EICO

INSTRUCTION MANUAL

variable frequency oscillator

EICO ELECTRONIC INSTRUMENT CO., INC. 33-00 NORTHERN BLVD., L.I.C. 1, N.Y.

V·F·O·

EICO

722

V. F. O.

VARIABLE FREQUENCY OSCILLATOR

722

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STOCK NO. 66115

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SECTION I. GENERAL DESCRIPTION AND SPECIFICATIONS

1-1. DESCRIPTION

The Model 722 excels in every requirement for a truly satisfactory VFO under the crowded conditions encountered today in the Ham bands. It provides full coverage of the five Ham bands from 80 to 10 meters in six ranges, the 10 meter band being covered in two ranges.

Basic design features include a low-heat silicon diode doubler power supply, a buffer-multiplier output stage, a very large and easy-reading slide rule dial, and a velvet smooth and extremely reliable drive. Output is high enough to drive any modern transmitter on all bands from 80 through 10 meters. A lever type spotting switch is provided on the front panel.

High stability is achieved by carefully coordinated electrical, mechanical, and thermal design. The oscillator is an electron-coupled, series-tuned Clapp type, incorporating a stable, slug-tuned coil and temperature-compensating capacitors. Drift due to internal heating of the tank circuit has been made negligible by the choice of a high L to C ratio, which reduces the circulating tank current to a very low value. The buffer-multiplier stage performs as a "straight-through" buffer-amplifier on 80 meters, and a multiplier on all higher bands. It provides excellent isolation between the output load and the oscillator, as well as high output.

A VR tube eliminates any effect due to line voltage variation. A rigid mechanical construction and the use of a double bearing on the main tuning capacitor avoids mechanical causes of frequency shift. Enclosure of the frequency-determining elements of the oscillator in a shielding compartment provides both heat isolation and shielding from outside mechanical movements and body capacity.

1-2. SPECIFICATIONS

Output Frequencies: 3.5-4.0mc, 7.0-7.3mc, 7.25-7.64mc

Calibrated Bands: 3.5-4.0mc (80m), 7.0-7.3mc (40m), 14.0-14.4mc (20m), 21.0-21.45mc (15m), 28.0-29.2mc (10m), 29.0-29.7mc (10m)

RF Output: 10-20 volts

Tube Complement: 6AU6 oscillator, 6CB6 buffer-multiplier, OA2 voltage regulator

Power Supply: Transformer-operated silicon diode doubler

Power Source: 117 volts, 60cps AC

Controls: BAND switch including OFF position, MODE switch with SPOT, STANDBY, and TRANSMIT positions, TUNING control

Cabinet Size: 6"H x 8-1/2"W x 9"D

Weight: 8 lbs.

SECTION II. CIRCUIT DESCRIPTION

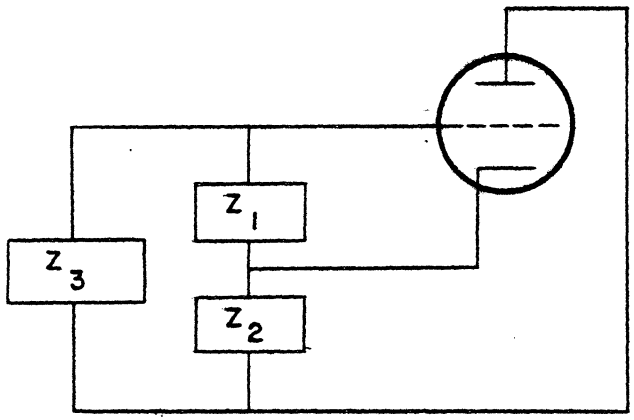
2-1. GENERAL

The EICO Model 722 VFO consists primarily of two sections. A series tuned Clapp oscillator (V1) and a plate-tuned buffer-multiplier (V3).

2-2. OPERATION OF CLAPP OSCILLATOR

A generalized form of vacuum tube oscillator is shown (minus bias circuitry) in figure 2-1.

Figure 2-1. Generalized Oscillator



When the three impedance elements Z1, Z2, and Z3 are reactive (L and C), and Z1 and Z2 are the same type of reactance (both capacitive, for instance) while Z3 is of the other class (inductive in this case), then the circuit will oscillate at the resonant frequency of the series combination of these elements.

In the Model 722 circuit, Z1 and Z2 are capacitors C9 and C10, respectively, and Z3 is the series combination of L1 and tuning capacitor C2. Note that the resonant frequency of all these elements in series is higher than that of L1 and C2 alone. Hence, at the series resonant frequency the L1-C2 combination appears inductive, thus satisfying the requirement on Z3 so that the circuit oscillates.

A full measure of bandspread on all bands is accomplished by adding fixed capacitance in parallel with C2 by means of the bandswitch. Oscillation always occurs in the 80 meter band.

Although a pentode is used in the oscillator, the circuit behaves as if the tube were a triode, since, for all intents and purposes, the screen grid behaves as a plate. The basic oscillator then may be drawn as shown in figure 2-2.

