



# FOSTER DRP RBC MK 3 CONTROLLER

Program Version F206



## SERVICE MANUAL



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## ***INTRODUCTION***

The cabinet and Modular DRP are designed to retard, recover and prove dough products. When utilised correctly the unit will enable a more consistent product quality to be achieved.

It is therefore important that prior to working on this equipment that this manual is read and understood.

If any point of operation is unclear the engineer should contact Foster Refrigerator (UK) Ltd on (01553) 691122.

The controller contains both 'User Parameters' and also 'Machine Operating Parameters'. Neither of these parameter sets are accessible to the store operators and as such should not be disclosed to any member of store personnel (including management).

Similarly the parameters are pre-set on commissioning to ensure consistent product quality and as such should not be adjusted under any circumstance without prior consent in writing from **Head Office bakery personnel**.

**Note:** Although the controller has 9 programs only program 4 is used.

Upon initiation of a complete cycle the controller will display 'DO NOT LOAD PRODUCT' until the chamber temperature reaches -5°C (fast chill) at this point it will sound an alarm and the display will show 'LOAD PRODUCT'. The fast chill program is set for 1 hour.

On completion the temperature will be controlled at -5°C with the controller in the storage mode, there is no fixed time to this section as the controller calculates how long this temperature is maintained based on the bake time and the remaining process times.

The recovery time is set for 6 hours and the prove time is set for 2 hours and 30 minutes

An illustration of this is;

Assuming that the current time is 15:00 and the bake time is 06:00 the following day a total time for the cycle is 15 hours.

The controller calculates back from the bake time, '06-00', for the prove time of 2 hours and 30 minutes plus the recovery time of 6 hours

So with the with a fast chill time of 1 hour + recovery of 6 hours + prove of 2 hours and 30 minutes this will leave a storage time of 5 hours and 30 minutes

When the calculated time for the phase is reached the controller will change from the Storage Mode (RETARD) mode to the Recovery mode. During the recovery mode the controller increases the temperature of the chamber linearly

from the storage temperature to the recovery temperature over 75% of the given period of time. If other parameters allow it up to 82% humidity may be introduced during this phase.

Upon completion of the Recovery phase the Prove cycle commences. The chamber is then increased to a higher temperature over 75% of given set time period. During this phase 87% humidity may be introduced into the chamber as required to maintain the required humidity.

When the Prove phase of the cycle is complete the operator is advised both audibly and visually that the current program is complete and is given an option to either extend the prove time or hold the product. Assuming that these options are not selected the cycle is complete and as such is halted.

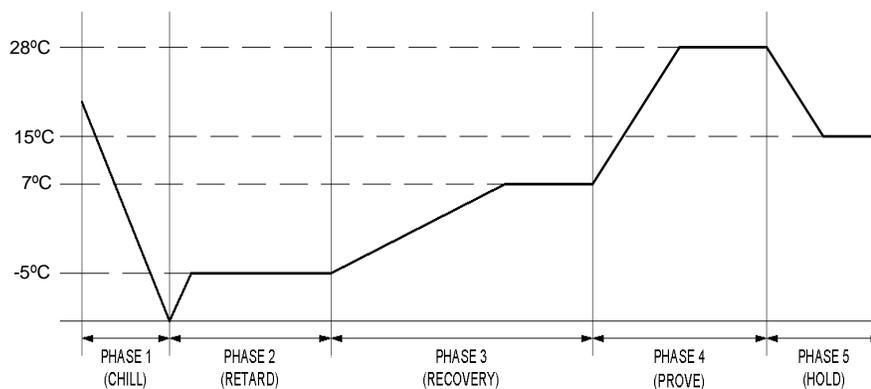
If the product is not ready at the bake time then a Extra Prove (10 minutes), for a maximum of 15 minutes, can be selected. Similarly, if the product is ready but there is no oven capacity the product can be held in Hold (10 minutes). The duration of both Extra Prove and Hold are governed by the machine parameters.

## Operator Program

### Description:

Each stage of the Retarder Prover cycle is explained as follows:

Figure 1 – Retarder Prover Operating Cycle



### **PHASE 1 – “Chill”**

From ‘Start’ the refrigeration attempts to reduce air temperature to -5°C.

While air temperature is above 0°C the display shows “Do not load product”.

Typically after 15 to 20 minutes the chamber has reduced to -5°C an alarm sounds indicating product can be loaded. The duration of the Fast Freeze Phase is 1 hour.

### **PHASE 2 – “Retard”**

From the end of Phase1 the air temperature is maintained at -5°C for the duration of the Retard Phase.

The length of the Retard Phase will depend on the required bake off time (end of Phase 4).

### **PHASE 3 – “Recovery”**

From the end of Phase 2 the recovery phase is split into two segments (75% and 25%).

During the first 75% of Phase 3 (4½ hours) the temperature rises from -5°C to +7°C.

During the final 25% of Phase 3 (1½ hours) the temperature is maintained at +7°C.

Through-out this period the humidity is around 82%.

The duration of Recovery Phase is 6 hours.

### **PHASE 4 – “Prove”**

From completion of Phase 3 the Prove Phase starts, and it is split into two segments (75% and 25%).

During the first 75% of Phase 4 (1hour 52 minutes 30 seconds) the temperature rises from +8°C to +28°C. (Tesco 32°C)

During the second 25% of Phase 4 (37 minutes 30 seconds) the temperature is maintained at +28°C. (Tesco 32°C)

Through-out this period the humidity is maintained at 87%.

The duration of Prove Phase is 2 hours 30 minutes. If the product is not ready at the bake time then an Extra Prove (10 minutes) can be selected for up to a maximum of 15 minutes.

### **PHASE 5 – “Hold”**

On completion of the Prove phase, if the load is not immediately required for baking off, the product can be placed in the HOLD mode for 10 minutes when the air temperature will be reduced to 15°C in order to stabilize the product and can be held for up to a maximum of 20 minutes.

# OPERATING INSTRUCTIONS

- 1) To start the Operation  
Press '**START**'

WEDNESDAY 16:45 14-02-2009		
<b>SYSTEM OFF</b>		
<b>PRESS START</b>		
	<b>START</b>	

- 2) Select the **Bake Program** from the menu. If Prove only program is selected program will start automatically

<b>Retard &amp; Prove</b>		
Timed Prove 1		
Prv Brd & French		
Prv Soft Rolls		
Prv Donuts		
<b>SELECT</b>		<b>EXIT</b>

- 3) Enter the **Bake Day for Retard & Prove**. Press **ACCEPT** or Press the **UP** arrow to change the Bake Day

BAKE DAY TODAY		
ENTER BAKE DAY		
<b>ACCEPT</b>		<b>EXIT</b>

- 4) Enter the **Bake Time**  
Press **ACCEPT** or Press **EDIT** followed by the up or down arrows to change the time

BAKE DAY TODAY		
BAKE TIME 18:34		
ENTER BAKE TIME		
<b>ACCEPT</b>	<b>EDIT</b>	<b>EXIT</b>

- 5) Press **ACCEPT** to Confirm Selected Cycle

BAKE DAY TODAY		
BAKE TIME 09:48		
CONFIRM SELECTED CYCLE		
<b>ACCEPT</b>	<b>EDIT</b>	<b>EXIT</b>

**WAIT  
FOR  
AUDIBLE  
ALARM**

- 6) An Audible alarm will sound when the machine is at the correct loading temperature. Load the product and press '**START**'

Program 4		
-5 7 28 15		
Bake Date: Thursday 09:40		
LOAD PRODUCT		
PRESS START		
<b>STOP</b>	<b>START</b>	

- 7) When cycle is complete an audible alarm will sound, press '**STOP**', check the product is fully proved, remove and bake.

- 8) Should an extra proving time be required, select '**EXTRA TIME**' and press '**START**'.

For **HELP** press the ? Button located above the display.

*PLEASE NOTE when changing the machine from Prove to Retard Overnight Operation allow 45 minutes for the cabinet to cool down.*

**In the event of an emergency switch off the machine at the 'MAIN ISOLATOR SWITCH'.**

## Controller Instructions

The display is a yellow back lighted graphic display with a resolution of 320 \* 240 dots.

Above the Display the Info-key  is located. Press to display help and information at all times.

Under the Display the keys LEFT, MIDDLE and RIGHT  are located.

On the right side besides the Display the Arrow Keys UP and DOWN  are located.

**NOTE:** At any time during a program if the bottom button is pressed and help the display will show: Temp Set Point, Coil Temperature, Winter/Summer Time and the program number.

## Setting of Parameters

After switching the auxiliary voltage on the controller carries out a self-test of the program and shows **FLASH TEST FOR INTEGRITY** for a few seconds followed by the program information including version and model details. After that the Start Screen is shown:

Start Screen

Monday	14.02.2009
<b>08:11</b> <b>SYSTEM OFF</b> <b>Press START</b>	
START	

## Configuration Parameters

After pressing the **DOWN, RIGHT** and **LEFT** keys together the Configuration Parameters Menu is shown: These are machine default parameters that are stored in the controller.

Configuration Parameters Menu

CONFIGURATION PARAMETERS	
<b>Standard Parameter Setting</b>	
Time / Date	
Programs	
Manual Prove	
Manual Fast Chill	
Manual Storage	
Manual Recovery	
Service	
Reset Alarms	
End Times	
Select	Exit

Select **Standard Parameter Settings** using the Arrow Keys and then press **SELECT**.

## Standard Parameter Setting (Load Set of Parameters)

Once selected the following screen will appear:

It is important that the correct default parameters are selected for the machine e.g. does it have an integral condensing unit or is it remotely sited (pack system), is it constructed using modular panels or a cabinet.

