

## Allied Radio Corp.

**Model:** 7C-220

**Chassis:**

**Year:** Pre 1949

**Power:**

**Circuit:**

**IF:**

**Tubes:**

**Bands:**

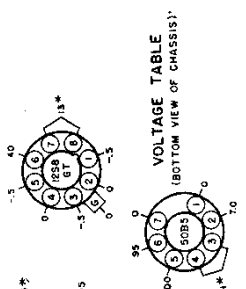
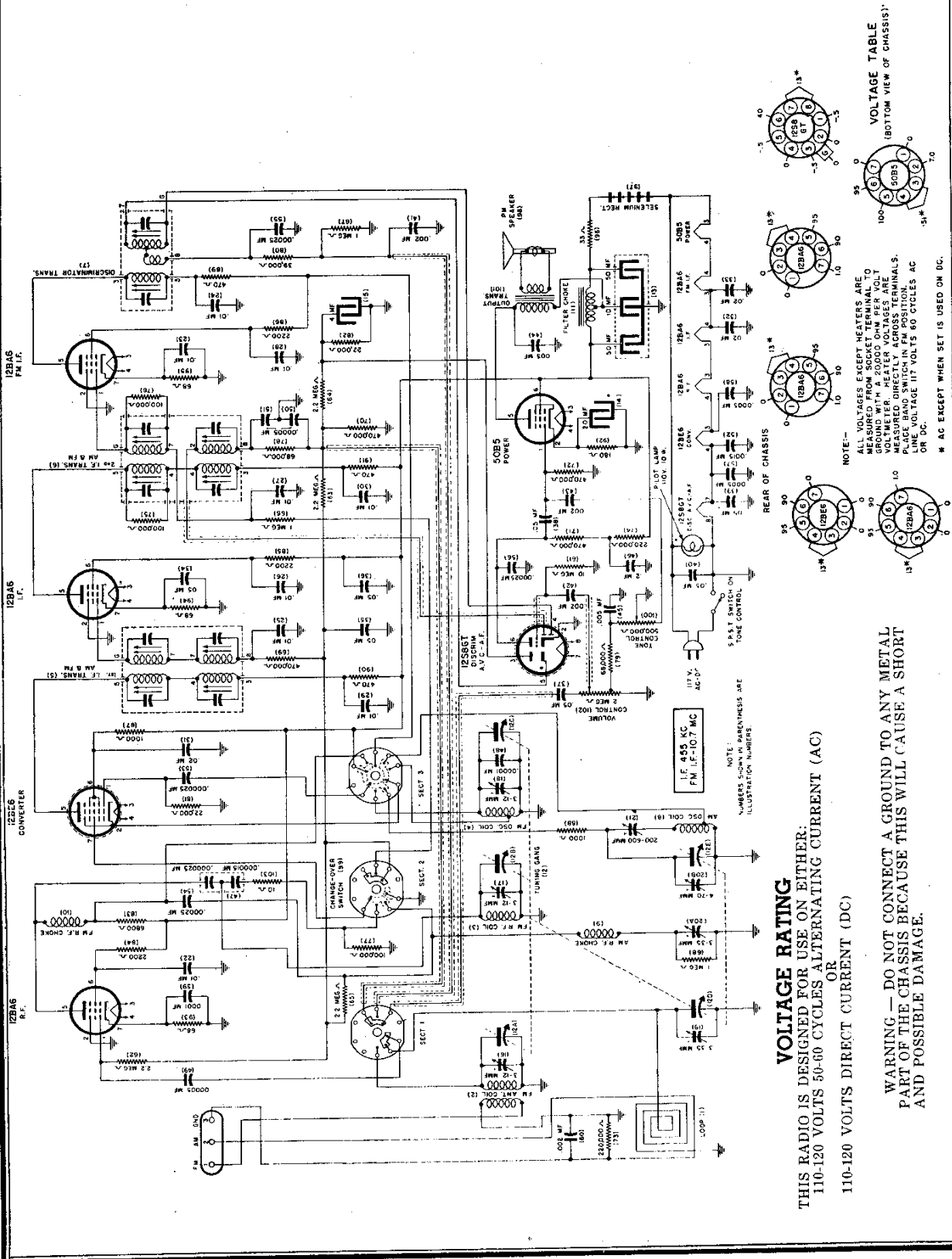
### Resources

