

# C-FAX

## Model 2

### RADIO FACSIMILE RECEIVER



## USER HANDBOOK

BHM Electronics

# CONTENTS

Introduction	3
Unpacking	3
Mounting	4
Connecting Power and Aerial	4
Loading Paper	5
The Controls	6
Using the C-Fax	7
Sample Weather Maps	9
Weather Map Abbreviations	10
Detailed Description of the Controls	11
Care of the C-Fax	14
Using an External Receiver	14
Trouble Shooting	15
Replacing the Fuse and Battery	15
Specifications	16
Wiring Connections	17
Frequency List	18

# Introduction

The C-Fax radio facsimile receiver has been designed as an easy to use, reasonably priced unit with low operating costs.

The latest in materials and finishes ensure durability and long life, and the small size enables fitting in areas where space is at a premium.

The paper used in this machine is a standard type used in office fax machines and is generally available from most office supply shops.

Information contained in the weather maps received can be analysed to give useful insight into the weather trends for your particular part of the world. This makes it a valuable tool for those to whom the elements are important in their lifestyle or occupation. Useful books on the interpretation of these maps are available through most larger book stores. After a little practice you will find that quite reliable predictions can be made as to future weather conditions.

# Unpacking

Remove the unit from the packing and check that the following is included:

- 1 x C-Fax radio facsimile receiver
- 1 x roll of thermal paper, 216mm by 30m
- 1 x 2m long power lead with 4 pin plug
- 1 x 2m coaxial aerial lead with BNC plug
- 1 x wall mounting bracket, fixed to rear of C-Fax
- 2 x spare fuses (2 amps)
- 1 x user handbook
- 1 x New Zealand and Australian schedule

## Mounting the C-Fax

The C-Fax may be left free standing or wall mounted on the supplied bracket. To fix the C-Fax to a wall, remove the mounting bracket from the rear of the C-Fax by taking out the two screws holding it at the bottom. Screw the bracket to the wall, slide the C-Fax back onto the bracket and replace the two bottom screws.

## Connecting Power and Aerial

Plug the power lead into the labelled round 4 pin socket on the panel on the right side of the C-Fax. The other end of the lead is connected to the power source, red wire to positive, black wire to negative. The C-Fax can operate on a direct current (DC) voltage of from 12 to 24 volts.

Caution! The power lead from the C-Fax must not be connected directly to the mains power supply (110V or 230V AC). For use with the mains supply a suitable power supply must be used which can supply a DC voltage in the range of 12 to 24 volts at 1.5 amps. Such a power supply is available as an optional extra for the C-Fax.

The aerial lead plugs into the BNC socket on the side panel. At the other end the center conductor of the coaxial cable should be connected to an outside wire aerial. This should consist of a length of wire approximately 10 to 12 metres long (30 to 40 feet). The wire should run horizontally and be supported at each end by insulators, with a lead taken from one end to the C-Fax. The aerial is not critical, try any existing high frequency aerial first.

Caution! Never connect the C-Fax to an aerial used by a radio transmitter. Severe damage could occur to the receiver in the C-Fax.

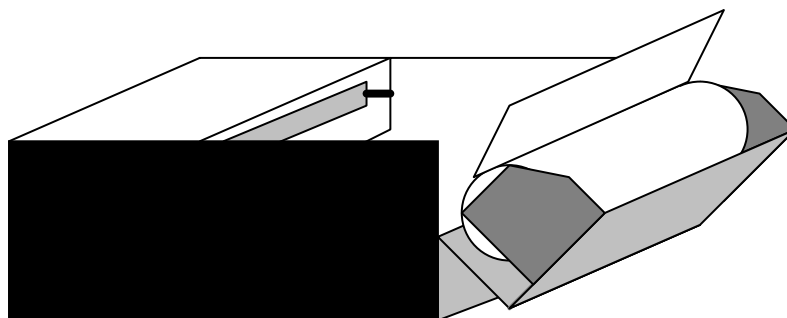
The outside shield on the end of the aerial cable can be connected to an earth, such as the hull of a metal boat or a metal rod driven into the ground as close as practical to the C-Fax. This earthing is not absolutely necessary but can be of help in reducing interference on the printed pictures.

## Loading Paper

The C-Fax uses standard telephone fax machine paper, 216mm wide, the recommended paper length is 30m.

