SMP-4000 PROGRAMMER MANUAL

Version 1.0

maxon®

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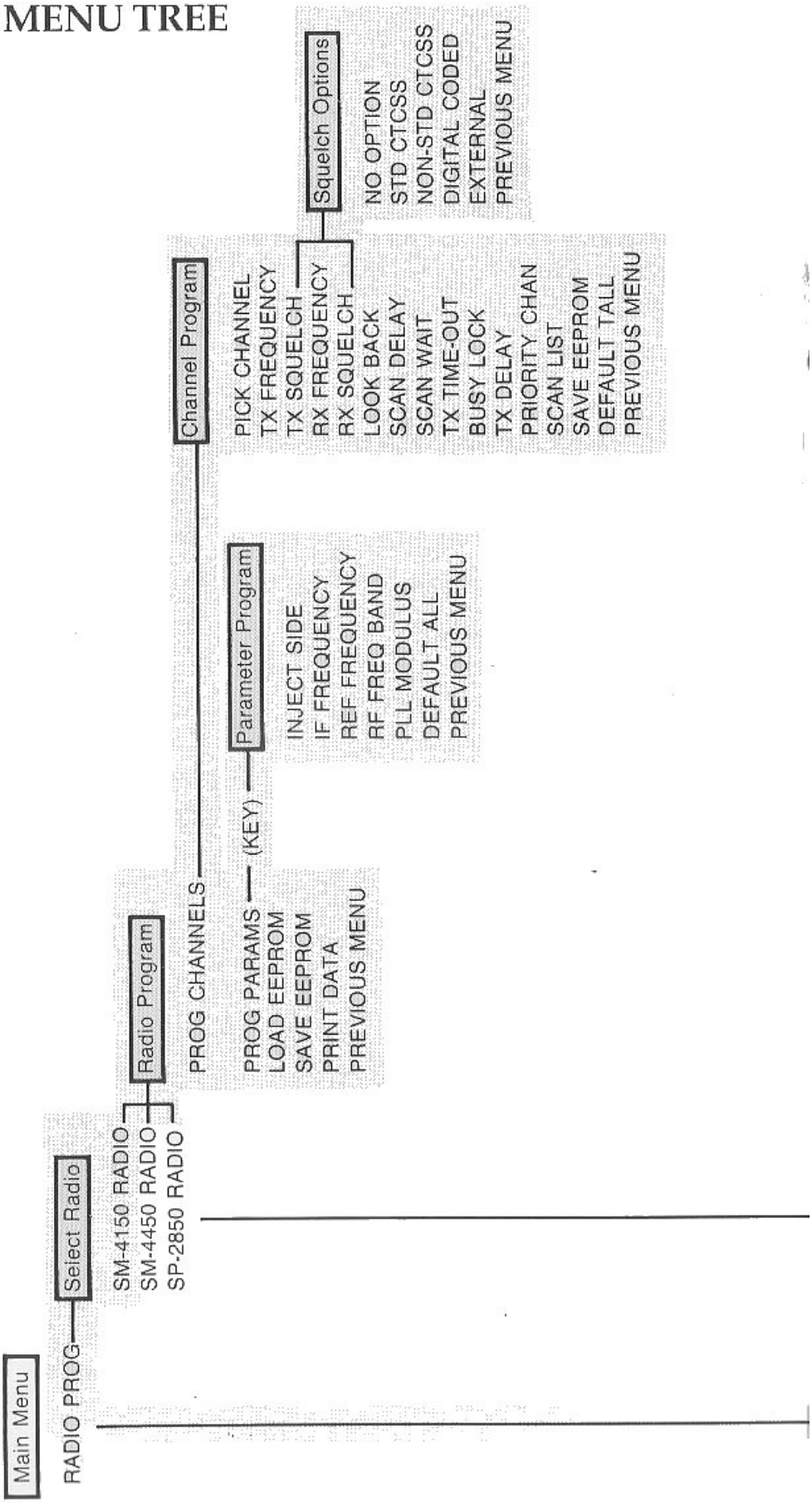
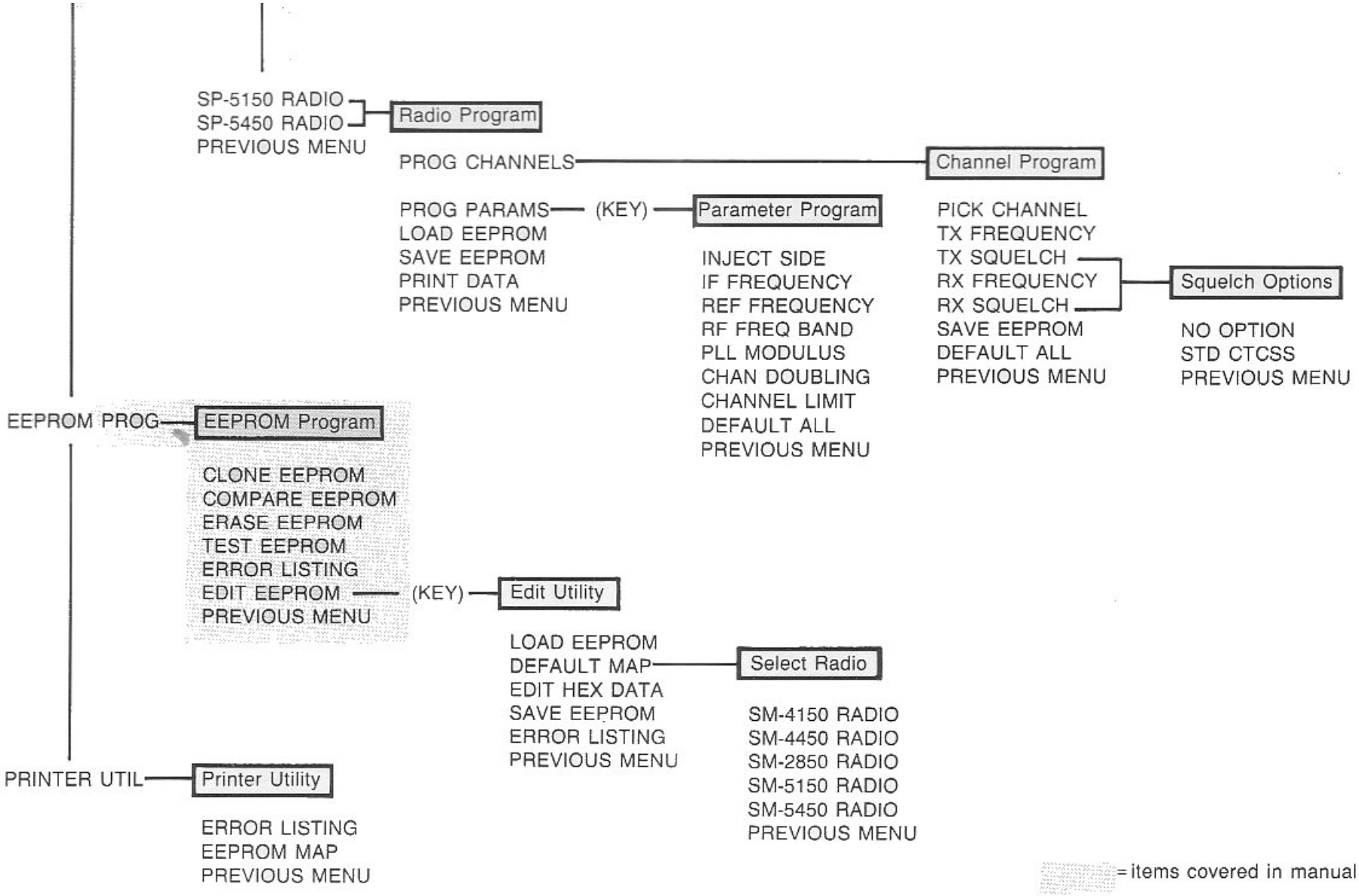
PREFACE

The scope of these Operating Instructions is restricted to the general functions of the SMP-4000 and its ability to program the SM-4150 VHF synthesized mobile.

In proceeding through the available programs already inherent in the SMP-4000 software, you will notice reference to other radios, including portables. The specific programming instructions for these "new" radios will be provided when the radios are actually available

SMP-4000 MENU TREE

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Printer Utility
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PREVIOUS MENU
=items covered in manual

KEY DESCRIPTION

There are sixteen (16) keys which comprise the SMP-4000 keyboard. These consist of the digits zero (0) through nine (9), space (CLS), decimal point (.), carriage return (RETN), and three alternate function keys: (FUNC), (CONT) and (SHFT).

FUNC	1 A	2 B	3 C
CONT	4 D	5 E	6 F
SHFT	7 del	8 ^	9 ins
RETN	CLS <	0 v	. >

KEYBOARD STATUS INDICATORS

The left-most digit on the SMP-4000 display screen is reserved as an alternate function key status indicator. It is unique in that its decimal point remains lighted at all times. There is a unique status character for each of the four keyboard modes:

1) F. – Function key input mode, set by (FUNC) key
2) C. – Control key input mode, set by (CONT) key
3) S. – Shift key input mode, set by (SHFT) key
4) . – Normal Input mode

USING THE ALTERNATE FUNCTION KEYS

Each of the three (3) alternate function keys has the ability to replace the existing input mode with its own. Operating in a toggle fashion, the key's input mode is retained after the key is released. When a key is pressed while its input mode is active, the mode will toggle back to the normal input mode.

