

MODELS A9785, A9786, A9855
A9856

ALLIED RADIO CORP.

Chassis AMB
Alignment, Parts

The alignment of this receiver requires the correct sequence of operations in use of a test oscillator which will cover the frequencies of 436, 500, 1400, 1800, 4000, 6000, and 14,000 KC and properly aligning the receiver for the Broadcast Band.

GENERAL DATA
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CORRECT ALIGNMENT PROCEDURE
The intermediate frequency (I.F.) stages should be aligned on the output lead of the test oscillator. After the I.F. transformers have been properly adjusted and peaked, the Broadcast Band should always be the next procedure. Then proceed to adjust these two trimmers for peak at 14,000 KC (adjust oscillator trimmer first) and as the inherent design of the circuit has been expressedly developed for simplicity in servicing, only these two adjustments are necessary for aligning this band.

I.F. ALIGNMENT
Adjust the test oscillator to 436 KC and connect the output to the grid of the first detector tube (6A8) through a .05 or .1 mid. condenser. This ground on the test oscillator can be connected to the chassis ground. Align all five I.F. trimmers to peak or maximum reading on the output meter. As there are two stages of I.F. in this receiver, there will be consequently three I.F. transformers to align.

BROADCAST BAND ALIGNMENT
Adjust the oscillator to 1400 KC and connect the output to the antenna post marked "A" through a .001 mid. mica condenser to give the equivalent of an antenna about 50 feet. Set the receiver pointer to 1400 KC and adjust the broadcast oscillator trimmer to peak. (See drawing for location.) After this has been carefully done, the next step is to adjust the front trimmer of the gang condenser to peak. The front condenser section tunes the pre-amplifier stage. Then adjust the Broadcast Band R. F. trimmer to peak. This trimmer aligns the grid or input circuit of the 6A8 tube. (See drawing for position of Broadcast R. F. trimmer.) Next, re-set the dial pointer on the receiver and the test oscillator to 600 KC. Slowly increase or decrease the B. C. oscillator padding condenser and at the same time continuously tune back and forth across the signal with the receiver until the maximum reading is obtained on the output meter. This adjustment may be a little complicated but is the easiest way to adjust the oscillator to the R.F. section. (For location of B.C. padding condenser see drawing.) Return to 1400 KC and slowly increase or decrease the oscillator padding again over the adjustments of this frequency to condenser and at the same time continuously tune

POLICE BAND
In preparing the test oscillator for alignment of this band, connect a 400 ohm carbon resistor in series with the .0001 mid. condenser to prevent the signal at 14,000 KC from being received by the I. F. circuit. If code interferer amplifier which is tuned to 436 K. C. operating on the broadcast band. It code interferer amplifier which is tuned to 436 K. C.

FOREIGN BAND ALIGNMENT
The Foreign Band of 19 to 49 meters can be adjusted by the two KC trimmers marked and illustrated in the drawing as S.W. oscillator and S.W. trimmer. In preparing the oscillator for alignment of this band, connect a 400 ohm carbon resistor in series with the .0001 mid. condenser on the output lead of the test oscillator. Set the receiver pointer to 14,000 KC (also test oscillator). Then proceed to adjust these two trimmers for peak at 14,000 KC (adjust oscillator trimmer first) and as the inherent design of the circuit has been expressedly developed for simplicity in servicing, only these two adjustments are necessary for aligning this band.

WAVE TRAP ADJUSTMENT
At the rear of the case is encountered adjustment of this screw will chassis near the Air filter it out. It is to be used only if such interference is experienced in broadcast reception. It's use prevents a trap venis code transmitters operating on a frequency circuit in adjustment of code interference when around 436 K. C. from being received by the I. F. operating on the broadcast band. It code interferer amplifier which is tuned to 436 K. C.

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M B 19 Tube Radio Set
Part No. Description
P 1191 Geny Condohm Resistor
P 1192 Volume Control with Switch
P 1193 Tone Control
P 1194 Wave Switch
P 1195 8 Gang Trimmer Condenser
P 817 500 Ohm. Potting Condenser
P 1196 1500 Ohm. Potting Condenser
P 1197 Short Wave Antenna Coil Complete
P 1198 Short Wave Oscillator. Coil Comp.
P 1199 Middle Band Antenna Coil Comp.
P 1200 Middle Band Oscillator Coil Comp.
P 1201 Straight Dial Complete
P 1184 Volume Control with Switch (S. Dial)
P 1187 Tone Control (S. Dial)
P 1188 Wave Switch (S. Dial)
P 808 Kautschum Plate and Glass (S. Dial)
P 1184 20 Mfd. 300 V. Electrolytic Con.
P 1185 12 Mfd. 300 V. Electrolytic Con.
P 1043 4 Mfd. 100 V. Electrolytic Con.
P 1186 25 Mfd. 450 V. Electrolytic Con.
P 304 3 Mfd. 30 V. Electrolytic Con.
P 834 .05-400 V. Condenser
P 143 .10-200 V. Condenser
P 1207 45 Tube Socket
P 1211 Base Tone Control
P 1212 5 Prong Speaker Socket
P 1213 5 Prong Speaker Plug
P 1214 Base Control Cable
P 1215 Power Cable
P 1216 Input Cable
P 1040B Knob
P 141 25-200 V. Condenser
P 1208 70 Mfd. 100 V. Electrolytic Con.
P 304 3 Mfd. 30 V. Electrolytic Con.
P 850 45 Mfd. 450 V. Electrolytic Con.
P 1185 25 Mfd. 450 V. Electrolytic Con.
P 1191 Geny Condohm Resistor

