

Instruction Manual

**DIGITAL ENGINE TACHOMETER
DET-610R**



WARRANTY STATEMENT

Under normal use and care Oppama Industries agrees to repair or replace free of charge any Tachometer found to be defective. This warranty is for one year from the original date of purchase, and is extended to the original purchaser only and is not transferable.

For repair or replacement, return the defective tachometer with proof of purchase to your dealer.

Date of purchase: **SAMPLE**
Name: _____ Phone: _____

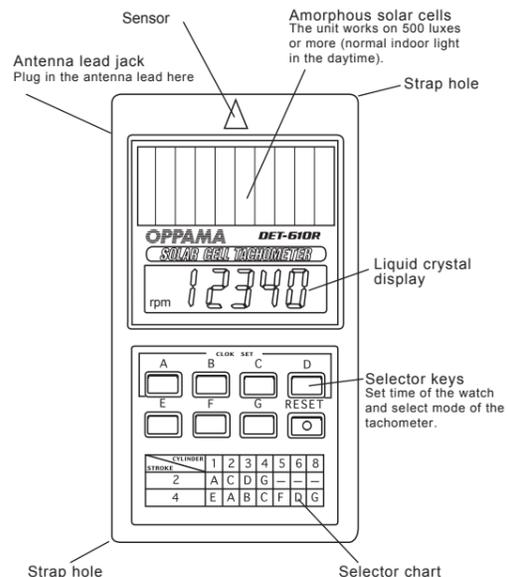
Address: _____

Retailer: _____

IMPORTANT

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

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
Email info@oppama.co.jp http://www.oppama.co.jp



FEATURES

- 1.Engine speed of gasoline engines from a single cylinder up to 8 cylinders can be measured without contacting the engines at all.
 - 2.This is a tachometer with a watch system, powered by amorphous solar cells.
 - 3.Kindly designed so as to show number of strokes and cylinders of engines measurable, at the display, when a selector key is pushed.
 - 4.The response is very quick and the unit can display RPM reading every half a second.
 - 5.Very compact is size with only 8.5 mm thick.
- ※This unit cannot be used for diesel engines and direct ignition engine.

HOW TO USE

- 1.Setting time of the watch
Example: Setting the watch at 3:15 pm.

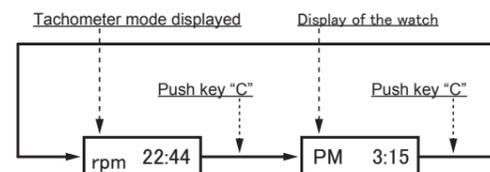
Selecting keys	Display
Push "RESET"	AM1:00
Push "A" 14 times	PM3:00
Push "B" once	PM3:10
Push "C" 5 times	PM3:15
Push "D" once	PM3:15

The watch starts from 00 seconds after flashing.

- ※Engine speed cannot be measured without starting the watch.
- ※This unit is so designed as to consume least power when the watch is running, so do not leave the watch not working for a long period.

2.Measuring engine speed

- Example: Measuring speed of an engine of 4 strokes and 4 cylinders:
(1)Push the selector key"C", selecting from the selector chart.
Each push on the key "C"turns the display as follows:



- Direct readings of engine speeds can be obtained for these engines of 2 strokes and 2 cylinders 4 strokes and 4 cylinders
- ※Engine speeds can be measured at either display.
- (2) Locate the unit close to a high tension lead to a spark plug of an engine, and the engine speed will be displayed.
- ※For engines of multi-cylinder, locate the unit close to the place where all the spark plug leads gather.
 - ※Use the antenna lead if required.
 - ※The following chart shows the relation among, the selector keys, tachometer modes, engines to be measured with direct rpm readings and measurement ranges.

Selector key	RPM Mode Display	Objective engine		Measurement Range(rpm)
		Stroke	Cylinder	
A	P 21:42	2/4	1/2	100 ~ 19000
B	P :43	4	3	100 ~ 13000
C	P 22:44	2/4	2/4	100 ~ 9500
D	P 23:46	2/4	3/6	100 ~ 6500
E	P :41	4	1	100 ~ 19980
F	P :45	4	5	100 ~ 7000
G	P 24:48	2/4	4/8	100 ~ 4800

NOTE

Some engines have waste ignitions which ignite twice as much as ordinary engines do.
In such a case, measure the engine speed with a mode with two times of normal number of cylinders:
Example: When two times of the right rpm reading is displayed with a mode "rpm 21:42", use a mode "rpm 22:44"to get the right rpm.

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.When the antenna lead is used, be sure to keep it free from contact with metallic surfaces to avoid possible errors in rpm readings.

- 4.Keep this unit away from strong physical shocks.
- 5.Never touch the inside circuit to prevent any unnecessary trouble or malfunction.

SPECIFICATIONS

Objective engine	Stroke	Cylinder
	2	1 ~ 4
4	1 ~ 6 · 8	
Display interval	0.5sec	
Measurement Accuracy	± 10r/min(±20r/min for 4-str 1-cyl)	
Watch system	±2 sec/day	
Accuracy normal temperature	±2 sec/day	
Display	Hours, minutes, AM and PM	
Battery life	Approx 8 years (using tachometer for an hour / day)	
Working Temperature	0°C ~ +40°C	
Storage Temperature	-20°C ~ +60°C	
Dimensions (L×W×H)	113 × 62 × 8.5mm	
Weight	57g	
Accessories	Antenna lead with clip Hanging cord Instruction Manual	

※Do not use this unit on diesel engines or direct ignition engines.