



hallicrafters
continental

**BROADCAST — SHORTWAVE
PORTABLE**

**OPERATING and SERVICE
INSTRUCTIONS**

5R40

RUN 2

the hallicrafters co.

MANUFACTURERS OF RADIO AND ELECTRONIC EQUIPMENT, CHICAGO 24, U. S. A.

GENERAL DESCRIPTION

Your Hallicrafters 5R40 portable radio tunes the full standard broadcast band and the short-wave range from 5.8 to 18.3 megacycles to bring you outstanding world-wide radio reception. It is a 4 tube superheterodyne radio and will operate on batteries or 105 to 120 volt AC/DC current. It uses a selenium rectifier which makes instantaneous playing possible on AC or DC as well as batteries.



9231746

Hallicrafters Model 5R40

Your receiver contains a sensitive built-in antenna for standard broadcast reception which eliminates the need for an external antenna. For shortwave reception, an external antenna is required and, in most localities, good results can be obtained with the 15 foot antenna wire included with your receiver. It is merely necessary to uncoil the wire, connect one end of it to terminal A on the back of the set and then run it about the room in any convenient manner.

For your convenience, the principal shortwave stations of the world have been clearly marked on the dial. Since shortwave reception conditions vary with the season of the year and even with the time of day, shortwave programs may not be heard with the same regularity as standard broadcasts. To aid you in determining the most favorable times for shortwave listening, a special table has been provided below.

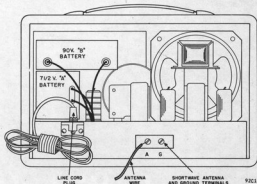
BEST SHORTWAVE RECEPTION TABLE

Band	Most Favorable Time	Most Favorable Distance
6-7 MC	Night - Winter	Day - 400 miles Night - Over 1500 Miles
9-10 MC	Day - Late Afternoon and Night - Winter	Over 500 miles
11-12 MC	Evenings or Late Summer Afternoons	Day - Under 1500 Miles Night - Over 1500 Miles
15-18 MC	Early Mornings and Summer Evenings	Over 1500 Miles

INSTALLATION INSTRUCTIONS

STANDARD BROADCAST ANTENNA - The sensitive built-in antenna in your receiver eliminates the need for an external antenna for standard broadcast reception.

SHORT WAVE ANTENNA - Two terminals are provided on the back of the set for the short-wave antenna and ground connections. Good results can be obtained in most localities with the 15 foot antenna wire included with your receiver. Simply uncoil the wire, connect one end of it to terminal A and run it about the room in a convenient manner. An outside antenna 30 to 60 feet long (ordinary copper wire) may be necessary if the receiver is to be operated in a difficult reception area or steel constructed building. In some locations, reception may be improved by connecting a wire lead from terminal G to a cold water pipe or outside ground rod.



9231742-A

Fig. 1. Rear View of Receiver with Cabinet Back Removed

OPERATING INSTRUCTIONS

BATTERY OPERATION

1. Remove the cabinet back by unfastening the leather strap and pulling outward at the top of the cabinet back.
2. Select the required batteries from the battery replacement list on page 4.
3. Place the batteries into the compartment at the left side of the cabinet and insert the battery connectors into the receptacles provided on the batteries.
4. Insert the LINE CORD PLUG into the CHASSIS RECEPTACLE on the top left of the chassis (see Fig. 1).

AC/DC OPERATION (105-120 Volts DC or 50/60 Cycles AC)

1. Insert the line cord plug into a convenient power outlet.
2. When operating on DC, reverse the line cord plug if the radio does not operate after having been turned ON. On DC, the set will operate **ONLY** with the plug in one position.

TUNING DIAL

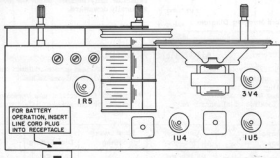
1. The outer dial scale is the standard broadcast band and is calibrated in kilocycles, minus the last zero. To convert the dial reading to kilocycles, simply add one zero.
2. The inner dial scale is the shortwave portion of the dial and is calibrated directly in megacycles.

TUNING

1. Set the BC-SW knob to BC for standard broadcast reception or to SW for shortwave reception.
2. Turn the set on by rotating the OFF-VOLUME knob clockwise.
3. Turn the TUNING knob slowly to the desired station and readjust the OFF-VOLUME knob for the desired volume.