SPECIAL FUNCTION KEY DEFINITIONS

(ABORT)	With the 'F.' status indicator set, press the (CLS) key to form the (ABORT) key.
(HELP)	With the 'F.' status indicator set, press the (.) key to form the (HELP) key.
(L-ARROW)	With the 'C.' status indicator set, press the (CLS) key to form the (L-ARROW) key.
(R-ARROW)	With the 'C.' status indicator set, press the (.) key to form the (R-ARROW) key.
(UP-ARROW)	With the 'C.' status indicator set, press the (8) key to form the (UP-ARROW) key.
(DN-ARROW)	With the 'C.' status indicator set, press the (0) key to form the (DN—ARROW) key.
(DELETE)	With the 'C.' status indicator set, press the (7) key to form the (DELETE) key.

HELP FUNCTION OPERATION

The HELP function may be invoked anytime clarification is needed regarding an input request.

STEP 1– Press the (HELP) key to display the help message for the current input request.

STEP 2– Use the (L-ARROW) and (R-ARROW) keys to scroll the Help message across the display for full viewing.

STEP 3– Press the (RETN) or (ABORT) key to exit the Help function.

SMP-4000 HARDWARE DESCRIPTION

Your SMP-4000 programmer has its programming connector adjacent to the keyboard on the top of the unit. See Figure 1 for an illustration of the Textool connector.

The SMP-4000 comes packaged with a programming / interface cable (see Figure 2). This cable is used to make the connection between the programmer and the SM-4150 synthesized mobile, WITHOUT REMOVING THE RADIO'S EEPROM.

You have two programming alternatives once you have removed the top of the SM-4150 mobile: 1) you can use the interface cable and make the programming connection (as illustrated in Figure 3), or 2) you can remove the EEPROM from the radio and place it in the Textool on the top panel of the programmer.

NOTE: THERE ARE TWO SLOTS, LOCATED ON EITHER SIDE OF THE RADIO ABOVE THE MOUNTING BRACKET CONNECTORS, THAT SHOULD BE USED IN REMOVING THE RADIO'S TOP PANEL. USE A FLAT HEAD SCREWDRIVER TO GENTLY PRY THE TOP PANEL OFF.

Let's review both programming approaches:

1) The interface / programming cable is provided so that you can minimize the handling of your radio's EEPROM during the programming process. The connectors on both ends of the interface cable are designed for ease of installation and use. Simply connect the cable to the 6-pin in-line connector inside the radio unit (see Figure 3) and the 16-pin connector on the top of the programmer.

NOTE: It is necessary to place the SM-4150 in the "programming mode" when using the interface cable. During the initial 4 seconds at radio turn-on, press and hold the P Priority Button/LED, the radio will sound the prompt tone and display the message "Prog".

2) You can also remove the EEPROM from the radio and place it into the Textool on top of the programmer. Follow these steps: a) remove the EEPROM very carefully from the radio (take notice of location of the notch in its top, as in Figure 4a); b) after making sure that the Textool is in the "unlocked" position (lever up - see Figure 4b), place the

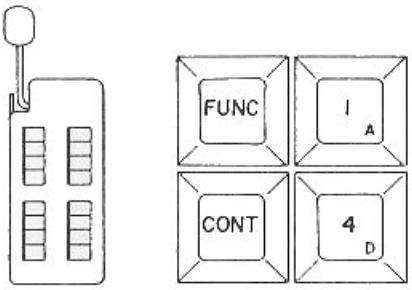


Figure 1

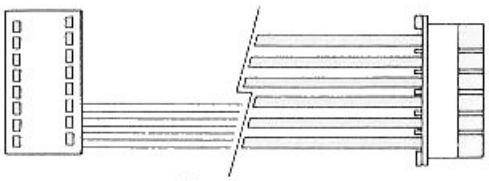


Figure 2

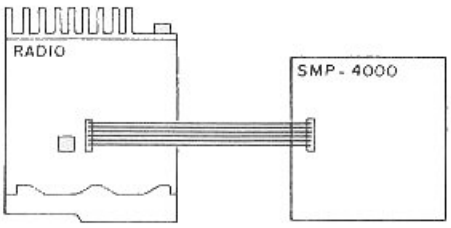


Figure 3

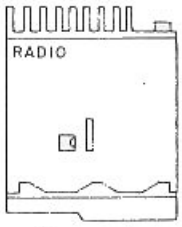


Figure 4a

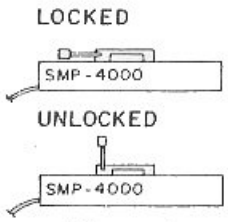


Figure 4b

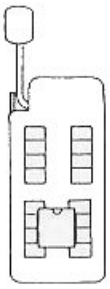
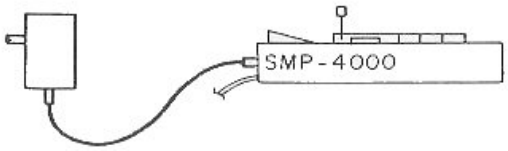


Figure 4c

EEPROM into the lower half of the Textool with the notch pointing toward the display (see Figure 4c), then lower the lever to lock the EEPROM into place. Leave the EEPROM locked in for the duration of the programming sequence(s), unless instructed to do otherwise. When programming is complete, raise the lever and carefully remove the EEPROM from the programmer. Replace the EEPROM in the DIP socket in the radio, making sure that the notch is located in the same place as when the EEPROM was removed.

GETTING STARTED

Make sure the Plug-In Power Supply (provided with the programmer) is properly connected with the back of the unit and a standard 120 VAC grounded outlet. Move the power switch to the "ON" position.



PROGRAMMING AN SM-4150 RADIO

Refer to the SMP-4000 Hardware Description for instructions on removing the EEPROM from the radio and placing it in the textool on top of the SMP-4000 programmer or hooking up the interface cable from radio to programmer. In using the latter approach, once the interface cable is correctly connected, the radio must be turned "ON" and placed in the Program Mode (at radio turn on, press the "P" button in for 4 seconds, until "Prog" appears on the radio's display.)

The message, "MAXON SMP-4000" will be displayed and followed by a second message, "C. RADIO PROG". Referencing the SMP-4000 Menu Tree, you can press "RETN" to move to radio selections (SM-4150, SM-4450, SP-2850, SP-5150, and SP-5450) or press the Up or Down Arrow keys to scroll through EEPROM programming and Printer Utilities.

The Menu Tree illustrates that once you have selected a radio, the SM-4150 for example, you then press "RETN" to call up the prompt "PROG CHANNELS". Once again you have the choice of using the Up or Down Arrow keys to scroll through: PROG PARAMS, LOAD EEPROM, SAVE EEPROM, PRINT DATA, and PREVIOUS MENU; or pressing "RETN" to call up the prompt "PICK CHANNEL".

	C. PROG CHANNELS
PRESS (RETN)	C. PICK CHANNEL
PRESS (RETN)	C. CHANNEL = 1
PRESS (RETN)	C. TX FREQUENCY
PRESS (RETN)	. CHANNEL = 1 TX
display automatically scrolls to . . .	. 1 TX =

You can now program the TX frequency for channel 1. The acceptable range is from 150.00 MHz to 163.000 MHz.

As an example:

PRESS (1)	. 1 TX = 1
(5)	. 1 TX = 15
(3)	. 1 TX = 153
(.) do not forget the decimal point	. 1 TX = 153 .
(9)	. 1 TX = 153 .9
(8)	. 1 TX = 153 .98
(5)	. 1 TX = 153 .985
PRESS (RETN)	C. TX SQUELCH
You can now select the squelch option for the transmit frequency of channel 1.	
PRESS (RETN)	C. NO OPTION
NO OPTION = Carrier Squelch	
PRESS (▼)	C. STD CTCSS
This key will allow you to scroll through the various squelch options	C. NON-STD CTCSS C. DIGITAL CODED C. EXTERNAL
When you arrive at the squelch option of choice, here carrier squelch	C. PREVIOUS MENU C. NO OPTION
PRESS (RETN)	C. RX FREQUENCY
PRESS (RETN)	. CHANNEL = 1 RX . 1 RX =
You can now program the RX frequency for channel 1. The acceptable range continues to be from 150.000 MHz to 163.000 MHz.	. 1 RX =
As an example:	
PRESS (1)	. 1 RX = 1
(5)	. 1 RX = 15
(4)	. 1 RX = 154
(.)	. 1 RX = 154 .
(6)	. 1 RX = 154 .6
(7)	. 1 RX = 154 .67
(5)	. 1 RX = 154 .675
PRESS (RETN)	C. RX SQUELCH
PRESS (RETN)	C. NO OPTION
(▼)	C. STD CTCSS
To program standard CTCSS tones,	
PRESS (RETN)	.CHANNEL = 1 RX
display will automatically scroll to . . .	C. RX TONE = 67 .0
At this point you can use the (▲) and (▼)	C. RX TONE = 71 .9
keys to scroll through the standard CTCSS	C. RX TONE = 74 .4
tone table, until you reach the tone you	C. RX TONE = 77 .0
wish to program.	C. RX TONE = 79 .7
PRESS (RETN)	C. TX FREQUENCY
PRESS (RETN)	. CHANNEL = 2 TX
display will automatically scroll to . . .	. 2 TX =
As an example:	
PRESS (1)	. 2 TX = 1
(5)	. 2 TX = 15
(3)	. 2 TX = 153
(8)	. 2 TX = 1538

