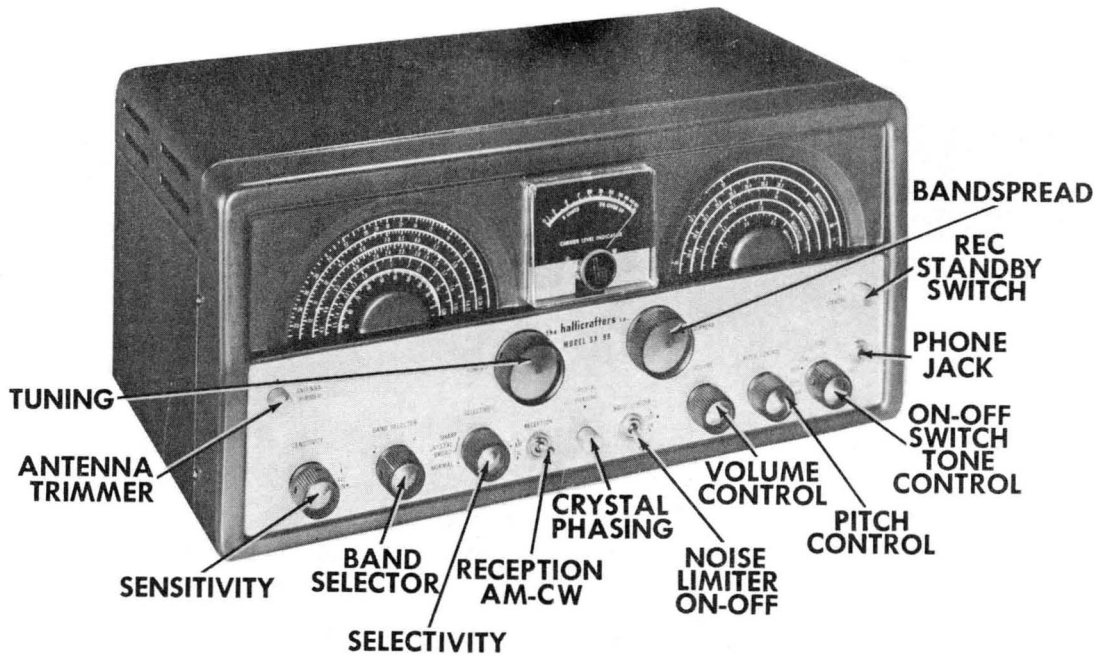


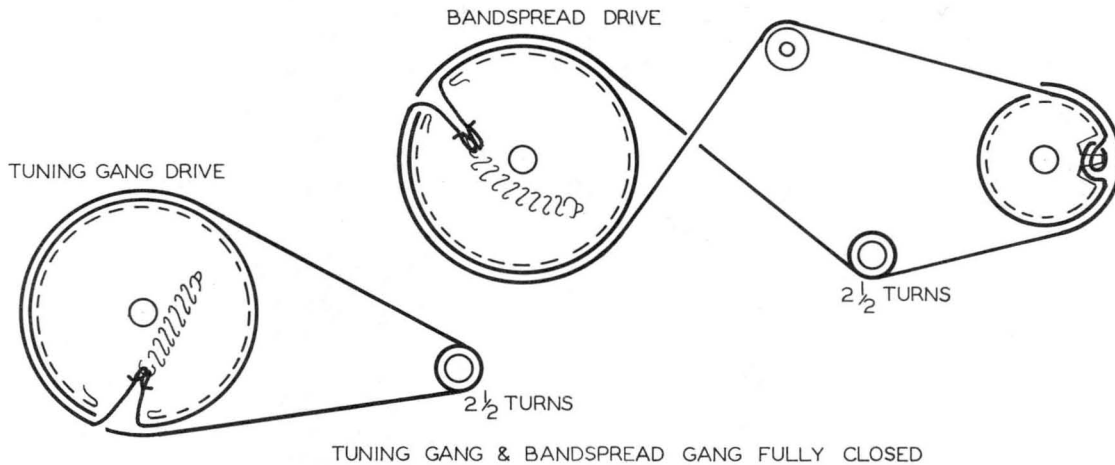


**HALLICRAFTERS MODELS
SX-99, SX-99U (Mark 1)**



TRADE NAME	Hallicrafters Models SX-99, SX-99U (Ch. MARK 1)	
MANUFACTURER	Hallicrafters Co., 4401 W. 5th. St., Chicago 24, Ill.	
TYPE SET	AC Operated 4 Band AM Superheterodyne Communications Receiver	
TUBES (Eight)	Types: 6SG7 RF Amp., 6SA7 Converter, 6SG7 1st. IF Amp., 6SK7 2nd. IF Amp., 6H6 Det.-AVC-Noise Limiter, 6SC7 AF Amp. -Beat Freq.Osc., 6K6GT Output, 5Y3GT Rectifier	
POWER SUPPLY	105-125 Volts AC-50-60 Cycles (Model SX-99) 100-250 Volts AC -25-60 Cycles (Model SX-99U)	
RATING	.57 Amp. @ 117 Volts AC-60 Cycles	
TUNING RANGES	Band 1 - 538-1600KC Band 2 - 1.55-4.6MC	Band 3 - 4.6-13MC Band 4 - 12-34MC
	Bandspread on 80, 40, 20, 15 and 11-10 Meters	

