

Hallicrafters, Inc.

Model: CA-2

Chassis:

Year: Pre 1950

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

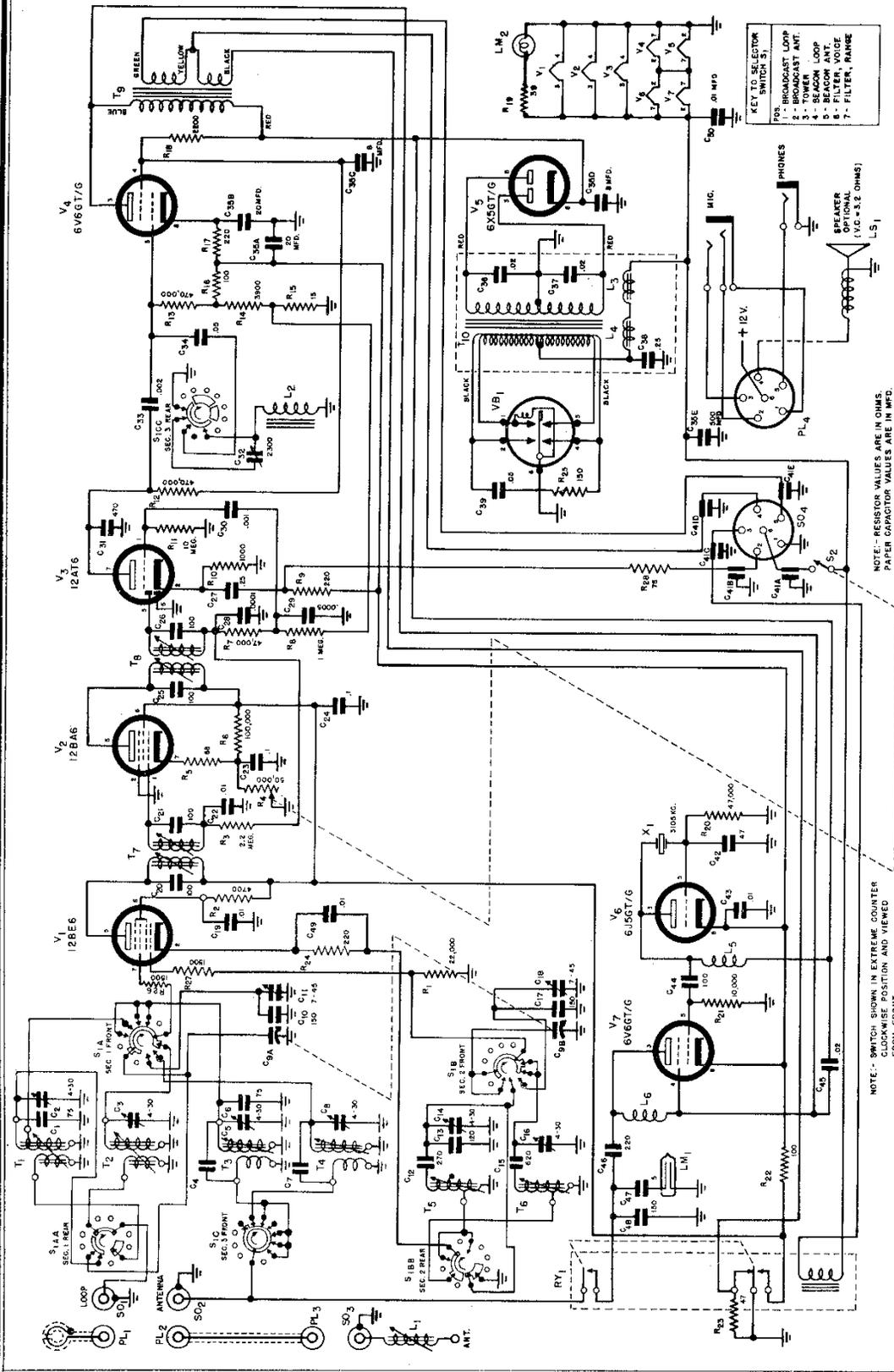
[Riders Volume 18 - HALLICRAFTERS 18-1](#)

