

HALLICRAFTERS MODEL S-40A

TRADE NAME Hallicrafters, Model S-40A
 MANUFACTURER Hallicrafters Co., 2611 S. Indiana Ave., Chicago, Ill.
 TYPE SET AC Operated 4 Band Superheterodyne Commercial Type Receiver
 TUBES (NINE) Types, 6SG7 RF Amp., 6SA7 Converter, 6SK7 1st IF Amp., 6SK7 2nd IF Amp., 6SQ7 Det.-AVC-AF, 6H6 Gas Gate-Noise Limiter, 6J5GT BFO, 6F6G Power Output, 80 Rectifier.
 POWER SUPPLY 110-120 Volts AC or 6.3 Volts "A" Supply and 260 Volts "B" Supply
 RATING .62 Amp. @ 117 Volts AC or 5 Amp. @ 6.3 Volts and 70MA @ 260 Volts DC
 TUNING RANGE-BROADCAST 540-1700KC SHORT WAVE 1.7-5.35KC, 5.35-15.7MC, 15.7-43MC

HALLICRAFTERS
MODEL S-40A

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn receiver on and allow at least 10 minutes for warm up before attempting alignment. To set dial turn tuning cap. fully closed, loosen dial set screw and set dial so that last reference line at low frequency end of Band "1" coincides with fixed red pointer line. Turn sensitivity control to maximum, CW/AM switch to AM (except in Step 2), AVC switch "off", noise limiter "off", tone control to "high", standby/receive to receive and band spread dial to zero (fully clockwise).
 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.
 Use 400 μ modulation signal in all Steps except #2.
 RMA dummy consists of 200MFD cap. in series with 20 microhenry choke with choke shunted with 400MFD cap in series with 400 Ω carbon resistor.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1 None	High side to center stator of tuning cap. Low side to chassis.	455KC	Band "1"	1000KC	Across voice coil	A1,A2, A3,A4, A5,A6	Adjust for maximum output in order given and repeat.
2 None	"	455KC (Mod.off)	"	"	"	A7	Turn CW/AM switch to CW. Remove pitch control knob. Adjust A7 for zero beat. Replace pitch control knob.
3 RFA Dummy	High side to terminal "A1" of ant. term. strip. Low side to chassis.	36MC (Mod. on)	Band "4"	36MC	"	A8	Turn CW/AM switch to AM. Adjust A8 for maximum output.
4 "	"	18MC	"	18MC	"	A9	Adjust for maximum output. Repeat Steps 3 & 4 until no further improvement can be made.
5 "	"	36MC	"	Tune for maximum output.	"	A10,A11	Rock tuning cap. and adjust for maximum output.
6 "	"	18MC	"	"	"	A12,A13	Rock tuning cap. and adjust for maximum output. Repeat Steps 5 & 6 until no further improvement can be made.
7 "	"	14MC	Band "3"	14MC	"	A14	Adjust for maximum output.
8 "	"	10MC	"	10MC	"	A15	Adjust for maximum output. Repeat Steps 7 & 8 until no further improvement can be made.
9 "	"	14MC	"	Tune for maximum output.	"	A16,A17	Rock tuning cap. and adjust for maximum output.
10 "	"	7MC	"	"	"	A18,A19	Rock tuning cap. and adjust for maximum output. Repeat Steps 9 & 10 until no further improvement can be made.
11 "	"	5MC	Band "2"	5MC	"	A20	Adjust for maximum output.
12 "	"	3MC	"	3MC	"	A21	Adjust for maximum output. Repeat Steps 11 & 12 until no further improvement can be made.
13 "	"	5MC	"	Tune for maximum output.	"	A22, A23	Adjust for maximum output.
14 "	"	1500KC	Band "1"	1500KC	"	A24	" " " "
15 "	"	600KC	"	600KC	"	A25	Adjust for maximum output. Repeat Steps 14 & 15 until no further improvement can be made.
16 "	"	1500KC	"	Tune for maximum output.	"	A26, A27	Adjust for maximum output.

HALLICRAFTERS
MODEL S-40A

HOWARD W. SAMS & CO., INC.

