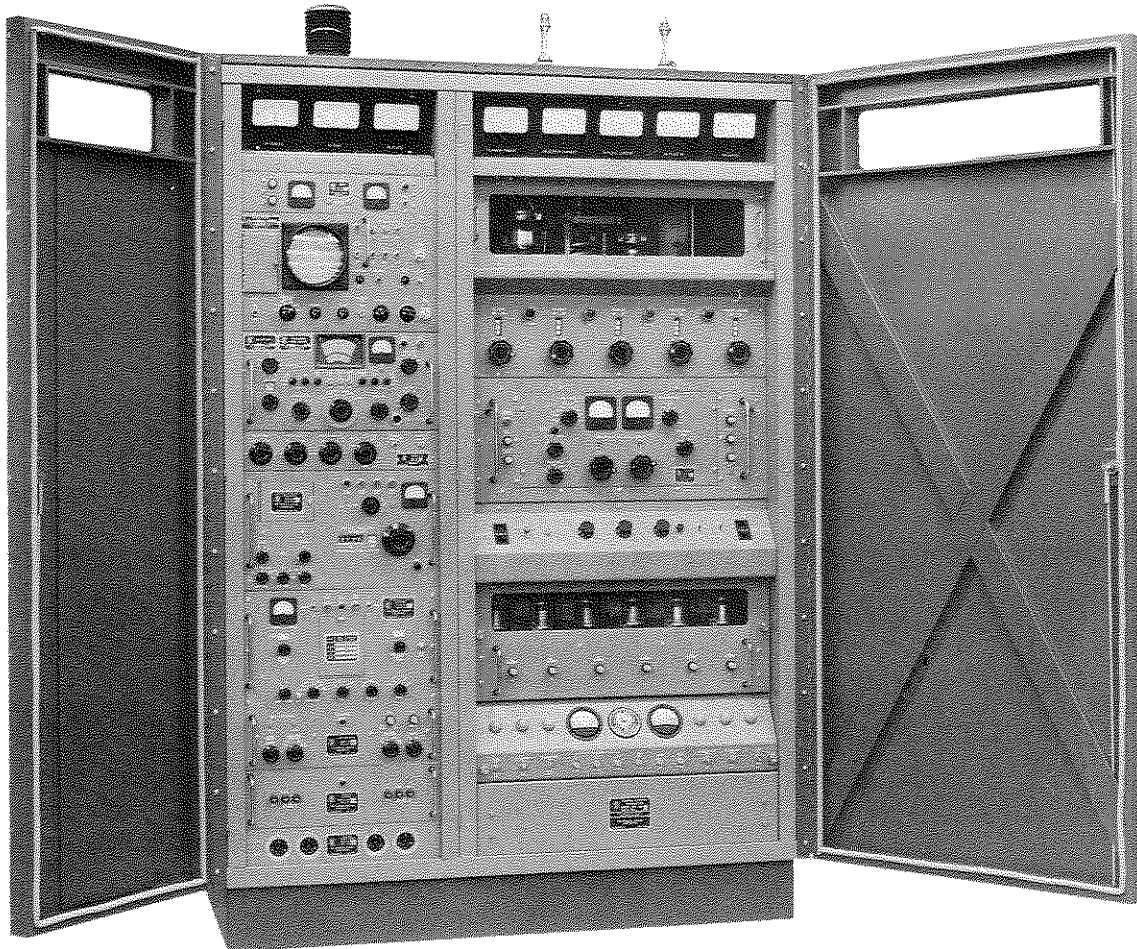
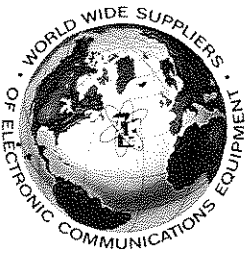


MAR 16 1962

TECHNICAL BULLETIN NUMBER 1008

General Purpose Transmitters
TMC Models GPT-10K
AN/FRT-39A
AN/FRT-52



TMC MODEL GPT-10K

TMC's Models GPT-10K series of transmitters provide SSB, ISB, AM, CW, FSK, and FAX modes of operation with continuous tuning from 2 to 28 megacycles. Models GPT-10K transmitters are conservatively rated at 10 kw PEP, 5 kw average.

Under conditions of a 64 tone voice frequency modulation, the GPT-10K transmitters will deliver approximately 25 kw PEP on a 20% duty cycle with better than 35 db signal to distortion ratio, or 50 kw PEP on a 10% duty cycle.

The over-all minimum bandwidth of the final amplifier is at least 20 kc between 3 db voltage points over the entire frequency range.

Models GPT feature many customer options as to capabilities and types of output (un-balanced 50 or 70 ohm or balanced 600 ohm). Two of these units have been nomenclatured: GPT-10K-A (AN/FRT-39A) and GPT-10K-T (AN/FRT-52).

A grounded grid ceramic type tube is used in the final linear amplifier for high efficiency. The conservative rating of the GPT-10K transmitters gives exceptionally linear characteristics at the rated output.

General Purpose Transmitters

Front panel bandswitching and tuning reduces frequency changeover time to a minimum (no plug-in components or mechanical adjustments). Bandswitches are of the self-cleaning type. A built-in spectrum analyzer permits immediate monitoring of Exciter, IPA, and P.A. outputs. (Refer to chart for models having an FSA component). GPT-10K models contain all power supplies and ventilation equipment.

The modular design lends itself to ease of installation maintenance and repairs such as: drawers on tilting slides, front panel interlock circuit continuity indication, blown fuse indication, and bias and overload protection with automatic recycling and audio alarm. 1 kw transmission is available should low power be required or for emergency use.

