RX - 2

Hi-Manuals
P.O. Box 802
Council Bluffs, IA 51502

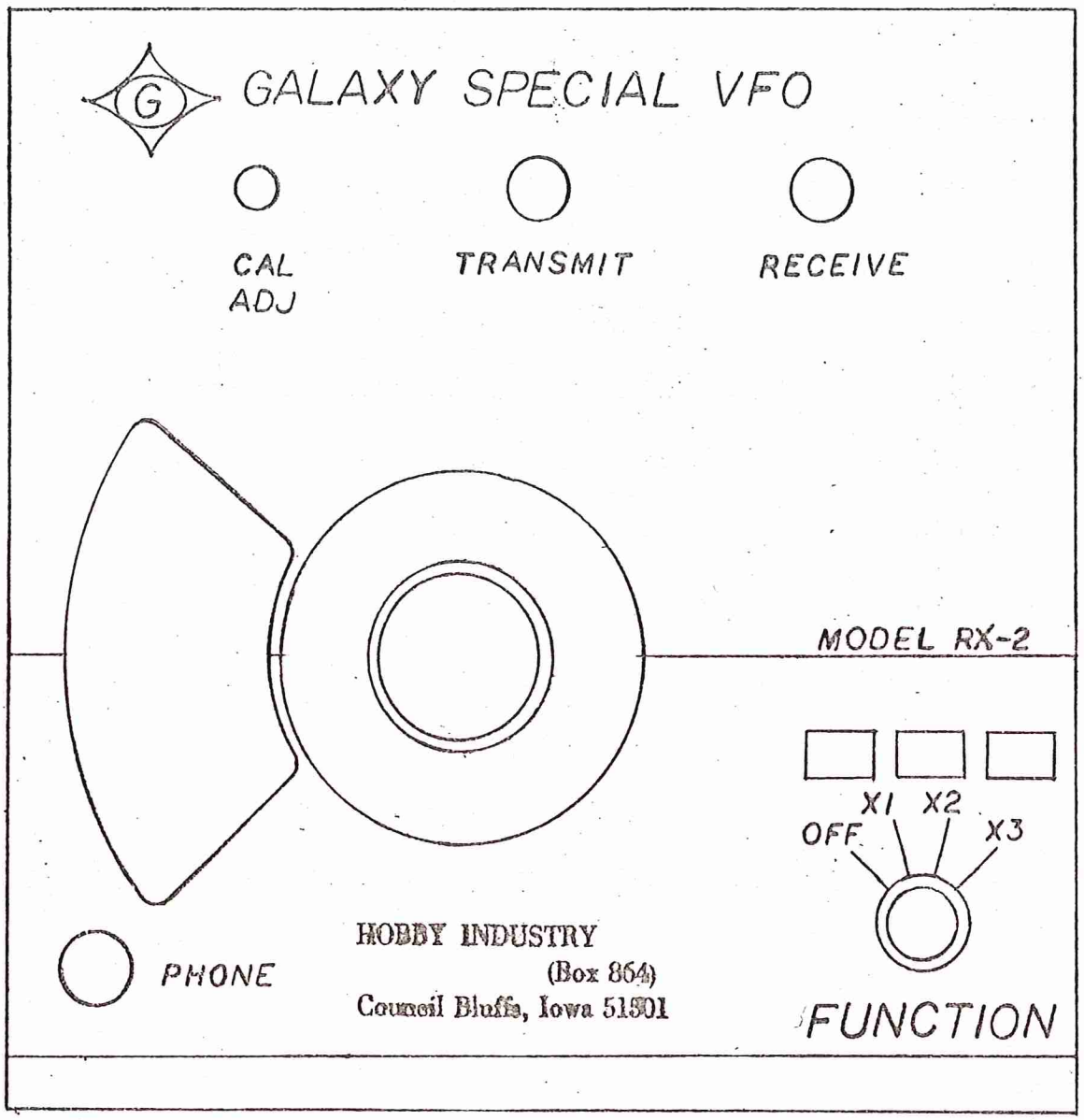


FIG - 1

TABLE OF CONTENTS

Some parts may be wrapped separately. Examine all packing carefully and ascertain there are no parts discarded accidentally. Also, check for any evidence of damage before discarding any packing, no mater how small the indication may be. It is advisable to test the unit before discarding packing, to be sure it is in good condition.