[Riders Volume 18 - HALLICRAFTERS 18-2](#)

[Riders Volume 18 - HALLICRAFTERS 18-3](#)

[Riders Volume 18 - HALLICRAFTERS 18-4](#)

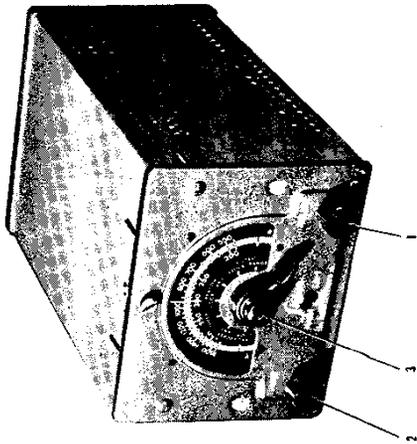
[Riders Volume 18 - HALLICRAFTERS 18-5](#)



DETAILED SERVICE INFORMATION

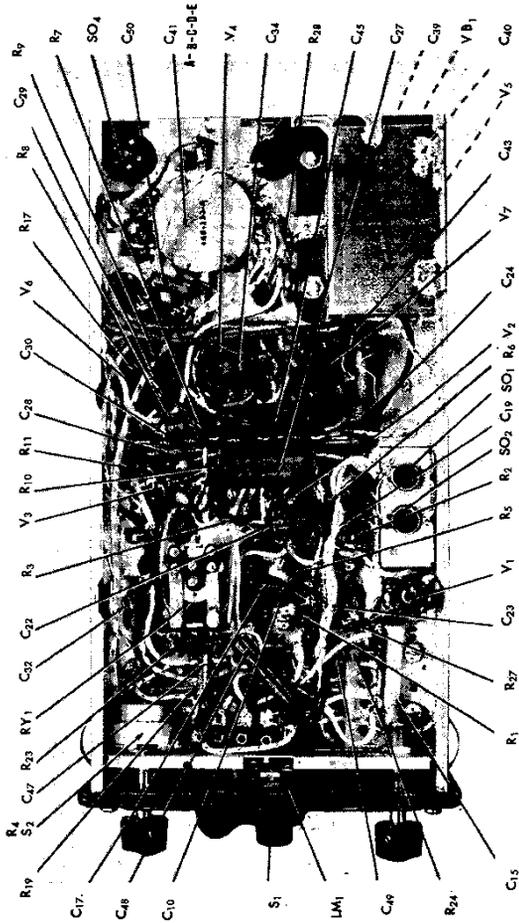
IF frequency	455 kc	Image ratio	200:1 at 800 kc 5000:1 at 350 kc	Audio output	300 milliwatts for headphones 3 watts for loud-speaker	Transmitter output	10 watts	Modulation	90% Heising
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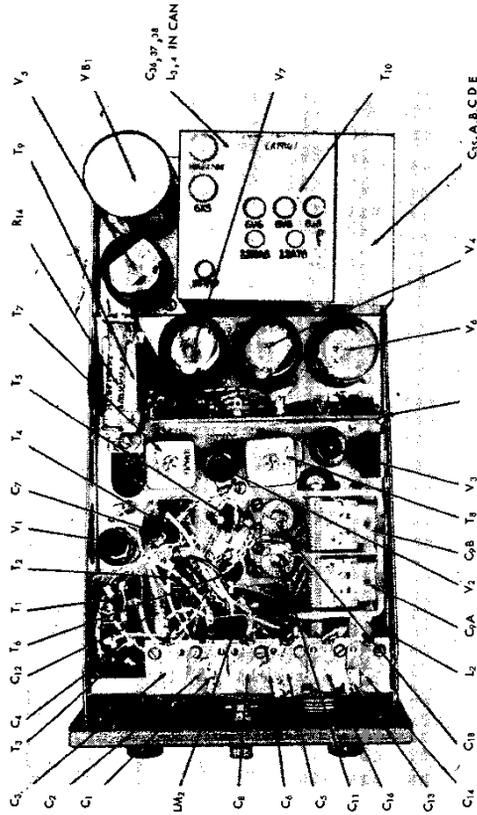


