REFRIGERATOR MANUFACTURER

Turbo air

Turbo Air Speeds up the Pace of Innovation

Diamond Showcase
Installation and Operation Manual

Please read this manual completely before attempting to install or operate this equipment.
Please contact Turbo Air at 800-627-0032 with questions or assistance.

CAUTION!
PLEASE KEEP POWER SWITCH ON BEFORE OPERATING UNIT.



Diamond Showcases

CRT-77-1R-N

CRT-77-2R-N

www.turboairinc.com

FOR HYDROCARBON REFRIGERATION UNITS

⚠ WARNING

- Handle the unit with care in order to avoid any serious damages to the refrigeration system.

- The refrigerant tubing, condenser, evaporator coils are easily prone to damage while handling, moving, installing, and cleaning the unit, which may lead to fire or even explosion.

- Refrigerant squirting out of the pipes could ignite or cause an eye injury. If a leak is detected, avoid any open flames or potential sources of ignition and air out the room in which the appliance is standing for several minutes.

- In order to avoid the creation of a flammable gas-air mixture in case of a leak in the refrigerating circuit, the size of the room in which the appliance is placed depends on the amount of refrigerant used. The room must be 35.31ft^3 (1m^3) in size for every 0.28oz (8g) of R-600a refrigerant inside the appliance. The amount of refrigerant in your particular appliance is shown on the label inside the cabinet.



This appliance contains a small amount of propane (R-290) or isobutane (R-600a) refrigerant, a natural gas with high environmental compatibility, but it is also combustible. When transporting and installing the appliance, care should be taken to ensure that no part of the refrigerating circuit are damaged.

- Never start up an appliance showing any signs of damage. When in doubt, contact a qualified service professional.

- In case of any hazardous activities such as fire or explosion, move the unit away from any source of ignition to a well ventilated area.

- Further service and repair must be done by a qualified technician who is familiar with the safety standards, and also has thorough understanding and knowledge of the flammable refrigerants.

- Any and all technicians handling these units must be equipped with proper personal protection and equipment and follow applicable safety measures and precaution to avoid risk of fire or explosion.

FOR HYDROCARBON REFRIGERATION UNITS

⚠ WARNING

This unit uses R-290 (propane), or R-600a (isobutane) as a refrigerant. These hydrocarbon refrigerants are highly environmentally compatible but also are flammable and combustible. Please read this manual thoroughly before installing and operating the unit. Please take cautious measures to avoid risk of fire or explosion.

PLEASE REFER TO THE LABEL INSIDE THE CABINET TO CHECK REFRIGERATION TYPE AND VOLUME.

	**DANGER -** Risk of fire or explosion. Flammable refrigerant used. Do not use mechanical devices to defrost refrigerator. Do not puncture refrigerant tubing.
	**DANGER -** Risk of fire or explosion. Flammable refrigerant used. To be repaired only by trained service personnel. Do not puncture refrigerant tubing.
	**CAUTION -** Risk of fire or explosion. Dispose of properly in accordance with federal or local regulations. Flammable refrigerant used.
	**CAUTION -** Risk of fire or explosion. Flammable refrigerant used. Consult repair manual/owner's guide before attempting to service this product. All safety precautions must be followed
	**CAUTION -** Risk of fire or explosion due to puncture of refrigerant tubing; follow handling instructions carefully. Flammable refrigerant used.
	**WARNING** - Keep ventilation opening in the appliance enclosure or in the built-in structure, clear of obstruction. - Do not use mechanical devices or other means to accelerate the defrosting process, other than those recommended by the manufacturer. - Do not damage the refrigerant circuit. - Do not use electrical appliances inside the food storage compartments of the appliance, unless they are of a type recommended by the manufacturer.

Thank you for selecting our product. Please read the operation instructions carefully before using and installing our products for a correct application and satisfactory performance.

Serial Number

The serial number is located on the data label inside the unit.
Please retain the serial number for service reference.

Contents

1.General

2.Structure and Parts

3.Safety and Operation

4.Preparation and Power Supply

5.Use and Caution

6.Maintenance

7.Trouble Shooting

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10.Major Parameters

11.Warranty

General

1.Beautiful 4sided glass cabinet allows visibility from all sides to optimize display effect.
2.Safety shielded 4LED lighting system on each corner of the cabinet ensures a longer life and brighter lighting compared to fluorescent light bulbs, providing attractive, enhanced and shadow-free illumination.
3.Compact size and counter top design requires minimum space but maximize impulse sales.
4.Its great space efficiency is ideal for narrow space restaurants and convenience stores.
5.Elegant contemporary Euro design will enhance the interior and space decoration of any store.

