LBI-38574B

Operator's Manual

M-PA[™] *EDACS* [™] 900 MHz SELECT, SCAN, & SYSTEM PERSONAL RADIOS



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Figure 1A - M-PA EDACS Personal Radio



Figure 1B - M-PA EDACS Personal Radio



Figure 2 - M-PA EDACS System Personal Radio (Top View)

INTRODUCTION

This manual describes how to use the **M-PA EDACS** System Personal Radios. The **M-PA EDACS** Select, Scan, and System Personal Radios are field programmable microprocessor controlled portable radio designed for Digital Trunking and Conventional communications. It is housed in a rugged aluminum case equipped with an easy to read alphanumeric display providing operating information and radio status. The controls include top mounted rotary Volume and Control knobs, four Function keys and a keypad. A recessed Emergency button permits the use of a single button in sending emergency calls.

OPERATING NOMENCLATURE

CONVENTIONAL OPERATION

All units on a conventional system operate through the same radio repeater. Trunked features (such as call queuing and system scan) are not available in conventional mode.

TALK-AROUND OPERATION

Also referred to as "direct mode", talk-around provides a direct unit-to-unit short range communications link. It is intended to maintain communications outside of the main system coverage area.

TRUNKED OPERATION

Trunked Operation refers to the use of a set of radio frequency channels by multiple user groups. By using high speed digital data your **M-PA EDACS** radio goes to an unused channel when a call is initiated and will also only respond to calls in the same user group. In this way conversation privacy between user groups is assured.

SYSTEM (AREA) (Trunked operation only)

The terms "system" and "areas" are used interchangeably to refer to the particular group of station repeaters currently providing service to the radio. Radios can be preprogrammed to work in different systems by changing the CONTROL Knob position or by pressing the STEP button (for SCAN and SYSTEM models) depending on radio programming. (e.g., different systems in different cities).

GROUP OR SUBFLEET (Trunked Operation Only)

A group of users share the same preprogrammed group identification number in their mobile and portable radios. All units in the same group will receive a dispatch call placed by any one unit in the group.

FLEET (Trunked Operation Only)

A fleet of users consists of multiple groups (subfleets). Radios can be preprogrammed to make fleet calls to simultaneously access multiple user groups.

AGENCY (Trunked Operation Only)

An agency is composed of multiple fleets. Units can be preprogrammed to

initiate agency calls to access multiple fleets.

CONTROLS, DISPLAYS AND CONNECTORS

CONTROLS

ON/OFF The Power ON/OFF slide switch located on the side of the battery pack controls power from the battery pack to the radio. Sliding the switch up turns on the radio and exposes the vellow "ON" indicator. This will also initiate the personality self-test. Sliding the switch down turns the radio off.

VOLUME The VOLUME Control Knob, located on the top of the radio, adjusts the receive volume to the desired listening level.

MONITOR In the Trunked mode, pressing the MONITOR button enables non-supervisory users to clear message trunked individual calls, entered digits. and interconnect calls. Supervisory units may clear any call regardless of type, transmission or message trunked. The **MONITOR** button is also used to clear any currently active callback Status for both supervisors and non-supervisors.

In the Conventional mode, the receiver may be unsquelched by pressing and holding the

MONITOR button. This permits the user to listen to the receiver and adjust the volume control to the desired level. When the button is released, the radio mutes unless a carrier and channel guard (if enabled) were detected in the interim.

EMERGENCY The EMERGENCY but-

mode only)

(Trunked ton is used to initiate an emergency call on the programmed home group or on the selected group if no home group is programmed.

4 KEY CONTROL (SCAN and SYSTEM MODELS)

CONTROL System Selection KNOB AND System selection is ac-STEP complished with either the Control knob or the STEP key depending on the personality programming. If the Control knob for System is used change, rotating the knob will change Systems.

If the STEP key is used for System change, then pressing the STEP key will take the radio to the next system. Pressing 2nd then STEP will take the radio to the previous System. Holding down the STEP key will result in repeated operation. Upon reaching the end of the System list, the radio can be programmed to stop or wrap around to the end of the list.

Selection may also be made by entering the system number and pressing the STEP key (System model only).

Group/Channel Selection -Group selection is accomplished with either the Control knob or the STEP key, depending on the personality programming. If the Control knob is used for Group rotating the change, knob will change Groups.

If the STEP key is used for Group change, then pressing the STEP key will take the radio to the next Group. Pressing 2nd then STEP will take the radio to the previous Group. Upon reaching the end of the Group list the radio can be programmed to stop or wrap around to the other end of the list. Selection may also be made by entering the group number and pressing the STEP key (System mode only).