NOTE - The built-in antenna provided for standard broadcast reception is directional. If satisfactory reception of a standard broadcast station is not obtained, rotate the entire receiver for the position which will provide the greatest signal.

4. To turn the set off, rotate the OFF-VOLUME knob counterclockwise until a click is heard.



92C1732-A

Fig. 2. Top View of Chassis Showing Tube Location

SERVICE OR OPERATING QUESTIONS - For further information regarding operation or servicing of your receiver, contact your dealer. Make no service shipments to the factory. The Hallicrafters Company maintains an extensive system of authorized factory service centers where any required service can be performed promptly and efficiently at a nominal charge. The sign shown at the right is displayed by all authorized service centers.

The Hallicrafters Co. reserves the privilege of making revisions in current production of equipment and assumes no obligation to incorporate these revisions in earlier models.



92C1401-B

SERVICE INSTRUCTIONS

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

REPLACEMENT BATTERIES

7½ Volt "A" - General 31, RCA VS065, Burgess
 C5, Eveready 717, Ray-O-Vac P751
 90 Volt "B" - General 132, RCA VS090, Burgess
 N60, Eveready 490, Ray-O-Vac
 4390

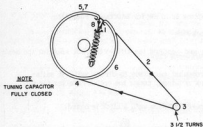


Fig. 4. Dial Cord Stringing Diagram 9281739-4

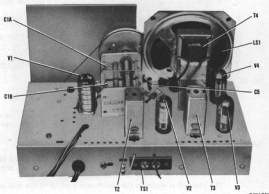


Fig. 3. Top View of Chassis Showing Component Location 9281766

DIAL CORD STRINGING - Set the tuning capacitor in a fully meshed position. Tie one end of a 30-inch length of 30 lb. test dial cord to the tension spring at position 1 as shown in Fig. 4. Follow the stringing procedure 1 through 8. At position 8, stretch the spring and tie the cord securely to the spring. Cut off the loose ends of the cord and apply a drop of quick drying cement to the knot. With the tuning capacitor fully meshed, align the pointer so that it points vertically downward.

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. 5 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)

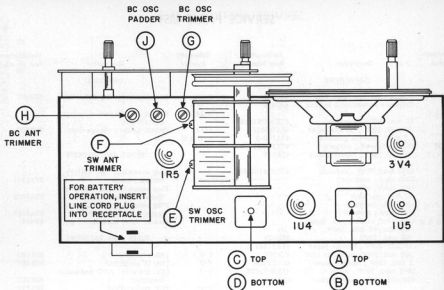


Fig. 5. Top View of Chassis Showing Location of Alignment Adjustments

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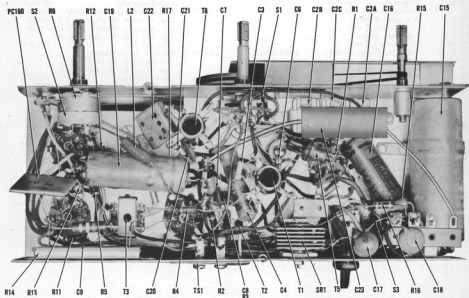


