over all values of components and all wiring. **Care in doing each small operation perfectly cannot be overemphasized.** Take care of each detail and the aggregate will take care of itself.

ASSEMBLY

There are three principal sheet-metal pieces, which carry most of the parts, the chassis, the front panel and the front wall of the safety compartment. The assembly and wiring of the first and second items are clearly shown in the Pictorial Wiring diagram Fig. 1; while the assembly and wiring of the Safety Compartment is shown in figures 2, 3, 4, 5, and 7.

The simplest method of construction is to assemble onto any one of the metal parts as many small items as possible, and to wire up as much as possible before fastening the three major metal parts together.

Starting with the front wall of the safety compartment, first assemble the Cathode Ray tube socket. (This socket is the only one with eleven pins.) A special fastener that appears to have too small an inside diameter is furnished for mounting this socket. The bakelite part is inserted into the mounting hole from the front of the panel, the panel placed on a table (with the front side down) and the mounting ring forced down around the socket. A screwdriver is a convenient tool to use for this purpose, pressing down on the clip in a number of places successively, going around the clip until the mounting ring touches the back of the metal panel. Do not force the ring down too far, however, as it probably will be necessary to turn the socket slightly to line up the vertical and horizontal edges of the picture with the true vertical and horizontal direction. The remainder of the parts on the wall of the safety compartment may be assembled in any convenient sequence. If a ground connection is made to a socket saddle or to a mounting lug on a terminal strip it is necessary to clean the mounting surface so that a good metal contact is made and so that the mounted part can be soldered to the sheet metal to form a permanent good ground connection. **These soldered ground connections are very important.**

Having completed the assembly outlined above, prepare the large chassis for assembly. Practically every major item has at least one connection to chassis. These connections should all be well soldered. To help the soldering operation a spot on the chassis should be lightly cleaned with sandpaper or a knife. Every socket saddle, every terminal strip supporting lug (to which a wire is connected) should be soldered to chassis. “Make Haste Slowly.”

Having bonded all grounding lugs to chassis the filament circuits should be wired complete. Note that there are two independent 6.3 volt circuits for the purpose of preventing the scanning circuits from interfering with either sound or picture reproduction. These circuits must be wired according to the diagram. “Make Haste Slowly.”

Many sockets contacts are connected to the chassis. It will probably be found convenient at this point to make all of the necessary ground connections on all of the sockets. “Make Haste Slowly”

The next items most conveniently wired are the electrolytic condensers, which should now be assembled. Take great care to see that the condenser with the proper capacity and voltage rating is installed in the proper position. The ratings are stamped on the sides of the cans so that the parts are easily identified. Note that some condensers are grounded to the chassis, in which case metal mounting plates are to be used, while in other cases the condensers must be insulated from the chassis, in which case bakelite mounting plates must be used. In the former case the metal mounting plates should have one spot on each plate soldered to the chassis.

The condensers are mounted by pushing the mounting lugs through the slots in the mounting plates and then giving each mounting lug a slight twist with a pair of pliers. The amount of twist is only enough to hold the unit tightly, usually one-eighth turn is adequate. At least one mounting lug of each condenser should be soldered to the mounting plate if the plate is metallic. “Make Haste Slowly.”

Because of the electrolytic condensers projecting above the chassis, making it impossible to lay the chassis down flat on a table, it will be found quite convenient to mount the front wall of the safety compartment and the front panel of the receiver, which are of essentially the same height permitting the chassis to stand level on these parts with the bottom side up for convenient work.

Next assemble all coils except the high frequency coil assembly on the chassis, paying special attention to the location of terminals on coils that have no color code, and watching carefully to see that the position of the colors on color-coded terminal strips agrees with the position shown in the diagram. Check also to see that coils of correct part numbers are installed in their designated places.

The assembly of the two power transformers and the filter choke may well be delayed until late in the program since these items are heavy and not actually required until the wiring is almost complete.

Pick out on the Pictorial Wiring Diagram the long leads that connect items located considerable distances apart. These wires should be installed first, followed by the shorter wires.

The by-pass condensers may well be installed next, paying particular attention to the capacity and voltage ratings. Wherever one side of a by-pass condenser is connected to the chassis, it is recommended that the end so connected be the “Outside Foil” or the “Ground” end of the condenser. “Make Haste Slowly.”

After the by-pass condensers have been installed, the mica condensers and carbon resistors may be installed in any convenient sequence. The resistance or capacitance of these items, as the case may be, should be **very** carefully checked against the color code, which is explained in the sheet “General Construction Hints” packed with the kit. It is very easy to misinterpret the color code, therefore utmost caution is urged.

When all of the above work has been completed, the filter choke, low voltage and high voltage transformers should be installed. The high voltage transformer, which is mounted under the chassis, is connected to a rectifier tube mounted inside of the safety compartment. Leads from that transformer are heavily insulated to prevent accidental shock. **Great care should be exercised to see that the sleeving on these leads extends up through the rubber grommets and that the sleeving is adequately anchored above the grommet** by wrapping tape around the sleeving to prevent it from slipping back. **Do not connect the primary leads of the high voltage transformers until the voltage test is completed on the**

receiver. As an added precaution against accidental operation of the high voltage transformer the primary leads should be wrapped together and taped until such time as it is necessary to use the high voltage. The only remaining item, the High Frequency Coil Assembly, should now be installed and connected.

SAFETY SWITCHES

There are two safety switches furnished with the kit of parts. One is of conventional design, and is the primary interlock switch which opens the circuit from the A.C. line to the primary of the power transformers. The second switch short circuits the output of the high voltage power supply. Both of these switches operate whenever the cover is off the safety compartment.

The line safety switch is mounted on a pair of brackets so that it is recessed below the chassis an appropriate distance. Fig. 3 shows the assembly of this switch and its brackets. In order to insure permanent alignment of the parts it is recommended that the brackets be soldered to switch as shown. The actuator for the switch is attached to the Safety Cover in accordance with Fig. 4.

The high voltage shorting switch is of special design to arrive at an efficient unit that will satisfactorily withstand the high voltage employed in the Cathode Ray tube. The switch itself consists of two contact arms or springs which are in contact with each other whenever the cover is removed from the safety compartment. These springs mount on the terminals of the output filter condenser in accordance with the details shown in Fig. 5. The actuator for the switch is mounted on the inside of the safety cover and is shown diagrammatically in Fig. 4.

SAFETY SWITCH TESTS

Having installed two safety switches in a receiver, the constructor naturally has a feeling of complete protection, which may lead to his undoing unless he proves that the safety devices are functioning correctly.