**HALLICRAFTERS MODELS
SX-99, SX-99U (Mark 1)**

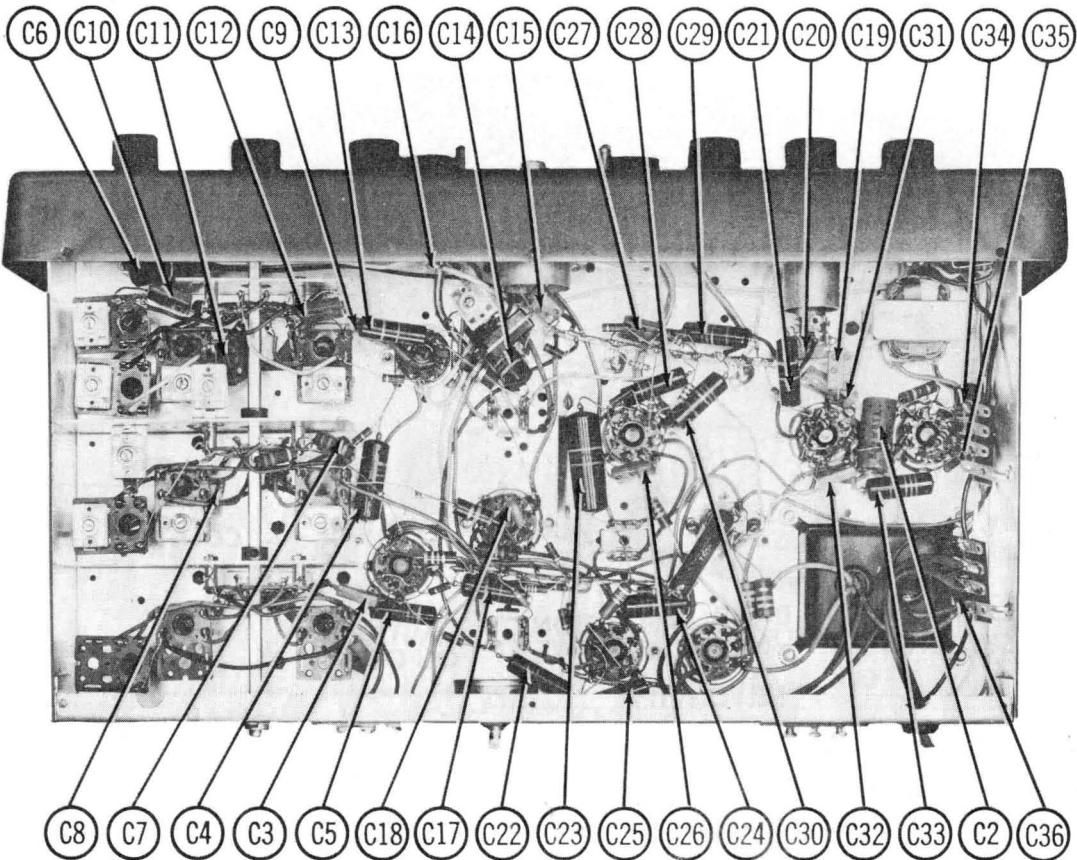


DIAL CORD STRINGING

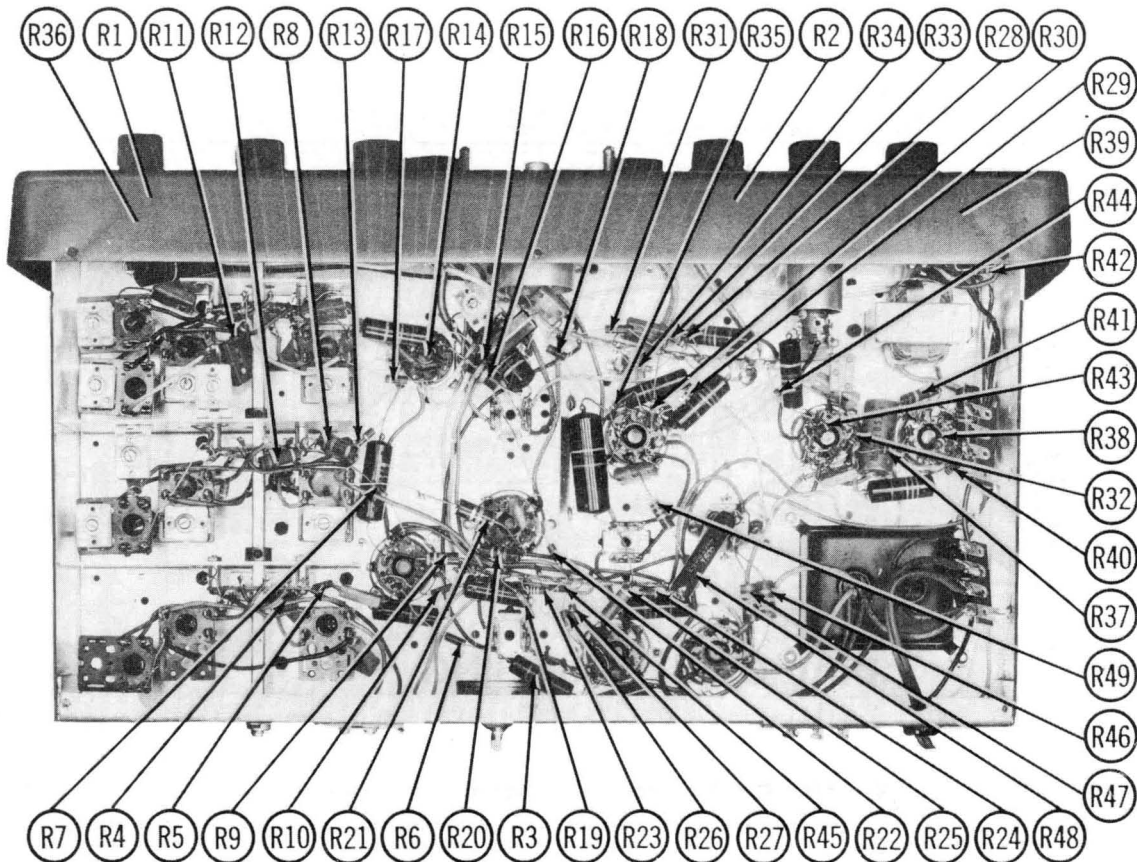
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