

# The *CHIPSWITCH*<sup>TM</sup>

**Enhanced Microcomputer  
for the  
UNIDEN  
HR2510, HR2600 & Lincoln  
Radios**

## **Operator's Manual**

***CHIPSWITCH*  
4773 Sonoma Hwy.  
Suite 132  
Santa Rosa, California  
95409-4269**

## **Copyright**

*Copyright (c) 1990, 1991 by Chipswitch. All rights reserved. No part of this product may be reproduced, transmitted, transcribed, stored in a retrieval system or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual, or otherwise, without the prior written permission of Chipswitch, 4773 Sonoma Highway, Suite 132, Santa Rosa, California, 95409-4269.*

## **Disclaimers**

*Chipswitch makes no representations or warranties with respect to the included microcomputer chip, the firmware program in the included microprocessor, and documentation herein described and especially disclaims any implied warranties of merchantability or fitness for any particular purpose. Further, Chipswitch reserves the right to revise the firmware program and associated documentation and to make changes from time to time in the content without obligation of Chipswitch Corporation to notify any person of such revisions or changes.*

## **Liability**

*Information furnished by Chipswitch is believed to be accurate and reliable. However, no responsibility is assumed by Chipswitch for its use; nor for any infringements of patents or other patent rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Chipswitch. Furthermore, no responsibility is assumed by Chipswitch for any damage to any type of equipment resulting from the installation or use of this product. The buyer assumes all responsibilities, legal and/or otherwise, associated with the purchase, installation, use, and consequential damages/fines/legal costs resulting from the acquisition or use of this product.*

## TABLE OF CONTENTS

Introduction . . . . .	1
Features . . . . .	1
Memory Channels . . . . .	1
Programmable Scan/Seek Function . . . . .	1
Programmable Channel Up/Down Buttons . . . . .	1
Programmable Microphone Buttons . . . . .	1
Programmable Transmitter Timeout . . . . .	1
Programmable Transmit Freq. Range . . . . .	2
Split Frequency Operation . . . . .	2
Priority Channel . . . . .	2
Miscellaneous Features . . . . .	2
"Phantom" Underline position . . . . .	2
Underline Moved from Microphone Buttons . . . . .	2
Programmable Button Repeat Rate . . . . .	2
Repeater Button on HR2600 Radios . . . . .	2
Radio's Two Functional Modes . . . . .	2
Operate Mode . . . . .	2
Program Mode . . . . .	2
Installation . . . . .	3
Hardware Installation . . . . .	3
First-Time Power Up . . . . .	3
Radio Type Selection . . . . .	3
When To Use Master Reset . . . . .	3
Operations . . . . .	3
Enable/Disable Functions . . . . .	3
Program Mode . . . . .	4
Memory Channel Temporary Lockout . . . . .	4
Scan Limits On/Off . . . . .	4
Split Frequency On/Off . . . . .	5
Operation in Split Frequency Mode . . . . .	5
Split Frequency Offset Polarity Change . . . . .	5
Priority Channel On/Off . . . . .	6
Go To Priority Channel . . . . .	6
Master Reset . . . . .	6
Using Split Frequency with Priority Channel . . . . .	6
Operate Mode . . . . .	7
Differences of Operation from UNIDEN Chip . . . . .	7
Bands . . . . .	7
Scan, Channel and Microphone Buttons . . . . .	7
Local "Beep" Tone . . . . .	7

