

SpectraCool Air Conditioner

N17 Model

Instruction Manual



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Note: Some of the information in this manual may not apply if a special unit was ordered. If additional drawings for a special unit are necessary, they have been inserted. Contact nVent Equipment Protection if further information is required.

WARRANTY AND RETURN POLICY

<https://HOFFMAN.nVent.com/en-us/cooling-warranty-registration>

<https://nVent.widen.net/s/s8xgmhxvk2/89153291>

GENERAL SAFETY INSTRUCTIONS

Observe the following general safety instructions for installation and operation of this product:

- This appliance is for installation only in locations not accessible to the general public.
- 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 the use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.
- This appliance should be installed in accordance with national wiring regulations.
- Follow all precautions detailed in the following sections during transportation, receiving, testing, operation and maintenance.
- This appliance is intended for altitudes up to 10,000 ft (3,048 m) from sea level. For every additional 1000 ft of elevation, the capacity of this unit is derated by 1%.

RECEIVING THE AIR CONDITIONER

Inspect the air conditioner. Check for concealed damage that may have occurred during shipment. Look for dents, scratches, loose assemblies, evidence of oil, etc. Damage evident upon receipt should be noted on the freight bill. Damage should be brought to the attention of the delivering carrier – NOT to nVent Equipment Protection – within 15 days of delivery. Save the carton and packing material and request an inspection. Then file a claim with the delivering carrier.

nVent Equipment Protection cannot accept responsibility for freight damages; however, we will assist you in any way possible.

HANDLING AND TESTING THE AIR CONDITIONER

If the air conditioner has been in a horizontal position, be certain it is placed in an upright, vertical or mounting position for a minimum of five (5) minutes before operating.

CAUTION

Do not attempt to operate the air conditioner while it is horizontal or on its side, back or front. The refrigeration compressor is filled with lubricating oil. This will cause permanent damage to the air conditioner and also voids the warranty.

TEST FOR FUNCTIONALITY **BEFORE** MOUNTING THE AIR CONDITIONER TO THE ENCLOSURE.

Refer to the nameplate for proper electrical current requirements. If cord-connected, connect the power cord wire the unit to a properly grounded power supply. If permanently connected, wire the unit to a properly grounded power supply using copper conductors only. Power supply wiring should be restrained to ensure no contact with the internal fan. Minimum circuit ampacity should be at least 125% of the amperage shown on the unit nameplate. No other equipment should be connected to this circuit to prevent overloading.

Immediately after applying power, the evaporator blower (enclosure air) should start running. Operate the air conditioner with the compressor running for five (5) to ten (10) minutes. You will need to set the cooling thermostat below the ambient temperature to operate the compressor.

Note: For testing purposes only, the thermostat stop screw may be removed (on units so equipped) to allow settings below 70°F. After testing, replace the stop screw and verify that the thermostat can not be set below 70°F. Extended operation below 70°F can cause coil freeze ups resulting in reduced load and/or unit damage.

No excessive noise or vibration should be evident during this run period. Condenser air temperatures should be warmer than normal room temperatures within a few minutes after the condenser impellers start.

See Sequence of Operation on page 16 for specifics on how the unit operates when powered up.

HOW TO READ MODEL NUMBERS

N17	01	2	6	G010
1	2	3	4	5

1. Identifies the type/family of air conditioner and the approximate height (i.e. N17 Narrow family about 17 inch high).
2. This is the air conditioner's listed capacity in BTU/Hr. at rated conditions. (i.e. 01 = 1000 BTU/Hr. at 125/125a F).
3. 1 = 115 Volt, 2 = 230 Volt, 4 = 460 Volt.
4. 6 = 50/60 Hz or 60 Hz only.
5. Unique set of numbers for each air conditioner which identifies the accessories on a model.

INSTALLATION INSTRUCTIONS

1. Inspect the air conditioner and verify correct functionality before mounting the air conditioner. See HANDLING AND TESTING THE AIR CONDITIONER on page 3.
2. Using the cutout dimensions shown in this manual, prepare "IN" and "OUT" openings and mounting bolt hole pattern for enclosures. Select an installation location that will allow for adequate ventilation and clearance for service. Clearance between the air conditioner with or without a supplementary heater and adjacent structures (another enclosure, air conditioner, wall, or combustible surface) must be at least:

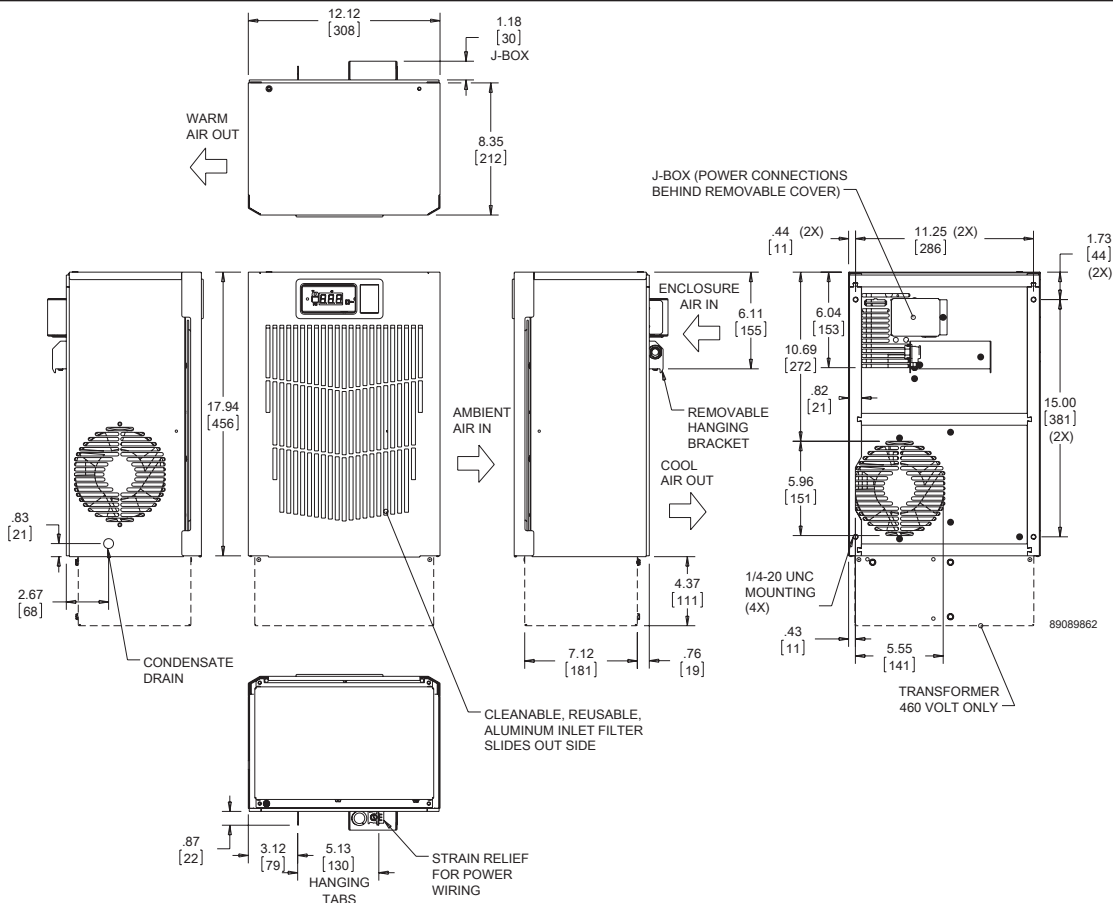
- 24" from front
- 2" from right side
- 14" from left side
- 6" from top

Local fire codes may have different requirements; please observe applicable regulations for the location of the air conditioner.

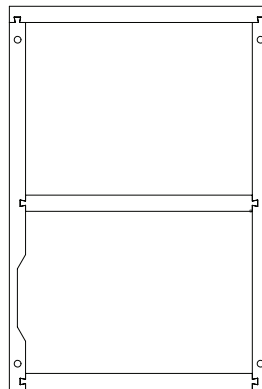
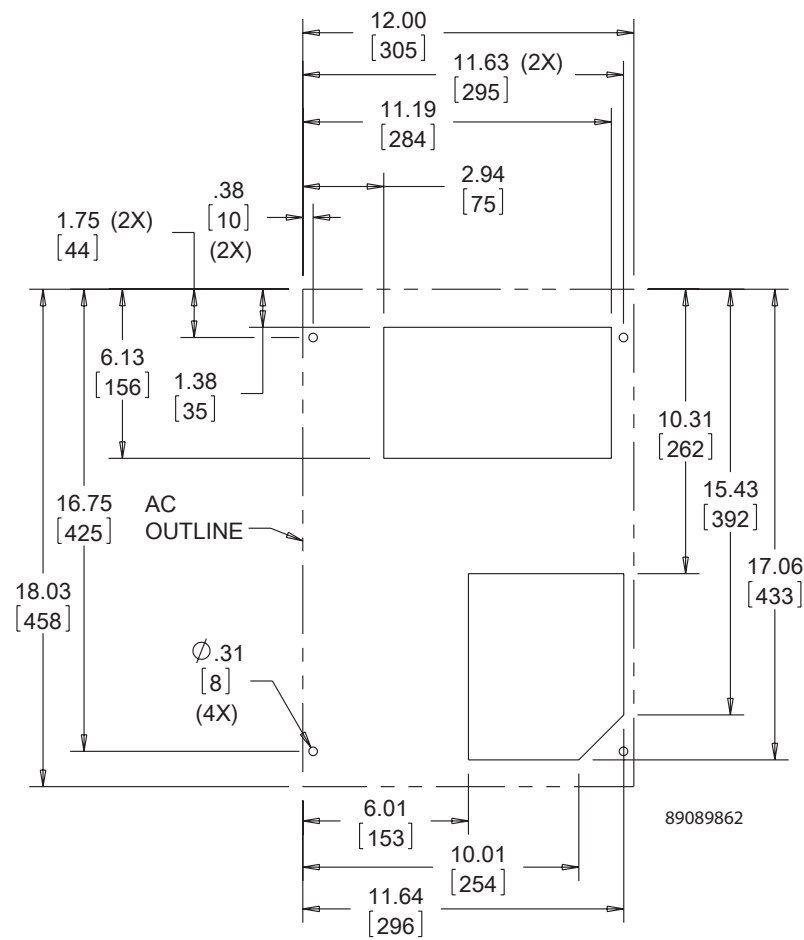
The distance between the air conditioner and the electronic components and other equipment installed inside the enclosure must be at least 3" to ensure adequate air circulation. At minimum clearance levels, an air baffle between the inlet and outlet may be necessary to prevent recirculation.

