

## INSTRUCTIONS FOR MODEL 115 JACKSON DYNAMIC OUTPUT TUBE TESTER

As the purchaser of a Jackson Model 115 you are now the owner of a companion instrument in the Jackson "Challenger Line" of fine electronic service equipment. This series of matched service equipment also includes the Electronic Volt Ohmmeter, R.F. Signal Generator, and Direct Reading Condenser Checker; a set of instruments the up-to-date serviceman cannot do without.

The Jackson Model 115 DYNAMIC tube tester incorporates circuits of the most advanced design and accuracy used in evaluating the quality of electron tubes. The test method used is a new advancement in the JACKSON DYNAMIC OUTPUT circuit which has established an excellent reputation for dependability and accuracy. The control arrangement is greatly simplified, permitting easy and rapid testing of tubes. In this model only those pins connected to active elements in the tube are used, thus eliminating the use of special sockets or cumbersome test procedures to check tubes with internal connections to various base pins. With this instrument or any other fine piece of equipment it is always advisable to thoroughly understand its operation before attempting to put the instrument to use. *Please read the following instructions carefully.*

### PURPOSE OF CONTROLS

**OFF-ON SWITCH:** Located on the line voltage adjustment control.

**LINE ADJ. CONTROL:** This control is used to set the input voltage in order to establish accurate voltages at the elements of the tube to be tested regardless of local line voltage conditions.

**FILAMENT VOLTAGE CONTROL:** This switch permits the selection of the correct filament voltage for the type tube to be tested. The tube should not be inserted in the socket until the Filament Voltage, Filament Circuit and Circuit "X" have been set according to the listing on the chart to avoid unnecessary burnouts.

**FILAMENT CIRCUIT CONTROL:** This switch arranges the filament circuit for each type of tube listed on the roll chart having a letter following the filament voltage setting. When the filament is terminated through the two pins most commonly used no letter appears after the filament setting and the filament circuit switch is set to "NORMAL", the first position. Do not insert a tube until this control as well as circuit "X" have been set correctly according to the chart.

**CIRCUIT "X":** Circuit "X" consists of nine slide switches used to open circuits to pins that are not connected to active elements as well as to eliminate multiple pin connections to the filament and other elements. It is necessary to set up circuit "X" according to the chart before inserting a tube for test. All switches not listed under circuit "X" on the roll chart must be returned to the normal position. A dash on the chart indicates that all nine switches are returned to normal.

**PLATE CONTROL:** This control adjusts the meter to the proper sensitivity for the type tube to be tested. *The knob has been carefully adjusted at the factory and may not be set at zero. Do not loosen the set screw or move the knob.*

**CIRCUIT "Y" CONTROL:** This control is used for making shorts and leakage tests and, later on in the tube testing procedure, is used to select the proper element to give a meter reading of the quality of the tube as compared to the manufacturer's rating of output. When the shorts test is made a full rotation of this control will test for any shorted or leaky condition at each and every active element including internal shields and the shell on metal tube types.

**CIRCUIT "Z":** This control consists of eleven push buttons, seven lock type, three non-lock type and one release button. It is the purpose of these buttons to simultaneously arrange the circuit for the tube type to be tested, to remove the line control reading from the meter, and to secure a meter reading of the quality or output worth of the tube. Buttons J K L M N O P are the lock type for circuit switching. Buttons Q R S are non-lock type used for meter switching in order to read the relative quality of the tube under test. When the chart specifies R S these two buttons should be depressed simultaneously.

## THE METER DIAL

Tubes whose quality reading falls in the red portion of the meter scale are classified as defective relative to the output rating of new tubes as specified by the tube manufacturer. It will be noted that a tube which gives an ultra high deflection that falls in the red portion of the scale at the extreme right of the dial are classified as questionable. Such a tube may be questionable in performance because of the possibility of a "gassy" condition, damaged or misplaced elements in the tube or damaged connections in the base of the tube.

## THE TUBE CHART

The roll chart lists the proper settings of all controls and the necessary buttons to test all of the receiving type tubes in common use at the time of printing. As manufacturers place new tube types on the market, new chart issues and supplements containing the latest settings will be issued. (See paragraph under "General Information" at end)

### OPERATING PROCEDURE

1. LINE VOLTAGE ADJUSTMENT: Turn LINE ADJ. control in a clockwise direction until meter needle points to "LINE" at center of scale.
2. Check roll chart for settings of tube type to be tested.
3. Set up filament voltage, filament circuit and circuit "X" according to chart settings.
4. Insert tube in the proper socket and allow sufficient warm-up time.
5. Make sure all buttons of circuit "Z" are released and use the following procedure to check for shorts and leakages. Turn circuit "Y" through all nine positions, tapping the tube at each position and watching neon indicator marked shorts test. If the lamp flashes or glows steadily the tube is shorted or leaky and is not satisfactory. No further testing should be attempted on a shorted tube. A few tubes (ie. 5T4, 5U4, etc.) because of uncommon base arrangement of filament leads will show shorted. These tubes are marked on the chart as showing shorted at a certain position. The neon tube indicates filament continuity on these types which is a normal condition.
6. QUALITY TEST: After the tube has been cleared in the shorts test the remainder of the control settings given on the chart may be set up. The final test button, Q R or S is held down until the meter needle comes to rest indicating the relative quality of the tube.
7. DUAL TEST: On double or triple section types it is only necessary to reset the controls listed in the last two columns, namely PLATE and CIRCUITS Y & Z. To check the quality of each succeeding section of such a tube be sure to press the release button of circuit "Z" after each test so that only those buttons called for will be depressed for the next test.
8. TARGET TEST: Those settings marked "Visual Test" on the chart are for evaluating the brightness quality of tuning indicator tubes.

