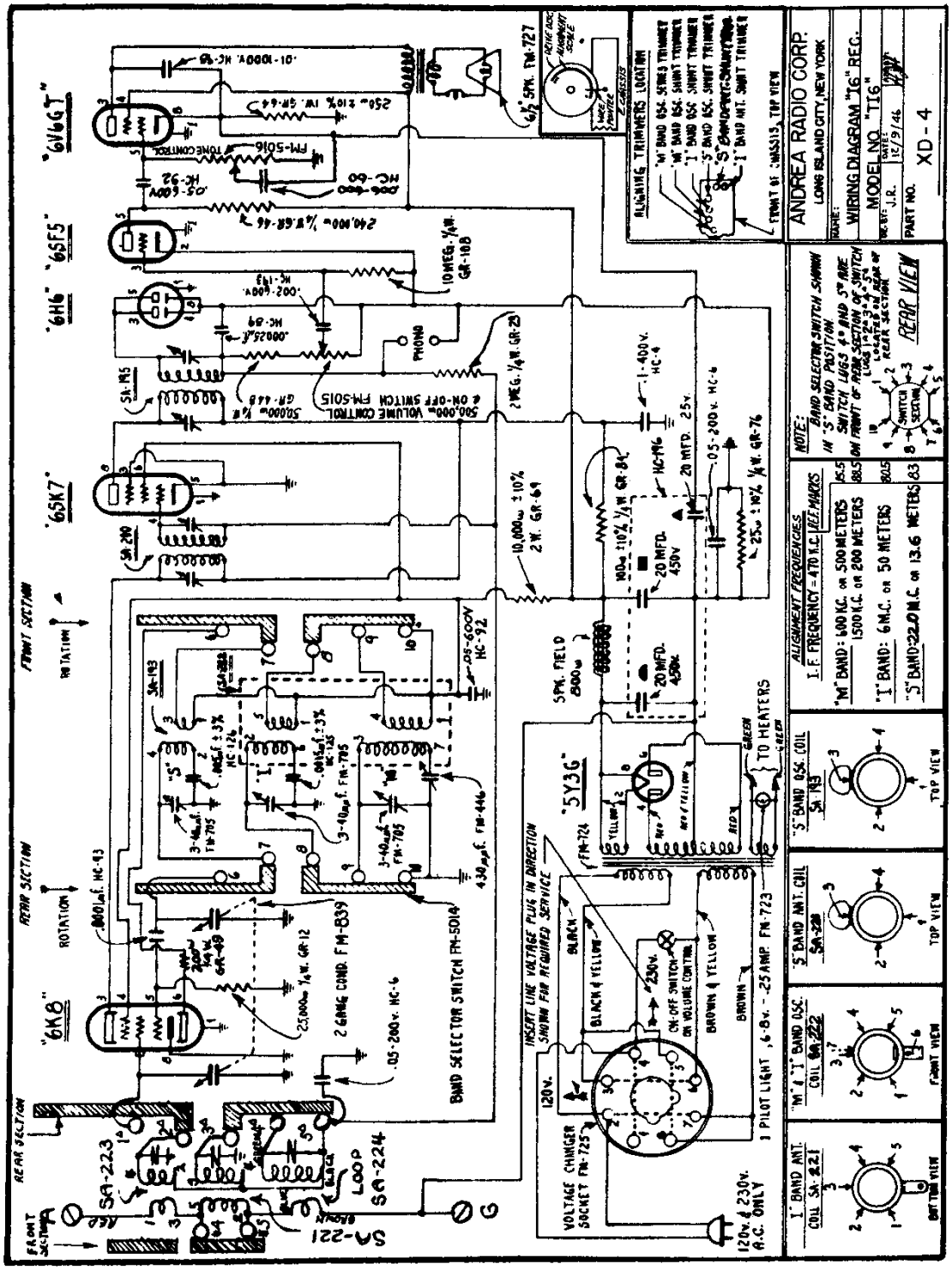
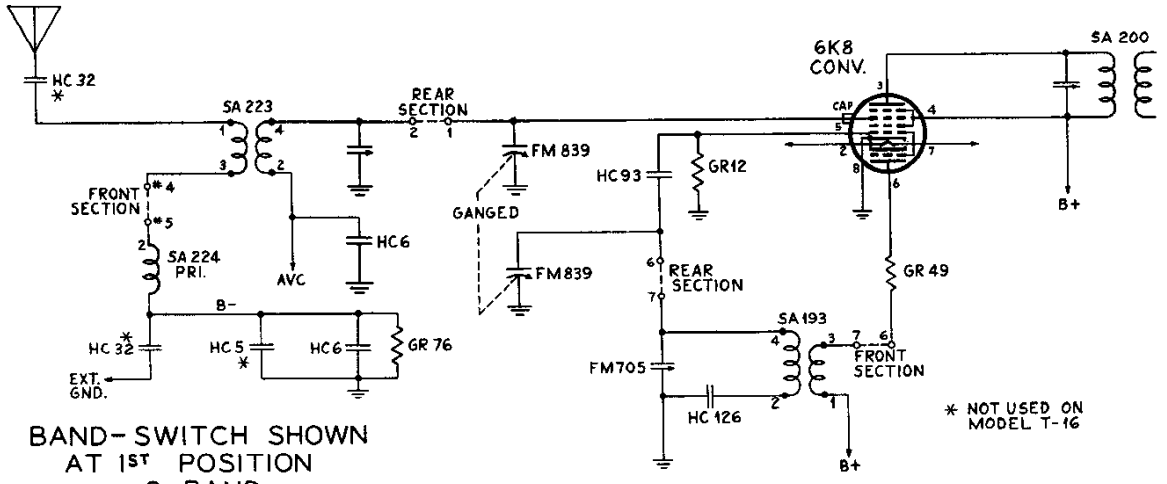
