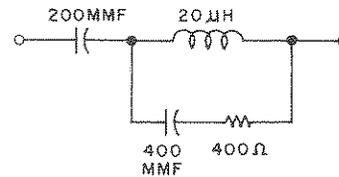


ALIGNMENT PROCEDURE

- Use an amplitude modulated generator covering 455 KC to 30 MC.
- Use a modulated output for every step except Step 2.
- Connect output meter across speaker voice coil.
- Use a non-metallic alignment tool.
- Standard RETMA dummy antenna as shown in Fig. 3.
- Set the AM/CW switch at AM, (except for BFO adjustment), SPEAKER/PHONES switch at SPEAKER, VOLUME control at maximum. RECEIVE/STANDBY switch at RECEIVE and the BAND SPREAD control at 0.
- See Figs. 4 and 5 for location of alignment adjustments.



092-101549

Figure 3. RETMA Dummy Antenna

Step	Signal Generator Connections	Generator Frequency	Band Selector Setting	Receiver Dial Setting	Adjust
IF ALIGNMENT					
*1	High side thru a .01 mfd. capacitor to stator plates of front section of TUNING gang. Low side to chassis.	455 KC (30% Mod.)	1	1.0 MC	A, B, C and D for maximum output. Keep reducing gen. output so that the reading on the output meter does not exceed 50 milliwatts.
BFO ADJUSTMENT					
2	Same as Step 1. Set generator for 50 MW reference output, turn off generator mod., and place receiver BFO on.	455 KC (No Mod.)	1	1.0 MC	AM/CW control until a CW note is heard as a clear audio tone. Advance control until an output level of 50 MW is obtained.
RF ALIGNMENT					
3	High side thru RETMA antenna to terminal A1 on back of chassis. Low side to chassis. Connect jumper between A2 and G.	30 MC	4	30 MC	F and G for maximum output as in Step 1.
4	Same as Step 3.	14 MC	3	14 MC	H and J for maximum output as in Step 1.
5	Same as Step 3.	5 MC	2	5 MC	K and L for maximum output as in Step 1.
6	Same as Step 3.	1500 KC	1	1.5 MC	M and N for maximum output as in Step 1.
		600 KC	1	.6 MC	P for maximum output as in Step 1.

* Before beginning IF alignment procedure, rotate AM/CW ratio control to its full counterclockwise position.

