



PRRI1T Modular Retarder & PPRI1T Modular Prover

Service Manual



ISO 14001

ISO 9001



Environmental Management Policy for Service Manuals and Duets.

Product Support and Installation Contractors

Foster Refrigerator recognises that its activities, products and services can have an adverse impact upon the environment.

The organisation is committed to implementing systems and controls to manage, reduce and eliminate its adverse environmental impacts wherever possible, and has formulated an Environmental Policy outlining our core aims. A copy of the Environmental Policy is available to all contractors and suppliers upon request.

The organisation is committed to working with suppliers and contractors where their activities have the potential to impact upon the environment. To achieve the aims stated in the Environmental Policy we require that all suppliers and contractors operate in compliance with the law and are committed to best practice in environmental management.

Product Support and Installation contractors are required to:

1. Ensure that wherever possible waste is removed from the client's site, where arrangements are in place all waste should be returned to Foster Refrigerator's premises. In certain circumstances waste may be disposed of on the clients site; if permission is given, if the client has arrangements in place for the type of waste.
2. If arranging for the disposal of your waste, handle, store and dispose of it in such a way as to prevent its escape into the environment, harm to human health, and to ensure the compliance with the environmental law. Guidance is available from the Environment Agency on how to comply with the waste management 'duty of care'.
3. The following waste must be stored of separately from other wastes, as they are hazardous to the environment: refrigerants, polyurethane foam, oils.
4. When arranging for disposal of waste, ensure a waste transfer note or consignment note is completed as appropriate. Ensure that all waste is correctly described on the waste note and include the appropriate six-digit code from the European Waste Catalogue. Your waste contractor or Foster can provide further information if necessary.
5. Ensure that all waste is removed by a registered waste carrier, a carrier in possession of a waste management license, or a carrier holding an appropriate exemption. Ensure the person receiving the waste at its ultimate destination is in receipt of a waste management license or valid exemption.
6. Handle and store refrigerants in such a way as to prevent their emission to atmosphere, and ensure they are disposed of safely and in accordance with environmental law.
7. Make arrangements to ensure all staff who handle refrigerants do so at a level of competence consistent with the City Guilds 2078 Handling Refrigerants qualification or equivalent qualification.
8. Ensure all liquid substances are securely stored to prevent leaks and spill, and are **not** disposed of to storm drains, foul drain, surface water to soil.

DISPOSAL REQUIREMENTS

If not disposed of properly all refrigerators have components that can be harmful to the environment. All old refrigerators must be disposed of by appropriately registered and licensed waste contractors, and in accordance with national laws and regulations.

The materials used to package this refrigerator/coldroom may be recycled. Recycling will reduce the effect this waste has upon the environment. For information on waste collection facilities in your area, and other advice on recycling of packaging waste, visit www.recycle-more.co.uk

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1. INTRODUCTION

The two models are the PRR11T, pizza dough retarder, and the PPR11T pizza prove:
They are designed to accommodate two special pizza trolleys, not supplied.

The control system allows cabinet allows for simple manual operation with pre-set temperatures and function indicator lights.

Each cabinet has a Micro Processor temperature controller complete with function indicator L.E.D.'s. The Prover also has a process timer.

Standard Finish

Exterior walls.	Sides.
Rear Wall	Back
Front Wall.	Front
Ceiling.	Ceiling
Door.	Door
Interior Walls & Ceiling.	Base

Insulation thickness CFC Free polyurethane foam

75mm	Co-Laminate.
75mm	Co-Laminate.
75mm	Co-Laminate
100mm	Co-Laminate
50mm	Stainless Steel 304.
Floorless	Smooth Aluminium.

2. SPECIFICATION

2.1 Construction.

The product is of modular construction with the refrigeration system built onto an independent ceiling panel. The door is a slab type with self-closing rising butt hinges. Complete with a full height handle and no locks. Magnetic door gasket and a wiper gasket to the bottom edge of the door. The door can be hinged left or right hand as required.

2.2 Internal Fittings

Two Trolleys per section. (Not supplied as standard)
Maximum size of trolley 430 x 760 x 1730mm.
The internal walls are protected with aluminium Bumper Bars.

2.3 Service Requirements.

Electrical Supply 230V, 1 phase, 50Hz.
Fuse rating 13 Amp.

2.4 Temperature Ranges.

The cabinet is designed to automatically process Pizza Dough from a frozen condition (-18°C / -21°C) to a finished product as below.

Retard Temperature. +1°C/ +4°C.
Prove Temperature. 28°C/ +32°C.

The cabinets conform to ISO Climate Class 5 (40°C ambient with 40% RH).

2.5 Air Flow.

Air is circulated through the evaporator coil, or in the case of the Prover across the heaters, and discharged through a vented air duct fitted to the rear wall of the cabinet.
Internal airflow is generated by 3 x 10W motors with 200mm Ø, 34° pitch angle blades.

2.6 Retarding (Refrigeration).

The refrigeration system is a self-contained unit comprising of air-cooled condensing unit, forced air evaporator and all ancillary parts and controls. The equipment is pre-charged with refrigerant and pre-wired to allow for easy installation on site.

Refrigerant used is R134a.

The evaporator has a large surface area to provide high humidity during the retard operation.

Refrigerant control is a capillary based system used to control the correct amount of refrigerant required to meet the demand of the evaporator.