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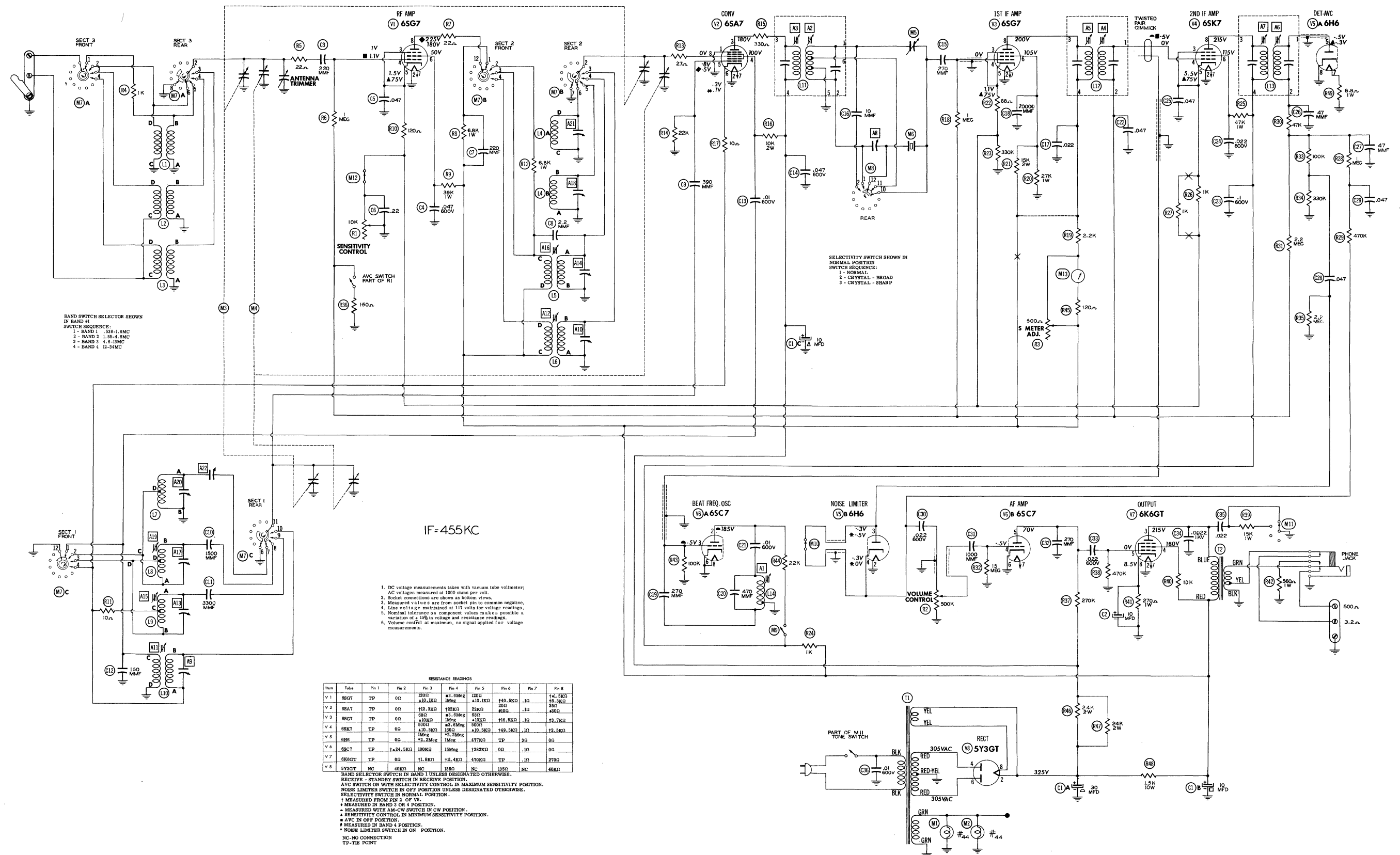
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CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



