MARSHALL HE

BOILER SEQUENCE CONTROL PANEL

USER'S OPERATING INSTRUCTIONS

IMPORTANT NOTE
THESE INSTRUCTIONS MUST BE READ
AND UNDERSTOOD BEFORE INSTALLING,
COMMISSIONING, OPERATING OR
SERVICING EQUIPMENT

Hamworthy
HEATING & HOT WATER PRODUCTS

Customer Services

Technical Enquiries   ☎ **01202 662527/662528**

To supplement the detailed technical brochures, technical advice on the application and use of products in the Hamworthy Heating range is available from our technical team in Poole and our accredited agents.

Site Assembly   ☎ **01202 662555**

Hamworthy offer a service of site assembly for many of our products in instances where plant room area is restricted. Using our trained staff we offer a higher quality of build and assurance of a boiler built and tested by the manufacturer.

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Commissioning of equipment by our own engineers, accredited agents or specialist sub – contractors will ensure the equipment is operating safely and efficiently.

Maintenance Agreements   ☎ **01202 662555**

Regular routine servicing of equipment by Hamworthy service engineers inspects the safety and integrity of the plant, reducing the risk of failure and improving performance and efficiency. Maintenance agreements enable our customers to plan and budget more efficiently.

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A comprehensive spare parts service is operated from our factory in Poole, providing replacement parts for both current and discontinued products. Delivery of parts and components is normally from stock within seven days. However, a next day delivery service is available for breakdowns and emergencies.

MARSHALL HE

BOILER SEQUENCE CONTROL PANEL

USER'S OPERATING INSTRUCTIONS

<u>NOTE:</u> THESE INSTRUCTIONS SHOULD BE READ AND UNDERSTOOD BEFORE ATTEMPTING TO OPERATE THE MARSHALL HE SYSTEM.

THE MARSHALL HE SYSTEM IS INTENDED FOR USE ONLY IN COMMERCIAL/LIGHT INDUSTRIAL APPLICATIONS.

THIS BOILER SEQUENCE CONTROL SYSTEM COMPLIES WITH THE ESSENTIAL REQUIRE-MENTS OF THE LOW VOLTAGE DIRECTIVE 73/23/EEC AMENDED BY 93/68/EEC, AND THE ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 89/336/EEC AMENDED BY 91/263/EEC AND 92/31/EEC.

CONTENTS

1.0 RUN MODE DISPLAY SCREENS

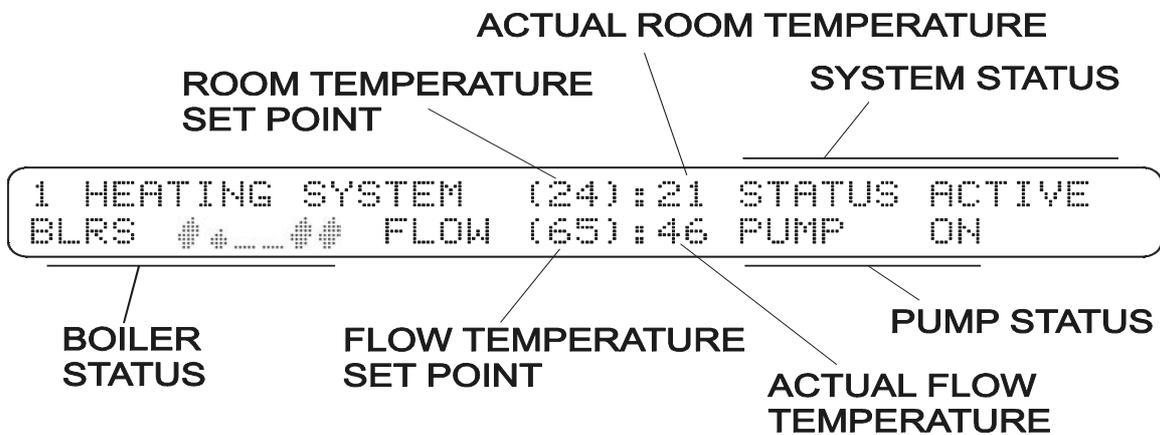Refer to section 2 for details of how to view these screens.

