MOBILE RADIO

LBI31415

PROGRAMMING INSTRUCTIONS FOR MPS PERSONAL SERIES (SYNTHESIZED) RADIO USING TQ2310 PROGRAMMER

GENERAL ELECTRIC

TABLE OF CONTENTS

INTRODUCTION

GENERAL

This instruction presents programming procedures to be followed when programming the General Electric MPS Personal (Synthesized) Radio using Universal Radio Programmer TQ2310.

The Universal Radio Programmer (URP) is used to program all GE programmable radios and control units. However, the procedures in this publication are directed solely to programming the MPS Personal (Synthesized) Radio.

Careful advanced planning for the needs of YOUR total communications system will facilitate programming functions, resulting in a completely satisfactory operating system. To plan your system refer to the MPS System Guide for detailed planning information.

PROGRAMMING EQUIPMENT

The Universal Radio Programmer TQ2310, composed of several hardware and software modules (EPROMs) and an interconnect cable is required to program the radio. Figure 1 shows the TQ2310 layout. The various modules are described below. A unique software module also is required to program each different type of radio or control unit. The software module required to program the MPS (Synthesized) Radio is labeled MPS TQ2332.

Hardware modules contained in the TQ2310 include:

- Panasonic Handheld Computer, RL-H1800
- Panasonic I/O Adapter, RL-P6001
- Panasonic Mini Printer, RL-P1004 or Printer Cassette Adapter RL-P1004A
- General Electric Program Storage Module
- General Electric Data I/O Module

The handheld computer offers a full keyboard to input data and provide a 26 character LCD display. It also contains 8K byte of RAM memory for data files and program use. To familiarize yourself with the operation and capabilities of the microcomputer, refer to the Panasonic Instruction manual provided with the programmer.

The printer is a 40 column dot matrix printer and utilizes a thermal printer mechanism and drive electronics. Special heat sensitive paper must be used in the printer and as such is subject to fading over extended periods of time when exposed to excessive heat or certain types of adhesives. It is suggested that a photocopy be made when a permanent file is to be maintained.

The Program Storage Module houses the programmable EPROMs that contain the computer application programs to program the radio equipment. Eight sockets are provided for the application programs. Refer to the section for Installation Instructions for the EPROMs.

COMMUNICATING WITH THE TQ2310

The software (TQ2332) communicates to the user through menus and forms. The user responds by answering multiple choice questions or entering data through the computer keyboard.

Menus are displayed one line at a time on the computer LCD display screen. The PRIMARY MENU contained in the TQ2310 software is an index of program and functions that are available in the Program Storage Module. These are identified by number. Enter the number of the program or function on the keyboard for the program you wish to run or modify. The name of the program will then be displayed followed by the menu of subprograms available to service the selected program.

Typically, the PRIMARY MENU in the TQ2310 displays the following - a line at a time:

1 = CALCULATOR

2 = CLOCK/CONTROLLER

3 = FILE SYSTEM

X = The last entry on the menu

"X" is used to symbolize the last entry displayed from the menu. Adding EPROMs (software modules) to the PROGRAM STORAGE Module will force "X" to a higher number and display the name of the EPROM.

The EPROMs identify the programming capabilities of the programmer as then configured. For example, when the MPS software module is installed, one entry on the PRIMARY MENU will be "MPS". The number corresponding to the MPS is selected and will provide a second PRIMARY MENU from which the radio is programmed.

To select an item from the menu, enter the number of the item on the keyboard. For example, pressing the 2 key will select CLOCK/CONTROLLER.

Figure 1 - TQ2310 Suitcase Programmer

Forms/Key Definitions

The speed of the menu display can be controlled or stopped by pressing the STP/SPD key. The following key sequences will help you test this capability. Refer to sheet 1 of the Panasonic Instruction Manual for the keyboard display for the handheld computer.

STP/SPD	STP/SPD	- Stop/Restart the display.
STP/SPD	0	- Selects the fastest speed.
STP/SPD	1	- Selects the slowest speed.

Forms are also displayed one line at a time. However, you may control form modification or programming by using the arrow keys and the ENTER key. The up (↑) and down (↓) arrows select which line of the form is being displayed on the screen. The left (←) and right (→) arrows position the cursor over the character position that can be changed. The cursor is limited to specific fields on the LCD display. The computer will beep if you attempt to move the cursor to an illegal position. The computer will also beep if you use the up arrow to go past the first line or the down arrow to go past the last line. Each time upon completion of a form, press the ENTER key. This stores the information into computer memory.

