

*Simpson*

**Deluxe Test Lead System  
Cat. No. 00818  
INSTRUCTION MANUAL**





### About this Manual

To the best of our knowledge and at the time written, the information contained in this document is technically correct and the procedures accurate and adequate to operate this instrument in compliance with its original advertised specifications.

### Notes and Safety Information

This Operator's Manual contains warning headings which alert the user to check for hazardous conditions. These appear throughout this manual where applicable, and are defined below. To ensure the safety of operating performance of this instrument, these instructions must be adhered to.

 Warning, refer to accompanying documents.

 Caution, risk of electric shock.



This instrument is designed to prevent accidental shock to the operator when properly used. However, no engineering design can render safe an instrument which is used carelessly. Therefore, this manual must be read carefully and completely before making any measurements. Failure to follow directions can result in serious or fatal accident.

**Shock Hazard:** As defined in American National Standard, C39.5, Safety Requirements for Electrical and Electronic Measuring and Controlling Instrumentation, a shock hazard shall be considered to exist at any part involving a potential in excess of 30 volts RMS (sine wave) or 42.4 volts DC or peak and where a leakage current from that part to ground exceeds 0.5 milliampere, when measured with an appropriate measuring instrument defined in Section 11.6.1 of ANSI C 39.5.

### Technical Assistance

SIMPSON ELECTRIC COMPANY offers assistance Monday through Friday 7:30 am to 5:00 pm Central Time by contacting Technical Support or Customer Service at (847) 697-2260.

Internet: <http://www.simpsonelectric.com>

### Warranty and Returns

SIMPSON ELECTRIC COMPANY warrants each instrument and other articles manufactured by it to be free from defects in material and workmanship under normal use and service, its obligation under this warranty being limited to making good at its factory or other article of equipment which shall within one (1) year after delivery of such instrument or other article of equipment to the original purchaser be returned intact to it, or to one of its authorized service centers, with transportation charges prepaid, and which its examination shall disclose to its satisfaction to have been thus defective; this warranty being expressly in lieu of all other warranties expressed or implied and of all other obligations or liabilities on its part, and SIMPSON ELECTRIC COMPANY neither assumes nor authorizes any other persons to assume for it any other liability in connection with the sales of its products.

This warranty shall not apply to any instrument or other article of equipment which shall have been repaired or altered outside the SIMPSON ELECTRIC COMPANY factory or authorized service centers, nor which has been subject to misuse, negligence or accident, incorrect wiring by others, or installation or use not in accord with instructions furnished by the manufacturer.

**NOTES:**

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# 1. INTRODUCTION

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## 1.1. General

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The Simpson Deluxe Test Lead System has been designed to afford the maximum of versatility in the making of electrical test and measuring connection. A wide assortment of probe types and adapters permit connections between either standard banana jack or the new reverse-banana jack connections\* of instruments and the types of circuit contacts generally required.

A major feature of the test lead system is the spring-loaded, automatic retracting, insulating sleeve which encloses the metal banana plug at all times, whether partially or fully withdrawn from its jack. The sleeve serves to prevent electric shock from inadvertent contact with the metal plug should the plug be accidentally pulled from its jack while energized.

Two sets of 48" long leads are provided in the test lead system. Each set consists of one red and one black test lead to assure polarity recognition. One set is designed for use with instruments having standard banana jacks and the other set for instruments having the new reverse-banana jacks. Refer to section III for system component description and to Fig. 2-1 for various test lead configurations that may be assembled.

\*The "reverse-banana" connector system incorporates a banana jack in the "plug" and a banana plug in the "jack".

The test lead system is supplied in a flexible plastic roll-up pouch having individual pockets for each of the components. A quick glance can thereby assure that all components are present. Figure 1-1 illustrates a suggested arrangement of the components in the pockets. The pouch can be rolled up and tied for transport in a tool box or, for use in a fixed location, it may be attached to a wall by means of the three eyelets provided in the flap.

## 1.2 Specifications

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Electrical	
Max. Working Voltage: 1000	V AC sine wave, 1500 V peak (AC, DC or composite)
Max. Capacity:	5A max. (high density probe) 10A max. (all other components)
Mechanical	
Test Lead Wire:	#18 stranded, rubber insulated
General Purpose and High Density Probes:	ABS plastic
Elbow Plug:	PVC plastic

## 1.3 Component Descriptions

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Cat. No. 00421, Test Lead Set:	These test leads have the specially designed plug at both ends and are used to connect standard banana jacks to a general purpose or spring hook probe, or an alligator clip.
Cat. No. 00404, Test Lead Set:	These test leads have the specially designed plug at one end and a reverse-banana elbow plug at the other, and are used to connect reverse-banana jacks to general purpose or spring hook probes, or an alligator clip.

Cat. No. 00422, General Purpose Probe:

This probe accepts the test lead plug in its handle and the tip accepts any one of the screw-on probe adapters. This probe is used for all circuit contact connections except when the spring hook or alligator clip, with which it is interchangeable, is more convenient.

Cat. No. 00423, Spring Hook Probe:

This probe is interchangeable with the general purpose probe. It provides a more substantial connection to a circuit when contact must be made to a bare conductor.

Cat. No. 00406, Alligator Clip:

This clip may be used in place of a probe. A clip is generally used with one of the test leads to avoid the need for two probe contacts for a measurement. It provides a more substantial circuit contact and is therefore recommended for current measurements.

Cat. Nos. 00407, Small Spade Lug Adapter and 00408 Large Spade Lug Adapter:

These screw-on adapters for the general purpose probe permit substantial connections to screw type connections. They are most suited for current measurements and are mandatory for currents exceeding one ampere. The small spade fits #2 through #8 size screws and the large spade fits #8 through 1/4" screws.