Structure and Parts



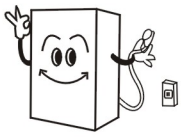
CRT-77-1R-N and CRT-77-2R-N are identical except the door. CRT-77-1R-N has one glass door but CRT-77-2R-N has two.

Safety and Operation

Handle with care

Unplug the wall socket first.

Never tilt it over 45 degree during handling.



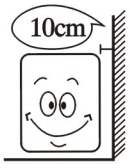
Dry place

Always locate the refrigerator in a dry area.



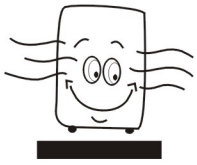
Sufficient space

Keep the rear unit no less than 10cm (4inch) from wall or other elements which will interfere with air flow.



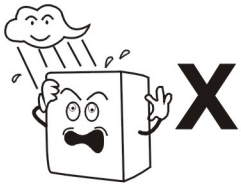
Well environment

Always locate the refrigerator in a location with Ambient Temperature 16-32℃/60.8-89.6°F, The refrigerator may not work properly if the temperature is higher or lower than this range. For the first time use, wait for 2hours before starting.



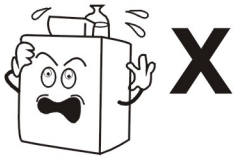
Far from heat source

Never place the refrigerator in direct sunlight. Do not locate near heat source that might affect performance.



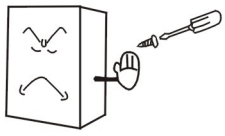
Do not load

Do not store materials or product on top of unit.



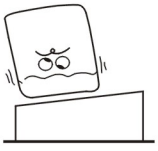
Altering Unit

Do not drill, cut or alter the unit as this will terminate warranty.



Stable location

Unpack and locate the refrigerator on a flat and solid place. It is better to service the refrigerator over a counter.



Preparation and Power Supply

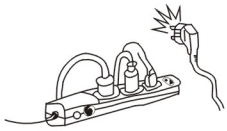
Exclusive power socket

Normally, the power supply should be 110 60Hz single phase AC with exclusive single phase three pin receptacle(125V, 10-15A)



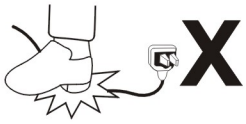
Do not share sockets

Never let the refrigerator share the common socket with other appliance. This might overload circuit causing fire or terminate warranty.



Protect cables

Never break, alter, or damage the cables which might result in fire or damage.



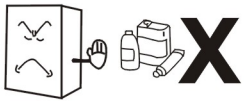
No water splashes

Never splash water directly to the refrigerator.
There is a risk of fire or electric shock.



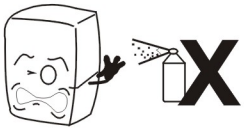
Prevent from flammables and explosives

Never put any flammable or explosive products inside the refrigerator such as ether, gasoline alcohol, adhesive and explosive. Never put dangerous product nearby the refrigerator.



Flammable materials

Do not use paint or other flammable materials that might cause fire or damage.



Power failure

If power is interrupted to unit, please turn off and re-start in five (5) minutes.



Medical application

Never put medicine into refrigerator. This unit is designed exclusively for merchandising food. Do not use to store medicine or non-food products.



Specification

Model	Swing Door	CU./FT.	HP	V/Hz/Amps	Refrigerant
CRT-77-1R-N	1	3.0	1/6	115/60/1.6	R290,40g(0.088lbs)
CRT-77-2R-N	2	3.0	1/6	115/60/1.7	R290,40g(0.088lbs)

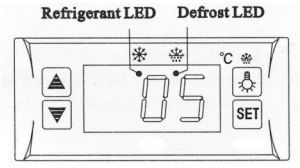
Use and Caution

1. **How to start**

Plug the refrigerator on 115V exclusive socket

After the refrigerator has been running, place hand on the air sufficiently to confirm it is sufficient cold before you load the food or beverage products into the cabinet.

2. **Digital Temperature controller**



① Features of Function

- It is a mini-sized and integrated intelligent controller and applicable to the compressor of one Hp. The main functions are:Temperature Display/Temperature Control/Manual, automatic defrost by turning off/Illumination Control/Value Storing/Self Testing/Parameter Locking

② Front Panel Operation

a、Set temperature
Press "set" button, the set temperature is displayed.
Press △ or ▽ button to modify and store the displayed value.
Press "set" button to exit the adjustment and display the cold-room temperature.

b、If no more button is pressed within 10 seconds, the cold-room temperature will be displayed.

c、Illumination:Press button, it lights; Press again, it stops.
Manual start/stop defrost: Press button and hold for 6 seconds to defrost or stop defrost.

d、Refrigerant LED: During refrigeration, the LED is on; When the cold room temp. is constant, the LED is off; During the delay start, the LED flashes.

e、Defrost LED: during defrosting, the LED is on; When is stops defrosting, the LED is off, During the delay display of defrost, the LED flashes.

