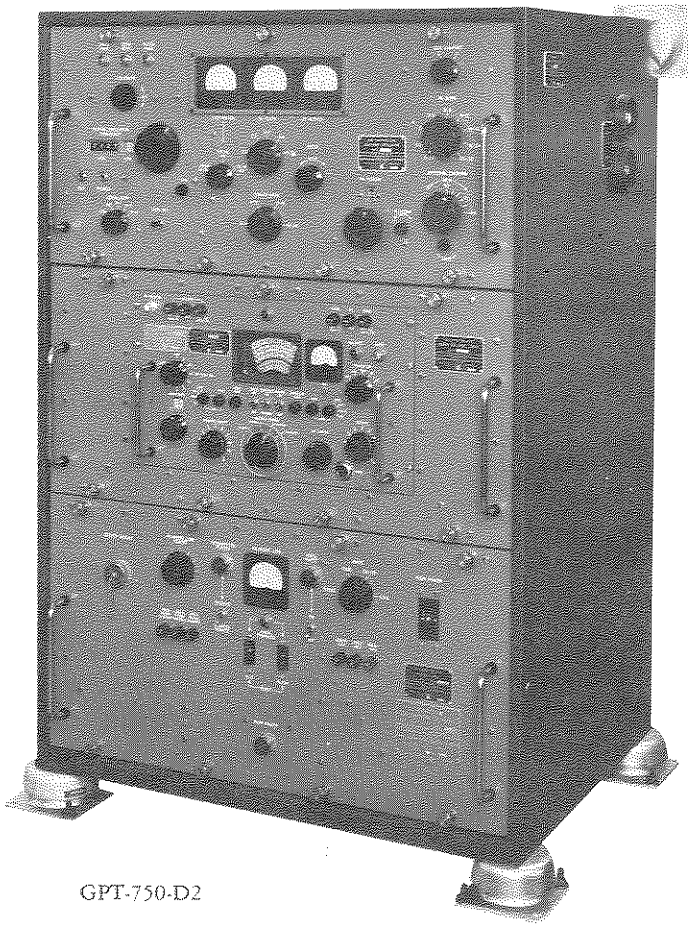
TECHNICAL BULLETIN NUMBER 1007

General Purpose Transmitters
TMC Models GPT-750
AN/URT-17A
AN/FRT-55



GPT-750-D2

TMC Models GPT-750-D2 (AN/URT-17A) and GPT-750-E2 (AN/FRT-55) are two of the five "workhorse" series of general purpose transmitters that provide 750 watts PEP for SSB and ISB, with any degree of carrier suppression from 0 db to −55 db, and 1000 watts for CW operation. Other models in this series provide 750 watts average for high level AM and 1000 watts for CW, FSK and FAX operation. The GPT-750 series are conservatively rated to provide reliable and continuous service.

Continuously tunable over the frequency range of 2 to 32 mcs, the GPT-750 transmitters are used for ground to air, point to point, ship to shore, ship to ship; any use requiring a hard working dependable transmitter.

The individual components that make up this series of transmitters are removable for ease in installation. Slide-out drawers provide ready access to internal components for rapid dynamic test and repairs. All bandswitching and tuning controls are on the front panel of the unit, and no plug-in components or mechanical adjustments are required to set the transmitter on any frequency from 2-32 mcs. Bias and overload protection, safety interlocks, indicator type fuses, and front panel metering of all critical circuits provide rapid indications of equipment operation.

General Purpose Transmitters

GPT-750 transmitters are currently operating in cable-laying ships, naval and commercial ships, harbor control circuits, mobile installations, air control installations, oil field installations, mining operations, missile ranges, military communications centers, tropical plantation stations, and amateur stations.