(5)	. 2 TX = 15385
(0)	. 2 TX = 153850
(0)	. 2 TX = 153850
(RETN)	.FREQUENCY ERR
NOTE: When inputting frequency data, always remember to enter the decimal point	. 2 TX =

You can now correct the frequency data

PRESS (1)	. 2 TX = 1
(5)	. 2 TX = 15
(3)	. 2 TX = 153
(.)	. 2 TX = 153 .
(8)	. 2 TX = 153 .8
(5)	. 2 TX = 153 .85
(0)	. 2 TX = 153 .850

Now that correct frequency is input, PRESS (RETN) to proceed to	C. TX SQUELCH
(RETN)	C. NO OPTION
(◄)	C. STD CTCSS
(◄)	C. NON-STD CTCSS

The SM-4150 radio is capable of two non-standard CTCSS tones. PRESS (RETN) to confirm this selection	C. TONE NUMBER 1
PRESS (RETN) again	. CHANNEL = 2 TX
the display automatically scrolls to . . .	. TX TONE =
and you can now enter the first of two non-standard CTCSS tones	
PRESS (9)	. TX TONE = 9
(7)	. TX TONE = 97
(.)	. TX TONE = 97 .
(5)	. TX TONE = 97 .5
PRESS (RETN) to enter the receive frequency of channel 2	C. RX FREQUENCY
PRESS (RETN)	. CHANNEL = 2 RX
the display automatically scrolls to . . .	. 2 RX =
As an example:	
PRESS (1)	. 2 RX = 1
(5)	. 2 RX = 15
(2)	. 2 RX = 152
(.)	. 2 RX = 152 .
(9)	. 2 RX = 152 .9
(2)	. 2 RX = 152 .92
(5)	. 2 RX = 152 .925
PRESS (RETN) to proceed to squelch options	C. RX SQUELCH
PRESS (RETN)	C. NO OPTION
(◄)	C. STD CTCSS
(◄)	C. NON-STD CTCSS
(◄)	C. DIGITAL CODED

PRESS (RETN) to select/program DCS codes display automatically scrolls to . . . The DCS table is also "built-in" the software. To scroll through, PRESS (▲) or (▼) keys until you reach the desired code	. CHANNEL = 2 RX C. RX DCS = 023 C. RX DCS = 025 C. RX DCS = 026 C. RX DCS = 031 C. RX DCS = 032 C. RX DCS = 043
PRESS (RETN)	C. TX FREQUENCY
PRESS (RETN) display automatically scrolls to . . .	. CHANNEL = 3 TX . 3 TX =
As an example: PRESS (1) (5) (7) (.) (3) (5) (5)	. 3 TX = 1 . 3 TX = 15 . 3 TX = 157 . 3 TX = 157 . . 3 TX = 157 .3 . 3 TX = 157 .35 . 3 TX = 157 .355
NOTE: While programming a frequency or non-standard CTCSS tone, the cursor can move back and forth among the numeric characters and decimal point by pressing (CONT) and then using the (←) and (→) keys to reach the desired character. PRESS (CONT) to remove "C." and reactivate "input" mode. PRESS ("8") to change frequency data	C. 3 TX = 157 .355 C. 3 TX = 157 .355 C. 3 TX = 157 .355 C. 3 TX = 157 355 C. 3 TX = 157 .355 C. 3 TX = 157 .355 C. 3 TX = 157 .355 . 3 TX = 157 .355 . 3 TX = 158 355
Once the change is made, PRESS (RETN) to store the change in programmer's memory buffer and move to next step	C. TX SQUELCH
To illustrate accessing/inputting the second non-standard CTCSS: PRESS (RETN) (▼) (▼) (RETN) PRESS (▼) to access tone #2	C. NO OPTION C. STD CTCSS C. NON-STD CTCSS C. TONE NUMBER 1 C. TONE NUMBER 2
PRESS (RETN) display automatically scrolls to . . .	. CHANNEL = 3 TX . TX TONE =
You can now input the second non-standard CTCSS tone frequency PRESS (1) (3) (5) (.) (4)	. TX TONE = 1 . TX TONE = 13 . TX TONE = 135 . TX TONE = 135 . . TX TONE = 135 .4
PRESS (RETN) to go to next step which is programming receive frequency for channel 3	C. RX FREQUENCY

NOTE:
To program a RECEIVE ONLY CHANNEL, simply bypass the transmit frequency and squelch steps by pressing the (▼) key.

Having completed the programming of all channel (up to 16) frequency and squelch data, use the (▼) key to reach . . .

C. LOOK BACK

LOOK BACK is the time interval between samplings of the priority channels during priority scan.

PRESS (RETN)
The LOOK BACK TIME default setting is 2 seconds; the range is 0.25 to 4.0 seconds in .25 sec increments.

C. LOOK BK = 2 .00

Use the (▲) and/or (▼) keys to scroll through the available choices

C. LOOK BK = 0 .25
C. LOOK BK = 0 .50
C. LOOK BK = 0 .75
C. LOOK BK = 1 .00

when you reach the desired setting
PRESS (RETN)

C. SCAN DELAY

SCAN DELAY is the time the radio takes to detect proper frequency and tone.
PRESS (RETN)
the default setting is 1 second, the range is 0.00 to 4.00 seconds in .25 second increments

C. DELAY = 1 .00

As above, use the (▲) and/or (▼) keys to scroll through the available choices

C. DELAY = 4 .00
C. DELAY = 3. 75
C. DELAY = 3. 50
C. DELAY = 3. 25

when you reach the desired setting,
PRESS (RETN)

C. SCAN WAIT

SCAN WAIT is the time during scan, after activity has dropped from the channel, before resuming scan, for reception of any additional transmissions on that channel.

PRESS (RETN)
the default setting is 1 second;
the range is 0.25 to 4.00 seconds in .25 second increments

C. WAIT = 1 .00

As above, use the (▲) and/or (▼) keys to scroll through the available choices

PRESS (RETN) when you reach the desired setting

C. TX TIME-OUT

To program the Transmit time-out timer
PRESS (RETN)
the default setting is 0 seconds;
the range is 0 to 990 seconds in 10 sec increments

C. TIME-OUT = 0

Use the (▲) and/or (▼) keys to scroll through the timer choices	C. TIME-OUT = 0 C. TIME-OUT = 10 C. TIME-OUT = 20 C. TIME-OUT = 30
PRESS (RETN) when you reach the desired setting	C. BUSY LOCK
The BUSY LOCK feature enables/disables the transmit inhibit function for all active channels in the SM-4150. PRESS (RETN); OFF is the default; use the (▲) and/or (▼) to toggle between "ON" and "OFF"	C. BUSY LOCK = OFF C. BUSY LOCK = ON C. BUSY LOCK = OFF
PRESS (RETN) to enter your choice and move on to	C. TX DELAY
The TRANSMIT DELAY feature enables/disables the delayed transmit for squelch-tail eliminator PRESS (RETN); OFF is the default; use the (▲) and/or (▼) to toggle between "ON" and "OFF"	C. TX DELAY = OFF C. TX DELAY = ON C. TX DELAY = OFF
PRESS (RETN) to enter your choice and move on to programming priority channels for your scan list. You can assign any programmed channel to 1st and 2nd priority channels. PRESS (RETN) Use the (▲) and/or (▼) keys to scroll through the channels until you reach the desired one. PRESS (RETN); now you can program/select the second priority channel for your scan list with the (▲) and (▼) keys PRESS (RETN) (RETN) The default setting is SCAN ON for each channel; to change, use the (▲) and (▼) keys, PRESS (RETN) to move to next channel	C. PRIORITY CHAN C. PRIORITY 1 = C. PRIORITY 1 = 1 C. PRIORITY 1 = 2 C. PRIORITY 1 = 3 C. PRIORITY 2 = C. PRIORITY 2 = 16 C. SCAN LIST C. SCAN CH 1 = ON C. SCAN CH 1 = OFF C. SCAN CH 2 = ON

NOTEWORTHY EXCEPTIONS

If you do not want to remove any channels from the scan list, you can skip the SCAN LIST MENU by pressing the (▼) key when SCAN LIST is visible.	C. SCAN LIST
Once in the SCAN LIST sub-routine, (i.e., after pressing (RETN)) you exit by pressing (FUNC) and then (CLS) PRESS (▼)	F. SCAN CH 10 = ON C. SCAN LIST C. SAVE EEPROM

PRESS (RETN) until you reach	C. SAVE EEPROM
PRESS (RETN); display automatically scrolls to . . .	.INSERT TARGET .EEPROM AND .PRESS RETN KEY

NOTE: The information that you have programmed so far is only temporarily stored in the programmer's memory. You need to program that information into the SM-4150's EEPROM. Refer to Hardware Description for proper removal and insertion of the EEPROM and/or utilization of the programming/interface cable.