3. Using the mounting gasket kit provided with the unit, install gaskets to the air conditioner.
4. Mount air conditioner on enclosure using mounting bolts and washers provided to secure unit to enclosure. Take care not to damage the mounting gasket. The mounting gasket is the seal between the air conditioner and the enclosure. Avoid dragging the air conditioner on the enclosure with the mounting gasket attached as this could cause rips or tears in the gasket and risk losing the water tight seal.
5. To avoid cross-threading mounting inserts, start bolts by hand before tightening with a wrench or ratchet driver. Allow unit to remain upright for a minimum of five (5) minutes before starting. CAUTION! Air conditioner must be in upright position during operation.
6. Refer to the top of the nameplate for electrical requirements. Connect the power cord or wire the unit to a properly grounded power supply following applicable national wiring regulations. Use of an extension cord is not recommended. If the air conditioner is wired to the power supply, the electrical circuit should be fused with a time delay fuse or an HACR circuit breaker per the MOPD rating in the Design Data table – see page 16.
7. Some air conditioners require a remote mounted thermostat. Wire the thermostat outputs to the appropriate terminals on the 24 VAC terminal strip by noting the locations on the correct wiring diagram.
8. Set thermostat for required cabinet temperature. Refer to Sequence of Operation on page 16 for thermostat adjustment and operation.