Indianapolis 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 the particular type of replacement part listed."
 "Reproduction or use, without express permission, of editorial or pictorial con-

tent, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1948 by Howard W. Sams & Co., Inc., Indianapolis, Indiana, U. S. A. Copyright under International Copyright Union. All rights reserved under Inter-American Copyright Union 11910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA			INSTALLATION NOTES
		HALLICRAFT PART No.	STANDARD REPLACEMENT	RAWA BASE TYPE	
1	RF AMP.	6SG7	6SG7	8BK	
2	Converter	6SA7	6SA7	8R	
3	1st IF Amp.	6SK7	6SK7	8N	
4	2nd IF Amp.	6SK7	6SK7	8N	
5	Det.-AVC-AF	6SQ7	6SQ7	8C	
6	Gas Gate-Noise Limiter	6H6	6H6	7Q	
7	BFO	6J5GT	6J5GT	6W	
8	Power Output	6F6G	6F6G	7S	
9	Rectifier	80	80	4C	

CAPACITORS

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

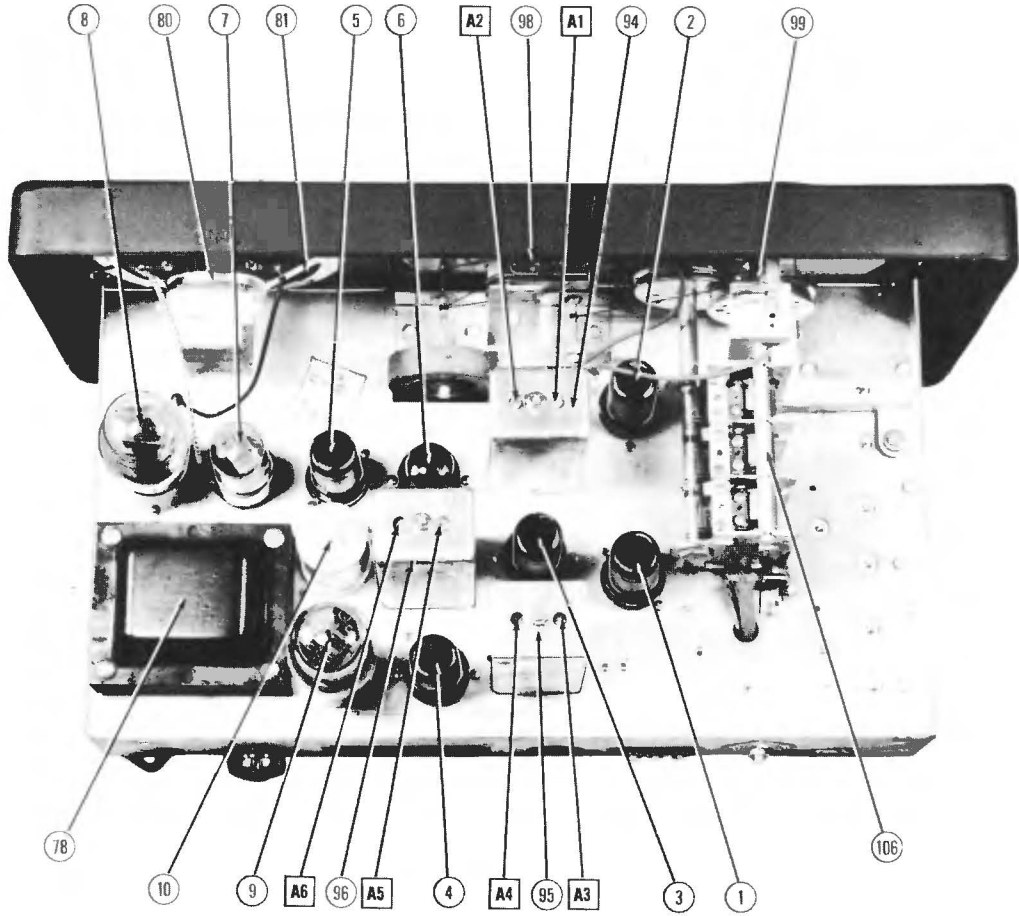
ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		HALLICRAFT PART No.	SOLAR PART No.	SPRAGUE PART No.	AEROVOX PART No.	
104	30 CAP. 1 VOL	450	DY-106	EL-544	UP43145C	Filter
105	10 CAP. 450	450		UT-8		"
106	30 CAP. 25	46A103J	N-25-25	7A-25	PR25-25	Cathode Bypass
11	10 CAP. 25	46A103J	NPH-6-01	TC-11	D76S1	Line Filter
12	0.02 CAP. 1000	46A104	TM-16-002	TR-22	M16D2	Output Plate Bypass
13	0.02 CAP. 600	46AV03J	S-6-02	TC-12	D76S2	Tone Comp.
14	0.02 CAP. 600	46AV03J	S-6-1	TC-11	D76P1	RF Bypass Power Supply
15	0.02 CAP. 600	46AV03J	S-6-02	TC-12	D76S2	Audio Coupling
16	0.02 CAP. 600	46AV03J	S-6-02	TC-12	D76S2	"
17	0.02 CAP. 600	46AV03J	S-6-02	TC-12	D76S2	Noise Lim. Plate Bypass
18	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	2nd IF Plate Decoupling
19	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	RF Bypass Power Supply
20	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	2nd IF Cathode Bypass
21	0.02 CAP. 200	46A091	S-4-05	TC-15	D74S5	1st IF Cathode Bypass
22	0.02 CAP. 200	46A091	S-4-05	TC-15	D74S5	AVC Filter
23	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	RF Bypass Power Supply
24	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	RF Screen Bypass
25	0.02 CAP. 400	46AV03J	S-4-02	TC-12	D74S2	RF Cathode Bypass
26	0.02 CAP. 200	46A091	S-4-05	TC-15	D74S5	AVC Filter
27	0.02 CAP. 200	46A091	S-4-05	TC-15	D74S5	AVC Filter
28	470 CAP. 500	CX20A470M	S-4-05	TC-15	D74S5	BFO Fixed Trimmer
29	2 CAP. 47	CX20A470M	1.0-6-45	IFM-45	6W5Q5	BFO Osc. Grid Cap.
30	8200 CAP. 500	46A103J	S-6-01	TC-11	D76S1	AF Plate Bypass
31	270 CAP. 500	CX20A270K	NO. 5-33	IFM-33	SW5T3	AF Plate Bypass
32	1000 CAP. 500	CX25A102K	NO. 5-23	IFM-21	1W5D1	Audio Coupling
33	47 CAP. 500	CX20A470M	NO. 5-45	IFM-45	SW5Q5	Audio Coupling
34	47 CAP. 500	CX20A470M	NO. 5-45	IFM-45	SW5Q5	Mode RF Filter
35	8200 CAP. 500	46A103J	S-6-01	TC-11	D76S1	Osc. Anode Coupling
36	68 CAP. 500	C235UK680K	NO. 5-34	IFM-34	SW5T4	Fixed Trimmer-Cer.
37	330 CAP. 500	CX20A330K	NO. 5-23	IFM-23	1R5D3	Osc. Grid Cap.
38	3 CAP. 500	CX20A315J	NO. 5-23	IFM-23	1R5D3	Compensating Cap.#
39	3000 CAP. 500	CX20A3000K	NO. 5-23	IFM-23	1R5D3	Fixed Pad
40	1500 CAP. 500	CX20A1500K	NO. 5-23	IFM-23	1R5D3	Fixed Pad
41	27 CAP. 500	CX20A270M	NO. 5-215	IFM-215	1R5D15	RF Coupling#-Cer.
42	15 CAP. 500	CX21UK150M				"