DEFAULT PARAMETER SELECT	
<b>TESCO/MOD/PACK</b>	
TESCO/MOD/INTEGRAL	
TESCO DONUT UPRIGHT	
TESCO DONUT BENCH	
SAFEWAY/MOD/PACK	
SAFEWAY/MOD/HT PACK	
SAFEWAY/MOD/INTEGRAL	
ASDA/MOD/PACK	
ASDA/MOD/INTEGRAL	
CRAFT/MOD/PACK	
CRAFT/MOD/INTEGRAL	
CRAFT UPRIGHT	
Select	Exit

Select from the listing using the Arrow Keys and then press **SELECT**, The screen will change and display the selected model followed by **Loading Service Parameter** and then **Loading Program Parameters**.

When the parameters have been loaded the screen will revert back to the default parameters.

Press Exit to return to the configuration parameter screen

## Time and Date

Select Time and Date in the Configuration Parameters Menu and the following screen will appear:

CONFIGURE TIME & DATE		
Current Time	10 :40	
Current Date	14.02.2009	
EDIT TIME	EDIT DATE	ACCEPT EXIT

It is important that the correct time and date are loaded ensuring the correct function of the machine.

For setting the Clock press **EDIT TIME**:

CONFIGURE TIME & DATE		
<b>Modify Parameter:</b>		
Current Time		
Value:	10:45 ▲	
Accept	SELECT	EXIT

The screen to the left will appear with 'Current Time' flashing. The first digit of the time will have a ▲ symbol beneath it and the value will flash on and off. Modify each Digit with the up or down arrow keys, confirm the sections by pressing SELECT and continue to change each of the segments in turn. On completion press ACCEPT.

Press EXIT to exit without storing the modified values.

The screen will change to display the first screen to allow the

changing of the date.

For setting the Date press **EDIT DATE**:

CONFIGURE TIME & DATE		
<b>Modify Parameter:</b>		
Current Date		
Value:	14.02.2009 ▲	
Accept	SELECT	EXIT

The screen to the left will appear with 'Current Date' flashing. The first digit of the date will have a ▲ symbol beneath it and the value will flash on and off. Modify Digit with the up or down arrow keys, confirm the sections by pressing SELECT and continue to change each of the segments in turn. On completion press ACCEPT.

Press EXIT to exit without storing the modified values.

The screen will change to display the first screen press EXIT to

return to the Configuration Parameters Menu.

## Programs

**This allows the selection and deselection of Program Parameters for Retard & Prove**

First select **Programs** in the Configuration Parameters Menu and the following screen will appear:

CONFIGURE PROGRAMS		
Program 1		
Program 2		
Program 3		
<b>Program 4</b>		
Program 5		
Program 6		
Program 7		
Program 8		
Program 9		
Select		Exit

If the program is 'On' then all parameters are then governed by their own individual parameters. If the program is 'Off' only the program name and program active screen will be visible.

**It is important to note that only program 4 is switched ON all other programs are switched OFF.**

Select from the listing using the Arrow Keys and then press **SELECT**,

Program 4		
<b>Program Active</b>		
<b>Yes</b>		
<b>Modify?</b>		
YES		NO/Exit

The screen will change and display the selected program. It is important to ensure that program 4 is **ON** and all other programs are switched OFF.

To modify the program press YES

The screen will change and display the following.

<b>Access Level</b> <b>Enter Code for Level</b> <b>L3</b>  <b>0000</b> ^		
Exit	Select	Confirm

To modify the program it is necessary to enter the access code for level 3. The screen will display **0000** with a **^** beneath the first **0**. Use the up arrow to change the level code to **1122**. Press the up arrow once to change the **0** to **1** and then press select to move to the next **0**. Continue until **1122** is on the display and then press Confirm

The screen will change and display the following.

<b>Program 4</b>  <b>Modify Parameter :</b> <b>Program Active</b>  <b>Value :</b> <b>yes</b>		
CONFIRM		CANCEL

**Program Active** and **yes** will flash on and off to proceed press CONFIRM

The screen will change and display the following screen

### CONFIGURE Program 4

This menu allows for the particular program to be given a name and the parameters to be adjusted within the default parameters.

CONFIGURE Program 4		
<b>Program Name</b>		
Fast Chill Parameters		
Storage Parameters		
Recovery Parameters		
Prove Parameters		
Min. Prove Time Param.		
Oven Contact		
Select		Exit

### Program Name

The pre-defined name of the program can be changed if required

Configure Program 4		
<b>Program Name</b>		
EDIT		Accept Exit

Select **Program Name** in **Program Configuration 4** and the screen to the left will be displayed. The Name is now displayed in the Start Menu. To insert a short description for the Operation Mode into the Program Name e.g. "Ret&Prv Bread", select **EDIT** and the first letter will have a symbol **^** under it. Use the up or down arrow to scroll through the alphabet, press **SELECT** to confirm the change and the symbol will move to the next letter. On completion press **ACCEPT** to store the changes made and the screen will revert back to the first screen.

Press **EXIT** to return to the menu and **EXIT** again to return to the **Configure Program 4** menu.

### Fast Chill Parameters

Select Fast chill from the Configure Program 4 menu, press **SELECT** and the screen below will appear.

<b>Configure Program 4</b>  <b>Fast Chill Active</b>  <b>Yes</b>  <b>Modify</b>		
YES	EXIT	NO

Select **YES**, the screen will change with **Fast Chill Active** and **yes** flashing on and off, to proceed press **CONFIRM**. To return to the menu press **CANCEL**.

The screen will change and display the following screen

Configure Program 4	
<b>Fast Chill Duration</b>	
<b>Fast Chill Temperature</b>	
Modify	Exit

Select **FAST CHILL DURATION** and press **MODIFY** and the following screen will be displayed:

**Menu:** Fast Chill Duration

Configure Program 4	
<b>Fast Chill Duration</b>	<b>01:00</b>
Fast Chill Duration MAX	02:30
Fast Chill Duration MIN	01:00
Modify	Exit

Press **Modify** and the screen will change to show the first digit for modification.

Use the **UP** and **DOWN** arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **FAST CHILL TEMPERATURE**, press **Modify**, then press **YES** followed by **CONFIRM** and the following screen will be displayed:

**Menu:** Fast Chill Temperature

Configure Program 4	
<b>Fast Chill Temperature</b>	<b>-05°C</b>
Fast Chill Temperature MAX	+00°
Fast Chill Temperature MIN	-15°C
Modify	Exit

Press **Modify** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** three times to return to the **Configure Program 4 menu**.

## Storage Parameters

Select **Storage Parameters** from the Configure Program 4 menu, press **SELECT** and the screen below will appear.

Configure Program 4	
<b>Storage Temperature</b>	<b>-05°C</b>
Storage Temperature MAX	+00°C
Storage Temperature MIN	-10°C
MODIFY	EXIT

Press **Modify** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and **EXIT** again to return to the **Configure Program 4 menu**.

## Recovery Parameters

Select **Recovery Temperatures** from the menu, press **YES** to modify and then press **CONFIRM** and the screen below will appear.

Configure Program 4	
<b>Recovery Temperatures</b>	
Recovery Humidity	
Recovery Duration	
SELECT	EXIT

Select **Recovery Temperature** and the following screen will be displayed:

**Menu:** Recovery Temperatures

Configure Program 4	
<b>Recovery Temperature</b>	<b>+07°C</b>
Recovery Temperature MAX	+12°C
Recovery Temperature MIN	+05°C
SELECT	EXIT

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Recovery Humidity**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu: Recovery Humidity**

Configure Program 4	
<b>Recovery Humidity</b>	82%
Recovery Humidity MAX	95%
Recovery Humidity MIN	75%
SELECT	EXIT

Press **SELECT** and the screen will change to show the first digit for modification.  
 Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.  
 Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Recovery Duration**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu : Recovery Duration**

Configure Program 4	
<b>Recovery Duration</b>	06:00
Recovery Plateau Time	25%
SELECT	EXIT

Select **Recovery Duration** and the following screen will be displayed:

**Menu: Recovery Duration**

Configure Program 4	
<b>Recovery Duration</b>	06:00
Recovery Duration MAX	07:00
Recovery Duration MIN	04:00
Select	Exit

Press **SELECT** and the screen will change to show the first digit for modification.  
 Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.  
 Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Rec. Plateau Time**, press **SELECT** and the following screen will be displayed:

**Menu: Recovery Plateau Time**

Configure Program 4	
<b>Recovery Plateau Time</b>	25%
Recovery Plateau Time MAX	50%
Recovery Plateau Time MIN	10%
Select	Exit

Press **SELECT** and the screen will change to show the first digit for modification.  
 Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.  
 Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** three times to return to the **Configure Program 4** menu.

**Prove Parameters**

Select **Prove Parameters** from the menu, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the screen below will appear.

