

**OPERATING INSTRUCTIONS
FOR MODEL TV-11**

TUBE TESTER



MANUFACTURED BY

SUPERIOR INSTRUMENTS CO.

2435-41 White Plains Road New York 67, N.Y.



THE MODEL TV-11 is a modern Tube Tester employing a newly-improved emission type circuit. It will quickly and efficiently test the ever-increasing number of tube types used in Radio and TV.

The Model TV-11 will test for quality of emission. It will also test for shorts and leakages and for noise due to faulty elements and loose internal connections. As extra services, the Model TV-11 will also test condensers for leakage and pilot lamps for filament continuity.

Simplification of switching and controls has enabled us to present operating instructions in simple, easy-to-understand style. On the following pages, we have illustrated procedures wherever possible. We suggest you study the data and the instrument panel before you attempt to use the unit. The 10 minutes you spend in doing so will be well invested for if you acquire a proper understanding of how this unit works, it will become your most frequently used and indispensable tool.

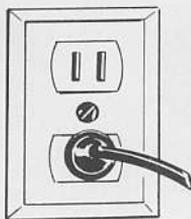
Like all improved emission type testers, the Model TV-11 provides the means of making the three basic tests:

1. Tests for shorts and leakages
2. Test for quality (Good? Bad)
3. Test for noise.

It is always best to proceed with the short and leakage test first and then follow through with quality test. It is advisable to do so because a "shorted" tube would be identified as such when making the short and leakage test. If such a tube were tested for quality first, it could damage the meter beyond repair.

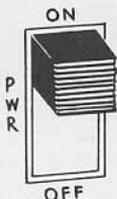
TO TEST A TUBE FOR SHORTS and LEAKAGES

1



Insert the line cord into any 110 Volt A.C. power line.

2



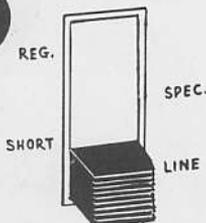
Place the power switch up to the "on" position.

3



Throw the leakage switch up to the "tube" position.

4

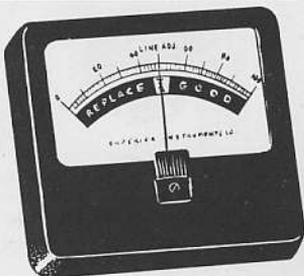


Throw the 4-position function slide switch down to the "line" position.

5



Turn the "line adjust" control until the meter indicates at the "line-adjust" mark appearing in the center of the meter scale.