#Negative temperature coefficient cap.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		HALLICRAFT PART No.	IRC PART No.	CLAROSTAT PART No.	
43A	500K3 Shaft	24A534	D13-133	M-60-Z	Volume Control
43B	10K3	25A533	A	Not Req.	Attach to 43A per Instructions
44	10K3	25A533			Sensitivity Control & Sw.

CHASSIS--TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	HALLICRAFTERS PART No.	IRC PART No.	
45	47KΩ		RC20A1273M	BTS-47K	Y1.-Vi.-Or. Diode Load - See Note 3
46	270		RC20A1270M	BM-1-27	Red-V1.-Blk. Parasitic Suppressor-See Note 1
47	100KΩ		RC20A1104M	BM-1-100	Br.-Blk.-Y1. AVC Network
48	120Ω		RC20A121K	BM-1-120	Br.-Red-Br. RF Cathode
49	270		RC20A1270M	BM-1-27	Red-V1.-Blk. Parasitic Suppressor-See Note 1
50	1000Ω		RC20A110M	BM-1-1000	Br.-Blk.-Red RF Screen Decoupling
51	6800Ω		RC31A1692K	EM-1-6900	Blue-Gray-Red RF Plate Load
52	27K		RC20A1270M	BM-1-27	Red-V1.-Blk. Parasitic Suppressor
53	16KΩ		RC20A116K	EM-1-16K	Br.-Gray-Or. Oscillator Grid
54	10KΩ		RC41A110K	EM-1-10K	Br.-Blk.-Or. Converter Screen Dropping
55	300Ω		RC20A130K	EM-1-300	Br.-Blk.-Blk. Parasitic Suppressor
56	10KΩ		RC20A110M	BM-1-10	Or.-Blk.-Br. 1st IF Cathode-See Note 2
57	12KΩ		RC20A112K	EM-1-12K	Br.-Red-Or. Voltage Dropping
58	470Ω		RC650B123K	AB-1-470	Y1.-Vi.-Br. 2nd IF Cathode - See Note 2
59	1000Ω		RC20A110M	BTS-1000	Br.-Blk.-Red Decoupling Filter
60	1500Ω		RC20A115M	AB-1-1500	Red-Red-Grn. AVC Network
61	2.2 Meg.		RC20A122M	BTS-2.2	Br.-Blk.-Grn. Noise Limiter Coupling
62	1 Meg.		RC20A110M	BTS-1	Y1.-Vi.-Or. Diode RF Filter Network
63	47KΩ		RC20A1273M	BTS-47K	Br.-Blk.-Y1. Noise Limiter Network
64	100KΩ		RC20A1104M	BTS-100K	Red-V1.-Y1. Diode Load
65	270KΩ		RC20A1274M	BTS-270K	Red-V1.-Y1.
66	270KΩ		RC20A1274M	BTS-270K	Br.-Grn.-Blue AF Grid
67	15 Meg.		RC10A115M	BTS-15	Red-V1.-Y1. AF Plate Load
68	270KΩ		RC20A1274M	BTS-270K	Br.-Grn.-Br. AVC Shunt
69	150Ω		RC20A115M	BM-1-150	Br.-Blk.-Or. Decoupling
70	10KΩ		RC650B10K	AB-1-10K	Br.-Blk.-Or. Bleeder
71	12KΩ		RC41A112K	EM-1-12K	Br.-Grn.-Or. BFO Plate Dropping
72	15KΩ		RC41A115K	EM-1-15K	Y1.-Vi.-Or. BFO Grid
73	47KΩ		RC20A1273M	BTS-47K	Y1.-Vi.-Y1. Output Cathode
74	470KΩ		RC20A1474M	BTS-470K	Blue-Gray-Br. Output Screen Dropping
75	680Ω		RC31A1681K	EM-1-680	Br.-Blk.-Or. Tone Compensation
76	10KΩ		RC20A110M	BTS-10K	
77	15KΩ		RC31A115M	BTA-15K	

