

## TECHNICAL BULLETIN NUMBER 3006

### General Purpose Receiver TMC Model GPR-92



TMC MODEL GPR-92

The Technical Materiel Corporation's Model GPR-92, a highly versatile dual conversion communication receiver, provides continuous coverage from .54 to 32.3 megacycles in six bands. High sensitivity and a 6 db noise figure assures maximum intelligibility under very weak signal conditions. Additionally, an input dynamic range of 80 db, without affecting the technical characteristics permits receiver operation under a wide variety of signal input conditions.

A front panel HFO trimmer, used in conjunction with the crystal calibration oscillator, allows the operator to calibrate the main tuning dial every 100 kcs.

An electrical bandspread permits precise fine tuning of the receiver. Front panel controlled IF bandpass from 15 to 0.5 kc, in six steps, provides optimum bandwidth and low noise reception of ISB, SSB, AM, compatible AM, CW, MCW, FSK and FAX signals. A refined product detector permits single sideband reception without an external converter.

When used with MODEL SBC-2, a demultiplexing sideband converter described in Bulletin 4003, the GPR-92 will provide four voice or 64 teletypewriter channels.

The GPR-92 is designed for ready application in diversity operation. Common control of the receivers' oscillators is provided by Model TRX-1 Stabilized Crystal Oscillator (TB 4006) to provide 1 part in  $10^6$  per day, or better, stability. Built-in isolation amplifiers prevent interaction between the oscillators of the two receivers and provide a constant load for the common external oscillator. Rear panel connections allow common AGC hook-up for two receivers operating in diversity, greatly enhancing this type of reception. Provisions for muting the receiver are also provided on the rear panel.

## General Purpose Receiver

The unit is furnished without slides as Model GPR-92 and with slides as Model GPR-92(S) for standard 19" rack or cabinet mounting.

### TECHNICAL SPECIFICATIONS, TMC MODEL GPR-92

|                               |  |
|-------------------------------|--|
| FREQUENCY RANGE:              | .54 to 32.3 mcs continuous tuning.<br>Band 1 .54 to 1.4 mc<br>2 1.4 to 3.3 mc<br>3 3.3 to 5.6 mc<br>4 5.6 to 9.5 mc<br>5 9.5 to 17.5 mc<br>6 17.3 to 32.3 mc   |
| MODES OF RECEPTION:           | SSB, AM, compatible AM, CW, MCW.<br>FSK, FAX and ISB reception with appropriate external adaptors.   |
| INPUT IMPEDANCE:              | Nominal 70 ohms. Antenna trimmer will match antenna impedance of 40 to 300 ohms unbalanced.  |
| NOISE FIGURE AND SENSITIVITY: | 6 db or better from 2-30 mcs. A 1 microvolt input signal at 7.5 kc bandwidth will provide at least 15 db signal + noise to noise ratio.  |
| CRYSTAL CALIBRATION:          | Provides 100 kc calibration points throughout the tuning range.  |
| STABILITY:                    | After a 12 hour warm-up in a normal ambient environment, the receiver will maintain a stability of at least .003%.   |
| INTERMODULATION:              | Better than 35 db on two tone test.  |
| IMAGE RATIO:                  | Average 80 db from 2 to 32.3 mcs.  |
| IF REJECTION:                 | Better than 80 db from 2 to 30 mcs.  |
| NOISE LIMITER:                | Adjustable level, peak noise limiter circuit for CW/SSB. Adjustment control includes ON/OFF switch to remove limiter from circuit.   |
| IF SELECTIVITY:               | Front panel selection provides the following standard bandwidths:<br><ol style="list-style-type: none"><li>1. .5 kc symmetrical</li><li>2. 1 kc symmetrical</li><li>3. 2 kc symmetrical</li><li>4. 3 kc symmetrical</li><li>5. 7.5 kc symmetrical</li><li>6. 15 kc symmetrical</li></ol> |

