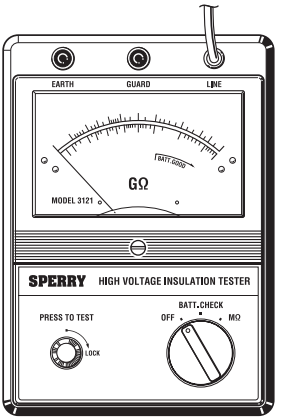
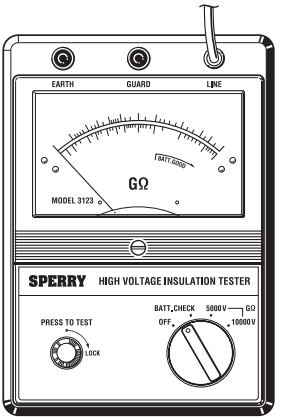
7/05 FORM#341

OPERATING INSTRUCTIONS



Model-3121・3122



Model-3123

HIGH VOLTAGE INSULATION TESTER

MODEL 3121・3122・3123

A.W. SPERRY INSTRUMENTS INC.

The Professional's Choice®

CONTENTS

1. Features

- Battery powered, the instruments test insulation up to 100000MΩ at 2500V for Model 3121, 200000MΩ at 5000V for Model 3122 and 200GΩ at 5000V and 400GΩ at 10000V for Model 3123.
- Suited for heavy duty electrical maintenance and servicing of industrial installations, cables, transformers, generators and switchgear where high voltage insulation tests are required.
- Dual scales for low and high ranges which change automatically. Colour coded scales for easy reading plus LED's that illuminate in matching colour.
- Drip proof construction. The case is sealed with rubber gaskets to protect internal circuit against rain.
- Hard carrying case furnished as standard accessory. Houses both instrument and test leads in compact form. Made of plastic, it is highly water resistant.
- Designed for low power consumption. Since the maximum current consumption is 90mA eight pieces of 1.5V SUM-3 (or equivalent) permit about 6 hours of continuous operation even when the instrument is used on maximum load or twice longer on minimum load.
- Rated output voltage is maintained down to 100MΩ for Model 3121,200MΩ for Model 3122 and 0.2GΩ/0.4GΩ for Model 3123. This permits accurate measurements of low insulation resistance.

2. Specifications

		Model 3121	Model 3
DC Test Voltage		2500V	5000 V
Measuring Ranges		0～2000MΩ/ 1000～100000MΩ (automatic change)	0～5000 M 2000～ 20 (automatic ch
Accuracy	**Insulation Resistance**	±5% of reading (100～50000MΩ) ±10% of reading or 0.5% of scale length (ranges other than listed above) at 23℃ ±5℃ ±10% of reading (100～50000MΩ) ±20% of reading or 1.0% of scale length (ranges other than listed above) at −10℃～+40℃	±5% of re (200～ 1(±10% of re or 0.5% of sc (ranges ot listed ab at 23℃ ± ±10% of re (200～ 1(±20% of re or 1.0% of sc (ranges ot listed ab at −10℃ ～
	Output Voltage	2500V ±5% (100～50000MΩ)	5000V ± (200～ 1(
Operating Temperature & Humidity		−10℃ ～	
Storage Temperature & Humidity		−20℃ ～	
Insulation Resistance		1000MΩ max./ 1(	
Withstand Voltage		5000V AC for one r	
Dimensions		2(	
Weight		Approx. 1k	
Power Source		8 pcs of 1.	
Accessories		Hard Carrying Case, Ba	

el	3122	Model 3123	
0	V	5000V	10000V
00 ～ ic	MΩ/ 200000MΩ change)	0～5GΩ/2～200GΩ (automatic change)	0～10GΩ/4～400GΩ (automatic change)
of ～ of of es ed C of ～ of of es ed ℃	reading 100000MΩ) of reading scale length other than above) ±5℃ reading 100000MΩ) of reading scale length other than above) ～+40℃	±5% of reading (0.2～100GΩ) ±10% of reading or 0.5% of scale length (ranges other than listed above) at 23℃ ±5℃ ±10% of reading (0.2～100GΩ) ±20% of reading or 1.0% of scale length (ranges other than listed above) at −10℃～+40℃	±5% of reading (0.4～200GΩ) ±10% of reading or 0.5% of scale length (ranges other than listed above) at 23℃ ±5℃ ±10% of reading (0.4～200GΩ) ±20% of reading or 1.0% of scale length (ranges other than listed above) at −10℃～+40℃
V ～	±5 100000MΩ)	5000V ±5% (0.2~100GΩ)	10000V ±5% (0.4~200GΩ)
C	～+40℃ at 85% max. relative humidity		
C	～+60℃ at 90% max. relative humidity		
/	1000V between electrical circuit & housing case		
ne	minute between electrical circuit & housing case		
	200(L)×140(W)×80(D)mm		
.	1kg (including batteries & line probe)		
of	1.5V SUM-3 battery or equivalent		
e,	Batteries, Test Leads (earth & guard leads)		

