Guide to the
FAIRMATE HP100E

Operations
Applications
Accessories
Reference
POWER SOURCE INFORMATION HP-100E

The HP-100E is supplied with 4 pcs. 600 mAh NICAD batteries, which are suggested to be fully charged on the purchase of the unit. When the HP-100E is connected to an external Power source ie, 12 volt DC supply in a car, truck etc. or an AC mains to a 12 volt DC power supply, then the external power source will automatically charge the NICAD batteries, even with the HP-100E switched OFF or ON. This is a great advantage over most other scanners. The HP-100E obviously does NOT require a special charger!

The requirement from an external power source is 12 volt DC at 150 mA. If you wish to use 4 pcs. dry cell AA size at any time then you may do so!

It is not recommended that you connect the HP-100E to an external power source when using DRY cells....! But if you do forget then there will be NO serious damage and NO danger. The HP-100E requires no memory back-up battery due to the use of EEPROM technology!

The use of NICAD batteries is highly recommended. Firstly the cost ratio NICAD batteries may be charged over 1000 times (that's nearly 3 years at a charge a day). How many dry batteries would you use in 3 years? Secondly all those hundreds of dry batteries you would have to be disposed of....!

NICAD batteries may develop a "memory" condition. This condition may influence their charging and also limit the amount of battery power available. Every few months the NICAD pack should be discharged then fully charged at the recommended rate.

UNDERSTANDING THE FAIRMATE HP-100E CONTROLS

1. Power on-off volume control. Switches HP-100E on or off and also controls the audio output level.
2. Squelch control. Used to cut out background noise. Slowly rotate clockwise to the point where the background noise just stops. Do not set the squelch control too far clockwise, or weak signals will not open squelch circuit. The squelch mode must be ON for the HP-100E to operate in scan or search modes.
3. Attenuator reduces receive signals by -10 dB.
4. Rotary UP-DOWN switch used for changing channels-frequency up or down.
5. BNC Antenna socket
6. External speaker or earphone socket 3.5 mm ø
7. External 12 volt DC supply socket 1.3 mm ø

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8. LCD (liquid crystal display) window
9. Keypad
10. Internal loudspeaker
11. Lamp switch
12. Key lock switch
13. Antenna
14. Earphone
15. Attenuator switch
16. UP-DOWN switch
17. LCD window
18. Lamp switch
19. Key board
20. External speaker or earphone socket
21. DC supply socket/charge
22. Internal loudspeaker
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⑧ LCD (liquid crystal display) window
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⑩ Internal loudspeaker
⑪ Lamp switch
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⑬ EARPHONE
⑭ EARPHONE
⑮ ANTENNA
⑯ ANTENNA
⑰ ATT SW
⑱ UP-DOWN SW
⑲ UP-DOWN SW
⑳ LCD WINDOW
㉑ POWER ON-OFF/VOLUME
㉒ POWER ON-OFF/VOLUME
㉓ SQUELCH
㉔ SQUELCH
㉕ INTERNAL LOUDSPEAKER
㉖ DC SUPPL VOLTAGE SOCKET/CHARGE
㉗ KEY LOCK SW
㉘ KEY BOARD
㉙ LAMP SW
INTRODUCTION TO THE FAIRMATE HP-100E 1000 CHANNEL SCANNING COMMUNICATIONS RECEIVER

The Fairmate HP-100E is the world's first 1000 channel programmable scanner monitor receiver. The HP-100E offers very wideband frequency coverage from 15-590 MHz with NO gaps and also from 805-1300 MHz NO gaps! The HP-100E offers also, as a first in a pocket scanner, a choice of 3 modes ie; Amplitude modulation (AM), Narrow band FM (NFM) and also Wideband FM (WFM) on all frequency ranges! The HP-100E comes complete with 2 different antennas, this allows for the best reception over the very wideband frequency coverage. The short antenna is most suited for the 805-1300 MHz band. A wide range of accessories is included with the HP-100E as standard (not as optional extra cost items as many other brands). They include carrying case, belt clip, 2 antennas, DC 12 volt cable with cigar plug for car use, shoulder strap, earphone and 4 AA size NICADs.

Features
The Fairmate HP-100E uses the latest state-of-the-art microcomputer technology with 1000 programmable channels.

Search Bands
The HP-100E offers the choice of 10 separate search bands. Each search band can have its own upper and lower frequency limits. Free selection of modes ie; AM-NFM-WFM and also free selection of channel steps may be used on all bands.

1000 Memory Channels
The HP-100E offers 1000 channels, which may be programmed into 10 banks of 100 channels each bank. Any mode AM-NFM-WFM may be used on any channel. Clear indication of which band and which channel is in use is shown on the LCD (liquid crystal display) window.

AM-NFM-WFM Modes
The HP-100E allows you to listen on either AM-NFM-WFM on any channel from 15-560 MHz and also on 805-1300 MHz. The WFM mode is most suitable for FM-TV broadcast stations for music etc.

