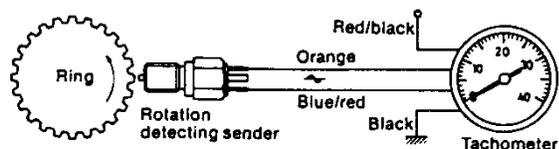
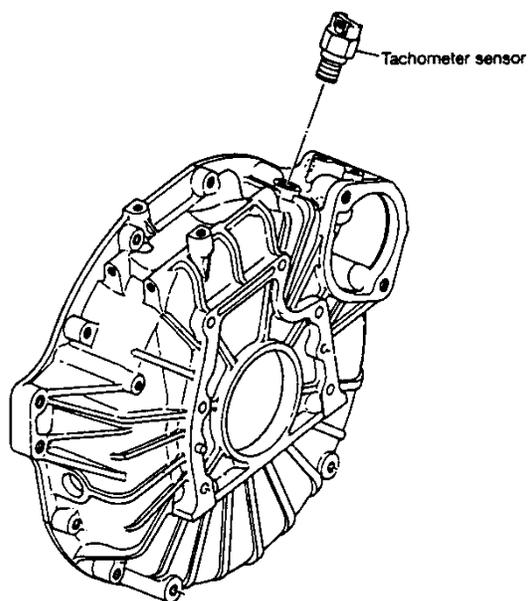


9. Tachometer

9-1 Construction of tachometer

The tachometer indicates the number of revolutions per minute by means of an electrical input signal which is generated as a pulse signal from the magnetic pickup sender (MPU sender).

The function of the sender is to convert the rotary motion into an electrical signal by counting the number of teeth of the ring gear connecting with the flywheel housing.

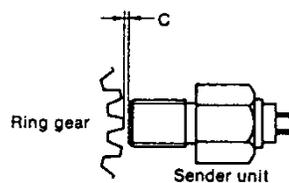
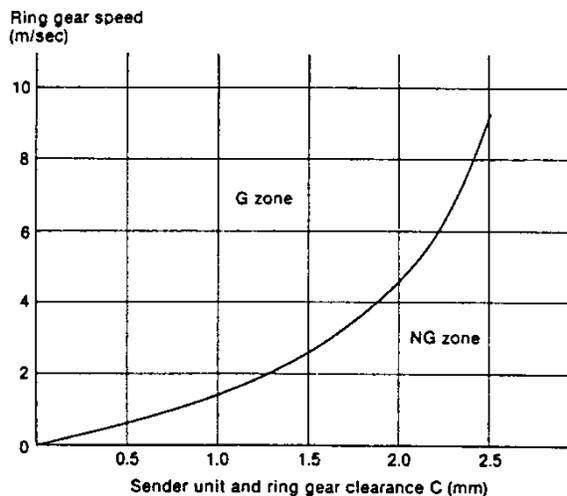


9-2 Specifications and dimensions of tachometer

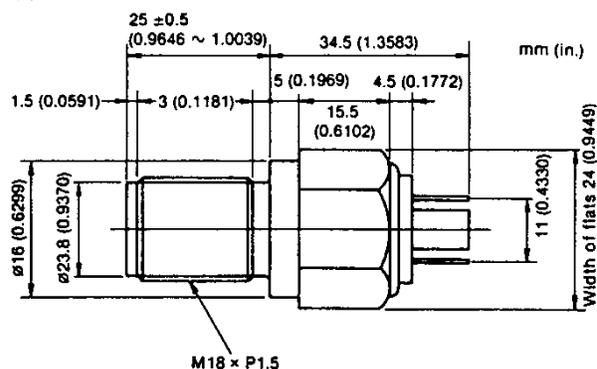
(1) Specifications

Rated voltage	DC 12V
Range of operating voltage	10 ~ 15V
Illumination	3.4W/12V
Ring gear	No. of teeth 114 Module 2.54
Part No. of tachometer	120130-91200 (128696-91100)
Part No. of sender unit	128170-91160

