

INSTALL & USE GUIDE 2023

CIRCUL-AIR CABINET DRYERS

208 & 240 V DRYERS, 1PH & 3PH North America

120 V DRYERS, 1PH North America

For models:

C612, C613, C633, C634

E612, E613, E633, E634

D612, D613, D633, D634

V511

Email: circulair@circul-air-corp.com

Web: www.circul-air-corp.com

1-800-795-1150



REV 1, 2023

SAFETY



WARNING

DISCONNECT POWER TO DRYING CABINET BEFORE SERVICING TO PREVENT ELECTRICAL SHOCK OR BODILY INJURY

1. THIS MACHINE MUST HAVE A PROPER DUCT COVER OR VENTING IN PLACE BEFORE OPERATION. FAILURE TO DO SO CAN RESULT IN INJURY OR PROPERTY DAMAGE.
2. THIS MACHINE MUST BE PROPERLY WIRED TO LOCAL, STATE / PROVINCE OR FEDERAL CODE BY A COMPETENT ELECTRICIAN. A LOCAL, INDEPENDANT DISCONNECT PROPERLY SIZED FOR THE EQUIPMENT IS RECOMMENDED FOR SAFE OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN INJURY OR PROPERTY DAMAGE.
3. NEVER DRY EQUIPMENT WHICH HAS FLAMMABLE MATERIALS (OILS, FUEL ETC) IN THIS CABINET.
4. DO NOT OPERATE THE EQUIPMENT FOR PROLONGED PERIODS OF TIME WITH THE DOORS OPEN. THIS WILL STALL THE AIRFLOW AND MAY RESULT IN DAMAGE OF THE HEATING ELEMENTS, PERSONAL INJURY DUE TO BURNS OR PROPERTY DAMAGE.

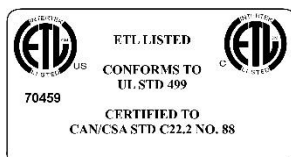
MACHINE SPECIFICATIONS:

Model	PPE-2	PPE-4	PPE-6	PPE-6XL
Shipping Dimensions: (Width x Depth x Height)	46" x 40" x 90"	46" x 56" x 90"	46" x 60" x 90"	60" x 64" x 90"
Shipping Weight:	615 lb	775 lb	875 lb	1175 lb
Cabinet Dimensions Closed: (Width x Depth x Height) *	32.5" x 37" x 84"	47" x 33.9" x 81"	55" x 37.25" x 83"	48.5" x 55" x 81"
Door Depth @ 90°: (Depth)	67"	60"	63"	80"
Width Clearance @ 120°: (Width) **	39"	62"	73"	78"
Min Offset from rear wall	5	10	10	10
Min Offset from side wall	5	6	6	6
PERFORMANCE				
Airflow, Negative Pressure Axial:	600 CFM	900 CFM	900 CFM	900 CFM
Heating @ 240V, 1PH:	1500W	6000W	6000W	6000W
ELECTRICAL OPTIONS ***				
240/1/60	NA	C612	E612	D612
208/1/60	NA	C613	E613	D613
240/3/60	NA	C633	E633	D633
208/3/60	NA	C634	E634	D634
120/1/60	V511	NA	NA	NA
CONSTRUCTION AND ACCESSORIES				
Standard Finish:	Powder coat CAC Grey, Galvanized	Powder coat CAC RED, Galvanized	Powder coat CAC Grey, Galvanized	Powder coat CAC Grey, Galvanized
Grid Positions:	4	4	4	15
Standard Hose / Gear Grid:	3	2	3	10
Standard Boot / Gear Grid	1	2	1	0
Boot / Glove Hangers (CAC-BGH):	4	6	6	6
Gear Hangers (CAC-GH):	4	6	6	6
105F Max Temperature Control:	YES	YES	YES	YES

* This includes the door handle clearance

** This is the minimum opening required to remove the shelves from the unit.

*** Refer to electrical installation for minimum amp service and wire requirements



ELECTRICAL CONNECTIONS:

Circul-Air cabinets are designed for simple electrical installation. Follow this section for preparing for and connecting your cabinet to the building service.

PPE-2 Cabinet:

This cabinet comes equipped with an 8' grounded power cord, connected with a strain relief at the back of the cabinet. A 20A standard receptacle is recommended for use, however a 15A outlet will be sufficient in most applications.