Attenuator
In case of very strong signals interference etc. you may bring into circuit an attenuator with about -10 dB of attenuation via LDC-DX switch.

Up-Down Rotary Switch
The HP-100E is the world's first pocket scanner that offers the state-of-the-art UP or DOWN frequency step or channel step rotary switch. In manual or search modes you may step UP or DOWN within the range of 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 KHz up to 995 KHz. In the scan mode you may use this rotary switch to go UP or DOWN the channels. No more key pressing...! Power Source
The HP-100E has 3 power sources. 1. Using 4 pcs. AA size NICAD batteries. 2. Using 4 pcs AA size DRY batteries. 3. Using direct 12 volt DC supply via the DC socket on the HP-100E. The 12 volt DC supply may be from a car supply or from a 220 V to 12 V DC supply. In the case of the NICADs running low BATT will appear on the LCD indicating recharging required. Please NOTE into Power sources inside front cover page 1!

High Scan Speed
The HP-100E scans over 20 channels a second!, thereby offering very fast coverage of the frequency spectrum. The fastest pocket scanner around!

UNDERSTANDING THE FAIRMATE HP-100E LCD (liquid crystal display) WINDOW

The LCD uses indicators that show the HP-100E current operating modes. The illustration shows the HP-100E LCD with all the mode indicators switched on!

Manual: Indicator on when the HP-100E is in the manual mode.
Scan: Shows the scan mode is selected.
Prog: This is a multi-function indicator. For scan, search, channel numbers etc.
WFM-FM-AM: Shows which mode is selected ie; Wideband FM, Narrow FM and Amplitude modulation.
Lockout: Multi-function indicator for Channel, Bank and band lockout.

BANK: First digit under bank shows bank-band number 0 to 9.
CH: 2 digits show channel numbers from 00 to 99.
KHz: 3 digits show frequency steps from 5 to 995 KHz in 5 KHz or 12.5 KHz multiples.
MHz: Up to 8 digits show the frequency the HP-100E is tuned to.
Batt: Flashes when the NICAD batteries need recharging or dry cells need replacing.
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Power Source

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UNDERSTANDING THE HP-100E KEYBOARD

**Number Keys:** The number keys are single digit marked from 1 to 6. They are used for entering frequency information. Channel numbers. Frequency steps. For selecting search bands and scan banks.

**Clear:** Use this key to delete an incorrect entry.

**Lockout:** You may lockout a channel from the scanning mode le; Continuous weather channels etc.

**Manual:** This key is used to stop search and scan modes and to advance channels.

**Limit:** This key is used to decide the frequency range when on search or for selecting search band coverage.

**Bank:** The bank key is used to program or select any of the 10 different 100 channel scan banks or the search bands.

**Prog:** The program key has secondary functions and is used for search range programming, bank programming and calling up channel numbers etc.

**Key Lock:** When the key lock is pressed all other keys are locked out of function. This feature is most useful when carrying the HP-100E as it prevents any accidental entries.

**Step:** The step key allows you to choose a frequency step in the range from 5 KHz to 995 KHz or any multiple of 12.5 KHz. This frequency may be used in Manual, Scan or Search modes.

**Light:** The light key is used for illumination of the LCD display. After pressing the key once the light will stay on for about 6 seconds and then automatically switch off.

**Scan:** By pressing the scan khe the HP-100E will start scanning through the channels in the banks that are programmed and not locked out.

**Search:** The search key allows you access to 10 independent search bands, with your own choice of mode and frequency steps.

**Aux:** The aux position is for calling up a priority channel of your own choice either in scan or search mode. The aux priority channel will be sampled every 2 seconds.

**AM-FM-WFM:** These keys select the MODE for reception on any channel. AM (amplitude modulation) is used mainly for the Aircraft band but is used by some other services. FM (narrow band FM-WFM) is used by most public services, Amateur radio etc. WFM (wide band FM) is used mainly by FM-TV broadcast stations for music etc.

**Delay-Hold:** When a Signal-carrier appears on a frequency programmed into the SCAN or SEARCH mode will STOP. In the delay mode after the signal carrier stops there will be a 2 second delay before scan or search resumes. If hold mode is selected then after the signal-carrier stops then the HP-100E will stay continuously on that channel-frequency.

**Down Key (▼):** By pressing the (▼) key you may lower a memory channel or lower a search frequency. If the key is depressed for more than 1 second it will automatically count down in scan or search.

