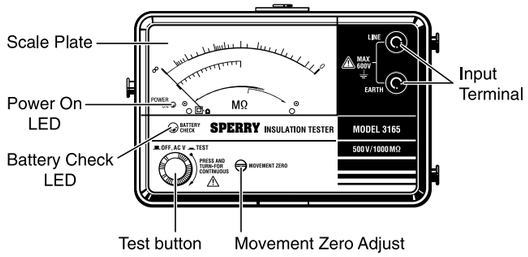
7/05 FORM#338

OPERATING INSTRUCTIONS



ANALOGUE INSULATION TESTERS

MODEL 3165 3166

A.W. SPERRY INSTRUMENTS INC.

The Professional's Choice®

1. Safety Precautions

- This instruction manual contains warnings and safety rules that must be observed by the user to ensure safe operation of the instrument and retain it in safe condition. Therefore, read these operating instructions thoroughly and completely before using the instrument.
- The symbol ⚠ on the instrument means that the user must refer to the relevant section of this instruction manual for safe operation of the instrument.
- Pay particular attention to all WARNINGS and CAUTIONS in this instruction manual. WARNING indicates warnings to avoid electrical shock and CAUTION indicates cautions to avoid damage to the instrument.

1. Always make sure to insert the plug of test leads fully into the terminal of the instrument.
2. Never exceed the maximum allowable input of any measuring range when making measurement.
3. Make sure to never apply a voltage more than 600V AC or DC between the terminal of the instrument and earth.
4. Never try to operate the instrument in an explosive atmosphere (i. e. in the presence of flammable gases or fumes, vapor or dust).
5. Always inspect the instrument, test leads and accessories for any sign of damage or abnormality before every use. If abnormal conditions exist (e. g. broken test leads, cracked enclosure of the instrument), do not try to make measurements.
6. Do not push the test button or lock it down while connecting test leads.
7. Do not touch the circuit under teat insulation testing.
8. Make sure to remove the test lead from the instrument and turn the power off before opening the battery compartment cover for battery replacement.
9. Always turn the power off after use.
10. Do not expose the instrument to the direct sun, dew fall, or extreme temperatures.
11. Do not expose the instrument to a temperature of more than 50℃.
12. Calibration and repair of any instrument should only be performed by qualified and trained service technicians.
13. Do not install substitute parts or perform any unauthorized modification of the instrument. Return the instrument to your distributor for service and repair to ensure that safety features are maintained.
14. The instrument must be used by a competent, trained person and operated in strict accordance with the instructions. A.W.Sperry will not accept liability for any damage or injury caused by misuse or noncompliance with the instructions or safety procedures. It is essential to read and understand the safety rules contained in the instructions. They must be observed when using the instrument.

2. Features

- AC voltage measurement can be made without depressing the test button.
- Buttery check facility.
- Uses only 4×1.5V battery type R6, AA or equivalent.

3. Specifcations

- Measuring ranges accuracy(at 23±5℃, relative humidity 45-75%)

Insulation resistance ranges:

	MODEL 3165	MODEL 3166
Test voltage	500V	1000V
Measuring range	1000MΩ	2000MΩ
Mid-scale value	20MΩ	50MΩ
Output voltage on open circuit	Rated test voltage +20% -0%	
Output short circuit current	230μA max	450μA max
Accuracy	1-500MΩ: ±5% of reading	2-1000MΩ: ±5% of reading
	±0.7% of scale length at other measuring ranges	

AC Voltage Warning:

Warning range	0-600V AC
Accuracy	±3% of scale length

Power supply	4×1.5V battery type SUM-3,R6,AA or equivalent
Overload protection	Insulation Resistance Ranges Model 3165:600V (DC+ACp-p) for 10 seconds Model 3166:1200V (DC+ACp-p) for 10 seconds AC Voltage Range 720V (DC+ACp-p) for 10 seconds
Operating temperature & humidity	0-40℃, relative humidity up to 85%
Storage temperature & humidity	-10-50℃, relative humidity up to 75%
Withstand voltage	3700V AC for one minute between electrical circuit and housing case
Insulation resistance	More than 50MΩ at 1000V between electrical circuit and housing case
Dimensions	90(L)×137(W)×40(D)mm
Weight	330g
Accessories	Test leads Model 7025(1 set) Pouch for test leads (1 piece) Shoulder strap (1 piece) R6 batteries (4 pieces) Instruction manual (1 copy)

4. Operation

4-1 Preperation for testing

(1) Mechanical zero adjustment
Without pressing the Test button, check that the pointer lines up with the ∞ mark on the red megaohm scale. If not, adjust it by rotating the movement zero adjust with a screwdriver.

(2) Test lead connection
Insert the test leads into the terminals of the instrument.

(3) Battery voltage check
Battery check LED flashes at insulation resistance testing to indicate normal battery condition.
Replace the batteries when the LED stops flashing.
Replace the batteries according to section 6 for battery replacement.