Screen bypass capacitor C15 may be considered a short circuit at the operating frequency, while RF choke L2 is an effective open circuit. These elements, along with grid leak resistor R2, form the d-c biasing circuit in the oscillator and have negligible influence on the dynamic circuit operation. Resistor R1 prevents the possibility of unwanted spurious oscillations.

An amplified replica of the signal generated in the "triode" portion of V1 appears in the plate circuit across RF choke L3. This is the result of the modulation of the electron beam between grid and cathode, and is referred to as electron coupling.

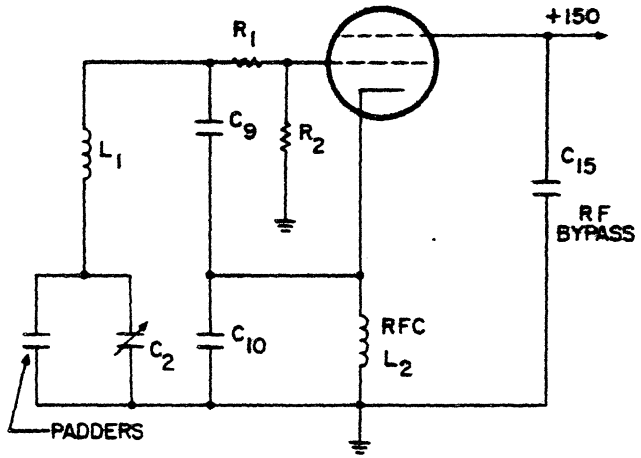


Figure 2-2. Basic VFO Oscillator

2-3. OPERATION OF BUFFER-MULTIPLIER

V3 is a straightforward pentode amplifier whose output circuit is tuned to 80 meters for 80 meter operation, and to 40 meters for operation on the 40, 20, 15, and 10 meter bands. Inductors L4 and L5, in conjunction with the capacitance of the length of coaxial cable connected to jack J2, comprise the output circuit tuning elements. Either L4 or L5 is selected by the bandswitch.

This stage provides both frequency multiplication (except on 80 meters) and isolation of the oscillator portion of the circuit from the transmitter load.

2-4. POWER SUPPLY & VOLTAGE REGULATOR

The power supply is a conventional voltage doubler employing a pair of silicon diode rectifiers. A pi-type L-C filter provides excellent B+ filtering. The screen of oscillator tube V1 is supplied through dropping resistor R3 and voltage regulator (VR) tube V2. Current through the VR tube varies with any supply voltage fluctuations so as to maintain a constant voltage at the V1 screen, essential to oscillator stability.

SECTION III. OPERATION OF VFO WITH TRANSMITTER

The allowable methods of keying depend on the design of the transmitter used. An attempt to use a disallowed method may cause damage to the transmitter, so read these instructions very carefully.

Method A: Keying the transmitter only, leaving the VFO on continuously. This is a basic method, always allowed regardless of the transmitter design. This is the only method, outside of keying both the transmitter and VFO simultaneously with a multi-pole relay, that is allowed for using the VFO with the EICO Model 723 transmitter.

Method B: Keying the VFO only, making no connection to the key jack of the transmitter. This method is allowed only for transmitters equipped with clamper tube and/or fixed bias protection of the final amplifier such as the EICO Model 720 transmitter. (The final amplifier of transmitters not having such protection will draw excessive current when the drive is removed, resulting in permanent damage. The EICO Model 723 transmitter is of this type.)

Method C: Keying the VFO and transmitter simultaneously by means of a multi-pole relay. This method is also allowed regardless of the transmitter design. In this method, the key is inserted in the VFO keying jack. The relay which controls the keying of the transmitter is connected to terminal board TB1 on the VFO.

NOTE: To connect the VFO output to the EICO Model 723 transmitter, you will require a Mosley Type 301 plug to adapt to the Xtal socket, which doubles as the VFO input. Keep in mind that the upper terminal of the Xtal socket is the ground side in the Model 723.

The functions provided by the BAND switch and the TUNING control are self-evident. Those of the MODE switch are given below, correlated to the keying methods described previously for convenience.

Method A (Transmitter keyed only; VFO on continuously:

STANDBY - No VFO output. Do not use this position with EICO Model 723 or any transmitter not having clamper tube and/or fixed bias protection of the final.

SPOT - VFO feeding out signal, but no transmitter output as long as key is up. This permits the VFO signal to be detected by the station receiver without radiating a signal from the antenna as long as the key is up.

TRANSMIT - Same as SPOT.

Method B (VFO keyed only; no connection to key jack or transmitter):

STANDBY - No VFO output

SPOT - VFO feeding out signal as long as key is down. To obtain spotting function, transmitter must be set at standby and the key held down.

TRANSMIT - Same as SPOT.

Method C (VFO and transmitter keyed simultaneously with multi-pole relay):

STANDBY - No VFO output.