**Menu: Prove**

Configure Program 4	
<b>Prove Temperatures</b>	
Prove Humidity	
Prove Duration	
Extra Prove	
Hold	
SELECT	EXIT

Select **Prove Temperatures** and the following screen will be displayed:

**Menu: Prove / Temperatures**

Configure Program 4	
<b>Prove Temperature</b>	+35°C
Prove Temperature MAX	+35°C
Prove Temperature MIN	+25°C
SELECT	EXIT

Press **SELECT** and the screen will change to show the first digit for modification.  
 Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.  
 Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Prove Humidity**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu:** Prove Humidity

Configure Program 4	
<b>Prove Humidity</b>	87%
Prove Humidity MAX	95%
Prove Humidity MIN	75%
SELECT	EXIT

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Prove Duration**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu :** Prove Duration

Configure Program 4	
<b>Prove Duration</b>	
Prove Plateau	
SELECT	EXIT

Select **Prove Duration** and the following screen will be displayed:

**Menu:** Prove Duration

Configuration Program 4	
<b>Prove Duration</b>	02:30
Prove Duration MAX	03:00
Prove Duration MIN	00:30
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Prove Plateau**, press **SELECT** and the following screen will be displayed:

**Menu :** Prove Plateau

Configuration Program 4	
<b>Prove Plateau Time</b>	25%
Prove Plateau Time MAX	50%
Prove Plateau Time MIN	10%
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Extra Prove**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu :** Extra Prove

Configuration Program 4	
<b>Extra Prove Time</b>	
Extra Prove Temperature	
Extra Prove Humidity	
SELECT	Exit

Select **Extra Prove Time**, press **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu :** Extra Prove Time

Configuration Program 4	
<b>Extea Prove Time</b>	00:10
Extra Pr. Max Time	00:15
Extra Prove Time MAX	00:20
Extra Prove Time MIN	00:01
Extra Pr. Max Time MAX	00:30
Extra Pr. Max Time MIN	00:10
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Extra Prove Temperature**, press **SELECT** and the following screen will be displayed:

**Menu : Extra Prove Temperature**

Configuration Program 4	
<b>Extra Prove Temp.</b>	<b>+30°C</b>
Extra Prove Temp. MAX	+40°C
Extra Prove Temp. MIN	+25°C
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Extra Prove Humidity**, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu : Extra Prove Humidity**

Configuration Program 4	
<b>Extra Prove Humidity</b>	<b>87%</b>
Extra Prove Humidity MAX	95%
Extra Prove Humidity MIN	75%
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Hold**, press **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu : Hold**

Configuration Program 4	
<b>Hold Times</b>	
Hold Temperature	
Hold Humidity	
SELECT	Exit

Select **Hold Times**, press **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu: Hold Times**

Configuration Program 4	
<b>Hold Time</b>	<b>00:10</b>
Hold Maximum Time	00:20
Hold Time MAX	00:15
Hold Time MIN	00:01
Hold Maximum Time MAX	00:30
HOld Maximum Time MIN	00:01
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the menu and Select **Hold Temperature** and the following screen will be displayed:

**Menu: Hold Temperature**

Configuration Program 4	
<b>Hold Temperature</b>	<b>+15°C</b>
Hold Temperature MAX	+20°C
Hold Tempersture MIN	+02°C
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** twice to return to the menu and Select **Hold Humidity** , press **SELECT** followed by **YES** to modify, press **CONFIRM** and the following screen will be displayed:

**Menu: Hold Humidity**

Configuration Program 4	
<b>Hold Humidity</b>	<b>87%</b>
Hold Humidity MAX	95%
Hold Humidity MIN	75%
SELECT	Exit

Press **SELECT** and the screen will change to show the first digit for modification.

Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.

Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** three times to return to the **Configure Program 4** menu.

**Min. Prove Time Param.**

Select **Minimum Prove Time Param** from the menu, press **SELECT** followed by **YES** to modify, press **CONFIRM** and the screen below will appear.

**Menu:** Min. Prove Time Param.

Configure Program 4	
<b>Minimum Prove Time</b>	<b>02:00</b>
Minimum Prove Time MAX	01:00
Minimum Prove Time MIN	04:00
SELECT	EXIT

Press **SELECT** and the screen will change to show the first digit for modification.  
 Use the UP and DOWN arrows to change the value and press **SELECT** to move to the next digit.  
 Once the changes have been made press **ACCEPT** and proceed to change the other values if required.

**NOTE:** It is not recommended to make changes to the values without managerial consent.

Press **EXIT** to return to the **Configure Program 4 menu**.

**Oven Contact Parameters**

The Oven Contact parameters are not switched on so modification is not required.

Press **EXIT** to return to the **Configure Program 4 menu**, press **EXIT** twice to return to the **CONFIGURATION PARAMETER** screen.

**Configure End Times**

Each of the days when the machines is required the end times can be pre-set to enable the baker to start a program without having to set the end time.

To access the program select **End Times** from the **Configure Program 4 menu** and the following screen will appear.

CONFIGURATION PARAMETERS END TIMES	
Monday	03-00
Tuesday	03-00
Wednesday	03-00
Thursday	03-00
Friday	03-00
Saturday	03-00
Sunday	03-00
ACCEPT VALUES	EDIT SELECT

Press **EDIT SELECT** and the following screen will appear.

CONFIGURATION PARAMETERS END TIMES	
Modify Parameters:	
Monday	
Min Value :	03-00
Value :	03-00
Max :	03-00
ACCEPT	SELECT
	EXIT

Press **SELECT** and the day and the first segment of the value time will flash on and off.  
 Alter the time by using the **UP** and **DOWN** arrows to suit the individual requirement, press **SELECT** to move from one segment to the next and when completed press **ACCEPT**.  
 Make the necessary changes to the days required and then press **ACCEPT VALUES** to return to the Configuration Parameters Menu.

On completion of all change press **EXIT** to return to the **SYSTEM OFF PRESS START** screen.

**Factory Test Program**

The Factory Test Program is designed to enable the engineer to check the various functions, outputs and probe readings as a means of resolving machine and/or controller problems.

You can start the factory test program switching off the power supply to the controller and press and hold in the UP and DOWN Arrow keys during switching on the auxiliary voltage and carrying out the Flash Test.

Remain holding the buttons until the flash test has been completed and the following screen will be displayed.

Factory Test (Ver. F203)		
1 – Keyboard Test		
		UP
RIGHT + LEFT : Continue		
		DOWN

Factory test '1' allows for the Left, Right, Middle, Up, Down and Help (?) buttons to be checked. Press each button once for them to be displayed.

To continue to the next test press the RIGHT & LEFT buttons simultaneously. The next screen will display.

Factory Test (Ver. F203)		
2 – Display Test		
RIGHT + LEFT : Continue		
Middle : Start Test		
LEFT	MIDDLE	RIGHT

Factory test '2' allows for the Display to be tested.

To continue to the next test press the RIGHT & LEFT buttons simultaneously. The next screen will display.

Factory Test (Ver. F203)		
3 – RS232 / Bus Test		
RIGHT + LEFT : Continue		
Modem           -----		

Factory test '3' allows for the testing of the Modem connections. Modem Connections NOT USED.

To continue to the next test press the RIGHT & LEFT buttons simultaneously. The next screen will display.

Factory Test (Ver. F203)		
4 – Relay Test		
RIGHT + LEFT : Continue		
LEFT : Periodic Test		
MIDDLE: Static Test		
K1 2 3 4 5 6 7 8 9 10		
LEFT	MIDDLE	RIGHT

Factory test '4' allows for the testing relay outputs. When the screen is displayed the Periodic Test is in operation. To change to Static Test press the middle button. Each of the relay outputs relates to the following. K1, 7, 8, 9. = Coil Fans. 2 = Interior Light. 3 = Liquid Solenoid Valve. 4 = Room Heating. 5 = Defrost Heaters. 6 = Water Solenoid Valve

To continue to the next test press the RIGHT & LEFT buttons simultaneously. The next screen will display.

Factory Test (Ver. F203)		
5 – Digital Input Test		
RIGHT + LEFT : Continue		
Inp 1 2 3 4 5 6		
■ ■ ■		
LEFT	MIDDLE	RIGHT

Factory test '5' tests the digital inputs. 1 = Overtemperature. 2 = Emergency Switch. 3 = Overpressure. 4 to 6 **Not** used

To continue to the next test press the RIGHT & LEFT buttons simultaneously.

The next screen will display.

Factory Test (Ver. F203)			
6 – Analog Input Test			
RIGHT + LEFT : Continue			
AN0	AN1	AN2	AN3
0	0	0	0
AN4	AN5	AN6	AN7
4	889	746	640
	92%	65C	45C
LEFT	MIDDLE	RIGHT	

Factory test '6' tests the gives the readings against individual probes.  
 AN0, AN1, AN2, AN3, Not used.  
 AN4 = Door contact  
 AN5 = Humidity Probe reading in ohms and percentage.  
 AN6 = Evaporator Probe reading in ohms and temperature °C.  
 AN7 = Air Probe reading on ohms and temperature °C.  
 Values below AN4, 5, 6, 7 for reference only these will change relative to status

To continue to the next test press the RIGHT & LEFT buttons simultaneously.  
 The next screen will display.

Factory Test (Ver. F203)		
7 – Buzzer Test		
RIGHT + LEFT : Continue		
UP:	Buzzer ON	
DOWN:	Buzzer OFF	
LEFT	MIDDLE	RIGHT

Factory test '7' Buzzer Test.  
 Follow the instruction on the screen

To continue to the next test press the RIGHT & LEFT buttons simultaneously.  
 The next screen will display.

Factory Test (Ver. F203)		
8 – EEPROM Test		
RIGHT + LEFT : Continue		
LEFT:	Start Short Test	
RIGHT + MIDDLE:	Long Test	
MIDDLE:	Restart Test 1	
LEFT	MIDDLE	RIGHT

Factory test '8' EEPROM test.  
 Press the LEFT button for a short test.  
 Press the RIGHT + MIDDLE buttons for a long test.  
 Press the Middle button to return to factory test 1.

On completion of the selected test press the left and right to return to the '**SYSTEM OFF PRESS START**' Screen.

## **Alarm Cancelation**

**The alarm is activated if a fault is active.**

Prior to clearing the alarm it will be necessary to change the faulty component.  
 However in the case of 'Overtemp Fault', 'Over Pressure' and 'Emergency Stop' these are fault messages relating to situations and not specific component failure so resetting is all that is required.

To clear the alarm set the program to the 'SYSTEM OF PRESS START' screen as below:

Start Screen

Monday	14-02-2009	
<b>08:11</b> <b>SYSTEM OFF</b> <b>Press START</b>		
	START	

With the screen displayed press the DOWN, RIGHT and LEFT keys together.

After pressing the DOWN, RIGHT and LEFT keys together the Configuration Parameters Menu is shown.  
 Using the DOWN arrow, select 'Reset Alarms' and then press 'Select'.

## Configuration Parameters Menu

CONFIGURATION PARAMETERS		
Standard Parameter Setting		
Time / Date		
Programs		
Manual Prove		
Manual Fast Chill		
Manual Storage		
Manual Recovery		
Service		
Reset Alarms		
End Times		
Select		Exit

The '**RESET ALARM**' Screen, below, will be displayed. The alarm fault will be displayed, e.g. 'Over Temperature Alarm'.