With the line cord disconnected from the line, the cover to the safety compartment should be slid down as far as possible. By the time the cover is in its proper position, the line switch should have snapped on. When the cover is removed very slowly the line switch should snap off by the time the cover has been lifted about one inch. Try the switch with the fingers slowly to see that it always snaps regardless of how slowly the switch arm is moved.

The high voltage shorting switch should be tested for adequate pressure by attempting to push a thin piece of stiff paper or a playing card down between the springs. They should offer considerable resistance to the movement of the card. If the springs are not stiff enough they can be bent with a pair of pliers to give adequate stiffness to be perfectly sure that the springs will make good contact when the safety cover is removed.

A special recheck should be made of the connections between the line, the power transformers and the safety switch to avoid the possibility of the safety switch being inactive because of improper connections.

VOLTAGE TEST

If all connections are found to be correct, the most logical next step is to check the voltage that exists on each of the tube elements. Since one of the tubes to be checked has its socket inside of the safety compartment, the first checks should be made without the high voltage operating. In that manner, voltage tests on that tube can be made with safety.

With the primary of the high voltage transformer disconnected (and for safety's sake taped up) and with all tubes except the Cathode Ray Picture tube in place, turn the receiver upside down so that it will be convenient to work on and plug the line cord into a receptacle supplying 105 volts to 125 volts at 50 to 60 cycles. Turn the "Contrast Control" to its clockwise extreme of rotation. This turns the current on and adjusts the Picture I.F. amplifier for maximum gain. Turn the range switch to the counterclockwise extreme position (lowest band). The voltages between the various tubes elements and the chassis are listed in the table shown in Fig. 10. These measurements were made on the lowest possible range of a 0-705-75 300-600 voltmeter with a resistance of 1000 ohms per volt. All readings, unless marked negative, indicate that the tube elements are positive with respect to chassis by the amount shown.

A few important voltages that do not appear directly on any tube elements are shown on the Pictorial Wiring Diagram.

In order to measure the voltages on the 1852 Video amplifier it is necessary to remove the safety cover. Removing this cover opens the line switch so that it will be necessary to have someone hold the line switch closed while the measurements are made. **Before having someone hold down the safety switch be sure the high voltage transformer primary is disconnected. Note: Some of the electrolytic condensers in the Safety Compartment are several hundred volts from chassis potential.** Do not touch the containers at the time the chassis is touched if the voltage is on. As soon as the voltages are measured, restore the safety cover.

If the values measured are materially different from those shown on the Pictorial Diagram or in the table of voltages, turn off **the receiver, disconnect the power cord from the line, and recheck wiring.**

Having completed the voltage check satisfactorily it is time to connect the primary of the high voltage power transformer and to insert the Cathode Ray tube. The front end of this tube is supported by the heavy rubber bands supplied with the kit.

Fig. 6 shows two views of the completed receiver giving the name and location of each control. To start the receiver turn on the current by rotating the "Contrast Control" clockwise, but turn it only far enough to snap the line switch. After a brief warm-up period, the picture tube should show some kind of a rectangular pattern of light, even if there is no television signal on the air. If no light is visible on the picture tube turn the "Brilliance Control" clockwise until the picture tube shows some illumination. The "Framing Control" on the front surface of the safety box should be adjusted to center the rectangle of light on the screen of the picture tube. The "Picture Size Controls" should be adjusted until the rectangle of light occupies the desired area on the screen of the picture tube. Note: The speed controls have some effect on the size of the picture and the "Horizontal Size Control" will have some effect upon the Horizontal speed. When adjusting the synchronizing on a signal it may require several adjustments of the horizontal controls to obtain both proper speed and proper size. The vertical dimension should be adjusted to be approximately three-fourths of the horizontal dimension. If the bottom and sides of the rectangle of

light are not exactly horizontal and vertical respectively proper position may be obtained by rotating the picture tube. Note: The receiver should be turned off while the picture tube is being rotated. Sufficient allowance has been provided in the wiring and mounting of the picture tube to permit this limited rotation. The "Brilliance Control" should be set at the lowest value that will give satisfactory illumination. The "Focusing Control" should be adjusted until the lines in the rectangle of light are as clear and sharp as possible. The above preliminary adjustments are all that can be made until the I.F. and R.F. circuits are adjusted and until a signal is on the air. Once adjusted, the picture size and centering controls seldom need readjustment.

Should the picture tube fail to behave as described above, disconnect the power cord, open the Safety box and carefully examine the wiring for possible short circuits, open circuits, or incorrect connections. Note that the screen may not show a solid rectangle of light until the speed controls are adjusted. If the speed controls are set to far from their proper position there may be wide spaces between lines. These gaps can be eliminated by rotating the speed controls and are automatically eliminated when the sweep circuits are synchronized with the transmitter. The rectangle of light will also show diagonal bright lines but these are suppressed entirely by the blanking impulse in the picture signal, which completely darkens the tube momentarily as the beam retraces to start a new line or a new frame.

ALIGNMENT

The alignment of this television receiver is similar in many respects to the alignment of a Superheterodyne with the exception that the peaks on the circuits are not sharp since the receiver must pass a very wide band of frequencies in order to give satisfactory detail. The instruments required are possessed by practically every reasonably well-equipped Service Man. An oscillator covering at least the range 5 MC to 15 MC with an output voltage of .15 to .2 volts (150,000 to 200,000 microvolts) and an output meter having a low scale of 1.5 volts form a good combination.

The first step in aligning the receiver is to **disconnect the primary of the high voltage power transformer.**

The second step is to attach an output indicator to the Picture channel. Since the picture channel has very little amplification following its detector it is a convenient aid in alignment to add to the picture channel the amplification available in the Sound Audio System. This temporary change in the circuits can be made by running a wire from the junction of the two 15-7501 chokes through a coupling condenser of any convenient capacity between .01 and .25 MFD to the high end of the audio volume control which is terminal nearest the speaker. The lead already connected to this lug is permitted to remain. The output meter should be connected between plate (No. 3 pin) and screen (No. 4 pin) on the 6V6G tube socket with a blocking condenser of any convenient capacity between 0.1 and 1.0 MFD in series. (No leads are removed from the socket when making these connections.)

The third step is to loosen the adjusting screws on all of the adjustable trimmer condensers mounted on the bottom of the Picture I.F. transformers. These trimmers should be set approximately 5 turns from the tight position.

