maxon

TM-4800 Mobile
800 MHz Transceiver

Operating Instructions

About Your TM-4800 Radio

Maxon's TM-4800 is a sophisticated microprocessor-controlled transceiver which operates in the 800 MHz range. Operation and functions for Maxon's TM-4800 radio are described in this manual.

We urge you to thoroughly read this manual before operating the radio.

The TM-4800 has been designed for ease of operation. Many of the functions described in this manual are dependent on the system in use. Your Maxon Dealer has programmed the TM-4800 radio to optimize your requirements.

Should you have any questions regarding the operation of the radio, please consult your Maxon Dealer.

About Maxon America, Inc.

Maxon America, Inc. designs and manufactures professional FM two-way radio equipment to serve a wide variety of communication needs. Maxon produces equipment for the Land Mobile Radio and Specialized Mobile Radio markets (business, industrial, government and public safety).

Table of Contents

Safety Information

The Federal Communications Commission (FCC), with its action in General Docket 79-144, March 13, 1985, has adopted a safety standard for the human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act and Federal Communication Commission limits.

DO NOT operate a mobile radio when someone outside the vehicle is within two feet (0.6 meter) of the antenna.

DO NOT operate the radio near unshielded electrical blasting caps or in an explosive atmosphere, unless it is a type specifically designed and qualified for such use.

DO NOT operate the transmitter of any radio unless all RF connectors are secure and any open connectors are properly terminated.

DO NOT allow children to operate transmitter-equipped radio equipment.

• For safe operation, all equipment must be properly grounded.

• All equipment should be serviced only by a qualified technician.

This device complies with Part 15 of the FCC rules. Operation is subject to the condition that this device does not cause harmful interference.

Unpacking Information

Remove and carefully inspect the contents of your package for the following items:

- Radio
- Microphone
- DC power supply cord
- Mounting bracket, hardware
- Microphone hanger and hardware
- Operating instructions

If any items are missing, please contact your Maxon Dealer.
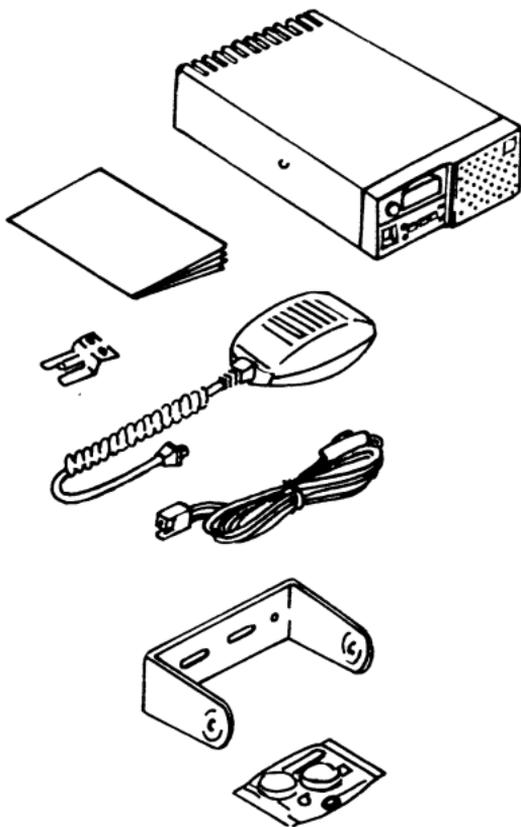
Installation Safeguards

Some electronic fuel injection, anti-skid breaking systems, cruise controls, and vehicle alarms may be prone to interference from radio frequency energy or may malfunction due to a lack of protection from RF energy. If the vehicle contains such equipment, consult the dealer or factory and enlist their help in determining whether the electronics equipment in the vehicle will operate properly when the radio is transmitting.

• Select a location for the radio which allows the user to see and easily reach the microphone and radio controls.

DO NOT install the unit where it would interfere with the proper operation of automatic collision protection devices (air bags).

DO NOT install the unit where it would likely cause injury in case of accident.

• After selecting a location for the radio, hold the mounting bracket in place. Using the bracket as a template, mark with a pencil the spots where the bracket securing screws will be located.

• Before drilling holes in the vehicle, verify that there is nothing that could be damaged or get in the way by drilling and putting screws in this location.

NOTE: It is better to use existing passages in the dashboard, trunk, and floor for the routing cable, thus avoiding excessive drilling.

NOTE: This radio is not intended for operation in a positive ground vehicle.

A suitable antenna must be purchased for use with the radio. Consult your Maxon Dealer for recommended Maxon antennas.

TM-4800 Features

- Up to 10 systems selectable
- Up to 10 groups selectable per system
- System scan
- System lockout when scanning
- Group scan automatically or manually
- Programmable CTCSS and DCS squelch capability
- 7-character alpha-numeric LCD display with backlight
- Operation in both trunking and conventional modes
- Repeater talk-around (conventional and trunking modes)
- Automatic system ringback if system is busy
- Transmit inhibit with busy tone
- Clear-to-talk tone
- First available system scan (FASS)
- Optional microphone for telephone interconnect*
- Storage of up to 8 telephone numbers (of up to 14 digits in length) *

*Functions only when using Maxon Model TMA-4474 (optional microphone with DTMF keypad).

NOTE: System setup determines the specific operation of some of the above features. Refer to the descriptions in this manual for more information.