RESET ALARMS		
Over Temperature Alarm		
Reset		Exit

Press '**Reset**', Resetting Alarms will flash on and off on the display

RESET ALARMS		
Resetting Alarms		

Once the reset has taken place the screen below will be displayed.

RESET ALARMS		
No Current Alarms		
Reset		Exit

Press '**Exit**' to return to the '**Configuration Parameter Menu**' and then press '**Exit**' again to return to the '**SYSTEM OFF PRESS START**' Screen.

## Controller Reset

It may be necessary to reset the panel if it is felt that the controller has been compromised in any way.

To carry out **Reset** procedure turn the power off to the machine, press and hold the **Help** button and switch on the power.

Remain holding the button until the flash test has been completed and the following screen will be displayed.

LOAD DEFAULT VALUES		
Clear Datalog Buffer too?		
YES	Exit	No

Press **YES** to start the reset program and the following program will be displayed and the reset program will start

LOAD DEFAULT VALUES		
Clear Datalog Buffer too?		
Loading Service Parameters		
Loading Program Parameters		
Clear Datalog Buffer		
Address: xxxxx of 35136		
YES		

On completion of reset the display will return to the **SYSTEM OFF PRESS START** screen. It will be necessary to install the default parameter settings for the particular model before starting any program.

## 2.5 Fault Messages

**Wrong checksum** after having exchanged the flash EPROM: Press left & right while switching on the auxiliary voltage to calculate a new checksum. It is strictly necessary to carry out a Reset Procedure after changing the program!

Possible Fault Messages are:

- |    |  |
|----|--|
| 01 | Air Sensor Short Circuit                 |
| 02 | Air Sensor Break                         |
| 03 | Coil Sensor Short Circuit                |
| 04 | Coil Sensor Break                        |
| 07 | Humidity Sensor Short Circuit            |
| 08 | Humidity Sensor Break                    |
| 20 | Defrost Term. Fault (Safety Time 45 Min) |
| 22 | Door Open Fault                          |
| 23 | Temperature Fault                        |
| 34 | Overtemp Fault                           |
| 37 | Over Pressure                            |
| 41 | Emergency Stop                           |
| 50 | Routine Check                            |
| 51 | Steam Tank de-scaling                    |
| 52 | Condenser Clean                          |
| 53 | Heaters check                            |
| 60 | Modem not ready                          |
| 61 | Modem Dial Number missing                |
| 63 | Bus Read Fault                           |

## Power Interrupt

If there is a power interrupt, all information is stored and the clock continues running for one day. After power interrupt the unit tries to keep the programmed bake- time. Communication via remote control is not possible during power interrupt.

## Modem Dial Number Missing

If the alarm message '**Modem Dial Number Missing**' is shown on the display it is necessary to reset the 'Remote Access Type' value to '**SERIAL**'.

Press the **DOWN, RIGHT** and **LEFT** keys together the Configuration Parameters Menu is shown, see 2.2.1.

Scroll the list and select '**Service**'. Once selected the screen will change, see 3.4 Service Parameters.

Select '**Remote Access**'. After entering select '**Remote Access Type**', if '**Modem**' is shown on the right hand side press the middle bottom button, EDIT SELECT.

Access code will be requested, enter the correct level access code to continue.

The next screen will display 'Remote Access Type' flashing' press the down pointing arrow to change it to display 'Serial'. Press ACCEPT. The screen will return to the previous, press ACCEPT VALUES.

Once the screen has changed press 'EXIT'. You will now be back to the 'Configuration Parameter' press 'EXIT' to store the change made.

**NOTE.** Leave the unit for ten minutes to allow the controller to re-set.

After the ten minutes has elapsed access the Configuration Parameters Menu, and reset the alarm.

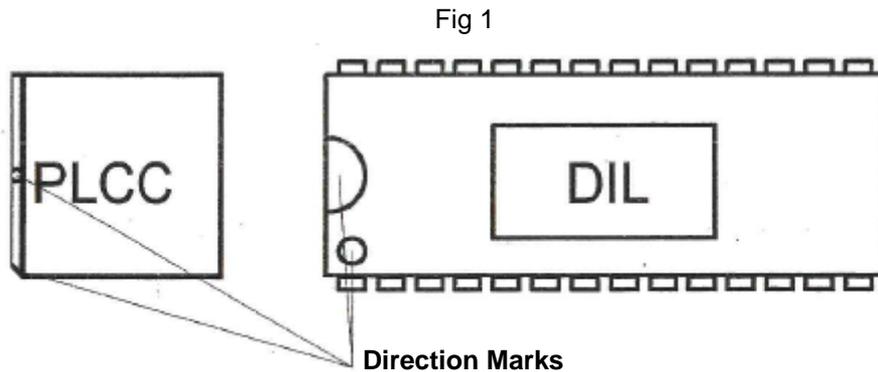
### FITTING PROCEDURE FOR F206 SOFTWARE EPROM RBCMK3 CONTROLLER

The EPROM is located on the PCB behind the Display Panel and not the Relay Board and is the only one of its type on this board so it can be easily identified. There may already be a Software revision on the EPROM such as F203.

Before any work is carried it out is advisable to check the customers settings so that the new EPROM can be set to the correct temperatures after fitting.

#### REMOVAL

- 1) Remove the Power supply to the machine and turn off the isolator on the Control Panel.
- 2) Remove the front part of the Control Panel by removing the 3 screws on top of the Panel
- 3) Disconnect the Interconnecting cable between the Relay Board and the Display Panel.  
The cover over the Display can then be removed exposing the relevant board. The EPROM is located on the top board.
- 4) Make a note of the orientation of the EPROM in the holder by way of the circular indentation on one edge. (See fig 1) Remove the EPROM from the holder using the correct lifting tool.  
Removal has to be done carefully as the holder can easily be damaged.



#### REPLACEMENT

- 1) Locate the EPROM onto the holder and ensure it is perfectly square and carefully push fully home into the socket.
- 2) Replace all panels and replace the Interconnecting cable
- 3) Re – assemble Control Panel
- 4) The Controller will now need to be **Reset**:  
Whilst restoring power hold down the Left & Right keys and allow the **Flash Test** to be carried out. Then follow the on screen prompt.  
When asked to 'Clear Data Log Buffer' select 'YES' to continue.  
On completion the controller display will return to the **Start Screen**.
- 5) Check that the time and date are set correctly using the procedure in the Service Manual.
- 6) Reset all other parameters to customer requirements.

#### Probe Resistance Values

Air and Coil Probe PTC type.



### Resistance values against temperature

-55°C	490 Ohm	+25°C	1000 Ohm
-50°C	515 Ohm	+30°C	1040 Ohm
-40°C	567 Ohm	+40°C	1122 Ohm
-30°C	624 Ohm	+50°C	1209 Ohm
-20°C	684 Ohm	+60°C	1299 Ohm
-10°C	747 Ohm	+70°C	1392 Ohm
0°C	815 Ohm	+80°C	1490 Ohm
+10°C	886 Ohm	+90°C	1591 Ohm
+20°C	961 Ohm	+100°C	1696 Ohm

### Technical Detail

IP Rating:	IP65
Range:	-30°C to +90°C
Tolerance:	+1.25 at 25°C. +2°C at -10°C and +50°C. +3°C at -50°C and +80°C

### Overtemperature Thermostat Setting

The overtemperature setting is 60°C with a 10°C differential.

### FAULT DIAGNOSIS

The following section details a number of faults which may occur and their possible causes. This list is not exhaustive.

#### TEMPERATURE

##### **SLOW PROVING**

Possible causes are prove heater failure or fan failure. The most likely would be heater related as a fan failure would also cause problems related to low humidity uneven proving and/or an over temperature fault.

##### **TEMPERATURE FAULT ACTIVATED**

There are a number of possible causes for this fault. The easiest method of diagnosis is to ascertain the time that the error occurred. It should also be determined the exact condition which causes the fault (see paragraph 3.4.2). From the time of occurrence it can be determined via the operating program parameters which condition the machine was in at the time. For example if the machine was in storage mode at the time the fault occurred the likely (although not certain) cause would refrigeration related. Similarly if the machine was in recovery, heaters would probably be a good place to start.

##### **OVER TEMPERATURE TEMPERATURE FAULT ACTIVATED**

In all probability it is almost certain that this fault would be caused by one or all of the fans being rendered inoperative. The cause would most probably be controller output or solid state relay failure. Another cause may be a contactor 'sticking' on thus causing the heaters to operate continuously.

#### HUMIDITY

##### **LOW OR NO HUMIDITY**

This can be caused by a number of faults. First check that the water supply to the steam tank is operating. By energising the solenoid valve and ensuring that water is entering the tank (the later can usually be done audibly).

Confirm correct operation of the humidity sensor. As an initial indication use the display on the controller. For example if the room is obviously 'dry' but the display is showing 90% humidity the likely cause would be a humidity sensor failure. If everything appears normal use a calibrated hand held

humidity device to compare the value indicated on the display with that on your meter. Small differences  $\pm 15\%$  can be expected although more should be viewed with suspicion.

Ensure that the tank contains water (it may not be filling although water is connected). If this is the case check that the level controller is operating. Malfunction of the level controller is not necessarily an indication of a level controller failure (see water overflowing below) although failure to fill usually is.

Check the heater is operating correctly.

In all of the above prove negative ensure that the steam delivery pipes have not become scaled or the inside of the tank itself is not full of scale therefore preventing sufficient steam production.