BAND SWITCH SELECTOR SHOWN IN BAND #1 SWITCH SEQUENCE:
 1 - BAND 1 - 334-1.5MC
 2 - BAND 2 - 1.55-4.0MC
 3 - BAND 3 - 6.0-12MC
 4 - BAND 4 - 12-24MC

SELECTIVITY SWITCH SHOWN IN NORMAL POSITION SWITCH SEQUENCE:
 1 - NORMAL
 2 - CRYSTAL - BROAD
 3 - CRYSTAL - SHARP

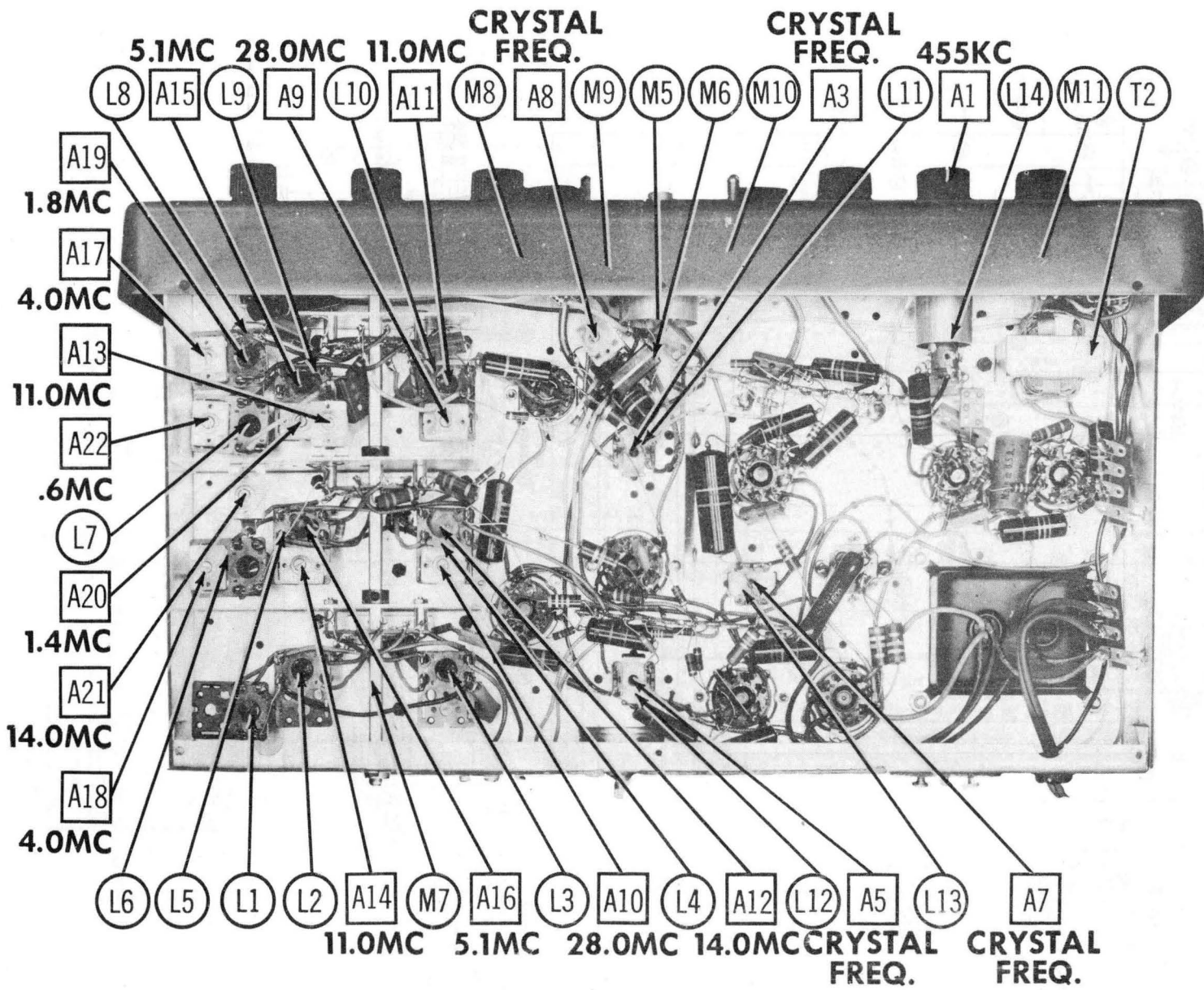
IF = 455 KC

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values make as possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SG7	TP	00	120K	3.6Meg	120K	140.5K	.10	141.5K
V 2	6SA7	TP	00	12.3K	123K	22K	100.	.10	400.
V 3	6SG7	TP	00	88K	3.9Meg	88K	116.5K	.10	117.7K
V 4	6SK7	TP	00	500.	3.5Meg	500.	148.5K	.10	149.5K
V 5	6SR	TP	00	1.5K	1.5Meg	1.5K	477K	TP	00
V 6	6SC7	TP	7=24.5K	100K	15Meg	1262K	00	.10	00
V 7	6K6GT	TP	00	11.8K	11.4K	470K	TP	.10	270.
V 8	5Y3GT	NC	40K	NC	180	NC	180	NC	40K