Ensure the strain relief is secure and that the cable is not under tension when in use.

CAUTION

The prolonged use of an extension cord is not recommended.



PPE-4, PPE-6 and PPE-6XL Cabinets:

These larger cabinets come equipped with an electrical connection box at the top, rear left of the machine when viewed from the rear of the equipment. A standard 1-1/8" port suitable for a 3/4" flexible conduit fitting is provided to connect the equipment to the wall disconnect (by customer).

Depending on the electrical configuration chosen, the customer will need to pull a sufficient quantity and size of wire to the equipment.

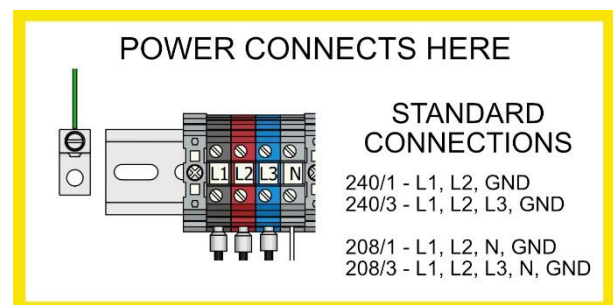
Connection is at a marked location (L1/L2/L3/N/GND) and is determined by the model chosen.



240 TYPICAL



208 TYPICAL



ONLY CONNECT SUPPLY TO L1, L2, L3, N AND GND.

NEVER CONNECT TO THE INTERNAL TRANSFORMERS.

Important Note:

Machines manufactured prior to Sept 2022 will have fuse blocks and CC type slow response fuses. Refer to electrical schematics. 240 – 120 transformer is protected with 2x 4A fuse. Timer protected with 1x5A fuse. Motor protected with 1x 4A fuse. If a booster fan included or external contact increase motor to 10A fuse.

Machine Placard:

Each dryer has a placard inside the door which provides information on the machine construction as well as basic use. Key pieces of information to know are the model, serial # and electrical configuration. The fuse size noted is the wall disconnect sizing. Local electrical codes take priority in sizing the disconnect.

DIRECTIONS FOR INSTALLATION & USE OF
DUAL PURPOSE AND EXPRESS DRYERS

MODEL: _____ SERIAL #: _____



ELECTRICAL SPECIFICATION:

- 240 V / 1 PH / 60 HZ / 30.1 AMPS, 2 WIRE + G, 35 AMP FUSE
- 240 V / 3 PH / 60 HZ / 19.6 AMPS, 3 WIRE + G, 35 AMP FUSE
- 208 V / 1 PH / 60 HZ / 27.5 AMPS, 3 WIRE + G, 35 AMP FUSE
- 208 V / 3 PH / 60 HZ / 17.7 AMPS, 4 WIRE + G, 30 AMP FUSE
- 120 V / 1 PH / 60 HZ / 20.0 AMPS, GND PLUG, 20 AMP FUSE



NOTE:

If wiring is connected to a circuit disconnect switch with steel conduit, this serves as ground, if connected with cable, a ground wire must be used.

VENTILATION:

It is recommended that Dual Purpose and Express Dryers are properly ventilated either through an external wall (or) in such a manner as to deflect discharge air away from the cabinet. The cabinet must not be operated with the fan blade accessible to reach.

TO OPERATE:

- 1) Close doors tightly.
- 2) Press and hold MODE / SELECT for 2-4 seconds.
- 3) Press MODE / SELECT again to set to FAN ONLY or/
- 4) Repeat MODE / SELECT to set to FAN & HEATER.
- 5) Select preset time with GEAR button (3 Hours) or Hose button (10 Hours).
- 6) Press START / STOP button to begin the drying cycle.
- 7) The unit will shut off automatically when the cycle is complete
- 8) Timer changes can be made with MIN/HOUR and Up/Down Time Buttons.

THE DISPLAY:

- GREEN LED: PANEL IS ON, ENABLED
- YELLOW LED: FAN ONLY is selected
- RED LED: FAN & HEATER is selected
- TIME: This displays the selected and remaining time.
- TEMPERATURE: This displays current cabinet temperature.

SERVICE:

ALWAYS DISCONNECT POWER BEFORE SERVICING
Refer to manual for additional information.

