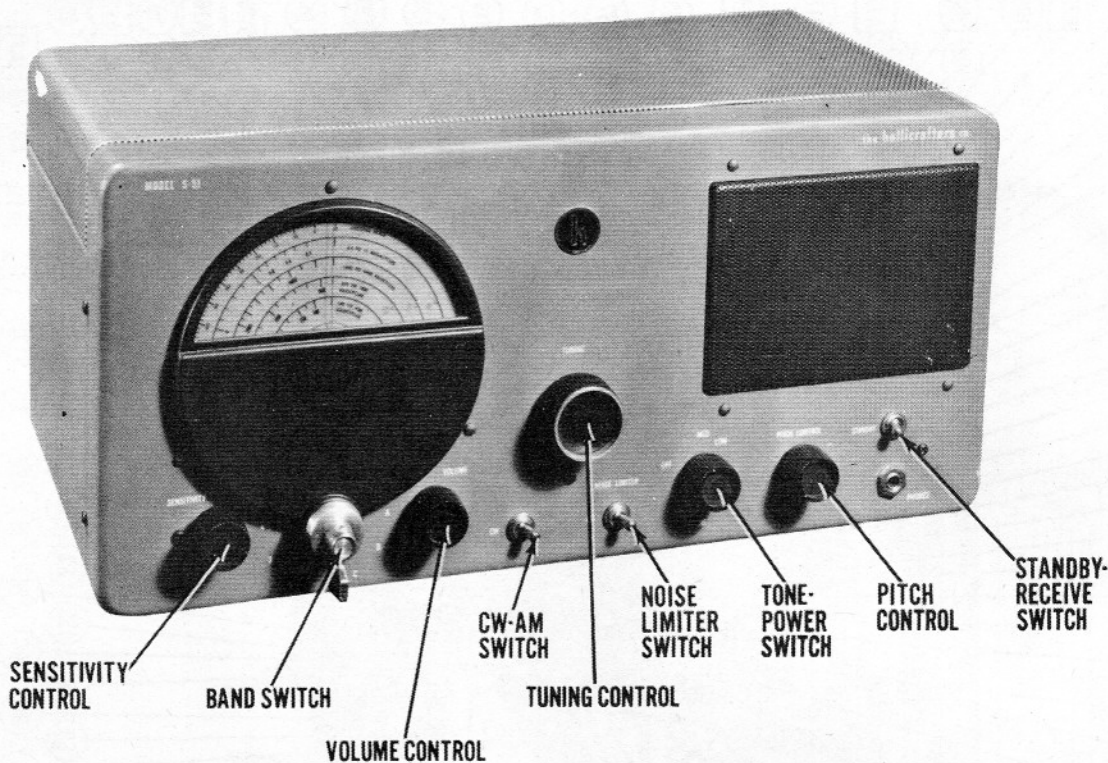


HALLICRAFTERS
MODEL S-51



HALLICRAFTERS
MODEL S-51

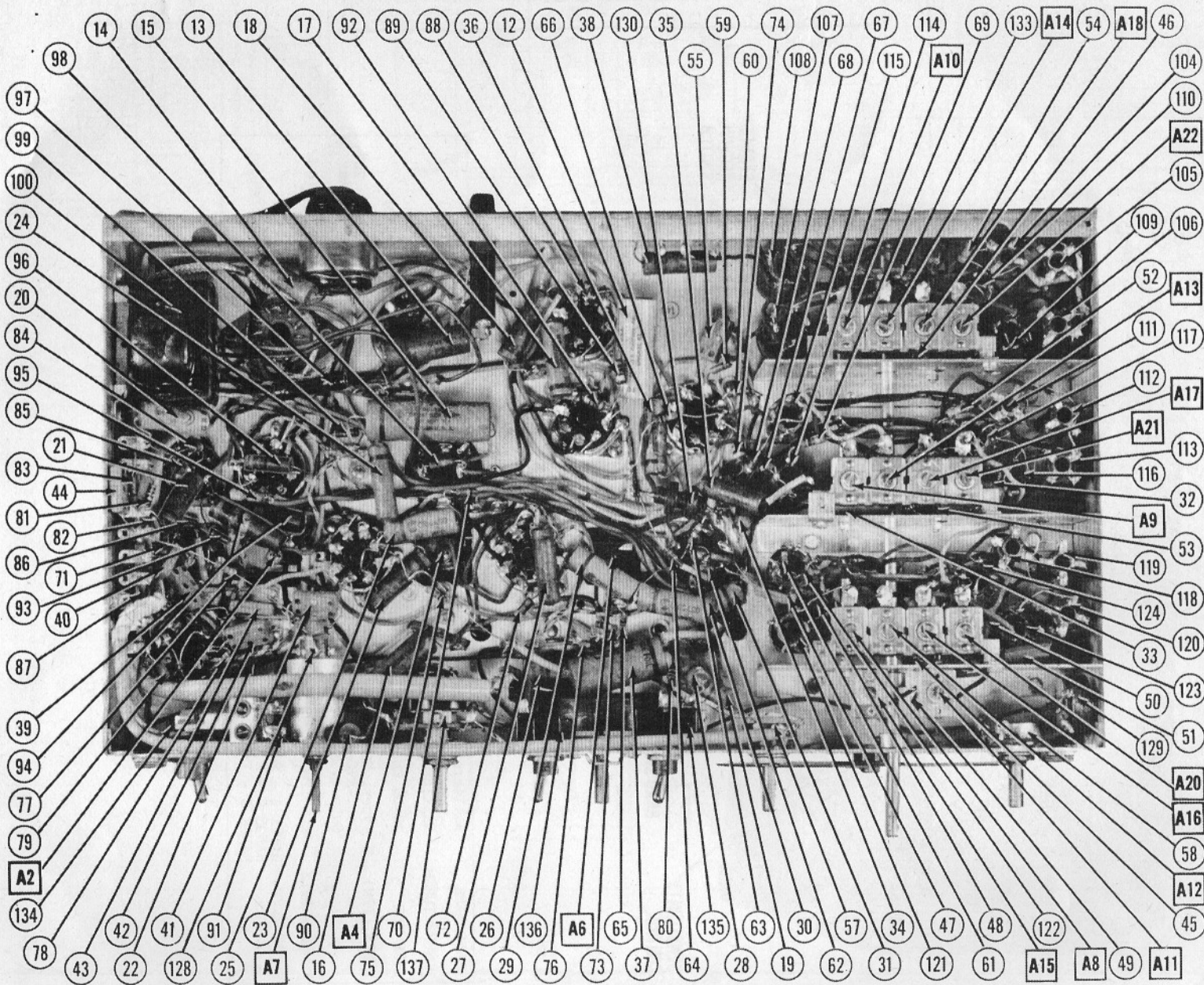
HALLICRAFTERS MODEL S-51

TRADE NAME	Hallcrafters, Model S-51		
MANUFACTURER	Hallcrafters Co., Fifth & Kostner, Chicago, Ill.		
TYPE SET	AC-DC Operated Fixed Frequency and Multi-Band Superheterodyne Receiver		
TUBES (TEN)	Types, 6SS7 RF Amp., 7A8 Converter, 6SS7 1st IF Amp., 6SS7 2nd IF Amp., 7C7 Det.-AVC-AF, 6SS7 BFO, 7A6 Noise Limiter, 6V6GT Power Output, 35L6GT Power Output, 35Z5GT Rectifier.		
POWER SUPPLY	105-125 Volts AC-DC	RATING	.27 Amp. @ 117 Volts AC
SHORT WAVE	- RANGE A - 200-300KC Fixed Frequency, RANGE B - 2.0-3.0MC Fixed Frequency, RANGE C - 2.0-3.0MC Fixed Frequency, RANGE 1 - 132-405KC, RANGE 2 - 485-1530KC, RANGE 3 - 1450-4550KC, RANGE 4 - 4.2-13.0MC		

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PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			HALLICRAFTERS PART No.	JENSEN PART No.	QUAM PART No.	
102	FIELD PM	VC IMP. 3.8Ω	85B050			
103	CONE DIA. 4-5/8"	VC DIA. 1/2"				

