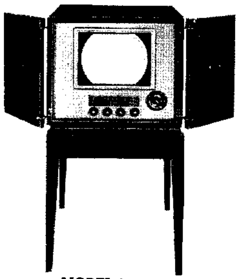
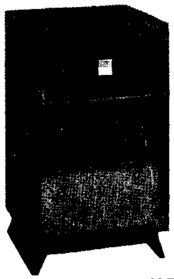
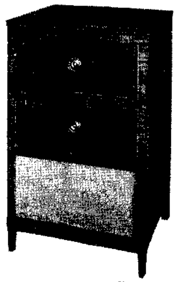
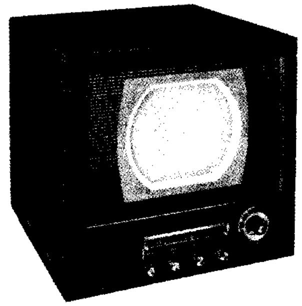
MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H


MODEL 9100-A


MODELS 9100-B & 9100-D


MODEL 9100-C


MODELS 9100-E & 9100- F

CAUTION

HIGH VOLTAGES are used in the operation of this receiver. The back cover, while in place, prevents accidental contact with this voltage and therefore should not be removed by anyone except a qualified television serviceman.

THE HIGH VOLTAGE LEAD, which supplies approximately 10,000 volts to the picture tube, should be shorted to the chassis whenever it is disconnected for service purposes. This discharges the high voltage filter condensers and prevents a shock hazard when working on the receiver after it has been turned off.

THE PICTURE TUBE is highly evacuated and if broken, glass fragments will be violently expelled. Scratching, chipping, undue pressure, or careless handling such as lifting the tube by its neck is dangerous and should be avoided. If it is necessary to handle the picture tube, use safety goggles and heavy gloves. Be sure to discharge the voltage developed across the capacitor formed by the inner and outer coating of the picture tube. This can be done by connecting the high voltage socket on the tube to the outer coating with a well insulated metal conductor.

POWER REQUIREMENTS
117 volts   60 cycles   210 watts

ANTENNA INPUT IMPEDANCE
300 ohms—Balanced to ground

SENSITIVITY
R.F. and I.F.—Inject signal at antenna terminals to produce 1 volt across video detector load resistor. Generator must be connected to antenna terminals with a 150 ohm carbon resistor in series with each lead to simulate proper impedance match.

Low Band {Average—75 microvolts; Range—25 to 100 microvolts}

High Band {Average—150 microvolts; Range—100 to 200 microvolts}

Sound System—Inject 4.5 megacycle frequency modulated signal (400 cycle modulation) at grid of video amplifier and measure output at speaker voice coil. An input of 920 microvolts will produce approximately 50 milliwatts or 0.42 volts across speaker voice coil.

INTERMEDIATE FREQUENCIES
Sound Carrier—22.25 Mc.
Picture Carrier—26.75 Mc.

I.F. SYSTEM
Four Stage—Stagger tuned

FOCUS
Magnetic

DEFLECTION
Magnetic

HIGH VOLTAGE POWER SUPPLY
R.F. type

SPEAKER
P.M. Dynamic

Model	Size	V.C. Imped.
9100-A	5"	3.2 ohms
9100-B, 9100-C, 9100-D	6" x 9"	3.2 ohms

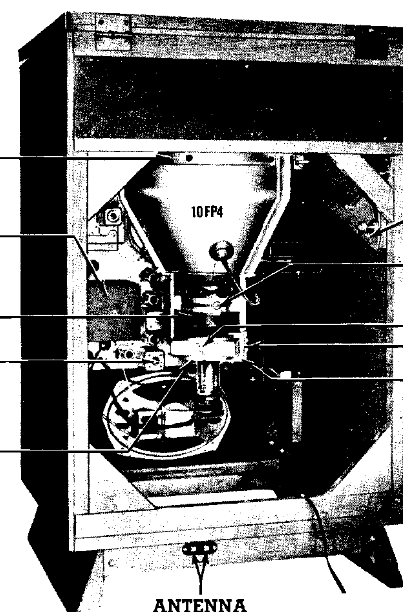
The engineering technique applied in the design of these receivers derives optimum performance from carefully constructed and thoroughly reliable electronic circuits of the most advanced types for television application. When properly installed in an area of normal signal strength, these receivers will reproduce transmitted telecasts with outstanding picture brilliance, definition and stability. Identical circuit arrangement and chassis construction are utilized on all four models, and operation is simplified by grouping of preset and operating controls on the front panel of the receiver.

An R. F. Tuner Unit and High Voltage Power Supply are the two major sub-assemblies which are incorporated in the chassis. Separate mounting of a Selenium Rectifier Unit, as well as the picture tube, deflection yoke and focus coil, permits liberal spacing of chassis components, low operating temperature and provides a convenient and safe arrangement for removal and servicing of the major assembly.

Twenty-five tubes are utilized solely for reproduction of the visual and aural portions of the television broadcast. In addition, a heavy duty transformer and three selenium type rectifiers, noted for their reliability and long life, provide power for operation of all stages.

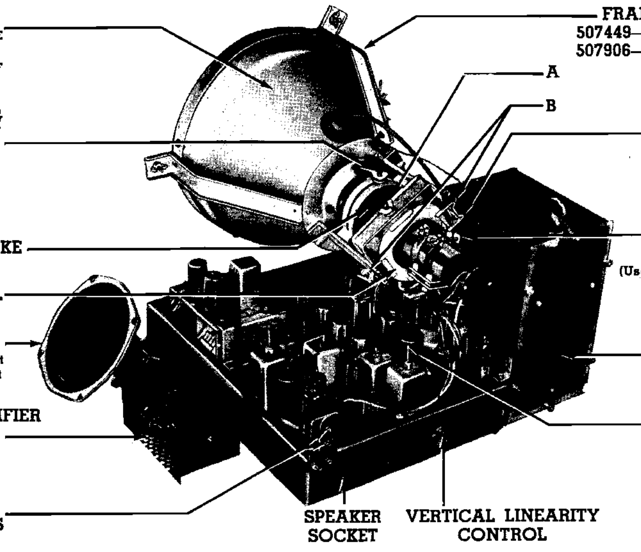
Outstanding circuit features of the receivers include a high gain R.F. tuner which is noted for its stability and rugged mechanical construction, an inter-carrier sound system which is free from distortion normally caused by oscillator drift, automatic frequency control of the horizontal sweep circuit, and automatic gain control of the R.F. and video I.F. stages. Turret type construction of the R.F. tuner unit, plus individually removable coils, achieves an unusually rugged but easily serviced assembly.

The reflector system used on models 9100-B, 9100-C and 9100-D is designed so as to obtain optimum results from an enlarging lens which can be placed directly on top of the picture tube escutcheon. These lens can be obtained from Stewart-Warner in kit form (part #507200) and are supplied with matching wood frames. To provide additional brightness, which is desirable in this type of reflector system, the newly developed 10FP4 high brilliance picture tube with aluminum backed screen is used to give maximum light reflection from the fluorescent viewing surface.

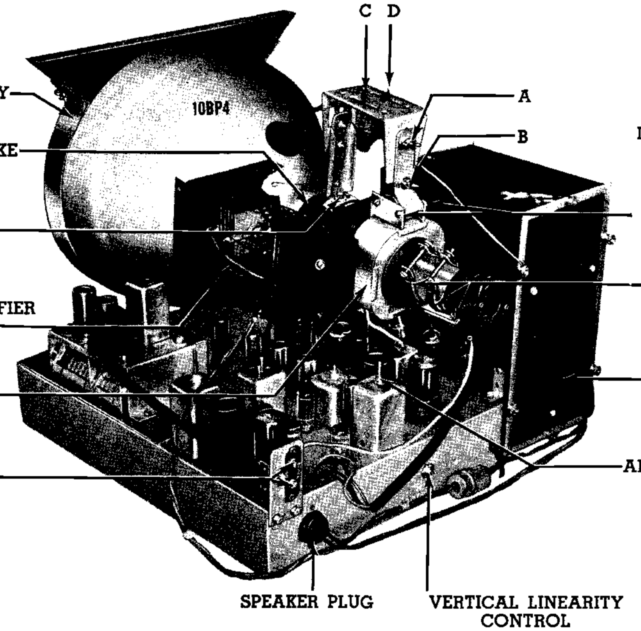


REAR VIEW OF CONSOLE MODEL

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H



CHASSIS AND PICTURE TUBE ASSEMBLY



MODEL 9100-A CHASSIS AND KINESCOPE ASSEMBLY

INSTALLATION OF ANTENNA SYSTEM

To properly install an antenna system it is necessary to have some method of communication from the antenna site to the receiver. This communication should be established before the final antenna site has been chosen. A pair of interconnected telephones may be used to conveniently accomplish this purpose. **Do not use the antenna transmission line as the means of interconnecting these telephones.**

TYPE OF ANTENNA—Unlike the ordinary broadcast receiver, the proper selection and installation of the antenna system is one of the most important factors influencing picture quality. It is necessary to have an antenna system with a broad frequency response characteristic whose impedance closely matches the input impedance of the receiver. Stewart-Warner Folded Dipole Antenna Systems (506700 and 505300) have been especially designed to match Stewart-Warner television receivers and to obtain high operating efficiency in the present television transmitting frequency ranges of 54 to 88 Mc. and 174 to 216 Mc. In general, the folded dipole will give excellent results without the addition of a reflector element. However, in cases where reflected signals cause "ghosts" or where the received signal is weak, the addition of reflector element (505301) will improve performance by increasing the antenna directivity and overall gain.

In localities where both high and low band Television Stations are in operation and where these stations are not situated in directions which will permit optimum orientation of a single dipole antenna, use of the Stewart-Warner Combination Hi-Lo Band Antenna System is advantageous (see Figure 1). The Standard single dipole antenna system 505300 can be readily converted to a combination Hi-Lo band system by the addition of Stewart-Warner High Band Adapter Kit 506666.

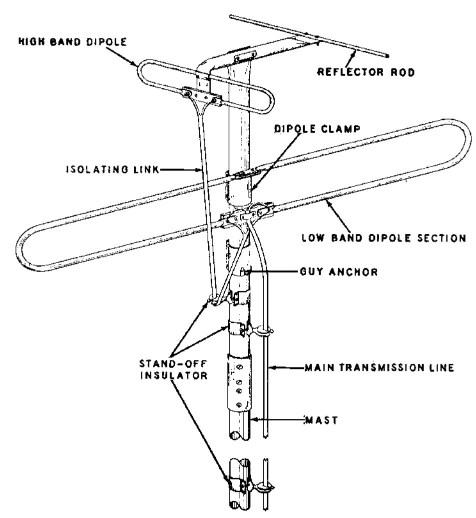


FIG. 1
STEWART-WARNER 506700
TELEVISION ANTENNA SYSTEM

USE OF INDOOR ANTENNA—An indoor antenna may be used quite successfully under certain conditions if the erection of an outdoor antenna is prohibited or is impractical. Where the station signal is of adequate strength and relatively free of any strong reflections from surrounding wall surfaces, then an indoor antenna should yield satisfactory reception. Stewart-Warner Indoor Antennas, 507450 (retractable rod type) or 507999 (slide rule type), have been specifically designed for indoor use with this receiver.

ANTENNA ASSEMBLY—Complete assembly and installation instructions accompany each outdoor type antenna kit and these instructions should be followed very carefully. Indoor antennas are supplied completely assembled.

LOCATING THE ANTENNA—Before attempting to install the antenna it is essential to carefully select a position which allows the following conditions to be fulfilled:

1. Absence of obstructions between the proposed antenna site and the transmitting antenna such as buildings, trees, power lines, other nearby antenna systems, etc.
2. Maximum distance between proposed antenna site and sources of electrical noise such as might originate in ignition systems, elevator relays, diathermy and X-ray machines and arcing from electrical transit systems. Several of these conditions preclude the possibility of mounting the antenna near the edge of the roof adjoining a heavy traffic street even though this site may be preferable with respect to length of antenna lead-in.
3. Greatest possible height above ground level. In general this will allow the antenna to overcome such obstructions as are mentioned in Item 1.

After choosing the antenna site in accordance with the above conditions, make an actual test with the receiver to be sure that a satisfactory picture can be obtained from all transmitting stations before attaching the mast to the building. This is facilitated by the use of an intercommunication system between the man on the roof and the man observing the receiver performance in the home. Although there are a wide variety of intercommunication systems that may be used, the simplest and most reliable is a pair of inter-connected telephones. **Avoid using the antenna transmission line as the means of interconnecting these telephones.**

It is often possible to obtain considerable improvement in performance by moving the antenna location a small distance from the original site. This final test for the most desirable antenna location becomes vitally important in areas where signal strength is low or where reflections from surrounding surfaces produce multiple transmission paths, thereby creating multiple images or "ghosts" on the picture screen.

In areas where the signal strength is sufficient, it may be possible to install the antenna in the attic provided the roof is not made of metal or insulated with metal foil. Should there be any indication that the signal strength is inadequate, the indoor antenna installation should not be attempted and an outdoor antenna is definitely recommended.

If the transmitted signal strength is low and surrounding surfaces cause reflections, or sources of electrical disturbances are present, then proper orientation of the antenna becomes of equal importance with the matter of selecting the correct location.

ORIENTATION—Since the response of a dipole antenna has a directional characteristic it is now necessary to orient the antenna for the position that will give the best receiver performance. Here again it is necessary to maintain direct communication with the man observing receiver performance.

In the case where the ignal is to be received from only one transmitter, the problem of orientation is relatively simple. Since the dipole is least responsive in the two directions in which the rods are pointing, the antenna should in general be placed broadside to the transmitter. However, in cases where picture quality is affected by reflections or electrical disturbances picked up at the antenna, the directional characteristic of the antenna may be used advantageously by pointing the rods in the direction of the disturbance. By so doing, the disturbance effect will be minimized and picture quality improved even though the antenna broadside is no longer facing directly toward the transmitter.

In certain areas, where surrounding objects make "line of sight" reception from the transmitter impossible, satisfactory receiver performance may often be attained by orienting the antenna so that it faces broadside to the strongest reflected signal. Under conditions of this type, best reception is not always obtained with the antenna rods in a horizontal plane or with the mast in a vertical position.

In areas where a number of Television Stations exist, the problem of orientation becomes more complicated and requires very careful consideration. In such a case, it is necessary to orient the antenna so as to obtain equally satisfactory reception from all stations. Relative signal strength of different stations may require that considerable antenna misdirection be tolerated with regard to a high power transmitter in order to favor reception from a low power transmitter.

Should the situation be encountered where it is necessary to orient the antenna for stations operating in both the low and high bands, the Stewart-Warner Combination Antenna System (506700) can be used advantageously. It will be found that the low band dipole can be rotated independently of the high band so as to facilitate solution of these orientation problems.

Final position of the antenna can be determined only by observing the quality of the picture on the receiver screen.