SCAN

SPC

The **SCAN** key turns Scan operation on or off.

The Special Call **(SPC)** key switches operation between the Group Select Mode and the Special Call mode. Up to 24 special call unless can be programmed into the special call set for a given system (up to 4 sets with 24 special call entries per radio). The **STEP** key is used to scroll through the list.

LOCK

Selection may also be made by entering the Special call entry number and pressing the **SPC** key. (System model only).

SECOND FUNCTION CONTROL (SCAN And SYSTEM MODELS ONLY)

A/D Pressing the 2nd key followed by the Add/Delete key (A/D) flags the selected group for scan or deletes the group from the Scan list.

> Pressing the 2nd key followed by the **LOCK** key makes the keypad inoperative, thus preventing accidental key activation. Repeating this operation reenables the keypad.

SECOND FUNCTION CONTROL (SYSTEM MODEL ONLY)

The system keypad provides additional capabilities. These capabilities include storage and recall of up to 10 telephone numbers and 10 radio identification numbers, manually sending a telephone interconnect call, manually initiating an individual radio call, and quick selection of special calls and Systems or groups.

1ѕто

The storage function allows you to store a telephone number or radio ID number.

3RCL

To store a telephone number, enter the telephone number (up to 29 digits) followed by an asterisk (*) control character. Next enter the storage location (1 to 10) and press the **2nd** and **STO** keys. The LCD displays **"STORED"** for 2 seconds and returns to its previous state.

To store an individual radio ID number, enter the ID number (from 1 to 16382) followed by a pound sign (#) control character. Next enter the storage location (1 to 10) and press the 2nd and **STO** keys. The LCD displays **"STORED"** for 2 seconds and returns to its previous state.

The recall function allows you to recall a telephone number or radio ID number previously stored using the storage function. To recall a number, first enter the control digit (* or #) to indicate whether you are recalling a telephone number or a radio ID number. Next enter the storage location (1 to 10). Pressing the 2nd RCL keys comand

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pletes the process and the telephone number or radio ID number is displayed on the LCD. Pressing only the **2nd** and **RCL** keys without specifying the recall type or location will recall the last number that was stored or recalled.

Pressing the **2nd** key followed by the **CLR** key allows you to clear the last digit entered from the keypad. If you are clearing the first digit, then the display will return to its previous state. Holding CLR down results in repeated operation.

#^{CLR}

DISPLAYS

The radio's Liquid Crystal Display (LCD) panel, located on the front of the radio, provides the user with an 8 character alphanumeric display and twelve radio status flags located along the top and bottom of the display panel.



The alphanumeric display provides the user with information relating to the identification of a received or transmitter call.

The status flags indicate the various operating characteristics of the radio. Only the active flags are displayed. An explanation of the flags is given below.

EMG	Emergency indicator - In trunked mode, the flag is on steady when the user		responded to (trunked mode).
	initiates or receives an emergency call.	CNV	Conventional Mode - flag indicates that the ra- dio is operating in the
NC	No Control channel - Steady display indicates		confessional mode.
	no trunked control chan- nel. Flashing indicates trunked system is in fail- soft (supervisory radios only).	SPC	Special Call - The flag is displayed when the Spe- cial Call mode is se- lected (trunked mode).
		тх	Transmit Status flag -
HI	High Power status flag - On indicates the radio is programmed to transmit		Flag is on when the ra- dio is transmitting.
	at high power. Off indi- cates low power.	BSY	Channel Busy indicator - In the Trunked mode, on indicates the radio is re-
MSG	Message - A flashing message flag indicates an individual call has been received but not		ceiving a call. In the Conventional mode, on indicates a carrier is pre- sent.

- CG Channel Guard Displayed when Channel Guard is enabled on the selected conventional channel.
- **BAT** Battery low This status flag indicates the battery pack needs recharging.
- S Scan List Indicates the selected group/channel is in the scan list.

SCN Scan - Indicates radio is in the Scan mode.

UNIVERSAL DEVICE CONNECTOR (UDC)

The Universal Device Connector (UDC) is located on the side of the radio above the PTT bar. The **M-PA EDACS** radio support up to 16 external devices. Some of these devices are: External Microphone External Earphone External Speaker/Mic Vehicular Charger Emergency Lanyard

The UDC is also used by maintenance personnel for programming the radio.