The fourth step is to remove the 6J5 high frequency oscillator tube.

The fifth step is to connect the signal generator and begin the actual adjustment. The low potential or ground side of the generator output should be connected to chassis and the high side connected through a blocking condenser of .01 MFD capacity (or greater) to the grid (pin No. 4) of the second Picture I.F. amplifier tube. No connections need to be removed when making this temporary connection. The generator should be set to 12.75 MC, the audio and contrast controls advanced to their clockwise extreme of rotation, the output of the generator turned up until a signal is audible and the adjusting on top of the 17-3463 transformer rotated for maximum output. The signal generator frequency should be shifting successively to both sides of 12.75 MC to see that the transformer shows only one hump in the selectivity curve. If more than one hump is evident, the adjustable trimmers should be opened several turns more and the transformer again realigned for maximum output. Having obtained a single hump at 12.75 MC the adjustable condenser should be screwed in slowly meanwhile shifting the generator frequency until a second hump appears in the selectivity curve. Still further increase the adjustable capacity until one hump moves down to 10 MC. The other hump will not have shifted noticeably.

The signal generator high potential lead should now be shifted to the grid (No. 4 terminal) of the first Picture I.F. amplifier tube and the second Picture I.F. transformer aligned in the following manner. Set the signal generator to 12.75 MC and adjust both adjusting screws in transformer No. 17-3462 for maximum output. Slowly increase the capacity of the ceramic base coupling condenser on the bottom of the I.F. transformer until again two humps are obtained in the response curve, one at 10 MC and the other at 12.75 MC exactly in the same manner as the output picture I.F. transformer was adjusted. Note that if one peak is materially higher than the other, a slight readjustment of the four adjusting screws will permit the high peak to be reduced somewhat and the low peak to be increased a little. When the adjustment is completed so far, remove the leads connecting the signal generator to the grid of the first Picture I.F. tube and prepare to align the input picture I.F. transformer.

First turn the adjusting screw in the 14 MC trap (part No. 15-7500) until it is as far out as possible and the adjusting screws of the second I.F. transformer No. 17-3464 and the sound input grid coil No. 17-3467 are as far in as possible.

At the grid of the mixer tube disconnect the lead that runs from the grid (No. 4 pin) to the high frequency coil assembly. Temporarily connect any convenient resistor of 10,000 or more ohms from the grid to the wire just removed and connect the signal generator between chassis and the grid of the mixer tube through a blocking condenser of any convenient capacity above .001 MFD. The leads used for connecting the generator to the receiver should be shielded when aligning the mixer stage to avoid regeneration.

Temporarily connect across the secondary terminals (green and yellow dots) of the interstage picture I.F. transformer No. 17-3462 and across the primary terminals (blue and red dots) of the output picture I.F. transformer No. 37-3463 resistors of approximately 2000 ohms each.

Set the generator at 12 MC *not* 12.75 MC and turn the adjusting screws of the input picture I.F. transformer No. 17-3461 for maximum output. Now slightly increase the capacity of the coupling condenser but in this case the capacity should be increased only enough to cause the selectivity curve to lose its sharpness and begin to show evidence of flattening out as the generator is shifted above and below the 12 MC setting. If the amplifier starts to oscillate as the input picture I.F. transformer is brought into alignment, the contrast control can be rotated slightly to reduce the gain of the amplifier but the gain should not be reduced if shielding on the leads to the receiver will stop the oscillation. Finally the two 2000-ohm resistors temporarily installed should be removed. A check of the selectivity of the entire amplifier should now show a peak at 10 MC and at 12 MC and the response should be fairly uniform between peaks with the amplification about one-half as much 12.75 MC as it is at 12 MC. If these results are not obtained, the curve shape can be altered by slight readjustment of any or all of the six adjustments concerned.

If the output of the signal generator cannot be reduced sufficiently to give a convenient indication on the output meter, the audio gain being used may be reduced by moving one end of the temporary lead (between the 25-7301 choke and the audio volume control) from the volume control to grid (pin No. 5) of the 6V6G sound output tube, thus removing the gain of the 6SQ7 first audio tube.

The generator should next be set at 14.25 MC and the trap 15-7500 adjusted for minimum response. This trap really need not be adjusted unless there are two stations on adjacent television channels receivable at the location of the receiver. If any difficulty is encountered in getting enough signal to properly adjust this wave trap, and only one station is receivable the coil may be left with its adjusting screw all the way out.

The generator should next be set for 8.25MC and the sound I.F. transformer No. 17-3464 and the second grid input circuit No. 17-3467 adjusted for maximum response. The two heavy wires extending away from the terminal strip of transformer 17-3464 constitute a small coupling condenser of a capacity too small to be obtained in a condenser of more conventional construction. They may be moved closer together to expand the sound I.F. channel if desired.

The over-all picture selectivity curve should again be checked to see that adjusting the sound trap and sound I.F. system has not changed the picture selectivity curve shape, and if it has changed the adjustments may be touched up again to obtain the best picture selectivity curve shape.

The leads from the signal generator to the grid of the mixer should be removed and the connection from the mixer grid to the coil assembly restored to its original condition. The temporary connection from the junction of the two No. 15-7501 chokes in the sound volume control should be removed.

Plug in the 6J5 oscillator tube and the receiver is ready for operation. The antenna coil trimmers and the mixer grid trimmer shown in Fig. 8 may best be adjusted on an actual television signal since few generators will reach the television frequencies and still fewer have a frequency calibration that can be relied upon at such frequencies. An antenna of the general characteristics discussed in the section “Antenna” should be connected to the two end terminals on the antenna strip and a ground connection attached to the middle terminal. A television signal should be tuned in as described in “Operation” and the antenna and mixer grid circuit alignments touched up. This adjustment is best made with an insulated screwdriver since the capacity of the screwdriver is appreciable compared to the tuning capacities employed.

ANTENNA

The most satisfactory and the only recommended antenna for this receiver is a short doublet antenna. There are several commercial antenna kits available that are very convenient to assemble and install, and which give excellent results. The dealer from whom this receiver was purchased probably has complete information on them. If you desire to make your own antenna, directions are given herewith. Excellent results can be obtained from either type of antenna if the following considerations are followed.

With television antennas the important points to consider are:

1. To place the antenna as far as possible away from automobile traffic, elevator control panels, diathermy machines, and any other type of electrical equipment that may produce interference.

2. To place the antenna in a position that is, if possible above all surrounding objects. It should not be in the radio shadow of any large building, bridge, trestle or similar structure, in other words, there should be no tall metallic structure between the antenna and the transmitter, especially if the obstruction is close to the antenna, in which case it will cast a deep shadow, that is, give very low signal.

