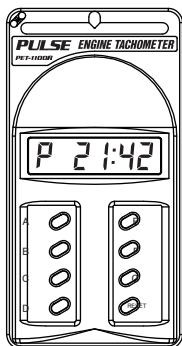


Instruction Manual

PULSE[®]
ENGINE TACHOMETER
PET-1100R



This instruction manual is commonly prepared for both PET-1100R type of pulse engine tachometers.

YOUR RECORD OF PURCHASING

(You can use this form to record your purchase details.)

Date of Purchase : Year / Month / Date

Shop Name :

Shop Contact Number :

Shop Address :

Your Name and Contact Number :

SAMPLE

This warranty is provided by Oppama Industry Co., Ltd.
14-2, Natsushimacho, Yokosuka, Kanagawa 237-0061, Japan
Phone +81-46-866-2139, Fax +81-46-866-3090
E-mail info@oppama.co.jp / http://www.oppama.co.jp

Distributor Details.

WARRANTY STATEMENT

Oppama Industry Co., Ltd. agree to repair or replace Oppama tachometer with free of charge any when it was found to be defective under normal use and care. Meanwhile, warranty stands void in case of the following :

1. Lack of evidence of purchasing in fairly, such as Invoice, Receipt or others.
2. Remove the component, such as unscrew a screw, opening the cover etc.
3. Given a shock, such as dropping etc. (It is very sensitive product)
4. It has been waterlogged. (It is not water proof products)

This warranty is for one year from the date of purchase, and is extended to the original purchaser only and is not transferable.

Instruction to claim the warranty,

- (1) Keep receipt or invoice and fill in the details in this warranty card in every time when you purchase our products.
- (2) Contact with the shop owner or a Oppama distributor in your country or Oppama home page, and inform your problem.
- (3) Provide the products to the person in charge of shop or the distributor with evidence or details of your purchasing.

IMPORTANT

Complete this warranty card at the time of purchase and keep a copy for your records.

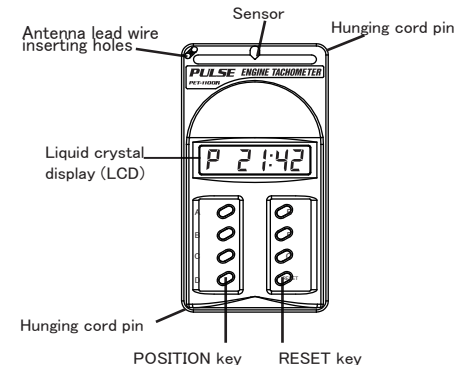
A.Function

The PET-1100R is a pulse-activated tachometer: It detects and counts electric pulses produced at the time of ignition of gasoline engines, and processes the detected signals into rpm readings according to the type of engines being monitored.

This unit is capable of monitoring rpm of 11 types of gasoline engines that are shown in the position table.

This unit cannot be used for diesel engines and direct ignition engine.

B.Name of parts



C.Measuring Position Chart

Key	Position	Objective engine		Measurable range r/min
		Stroke	Cylinder	
A	P 21:42	$\frac{2}{4}$	$\frac{1}{2}$	100 ~ 19000
B	P :43	4	3	100 ~ 13000
C	P 22:44	$\frac{2}{4}$	$\frac{2}{4}$	100 ~ 9500
D	P 23:46	$\frac{2}{4}$	$\frac{3}{6}$	100 ~ 6500
E	P :41	4	1	100 ~ 19980
F	P :45	4	5	100 ~ 7000
G	P 24:48	$\frac{2}{4}$	$\frac{4}{8}$	100 ~ 4800

D.Specifications

Objective engine	Stroke	Cylinder
	$\frac{2}{4}$	1 ~ 4
	4	1 ~ 6.8
Display interval	0.5sec	
Accuracy	$\pm 10r/min(\pm 20r/min \text{ for } 4\text{-str } 1\text{-cyl})$	
Battery life	Approx.20,000 hr	
Working Temperature	$-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$	
Storage Temperature	$-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$	
Dimensions(L x W x H)	120 x 62 x 13mm	
Weight	61g	
Accessories	Antenna lead with clip Hanging cord Instruction Manual	

