GONSET

INSTRUCTION MANUAL
COMMUNICATOR VFO

MODEL 3357

ALIGNMENT

OSCILLATOR RANGES:
Fundamental Ranges:

6 Meters - 8.333 to 9.000 mc.
2 Meters - 8.000 to 8.222 mc.
220 mc - 8.148 to 8.333 mc.

The output of the VFO is the third harmonic in the range of 24 to 27 mc.

SET OSCILLATOR RANGES:

A. Set dial pointer at 50 mc and adjust C22 (nearest center of chassis) for output at that frequency.

B. Set dial pointer at 144 mc and adjust C19 (nearest rear of chassis).

C. Set dial pointer at 220 mc and adjust C17 (nearest front of chassis).

TO ADJUST T1 AND OUTPUT TANK:

Set the OFF-OPERATE switch to OPERATE. Adjust top slug of T1 for maximum output at 53 mc.
Adjust bottom slug of T1 for maximum output at 146 mc.
Adjust L2 (output tank) for maximum at 50 mc.

INSTALLATION AND OPERATION

GONSET COMMUNICATOR IV

Insert the RF output plug P1 into any one of the crystal sockets of the Communicator. The pin connected to the cable shield must be in the top crystal socket hole. Turn the crystal switch to proper position.
Insert shorted jumper plug P3 into J1. Insert plug on one end of cable supplied VFO into J2. Insert the plug on the other end of this cable into jack marked "VFO" on the rear of the Communicator. Plug the power cord into any 120 vac outlet.

To operate, turn the VFO OFF-STBY-OPERATE switch to OPERATE position for all functions. (STBY is not used at all). Operate is the same as with crystals; the SPOT switch on the Communicator front panel is used for spotting.

GONSET GC-105 COMMUNICATOR

Operation of the VFO with the GC-105 Communicator is identical to operation with the Communicator III.

GONSET COMMUNICATOR III

Insert the RF output plug P1 into any one of the crystal sockets of the Communicator. The pin connected to the cable shield must be in the left hand crystal socket hole as viewed from the front of the unit. Turn the crystal switch to the corresponding position. Insert shorted jumper plug P3 into J2. Insert plug on one end of cable supplied with VFO into J1. Insert the plug on the other end of this cable into jack marked "VFO" on the rear of the Communicator. Plug the power cord into any 120 vac outlet.
To operate, turn the OFF-STBY-OPERATE switch to STBY and allow approximately 2 minutes for the VFO to warm-up. Turn the 6M-2M-220 switch to desired band. Set the tuning dial for the desired output frequency. Turn the COMMUNICATOR-TRANSMIT-RECEIVER switch to TRANSMIT (or depress the mike push-to-talk button) and tune and load the Communicator in the normal manner. To spot the VFO frequency while receiving, turn the OFF-STBY-OPERATE switch to OPERATE. The VFO signal will 'kick' the meter as the receiver is tuned through the proper VFO harmonic, in the same manner as with crystal control of the transmitter. The meter switch on the Communicator need not be switched to the SPOT position, although with this switch in SPOT position, the signal from the VFO will be considerably stronger.
If a GONSET 3211, 3212 Linear Amplifier is used with the Communicator III, insert the plug on one end of the cable into the jack labeled VFO on the rear of the linear amplifier J4. On the rear of the VFO, insert the shorted jumper plug, P3, into the jack labeled J2. Insert the plug on the other end of the cable into the jack labeled J1.

GONSET COMMUNICATOR II

Insert RF output plug into any one of the crystal sockets of the Communicator. The pin connected to the cable shield must be in the right hand crystal socket hole (Communicator IIA Single Crystal model) or top crystal socket hole (Communicator IIB Four Crystal model) as viewed from the front of the unit. Insert shorted jumper plug P3 into J1. Insert plug on one end of cable supplied with VFO into J2. Insert the plug on the other end of this cable into pin-jack marked V-4PA (adjacent to XTAL-CARBON Slider Switch) on the rear of the Communicator. Plug the power cord into any 120 vac outlet.

