

One Type Analog Display coupled with Multi-Digital Display.

# USER'S MANUAL (Product Number: DSP)

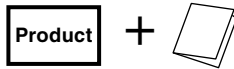
## DUAL GAUGE

### Sensor Connection

OIL PRESSURE+DIGITAL **DSP**

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

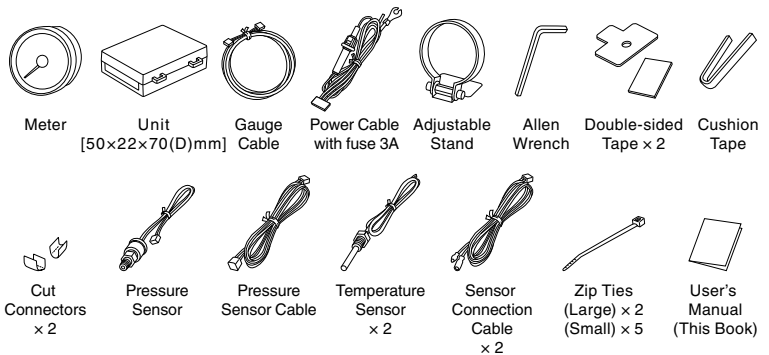
- If this product is given to another user, make sure to include this User's Manual.



### Contents

Contents / WARNING / CAUTION ..... 1  
 Features ..... 2  
 Part Names and Displays ..... 2  
 Connecting The Wires ..... 2~3  
 Installing The Product ..... 3  
 Basic Operation ..... 4  
 Switching The Display ..... 4  
 Troubleshooting ..... 4

### Please check the contents of the package



#### **WARNING**

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.
- **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 securely fasten the product and 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.

#### **CAUTION**

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 please wipe with a soft cloth to remove any dirt. Do not use chemical cleansers such as thinner, benzene, or alcohol.
- **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.**

## Features

Each of our Dual Gauges offer one type of analog display coupled with a multi-digital display in one smart looking unit, thus saving not only space but money.

### Wide Range Compatible Sensor Connection Models

Like most gauges, the DS Series models are installed by wiring to the appropriate sensor; this means greater compatibility with a wide range of car models.

# Part Names and Displays



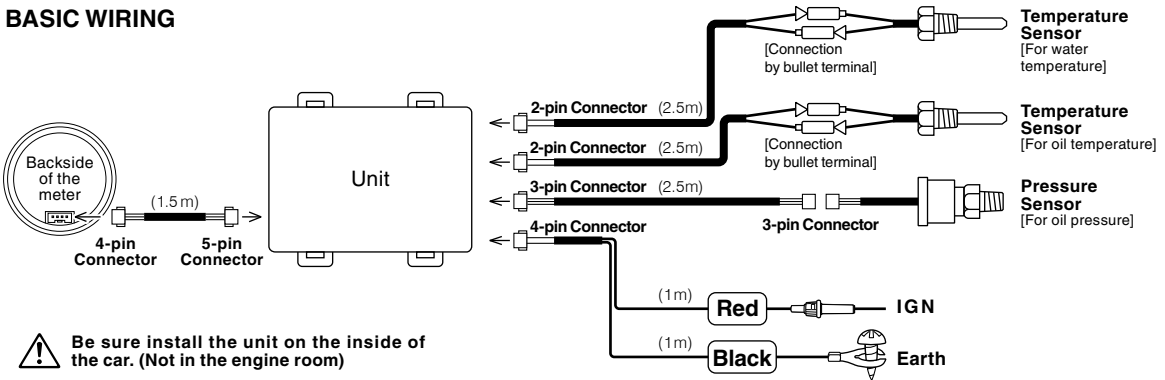
- 1 Analog Display**
- 2 Needle**
- 3 Switch**
- 4 Digital Display**
- 5 Illumination (night illumination)**
- 6 Display Range**

Display Oil Pressure data.  
Shows the current values and peak value.  
Use to change modes of digital display and reset the peak value.  
Display switches between types.  
Normally illuminated when on display.

Analog Display	Dial : White, Needle : Red
Digital Display	Red
Analog Display	Oil Pressure [ 0 ~ 1000kPa ]
Digital Display	Water temp / Oil Temp [ -35 ~ 150°C ]
	Voltage [ 8 ~ 18V ]

## Connecting the Wires

### BASIC WIRING



**!** Be sure install the unit on the inside of the car. (Not in the engine room)

### How to Connect Sensors

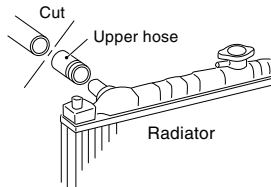
**!** Depending on the installation you may need a sensor adaptor. (sensor connector 1/8 PT sold separately)

- !** 1. Be sure to securely connect the sensor adaptor according to the manual so as to prevent any leakage of water and oil.
2. Be careful not to carry out this installation while engine is hot; it may result in burns or injury. Make sure engine has sufficiently cooled down before attempting installation.

