ERICSSON

Mobile Communications

AEGIS™ *M-PA™*
VHF PORTABLE RADIO

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Maintenance Manual

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NOTE

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SPECIFICATIONS*

GENERAL

Frequency Range (FCC Type Acceptance Number)	136 - 150.8 MHz 146 - 162 MHz (AXATR-182-B5) 157 - 174 MHz (AXATR-182-C5)
DOC Number	TR-182-D2
Frequency Stability	5.0 ppm
Channel Spacing	30 kHz
Maximum Frequency Separation	full bandsplit
Operating Temperature Range	-30°C to +60°C
Maximum Relative Humidity	90% at 55°C
Battery Voltage	7.5 Vdc (nominal)
Dimensions (H x W x D) less battery, knobs and antenna with Extra High Cap. Battery	 140 x 69 x 38 mm (5.52 x 2.72 x 1.50 ") 232 x 69 x 40 mm (9.15 x 2.72 x 1.58 ")
Weight less battery and antenna with Extra High Cap. Battery	 585 grams (20.6 ounces) 952 grams (33.6 ounces)

TRANSMITTER

Rated RF Power Output	6 Watts
High / Low RF Power Output	6 Watts / 1 Watt (programmable on a per channel basis)
FM Deviation	±5 kHz
FM Hum and Noise	-45 dB (companion receiver)
Spurious and Harmonic Emissions	-75 dBc
Audio Response	+1 to -3 dB (6 dB/octave pre-emphasis from 300 Hz to 3 kHz)
Audio Distortion	less than 3% (at 1000 Hz tone, ±3 kHz deviation)

RECEIVER

Sensitivity (12 dB SINAD)	-116 dBm (0.35 μV)
Selectivity at 30 kHz	-80 dB
Critical Squelch	10 dB SINAD
Intermodulation	-78 dB

SPECIFICATIONS*
(Continued)

Spurious and Image Rejection	-80 dB
Audio Output	500 mW (24-ohm load impedance)
Audio Response	+2 to -8 dB (6 dB/octave de-emphasis from 300 Hz to 3 kHz)
Audio Distortion	less than 5% (at 500 mW)
AEGIS SYSTEM	
Voice Modes	clear (analog), digital and private (must be equipped with an encrypt/decrypt option to operate in private mode)
Vocoding Method	adaptive multiband encoding (sub-band coding in Voice Guard mode)
Outside Addressing	144 available
Digital Signalling	continuous in digital or private mode
Data Rate	9600 baud
Digital/Private Mode Performance	assured acquisition at 12 dB SINAD (measured in clear mode)
Digital/Private Mode Range	equal to clear mode
Automatic Receive Operation	automatically switches to the correct mode based on the presence of digital sync
CRYPTOGRAPHIC (OPTIONAL)	
Encryption Technique	
Option PAVS	64-bit output feedback mode
Option PAVE	non-linear product/block transformation
Key Permutations	
Option PAVS	7.2×10^{16}
Option PAVE	1.8×10^{19} (effectively 3.4×10^{38} with CUE codes)
Key Storage	
Option PAVS	RAM (30-second power interruption allowed)
Option PAVE	EEPROM (permanent unless overwritten)
Key Storage Location	
Option PAVS	RAM located on Aegis Module
Option PAVE	EEPROM located on Control Board

* These specifications are intended primarily for the use of the serviceman. See the appropriate Specifications Sheet for the complete specifications.

INTRODUCTION

The Ericsson GE Aegis™ M-PA™ radio is a high quality microprocessor controlled synthesized portable FM radio. Aegis M-PA operation is highlighted by the radio's programming versatility. This allows tailored operation of the portable radio to meet the needs of the radio system and the individual users. Aegis digital signals provide improved weak signal performance and impedance to unauthorized monitoring. Radios equipped with an encrypt/decrypt option offer very secure communications when operating in private mode. The radio provides clear voice, Aegis digital and private voice (optional) operation. Three (3) different M-PA radio models are available: Select, Scan and System.

The M-PA Select model radio is the basic version that can be programmed with up to sixteen (16) channels. This unit features an 8-digit alphanumeric liquid crystal display (LCD) and a 16-position knob for channel selection. The display is backlit for nighttime and low-level ambient light operation.

Scan and System model radios have an LCD similar to the Select model radio. A keypad is added to these radios (4-button on Scan model, 16-button on System model) to provide additional features not available on the Select model radio. These radios can be programmed with up to 160 different radio channels. Both also provide scan capability including dual-priority scan, and DTMF telephone interconnect of up to ten (10) preprogrammed numbers. The telephone numbers can be recalled at will and initiated. The System model's numeric keypad allows editing of the ten preprogrammed numbers and manual DTMF telephone interconnect dialling.

