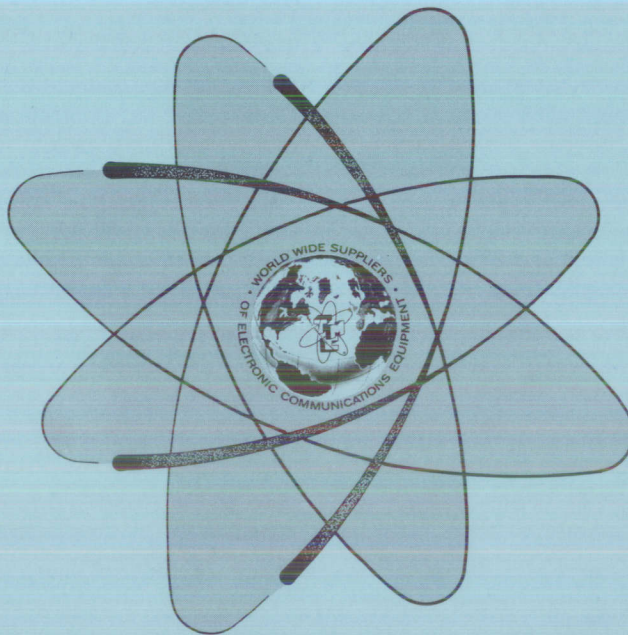


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**TECHNICAL MANUAL**  
*for*

HIGH FREQUENCY TRANSMITTER

MODEL GPT-500D



**THE TECHNICAL MATERIEL CORPORATION**  
**MAMARONECK, N. Y.**

**OTTAWA, ONTARIO**

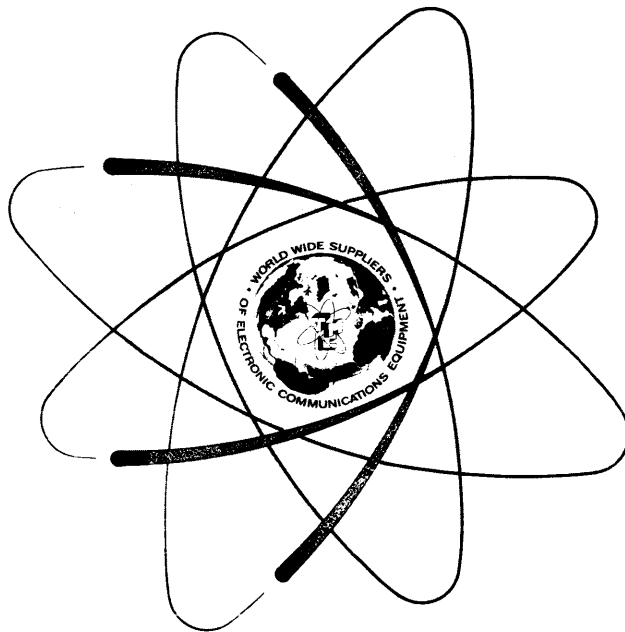
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Printed in U.S.A.

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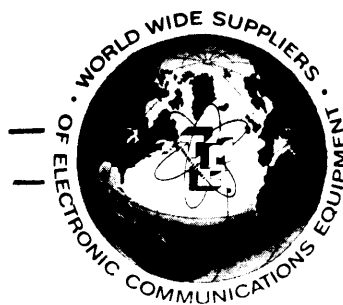
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## NOTICE

THE CONTENTS AND INFORMATION CONTAINED IN THIS INSTRUCTION MANUAL IS PROPRIETARY TO THE TECHNICAL MATERIEL CORPORATION TO BE USED AS A GUIDE TO THE OPERATION AND MAINTENANCE OF THE EQUIPMENT FOR WHICH THE MANUAL IS ISSUED AND MAY NOT BE DUPLICATED EITHER IN WHOLE OR IN PART BY ANY MEANS WHATSOEVER WITHOUT THE WRITTEN CONSENT OF THE TECHNICAL MATERIEL CORPORATION.



# THE TECHNICAL MATERIEL CORPORATION

C O M M U N I C A T I O N S E N G I N E E R S

700 FENIMORE ROAD

MAMARONECK, N. Y.

## Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes, \*fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purposes for which the same is designed, for a period of one year from the date of delivery F.O.B. factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction.
2. That the defect is not the result of damage incurred in shipment from or to the factory.
3. That the equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise.
4. That any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

Electron tubes furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

At TMC's option any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the Buyers sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

\*Electron tubes also include semi-conductor devices.