Once you have properly inserted the EEPROM or connected the interface cable, PRESS (RETN) the RED LED on the programmer will light, the display will show (00) errors if all is as it should be, and then automatically scroll to . . .	.<00>---ERRORS .REMOVE EEPROM .AND .PRESS RETN KEY
PRESS (RETN)	C. SAVE EEPROM
(▼) to go to next step	C. DEFAULT ALL
To activate "DEFAULT ALL," PRESS (RETN)	C. CONTINUE?-YES
Should you wish to erase all programmed channel information and return all scan and option parameters to their default settings, PRESS (RETN)	C. PICK CHANNEL

NOTE: To protect you from inadvertently erasing and defaulting, you have to PRESS (RETN) while C.CONTINUE?-YES is visible in the display.	C. CONTINUE?-YES
You can toggle between "YES" and "NO" with (▲) and (▼) keys	C. CONTINUE?-NO C. CONTINUE?-YES C. CONTINUE?-NO
Pressing (RETN) will take you back to . . .	C. DEFAULT ALL
PRESS (▼) to go to next step	C. PREVIOUS MENU
PRESS (RETN) to return to	C. PROG CHANNELS
or (▼) to go back to	C. PICK CHANNEL

Radio Program
(Refer To Menu Tree)

	C. RADIO PROG
PRESS (RETN)	C. SM-4150 RADIO
PRESS (RETN)	C. PROG CHANNELS
PRESS (▼) This menu will allow you to change (program) radio parameters that are hardware--specific. Change these parameters only to accompany a hardware modification of a radio. (SEE APPENDIX)	C. PROG PARAMS
PRESS (▼)	C. LOAD EEPROM
PRESS (RETN)	.INSERT SOURCE .EEPROM AND
display automatically scrolls to . . .	.PRESS RETN KEY
PRESS (RETN) the RED LED will illuminate while the EEPROM is loaded into the programmer's memory buffer.	C. LOAD EEPROM
If no errors are found, display will be	C. LOAD EEPROM
PRESS (▼) to go to next menu	C. SAVE EEPROM
PRESS (RETN) the RED LED will illuminate while the EEPROM is loaded with the programming in the memory buffer	.INSERT TARGET .EEPROM AND .PRESS RETN KEY
PRESS (RETN)	.<00>---ERRORS .REMOVE EEPROM .AND .PRESS RETN KEY
PRESS (RETN)	C. SAVE EEPROM
PRESS (▼)	C. PRINT DATA
PRESS (RETN) You can now NAME the file for reference before you print it out. (maximum of 32 characters)	. USER =
PRESS (SHFT)	S. USER =
(1)	. USER = A
(SHFT)	S. USER = A
(2)	. USER = AB
(SHFT)	S. USER = AB
(3)	. USER = ABC
(CONT)	C. USER = ABC
PRESS (▼) or (▲) until you reach (blank)	C. USER = ABC
(→) to move to next character	C. USER = ABC
(▲) or (▼) until you reach (R)	C. USER = ABC R
(→) to more until next character	C. USER = ABC R
(SHFT)	S. USER = ABC R
(1)	. USER = ABC RA

(SHFT)
(4)
(CONT)
(▲) or (▼) until you reach (I)
(→)
(▲) or (▼) until you reach (O)
(→)

5. USER = ABC RA
. USER = ABC RAD
C. USER = ABC RAD
C. USER = ABC RAD
C.USER = ABC RADI
C.USER = ABC RADIO
C.SER = ABC RADIO

(you can use up to 32 characters)

PRESS (RETN)

C. PRINT DATA

Make sure that printer is properly connected to SMP-4000 Printer Connector. (SMP-4000 uses a Centronics® Printer Port with an IBM® DB25)

EEPROM Prog
(Refer To Menu Tree)

C. RADIO PROG

PRESS (▼)

C. EEPROM PROG

PRESS (RETN)

C. CLONE EEPROM

If you wish to copy the contents of a master EEPROM into a target EEPROM; PRESS (RETN)

.INSERT SOURCE
.EEPROM AND
.PRESS RETN KEY

The display will scroll to . . .

If not using the interface cable, place the EEPROM (NOTE: the one you wish to CLONE FROM) into the textool on top of the programmer. Make sure that textool is in the unlocked position (lever up) and that the notch on the EEPROM is toward the display (see Hardware Description) when placing it in the lower half of the textool.
Lock in the EEPROM by lowering the lever

PRESS (RETN)

.INSERT TARGET
.EEPROM AND
.PRESS RETN KEY

The RED LED will illuminate as the EEPROM is read and checked for errors

the display will instruct you–if no errors are found, remove the "MASTER" EEPROM and replace it with the "SLAVE" or target EEPROM that you wish to CLONE TO. Make sure that the locking mechanism is in the appropriate setting when removing and installing EEPROMs.

PRESS (RETN)

.<00>---ERRORS
.REMOVE EEPROM
.AND
.PRESS RETN KEY

The RED LED will again illuminate with TARGET EEPROM is loaded and checked for errors.

PRESS (RETN)
and you will be back to

C. CLONE EEPROM

PRESS (➨)
to proceed to next menu

C. COMPARE EEPRM

COMPARE EEPROM allows you to compare the contents of a master EEPROM to a target EEPROM. All conflicting locations in the target EEPROM will be flagged as errors.

PRESS (RETN)

.INSERT MASTER
.EEPROM AND
.PRESS RETN KEY

Insert the "MASTER" EEPROM and

PRESS (RETN)

.INSERT TARGET
.EEPROM AND
.PRESS RETN KEY

The RED LED will illuminate as the master EEPROM is read, checked for errors and stored

PRESS (RETN)

.<00>---ERRORS
.REMOVE EEPROM
.AND
.PRESS RETN KEY

The RED LED will again illuminate as the target EEPROM is read and compared

PRESS (RETN)
and you will be back to

C. COMPARE EEPRM

PRESS (➨)
to proceed to next menu

C. ERASE EEPROM

ERASE EEPROM will erase all data from the EEPROM and vertify that it is blank. All non-erased locations in the target EEPROM will be flagged as errors

PRESS (RETN)

.INSERT TARGET
.EEPROM AND
.PRESS RETN KEY

the display scrolls to . . .

PRESS (RETN)

.<00>---ERRORS
.REMOVE EEPROM
.AND
.PRESS RETN KEY

The RED LED will illuminate as the target EEPROM is erased and checked for errors.

PRESS (RETN)

and you will be back to

C. ERASE EEPROM

PRESS (➨)
to proceed to next menu

C. TEST EEPROM

The TEST EEPROM menu performs the erase function as above, then writes a pattern of test data into the EEPROM. All conflicting locations on the target EEPROM will be flagged as errors

PRESS (RETN)

.INSERT TARGET
.EEPROM AND
.PRESS RETN KEY

Insert the EEPROM you wish to test and PRESS (RETN)

.<00>---ERRORS

The RED LED will illuminate as the EEPROM is tested and errors are flagged; with no errors found in the test, display will scroll to

.REMOVE EEPROM
.AND
.PRESS RETN KEY

PRESS (RETN)
and you will be back to

C. TEST EEPROM

PRESS (▼)
to proceed to next menu

C. ERROR LISTING

The ERROR LISTING menu redirects the output of any EEPROM data location errors between the display (DSP) and the printer (PRN)

C. ERROR LISTING
C. ERR LIST->DSP
C. ERR LIST->PRN

PRESS (RETN)
(▲) or (▼)
to toggle between DSP and PRN

PRESS (RETN) to select your choice and take you back to

C. ERROR LISTING

PRESS (▼)
to go to next menu

C. EDIT EEPROM

From the MENU TREE you can see that EDIT is really a submenu consisting of various programs used to examine and modify the binary contents of an EEPROM.

PRESS (RETN)
You will see that a password is required to continue. Contact Maxon Customer Service for the details of the password and edit programs.

.PASS WORD =

PRESS (RETN)
and the EDIT prompt returns

C. EDIT EEPROM

PRESS (▼)

C. PREVIOUS MENU

To return to "CLONE" PRESS (▼) again

C. CLONE EEPROM

To return to "EEPROM PROG," PRESS (RETN)

C EEPROM PROG

ERROR MESSAGE APPENDIX

The following is an error message reference listing. It illustrates the types of errors that you may encounter when using the SMP 4000 to program a radio. Remember to use the (HELP) key to gain more information about the "current" function of the programmer.

TX/RX Frequency Input Errors

"FREQUENCY ERR"	unable to convert characters in string to integer value, conversion value overflow or underflow.
"FREQ<MIN ERROR"	frequency must be greater than or equal to the minimum radio frequency band limit.
"FREQ>MAX ERROR"	frequency must be less than or equal to the maximum radio frequency band limit.
"PLL N<=A ERROR"	the N modulus value must be greater than the A modulus value for proper operation of the PLL. The frequency is too low for the PLL modulus used by the radio. Also check the reference and intermediate frequency values.
"PLL N>MAX ERROR"	the N modulus is overflowing its maximum allowed value. The frequency is too high for the PLL modulus used by the radio. Also check the reference and intermediate frequency values.
"PLL A>MAX ERR"	the A modulus is overflowing its maximum allowed value. This error should never, ever happen, but anything is possible. Check the power supply for electrical noise.