BAND SELECTOR SWITCH IN BAND 1 UNLESS DESIGNATED OTHERWISE.
 RECEIVE - STANDBY SWITCH IN RECEIVE POSITION.
 AVC SWITCH ON WITH SELECTIVITY CONTROL IN MAXIMUM SENSITIVITY POSITION.
 NOISE LIMITER SWITCH IN OFF POSITION UNLESS DESIGNATED OTHERWISE.
 SELECTIVITY SWITCH IN NORMAL POSITION.
 # MEASURED FROM PIN 2 OF V5.
 * MEASURED IN BAND 3 OR 4 POSITION.
 + MEASURED WITH AVC SWITCH IN CW POSITION.
 # SENSITIVITY CONTROL IN MINIMUM SENSITIVITY POSITION.
 # AVC IN OFF POSITION.
 # MEASURED IN BAND 4 POSITION.
 * NOISE LIMITER SWITCH IN ON POSITION.
 NC - NO CONNECTION
 TP - TEST POINT



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

HALLCRAFTERS
Model SX-99

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Sensitivity control - to maximum, but with AVC "off".
 Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
 Noise Limiter - "Off", Standby-Receive - "Receive", Tone - "High"

AM AND SW IF ALIGNMENT

* The crystal filter IF transformer secondary winding (A2) has been preset to crystal frequency at factory. Use only a signal generator which may accurately be set to obtain .25KC of any frequency between 450KC and 460KC. Do not attempt to make this adjustment if a standard type signal generator is used. Start with step 3.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
*1. .02MFD	High side to stator of middle section of main tuning gang.	455KC (Unmod)	2	Tuning gang at 50 on logging scale. Bandsread at 30.	500v speaker terminal to chassis.	A1 (BFO slug)	Selectivity switch at "Broad" crystal. Reception switch at "CW". Remove "Pitch" control knob and adjust shaft for zero beat. Do not replace knob.
*2. "	"	455KC (Approx.) (Unmod)	"	"	"	A2	Adjust "pitch" for a 400 - 1000v note. Rock signal generator while turning A2 in one direction. As the adjustment is made, the output goes thru a maximum, dips down and goes up again. The correct setting of A2 is at the center of the dip.
3.	"	Crystal frequency	"	"	"	Signal Gen.	Selectivity switch at "sharp crystal". Adjust generator frequency for maximum output. This will be the exact frequency of the crystal. A slight reduction will be noted when switching from "Broad" to "sharp" crystal.
4.	"	"	"	"	"	A1	Selectivity switch at "broad" crystal. Rotate "pitch" control shaft until a zero beat is obtained. Replace knob with zero in line with panel index mark.
5.	"	Crystal frequency (Mod)	"	"	"	A3, A4, A5, A6, A7, A8	Selectivity switch at "normal". Reception switch at "AM". Adjust for maximum output. Repeat for maximum gain.

AM AND SW RF ALIGNMENT

Selectivity Switch to "Normal". Reception Switch to "AM." Bandsread dial to "30" on outer band (10M).

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
6. Fig. 1	High side to antenna terminal "A1". Low side to chassis.	28.0MC	4	28.0MC	Across 500Ω speaker terminal and chassis.	A9, A10	Adjust for maximum output.
7.	"	14.0MC	"	14.0MC	"	A11, A12	"
8.	"	11.0MC	3	11.0MC	"	A13, A14	"
9.	"	5.1MC	"	5.1MC	"	A15, A16	"
10.	"	4.0MC	2	4.0MC	"	A17, A18	"
11.	"	1.8MC	"	1.8MC	"	A19	"
12.	"	1.4MC	1	1.4MC	"	A20, A21	"
13.	"	0.6MC	"	0.6MC	"	A22	"

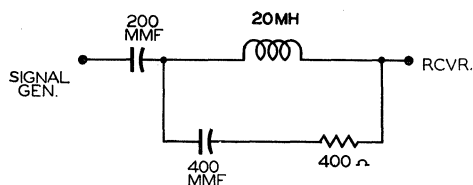


FIG. 1

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA			RETMA BASE TYPE	NOTES
		Hallcrafters PART No.	STANDARD REPLACEMENT			
V1	RF Amplifier	6SG7	6SG7	8BK		
V2	Converter	6SA7	6SA7	8R		
V3	1st. IF Amp.	6SG7	6SG7	8BK		
V4	2nd. IF Amp.	6SK7	6SK7	8N		
V5	Det-AVC-Noise Limiter	6H6	6H6	7Q		
V6	AF Amplifier-Beat Freq. Osc.	6SC7	6SC7	8S		
V7	Audio Output Rectifier	6K6GT	6K6GT	7S		
V8		5Y3GT	5Y3GT	5T		