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**VOLTAGE TABLE**  
(BOTTOM VIEW OF CHASSIS)

NOTE:—  
ALL VOLTAGES EXCEPT HEATERS ARE MEASURED FROM SOCKET TERMINAL TO GROUND. HEATER VOLTAGES ARE MEASURED DIRECTLY ACROSS TERMINALS. PLACE BAND SWITCH IN FM POSITION. VOLTAGE 117 VOLTS 60 CYCLES AC OR DC.

\* AC EXCEPT WHEN SET IS USED ON DC.

**VOLUME RATING**  
THIS RADIO IS DESIGNED FOR USE ON EITHER:  
110-120 VOLTS 50-60 CYCLES ALTERNATING CURRENT (AC)  
OR  
110-120 VOLTS DIRECT CURRENT (DC)

**WARNING — DO NOT CONNECT A GROUND TO ANY METAL PART OF THE CHASSIS BECAUSE THIS WILL CAUSE A SHORT AND POSSIBLE DAMAGE.**





PARTS LIST

Table with columns: No., Part Name, Part No., Description, List Price. Lists various electronic components like resistors, capacitors, and tubes.

FM ALIGNMENT

Instructions for Alignment of the Frequency Modulation I. F. Transformers, Discriminator, Oscillator, R. F. and Antenna Circuits, with equipment generally available to the service man.

- (A) After all the above FM I. F. Transformer Trimmer adjustments have been correctly completed, MAKE A NOTE OF THE READING ON THE VOLTMETER.
(F) Next, detune the signal generator to a slightly HIGHER frequency (higher than the 10.7 reference frequency), until the Voltmeter reads ONE-HALF of the figure noted in (E) above, and MAKE A NOTE OF THE GENERATOR FREQUENCY AT WHICH THIS OCCURS.
(G) Now, detune the signal generator to a LOWER frequency (lower than the 10.7 reference frequency), until the Voltmeter again reads ONE-HALF the original figure noted in (E), and AGAIN NOTE THE GENERATOR FREQUENCY AT WHICH THIS OCCURS.

The difference between the two above frequencies, obtained in (F) and (G), the one lower than 10.7 M. C. reference point and the one higher, is the "Half-amplitude" Band width of the F.M.I. F. system. These two frequencies (F) and (G), should be somewhat uniformly spaced on either side of the 10.7 M. C. (C) reference frequency. A SLIGHT DIFFERENCE IS NOT SERIOUS. Only when one is more than twice as far as the other from the 10.7 M. C. reference frequency, or when there is a double peak, is the discrepancy serious. Assuming the P. M. I. F. Transformers have been properly adjusted, a double peak, or extremely one-sided "half-amplitude" band width, is usually caused by regeneration or a defective P. M. I. F. Transformer.

PROCEDURE FOR THE ALIGNMENT OF THE FM ANTENNA, R. F. AND OSCILLATOR CIRCUITS.

- (A) Leave Voltmeter connected across the 4 Mfd. condenser (Illus. No. 15).
(B) Connect the Signal Generator to the "FM" and "GROUND" posts that are attached to the receiver loop back, through a 5 foot or more length of 300 Ohm transmission line.
(C) Set Signal Generator so that it will deliver an unmodulated 108 M. C. signal. If the generator available is not designed to deliver a 108 M. C. signal, use a generator covering at least to 30 M. C. and set this generator frequency to 27 M. C.—the fourth harmonic of which will be 108 M. C.
(D) Set Receiver Dial Pointer to EXACTLY 108 M. C.
(E) Adjust 108 M. C. Oscillator Trimmer for MAXIMUM reading on Voltmeter.
(F) Next, tune the receiver to 104 M. C.
(G) Set Signal Generator to deliver a 104 M. C. unmodulated signal.

