

PITCH CONTROL



CRYSTAL

(3)

CRYSTAL PHASING

ver is used solely for entertainment, whereas the communication rece by the modern radio amateur is something far more than that. To eur gets pleasure out of working his transmitter and talking to frier l over. But remember—his hobby is a scientific one, and the "air" is aboratory. Amateur experimenting has contributed much in the v advancement. communications receiver is therefore more than just a broadcast shor ver. Their functions are entirely different. Where one will solely be u ome for entertainment, the other may be operated under adverse conc mp tropical surroundings, exposure to sea air or even the cold of the nunications receivers must be solidly constructed and electrically foo and up under such hard going, and the amateur must always be refrom the role of experimenter to a much greater role when national ies—such as fires, floods, hurricanes—arise. It is therefore imperativ quipment be trustworthy in such emergencies where the ability oment to function properly may be the only means of obtaining ai en area. It must not fail. nd we, an organization devoted to the building of fine communic oment well understand these facts, for many of us are old time a ators ourselves with stations of our own. Some of us operated our first rs twenty and more years ago, back in the days of spark transmitte al detectors. Later, many of us were among the first amateurs to use t

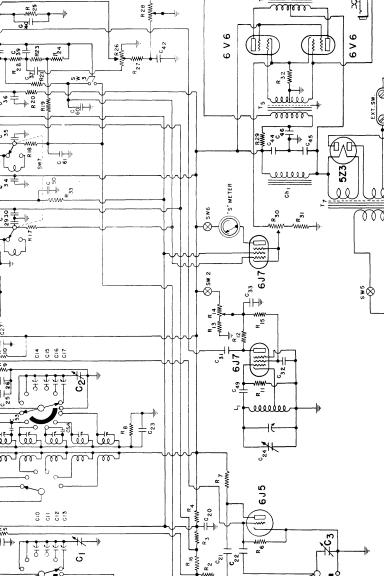
ver with extended ranges to include short-wave broadcast and present stations, the former is a receiver especially designed for high freceition. The difference does not end here, however. The broadcast shor



day of extravagant claims, we realize that it's taking in a lot of te

incerely believe that this is the finest all-round communication receiv ay!'' Yet the new 1938 Super Skyrider is designed to be just that.

Ilized a receiver tuning from 5 meters to the top of the broadcast be vity on all amateur bands (not merely the 20 or 10 meter band); wicklectivity (single signal razor sharpness to broad high fidelity); and and spread that would equal or better the standards set by the improved image and signal to noise ratio, and finally, an "S" meteon weak signals. It was a large order. But thanks to Mr. Karl Wapetent staff, including Mr. J. L. A. McLaughlin, co-designer with Mathe famous "dual diversity receiver"—every challenge was successful, there are several other excellent receivers on the market today, but



No. 4-9.8 MC to 20.5 MC No. 5-19 MC to 36 MC

No. 6-35 MC to 62 MC coils are used to cover each band.

pling to the antenna permits the maxiof signal energy from each separate e particular secondary coil in the cir-

sed coils are shorted. ige in use is indicated by the pointer in ain dial. This pointer moves vertically ng bands. This dial is calibrated in bands No. 1 and 2 and in megacycles

ning four bands. The calibration on

No. 3-4.2 MC to 10.2 MC

ıl will hold accuracy only when the dial reads "O" or minimum capacity **ANTENNA** k center of the chassis will be found antenna and doublet binding posts.

antenna is used, remove the jumper insulated post to the chassis and conwires from the doublet to the in-. Please remember that the regular oublet antenna is designed to work nort-wave broadcast frequencies. This will not perform equally well on the ds or frequencies in between the short ast channels. When using the conveno and lead-in type of antenna, con-

d-in to the insulated post farthest to

sure that the wire jumper is connected

and the other insulated post. Antenna

gth and type play a most important

uccessful operation of the set, espe-

three high frequency ranges. On the

bands it is particularly important

Plug the cord on the receiver into socket. (Unless otherwise specified the red

ates on 60 cycle, 110 volt alternating

Turn the control marked "Tone" to the

will turn the receiver on. During the time t

is warming up also turn the "R.F. Gain"

