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PHOTOFACT® Folder



MORROW MODELS CB-1, -2, -3,
5W1-6, -12, -117, 5W3-6, -12, -117



MODEL 5W3-117

MORROW MODELS CB-1, -2, -3,
5W1-6, -12, -117, 5W3-6, -12, -117

TRADE NAME	Morrow Models CB-1, CB-2, CB-3, 5W1-6, 5W1-12, 5W1-117, 5W3-6, 5W3-12, 5W3-117
MANUFACTURER	Morrow Radio Mfg. Co., 2794 Market Street, N. E., Salem, Oregon
TYPE SET	11 Tube Crystal Controlled 3 Channel Citizens Band Transmitter-Receiver (CB Series are Single Channel)
POWER SUPPLY	Models CB-1, 5W1-6, 5W3-6: 6 Volt Storage Battery Models CB-2, 5W1-12, 5W3-12: 12 Volt Storage Battery Models CB-3, 5W1-117, 5W3-117: 110-120 Volts AC, 60 Cycles
RATING	(Model 5W3-117) 68 Watts, .62 Amp. @117 Volts AC (Transmit), 61 Watts, .56 Amp. @117 Volts AC (Receive) (6 Volt Versions) 8 Amp. @6.3 Volts DC (12 Volt Versions) 4 Amp. @12.6 Volts DC
TUNING RANGE	Any Citizens Band Channel 1 thru 23