Note 1 - Some models use 222 in this application. IRC replacement BM-1-22.

Note 2 - Some models use 1000Ω in this application. IRC replacement BTS-1000.

Note 3 - Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA		MERT PART No.
	PRI.	SEC. 1	SEC. 2	HALLICRAFTERS PART No.	STANCOR PART No.	
78A	117V AC	660V CT	5.7V AC	520140	P-6013	T22R05
B	② .62A	② 2.0A	③ 3.5A	520135+		P-2933

*Alternate transformer for universal operation.

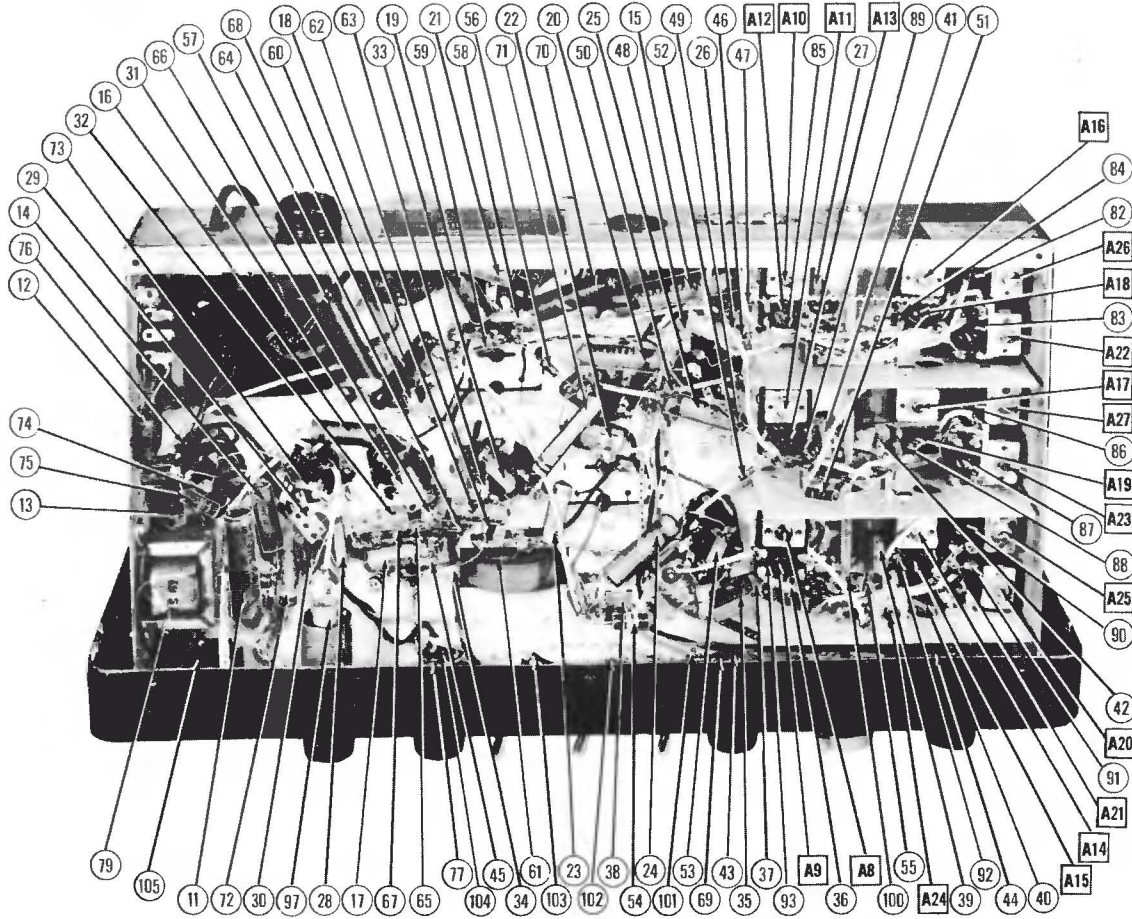
TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	HALLICRAFTERS PART No.	STANCOR PART No.	
79	470Ω	3.1Ω	558095	A-3977	A-2930