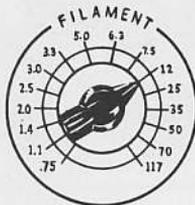
6

TUBE TYPE	FIL. V.	F	N	P	LOAD	FIL. CONT.
12X4	5.0				25	100
6X4	5.0				25	100
6X5	5.0				25	100
6X6	5.0				25	100
6X7	5.0				25	100
6X8	5.0				25	100
6X9	5.0				25	100
6X10	5.0				25	100
6X11	5.0				25	100
6X12	5.0				25	100
6X13	5.0				25	100
6X14	5.0				25	100
6X15	5.0				25	100
6X16	5.0				25	100
6X17	5.0				25	100
6X18	5.0				25	100
6X19	5.0				25	100
6X20	5.0				25	100
6X21	5.0				25	100
6X22	5.0				25	100
6X23	5.0				25	100
6X24	5.0				25	100
6X25	5.0				25	100
6X26	5.0				25	100
6X27	5.0				25	100
6X28	5.0				25	100
6X29	5.0				25	100
6X30	5.0				25	100
6X31	5.0				25	100
6X32	5.0				25	100
6X33	5.0				25	100
6X34	5.0				25	100
6X35	5.0				25	100
6X36	5.0				25	100
6X37	5.0				25	100
6X38	5.0				25	100
6X39	5.0				25	100
6X40	5.0				25	100
6X41	5.0				25	100
6X42	5.0				25	100
6X43	5.0				25	100
6X44	5.0				25	100
6X45	5.0				25	100
6X46	5.0				25	100
6X47	5.0				25	100
6X48	5.0				25	100
6X49	5.0				25	100
6X50	5.0				25	100
6X51	5.0				25	100
6X52	5.0				25	100
6X53	5.0				25	100
6X54	5.0				25	100
6X55	5.0				25	100
6X56	5.0				25	100
6X57	5.0				25	100
6X58	5.0				25	100
6X59	5.0				25	100
6X60	5.0				25	100
6X61	5.0				25	100
6X62	5.0				25	100
6X63	5.0				25	100
6X64	5.0				25	100
6X65	5.0				25	100
6X66	5.0				25	100
6X67	5.0				25	100
6X68	5.0				25	100
6X69	5.0				25	100
6X70	5.0				25	100
6X71	5.0				25	100
6X72	5.0				25	100
6X73	5.0				25	100
6X74	5.0				25	100
6X75	5.0				25	100
6X76	5.0				25	100
6X77	5.0				25	100
6X78	5.0				25	100
6X79	5.0				25	100
6X80	5.0				25	100
6X81	5.0				25	100
6X82	5.0				25	100
6X83	5.0				25	100
6X84	5.0				25	100
6X85	5.0				25	100
6X86	5.0				25	100
6X87	5.0				25	100
6X88	5.0				25	100
6X89	5.0				25	100
6X90	5.0				25	100
6X91	5.0				25	100
6X92	5.0				25	100
6X93	5.0				25	100
6X94	5.0				25	100
6X95	5.0				25	100
6X96	5.0				25	100
6X97	5.0				25	100
6X98	5.0				25	100
6X99	5.0				25	100
6X100	5.0				25	100



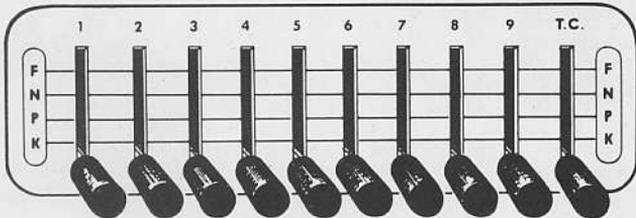
Rotate the roll chart until the required tube test data appears.

7



Turn the filament switch to the voltage indicated on roll chart for the tube type under test.

8



Place lever switches in the "F" and "N" columns as directed on roll chart. All other levers should be down in the "K" position.

TO TEST A TUBE FOR SHORTS and LEAKAGES

(CONTINUED)

9



4 PIN
SOCKET



5 PIN
SOCKET



LOCTAL
SOCKET



9 PIN
NOVAL SOCKET



7 PIN
COMB. SOCKET



8 PIN
SUB MIN
SOCKET



6 PIN
SOCKET



OCTAL
SOCKET



6 PIN
MIN
SOCKET



7 PIN
SUB MIN
SOCKET



7 PIN
MIN
SOCKET

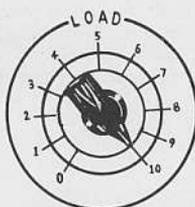
Insert the tube into its correct socket. Be especially careful with 7 pin sub min types. The dot or red mark should be near the raised section of the socket.

10



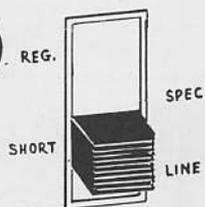
Re-adjust the "line-adjust" control (step #5), if necessary, to compensate for the tube current drain.

11



Rotate the "load" control clockwise as far as it can go (past 10).

12

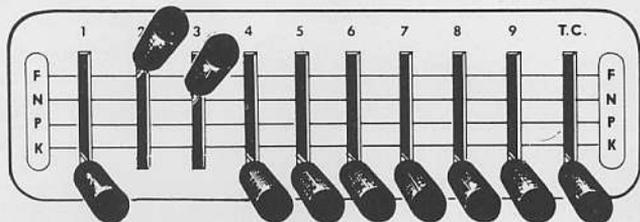


Move the 4-position function slide switch to the "short" position.