This equipment has been carefully packed, and will arrive in good condition, providing proper handling is given by the carrier.

(A) OBVIOUS DAMAGE

If the carton or unit show any evidence of damage or rough handling, you should have made a notation of any apparent damage on the carriers delivery invoice normally signed on receipt. If careful examination does disclose damage, such as loose or broken parts, the delivering carrier must be contacted immediately, and a joint inspection made with the carriers agent. The joint inspection form is not a claim, but a written report of the condition of the equipment and packing on arrival. It does not assign responsibility for damage, but prepares a foundation of facts on which to base a claim if necessary. In this event, obtain proper claim forms and submit to the carriers main office or as directed, where the claim will be approved or denied. A local carriers agent may not decline to make an inspection report , nor has he authority in assigning responsibility. If the shipment was by parcel post, contact your local postmaster for assistance and forms.

(B) HIDDEN DAMAGE

In many cases, the packing may not show severe or apparent damage, which will show-up later on careful examination and an attempt to place the equipment in use. The procedure for inspection and claims would be the same.

Remember, the responsibility for safe delivery rests with the carriers. The responsibility for obtaining re-imbursement for damage by the carrier rests with YOU. Prompt action on your part will speed adjustments. Our warranty in no way covers damage or malfunction due to shipping damage. Under no circumstances should you reship the equipment before the delivering carrier makes an inspection. To do so may jeopardize a future possible claim and require you to assume the burden of repair. After proper inspection has been made, contact us or your dealer for assistance.

Section II

The RX-2 is of the same size and general appearance as our regular Remote VFO, but it's output frequency is considerably different to permit frequency coverage not possible with a regular remote VFO operating in the 5 mc. range. It is designed to be used only with the Galaxy III or V.

The RX-2 delivers an injection frequency between 12.0 and 14.0 mc. into the Galaxy, with 12.3-13.85 mc. usable.

RANGE	(USABLE)	CRYSTAL	RX-2 OUTPUT
3.0-3.5 mc.	(3.3-3.5 mc.)	17.5 mc.	12.0-12.5 mc.
4.0-4.5 mc.	(4.0-4.5 mc.)	18.5 mc.	13.0-13.5 mc.
4.5-5.0 mc.	(4.5-4.85 mc)	19.0 mc.	13.5-14.0 mc.

The RX-2 VFO internal oscillator tunes 5.0-5.5 mc. , but this is heterodyned aginst the internal crystal to produce output in the 12.3-13.85 mc. range. This is combined in the Galaxy with the 9.0 mc. crystal oscillator to produce a difference frequency between 3.3-4.85 mc.

Unlike the regular Remote VFO, the RX-2 can not be used to separate the transmit and receive frequencies, and it operates in a transceive condition at all times. The panel lamps on the RX-2 are both off when it's function switch is in the off position. The yellow RECEIVE lamp is on when the RX-2 is active and the set is receiving. When transmitting, the red TRANSMIT lamp will light .

NOTE ! WHEN USING THE RX-2 THE SIDEBANDS ARE REVERSED. YOU WILL BE ON USB WHEN THE LSB INDICATOR IS LIT AND VICE-VERSA.

A jack on the front lower left part of the panel provides a means to connect headphones with a standard plug. When inserted, it silences the speaker, providing the speaker has been plugged into the jack on the back of the VFO. The RX-2 is supplied with one of three possible crystals. 18.5 mc. is supplied, which provides for coverage of 4.0-4.5 mc., and it will be inserted in the X-1 position. Should the user obtain other crystals, they may be interchanged in the crystal sockets as desired for sequence of selection.

Though the RX-2 high and low end crystals provide injection for as low as 3.0 mc. and as high as 5.0 mc., these extremes may not be used. The tuned circuits and spurious frequencies that may develope are the limiting factors, fixing the low end at 3.3 mc. and the high end at 4.85 mc.