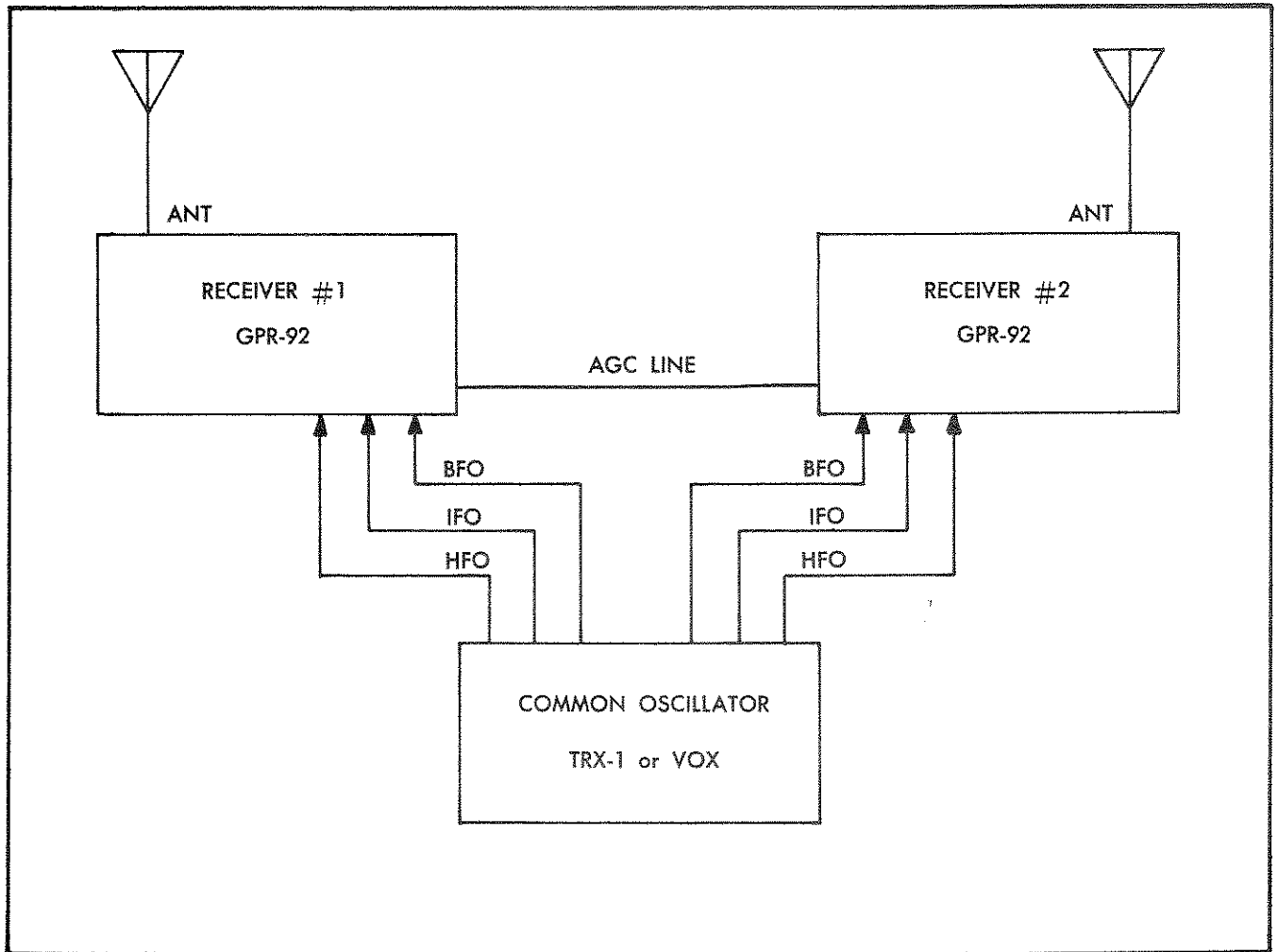
## TMC Model GPR-92

A plug-in crystal filter is available to improve skirt selectivity.