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THE HP-100E IN OPERATION SCAN-MANUAL MODES

The HP-100E may be used in 3 basic ways as follows:
1. Single frequency operation with free selection of MODE in AM, FM or WFM.
2. 1000 channel selection in 10 memory banks of each 100 channels. Free selection of MODE in AM, FM or WFM.
3. 10 search bands with selection of 1. Frequency coverage, 2. MODE. 3. Frequency steps

**SINGLE FREQUENCY ENTRY**

**EXAMPLE 1:** You wish to listen to 97.40KHz in WFM.

A. Press MANUAL
B. Enter 97.500
C. Press WFM key
D. Press ENTER

You may now change this frequency UP or DOWN by turning the UP-DOWN rotary switch. The frequency step is automatically set at 12.5 KHz. You may however select a frequency step of your own choice between 5-995 KHz as follows:

**EXAMPLE 2:** You wish to use 100 KHz steps.

A. Press STEP (kHz sign flashes)
B. Enter 100
C. Press ENTER (kHz sign will stop flashing).

If you now turn UP-DOWN rotary switch the frequency will change in 100 KHz steps. As you change the frequency the UP-DOWN WARS there is a small arrow on LCD that shows (▲). As you go DOWN in frequency a small arrow prints (▼).

**SCAN FUNCTION-MEMORY BANKS**

The HP-100E offers you 1000 channels of fixed frequencies with free choice of MODE in AM, FM or WFM. The 10 memory banks read from 0 to 9. (Please refer to LCD window display information).

**EXAMPLE 2:** Programming scan memory le; Frequency 121.000 KHz. Scan bank 1. Channel 08 mode AM.

A. Press MANUAL
B. Key in 121.000
C. Press ENTER
D. Press AM-FM key so that AM shows on LCD
E. Press PROG F. Key in 1 (bank)
F. Key in 08 (channel)

**EXAMPLE 3:** You wish to program 78.0125 MHz into scan bank 1. Channel 01 with mode FM.

A. Press MANUAL
B. Key in 78.0125
C. Press ENTER
D. Press AM-FM key so that FM shows on LCD
E. Press PROG F. Key in 1 (bank)
F. Key in 01 (channel)

**CHANNEL CHANGE IN SCAN MODE**

If you turn the UP-DOWN rotary switch during scan mode you may change CHANNEL UP or DOWN. If you press MANUAL during scan mode you may change FREQUENCY. You will notice that 12.5 KHz appears on LCD. You may however choose any step between 5 and 995 KHz in multiples of 5 kHz or 12.5 KHz.

**EXAMPLE 4:** You wish to change to 100 KHz steps.

A. During scan press MANUAL (kHz sign will flash)
B. Press STEP C. Key in 100
C. Press ENTER (kHz sign will stop flashing).

You may now go UP or DOWN in frequency by 100 KHz steps.

**CALLING UP A CHANNEL NUMBER**

To call up a fixed channel in the scan mode you must make sure you are on the correct Memory bank.

**EXAMPLE 5:** You are using bank 5 and you wish to listen to bank 4 channel 91.

Firstly you must move from bank 5 to bank 4 as follows:

A. Press SCAN
B. Press BANK C. Press PROG D. Key in 4 (bank)
E. Press LIMIT F. Key in 4 G. Press ENTER

You are now on BANK 4 and will now have to get to channel 09 as follows:

A. Press MANUAL
B. Press BANK C. Key in 4 (bank)
C. Key in 09 (channel)

**BANK SCANNING**

The HP-100E allows you to scan over a single bank or you may make a selection of any of the 10 banks to scan over.

**EXAMPLE 6:** You wish to scan over bank 4 only.

A. Press SCAN
B. Press BANK C. Press PROG D. Key in 4 E. Press LIMIT F. Key in 4 G. Press ENTER

The HP-100E will now only scan over the frequencies you have programmed into bank 4. These channels which are LOCKED OUT or have not been programmed will be automatically bypassed.

**EXAMPLE 7:** You wish to listen to bank 00 and bank 03 only.

A. Press SCAN
B. Press BANK C. Press PROG D. Key in 00 E. Press LIMIT F. Key in 03 G. Press ENTER

The HP-100E will now scan bank 00, 1, 2 and 3 and then start off bank from bank 00 again.
UNDERSTANDING THE HP-100E KEYBOARD

Number Keys: The number keys are single digit marked from 1 to 6. They are used for entering frequency information. Channel numbers. Frequency steps. For selecting search bands and scan banks.

Clear: Use this key to delete an incorrect entry.

Lockout: You may lockout a channel from the scanning mode if Continuous weather channels etc.

Manual: This key is used to stop search and scan modes and to advance channels.

Limit: This key is used to decide the frequency range when on search or for selecting search band coverage.

Bank: The bank key is used to program or select any of the 10 different 100 channel scan banks or the search bands.

Prog: The program key has secondary functions and is used for search range programming, bank programming and calling up channel numbers etc.

Key Lock: When the key lock is pressed all other keys are locked out of function. This feature is most useful when carrying the HP-100E as it prevents any accidental entries.

Step: The step key allows you to choose a frequency step in the range from 5 KHz to 955 KHz or any multiple of 12.5 KHz. This function may be used in Manual, Scan or Search modes.

Light: The light key is used for illumination of the LCD display. After pressing the key once the light will stay on for about 6 seconds and then automatically switch off.

