

# FOSTER PREP STATION



# Service Manual



ISO 14001



ISO 9001



<b>Contents</b>	<b>Page</b>
Environmental Management Policy	1
Disposal Requirements	1
Cabinet description	2
Temperature and Capacities	2
Controller Operation	2 to 4
Information Menu	4
Parameter Setting and Adjustment	4
Fuzzy Logic Not Incorporated	4
Controller Parameter List	5
Cabinet General Arrangement	6
Evaporator Assembly	6
FPS 2HR & FPS 3HR Condensing Unit Arrangement	7
FPS 3HR & FPS 4HR Condensing Unit Arrangement	7
Parts List	8
Technical Details	9
Wiring Diagrams	10

## **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 licence, or a carrier holding an appropriate exemption. Ensure the person receiving the waste at its ultimate destination is in receipt of a waste management licence 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.

## Description

The range consists of a choice of 2 to 5 door models with a storage capacity ranging from 270 to 720 litres.

The cabinets are manufactured as a one piece foam shell with easy clean stainless steel exterior

The cabinets conform to current legislation and exceed the Montreal protocol using zero ODP refrigerants and insulation. Temperature is controlled by a LAE microprocessor control with digital temperature display.

Easy accessible condensing unit fitted at the rear for ease of servicing.

The standard refrigeration system is integral with an air-cooled condensing unit with the refrigerant distribution into the evaporator controlled by capillary.

The cooled air is circulated through the evaporator, via the fan into the storage area.

Coated coils prevent corrosion and prolong refrigeration life.

Easy to read temperature display with wipe clean finish.

Wide magnetic gasket giving a positive door seal.

## Temperature and Capacities

Model	FPS 2HR	FPS 3HR	FPS 4HR	FPS 5HR
Counter Base Storage Temperature	+1 to +4°C	+1 to +4°C	+1 to +4°C	+1 to +4°C
Pan Storage Temperature (with Lids Fitted)	+3 to +5°C	+3 to +5°C	+3 to +5°C	+3 to +5°C
Nett Capacity (litres)	270	420	570	720
Pan Clear Opening	1058 x 305	1640 x 305	2222 x 305	2804 x 305
Max Number of 1/3 Pans Per Opening	6	9	12	16
Door Opening (w x h) Per Door	450 x 604	450 x 604	450 x 604	450 x 604
Door Opening Depth	1345	1345	1345	1345
Shelf Size	417 x 410	417 x 410	417 x 410	417 x 410
Number of Shelves Supplied Per Unit	4	6	8	10
Number OF Castors Supplied	5	5	5	6

## Controller Operation

### 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 **i.set** + **▶▶II** until required temperature is displayed.



To decrease set point press **i.set** + **◀◀I** until required temperature is displayed.



#### Factory Temperature Set Point

Refrigerator +1°C to +4°C

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

## Manual Defrost.

To initiate a manual defrost press and hold  **dEF** will be displayed then release 

On completion of the defrost **REC** 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 **O/I** display shows **OFF**

## 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

**HI** 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.


**LO** 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).

### Door Open Alarm. *(Only applies to cabinets fitted with door switches.)*

**DO** Will be displayed.

The alarm will sound but can be silenced by pressing .

The display will continue to display the alarm message until cancelled by shutting the door.

If the alarm cannot be cancelled by doing this call your Foster Authorised Service Company.

Possible Causes: Faulty door switch. Door left open for more than 5minutes.

### High Pressure Alarm (Only applies to machines fitted with a condenser probe).

**HP** Will be displayed

This alarm relate to the condenser which must be checked and cleaned at regular intervals the frequency being determined by site conditions.

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:** Condenser fan not working. Condenser blocked/ dirty. Condenser obstructed.

### Air Temperature Probe Failure.

**E1** 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. Check Connections.

### Evaporator Temperature Probe Failure. (Automatic Defrost Cabinets Only)


**E2** 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 satisfactorily, but this failure will have an effect on the defrost and therefore efficiency if allowed to continue.


**Action:** Replace Probe. Check Connections

## 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  + “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 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’.

**Fuzzy Logic is not incorporated in this model as no door switches are fitted.**

## Controller parameters for models manufactured prior to March 1<sup>st</sup> 2006

The parameter settings for the cabinets produced prior to March 1<sup>st</sup> 2006 can be altered to the following parameter lists and will function as described above.

