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TECHNICAL MANUAL

for

RADIO RECEIVING SYSTEM

MODEL DDR-7U



THE TECHNICAL MATERIEL CORPORATION

MAMARONECK, N.Y.

OTTAWA, ONTARIO

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Printed in U.S.A.

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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.

W a r r a n t y

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

FOREWORD

The Radio Receiver System, model DDR-7U is comprised of three rack mounted units. They are the GPR-90RXDS, the MSR-9, and the DCP-2.

The DDR-7U manual ties the individual component manuals into a receiver system, giving a general description of the overall system, and a brief description of each component in the system.

Detailed information about each modular component is available in the manual for that particular component.

SECTION 1

GENERAL INFORMATION

DDR-7U RADIO RECEIVER

1-1. SYSTEM DESCRIPTION.

Radio Receiver, Model DDR-7U is a receiving system covering the frequency range of .54 to 31.5 MHz for the reception of AM, CW, MCW, FSK, and SSB signals with any degree of carrier insertion. The .54 to 31.5 MHz range covered by the DDR-7U is divided into six continuously tuned bands, with full electrical bandspread provided on each band. Selectable sideband reception and selectable IF bandpass are also provided.

The DDR-7U comprises various modular units mounted in a single rack for maximum operating convenience. These modular units are described in paragraph 1-2 below.

1-2. DESCRIPTION OF UNITS.

a. GENERAL. - Paragraphs b through d below give a brief description of the modular units used in the DDR-7U.

b. COMMUNICATIONS RECEIVER, MODEL GPR-90RXDS. - Communications Receiver, Model GPR-90RXDS is the receiving component of the DDR-7U. GPR-90RXDS is a general coverage communications receiver with a frequency range of .54 to 31.5 MHz distributed over six bands. The GPR is capable of receiving SSB, AM, CW, MCW and FSK signals.

Continuous tuning is provided with full electrical bandspread, and a 100 kHz crystal-controlled calibration oscillator provides markers at 100 kHz intervals throughout the tuning range.

The 16-tube circuit of the GPR provides a sensitivity that averages better than one microvolt for a 10-db signal-plus-noise-to-noise ratio. Dual conversion is employed in bands 4, 5, and 6 for improved image rejection. The RF input provides for a 75-ohm unbalanced antenna, and audio output may be

terminated in 4-, 8-, 16-, or 600-ohm voice coils or headphones. A front panel S-meter indicates relative signal strength and also permits accurate tuning.

Six switch-selectable steps of IF selectivity provide bandwidths from 250 Hz to 7 kHz. In addition, audio selectivity is provided by a three position (NORMAL, LO-PASS, and 1200 Hz PEAK) switch.

While the normal local oscillator provides continuous tuning, the GPR also permits the use of 10 precisely adjustable crystal positions available from the front panel, plus a rear deck input for an external high stability control oscillator or synthesizer. A highly effective series type noise is employed to reduce ignition or other impulse noise.

c. MODE SELECTOR RECEIVING MODEL MSR-9. - The TMC Model MSR-9 Mode Selector Receiving improves and simplifies operation of the GPR in the various modes of operation. Designed especially for the detection of single sideband signals, the MSR will also improve reception of AM, CW, MCW and FSK signals with any degree of carrier insertion. The combination of a specially designed filter circuit and a frequency bandsread oscillator provides sharp discrimination between the desired signal and adjacent interference.

A front panel bandsread control tunes over the IF bandpass of the GPR. This effective vernier easily tunes SSB or exalted carrier AM signals within a few cycles of correct tone. Sidebands are selectable either with the bandpass tuning feature or by inverting the oscillator separation. CW, MCW, and FSK signals are easily tunable with the bandsread feature.

For extreme stability, the first oscillator is switched to crystal control for both upper and lower sideband positions.

d. POWER CONTROL PANEL MODEL DCP-2. - Model DCP-2 Power Control Panel is a control panel providing a-c line voltage to three fused convenience outlets. A front panel mounted main power circuit breaker is provided to control output a-c line voltage taken from the chassis mounted output terminal board

TB2. The breaker may be used as the main power switch of the DDR-7U. A main power indicator lamp is also provided, operating in conjunction with the main power circuit breaker. Uncontrolled but fused a-c output voltage is available at the three a-c outlets.