Scan: By pressing the scan key the HP-100E will start scanning through the channels in the banks that are programmed and not locked out.

Search: The search key allows you to access to 10 independent search bands, with your own choice of mode and frequency steps.

Aux: The aux position is for calling up a priority channel of your own choice either in scan or search mode. The aux priority channel will be sampled every 2 seconds.

AM-FM-WFM: These keys select the mode for reception on any channel. AM (amplitude modulation) is used mainly for the Aircraft band but is used by some other services. FM (narrow band FM-WFM) is used by most public services, Amateur radio etc. WFM (wide band FM) is used mainly on FM-TV broadcast stations for music etc.

Delay-Hold: When a signal-carrier appears on a frequency programmed into the SCAN or SEARCH mode the HP-100E will stop. In the delay mode after the signal carrier stops there will be a 2 second delay before scan or search resumes. If hold mode is selected then after the signal-carrier stops then the HP-100E will stay continuously on that channel-frequency.

Down Key (▼): By pressing the (▼) key you may lower a memory channel or lower a search frequency. If the key is depressed for more than 1 second it will automatically count down in scan or search.

THE HP-100E IN OPERATION SCAN-MANUAL MODES

The HP-100E can be used in 3 basic ways as follows:

1. Single frequency operation with free selection of MODE in AM/FM or WFM.
2. 1000 channel selection in 10 memories banks of each 100 channels. Free selection of MODE in AM/FM or WFM.
3. 10 search bands with selection of 1. Frequency coverage, 2. MODE, 3. Frequency steps

SINGLE FREQUENCY ENTRY

EXAMPLE 1: You wish to listen to 97.300 MHz in WFM.


You may now change this frequency UP or DOWN by turning the UP-DOWN rotary switch. The frequency step is automatically set at 12.5 KHz. You may however select a frequency step of your own choice between 5-955 KHz as follows:

EXAMPLE 2: You wish to use 100 KHz steps.

A. Press STEP (KHz sign flashes). B. Enter 100. C. Press ENTER (KHz sign will stop flashing).

You may now turn UP-DOWN rotary switch the frequency will change in 100 KHz steps. As you change the frequency UP or DOWN there is a small arrow on LCD that shows (▲). As you go DOWN in frequency a small arrow prints (▼).

SCAN FUNCTION-MEMORY BANKS

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EXAMPLE 2: Program scan memory le, Frequency 121.000 MHz. Scan bank 1. Channel 00 mode AM.

A. Press MANUAL. B. Key in 121.000. C. Press ENTER. D. Press AM-FM key so that AM shows on LCD.

EXAMPLE 3: You wish to scan programme 78.0125 MHz into scan bank 1. Channel 01 with mode NFM

A. Press MANUAL. B. Key in 78.0125 MHz. C. Press ENTER. D. Press AM-FM key so that FM shows on LCD.

EXAMPLE 4: You wish to change to 100 KHz steps.

A. During scan press MANUAL (KHz sign will flash). B. Press STEP C. Key in 100. D. Press ENTER (KHz sign will stop flashing).

You may now go UP or DOWN in frequency by 100 KHz steps.

CHANNEL CHANGE IN SCAN MODE

If you turn the UP-DOWN rotary switch during scan mode you may change CHANNEL UP or DOWN. If you press MANUAL during scan mode you may change FREQUENCY. You will notice that 12.5 KHz appears on LCD. You may however choose any step between 5 and 955 KHz in multiples of 5 KHz or 12.5 KHz.

EXAMPLE 4: You wish to change to 100 KHz steps.

A. During scan press MANUAL (KHz sign will flash). B. Press STEP C. Key in 100. D. Press ENTER (KHz sign will stop flashing).

You may now go UP or DOWN in frequency by 100 KHz steps.

CALLING UP A CHANNEL NUMBER

To call up a fixed channel in the scan mode you must make sure you are on the correct Memory bank.

EXAMPLE 5: You are using bank 5 and you wish to listen to bank 4 channel 01.

Firstly you must move from bank 5 to bank 4 as follows:


You are now on BANK 4 and will now have to get to channel 01 as follows:

A. Press MANUAL. B. Press BANK. C. Key in 4 (bank). D. Key in 01 (channel).

BANK SCANING

The HP-100E allows you to scan over a single bank or you may make a selection of any of the 10 banks to scan over.

EXAMPLE 6: You wish to scan over banks 04 only.


The HP-100E will now only scan over the frequencies you have programmed into bank 4. These channels which are LOCKED OUT or have not been programmed will be automatically by-passed.

EXAMPLE 7: You wish to listen to bank 00 to bank 03 only.

A. Press SCAN. B. Press BANK. C. Press PROG D. Key in 00 E. Press LIMIT F. Key in 03 G. Press ENTER.

The HP-100E will now scan over Bank 00, 1, 2 and 3 and then start off bank from bank 00 again.
TO ERASE A FREQUENCY IN A MEMORY BANK

EXAMPLE 9. You wish to delete channel 12 in memory bank 2.
First you must make sure that you are on bank 2 (note info calling up a channel number page 6).
When you are on bank 2 proceed as follows:-
Channel 12 in bank 2 is now deleted and neither channel number or frequency will be show.