### Note

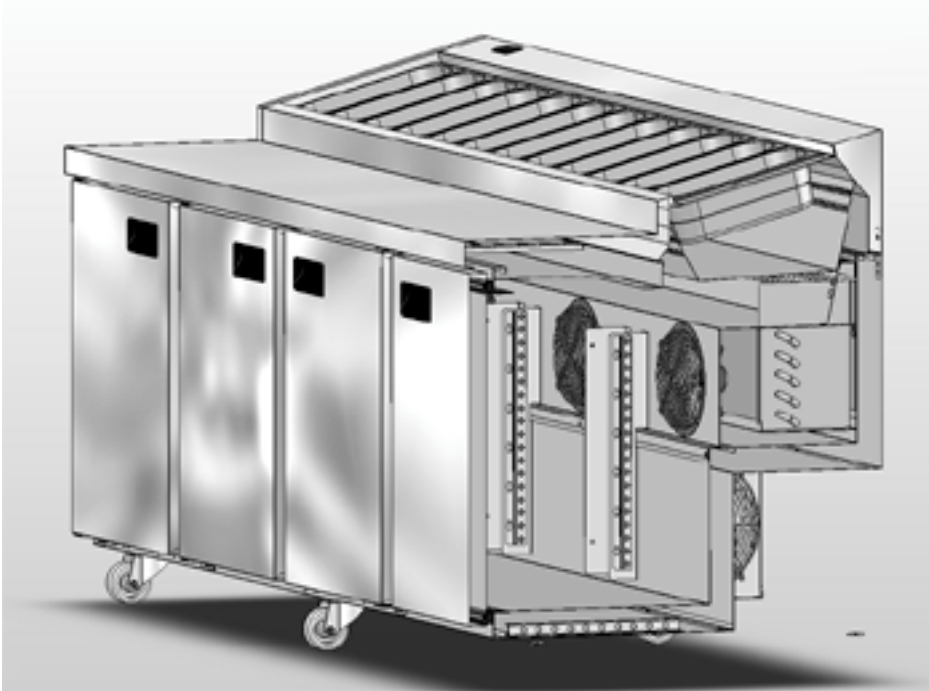
Parameter FPC is not included in this version .

## LCD 28CS4E-B (00-555735) Controller Parameter lists

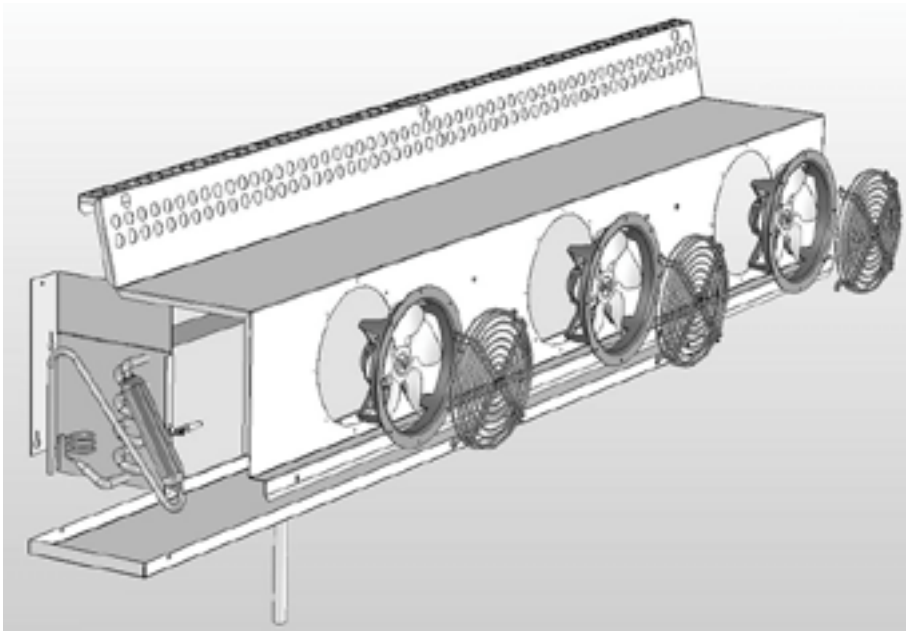
Note: On early versions of the controller parameter 'FPc' is not included in the set up, this will have no bearing on the operational function of the controller.

