326-1 CONVERTOR UNIT

Basically this unit is an oscillator, mixer, buffer, and key device. It will accept an input frequency from a signal generator, VFO, or other source, and convert it to some desireable frequency.

The built in electronic keying circuit lends itself to transmitting and duplex operations. Keying circuit only requires a control signal of 0.001 Amps to turn the 326-1 on or off.

This unit completely floats above ground allowing it to work with any polarity equipment. Power source may be either A.C. or D.C. since this unit contains it's own rectifier and filter system which is Zener regulated.

APPLICATIONS

TRANSMITTER USING FUNDAMENTAL CRYSTALS

If a VFO is used for this application, it will radiate a weak carrier into the receiver and cause a heterodyne. To eliminate this problem, the VFO can be set to a frequency that does not interfere with the receiver and then converted to the proper transmit frequency only when the transmitter is keyed up.

INCREASING STABILITY OF A VFO AT HIGHER FREQUENCIES

All VFO's drift, and as the frequency goes higher (past 18 MHZ) drift is even more pronounced. A VFO can be used at a lower more stable frequency, and be converted to a higher frequency.

REVERSING OPERATION OF A VFO

Some equipment uses a built in VFO that operates in reverse. That is, as the VFO frequency is increased, the receiver or transmit frequency decreases. The 326-1 can reverse the operation of an external conventional VFO to make it compatable with equipment it is connected to.

SPECIFICATIONS

Input impedance-------270 or 2500OHMS
Output impedance------270 OHMS
Required RF input-----0.5 volts RMS
RF Output------------6 volts P. P.
Input voltage----------9 to 16 volts DC or 6 to 12 volts AC
Current requirements--.05 Amps @ 16 volts DC, or 6 volts AC
.14 Amps @ 16 volts DC, or 12 volts AC
Mixing frequency------10 MHZ unless specified otherwise
Tuned Amplifier-------10 Meters unless specified otherwise
Band width------------1 MHZ
Dimensions-----------1 1/4" x 1 7/8" x 4"

INSTALLATION OF 326-1 CONVERTOR UNIT

High frequencies are involved, and all wiring must be as short and direct as possible.

The 326-1 must be mounted not more than 8 inches from where it is to be used. This is due to the losses in the coax cable from the output of the 326-1 to the circuit it is to be connected to.

In addition it should be mounted as far as possible from hot tubes, or RF power sources that can cause feed back.

Number 22 gauge insulated wire should be used for all connections except to terminals A and F. These should have coax cable exclusively.

All wires should be stripped back 1/8 inch and tinned prior to soldering it in. Use a 25 watt pencil type iron, and keep tip clean with a wet spounge. Rosin core solder only should be used.

Notice the 326-1 plugs into a dual 6 pin edge connector. The side of board with parts mounted has the plug end numbered 1 to 6. The opposite, or foil side is lettered A to F. The bottom of the edge connector has matching lettering and numbers. Maintain this orientation when pluging the 326-1 into the edge connector socket. See Fig. #1.

Edge connector socket should be mounted vertically on the two metal standoffs, see Fig. #2.

Drill 2 holes 1 1/2 inches apart with a 1/8 inch drill. Mount the 2 metal standoffs using 4-40 screws 1/4 inch long. Secure the edge connector on top of the standoffs using 4-40 screws 3/8 inch long.

Make sure that adjacent parts or hardware will not touch any part of the 326-1.

