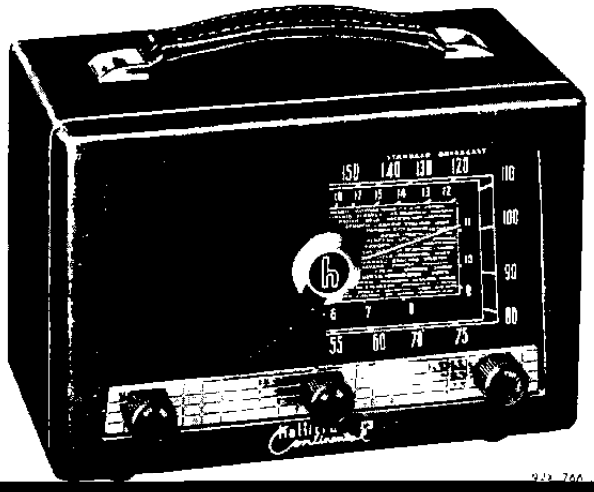
SERVICE INSTRUCTIONS

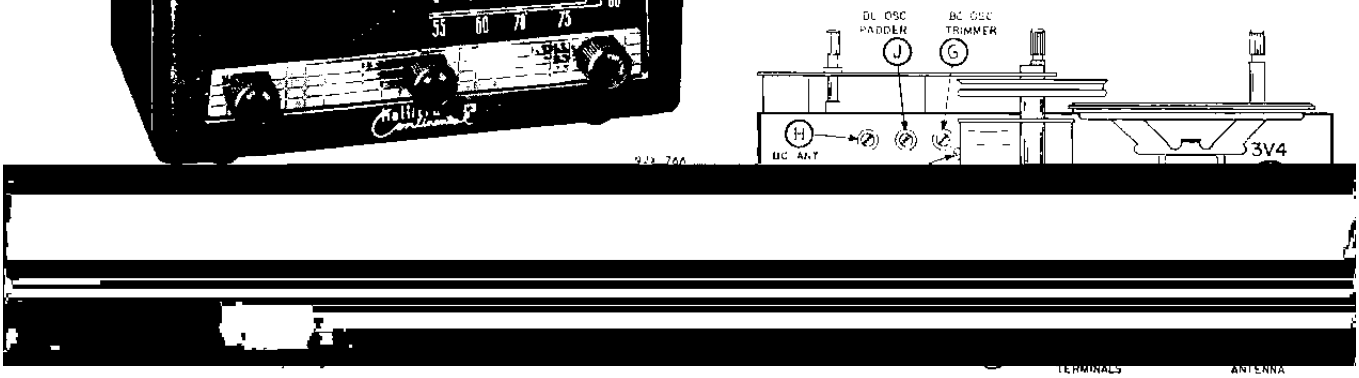
3-WAY PORTABLE RADIO

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



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



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

* See Note 4B on Page 2.

920 1765-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)

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 timmer capacitor are interchanged. (See fig. 2).