Though our standard VFO dial scale is used, only the red scale is applicable in determining frequency of the RX-2. To determine the frequency that will be transmitted, add the dial reading from the red scale to the low frequency of the tuning range for which a crystal is provided. The RX-2 is supplied with a crystal for the range of 4.0-4.5 mc. When the RX-2 dial is set to 0 (red scale), the transmitted frequency will be 4.0 mc. Likewise, when the dial is on 500 the transmitted frequency is 4.5 mc. Any frequency in-between will be the sum of 4.0 mc., plus the dial reading. (Example: The dial is on 123, so the transmitted frequency will be 4,123 kc.) When using a 17.5 mc. crystal in the RX-2, do not use a frequency where the dial reading is less than 300, which is 3.3 mc. Also, when using a 19.0 mc. crystal in the RX-2, do not use a dial setting above 350, which is 4.85 mc. Refer to Fig. 2 for crystal socket locations for X-1, X-2, X-3.

The RX-2 is connected to the Galaxy the same as the standard Remote VFO. Remove the jumper plug from the octal socket on the rear of the Galaxy. Insert the octal plug wired on the RX-2 cable. The small coax cable with a pin plug from the RX-2 is passed through the hole in the rear panel of the Galaxy, and plugs into the pin jack located on the internal VFO box. DO NOT REDUCE THE COAX CABLE LENGTH SUPPLIED WITH THE RX-2 VFO !

Section III

The Galaxy has a maximum coverage of 500 kc. with any single peaking of the coils, within the permissable range of 3.3-4.85 mc. for the 75/80 meter bandswitch position. Consequently, special frequency coverage is possible only by sacrificing an equal part of the ham band. If the user requires coverage of a frequency 500 kc. from the end of the ham band, then to reach this special frequency he must lose the entire ham band coverage until the Galaxy is retuned for the ham band coverage. However, if the special frequency required is only 100 kc. away from the ham band, then the user need only retune to the extent required to move the tuning range 100 kc., which causes loss of the oposite end of the ham band. If you retune to reach 4.1 mc. then you lose 3.5-3.6 mc. coverage. If you retune to reach 3.4 mc., then you lose 3.9-4.0 mc. ham coverage, etc.

The RX-2 is not usable in any range other than 3.3-4.85 mc., such as other ham bands or special frequencies near the other ham bands. When the RX-2 is on, the transceiver internal VFO is inoperative.

Alignment of the Galaxy may seem a bit complicated as you read this and try it for the first time, but there-after it should become easy and take only a few seconds at most.

First, determine exactly what frequency extreme you must cover. If not too far from the ham band you may be able to compromise tune the Galaxy for both special and ham frequency coverage, and work both by simply turning -on the RX-2 and not having to re-tune the Galaxy each time.

The Galaxy must be retuned at the center of the 500 kc. range used. For example, you could tune it for a special frequency as high as 4.3 mc. without losing any of the 3.8-4.0 mc. ham band, which is a 500 kc. range.

Alignment requires that a considerable signal be transmitted, so we suggest that a dummy load be used to avoid interferance to commercial signals.

Determine the center of the frequency range that will be used for alignment of the Galaxy. For example, assume you find the range of 3.8-4.3 mc. will suffice. The center of this range is 4.05 mc. As it is outside the coverage of the Galaxy VFO it must be selected with the RX-2 VFO. Select the RX-2 position that has the 18.5 mc. crystal (X-1 as shipped) and set the RX-2 dial to 50 on the red scale, which is 4.05 mc.

Set the transceiver plate and load controls fully counter-clockwise. Set the bandswitch on the 3.5-4.0 mc. position. Set the sideband selector to the SB-2 position. Set the MIC. GAIN control fully clockwise. Set the EXCITER tuning to the 11 o'clock position(capacitor 3/5 open).