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	HALLICRAFTERS PART No.	JENSEN PART No.	
80	PM	3.0Ω	68B050	ST-107	
81	4-3/4"	1/2"	NCT READILY REPLACEABLE-USE COMPLETE SPEAKER UNIT.		

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

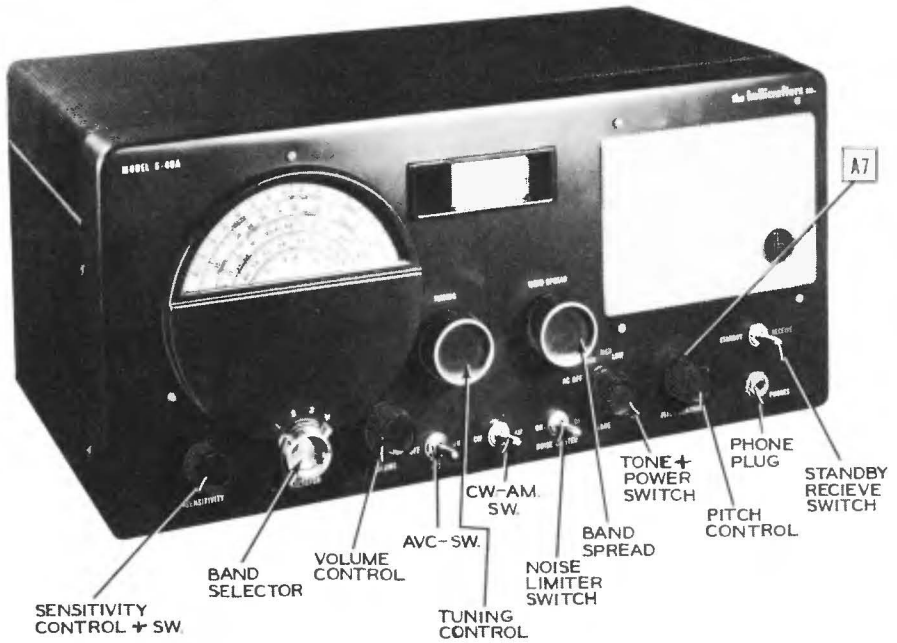
ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	HALLICRAFTERS PART No.	MEISSNER PART No.
82	Ant. Coil	250	.50	51E780	
83	" "	.50	1.50	51E781	
84	" "	.12	.02	51E782	
85	" "	.12	.02	51E783	
86	RF Coil	.12	.50	51E784	
87	" "	.50	.02	51E785	
88	" "	7.50	.02	51E786	
89	" "	1.20	.02	51E787	
90	Osc. Coil	3.10	.02	51E812	
91	" "	1.50	.02	51E789	
92	" "	.02	.02	51E790	
93	" "	.02	.02	51E791	
94	Input IF	200	40	50C185	
95	Inter. IF	210	4.20	50C186	
96	Output IF	180	1.80	50C192	
97	BFO Coil	3.50	3.50	54E033-2	Tapped at .50 " .10

