

MODEL

503

TUBE TESTER

OPERATING
INSTRUCTIONS



ISSUED DEC. 1, 1938.

STOCK # 5623.

#6 Operating Data for 503.

PILOT LAMPS

To check all pilot lamps, set "Line Adjust" switch, depress #1 button on left hand row, set left hand rotary switch to position as indicated below (according to pilot lamp voltage) and insert lamp in special base in seven hole socket. It should light with normal brilliance.

<u>PILOT LAMP VOLTAGE</u>	<u>SET LEFT HAND ROTARY SWITCH TO POSITION</u>
1.5 V.	1
2.0 V.	2
2.5 V.	3
3.3 V.	4
5.0 V.	5
6.3 V.	6
7.5 V.	7
12.6 V.	8
14.0 V.	9
25.0 V.	10
30.0 V.	11

LOCTAL TUBES

Loctal tubes are tested in the same general manner as the octal types but are shown in black print on the tube chart. However, the loctal socket below red octal socket on panel should be used and when making filament continuity test, #8 button will light neon on all loctal tubes having #1 and #8 filament terminations.

SPECIAL TUBES

2B6 - Will show short on #5 as well as #7 when making leakage test.

4A6 - Both #2 and #7 buttons on left side should be depressed simultaneously and locked down. Will show filament continuity on #8 button in right hand row.

6A5 - Will show filament continuity on #2 and #7 buttons on right side.

6AD6 and 6AF6 - Tube checked for opening and closing of tuning eye only: First test, eye opens on one side, second test, eye opens on other side.

12A5 - Both #1 and #7 buttons on left side should be depressed simultaneously and locked down. Will show filament continuity on #6 button on right side.

12Z5 - Both #1 and #7 button on left side should be depressed simultaneously and locked down. Will show filament continuity on #4 button on right side.

25Y5 and 25Z5 - These tubes have two cathodes. When using high sensitivity leakage check, neon may glow when leakage testing between either cathode and filament, but should go out if "L" button is released. This also holds for other tubes with two cathodes.

#7 - Operating Data for 503.

OPEN ELEMENT TESTS

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 503 has a specific open element test - which will find any and every open element in a tube if such exists.

To make an open element test, (Use 24A tube as illustration)

1. Set up controls with exception of right hand row of push buttons. Make leakage test. Make quality test. If tube still checks good and an open element is suspected, do the following:
2. Depress "Short" button, then "Test" button.
3. Obtain tube base connection finder or tube data book as available from tube manufacturers and look up tube base connections.
4. Depress numbered button corresponding to tube's control grid (if on Top Cap - Depress #1 button). Also depress "Q" button. Meter should read up possibly 1/2 way. If it does not read up scale; this element is open.
5. Then depress numbered button corresponding to element next nearest to cathode or filament. This is usually the screen grid. Meter needle should advance above previous point when "Q" button is depressed. If no further upswing past previous mark, this element is open.
6. Consecutively depress balance of buttons corresponding to tube elements EXCEPT CATHODE OR FILAMENT TERMINATIONS. There should be a corresponding further upswing of meter, the amount of movement in each case will be small but discernable. If no upswing is noted at any time, over previous test, that element is open.

ADDITIONAL TUBE TYPES

Under this listing will be found numerous tube types which may or may not be directly replaceable in the set by other types, but have the same base connections and tube testing listing. If you do not find a tube listed under the regular listing, look in the first column of those given below. When you find your tube type, look in the second column (under "SEE") and refer to this type in the regular tube listing for tube tests.

For example, you desire to test a 14Z3. Looking under the "Tube Type" column you find "14Z3". Opposite this type in the "See" column, you find "12Z3". Refer to 12Z3 under the regular tube listing for tube tests on the 14Z3.

TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE
1A6S	1A6	5W4G	5W4	6C5MG	6C5	6K6G	6K6	6X5G	6X5
1C6S	1C6	5X4G	5X4	6C8G	6C8	6K7G	6K7	6X5MG	6X5
1C7G	1C7	5Y3G	5Y3	6D5G	6D5	6K7M	6K7	6X7G	6X7
1D5G	1D5	5Y4G	5Y4	6D5MG	6D5	6K7MG	6K7	6Y5G	6Y5
1D7G	1D7	5Z4G	5Z4	6D8G	6D8	6L5G	6L5	6Y7G	6Y7
1E5G	1E5	5Z4MG	5Z4	6F5G	6F5	6L6G	6L6	6Y6G	6Y6
1E7G	1E7	6A7M	6A8	6F5MG	6F5	6L7G	6L7	6ZY5G	6ZY5
1F5G	1F5	6A7S	6A7	6F6G	6F6	6L7MG	6L7	6Z7G	6Z7
1F7G	1F7	6A8G	6A8	6F6M	6F6	6N6G	6N6	14Z3	12Z3
1G5G	1G5	6A8MG	6A8	6F6MG	6F6	6N7G	6N7	25A6G	25A6
1H4G	1H4	6A86G	6A86	6F7S	6F7	6N7MG	6N7	25A6MG	25A6
1H6G	1H6	6AC5G	6AC5	6F8G	6F8	6Q7G	6Q7	25A7G	25A7
1J5G	1J5	6B4G	6B4	6G6G	6G6	6Q7MG	6Q7	25B6G	25B6
1J6G	1J6	6B6G	6B6	6H6G	6H6	6R7G	6R7	25L6G	25L6
2A3H	2A3	6B6M	6B6	6H6MG	6H6	6R7MG	6R7	25Z5MG	25Z5
2A6S	2A6	6B7M	6B8	6J5G	6J5	6S7G	6S7	25Z6G	25Z6
2A7S	2A7	6B7S	6B7	6J7G	6J7	6T7G	6T7	00	00A
2B7S	2B7	6B8G	6B8	6J7MG	6J7	6V7G	6V7	01	01A
5V4G	5V4	6C5G	6C5	6K5G	6K5	6W7G	6W7	01AA	01B

TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE
1	1V	55S	55	95	2A5	200A	00A	300	00A
4S	2S	56A	76	96	6Z3	201	01A	300A	00A
13	80	56S	56	98	6Z4	201A	01A	301	01A
13B	80	57A	6C6	101A	01A	210	10	301A	01A
16	81	57S	57	110	10	213	80	310	10
16B	81	58A	6D6	112	12A	213B	80	313	80
24(non-o)24A		58S	58	120	20	216	81	313B	80
24S	24A	59S	59	122	22T	216B	81	316	81
25	1B5	64	36	124	24A	220	20	316B	81
25S	1B5	64A	36	126	26	222	22T	322	22T
27HM	56	65	39	127	27	224A	24A	324A	24A
27S	27	65A	39	130	30	226	26	326	26
32S	32	67	37	131	31	227	27	327	27
33S	33	67A	37	132	32	230	30	330	30
34S	34	68	38	133	33	231	31	331	31
35S	35	68A	38	134	34	232	32	332	32
36A	36	71	71A	135	35	233	33	333	33
37A	37	71B	71A	136A	36	234	34	334	34
38A	38	75S	75	137A	37	235	35	335	35
39A	39	78S	78	138A	38	236	36	336	36
41S	41	80M	83	139A	39	237	37	337	37
42S	42	81M	81	145	45	238	38	338	38
43C	43	84S	84	147	47	240	40	340	40
43MG	43	85S	85	150	50	245	45	345	45
44	39	85S	86	171A	71A	247	47	347	47
46S	46	88	83	180	80	250	50	350	50
47S	47	89RS	6G7	182A	71A	280	80	371A	71A
51S	51	89S	89	200	01A	281	80	380	80

TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE	TUBE TYPE	SEE
381	81	447	47	D1	80	RE2	81		
400A	00A	450	50	DE1	27	S02	50		
401A	01A	456	56	DV2	01A	X140	40		
410	10	457	57	DV5	01A				
412A	12A	458	48	E	20				
420	20	471A	71A	G	40				
422	22T	480	80	G2	2S				
424	24A	481	81	G2S	2S				
424A	24A	482	82	G4	2S				
426	26	482A	71A	G4S	2S				
427	27	482B	182B	G40	40				
430	30	484A	484	G84	2Z2				
431	31	551	35	H	00A				
432	32	585	50	H250	12Z3				
433	33	586	50	K24	24A				
434	34	686	486	K27	27				
435	35	951	32	KR1	6Z3				
436	36	985	6Z4	KR5	6A4				
437	37	986	83	KR25	2A5				
438	38	AC22	24A	KR28	6Z4				
439	39	AD	6Z3	KR31	6Z3				
440	40	AF	82	KR98	6Z4				
441	41	AG	83	LA	6A4				
442	42	AX	01A	P861	6Z4				
444	39	B	99T	PZ	47				
445	45	BX	99T	R45	45				
446	46	D $\frac{1}{2}$	81	RE1	80				

! I M P O R T A N T !

Unless this paragraph is complied with, the Guarantee Policy on your SUPREME Instrument is not applicable!

REGISTRATION

The Return Registration Card, which is included with each tester shipment, should be completed with the proper information and mailed immediately after the user's receipt of the tester. It is the purpose of the Return Registration Card (1) to apply the Guarantee Policy in favor of the owner of the tester, and (2) to assure the user's receipt of any additional data which may be issued with reference to the use of the tester. The issuance of new data may not be necessary, but in case new data be issued, the user is entitled to it and he will receive such new data if his ownership of the tester is registered by means of the Return Registration Card. We suggest that, in the case of tube listings, the serviceman should write for new listings two or three times a year. The Guarantee Policy is not applicable unless the tester is registered within ten days after its receipt, and the serial number of the tester should be mentioned in all correspondence.

REPLACEMENT PARTS, Etc.

If some part of the tester be damaged in service or if the user should want to order circuit drawings, analysis charts, test leads, or other accessories, his order should be accompanied by a deposit amounting to not less than fifty cents. Since an order amounting to less than fifty cents cannot be assembled, packed and shipped without financial loss, a handling charge may be made so as to make the order total fifty cents, including transportation charges. If an order be accompanied by a deposit which does not cover the cost of the merchandise and transportation charges, the shipment will be made via express C.O.D. for the balance due. We do not recommend the installation of instrument rectifiers by the user as this invariably leads to difficulties with the factory. Servicemen do not have proper calibration standards by which the A.C. ranges can be recalibrated. Instrument rectifiers are very liable to damage by inexperienced repair men and are, therefore, not guaranteed in any manner, even when new, except in the SUPREME 504 Tube & Set Tester and the SUPREME 592 Set Tester. Instrument rectifiers should be replaced by the factory or an Authorized Service Station.

GUARANTEE

The tester is not guaranteed unless the ownership thereof is properly registered. When the user registers his ownership of this tester within 10 days after receipt he will receive, in return, a "Guarantee Card" stating that the tester will be guaranteed to be free from defects in material or workmanship. Any such defect in material or workmanship will be corrected, without charge, when the tester, together with the "Guarantee Card" is delivered to the Supreme Instruments Corporation, Greenwood, Mississippi, or to any authorized Supreme Service Station within 90 days after its receipt by the user; provided that (1) the free repair or replacement of materials shall not include the cost of the installation of instrument rectifiers which are incapable of withstanding appreciable electrical overloads and are not, therefore, guaranteed by the manufacturers, and (2) the user accepts the obligation of the payment of all transportation charges involved in the corrections effected under the conditions of this guarantee policy, in accordance with the standard practices of the Radio Manufacturers Association. The SUPREME 504 Tube & Set Testers as well as the Supreme 592 Set Testers have rectifiers guaranteed for 90 days, the same as every other part.

