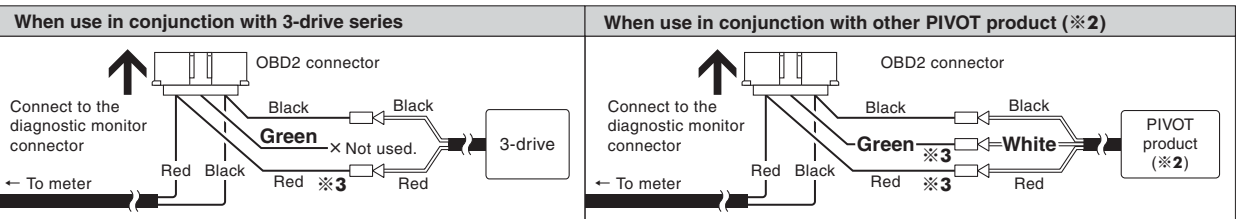
※2 = X2 and X3 series, RM-07, WTM

When use in conjunction with 3-drive or other PIVOT diagnostic monitor connected product (※2)

For details about using in combination with products that use another company's diagnostic monitoring connectors please see our Web Site at http://pivotjp.com/information/obd_conjunction-e.html.

⚠ Insert while the engine is running

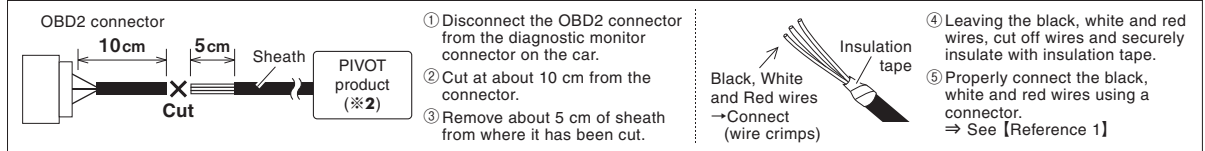
In order to prevent making mistakes when inserting the coupler, make sure to insert while the engine is running.



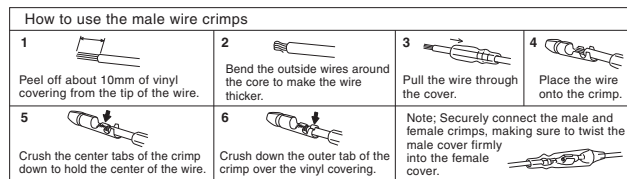
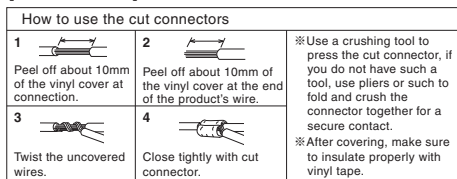
※3 Remove the red and green insulation caps and insert the male connector.

Preparation

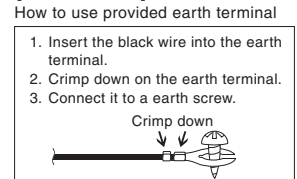
When use in conjunction with other PIVOT product (※2), cut the wires coming from the OBD2 connector and properly connect the wires using a connector.



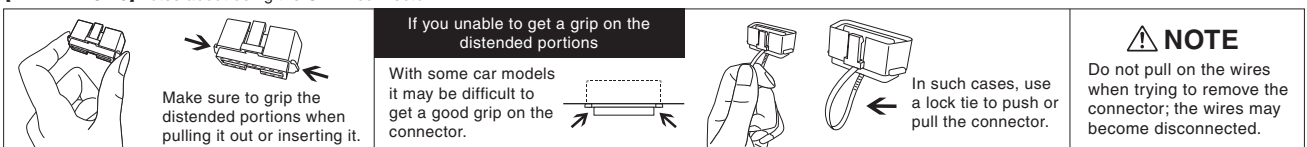
[REFERENCE 1] How to use the connectors



[REFERENCE 2]



[REFERENCE 3] Notes about using the OBD2 connector



BASIC OPERATION

Basic operation from engine start to stopping.

- 1** **ENGINE START**
Start the engine.
- 2** **OPENING DEMO**
It will not operate properly unless the wiring to the RPM signal has been completed.
- 3** **The needle will show the set shift point**
Shift lamp will light up at night.
- 4** **Current RPM display**
- 5** **OFF Engine stop**
- 6** **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".

SETTINGS

After finishing the installation, make various settings.

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

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
Press the switch during the key switch OFF (meter light off)
- 2** While holding the switch, start the engine within 5 seconds.
- 3** **OPENING DEMO**
- 4** **Cylinder display** (The factory default setting is for a four-cylinder engine)
- 5** 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

Number of cylinders	Shift lamp	Car models
1		NISSAN (FAIRLADY Z Z33)·MAZDA (ATENZA and others) ※
2		MAZDA (RX-8)·SUBARU (early type of PLEO and others)※
※ For one and two cylinder engines, set the signal level switch to two. → See "F How to switch signal level" for details.		
3		Three-cylinder
4		Four-cylinder, Rotary engine (RX-7)
5		Five-cylinder
6		Six-cylinder
8		Eight-cylinder
Special A		NISSAN MARCH / CUBE; Cars equipped with an HR-type engine

Reference; 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.)