Gain" knobs to the right. The receiver

OPERATION

with the band-change switch in the h quency range. Adjust the "Bands" swite pointer on the calibrated main dial in band you wish to tune. We suggest familiarize yourself with the operation ceiver on Bands No. 1 and No. 2 be the higher frequencies. Turn the large kno below the silver dial) until the desired the circuit. When listening for distant of weak stations, it is recommended that marked "BFO INJECTION" be used

the knob to the right. Once these signals of

it should be turned off or a continuous

result. When listening to C.W. transm

control must be left turned on. The "PIT

TROL" knob will prove most helpful in

the beat note to the one most pleasing to

tor. When "BFO INJECTION" control

the "AVC" switch should always be in

position.

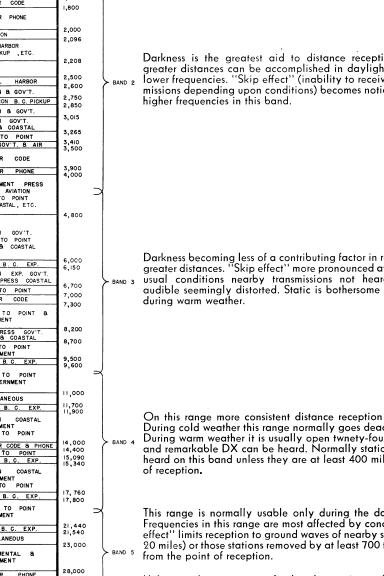
PHONE RECEPTION

When receiving voice, whether bro short wave, it is recommended that the

switch be left in the "ON" position.

switch "OFF" and the "R.F. GAIN"

GAIN" control with "AVC" switch in position should be turned as far as it wil right. It will be noticed that with the



I FULL, THE "AVC" ACTION ON is in the neighborhood of 18 watts. ANTENNA DISCONNECTED. The beat oscillator is a 6J7 elec to the diode section of the 6R7. C.W. RECEPTION The high-current 5Z3 rectifier pro current for the complete receiver with eception of C.W. Signals, the "AVC"

6V6's.

iver adjustment for setting

RRIER" METER, THIS CONTROL

BE ADJUSTED SO THAT THE

ADS "O" WITH THE "R.F." CON-

ld be in the "OFF" position and the ECTION" control turned on. Variation ol changes the output of the beat oscil-

k signals which would normally be inth a strong beat oscillator are easily the control just on. Turning the knob as ll go to the right gives maximum beat

2nd Detector; ''AVC''; 1st Stage of audio

Push-pull power ouput 2nd audio stage

R.F. stage gives maximum gain in tion to frequency and provides increased detector-mixer is a 6L7. The ouput from gnal frequency oscillator is electron

I.F. AMPLIFIER All intermediate frequency transfe

mansionner coupled to the girds of t

The push-pull 6V6 stage running s

"A" delivers 13 watts of undistorted of

Before actually drawing any grid curre

6V6 audio output stage.

the iron-core type and resonate at 4 I.F. amplifying system in the new Supe

is of the expanding type providiexpanded of 20 KCS at 100 X res Because of this feature, it is convenie

receiver in the broad position when band and looking for a call. Once desired station can then be sharpened

to "SHARP" position. Fidelity of bro tion is materially improved with the "BROAD." This type of transformer itely demonstrated its superiority over

SKYRIDER. Tremendous gain, better si ratio, sharp or broad selectivity are bu advantages of the iron-core system. The crystal input transformer is mad coils so placed that a signal of maxim

type as to warrant its use in the new

is impressed on the low impedance pr crystal output transformer. The crystal phasing condenser is inserted between formers. With proper adjustment of

and a reduction of image.

utput.