Program Menu Flow

The program menu provides you with some insight as to what you can do in programming or reprogramming the MPS Personal (Synthesized) Radio. Figure 2 is a diagram of the Program Menu Flow. A review of this diagram will help you to organize the programmable data before you actually begin to program the radio.

Primary Menu - The Primary Menu displays the contents of the Program Storage Module. One of the lines displayed will read MPS along with a location or access for the software module.

Program Menu MPS - Entering the access number for the software module on the keyboard displays the MPS program menu shown below:

1 = PRIMARY MENU
2 = PROGRAM/REVIEW
3 = PRINTOUT
4 = COPY-SINGLE
5 = COPY-MULTIPLE
6 = HEX PRINTOUT

Each of these lines identifies a function or series of functions that can be accomplished.

1 = PRIMARY MENU

Entering a 1 on the keyboard will return you to the Programmer's Primary Menu. i.e. 1 = CALCULATOR, 2 = CLOCK/CONTROLLER, etc. This is the only way you can return to the Primary Menu. Typing the CLEAR key will return you to the MPS menu. It will not return you to the Primary Menu.

NOTE

Exercise CAUTION when using the CLEAR key to return to the menu when programming or entering data. Use of the CLEAR key will erase all data that you have entered.

2 = PROGRAM/REVIEW

Program/Review allows you to select one of the two routines to revise existing data or to erase all old data and reprogram the radio with new data. Entering 2 on the keyboard slects Program/Review.

3 = PRINTOUT

Printout allows you to read the programmed data in the radio and print it out. Data to be printed may be read from:

1. EEPROM
2. MPS RADIO
3. MPS FILE

Entering 3 on the keyboard selects the PRINTOUT mode.

4 = COPY-SINGLE

Copy Single allows moving data from one device to another, including to the same device. Data may be read from:

1. EEPROM
2. MPS RADIO
3. MPS FILE

5 = COPY-MULTIPLE

Copy-Multiple allows moving data from one device to multiple copy of another device by reading data only one time and writing to the output device several times.

6 = HEX PRINTOUT

Hex Printout allows the hex-data information to be printed out for review or modification.