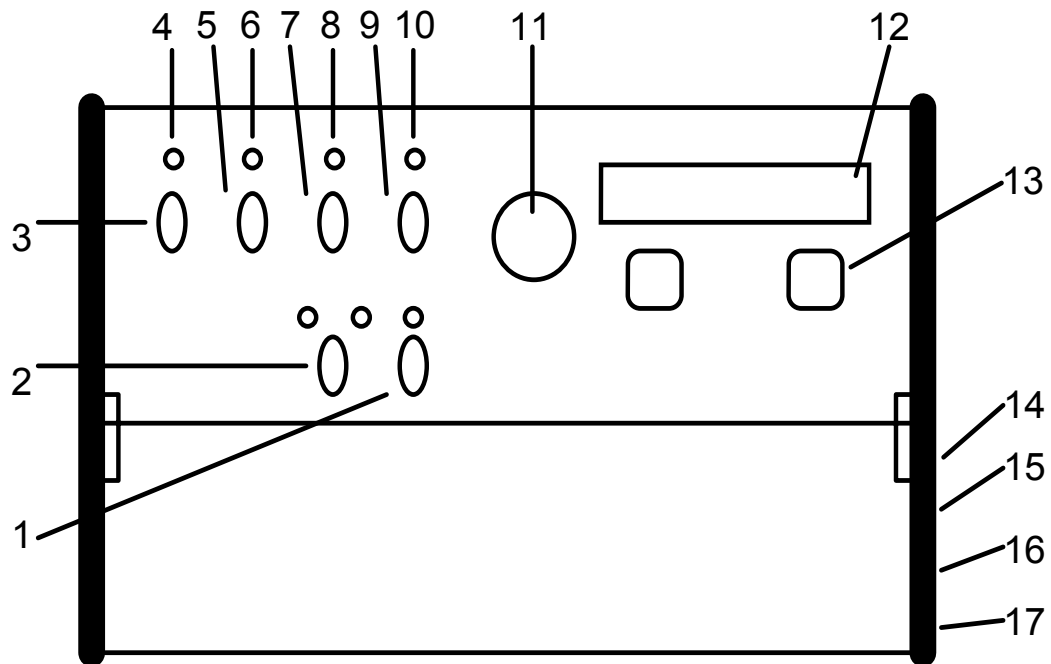
To load a roll of paper into the C-Fax, open the two catches located each side on the front. Pull the lower edge of the catch away from the C-Fax and then unhook the upper edge. The lower section of the case will then open down. Remove the empty roll by pushing it to the right against the spring and then pulling it up and out.

Insert a new roll of paper by pushing the right end against the spring and then pushing the left end down. Make sure the outside surface of the paper roll is against the print head, as shown in the illustration below. This is the side of the paper that the C-Fax prints on. Pull the paper up and out the front before closing the door.



To close the paper compartment, push the cover closed until both parts of the catches interlock. Then hook the lower catch over the upper part and push the lower catch down until it clicks into place.

# The Controls



## Brief Description of the Controls

- 1 IOC Selection - default is 576, red light is on for 288
- 2 Paper Speed - default is 120 lines/minute, yellow light indicates 60, green 90
- 3 Audio On/Off/Picture Align
  - Up - received signal audible
  - Centre - no audio
  - Down - hold down to manually align picture
- 4 Align Indicator - used for manual align
- 5 Fast Paper Feed
- 6 Paper Out Indicator
- 7 Stop/Auto/Start
  - Up - receiver only, no printing
  - Centre - automatic start/print/stop
  - Down - continuous printing
- 8 Run Indicator - printer is operating
- 9 Power On/Off
- 10 Data Indicator - printing signal
- 11 Contrast Control - fine tuning
- 12 Channel Display
- 13 Channel Selection Buttons
- 14 Fuse
- 15 Power Input Socket
- 16 External Receiver Input
- 17 Aerial Input Socket

# Using the C-Fax

## Switching On

Make sure power plug and aerial connections have been made and that a roll of paper is properly inserted in the C-Fax, as described on pages 4 and 5.

Move the power switch (number 9 in the picture on the previous page) down. The channel display (12) should show the current channel number, location and frequency the C-Fax is listening to.

for example:

003	NZ	5807
-----	----	------

This indicates that the receiver is set to channel 3, which is a New Zealand frequency of 5807 kHz (kilohertz).

If the C-Fax has not been used before it may be set to an unused channel, for example channel zero shows the date the internal frequency list was last updated.