SPOT - VFO feeding out signal as long as key is down, but transmitter does not radiate signal from antenna.

TRANSMIT - VFO feeds out signal and transmitter radiates signal from antenna as long as key is held down.

SECTION IV. MAINTENANCE

4-1. GENERAL

Your VFO will normally require little service outside of tube replacement. The performance is not dependent upon tube selection and the types employed are available everywhere.

All of the required adjustment procedures are described in this section. Operating voltages are shown on the schematic diagram. The material of Section 2 and 3 should be helpful in reading the schematic diagram.

4-2. CASE REMOVAL

Loosen and remove the four sheet metal screws at the rear. Slide the case out of the panel frame and off the instrument.

4-3. VFO ADJUSTMENTS AND CALIBRATION

A. General

During the following procedures, the VFO function switch is in SPOT position, and the 3-foot length of coaxial cable is connected to the VFO and terminated in the transmitter which is to be used with the VFO. The transmitter should be properly tuned-up and should be turned on in the TUNE mode (not on the air).

NOTE: The transmitter termination is not essential for VFO calibration, but it is desirable because various transmitter loads will require slightly different settings of L4 and L5 to achieve maximum signal output.

A well calibrated communications receiver covering 3.5-4.0mc and 7.0-7.3mc (and, if possible, a crystal calibrator to check receiver calibration) is required for VFO calibration. The VFO should be in close enough proximity to the receiver so that the VFO signal can be heard. A lead from the receiver antenna terminal brought next to the VFO will assure audibility of the VFO signal.

Allow a half-hour warm-up of all equipment before starting adjustments.

B. Adjustment of Output Circuit Tuning Elements (Coils L4 and L5).

1. Tune receiver to 3.75mc.
2. Turn VFO band switch to 80M.
3. Tune VFO until signal is heard in receiver, disregarding the calibration of the VFO dial at this time.
4. Adjust L4 to obtain maximum signal output as indicated by the receiver S-Meter. If the receiver is not equipped with an S-Meter, L4 may be adjusted by observing grid drive to one of the stages in the transmitter, and maximizing this quantity with L4. If the latter method is used, set the band selector of the transmitter to the 80M band for adjustment of L4.
5. Tune receiver to 7.15mc.
6. Turn VFO band switch to 40, 20, 15, 10A M.
7. Repeat steps (3) and (4); this time adjusting L5. If the indication is grid drive in the transmitter, set the band selector of the transmitter to 40M for adjustment of L5.

C. VFO Calibration

1. Turn TUNING knob to fully close variable capacitor.
2. Re-set scale pointer on dial cord so that right edge of pointer is tangent to the left side of the figure "29.0" on the scale for band 10B. See Figure 4-1 on page 9.

3. Bend center lip of pointer carriage down to pinch dial cord permanently.

4. Set both the VFO and the transmitter band switches to the 80M band.

5. Set both VFO and receiver tuning controls at 4.0mc on the respective dials. Carefully rotate trimmer C3 until VFO is heard on receiver (and/or gives maximum S-Meter reading) indicating that the VFO is exactly tuned to 4.0mc.

6. Set both VFO and receiver at 3.5mc on their respective dials. Carefully adjust slug of coil L1 until the VFO is heard indicating exact tuning of the VFO to 3.5 mc.

7. Repeat step 5 and then step 6, and continue repeating them as long as is necessary to get the calibration of the VFO at 3.5 and 4.0mc to correspond exactly to that of the receiver. Take the time necessary to perform these adjustments carefully and accurately, since the accuracy of the VFO calibration depends on these adjustments.

8. Set the VFO BAND switch at the 40, 20, 15, 10A M position, and the transmitter band switch at the 40M position.

9. Set both VFO and receiver tuning controls at 7.0mc on their respective dials. Carefully rotate trimmer C6 until the VFO (second harmonic) is heard on the receiver (and/or gives maximum S-Meter reading) indicating that the VFO second harmonic is exactly at 7.0mc.

10. Set the VFO BAND switch at the 10B position. The transmitter band switch remains set at the 40M band position.

11. Set the VFO TUNING knob at 29.0mc on the 10B scale, and the receiver tuning control at exactly 7.25mc. Carefully rotate trimmer C11 until the VFO (second harmonic) is heard on the receiver (and/or gives maximum S-Meter reading) indicating that the VFO second harmonic is exactly at 7.25mc (and, consequently, that the eighth harmonic is exactly at 29.0mc).

This completes the VFO calibration.