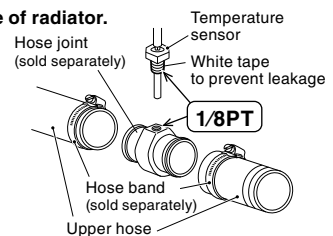
### Connecting Water Temperature Sensor

Use the hose joint (sold separately) to attach the temperature sensor to the upper hose of radiator.

- ① Cut the upper radiator hose at a suitable spot. (Water coolant will spill out, so prepare replacement coolant.)

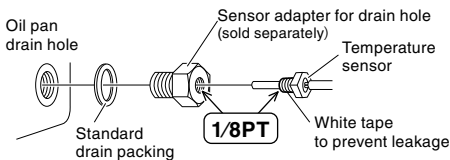


- ② Fit the hose band onto the cut upper hose and securely connect the cut hose to the hose joint with the hose band, so as no leakage will occur.



### Connecting Oil Temperature Sensor

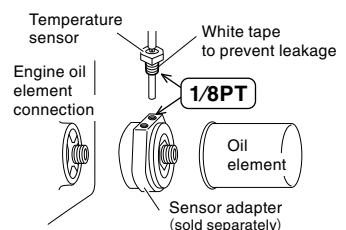
#### Oil Drain Hole Installation



#### **!** WARNING

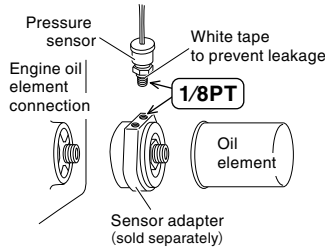
For cars chassis that are low to the ground or in cases where road conditions may be poor, please do not use this type of installation. It may lead the sensor to bump against the ground and break or be damaged.

#### Oil Element Installation

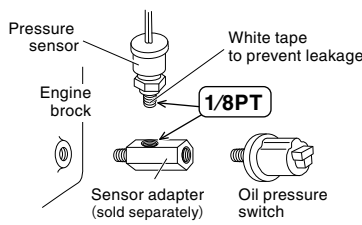


## Connecting Oil Pressure Sensor

### Oil Element Installation



### Oil Pressure switch Installation



### About SUBARU Horizontally-opposed Engine

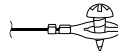
If you install in a car with a SUBARU horizontally-opposed engine, and use the screw hole in the oil pump to install the oil pressure sensor, the vibration from the oil pressure may be so great. This may cause damage to the sensor. If you plan to install in such a car model, please use the oil element installation adaptor as shown at right.

### IGN

**Red** Connect to the IGN (12V with key ON) using the cut connectors (included).

### Earth

**Black** with earth terminal Fasten to a screw of a metal part which is earthed.



\*Painted screws and screws connected to plastic parts are not earthed; make sure to connect only to a place which is earthed.

- Connect each connector to the unit.
- Connect the Gauge cable to the meter and the unit.

### [Reference] How to use the Cut Connectors

<p>1 10mm</p> <p>Peel off of the vinyl cover at connection.</p>	<p>2 10mm</p> <p>Peel off of the vinyl cover at the end of the product's wire.</p>
<p>3</p> <p>Wrap around both wire coils.</p>	<p>4</p> <p>Close tightly with cut connector.</p>
<p>5</p> <p>Insulate with vinyl tape.</p>	<p>*When crimping, please use crimpers or use pliers to bend and then solder together.</p>

## Installing The Product

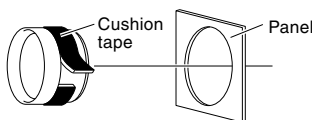
### Installation with the Adjustable Stand

Fasten using the double-sided tape. (On top of the steering column cover or dashboard.)

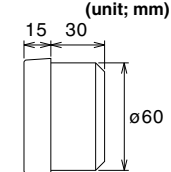
- Slightly loosen the Hexagonal bolt and install the gauge into the Adjustable Stand.
  - Fasten using the double-sided tape. (Clean the surface; removing all oil and dust.)
  - After deciding the position and angle of the meter face, fasten the Hexagonal bolt on both sides to secure.
- \*It is possible to install the Adjustable Stand in the reverse direction.
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### Mount into the Panel

- Wrap the cushion tape around the base of the meter.
- Press into the 60 mm hole in the panel.