Quick Reference Guide

Controls

Push-**T**o-**T**alk bar (on microphone) places transceiver in transmit mode

VOL

• OFF   • MAX   Turns transceiver **On/Off** and adjusts **VOL**ume

∧

∨

SYS

Changes **SYS**tem number

LCK

Lo**CK**s displayed System out of scan sequence

T/A

Talk-**A**round bypasses system when out of range of system

SCN

Initiates **SC**a**N**ning mode

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GRP

Changes **GR**ou**P** number

5

Description of Radio Components

Controls and Connectors

TX/RX Indicator - Two color LED glows red when radio is transmitting (TX) and green when radio is receiving (RX).

On/Off-Volume Control - Turning this knob clockwise supplies power to the radio and increases volume level. A counter-clockwise rotation decreases volume level. To turn transceiver power off, rotate knob counter-clockwise to detent.

Microphone Connector - Eight pin modular connector for Maxon heavy duty microphone and optional DTMF microphone (model TMA-4474).

Function Keys - Used to select system and group; to initiate system lockout, talk-around and scan modes.
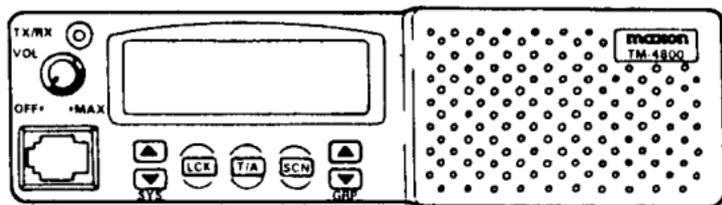
Controls and Connectors, Continued

Antenna Connector - N-type connector. Must be connected to a properly installed 50 ohm antenna.

Power Connector - Polarized plug for 13.8 VDC NEGATIVE GROUND SYSTEMS ONLY.

Auxiliary Speaker Connector - A 3.5mm diameter jack is provided for a 4 ohm auxiliary speaker.
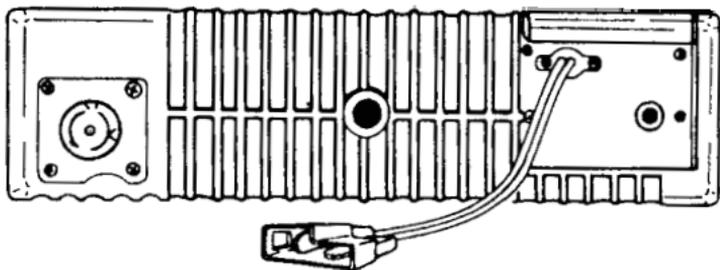
Function Keys

SYS "System" Selector Keys - Pressing ▲ or ▼ selects the next programmed system. Only programmed systems will be displayed. System number selected is located on the left side of display.

LCK "Lock" Key - Used to lock system or systems out of the scan sequence so that they are not scanned. This function is retained in memory and does not need to be re-entered each time the radio is turned on. (Refer to "System Lockout" for more information).

T/A "Talk-Around" Key - Places the TM-4800 into the talk-around mode on trunking and conventional systems (Dealer programmable option). Allows direct radio-to-radio communication when out of range of the system.

SCN "Scan" Key - Pressing this key initiates the scan feature. When the **SCN** key is pressed followed by pressing either the **SYS** (system) or **GRP** (group) key, system scan or group scan is enabled. (See "Scan Modes" for more information).

GRP "Group" Selector Key - Pressing ▲ or ▼ changes the selected group. Only programmed groups will be displayed. Group number selected is located on the right side of display. Group name or identifier is shown in main body of display.
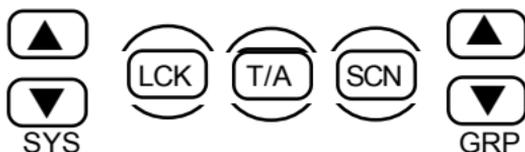
Display Information

Alpha-numeric Display - In the **normal** mode the 7-character display identifies a selected system/group and those operating modes or error conditions as described in "Display Messages".
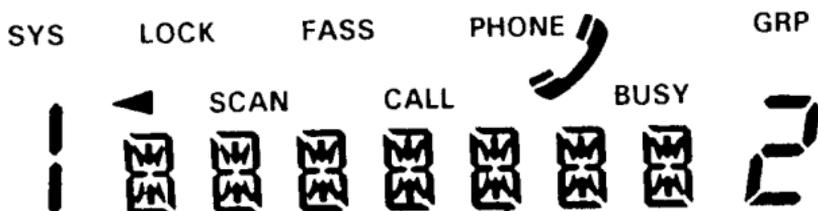
SYS (System)	-Displays above the system number
LOCK	-Indicates that the displayed system has been locked out of the scan sequence or a system or systems have been locked out of scan
FASS	-Indicates First Available System Scan has been enabled
PHONE	-Indicates that the telephone mode has been selected*
	-Indicates that the displayed group is programmed for telephone interconnect
GRP (Group)	-Displays above the group number
◄	-Indicates that there are overflow digits (the telephone number is longer than 7-digits)*
SCAN	-Indicates that the scan mode has been initiated
CALL	-Indicates that a call has been received
BUSY	-Indicates that the channel (conventional) or the system/group (trunking) you have selected is busy

* Displays only when using optional Maxon TMA-4474 microphone with DTMF keypad.

9

TM-4800 Operation

Trunking and Conventional Mode

Your Maxon TM-4800 may be programmed to operate in both trunking and conventional modes. Each system can be individually programmed to operate in either trunking or conventional systems. There are only a few differences in their operation and these are detailed as follows.