OPERATION

SELF-TEST

During the power-up sequence, the radio performs a Personality self-test. During this test, the radio executes a set of preprogrammed instructions. At the start of the test all segments of the LCD will be momentarily displayed.

When the radio passes the selftest, it will begin operation on the selected System. If the radio fails the self-test, an error condition exists and the message "PERS ERR" will be displayed and a failure tone is sounded. If this happens, the radio requires reprogramming or servicing. A short tone or beep is sounded if the radio passes the selftest.

PERS ERR

CARRIER CONTROL TIMER (If programmed)

This feature unkeys the transmitter if the user exceeds the preprogrammed time for continuous transmission and produces a beeping tone in the speaker until the PTT switch is released. Releasing PTT resets the timer.

TRUNKED MODE OPERATION

RECEIVING A MESSAGE

- Slide the ON/OFF switch on the battery pack to the ON position. The radio initiates and completes the self-test after which the System name and "NC" Status flag are displayed. When the system control channel is located, the "NC" flag disappears and the group name is displayed.
- 2. Set the VOLUME Control to mid range.
- 3. Use the **CONTROL** Knob or **STEP** key to select the desired System and/or group (depending on programming). The display indicates the selected group name.

- **4.** The radio is now ready to receive messages.
- <u>GROUP CALL</u> When the radio receives a group call, it unsquelches on the assigned channel and lights the "BSY" flag. The Group name or originator's ID (depending on programming) is displayed.
- INDIVIDUAL CALL If an individual call (call directed only to your radio) is received, the radio unsquelches on the assigned channel and the "BSY" flag lights. The message "*INDV*" or originator's ID is displayed.

If you respond to the call prior to the programmed call-back time-out, your call will automatically be directed to the originating unit.

SENDING A MESSAGE

- 1. Turn the radio on, set the receive audio level, and select the desired group as described under TO RECEIVE A MESSAGE.
- 2. Observe the display for the absence of the "BSY" indicator to ensure that no one is transmitting on the selected group.
- **3.** Press and hold the PTT bar, the radio will perform the necessary signaling required to obtain a communication channel.
- 4. When the channel has been acquired, the "TX" and "BSY" flags are displayed and the channel access tone is heard.
- **5.** Hold the radio about three inches from your mouth and speak normally.

6. Release the PTT bar when the transmission is complete, and listen for any reply.

EMERGENCY OPERATION

Receiving an Emergency Call

 When the radio receives an Emergency Channel Assignment, the "EMG" flag is displayed. Follow your standard emergency procedures.

Sending an Emergency Call

1. For emergency transmission, press and hold the EMER-GENCY button for approximately one second. The radio transmits an emergency call message until an Emergency Channel Assignment is received. Upon receipt the "EMG" flag is displayed.

- **2.** Press the PTT bar, and speak into the microphone in a normal voice.
- **3.** Release the PTT bar when the transmission is complete and listen for a reply.
- 4. When the radio receives a normal group channel assignment, it will return to the group previously selected.

WIDE AREA ENCODE

This preprogrammed option insures all system scanning mobiles and portables have time to lock onto the call before the initiating unit is allowed to talk. A three tone alert and a short delay will be noticed after keying the unit and before the call originate beep is heard. This delay occurs only at the first call transaction, all conversation immediately following will operate at normal system speed. The delay length will vary depending on system operating parameters.

TELEPHONE INTERCONNECT

This feature allows you to initiate or receive telephone calls through your radio if the system is configured for this operation.

BASE/UNIT OPERATION

This preprogrammed option is used in some fleets so units can only hear and talk to a base dispatch unit, not to other mobiles or portables in the group. In this mode of operation, when a unit in a particular group is talking to the base dispatch unit, all other mobiles and portables in that group will receive a "System Busy" tone if they try to access the system.

INDIVIDUAL CALL

Every radio in the system is preprogrammed with a unique individual identification code. A mobile or portable unit can call another particular unit by programming the receiving unit's ID into his radio's special call set for that system. Each special call may be selectable and accessed through the CONTROL knob (depending on radio programming) or through the SPC key (SCAN and SYSTEM models).

SYSTEM SCAN

The radio can be preprogrammed to scan (monitor activity on) up to three separate trunked systems and receive calls on any of these systems.

WIDE AREA SYSTEM SCAN

The unit may be programmed with a predefined scan list so that if the current system is lost, the radio will automatically search out and lock to the next available system in its scan list. If enabled, the radio will login to the new system once acquired.

GROUP SCAN OPERATION

The scan operation is enabled by pressing the **SCAN** key, turning on the **"SCN"** status flag.