If you have any questions about this dryer, need parts or other information on Circul-Air Corp products, please call 1-800-795-1150.



**KEEP THE
HEAT INSIDE**



**LEAVING DOORS
OPEN WHILE RUNNING
MAY DAMAGE HEATING COMPONENTS**

DUCTING & VENTILATION:

Circul-Air cabinets are negatively pressured, axial flow cabinets which means that the fan is continuously evacuating high volumes of internal air from the cabinet. These cabinets require some backpressure to work most effectively, and for best drying the damp air should be removed from the area of the cabinet.

Recommended:

It is recommended that all cabinets are ducted with a 10" or 12" diameter duct, completely out of the room where the unit is located to ensure that the unit is not recycling the humid air being removed from the cabinet. Duct sizes smaller than 8" in diameter are not recommended.



Optional:

PPE-2 cabinets ship from the factory with a slotted guard which protects the operator and establishes backpressure. It can be operated with this guard.

EVI-4, PPE-6 and PPE-6XL cabinets can be equipped with a deflection duct which steers the damp air away from the cabinet. This solution is best used in large spaces such as apparatus bays or well-ventilated rooms. These 10" or 12" ducts include a reducing collar, a short vertical duct, an adjustable angle and a second straight section. Fastened to the roof of the equipment this establishes the necessary backpressure as well as protects the operator.

Some applications may also benefit from an inline manual damper which can be used to trim (or increase the backpressure) to account for local conditions such as proximity to sea level or cold humid conditions.

Complex installations such as in high use hose drying may incorporate 2 or more cabinets and may incorporate building HVAC return ducts. In this case interlocked dampers may be used to prevent backflow of air into cabinets not in use. A remote contactor is recommended and may be tied to terminal "6" in the cabinet, 120V signal to time to the operation of the cabinet fan motor.

Other recommendations:



- When passing through cold spaces the ducting must be insulated to prevent condensation.
- Use the maximum duct size available and reduce turns or angles when possible.
- Ensure external penetrations have a pest guard or rain hat to prevent ingress of pests, water or debris.
- Limit duct runs to 15'-20' or less. If duct runs need to exceed 15'-20' an inline booster may be required (by customer). These need to be at least 10" in diameter and supply at least 700 cfm of airflow. A remote contactor is recommended and may be tied to terminal "6" in the cabinet, 120V signal to time to the operation of the cabinet fan motor.

Adjusting Back Pressure for Temperatures in Wet Climates

In some damp sea level conditions, the cabinet may require additional backpressure to 'trim' the performance of the heating system. The following process may be utilized.

1. Set adjustable damper or louver spring to open or no restriction.
2. Record ambient temperature on machine in fan only mode.
3. Turn on dryer and run for 15 minutes. Record temperature achieved empty. It should be 15 to 20 F over ambient.
4. Cool machine in fan mode 5-10 mins.
5. Adjust damper to 75% open.
6. Repeat test.
7. Adjust until result is 15-20 F from ambient.

If more than 50% reduction is required, contact your Circul-Air Corp service department for assistance.

LEVELING THE CABINET

Each drying cabinet has (4) leveling feet which can be accessed from inside the cabinet or from underneath. Inside adjustment requires a large, slotted screwdriver, while adjustment from beneath may require a larger adjustable wrench. Typically, these can be adjusted by hand.

Equipment is shipped with the feet fully retracted. If a foot pad is not touching, turn down until just in contact with the floor.

Adjusting Door Squareness for Single or Two Door Cabinets

1. Ensure the cabinet is level with the feet as retracted as possible.
2. Observe the alignment; if the left door is low, adjust the right foot and vice versa.
3. Open the doors first.

- While an assistant pushes up on the center of the door, adjust the appropriate front left or front right foot. Have the assistant let the cabinet settle down, carefully close the doors and check alignment.

Note: Use minimal adjustments to correct the leveling. 2-3 turns are more than sufficient to adjust the door squareness.

