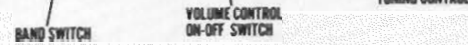


The stage gain measured values listed above are approximate values of an average positive stage gain factor that is available to you. It is recommended that you use the stage gain factor to introduce so many variables into the measurement operation, such as, type of equipment used for measuring, handling and placement of probes, the accuracy of alignment, etc., that an absolute reading is impractical. AVC is made inoperative by shorting diode load resistor.

**ESPEY**  
**MODEL 581**



ESPEY MODEL 581

<b>TRADE NAME</b>		Espey, Model 581					
<b>MANUFACTURER</b>		Espey Mfg. Co., 528 E. 72nd St., New York, 21, N. Y.					
<b>TYPE SET</b>		Three Power Multi-Band Superheterodyne Receiver					
<b>TUBES (EIGHT)</b>		Types, 1LN5 RF Amp., 1LC8 Converter, 1LN5 1st IF Amp., 1LN5 2nd IF Amp., 1LH4 Det.-AVC-AF, 50A5 (AC Operation), 3LH4 or 3Q5GT (Batt. Operation) Power Output, 35Y4 Rectifier.					
<b>POWER SUPPLY</b>		105-125 Volts, AC-DC or 12 Volt "A" Battery & 90 Volt "B" Battery					
<b>RATING</b>		.270 Amp. @ 117 volts AC or 55 MA @ 13 Volts DC and 11.7 MA @ 92 Volts DC					
<b>TUNING RANGE—BROADCAST</b>		540-1700KC					
		<b>SHORT WAVE</b> 3.55-4.5MC 8.5-19.5MC					
<b>ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT</b>							
To set pointer turn variable fully closed and set pointer parallel with horizontal line in center of dial. Use battery power when available. When using a-c power use isolation transformer if available. If not, connect a capacitor in series with low side of signal generator and chassis. Volume control should be at maximum volume and output of signal generator no higher than necessary to obtain output reading. Use insulated alignment screwdriver for adjusting.							
<b>DUMMY ANTENNA</b>	<b>SIGNAL GENERATOR COUPLING</b>	<b>SIGNAL GENERATOR FREQUENCY</b>	<b>BAND SWITCH POS.</b>	<b>RADIO DIAL SETTING</b>	<b>OUTPUT METER</b>	<b>ADJUST</b>	<b>REMARKS</b>
.1 MFD.	High side to center stator of variable. Low side to B-.	450KC	B1	Variable fully open.	Across voice coil	A1, A2, A3, A4.	Adjust for maximum output. If a-c power is used without an isolation transformer, reduce dummy ant. to .001 MFD. to reduce hum modulation.
200MFD	High side to ant. terminal. Low side to chassis.	1600KC	"	1600KC	"	A5	Adjust for maximum output
200MFD	"	1400KC	"	Tune for maximum output.	"	A6, A7	" " " "
200MFD	"	600KC	"	"	"	A8	Rock variable and adjust for maximum output. Repeat last three steps.
400Ω	"	8MC	B2	8MC	"	A9	Adjust for maximum output.
400Ω	"	"	"	Tune for max maximum output.	"	A10, A11	"
400Ω	"	5MC	"	"	"	A12	Rock variable and adjust for maximum output. Repeat adjustments of A9, A10, A11.
400Ω	"	19MC	B3	19MC	"	A13	Adjust for maximum output
400Ω	"	"	"	Tune for maximum output.	"	A14, A15	" " " "
400Ω	"	10MC	"	"	"	A16	Rock variable and adjust for maximum output. Repeat adjustments of A13, A14, A15.

**ESPEY**  
**MODEL 58T**

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."

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NOTE(1) READINGS TAKEN IN AC-DC POSITION ON ALL TUBES EXCEPT 3Q5GT WHICH WAS TAKEN IN BATTERY POSITION.  
(2) READINGS TAKEN IN STANDARD BROADCAST POSITION.