R F COILS

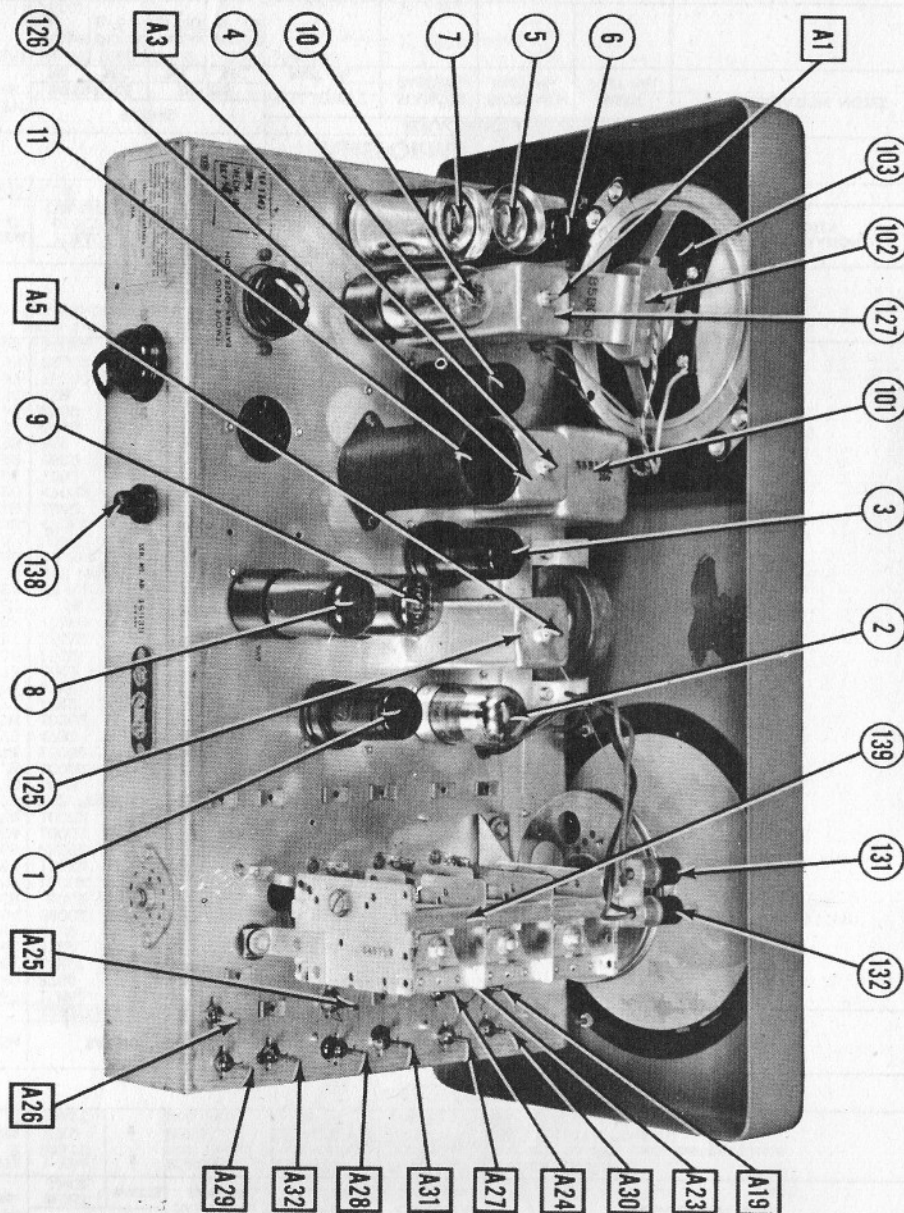
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.
104	Ant. Coil A	105Ω	19Ω	51B1008	
105	" B	1.3Ω	.4Ω	51B1016	
106	" C	1.3Ω	.4Ω	51B1016	
107	" 1	140Ω	42Ω	51B1007	
108	" 2	42Ω	9Ω	51B1006	
109	" 3	14Ω	3.5Ω	51B1005	
110	" 4	.3Ω	0Ω	51B1004	
111	" A	19Ω	2.7Ω	51B1009	
112	" B	1.9Ω	.1Ω	51B1017	
113	" C	1.9Ω	.1Ω	51B1017	
114	" 1	39Ω	2Ω	51B1003	
115	" 2	8Ω	2.5Ω	51B1002	
116	" 3	3Ω	1.2Ω	51B1001	
117	" 4	9Ω	.1Ω	51B1000	
118	Osc. Coil A	2.2Ω	2.4Ω	51B1010	
119	" B	.2Ω	1.2Ω	51B1013	
120	" C	.2Ω	1.2Ω	51B1013	
121	" 1	8Ω	20Ω	51B999	
122	" 2	1.2Ω	3.5Ω	51B998	
123	" 3	.7Ω	1.2Ω	51B997	
124	" 4	.1Ω	.8Ω	51B996	
125	Input IF	8Ω	1.5Ω	50C222	
126	Inter. IF	8Ω	1.5Ω	50C223	
127	Output IF	6.5Ω	6.5Ω	50C224	
128	BFO Trans.	14Ω		54B033-1	
129	RF Choke	43Ω		53B005	
130	"	50Ω		53A121	

DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA	INSTALLATION NOTES
					HALLICRAFTERS PART No.	
131-132	Bayonet	6-8	0.15	Brown	39A004	Type 47

MISCELLANEOUS

ITEM No.	PART NAME	HALLICRAFTERS PART No.	NOTES
	Ant. Wafer	60B314	2 Section
	RF Wafer	60B313	" "
133	Osc. Wafer	60B313	" "
	Shaft & Detent Plate	74A239	
134	Switch	60A102-3	Standby-Receive
135	"	60A192	CW-AM
136	"	60A138-3	Noise Limiter
137	"	60B311	On-Off-Tone
138	Fuse	39A306	1 Amp.
139	3 Gang Var. Cap	48C194	(12-506 MMF) each section
A11	Padder	44B231	Band 1 Osc. Adj.
A15	"	44B230	Band 2 " Adj.
	Osc. Trimmer Strip	44B352	A8, A12, A16, A20
	RF Trimmer Strip	44B227	A9, A13, A17, A21
	Ant. Trimmer Strip	44B228	A10, A14, A16, A22



ALIGNMENT INSTRUCTIONS—RFAD CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Bands A, B & C are preset as follows: Band A - 278KC (Airport control tower frequency), Band B - 2670KC (Coast Guard frequency), Band C - 2738KC (Ship to ship or ship to shore). If these frequencies are not desired they may be changed as in Steps 15, 16 & 17 below.

RMA Dummy Antenna consists of 200 MMFD. cap. in series with 20µH coil, with the coil shunted by 400 MMFD. in series with 400Ω carbon resistor.

Use isolation transformer if available. If not, connect a .1 MFD capacitor in series with low side of signal generator and chassis.