THE TUBE LINE-UP

Preselector, R.F. amplifier

Signal frequency oscillator

Beat frequency oscillator

Signal indicator amplifier

1st Detector-mixer

1st I.F. amplifier

2nd I.F. amplifier

Full-wave rectifier

the injector, or No. 3 grid, of the 6L7. condenser single signal operation car oscillator plate current flows in the 1st When the crystal is shorted, or the cry e ratio of signal to noise is more favor-· . COLITY · · · · · · · · to the right of these two and marked vitch" is used to turn the set on or off during transmissions. This strip when a relay on the transmitter or a separontacts on an external switch will turn and off temporarily by opening the to the receiver when the "Send-Reh on the front panel is in the ''Send'' eiver the speaker is not a portion of the This allows the receiver to be operated ly of the speaker itself. A permanent O ohm speaker capable of handling the type we recommend being used eiver. phone jack is connected to the plate of ough a condenser. The possibility of

aker. The terminal strip marked 500

y above the 5000 ohm strip can be

a load of that impedance. The other

consumption of power by this receiver at 115 volts 60 cycle A.C. YSTAL OPERATION ly adjust the crystal circuit for best

operator is eliminated by having no

t on the phones. Crystal type head-

be used on this receiver without using

upling transformer.

owed.

at the "BFO INJECTION" control is

ome station transmitting continuously,

" position. areful to get the signal on the nose. re sure you have the signal resonated

the following procedure should be

Again you are reminded to tune t with care. Because of its extreme sele may expect the most satisfactory result

dial. Notice how sharply the signal

normal volume again obtained. Now t

the signal and find which side of the s weaker. Tune in the weaker side and

fully adjust the "PHASING" conder

until the weaker signal is inaudible.

the other side of the signal should find

in its volume and knife-like selectivit

Whichever side of the zero-beat adjust

"PITCH CONTROL" gives the greater

the interfering signal, that is the adjus-

used for maximum selectivity. The pl denser affects the selectivity of the recei the crystal is in the circuit or not. The

be used in the reception of phone signa

familiarizing yourself with its operation

sacrifice in their quality.

MAKING USE OF TH VERNIER SCALE

By means of the vernier scale, the ma

be read and reset to one tenth of a divis accuracy of one part in two thousands.

The three pictures on the right hand trate the correct readings for three typic The fraction of the whole number is a

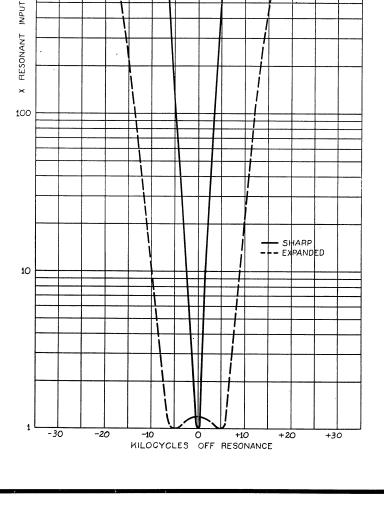
division on the vernier scale which line division on the main dial. Take for e first illustration:—

The zero on the vernier scale indicat tween 169 and 170, so the whole num

169 and the fraction will be found b along the vernier scale until a division

up with one on the main dial. In this co the correct reading is $169 + 0.7 = 16^{\circ}$ The number 170 in the middle illus

exactly under the zero indicator and t n on the "BFO INJECTION" control detail and a death of the death

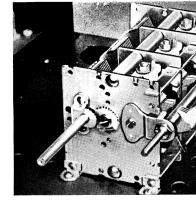






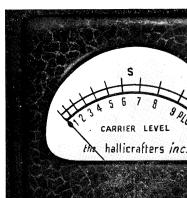
ELECTRO-MECHANICAL BAND SPREAD *

usive Super Skyrider feature! Gives of Band Spread better than 5 KC sion on the 20 meter band; proal spread on other bands. Special equency condenser with double and single stator units makes the gread section of the tuning unit an part of the main condenser.



NAL INTENSITY METER ★ ted in "S" Signal calibration.

k signals. Large face . . . long Unique indirect illuminated meter operly damped for tuning ease. one more reason why Hams the ver will applaud this 1938 Super r Receiver!



