

SERVICE INSTRUCTIONS

3-WAY PORTABLE RADIO

MODELS 5R40, 5R41, 5R42 (RUNS 1, 2, 3, 4, 4A & 4B)
AND MODEL 5R43 (MARK I)



Fig. 1. 5R40 (Black Dial), 5R41 (Maroon Dial), 5R42 (Green Dial & 5R43 Silver Dial)

92X1766

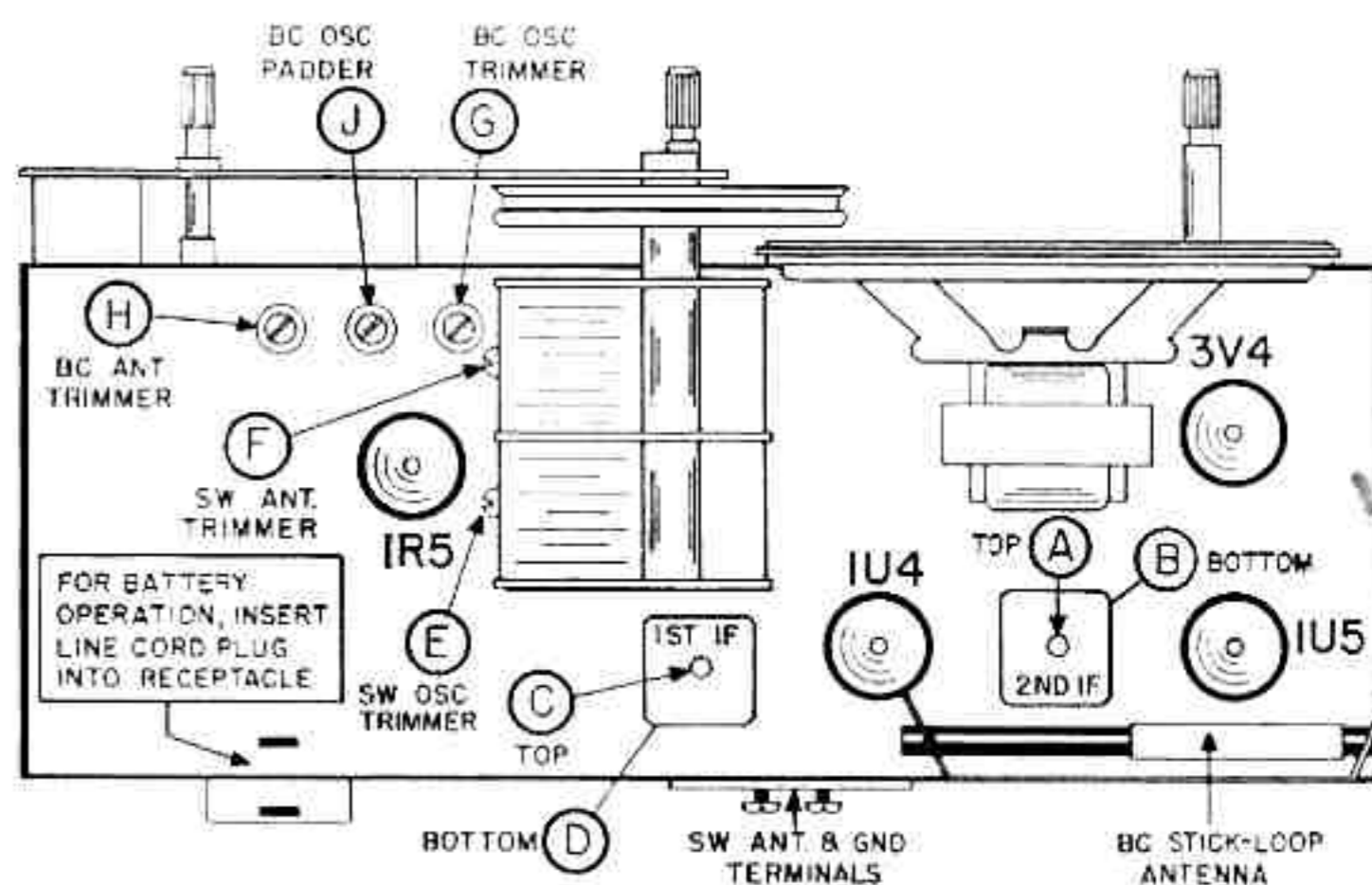
REPLACEMENT BATTERIES

7½ Volt "A" - Hallicrafters P13, General 31, RCA VS065, Burgess C5, Eveready 717, Ray-O-Vac P751