M B 19 Tube Radio Set
Part No. Description
P 276 .10-400 V. Condenser
P 148 .02-400 V. Condenser
P 1193 .005-400 V. Condenser
P 1194 .002-400 V. Condenser
P 1033 .00275 Mica Condenser + 5%
P 480 .0001 Mica Condenser
P 1114 2 Megohm 1/4 Watt Resistor
P 1182 1 Megohm 1/4 Watt Resistor
P 1183 500,000 Ohm 1/4 Watt Resistor
P 275 1,000 Ohm 1/4 Watt Resistor
P 182 1 Meg. Ohm 1/4 Watt Resistor
P 136 250 Ohm 1/4 Watt Resistor
P 280 100,000 Ohm 1/4 Watt Resistor
P 1186 600 Ohm 1/4 Watt Resistor
P 757 4,000 Ohm 1/4 Watt Resistor
P 1189 15,000 Ohm 1/4 Watt Resistor
P 810 350 Ohm 1/4 Watt Resistor
P 187 10,000 Ohm 1/4 Watt Resistor
P 419 20,000 Ohm 1/4 Watt Resistor
P 185 25,000 Ohm 1/4 Watt Resistor
P 184 Tube Shields
P 482 80 Tube Socket
P 535 45 Tube Socket
P 536 80 Tube Socket
P 973 4 Prong Speaker Plug
P 845 4 Prong Speaker Socket
P 1188 Output Audio Transformer
P 1209 Power Transformer
P 1201 Input Audio Transformer
P 1202 Filter Choke
P 1203 Filter Choke
P 1204 85 Tube Socket
P 1206 85 Tube Socket

AMPLIFIER UNIT PARTS AMB
Part No. Description
P 1207 45 Tube Socket
P 1211 Base Tone Control
P 1212 5 Prong Speaker Socket
P 1213 5 Prong Speaker Plug
P 1214 Base Control Cable
P 1215 Power Cable
P 1216 Input Cable
P 1040B Knob
P 141 25-200 V. Condenser
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LOWER CENTER KNOB
(Continuous Variable Bass Control). The bass control permits the regulation of the extreme low notes at the usual volume for reception in the average room, without affecting the high notes.

MODELS A9752, A9753, A9754
A9755, Chassis 46A
MODELS A9768, A9769, A9770
Chassis 68B, 68BE

ALLIED RADIO CORP.

Alignments

Model 68B-68BE—Three Band Superhetrodyne Receiver

Six Volt Storage Battery Operated

ALIGNMENT PROCEDURE:

Lack of sensitivity and poor tone quality may be due to any one or a combination of causes such as weak or defective tubes or speaker, low battery voltage, open or grounded bias resistor, bypass condenser, inadequate or excessive long antenna, etc. Never attempt to realign set until all other possible sources of trouble have been first thoroughly investigated and definitely proven not to be the cause.

NOTE: IT IS ABSOLUTELY NECESSARY THAT AN ACCURATELY CALIBRATED TEST OSCILLATOR BE USED WHEN ALIGNING THE RECEIVER AND THAT THE PROCEDURE BE CAREFULLY FOLLOWED, OTHERWISE THE RECEIVER WILL BE INSENSITIVE AND THE DIAL CALIBRATION WILL BE INCORRECT. THE TRIMMER AND PADDING CONDENSERS WILL BE REFERRED TO BY THEIR FUNCTION AS INDICATED ON THE CIRCUIT DIAGRAM.

Realignment of this receiver should never be necessary unless one of the oscillator, antenna, or I. F. coils has been replaced. Lack of sensitivity, selectivity, and poor tone quality may be due to any one or a combination of causes, such as weak or defective tubes or speaker, inadequate or excessive long antenna, open or grounded bias resistor, bypass condenser, etc. Under no circumstances should realignment be attempted until all other possible sources have been first thoroughly investigated and have been definitely proven not to be the cause.