- 6** With no operation for 2 seconds
- 7** **OPENING DEMO**

B Switching the Display (Auto-peak / Real-time) Press

Switching the Auto-peak / Real-time Display.

- 1** Press the switch once
While the tachometer is being displayed, press the switch once.
- 2** **Peak Display + Shift Lamp ON (Setting)**
- 3** **Press the switch**
Pressing the switch changes the peak reading display mode.
 Auto-peak
 Real-time
- 4** With no operation for 2 seconds
- 5** **Tachometer Display**

C Peak reading display and re-set Press

- 1** Press the switch once
While the tachometer is being displayed, press the switch once.
- 2** **Peak reading display**
- 3** Press the switch for 2 seconds
Pressing the switch will re-set the peak reading.
- 4** **The needle will show "0"**
 All shift lamps will light
- 5** **Tachometer display**

D Shift Point Setting Press for 1.5 seconds

Make RPM setting for turning on the shift lamp.

Setting Range

PT2 : 3000 - 10000rpm, 200rpm unit **PTX** : 3000 - 9000rpm

- 1** Press the switch for 1.5 seconds
While the tachometer is being displayed, press the switch for long.
- 2** **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 peak it will return to 3000 rpm.
※By continually pressing down on the switch the needle will move to peak.
- 4** With no operation for 2 seconds
- 5** **Tachometer display**

E Shift lamp brightness setting Press for 3 seconds

Make setting to change the shift lamp brightness.

- 1** Press the switch for 3 seconds
While the tachometer is being displayed, press the switch for long.
- 2** After 1.5 seconds the shift point will be shown and after 3 seconds
 All shift lamps will light
- 3** Press the switch
While holding down the switch, change the brightness setting.
 5 steps
Each pressing will decrease the brightness; when pressed at the darkest setting it will return to the brightest possible setting.
- 4** With no operation for 2 seconds
- 5** **Tachometer display**

F Switching the signal level Press for 5 seconds

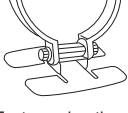
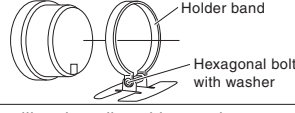
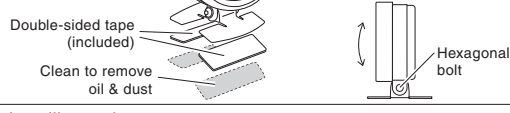
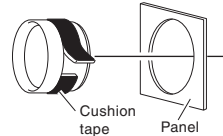
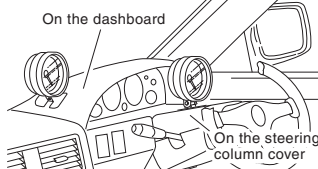
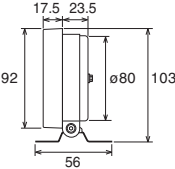
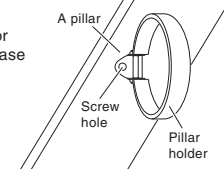
Changes are only necessary for those car models listed below.

NISSAN (FAIRLADY Z Z33)·MAZDA (after 2002)·
MITSUBISHI (COLT and others)·SUBARU (early type of PLEO and others)
※See the "ECU Wiring Diagram List" for details.

- 1** **ON Key ON (engine not running)**
- 2** Press the switch for 5 seconds
- 3** **OPENING DEMO**
- 4** **The needle will show "1" or "2"**
 The lamps blink red
- 5** 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**
- 6** With no operation for 2 seconds
- 7** **Lamp Off**