### *PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT*

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

### *PROCEDURE FOR ORDERING REPLACEMENT PARTS*

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

### *PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT*

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

THE TECHNICAL MATERIEL CORPORATION  
Engineering Services Department  
700 Fenimore Road  
Mamaroneck, New York



## TABLE OF CONTENTS

<u>Paragraph</u>		<u>Page</u>
	<u>SECTION 1 - GENERAL INFORMATION</u>	
1-1	General . . . . .	1-1
1-2	Scope of Publication . . . . .	1-1
1-3	System Components . . . . .	1-1
	<u>SECTION 2 - INSTALLATION</u>	
2-1	General . . . . .	2-1
2-2	Unpacking and Inspection . . . . .	2-1
2-3	Mechanical Installation . . . . .	2-1
2-4	Electrical Installation . . . . .	2-2
2-5	Pre-Operational Check . . . . .	2-3

## LIST OF TABLES

<u>Table</u>		<u>Page</u>
	<u>SECTION 1 - GENERAL INFORMATION</u>	
1-1	GPT-500D System Components . . . . .	1-1

## LIST OF ILLUSTRATIONS

<u>Figure</u>		<u>Page</u>
	<u>SECTION 1 - GENERAL INFORMATION</u>	
1-1	High Frequency Transmitter, Model GPT-500D . . . . .	1-0
1-2	System Components and Dimensions . . . . .	1-2
	<u>SECTION 2 - INSTALLATION</u>	
2-1	GPT-500D Transmitter, Rear View . . . . .	2-4



Figure 1-1. High Frequency Transmitter,  
Model GPT-500D



SECTION 1  
GENERAL INFORMATION

1-1. GENERAL

The GPT-500D High Frequency Transmitter, shown in figure 1-1 was designed and manufactured by The Technical Materiel Corporation, Mamaroneck, New York to provide 500 watts PEP output at a preselected fixed frequency within the range of 2 to 32 MHz. Selection of the proper model Transmitter Converter, TTRT-XX, determines the operating frequency of the GPT-500D transmitter. As a customers option, one of the AF106 series of Harmonic Filters may be included in the system for the 2.0 to 19.0 MHz range. Above 19.0 MHz, a Model AF107 filter may be used.

1-2. SCOPE OF PUBLICATION

This publication briefly explains the over-all system and the installation of it. Technical details and the operating instructions for the modular units which comprise the system are given in the individual publications which have been made a part of this presentation.

1-3. SYSTEM COMPONENTS

Table 1-1 lists and functionally describes the system components.

TABLE 1-1. GPT-500D SYSTEM COMPONENTS

NOMENCLATURE	NAME	FUNCTIONAL DESCRIPTION
AF106-X	Harmonic Filter (optional component)	Provides harmonic suppression for the rf amplifier output.
PAL-500	Linear Power Amplifier	Provides 500 watts Peak Env lope Power (PEP).
STE-5	Sideband Strip Exciter	Provides up to 100 milliwatts excitation in any of six selected operating modes.
TTRT-XX	Transmitter Converter (P/O STE-5)	Provides the final stage of frequency translation and RF amplification for the STE-5 exciter.

The RFE-1 Power Amplifier and the PSP-500 Power Supply are modular components of the PAL-500 Linear Power Amplifier.

The components of the GPT-500D system are all mounted in a single equipment cabinet less than two feet high. They are located and identified in figure 1-2.