Nonstandard CTCSS Input Errors

"FREQUENCY ERR"	unable to convert characters in string to integer value, conversion value overflow or underflow.
"TONE<MIN ERROR"	tone frequency must be greater than or equal to the minimum value of 49.0 Hz.
"TONE>MAX ERROR"	tone frequency must be less than or equal to the maximum value of 260.0 Hz.
"STD CTCSS FREQ"	tone frequency entered is also a standard CTCSS tone.

Load 4150 EEPROM Errors

"OPTION ERROR"	the EEPROM channel option data is out of range for the available options.
"TONE<MIN ERROR"	the nonstandard tone was converted to a value less than the minimum tone frequency of 49.0 Hz.

"TONE>MAX ERROR" the nonstandard tone was converted to a value greater than the maximum tone frequency of 260.0 Hz.

"FREQUENCY ERR" unable to convert EEPROM frequency data to integer value, conversion value overflow or underflow.

"CHECKSUM ERROR" checksum in EEPROM frequency data does not match that calculated by the programmer.

NOTE: LOADING is aborted and the radio data area is cleared to default values.

General EEPROM Errors

"(aa)--dddd ERR" the data (dddd) in the EEPROM at the address (aa) does not match with what is expected. Press the (DOWN ARROW) or (RETN) keys to increment to the next erroneous location. Press the (ABORT) key to exit error listing function.

"(xx)--ERRORS" the total number of EEPROM errors found is displayed in the (xx) field.

NOTE: If the ERROR LISTING function is redirected to PRN, the EEPROM error listing results will be sent to the printer rather than the display.

General Printer Errors

"PRINTER BUSY" the printer is not responding to the SMP-4000. Check the printer cable and printer power switch for problems. To abort the printing attempt, press the (ABORT) key and return to the menu selection.

Parameter Program Appendix

The SMP-4000 Menu Tree delineates the radio parameters that can be modified by this menu.

NOTE:
THESE RADIO PARAMETERS ARE HARDWARE–SPECIFIC. CHANGE THESE PARAMETERS ONLY TO ACCOMPANY A HARDWARE MODIFICATION OF THE SM-4150.

	C. RADIO PROG
PRESS (RETN)	C. SM-4150 RADIO
PRESS (RETN)	C. PROG CHANNELS
PRESS (▼) PRESS (RETN) You will see that a password is required to continue. Contact Maxon Customer Service for details.	C. PROG PARAMS . PASS WORD =
With correct input of password	C. INJECT SIDE
INJECT SIDE allows you to specify high side or low side IF injection mode. Changing this value RESETS the previously programmed channel data.	
PRESS (RETN) (▲) or (▼) (RETN) to select the value and return to top of the menu	C. INJECTION = LOW C. INJECTION = HI C. INJECT SIDE
PRESS (▼) to move to next menu parameter	C. IF FREQUENCY
You can alter the default INTERMEDIATE FREQUENCY value with this menu. Changing this value RESETS the previously programmed channel data.	
PRESS (RETN) (#) presses will move to next character, when complete	. IF = 21 .400
PRESS (RETN)	C. IF FREQUENCY
PRESS (▼) to move to next parameter	C. REF FREQUENCY
You can alter the default PLL REFERENCE FREQUENCY value with this menu. Changing this value RESETS the previously programmed channel data.	
PRESS (RETN) (#) presses will move to next character, when complete	. REF = 5 .000
PRESS (RETN)	C. REF FREQUENCY
PRESS (▼) to move to next parameter	C. RF FREQ BAND

You can alter the default FREQUENCY BAND specification for the radio. The programmer will reject any attempt to program a channel outside the specified band.

PRESS (RETN) — . MIN = 148 .000
(#) presses will move to next character, when complete
PRESS (RETN) — . MAX = 174 .000
(#) presses will move to next character, when complete
PRESS (RETN) — C. RF FREQ BAND
PRESS (▼) to move to next parameter — C. PLL MODULUS

You can alter the default FREQUENCY MODULUS DIVIDER for the PLL in the radio. Changing this value RESETS the previously programmed channel data.

PRESS (RETN) — . MODULUS = 64
(#) presses will move to next character, (range is 1-255), when complete
PRESS (RETN) — C. PLL MODULUS
PRESS (▼) to move to next parameter — C. DEFAULT ALL

DEFAULT ALL resets all parameters AND radio channel programming information to the default, unprogrammed state

PRESS (RETN) to activate the menu — C. CONTINUE?-YES
(▲) or (▼) to toggle between "YES" and "NO" — C. CONTINUE?-NO / C. CONTINUE?-YES

PRESS (RETN)
when display is "YES" — C. INJECT SIDE
when display is "NO" — C. DEFAULT ALL
PRESS (▼) to move to — C. PREVIOUS MENU
(RETN) — C. PROG PARAMS
or
(▼) — C. INJECT SIDE

CODED SQUELCH APPENDIX

STANDARD CTCSS TONES	DCS (OCTAL) CODES	
67.0	023	306
71.9	025	311
74.4	026	315
77.0	031	331
79.7	032	343
82.5	043	346
85.4	047	351
88.5	051	364
91.5	054	365
94.8	065	371
97.4	071	411
100.0	072	412
103.5	073	413
107.2	074	423
110.9	114	431
114.8	115	432
118.8	116	445
123.0	125	464
127.3	131	465
131.8	132	466
136.5	134	503
141.3	143	506
146.2	152	516
151.4	155	532
156.7	156	546
162.2	162	565
167.9	165	606
173.8	172	612
179.9	174	624
186.2	205	627
192.8	223	631
203.5	226	632
210.7	243	654
218.1	244	662
225.7	245	664
233.6	251	703
241.8	261	712
250.3	263	723
	265	731
	271	732
		734
		743
		754

ADDENDUM TO SMP-4000 PROGRAMMER MANUAL FOR USE WITH THE "SP-5000 SERIES" SYNTHESIZED PORTABLES

Version 1.1

maxon®
ELECTRONICS

Addendum to SMP-4000 Programmer Manual for use with the SP-5150 and SP-5450 Synthesized Portables.

PREFACE

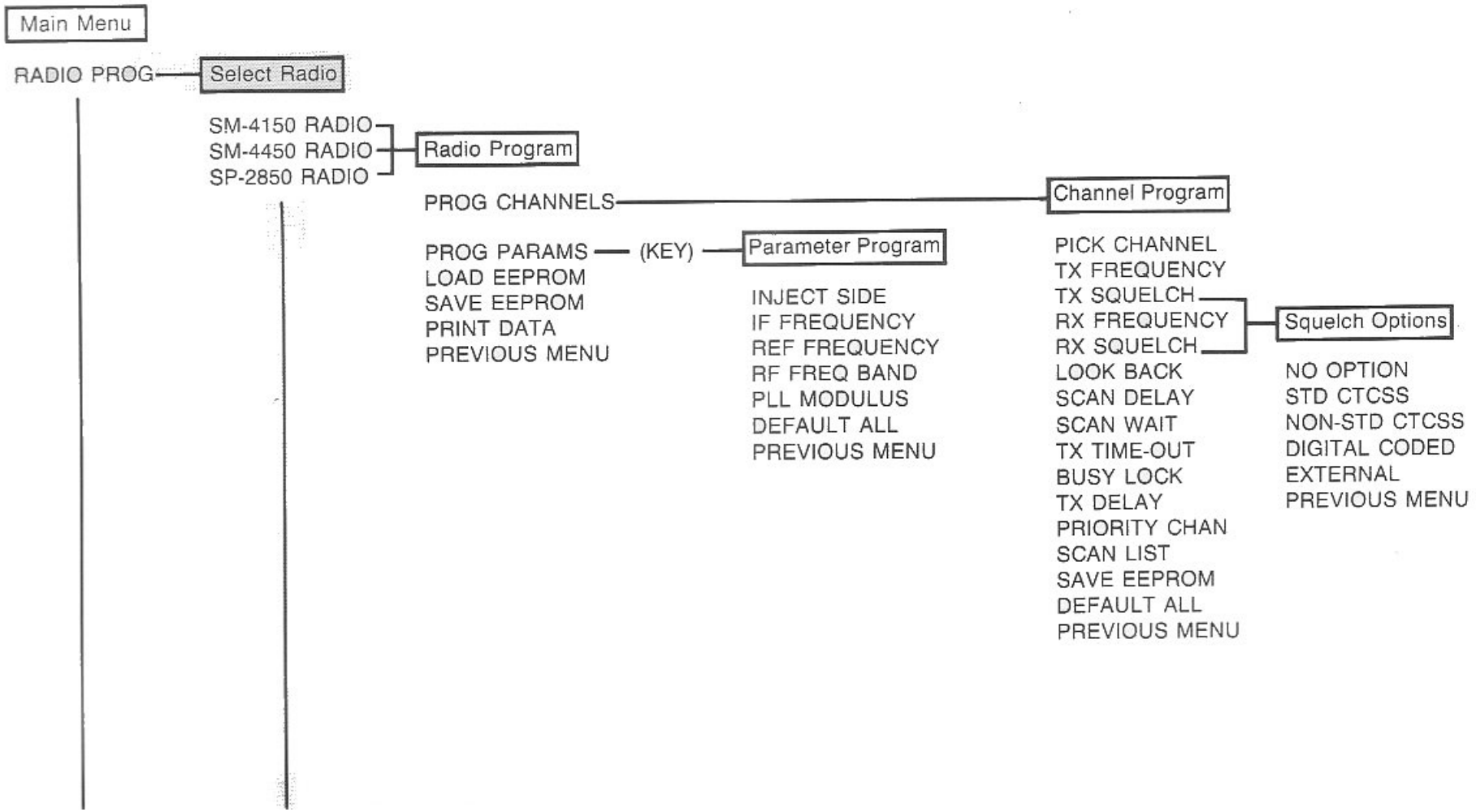
Congratulations!!
And welcome to the world of Maxon Synthesized Portable Radios.