3. To make the antenna length the optimum for the signal frequency to be received.

4. To point the antenna in the direction giving the best results. If the antenna is well up in the clear space the best position will usually be with the antenna wire at right angles to a line connecting the receiver and the telecasting station. If the antenna is between some tall buildings and the telecasting station, there may be both direct and reflected signals reaching the antenna. When this occurs there may be double images on the picture tube. The antenna usually can be then rotated until one of the images is very clear and the “echo” images disappear.

5. The directive property of the antenna can sometimes be used to advantage to cut out a strong source of interference, because the antenna receives poorly through a small angle on either side of the direction in which the antenna conductors point, but receives reasonably well for a large angle on either side of the line perpendicular to the direction of the antenna conductors. The region of poor reception frequently may be aimed at the interference (unless it is directly in line with the transmitting station) thereby greatly reducing the interference, yet receiving the desired signal with reasonable strength.

The following table gives the length of the antenna, over-all, for best reception of the different channels.

44-50 MC	119 inches
50-58 MC	105 inches
66-72 MC	81 inches
78-84 MC	69 inches
84-90 MC	64 inches

Where one antenna must work on several bands, the antenna length should be the average of the best working length for each of the desired bands or it should be adjusted to give greatest improvement to the station delivering the poorest signal.

The antenna itself can be made either self-supporting, in which case thin-wall metal tubes form the antenna conductors which extend out from a central insulating support, as in the case of several commercially available designs, or the antenna may be of ordinary wire supported on a simple wooden framework. Fig. 9 shows a suggested antenna construction.

Probably the most convenient plan is to make the antenna and lead-in one piece without any splices or soldered joints. The lead-in can well be the conventional two conductor twisted lamp cord available at almost every hardware or electrical supply store. The antenna can most conveniently be made by untwisting the required length of lamp cord and then winding the cord with strong string or tape to prevent further untwisting. The ends of the antenna wires should be fastened to porcelain insulators or equivalent.

The lead-in should run to the set in as short and direct a path as possible unless such a path passes through a zone of high interference, in which case a detour of reasonable length to avoid the interference is desirable.

Where the lead-in enters the house, a porcelain insulating tube is recommended. This tube should run uphill as it enters the house so that there will be no tendency for rain to run into the house after running down the lead-in. If the lead-in makes a small loop below the level of the outside end of the porcelain tube the rain should drip off this loop with practically no tendency to run into the porcelain tube.

RECEIVER LOCATION

The receiver should be located in a place where the screen of the picture tube can readily be seen by a group of people, and where the light is subdued. In direct sunlight the picture on the tube will hardly be discernible, in subdued light the picture will be clearly visible, but the optimum results will be obtained when the lighting corresponds closely to that very subdued light present in the average movie theater.

ADJUSTMENT OF PICTURE

When it is known that a picture signal is on the air, and the receiver has been aligned and the adjustments described under “Preliminary Adjustments” have been made, the “Television Station Selector” should be set for the channel on which the station telecasting, the “Contrast Control” advanced, and the “Vernier Control” tuned to produce a strongly mottled pattern on the picture tube. One speed control should then be slowly rotated until the mottled appearance of the screen begins to assume some semblance of stationary spots on it, then rotate the other speed control until the pattern stands still and a picture is visible. If there are two pictures, one above the other, the Vertical speed control should be rotated until there is only one picture. If the picture seems to be torn apart or to be slipping sideways, or if there are two pictures side by side, the Horizontal speed control should be turned to obtain proper operation. Detail in the picture may sometimes be improved by rotating the “Vernier Control.” Audio volume is controlled in the conventional manner by means of the “Sound Volume Control.”

PICTURE DEFECTS

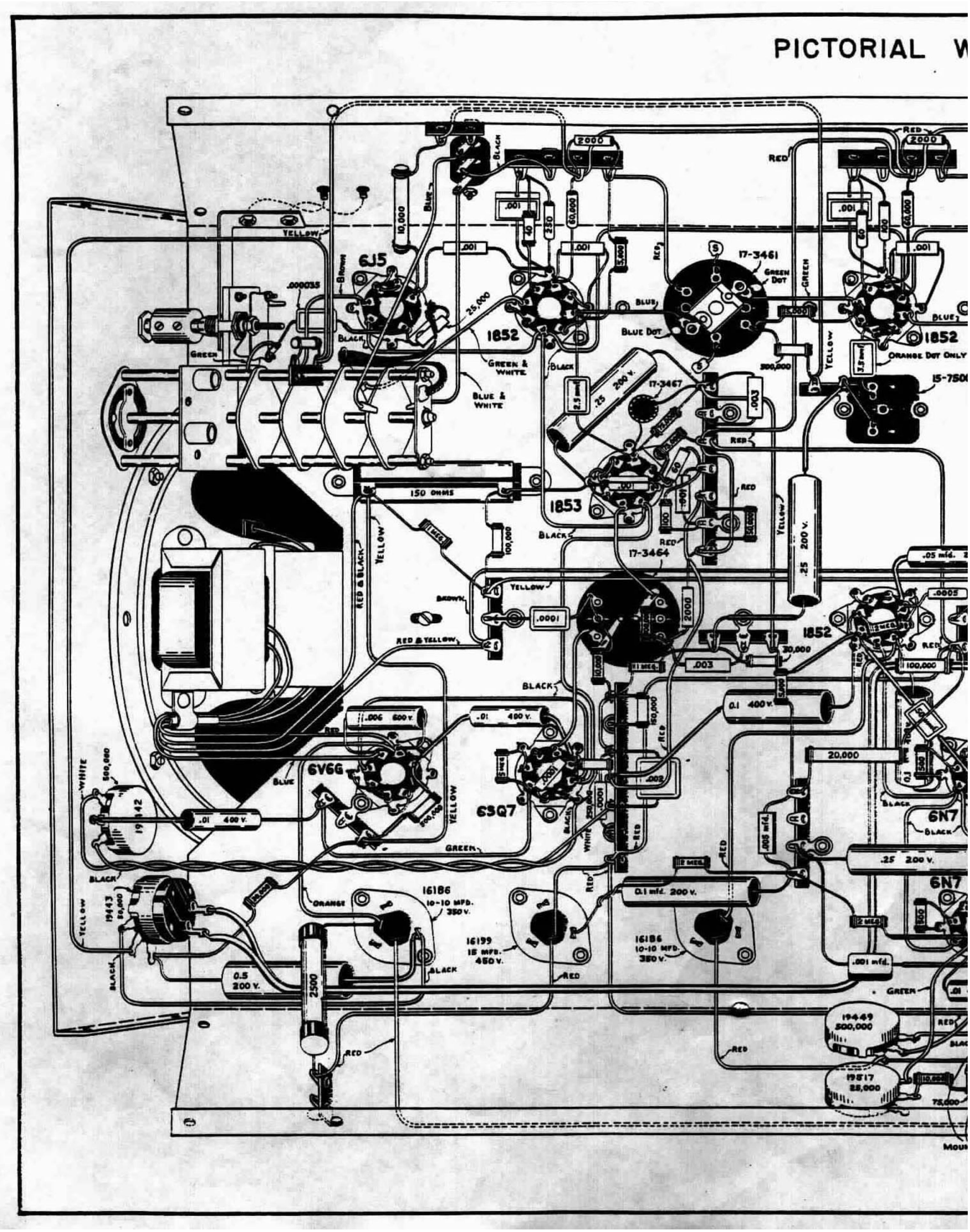
If the picture appears right side up but reversed right for left so that all printed matter is reversed, the leads from the Cathode Ray tube deflecting plates to the plates of the Horizontal amplifier have been interchanged. Reversing these leads at the plates of the horizontal amplifier will give correct scanning. If the picture is inverted, the leads to the Vertical amplifier have been reversed. Interchanging them at the plates of the vertical amplifier will turn the picture over.