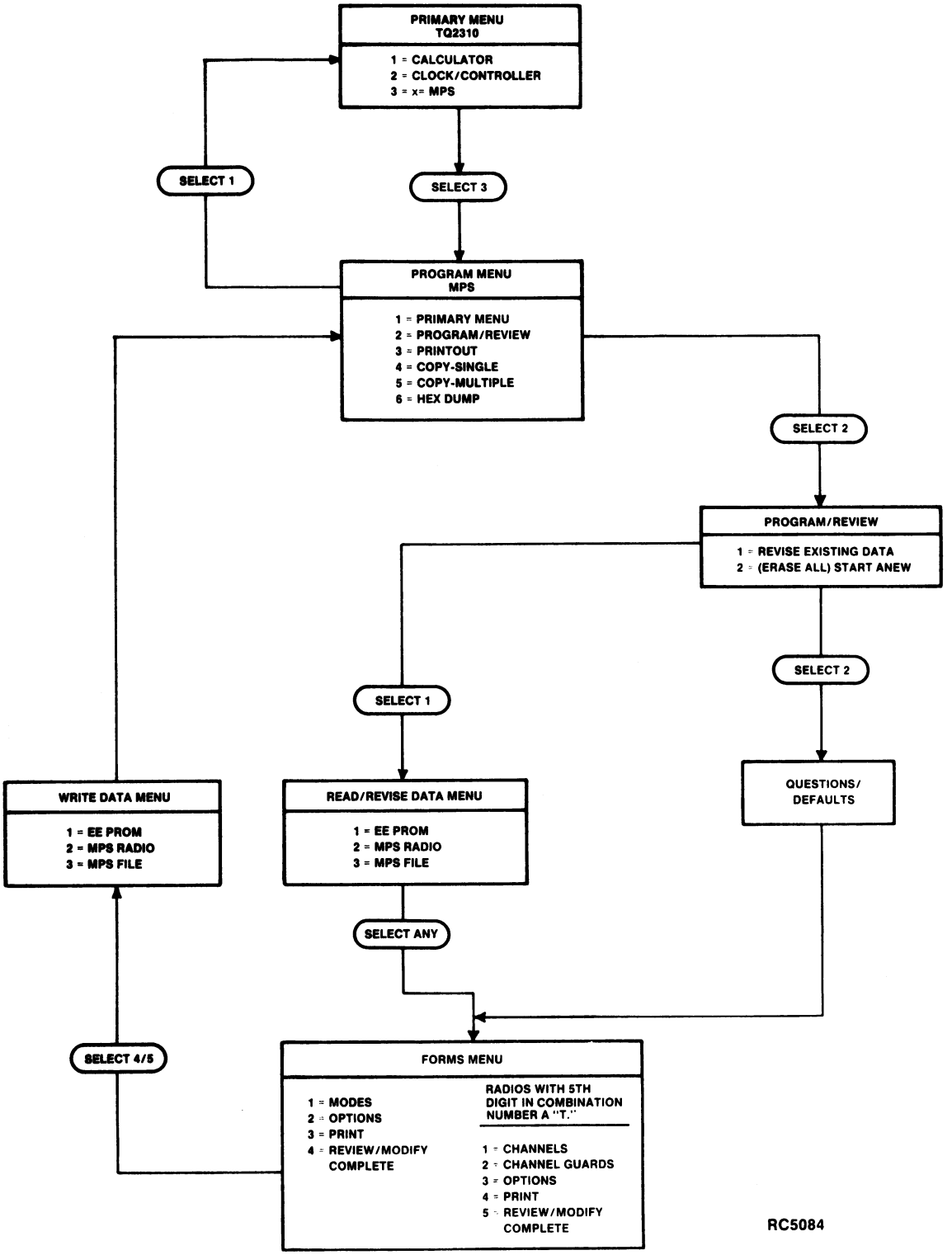

Figure 2 - Menu Form

Program/Review Menu

Entering a 2 from the MPS Program Menu will select PROGRAM/REVIEW and display the PROGRAM/REVIEW Menu on the screen -- a line at a time.

1 = REVISE EXISTING DATA

2 = START ANEW

Read/Review Existing Data - Entering a 1 will select REVISE EXISTING DATA and display the READ/REVISE DATA MENU -- a line at a time. Data to be read or revised may be selected from:

1 = EEPROM

2 = MPS RADIO

3 = MPS FILE

After making your selection and entering the corresponding digit on the keyboard, the program will advance to the FORMS MENU where the data may be reviewed or revised under control of the Forms format.

Write Data - Entering a 2 will select (ERASE ALL) START ANEW. This allows you to program or reprogram the radio. The program automatically advances to the questions and defaults section of the program.

Questions/Defaults

Questions and Defaults determine the operating frequency range, frequency split, channel capacity, standard (21.4 MHz) or alternate (23.0 MHz) IF, standard (13.2 MHz) or alternate (13.8 MHz) reference oscillator frequency, the presence of GE-STAR, priority search lock monitor (PSLM), High/Low Power and Type 99 Tone Signalling. Completing the Questions and Defaults automatically advances the program to the FORMS Menu.

NOTE

All final conditions and options should be entered and completed while in the Questions and Defaults section of the program. It should be noted, that what you enter here will determine the questions asked in the FORMS menu. You can not back up and add options later without completely starting over.

Forms Menu

Each step in the FORMS Menu establishes the operation characteristics and parameters of the radio. The MPS section of the FORMS Menu allows you to enter the following types of data:

	Radios with 5th Digit in combination number a "T"
1 = MODES	1 = CHANNELS
2 = OPTIONS	2 = CHANNEL GUARDS
3 = PRINT	3 = OPTIONS
4 = REVIEW/MODIFY COMPLETE	4 = PRINT
	5 = REVIEW/MODIFY COMPLETE

PROGRAMMING PRELIMINARIES

- Be sure the MPS program module is installed in the PSM (Program Storage Module).
- If programming the radio for the first time, you must know the IF frequency, reference oscillator frequency and the frequency range of the radio combination.

To determine if the MPS Module is present.

- Turn the Universal Radio Programmer (URP) on and clear it. (Press ON and then CLEAR on the keyboard).

NOTE

If the MPS module is not listed, turn the power off and refer to the EPROM Installation Instructions in the manual to Install the PROM.

NOTE

The software in Universal Radio Programmer has been written to provide you with a default answer. If you are in doubt of an exact entry, take the default by pressing ↓ .

PROGRAMMING THE RADIO

- Connect the radio to the Universal Radio Programmer (URP) using Programmer Interconnecting Cable TQ2331.

- Turn the URP ON and press CLEAR.
- Enter the access number displayed on the keyboard for the MPS. Before creating a new MPS file, the programmer will interrogate the file storage system of the URP and advise you if there is not any available storage capacity. If there is insufficient storage capacity, the display will indicate:

NO ROOM FOR FILE - CONT Y/N?

