

## TECHNICAL BULLETIN NUMBER 3028A

Communication Receiver  
TMC Model DDR-5K  
AN/FRR-74



- 2 to 32 mcs, 100 cycle steps
- 1 part in  $10^8$  stability
- SSB, ISB, AFSK, AFAX, CW, MCW and AME
- Direct reading frequency (numeric display)
- 60 db AGC action within each demultiplexed IF channel
- Four channel ISB reception

The Technical Materiel Corporation's Model DDR-5K, (AN/FRR-74) consists of a very sensitive RF amplifier, that is capable of accepting input RF variations of at least 100 db without affecting the technical characteristics of the unit, a synthesizer tunable in 100 cycle steps that maintains the receiver's accuracy at 1 part in  $10^8$  per day and a four-channel independent AGC system.

60 db of AGC acting independently within each of four 3 kc voice channels provides commercial quality circuits for voice or multi-channel telegraphy reception. Human engineering in the positioning of the channels and their associated controls on the front panel minimize operator confusion.

The filtered, forced air cooled cabinets contain AC line filters and RF filters on all signal lines to reduce all radiated and conducted interference well below the maximum limits set forth in MIL-I-16910.

PROPERTY OF SPECIFICATIONS  
AND STANDARDS ENGINEERING

## Communication Receiver

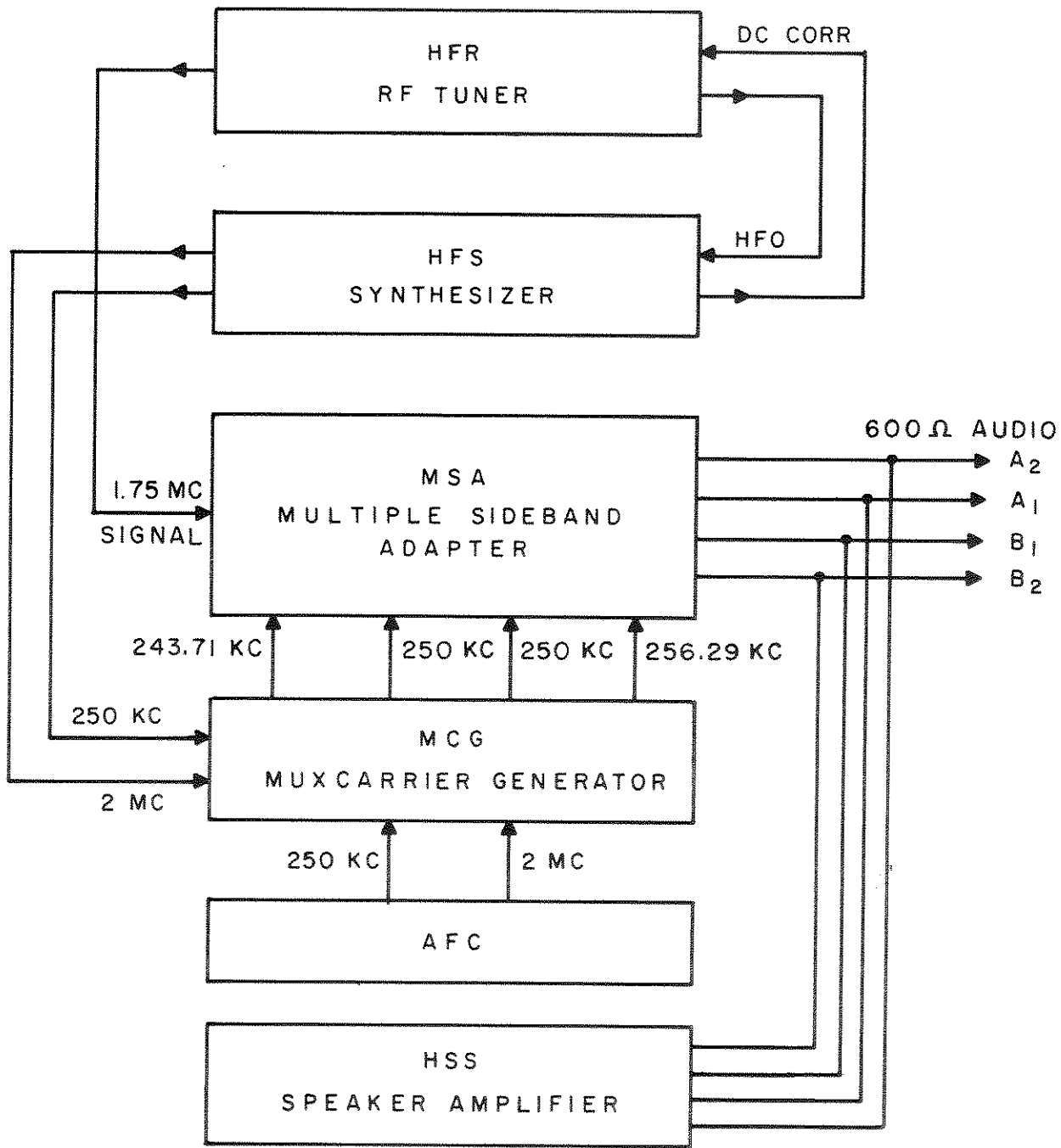
### TECHNICAL SPECIFICATIONS, TMC MODEL DDR-5K