TRANSPORTATION DAMAGES

The office of origin of the transportation agency which accepted this tester for the original shipment assured the shipper against external and concealed damages in transit. If the tester be received in a damaged condition, or if some part of the tester be damaged in transit, the user of the tester should ask the transportation agency, which delivered the tester, for a "Concealed Damage Report" which should be forwarded to the factory, with the return registration card, for factory instructions as to the procedure which should be followed for effecting the necessary repairs or replacements. If the destination office of the transportation agency refuses to furnish a "Concealed Damage Report" that fact should be reported in a letter to the factory with the return of the registration card.

SUPREME SERVICE STATIONS

For the purpose of effecting prompt repair of damages sustained by inadvertent misuse, or for any other reason, the services of the Supreme Service Stations may be utilized instead of returning damaged testers to the factory. A list of the Supreme Service Stations may be obtained from the Supreme Factory offices. If it should be necessary to ship a tester to the factory or to a Supreme Service Station, the shipment should be made via express -- never parcel post -- and a letter should be written and forwarded, separately, advising of the shipment and including complete instructions as to the desired handling and disposition of the merchandise; otherwise the merchandise will be refused by the consignee.

If a separate letter is received by the factory, ahead of the tester's arrival, the proper acceptance forms will be made out by the factory, the tester will be received and usually repairs will be effected at once and the tester re-shipped. If the tester is not within the 90 day guarantee period, repairs will be made up to \$5.00 without sending the user an estimate unless we receive specific instructions to send an estimate in any case. If the necessary repair charges total more than \$5.00 an estimate will be sent in any case, unless the factory has received specific instructions to repair the tester regardless of cost.

When the user sends his registration card to the factory within 10 days after receipt of the tester, he will be furnished with a pocket size "Guarantee Card" which should be included with the tester shipment to either the factory or an Authorized Supreme Service Station if the tester is still within the 90 day period.

When repairs are requested of the factory or a Service Station by a customer having a "Guarantee Card" and including same in shipment, and the Guarantee is found to be still in effect, the factory or Authorized Supreme Service Station will make the repairs in accordance with the Guarantee Policy herein stated and will return the tester to the user without charge with the exception of (1) any instrument rectifier replacement (instrument rectifiers are not guaranteed, except as stated previously), and (2) transportation charges which must be borne by the customer.

Our Service Stations are not authorized to make no-charge repairs on Supreme testers unless the "Guarantee Card" (furnished the user by the factory upon the return of the user's registration card) accompanies the tester and the tester is returned before the expiration of the 90-day period.

ALL DISPUTES REGARDING REPAIR CHARGES SHOULD BE REFERRED TO THE "SERVICE ENGINEER" AT THE FACTORY.