The connections shown in the Pictorial Diagram are arranged for the picture to be in the proper position when viewed from the front of the receiver when the receiver is placed in the conventional position. If it is desired to view the tube by means of a mirror, the necessary reversal of picture can be accomplished as described above.

Numerous wavy lines in an essentially vertical direction are the result of interference. If the wavy lines appear and disappear in a reasonably rapid rate the interference may be from code transmissions. When code is suspected, it may readily be recognized by the pulsating appearance.

Picture distortion in the form of wavy lines that do not have the sharp definite pulses characteristic of code interference is sometimes present. It is probable that this interference is from some sound service such as speech or music. The simple circuit change employed to add the amplification and speaker of the sound system to the sight channel may be used to listen to the interference with the probability that it can be easily identified.

Distortion in the picture is sometimes the result of setting both the “Brilliance Control” and the “Contrast” too far clockwise. Readjusting both of these controls sometimes improves the picture quality. The best position for the “Brilliance Control” will usually be found most quickly by revolving the “Contrast Control” counterclockwise as far as possible without snapping the line switch off, and then adjust the “Brilliance Control” until the rectangle of light is just barely visible. Then advance the “Contrast Control” to obtain satisfactory picture reproduction. Before turning off the receiver, the “Brilliance Control” should be rotated to the extreme counterclockwise position.


PICTORIAL W
6J5
1852
1853
17-3461
17-3467
17-3464
15-7500
150 OHMS
6V6G
6SQ7
6N7
16186
10-10 MFD.
350 V.
16199
15 MFD.
450 V.
19442
19443
19449
500,000
19517
25,000
.25 200 V.
0.1 400 V.
0.1 mfd. 200 v.
.01 400 V.
.006 600 V.
0.5 200 V.
2500
20,000
.003
.0001
.001 mfd.
.05 mfd.
.005 mfd.
ORANGE DOT ONLY
BLUE DOT
GREEN DOT
RED & BLACK
RED & YELLOW
GREEN & WHITE
BLUE & WHITE
YELLOW
BLACK
RED
GREEN
BLUE
BROWN
ORANGE
WHITE