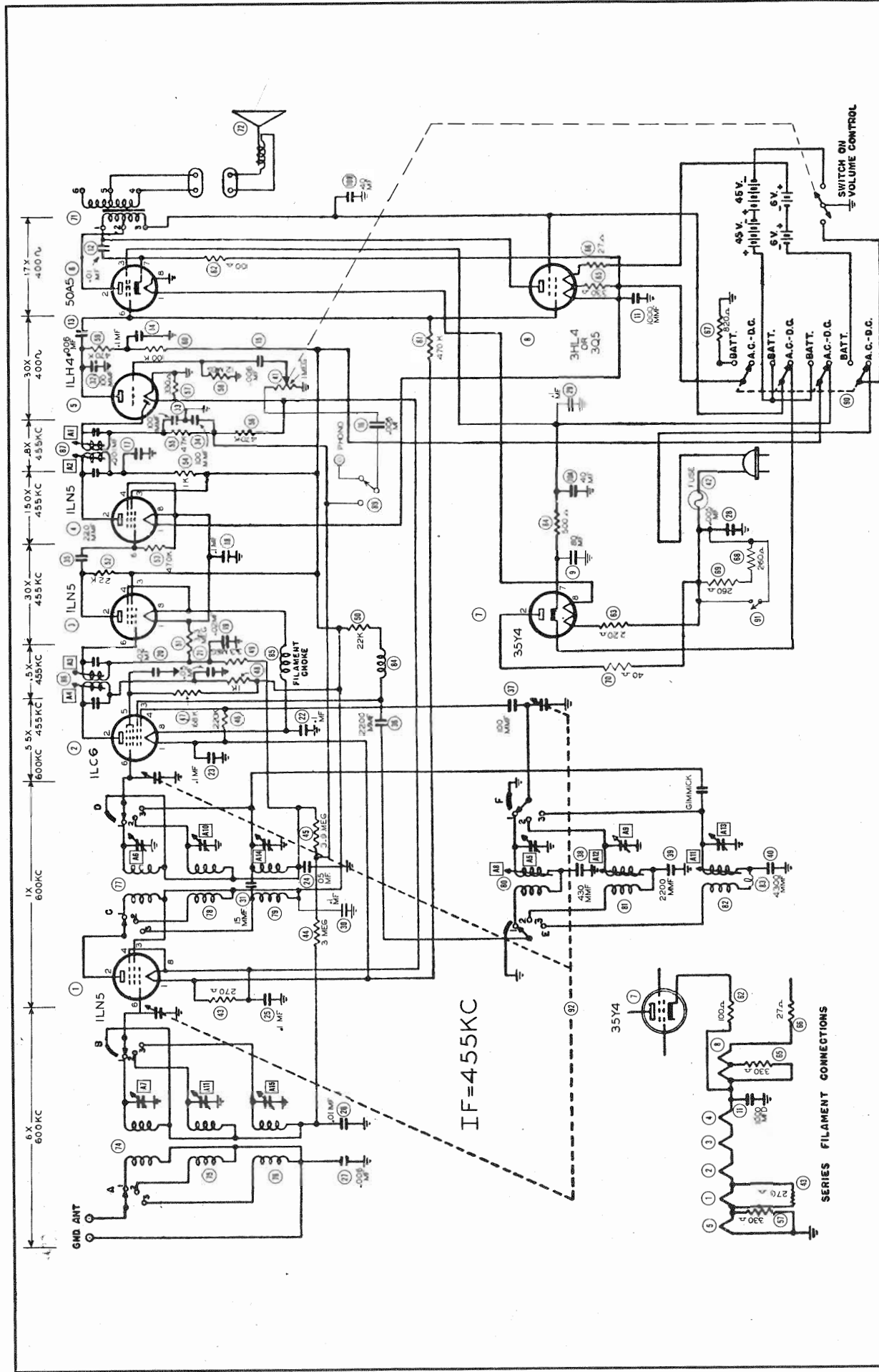
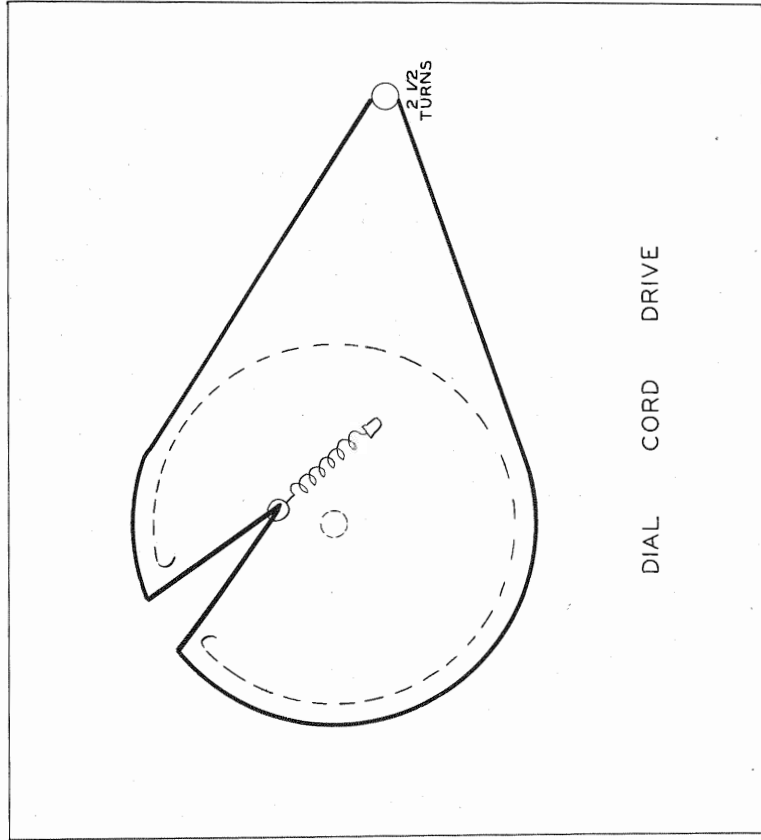
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	3 VDC	110 VDC	110 VDC	14 VDC	14 VDC	OV.	OV.	1.4 VDC
2	1LN6	4.5 VDC	110 VDC	70 VDC	23 VDC	45 VDC	13 VDC	OV.	3 VDC
3	1LN5	6 VDC	80 VDC	110 VDC	4.5 VDC	4.5 VDC	110 VDC	4.5 VDC	4.5 VDC
4	1LN5	7.2 VDC	110 VDC	110 VDC	6 VDC	110 VDC	1.8 VDC	4.5 VDC	6 VDC
5	1LN4	OV.	65 VDC	105 VDC	16 VDC	110 VDC	2 VDC	6 VDC	14 VDC
6	50A5	OV.	105 VDC	110 VDC	OV.	OV.	1.2 VDC	9.4 VDC	52 VAC
7	35Y4	83 VAC	113 VAC	OV.	78 VAC	OV.	OV.	115 VDC	53 VAC
8	305GT	3.1 VDC	111 VDC	90 VDC	92 VDC	1 VDC	12.5 VDC	8 VDC	9.5 VDC