Channel Monitoring

While on a trunking system, channel monitoring is performed automatically by the radio. In accordance with the FCC Rules, while operating on a conventional system the channel must be monitored prior to transmitting. Simply remove the microphone from the hanger bracket to monitor. In both trunking and conventional systems, operation may vary from system to system. Your Maxon Dealer will be able to assist with particular operational parameters and procedures.

System "Handshaking"

In a trunking system, when the P-T-T bar on microphone is pressed, the red TX/RX indicator flashes momentarily to allow the transceiver and system repeater to connect properly. When the red TX/RX indicator glows steadily, voice transmission may begin. If your Maxon Dealer has enabled the clear-to-talk tone option, the radio will emit a short tone signal, then voice transmission may occur. In conventional systems, there is no system "handshaking" and voice transmission may start immediately.

Transmitting

A. Turn power on and rotate control clockwise to desired volume level.

B. Press the **SYS** and **GRP** keys until the desired system and group are displayed.

C. If a conventional system is selected, the channel must be monitored before transmitting.

D. Press and hold the **P-T-T** bar on the side of the microphone. Listen for the clear-to-talk tone (or wait for the TX/RX indicator to glow steady red). Hold the microphone 1 or 2 inches from your mouth, speaking clearly and distinctly. (If a busy, or intercept tone is heard, refer to "Trunking Supervisory Tones" descriptions for more information).

E. Release the **P-T-T** bar on the microphone as soon as the message is complete and listen for a response. The **P-T-T** bar must be released to listen.

Receiving

A. Turn power on and rotate control clockwise to desired volume level.

B. Press the **SYS** and **GRP** keys until the desired system and group are displayed.

C. When a message is received, the TX/RX indicator will glow steady green.

D. To respond press and hold the **P-T-T** bar on the side of the microphone. Listen for the clear-to-talk tone (or wait for the TX/RX indicator to glow steady red). Hold the microphone 1 or 2 inches from your mouth, speaking clearly and distinctly. (If a busy, or intercept tone is heard, refer to "Trunking Supervisory Tones" descriptions for more information).

NOTE: If scanning, be sure to respond before scanning resumes. If you do not, another call may be received and the selected system and group may have to be changed. Refer to system scan description for more information.

T/A - Talk-Around

Talk-around mode, if enabled by your Maxon Dealer, allows you to talk directly from radio to radio. This is useful when your radios are out of range of any system. If the radio can receive the system transmissions, then talk-around may be disabled.

A. Press the **T/A** key. The LCD display will indicate the word SIMPLEX in place of the unique system / group identifier.

12

B. Transmit and receive as described in "Transmitting".

C. To return to trunking or conventional operation press the **T/A** key again.

Transpond Mode

If transpond has been enabled by your Dealer, your radio will automatically send (transpond) an acknowledgment to the system indicating that your radio has received a transmission. Transpond is a Dealer programmable option.

Scan Modes

General

Both system scan and group scan are available in Maxon's TM-4800 radio. Although your Maxon Dealer will explain which option(s) he has programmed for you, the following is a description of each.

System Scan

System scan is initiated by pressing **SCN**, then **SYS.** Scan mode is indicated by the word **"SCAN"** displayed in the upper center portion of the display. When scanning is actually occurring, the words "IN SCAN" appear in the display in place of the unique group identifier. In addition, the system numbers are incremented. Scanning is sequential through all trunking and conventional systems, unless they are locked out of scan as described under "System Lockout". When an incoming call is detected, scanning stops and the call is received. The display will indicate the system and group identifier from which the call was received and the word **"SCAN"** in the upper center portion of the display. When the incoming call is complete, scanning resumes after a predetermined pause. To exit scan mode, press **SCN** and hold for 2 seconds. (See "Scan Resume Delay" for additional information regarding the pause).

System Lockout

All trunking and conventional systems are scanned in system scan mode. If you desire not to scan a particular system, select that system with the **SYS** key and press the **LCK** key. The word **"LOCK"** appears in the upper left portion of the

display and that system will be deleted from the scan list. When system scan is initiated, the word **"LOCK"** will be shown in the upper left portion of the display along with the words **"IN SCAN"** denoting a system or systems have been locked out of scan. To restore a system to the scan list manually select the "LOCKed" system and press the **LCK** key. The word **"LOCK"** will disappear and the system will now be scanned while in the system scan mode. The "LOCK" information is stored in memory and will not be affected by turning the power switch off.

Group Scan

There are two different ways the TM-4800 does group scanning. Your Maxon Dealer programs these functions into the radio during initial setup. Only those groups your Dealer has enabled for group scan can be scanned. Group scan is not available in conventional systems.

Auto Group Scan

There is no action required to initiate auto group scan. Whenever a system is selected that is programmed for auto group scan, those groups enabled will automatically be scanned. When an incoming call on any enabled group is detected, the radio will switch to this group, display the group number, and unique identifier. The radio will continue to display this group until a message comes from another enabled group; the **SYS** key is pressed; or the **GRP** key is pressed.

Manual Group Scan

To initiate manual group scan press **SCN**, then **GRP**. Scan mode is indicated by the word **"SCAN"** shown in the upper center portion of the display. When group scan is actually occurring, the words **"IN SCAN"** appear in the display in place of the unique group identifier. Group scan occurs only on those groups enabled by your Maxon Dealer for the selected system. When an incoming call is detected, scanning stops and the incoming call is received. The display changes to indicate the group identifier on which the call was received and the word **"SCAN"** in the upper center portion of the display remains. When the incoming call is complete, after a brief pause, scanning resumes. To exit group scan mode, press **SCN** and hold for 2 seconds. (See "Scan Resume Delay" for additional information regarding the pause).