MOUNTING—Various methods for mounting the antenna mast may be used. Several preferred methods are illustrated in the figures included in the Installation Instructions for Stewart-Warner Television Antenna Systems.

When using brackets to attach the mast to a wall, be sure that the wall surface of the building is in good enough condition to withstand the strain of supporting the mast and antenna. Spacing between these brackets should be sufficient to hold the mast rigid and should be in proportion to mast height. It is of utmost importance that the mast brackets grip the mast securely to prevent rotation of the antenna due to severe wind storms.

When making a flat roof installation, be sure that the mounting base plate is of sufficient size to prevent shifting of the lower end of the mast. Make sure that the guy wire anchor points are secure and spaced approximately 120° apart. The guy wire clamp holes should point radially outward to the anchor points to prevent a twisting torque on the mast which might cause the antenna to rotate. Turnbuckles placed in each guy wire are recommended for a more rigid installation.

SAFETY AND LIGHTNING PROTECTION—The antenna system should be installed in conformance with local building and fire regulations. Every precaution should be taken to adequately secure the mast to the building to avoid danger of antenna falling from the roof—use of guy wires is recommended wherever deemed necessary as an additional safety measure.

A degree of lightning protection may be obtained by connecting a heavy copper conductor between the aluminum mast of the antenna and a good ground.

SELECTING, ROUTING AND SECURING TRANSMISSION LINE—A properly selected and installed transmission line is as important to the quality of the antenna system as the antenna itself. An improperly installed line causes reflections and high losses. Reflections in the line make it impossible to obtain clear pictures, and in severe cases, the reflections cause "smears" so that the picture appears out of focus even though the receiver is perfectly focused. In general, the longer the transmission line, the more care required in installation.

Television receiver models 9100-E and 9100-F have a 300 ohm input circuit which is balanced to ground and intended for connection to a 300 ohm antenna system. All Stewart-Warner Folded Dipole antenna systems have a characteristic impedance of 300 ohms and thus will provide optimum results when connected to the receiver with "Ribbon Type" transmission line having a like impedance rating. Failure to observe proper impedance match between antenna, transmission line and receiver will result in less energy delivered to the receiver and undesirable effects of noise and interference may be accentuated.

Types of Transmission Line—Low loss "Ribbon Type" (300 ohm) transmission line is intended for use in a normal installation. However, under conditions where man-made interference may be picked up by the transmission line itself, shielded cable may be used to alleviate this condition. It is recommended that twin conductor RG-22/U cable be used if shielded transmission line is required. This cable is balanced with respect to ground and its characteristic impedance (95 ohms) can be readily matched to receiver input with a minimum of signal loss—see section entitled "Matching Shielded Cable to Receiver."

Single conductor coaxial cable should not be used for connection of a folded dipole antenna system to a receiver with a balanced input system as the cable would then be susceptible to pick-up of external interference.

Length of line—The length of the transmission line should be kept as short as possible. The longer the line, the greater the opportunity for man-made electrical disturbance to introduce undesirable effects. Attenuation of the line, though low, will reduce the energy fed to the receiver in direct proportion to length.

Splicing the Line—If it becomes necessary to splice on an additional length of Ribbon Type line, care should be exercised to avoid a mismatch at the splice. This is done by stripping the two lines back about ½ inch and then twisting the respective conductors together so that the insulation of one butts directly against the insulation of the other. If the splice is made with too large or too small a space between parallel wires, the line impedance will be changed at this point and serious reflections may occur. The twisted pairs should be soldered, avoiding excessive heating which will soften the insulation. Clip the protruding solder joints short and cover the splice with an insulating tape intended for high frequency purposes. Splicing of RG-22/U shielded cable is not recommended—use special connectors available for that purpose.

Routing and Securing—It is well to carefully consider the best route for the transmission line with respect to length and electrical disturbance shielding. A compromise must usually be made on the length so as to be able to take advantage of the shielding effect of the building against such disturbances as ignition noise and arcing from electrical transit systems. Whenever possible, the line should be run in a vertical direction so that rain, sleet, and snow will have less tendency to cling to it. If a horizontal run is necessary, it should be made under an eave or other protection. **Never run the line inside of metal pipes.**

The transmission line must not be allowed to make extensive contact with any surface (especially metal) and for this purpose, special stand-off insulators are supplied with the Stewart-Warner Television Antenna Kit. These insulators provide a means of supporting the line as well as maintaining proper spacing from surrounding surfaces. They may be screwed directly into wood without the aid of any other mounting device; however, when mounting in brick or stone it is necessary to use some type of expansion plug. If the weight supported by these stand-offs is small, the plug hole may be drilled in the mortar provided that this mortar is well bonded. It is preferable to drill the plug holes in the brick or stone proper, making sure that these holes are deep enough to accommodate the full length of the plug. After inserting the line in the slot of the stand-off insulator, the metal band around the insulator should be bent inward so that the insulator grips the transmission line and supports it in both the vertical and horizontal direction. The line should be pulled tight so that a heavy wind will not cause it to swing against surrounding objects.

Occasionally it will be physically impossible to install a stand-off insulator on the edge of a protruding parapet. Under such conditions it will be necessary to place some form of abrasion-resistant sleeving around the transmission line, holding it in place with tape. In locations where electrical noise creates an interference problem, the noise pick-up may be minimized by twisting the line about one turn per foot between the supporting stand-off insulators.

Various methods of bringing the transmission line into the house will occur to the installation man and consequently no specific instructions will be given. Irrespective of the method selected, best practice requires that precautions be taken to minimize contact of transmission line with surrounding surfaces and to properly seal the point of entry with a suitable mastic. Do not attempt to use any special lead-in devices at the window.

After the line has entered the home it should be routed by the shortest possible path to the receiver, taking special precautions to avoid contact with pipes, radiators or other metal objects. The line should preferably be supported by indoor type stand-off insulators as it is routed around the floor molding of the room. However, it may be tacked to the molding if run is short and relatively few tacks are required. Allow the line to droop away from the molding between supporting tacks for best efficiency.

Connecting Line to Receiver—A terminal strip such as shown at the bottom of Figure 2 will be found on the rear of the chassis on Receiver Models 9100-E and 9100-F (see Figure 10). Connect the transmission line to these terminals. Under certain conditions improved reception results from reversing the connection of the line to these terminals, so it is suggested that picture quality be observed for both conditions before making a permanent connection of the transmission line. When using RG-22/U shielded cable, connect the shield to chassis (see Figure 2).

MATCHING SHIELDED CABLE TO RECEIVER—Where it is necessary to use RG-22/U shielded cable to minimize pick-up of external electrical interference, this cable should be matched to the receiver by a special impedance matching network (consisting of three **carbon** resistors) as illustrated in Figure 2—**Do not use wire wound resistors.** In exceedingly low signal strength areas the signal loss in the resistor matching network may make it advisable to dispense with the network and effect direct connection of the cable to the receiver antenna terminals, thereby tolerating the effects of the mismatch.

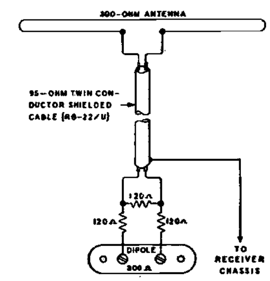
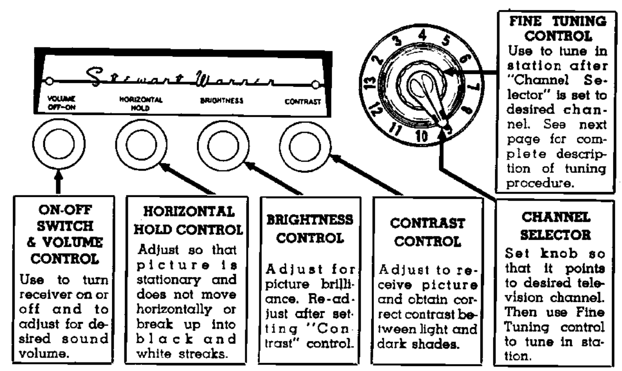


FIG. 2
MATCHING NETWORK FOR RG-22/U CABLE

RECEIVER CONTROLS

FIG. 3
OPERATING CONTROLS



The various controls on the receiver may be divided into two classes, Operating and Preset. Operating controls are those which control program selection as well as sound and picture quality. These controls are located on the front panel and their functions are indicated in Figure 3.

The Preset controls are those which require adjustment at the time the receiver is installed and they rarely need attention thereafter. There are six of these controls, one of which is located at the back of the chassis (see Figure 10). The remaining five controls are accessible by removing the name plate escutcheon and the channel number escutcheon from the front panel (see Figure 5).

CONTROL ADJUSTMENT PROCEDURE

CAUTION

This television receiver contains circuits which produce high voltages. Exercise care to avoid contact with the high voltage terminal of the Kinescope.

The picture tube is highly evacuated, and if broken, glass fragments will be violently expelled.

Adjustments of the focus coil or deflection yoke position should be made carefully to avoid undesirable strain on the neck of the tube.

Although the preset controls have been factory adjusted for optimum performance, it is usually necessary to make some fine adjustments of these controls at the time of installation.

To gain access to the centering adjustments (and ion trap used on Model 9100-E only), it will be necessary to remove the back cover of the cabinet by taking out the screws around the rim.

Be sure that locking device used to hold the focus coil in position during shipment, is removed before attempting to reposition that coil as described in the following procedure. Instructions for removal of the locking device were given on the first page of this pamphlet.

The receiver is now ready for an operational check; proceed as follows:

1. **SETTING BRIGHTNESS AND CONTRAST CONTROLS**—Turn both of these controls to the fully counter-clockwise position so that intense illumination of a small area of the screen is avoided when receiver is first turned on.

2. **TURN SET ON**—Rotate the "On-Off Switch and Volume" knob approximately ¾ turn clockwise to turn set on and obtain sufficient sound volume during the tuning process. Allow several minutes for all tubes in the receiver to warm up and for circuits to stabilize before attempting to obtain a picture on the screen.

3. **ADVANCE BRIGHTNESS CONTROL**—Turn "Brightness" control clockwise until picture screen is moderately illuminated. In the case of Model 9100-E the screen may remain dark or dimly illuminated until ion trap is adjusted as described in next step.

Should it be noted that a semi-circular portion of the raster is not illuminated, that condition may be disregarded as it will be corrected by subsequent adjustments.

4. **ADJUST ION TRAP (Model 9100-E Only)**—The ion trap is located on the neck of the picture tube as shown in Figure 10 and consists of two magnets held in position by metal bands. The magnet identified by the **black** band must be in the rear position.

Loosen the two clamp screws which secure the ion trap to the tube neck. Then rotate the entire trap assembly while sliding it back and forth until picture tube screen is illuminated to maximum brilliance. Reduce "Brightness" control setting and repeat this operation to assure accurate positioning of ion trap.

5. **ADVANCE CONTRAST CONTROL**—Rotate the "Contrast control knob fully clockwise.

6. **SET CHANNEL SELECTOR TO DESIRED CHANNEL**—The "Channel Selector" knob points to numbered positions corresponding to the station channel number. The following table lists all authorized television channels and their corresponding frequency band.

STATION CHANNEL NUMBER	FREQUENCY BAND
2	54 to 60 Mc.
3	60 to 66 Mc.
4	66 to 72 Mc.
5	76 to 82 Mc.
6	82 to 88 Mc.
7	174 to 180 Mc.
8	180 to 186 Mc.
9	186 to 192 Mc.
10	192 to 198 Mc.
11	198 to 204 Mc.
12	204 to 210 Mc.
13	210 to 216 Mc.

Set the "Channel Selector" knob so that it points to the channel number for any local television station that is known to be broadcasting at the time. Then use the "Fine Tuning" control (illustrated in Figure 3) to obtain the correct tuning point for both picture and sound. That is accomplished as follows:

a. Turn "Fine Tuning" control in either direction until sound volume is maximum—if sound cannot be heard, advance the volume control and repeat fine tuning. If sound still cannot be heard, refer to step 7.

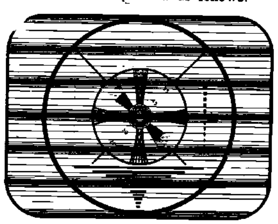


FIG. 4—SOUND-INTERFERENCE CAUSED BY INCORRECT TUNING

b. When the point of maximum sound volume has been reached it will be noted that the picture has a "ragged" or "sawtooth" appearance or is partially obscured by "sound bars" (dark horizontal bars of varying width—see Figure 4) moving vertically across the screen.

THE CORRECT SETTING OF THE FINE TUNING CONTROL is now obtained by turning it away from the maximum volume position only far enough to eliminate the "sound bar" interference and permit sharp reproduction of the picture. If an image is slightly distorted or tears into a series of black and white streaks as shown in Figure 6, reduce the setting of the "Contrast" control and operate the "Horizontal Hold" control knob until picture appears stable and undistorted.

7. **AUXILIARY FINE TUNING ADJUSTMENT**—If it is found that the tuning range of the "Fine Tuning" control is inadequate to permit correct tuning of a station in its assigned channel, then adjustment of the "Auxiliary Fine Tuning" screw will be necessary. This special screw is accessible after removal of the channel number escutcheon as shown in Figure 5. That can be accomplished by first taking off the "Channel Selector" knob and then the "Fine Tuning" knob by merely pulling them forward. Grasp rim of escutcheon to pull it away from the cabinet.

Adjustment of the "Auxiliary Fine Tuning" screw may now be undertaken in accordance with the following procedure.

a. Set "Channel Selector" to desired channel; then remove this knob as well as the "Fine Tuning" knob and channel number escutcheon.

b. Note location of "Auxiliary Fine Tuning" adjustment screw on receiver chassis—see Figure 5. Also note that as the main tuning shaft (outer brass shaft) is rotated, the tongue of a bakelite disc moves in front of the opening for the "Auxiliary Fine Tuning" screw. This disc should be positioned (by turning the brass shaft) so that the tongue of the bakelite disc is just approaching the lower side of the opening as illustrated in Figure 5.

c. Using a thin screwdriver (preferably non-metallic), adjust the setting of "Auxiliary Fine Tuning" screw for correct tuning of the desired television station—**CAUTION: Do not attempt to rotate this screw more than two full turns in either direction, as further rotation may release it from the thread clip within the tuning mechanism and the chassis would then have to be removed from the cabinet in order to restore the screw to the correct position.** If a metal screwdriver is used, detuning occurs when the screwdriver is removed but it will be noted that this degree of detuning can now be compensated by re-setting the "Fine Tuning" control (brass shaft). Thus the range of the "Fine Tuning" control (after knob is replaced on the shaft) will be adequate to tune in the station.

d. This completes the adjustment of the "Auxiliary Fine Tuning" screw for one channel. Identical screws are provided on each channel and they are all accessible thru the same opening in the tuning mechanism as each successively moves into position when the "Channel Selector" knob is rotated.

e. When replacing the channel number escutcheon, it should be installed on the cabinet **so that channel #4 is at the very top position.** Failure to observe this requirement may permit the escutcheon numbers to be incorrectly indexed with the positions of the "Channel Selector" mechanism.