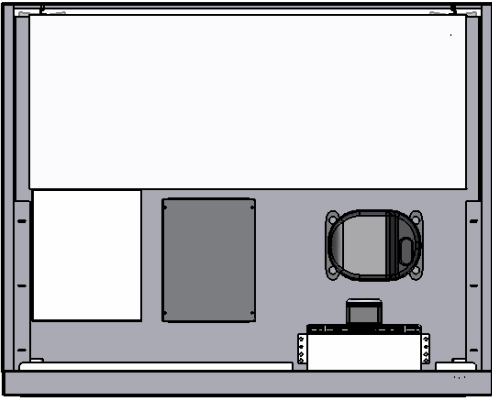
2.7 Proving (Heating).

An electric heater assembly is mounted on the rear face of the cooling coil which is energised during the prove process.

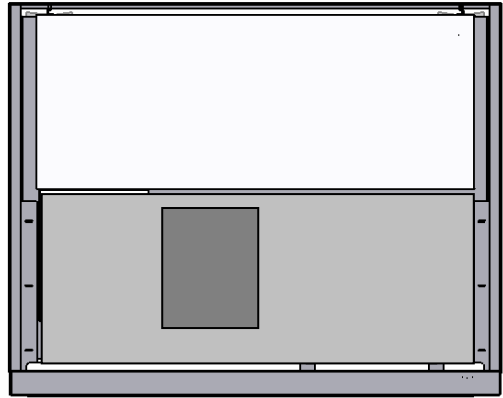
As an extra safety feature, a pre-set overheat thermostat switch is provided should the main control thermostat fail. During the Thaw process both cooling and heating are used to ensure that the air temperature is controlled to defrost the dough.

3. Panel Layout and Dimensions

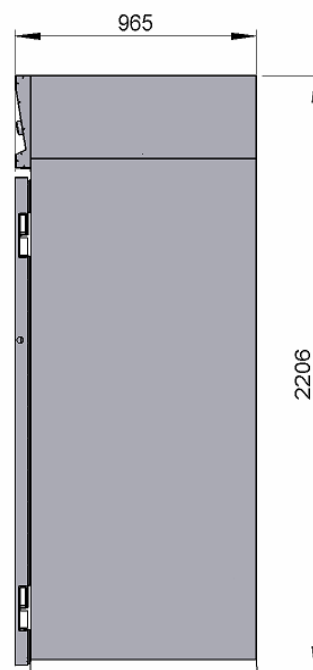
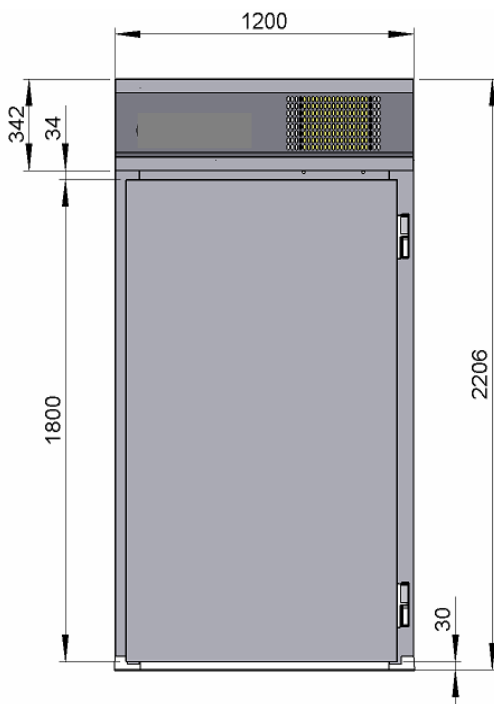
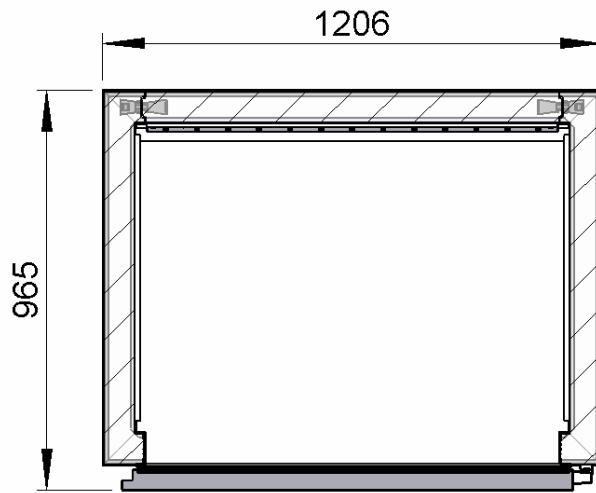
3.1 Ceiling panel with the refrigeration system



3.2 Ceiling panel with heater assembly



3.3 Cabinet Dimensions



3.4 'U' Channel Fitting

The 'U' channel is supplied cut to the correct lengths, use the cardboard template provided to position the channel on the floor.