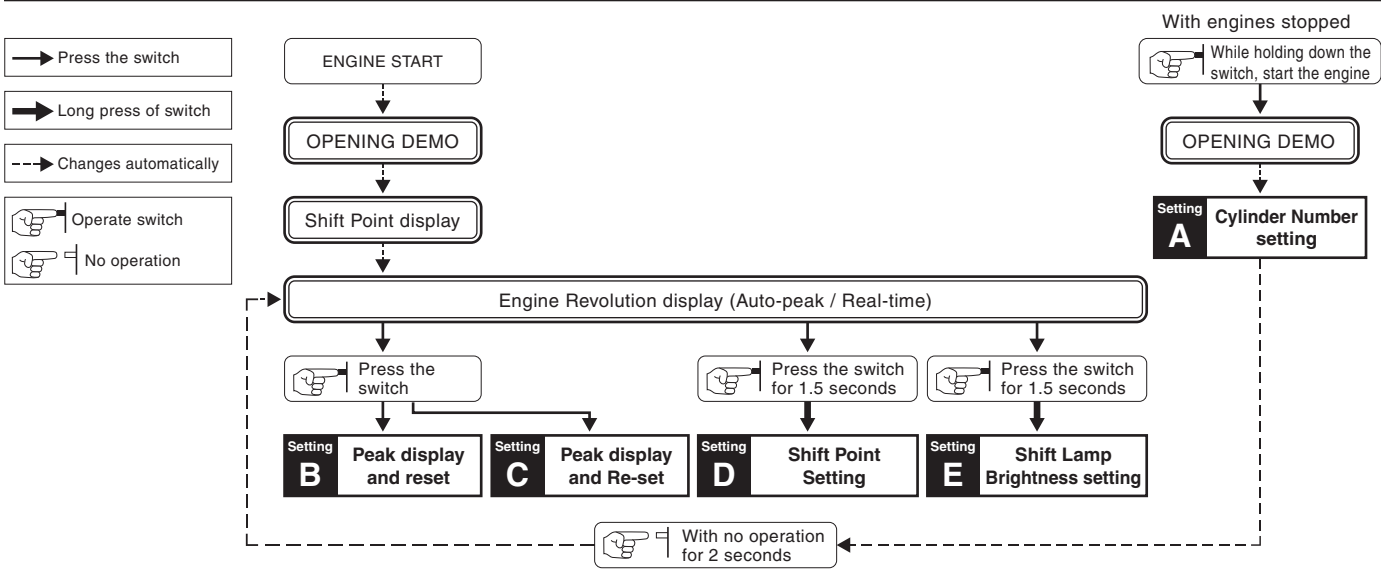
METER INSTALLATION

Install in an easy-to-view location.

A. Install with the adjustable stand			B. Installation with the cushion tape	
 <p>Fasten using the double-sided tape. (On top of the steering column cover or dashboard)</p>	 <p>Holder band Hexagonal bolt with washer</p> <p>1. Installing the adjustable stand ① Place the stand's holder band around the back of the meter. ※ If you cannot get the band around the meter, loosen the hexagonal bolt and expand the band. ② After getting the band in place, tighten the hexagonal bolt to secure the band.</p>	 <p>Double-sided tape (included) Clean to remove oil & dust Hexagonal bolt</p> <p>2. Installing to the car ① Bend the stand to securely fit the place of installation. ② Clean the surface; removing all oil or dust. ③ Fasten using the double-sided tape. ※ Please be sure about where you wish to install the meter, as it is not advisable to reuse double-sided tape. ④ After deciding the position and angle of the meter face, fasten the hexagonal bolts on both sides to secure.</p>	 <p>Cushion tape Panel</p> <p>Wrap the cushion tape around the base of the meter and forcibly insert into the 60 mm hole in the panel.</p>	
<p>Can be mounted in various places</p> <p>Mount almost anywhere using the double-sided tape. After mounting it is possible to for easy-reading.</p>	 <p>On the dashboard On the steering column cover</p>	<p>Meter dimensions (unit: mm)</p>  <p>17.5 23.5 ø92 ø80 103 56</p>	<p>※ 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.</p>  <p>A pillar Screw hole Pillar holder</p> <p>Pillar holder for ø80 PH-80 ¥1,780</p>	

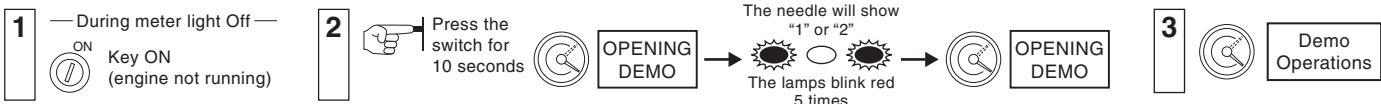
BASIC FLOW OF OPERATIONS

Basic Flow of Operations for PROGAUGE. For details about settings see each [SETTINGS].

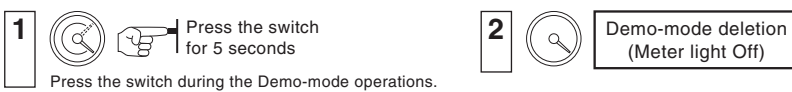


[REFERENCE] Demo-mode setting and deletion Demo-mode is used in stores to show and explain operations; for most users it is not necessary.

Demo-mode setting



Demo-mode deletion



TROUBLESHOOTING

Trouble	Possible Causes	Possible Solutions
The OPENING DEMO does not work.	The engine does not start. Poor connection of each wire. (It will not operate properly unless the wiring to the RPM signal has been completed.)	Start the engine. Check the wire connections or conditions.
Engine is running but the tachometer does not work.	Poor connection of each wire. Poor connection of 5-pin coupler cable or OBD2 connector. The signal detection level is not correct.	Check the wire connections or conditions. Check the coupler connections or conditions. See page 3 [SETTING F] and [ECU Wiring Diagram List], make any necessary changes.
The car's tachometer and PT6 reading are very different.	The cylinder setting is wrong. The signal detection level is not correct.	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. See page 3 [SETTING F] and [ECU Wiring Diagram 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 D] 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). The shift lamp brightness setting is set too low.	Check the orange wire connections or conditions. See page 3 [SETTING E], please check the setting.
The meter is operating even when the engine has been stopped.	Noise from the car (door locks and so on) may cause it to temporarily operate.	If the operation is only temporary it is not a malfunction; but if it still causes worry cut the red wire in the OBD2 connector and connect it to IGN.
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.