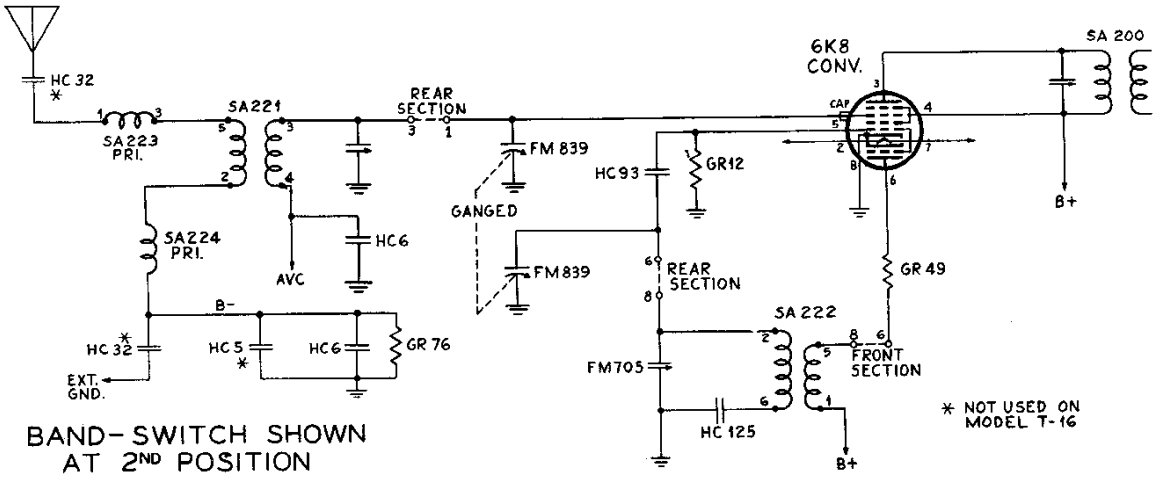
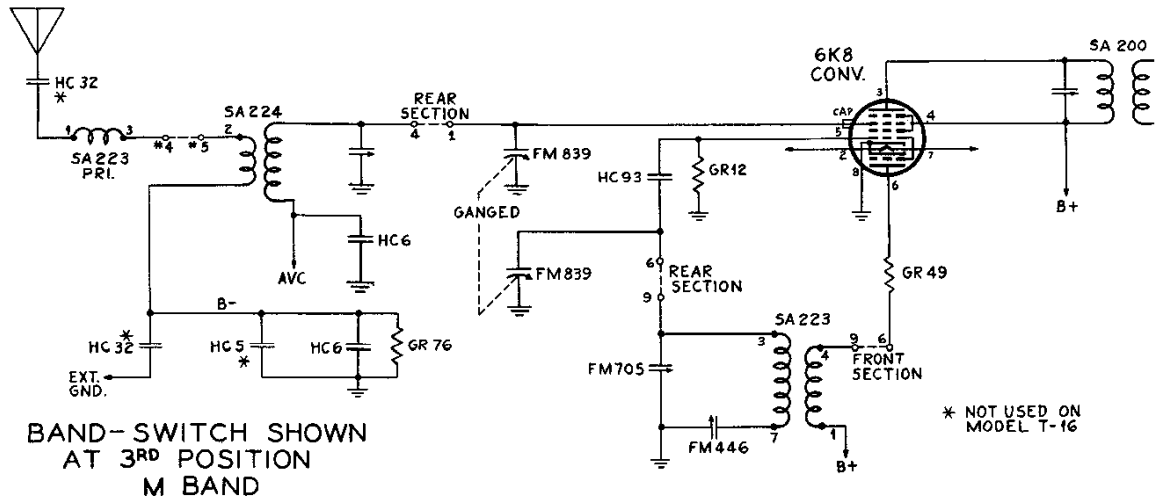