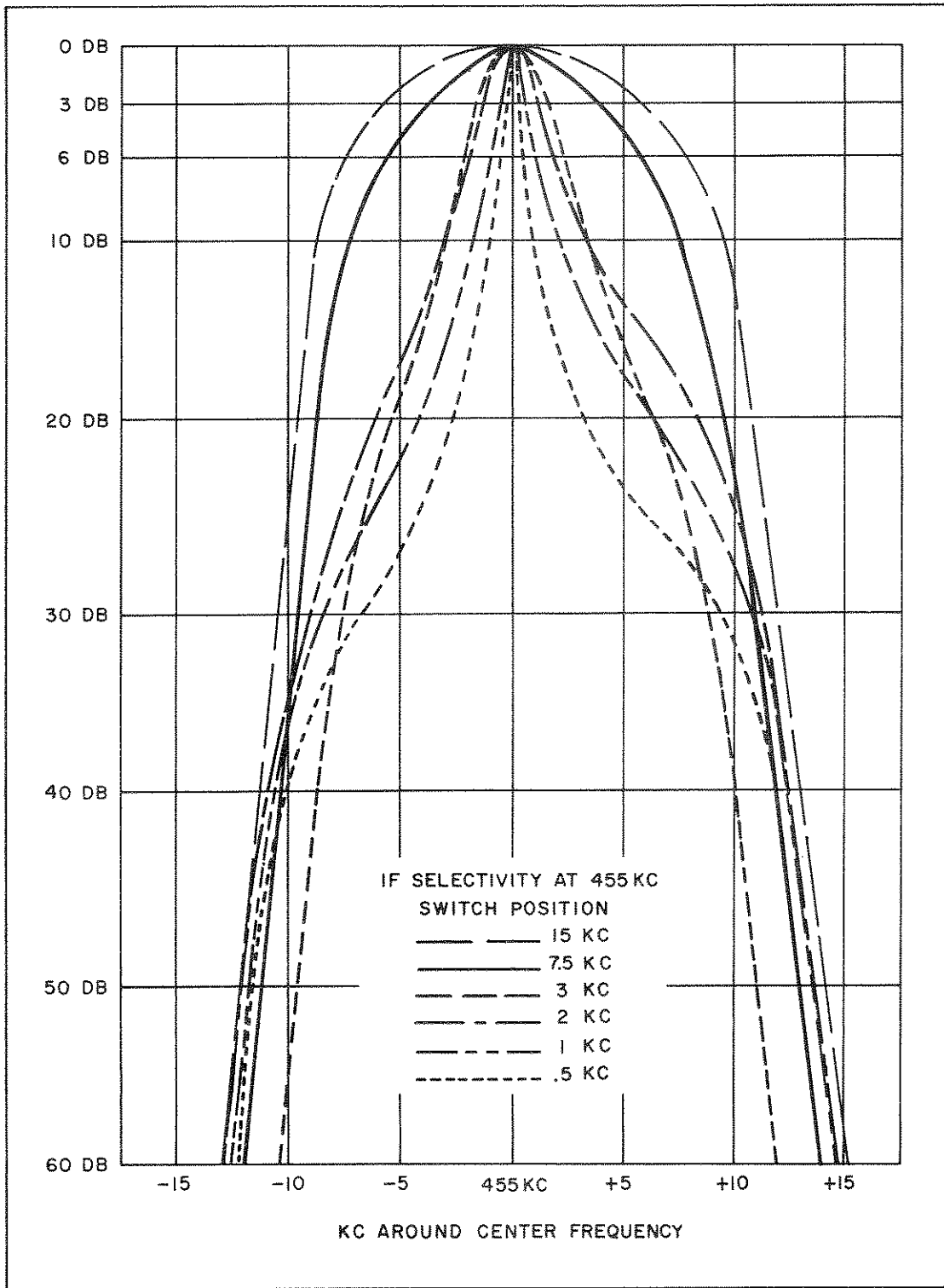
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|---------------------------|---|
| IF RESPONSE:              | Flat within $\pm 1.5$ db over the above bandwidths.   |
| INTERMEDIATE FREQUENCIES: | 3.955 mc and 455 kc.  |
| AGC CHARACTERISTICS:      | 80 db rise in input signal from 1 microvolt will produce less than 2 db change in audio output.   |
|                           | SSB 3 millisecond attack<br>1.2 second decay  |
|                           | AM .9 millisecond attack<br>.33 second decay  |
| SQUELCH:                  | Continuously variable distortion-free squelch circuit with rear apron contacts for external monitoring of receive signal activity.  |
| IF OUTPUT:                | At least 10 millivolts rms into 50 ohms available for IF accessory units (BNC connector).   |
| BFO CONTROL:              | 1. $\pm 3$ kc internal BFO.<br>2. BNC connector for external BFO.   |
| FRONT PANEL CONTROLS:     | Main tuning dial<br>Bandspread dial<br>BFO pitch<br>Line level<br>RF Gain/Power Off<br>AM/SSB/CW mode selector<br>CW limiter<br>RF noise limiter<br>IF selectivity<br>Squelch control<br>Antenna tuning<br>Band selector<br>Calibrate pushbutton<br>Send-Receive switch<br>Manual-AVC switch<br>AF limiter-Off<br>RF-AF meter pushbutton<br>Oscillator Internal/External<br>HFO trim<br>Monitor audio<br>Tone control |

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|                              |  |
|------------------------------|--|
| REAR PANEL FACILITIES:       | Antenna connectors (BNC connector)<br>Fuse<br>Audio output connections<br>IFO input }<br>HFO input } BNC connectors<br>BFO input }<br>AVC connections<br>Diode load connections<br>Accessory AC receptacle<br>IF outputs (2) |
| AUDIO RESPONSE:              | 100 to 8000 cycles, $\pm 1.5$ db.  |
| AUDIO OUTPUT:                | 1. 1 milliwatt across 600 ohm balanced and centertapped.<br>2. 1 watt into 4, 8, or 16 ohms.<br>3. Headphones, 600 ohms.   |
| HUM LEVEL:                   | Better than 50 db below rated output.  |
| METERING:                    | Combination "S" meter and VU meter with selector switch.   |
| PRIMARY POWER:               | 105, 115, 125, or 210, 220, 230, 240, or 250 volts, $\pm 10\%$ , 50 to 400 cycles, single phase, 125 watts.  |
| POWER SUPPLY:                | Solid state.   |
| ENVIRONMENTAL CONDITIONS:    | Designed to operate in any ambient temperature of $0^{\circ}$ C to $50^{\circ}$ C and any value of humidity up to 95%.   |
| INSTALLATION DATA:           | $8\frac{3}{4}$ " h $\times$ 19" w $\times$ 17" d.<br>65 lbs.   |
| SHIPPING DATA:               | 120 lbs., 6 cu. ft.  |
| LOOSE ITEMS:                 | BNC connectors, fanning strips for terminal boards, alignment tool, allen wrenches, and a phillips screw driver are provided.  |
| INSTRUCTION BOOK:            | IN 3006  |
| COMPONENTS AND CONSTRUCTION: | All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.   |

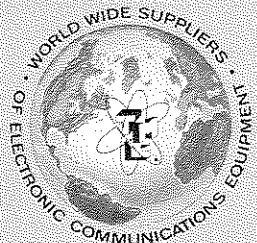


DIVERSITY OPERATION WITH THE GPR-92



TYPICAL RESPONSE CURVES

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