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OPERATION AND MAINTENANCE MANUAL

TRANSCEIVER HF/SSB SYNTHESIZED

GSB-900MK6

sunair electronics, inc.

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GSB-900MK6

SINCE 1980 SEVERAL ENHANCEMENTS HAVE BEEN INCORPORATED INTO THE BASIC GSB-900 SYNTHESIZED TRANSCEIVER. THESE PRODUCT IMPROVEMENTS HAVE THEREFORE WARRANTED SUNAIR TO CHANGE THE NAME OF THE GSB-900 TO GSB-900MK6.

THE CHANGES INCLUDE:

1. INCREASED TRANSMITTER I.M.D. PERFORMANCE.
2. PERFECTED DIGITAL HIGH SPEED RF FILTER MODULE.
3. ENHANCED POWER SUPPLY REGULATOR BOARD. PROVIDING EXTENDED, LOW DC LINE OPERATION.
4. HIGH PERFORMANCE IC SPEAKER DRIVER.
5. INCREASED RELIABILITY OF THE DC POWER INVERTER TRANSISTORS.

ONLY THE COVER AND TITLE PAGE REFLECT THE MK6 SUFFIX. HOWEVER, ALL TECHNICAL INFORMATION CONTAINED WITHIN THE MANUAL IS UPDATED TO THE POST 1980 DESIGN CONFIGURATION.

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GENERAL INFORMATION

1.1 SCOPE

This instruction manual contains the necessary information to install, operate and service the GSB-900 Transceiver.

1.2 TRANSCEIVER DESCRIPTION

1.2.1 GENERAL

The GSB-900 is a high quality single sideband transceiver covering the frequency range of 1.6000 to 29.9999 MHz. Modes of operation include Lower Sideband (LSB), Upper Sideband (USB), Amplitude Modulation (AM) and Continuous Wave (CW). Operation in the Frequency Shift Keying (FSK) and Facsimile (FAX) Modes are also possible with the addition of suitable modems. The transceiver is mechanically and electrically designed to meet stringent military specifications for shock, vibration and protection from outside environments. The unit is completely sealed (dust free) utilizing neither blowers nor ventilating louvers, making it ideal for mobile as well as base station use. It can operate over wide temperature extremes (-30°to+65°C) and up to 100% relative humidity.

The GSB-900 is composed of seven major subassemblies, (1) front panel 1A1, (2) antenna coupler control panel 1A2 (optional), (3) receiver/exciter 1A3, (4) synthesizer 1A4, (5) filter module 1A5, (6) power supply 1A6, (7) power amplifier 1A7. See Figure 1.1 for major assembly location.

1.2.2 FRONT PANEL – 1A1

The front panel contains all controls necessary to operate the transceiver. All wiring from the panel terminates in two plug-in connectors (meter panel lamp terminates in a quick disconnect connector).

This allows the front panel to be easily removed for servicing or remotely located and connected to the transceiver by a control cable. This method of construction thus allows the front panel to be used as a remote control unit over a multi-conductor cable. A compartment in the front panel accepts the meter panel (standard) or the antenna coupler control panel (optional).

1.2.3 CONTROL PANEL - 1A2 (optional)

This unit plugs into the front panel and contains all controls necessary to remotely operate an antenna coupler or a linear power amplifier. Tuning status of the coupler or LPA is monitored by the meter installed in the tuning unit panel. When the GSB-900 is operated into a 50 ohm antenna and a coupler or LPA is not installed, the transceiver is supplied with a meter panel which indicates receive signal strength and relative power output of the transmitter.

1.2.4 RECEIVER/EXCITER - 1A3

The Receiver/Exciter module contains the low level signal generation circuitry. The lst I.F. frequency is well above the 30 MHz upper limit of the transceiver-providing the unusually high spurious signal rejection found only in this frequency scheme. The extensive use of integrated circuits provides an unusually high level of reliability. High quality crystal filters are employed both in the "front end" of the radio and in the I.F. section for sideband selection. The Receiver/Exciter is fully contained on four plug-in printed circuit boards plus a mother board and employs fully modularized construction.

1.2.5 SYNTHESIZER – 1A4

Frequency control is by means of a digital frequency synthesizer providing 100 Hz frequency steps. In addition, the operator can select a high stability VFO mode of operation, which provides continuous tuning between the 100 Hz synthesized increments. All frequencies in the transceiver are derived from a Temperature Compensated Crystal