1.1 Clock Screen

This screen displays the time, date, week number, external temperature and the status of the inputs.

INPUTS CIRCUITS STATUS

DATE   TIME   REMOTE HOLIDAY OVERRIDE SWITCH ON

```
WED 21-08-96  11.08.20 INPUTS :1        78
WEEK 34   EXT: 20
```

WEEK NUMBER   EXTERNAL TEMPERATURE   SAFETY INTERLOCK CIRCUIT PROVED

EXTERNAL TIMECLOCK /OVERRIDE ON
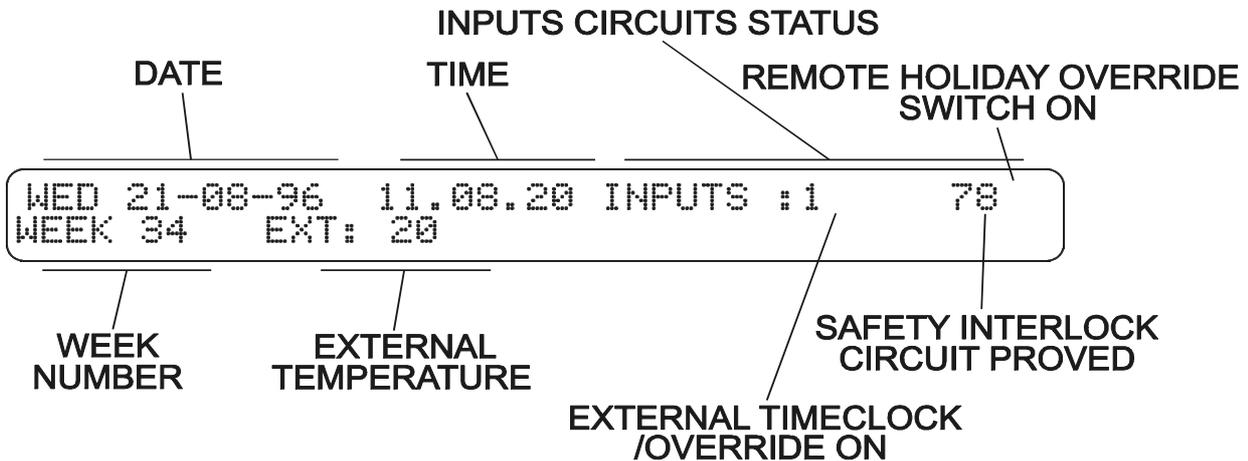
1.2 System Information Screen

This screen displays the room comfort level and water flow temperature settings, and the actual room and water flow temperature readings. The screen also displays the system status - in 'active' (on) , 'standby' (off/night setback), holiday or shutdown mode. Also displayed is the boiler status, a small flame symbol represents a boiler on at low fire (high/low boilers only), a large flame symbol represents a boiler on at high fire. Finally the screen displays the circulation pump status.

ACTUAL ROOM TEMPERATURE

ROOM TEMPERATURE SET POINT   SYSTEM STATUS

```
1 HEATING SYSTEM    (24):21 STATUS ACTIVE
BLRS  ▓▒___▓▓  FLOW (65):46 PUMP    ON
```