90 Volt "B" - Hallicrafters P231, General 132, RCA VS090, Burgess N60, Eveready 490, Ray-O-Vac 4390

SPECIFICATIONS

Tubes and Rectifiers . . . 4 tubes and 1 selenium rectifier
Power Supply . . . 105-120 volts DC/50-60 cycle AC or 90 and 7½ volt batteries
Frequency Coverage . . . BC - 535 to 1620 KC
SW - 5.8 to 18.3 MC
Intermediate Frequency 455 KC
Speaker 4-inch PM
Voice Coil Impedance 3.2 ohms
Antenna BC - Built-in stick loop
SW - Terminals for single wire or doublet



* See Note 4B on Page 2.

92C1763-B

Fig. 2. Alignment Adjustments and Tube Location

ALIGNMENT PROCEDURE

- Connect output meter across voice coil.
- Set volume control at maximum.
- Use a non-metallic alignment tool.
- Stick loop antenna must be connected.
- Refer to Fig. 2 for location of alignment adjustments.
- Generator must have modulated output and cover 455 KC, 600 KC, 1400 KC and 14 MC.
- To avoid AVC action, use lowest output setting of signal generator that gives satisfactory reading on meter.

Step	Signal Generator Connections	Generator Frequency	Band Switch Setting	Receiver Dial Setting	Adjust for Maximum Output
1	High side thru .01 mfd capacitor to green lead of stick loop antenna. Low side to B- (pin 1 of 1U5).	455 KC	BC	1000 KC	A and B (2nd IF) C and D (1st IF)
2	High side thru 300 ohm carbon resistor to terminal A on back of set. Low side to B-.	14 MC	SW	14 MC	E (SW osc. trimmer) F (SW ant. trimmer)
3	Place generator lead close to stick loop antenna. No actual connection.	1400 KC	BC	1400 KC	G (BC osc. trimmer) H (BC ant. trimmer)
4	Same as Step 3.	600 KC	BC	600 KC	J (BC osc. padder)

the hallicrafters co.

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PRODUCTION CHANGES

At the start of production, chassis are stamped "Run 1". Whenever a production change is made, the run number is advanced to the next higher number. Any change made in an early run chassis is also incorporated in all later run chassis. For example, changes made in the "Run 2" chassis are also incorporated in the "Run 3", "Run 4", and "Run 4A" chassis.

MODELS 5R40, 5R41 & 5R42

RUN 1

Start of production.

RUN 2

TO REDUCE AC HUM: The filament section of the triple-section filter capacitor, C-15, was disconnected and a separate capacitor C-23 (Part No. 45C224) was wired in its place. This capacitor has the same electrical rating (400 mfd. 15V) as the original and should be used for replacement purposes. The physical location of C-23 is shown in Fig. 3.

TO PROVIDE INCREASED SENSITIVITY ON BC BAND: Stick-loop antenna 57B167 used on "Run 1" chassis was replaced by an improved stick-loop antenna having a higher "Q". This antenna is available for cabinet back mounting under Part No. 57B175 or for chassis mounting (Fig. 2) under Part No. 57C181.

RUN 3

TO REDUCE AC HUM: R-18, a 2.2 megohm $\frac{1}{2}$ watt resistor (Part No. 23X20X225K) was added from the grid (pin 6) of V-4 to B-.

RUN 4

TO PROVIDE INCREASED SENSITIVITY ON BC BAND: R-17 (V-1 oscillator plate dropping resistor) was changed from 18,000 ohms $\frac{1}{2}$ watt to 10,000 ohms $\frac{1}{2}$ watt (Part No. 23X20X103K). Also, BC oscillator coil 51B1534 (with 47 turn primary) was replaced with coil 51B1762 (with 32 turn primary).

RUN 4A

TO REDUCE AUDIO FEEDTHRU AT ZERO VOLUME SETTING: Diode-pentode couplate PC-160 was replaced by a type PC-165 couplate. When ordering, specify type PC-165.

TO IMPROVE CALIBRATION ON SW BAND: C-21, located between pins 3 and 5 of the SW oscillator coil, T-6, was changed from 100 mmfd to 82 mmfd (Part No. 47X25UK820K).

RUN 4B

The physical positions of the BC antenna trimmer capacitor and the BC oscillator trimmer capacitor are interchanged. (See fig. 2).