## WATER

### WATER OVERFILLING

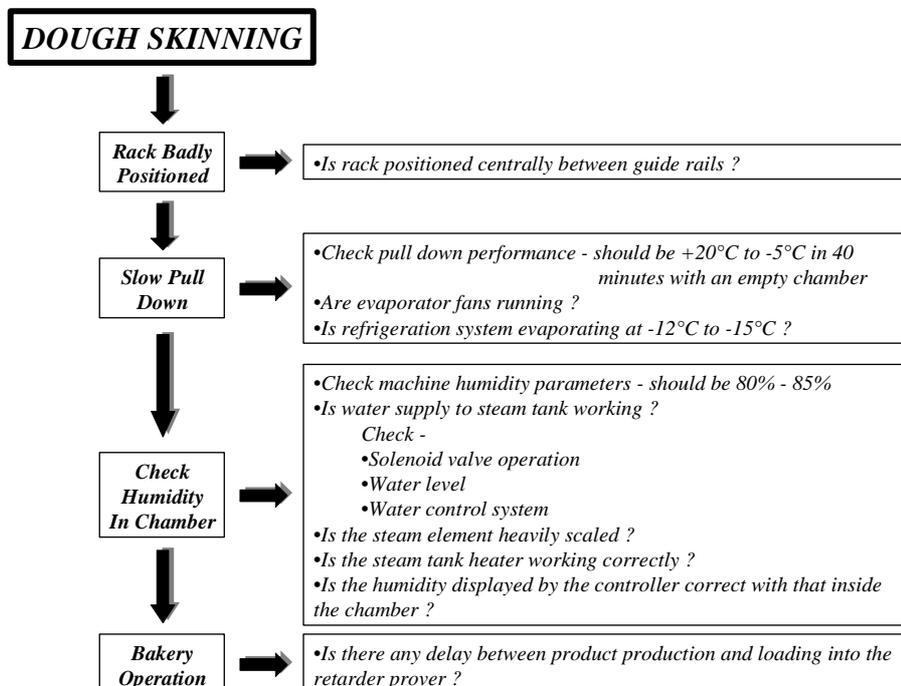
The water system is controlled by the level controller situated in the control panel. The first check to make however is to ensure that no debris from the water supply has passed through the water strainer and become lodged in the solenoid valve, thus preventing the valve from closing completely.

If the valve is permanently energised this can only be caused by the level controller. However this does not necessarily indicate a level controller fault. The level controller uses conductivity between the probes and the tank case to determine water level. If the probes have become scaled due to water softening being inoperative this will prevent conductivity causing the controller to assume low level thus causing the solenoid valve to remain open. It should also be ensured that the earth connection between the level controller and tank has not been disrupted in any way as this will cause the same scenario.

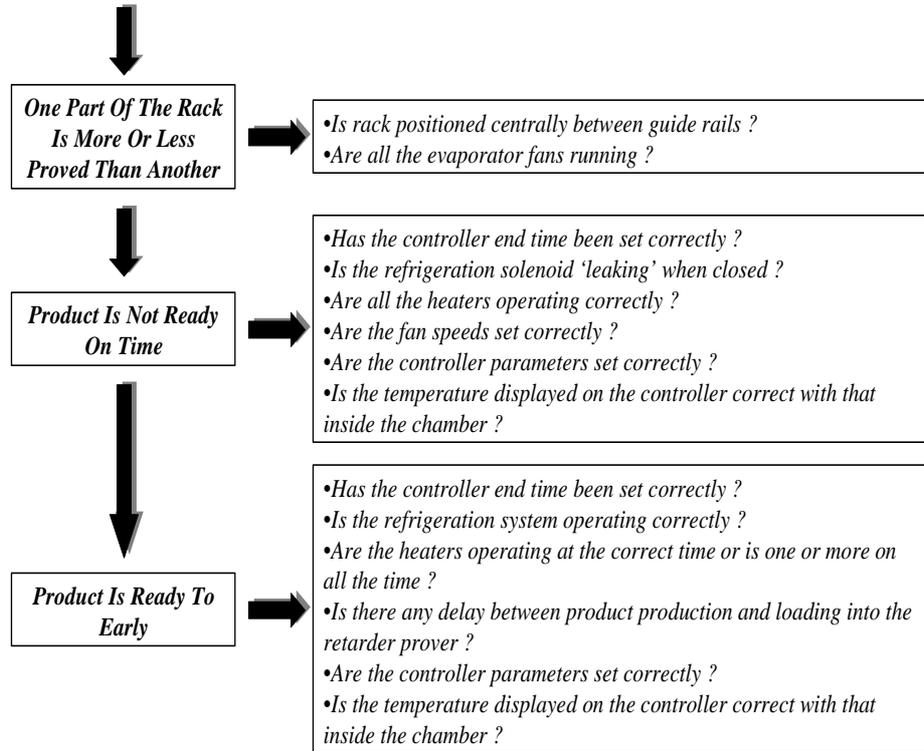
### WATER OVERFLOWING DRAIN PAN

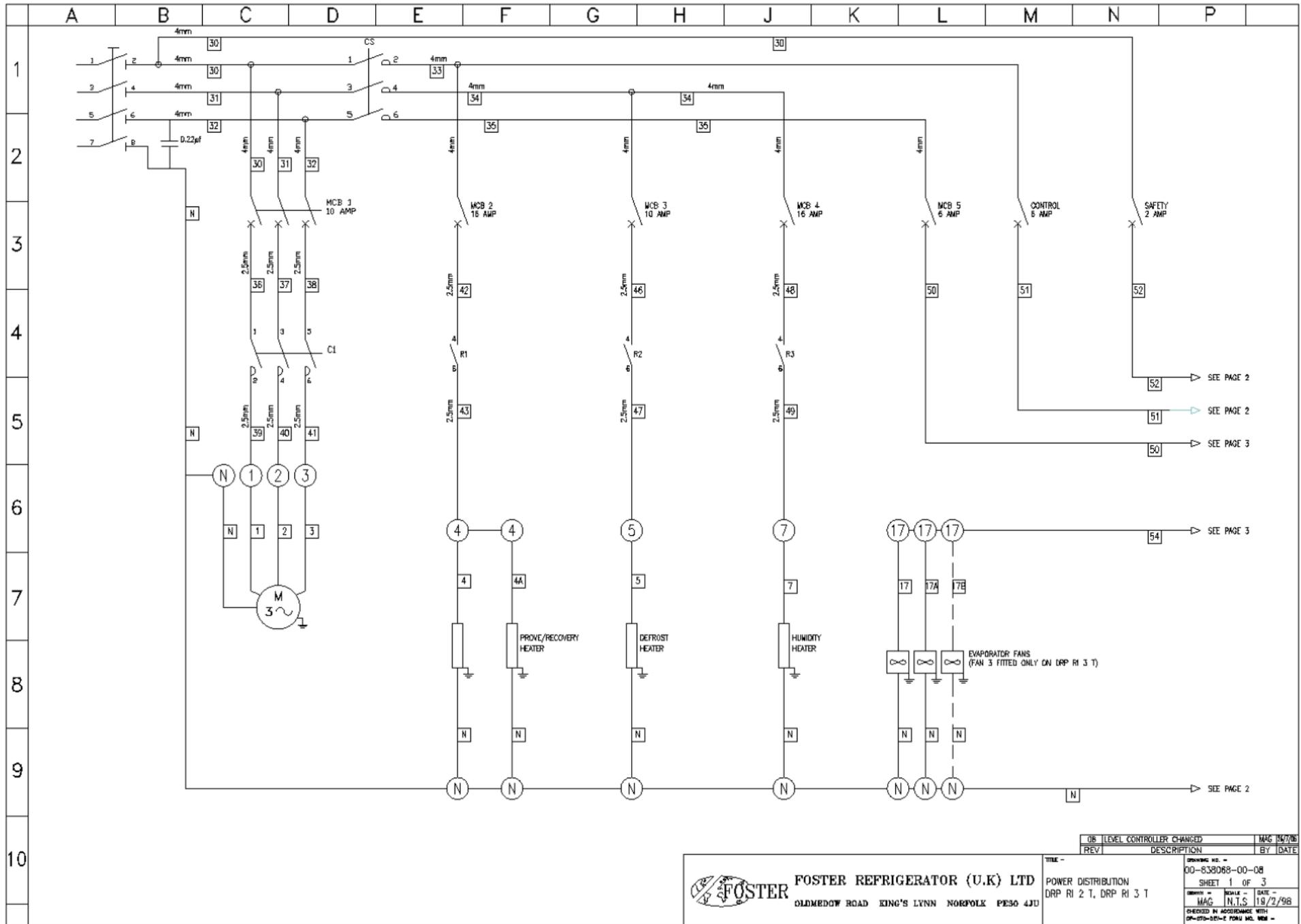
Most likely caused by a drain pipe blockage although this could be a symptom of the steam tank overflowing.