LOCKOUT OF CHANNELS-BANKS

If you wish to lockout channel in the scan mode you may do so. You may also cancel lockout at any time.

EXAMPLE 9. You wish to lockout channel 89 on memory 2.
A. Press MANUAL. B. Press BANK. C. Key in 2 (bank). D. Key in 89 (channel). E. Press LOCKOUT
Manual lockout manual. To create lockout of the above channel:-
A. Press MANUAL. B. Press BANK. C. Key in 2 (bank). D. Key in 89 (channel). E. Press LOCKOUT
If lockout [locks, press lockout key until lockout on LCD stops flashing.

LOCKING OUT A WHOLE MEMORY BANK

EXAMPLE 10. You wish to lockout memory bank 2.
To cancel Bank lockout: A. Press MANUAL. B. Press LOCKOUT.

AUX-PRIORITY

You may allocate a specific channel either during search or scan as your priority channel. This means in practice that
the priority channel will be checked (sampled) about every 2 seconds as the scanner goes through SCAN or SEARCH modes.

EXAMPLE 11. You wish to choose channel 07 in bank 4 as your priority channel.
First make sure you are on bank 4.
A. Press AUX. B. Press PROG (This must be done quite quickly) the frequency shown on the LCD will disappear and the 
Bank sign will flash. C. Key in 4 (bank). D. Key in 07 (channel). E. Press ENTER. F. Press SCAN
To cancel priority: Press AUX key.

UNDERSTANDING AUX (PRIORITY) SCAN-SEARCH

If you had changed from memory bank scan mode into search band mode and at the same time had an active priority
channel programmed then the following would occur:-
EXAMPLE 12. You are listening for a station on search bank 1 and a signal appears on the frequency that has programmed
into channel 07 memory 4 at the same time, then the HP-100E will automatically switch from search bank 1 to memory
bank 4 channel 07. As soon as the transmission ends on channel 07 then the HP-100E will automatically revert to the
search bank.

DELAY-HOLD IN SCAN OR SEARCH MODES

You may select either DELAY or HOLD modes by pressing DELAY-HOLD key. Delay or Hold will appear on the LCD.
DELAY: When a signal-carrier appears on a frequency programmed into the HP-100E with sufficient signal strength then the
SCAN or SEARCH mode will STOP. In the delay mode after the signal carrier stops there will be a 2 second delay before
scan or search resumes.
HOLD: If hold mode is selected then after the signal-carrier stops then the HP-100E will stay continuously on that channel-
frequency.

LOCKOUT OF A FREQUENCY IN SEARCH MODE

Whilst in search mode you may wish to lockout a frequency because it contains a continuous carrier.
EXAMPLE: Whist searching bank 2 a continuous carrier is heard on 229.45 and the search automatically stops.
Press LOCKOUT and the set will continue scanning missing this frequency on the next pass.

BAND BANK FREQUENCY TABLE

<table>
<thead>
<tr>
<th>Bank</th>
<th>Band</th>
<th>Frequency (MHz)</th>
<th>Step (MHz)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AIR VHF</td>
<td>108.0 to 142.0</td>
<td>10</td>
<td>AM</td>
</tr>
<tr>
<td>2</td>
<td>AIR VHF</td>
<td>225.0 to 281.5</td>
<td>50</td>
<td>AM</td>
</tr>
<tr>
<td>3</td>
<td>AIR UHF</td>
<td>275.0 to 364.0</td>
<td>50</td>
<td>AM</td>
</tr>
<tr>
<td>4</td>
<td>POLICE</td>
<td>142.0 to 159.5</td>
<td>10</td>
<td>FM</td>
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<tr>
<td>5</td>
<td>MARINE</td>
<td>158.0 to 162.0</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>POLICE</td>
<td>247.7 to 354.5</td>
<td>12.5</td>
<td>FM</td>
</tr>
<tr>
<td>7</td>
<td>MARINE</td>
<td>361.9 to 363.5</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>MCA</td>
<td>550.0 to 589.9</td>
<td>12.5</td>
<td>FM</td>
</tr>
<tr>
<td>9</td>
<td>LOW</td>
<td>25.0 to 550.0</td>
<td>10</td>
<td>FM</td>
</tr>
<tr>
<td>0</td>
<td>HIGH</td>
<td>850.0 to 1300.0</td>
<td>12.5</td>
<td></td>
</tr>
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</table>

