



The Refrigeration Experts

Service Manual

UK

EMD Multidecks

EMD700G, EMD900G, EMD1200G, EMD1200BLK,
EMD1500G, EMD1800G.



Three Steps

to maintain and service your appliance



The Refrigeration Experts

Welcome to your **interactive** Foster service manual.

Here's how it works:



To return to the contents at any point, click on the Foster logo at the bottom of every page.



Operating Instructions

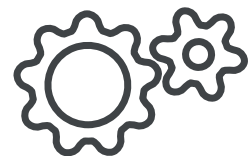


Service Function

- Parameters
- Alarm Indicators
- Probe Data
- Wiring Diagrams



Maintenance



General Information

These instructions should be retained and made readily accessible by personnel using the appliance. The instructions should be read thoroughly prior to appliance installation. Failing to follow the advice contained in this manual may result in damage to the appliance and personal injury to the operator. All installations must conform to local and municipal regulations and directives. In case of doubt contact your Foster authorised distributor or the Foster Technical Department. The information contained in this manual is current at the time of publication and is subject to change without notice.



CAREFUL – DANGER

Ignoring this sign and remarks may result in personal danger.



CAREFUL – DANGER

Ignoring this sign and remarks may result in damage to your appliance.



INFORMATION

Useful hints to make the best use of your appliance.



RISK OF FIRE/FLAMMABLE MATERIALS

Specific precautions are required to prevent ignition.

Climate Class

Climate class indicated on the serial plate shows the ambient temperature & humidity at which this appliance has been tested, for the purposes of establishing values in line with European standards.

Climate Class	Temperature	Relative humidity
5	40°C	40%

General Safety

- Do not store explosive substances such as aerosol cans with a flammable propellant in this appliance.
- Keep all ventilation openings in the appliance or in the structure of a built in unit clear of any obstructions.
- Do not use electrical appliances inside the storage compartment.
- Do not use steam cleaners, pressure washers or other jets/sprays of water on or around the appliance.
- This appliance is heavy. When moving the appliance care should be taken and correct safe practices followed. The appliance should not be moved over uneven surfaces.
- The appliance should not be moved while loaded with product.
- The appliance should not be moved using the doors as a hand hold or pulling point.
- Due to the weight of the appliance and that of the product contained within it the appliance may leave indentations in some types of floor coverings.
- The emitted sound level of this appliance is not greater than 70dB(A).
- To ensure stability the appliance should be located on a flat, level surface, correctly loaded.
- Do not use mechanical devices to accelerate the defrost process.
- Do not damage the refrigeration circuit.
- If the supply cord is damaged, it must be replaced by the manufacturer, it's service agent or similarly qualified persons in order to avoid hazards.
- Care should be taken to avoid prolonged contact with cold surfaces with unprotected body parts, correct PPE to be used at all time.
- The handles on the rear of the appliance also serve to maintain an adequate space to the rear of the appliance required for correct operation. These should not be removed.



Disposal Requirements

This appliance contains components and materials (some of which are flammable) that may be harmful to the environment if not disposed of correctly. Disposal of this appliance should be carried out by a suitably licenced waste contractor in accordance with national laws and regulations which may be in force at the time. For more information please contact your local authority environmental department.



Electrical Safety


This equipment shall be connected to an electrical supply protected by a Residual Current Device (RCD). This may include a residual current circuit breaker (RCCB) type socket, or through a Residual Current Circuit Breaker with overload protection (RCBO) supplied circuit.


Should it be necessary to replace the fuse, the replacement fuse must be of the value stated on the serial label for the appliance.





Start-Up and Test Sequence


After unpacking, clean (cleaning directions supplied within this manual) and allow the appliance to stand for 60 minutes before turning on.


 Ensure the appliance is situated on a firm, level surface, away from both hot and cold air sources, as this will affect its performance.

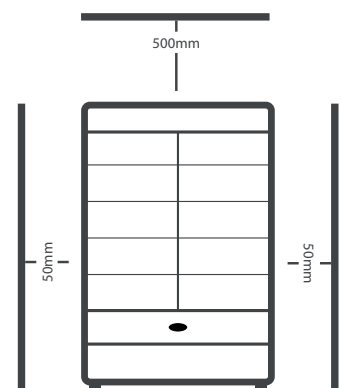
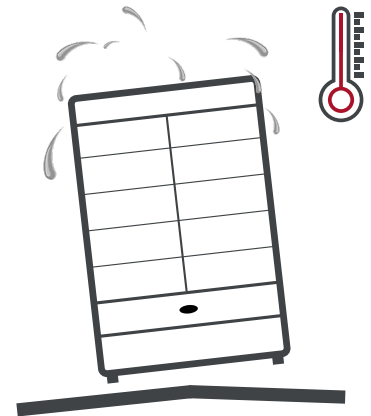
 Place the appliance in a location so as not to exceed the maximum rated ambient temperature.

 The appliance produces warm air when operating normally and requires adequate ventilation. The dimensions indicated are a minimum.

 The air intake slot at the front of the appliance **MUST** be unobstructed across the full width of the appliance.

 Connect the appliance to a suitable power supply. Do not connect or disconnect the appliance with wet hands. The appliance will turn on automatically displaying the actual internal temperature of the appliance and 'PF'. To cancel the alarm press button 1. If this does not happen and the display shows ' - ' press and hold button 1 for 3 seconds to turn on the appliance.

 As the operating temperature has been pre-set no adjustments are required. Allow the appliance to reach its normal operating temperature before loading with product.



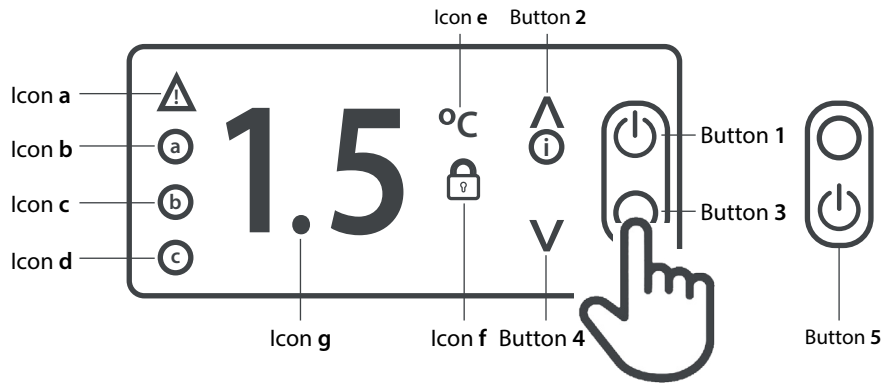
1

Operating Instructions



Display Icons and Buttons

These are located behind the left hand door of the appliance.



Icon		Button	
a	Compressor on / Alarm	1	On / Off / Standby
b	Evaporator fans on	2	Up / Increase value
c	Defrost on	3	Back / Exit
d	2nd operating function on	4	Down / Decrease value
e	°C / User menu active	5	Lights on/off
f	Keypad locked / Service function active		
g	Decimal point / Defrost active		

Note - Icons a, b, c, d are only visible after pressing either buttons 1, 2, 3 or 4.

The appliance is designed for the storage of product at the appropriate temperature. It is not designed to chill product from a higher temperature. Using the appliance in this manner may result in malfunction, damage and invalidate the warranty.

Standby

Pressing button 1 for 3 seconds will turn the unit on or into standby. When in standby the display will only display '-'. The remainder of the display will be blank. When operating normally, the display will show the internal temperature of the cabinet.

Set Point

To display the appliance Set Point, with the display showing the temperature, press button 2 for 3 seconds and the display will show 'SP'. Then press button 1 once to display the current set point.

Adjust the set point using button 2 to increase and button 4 to decrease. Press button 1 to save the new value and the display will show 'Loc'. If button 1 is not pressed the new value will not be stored. Exit by pressing button 3.

