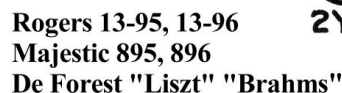
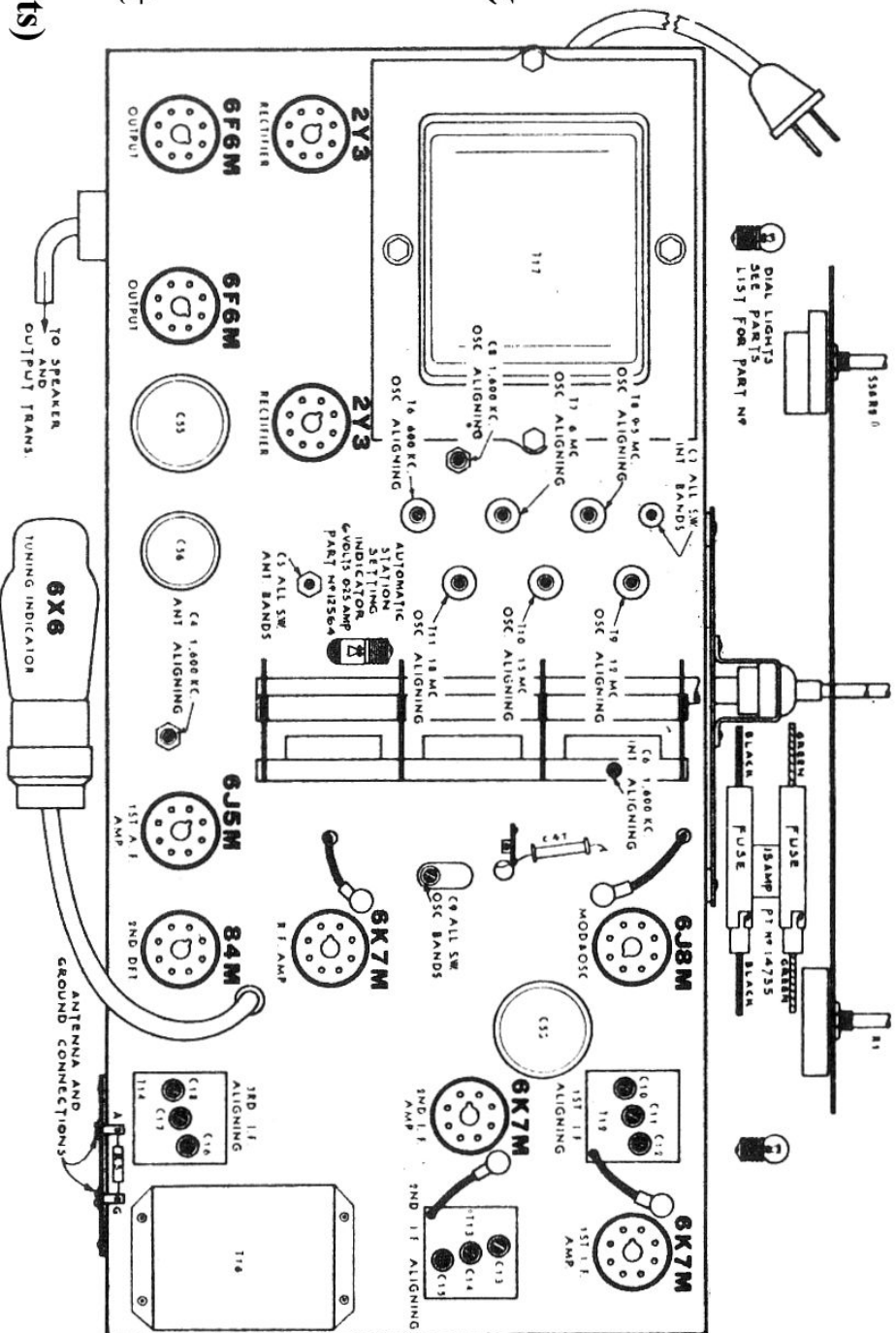


C16 - 456 KC. 3RD. I.F. ALIGNING
C17 - 456 KC. " " "
C18 - 456 KC. " " "



Rogers 13-95, 13-96 Majestic 895, 896 De Forest "Liszt" & "Brahms"

Broadcast Band Alignment (Next Page for Spread-Band) (Last page for Tuning Adjustments)



Operation	Connect	Set Generator Tuning	Set Receiver Tuning (x)	Dummy Antenna	Volume Control	Adjust	Remarks
1	To Grid Cap of 6J8M	456 kc/s.	700-800 kc/s.	.01 mfd.	Max.	C18, C17, C16, C15, C14, C13, C12, C11 and C10 (†)	To Peak I.F.