ANDREA RADIO CORP.
LONG ISLAND CITY, NEW YORK
WIRING DIAGRAM "T6" REG.
MODEL NO. "T16"
DATE: 12/9/46
PART NO. XD-4
"6K8"
"6V6GT"
"6H6"
"6SF5"
"6SK7"
"5Y3G"
REAR SECTION
FRONT SECTION
ROTATION
SA-223
SA-224
LOOP
ANTENNA
BAND SELECTOR SWITCH FM-5014
2 GANG COND. FM-839
VOLTAGE CHANGER SOCKET FM-725
INSERT LINE VOLTAGE PLUG IN DIRECTION SHOWN FOR REQUIRED SERVICE
120v. & 230v. A.C. ONLY
1 PILOT LIGHT, 6-8v. - .25 AMP. FM-723
ON-OFF VOLUME CONTROL FM-5015
TONE CONTROL FM-5016
6½" SPK. FM-727
PHONO
5 MEG. ½W. GR-25
10 MEG. ½W. GR-108
10,000Ω ±10% 2W. GR-69
20 MFD. 450v
20 MFD. 25v
20 MFD. 450v
5 SPK. FIELD 800Ω
TO HEATERS
ALIGNMENT FREQUENCIES
I.F. FREQUENCY = 470 K.C.
"M" BAND: 600 K.C. OR 500 METERS
1500 K.C. OR 200 METERS
"I" BAND: 6 M.C. OR 50 METERS
"S" BAND: 22.0 M.C. OR 13.6 METERS
NOTE: BAND SELECTOR SWITCH SHOWN IN "S" BAND POSITION
SWITCH LUGS 4 AND 5 ARE ON FRONT OF REAR SECTION OF SWITCH
LUGS 1, 2, 3, 4, 5 LOCATED ON REAR OF REAR SECTION
REAR VIEW
ALIGNING TRIMMERS LOCATION
"M" BAND OSC. SERIES TRIMMER
"M" BAND OSC. SHUNT TRIMMER
"I" BAND OSC. SHUNT TRIMMER
"S" BAND OSC. SHUNT TRIMMER
"S" BAND ANT. SHUNT TRIMMER
"I" BAND ANT. SHUNT TRIMMER
FRONT OF CHASSIS, TOP VIEW
"I" BAND ANT. COIL SA-221
"M" & "I" BAND OSC. COIL SA-222
"S" BAND ANT. COIL SA-223
"S" BAND OSC. COIL SA-143
BOTTOM VIEW
FRONT VIEW
TOP VIEW