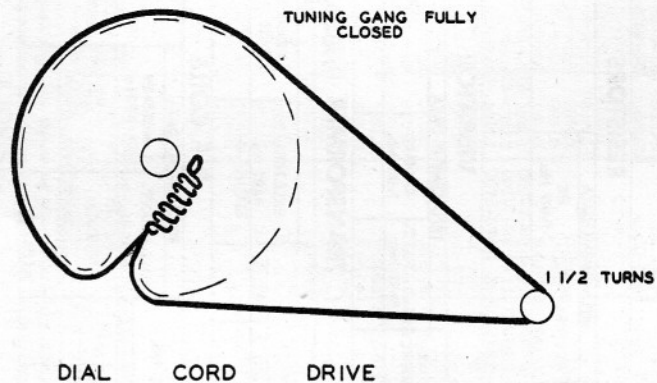
Controls should be set as follows: Sensitivity at full clockwise rotation, Volume control at full clockwise rotation, CW-AM switch at "AM", Noise Limiter switch at "OFF", Tone switch at "HIGH", Pitch control at "ZERO", Standby Receive switch at "RECEIVE".

Use only enough signal from signal generator to obtain an output reading. Use insulated alignment screwdriver for all adjustments.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 .1 MFD.	High side to center stator of tuning cap. Low side to B-.	445KC	2	Tuning cap. fully open.	Across voice coil	A1, A2, A3, A4, A5, A6.	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001 MFD. to reduce hum modulation.
2 .1 MFD.	"	445KC (Unmodulated)	"	"	"	A7	Remove pitch control knob and adjust A7 for approx. 1000 cps beat note.
3 RMA DUMMY	High side to ant. terminal A1. Low side to A2 with link connected.	350KC	1	350KC	"	A8	Adjust for maximum output
4 "	"	"	"	Tune for maximum output.	"	A9, A10	"
5 "	"	150KC	"	"	"	A11	Rock tuning cap. and adjust for maximum output. Repeat Steps 3, 4 & 5 until no further improvement can be made.
6 "	"	1400KC	2	1400KC	"	A12	Adjust for maximum output
7 "	"	"	"	Tune for maximum output.	"	A13, A14.	"
8 "	"	600KC	"	"	"	A15	Rock tuning cap. and adjust for maximum output. Repeat Steps 6, 7 & 8 until no further improvement can be made.
9 "	"	4MC	3	4MC	"	A16	Adjust for maximum output
10 "	"	"	"	Tune for maximum output.	"	A17, A18.	Rock tuning cap. and adjust for maximum output.
11 "	"	1800KC	"	"	"	A19	Rock tuning cap. and adjust for maximum output. Repeat Steps 9, 10 & 11 until no further improvement can be made.
12 "	"	12MC	"	12MC	"	A20	Adjust for maximum output
13 "	"	"	"	Tune for maximum output.	"	A21, A22	Rock tuning cap. and adjust for maximum output.
14 "	"	5MC	"	"	"	A23	Rock tuning cap. and adjust for maximum output. Repeat Steps 12, 13 & 14 until no further improvement can be made.
15 "	"	200-300KC	A	-	"	A24, A25	Adjust for maximum output
16 "	"	2-3MC	B	-	"	A27, A28, A29	See prealignment notes.
17 "	"	"	C	-	"	A30, A31, A32	"

**HALLCRAFTERS
MODEL S-51**

PAGE 5



PARTS LIST AND DESCRIPTIONS

6 VOLT CAPACITORS

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

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	100	25	45A116	PRS25/100	BRH251	M-100-25	UHC-102	Hash Filter
2	.5	120	46A139	484-.5	DT2P5	SHH-1	TC-5	" "
3	.01	1600	46A008-2	1689-01	MD16S1	STM-16-01	TR-11	Buffer
4	.25	400	46AW254J	484-.25	DT4P25	ST-4-25	TC-2	Hash Filter
5	.05	200	46A091	484-05	DT255	ST-4-05	TC-15	" "

*Not used in all units.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
6	100Ω	1	RC30AE101K	BW-1-100	Br.-Blk.-Br. Hash Suppression
7	100Ω	1	RC30AE101K	BW-1-100	Br.-Blk.-Br. " "
8	5600Ω	1/2	RC20AE562K	BTS-5600	Grn.-Blue-Red " "

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FRE-QUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				HALLICRAFT. PART No.	RADIART PART No.	
9	Synchronous	6V. DC	115∇	27B143		

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA		
	PRI.	SEC. 1	SEC. 2	SEC. 3	HALLICRAFT. PART No.	STANCOR PART No.	THORDARSON PART No.
10	6V DC @ 2.6A	300V CT @ .06A			52C158-0		

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFT. PART No.	MEISSNER PART No.
		11	RF Choke Coil	41.2Ω	
12	Hash Choke Coil	0Ω		53A022	
13	Hash Choke Coil	0Ω		53A100	