The HP-100E has 10 separate search banks. The search bands are pre-programmed from the factory as per
the search bank frequency table above. Please NOTE you may re-programme these search bands to your own
choice. You may choose upper and lower frequency limits also MODE i.e. AM/NFM or WFM and also the search
frequency steps in KHz from 5 to 995 KHz in multiples of KHz or 12.5 KHz.
EXAMPLE 1. You wish to select Band 8 (MCA BASE). You wish to programme the HP-100E with the following
information: Frequency 936.0125 MHz. MODE NFM. Frequency steps 12.5 KHz.
A. Press SEARCH
B. Press PROG
C. Key in 936.0125
D. Press LIMIT
E. Key in 940.0125
F. Press ENTER
G. Key in 12.5 MHz
H. Press AM-FM key so that FM appears on the LCD
J. Press ENTER
K. Key in 8
L. Press ENTER
M. Press SEARCH

The above example 1 has shown you how to programme a specific band of your own choice. The HP-100E
has however 10 separate search banks which are pre-programmed from factory the access to these bands is
such that the HP-100E will start at band 1 through to band 2 all the way to band 0 and back again.
This obviously will take some time and also may be of no interest to you. If you programme the HP-100E to search
over a single bank then you will not be able to access the other bands. If you wish to search over other bands at
the same time you must programme "in between band searching". This will give you access to search bands of
your own choice.
TO ERASE A FREQUENCY IN A MEMORY BANK

EXAMPLE 9. You wish to delete channel 12 in memory bank 2.
First you must make sure that you are on bank 2 (note info calling up a channel number page 6).
When you are on bank 2 proceed as follows:-
Channel 12 in bank 2 is now deleted and neither channel number of frequency will be show.

LOCKOUT OF CHANNELS-BANKS

If you wish to lockout channels in the scan mode you may do so. You may also cancel lockout at any time.
EXAMPLE 9. You wish to lockout channel 89 on memory 2.
A. Press MANUAL B. Press BANK C. Key in 2 (bank) D. Key in 89 (channel) E. Press LOCKOUT
Manual lockout manual. To cancel lockout of the above channel:-
A. Press MANUAL B. Press BANK C. Key in 2 (bank) D. Key in 89 (channel) E. Press LOCKOUT
If lockout ( flashes, press lockout key until lockout on LCD stops flashing.

LOCKING OUT A WHOLE MEMORY BANK

EXAMPLE 10. You wish to lockout memory bank 2.
A. Press MANUAL B. Press BANK C. Key in 2 (bank) D. Key in 2 digits (channel) E. Press BANK F. Press LOCKOUT
To cancel Bank lockout; A. Press MANUAL B. Press LOCKOUT

AUX-PRIORITY

You may allocate a specific channel either during search or scan as your priority channel. This means in practice that the priority channel will be checked ( sampled) about every 2 seconds as the scanner goes through SCAN or SEARCH modes.
EXAMPLE 11. You wish to choose channel 07 in bank 4 as your priority channel.
First make sure you are on bank 4.
A. Press AUX B. Press PROG (This must be done quite quickly) the frequency shown on the LCD will disappear and the
BANK sign will flash. C. Key in 4 (bank) D. Key in 07 (channel) E. Press ENTER F. Press SCAN
To cancel priority; Press AUX key.

UNDERSTANDING AUX (PRIORITY) SCAN-SEARCH

If you had changed from memory bank scan mode into search band mode and at the same time had an active priority channel programmed then the following would occur:-
EXAMPLE 12. You are listening to a station on search bank 1 and a signal appears on the frequency that has programmed into channel 07 memory 4 at the same time, then the HP-100E will automatically switch from search bank 1 to memory bank 4 channel 07. As soon as the transmission ends on channel 07 then the HP-100E will automatically revert to the search bank.

DELAY-HOLD IN SCAN OR SEARCH MODES

You may select either DELAY or HOLD modes by pressing DELAY-HOLD key. Delay or Hold will appear on the LCD.
DELAY: When a Signal-carrier appears on a frequency programmed into the HP-100E with sufficient signal strength then the SCAN or SEARCH mode will STOP. In the delay mode after the signal carrier stops to be present for some time, the HP-100E will automatically revert to the search band.
HOLD: If hold mode is selected then after the signal carrier stops then the HP-100E will stay continuously on that channel-frequency.

LOCKOUT OF A FREQUENCY IN SEARCH MODE

Whilst in search mode you may wish to lockout a frequency because it contains a continuous carrier.
EXAMPLE: Whilst searching bank 2 a continuous carrier is heard on 298.45 and the search automatically stops. Press LOCKOUT and the set will continue scanning missing this frequency on the next pass.