## Table of Contents (Continued)

<b>Program Mode</b> . . . . .	<b>8</b>
<b>Entering Program Mode</b> . . . . .	<b>8</b>
<b>Programming the Features</b> . . . . .	<b>8</b>
<b>Reviewing what has been programmed</b> . . . . .	<b>8</b>
<b>Exiting Program Mode</b> . . . . .	<b>8</b>
<b>Programming</b> . . . . .	<b>9</b>
<b>Local "Beep" tone On Time</b> . . . . .	<b>9</b>
<b>Split Frequency Offset</b> . . . . .	<b>9</b>
<b>Split Frequency Offset Polarity</b> . . . . .	<b>9</b>
<b>Scan/Seek Lower Frequency Limit</b> . . . . .	<b>9</b>
<b>Scan/Seek Upper Frequency Limit</b> . . . . .	<b>9</b>
<b>Scan/Seek Function Select</b> . . . . .	<b>9</b>
<b>Scan Hold Time</b> . . . . .	<b>9</b>
<b>Seek Hold Time</b> . . . . .	<b>10</b>
<b>Channel Up/Down Button Function</b> . . . . .	<b>10</b>
<b>Microphone Up/Down Button Function</b> . . . . .	<b>10</b>
<b>Memory Channel Group 1 Frequencies</b> . . . . .	<b>10</b>
<b>Memory Channel Group 2 Frequencies</b> . . . . .	<b>10</b>
<b>Memory Channel Group 3 Frequencies</b> . . . . .	<b>10</b>
<b>Automatic Repeater Offset Programming</b> . . . . .	<b>10</b>
<b>Clearing Memory Channels</b> . . . . .	<b>10</b>
<b>Transmit Limits (lower)</b> . . . . .	<b>11</b>
<b>Transmit Limits (upper)</b> . . . . .	<b>11</b>
<b>Transmitter Timeout Timer</b> . . . . .	<b>11</b>
<b>Button Repeat Rate</b> . . . . .	<b>11</b>
<b>Priority Channel Frequency</b> . . . . .	<b>11</b>
<b>Priority Channel Function Select</b> . . . . .	<b>11</b>
<b>Miscellaneous Notes</b> . . . . .	<b>11</b>
<b>Default Values</b> . . . . .	<b>11</b>
<b>Erasing Frequency-Type Features</b> . . . . .	<b>11</b>
<b>Serial Number Display</b> . . . . .	<b>12</b>
<b>Error Messages</b> . . . . .	<b>12</b>
<b>Err 0</b> . . . . .	<b>12</b>
<b>Err 1</b> . . . . .	<b>12</b>
<b>Err 2</b> . . . . .	<b>12</b>
<b>Err 3</b> . . . . .	<b>12</b>
<b>Err 4</b> . . . . .	<b>12</b>
<b>PLL and/or VCO Problems</b> . . . . .	<b>12</b>
<b>Front Panel Enable/Disable Functions List</b> . . . . .	<b>12</b>

## 1.0 INTRODUCTION

The **HR2510/HR2600/LINCOLN** 10 METER Amateur Radio manufactured by UNIDEN Corporation of America does not encompass many of the useful and desirable features of the modern day Amateur radio. The *CHIPSWITCH* is a custom microcomputer chip (integrated circuit) designed to replace the existing UNIDEN microcomputer chip in these radios, thus providing many new features.

## 2.0 FEATURES

### 30 MEMORY CHANNELS WITH TEMPORARY CHANNEL LOCKOUT AND REPEATER OFFSETS

The original **HR2510/HR2600/LINCOLN** has basically one memory available to it in the sense that it remembers the frequency you were last on during a power interruption. The *CHIPSWITCH* supplies you with three groups of **MEMORY BANDS**. There are now ten (10) user programmable frequency channels available for each **MEMORY BAND**. You can elect to have repeater offsets to any of the stored memory channels. You are also provided with the ability to **lockout** any memory channel(s) temporarily during **SCAN/SEEK** functions.

### EXTENDED FREQUENCY COVERAGE (Requires optional hardware)

Along with the installation of the optional **12 Meter Modification Kit**, the *CHIPSWITCH* allows full coverage from **24.800 to 29.999 Mhz.** (12 - 10 Meters) **Note: A 12 Meter Modification Kit can be installed by an independent source. This source (Derrell) can be reached at (801) 269-0130 .**

### PROGRAMMABLE SCAN/SEEK FUNCTION

The original **HR2510/HR2600/LINCOLN** allows you to scan on an arbitrary "*band-basis.*" This new feature allows you to select a range of frequencies for **SCAN** and **SEEK** while in band 0, or **SCAN/SEEK** by memory channels in bands 1, 2, and 3. The **SCAN** feature allows you to set the "**hold-time**" (the amount of time the radio waits to resume its scan function after that particular frequency quiets down). The **SEEK** feature is identical to the **SCAN** except for when the radio is scanning and detects activity on a frequency, the radio will receive on that particular frequency for a user-programmed length of time before it continues the scan. **SCAN** and **SEEK** are completely user programmable in 5 or 10 Khz steps.

### PROGRAMMABLE CHANNEL UP/DN BUTTONS

This provides you with the ability to program the radio's channel up and down buttons to change channels/frequencies in any one of five (5) different ways.

### PROGRAMMABLE MICROPHONE CHANNEL UP/DN BUTTONS

This provides you with the ability to program the microphone channel up and down buttons to change channels/frequencies in any one of eight (8) different ways.

### PROGRAMMABLE TRANSMITTER TIMEOUT

This feature provides the radio with a built-in QSO timer. This feature, when enabled, triggers a programmable timer the moment the radio starts transmitting. When the user programmed length has been achieved, the radio will stop transmitting. To continue transmitting, just release and press the microphone **PTT** (Push-To-Talk) Button.



