

TMC Model TTS-3-16
AN/FGC-60(V)
Tone Telegraph System

The TMC Tone Telegraph System Model TTS-3-16 (AN/FGC-60V) is a completely transistorized telegraph and data transmission system, providing 16 individual send and receive teletypewriter channels at speeds up to 75 bauds (approx. 100 WPM), in either the national or CCITT international standard channel spacing.

Frequency, space or polarization diversity reception facilities are provided with diode selection of the best of two tone channels to minimize transient signals.

The equipment is housed in standard 19" relay racks with 8 send and 8 diversity receiving combinations in each cabinet.

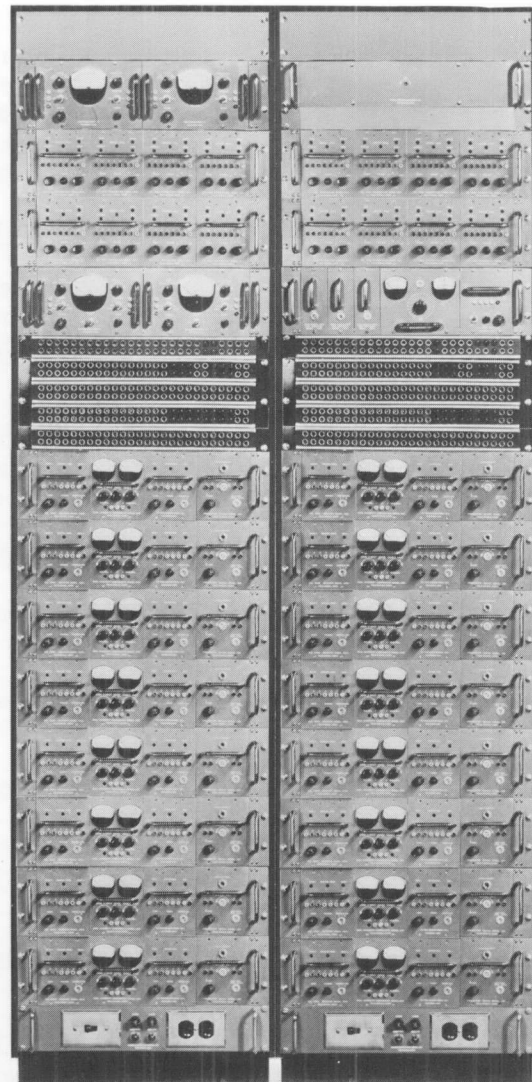
TMC Model TTS-3-16 accepts teletypewriter or data signals, either polar or neutral, transforms these signals into audio frequency shifted tones, combines these tones and prepares them for transmission in the voice frequency band of a suitable medium such as a sideband transmitter. The receive terminal accepts the aggregate tones from a suitable receiver, separates the individual frequency shifted tones and transforms them into DC signals for keying the receive teletypewriter machines or data equipment.

Voice frequency multiplexers and demultiplexers, TMC Models TMX-1 (TD-410/UGC) and RMX-1 (TD-411/UGC), are incorporated in the diversity system to make possible 16 channels of teletype plus one channel of voice on a 6 kc band of a sideband transmitter.

The Model TTS-3-16 features complete transistorization with protection against total system failure by use of individual power supplies in the tone transmitters and receivers. Internal or external battery operation of the receive teleprinter loops is available on the receive side.

Model TTS-3-16 incorporates line amplifiers for raising the level of aggregate tone signals, signal monitor units for monitoring both DC and audio intelligence units, DC and audio distribution panel, power distribution panel and control of DC and audio signals by means of normal through patch panel facilities.

Accessibility to all major test points and all adjustments in this system are accomplished from the front of the equipment.



TECHNICAL SPECIFICATIONS for TTS-3-16 (AN/FGC-60 (V))

TRANSMITTING SECTION

AUDIO OUTPUT:	Minus 10 dbm per channel. Aggregate tone level controlled by line attenuator. With line amplifier, maximum tone level is plus 10 dbm.
AUDIO OUTPUT IMPEDANCE:	600 ohms, balanced.
MARK/SPACE TONE UNBALANCE:	1.5 db maximum.
MARK/SPACE TONE FREQUENCY STABILITY:	Plus or minus 3 cps for plus or minus 10% line voltage variation or plus or minus 25°C temperature variation from 25°C.
INPUT TELEGRAPH SIGNAL:	<ol style="list-style-type: none">1. Neutral, positive or negative 60 ma or 1 ma.2. Dry contact Keying (1 ma keying current provided by 501A tone transmitter to the contacts).3. Polar Keying direct or inverted, 30 or 1 ma.4. 50 micro-amp keying (with optional attachment).