## PRODUCT



## **UNEVEN PRODUCT DEVELOPMENT**

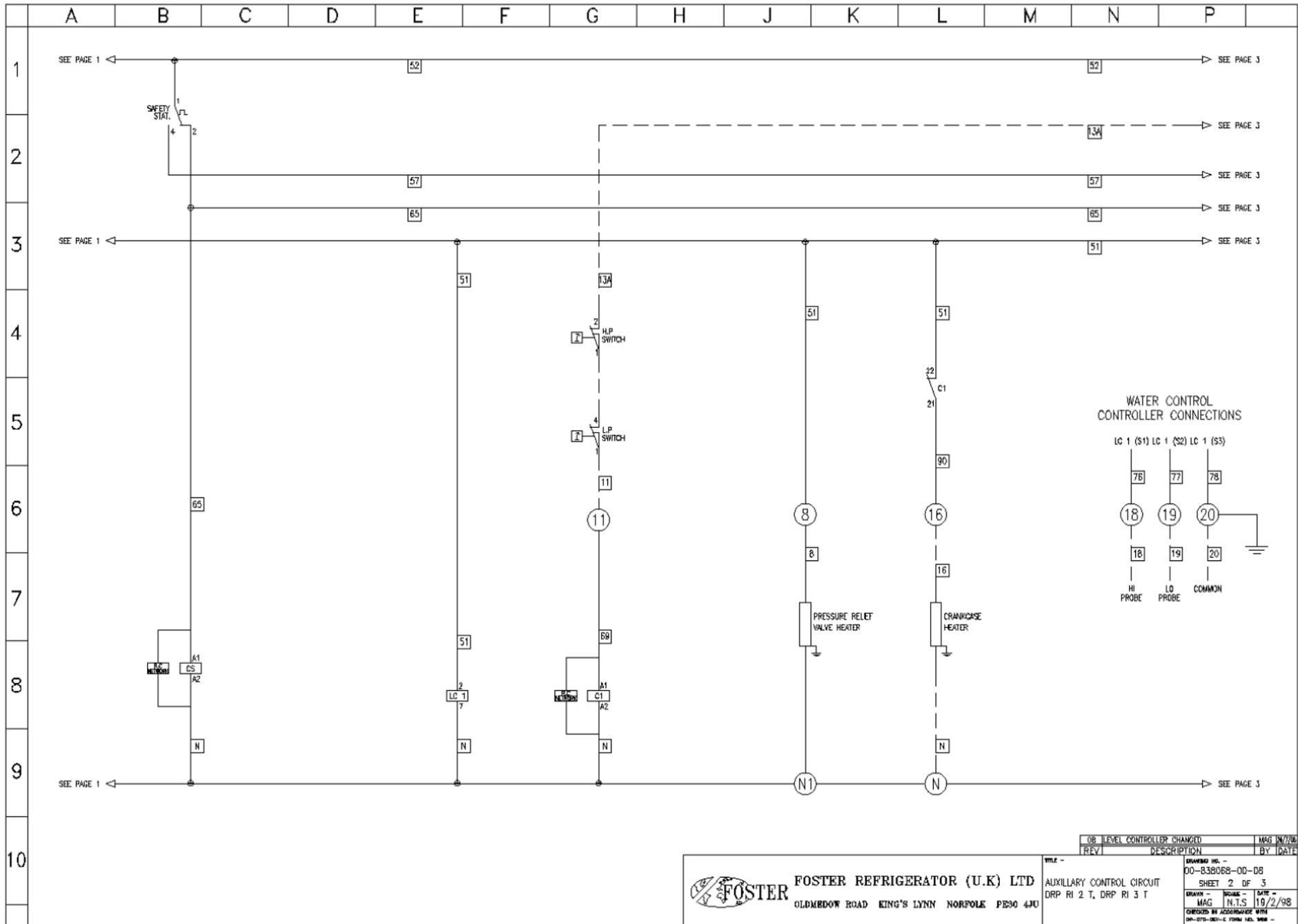




OB LEVEL CONTROLLER CHANGED	MAG 18/7/98
REV	DESCRIPTION BY DATE
DRAWING NO. - 00-838068-00-08	
SHEET 1 OF 3	
DESIGN - MAG	SCALE - N.T.S.
CHECKED IN ACCORDANCE WITH	DATE - 18/2/98
09-070-REV-2 FORU M.L. MGB	

**FOSTER** FOSTER REFRIGERATOR (U.K) LTD  
 OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

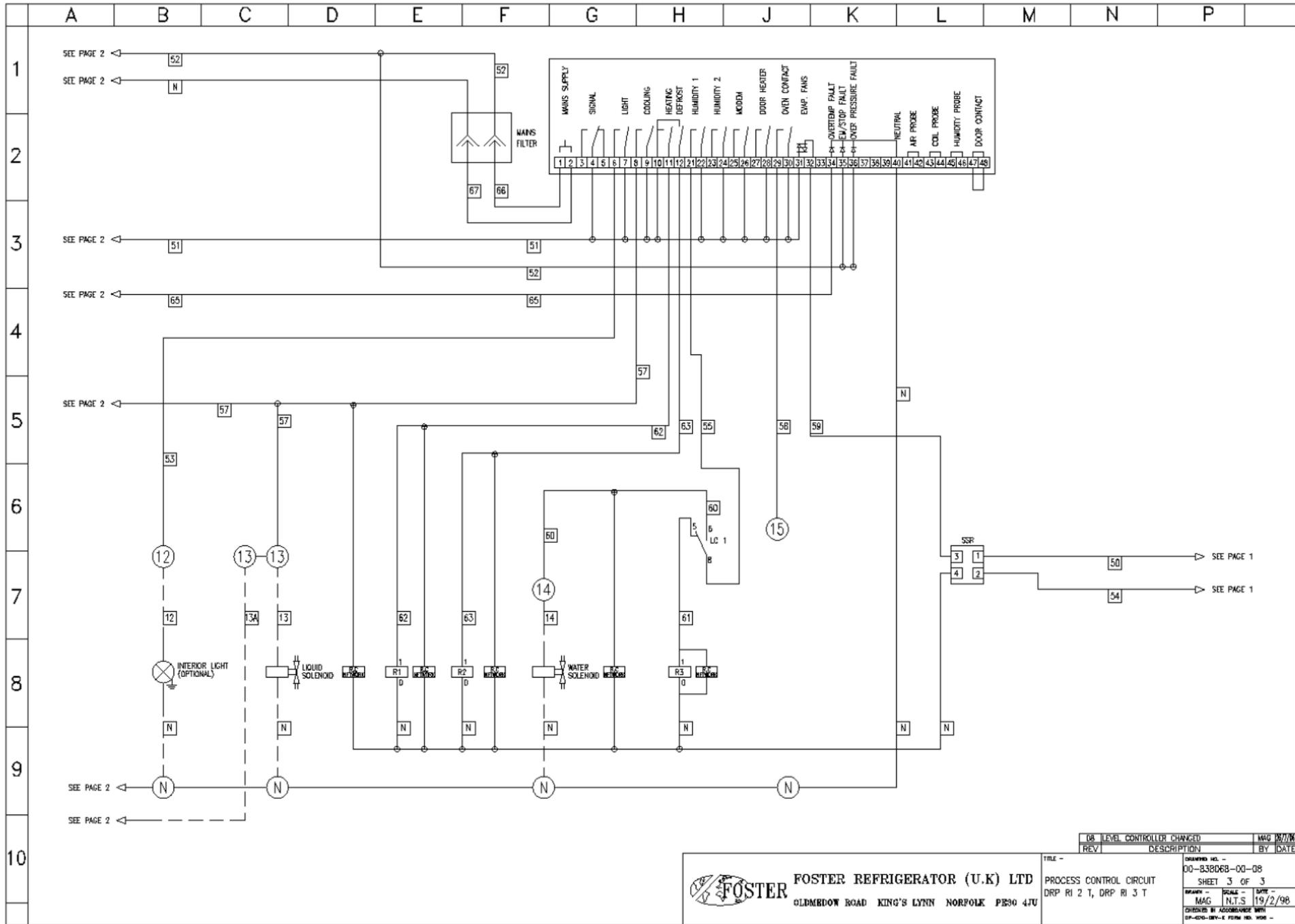
TITLE - POWER DISTRIBUTION  
 DRP RI 2 T, DRP RI 3 T



