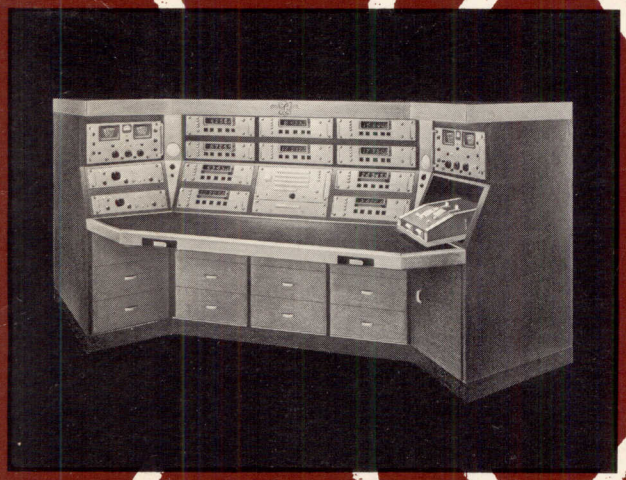
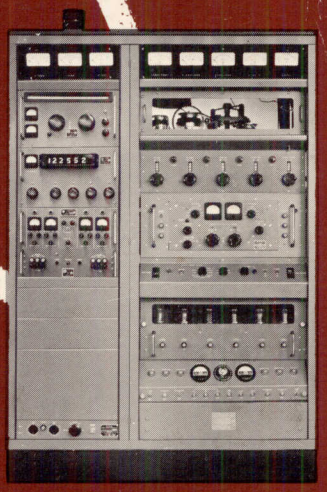


SHORT FORM CATALOG



THE TECHNICAL MATERIEL CORPORATION

TRANSMITTERS

TRANSMITTER ACCESSORIES

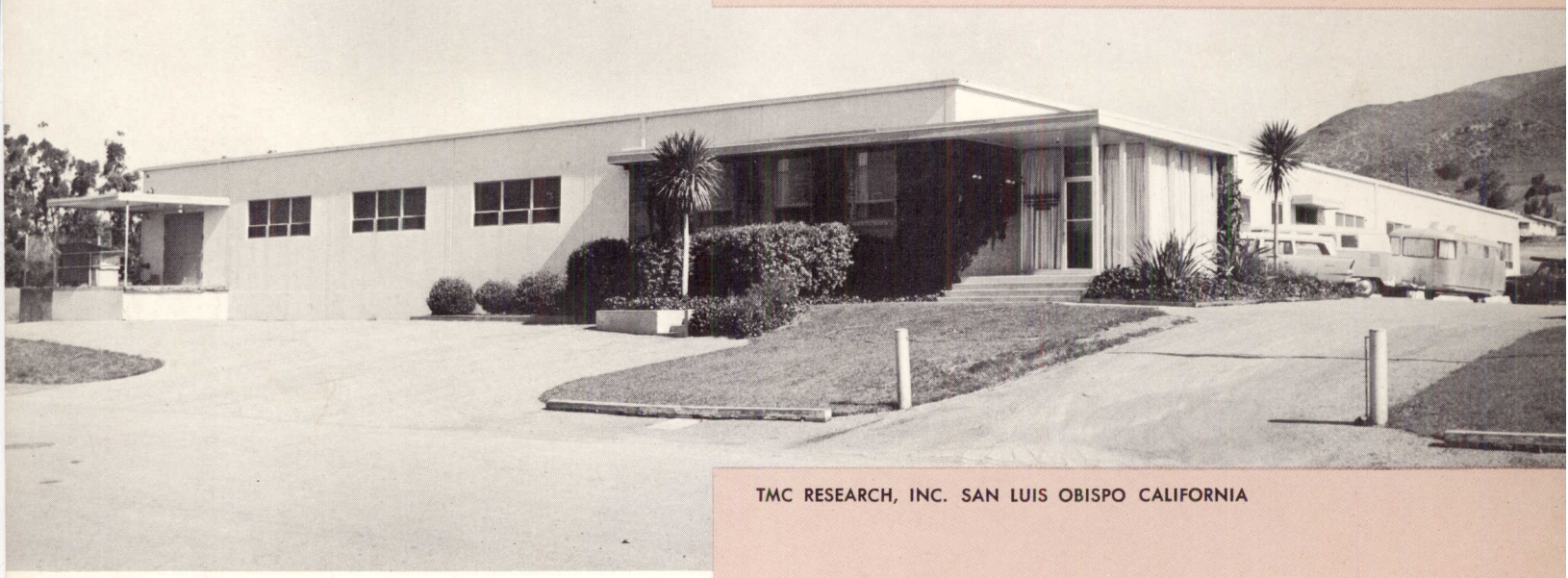
RECEIVERS

RECEIVER ACCESSORIES

TERMINAL EQUIPMENT

SALES OFFICES AND SUBSIDIARIES

MAIN OFFICE	THE TECHNICAL MATERIEL CORPORATION 700 Fenimore Road P.O. Box 142 Mamaroneck, New York, 10544	Area Code 914 698-4800 TWX 914-835-3782
CANADIAN SALES	TMC (CANADA), LTD. R.R. #5 Ottawa, Ontario, Canada	Area Code 613 822-0244
ALEXANDRIA, VIRGINIA	TMC SYSTEMS, INC. 806 North Henry Street Alexandria, Virginia, 22300	Area Code 703 548-6126 TWX 703-931-4211
	TMC POWER DISTRIBUTION, INC. 4412-4414 Wheeler Avenue Alexandria, Virginia, 22300	Area Code 703 836-7122
SOUTHWESTERN REGION	TMC SYSTEMS (TEXAS), INC. 3309 West Kingsley Road Garland, Texas, 75040	Area Code 214 278-0551 TWX 214-278-9513



TMC RESEARCH, INC. SAN LUIS OBISPO CALIFORNIA

TEST EQUIPMENT

CONNECTOR PRODUCTS

RF PRODUCTS AND ANTENNA ACCESSORIES

ACCESSORY EQUIPMENT

FIXED PLANT AND MOBILE POWER

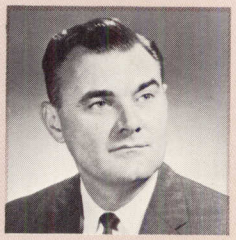
AIR-TRANSPORTABLE AND MOBILE COMMUNICATIONS

WESTERN REGION	TMC SYSTEMS (CALIF.), INC. 1127 Industrial Ave. Oxnard, California, 93030	Area Code 805 483-0157 TWX 805-447-7109
	TMC RESEARCH, INC. 2950 Southwood Drive San Luis Obispo, California, 93400	Area Code 805 543-7227 TWX 805-543-6543
SOUTHEASTERN REGION	TMC SYSTEMS (FLORIDA), INC. 1380 S.W. Eighth Street P.O. Box 1525 Pompano Beach, Florida, 33060	Area Code 305 933-3561 TWX 305-942-2700
EUROPE	TMC SYSTEMS, AG Haldenstrasse 37 Luzern, Switzerland	Tel. 20144

Ray de Pasquale
PRESIDENT

William Galione
EXEC. V. PRES.

John Galione
SECRETARY



Earnest A. Matson, Jr.
VICE PRES.

William Deans
VICE PRES.

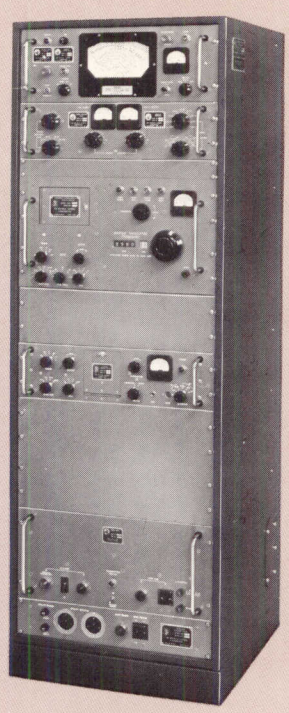
Paul C. Munroe
VICE PRES.

B. Pritchard
VICE PRES.

350 TO 1000 WATT GENERAL PUR

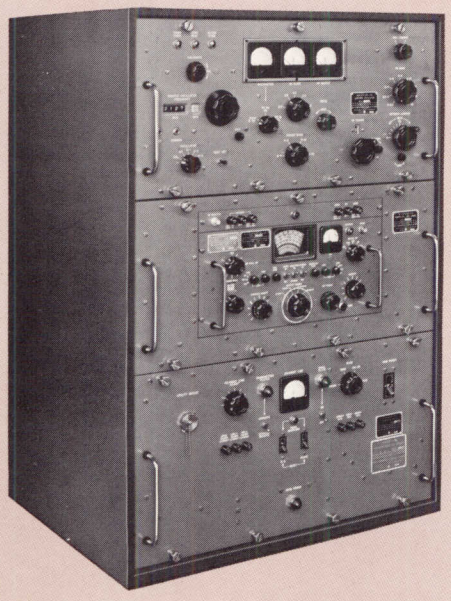
350 WATTS

TMC's Models GPT-350 general purpose transmitters are specifically designed to fulfill requirements of general purpose communications from 2 to 32 Mcs. Models GPT-350 provide AM, CW, MCW, and FSK modes of operation and three oven crystal control positions or external VMO, with a wide choice of audio inputs and push-to-talk operation. Modular construction of this group of transmitters affords many customer options as to operational modes and shock or base mounts. The final linear amplifier allows economical transition to sideband modes of operation when required. GPT-350 are housed in sturdy 19" cabinets and provided with filtered forced air cooling.



MODEL GPT-350

BULLETIN 1002



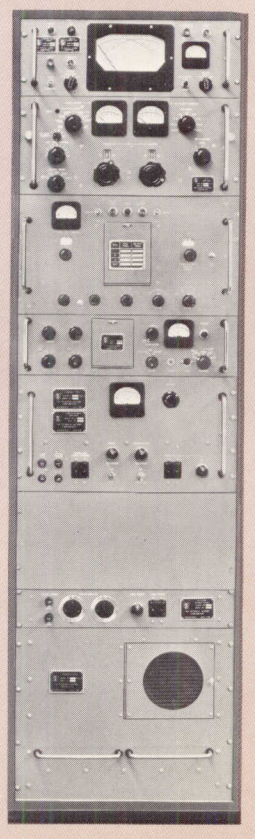
MODEL GPT-750

BULLETIN 1007

750 WATTS

The TMC GPT-750 series of general purpose transmitters emphasize the dependable characteristics that have been engineered into these sturdy hardworking transmitters. The GPT-750 is in service aboard ships, in civil defense installations, in ham shacks, and at commercial and military shore stations all over the world. The GPT-750 series feature continuous tuning from 2-32 megacycles and provide 750 watts PEP SSB and ISB, 750 watts high level AM, and 1000 watts CW and FSK operation. GPT-750 are housed in attractive reinforced metal cabinets with filtered forced air for cooling.

AN/FRT-17A
AN/FRT-55



MODEL GPT-1K

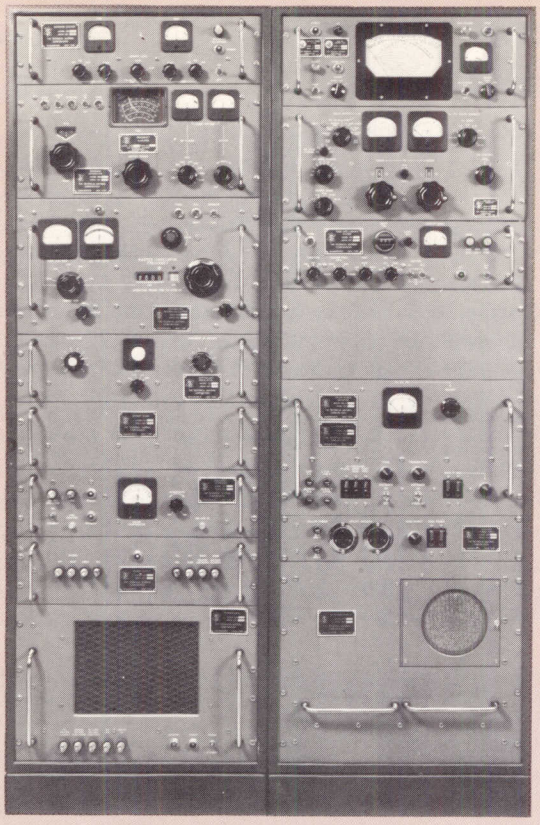
BULLETIN 1002

1000 WATTS

GPT-1K series of transmitters by TMC includes building block versatility for customer selection incorporating AM, CW, MCW, and FSK modes of operation from 1.75 to 32 mcs with three oven stabilized crystal positions or external VMO operation. A wide choice of audio inputs with push-to-talk operation is available. Simplex operation is provided by means of a coaxial antenna relay. The 1000 watt final linear amplifier affords an economical means of changing to sideband operation at a future date.

THESE TRANSMITTERS ARE AVAILABLE WITH SOLID STATE POWER SUPPLIES

POSE AND SSB TRANSMITTERS

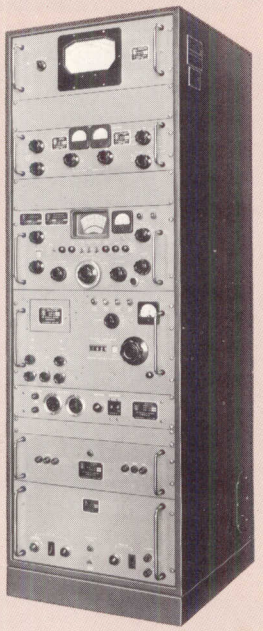


1000 WATTS SSB (SYNTHESIZED)

Models SBT-1K synthesized transmitters provide ISB, SSB, AM, CW, FSK and FAX modes of operation over the frequency range of 2 to 32 megacycles with 1000 watts PEP output and 100 cycles incremental tuning with stability and accuracy of 1 part in 10^8 per day. Models SBT-1K feature 350 to 3300 cycles or 250 to 7500 cycles in both upper and lower sidebands dependent upon the model ordered. Standing wave ratio indicators or complete antenna tuning systems are provided in the options of the five models offered in this series. Coaxial antenna relay that mutes the receiver upon transmitting is provided to facilitate half duplex operation. These transmitters can be provided with either base or shipboard shock mounts in attractive semi-pressurized cabinets.

MODEL SBT-1K

BULLETIN 1001



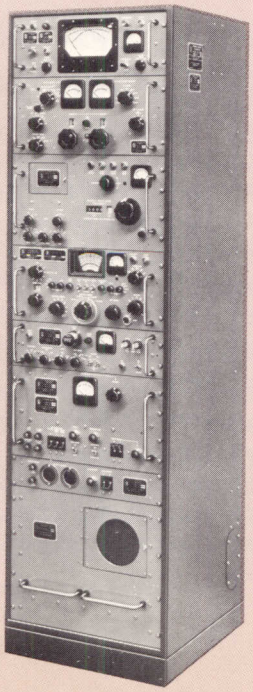
MODEL SBT-350

BULLETIN 1003

350 WATTS SSB

The SBT-350 family of 18 transmitters covers the frequency range of 2-32 mcs and provides AM, SSB, ISB, AM, CW and FSK modes of operation with a minimum of 40 db signal to distortion ratio at full PEP output. SBT-350 transmitters use TMC PAL-350 linear amplifier, which has received OCD and Canadian DOT approval. This family of transmitters is built on the building block principle, using many standard TMC items, such as narrow or wide band exciters, the ATS Antenna Tuning System, the XFK Frequency Shift Keyer, the VOX-5 Variable Frequency Oscillator and the TIS-3 Tone Intelligence System. All SBT-350s are housed in semi-pressurized cabinets and can be provided with either base or standard shipboard type of shock mounts. A coaxial antenna relay, which mutes the receiving circuit, is provided for half duplex type of operation. Voice operated relay with anti-trip features and adjustable gain and squelch is also available.