The external dimensions of the room are - 1200mm Wide X - 965mm Deep

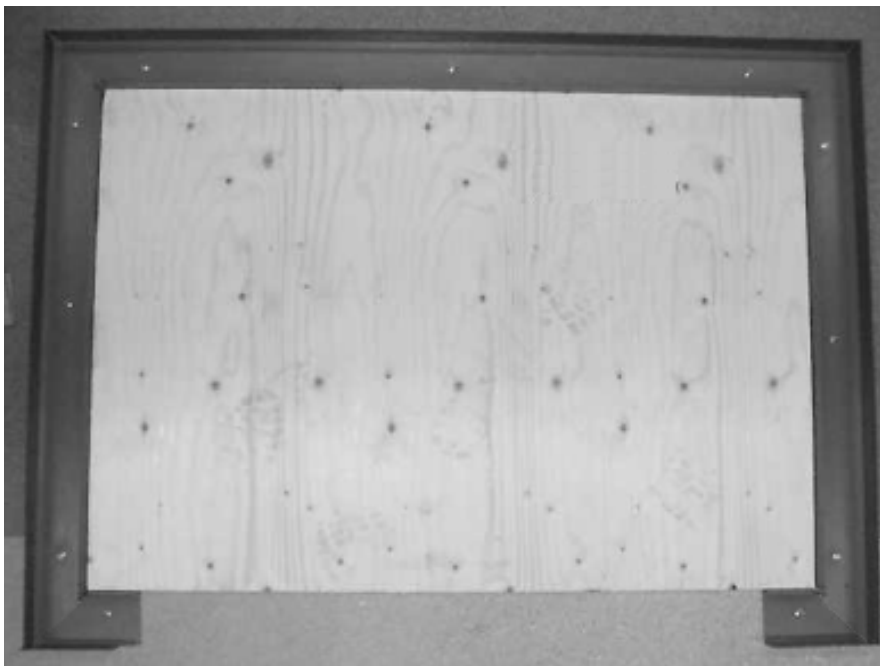
It is important that the 'U' channel is fixed squarely so that the panels will lock together when inserted.



It is recommended that there should be no more than 3mm tolerance in the floor level as this can affect the correct location of the locking panels.

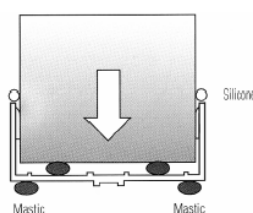
Using a spirit level check floor level on all four sides.

If required use packing shims to take up any anomalies in the floor.



Once you are satisfied with the level the U channel can be rawl-plugged or hilti-nailed into position ensuring it is sealed with silicone sealer between the floor and the channel to prevent moisture penetration.

Apply 'mastic sealer' to the inside of the channel so that when the panels are located there is a vapour seal.



3.5 ASSEMBLY OF WALL PANELS.

Note: there is no door header panel as this is integral with the ceiling panel.
Fit the side panel into the channel and apply a bead of mastic to the rear edge to create a vapour seal rear (see fig 1). Place the rear panel in the channel, these can now be locked together by means of the Foster Lock (see fig 2) operated by the hexagon shaped key provided (see fig 3). All panels are locked internally.

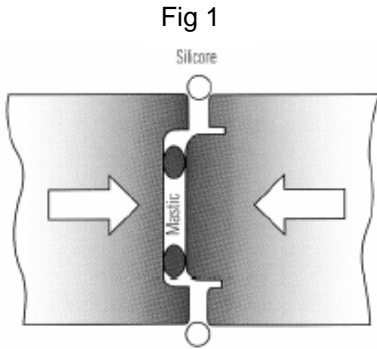


Fig 2

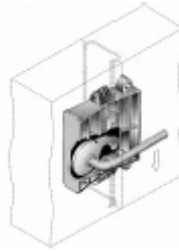
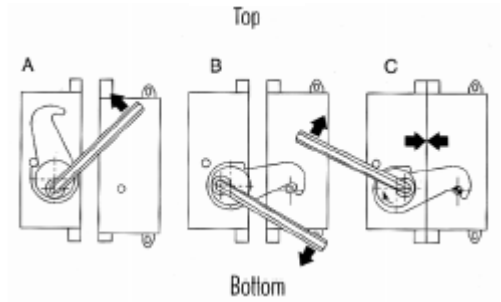


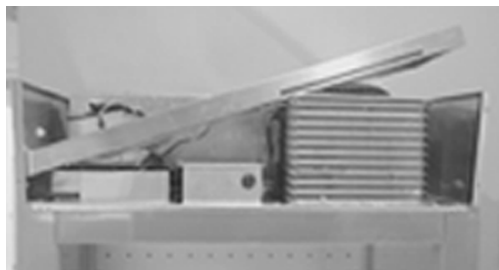
Fig 3



3.6 FITTING THE CEILING PANEL.

At the top of the wall panels there is a recess that accepts the ceiling panel.
Apply mastic to the recess so that when the panel is fitted there is a good vapour seal.

Slacken the screws securing the front panel to the sides and lift away, taking care not to damage the interconnecting cables, rest it securely on the top of the ceiling panel. See below.
Lift the ceiling panel complete and lower into the top recess.



With the ceiling panel in place slide the galvanised angle bracket into place (see fig 4). Secure in place using the screws provided (see fig 5 and 6).

Fig 4



Fig 5



Fig 6



With the ceiling panel secured in place seal the internal joints with silicone sealer.
 Insert the buttons into the lock holes.