Item	Tube	RESISTANCE READINGS							
		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
1	1LN5	*	115 K $\Omega$	115 K $\Omega$	*	*	3 $\frac{1}{2}$ MEG $\Omega$	INF $\Omega$	*
2	1LC5	*	115 K $\Omega$	140 K $\Omega$	210 K $\Omega$	195 K $\Omega$	2 $\frac{1}{2}$ MEG $\Omega$	INF $\Omega$	*
3	1LN5	*	135 K $\Omega$	115 K $\Omega$	*	*	24 MEG $\Omega$	115 K $\Omega$	*
4	1LN5	*	115 K $\Omega$	115 K $\Omega$	*	*	460 K $\Omega$	25 $\Omega$	*
5	1LH4	0 $\Omega$	700 K $\Omega$	215 K $\Omega$	500 K $\Omega$	115 K $\Omega$	12 MEG $\Omega$	500 K $\Omega$	*
6	50A5	0 $\Omega$	115 K $\Omega$	115 K $\Omega$	INF $\Omega$	INF $\Omega$	410 K $\Omega$	130 $\Omega$	46 $\Omega$
7	35Y4	77 $\Omega$	30 $\Omega$	INF $\Omega$	72 $\Omega$	INF $\Omega$	0 $\Omega$	115 K $\Omega$	46 $\Omega$
8	3Q5GT	*	*	225 K $\Omega$	225 K $\Omega$	410 K $\Omega$	*	*	*

\* DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

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

- 1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltage 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  $\pm 10\%$  in voltage and resistance readings.
- 6 - Volume control at maximum, no signal applied for voltage measurements.



THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE 474-10

**ESPEY  
MODEL 581**

[illegible]

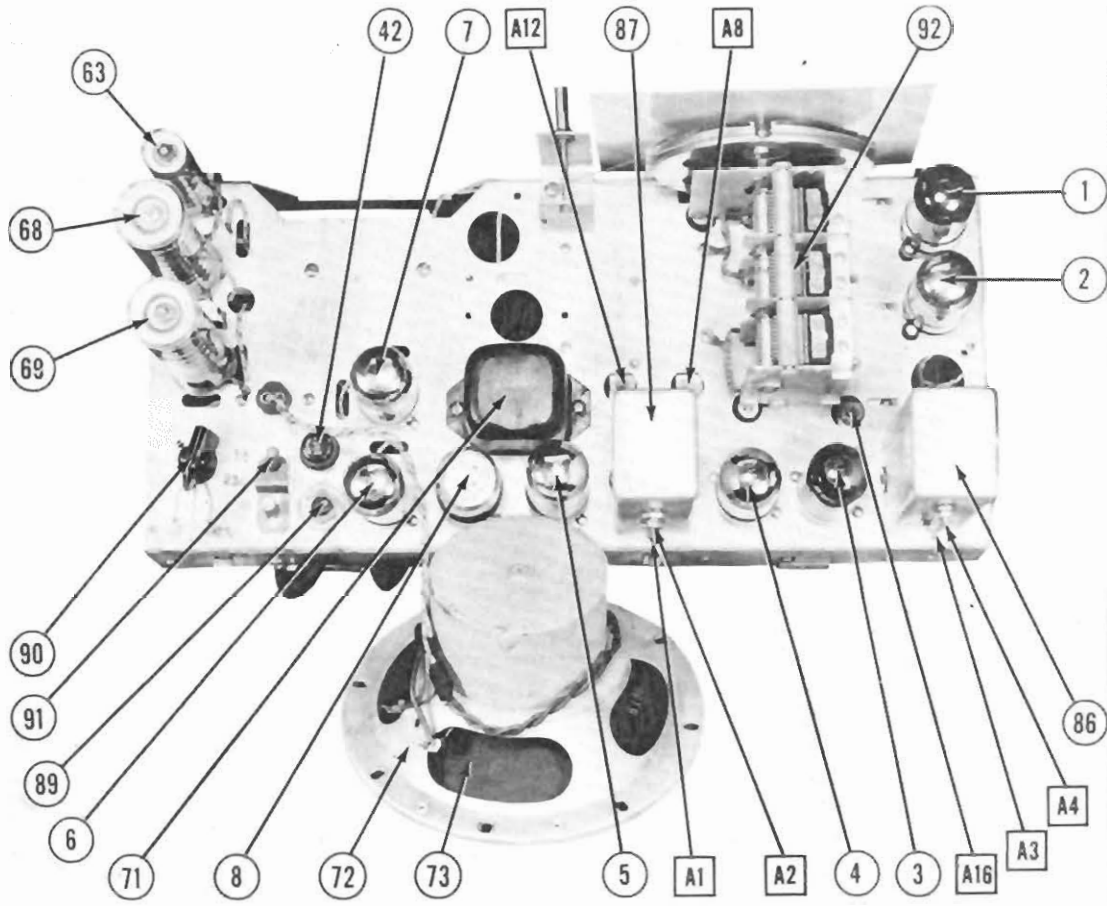
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 "The listing of any available replacement as a recommendation, warranty as to the quality and suitability of parts have been compiled from information, by the manufacturers of the product."  
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PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA			RMA BASE TYPE	INSTALLATION NOTES
		ESPEY PART No.	STANDARD REPLACEMENT			
1	RF AMP.	11N5	11N5	7AK		
2	Converter	11L06	11L06	7AK		
3	1st IF AMP.	11N5	11N5	7AO		
4	2nd IF AMP.	11N5	11N5	7AO		
5	2nd Det.-Audio	11H4	11H4	6AA		
6	Power Output	50A5	50A5	5AL		
7	Rectifier	25Y4	25Y4	31H4		
8A	Output (Batt.)	31H4	31H4	7AP		
8B	Output (Batt.)	31H4	31H4	7AP		