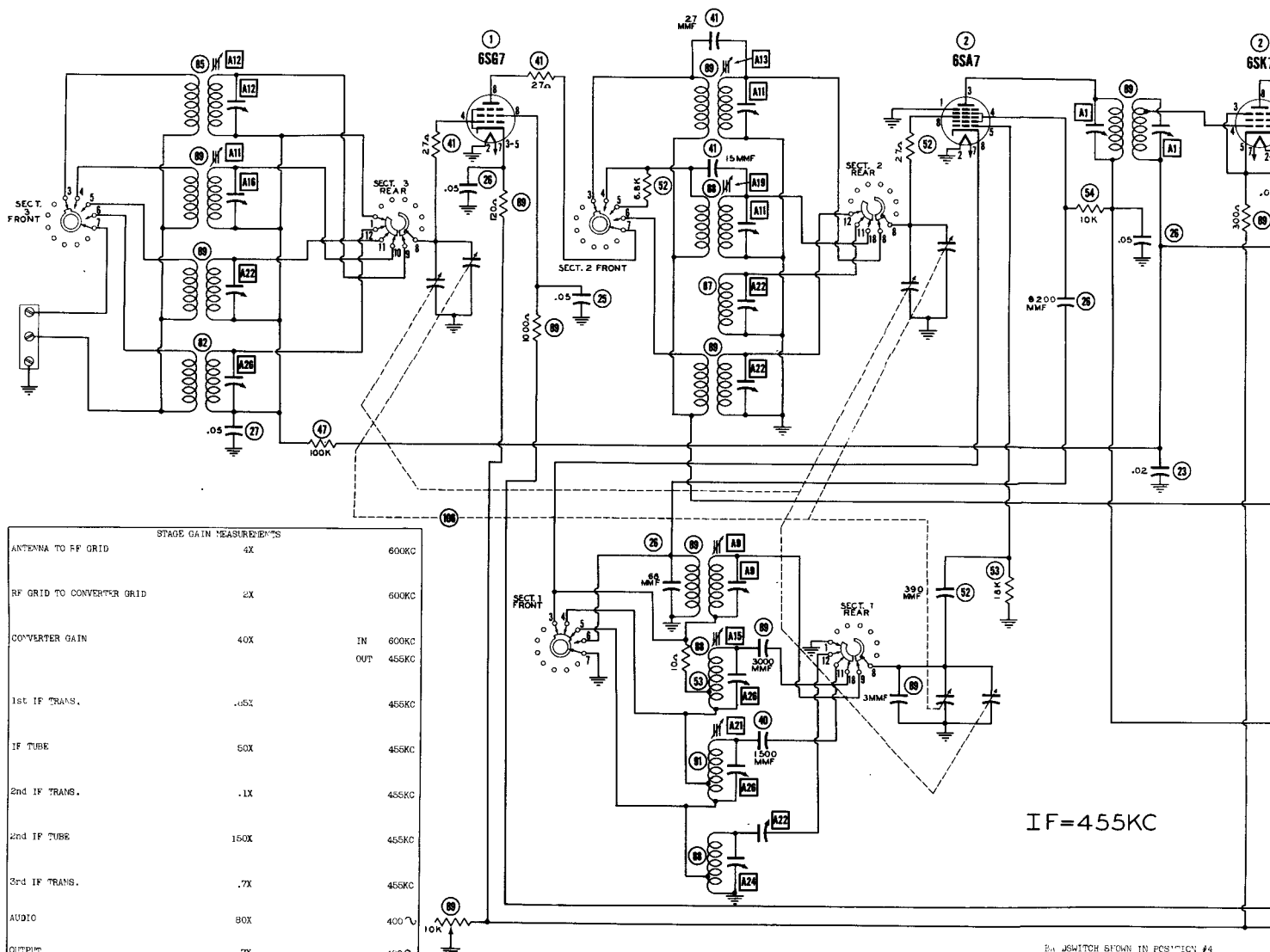
DIAL LIGHT

ITEM No.	BASE TYPE	VOLTS	AMPS.	READ COLOR	REPLACEMENT DATA		INSTALLATION NOTES
					HALLICRAFTERS PART No.	HALLICRAFTERS PART No.	
98	Bayonet	6-3	0.25	Blue	58A005	58A005	Type 44 " "
99							" "

MISCELLANEOUS

ITEM No.	PART NAME	HALLICRAFTERS PART No.	NOTES
100	Bandswitch	60B050	Ant.-RF Section
101	Switch	60B044	Osc. Section
102	" "	74C172	Shaft & Index Assy.
103	" "	60A138	AVC
104	" "	60A133	CW-AM
105	" "	60A134	Noise Limiter
106	3-Gang Var. Cap. Trimmer	60A225	On-Off-fone
		60A123	Standby-Receive
		48C138	(15-418MF) each section
		44A170	A10, A16, A11, A17, A8
		49A147	A22, A26, A23, A27, A14, A50, A24





2-4 SWITCH SHOWN IN POSITION #4
 SWITCH 32/15/05:
 1-4.0KC TO 170KC
 2-1.7MC TO 1.35MC
 3-0.35MC TO 11.7MC
 4-15.7KC TO 43KC

