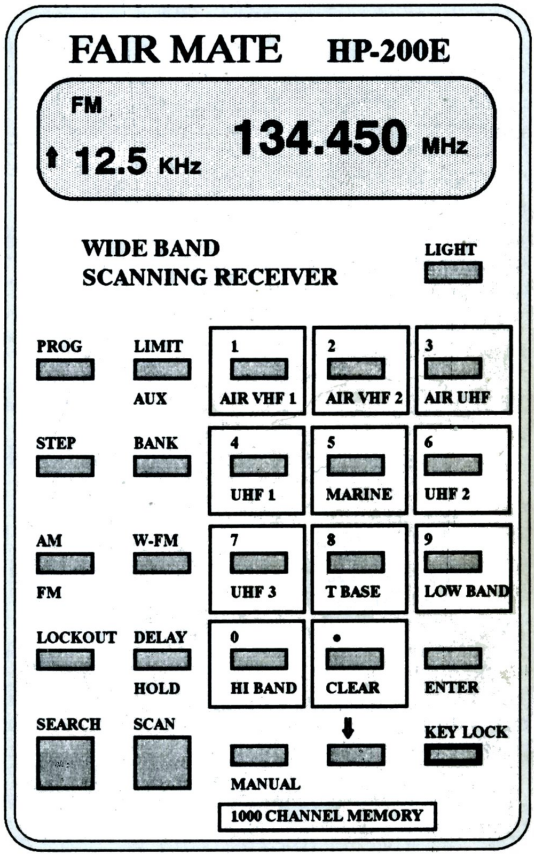
Fairmate HP-200E

The Ultimate Monitoring and Surveillance Receiver



Owner's Manual

CONGRATULATIONS
ON THE PURCHASE OF YOUR FAIRMATE SCANNING RECEIVER!

The **HP-200E** is the world's first 1000 channel programmable scanning receiver. **Fairmate** are one of Japan's leading manufacturers and have for many years produced radios for such famous names as AOR and Regency.

Your **Fairmate** is supplied complete with high power NICAD batteries. These batteries may have a small residual charge left in them from the factory but will need charging properly before you can use the radio.

When you start to use your **HP-200E** for the first time, you will discover that all 1000 memories have been loaded with random frequencies at the factory. These frequencies do not necessarily correspond to any services that you may wish to receive in the UK - so we suggest you erase or reprogramme the memory channels to frequencies of your choice as you get used to the radio.

The **Fairmate HP-200E** is probably the most advanced scanning receiver in the world; therefore, it is not surprising that it will take you some time to become familiar with all its functions. We suggest you take some time to study each function step by step. Along the way, you will undoubtedly make mistakes and the set may appear faulty - we suggest that, should this occur, you sit down, read the appropriate part of the manual again and have another go!

POWER SOURCE INFORMATION HP-200E

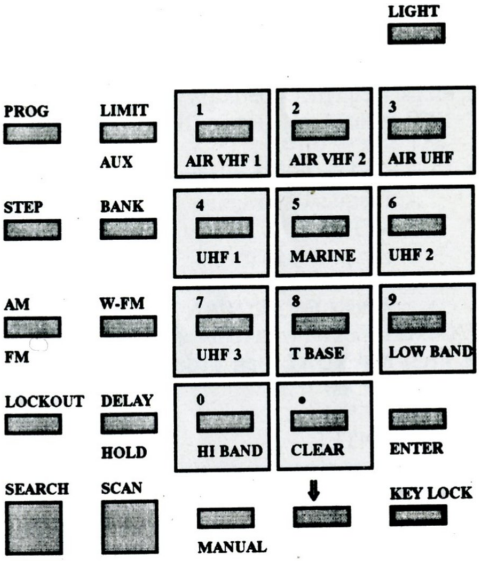
The HP-200E is supplied with 4 pcs 600 mAh NICAD batteries. When the HP-200E is connected to an external Power source, ie 12 volt DC supply in a car, truck etc or an AC mains to a 12 volt DC power supply, then the external power source will automatically charge the NICAD batteries, even with the HP-200E switched OFF or ON. This is a great advantage over most other scanners. The HP-200E 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 batteries at any time then you may do so!
It is not recommended that you connect the HP-200E 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-200E 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 use have to be disposed of....!

