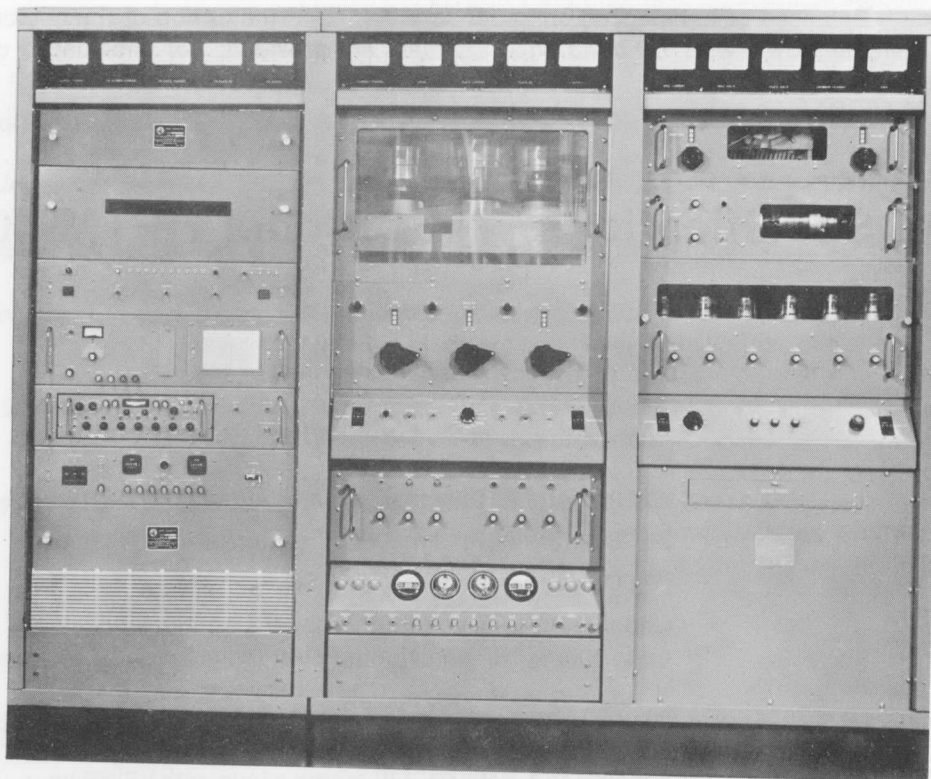




TECHNICAL BULLETIN NUMBER 1.0301

General Purpose Transmitter
TMC Model HFTM-40KJ
AN/FRT-40 (modified)



- 2 to 30 megacycles, bandswitched
- Easily installed
- SSB, ISB, AM, AME, CW, FSK, and FAX
- Modular units
- Self-cleaning bandswitches (no rolling contacts)
- VSWR overload protection
- Solid state HV rectifiers

The Technical Materiel Corporation's Model HFTM-40KJ, General Purpose Transmitters, provide 40,000 watts PEP; 20,000 watts average power outputs for long range point-to-point, ground-to-air and shore/ship communication circuits. Field proven and accepted by military and commercial users throughout the world, these transmitters have been used in ships at sea and shore installations, as well as in transportable vans and shelters.

GENERAL PURPOSE TRANSMITTER

The design of the transmitters are human engineered to provide front panel operational and maintenance indications for all critical operating circuits and interlocks. Additionally, all modular units are maintainable and operable from the front of the transmitters.

The final amplifier is protected against overload by an interlock in the VSWR/Power meter, which can be preset to a given value. A front panel switch allows the operator to use this meter to read forward power and VSWR. High voltage is removed from the transmitter when the preset value of VSWR is reached or exceeded. Balanced or unbalanced operation is provided at the option of the customer. For balanced output, ceramic bowls with 1/2" bolts on 12" centers are provided. For unbalanced output, a 3-1/8" EIA flange is provided.

Technical Specifications, TMC Model HFTM-40KJ

Frequency Range:	2 to 30 megacycles, bandswitched.
Modes of Operation:	SSB, ISB, AM, AME, CW, FSK, and FAX.
Power Output:	40,000 watts PEP; signal to distortion ratio at least 35 db. 20,000 watts PEP; signal to distortion ratio at least 40 db. 20,000 watts average, CW or FSK. Under multi-tone conditions, the transmitter will deliver up to 100kw PEP on a limited duty cycle.
Output Impedance:	50 or 70 ohms unbalanced, 3-1/8" EIA flange, or 600 ohms balanced, porcelain bowls with 1/2" bolts on 12" centers. Pi-L network will match a load with VSWR as great as 2:1.
VSWR Protect circuits:	The final amplifier is provided with a VSWR meter that may be preset 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 forward power.
Stability and Frequency Control:	1 part in 10^8 in 100 hz increments, depending on exciter standard.

- Tuning System:** 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).
- Signal/Distortion Ratio:** See Power Output.
- Unwanted Sideband Rejection:** 500 cps single tone, 60 db down from full PEP output.
- Spurious Signals (as per CCIR):** At least 60 db below full PEP output.
- Safety Features:** Overload and bias protection with audible alarm. Safety interlocks are provided in all high voltage circuits.
- Installation Data:** Size: 120 $\frac{1}{4}$ " w X 43 $\frac{3}{4}$ " d X 85" h.
Weight: 5400 lbs. approximately.
- Primary Power:** 195 to 240 vac, 50/60 cycles, or 390 to 480 vac, 50/60 cycles, 3 phase. Approximately 70 kw, 0.97 P.F. Primary of transformer may be connected to either DELTA or WYE power source.
- Size of Largest Container:** 81 $\frac{1}{2}$ " X 42" X 51 $\frac{1}{2}$ ".
- Typical Shipping Weight & Cube:** 10,411 lbs., 743 cu. ft. approximately.
- Components & Construction:** All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.
- Options/Accessories:** (Priced separately.)
- TMC Model BLM-40K:
(for 600 ohm balanced operation)** Provides 2 RF ammeters, 1-10 amps each, for indicating the RF current in each side of a 600 ohm balanced line. The meters are mounted on a silicone glass panel and installed in a metal case that is mounted on top of the transmitter at the 600 ohm feeders.



GENERAL PURPOSE TRANSMITTER

- Noise Level:** Power supply ripple, -55 db from full PEP output.
Other, -70 db from full PEP output.
- Carrier Insertion:** -55 db to full PEP output.
- Harmonic Suppression:** Second harmonic at least 50 db down from full PEP output.
- Audio Response:** Selection of any one of the following.
1. Flat within + 1.5 db 350 to 3300 cps.
2. Flat within + 1.5 db 250 to 7500 cps.
3. Flat within + 1.5 db 250 to 6000 cps.
- Audio Inputs:** 600 ohms balanced, -20 to + 20 dbm. Continuously adjustable for full RF output. An unbalanced input can also be applied. -20 dbm input will provide full RF output.
- Heat Dissipation:** 40 kw approximately.
- ALDC:** ALDC (Automatic Load and Drive Control) is provided to improve linearity, limit distortion and deliver a relatively constant RF output level during high modulation peaks or load changes. Front panel control allows adjustment of the level at which ALDC takes effect or switching off the ALDC, if desired.
- Metering:** Large scale meters are mounted on tilted panels at the top of the units to indicate accurately the 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.



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