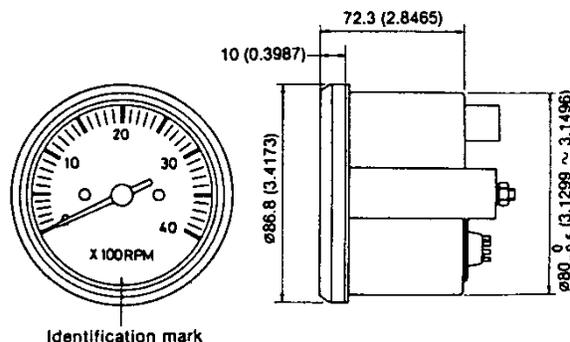
(2) Sensitivity limit of sender unit



(3) Dimensions of sender unit



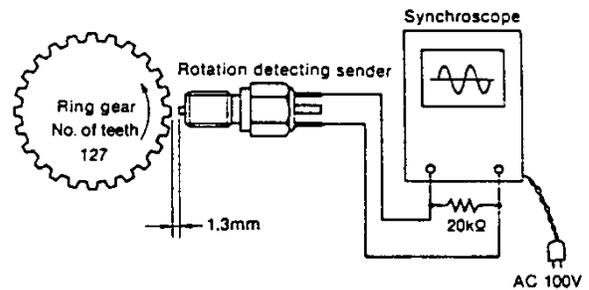
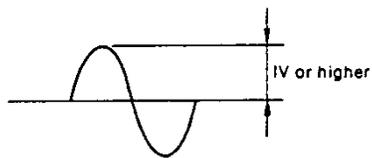
(4) Dimensions and shape of tachometer



9-3 Measurement of sensor unit characteristics

(1) Measurement of output voltage

Output voltage	1.0V or higher
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* Check the output wave pattern and number of pulses when carrying out the output voltage measurement.

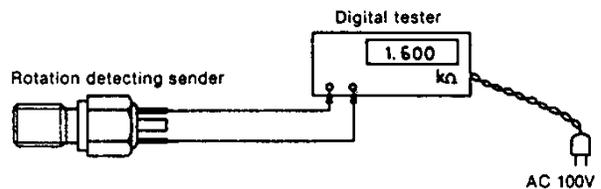
Measuring conditions

Number of teeth of ring gear	114
Gap between the ring gear and sender	1.3mm (0.0511 in.)
Resistance	20kΩ
Speed of ring gear	500 rpm (approx. 800Hz)
Measuring temperature	20°C (68°F)
Measuring instrument	Synchroscope

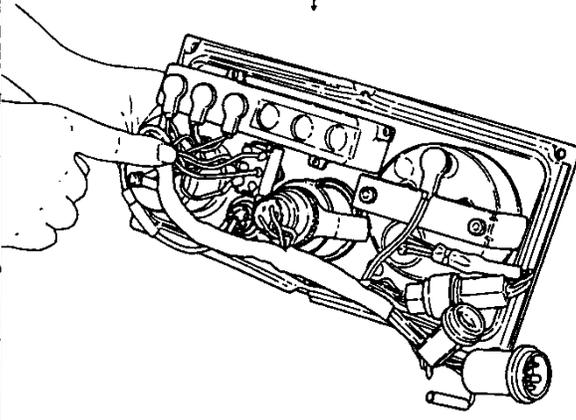
(2) Measurement of internal resistance

Measuring conditions

Measuring temperature	20°C (68°F)
Measuring instrument	Digital tester



9-4

Fault	Diagnosis	Remedy
Does not function well. 1) Pointer does not move. 2) Functions intermittently.	Check if there is an open-circuit cable connection at the rear of the meter, a loose or disconnected terminal, or bad continuity due to corrosion. 	Yes Make good the connection.
	Disconnect at the instrument terminals, and measure the voltage between the cable terminals. (To be 10 ~ 16V) ↓ Satisfactory	No If the input voltage is abnormal, check the cause. (e.g. short-circuit, disconnection, or blown fuse, etc.)

	<p>Check if the sender is loosely fitted.</p> <p style="text-align: center;">↓ No</p>	<p>Yes Fix the sender securely.</p>
	<p>Measure the internal resistance of the sender. (To be $1.6 \pm 0.1k\Omega$ at $20^{\circ}C$)</p> <p style="text-align: center;">↓</p>	<p>No Replace the sender.</p>
	<p>Measure the output voltage of the sender. (To be 1V or higher at $20^{\circ}C$)</p>	<p>No Replace the sender.</p>