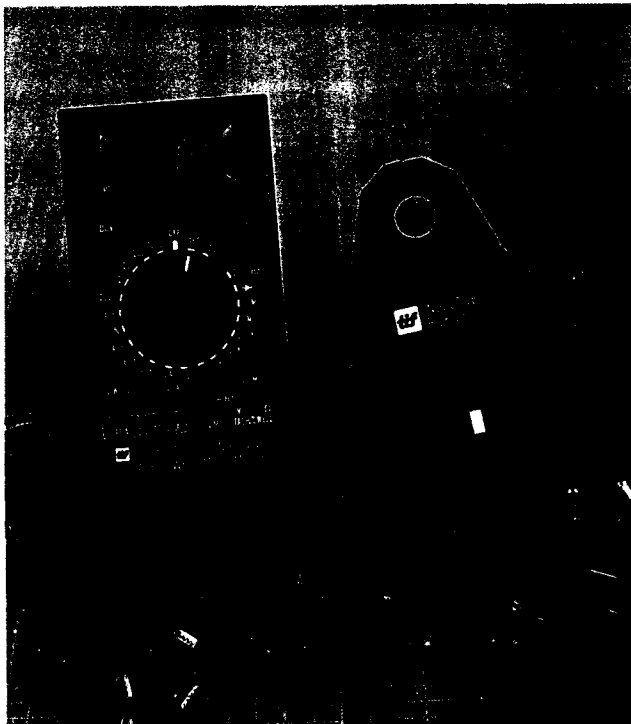


TIF 250 DIGITAL INDUCTIVE TACH/DWELL MULTIMETER



The TIF 250 is a hand held digital multimeter (DVOM) designed to measure AC and DC voltages, DC current, resistance, duty cycle, frequency, dwell and to check diodes. In addition, the meter will also measure engine RPM via an inductive (clamp-on) jaw. Simple calculations also allow you to compute pulse widths. This exciting combination lets you perform high impedance (10 megohm) electrical testing on high tech control systems.

The TIF250 has been improved with an easy to read 1/2" LCD readout and updated circuitry including a frequency range, diode check and tachometer sensitivity adjustment. Also included is a special Inductive Tach pick-up that makes this tester a must for every service technician. Comes in a durable custom molded carrying case with battery, spare fuse and two sets of test leads.

SEE REVERSE SIDE FOR
APPLICATION INFORMATION

FEATURES

- Five DCV ranges
- Two ACV ranges
- Six resistance ranges
- Two DC current ranges
- Dwell ranges
- Duty cycle range
- Frequency range
- Tachometer with adjustable sensitivity
- Probe and clip type leads
- Large, easy to read, LCD
- Single power/ selector switch
- Ten Megohm input impedance
- Overload protection
- Polarity and low battery indicators
- Gold plated contacts
- Inductive tachometer pick-up

Tach Range	Resolution	Accuracy
0-10,000 RPM	10 RPM	± 2% rdg ± 1 dgt

Dwell Ranges	Resolution	Accuracy
0-90° 4 CYL	1°	± 2% rdg ± 1 dgt
0-60° 6 CYL	1°	
0-45° 8 CYL	1°	

Duty Cycle	Resolution	Accuracy
0-100% %	1°	± 2% rdg ± 1 dgt

SPECIFICATIONS

DC Voltage	Ranges	Accuracy
	0-200.0mV	± 0.8% rdg ± 1 dgt
	0-2.000V	
	0-20.00V	
	0-200.0V	
	0-1000V	
Frequency	Ranges	Accuracy
	0-2000Hz	+ 1.2% rdg ± 1 dgt
	1Hz Resolution	
AC Voltage	Ranges	Accuracy
	0-200.0	± 1.2% rdg ± 1 dgt
	0-750	
DC Current	Ranges	Accuracy
	0-2000mA	± 2% rdg ± 2 dgt
	0-10.00A	
Diode Check	Ranges	Accuracy
	0-2.000V	1mV
Resistance	Ranges	Accuracy
	0-200.0Ω	± 1% rdg ± 2 dgt
	0-2.000KΩ	
	0-20.00KΩ	
	0-200.0KΩ	
	0-2.000MΩ	± 1.8% rdg ± 2 dgt
	0-20.00MΩ	
	0-200.0MΩ	
	0-2000MΩ	

Power Supply: One 9 Volt battery

Fuse Type: 2A/250V, 20 x 5mm

Display: 3 1/2 digit, LCD with a maximum display of 1999.

Display Update Speed:
1.5 times per second.

Polarity Indication:
Negative input will display "-" sign

Overrange Display:
"1----" or "-1----" indicates an input above the range selected (overrange)

Operating Temperature:
32-102 °F or 0-40 °C and below 80% Relative humidity.

Battery Life: 60 hours (alkaline)

Unit Weight: 7 ounces approx.