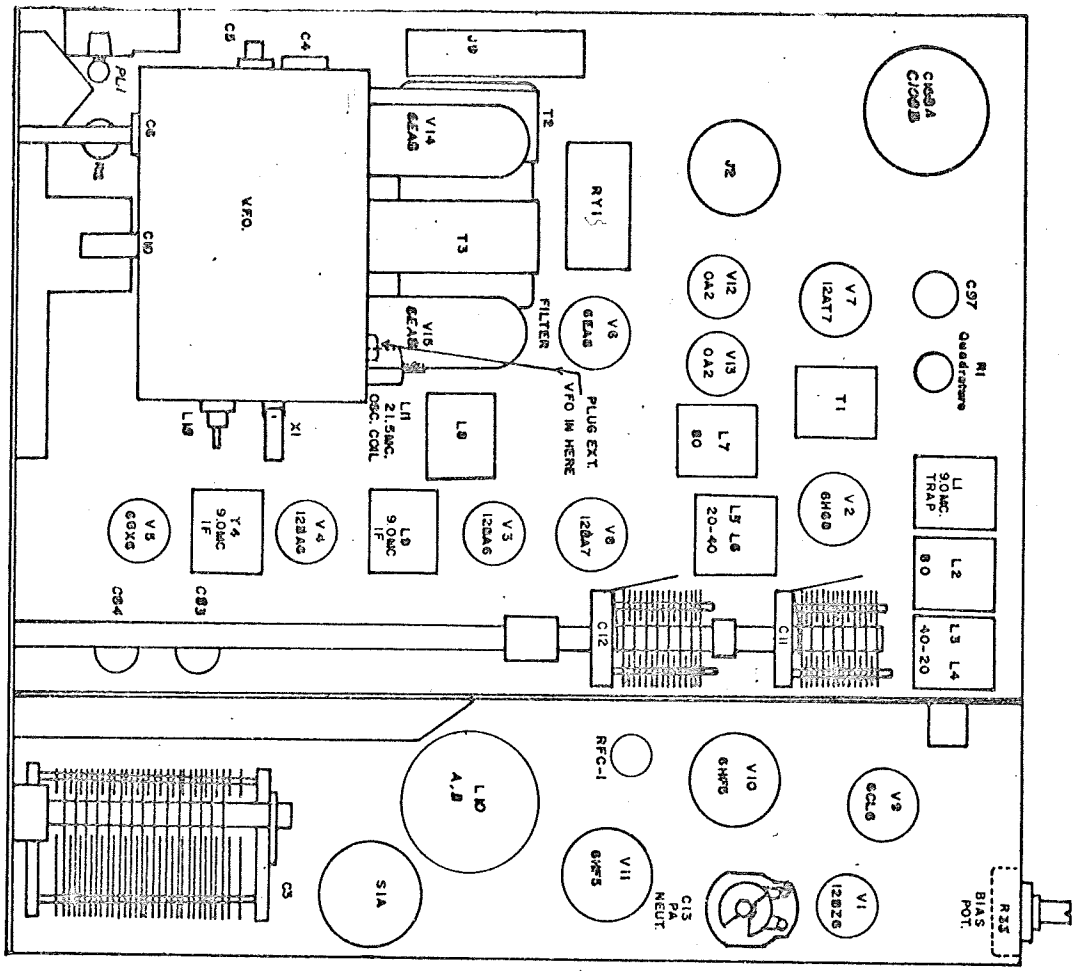
(For Galaxy coil locations, refer to figures 3 and 4 for the III and V resp.)

Place the Galaxy FUNCTION switch to the TUNE position and peak coils L-2 and L-7 (bottom slugs of these cans on the V) for maximum meter reading. If the reading goes over S-7 on the meter, use the MIC. GAIN control to control the meter reading and limit it to S-7 or below, but peaking the coils always for maximum. Return the FUNCTION switch to the VOX or PTT position. You can now operate the Galaxy within 250 kc. either side of this frequency with the appropriate VFO.