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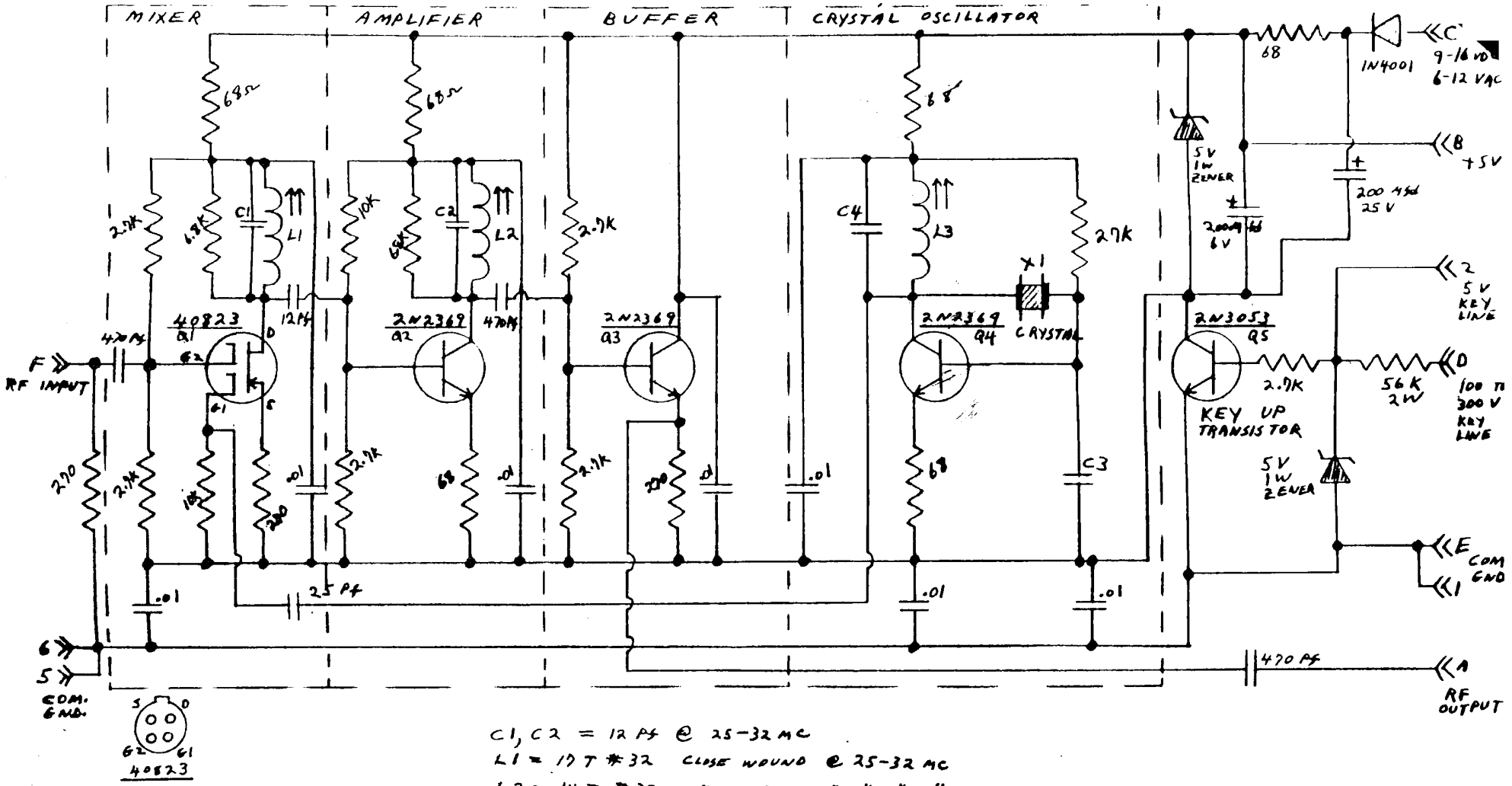
326-1 CONVERTER



C1, C2 = 12 Pf @ 25-32 MC
L1 = 19 T #32 CLOSE WOUND @ 25-32 MC
L2 = 14 T #32 " " " " " "
L3 = 220Ω RESISTOR @ 2-32 MC
C3, C4 = 47 Pf @ 2-15 MC CRYSTAL

X1 = TYPICALY 10 MC
= (OUTPUT FREQ - INPUT FREQ)

VFO = (OUTPUT FREQ - XTAL FREQ)