SUPREME INSTRUMENTS CORPORATION

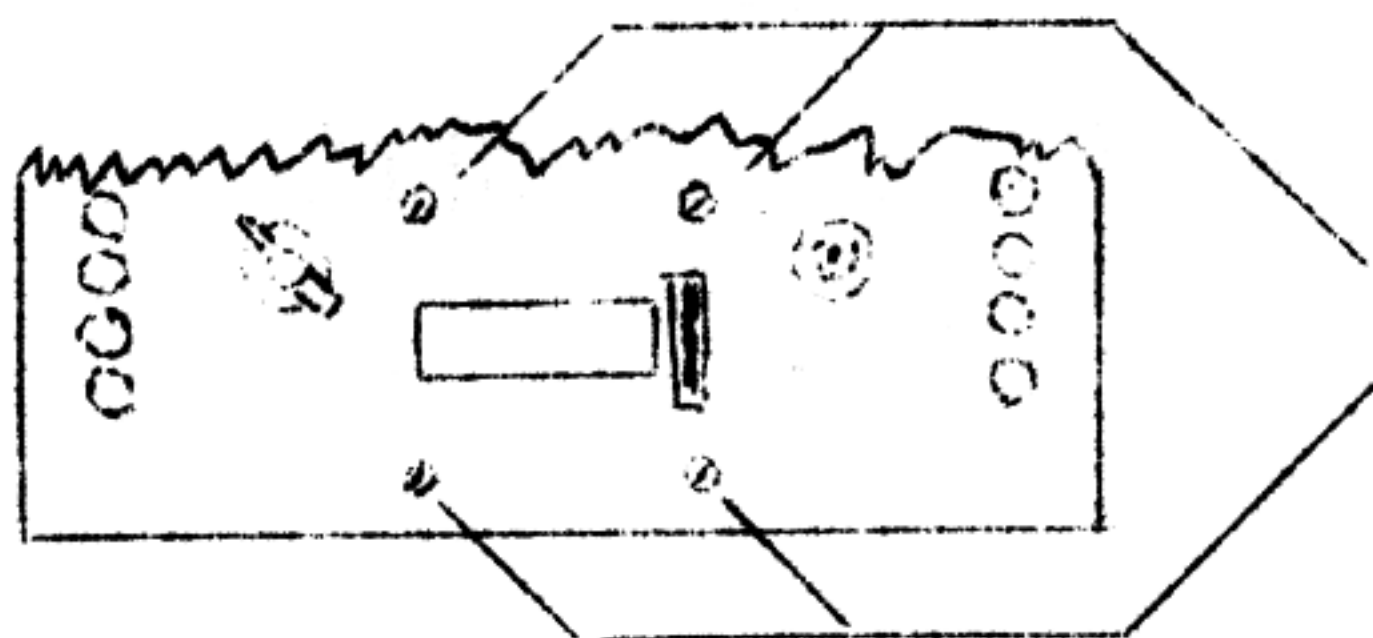
GREENWOOD, MISSISSIPPI

U.S.A.

ROLLER-DEX TUBE CHART

INSTALLATION INSTRUCTIONS FOR MODELS 503 & 504

1. Remove screws around edge of panel, and remove instrument from case.
2. Remove four screws and remove Roller-Dex from panel.
3. Note the method of attaching the original chart. Remove old chart.
4. Attach new chart to roller with Scotch tape. See that the new chart is started straight, and in the center of the roller. Roll new chart on one roller, allow a little slack, and attach to second roller. If the new chart rolls too tight at either end, remove that end of the roll, allow a little more slack in the chart, and attach to roller again.



See Note #2

IMPORTANT ANNOUNCEMENT & INSTRUCTIONS FOR
503 AND 504 TESTERS

SUPREME'S ANSWER TO PRESENT AND FUTURE FILAMENT
VOLTAGE PROBLEMS

Just recently, tubes with filament voltages above 50 volts were announced. Previously, 35 and 50 volt filament tubes were designed. 70 and 85 volt filament tubes are now appearing. FUTURE TUBES MAY BE DESIGNED FOR ANY FILAMENT VOLTAGE UP TO 110 VOLTS! SUPREME, with their constant desire to give the serviceman full benefit of last minute changes in tube trends, offers the 503 and 504 Tube Testers with a now OBSOLES-
CENCE FREE - FILAMENT VARIVOLT SELECTOR. 23 available filament voltages give com-
plete coverage of all past, present and future filament voltages!

Look at what you are getting!

1.5, 2.0, 2.5, 3.3, 5.0, 6.3, 7.5, 12.6, 15, 25, 35, 50, 55, 60, 65, 70, 75, 80, 85,
90, 95, 100, 110 volts.

POSITIVE ASSURANCE AGAINST HI-VOLTAGE FILAMENT OBSOLESCENCE!

SPECIAL INSTRUCTIONS

The Filament Varivolt Selector is the left rotary switch on the panel. For easy operation, numbrals from #1 to #12 are used in place of actual filament voltages, but all 23 are there by proper operation of this switch in conjunction with the "HI-LO" Toggle switch.