2	To Antenna	1600 kc/s.	1600 kc/s.	.0002 mfd.	Max.	C8	To Peak Osc.
3	To Antenna	1600 kc/s.	1600 kc/s.	.0002 mfd.	Max.	C6	To Peak I.S.
4	To Antenna	1600 kc/s.	1600 kc/s.	.0002 mfd.	Max.	C4	To Peak Ant.
5	To Antenna	600 kc/s.	600 kc/s.	.0002 mfd.	Max.	T6*	To Track Osc.
6	To Antenna	1600 kc/s.	1600 kc/s.	.0002 mfd.	Max.	C8, C6, C4	Recheck Adj.

NOTE:—Always use an output meter or other visual indicator when making alignment. Use only enough generator output to give readable value on output indicator. Resistors and condensers used as dummy antennae must be non-inductive types.

(†) C18, C17, C16 and C12 are present in 11 tube chassis only.

*Rock tuning control during this adjustment. Always ground generator and receiver (chassis) connection.

(x) For Automatic models, the push-button must be in the "Manual" position at all times during primary alignment. The tuning indicator will assist in indicating maximum alignment.

SHORT-WAVE SPREAD-BAND ALIGNMENT

The process of aligning the short-wave channels of a spread-band model differs materially from that encountered in conventional short-wave receivers. Before attempting such adjustment, the following detail must be fully read over and understood, so as to avoid the possibility of error which would result in complete mis-alignment of one or more of the short-wave channels.

The equipment recommended for alignment of the I. F. and broadcast channels still applies for spread-band adjustments, but with the qualification that the signal generator or service oscillator shall be of such type that very close stability as regards frequency must prevail. The signal generator is to be used primarily for the purpose of providing a steady signal at those frequencies selected for spread-band alignment. For positive identification of the frequencies used, it is essential that accurate calibration prevail.

If a crystal-controlled oscillator of the type described elsewhere in this data is available, it is recommended that it be used to provide marker frequencies throughout the short-wave channels as positive identification of frequency (see page 12).

Throughout the short-wave channels, the oscillator operates at 456 kilocycles **lower** in the frequency than the station carrier frequency. This point is important and must be kept well in mind to prevent aligning the short-wave channels on the image: With the oscillator running 456 kilocycles lower in frequency than the incoming carrier, it means that during the process of spread-band alignment, the movable cores of the short-wave inductances must be adjusted so that they are as far inside the coil form as necessary to provide proper peaking. This point is very important.

Of the eight adjustments provided for the short-wave channels, only three of these are interlocking and are identified by the symbols C5, C7 and C9 of the chassis illustration.

Adjustment of C5 and C7 will not in practice be found very critical, and the purpose of these adjustments is to correct dial scale calibration at the high frequency end of any band which shows extreme variation from normal dial calibration.

Adjustment of C9, however, is critical since it constitutes a primary adjustment affecting all short-wave bands simultaneously.

This particular condenser may, however, be found in field adjustments to provide all the required re-alignment that is necessary under ordinary conditions encountered where coil or wiring changes in the short-wave section of the receiver are not involved.

Adjustment of the individual bands is provided by adjustment of the movable cores of the oscillator coils indicated by the symbols T7, T8, T9, T10 and T11. The need for individual stage adjustment will occur whenever servicing of the receiver necessitates replacement of an oscillator coil, band switch section or wiring directly associated with the oscillator coils of the short-wave bands.

The most satisfactory method of aligning and checking the spread-band ranges is through the use of actual short-wave stations of known frequencies, which are tuned to in a specific receiver band and deviations from calibration noted.

Aligning points for the oscillator stages at short-waves are approximately 6.08, 9.5, 11.8, 15.2 and 17.8 megacycles. Minor deviations from these points will not materially affect the accuracy of adjustment.

The alignment of the antenna and interstages (R. F.) is made for all bands at one point only. By choice, this may be either at some particular frequency in which the user is especially interested (to ensure maximum sensitivity) or at the high frequency end of any one band, to improve the calibration in that band.

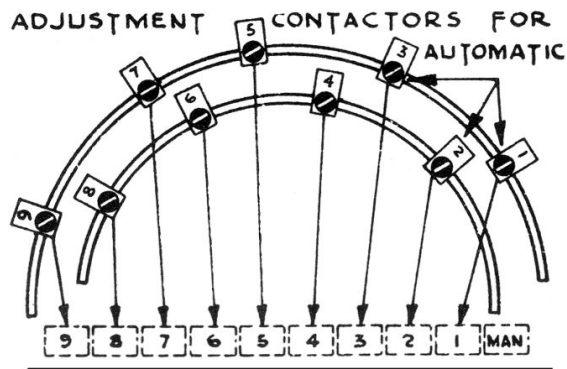
Before attempting complete re-alignment, always consider whether this adjustment is necessary. Possibly the desired improvement can be achieved by a minor adjustment of C9, C7 and C5. This latter usually suffices other than when coils, condensers, wiring or switches, in the R. F. unit have been changed.

