OPERATING MANUAL for HYDROCARBON (R290) CABINETS & COUNTERS

IMPORTANT INFORMATION PLEASE KEEP

This manual covers the Installation, Operation and Routine Maintenance requirements for the following Williams Refrigeration products:

Garnet / Sapphire / Crystal / Jade / Zircon
Opal / Emerald / Crystal / Aztra / Amber

Provided the instructions in this Operating Manual are read and implemented correctly, the optimum performance and reliability of your equipment should be maintained.

Williams cabinets/counters are available in a choice of temperature ranges.
Temperature parameters are set as follows:

General Produce (H): +1°C(34°F) / +4°C (39°F)
Frozen Produce (L): -18°C (0°F)/ -22°C (-8°F)
Chilled Food (CF): 0°C (32°F)/ +3°C (37°F)
Meat/Fish (M/F): +2°C (36°F)/ -2°C (28°F)

Declaration of Conformity References:
Low Voltage Directive 2006/95/EC
Machinery Directive 2006/42/EC
Electromagnetic Compatibility Directive 2004/108/EC
Pressure Equipment Directive 97/23/EC
Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC
Restriction on Use of Certain Hazardous Substances Directive (RoHS) 2002/95/EC

Refrigerant Designation	Global Warming Potential
HC - R290	3

Williams Refrigeration declares that all products manufactured by Williams Refrigeration comply with the above directives as they apply to those products, and those products are therefore declared to be in conformity with the provisions of the above legislation.

Model No.: .....

Serial No.: .....



IMPORTANT REFRIGERATION AWARENESS

Warning

System charged with flammable refrigerant



Refrigerant: R290 (Refrigerant Grade Propane only)

Ensure all operatives are aware of the cabinet/counter being charged with a highly flammable refrigerant

All cabinets and counters are only to be serviced by qualified engineers for the handling of Hydrocarbon Refrigerants

Ensure procedures are adhered to in the following information manual

Should a suspected leak become apparent immediately evacuate the area and remotely switch off the cabinet

DO NOT remove plug from the socket as this could act as a source of ignition

Keep ventilation openings in the appliance enclosure or in the structure clear of obstruction

Contact Williams Refrigeration stating the suspected fault

Williams Refrigeration Head Office
+44 (0) 1553 817000

INSTALLATION

Removal of Redundant Cabinets

Please ensure that old or redundant refrigeration cabinets and equipment are disposed of safely and legally.

It is recommended that doors are removed prior to disposal in order to ensure safety.

Unpacking

Remove all external and interior packing and accessories. Ensure all such material is disposed of safely.

Ventilation

It is essential to ensure that the room in which the unit is to be installed has adequate ventilation. Refrigerators generate a considerable amount of heat and, if operated in a small unventilated room in warm weather, these will quickly cause the room temperature to become excessive. This could cause the motor to overheat and possibly damage the windings. At the very least, such an installation will cause the unit to use an excessive amount of electricity. A single door unit usually generates 1200W of heat, a two door version - 1800W and a three door model 2400W whilst running (these figures are approximate).

In addition to ventilation in a room, please ensure that cabinets with top-mounted systems have 500mm clearance between the cabinet top and the ceiling for engineer access and ventilation. For all other cabinets, please ensure a minimum adequate clearance of 50mm is provided around the unit to ensure efficient and effective performance. Do not block vents by stacking boxes on top or in front of unit as this could affect performance.

Levelling/Castors/Feet

The cabinet should stand level to ensure correct operation of self-closing doors and proper drainage of condensate from the evaporator.

Models fitted with castors are non-adjustable, therefore a level platform/floor should be provided where cabinet is to be located. Where swivel and brake castors are fitted and when cabinet/counter has been positioned, please ensure brakes have been activated by pressing metal bar down. Remember to release brakes before trying to move cabinet/counter. On models fitted with legs, levelling may be achieved by adjusting the bottom section. For marine specification models with flanged feet for deck and bulkhead fixing, installation should be carried out by a specialist marine company.

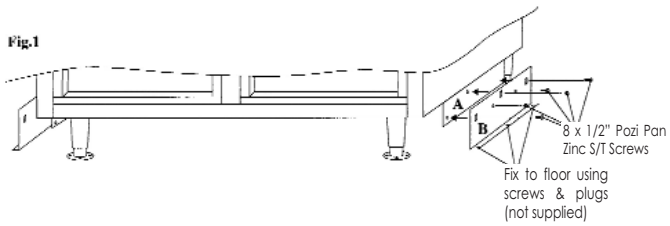
Instructions on how to fix stabilising brackets to all Sapphire 1 & 2 door cabinets with glass doors

1) Use three 8 x 1/2" pozi fixings to secure Plate B to Plate A via three slots. Plate B is adjustable vertically when it has been secured to the floor.