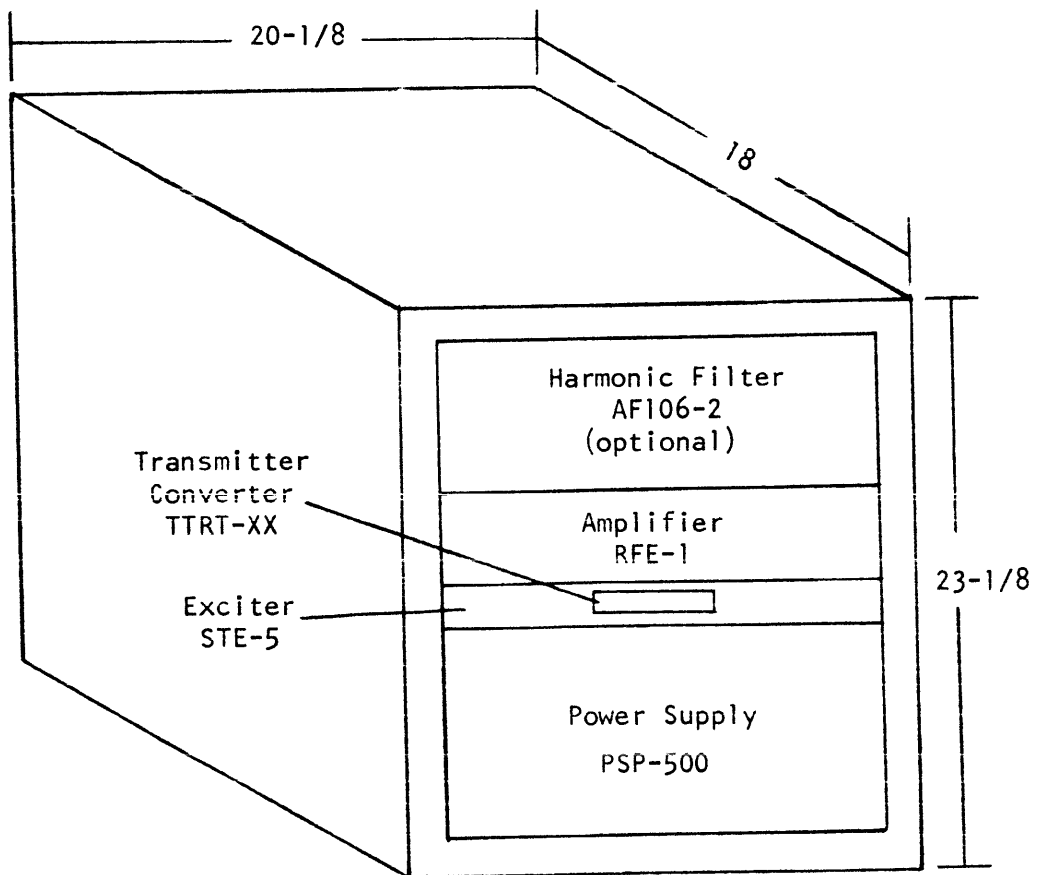


Figure 1-2. System Components and Dimensions

## SECTION 2

### INSTALLATION

#### 2-1. GENERAL

Following the final assembly and test of the GPT-500D system at the factory, the interconnect cabling is disconnected. The interconnect cabling and the components of the system, with the exception of the optional filter and its associated cabling, are removed from the equipment cabinet. The modular units are then boxed and crated in a manner designed to minimize damage in shipment.

#### 2-2. UNPACKING AND INSPECTION

Upon arrival at the installation site, the equipment should be carefully unpacked and inspected. Packing material should be carefully examined so that items shipped as loose items (i.e. connectors, cables, hardware or instructions) are not discarded.

The covers of each separately packed unit should be removed and the units checked to be certain no loose connections exist and that the vacuum tubes are securely seated in their sockets. Controls should be activated to be certain that they operate smoothly.

A claim for any damage resulting from mishandling should immediately be filed with the carrier. With respect to damage to this equipment for which the carrier is liable, The Technical Materiel Corporation will assist in describing methods of repair and furnishing of replacement parts.

#### 2-3. MECHANICAL INSTALLATION

The equipment cabinet with the AF106 filter in place (if selected as an option) should be secured in its final location. When positioning the equipment rack, bear in mind that access to the rear of the equipment will be required, and provide for an adequate circulation of air around the transmitter.

#### NOTE

Before installing any of the transmitter components the "Installation" section for each unit should be reviewed for specific recommendations.

After securely replacing the covers, the components of the transmitter should be mounted in the positions shown in figure 1-2 using the hardware provided.

## 2-4. ELECTRICAL INSTALLATION (refer to figure 2-1)

### NOTE

Prior to making any interconnections in the GPT-500D transmitter be sure that the main power cable, secured to the equipment rack, is NOT connected to a power source and that the plug on this cable is tagged to prevent unauthorized use.

Two cables must be fabricated by the customer: one which brings all of the external input signals to the transmitter; the other which conducts the RF output to the antenna.

The terminus of the signal cable is TB1501 at the rear of the STE-5 exciter. Refer to the specific technical manual for this unit and make the proper connections as directed therein.

A mating plug (Cat. UG59B/U) for the RF output connection on the equipment cabinet has been furnished as a "loose item" with the transmitter. Use this connector with a 50-ohm transmission line similar to MIL type RG8U to fabricate a cable for connection of the RF output terminal of the transmitter to an antenna. Make this connection.