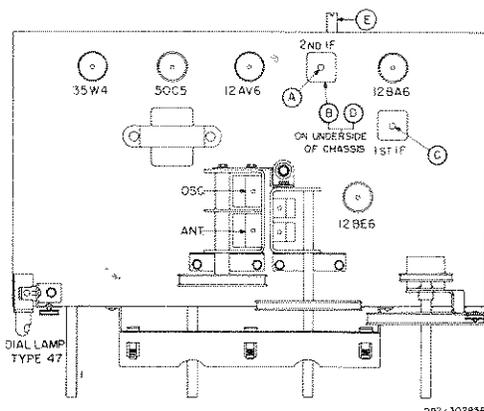


Figure 4. Top View Chassis

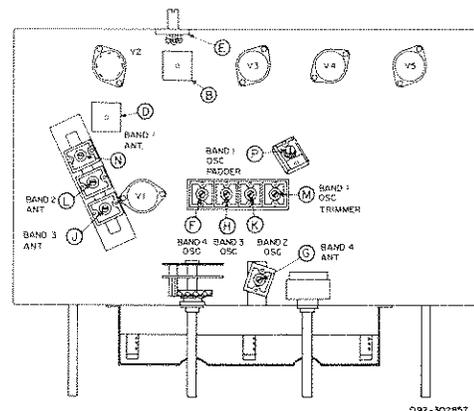
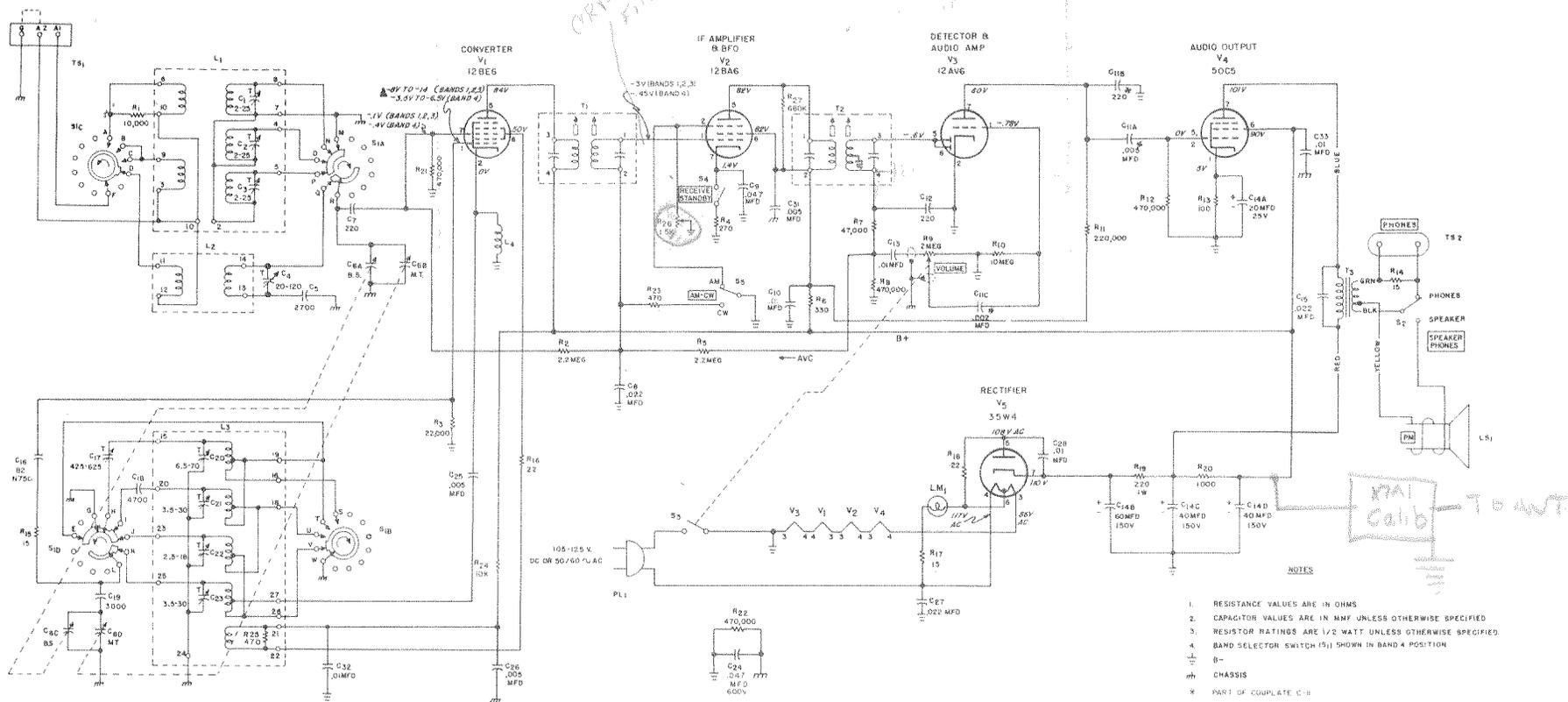
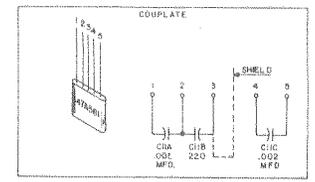
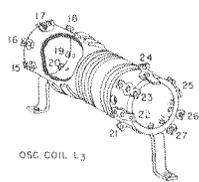
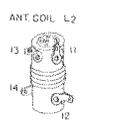
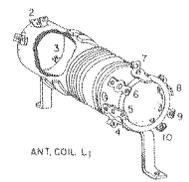
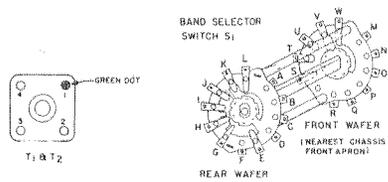


Figure 5. Bottom View Chassis



- NOTES
1. RESISTANCE VALUES ARE IN OHMS
 2. CAPACITOR VALUES ARE IN MMF UNLESS OTHERWISE SPECIFIED
 3. RESISTOR RATINGS ARE 1/2 WATT UNLESS OTHERWISE SPECIFIED
 4. BAND SELECTOR SWITCH (S1) SHOWN IN BAND 4 POSITION
 5. B- CHASSIS
 6. PART OF COUPLATE C-11



NOTE: VALUES & TOLERANCES SHOWN ARE NOMINAL AND VARIATIONS MAY BE FOUND. IT IS RECOMMENDED THAT THE VALUES OF ANY REPLACEMENT CORRESPOND TO THE NOMINAL VALUE OF THE PART BEING REPLACED.