ELECTROLYTIC CAPACITORS

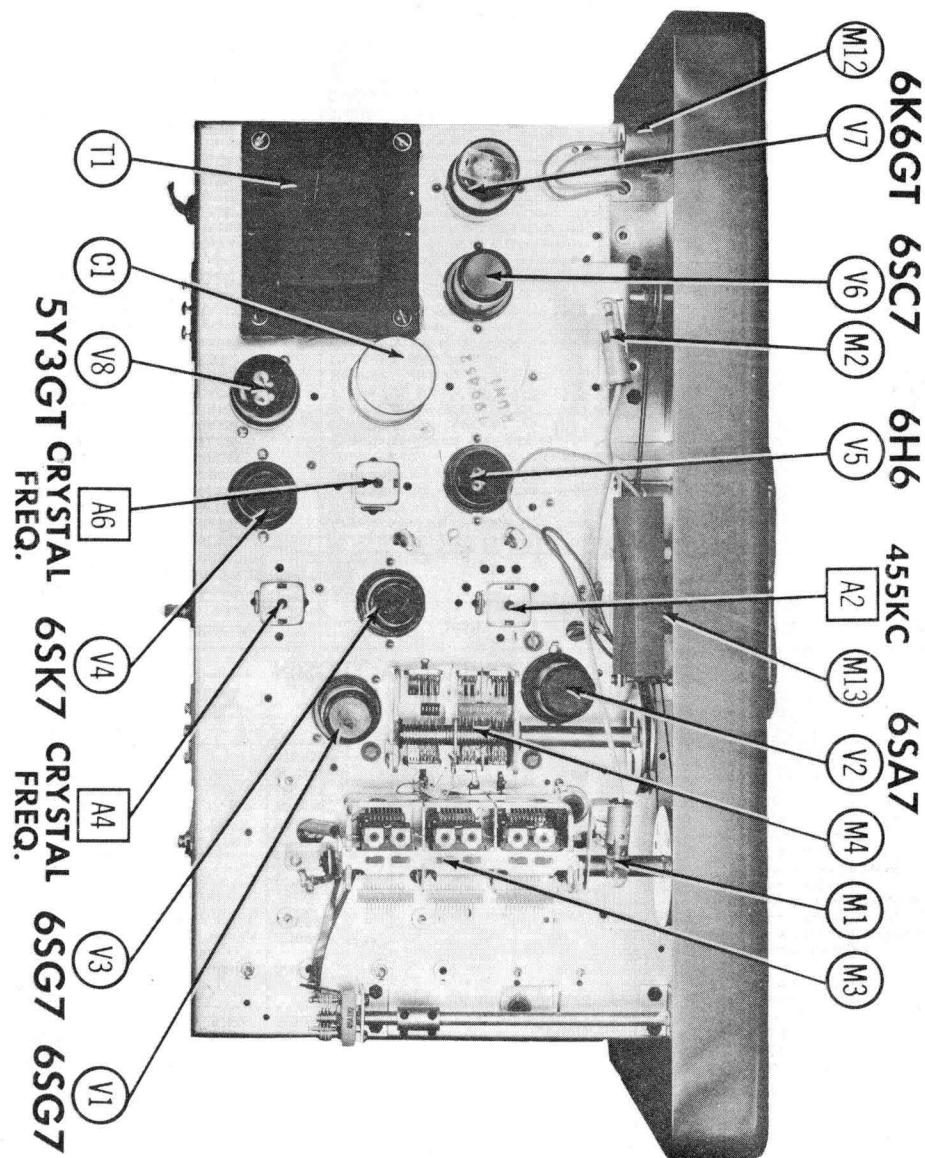
ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Hallcrafters PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	.30	450	45A062	AFH3-41	C032	FP376.6	TM-401010-450	Q-035	TVL-3772
B	.10	450							
C	.10	450							
C2	10	25	45A121	PRS25V10	BR102	TC22	TD-10-25	FM-0210	TVA-1204