The "HI-LO" toggle switch to the left of the meter should be kept in the "LO" position for all tubes having filament voltages of 50 volts or less. For all tubes having over 50 volt filaments, the switch should be thrown to the "HI" position and immediately returned to the "LO" position upon completion of the tube test. All tubes on the present tube table use the "LO" switch position. All tubes on the supplement should also be tested on the "LO" switch position UNLESS SPECIFICALLY STATED OTHERWISE. Close observance of this simple operating procedure will assure correct operation and maximum satisfaction.

MODEL 503 TUBE TESTER

PACKING LIST

Issued 12/20/38

Accessories included in original Model 503 Tube Tester shipment:

Quantity:	Stock :		Description	:Packer's
Included:	Number:			:Check
1	: 5623	:	Booklet, Model 503 Operating Data	: ✓
1	: 6725	:	Card, Return Registration	: ✓
1	: 6288	:	Chart, sample analysis	: ✓

The above list of items was checked by the undersigned who is responsible for the completion of this package.

1952 (Serial Number) (SIGNED) _____

ACCESSORY PARTS FOR THE MODEL 503 NOT SHIPPED WITH TESTER, BUT AVAILABLE FROM US

Stock :		Description	:Price
Number:			
7552	:	Lamp, replacement for Model 503	: \$0.36
6288	:	Chart, Supreme Analysis, per pad of 50	: \$0.25
5622	:	Chart, replacement tube chart for roller. State serial:	
	:	number (issued periodically)	: \$1.00
6497	:	Tube, type 01A	: \$0.41

Prices subject to change without notice.

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

OPERATING DATA FOR SUPREME 503 TUBE TESTER

SPECIFICATIONS

POWER SUPPLY REQUIREMENTS

Normal Line Rating (unless for special voltage or frequency)
100-133 volts - 60 cycles.

Power Consumption - 25 watts

TUBE

Rectifier - Type 01A

MECHANICAL SPECIFICATIONS

Dimensions - 11 1/2" x 12" x 5 3/4"

Weight (Net) 11 lbs. (Packed) 13 lbs.

GENERAL DESCRIPTION AND USE

The Supreme Model 503 Tube Tester is a complete tube tester, checking all normal receiving type tubes including loctal, octal and non-octal types such as 7A7, 7A8, 7Y4, etc. loctal types, both top cap and single ended octal tubes including the 6SK7, 6SQ7, etc., the 1.4 volt filament series, "M," "G," "MG," "GT," plain glass and spray shield envelopes, gas rectifiers, magic eye types and ballast tubes.

These are all checked on but six sockets and it is not possible to place a tube in the wrong socket. Tubes are given a Supreme 7-way check for (1) Shorts between any two elements, (2) Positive visual check for open filaments, (3) Standard sensitivity "hot" leakage check between cathode and filament, (4) high sensitivity "hot" leakage check between any two anode elements, or between any anode element and filament or cathode, (5) Open test of any element, (6) complete tube quality test and (7) separate section test of multi-section tubes and separate plate tests of full wave rectifiers.

This tester uses a fast acting, non-jamming, easily removeable rotary chart at a central point directly underneath the panel which has been marked with plainly understood "Arrow-ways" leading from each chart number to its corresponding functional switch. Sequence of settings is from left to right on panel - no criss-crossing.

This tester uses an improved Balanced Ratio Load circuit with all tubes tested at proper rated load for highest accuracy. Separate test voltages and loads used for various classes of tubes. Ballast tubes may be checked for open circuits. Tuning indicators (magic eye tubes) may be checked for opening and closing of eye. Pilot lamps can be checked at rated voltages.

PANEL MARKINGS AND PARTS

METER - Has "Good-?-Bad" English reading scale and 0-100 numerical scale for tube matching.

SOCKETS - 4, 5, and 6 hole sockets to left of meter. 7-hole, octal and loctal sockets to right of meter. OCTAL SOCKET TUBE CHART READINGS ARE IN RED.

