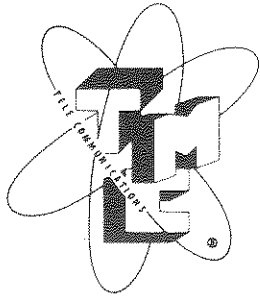


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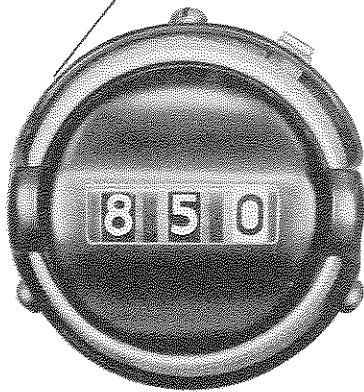
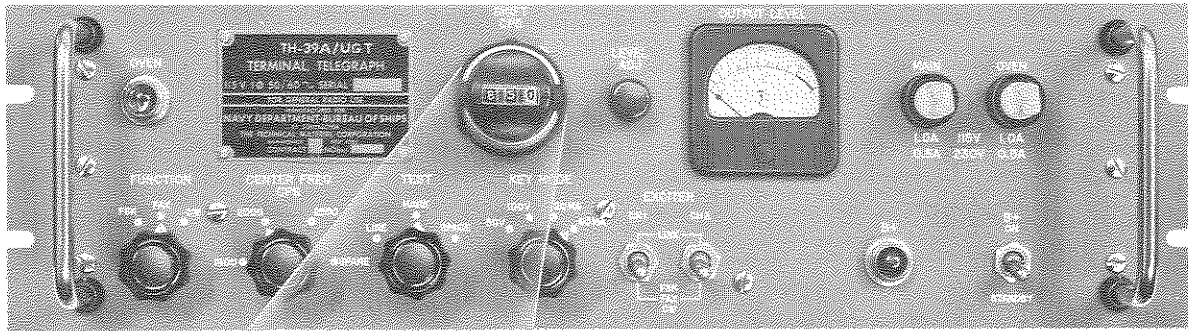
## SALES SERVICE BULLETIN NUMBER 245A

Tone Intelligence Unit  
Model TIS-3 (TH-39A/UGT)



Featuring:

ADJUSTABLE FREQUENCY SHIFT DIRECT READING IN CYCLES



- HIGH STABILITY, MULTI - PURPOSE AUDIO TONE KEYER
- TRUE FREQUENCY SHIFT BY MEANS OF 200 KC OVEN CONTROLLED OSCILLATOR WITH REACTANCE CONTROL
- VARIABLE FREQUENCY SHIFT, 12 TO 1000 CYCLES
- SELECTABLE CENTER FREQUENCIES FOR FOLLOWING OPERATION:
  - A. 1,900 cps INTERNATIONAL STANDARD FOR FAX TRANSMISSIONS
  - B. 2,000 cps PROVIDES COMPATIBILITY FOR TRANSMITTERS AND RECEIVERS LIMITED TO TUNING IN 1 KC STEPS
  - C. 2,550 cps STANDARD FREQUENCY WIDELY USED FOR 850 CPS SHIFT
  - D. OPTIONAL TO BE CUSTOMER SELECTED
- VOLTAGE OR CURRENT INPUTS
- COMPLETE COMPATIBILITY WITH CURRENT FSK SYSTEMS
- 1,000 cps CW CHANNEL (OTHERS AVAILABLE AT CUSTOMERS REQUEST)

The TMC Model TIS-3 is a multi-purpose Audio Tone Keyer which will provide CW, FSK or FAX modes of operation when used with a SSB transmitter, telephone lines or microwave links.

The TIS-3 was designed to provide maximum flexibility in a single piece of terminal equipment. FSK and FAX operation are compatible with both conventional and the newer SSB systems.

The frequency shift is a true FM system utilizing reactance control of a 200 kc oscillator in order to obtain clean, transient-free keying.

A precisely calibrated, direct reading counter type dial presents fast, simple and accurate adjustment of the desired frequency shift from 12 to 1000 cycles. When used in the FAX mode, shift up to 1200 cycles can be obtained.

A front panel switch allows the selection of four discreet center frequencies to provide compatibility with the following types of operation.

1. 1,900 cps International standard for FAX transmissions.
2. 2,000 cps For use with transmitters and receivers limited to tuning in 1 kc steps.
3. 2,550 cps Standard center frequency used for 850 cps shift.
4. Optional Any practicable frequency may be selected by the customer by simply installing the appropriate crystal and adjusting a trimmer, in accordance with the instructions provided. This can be performed at the factory if so specified at the time of ordering.