3266 VFO PRESETS = FREQ.

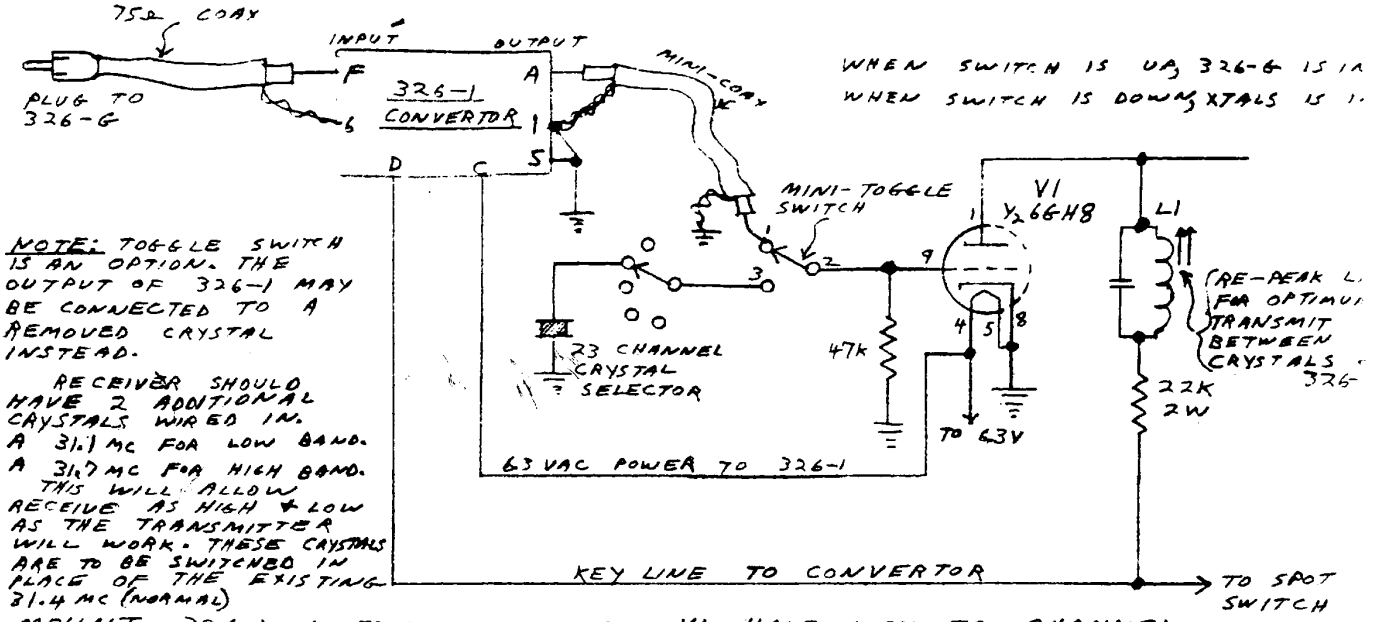
L1, L2, L3 IS WOUND ON CAMBION COIL FORM 3104-6

ALL RESISTORS ¼W 5% UNLESS STATED OTHERWISE

ALL CONDENSORS IN Mfd @ 16 VDC UNLESS STATED OTHERWISE

PROGRAM FOR 326-G

DISPLAY — MC
MULTIPLIER — X1
PRESET — 10.000
FREQ. SET — 18.000 MC



NOTE: TOGGLE SWITCH IS AN OPTION. THE OUTPUT OF 326-1 MAY BE CONNECTED TO A REMOVED CRYSTAL INSTEAD.

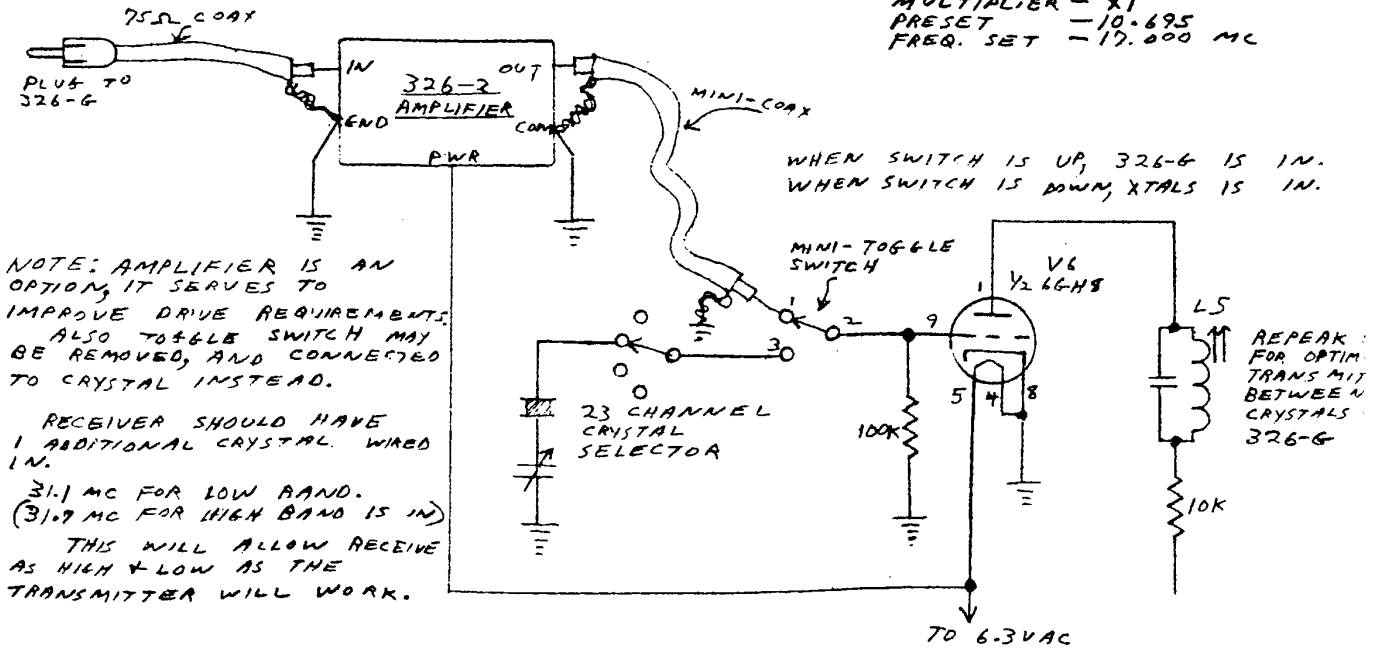
RECEIVER SHOULD HAVE 2 ADDITIONAL CRYSTALS WIRED IN. A 31.1 MC FOR LOW BAND. A 31.9 MC FOR HIGH BAND. THIS WILL ALLOW RECEIVE AS HIGH & LOW AS THE TRANSMITTER WILL WORK. THESE CRYSTALS ARE TO BE SWITCHED IN PLACE OF THE EXISTING 31.4 MC (NORMAL)