If the Set Point cannot be adjusted to the value required please contact your authorised Foster dealer for advice.

The display will resume normal operation after 30 seconds or if button 3 is pressed.

Keypad Security Settings

The keypad can be locked to prevent unauthorised adjustment of the appliance and its operating temperature.

When the keypad is locked no adjustments can be made using the keypad and icon 'f' will be displayed.

To lock or unlock the keypad press and release button 2 for 3 seconds and the display will show 'SP'. Release the button and then press button 2 once and the display will show 'Loc'. Press button 1 to display the current keypad lock status. Adjust using button 2 and button 4 to set the value to 'Yes' to lock the keypad and 'no' to unlock the keypad. Press button 1 to save the new value. If button 1 is not pressed the new value will not be stored. The display will resume normal operation after 30 seconds or if button 3 is pressed.

Defrost

The appliance has an automatic defrost function and will defrost periodically each day without any user intervention. This process is normal and does not affect product stored in the appliance. During defrost the appliance can be used as normal.

To start a defrost manually press and hold button 1 for 5 seconds. This will turn off the appliance. When this happens do not release the button and after 2 more seconds the display will indicate a defrost has commenced (dEF is briefly displayed) and the button can be released. The appliance set point temperature will be displayed during defrost and icon 'g' will flash to indicate a defrost is in progress.

The defrost will operate for its full duration, it is not possible to cancel a defrost when it has started.



Door Lock

To lock the door insert the key and turn 90°, turn in the opposite direction to unlock.



Internal Light

The lights are operated by pressing button 5. Press once to turn the lights on or off.



Keypad Sounds

If the user does not require the keypad to indicate with a sound when a button is pressed this can be turned off. Press and hold button 2 for 3 seconds until the display shows 'SP'. Press button 2 until the display shows 'biP'. Press button 1 to display the current value. 'Yes' indicates keypad sounds are active and 'no' indicates keypad sounds are not active. Select the value required and press button 1 to save the new value. If button 1 is not pressed the new value will not be stored. Exit with button 3.



Alarms Notification

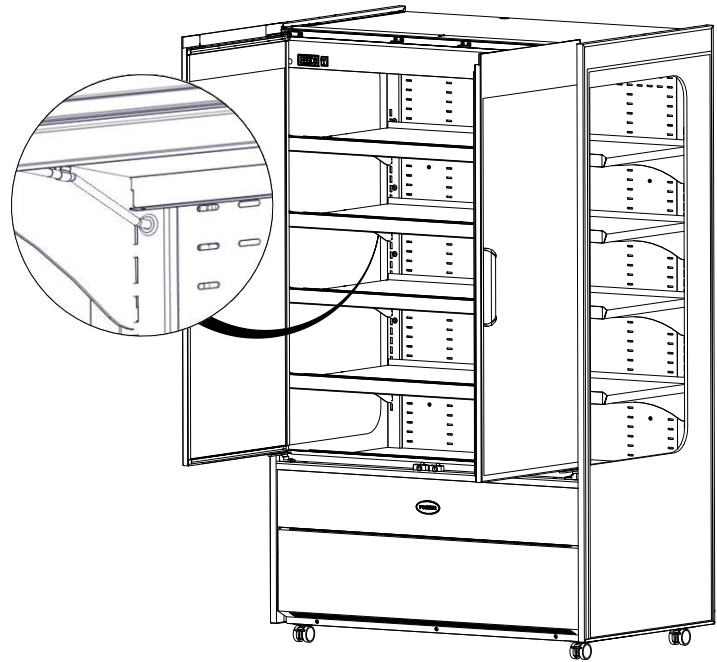
If an alarm condition occurs the appliance will indicate this with an audible signal, by illuminating icon 'a' and displaying a fault code from the list in the 'Troubleshooting' section of this manual. The audible notification can be muted temporarily by pressing button 1. While the fault is still present icon 'a' will continue to be illuminated and the display will cycle between the fault code and the appliance temperature.

Shelves, Supports, Loading and Air Flow

The appliance is supplied with adjustable, removable trayslides and shelves. Each shelf is secured at each end for transport in the location as indicated below. These should be removed prior to use.

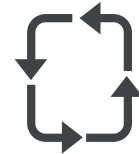
Each shelf is capable of supporting the maximum weight of product listed below when evenly distributed;

Appliance	Max weight per shelf
EMD700G	50kg
EMD900G	65kg
EMD1200G	90kg
EMD1500G	110kg
EMD1800G	135kg



Do not block air vents with product. A minimum of 25mm should be maintained between the top of the product and the shelf above.

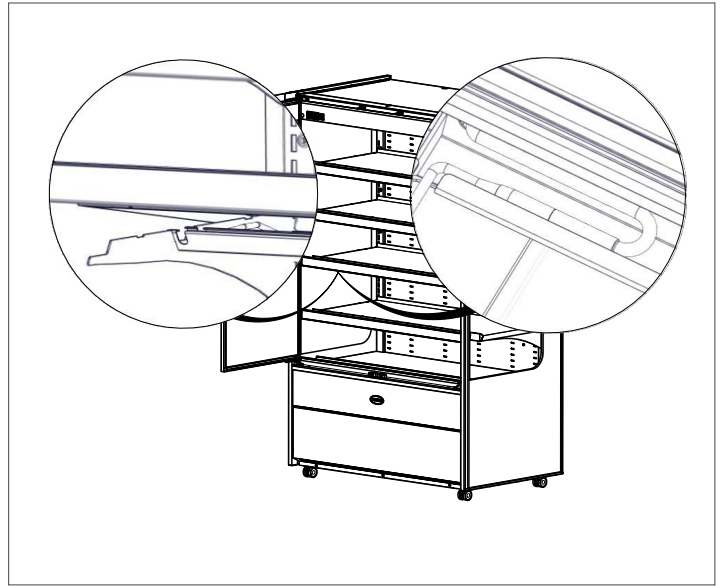
Always ensure air can circulate around/through the stored product. It is important that for optimum energy and temperature performance that adequate airflow is maintained around the perimeter of the shelves, and around all stored products.



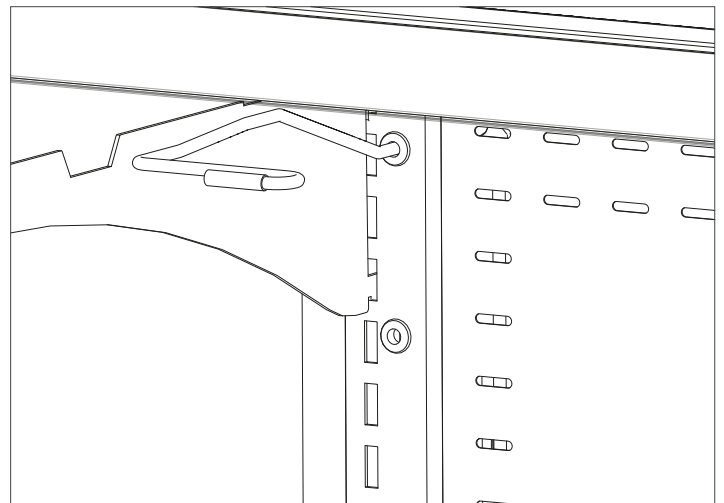
The shelf positions can be adjusted to suit specific requirements by following the procedure outlined below;

Note - We recommend that at least 2 people carry out these instructions. Some items have been removed from the images to aid clarity.