PROCEDURE FOR ALIGNMENT OF FM I. F. TRANSFORMERS.

- (A) Leave the Voltmeter connected across the 4 Mfd. Condenser (Illus. No. 15).
(B) Connect Signal Generator to Input Grid (Pin #7) of 12BE6 Converter tube.
(C) Set Signal Generator to EXACTLY 10.7 M. C.—if possible, mark the position where this occurs right on the Generator's calibrated dial because this becomes a reference point in checking for proper FM I. F. alignment.
(D) Adjust each of the 1st and 2nd FM I. F. Transformers' 10.7 M. C. trimmers for MAXIMUM reading on Voltmeter. KEEP OUTPUT OF SIGNAL GENERATOR SO THAT A READING OF APPROXIMATELY 2 TO 4 VOLTS IS OBTAINED ON THE VOLTMETER.

It is somewhat helpful to hear the signal, so, if preferred, an AM modulation on the 108 M. C. and 104 M. C. signal frequencies may be used for alignment of the FM Oscillator, R. F. and Antenna circuits. With modulated or unmodulated signal, ALWAYS ADJUST FOR MAXIMUM READING ON VOLTMETER.

A FREQUENCY MODULATED SIGNAL GENERATOR may be used instead of an AM signal generator. When a Frequency Modulated Signal Generator is used, it is recommended that an unmodulated carrier be used for all of the above adjustments EXCEPT alignment of the Discriminator Secondary Trimmer. Use a frequency modulated signal (22.5 K. C. deviation) and align Discriminator Secondary for MAXIMUM AUDIO RESPONSE heard in speaker.

- (E) After all the above FM I. F. Transformer Trimmer adjustments have been correctly completed, MAKE A NOTE OF THE READING ON THE VOLTMETER.
(F) Next, detune the signal generator to a slightly HIGHER frequency (higher than the 10.7 reference frequency), until the Voltmeter reads ONE-HALF of the figure noted in (E) above, and MAKE A NOTE OF THE GENERATOR FREQUENCY AT WHICH THIS OCCURS.
(G) Now, detune the signal generator to a LOWER frequency (lower than the 10.7 reference frequency), until the Voltmeter again reads ONE-HALF the original figure noted in (E), and AGAIN NOTE THE GENERATOR FREQUENCY AT WHICH THIS OCCURS.

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PROCEDURE FOR THE ALIGNMENT OF THE FM ANTENNA, R. F. AND OSCILLATOR CIRCUITS.

- (A) Leave Voltmeter connected across the 4 Mfd. condenser (Illus. No. 15).
(B) Connect the Signal Generator to the "FM" and "GROUND" posts that are attached to the receiver loop back, through a 5 foot or more length of 300 Ohm transmission line.
(C) Set Signal Generator so that it will deliver an unmodulated 108 M. C. signal. If the generator available is not designed to deliver a 108 M. C. signal, use a generator covering at least to 30 M. C. and set this generator frequency to 27 M. C.—the fourth harmonic of which will be 108 M. C.
(D) Set Receiver Dial Pointer to EXACTLY 108 M. C.
(E) Adjust 108 M. C. Oscillator Trimmer for MAXIMUM reading on Voltmeter.
(F) Next, tune the receiver to 104 M. C.
(G) Set Signal Generator to deliver a 104 M. C. unmodulated signal.

It is somewhat helpful to hear the signal, so, if preferred, an AM modulation on the 108 M. C. and 104 M. C. signal frequencies may be used for alignment of the FM Oscillator, R. F. and Antenna circuits. With modulated or unmodulated signal, ALWAYS ADJUST FOR MAXIMUM READING ON VOLTMETER.

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