When a group in the scan list receives a channel assignment, the radio unsquelches on the assigned channel and displays the group name. If the radio detects a selected group call, it will switch to the selected group call and display the selected group name.

Pressing the PTT while in scan causes the radio to place the call on the selected group, as described under TO SEND A MESSAGE.

Press the **SCAN** key to disable scan operation, the "**SCN**" flag turns off and the radio resumes operation on the selected group.

GROUP SCAN - MULTIGROUP DE-CODE (Trunked Operation Only)

This radio can be preprogrammed to monitor up to 48 separate groups simultaneously (multi-group decode). permitting the user to both monitor and receive calls from these groups. When a radio receives a call from one of these groups, it will "lock out", and not send or receive messages from other groups for a preprogrammed period of 5, 10 or 15 seconds, permitting the user to respond to the group call. (The radio may also be preprogrammed for no lock out period). At the end of the "lock out" period, the radio sounds two short low pitched "beeps" and is again ready to receive a call from any of the preprogrammed groups.

PRIORITY GROUP SCAN

If enabled on the radio by the PC Programmer, Priority Group Scan allows the user to scan up to 48 separate groups simultaneously, with one level of priority. When the user is receiving a non-priority group call and a call from the priority group is detected by the radio, the unit will automatically switch to the priority group call in process.

The priority group call can be defined via the PC Programmer as either a predetermined group or the currently selected group.

Adding To Scan (System and Scan Models Only)

Set up (or add to) the groups to be scanned as follows:

- 1. Press the SCAN key if the "SCN" status flag is on, to turn off scan function.
- Select the group to be added using the STEP key or CON-TROL knob.

3. Press 2nd then A/D keys turning on the "S" flag, the displayed group is now in the scan list.

Deleting From Scan (System and Scan Models Only)

Delete groups from the scan list as follows:

- 1. Press the SCAN key if the "SCN" status flag is on, to turn scan function off.
- 2. Select the group to be deleted using the STEP key or CON-TROL knob.

NOTE

If **2nd - A/D** keys are pressed while receiving a scanned call, the group will be deleted from the scan list. **3.** Press **2nd** then **A/D** keys turning off the **"S"** flag, the displayed group is deleted from the scan list.

SPECIAL CALL

Receiving An Individual Call

When an individual call (call directed only to your radio) is received, the radio unsquelches on the assigned channel with the **"BSY"** flag displayed. The message **"*INDV*"** originator's ID, or caller's name is displayed and the **"MSG"** flag flashes.

If you respond to the call prior to the programmed call-back time-out, your call will automatically be directed to the originating unit. If you don't call back before the call-back time-out, the "**MSG**" will remain flashing. To call the calling unit back, press **SPC**. The originator's ID or name will be displayed. Follow the instructions for sending a special call.

Sending A Special Call

You may make Special Calls with your radio through the Special Call feature. Use the following procedure to initiate and complete a Special Call:

 To make a selection from the special menu, press and release the SPC key. An alert tone sounds, the "SPC" flag lights and the display changes from the selected group to one of the special call displays. If no special calls are programmed, the display indicates "NO SPC" and the trunked failure tone sounds.

Press the **STEP** or **2nd-STEP** keys to scroll through the special call menu until the desired Special Call name appears in the display.

- Press and hold the PTT bar. The radio performs the necessary signaling required to obtain a communication channel. When the signaling is complete and the radio is clear to transmit, the "TX" flag turns on and the channel access tone sounds.
- **3.** Release the PTT bar when you are done talking, and listen for a reply.
- 4. When the call is finished, the radio remains in the Special Call menu for a programmed amount of time. To return to the group selection, press and release the SPC key. The radio switches to the previously selected group.

Manual Call From Keypad (System Model Only)

1. Enter the individual radio's identification number from the keypad or recall a previously stored number using the recall function. The number is displayed on the LCD.

- Press and hold the PTT bar. The radio performs the necessary signaling required to obtain a communication channel. When the signaling is complete, the "TX" flag lights and the channel access tone sounds indicating you are clear to transmit.
- **3.** Speak into the microphone in a normal voice.
- **4.** Release the PTT bar when transmission is completed, and listen for a reply.
- When the call is completed, the LCD will continue to display the radio's ID until the Special Call Time-out expires. To return to the group selection, press and

release the **SPC** key. The radio switches to the previously selected group.

