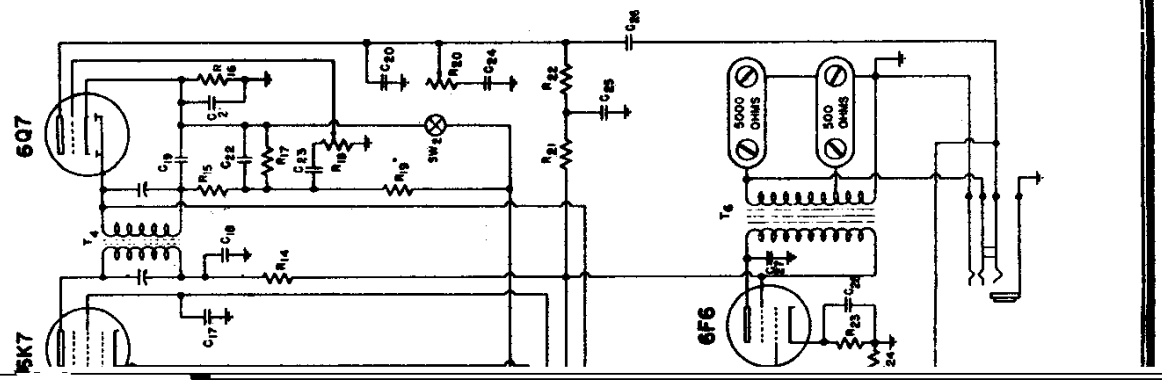
Hallicrafters, Inc.

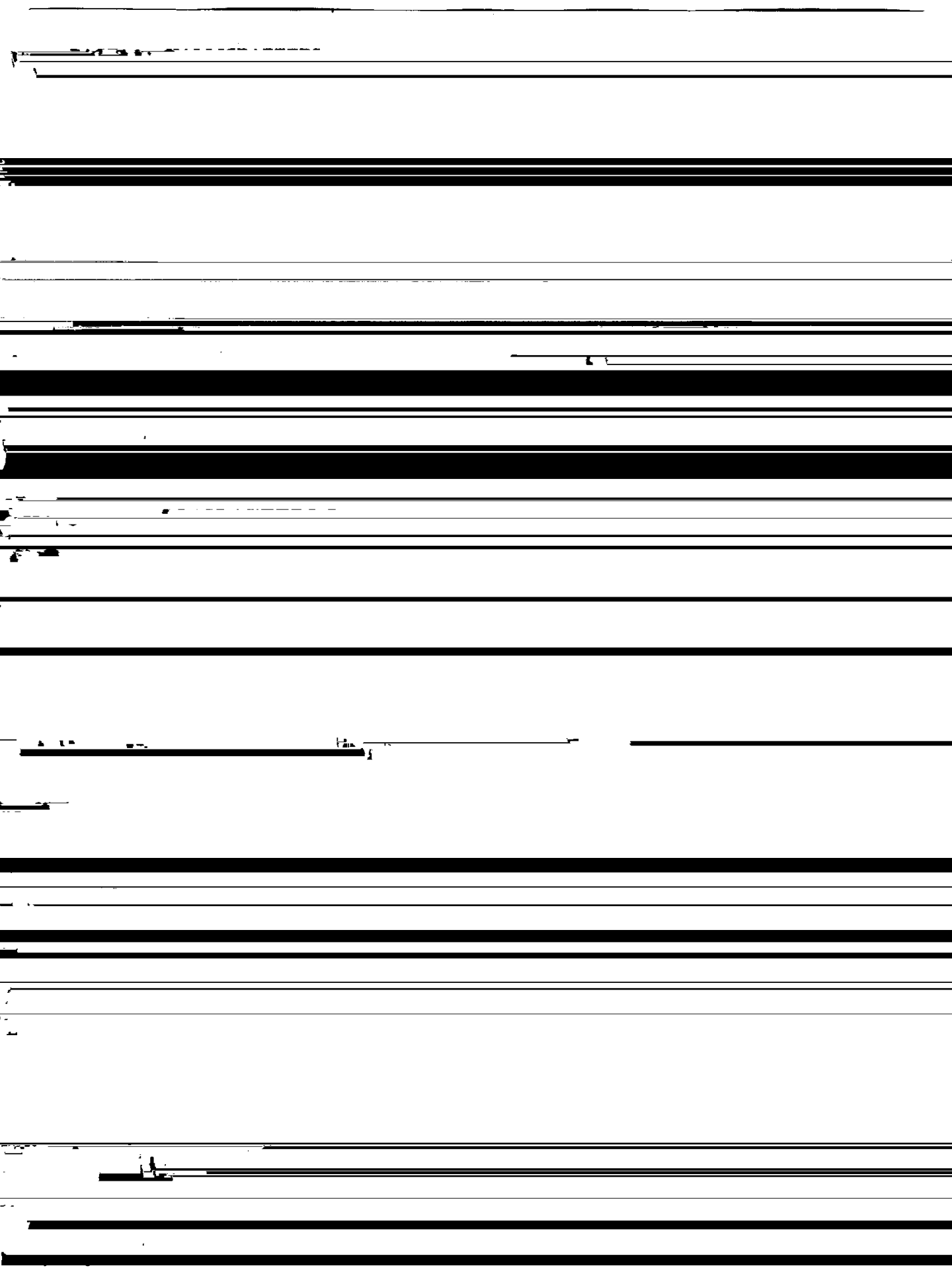
	Model: SX-18	Chassis:	Year: Pre March 1942
	Power:	Circuit:	IF:
	Tubes:		
	Bands:		