E ONLY TUNING DIAL OF ITS KIND! *

one physical feature alone that ishes the Super Skyrider from all eceivers—the central tuning dial.

tely, directly calibrated for all six





★ INERTIA TUNING

A single flip of the big, easy-gri and you cover half the band. Slow smooth tuning on band spread ment. Large knobs easy to handle inate "tuning cramps" and fatig

feature that's bound to find favor both the old timer and the new Found only on the Super Skyride



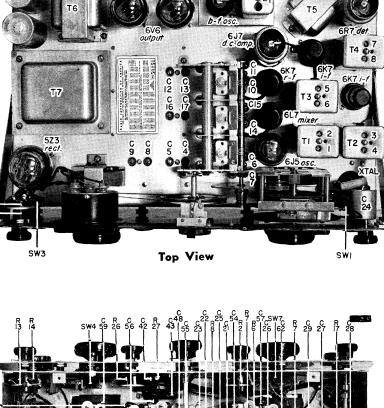
★ CERAMIC INSULATION

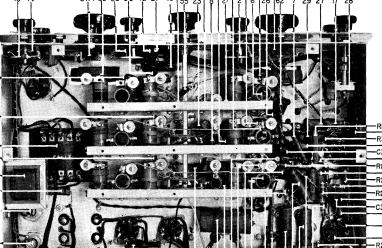
Ceramic (low loss insulation) in tank circuits and R.F. sockets. C frequencies, it is absolutely neces use the finest insulation possible. C was chosen, not only for its low los ities, but because it is non-hydro Retains its high efficiency und



* LARGE MATCHING HA **CRAFTERS SPEAKER**

12-inch PM Dynamic speaker. Impe matches receiver output to produc fidelity audio. Metal cabinet acou treated with wood baffle front to eli





00 mmfd				C_{41}^{*}	.0005	mfd	Mica	
10 mmfd			44020	C_{42}		mfd		40 40 40
80 mmfd 00 mmfd			44018	C43 1		mfd mfd E	lectrolytic	40
90 mmfd			44010				lectrolytic	40
00 mmfd			44017	C46		mfd	10011011110	40
50 mmfd				C47	.01	mfd		40
80 mmfd			44016	C48	.000050		Mica	
20 mmfd			44047			mfd mfd	Mica	40
00 mmfd 50 mmfd			44017	C ₅₀ C ₅₁	.000010		Mica	40
80 mmfd			44016	Č 5 2	.000010		Mica	
20 mmfd				C53	.000010	mfd	Mica	
: mfd	Mica		40013	C ₅₄	.000010		Mica	
mfd		200	41004	C5.5	.000050		Mica	
mfd 2 mfd	Mica	400	41007 40013	C 5 6	.000010		Mica Mica	
nira 11 mfd	Mica		40003	C ₅₇ C ₅₈	.000010		Mica	
mfd		200	41004	C59	.000025		Mica	
025 mfd	Air		48012	C 60		mfd		20
2 mfd	Mica		40013	Ç ₆₁		mfd		20
mfd mfd		200 400	41004 41005	C ₆₂		mfd mfd	Mica Mica	
mra 0025 mfd	Air	400	48012	C ₆₃	.002	u	MICG	
mfd	, ,,,	200	41004	S 1	Crystal S	witch SPS1	i	
mfd		200	41008	\mathbf{S}_2			n B.F.O. Inje	ctio
0010 mfd	Mica		40021	S_3		witch DP		
mfd		400	41001	S ₄	Send-Rec	eive Switc	h SPST	
mfd mfd		400 400	41001 41005	S ₅			ne Control	
mfd		200	41004	S ₆	Meter Sw	itch on R.	F. Gain Cont	rol
mfd		400	41005	S ₇	Selectivity	y Switch D	OPDT	
			KESI	STORS				
Ohms	Wat	tage	Part No.	No.		Ohms	Watta	
100,000		¹ / ₅	20093	R18		100,000	1/1 1/1 1/1 1/1 1/1 1/1	5
5,000	2.5	=	25021 24037	R19	1,	000,000	1/5	5
10,000 10,000	2		24037	$\begin{array}{c} R_{20} \\ R_{21} \end{array}$	1.	000,000	7/	5
285		1/5	22020	· R ₂₂	• •	20,000	1/2	5
50,000		1/5 1/5	20084	K23		100,000	1/2	5
10,000	1.		20061	R ₂₄		100,000	1/5	5
100,000 285		1/ ₅ 1/ ₅	20093 22020	R ₂₅ R ₂₆	1	950 000,000	1/1	5
29,000	1,		22075	R ₂₇	٠,	20,000	1/5	_
50,000		1/5 1/5 1/5 1/5	20084	R ₂₈	1.	000,000	,,	•
50,000		1/5	20084	R ₂₉	•	10,000	1/5	
50,000		1/5	20084	R ₃₀		500		
500,000 100,000		1/5	25024 20093	R ₈₁		95	1/2	2
380			22021	R ₃₂		235	1.	_
100,000		1/5	20093	R33		1,000	1/5	5
		OVERALL	AUDIO FR	EQUENCY CH.	ARACTERIS	TICS		_
7								
				1.4.7			1 1	