BOILER STATUS   FLOW TEMPERATURE SET POINT   ACTUAL FLOW TEMPERATURE   PUMP STATUS

When the 'Weekly Shift' function is utilised the display shows which is the lead boiler by the sequence of the flame symbols as below (the lead boiler is number 5 in this example). Operation of the 'Override' function is displayed on this screen as a countdown timer (in hours). When the figure reaches zero normal operation is resumed.

```
1 HEATING SYSTEM     (24):21  STATUS OR A02
BLRS  ▓▒___▓▓  FLOW (65):46  PUMP   ON
```
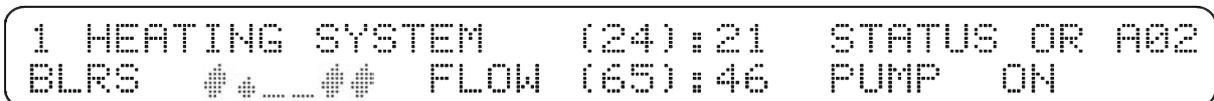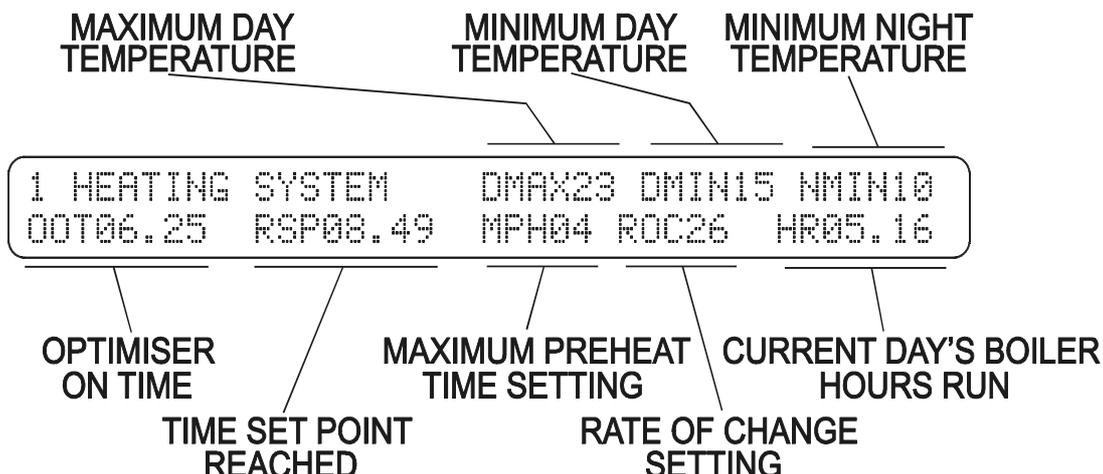
If the 'Optimiser' function is not utilised the room comfort level setting and room temperature reading are replaced by the legend 'TIMER'. Operation of the circulation pump overrun function is shown by a countdown timer on this screen (in minutes). When the figure reaches zero the pump is switched off.

```
1 HEATING SYSTEM     TIMER STATUS STANBY
BLRS  ‥‥‥‥‥  FLOW (65):46  PUMP  ON  15
```

1.3 Performance Monitor Screen

This screen displays performance information for the current days running. The screen shows the minimum and maximum room temperatures during the day and the minimum room temperatures overnight. Also displayed is the optimiser start time—the time at which the heating first comes on, and the time at which the required room comfort level setting was reached. Finally the boiler hours run time in hours and minutes for the day is displayed.

MAXIMUM DAY TEMPERATURE   MINIMUM DAY TEMPERATURE   MINIMUM NIGHT TEMPERATURE

```
1 HEATING SYSTEM    DMAX23 DMIN15 NMIN10
OOT06.25  RSP08.49  MPH04 ROC26   HR05.16
```

OPTIMISER ON TIME   MAXIMUM PREHEAT TIME SETTING   CURRENT DAY'S BOILER HOURS RUN

TIME SET POINT REACHED   RATE OF CHANGE SETTING

2.0 Run Mode Functions	
Key	Display
2.1 Display Illumination	
To illuminate the display press any key. **Note!** After ten minutes the illumination is automatically switched off unless another key is pressed. If the unit is in Program mode, after a further five minutes the unit will automatically return to Run mode. RUN ➡️	
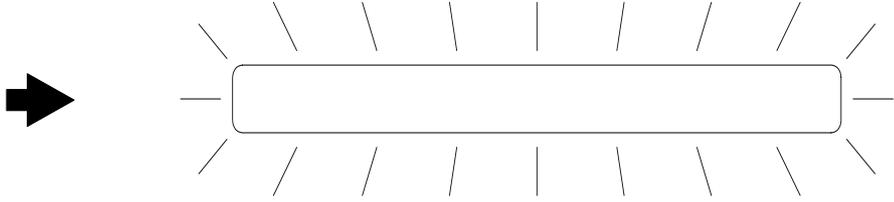
Key	**Display**