Resources
Riders Volume 13 - HALLICRAFTERS 13-1
Riders Volume 13 - HALLICRAFTERS 13-2
Riders Volume 13 - HALLICRAFTERS 13-3
Riders Volume 13 - HALLICRAFTERS 13-4
Riders Volume 13 - HALLICRAFTERS 13-5
Riders Volume 13 - HALLICRAFTERS 13-6

THE HALLICRAFTERS INC.

MODELS S-18, SX-18
Sky Challenger II





THE HALLICRAFTERS INC.

MODELS S-18,SX-18
Sky Challenger II

D OF THE 6L7 TUBE THROUGH A .1 MFD
ON TO 465 KC AND THEN ADJUST THE
NDUCT TRANSFORMERS T1, T2, T3, T4,
A SPOTS TO THE "OUT" POSITION AND
AN OUTPUT INDICATOR IT IS SUGGESTED

A 465 KC CRYSTAL

SEL IT IS NECESSARY THAT THE CRYSTAL
E PLACE OF A SIGNAL GENERATOR SUCH AS
TAL CONTROLLED OSCILLATOR IS THEN
THE ABOVE PROCEDURE FOLLOWED. WHEN
ROM THE CRYSTAL OSCILLATOR'S OUTPUT;
KET IS THE RECEIVER WILL SHOW LITTLE
YSTAL IS "IN" OR "OUT" OF THE CIRCUIT

▲ PROCEDURE

02 MFD CONDENSER IN SERIES WITH THE
1 ON THE RECEIVER. ON THE OTHER
USED. BE SURE THE JUMPER FROM THE
IES CONNECTED WHEN ALIGNING THE

(TOP OF THE CHASSIS) ARE FOR THE

THE BOTTOM OF THE CHASSIS) ARE FOR
E.
POINT OF BLOCKING OR OVERLOADING;
N IS IN THE "OUT" POSITION AND THE

LL FALL A LITTLE LESS THAN 1 MC
INCLUSIVE. ON BAND 5 THE SHARP
NDICY THAN THE FUNDAMENTAL.
AND 3 THE REJECTOR CIRCUIT SHOULD
THE REJECTOR IS IN THE CIRCUIT.
T THE REJECTOR CIRCUIT IS NOT
SIGNAL FREQUENCY. IF THIS OCCURS
ICH CAN BE CURED BY RETUNING THE

ECEIVER THE TUNING GANG SHOULD BE
SIGNAL SO THAT YOU ARE SURE YOUR
OBTAINED MAXIMUM GAIN AND ACCURATE

NERCIES MAY BE USED IF THE FOLLOWING
NOT AVAILABLE.

EACH PAIR OF OPERATIONS SEVERAL
DTED.

MODELS S-18, SX-18
Sky Challenger II

THE HALLICRAFTERS INC.

OPR.	BAND	RECEIVER DIAL SETTING	SIGNAL GENERATOR FREQUENCY	ADJUST OSC. WITH	TRIMMERS R. F. & MIXER WITH	ADJUST OSC. PAD WITH	SET REJECTOR DIAL AT
1	1	600KC	600KC	------	--------	C38	-------
2	1	1100KC	1100KC	CA	CC - CB	------	-------
3	2	1300KC	1300KC	------	--------	C43	-------
4	2	2600KC	2600KC	CD	CF - CE	------	-------
5	3	3000KC	3000KC	------	--------	C42	-------
6	3	6000KC	6000KC	CG	CI - CH	------	-------
7	4	7000KC	7000KC	------	--------	C41	9 MC
8	4	14000KC	14000KC	CJ	CL - CK	------	14MC
9	5	17000KC	17000KC	------	--------	C40	24MC
10	5	34000KC	34000KC	CM	CO - CN	------	34MC

IT IS HELPFUL TO REMEMBER THAT THE CARTRIDGE TYPE AIR TRIMMING CONDENSERS WILL SHOW AN INCREASE OF CAPACITY WHEN THE SCREW IS ROTATED COUNTER-CLOCKWISE.