TELEPHONE INTERCONNECT

You may make telephone calls with your radio through the Special Call feature. Use the following procedure to initiate and complete telephone calls:

- Press and release the SPC key. The alert tone sounds, the "SPC" flag lights and the display changes from the selected group to one of the special call displays.
- 2. Press the STEP or 2nd-STEP keys to scroll through the special menu, until the desired telephone interconnect display appears.
- Press and release the PTT bar. The radio performs the necessary signaling required to obtain

a communication channel. When the signaling is complete, the "**BSY**" flag turns on and the channel access tone sounds.

- 4. Press the PTT bar to speak.
- 5. To hang-up, press and release the **SPC** key. Pressing the MONITOR button also hangs up the call and returns radio to group menu.

Manual Telephone Interconnect (System Model Only)

 Enter the telephone number from the keypad. The number is displayed on the LCD. You can enter up to 31 digits with the last eight (8) digits displayed. The last digit entered must be an asterisk (*), indicating the digits entered are for an interconnect call. You may also call up a previously stored number using the recall function.

2. Send the number by pressing the PTT bar.

The radio performs the necessary signaling required to obtain a working channel. When the signaling is successfully completed the **"BSY"** flag lights, the channel access tone sounds and the radio enters the receive mode.

If the interconnect signaling is unsuccessful, the radio returns to the idle mode and the number remains displayed until the Special Call Time-out expires or another group or system is selected.

3. When someone answers, press the **PTT** bar and speak directly into the grille on the radio. Release the **PTT** bar as soon as you stop talking. Messages can not be received when the **PTT** bar is pressed.

4. When the conversation is completed, press the **SPC** to terminate the inter-connection (or MON/ CLR).

Credit Card Call (System Model Only)

- 1. Place a call to the long distance carrier's local access number using the manual interconnect procedure.
- 2. When the carrier's access tone is heard, enter your credit card number and press the PTT bar. The digits are erased from the display after they are transmitted. You may also send the digits one at a time by pressing the PTT after entering each digit.

3. Continue the call using the manual interconnect call procedures.

If the DTMF tones are not recognized, terminate the call by pressing the SPC key and repeat the process. If the problem persists, verify software and hardware associated with DTMF overdial is operational.

CONVENTIONAL OPERATION

In the Conventional mode, the user may select a channel programmed for conventional use and then communicate on that channel.

RECEIVING A MESSAGE

- 1. Use the **CONTROL** Knob to select the desired operating channel.
- 2. Press the **MONITOR** button to disable squelch. Then adjust the

VOLUME Control Knob for the desired listening level.

3. The radio is now ready to receive messages.

SENDING A MESSAGE

- 1. Turn the radio on, set the audio level, and select the desired channel as described under RE-CEIVING A MESSAGE.
- Observe the display for the absence of the "BSY" indicator to ensure that no one is transmitting on the selected channel. NEVER interrupt another transmission.
- 3. Press and hold the PTT bar, the "TX" flag is displayed. Speak into the microphone in a normal voice. Release the PTT bar when finished talking, the "TX" flag goes out and radio returns to the receive mode.

ALERT TONES

This section contains a glossary of the alert tones and their associated functions used in your M-PA System.

SELF CHECK TEST (Trunked and Conventional Modes)

You should hear one short tone or "beep" shortly after you turn the radio on. This alert indicates that your radio has passed a SELF CHECK test, and is ready for you to send and receive messages. (NOTE: This alert can be disabled by the PC Programmer.)

CALL RECEIVED (Trunked Operation Only)

A single alert tone is sounded when you receive a group call. A two tone alert is sounded (one high and one low tone) for an individual call.

CALL ORIGINATE (Trunked Operation Only)

A short alert tone is sounded whenever you key the unit, (Push-To-Talk switch is pressed), indicating that your radio has acquired a voice channel. You can begin sending your message immediately following the tone.

NOTE

The radio can be preprogrammed to mute the Call Originate and/or Call Received alert tones. Individual receive alerts cannot be disabled.

CALL QUEUED (Trunked Operation Only)

If you hear two short, high pitched tones (beeps) after you key the unit, the system has placed your request in the queue. The receiving unit(s) also hear the tones, indicating they will receive a call shortly. If you keep your unit keyed, your radio will continue to sound the queue beeps until the queue is cleared. If you should release the PTT button while in queue, your radio will autokey whenever a channel becomes available (see AUTOKEY).

AUTOKEY (Trunked Operation Only)

When you are placed in queue, the repeater station calls your unit when a channel becomes available and automatically keys your transmitter (autokey) for a short period of time holding the channel for you. When you hear the call alert tone, immediately press the PTT switch to keep the channel and send your message.