Model CA-2 front view

- Controls: 1. Volume and on-off; 2. Receiver tuning;
 3. Master selector for following functions:
 a. Broadcast, loop.
 b. Broadcast, antenna.
 c. Tower (pre-tuned to spot frequency).
 d. Beacon, loop.
 e. Beacon, antenna.
 f. Filter, voice only.
 g. Filter, range only.

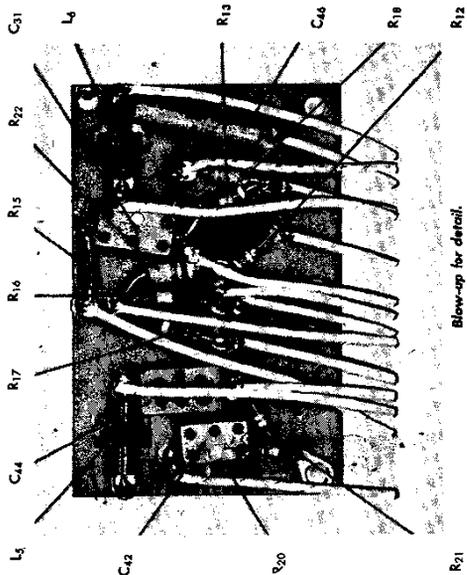


Bottom view, showing location of component parts.



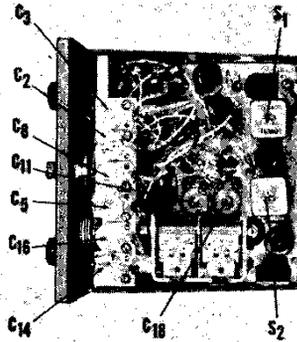
SEE BLOW UP FOR DETAILS

Top view, showing location of component parts.

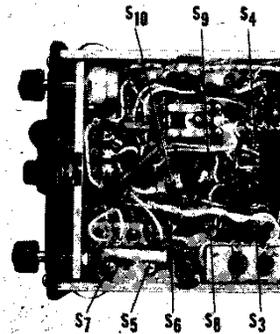


Blow-up for detail.

ALIGNMENT INSTRUCTIONS



Top view.



Bottom view.

EQUIPMENT

SIGNAL GENERATOR capable of ranges indicated in the Alignment chart including a 400 cycle audio modulator.
OUTPUT METER capable of handling 3 watts of audio power.
ANTENNA DUMMY LOAD consisting of a 100 uuf condenser in series with the "hot" side of the signal generator bypassed with a 51 uuf condenser to ground on the load side of the series condenser.
LOOP DUMMY LOAD consisting of a 20 uh coil ($\frac{3}{4}$ " form, $1\frac{1}{8}$ " winding of #22 dcc wire) bypassed by a 150 uuf condenser to ground.
AUDIO SIGNAL GENERATOR capable of 1020 cps output.