PUSH BUTTONS - (left edge of panel) assures non-obsolescence of tester due to filament termination changes. Continues Supreme's famous Filament Return Selector Circuit.

ROTARY SWITCH - (left side of panel) for connecting proper Filament Voltage to tube under test.

ROTARY SWITCH - (center of panel) for adjusting proper meter circuit resistors (Quality Control).

ROTARY SWITCH - (right side of panel) for connecting proper Anode voltage and load resistance.

PUSH BUTTONS - (right edge of panel) for making leakage, quality, shorts, opens test, etc.

"OFF-AC LINE ADJUST" SWITCH - for adjusting tester's transformer primary to line voltage.

NEON "SHORT" BULB - for visual indication of shorted, leaky or noisy tubes.

ROLLER CHART - all tube listing on this chart. "Arrow-ways" run from each setting to proper control on panel.

MODEL NUMBER - Model 503 - Use this number in all correspondence.

SERIAL NUMBER - See individual number under roller chart opening. Use this number in all correspondence.

PRELIMINARY INSTALLATION AND ADJUSTMENT.

1. Connect power supply plug to convenient A. C. supply socket. Be sure it is the voltage and frequency for which tester was originally supplied.
2. Adjust "OFF-A.C. LINE ADJUST" switch until meter needle indicates closest to half-scale deflection ("50" on "0-100" Scale). Meter will read on all positions of this switch except "OFF" (2 positions) when power supply circuit is broken. If needle does not read on other positions, check 01A tube under panel as it may have been damaged or worked free from socket during shipment. To remove instrument from case, remove five screws around outer edges of panel (two each side and top, one at bottom center edge). Instrument should be disconnected from line or "A. C. LINE ADJUST" switch turned to "OFF" when not in use.

GENERAL OPERATION

This is the easiest tester to operate as all readings are shown on the roller chart and each "Arrow-Way" leads the user's eye from the number

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listings to the correct switch. To test a tube, rotate chart by means of thumb knob to desired tube type. ALL OCTAL TUBE SETTINGS ARE IN RED. All other settings are in black. This is done to avoid confusion between octal and non-octal tubes with same type number.

1. Set controls as marked in respective columns of the chart, except numbers under last "Arrow-Way," following red "Arrow-Ways" to proper controls.
2. Place tube in proper socket and connect top cap lead if tube is of top cap type.
3. Depress "Short" button and button on right side of tester which corresponds to highest numbered filament terminal (#4 on 4 prong, #5 on 5 prong, #6 on 6 prong, #7 on 7 prong and #3, #7 or #8 on octal tube depending on filament termination). This button should light neon lamp indicating filament not open. If filament is open, neon will not light. See exceptions under special tests.
4. Depress successively buttons "1" to "8" on right side of tester, watching neon lamp. If neon lamp glows steadily when any button is depressed, (except button depressed to show filament continuity), a short or leaky circuit is indicated.
5. If tube passes short and leakage test, first depress "Test" button and then numbered button or buttons as shown under last red "Arrow-Way".
6. Depress "Q" button and note condition of tube on "Good-?-Bad" meter scale. More than one test may be required when checking multi-section tubes and other special variations of this general procedure may be necessary when checking certain other types of tubes. Therefore, we suggest you carefully read and make each of the following tests which illustrate the testing of each type of tube grouping.

TRIODE TEST (NON-OCTAL)

(Use 01A for this test or any non-octal triode without cathode).