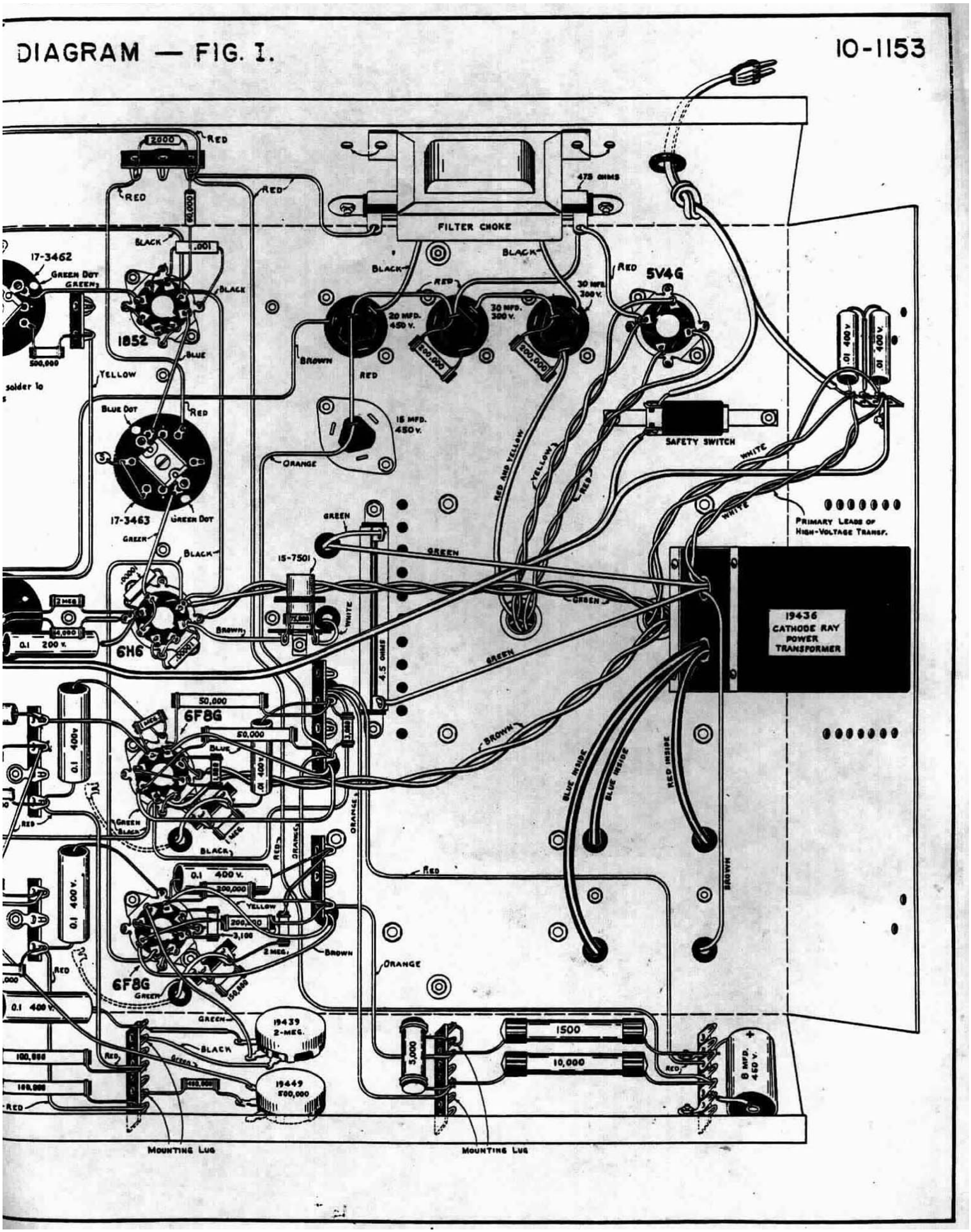
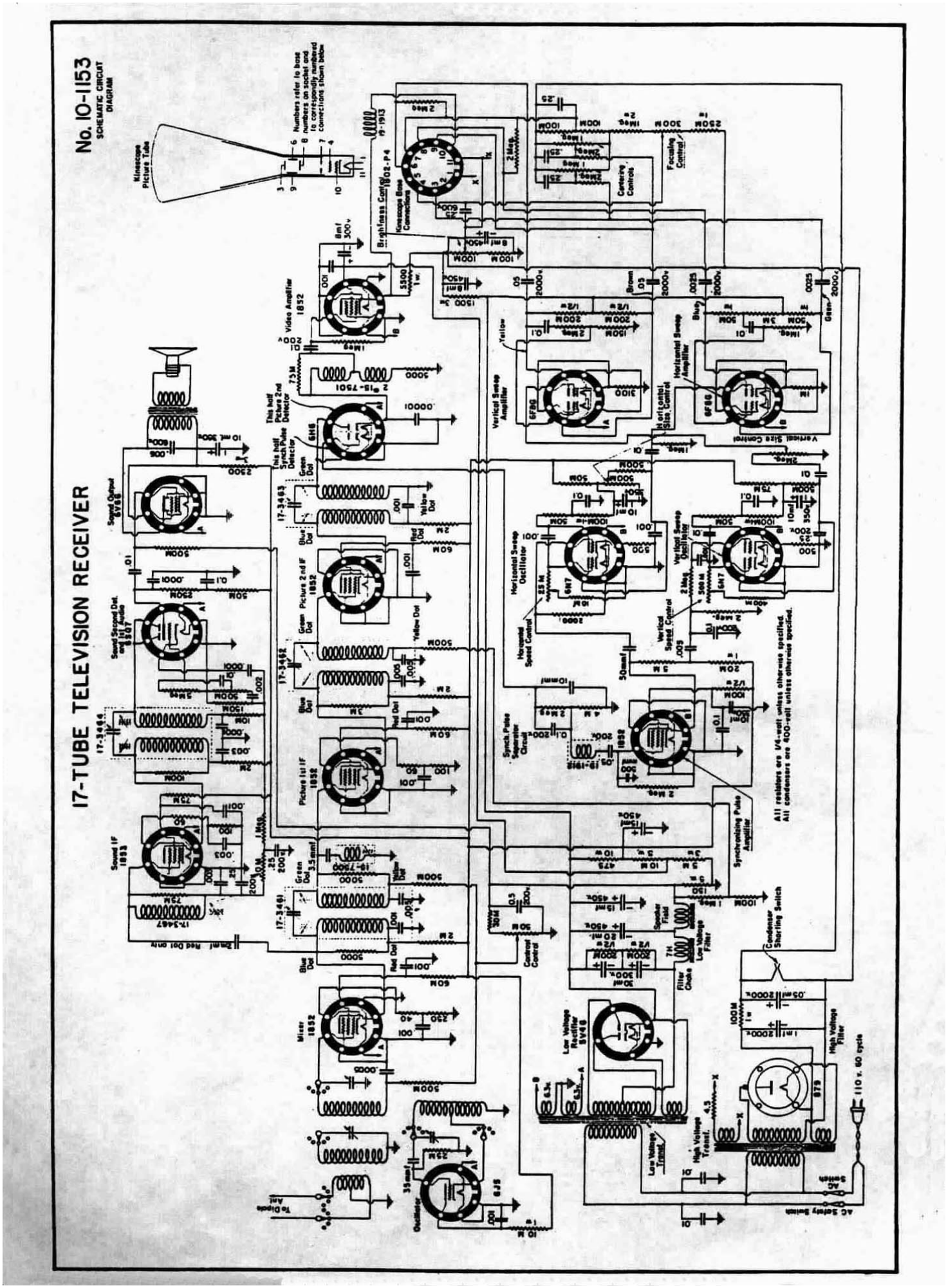


DIAGRAM — FIG. I.
10-1153
FILTER CHOKE
475 OHMS
5V4G
SAFETY SWITCH
PRIMARY LEADS OF HIGH-VOLTAGE TRANSF.
19436 CATHODE RAY POWER TRANSFORMER
17-3462
GREEN DOT
1852
17-3463
6H6
6F8G
15-7501
20 MFD. 450 V.
30 MFD. 300 V.
15 MFD. 450 V.
8 MFD. 450 V.
19439 2-MEG.
19449 500,000
1500
10,000
MOUNTING LUG
MOUNTING LUG


No. 10-1153
SCHEMATIC CIRCUIT DIAGRAM
17-TUBE TELEVISION RECEIVER
Kinescope Picture Tube
Numbers refer to base numbers on socket and to correspondingly numbered connections shown below
Brightness Control
Kinescope Base Connections
Video Amplifier 1852
Sound Output 6V6
Sound Second Det. and 1st Audio 6V6
Sound IF 1853
Picture 2nd IF 1852
Picture 1st IF 1852
Mixer 1852
Oscillator 6J5
This half Picture 2nd Detector
This half Synch Pulse Detector
6H6
Vertical Sweep Amplifier
Horizontal Sweep Amplifier
Horizontal Sweep Oscillator
Vertical Sweep Oscillator
Synchronizing Pulse Amplifier
Synch Pulse Separator Circuit
Low Voltage Rectifier 5V4G
High Voltage Rectifier 879
Low Voltage Transf.
High Voltage Transf.
Low Voltage Filter
High Voltage Filter
Filter Choke
Speaker Field
Condenser Shorting Switch
Focusing Control
Centering Controls
Vertical Size Control
Horizontal Speed Control
Vertical Speed Control
Vertical Hold Control
Contrast Control
To Diode Ant.
AC Safety Switch
110 v. 60 cycle
All resistors are 1/4-watt unless otherwise specified.
All condensers are 400-volt unless otherwise specified.