DIMENSION DRAWINGS



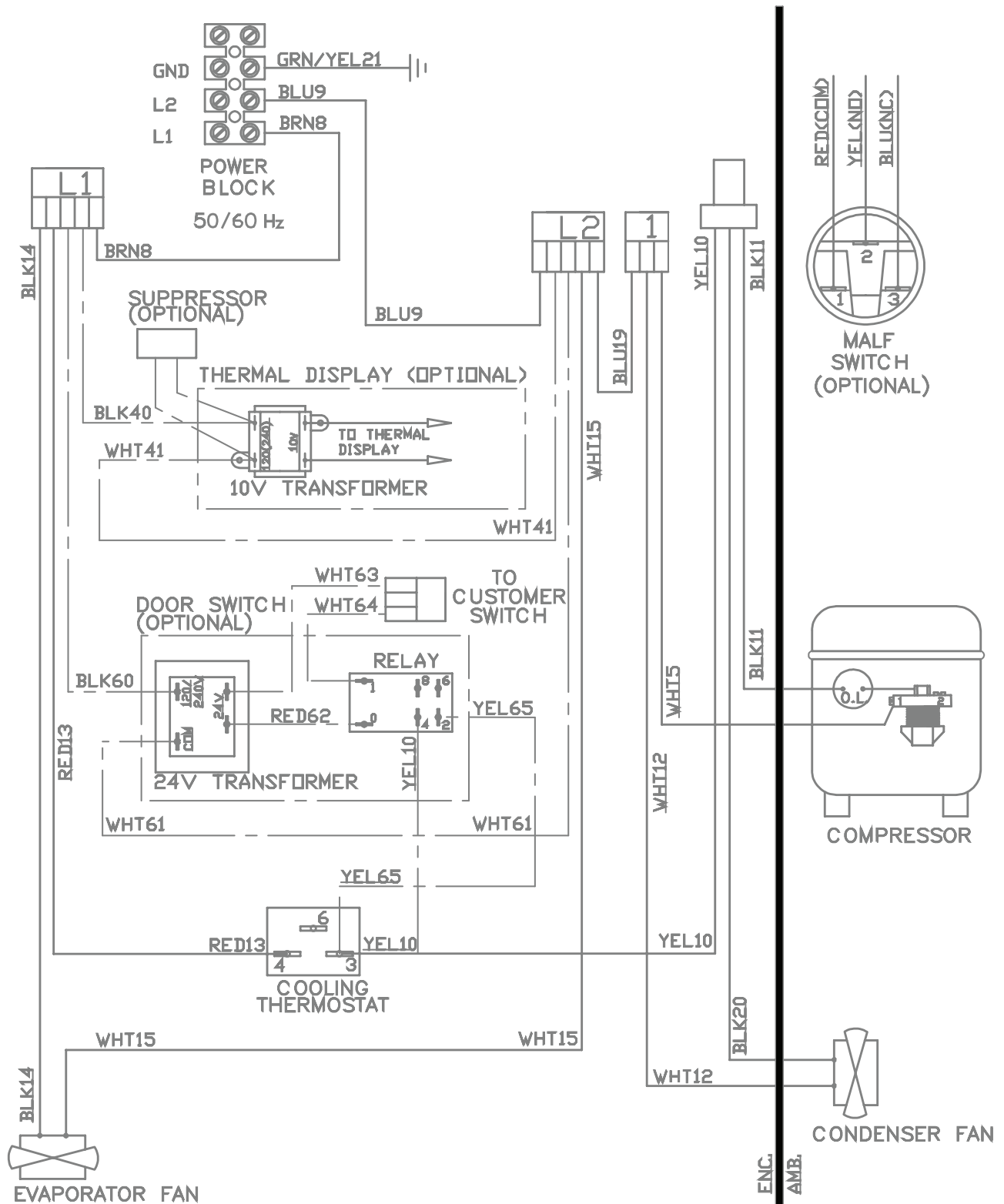
MOUNTING CUTOUT DIMENSION



Note: Mounting Gasket Adheres to Air Conditioner

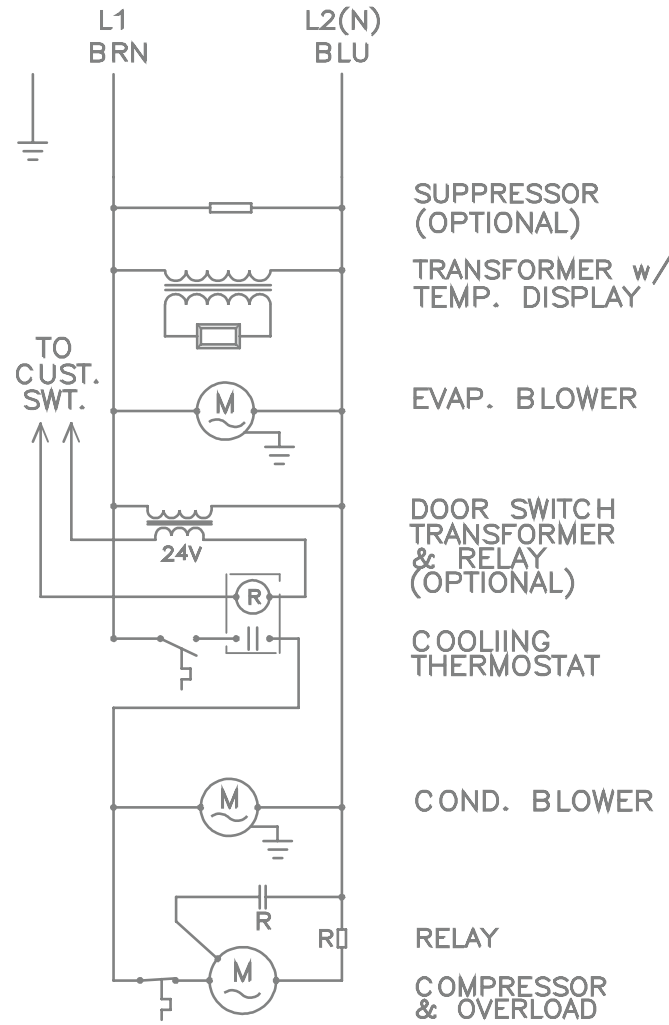
WIRE DIAGRAMS AND SCHEMATICS

1000 BTU/HR. 115 V/230 V Generic Wire Diagram (actual unit options may vary)



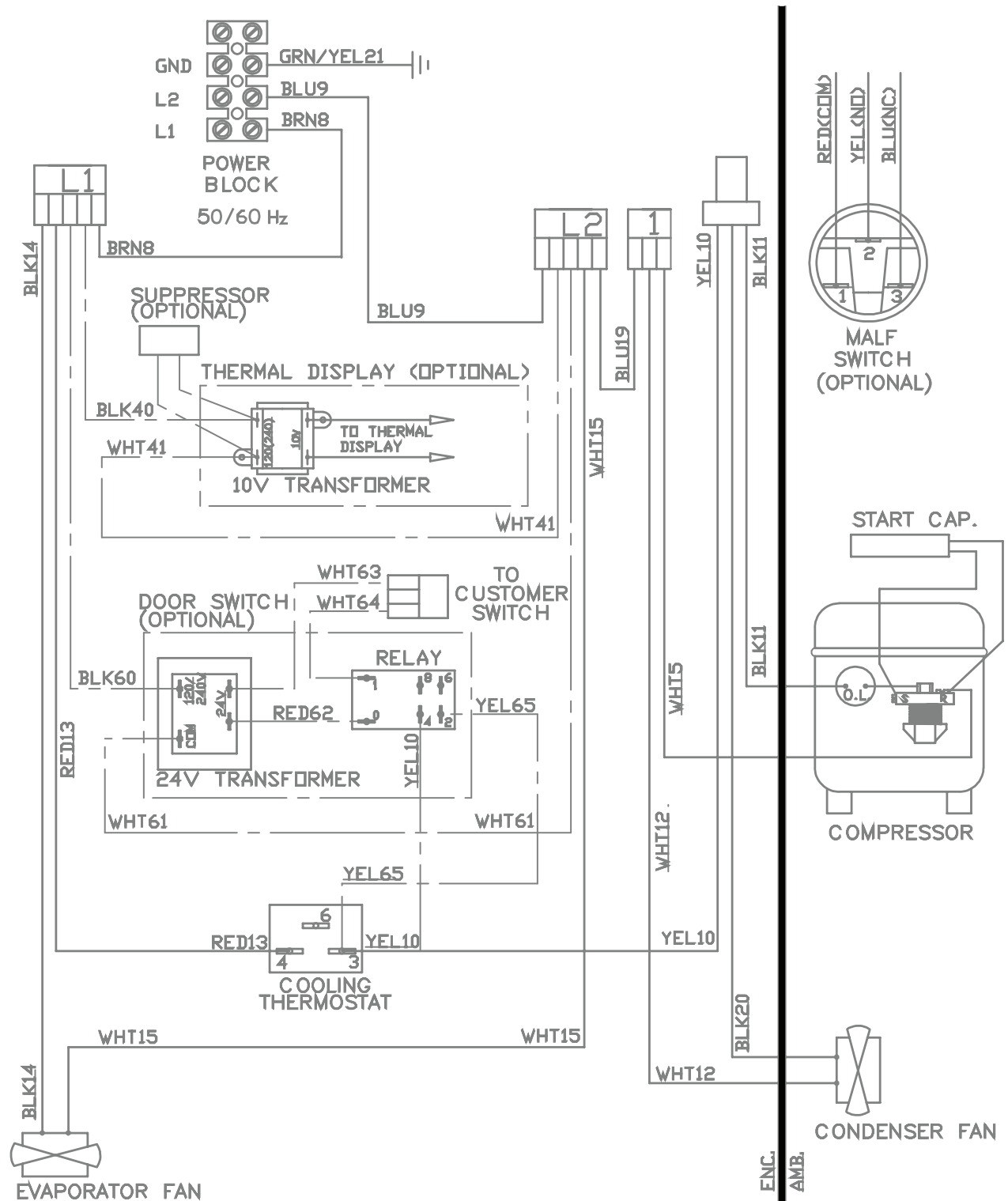
89089557 REV. B

1000 BTU/HR. 115 V/230 V Generic Wire Schematic (actual unit options may vary)



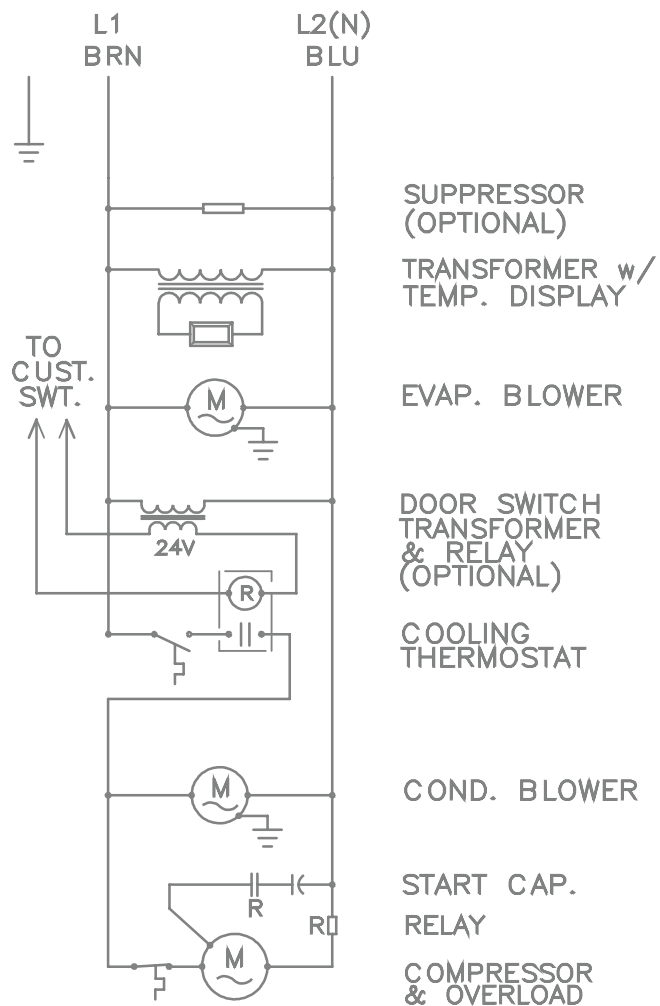
ELECTRICAL SCHEMATIC
89089565 REV. B

2000 BTU/HR. 115 V/230 V Generic Wire Diagram (actual unit options may vary)



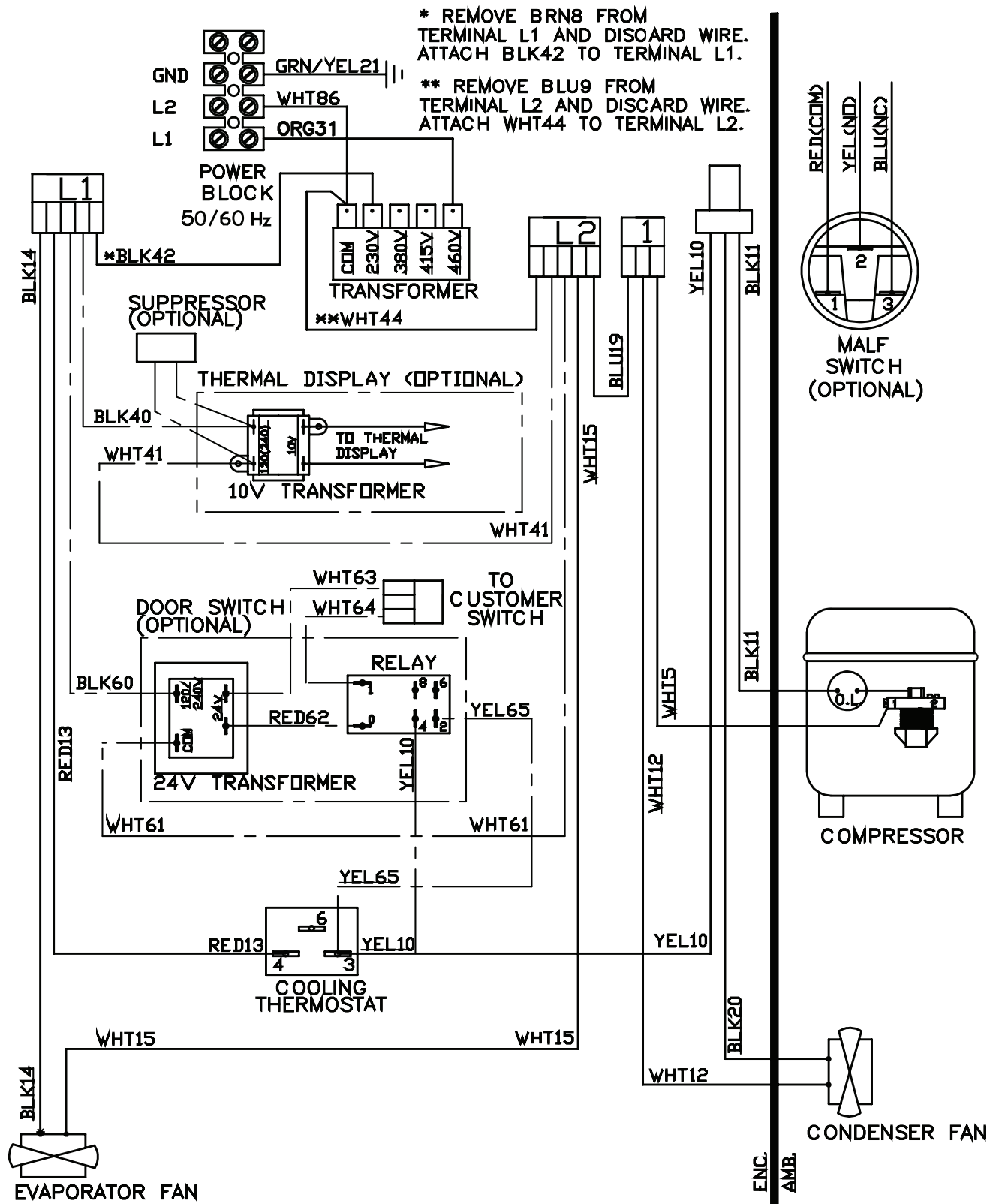
89089558 REV. C

2000 BTU/HR. 115 V/230 V Generic Schematic (actual unit options may vary)



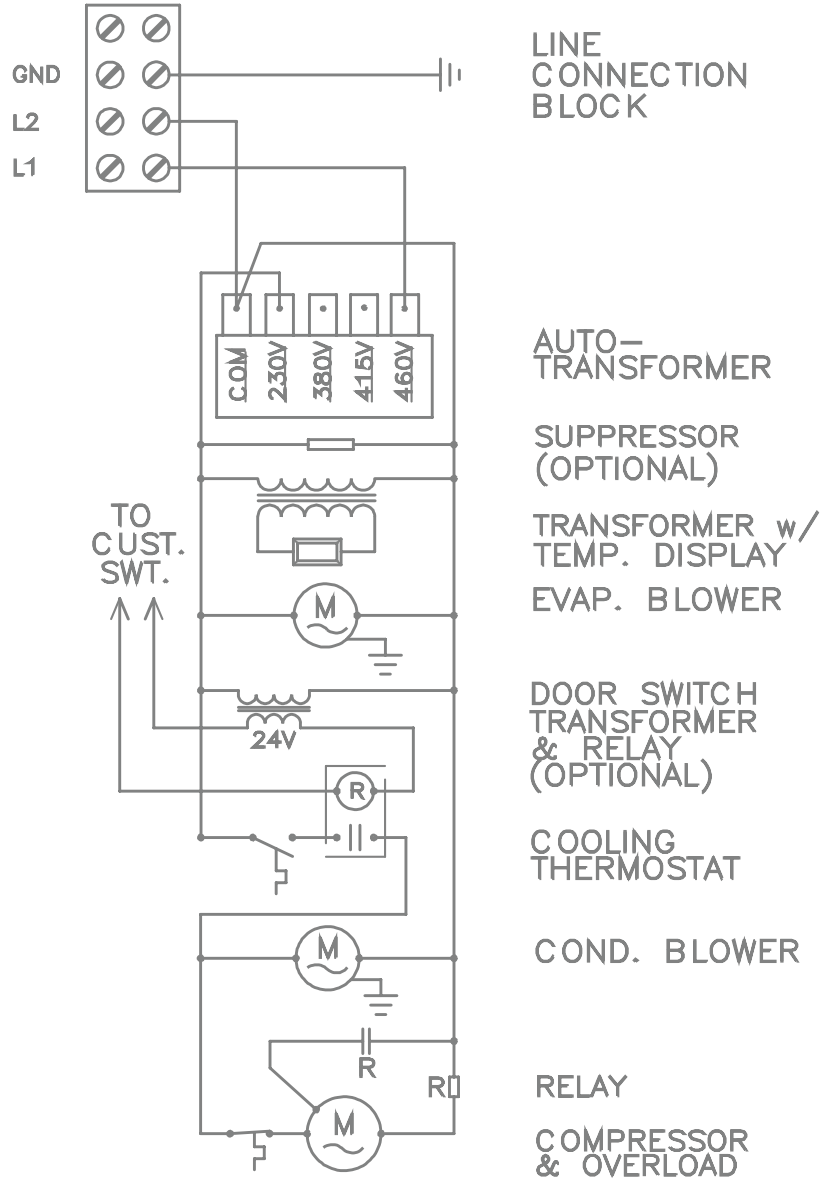
ELECTRICAL SCHEMATIC
89089562 REV. B

1000 BTU/HR. 460 V Generic Wire Diagram (actual unit options may vary)



89089559 REV. E

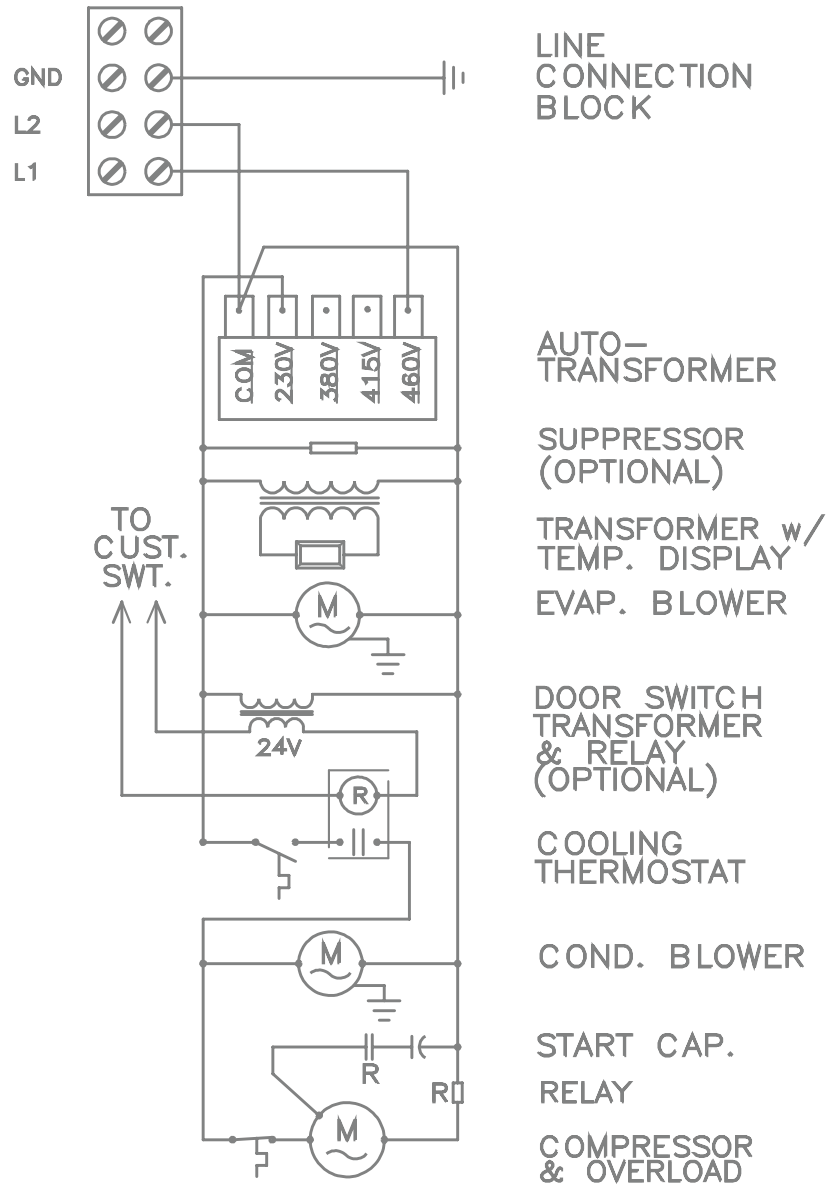