3. **Rack**

The rack is adjustable. Please follow instructions for adjustment.

- Take out the rack.
- Move the rack support on suitable height.
- Place rack on the support.
- To get an even temperature between top and bottom, please adjust to equal heights between each rack

4. **Cautions**

Shorten the door opening time and reduced opening frequency will help maintain consistent temperature.

Never block the air suction and outlet. Keep air circulation and refrigeration capability.

Do not overload unit or this will effect cooling efficiency.

Adjust the height of rack for proper food storage.

Food should be room temperature before loading in unit

This unit is designed for indoor applications only.

Only authorized technicians approved by Turbo Air can make repairs.

Never touch compressor to avoid injury.

This equipment is intended for the storage and display of items that are not potentially-hazardous, such as bottle, can, securely packaged products.

Maintenance

1. **Notice**

   Always keep the refrigerator clean and properly maintained.

   Always unplug the socket before maintenance.

   Never use damaged plug or loose socket to prevent electrical shock or short circuit.

   Never flush the refrigerator. Never use alkali detergent, soap, gasoline, acetone or brush.

2. **Clean exterior**

   Dip soft cloth in neutral detergent(tableware detergent)to clean the exterior of refrigerator, then wipe it with dry soft cloth.

3. **Clean interior**

   Take racks out for cleaning with water.

   Use soft cloth to wipe the box.

4. **Shut down refrigerator for extended time.**

   Take out all food and unplug the wall socket.

   Clean interior and exterior of the refrigerator thoroughly and open the door to sufficiently air dry.

   Caution with glass as it can be easily broken.

Trouble shooting

Trouble	Cause and Remedy
No refrigeration	Is the plug in socket well? Does the fuse work? Is there no power?
Unsatisfactory refrigeration	Is it under the sunshine?Is there any heat source nearby? Is the surrounding ventilation bad? Does the door close well?Does door open for a long time? Is the door seal strip deformed or damaged? Is unit overloaded with product? Does food block the air suction or outlet? Regulate the temperature controller.
Loud noise	The refrigerator is not level. The refrigerator contacts the wall or other object. There is loose part in refrigerator.
Contact local service agent for help if simple trouble shooting does not solve the problems.	

Note

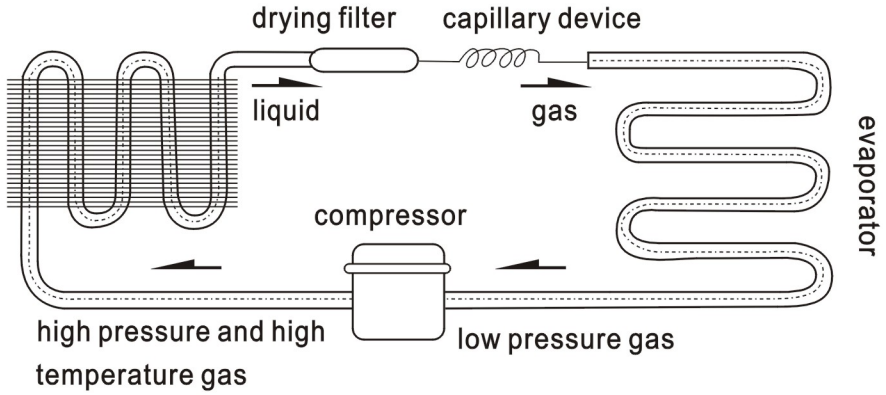
The following conditions might exist during normal operation:

The sound of water is heard when the refrigerator is working. It is a normal operation that the coolant is circulating in the system.

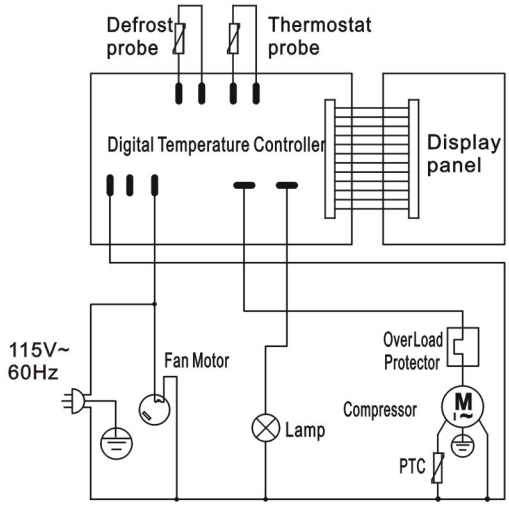
In wet season, condensation might be found on the exterior of the refrigerator.This is not an issue, this is caused by high humidity. Simply use cloth to wipe it down.