PLEASE NOTE: WHEN USING EXTERNAL SUPPLY OR CHARGER, ENSURE THE CORRECT POLARITY IS USED FOR THE DC SOCKET - THIS IS CENTRE POSITIVE.

High Scan Speed
The HP-200E scans over 20 channels a second!, thereby offering very fast coverage of the frequency spectrum. The fastest pocket scanner around!.

Nevada Communications, PO Box 70, Portsmouth

UNDERSTANDING THE HP-200E KEYBOARD



Number Keys: The number keys are single digit marked from 0 to 9. They are used for entering frequency information. Channel numbers. Frequency steps. For selecting search bands and scan banks.
Clear: Use this to delete an incorrect entry.
Lockout: You may lockout a channel from the scanning mode, eg 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 or scan band coverage.
This key is used in conjunction with the programme key.
Bank: The bank key is used to program or select any of the 10 different 100 channel scan banks or the 10 search bands.
Prog: The program key has secondaryfunctions and is used for search range programming, bank programming and callingup channel numbers etc.
Key Lock: When the key lock is pressed allother keys are locked out of function.
This feature is most useful when carrying the HP-200E as it prevents any accidental entries.
Step: The step button on the keypad lets you choose the frequency step you wish the HP200E to tune. You can select these from 5 KHz to 995 KHz in multiples of 5 KHz or 12.5KHz. To change the step you must be in manual mode. To change the steps press STEP, the KHz sign will start flashing. You can now enter the new step, e.g. 5 for 5 KHz, 12.5 for 12.5 KHz, 100 for 100 KHz. This must be followed by ENTER.
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. There is no override for this.
Scan: By pressing this key the HP-200E will start scanning through the channels in the banks that are programmed and not locked out. **The squelch control must be closed for the scan mode to operate.**
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-NFM) is used by most public services, Amateur radio etc. WFM (wide band FM) is used mainly bv FM TV broadcast stations and local FM radio stations.
Delay-Hold: When a Signal-carrier appears on a frequency programmed into the HP-200E with sufficient signal strength, 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-200E 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-200E IN OPERATION

The HP-200E may be used in 3 basic ways as follows:-

1. Single frequency operation with free selection of MODE, ie. AM, FM or WFM.
2. 1000 channel selection in 10 memory banks of each 100 channels. Free selection of MODE, ie AM, FM or WFM.
3. 10 search bands with selection:
   - A. Frequency coverage
   - B. MODE
   - C. Frequency steps

SINGLE FREQUENCY ENTRY

EXAMPLE: You wish to listen to 97.500 MHz in WFM

A. Press MANUAL then ⇓(down) to blank out memory number. *
B. Enter 97.500
C. Press WFM key
D. Press ENTER

*This must be executed in this order or frequency will be put into memory.

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: 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 UPWARDS there is a small arrow on LCD that shows ⇑ . As you go DOWN in frequency a small arrow points ⇓.

MEMORY MODE OPERATION

The HP-200E offers you 1000 channels of fixed frequency memory locations with free choice of MODE ie; AM,FM or WFM. The 10 memory banks read from 0 to 9. The memory locations - or channels as we will call them from now on - read from 00 to 99.

TO PROGRAM A MEMORY CHANNEL

EXAMPLE: Programming a memory channel with frequency 121.00 MHz.
Scan bank 1. Channel 00 mode AM.

A. Press MANUAL
B. Key in 121.000
C. Press AM-FM key so that AM shows on LCD
D. Press ENTER
E. Press PROG
F. Key in 1 (bank)
G. Key in 00 (channel)

EXAMPLE: You wish to programme 79.0125 MHz into scan bank 1.
Channel 01 with mode NFM.