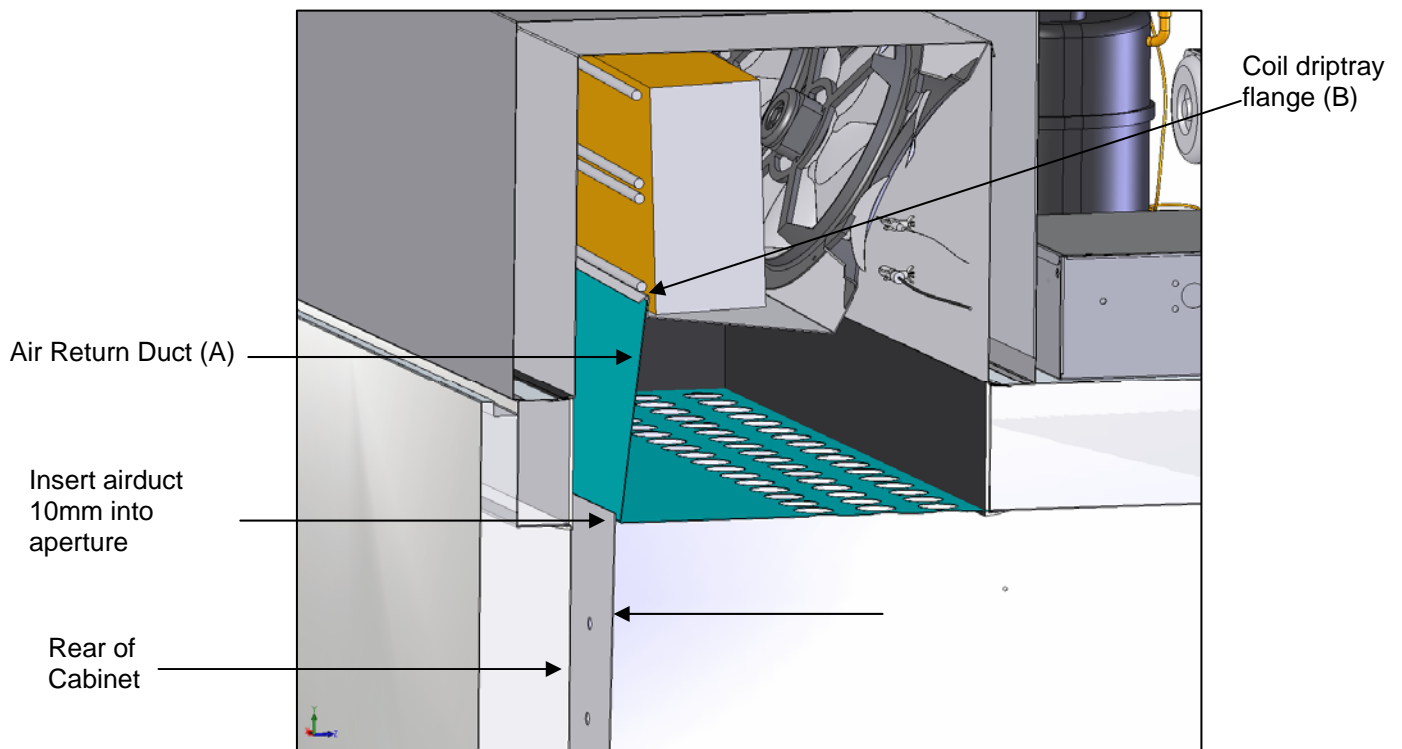
Note: For Prover models the fitting instruction is the same.

3.7 FITTING THE REAR AIR DUCT

- 1) Prior to fitting the rear air duct check that the **Air Return Duct (A)** is correctly located into the **Coil Drip tray Flange (B)**, see fig 7.
- 2) Place the air duct against the rear of the cabinet and insert into the space between the air return duct and the rear of the cabinet to a depth of 10mm, see fig 7, secure in place using the self tapping screws provided.

NOTE: For Prover models the rear air duct fitting is the same

Fig 7



3.8 FITTING THE BUMPER BARS

Place the rear bumper bars against air duct and line up with the pre-drilled threaded holes in the duct, secure in place using the M5 screws provided.

Place the side bumper bars against side panels lining them up with the pre-drilled holes, secure in place using the self tapping screws provided.

3.9 FITTING THE DOOR

Check that the inserts are fitted correctly into the hinge parts attached to the cabinet (see fig 8). Check that the insert for the door part of the hinges are correct for the door hinging, fig 9 shows the insert fitted for right hand hinging.

Fig 8



Fig 9

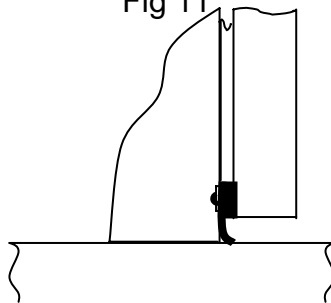


Fig 10



Hold the door at a 90° angle to the cabinet and lower the door on to the hinges, see fig 10 for the correct hinge alignment in the closed position. Check that it hangs squarely to the cabinet. Re-fit the unit cover and check that the top of the door lines up with the bottom of it. To remove the door reverse the process. After hanging the door inspect the door gasket ensuring that seals fully to the doorframe. Also ensure that the door wiper gasket, fitted to the bottom of the door (see fig 11).

Fig 11



4. Operating Instructions PRR1T

LCD 28CS4E-B (00-555739) Controller
Operation Guidelines



LCD 16 Display (00-555740)

Initial Start Up.

Start Up & self Test:



The indication is only displayed during the first three seconds following the mains electrical power being applied to the unit. During this period the controller performs a self-check.

Once the self-check has been completed **OFF** will be displayed.



Press and hold **O/I** for three seconds. The unit will start and the air temperature will be displayed.



Check temperature set point.

Important to note that the ability to increase and decrease the set point is not a function available to the user as the set point is fixed. To make adjustments to the set point it is necessary to access the parameter and alter SPL and SPH accordingly.