8. **SOUND VOLUME**—Adjust the setting of the "Volume" control by rotating it clockwise until the sound accompanying the television broadcast is received at a satisfactory level.

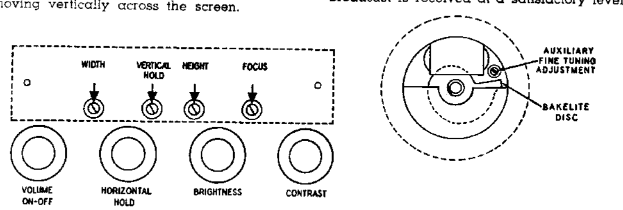
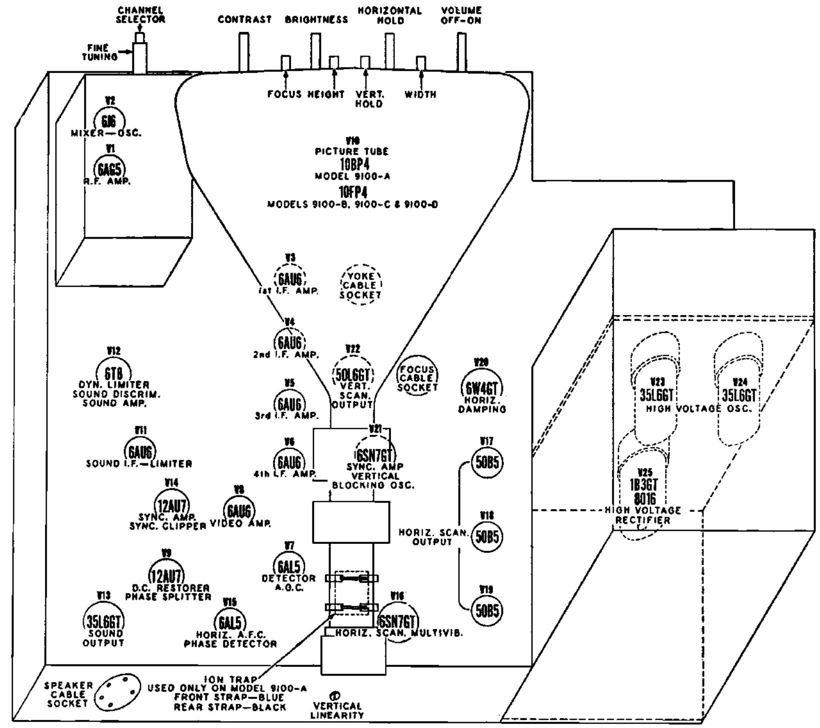
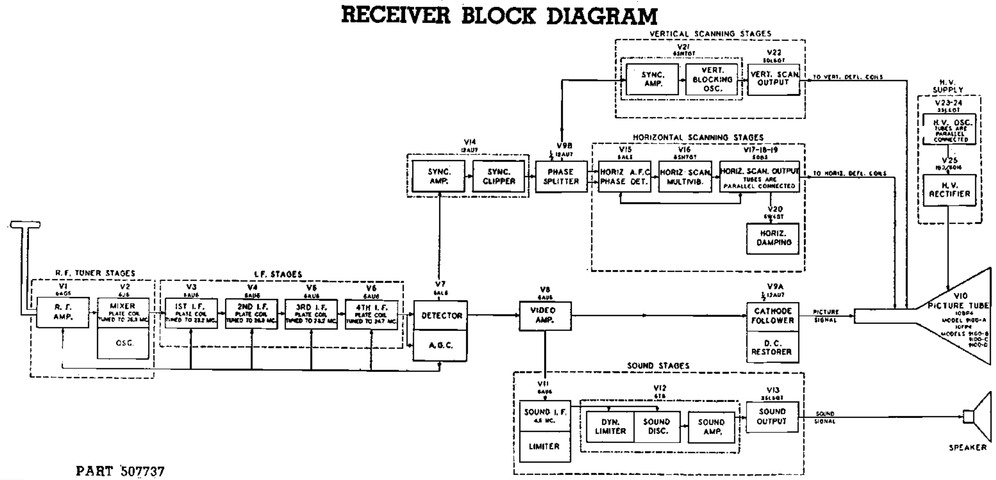


Fig. 5—LOCATION OF PRE-SET CONTROLS

TUBE LOCATIONS AND FUNCTIONS



RECEIVER BLOCK DIAGRAM



PART 507737

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

ALIGNMENT

Alignment of all RF and IF tuned circuits in this receiver may be accomplished by utilizing the procedures described in the following charts.

SEQUENCE OF ALIGNMENT: These procedures should preferably be applied in the order in which they are presented however, alignment of the Sound Channel or IF Channel may be accomplished individually if desired.

The RF Amplifier and Mixer alignment may also be accomplished independent of Sound or IF Channel alignment, but oscillator calibration can only be done after IF Channel has been correctly aligned. Proper IF band pass characteristic is necessary for Oscillator alignment as results of RF circuit tuning are observed by means of an oscilloscope connected to the output of the detector stage.

REMOVAL OF CHASSIS: The receiver chassis must be removed from the cabinet in order to accomplish alignment of all tuned circuits as there are adjustment points located on the underside of the unit.

On table models the chassis and selenium rectifier assembly should be removed from the cabinet without disturbing the picture tube or speaker. Inter-connection of focus coil, yoke, picture tube, speaker and chassis may be conveniently achieved by using special extension cables which are available for service purposes. These cables can be obtained through the nearest Stewart-Warner distributor by ordering as follows:

507443 High Voltage Ext. Cable & Plugs.
507444 Deflection Yoke Ext. Cable & Plugs.
507445 Picture Tube Ext. Cable & Plugs.
507446 Focus Coil Ext. Cable & Plugs.
507447 Speaker Ext. Cable & Plugs.

On console models the picture tube must be removed from the cabinet before the chassis can be taken out. The picture tube, yoke, focus coil and support frame can be removed as a complete assembly by taking off the wing nuts which hold the frame to top panel of cabinet. Allow speaker to remain in the cabinet. After picture tube and chassis have been removed it will be convenient to inter-connect all units by means of the special extension cables listed above.

CAUTION

The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Handle with care, using safety goggles and gloves. Avoid contact with high voltage terminal at side of tube even after it has been disconnected from the receiver—this precaution is necessary as inner and outer coatings on the tube form a capacitor which may carry a high voltage charge for an extended period of time after disconnection from the receiver.

The metal plate which covers the side of the RF tuner unit must be removed for IF alignment as IF signal injection is accomplished at a terminal located behind this plate (see Fig. 9). That plate must be replaced when RF alignment is undertaken.

INSTRUMENTS: The following instruments will be required as signal sources and output indicators during the alignment process. Since accurate alignment of a television receiver is heavily dependent upon the performance of your instruments, it is imperative that they meet the essential specifications described here.

1. **STANDARD SIGNAL GENERATOR** to provide unmodulated (pure RF) signals at the following frequencies. Maximum output on all ranges should be at least .1 volt with provision for attenuation as desired. This instrument must have good frequency stability and be accurately calibrated. Generators which incorporate a separate crystal controlled oscillator and heterodyne circuit are self calibrating and therefore capable of providing the accuracy of frequency calibration required for television circuit alignment.
   a. IF Frequencies:
      4.5 Mc. Sound Channel
      22.25 Mc. Sound IF marker
      22.4 Mc. IF Trap Coil
      23.2 Mc. 1st and 3rd IF stages
      24.7 Mc. 4th IF stage
      26.3 Mc. Converter and 2nd IF stages
      26.75 Mc. Picture IF marker
   b. RF Frequencies:
      54 to 88 Mc.
      174 to 216 Mc.
2. **RF SWEEP GENERATOR** to provide frequency modulated signals at the following frequencies:
   4.5 Mc. with 500 Kc. sweep width.
   20 to 30 Mc. with 10 Mc. sweep width.
   54 to 88 Mc. with 10 Mc. sweep width.
   174 to 216 Mc. with 10 Mc. sweep width.

   Output adjustable with at least .1 volt maximum.

   Output should be "flat" (no amplitude variation) for all settings of the sweep width control.

   Provision for connection of generator sweep modulating voltage to horizontal deflection system of an oscilloscope.

   Provision for blanking the output signal on each return sweep so that oscillogram will not show retrace.
3. **CATHODE RAY OSCILLOSCOPE**, preferably a unit with vertical amplifier having wide range frequency response and low capacity pick-up probe.
4. **VACUUM TUBE VOLTMETER.** The lowest voltage range of this instrument should preferably permit a 1.0 volt reading to be indicated at not less than one third of full scale deflection.

INSTRUMENT CONNECTIONS: The method of connection, including details of matching and coupling networks, for instruments used used in this alignment procedure is given in Figs. 7 to 10 inclusive. Specific instructions for each instrument application will be found in various sections of the alignment charts.

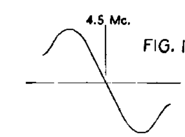
GENERAL INSTRUCTIONS: When aligning IF and RF circuits it is necessary to apply a fixed bias voltage to the AGC system of the receiver. This fixed bias is obtained by using a 1½ volt battery and connecting it as described in Fig. 12.

IMPORTANT

When observing the receiver band pass characteristic on an oscilloscope, it is exceedingly important to avoid distortion of that characteristic which would occur when using a large input signal from the sweep generator or standard generator (marker signal). Always set attenuator on sweep generator so that the reading on the vacuum tube voltmeter does not exceed one volt (when meter is connected from high side of contrast control, symbol 213, to receiver chassis). Standard generator output should also be attenuated so that marker signal does not pull or tear the band pass characteristic as shown on the 'scope.

SOUND CHANNEL ALIGNMENT PROCEDURE

1. Set Contrast control in maximum counter-clockwise position. Other controls may be left at any desired setting.
2. Set receiver Channel Selector to any inactive television channel; also connect a jumper wire between antenna terminals at rear of chassis.
3. A special aligning tool, designed to fit the stems on adjustable cores in the sound take-off transformer, as well as the other IF coils (see points 3, 4, 6, 7, 8 and 9 in Fig. 11) is available and may be obtained from Stewart-Warner by requesting IF Alignment Tool #507479.

STANDARD SIGNAL GENERATOR		SWEEP GENERATOR		VTVM CONNECTIONS	OSCILLOSCOPE CONNECTIONS	MISCELLANEOUS INSTRUCTIONS	TRIMMER OR SLUG	TYPE OF ADJUSTMENT AND OUTPUT INDICATION
CONNECTIONS	FREQUENCY	CONNECTIONS	FREQ.					
Connect as shown in Fig. 7.	**4.5 MC.** (unmodulated) IMPORTANT This signal must be accurate within ¼ of 1% of 4.5 Mc. Check generator calibration against a crystal controlled signal source by "zero beating" (heterodyning) with harmonics of the crystal frequency.	Connect as shown in Fig. 7 and keep instrument power switch turned off during this step.	—	Connect from pin 2 of 6T8 tube to chassis. "Common" or "ground" lead of VTVM must connect to receiver chassis.	Not used	—	#1 Discriminator Secondary	Adjust for maximum reading on VTVM. It will be noted that there are two settings of this slug which will give maximum output indication. Set slug for second peak as screw is turned clockwise (slug furthest in-to discriminator can).
							#2 Discriminator Primary	Adjust for maximum reading on VTVM. There are two settings of this slug which will give maximum output indication. Set slug for first peak as screw is turned clockwise (slug furthest out of discriminator can).
							#3 Sound Take-off Transformer	Adjust for maximum reading on VTVM.
							#4 Sound Take-off Transformer	Adjust for maximum reading on VTVM.
Same as above	Same as above	Same as above	—	Connect "common" or "ground" lead of meter to junction of the two 18K ohm resistors (#274 and #275) in sound discriminator load circuit (see point "W" on circuit diagram). D. C. probe lead of meter should be connected to junction of 22K ohm resistor (#226) and 1500 Mmfd. condenser (#227) in discriminator output circuit (point "X" on circuit diagram).	Not used	—	#1 Discriminator Secondary	Note that as slug #1 is rotated, a point will be found where the voltmeter will swing rather sharply from a positive to a negative reading or vice versa. The correct setting of slug #1 is obtained when the meter reads zero as the slug is moved thru this point.
Same as above	Same as above	Connect as shown in Fig. 7 and set controls for operation as specified in next column.	**4.5 MC.** Sweeping ± 250 Kc.	Not used	Use coupling network as shown in Fig. 8. Connect vertical amplifier "high" lead in series with the 10K ohm resistor to junction of 22K ohm resistor (#226) and 1500 Mmfd. condenser (#227) in discriminator output circuit (point "X" on circuit diagram). Connect 'scope ground lead to receiver chassis. — Set vertical amplifier of 'scope for maximum amplification.	Synchronize oscilloscope with sweep generator by connecting "horizontal input" terminals of 'scope to source of horizontal sweep modulating voltage on the sweep generator.	A pattern similar to that shown in Fig. 1 should appear on the oscilloscope screen. Check for symmetry about the 4.5 Mc. center point and linearity of the slope for at least 50 Kc. on either side of this point.  FIG. 1 SOUND DISCRIMINATOR RESPONSE CURVE	If the characteristic is not shaped properly, attempt to obtain symmetry by changing the setting of slug #1. Should that fail to produce the desired results, then a slight readjustment of slugs #3 and #4 should be undertaken.

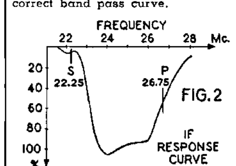
MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

IF CHANNEL ALIGNMENT PROCEDURE

1. Turn receiver Channel Selector to television channel #12 and short antenna terminals together with a jumper wire.
2. Remove metal plate which covers side of RF tuner unit nearest edge of chassis. This plate is held in place by two screws on the upper surface of the tuner.
3. Connect a 1½ volt battery to the receiver AGC system so that negative terminal of battery connects to the AGC line and positive terminal of battery connects to receiver chassis. See Fig. 12 for convenient point of connection.
4. Note location of IF Trap Coil #10 by referring to Fig. 12. Before undertaking the alignment of any of the IF stages, Trap Coil #10 must be detuned so that it does not resonate in the IF pass band. Detuning is accomplished by merely compressing the windings so that they are closely spaced. Failure to detune the Trap Coil can cause the IF system to become regenerative thereby preventing alignment.
5. If the IF channel is badly misaligned and two or more immediately adjoining IF stages are tuned to the same frequency, oscillation may occur. Such oscillation shows up as a voltage across the Contrast control and is indicated by the VTVM that is connected to this point during alignment. It should be noted that voltage due to IF oscillation is unaffected by strength of signal from the generator.