FEATURES

- **Voice Modes** - The radio provides clear voice (analog), Aegis digital and private voice (optional) operation. The voice mode is programmed on a per channel basis. For example, each channel can be programmed for either clear mode or Aegis digital mode and the radio operates in the programmed voice mode when the channel is selected. A radio equipped with an encrypt/decrypt option can operate in clear, Aegis digital, Aegis private and Voice Guard private modes. A radio that is not equipped with an encrypt/decrypt option can operate only in clear mode and Aegis digital mode.

- **160-Channel Capability** - Scan and System models radios can be programmed with up to 160 channels accessed in 10 modes (banks of channels) with 16 channels in each mode or 16 modes with 10 channels in each mode. The Select model radio can be programmed with a maximum of 16 channels.

- **Backlit Liquid Crystal Display** - The 8-digit alphanumeric LCD provides programmable customization and feedback to the operator of various operating conditions. Status flags located above and below the digits alert the operator to various radio conditions such as channel busy, transmitter in operation, or a low battery condition. Scan and System model radios have additional status flags for scan operation. LCD backlighting can be enabled or disabled on a per channel basis.

- **Rotary Control Knob** - On Scan and System model radios, the 16-position top-mounted Control Knob allows easy selection of modes (banks of channels), channels or Channel Guard according to how the radio is programmed. On the Select model radio, the Control Knob selects the operating channel. A stop-plate may be installed under the knob to limit the maximum number of positions to less than sixteen (16). It is normally factory installed for fifteen (15) positions.

- **Volume Control Knob** - This rotatable control provides quick and easy adjustments to the volume level. Minimum volume levels can be programmed into the unit. This feature prevents missed calls due to a low volume setting.

- **Keypad** - The Scan model radio has a 4-button keypad on its front panel that provides menu control, scan control and private mode enable/disable (optional) control. The menus allow selection of the current operating mode (bank of channels) and/or channel depending upon the radio's programming. The menus also allow control of various other radio features such as selection of stored telephone interconnect numbers for auto-dial operation, and alert tone enable/disable control. A System model radio has a 16-button keypad. The top four (4) buttons are identical to the Scan model keypad, providing menu, scan, and private mode enable/disable (optional) control. The lower twelve (12) buttons form a numeric keypad that allows manual DTMF telephone interconnect dialling and editing of telephone interconnect numbers stored in the radio. Select model radios do not have a keypad.

- **Scan Capability** - Scan and System model radios can be programmed for non-priority scan or dual-priority scan operation. Scan programming options include a keypad entered scan list

or a fixed scan list. Priority scan programming options include a fixed priority-one channel or the selected channel as the priority-one channel. The radio can be programmed to scan only the channels in the current mode (bank of channels) or it may be programmed to scan across modes. The Select model radio does not support scan operation.

- **Telephone Interconnect Capability** - The Scan and System model radios can store up to ten (10) telephone interconnect numbers for autodial operation. These numbers are preprogrammed into the Scan model radio. In the System model radio, the numbers can be preprogrammed or operator-entered via the numeric keypad. The System model's numeric keypad also allows manual DTMF telephone interconnect dialling. The Select model radio cannot initiate telephone interconnect calls.

- **Programmable Multi-Tone Channel Guard (CTCSS)** - Channel Guard tone frequencies within the range of 67 Hz to 210.7 Hz, including all of the standard EIA frequencies, can be programmed for encoded/decoded operation.

- **Programmable Multi-Code Digital Channel Guard** - Similar capability as with tone Channel Guard is provided.

- **Two-Tone Sequential (T99) Decode** - Selective calling decode is enabled or disabled on each individual channel. Two (2) sets of unique decodes are programmable to allow large systems individual and group call capability. Sets are selectable on a mode (bank of channels) basis.

- **Channel Busy Lockout** - Personality information includes transmit disable capability on a channel where carrier activity is present. This feature is selectable on a per channel basis.

- **GE-STAR Compatibility** - The radio can be programmed to transmit GE-STAR at PTT key, at PTT unkey, or both. 16,384 individual ID codes are available.

- **Emergency Signalling Feature** - GE-STAR emergency signalling can be enabled by the red Emergency/Home Button on the top of the radio or it can be enabled by a lanyard connected to the UDC.

- **Home Button** - The radio can be programmed to switch to a home mode or channel (depending on Control Knob's programming) when the red Emergency/Home Button on the top of the radio is pressed.

- **Programmable Carrier Control Timer** - A programmable transmit timer will automatically disable the transmitter and provide an alerting tone after time-out. This feature prevents radio damage and unnecessary channel traffic in the event of a "stuck" mic. The CCT is reset on every PTT.

- **Programmable Transmit Power Level** - Transmitter power level is PC programmable into the radio (high or low) on a per channel basis.

- **Squelch Tail Elimination** - Squelch and audio circuits are designed so that annoying squelch pops which may occur at the end of received messages are minimized. This feature is compatible with existing STE systems.

- **Alert Tones** - Alert tones prompt the operator of various radio conditions such as channel access, CCT time-out or a low battery.