AN/URT-19(v)
AN/FRT-53
AN/FRT-57
AN/FRT-56



MODEL SBT-1K

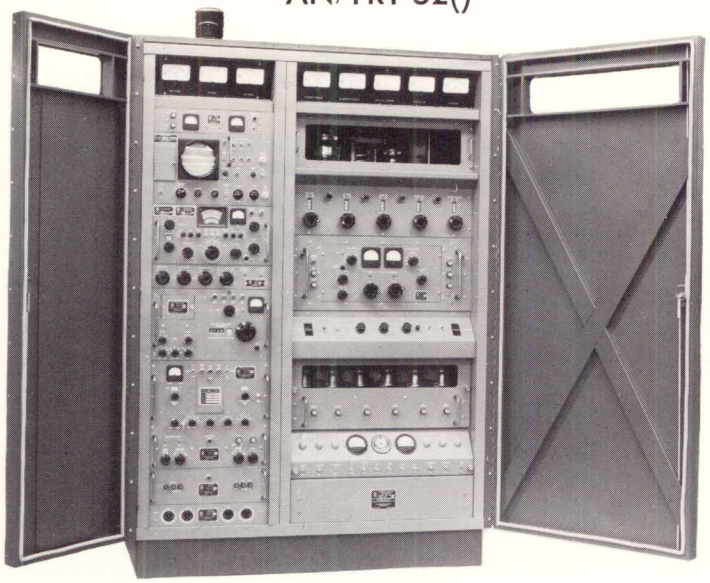
BULLETIN 1001

1000 WATTS SSB

The SBT-1K unsynthesized group of transmitters are general purpose transmitters providing 1000 watts output over the frequency range of 2 to 32 megacycles, with stability of one part on 10^6 and a minimum signal to distortion ratio of 35 db at full PEP output. Eleven different configurations of the SBT-1K transmitter have been manufactured and sold, using the PAL-1K linear amplifier as the heart of the system. The PAL-1K linear amplifier has received OCD and DOT approval. 50 or 70 ohms unbalanced output is available dependent upon the model of the SWR or ATS-2 ordered. Coaxial antenna relay that mutes the receiver upon transmit is provided to facilitate half duplex operation. Models SBT-1K are furnished in semi-pressurized cabinets with filtered forced air cooling and are available in either 350 to 3300 cps, or 250 to 7500 cps operation in both upper and lower sideband. Models SBT-1K provide SSB, ISB, AM, CW, FSK and FAX operation over the total frequency range.

10 KW-40 KW GENERAL PURPOSE

AN/FRT-52()



MODEL GPT-10K

BULLETIN 1008A

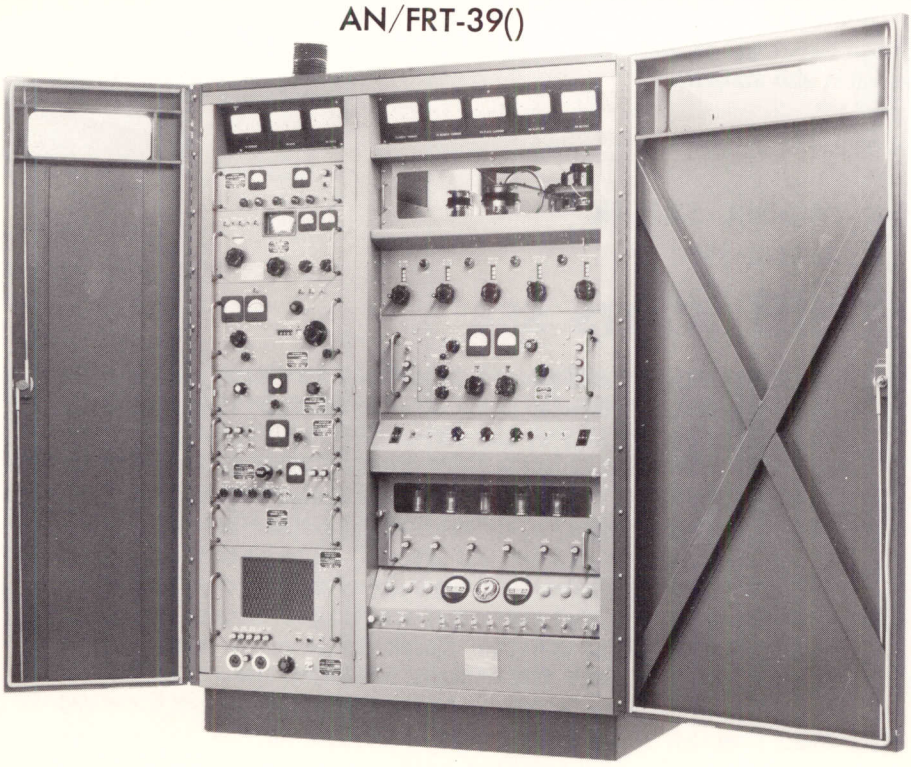
TMC's Model GPT-10K general purpose radio transmitters provide SSB, ISB, AM, CW, FSK and FAX modes of operation from 2 to 28 Mcs at 10,000 watts PEP and 5,000 watts average power. Under conditions of a 64 tones voice frequency modulation GPT-10K transmitters provide approximately 50 Kw PEP at 20% duty cycle with 35 DB signal to distortion ratio. The linear amplifiers provide 20 Kc band pass, throughout the tuning range, between 3 DB voltage points. GPT-10K transmitters have found service in commercial and governmental installations worldwide, in fixed station, mobile and shipboard application. The modular building block concept of this series of transmitters provides many customer options with approximately 24 individual models to select from. The final PI-L output of this transmitter will match a load with a maximum VSWR of 2 to 1 with either balanced or unbalanced output.

TECHNICAL SPECIFICATIONS

FREQUENCY RANGE: 2-28 megacycles bandswitched • **OPERATING MODES:** SSB, ISB, CW, AM, FSK and FAX. • **POWER OUTPUT:** 10,000 watts to 2 tone PEP signal to distortion ratio at least 35 db. 5000 watts average CW or FSK. • **CARRIER INSERTION:** —55 db to full output. • **HARMONIC SUPPRESSION:** Second harmonic at least 50 db down from PEP output, third harmonic at least 65 db down from PEP output. • **OUTPUT IMPEDANCE:** 50 or 70 ohms unbalanced. 600 ohms balanced. Pi-L network will match a load with VSWR of 2:1 maximum. • **VSWR PROTECT:** Meter with preset VSWR of up to 2:1 disables transmitter when this value is reached.

THESE TRANSMITTERS ARE AVAILABLE WITH SOLID STATE POWER SUPPLIES AND VAPOR COOLING.

AN/FRT-39()



MODEL GPT-10K-R
GPT-10K-AC

BULLETIN 1005

Model GPT-10K-R and GPT-10K-AC Synthesized General Purpose Transmitters provide SSB, ISB, AM, CW, FSK, and FAX modes of operation from 2-28 megacycles at 10,000 watts PEP and 5,000 watts average power. Synthesized accuracy and stability of 1 part in 10^8 with 100 cycle incremental tuning throughout the frequency range are featured in these transmitters.

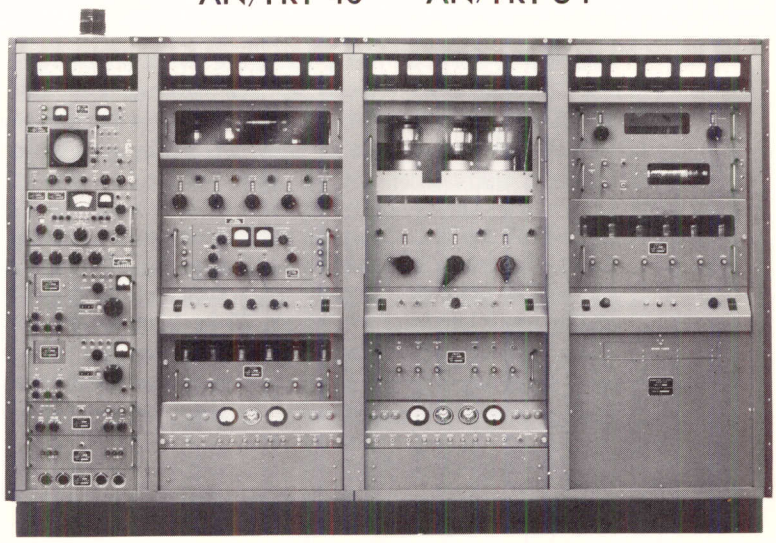
With 64 tone voice frequency modulation, these transmitters provide approximately 50 kw PEP at 20% duty cycle with 35 db signal to distortion ratio. The modulator building block concept provides ease in operation and maintenance, with most of the units installed on tilting drawer slides.

SINGLE SIDE BAND TRANSMITTERS

GPT-40K

BULLETIN 1009

AN/FRT-40 AN/FRT-54



Models GPT-40K general purpose transmitters are conservatively rated at 40 Kw PEP and 20 Kw average power output. With 64 tone voice frequency modulation, GPT-40K will deliver approximately 100 Kw PEP on a 20% duty cycle with better than 35 db signal to distortion ratio.

A newly designed automatic load and drive control is incorporated with front panel control for adjustment of the level at which the ALDC takes effect.

Models GPT-40KA and GPT-40KF transmitters are completely bandswitched from the front panel and contain a built-in spectrum analyzer for operator and maintenance adjustment of the transmitter. 50 or 70 ohm unbalanced output with 3⅛" EIA flanges or 600 ohm balanced output is available at the option of the user, and the Pi-L tuning network of the final amplifier will match a load with a maximum VSWR of 2:1.

TECHNICAL SPECIFICATIONS

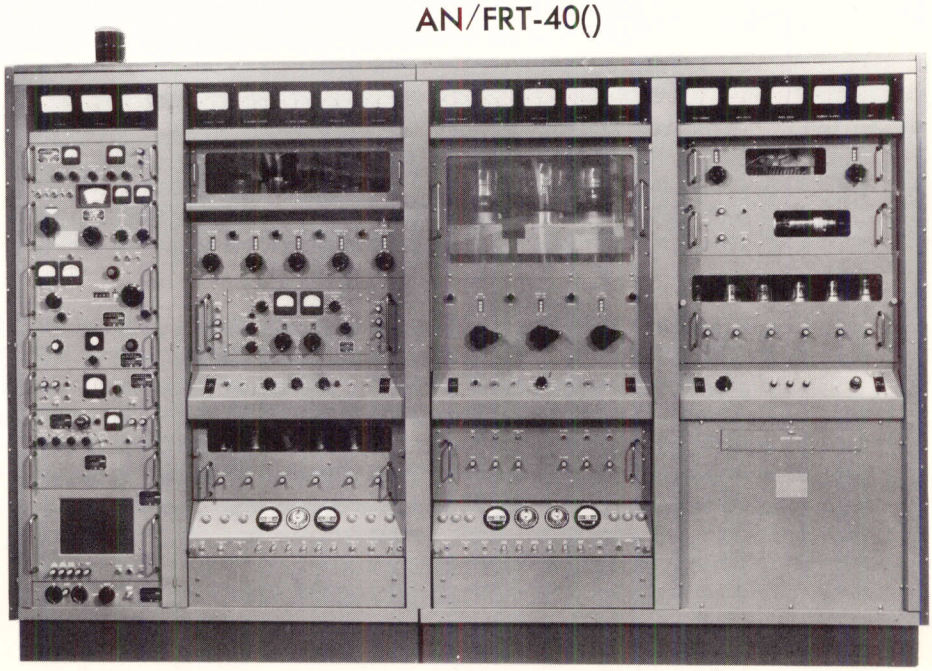
FREQUENCY RANGE: 2-28 megacycles • **MODES OF OPERATION:** SSB, ISB, AM, CW, FSK, and FAX. • **POWER OUTPUT:** 40,000 watts PEP, signal to distortion ratio at least 35 db. 20,000 watts PEP, signal to distortion ratio at least 40 db. 25,000 watts average, CW or FS. • **TUNING:** All tuning and band-switching controls are on the front panel. No plug-in components or mechanical adjustments. Self-cleaning contacts on RF band-switches. • **SPURIOUS SIGNALS:** At least 60 db below full PEP output when using SBE-3 and SBE-4. At least 55 db below full PEP output when SBE-2 is used. • **CARRIER INSERTION:** —55 db to full PEP output. • **HARMONIC SUPPRESSION:** Second harmonic at least 50 db down from PEP output. Third harmonic at least 65 db down from PEP output. • **AUDIO RESPONSE:** SBE-3 Crystal lattice filters flat within ±1.5 db 250-7500 cps. SBE-4 Crystal lattice filters flat within ±1.5 db 250-6000 cps. • **VSWR PROTECT:** Meter with preset VSWR of up to 2:1 disables transmitter when this value is reached.

THESE TRANSMITTERS ARE AVAILABLE WITH SOLID STATE POWER SUPPLIES AND VAPOR COOLING.

MODEL GPT-40KE

BULLETIN 1006

AN/FRT-40()



Model GPT-40KE synthesized general purpose transmitter provides SSB, ISB, AM, CW, FSK, and FAX modes of operation from 2-28 megacycles, in 100 cycle steps with minimum stability and accuracy of 1 part in 10^8 per day. The synthesizer portion of the GPT-40KE may be "locked" to a station standard if higher stability of the transmitted signal is desired.

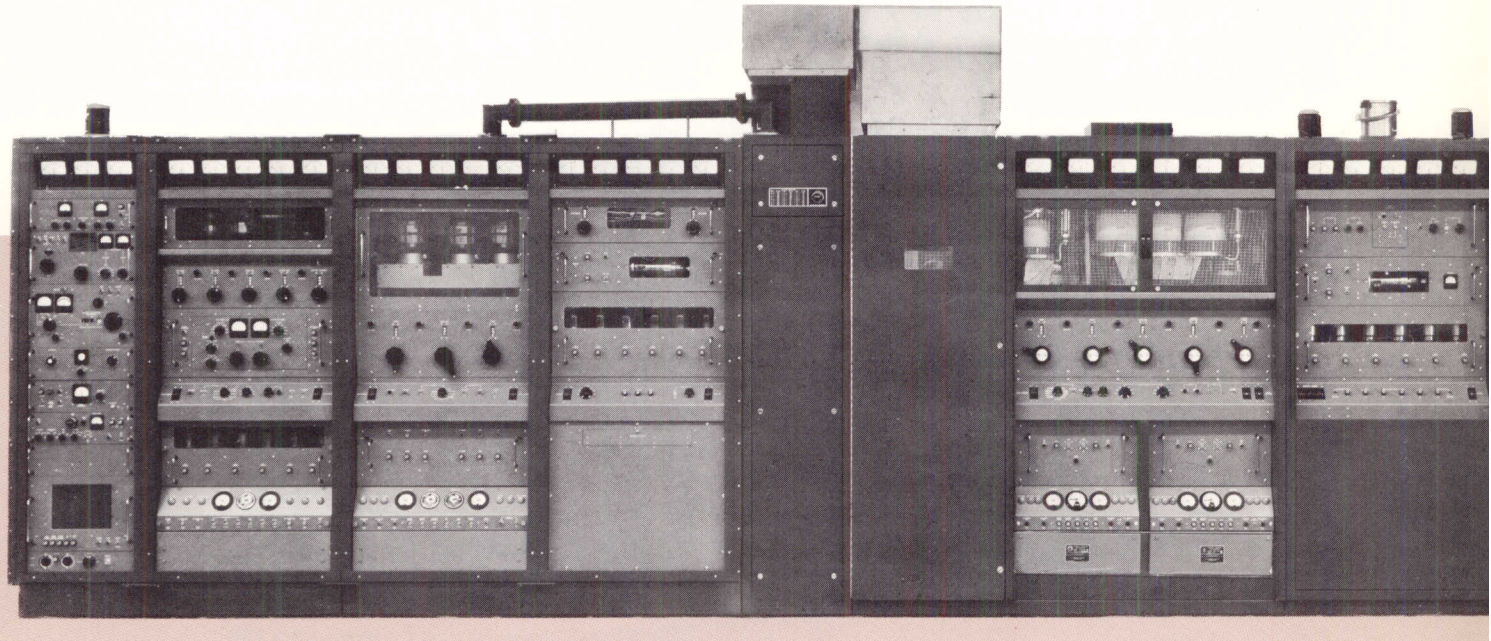
GPT-40KE amplifiers provide greater than 20 kc bandwidth between 3 db voltage points over the entire frequency range of the transmitter.

With 64 tone voice frequency modulation, GPT-40K transmitters will deliver approximately 100 Kw PEP on 20% duty cycle with better than 35 db signal to distortion ratio.

POINT-TO-POINT HI-POWER

TMC Model GPT-200K General Purpose Synthesized Transmitter features 260,000 synthesized channels from 2 to 28 megacycles at 200 KW PEP output in SSB, ISB, AM, AM equivalent, CW, FSK, and FAX operating modes. Under conditions of 64 tone modulation, this transmitter will deliver approximately 500,000 watts peak power at 20% duty cycle, with better than 35 db signal to distortion ratio, or 1,000,000 watts on an absolute peak basis.

The GPT-200K features synthesized frequency control with 100 cps incremental tuning throughout the tuning range, with stability and accuracy of 1 part in 10^8 for a 24 hour period. The synthesizer may be "locked" to a higher stability station standard if desired. The overall minimum bandwidth of the linear amplifier is at least 20 kc between 3 db voltage points over the entire frequency range. 40 kw, 10 kw, and 1 kw outputs may be connected to antenna for emergency or reduced power. Front panel bandswitching and tuning reduces frequency changeover time to a minimum (no plug-in components or mechanical adjustments). Bandswitches are self-cleaning, with no rolling contacts.