SECTION V. EICO SERVICE POLICY

SERVICE CONSULTATION

If you are experiencing trouble that you cannot diagnose yourself, you are invited to avail yourself of the EICO Service Consultation Department. The consultant handling your inquiry will make every effort to diagnose the cause of your particular difficulty based on the information that you provide. Please be as thorough as possible. Include the following information about your unit:

a) Have you made a thorough check of the wiring, checking also for cold solder joints, or accidental shorting between parts, or to chassis? (Check to see whether a bare wire or lead extends far enough to be shorted when the bottom plate is put on).

b) Have you checked that the proper tube or transistor is in each socket, and also making proper contact in the socket? Are all shields firmly in place?

c) Does the trouble occur at one time or one operating situation, but not at another time or operating situation? Be as specific as possible in this respect.

d) If the unit is of the type that involves alignment or calibration, be as specific as possible as to what you have done or not done with regard to these requirements. If the unit incorporates tuned circuits stated to be factory pre-aligned, did you change any settings? If so, what alignment procedure did you use?

e) Have you observed any pecularity about a part? If a part appears charred or otherwise damaged by excessive heat, please say so. If you think

you have damaged a particular part in the assembly or wiring, please say so. In conjunction with the symptoms, the consultant may be able to determine whether such a part is likely to be defective.

f) Have you gone through any trouble-shooting procedure that may be provided? If your manual includes a table of contacts made at each switch position, have you checked out the switches accordingly (if the trouble is such that doing this would be appropriate)? Have you been able to make checks of the operating voltages and/or resistances, if this is appropriate, and your manual provides a table of voltages and resistances? What are the results of these checks? Also, have you taken any other trouble-shooting approaches? What have been the results?

g) If this is high fidelity equipment, please state the type (magnetic, ceramic, crystal) of phono cartridge you are using and/or the make and model number. State the make and model of your record changer, or turntable and tone arm. Are the speakers in the same cabinet with your electronic equipment? If so, describe the cabinet and the placement of the components. Please state the make and model of your speakers.

In addition, list any code numbers in red under the words INSTRUCTION MANUAL on the cover of the book provided with your unit. If there are no red code numbers, state this specifically. If the unit bears a serial number, it is essential that you include this also.

PARTS REPLACEMENT

If it appears that a component is defective, and you desire a replacement from EICO, address your correspondence to our Customer Service Department.

If you are claiming the right to a no-charge replacement under the terms and conditions of the warranty, it is required that you shall have sent in the registration card within 10 days of the date of purchase, and that you send back the defective part transportation prepaid. EICO will make the necessary replacement at no charge for parts eligible under the terms and conditions of the warranty. In returning tubes, pack them very carefully to avoid breakage in shipment. Broken tubes will not be replaced. Please read the warranty on the subject of parts eligible for replacement.

Further information required on a part returned to the factory for a no-charge replacement under the terms and conditions of the warranty is as follows:

a) Model number and serial number, if any, of unit. Also any code numbers in red under the words INSTRUCTION MANUAL on the cover of the book supplied with the unit.

b) Stock number and description of part as given on the parts list. If the part is not listed (of itself) in the parts list, it means that the part is integral with a sub-assembly. If the sub-assembly is not sealed, and the defective part is definitely identified and easily replaceable (not more than two connections), you may request replacement for the particular part. If the sub-assembly is sealed, or if the defective part is not definitely identified or is not easily replaceable (more than two connections), then remove the sub-assembly and return it to EICO (less any tubes) for repair or replacement, if your unit is in warrantee. If your unit is out of warrantee, you are generally advised to order a replacement sub-assembly.

c) Describe as completely as possible the nature of the defect, or your reason for requiring replacement.

FACTORY REPAIR SERVICE

EICO maintains a Factory Repair Service Department for in-warranty or out-of-warranty repair of EICO equipment. It is intended to serve those customers who are not adequately familiar with electronics to make use of the EICO Service Consultation facilities, or whose difficulties cannot be solved by correspondence.

For all out-of-warranty units, there is a minimum labor and handling fee. For the Model No. 722, this fee

is $9.00. Charges for components replaced are additional to the minimum fee.

For in-warranty completed kit units, there is a minimum labor and handling fee. For the Model No. 722, this fee is $9.00. There is no charge for a replaced defective part provided that the terms and conditions of the warranty for no charge replacement are not violated in the judgement of EICO.

For in-warranty factory-wired units, there is no labor and handling fee if the unit complies with the terms and conditions of the warranty in the judgement of EICO. However, if the terms and conditions of the warranty are violated, then there will be charged to customer a minimum labor and handling fee plus the cost of parts replaced.

In all cases, the unit must be sent to the factory transportation prepaid, and the unit will be returned to the customer transportation collect.

The services rendered for the minimum labor and handling fee are the correction of any minor wiring errors (not extensive corrections or re-wiring), the labor involved in replacing defective parts, and any adjustments, alignment, or calibration procedures that would normally be performed on a factory-wired unit. Units not wired according to instructions, or modified in any way, or showing evidence of the use of acid core solder, will not be serviced and will be returned to the customer forthwith.

Units requiring extensive corrections or re-wiring will incur an additional labor charge which will be set by EICO. The customer will be informed of this situation and written authorization from the customer will be required before the work is done.

Please note: minimum labor and handling fees are subject to revision at any time.