(Optional adaptor model 8020 is available for connection to recorder)

3. Instrument Layout

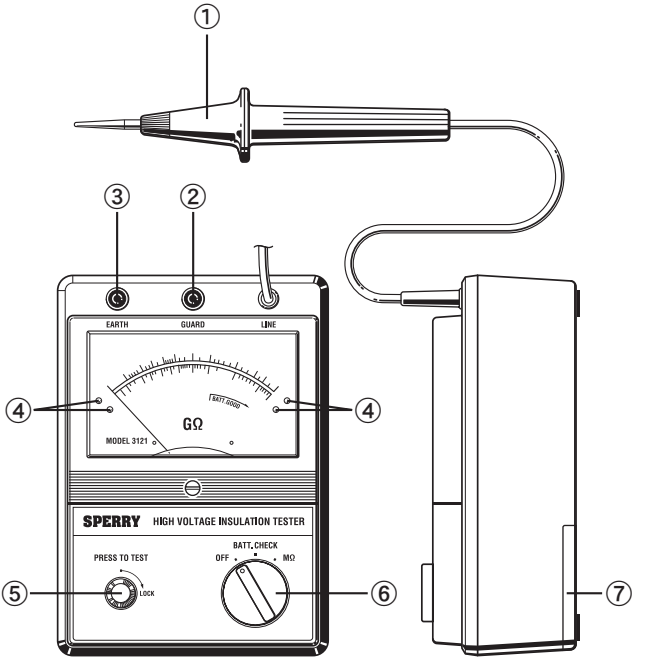


Fig.1

① Line Probe
② Guard Terminal
③ Earth Terminal
④ LED's for High& Low Range Indication
⑤ Press to Test Button
⑥ Function Switch
⑦ Battery Compartment Cover

4. Operating Instructions

CAUTION:
BE CAREFUL ABOUT HIGH VOLTAGE PRESENT ACROSS LINE AND EARTH TERMINALS OF INSTRUMENT WHEN PRESS TO TEST BUTTON IS OPERATED. MAKE SURE TO EARTH CIRCUIT UNDER TEST. ALWAYS CONNECT EARTH TERMINAL OF INSTRUMENT TO EARTH. THE BUZZER WILL KEEP SOUNDING DURING INSULATION RESISTANCE MEASUREMENT.

4-1. Mechanical Zero Adjustment

With the function switch set at OFF position, adjust the meter pointer to "∞ mark " on the scale. Use a screwdriver to turn the zero adjust screw located at the center of the front panel.

4-2. Battery Check

With the function switch set at BATT. CHECK position, operate the press to test button. The batteries are good when the pointer stays in BATT. GOOD area or to the right of this area. If not, replace them.

Note: Refrain from holding down or locking the press to test button during this as it will result in current consumption larger than insulation resistance measurement while the batteries are still new.

4-3. Insulation Resistance Measurement

With the function switch set at OFF position, always connect the circuit under test to earth. Attach the test lead to the earth terminal of the instrument and connect to the earthed side of the circuit under test. With the function switch set at MΩ position for Model 3121 and 3122 or GΩ position for Model 3123, place the line probe in contact with the circuit under test and operate the press to test button. When the green LED illuminates, read insulation resistance on the outer scale(for high range). Use the inner scale where the red LED illuminates. For insulation testing at 5000V and 10000V, read the black and red scales respectively (for Model 3123). After a test, release the press to test button and wait for several seconds without disconnecting the line probe from the circuit tested. This is intended to discharge the charge stored in the circuit tested.

4-4. Continuous Measurement

Make sure that the circuit under test is earthed and that the test lead attached to the earth terminal of the instrument is connected to the earthed side of the circuit under test. Push the press to test button and turn clockwise to lock for continuous measurement. When making this measurement, good care must be taken against the high voltage continuously present across the line and earth terminals of the instrument.