1000 BTU/HR. 460 V Generic Schematic (actual unit options may vary)



ELECTRICAL SCHEMATIC
89089563 REV. C

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2000 BTU/HR. 460 V Generic Schematic (actual unit options may vary)



ELECTRICAL SCHEMATIC
89089564 Rev.D

COMPONENTS LIST

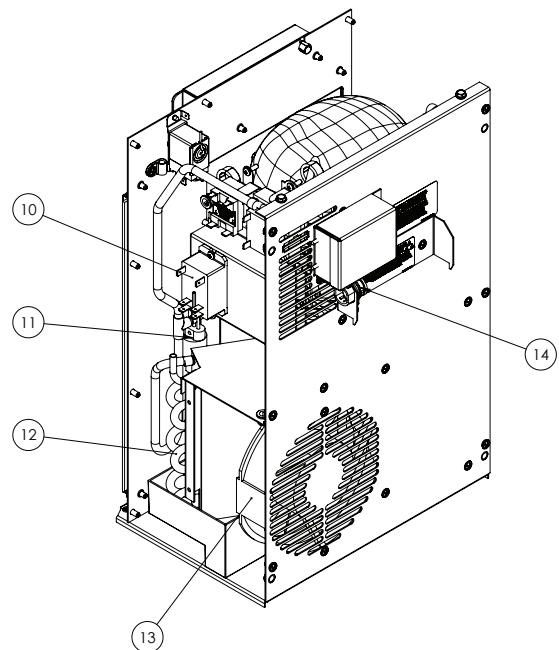
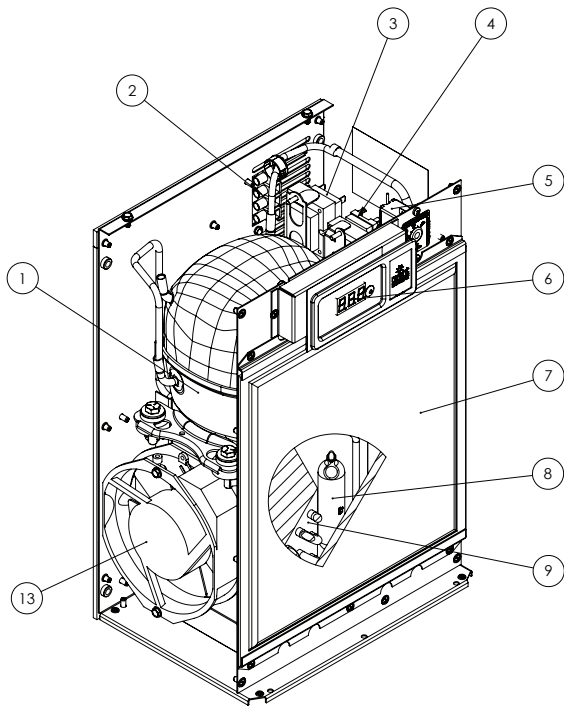
Part Description	N170116GXXX 115 V 1-Phase 50/60 Hz 1025 BTU	N170126GXXX 230 V 1-Phase 50/60 Hz 1184 BTU	N170146GXXX 460 V 1-Phase 50/60 Hz 1184 BTU
Capacitor, Compressor, Start	NA	NA	NA
Compressor	89109065SP	89109066SP	89109066SP
Fan, Condenser	12101201SP	12101202SP	12101202SP
Fan, Evaporator	12101201SP	12101202SP	12101202SP
Relay, Compressor Start	89117321SP	89117322SP	89117322SP
Overload, Compressor	89117325SP	89117326SP	89117326SP
Transformer, Input Power	NA	NA	101006149SP
Transformer, Door Switch (Optional)	10100694SP	101006115SP	101006115SP
Transformer, Display (Optional)	101006114SP	10100693SP	10100693SP