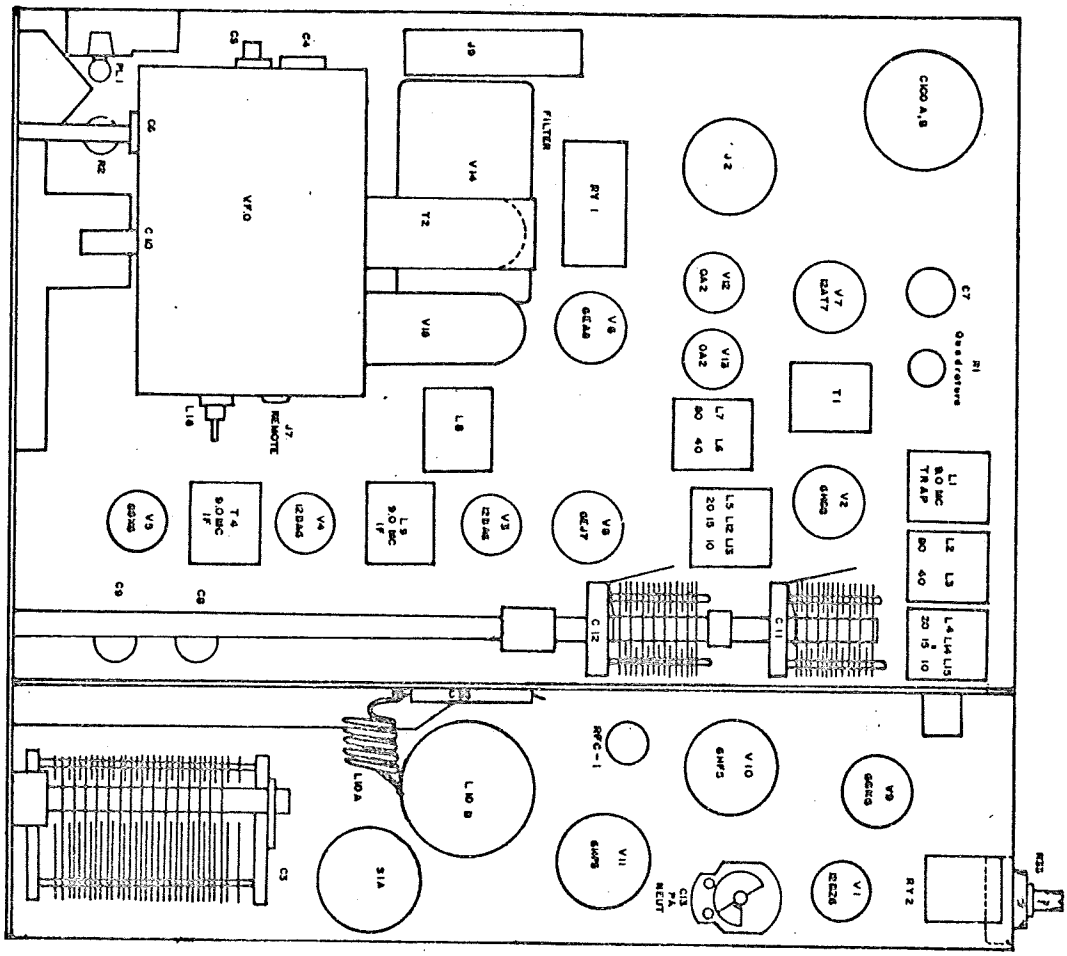
Tune-up will follow the same procedure as for ham operation. Refer to your Galaxy manual for information.

Section IV

Remember, the USB and LSB indicator lamps are now reversed when using the RX-2.



GALAXY III Fig. 3



(09T465) GALAXY V Fig. 4

The dial on the RX-2 will be substantially accurate(red scale), allowing the operator to preset frequency within 1-2 kc. usually. However, it can be claibrated by setting the dial on any intregal 100 kc. mark and turning on a calibrator. The dial can then be calibrated with the CAL ADJ on the panel by turning it until the calibrator signal is zero beat.

Assuming the operator may wish to receive or transmit on 4417.5 kc., set the RX-2 dial for 417.5 kc. as closely as can be read on the dial. Normally, this will be at least within audible range of any signal on that frequency, and the operator can make final correction by tuning until the signal is zero beat or a voice has proper pitch. This naturally assumes that the referance signal is a net control or otherwise maintains a correct frequency.

Section V

To return the Galaxy to full ham band coverage as originally supplied, repeat the alignment using the Galaxy VFO set at 250 on the red scale, and adjust L-2 and L-7 as before.