If this display is shown then there are three ways to store a MPS File:

1. Delete a used file and store in the new file of the URP.
2. Store a file to the EPROM using an external EPROM.
3. Write the file directly to the MPS radio.

The MPS Program Menu will now be displayed one line at a time.

Enter a "2" to advance the program to the Program Review Menu:

1 = REVISE EXISTING DATA

2 = (ERASE ALL) START ANEW

NOTE

Enter a 1 if you are revising existing data. This will advance the program to the READ/ REVISE Data Menu where you will select the source of the data to be revised and then directly to the FORMS MENU.

Enter a "2" again, to begin with all data cleared to program the radio, the display will appear as follows:

SELECT FREQUENCY RANGE

1 = HIGH BAND

2 = UHF

On selecting the frequency range by entering a "1" or a "2" the display will appear as follows:

SELECT SPLIT

For High Band

1 = 138 ... 152 MHz

2 = 148 ... 163 MHz

3 = 157 ... 174 MHz

For UHF

1 = 403 ... 435 MHz

2 = 450 ... 470 MHz

NOTE

The frequency range entered above must be compatible with the frequency range of the radio.

After selecting the frequency split the display will appear as follows:

ENTER COMB. DIGIT #5 ■

This digit is an indication of maximum channel capacity of the radio and must be as follows:

A = 12 frequencies (1 Mode x 12 Channels)

B = 24 frequencies (2 Modes x 12 Channels)

C = 36 frequencies (3 Modes x 12 Channels)

D = 48 frequencies (4 Modes x 12 Channels) (The Mode Switch is marked 1,2,3,4)

E = 48 frequencies (4 Modes x 12 Channels) (The Mode Switch is marked A,B,C,D)

F = 64 frequencies (8 Modes x 8 Channels)

T = 8 frequencies (With 8 different Channel Guard Tones)

On entering combination digit #5, the display will appear as follows:

STANDARD IF & OSC Y/N? ■

If the IF is standard, that is 21.4 MHz, a "Y" (Yes) would be entered. If an alternate IF is present, 23 MHz, a "N" (No) would be entered. If the answer is "Y" the computer will go directly to GE-STAR. If a "N" is entered the display would appear as follows:

ALT 23.0 MHz Y/N? ■

If "Y" or "N" is entered the display would appear as follows:

ALT 13.8 MHz OSC Y/N?

If "Y" or "N" is entered the display would appear as follows:

GE-STAR:

1 = NONE

2 = EVERY CHANNEL

3 = SPECIFIC CHANNELS

After selecting and entering the GE-STAR information, the display will appear as follows:

FIXED PRIORITY SCAN Y/N?

Upon entering "Y" or "N" the display will appear as follows:

HIGH/LOW POWER J1 Y/N?

Upon entering "Y" or "N" the display will appear as follows:

TYPE 99 SIGNALING Y/N?

Entering "Y" or "N" completes the Questions and Defaults section of the program. The program will automatically go to the FORMS Menu, displayed one line at a time and appears as follows:

	5th Digit "T"
1 = MODES	1 = CHANNELS
2 = OPTIONS	2 = CHANNEL GUARDS
3 = PRINT	3 = OPTIONS
4 = REVIEW/MODIFY COMPLETE	4 = PRINT
	5 = REVIEW/MODIFY COMPLETE

A selection of "4" will terminate inputting data to the Forms Menu.

The software to fill out the forms is easiest to follow, if the forms are filled out in the sequence given.

You may wish to review the discussion in the introduction on the up, down, left, and right arrow keys. Only one line of the form can be presented on the LCD screen at one time. Use of the arrow keys will enable you to see the other lines of the form. If an input error occurs, the Universal Radio Programmer (URP) will beep. Most of the errors that cause a beep will also have error messages associated with them.

To start down the forms menu press "1" (MODES OR CHANNELS).

The display will appear as follows:

(See "Radios with 5th Digit 'T'")

ENTER MODE (1-1): [1]

(1-1) indicates 1 mode out of 1 which means you can only select Mode 1. If the display were (1-2) you could select Mode 1 or Mode 2. Press the ↓ arrow .