## Selecting a Channel

To change the channel use the two channel selection buttons (13) to move up or down the list. Refer to the frequency list starting on page 18 to find the channel number of a station transmitting near you, then change to this channel.

The yellow data light (10) should be on or flickering. This indicates a signal is present.

If it is not already on, turn on the audio by flicking the Audio switch (3) up. You should be able to hear the received signal.

If you hear a continuous tone, this is a tone many stations send between maps. If you can hear a signal quickly changing between two tones then a picture is being sent. Try all the different frequencies for your local station to find the signal which sounds loudest and has the least static in it.

## Printing a Picture

Set the Start switch (7) to the middle position for automatic stop and start.

When a picture is sent it is preceded by a start signal, telling the receiver to start printing. This is heard as a tone lasting from 5 to 10 seconds. Next the transmitting station sends the alignment signal which synchronises the picture being sent with that being printed. This usually sounds as two tones, a very short tone and a longer half second tone, repeated for 30 seconds. Following this is the actual picture, which is two tones alternating randomly. The

picture generally takes about 15 minutes to send. Finally the stop signal is sent. This is 5 seconds of alternating tones followed by 10 seconds of a steady tone.

You may turn off the audio by putting the Audio switch (3) back to the middle position. It is only required for determining the signal quality of a channel.

While the C-Fax is left on Automatic it will start and stop printing whenever a picture is received. You will generally not need to do anything else.

If for some reason the C-Fax misses the stop signal, for example if the radio signal becomes very noisy or fades, it will continue to print even after the picture has finished. A built in timer will automatically stop the C-Fax printing after about 40 minutes if it hasn't had a stop signal, minimising paper wastage.

### **Useful Hints**

If you switch on the C-Fax and the start tone has passed and a picture is being printed, switch the Stop/Auto/Start switch down to start the printer, then back to Auto. Let it print for about 10 seconds then fast feed the paper out a little to see where the edge of the picture is positioned. Manual alignment can now be carried out as described on page 11.

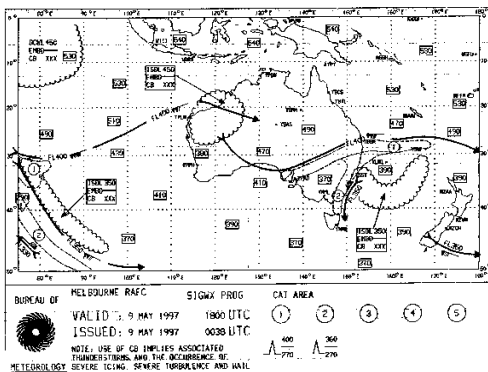
If the printer is started after the start tone but during the phasing pulse period (during the first 10 seconds or so) it will automatically align the picture.

Before tearing off the paper fast feed out about 5cm so as not to leave any of the printout inside the C-Fax.

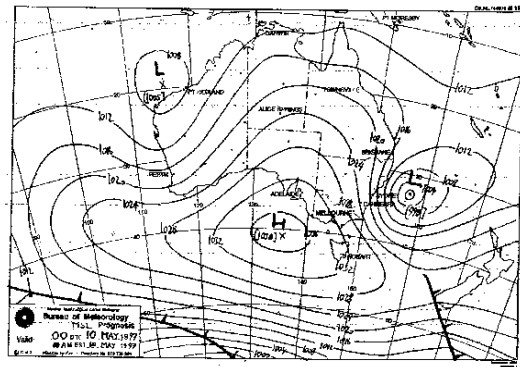
Tearing off the paper is best done in a downwards direction against the edge of the metal strip.