CHASSIS—TOP VIEW



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
		ESPEY PART No.	SPRAGUE PART No.	AEROVOX PART No.	CORNFELL DUBILIER PART No.	
9	60 150	TA-4401	FRSA150-40-401	FRSA150-40-401	2N5111	DSB-2240-1501 Filter
10A	40 150	TA-440	FRSA150-40-40	FRSA150-40-40	2N5111	DSB-2240-150
10B	40 150	TA-440	FRSA150-40-40	FRSA150-40-40	2N5111	DSB-2240-150
11	1000 15	TC-11	HCL1018-1000	HCL1018-1000	FA1510	DZ-1000-15
12	0.01 600	TC-11	854-01	854-01	DT851	S-4-01
13	0.006 600	TC-11	854-006	854-006	DT851	S-4-006
14	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
15	0.006 600	TC-11	854-006	854-006	DT851	S-4-006
16	0.006 600	TC-11	854-006	854-006	DT851	S-4-006
17	0.001 400	TC-11	854-001	854-001	DT851	S-4-001
18	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
19	0.02 200	TC-12	854-02	854-02	DT852	S-4-02
20	0.02 200	TC-12	854-02	854-02	DT852	S-4-02
21	0.05 400	TC-13	854-03	854-03	DT853	S-4-03
22	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
23	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
24	0.05 200	TC-15	854-05	854-05	DT855	S-4-05
25	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
26	0.01 200	TC-11	854-01	854-01	DT851	S-4-01
27	0.006 600	TC-26	854-006	854-006	DT856	S-4-006
28	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
29	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
30	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
31	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
32	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
33	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
34	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
35	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
36	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
37	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
38	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
39	0.01 400	TC-11	854-01	854-01	DT851	S-4-01
40	0.01 400	TC-11	854-01	854-01	DT851	S-4-01

Parallel for 90 WFO.  
Not used in all models.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		ESPEY PART No.	MALLORY PART No.	CLAROSTAT PART No.	
41A	100W 1	127	127	127	Values Control
41B	100W 1	127	127	127	Attach to 42A per instructions