NOTICE

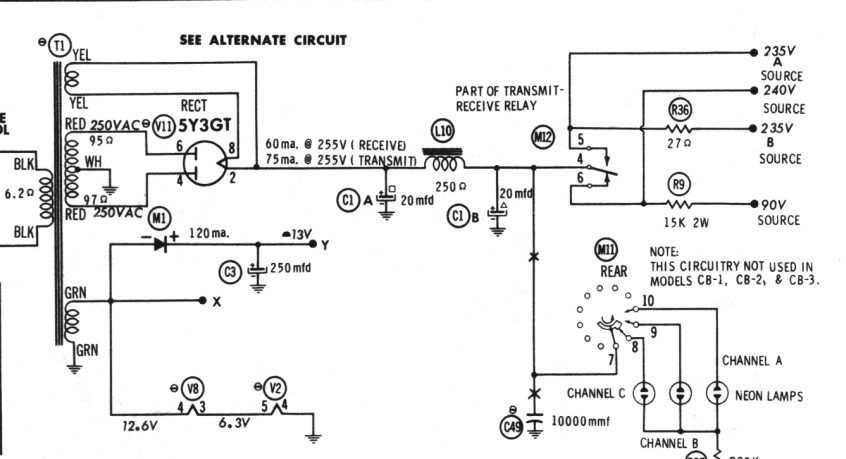
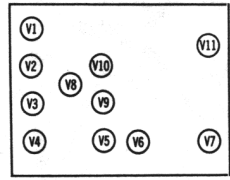
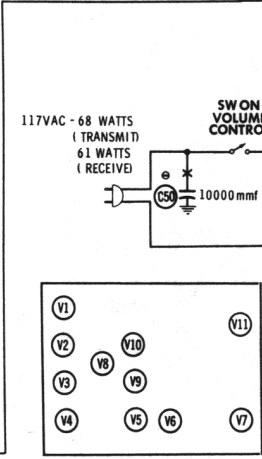
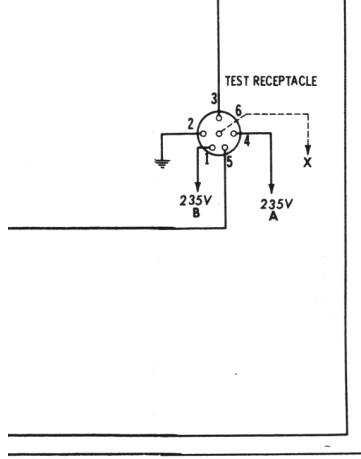
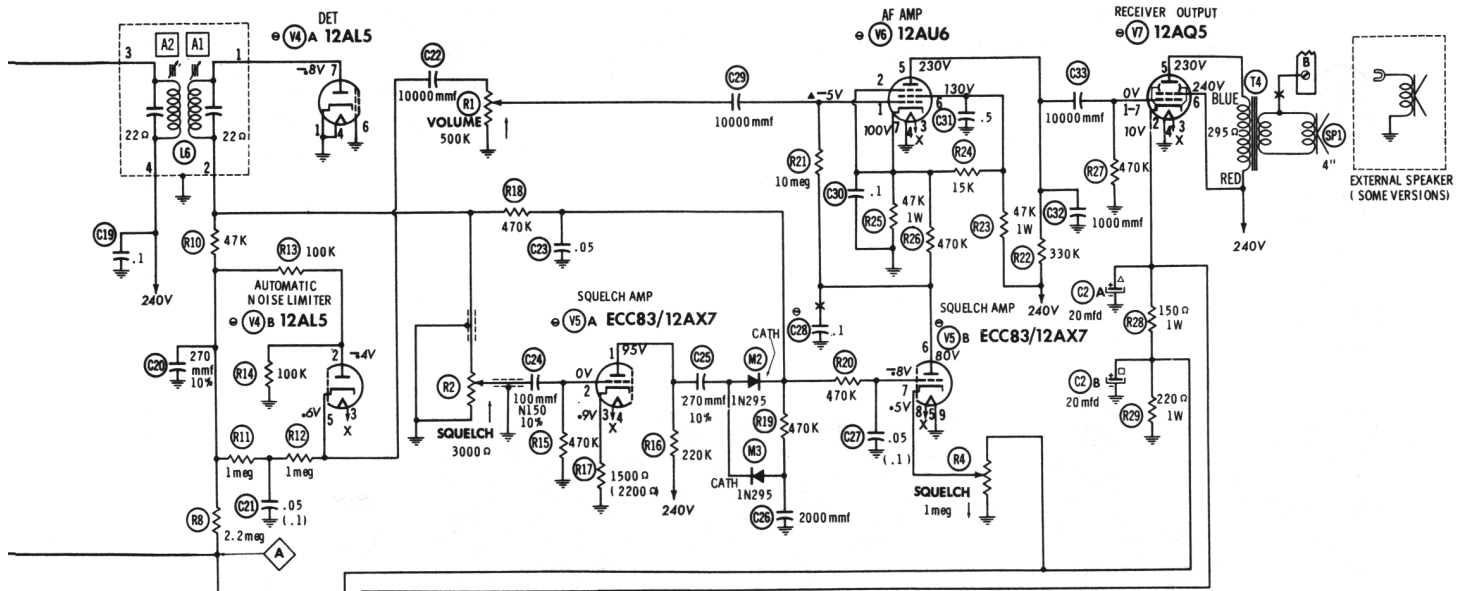
ONLY THOSE PERSONS PROPERLY LICENSED BY FCC ARE PERMITTED TO MAKE CRYSTAL SUBSTITUTION OR EFFECT REPAIRS ON THE TRANSMITTER PORTION OF THIS UNIT.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana



The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KZ486

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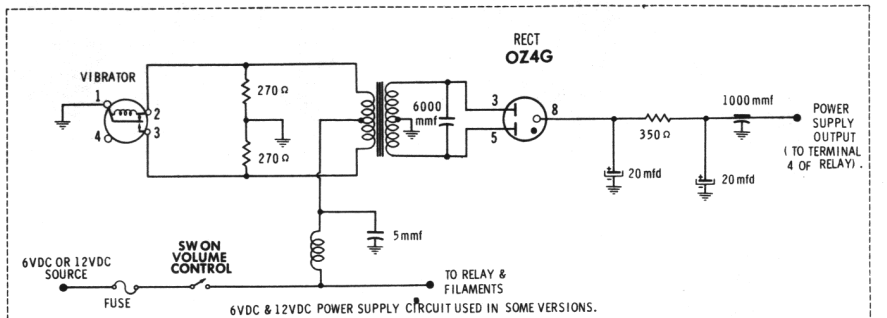
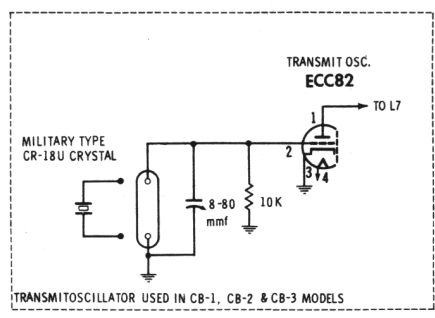
SEE ALTERNATE CIRCUIT