2.2 View Run Mode Screens

1) To switch between the Clock and System Information screens press the scroll or the left or right hand cursor keys

SCROLL ➡

```
WED 21-08-96   15.52.29    INPUTS :      7
WEEK 34            EXT : 19
```

SCROLL ➡

```
1 HEATING SYSTEM     (24):21   STATUS ACTIVE
BLRS   #_#   FLOW (65):49   PUMP  ON
```

2) To display the Performance Monitor screen press and hold down the VIEW key. The screen will be displayed until the VIEW key is released

VIEW ➡

```
1 HEATING SYSTEM       DMAX23 DMIN17 NMIN10
OOT06.25   RSP08.49     MPH04 ROC26   HR05.16
```

2.3 Override Comfort Level Setting

1) To override the current 'Active' or 'Standby' comfort level temperature setting ensure that the System Information screen is displayed.
Note! This function is only available if the optimiser function is used.

```
1 HEATING SYSTEM     (24):21   STATUS ACTIVE
BLRS   #_#   FLOW (65):49   PUMP  ON
```

2) To adjust the setting use the up/down cursor keys.
Note! There is a slight delay between pressing the key and the displayed temperature setting changing.

⬆
⬇ ➡

```
1 HEATING SYSTEM     (24):21   STATUS ACTIVE
BLRS   #_#   FLOW (65):49   PUMP  ON
```

2.4 Override Timeclock (DO NOT attempt to use this function if an external timeclock is connected)

1) From either of the Run mode screens press the OVERRIDE key and the override screen is displayed.

OVER RIDE ➡

```
     Do you want to override the system
1> ON ( ACTIVE )  or   2> OFF ( STANDBY )
```

Key	Display

**2)** To override to on (Active) press the '1' key, or to override to off (Standby) press the '2' key. The override duration is displayed.

1

or

2

➤

```
Please enter the required override
period  ( 08 Hours Maximum )      : 00
```

3) Use the numerical keypad to enter the required override duration in hours.
Note! If a value less than 10 is entered the preceding zero must be entered as shown below.

[0] [1] [2] [3]
[4] [5] [6] [7]
[8] [9]

➤
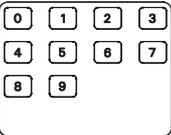
```
Please enter the required override
period  ( 08 Hours Maximum )      : 02
```

4) Press the ENTER key to initiate the override. The Run mode screen will be displayed, the System Information screen will show the override countdown timer which counts down in hours. At the end of the override period the unit reverts to normal operation.

ENTER ➤

```
1 HEATING SYSTEM    (24):21   STATUS ACTIVE
BLRS   ▓▪▭▭▓▓   FLOW (65):49   PUMP   ON
```

5) To cancel the override repeat the above sequence of operations, but enter an override duration of '00' hours. The unit will revert to normal operation.

2.5 Remote Override Switch Operation

If a remote override switch is connected to the Marshall HE controller, the system can be overridden to on (Active), by turning this switch on. The system will remain in the Active position until the remote override switch is turned off.

2.6 Manual Holiday Override

1) The Marshall HE can be quickly overridden to holiday mode by pressing the HOLS key. A confirmation screen is displayed.

HOLS ➤

```
ARE YOU SURE YOU WANT TO SWITCH ON
HOLIDAY MODE < PRESS ENTER FOR YES >
```

2) To initiate the holiday press the ENTER key, the system will shut down and the legend 'HOLS' is displayed on the System Information screen. The system will remain in holiday mode until the control is manually reset to normal operation as below.