LOCAL REPAIR FACILITIES

Out-of-warranty repair work may also be performed by authorized service stations as well as the EICO factory. A list of authorized service stations is provided with this manual. The roster of stations may change from time to time, and if considerable time has elapsed since you purchased your unit, you are advised to contact the station you choose before sending the unit to them for repair. Use of a local service station will often result in faster service, and, usually, lower transportation costs.

It is necessary that you comply with the Shipping Instructions that follow when sending in a unit for service.

SHIPPING INSTRUCTIONS

You are strongly advised to retain the original shipping carton and inserts in the case that re-shipment is required for service or any other purpose. The carton may be collapsed, for storage in as small a space as possible. In very many cases, the same carton is used for kit and factory-wired units so that the kit carton will serve for re-shipment of the completed kit.

To submit a unit for service, either to the factory or an authorized service station*, fill out completely the Service Work Order from provided with the manual. Pack the unit very carefully, preferably in the original shipping carton with the original inserts.

If this is not possible, use a strong oversize carton, preferably wood, allowing at least 3 inches of resilient packing material such as shredded paper or excelsior, to be inserted between all sides of the unit and the carton. Seal the carton with strong gummed paper tape or strong twine, or both. Include the Service Work Order in the carton and in addition, attach a tag to the instrument on which is printed your name and address and brief reference to the trouble experienced. Affix "FRAGILE" or "HANDLE WITH CARE" labels to at least four sides of the carton, or print these words large and clear with a bright color crayon. Ship by prepaid Railway Express or parcel post to:

EICO Electronic Instrument Co., Inc.
33-00 Northern Blvd.
Long Island City 1, New York
Attention: Service Department

Include your name and address on the outside of the carton. Return shipment will be made transportation charges collect. Note that a carrier cannot be

held liable for damages in transit, if packing, IN HIS OPINION, is insufficient.

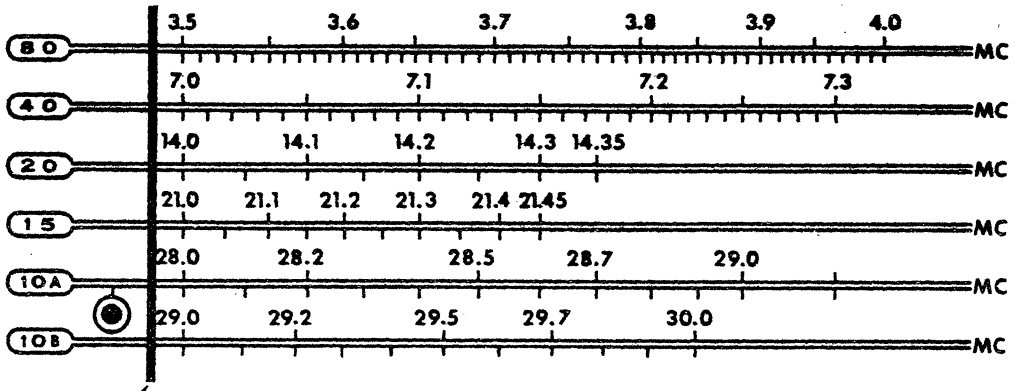
*Authorized service stations are for out-of-warranty units only, unless the station is specifically noted on the List of Authorized Service Stations to be authorized for other work.

EICO THE EICO WARRANTY EICO

The Electronic Instrument Company, Inc., hereafter referred to as EICO, warrants that, for a period of 90 days from the date of purchase, any EICO kit will be free of defects in parts, and that any EICO factory-wired unit will be free of defects in parts and workmanship. For an EICO kit, EICO's obligation is limited to those parts which are returned transportation prepaid to the factory without further damage, and in the judgement of EICO are either originally defective or have become defective in normal use. For an EICO factory-wired unit, EICO's obligation is limited to those parts, sections, or the entire unit which is returned transportation prepaid to the factory without further damage, and in the judgement of EICO are either originally defective or have become defective in normal use.

The warranty does not apply to any parts damaged in the course of handling, assembling, or wiring by the customer, or damaged due to abnormal usage or in violation of instructions or reasonable practice, or further damaged to a consequential degree in return shipment. Furthermore, the foregoing warranty is made only to the original customer, and is and shall be in lieu of all other warranties, whether expressed or implied, and of all other obligations or liabilities on the part of EICO, and in no event shall EICO be liable for any anticipated profits, consequential damages, loss of time, or other losses incurred by the customer in connection with the purchase or operation of EICO products or components thereof.

The registration card, which accompanies each EICO kit or factory-wired unit, must be filled in and returned to the company within 10 days after the date of purchase. This warranty applies only to registered units.