WHEN MAKING ADJUSTMENTS ON THIS RECEIVER IT IS SUGGESTED THAT GAIN BE CONTROLLED BY USING THE R.F. GAIN CONTROL ONLY. LEAVE THE A.F. GAIN CONTROL ON FULL AT ALL TIMES.

TO MAKE A RAPID CHECK OF THE RECEIVER REMOVE THE GRID CAP OF THE 6Q7 TUBE AND TOUCH THE GRID OF THE TUBE WITH YOUR FINGER. IF A LOUD HUM IS HEARD THE AUDIO END OF THE RECEIVER IS OK.

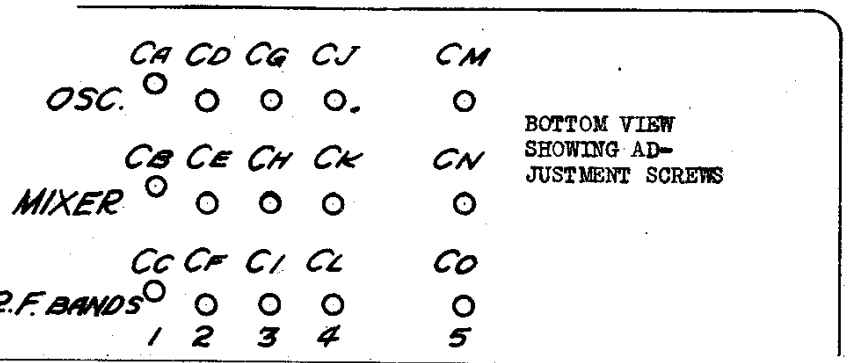
DEAD SET. CHECK BIAS ON THE R. F. TUBES. IF THIS BIAS IS TOO HIGH CHECK THE R.F. GAIN CONTROL FOR AN OPEN CIRCUIT. ADDITIONALLY, CHECK THE PLATE AND SCREEN VOLTAGE OF THE R.F. TUBES - (SEE CHART). CHECK B PLUS FOR A SHORT TO GROUND - IF SO CHECK ALL TUBES.

IF THE TUNING GANG IS NOISY WHEN THE SET IS JARRED, INCREASE THE TENSION ON THE GANG WIPERS.

NOISY COIL ASSEMBLY - CHECK SWITCH CONTACTS. ALSO CHECK THE TRIMMERS ON THE PARTICULAR BAND IN WHICH NOISE OCCURS. IT IS POSSIBLE THAT THE TRIMMER HAS DEVELOPED A PARTIAL SHORT.

IF LOW SIGNAL AND HIGH NOISE LEVEL DEVELOPS, REPLACE THE 6L7 TUBE.

DEAD BEAT OSCILLATOR - IF THE 6J7 SHOULD SHORT TO GROUND THE BEAT OSCILLATOR WILL BE DEFECTIVE. CHECK B PLUS TO B0 COIL FOR A GROUND. IN MOST CASES A NEW 6J7 WILL CORRECT A DEAD B0.



BOTTOM VIEW SHOWING AD-JUSTMENT SCREWS

THE HALLICRAFTERS INC.

MODELS S-18, SX-18
Sky Challenger II

THE IMAGE REJECTOR

UIT INCORPORATED IN THE SKY CHALLENGER II
Y CONTRIBUTION BY THE HALLICRAFTERS TO IMAGE-FREE
ON. IT HAS LONG BEEN APPRECIATED THAT ADDITIONAL
NCY AMPLIFICATION WAS NOT THE CORRECT ANSWER TO
ROUGH THE USE OF THE "INFINITE IMAGE REJECTOR"
II ALL PREVIOUS IMAGE RATIOS ARE OUT-MODED. IMAGE
I IS NOW POSSIBLE.

NIQUE. BECAUSE OF THAT YOUR ATTENTION IS SLOSELY
ERATION OF THE CONTROL AS WELL AS WHAT TO EXPECT

WITCHED INTO THE CIRCUIT ONLY WHEN THE RECEIVER IS
ND #5. YOU WILL NOTICE A LIGHT APPEAR BEHIND THE
SCALE THAT SHOULD BE USED.

E RECEIVER ON THE 14 MC, OR 20 METER AMATEUR BAND.
AND YOU RUN ACROSS THE IMAGE OF SOME COMMERCIAL
TAL OF THIS STATION AS WE ALL KNOW IS REMOVED FROM
OUBLE THE FREQUENCY TO WHICH THE I. F. AMPLIFIER
IED. NOW ADJUST THE REJECTOR CONTROL CAREFULLY IN
ON THE CALIBRATED REJECTOR DIAL. WHEN PROPERLY
L BE COMPLETELY ELIMINATED WITHOUT SERIOUSLY
ITY OF THE RECEIVER ON THE FREQUENCY TO WHICH IT

TENING AT A FREQUENCY NOT BEING BOTHERED WITH IMAGES,
) USE THE REJECTOR LEAVE THE CONTROL AS FOLLOWS FOR
COVERED BY THE REJECTOR CIRCUIT.

