

SUPREME

Testing Instruments

MODEL

589-A

TUBE AND SET TESTER

INSTRUCTION MANUAL

SUPREME INSTRUMENTS CORPORATION

GREENWOOD, MISSISSIPPI

U. S. A.

SUPREME MODEL 589-A
ELECTRICAL SPECIFICATIONS

Power Supply Requirements: (Unless otherwise specified on plate attached to instrument).

Voltage.....100/133 volts A-C
Frequency.....50/60 cycles
Power Consumption.....25 watts maximum

MECHANICAL SPECIFICATIONS

Over-All Dimensions:

	Panel	Case
Length.....	10-3/8"	11"
Width.....	8-3/8"	8-3/4"
Depth.....		5-3/8"

Weight:

Net.....9 pounds
Shipping.....10-1/2 pounds

I M P O R T A N T

SEE enclosed Colored Sheet for Information Concerning Registration, Transportation Damages, Warranty, Replacement Parts, etc.

The instructions listed on this colored sheet must be complied with before the warranty policy is applicable. The Model and Serial numbers should be mentioned in *all* correspondence regarding this tester.

STANDARD EQUIPMENT SUPPLIED WITH
THE SUPREME MODEL 589-A

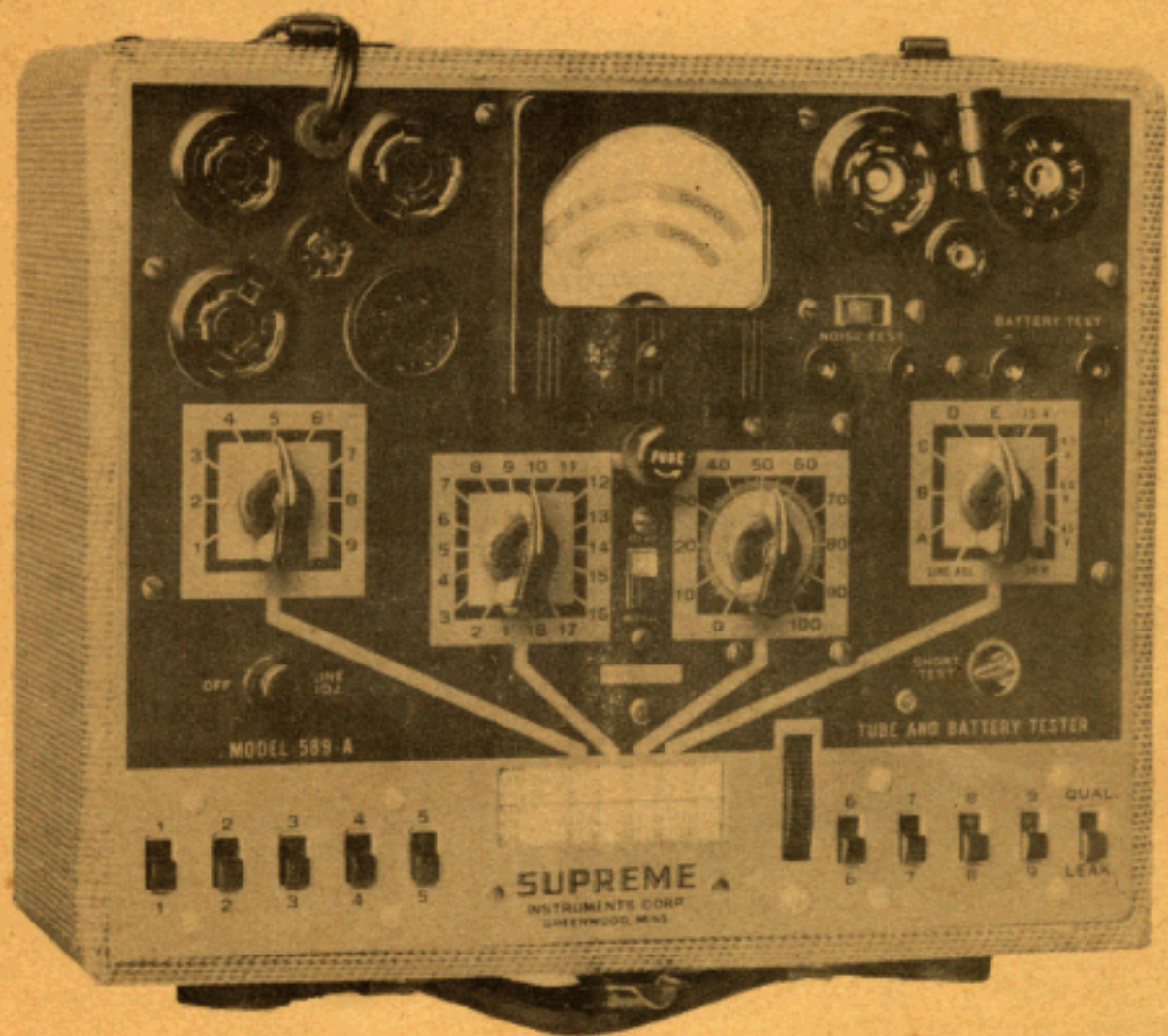
QUANTITY INCLUDED	STOCK NUMBER	DESCRIPTION	PACKER'S CHECK
1	4964	Booklet, Operating Data	
1	6725	Card, Return Registration	