An audio CW channel fixed at 1000 cycles is also provided.

Additional features include front panel selection of MARK and SPACE test tones and output level adjustment and metered monitoring.

Voltage or current keying loops can be accommodated by the four position KEY MODE switch. Standard values of 50 volts, 100 volts, 20 ma and 60 ma are provided. Temperature controlled crystal and oscillator components offer exceptionally high stability with a minimum of warm-up time.

### TECHNICAL SPECIFICATIONS:

KEYING SPEEDS:	Up to 100 wpm FS; Up to 250 wpm CW.						
KEYING INPUTS:	<ol style="list-style-type: none"> <li>1. 50 v, 100 v, 20 ma, 60 ma. All neutral, floating, or either side grounded.</li> <li>2. 0/20 volts positive for a linear shift of 1000 cycles (FAX)</li> </ol>						
SHIFT:	12 cycles to 1000 cycles continuously adjustable.						
AUDIO CENTER FREQUENCIES:	<ol style="list-style-type: none"> <li>1. 2550 cps</li> <li>2. 2000 cps</li> <li>3. 1900 cps</li> <li>4. Spare (For customer selected center frequency)</li> </ol>						
CW TONE FREQUENCY:	1000 cps						
FREQUENCY STABILITY:	Better than .5% for: <ol style="list-style-type: none"> <li>1. 0-50° C. ambient temperature change.</li> <li>2. ± 10% line voltage variation</li> <li>3. 0 to 95% relative humidity</li> </ol>						
OUTPUT LEVEL:	Continuously adjustable to 0 dbm						
CRYSTAL TYPE: CR-47/U	for: 1900 cps C.F. use CR-47/U-0.198100-P for: 2000 cps C.F. use CR-47/U-0.198000-P for: 2550 cps C.F. use CR-47/U-0.197450-P 4th position order CR-47/U and state desired center frequency.						
OVEN TEMPERATURE:	70° C						
POWER INPUT:	105/115/125/210/230 volts; 50-60 cps; Single Phase, 100 watts continuous; 170 watts intermittent (oven cycling).						
OUTPUT IMPEDANCE:	600 ohms balanced						
AUDIO OUTPUT LEVEL:	Continuously variable from no output to a maximum of 0 dbm.						
INPUT IMPEDANCE TO KEYING LINE:	60 ma position 1000 ohms 20 ma position 2200 ohms 50 v position 47,000 ohms 100 v position 100,000 ohms						
TUBE COMPLEMENT:	<table border="0" style="width: 100%;"> <tr> <td>2 ea. OA2</td> <td>1 ea. 6J6</td> </tr> <tr> <td>1 ea. 6AB4</td> <td>4 ea. 12AU7</td> </tr> <tr> <td>1 ea. 6AG5</td> <td>1 ea. 5963</td> </tr> </table>	2 ea. OA2	1 ea. 6J6	1 ea. 6AB4	4 ea. 12AU7	1 ea. 6AG5	1 ea. 5963
2 ea. OA2	1 ea. 6J6						
1 ea. 6AB4	4 ea. 12AU7						
1 ea. 6AG5	1 ea. 5963						

FRONT PANEL  
CONTROLS:

CONTROL

FUNCTION

B+ ON/STANDBY \* Controls B+ Power.

EXCITER Permits selection of inputs.

KEY MODE Permits selection of keying inputs.

TEST a. Activates connections to keying lines  
b. Activates continuous MARK tone.  
c. Activates continuous SPACE tone.

CENTER FREQUENCY Allows selection of one of four center frequencies

FUNCTION Allows selection of FSK, FAX or CW mode of operation

SHIFT CPS Permits extremely accurate selection of shift frequency

LEVEL ADJ Adjusts output level

FRONT PANEL  
INDICATORS:

OUTPUT LEVEL METER Indicates output level in db's and %

MAIN fuse Main power fuse

OVEN fuse Oven fuse

B+ B+ power indicator

OVEN IND. Visual indication of oven cycling.

REAR PANEL  
FACILITIES:

LINE 1 Audio Input

LINE 2 Audio Input

CHAN 1 Audio output

CHAN 2 Audio output

FAX G FAX keying input

FAX G Audio input for narrow band FM

C3 Center Frequency Adjust

SIZE:

5-1/4 x 19 x 14 inches

WEIGHT:

38 lbs.