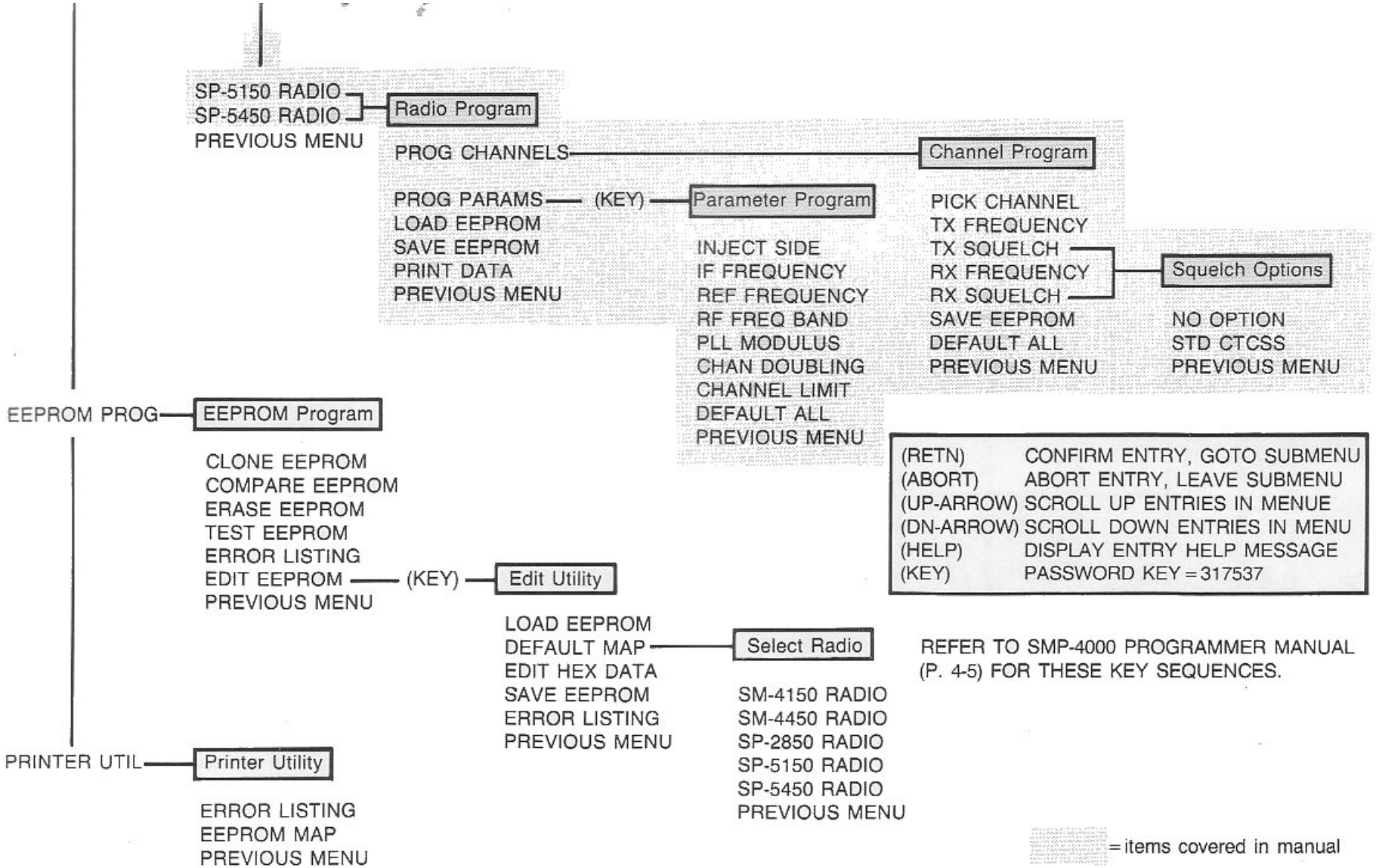
Your new SP-5150 (VHF) or SP-5450 (UHF) radio is as easy to program as it is to operate. The following guide is designed to be used in conjunction with the SMP-4000 Programmer Manual to assist you in the programming of your new portable radio.

If you are already familiar with the SMP-4000 Programmer from use with the SM-4150 Mobile, then this will be a snap!! If not, don't despair. A quick review of pages 4 and 5 of the programmer manual and you too will soon be programming like a pro!

This addendum updates five sections of the programmer manual:
- SMP-4000 Menu Tree
- Hardware Description
- Programming an SP-5150 or SP-5450 Radio
- Error Message Appendix
- Parameter Program Appendix.

SMP-5000 MENU-TREE




SP-5150 RADIO
SP-5450 RADIO
PREVIOUS MENU
Radio Program
PROG CHANNELS
Channel Program
PROG PARAMS
(KEY)
Parameter Program
LOAD EEPROM
SAVE EEPROM
PRINT DATA
PREVIOUS MENU
INJECT SIDE
IF FREQUENCY
REF FREQUENCY
RF FREQ BAND
PLL MODULUS
CHAN DOUBLING
CHANNEL LIMIT
DEFAULT ALL
PREVIOUS MENU
PICK CHANNEL
TX FREQUENCY
TX SQUELCH
RX FREQUENCY
RX SQUELCH
SAVE EEPROM
DEFAULT ALL
PREVIOUS MENU
Squelch Options
NO OPTION
STD CTCSS
PREVIOUS MENU
EEPROM PROG
EEPROM Program
CLONE EEPROM
COMPARE EEPROM
ERASE EEPROM
TEST EEPROM
ERROR LISTING
EDIT EEPROM
(KEY)
Edit Utility
PREVIOUS MENU
LOAD EEPROM
DEFAULT MAP
Select Radio
EDIT HEX DATA
SAVE EEPROM
ERROR LISTING
PREVIOUS MENU
SM-4150 RADIO
SM-4450 RADIO
SP-2850 RADIO
SP-5150 RADIO
SP-5450 RADIO
PREVIOUS MENU
(RETN) CONFIRM ENTRY, GOTO SUBMENU
(ABORT) ABORT ENTRY, LEAVE SUBMENU
(UP-ARROW) SCROLL UP ENTRIES IN MENUE
(DN-ARROW) SCROLL DOWN ENTRIES IN MENU
(HELP) DISPLAY ENTRY HELP MESSAGE
(KEY) PASSWORD KEY = 317537
REFER TO SMP-4000 PROGRAMMER MANUAL (P. 4-5) FOR THESE KEY SEQUENCES.
PRINTER UTIL
Printer Utility
ERROR LISTING
EEPROM MAP
PREVIOUS MENU
= items covered in manual

KEY DESCRIPTION

There are sixteen (16) keys which comprise the SMP-4000 keyboard. These consist of the digits zero (0) through nine (9), space (CLS), decimal point (.), carriage return (RETN), and three alternate function keys: (FUNC), (CONT) and (SHFT).

FUNC	1 A	2 B	3 C
CONT	4 D	5 E	6 F
SHFT	7 del	8 ^	9 ins
RETN	CLS <	0 v	 >

KEYBOARD STATUS INDICATORS

The left-most digit on the SMP-4000 display screen is reserved as an alternate function key status indicator. It is unique in that its decimal point remains lighted at all times. There is a unique status character for each of the four keyboard modes:

1) F. – Function key input mode, set by (FUNC) key
2) C. – Control key input mode, set by (CONT) key
3) S. – Shift key input mode, set by (SHFT) key
4) . – Normal Input mode

USING THE ALTERNATE FUNCTION KEYS

Each of the three (3) alternate function keys has the ability to replace the existing input mode with its own. Operating in a toggle fashion, the key's input mode is retained after the key is released. When a key is pressed while its input mode is active, the mode will toggle back to the normal input mode.

SPECIAL FUNCTION KEY DEFINITIONS

(ABORT) With the 'F.' status indicator set, press the (CLS) key to form the (ABORT) key.

(HELP) With the 'F.' status indicator set, press the (.) key to form the (HELP) key.

