

OPPAMA**Instruction Manual****PULSE
ENGINE TACHOMETER
PET-302****★ OPPAMA INDUSTRY CO., LTD.**

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**C. How to Use****1. Non-contact Counting**

1. Bring the tachometer near to the ignition plug cord of an operating engine with the pulse receiving direction arrow toward the cord as shown in Fig.1 until the distance from the cord falls within a range from 1cm to 30cm and the value displayed in the liquid crystal display stabilizes.

When the tachometer is approached to the plug cord too close, the displayed value may become improper. When the value becomes improper, move the tachometer farther from the plug cord to an appropriate distance.

2. The power supply to this tachometer is automatically turned on and the number of revolutions of the engine is displayed. (Automatic turning on)
Do not bring the tachometer into direct contact with the ignition plug cord of the operating engine. The tachometer may get out of order.
3. When this tachometer is moved farther from the ignition plug cord of the operating engine or the engine is stopped after counting the number of revolutions, the cumulative running time of the engine is automatically displayed in the liquid crystal display window and the display goes off about one minute later. (Automatic turning off)

* When the displaying section does not display the right number of revolutions of the engine, refer to Section "D Precautions".

A. Function

1. The Model PET-302 Pulse Engine Tachometer of Oppama Industry Co., Ltd. is of a pulse counting type which detects pulses generated when an ignition plug sparks.
2. This tachometer is exclusively used for such engines as two-stroke single-cylinder gasoline engines or magneto ignition type four-stroke single-cylinder gasoline engines the crank shaft of which makes one revolution whenever the ignition plug of the engine sparks.
3. This tachometer displays the cumulative running time of the engine for about one minute after counting is terminated.
4. This device is provided with an automatic on/off switch function.
5. This device can count the number of revolutions of the engine either by contacting or non-contacting means.
6. This device is constructed with a waterproof structure so that no water may get into the device during the normal operation of the engine when it is wet in a rain or with spray of water.

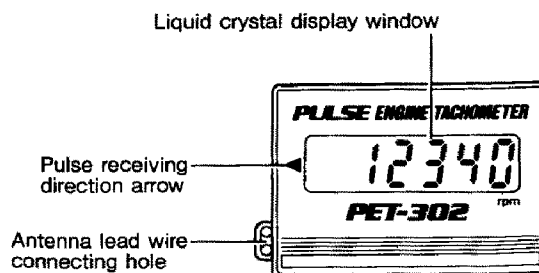
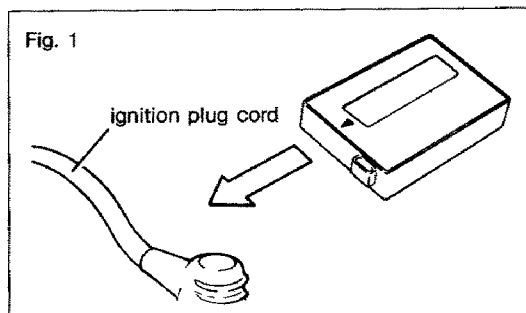
B. Designation of Each Section

Fig. 1

**2. Contact Counting (with Antenna Lead Wire)**

1. Connect the antenna lead wire to the tachometer as shown in Fig.2.
2. Fix the tachometer to an appropriate part of an engine or equipment attached to the engine with the supplied Velcro tape, etc.
3. Connect the antenna lead wire to the ignition plug cord of the engine with a clip as shown in Fig.2, or by winding the lead wire around the cord three to five turns and fixing the wire with an insulating tape, etc.
4. When the engine is started, the power switch of the tachometer is automatically turned on, and the number of revolutions of the engine is displayed in the liquid crystal display window.
5. When the engine is stopped, the cumulative running time of the engine is automatically displayed and the display disappears about one minute later.

* When the displayed number of revolutions becomes improper, refer to Section "D Precautions".

Warning

Make sure that the tachometer and antenna lead wire will not interfere with the operation of the engine at the time of fixing the tachometer to the engine or laying the antenna lead wire. A serious accident may happen.