SYSTEM BUSY (Trunked Operation Only)

If you key the radio and hear four short, low pitched tones, the system is busy (no channels are available at this time for sending messages, and the waiting queue is full). The busy tone sequence will be repeated as long as you press the PTT switch. Releasing the PTT and rekeying initiates a new channel request.

CALL DENIED (Trunked Operation Only)

If you hear five long low pitched tones when you key the radio, you are not a valid user on the system you have selected.

UNIT DISABLED (Trunked Operation Only)

When the PTT switch is pressed, you will hear a continuous low pitched tone if your radio has been disabled by the system. You will not be able to send or receive any messages until the system re-enables your radio. See your system operator for more information.

OUT OF RANGE/SYSTEM IN OPERA-TIVE (Trunked Operation Only)

Repeated short low pitched tones heard immediately after you key the unit indicates your unit is out of the repeater's range. These are the same tones you would hear if you pressed the MONITOR push-button. If you hear these "beeps" when you know you are in range, the system may be off the air or your portable unit may need servicing.

CARRIER CONTROL TIMER (Trunked and Conventional Modes)

The Carrier Control Timer alert is a long low pitched tone. You will hear the tone if you exceed the preprogrammed time for continuous transmission. The transmitter will shut down shortly after you hear the tone, interrupting communications. To maintain communications. release and re-key the PTT button. This resets the timer and turns the transmitter back on.

LOW BATTERY ALERT (Trunked and Conventional Modes)

If you key the radio and hear a low pitched, long repeating tone and the "**BAT**" flag is on, the battery is discharged and the radio will not transmit your message. However, the radio will still be able to receive messages until the battery is discharged beyond the point of operation. Replace or recharge the battery to resume normal operation.

KEY PRESS ALERT (Trunked and Conventional Modes)

A short tone or "beep" is sounded to indicate a key has been pressed. If a short low pitched tone is heard after a key is pressed, this indicates no action was taken and a failure occurred.

OPERATING TIPS

The following conditions tend to reduce the effective range of two-way radios and should be avoided whenever possible.

- Operating the radio in low areas of terrain or while under power lines or bridges.
- Operating the radio inside of a vehicle or in a metal or steel framed building unless using an outside antenna.
- Obstructions such as mountains or buildings between the person sending and the person receiving the messages.

In areas where transmission or reception is poor, some improvements 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.

OPERATING PROCEDURES

Two-way FM radio systems must be operated in accordance with the rules and regulations of the Federal Communications Commission (FCC). As an operator of two-way radio equipment, you must he thoroughly familiar with the rules that apply to your particular type of radio operation. Following these rules will help eliminate confusion and will assure the most efficient use of existing radio channels. This will result in a smoothly functioning radio network.

When using your two-way radio, remember these rules:

> It's a violation of FCC rules to interrupt any distress or emergency message. As your radio operates in much the same way as a telephone "party line", always listen and/or observe the absence of the "BSY" flag to

make sure that the line is clear. If someone is sending an emergency message -such as reporting a fire, or asking for help in an accident - KEEP OFF THE AIR! Emergency calls have priority over all other messages.

- 2. Use of profane or obscene language is prohibited by federal law.
- **3.** It is against the law to send false call letters, or false distress or emergency messages.
- 4. The FCC requires that you keep conversations brief and confine them to business. To save time, use coded messages whenever possible.

- 5. Using your radio to send personal messages (except in an emergency) is a violation of FCC rules. You may send only those messages that are essential for the operation of your business.
- 6. It is against federal law to repeat or otherwise make known anything you overhear on your radio. Conversations between others sharing your channel must be regarded as confidential.
- 7. The FCC also requires that you identify yourself at certain specific times by means of your call letters. Refer to the rules that apply to your particular type of operation for the proper procedure.

REPLACEMENT OF BATTERY PACKS

To remove the battery pack from the radio: (refer to Figure 4).

- Turn the radio off by sliding the ON/OFF switch to the OFF position.
- 2. Press down on the battery release latch and slide the battery pack out in the direction of the release latch.

To connect the battery pack to the radio: (refer to Figure 5).

- Ensure that the ON/OFF slide switch on the battery pack) is in the OFF position.
- **2.** Align the Battery pack with the slide grooves and insert into grooves.