Note: Make certain that the circuit under test does not include components which will be damaged by the high voltage applied.

4-5. Use of Guard Terminal

Illustrated in Fig. 2 is an example of the insulation resistance measurement of an electric wire. If the line probe is simply connected to the wire conductor and the earth lead to the immersion liquid container as shown, a measurement error will be introduced as this results in the measurement of the combined resistance of insulation resistance and the surface leakage resistance at the cut end of the electric wire. In order to remove this surface leakage current, wide a guard wire around the cut end of the conductor and connect it to the guard terminal of the instrument using the guard lead. Then, the surface leakage current will bypass the indicating meter of the insulation resistance tester.

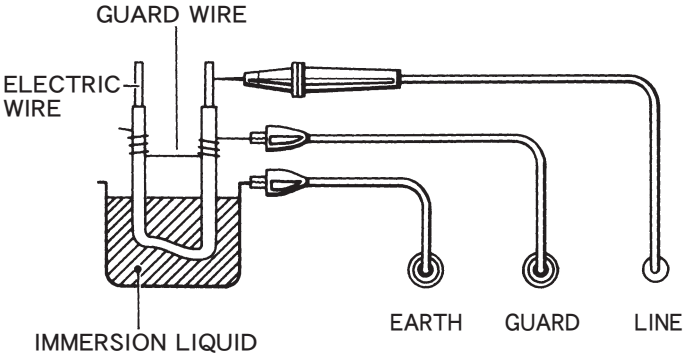


Fig.2

5. Batttery Replacement

Remove the battery compartment cover by loosening the screw located on the back of the housing case. Replace the whole battery pack. Alkaline batteries are recommended where the instrument is used at a temperature below the freezing point. The ordinary manganese batteries will deteriorate below the freezing point.

(For your information, optional adaptor Model 8020 is available to allow Model 3121,3122 and 3123 to be connected to a recorder for recording insulation resistance. It provides an output signal of 1 μA/10mV DC.)

6. Cleaning Meter Cover

Do not try to remove dirt on the meter cover by rubbing hard with a dry cloth. This can remove anti-electrostatic agent applied to the surface of the surface of the meter cover.

When the meter reading is affected by electrostatic build up on the meter cover, wipe the meter cover surface using a cloth dampened with off-the shelf anti-static agent or detergent.
To avid possible deforming or discoloring, do not use solvents.

To clean the body of the instrument, use cloth dampened with detergent.

⚠ CAUTION

Never use paint thinner, benzene or other solutions containing solvents for cleaning the instrument.
Otherwise, deforming or discoloring of the instrument body or the meter cover may result.

Note:

Handle the instrument with care and follow the instructions in order to maintain it in good condition for a long period of time.

Lifetime Limited Warranty

The attention to detail of this fine snap-around instrument is further enhanced by the application of A.W. Sperry's unmatched service and concern for detail and reliability. These A.W. Sperry snap-arounds are internationally accepted by craftsmen and servicemen for their unmatched performance. All A.W. Sperry's snap-around instruments are unconditionally warranted against defects in material and workmanship under normal conditions of use and service; our obligation under this warranty being limited to repairing or replacing free of charge, at A.W. Sperry snap-around instrument that malfunctions under normal operating conditions at rated use. [1]

Replacement procedure

Securely wrap the instrument and its accessories in a box or mailing bag and ship prepaid to the address below. Be sure to include your name and address, as well the name of the distributor, with a copy of your invoice from whom the unit was purchased, clearly identifying the model number and date of purchase.

A.W.SPERRY INSTRUMENTS INC.
ATT: Customer service dept.
2150 Joshua's Path, Suite 302,
Hauppauge, NY 11788

[1]The warranty is not applicable if the instrument has been: misused, abused, subjected to loads in excess of specifications, has had unauthorized repair or has been improperly assembled or used.

*Note: Recommended calibration interval should not exceed one year. Calibration service charges are not covered terms and conditions of warranty.

A.W. SPERRY INSTRUMENTS INC.
The Professional's Choice®
2150 Joshua's Path, Suite 302, Hauppauge, NY 11788
Phone: 1-800-645-5398 or 631-231-7050
Fax: 631-434-3128 · Email: cat@awsperry.com
www.awsperry.com