The display will appear as follows:

TCG AND/OR DCG? [Y]

If Tone Channel Guard or Digital Channel Guard is to be present in the radio, press the ↓ arrow. If not present press "N". The display will appear as follows:

ENTER CHAN (1-1) [0] 1

Since this is Channel 1 and Mode 1, press the ↓ arrow. The display will appear as follows:

1-1 TX-FREQ: [0] 000.00000 MH

Enter the transmit frequency for Channel 1 in Mega Hertz. The decimal point should not be entered, it is already there. Each channel entered must be within 30 kHz for High Band or 25 kHz for UHF. The total frequency spread can not exceed 12 MHz without degradation.

NOTE

The receive circuit is limited to 4 MHz frequency spread without degradation.

The frequency range was entered earlier, in the Questions and Defaults section of the program, when the split was selected. If you enter an invalid frequency, the programmer will sound an alarm and display "LEGAL VALUES ARE 450-470 MHz"...etc.

Press the ↓ arrow. The display will appear as follows:

1-1 TX CG: [N] ONE

Channel Guard, in the MPS radio, can be either Tone or Digital. If Tone Channel Guard, the tone frequencies must be entered in the form ###.# and be in the tone frequency range from 67.0 - 210.7 Hz. (Refer to Channel Guard Tone frequencies listed in Table 1.) The decimal place in the form, ###.#, differentiates between Tone Channel Guard and Digital Channel Guard. A "0" to the right of the decimal place is valid as in the case of 67.0 Hz or 123.0 Hz.

Digital Channel Guard codes must be entered in the form ### (refer to Digital Channel Guard Codes also listed in Table 1). An INVERTED Digital Channel Guard Code is obtainable by entering an "I" preceeding the code. EXAMPLE: i023 or I023.

If you need to blank out a tone or code already entered, simply enter a "n" in the first location (Example: n23E). Press the ↓ arrow. When you return, by pressing the ↑ arrow, you will find NONE displayed.

If Tone or Digital Channel Guard is desired for Mode 1, Channel 1, transmit encode, enter the tone frequency or code and press the ↓ arrow. The display will appear as follows:

1-1 RX-FREQ: [0] 000.00000 MH

Enter the receive frequency of Channel 1 in Mega Hertz. The decimal need not be entered, it is already there. Each channel entered must be within 30 kHz for High Band or 25 kHz for UHF. The total frequency spread should not exceed 4 MHz without degradation in sensitivity.

The frequency range was entered earlier, in the Questions and Defaults section of the program, when the split was selected. If you enter an invalid frequency, the program will sound an alarm and display "LEGAL VALUES ARE 450-470 MHz"...etc.

Press the ↓ arrow. The display will appear as follows:

1-1 RX-CG: [N] ONE

If Tone or Digital Channel Guard is desired in Mode 1, Channel 1, receive, enter the tone or code as previously instructed. Press the ↓ arrow. The display will appear as follows:

DISABLE ENCODE Y/N? [N]

This feature allows you the option of disabling transmit encode for this particular channel. There may be times that some users wish to receive calls but NOT initiate calls to the caller. Make this selection by pressing the "Y" or "N" key.

If Yes to Type 99 signalling was entered in the Question/Defaults of the program, the display will appear as follows:

TYPE 99 SIGNALING Y/N?

The MPS radio with Type 99 signalling will decode Individual Call (Tone A and Tone B), Group Call (Tone A and Tone D), All Call (Tone C and Tone D), Metro Group Call (Tone C and Tone B) and Quick Call II (8 seconds of Tone B).

If Type 99 signalling is desired in Mode 1, Channel 1, enter Y. The display will appear as follows:

1-1 1ST TONE: [0] 000.0 Hz

Type 99 Tones are in the frequency range from 250.0 - 1476.0 Hz. Enter the 1st Tone (Tone A). Press the ↓ arrow. The display will appear as follows:

1-1 1ST ALT: [0] 000.0 Hz

Enter the alternate 1st Tone (Tone C). Press the ↓ arrow. The display will appear as follows:

1-1 2ND TONE: [0] 000.0 Hz

CHANNEL GUARD TONE FREQUENCIES					
67.0 Hz	88.5 Hz	103.5 Hz	123.0 Hz	146.2 Hz	173.8 Hz
74.4	91.5	107.2	127.3	151.4	179.9
77.0	94.8	110.9	131.8	156.7	186.2
79.7	97.4	114.8	136.5	162.2	192.8
82.5	100.0	118.8	141.3	167.9	203.5
85.4					210.7

STANDARD DIGITAL CHANNEL GUARD CODES							
023	072	152	244	331	423	532	662
025	073	155	245	343	431	546	664
026	074	156	251	346	432	565	703
031	114	162	261	351	445	606	712
032	115	165	263	364	464	612	723
043	116	172	265	365	465	624	731
047	125	174	271	371	466	627	732
051	131	205	306	411	503	631	734
054	132	223	311	412	506	632	743
065	134	226	315	413	516	654	754
071	143	243					