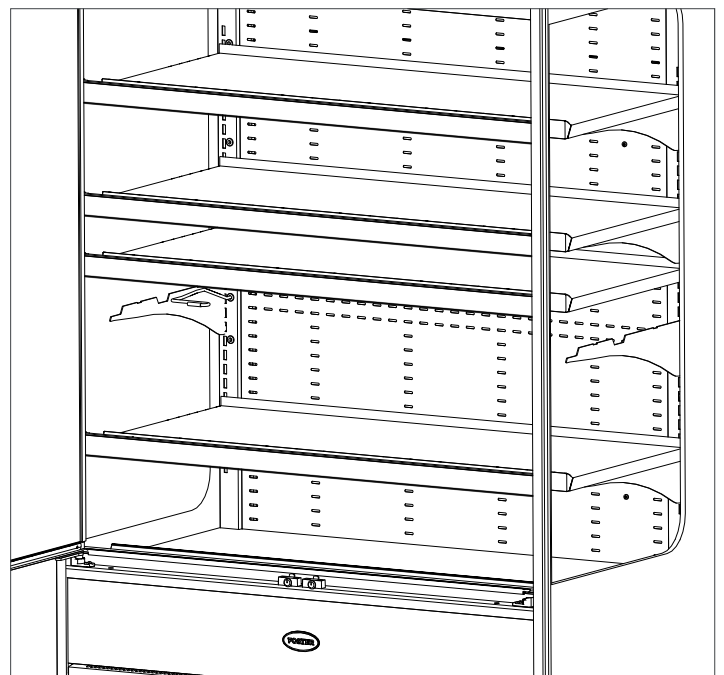
- 1 Tilt the shelf upwards to reveal the light connection concealed in the shelf centre support.



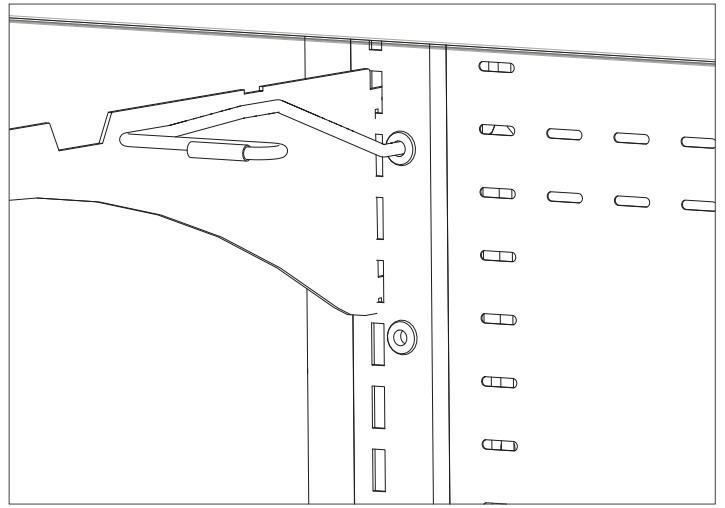
- 2 Disconnect the connector for the shelf light. Lift the shelf from the shelf support brackets and support while the brackets are re-positioned.



- 3 Lift the shelf clear of the shelf support brackets.

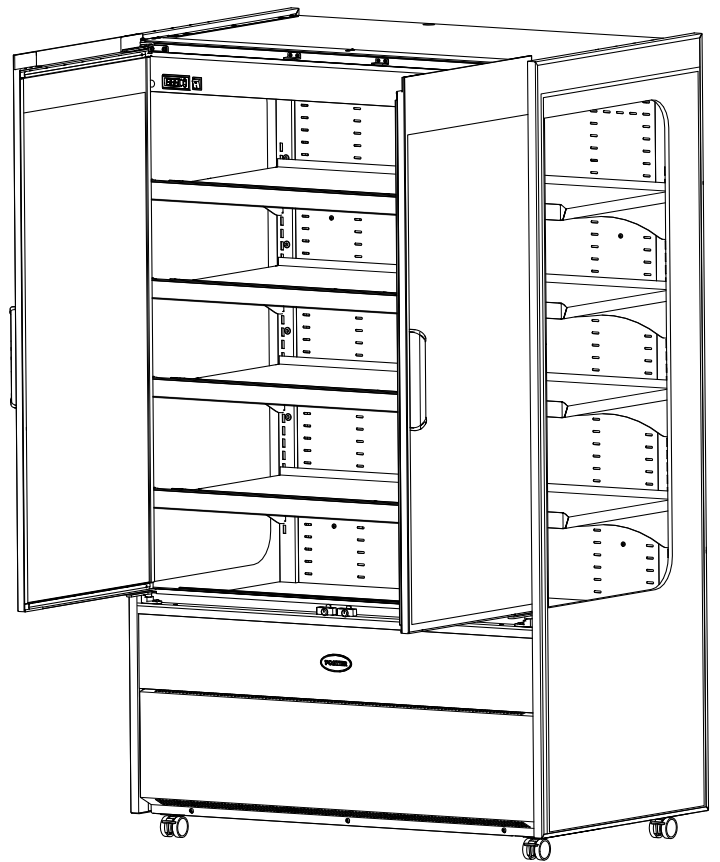


- 4 Position the shelf support brackets at the desired location. Ensure that the shelf support brackets are engaged correctly. Both locating points should be fully engaged with the vertical rail as shown.



- 5 Reconnect the shelf light and position the connector inside the shelf centre support.

Lower the shelf into the new position ensuring that the shelf support brackets are fully engaged with the vertical support as shown above.



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Service Function



Controller Menu's

The controller contains 2 menu levels, user level and service level.

User Level Menu

User level settings are accessed by pressing buttons 2 and 3. To view the selected parameter press and hold button 1. Where adjustment is required and is permitted use buttons 2 and 3 while continuing to hold button 1.

User Level Parameters

Mnemonic	Description
SP	Appliance Set Point
Loc	Keypad Lock State
t1	Actual air probe value
t2	Actual evaporator probe value
t3	Actual shelf temperature
tLo	Minimum air temperature
tHi	Maximum air temperature

Service Level Menu

To access the service menu press and hold button 4 followed by button 1. Both buttons should then be held for 5 seconds until the display indicates 'SCL'

Service Level Parameters

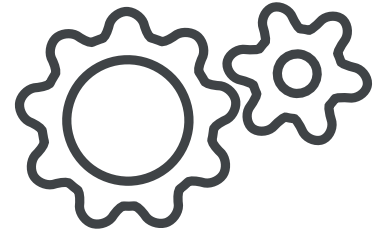
Mnemonic	EMD700	EMD900	EMD1200	EMD1200BLK	EMD1500	EMD1800
MDL	HY	HY	HY	HY	HY	HY
SPL	0	0	0	0	0	0
SPH	6	6	6	6	6	6
SP	3	3	3	3	3	3
HY0	3	3	3	3	3	3
HY1	0	0	0	0	0	0
CMD	10	10	10	10	10	10
CRT	180	180	180	180	180	180
CT1	4	4	4	4	4	4
CT2	7	7	7	7	7	7
DFM	tiM	tiM	tiM	tiM	tiM	tiM
DFT	4	4	4	4	4	4
DSP	-12	-12	-12	-12	-12	-12
DST	15	15	15	15	15	15
DMI	2	2	2	2	2	2
DLI	10	10	10	10	10	10
DTO	15	15	15	15	15	15
DTY	oFF	oFF	oFF	oFF	oFF	oFF
DSY	Hi	Hi	Hi	Hi	Hi	Hi
SOD	10	10	10	10	10	10
DPD	0	0	0	0	0	0
DRN	0	0	0	0	0	0
DDM	SP	SP	SP	SP	SP	SP
DDY	2	2	2	2	2	2
FID	YES	YES	YES	YES	YES	YES
FDD	10	10	10	10	10	10
FTO	2	2	2	2	2	2
FMS	0	0	0	0	0	0
FSD	0	0	0	0	0	0
FCM	non	non	non	non	non	non
FDT	0	0	0	0	0	0
FDH	2	2	2	2	2	2
FT1	0	0	0	0	0	0
FT2	0	0	0	0	0	0
FT3	0	0	0	0	0	0
ATM	rEL	rEL	rEL	rEL	rEL	rEL
ALA	-30	-30	-30	-30	-30	-30
AHA	80	80	80	80	80	80
ALR	-5	-5	-5	-5	-5	-5
AHR	8	8	8	8	8	8
ATI	t1	t1	t1	t1	t1	t1
PAD	60	60	60	60	60	60
ATD	90	90	90	90	90	90
ACC	0	0	0	0	0	0
IISM	non	non	non	non	non	non
IISL	-21	-21	-21	-21	-21	-21
IISH	-15	-15	-15	-15	-15	-15