Principle of Refrigeration System

The principle of refrigeration consists of “compression”， “condensation”, “throttling” and “vaporization”. The compression is undertaken by compressor, the condensation is completed by condenser, the throttling valve is executed by capillary and the vaporization is implemented by evaporator. When the coolant is circulating in the closed refrigeration system, the compressor sucks coolant, which has absorbs heat in evaporator, the coolant becomes a high pressure and high temperature gas. In condenser, it dissipates heat in air, while the coolant is re-liquefied and throttled in capillary and then enters into evaporator with low pressure. The liquefied coolant quickly boils and vaporizes into gas when the pressure suddenly drops. Meanwhile, it absorbs heat inside the refrigerator. And the compressor sucks the low pressure and low temperature gaseous coolant,·····.
It is circulating in this way up to realization of intended refrigeration.



Circuit Diagram



Major Parameters

Parameter \ Model	CRT-77-1R-N	CRT-77-2R-N
Coolant and injection quantity	R290,40g/0.088lbs	R290,40g/0.088lbs
Rated Input Power (W):	180	190
Type of climate	4	4
Refrigeration temperature	0-12℃/32-53.6°F	0-12℃/32-53.6°F
Electricshock protection class	I	I
Lamp Power(W)	1.44*4(LED)	1.44*4(LED)
Rated Current(A)	1.6	1.7
High-side design pressures	260Psi	260Psi
Low-side design pressures	145Psi	145Psi
Total effective volume	82L (21.7gal.)	86L (22.7gal.)
Net weight	35.5kg (78.3Lbs)	36kg (79.4Lbs)
Rated Voltage(V)	115V ~	115V ~
Rated Frequency(Hz)	60Hz	60Hz
Overall dimension	425x404x980mm	425x429x980mm
	16.7x15.9x38.6inch	16.7x16.9x38.6inch
Package dimension(mm)	480x450x1035mm	480x480x1035mm
	18.9x17.7x40.7inch	18.9x18.9x40.7inch

Note

1. The electrical circuit diagram and parameters on the product nameplate are final ones if they have been changed.
2. The design might be improved without notice.
   This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
3. Children should be supervised to ensure that they do not play with the appliance.



Meaning of crossed out wheeled dustbin:
Do not dispose of electrical appliances as unsorted municipal waste, please use sorted refuse collection facilities.
Contact your local government for information regarding the collection systems available.
If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and into the food chain, damaging your health and well-being.

WARRANTY INFORMATION

ONE (1) YEAR WARRANTY

Warranty Claims...

All claims for parts or labor must be made directly thorough Turbo Air. All claims should include: model number of the unit, the serial number of the cabinet, proof of purchase, date of installation, and all pertinent information supporting the alleged defect. In case of compressor replacement under warranty, either compressor or compressor tag must be returned to Turbo Air along with above listed information. Failure to comply with warranty policies will result in voiding claims.

One-Year Parts & Labor Warranty...

Turbo Air warrants all new refrigerated components, the cabinet and all parts, to be free from defects in materials or workmanship, under normal and proper use and maintenance service as specified by Turbo Air and upon proper installation* (indoor building only) and start-up in accordance with the instruction packet supplied with each Turbo air unit. Turbo Air's obligation under this warranty is limited to a period of one (1) year from the date of original installation or fifteen (15) months after shipment date from Turbo Air, whichever occurs first. Any part, covered under this warranty, that are by Turbo Air to have been defective within one (1) year of original installation or fifteen (15) months after shipment date from manufacturer, whichever occurs first, is limited to the repair or replacement, including labor charges, of defective parts or assemblies. The labor warranty shall include standard straight time labor charges only and reasonable travel time, as determined by Turbo Air. (*Installation in unstable, mobile, and enclosed area may not be considered as proper installation.)

Additional Four-Year Compressor Warranty...

In addition to the one (1) year warranty stated adove, Turbo Air warrants its hermetically sealed compressor to be free from defects in both material and workmanship under normal and proper use and maintenance service for a period of four (4) additional years from the date of original installation, but not to exceed five (5) years and three(3) months after shipment from the manufacturer. Compressor determined by Turbo Air to have been defective within this extended period will, at Turbo Air's discretion, be either repaired or replaced with a compressor or compressor parts of similar design and capacity.
The four (4) year extended compressor warranty applies only to hermetically sealed parts of the compressor and does not apply to any other parts or components, including, but not limited to, cabinet, paint finish, temperature control, refrigerant, metering device, driers, motor starting equipment, fan assembly or and other electrical components, etcetera.