REV	DESCRIPTION	BY	DATE
06	LEVEL CONTROLLER CHANGED	MAG	19/2/98

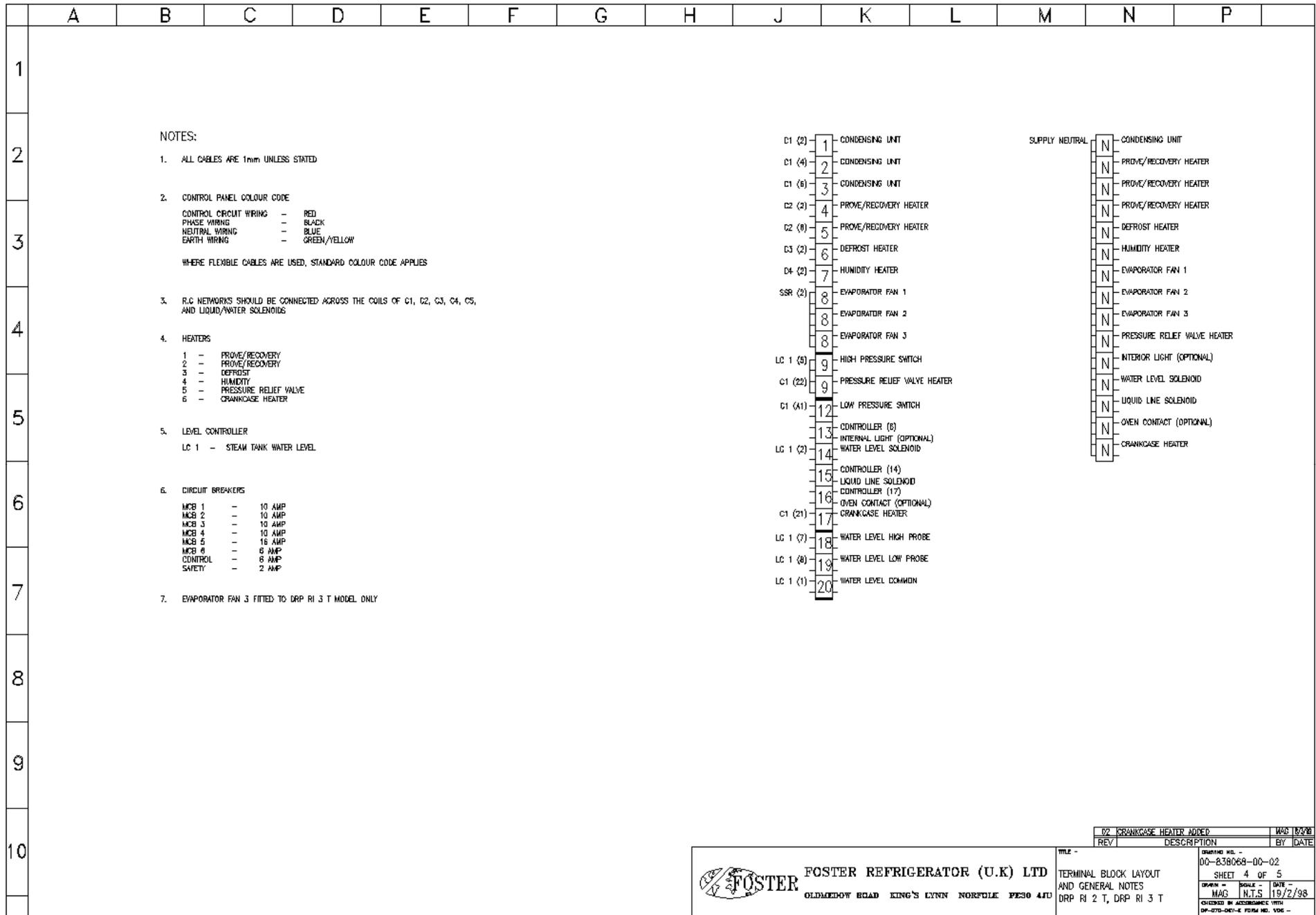

**FOSTER REFRIGERATOR (U.K) LTD**  
 OLDMEDROW ROAD KING'S LYNN NORFOLK PE30 4JU

DRAWING NO. - 00-838068-0D-D8  
 SHEET 2 OF 3  
 DRAWN - MAG DATE - 19/2/98  
 CHECKED BY - N.T.S  
 CONFORMS TO APPROVED W/MS  
 00-070-001-2 FORM NO. 9/88



**FOSTER** FOSTER REFRIGERATOR (U.K) LTD  
 OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

DR LEVEL CONTROLLER CHANGED	MAG	M/M
REV	DESCRIPTION	BY DATE
00-838D68-00-08	DRP RI 2 T, DRP RI 3 T	
SHEET 3 OF 3		
SCALE -	DATE -	
MAG	N.T.S	19/2/98
CHECKED BY ACCORDANCE WITH EP-420-REV-E FORM NO. 1008 -		



02 CRANKCASE HEATER ADDED	MAG 18/98
REV	DESCRIPTION
BY	DATE



**FOSTER REFRIGERATOR (U.K) LTD**  
OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

TITLE -	TERMINAL BLOCK LAYOUT AND GENERAL NOTES
DRP RI 2 T, DRP RI 3 T	
DRAWING NO. -	00-838068-00-02
SHEET	4 OF 5
SCALE -	N.T.S
DATE -	19/2/98
CHECKED BY	MAG
DESIGNED BY	N.T.S
DATE	19/2/98
DRP-070-001-4 FORM NO. 106 -	

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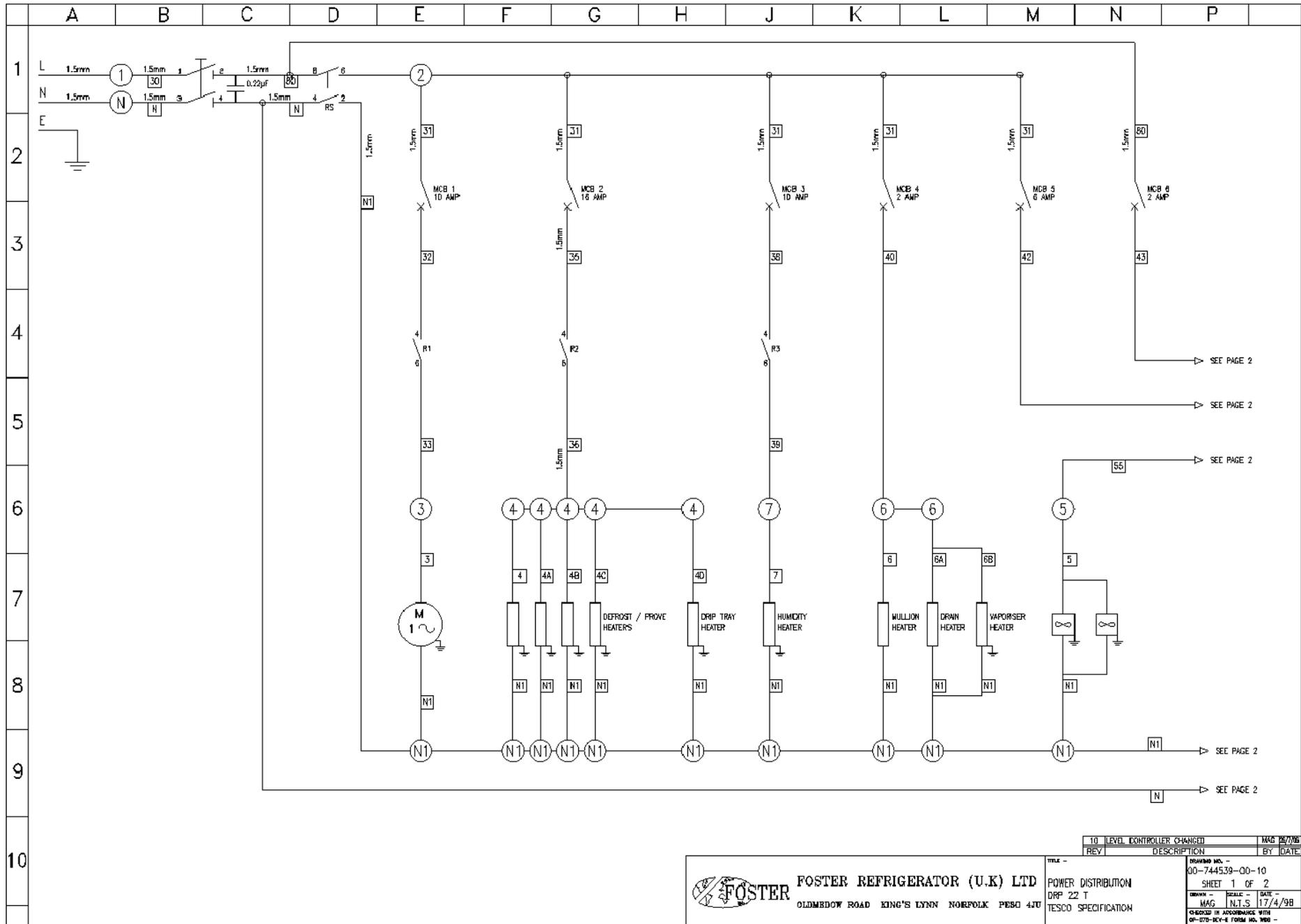
02	CRANKCASE HEATER ADDED	MAG	18/03
REV	DESCRIPTION	BY	DATE