- **Power-Up Self-Test** - At power-up the radio automatically performs a diagnostic test on itself and reports any found errors via the LCD.

- **Programmable via the Universal Device Connector (UDC)** - The entire operation of the radio can be field customized by programming the unit using an IBM PC or compatible computer. The programmed personality is stored in non-volatile memory within the radio.

- **Simple Remote Control Capability** - External accessories can be connected to the UDC such as a headset, a speaker-mic or a lanyard. Connection of the speaker-mic allows the operator to remotely control PTT operation and audio level of the external speaker. An antenna jack is located on the UDC for the connection of a remote mounted antenna such as when the radio is used in a vehicular charger or repeater.

- **Meets MIL-810C and D Specifications** - The sturdy die-cast aluminum case is designed to seal out moisture, blowing rain and other harsh environmental factors.

- **Meets FIPS 140 (FS-1027) Requirements** - Radios equipped with an encrypt/decrypt option meet the FIPS 140 (FS-1027) requirements.

- **Battery Packs** - Several different battery pack sizes and capacities are available.

- **Available Options** - These options include the antennas, audio accessories, batteries, carrying accessories, chargers, lanyards, and the vehicular charger/repeaters.

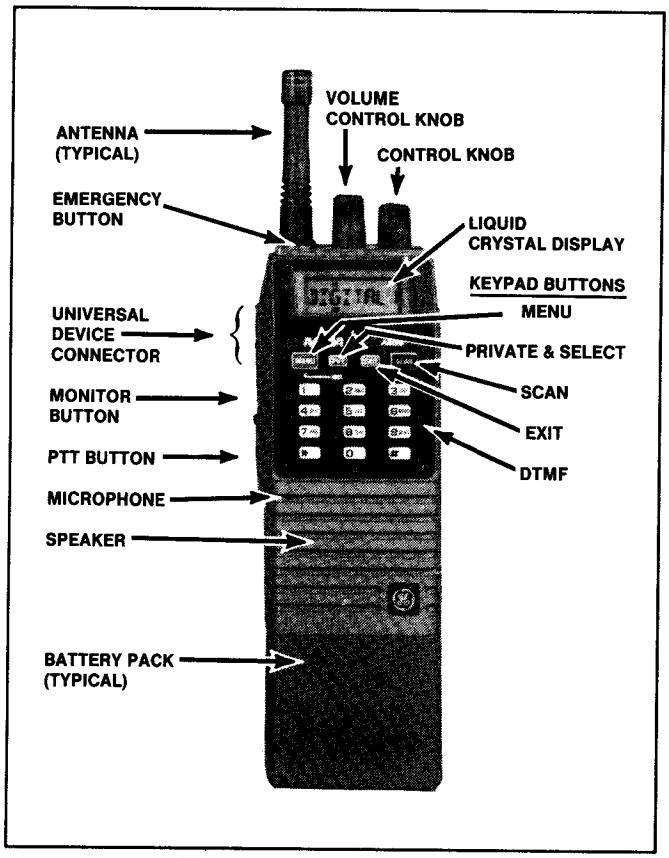


Figure 1 - System Model

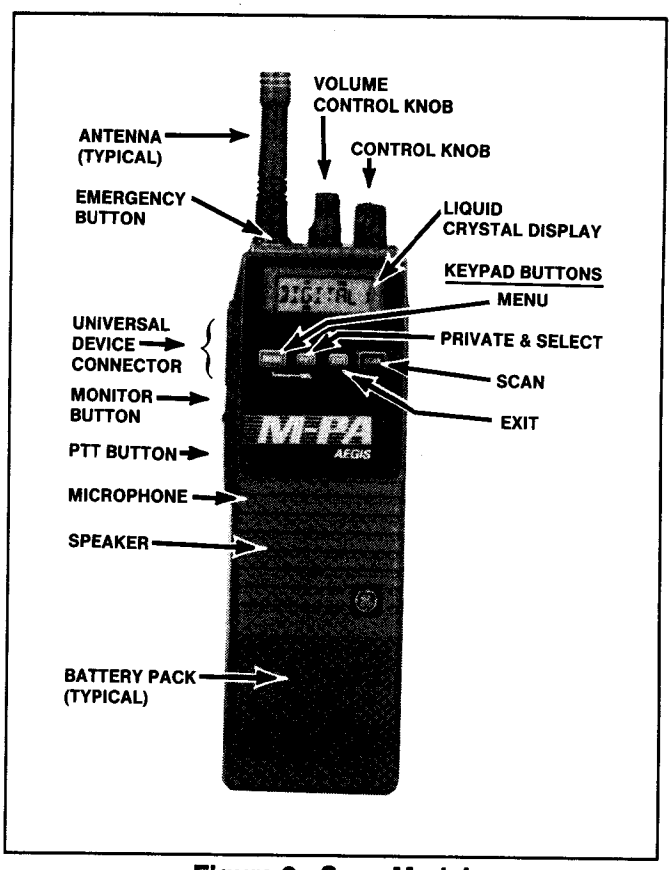


Figure 2 - Scan Model

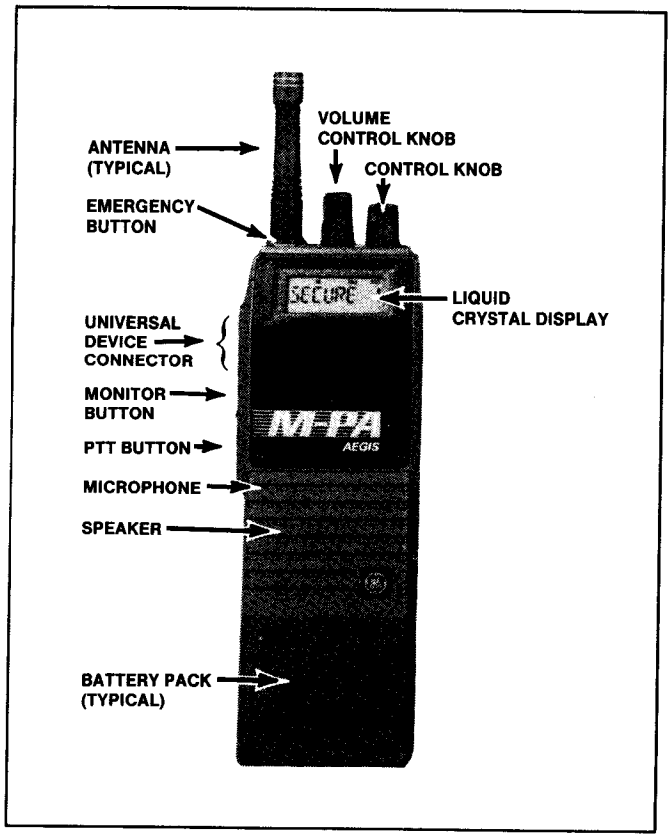


Figure 3 - Select Model

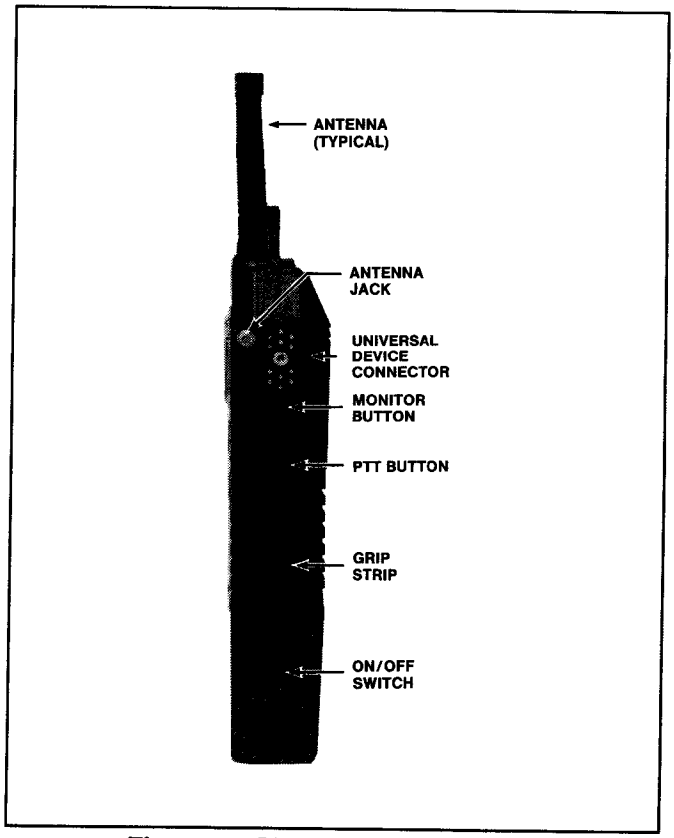
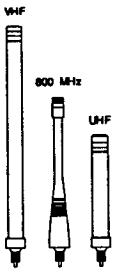
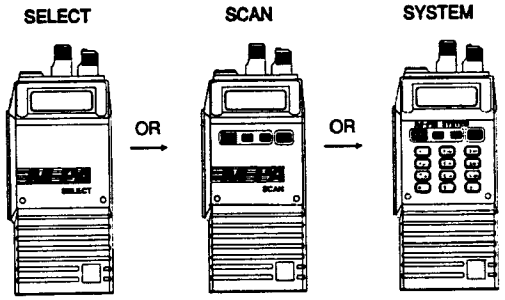


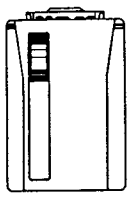
Figure 4 - Side View (All Models)

