

Quality is the indispensable component
of every Simpson instrument

Simpson

INSTRUMENTS THAT STAY ACCURATE

OPERATOR'S MANUAL

MODEL 555
TUBE TESTER

SIMPSON ELECTRIC COMPANY

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In Canada, Bach-Simpson, Ltd., London, Ontario

Foreword

There are several types of tube-testers for the serviceman. Simpson manufactures all different accepted types. Among these, the Simpson Model 555 is the most modest in price. But this does not mean that it is limited in performance of necessary functions. Such instruments are simply not produced by Simpson, because Simpson does not manufacture to sell at a price. First consideration is the design of an instrument that will do a thorough job.

Simpson Model 555 is designed to provide accurate testing for all tubes with filament voltages from .75 volts to and including 120 volts. It tests loktals, single ended tubes, bantams, midjets, miniatures, subminiatures, novals, ballast tubes, gaseous rectifiers, acorn tubes, Christmas tree bulbs, and all popular radio receiver tubes.

The Simpson Model 555 incorporates 3-way switching which makes it possible to test any tube regardless of its base connections or the internal connections of its elements. This method, the result of exhaustive research and expensive construction, protects the Model 555 against obsolescence. No adapters or special sockets are required. In addition to having a complete set of sockets for every tube now on the market, this tester has two spare sockets, to provide for future tube developments.

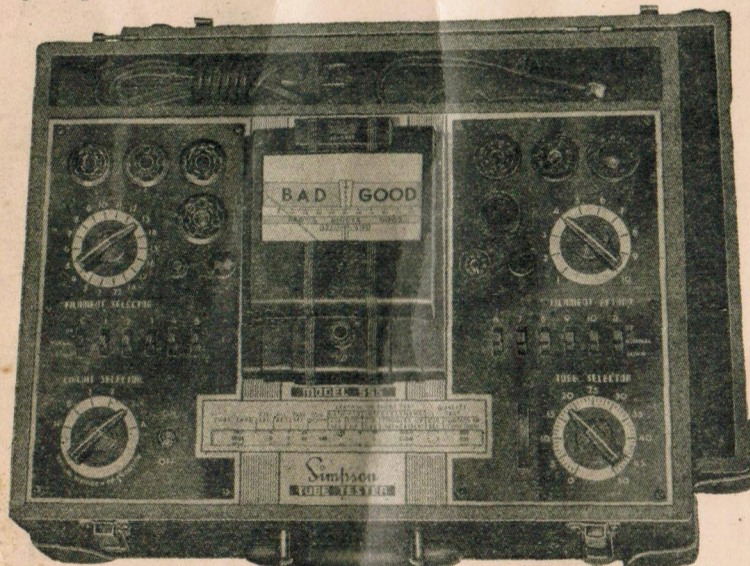
On the Model 555, the "No-Backlash" Roll Chart prevents the chart from being torn or from getting out of alignment by automatically keeping chart in constant tension. This gives precision selection at all times. If you will remove the tester from the case you will see the very superior Simpson construction throughout. It is, beyond question, the finest roll chart mechanism, in design and in quality manufacture, on any tube tester today.

These testers have provision for testing pilot lamps of various voltages as well as Christmas tree bulbs. It tests gaseous rectifiers of the OZ4 type—also tests ballast tubes direct in socket for burnouts and opens. Has neon bulb of proper sensitivity for checking shorts. This tube-tester is fused, and has the latest

improved circuit. It provides for line adjustment from 100 to 130 volts, with smooth vernier control.

When you purchase Simpson test equipment you get equipment made almost entirely within the various plants of our Company. We are by far more self-contained than any other manufacturer of test equipment. This is your assurance that testers we offer will not quickly become obsolete. Our tremendous investment in expensive production tools is your safeguard against obsolescence and further assurance of unvarying quality.

Here at Simpson we do not regard our job finished when we have sold an instrument. Our interest in your Model 555 never ceases. We want your satisfaction with it to be continuing. That is the reason for this Operator's Manual. We want you to know how to get the most from your tube-tester. We have made this instrument as rugged as we know how. Give it the care and careful handling it deserves, and it will give you a lifetime of accurate, dependable service.



Simpson Model 555 Tube Tester
Size: 16 $\frac{3}{4}$ " x 12 $\frac{1}{2}$ " x 6". Weight: 13 $\frac{1}{2}$ lbs.