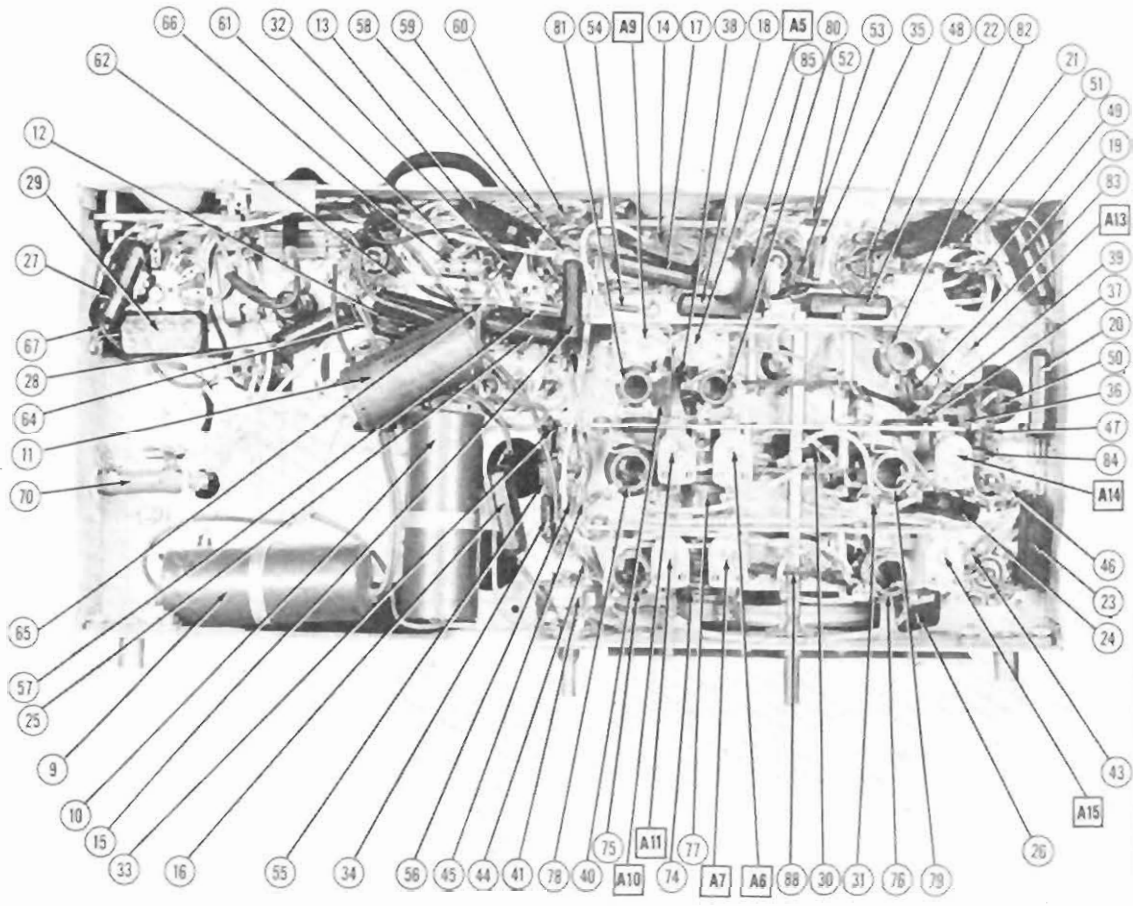
PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA			IDENTIFICATION CODES
		ESPEY PART No.	IRC PART No.	ESPEY PART No.	
42	250K	127	127	127	Red-VI.-Br. Filament String
43	250K	127	127	127	Or.-Blk.-Orn. AVC Network
44	250K	127	127	127	Or.-Blk.-Orn. AVC Network
45	250K	127	127	127	Blue-Red-VI. Oscillator Grid
46	250K	127	127	127	Blue-Red-VI. Converter Screen Wropping
47	250K	127	127	127	Br.-Blk.-Red Converter Plate Decoupling
48	250K	127	127	127	Or.-Or.-Orn. AVC Network
49	250K	127	127	127	Red-Red-Or. Oscillator Anode Load
50	250K	127	127	127	Or.-Or.-Orn. 1st IF Grid
51	250K	127	127	127	Red-Red-Or. 1st IF Plate Load
52	250K	127	127	127	VI.-VI.-VI. 2nd IF Grid
53	250K	127	127	127	Br.-Blk.-Red 2nd IF Plate Decoupling
54	250K	127	127	127	VI.-VI.-VI. Diode RF Filter
55	250K	127	127	127	Or.-Or.-Orn. Diode Load
56	250K	127	127	127	Or.-Or.-Orn. Filament Shunt
57	250K	127	127	127	VI.-VI.-VI. AF Grid
58	250K	127	127	127	Br.-Blk.-Red AF Plate Load
59	250K	127	127	127	VI.-VI.-VI. Output Grid
60	250K	127	127	127	Br.-Blk.-Br. Line Dropping-See Note 1
61	250K	127	127	127	Orn.-Blk.-Br. Line Dropping-See Note 1
62	250K	127	127	127	Or.-Or.-Orn. Filament Shunt
63	250K	127	127	127	Red-VI.-Blk. Filament String
64	250K	127	127	127	Gray-Red-Br. Filament String
65	250K	127	127	127	Line Dropping-See Note 2
66	250K	127	127	127	Rectifier Ballast-See Note 3

Note 1 - On IRC replacement set slider @ 250K from one end.  
Note 2 - Used in 220 volt operation only. On IRC replacement set slider @ 250K from one end.  
Note 3 - Not used in all models. On IRC replacement set slider @ 400 from one end.

CHASSIS—BOTTOM VIEW



TRANSFORMER (OUTPUT)

ITEM No.	RATING	REPLACEMENT DATA			INSTALLATION NOTES
		ESPEY PART No.	STANCOR PART No.	THORDAR PART No.	
71	1100W 30 SEC. 3000 .43	127	127	127	

SPEAKER

ITEM No.	RATINGS	REPLACEMENT DATA			INSTALLATION NOTES
		ESPEY PART No.	JENSEN PART No.	ST-112 Mod. P-1	
72	FIELD 30	127	127	127	
73	ONE DIA. 3/4"	127	127	127	NOT READILY REPLACABLE—USE COMPLETE SPEAKER UNIT



Parallel for 80 HTU.  
\*Not used in all models.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	RESISTANCE	WATTS	ESPEY PART No.	HALORY PART No.	
41A	1 Meg.	1	MR53	D13-137	VOLUME CONTROL
41B	Smart C Switch		Not Req. P27	A Not Req. 3A-42	Attach to 42A per instructions