Radios, Antennas, Batteries



136-151	MHz	HELICAL	ANTENNA	PANC1B
146-162	MHz	HELICAL	ANTENNA	PANC1C
157-174	MHz	HELICAL	ANTENNA	PANC1D
378-440	MHz	WHIP	ANTENNA	PANC1L
378-440	MHz	HELICAL	ANTENNA	PANC1U
440-470	MHz	HELICAL	ANTENNA	PANC1F
470-494	MHz	HELICAL	ANTENNA	PANC1G
492-514	MHz	HELICAL	ANTENNA	PANC1V
440-514	MHz	WHIP	ANTENNA	PANC1N
806-870	MHz	WHIP	ANTENNA	PANC1K
806-870	MHz	ELV FD	ANTENNA	PANC1H

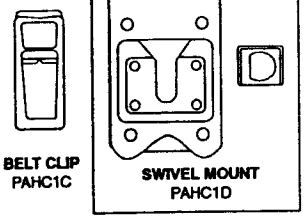




EXTRA HIGH CAP. BATTERY
PAPA1F (INTRINSICALLY SAFE)
EXTRA HIGH CAP. BATTERY
PAPA1E

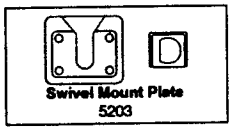
HIGH CAPACITY BATTERY
PAPA1G (INTRINSICALLY SAFE)
HIGH CAPACITY BATTERY
PAPA1H

Carrying Accessories

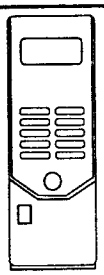


BELT CLIP
PAHC1C

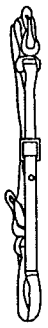
SWIVEL MOUNT
PAHC1D



Swivel Mount Plate
5203



CARRYING CASE
WITH BELT LOOP
PAHC1E
PAHC1F
WITH SWIVEL MT
PAHC1G
PAHC1H



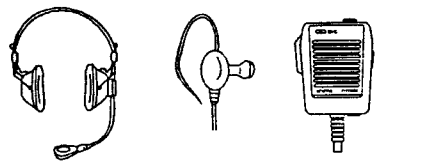
SHOULDER
STRAP
PAHC1K

Audio Accessories

HEADSET/MIC
PAAB1A

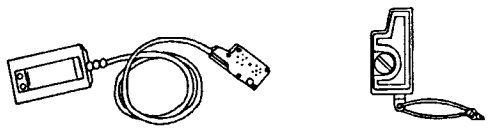
EARPIECE
PAAC1A

SPKR/MIC
PAAE1A

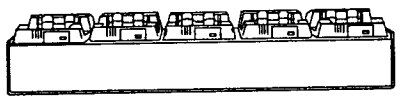


INTERFACE CONNECTOR
(Provided with PAAB1A)

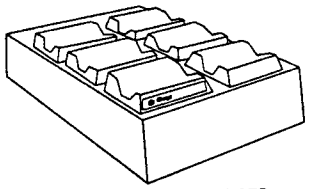
GE-STAR LANYARD
PAAC1B



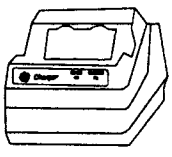
Chargers



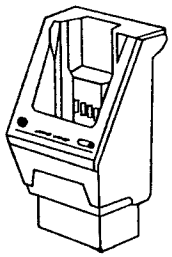
MULTI-CHARGER
H2A2L2A 120 VAC 14 HR
H2A2J1A 120 VAC 1 HR
H2A2M2A 240 VAC 14 HR
H2A2N1A 240 VAC 1 HR



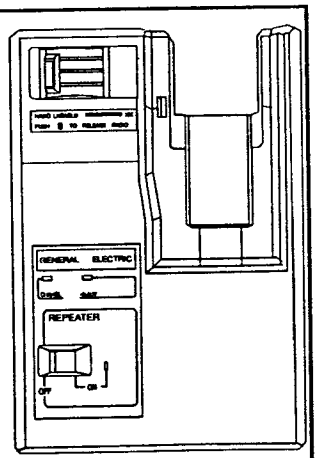
UNIVERSAL MULTI-CHARGER
CH6RA1 120 VAC 1HR
CH6SA1 120 VAC 14HR
CH6RA2 230 VAC 1HR
CH6SA2 230 VAC 14HR



UNIVERSAL DESK CHARGER
CH1RA1 120 VAC 1 HR
CH1SA1 120 VAC 14 HR
CH1RA2 230 VAC 1 HR
CH1SA2 230 VAC 14 HR



COMPACT CHARGER
H2A5C2A - Vehicular Charger
H2A6L2A - Desk Charger



VEHICULAR CHARGER
H2V01 - Vehicular Charger
H2V02 - Vehicular Chgr/Rptr Control

Figure 5 - Options And Accessories

DESCRIPTION

Two major assemblies form an M-PA radio. The Front Cover Assembly contains all of the microprocessor circuitry, audio circuitry and the operating controls. The Rear Cover Assembly houses the RF circuitry which includes the transmitter, receiver and the frequency synthesizer. The assemblies are electrically interconnected by two single-in-line type connectors. When mated together, the assemblies form a weather resistant die-cast aluminum case that protects the radio's circuitry from harsh outside environments.