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		REPLACEMENT DATA								NOTES
	CAP.	VOLT	Hallcrafters PART No.	AEROVOX PART No.	CENTRALLAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C3	220	500	47X20B271K	NP0-SI220	TCZ-220	5R5T22	NP0-335-221		MS-322		
C4	.047	600	46BR473L6	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47		
C5	.047	200	46BR473L2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47		
C6	.22	200	46BR224L2	P288N-22		CUB2P22		PT4022	2TM-P22		
C7	220	500	47X20B271K	NP0-SI220	TCZ-220	5R5T22	NP0-335-221	MCE240	MS-322		
C8	2.2	500	47A160-4	NP0-SI2.2	TCZ-2R2	T205	NP0A-2R2		5TCCB-V22		
C9	390	500	47X20B391K	1469-00039	D6-391	5R5T39	811-391	MCB243	MS-339		
C10	1500	500	47X30C152G	1464-0015		IR5D15	811-152	MCE256	MS-215		
C11	3300	500	47X30C332J	1464-0033		IR5D33			MS-233		
C12	150	500	47X20C151J	NP0-SI150	TCZ-150	5R5T15	NP0-334-151	MCE-236	MS-315		
C13	.01	600	46BR103L6	BPD-01	D6-103	CUB6S1	GP3-333-103	PT611	6TM-S1		
C14	.047	600	46BR473L6	BPD-05	DF-503	CUB6S47		PT6147	6TM-S47		
C15	270	500	47X20B271K	NP0-SI270	TCZ-270	5R5T27	NP0-335-271	MCE241	MS-327		
C16	10	-	47X20U100K	NP0-SI10	TCZ-10	T209	NP0A-100	ZT-541	5TCC-Q1		
C17	.022	200	46BR223L6	BPD-02	DD-203	CUB2S22	817-02	PT4122	2TM-S22		
C18	20000		47A242	BPD-02	DD-203	K085	817-02		5HK-S2		
C19	270	500	47X20B271K	NP0-SI270	TCZ-270	5R5T27	NP0-335-271	MCE241	MS-327		
C20	470	500	47X20BR471J	1469-00047		5R5T47		MCE245	MS-347		
C21	.01	600	46BR103L6	BPD-01	D6-103	CUB6S1	GP3-333-103	PT611	6TM-S1		
C22	.047	200	46BR473L2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47		
C23	.1	800	46BR104L6	P688N-1	DF-104	CUB6P1		PT601	6TM-P1		
C24	.022	600	46BR223L6	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22		
C25	.047	200	46BR473L2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47		
C26	47	500	47X20B470M	NP0-SI47	TCZ-47	5R5Q47	NP0-338-470	ZT-5447	MS-447		
C27	47	500	47X20B470M	NP0-SI47	TCZ-47	5R5Q47	NP0-338-470	ZT-5447	MS-447		
C28	.047	200	46BR473L2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47		
C29	.047	200	46BR473L2	BPD-05	DF-503	CUB2S47		PT4147	2TM-S47		
C30	.022	600	46BR223L6	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22		
C31	1000	500	47X25B102M	SI1000	D6-102	1W5D1	GP2L-102	MCE255	1FM-21		
C32	270	500	47X20B271K	NP0-SI270	TCZ-270	5R5T27	NP0-335-271	MCE241	MS-327		
C33	.022	600	46BR223L6	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22		
C34	.0022	1000	46BR222L10	HVD-15-2200	DD-222	CUB16D22		PT16222	10TM-D22		
C35	.022	600	46BR223L6	BPD-02	DD-203	CUB6S22	817-02	PT6122	6TM-S22		
C36	.01	600	46BR103L6	BPD-01	D6-103	CUB6S1	GP3-333-103	PT611	6TM-S1		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Hallcrafters PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLOY PART No.	
R1	10KΩ		25B607					Sensitivity & switch Volume Attach to R2A "S" Meter adjustment - wirewound.
R2A	500KΩ		25A543	AB-60	A47-500K-Z	Q13-133	U-48	
B	Shaft		Not Req.	AK-9	RS-2	Not Req.	Not Req.	
R3	500Ω		25C022					

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Hallcrafters PART No.	IRC PART No.			OHMS	WATT	Hallcrafters PART No.	IRC PART No.	
R4	1000Ω		23X20X102K	BTS-1000		R27	1000Ω		23X20X102K	BTS-1000	Note 2
R5	22Ω		23X20X220K	BTS-22		R28	1Meg		23X20X105K	BTS-1Meg	
R6	1Meg		23X20X105K	BTS-1Meg		R29	470KΩ		23X20X474K	BTS-470K	
R7	22Ω		23X20X220K	BTS-22		R30	47KΩ		23X20X473K	BTS-47K	
R8	6800Ω		23X30X682K	BTA-6800		R31	2.2Meg		23X20X225K	BTS-2.2Meg	
R9	39KΩ	1	23X30X393K	BTA-39K		R32	15Meg		23X20X156K	BTS-15Meg	
R10	120Ω		23X20X121K	BTS-120		R33	100KΩ		23X20X104K	BTS-100K	
R11	10Ω		23X20X100K	BTS-10		R34	330KΩ		23X20X334K	BTS-330K	
R12	6800Ω	1	23X30X682K	BTA-6800		R35	2.2Meg		23X20X225K	BTS-2.2Meg	
R13	27Ω		23X20X270K	BTS-27		R36	150Ω		23X20X151K	BTS-150	
R14	22KΩ		23X20X223K	BTS-22K		R37	270KΩ		23X20X274K	BTS-270K	
R15	330Ω		23X20X331K	BTS-330		R38	470KΩ		23X20X474K	BTS-470K	
R16	10KΩ	2	23X40X103K	BTB-10K		R39	15KΩ	1	23X30X153K	BTA-15K	
R17	10Ω		23X20X100K	BTS-10		R40	10KΩ		23X20X103K	BTS-10K	
R18	1Meg		23X20X105K	BTS-1Meg		R41	270Ω	1	23X30X271K	BTA-270	
R19	2200Ω		23X20X222K	BTS-2200		R42	560Ω	1	23X30X561K	BTA-560	
R20	27KΩ	1	23X30X273K	BTA-27K		R43	100KΩ		23X20X104K	BTS-100K	
R21	15KΩ	2	23X40X153K	BTB-15K		R44	22KΩ		23X20X223K	BTS-22K	
R22	68Ω		23X20X680K	BTS-68		R45	120Ω		23X20X121K	BTS-120	
R23	330KΩ		23X20X334K	BTS-330K		R46	24KΩ 5%	2	23X40X243J	BTB-24K 5%	
R24	1000Ω		23X20X102K	BTS-1000		R47	24KΩ 5%	2	23X40X243J	BTB-24K 5%	
R25	47KΩ		23X30X473K	BTA-47K		R48	1500Ω	10	24BG152E	1 3/4A-1500	
R26	1000Ω		23X20X102K	BTS-1000	Note 1	R49	6.8Ω	1	23X30X068K		