# Sample Weather Maps

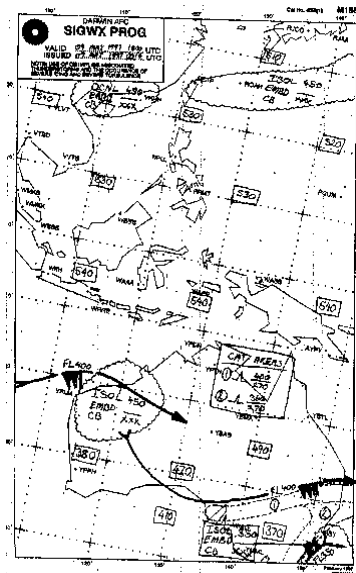
Australia Significant Weather Prognosis



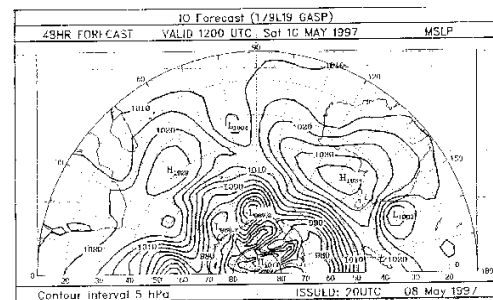
Australia Mean Sea Level Prognosis



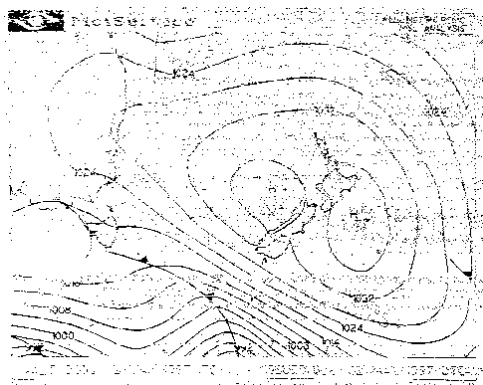
Darwin Tropics Significant Weather Prognosis



Indian Ocean Mean Sea Level Prognosis



Example of a noisy signal



# Weather Map Abbreviations

These are some of the common abbreviations you will see on weather maps.

## Map areas

ASIA	50°N to 50°S, 100°E to 180°
IO	Indian Ocean
NPAC	50°N to 50°S, 160°E to 110°W
NREG	Equator to 50°S, 140°E to 140°W
NZ	New Zealand
SPC	South Pacific (Australia to South America)
SWP	South West Pacific (Australia to Tahiti)
TNZ	Tasman Sea and New Zealand

## Map Types

ANAL	Analysis
FCST	Forecast
MAR WX	Significant Marine Weather
NEPHANAL	Nephanalysis (analysis of cloud information taken from satellite pictures)
PROG	Prognosis
SIG WX	Significant Aviation Weather
TEMP	Temperatures

## Levels

MSL	Mean Sea Level
700MB	Height of 700 millibar pressure level (10000 feet)
500MB	Height of 500 millibar pressure level (18400 feet)
250MB	Height of 250 millibar pressure level (34000 feet)

## Time

GMT	Greenwich Mean Time
UTC	Coordinated Universal Time
(H+number)	Number is number of hours ahead for forecast

# Detailed Description of the Controls

Numbers in brackets refer to the picture on page 6

## Audio On/Align switch (3) and Align light (4)

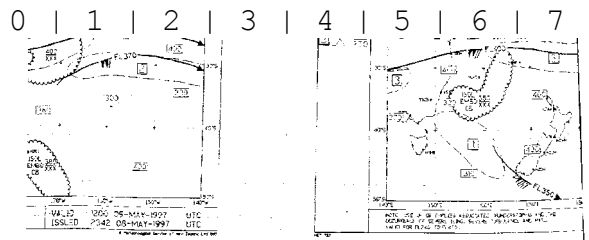
When this switch is placed in the up position then audio from the receiver can be heard. This can be used to listen to the quality of the radio reception on any of the channels. Placing the switch back in the center position turns off the sound.

If a map printout is started manually or if the synchronising signal at the beginning of a transmission is missed the picture may be out of alignment. This shows up as a picture starting part way along the paper instead of at the left side.

To manually align a picture:

- Look at the picture being printed
- Find the normal left hand edge of the picture
- Note where this is on the 0-7 scale on the front panel
- Hold down the align switch (3)
- Count the number of flashes of the align light (4)
- When this is equal to the number on the scale release the align switch promptly
- The rest of the picture should be correctly aligned

In the sample map below you would need to hold the align switch for 4 flashes of the align light to realign the left edge.



## Fast Paper Feed switch (5)

This switch is used to feed the paper out at a faster than normal rate. This allows a completed map to be cleared from the C-Fax printer before tearing it off.

It is also useful for the manual align procedure described above, by feeding out some of the picture so it is possible to check the alignment sooner.

## Paper Out indicator light (6)

When the end of the paper roll is reached this red light will flash to indicate the C-Fax is out of paper, and the C-Fax will stop printing. There is normally a warning stripe printed on most types of paper near the end which shows during the last metre or two to warn that the paper is running out.

Note: Some brands of paper are glued to the center core, in this case the paper out light will not operate as the paper remains in the print area. If you find this happening try changing the roll within a few maps of the warning stripe appearing.