2) Three holes are provided in Plate B so it may be secured to floor. Drill and secure using sufficient fixings and plugs (not supplied).

3) When plate B has been secured to floor the fixings can be tightened and the additional holes can be drilled and secured to plate A.

To fix bracket on cabinet LH side, repeat steps 1, 2 & 3.



Mains Connection

The cabinet comes fitted with a moulded plug for safety and must be earthed. If plug or cable should fail, please contact the spares office on +44 (0)1553 817017 for a replacement.

If the cabinet has been laid on its back or tipped, DO NOT switch on immediately. Leave in an upright position for at least 1 hour before switching on.

Connection to Main Drains

Please note: if installing a fish cabinet, please ensure that it is connected to a main drain.

Shelf/Slide Fitting

When positioning slides on standard cabinets and counters, present slide to racking by holding it in the opposite hand to the side of the cabinet to that which they are to be applied. Present slide at a 45° angle (**see Figure 1**). When in place, let slide drop into position to create a horizontal ledge on which the shelves will sit.

Ambers are fitted with pilaster and clips (**see Figure 2**) for fitting. Amber freezer models are fitted with fixed shelves.

Fig 1

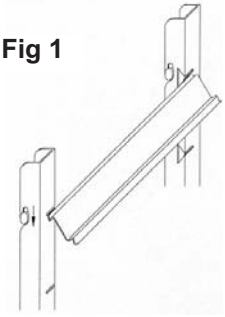
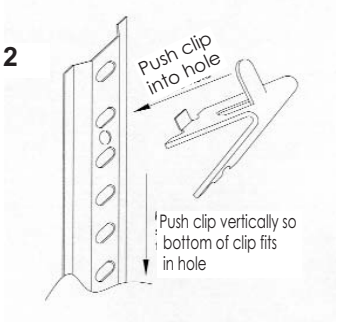


Fig 2



Shelf Weight Distribution

Before loading, allow cabinet to reach normal operating temperature.

When loading cabinet/counter, please ensure that load is equally distributed throughout and ensure air can circulate around and through stored products. Ensure all items are covered and that raw and cooked foods are stored separately.

Locking Facility

On models with a locking facility, it is recommended that the key be removed from lock during normal working use. This will prevent bending or breaking of the key which could result in the lock having to be replaced.

Removing the key will also prevent any possibility of accidental locking when the door is open. This will prevent the door from closing properly and will cause the interior temperature to rise. If not checked in time, loss of food may result.

OVERNIGHT OPERATION

Raised Panholder Options

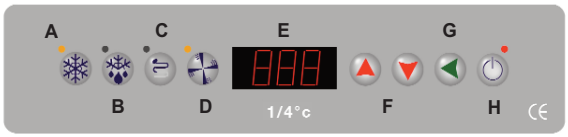
We recommend that users remove all food products and place in suitable refrigerated storage overnight.

THERMOMETER

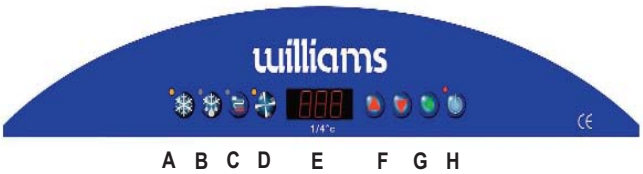
The controller is marked in Centigrade or Fahrenheit. The Thermometer should be checked daily to ensure that correct temperature is being maintained.

SET UP OF CONTROL PANELS - TYPE A & TYPE B

TYPE A



TYPE B



Key to Controls

A. Compressor running indicator
B. Defrost indicator
C. Condensor cleaning light and switch
D. Evaporator fan running indicator
E. LED display (temperature/alarm)
F. Up and down adjustment/ defrost instigation
G. Enter button
H. Standby switch

Initial Operation/Standby Button
Switch cabinet on by pressing and holding for 3 seconds when cabinet is in standby mode (display shows "- - -"). When cabinet is switched on, display will show current air probe temperature (assuming no faults are detected).

Switch cabinet off by pressing and holding for 3 seconds when cabinet is in run mode. When cabinet switches off, it will revert back to standby mode.