MODEL GPT-200KA

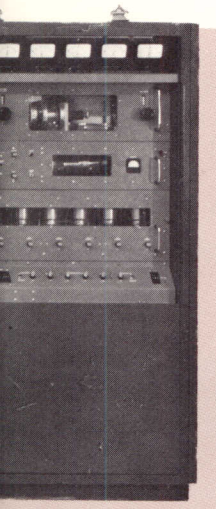
AN/FRT-62

BULLETIN 1014B

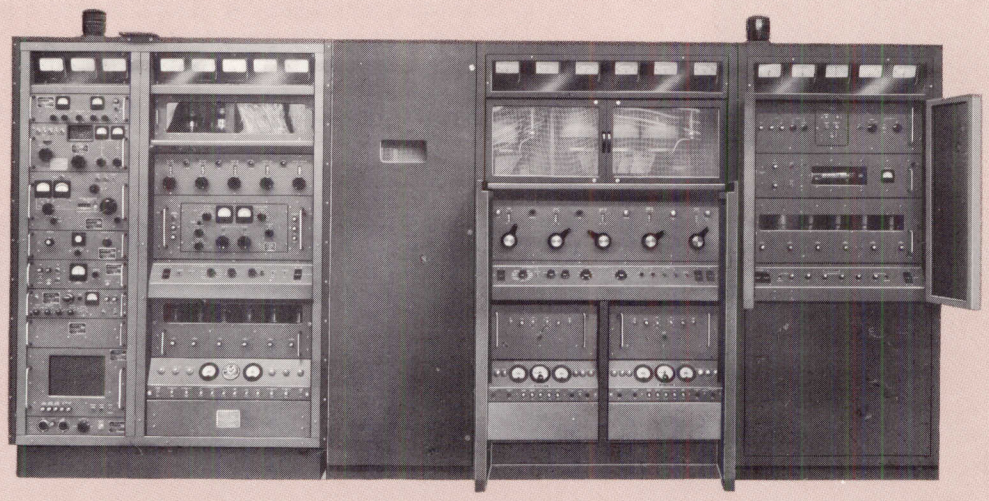
FREQUENCY RANGE: 2 to 28 megacycles bandswitched. • **OPERATING MODES:** SSB, ISB, CW, AM, AME, FSK and FAX. • **POWER OUTPUT:** GPT-200K, 200 kw two tone PEP. Signal to distortion ratio at least 35 db. 125 kw, CW or FSK. GPT-100K, 100 kw two tone PEP. Signal to distortion ratio at least 45 db. 60 kw average, CW or FSK. • **OUTPUT IMPEDANCE:** 50 ohms nominal unbalanced, 6⅛" EIA flange, 600 ohms balanced. Pi-L network will match a load with VSWR of 2:1 maximum. • **STABILITY:** 1 part in 10^8 per day. • **UNWANTED SIDEBAND REJECTION:** 500 cps single tone 60 db down from full PEP output. • **SPURIOUS SIGNALS:** (As per CCIR Standards) At least 60 db below full PEP output.

MULTIMODE TRANSMITTERS

One hundred kilowatt PEP output with 260,000 synthesized channels from 2-28 megacycles for SSB, ISB, AM, AM equivalent, CW, FSK and FAX operation are featured in TMC's Model GPT-100K transmitter. Under conditions of 64 tone modulation, this transmitter will deliver approximately 250,000 watts peak power at 20 per cent duty cycle with better than 35 db signal to distortion ratio.
The transmitter is housed in an attractive cabinet assembly and constructed on a modular basis for ease in installation, operation, and maintenance. Access to all but one of the high level stages and almost all operating components is available from front. Positive contact is obtained by bandswitched tuning elements with no rolling contacts. Air cooling is used throughout and the transmitter is so designed that the intake and exhaust may be ducted to the exterior of a building or mobile container.



THESE TRANSMITTERS ARE AVAILABLE WITH SOLID STATE POWER SUPPLIES AND VAPOR COOLING.

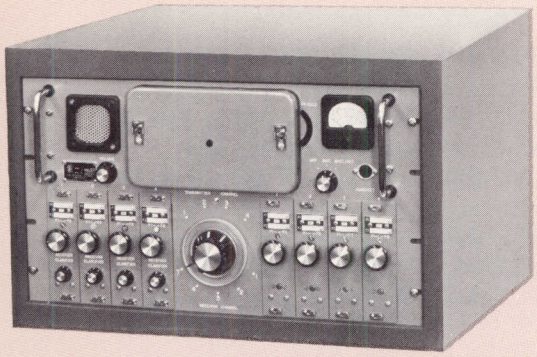


MODEL GPT-100K

BULLETIN 1016

• **CARRIER INSERTION:** —55 db to full PEP output. • **HARMONIC SUPPRESSION:** All harmonics better than 65 db down from full PEP output (no greater than 50 milliwatts. • **AUDIO RESPONSE:** Crystal lattice filters flat within ± 1.5 db 250 to 7500 cps ± 25 cps. • **SPECIAL FEATURES:** ALDC (Automatic Load and Drive Control) is provided to improve linearity, limit distortion, and delivery a relatively constant RF output level during high modulation peaks or load changes. Front panel control allows adjustment of the level at which the ALDC takes effect or switching off the ALDC, if desired. • **COOLING:** Filtered forced air cooling, sempressurized cabinet. Vapor cooling available as optional. • **NOISE:** Power supply ripple 55 db down from full PEP output. Other, 70 db down from full PEP output. • **PRIMARY POWER REQUIREMENTS:** Transformer Primary tapped for 190/200/210/220/240/250 volts AC, 50-60 cycles, 3 phase • **PRIMARY POWER REQUIREMENTS:** GPT-200K, approximately 400 kw. GPT-100K, approximately 250 kw. Primary of transformer may be connected to either DELTA or WYE input. • **VSWR PROTECT:** De-energizes transmitter when preset VSWR (up to 2:1) is exceeded.

SOLID STATE TRANSMITTER/RECEIVER



MODEL TTR-10

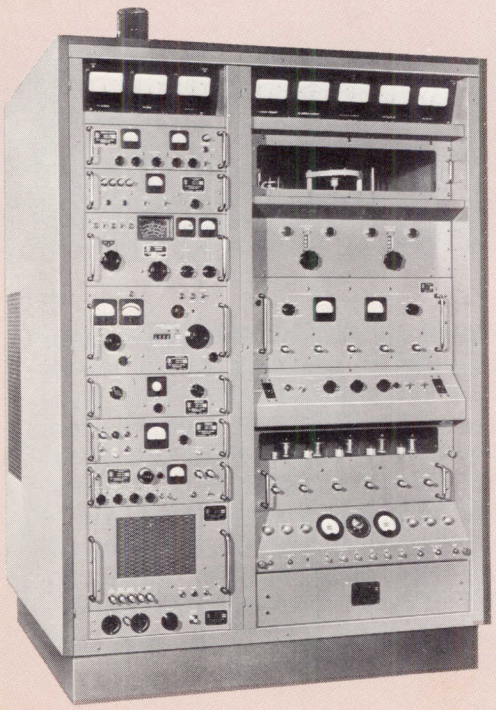
BULLETIN 1004B

SOLID STATE SSB T/R

For harbor circuits, pleasure yachts, extension telephone services, pipeline operations, tactical voice circuits, amphibious landing operations, this highly versatile solid state transmitter/receiver has four fixed tuned channels in the frequency range of 1.6-32 mcs and provides 100 watts PEP output. A wide variety of power supplies, including 115/230v AC, 12, 24, and 32v DC, makes this unit ideal in almost any operational environment. Remote operation of both the transmitter and receiver in either simplex or duplex modes of operation is available.

The unit is also available in a transit/operating case for mobility. Accessory equipment includes: pre-tuned antenna tuner; telephone pushbutton remote control system, carbon or dynamic microphone and oven control of operating crystals in both the send and receive modules.

VERY LOW FREQUENCY TRANSMITTER



MODEL GPT-10KLF

BULLETIN 1015

10 KW GENERAL PURPOSE TRANSMITTER

Model GPT-10KLF transmitter will provide 15 kc independent sideband operation at 10 kw PEP output with 100 cycle tuning increments from 5 kc to 540 kcs with a stability of 1 part in 10^8 per day. Bandwidth output of this transmitter is limited principally by the transmission media and would be more limited at the low end of the frequency range.

Output circuitry is broadband tuned in two stages across the total band. The transmitter is cooled by filtered forced air cooling and all tubes and components less the finals are accessible from the front of the unit. Shipboard mil/spec shock mounts are available for mobile use.

GPT-10KLF can be used for communication circuits, sonar head drivers, or for laboratory type shaker tables requiring variable frequency and high power drive. Approximately 85% of the parts used in this transmitter are directly interchangeable with the widely acceptable AN/FRT-39 series of transmitters currently in wide use throughout the world.

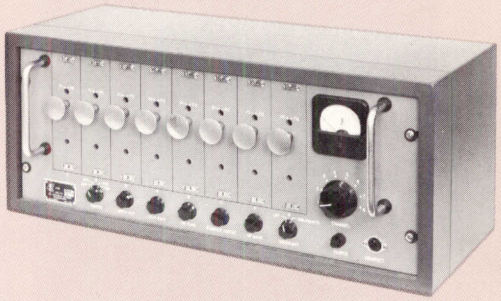
AVAILABLE WITH SOLID STATE POWER SUPPLIES AND VAPOR COOLING.

SOLID STATE EXCITERS

SOLID STATE EXCITER

MODEL SME-1

BULLETIN 2030



The TMC Model SME-1, Solid State Exciter, provides rapid selection of any one of eight crystal controlled channels in the 1.6-32 mc range for SSB, compatible AM, CW and MCW operating modes. Automatic compensation for power distribution between carrier and sideband intelligence prevents overload. A unique voice processing circuit provides a much higher average level power in the speech envelope and prevents overdriving the associated linear RF amplifier.

Remote control is accomplished by an accessory telephone desk set that allows pushbutton selection of operating channels and of upper or lower sideband transmission.

FREQUENCY RANGE: 1.6-32 mcs on eight preset channels. • **MODES OF OPERATION:** SSB, compatible AM, CW, MCW. • **POWER OUTPUT:** 250 milliwatts PEP.

SOLID STATE "STRIP" EXCITER

MODEL STE-1

BULLETIN 2032

This solid state "strip" exciter occupies but 1¾" of panel space, requires but 8 watts of power to operate and four front panel plug-in RF modules from 1.6-2, 2-4, 4-8, 8-16 and 16-32 mcs provides 250 milliwatts of RF power to a 50 ohm load. Oven control of crystals is available for stability of at least 1 part in 10^6 per day. The low heat generated by this unit allows rack mounting of many exciters in a standard 19" relay rack.

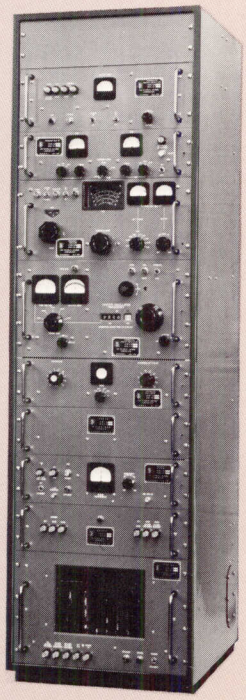
Provides USB, LSB, CW, MCW, AME, AFAX and AFSK modes.

VERY LOW FREQUENCY EXCITER

MODEL SBG-ILA

BULLETIN 2013

LOW FREQUENCY SIDE BAND GENERATOR

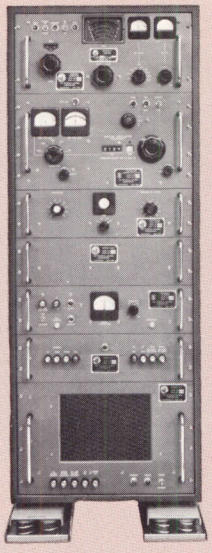


AN/URA-41

Model SBG-1L Low Frequency Sideband Generator provides SSB, ISB, AM and CW modes of operation over the frequency range of 5 to 600 kc with 5 watts output and 1.75 to 33.75 mc with 1 watt output. 100 cycle incremental tuning, with stability and accuracy of 1 part in 10^8 per day, is featured. FSK and FAX modes are available with an external keyer, such as TMC Model TIS-3.

Audio bandwidth up to 7500 cps for each sideband is provided, flat to ±1.5 db from 250-7500 cps. Signal to distortion ratio is at least 45 db from full PEP output.

TRANSMITTING ACCESSORY



AN/URA-31A

CONTROLLED PRECISION OSCILLATOR

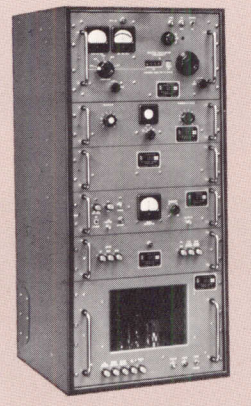
MODEL CPO-1A

BULLETIN 2005

The Model CPO-1A, Controlled Precision Oscillator, is a stabilized general purpose frequency generating system adjustable to 320,000 frequencies over the frequency range of 1.75 to 33.75 megacycles in 100 cycle steps, with stability and accuracy of 1 part in 10^8 per day.

All frequency determining elements in CPO-1A are derived from a precise oven controlled 1 mc source. In addition to the master 1 mc standard, the unit provides an emergency standard with a stability of 1 part in 10^6 per day. A phase detector comparison circuit with direct meter indication allows the built-in standard to be compared to a master or station standard, without degradation of the external standard.

FREQUENCY RANGE: 1.75 to 33.75 mc in 100 cycle steps. • **OUTPUT POWER:** Continuously adjustable from zero to 1 watt. • **OUTPUT IMPEDANCE:** 70 ohms nominal. • **INPUT POWER:** 115/230 volts, 50-60 cps, single phase. • **SIZE:** 72¼" high × 20⅝" wide × 22½" deep.



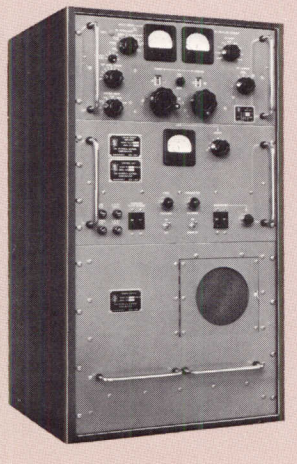
CONTROLLED PRECISION OSCILLATOR

MODEL CPS-1

BULLETIN 2006

Model CPS-1, Controlled Precision Oscillator, is a precise master oscillator with stability and accuracy of 1 part in 10^8 per day. The unit covers the frequency range of 2 to 4 megacycles continuously tunable in 100 cycle increments. All frequency determining elements in the CPS-1 are derived from a dual temperature oven controlled 1 megacycle source. A phase detector circuit with direct meter indication allows this built-in standard to be compared to, and corrected to, a master or station standard. Also, the unit may be connected to an external standard of greater stability without degradation of that standard.

FREQUENCY RANGE: 2 to 4 mc in 100 cycle steps. • **OUTPUT POWER:** Continuously adjustable from zero to 1 watt. • **OUTPUT IMPEDANCE:** 72 ohms nominal. • **INPUT POWER:** 115/230 volts, 50-60 cps, single phase. • **SIZE:** 72¼" high × 20⅝" wide × 22½" deep.



AN/URA-36A

LINEAR POWER AMPLIFIER

MODEL PAL-1KA

BULLETIN 2003A

The TMC Model PAL-1KA Linear Power Amplifier is conservatively rated to deliver 1000 watts PEP output when either SSB or ISB excitation is applied or 1000 watts average power output with an AM, CW, MCW, FSK or FAX input. The PAL-1KA covers the frequency range from 2 to 32 mc and features:

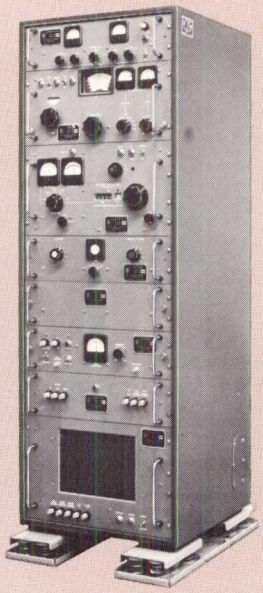
a) Front panel bandswitching and tuning
b) A ceramic type tube for high efficiency
c) Automatic load and drive control to improve linearity and suppress unwanted transmission products (—40 DB from full PEP)
d) Metering of all critical circuits
e) Filtered forced air cooling and complete interlock and overload protection.

SIDEBAND GENERATORS

TMC Models SBG-1 and SBG-2 are stabilized general purpose exciter systems adjustable to 320,000 frequencies over the frequency range of 1.75 to 33.75 megacycles in 100 cycle steps, with stability of 1 part in 10^8 per day. Models SBG-1 and SBG-2 provide SSB, ISB, AM, and CW operating modes. A phase detector comparison circuit with direct meter indication allows the built-in standard to be compared to a master or station standard.

AUDIO RESPONSE: SBG-1 Crystal lattice filter flat within ±1.5 db, 250 to 7500 cps. SBG-2 Crystal lattice filter flat within ±1.5 db, 250 to 3300 cps. • **FREQUENCY RANGE:** 1.75 to 33.75 megacycles in 100 cps steps. • **FREQUENCY CONTROL:** All frequency determining elements referenced to a built-in 1 mc source. • **FREQUENCY STABILITY:** 1 part in 10^8 per day. • **OUTPUT POWER:** Continuously adjustable from zero to 1 watt PEP. • **OUTPUT IMPEDENCE:** 72 ohms nominal. • **CARRIER SUPPRESSION:** At least 55 db down from PEP level.