To operate, turn the VFO OFF-STBY-OPERATE switch to OPERATE position during warm-up and for normal operation turn the 6M-2M-220 switch to the desired band. Turn the Communicator TRANSMIT-RECEIVE switch to TRANSMIT and tune and load the Communicator in the normal manner. To spot the proper VFO harmonic during a receive period, turn the OFF-STBY-OPERATE switch to STBY position, and tune the receiver and/or VFO until the receiver tuning eye is on the same frequency. In the Communicator II, 6 meter model, the 50 pf (C4) capacitor that is across the variable in the oscillator plate circuit (6CL6) must be removed if the VFO is to function. The tank was tuned to 18 mc. With the 50 pf (C4) capacitor removed, the oscillator plate tunes to 25 mc, which is the output of the VFO.

MODIFICATION OF EARLY COMMUNICATORS

On early production Communicators, the external PA jack (Phono Connector) was so wired that it was connected to the voice coil winding of the output transformer at all times. The "swinger" of section F2 on the T/R switch (the section to which the speaker voice coil pigtail is attached) connects to a dead switch position on "transmit" and is so shown on the early schematics. If the unit is of this type it must be changed as follows:

> Remove the existing wire between J4 and the tie point to which one of the voice coil winding leads is attached. Run a new wire from the phono connector tightly along the back lip of the chassis to the far side, then along the floor of the chassis and up to the previously mentioned unused switch lug on section F2. Unless this lead is kept tightly against the chassis and separated from other audio leads, it is possible that AF feedback may occur with the switch in "transmit" position. This modification does not preclude the use of the Communicator modulator as a PA system, and all units after the first few hundred were wired in this manner so as to facilitate later use with a VFO.

UNITS OTHER THAN GONSET COMMUNICATORS

The VFO can be used with 2 and 6 meter transmitters which satisfy the following conditions:

The VFO output level is equivalent to the output from a 8-9 mc crystal operating on the third overtone, and the VFO output can thus be plugged directly into the crystal socket of oscillator stages using crystals in this range or into any crystal oscillator or low level amplifier stage where the output circuit of the stage is tuned to the VFO output frequency of 24 to 27

There are two separate provisions for muting the VFO during Receiver periods. (Installation with Gonset Communicators, as described previously, provides for muting).

1. The VFO will be muted if a bias voltage between -10 and -80 volts is applied between the center pin of jack and ground during receive periods. The jack is on the rear of the VFO. The muting bias must be removed during transmit periods. If this system is used the jumper plug P3 must be inserted into jack J2.

2. The VFO will be muted when center pin of J2 is ungrounded; the VFO will produce output only when this pin is grounded, closing the cathode circuit of V2. If this system is used, the VFO can be muted by a switch or relay with a pair of normally-open contacts, one wired to the center of J2, the other to the shell of the mating pin-jack.

Operation of the VFO OFF-STBY-OPERATE switch will depend on the type of muting circuit used.

When muting bias is used, with the jumper plug in J2, the VFO will produce output when the OFF-STBY-OPERATE switch is turned to the OPERATE position, as this removes the bias from the grid of V2 by grounding the junction of R5 and R8.

When the cathode of V2 is keyed by the transmit-receiver switch or relay through J2, with the jumper plug in J1, the VFO will function during receive periods with the OFF-STBY-OPERATE switch turned to STBY position, as this grounds the cathode of V2 internally. For normal operation with this type of T/R circuit, the switch must be left in OPERATE position.

NOTES

The VFO oscillator operates continuously (while the unit is on) for added stability. When the VFO is used with Communicator installations where the antenna is connected directly to the coaxial jack on the cabinet, some 'leak-through' of the VFO harmonic may be experienced while receiving, even when V2 is inoperative (muted). If this occurs, place the antenna a few feet from the Communicator cabinet and install an appropriate length of low-impedance coaxial transmission line between the output jack and the antenna.