MODEL 5R43

MARK 1

The Mark 1 chassis is identical to the Run 4A or Run 4B chassis listed above.

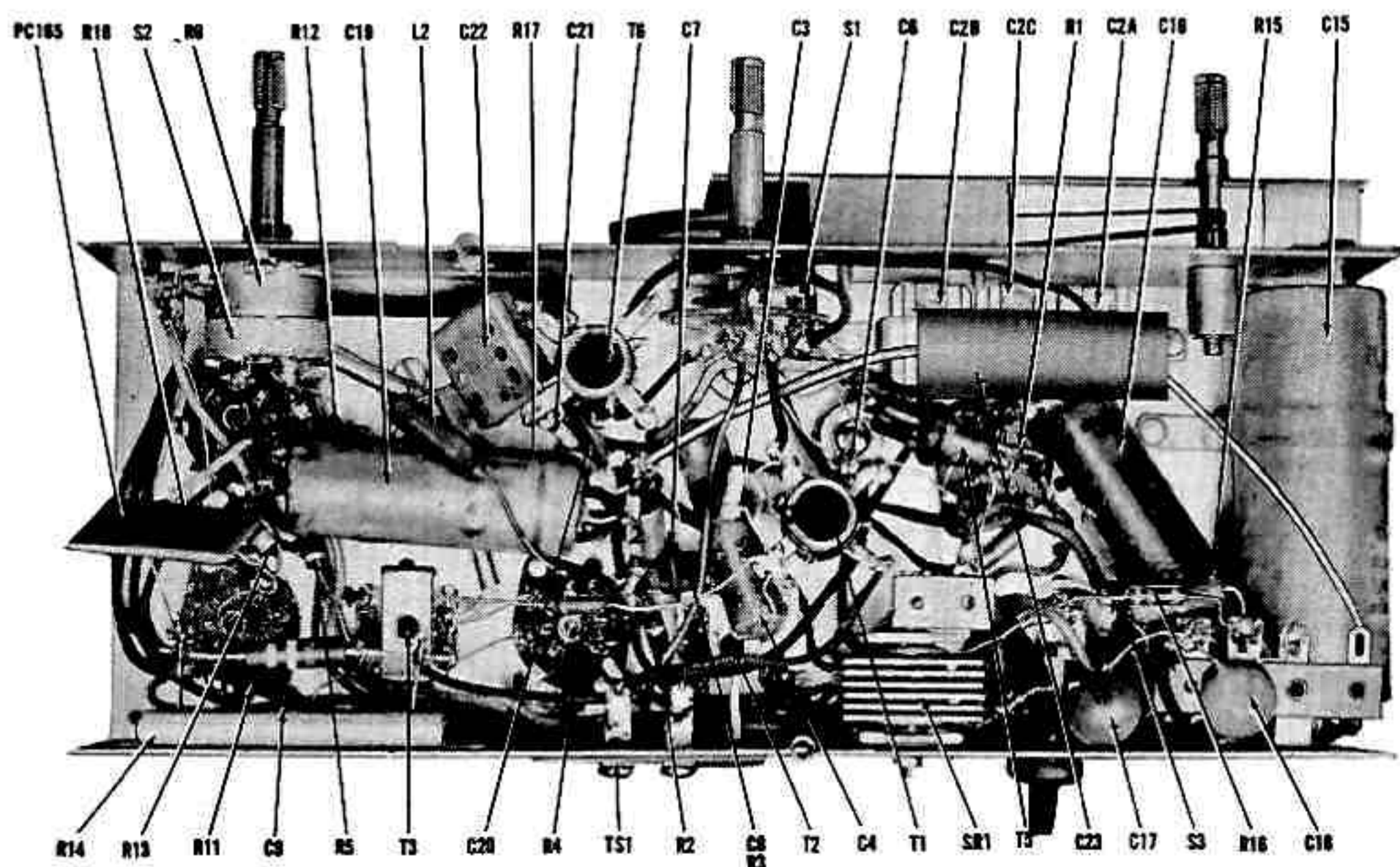


Fig. 3. Component Location