12 VOLT CAPACITORS

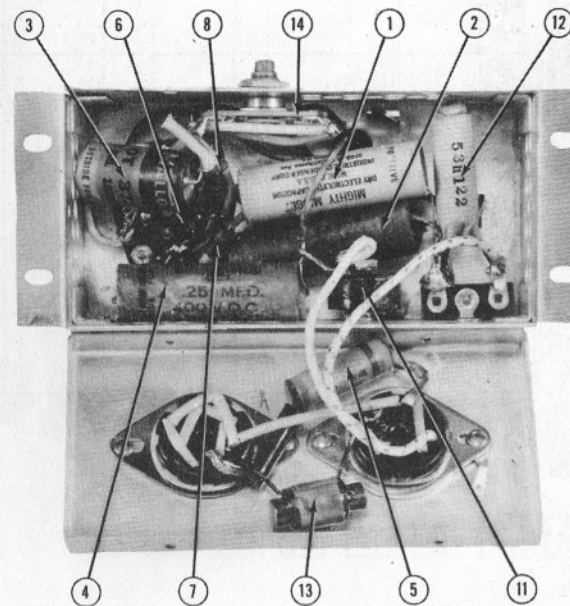
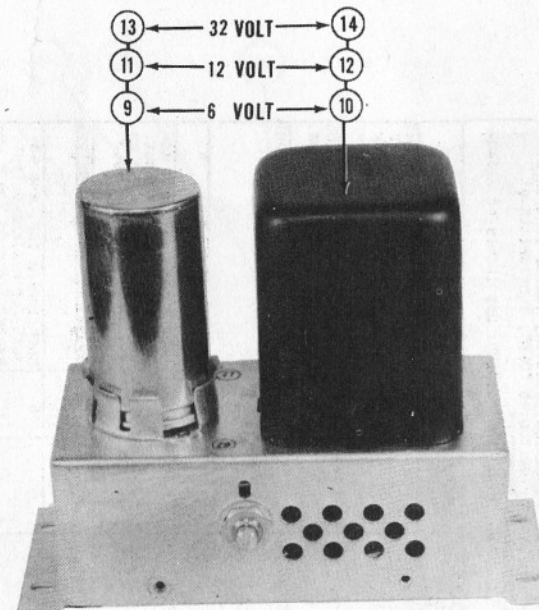
Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	100	25	45A116	PRS25/100	BRH251	M-100-25	UHC-102	Hash Filter
2	.5	120	46A139	484-.5	DT2P5	SHH-1	TC-5	" "
3	.007	1600	46A008-4	1689-007	MD-16D7	STM-16-007	TR-27	Buffer
4	.25	400	46AW254J	484-.25	DT4P25	ST-4-25	TC-2	Hash Filter
5	100	300	47A045	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass-Cer. *

*Not used in all units.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
6	4700Ω	1/2	RC20AE472K	BTS-4700	Yl.-Vl.-Red Hash Suppression
7	330Ω	1	RC30AE331K	BW-1-330	Or.-Or.-Br. " "
8	330Ω	1	RC30AE331K	BW-1-330	Or.-Or.-Br. " "
9	39Ω	2	RC40AE390K	BW-2-39	Or.-White-Blk. Filament Shunt
10	20Ω	5	24B200E	AB-20	Series Pilot Light



6 VOLT
SUPPLY

PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				HALLICRAFT. PART No.	RADIART PART No.	
11	Synchronous	12 VDC	115 \sim	27B144		

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	HALLICRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
12	12V DC (@) 1.5A	300V CT (@) .060A			52C159-0			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.
13	RF Choke	41.2 Ω		53B005	
14	Hash Choke	0 Ω		53A122	

32 VOLT CAPACITORS

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

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	HALLICRAFTERS PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	SOLAR PART No.	SPRAGUE PART No.	
1	100	50	45A115	PRS50/100	BRH251	M-100-50	UHC-102	Hash Filter
2	.5	120	46A139	464-.5	DT4P5	SHH-1	TC-5	" "
3	.006	1800	46A055	1689-006	MD16D6	STM-16-006	TR-26	Buffer
4	.25	400	46AW254J	464-.25	DT4P25	ST-4-25	TC-2	Hash Filter
5	100	300	47A045	1468-0001	5W5T1	MO.5-31	1FM-31	RF Bypass*-Cer.
6	100	300	47A045	1468-0001	5W5T1	MO.5-31	1FM-31	" " *- "

*Not used in all units.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLICRAFT. PART No.	IRC PART No.	
7	2200 Ω	1/2	RC20AE222K	BTS-2200	Red-Red-Red Hash Suppression
8	2700 Ω	1	RC30AE272K	BTA-2700	Red-V1.-Red " "
9	2700 Ω	1	RC30AE272K	BTA-2700	Red-V1.-Red " "
10	40 Ω	5	24BF400E	AB-400	Filament Shunt
11	170 Ω	5	24BF171E	ABA-220	Series Pilot Light-See Note
12	30 Ω	10	24BG300E	AB-30	Series Filament

Note-On IRC replacement set slider 170 Ω from one end.