OPERATOR'S MANUAL

SIMPSON MODEL 555 TUBE TESTER

GENERAL

The toggle switches marked C, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 are connected to the correspondingly numbered tube elements in accordance with the standard RMA numbering system. Toggle switch R is a meter reversing switch.

The position of any of the rotary or toggle switches for the various tests on a tube are indicated on the chart. Any of the toggle switches which are not indicated on the chart are to be left in the *normal* (center) position.

Multipurpose tubes such as the 1B5 or 1E7 require more than one test and the switches should be reset for each of the tests as indicated on the chart.

OPERATING PROCEDURE

1. Set all of the group of twelve toggle switches to the normal position.
2. Rotate the switches marked FILAMENT SELECTOR, FILAMENT RETURN, and TUBE SELECTOR to the position shown on the chart.
3. Throw any toggle switches to the downward position if so called for on the chart in column TOG DOWN.
4. Insert the tube in the proper socket.
CAUTION: Hearing aid tubes may have 5, 6 or 7 pins. These tubes must be plugged into the 7 pin Hearing Aid socket with the red dot on the tube adjacent to the dot on the socket. Any other position may burn out the tube.
5. FILAMENT OR HEATER CONTINUITY: Rotate the CIRCUIT SELECTOR switch to the H position. In this position the LEAKAGE indicator should glow, indicating filament or heater continuity. If the indicator does not glow, the filament or heater is open and no further test should be made.

6. CATHODE-HEATER LEAKAGE: Cathode type tubes have switch settings indicated under CATHODE-HEATER LEAKAGE on the tube chart. With the CIRCUIT SELECTOR switch in the H position, throw the toggle indicated under TOG. UP on the chart to the UP position. Adjust the line voltage by rotating the knob marked ADJUST LINE until the meter pointer is at the center point on the dial marked ADJ. LINE. Tap tube lightly while observing LEAKAGE indicator for a glow or flicker indicating leakage or a short. Return the toggle to the NORMAL position.

7. INTER-ELEMENT LEAKAGE: Rotate the CIRCUIT SELECTOR switch to the S position. (If the tube is a "filament" type, adjust the line as described in paragraph 6 above. If the tube is a "cathode" type this adjustment has already been made under the Cathode-Heater leakage test.)

Throw one of the toggles, shown on the chart under "TOGGLES UP (separately)" to the UP position, tap the tube lightly while observing the LEAKAGE indicator for a glow or flicker indicating leakage or a short, then return the toggle to the NORMAL position. Repeat this procedure for each toggle switch indicated in this column of the chart.

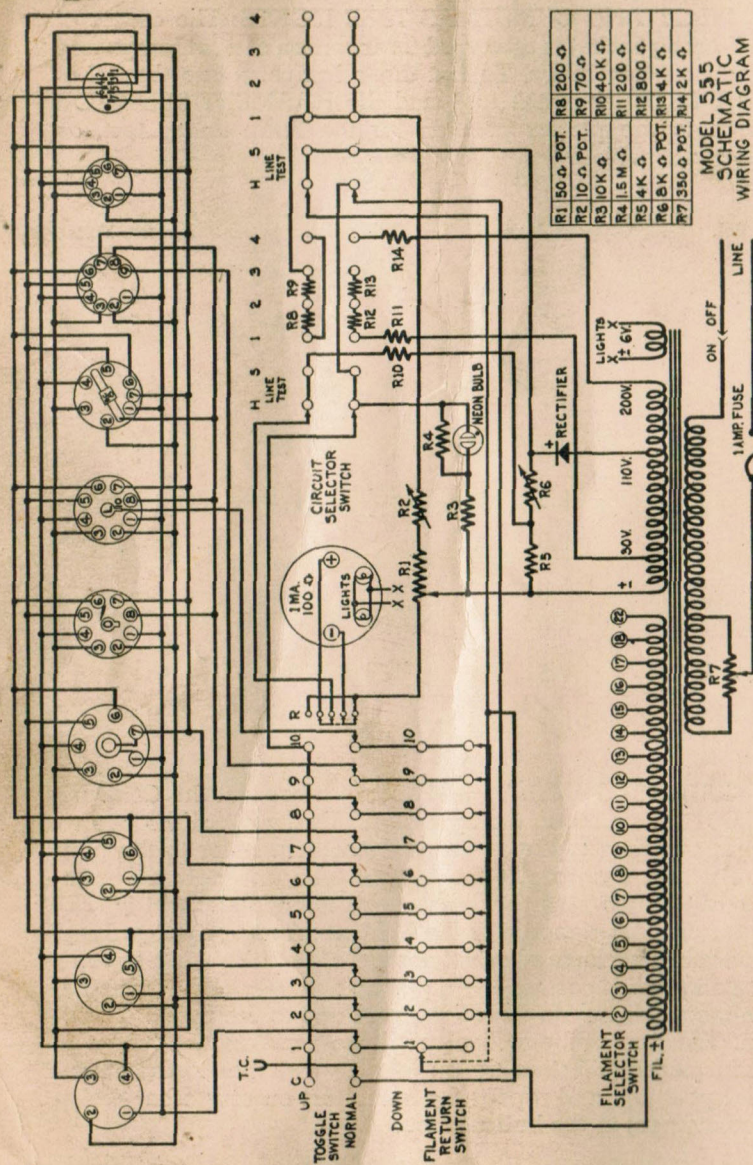
8. QUALITY TEST: After testing the tube for leakages and shorts, rotate the CIRCUIT SELECTOR switch to position 1, 2, 3, or 4 as indicated on the chart. Throw all of the toggle switches called for on the chart to the upward position. Read the condition of the tube on the GOOD-DOUBTFUL-BAD scale on the meter.