Mnemonic	EMD700	EMD900	EMD1200	EMD1200BLK	EMD1500	EMD1800
IISP	-21	-21	-21	-21	-21	-21
IIHY	3	3	3	3	3	3
IIFC	non	non	non	non	non	non
IIDF	6	6	6	6	6	6
DSM	StP	StP	StP	StP	StP	StP
DAD	2	2	2	2	2	2
CSD	90	90	90	90	90	90
DOT	0	0	0	0	0	0
DI1	non	non	non	non	non	non
D1A	oPn	oPn	oPn	oPn	oPn	oPn
LCM	Man	Man	Man	Man	Man	Man
RL2	FAn	FAn	FAn	FAn	FAn	FAn
RL3	0-1	0-1	0-1	0-1	0-1	0-1
ACN	0	0	0	0	0	0
ACF	0	0	0	0	0	0
PET	0	0	0	0	0	0
2CD	0	0	0	0	0	0
SDT	0	0	0	0	0	0
SB	YES	YES	YES	YES	YES	YES
BOS	YES	YES	YES	YES	YES	YES
RHC	0	0	0	0	0	0
OSA	0	0	0	0	0	0
TE	YES	YES	YES	YES	YES	YES
OS2	0	0	0	0	0	0
T3A	DSP	DSP	DSP	DSP	DSP	DSP
OS3	0	0	0	0	0	0
D2A	oPn	oPn	oPn	oPn	oPn	oPn
AHM	non	non	non	non	non	non
AHT	60	60	60	60	60	60
TLD	30	30	30	30	30	30
TDS	T3	T3	T3	T3	T3	T3
SIM	10	10	10	10	10	10
AVG	50	50	50	50	50	50
SCL	oCn	oCn	oCn	oCn	oCn	oCn
PRT	rtU	rtU	rtU	rtU	rtU	rtU
ADR	1	1	1	1	1	1
RFS	YES	YES	YES	YES	YES	YES

Troubleshooting

Alarms/Warnings:

During operation the current temperature inside the appliance will be displayed. At certain times this will change to indicate a particular appliance operation or fault. The indicators you may see are as follows:



hi - The internal temperature of the appliance is higher than it should be. Ensure that the door is closed and that the air flow inside is not obstructed by excessive or poor loading of product. The alarm will reset if the temperature falls to a normal level. If this does not happen please contact your authorised dealer or Foster Service.

Lo - The internal temperature of the appliance is lower than it should be. Check to ensure that the appliance has not been loaded with product at a lower temperature than the normal appliance operating temperature. If this is not the case please call your authorised dealer or Foster Service.

do - The appliance door is open. Close the door to cancel the alarm.

tA - This indicates that the internal temperature probe has failed. Call your authorised dealer or Foster Service to arrange for this to be replaced. During this time the appliance cannot maintain an accurate temperature and all product should be removed and the appliance switched off.

tE - This indicates that the evaporator probe has failed. Call your authorised dealer or Foster Service to arrange for this to be replaced.

PF - The mains power has been removed from the appliance for a period of time and has now been restored. This may have resulted in a rise in appliance temperature. Caution should be taken when using products stored within to ascertain whether these products are suitable for use. Upon restoration of the power supply the appliance will resume normal operation and the PF can be cancelled by pressing button 1 once.

hC - The condenser temperature is higher than it should be. If the appliance is being subjected to particularly high ambient temperatures steps should be taken to reduce this. If the ambient temperature is not high or reducing the temperature does not rectify the fault please contact your authorised dealer or Foster Service.

Cnd - The condenser clean period has expired. Please contact your authorised dealer or Foster Service.

While in an alarm condition icon 'a' will also be illuminated. The audible alarm can be muted temporarily by pressing button 1.

(Some indications are only visible periodically during specific appliance operations such as defrost or when activated through use of the appliance).

Probe Function

T1 - Controls the compressor on/off cycle based on the Set Point value located in the air return close to the fans.

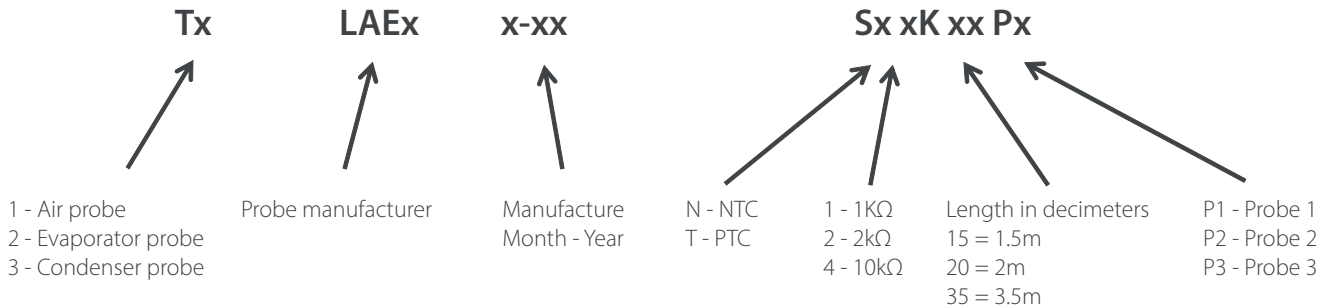
T2 - Evaporator probe for defrost control.

T3 - The temperature displayed on the controller. The response is delayed to prevent the display of large changes in the temperature. Over time the displayed temperature will move to align with the T1 temperature subject to product load and appliance use. The probe is located in front of the air duct at the top left corner.

Probe Information

The probe is a type 10k NTC. The probes are identical in characteristics with the T1 and T2 identification markings and different colours being for ease of identification and not for functional reasons. Please refer to the image below for probe identification.

Probe Identification



Probe Resistance

NTC10K Temperature Resistance Table SN4K

TEMP. (°C)	R-low (KW)	R-mid (KW)	R-high (KW)
-30	109.522	113.347	117.294
-25	84.823	87.559	90.374
-20	66.27	68.237	70.255
-15	52.229	53.65	55.104
-10	41.477	42.506	43.557
-5	33.147	33.892	34.651
0	26.678	27.219	27.767
5	21.63	22.021	22.417
10	17.643	17.926	18.21
15	14.472	14.674	14.877
20	11.938	12.081	12.224
25	9.9	10	10.1
30	8.217	8.315	8.413
35	6.854	6.948	7.043
40	5.745	5.834	5.923

Refrigerant Charge

The refrigerant charge weight can be found on the serial label within the appliance. Where this is not available please refer to the table below. The information below is correct time of printing but is subject to change without prior notice.

EMD700	111gms
EMD900	130gms
EMD1200	119gms
EMD1500	147gms
EMD1800	138gms

Evaporator Fan Motors

The evaporator fan motors will continue to operate during defrost. This is normal and is required for the successful completion of the defrost operation.

Defrost Indication

During defrost icon 4 will be illuminated. The controller display will be determined by the value set in parameter 'DDM'.

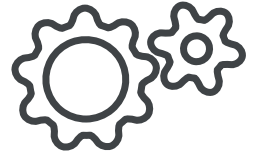
To start a defrost manually press and hold button 3 for 5 seconds. This will turn off the appliance. Continue to hold down button 3 after the appliance has turned off. After a further 2 seconds the display will indicate a defrost has commenced (icon 4 illuminated) and the button can be released. While the defrost function is operating the display will be determined by the value set in parameter DDM.