TECHNICAL SPECIFICATIONS

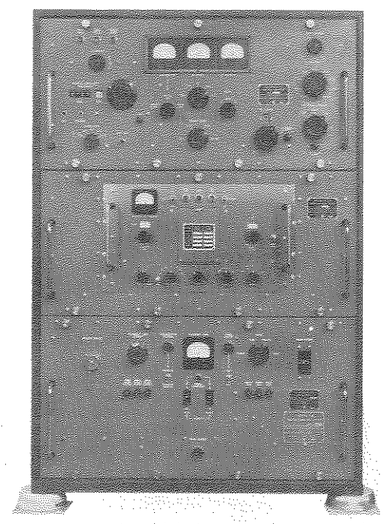
FREQUENCY RANGE:	2 to 32 mcs., bandswitched.
MODES OF OPERATION:	See chart.
POWER OUTPUT:	1000 watts output, CW, FSK or FAX
	750 watts output, AM
	750 watts output PEP, SSB or ISB
MODULATION CHARACTERISTICS:	Capable of 100% sine wave plate modulation.
OUTPUT IMPEDANCE:	HN connector for 50 or 70 ohm coax provided. Transmitter will match any load from 30 to 1000 ohms at 0° phase angle or any load from 50 to 700 ohms at ±45° phase angle.
	UHF fitting provided for RF monitor.
FREQUENCY STABILITY:	Less than .002% for 30° change in ambient using variable oscillator. 1 part in 10^6 per day using oven controlled crystals.
FREQUENCY CONTROL:	Built-in high stability master oscillator plus provision for 2 temperature-controlled crystal positions and one non-temperature controlled crystal position.
	Ten crystal positions in the SBE, and three in the XFK (all oven-controlled).
TUNING:	All tuning and bandswitching from front panel (no plug-in components).
DISTORTION:	High level AM—less than 10%.
	SSB—signal/distortion ratio: 750 watts PEP—40 db below full PEP output.
	500 watts PEP—45 db below full PEP output.
UNWANTED SIDEBAND REJECTION:	500 cycle, single tone, 60 db down from full PEP output.
SPURIOUS SIGNALS:	50 db down from full PEP output.
NOISE LEVEL:	At least 60 db down from full PEP output.
CARRIER INSERTION:	0 to −55 db down from full PEP output.
HARMONIC SUPPRESSION:	2nd at least 40 db down from full PEP output.
	3rd at least 50 db down from full PEP output.

TMC MODEL NUMBER	MILITARY NOMENCLATURE	STABILITY 1 PART IN	CAPABILITIES							COMPONENTS							INSTALLATION DATA					SHIPPING DATA (approx.)			LOGISTICS DATA	TMC MODEL NUMBER
			SSB	ISB	AM	CW	MCW*	FSK	FAX	RTF-2 M.O. and Linear PA Drawer	RTM-2 AM Modulator Drawer	RTS-2 Exciter Drawer with SBE-2 (350-3300 cps)	RTS-2 Exciter Drawer with SBE-3 (250-7500 cps)	RTX-2 Frequency Shift Keyer Drawer with XFK	RTP-2 Power Supply	RTY-2 Blank Panel	HEIGHT (in.)	WIDTH (in.)	DEPTH (in.)	WEIGHT (lbs.)	Primary Power Watts (approx.)	WEIGHT (lbs.)	VOLUME (cu. ft.)	SIZE OF LAGEST CONTAINER	A. FSN w/spares B. FSN w/o spares C. TMC Inst. Book D. Mil. Inst. Book	
GPT-750-A2						•				X					X	X	49⅞	34	27	725	2600	1190	66	56 × 31 × 38½	A B C D IN-208	GPT-750-A2
GPT-750-B2					•	•	•			X	X				X		"	"	"	838	2800	1415	81	"	A B C D IN-208	GPT-750-B2
GPT-750-C2						•		•	•	X				X	X		"	"	"	830	2700	1404	81	"	A B C D IN-208	GPT-750-C2
GPT-750-D2	AN/URT-17A	10^9	•	•	•†	•	•			X		X			X		"	"	"	822	2800	1425	81	"	A B F5820-681-9875 C IN-208 D	GPT-750-D2
GPT-750-E2	AN/FRT-55	10^6	•	•	•†	•	•			X			X		X		"	"	"	822	2800	1425	81	"	A B C D IN-208	GPT-750-E2

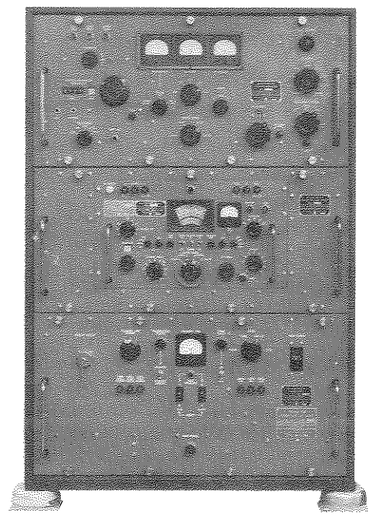
*Using external source of keying tone (as provided by TMC model RTC, Remote Control Amplifier).