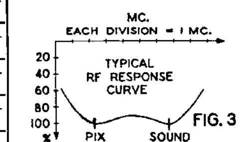
Where IF oscillation is encountered, it is generally possible to correct the condition by detuning the IF coils in different directions. If that does not have the desired effect, increase fixed bias on AGC line by using a 3 or 4½ volt battery instead of the 1½ volt battery referred to in instruction #3. After stopping the oscillation in this manner it will then be possible to align all IF stages using the following procedure, however, the AGC bias battery must be changed back to 1½ volts when using the oscilloscope to observe band pass characteristic. Once all stages have been aligned using the 3 to 4½ volt bias, the IF channel should be stable with reduced bias.

6. A special aligning tool designed to fit the stems on adjustable cores of the IF coils (see points 6, 7, 8 and 9 in Fig. 11) is available and may be obtained from Stewart-Warner by requesting IF Alignment Tool #507479.

STANDARD SIGNAL GENERATOR		SWEEP GENERATOR		VTVM CONNECTIONS	OSCILLOSCOPE CONNECTIONS	MISCELLANEOUS INSTRUCTIONS	TRIMMER OR SLUG	TYPE OF ADJUSTMENT AND OUTPUT INDICATION
CONNECTIONS	FREQUENCY	CONNECTIONS	FREQ.					
Connect as shown in Fig. 9. Be sure to use 330 Mmf. isolating condenser.	26.3 MC.	Connect as shown in Fig. 9 but keep power switch turned off during this step.	——	Connect a 10K ohm resistor to probe lead of meter and then connect open end of this resistor to junction of peaking coil (#212) and Contrast control (#213) in detector plate circuit of 6AL5 tube, V7 (see point "Y"). "Common" or "ground" lead of VTVM must be connected to receiver chassis.	Not used.	——	#5 Converter plate coil	Adjust for maximum reading on VTVM.
							#6 2nd I.F.	Adjust for maximum reading on VTVM.
Same as above.	24.7 MC.	Same as above.	——	Same as above.	Not used.	——	#7 4th I.F.	Adjust for maximum reading on VTVM.
Same as above.	23.2 MC.	Same as above.	——	Same as above.	Not used.	——	#8 1st I.F.	Adjust for maximum reading on VTVM.
							#9 3rd I.F.	Adjust for maximum reading on VTVM.
Same as above.	22.4 MC.	Same as above.	——	Same as above.	Not used.	——	#10 IF Trap Coil.	Adjust the spacing of the Trap Coil windings for minimum reading on VTVM.
Same as above.	26.75 MC.	With connections made as shown in Fig. 9, turn on this generator and set controls for operation as specified in next column.	25 MC. Sweeping ± 5 Mc.	Same as above.	Use coupling network as shown in Fig. 8. Connect vertical amplifier "high" lead in series with the 10K ohm resistor to junction of peaking coil (#212) and Contrast control (#213) in detector plate circuit of 6AL5 tube, V7 (see point "Y"). Connect 'scope ground lead to receiver chassis.	IMPORTANT: 1. Adjust output attenuator on sweep generator so that reading on VTVM is one volt. 2. Set attenuator on standard signal generator so that marker signal does not distort the pattern on the oscilloscope. 3. Be sure that a 1½ volt battery is connected to AGC line as specified in instruction #3 at the head of this chart. Do not use a battery of any other voltage.		The IF band pass characteristic now displayed on the 'scope should be compared with the curve shown in Fig. 2. If top of curve is not properly shaped, make a slight readjustment of slug #7. Should that adjustment fail to yield the desired result, then note whether the curve has a peak on the high or low frequency side. Slugs #5 and #6 control high frequency response (26.3 Mc.) and slugs #8 and #9 affect the low frequency response (23.2 Mc.); by making a small change in the settings of the high or low frequency slugs, it will be possible to obtain correct band pass curve.  FIG. 2 The 26.75 Mc. picture IF carrier marker should now appear at the 50% amplitude position on side of the band pass characteristic (see Fig. 2). If position of the marker appears too high or too low, slight readjustment of slugs #5, 6 and 7 is required.
Same as above.	22.25 MC.	Same as above.	Same as above.	Same as above.	Same as above.	Same as above.		The 22.25 Mc. sound IF carrier marker should appear at the position indicated in Fig. 2. If the position of the marker is incorrect, readjust winding spacing of Trap Coil #10.

RF CHANNEL ALIGNMENT PROCEDURE

1. Replace metal plate which covers exposed terminal side of RF tuner unit. This plate was previously removed for IF channel alignment.
2. Connect a 1½ volt battery to the receiver AGC system so that negative terminal of battery connects to AGC line and positive terminal of battery connects to receiver chassis. (See Fig. 12 for convenient point of connection.)

STANDARD SIGNAL GENERATOR		SWEEP GENERATOR		VTVM CONNECTIONS	OSCILLOSCOPE CONNECTIONS	MISCELLANEOUS INSTRUCTIONS	TRIMMER OR SLUG	TYPE OF ADJUSTMENT AND OUTPUT INDICATION
CONNECTIONS	FREQUENCY	CONNECTIONS	FREQ.					
RF AMPLIFIER AND MIXER ALIGNMENT								
Connect as shown in Fig. 10.	*209.75 MC. †205.25 MC.	Connect as shown in Fig. 10 and set controls for sweep width of 10 Mc. on television channel specified in the next column.	CHANNEL #12	Not used.	Use coupling network shown in Fig. 8. Connect vertical amplifier "high" lead in series with the 10K ohm resistor to point "Y" on top of RF turret unit (see Fig. 11). Connect 'scope ground lead to receiver chassis.	IMPORTANT: Keep output of standard signal generator at a level that provides a readable marker but does not distort the curve that is being observed on the 'scope.	#11 RF Amp. Plate. #12 Mixer Grid. #13 RF Amp. Grid.	Adjust these trimmers to obtain properly shaped RF band pass characteristic as shown in Fig. 3. Use RF Amplifier Plate trimmer #11 and Mixer Grid trimmer #12 to obtain correct amplitude of characteristic in vicinity of picture and sound carrier markers. Then adjust RF Amp. Grid trimmer #13 to equalize overall amplitude. Repeat adjustment of trimmers to be sure correct response has been obtained. IMPORTANT: When adjusting trimmers #11, 12 and 13 it will be noted that the band pass characteristic can be broadened by sacrificing amplitude. It is undesirable to overly broaden the curve as that would result in a loss of sensitivity.
Same as above.	*215.75 MC. †211.25 MC.	Same as above.	CHANNEL #13	Not used.	Same as above.	Set Channel Selector to #13		The RF band pass characteristic of the other television channels should now be checked without disturbing the settings of trimmers #11, 12 and 13. Adjust the RF sweep generator and marker generator for operation on the other television channels, observing position of both the sound carrier and picture carrier markers.
	*203.75 MC. †199.25 MC.		CHANNEL #11			Set Channel Selector to #11		 FIG. 3
	*197.75 MC. †193.25 MC.		CHANNEL #10			Set Channel Selector to #10		
	*191.75 MC. †187.25 MC.		CHANNEL #9			Set Channel Selector to #9		
	*185.75 MC. †181.25 MC.		CHANNEL #8			Set Channel Selector to #8		
	*179.75 MC. †175.25 MC.		CHANNEL #7			Set Channel Selector to #7		
	* 87.75 MC. † 83.25 MC.		CHANNEL #6			Set Channel Selector to #6		
	* 81.75 MC. † 77.25 MC.		CHANNEL #5			Set Channel Selector to #5		Band pass characteristic of these channels should conform to the RF response curve in Fig. 3. If necessary, a compromise may be obtained to compensate for small variations in channel response by returning to channel #12 and making slight changes in the settings of trimmers #11, 12 and 13.
	* 71.75 MC. † 67.25 MC.		CHANNEL #4			Set Channel Selector to #4		
	* 65.75 MC. † 61.25 MC.		CHANNEL #3			Set Channel Selector to #3		
	* 59.75 MC. † 55.25 MC.		CHANNEL #2			Set Channel Selector to #2		

*Sound Carrier Marker
†Picture Carrier Marker

(Continued on next page)

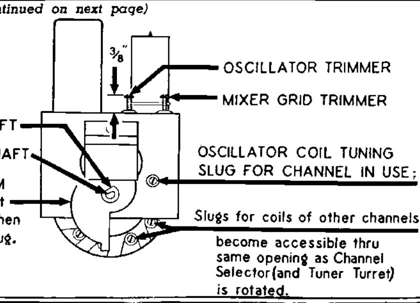


FIG. 4
Front view of RF Tuner Unit

(Continued from preceding page)

STANDARD SIGNAL GENERATOR		SWEEP GENERATOR		VTVM CONNECTIONS	OSCILLOSCOPE CONNECTIONS	MISCELLANEOUS INSTRUCTIONS	TRIMMER OR SLUG	TYPE OF ADJUSTMENT AND OUTPUT INDICATION
CONNEC-TIONS	FREQUENCY	CONNEC-TIONS	FREQ.					
OSCILLATOR ALIGNMENT								
1. **IMPORTANT: Before undertaking oscillator alignment be sure IF circuits are correctly aligned for band pass characteristic illustrated in Fig. 2.** 2. During oscillator alignment, it is necessary to set the Fine Tuning control so that the tooth on the bakelite fine tuning cam points down (correct position for this control is shown in Fig. 4).								
Connect as shown in Fig. 10.	*209.75 MC. ‡205.25 MC.	Connect as shown in Fig. 10 and set controls for sweep width of 10 Mc. on television channel specified in the next column.	CHANNEL #12	Connect a 10K ohm resistor to probe lead of meter and then connect open end of this resistor to junction of peaking coil (#212) and Contrast control (#213) in detector plate circuit of 6AL5 tube, V7 (see point "Y"). "Common" or "ground" lead of VTVM must be connected to receiver chassis.	Use coupling network shown in Fig. 8. Connect vertical amplifier "high" lead in series with 10K ohm resistor to junction of peaking coil (#212) and Contrast control (#213 in detector plate circuit of 6AL5 tube, V7 (see point "Y"). Connect 'scope ground lead to receiver chassis.	**Be sure that Fine Tuning control has been properly positioned (tooth on the cam pointing down—see Fig. 4).** During this step and thru-out all succeeding steps it is necessary to: 1. **Keep output of sweep generator at a level that does not allow reading on VTVM to exceed one volt.** 2. **Keep output of standard signal generator at a level that provides a readable marker but does not distort the curve that is being observed on the 'scope.**	#14 Oscillator	Adjust height of oscillator trimmer #14 to be approximately 3/8" from the top of trimmer screw to the top surface of RF tuner unit (see Fig. 4). NOTE: Before making the following adjustment, advance the vertical gain control on the 'scope in order to magnify the sound portion of the response curve. Then, use a non-metallic screwdriver to adjust channel #12 oscillator slug (accessible thru hole on front of RF Tuner Unit—see Fig. 4) and shift response curve so that sound carrier marker is located at the position indicated in Fig. 5. Now, reduce gain control of 'scope to restore pattern to normal amplitude and observe position of picture carrier marker. This marker should appear approximately halfway up the low frequency side of the characteristic (see Fig. 5).
Same as above.	*215.75 MC. ‡211.25 MC.	Same as above.	CHANNEL #13	Same as above.	Same as above.	Set Channel Selector to #13		Adjust the RF sweep generator and marker generator for operation on the other television channels; set marker generator to sound carrier frequency. After setting Channel Selector to corresponding channel, adjust oscillator slug thru hole on front of RF Tuner Unit (see Fig. 4). This permits response curve to be shifted so that sound carrier marker will appear at the position indicated in Fig. 5. The picture carrier marker for the corresponding channel should then appear at the 50% amplitude position on the opposite side of the band pass characteristic curve. NOTE: Make sure that cam on fine tuning control shaft remains properly positioned during this step (tooth on the cam pointing down—see Fig. 4).
	*203.75 MC. ‡199.25 MC.		CHANNEL #11			Set Channel Selector to #11		
	*197.75 MC. ‡193.25 MC.		CHANNEL #10			Set Channel Selector to #10		
	*191.75 MC. ‡187.25 MC.		CHANNEL #9			Set Channel Selector to #9		
	*185.75 MC. ‡181.25 MC.		CHANNEL #8			Set Channel Selector to #8		
	*179.75 MC. ‡175.25 MC.		CHANNEL #7			Set Channel Selector to #7		
	* 87.75 MC. ‡ 83.25 MC.		CHANNEL #6			Set Channel Selector to #6		
	* 81.75 MC. ‡ 77.25 MC.		CHANNEL #5			Set Channel Selector to #5		
	* 71.75 MC. ‡ 67.25 MC.		CHANNEL #4			Set Channel Selector to #4		
	* 65.75 MC. ‡ 61.25 MC.		CHANNEL #3			Set Channel Selector to #3		
	* 59.75 MC. ‡ 55.25 MC.		CHANNEL #2			Set Channel Selector to #2		

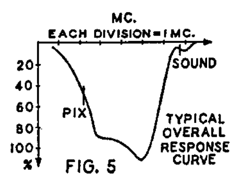


FIG. 5

If an oscillator slug "falls into" its coil form during adjustment, remove the Channel Coil from the turret assembly and lift the Slug Retaining Spring aside. By tapping the coil form it should be possible to make the slug move toward the end so that its threads will be engaged by the Slug Retaining Spring when that spring is returned to its normal position.

If an unsatisfactory overall response is obtained for a particular channel, observe RF Amp. and Mixer response curve for that channel (as described on page 1949-13). If characteristic does not conform reasonably well with the typical curve shown in Fig. 3, then, (1) attempt to obtain a better compromise for RF response on all channels by realigning RF Amp. and Mixer circuits, or (2) try replacing Antenna and RF Oscillator coils for the particular channels.

*Sound Carrier Marker
‡Picture Carrier Marker

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

RF TUNER UNIT REPAIR DATA

All replacement parts for the RF Tuner Unit are included in the complete receiver parts list on page 1949-24.

The RF Tuner Unit used with these receivers is noted for its high gain, stability and rugged mechanical construction. It consists of an RF amplifier stage (using 6AG5 tube) and a mixer-oscillator stage (using 6J6 tube).

Channel selection is accomplished with rotation of a turret assembly having 2 sets of snap-in coils for each of the 12 channels. The tuner also incorporates a Fine Tuning control.

Antenna Coils for each channel consist of a center-tapped primary and an RF amp. grid winding (secondary). The individual RF-Oscillator Coils include an RF amplifier plate section, a mixer grid section and an oscillator winding. Signal output from the mixer stage is coupled to the IF amplifiers through the 1st IF Coil.