(L-ARROW) With the 'C.' status indicator set, press the (CLS) key to form the (L-ARROW) key.

(R-ARROW) With the 'C.' status indicator set, press the (.) key to form the (R-ARROW) key.

(UP-ARROW) With the 'C.' status indicator set, press the (8) key to form the (UP-ARROW) key.

(DN-ARROW) With the 'C.' status indicator set, press the (0) key to form the (DN-ARROW) key.

(DELETE) With the 'C.' status indicator set, press the (7) key to form the (DELETE) key.

HELP FUNCTION OPERATION

The HELP function may be invoked anytime clarification is needed regarding an input request.

STEP 1– Press the (HELP) key to display the help message for the current input request.

STEP 2– Use the (L-ARROW) and (R-ARROW) keys to scroll the Help message across the display for full viewing.

STEP 3– Press the (RETN) or (ABORT) key to exit the Help function.

SMP-4000 HARDWARE DESCRIPTION

Your SMP-4000 programmer has its programming connector adjacent to the keyboard on the top of the unit. See Figure 1 for an illustration of the Textool connector.

To program, you must remove the EEPROM from the radio and place it in the Textool on the top panel of the programmer.

Let's review this programming approach:

You can remove the EEPROM from the radio and place it into the Textool on top of the programmer. Follow these steps: a) remove the EEPROM very carefully from the radio (take notice of location of the notch in its top, as in Figure 2a); b) after making sure that the Textool is in the "unlocked" position (lever up - see Figure 2b), place the EEPROM into the lower half of the Textool with the notch pointing toward the display (see Figure 2c), then lower the lever to lock the EEPROM into place. Leave the EEPROM locked in for the duration of the programming sequence(s), unless instructed to do otherwise. When programming is complete, raise the lever and carefully remove the EEPROM from the programmer. Replace the EEPROM in the DIP socket in the radio, making sure that the notch is located in the same place as when the EEPROM was removed.

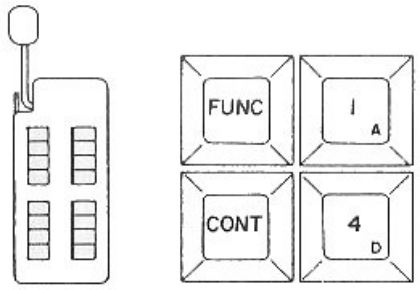


Figure 1

Figure 2a

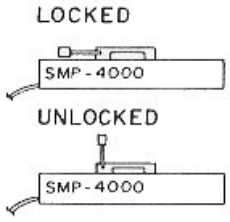


Figure 2b

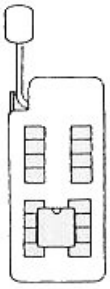
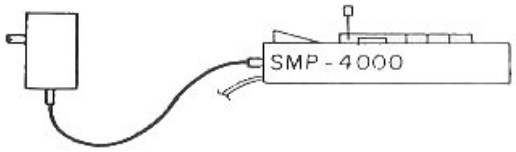


Figure 2c

GETTING STARTED

Make sure the Plug-In Power Supply (provided with the programmer) is properly connected with the back of the unit and a standard 120 VAC grounded outlet. Move the power switch to the "ON" position.



PROGRAMMING AN SP-5150 RADIO

Refer to the SMP-4000 Hardware Description for instructions on removing the EEPROM from the radio and placing it in the Textool on top of the SMP-4000 programmer.

The message "MAXON SMP-4000" will be displayed and followed by a second message, "C. RADIO PROG". Referencing the SMP-4000 Menu Tree, you can press "RETN" to move to radio selections (SM-4150, SM-4450, SP-2850, SP-5150 and SP-5450) or press the Up or Down Arrow keys to scroll through EEPROM programming and Printer Utilities.

The Menu Tree illustrates that once you have selected a radio, the SP-5150 for example, you then press "RETN" to call up the prompt "PROG CHANNELS". Once again you have the choice of using the Up or Down Arrow keys to scroll through: PROG PARAMS, LOAD EEPROM, SAVE EEPROM, PRINT DATA, and PREVIOUS MENU; or pressing "RETN" to call up the prompt "PICK CHANNEL".

	C. PROG CHANNELS
PRESS (RETN)	C. PICK CHANNEL
PRESS (RETN)	C. CHANNEL = 1
PRESS (RETN)	C. TX FREQUENCY
PRESS (RETN) display automatically scrolls to . . .	. CHANNEL = 1 TX . 1 TX = _
You can now program the TX frequency for Channel 1. The acceptable ranges are . . .	136-150 MHz (SP-5150 "L") 148-163 MHz (SP-5150 "M") 158-174 MHz (SP-5150 "H")
Remember to keep frequencies within channel spread of 6 MHz in each range.	
As an example:	
PRESS (1)	. 1 TX = 1_
(5)	. 1 TX = 15_
(3)	. 1 TX = 153_
(.) do not forget the decimal point	. 1 TX = 153._
(9)	. 1 TX = 153.9_
(8)	. 1 TX = 153.98_
(5)	. 1 TX = 153.985_
PRESS (RETN) You can now select the squelch option for the transmit frequency of Channel 1.	C. TX SQUELCH

PRESS (RETN)
NO OPTION = Carrier Squelch
PRESS (▼)
This key will allow you to scroll through the various squelch options

C. NO OPTION

C. STD CTCSS

When you arrive at the squelch option of choice, hear carrier squelch

C. PREVIOUS MENU
C. NO OPTION

PRESS (RETN)

C. RX FREQUENCY

PRESS (RETN)

. CHANNEL = 1 RX
. 1 RX =_

You can now program the RX frequency for Channel 1. The acceptable ranges are within a 6 MHz spread.

136-150 MHz (SP-5150 "L")
148-163 MHz (SP-5150 "M")
158-174 MHz (SP-5150 "H")

As an example:
PRESS (1)
(5)
(4)
(.)
(6)
(7)
(5)

. 1 RX = 1_
. 1 RX = 15_
. 1 RX = 154_
. 1 RX = 154._
. 1 RX = 154 .6_
. 1 RX = 154 .67_
. 1 RX = 154 .675_

PRESS (RETN)

C. RX SQUELCH

PRESS (RETN)
(▼)

C. NO OPTION
C. STD CTCSS

To program standard CTCSS tones,
PRESS (RETN)
display will automatically scroll to . . .
At this point you can use the (▲) and (▼) keys to scroll through the standard CTCSS tone table, until you reach the tone you wish to program.

. CHANNEL = 1 RX
C. RX TONE = 67 .0
C. RX TONE = 71 .9
C. RX TONE = 74 .4
C. RX TONE = 77 .0
C. RX TONE = 79 .7

PRESS (RETN)

C. TX FREQUENCY

PRESS (RETN)
display will automatically scroll to . . .

. CHANNEL = 2 TX
. 2 TX =_

As an example:
PRESS (1)
(5)
(3)
(8)
(5)
(0)
(0)
(RETN)

. 2 TX = 1_
. 2 TX = 15_
. 2 TX = 153_
. 2 TX = 1538_
. 2 TX = 15385_
. 2 TX = 153850_
. 2 TX = 1538500_
.FREQUENCY ERR
. 2 TX =_

NOTE: When inputting frequency data, always remember to enter the decimal point.

You can now correct the frequency data.

PRESS (1)	. 2 TX = 1_
(5)	. 2 TX = 15_
(3)	. 2 TX = 153_
(.)	. 2 TX = 153 ._
(8)	. 2 TX = 153 .8_
(5)	. 2 TX = 153 .85_
(0)	. 2 TX = 153 .850_
Now that correct frequency is input,	
PRESS (RETN) to proceed to . . .	C. TX SQUELCH
(RETN)	C. NO OPTION
(▼)	C. STD CTCSS
(▼)	C. PREVIOUS MENU
(▼)	C. NO OPTION
PRESS (RETN) to enter the receive frequency of Channel 2.	C. RX FREQUENCY
PRESS (RETN)	. CHANNEL = 2 RX
the display automatically scrolls to . . .	. 2 RX =_
As an example:	
PRESS (1)	. 2 RX = 1_
(5)	. 2 RX = 15_
(2)	. 2 RX = 152_
(.)	. 2 RX = 152 ._
(9)	. 2 RX = 152 .9_
(2)	. 2 RX = 152 .92_
(5)	. 2 RX = 152 .925_
PRESS (RETN) to proceed to squelch options.	C. RX SQUELCH
PRESS (RETN)	C. NO OPTION
(▼)	C. STD CTCSS
(▼)	C. PREVIOUS MENU
(▼)	C. NO OPTION
PRESS (RETN)	C. TX FREQUENCY
PRESS (RETN)	. CHANNEL = 3 TX
display automatically scrolls to . . .	. 3 TX =_
As an example:	
PRESS (1)	. 3 TX = 1_
(5)	. 3 TX = 15_
(7)	. 3 TX = 157_
(.)	. 3 TX = 157 ._
(3)	. 3 TX = 157 .3_
(5)	. 3 TX = 157 .35_
(5)	. 3 TX = 157 .355_

NOTE: While programming a frequency, the cursor can move back and forth among the numeric characters and decimal point by pressing (CONT) and then using the (←) and (→) keys to reach the desired character.
PRESS (CONT) to remove "C." and reactivate "input" mode.
PRESS ("8") to change frequency data

	C. 3 TX = 157 .35_
	C. 3 TX = 157 .3_5
	C. 3 TX = 157 ._55
	C. 3 TX = 157_355
	C. 3 TX = 15_ .355
	C. 3 TX = 1_7 .355
	C. 3 TX = 15_ .355
	. 3 TX = 15_ .355
	. 3 TX = 158_355

Once the change is made, PRESS (RETN) to store the change in programmer's memory buffer and move to next step.	C. TX SQUELCH
PRESS (RETN) to go to next step which is programming receive frequency for Channel 3.	C. RX FREQUENCY

NOTE: To program a RECEIVE ONLY CHANNEL, simply bypass the transmit frequency and squelch steps by pressing the (▼) key.