†AM Equivalent

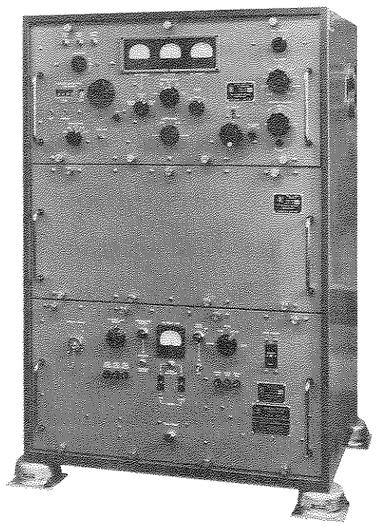
GPT-750-B2



GPT-750-C2



GPT-750-E2



GPT-750-A2

AUDIO FREQUENCY RESPONSE:	±1.5 db from 100 to 5000 cps. (high level AM). SBE-2 ±1.5 db from 350 to 3300 cps. SBE-3 ±1.5 db from 250 to 7500 cps.
AUDIO INPUTS:	1. 600 ohms balanced, (SBE or RTM). 2. High impedance microphone with SBE or RTC. (Available as an accessory is a 12 volt 0.20 amp DC supply for energizing a carbon mike designed for use in a standard Navy remote phone system. TMC Part A-1504-12.)
HUM LEVEL:	−55 db from full PEP output.
HEAT DISSIPATION:	Approximately 2 kw.
T/R FUNCTION:	See accessory equipment.
M. O. BYPASS SWITCH:	A feature of the GPT-750( )2 is the M. O. BY-PASS/NORMAL switch which permits continued operation of the M. O. Oven elements when the balance of the transmitter is in the POWER OFF condition.
VOICE-OPERATED RELAY:	Models with either SBE-2 or -3 have voice control with anti-trip features, adjustable gain and squelch.
METERING:	All critical circuits and output readings are metered on the front panel.
TEMPERATURE & HUMIDITY:	Designed to operate in any ambient temperature between the limits of 0 and 50° C. for any value of relative humidity up to 95%.
ALTITUDE:	10,000 ft.
COOLING:	Forced filtered air (2 separate blowers).
OVERLOAD PROTECTION AND SAFETY:	Overload relays protect against abnormal operating levels of final amplifier and safety interlocks provide personnel protection.

KEYING INFORMATION:

XFK Frequency Shift	Linear to 1000 cps.
XFK Keying Sources	1. Polar or neutral positive. 2. Linear input—30,000 ohms impedance.
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 ohms loop resistance.
XFK Keying Bias	Not greater than 10% at 750 bauds.

TMC Models GPT-750

Stability on FSK Operation	1. 10 cycles for ambient temperature change of 0 to 50° C., or line voltage change of ±10%. 2. No drift for input signal variations of +25 to +150 volts (mark frequency).
SIZE & WEIGHT:	See chart.
PRIMARY POWER:	115/230 volts, 50/60 cps, single phase, approximately 2600 watts at .87 P.F. for full CCS output.
SHIPPING WEIGHT AND CUBES:	See chart.
FSN:	See chart.
NOMENCLATURE:	See chart.
LOOSE ITEMS:	Mating coaxial fittings, power cable, terminal strips and electrical plug are provided.
INSTRUCTION BOOKS:	TMC IN-208
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.
ACCESSORY EQUIPMENT: (Priced Separately)	
TMC Model TRL-3, -4	Provides transmit/receive switching by grounding the receive antenna coax during transmit and, in addition, provides normally open and normally closed relay contacts for use in receiver muting.
TMC Model RTC	Remote control amplifier is a multi-purpose unit providing high level audio amplification, selectable peak clipping and tone output for MCW. The unit also makes possible remote keying, break-in and other semi-remote control functions. (Request Technical Bulletin 2022)
TMC Model ATS-2	Antenna tuning system is a remote-controlled antenna coupler designed to connect the 50 or 70 ohm unbalanced output of any 2-32 mc radio transmitter, of up to 1000 watts average, to a 35 foot whip antenna. (Request Technical Bulletin 2001)
TMC Part A-1504-12	12 volt DC @ 0.20 amp supply for carbon mike.

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