### **PROGRAMMABLE TRANSMIT FREQUENCY RANGE**

This provides you with the ability to program a range of frequencies to operationally transmit on. In this mode of operation, you still have the ability to receive frequencies out of the user-programmed range but can not transmit on them.

### **SPLIT FREQUENCY OPERATION**

When enabled, this allows you to transmit on one frequency and receive on another.

### **PRIORITY CHANNEL (Requires optional hardware)**

Priority channel operations allow you to program any frequency (i.e., home frequency) and have the **HR2510/HR2600/LINCOLN** check this frequency while you are on another, at a user-programmed rate.

### **MISCELLANEOUS**

- \* The "SPAN UNDERLINE CURSOR" now has a "*phantom*" 4th position (3 underline bars) cursor. This enables you to go through the band in 100 Khz increments. This "*phantom*" 4th position is indicated by 3 cursers.
- \* The "SPAN UNDERLINE CURSOR" can be moved by pressing both microphone buttons at the same time.
- \* The button repeat rate is now programmable.
- \* The internal "*button beep*" duration is now programmable from 0 to 0.5 seconds.
- \* The "RPTR" button on the **HR2600**, when depressed, will transmit the CTCSS tone to open up a repeater station. Repeater offset selection is required when programming memory frequencies.
- \* The **HR2510/HR2600/LINCOLN** now has two functional modes:

#### **OPERATE MODE**

This mode is the radio's normal mode.

#### **PROGRAM MODE**

The front panel controls are used to program information the radio will use during **OPERATE MODE** (i.e., memory channel frequencies, split channel, scan functions, etc.). The radio will not transmit while in the **PROGRAM MODE**.

### 3.0 INSTALLATION

## !! W A R N I N G !!

The *CHIPSWITCH* Central Processing Unit (CPU) is a **STATIC SENSITIVE DEVICE** and should **NOT** be removed from its black anti-static shipping box until you are told to do so in the **HARDWARE INSTALLATION GUIDE**.

#### 3.1 HARDWARE INSTALLATION

PLEASE REFER TO THE HARDWARE INSTALLATION GUIDE.

#### 3.2 FIRST TIME INSTALL / POWER UP

The first time the *HR2510/HR2600/LINCOLN* is powered up, after the *CHIPSWITCH* has been installed, you will be required to enter the type of radio you are using. The radio will display "**HR2510**" as the first choice, "**HR2600**" as the second choice and "**LINCOLN**" as the third. Press the **Span** button until the type of radio you have is displayed on the readout. Then press the **Band** button to enter that selection into the microcomputer's memory. You are only required to do this when the *CHIPSWITCH* is installed into your radio for the first time or if you issue a **MASTER RESET** command.

**Note:**

If your radio is turned off for an extended period of time, or if a severe electrical disturbance (sparking wires, shorts, etc) is caused on the power supply to the radio, the internal memory inside the microcomputer chip may "forget" what you have programmed into it. If this should happen, your radio will display "**HR2510**" and you will need to re-program it just as you did when the chip was first installed. Also, a severe electrical disturbance may cause your radio's memory to become "confused", causing improper frequencies or strange characters to be displayed on the readout. If this should happen, invoke a **MASTER RESET** function and then re-program the radio.

### 4.0 OPERATIONS

#### 4.1 ENABLE/DISABLE FUNCTIONS

While the *HR2510/HR2600/LINCOLN* is in **OPERATE MODE**, you can **enable** or **disable** any of the radio's major functions from the front panel. Some of these functions are not operational in specific "**BANDS**." The display segments to the left of the frequency readout, and the band indicator are used to indicate which function(s) are enabled. (see below)

<u>FUNCTION</u>	<u>BAND</u>	<u>INDICATION</u>	<u>KEYS PRESSED</u>
Program Mode En/Disable	0,1,2,3	P (Band pos)	F.lock/Meter <sup>(3)</sup> /Chan Up
Memory Chan Temp. Lockout	1,2,3	Top Bar	F.lock/Scan/Chan DN
Scan Limits ON/OFF	0	Bottom Bar	F.lock/Band/Scan
Split Freq. OPNS. ON/OFF	0	H/L	F.lock/Band/Chan DN
Split Freq OFFSET change <sup>(1)</sup>	0	H/L	F.lock/Scan/Chan UP
Priority Channel ON/OFF <sup>(2)</sup>	0,1,2,3	Flashing Band	F.lock/Scan/Chan UP
Go to PRIORITY CHANNEL <sup>(2)</sup>	0,1,2,3	P	F.lock/Scan/Meter <sup>(3)</sup>
MASTER RESET	0,1,2,3	Hr2510	F.lock/Scan/Meter <sup>(3)</sup> /PwrON

NOTE: (1) This function will only work if **PRIORITY CHANNEL** frequency is not programmed.  
 (2) This function will only work if **PRIORITY CHANNEL** frequency is programmed.  
 (3) On the *LINCOLN* radio, use **INDICATOR** instead of **METER**.