Table 2 - Channel Guard Tones and Digital Codes

Enter the 2nd Tone (Tone B). Press the ↓ arrow. The display will appear as follows:

1-1 2ND ALT: [0] 000.0 Hz

Enter the alternate 2nd Tone (Tone D). Press the ↓ arrow. The display will appear as follows:

1-1 DECODE 8 SEC [N]

The 8 second decode is needed when a Quick Call II is desired. Enter Y/N. The display will appear as follows:

GE-STAR ID DISABLE? [N]

NOTE

If NO was entered for Type 99 signalling in the Questions and Defaults section of the program, the program would go directly to the GE-STAR DISABLE? **display.**

This display will appear only if GE-STAR was selected in the Questions and Defaults section of the program.

There may be times when it is NOT desirable to transmit the GE-STAR ID. This selection is made by pressing "Y" or "N", then the ↓ arrow or since this is the last entry, press ENTER. All data for Mode 1, Channel 1 has now been entered.

The display will appear as follows:

ENTER CHANNEL (1-2): [0]1

The choice here is either Channel "1" or "2". Since Mode 1, Channel 1 was just entered, Mode 1, Channel 2 is now the obvious choice. Press the → arrow to move the cursor over one place. Press "2" then press the ↓ arrow.

The same series of questions will now be presented for Mode 1, Channel 2 as was presented for Mode 1, Channel 1. This process will continue until all channels in Mode 1 have been entered. When this occurs the program will return to the FORMS Menu:

1 = MODES

2 = OPTIONS

3 = PRINT

If there are other modes press "1". The display will appear as follows:

ENTER MODE (1-2): [1]

The choice here is either Mode "1" or "2". Since Mode "1" was entered Mode "2" is now the obvious choice. Press "2" then the ↓ arrow.

The same series of questions will now be presented for Mode 2 and all channels in Mode 2, that was presented for Mode 1 and all channels in Mode 1.

This process will continue until all data for all modes and channels has been entered. The program goes back to the FORMS Menu between each mode.

When the last mode is complete from the FORMS Menu, press "2 = OPTIONS" the display will appear as follows:

EMERG TX-FREQ: [0]000.00000 MZ

Enter the frequency in Mega Hertz of the GE-STAR Emergency Channel. Press the ↓ arrow. The display will appear as follows:

EMERG TX CG: [N] ONE

If an emergency transmit Channel Guard is desired, enter it as previously instructed. Press the ↓ arrow. The display will appear as follows:

PSLM MODE NUMBER: [1]

Enter the Mode where you want priority search lock monitor. Press the ↓ arrow. The display will appear as follows:

PSLM CHANNEL NUMBER [0]1

Enter the number of the priority channel. This is the last entry, press ENTER. The program will return to the FORMS Menu.

If "3" is pressed the program goes to a PRINT menu:

1 = MODES

2 = OPTIONS

3 = COMPLETE

If "1" is pressed a hard copy of the mode data will be printed out by the printer.

If "2" is pressed a hard copy of the option data will be printed out by the printer.

Pressing "3" returns the program to the FORMS Menu.

Pressing "4" on the FORMS MENU, REVIEW/MODIFY COMPLETE, causes the program to go to a WRITE TO menu:

1 = MPS EEPROM

2 = MPS RADIO

3 = MPS FILE

This menu gives the option of either programming an EEPROM alone, programming the MPS radio through an external cable and connector in the radio, or creating a file to be stored in the URP for use at a later time.

Enter a 1, 2 or 3 from the keyboard. After the programmer has written to the proper location it will return to the program menu.

Writing to the Radio:

To write to the MPS radio, programming cable TQ2331 must be connected

between the corresponding connector on the DATA I/0 module and J7 in the back of the radio. J7 is located just above and to the right of the CL module (refer to the applicable Maintenance Manual).

Radios with 5th Digit "T"

ENTER CHAN (1-1) [1]

Press the ↓ arrow. The display will appear as follows:

CH 1 TX-FREQ: [0] 000.00000 MH

Enter the transmit frequency in Mega Hertz. The decimal point should not be entered, it is already there. Each channel entered must be within 30 kHz for High Band or 25 kHz for UHF. The total frequency spread can not exceed 12 MHz without degradation.

NOTE

The receive circuit is limited to 4 MHz frequency spread without degradation in sensitivity.