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM. NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

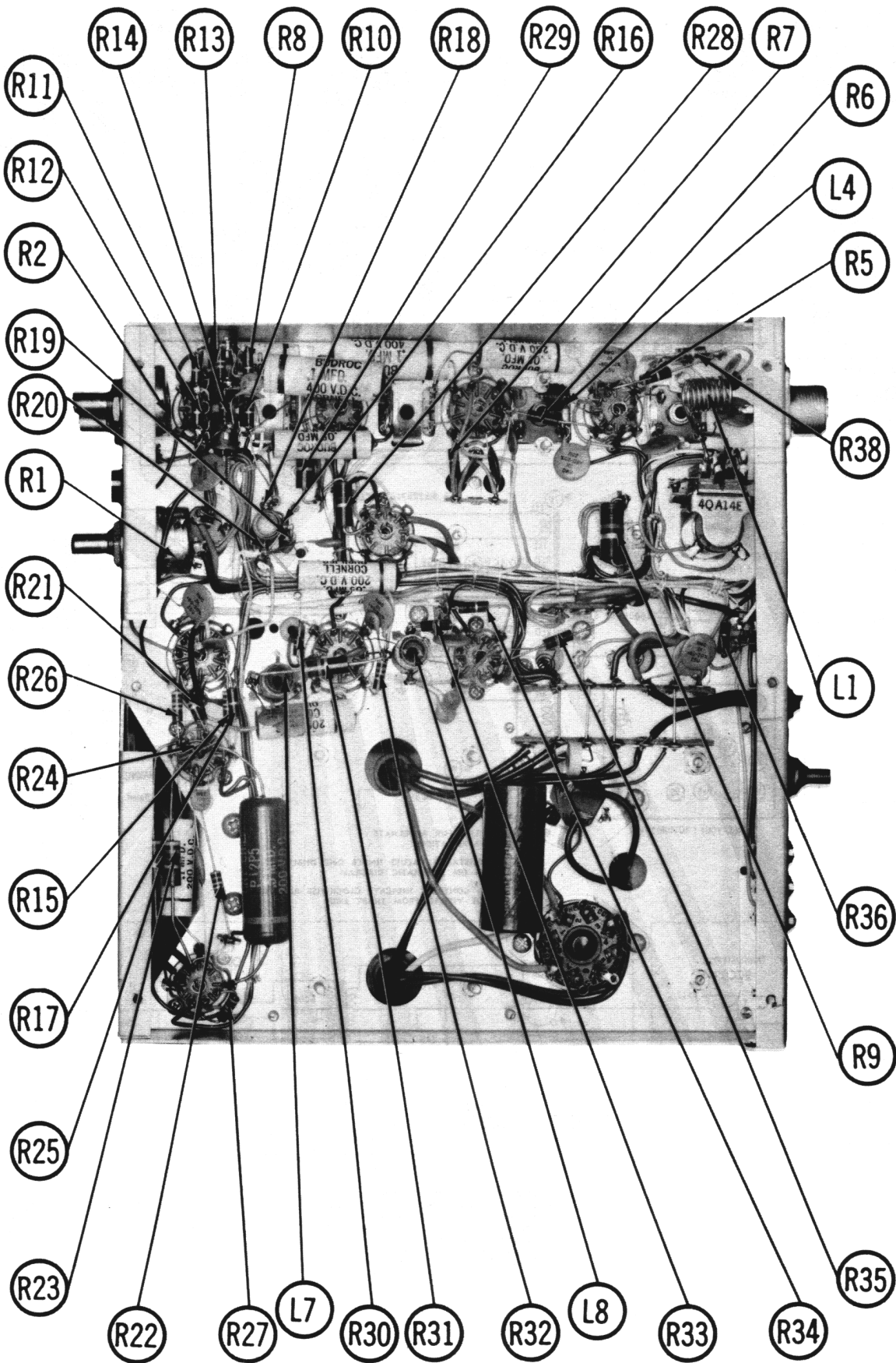
NOTE: THIS CIRCUITRY NOT USED IN MODELS CB-1, CB-2, & CB-3.