VOLTAGE READINGS **VOLTAGE AND RESISTANCE READINGS TAKEN IN BROADCAST POSITION.** **RESISTANCE READINGS**

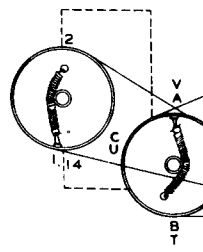
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	1VDC	-.3VDC	1VDC	102VDC	6.4VAC	245VDC
2	6SA7	OV.	OV.	150VAC	0.7VDC	-7.5VDC	1VDC	6.4VAC	OV.
3	6SK7	OV.	OV.	3.35VDC	-.4VDC	3.35VDC	105VDC	6.4VAC	242VDC
4	6SK7	OV.	OV.	3.9VDC	-.4VDC	3.9VDC	105VDC	6.4VAC	230VDC
5	6SK7	OV.	-.3VDC	OV.	-.45VDC	-.45VDC	87VDC	6.4VAC	OV.
6	6H6	OV.	OV.	OV.	-.4VDC	-.4VDC	-.9VDC	6.4VAC	OV.
7	6J5	OV.	OV.	140VDC	140VAC	-3VDC	OV.	6.4VAC	OV.
8	6F8	OV.	OV.	235VDC	205VDC	OV.	235VDC	6.4VAC	16VDC
9	80	320VAC	330VAC	330VAC	320VAC	OV.	-	-	-

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	6SG7	OV.	OV.	140 Ω	3 Meg.	140 Ω	135 Ω	.1 Ω	20K Ω
2	6SA7	OV.	OV.	32K Ω	42K Ω	18K Ω	11 Ω	.1 Ω	33 Ω
3	6SK7	OV.	OV.	330 Ω	3 Meg.	330 Ω	12K Ω	.1 Ω	20K Ω
4	6SK7	OV.	OV.	470 Ω	3 Meg.	470 Ω	12K Ω	.1 Ω	20K Ω
5	6SK7	OV.	15 Meg.	OV.	470K Ω	470K Ω	300K Ω	.1 Ω	OV.
6	6H6	OV.	OV.	1.5 Meg.	320K Ω	3 Meg.	470K Ω	.1 Ω	OV.
7	6J5	OV.	OV.	35K Ω	35K Ω	45K Ω	4.0K Ω	.1 Ω	34 Ω
8	6F8	OV.	OV.	20K Ω	30K Ω	470K Ω	20K Ω	.1 Ω	650 Ω
9	80	20K Ω	160 Ω	170 Ω	20K Ω	-	-	-	-

STAKEN WITH VACUUM TUBE VOLTMETER.
 RF GAIN FULL ON
 BFO SWITCH ON
 NOISE LIMITER SWITCH ON
 AVC SWITCH ON
 STANDBY RECEIVE SWITCH IF RECEIVE POSITION