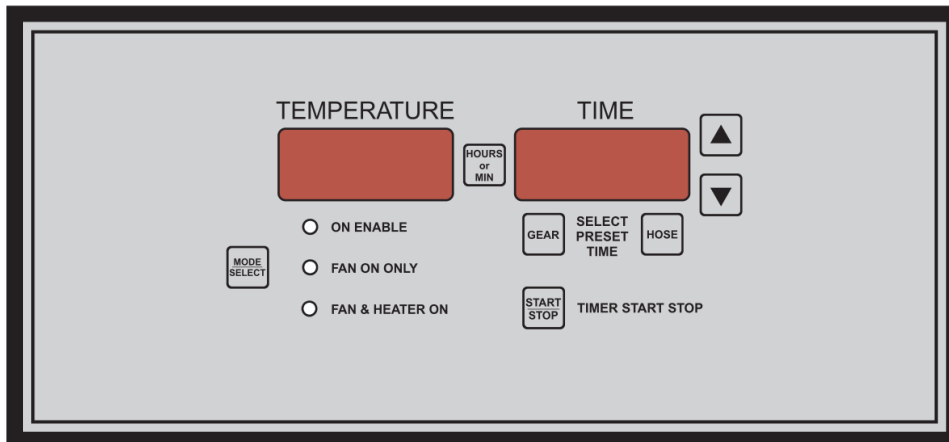
CABINET OPERATION








Each cabinet comes with a simple to operate NFPA 1851 compliant timer panel. The operator can select the duration of the drying desired and whether to opt for heated or ambient air to dry the equipment. The timer displays the remaining drying time and the current temperature inside the cabinet.



The operator cannot increase the maximum temperature. Circul-Air cabinets are designed to heat the incoming air above ambient to promote the release of water from the equipment (PPE & Hose). For PPE-2 cabinets this is 10-15°F and for the larger cabinets this is 15-25°F depending on the local conditions.

The cabinet will ensure that the heat is disabled once the airflow reaches 105°F to remain compliant.

Standard Circul-Air Cabinet Timer



Control Panel Button	Action	Result
	HOLD 3-5s to turn on controls Press 1x for FAN Press 2x for FAN & HEATER	On Enable Green LED Fan On Yellow LED Fan & Heater Red LED
  	Press GEAR for 3:00 preset Press HOSE for 10:00 preset	Sets Time to 3:00 Sets Time to 10:00
 	Press 1x to start cycle Press 1x to stop cycle	Starts drying cycle Stops drying cycle, sets time to 0:00
	Hold to set custom time. Press to switch between hr / min	Time Blinks 0:__ or __:00

	 	Press to increase or decrease time	UP Arrow, increase value +1 Down Arrow, decrease value - 1
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PREPARING EQUIPMENT (PPE, HOSE AND OTHER GEAR)

The proper decontamination of PPE equipment (aka bunker gear, turnout gear, fire protection gear) requires the use of an NFPA 1851 compliant extractor which has been properly configured. This includes disassembly of the gear, pre-treatment if required and a cleaning cycle with a spin speed of less than 100g, maximum 105°F water and NPFA compliant cleaning chemicals.

Information on Circul-Air Corp's complete line of Express and Heavy Duty extractors, recommended Citro-Squeeze and SC-14 cleaning chemicals can be obtained at www.circul-air-corp.com, sales@circul-air-corp.com or by contacting your local distributor of Circul-Air products.

Equipment that has been processed correctly should be disassembled into its base components, liners and shells. Typical drying times of shells components will be 1.25 – 2 hrs. Drying times of lines can vary between manufacturers, however this should take between 3-3.5 hrs for standard products and 3.5 – 4.5 hrs for heavier fabrics and quilting.



Each cabinet has a rigid aluminum bar to support the gear, ensuring that the gear can be evenly distributed in the cabinet. Excessively loading the cabinet will increase dry time.

Boots can also be dried in the small cabinets by inserting them tops down in the supplied wire shelves. (Not applicable for 6XL cabinet).

Helmet holders are available for placing helmets on the grid.

Hoods, gloves and other loose equipment can also be spread on the grids to aid in drying when the hangers are not appropriate.

Hose with diameters up to 5" can be dried in the cabinet. Ensure that the water inside has been drained and then loosely spool the hose on the provided shelves, allowing room for air to pass through the coils. Hose will typically take between 10-12 hrs to dry in normal operating conditions. Information on Circul-Air Corp's Roto-Jet hose washers is available to aid in pre-cleaning hoses from 1-3/4 – 5" diameter can be obtained at www.circul-air-corp.com, sales@circul-air-corp.com or by contacting your local distributor of Circul-Air products.