#### 4.1.0 PROGRAM MODE

This function enables you to program the new **CHIPSWITCH** features on the **HR2510/HR2600/LINCOLN**.

- Step 1. Press the **F.lock** button in
- Step 2. Press the **Meter (INDICATOR for the LINCOLN)** and **CHAN UP** buttons simultaneously

The **radio** notifies you that you are in **PROGRAM MODE** with "**4 beeps.**" and a "**P**" displayed in the **Band** indicator. At this point, you are able to program any of the **46 FEATURES** outlined in the **PROGRAMMING** section of this manual.

#### 4.1.1 MEMORY CHANNEL TEMPORARY LOCKOUT

This enables you to temporarily lockout any user-programmed frequency(s) for **SCAN** and **SEEK** functions. To enable or disable this toggle function:

- Step 1. Assuming frequencies were programmed into any **memory group**, go to any **MEMORY BAND (Band 1, 2 or 3)** where you wish to **scan** or **seek**
- Step 2. Choose the frequency(s) you wish to lockout temporarily using the **CHAN UP** or **CHAN DN** buttons
- Step 3. Press the **F.lock** button in
- Step 4. Press **Span** and **CHAN DN** buttons simultaneously (Top bar indicator comes on)
- Step 5. Release the **F.lock** button
- Step 6 Start the **SCAN** or **SEEK** function

At this point the frequency(s) that were "**locked-out**" will not be included when you perform the **SCAN** or **SEEK** function on that particular **MEMORY GROUP**.

#### 4.1.2 SCAN LIMITS ON/OFF

This toggle function allows you to enable or disable the **SCAN** and **SEEK** frequency limits for **Band 0**. If this toggle function is enabled, and a **lower** and an **upper** frequency limit is programmed in **FEATURE 3 and 4**, the radio will scan or seek only between these frequencies. To enable and use this feature:

- Step 1. You must be in **Band 0**, and have **FEATURE 3 and 4** programmed with the limits
- Step 2. Press the **F.lock** button in
- Step 3. Press the **Band** and **Span** buttons simultaneously (Bottom bar indicator comes on)
- Step 4. Release the **F.lock**
- Step 5. Press the **Scan** button

At this point the **radio** will either **SCAN** or **SEEK** depending on the value programmed in **FEATURE 5**. If a **scan** value (0-3) is programmed in **FEATURE 5**, the **scan** hold time rate will be determined by **FEATURE 6**. **Squelch** has to be closed for the **SCAN** function to work properly. If a **seek** value (4-7) is programmed in **FEATURE 5**, the **seek** hold time will be determined by **FEATURE 7**.

**SCAN** and **SEEK** also functions in **BAND 1, 2 and 3**. The difference being that in these **memory bands**, you either **scan** or **seek** through the **MEMORY CHANNELS** previously programmed in these **MEMORY BANDS**.



#### 4.1.3 SPLIT FREQUENCY OPERATIONS ON/OFF

This toggle function allows you to transmit on one frequency while receiving on another. **Split Frequency** is only available in Band 0. To enable and use this function:

- Step 1. Go into **PROGRAM MODE**
- Step 2. Go to **FEATURE 1** and enter a value for your **TX/RX** offset (000.1 - 999.9)
- Step 3. Go to **FEATURE 2** and choose whether the offset will be **positive (1)** or **negative (0)**
- Step 4. Exit **PROGRAM MODE** (Now you must be in Band 0)
- Step 5. Press the **F.lock** button in
- Step 6. Press **BAND** and **CHAN DN** buttons simultaneously. Either an **"H"** or **"L"** indicator will come up depending on the value programmed in **FEATURE 2**.
- Step 7. Release the **F.lock** button
- Step 8. Choose a *receive frequency*

At this point you are ready to communicate in **SPLIT FREQUENCY** mode.

#### OPERATING IN SPLIT FREQUENCY MODE

To use this function reliably, the two parties involved in the QSO must be versed on operating split channels. Two users are mentioned in the explanation below, **OPERATOR A** and **OPERATOR B**, to better understand the procedures.