Fig. 6. Bottom View of Chassis Showing Component Location

92C1765-A

SERVICE PARTS LIST

Schematic Symbol	Description	Hallcrafters Part Number	Schematic Symbol	Description	Hallcrafters Part Number
CAPACITORS			SWITCHES		
C-1A & B	Tuning capacitor; 2 section	48C294	S-1A,	Switch, rotary; BC-SW	60B487
C-2A,	Trimmer assembly; 3 section	44C419	B & C		
B & C			S-2A & B	Switch, on-off; part of volume control R-6	60B502
C-3	15 mmf. 500V., ceramic	47X20UK150K	S-3A,	Switch, battery change-over	
C-4	.05 mfd. 200V., tubular paper	46AW503J	B & C		
C-5	1.5 mmf. bakelite gimmick	47A160-3			
C-6,21	100 mmf. 500V., ceramic	47X25UK101K			
C-7,9,17,	.01 mfd. 500V., ceramic disc	47A217			
20				PLUGS AND SOCKETS	
C-8	1000 mmf. 500V., ceramic	47B20A102M5		Plug assembly, "A" battery; includes leads	87A1971
*C-10	2000 mmf., ceramic	- - - - -		Plug assembly, "B" battery; female (includes lead)	87A3508
*C-11	100 mmf., ceramic	- - - - -		Plug assembly, "B" battery; male (includes lead)	87A3593
*C-12	.01 mfd., ceramic	- - - - -		Socket, tube; miniature 7 pin	6B404
*C-13	100 mmf., ceramic	- - - - -			
*C-14	5000 mmf., ceramic	- - - - -			
C-15A & B	Capacitor, electrolytic; dual section; 40 mfd. 150V., 60 mfd. 150V.	45B229		TUBES AND RECTIFIERS	
C-16	.25 mfd. 200V., tubular paper	46AT254J			
C-18	.005 mfd. 500V., ceramic disc	47A168	V-1	1R5: converter	90X1R5
C-19	.2 mfd. 600V., tubular paper	46AX204H	V-2	1U4: IF amplifier	90X1U4
C-22	5600 mmf. 500V., mica	47X35B562K	V-3	1U5: detector, AVC and audio amplifier	90X1U5
C-23	400 mfd. 15 V., electrolytic	45C224	V-4	3V4: audio output	90X3V4
			SR-1	Selenium rectifier, 75 ma.	27A172
RESISTORS					
R-1	100,000 ohms $\frac{1}{2}$ watt, carbon	23X20X104K		MISCELLANEOUS PARTS	
R-2,5	2200 ohms $\frac{1}{2}$ watt, carbon	23X20X222K		Cabinet; does not include front panel assembly	78F854
R-3	4.7 megohms $\frac{1}{2}$ watt, carbon	23X20X475K		Cabinet front panel assembly	7D379
R-4	2.2 megohms $\frac{1}{2}$ watt, carbon	23X20X225K		Clip, mtg.; for SW osc. coil T-6	76A326
R-6	Volume control; 1 megohm; includes on-off switch S-2	25B1005		Clip, mtg.; for SW ant. coil T-1	76A868
*R-7	10 megohms, $\frac{1}{2}$ watt	- - - - -		Clip, mtg.; for IF transformers T-2 and T-3	76A385
*R-8	4.7 megohms, $\frac{1}{2}$ watt	- - - - -			
*R-9	1 megohm, $\frac{1}{2}$ watt	- - - - -			
*R-10	3.3 megohms, $\frac{1}{2}$ watt	- - - - -			
R-11,12	1000 ohms $\frac{1}{2}$ watt, carbon	23X20X102K	PC-160	Couplate, diode-pentode; consists of C-10, 11, 12, 13 and 14 and R-7,8,9 and 10. (see schematic)	49C022
R-13	1500 ohms $\frac{1}{2}$ watt, carbon	23X20X152K		Dial cord (30" length needed)	38A026
R-14	2400 ohms 8 watts, wirewound	24B938		Dial scale	83D418
R-15	2700 ohms 1 watt, carbon	23X30X272K		Grommet, rubber (gang mounting)	16A128
R-16	47 ohms $\frac{1}{2}$ watt, carbon	23X20X470K		Knob, BC-SW	15B525
R-17	18,000 ohms $\frac{1}{2}$ watt, carbon	23X20X183K		Knob, OFF-VOL	15B529
				Knob, TUNING	15B526
COILS AND TRANSFORMERS				Line cord and plug PL-1	87A3592
L-1	Antenna, stick loop; for broadcast band	57B175		Lock, line cord	76A974
L-2	Choke, RF	53A008		Pointer, dial	82A220
T-1	Coil, antenna; SW	51B1535			
T-2	Transformer, 1st IF	50C233	LS-1	Speaker, 4 inch PM; includes audio output transformer T-4 and mounting bracket (See part number stamped on speaker magnet)	85C138 or 85C129
T-3	Transformer, 2nd IF	50C516			75A012
T-4	Transformer, audio output; part of speaker LS-1	- - - - -			88B809
T-5	Coil, oscillator; BC	51B1534			
T-6	Coil, oscillator; SW	51B1543	TS-1	Spring, dial cord tension	
				Terminal board, SW antenna	

* Part of diode-pentode couplate PC-160.