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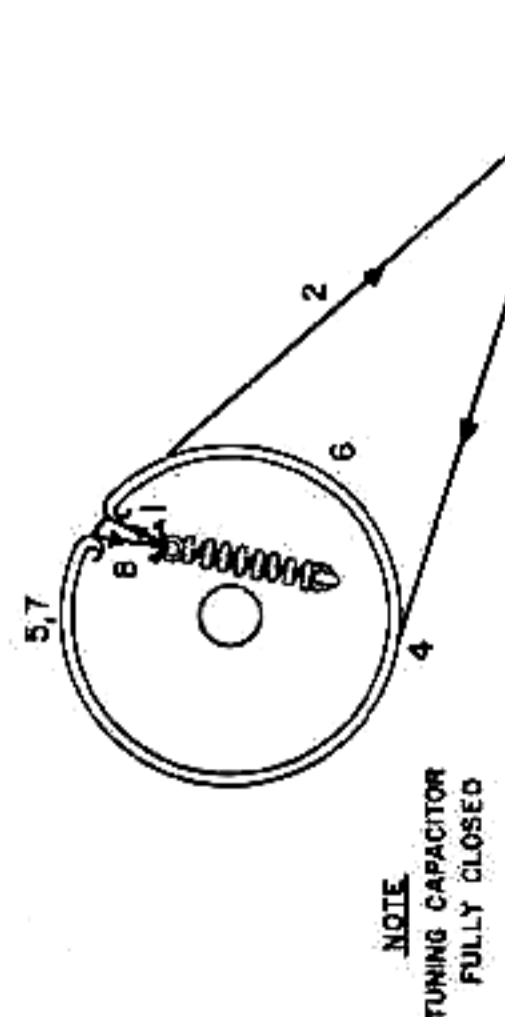
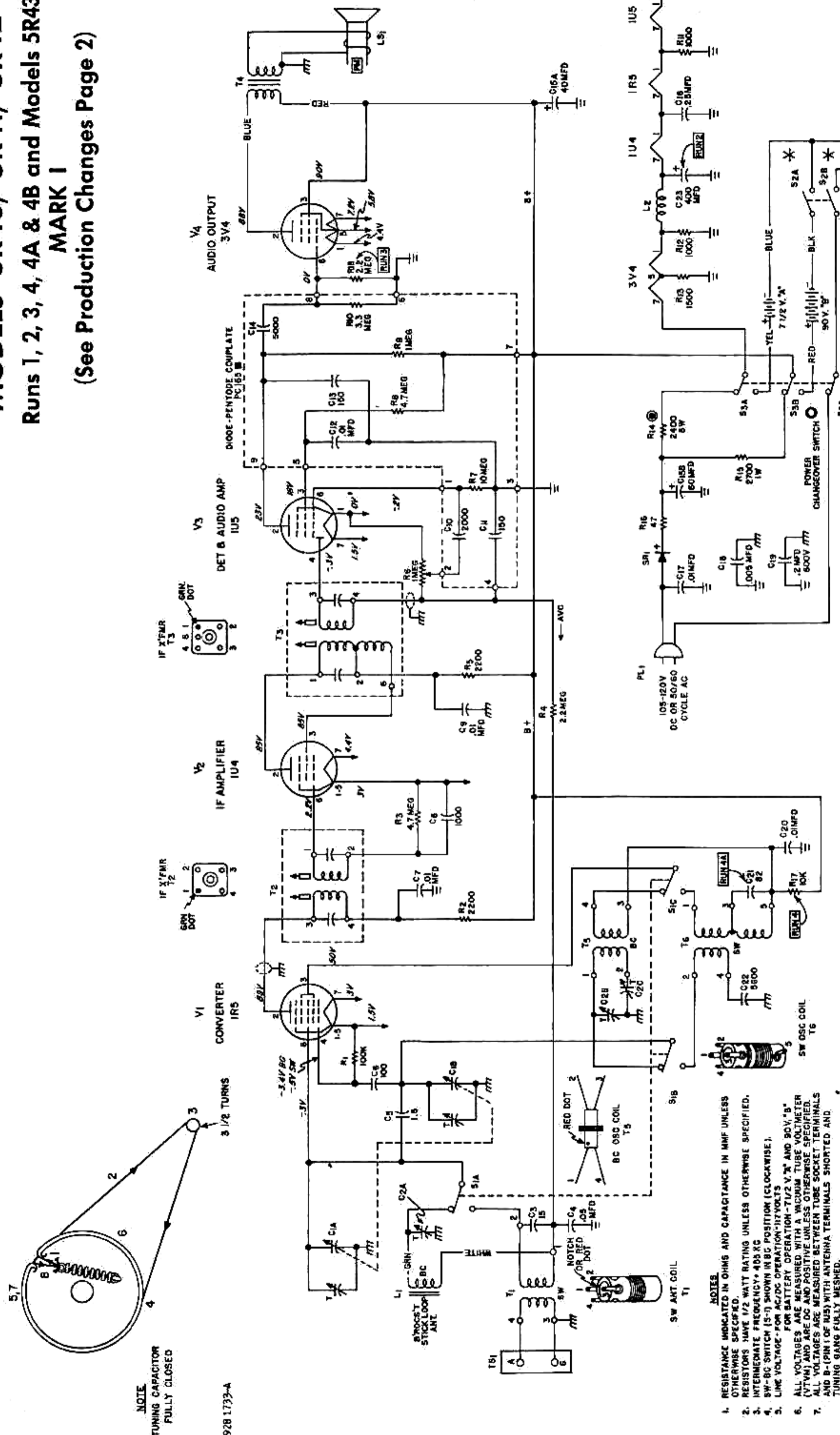
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MODELS 5R40, 5R41, 5R42