MODEL SBG-1
BULLETIN 2010



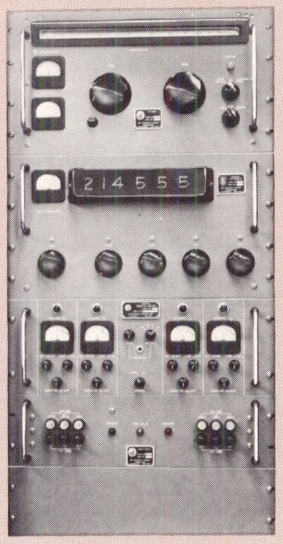
AN/URA-30 A

SIDEBAND GENERATORS

- **2 to 32 mcs**
- **100 cycle tuning**
- **Digital frequency presentation**
- **Four independent audio channels or symmetrical filter**
- **SSB, ISB, AM, AME, CW, FSK, FAX, Pulse and Phase modes**
- **VOX and Anti-VOX**
- **TechniMatiC* tuning available**

*Trademark applied for

MODEL SBG-3
BULLETIN 2012



SPEECH PROCESSING UNIT

The TMC Speech Processing Unit, Model SPU-2, is a completely transistorized volume compressed, peak clipped and filtered audio amplifier for use with a voice modulated AM or SSB transmitter to provide additional overall system efficiency. Clinical articulation tests have indicated 50% to 65% improvement of intelligibility under adverse signal to noise conditions.

The SPU-2 combines compression and clipping with a special pre-emphasis circuit. Pre-emphasis commences at 200 cycles and has been peaked at approximately 2500 cycles with a 6 db per octave slope through the audio passband to provide uniform power density in the transmitted intelligence.

Provision is made in the SPU to disable the clipper circuits when the unit is used as a constant level amplifier with a receiver. When used in the output of a receiver in conjunction with a hybrid junction, the SPU-2 will provide constant output to minimize circuit ringing.

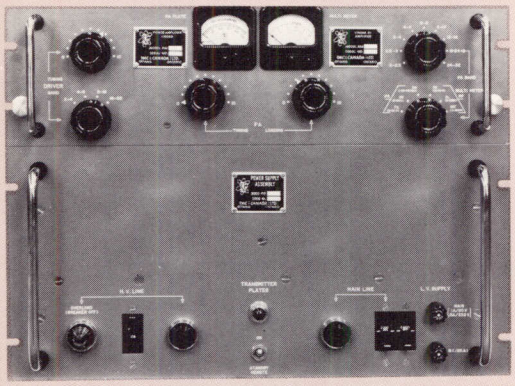
MODEL SPU-2
BULLETIN 2026B

AM-3905/URT

TRANSMITTING ACCESSORY

MODEL PAL-350

BULLETIN 2002



AM-2867/GRT-9

LINEAR POWER AMPLIFIER

TMC Linear Power Amplifier Model PAL-350A (OCD and Canadian DOT certification) will accept SSB, ISB, AM, CW, MCW, FSK and FAX excitation over the frequency range of 2 to 32 mc and will provide 350 watts PEP output for sideband transmission and 175 watts average power output for conventional and FSK modes of operation.

Particular attention has been given to the suppression of distortion products (—40 DB at full PEP), amplifier stability (automatic load and drive control incorporated), and power supply hum content (—60 DB).

Full interlock, overload and fuse protection have been provided for the safety of operating personnel and protection of the equipment. A filtered forced air blower system is included as an integral part of the PAL-350. The PAL-350 occupies only 14" of panel space in a standard 19" cabinet.

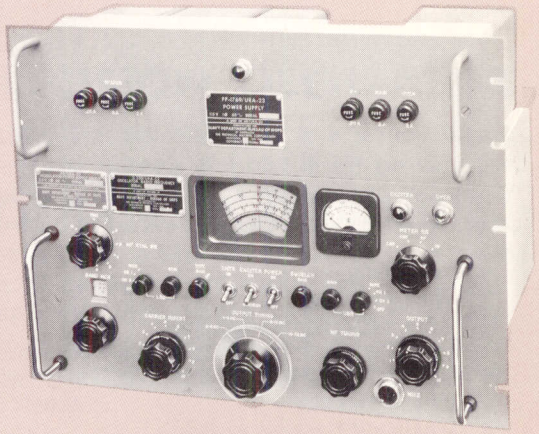
SIDEBAND EXCITER

The TMC Models SBE-2 and SBE-3 and SBE-4 are universal sideband exciters providing at least 1 watt PEP output for use with any appropriate RF linear amplifier. SBE units provide excitation from 2 to 32 megacycles in SSB, ISB, and AM modes, with carrier insertion adjustable from 0 to —55 db. Conventional CW operation is also available.

Frequency control for all modes of operation available with SBE is accomplished by means of oven controlled crystals, with the added advantage of external VFO insertion. Sideband selection is accomplished by specially designed filters. Second harmonic suppression on two tone test is at least 40 db down, and all others are at least 50 db down from full output. Spurious (as defined by CCIR) is at least 60 db down for the SBE-3 and SBE-4, and at least 55 db down for the SBE-2.

• **AUDIO BANDPASS:** SBE-2 Flat within ±1.5 db 350-3300 cps. SBE-3 Flat within ±1.5 db 250-7500 cps. SBE-4 Flat within ±1.5 db 250-6000 cps.

MODEL SBE BULLETIN 2008



AN/URA-23A
AN/URA-28

MODEL LFA-4

BULLETIN 2028

LOW FREQUENCY ADAPTER

Model LFA-4, Low Frequency Adapter, is a versatile unit combining a wideband amplifier with frequency translation circuits to convert a high frequency input signal to a low frequency output of 5 to 600 kcs.

SSB, ISB, AM, AM equivalent, CW, FSK and FAX operating modes are available. When this unit is used in conjunction with a sideband exciter such as TMC Model SBG or a frequency shift keyer such as TMC Model XFK-2, the stability and quality of the output signal is not degraded in the translation process. A highly stable 1 mc internal oven crystal or external frequency standard signal source may be used, depending on the required output stability.

The unit is 5¼" × 19" × 12" and weighs 24 lbs.

AND EXCITER EQUIPMENT

VARIABLE FREQUENCY OSCILLATOR

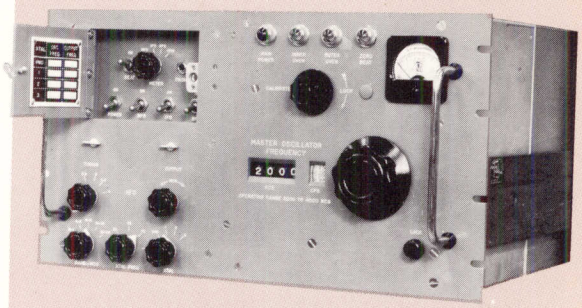
MODEL VOX-5

BULLETIN 2018

TMC Model VOX-5 is a direct reading, precision, frequency device designed to control the oscillators of a diversity receiver or of a transmitter exciter. This oscillator is also used as a secondary frequency standard.

Model VOX provides a continuously variable output over the range 2 to 64 mc, with direct reading calibration over the basic oscillator range with better than 0.002% long term stability. Frequency calibration is provided by means of an oven controlled 100 Kc crystal oscillator with visual zero beat indication.

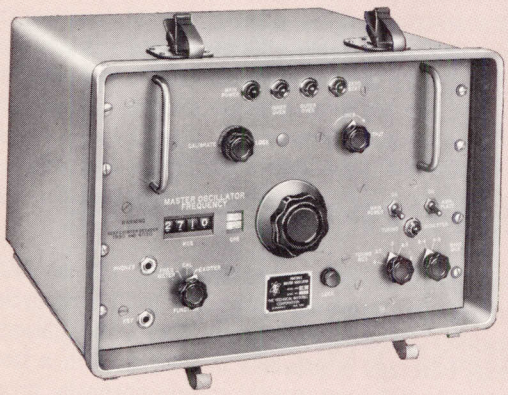
FREQUENCY RANGE: 2 to 64 megacycles. • **OUTPUT LEVEL:** 2 watts, 2 to 4 mc; 0.5 watts, 4 to 64 mc. • **STABILITY:** 20 cycles per megacycle for any fixed temperature from 0 to 50 degrees C. • **RESETABILITY:** Better than 20 parts per million to a previously calibrated frequency. • **ADDITIONAL FEATURES:** 1. Crystal BFO for receiver control. 2. Crystal IFO for receiver control. 3. Three HFO crystal positions. **INPUT POWER:** 115/230 volts, 50-60 cycles, single phase.



O-330B/FR

MODEL PMO

BULLETIN 2007



O-459A/URT

PRECISION MASTER OSCILLATOR

The Model PMO Portable Master Oscillator and Heterodyne Frequency Meter is a highly stable, precision, direct reading device used as a transmitter exciter, frequency meter or receiver calibrator. It provides output over the range 2 to 8 mcs and is directly calibrated by means of a counter-dial system over the range of 2 to 4 mcs. An oven controlled 100 Kc oscillator provides visual calibration of the unit.

FREQUENCY RANGE: 2 to 8 mcs. • **OUTPUT:** At least 2 watts adjustable • **STABILITY:** Better than 20 parts per million for a 30°C change in ambient. • **CALIBRATION:** Direct reading in cycles, 2 to 4 mcs. • **READABILITY, RESETABILITY:** 20 parts per million to a previously calibrated frequency • **CALIBRATION:** Against a crystal controlled 100 kc oscillator with visual indication.

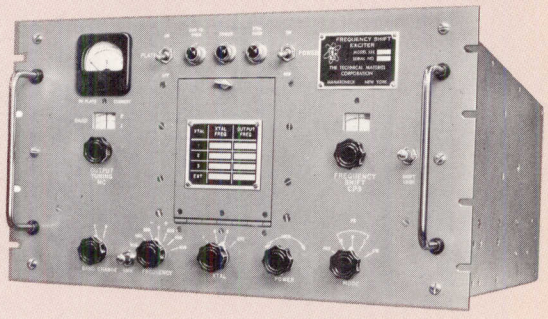
FREQUENCY SHIFT EXCITER

MODEL XFK-2

BULLETIN 2020

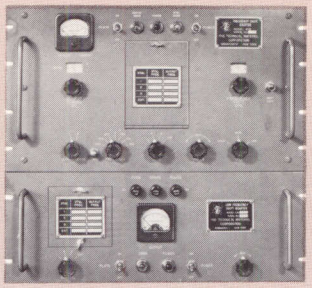
The Model XFK Frequency Shift Exciter is a high stability radio frequency oscillator which replaces the crystal oscillator in the transmitter and provides the mark and space pulses necessary for the transmission of teletypewriter, narrow band FM telephone, or facsimile intelligence. The XFK features two precision temperature controlled ovens providing the high stability required for unattended operation.

FREQUENCY RANGE: 1 to 6.9 mcs. • **FREQUENCY SHIFT:** Linear to 1000 cycles. • **OUTPUT:** 3 watts adjustable into 70 ohms. • **CONTROLS:** Directly calibrated in frequency. • **FREQUENCY CONTROL:** 3 crystal positions and one external oscillator position. • **KEYING SPEED:** 1000 wpm. • **STABILITY:** 10 cycles for an ambient change of 50 degrees C.



C-2749A/URT

TRANSMITTING ACCESSORY

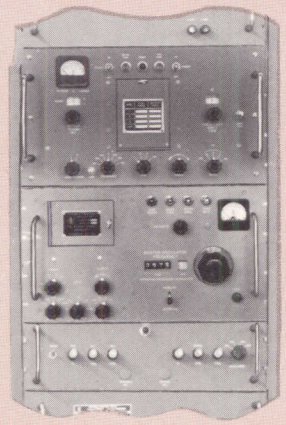


MODEL XFL-2

BULLETIN 2021

FREQUENCY SHIFT EXCITER SYSTEM

The XFL-2 Frequency Shift Exciter System combines TMC Models LFA Low Frequency Adapter and XFK Frequency Shift Exciter, to provide FSK mode of operation over the frequency ranges of 5-600 kcs and 1 to 6.9 Mcs. Providing 5 watt push-pull output with less than 5% distortion, the XFL-2 has excellent lineraity and stability. Keys up to 1000 WPM. The LFA-4 Low Frequency Shift Adapter may be obtained separately for use with existing keyers to provide low frequency operation.



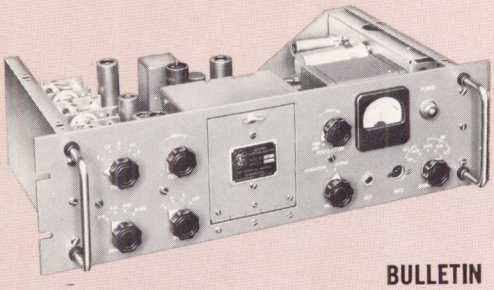
MODEL FXS

AN/URA-23A

BULLETIN 2027

FREQUENCY SHIFT EXCITER SYSTEM

TMC Model FXS Frequency Exciter System provides CW, FSK and FAX modes of operation over the frequency range of 2 to 64 megacycles. Model FXS is particularly suited to the application of these modes of operation with a linear amplifier. Variable frequency control is available as well as fixed crystal operation. Carrier shift of up to 1000 cycles, either linear with applied voltage, or independent of applied voltage amplitude variation is featured. Carrier center frequency and shift control adjustments can be made simply and rapidly as these two adjustments are independent. Adjustment of carrier center frequency does not affect shift amplitude and vice versa.

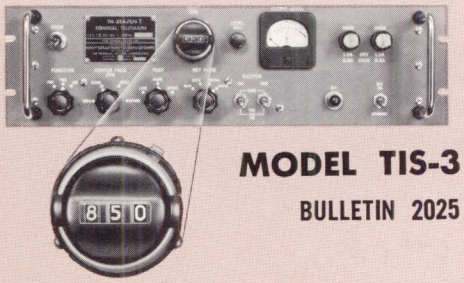


MODEL GPE-1A

BULLETIN 2023

GENERAL PURPOSE EXCITER

Model GPE, General Purpose Exciter, provides AM, CW or MCW modes of operation over the frequency range of 2 to 32 megacycles for any linear amplifier not requiring more than 250 milliwatts excitation. Frequency coverage is provided in 4 bands with a front panel switch selecting 1 of 3 oven crystal control channels, or external signal input such as a variable frequency oscillator or a frequency shift exciter, for FSK operation. Push-to-talk audio operation is available with inputs from carbon mike, dynamic mike, or any suitable 600 ohm balanced input.



MODEL TIS-3

BULLETIN 2025

TH-39A/UGT

TONE INTELLIGENCE UNIT

Model TIS-3 fulfills a requirement for FSK and FAX modes of operation when used with any sideband transmitter where shift of the transmitter carrier would defeat the inherent stability of the equipment. Model TIS-3 provides a simple approach to this problem by means of frequency shifted audio tones with the total spread of the signal being indicated on a digital counter dial for FSK operation (with up to 1000 cycle shift). 1200 cycle linear shift for facsimile operation (depending upon the amplitude of the applied FAX DC controlled voltage) is also provided.

Not limited to single sideband transmitters, TIS-3 can be used on telephone lines or microwave links. Selectable center frequencies for FSK and FAX modes of operation are available, as well as a 1000 cycle note for CW keying. The unit mounts in 5¼" of a standard 19" panel and has received wide acceptance from both military and commercial users.

AND EXCITER EQUIPMENT

REMOTE CONTROL AMPLIFIER

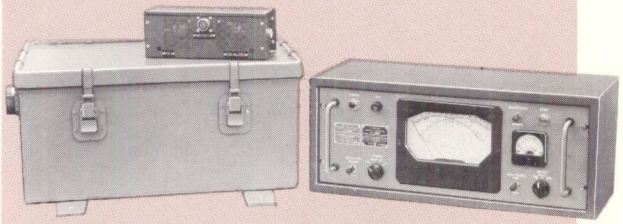
TMC Model RTC Remote Control Amplifier is a multi-purpose unit providing amplification for low level microphone, selectable peak clipping and selectable tone output for MCW. The unit also makes possible remote keying, break-in and other semi-remote transmitter control functions. Peak clipping is controlled by a front panel switch and is continuously adjustable 0 to 20 db. High and low pass filters to provide cutoff below 200 and above 3000 cps are provided.

• **INPUT LEVEL:** —50 db for full output. • **OUTPUT:** 0 volts to +6 dbm, continuously variable. • **FREQUENCY RESPONSE:** 2 db from 100 to 7500 cps. • **DISTORTION:** Less than 2% total harmonic. • **CLIPPING:** 0 to 20 db continuously adjustable.

MODEL RTC-2 **BULLETIN 2022**
AM-2454/URT

ANTENNA TUNING SYSTEM

Model ATS-2 is a complete antenna tuning system that can be fitted to any transmitter with 50 or 70 ohm output to couple 1000 watts of RF energy with 100% modulation into any suitable antenna wherever the VSWR does not exceed 4 to 1. Whenever the VSWR of 4 to 1 is exceeded, or when power ratings are exceeded in the tune or operate position, a safety overload opens the transmitter interlock circuit. The tuner is housed in a fiberglass weatherproof case which contains a desiccant. Presence of moisture in the tuner is indicated by a meter on the front panel of the unit.