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C-7,9,17, 20	.01 mfd. 500V., ceramic disc	47A217	PLUGS AND SOCKETS		
C-8	1000 mmf. 500V., ceramic	47B20A102M5		Plug assembly, "A" battery; includes leads	87A1971
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*C-12	.01 mfd., ceramic	- - - - -		Socket, tube; miniature 7 pin	6B404
*C-13	100 mmf., ceramic	- - - - -			
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C-18	.005 mfd. 500V., ceramic disc	47A168	V-1	1R5: converter	90X1R5
C-19	2 mfd. 600V., tubular paper	46AX204H	V-2	1U4: IF amplifier	90X1U4
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R-2,5	2200 ohms $\frac{1}{2}$ watt, carbon	23X20X222K		Cabinet front panel assembly	7D379
R-3	4.7 megohms $\frac{1}{2}$ watt, carbon	23X20X475K		Clip, mtg.; for SW osc. coil T-6	76A326
R-4	2.2 megohms $\frac{1}{2}$ watt, carbon	23X20X225K		Clip, mtg.; for SW ant. coil T-1	76A868
R-6	Volume control; 1 megohm; includes on-off switch S-2	25B1005		Clip, mtg.; for IF transformers T-2 and T-3	76A385
*R-7	10 megohms, $\frac{1}{2}$ watt	- - - - -			
*R-8	4.7 megohms, $\frac{1}{2}$ watt	- - - - -	PC-160	Complete, diode-pentode; consists of C-10, 11, 12, 13 and 14 and R-7,8,9 and 10. (see schematic)	49C022
*R-9	1 megohm, $\frac{1}{2}$ watt	- - - - -		Dial cord (30" length needed)	38A026
*R-10	3.3 megohms, $\frac{1}{2}$ watt	- - - - -		Dial scale	83D418
R-11,12	1000 ohms $\frac{1}{2}$ watt, carbon	23X20X102K		Grommet, rubber (gang mounting)	16A128
R-13	1500 ohms $\frac{1}{2}$ watt, carbon	23X20X152K		Knob, BC-SW	15B525
R-14	2400 ohms $\frac{1}{2}$ watt, wirewound	24B938		Knob, OFF-ON	15R529
R-15	2700 ohms $\frac{1}{2}$ watt, carbon	23X30X272K			
R-16	47 ohms $\frac{1}{2}$ watt, carbon	23X20X470K			
R-17	18,000 ohms $\frac{1}{2}$ watt, carbon	23X20X183K			
COILS AND TRANSFORMERS					
L-1	Antenna, stick loop; for				

SERVICE NOTE FOR

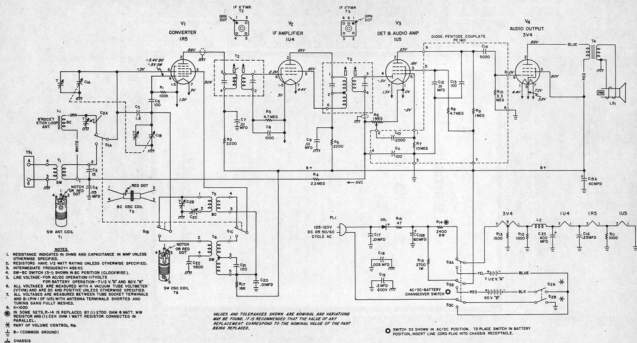
Models 5R40, 5R41 & 5R42 (Run 3)

After the instruction book for Models 5R40, 5R41 and 5R42 was printed, an engineering improvement was made in these models adding R-18, a 2.2 megohm $\frac{1}{2}$ watt resistor (Part Number 23X20X225K) from grid (pin #6) of V-4 to B- ($\frac{1}{2}$).

Errata Sheet No. 9LX1209
Park with Book 9LX1045

MODEL 5R40

RUN 2



89422-B

Warranty

"This product is warranted to be free from defective material or parts, and it is agreed to furnish a new part in exchange for any part of this unit which under normal installation, use and service discloses such defect, provided the unit is delivered by the owner to the authorized radio dealer or wholesaler from whom purchased, intact, for examination with all transportation charges prepaid, within ninety days from the date of sale to original purchaser and provided that such examination discloses that it is thus defective.

This warranty does not extend to any radio products which have been subjected to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, nor extend to units which have been repaired or altered outside of our authorized facilities, nor to cases where the serial number thereof has been removed, defaced or changed, nor to accessories used therewith not of our own manufacture.

This warranty is in lieu of other warranties expressed or implied and no representative or person is authorized to assume for us any other liability in connection with the sale of our radio products."

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the Hallicrafters co.