ALIGNMENT CHART

Step Number	Connection of Sig. Generator Output to Receiver	Signal Gen. Frequency Setting	Band Switch Setting	Receiver Dial Setting	Adjust Slug, Padder, or Trimmer No.	Trimmer Description	Type of Adjustment
1	I-F ADJUSTMENT Pin No. 7 of V-1 (12BE6)	455 kc	Broadcast ant.	1000 kc	1 & 4	Input IF	Maximum output
2					2 & 3	Diode IF	Maximum output
3							Repeat steps 1 & 2
BROADCAST BAND							
4	SO-2	600 kc	Broadcast ant.	600 kc	S-10	Osc. slug	Maximum output
5	SO-2	1400 kc	Broadcast ant.	1400 kc	C-16	Osc. trimmer	Maximum output
6	SO-2	600 kc	Broadcast ant.	600 kc	S-9	Slug in T-4	Maximum output
7	SO-2	1400 kc	Broadcast ant.	1400 kc	C-8	Ant. trimmer	Maximum output
8	SO-2	2110 kc (image freq.)	Broadcast ant.	1200 kc		NOTE: Check for minimum image. If minimum image is not indicated, twist or untwist wire gimmick on top of coil until a minimum image is secured.	
9							Check and repeat steps 4, 5, 6, 7, & 8 if necessary
BEACON BAND							
10	SO-2	220 kc	Beacon ant.	220 kc	S-9	Osc. slug	Maximum output
11	SO-2	220 kc	Beacon ant.	220 kc	C-14	Osc. trimmer	Maximum output
12	SO-2	220 kc	Beacon ant.	220 kc	S-7	Beacon ant.	Maximum output
13	SO-2	380 kc	Beacon ant.	380 kc	C-5	Beacon ant. trimmer	Maximum output
14	SO-2	1260 kc (image freq.)	Beacon ant.	350 kc		NOTE: Check for minimum image. If minimum image is not indicated, twist or untwist wire gimmick on top of beacon antenna coil T-3 until a minimum image is received.	
15							Check steps 10, 11, 12, 13, & 14 and repeat adjustments if necessary
TOWER							
16	SO-2	278 kc	Tower		C-18	278 kc osc. trimmer	Adjust to frequency
17	SO-2	278 kc	Tower		C-11	278 kc ant. trimmer	Adjust to frequency
18							Repeat steps 16 & 17 for maximum output
BROADCAST LOOP							
19	Remove dummy antenna and connect dummy loop to loop socket SO-1 on unit. Dummy loop	600 kc	Broadcast loop	600 kc	S-6	Slug in broadcast loop trans. T-2	Maximum output
20	Dummy loop	1400 kc	Broadcast loop	1400 kc	C-3	Broadcast loop trimmer	Maximum output
21							Repeat steps 19 & 20 for maximum output
BEACON LOOP							
22	Dummy loop	220 kc	Beacon loop	220 kc	S-5	Slug in beacon loop trans. T-1	Maximum output
23	Dummy loop	380 kc	Beacon loop	380 kc	C-2	Beacon loop trimmer	Maximum output
24							Repeat steps 22 & 23 for maximum output
FILTER VOICE ADJUSTMENT							
25	*Same as for r-f alignment; connect audio oscillator to external modulation terminals on sig. gen. and set at 1020 C.P.S. 30% modulation. *This adjustment should be made with a 500 microvolt input. 1020 C.P.S. should be down approximately 18 db. from 400 C.P.S. level.	300 kc	Filter voice	300 kc	C-32	Range filter condenser	Minimum output of receiver

TRANSMITTER ADJUSTMENT

Equipment required: Antenna loading coil, part #51B885-2, Capacitor, 27 mmfd, mica, $\pm 10\%$, Resistor, 6 ohm, 2 watt carbon, $\pm 10\%$, RF ammeter, 0-1 amp., Alignment tool, part #74A208, Transmission line part #87B1613-1, Microphone T-17 or MI-1. Series connect antenna loading coil to 27 mmfd capacitor, 6 ohm resistor and 0-1 RF ammeter to ground. Connect dummy antenna across transmission line with load coil to center conductor, plug transmission line into SO-1. Connect a 12 volt battery to power cable, turn on set and allow a few minutes warm-up period. Plug in microphone to jack, J-1. Set bandswitch to position No. 3 (Tower) and press microphone button. Tune antenna loading coil slug for maximum current reading on RF meter. For 12 volts DC power source, antenna current should be in the vicinity of .7 amperes. Whistling or talking in to the microphone should cause the antenna current to rise approximately 20%. Do not hold the press-to-talk microphone button down for more than 10 seconds at a time until all tuning adjustments are completed.