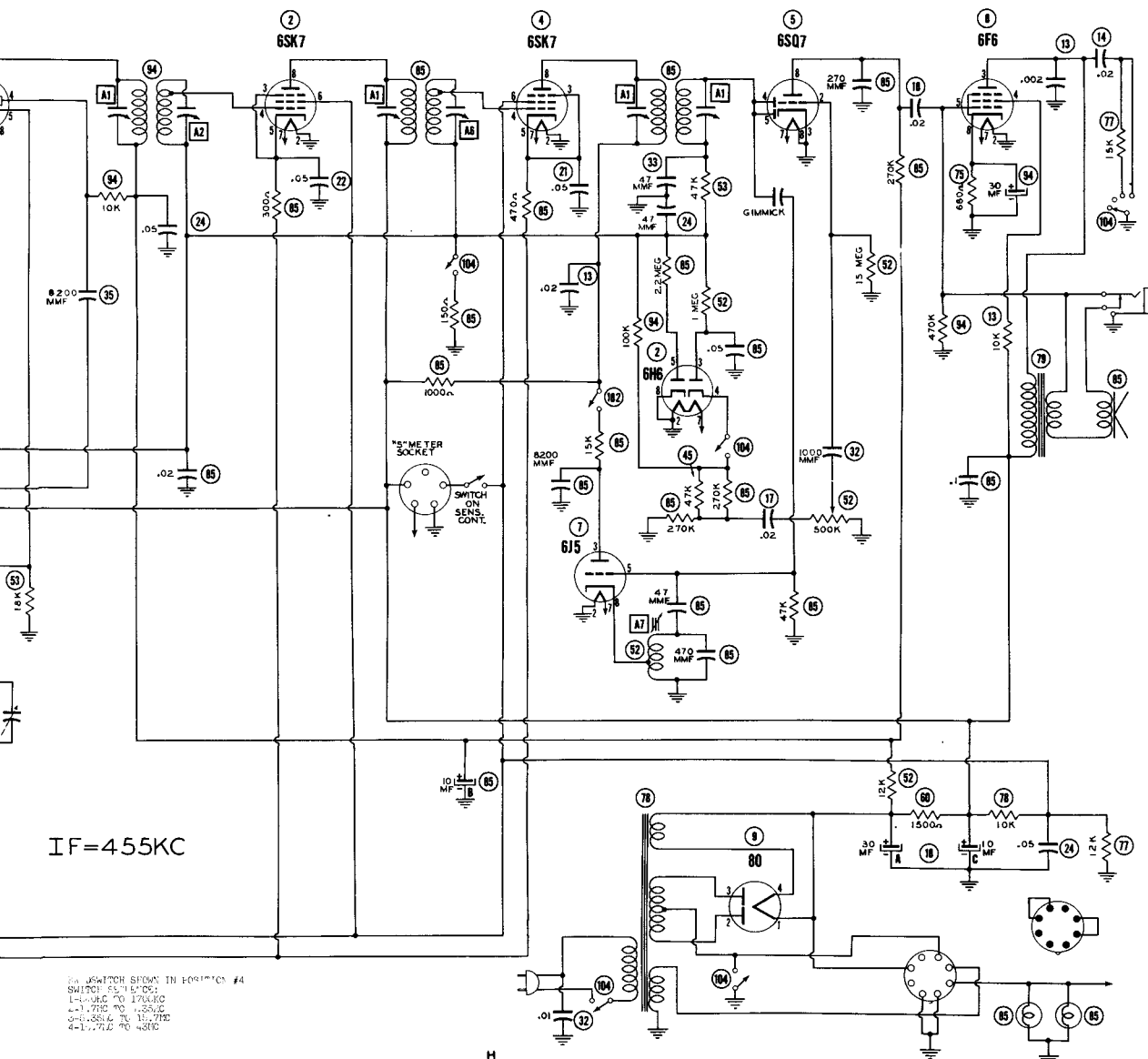
RESISTANCE READINGS IN THE B+ CIRCUITS MAY VARY WIDELY ACCORDING TO THE CONDITION OF THE FILTER CAPACITORS

A PHOTOFAC STANDARD NOTATION SCHEMATIC
 ©Howard W. Sams & Co., Inc. 1948



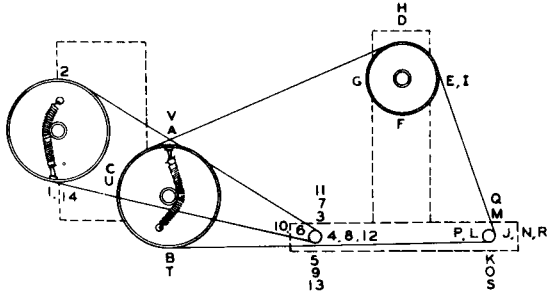
The stage gain measured values listed above are approximate values for an average operative stage, rather than an absolute value. It should be borne in mind that it is possible to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement 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. Sensitivity at maximum and noise limiter off.

- 1 - DC Voltage measurements
- 2 - Voltages measured at socket connections
- 3 - Measured values are nominal
- 4 - Line voltage maintained at 115VAC
- 5 - Nominal tolerance of variation of $\pm 15\%$
- 6 - Volume control at maximum



IF=4.55KC

SWITCH SHOWN IN POSITION #4
 SWITCH 65.11.02
 1-4.55KC TO 170KHZ
 2-1.775K TO 100KHZ
 3-6.55K TO 11.775K
 4-1.775K TO 40K



Dial cord stringing procedure main tuning is indicated by numbers and bandspread tuning is indicated by letters

HOW TO RESTRING DIAL CORDS

Removal of the front panel will be necessary in order to facilitate the restringing of the dial cords. A No. 6 Allen wrench will be required to loosen the set screws in the knobs. The Allen wrench can be obtained from most hardware stores. Use a No. X6337 knurled Spintite wrench to remove knurled ring nuts on the switch bushings.

To restringing the main tuning dial cord, cut a 25' length of 18 lb. test dial cord and tie one end to the tension spring of the main tuning capacitor drive pulley at position "1" on the diagram. Following the numbers 1 through 14, wind the cord on the pulley and knob drive shaft. At position "14," stretch the tension spring and tie the cord securely. Cut off the excess cord. Note that three turns are wound on the knob drive shaft.

To restringing the bandspread tuning dial cord, cut a 35' length of dial cord and follow the procedure as explained above, except start at position "A" on the diagram and proceed through position "V." Note that the knob drive shaft has three turns and the dial drive pulley has one turn.

- 1 - DC Voltage measurements are at 20,000 ohms per volt; 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 makes possible a variation of $\pm 15\%$ in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.