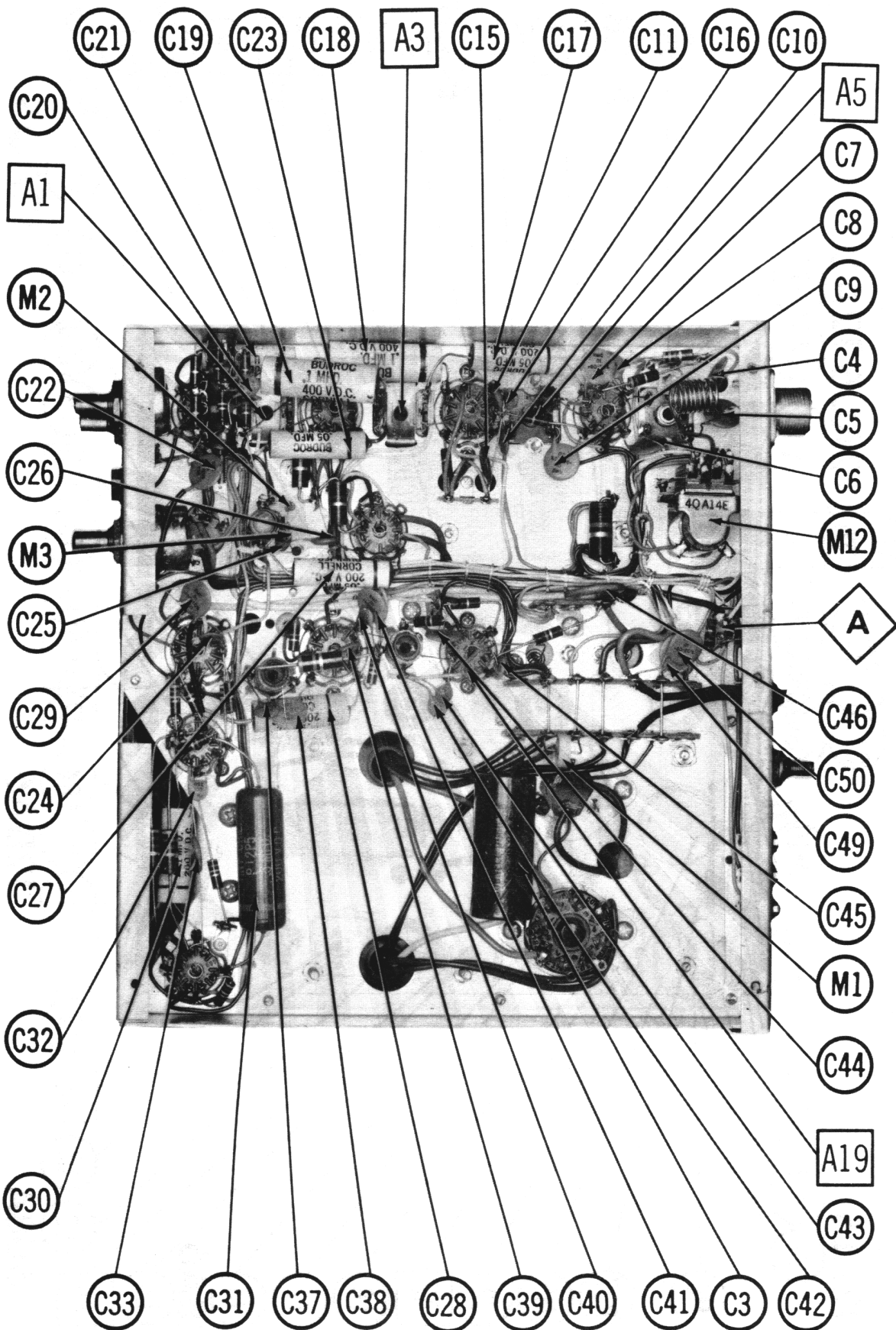
- DC voltage measurements taken with vacuum tube voltmeter;
- AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance of component values makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- All controls at minimum, proper output load connected.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