PPE-2 Troubleshooting		
No Heat / Low Heat	Does the temperature rise in 5-10 min when in heat mode, empty.	No rise - verify contactor is pulling in, check the snap disc continuity. Some rise - one or more element may have failed. Compare ohm reading with value on element.
No Control Panel Display	Will the panel come on with mode button held for 3-5 seconds?	No - remove front timer and check left breaker for amperage trip.
	Yes, but promptly turns off when cycle started	Short in onboard component - call service
No Fan	Does unit start and then stop?	Check for obstruction in fan blades
	Does the unit fail to start?	Remove front timer and check right breaker for amperage trip.
	Is the panel damaged or worn	Inspect for button resistance, call service
Long Dry Time	Confirm the clothing is properly separated and extractor is functioning correctly.	Ensure gear is separated, not excessively loaded and hung properly.
	Is the operating condition close to sea level or high humidity, low temp?	Trim the outlet cover by restricting 25% of outlet and retesting.
	Is the plenum (floor plate) installed and unobstructed?	Verify to ensure proper airflow through bottom of cabinet.
	Is the outlet ducted or have a safety cover?	Lack of back pressure can increase dry time.
PPE-4, PPE-6, PPE-6XL		
240V – Breaker 1 or 2 tripped	Is the trip instantaneous or intermittent?	Intermittent- shared circuit drawing down voltage, tripping amperage on 240/120 transformer. Instantaneous – 240 Leg to station dropped or failing. Instantaneous – 208 supply to 240 panel. Check if leg 1 = 120V or 240V. Should be 240.
240V or 208V breaker 3 tripped	Is the breaker next to Terminal 6 tripped? No power to control panel.	Incorrect # of wires for 208 system – call service for options. Intermittent Overload – check for other equipment on dedicated circuit. Shortage – check for loose wires in panel. Electrical surge- lightning strikes, grid surges or drops can cause this breaker to protect equipment. Reset.

240V or 208 breaker 4 tripped	Is the breaker on the end of the rail tripped?	Motor over amperage - check for obstruction. Motor wire issue – check for loose wire. Failed motor – call service. Secondary draw on terminal 6. Check connected blowers or dampers for short.
No Heat / Low Heat	Does the temperature rise in 15-25 min when in heat mode, empty.	No rise - verify contactor is pulling in, check the snap disc continuity. Some rise - one or more element may have failed. Compare ohm reading with value on element.
No Control Panel Display	Will the panel come on with mode button held for 3-5 seconds?	No - open top of control panel and check breaker beside terminal 6 breaker for amperage trip. Check breaker 1 and 2 beside terminal 1 for amperage trip.
	Yes, but promptly turns off when cycle started	Short in onboard component - call service
No Fan	Does unit start and then stop?	Check for obstruction in fan blades
	Does the unit fail to start?	Remove top of control panel and check right breaker for amperage trip.
	Is the panel damaged or worn	Inspect for button resistance, call service
Long Dry Time	Confirm the clothing is properly separated and extractor is functioning correctly.	Ensure gear is separated, not excessively loaded and hung properly.
	Is the operating condition close to sea level or high humidity, low temp?	Trim the outlet cover by restricting 25% of outlet and retesting.
	Is the plenum (floor plate) installed and unobstructed?	Verify to ensure proper airflow through bottom of cabinet.
	Is the outlet ducted or have a safety cover?	Lack of back pressure can increase dry time.

CIRCUL-AIR CORP. WARRANTY CLAIMS

The Circul-Air Corporation (hereafter referred to as CAC) warrants THIS product to be free of defects in material and workmanship for Ten (10) years from the date of shipment from the factory. CAC shall only be liable under this warranty if the product is installed properly and used according to the directions furnished by the CAC.

The Basic Product Warranty is a "PARTS ONLY" warranty and CAC's obligation shall be limited to the replacement of new parts of the products for those returned to CAC undamaged at the purchaser's expense and found to be defective by CAC. CAC will then repair or replace, at its option any such part determined to be defective during this warranty period. Replacement parts will be shipped F.O.B. CAC's facility. CAC is not responsible for damages during transport of any product to or from CAC. Replacement of parts shall not extend the original warranty period of the original total product, including any replacement parts supplied.