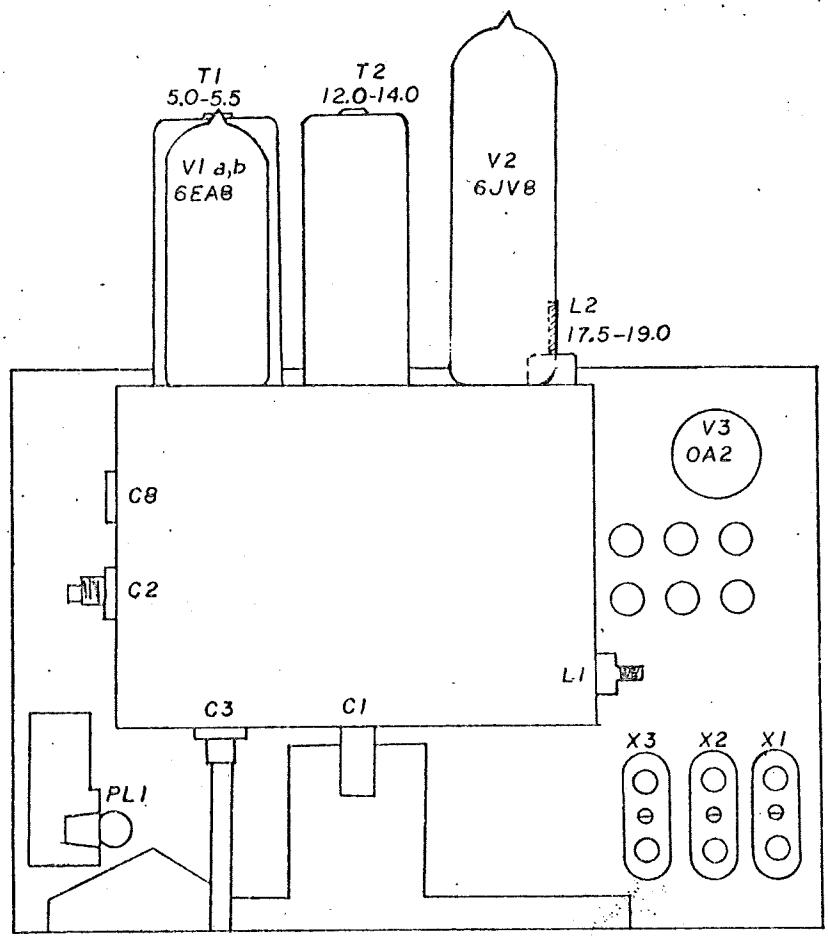
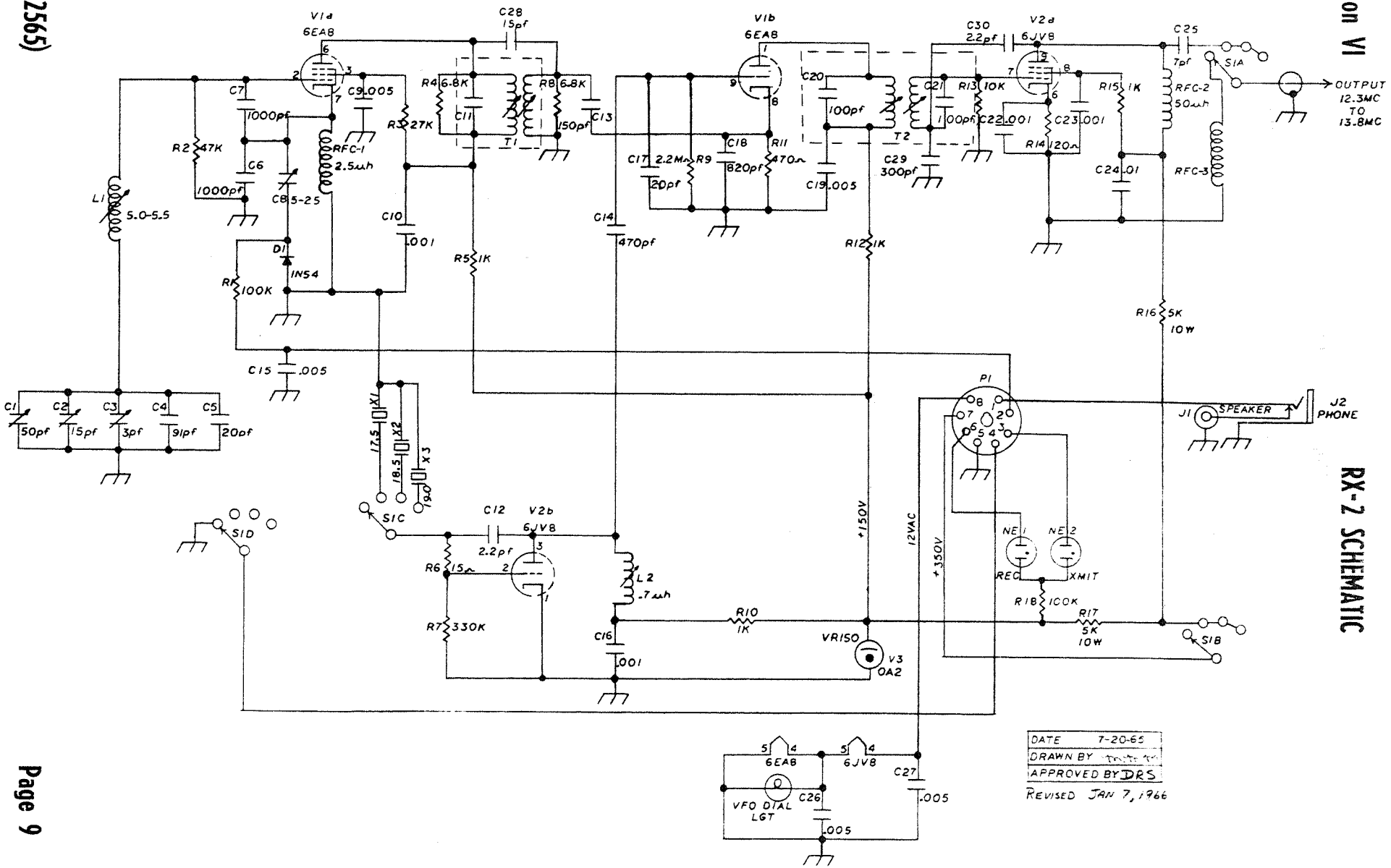