9. OPEN ELEMENTS: In the case of a few tubes, certain elements which are comparatively distant from the cathode may be open without much change in the total reading on the dial, so that the pointer will remain in the GOOD portion of the dial. To detect such elements, after making the QUALITY TEST, return each toggle switch to the center or normal position, one at a time. If any of the elements are open, there will be no change in the pointer deflection as the corresponding toggle switch is returned to the center position.

10. PILOT AND CHRISTMAS TREE LIGHTS: The center of the 7-prong socket is arranged for insertion of pilot lamps and Christmas tree bulbs. To test these lamps, rotate the FILAMENT RETURN switch to 1 and the FILAMENT SELECTOR switch to the proper position for the lamp under test, as follows:

| Fil. Sel. | Approx. Volts | Fil. Sel. | Approx. Volts |
|-----------|---------------|-----------|---------------|
| | | 12 | 17.5 |
| 2 | 0.75 | 13 | 25 |
| 3 | 1.0 | 14 | 35 |
| 4 | 1.5 | 15 | 40 |
| 5 | 2.0 | 16 | 50 |
| 6 | 2.5 | 17 | 60 |
| 7 | 3.0 | 18 | 70 |
| 8 | 5.0 | | |
| 9 | 6.0 | | |
| 10 | 7.5 | | |
| 11 | 12.0 | 22 | 110 |

11. BALLAST TUBES: To test ballast tubes, set the CIRCUIT SELECTOR switch to the S position. Throw all of the twelve toggle switches to the downward position. Refer to the tube base wiring diagram of the ballast tube and note the numbers of the two pins to which the resistance element is connected, in accordance with the RMA numbering system. Then test each resistance element separately by throwing the two toggle switches corresponding to the numbers of the two pins, one toggle switch to the center and one to the upward position. The neon tube will glow if the resistance element is not burned out. Return the two toggle switches to the downward position, and repeat the same test on any other resistance element in the ballast tube.



TO REPLACE METER LIGHTS:

Remove the tester from its case. Remove the "Adjust Line" knob. While holding the meter cover in place, remove the four meter cover screws. These screws are located near the transformer mounting brackets and are recessed into the tester panel. Remove the meter cover, being especially careful not to damage the meter pointer. Turn the lamp so that the bayonet pins clear the base clamp and remove the lamp from the socket. Replace with No. 44 frosted panel lamps. **BE CAREFUL NOT TO DAMAGE THE METER POINTER OR TO ALLOW ANY FOREIGN MATERIAL TO ENTER THE MOVEMENT.**

Replace the cover. Be sure the zero adjuster on the cover engages the adjuster quadrant and that the line cord and grid lead are in the notches provided at the upper edge of the cover.