Transmitting While Scanning

When a message is transmitted while scanning (i.e., the words **"IN SCAN"** show on the display), Dealer programming determines if it is transmitted on the "Last Active" (floating) or on a pre-set "Home" system and group. The following describes operation for each configuration.

Last Active (Floating) System and Group

During scan (i.e., the words **"IN SCAN"** show on the display) when you press the **P-T-T** bar on the microphone, you will transmit on the system and group that were selected prior to entering scan mode. Once a signal is received, you will always transmit on that last system group received. Last active (floating) programming allows you to respond (transmit) to an incoming call during scan mode

16

without having to press the **SYS** or **GRP** keys or leaving the scan mode.

"Home" System and Group

The "Home" system and group are the system and group in which you require priority to transmit on. This is usually the system and group on which you will receive and transmit most of your calls.

When you press the **P-T-T** bar on the microphone during scanning (i.e. **"IN SCAN"** appears in the display) your TM-4800 radio will always transmit on the "Home" system and group. This applies whether scanning has stopped for an incoming call or not.

Scan Resume Delay

After a message is received or transmitted in the scan mode, there is a delay period of 1-7 seconds before scanning resumes. The exact length of this delay is programmed by your Dealer. When a message is received, this delay allows you to respond without having to change the selected system and group. If you do not respond until after scanning resumes (the words **"IN SCAN"** reappear in display), another call may be received and the response may not occur on the desired system or group.

NOTE: If a "Home" system and group is programmed for scanning, then the above scan resume delay does not allow you to respond to the incoming call. Your transmission will always be on your programmed "Home" system and group.

RX Priority

Your Maxon dealer may have programmed a group ID as an **RX PRIORITY** (receive priority) ID. Whenever your radio receives this ID, the LCD will show the words **"RX PRI"** in place of the normal alpha-numeric system / group identifier. **"RX PRI"** will remain on the display until you press any button or key on the radio. An RX priority message takes priority over any other message.

First Available System Scan

When you are out of range of a system when trying to transmit, first available system scan (FASS) will scan all systems programmed and look for the first system that is in range of the radio.

To enter first available system scan (FASS), rotate the on/off-volume control counter-clockwise to detent, shutting off power to radio. Press and hold the **SCN** key on either the radio or the DTMF microphone while turning the radio power back on. The word **"FASS"** will show in the upper center portion of the radio display. When you attempt to transmit and the selected system is out of range, the radio will emit a short tone indicating the system is out of range and FASS mode has started. When the radio detects a system in range, scanning will stop and the radio will emit a short series of tones (auto ringback tones) to indicate a system is in range. Normal operation may resume. To exit the scan initiated by FASS mode, press and hold the **SCN** key for 2 seconds. To exit FASS mode, turn the radio off and then back on.

Trunking Supervisory Tones

Busy Tone

This tone is similar to the standard telephone busy tone and it indicates that the radio system is currently busy. The tone sounds for as long as the **P-T-T** bar on the microphone is pressed, and the word **"BUSY"** appears in the upper right portion of the display while this tone is sounding. If the clear-to-talk tone is programmed, the busy tone does not sound except when making a telephone call.

Intercept Tone

This is a siren-like tone (alternating high and low tones) which indicates the following error conditions:

1) If this tone sounds after the transmit indicator flashes several times and **"RANGE"** appears in the display, an out-of-range condition is indicated. To complete a call, you may need to get closer to your radio system. Once this tone sounds, no more access attempts are made until the **P-T-T** bar on the microphone is released and then pressed again.

2) If this tone sounds after the transmitter has been on for an extended period and **"TX TIME"** also appears in the display, the transmitter has been disabled by the time-out-timer feature.

3) If **"TX INHIB"** is displayed while this tone is sounding, the selected system is temporarily being used by priority groups.

NOTE: The range and busy tones can be stopped by pressing the **SYS**, **GRP**, **SCN**, or **PHONE** keys or by pressing and releasing the **P-T-T** bar.

Clear-To-Talk Tone

When the clear-to-talk feature is programmed, it emits a short tone which indicates when speaking can begin. (Refer to "Clear-To-Talk" description for more information).

Key Press Tone

This is a short tone that sounds to indicate when a valid key is pressed. The volume of the tone can be increased or decreased by turning the on/off-volume control.

Display Messages

RANGE: This message accompanied by an intercept tone indicates that the TM-4800 radio is out of range or too far from system site to provide communications.

BUSY: Indicates that the channel is busy when transmitting. This message is accompanied by the intercept tone.

TX Time: This message indicates that the transmit time-out-time has been exceeded. This message is accompanied by the intercept tone.

TX DSBL: Transmit is disabled, allowing only reception of signals. This message will be displayed and the intercept tone will sound. (Dealer programmed).

TX INHIB: Indicates that the system selected is temporarily being used by priority groups. This message is accompanied by the intercept tone. Try your transmission again in 15 to 30 seconds.

UNLOCK: This message indicates that the synthesizer has become unlocked. If this message should be displayed, take the radio to your Maxon Dealer for service.

RX PRI: Indicates that a call has been received on a programmed priority group. (Dealer programmed).

IN SCAN: Indicates that the scan function has been enabled.

Transceiver Service

There are no user serviceable components inside the Maxon TM-4800 radio. Altering the internal components or adjustments may result in illegal emissions, including off-frequency operation, or damage to the radio.

Should the LCD fail to display information, or all icons and display segments appear, turn the power switch off, then on to reset the microprocessor.