SET POINTER TO THE LEFT OF THE FIGURE "29.0" ON THE SCALE FOR BAND 10B

Figure 4-1. Dial Pan

SYM. #	STOCK NO.	AM'T.	DESCRIPTION
	CAPACITORS		
C1	22012	1	capacitor, ceramic, 110mmf (N080), 1% (red, brown, brown, brown, brown)
C2	29019	1	capacitor, variable, 8mmf - 32mmf
C3	29021	1	capacitor, trimmer, 2.5mmf - 32mmf
C4	22590	1	capacitor, ceramic, 27mmf (NPO), 10%
C5	22014	1	capacitor, ceramic, 10mmf (N750), 5% (violet, brown, black, black, green)
C6	29021	1	capacitor, trimmer, 2.5mmf - 32mmf
C7	22013	1	capacitor, ceramic, 22mmf (NPO), 2%
C8	22020	1	capacitor, ceramic, 5mmf (N750), 5% (violet, green, black, white, green)
C9, 10	21515	2	capacitor, mica, .001mfd, 1%, 300V
C11	29021	1	capacitor, trimmer, 2.5mmf - 32mmf
C12	22570	1	capacitor, ceramic, 12mmf (NPO), 5%
C13	22020	1	capacitor, ceramic, 5mmf (N750), 5% (violet, green, black, white, green)
C14	22553	1	capacitor, disc, .002mfd (2K or 2000mmf), GMV, 1000V
C15, 16	22505	2	capacitor, disc, .01mfd (10K or 10,000mmf), GMV, 500V
C17	22537	1	capacitor, disc, 10mmf, 10%, 500V
C18, 19	22553	2	capacitor, disc, .002mfd, (2K or 2000mmf) GMV, 1000V
C20, 21	22528	1	capacitor, disc, 2 x .005mfd (5K or 5000mmf) 500V
C22	22509	1	capacitor, disc, 100mmf, 10%, 500V
C23	22505	1	capacitor, disc, .01mfd, (10K or 10,000mmf) GMV, 500V
C24	24016	1	capacitor, elect., 3 x 20mfd, 200V, 350V
	DIODES		
CR1, 2	93005	2	rectifier, 400 PIV
	FUSE		
F1	91002	1	fuse, 1 Amp
	NEON INDICATOR		
I1	92005	1	bulb, neon, NE-2
	JACKS		
J1	50022	1	jack, key
J2	50014	1	jack, phono single
	COILS		
L1	35060	1	coil, 28.5uh, oscillator
L2, 3	35034	2	choke, 1mh, RF
L4	35063	1	coil, 26uh
L5	35061	1	coil, 7uh
L6	34000	1	choke, 5h, filter

STOCK NO.	AM'T.	DESCRIPTION
	MISCELLANEOUS	
46011	4	foot, rubber
47004	1	spring
53053	1	knob, lever switch
53054	2	knob
53504	1	pointer, slide
57000	1	line cord
58406	1	cable, insulated, 3'
51006	2	plug, RCA phono
82101	1	strain relief
85004	1	bushing, ceramic (Male)
85005	1	bushing, ceramic (Female)
86507	1	assembly, drive shaft
86521	1	assembly, drum and disc
89273	1	label, nomenclature
89594	2	pulley, small, 1/2"
89596	1	dial cord
89662	1	window, plastic
89701	1	lubriplate
97301	2	shield, tube
66115	1	Instruction Manual
66371	1	Construction Manual

SYM. #	STOCK NO.	AM'T.	DESCRIPTION
	SWITCHES		
S1	60073	1	switch, rotary, ceramic
S2	60075	1	switch, lever
	TRANSFORMER		
T1	30040	1	transformer, power
	TERMINAL STRIPS		
TB1	54513	1	terminal board, 2 screw
TB2	54013	1	terminal strip, 1 post left with ground
TB3	54019	1	terminal strip, 2 post right
TB4	54007	1	terminal strip, 3 post, 2 right with ground
TB5	54018	1	terminal strip, 4 post with ground
TB6	54016	1	terminal strip, 3 post left, upright
	TUBES		
V1	90020	1	tube, 6AU6
V2	90074	1	tube, OA2
V3	90028	1	tube, 6CB6
	SOCKETS		
XF1	97800	1	fuseholder
XV1	97047	1	socket, 7 pin miniature (top mount)
XV2	97022	1	socket, 7 pin miniature
XV3	97047	1	socket, 7 pin miniature (top mount)

MOUNTING HARDWARE

40000	28	nut, hex, No. 6-32
40001	2	nut, hex, 3/8"
40007	10	nut, hex, No. 4-40
40016	1	nut, hex, 1/2"
41000	22	screw, No. 6-32 x 1/4"
41007	1	screw, No. 6-32 x 3/4"
41016	8	screw, No. 4-40 x 1/4"
41035	11	screw, No. 6 self-tapping
41045	4	screw, No. 6 self-tapping, brown
41086	8	screw, No. 6-32 x 5/16
41089	6	screw, No. 6-32 x 3/16, round head
41090	2	screw, No. 4-40 x 5/16
42000	3	washer, lock, 3/8"
42001	3	washer, flat, 3/8"
42002	28	washer, lock, No. 6
42003	2	washer, flat fibre, No. 6
42007	10	washer, lock, No. 4
42029	1	washer, rubber, 1/2"
42505	2	pin, cotter
43000	4	lug, ground, No. 6
45002	2	standoff, shoulder, 3/16"
46006	2	lug, ground, No. 4