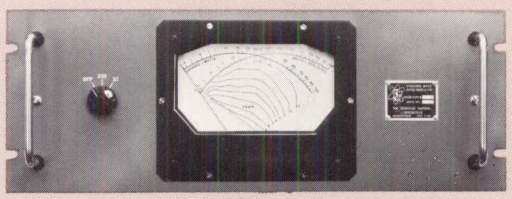


MODEL ATS-2 **BULLETIN 2001**
AN/URA-27 AN/URA-34

VSWR INDICATOR

Model SWR-1K provides accurate indication of voltage standing wave ratio from 2 to 30 mcs at 1000 watts average power with VSWR up to 5 to 1, and greater VSWR with reduced RF power. Unique design of the instrument permits simultaneous indications of forward and reflected RF power for direct VSWR readings. Directional couplers are available for 50 or 70 ohm unbalanced transmission systems.

The unit may be mounted in an optional cabinet or your standard 19" rack.



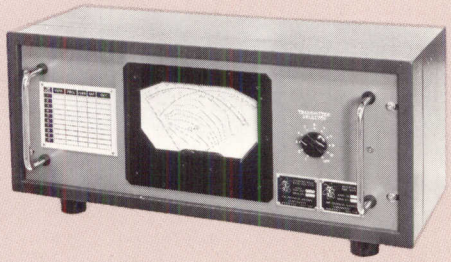
MODEL SWR-1K **BULLETIN 2014**
1M-166/URT

VSWR INDICATOR

TMC Model SWR-3000 Standing Wave Ratio Indicator Systems provides accurate visual readings of forward power, reflected power, and VSWR. Any 2-32 mc transmission up to 3000 watts PEP operating into a 50 or 70 ohm transmission line with VSWR as high as 5:1 can be accommodated by the SWR-3000 with negligible insertion loss.

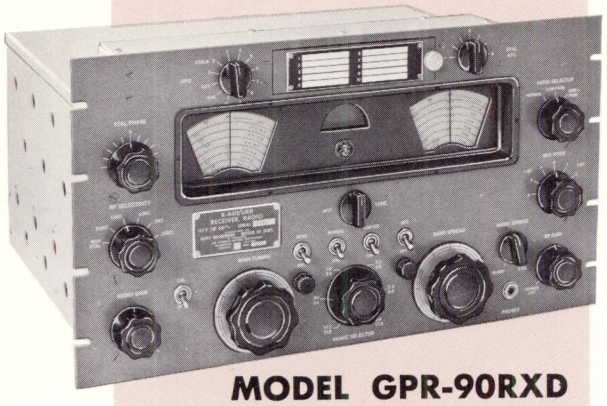
For transmitting stations, electronic plants, laboratory analysis and "hams", the SWR-3000 models RM, PM, CU, or JB1 meet any customer requirement to indicate transmitter efficiency immediately.

Model SWR-10K and Model SWR-60K are also available for 10 KW average power and 60 KW average power applications.



MODEL SWR-3000 **BULLETIN 2015**
MODEL SWR-60K **BULLETIN 2029**
MODEL SWR-10K **BULLETIN 2031**

GENERAL PURPOSE RECEIVERS



MODEL GPR-90RXD

BULLETIN 3005

MODEL GPR-91RXD

BULLETIN 3009

COMMUNICATIONS RECEIVER

Models GPR-90RXD and GPR-91RXD are general purpose communications receivers that provide for the reception of SSB, AM, MCW, CW, FSK and FAX operation over the frequency range of .54 to 31.5 mcs. Ten built-in crystal positions provide high stability to match that of typical voice SSB transmitters.

Model GPR-91RXD with its 15 kc bandpass capability provides facilities for ISB reception. Both receivers, in conjunction with appropriate adapters, such as TMC Models MSR and SBS, can cope with almost any mode of communication used today. This series of receivers features very selective high sensitivity input circuits with low intermodulation, delayed AGC, variable IF audio selectivity and accurate dial calibration Both receivers are 10½" high and 19" wide.

MODEL GPR-92

BULLETIN 3006

GPR-92, a recent addition to TMC's family of receivers, provides the same high quality performance of the GPR-90RXD and GPR-91RXD; and, in addition, has its own built-in product detector for the reception of SSB signals without an external adapter. 15 kc of bandpass, low noise figure and very sensitive front end provide an excellent communications receiver over the frequency range of .54 to 32.3 mcs with continuous tuning. Diversity operation of these receivers is made easier by the inclusion of Model TRX-1, Stabilized Crystal Oscillator, which provides oven control of the necessary conversion frequencies.

MODEL FFR

BULLETIN 3004

AN/FRR-502

AN/FRR-49(v)

COMMUNICATIONS RECEIVER

The Model FFR is a highly versatile receiver, covering the frequency range of 50 Kcs to 32 Mcs and is used for dependable, unattended continuous reception of AM, CW, MCW, FS and SSB signals. Provision is made for Crystal, Internal and External operation of the HFO and BFO. Rapid frequency change is made possible by means of accurately calibrated pretuned plug-in "front ends". Remote control and diversity features are incorporated as standard features. The Receiver is also available with squelch (CODAN) and for Beacon Monitoring purposes.

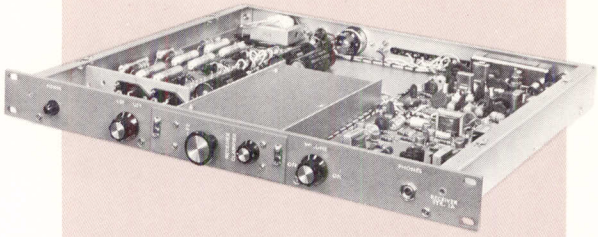
FREQUENCY RANGE: 50 to 400 kcs, 500 kcs, 2 to 32 mcs. • **BAND CHANGE:** By means of pretuned, preheated receiver front ends. • **TYPE OF RECEPTION:** AM, CW, MCW, FS and SSB. • **CONTROL:** Manual or remote. • **FREQUENCY CONTROL:** Crystal or VFO. • **SENSITIVITY:** Better than 1.0 microvolt for 10 DB Signal to Noise Ratio. • **OVERALL SELECTIVITY:** 2 to 32 mcs — less than 5 kc at 6 DB down. • **VARIABLE SELECTIVITY:** 50 kc-400 kc. 5, 1.3, 0.5, 0.3 kc at 6 DB down.

FIXED TUNED HF-VLF RECEIVERS

SOLID STATE "STRIP" RECEIVER

This solid state "strip" receiver occupies but 1¾" of standard 19" panel space and requires only 8 watts of power to operate it. Front panel plug-in RF modules cover the frequency range of 1.6-32 mcs in octaves of 1.6-2, 2-4, 4-8, 8-16 and 16-32 mcs. 0 dbm audio power is available for a 600 ohm line and 500 milliwatts audio power for a 4 ohm speaker. The low heat that is generated by these units and complete front panel control provide a receiver that is readily adaptable to rack mounting for multiple reception requirements.

Reception capabilities include LSB, USB, CW, AME, AFAX and AFSK modes.



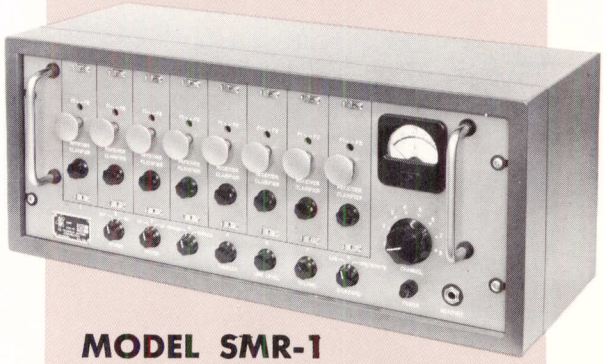
MODEL STR-1
BULLETIN 3014

SOLID STATE FIXED TUNED RECEIVER

Model SMR-1, Solid State SSB Receiver, features rapid selection of any one of eight preset channels for USB, LSB, AM, AME, CW, MCW, FSK and FAX reception in the 2 to 32 mc range.

Eight separate tuned RF heads, with two crystal positions per head, provide selection of any one of 16 operating frequencies plus upper and lower sideband. A front panel control permits fine tuning of received signal.

FREQUENCY RANGE: 1.6-32 mcs on eight pre-tuned channels in the ranges of 1.6-2, 2-4 mcs, 4-8 mcs, 8-16 mcs and 16-32 mcs. • **FREQUENCY STABILITY:** 1 part in 10^6 per day (oven controlled crystals). • **SENSITIVITY:** 1.0 microvolt for 15 db signal to noise ratio. • **AGC:** With 100 db change in input signal from 1 microvolt, the output will not vary more than + 6 db. • **IF:** 300 to 3300 cps mechanical filter. • **POWER:** 115/230v AC, ± 10%, 47 to 400 cps single phase. 12/24/32v DC; 8 watts (less ovens).



MODEL SMR-1
BULLETIN 3010

SOLID STATE VLF RECEIVER

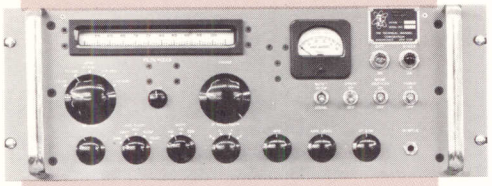
TMC Model VLRA-1, Very Low Frequency Receiver, is a compact, completely transistorized ten channel receiver providing exceptional stability, sensitivity, selectivity and reliability for the reception of continuous carrier, CW and FSK signals over the frequency range of 10 kc to 100 kcs. The tuning modules are designed to provide optimum reception under very weak signal conditions.

Simplicity of front panel design provides complete signal control and operational ease in selection of desired RF channel. An attractive cabinet that can be fitted with shipboard shock mounts is provided.

FREQUENCY RANGE: 10 to 100 kc. • **MODES OF RECEPTION:** AO and CW. FSK with appropriate converter. • **FREQUENCY STABILITY:** Error will not exceed .001% of operating frequency • **FREQUENCY CONTROL:** Crystal controlled. • **INPUT IMPEDANCE:** 50 ohms nominal. • **SENSITIVITY:** A 0.1 microvolt signal impressed across 50 ohms at the input of the receiver will produce a minimum of 10 db signal + noise to noise ratio at 100 cps bandwidth. • **AGC:** No greater than ± 3 db change in output for an 80 db change in input. • **AUDIO RESPONSE:** Constant within ± 1.5 db from 100 to 2500 cps. • **POWER:** 115/230v AC ± 10%, 47 to 400 cps cycles, single phase.

MODEL VLRA-1
BULLETIN 3008A

SOLID STATE RECEIVERS

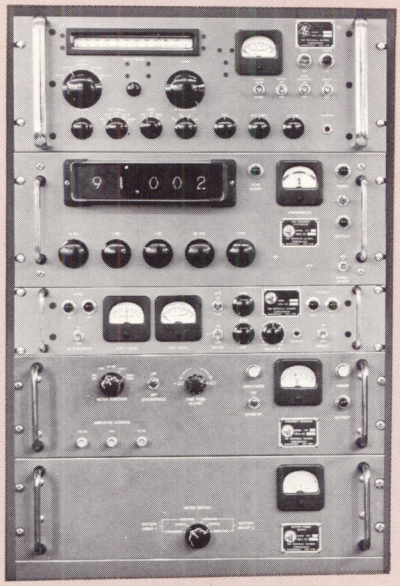


MODEL VLRC-1

BULLETIN 3017

MODEL VLRB-1

BULLETIN 3015



MODEL LRRA-1

BULLETIN 3011

SOLID STATE VLF AND LF/MF RECEIVERS

In today's era of atomic weapons, frequencies at the lower portion of the RF spectrum (below 600 kcs) appear to be least affected by atomic detonation and are therefore very important for communication purposes. These frequencies have proven to be very reliable radio communications media during periods of high sunspot activity.

To fulfill communication requirements in the VLF and LF/MF frequency ranges, The Technical Materiel Corporation has developed two continuously tuned and optimized solid state receivers, Model VLRC-1 for 10 to 40 kc coverage and Model VLRB-1 for 30 to 600 kc coverage. Each of these receivers occupies only 7" of standard rack space and provides reception capabilities of AM, AME, CW, FSK and FAX signals. Reception of some of these modes, particularly in the VLF range, will depend on the capability of the transmission system. IF and RF outputs are available to facilitate the use of ancillary devices for ISB and SSB reception and for use with frequency standard comparison systems.

(See Model LRRA-1)

A synthesizer that is locked to a 1 mc frequency standard of 1 part in 10^9 per day is available as an option at extra cost.

SENSITIVITY: 0.3 microvolt for 15 db signal plus noise to noise ratio. • **BAND PASS:** 0.1, 0.5 and 2 kc at 3 db (8 kc for VLRB-1). • **POWER:** 115/215/230 vac ± 10% 47 to 400 cps.

SOLID STATE LF/MF RECEIVER

An entirely new solid state LF/MF receiver, Model LRRA-1, provides CW, MCW, AM, AM equivalent, SSB, ISB, FAX and FSK reception from 30 to 600 kcs. The unit is synthesized in one cycle steps from 30 to 100 kcs and 10 cycle steps to 600 kcs. 1" illuminated NIXIE lights display the frequency to which the receiver is tuned. One part in 10^9 stability is assured by a built-in frequency standard. A battery supply, maintained at full charge during normal operation, automatically powers the system during power failures.

FREQUENCY RANGE: 30 to 600 kcs continuous in 5 bands. • **RECEPTION MODES:** CW, FSK, FAX, SSB from 30 to 600 kc. AM and ISB from 55 to 600 kc. • **SENSITIVITY:** 0.1 microvolt for 15 db signal + noise to noise at 500 cycle bandwidth. • **STABILITY:** 1 part in 10^9. • **AFC:** 25 db suppression at 1 microvolt front end, system will remain synchronized within ± 300 cps at 30 kc. • **AGC:** No greater than 3 db change for 100 db input variation. • **POWER:** Solid state 115/230v, AC ± 10%, 47-400 cycles, 60 watts. • **SIZE & WEIGHT:** 31" × 22" × 20", 90 lbs.

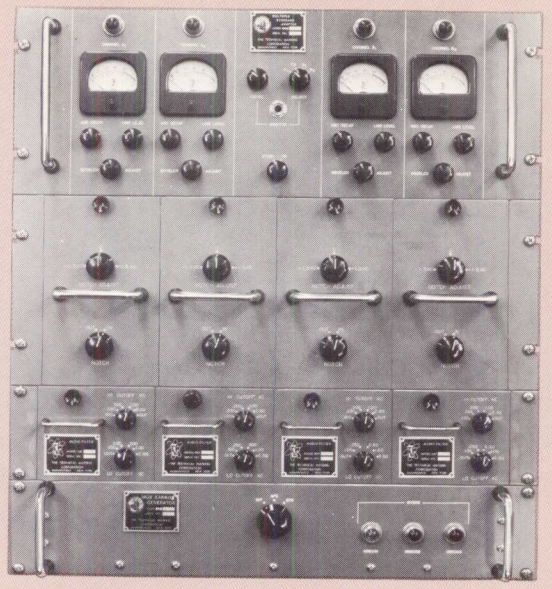
RECEIVER ACCESSORIES

FOUR CHANNEL INDEPENDENT AGC SYSTEM

The Four Channel Independent AGC System, TMC Model MSG()-1, was designed to fulfill the ever-increasing requirements of rapid speaker-to-listener commercial telephone quality voice communications via long distance radio circuits.

The increased stability of sideband transmitters and receivers has made possible the use of audio translation equipment, thus providing four 3 kc channels for use on a single transmission circuit. By this means, four distinctly separate circuits, which may be used for voice, multiple tone telegraph, data, etc., are transmitted by a single transmitter.

The quality of each of the four 3 kc channels must be maintained at commercial quality, if military command and control personnel are to recognize the voices on the other end of the circuit. This factor can only be accomplished by uniform gain and response controlled **independently within each** 3 kc channel.



MODEL MSG()-1
BULLETIN 4004A

SIDEBAND CONVERTER

Models SBC Sideband Converters are IF type of receiving adapters which will allow the use of many conventional communication receivers in receiving SSB and ISB transmissions. A built-in electronic AFC control that will follow a suppressed carrier of up to —25 db with a capture range of 50 cycles and a drift capability of ±750 cps will overcome the inherent drift in either the transmitter or the receiver to allow multichannel reception.

Model SBC-1 and SBC-2 are identical except the SBC-2 contains two voice frequency demultiplexers, TMC Model RMX-2, which makes this unit a modern electronic replacement for the military CV-157/TD-98 combination. Models SBC provide AGC control on independent sideband operation that is derived either from Channel A, from Channel B, from the carrier, or from Channel A and B combined. Model SBC accepts an IF input frequency of 455 kilocycles; however, other IF frequencies can be provided upon special order. A large selection of IF filters are featured. The over-all accuracy of either Model SBC is such that audio tones provided to the receiving terminal equipment will have a residual error of less than 1 cycle from that of the transmitted tones.