SERVICE PRECAUTIONS

SUBJECT	PRECAUTIONS
ELECTRICAL COMPONENTS	The high frequencies used in the RF section of a television receiver make it necessary that considerable care be exercised in servicing the tuner. Lead dress and location of components are **very critical** at these frequencies. When replacing parts, it is important to use components of identical electrical characteristics and physical size. Always reconnect the replacement item in the same location and position in the tuner as the original component.
TUBES	Replacement of tubes in the Tuner Unit may cause slight detuning of RF circuits due to inherent differences in interelectrode capacitances. When replacing tubes (especially V2, 6J6 mixer-oscillator tube) make sure that Fine Tuning control will tune in television stations at approximately the middle of its range. It may be necessary to change the setting of the individual oscillator coil slugs for some channels to accomplish this (see Fig. 4 for location of slug).
CHANNEL COILS AND SLUGS	Channel Coils must be handled with care. **Do not disturb coil windings.** If an oscillator slug "falls into" its coil form during adjustment, remove the Channel Coil from the turret assembly and lift the Slug Retaining Spring aside. By tapping the coil form it should be possible to make the slug move toward the end so that its threads will be engaged by the Slug Retaining Spring when that spring is returned to its normal position.
FINE TUNING CONTROL	Rubbing of the bakelite Fine Tuning Cam against the Fine Tuning Condenser Plate is intentional in order to avoid vibration with resulting microphonics. However, the Fine Tuning Cam should not rub or contact the small circular plate located on the body of the tuner.

REMOVAL AND REPLACEMENT OF PARTS

ITEM	PROCEDURE
RF TUNER UNIT	To remove the Tuner Unit from receiver chassis, proceed as follows: 1. Remove metal plate which covers side of RF Tuner Unit nearest edge of chassis. This plate is held in place by two screws on the upper surface of the tuner. 2. Remove shaft centering plate at front of Tuner Unit. 3. Remove support bracket which positions front of Tuner Unit and also remove screws which hold tuner to rear support bracket. NOTE: When reinstalling Tuner Unit, be sure that thick spacer washers are reinserted between the top of the tuner and the underside of front and rear support brackets. 4. Disconnect the leads from the tuner to the main chassis. See illustration on page 1949-26 (circuit diagram page) showing tuner connections. When the Tuner Unit is replaced, make sure that brass shaft of Fine Tuning control rotates freely in the shaft centering plate and does not rub against front metal support bracket. If binding occurs, loosen screw holding tuner to bracket and reposition tuner, also reposition centering plate.
CHANNEL COILS	Insert a screwdriver blade between Coil Retainer Spring and the end of the Tuner Turret. Twist the blade to pull spring away from the molded body of Channel Coil. Lift this end of coil body upward and remove individual coil assembly from tuner. When replacing Channel Coils, be sure they are reinstalled in their correct positions. Coil numbers should increase consecutively in a counter-clockwise direction when tuner is viewed from the front. If all the Channel Coils have been removed from the Tuner Turret, rotate turret until flat surface on end of tuner shaft points down. Install #3 Channel Coils into bottom position on turret. Then follow the correct sequence indicated above to replace other coils.
TUNER TURRET ASSEMBLY	To remove turret from RF Tuner Unit, proceed as follows: 1. Remove tuner from receiver chassis. 2. Remove rear Turret Shaft Retaining Spring by disengaging straight end of spring from projection on tuner. 3. Remove Fine Tuning Condenser Plate from front of Tuner Unit. This plate forms one side of Fine Tuning control condenser and is held in place by one screw. 4. Slide Fine Tuning Cam and Brass Shaft off of main Channel Selector Shaft. 5. Remove Contactor Washer Spring and Fiber Spacer Washer from Channel Selector Shaft. 6. Remove Shaft Retaining Spring at front of tuner by disengaging straight end of spring from projection on case. 7. Slide turret assembly out of case and remove Detent Roller. To replace turret, reverse the above procedure. Tooth on bakelite Fine Tuning Cam should point downward during assembly so that it does not become locked between the stops on the Fine Tuning Condenser Plate.
STATOR CONTACT ASSEMBLY	To remove this assembly, proceed as follows: 1. Remove the two screws at the front and rear of the Stator Contact **Assembly.** 2. Unsolder all electrical connections to contact plate. 3. Unsolder four soldered joints between Stator Contact Assembly and Tuner Unit. 4. Contact Assembly may now be withdrawn from case.

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

ITEM	PROCEDURE
	To reinstall this assembly: 1. Place Stator Contact Assembly in position and replace, but do not tighten, the two screws at the front and rear of the assembly. 2. Remove 3 consecutive pairs of Channel Coils from the turret (for example, the antenna and rf-osc. coils for channels #5, 6 and 7). 3. Position Tuner Turret so that the edges of the next highest Channel Coils (in this case, the coils for channel #8) just pass the row of 11 contacts on the Stator Contact Assembly. 4. Adjust position of the Stator Contact Assembly so that there are a few thousandths of an inch spacing between the contacts on the contact plate and the molded body of the Channel Coils. 5. The Contact Assembly is now correctly positioned and screws at front and rear may be tightened. 6. Solder Stator Contact Assembly to tuner frame at same four points that were used previously. 7. Make all electrical connections to contact plate. 8. Replace Channel Coils. 9. Reset Detent Spring as indicated in next section of this chart.
DETENT SPRING	When servicing the Detent Spring, or when replacing Stator Contact Assembly, it will be necessary to correctly set the position of this spring so that coil contacts will properly engage stator contacts. To release the Detent Spring, loosen mounting screw. Then, position the Detent Spring and Roller so that the contacts on the Stator Contact Assembly engage coil contacts (proper contact position is indicated when contact springs on stator reach point of maximum displacement). Detent Spring can then be positioned so that Detent Roller exactly fits into notch on center plate of turret.

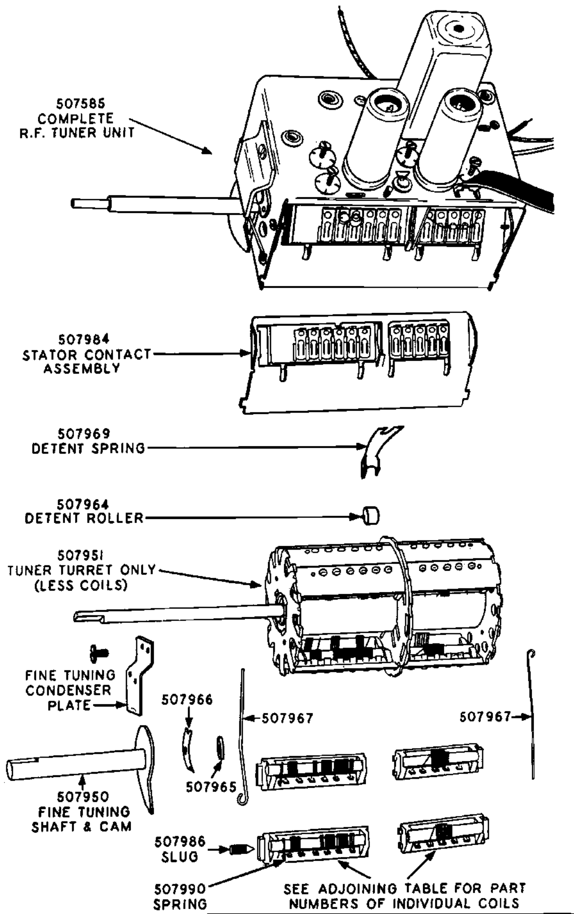


FIG. 6

CHANNEL NUMBER	ANTENNA COIL PART NUMBER	RF & OSC COIL PART NUMBER
2	507952	507972
3	507953	507973
4	507954	507974
5	507955	507975
6	507956	507976
7	507957	507977
8	507958	507978
9	507959	507979
10	507960	507980
11	507961	507981
12	507962	507982
13	507963	507983

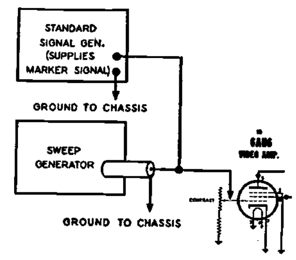


FIG. 7
Generator Connections for Sound Channel Alignment

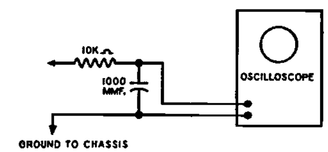


FIG. 8
Oscilloscope Coupling Network

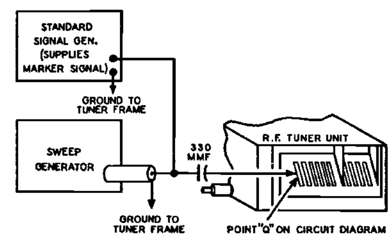


FIG. 9
Generator Connections for IF Channel Alignment

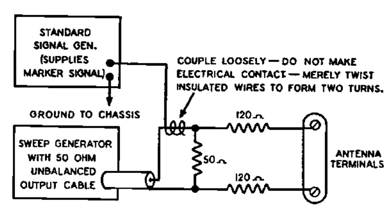
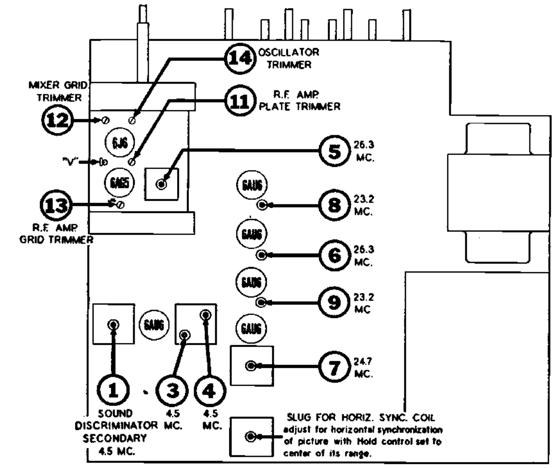
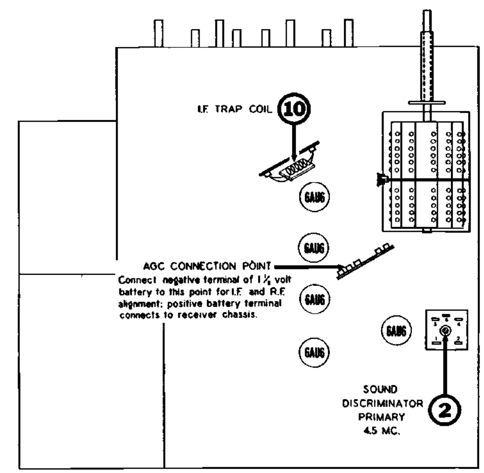


FIG. 10
Generator Connections for RF Channel Alignment



TOP VIEW OF CHASSIS

FIG. 11



BOTTOM VIEW OF CHASSIS

FIG. 12

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

HIGH VOLTAGE POWER SUPPLY SERVICING

The High Voltage Power Supply used with this receiver is located in the shielded compartment mounted at the right rear corner of the chassis. It includes a high voltage oscillator (using two 35L6GT tubes, connected in parallel) and a high voltage rectifier circuit (using 1B3GT/8016 tube).

CAUTION

The high voltage lead, which supplies approximately 10,000 volts to the picture tube, should be shorted to the chassis whenever it is disconnected for service purposes (that is, after receiver has been turned off). This discharges the high voltage filter condensers and prevents a shock hazard when working on the set.

Inspect solder connections and resolder those joints which are unsatisfactory. Make sure tubes are firmly positioned in tube sockets and that high voltage filter condensers are held securely in position.

CLOSELY SPACED COMPONENTS — Arcing or corona may occur when H.V. components or leads are placed too close together. Make sure there is sufficient spacing between all parts and wiring. If necessary, the insulation between two elements of the circuit may be improved by coating both objects with a quick-drying liquid polystyrene or polyethylene.

The entire High Voltage Power Supply may be separated from the receiver by removing the four mounting screws and disconnecting five leads from the unit to the main chassis.

Access to the three tubes and "hot" lead of H.V. Oscillator Coil is accomplished by removing the rear cover of the housing. This cover is held in place by six knurled nuts.

Access to the remainder of the circuit components is obtained by removing the five screws which hold the front cover of the housing in place.

When reassembling the power supply, be sure insulating sheet is correctly positioned so that the shielded compartment does not contact the receiver chassis.

NOTE: A common ground return lead is used in the H.V. Power Supply to provide only one ground connection between the supply and the main chassis. This method of ground return prevents currents of power supply frequency from circulating in the receiver chassis where these currents might disturb performance of other circuits.

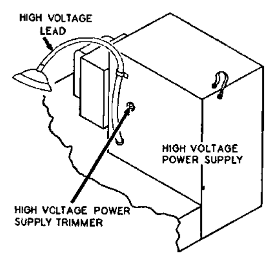


FIG. 13
Location of High Voltage Power Supply Trimmer

CORONA AND ARC-OVER.

Corona or arc-over can best be detected by observing the operation of the power supply in a dark room. Several conditions may cause these phenomena.

POOR CONNECTIONS — Arcing or corona may be due to poorly soldered connections (rosin joints or sharp points), or defective tube socket-pin connections. If the "slip-on" connectors which hold the high voltage filter condensers do not grasp these components securely, arcing will also result and power supply regulation will be poor.

HIGH VOLTAGE TRIMMER CONDENSER ADJUSTMENT

The proper setting for the High Voltage Power Supply Trimmer (symbol #47 on circuit diagram) is obtained as follows:

1. Make up a load resistance (comparable to picture tube load) by using eight 1.1 megohm, 2 watt resistors in series.
2. With receiver turned off, disconnect high voltage lead at picture tube. Discharge filter condensers in H.V. supply by contacting lead terminal to chassis.
3. Connect one end of special series resistor string to H.V. lead terminal and other end of resistor string to a 0-1 D. C. milliammeter. Open terminal of meter then connects to receiver chassis.
4. Turn set on and be sure that line voltage is 117 volts.
5. Adjust High Voltage Trimmer Condenser (see Fig. 13 for location) for maximum reading on milliammeter. Meter reading should be 0.67 ma. or greater.

HORIZONTAL SYNC SYSTEM ADJUSTMENT

If picture "tears" horizontally and cannot be synchronized by operating the Horizontal Hold control on front panel of receiver, this action may be due to incorrect setting of the slug in the Horizontal Sync Coil.

1. Set Horizontal Hold control in center of its range.
2. Adjust slug of Horizontal Sync Coil for picture synchronization (see location of slug in Fig. 11).

SOCKET VOLTAGES

CAUTION

THE PICTURE TUBE is highly evacuated and if broken, glass fragments will be violently expelled. Handle with care and if it is necessary to change this tube, use safety goggles and gloves.

HIGH VOLTAGE (approximately 10,000) is produced in a supply circuit of this receiver. Exercise care to avoid contact with elements of this circuit and particularly the tube terminals which are labeled "CAUTION" in the adjoining voltage chart. If measurement of voltage at these points is necessary, see procedure given below under note "M".

INTERMEDIATE B+ VOLTAGES are dangerous and caution should be observed when the receiver chassis components are exposed for service purposes.

The voltages shown on the adjoining chart were measured under the following conditions.