Check set point by pressing the button

To increase set point press  +  until required temperature is displayed.

To decrease set point press  +  until required temperature is displayed.


Factory Temperature Set Point

+1°C

Exit from set up occurs after 10 seconds if no button is pressed.

Manual Defrost.

To initiate a manual defrost press and hold   will be displayed release. 

On completion of the defrost  will be displayed until the cabinet temperature is achieved and then it will revert to displaying the normal cabinet temperature.

Set Unit to Standby.

Press  display shows 


Standby Indication

This indication is displayed while the unit is not operating but with mains power applied to the unit. This mode may be used for internal cleaning regimes and short periods when the unit is not required.

For extended periods of inactivity the mains supply should be isolated.


Alarm and Warnings

High temperature alarm

 Will be displayed.

The alarm will sound but can be silenced by pressing any of the buttons, however it will return after the pre-set designated period. The unit returning to normal operating temperature will automatically cancel the alarm. Possible Causes: Evaporator fan not working. Restricted airflow through airduct. Evaporator iced up. Compressor not working.

Low temperature alarm.

 Will be displayed.

The alarm will sound but can be silenced by pressing any of the buttons and the unit will continue to operate, however it will return after the pre-set designated period. The unit returning to normal operating temperature will automatically cancel the alarm.

Possible Causes: Controller faulty (not switching compressor off). Compressor secondary relay will not de-energise (low temperature models).

Air Temperature Probe Failure.


Will  be displayed.

The alarm will sound but can be silenced by pressing any button.




There is no further action that can be taken by the user in this instance. During this period the unit will continue to operate but have a reduced performance.

Action: Replace Probe.


Information Menu


Pressing and releasing  activates the information menu. From this menu you can display the temperature relating to T1 (air probe), T2 (evaporator probe, if fitted) and T3 (condenser probe, if fitted). The maximum temperature (THI) and the minimum temperature (TLO) the cabinet has achieved since it was last re-set.

The total operating time of the condenser (CND), since it was last cleaned, and the keyboard status (LOC).

The information to be displayed can be selected sequentially by pressing  repeatedly or scrolling through the menu using the  or  buttons.

Once selected press  to display the value

Exit from the info menu by pressing  or is automatic after 6 seconds if no buttons are pressed.




To reset the temperature settings recorded in THI and TLO and the hours counted in CND, access the info menu press  to display the value plus  simultaneously for resetting to be completed.

To check the LOC status scroll through to LOC, press  to display status – YES to lock keys. – NO to leave keys accessible.

NOTE: with the keys locked it is not possible to turn the unit off or ON or to check the set point




Parameter Setting and Adjustment


It is strongly advised that before adjusting any Service Parameters a thorough understanding of the following instructions should be obtained.

The parameters are accessed by pressing the following keys in succession  +  +  and keeping them pressed for 5 seconds.

After this period the first parameter 'SCL' will be displayed.



Press button  to pass from one parameter to the next and button  to go back.

Press  to display the value +  or  to change it.

Exit from set up is by pressing  or is automatic if no buttons are pressed for 30 seconds

NOTE:

When receiving a replacement controller the unit will be set with the default settings. Change the settings to those relating to the particular model. After changing parameter 'SCL' from '1' to '2' moving through parameters 'SPL', 'SP', 'FDD', 'IISL' and 'IISP' you may find that '-or' will be displayed. '-or' indicates that the control setting is out of range.

To get the parameter back into range, for example 'SPL', press  to display the value +  continue pressing both buttons until the display shows the temperature required then release both buttons. Use the same procedure to adjust all of the parameters displaying '-or'.

LCD 28CS4E-B (00-555735) Controller Parameter lists for the PRR1T

Mnem.	Definition	Min.	Max	Default	Dim.	VALUES (A)
ScL	Readout scale	1°C; 2°C; °F		1°C	flag	2
SPL	Minimum setpoint [1]	-30	SPH	-25	°C	1
SPh	Maximum setpoint [1]	SPL	30	10	°C	3
SP	Setpoint [1]	SPL	SPH	-20	°C	1
hYS	Thermostat hysteresis [1]	0.1	10	2.5	°K	3
crt	Minimum compressor rest time	0	30	1	min.	2
cdc	10 min. run cycle with PF1	0	10	6	min.	7
cSd	Compressor Stop delay after door open	0	30	1	min.	1
dFr	Defrost frequency [1]	0	24	3	1/24h	4
dLi	Defrost end temperature	-30	30	15	°C	20
dto	Maximum defrost duration	1	120	20	min.	20
dtY	Defrost type	FAN; ELE; GAS		ELE	flag	OFF
drn	Drain down time	0	30	3	min.	2
ddY	Display control during defrost	0	60	10	min.	10
Fid	Fan operation in defrost	NO	YES	NO	flag	YES
Fdd	Evaporator. Fan re-start	-30	30	-50	°C	5
Ftc	Fan timed control [1]	NO	YES	YES	flag	NO
FPc	Evaporator fan On / Off Ratio	0	3	1	flag	1
Atl	Low temperature alarm	-12	0	0	°K	-5
Ath	High temperature alarm	0	12	5	°K	5
Atd	Temperature alarm delay	0	120	30	min.	90
Ado	Door alarm delay	0	30	5	min.	5
Aht	Condenser HP Alarm	0	70	60	°C	60