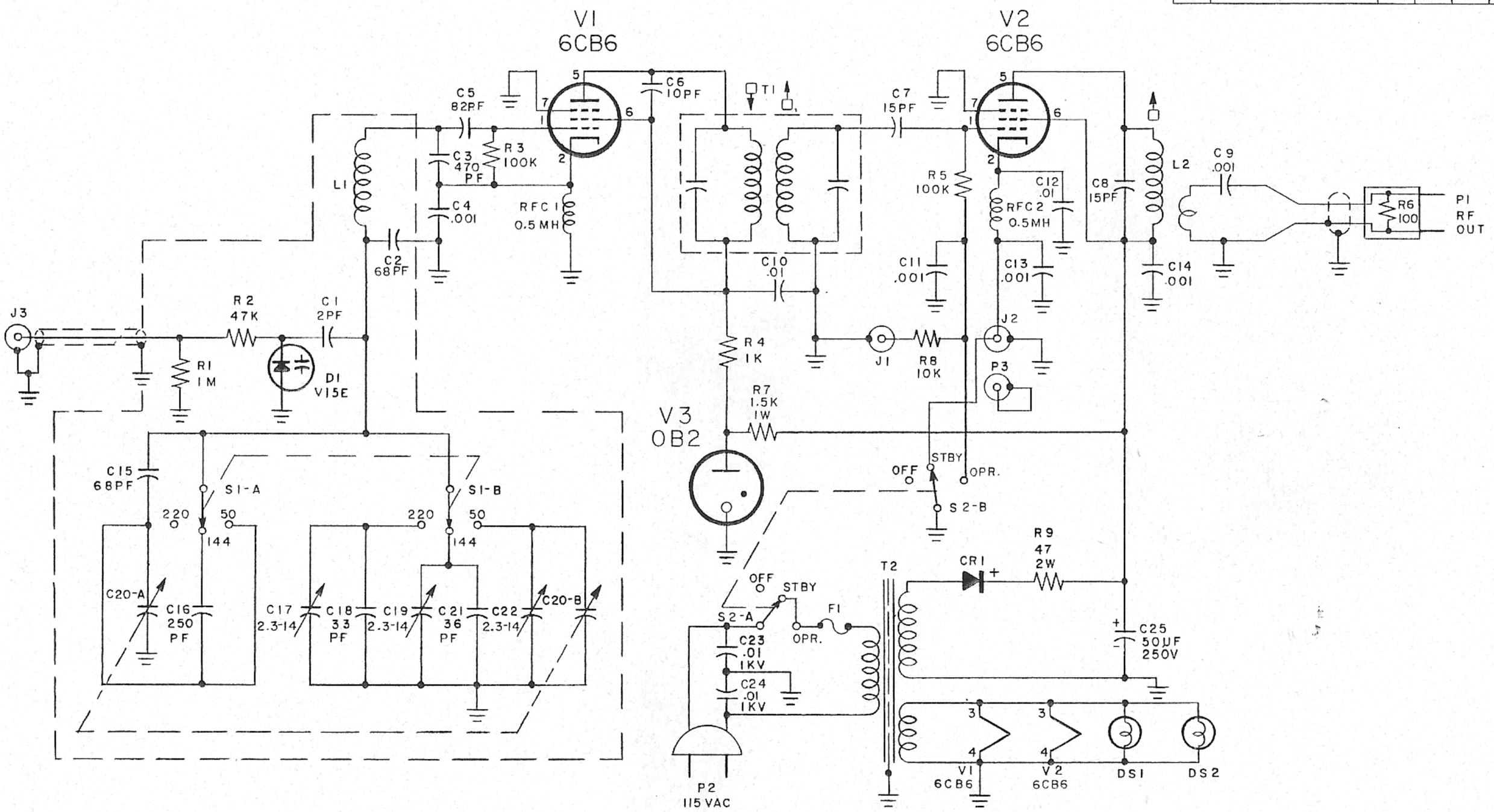
FM OPERATION

J3 on the rear of the VFO, is the input to the FM modulator which is a varicap in the VFO. This type of FM modulation will work direct from a high impedance microphone without a preamplifier. A high output crystal or dynamic microphone can be used. There will be about 10 kc of swing on 144 mc with less on 6 meters and a greater amount on 220 mc. This is controlled by the microphone output, since the VFO has no gain control.

When used on FM, tune the VFO and Communicator III or IV, the same as for AM operation.