- Step 1. **OP A** and **OP B** must have the **SAME** offset programmed in **Feature 1**
- Step 2. **OP A** and **OP B** must have **OPPOSITE** polarity programmed in **Feature 2**
- Step 3. **OP A** chooses his **receive** frequency using the **VFO**, **CHAN UP/DN** or **MIC UP/DN** buttons
- Step 4. **OP B** moves to his **receive** frequency, which is **OP A's** transmit frequency, using the **VFO**, **CHAN UP/DN** or **MIC UP/DN** buttons

**Note:**

**OP B's** receive frequency = (**OP A's** receive frequency)+ or -(offset in **Feature 1**) The + or - is determined by **OP A's** polarity in **Feature 2**.

- Step 5. **OP A** and **OP B** enables **SPLIT FREQUENCY OPERATIONS**
- Step 6. **START COMMUNICATION**

#### 4.1.4 SPLIT FREQUENCY POLARITY CHANGE

The **SPLIT FREQUENCY POLARITY** is initially programmed in the **PROGRAM MODE**. In some instances, you may wish to change polarity without having to go into Program mode. To use this feature:

- Step 1. Press **F.lock** button in
- Step 2. Press **Scan** and **CHAN UP** buttons simultaneously
- Step 3. Release the **F.lock** button

**Note:**

This toggle function will only work if **PRIORITY CHANNEL** frequency is not programmed. (Because the same buttons are used for both, and **PRIORITY CHANNEL ON/OFF** function has precedence)

#### 4.1.5 PRIORITY CHANNEL ON/OFF (Requires optional Priority Board)

This function, when enabled, allows you to continuously monitor one frequency while operating on another. To enable this function:

- Step 1. Go into **PROGRAM MODE**
- Step 2. Enter a frequency in **FEATURE 44**
- Step 3. Exit **PROGRAM MODE**
- Step 4. Press the **F.lock** button in
- Step 5. Press the **Scan** and **CHAN UP** buttons simultaneously
- Step 6. Release the **F.lock** button

#### 4.1.6 PRIORITY CHANNEL CHECK & LOCK

**FEATURE 45** allows you to select **PRIORITY CHANNEL** functionality. If you choose a value between **0** and **3**, the **priority channel** selected in **FEATURE 44** will be checked and the radio "**beeps**" you of any activity on that channel. This **feature** only notifies you of activity on the **priority channel**. To lock on to the **priority channel**, you will have to:

- Step 1. Press the **F.lock** button in
- Step 2. Press **Scan** and **METER (INDICATOR for the LINCOLN)**
- Step 3. Release the **F.lock** button

If you choose a value between **4** and **7**, the **priority channel** will be checked for activity. If the **squelch** is broken, the radio will "**lock**" on to the **priority channel** and remain there until the activity ceases. To keep the radio from returning to the original operating frequency when activity ceases on the **priority channel**, press the **F.lock** button in.

#### 4.1.7 MASTER RESET

- Step 1. Power off the radio
- Step 2. Press the **F.lock** button in
- Step 3. Press and hold the **SCAN** and **METER (INDICATOR for the LINCOLN)** and turn the radio on all at the same time

This **FUNCTION** erases all user programmed values and installs the factory default values. This **FUNCTION** also brings the radio to a "**First-Time Install**" state.

#### 4.1.8 USING SPLIT CHANNEL with PRIORITY CHANNEL FUNCTION

If both the **SPLIT FREQUENCY OPERATIONS** and **PRIORITY CHANNEL** functions are enabled, the **SPLIT FREQUENCY OFFSET CHANGE** function is disabled because, the same set of keys is used to enable the **PRIORITY CHANNEL** function. With the **squelch** closed, the **SPLIT FREQUENCY OPERATIONS** will function as it should. As soon as the **priority channel squelch** is broken, the radio will switch to the **priority channel**. If you lock on to the **priority channel** and transmit at this time, both the **SPLIT FREQUENCY OPERATIONS** and **PRIORITY CHANNEL** functions will be disabled and you will be transmitting on the **priority channel**.

## 5.0 OPERATE MODE

While in the **OPERATE MODE**, all original radio functions and buttons work as they did before **EXCEPT** for the following:

**BANDS:** (Selected by pushing the **BAND** Button)

<u>BAND</u>	<u>NAME</u>
0	Frequency Band
1	Memory Group 1
2	Memory Group 2
3	Memory Group 3
4	Citizens' Band

### FREQUENCY BAND (0)

This is the entire tuning range of the **HR2510/HR2600/LINCOLN**. Some user defined functions in **PROGRAM MODE** are available only on this band (i.e., **SCAN/SEEK LIMITS**, **SPLIT FREQUENCY OPERATION**). The radio's **Channel UP/DN** and the **Microphone UP/DN** buttons control any frequency change as selected in the **PROGRAM MODE** features 8 and 9. The radio's **VFO** knob works as before.