ENTER ➤

```
1 HEATING SYSTEM    (04):21   STATUS   HOLS
BLRS ▭▭▭▭▭   FLOW   (65):45   PUMP   ON   19
```

3) To reset from a manual holiday override press the HOLS key. A confirmation screen is displayed.

HOLS ➤
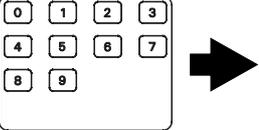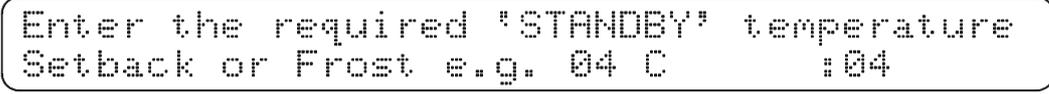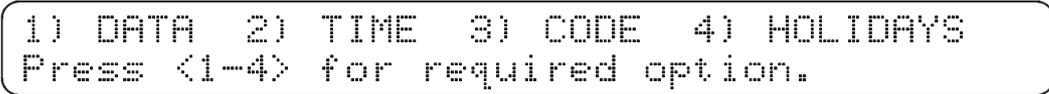
```
ARE YOU SURE YOU WANT TO SWITCH OFF
HOLIDAY MODE < PRESS ENTER FOR YES >
```

Key	Display

4) To return to Run mode press the ENTER key. The Run mode screen is displayed and normal operation resumes.

ENTER ➡️

```
1 HEATING SYSTEM  (24):14  STATUS ACTIVE
BLRS _____  FLOW  (65):12  PUMP    ON
```

2.7 Remote Holiday Override Switch Operation

If a remote holiday override switch is connected to the Marshall HE controller, the system can be overridden to standby operation, by turning this switch on. The system will remain in this mode until the remote holiday override switch is turned off.
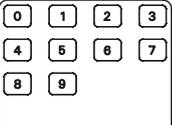
3.0 PROGRAM MODE FUNCTIONS

All of the settings are entered using the numerical keypad. If a mistake is made it can be corrected by pressing the 'DEL' key and retyping the number before pressing the 'ENTER' key to enter the new setting value.

Nearly all of the settings are two digit numbers. When entering a value less than 10 the first digit MUST be entered as a zero, an invalid setting will not be accepted by the control.

Key	Display

3.1 Enter Programme Mode

1) To enter Programme mode press the PROG key and the code entry screen will be displayed.

ENTER ➡️

```
A SECURITY CODE IS REQUIRED TO PROGRAM
THIS UNIT. Please enter the code:
```

2) Enter the four digit code using the numerical keypad. The code entered is not displayed, asterisks are used to represent each digit of the code.
Note! The user's code is initially factory set to '0000'

[keypad 0 1 2 3 / 4 5 6 7 / 8 9] ➡️
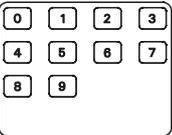
```
A SECURITY CODE IS REQUIRED TO PROGRAM
THIS UNIT. Please enter the code:****
```

3) To enter the code press the ENTER key. If the code entered is incorrect an error message is displayed and the unit will return to Run mode. When the correct code is entered the unit will display the User's Setup Menu screen.

ENTER ➡️

```
── THE CODE YOU ENTERED ──
──────── WAS INCORRECT ────────
```

```
1) DATA  2) TIME  3) CODE  4) HOLIDAYS
Press <1-4> for required option.
```

Key	Display

3.1 Data Option

1) To view or set the comfort level and heating switching time settings press the '1' key. The 'Active' comfort level setting screen is displayed.

Note! If the Optimiser function is not being used this screen is not displayed.

1 ➡️	⌜Enter the required 'ACTIVE' temperature Occupancy period e.g. 20 c) :24⌟

2) To adjust the 'Active' comfort level setting use the numerical keypad.