Having completed the programming of all channels' (up to 6) frequency and squelch data, use the (RETN) key to reach . . .	C. SAVE EEPROM
PRESS (RETN); display automatically scrolls to . . .	.INSERT TARGET .EEPROM AND .PRESS RETN KEY

NOTE: The information that you have programmed so far is only temporarily stored in the programmer's memory. You need to program that information into the SP-5150's EEPROM. Refer to Hardware Description for proper removal and insertion of the EEPROM.

Once you have properly inserted the EEPROM, PRESS (RETN). The RED LED on the programmer will light, the display will show (00) errors if all is as it should be, and then automatically scroll to . . .	.<00>---ERRORS .REMOVE EEPROM .AND .PRESS RETN KEY
PRESS (RETN) (▼) to go to next step.	C. SAVE EEPROM C. DEFAULT ALL
To activate "DEFAULT ALL," PRESS (RETN)	C. CONTINUE?-YES
Should you wish to erase all programmed channel information and return all option parameters to their default settings, PRESS (RETN)	C. PICK CHANNEL

NOTE: To protect you from inadvertently erasing and defaulting, you have to PRESS (RETN) while C. CONTINUE?-YES is visible in the display.

	C. CONTINUE?-YES
You can toggle between "YES" and "NO" with (▲) and (▼) keys.	C. CONTINUE?-NO C. CONTINUE?-YES C. CONTINUE?-NO
Pressing (RETN) will take you back to . . . PRESS (▼) to go to next step.	C. DEFAULT ALL C. PREVIOUS MENU
PRESS (RETN) to return to or (▼) to go back to . . .	C. PROG CHANNELS C. PICK CHANNEL

ERROR MESSAGE APPENDIX

The following is an error message reference listing. It illustrates the types of errors that you may encounter when using the SMP-4000 to program a radio. Remember to use the (HELP) key to gain more information about the "current" function of the programmer.

TX/RX Frequency Input Errors

"FREQUENCY ERR"	Unable to convert characters in string to integer value, conversion value overflow or underflow.
"FREQ<MIN ERROR"	Frequency must be greater than or equal to the minimum radio frequency band limit.
"FREQ>MAX ERROR"	Frequency must be less than or equal to the maximum radio frequency band limit.
"PLL N<=A ERROR"	The N modulus value must be greater than the A modulus value for proper operation of the PLL. The frequency is too low for the PLL modulus used by the radio. Also check the reference and intermediate frequency values.
"PLL N>MAX ERROR"	The N modulus is overflowing its maximum allowed value. The frequency is too high for the PLL modulus used by the radio. Also check the reference and intermediate frequency values.
"PLL A>MAX ERR"	The A modulus is overflowing its maximum allowed value. This error should never happen, but anything is possible. Check the power supply for electrical noise.

Load 5150/5450 EEPROM Errors

"PARITY ERROR"	Parity bit in EEPROM frequency data does not match that calculated by the programmer.
"FREQUENCY ERR"	Unable to convert EEPROM frequency data to integer value, conversion value overflow or underflow.

NOTE: LOADING is aborted and the radio data area is cleared to default values.

General EEPROM Errors

"(aa)—dddd ERR"	The data (dddd) in the EEPROM at the address (aa) does not match with what is expected. Press the (DOWN ARROW) or (RETN) keys to increment to the next erroneous location. Press the (ABORT) key to exit error listing function.
"(xx)—ERRORS"	The total number of EEPROM errors found is displayed in the (xx) field.

NOTE: If the ERROR LISTING function is redirected to PRN, the EEPROM error listing results will be sent to the printer rather than the display.

General Printer Errors

"PRINTER BUSY" The printer is not responding to the SMP-4000. Check the printer cable and printer power switch for problems. To abort the printing attempt, press the (ABORT) key and return to the menu selection.

SP-5150/SP-5450 Parameter Program Appendix

The SMP-4000 Menu Tree delineates the radio parameters that can be modified by this menu.

	C. RADIO PROG
PRESS (RETN)	C. SM-4150 RADIO
(▼)	C. SM-4450 RADIO
(▼)	C. SP-2850 RADIO
(▼)	C. SP-5150 RADIO
PRESS (RETN)	C. PROG CHANNELS
PRESS (▼)	C. PROG PARAMS
(RETN)	. PASS WORD =
You will see that a password is required to continue.	
PRESS (3)	. PASS WORD =
(1)	. PASS WORD =
(7)	. PASS WORD =
(5)	. PASS WORD =
(3)	. PASS WORD =
(7) display goes to first parameter with correct input of password	C. INJECT SIDE
INJECT SIDE allows you to specify high side or low side IF injection mode. Changing the value RESETS the previously programmed channel data.	
NOTE: All SP-5150 radios in the low range, 136-150 MHz, and SP-5450 radios in the low range, 406-430 MHz, MUST have the injection changed from low to high in order to perform properly.	
PRESS (RETN)	C. INJECTION = LOW
(▲) or (▼)	C. INJECTION = HI
(RETN) to select the value and return to top of the menu.	C. INJECT SIDE
PRESS (▼) to more to next menu parameter.	C. IF FREQUENCY
You can alter the default INTERMEDIATE FREQUENCY value with this menu. Changing this value RESETS the previously programmed channel data.	

PRESS (RETN)
(#) presses will move to next character, when complete.

. IF = 21 .400

PRESS (RETN)

C. IF FREQUENCY

PRESS (▼) to move to next parameter.

C. REF FREQUENCY

You can alter the default PLL REFERENCE FREQUENCY value with this menu. Changing this value RESETS the previously programmed channel data.

PRESS (RETN)
(#) presses will move to next character, when complete.

. REF = 5 .000

PRESS (RETN)

C. REF FREQUENCY

PRESS (▼) to move to next parameter.

C. RF FREQ BAND

You can alter the default FREQUENCY BAND specification for the radio. The programmer will reject any attempt to program a channel outside the specified band.

PRESS (RETN)
(#) presses will move to next character, when complete.

. MIN = 136 .000
(406.000 IN SP-5450)

PRESS (RETN)
(#) presses will move to next character, when complete.

. MAX = 174 .000
(512.000 IN SP-5450)

PRESS (RETN)

C. RF FREQ BAND

PRESS (▼) to move to next parameter.

C. PLL MODULUS

You can alter the default FREQUENCY MODULUS DIVIDER for the PLL in the radio. Changing this value RESETS the previously programmed channel data.

PRESS (RETN)
(#) presses will move to next value (range is 1-255) when complete.

. MODULUS = 128

PRESS (RETN)

C. PLL MODULUS

PRESS (RETN)

C. PLL MODULUS

PRESS (▼) to move to next parameter.

C. CHAN DOUBLING

CHANNEL DOUBLING permits 12 channel operation on SP-5150/SP-5450 radios equipped with the "GROUP A/B" switch.

PRESS (RETN) (default setting in Off)
(▲) or (▼)
(setting MUST be "On" for 12 channel operation)

C. CH DOUBLE = OFF
C. CH DOUBLE = ON

PRESS (RETN)	C. CHAN DOUBLING
PRESS (▼) to move to next parameter.	C. CHANNEL LIMIT
CHANNEL LIMIT sets the number of channels. The default setting is 6. When channel doubling is "On," the LIMIT AUTOMATICALLY CHANGES to 12. The upper limit is 16. This requires a hardware change to the radio.	
PRESS (RETN)	C. CHAN LIMIT = 12
(▲) or (▼) to change the number.	
PRESS (RETN)	C. CHANNEL LIMIT
PRESS (▼) to move to next parameter.	C. DEFAULT ALL
PRESS (▼) to move to next parameter.	C. DEFAULT ALL
DEFAULT ALL resets all parameters AND radio channel programming information to the default, unprogrammed state.	
PRESS (RETN) to activate the menu.	C. CONTINUE?-YES
(▲) or (▼) to toggle between	C. CONTINUE?-NO
"YES" and "NO."	C. CONTINUE?-YES
PRESS (RETN) when display is "YES"	C. INJECT SIDE
when display is "NO"	C. DEFAULT ALL
PRESS (▼) to move to	C. PREVIOUS MENU
(RETN)	C. PROG PARAMS
or	
(▼)	C. INJECT SIDE

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