Power is provided by a battery pack that slides and locks on to the bottom of the radio. The radio's on/off switch is located on the battery pack.

The antenna screws on to the top of the unit. A side antenna connection is also provided at the UDC for an external antenna or for test purposes. This UDC antenna connection is also utilized for external antenna operation when the radio is locked in the vehicular charger or repeater.

REAR COVER ASSEMBLY

The Rear Cover Assembly houses the RF Board in the die-cast aluminum case. The complete assembly consists of the VHF RF Board, aluminum case, top antenna jack, side (UDC) antenna jack and various hardware.

The RF Board's circuitry includes the transmitter, receiver and the frequency synthesizer. This FM circuitry is under complete control of the microprocessor circuits. Controlling data sent to this assembly from the Control Board includes serial synthesizer data loading, transmitter/receiver enabling and a transmitter power level signal. The RF Board outputs the demodulated audio/data and a synthesizer lock status line to the Control Board. During transmitter operation, the RF power appears at the top antenna jack (or the UDC jack if the appropriate adapter plug is inserted). The Rear Cover Assembly maintenance manual contains a detailed circuit analysis, mechanical, outline and schematic diagrams for this assembly.

FRONT COVER ASSEMBLY

The Front Cover Assembly houses all of the operating controls and the digital control circuitry for the radio. Board assemblies used in this assembly include the Control and LCD Boards and flex circuits include the Keypad, UDC and Speaker Flex circuits. The speaker, microphone and Battery Plate are also a part of this assembly. The complete assembly is housed in the die-cast aluminum front cover. Scan and System model radios are equipped with a keypad on the front panel.

The Control Board located in the Front Cover Assembly is the largest and most complex board in the Front Cover Assembly. It contains all microcomputer and audio circuitry which controls the radio. See the maintenance manuals specific to the Control Board or the Front Cover Assembly for service information on the related assembly.

ANTENNAS

Antennas are selected based on the operating frequency range of the radio. Table 1 lists the available antennas which mount in the antenna jack on the top of the radio. An external antenna can be mounted to the unit via the UDC. When an antenna is connected to the UDC, the antenna on the top of the radio is disabled.

BATTERY PACKS

The battery pack connects to the bottom of the unit and delivers a nominal 7.5 Volts dc to the radio. A recessed on/off switch for the radio is located on the battery pack. An internal fuse located in the radio's Battery Plate protects the radio and battery from excessive current draw. The battery packs are available in several different capacities and sizes.

TABLE 1 - VHF ANTENNAS

USABLE FREQ. RANGE (MHz)	OPTION NUMBER	PART NUMBER	TYPE	COLOR BANDS
136 - 151	PANC1B	19B234804P1	Helical	Brown
146 - 162	PANC1C	19B234804P2	Helical	Red
157 - 174	PANC1D	19B234804P3	Helical	Orange

Radio contacts located on the top of the pack include switched power, ground, the speaker enabling contacts and a continuous power contact. In addition, four contacts are located on the rear of the battery pack. These four contacts provide connections to the slip-in type chargers or vehicular chargers/repeaters while the battery pack is still connected to the unit. The battery charging contacts are diode protected from external shorts.

The chargers utilize an internal thermistor in the battery pack to sense temperature and automatically control charge rate of the battery. This allows for a maximum charge rate without overheating the battery pack. All battery packs can be charged in less than 1 1/2 hours with the rapid type chargers. Nominal full charge time in a standard charger is 14 hours. The Service Section contains a detailed outline and schematic diagram of a typical battery pack. Further service information for the battery packs is also presented in the Service Section.

Chargers are available with nominal charge times of one hour (rapid) and fourteen hours (standard). Combinations include single (1) and multi (5) position, standard and rapid charge units. In addition, the vehicular chargers/repeaters simultaneously charge the battery while the radio is operating.

The battery packs should be fully charged in an appropriate charger before they are placed into service. This applies to new battery packs received from the factory and to battery packs that have been stored for long periods of time. A fully charged battery pack should have an open-terminal voltage greater than 7.5 Volts. A battery pack in need of a charge will cause the low battery "BAT" status flag on the radio to turn on. This flag will turn on when the battery pack's voltage drops below approximately 6.8 Volts. The low battery alert tone will also be heard when the battery pack needs charging.

UNIVERSAL DEVICE CONNECTOR

The UDC is located on the side of radio just above the PTT and Monitor Buttons. Various equipment such as the audio accessories can be connected to the radio via the UDC. The programming equipment is also connected to it when the personality is programmed into the radio. The UDC furnishes an excellent first-check-point for initial bench checks without the need to disassemble the radio. Table 2 lists all pins and their appropriate function. When the radio is turned on it senses the resistance value between UDC pins 9 and 1 and switches the appropriate circuits to provide proper radio-to-accessory operation.