13



INDICATOR
LAMP



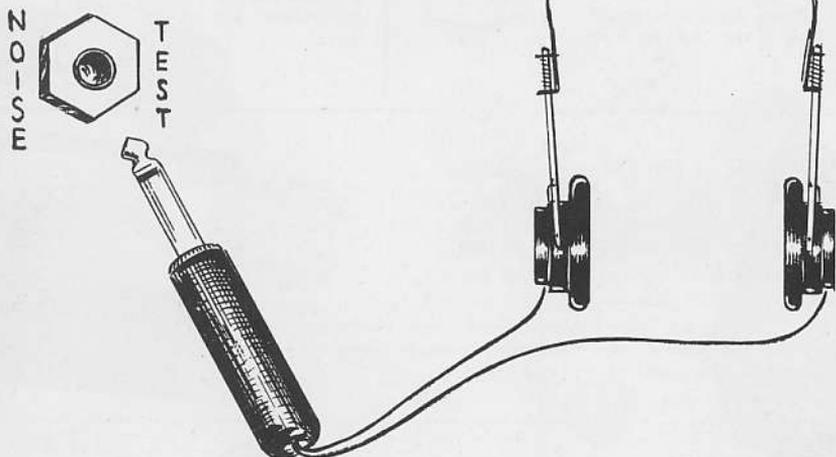
One at a time, move each lever (except those previously placed in the "F" or "N" positions) up to the "P" position. Tap the tube and observe the neon indicator lamp. A glow when any of the levers are moved to the "P" position indicates a "short." Each lever switch must be returned to its "K" position before proceeding with the next element test.

A slight glow may be disregarded when testing audio tubes such as the 6L6, 43, 50L6, etc. These tubes have a high inherent leakage, which in many cases does not effect the operation of the tube. No glow is of course desirable but a slight glow may be considered passable.

A steady glow on any element listed in the filament continuity column of the roll chart does not indicate a shorted tube. It does indicate filament continuity.

TO TEST FOR NOISE

1

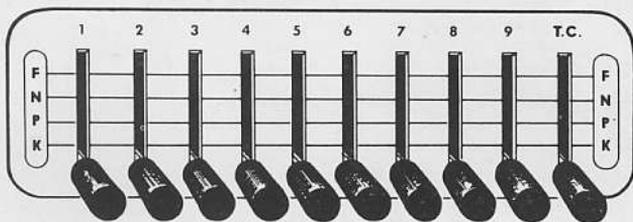


Plug a pair of magnetic phones (crystal phones won't do) into the phone jack marked "noise-test."

2

Next, follow procedures 1 to 12 as outlined in tests for "To Test For Shorts and Leverages" except 4 position slide switch is moved to "REG" position.

3



Now, move each lever individually up to the "P" position, tapping the tube as you do so. Tubes, which are microphonic due to loose elements or touching elements, will cause a pinging sound in the phones. This "ping" will be heard superimposed above the hum of the tube if hum is present.

E FOR QUALITY

8



4 PIN
SOCKET



5 PIN
SOCKET



LOCTAL
SOCKET



9 PIN
NOVAL
SOCKET



7 PIN
COMB.
SOCKET



8 PIN
SUB MIN
SOCKET



6 PIN
MIN
SOCKET



7 PIN
MIN
SOCKET



6 PIN
SOCKET



OCTAL
SOCKET



7 PIN
SUB MIN
SOCKET

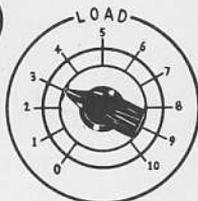
Insert the tube into its correct socket.
Allow at least 15 seconds for the tube
to heat-up.

9



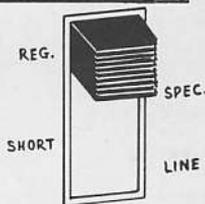
Re-adjust the "line-adjust"
control (step #3) if necessary
to compensate for the
tube current drain.

