

SECTION I INTRODUCTION

1-1. GENERAL DESCRIPTION

The AC-DC Portable Laboratory Standard, Weston Model 1572, is designed to measure AC and DC voltage and current to an accuracy of $\pm 0.05\%$ of reading. A direct digital readout is provided for all functions. The range selected is automatically indicated by an illuminated decimal point located on the digital readouts, which eliminates the use of multipliers, thus minimizing errors.

The instrument receives its power from a 115 volt $\pm 10\%$, 50-440 cps line, and is provided with a grounding type power plug to provide earth ground to the chassis.

All measurements made on the instrument are referred to the Zener reference voltage. For DC voltage measurements, the 150 MV and 1500 MV ranges are potentiometric; the 15V, 150V, and 1500 V ranges employ a volt box rated at 750 ohms/volt in conjunction with the potentiometer. DC current ranges employ a series of shunts, the millivolt drop of which is measured potentiometrically. For AC measurements, a thermocouple network is used as an AC to DC transfer standard. The DC output of the thermocouples is referred to the Zener reference by two reference thermocouples which are powered by the Zener voltage. All AC voltage measurements are made at 10 milliamperes. AC current measurements employ current transformers, the secondaries of which are connected to the thermocouple network.

The Model 1572 is completely protected from overload. Current ranges are protected by fuses and voltage range resistors are protected by a relay which, when actuated, opens the input terminals. The

galvanometer is protected by a relay, and the thermocouples are protected by a diode network. When any relay is actuated, the decimal lights go out and a red OVERLOAD light goes on. The relays are then reset by turning FUNCTION switch to OVERLOAD RESET position after the overload has been removed. There is no automatic indication of a blown fuse.

1-2. PREPARATION FOR USE

The instrument is shipped from the factory ready for use. It is designed to be operated in the horizontal position. Place the instrument on a vibration free table and carefully remove cover. A compartment in the cover is provided for the line cord and instruction book. Connect line cord to side of Model 1572.

1-3. USING WITH EXTERNAL GALVANOMETER

Binding posts located in the fuse compartment (upper right corner of front panel) are provided for attaching an external galvanometer. Remove link between binding posts E4 and E5, and connect external galvanometer across E5 and E6. The galvanometer used should have an external critical damping resistance of approximately 100 ohms and a sensitivity of at least 0.025 microamperes per division.

1-4. RACK MOUNTING

If it is desired to rack mount the Model 1572 it will be necessary to use an external galvanometer as described above. To remove the instrument from its case, remove the four screws from plastic feet on bottom of case and remove the eight panel mounting screws. Use Dust Cover, Weston Part Number 3011F8, to protect the instrument when rack mounted.

TABLE OF SPECIFICATIONS FOR WESTON MODEL 1572 AC-DC PORTABLE LABORATORY STANDARD

ACCURACY:

AC Range	Accuracy, % of reading		
	50-440 cps	440-2500 cps	2500-5000 cps
12 V	0.05	0.05	0.05
120 V	0.05	0.05	0.05
1200 V	0.05	0.05	0.10
120 MA	0.05	0.05	
1200 MA	0.05	0.10	
12 A	0.05	0.10	

DC voltage and current - see page 1-1: also,

DC voltage and current ranges are accurate to 0.004 percent of full scale range below 7 percent of the full scale range value.

Direct current milliamperage ranges are within 0.05 percent of reading over a temperature span of 20° to 30° C (68° to 86° F) and within 0.08 percent of reading over a temperature span of 10° to 40° C (50° to 104° F).

SPECIFICATIONS:

FUNCTION	FULL SCALE Range	Range Span	Burden
AC Volts	12 v 120 v 1200 v	1.000 - 13.001 v 10.00 - 130.01 v 100.0 - 1300.1 v	10 ma from 1 to 1300.1 volts
Voltage Drop			
AC Ma	120 ma 1200 ma	10.00 - 130.01 ma 100.0 - 1300.1 ma	1.63 max. 3.80 max.
AC Amps	12 amp	1.000 - 13.001 amp	2.70 max.

FUNCTION	Full Scale Range	Range Span	Resistance Ohms
DC Mv	150 mv 1500 mv	0 - 160.10 mv 0 - 1601.0 mv	Potentiometric Potentiometric
DC Volts	15 v 150 v 1500 v	0 - 16.010 v 0 - 160.10 v 0 - 1601.0 v	11,250 112,500 1,125,000
DC Ua	1500 ua	0 - 1601.0 ua	140 Approx
DC Ma	15 ma 150 ma 1500 ma	0 - 16.010 ma 0 - 160.10 ma 0 - 1601.0 ma	18 Approx 3 Approx 0.2 Approx

Input Power - 105 to 130 volts, 50 to 440 cps, 20 watts
 Size - 19-3/8" x 14-5/16" x 9-9/16" (approx)
 Weight - 45 pounds (approx)