A. Press MANUAL
B. Key in 79.0125 MHz
C. Press AM-FM key so that FM shows
D. Press Enter
E. Press PROG
F. Key in 1 (bank)
G. Key in 01 (channel)

INTRODUCTION TO THE FAIRMATE HP-200E 1000 CHANNEL SCANNING COMMUNICATIONS RECEIVER

The Fairmate HP-200E is the worlds first 1000 channel programmable scanner monitor receiver. The HP-200E offers very wideband frequency coverage from 500KHz-600 MHz with NO gaps and also from 805-1300 MHz NO gaps! The HP-200E 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-200E 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 830-1300 MHz band.

A wide range of accessories is included with the HP-200E 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-200E uses the latest state-of-the-art microcomputer technology with 1000 programmable channels.

Search Bank

The HP-200E offers the choice of 10 separate search banks.
Each search bank 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 search banks.

1000 Memory Channels

The HP-200E 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-200E allows you to listen on either AM/NFM/WFM on any channel from 500KHz-600 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 10dB of attenuation via LOC-DX switch.

Up-Down Rotary Switch

The HP-200E 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 to 995 KHz! in multiples of 5 or 12.5 Khz ie:
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....!

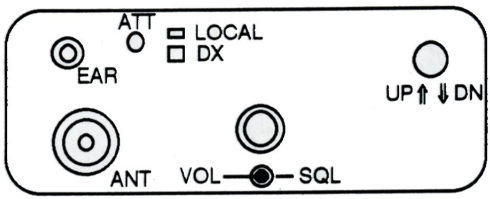
Power Source

The HP-200E 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-200E.
   The 12 volt DC supply may be from a car supply or from a mains operated 12v DC supply
   When the NICADS run low, a BATT warning message will flash on the LCD display.

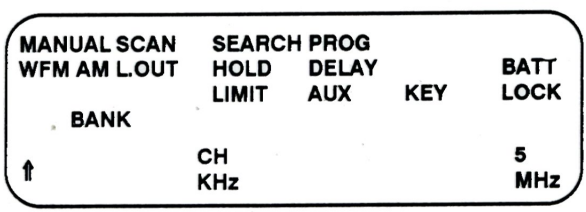
UNDERSTANDING THE FAIRMATE HP-200E CONTROLS

1. Power on-off volume control. Switches HP-200E 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 clock-wise, or weak signals will not open squelch circuit. **The squelch control on the radio should be advanced until the background noise disappears(assuming that you are on a clear channel). Only then will the HP200E operate in scan or search modes.**
3. Attenuator reduces receive signals by -10dB.
4. Rotary UP - DOWN switch used for changing channels / frequency up or down.
5. BNC Antenna socket.
6. External speaker or earphone socket 3.5mm
7. External 12 volt DC supply socket 1.3mm (POLARITY CENTRE POSITIVE)
8. LCD (liquid crystal display) window
9. Key board
10. Internal loudspeaker
11. Lamp switch
12. Key lock switch



UNDERSTANDING THE FAIRMATE HP-200E LCD (liquid crystal display) WINDOW

The LCD uses indicators that show the HP-200E current operating modes. The illustration shows the HP-200E LCD with ALL the mode indicators switched on!



Manual: Indicator on when the HP-200E 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, Band and band lockout.
:UP / DOWN arrows indicate channel or frequency up or down.
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-200E is tuned to.
Batt: Flashes when the NICAD batteries need recharging or dry cells need replacing.

UNDERSTANDING 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: You are listening to a station on search band 1 and a signal appears on the frequency that have programmed into channel 07 memory bank 4 at the same time, then the HP-200E will automatically switch from search band 1 to memory bank 4 channel 07. As soon as the transmission ends on channel 07 then the HP-200E will automatically revert to the search band.

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-200E 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-200E 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 228.45 and the search automatically stops. Press LOCKOUT and the set will continue scanning missing this frequency on the next pass.