There are no provisions for push-to-talk when the microphone is plugged into the VFo for FM operation. The T/R switch on the front of the Communicator must be used. Be sure, if two microphones are used, that both of them are not working at the same time. When on FM turn off the microphone for AM and disconnect the FM microphone when in the AM mode.

REV	DESCRIPTION	DFMN	CHK	APP	DATE
A	SEE E.O.# 1624	DUDA			6-62



Schematic No.	Description	Gonset Part No.
C1	2 pf DM-15 5%	433-020J
C2	68 pf N150 Ceramic Disc	084-051
C3	470 pf Silver Mica 5%	433-471J
C4	1000 pf Silver Mica 5%	433-102J
C5	82 pf Silver Mica 5%	433-820J
C6	10 pf DM-15 5%	433-100J
C7	15 pf DM-15 5%	433-150J
C8	15 pf DM-15 5%	433-150J
C9	.001 µF 600 V Ceramic Disc	374-102P
C10	.01 µF 600 V Ceramic Disc	374-103P
C11	.001 µF 600 V Ceramic Disc	374-102P
C12	.01 µF 600 V Ceramic Disc	374-103P
C13	.001 µF 600 V Ceramic Disc	374-102P
C14	.001 µF 600 V Ceramic Disc	374-102P
C15	68 pf NPO Ceramic Disc	084-229
C16	250 pf DM-15 Silver Mica 5%	433-251J
C17	2.3-14 pf Trimmer Capacitor	075-015
C18	33 pf DM-15 Silver Mica 5%	433-330J
C19	2.3-14 pf Trimmer Capacitor	075-015
C20A,B	Dual Section Variable Cap.	074-020
C21	36 pf DM-15 Silver Mica 5%	433-360J
C22	2.3-14 pf Trimmer Capacitor	075-015
C23	.01 1 KV Ceramic Disc	391-103P

Schematic No.	Description	Gonset Part No.
C24	.01 1 KV Ceramic Disc	391-103P
C25	50 µF @ 250 WVDC Electrolytic	073-007
CR1	Diode Rect. 400 PVI @ 500 Ma.	474-023
D1	Silicon Diode V15E	475-016
DS1	Dial Lamp #47	471-001
DS2	Dial Lamp #47	471-001
F1	Fuse, 2 A Type 3AG	482-001
J1	Connector Receptacle	344-005
J2	Connector Receptacle	344-005
J3	Connector Receptacle	344-005
L1	Oscillator Tuning Coil	012-053
L2	Output Tank Circuit Coil	012-052
P1	Output Cable Assy. W/Xtal Holder	678-019
P2	AC Line Cord W/Plug	696-001
P3	Connector Plug	344-017
R1	1 Meg. Comp. 1/2 Watt 10%	042-105
R2	47 KΩ Comp. 1/2 Watt 10%	042-473
R3	100 KΩ Comp. 1/2 Watt 10%	042-104
R4	1 KΩ Comp. 1/2 Watt 10%	042-102
R5	100 KΩ Comp. 1/2 Watt 10%	042-104
R6	100 Ω Comp. 1/2 Watt 10%	042-101
R7	1500 Ω Comp. 1 Watt 10%	043-152

Schematic No.	Description	Gonset Part No.
R8	10 KΩ Comp. 1/2 Watt 10%	042-103
R9	47 Ω Comp. 2 Watt 10%	044-470
RFC1	500 µH Choke	027-094
RFC2	500 µH Choke	027-094
S1A,B	DPTT Wafer Switch	171-020
S2A,B	DPTT Wafer Switch	171-020
T1	Interstage Transformer	014-020
T2	Power Transformer	271-005
V1	Electron Tube 6CB6	472-040
V2	Electron Tube 6CB6	472-040
V3	Electron Tube 0B2	472-032

No. Reqd.	Misc. Component	Gonset Part No.
2	Knob, Large W/Index	211-081
1	Knob	211-076
1	Case Weldment	465-105
1	Front Cover, Screened	505-319

DRAWN	MARTINI	5-11-61
CHECKED	WLM	5-18-61
DES. APPR.	[illegible]	5-18-61
PROJ. APPR.	[illegible]	5-18-61
PROJECT	274	
MODEL	3357	

SCHEMATIC VFO
6M, 2M, 220 MC
510-091

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