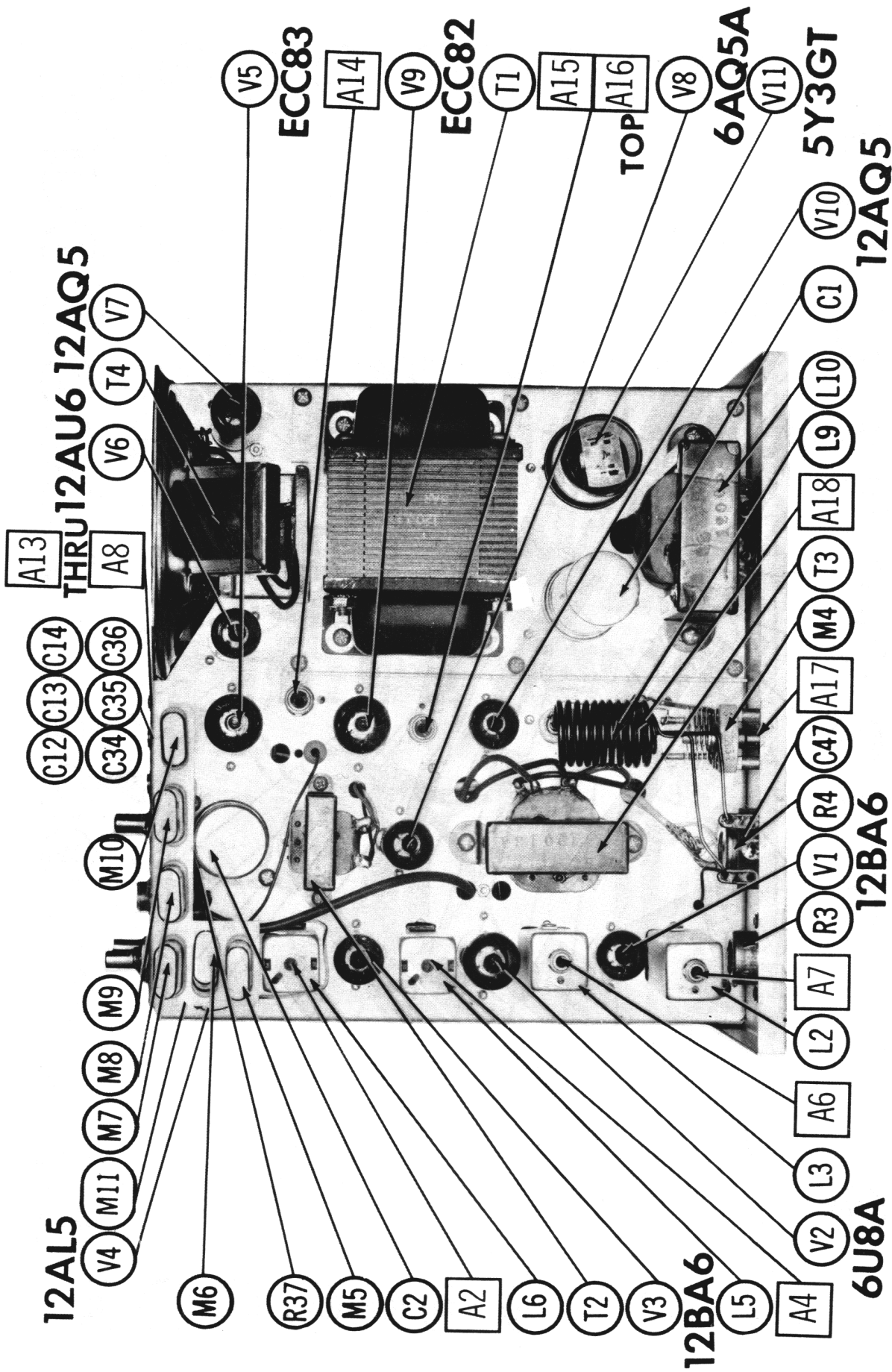
MORROW MODELS CB-1, -2, -3, SW1-6, -12, -117, 5W3-6, -12, -117