The defrost function will operate until either the time set in parameter DTO or the temperature set in parameter DLI is reached. Where parameter TE is set to NO defrost will function on a time basis only. Upon completion of the defrost cycle the appliance will resume normal operation with the current temperature displayed.

Note - On this appliance it is normal for the evaporator fans to continue to operate during a defrost cycle.

3

Maintenance



Cleaning and Maintenance

IMPORTANT: This appliance is heavy. When moving the appliance care should be taken and correct safe practices followed. Prior to cleaning ensure that the correct PPE is available and utilised and that the appliance is switched off and disconnected from the power supply. Do not disconnect or connect the appliance from the power supply with wet hands. Following cleaning, only when the appliance is dry should the appliance be reconnected to the power supply and switched on.



Cleaning should be carried out periodically or as required depending on application.

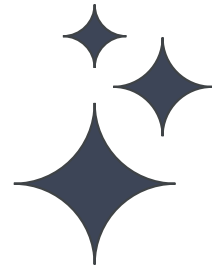
Switch off the appliance, disconnect from the power supply and remove all products, racking and shelves. Care should be taken with the racking and shelves being inspected for any signs of damage resulting in sharp edges. Ensure that body parts do not come into contact with cold surfaces.

Wash all internal and external surfaces with a mild liquid detergent diluted as per the manufacturer's instructions. Rinse surfaces with clean water and dry thoroughly.

Never use wire wool, other abrasive substances, cleaning agents with a high acid or alkaline content (e.g. bleach acid or chlorine) or similar products as they can damage the appliance.

When the appliance has been cleaned and dried, refit the racking and shelves.

Re-connect the appliance to the power supply adhering to the previous guidelines above. Switch the appliance on and allow it to reach it's normal operating temperature before re-loading product.



Regular Maintenance

Where the regular cleaning regime previously described does not remove dirt or grease deposits from the condenser, it should be cleaned by a competent engineer. We recommend that an engineer services the appliance every 6 to 12 months to maintain your warranty and ensure optimal performance of your appliance. We recommend that service is carried out by an authorised Foster agent or by contacting the Foster Service team using the contact details in this manual.



6-12 MONTHS

Cleaning

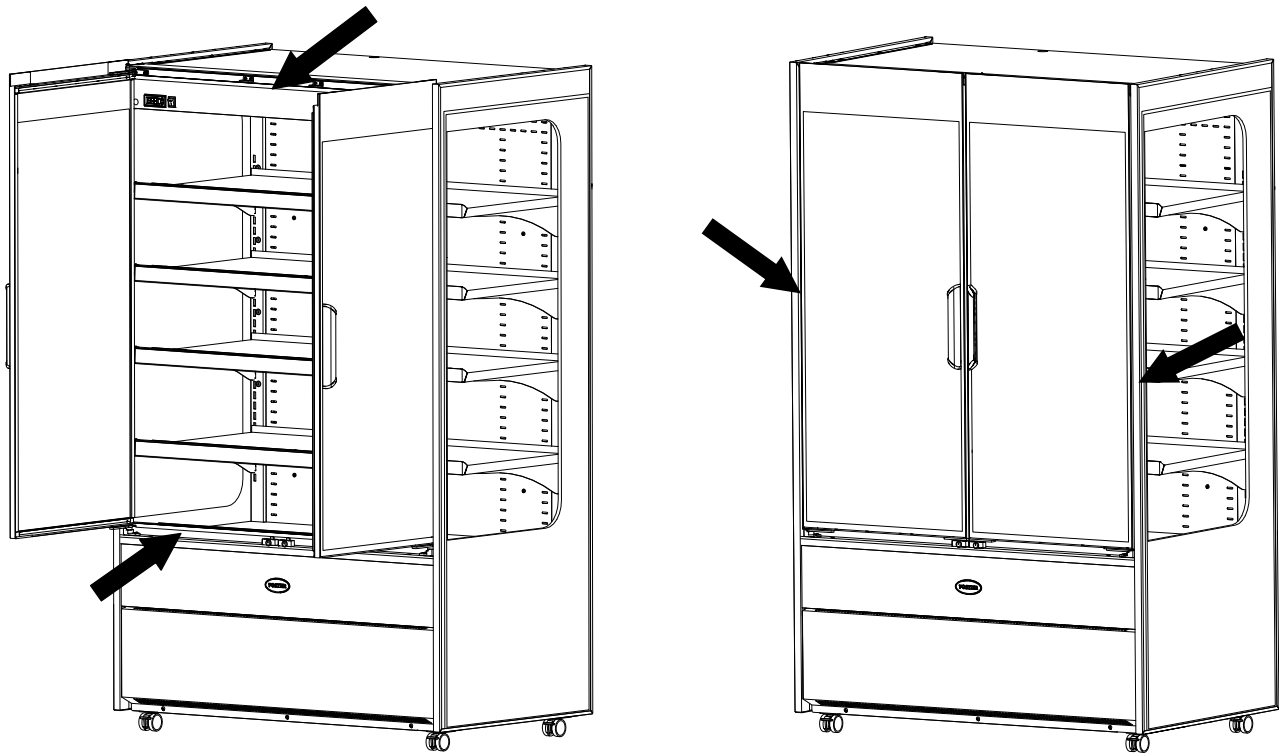
Condenser

Regular cleaning of the condenser (located behind the front cover) increases energy efficiency and prolongs the life of your appliance.

Never use a wire brush, abrasive or corrosive materials to clean the condenser. This should be carried out periodically, by a competent engineer as outlined in the Regular Maintenance section of this manual.

Gasket

All door gaskets should be inspected on a regular basis and replaced as necessary if damaged. It is normal for there to be a small gap along the vertical edges of the doors. To clean, wipe with a warm damp soapy cloth followed by a clean damp cloth. Finally dry thoroughly.