PROGRAMMING

The radio's personality is programmed using an IBM PC or compatible computer. A full-screen portable PC can be used for field programming. The Programming Manual and Software is TQ-3339 and TQ-4339. TQ-3339 is supplied with 5-1/4 inch floppy disks and TQ-4339 is supplied with 3-1/2 inch disks. This software uses a series of screens and windows to guide you through a programming session. See TQ-3339 or TQ-4339 for further programming details. PC Programming Adapter TQ-3310 and Programming Cable TQ-3311 will also be required. These items provide interface and connection between the PC and the radio when the personality is transferred from the PC into the radio.

FEATURES PROGRAMMABLE ON A PER CHANNEL BASIS

- Transmit and Receive Frequencies
- 8-Character Alphanumeric Display (Channel Designator)
- Tone or Digital Channel Guard Encode/Decode
- Type 99 Tone Decode Enabled or Disabled
- Transmit Power Level High or Low
- Transmit STE On or Off
- Channel Busy Lockout Enabled or Disabled
- Carrier Control Timer
- Backlight On or Off
- Alert Tones On or Off
- Switch Crystal Frequency Enabled or Disabled
- GE-STAR Enabled or Disabled
- GE-STAR sent with Channel Guard
- Channel on Default/Fixed Scan List*
- Voice Mode and Cryptographic Key Used
- Transmit and Receive Outside Addresses

TABLE 2 - UDC PIN FUNCTIONS

PIN	NAME	INPUT OR OUTPUT	USE
1	GROUND	—	Case Ground
3	UDC RX AUDIO	Output	Test Point For Speaker Audio
4	SW BATT	Output	Switched Accessory Power
5	EXT PTT	Input	External Microphone PTT Input
6	TX DATA	Input	For Programming
7	RX DATA	Output	For Programming
8	SPARE		
9	UDC VOLT	—	Option/Accessory Sense Pin
10	T/R	Output	Low = Transmit, High = Receive
11	UDC MUTE	Output	Low = Audio Muted
12	EXT MIC HI	Input	External Microphone Audio Input
13	EXT EMER	Input	Lanyard Connection
34	UDC DISCR	Output	Test Point For RX Audio

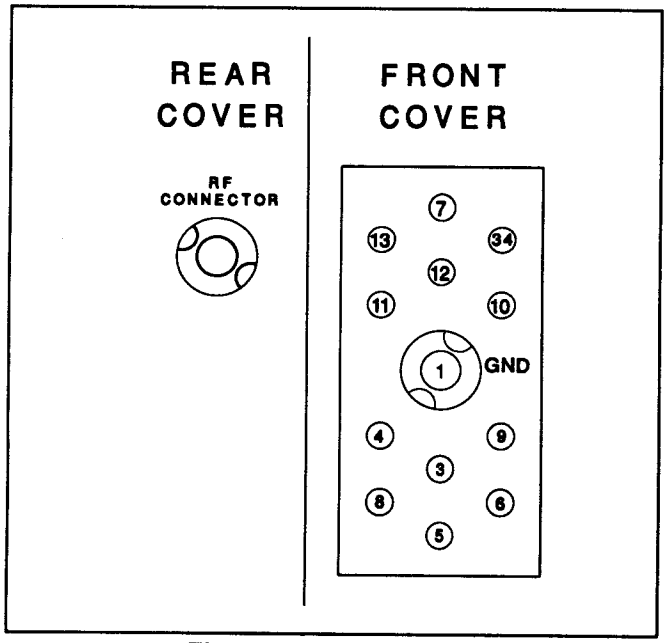


Figure 6 - UDC Pin-Out

FEATURES PROGRAMMABLE ON A PER MODE BASIS*

- Channel Data
- 8-Character Alphanumeric Display (Mode Designator)
- Type 99 Group Set Selection (One or Two)
- Priority-One and Priority-Two Scan Channels
- DTMF Enabled or Disabled
- GE-STAR Channel
- Home Channel
- Digitalization Type (Aegis or Voice Guard)

FEATURES PROGRAMMABLE ON AN OVERALL RADIO BASIS

- Minimum Volume Level
- Power-Up Beep On or Off
- Transmit Backlight On or Off
- Backlight On or Off when in Vehicular Charger
- GE-STAR and GE-STAR Emergency Options
- Two individual Type 99 Tone Group Sets
- Control Knob selects Channels, Modes or Channel Guard*
- Menu Selections*
- Home Mode or Home Channel (depending on Control Knob programming) or Disabled*
- Scan Enabled or Disabled*
- Scan with Channel Guard Enabled or Disabled*
- Scan Across Modes Enabled or Disabled*
- Priority-One Scan Channel is the Selected Channel, Fixed Channel or Keypad Entered Channel*
- Ten (10) Telephone Numbers and Names*
- DTMF Options*
- CUE Codes (Option PAVE only)

* Scan and System models only

OPERATOR MANUALS

Complete operating details for the Aegis M-PA radios are included in the operator manuals listed in Table 3.