Unit Dimensions: 6.4" x 3.4" x 1.1"

Replacement Parts

Part Description	Part #
Clip Leads	TIF251
Pinpoint Leads	TIF252
Inductive Pick-Up	TIF253
Replacement Fuses (Pk of 6)	TIF255

TIF INSTRUMENTS INC



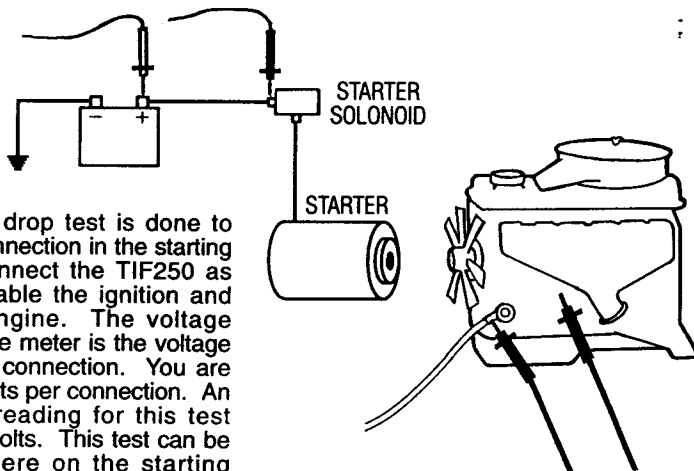
9101 N.W. 7th Avenue
Miami, Florida 33150
Phone: (800) 327-5060
Fax: (305) 757-3105

Applications

The TIF250 can be used for an almost infinite number of tests. Virtually any electrical system test necessary on an automobile can be made with the TIF250. Examples include:

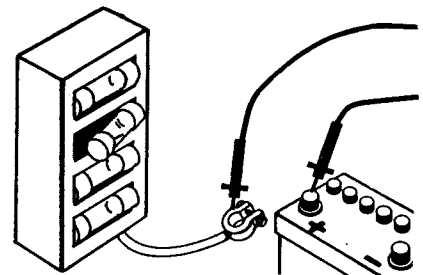
- Voltage Presence
- Voltage Level
- Voltage Drop
- Current Measurements
- Locating Current Drains
- Resistance Measurements
- Charging System Tests
- Starting System Tests
- Ignition Testing
- Finding Shorts and/or Bad Grounds
- On Board Computer Tests
- Reference Sensor Testing including: TPS, Coolant, Hall Effect, Position, etc.
- Duty Cycle Measurements
- Frequency Measurements

Cable Resistance Test/Voltage Drop



The voltage drop test is done to check the connection in the starting system. Connect the TIF250 as shown. Disable the ignition and crank the engine. The voltage reading on the meter is the voltage drop for that connection. You are allowed .2 volts per connection. An acceptable reading for this test would be .4 volts. This test can be done anywhere on the starting system.

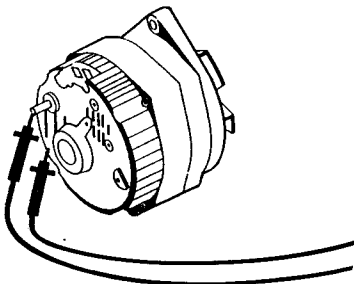
Current Drain



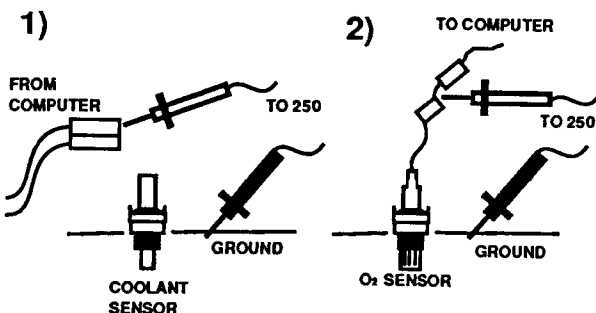
Connect the DMM in series with the battery using the current function. Isolate the circuit causing the current drain by pulling one fuse after another while watching the multimeter. The current reading will drop to nearly 0 when the fuse in the offending circuit is pulled. Reinstall the fuse and disconnect the components on that circuit one at a time to find the defective component.

Diode Test

Touch one test probe to the output terminal and the other to the alternator housing. Reverse the probes and repeat the test. On one of the tests, the meter should display the voltage drop across any two diodes in series typically about 0.8 volts. If the reading is about 0.4V one diode is shorted. A higher reading indicates 2 shorted diodes.



Computer Component Testing



The high impedance digital voltmeter of the TIF250 can be used to check and monitor computer components.

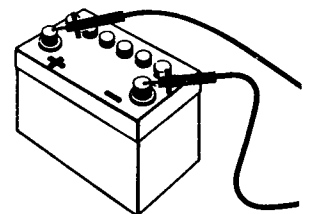
Pulse Width Measurements

By using both the frequency (Hz) and duty cycle (%) measurements, pulse width (e.g. on automotive electronic fuel injectors) can easily be calculated as described below.

1. Take both frequency and duty cycle measurements.
2. Enter readings into this formula.

$$\text{Pulse Width (Seconds)} = \frac{\text{Duty Cycle (\%)} \div 100}{\text{Frequency (Hz)}}$$

Battery Voltage



Test the voltage across the battery terminals. A fully charged battery should show at least 12.6V. Voltage tests tell only the charge state, not the battery condition.