TMC's GPT-10K series of transmitters have been field proven at military and commercial installations, afloat, ashore, and in mobile vans and shelters with adequate shock mounting for such an environment. Bowls on 12" centers are provided for balanced output, and for unbalanced output, an adapter plate is provided to attach appropriate RF coaxial fittings, listed under "Accessory Equipment". All accessory items are sold separately.

TECHNICAL SPECIFICATIONS, Model GPT 10 kw Unsynthesized

FREQUENCY RANGE:	2 to 28 megacycles Bandswitched.
MODES OF OPERATION:	See Chart.
POWER OUTPUT:	10,000 watts PEP signal to distortion ratio at least 35 db. 5,000 watts PEP signal to distortion ratio at least 40 db. 5,000 watts average CW or FS.
OUTPUT IMPEDANCE:	50 or 70 ohms unbalanced, 600 ohms balanced, Pi-L Network. Will match a load with VSWR or 2:1 maximum.
STABILITY AND FREQUENCY CONTROL:	1 part in 10^6 per 24 hour period from 10 oven controlled crystal position in the SBE.
TUNING:	All tuning and bandswitching controls are on the front panel (no plug-in components or mechanical adjustments). Self-cleaning contacts on RF bandswitches.
DISTORTION PRODUCTS:	See Power Output.
DISTORTION MEASURING:	Built-in spectrum analyzer on Models with FSA. (See Chart).
UNWANTED SIDEBAND REJECTION:	500 cps single tone, 60 db down from full PEP output.
SPURIOUS SIGNALS:	At least 60 db below full PEP output when SBE-3 is used, 55 db when SBE-2 is used.
CARRIER INSERTION:	-55 db to full PEP output.
HARMONIC SUPPRESSION:	On 2 tone test, second harmonic at least 50 db down from full PEP output, third harmonic at least 65 db down from full PEP output.
AUDIO RESPONSE:	SBE-2 flat within ± 1.5 db, 350-3300 cycles. SBE-3 Crystal lattice filters flat within ± 1.5 db, 250-7500 cycles.

SBE-4 Crystal lattice filters flat within ± 1.5 db, 250-6000 cps.

AUDIO INPUTS:

600 ohm balanced, -20 to +10 dbm continuously adjustable for full RF output.

HEAT DISSIPATION:

10 kw approximately.

SPECIAL FEATURES:

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 the ALDC takes effect or switching off the ALDC, if desired.

VOICE OPERATED RELAY CONTROL:

Voice control with anti-trip features
Adjustable gain and squelch.

METERING:

Large scale meters are mounted on tilted panels at the top of the units to accurately indicate operation of all critical circuits. These meters are provided with illumination for ease in reading.

ENVIRONMENTAL:

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

COOLING:

Filtered forced air cooling. Semi-pressurized cabinet.

SAFETY FEATURES:

Overload and bias protection with automatic recycling and audible alarm. Safety interlocks at all high voltage points.

NOISE:

1. Power supply ripple -55 db from full PEP output.
2. Other, -70 db from full PEP output.

XFK FREQUENCY SHIFT:

Linear to 1000 cycles.

XFK KEYING SOURCE:

1. Polar or neutral positive.
2. Linear input 30,000 ohms.

XFK KEYING SPEED:

750 bauds (1000 wpm) maximum.

XFK KEYING IMPEDANCE:

Polar or neutral operation into 100,000 ohms. (May be bridged by external 1800 ohm resistor for operation from a TTY loop.

XFK KEYING BIAS:

Not greater than 10% at 750 bauds.

XFK STABILITY:

1. 10 cycles for ambient temperature change of 0-50° C.
2. 10 cps for line voltage change of 10%.
3. No drift for input signal variations of +25 to +150 volts (mark frequency)

XFK CRYSTAL FREQUENCY:

$$FC = \frac{F_o}{n} - 200 \text{ kc}$$

Where F_o = transmitter output frequency
 n = transmitter multiplication factor.

TMC
MODEL

GPT-10K

GPT-10K

GPT-10K

GPT-10K

GPT-10K

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GPT-10K

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TMC Models GPT-10K

PRIMARY POWER:	208/230 volts 50/60 cps 3 Phase Power consumption — See Chart 0.98 power factor approx. Primary of Transformer may be connected for either DELTA or "Y" input.
SIZE OF LARGEST CONTAINER:	36 1/4 × 43 1/4 × 81 1/2
FEDERAL STOCK NUMBER:	See Chart.
INSTRUCTION BOOK & MILITARY NOMENCLATURE:	See Chart.

For further information on auxiliary rack components, refer to TB* 2008 (SSB 195C) for the SBE-2; TB 2009 (SSB 239) for the SBE-3; TB 6001 for spectrum analyzer; TB 2018 (SSB 134C) for VOX; TB 2020 (SSB 118) for XFK; TB 6002 (SSB 230) for TTG; and TB 2025 (SSB 245B) for TIS-3.

COMPONENTS AND CONSTRUCTION: All equipment is manufactured in accordance with JAN/MIL specifications wherever practicable.

OPTIONAL EQUIPMENT:

TMC Kit 113 (for 600 ohm unbalanced operation)	Provides capability of computing VSWR on unbalanced operation Internally installed in the transmitter.
TMC Model TMA (for 600 ohm balanced operation)	Provides 2 RF ammeters 0-5 amps for indicating the RF current in each side of a 600 ohm balanced line. The meters are mounted on a bakelite panel and installed in a metal case that is mounted on top of the transmitter at the 600 ohm feeders.

* Sales Service Bulletins have been redesignated Technical Bulletins.

FR Output 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 and RG-18/U coax.
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Additional information on matching cable fittings may be obtained from TMC's Connector Products Catalog.

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