The frequency range was entered earlier in the Questions and Defaults section of the program, when the split was selected. If you enter an invalid frequency, the programmer will sound an alarm and display "LEGAL VALUES ARE 450-470 MHz"...etc.

Press the ↓ arrow. The display will appear as follows:

CH 1 RX-FREQ: [0] 000.00000 MH

Enter the receiver frequency for Channel 1 in Mega Hertz. The decimal need not be entered, it is already there. Each channel entered must be within 30 kHz for High Band or 25 kHz for UHF. The total frequency spread should not exceed 4 MHz without degradation in sensitivity.

The frequency range was entered earlier in the Questions and Defaults section of the program, when the split was selected. If you enter an invalid frequency, the program will sound an alarm and display "LEGAL VALUES ARE 450-470 MHz"...etc.

Press the ↓ arrow. The display will appear as follows:

GE-STAR ID DISABLE? [N]

This display will appear only if GE-STAR was selected in the Questions and Defaults section of the program.

There may be times when it is not desirable to transmit the GE-STAR ID. This selection is made by pressing "Y" or "N", then the ↓ arrow or since this is the last entry, press ENTER. The display will appear as follows:

ENTER CHN (1-2) [1]

The choice is Channels 1 or 2. Since Channel 1 has been entered the obvious selection is 2. Enter 2 and press the ↓ arrow. The display will appear as follows:

CH 2 TX-FREQ: [0] 000.00000 MH

Enter the same type information for Channels 2 through 8 as entered for Channel 1. After Channel 8 has been entered and the display appears as below, press ENTER.

ENTER CHN (1-8) [1]

After a short delay the program will return to the FORMS menu.

Press 2 = CHANNEL GUARDS. The display will appear as follows:

1 CHAN GRD: [N] ONE

Channel Guard, in the MPS radio, can be either Tone or Digital. If Tone Channel Guard, the tone frequencies must be entered in the form ###.# and be in the frequency range from 67.0 - 210.7 Hz (refer to Channel Guard Tone frequencies listed in Table 1). The decimal place in the, form ###.#, differentiates between Tone Channel Guard and Digital Channel Guard. A "0" to the right of the decimal place is valid as in the case of 67.0 Hz or 123.0 Hz.

Digital Channel Guard codes must be entered in the form ### (refer to Digital Channel Guard codes, also listed in Table 1). An INVERTED Digital Channel Guard code is obtainable by entering an "I" preceeding the code. EXAMPLE: i023 or I023.

If you need to blank out a tone or code already entered, simply enter "n" in the first location (EXAMPLE: n23E). Press the ↓ arrow. When you return, by pressing the ↑ arrow, you will find NONE displayed.

Enter the desired Channel Guard tone or code for Channel Guard 1 as instructed. Press the ↓ arrow. The display will appear as follows:

2 CHAN GRD: [N] ONE

Enter the same type information for Channel Guards 2 through 8 as entered for Channel Guard 1. After Channel Guard 8 has been entered press ENTER. After a short delay, the program will return to the FORMS menu.

Press 3 = OPTIONS. The display appears as follows:

EMERG TX-FREQ: [0] 000.00000 MH

Enter the frequency in Mega Hertz of the GE-STAR Emergency Channel. Press the ↓ arrow. The display appears as follows:

EMERGENCY TX-CG: [N] ONE

If an emergency transmit Channel Guard is desired, enter it as previously instructed. Since this is the last entry press ENTER. The program will return to the FORMS menu.

If "4" is pressed the program goes to a PRINT menu:

1 = MODES

2 = OPTIONS

3 = COMPLETE

If "1" is pressed a hard copy of the mode data will be printed out by the printer.

If "2" is pressed a hard copy of the option data will be printed out by the printer.

Pressing "3" returns the program to the FORMS menu.

Pressing "5" on the FORMS MENU, REVIEW/MODIFY COMPLETE, causes the program to go to a WRITE TO menu:

1 = MPS EEPROM

2 = MPS RADIO

3 = MPS FILE

This menu gives the option of either programming an EEPROM alone, programming the MPS radio through an external cable and connector in the radio, or creating a file to be stored in the URP for use at a later time.

Enter a 1, 2 or 3 from the keyboard. After the programmer has written to the proper location it will return to the program menu.

Writing to the Radio:

To write to the MPS radio, programming cable TQ2331 must be connected between the corresponding connector on the DATA I/O module and J7 in the back of the radio. J7 is located just above and to the right of the CL module (refer to the applicable Maintenance Manual). The plug connecting to J7 in the radio has six connectors and can be plugged in only one way.