1. Power supply — 117 volt 60 cycle AC.
2. All voltages are measured between socket terminals and chassis unless otherwise indicated on adjoining chart.
3. *— Measurements made with voltmeter having a sensitivity of 1000 ohms per volt except where indicated by (*). The (*) symbol designates a vacuum tube voltmeter measurement.
4. No input signal — antenna terminals shorted together.
5. Channel Selector set to channel 13 unless otherwise indicated by note "J".
6. All other controls were set to their COUNTER-CLOCKWISE position unless the voltage shown on the chart is followed by a letter to indicate a special condition of measurement as outlined in Step 7.
7. Certain voltages were measured with two different settings of a specific control. It should therefore be understood that in these instances all controls, with exception of one, were set in their counter-clockwise position — a letter following the voltage shown on the chart indicates this exception and is explained below.

A	Vert. Lin. control max. clockwise
B	Brightness control max. clockwise
C	Contrast control max. clockwise
D	Horiz. Hold control max. clockwise
E	Width control max. clockwise
F	Focus control max. clockwise
G	Vert. Hold control max. clockwise
H	Height control max. clockwise
J	Channel Selector set to Chan. #2

NOTE K. This measurement should NOT be made with a conventional type voltmeter as circuit may break into oscillation due to coupling thru instrument leads; use a vacuum tube voltmeter with short leads.

NOTE L. Do not attempt to measure the voltage at the tube cap. There is a high R. F. potential at this point.

NOTE M. If you do not have an instrument capable of directly measuring voltages in this range, the voltage can be measured by using a voltage divider network consisting of twenty 2.2 megohm 2 watt resistors and one 1 megohm 2 watt resistor, all connected in series. Avoid using resistors of higher values as their individual voltage rating may be exceeded. It is also important to use resistors of equal wattage. Solder all connections between resistors. Accurately measure the overall resistance of the entire combination as well as the resistance of the 1 megohm section.

With the set turned off, connect the 2.2 megohm end of the resistance voltage divider to the filament of the 1B3GT/8016 tube, or H. V. terminal of the kinescope, and connect the 1 megohm end to chassis. Now, turn the set on and measure the voltage drop across the 1 megohm resistor with a vacuum tube voltmeter. The voltage at the tube terminal can then be calculated as follows:

$$\left[\text{Volts At Tube Terminal}\right] = \frac{\left[\text{Measured Resistance Of Entire Voltage Divider}\right]}{\left[\text{Measured Resistance Of The 1 Meg. Section}\right]} \times \left[\text{Volts Measured Across 1 Meg. Section}\right]$$

NOTE N. Grounding of center stud on tube socket is necessary to reduce capacity coupling between other pins. Oscillation may result if this ground is omitted.

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

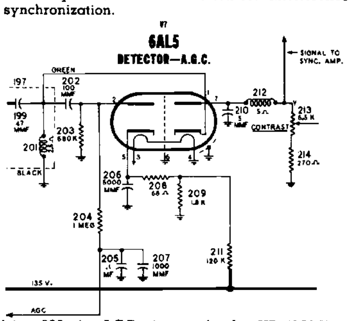
PRODUCTION CHANGES

REVISED 7/1/49

The following tabulation furnishes complete details on changes which occurred during production. Sequence of these changes is indicated by coding in alphabetical order; that is, "SERIES A" "SERIES B", etc., stamped on back surface of chassis

The circuit shown on this page applies to "SERIES B" chassis.

CHANGE DESIGNATION STAMPED ON CHASSIS	DESCRIPTION OF CHANGE
UNCODED	INITIAL PRODUCTION All uncoded chassis utilized an AGC circuit as shown here. Conversion of this circuit arrangement to the type used in "Series A" chassis (illustrated in complete wiring diagram on this page) provides increased picture stability where external electrical interference disturbs synchronization.



SERIES "A"

1. Resistor 209, in AGC circuit of tube V7 (6AL5), was changed from 1.8K ohm to 680 ohms, ± 10%.
2. Resistor 208 was removed from the circuit.
3. High potential side of condenser 206, in AGC circuit of tube V7 (6AL5), was disconnected from pin 5 of V7 and reconnected to high side of resistor 209.
4. Choke coil 289 was added from pin 5 of tube V7 to the junction of condenser 206 and resistor 209.
5. Output side of condenser 202 which formerly connected to pin 2 of tube V7 (6AL5) was disconnected from this terminal and reconnected to pin 5 of the same tube.
6. Resistor 204, in AGC circuit of tube V7 (6AL5), was changed from 1 megohm to 10K ohms.
7. Resistor 203, in AGC circuit of tube V7 (6AL5), was changed from 680K ohms to 22K ohms.
8. Condenser 288 (10 mmfd.) was added from pin 2 of tube V7 (6AL5) to chassis ground.
9. Condenser 205, in AGC circuit of tube V7 (6AL5), was changed from .1 mfd. to 10 mfd. **IMPORTANT:** The positive terminal of this electrolytic condenser must connect to chassis ground.
10. Condenser 286 (.05 mfd.) was added in series between high side of Contrast control and resistor 56 in grid circuit of V14A (12AU7—Sync. Amp.).
11. Resistor 287 (1 megohm) was added between pin 2 of tube V14A (12AU7—Sync. Amp.) and chassis ground.
12. Resistor 57, in plate circuit of V14A (12AU7—Sync. Amp.), was changed from 10K ohms to 22K ohms ± 10%.
13. Resistor 59, in grid circuit of V14B (12AU7—Sync. Clipper), was changed from 1 megohm to 470K ohms.
14. Resistor 61, in plate circuit of V14B (12AU7- Sync. Clipper), was changed from 470K ohms, ± 20% to 470K ohms, ± 10%.

Voltages measured at several tube socket terminals on "SERIES A" chassis will differ as follows from those shown on the voltage chart; all other socket voltages remain unchanged.

Pin 1 of V1 (6AG5)	*—0.1	volts
Pin 1 of V3 (6AU6)	*—0.1	volts
Pin 1 of V4 (6AU6)	*—0.1	volts
Pin 1 of V5 (6AU6)	*—0.1	volts
Pin 1 of V6 (6AU6)	*—0.1	volts
Pin 2 of V7 (6AL5)	*—0.1	volts
Pin 5 of V7 (6AL5)	0.75	volts
Pin 7 of V7 (6AL6)	*—0.2	volts
Pin 1 of V8 (6AU6)	*—0.03	volts
	*—0.3c	volts
Pin 1 of V14 (12AU7)	55	volts
	*60	volts

SERIES "B" For models using 10BP4, 10FP4 or 12LP4 picture tube.

1. Condenser 23 in plate circuit of tube V21B (6SN7GT—Vertical Blocking Osc.), was changed from .2 mfd. ± 10% 200 volt to .15 mfd. ± 10% 400 volt.
2. Condenser 24 in grid circuit of tube V22 (50L6GT—Vertical Scanning Output), was changed in voltage rating from 200 volts to 400 volts.
3. Condenser 292 (.05 mfd.) was added in series between the arm of the Contrast control and signal grid (pin 1) of tube V8 (6AU6—Video Amp.).
4. Resistor 293 (1 megohm) was added between signal grid (pin 1) of tube V8 (6AU6—Video Amp.) and chassis.

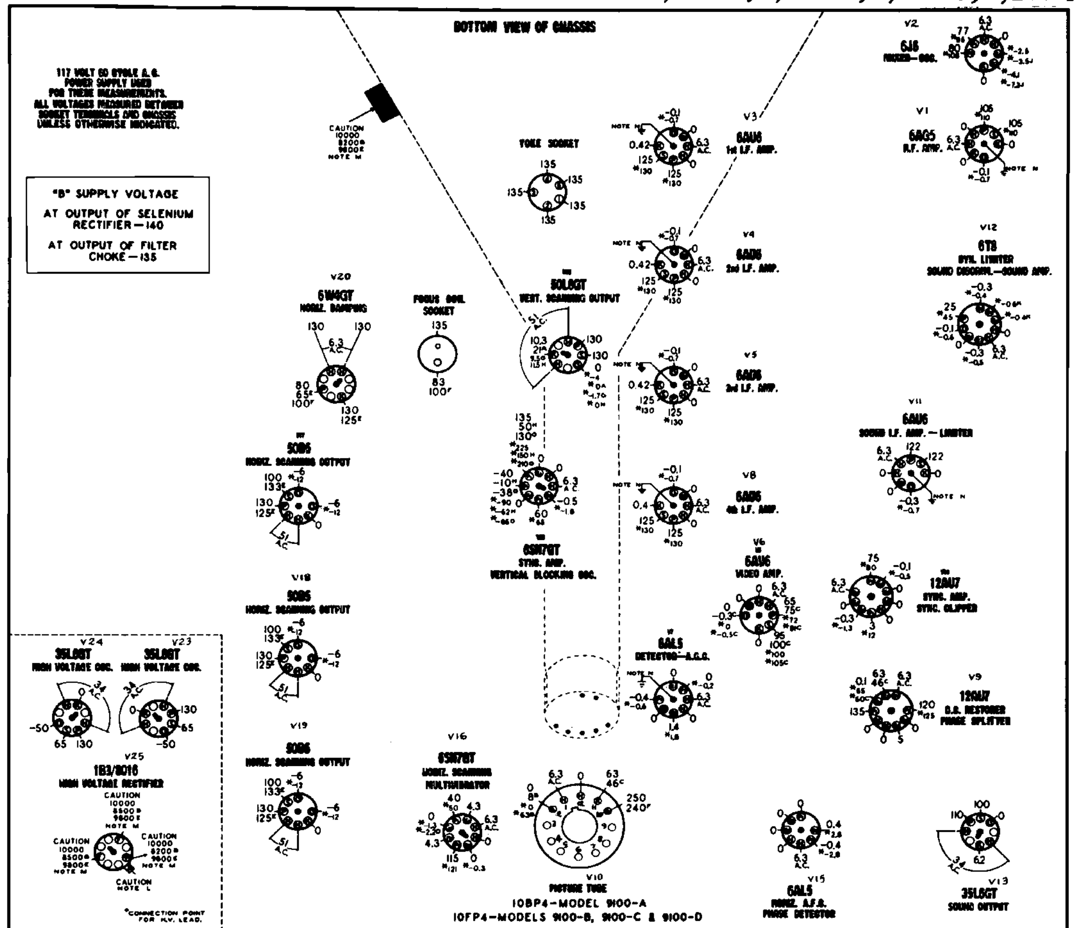
Voltage measured at the signal grid (pin 1) of tube V8 (6AU6—Video Amp.) will differ as follows from that shown on the voltage chart.

Pin 1 of V8 (6AU6) .... { —0.3 volts / * 0.8 volts

SERIES "B" For models using 12KP4 picture tube.

Chassis having this coding incorporate the four items listed above under the heading "SERIES B For models using 10BP4, 10FP4 or 12LP4 picture tube," plus the following additional revisions:

1. Condenser 290 (330 mmf.) was added to Horizontal Output Stage (50B5). This condenser connects between 50B5 plate (pin 5) and chassis.
2. Resistor 291 (6800 ohms) was added from junction of resistors 101 and 102 to chassis.
3. Resistor 294 (180 ohms) was added in parallel with resistor 101.



PARTS LIST
for
STEWART-WARNER TELEVISION RECEIVER
MODELS
9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G & 9100-H

NOTICE: Some parts listed below have special characteristics. Do not use substitutes for replacement purposes.

CONDENSERS

DIAGRAM NO.	PART NO.	DESCRIPTION
12	512027	Condenser—.05 Mfd. 200 volt
15-A	507588	Condenser—ceramic .01 Mfd. 450 volt (part of integrator coupling unit)
15-D	507588	Condenser—ceramic 2000 Mmfd. 450 volt (part of integrator coupling unit)
15-F	507588	Condenser—ceramic 5000 Mmfd. 450 volt (part of integrator coupling unit)
15-H	507588	Condenser—ceramic 5000 Mmfd. 450 volt (part of integrator coupling unit)
17	512533	Condenser—mica 4700 Mmfd. ± 5% 1000 volt
23	512041	Condenser—.15 Mfd. ± 10% 400 volt
24	512047	Condenser—.25 Mfd. ± 10% 400 volt
26-A,B	507359	Condenser—electrolytic A—150 Mfd. 25 volt, B— 50 Mfd. 25 volt
30	512045	Condenser—.25 Mfd. ± 10% 200 volt
32	512009	Condenser—.01 Mfd. 200 volt
38	512033	Condenser—.1 Mfd. 200 volt
40	512015	Condenser—.02 Mfd. 200 volt
45	512015	Condenser—.02 Mfd. 200 volt
47	507352	Condenser—trimmer 160-660 Mmfd.
48	512015	Condenser—.02 Mfd. 200 volt
50	512015	Condenser—.02 Mfd. 200 volt
51	512534	Condenser—mica 1000 Mmfd. ± 5% 500 volt
53, 54	513021	Condenser—ceramic 500 Mmfd. 10,000 volt
58	512027	Condenser—.05 Mfd. 200 volt
62	513022	Condenser—ceramic 10,000 Mmfd. 450 volt
66, 67	513009	Condenser—ceramic 1000 Mmfd. 500 volt
70	512015	Condenser—.02 Mfd. 200 volt
72	512015	Condenser—.02 Mfd. 200 volt
75	513013	Condenser—ceramic 5000 Mmfd. 450 volt
77	512027	Condenser—.05 Mfd. 200 volt
80	512531	Condenser—mica 3300 Mmfd. ± 5% 500 volt
81-A,B,C	506798	Condenser—electrolytic A—20 Mfd. 150 volt, B—20 Mfd. 150 volt, C—40 Mfd. 150 volt
84	513007	Condenser—ceramic 330 Mmfd. 500 volt
87	512527	Condenser—mica 220 Mmfd. ± 10% 500 volt
89	513007	Condenser—ceramic 330 Mmfd. 500 volt
94	512033	Condenser—.1 Mfd. 200 volt
98	512045	Condenser—.25 Mfd. ± 10% 200 volt
104	512051	Condenser—.5 Mfd. ± 10% 200 volt
106	512045	Condenser—.25 Mfd. ± 10% 200 volt
107	512524	Condenser—mica 330 Mmfd. ± 10% 1000 volt
113	512051	Condenser—.5 Mfd. ± 10% 200 volt
114	512033	Condenser—.1 Mfd. 200 volt
115	507386	Condenser—electrolytic 8 Mfd. 300 volt
116, 117	513018	Condenser—ceramic 220 Mmfd. 500 volt
132	507968	Condenser—trimmer 0.5-3 Mmfd.
133	513432	Condenser—ceramic 5 Mmfd. ± 10% 500 volt (Temperature compensating)
134	513439	Condenser—ceramic 120 Mmfd. ± 5% 500 volt (Temperature compensating)
149	507968	Condenser—trimmer 0.5-3 Mmfd.
150	513442	Condenser—ceramic 10 Mmfd. ± 10% 500 volt (Temperature compensating)
151	*	Condenser 3-5 Mmfd. "Fine Tuning"
152	513440	Condenser—ceramic 100 Mmfd. ± 10% 500 volt (Temperature compensating)
155	507968	Condenser—trimmer 0.5-3 Mmfd.