VIBRATOR

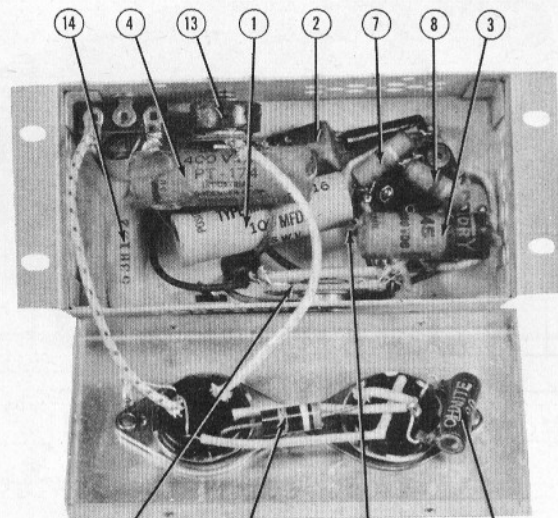
ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA		INSTALLATION NOTES
				HALLICRAFT. PART No.	RADIART PART No.	
13	Synchronous	32 VDC	115 \sim	27B145		

TRANSFORMER (VIBRATOR)

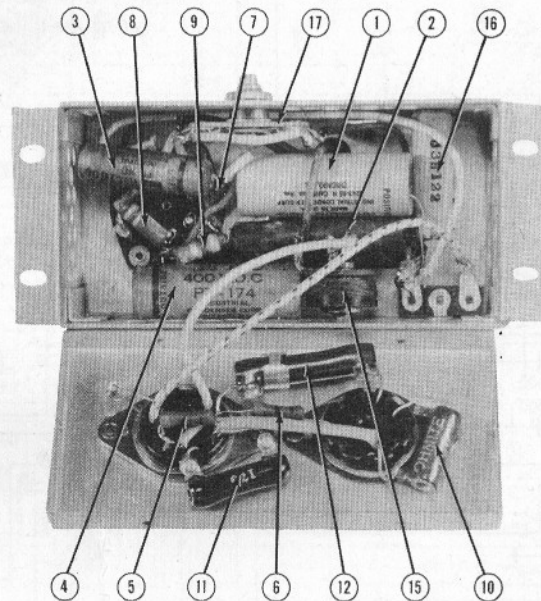
ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	HALLICRAFTERS PART No.	STANCOR PART No.	THORDARSON PART No.	MERIT PART No.
14	32V DC (@) .36A	350V CT (@) .066A			52C160-0			

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.
15	RF Choke	41.2 Ω		53B005	
16	Hash Choke	0 Ω		53A122	



12 VOLT SUPPLY



32 VOLT SUPPLY

VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	OV.	21VAC	3VDC	OV.	3VDC	92VDC	27VAC	95VDC
2	7A8	1.3VAC	100VDC	90VDC	-1VDC§	77VDC	OV.	2VDC	21VAC
3	6SS7	OV.	27VAC	OV.	OV.	2VDC	90VDC	34VAC	90VDC
4	6SS7	OV.	34VAC	3.8VDC	OV.	3.8VDC	84VDC	41VAC	83VDC
5	7C6	OV.	63VDC	-.6VDC	OV.	-.6VDC	-.6VDC	OV.	7VAC
±±	6	6SS7	OV.	48VAC	47VDC	-6VDC§	OV.	47VDC	41VAC
	7	7A6	11VAC	OV.	OV.	OV.	OV.	OV.	7VAC
**	8	6V6GT	OV.	6.2VDC	130VDC	135VDC	OV.	OV.	6.6VDC
	9	35L6GT	OV.	48VAC	95VDC	102VDC	OV.	86VAC	6VDC
	10	35Z5GT	OV.	117VAC	113VAC	115VDC	113VAC	86VAC	115VDC

§ TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SS7	150KΩ	34Ω	320Ω	4 Meg.	320Ω	400KΩ	40Ω	400KΩ
2	7A8	26Ω	400KΩ	400KΩ	47KΩ	400KΩ	2.2KΩ	270Ω	34Ω
3	6SS7	150KΩ	40Ω	0Ω	3 Meg.	150Ω	400KΩ	47Ω	400KΩ
4	6SS7	150KΩ	47Ω	520Ω	3 Meg.	520Ω	400KΩ	54Ω	400KΩ
5	7C6	0Ω	730KΩ	10 Meg.	0Ω	500KΩ	500KΩ	0Ω	8Ω
±±	6	6SS7	150KΩ	60Ω	415KΩ	47KΩ	0Ω	415KΩ	54Ω
	7	7A6	13Ω	0Ω	0Ω	0Ω	2.2 Meg.	1.9 Meg.	8Ω
**	8	6V6GT	150KΩ	.5Ω	400KΩ	400KΩ	470KΩ	0Ω	0Ω
	9	35L6GT	0Ω	60Ω	400KΩ	400KΩ	470KΩ	0Ω	92Ω
	10	35Z5GT	INF.	120Ω	122Ω	400KΩ	122Ω	7.5KΩ	92Ω