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	ESPEY PART No.	IRC PART No.	
43	270Ω	1		RM-2-270	Red-VI.-Br. Filament String
44	3 Meg.	1		RTS-3.3 Meg.	Or.-Blk.-Grn. AVC Network
45	3.9 Meg.	1		RTS-3.9 Meg.	Or.-White-Grn. AVC Network
46	220KΩ	1		RTS-220K	Red-Red-Yl. Oscillator Grid
47	68KΩ	1		RTS-68K	Blue-Gray-Or. Converter Screen Drooping
48	1000Ω	1		RTS-1000	Br.-Blk.-Red Converter Plate Decoupling
49	3.3 Meg.	1		RTS-3.3 Meg.	Or.-Or.-Grn. AVC Network
50	22KΩ	1		RTS-22K	Red-Red-Or. Oscillator anode Load
51	3.3 Meg.	1		RTS-3.3 Meg.	Or.-Or.-Grn. 1st IF Grid
52	22KΩ	1		RTS-22K	Red-Red-Or. 1st IF Plate Load
53	470KΩ	1		RTS-470K	Yl.-VI.-Yl. End IF Grid
54	1000Ω	1		RTS-1000	Br.-Blk.-Red 2nd IF Plate Decoupling
55	47KΩ	1		RTS-47K	Yl.-VI.-Or. Diode Rf Filter
56	470KΩ	1		RTS-470K	Yl.-VI.-Yl. Diode Load
57	330Ω	1		RM-4-330	Or.-Or.-Br. Filament Shunt
58	12 Meg.	1		RTS-12 Meg.	Br.-Red-Grn. AF Grid
59	470KΩ	1		RTS-470K	Yl.-VI.-Yl. AF Plate Load
60	100KΩ	1		RTS-100K	Br.-Blk.-Red AF Plate Decoupling
61	470KΩ	1		RTS-470K	Yl.-VI.-Yl. Output Grid
62	100Ω	1		RM-1-100	Br.-Blk.-Br. Output Cathode
63	220Ω	1		EPA-220	Line Drooping-See Note 1
64	500Ω	1		EPA-500	Grn.-Blk.-Br. Filter
65	330Ω	1		RM-4-330	Or.-Or.-Br. Filament Shunt
66	27KΩ	1		RM-4-27	Red-VI.-Blk. Series Filament
67	820Ω	1		RTS-820	Gray-Red-Br. Filament String
68	280Ω	1		EPA-280	Line Drooping-See Note 2
69	280Ω	1		EPA-280	Line Drooping-See Note 2
70	40Ω	10		ABA-50	Rectifier Ballast-See Note 3

Note 1 - On IRC replacement set slider to index from one end.  
Note 2 - Used in 220 volt operation only. On IRC replacement set slider @ 250Ω from one end.  
Note 3 - Not used in all models. On IRC replacement set slider @ 400Ω from one end.

TRANSFORMER (OUTPUT)

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	ESPEY PART No.	STANCOR THOR-AR'N PART No.	
71	1100Ω	300Ω			

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	VC IMP.	ESPEY PART No.	JENSEN PART No.	
72	PH	3Ω		ST-112	
				Mod. P2-T	
73	CORE DIA.	VC DIA.	NOT READILY REPLACABLE-USE COMPLETE SPEAKER UNIT.		
	6"	5/4"			

PARTS LIST AND DESCRIPTIONS (Continued)