Mnem.	Definition	Min.	Max	Default	Dim.	VALUES (A)
ScL	Readout scale	1°C; 2°C; °F		1°C	flag	2
SPL	Minimum setpoint [ I ]	-30	SPH	-25	°C	1
SPh	Maximum setpoint [ I ]	SPL	30	10	°C	4
SP	Setpoint [ I ]	SPL	SPH	-20	°C	1
hYS	Thermostat hysteresis [ I ]	0.1	10	2.5	°K	3
crt	Minimum compressor rest time	0	30	1	min.	1
cdc	10 min. run cycle with PF1	0	10	6	min.	6
cSd	Compressor Stop delay after door open	0	30	1	min.	1
dFr	Defrost frequency [ I ]	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	10
Ftc	Fan timed control [ I ]	NO	YES	YES	flag	NO
FPc	Evaporator fan On / Off Ratio	0	3	1	flag	0
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

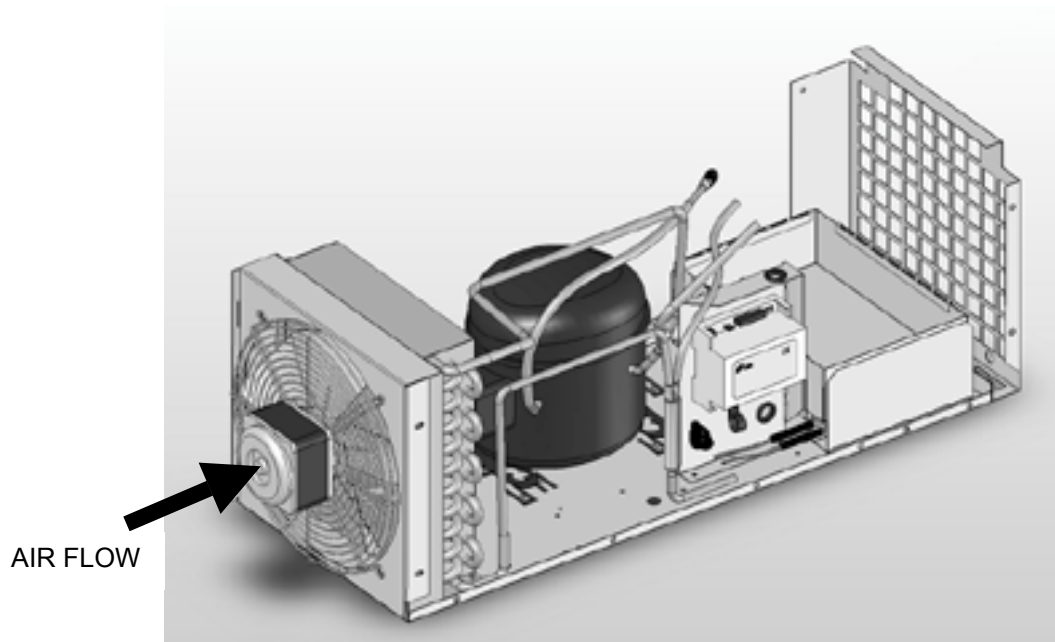
## Cabinet General Arrangement



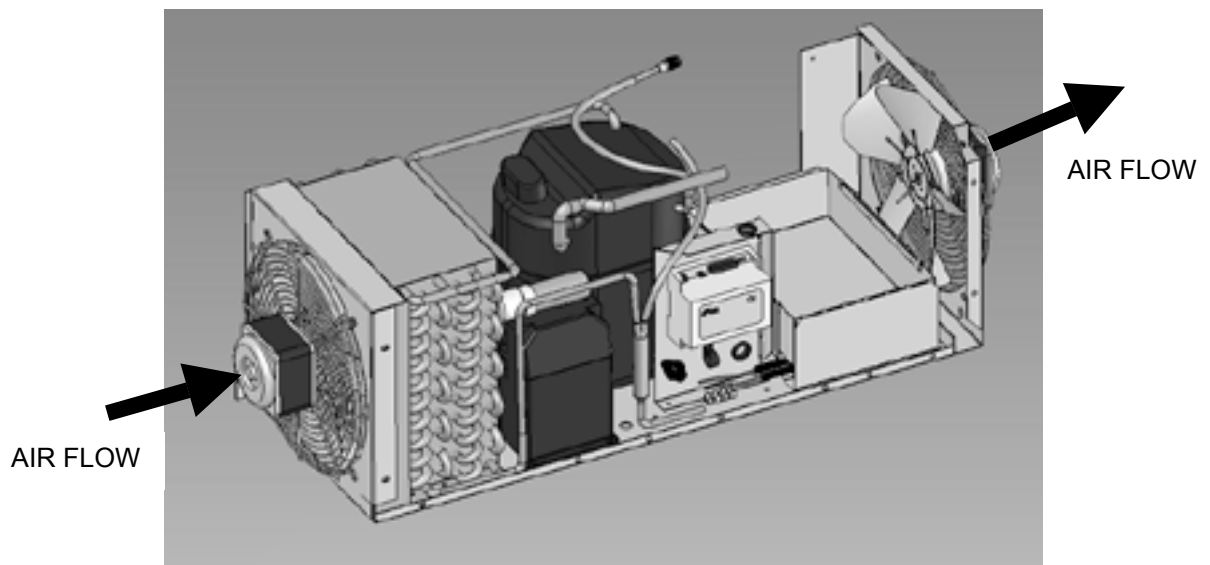
## Evaporator Assembly



**FPS 2HR & FPS 3HR Condensing Unit Arrangement.**



**FPS 4HR & FPS 5HR Condensing Unit Arrangement.**





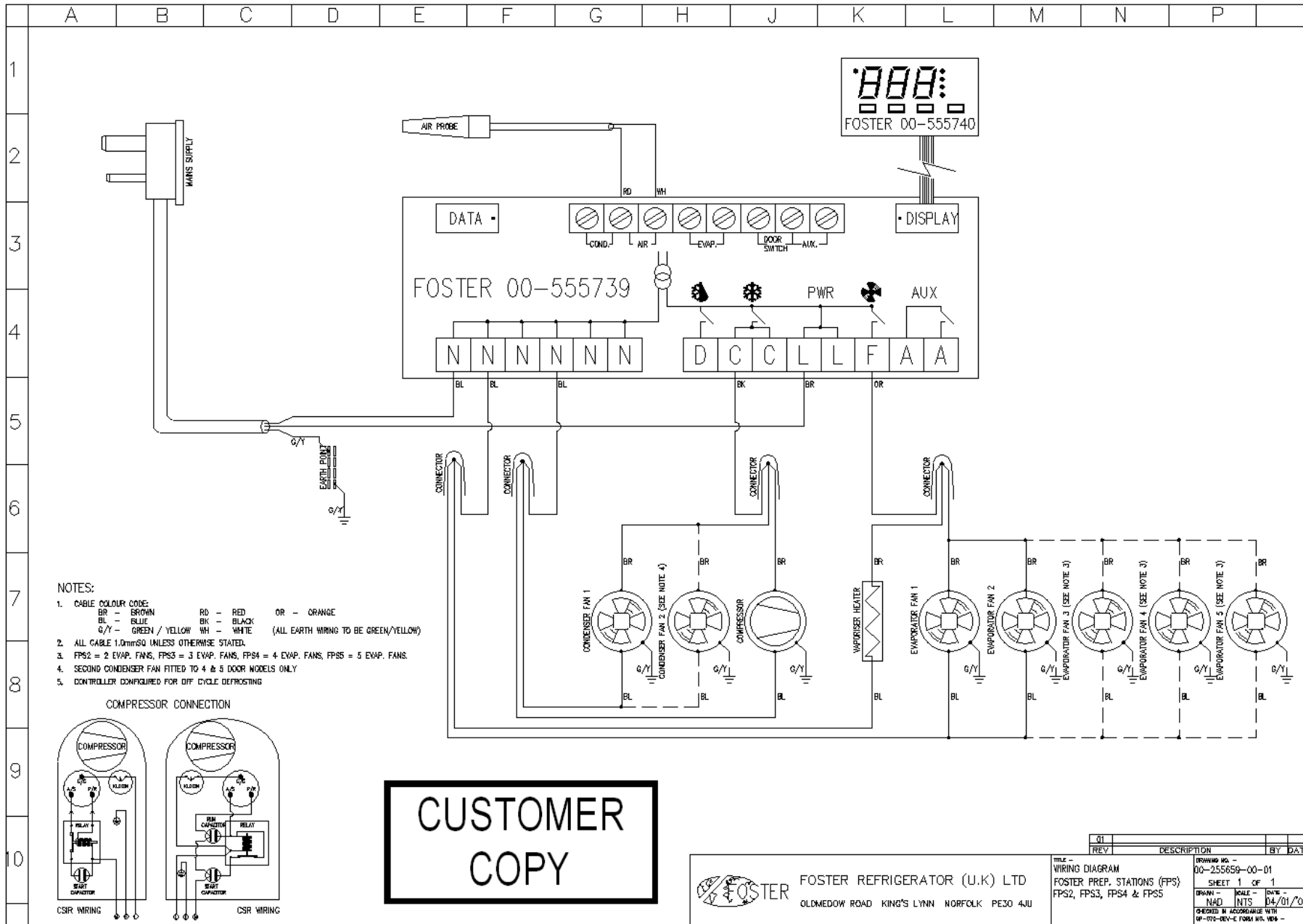
## Parts List

Item	Description	Part Number	Model
Compressor	GP12TB	00-555666	FPS 2HR
Compressor	GP16TB	00-555668	FPS 3HR
Compressor	GS26TB	00-555669	FPS 4HR FPS 5HR
Condenser Fan Motor	Grid Mount 18W	00-555819	FPS 2HR FPS 3HR
Condenser Fan Motor	Grid Mount 16W	15470027	FPS 4HR FPS 5HR
Fan Blade	34° 254mm CCW Rotation	15470213	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Fan Blade	34° 254mm CW Rotation	15470212	FPS 4HR FPS 5HR
Condenser Coil		01-255616-01	FPS 2HR
Condenser Coil		01-254927-01	FPS 3HR
Condenser Coil		01-255618-01	FPS 4HR
Condenser Coil		01-255628-01	FPS 5HR