If an I. F. tube is replaced it is advisable to realign the I. F. Amplifier particularly if the replacement tube is one of a different manufacturer than the one in the receiver. It is important when aligning to carefully follow the procedure in the order given, otherwise the receiver will lack sensitivity and the dial calibration will be incorrect.

IT IS IMPERATIVE THAT AN ACCURATELY CALIBRATED OSCILLATOR BE USED WITH SOME TYPE OF OUTPUT MEASURING DEVICE.

- ALIGNING I.F. STAGE AT 465 KILOCYCLES:**
- Attach the ground lead of the test oscillator to the chassis. Connect the other lead to the grid cap of the 6A7 tube through a .02 Mfd. series condenser. DO NOT REMOVE GRID CLIP.
 - Set test oscillator to EXACTLY 465 kilocycles and turn receiver volume control on full.
 - Peak each of the second I.F. transformer trimmers.

- INTERMEDIATE ALIGNMENT:**
- Connect the high side of the test oscillator output to the control grid of the 6D6 modulator tube through a .02 Mfd. condenser. Leave the grid cap connected to the grid terminal of the tube, and connect the ground side of the test oscillator to the receiver ground.
 - Set the test oscillator frequency to 465 kilocycles (this must be accurate).
 - Align the second intermediate transformer by turning one of the trimmer screws accessible through holes in the top of the transformer shields up and down (increasing and decreasing capacity) until maximum reading is obtained on the output meter, after which adjust the other trimmer screw of the same transformer for maximum sensitivity.
 - Adjust the first intermediate transformer in the same manner as the second I. F. transformer.

- ALIGNING 1720-535 KILOCYCLE BAND:**
- Check tuning dial adjustment by turning gang condenser until plates touch maximum capacity stop (completely in mesh), at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If the dial needle does not point exactly to the last line move needle to correct position.
 - Remove test oscillator lead from grid of 6A7 tube and connect to receiver antenna lead through a .00025 Mfd. series condenser.
 - Adjust band selector switch for operation on the 1720-535 kilocycle band.
 - Set test oscillator frequency and receiver dial to EXACTLY 1720 kilocycles, and BRING IN 1720 KILOCYCLE TEST OSCILLATOR SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 1720 KILOCYCLE OSCILLATOR TRIMMER.
 - Tune receiver dial and set test oscillator frequency to EXACTLY 1400 kilocycles. Adjust 1400 K.C. preselector and antenna trimmers for maximum sensitivity.
 - Set test oscillator frequency and receiver dial to approximately 600 kilocycles. Then while rocking gang condenser slightly to right and left, adjust 600 K.C. oscillator paddler for maximum signal response.

TO ALIGN THE VARIABLE CONDENSER:

It is important when aligning the gang condenser, padding and trimmer condensers to follow the procedure carefully, otherwise the receiver will be insensitive and the dial calibration will be incorrect. The padding and trimmer condensers located underneath the chassis will be referred to by their function as indicated on the circuit diagram.

- Connect the high output side of the test oscillator through a 400 ohm resistor to the receiver antenna lead and the low side to the set ground.
- Place the band selector switch for operation on the 5.8 to 18.1 megacycle band, tune the receiver dial, and set the test oscillator frequency to EXACTLY 18.1 MEGACYCLES.

- ALIGNING 1.8-5.8 MEGACYCLE BAND:**
- Replace .00025 Mfd. test oscillator antenna lead series condenser with a 400 ohm resistor.
 - Adjust band selector switch to 1.8-5.8 megacycles, tune receiver dial and set test oscillator frequency to EXACTLY 5.8 megacycles. Bring in 5.8 megacycle test signal to maximum output by adjusting 5.8 M.C. oscillator trimmer.
 - Tune receiver dial and set test oscillator frequency to EXACTLY 5 megacycles, and adjust 5 M.C. antenna trimmer for maximum sensitivity.

- With band selector switch set for operation on 5.8 to 18.1 megacycle band tune the receiver dial and set test oscillator frequency to EXACTLY 16 MEGACYCLES. Adjust 16 megacycle antenna trimmer for maximum 16 megacycle signal sensitivity.
- Place band selector switch for operation on 1.7 to 5.8 megacycle band, tune the receiver dial, and set test oscillator frequency to EXACTLY 5.8 MEGACYCLES. BRING IN 5.8 MEGACYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 5.8 MEGACYCLE OSCILLATOR TRIMMER.
- With the band selector switch set for operation on the 1.7 to 5.8 megacycle band tune receiver dial and set test oscillator frequency to EXACTLY 5 MEGACYCLES. Then adjust 5 megacycle antenna trimmer for maximum 5 megacycle signal sensitivity.