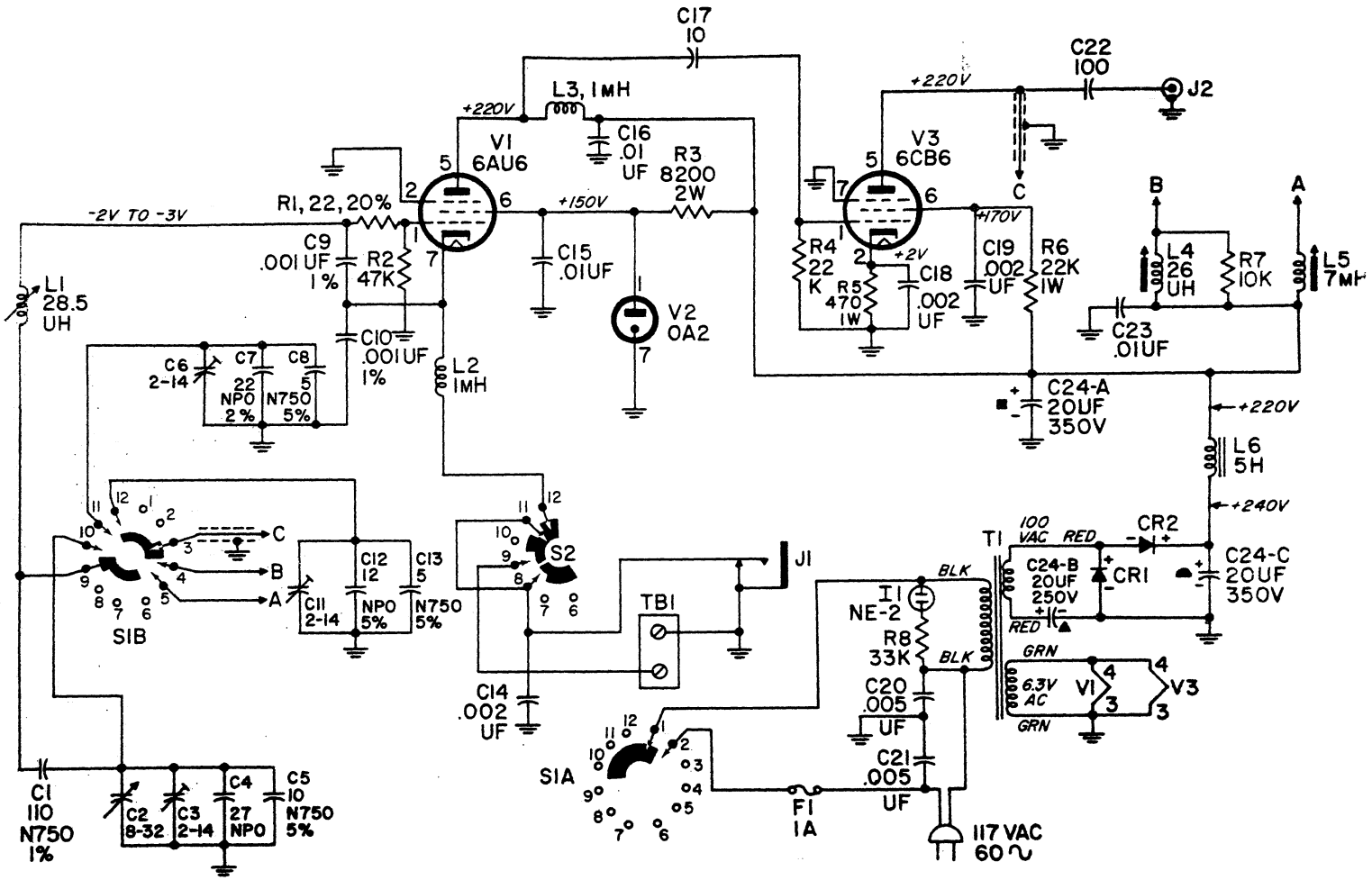
SHEET METAL

80101	1	panel, control (nomenclature)
81263	1	chassis
81264	1	dial pan (scale plate)
81265	1	shield, cover
81266	1	shield
81267	1	bracket, left
81268	1	bracket, right
81918	1	bracket, capacitor
81919	1	bracket, switch
86003	1	frame
88085	1	cabinet

RESISTORS

R1	10000	1	resistor, 22Ω, 1/2W, 10% (red, red, black, silver)
R2	10428	1	resistor, 47KΩ, 1/2W, 10% (yellow, violet, orange, silver)
R3	10953	1	resistor, 8200Ω, 2W, 10% (grey, red, red, silver)
R4	10424	1	resistor, 22KΩ, 1/2W, 10% (red, red, orange, silver)
R5	10861	1	resistor, 470Ω, 1W, 10% (yellow, violet, brown, silver)
R6	10851	1	resistor, 22KΩ, 1W, 10% (red, red, orange, silver)
R7	10400	1	resistor, 10KΩ, 1/2W, 10% (brown, black, orange, silver)
R8	10426	1	resistor, 33KΩ, 1/2W, 10% (orange, orange, orange, silver)

Figure 4 - 2. Schematic Diagram for Model 722



NOTES

1. All resistors are in ohms, 1/2W, 10%, unless otherwise specified.
2. All capacitors are in uuf, 10%, unless otherwise specified.
3. M = Megohms (1, 000, 000), K = Kilohms (1, 000)
4. "BAND" switch S1 shown in "OFF" Extreme counter-clockwise position.
5. "MODE" switch S2 shown in "SPOT" position.