MOUNT 326-1 IN FRONT OF TUBE V1 HALF WAY TO CHANNEL SELECTOR SWITCH. MOUNT TOGGLE SWITCH NEXT TO MICROPHONE CONNECTOR. ADD WIRES TO 326-1 AS SHOWN.

HOOK UP FOR GOLDEN EAGLE, MARK II

PROGRAM FOR 326-G

DISPLAY — MC
MULTIPLIER — X1
PRESET — 10.695
FREQ. SET — 17.000 MC



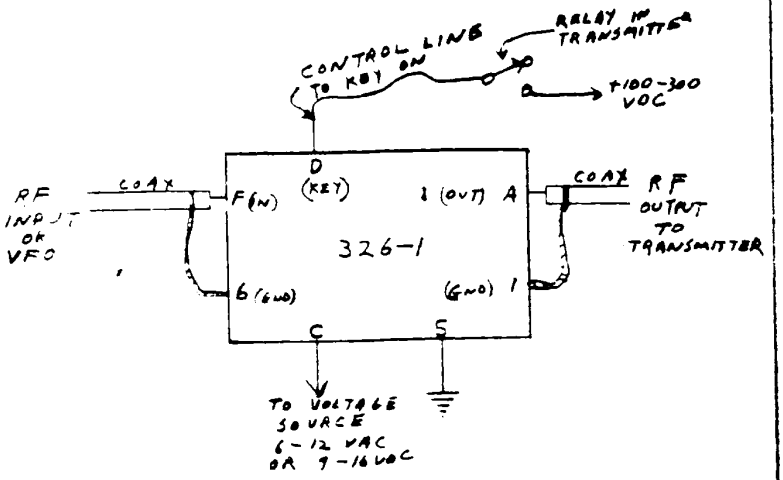
NOTE: AMPLIFIER IS AN OPTION, IT SERVES TO IMPROVE DRIVE REQUIREMENTS. ALSO TOGGLE SWITCH MAY BE REMOVED, AND CONNECTED TO CRYSTAL INSTEAD.

RECEIVER SHOULD HAVE 1 ADDITIONAL CRYSTAL WIRED IN.

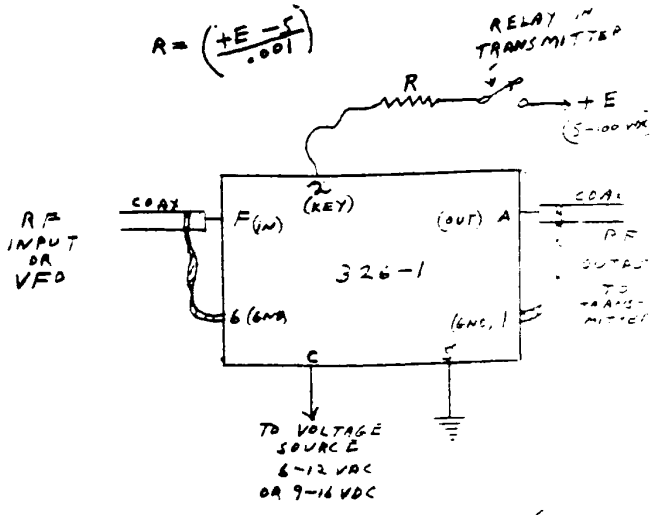
31.1 MC FOR LOW BAND. (31.9 MC FOR HIGH BAND IS IN)

THIS WILL ALLOW RECEIVE AS HIGH & LOW AS THE TRANSMITTER WILL WORK.