FIG-2 SPECIAL VFO RX-2 9-8-65

SPECIAL VFO RX-2



DATE	7-20-65
DRAWN BY	
APPROVED BY	DRS
REVISED	JAN 7, 1966

SECTION VI

The following are voltage and resistance charts for the three tubes used in the RX-2 VFO. Measurements must be made with a good VTVM having a high input resistance. Measurements made to chassis .

VOLTAGE

TUBE	PINS								
	1	2	3	4	5	6	7	8	9
6EA8	142	-3	112	6.6a	0	142	.18	2.4	-1.9
6JV8	0	-4.2	141	12.5a	6.6a	4.3	0	162	162
OA2	145	0	0	0	145	0	0	-	-

Measurements having a - sign preceeding are negative in respect to chassis. Those with the letter a after them are AC voltages.

RESISTANCE

Measurements made to chassis with a high input resistance VTVM.

TUBE	PINS								
	1	2	3	4	5	6	7	8	9
6EA8	27k	47k	50k	1.4	0	32k	35	470	2.4m
6JV8	0	340k	32k	.5	1	125	10k	32k	32k
OA2	32k	0	0	0	32k	0	0	-	-

Readings are in Ohms, except where ending with k in 1000 Ohms, and ending in m are megOhms.

SECTION VII SERVICE INFORMATION

In the event of failure in the field and examination does not disclose an apparent remedy, we will be glad to offer technical assistance as possible by mail. However, to provide the best and most accurate information, it is essential that all measurements be made, and observations of abnormal indications be given.

SECTION VIII WARRANTY

Our standard warranty applies, which covers components other than tubes for one year, tubes and labor for 90 days, in brief form. Full particulars and specifications available on request.
GALAXY ELECTRONICS, INC. , 10 S. 34TH ST. , COUNCIL BLUFFS, IA.