"Ultramodern as well as ultra short wave" says *Popular Mechanics* of the ULTRA SKYRIDER. Photo below shows receiver in operation in the shielded testing room of Popular Mechanics radio laboratory.



Up Among the Megacyc

Short Wave Set Meets Test When Yugos Diplomats Arrive Seeking Program Broadcast in Belgrade.

By TED ROGERS

With warm weather coming on (Okay! Let's technical) things are picking up noticeably on the 1 meter bands, and while 31 meters still continue to excellent results for the DX hunter, the 49-meter slumping rapidly.

Owing to the vast preponderance of South A has been pretty much n the average listener thro winter, when it is suppos its best; after all, who mess around with a bar fers nothing but rhumbs

goes, all played by the s

piece orchestra consistin guitar and flute, and w

word of announcement is

Visited by Diplon On Wednesday evening ored to entertain B. I vitch, Consul General of and his staff while we l special broadcast up megacycles from Belgrad With a battery of five cations receivers which warming up for hours, full of confidence and s ning dials. Well, may fidence, exactly, but ho But imagine my em

when minutes passed a

ged practically everyth world except Belgrade.

teen minutes speech in an unfamilia and immediately Mr. burst forth in happy sm the voice of the 1 rece Yugoslavia and i the trick was to old r superskyrider. few minutes to logthe other receivers, jus something to fall back of emergency, but hav we turned off the oth

back to listen. And think a terrible weigh from my brow when did its stuff, then yo eleven officials of a fo

The ''radio club in the sky," W9ZBX. atop the Board of Trade Building, Chicago. Note the ULTRĂ SKYRIDER in use.



That ace radio columnist of the N. Y. World Telegram, Ted Rogers, has a good word to say Forthe SUPEŔ SKYRIDER.



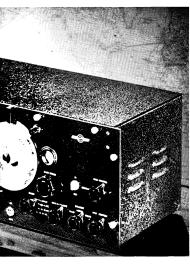


the Sky Challenger ost talked about communications receiver in amateur radio! The S

on. It will outperform any receiver in its price class and many costing tuning range—38 MC to 535 KC (7.9 to 540 meters). Covers a bands including the increasingly popular 10-meter band, the recort wave broadcast, police and aviation. Tuning is made remarkable the electrical band spread and 5 band 338° dial. Solid mechanical adier signals. Sensitivity and selectivity better than many higher thons receiver.

R has everything that present day practice demands for efficient his

CHECK THESE MANY TECHNICAL FEATURES: Iron core I.F. es). Air trimmed R.F. Preamplifier. Direct calibration tuning—not Automatic Volume Control. Beat Frequency Oscillator. Tone Control of the Control of





Ultra

r stations with no more trouble than ower frequencies. Direct dial caliarts or tables. Unique electro-mespread system. Image frequency ved by choosing an I.F. of 1600 inder circuit can be cut in to reduce ulation'' typical of ultra high freision, by broadening the selecthe I.F. amplifier sufficiently to ier shift of the transmitter without

inge: 5.65 to 79.5 MC (3.75 to 53 338° calibrated illuminated dial— 511.45 MC; Band 2: 10.5 to 21.35 19.6 to 38.3 MC; Band 4: 36.4 to 4.C. and tone control. Send-receive the Headphone jack. Preamplifier, transformers. Air trimmers. Single control, beat frequency oscillator control). Undistorted power output metal tubes; 6K7, RF preamplifier;

* the Commer

A special receiver covering in 5 bands quencies of 100 KC to 11.5 MC (3000 meters). Splendid sensitivity and selectiv acteristics Improved image frequency reject higher frequencies is achieved by the use deflicient iron core I.F. transformers tuned KC. Calibrated 338° main tuning dial el all complicated charts and tables.