TABLE 3 - OPERATOR MANUALS

MODEL	MANUAL
SELECT	LBI-38796
SCAN	LBI-38797
SYSTEM	LBI-38798

OPERATING TIPS

Antenna location and condition is critical when using an VHF radio. Operating the radio in low areas of terrain, under power lines or bridges, inside of a vehicle or in a metal or steel framed building can severely reduce the range of the unit. Mountains and buildings can also reduce the range of the unit.

In areas where transmission or reception is poor, some improvement may be obtained by insuring that the antenna is vertical. Moving a few yards in another direction or moving to a higher elevation may also improve communication. Vehicular operation can be aided with the use of an externally mounted antenna.

Battery condition is another critical factor in the trouble free operation of a portable radio. Observe the procedures listed in the Service Section to insure the battery packs do not develop the "Memory Effect".

Always observe all of the Federal Communication Commission's rules and regulations during any service or operating procedure.

INTRINSICALLY SAFE USAGE

Selected portable radios with appropriate factory installed F4 Options are certified as Intrinsically Safe by the Factory Mutual Research Corporation. Intrinsically Safe approval includes Class I, II, III, Division 1 hazardous locations in the presence of Groups C, D, E, F and G atmospheres. Non-Incendive approval includes Class I, Division 2 hazardous locations in the presence of Groups A, B, C and D atmospheres.

Hazardous locations are defined in the National Electrical Code. Useful standards NFPA 437A and NFPA 437M for the classifications of hazardous areas can be ordered from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

BATTERY PACKS

Only battery packs identified with a green latch shall be used with a portable radio that is rated and labeled as Factory Mutual Intrinsically Safe. Use of nonspecified battery packs voids Factory Mutual approval. The following battery pack options are approved for use in intrinsically safe radios:

PAPA1F (19A704860P6)	Rechargeable Battery Pack, Extra High Capacity (Tall Case)
PAPA1G (19A704850P6)	Rechargeable Battery Pack, High Capacity (Short Case)

ACCESSORIES

The accessories that follow are approved for use with intrinsically safe radios. Use of accessories other than those listed voids Factory Mutual approval.

PAAB1A (19B801508P3)	Headset/Microphone
PAAC1A (19B801508P2)	Earpiece Kit
PAAC1B (19B801508P8)	GE-STAR Lanyard
PAAE1A (19B801508P1)	Speaker/Microphone
PAAE1B (19B801508P4)	Speaker/Microphone with GE-STAR Lanyard
PAAE1C (19B801508P6)	Speaker/Microphone/Antenna
PANC1B (19B234804P1)	Antenna, 136 - 151 MHz, Helical
PANC1C (19B234804P2)	Antenna, 146 - 162 MHz, Helical
PANC1D (19B234804P3)	Antenna, 157 - 174 MHz, Helical
PAHC1C	Belt Clip
PAHC1D	Swivel Mount with Belt Loop
PAHC1E	Case, Leather, with Belt Loop (Short Case)
PAHC1F	Case, Leather, with Belt Loop (Tall Case)
PAHC1G	Case, Leather, with Swivel Mount and Belt Loop (Short Case)
PAHC1H	Case, Leather, with Swivel Mount and Belt Loop (Tall Case)
PAHC1K	Shoulder Strap, Leather, with Mounting Plate
PAHC1N	Holster, Plastic.

MAINTENANCE

The Aegis M-PA radio is a very reliable unit and will normally provide many years of trouble-free service. The recommended Preventive Maintenance procedures that follow should be preformed when a technician comes in contact with a unit. Component level troubleshooting information is contained in the manual associated with the particular assembly and in the Service Section.

PREVENTIVE MAINTENANCE

Antenna

The antenna and antenna contact should be kept clean and free from dirt or corrosion. If the antenna contact should become dirty or corroded, communication range could be reduced.

Battery Packs

Insure the battery packs are properly maintained. Do not over or under charge them on a regular basis. Verify the contacts are clean and free of corrosion.

Mechanical

Since portable radio units are subject to shock and vibration, check for loose plugs, knobs, screws, etc.

Transmitter Check

Check transmit frequency and deviation. Normally these checks are made when the unit is first put into operation. They should be repeated after the first month of operation, then annually.

Receiver Check

Receiver sensitivity should be checked periodically as an indication of overall receiver operation.

Cleaning

If the unit requires an external cleaning use mild soap and a damp cloth. Avoid abrasive cleaners or chemicals which may damage the plastic or rubber surfaces on the unit.

ERICSSON

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