### MEMORY GROUP 1 (1)

A maximum of **10 frequencies** can be stored in this memory group. In this band, channel numbers (**0 - 9**) appear on the display with the user-programmed frequencies. A **minus (-) 100 Khz REPEATER OFFSET** can be selected on a channel-by-channel basis in the **PROGRAM MODE**. This is indicated by the **blinking 10MHz digit** of the front panel display. Frequencies/channels previously programmed can be temporarily **locked-out** from the **SCAN/SEEK** function using the **MEMORY LOCKOUT FUNCTION**.

### MEMORY GROUP 2 (2)

This is the second group of memory channels and is operationally identical to **MEMORY GROUP 1 (1)**.

### MEMORY GROUP 3 (3)

This is the third group of memory channels and is operationally identical to **MEMORY GROUP 1 (1)** and **MEMORY GROUP 2 (2)** **EXCEPT** this band operates on a **PLUS (+) 100 KHz REPEATER OFFSET** if this option is chosen in the **PROGRAM MODE**.

### SCAN, CHANNEL UP/DN, AND MIC UP/DN

These functions are user-programmable in the **PROGRAM MODE**.

### LOCAL BEEP TONE

The local beep tone can now be disabled or programmed from  $1/20^{\text{th}}$  second "click" to a  $1/2$  second long tone.

## 6.0 PROGRAM MODE

Most of the features have been pre-programmed from the factory and will have default values stored in memory. You will have to determine which features (detailed in the next section) you wish to change.

To enter **PROGRAM MODE**:

- Step 1. Press the **F.lock** button in
- Step 2. Press the **CHANNEL UP** and **METER** buttons simultaneously

When the **HR2510/HR2600/LINCOLN** goes into **PROGRAM MODE** you are notified by "**4 - beeps**" and the **BAND** indicator will display a "**P**" indicating the radio is in **PROGRAM MODE**. In this mode, the **METER** display (**RF, MOD, ^, SWR**) will be blank. The **CHANNEL NUMBER** display will show "**0**" indicating the first enhanced **FEATURE (BEEP ON-TIME)** programmable by you. The **FREQUENCY** display will have the right-most digit (**100Hz**) illuminated with the default value for this **FEATURE**.

You can review/change the values of any of the **46 FEATURES** using the **CHANNEL UP/DN** buttons and **VFO** knob of the radio. The **Channel Up/Dn** buttons select which **FEATURE**, and the **VFO KNOB** changes the **VALUE** of that feature.

**CAUTION:** Leave the **F.lock** button depressed to prevent accidental programming if you are just going to view the programmable features. If you plan to change the value for a particular **FEATURE**, the **F.lock** button must be in the "**out**" position for the **VFO** knob to work.

To exit the **PROGRAM MODE**:

- Step 1. Press the **F.lock** button in
- Step 2. Press the **CHANNEL UP** and **METER** buttons simultaneously

The radio will "**beep**" once and return to the **OPERATE MODE**.

### ENABLE/DISABLE FUNCTIONS (Repeated from page 3)

While the **HR2510/HR2600/LINCOLN** is in **OPERATE MODE**, you can **enable** or **disable** any of the radio's major functions from the front panel. Some of these functions are not operational in specific "**BANDS**." The display segments to the left of the frequency readout, and the band indicator are used to indicate which function(s) are enabled. (see below)

<u>FUNCTION</u>	<u>BAND</u>	<u>INDICATION</u>	<u>KEYS PRESSED</u>
Program Mode En/Disable	0,1,2,3	P (Band pos)	F.lock/Meter <sup>(3)</sup> /Chan Up
Memory Chan Temp. Lockout	1,2,3	Top Bar	F.lock/Scan/Chan DN
Scan Limits ON/OFF	0	Bottom Bar	F.lock/Band/Scan
Split Freq. OPNS. ON/OFF	0	H/L	F.lock/Band/Chan DN
Split Freq OFFSET change <sup>(1)</sup>	0	H/L	F.lock/Scan/Chan UP
Priority Channel ON/OFF <sup>(2)</sup>	0,1,2,3	Flashing Band	F.lock/Scan/Chan UP
Go to PRIORITY CHANNEL <sup>(2)</sup>	0,1,2,3	P	F.lock/Scan/Meter <sup>(3)</sup>
MASTER RESET	0,1,2,3	Hr2510	F.lock/Scan/Meter <sup>(3)</sup> /PwrON

- NOTE: (1) This function will only work if **PRIORITY CHANNEL** frequency is not programmed.  
 (2) This function will only work if **PRIORITY CHANNEL** frequency is programmed.  
 (3) On the **LINCOLN** radio, use **INDICATOR** instead of **METER**.