BAND BANK FREQUENCY TABLE

<table>
<thead>
<tr>
<th>Bank</th>
<th>Band</th>
<th>Frequency (MHz)</th>
<th>Step (KHz)</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AIR VHF 1</td>
<td>108.0 to 124.0</td>
<td>10</td>
<td>AM</td>
</tr>
<tr>
<td>2</td>
<td>AIR VHF 2</td>
<td>225.0 to 261.5</td>
<td>50</td>
<td>AM</td>
</tr>
<tr>
<td>3</td>
<td>AIR UHF</td>
<td>755.0 to 764.0</td>
<td>50</td>
<td>AM</td>
</tr>
<tr>
<td>4</td>
<td>POLICE V</td>
<td>850.0 to 959.9</td>
<td>10</td>
<td>FM</td>
</tr>
<tr>
<td>5</td>
<td>MARINE</td>
<td>158.0 to 162.0</td>
<td>5</td>
<td>FM</td>
</tr>
<tr>
<td>6</td>
<td>POLICE U1</td>
<td>347.125 to 354.525</td>
<td>12.5</td>
<td>FM</td>
</tr>
<tr>
<td>7</td>
<td>POLICE U2</td>
<td>361.595 to 363.0</td>
<td>12.5</td>
<td>FM</td>
</tr>
<tr>
<td>8</td>
<td>MCA</td>
<td>850.0 to 859.975</td>
<td>12.5</td>
<td>FM</td>
</tr>
<tr>
<td>9</td>
<td>LOW BAND</td>
<td>25.0 to 550.0</td>
<td>10</td>
<td>FM</td>
</tr>
<tr>
<td>0</td>
<td>HIGH BAND</td>
<td>850 to 1300.0</td>
<td>12.5</td>
<td>FM</td>
</tr>
</tbody>
</table>

The HP-100E has 10 separate search banks. The search bands are pre-programmed from the factory as per the search bank frequency table above. Please note you may re-programme these search bands to your own choice. You may choose upper and lower frequency limits also MODE in AM, NFM or WFM and also the search frequency steps in KHz from 5 to 150 KHz in multiples of KHz or 15.5 KHz.
EXAMPLE 1. You wish to select Band 8 (MCA BASE). You wish to programme the HP-100E with the following information: Frequency 936.0125 MHz, MODE NFM, Frequency steps 12.5 KHz.

The above example is shown how to programme a specific band of your own choice. The HP-100E has however 10 separate search banks which are pre-programmed from factory the access to these bands is such that the HP-100E will start at band 1 through to train 2 all the way to band 0 and back again. This obviously will take some time and also may be of no interest to you. If you programme the HP-100E to search over a single band then you will not be able to access the other bands. If you wish to search over other bands at the same time you must programme "in between band searching". This will give you access to search bands of your own choice.
SELECTION OF "PRE-PROGRAMMED" SEARCH BAND

EXAMPLE 2. You wish to search over band 8 only:
A. Press SEARCH  B. Press BANK
C. Press PRG  D. Key in 8
E. Press LIMIT  F. Key in 8
G. Press ENTER

The HP-100E will now search through band 8 from the lowest to the highest frequency and then back again.

SELECTION OF "INBETWEEN BAND SEARCHING"

EXAMPLE 3. You wish to search between band 1 and band 3.
A. Press SEARCH  B. Press BANK
C. Press PRG  D. Key in 1
E. Press LIMIT  F. Key in 3
G. Press ENTER

The HP-100E will now start searching on band 1 to band 2 then band 3 and back to band 1 again. During the above search you may manually select either band 1, 2 or 3 by pressing those respective keys. During the above search you may also STOP the search by either pressing the V key or by turning UP-DOWN rotary switch.

Step search by 1. Pressing V key or 2. by turning UP-DOWN rotary switch. Now press STEP (KHz sign will flash on LCD). You must now decide which channel step you wish to use? Example 100 KHz. Key in 100 (KHz sign on LCD will stop flashing). You may now either go UP or DOWN in frequency manually by rotating UP-DOWN switch or by using the V key. By pressing the V key you may go DOWN in frequency by the 100 KHz you have selected manually or if you keep the V key depressed for 2 seconds it will automatically count down the frequency by 100 KHz.

NOTE: Mode selection may be changed at any time by simple pressing AM-FM or WFM keys!

EXAMPLE 4. You wish to search or select any band from band 1 to band 9.
A. Press SEARCH  B. Press BANK
C. Press PRG  D. Key in 1
E. Press LIMIT  F. Key in 9
G. Press ENTER

MEMORY BANK TRANSFER

If during the search mode you receive an interesting frequency which you wish to immediately transfer to one of the 10 memory banks without the need of entering the frequency or mode then this may be done as follows:

EXAMPLE 5.
A. Press HOLD (hold to appear on LCD)  B. Press ENTER
C. Key in a bank number (your choice)  D. Key in channel number (your choice)
E. Press ENTER

To continue search mode: A. Press SEARCH  B. Press HOLD (delay will return to LCD).

HP-100E TECHNICAL SPECIFICATIONS

Frequency Range:
- 15-600 MHz (Low Band) and 805-1300 MHz (High Band)
- AM-NFM-WFM (all bands)

Receiving Mode:
- 15-600 MHz less than 0.5 uV for 12 dB SINAD (NFM)
- 805-1300 MHz less than 0.5 uV for 12 dB SINAD (NFM)
- 15-600 MHz less than 2 uV for 20 dB DAM 60% modulation
- 15-600 MHz less than 3 uV for 30 dB S/N (WFM)
- Over 20 channels per second

BNC 50 ohms

External 12 V DC supply also used for charging.