Runs 1, 2, 3, 4, 4A & 4B and Models 5R43

MARK I

(See Production Changes Page 2)



NOTE:
TUNING CAPACITOR
FULLY CLOSED

928 1733-A

- NOTES:**
1. RESISTANCE INDICATED IN OHMS AND CAPACITANCE IN MMF UNLESS OTHERWISE SPECIFIED.
 2. RESISTORS HAVE 1/2 WATT RATING UNLESS OTHERWISE SPECIFIED.
 3. INTERMEDIATE FREQUENCY: 465 KC
 4. SW-BC SWITCH (S-1) SHOWN IN BC POSITION (CLOCKWISE).
 5. LINE VOLTAGE FOR AC/DC OPERATION-117 VOLTS FOR BATTERY OPERATION-112 VOLTS
 6. ALL VOLTAGES ARE MEASURED WITH A VACUUM TUBE VOLTMETER (VTVM) AND ARE DC AND POSITIVE UNLESS OTHERWISE SPECIFIED.
 7. ALL VOLTAGES ARE MEASURED BETWEEN TUBE SOCKET TERMINALS AND B-(PIN 1 OF N5) WITH ANTENNA TERMINALS SHORTED AND TUNING GANG FULLY MESSED.
 8. K-1000
 9. IN SOME SETS, R-14 IS REPLACED BY (1) 2700 OHM 8 WATT, WW RESISTOR AND (1) 22K OHM 1 WATT RESISTOR CONNECTED IN PARALLEL.
 10. PART OF VOLUME CONTROL R6.
 11. B - (COMMON GROUND)
 12. CHASSIS
 13. USED ON MOST RUN 4A, CHASSIS AND LATER

VALUES AND TOLERANCES SHOWN ARE NOMINAL AND VARIATIONS MAY BE FOUND. IT IS RECOMMENDED THAT THE VALUE OF ANY REPLACEMENT CORRESPOND TO THE NOMINAL VALUE OF THE PART BEING REPLACED.

SWITCH S3 SHOWN IN AC/DC POSITION. TO PLACE SWITCH IN BATTERY POSITION, INSERT LINE COIL PLUG INTO CHASSIS RECEPTACLE.