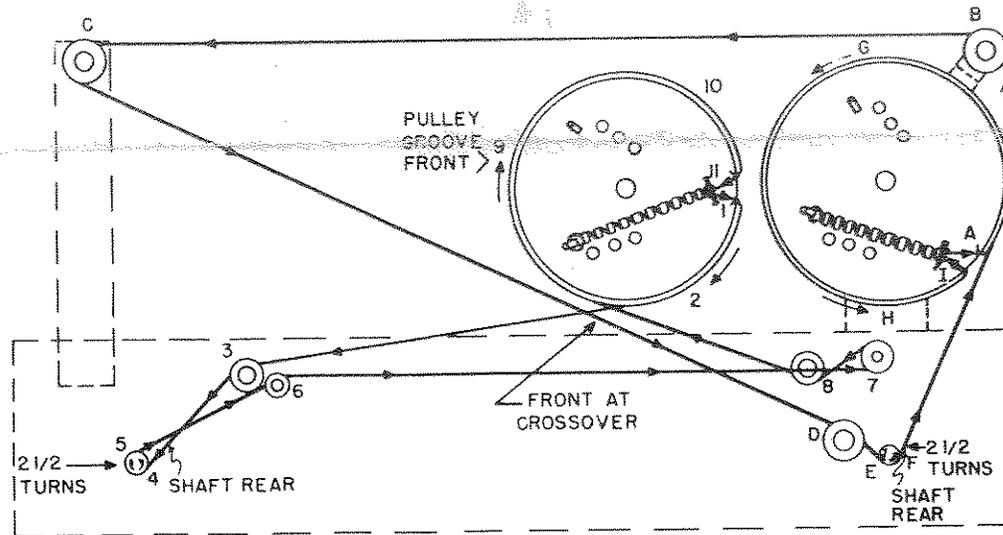
- VOLTAGES
1. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND B- (PIN 3 OF 12AV6); WITH ANTENNA TERMINALS SHORTED, AM/CW SWITCH AT AM, AND RECEIVE/STANDBY SWITCH AT RECEIVE.
 2. LINE VOLTAGE - 117 VOLTS AC.
 3. ALL VOLTAGES WERE MEASURED WITH A VACUUM TUBE VOLTMETER (VTVM) AND ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
- VARIES WITH TUNING GANG SETTING.