Part Description	N170216GXXX 115 V 1-Phase 50/60 Hz 1776 BTU	N170226GXXX 230 V 1-Phase 50/60 Hz 1727 BTU	N170246GXXX 460 V 1-Phase 50/60 Hz 1727 BTU
Capacitor, Compressor, Start	89111993SP	89117017SP	89117017SP
Compressor	89108747SP	89108748SP	89108748SP
Fan, Condenser	12101201SP	12101202SP	12101202SP
Fan, Evaporator	12101201SP	12101202SP	12101202SP
Relay, Compressor Start	89111992SP	89111995SP	89111995SP
Overload, Compressor	89111994SP	89111997SP	89111997SP
Transformer, Input Power	NA	NA	101006111SP
Transformer, Door Switch (Optional)	10100694SP	101006115SP	101006115SP
Transformer, Display (Optional)	101006114SP	10100693SP	10100693SP

PARTS LIST

Part	Description	Part No.
1	Compressor	See Components List
2	Terminal Block	10-1003-06 or 10-1003-04 (N170116G201 and N170216G201)
3	Transformer, Door Switch (Optional)	See Components List
4	Transformer, Display (Optional)	See Components List
5	Thermostat, SPDT, 55-100F	10106116SP
6	Temperature Display (Optional)	89111915SP
7	Inlet air filter, reusable aluminum	89084988SP
8	Filter, Drier, Refrigerant	52602803SP
9	Coil, Condenser	89088819SP
10	Relay	10100536SP
11	Switch, Malf (Optional)	89090315
12	Coil, Evaporator	17-1002-01SP or 17-1002-01HE (N170126G013)
13	Fan, Condenser	See Components List
14	Strain Relief	38-2023-12
15	Gasket, Mounting**	89114952SP

Note: **Mounting gasket not shown



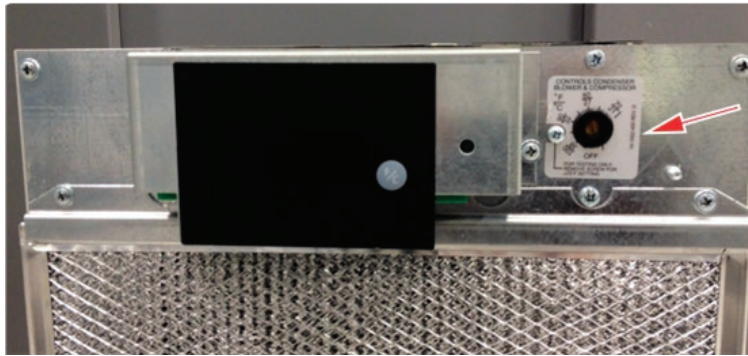
TECHNICAL INFORMATION

Design Data

Model	Voltage	Hz	Phase	MOPD Amps	Full Load Cooling Amps	BTU/Hr @ Max Ambient Temperature	Max Ambient Temperature °F/°C	Shipping Weight lb/kg
N170116GXXX	110/115	50/60	1	15	4.4/4.4	908/1025	131/55	50/23
N170126GXXX	220/208-230	50/60	1	15	2.7/2.7	969/1184	125/52	66/30
N170146GXXX	400/460	50/60	1	15	1.2/1.2	969/1184	125/52	50/23
N170216GXXX	110/115	50/60	1	15	7.0/7.0	1398/1776	125/52	54/25
N170226GXXX	220/208-230	50/60	1	25	3.1/3.1	1513/1727	125/52	54/25
N170246GXXX	400/460	50/60	1	15	2.0/2.0	1513/1727	125/52	73/33

SEQUENCE OF OPERATION

The air conditioner comes standard with an internally mounted thermostat. The front cover must be removed in order to gain access to the thermostat which is located to the right of the LCD display as shown below.



Cooling

When the enclosure temperature is above the cooling thermostat setpoint, power is applied through the thermostat and the compressor is then energized. The condenser fan will start immediately. Component specific information is listed below.

Operating the air conditioner below the minimum ambient temperature or above the maximum ambient temperatures indicated on the nameplate voids all warranties. DO NOT set the enclosure thermostat to a temperature lower than 70°F. Doing so can increase the likelihood of frost buildup on the evaporator coil. For optimal operation, and energy conservation, set the thermostat to the highest temperature that the enclosure equipment is rated to.

The moisture that the enclosure air can contain is limited. If moisture flows from the drain tube continuously this can only mean that ambient air is entering the enclosure. Be aware that frequent opening of the enclosure's door admits humid air that the air conditioner must then dehumidify.

STANDARD AND OPTIONAL COMPONENT OPERATION

Thermostat

The thermostat setpoint equals the temperature that the air conditioner turns off. The thermostat has a 10 °F differential from setpoint until it calls for cooling. An example of operation is shown below.

FOR COOLING (75-100°F RANGE):

- Thermostat setpoint = 80°F
- Cooling turns on at 90°F
- Cooling turns off at 80°F

460 V to 230 V Transformer (N170X46GXXX Only)

The 230 V from this transformer powers the compressor, fans and optional transformers.

230 V to 10 V Transformer (Optional)

This transformer powers the temperature display only.

230 V to 24 V Transformer And Relay (Optional)

The transformer and relay are used to operate the condenser blower and compressor by using a customer supplied, remote mounted door switch. This is not a safety door switch, but rather, only helps to reduce condensation at the evaporator coil if the door is opened. The unit will remain electrified when the door switch is operated with the evaporator fan continuing to operate, and potentially, if temperatures are low enough, the heater may continue to operate on outdoor models.

MAINTENANCE

Performing preventative maintenance (PM) helps to keep your nVent HOFFMAN AC unit operating at the highest most efficient levels. Maintenance should be performed at least twice a year, more frequently when in challenging conditions, such as dusty, high humidity, high heat, oily or corrosive environments.

Product failures due to lack of maintenance may impact warranty coverage.

Compressor

The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service. Visually inspect the compressor for proper operation, mounting, visible signs for exposure to high heat.

Should the refrigerant charge be lost, recharging ports (access fittings) on the suction and discharge sides of the compressor are provided for recharging and/or checking suction and discharge pressures.

Under no circumstances should the access fitting covers be loosened, removed or tampered with unless authorized refrigeration repair service personnel.

Breaking of seals on compressor access fittings during warranty period will void warranty on hermetic system. Recharging ports are provided for the ease and convenience of certified refrigeration repair service personnel for recharging the air conditioner.

Inlet air filter

This air conditioner was designed with a dust resistant condenser coil. This allows it to be run filterless in most applications. The air conditioner is shipped with a filter in place for your convenience. For filterless operation, simply remove the filter. Should you decide the filter is necessary in your application, regular maintenance to clean this filter will assure normal operation of the air conditioner. The easily removable inlet air filter is located inside the filter slot opening in the front cover. If necessary filter maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

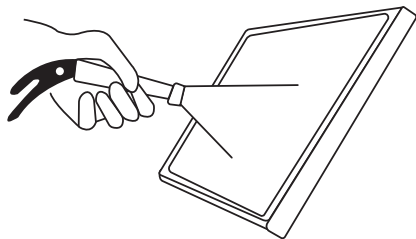
If the compressor's operating temperature increases above designed conditions due to a dirty or clogged filter (or plugged condenser coil), the air conditioner's compressor will stop operating due to actuation of the thermal overload cut-out switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switch's cut-in setting, the compressor will restart automatically. However the above condition will continue to take place until the filter or coil has been cleaned. It is recommended that power to the air conditioner be interrupted intentionally when abnormally high compressor operating temperature causes automatic shut-down of the unit. The above described shut-down is symptomatic of a clogged or dirty filter, thus causing a reduction in cooling air flow across the surface of the compressor and condenser coil.

How to remove, clean or install a new inlet air filter

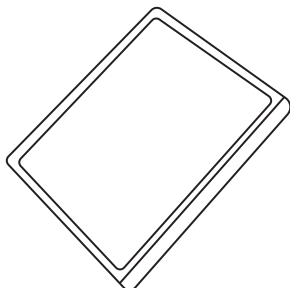
Research Products (RP) aluminum washable air filters are designed to provide excellent filtering efficiency with a high dust holding capacity and a minimum amount of resistance to air flow. Since they are constructed entirely of aluminum, they are lightweight and easy to service. Optimum filter performance is maintained by recoating the filters after washing with RP Super Filter Coat adhesive. To achieve maximum performance from your air handling equipment, air filters should be cleaned on a regular basis.

The inlet air filter is located inside the filter slot opening in the front cover. To access the filter, pull from the slot. The filter may now be cleaned or a new filter installed.

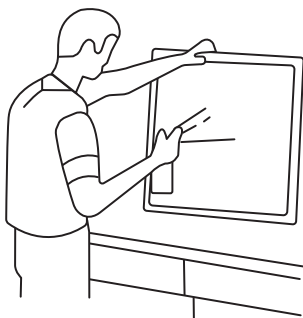
Cleaning Instructions:



1. Flush the filter with warm water from the exhaust side to the intake side.
Do not use caustics.



2. After flushing, allow filter to drain. Placing it with a corner down will assure complete drainage.



3. Recoat the filters with RP Super Filter Coat adhesive. When spraying filter do so from both sides for maximum concentration of adhesive.

CONDENSER AND EVAPORATOR AIR MOVERS

Fan motors require no maintenance. All bearings, shafts, etc. are lubricated during manufacturing for the life of the motor.

CAUTION

Operation of the air conditioner in areas containing airborne caustics or chemicals can rapidly deteriorate filters, condenser coils, blowers and motors, etc. Contact nVent Equipment Protection for special recommendations.

REFRIGERANT LOSS

Each air conditioner is thoroughly tested prior to leaving the factory to insure against refrigeration leaks. Shipping damage or microscopic leaks not found with sensitive electronic refrigerant leak detection equipment during manufacture may require repair or recharging of the system. This work should only be performed by qualified professionals, generally available through a local, reputable air conditioning repair or service company.