MODEL 5R43

MARK I

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

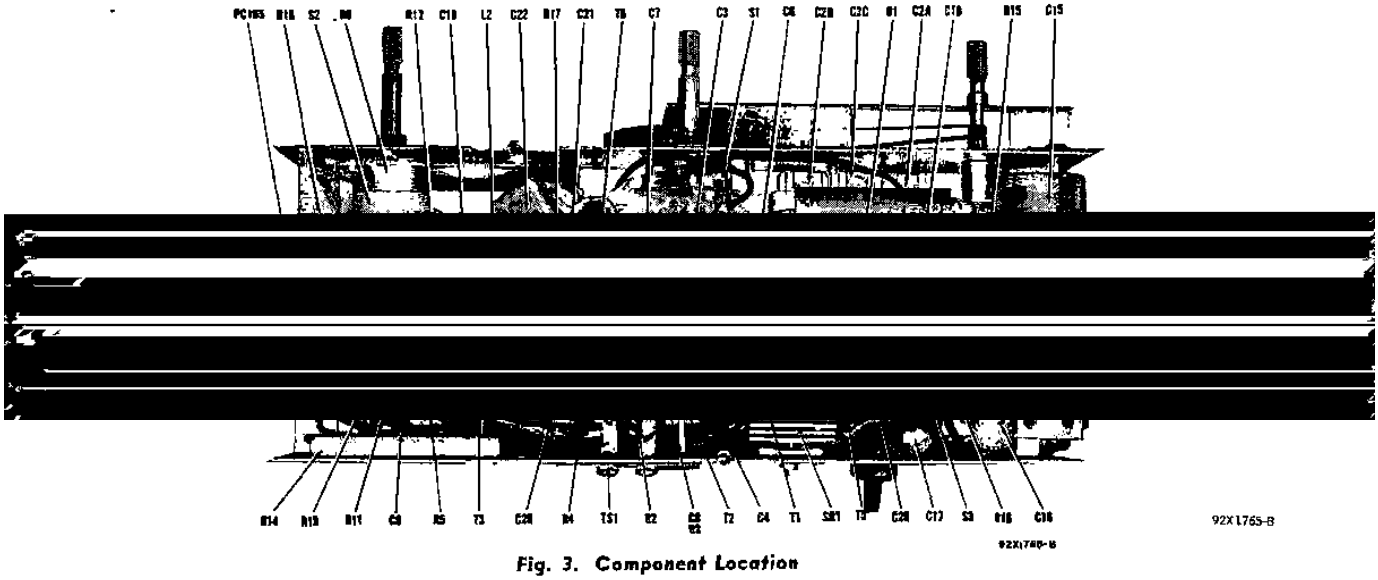
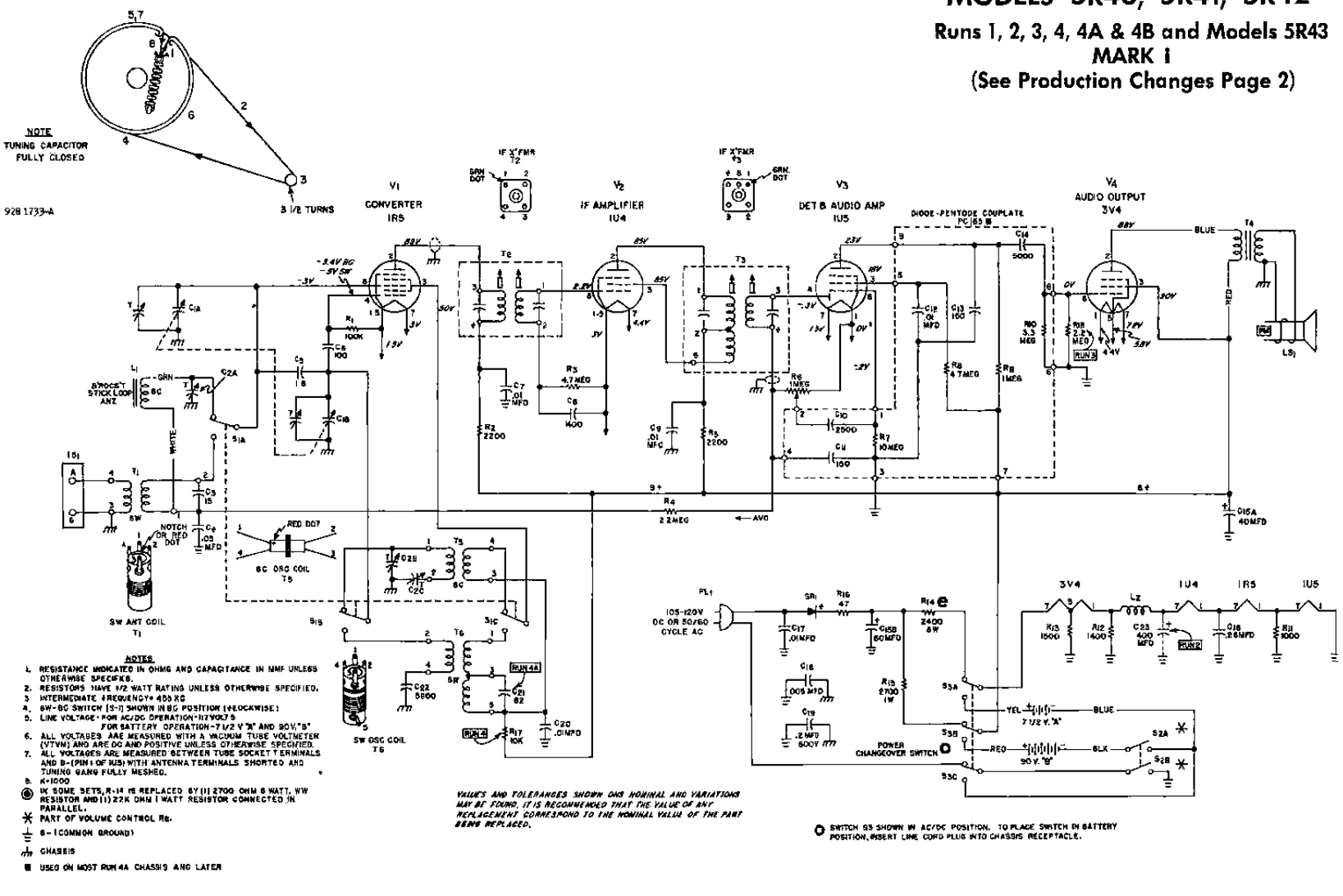