CHASSIS BOTTOM VIEW-RESISTOR & INDUCTOR IDENT.



CHASSIS BOTTOM VIEW-ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS TUBES

GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	RF Amplifier	12BA6	V6	AF Amplifier	12AU6
V2	Mixer-Osc.	6UB6A	V7	RF Receiver Output	12AQ5
V3	IF Amplifier	12BA6	V8	Modulator	6AQ5A
V4	Det.-ANL	12AL5	V9	Trans. Osc.-Doublers	6CC82/12AU7
V5	Squelch Amplifier	ECC83/12AX7	V10	F final Amplifier	12AQ5
			V11	Rectifier	5Y9GT

Note 1. 6 Volt Models use 6V Equivalent.

Note 2. 6-12 Volt Models use OZ4 in this application.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP. VOLTS	REPLACEMENT DATA				NOTES
		MORROW PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	PYRAMID PART No.	
C1A	20 350		AFH2-37	B0300	TMD-2375	
C2A	20 25		AFH2-03	B0050	TMD-2075	
C3	250 15		PR81210	BR2501	TD-250-15	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLOY PART No.	
C4	75 N220 5%						
C5	75 N220 5%						
C6	10000	Note 1	BPD-01	BYA1081	CCD-103	B-110	
C7	10000		BPD-01	BYA1081	CCD-103	B-110	
C8	10000		BPD-01	BYA1081	CCD-103	B-110	
C9	10000						
C10	100 N150 10%	(10) †					
C11	4.7 NPO 10%	(10) †	NPO-DI 4, 7	C10V47C	CCTO-4R7	CNO-547	
C12							
C13							
C14							
C15	50 N150		BPD-001	BYA10D1	CCD-102	B-210	
C16	100 200V		P288N-05	CUB285	4DP-3-415	GEM-415	
C17	.05 200V		P488N-1	CUB4P1	4DP-3-104	GEM-401	
C18	.1 400V		P488N-1	DF-104	4DP-3-104	GEM-401	
C19	.1 400V		D1-270	LJ0721	CCD-271	GP327	
C20	270 10%		P288N-05	CUB285	4DP-3-503	GEM-215	
C21	.05 200V	(.1) †	BPD-01	BYA1081	CCD-103	B-110	
C22	10000		P288N-05	CUB285	4DP-3-503	GEM-415	
C23	.05 200V						
C24	100 N150 10%						
C25	270 10%		DI-270	LJ0721	CCD-271	GP327	
C26	2000		BPD-002	BYA10D2	CCD-202	B-220	
C27	.05 200V	(.1) †	P288N-05	CUB285	4DP-3-503	GEM-415	
C28	.1 200V	Note 1	P288N-1	CUB2P1	2DP-3-104	GEM-201	
C29	10000		BPD-01	BYA1081	CCD-103	B-110	
C30	.1 200V		P288N-1	CUB2P1	2DP-3-104	GEM-201	
C31	.5 200V		P288N-5	CUB2P5	2DP-3-504	GEM-205	
C32	1000		BPD-001	BYA10D1	CCD-102	B-210	
C33	10000		BPD-01	BYA1081	CCD-103	B-110	
C34							
C35							
C36							
C37	33 N470 5%		BPD-01	BYA1081	CCD-103	B-110	
C38	10000						
C39	100 N150 10%		N750-DI 10	C10Q1U	CCTN-100	CN7-410	
C40	10 N750 5%		BPD-01	BYA1081	CCD-103	B-110	
C41	10000		NPO-DI 6, 8	C10V6C	CCTO-6R8	CNO-568	
C42	6 NPO 10%						