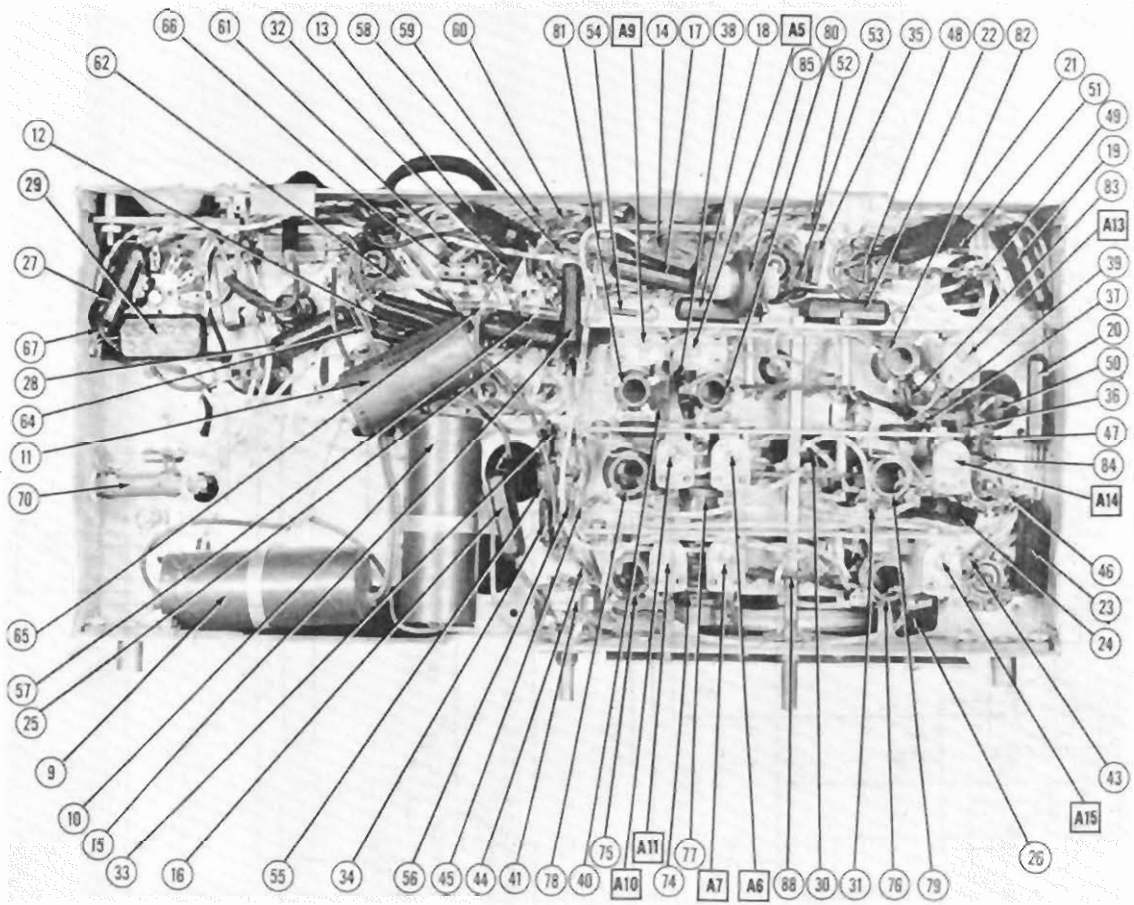
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	ESPEY PART No.	MEISSNER PART No.
74	Ant. Coil	18.5Ω	4Ω		
75	RF Coil	1.5Ω	0.5Ω		
76	RF Coil	1.5Ω	0.5Ω		
77	RF Coil	1.5Ω	0.5Ω		
78	RF Coil	1.5Ω	0.5Ω		
79	RF Coil	1.5Ω	0.5Ω		
80	RF Coil	1.5Ω	0.5Ω		
81	RF Coil	1.5Ω	0.5Ω		
82	RF Coil	1.5Ω	0.5Ω		
83	RF Choke	1.5Ω	0.5Ω		
84	RF Choke	1.5Ω	0.5Ω		
85	Filament Ch.	6.5Ω	0.5Ω		
86	Input IF	9.5Ω	0.5Ω		
87	Output IF	9.5Ω	0.5Ω		

MISCELLANEOUS

ITEM No.	PART NAME	ESPEY PART No.	NOTES
42	Fuse		
43	Radio-Phono Sw.		
44	AC-Batt. Switch		
45	115V-230 Volt Sw.		
46	18-ang Var. Cap.		
47	"A" Batt.-45V.		
48	"B" Batt.-45V.		

CHASSIS—BOTTOM VIEW



SERVICE NOTES

- If trouble is experienced with the type 1LW5 tube burning out, the following precautions should be observed:
- 1 - Check the 50A5 output tube for leakage or abnormal performance.
  - 2 - Check the grid coupling capacitor (Item 13) between the 1LW5 plate and the 50A5 grid for leakage.
  - 3 - Check the cathode resistor, Item 62, of the type 50A5 output tube to make sure that the resistor has not changed appreciably in value (some of these models use a 50-ohm resistor at this point; in these cases replace with 100-ohm resistor).
  - 4 - In AC or DC operation, if voltage on pin #7 of the 50A5 output tube still exceeds 7.5 volts DC after the above checks have been made, shut the filament string with a 1000-ohm resistor or one of suitable value to bring the filament string to the desired voltage.