Adjusting the Operating Temperature
The thermostat is built into controller and is adjustable between factory set parameters.

Press and hold Use keys to adjust.

Then release .

If no further adjustments are made within 10 seconds, the desired operating temperature will be stored and display will revert to actual cabinet operating temperature.

NB: All machines are preset at factory, however conditions on site will vary compared with test conditions and it may be necessary to perform the above adjustments several times in order to obtain a perfect temperature cycle.

Probe Fail Safe Feature
The controller features a fail-safe condition. In event of a temperature probe failure, the compressor will alternate at 5 minute intervals indefinitely between running and not running condition and **E1** or **E2** will be displayed. Normal compressor function will only be restored when probe fault has been repaired.

Should a probe failure occur please contact Williams Refrigeration Engineering office on +44 (0) 1553 817000 for a replacement part stating the Hydrocarbon Cabinet/Counter serial number.

Defrost Operation
When defrosting is in progress, defrost indicator on control panel (refer to control panel diagrams) will become illuminated and **dF** will appear in LED display.

Defrost is automatic and cabinet will go through an automatic defrost cycle at preset intervals. The defrost operation does raise cabinet temperature slightly for a short period but does not affect product stored inside.

Off Cycle defrost is carried out on the following cabinets: General produce (H) and Fish (F).

Electric defrost is carried out on these cabinets: Fresh Meat (M), Freezer (L) and Chilled Food (CF).

To instigate manual defrost on Type A & B control panels only - press and hold button or buttons simultaneously.

***NB:** LA135 and LA400 do not have automatic defrost. To action a manual defrost the unit should be turned off periodically (usually overnight) to enable the build-up of frost on the evaporator to melt.*

Door Alarm
The controller features a built in audio/visual Door open alarm. If the door has been left open for 5 minutes or longer then the cabinet will emit an audible alarm and **'AL'** will flash in the display window. Press any button to acknowledge the alarm, the alarm will mute and **'do'** will appear in the window. Shut door and alarm will cease, however the visual alarm continues if the door switch has a malfunction or if there is another fault, the window will show a different display - call a Service Engineer.

Hi-Lo Alarm
The controller features a built in audio/visual Hi-Lo alarm. If temperature within appliance exceeds the factory set alarm temperatures for 60 minutes or more, the controller will emit an audible alarm signal and **AL** will flash until the temperature returns to normal operation.

The audible alarm may be cancelled by pressing any button. The alarm will go off again after 60 minutes if fault has not been addressed. However, **'hi'** or **'Lo'** will continue to show in LED Display until cabinet returns to temperature or fault is corrected.

Condenser Cleaning Light (Integral cabinets / counters only)
The LED next to condenser cleaning button (refer to control panel diagrams) will flash to indicate condenser requires cleaning - there is **NO AUDIBLE ALARM**. This has been factory preset for maximum efficiency. **To cancel flashing LED, push and hold condenser cleaning button for 3-5 seconds.**

Cancel/Reset Condenser Clean: Press and hold for 5 seconds to cancel flashing LED.

FAULT DIAGNOSIS/DISPLAY CONDITIONS - Type A & B Control Panels

Fault/Display	Possible Cause	Action
Cabinet not operating	No power supply	Check fuse or power source
Cabinet not maintaining temperature	1. Dirty condenser	Clean
	2. Air circulation restricted	Remove restriction
	3. Defective fan motor	Call engineer
	4. Defector compressor relay	Call engineer
	5. Loose electrical connection	Call engineer
Faults displayed by control	E1 or E2 - Control probe failure	Call engineer
	hi or Lo - High/low temperature alarm	Call engineer
	do - door open alarm	Shut door
Flashing condenser Clean LED	**Condenser requires cleaning** Air-cooled version	Remove cover and clean condenser fins with clean brush

Information View Mode (Applicable to Type A, B & C Control Panel)

A single press of ◀ (on Type C control panel) will activate information view mode. It is possible to scroll forward through the references with ▲ (on Type C control panel) and backwards with ▼ (on Type C control panel).

To view a result, scroll to desired reference, press and hold ◀ (on Type C control panel), release ◀ (on Type C control panel) to stop viewing and automatically move to next parameter.