MODEL SBC
BULLETIN 4003

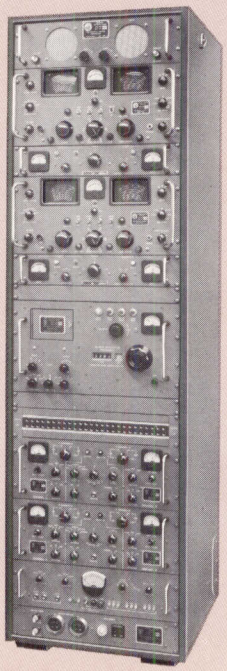
AN/URA-42
CV-1288/UR
C-4071/UR

GENERAL PURPOSE DIVERSITY RECEIVER

This series of diversity receiving systems features the sensitive wideband GPR-92 receivers with a selection of modular accessories, such as:

Model TRX-1, Stabilized Crystal Oscillator
Model VOX-5, Variable Oscillator
Model SBS-1, Sideband Selector
Model AFC-2A, Automatic Frequency Control Unit
Model MSR-4, -5, SSB Adapter
Model DVC-1, Diversity Voice Combiner
Model CFA-1, Frequency Shift Converter

to provide receiving systems that can be tailored to meet your particular communication needs.



MODEL DDR-8
BULLETIN 300

RECEIVER ADAPTERS

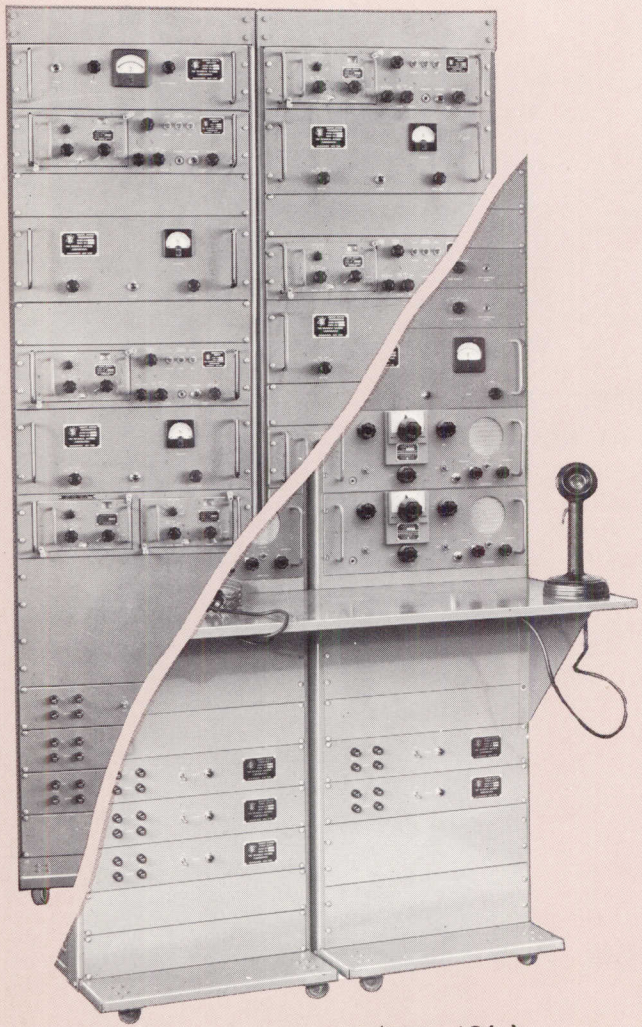
CV-591A/URR
CV-657A/URR
CV-1722/URR
CV-1758/URR

MODEL MSR
BULLETIN 4001

SIDEBAND ADAPTER

Models MSR are IF type sideband adapters that provide single sideband reception with many conventional receivers and greatly enhance the operation of these receivers. Provisions for the selection of upper or lower sideband, as well as the capability of demodulating AM, CW, MCW, and FSK signals are additional design features of these adapters. Simultaneous reception of upper or lower sideband information is possible by the use of two MSRs, with a single receiver. The combination of a specially designed bandpass filter circuit and a frequency bandspread oscillator provides sharp discrimination between desired and undesired signals. All Models MSRs feature crystal and manually controlled oscillators, and the MSR-5 provides oven controlled crystals for stability better than ± 1 cycle for a 20° C. change in ambient.

MSR-3A 200 kc IF
MSR-4 455 kc IF
MSR-5 455 kc IF (oven controlled crystals)
MSR-8 500 kc IF
MSR-9 455 kc IF (oven controlled crystal)



AN/FRR-49(v)
AN/FRR-502

MODEL RCR
BULLETIN 4009

REMOTE CONTROL SYSTEM

The Model RCR, Remote Control System is a Variable Frequency Control system arranged to provide central of HFO, BFO, BFO On/Off, RF Gain Remote/Local AVC and Audio Gain for up to five communication receivers from a remote site. This system may be operated over any radio or voice circuit providing a 300-3000 CPS channel. The system is frequency sensitive and therefore virtually unaffected by amplitude variations and noise interference.

The RCR system permits the placement of receivers in a favorable location with individual operator control located at a convenient operational site. As a result, users of this equipment have more than doubled the usable receiving range of their existing location. This system is used in conjunction with the TMC Model FFR Communication Receiver to provide:

1. Remote Controlled Air/Ground, Ship/Shore, CW, AM & SSB communications.
2. Remote Controlled point to point, CW, AM, SSB and FS operation.
3. Remote Controlled diversity operation.
4. Remote Controlled reception of facsimile and photo.

In addition to the above, the RCR system may be used to control any device requiring vernier and on/off control in a telemetering, automation, or guidance system.

AND ACCESSORIES

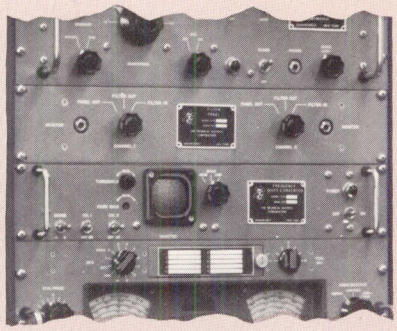
FREQUENCY SHIFT CONVERTER AND FILTER PANEL

Model CFA accepts frequency shift keying audio tones from two receivers operated in diversity, combines these two signals, uses the better of the two, and provides ungrounded vacuum tube output to operate a standard teletype battery loop at speeds up to 600 wpm.

A 2" oscilliscope on the front panel provides rapid visual means of tuning the receivers to provide the correct input signal to Model CFA.

Special circuitry to eliminate the effects of received carrier drift up to 1.500 cycles, bias correction control, threshold control to minimize effects of noise, and automatic "mark-hold" to place the output circuitry in a "mark" condition during signal fadeouts and a test switch to place the unit in a mark, space or line condition are design features of this unit.

Model SFP-2, when used in conjunction with CFA, provides two filters centered on the mark and space frequency to greatly enhance teletype-writer reception under adverse or weak signal conditions.



CV-763/URR

MODEL CFA-1/SFP

BULLETIN 4008

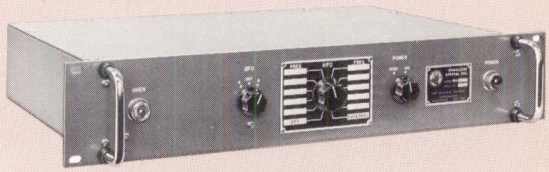
STABILIZED CRYSTAL OSCILLATOR

TMC Model TRX-1, Stabilized Crystal Oscillator, is a self-contained unit featuring oven control crystals whose outputs can be used for:

1. Operation of receivers either singly or in diversity
2. Translation frequencies for sideband exciters
3. Master oscillator injection frequencies for transmitters

In diversity operation with two receivers, selection of all injection frequencies for stabilized operation of the receivers is accomplished on the front panel of the TRX-1.

STABILITY: 1 part in 10^6 per day. **CRYSTALS:** Ten HFO crystals — CR-27/U; one IFO crystal — CR-47/U or CR-47A/U; two BFO crystals — CR-47/U or CR-47A/U. • **OUTPUT:** 50 ohms nominal. • **OUTPUT LEVEL:** 1 volt rms. • **POWER:** Solid state; 115/230v, single phase, 50/60 cycles, approximately 100 watts, with oven on.



MODEL TRX-1

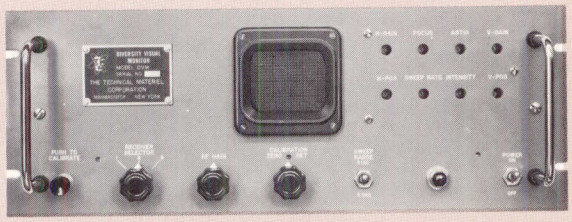
BULLETIN 4006

DIVERSITY VISUAL MONITOR

Visual monitor unit, Model DVM, permits accurate and simple visual analysis for receiver tuning. Dynamic band occupany studies on a 3" calibrated oscilliscope screen gives a positive identification of interfering signals when used with either a single or a diversity receiver. Analysis of a received signal or any interference being experienced provides the operator with a very useful tool for proper reception of any type of signal. Model DVM-2 accepts a 500 kc input, DVM-3 accepts a 455 kc input, and model DVM-4 a 1.75 mc input. Other frequency inputs are available on request. Sweep of the DVM allows analysis of signals from .075 to 1 kc either side of the center frequency of the IF strip. The unit occupies 7" of a standard 19" cabinet.

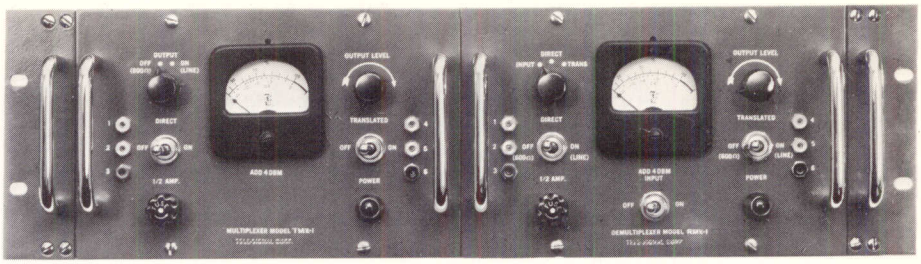
MODEL DVM-2-3-4

BULLETIN 4007



IP-641/URR

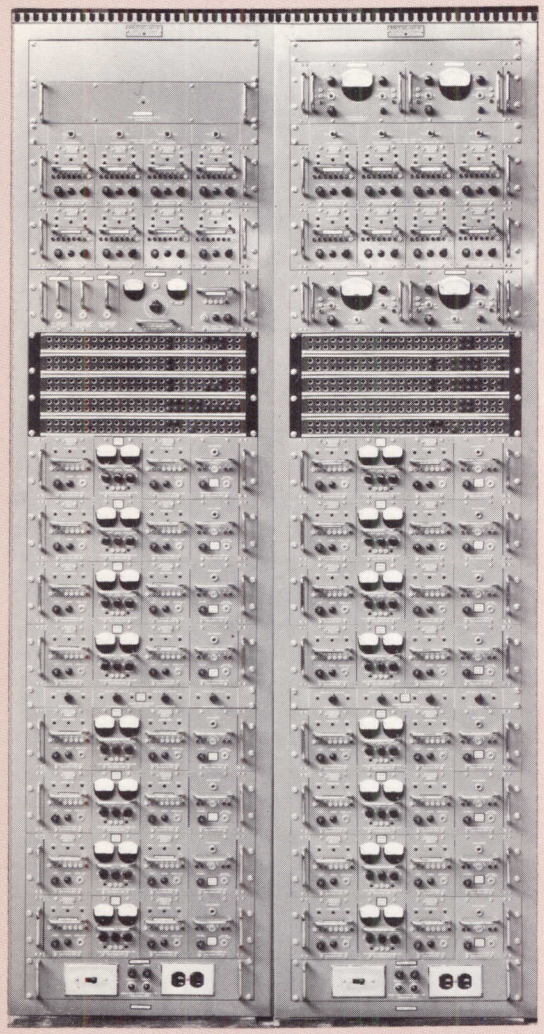
TD-410/UGC
TD-411/UGC



MODEL TMX-1, RMX-1

BULLETIN 5002

TMC Model TMX-1 and RMX-1 are voice frequency multiplexers and demultiplexers which provide a simple means of combining two 3 Kc voice channels for transmission in 6 Kc bandpass and of separating two 3 Kc voice channels on the receive side. Any form of intelligence that can be placed in the 375 to 3025 cycle voice bandpass can be transmitted or multiplexed by means of the TMX-1. With two TMX-1 and two RMX-1 it is possible to provide four voice frequency channels within 12 Kc of a standard sideband transmission system. The TMXI-1 and RMXI-1 will meet CCIR specifications of 250 cycles to 6000 cycles for overall transmission bandpass, if desired.



TERMINAL EQUIPMENT

(Designed and manufactured for TMC by the Tele-Signal Corporation)

MODEL TTS-3

BULLETIN TB 5001
BULLETIN TB 5003
BULLETIN TB 5004

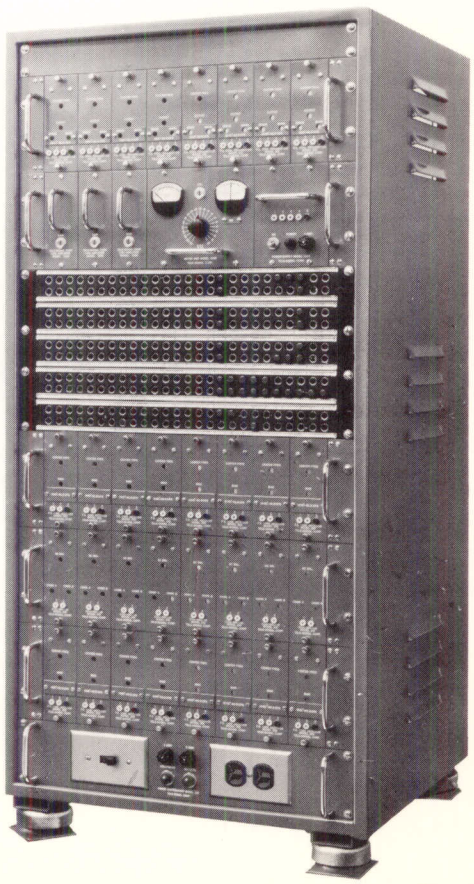
Model TTS-3 is a completely transistorized tone telegraph transmission system providing 16 send and 16 receive teletypewriter channels at speeds up to 100 wpm (75 bauds). Space diversity reception is provided with constant comparison and electronic selection of the better of 2 receive signals. All channels of the TTS telegraph system are compensated for no greater than 250 microsecond variation in keying time from any one channel to any other channel within the system. Model TTS-3 can be provided in channel spacing of 170, 340, 120, 240 cps, or customer selection. Other systems also offered within this family include the TTS-1, TTS-2, TTS-4, TTS-5 and TTS-6.

MODEL TTM-2

BULLETIN 5009

TMC Model TTM-2 is a completely transistorized and miniaturized tone telegraph system providing up to 16 send and receive teletypewriter or data transmission channels at speeds of up to 100 wpm (75 bauds) in channel spacing of 170, 340, 120 or 240 cycles. Frequency, space or polarization diversity reception facilities are provided with electronic selection of the better of 2 tone channels.

Delay compensation of no greater than 250 microseconds from any 1 channel to any other channel makes this system useful for sequential data keying from computers or any other type of transmission where time differential between channels would be harmful.



TEST EQUIPMENT

MODEL PTE-3A

BULLETIN 6001

RF SPECTRUM ANALYZER

AN/GRM-33A

Model PTE-3 Spectrum Analyzer is a versatile test instrument designed for RF spectrum analysis. Visual display of RF signals for tuning and aligning single sideband exciters and transmitters provides analysis of inter modulation and distortion products. Manual sweep control allows detailed analysis of any portion of the RF spectrum from 2 to 64 megacycles.

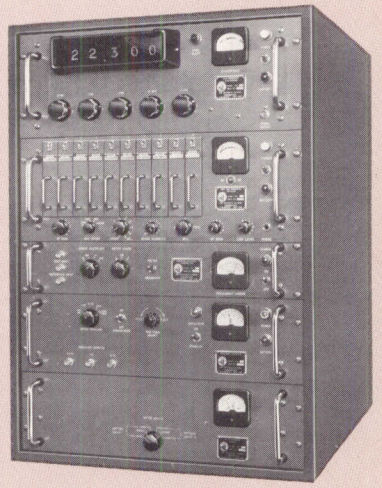
The unit is mounted in an attractive and sturdy 19" relay rack with 4 heavy duty casters for mobility. All controls and test connections are made on the front of the unit. The PTE-3 is supplied with all cables and connections necessary for instant operation. The unit includes a variable frequency oscillator model VOX for long term stability and a two tone generator which provides 2 AF and 2 RF tones. The frequency of the AF tones are so chosen to permit visual analysis of the 3rd, 5th and 7th order products. The 2 RF tones are provided for a system test of the unit itself. Sweep widths of a fixed frequency, 150 cycles, 500 cycles, 3.5 Kcs, 7 Kcs, 14 Kc, and continuously variable from 0 to 100 Kc with 5 Kc markers are featured.