(4) Test leads check
Press and turn the Test button to lock it down. When the test leads are connected together, the pointer should move for from the ∞ position towards the 0 position on the megaohm scale. If not, the leads may by faulty. Release the Test button after completion.

⚠WARNING
When the Test button is pressed, take care not to touch the tip of the test lead where a high voltage is present in order to avoid possible shock hazard.

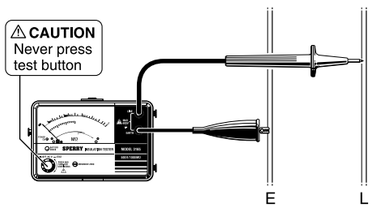
4-2 AC Voltage Warning Function

⚠WARNIING
Never depress the test button when voltage is present on the circuit under test.

(1) The presence of AC voltage can be detected. This function operates automatically when the test button is not depressed, i.e., in the up position.

(2) Using the test leads, connect EARTH terminal to the earth side of the circuit under test and LINE terminal to the line side.

(3) Take the reading on the AC voltage scale.

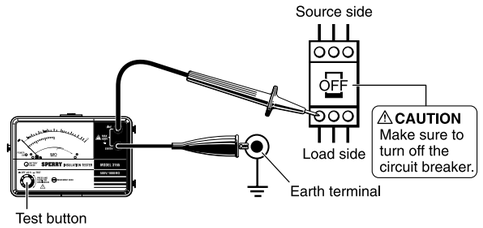


4-3 Insulation Resistance Measurement

⚠WARNING
To avoid electrical shock, do not touch the lead tips and the circuit under test during measurement.

⚠CAUTION
To avoid damage to the instrument, insulation measurement must be performed on de-energized circuits only. Make sure that the circuits or equipment is disconnected before proceeding with an insulation test.

(1) Connect the test leads to the instrument and the circuit under test.



(2) Check the circuit under test is not energized as follows.
Connect the test leads to the circuit under test and read a voltage value.
If the circuit is live, the meter indicates the voltage.
If the meter indicates 0V, the circuit is dead.

(3) Press test button. Read the red megaohm scale directly.

- Continuous Measurement
A lock down feature is incorporated on the test button. Pressing and turning it clockwise lock the test button in the continuous operating position.
To release the lock turn the test button counter clockwise.
Never leave the test button locked down when not in use.

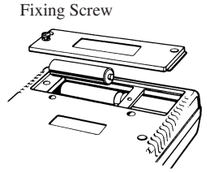
(4) Discharging capacitance of circuit under test.
It is possible that capacitance has been stored in the circuit under test after insulation testing. To discharge the circuit capacitance reverse the connection of the earth clip and line probe. Remaining electric charges can be observed on AC voltage warning range.

⚠WARNING
Do not touch the circuit under test immediately after testing.
Capacitance stored in the circuit may cause electric shock.

5. Battery Replacement

⚠ WARNING
To avoid shock hazard disconnect the test leads from the instrument.

To replace the batteries, first disconnect all test leads from the instrument. Open the battery compartment cover by unscrewing the metal captive screw to reveal battery compartment. The four 1.5V SUM-3(R6)type batteries are located in a compartment. Always replace all four batteries with new ones at the same time. Never mix old and new ones. Screw the battery compartment lid back on before using the instrument.

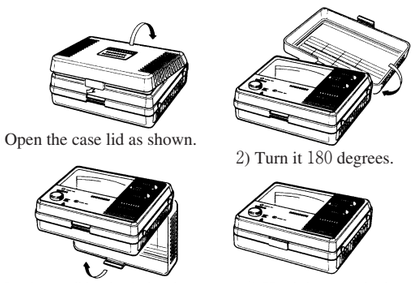


⚠CAUTION
Install battery in correct polarity as marked inside the case.

6. Notes on Housing Case & Accessories

6-1 Case Lid

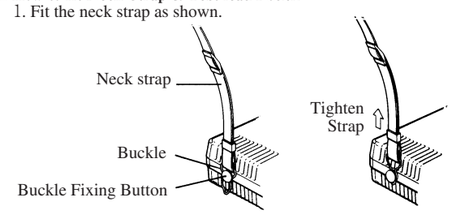
Case lid can be fit under the housing case as illustrated bellow.



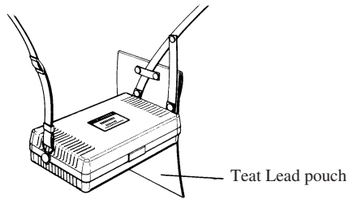
1) Open the case lid as shown.
2) Turn it 180 degrees.
3) Put the case lid under the housing case.
4) Hook it on to the housing case.

6-2 How to fit Neck Strap & Test lead Pouch

1. Fit the neck strap as shown.



2. Fit the test lead pouch to the housing case as shown.



7. 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