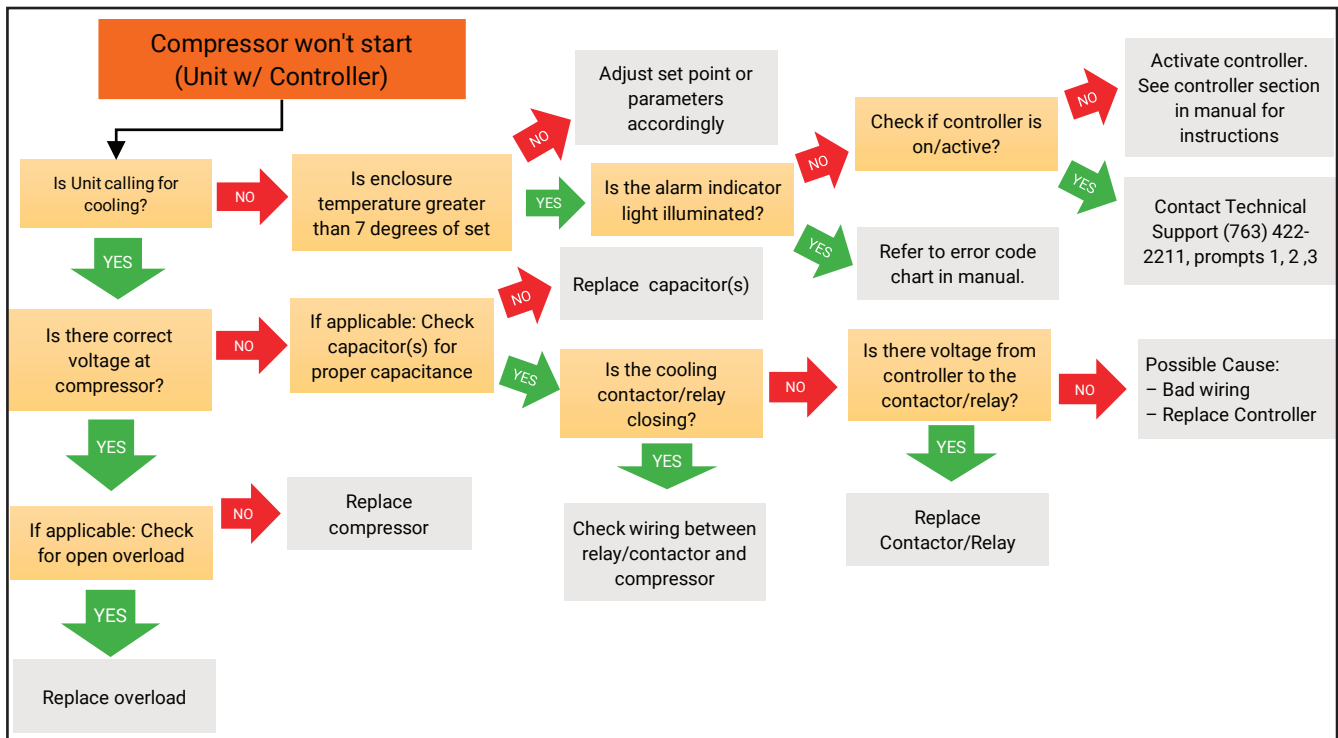
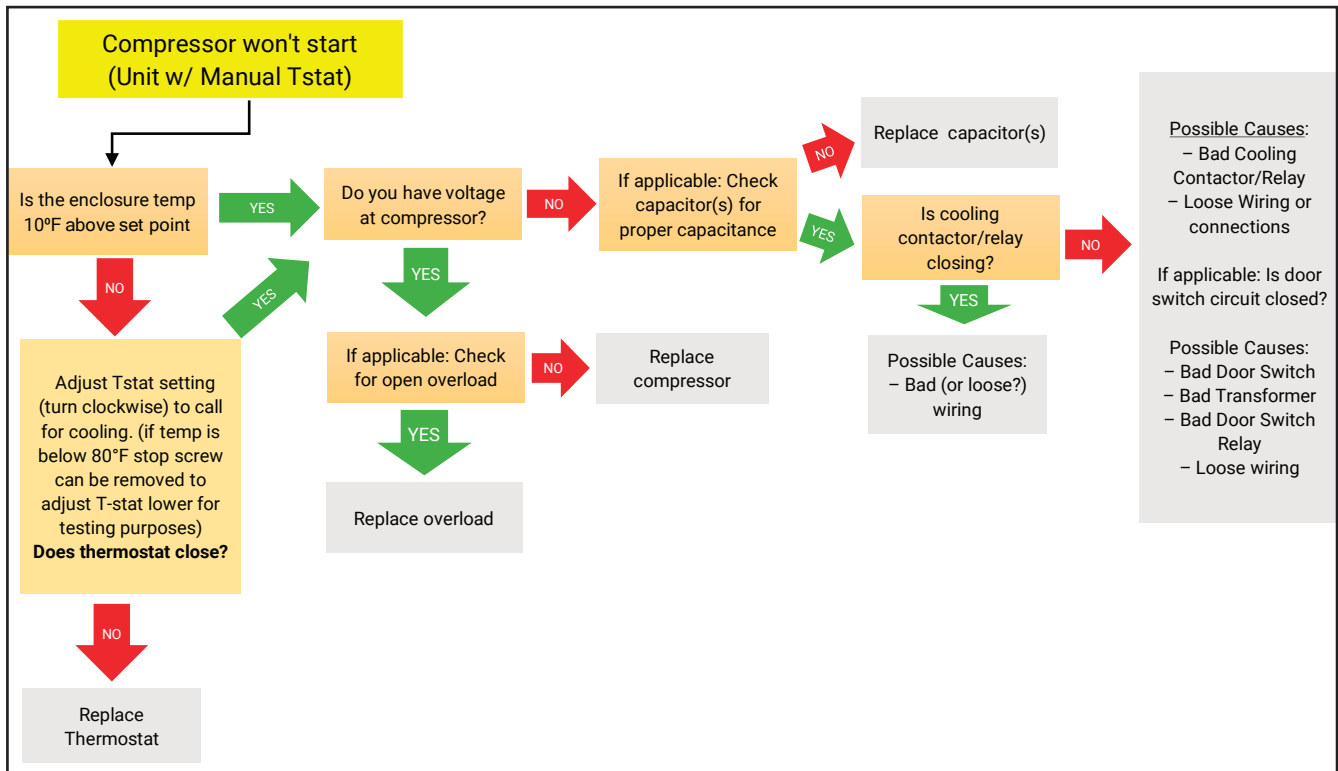
Refer to the data on the nameplate which specifies the type of refrigerant and the charge size in ounces.

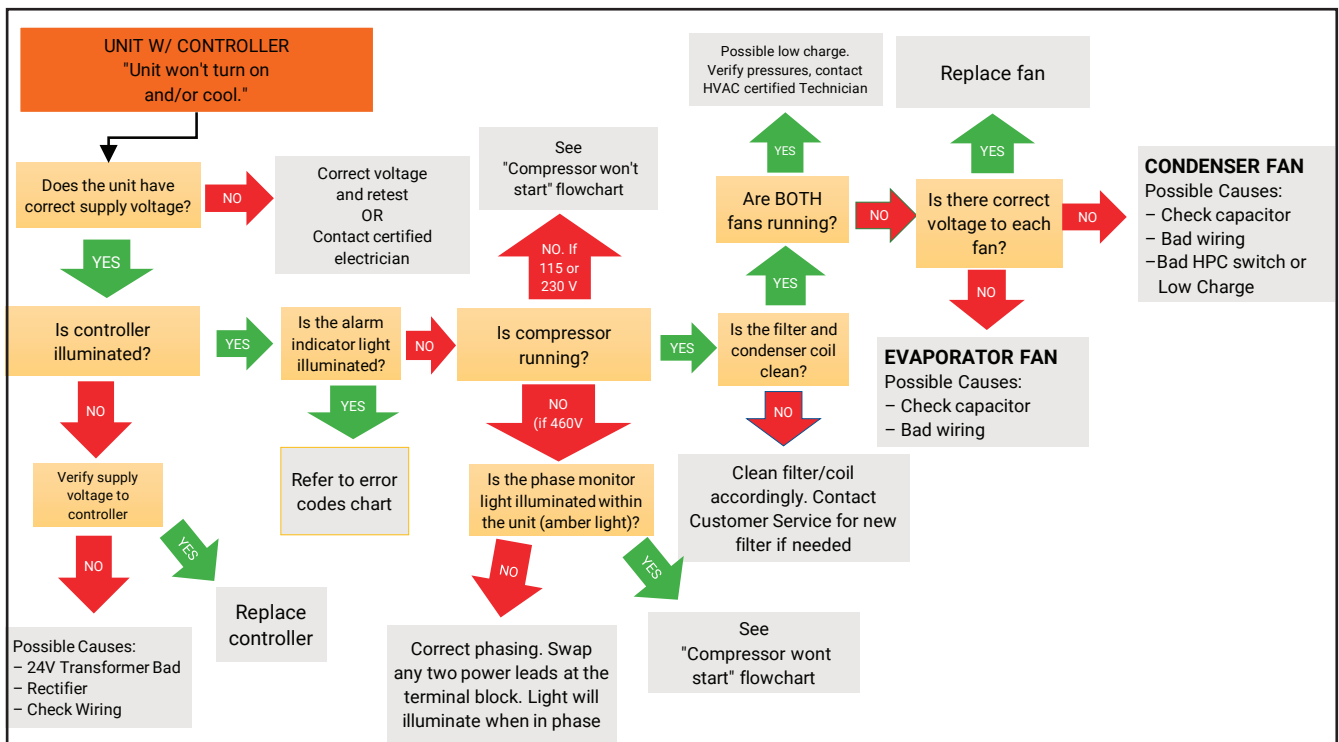
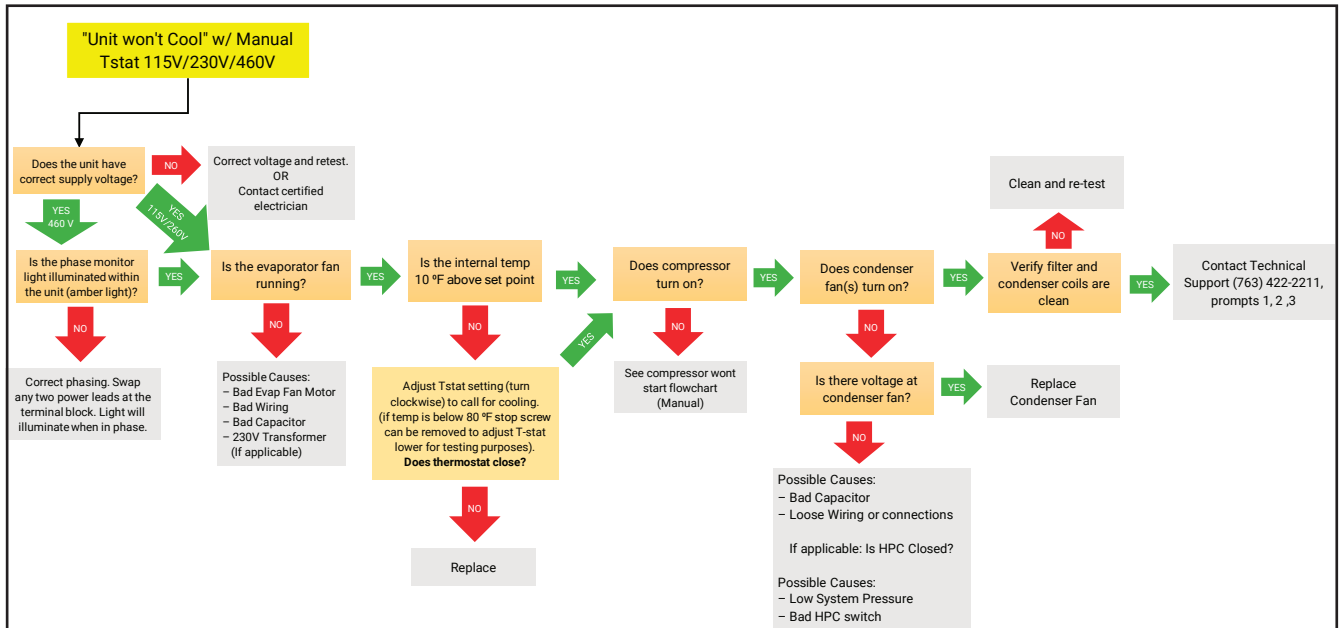
Before recharging, make sure there are no leaks and that the system has been properly evacuated into a deep vacuum.