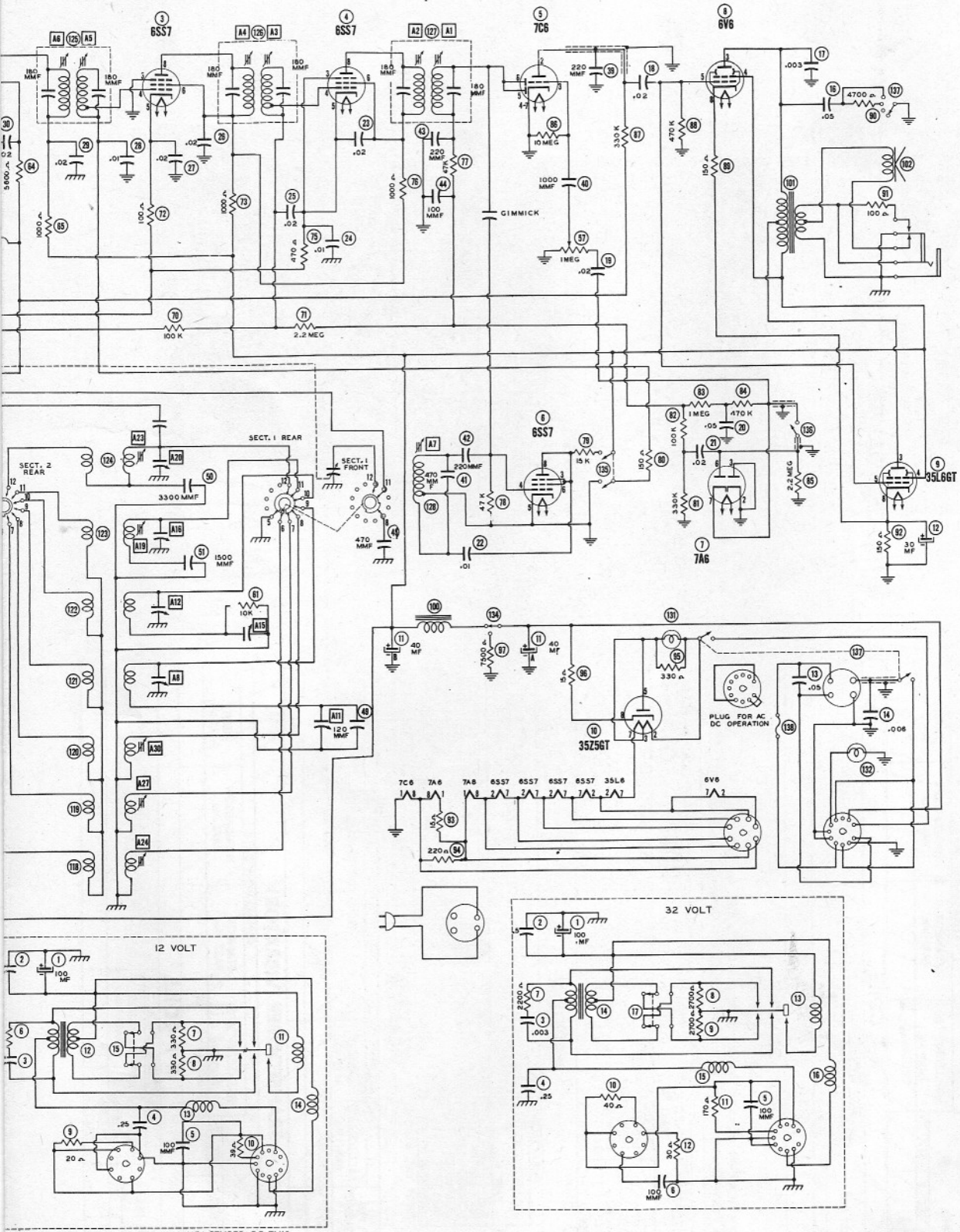
±±VOLTAGE AND RESISTANCE READINGS TAKEN WITH CW-AM SWITCH IN CW.
 **VOLTAGE AND RESISTANCE READINGS TAKEN USING 6 VOLT VIBRAPACK.
 AM-CW SWITCH IN AM POSITION. NOISE LIMITER SWITCH ON.
 SENSITIVITY CONTROL AT MAXIMUM SENSITIVITY.

- DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common negative.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