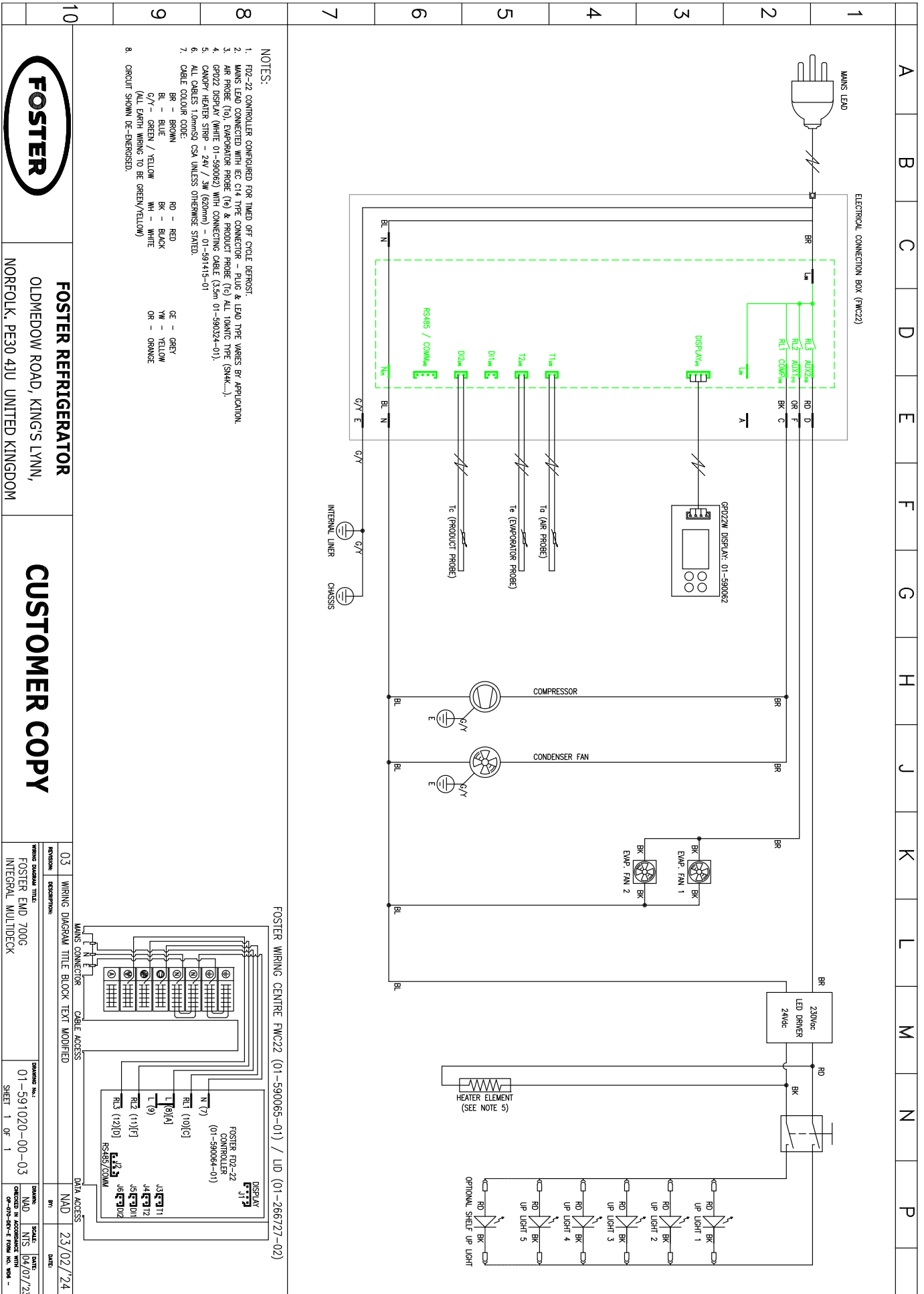
Shelves and Shelf Supports

The shelves and trayslides in the appliance can be removed for cleaning. The shelves are dishwasher safe however the vertical supports and trayslides should be cleaned with warm soapy water then rinsed and dried.

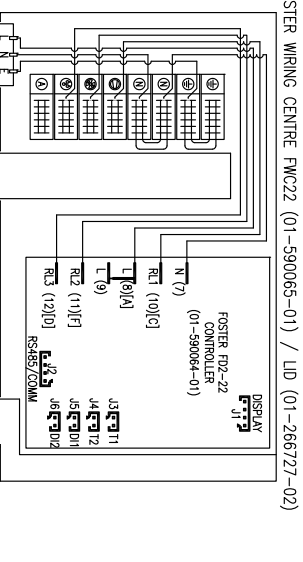
The interior of the appliance should be cleaned with warm soapy water and a non abrasive cloth then rinsed with a clean cloth, clean water and dried.

Wiring Diagrams

EMD700.



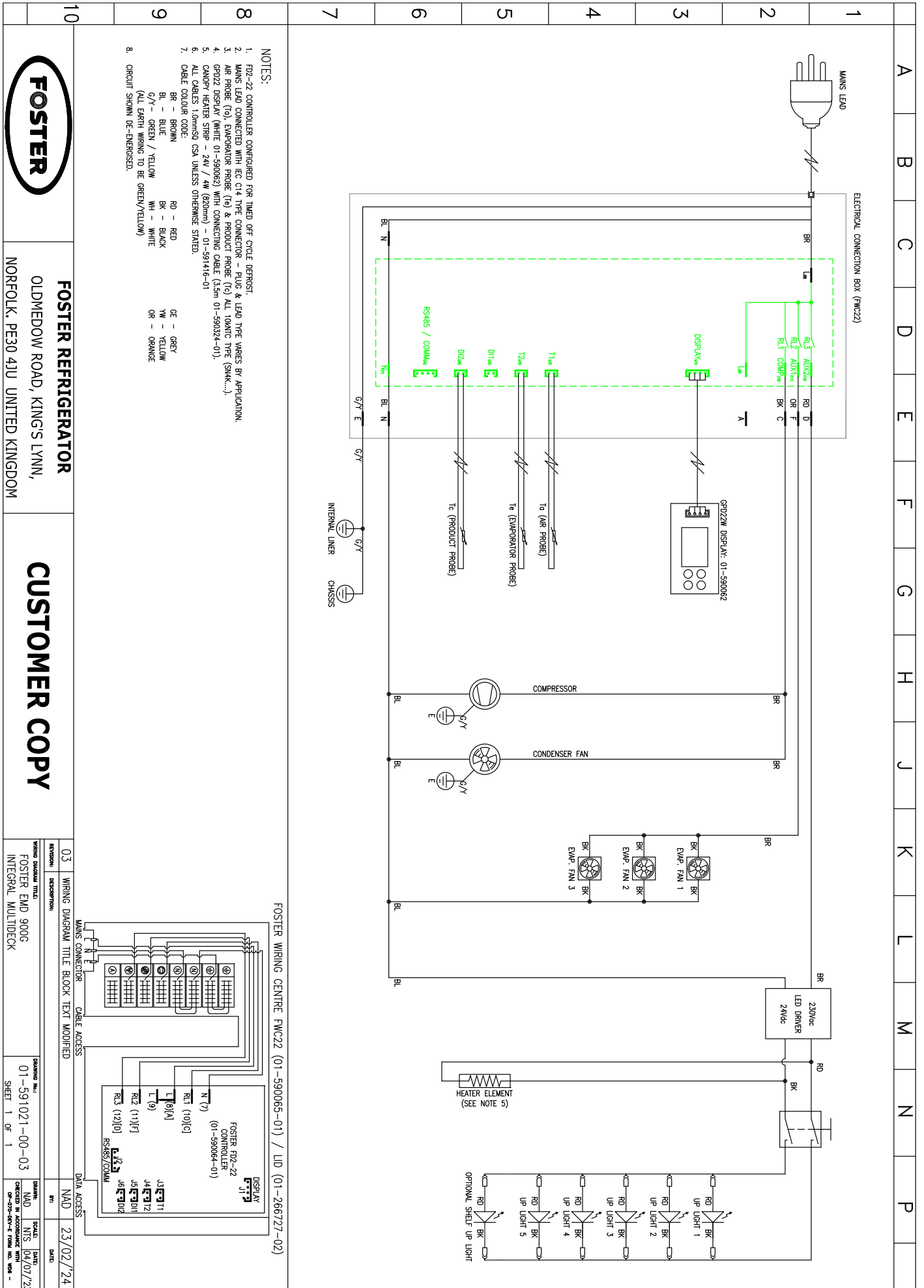
- NOTES:**
1. F02-22 CONTROLLER CONFIGURED FOR TIMED OFF CYCLE DEFROST.
 2. MAINS LEAD CONNECTED WITH IEC C14 TYPE CONNECTOR - PLUG & LEAD TYPE VARIES BY APPLICATION.
 3. AIR PROBE (T0), EVAPORATOR PROBE (T2) & PRODUCT PROBE (T3) ALL TONING TYPE (SNAK....).
 4. GPO22 DISPLAY (WHITE 01-590082) WITH CONNECTING CABLE (3.5m 01-590324-01).
 5. CANOPY HEATER STRIP - 24V / 3W (6Z0mm) - 01-591415-01
 6. ALL CABLES 1.0mmSD CSA UNLESS OTHERWISE STATED.
 7. CABLE COLOUR CODE:
BR - BROWN
BL - BLUE
G/Y - GREEN / YELLOW
WH - WHITE
 8. CIRCUIT SHOWN DE-ENERGISED.