[0][1][2][3] [4][5][6][7] [8][9] ➡️	⌜Enter the required 'ACTIVE' temperature Occupancy period e.g. 20 c) :20⌟

3) To enter the new setting press the ENTER key. The 'Standby' comfort level setting screen is displayed.
Note! If the Optimiser function is not used this screen is not displayed.

ENTER ➡️	⌜Enter the required 'STANDBY' temperature Setback or Frost e.g. 04 C :04⌟

4) This setting can be changed using the same procedure as for the 'Active' setting. When the new setting is entered using the ENTER key, the first heating switching time setting screen is displayed.

Note! If an external time clock is used this screen is not displayed.

ENTER ➡️	⌜Enter switching times for Period 1 MON START : 00.00 END 00.00⌟
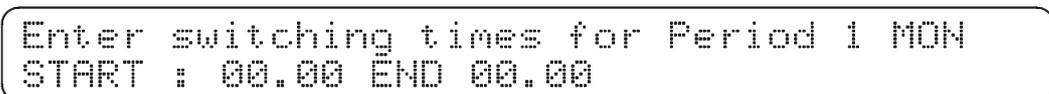
5) To return to the User's Setup Menu screen at any point whilst viewing or setting the heating switching times, press the RUN key.

RUN ➡️	⌜1) DATA 2) TIME 3) CODE 4) HOLIDAYS Press <1-4> for required option.⌟

6) To set the start time of the first 'Active' (on) period for Monday, use the numerical keypad to enter the required time.

[0][1][2][3] [4][5][6][7] [8][9] ➡️	⌜Enter switching times for Period 1 MON START : 07.30 END 00.00⌟
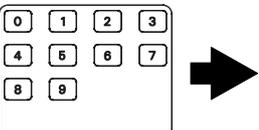
7) To enter the new start time press the ENTER key.
Note!
1) When the Optimiser function is used the start time is the time at which the required comfort level is to be reached, NOT the time at which the heating is switched on.
2) If the time settings for this Active period do not require changing, pressing the ENTER key without entering a new start time will bring up the next period time setting screen (see step 9).

ENTER ➡️	⌜Enter switching times for Period 1 MON START : 07.30 END 00.00⌟

Key	Display

8) The end time of the Active period is set in the same way as the start time.

Note! If only the end time of the period requires changing the start time must be re-entered as described above, to allow the end time to be adjusted.
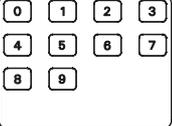
```
0  1  2  3
4  5  6  7      ➡
8  9
```
```
Enter switching times for Period 1 MON
START : 07.30 END 18.45
```

9) Press the ENTER key to enter the end time. The second Active period time setting screen is displayed.
Note! The Active period can be disabled by entering '00.00' for both start and end times.

```
ENTER        ➡
```
```
Enter switching times for Period 2 MON
START : 00.00 END 00.00
```

10) The remaining three of the four Active periods for Monday are set using the same procedure as for the first. Once this has been carried out the setting screen for the first Active period for Tuesday is displayed.

```
Enter switching times for Period 1 TUES
START : 00.00 END 00.00
```

11) If the heating switching times for Tuesday are to be the same as those for the Monday, they can be copied by pressing the PROG key. The setting screen for the first Active period for Wednesday will then be displayed.

```
PROG
```
```
Enter switching times for Period 1 WED
START : 00.00 END 00.00
```

12) Alternatively if the heating switching times for Tuesday are to be different simply enter the required times as described in steps 4-10.

13) The heating switching times for the remaining days are set using the same procedure. When the last time setting is entered the unit will return to the User's Setup Menu screen.

```
1) DATA   2) TIME   3) CODE   4) HOLIDAYS
Press <1-4> for required option.
```

3.3 Time Option

1) To set the correct time and date press the '2' key from the User's Setup Menu screen. The clock setting screen will be displayed.

```
2        ➡
```
```
The Clock is now set at        :10.22
PLEASE ENTER A NEW TIME        :  .
```

2) Enter the correct clock setting, using the numerical keypad.

```
0  1  2  3
4  5  6  7      ➡
8  9
```
```
The Clock is now set at        :10.22
PLEASE ENTER A NEW TIME        :12.55
```

Key	Display

3) Press the ENTER key to enter the new clock setting. The date setting screen will be displayed.