CONDENSERS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
156	513441	Condenser—ceramic 20 Mmfd. ± 10% 500 volt (Temperature compensating)
157	507968	Condenser—trimmer 0.5-3 Mmfd.
160	513009	Condenser—ceramic 1000 Mmfd. 500 volt
161-A	507985	Condenser—ceramic 10 Mmfd. (part of 1st I.F. Coil)
161-B	507985	Condenser—ceramic 120 Mmfd. (part of 1st I.F. coil)
165	513009	Condenser—ceramic 1000 Mmfd. 500 volt
168	512532	Condenser—mica 240 Mmfd. ± 5% 500 volt
169	513009	Condenser—ceramic 1000 Mmfd. 500 volt
172	513016	Condenser—ceramic 82 Mmfd. ± 10% 500 volt
175	513009	Condenser—ceramic 1000 Mmfd. 500 volt
177	513009	Condenser—ceramic 1000 Mmfd. 500 volt
180	513016	Condenser—ceramic 82 Mmfd. ± 10% 500 volt
183, 184	513009	Condenser—ceramic 1000 Mmfd. 500 volt
186	513009	Condenser—ceramic 1000 Mmfd. 500 volt
190	513016	Condenser—ceramic 82 Mmfd. ± 10% 500 volt
193	513009	Condenser—ceramic 1000 Mmfd. 500 volt
195	513009	Condenser—ceramic 1000 Mmfd. 500 volt
199	513433	Condenser—ceramic 47 Mmfd. ± 10% 500 volt (Temperature compensating)
200	513009	Condenser—ceramic 1000 Mmfd. 500 volt
202	513003	Condenser—ceramic 100 Mmfd. 500 volt
205	512033	Condenser—.1 Mfd. 200 volt (used in "Uncoded" chassis)
	502286	Condenser—electrolytic 10 Mfd. 25 volt (used in "Series A and B" chassis)
206	513013	Condenser—ceramic 5000 Mmfd. 450 volt
207	513009	Condenser—ceramic 1000 Mmfd. 500 volt
210	513432	Condenser—ceramic 5 Mmfd. ± 10% 500 volt (Temperature compensating)
215	513013	Condenser—ceramic 5000 Mmfd. 450 volt
220	513435	Condenser—ceramic 15 Mmfd. ± 5% 500 volt (Temperature compensating)
221	513434	Condenser—ceramic 62 Mmfd. ± 10% 500 volt (Temperature compensating)
224	512027	Condenser—.05 Mfd. 200 volt
231	513002	Condenser—ceramic 47 Mmfd. 500 volt
232, 233	513009	Condenser—ceramic 1000 Mmfd. 500 volt
235	513009	Condenser—ceramic 1000 Mmfd. 500 volt
236	513013	Condenser—ceramic 5000 Mmfd. 450 volt
238	513009	Condenser—ceramic 1000 Mmfd. 500 volt
240	513018	Condenser—ceramic 220 Mmfd. 500 volt
242	513009	Condenser—ceramic 1000 Mmfd. 500 volt
244	513009	Condenser—ceramic 1000 Mmfd. 500 volt
248	513009	Condenser—ceramic 1000 Mmfd. 500 volt
256	512265	Condenser—.05 Mfd. 600 volt
257-A,B	507581	Condenser—electrolytic A—200 Mfd. 150 volt, B—200 Mfd. 150 volt
259	513433	Condenser—ceramic 47 Mmfd. ± 10% 500 volt (Temperature compensating)
261	513010	Condenser—ceramic 1500 Mmfd. 350 volt
263	513009	Condenser—ceramic 1000 Mmfd. 500 volt
264-A	507321	Condenser—ceramic 110 Mmfd. (part of discriminator transformer)
265	512527	Condenser—mica 220 Mmfd. ± 10% 500 volt
267	513010	Condenser—ceramic 1500 Mmfd. 350 volt
268	512003	Condenser—.002 Mfd. 600 volt
269	513018	Condenser—ceramic 220 Mmfd. 500 volt

PARTS LIST (Contd.)

CONDENSERS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
271	505174	Condenser—electrolytic 10 Mfd. 150 volt
276	513010	Condenser—ceramic 1500 Mmfd. 350 volt
277	502547	Condenser—electrolytic 4 Mfd. 150 volt
278-B	505858	Condenser—ceramic 250 Mmfd. 450 volt (part of audio coupling unit)
278-C	505858	Condenser—ceramic .005 Mfd. 450 volt (part of audio coupling unit)
280	505174	Condenser—electrolytic 10 Mfd. 150 volt
282	512017	Condenser—.02 Mfd. 400 volt
286	512027	Condenser—.05 Mfd. 200 volt (used in "Series A and B" chassis)
288	513437	Condenser—ceramic 10 Mmfd. 500 volt (Temperature compensating) (used in "Series A and B" chassis)
290	512524	Condenser—mica 330 Mmfd. ± 10% 1000 volt (used only in Model 9100-F)
292	512027	Condenser—.05 Mfd. 200 volt (used in "Series B" chassis)

RESISTORS

DIAGRAM NO.	PART NO.	DESCRIPTION
13	510191	Resistor—carbon 1 Meg. ½ watt
14	510159	Resistor—carbon 18,000 Ohms ± 10% ½ watt
15-B	507588	Resistor—carbon 22,000 Ohms 1/5 watt (part of integrator coupling unit)
15-C	507588	Resistor—carbon 22,000 Ohms 1/5 watt (part of integrator coupling unit)
15-E	507588	Resistor—carbon 8200 Ohms 1/5 watt (part of integrator coupling unit)
15-G	507588	Resistor—carbon 8200 Ohms 1/5 watt (part of integrator coupling unit)
18	510724	Resistor—carbon 1.1 Meg. ± 5% ½ watt
20	510172	Resistor—carbon 100,000 Ohms ± 10% ½ watt
22	510143	Resistor—carbon 2200 Ohms ½ watt
25	510191	Resistor—carbon 1 Meg. ½ watt
27	510128	Resistor—carbon 330 Ohms ½ watt
29	510159	Resistor—carbon 18,000 Ohms ± 10% ½ watt
34	510153	Resistor—carbon 8200 Ohms ± 10% ½ watt
35	510139	Resistor—carbon 1500 Ohms ± 10% ½ watt
36, 37	510119	Resistor—carbon 100 Ohms ½ watt
39	510155	Resistor—carbon 10,000 Ohms ½ watt
41	510101	Resistor—carbon 10 Ohms ½ watt
42	510119	Resistor—carbon 100 Ohms ½ watt
43	510101	Resistor—carbon 10 Ohms ½ watt
44	510119	Resistor—carbon 100 Ohms ½ watt
46	510713	Resistor—carbon 3000 Ohms ± 5% 2 watt
55	510185	Resistor—carbon 470,000 Ohms ½ watt
56	510160	Resistor—carbon 22,000 Ohms ± 10% ½ watt
57	510154	Resistor—carbon 10,000 Ohms ± 10% ½ watt (used in "Uncoded" chassis)
	510160	Resistor—carbon 22,000 Ohms ± 10% ½ watt (used in "Series A and B" chassis)
59	510191	Resistor—carbon 1 Meg. ½ watt (used in "Uncoded" chassis)
	510185	Resistor—carbon 470,000 Ohms ½ watt (used in "Series A and B" chassis)
60	510166	Resistor—carbon 47,000 Ohms ± 10% ½ watt
61	510185	Resistor—carbon 470,000 Ohms ± 20% ½ watt (used in "Uncoded" chassis)
	510184	Resistor—carbon 470,000 Ohms ± 10% ½ watt (used in "Series A and B" chassis)
63	510178	Resistor—carbon 220,000 Ohms ± 10% ½ watt
64	510145	Resistor—carbon 3300 Ohms ± 10% ½ watt
65	510147	Resistor—carbon 3900 Ohms ± 10% ½ watt
68, 69	510172	Resistor—carbon 100,000 Ohms ± 10% ½ watt
71	510163	Resistor—carbon 33,000 Ohms ± 10% ½ watt
73	510157	Resistor—carbon 15,000 Ohms ± 10% ½ watt
74	510195	Resistor—carbon 4.7 Meg. ½ watt
76	510185	Resistor—carbon 470,000 Ohms ½ watt
79	510150	Resistor—carbon 5600 Ohms ± 10% ½ watt
82	510143	Resistor—carbon 2200 Ohms ½ watt
83	510142	Resistor—carbon 2200 Ohms ± 10% ½ watt
85	510172	Resistor—carbon 100,000 Ohms ± 10% ½ watt
88	510181	Resistor—carbon 330,000 Ohms ± 10% ½ watt
90	510178	Resistor—carbon 220,000 Ohms ± 10% ½ watt
91, 92, 93	510119	Resistor—carbon 100 Ohms ½ watt
95, 96, 97	510119	Resistor—carbon 100 Ohms ½ watt

RESISTORS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
100	510213	Resistor—carbon 47 Ohms 1 watt
101	510716	Resistor—wire wound 220 Ohms ± 10% 5 watt
102	510332	Resistor—carbon 560 Ohms ± 10% 2 watt
108	510171	Resistor—carbon 82,000 Ohms ± 10% ½ watt
111	510185	Resistor—carbon 470,000 Ohms ½ watt
112	510191	Resistor—carbon 1 Meg. ½ watt
130	510167	Resistor—carbon 47,000 Ohms ½ watt
131	510147	Resistor—carbon 3900 Ohms ± 10% ½ watt
135	510143	Resistor—carbon 2200 Ohms ½ watt
148	510155	Resistor—carbon 10,000 Ohms ½ watt
153	510149	Resistor—carbon 4700 Ohms ½ watt
154	510179	Resistor—carbon 220,000 Ohms ½ watt
158	510155	Resistor—carbon 10,000 Ohms ½ watt
159	510149	Resistor—carbon 4700 Ohms ½ watt
162	510158	Resistor—carbon 15,000 Ohms ½ watt
163	510151	Resistor—carbon 6800 Ohms ± 10% ½ watt
164	510137	Resistor—carbon 1000 Ohms ½ watt
167	510117	Resistor—carbon 82 Ohms ± 10% ½ watt
171	510137	Resistor—carbon 1000 Ohms ½ watt
173	510153	Resistor—carbon 8200 Ohms ± 10% ½ watt
174	510137	Resistor—carbon 1000 Ohms ½ watt
176	510117	Resistor—carbon 82 Ohms ± 10% ½ watt
179	510137	Resistor—carbon 1000 Ohms ½ watt
181	510148	Resistor—carbon 4700 Ohms ± 10% ½ watt
182	510137	Resistor—carbon 1000 Ohms ½ watt
185	510117	Resistor—carbon 82 Ohms ± 10% ½ watt
188	510137	Resistor—carbon 1000 Ohms ½ watt
189	510153	Resistor—carbon 8200 Ohms ± 10% ½ watt
192	510142	Resistor—carbon 2200 Ohms ± 10% ½ watt
194	510115	Resistor—carbon 68 Ohms ± 10% ½ watt
196	510153	Resistor—carbon 8200 Ohms ± 10% ½ watt
198	510137	Resistor—carbon 1000 Ohms ½ watt
203	510188	Resistor—carbon 680,000 Ohms ½ watt (used in "Uncoded" chassis)
	510161	Resistor—carbon 22,000 Ohms ½ watt (used in "Series A and B" chassis)
204	510191	Resistor—carbon 1 Meg. ½ watt (used in "Uncoded" chassis)
	510155	Resistor—carbon 10,000 Ohms ½ watt (used in "Series A and B" chassis)
208	510115	Resistor—carbon 68 Ohms ± 10% ½ watt (used in "Uncoded" chassis)
209	510141	Resistor—carbon 1800 Ohms ± 10% ½ watt (used in "Uncoded" chassis)
	510133	Resistor—carbon 680 Ohms ± 10% ½ watt (used in "Series A and B" chassis)
211	510174	Resistor—carbon 120,000 Ohms ± 10% ½ watt
214	510126	Resistor—carbon 270 Ohms ± 10% ½ watt
216	510155	Resistor—carbon 10,000 Ohms ½ watt
218	510717	Resistor—carbon 47,000 Ohms ± 10% 1 watt
223	510253	Resistor—carbon 8200 Ohms ± 10% 1 watt
225	510191	Resistor—carbon 1 Meg. ½ watt
226	510723	Resistor—carbon 12,000 Ohms ± 5% ½ watt
228, 229	510131	Resistor—carbon 470 Ohms ½ watt
251	510720	Resistor—wire wound 10 Ohms ± 10% 5 watt
254	510720	Resistor—wire wound 10 Ohms ± 10% 5 watt
260	510185	Resistor—carbon 470,000 Ohms ½ watt
262	510137	Resistor—carbon 1000 Ohms ½ watt
266	510160	Resistor—carbon 22,000 Ohms ± 10% ½ watt
270	510197	Resistor—carbon 10 Meg. ½ watt
273	510163	Resistor—carbon 33,000 Ohms ± 10% ½ watt
274, 275	510159	Resistor—carbon 18,000 Ohms ± 10% ½ watt
278-A	505858	Resistor—carbon 470,000 Ohms 1/5 watt (part of audio coupling unit)
278-D	505858	Resistor—carbon 470,000 Ohms 1/5 watt (part of audio coupling unit)
279	510223	Resistor—carbon 180 Ohms ± 10% 1 watt
281	510150	Resistor—carbon 5600 Ohms ± 10% ½ watt
283	510332	Resistor—carbon 560 Ohms ± 10% 2 watt
287	510191	Resistor—carbon 1 Meg. ½ watt (used in "Series A and B" chassis)
291	510351	Resistor—carbon 6800 Ohms ± 10% 2 watt (used only in Model 9100-F)
293	510191	Resistor—carbon 1 Meg. ½ watt (used in "Series B" chassis)
294	510323	Resistor—carbon 180 Ohms ± 10% 2 watt (used only in Model 9100-F)

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

PARTS LIST (Contd.)