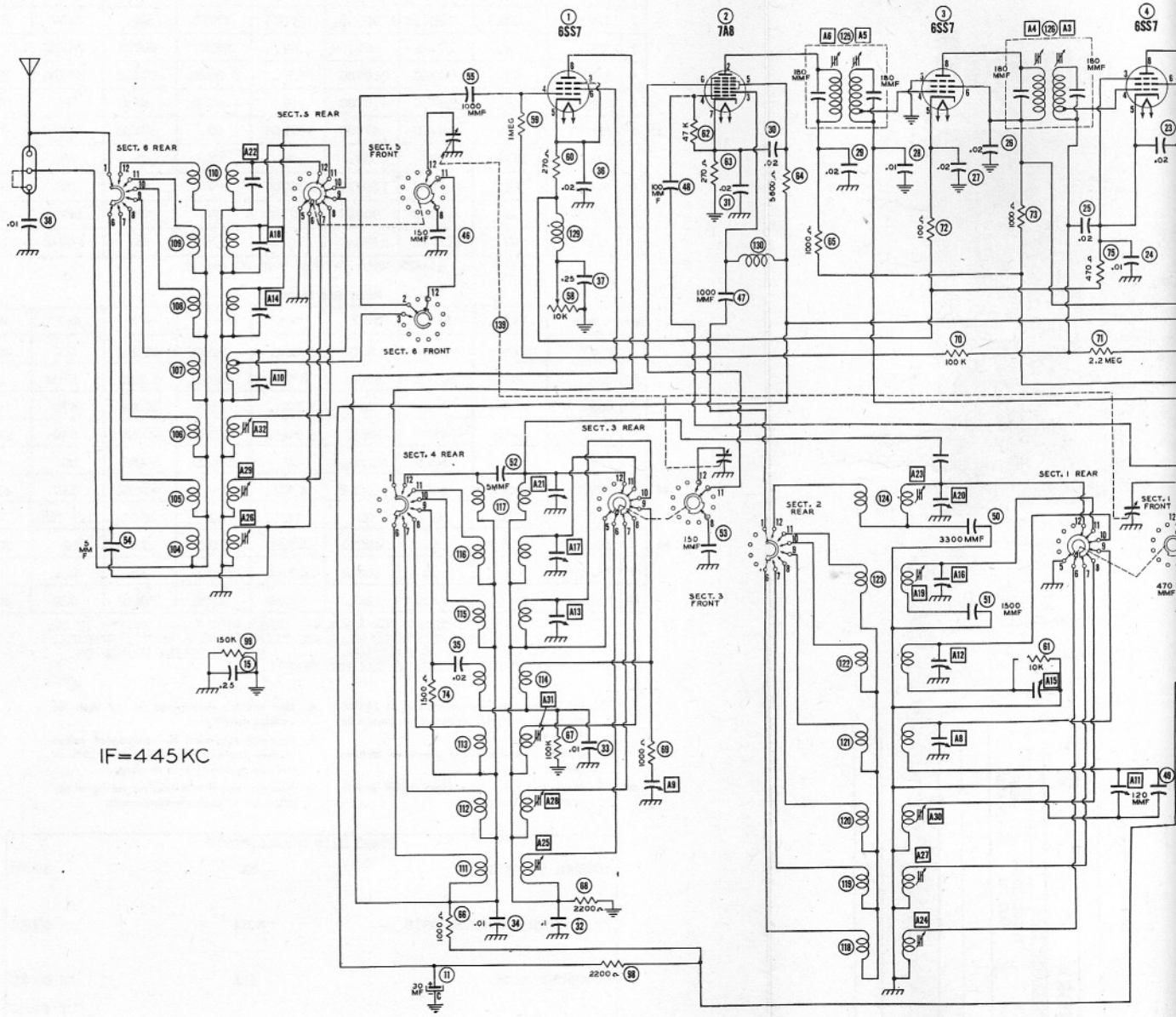
STAGE GAIN MEASUREMENTS

ANTENNA TO RF GRID	3X	600KC
RF GRID TO CONVERTER GRID	2.5X	600KC
CONVERTER GAIN	50X	IN 600KC OUT 445KC
INPUT IF TRANS.	.15X	445KC
1st IF TUBE	85X	445KC
INTER. IF TRANS.	.3X	445KC
2nd IF TUBE	200X	445KC
OUTPUT IF TRANS.	1X	445KC
AUDIO	40X	400 ~
OUTPUT	14X	400 ~

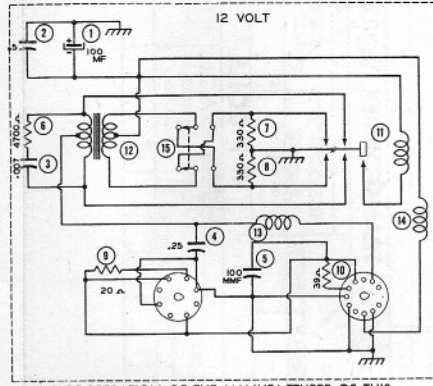
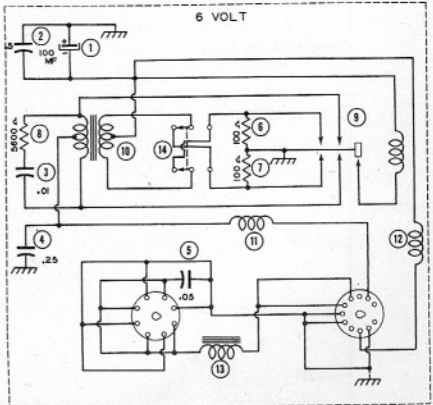
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by connecting negative (-) 3 volts to the AVC line.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE



IF=445KC



A PHOTOFAC STANDARD NOTATION SCHEMATIC
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