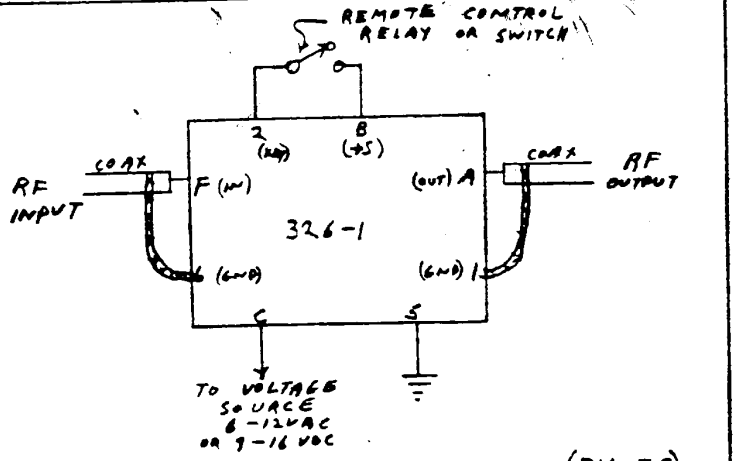
MOUNT 326-2 IN FRONT OF TUBE V6 ON LEFT OF CHANNEL SELECTOR SWITCH (SOLDER TO CHASSIS). MOUNT TOGGLE SWITCH NEXT TO MICROPHONE CONNECTOR. ADD WIRES TO 326-2 AS SHOWN.



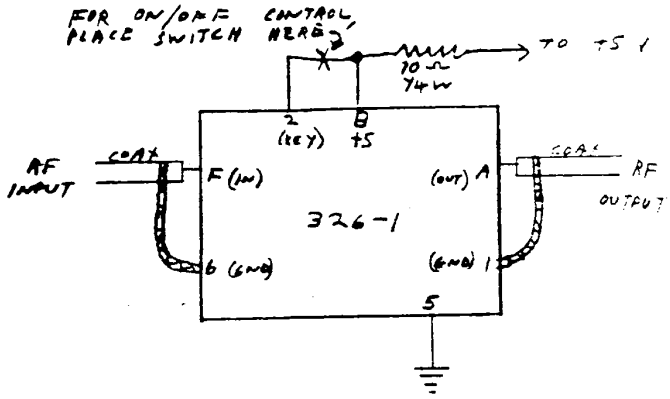
TYPICAL INSTALLATION FOR 100-300 VDC TRANSMITTER CONTROL ONLY (FIG # A)



TYPICAL INSTALLATION FOR 5-100 VDC TRANSMITTER CONTROL ONLY (FIG # B)



TYPICAL INSTALLATION FOR REMOTE CONTROL (FIG # C)

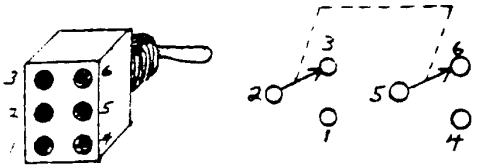


TYPICAL INSTALLATION FOR CONTINUOS CONTROL FOR TTL (FIG # D)

BOTTOM VIEW OF 7 PIN TUBE SOCKET

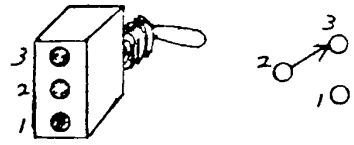
BOTTOM VIEW OF 9 PIN TUBE SOCKET

FIG # 4 PIN IDENTIFICATION OF TUBE SOCKETS



DPDT (DOUBLE POLE DOUBLE THROW) MINI-TOGGLE SWITCH TERMINAL CONFIGURATION

WHEN SWITCH IS DOWN (NORMAL), TERMINAL 3 IS CONNECTED TO TERMINAL 2 AND TERMINAL 6 IS CONNECTED TO TERMINAL 5. WHEN SWITCH IS UP, TERMINAL 1 IS CONNECTED TO TERMINAL 2 AND TERMINAL 4 IS CONNECTED TO TERMINAL 5



SPDT (SINGLE POLE DOUBLE THROW) MINI-TOGGLE SWITCH TERMINAL CONFIGURATION

WHEN SWITCH IS DOWN (NORMAL) TERMINAL 3 IS CONNECTED TO TERMINAL 2. WHEN SWITCH IS UP, TERMINAL 1 IS CONNECTED TO TERMINAL 2.

FIG # 5 MINI-TOGGLE SWITCH CONFIGURATION