Fig. 2

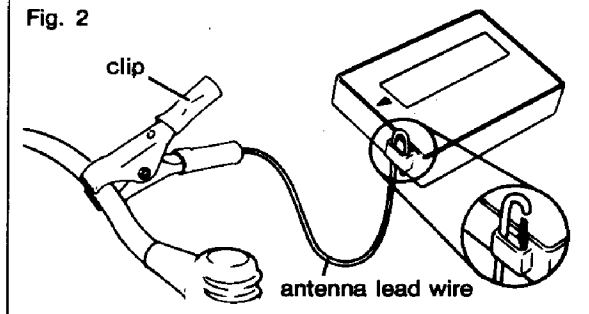
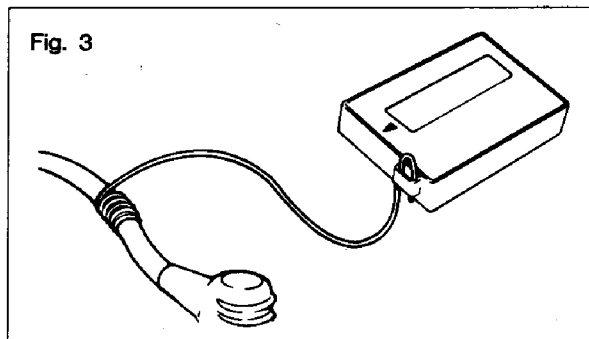


Fig. 3



E. Specification

Applicable engine	Stroke	Cylinder
	2 (4)	1
Countable range	100 to 30,000 rpm.	
Revolution displaying interval	0.5 sec.	
Accuracy	±10 rpm.	
Displayed cumulative running time	0000 hr. 00 min. to 9999 hr. 59 min.	
Battery life	Approx. 20,000 hr. (Engine running time)	
Operating temperature range	20°C to + 60°C	
Storage temperature range	-20°C to + 60°C	
Dimensions (L×W×H)	44×61×12 mm.	
Unit net weight	30 g	
Accessories	Antenna lead wire : 1 set Velcro tape : 1 pack Operation manual : 1 copy	

D. Precautions

1. Lay the antenna lead wire with care so that the wire will not come into contact too much with a metallic part, water, etc., because pulses will be attenuated and the value displayed may become smaller than the right number of revolutions of the engine.
2. When this tachometer is used for a racing car engine (especially, for a kart engine), the displayed value may become larger than the real number of revolutions of the engine, because the pulses generated from the engine are stronger than those generated from an ordinary engine. Wind the antenna lead wire around a metallic frame, etc., three to six turns.
 - * Do not wind the lead wire more than six turns, because the displayed value may become smaller than the real number of revolutions.
3. Even when the tachometer shows the right number of revolutions of an engine in the initial stage of use, the displayed value may become larger in the same state as described in Paragraph 2 above, due to the deterioration of the ignition plug cord with time. When the displayed value becomes larger, take the same action as described in Paragraph 2 above.
4. When the tachometer is used in a non-contacting state, the tachometer may not count the pulse, if such an obstruction as a finger that intercepts pulses exists, in the direction indicated by the pulse receiving direction indicating arrow.
5. Since this tachometer is constructed with a water-proof structure, the device can be used in a rain or with a spray of water. However, the device is not able to be used underwater. When the tachometer gets wet with water, wipe up the water with a dry cloth as soon as possible.
6. There may be a case that the data stored in the tachometer are erased depending upon the engine, although the occurrence is very rare. When the occurrence of such a case is predicted, use a resistor type spark plug.
7. Do not give any strong shocks to the tachometer.
8. This tachometer is not disassemblable.
9. When this tachometer does not work properly, operate the device properly in accordance with this instruction manual. When your tachometer does not work properly even though the device is operated in accordance with this manual, consult with the shop from which you bought your tachometer or Oppama Industry Co., Ltd. Oppama Industry Co., Ltd. shall not be liable for any damage caused by the unreasonable repair or disassembly of the device by yourself or a third party.