10



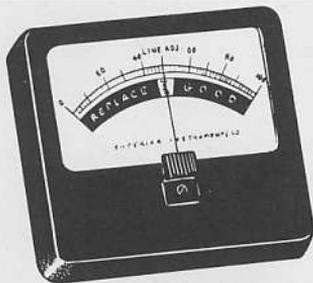
Rotate the "load" control to
the setting indicated on the
roll chart in the "load"
column.

11



Move the 4-position function
slide switch up to the "regular"
position. If the letter
"s" appears after the "P"
setting, move the 4-position
slide switch to the "special"
position instead of the
"regular" position.

12



Read the quality of the tube directly on
the meter scale. The "Replace-?-Good"
markings are self-explanatory. If the meter does not
move at all, the trouble may be due to an
open filament. To verify, check for filament
continuity as described below.

The notes appearing after some of the
tube listings are as follows:

- Note A — Reading above 10 is O.K.
- Note B — Reading above 20 is O.K.
- Note C — Pin #1 is missing.

TO TEST FOR FILAMENT CONTINUITY

To test for filament continuity, proceed as in "To test for shorts and leakages", but use either of the lever switches listed in the filament continuity column. One must be in the "P" position when the other is in the "K" position. Either may be used.

The indicator lamp will glow if the filament is good. No glow indicates an open filament.

EXAMPLE OF A TYPICAL TUBE TEST

Type 35Z5

FIRST TEST FOR SHORTS AND LEAKAGE

- ✓ Insert the line cord into any 110 Volt A.C. power source.
- ✓ Place the power switch up to the "on" position.
- ✓ Throw the leakage switch up to the "tube" position.
- ✓ Throw the 4-position function slide switch down to the "line" position.
- ✓ Turn the "line-adjust" control until the meter indicates at the "line-adjust" mark in the center of the meter scale.
- ✓ Rotate the roll chart until the data for the type 35Z5 appears. It will read:

<u>Tube</u>	<u>Fil. Volts</u>	<u>F</u>	<u>N</u>	<u>P</u>	<u>Load</u>	<u>Fil. Cont.</u>
35Z5	35	2	3	5	3	2-7

- ✓ Turn the filament switch to the 35 Volt position.
- ✓ Place the #2 lever in the "F" position.
- ✓ Place the #3 lever in the "N" position.
- ✓ Insert the tube into the octal socket, which is the correct socket for this tube type.
- ✓ Re-adjust the "line-adjust" control if necessary.
- ✓ Rotate the "load" control clockwise as far as it can go (past 10).
- ✓ Move the 4-position function slide switch up to the "short" position.
- ✓ One at a time, move each lever switch (except #2 and #3) up to the "P" position. Tap the tube and observe the "short" indicator lamp. A steady glow (not a temporary flash) when the switches are moved to the "P" position indicates a "short." Be sure each switch is returned to the "K" position before you proceed to the next lever.
#7 lever will light if the complete filament is good, thus indicating complete continuity between pins #2 and #7, which are the filament pins (as indicated in the last column of the roll chart).

NOW CHECK FOR QUALITY

- ✓ Leave the power switch in the "on" position.
- ✓ Leave the filament switch in the 35 Volt position.
- ✓ Leave the #2 lever in the "F" position.
- ✓ Leave the #3 lever in the "N" position.
- ✓ Place the #5 lever in the "P" position.
- ✓ Leave all the other levers down in the "K" position.
- ✓ Throw the 4-position function slide switch up to the "regular" position since no "S" appears after the number 5 in the "P" column.
- ✓ Set the load control at 3 as indicated in the "load" column of the roll chart.
- ✓ Read the quality of the tube directly from the meter scale.

NOTE Some tubes, especially high voltage diodes used as rectifiers in T.V. receivers, with a load setting of 10, have an extremely high resistance. A reading of 10 for these tubes indicates a good tube.

The notes appearing after some of the listings are as follows:

Note A — Reading above 10 is O.K.

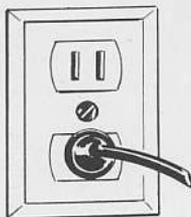
Note B — Reading above 20 is O.K.