Cat. No. 00426, Banana Plug Adapter:

This adapter enables connecting a standard banana plug to a reverse-banana type jack. It should only be used with the test leads supplied with this system.

Cat. No. 00427, Test Lead Extender:

The extender enables connecting two test leads in series to provide an 8-foot test lead.



Cat. No. 00403, Storage Pouch:

A "Roll-up" type pouch having individual storage pockets for each system component. For use in a fixed location, the pouch may be attached to a wall by means of the three eyelets provided.

Probe Tip Protector (white):

The white, plastic protector slips over the high density probe tip to protect it during storage and to avoid skin puncture or scratch injury from accidental contact while in the pouch.

Probe Tip Protector (yellow):

The yellow, plastic tip protector slips over the tip of the general purpose probe for the same reasons given in the paragraph above.

## 2. OPERATION



This section contains information required for the use of test leads in a safe and proper manner.

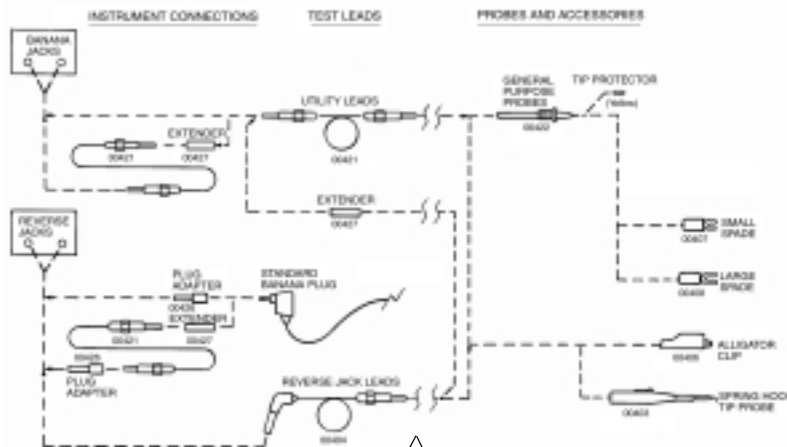
The Simpson Deluxe Test Lead System has been designed for general purpose use with measuring or test equipment whose electrical ratings do not exceed those of the test lead system (refer to specifications in paragraph 1.2). This includes most general purpose VOM's and DMM's. Determine the voltage, current and circuit-to-ground voltage limitations of the instrument with which the test leads are to be used and make certain that they, as well as those of the test leads, will not be exceeded. Observe all the safety precautions and warnings given for the instrument.

### 2.2 Preparations

Assemble the test lead system components into the configuration desired. Refer to the Test Lead Connection figure for the various configurations that may be assembled. Avoid mixing red and black components in the same test lead.

Whenever possible, avoid using two probes to make a measurement, particularly in circuits where a shock hazard exists. Use a test clip or other appropriate adapter on the black general purpose probe to make a "hands-off" connection.

Touch-contact connections are not suitable for current measurements except only in very low voltage and current circuits. For moderate current ranges (up to about 1 Amp) a test clip is usually satisfactory, but for higher current, particularly in high voltage circuits, secure connections to the circuit are required. Spade lug adapters are best suited for high current measurements.



Before making connections (other than for a touch-contact measurement) to a circuit in which the voltage may exceed 30 volts AC or 60 volts DC, de-energize the circuit and discharge any capacitors in a DC circuit.

### 3. MAINTENANCE

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Do not attempt to repair any system component with tape, cement or the like. Such repairs are not likely to have adequate dielectric strength and durability to afford the necessary protection against electric shock. Replace damaged components immediately with new ones.

For protection against electric shock, insulation must be undamaged and clean. Before every usage, inspect all components during test lead assembly for cracks, chips or crazing in the insulation and proper operations of the spring loaded plug mechanisms. Do not use faulty or damaged components.

Do not use chemical solvents to clean plastic insulation. Many solvents will damage the insulation or otherwise affect its insulating properties. Use only a mild detergent and water solution, rinse with clean water, and dry thoroughly before use.

Keep all components that are not in use in the storage pouch at all times. The pouch protects the components from damage and/or contamination and shows at a glance that all components have been accounted for.

#### 3.2 Replacement Parts

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Replacement components can be ordered (in pairs only) from the nearest Simpson Authorized Distributor.

*Replacement Parts*

Order Cat. No.	Pkg. Qty.	Description	Part No.
00421	1	Test lead, 48", red	6-112739
	1	Test Lead, 48", black	6-112740
00404	1	Test lead, 48", red	6-112725
	1	Test lead, 48", black	6-112726
00422	1	Probe, general purpose, red	6-112585
	1	Probe, general purpose, black	6-112584
00423	1	Probe, spring hook, red	6-112628
	1	Probe, spring hook, black	6-112627
00406	1	Alligator clip, red	10-864867
	1	Alligator clip, black	10-864868
00407	1	Adapter, small spade lug, red	6-112643
	1	Adapter, small spade lug, black	6-112642
00408	1	Adapter, large spade lug, red	6-112645
	1	Adapter, large spade lug, black	6-112644

*Continued on page 9*



<b>Order Cat. No.</b>	<b>Pkg. Qty.</b>	<b>Description</b>	<b>Part No.</b>
00426	1 1	Adapter, banana plug, red Adapter, banana plug, black	6-112685 6-112686
00427	1 1	Lead extender, red Lead extender, black	6-112626 6-112625
	2 2	Probe tip protector, white Probe tip protector, yellow	6-112722 6-112721
00405	1	Carrying Case (storage pouch)	6-112744

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