SAFETY COMPARTMENT

10-1153

PICTORIAL WIRING DIAGRAM

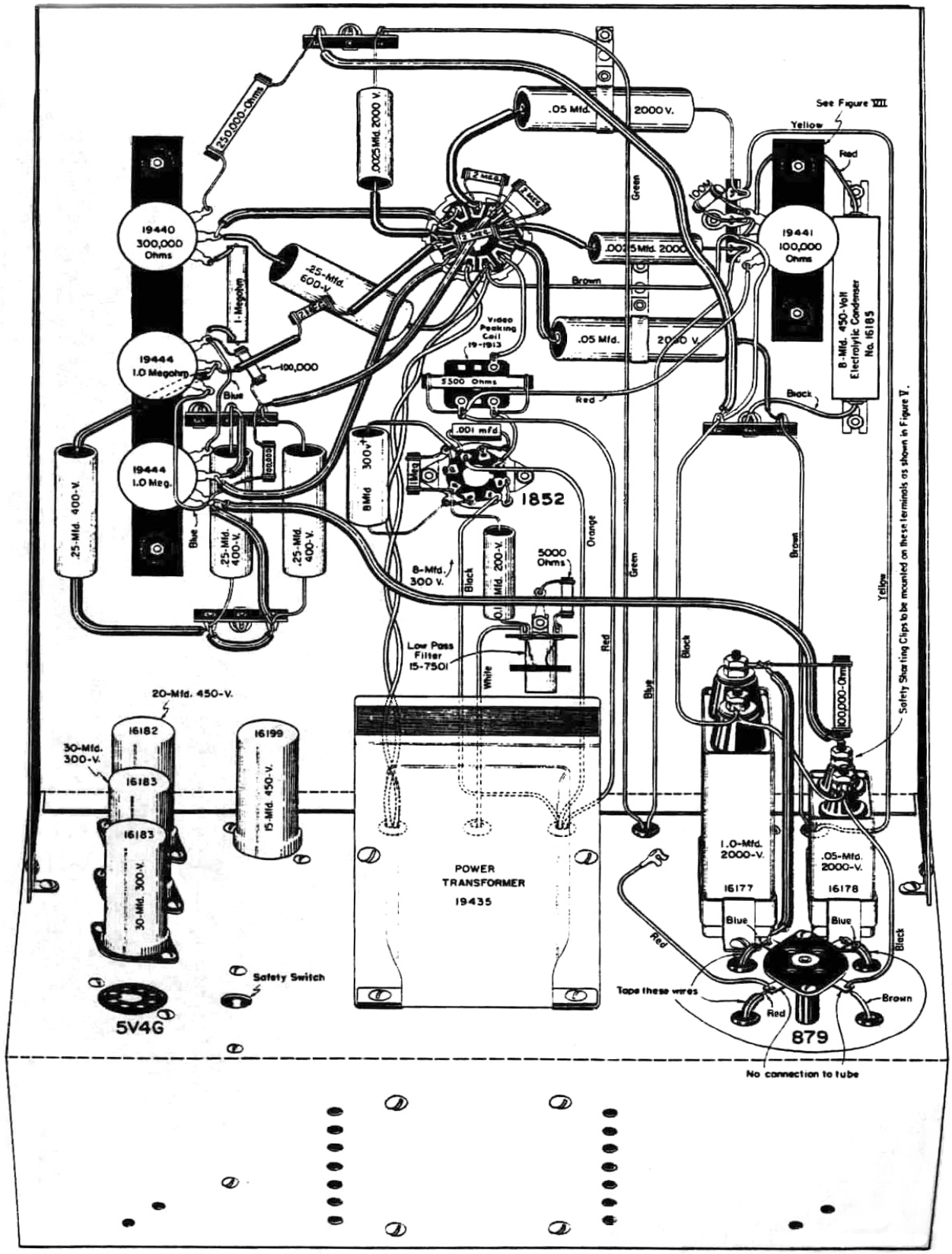


FIGURE II

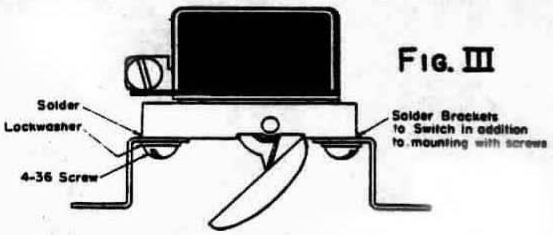


FIG. III

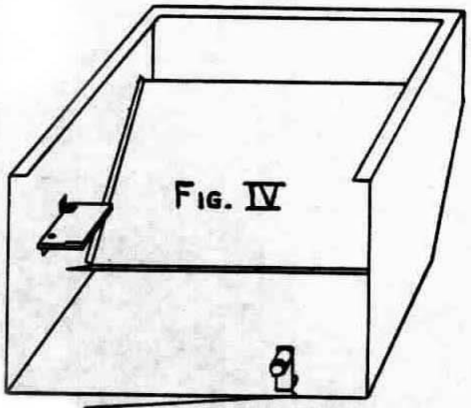


FIG. IV

External tooth lockwasher to be placed between bracket and safety cover.