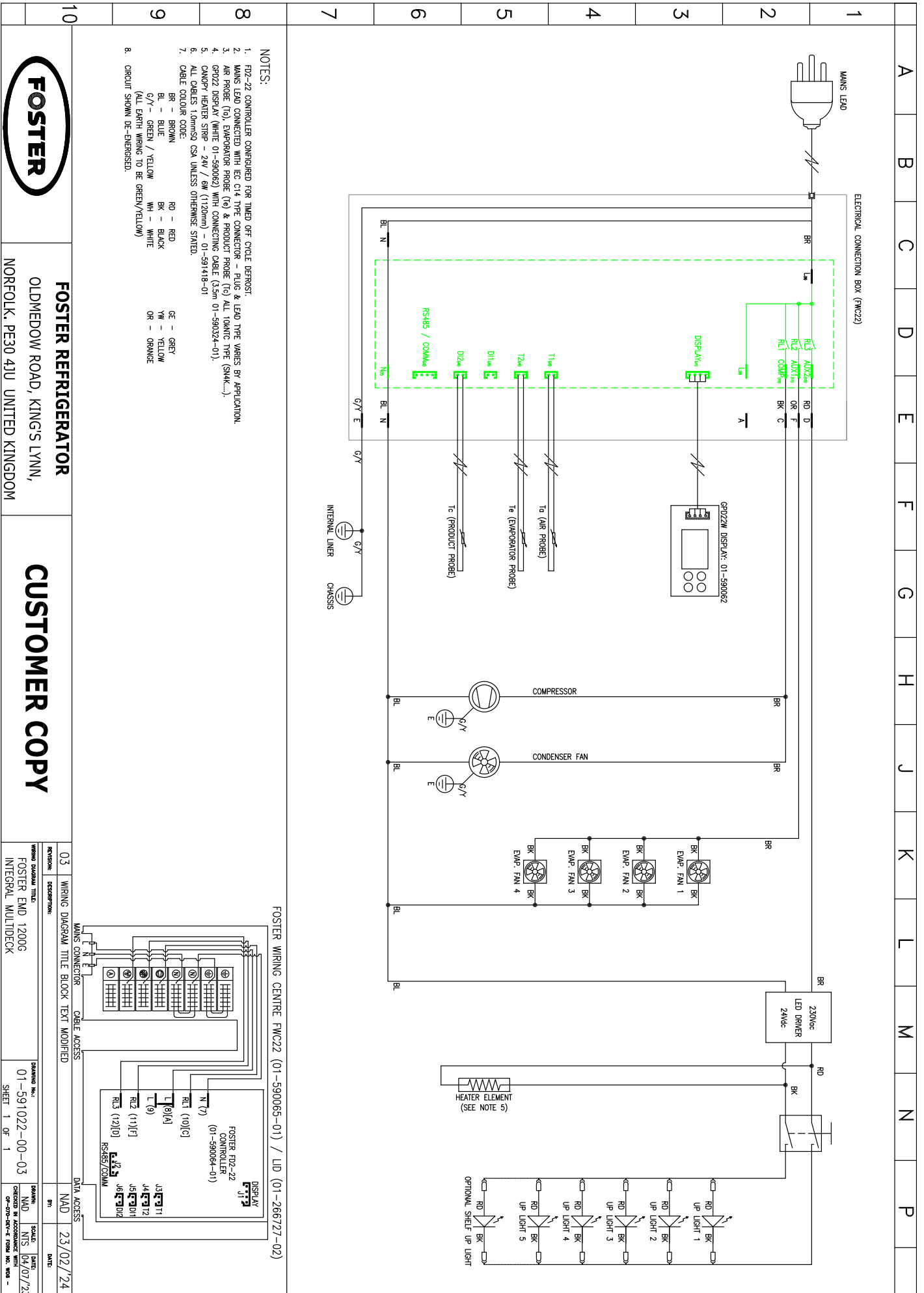


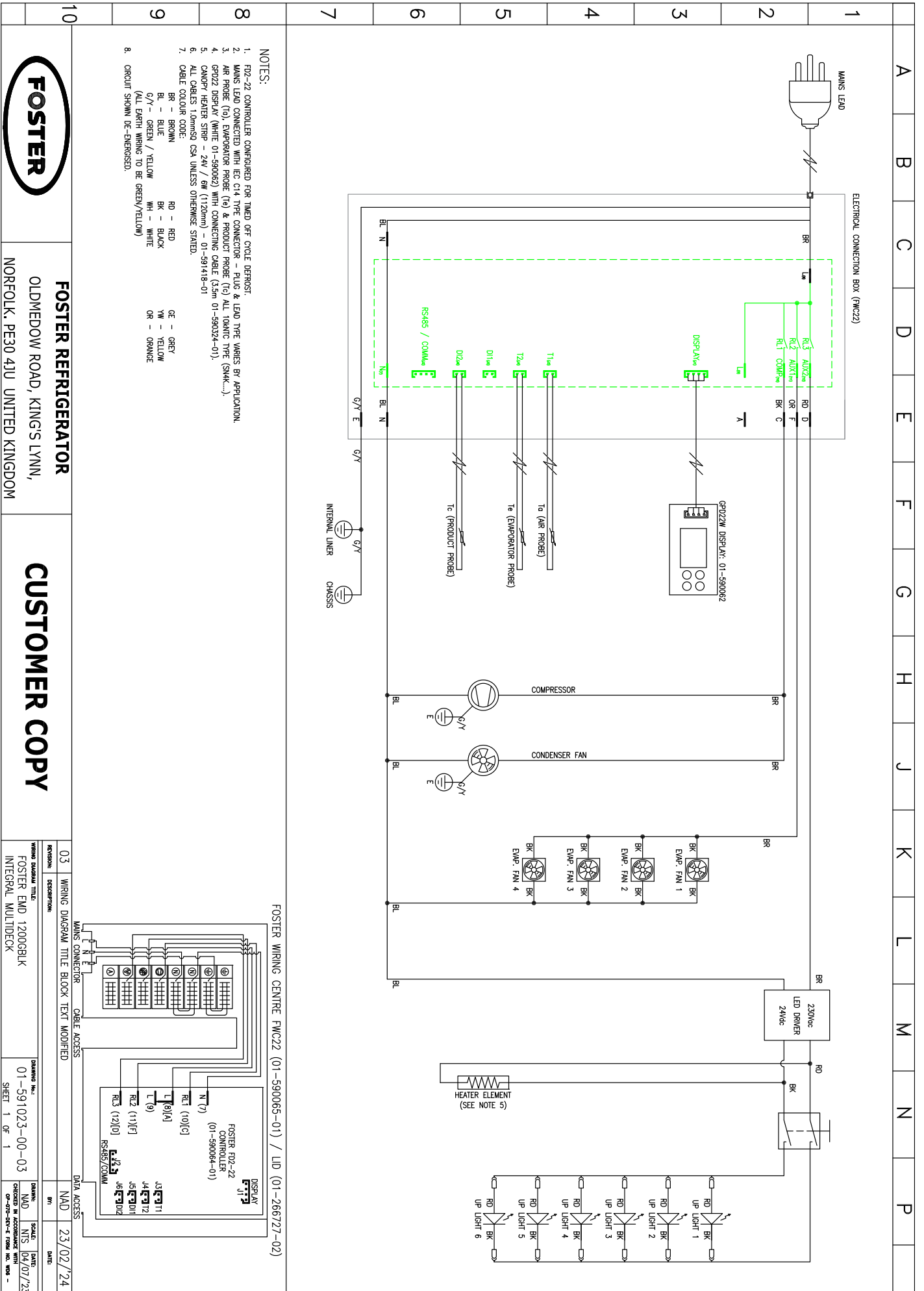
FOSTER REFRIGERATOR
 OLDMEADOW ROAD, KING'S LYNN,
 NORFOLK, PE30 4JU UNITED KINGDOM