The foregoing list has been checked by the under-
signed who is responsible for the completion of
this package.

Model 589-A, Serial No. 6772

Mention above numbers in ALL correspondence.

(Signed) WJL
Shipping Department



#4864

INSTRUCTION MANUAL
for
SUPREME MODEL 589-A TUBE TESTER

GENERAL DESCRIPTION

The SUPREME Model 589-A is a complete tube tester designed to classify receiving type tubes by the emission principle. This type of tester has long been recognized to be the most accurate for making a *simplified* test of tubes. By checking the cathode or filament, as the case may be, for its ability to emit electrons or current to the other elements of the tube, the quality of a tube may be accurately classified. In setting the limits on tubes as shown by the roll chart, the SUPREME engineers worked closely with tube manufacturers. Recommended anode loads and voltages are used throughout the tester.

The battery testing circuit provides a load on the battery under test which represents the average receiver drain on the particular type battery. Discard points used are those recommended by the battery manufacturers.

POWER SUPPLY REQUIREMENTS

Unless otherwise specified, the instrument is designed to operate from 100 to 133 volts at 50/60 cycles. Power consumption is 25 watts. The rectifier tube is a 6X5GT.

This instrument is protected from damage in case an overload is applied to it by a fuse having a rating of 1 Ampere. If your instrument

fails to operate remove the fuse from its fuseholder and check it with an ohmmeter to see if it is burned out. If it is, replace it with a fuse of the same length and having a rating of 1 Ampere. If the second fuse burns out the instructions listed under SERVICE AND MAINTENANCE should be followed. CAUTION! The 90-day Warranty on the instrument is valid only if it is protected by a fuse having the specified rating! Do not substitute one of higher rating!

PANEL MARKINGS AND COMPONENTS

METER

Has 'Good-?-Bad' tube testing scale, 0-100 numerical scale for tube matching and 'Replace-Good' battery testing scale.

FUSEHOLDER

Directly under meter. Holds one ampere fuse for protection of instrument.

SOCKETS

Sockets 4, 5, 6, loctal, and bantam 5 to left of meter. Combination 7 with pilot lamp socket, octal and miniature to right of meter.

PIN JACKS, (Noise Test)

(Upper right side of panel) Allows phones to be placed in series with shorts test circuit for checking noise, when switch is moved to momentary position.

SLIDE SWITCH (117N7)

Directly under meter. For special test on the 117N7 tube. Leave in DOWN (N) position for tests on all other tubes.

ROTARY SWITCH (FILAMENT RETURN SELECTOR)

(Left center panel with 1-9 markings) Assures non-obsolescence of tester due to fila-

ment termination changes.

POTENTIOMETER (QUALITY CONTROL)

(Center panel with 0-100 calibration). Adjusts proper meter circuits.

ROTARY SWITCH (LOAD SELECTOR)

(Right center panel) Connects meter for 'LINE ADJUST'. Selects proper anode voltages and loads. Selects proper tests for batteries.