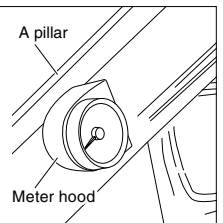


### Meter Dimensions (unit; mm)



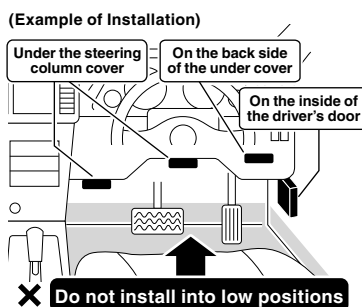
\*If you wish to fasten the unit to the A-pillar or column cover, please purchase and use the separately sold meter holder which gives you installation a clean natural look. (For mounting to the A-pillar or other slanted surface, it is necessary to use screws.)

Mater Hood 60 (for ø60)  
MH6-U (Multi-Purpose Type) ¥2,980  
MH6-C (Processing Kit) ¥2,980

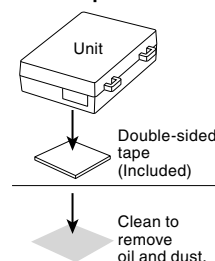


### Installing The Unit

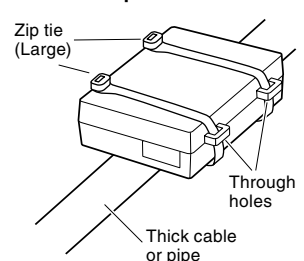
As shown in the right diagram, fasten the unit into positions not usually affected by water.



### Fastening to Flat Space



### When Fastenings to a Cable or Pipe



# Basic Operation

- 1 Key Switch ON** (Engine start)
- 2 Opening Demo**
- 3 Display Each Mode**
- 4 Key Switch OFF** (Engine stop)
- 5 Meter OFF**

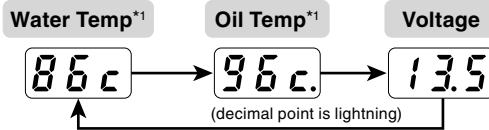
## Opening Demo

- When the key is turned ON the needle will move to the extreme left several times for searching position. Then it will move to the maximum value and finally to reading for current measurement item.

# Switching The Display

## Switching The Digital Display

Press switch to change the multi-digital display in operation

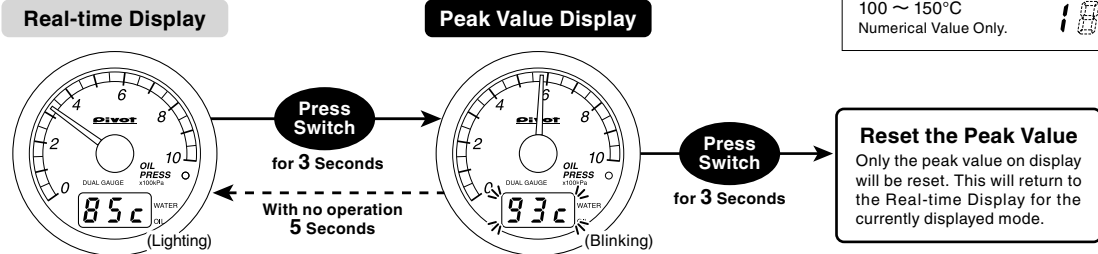


\*1. Not displayed without temperature sensor.

## Water Temperature / Oil Temperature Reading the Display

-35 ~ -1°C	- 00
The first place on the left shows "-" (minus).	
0 ~ 99°C	00 c
The third place from the left shows "C" (Celsius).	
100 ~ 150°C	100
Numerical Value Only.	

## Display and Reset the Peak Value



\*Peak readings are reset when the key is turned OFF.

\*For Water Temperature and Oil Temperature the high will be shown and for Oil Pressure and Voltage the low will be displayed.

# Troubleshooting

Trouble	Possible Causes	Possible Solutions
Does not work with Engine start.	Poor connection of <b>Gauge cable</b> , <b>Red</b> or <b>Black</b> wires.	Please reconfirm whether wiring and connections are correct or not.
The opening demo starts with Engine start, but the needle does not work.	Poor connection of <b>Pressure sensor</b> or breaking of wire.	Please reconfirm whether wiring and connections are correct or not.
Upon starting up, the unit will not start in the newly changed display.	Because after changing displays, if the car's engine is turned off within 6 seconds, the new setting will not be stored, make sure to wait at least 6 seconds before turning the engine off.	
The Temperature displays do not change from ---, or do not show the value with connecting the sensor.	Poor connection of <b>Temperature sensor</b> or breaking of wire.	Please reconfirm <b>Temperature sensor</b> and whether wiring and connections are correct or not.
The Oil Pressure displays "0".	Please start the Engine in 6 seconds from the key ON.	

※Our products have already been recognized as our Industrial Property or are in the process of receiving Industrial Property status.  
 ※We plan in the near future to take all possible legal measures to protect against unfair competition from look-alike products using similar designs, regulating characteristics, circuitry and circuitry layout.  
 ※We strictly prohibit the unlicensed use of the PIVOT trademark and the unauthorized use of PIVOT User's Manual.