ALIGNMENT INSTRUCTIONS

RECEIVER

- Connect DC probe of VTVM to point \diamond , Common to chassis. Turn squelch controls, R2 and R4 on front and rear panels, to maximum clockwise position.
Connect a 470K resistor across the secondary of L5 (1st IF Trans).
- Connect high side of Signal Generator (455KC, 400v. Mod.) thru .05mfd to pin 2 of V2A, low side to chassis. Adjust A1, A2, A3 and A4 for maximum deflection.
- Connect high side of Signal Generator tuned to the proper channel frequency. (400v. Mod.) to the antenna socket. Adjust A5, A6 and A7 for maximum deflection. Retouch A1, A2, A3, and A4. Remove 470K resistor.
- Using a Frequency Meter, Adjust A8, A9 and A10 to exact frequency marked on oscillator crystals (within 100 cps).

TRANSMITTER

- Connect a 50 ohm dummy load to antenna. Using a Frequency Meter, Adjust A11, A12 and A13 to the exact frequency marked on oscillator crystals, (within 100 cps).
- Connect a 0-.50 ma. meter to pins 1 and 4 and a 0-2 ma. meter to pins 2 and 5 of test jack on rear panel. Adjust A14 for maximum grid current and then back off 10% on the long slope.
Adjust A15 and A16 for maximum grid current.
Adjust A17 for minimum plate current, then Adjust A18 for 20 ma. at a plate voltage of 250 Volts. Do not exceed 23 ma. of plate current.
- The power amplifier requires neutralization. Grid current will be maximum when the plate current is minimum as A17 is tuned through resonance. Slight adjustment of A19 may be necessary in the field.
- Remove the 50 ohm dummy load and connect transmitter to the antenna.
Adjust A17 for minimum plate current then adjust A18 for 20 ma. plate current.

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLOY PART No.	
C43	10 N750 5%		N750-DI 10	DTN-10	CCTN-10	CN7-410	
C44	10000		BPD-01	DD-103	CCD-103	B-110	
C45	2000		BPD-002	DD-202	CCD-202	B-220	
C46	5000 1400V		DAC-9	DD16-502	SCCD-502	UAC-250	
C47	150 10%		DI-150	DD-151	CCD-151	GF315	
C48	610	Note 1					
C49	10000	Note 1	BPD-01	DD-103	CCD-103	B-110	
C50	10000	Note 1	BPD-01	DD-103	CCD-103	B-110	

Note 1. Not used in some versions.

† Alternate Value.