FREQUENCY RANGE:	2 to 32 mcs, 100 cycle steps.
MODES OF RECEPTION:	Primary: SSB, ISB, AFSK, AFAX. Secondary: AME, CW, MCW.
INPUT IMPEDANCE:	Nominal 50 ohms, unbalanced.
NOISE FIGURE AND SENSITIVITY:	6 db or better over the band, i.e., with a 1 uv signal and a 7.5 kc bandwidth, the output signal noise to noise ratio is 15 db or better.
TUNING:	Synthesized tuning is accomplished by means of 5 detented switches. The RF frequency is displayed on the front panel of the receiver by means of digital illuminated numerals, 1" high and 14" slide rule dial.
INTERMODULATION:	Intermodulation products are down 60 db from the maximum tone in the desired sideband as a result of two signals in the unwanted sideband.
IMAGE RATIO:	80 db referenced to a 1 microvolt input signal.
SPURIOUS RESPONSE: (As defined by CCIR)	Better than 120 db referenced to 1 uv. (For synthesized operation, all spurious response will be no greater than .01 uv when referenced to the antenna.)
IF REJECTION:	Better than 80 db average.
IF BANDPASS: (Each Channel)	$\pm 1.5$ db, 250 to 3040 cps.
NOISE LIMITER:	The noise limiter is an improved "Lamb" type which mutes the receiver during impulse types of noise.
AFC CHARACTERISTICS:	The AFC will automatically synchronize to a received signal within $\pm 50$ cps and suppressed up to 25 db at a front end sensitivity of 1 microvolt above noise threshold and will remain synchronized for $\pm 750$ cps at a maximum drift rate of 10 cps/per second. Memory circuit will maintain tuning position during signal fades or momentary outages.
SQUELCH:	When no signal is being received, the squelch circuit incorporated in each channel disables the audio amplifier circuit for that particular channel. A front panel control is provided to set the desired squelch action.
AUDIO RESPONSE:	Each audio amplifier has a response of $\pm 1.5$ db, 50 cps to 10,000 cps.

## TMC Model DDR-5K

AF DISTORTION:	Intermodulation products are better than 50 db below full output through the audio channels.
AUDIO OUTPUTS: (Four)	0 to 10 milliwatts, balanced, 600 ohm per channel.
HUM LEVEL:	Minus 50 db below full audio output.
METERING:	Front panel meters provide indications of the operation of all critical circuits.
PRIMARY POWER:	115/230 volts, $\pm 10\%$ , 50/60 cps, signal phase; maximum power at 115 v, approximately 1000 watts.
VOLTAGE REGULATION:	<ol style="list-style-type: none"><li>1. B+ and B- maintained within 1% from no load to full load and with <math>\pm 10\%</math> line voltage variation.</li><li>2. B+ ripple does not exceed 100 millivolts. B- ripple does not exceed 5 millivolts.</li></ol>
FUSING:	All voltage outputs separately fused using blown fuse indicator type holders.
ENVIRONMENTAL CONDITIONS:	The equipment is designed to operate in any ambient temperature range of 0 to 50° C and any value of humidity up to 90%.
LOOSE ITEMS:	Instruction books and mating RF connectors and plugs.
MILITARY NOMENCLATURE:	AN/FRR-74
INSTALLATION DATA:	72" h $\times$ 24¼" w $\times$ 30" d., 800 lbs.
SHIPBOARD APPLICATION:	See OPTIONS/ACCESSORIES.
COMPONENTS AND CONSTRUCTION:	All equipment manufactured in accordance with JAN/MIL specifications wherever practicable.
INSTRUCTION BOOKS:	IN-355
<u>OPTIONS/ACCESSORIES:</u>	(Priced separately)
Shipboard Application:	A special shock and vibration system, KIT 236 is an available item for shipboard or transportable applications.

PROPERTY OF SPECIFICATIONS  
AND STANDARDS ENGINEERING



FUNCTIONAL BLOCK DIAGRAM, MODEL DDR-5K



# THE TECHNICAL MATERIEL CORPORATION

CABLE "TEPEI"

TWX 914-835-3782

MAMARONECK, N. Y. 10544

THE WORLD-WIDE SYSTEM OF REMOTE CONTROLLED COMMUNICATIONS

and Subsidiaries ALEXANDRIA, VIRGINIA • GARLAND, TEXAS • SAN LUIS OBISPO, CALIFORNIA  
 OXNARD, CALIFORNIA • POMPANO BEACH, FLORIDA • OTTAWA, CANADA • LUZERN, SWITZERLAND