If the radio fails to operate properly, refer to an authorized Maxon Dealer for servicing.

Extended Operations

When operating in fringe areas at some distance from the system, the other party may not receive your transmission clearly. Also you may notice that the background noise will increase on received signals. Moving to higher ground or moving closer to the system will help alleviate these problems. If moving closer to the system is not practical, communication may be improved by moving away from shielding structures. At 800 MHz the wave length is very short; sometimes moving a few inches to a few feet can make significant signal strength changes. Finding the best location can also be done while listening to the background noise while moving about; attempt to find a spot where the background noise is reduced to a minimum or eliminated entirely. This may make the difference from not being heard, to being heard loud and clear when operating in the fringe areas of your system coverage.

The fringe distance will vary greatly in plains areas, hilly terrain, and mountaintop sites.

Consult your Maxon Dealer regarding the specific operational range and coverage of the system(s) programmed into your TM-4800 radio.

FCC Licensing

This unit may or may not require a specific FCC license to operate. The FCC requires all transmitters in the conventional and some trunking systems to be licensed by the Federal Communications Commission. Some trunking operations now are exempt from individual licensing requirements, but must be operated in a licensed system.

Consult your Maxon Dealer or contact the Federal Communications Commission regarding specific licensing information.

For more information regarding the FCC license application (Form 574), call the FCC Forms Distribution Center at 717-337-1212 for additional information or contact the FCC District Office nearest your location.

TM-4800 Limited Warranty *

Maxon America, Inc. ("Maxon") warrants the Maxon TM-4800 Radio ("Product") manufactured by it against defects in material or workmanship under normal use and service for two (2) years, from the date of delivery to the original end user, provided that the user has complied with the requirements stated herein. This warranty is not assignable or transferable.

Maxon shall have no obligation to make repairs or to cause replacement required which result from normal wear and tear or necessitated in whole or in part by catastrophe, fault or the negligence of the user, improper or unauthorized alterations, repairs to the Product, use of the Product in a manner for which it was not designed, or by causes external to the Product. This warranty is void if the serial number is altered, defaced or removed.

Maxon's sole obligation hereunder shall be to repair or replace the Product covered in the above warranty.

To receive warranty service, deliver or send the Product, transportation and insurance prepaid, to the place of purchase along with your proof of purchase. Alternatively, call Maxon at 1-800-821-7848 for other locations or authorization to return the Product directly to Maxon.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITA-TION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FOR ANY PRODUCT WHICH DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR

OR REPLACEMENT. IN NO EVENT WILL MAXON AMERICA, INC. BE LIABLE TO THE BUYER OR ITS CUSTOMERS FOR ANY DAMAGES, INCLUDING ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR FOR THE LOSS OF PROFIT, REVENUE OR DATA ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT.

* This Warranty is void for sales and deliveries outside the U.S.A. For sales outside the U.S.A., contact Maxon America or your local Maxon Dealer.

SECTION II

Model TMA-4474
Optional Microphone
with DTMF Keypad
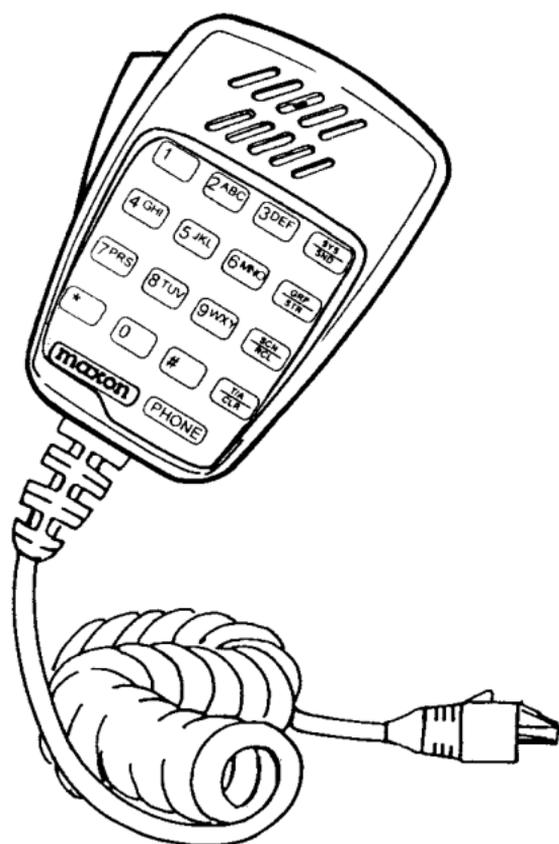
We urge you to thoroughly read this section of the manual before operating the TM-4800 radio with the TMA-4474 microphone.

NOTE: TM-4800 radio must be turned off when changing the regular microphone to the TMA-4474 microphone.

About Your TMA-4474 Optional Microphone

Maxon's TMA-4474 optional microphone with backlit DTMF keypad allows telephone interconnect when used with the TM-4800 radio. This microphone also gives the user easier access to TM-4800 functions.

