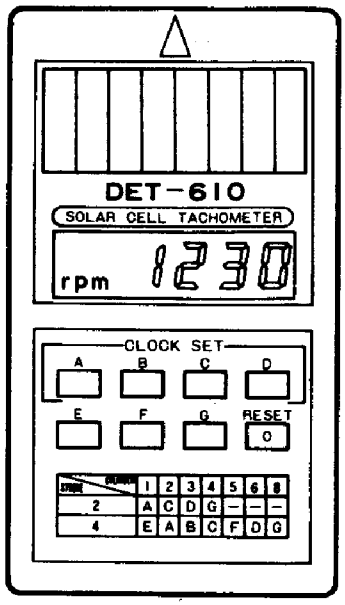
# DIGITAL ENGINE TACHOMETER
# INSTRUCTION MANUAL
# MODEL: DET-610

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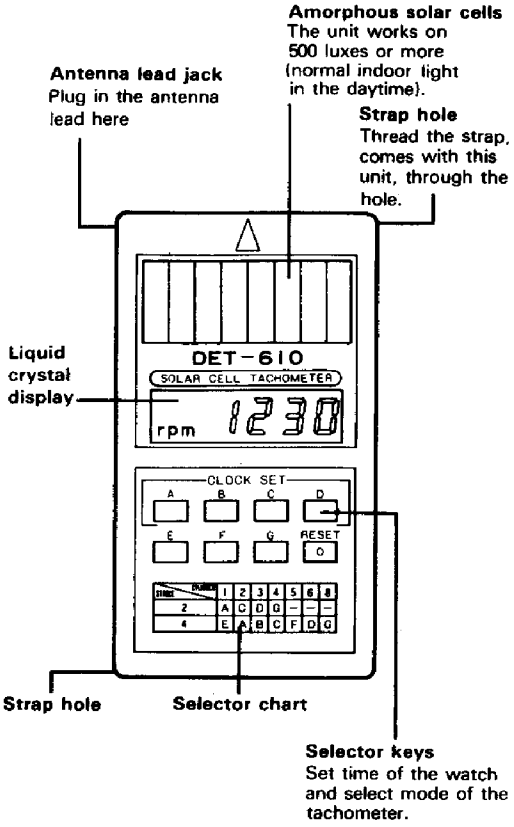
## FUNCTIONS OF PARTS




## 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 in size with only 8.5 mm thick.

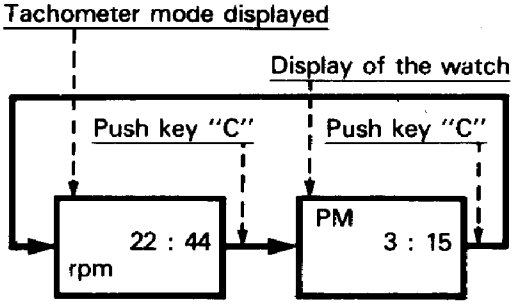
## HOW TO USE

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

| Selecting keys | Display |
|---|---|
| Push "RESET" | AM 1 : 00 |
| Push "A" 14 times | PM 3 : 00 |
| Push "B" once | PM 3 : 10 |
| Push "C" 5 times | PM 3 : 15 |
| Push "D" once | PM 3 : 15<br>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 | Engines Applicable for Direct Reading | Measurement Range |
|---|---|---|---|
| A | rpm 21:42 | 2 strokes/ 1 cylinder or 4 strokes/ 2 cylinders | 100 rpm ~ 19,000 rpm |
| B | rpm :43 | 4 strokes/ 3 cylinders | 100 rpm ~ 13,000 rpm |
| C | rpm 22:44 | 2 strokes/ 2 cylinders or 4 strokes/ 4 cylinders | 100 rpm ~ 9,500 rpm |
| D | rpm 23:46 | 2 strokes/ 3 cylinders or 4 strokes/ 6 cylinders | 100 rpm ~ 6,500 rpm |
| E | rpm :41 | 4 strokes/ 1 cylinder | 100 rpm ~ 19,980 rpm |
| F | rpm :45 | 4 strokes/ 5 cylinders | 100 rpm ~ 7,000 rpm |
| G | rpm 24:48 | 2 strokes/ 4 cylinders or 4 strokes/ 8 cylinders | 100 rpm ~ 4,800 rpm |

**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.

3. Life and the time of replacement of the lithium cell (to back up the watch)

The life of the cell: About 8 years (if the unit is used for measuring idle speeds of a car of 6 cylinders for one hour per day and is stored in a dark place)

* Even after the cell runs out, under 500 luxes or more (normal indoor light in the daytime) the solar cell can activate the watch and the tachometer.
* As the cell was already installed at the time of the shipment and the watch has been running, it may run out within 8 years at first.

Replacing the cell

(1)Loosen 6 screws at the back side of the unit to remove the back case.

(2)Replace the old cell with a new one, making sure the polarity of the cell + −; the back case side is +.

(3)Tighten the 6 screws securely.

* Cell to be used: Lithium cell CR2032 1pc.

## SPECIFICATIONS

| MODEL | | DET-610 |
|---|---|---|
| Measuring rpm | Display interval<br>Measuring system<br>Unit of measurement<br>Measurement accuracy<br>Effective distance from a lead | 0.5 sec.<br>Noncontact, electrical impulse counting system<br>10 rpm (20 rpm for model E)<br>±10 rpm (±20 rpm for model E)<br>1 cm ~ 10 cm (without antenna lead) |
| Watch system | Accuracy at normal temperature<br>Display | ±2 sec/day<br>Hours, minutes, AM and PM |
| Power source | | Amorphous solar cells and Lithium cell (CR 2032 × 1pc) |
| Life of lithium cell | | More than 8 years (using tachometer for an hour/day) |
| Operation temperature | | 0°C ~ 40°C |
| Storage temperature | | −20°C ~ 60°C |
| Dimensions (L × W × H) | | 113 × 62 × 8.5 mm/44.5 × 24.4 × 3.4 in |
| Weight | | 57 g/0.13 lbs (with battery) |
| Accessories | | Antenna lead wire: 1<br>Strap: 1<br>Instruction manual: 1 |

## CAUTION

* Do not let the unit touch a spark plug lead, which may cause trouble.
* When the antenna lead is used keep it away from metal parts, to prevent the unit from a trouble.
* Try to avoid strong shock on the unit, or high temperature and high humidity.
* Do not tuoch the inner circuit of the unit, which may cause a trouble.