PREVENTATIVE MAINTENANCE/INSPECTION

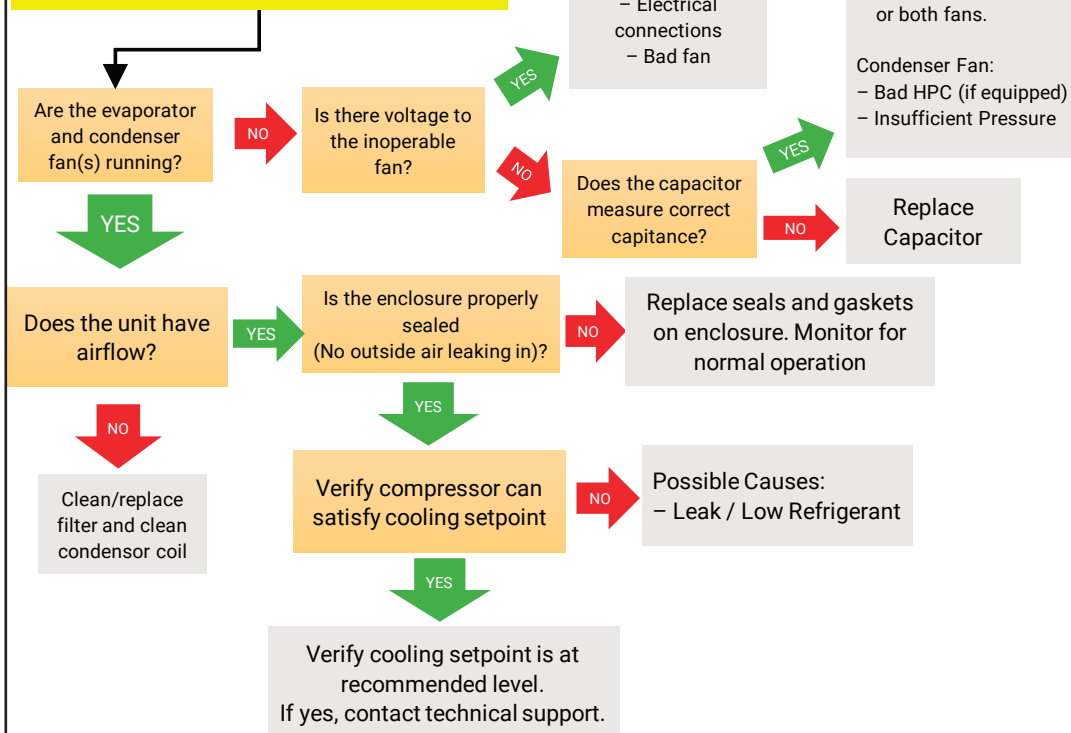
Maintenance/Inspection Recommendations (Perform at least 2 times per year – more frequently as required by operational environment)		Last Completed			
Check Point	Description	Date	Date	Date	Date
Operational Inspection	Run unit through all modes of operation and record temperatures, voltages, and amperes Comments:				
Visual Inspection	Visually inspect unit for damage, cleanliness, missing, loose, or broken parts Comments:				
Filter Maintenance	Inspect, clean, and replace filter as necessary Comments:				
Clean Unit	Inspect and clean coils, fans/blowers, louvers, air inlets/outlets, interior and exterior of unit as required Comments:				
Controller Cycle Sequence	Cycle the controller through all modes of operation to ensure proper cycling and temperature setpoint operation. Adjust to proper setting (Typically 25°–30°) Comments:				
Air Flow and Circulation	Inspect AC unit, cabinet, and surrounding area to ensure adequate airflow to and from the unit on both the inlet and outlet air channels for the ambient and cabinet air Comments:				
Seals, Gaskets, and Leaks	Inspect and repair the seals, gaskets, and access holes around the unit and/or cabinet that show signs of leaking air and/or moisture Comments:				
Condensate and Drains	Inspect and clean the condensate pans and drains to ensure proper drainage and dissipation of moisture Comments:				
Electrical/Wiring	Inspect for loose, damaged, corroded, or chaffing wiring and connections. Tighten, insulate, or tie-up wires as required Comments:				
Options and Accessories	Check operation and functionality of optional and accessory items such as digital display/controller, door switches, alarm switches, air baffles/deflectors, etc. Comments:				
Refrigeration System	Inspect refrigeration tubing/lines for signs of leaks, rubbing, corrosion, or damage. Check the compressor for proper operation, mounting, and visible signs of exposure to high heat Comments:				
Maintenance Records	Update maintenance records on the unit and in the management system Comments:				

TROUBLE SHOOTING

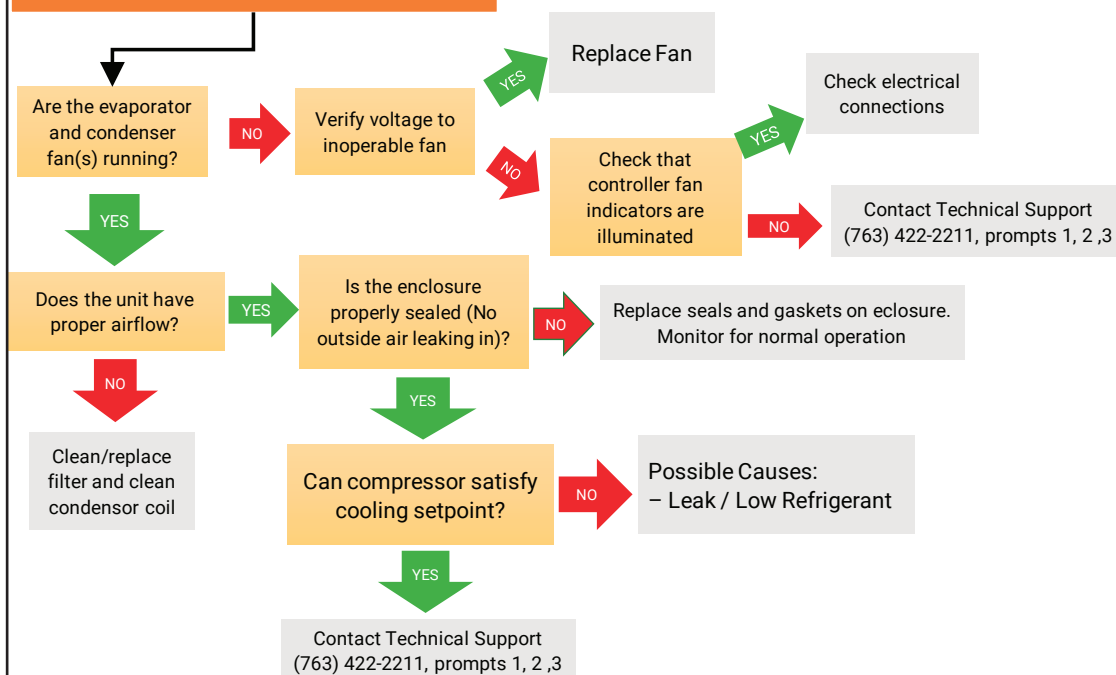




Evaporator Coils Freezing (Unit w/ Manual Tstat)



Evaporator Coils Freezing (unit with controller)



Unit Tripping

Does breaker trip
instantaneously?