When using the TMA-4474, the TM-4800 mobile has the following additional features:

• Telephone interconnect capability via the backlit DTMF keypad

• Storage of up to 8 telephone numbers (of up to 14 digits in length)

• Selection of system or group

• Initiates system or group scan modes

• Access to first available system scan (FASS)

• Access of repeater talk-around mode

Quick Reference Guide

Function Keys

Push-**T**o-**T**alk bar (on microphone) places
transceiver in transmit mode

$$\boxed{\begin{array}{c} \text{SYS} \\ \hline \text{SND} \end{array}}$$

Changes **SYS**tem number

$$\boxed{\begin{array}{c} \text{GRP} \\ \hline \text{STR} \end{array}}$$

Changes **GR**ou**P** number

$$\boxed{\begin{array}{c} \text{SCN} \\ \hline \text{RCL} \end{array}}$$

Initiates **SC**a**N**ning mode

$$\boxed{\begin{array}{c} \text{T/A} \\ \hline \text{CLR} \end{array}}$$

Talk-**A**round bypasses system when out
of range of system

$$\boxed{\text{PHONE}}$$

Enable or disable **Phone** mode

DTMF	Enter telephone mode by pressing the
Keypad	phone key then press the key that activates
	the desired function.

$$\boxed{\text{PHONE}} + \boxed{\frac{\text{SYS}}{\text{SND}}}$$

Phone + SND "Send"- Automatically interconnects with system and transmits telephone number displayed on the radio LCD.

$$\boxed{\text{PHONE}} + \boxed{\frac{\text{GRP}}{\text{STR}}} ... \boxed{1} \ \boxed{8^{\text{TUV}}}$$

Phone + STR "Store" - Stores telephone number displayed on the radio memory location **1** through **8**.

$$\boxed{\text{PHONE}} + \boxed{\frac{\text{SCN}}{\text{RCL}}} .... \boxed{1} \ \boxed{8^{\text{TUV}}}$$

Phone +RCL "Recall"- Recalls stored telephone number from the radio memory location **1** through **8**.

$$\boxed{\text{PHONE}} + \boxed{\frac{\text{T/A}}{\text{CLR}}}$$
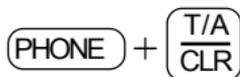
Phone + CLR "Clear"- Clears one digit at a time from the radio display. To erase the entire number, press and hold **CLR** until all the digits are deleted.

Function Keys

To activate these function keys, the radio should be in the normal mode. If the radio is in phone mode, exit by pressing phone button.

SYS "System" Selector Key - Pressing this key selects the next programmed system. Only programmed systems will be displayed. System number selected is located on the left side of the radio display.

GRP "Group" Selector Key - Pressing this key changes the selected group. Only programmed groups will be displayed. Group number selected is located on the right side of the radio display. Group name or identifier is shown in main body of the radio display.

SCN "Scan" Key - Pressing this key initiates the scan feature. When the **SCN** key is pressed followed by pressing either the **SYS** (system) or **GRP** (group) key, system scan or group scan is enabled. (See "Scan Modes").

T/A "Talk-Around" Key - Places the TM-4800 into the talk-around mode on trunking and conventional systems (dealer programmable option). Allows direct radio-to-radio communication when out of range of the system.
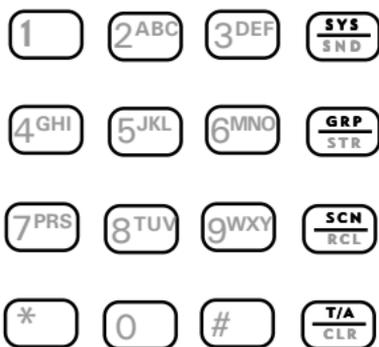
1	2ABC	3DEF	SYS / SND
4GHI	5JKL	6MNO	GRP / STR
7PRS	8TUV	9WXY	SCN / RCL
*	0	#	T/A / CLR
	PHONE		

DTMF Keypad Keys 0-9, and symbol keys "*" and "#" for entering telephone numbers to send or store in memory.

NOTE: If more than 7 digits are entered or stored in a memory location, a left facing arrow will appear on the radio's LCD display. This indicates that there are more digits entered than can be displayed. Only the last seven digits entered are displayed. To display any digits not shown, first (**STR**) "Store" the entire number into a memory location and then use (**RCL**) "Recall" to bring back the number. The first digits will be shown for 1 second and the remaining 7 digits will be shown and remain displayed until the function is changed or the (**RCL**) "Recall" key is again pressed.

PHONE "Phone" Key - Places TM-4800 in or out of phone mode. The phone key (in conjunction with other keys) activates the secondary key functions. The secondary key function is indicated under each primary function.

Enter telephone mode by pressing the phone key then press the key that activates the desired function.

1	2ABC	3DEF	SYS/SND
4GHI	5JKL	6MNO	GRP/STR
7PRS	8TUV	9WXY	SCN/RCL
*	0	#	T/A/CLR
			PHONE

31

Phone + SND "Send" - Transmits the telephone number entered or recalled from memory on the radio's LCD.

Phone + STR "Store" - Stores a telephone number into the radio memory. To store a number shown on the radio's LCD, press **STR** (store) and a memory location number **1** through **8**.

NOTE: Storing a displayed number will overwrite any previously stored phone number in that memory location!

Phone + RCL "Recall" - Used to recall a telephone number from memory locations **1** through **8**.

Phone + CLR "Clear" - Deletes the last digit shown in the radio display. To erase the entire number, press and hold **CLR** until all the digits are deleted.

NOTE: The telephone number entered in the radio LCD display will be erased when the power is turned off, and the radio will automatically revert to the normal mode when the power is turned back on.