- ALIGNING 5.8-18.3 MEGACYCLE BAND:**
- Leave 400 ohm resistor in series with test oscillator lead and place band selector switch for operation on 5.8-18.3 megacycle band, tune receiver dial and set test oscillator frequency to EXACTLY 18 megacycles.
 - Adjust 18 M.C. oscillator trimmer to bring in 18 megacycle test signal to maximum output.

NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity and the dial calibration will be incorrect. The padding and trimmer condensers located underneath the chassis will be referred to by their function as indicated on the circuit diagram.

- ALIGNING 1720 KILOCYCLE BAND:**
- Leave 400 ohm resistor in series with test oscillator lead and place band selector switch for operation on 1720 kilocycle band, tune receiver dial, and set test oscillator frequency to EXACTLY 1720 KILOCYCLES. NEXT BRING IN THE 1720 KILOCYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 1720 KILOCYCLE OSCILLATOR TRIMMER.
 - With band selector switch placed for operation on the 540 to 1720 kilocycle band set test oscillator frequency and receiver dial to EXACTLY 1400 KILOCYCLES. Adjust 1400 kilocycle preselector and antenna trimmers for maximum 1400 kilocycle signal sensitivity.

NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity, then screw down the trimmer (add capacity) until the first peak which is the fundamental and the proper one to use is tuned in. If the trimmer is screwed down beyond the point where the first peak is received, the incorrect image peak will be tuned in. After completing adjustment of the oscillator trimmer at 18.1 megacycles always check to see if the proper peak has been used. To do this leave the test oscillator frequency at 18.1 megacycles, increase the output of the test oscillator and tune the receiver dial to approximately 17.1 megacycles, and if the fundamental peak was used in aligning at 18.1 megacycles the test oscillator signal will be heard at approximately 17.1 megacycles on the receiver dial. If it is not possible to receive the signal, then the fundamental peak was not used and the 18.1 megacycle oscillator trimmer must be properly re-adjusted.

- With band selector switch set for operation on 5.8 to 18.1 megacycle band tune the receiver dial and set test oscillator frequency to EXACTLY 16 MEGACYCLES. Adjust 16 megacycle antenna trimmer for maximum 16 megacycle signal sensitivity.
- Place band selector switch for operation on 1.7 to 5.8 megacycle band, tune the receiver dial, and set test oscillator frequency to EXACTLY 5.8 MEGACYCLES. BRING IN 5.8 MEGACYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 5.8 MEGACYCLE OSCILLATOR TRIMMER.
- With the band selector switch set for operation on the 1.7 to 5.8 megacycle band tune receiver dial and set test oscillator frequency to EXACTLY 5 MEGACYCLES. Then adjust 5 megacycle antenna trimmer for maximum 5 megacycle signal sensitivity.
- Replace the 400 ohm resistor in series with test oscillator lead with a 200 Mmfd. condenser, place the band selector switch for operation on the 540 to 1720 kilocycle band, tune receiver dial, and set test oscillator frequency to EXACTLY 1720 KILOCYCLES. NEXT BRING IN THE 1720 KILOCYCLE SIGNAL TO MAXIMUM OUTPUT BY ADJUSTING 1720 KILOCYCLE OSCILLATOR TRIMMER.
- With band selector switch placed for operation on the 540 to 1720 kilocycle band set test oscillator frequency and receiver dial to EXACTLY 1400 KILOCYCLES. Adjust 1400 kilocycle preselector and antenna trimmers for maximum 1400 kilocycle signal sensitivity.

NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity and the dial calibration will be incorrect. The padding and trimmer condensers located underneath the chassis will be referred to by their function as indicated on the circuit diagram.

- Tune receiver dial and set test oscillator frequency to EXACTLY 15 megacycles.
- Rock gang condenser slightly to right and left and adjust 15 M.C. antenna trimmer for maximum 15 megacycle test signal response.

NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity and the dial calibration will be incorrect. The padding and trimmer condensers located underneath the chassis will be referred to by their function as indicated on the circuit diagram.

- To assure more accurate trimmer setting, repeat all above adjustments several times always using lowest possible test oscillator output consistent with readable output meter scale deflection.
- W.A.C.**
- Leave band selector switch for operation on 540 to 1720 kilocycle band, tune receiver dial and set test oscillator frequency to approximately 600 kilocycles. While rocking gang condenser slightly to right and left adjust 600 kilocycle oscillator paddler for maximum sensitivity.

NOTE: When adjusting this trimmer two peaks, the fundamental and the image peak will be noticed. CARE MUST BE TAKEN THAT THE FUNDAMENTAL PEAK AND NOT THE IMAGE PEAK IS USED FOR ALIGNING THE RECEIVER AT 18 MEGACYCLES. Always back off the trimmer to minimum capacity and the dial calibration will be incorrect. The padding and trimmer condensers located underneath the chassis will be referred to by their function as indicated on the circuit diagram.