MODEL VLFC-1

BULLETIN 6003

VLF FREQUENCY STANDARD COMPARISON SYSTEM

SOLID STATE



Model VLFC-1 utilizes the worldwide highly stable VLF transmissions in the 10 to 100 kc range by providing a very sensitive 10 channel VLF receiver and frequency comparison to this VLF signal to provide 1 part in 10^{11} stability. Built-in doppler correction to compensate for mobile platform use, "fail safe" battery supply and completely solid state construction enhances the application of this system for shipboard use.

Correction of station frequency and time standards is easily accomplished by comparison of the station standard frequency to the known high stability of this system.

MODEL CSS-2

BULLETIN 6005

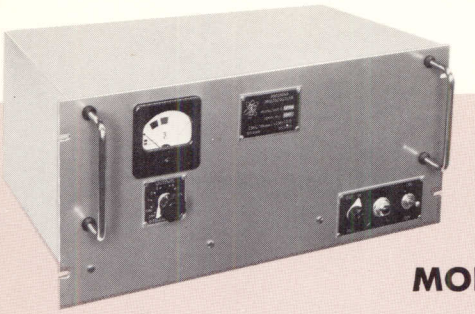
PRIMARY FREQUENCY STANDARD

SOLID STATE

Model CSS-2 Primary Frequency Standard is completely transistorized and features highly stable outputs at 10 mc, 1 mc, and 100 kc. Its basic crystal oscillator is contained in a hermetically sealed temperature-stabilized oven with a stability of at least one part in 10^9 for 24 hours. A multi-turn front panel control with 3600 divisions provides total deviation of $\pm$ 100 parts in 10^9. Additionally, Model CSS-2 will accept external DC correction voltage to provide correction of $\pm$ 100 parts in 10^9. The electrical correction circuit can be remoted for central control and correction of more than one of this type of standard.

Features such as low current drain, small size, and ruggedness make it ideal for both mobile and fixed operation. Because of its versatility, it is applicable in many areas where an ultra-stable frequency standard previously could not be used.

ANTENNAS, COUPLERS



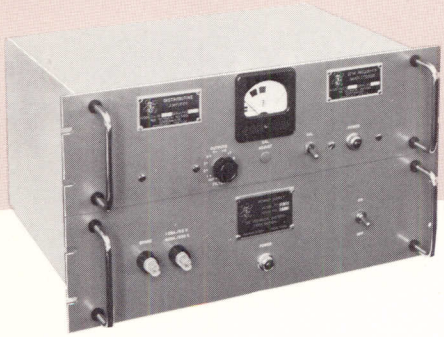
MODEL AMC

CU-5013/SRR CU-5032/SRR CU-922()/FRR

ANTENNA MULTICOUPLER

BULLETIN 8001

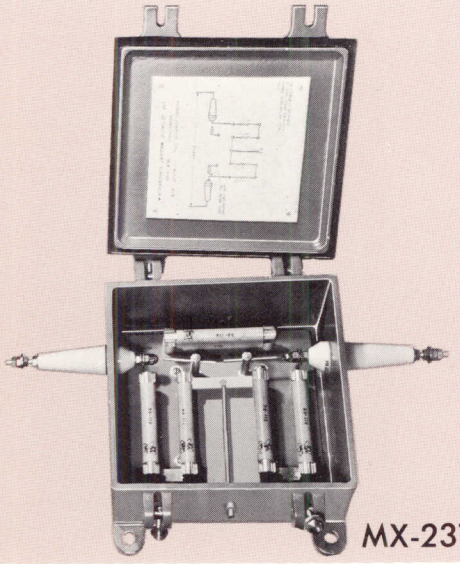
Model AMC Series of Antenna Multicouplers provide broadbanded electronic coupling for multiple receivers to a single antenna over the frequency range 2 to 30 mc. Efficient match with minimum interaction between receivers, and minimum intermodulation and cross modulation are important design features of this unit. A selection of models feature maximum sensitivity and low system noise or maximum overload and intermodulation characteristics in an environment of high intensity RF signals.



MODEL LMC-10

The TMC Model LMC-10, Antenna Multicoupler, is a broadband electronic coupling device designed to connect ten receivers to one antenna. The unit covers the frequency range 100 kcs to 2 mcs and provides an effective match with a minimum of interaction between receivers and a minimum re-radiation into the antenna system. Inter-modulation and cross-modulation is kept to a minimum. Maximum overload characteristics in an environment of high intensity signals is another desirable design feature.

The amplifier features a dynamic test circuit which provides a front panel meter check of the unit.



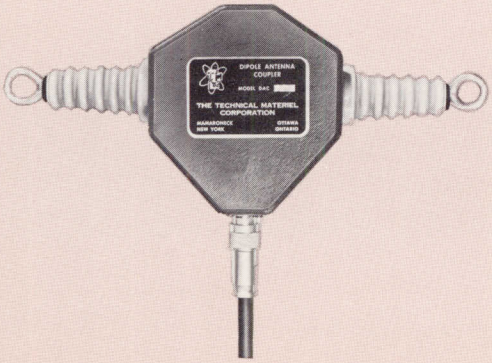
MX-2379A/FRR

MODEL RTB **BULLETIN 8012**

RHOMBIC TERMINAL UNIT

Models RTB Rhombic Terminal Units were designed to complement the Models RAC Rhombic Antenna Couplers, and provide rugged and proper terminations for Rhombic or sloping Vee antennas.

The series has recently been redesigned to provide additional resistance coverage and center taps on all units. The Model RTB consists of up to 6 resistors, as required, to provide terminations from 280 to 700 ohms, plus a spare resistor mounted within the case. The resistors are plug-in ferrule type for ease of maintenance and replacement. A built-in lightning arrestor prevents the build up of static charges which might damage associated equipment.



MODEL DAC **BULLETIN 8013**

DIPOLE ANTENNA COUPLER

The TMC Dipole Antenna Couplers, Models DAC, are impedance matching devices, each providing a balanced connection for the center of a receiving dipole to an unbalanced connection for a coaxial transmission line.

Stainless steel connector rings are provided for the antenna connector and for messenger tie points. The entire unit is contained within a sealed fiberglass reinforced plastic case, and additional strength and weather resistance is provided by "potting" the transformer and connectors in a plastic compound. These units have successfully passed 2000 lb strain test. A built-in lightning arrestor prevents the accumulation of static charges which otherwise might injure associated equipment.

FREQUENCY RESPONSE: 50 and 70 ohm unbalanced to up to 600 ohm balanced.

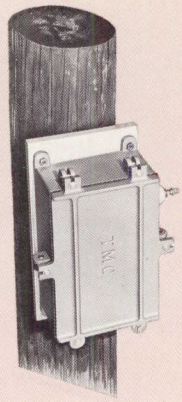
AND DUMMY LOADS

TER SERIES **BULLETIN 8009A**

DISSIPATORS/DUMMY LOADS

TMC TER series of RF antenna terminators/dissipators and dummy loads range from 250 watts to 200 kw power dissipating capabilities over the frequency range of DC to 30 mcs. Fiberglass reinforced weatherproof cases and low coefficient of expansion non-inductive glass resistors provide rhombic or sloping Vee termination that may be instantly brought to full rated power in a —40° ambient. Models TER-100K (200 kw PEP) and TER-25K (50 kw PEP) are cooled by filtered forced air and have meters to indicate forward and reflected power to compute VSWR. Locking type of casters for mobility and transmit interlocks for personnel safety are provided.

Operating temperature: —40° to +75° ambient.



DA-199/U
DA-201/U DA-209/U
DA-210/U DA-200/U

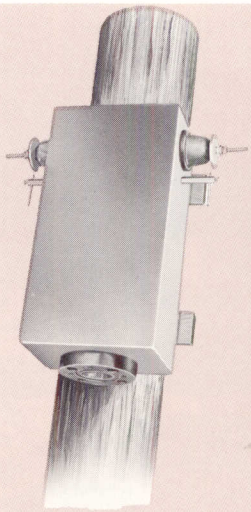
MODEL TRC-5K
MODEL TRC-10K **BULLETIN 8015A**

TRANSMITTER ANTENNA COUPLERS

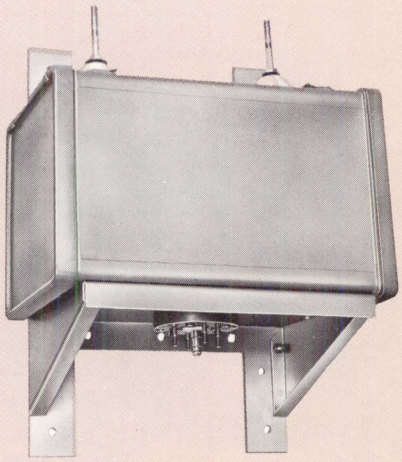
The TRC Series of Broadband Antenna Couplers provide impedance matching between various types of transmitting antenna systems (Rhombic, Sloping-Vee, etc.) and transmitter output impedances. The units are housed in weatherproof cases, fitted with lightning protection, and require no maintenance.

Models TRC allow maximum transfer of RF energy by means of Broadband RF transformers that have power handling capabilities from 250 watts to 40 kw PEP and frequency responses from 2 to 32 megacycles. Use of these units at transmitter sites allows flexibility in antenna patching.

These TRC baluns are completely bilateral devices that will accept either a 600 ohm balanced input and couple it to a 50 or 70 ohm unbalanced output or couple an unbalanced 50 to 70 ohm input to a 600 ohm balanced output without affecting any of the specified characteristics of the equipment.



CU-729/URT



CU-1076/URT

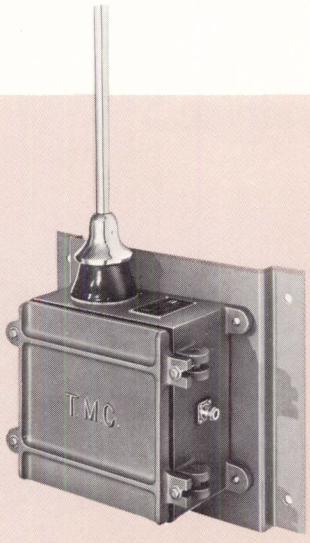
MODEL VRA **BULLETIN 8004**

VERTICAL RECEIVING ANTENNA

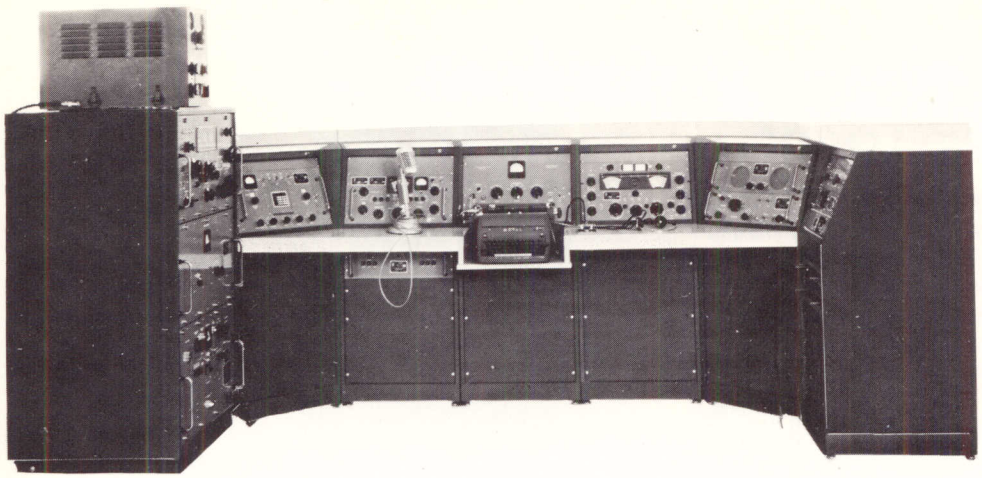
Vertical Receiving Antennas, Models VRA, are omni-directional whip antenna systems which contain broadband impedance matching transformers to couple 70 ohm output RF emergency to whip antennas.

Models VRA-5 and VRA-8, designed to cover 200 to 800 kcs; VRA-6 and VRA-9, 2-30 mcs; VRA-7 and VRA-10, 2-15 mcs. VRA-5, 6, 7 use stainless steel whips whereas VRA-8, 9, 10 use fiberglass whips.

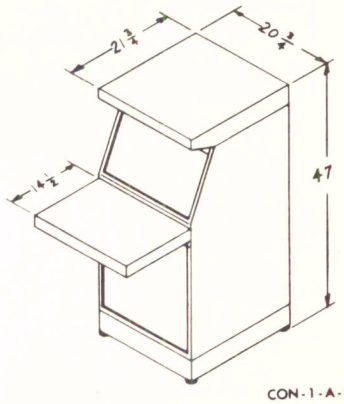
Used for LF, MF and HF beacon and receiver monitoring, the VRA's are encased in cast aluminum waterproof cases that are easily attached to a wall, roof, pole or vehicle for direct connection to a receiver coaxial input.



AT-730/GR



CON
OPERATING CONSOLES

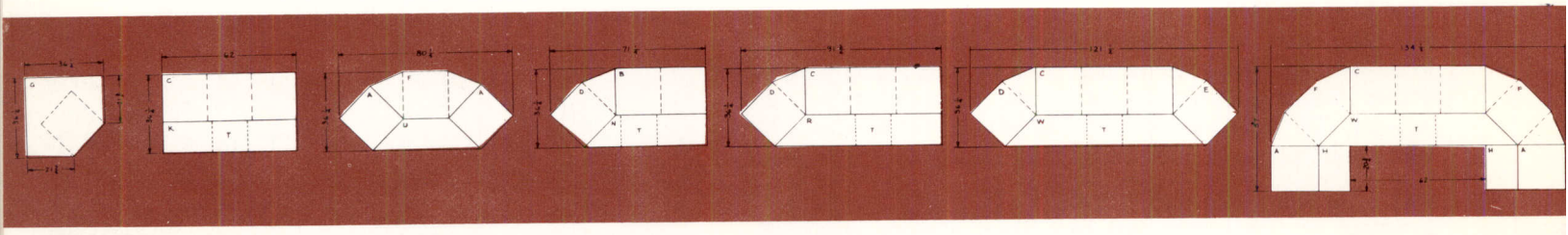


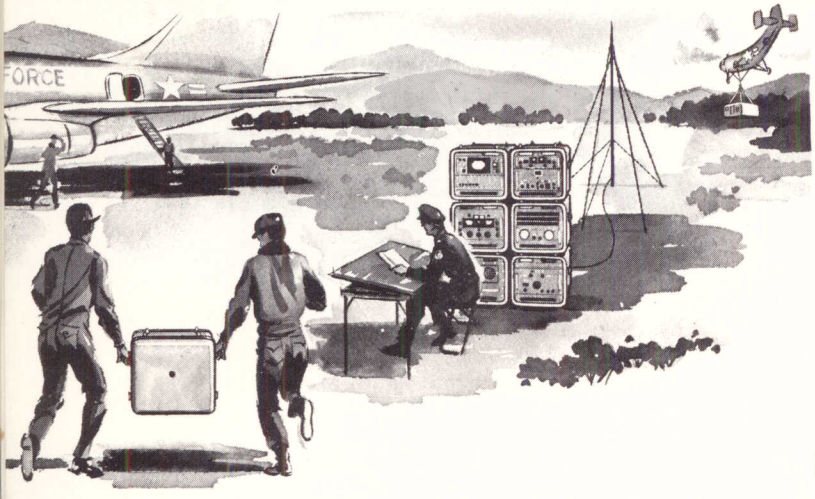
CON-1-A-H

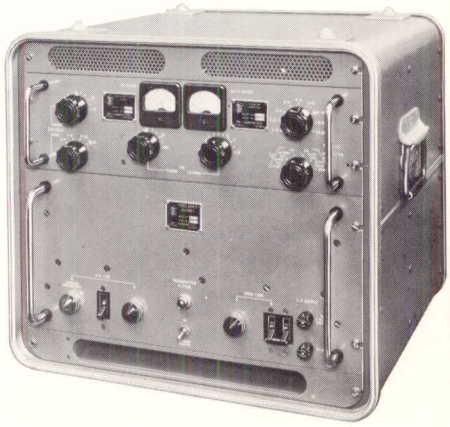
PRESENTLY IN SERVICE THROUGHOUT THE WORLD

CON Operating Consoles with modular "add a unit" type enclosures offer maximum operating efficiency and flexability by centralizing the control of military or commercial SSB, AM, FM or TV broadcasting, computor operation, data handling, telemetering, laboratory analysis, airport control tower applications, in fixed, mobile or shipboard installations.