1	2ABC	3DEF	SYS SND
4GHI	5JKL	6MNO	GRP STR
7PRS	8TUV	9WXY	SCN RCL
*	0	#	T/A CLR

PHONE

Scan Modes (using Model TMA-4474)

Manual System Scan

System scan is initiated by pressing **SCN**, then **SYS.** Scan mode is indicated by the word **"SCAN"** shown in the upper center portion of the display. When scanning is actually occurring, the words "IN SCAN" show in the display in place of the unique group identifier. In addition, the system numbers are incremented. Scanning is sequential through all trunking and conventional systems, unless they are locked out of scan as described under "System Lockout". When an incoming call is detected, scanning stops and the call is received. The display will indicate the system and group identifier from which the call was received and the word **"SCAN"** in the upper center portion of the display. When the incoming call is complete, scanning resumes after a pre-determined pause. To exit scan mode, press and hold **SCN** for 2 seconds. (See "Scan Resume Delay" for additional information regarding the pause).

Manual Group Scan

To initiate manual group scan press **SCN**, then **GRP**. Scan mode is indicated by the word **"SCAN"** shown in the upper center portion of the display. When group scan is actually occurring, the words **"IN SCAN"** appear in the display in place of the unique group identifier. Group scan occurs only on those groups enabled by your Maxon Dealer for the selected system. When an incoming call is detected, scanning stops and the incoming call is received. The display changes to indicate the group identifier on which the call was received and the word **"SCAN"** in the upper center portion of the display remains. When the incoming call is complete, after a brief pause, scanning resumes.

To exit group scan mode, press and hold **SCN** for 2 seconds. (See "Scan Resume Delay" for additional information regarding the pause).

Transmitting While Scanning

When a message is transmitted while scanning (i.e. the words **"IN SCAN"** show on the display), dealer programming determines if it is transmitted on the "Last Active" (floating) or on a pre-set "home" system and group. The following describes operation for each configuration.

First Available System Scan

When you are out of range of a system when trying to transmit, first available system scan (FASS) will scan all systems programmed and look for the first system that is in range of the radio.

To enter first available system scan (FASS), rotate the on/off-volume control counter-clockwise to detent, shutting off power to radio. Press and hold the **SCN** key on the DTMF microphone while turning the radio power back on. The word **"FASS"** will show in the upper center portion of the radio display. When you attempt to transmit and the selected system is out of range, the radio will emit a short tone indicating the system is out of range and FASS mode has started. When the radio detects a system in range, scanning will stop and the radio will emit a short series of tones (auto ringback tones) to indicate a system is in range. Normal operation may resume. To exit the scan initiated by FASS mode, press and hold **SCN** for 2 seconds. To exit FASS mode, turn the radio off and then back on.

Telephone Calls

Telephone calls may be placed and received, provided that your Dealer has programmed this feature into your Maxon TM-4800 radio. The 8-memory locations can be pre-programmed by the Dealer for recall only or programmed so that the telephone numbers can be changed by the user. The following instructions pertain to placing telephone calls which are made in the trunking mode only. Calls made in conventional modes may vary depending on the system setup. Consult your Maxon Dealer for specific information.

Placing a Telephone Call

Auto Interconnect Operation

A. Turn radio power on and set the volume as desired.

B. Select a system that contains an interconnect group. The telephone icon will appear on the radio's LCD. You may enter the phone mode from a non-interconnected group but the system selected must have at least one telephone interconnect group. (When the SND key is pressed the unit will automatically select the first available interconnect group and transmit the displayed telephone number).

C. Select the phone mode by pressing the **PHONE** key on microphone. The word "PHONE" will appear in the upper right portion of the radio display.

D. Using microphone DTMF keypad, enter the number to be dialed, or recall a number from memory locations 1-8, by pressing **RCL 1-8**. (Information on storing

35

and recalling a number from memory is detailed in the following sections).

E. Press the **SND** key. The Maxon TM-4800 will access the trunked group, send the phone number and return to the receive mode.

NOTE: In some systems or with a very weak signal, it may be necessary to press the **P-T-T** bar to access the dial tone and then press the **SND** key.

F. When the called party answers, press the **P-T-T** bar to talk and release to listen.

G. To release the call (to hang up), press and hold the **P-T-T** bar and press the pound sign (#) key for 1 to 2 seconds. Then release the **P-T-T** bar.

NOTE: This step is important as well as good operating practice. Pressing the pound sign (#) key instructs the system that your call is completed. Additional interconnected billing time may be incurred before the system automatically terminates the call. In most systems this is 30 seconds, but it may vary. Consult your Maxon Dealer for specific details.

Manual or Direct Dialing

A. Turn radio power on and set the volume as desired.

B. Select the system and group that has been programmed for telephone calls. The "telephone" icon will appear on the radio's LCD.

C. Press and hold the **P-T-T** bar to get the system "Handshake". The radio's LED will glow red and the clear-to-talk tone will sound (if programmed).

D. Momentarily release the **P-T-T** bar and listen for the dial tone.

E. Press and hold the **P-T-T** bar while pressing the DTMF keypad to enter the telephone number.

F. Release the **P-T-T** bar.

G. When the called party answers, press the **P-T-T** bar to talk and release to listen.

H. To release the call (to hang up), press and hold the **P-T-T** bar and press the pound sign (#) key for 1 to 2 seconds. Release the **P-T-T** bar.

Receiving a Telephone Call

A. Turn radio power on and set the volume as desired.

B. Select or scan the system and group programmed for telephone calls. (When a group programmed for telephone calls is selected, the "telephone" icon appears on the radio display).

C. When a telephone ringing sound is heard from the radio speaker, answer the call in the normal manner (press the **P-T-T** bar to talk and release it to listen). It is not necessary to select the phone mode to receive a call.

D. When the call is finished, release the System's telephone interconnect by pressing the **P-T-T** bar and the pound sign (#) key for 1 to 2 seconds.