Figure 4 - Removing Battery Pack

3. Insert fully into grooves until battery release latch dicks into place.

INTRINSICALLY SAFE USAGE

Selected personal radios with appropriate factory installed F4 Options are certified as Intrinsically Safe by the Factory Mutual Research Corporation for use in Class 1, Division 1 or 2, hazardous locations in the presence of Groups C and D atmospheres; Non-incentive Class 1, 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 amid NFPA 437M for the classifications of hazardous areas may 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 Rechargeable Battery Pack, Extra High Capacity (Tall Case)
- PAPA1G Rechargeable Battery Pack, High Capacity (Short Case)

AUDIO ACCESSORIES

The audio accessories listed below are approved for use with intrinsically safe radios:

- PAAB1A Headset/Microphone (high noise environment).
- PAAC1J Earpiece Kit.
- PAAC1B Emergency Lanyard.
- PAAE3R Speaker/Microphone.
- PAAE1B Speaker/Microphone with Emergency Lanyard.
- PAAE3T Speaker/Microphone/ Antenna.
- PANC1Z Antenna, 896-941 MHz, Whip.
- PAHC1C Belt Clip.
- PAHC1D Swivel Mount with Belt Loop.
- PAHC3W Case, Leather, with Belt Loop (Short Case).
- PAHC1K Shoulder Strap, Leather, with Mounting Plate.
- PAHC5R Holster, Plastic.

Use of audio accessories other than those listed voids the Factory Mutual approval.

RECHARGING BATTERY PACKS

When the battery pack voltage drops below 6.5 volts DC, the low battery flag **"BAT"** is displayed and a 500 Hz tone sounds, indicating the battery pack needs recharging.

There are several chargers and charge rates available for charging the battery packs. For specific instructions refer to the applicable charger's operating manual.

REDUCED CAPACITY IN RE-CHARGEABLE BATTERIES:

Rechargeable batteries in some applications can develop a condition of reduced capacity, sometimes called "Memory Effect". This condition may occur when:

- 1. The battery is continuously overcharged for long periods of time.
- **2.** A regularly performed duty cycle which allows the battery to expend only a limited portion of its capacity.

If the rechargeable battery is only sparingly or seldom used and is left on continuous charge for one or two months at a time, it could experience reduced capacity. On the first discharging cycle, the output voltage could be sufficiently lowered to reduce that battery's hours of useful service.

The most common method of causing this limited capacity is regularly performing short duty cycles; when the battery is operated so that only a portion (<50%) of its capacity is expended. This type of of operation can cause the battery to become temporarily inactive and how a severe decrease in the ability to deliver a full rated capacity. Any rechargeable battery showing signs of reduced capacity should be carefully checked before being returned under warranty or scraped.

RECHARGEABLE BATTERY PACK DISPOSAL



The product that you have purchased contains a rechargeable, recyclable battery. At the end of its useful life, under various state and

local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal. Call Toll Free 1-800-8-BATTERY for information and/or procedures for returning rechargeable batteries in your state.

REMOVAL AND REPLACEMENT OF THE SWIVEL MOUNT

To remove the swivel mount, slide a flat blade screwdriver underneath the spring retainer and twist (see Figure 6). While twisting, slide the swivel out from under the holder.

To replace the swivel mount, place the end of the swivel in the grooves in the radio and slide the mount forward until it snaps in place.





PRODUCT SPECIFICATION FOR CE MARKED EQUIPMENT

The M-PA Portable conforms to the following Product Specifications.

EUROPEAN STANDARDS:

Safety:	Not Applicable
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- EMC: prETS 300 279 (August 1995)
- TTD: Not Applicable

SUPPLEMENTARY INFORMATION:

At this time, the M-PA portable radio may not be operated while in a vehicular charger in the European Community since it has not been evaluated for operation in this mode.

The M-PA portable radio may be used in both trunked and conventional applications.