SERVICE PARTS LIST

Schematic Symbol	Description	Hallicrafters Part Number	Schematic Symbol	Description	Hallicrafters Part Number
CAPACITORS			PLUGS AND SOCKETS		
C-1A & B	Tuning capacitor; 2 section	48C294		Plug assembly, "A" battery; includes leads	87A1971
C-2A, B & C	Trimmer assembly; 3 section	44C419		Plug assembly, "B" battery; female (includes lead)	87A3508
C-3	15 mmf. 500V., ceramic	47X20UK150K		Plug assembly, "B" battery; male (includes lead)	87A3593
C-4	.05 mfd. 200V., tubular paper	46AW503J		Socket, tube; miniature 7 pin	6B404
C-5	1.5 mmf. bakelite gimmick	47A160-3			
C-6	100 mmf. 500V., ceramic	47X25UK101K			
C-7,9,17, 20	.01 mfd. 500V., ceramic disc	47A224			
C-8	1000 mmf. 500V., ceramic	47C20A102M			
*C-10	2000 mmf., ceramic	- - - - -	V-1	1R5: converter	90X1R5
*C-11	150 mmf., ceramic	- - - - -	V-2	1U4: IF amplifier	90X1U4
*C-12	01 mfd., ceramic	- - - - -	V-3	1U5: detector, AVC and audio amplifier	90X1U5
*C-13	150 mmf., ceramic	- - - - -	V-4	3V4: audio output	90X3V4
*C-14	5000 mmf., ceramic	- - - - -	SR-1	Selenium rectifier, 75 ma.	27A172
C-15A & B	Capacitor, electrolytic; dual section; 40 mfd. 150V., 60 mfd. 150V.	45B229			
C-16	.25 mfd. 200V., tubular paper	46AT254J			
C-18	.005 mfd. 500V., ceramic disc	47A168			
C-19	.2 mfd. 600V., tubular paper	46AX204H			
C-21	82 mmf. 500V., ceramic	47X25UK820K			
C-22	5600 mmf. 500V., mica	47X35B562K			
C-23	400 mfd. 15 V., electrolytic	45C224			
RESISTORS			MISCELLANEOUS PARTS		
R-1	100,000 ohms $\frac{1}{2}$ watt, carbon	23X20X104K		Bracket, power plug retaining (for battery operation)	67B2106
R-2,5	2200 ohms $\frac{1}{2}$ watt, carbon	23X20X222K		Cabinet; less front panel assembly, for Models 5R40, 5R41*, 5R42 for Models 5R43	78F854 78A1353
R-3	4.7 megohms $\frac{1}{2}$ watt, carbon	23X20X475K		Cabinet front panel assembly for 5R40 (black)	7D379
R-4	2.2 megohms $\frac{1}{2}$ watt, carbon	23X20X225K		for 5R41 (maroon)	7A457
R-6	Volume control; 1 megohm; includes on-off switch S-2	25B1005		for 5R42 (green)	7A458
*R-7	10 megohms, $\frac{1}{2}$ watt	- - - - -		for 5R43 (silver)	7A649
*R-8	4.7 megohms, $\frac{1}{2}$ watt	- - - - -		Clip, mtg. for T-6	76A326
*R-9	1 megohm, $\frac{1}{2}$ watt	- - - - -		for T-1	76A868
*R-10	3.3 megohms, $\frac{1}{2}$ watt	- - - - -		for T-2 and T-3	76A385
R-11,12	1000 ohms $\frac{1}{2}$ watt, carbon	23X20X102K		Clip, tube shield	76A402
R-13	1500 ohms $\frac{1}{2}$ watt, carbon	23X20X152K	PC-165	Couplate, diode-pentode (includes C-10, 11, 12, 13, and 14, and R-7, 8, 9, and 10)	49C022
R-14	2400 ohms 8 watts, wirewound	24B938		Dial cord, (specify length)	38A026
R-15	2700 ohms 1 watt, carbon	23X30X272K		Dial scale for 5R40 (black)	83D418
R-16	47 ohms $\frac{1}{2}$ watt, carbon	23X20X470K		for 5R41 (maroon)	83A442
R-17	10,000 ohms $\frac{1}{2}$ watt, carbon	23X20X103K		for 5R42 (green)	83A443
R-18	2.2 megohms $\frac{1}{2}$ watt, carbon	23X20X225K		for 5R43 (charcoal)	83A562
COILS AND TRANSFORMERS				Grommet, rubber; gang mtg.	16A128
L-1	Antenna, stick-loop for chassis mtg.	57C181		Knob, BC-SW	15B525
	for cabinet back mtg.	57B175		Knob, OFF-VOL	15B529
L-2	Choke, RF	53A008		Knob, TUNING	15B526
T-1	Coil, antenna; SW	51B1535		Line cord and plug	87A3592
T-2	Transformer, 1st IF	50C233		Lock, line cord	76A974
T-3	Transformer, 2nd IF	50C516		Pointer, dial	82A220
T-4	Transformer, audio output; part of speaker LS-1	- - - - -		Retaining ring, type "E"; for .156" dia. shaft	76A649
T-5	Coil, oscillator; BC	51B1762	LS-1	Speaker, 4-inch PM; includes T-4 and mtg. bkt. (see part number on magnet)	85C129 or 85C138
T-6	Coil, oscillator; SW	51B1543		Spring, dial cord tension	75A012
SWITCHES				Terminal strip, SW antenna	88B809
S-1A, B & C	Switch, rotary; BC-SW	60B487	TS-1		
S-2A & B	Switch, on-off; part of volume control R-6	- - - - -			
S-3A, B & C	Switch, power change-over	60B502			

* Part of diode-pentode couplate PC-165.