PIN JACKS, (BATTERY TEST)

(Upper right side panel) Connects all batteries for testing.

POTENTIOMETER (OFF-LINE ADJ.)

Adjusts primary of transformer for proper line voltage.

BULB, NEON (SHORT)

For visual indication of shorts and leakage in tubes.

ROLLER CHART

Numerical listing of tubes. 'Arrow-ways' running from each setting to proper control. Tubes not listed on this chart will be found in Supplement to this Instruction Manual.

MODEL NUMBER

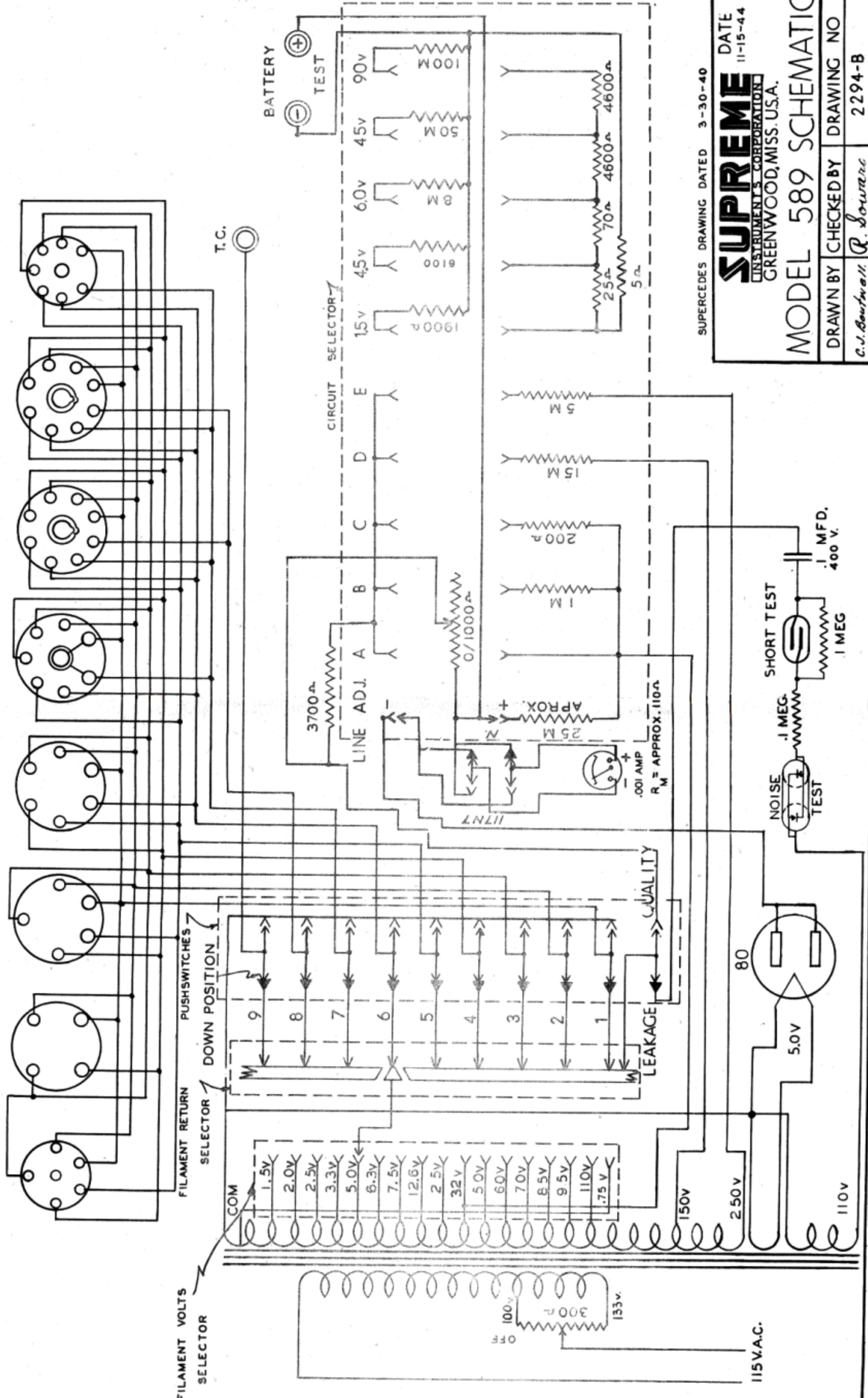
Model 589-A. Use this number in all correspondence.