VOLTAGE MEASUREMENT INSTRUCTIONS

Voltages Measured to Ground with VTVM When:

1. FUNCTION switch is in "SPOT" position.
2. BAND switch in 80M position.
3. VFO tuned to 3.5Mc.

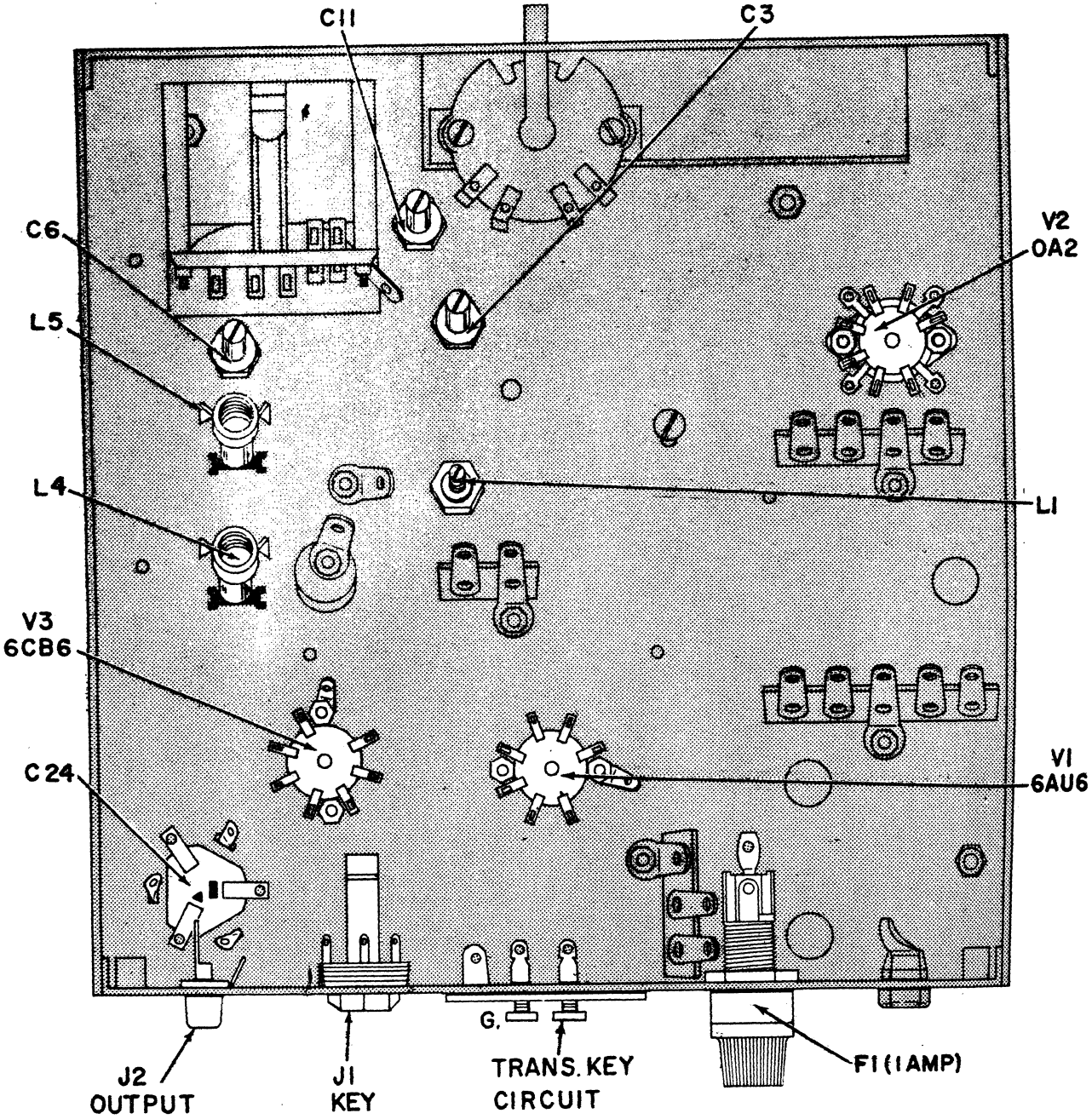


Figure 4-3 Bottom Chassis Layout