To exit information view mode, press ▲ and ▼ (and simultaneously on Type C control panel) or wait 10 seconds and controller will exit automatically. The following parameters are available for viewing:

T1 Current air probe temperature

*** T2** Current evaporator probe temperature

*** T3** Current auxiliary probe temperature

**** Hi** Highest recorded cabinet temperature

**** Lo** Lowest recorded cabinet temperature

cr Number of weeks since last condenser clean

*** =** Optional (will only appear in information view mode if parameter T2 is set to YS and/or T3 is set to NO/AU/FP).

**** =** If parameter T3 is set to FP, HI and LO temperatures will be logged from auxiliary probe. If T3 is not set to FP, HI and LO temperatures will be logged from air probe (T1).

It is possible to clear recorded values of HI, LO and CR by pressing ▲ (on Type C control panel) or ▼ (on Type C control panel) when viewing value of relevant reference by holding button marked ◀ (on Type C control panel).

SET UP OF CONTROL PANEL - Type C



LED Display

- Normal cabinet temperature displayed in LED window
- Probe 1 (air) failure (E1)
- Probe 2 (evaporator) failure (E2)

LED shows red to indicate unit running

LED illuminates red to indicate Evaporator is running

Initial Operation

Your cabinet is delivered ready to run. Plug into mains and cabinet is ready to use. '- -' will appear and the temperature will be displayed. Wait until cabinet has reached normal operating temperature (indicated on control panel) before loading.

Adjusting the Operating Temperature

To adjust operating temperature, press and hold button for 3 seconds. Use ▲ ▼ buttons to adjust.

NB: All machines are factory preset, however conditions on site will vary compared with test conditions and it may be necessary to perform the above adjustments several times in order to obtain a perfect temperature cycle.

Probe Fail-Safe Feature

Please refer to page 4.

Defrost Operation

The LA135 and LA400 do not have automatic defrost. To action a manual defrost the unit should be turned off periodically (usually overnight) to enable the build-up of frost on the evaporator to melt.

To instigate a manual defrost on control panel type C only, press and hold ▼ ▲ buttons simultaneously.

FAULT DIAGNOSIS/DISPLAY CONDITIONS - Type C Control Panel

Fault/Display	Possible Cause	Action
Cabinet not operating	No power supply	Check fuse or power source
Cabinet not maintaining temperature	1. Dirty condenser	Clean
	2. Air circulation restricted	Remove restriction
	3. Defective fan motor	Call engineer
	4. Defector compressor relay	Call engineer
	5. Loose electrical connection	Call engineer
Faults displayed by control	E1 or E2 - Control probe failure	Call engineer
	hi or Lo - High/low temperature alarm	Call engineer

ROUTINE MAINTENANCE

All maintenance **must** be carried out by a qualified engineer for the handling of Hydrocarbon Refrigerants.

We recommend that you undertake regular preventative maintenance using a qualified service provider in order to get the best from your equipment.

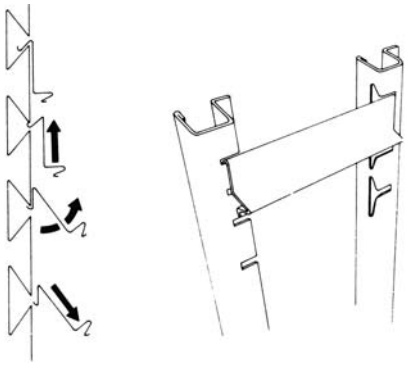
CLEANING

Exterior: If cabinet exterior is looked after correctly it will retain an *"as new"* finish for many years. Normal day to day cleaning should be carried out with a soft cloth and soapy water. For a stainless steel finish, always wipe cabinet in same direction as the grain. Whilst stainless steel is a robust, the satin smooth finish can be spoilt by wiping against the grain. Never use abrasive materials or cleaners, or chemical cleaners. These can damage the surface and cause corrosion. Occasionally, the exterior surface should be polished with a good stainless steel polish to protect it.

Interior: Racking can be removed for easy cleaning (**see Figure 3**), cabinet interior should be cleaned regularly with warm soapy water and a soft cloth. Dry thoroughly afterwards and where possible remove all racking, shelving and drawer fittings to aid the process. To remove the racking and shelf supports follow this procedure:-

First remove the shelves, then remove the shelf supports by grasping firmly in the centre and lifting slightly. Turn the shelf support towards the interior of the cabinet by pushing it in the centre as you twist the support through 90°. The shelf support will be released. (Note: the supports are designed to be anti-tilt and you may therefore experience some resistance at frist which will be overcome with practice). When all shelves have been removed, remove the racking by lifting up and over the nylon retaining blocks.