Note C — Pin #1 is missing.

TO TEST CONDENSERS FOR LEAKAGES

The Model TV-11 provides means for testing paper, ceramic and mica condensers for leakage.

1



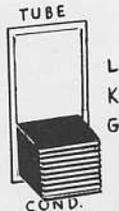
Insert the line cord into any 110 Volt, 60 cycle A.C. line.

2



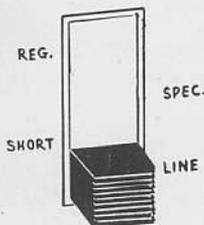
Throw the power switch up to its "on" position.

3



Throw the leakage switch down to the "condenser" position.

4



Throw the 4-position function slide switch down to the "line" position.

5



By means of a pair of test leads, connect the condenser under test to the jacks marked "cond."

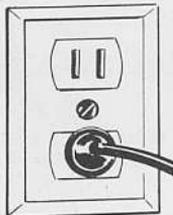
A good condenser will cause the indicator lamp to flash only once. More than one flash, caused by the charging of the condenser, is due to leakage in the condenser. Generally, the higher the capacity, the more leakage can be tolerated in a condenser. Leakages in condensers up to .1 mfd. should be less than 1 per second. Values up to 1 mfd. can be as high as 3 per second without harmful effects in most cases.

Due to their high inherent leakage, electrolytic condensers cannot be tested in this circuit.

TO TEST PILOT LAMPS

The Model TV-11 permits testing all types of pilot lamps.

1



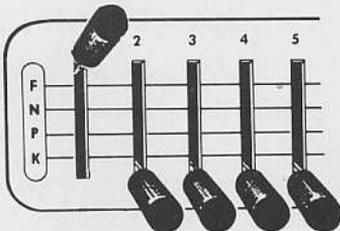
Insert the line cord into any 110 Volt, 60 cycle A.C. line.

2



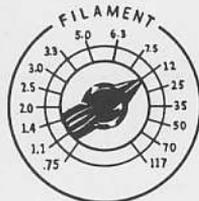
Throw the power switch up to its "on" position.

3



Place the #1 lever up to the "F" position. All other levers should be down in the "K" position.

4



Set the filament voltage switch to the pilot lamp voltage.