## 7.0 PROGRAMMING

Following is a detailed explanation of all the **PROGRAMMABLE FEATURES** and how you can program each individual **FEATURE**:

FEATURE NAME	DESCRIPTION	VALUE
0 BEEP ON-TIME	duration of the "beep" tone whenever certain buttons are pressed.	0 = OFF 1 = 1/20 <sup>th</sup> sec 2 = 1/10 <sup>th</sup> sec (DEFAULT) 3 = 1/5 <sup>th</sup> sec 4 = 1/2 sec
1 SPLIT FREQUENCY OFFSET	transmit offset	OFFSET (000.1 - 999.9KHz)
2 SPLIT FREQUENCY OFFSET POLARITY	transmit offset polarity (positive/negative)	0 = Neg. (L) (DEF.) 1 = Pos. (H)
3 SCAN/SEEK LOWER FREQUENCY LIMIT	lower limit used during scan/seek operations in Band 0	FREQUENCY
4 SCAN/SEEK UPPER FREQUENCY LIMIT	upper limit used during scan/seek operations in Band 0	FREQUENCY

**NOTE: SCAN/SEEK** by these limits is only functional in **Band 0**. If no values are entered in **feature 3** and **feature 4**, the radio's lowest and highest operational limits are used as defaults during **SCAN/SEEK**.

5 SCAN/SEEK FUNCTION SELECT

**SEEK** is identical to **SCAN** except **SEEK** will resume after [seek hold time] delay, regardless of activity on frequency.

ZLD = Zero Lower Digit(s)  
SLD = Skip Lower Digit(s)

VALUE	BAND 0	BANDS 1, 2, 3
<b>SCAN</b>		
0	10 KHz ZLD	SCAN MEMORY CHANNELS
1	10 KHz SLD	
2	5 KHz ZLD	
3	5 KHz SLD	
<b>SEEK</b>		
4	10 KHz ZLD	SEEK MEMORY CHANNELS
5	10 KHz SLD	
6	5 KHz ZLD	
7	5 KHz SLD	

6 SCAN HOLD TIME

the delay from when a remote station quits transmitting and the scan sequence continues on your **HR2510/HR2600/LINCOLN**

0 = .5 sec  
1 = 1 sec  
2 = 2 sec  
3 = 3 sec (DEF.)  
4 = 4 sec  
5 = 5 sec  
6 = 6 sec  
7 = 7 sec

7	SEEK HOLD TIME	When in seek mode, the delay from when the radio begins receiving a signal and the seek sequence continues	0 = .5 sec 1 = 1 sec 2 = 2 sec 3 = 3 sec 4 = 4 sec (DEF.) 5 = 5 sec 6 = 6 sec 7 = 7 sec
8	CHANNEL UP/DN BUTTON FUNCTION	defines what the CHANNEL UP and CHANNEL DOWN buttons will do in BAND 0	0 = 10KHz,ZLD (DEF.) 1 = 10KHz,SLD 2 = 5KHz,ZLD 3 = 5KHz,SLD 4 = 100Hz 5 = Underlined digit
9	MICROPHONE UP/DN BUTTON FUNCTION	defines what the CHANNEL UP and CHANNEL DOWN buttons on the microphone will do	0 = 10KHz,ZLD (DEF.) 1 = 10KHz,SLD 2 = 5KHz,ZLD 3 = 5KHz,SLD 4 = 100Hz 5 = Underlined Digit 6 = In BAND 0 do as FEATURE 8. In BAND 1, 2, 3 or 4, change CH. NO. 7 = In BAND 0-3 do as FEATURE 8. In BAND 4 change CHAN. NO.
10-19	MEMORY GROUP 1 (CHANNEL 0 - 9)	10 channels can be defined under this memory group	FREQUENCY
20-29	MEMORY GROUP 2 (CHANNEL 0 - 9)	10 channels can be defined under this memory group	FREQUENCY
30-39	MEMORY GROUP 3 (CHANNEL 0 - 9)	10 channels can be defined under this memory group	FREQUENCY

**NOTE:** To use the automatic minus (-) 100KHz repeater offset under MEMORY GROUP 1 and 2, press the SCAN button after entering the frequency. The 10MHz digit will blink to indicate that this channel has been programmed to use the OFFSET option. To disable, press the SCAN button again.