NOTE: This step is important as well as good operating practice. Pressing the pound sign (#) key instructs the system that your call is completed. Additional interconnected billing time may be incurred before the system automatically terminates the call. In most systems this is 30 seconds, however it may vary. Consult your Maxon Dealer for specific details.

Additional Telephone Calling Information

Entering Telephone Numbers

A. Press the **PHONE** key to enter the phone mode. The word **"PHONE"** will appear in the upper right portion of the radio display. The numeric DTMF telephone keypad is now enabled.

B. Enter the desired telephone number by pressing the corresponding number keys.

The Maxon TM-4800 allows you to enter the telephone number at any desired rate. Errors can be corrected by using the **CLR** key before "sending" the telephone number. Numbers up to 14 digits in length can be entered. When there are more than 7 digits entered, the overflow icon will appear in the lower left portion of the LCD, next to the group number. Numbers which have been stored into memory locations 1 through 8 and recalled will momentarily display the first overflow digits, and then the last 7 digits entered.

Clearing Telephone Numbers

When a phone number has been entered, it will remain in the radio display whenever you enter the phone mode. To erase the last digit entered press the **CLR** key. To erase the entire number, press and hold **CLR** until no information is displayed.

To Store A Number In Memory:

A. Press the **PHONE** key to place the unit into phone mode.

B. Enter the desired number. Example:

    1 8 1 6 8 9 1 6 3 2 0

C. Press **STR**.

D. Press memory location **1** through **8** (for example, "2"). The number 1 816 891 6320 is now stored in memory location 2.

E. Clear the existing digits by pressing **CLR** until no information remains in the display.

F. Repeat above steps for other desired memory locations.

NOTE: Storing a displayed number in a certain memory location will overwrite any phone number previously stored in that particular memory location.

To Recall a Number Stored In Memory

The stored numbers can now be recalled and sent by selecting the phone mode, pressing **RCL**, the desired memory number **1** through **8**, and then **SND**.

Trunking Supervisory Tones

Busy Tone

This tone is similar to the standard telephone busy tone and indicates that the radio system is currently busy. The tone sounds for as long as the **P-T-T** bar on the microphone is pressed, and the word **"BUSY"** appears in the upper right portion of the radio display while this tone is sounding. If the clear-to-talk tone is programmed, the busy tone does not sound except when making a telephone call.

Intercept Tone

This is a siren-like tone (alternating high and low tones) which indicates the following error conditions:

1) If this tone sounds after the transmit indicator flashes several times and **"RANGE"** appears in the display, an out-of-range condition is indicated. To complete a call, you may need to get closer to your radio system. Once this tone sounds, no more access attempts are made until the **P-T-T** bar on the microphone is released and then pressed again.

2) If this tone sounds after the transmitter has been on for an extended period and **"TX TIME"** also appears in the display, the transmitter has been disabled by the time-out-timer feature.

3) If **"TX INHIB"** is displayed while this tone is sounding, the selected system is temporarily being used by priority groups.

NOTE: The range and busy tones can be stopped by pressing either the **SYS, GRP, SCN** or **PHONE** keys or by pressing and releasing the P-T-T bar.

Clear-To-Talk

When the clear-to-talk feature is programmed, it emits a short tone which indicates when speaking can begin. (Refer to "Clear-To-Talk" description for more information).

Key Press Tone

This is a short tone that sounds to indicate when a valid key is pressed. The volume of the tone can be increased or decreased by turning the on/off-volume control.

NOTE: The following tones are heard only when making telephone calls. Type of tones varies depending on the repeater system in use.

Reorder Tone

Three beeps indicate that the call has been terminated by the system.

Return Time Warning Tone

Two beeps indicate that you have not transmitted recently. If you do not transmit within a pre-programmed time period, the call will be terminated and an alert tone will sound. Length of tone depends on the repeater system being used. The time between transmissions is one of the parameters used by the system to determine when a call is finished (if the pound sign (#) key has not been detected).

Conversation Time-Out Tone

Calls are limited to a certain length by the system. Thirty seconds before this time is reached, a "tick" begins sounding each second. When the thirty-second period expires, the call is automatically terminated.

Turn-Around Tone

This is a single beep which may be used to indicate to the landside party when to respond to your transmission. It sounds when you release the **P-T-T** bar, and you may partially hear this tone.

System Ringback Tone

If in first available system scan mode or after receiving a "busy" indication when attempting to access a system (trunking or conventional), the TM-4800 will emit ring for one second to indicate a system is now available.

TMA-4474 Limited Warranty*

Maxon America, Inc. ("Maxon") warrants the Maxon TMA-4474 accessory ("Product") manufactured by it against defects in material or workmanship under normal use and service for one (1) year, from the date of delivery to the original end user, provided that the user has complied with the requirements stated herein. This warranty is not assignable or transferable.

Maxon shall have no obligation to make repairs or to cause replacement required which result from normal wear and tear or necessitated in whole or in part by catastrophe, fault or the negligence of the user, improper or unauthorized alterations, repairs to the Product, use of the Product in a manner for which it was not designed, or by causes external to the Product. This warranty is void if the serial number is altered, defaced or removed.

Maxon's sole obligation hereunder shall be to repair or replace the Product covered in this warranty.

To receive warranty service, deliver or send the Product, transportation and insurance prepaid, to the place of purchase along with your proof of purchase. Alternatively, call 1-800-821-7848 for other locations or authorization to return the product directly to Maxon.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITA-TION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FOR ANY PRODUCT WHICH DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR

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