### **Stop/Auto/Start switch (7) and Run light (8)**

In the up position the printer is off. Only the receiver is working. The green run light is off. In the centre position the printer automatically starts and stops printing pictures using the received start and stop signals. The run light is on during printing. In the down position the printer starts and prints continuously. The run light remains on. If you have missed the start signal of a picture moving the switch down will start the picture printing. Moving the switch back to Auto lets the picture print until the normal stop signal is received. Starting a picture manually normally requires it to be manually aligned on the paper, see the Align section on the previous page.

### **Power switch (9)**

In the up position the C-Fax is turned off. In the down position the C-Fax is turned on. The channel display back lighting turns on and the last used channel is shown.

### **Data light (10)**

The yellow data light turns on when a signal is received. It will normally flicker when a picture is being sent.

### **Contrast Control (11)**

This knob is used to control picture print quality. It acts as a fine tune control for the radio receiver. Normally it is left with the pointer set vertically, in line with the index mark. In noisy reception conditions it may help to set this control a little anticlockwise from normal.

Note: if this control is set too far from centre in either direction it may affect the automatic start/stop function. Use with caution.

### **IOC Switch (1)**

Pressing this switch changes the IOC (index of cooperation) which the C-Fax uses. A red light indicates the IOC is set to 288. Pressing the switch again changes it back to the default setting of 576. The IOC is used to determine the speed at which the picture is sent and printed. Most stations, including those in New Zealand and Australia, use the default IOC of 576. Most stations which use an IOC of 288 send a different start tone with their pictures which will automatically change the C-Fax to 288.

### **Paper Speed (2)**

Pressing this switch changes the paper speed from 120 lines per minute to 60 and then 90 with each successive press. Most stations, including those in New Zealand and Australia, use the default speed of 120. The paper speed must be manually set if the picture you wish to receive is sent at a speed other than 120.

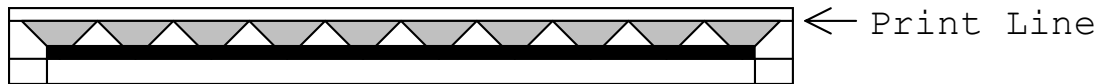
## Care of the C-Fax

There are no parts to be lubricated.

When a new roll of paper is fitted remove any paper scraps or dust from the paper compartment. At this time also check and clean the rubber pressure roller if necessary.

If a printed picture has vertical light stripes through it the most likely cause is dirt on the print head. If this problem appears open the paper compartment and check the print head, which is mounted on a horizontal metal bar at the top of the paper compartment. Near the top of the print head is a narrow black line. Dirt on this print line causes the reduced print density. This should be gently wiped clean with alcohol (methylated spirits or isopropyl alcohol) on a clean lint free cloth or paper tissue.

The rubber pressure roller should also only be cleaned with alcohol.



This problem can be kept to a minimum by taking care when fitting paper rolls that the outside layer of paper is clean and by not touching the print head.

Avoid excessive cleaning of the print head or the use of abrasive substances.

## Using an External Receiver

An external receiver may be used with the C-Fax. It must be a crystal controlled or synthesised SSB (single side band) type, with LSB (lower side band) mode.

Connection should be made from either the speaker output or line level output of the external receiver to the audio socket on the side panel of the C-Fax. This input will accept a wide range of signal levels from 100mV to 3V RMS. Putting a plug into the external receiver socket automatically overrides the internal receiver.

Switch the external receiver to LSB and tune it to 1.9kHz above the required frequency.

The contrast control on the C-Fax is inoperative when using an external receiver. The BFO control on the receiver should be used for fine tuning instead.

# Trouble Shooting

## Unit is dead - no lights

- Check Power switch is on (down)
- Power lead is connected
- Fuse on side panel is intact
- Power polarity, red wire of lead is positive, black is negative
- Voltage to the C-Fax is correct, between 12 and 24V

If all these check ok, or if the fuse fails again after replacement, seek technical assistance.

## No Printing

- Check Paper Out light is not flashing, if it is replace the paper
- Paper is fitted correctly
- Run switch is in Auto or Start position

# Replacing the Fuse

The fuse on the side panel can be removed for checking or replacement by unscrewing the cap anticlockwise.

This fuse protects some very expensive components inside the C-Fax. It must only be replaced with one of the same rating. The warranty is void if a heavier fuse is used.

The fuse is the standard small size, 20 x 5mm, 2A current rating.

