PROGRAMMING THE IRC PATHFINDER MOBILE RADIO

1. INSTALLING THE PROGRAMMING SOFTWARE

   The programming software can either be run directly from the disk supplied or can be installed onto the PC hard disk.

   To run the software from the stiffy disk
   Insert the disk into drive A or B and type 'RM4PROG' from the A/B DOS prompt

   To install & run the software from the hard drive (recommended)
   Create a directory on hard drive \IRCPROM, copy RM4PROG.EXE from the stiffy disk to this directory & type 'RM4PROG' from the C/D DOS prompt

   To run the programming software from Windows (after installation to Hard Disk)
   Double Click on the 'My Computer' Icon, Double Click on the 'C:' Icon
   Double Click on the 'IRCPROM' folder, Double Click on the 'RM4PROG' Icon

2. INSTALLING THE PROGRAMMING 'DONGLE'

   Install the 9 Pin D female connector of the Programming Dongle into either COM1 or COM2 on the computer. Use a 25Pin to 9 pin COM Port adapter if the computer is fitted with a 25 Pin connector. Note that the COM port connector on the computer is always a male type.

   Plug the female connector on the programming cable into the other side of the programming dongle. Plug the 8 way RJ45 connector into the MIC/HEAD socket on the radio.

   NOTE : The radio must be powered-up for programming or reading.

3. PROGRAMMING THE RADIO (Summary)

   Enter the programming data required for the radio in the programming software screens. There are four screens:

   a. Main channel screen
   b. Channel Identification screen (accessed using the 'TAB' key).
   c. Radio options (accessed using the 'F4' key).
   d. Five-tone calls (accessed using the 'F2' key).

   The hot-keys relevant to the current screen as well as a help message are shown at the bottom of the screen.

   After all relevant data has been entered it can be saved to disk using the 'F6' (store) key. Previously saved information can be recalled from disk using the 'F8' key.

   After all channel, radio options and five-tone information has been entered, the radio can be programmed.

- Connect the Programming Dongle and cable as described above.
- Ensure the radio is powered up
- Press ‘F10' to program the radio.
- Select the COM port (1 or 2).

A progress bar is displayed as the radio is programmed.

After programming, the radio resumes normal operation and the control head can be re-connected.

4. READING THE RADIO

Plug the programming dongle and cable between the radio and the computer as described above.

Press <F9> to read the radio. Select the COM port (1 or 2). A progress bar is displayed as the radio is read. The data stored in the radio will be displayed on the screen. This program information may now be altered, the radio reprogrammed and the new configuration saved to disk as necessary. After reading, the radio resumes normal operation and the control head can be re-connected.

5. PROGRAMMING THE RADIO (detailed)

a. Main channel screen – on running the RM4PROG program, the following screen is displayed (except for the sample data)

```
        PROGRAMMER FOR IRC PATHFINDER MOBILE RADIO                  VER 09-2000
-------------------------------------------------------------------------------
CUSTOMER:  Anglo American Coal Division                        SERIAL No: 00000
-------------------------------------------------------------------------------
CHAN        FREQUENCY-MHz    SCAN  BCLO   CTCSS       DCS     5TONE  ANI  SEL
 No          Tx       Rx              ENC   DEC    ENC  DEC  RESP       CALL
-------------------------------------------------------------------------------
  1       151.4275  151.4275
  2       151.4275  152.6750  S     Y   67.0  67.0
  3       151.4275  152.6750  S     Y   71.9  77.0
  4       151.4275  152.3675  S     Y              023  023
  5       151.4275  152.3675  SP    Y   82.5            065   P           1
  6
  7
  8
  9
 10
 11
 12
 13
 14
 15
 16
 17
 18
-------------------------------------------------------------------------------
EDIT KEYS : TAB, CURSORS, PGUP/DWN, F1=DITTO, F2=5-TONE, F3=SIMPLEX, F4=OPTIONS
FILING KEYS: F5=NEW  F6=STORE   F8=RECALL  F9=READ  F10=PROGRAM  F11=SETUP
Enter the transmit frequency in MHz
```

By using the <Tab> toggle key, the above screen is alternated with the following screen.