This Standard warranty does not cover corrosion; normal deterioration; misapplication; improper installation; labor charges paid for parts replacement, adjustments, repairs or other work supplied by others; defects in parts resulting from neglect, negligence, accident, fire, explosion, high or low voltage, jumpering or jamming controls, shorting out of components; improper voltage; or any acts of nature.

This warranty does not cover failure of the purchaser to provide normal recommended maintenance, adjustments, cleaning or service on the CAC equipment; improper repairs or alterations; or misapplication of the equipment.

It is expressly understood that this warranty is made IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, WHETHER ARISING FROM STATUTE, COMMON LAW, CUSTOM, OR OTHERWISE, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE, QUALITY, DESIGN, CONDITION, DURABILITY OR SUITABILITY, and in consideration of the express warranty herein contained, BUYER EXPRESSLY WAIVES ANY RIGHT TO CLAIM OTHER WARRANTIES, EXPRESSED OR IMPLIED.

It is further understood that CAC's liability for breach of warranty shall be limited to terms of this warranty and buyer agrees that CAC SHALL NOT, IN ANY EVENT, BE LIABLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, OR DELAY. The buyer's remedies are exclusive, and shall be limited to those provided herein.

CAC neither assumes and does not authorize any person to assume any obligation or warranty other than those stated herein.

Any suggestion to the contrary notwithstanding, CAC shall not, in any event, have any liability under this warranty unless and until it has been paid in full for the products. The warranty period shall begin as described above, whether or not payment has been made.

Defective material may be repaired or replaced at our option. If replaced, full credit will be issued in the amount of the original purchase price if returned undamaged within 30 Days of shipment, for the returned material; in the event the material is found to be not defective, or to be damaged or abused, we reserve the right to return the material "as is" to the sender and at his freight cost. If CAC agrees to keep such material, credit will be issued minus the

cost of repair and reconditioning, the return and less restocking charges.

Otherwise only cost of the part will be covered by our warranty. But if the part(s) CAC has sent are not the problem please reinstall the old part and return within 30 Days of shipment the new unused part back to CAC, we will then after inspecting the part to insure it is still in good working order will return the new unused part(s) to inventory and issue credit. Old parts returned to us that are in good working condition or after the 30 Day period will be charged to you and not covered by warranty. It is important to remember that in order for our warranty to cover the cost of the new part you must return the faulty part to us within 30 days to receive credit. Then after CAC receives the part we must confirm that the returned part is actually faulty before issuing credit. When returning the faulty part, please reference the Return Merchandise Authorization number (Known as the RMA number). Be sure to adequately package the part to be shipped back to CAC to prevent it from being damaged during shipment. You will not receive credit for parts received at CAC that are damaged and cannot be returned to the part manufacturer for credit. Also please provide a small description as to what is wrong with the part that is being returned under warranty:

Reminder: Our warranty only covers the cost of the faulty part and MUST be returned within 30 days from the time of shipment from the factory to receive credit. You are responsible for any other expenses you incur, including freight charges, miscellaneous parts and the labor to install the part(s).

Warranty DOES NOT cover the following Items:

1. A maintenance items.
2. Normal wear, adjustments, and periodic service.
3. Damage caused by accidents, improper installation or handling, or faulty repairs.
4. Damage caused by operation of the unit at improper voltage loads,

- conditions, modifications, or installation contrary to published specifications or recommendations.
5. Damage caused by negligent maintenance such as:
 - a. Breakage due to mishandling or misuse of the product or part.
 - b. Failure to follow and perform scheduled maintenance as prescribed in supplied manuals.
6. Parts purchased from sources other than CAC, Replacement of a failed CAC part with a non-CAC part voids warranty on that part. (Unless prior written authorization has been given by CAC for you to do so.)
7. Warranty Labor.

REPLACEMENT PARTS

When writing or calling to Circul-Air Corporation for service parts, provide the model number and serial number of the unit as stamped on the unit plate attached to the unit. If replacement parts are required, include the date of installation, the date of failure, an explanation of the malfunction, and a description or part number of the replacement parts required.



SALES@CIRCUL-AIR-CORP.COM
SERVICE@CIRCUL-AIR-CORP.COM

1-800-795-1150