In the foregoing has been described the functions of the various spread-band adjustments. Permissible deviation (in fractional inches) from scale calibration at aligning points is shown. To provide direction on the actual adjustment, the following procedure is given.

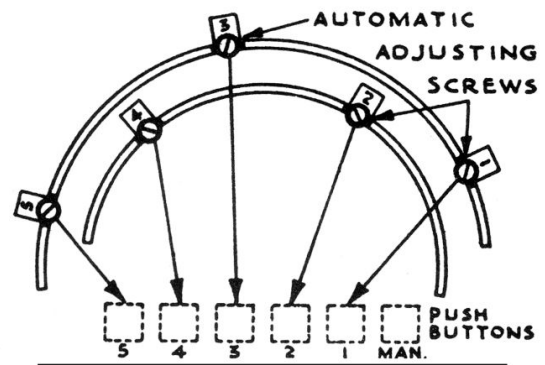
Operation	Connect	Generator	Receiver	Dummy	Adjust	Lineal
	Generator	Tuning *	Tuning	Antenna		Deviation
1	Antenna	6.8 mc/s.	6.8 mc/s.	400 ohms	T7	+ 1/8"
2	Antenna	9.5 mc/s.	9.5 mc/s.	400 ohms	T8	+ 1/8"
3	Antenna	11.8 mc/s.	11.8 mc/s.	400 ohms	T9	+ 1/8"
4	Antenna	15.2 mc/s.	15.2 mc/s.	400 ohms	T10	+ 1/8"
5	Antenna	17.8 mc/s.	17.8 mc/s.	400 ohms	T11	+ 1/8"
6	Antenna	As required to improve sensitivity or improve		400 ohms	C7	
7	Antenna	calibration at any particular frequency.		400 ohms		
8	Antenna	Recheck all foregoing adjustments.		400 ohms	C5	

NOTE:—Use only a visual output indicator during alignment. Keep the generator output low—only sufficient to give a readable indication. The dummy antenna must be non-inductive type, preferably that using isolantite sleeve and metal ends.

*Stabilize the generator before using by allowing it to operate until it stops drifting. Check its calibration against known stations at or near the aligning frequencies shown.



9-Station Models



5-Station Models

TUNING ADJUSTMENT

It is recommended that the receiver be operated for a period of one-half hour before making any changes in the Automatic group to ensure that the receiver has reached its normal operating temperature and that any changes due to differences in temperature will have taken place and the various components in the tuning circuit have become stabilized. Temperature compensated components are included in the circuit arrangement to minimize the effect of such thermal changes. The method of setting up the Automatic stations is simple and fool-proof.

To adjust for automatic operation proceed as follows (reference should be made to the various illustrations shown elsewhere in this booklet when completing the following adjustments):

1. With the receiver in the Broadcast position and properly warmed up, tune receiver manually to the station selected for No. 1 position. Ensure exact "in tune" position by use of Tuning Indicator.
2. Press in both "Manual" and No. 1 push-button simultaneously and see that both stay in "In" position. This will cause the station setting indicator bulb (in back of set) to light. (See special paragraph "Model Variation").
3. Loosen adjusting screw on Contactor No. 1 (see Illustrations above) and slide Contactor in either direction until station setting indicator light goes out.
4. Tighten adjusting screw on Contactor.
5. Press any Automatic button selected at random to release the "Manual" and No. 1 button, then press No. 1 button again to check accuracy of station setting.
6. Proceed as above to "set" the other remaining stations in order of frequency. The "Manual" and one Automatic button must be latched-in simultaneously during setting up adjustment.
7. Cut out and insert the station selector call letters from sheet supplied. Insert in openings of the push-buttons or escutcheon plate.

IMPORTANT

After "setting" each station, check accuracy by returning manually. Care should be taken to ensure that the station program selected is actually being transmitted by the station indicated by the call letters chosen.

Note that the automatic selector indicator light will remain lighted only when both the "Manual" and any other push-button are both latched-in simultaneously, and the station selector Contactor corresponding to the push-button happens to be off-tune. Under such conditions of operation, it will be noted that station signal will not be present. This is due to the fact that the "muting" transformer is in circuit. On very heavy signals, however, it may be possible to hear the station previously selected manually. Some difficulty may be noted in latching in the two-push buttons unless both are pressed simultaneously.

When the receiver is tuned to a station in any of the Automatic positions, any attempt to rotate the Manual tuning knob will result in the motor immediately returning the tuning to the selected station. Do not attempt to hold the Manual tuning control against the operation of the motor. This will result in stalling the motor with the possibility of stripping the gears. The dial light and motor supply circuits are protected by fuses. In the event that the motor fails to operate or the dial lights do not light, these fuses should be examined and if found defective, replaced with the proper type. Use only fuses Part No. 14735 (15 amps.).