These screens both apply to the per channel options of the radio configuration. To return back to the main screen, press the <Tab> key again. This screen allows configuration of the transmitter power, CTCSS deviation and channel descriptions for Line 1 & Line 2 on the LCD display.

```
        PROGRAMMER FOR IRC PATHFINDER MOBILE RADIO                  VER 09-2000
-------------------------------------------------------------------------------
CUSTOMER:  Anglo American Coal Division                      SERIAL No: 00000
-------------------------------------------------------------------------------
PWR  CT DEV CHANNEL ID LINE1  CHANNEL ID LINE2 CHAN    FREQUENCY-MHz   SCAN
(W)   (Hz)                                      No      Tx       Rx
-------------------------------------------------------------------------------
30    300   CHANNEL Private   Channel            1   151.4275 151.4275
30    300   CHANNEL Trnsport  Depot              2   151.4275 152.6750  S
30    300   CHANNEL Dispatch  Control            3   151.4275 152.6750  S
30    300   CHANNEL Electric  Department         4   151.4275 152.3675  S
30    300   CHANNEL Security  Department         5   151.4275 152.3675  SP
30    300   CHANNEL 6_______                     6
30    300   CHANNEL 7_______                     7
30    300   CHANNEL 8_______                     8
30    300   CHANNEL 9_______                     9
30    300   CHANNEL 10______                    10
30    300   CHANNEL 11______                    11
30    300   CHANNEL 12______                    12
30    300   CHANNEL 13______                    13
30    300   CHANNEL 14______                    14
30    300   CHANNEL 15______                    15
30    300   CHANNEL 16______                    16
30    300   CHANNEL 17______                    17
30    300   CHANNEL 18______                    18
-------------------------------------------------------------------------------
EDIT KEYS  : TAB, CURSORS, PG UP/DWN, F2=5-TONE, F4=OPTIONS
FILING KEYS: F5=NEW   F6=STORE   F8=RECALL  F9=READ  F10=PROGRAM
Enter the first 8 characters identifying the Channel (Top line)
```

General Guidelines

- Options are programmable for each channel
- Help is displayed on the bottom line of the screen. These are context sensitive and will generally present the user with the key's that may be used in the keyboard to change the options in that field
- To remove the entry in any field, press the <Delete> key whilst on that field
- The <Tab> key toggles the display of screen 1 & 2 above
- The <<PageDn> / <PageUp> keys move down and up respectively to display the next page of available channels
- The cursor/arrow keys permit navigation between fields (only if not in data entry mode in within that field)
- <F1> - if on an entry, depressing this will cause that entry to be copied to the next line down (to the next channel)
- <F2> - displays the 5 Tone programming screen. To return to the main screen, press <Esc>
- <F3> - Simplex – if after entering a frequency in the Tx or Rx field, depressing this will make that channel simplex (ie. Same Tx and Rx frequencies)
- <F4> - Options – presents the non channel specific options page. To return to the main page, press <Esc>
- <F5> - New – removes all data entries on the current programming sheet & presents the user with a clean programming sheet
- <F6> - Store – Allows the user to save all entries to disk. A reference (generally a Customer Name) should be provided. The CUSTOMER field will be updated with this.
- <F8> - Recall – Allows entries saved on disk to be loaded. A table will be presented showing the references of the files on disk
- <F10> - Program – Downloads the data on the current sheet to the radio.
- <F11> - Setup> - To set up the radio parameters (reference frequency, deviation, RF Power)

Programming prompts :