Standby with Standby: approx. 83 mA

Receive mode 1/2 power: approx. 87 mA

Receive mode Maximum power: approx. 105 mA

Temperature Range: +20° C to +50° C

Size and Weight: 170 W x 35 D x 85 H mm. Weight without batteries: 280 g

Audio Output: Over 100 mW for 10% or less THD

Search Increment: Any channel step between 5 KHz and 995 KHz in multiples of 5 KHz or 12.5 KHz

Display Type: LCD Liquid Crystal Display

Priority Sampling: 2 seconds

Delay Time: 2 seconds

<table>
<thead>
<tr>
<th>Band</th>
<th>1st</th>
<th>2nd</th>
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</tr>
</thead>
<tbody>
<tr>
<td>15-49,995 MHz</td>
<td>+561.225 MHz</td>
<td>58.075 MHz</td>
<td>455 KHz WFM 18.7 MHz</td>
</tr>
<tr>
<td>50-107.995 MHz</td>
<td>+561.225 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>108-169.995 MHz</td>
<td>+561.225 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>170-236.995 MHz</td>
<td>+561.225 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>237-300.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>301-390.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>401-500.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>501-600.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>601-700.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>701-800.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>801-900.000 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>901-1000 MHz</td>
<td>+251.225 MHz</td>
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</tr>
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SELECTION OF "PRE-PROGRAMMED" SEARCH BAND

EXAMPLE 2. You wish to search over band B only:
A. Press SEARCH  B. Press BANK
C. Press PROG  D. Key in 3
E. Press LIMIT  F. Key in 3
G. Press ENTER

The HP-100E will now search through band B from the lowest to the highest frequency and then back again.

SELECTION OF "INBETWEEN BAND SEARCHING"

EXAMPLE 3. You wish to search between band 1 and band 3.
A. Press SEARCH  B. Press BANK
C. Press PROG  D. Key in 1
E. Press LIMIT  F. Key in 3
G. Press ENTER

The HP-100E will now start searching on band 1 to band 2 then band 3 and back to band 1 again. During the above search you may manually select either band 1, 2 or 3 by pressing those respective keys. During the above search you may also STOP the search by either pressing the V key or by turning UP-DOWN rotary switch. You may now either press the UP-DOWN rotary switch or by using the V key. By pressing the V key you may go DOWN in frequency manually by rotating UP-DOWN switch or by using the V key. If you press the V key depressed for 2 seconds it will automatically count down the frequency by 100 kHz.

NOTE: MODE selection may be changed at anytime by simple pressing AM/FM or WFM keys!

EXAMPLE 4. You wish to select or any band from band 1 to band 5.
A. Press SEARCH  B. Press BANK
C. Press PROG  D. Key in 1
E. Press LIMIT  F. Key in 9
G. Press ENTER

MEMORY BANK TRANSFER

If during the search mode you receive an interesting frequency which you wish to immediately transfer to one of the 10 memory banks without the need of entering the frequency or mode then this may be done as follows:

EXAMPLE 5.
A. Press HOLD (hold to appear on LCD)  B. Press ENTER
C. Key in bank number (your choice)  D. Key in channel number (your choice)
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To continue search mode: A. Press SEARCH  B. Press HOLD (delay will return to LCD).

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805-1300 MHz less than 0.5 uV for 12 dB SINAD (NFM)
15-600 MHz less than 2 uV for 20 dB OAM 60% modulation
1600-1300 MHz less than 3 uV for 30 dB S/N (WFM)

Scan Speed:
Over 20 channels per second

Antenna:
BNC 50 ohms

Channels:
1000

Scan Banks:
10 Banks of 100 channels each

Search Bands:
10 freely programmable Bands

Power Sources:
4 pcs AA size NICAD or 4 pcs DRY CELL AA size.

Power Consumption:
External 12 V DC supply also used for charging.

Standby with Squelch on: apx 83 mA
Receive mode 1/2 power: apx 87 mA
Receive mode Maximum audio: apx 105 mA

Temperature Range:
-20°C to +50°C

Size and Weight:
1704 x 350 x 85 Wm. Weight without batteries: 280 g

Audio Output:
Over 100 mW for 10% or less THD

Search Increment:
Any channel step between 5 kHz and 995 kHz in multiples of 5 kHz or 12.5 kHz

Display Type:
LCD Liquid Crystal Display

Priority Sampling:
2 seconds

Delay Time:
2 seconds

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<td>58.075 MHz</td>
<td></td>
</tr>
<tr>
<td>297-680.995 MHz</td>
<td>+251.575 MHz</td>
<td>98.757 MHz</td>
<td></td>
</tr>
<tr>
<td>805-1109.495 MHz</td>
<td>+251.575 MHz</td>
<td>58.075 MHz</td>
<td></td>
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