SEARCH BANK FREQUENCY TABLE

Bank	Band	Frequency MHz	Step KHz	Mode
1	AIRVHF1	108.0 to 142.0	10	AM
2	AIRVHF2	225.0 to 261.5	50	AM
3	AIRUHF	275.0 to 364.0	50	AM
4	UHF-1	432.00 to 435.00	10	FM
5	MARINE	156.0 to 162.0	5	FM
6	UHF-2	347.7125 to 354.525	12.5	FM
7	UHF-3	361.95 to 363.0	12.5	FM
8	T BAND	850.0 to 859.975	12.5	FM
9	LOW BAND	500KHz to 600.0MHz	10	FM
0	HIGH BAND	805 to 1300.0	12.5	FM

The HP-200E has 10 separate search banks. The search banks are pre-programmed from the factory as per the search bank frequency table above.

SELECTION OF "PRE-PROGRAMMED" BANK

EXAMPLE: You wish to search over bank 8 only:-
A. Press SEARCH
B. Press BANK
C. Press PROG
D. Key in 8
E. Press LIMIT
F. Key in 8
G. Press ENTER
The HP-200E will now search through bank 8 from the lowest to the highest frequency and then back again.

SELECTION OF "INBETWEEN BANK SEARCHING"

EXAMPLE: You wish to search between bank 1 and bank 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-200E will now start searching on bank 1 ,2,3,and back to bank 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 ⇓ key or by turning UP-DOWN rotary switch. You may now if you wish change the frequency step as follows:-
Stop search by (1) Pressing ⇓ key, or (2) by turning UP-DOWN rotary switch. Now press STEP (KHz sign will flash on LCD). You must now decide what 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 ⇓ key. By pressing the ⇓ key you may go DOWN in frequency by the 100 KHz you have selected manually or if you keep the ⇓ 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 simply pressing AM-FM or WFM keys!
EXAMPLE: You wish to search or select any band from band 1 to band 9.
A. Press SEARCH
B. Press BANK
C. Press PROG
D. Key in 1
E. Press LIMIT
F. Key in 9
G. Press ENTER

RE-PROGRAMMING SEARCH BANK

Please NOTE you may re-programme these search banks to bands of your own choice. You may decide upper and lower frequency limits also MODE ie; 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: You wish to select Band 8 (T BASE). You wish to programme the HP-200E 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 KHz - PRESS ENTER
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 has shown you how to programme a specific band of your own choice. The HP-200E has however 10 separate search bands which are pre-programmed from factory the access to these bands is such that the HP-200E will start at band 0 through to band 1 all the way to band 9 and back again. This obviously will take some time and also may be of no interest to you. If you programme the HP-200E 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.**

TO RECALL A CHANNEL MEMORY

To call the contents of memory channel whilst in the Scan mode, you must revert to the manual mode of operation.
Any memory bank and channel can be directly accessed as follows.
EXAMPLE: To call up memory channel 34 on bank 3 (or if you prefer - think of it as Memory Location 334 out of 1000)
A. Press MANUAL
B. Press BANK
C. Enter 334
You are now on that channel.

PLEASE NOTE: It is necessary to enter a zero before channel numbers that are less than 10.

TO ERASE A FREQUENCY IN THE MEMORY BANK

EXAMPLE: You wish to delete channel 12 in memory bank 2 (channel 212). When you are on bank 2 proceed as follows:-
A. Press MANUAL
B. Press CLEAR
C. Press ENTER
D. Press PROG
E. Key in 2 (bank)
F. Key in 12 (channel)
Channel 12 in bank 2 is now deleted and neither channel number or frequency will be shown.

SCANNING MODE OPERATION

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: You wish to change to 100 KHz steps.
A. During scan press MANUAL
B. Press STEP (KHz sign will flash)
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.

SCANNING A MEMORY BANK

The HP-200E allows you to scan over a single bank or you may make a selection of any of the 10 banks to scan over.
EXAMPLE: You wish to scan over Bank 4 only (Channels 400- 499)
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-200E will now only scan over the frequencies you have programmed into bank 4
Those channels which are LOCKED OUT or have not been programmed will be automatically by-passed.

