ME-3 MICROMINIATURE TONE ENCODER

CRYSTAL MODULATOR CIRCUIT

TONE OUT

OSC

+ V

GROUND

NEGATIVE GROUND HOOK-UP

POSITIVE GROUND HOOK-UP

BAND CHANGE VALUES

<table>
<thead>
<tr>
<th>Frequency Range</th>
<th>67.0-131.8Hz</th>
<th>136.5-203.5Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>.01uf</td>
<td>.01uf</td>
</tr>
<tr>
<td>C3</td>
<td>NONE</td>
<td>NONE-56pf</td>
</tr>
<tr>
<td>R1</td>
<td>IN</td>
<td>OUT</td>
</tr>
<tr>
<td>R2</td>
<td>OUT</td>
<td>IN</td>
</tr>
</tbody>
</table>

SCHEMATIC DIAGRAM

VIEW FROM COMPONENT SIDE BOARD

POWER HOOK-UP

The voltage to the encoder must be keyed with the transmitter in most mobile units. This is because the encoder operates in the fundamental mode around the IF frequencies of some receivers. If keying voltage is not available, an RF choke of 100h to 1000h may be placed in series with the voltage supply to the encoder to eliminate the problem. Use the above diagram to apply correct polarity to the unit. If the polarity is reversed, the unit will not operate but it will NOT be damaged. If it is necessary to operate the encoder off supplies greater than 5.4vdc, use the following formula to determine the correct series dropping resistor value:

Supply voltage - 12v divided by .05v. If 5.4vdc is used, a 220 ohm 1/4w resistor in series with the supply feed and the encoder will bypass this point to the negative supply for voltage. For base operation in tube-type units, the -20v bias supply will provide adequate voltage with a 1k series dropping resistor.

TONE OUTPUT

Tone may be added to most transmitters directly to the center of the mod pot or directly to the modulator grid or base in a transistorized transmitter. Note that a 10k series resistor is provided internally in the encoder so no other series resistance should be needed. If more tone level is required, either the input voltage may be raised or this resistor may be jumped across. Some older tube-type transmitters accept sub-audible tone more readily if injected with a crystal modulator circuit as shown above. Various values of coupling capacitance are shown for the different frequency ranges of the transmitter. The VARICAP (or transistor base to collector junction with the emitter cut off) changes ac voltage into changing capacitance which truly FM modulates the transmitter. No intermodulation of distortion of the voice will be noted with this method.

GENERAL

Be sure to solder the eyeslets to the foil on the PCB. If it is necessary to change tone frequency outside the band the unit was shipped on, see the list above for the proper band change parts values. Also note that C3 should be cut out (if it is present) anytime tone frequency is changed in the field. Any K-1 elements shipped for field replacement will NOT require C1. Band change parts may be ordered from the parts list for field changes in frequency. The entire encoder may be returned to the factory for a $7.00 charge which includes band parts change, new K-1 element, and return Air Mail postage. All encoders will be processed and shipped the same day received.

Price with K-1 element is $29.95. Extra K-1 elements are $3.00ea. Your PREPAID order will be sent POSTPAID by AIR MAIL or UPS the same day it is received. California residents supply reseller number or remit 6% sales tax.

Send check or money order to: COMMUNICATIONS SPECIALISTS PO BOX 193 BREA, CALIF. 92621

(714) 998-3021

When ordering parts only, please remit an additional 75c to cover postage.