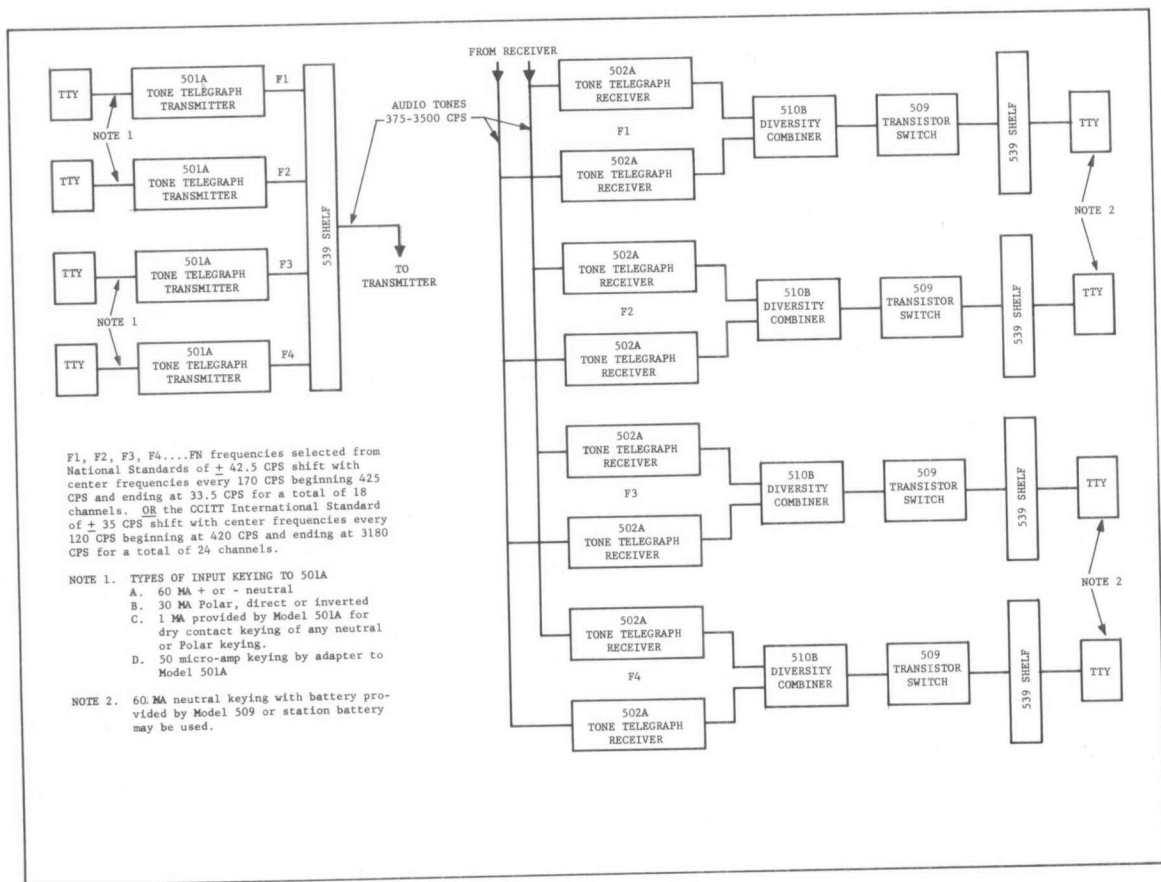
RECEIVING SECTION

AUDIO INPUT LEVEL (for each diversity channel)	Nominal 0 to -10 dbm. Minus 40 dbm min., plus 3 dbm maximum.
DYNAMIC RANGE:	40 db per individual channel signal.
AUDIO INPUT IMPEDANCE: (Aggregate tones)	600 ohms, balanced.
DC SIGNAL OUTPUT:	Neutral 65 ma, maximum into 2,000 ohm load.
INTERNAL KEYING IMPEDANCE:	50 ohm (approximately), floating.
TELEGRAPH BATTERY LOOP:	Internally provided. This battery can be disabled if operation with station battery is desired.
DC LOOP CURRENT ADJUSTMENT:	2.5K ohm, 25 watt potentiometer internally provided.
DIVERSITY SIGNAL SELECTOR:	Power law combination in narrow range, where signal amplitudes are almost equal. Weaker signal is suppressed approximately 30 db when difference between diversity channels exceed 1 db.
DIVERSITY SELECTION SPEED:	Approximately 50 micro-seconds.

OVER-ALL SYSTEM REQUIREMENTS:

POWER REQUIREMENTS:	115/230 volts 50/60 cycles plus or minus 10%, 120 watts (less 509 keyers and convenience outlets) With 60 ma battery provided by the Model 509 keyers, power consumption increases by approximately 350 watts.
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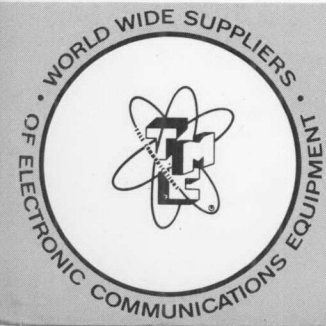
- OPERATING TEMPERATURE:** 0 to 50° C.
- STORAGE TEMPERATURE:** -15 to +65° C.
- PHYSICAL DIMENSIONS:** 2 Equipment cabinets each 84" high, 24" deep, 22" wide.
- INSTALLED WEIGHT:** Approximately 500 lbs. per cabinet.
- SHIPPING WEIGHT (approx)** 1616 lbs. 112.54 cu. ft.
- INSTRUCTION MANUAL:** NAVSHIPS 93841
- FSN:** w/spares w/o spares



TTS-3-16 Block Diagram

Designed and manufactured for the
 Technical Materiel Corporation by the Tele-Signal Corporation

TMC Model TTS-3-16



The TECHNICAL MATERIEL CORPORATION

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