MEMORY SCAN MODE LOCKOUT

During scan mode you may lockout a channel with a ONE KEY operation as follows:- HP-200E stops on Bank 1 channel 63. You do not wish to receive this channel then Press LOCKOUT key. When the HP- 200E comes to this channel next time it will skip over it.
To remove Lockout on Bank 1 channel 63:-
1. Press Manual
2. Press Bank
3. Key in 1 (bank)
4. Key in 63 (channel)
5. Press Lockout

UNLOCKING A LOCKED OUT MEMORY CHANNEL BANK - e.g. Bank 2, Channel 89:-

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: You wish to lockout memory bank 2 (channels 200-299)
A. Press MANUAL
B. Press BANK
C. Key in 2 (bank)
D. Key in any 2 digits (channel)
E. Press BANK
F. Press LOCKOUT

TO CANCEL BANK LOCKOUT

A. Press MANUAL
B. Press BANK
C. Key in 2 (bank)
D. Key in any 2 digits (channel) - LOCKOUT will now flash
E. Press LOCKOUT

LOCKING OUT A SEARCH BANK

Press:
A. SEARCH
B. Desired number key
C. BANK
D. LOCKOUT

PRIORITY SCANNING

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: You wish to choose channel 07 in bank 4 as your priority channel (channel 407).
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

SEARCH MODE OPERATION

One of the HP-200E's most powerful facilities is the ability to search a wide frequency range at very high speed. However, like other Scanning Receivers that are capable of such a wide frequency reception you are likely to encounter birdies. Birdies are internally generated signals that will stop the radio searching or make it impossible to receive a signal on the frequency of the birdie. Should you encounter a birdie when in the search mode simply re-press the search control to continue.

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:

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)

To continue search mode:

A. Press SEARCH
B. Press HOLD (delay will return to LCD)

LOCKOUT IN SEARCH MODE

Should you, during the search mode, lockout one of the pre- programmed banks (by accident or otherwise!), the following procedure should be adopted to unlock the bank for searching again.

UNLOCKING SEARCH BANK IN SEARCH MODE

Suppose you have locked out bank 1 whilst in search mode.

To restore the bank, key in the following:-

A. BANK
B. PROG
C. 1
D. LIMIT
E. 1
F. ENTER

Lockout sign will now be flashing, then proceed as follows:-

A. BANK
B. PROG
C. LOCKOUT
D. LOCKOUT

TO REVIEW FREQUENCIES LOCKED OUT IN SEARCH

Press:

A. SEARCH
B. BANK
C. PROGRAM
D. LOCKOUT

Press ENTER

Each time ENTER is pressed the locked out frequency will be displayed. If nothing is locked out the scanner will carry on searching.

TO UNLOCK FREQUENCIES LOCKED OUT IN SEARCH

Press:

A. SEARCH
B. BANK
C. PROGRAM
D. LOCKOUT
E. LOCKOUT

Each time LOCKOUT is pressed, the locked out frequency will be freed and the next frequency locked out will be displayed.

HP-200E TECHNICAL SPECIFICATIONS

Frequency Range:	500KHz-600 MHz (Low Band) and 805-1300 MHz (High Band).
Receiving Modes :	AM - NFM - WFM (all bands)
Receiving Sensitivity :	Below 2MHz Less than 10μV for 20dBQ AM
	15 - 600MHz and 805 - 1300MHz Less than 0.5μV for 12dB SINAD FM
	15 - 600MHz Less than 2μV for 20dBQ AM 60% modulation
	15 - 600MHz Less than 3μV for 30dB 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. External 12v DC supply also used for charging.
Power Consumption:	Standby with Squelch on:approx 83mA Receive mode 1/2 power:approx 87mA Receive mode Maximum audio: approx 105 mA -20°c to +50°c.
Audio Output :	Over 100mW for 10% or less THD
Search Increments:	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

We reserve the right to make technical changes to the specifications without prior notice.