1. Set "LINE ADJUST" control and rotate roll chart to "01A." Listing is in black type, so it is non-octal.
2. Set all controls except push buttons on right side. Place tube in socket.
3. As filament on 01A tube terminates on #1 and #4 pins, depress "Short" and #4 push button on right side for filament continuity test. Neon bulb will light.
4. Depress balance of push buttons to see if any element is shorted. Actually, it is only necessary to push #1, #2, #3 and #4 buttons for a 4 prong non-octal, up to #5 button on a 5 prong, up to #6 button on a 6 prong tube, etc. ~~As~~

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- T. C. of tube (if one is used) terminates on #1 button and other buttons corresponding to RMA tube pin terminations.
5. Press "Test" button and then push buttons #2 and #3 (see numbers under last "Arrow-Way," indicating "2 3.")
 6. Hi-leakage test may be made between any two elements EXCEPT BETWEEN CATHODE AND FILAMENT, by depressing the "L" button during leakage test. This changes leakage sensitivity from 250,000 (approx.) to about 2 megohms which is proper for all leakage checks except that taken between a cathode and filament.
 7. Depress "Q" button and read quality on meter scale.

TRIODE TEST (OCTAL)

(Use 6C5 tube or any octal triode with cathode).

1. Set "Line Adjust" control and rotate roll chart to "6C5" listing.
2. Set all controls except push buttons on right side. Place tube in red octal socket as listing is in red type.
3. As filament is on #2 and #7 pins, depress "Short" and #7 push button on right side. Neon bulb should light up indicating filament continuity.
4. Depress balance of push buttons, one at a time. Neon may flicker momentarily, but should not light (except on #7). For hi-leakage test, depress "L" button during leakage test, but if neon glows when button is depressed corresponding to cathode, release "L" button and if neon goes out, tube is still okeh.

FULL WAVE RECTIFIER

(Use 80 tube or any rectifier tube with filament and two plates).

1. Set up all controls as explained previously. Insert tube in correct socket and make leakage checks.
2. You will note that full wave rectifiers show two tests, one for each plate. After making leakage check, check quality using first listing, then second. Usually, the only change is in the right row of push buttons. After making first test with one button down, press "Short" button which releases previously pressed button, and then press "Test" and "other plate" button.

TOP CAP TUBES

Tubes with top caps are tested exactly the same as the other corresponding types except that the insulated top cap lead above the meter should be connected to the top cap of the tube during the complete test.

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MULTI-SECTION TUBES

(Use 6Q7 or any like type)

1. Make preliminary adjustments as called for on tube chart. These types will show two tests. Set up for first, make usual "short" test and then make first quality test. Reset controls as shown for second test, depressing "Short" button and then "Test" button before resetting last push button row. Remember that hi-leakage test may be made between any two elements except between cathode and filament. Thus, if "L" button is depressed during leakage test and push button (corresponding to cathode) in right row is depressed, neon may glow. Releasing "L" button should extinguish neon light.

TUNING INDICATOR (MAGIC EYE) TUBES

(Use 6E5 or like type).

1. Set all controls as shown on chart except right push button row. Make filament and leakage test in usual way.
2. Depress "Test" button and #4 button in right row (or numbered button corresponding to tube's target). Depress "Q" button and tuning eye should light with a portion of arc unlighted. Then depress "Q" button and #2 button (or button corresponding to tube's plate) and eye should close (Leave other button in right row depressed). Read tube's quality on meter.

COLD CATHODE TYPES

(Use OZ3 or OZ4).

1. Set all controls as shown on chart except right push button row. Make short tests. As these tubes have no filament, the neon should not light on any position except OA4G which will light on #2 and #7 buttons.
2. Press "Test" button and #3 button (or button shown under last "Arrow-Way.") Depress "Q" button and read on meter. Tube may momentarily fluoresce until it "strikes." Do not keep cold cathode type tubes in socket longer than necessary for normal test.

BALLAST TUBES

Ballast tubes (which are really not tubes, but merely resistors mounted on a tube base and in a tube shell) may be checked for open or loose connections. When making ballast tube tests ROTATE LEFT HAND ROTARY SWITCH TO RED "ARROW-WAY," thus removing filament voltage from socket. All ballast tubes are checked with "Short" button depressed. The button on the right hand switch are depressed as when testing a tube for shorts. The neon lamp should glow only when the buttons as listed on the chart opposite the corresponding ballast types are depressed. Any flickering of the neon lamp when the tube is tapped shows a poorly welded joint.



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