Vaporiser Heater	Rod Heater 250w-240v Pre-formed	15240025	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Vaporiser Tray		01-254947-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Evaporator Coil		01-255610-01	FPS 2HR
Evaporator Coil		01-254957-01	FPS 3HR
Evaporator Coil		01-255612-01	FPS 4HR
Evaporator Coil		01-255614-01	FPS 5HR
Evaporator Fan Motor	5W 172mm 31deg	00-555815	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Fan Guard	Black	00-555813	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Temperature Controller		00-555739	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Temperature Display	Display + Ribbon Cable	16240105	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Air Probe	Probe Type NTC	00-555775	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Door Gasket	522 x 656mm Magnetic	01-255146-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Hinge Bracket RH Top		01-255160-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Hinge Bracket RH Bottom		01-255158-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Hinge Bracket LH Bottom		01-254439-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Hinge Bracket LH Top		01-254419-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Ladderack	446mm 6 Keyholes	01-233169-03	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Shelf Clip	S/S 430 FPS	01-255900-01	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Shelf	c/w Upstand PMC2-5 HFT/RT	15271657	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Castor	80mm Swivel	00-555708	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Castor	80mm Swivel Braked	00-555709	FPS 2HR FPS 3HR FPS 4HR FPS 5HR
Leg	80/110mm	00-554608	FPS 2HR FPS 3HR FPS 4HR FPS 5HR

### Technical Details

MODEL	Refrigerant	Refrigerant Grams	Compressor	Capillary Size	Defrost Type	Condensate Vaporisation	Standard Voltage	Power Consumption		Fuse Rating	Thermal Heat Rejection	Net Weight Kgs
								Watts	Amps			
FPS 2HR	R134a	375	GP12TB	3m x 042	Timed Off Cycle	Electric	220-50-1	690	4.4	13 amp	1050	164
FPS 3HR	R134a	500	GP16TB	3m x 054	Timed Off Cycle	Electric	220-50-1	875	5.6	13 amp	1620	207
FPS 4HR	R134a	575	GS26TB	3m x 064	Timed Off Cycle	Electric	220-50-1	1140	7.4	13 amp	2240	245
FPS 5HR	R134a	800	GS26TB	3m x 064	Timed Off Cycle	Electric	220-50-1	1170	7.6	13 amp	2280	265

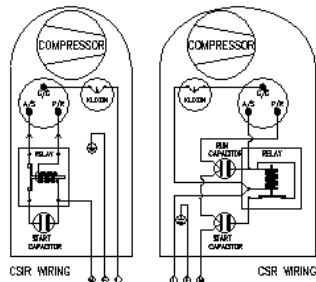
# Wiring Diagram



**NOTES:**

1. CABLE COLOUR CODE:  
 BR - BROWN      RD - RED      OR - ORANGE  
 BL - BLUE        BK - BLACK  
 G/Y - GREEN / YELLOW    WH - WHITE (ALL EARTH WIRING TO BE GREEN/YELLOW)
2. ALL CABLE 1.0mm<sup>2</sup> UNLESS OTHERWISE STATED.
3. FPS2 = 2 EVAP. FANS, FPS3 = 3 EVAP. FANS, FPS4 = 4 EVAP. FANS, FPS5 = 5 EVAP. FANS.
4. SECOND CONDENSER FAN FITTED TO 4 & 5 DOOR MODELS ONLY
5. CONTROLLER CONFIGURED FOR OFF CYCLE DEFROSTING

**COMPRESSOR CONNECTION**



CUSTOMER  
COPY

	FOSTER REFRIGERATOR (U.K) LTD OLD MEDJOW ROAD KING'S LYNN NORFOLK PE30 4JU		DRAWING NO. - 00-255659-00-01	SHEET 1 OF 1	DATE - 04/01/08
	WIRING DIAGRAM FOSTER PREP. STATIONS (FPS) FPS2, FPS3, FPS4 & FPS5		DRAWN - NAD	CHECKED BY NTS	IN ACCORDANCE WITH BS-075-REV-E FORM NO. 108

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