EPROM INSTALLATION

Programmed EPROMs for the various General Electric programmable mobile radios are required in the Program Storage Module before radio programming can be accomplished. These EPROMs are provided separately, as ordered, and are not initially installed in the Program Storage Module. The following installation procedure is suggested (refer to Figure 3):

NOTE

The EPROM devices can be destroyed by static discharges. Before handling one of these, the installer should be discharged by touching the test bench ground bus. The PW board and EPROM should also be at ground potential. EPROMs should be stored in conductive material.

1. Remove the Program Storage Module from the system I/O Module. Turn off the handheld computer before disconnecting.

2. Remove the four screws from bottom cover and open. Do not remove boards.

3. Install the first EPROM in socket 1, the second in socket 2, etc. (Note socket designations and numerical sequence. Programs will be displayed according to socket number).

4. Close the cover and replace the four screws in bottom.

5. Reinstall the Program Storage Module in the programmer.

PRINTER PAPER REPLACEMENT

(Refer to vendor instruction manual)

1. Remove paper cover by sliding in direction of arrow (away from printer head).

2. Remove paper spool.

3. Insert new roll of thermal paper with leading edge going into feed mechanism. Leading edge must come from bottom of roll.

4. Advance paper using paper feed knob. Note: Knob rotates in direction of arrow only.

5. Replace paper cover.

NOTE

Damage may result to thermal head if printer is activated without paper being set correctly.

IN CASE OF DIFFICULTY

It is possible that on occasion, unexplained problems will occur which may be caused by static electricity, jostling the unit, etc. The programmer may fail to operate as described or the word "RESET" may appear in the display. If this occurs, press CLEAR once to return to the start of the program being run. The data previously entered will be lost, but no data stored in files will be affected.

If "RESTART" appears, press CLEAR twice. This should return you to the primary menu.

If you cannot reach the primary menu by pressing CLEAR twice, turn the computer off by means of the ALL-OFF switch in the back of the unit. You will have to remove the I/O Adaptor from the case and the computer from the I/O adaptor to reach the switch. Wait about two minutes and turn the ALL-OFF switch on. Then using the AC Adaptor as a power source, press ON and then CLEAR. The word "RESTART" should appear in the display and pressing CLEAR again should display the primary menu. Otherwise the computer needs servicing.

NOTE

This procedure results in the loss of all internally stored files, including time and date.

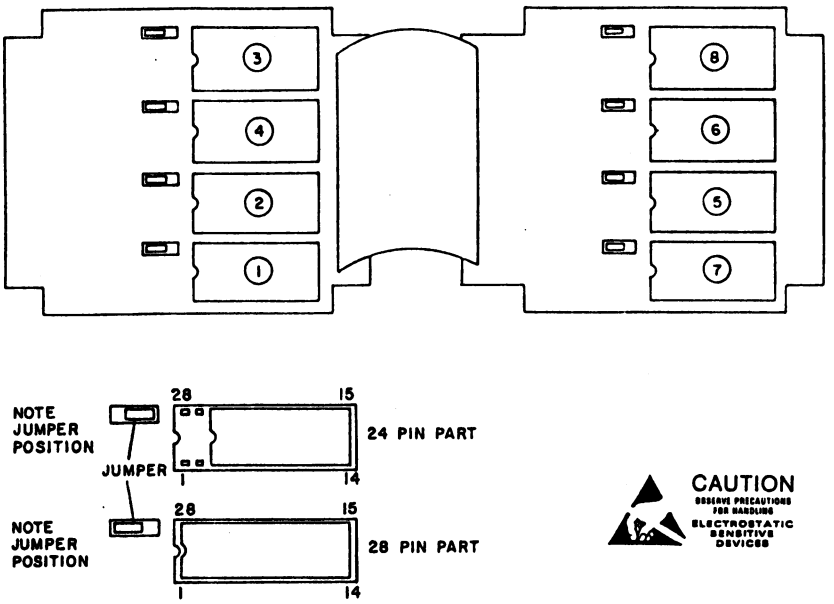

Figure 3 - Installation Instructions

GENERAL ELECTRIC COMPANY • MOBILE COMMUNICATIONS DIVISION
WORLD HEADQUARTERS • LYNCHBURG, VIRGINIA 24502 U.S.A.

GENERAL ELECTRIC*
U.S.A.

* Trademark of General Electric Company U.S.A.
Printed in U.S.A.