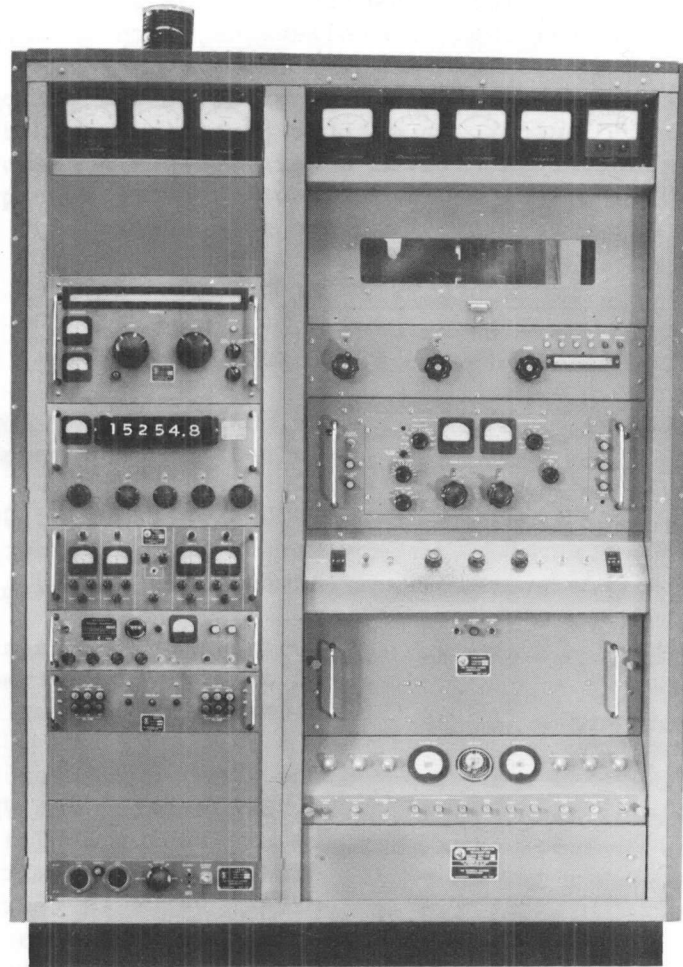




Morgan

TECHNICAL BULLETIN 1802
SYNTHESIZED GENERAL PURPOSE
TRANSMITTER, TMC MODEL TSTD-10K



TMC Model TSTD-10K is a general purpose synthesized transmitter that provides SSB, ISB, AM, AME, CW, FSK, FAX, Pulse and Phase modulation modes of operation in the frequency range of 2 to 30 mc in 100 cycle steps with stability of 1 part in 10^8 per day. The TSTD-10K is equipped with TechniMatic* tuning that permits changes in operating frequency in a matter of seconds.

TechniMatic* remote-control that permits changes in operating frequency and modes in a matter of seconds is available and may be added to the transmitter by field modification.

TechniMatic* tuning of the transmitter's RF stages provides complete tuning, including antenna loading, in a matter of seconds.

Manual override of the tuning controls at the transmitter is a standard feature.

*Trademark applied for

Should low power transmission be required, or for emergency conditions, reduced power is readily available from the IPA section. All amplifier stages are linear. The overall minimum bandwidth of the final linear amplifier is at least 20 kc between 3 db points, over the entire frequency range.

The modular design lends itself to ease of installation, maintenance and repair by features such as: drawers on tilting slides, front panel interlock circuit continuity indicators, blown fuse indicators, and bias and overload protection with audio alarm. The transmitter can be provided with mounts for high environmental shock installations, such as shipboard.

Balanced or unbalanced operation is provided at the option of the customer. For unbalanced output, an adapter plate is provided to attach appropriate RF coaxial fittings, listed under "Options/Accessories". TMC Model TRC-5000-50U/600B, listed under Options/Accessories, required for balanced operation. All necessary items are sold separately.

TECHNICAL SPECIFICATIONS, TMC MODEL TSTD-10K

Frequency Range:	2 to 30 megacycles, bandswitched.
Operation Modes:	AM, SSB, ISB, CW, AME, FSK, FAX Pulse and Phase modulation.
Power Output:	10,000 watts PEP 5,000 watts average. For 15,000 watts output, see "Options/ Accessories".
Output Impedance:	50 or 70 ohms unbalanced. 600 ohms balanced. Pi-L network will match a load with VSWR up to 2:1.
VSWR Protect Circuits:	The final amplifier is provided with a VSWR meter. The VSWR circuit may be pre-set up to 2:1 VSWR ratio to disable the transmitter when this preset value is reached. A front panel switch allows the operator to use this meter to read reflected power.
Stability and Frequency Control:	<ol style="list-style-type: none">1. All radio frequency determining elements referenced to a built- in 1 mc standard.2. Stability of 1 part in 10^8 per day for ambient temperature change of 15° within the range of $0-50^\circ\text{C}$.3. Stability of 1 part in 10^9 per 24 hours available at slight increase in cost.