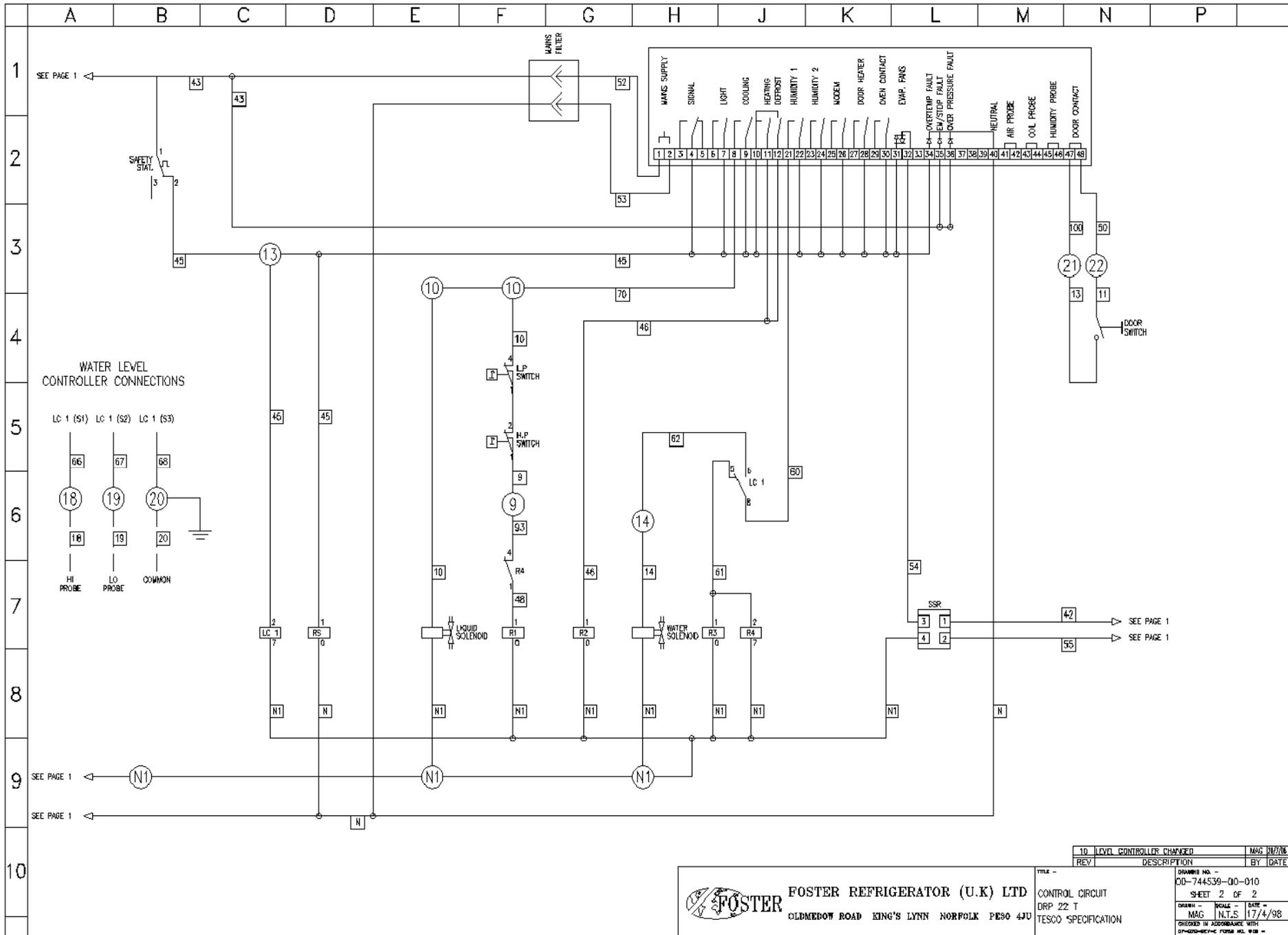


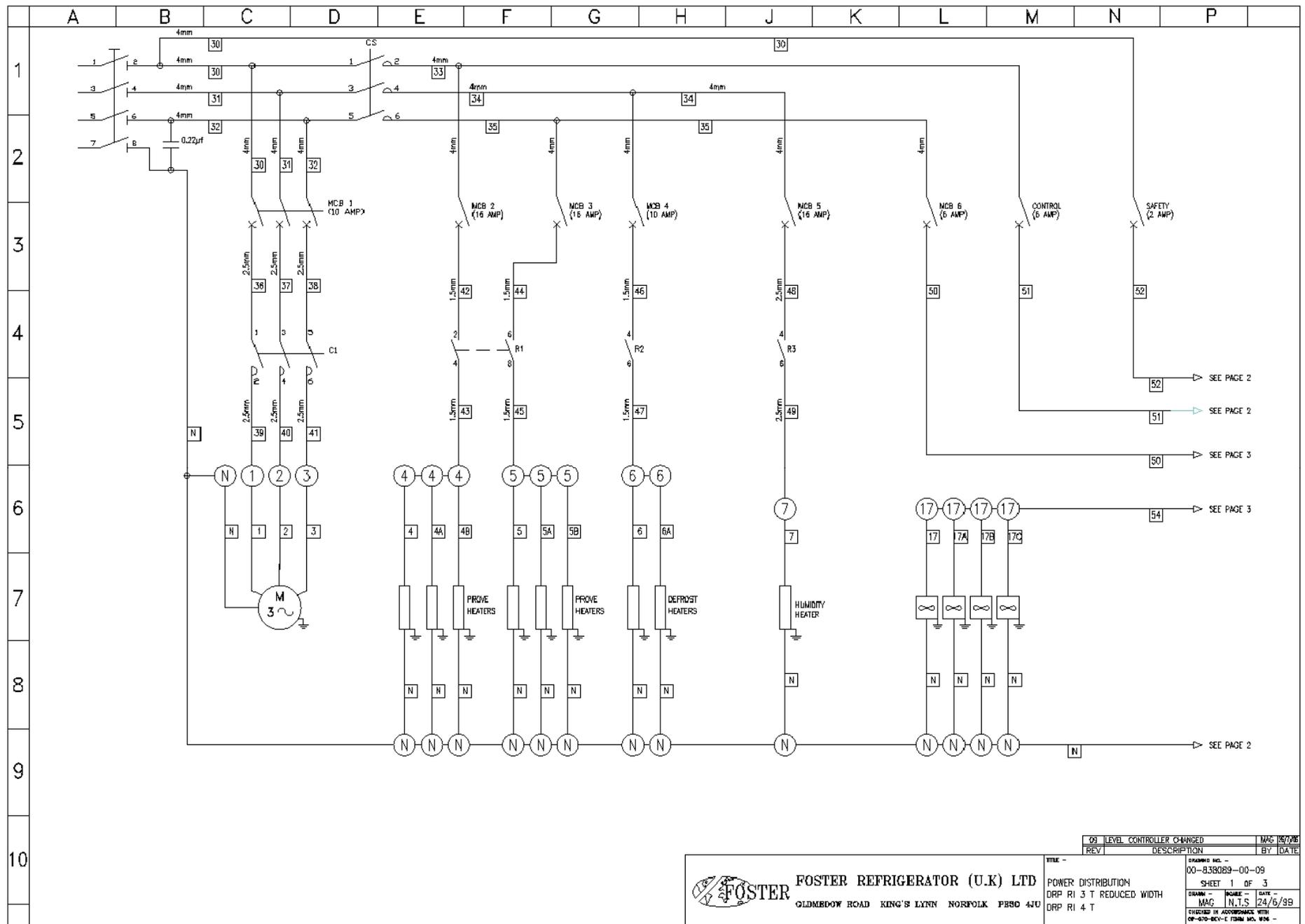
**FOSTER REFRIGERATOR (U.K) LTD**  
 OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

TITLE -  
 INSTALLATION CONNECTION DETAIL  
 DRP RI 2 T, DRP RI 3 T

DRAWING NO. - 00-838068-00-02	SHEET 5 OF 5
DRAWN - MAG	CHECKED - N.T.S.
DATE - 18/2/97B	
CHECKED BY APPROVED TITLE 00-475-001-E FROM HCL WOL -	



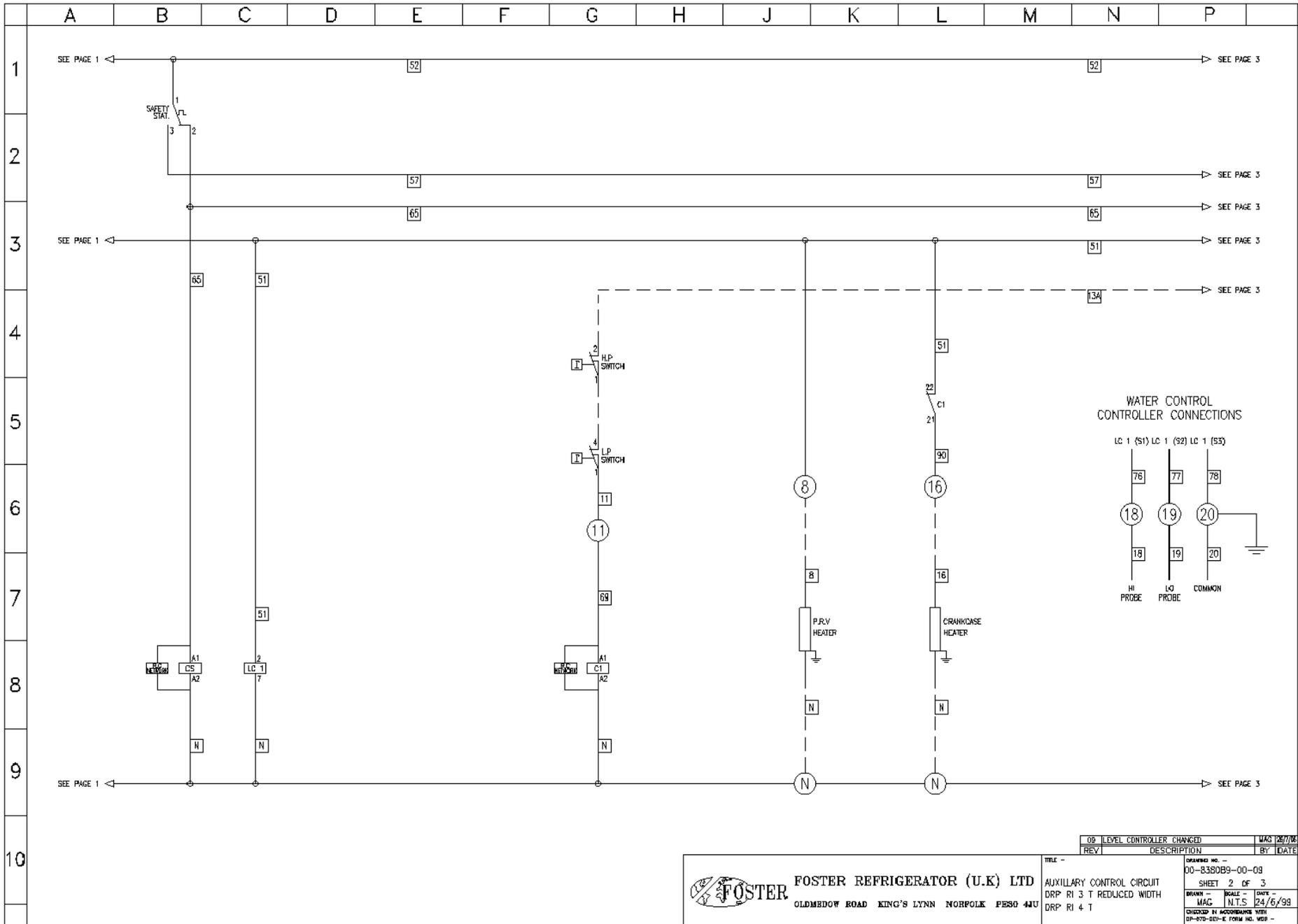




09	LEVEL CONTROLLER CHANGED	MAG	18/07/98
REV	DESCRIPTION	BY	DATE


**FOSTER REFRIGERATOR (U.K.) LTD**  
 OLDMEADOW ROAD KING'S LYNN NORFOLK PE30 4JU

TITLE -	DRAWING NO. -
POWER DISTRIBUTION	00-938089-00-09
DRP R1 3 T REDUCED WIDTH	SHEET 1 OF 3
DRP R1 4 T	DRAWN - MAG
	CHECKED IN ACCORDANCE WITH OP-670-BEV-E FROM NO. 000 -



09	LEVEL CONTROLLER CHANGED	MAG	25/7/98
REV	DESCRIPTION	BY	DATE



**FOSTER REFRIGERATOR (U.K.) LTD**  
 OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU

TITLE -  
 AUXILIARY CONTROL CIRCUIT  
 DRP RI 3 T REDUCED WIDTH  
 DRP RI 4 T

DRAWING NO. - D0-8380B9-00-03	SHEET 2 OF 3
DRAWN - MAG	SCALE - N.T.S.
DATE - 24/6/99	CHECKED BY MAG
DATE - 24/6/99	FORM NO. W08





Foster Refrigerator  
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