# Replacing the Battery

The C-Fax uses an internal battery to maintain the last channel memory when it is not turned on. The battery has an expected life of at least five years. If the C-Fax no longer retains the last channel used when switched back on then the battery needs replacing. Return the C-Fax to the supplier or a qualified technician as the internal battery is soldered in.

Replace with lithium cell type CR2032 vertical PCB mount.

# Specifications

RECORDING SYSTEM	Printing by static thermal head on thermal paper
RECORDING PAPER	High sensitivity thermosensitive
INDEX OF COOPERATION	288 and 576
SCANNING SPEED	60, 90 and 120 lines per minute
RESOLUTION	8 dots/mm
START AND STOP	Automatic or manual
PHASING	Automatic or manual
DATA TONES	White 1500Hz Black 2300Hz
RECEIVING SYSTEM	Double conversion superheterodyne
NUMBER OF CHANNELS	256 pre-programmed
FREQUENCY RANGE	50kHz to 30MHz
RECEPTION MODE	F4
RECEIVE IF FREQUENCY	45MHz & 455kHz
BFO FREQUENCY	453.1 kHz
SENSITIVITY	2 microvolts for useable copy
FINE TUNING	Front panel contrast control
DIMENSIONS	322mm wide x 250mm high x 95mm deep
WEIGHT	Approx. 4kg
MOUNTING POSITIONS	Vertical or horizontal, free standing or on bracket supplied
POWER SUPPLY	12 to 24V DC
POWER CONSUMPTION	12W when printing
OPTIONS	230V AC to 12V DC Power Supply

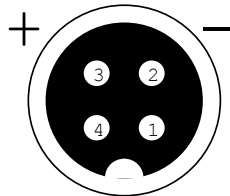
NOTE: All effort will be made to supply the equipment as per the specifications, however we reserve the right to change any of the above details without notice.

# Wiring Connections

## Power

Supplied via a 4 pin round line socket, standard threaded locking collar.

### Side Panel Power



pin 1 unused  
pin 2 negative (black)  
pin 3 positive (red)  
pin 4 unused

Power supply 12 to 24V DC at 1.5A, 12W maximum

## Audio In

Standard 3.5mm mono audio plug for external receiver.

Center is signal, outside is signal return.

Level: 100mV to 3V RMS

## Frequency list for the C-Fax

BHM C-FAX 250297      Frequency list updated 25 February 1997

<b>Channel</b>	<b>Country, Location</b>	<b>Standards LPM/IOC</b>
001 ANTARCT 7470	Antarctic, Casey	120/576
002 ANTARC 11455		
003 NZ 5807	New Zealand, Auckland	120/576
004 NZ 9459		
005 NZ 13550.5		
006 NZ 16340.1		
007 AUS MLB 2628	Australia, Melbourne (AXM)	120/576
008 AUS MLB 5100		
009 AUS ML 11030		
010 AUS ML 13920		
011 AUS ML 20469		
012 AUS DRW 5755	Australia, Darwin (AXI)	120/576
013 AUS DRW 7535		
014 AUS DW 10555		
015 AUS DW 15615		
016 AUS DW 18060		
017 GUAM 5258	Guam, USN Apra Harbour	120/576
018 GUAM 5262		
019 GUAM 10253		
020 GUAM 10257		
021 GUAM 16027.6		
022 GUAM 19858		
023 GUAM 19862		
024 GUAM 23010		
025 TAIWAN 4616	Taiwan, Tai-pei	
026 TAIWAN 5250		
027 TAIWAN 8140		
028 TAIWAN 13900		
029 KOREA 5857.5	South Korea, Soul	120/576
030 KOREA 7433.5		
031 HK 16904.3	Hong Kong, Victoria Harbour	
032 SHANGHI 7420	China, Shanghai	120/576
033 SHANGH 11420		
034 SHANGH 18940		
035 JAPAN 3365	Japan, Tokyo 1	120/576
036 JAPAN 5405		
037 JAPAN 9438		
038 JAPN 14692.5		
039 JAPN 18441.2		
040 JAPAN 3622.5	Japan, Tokyo 2	
041 JAPAN 7305		
042 JAPAN 9970		
043 JAPAN 13597		
044 JAPAN 18220		