Interconnect the power supply (PSP500) with the amplifier (RFE-1) with the cable (CA10136-110) supplied.

A cable to interconnect the RF output jack of the STE-5 exciter with J202 the "LOW" input terminal of the RFE-1 amplifier has been supplied. Use it to make the connection.

Connect the plug on the RF input cable on the AF106 filter to the RF output jack on the RFE-1 amplifier. When the AF106 filter is not supplied, the cable from the antenna fabricated by the customer should be connected directly to the RF output terminal of the RFE-1 amplifier.

When the RF and inter-unit cabling has been completed and checked for security, plug the a-c power cords for the exciter and power supply into convenient sockets on the terminal strip mounted along the left rear edge of the equipment cabinet.

Make certain that all switches are in the OFF or STANDBY positions and all controls turned in a fully counterclockwise direction. Remove the tag from the plug on the main power cord and connect the equipment to the a-c power source.

## 2-5. PRE-OPERATIONAL CHECK

The transmitter has been aligned and thoroughly checked against the specifications prior to shipment. It is necessary, however, to ensure correct installation and proper operation before putting the transmitter into service. Refer to the operational checks in the applicable technical manuals for the modular units and perform these tests.

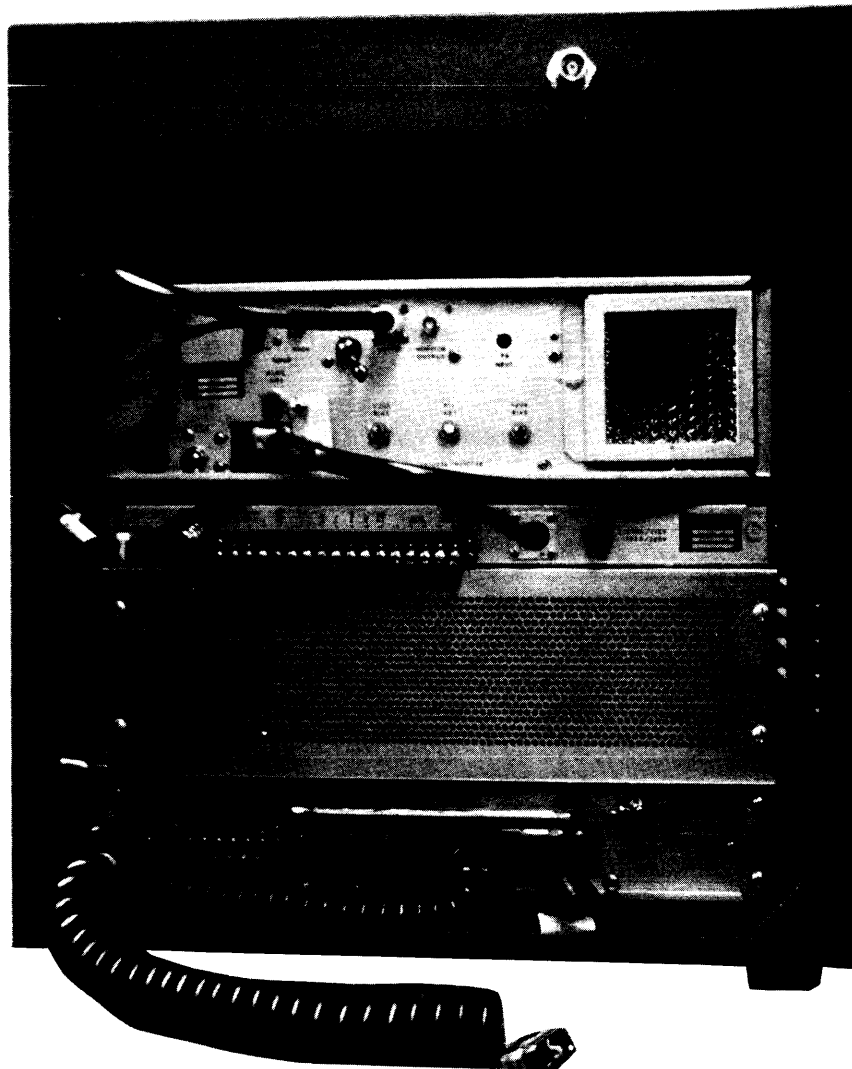


Figure 2-1. GPT-500D Transmitter, Rear View