**NOTE:** To use the automatic plus (+) 100KHz repeater offset under MEMORY GROUP 3, press the SCAN button after entering the frequency. The 10MHz digit will blink to indicate that this channel has been programmed to use the OFFSET option. To disable, press the SCAN button again.

Any memory channel with a frequency of 00.000.0 is un-programmed and will be skipped during the OPERATE MODE. To erase a frequency from any MEMORY GROUP, ensure the F.lock button is out, then press the BAND button to set the frequency to 00.000.0.

40	<b>TX LOWER FREQUENCY LIMIT</b>	defines the lowest operational transmit frequency for the <b>HR2510/HR2600/LINCOLN</b>	<b>FREQUENCY</b>
41	<b>TX UPPER FREQUENCY LIMIT</b>	defines the highest operational transmit frequency for the <b>HR2510/HR2600/LINCOLN</b>	<b>FREQUENCY</b> (must be a higher value than #40)
42	<b>TX TIMEOUT</b>	when enabled, timer starts as soon as the <b>HR2510/HR2600/LINCOLN</b> starts transmitting and counts up the user specified length of time. The radio will stop transmitting and display " <b>Err 0</b> " when the timer has expired.	0 = DISABLED (DEF.) 1 = 25 sec 2 = 42 sec 3 = 58 sec 4 = 75 sec 5 = 92 sec 6 = 109 sec 7 = 126 sec
43	<b>REPEAT KEY SPEED</b>	this allows you to change the repeat key rate of the CHAN UP/DN and MIC UP/DN buttons.	0 = fast 9 = slow 2 = DEFAULT
44	<b>PRIORITY CHANNEL</b>	user priority frequency (i.e., home frequency)	<b>FREQUENCY</b>

**NOTE: REQUIRES ADDITIONAL HARDWARE TO FUNCTION PROPERLY**

45	<b>PRIORITY CHANNEL FUNCTION SELECT</b>	allows you to select which type of priority channel checking will be used. The first four choices check the priority channel and " <b>beeps</b> " you for any activity  The second four choices check priority channel and " <b>locks</b> " on the channel when there is activity	<b>CHECK &amp; BEEP</b> 0 = 2 sec (DEF.) 1 = 4 sec 2 = 6 sec 3 = 8 sec  <b>CHECK &amp; LOCK</b> 4 = 2 sec 5 = 4 sec 6 = 6 sec 7 = 8 sec
----	---	---	---

**NOTES: (DEF) =** The first time the **CHIPSWITCH** is installed on the **HR2510/HR2600/LINCOLN**, these are the values that will be displayed upon entering **PROGRAM MODE**.

Any frequency type feature may be erased in program mode by pressing the **BAND** button with the **F.Lock** button out.

## 8.0 SERIAL NUMBER DISPLAY

To display the **SERIAL NUMBER** of the **CHIPSWITCH** chip, perform the following:

- a. Prepare to enter **PROGRAM MODE**. Hold the microphone in one hand and prepare the other hand to press the buttons necessary to enter the **PROGRAM** mode.
- b. Press the buttons necessary to enter **PROGRAM MODE**. **AFTER** the first of the 4 "beeps" but **BEFORE** the end of the 4th "beep", press in the microphone's **PTT** (transmit) button.
- c. The chip's **serial number** will now be displayed for as long as you keep holding in the mike's **PTT** button.

Note: This is useful in case you ever need to know the chip's serial number but don't have it written down.

## 9.0 ERROR MESSAGES

If the **HR2510/HR2600/LINCOLN** detects an error with any of the programmed data, or during **OPERATE MODE**, an **ERROR CODE** will be displayed on the frequency display. The format of the **ERROR CODE** is as follows:

"Err X"

where X is:

- 0 = Transmitter Timeout timer has timed-out
- 1 = Transmit Frequency is lower than TX Lockout Lower Limit (programmed)
- 2 = Transmit Frequency is greater than TX Lockout Higher Limit
- 3 = Phase-locked-loop (PLL) won't lock at this transmit frequency
- 4 = PLL is intermittently coming out of lock during transmit

If your radio displays error 3 or 4, don't keep trying to transmit on this frequency. The cause of the problem could be low power supply voltage to the radio or the radio's **VCO** loop needs adjustment. Refer to a qualified technician for service. In the USA call Derrell at (801) 269-0130.