LINE FUSE

The Model 555 is protected by a 3AG 1 amp. fuse. This fuse is located inside the tester on the sub-panel.

ROLL CHART INSTRUCTIONS

To remove old chart:

1. Wind entire chart to the upper roller.
2. Place the tester upside down with roll chart mechanism toward you.
3. Loosen tape from bottom roller and pull old chart from the mechanism.

To install new chart:

1. Place new chart, printed side down, in front of mechanism and feed the end of the chart between the guard plate and the panel, then around the roller nearest the panel and out the other side.
2. Remove the covering from the scotch tape attached to the chart and attach to the top roller (nearest panel). Be sure to center paper between the two end discs before attaching. Smooth tape out by rubbing with the fingers and press firmly to the roller. Roll the chart onto the top roller until the end of the chart is even with the front panel.
3. While holding the end of the paper tightly, revolve the knob until the paper is wound tight on the roller. While holding the knob, pull the end of the chart upward about even with the center of the bottom roller and hold in this position by pressing against the top roller.
Revolve the bottom roller a few turns toward the paper until it runs back against its spring tension, then wind it ten complete turns toward the paper and hold in this position.
4. Remove the covering from the scotch tape and attach to the bottom roller, being sure to center the paper between the end discs of the roller. Smooth out tape and press firmly to roller.
5. If the paper is either too tight or too loose, the tape may be pulled away from the roller and the tension adjusted as desired.

PARTS LIST — MODEL 555

| PART No. | REFERENCE SYMBOL |
|-----------|--|
| 1-111914 | Potentiometer, 50 ohms R1 |
| 1-113777 | Rheostat, 10 ohms R2 |
| 1-111671 | Resistor, 10K ohms R3 |
| 1-113621 | Resistor, 1.5 Megohms R4 |
| 1-111703 | Resistor, 4K ohms R5 |
| 1-113618 | Rheostat, 8K ohms R6 |
| 1-113632 | Potentiometer, 350 ohms R7 |
| 1-112641 | Resistor, 200 ohms R8 |
| 1-112622 | Resistor, 70 ohms R9 |
| 1-111672 | Resistor, 40K ohms R10 |
| 1-113634 | Resistor, 200 ohms wire wound R11 |
| 1-112621 | Resistor, 800 ohms R12 |
| 1-111703 | Resistor, 4K ohms R13 |
| 1-111951 | Resistor, 2K ohms R14 |
| 1-113637 | Toggle switch, S.P.S.T. On-off |
| 1-112565 | Switch, Filament Selector |
| 1-112494 | Switch, Circuit Selector |
| 1-112495 | Switch, Filament Return |
| 0-008822 | Toggle Switch, Element Selector, 3 contact |
| 0-008823 | Toggle Switch, Reverse, 5 contact |
| 1-112033 | Line Cord |
| 1-113622 | Socket, tube, 4 pin |
| 1-113623 | Socket, tube, 5 pin |
| 1-113624 | Socket, tube, 6 pin |
| 1-113625 | Socket, tube, 7 pin |
| 1-113626 | Socket, tube, 8 pin Octal |
| 1-113627 | Socket, tube, 8 pin Loktal |
| 1-113628 | Socket, tube, Blank |
| 1-112041 | Socket, tube, 7 pin RCA miniature |
| 1-113519 | Socket, tube, 9 pin miniature |
| 1-113484 | Socket, tube, 7 pin sub-miniature |
| 0-008991 | Socket, Acorn |
| 1-112042 | Retaining Rings for sockets |
| 1-112043 | Retaining Rings, Large (for 7 pin) |
| 1-112498 | Retaining Rings, Miniature |
| 3-310455 | Adapter, 7 pin sub-miniature |
| 1-113629 | Adapter, Blank |
| 1-113619 | Rectifier, Selenium |
| 1-112497 | Neon Bulb, 1/25 watt |
| 1-112507 | Fuse, 1 Amp |
| 10-890003 | Transformer |
| 3-260027 | Knob, Large, 1-3/4" |
| 1-113641 | Knob, engraved circle |
| 0-008989 | Roll Chart Assembly |
| 1-113174 | Roll Chart, printed |
| 0-006360 | Case Assembly |
| 14-302555 | Meter, Simpson Spec 2555 |

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 1-3-8
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