GENERAL: The Model CA-2 is a 7 tube Crystal controlled transmitter and a Superheterodyne receiver. The receiver incorporates two frequency ranges; 195 to 410 kc Beacon band and 540 to 1610 kc Broadcast band. The transmitter uses any one frequency range between 2 to 7 mc depending upon the crystal used—a 3105 kc crystal is provided.

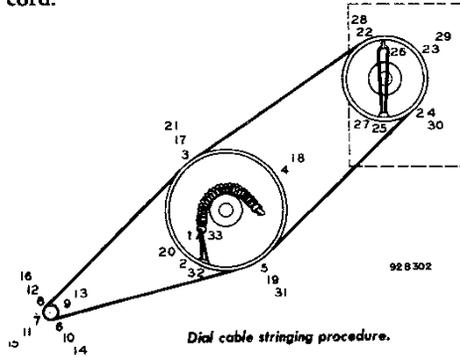
CORD CONNECTIONS: Consist of an audio and power cable, Antenna, and Direction finding loop antenna. All are located at the bottom of the set.

POWER SUPPLY DATA: Vibrator with rectifier, 12 volts DC, 13.75 volts nominal DC. Power drain is 3.5 amps on "Receive" and 5.3 amps on "Transmit."

TUBE COMPLIMENT AND FUNCTIONS: 12BE6 pentagrid converter, 12BA6 I.F. amplifier, 12AT6 detector, delayed AVC, and 1st audio, 6V6 output amplifier. The 12AT6 is used as a speech amplifier and the 6V6 as a Modulator when transmitting. The transmitter proper uses a 6J5 crystal oscillator and a 6V6 power amplifier.

HOW TO RESTRING DIAL CORDS

Cut a 30" length of 12 lb. test dial cord and tie one end to the tension spring on the pulley mounted on the hub of the bandswitch at position "1" on the diagram. Follow the numbers from "1" to "33," stretch the tension spring and tie cord securely. Cut off excess cord.



TROUBLE SHOOTING CHART

SET IS DEAD

Cause	Remedy
Defective power cable.....	Repair or replace cable.
Battery connections disconnected..	Check and make the connections.
Defective master switch on plane..	Repair or replace switch.
Blown fuse.....	Replace fuse.

NO PLATE VOLTAGE

Dead rectifier tube.....	Replace tube.
Defective vibrator.....	Replace vibrator.
Open plate circuit.....	Check continuity of plate circuit and repair.

RECEIVER PERFORMS BUT TRANSMISSION IS DEAD

Cause	Remedy
Inoperative crystal.....	Check and replace if necessary.
Defective microphone switch.....	Check and replace or repair if possible.
Defective relay or relay contacts.	Check and repair or replace if necessary.
Antenna not tuned properly.....	Retune

FILAMENTS DO NOT LIGHT

Defective filament circuit.....	Check filament wiring and repair.
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NOTE: Series parallel wiring on 6V6, 6X5 and 6J5 tubes.

SYMPTON: Ignition Interference

ANALYSIS: Ignition noise is greatly reduced by inserting "damping" resistors in the grids of the oscillator mixer tube and a "limiting" resistor in the cathode circuit of the 2nd detector tube.

1. Install a 1500 ohm resistor in series with lead to pin no. 7 of V-1, 12BE6 tube. (R26)
2. Install a 1500 ohm resistor in series with lead to pin no. 1 of V-1, 12BE6 tube. (R27)
3. Install a 75 ohm resistor in series with lead to spark plate that is connected to pin no. 2 of socket, SO-4. (R28)