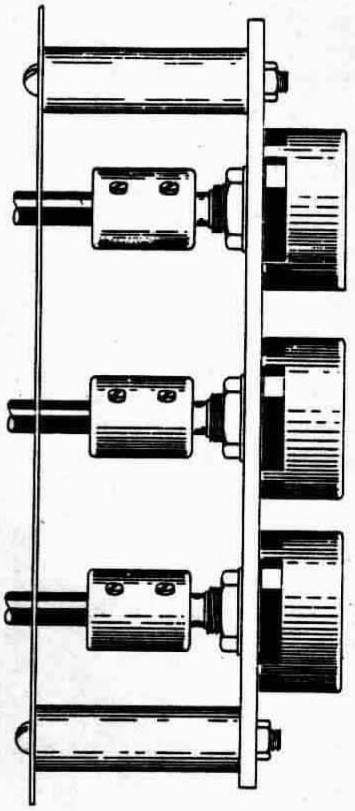


FIG. VII

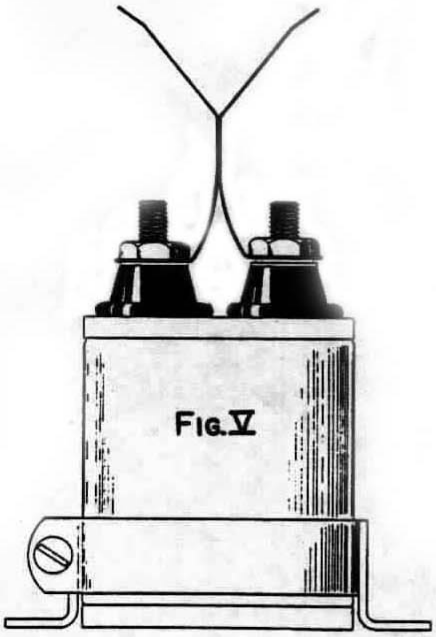


FIG. V

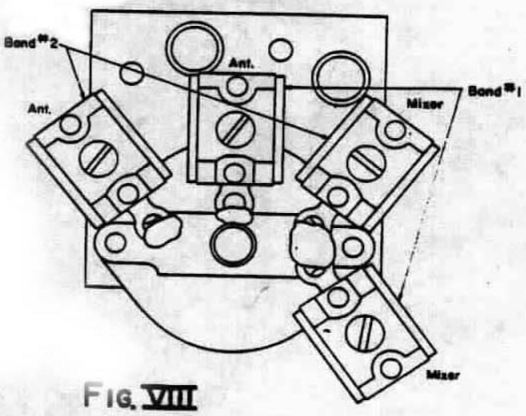


FIG. VIII

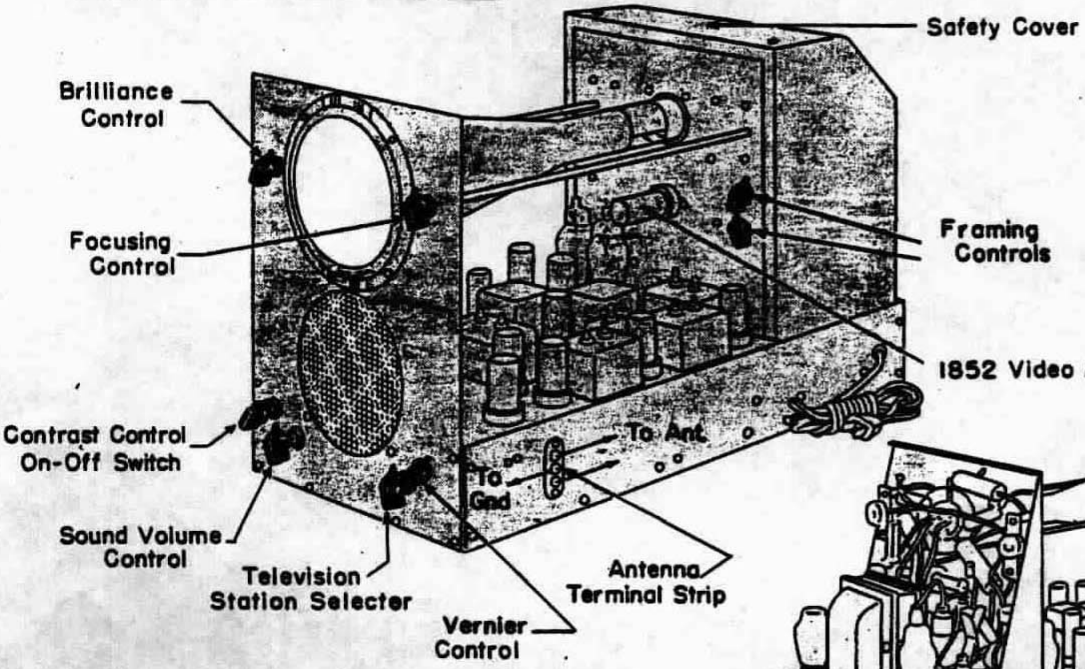
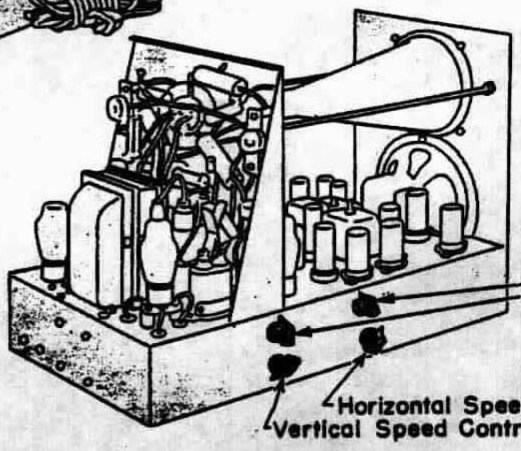


FIG. VI



VOLTAGE CHART

Pin No.	6J7 Osc.	1852 Mixer	1852 1st IF	1852 2nd IF	1853 Sound IF	6SQ7 Sound Det.	6V6G Sound Output	6N7 H Osc.	6N7 V Osc.	6F8G H Amp.	6F8G V Amp.	1852 Video Amp.	1852 Sync Amp.	6H6 Picture Det.	5V4G L.V. Rect.
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	AC	0	0	0	0	AC	0	0	AC	AC	AC	0	0	320
3	180	0	0	0	0	0	240	10[x]	22[x]	150	130	0	0	0	NC
4	NC	0	0	0	0	0	250	0	0	6	5-1/2	0	0	0	400[xx]
5	-1	3	2	0	1.5	0	-1/2	0	0	0	0	0	0	0	NC
6	NC	130	130	130	140	80	NC	40[x]	37[x]	150	130	85	70	NC	400[xx]
7	AC	0	AC	AC	AC	AC	0	AC	AC	0	0	0	AC	AC	NC
8	0	260	260	260	260	0	0	1/2	1/2	6	5-1/2	250	100	0	320

NC=No connection x=75 ranges on meter xx=Voltage from plate to center tap of transf. secondary

FIG. X

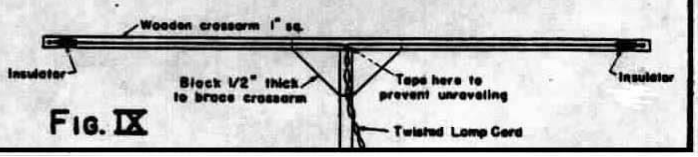


FIG. IX