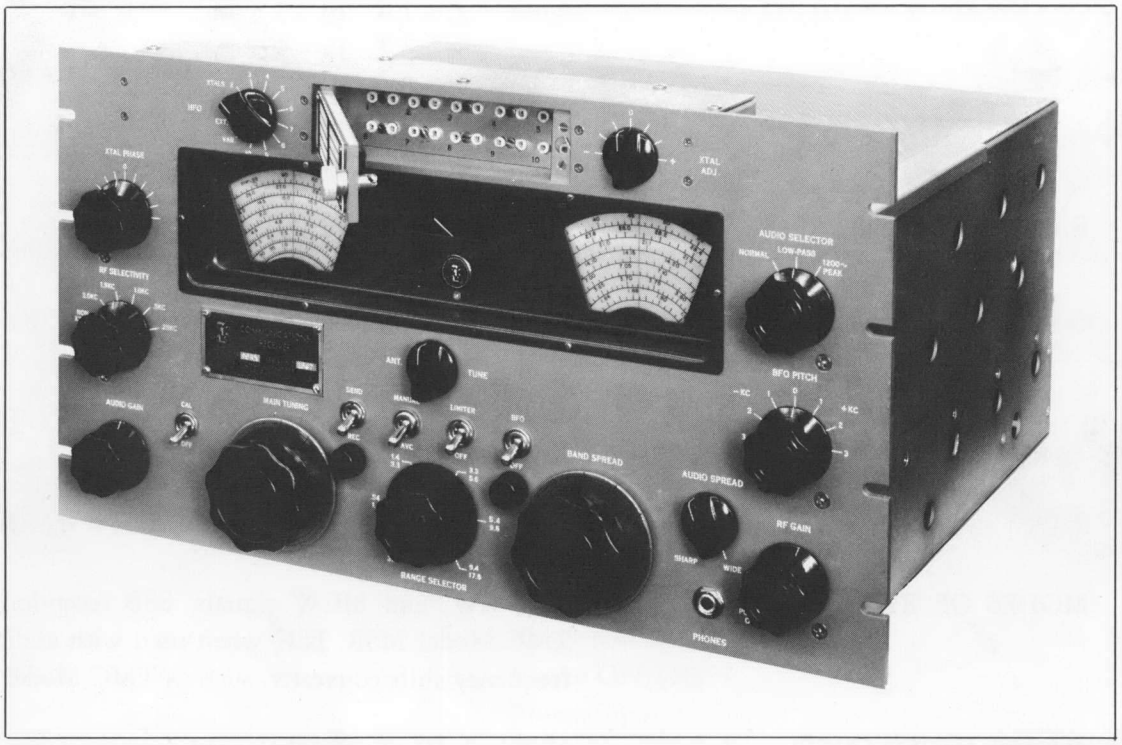
TECHNICAL BULLETIN NUMBER 3005A

Communications Receiver
TMC Model GPR-90RXD



TMC Model GPR-90RXD, Communications Receiver, has been specifically designed to meet the requirements of a wide variety of diversity applications for reception of AM, CW, SSB, ISB, FSK, and FAX signals over the frequency range of .54 to 31.5 mcs.

Double conversion to improve image rejection, low noise figure, common diode load, external oscillator control, and an excellent AGC circuit are some of the features that enhance space diversity reception. Ten switchable crystals provide control of the High Frequency Oscillator. Control of the HFO, Intermediate Frequency Oscillator, and the Beat Frequency Oscillator can also be provided from TMC's Variable Frequency Oscillator, Model VOX-5. Main dial calibration at 100 kc points is provided by an internal crystal, controlled by a front panel switch.

The GPR-90RXD incorporates many of the features of the field-proven GPR-90R, Communications Receiver, (R-825/URR), and GPR-90RX, Communications Receiver, (R-840/URR).

TMC Model GPR-90RXD

Sideband reception is possible by using a TMC Model MSR-4, MSR-5, or SBC-1 Receiving Mode Selector. Although the prime function of the MSR is to provide selectable sideband reception, AM, CW, and FSK reception is improved by a specially designed bandpass filter circuit in the MSR.

TECHNICAL SPECIFICATIONS

FREQUENCY RANGE: .54 to 31.5 megacycles in 6 bands, continuous tuned.

MAIN BAND CALIBRATION:

BAND 1.	.54	to	1.4	mc.
2.	1.4	to	3.3	mc.
3.	3.2	to	5.6	mc.
4.	5.4	to	9.6	mc.
5.	9.4	to	17.8	mc.
6.	17.3	to	31.5	mc.

BAND SPREAD CALIBRATION:

BAND (Meters)	FREQUENCY (Mc)
160	1.8 to 2.0
80	3.5 to 4.0
40	7.0 to 7.3
20	14.0 to 14.35
15	21.0 to 21.45
11	26.95 to 27.54
10	28.0 to 29.7

MODES OF RECEPTION: AM, CW, and MCW signals. SSB reception with TMC Model MSR. FSK when used with audio type frequency shift converter, such as TMC Model CFA.

INPUT IMPEDANCE: Nominal 70 ohms unbalanced.

ANTENNA TRIMMER: Front panel control permits peaking of antenna circuit.

NOISE FACTOR: Better than 6 db.

SENSITIVITY: Better than 1 microvolt from 1.4 to 31.5 mc for AM, CW, MCW, FSK, and SSB signals; intentionally desensitized to 5 microvolts from .54 to 1.4 mc.

STABILITY: Better than .002% first three bands and .003% remainder of range. These figures are after warm-up at a normal ambient and will hold for usual operating periods.

IF SELECTIVITY: Variable in six steps from 250 cycles to 6 kilocycles, 5 crystal and 1 non-crystal positions.

HFO CONTROL:	1 variable and 10 crystal positions plus connector for external oscillator, CR 18/U, .995 to 35.455 mc.
HFO EXTERNAL INPUT:	Not less than 1 volt into 72 ohms impedance. UG-88/U.
BFO CIRCUIT:	High stability variable BFO.
CRYSTAL CALIBRATOR:	Provides 100 kc markers throughout the tuning range.
IMAGE RATIO:	Average 80 db.
IF REJECTION:	455kc—Average 85 db. 3.955mc—Average 100 db.
NOISE LIMITER:	A highly effective series type audio noise limiter.
AGC CHARACTERISTICS:	With an 80 db change in the input signal, the output remains constant within ± 6 db.
IF OUTPUT:	455kc, 50 ohms, .1 volt for MSR-4 or other IF accessory equipment.
REAR PANEL FACILITIES:	Antenna connections Fuse Loudspeaker connections Relay standby connections Phono ON/OFF Phono input SSB selector switch External HFO input AGC Diode load External BFO in External IFO in
ACCESSORY FACILITIES ON REAR PANEL:	115 volt AC outlet. Utility power socket provides: 6.3 volts, .6 amp. 250 volts, .01 amp. Coaxial IF output for SSB adapter input.
AUDIO RESPONSE:	± 1.5 db 70 to 12,000 cps.
AUDIO OUTPUT:	2 watts, 4, 8, 16, and 600 ohms.
HUM LEVEL:	Better than 60 db down.