PARTS LIST

SYMBOL	DESCRIPTION	PART #	PRICE EA.
R-1/18	100k , 1/2 watt , 10%	10-32	.12
R-2	47k , 1/2 watt , 10%	10-13	.12
R-3	27k , 1/2 watt , 10%	10-14	.12
R-4/8	6.8k, 1/2 watt, 10%	10-15	.12
R-5/10/12/15	1k , 1/2 watt , 10%	10-42	.12
R-6	15 , 1/2 watt , 10%	10-88	.12
R-7	330k , 1/2 watt , 10%	10-69	.12
R-9	2.2m , 1/2 watt , 10%	10-02	.12
R-11	470 , 1/2 watt , 10%	10-53	.12
R-13 10K	~~68k~~ , 1/2 watt , 10%	~~10-16~~ 10-56	.12
R-14	120 , 1/2 watt , 10%	10-77	.12
R-16/17	5k, wire wound, 10 watt, 10%	11-5D	.36
C-1	50pf, variable	25-17	1.70
C-2	15pf , variable	25-20	2.40
C-3	3pf , variable	25-19	1.50
C-4	91pf, TCZ	20-30	.30
C-5	20pf, TCN	20-41	.35
C-6/7	.001mf, dip silver, 500v.	22-19	.33
C-8	5-25pf , trimmer	26-06	.81
C-9/15/19 /26/27	.005mf, ceramic, 600v.	20-03	.15
C-12	2.2pf, ceramic, 600v.	20-33	.24
C-13	150pf, dip silver, 500v.	22-26	.34
C-14	470pf, ceramic, 600v.	20-39	.15
C-10/16/23 /22/[illegible]	.001mf, ceramic, 1000v.	22-14	.24
C-24	.01mf, ceramic, 600v.	20-05	.24
C-17	20pf, dip silver, 500v.	22-22	.18
C-28	15pf, dip silver, 500v.	22-38	.18
C-29	30pf " " "	22-44	.30
C-30	2.2pf, ceramic, 600v	20-33	.12
D-1	Diode, 1N54A	112-1N54A	.95
L-1	Spec. osc. coil, 5-5.5 mc.	42-12	5.25
RFC-1	2.5uh choke	30-09	.42
RFC-2	50uh choke	30-04	.25
RFC-3	Special choke	30-17	.36
L-2	.7uh coil	42-44	.45
S-1(ABCD)	2P4T rotary switch	53-27	2.50
T-1	Spec. output transformer	76-06	.96
T-2	Spec. mixer transformer	76-07	1.15
V-1	6EA8 tube	110-6EA8	1.60
V-2	6JV8 tube	110-6JV8	2.00
VR-150	OA2 regulator tube	110-OA2	1.32
--	12v. dial light bulb 113-12	~~113-24~~	~~.24~~ .25
--	Front panel	141-19	2.57

C25 7pf, ceramic, 600 v 20-21 .12

SECTION VII

SERVICE INFORMATION

In the event of difficulty, we will be glad to render all possible technical assistance. However, help that we may give will be directly related to the extent and accuracy of the information we receive in your request.

Before writing, please make voltage and resistance measurements, and let us know where the measurements you make differ from those listed in the manual as typical. Normally, measurements that differ by less than 10% will not be significant.

Let us know what model and serial transceiver you have, as well as the serial of the RX-2, which can be helpful. Also, any other observations, given in a brief, concise report will be helpful.

When writing, address such correspondence to :
Galaxy Electronics , Technical Dept. , 10 So. 34th St. , Council Bluffs, Ia.

Also, the facilities of our service department are available for repairs of equipment not in warranty at nominal cost.

SECTION VIII

WARRANTY INFORMATION

This product is guaranteed to be free from defects in material or workmanship for a period of 90 days on tubes and labor, 1 year on other parts from the date of sale to the original owner. This warranty is not transferable, nor does it apply to products which have been damaged by accident or neglect. In the event of failure or defect, we will repair or replace parts at our option, where the unit is delivered to us prepaid, within the terms and time limitations of this warranty.