BAND-SWITCH SHOWN AT 1ST POSITION
S BAND



BAND-SWITCH SHOWN AT 2ND POSITION
I BAND



BAND-SWITCH SHOWN AT 3RD POSITION
M BAND

FOR OPERATION ON AC - LINE VOLTAGES OF
105-125, 210-240, 50/60 CYCLES

WARNING! Always remove the line plug from the electric outlet before removing the chassis from the cabinet. Also - connect the speaker plug to the receiver before switching on the power. Otherwise, damage will result.

I. F. REALIGNMENT GENERALLY SUFFICIENT: As a rule, it is not necessary to readjust the short wave oscillator and antenna shunt and series trimmers unless they have been tampered with, or require replacing. Consequently, careful realignment of the I. F. system is all that requires attention, ordinarily. Before making any adjustments, tune in one particular station and note the quality of reception so that you can check the improvement after the I. F. system has been realigned.

USE SIGNAL GENERATOR AND OUTPUT VOLTMETER: For realigning, use a signal generator to supply a modulated carrier of 470, 600, 1,500, 6,000, and 22,000 kc., plus an output voltmeter. Alignment by any other means is not recommended. Your service test generator should be checked frequently for change in calibration by getting a zero beat between the generator and broadcast stations of known frequency.

SPECIAL NOTES: Before proceeding to align the antenna and oscillator circuits bear in mind that these circuits control the accuracy of the main tuning dial calibration particularly the oscillator trimmers. As the main dial is a part of the cabinet, servicing of the chassis can be made without the use of this dial by using the reference alignment scale 0 to 100 divisions attached permanently to the gang condenser drive drum.

The table below indicates the reference dial settings for the required alignment frequencies. You will note that the chassis contains a self-tapping screw located just below the gang condenser drum, the purpose of which, is to enable you to wrap a piece of bare wire and thereby form a pointer to the reference scale. Set the pointer at the zero marking on the reference scale with the gang condenser plates fully meshed (all capacity in) after which rotate the drum to the correct reference setting for proper circuit alignment and procedure in accordance with the Band alignment instruction. Remove reference pointer before installing in cabinet.

ALIGNMENT FREQ. KC.	REFERENCE DIAL SETTING	BAND
1,500	88.5	"M"
600	15.5	"M"
6,000	80.5	"I"
22,000	85	"S"

NOTES ON REALIGNING THE BANDS: During the aligning measurements, the output of the signal generator must be kept low so that it will not cause the AVC circuit in the set to function. In other words, when the volume control on the set is turned to maximum, the output should not show more than .5 volt across the voice coil, or 50 milliwatts in the plate circuit of the output tube.

Generally, at frequencies above 7,000 kc., the signal generator frequency will change with each adjustment of the generator output attenuator control. Hence, the receiver must be retuned each time the attenuator is adjusted.

Some generators cause trouble by direct radiation to the set at frequencies above 8 mc. Experience indicates that more accurate alignment is possible when the generator is separated by several feet from the receiver under test, in order to eliminate this direct pickup.

470 KC. I. F. ALIGNMENT: Connect the high-potential lead of the signal generator in series with a .1 mfd. condenser to the grid of the 6K8 tube. Set the generator at 470 kc., and adjust the output until a small deflection is obtained in the output meter. Adjust the trimmers condensers on the top of the 1st and 2nd I.F. transformers (see circuit diagram) for maximum deflection on the output meter. After this adjustment has been made, disconnect the generator from the grid of the 6K8 tube. This completes the alignment of the I.F. system.