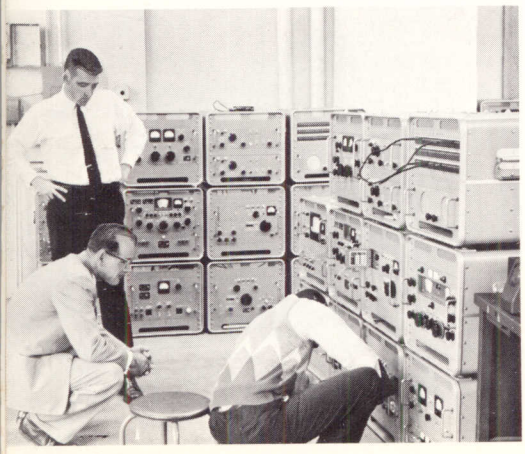
Any specified customer option is easily constructed using the standard 19" rack mounted assemblies in these units to form "L", "U" and many other configurations. 16 gauge reinforced steel with formica top covers ensure durability.

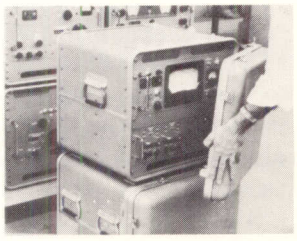






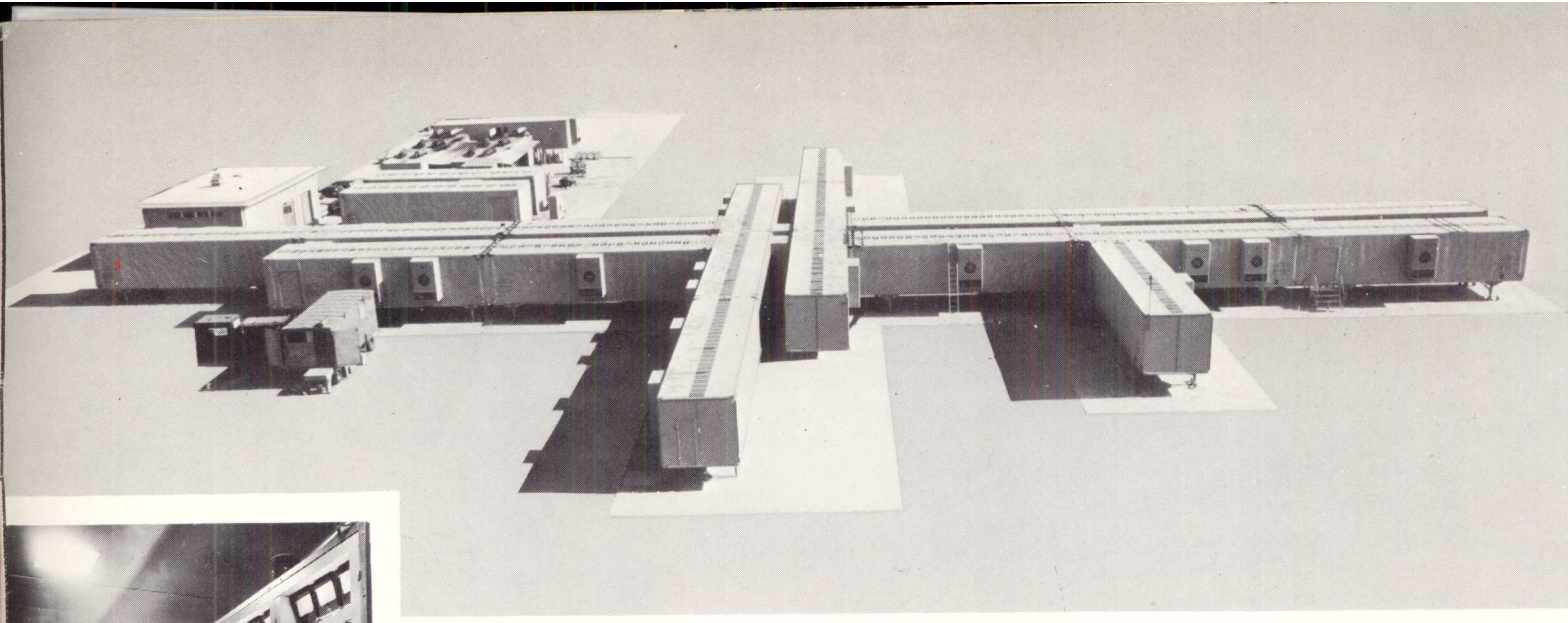
MODEL TOC
TB 9005

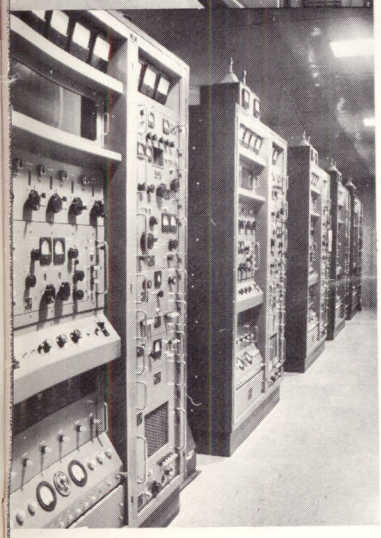


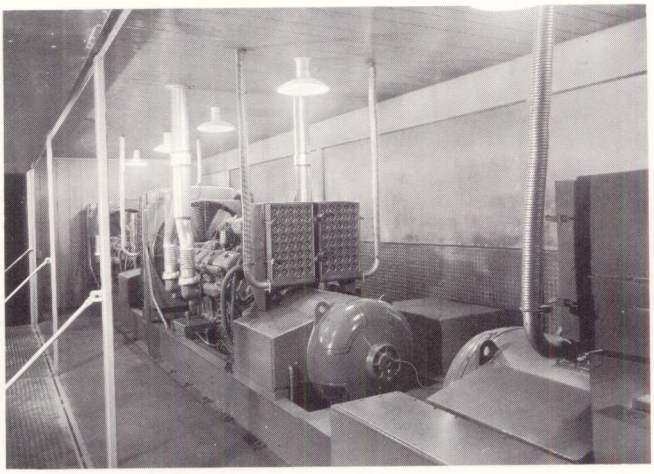


TRANSIT/OPERATING CASE

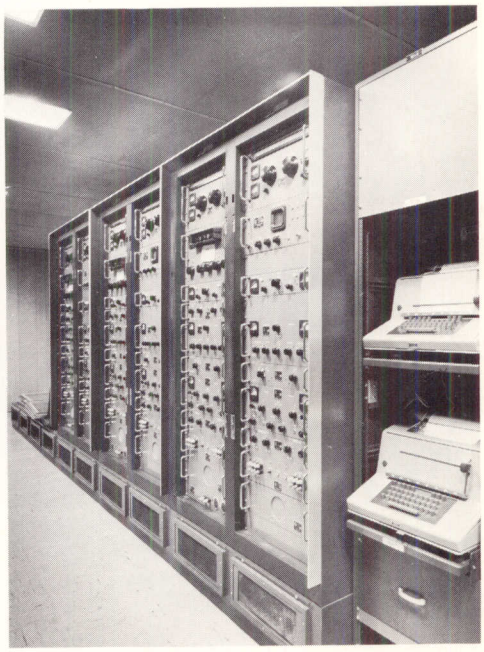
Models TOC, Transit/Operating Cases, are ideally suited for rapid mobility and operation of equipment for contingency communications. Pressure relief valves are provided to neutralize high altitude transportation conditions and special interlocking feet allow stacking for operation in confined areas. Both front and rear covers are instantly removable.

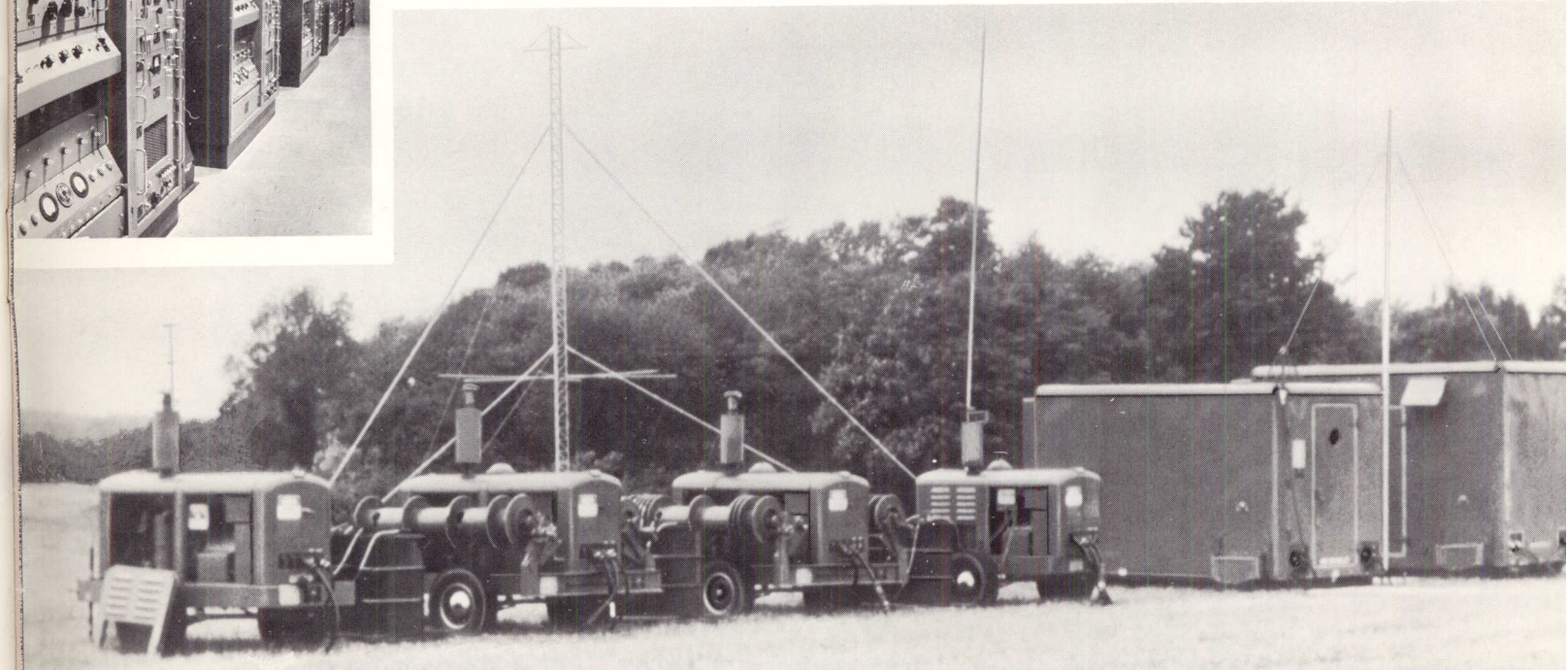






SOME TYPICAL INSTALLATIONS
THROUGHOUT THE WORLD.



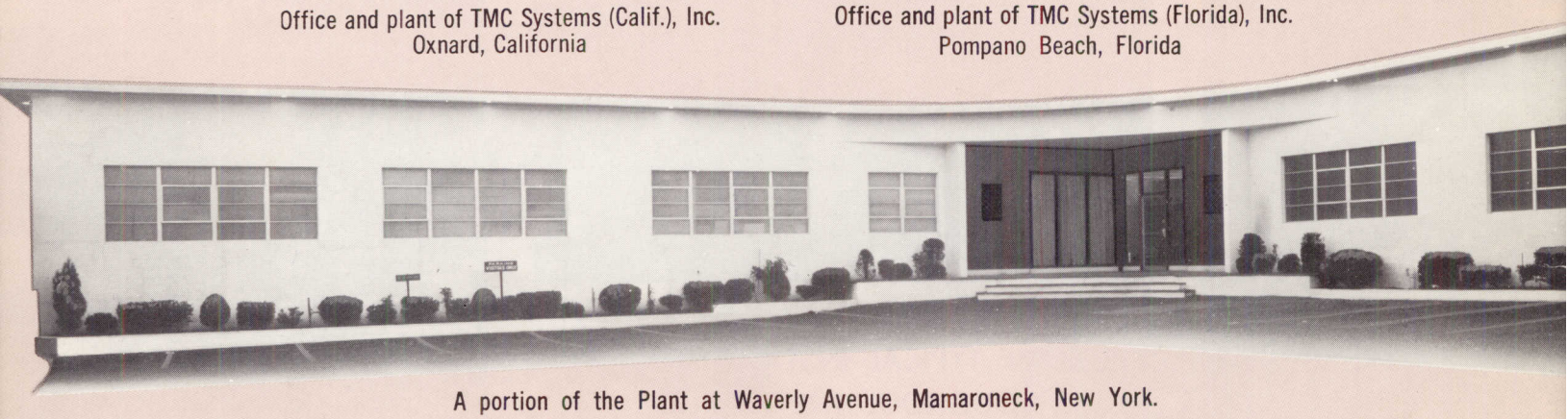


Office and Plant of T M C (Canada) Limited, at Ottawa, Ontario, Canada.

Office and Plant of T M C Systems, Inc. in Alexandria, Virginia.

Office and plant of TMC Systems (Calif.), Inc. Oxnard, California

Office and plant of TMC Systems (Florida), Inc. Pompano Beach, Florida



A portion of the Plant at Waverly Avenue, Mamaroneck, New York.

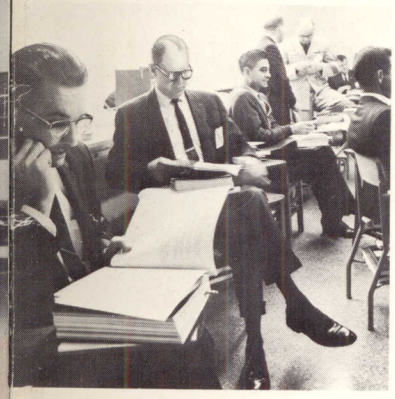
T M C Power Distribution in Alexandria, Virginia.

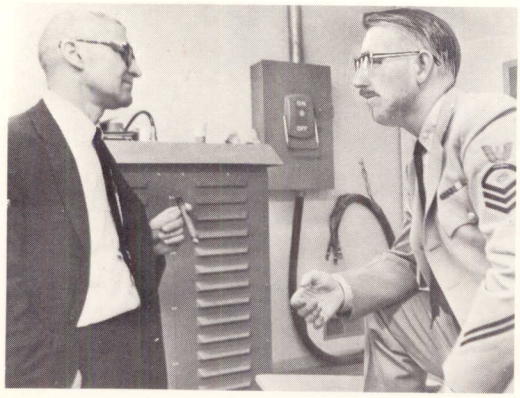
Office and Plant of T M C Systems (Texas) Inc., at Garland, Texas.

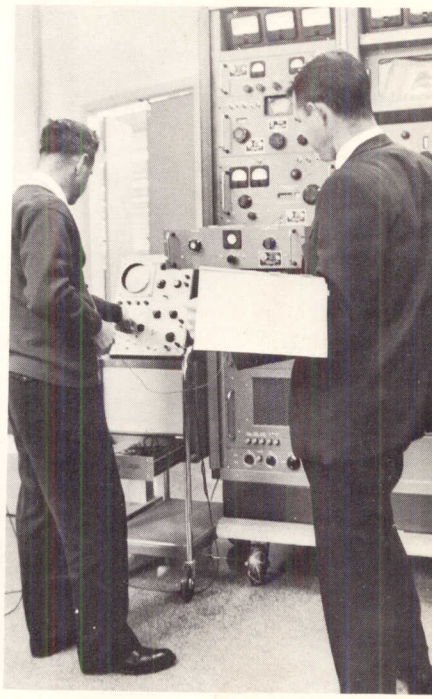
TMC Transmitter Building at West Nyack, New York.

TRAINING

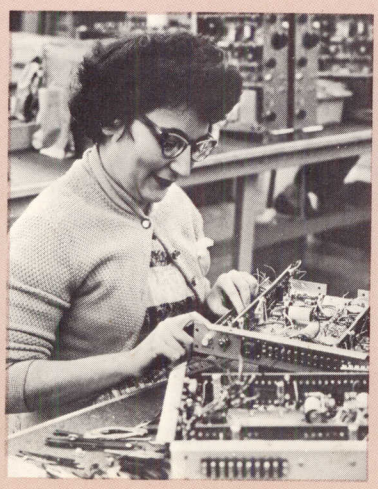
Some candid views of a class in session.

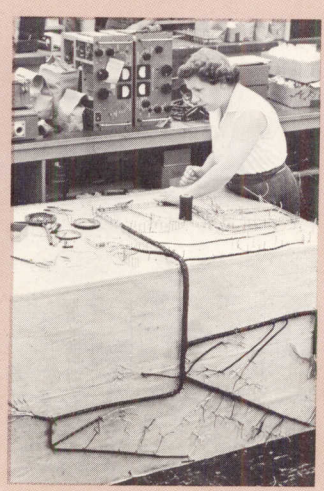






PRODUCTION






• WORLD WIDE SUPPLIERS •
OF ELECTRONIC COMMUNICATIONS EQUIPMENT

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