SERIAL NUMBER

Directly above roller chart. Use this number in all correspondence.

SLIDE SWITCHES

(Across bottom of panel). Number 1 through



SUPERCEDES DRAWING DATED 3-30-40

SUPREME
 INSTRUMENTS CORPORATION
 GREENWOOD, MISS. U.S.A.

DATE
 11-15-44

MODEL 589 SCHEMATIC

DRAWN BY	CHECKED BY	DRAWING NO
<i>C.J. Southwell</i>	<i>R. Sowards</i>	2294-B

9 used in making leakage, short, open, etc. test. 'QUAL-LEAK' connects tube under test for quality or leakage tests.

CONNECTOR, TOP CAP

(Insulated dual connector for metal and glass tubes). Connects top cap in circuit. Is used on all tubes which have top cap and is connected for quality and leakage tests.

OPERATION

1. Connect power supply cable to a convenient A-C supply socket after you have made certain that it is the proper voltage and frequency. (See POWER SUPPLY REQUIREMENTS).
2. Set 'QUAL-LEAK' slide switch (lower right hand corner panel) in 'LEAK' position.
3. Set right hand rotary switch in 'LINE ADJ.' position.
4. On the chart locate the tube type to be tested and set the controls as indicated by the 'arrow-ways', with the exception of the right hand rotary switch, which is left in the 'LINE ADJ' position for the time being. *The right hand column on the tube chart indicates the slide switches to be pushed up. Slide these switches to the UP position.*
5. Place the tube in socket and allow approximately 30 seconds to heat. Then set 'LINE ADJ' potentiometer so that the meter reads center scale of '50' on 0-100 scale. Remember, the right hand rotary switch must be in 'LINE ADJ' position and the 'QUAL-LEAK' switch must be in the 'LEAK' or DOWN position. If the 'QUAL-LEAK' switch is in 'QUAL' position, the reading will be false.

6. FILAMENT CONTINUITY TEST: Slide ALL switches DOWN. If the neon lamp does not glow, the filament is open.

7. SHORT AND LEAKAGE TEST: Return slide switches to the positions called for on the test data chart. Push slide switches, one at a time, to the opposite position and return to the previous setting, tapping simultaneously to locate intermittent shorts. If the lamp glows while a switch that was UP is in the DOWN position or vice versa, the tube element corresponding to the number of the switch is shorted. It is normal for the lamp to glow with one of the switches DOWN, showing filament continuity, but when more than one switch causes the lamp to glow, some element other than the filament is shorted. In all cases where this is normal a letter follows the tube number and refers to the proper footnote which indicates the switches on which shorts will be shown.

8. QUALITY TEST: Check to see that the correct slide switches are in the UP position as indicated on the chart. Set right hand rotary switch to position indicated by letter on chart, (A, B, C, etc.). Slide 'QUAL-LEAK' to 'QUAL' position and meter will read condition of tube on 'Good-?-Bad' three color scale. *Do not hold switch in "QUAL" position longer than just necessary to observe tube condition. Otherwise, the instrument may be damaged when testing some types of tubes.*

MULTI-PURPOSE TUBES

Some tubes require more than one test as indicated on the roller chart. The separate sections are checked as outlined above for a single tube as listed on chart.

CHART FOOTNOTES

Exception to rules of operation are sometimes necessary and in these cases a letter follows the listing of the tubes on the chart. Example: 35Z5(F). Explanation is found at the end of the chart. Tubes not listed on the chart will be found in Supplement to this instruction Manual

CAUTION

Be sure proper settings are made as outlined before tube is inserted into socket. At the end of tests, turn "OFF-LINE ADJ" to "OFF" and leave until next test is to be made.