REJECTOR AT APPROXIMATELY 15 MC. (ON THIS BAND THE
UENCY OSCILLATOR IS ON THE HIGH-FREQUENCY SIDE).
OR 40 METER BAND IS ALSO ON BAND #4 OF THE RECEIVER.
IVING ON 40 METERS THE REJECTOR CONTROL SHOULD BE
. USE OF THE REJECTOR CIRCUIT ON THIS BAND IS NOT
.

REJECTOR AT APPROXIMATELY 27 MC. (THE OSCILLATOR
LOW FREQUENCY SIDE ON THIS BAND).

YOU NOT BE ABLE TO GET SIGNALS THROUGH AT ALL CHECK
ECTOR CONTROL. IT IS POSSIBLE THAT YOU HAVE THE
POINT WHERE THE FREQUENCY TO WHICH YOU WISH TO LISTEN
"BEING DROPPED IN THE SLOT".

TO KEEP THE REJECTOR CONTROL SET AT APPROXIMATELY THE
T TO WHICH YOU ARE LISTENING. WHEN YOU MOVE THE MAIN
UP WITH THE REJECTOR OR OTHERWISE YOU WILL RUN INTO
AVING YOUR MAIN TUNING DIAL AT A GROUP OF FREQUENCIES

CONSUMPTION OF THE SKY CHALLENGER II IS 75 WATTS
ALTERNATING CURRENT.

THE HALLICRAFTERS INC.

Adjust the "BANDS" switch until the pointer on the knob indicates that you have the band you wish to tune in the circuit. When listening for distant CW possibly weak stations, it is recommended that the control marked "BFO" be used by snapping the switch to the "ON" position. Once the telephone signals have been located the BFO should be turned off or a cw/whistle will result. When listening for CW code transmissions the BFO must be left on. The "PITCH CONTROL" will prove most helpful in changing the beat note to one most pleasing to the operator. It is advisable to have the "AVC" switch in the off position whenever the BFO switch is on.

THE TUBE LINE-UP

6K7 Pre-selector, R.F. Amplifier

6L7 1st Detector-Mixer

6J5 Signal frequency oscillator

6K7 1st I. F. Amplifier

6K7 2nd I. F. Amplifier

6Q7 2nd Detector, AVC, 1st stage of Audio

6F6 2nd Audio stage

6J7 Beat frequency oscillator

80 Full wave rectifier

The 6K7 R. F. stage gives maximum gain in inverse relation to frequency and provides increased selectivity.

The first detector-mixer is a 6L7. The output of the 6J5 signal frequency oscillator is electron coupled to the injector, or #3 grid, of the 6L7. Because no oscillator plate current flows in the 1st detector the ratio of signal to noise is more favorable than that obtained in a conventional type, as in circuits where the cathodes of two tubes are tied together.

The 6J5 oscillator has separate coils for each band. Superior overall performance of the SKY CHALLENGER II is in part due to the design of the signal frequency oscillator. No harmonics of the oscillator are used on any of the bands covered by this receiver.

The two 6K7 I. F. amplifier stages use 1mm-core transformers which resonate at 465 KC. This type of transformer has so definitely shown its superiority over the air core type as to warrant its use in the SKY CHALLENGER II. Tremendous gain, and a better signal to noise ratio are but two of the many advantages of the 1mm-core system.

The 6J7 beat oscillator output is coupled to the diode plates of the 6Q7 second detector. The 6J7 oscillator is electron coupled.

The 6F6 audio output stage is capable of delivering 3.5 watts of audio.

...II MODELS S-18, SX-18

...RF/CONVERTER/IF RECEIVER

...to 243 meters)

...to 105 meters)

...to 44 meters)

...to 18.3 meters)

...to 7.85 meters)

...9. Inductive coupling to ...gnal energy from each ...oil in the circuit.

...on band #1 and in ...alibration of the main ...ead dial is set at "0", ...e bands-spread section on.

...the antenna, doublet ...l antenna is used it ...pe of antenna be sure ... a doublet antenna is used ... of the doublet lead-in ...emember that the nominal ...best on the short wave ...ually well on the amateur ...e broadcast channels. ...important part in the ...highest frequencies covered ...e the proper type of ...you are referred to the ..., as well as current radio ...periencing no gone with ...own in performance from

...wer socket. (Unless other-...e 110-120 volt alternating ...e right. This will turn ... is warming up also turn ...ual. The receiver is ...best frequency position.