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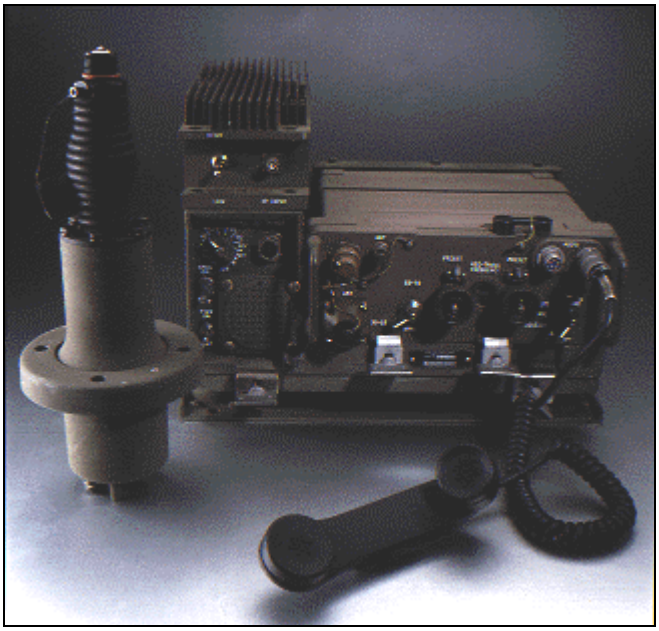
AN/VRC-6550

Vehicular and Fixed Station Communication Systems



AN/VRC-6550
VEHICULAR AND FIXED STATION COMMUNICATION SYSTEM

Associated Industries has developed the AN/VRC-6550 Transceiver System to fulfill the needs of more modern tactical environments. This development originated with the thought in mind that not only does this system adapt to the tactical environment of today, but the modifications employed on the basic transceiver (AN/PRC-1177 described later) can be used in the existing transition of technologies. The 25 KHz spacing of this system enables it to function with the latest of technologies.

The AM-4700 Linear Mode RF Booster Amplifier is a completely new development by Associated Industries. This amplifier enables the VRC-6550 to operate in low power mode (1-3 watts) and high power mode (30-50 watts). The harmonic suppression of this amplifier is such that co-site interference problems are held to a minimum.

Other components of this system such as the MT-1029/VRC Mount, AS-1729/VRC Antenna, OA-3633/GRC Amplifier and M-80C/U Dynamic Microphone are equipments that have well served the military forces of the world for many years.

Description and application of the major equipment is shown in the following paragraphs:

AN/PRC-1177 TACTICAL RADIO SET

The worldwide increasing application of wireless communication technique necessitated an increase of the operating channels available with the radio sets in use.

Associated Industries has developed a very decisive modification to the PRC-77 resulting in the PRC-1177. Two advantages of the PRC-77 design for the basis of this modification are the rugged design and selective tuning via the variable tuning capacitors through which a high special purity of the transceiver can be gained.

Associated Industries utilizes the 25 KHz sector arm modification that is installed in the front panel gearing mechanism. This type of modification allows the same type of "user friendly" features of the PRC-77 which has a proven track record.

The module A40 is replaced with the module A40/AS that contains a different switch on the A40-1 board and an additional two reference crystal oscillators (5.625 and 5.675 MHz). In the receiver path, the IF- Crystal filter with its + 16 KHz bandwidth is exchanged for a crystal filter with + 8.5 KHz bandwidth.

The AN/PRC-1177 modification is a very simple and low priced solution permitting inventories which can be adapted to the more modern tactical requirements.

MAJOR COMPONENTS:

- AN/PRC-1177 Transceiver
- OA-3633 ( )/GRC Amplifier
- AM-4700 - 50 Watt Amplifier
- AS-1729/VRC Antenna
- Interconnecting Cables
- M-80C/U Microphone
- MT-1029/VRC Mount, Radio

AN/PRC-1177 OUTSTANDING FEATURES

- Fully solid state circuitry.
- Modular construction for rapid in-field servicing.
- Synthesizer provides crystal control and assures immediate netting with other radio systems.
- Capability for application in "Secure Voice" systems adds greatly to its versatility.
- Completely waterproof, compact, rugged, lightweight.
- Convenient front panel tuning and band switch controls permit easy channel presetting and frequency selection.
- 1840 Channels in two frequency bands 30.00 to 52.95 MHz (low), 53.00 to 75.95 MHz (high).
- Compatible with AN/PRC-25, AN/PRC-77, AN/GRC-125, AN/GRC-160, AN/VRC-53, AN/VRC-12, AN/VRC-43 through -49 radio sets.

AM-4700 R. F. BOOSTER AMPLIFIER

- The AM-4700 is a Linear Mode RF Booster Amplifier designed to operate and attach mechanically to any Military VHF Transceiver.

- The AM-4700 operates over an instantaneous bandwidth of 30 MHz to 88 MHz with a gain flatness of +0.5 dB. It is designed for use as a Booster Amplifier for frequency modulated signals in the above transceivers.

- The RF Power Output is a nominal 50 Watts CW with a nominal gain of +13 dB operating into 50 Ohms (Pin = 2.5 Watts; Pout = 50 Watts) with +26 VDC applied. Because the basic amplifier design is linear, the unit will operate with input drive levels over the range of 1 to 5 Watts while maintaining about 13 dB gain.

- The AM-4700 linear electrical design is versatile and can be used for other forms of modulated input signals for power amplification.

- The unit is packed in an aluminum housing which contains an integral finned heat sink to provide conduction and radiation cooling, and is configured to mate with any VHF 30-88 MHz radio.

AN/VRC-6550 TECHNICAL SPECIFICATIONS

Frequency Range:	Low band p; 30.00 to 52.95 MHz, High band p; 53.00 to 75.95 MHz.
Number of Channels:	1,840
Channel Spacing:	25 KHz
Types of transmission and reception:	Transmission p; Voice and 150-Hz squelch tone.
Reception:	Voice (no squelch); or voice and 150-Hz squelch tone.
Type of modulation:	FM.
Transmitter Output Power:	Lower Power p; 1-5 watts High Power p; 30.50 watts.
Receiver Sensitivity:	0.5µV - 10 dB - SINAD.
Distortion:	<1-%.
Transmission and reception power requirement:	
Transmission:	24VDC nominal 6.5 A High Power 24VDC nominal 780 ma Average Low Power.
Reception:	24VDC nominal 60 ma Average.
Distance/Range:	Low Power - 8 Kilometers High Power - 30 Kilometers.
Antenna:	30-76 MHz Omni-Directional 50 Ω Impedance.

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