Fig. 3. Component Location

MODELS 5R40, 5R41, 5R42

Runs 1, 2, 3, 4, 4A & 4B and Models 5R43
MARK I
(See Production Changes Page 2)



89E422-D

SERVICE PARTS LIST

C-2A, B & C	Trimmer assembly; 3 section	44C419

*C-11	150 mmf., ceramic	- - - - -
*C-12	01 mfd., ceramic	- - - - -
*C-13	150 mmf., ceramic	- - - - -
*C-14	5000 mmf., ceramic	- - - - -
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

R-1	100,000 ohms ½ watt, carbon	23X20X104K
R-2,5	2200 ohms ½ watt, carbon	23X20X222K

	includes on-off switch S-2	25B1005

R-17	10,000 ohms ½ watt, carbon	23X20X103K
R-18	2.2 megohms ½ watt, carbon	23X20X225K

COILS AND TRANSFORMERS

L-1	Antenna, stick-loop	
	for chassis mtg.	57C181
	for cabinet back mtg.	57B175
L-2	Choke, RF	53A008
T-1	Coil, antenna; SW	51B1535
T-2	Transformer, 1st IF	50C233
T-3	Transformer, 2nd IF	50C516
T-4	Transformer, audio output; part of speaker LS-1	- - - - -
T-5	Coil, oscillator; BC	51B1762
T-6	Coil, oscillator; SW	51B1543

SWITCHES

S-1A, B & C	Switch, rotary; BC-SW	60B487
S-2A & B	Switch, on-off; part of volume control R-6	- - - - -
S-3A, B & C	Switch, power change-over	60B502

V-2	1U4: IF amplifier	90X1U4
V-3	1U5: detector, AVC and audio amplifier	90X1U5
V-4	3V4: audio output	90X3V4
SR-1	Selenium rectifier, 75 ma.	27A172

MISCELLANEOUS PARTS

Bracket, power plug retaining (for battery operation)	67B2106
Cabinet; less front panel assembly, for Models 5R40, 5R41*, 5R42	78F854
for Models 5R43	78A1353
Cabinet front panel assembly for 5R43 (silver)	78A649
Dial cord, (specify length)	83A626
Dial scale	
for 5R40 (black)	83D418
for 5R41 (maroon)	83A442
for 5R42 (green)	83A443
for 5R43 (charcoal)	83A562
Grommet, rubber; gang mtg.	16A128
Knob, BC-SW	15B525
Knob, OFF-VOL	15B529
Knob, TUNING	15B526
Line cord and plug	87A3592
Lock, line cord	76A974
Pointer, dial	82A220
Retaining ring, type "E"; for .156" dia. shaft	76A649
LS-1 Speaker, 4-inch PM; includes T-4 and mtg. bkt. (see part number on magnet)	85C129 or 85C138
Spring, dial cord tension	75A012
TS-1 Terminal strip, SW antenna	88B809

* Part of diode-pentode conplate PC-165.