4.With the engine running, hold the unit so that the sensor end is at an appropriate distance (1cm-50cm) from the active ignition cable (or one a multiple cylinder engine, from the spot where all the ignition cables are clustered). "Appropriate monitoring distance" varies with the signal strength and the type of engines being monitored; it is established when the rpm readings appearing on the LCD have become stabilized within a $\pm 10 \sim \pm 15\%$ rpm range. The engine's rpm readings will continue to appear at 0.5 sec intervals as long as the unit is held at the proper monitoring distance (CAUTION: Do not allow the unit to touch any active ignition cable, or the unit's failure may result.)

5.Move the unit away from the running engine, or stop the engine, and the POSITION number will appear on the LCD. The unit will automatically turn OFF in one minute thereafter.

(2)Antenna Lead Method(Fig.2)

- 1.Attach the antenna lead to the unit as illustrated.
- 2.Get the unit ready for use, following Steps (1) 1-3.
- 3.Connect the antenna lead to the ignition cable, using the clip, as shown. On a multi-cylinder engine, attach the antenna lead clip to one of the ignition cables where all of them are clustered.
- 4.Start the engine, and its rpm readings will appear on the unit's LCD at 0.5 sec intervals.
- 5.Remove the antenna lead clip from the ignition cable, or stop the engine, and the POSITION number will appear on the LCD. The unit will automatically turn OFF in one minute thereafter.

Fig.1

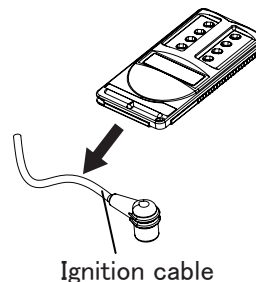
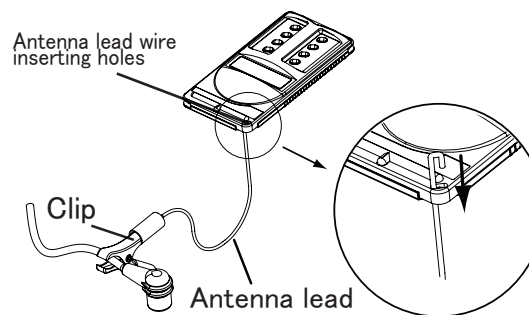


Fig.2



F.NOTES AND CAUTIONS

- 1.Use P 21:42 when 4-stroke 1-cylinder engine that sparks at spark plug every revolution is monitored.
- 2.Some engines employ "double spark" ignition method where the number of sparks per revolution is double that of the ordinary engines. Since rpm reading are given based on the count of spark-generated electric pulses, this means that the rpm readings displayed represent two times the actual, correct readings. To obtain direct rpm readings on a double-spark ignition engine, select the POSITION number by doubling the number of cylinders of the engine: For example, the POSITION number to select for a double-spark ignition, 2-stroke 1 cylinder, or 4-stroke 2-cylinder engine should be P 22:44 instead of P 21:42 .
- 3.Very rarely, strange figures or symbols happen to appear on the LCD. This condition does not represent the unit's failure. If this has occurred, depress RESET key: the figures 8888:88 will temporarily appear and then POSITION number P 21:42 will follow, indicating that the unit is in normal working condition.
- 4.When the antenna lead is used, be sure to keep it free from contact with metallic surfaces to avoid possible errors in rpm readings.
- 5.Keep this unit away from strong physical shocks.
- 6.Never touch the inside circuit to prevent any unnecessary trouble or malfunction.

E.How to use

(1)Non-Contact Method(Fig.1)

- 1.Turn ON the unit by depressing POSITION key.
- 2.Select the POSITION number applicable to the engine to be monitored, referring to the Measuring Position Chart.
- 3.Depress the POSITION key as many times as needed until the selected POSITION number appears on the LCD.