ENTER ➡️
```
The date is now set at       :21-08-96
PLEASE ENTER A NEW DATE      :  -  -
```

4) Enter the correct date setting, using the numerical keypad.
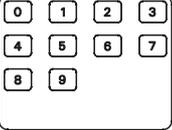
[0][1][2][3]
[4][5][6][7]
[8][9] ➡️
```
The date is now set at       :21-08-96
PLEASE ENTER A NEW DATE      :17-01-04
```

5) Press the ENTER key to enter the new date setting. The unit will return to the User's Setup Menu screen.

ENTER ➡️
```
1) DATA  2) TIME  3) CODE  4) HOLIDAYS
Press <1-4> for required option.
```

3.4 Code Option

1) To change the User Setup code press the '3' key from the User's Setup Menu screen. The User's code setting screen is displayed.

3 ➡️
```
The old 'USER' security code was  :0000
PLEASE ENTER A NEW CODE (4 digits):
```

2) Enter the new User code, using the numerical keypad. The code entered is not displayed - an asterisk is used to represent each of the four digits as it is entered.
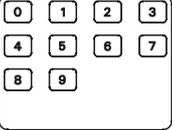
[0][1][2][3]
[4][5][6][7]
[8][9] ➡️
```
The old 'USER' security code was  :0000
PLEASE ENTER A NEW CODE (4 digits):****
```

3) Press the ENTER key to enter the new code. The unit will return to the User's Setup Menu screen.

ENTER ➡️
```
1) DATA  2) TIME  3) CODE  4) HOLIDAYS
Press <1-4> for required option.
```

3.5) Hols Option

1) To set the holiday periods during which the heating system is in Standby mode (off), press the '4' key from the User's Setup Menu screen. The setting screen for the first holiday period is displayed.

4 ➡️
```
   Please enter HOLIDAY PERIOD number 1
Start date  :00-00-00    Length :00
```

Key	Display

2) Enter the start date of the holiday period using the numerical keypad.

Note! The start date is first day of the holiday period NOT the last day on which the heating is required to be on.
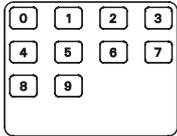
```
Please enter HOLIDAY PERIOD number 1
Start date  :26-12-04    Length :00
```

3) Press the ENTER key to enter the start date.
Note! If this holiday period is to remain unmodified, pressing the ENTER key without changing the start date will display the setting screen for the next holiday (see step 5).
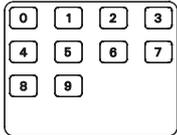
ENTER

```
Please enter HOLIDAY PERIOD number 1
Start date  :26-12-04    Length :00
```

4) Enter the length of the holiday period (days) using the numerical keypad.
Note! Entering '00' will disable the holiday period.

```
Please enter HOLIDAY PERIOD number 1
Start date  :26-12-04    Length :09
```

5) Press the ENTER key to enter the holiday length. The setting screen for the second holiday period is displayed.

ENTER

```
Please enter HOLIDAY PERIOD number 2
Start date  :00-00-00    Length :00
```

6) The remaining four holiday periods are set as described above. When the last period is set the User's Setup Menu is displayed.

```
1) DATA  2) TIME  3) CODE  4) HOLIDAYS
Press <1-4> for required option.
```