045	JAPN 23522.9		
046	KHBRV 4516.7	Russia, Khabarovsk	120/288
047	KHBRVSK 7475		60/576, 90/576, 120/576
048	KHBRVSK 9230		
049	KHBRVS 14610		
050	KHBRVS 14737		
051	KHBRVS 19275		
052	ALASKAK 4298	Alaska, USCG Kodiak	120/576
053	ALASKAK 8459		
054	ALASKAA 8494		
055	HONOL 9982.5	Hawaii, Honolulu	120/576
056	HONOLU 11090		
057	HONOLU 16135		
058	HONO 23331.5		
059	HAWAI P 4855	Hawaii, USN Pearl Harbour	120/576
060	HAWAI P 9398		
061	HAWAIP 21785		
062	CANADAI 3253	Canada, CCG Iqaluit	120/576
063	CANADAI 7710		
064	US OMAH 3232	United States, USAF Omaha	
065	US OMAH 4857		
066	US OMA 11122		
067	USA SF 4346	United States, USCG San Francisco	120/576
068	USA SF 8682		
069	USA SF 12730		
070	USSF 17151.2		
071	USA SF 22527		
072	ARGENTI 5185	Argentina, Buenos Aires	120/576
073	ARGENT 10720		
074	ARGN 18621.5		
075	ARGENTE 5185		
076	ARGENT 10720		
077	ARGN 18621.5		
078	US NRFK 3357	United States, USN Norfolk	120/576
079	US NRFK 8080		
080	US NRF 10865		
081	US NRF 15959		
082	US NRF 20015		
083	BOSTON 3264	United States, USCG Boston	120/576
084	BOSTN 6340.5		
085	BOSTON 7530		
086	BOSTON 9110		
087	BOSTON 12750		
088	CANA H 122.5	Canada, CF Halifax	120/576
089	CANADAH 4271		
090	CAN H 6496.4		
091	CANA H 10536		
092	CANA H 13510		
093	ICELD 3820.5	Iceland, USN Keflavik	120/576
094	ICELAND 9318		
095	ICELND 18486		
096	UK BR 2618.5	United Kingdom, Bracknell	120/576
097	UK BRAC 4610		
098	UK BRAC 8040		

099	UK BRC	14436		
100	UK BRC	18261		
101	GRMNY H	3855	Germany, Hamburg	120/576
102	GRMNY H	7880		
103	GRMH	13882.5		
104	GRM G	2342.5	Germany, Grengel	120/576
105	GRMNY G	3302		
106	GRM G	4570.5		
107	GRMN O	117.4	Germany, Offenbach	120/576
108	GRMN O	134.2		
109	DENMARK	5850	Denmark, Copenhagen	120/576
110	DENMARK	9360		
111	DENMRK	13855		
112	DENMRK	17510		
113	CZECH	111.8	Czech Republic, Prague	120/576
114	SPAIN	6918.5	Spain, Madrid	120/576
115	SPAIN	10250		
116	SPAIN R	4623	Spain, USN Rota	120/576
117	SPN R	5864.5		
118	SPAIN R	9373		
119	SPAN R	11485		
120	SENEGL	13666	Senegal, Dakar	60/576, 120/576
121	SENEGL	19751		
122	ITALY	4777.5	Italy, Rome	120/576
123	ITALY	8146.6		
124	ITLY	13597.4		
125	GREECE	8530	Greece, Athens	120/576
126	TURKEY	3377	Turkey, Ankara	90/576
127	TURKEY	6790		
128	EGYPT	4524.5	Egypt, Cairo	
129	EGYP	10121.1		
130	KENYA	9045	Kenya, Nairobi	120/576
131	KENYA	16187		
132	KNYA	17445.5		
133	UK BR	2618.5	United Kingdom, Bracknell	120/576
134	UK BRAC	4610		
135	UK BRAC	8040		
136	UK BRC	14436		
137	UK BRC	18261		
138	GRMNY H	3855	Germany, Hamburg	120/576
139	GRMNY H	7880		
140	GRMH	13882.5		
141	GEORGIA	3745	Georgia, Tbilisi	60/288, 60/576, 90/576
142	GEORGIA	7495		
143	DENMARK	5850	Denmark, Copenhagen	120/576
144	DENMARK	9360		
145	DENMRK	13855		
146	DENMRK	17510		
147	MOSCOW	53.6	Russia, Moscow	90/288, 120/288
148	MOSCOW	144.5		60/576, 90/576, 120/576
149	MOSCOW	2815		
150	MOSCOW	3395		
151	MOSCOW	3875		
152	MOSCOW	4550		