R-290/R-600a Hydrocarbon Compressor Warranty...

The three-year compressor warranty detailed above will be void if the following procedure is not carefully adhered to:

1. This system may contain R290 refrigerant and polyol ester lubricant.
   The polyol ester lubricant has rapid moisture absorbing qualities. If long exposure to the ambient conditions occur, the lubricant must be removed and replaced with new.
2. Drier replacement is very important and must be changed when a system is opened for servicing.
   Drier with XH-7 molecular sieve or better must be used.
3. Micron level vacuums must be achieved to ensure low moisture levels in the system. 500 microns or lower must be maintained.
4. Compressor must be obtained through Turbo Air, unless otherwise specified in writing, through Turbo Air's warranty department.

WARRANTY INFORMATION

What is Not Covered by This Warranty...

Turbo Air's sole obligation under this warranty is limited to either repair or replacement of parts, subject to the additional limitations below. This warranty neither assumes nor authorizes any person to assume obligations other than those expressly covered by this warranty.

NO CONSEQUENTIAL DAMAGES. TURBO AIR IS NOT RESPONSIBLE FOR ECONOMIC LOSS;

PROFIT LOSS; OR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOSSES, OR DAMAGES ARISING FROM FOOD OR PRODUCT SPOILAGE REGARDLESS OF WHETHER OR NOT THEY RESULT FROM REFRIGERATION FAILURE.

WARRANTY IS NOT TRANSFERABLE. This warranty is not assignable and applies only in favor of the original purchaser/user to whom delivered. ANY SUCH ASSIGNMENT OR TRANSFER SHALL VOID THE WARRANTIES HEREIN AND SHALL VOID ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR LABOR COVERAGE FOR COMPONENT FAILURE OR OTHER THE WARRANTY PACKET PROVIDED WITH THE UNIT.

Turbo Air will not be held responsible for the following external factors: ALTERATION, NEGLECT, ABUSE, MISUSE, ACCIDENT, DAMAGE DURING TRANSIT OR INSTALLATION, FIRE, FLOOD, ACTS OF GOD, OR IMPROPER ELECTRICAL CONNECTIONS.

TURBO AIR IS NOT RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF FAILED OR DAMAGED COMPONENTS RESULTING FROM ELECTRICAL POWER FAILURE, THE USE OF EXTENSION CORDS, LOW VOLTAGE, OR VOLTAGE DROPS TO THE UNIT.

Use of NON-OEM parts without manufacturer's approval may void cabinet warranty.

NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE;

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND EXPRESSLY GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED OR STATUTORY.

THERE ARE NO WARRANTIES, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF.

Warranty information card must be submitted via post mail or electronically on our website at www.turboairinc.com/registration within 7 days from the purchase date. Failure to comply may result in your warranty being voided.

All coverage provided within this warranty is applicable only to the United States, including Alaska and Hawaii, and Canada, excluding U.S. Territories; limited parts only warranty in U.S. Territories. Turbo Air is not responsible for any warranty claims made on products sold or used outside the fifty states of the United States.

The extended warranty period specific to each Turbo Air product applies to all units sold by Turbo Air starting December 1, 2016.

Warranty information card must be submitted via post mail or electronically on our website at ***www.turboairinc.com/registration*** within 7 days from the date of purchase. Failure to comply may result in your warranty being voided.

WARRANTY REGISTRATION CARD

MAIL CARD IMMEDIATELY OR GO TO ONLINE REGISTRATION AT *www.turboairinc.com/registration*

Company Name: _____

Type of Business: _____

Model Number: _____

Serial Number: _____

Phone Number: _____, **Email:** _____

Address: _____,
(Street / Unit #)

_____, _____, _____
(City) (State) (Zip Code)

I, _____ hereby inform and certify to Turbo Air Inc. (Manufacturer) that the product model
(Owner's Name)

and serial number mentioned above was purchased on _____ from _____.
(Date of Purchase) (Name of the Dealer)

Turbo Air Inc.

4184 E. Conant St., Long Beach, CA 90808
Toll Free: 1-800-381-7770
Fax: 310-900-1033
Email: warranty@turboairinc.com

REFRIGERATOR MANUFACTURER
Turbo air

4184 E. Conant St., Long Beach, CA 90808
Toll Free: 1-800-381-7770
Fax: 310-900-1033
Email: warranty@turboairinc.com
www.turboairinc.com