Ahm	AHT alarm management	NON; ALR; STP		NON	flag	NON
Acc	Condenser cleaning	0	52	0	wks	0
hdS	Eco->Heavy Duty sensitivity	1	5	3	flag	3
11SM	2nd parameter set management	NON; MAN; HDD		NON	flag	NON
11SL	Minimum setpoint [II]	-30	IISH	-25	°C	-25
11SH	Maximum setpoint [II]	IISL	30	10	°C	10
11SP	Setpoint [II]	IISL	IISH	-20	°C	-20
11HY	Thermostat hysteresis [II]	0.1	10	3	°K	3
11dF	Defrost frequency [II]	0	24	1	1/24h	1
11Ft	Fan timed control [II]	NO	YES	NO	flag	NO
Sb	Stand By button function	NO	YES	YES	flag	YES
dS	Door switch enabling	NO	YES	NO	flag	NO
oAu	AUX Output Control	NON; 0-1; ALR		ALR	flag	NON
oS1	Air probe offset	-12.5	12.5	0	°K	0
t2	Evaporator. Probe enabling	NO	YES	YES	flag	NO
OS2	Evaporator. Probe offset	-12.5	12.5	0	°K	0
T3	Condenser. Probe enabling	NO	YES	NO	flag	NO
oS3	Condenser. Probe offset	-12.5	12.5	0	°K	0
tLd	Logging Temp. Delay	1	30	5	min.	5
Sim	Display slowdown	0	100	3	exp.	3
Adr	Unit address	1	255	1	exp.	1

5. Operating Instructions PPR1T

Controller LTR 15. 00- 555738



Controller Operation

Initial Start Up.

Start Up & self Test:

The indication is only displayed during the first three seconds following the mains electrical power being applied to the unit. During this period the controller performs a self-check.

Once the self-check has been completed will be displayed.

Press and hold for three seconds. The unit will start and the air temperature will be displayed. Check temperature set point.

Check set point by pressing the button

Important to note that the ability to increase and decrease the set point is not a function available to the user as the set point is fixed. To make adjustments to the set point it is necessary to access the parameter and alter SPL and SPH accordingly.

To increase set point press + until required temperature is displayed.

To decrease set point press + until required temperature is displayed.

Exit from set up occurs after 10 seconds if no button is pressed.

Set Unit to Standby.


Press  display shows 

Standby Indication

This indication is displayed while the unit is not operating but with mains power applied to the unit. This mode may be used for internal cleaning regimes and short periods when the unit is not required. For extended periods of inactivity the mains supply should be isolated.



Factory Temperature Set Point 32°C

Alarm and Warnings

In the event of a probe failure the display will show 
Action: Replace Probe.




Parameter Setting and Adjustment

It is strongly advised that before adjusting any Service Parameters a thorough understanding of the following instructions should be obtained.

The parameters are accessed by pressing the following keys in succession  + “set” +  and keeping them pressed for 5 seconds.

After this period the first parameter ‘SCL’ will be displayed.



Press button  to pass from one parameter to the next and button  to go back.

Press  to display the value +  or  to change it.

Exit from set up is automatic if no buttons are pressed for 30 seconds

NOTE:

When receiving a replacement controller the unit will be set with the default settings. Change the settings to those relating to the particular model. After changing parameter ‘SCL’ from ‘1’ to ‘2’ moving through parameters ‘SPL’, ‘SPH’, ‘1SP’, ‘IHY’, ‘IPB’ and ‘OS1’ you may find that ‘-or’ will be displayed. ‘-or’ indicates that the control setting is out of range.

To get the parameter back into range, for example ‘SPL’,  press to display the value  + continue pressing both buttons until the display shows the temperature required then release both buttons. Use the same procedure to adjust all of the parameters displaying ‘-or’.

LTR 15T1RE-AP Controller (00-555738) Parameter List for the PPR11T

Mnemonic	Definition	Min.	Max	Dim.	Default	Setting
SCL	Readout scale	1°C / 2°C / °F		flag	1°C	2°C
SPL	Minimum setpoint [I]	-199	SPH	°C	-19.9	29
SPH	Maximum setpoint [I]	SPL	999	°C	99.9	32
1SP	Setpoint [I]	SPL	SPH	°C	40	32
1Y	Control Type	HY	PID	flag	hy	HY
1HY	Change-over hysteresis [I]	-199	199	°K	-5	-3
1PB	Proportional band	-199	199	°C	-5	6
1IT	Integral action time	0	999	sec.	350	1
1DT	Derivative action time	0	999	sec.	50	4
1AR	Reset of internal action	0	100	%	90	15
1CT	Cycle time	0	255	sec.	10	20
1PF	Status with faulty sensor	ON / OFF		flag	OFF	OFF
BAU	Operation of auxiliary button	NON / SBY		flag	NON	NON
SIM	Display slowdown	0	100	flag	0	3
OS1	Sensor correction	-150	150	°K	0	0
ADR	Unit address	1	255	flag	1	1

6. Technical Data

Model	Ref	Ref Charge	Volts	Phase	Hz	Power Absorbed Retard	Run Amps Retard
FPRRI2T	R134A	750 grms	230	1	50	823w	4.4
FPPRI2T	N/A	N/A	230	1	50	1970w	8.5