089-500956-E

Figure 6. Schematic Diagram

SERVICE PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			*RESISTORS (CONTINUED)			TUBES AND DIAL LAMP (CONTINUED)		
C1, 2, 3	Trimmer, 2-25 mmfd.; 3 Section, Compression Mica	044-200129	R9	2 megohm, VOLUME Control; Inc. On-Off Switch: S-3	025-201479	V3	12AV6; Detector and Audio	090-901187
C4	20-120 mmfd.; Ceramic Trimmer	044-100424	R10	10 megohm	451-252106	V4	50C5; Audio Output	090-900541
C5	2700 mmfd., 500V., 5%; Mica	470-412272	R11	220K ohm	451-252224	V5	35W4, Rectifier	090-900394
C6A, C	Variable Capacitor, BAND-SPREAD	048-300410	R13	100 ohm	451-252101	LM1	Lamp, Dial Type #47	039-100004
C6B, D	Variable Capacitor, MAIN TUNING	048-300372	R14, 15, 17	15 ohm	451-252150	MISCELLANEOUS		
C7, 12	220 mmfd., 500V., 10%; Mica	470-213221	R16, 18	22 ohm	451-252220	Back, Cabinet	032-400754	
C8, 15, 27	.022 mfd., 500V; Tubular Paper	499-034223	R19	220 ohm, 1 watt	451-252221	Bracket, Idler, Pulley, and Dial Lamp	087-205191	
C9	.047 mfd., 600V; Tubular Paper	499-034473	R20	1K ohm	451-252102	Bracket, Pulley Mtg.	067-205190	
C10, 28, 33	.01 mfd., 450V; Ceramic Disc	047-100224	R23, 25	470 ohm	451-252471	Bracket, Switch Mtg.	067-303192	
C11A, B, C	Printed Circuit Plate, .005 mfd., 220 mmfd., .002 mfd., 500 WYDC	047-100551	R25	1500 ohm, AM-CW RATIO Control	025-201751	Bushing, Tuning, and Band Spread Shaft	077-201684	
C13	.01 mfd., 600V; Tubular Paper	499-034103	R27	885K ohm	451-252684	Cabinet, S-38E	066-401754	
C14A, B	20 mfd. @ 25V; 60-40-40	045-300091	*All Resistors 10%, 1/2 watt, carbon type, unless otherwise specified.			Cabinet, S-38EB	066-102175	
C, D	mfd. @ 150V; Electrolytic		COILS AND TRANSFORMERS			Cabinet, S-38EM	066-102176	
C16	82 mmfd., 10% NT50; Ceramic Tubular	499-034220	**L1, C1, 2	Coil and Trimmer Assembly, Antenna; Bands 1, 2, and 3	051-302132	Clip, IF Mtg.	076-100385	
C17	425-625 mmfd.; Mica Trimmer	044-100349	L2	Coil, Antenna; Band 4	051-201015	Clip, Dial Lamp Mtg.	076-100660	
C18	4700 mmfd., 500V., 5%; Mica	470-412472	21, 22, 23	Oscillator; All Bands	051-302132	Cover, Cabinet Bottom	032-300501	
C19	3000 mmfd., 500V., 5%; Mica	470-412302	L4	Choke; RF 540 oh	053-100107	Dial Cord (Specify Length)	039-100026	
C20, 21, 22, 23	Trimmer, 6.5-70 mmfd.; 3.5-30 mmfd.; 2.5-18 mmfd.; 3.5-30 mmfd.; 4 Section, Compression Mica	044-200159	T1	Transformer, 1st IF	030-300531	Foot, Mtg.	016-200983	
C24	.047 mfd., 400V., 20%; Tubular Paper	499-024473	T2	Transformer, 2nd IF	030-300532	Gasket, Rubber	016-101245	
C25, 26	.005 mfd., 450V; Ceramic Disc	047-100168	T3	Transformer, Audio Output	055-300347	Glass; Dist Window	022-200572	
C31	.005 mfd., 500V., 20%; Ceramic Disc	047-100442	**The Trimmer Capacitor Assemblies are also available separately. See "CAPACITORS".			Knob, Band Selector (S-38E)	015-201259	
C32	.01 mfd., 400V; Tubular Paper	499-024103	SWITCHES			Knob, Band Selector (S-38EB, EM)	015-201280	
*RESISTORS			S1A, B	BAND SELECTOR	060-300861	Knob, BANDSPREAD, OFF-VOLUME or MAINT TUNING (S-38E)	015-301258	
R1, 24	10K ohm	451-252103	C, D			Knob, BANDSPREAD, OFF-VOLUME, or MAIN TUNING (S-38EB, EM)	015-301281	
R2, 5	2.2 megohm	451-252225	S2, 4, 5	SPEAKER-PHONE, AM-CW, and RECEIVE-STANDBY On-Off; Part of R9	060-100477	Line Cord and Plug	087-100078	
R3	22K ohm	451-252223	S3			Line Cord Lock (Male Section)	076-100397-01	
R4	270 ohm	451-252271	SOCKETS AND CONNECTORS			Line Cord Lock (Female Section)	076-100397-02	
R6	330 ohm	451-252331	TS1	Terminal Strip, Antenna	088-100671	Pointer, Band-Spread (S-38E)	082-200350	
R7	47K ohm	451-252473	TS2	Twin Jack Strip, Phones	088-100071	Pointer, Band-Spread (S-38EB, EM)	082-200386	
H8, 12, 21, 22	470K ohm	451-252474		Socket, Dial Lamp (Inc. Leads)	086-100122	Pointer, Main Tuning (S-38E, EM)	082-200395	
				Socket, 7 Pin Miniature	006-100308	Pointer, Main Tuning (S-38E)	082-200349	
*RESISTORS			TUBES AND DIAL LAMP			Shield, Tube	069-100232	
			V1	12BE6; Converter	090-900040	Shield, Dial Lamp	008-101249	
			V2	12BA6; IF Amplifier and BFO	090-900039	Speaker, 3" PM; 3.2 ohm voice coil	065-300030	



NOTE: MAIN TUNING & BANDSPREAD GANGS FULLY MESHED.

092-202855

Figure 7. Main Tuning and Bandspread Gang Pointer Drive Stringing Diagrams