## GENERAL INFORMATION

Your new Jackson tube tester is a useful instrument only when up-to-date listings of the latest tubes are at hand.

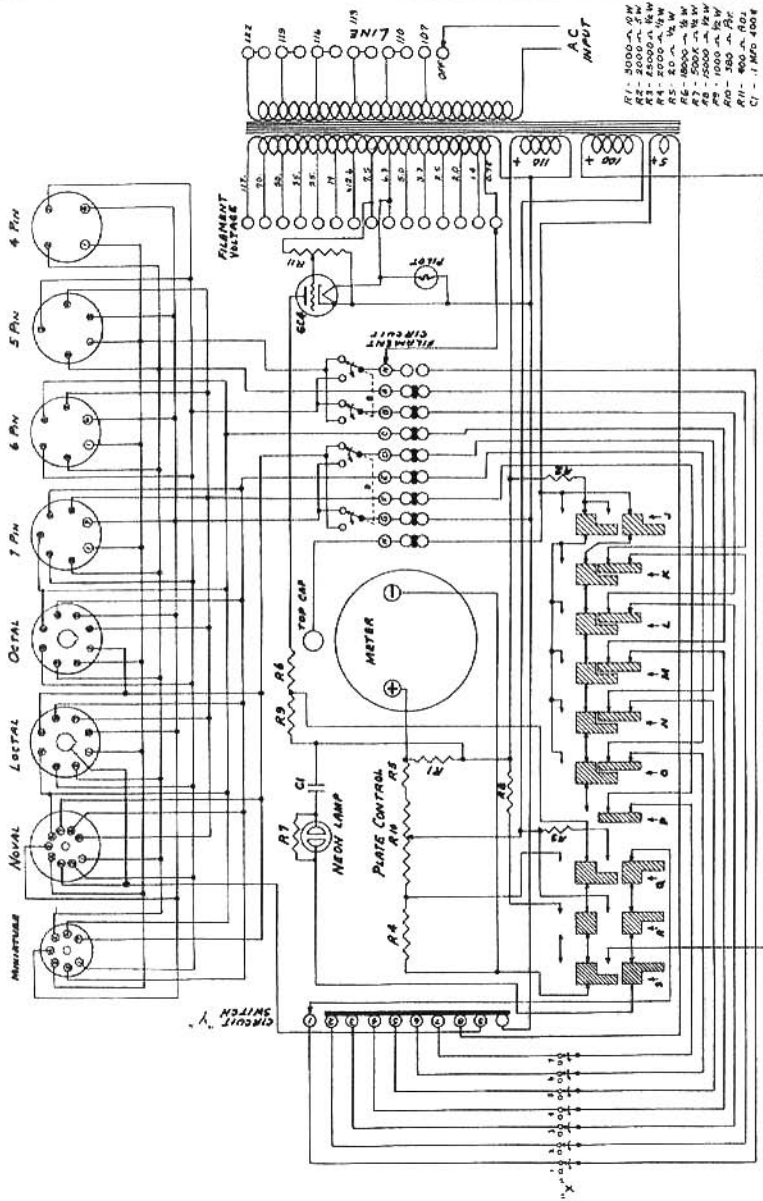
Mail the registration card for your tester promptly, giving correct name and mailing address so that additional technical data from our factory will be properly delivered. Notify us of a change of address, listing the model and serial numbers of your tester.

All tube tester owners are entitled to receive chart listing service free for a period of one year after date of purchase. (Nominal charge thereafter).

## REPAIRS AND ADJUSTMENTS

Repairs and adjustments will be made under the terms and conditions stated in the guarantee furnished with the instrument. The tester should not be returned to our factory except where we authorize such return to be advisable. When corresponding concerning this instrument be sure to always mention the model and serial numbers. Be certain to describe fully and accurately the information desired.

Manufactured by  
THE JACKSON ELECTRICAL INSTRUMENT COMPANY  
DAYTON, OHIO U.S.A.



- R1 - 5000  $\Omega$  W  
 R2 - 10000  $\Omega$  W  
 R3 - 25000  $\Omega$  W  
 R4 - 50000  $\Omega$  W  
 R5 - 100000  $\Omega$  W  
 R6 - 200000  $\Omega$  W  
 R7 - 500000  $\Omega$  W  
 R8 - 1000000  $\Omega$  W  
 R9 - 2000000  $\Omega$  W  
 R10 - 5000000  $\Omega$  W  
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 R98 - 1000000000000000000000000000000000000  $\Omega$  W  
 R99 - 2000000000000000000000000000000000000  $\Omega$  W  
 R100 - 5000000000000000000000000000000000000  $\Omega$  W

ALL SWITCHES ARE SHOWN IN NORMAL POSITION

THE JACKSON ELECTRICAL INSTRUMENT CO.  
 DAYTON, OHIO  
*Model 115 Current Diagram*  
 DATE 10-25-20  
 DES. BY A.J.S.  
 PART NO. C-2318  
 REV. NO. 1  
 C-11, P. 488