7. Spare Parts Lists

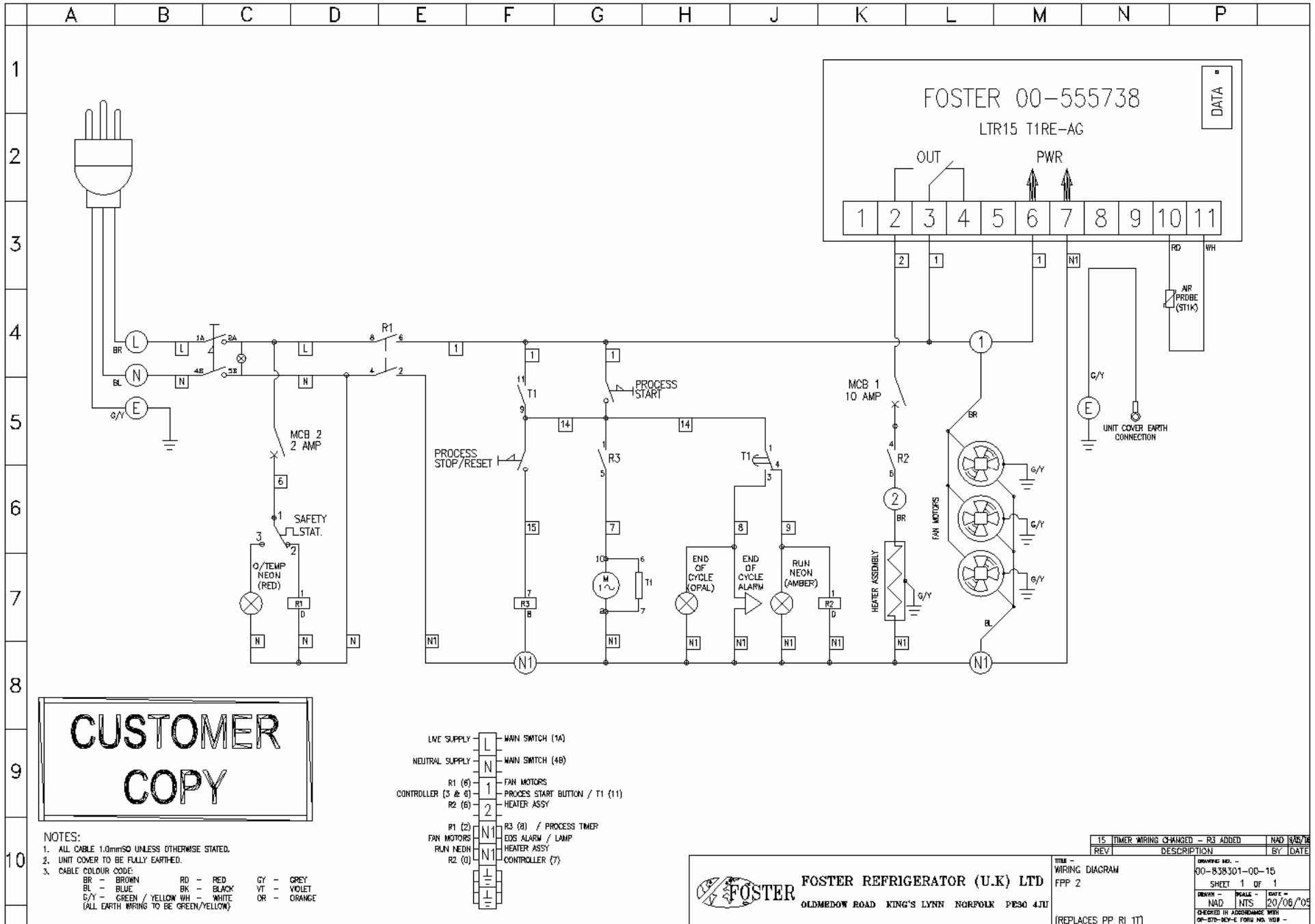
Spare parts list for PRR11T

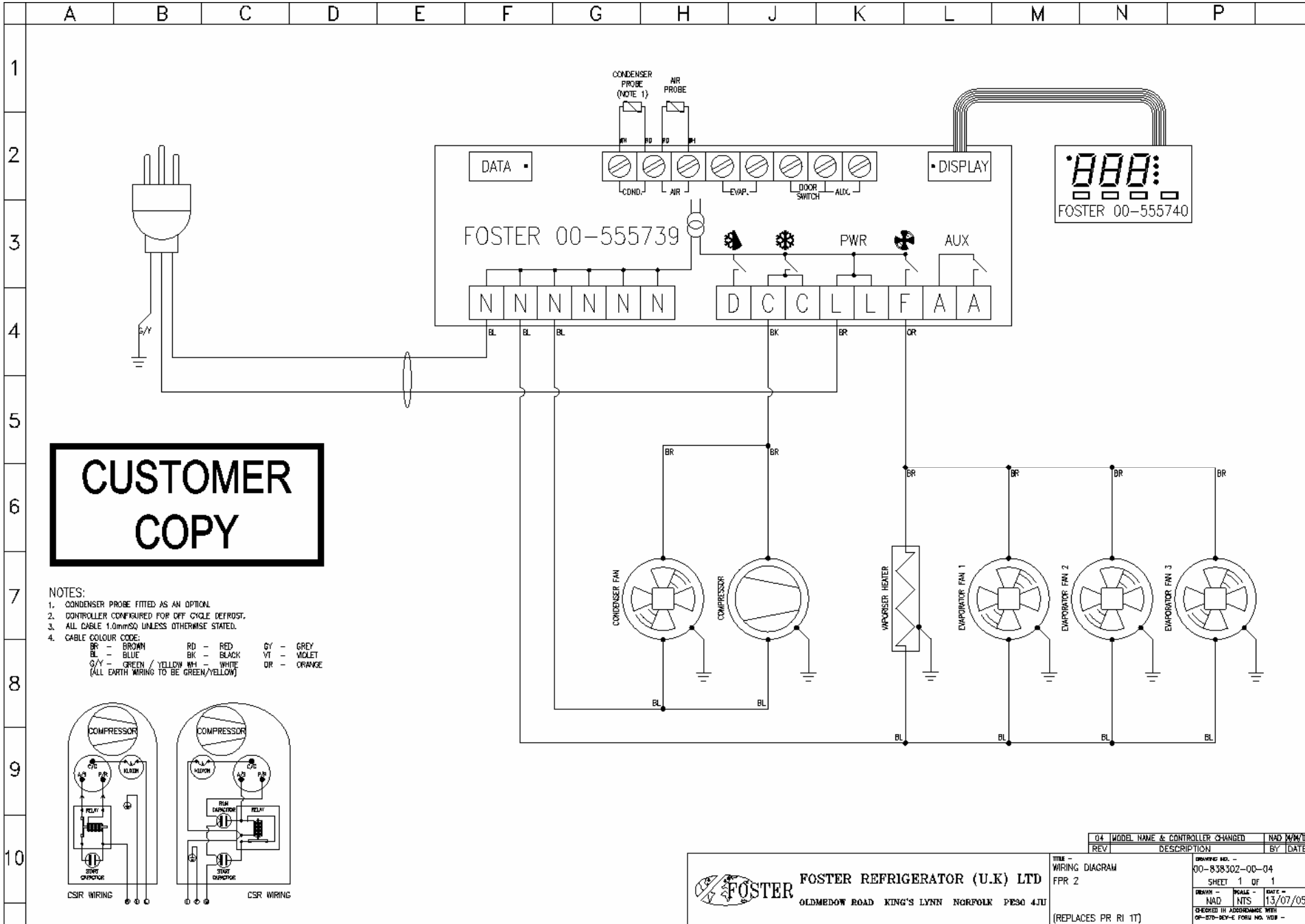
ITEM	DESCRIPTION	PART NUMBER
Compressor		00-555669
Condenser	LUVA 194	15431180
Condenser Fan		15470027
Condenser Filter	364x320x6	01-232050-01
Drier R134A		15480908
Vaporiser Tray	With Heater	16020373
Vaporiser Heater	140W	15240023
Evaporator	012674	00-554901
Evaporator Fan Motor	10W. 240 volts. (change fan blade to 31° Pitch part number 15871014)	00-599687
Fan Blade	200mm Diameter 34° Pitch	00-555808
Capillary 3M x 064	Available in 5m lengths	16010664
Controller	LCD 28CS4E-B	00-555735
Display	LCD 16	00-555740
Probe Air	SN2K250T1	00-555397
Hinge	Fermod 481	15230550
Wiper Gasket		16040015

Spare parts list for PPR11T

ITEM	DESCRIPTION	PART NUMBER
Prove Heaters	915W	15843321
Evaporator Fan Motor	10W. 240 volts. (change fan blade to 31° Pitch part number 15871014)	00-599687
Fan Blade	200mm Diameter 34° Pitch	00-555808
Controller	LTR 15T1RE-AP	00-555738
Probe	Probe SN2K250T1 Air	00-555397