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESIST. WATTS ANCE	REMARKS	REPLACEMENT DATA				INSTALLATION NOTES
			MORROW PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLOY PART No.	
R1A	500K		311-001	B-60-S	A47-500K-Z	U48	Volume
B	Shaft			Not Req.	RS-2	Not Req.	Power Off-On
C	Switch			Not Req.	RS-2	U8-26	Squelch
C2A	3000K		311-021	B-8	SWP-12	U-8	
B	Shaft			Not Req.	A47-3000-S	Not Req.	
R3	3000K		311-010	WN-302	RS-2	Not Req.	RF Gain
R4A	1meg		311-022	B-69	A47-1meg-S	U1-3K	Squelch
B	Shaft			Not Req.	RS-2	Not Req.	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	RATING	REPLACEMENT DATA	
		IRC PART No.	WORKMAN TV PART No.			REMARKS	WORKMAN TV PART No.
R5	560			R22	330K		
R6	2.2meg			R23	47K 1W		
R7	22K			R24	15K		
R8	2.2meg			R25	47K 1W		
R9	15K 2W			R26	470K		
R10	47K			R27	470K		
R11	1meg			R28	1500 1W		
R12	1meg			R29	2200 1W		
R13	100K			R30	10K		
R14	100K			R31	82K 1W		
R15	470K			R32	47K		
R16	220K			R33	22K		
R17	150000			R34	10000		
R18	470K			R35	22K		
R19	470K			R36	270		
R20	470K			R37	220K		
R21	10meg			R38	3300		

* Used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	Miller PART No.	Stancor PART No.		
L1	RF Choke (.3uh)	108-126	6252	RTC-8570	T234	
L2	Ant.	108-127				
L3	RF Choke (500uh)	108-506	TV-203	RTC-8582	T324	
L4	Input IF	108-506	BC-352	RTC-8632	T607	
L5	Output IF	108-506	BC-353	RTC-8608	T608	
L6	Osc. Plate	108-128	TV-118	RTC-8609	T216	
L7	Driver	108-129				
L8	Final Plate					
L9						

FILTER CHOKE

ITEM No.	CURRENT (Measured)	DC RES.	RATINGS		REPLACEMENT DATA			ITEM No.	NOTES
			INDUCTANCE (1000 μ)	II HY	MORROW PART No.	Meritt PART No.	Stancor PART No.		
L10	.075A	2500	11 HY	120-065			26C84		C-8X

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA		ITEM No.	NOTES
		MORROW PART No.	Meritt PART No.		
T1	117V @ 500VCT .62A @ .075A 2A	120-137 ①			
	SEC. 3 SEC. 4 SEC. 5 12.6V @ 1.8A				

TRANSFORMER (MIC)

ITEM No.	TURNS RATIO	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	Meritt PART No.	Stancor PART No.		
T2	1:1	120-133				

TRANSFORMER (MOD)

ITEM No.	TURNS RATIO	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	Meritt PART No.	Stancor PART No.		
T3	1:1	120-134				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	Meritt PART No.	Stancor PART No.		
T4	3-40	439-520 ①	A-3028		24S48	① Includes Speaker

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		ITEM No.	NOTES
		MORROW PART No.	QUAM PART No.		
SP1	4" PM 3-40	439-520 *	4A1		* Includes T4

POWER RECTIFIERS

ITEM No.	RATING (Current)	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	RCA PART No.	SARKES TABZIAN PART No.		
M1	.120A	LN1763 *		2F4 *	SR200 *	* Silicon Type

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			ITEM No.	NOTES
		MORROW PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.		
M2	LN295			LN295	LN295	Squelch
M3	LN295			LN295	LN295	Squelch

MISCELLANEOUS

ITEM No.	PART NAME	MORROW PART No.	REPLACEMENT DATA		ITEM No.	NOTES
			MORROW PART No.	GENERAL ELECTRIC PART No.		
M4	Variable Cap.					
M5	Crystal					
M6	Crystal					
M7	Crystal					
M8	Crystal					
M9	Crystal					
M10	Crystal					
M11	Switch					
M12	Relay					

Manufacturer recommends military type crystal CR-18U
 Note 1. M6 and M7 not used in CB series. To compute crystal frequency, subtract .485 from channel frequency in megacycles and divide by 3.
 Note 2. M9 and M10 not used in CB series. To compute crystal frequency divide channel frequency in megacycles by 2.

WIRING DATA

General-use Unshielded Hook-up Wire			Use BELDEN No. 6530 (Solid) Available in Ten Colors		
Power Cord			Use BELDEN No. 1765-B (6 Ft. Length)		
			1765-K (7 1/2 Ft. Length)		