PROMPT	OPTIONS	DESCRIPTION
FIRST SCREEN		
CUSTOMER	NONE	When using <F6> to store the file, it will prompt for the Customer Name & the programming options on this sheet will be stored under this customer name
SERIAL NO	NONE	When programming the radio using <F10>, you will be prompted for the serial number of the radio. This will be programmed into the radio. When reading data from the radio, this field will be updated automatically with the radio serial number.
FREQUENCY -MHz	TX / RX	The transmit (Tx) and receive (Rx) frequency of the channel in MHz
SCAN	Blank S – Normal Scan P- Priority Scan	The Scan option for this channel. Leaving the field blank indicates that the channel will NOT be scanned. **S** will allow normal scanning of the channel. **P** is priority scan – the radio will during its scanning process alternate between this channel and each other normal scanned channel during the scanning process. Only **one** priority scan channel can be programmed. To clear the Scan field, press the <Delete> key.
BCLO	Y(es) / N(o)	If Y(es) the radio prohibits transmission on a channel which is busy (ie. A channel which has a carrier present.) This is indicated by the radio emitting a tone when the PTT is pushed. Most commonly used and is generally mandatory on Community repeater channels
CTCSS	ENC(ode) DEC(ode)	The CTCSS (sub audio) frequency. This is entered using the numeric numbers. In the event an illegal frequency is entered, a selection list of valid frequencies is presented to the user to choose from. Highlight the desired frequency & press <Enter>. A blank in either field indicates that **no** CTCSS is required on that channel for ENC(ode) or DEC(ode). Either or both ENC(ode) and DEC(ode) fields may be left blank or be programmed with a frequency. **TIP: For speedy error free entry, enter in one number on the keypad and press the <Enter> key to force the software to present a list of valid freuencies. Then select the desired frequency from this list**
DCS	ENC(ode) DEC(ode)	The DCS (Digitally coded squelsch) code. This is entered using the numeric numbers. In the event an illegal code is entered, a selection list of valid codes is presented to the user to choose from. Highlight the desired code & press <Enter>. A blank in either field indicates that **no** DCS is required on that channel for ENC(ode) or DEC(ode). Either or both ENC(ode) and DEC(ode) fields may be left blank or be programmed with a code. **TIP: For speedy error free entry, enter in one number on the keypad and press the <Enter> key to force the software to present a list of valid codes. Then select the correct code from this list**
5TONE RESP	Blank P – Page M – Mute A – Answer Back	If the radio is given a 5 Tone ID Code (refer screen accessed using <F2>) in the field **OWN 5 TONE ID** then these options may be programmed. These are the actions that will occur when the radio decodes its **OWN 5 TONE ID** whilst on that channel. Page will cause the radio to emit sounds in an attempt to notify the operator of an incoming call. Mute wll defeat the 5 Tone mute on the radio on that channel, and Answer Back will cause the radio to transpond with its own 5 Tone ID code. These options may be used in any combination that the programmer allows. Pressing the corresponding key on the keyboard will toggle that option. If left blank, the radio will take no action on receiving its own 5 Tone ID.
ANI	Blank L – Leading T – Trailing O – One Shot	If the radio is given a 5 Tone ID Code (refer screen accessed using <F2>) in the field **OWN 5 TONE ID** then these options may be programmed. Often used for identification purposes, ANI is the automatic generation of the radio 5 Tone ID code. Leading - 5 Tone ID will be transmitted immediately after the PTT is pressed. Trailing - 5 Tone ID will be transmitted as the PTT is released. One Shot – transmission of tones will occur only if 30 seconds has passed since the last transmission of tones. These options may be used in any combination that the programmer allows. Pressing the corresponding key on the keyboard will toggle that option. If left blank, the radio will take no ANI action
SEL CALL	Blank Call Number	The action that occurs if the CALL button on the control head is depressed. If Blank, no call will be transmitted. If a 5 Tone call should automatically be transmitted, the Call Number (corresponding to the Call number reference as programmed on the Tone Calls Page (refer screen accessed using <F2>) should be entered here. The call will be transmitted according to the instructions programmed for that Tone call. Therefore, the call will not necessarily be transmitted on the current channel, but rather on the channel as programmed for that call.
SCREEN 2		
PWR (W)	2 – 30	Power Output required on that channel (between 2 to 30 Watts)
CT DEV (Hz)	100 – 500	Required peak deviation in Hz when generating CTCSS / DCS
ID LINE1	Blank As Required	Enter a channel description that will appear on line 1 of the LCD display. If not entered, the display will by default display the Channel Number. This may however be meaningless to your customer. Maximum length is 8 characters
ID LINE2	Blank As Required	Enter a channel description that will appear on line 2 of the LCD display. Maximum length is 16 characters