WARRANTY

- A. Ericsson Inc. (hereinafter "Seller") warrants to the original purchaser for use (hereinafter "Buyer") that Equipment manufactured by Seller shall be free from defects in material, workmanship and title, and shall conform to its published specifications. With respect to any Equipment not manufactured by Seller (except for integral parts of Seller's Equipment to which the warranties set forth above shall apply). Seller gives no warranty, and only the warranty, if any, given by the manufacturer shall apply. Batteries are excluded from this warranty but are warranted under a separate Nickel-Cadmium Battery Warranty.
- B. Seller's obligations set forth in Paragraph C below shall apply only to failures to meet the above warranties (except as to title) occurring within the following periods of time from date of sale to the Buyer and are conditioned on Buyer's giving written notice to Seller within thirty (30) days of such occurrence:
 - 1. for fuses, incandescent lamps, vacuum tubes and non-rechargeable batteries, operable on arrival only.
 - 2. for parts and accessories (except as noted in B.1) sold by Seller's Service Parts Operation, ninety (90) days.
 - 3. for all other Equipment of Seller's manufacture, one (1) year.
- C. If any Equipment fails to meet the foregoing warranties, Seller shall correct the failure at its option (i) by repairing any defective or damaged part or parts thereof, or (ii) by making available at Seller's factory any necessary repaired or replacement parts. Any repaired or replacement part furnished hereunder shall be warranted for the remainder of the warranty period of the Equipment in which it is installed. Where such failure cannot be corrected by Seller's reasonable efforts, the parties will negotiate an equitable adjustment in price. Labor to perform warranty service will be provided at no charge only for the Equipment covered under Paragraph B.3, and only during the first three (3) months following the date of sale to the Buyer. Thereafter, labor will be charged at prevailing rates. To be eligible for no-charge labor, service must be performed by an Authorized Service Center or other Servicer approved for these purposes either at its place of business during normal business hours, for mobile or personal equipment, or at the Buyer's location, for fixed location equipment. Service on fixed location equipment than thirty (30) miles from the Service Center or other approved Service's place of business will include a charge for transportation.
- D. Seller's obligations under Paragraph C shall not apply to any Equipment, or part thereof, which (i) has been modified or otherwise altered other than pursuant to Seller's written instructions or written approval or, (ii) is normally consumed in operation or, (iii) has a normal life inherently shorter than the warranty periods specified in Paragraph B, or (iv) is not properly stored, installed, used, maintained or repaired, or, (v) has been subjected to any other kind of misuse or detrimental exposure, or has been involved in an accident.
- E. The preceding paragraphs set forth the exclusive remedies for claims (except as to title) based upon defects in or nonconformity of the Equipment, whether the claim is in contract, warranty, tort (including negligence), strict liability or otherwise, and however instituted. Upon the expiration of the warranty period, all such liability shall terminate. The foregoing warranties are exclusive and in lieu of all other warranties, whether oral, written, expressed, implied or statutory. NO IMPLIED OR STATUTORY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT OR EXEMPLARY DAMAGES.

This warranty applies only within the United States.

1-800-592-7711 (Outside USA, 804-592-7711)

NICKEL-CADMIUM BATTERY WARRANTY

- A. Ericsson Inc. (hereinafter "Seller") warrants to the original purchaser for use (hereinafter "Buyer") that nickel-cadmium batteries supplied by Seller shall be free from defects in material and workmanship, and shall conform to its published specifications for a period of twelve (12) months from the date of purchase.
- B. For purposes of this warranty, batteries shall be deemed defective if (1) the battery capacity is less than 80% of rated capacity, or (2) the battery develops leakage.
- C. If any battery fails to meet the foregoing warranty, Seller shall correct the failure by issuing a replacement battery upon receipt of the defective battery at an Authorized Service Center (ASC). To obtain the name and address of an ASC, ask your salesperson, consult the Yellow Pages, or call the number printed at the bottom of this page.
- D. Replacement batteries shall be warranted only for the remaining unexpired warranty period of the original battery. This warranty becomes void if:
 - (1) The battery has been subjected to any kind of misuse, detrimental exposure, or has been involved in an accident.
 - (2) The battery is used in equipment or service other than the radio equipment for which it is specified.
- E. The preceding paragraphs set forth the exclusive remedies for claims (except as to title) based upon defects in or non-conformity of any battery, whether the claim is in contract, warranty, tort (including negligence), strict liability or otherwise, and however instituted. Upon the expiration of the warranty period, all such liability shall terminate. The foregoing warranties are exclusive and in lieu of all other warranties, whether oral, written, expressed, implied or statutory. NO IMPLIED OR STATUTORY WAR-RANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE SHALL APPLY. IN NO EVENT SHALL THE COMPANY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPE-CIAL, INDIRECT OR EXEMPLARY DAMAGES.

This warranty applies only within the United States.

1-800-592-7711 (Outside USA, 804-592-7711)

ECX-841C

EMERGENCY NUMBERS

Police		
State Police		
Fire		
Poison Control		
Ambulance		
Life Saving and		
Rescue Squad		

Ericsson Inc. Private Radio Systems Mountain View Road Lynchburg, Virginia 24502 1-800-592-7711 (Outside USA, 804-592-7711)

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