Tuning: All tuning and bandswitching controls are on the front panel (no plug-in components or mechanical adjustments) Self-cleaning contacts on RF bandswitches (no rolling contacts). Optional TechniMatic* tuning (see "Options/Accessories".)

Distortion Products: Distortion products are at least 35 db below either tone of a two tone test at full PEP.

Unwanted Sideband Rejection: A signal at 500 cps is at least 60 db down from full PEP in the unwanted sideband.

Spurious Signals:
(as per CCIR) At least 60 db below full PEP output.

Carrier Suppression: -55 db continuously adjustable manually to full PEP output.

Harmonic Suppression: Second harmonic at least 50 db down from PEP output.
Third harmonic at least 60 db down from PEP output.

Sideband Filter Response: Selection of any one of the following pairs of filters:

1. Crystal lattice filters flat within ± 1.5 db 250 to 7500 cps.
2. Crystal lattice filters flat within ± 1.5 db 250 to 6000 cps.
3. Multiplexing of four 250 to 3040 cps, ± 1.5 db, channels at CCIR or National Standard frequencies.
4. Symmetrical filters ± 1.5 db in 1, 6 and 15 kc bandpass.
5. Crystal lattice filters flat within ± 1.5 db 250 to 3040 cps.
6. Crystal lattice filters flat within ± 1.5 db can be provided to meet special requirements.

Audio Inputs: 600 ohm balanced, -20 to +10 dbm continuously adjustable to full PEP output.
-20 dbm input will produce full output.
An unbalanced input can also be applied.

Special Features:

1. ALDC (Automatic Load and Drive Control) is provided to improve linearity, limit distortion, and deliver a relative constant RF output level during high modulation peaks or load changes. Front panel control allows adjustment of the level of ALDC voltage or switching off the ALDC, if desired.
2. Special circuitry deactivates any unused sideband channel to eliminate transmission of unwanted noise. When all sideband channels are deactivated the transmitter automatically reverts to standby condition. It will reactivate automatically, and immediately, on voice signals in any of the sideband channels.

Metering:

Large scale meters are mounted on tilted panels at the top of the unit to indicate accurately operation of all critical circuits. These meters are externally illuminated for ease in reading.

Environmental Conditions:

Designed to operate in any ambient temperature between the limits of 0 to 50°C, for any value of humidity up to 90%.

Cooling:

Filtered forced air cooling, semi-pressurized cabinet. Also, vapor cooling (see "Options/Accessories").

Safety Features:

Overload and bias protection with audio alarm. Safety interlocks are provided in all high voltage circuits.

Noise:

Power supply ripple 55 db down from full PEP output.

Primary Power:

190/208/230V AC, 50/60 cycles, 3 phase. Approximately 19,000 watts with a power factor of 0.97. Primary of transformer may be connected to either DELTA or WYE power source.

Installation Data:

Size: 56" wide x 43-3/4" deep x 85" high.
Weight: Approximately 2700 lbs.

Size of Largest Container:	81-1/2" x 42" x 51-1/2".
Typical Shipping Weight & Cube:	4911 lbs, 343.5 cu. ft.
Instruction Book:	Two instruction manuals are provided.
Components and Construction:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.
Options/Accessories:	(Priced separately)
TMC KIT 177	Provides vapor cooling of final tube.
TMC KIT 181	Replaces AX-103, high voltage power supply drawer, with HVRC-1, solid state high voltage power supply drawer.
TMC Model TRC-5000-50U/600B Transmitter Antenna Coupler	Provides match between unbalanced output circuit of TSTD-10K and 600 ohm balanced antenna line. Housed in weather-proofed fiberglass case.
RF Coax Fittings:	AX-271 - 1-5/8" 70 ohm EIA flange. AX-272 - 1-5/8" 50 ohm EIA flange. AX-273 - QDL Connector for RG-17, -18, -35, and -164/U coax. AX-287 - LC Connector for RG-17/U RG-18/U coax. Additional information on mating cable fittings may be obtained from TMC's Connector Products Catalogue.
Remote Control:	Provides for complete remote control over two voice quality circuits or standard telephone cables or radio links providing full duplex channels.
TechniMatic* Tuning:	Provides for automatic tuning in 100 cps increments throughout the frequency range in a nominal 25 seconds, depending on frequency excursion. Digital display of the frequency to which the transmitter has been tuned is provided at the transmitter.

Test Equipment:

A spectrum analyzer can be incorporated within the auxiliary frame, if desired.

Shock Mounting:

Robinson shock mounts (or equivalent) for mobile installations.

Increased Power Output:

Field Modification Kit can be supplied to provide 15 kw PEP, 7.5 kw average power output.

Printed in U. S. A.



TMC (*Canada*) LIMITED

RR NO. 5., OTTAWA, ONTARIO

SUBSIDIARY OF

The TECHNICAL MATERIEL CORPORATION
MAMARONECK, NEW YORK