BALLAST TUBES

Ballast tubes are checked for opens, loose connections, and bad welds. Set 'QUAL-LEAK' slide switch to 'LEAK' position. The slide switches are operated as in testing tubes for shorts. Listing of ballast tubes are found in Supplement to this Instruction Manual. The neon lamp should glow only when the switches as listed opposite the corresponding ballast types are pushed UP. Any flickering of the neon lamp when the tube is tapped indicates a poorly welded joint.

PILOT LAMPS

To check pilot lamp, set left hand rotary switch to #1 position and push #7 slide switch UP. Set second from left rotary switch as indicates below to select proper voltage. Insert lamp in special base of seven hole socket. It should light with normal brilliance.

PILOT LAMP VOLTAGE	SET ROTARY SWITCH
1.5	1
2.0	2
2.5	3

(Continued on next page)

PILOT LAMP VOLTAGE	SET ROTARY SWITCH
3.3	4
5.0	5
6.3	6
7.5	7
12.6	8
25.0	9
30.0	10

OPEN ELEMENT TEST

With the exception of filaments, tube elements are very unlikely to open circuit, so unlikely that the average tube checker has no provision for making a special, separate element, open element test. There is not one open element tube in ten thousand, and thus, the need for an open element test is exaggerated. However, the SUPREME 589-A has a *specific open element test* which will find any and every open element in a tube if such exists.

Set controls for making leakage tests. Make leakage test. Make quality test. If tube checks good and an open element is suspected, do the following:

1. Set 'QUAL-LEAK' switch in 'QUAL' position. Push all switches UP except switch whose number corresponds to number indicated on *FILAMENT RETURN SELECTOR* switch setting.
2. Obtain tube base connection finder or tube data book as available from tube manufacturers and look up tube base connections.
3. Push DOWN slide switch corresponding to tube's control grid. Meter should read possibly half-scale. If it does not read up-scale, this element is open.

4. Then push DOWN the numbered switch corresponding to element next nearest to cathode or filament. This is usually the screen grid. Meter needle should advance above previous point. If needle does not move up past previous mark, this element is open.

5. Consecutively push DOWN balance of switches corresponding to tube elements *except cathode or filament terminations*. There should be a corresponding further upswing of meter as each element switch is moved DOWN. The amount of movement in each case will be small but discernible. If no upswing is noted at any time, over previous test, that element is open.

BATTERY TESTS

Use a pair of regular test probes. Observing polarity, insert probes in 'BATTERY-TEST' pin jacks. Set right hand rotary switch to voltage of the battery to be tested. Example: For 1.5 volt battery set switch to 1.5v. Connect probes to battery to be tested and note the reading of meter on two color 'REPLACE-GOOD' scale.

SERVICE AND MAINTENANCE

All functions and ranges of the SUPREME Model 589-A were carefully tested and calibrated before shipment from the factory. Under normal operating conditions this instrument should give a long and trouble-free service. However, if for any reason this instrument should fail to operate properly, write the Service Engineer at the factory. Submit *complete information regarding the difficulty* and full instructions will be forwarded in detail. The Model and Serial numbers, position of controls, inoperative section, and any other information should be given in your *first letter*.

REPLACEMENT PARTS

The parts used in the SUPREME Model 589-A were carefully inspected for mechanical and electrical defects at the factory. Under normal conditions and average use the life of the tube will be equal to those in radio receivers (approximately 1500 hours). Any special parts which are not available from regular dealers stocks may be ordered from your nearest SUPREME distributor by describing the item and giving the Model and Serial numbers of your unit.

SUPREME INSTRUMENTS CORPORATION

GREENWOOD, MISSISSIPPI

U. S. A.

19 YEARS EXPERIENCE

MANUFACTURING

- TUBE TESTERS
- MULTIMETERS
- CAPACITOR ANALYZERS
- A. F. SIGNAL GENERATORS
- VACUUM TUBE VOLTMETERS
- A. M. SIGNAL GENERATORS
- F. M. SIGNAL GENERATORS
- SIGNAL TRACERS
- OSCILLOSCOPES



GREENWOOD, MISSISSIPPI

U. S. A.



www.StevenJohnson.com

**Antique Technolgy, Tube Radios and Test Equipment
Vintage Schematics, and Publications**

Steve's Antique Technology