"S" BAND ALIGNMENT:

Connect the high-potential lead from the generator in series with a 400 ohm resistor to the antenna terminal (marked A) on rear of loop, and the low side of the generator to the ground terminal (marked G) on rear of loop. Put the wave band switch at the S position, adjust the generator to 22,000 kc., and the receiver reference scale to 22.0 mc. Vary the S band oscillator shunt trimmer slowly from maximum to minimum. You will hear the signal at two settings of the trimmer, one nearer the minimum capacity (plates open) and one near the maximum capacity (plates closed). The setting near minimum capacity is correct, because the setting near maximum capacity is at the image frequency.

Now adjust the antenna shunt trimmer. During this adjustment, be sure to rock the gang condenser back and forth SLOWLY each time you make an adjustment of the trimmer. As you continue to do this, you will reach a point where further turning of the trimmer screw, while rocking the gang condenser, will not increase the signal response. This is the correct adjustment.

A simple method of determining if the receiver and generator are tuned for correct alignment is as follows:

Set the signal generator at 22,000 kc. and tune the receiver slowly from 21,000 to 23,000 kc. Two signals should be heard, 940 kc. apart. One will be lower in frequency than 22,000 kc. and the other will be higher. The higher frequency, as indicated on the dial, is the correct aligning frequency, and the lower one is the image.

As a further check, leave the receiver tuned to the higher frequency. Very slowly, increase the generator frequency from 22,000 kc. to about 23,000 kc. A signal will be heard near 23,000 kc. if all the settings are correct for alignment. If there is no signal, the original settings were on the image frequency. In that case, you must start again from the beginning, in order to be sure of accurate results.

After you have found the correct settings, the image, or lower, frequency response on the receiver will always sound weaker than the true signal.

"I" BAND ALIGNMENT: With the signal generator connected in accordance with the preceding instructions, set the generator at 6,000 kc., turn the wave band switch to the I position, and adjust the gang reference scale to 6 mc., as set forth in the chart. Following the procedure just described, adjust the I band oscillator shunt trimmer for maximum signal response. Next, adjust the I band antenna shunt trimmer. Rock the gang condenser back and forth slowly as you adjust the trimmer, in accordance with the instructions for the S band adjustment. This completes the adjustment for the I band.

"M" BAND ALIGNMENT: Replace the 400-ohm resistor in the generator lead by a .00025 mfd. condenser. Set the generator at 1,500 kc., turn the wave band switch to the M position, and set the gang reference scale of the receiver at 1,500 kc., as set forth in the chart. Adjust the M band oscillator shunt trimmer for maximum signal response. Next, adjust the antenna shunt trimmer for maximum response.

This band must be aligned at 600 kc. also. Set the generator accordingly, and tune the receiver to 600 kc., as set forth in the chart. Adjust the M band oscillator series trimmer for maximum response. During this adjustment, be sure to rock the gang condenser for each small change of capacity of the series trimmer. When this adjustment has been completed, recheck the antenna adjustment at 1,500 kc. This completes the adjustment of the M band.

After installing the chassis in the cabinet, turn the tuning knob until the gang condenser plates are completely meshed. Then slide pointer along cord (without opening gang) until the center of the pointer is over the last diamond marking on the left side of the 2.5-7 mc. scale. When the above is followed correctly along with method of alignment, the pointer will match the correct scale calibration throughout.

TUBES:	6K8	Oscillator & Modulator	6SF5	1st Audio
	6V6GT	Beam Power Output	5Y3G	Rectifier
	6H6	2nd Detector & AVC	6SK7	I.F. Amplifier

IMPORTANT: If you find it necessary to replace any part in this receiver, bear this in mind: In order to maintain the high performance standards of Andrea Radio receivers, the component parts on all Andrea models are held to exceedingly close tolerance limits. Furthermore, Andrea components are given the exclusive "Climate Sealed" treatment which protects them from all weather and temperature conditions. Consequently, standard Andrea Radio replacement parts must be used for all service work, for the substitution of ordinary stock items will result in inferior performance.

ANDREA RADIO CORP. MODEL T-16