Fig 3







NB: Never use abrasive materials or cleaners, or chemical cleaners. They can damage the surface and cause corrosion. Occasionally, the exterior should be polished with a good stainless steel polish to protect the surface.

Condenser Cleaning

The condenser is part of the refrigeration unit and is located in the unit compartment. It requires cleaning, approximately 4 times per year or when LED indicates. To clean, **disconnect mains supply before starting.** Brush fins vertically with a stiff brush, taking care not to damage them or to push dirt/dust further in and vacuum away. **Remember to reconnect mains supply once finished. Details for individual models below.**

Take care not to damage any electrical connections and cables during removing and the cleaning process. Replace unit cover and plug cabinet in after completing cleaning process.

Top Mounted Cabinets (Garnet/Sapphire/Jade/Crystal)

The condensing unit and refrigeration equipment can be accessed from above or in some cases behind. Remove fixings in top and bottom edges of unit cover and pull unit cover away from cabinet and retaining clips.

Bottom Mounted Units (Zircon)

Pull unit cover away from cabinet and retaining clips.

Counters with Cassette System (Opal/Emerald/ Jade)

Unlock and grasp bottom of unit compartment and lift slightly while pulling forward. The handle can be used to aid cassette removal. The refrigeration cassette will slide out to provide access to components. To replace cassette, reverse procedure (**See Figure 4**).

Take care not to damage any electrical connections and cables during removal and cleaning process. Please ensure drain pipe is relocated in vaporiser tray at rear of cabinet. Ensure cabinet is unplugged when removing system. Before plugging cabinet in after cleaning, ensure all electrical cables are safe and un-damaged.

Once cleaning or any maintenance is completed replace the unit covers and plug the cabinet in to restart operation.



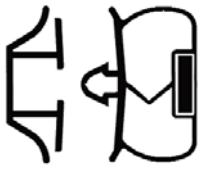
Fig 4

If there are further grease deposits still remaining on the condenser call your Service Provider to carry out a full service.

NOTE: Non-compliance may invalidate your Warranty.

CLEANING / REPLACING THE GASKET

Door gaskets should be cjecked and cleaned regularly and replace if damaged. To clean the gasket, wipe with warm soapy water and a soft cloth, ensuring it is completely dry before closing the door. **DO NOT** use a sharp knife to clean or scrape the gasket. Damaged gaskets do not seal correctly and can increase the amount of electricity consumed, seriously affecting the efficiency and performance of the cabinet.



Damaged gaskets are easily replaced. Simply pull out existing part and push new gasket into channel (gasket retainer) at centre and work along, pushing gasket into channel.

Continue with additional three sides, pushing corners in last.

EVAPORATOR/DRAINLINE

Inspect periodically to ensure drain hole is not blocked.

BREAKDOWN

In the event of a breakdown, please contact Williams Refrigeration Engineering office on +44 (0) 1553 817000.

When calling, please advise model and serial number. This information can be found on the identification plate inside cabinet. It should also be noted on the cover of this booklet. Please ensure that all redundant parts are disposed of safely and legally.

PARTS & LABOUR WARRANTY POLICY - UK ONLY

Our warranty applies to equipment manufactured by Williams Refrigeration and equipment bearing the Williams name plate and serial number identification tag.

We undertake, in conjunction with the supplying agent, distributor or representative, to repair free of charge during our standard business hours any such piece of equipment or part thereof used which is found to be faulty in either materials or workmanship subject to the further conditions below:-

Warranty Terms and products Covered
We offer a **24 months Warranty** from our original date of sale with the following Williams equiment:
1. Garnet / Sapphire / Zircon / Jade / Amber (stainless) / Mobile Heated / Mobile Refrigerated.
2. Reach-in Blast Chillers / Reach-in Blast Chiller Freezers.
3. Opal / Emerald / Onyx / Aztra / Salad Counters.
4. Crystal Bakery Cabinets and Counters.

We offer a **12 months Warranty** from our original date of sale for all other Williams equipment including:
1. All Modular Products (including coldrooms).
2. Remote Systems (including glycol).
3. Bottle Coolers.
4. Multidecks and merchandiser cases.
5. GEM product range.
6. Bottle Well / Meat Freezer Well.
7. Thermowell.
8. Coral Wall Mounted Units.
9. Non standard and other products.
10. Front of House display cases.
11. White Goods.

Warranty Terms
Our warranty is offered where the equipment has been installed correctly and has not been subject to misuse or abuse and is functioning correctly.