3.6 Return to Run Mode

To return to Run mode press the RUN key. The Run mode screen will be displayed and the unit will implement the setting changes.
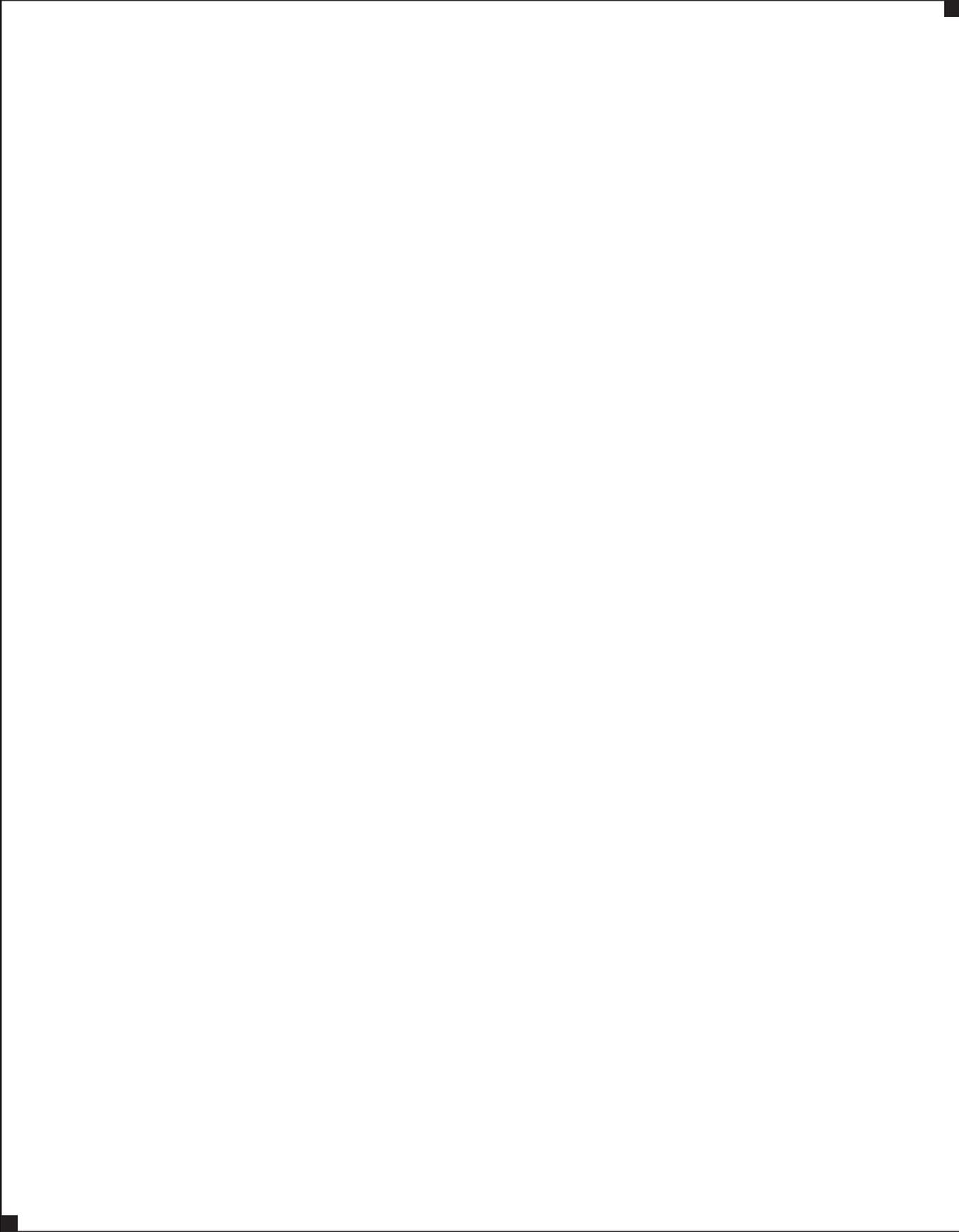
RUN

```
1 HEATING SYSTEM    (24):17 STATUS ACTIVE
BLRS  ▓▒░▒▓  FLOW (65):39  PUMP  ON
```

NOTES

Notes

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Birmingham Office

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