Omron Timer	H2C-S A	15452534
Relay Base	11 PIN	15490415
8 Pin Relay	10amp 8 pin Mk2ps 230v	15490414
8 Pin Relay Base	For Above	15490416
Safety Thermostat	65 / 150°C	00-599554
Circuit Breaker	10 Amp	15242488
Circuit Breaker	6 Amp	15242487
Door Gasket	930 x 1764mm Magnetic	01-252932-01
Hinge	Fermod 481	15230550
Wiper Gasket		16040015

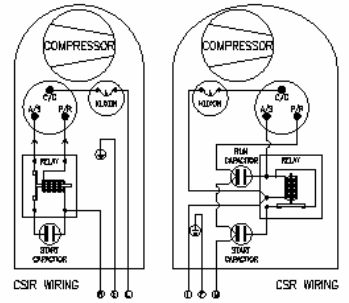
8. Wiring Diagrams





CUSTOMER COPY

- NOTES:
- CONDENSER PROBE FITTED AS AN OPTION.
 - CONTROLLER CONFIGURED FOR OFF CYCLE DEFOST.
 - ALL CABLE 1.0mm² UNLESS OTHERWISE STATED.
 - CABLE COLOUR CODE:
 BR - BROWN RD - RED GY - GREY
 BL - BLUE BK - BLACK VT - VIOLET
 GY/Y - GREEN / YELLOW WH - WHITE
 (ALL EARTH WIRING TO BE GREEN/YELLOW)



	FOSTER REFRIGERATOR (U.K.) LTD OLDMEDOW ROAD KING'S LYNN NORFOLK PE30 4JU		TITLE - WIRING DIAGRAM FPR 2	DRAWING NO. - 00-838302-00-04 SHEET 1 OF 1
	(REPLACES PR RI 1T)		CHECKED IN ACCORDANCE WITH OP-870-REV-E FORM NO. 108 -	DATE - 13/07/05



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