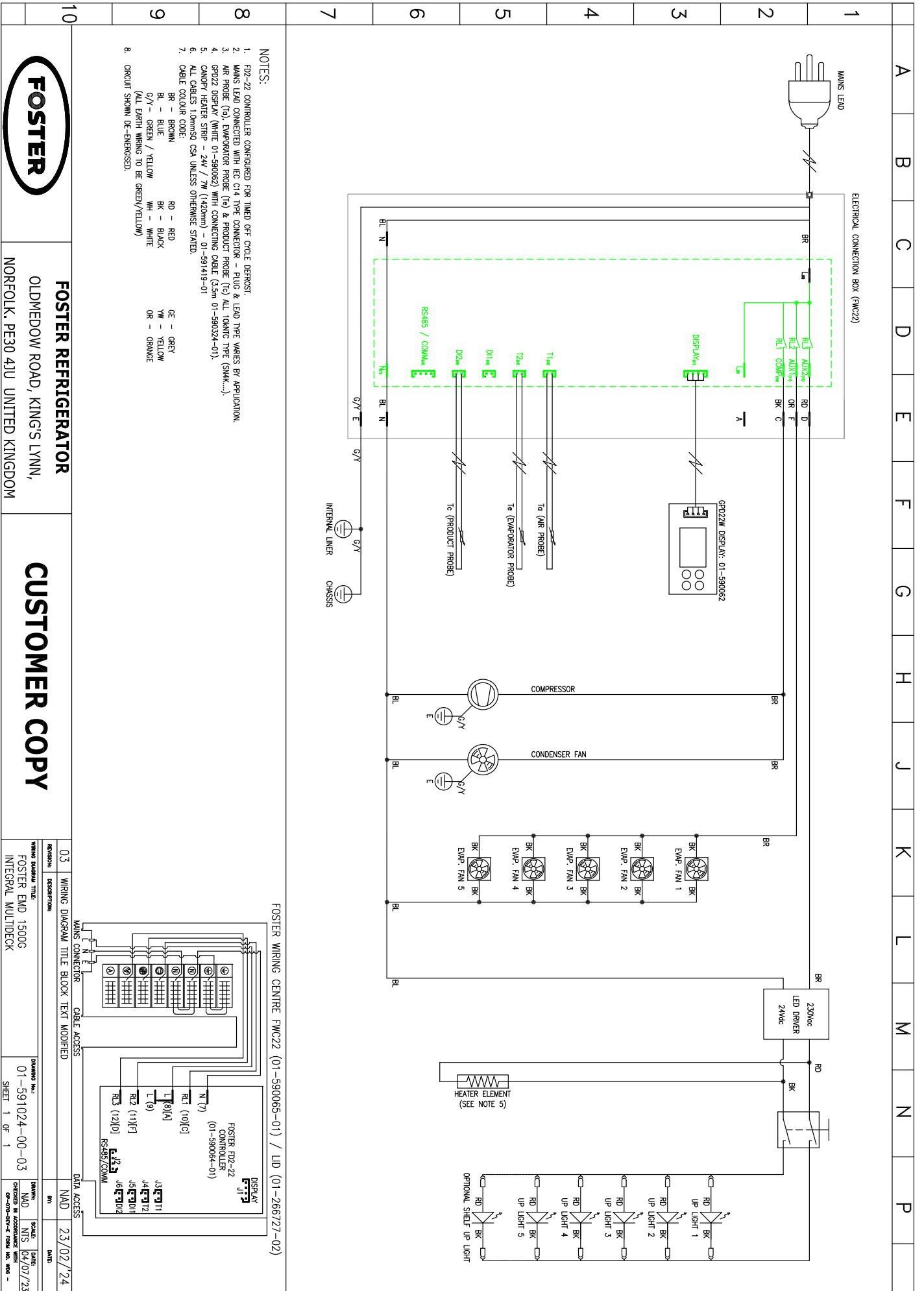
CUSTOMER COPY

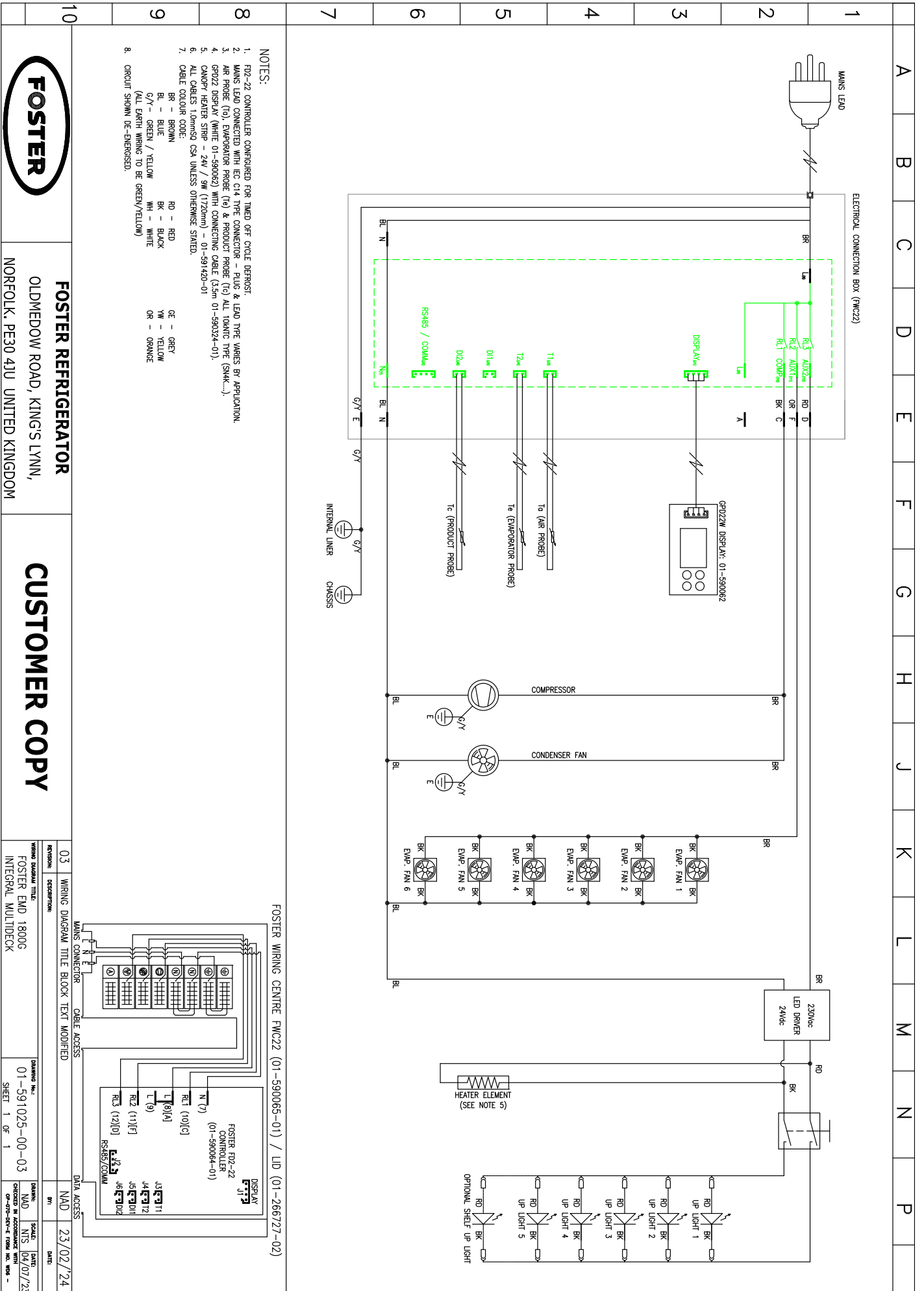
03	WIRING DIAGRAM TITLE BLOCK TEXT MODIFIED	DRAWING No:	01-591020-00-03	DRAWN:	NAD	DATE:	23/02/24
01	WIRING DIAGRAM TITLE BLOCK TEXT MODIFIED	SCALE:	N/A	CHECKED:	NAD	DATE:	08/07/23
INTEGRAL MULTIDECK		SHEET:	1 OF 1	99-070-000-0-7000.WD.W00-			













By Appointment to
Her Majesty Queen Elizabeth II
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