Illuminated dial. Preamplifier. Iron core formers (two stages) tuned to 1600 KC. mers. Automatic volume control, and tone Signal strength indicator. Single signal cry trol. Beat frequency oscillator (variab control). Send-receive (standby) switch phone jack. Hum free power supply. Un power output of 14 watts. 11 tubes, 10 me 1 glass: 6K7, RF preamplifier; 6L7, 1st demixer; 6C5, oscillator; 6K7, 1st IF stage; 6IF. stage; 6R7, 2nd detector, AVC and 6K7, electron coupled beat frequency of



sensitivity and selec possible with a high go I.F. transformer, equal ance to 2 convention stages and specially d r. Added selectivity and image frequency rejection given by presel

efficient reception. |

st detector. Variable beat frequency oscillator for CW and weak signs audio gain control. Automatic volume control and send-receive sw indicator. Illuminated main and band spread dial. Hum-free po

uiet headphone operation. Rigid construction assures steady signals. read. Built-in speaker. Headphone jack. Three bands, from 18 MC –540 to 1700 KC; Band 2—1600 to 5400 KC; Band 3—5300 to obes: 78—RF preamplifier, 6A7—detector-oscillator; 6F7—I.F. a juency oscillator; 75—2nd detector, AVC and A.F. amplifier; 42—p

ze: $8\frac{3}{4}$ by 17 $\frac{1}{4}$ by 10 inches deep. Shipping weight, 29 lbs. For 11

the Sky Buddy

cle A.C. operation.

unior model communication receiver that's hard to beat in sensitivity en when it's compared with higher priced sets! Look at these features his price! Tuning from 545 KC to 18.1 MC (16.6 to 555 meters) in t

-545 KC to 1680 KC; Band 2—1680 to 5500 KC; Band 3—5500 to on core I.F. stage and improved mechanical band spread (16 to on tuning eliminates complicated charts and tables. Illuminated tic volume control. Beat frequency oscillator. Headphone jack. H



speaker. 5 tubes: 6A7tor-oscillator; 6F7—i amplifier and beat fre cillator; 75—2nd dete Hallicrafters, Inc., Chicago, Illinois

I have just completed a detailed report to the Commandant relative to the only demonstrate a decarted report to the commandant relative to the one of members of this unit in the recent flood emergency in the lower Gentlemen: Note of members of will unite in the recent from emergency in the lower Ohio River Valley, but I can hardly consider my report complete without a word to you on the exceptional results obtained with the Hallicrafter receivers under the most adverse and trying conditions.

Five of the Sky Riders were used at our strategic points in the flood rive of the SKy maders were used at our strategic points in the 1100d zone. They received the acid test if any receiver ever did. Bounced around in army trucks, over detours in the flood area and juggled about in frail outboard motor boats, they arrived at their destinations none the worse for the shaking up.

Four of the Sky Riders are owned by members of this unit; the fifth was

One of the sets owned by Osman Starner, Radioman First Class, was set up One of the sets owned by Osman Starmer, Additional Files Class, was see in the National Guard message center at Eldorado, Illinois. Another set borrowed. owned by Carl Beck, Radioman Second Class, saw more than two weeks active and continuous duty at portable station NDS2 at Ridgmay, an important base for operations for both the National Guard and Naval Militia. A third for operations for both the Radioman M. E. Overholt, did yoeman duty at Sky Rider, owned by Chief Radioman M. E. Overholt, did yoeman duty at offingham, a relay point. The other two were located at DX9G, alternate control station for the Illinois Communication Reserve radio net and LGGG, alternate control station for the Centralia Unit.

Selectivity; quick band changing; tone control and calibrated dial made it possible to handle thousands of words of important relief messages with a minimum of effort. Thanks to good calibration of these receivers, the schedules went off like clock work, despite the fact that some points Schedules well off line clock work, despite the lact that some points of the on the police frequency, others on the navel reserve frequency of were on one pursue frequency, coners on one mayor reserve frequency of 2656 kilocycles and still others in the middle of the 80 meter CW band.

Sincerely yours, Lt (jg) C-V(s) USNR Commander Unit 7 Section 4.



TONE CONTROL

A.V.C.

B.F. O INJECTOR