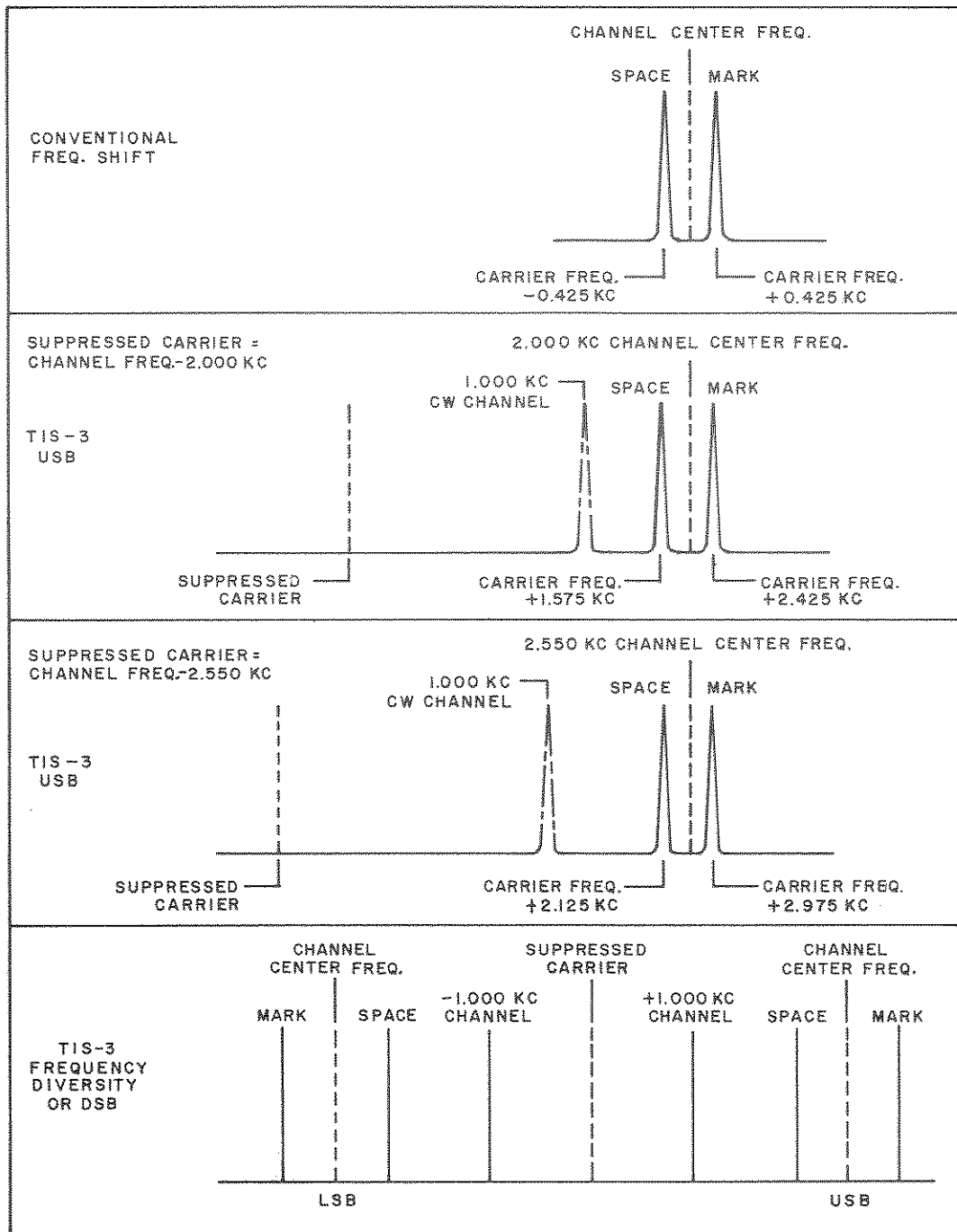
SHIPPING  
INFORMATION:

Case Packed 50 lbs.  
8 x 21 x 21 inches

COMPONENTS AND  
CONSTRUCTION:

All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.

\* Filaments and oven heaters are ON when power is applied to the unit.

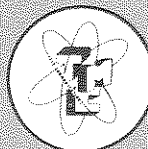


# THE TECHNICAL MATERIEL CORPORATION

700 FENIMORE ROAD

MAMARONECK, NEW YORK

CABLE  
TEPEI  
MAMARONECK, N.Y.



COMMUNICATION ENGINEERS

IN CANADA:  
TMC (CANADA) LTD.  
OTTAWA, ONTARIO