The equipment was purchased by the authorised supplying distributor direct from Williams Refrigeration and not through a wholesaler or other supplier whose warranty terms may be different.

The Warranty Policy shall be non-transferable.

Replacement of defective equipment can only be made with the approval of Williams Refrigeration.

Any repair under warranty will only be carried out with the product in its position of operation or in a suitable location on the customer's premises. If the product has to be removed for security or any other reason, this will be subject to additional charge (may include hydrocarbon charged equipment).

Warranty work will be covered by Williams Refrigeration or by one of its appointed service agents between the hours of 8.00am and 5.00pm Monday to Friday. Any works undertaken outside of these hours are chargeable.

Claims Procedure
If a customer wishes to make a claim under the terms of this warranty, the following procedure should be observed:
1. Contact the supplying agent, representative or distributor.
2. Quote the equipment model, serial number and date of installation. The serial number is located on the product identification plate inside the cabinet, modular product door frame or similar location. It is recommended that operators should also record the serial number on the operating instruction booklet supplied with the product.
3. Contents risk and insurance responsibility remains at all times with the customer.

Exceptions to Standard Warranties
1. The Standard warranty applies to equipment located in Mainland GB only and excludes locations subject to restricted or secure access,offshore and marine applications. Additional time and travel charges may be applied to the following locations – Isle of Wight, Channel Islands, Isle of Man, Northern Ireland and Scottish Isles.
2. Any fault that is not reported within 10 working days of being discovered.
3. Service calls to equipment under warranty, or service calls made under chargeable arrangements will be carried out in accordance with standard conditions of sale. Unless otherwise specified, a maximum of 15 minutes of administrative time, not spent directly carrying out servicing work, is provided for within the supply. Any requirement for staff attending the call to spend greater time than 15 minutes due to administrative requirements, such as on waiting time or security clearance, or health and safety risk assessments, will be chargeable at our prevailing rate. We reserve the right to apply Time Travel & Call out charges if no fault is found with the product or access is either restricted or denied to our attending engineer.
4. No claim shall exceed the original selling price.
5. Claims for Food and / or contents stored in the equipment supplied (including pharmaceutical or other items) and any consequential loss how so ever arising are excluded under our warranty terms.
6. Components including gaskets, doors, drawers, handles, shelves, tray slides, all internal fixings, plug and lead, connectors, the outer shell, castors / legs, food probes, refrigerant and blockages as well as consumable items such as (but not limited to) batteries, fuses, light bulbs, printer cartridges, keys, glass and paper roll.
7. Equipment manufactured to the customers' own design, Williams Refrigeration will not be liable for any defect, non performance or improper operation of the equipment arising from any drawing design or specification supplied by the customer, their representative or agent.
8. Second hand equipment.
9. The customer uses or installs the equipment in such a way that it exceeds its design envelope or operates the equipment at control parameters other than those provided as standard factory settings.
10. The customer fails to observe commonly accepted operating practices.
11. The customer has not properly cleaned or maintained the equipment or carried out necessary servicing, including cleaning of the condenser, in accordance with instructions, literature or directions issued by Williams Refrigeration. (Operating Instructions are supplied with all equipment but also available at www.williams-refrigeration.co.uk).
12. Equipment fails through improper installation by others, misuse, abuse, accidental damage, power loss or fluctuations, fire, flooding or acts of god.
13. Any third party item(s) connected to the equipment that may affect performance.
14. The customer permits persons other than those authorised by Williams Refrigeration to perform or affect repairs or adjustments to the equipment.
15. If authorised representatives of Williams Refrigeration are denied full and free rights of access to the equipment for inspection during normal business hours as previously stated.
16. If Repairs are made using spare parts or replacement items not supplied or preauthorised by Williams Refrigeration.
17. The initial equipment supply date shall apply for warranty validity for the subsequent supply of replacement of parts or products.

Extended Warranty
Extended Warranty offers the opportunity to protect your equipment (subject to conditions outlined) for an additional period of up to 5 years inclusive of original warranty periods.

Should you require Extended Warranty, state on your order or notify the Dealer or Williams Sales Manager at the time of purchase and they will be able to arrange it for you.

To ensure your Extended Warranty Policy remains valid, at least one maintenance / service visit per year must take place in years 2, 3, 4 and 5.

For further information or clarification please call 01553 817000 or email to info@williams-refrigeration.co.uk or write to Williams Refrigeration, Bryggen Road, Kings Lynn, Norfolk, PE30 2HZ

WILLIAMS REFRIGERATION

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