153	MOSCOW	4560		
154	MOSCOW	5150		
155	MOSCOW	5355		
156	MOSCOW	6880		
157	MOSCOW	7670		
158	MOSCOW	7750		
159	MOSCOW	10230		
160	MOSCOW	10980		
161	MOSCOW	11525		
162	MOSCOW	12165		
163	MOSCOW	13470		
164	MOSCOW	15950		
165	MURMNSK	5335	Russia, Murmansk	90/576, 120/576
166	MRMNSK	10130		
167	YEKATER	3255	Russia, Yekaterinburg	
168	SAMARA	4530	Russia, Samara	
169	SAMARA	5102		
170	ROSTOV	3610	Russia, Rostov-na-Donu	60/576, 90/576
171	ROSTOV	5280		
172	ROSTOV	7630		
173	ROSTOV	7968		
174	ROSTOV	9100		
175	ARKHNGL	3657	Russia, Arkhangelsk	
176	ARKHNGL	5347		
177	ARKHNGL	7762		
178	KHBRV	4516.7	Russia, Khabarovsk	120/288
179	KHBRVSK	7475		60/576, 90/576, 120/576
180	KHBRVSK	9230		
181	KHBRVS	10220		
182	KHBRVS	14610		
183	KHBRVS	14737		
184	KHBRVS	19275		
185	BELARUS	3810	Belarus, Mensk	
186	BELARUS	7575		
187	BELARUS	7640		
188	UZBKSTN	3280	Uzbekistan, Tashkent	120/288
189	UZBKSTN	4365		60/576, 90/576, 120/576
190	UZBKSTN	5285		
191	UZBKSTN	5890		
192	UZBKSTN	7570		
193	UZBKSTN	8083		
194	UZBKSTN	9150		
195	UZBKSTN	9340		
196	UZBKST	13947		
197	UZBK	14982.5		
198	BEIJING	5527	China, Beijing	120/576
199	BEIJING	8122		
200	BEIJNG	10117		
201	BEIJNG	14367		
202	BEIJNG	14545		
203	BEIJNG	16026		
204	BEIJNG	18237		
205	SHANGHI	7420	China, Shanghai	
206	SHNGHI	11420		

207	SHNGHI	18940		
208	HONG	16904.3	Hong Kong,Victoria Harbour	
209	KOREA	11476	South Korea,Soul	120/576
210	KOREA	13580		
211	THAILND	7395	Thailand,Bangkok	120/576
212	THAILD	17520		
213	INDIA	4993.5	India,Delhi	120/576
214	INDIA	7403		
215	INDIA	10107		
216	INDIA	14842		
217	INDIA	18232		
218	REUNION	8176	Reunion,Saint Denis	120/576
219	REUNIN	16335		
220	DIEGO G	7582	Diego Garcia,USN Diego Garcia	120/576
221	DIEGOG	12806		
222	DIEGOG	20302		
223	S AFRCA	7508	South Africa,Pretoria	120/576
224	SAFRCA	18238		
225	KENYA	9095	Kenya,Nairobi	120/576
226	KENYA	16187		
227	KNYA	17445.5		
228	EGYPT	4524.5	Egypt,Cairo	
229	EGYP	10121.1		
230	TURKEY	3377	Turkey,Ankara	90/576
231	TURKEY	6790		
232	GREECE	8530	Greece,Athens	120/576
233	ITALY	4777.5	Italy,Rome	120/576
234	ITALY	8146.6		
235	ITLY	13597.4		
236	blank	0		
237	blank	0		
238	blank	0		
239	blank	0		
240	blank	0		
241	blank	0		
242	blank	0		
243	blank	0		
244	blank	0		
245	blank	0		
246	blank	0		
247	blank	0		
248	Test	50	Frequencies for testing receiver	
249	Test	218.75		
250	Test	1750		
251	Test	3500		
252	Test	7000		
253	Test	14000		
254	Test	28000		
255	serial #	0	Individual serial number	



Manufactured by  
**BHM Electronics**  
Invercargill  
New Zealand

Delivery Address: 287 Dee Street, Invercargill  
Postal Address: PO Box 787, Invercargill 9840  
Phone: 0-3-218 3495  
Fax: 0-3-218 3494  
International Phone: +64 3 218 3495  
International Fax: +64 3 218 3494  
E-mail: [bhm@bhmelectronics.co.nz](mailto:bhm@bhmelectronics.co.nz)