CONTROLS

DIAGRAM NO.	PART NO.	DESCRIPTION
19	507296	Potentiometer—Vertical hold control (500,000 Ohms)
21	507296	Potentiometer—Height control (500,000 Ohms)
28	507304	Potentiometer—Vertical linearity (2000 Ohms ± 10% 2 watt)
86	507299	Potentiometer—Horizontal hold control (50,000 Ohms)
99	507295	Potentiometer—Width control (2000 Ohms ± 10% 2 watt)
103	507297	Potentiometer—Focus control (10,000 Ohms ± 10% 4 watt)
109	507299	Potentiometer—Brightness control (50,000 Ohms)
213	507583	Potentiometer—Contrast control (6500 Ohms ± 10% 4 watt)
255-A,B	507294	Volume control 1 Meg. (with switch)

COILS AND TRANSFORMERS

DIAGRAM NO.	PART NO.	DESCRIPTION
16	507712	Transformer—vertical blocking oscillator
31	507312	Transformer—vertical output
33	507715	Coil—choke
49	507379	Coil—R. F. choke
52	507285	Coil—H. V. oscillator
78	503951	Coil—Horizontal sync. (includes slug, condenser 80 and resistor 79)
	507429	Slug for Horizontal sync. coil
105	507293	Coil—choke; horizontal output
	507585	R. F. Unit complete with coils and tubes
118	507952	Coil—antenna; channel #2
119	507953	Coil—antenna; channel #3
120	507954	Coil—antenna; channel #4
121	507955	Coil—antenna; channel #5
122	507956	Coil—antenna; channel #6
123	507957	Coil—antenna; channel #7
124	507958	Coil—antenna; channel #8
125	507959	Coil—antenna; channel #9
126	507960	Coil—antenna; channel #10
127	507961	Coil—antenna; channel #11
128	507962	Coil—antenna; channel #12
129	507963	Coil—antenna; channel #13
136	507972	Coil—R. F. and osc.; channel #2
137	507973	Coil—R. F. and osc.; channel #3
138	507974	Coil—R. F. and osc.; channel #4
139	507975	Coil—R. F. and osc.; channel #5
140	507976	Coil—R. F. and osc.; channel #6
141	507977	Coil—R. F. and osc.; channel #7
142	507978	Coil—R. F. and osc.; channel #8
143	507979	Coil—R. F. and osc.; channel #9
144	507980	Coil—R. F. and osc.; channel #10
145	507981	Coil—R. F. and osc.; channel #11
146	507982	Coil—R. F. and osc.; channel #12
147	507983	Coil—R. F. and osc.; channel #13
	507986	Slug—for osc. coil fine tuning adjustment
161	507985	Coil—1st I. F. (includes condensers 161-A, 161-B, resistor 162 and slug)
166	507567	Coil—I. F. trap
170	507343	Coil—2nd I. F. (less slug)
	507357	Slug core
178	507343	Coil—3rd I. F. (less slug)
	507357	Slug core
187	507343	Coil—4th I. F. (less slug)
	507357	Slug core
191	507367	Coil—choke
197	503952	Coil—last I. F. assembly (includes condenser 199 and choke coil 201)
	507357	Slug core
201	507367	Coil—choke
212	507589	Coil—peaking
217	507375	Coil—peaking (includes resistor 218)
219	507384	Transformer—sound take-off (includes condensers 220 and 221)
	507597	Slug core for sound take-off transformer
222	507374	Coil—peaking
227	506804	Focus coil

COILS AND TRANSFORMERS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
230	506805	Yoke—kinescope deflection
234	507584	Coil—choke
237	507586	Coil—choke
239	507970	Coil—choke for 6AG5 filament
241	507584	Coil—choke
243	507971	Coil—choke for 6J6 filament
245, 246	507378	Coil—R. F. choke
247	507586	Coil—choke
249	507587	Coil—choke
250	507574	Transformer—power
258	507313	Choke—filter
264	507321	Transformer—discriminator (includes condenser 264-A)
272	507373	Coil—choke
284	507212	Transformer—output for W-506806 speaker
	507209	Transformer—output for W-507111 speaker
	507991	Transformer—output for C-507761 speaker
289	507367	Coil—choke (used in "Series A and B" chassis)

OTHER ELECTRICAL PARTS

DIAGRAM NO.	PART NO.	DESCRIPTION
15-A to H	507588	Integrator coupling unit: A—Condenser-ceramic .01 Mfd. 450 volt; B—Resistor-carbon 22,000 Ohms 1/5 watt; C—Resistor-carbon 22,000 Ohms 1/5 watt; D—Condenser-ceramic 2000 Mmfd. 450 volt; E—Resistor-carbon 8200 Ohms 1/5 watt; F—Condenser-ceramic 5000 Mmfd. 450 volt; G—Resistor-carbon 8200 Ohms 1/5 watt; H—Condenser-ceramic 5000 Mmfd. 450 volt
110	507582	Selenium rectifier ("B" supply booster)
252, 253	507301	Selenium rectifier (receiver uses two of these units in main B+ supply)
278-A to D	505858	Audio coupling unit: A—Resistor-carbon 470,000 Ohms 1/5 watt; B—Condenser-ceramic 250 Mmfd. 450 volt; C—Condenser-ceramic .005 Mfd. 450 volt; D—Resistor-carbon 470,000 Ohms 1/5 watt
285	507111	Speaker—P. M. Dynamic (6" x 9"); Models 9100-B, 9100-C and 9100-D (includes output transformer)
	506806	Speaker—P. M. Dynamic (5"); Model 9100-A (includes output transformer)
	507761	Speaker—P. M. Dynamic (6"); Models 9100-E, 9100-F, 9100-G and 9100-H (includes output transformer)
295	118921	Lamp—indicator (Mazda #47) 6-8 volt 150 Ma. (used only in Models 9100-G and 9100-H)

MECHANICAL PARTS OF R.F. TUNER

(for electrical parts see preceding classified listings of condensers, resistors and coils)

DIAGRAM NO.	PART NO.	DESCRIPTION
	507585	R. F. Unit complete with coils and tubes
	507950	Fine tuning cam and brass shaft
	507964	Roller—detent
	507989	Shield—tube; miniature for 6J6 or 6AG5
	507986	Slug for osc. coil fine tuning adjustment
	507987	Socket-miniature for 6J6
	507988	Socket-miniature for 6AG5
	507969	Spring-detent
	507990	Spring-retains osc. fine tuning slug
	507967	Spring-turret shaft retaining
	507966	Spring-contactor washer (on front turret shaft)
	507984	Stator contact assembly (includes 11 contacts and metal frame)
	507951	Tuner turret and shaft assembly, less coils
	507965	Washer, fiber spacer (on turret shaft)

MISCELLANEOUS PARTS

DIAGRAM NO.	PART NO.	DESCRIPTION
	507717	Back for cabinet (Model 9100-A)
	507752	Back for cabinet (Models 9100-B, 9100-C and 9100-D)
	507785	Back for cabinet (Models 9100-E, 9100-F and 9100-G)
	507921	Back for cabinet (Model 9100-H)
	160026	Base for mtg. electrolytic condensers No. 26 and 81
	301270	Base for mtg. electrolytic condenser No. 257
	505368	Base for tube shield (miniature)

PARTS LIST (Contd.)

MISCELLANEOUS PARTS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
	507783	Bottom Plate (Models 9100-E, 9100-F, 9100-G and 9100-H)
	507283	Bottom shield for horiz. output choke coil
	507106	Bracket for focus coil (Models 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G and 9100-H)
	506907	Bracket—supports deflection yoke (Model 9100-A)
	506906	Bracket Base for suspension of deflection and focus support brackets from top of cabinet (Model 9100-A)
	501768	"C" washer for extension shaft (front)
	505314	"C" washer for extension shaft (rear)
	507287	"C" washer (bakelite—1⅜") for H. V. osc. coil
	507711	Cabinet—Model 9100-A
	507100	Cabinet—Model 9100-B
	507125	Cabinet—Model 9100-C
	507558	Cabinet—Model 9100-D
	507898	Cabinet—Model 91-00-E
	507899	Cabinet—Model 9100-F
	507908	Cabinet—Model 9100-G
	507909	Cabinet—Model 9100-H
	507114	Cable and Plug for deflection yoke
	507930	Call letter tabs for Models 9100-G and 9100-H
	506834	Catch for door (Model 9100-A)
	506908	Clamp for focus coil pivot (section with plain holes); Model 9100-A
	506909	Clamp for focus coil pivot (section with threaded holes); Model 9100-A
	507339	Clip for coil mounting
	507353	Clip for connection of internal shield in H. V. power supply
	507286	Connector for H. V. terminal of kinescope
	507324	Cover (front) for H. V. power supply
	507326	Cover (rear) for H. V. power supply
	507355	Core (half-section) for horiz. output choke
	506830	Door—right hand (Model 9100-A)
	506831	Door—left hand (Model 9100-A)
	507700	Escutcheon, channel number
	507122	Escutcheon for lid support (Models 9100-B, 9100-C and 9100-D)
	507780	Escutcheon, glass front (Model 9100-E)
	507904	Escutcheon, glass front (Model 9100-F)
	507912	Escutcheon—for Models 9100-G and 9100-H
	507753	Felt spacer strip; 4" long (Model 9100-A)
	507754	Felt dust seal strip; 8⅝" long
	507449	Frame assembly for picture tube support (Models 9100-B, 9100-C, 9100-D, 9100-E and 9100-G)
	507906	Frame assembly for picture tube support (Models 9100-F and 9100-H)
	506920	Glass window and escutcheon for Models 9100-A, 9100-B, 9100-C and 9100-D
	507910	Glass window for Model 9100-G
	507911	Glass window for Model 9100-H
	506916	Grounding spring for coating on kinescope (Models 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G and 9100-H)
	507570	Grounding spring for coating on kinescope (Model 9100-A)
	506833	Handle for door (Model 9100-A)
	506077	Handle—ornamental hardware (Models 9100-B, and 9100-D)
	505466	Handle—ornamental hardware (Model 9100-C)
	506832	Hinge for door (Model 9100-A) per pair
	507117	Hinge for lid (Models 9100-B, 9100-C and 9100-D) per pair
	506803	Ion trap assembly—includes both magnets
	507706	Knob—channel selector (Models 9100-A, 9100-B, 9100-C and 9100-D)
	507895	Knob—channel selector (Models 9100-E and 9100-F)
	507916	Knob—channel selector (Models 9100-G and 9100-H)
	507919	Knob—dummy (Models 9100-G and 9100-H)
	507707	Knob—fine tuning (Models 9100-A, 9100-B, 9100-C and 9100-D)
	507894	Knob—fine tuning (Models 9100-E and 9100-F)
	507917	Knob—fine tuning (Models 9100-G and 9100-H)
	507708	Knob for any control except channel selector and fine tuning (Models 9100-A, 9100-B, 9100-C and 9100-D)
	507896	Knob for any control except channel selector and fine tuning (Models 9100-E and 9100-F)
	507918	Knob for any control except channel selector and fine tuning (Models 9100-G and 9100-H)
	170662	Knurled nut for H.V. power supply cover
	507115	Lid for cabinet (Model 9100-B) less hardware

MISCELLANEOUS PARTS—Continued

DIAGRAM NO.	PART NO.	DESCRIPTION
	507116	Lid for cabinet (Model 9100-C) less hardware
	507573	Lid for cabinet (Model 9100-D) less hardware
	507130	Lid support assembly (including springs) for Models 9100-B, 9100-C and 9100-D
	507214	Locking bracket—holds focus coil in position during shipment (Models 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G and 9100-H)
	507208	Locking plate—holds focus coil in position during shipment (Model 9100-A)
	507112	Mirror
	507320	Mounting plate (bakelite) for H.V. power supply
	506918	Name plate for Models 9100-A, 9100-B, 9100-C, 9100-D, 9100-E and 9100-F
	507914	Name plate for Model 9100-G
	507913	Name plate for Model 9100-H
	170193	Nut—retains name plate (Models 9100-A, 9100-B, 9100-C, 9100-D, 9100-E and 9100-F)
	170195	Nut—wing #8-32; for picture tube frame, focus bracket and escutcheon
	170188	Nut—wing #10-24; for tension adjustment on lid support mechanism (Models 9100-B, 9100-C and 9100-D)
	170735	Nut—elastic stop for supporting focus coil (Model 9100-A)
	506915	Pivot for focus coil support (Model 9100-A)
	506635	Plug for focus coil cable
	507442	Plug for speaker cable
	507710	Plug and cable for rectifier unit
	507361	Rubber cover for H.V. terminal
	507422	Rubber sleeve on neck of kinescope
	170196	Screw—#6 x ⅜"; mounts cabinet back
	170180	Screw—#10-32 x 1"; mounts chassis (Models 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G and 9100-H)
	170182	Screw—#10-32 x 1½"; mounts chassis (Model 9100-A)
	170199	Screw—¼-20 x 1⅛"; mounts chassis board to cabinet (Models 9100-B, 9100-C and 9100-D)
	170741	Screw, thumb; supports yoke
	507714	Shaft extension for contrast control
	162016	Shaft and mtg. plate for dummy knob (Models 9100-G and 9100-H)
	507311	Shield can for horizontal output choke
	507317	Shield—housing; for selenium rectifier
	507327	Shield—inside of H.V. power supply compartment
	507368	Shield—surrounds H.V. power supply (does not include front or back cover)
	507349	Shield—tube ("GT")
	505367	Shield—tube (miniature)
	507429	Slug for horizontal sync. coil
	507597	Slug core for sound take-off transformer
	507357	Slug core for video I.F. coils
	507289	Socket—deflection yoke cable (5 prong)
	507915	Socket—indicator light
	507365	Socket—focus coil cable (2 prong)
	507364	Socket—miniature (7 pin)
	506575	Socket—noval
	506220	Socket—octal
	507290	Socket—octal (for 1B3GT/8016)
	507288	Socket—speaker
	507338	Socket and cable assembly for kinescope
	507709	Socket and cable for selenium rectifier unit
	506760	Spring—compression for lid support mechanism
	507129	Spring—tension; for lid support mechanism (2¾" long)
	507205	Spring—tension; for lid support mechanism (3⅞" long)
	506758	Spring washer for lid support mechanism
	507448	Strap assembly for picture tube support; Model 9100-A
	507351	Terminal strip for antenna connections
	506912	Washer—felt; for control shaft (Models 9100-A, 9100-B, 9100-C and 9100-D)
	505021	Washer—felt; for control shaft (Models 9100-E and 9100-F)

SERVICE TOOLS AND CABLES

DIAGRAM NO.	PART NO.	DESCRIPTION
	507443	Extension cable—high voltage
	507444	Extension cable—deflection yoke
	507445	Extension cable—kinescope
	507446	Extension cable—focus coil
	507447	Extension cable—speaker
	507479	I.F. alignment tool

MODELS 9100-A, 9100-B, 9100-C, 9100-D, 9100-E, 9100-F, 9100-G, 9100-H

OSCILLOGRAMS

All oscillograms taken with ground lead of 'scope connected to receiver chassis (unless otherwise indicated) and with receiver controls set for normal reception of a station transmitting its standard test pattern.

Number appearing below asterisk specifies setting of horizontal sweep frequency control on 'scope.

*— This symbol on illustration indicates that wave form was observed on a 'scope whose vertical amplifier had very limited high frequency response (50 to 100 Kc).

**— This symbol indicates that wave form was observed on a 'scope whose vertical amplifier frequency response was flat to within 20% up to 2 Mc.