5



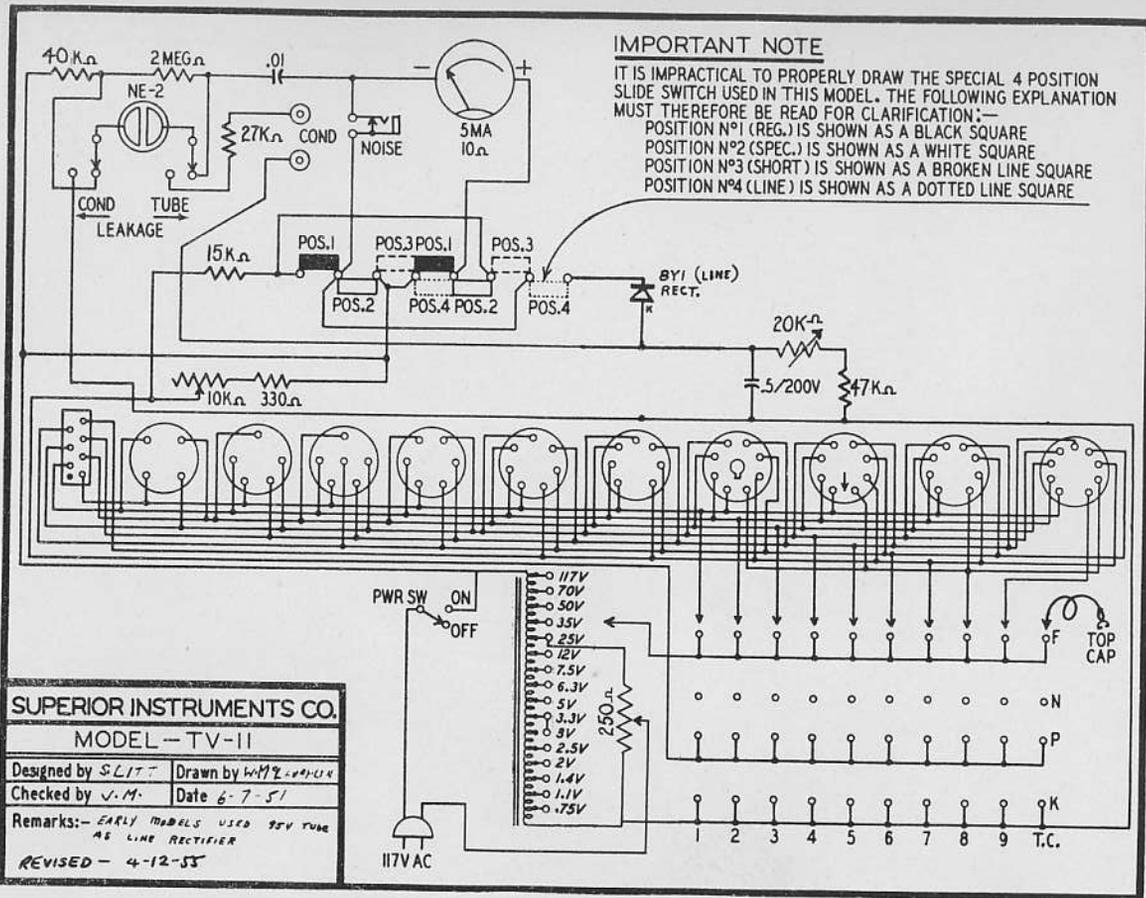
Insert the lamp to be tested into the center hole of the large 7 pin socket. Be sure that contact is made to the center and side terminals. If the lamp is good, it will light to full brilliancy.

SERVICE NOTES FOR MODEL TV-11

1. Inability to bring meter indicator past $\frac{1}{4}$ scale during line-voltage control adjustment is usually due to the .5 mfd. filter condenser. It may be "open" or broken away.
2. Jumpy action during line-voltage adjustment indicates the line-voltage control is burned out. (Usually due to misuse).
3. During leakage test — if neon glows constantly on one position (usually the cathode) the load-control has not been turned to extreme clockwise position as instructed.
4. If good tubes test "weak" or "replace", the trouble is usually due to change in value of the 15,000 ohm resistor. Replace with good 15,000 resistor or shunt with a 150,000 ohm resistor.
5. Good tubes with a high filament drain such as the 5U4 will read "replace" if the line-voltage control has not been properly re-adjusted after tube has warmed up. See instructions.
6. Neon indicator should never glow if no tube is inserted in any of the sockets. If it does, a short has developed in one of the sockets. This fault may occur after years of operation. If it does, write to us for repair instructions.
7. In-operative line-adjustment control is usually due to a break in the jumper located between the lever switches and the .5 mfd. condenser.
8. A faint glow in the neon indicator on all positions may be caused by condensation of moisture between the contacts of the 7 prong sub-miniature socket. This condition can occur in very humid weather. To correct, simply clean socket with Carbona or denatured alcohol.

REPLACEMENT PARTS LIST FOR MODEL TV-11

Roll Chart	\$1.00
<small>(To keep your tube tester up-to-date you need only replace the paper roll chart annually. We issue revised roll charts as frequently as necessary depending upon release of new tubes.)</small>	
Complete Meter	\$9.50
Line Voltage Control	\$2.50
Load Control	\$1.00
Sockets (each)50
350 Ohm 3 Watt Resistor50
Neon Bulb25
10 Gang lever assembly complete	\$4.00
Transformer	\$7.50
Filament Selector Switch	\$2.00



SUPERIOR INSTRUMENTS CO.

MODEL -- TV-11

Designed by S.L.T. Drawn by W.M.P. - 4-12-53

Checked by J.M. Date 6-7-53

Remarks:— EARLY MODELS USED 95V TUBE AS LINE RECTIFIER

REVISED - 4-12-53