Note 1. Some versions may use 500Ω in this application.
 Note 2. When R26 is 500, R27 is not used.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Hallcrafters PART No.	Haldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .57A	610VCT .073ADC	5VAC @ 2A	6.3VAC @ 2.67A	52A209 52A210 ①	P9313 ②	P-2951 ③		22R05 ②	R-9B ②

① Power transformer used in model SX-99U
 ② Tape 6.3V center tap.
 ③ Drill new mounting holes.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Hallcrafters PART No.	Haldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.		
T2	6.9KΩ	500Ω tap @ 3.2Ω	52B265							

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	Hallcrafters PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	BC & SW Ant. Coils	1.6Ω	5.5Ω	51B1937				Bands 1 and 2 Band 3 Band 4
L2	SW Ant. Coil	.3Ω	.1Ω	51B1938				
L3	SW Ant. Coil	.1Ω	0Ω	51B1939				
L4A	BC RF Coil	1.6Ω	5.5Ω	51B1904				
B	SW RF Coil	5.5Ω						Bands 1 and 2 Trimmer included
L5	SW RF Coil	8Ω	.1Ω	51B1906				
L6	SW RF Coil	1.4Ω	0Ω	51B1905				Trimmer included Band 4 Trimmer included Band 1 - tapped -
L7	BC Osc. Coil	3.2Ω		51B1897				
L8	SW Osc. Coil	1.5Ω		51B1898				④ .4Ω-trimmer included
L9	SW Osc. Coil	0Ω		51B1899				Band 2 - tapped ④
L10	SW Osc. Coil	0Ω	0Ω	51B1900				.2Ω-trimmer included
L11	1st. IF Trans.	12Ω	12.5Ω*	50C856				Band 3-tapped - trimmer included Band 4
L12	2nd. IF Trans.	12Ω	12Ω	50C857	16-6758	BC-353	12-C2	
L13	3rd. IF Trans.	16Ω	16Ω	50C242				
L14	BFO Coil	16Ω		54B051				

* Tapped @ 10.5Ω and 9.5Ω.

MISCELLANEOUS

ITEM No.	PART NAME	Hallcrafters PART No.	NOTES
M1	Dial Light	39A003	#44
M2	Dial Light	39A003	#44
M3	Tuning Cap.	48C341	3 Gang (4-410MMF, 14-410MMF, 14-410MMF)
M4	Tuning Cap.	48C342	Bandspread 3 gang (6-34MMF, 6-34MMF, 6-34MMF)
M5	Variable Cap.	48A351	Crystal Phasing (3-25MMF)
M6	Crystal	19A123	Selectivity
M7A	Switch	60B389	Band selector - antenna stage (Rotary-wafer type)
B	Switch	62B039	Band selector - RF stage (Rotary-wafer type)
C	Switch	62B044	Band selector - Osc. stage (Rotary-wafer type)
M8	Switch	60B681	Selectivity (Rotary-wafer type)
M9	Switch	60A138	AM-CW (SPST-Toggle)
M10	Switch	60A689	Noise Limiter (SPST-Toggle)
M11	Switch	60A225	Power (off) & tone (Rotary-wafer type)
M12	Switch	60B682	Receive - standby (SPST-Rotary)
M13	Meter	82D283	Carrier level indicator
	Trimmer Cap.	44A047	Crystal trimmer (2-30MMF)
	Trimmer Cap.	44A149	Osc. (4-70MMF), Band 4 (12-34MC)
	Trimmer Cap.	44A148	Osc. (2-30MMF), Band 3 (4.6-13MC)
	Trimmer Cap.	44A148	Osc. (2-30MMF), Band 2 (1.55-4.6MC)
	Trimmer Cap.	44A191	Osc. (2-20MMF), Band 1 (.538-1.6MC)
	Padder Cap.	44A394	Osc. (320-520MMF), Band 1 (.538-1.6MC)
	Trimmer Cap.	44A395	RF (4-80MMF), Band 4 (12-34MC)
	Trimmer Cap.	44A396	RF (3-30MMF), Band 3 (4.6-13MC)
	Trimmer Cap.	44B147	RF (1.5-15MMF), Band 2 (1.55-4.6MC)
	Trimmer Cap.	44A191	RF (2-20MMF), Band 1 (.538-1.6MC)
	Trimmer Cap.	48A182	Ant. (3-25MMF), All bands
	Knob	15B791	Band selector, selectivity, power off, tone, sensitivity and volume
	Knob	15B788	Pitch
	Knob	15B835	Standby - receive, crystal phasing & ant. trimmer
	Knob	15B802	Tuning & bandspread
	Dial	83D489	Bandspread
	Dial	83D488	Tuning
	Window	22B432	Bandspread
	Window	22B427	Tuning dial