YES

Check power connections and
components for possible short circuit.
Verify correct power supply.

NO

Does breaker trip when
Compressor comes on?

YES

Is the compressor
shorted to ground?

YES

Replace Compressor

NO

Check electrical connections
and component amp draw

NO

Are fuse / breaker the correct
type and sized accordingly?

YES

Check electrical
connections and
component amp draw.

NO

Replace fuse or breaker
with correct type and size

Water in the enclosure

Is condensate drain
plugged/restricted?

YES

Unplug/remove
restriction

NO

Is cabinet properly sealed?
(door gaskets, conduit
openings, mounting gaskets,
etc..)

YES

Is unit icing up?

YES

See Evaporator coils
freezing up flowchart.

NO

Properly seal cabinet

NO

Contact Tech Support
763-422-2211 ext 1-2-3

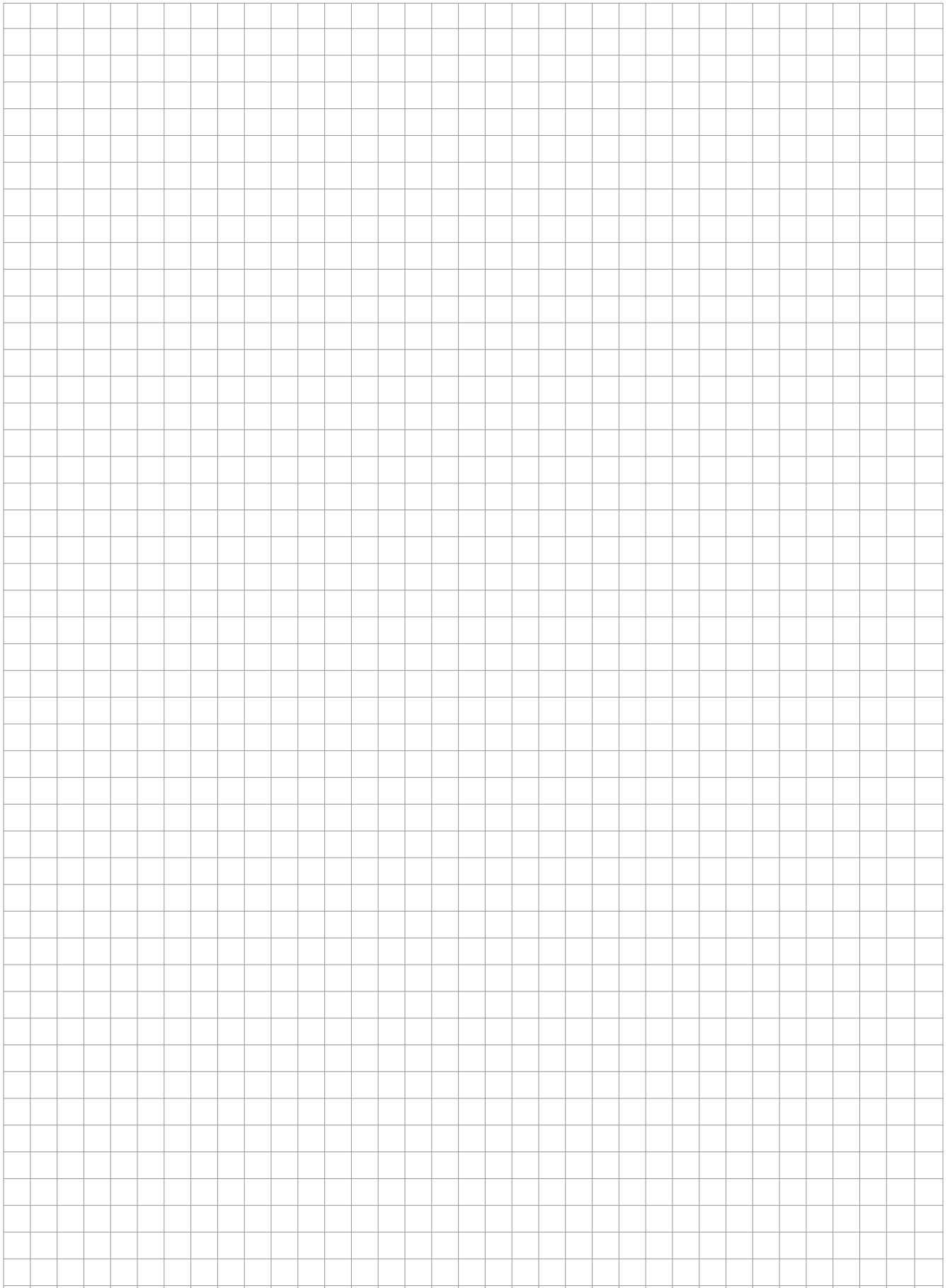
For additional technical support:

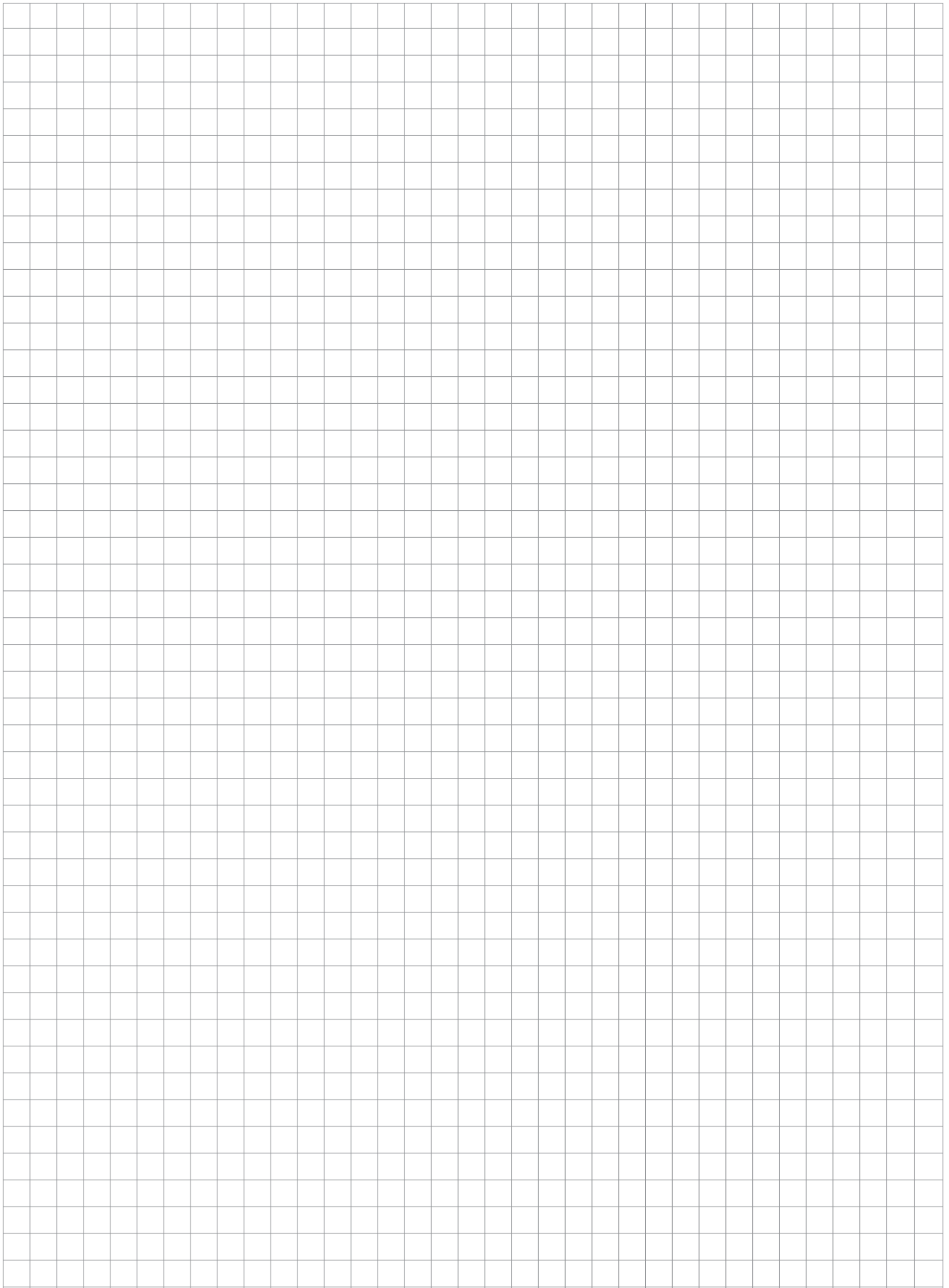
- Call 763-422-2211 or
- Email cooling.service@nVent.com or
- Download Field Service Request (FSR) from:
<http://HOFFMAN.nVent.com/en-us/cooling-field-service-request>

F-GAS INFORMATION

	N170116GXXX	N170126GXXX N170146GXXX	N170216GXXX	N170226GXXX N170246GXXX
Refrigerant Kühlmittel Chłodziwo	R513A	R513A	R513A	R513A
GWP	573	573	573	573
Factory Charge	184 Grams	142 Grams	156 Grams	154 Grams
Füllmenge durch Hersteller	184 Gramm	142 Gramm	156 Gramm	154 Gramm
Opłata Fabryczna	184 Gramów	142 Gramów	156 Gramów	154 Gramów
CO ₂ Equivalent	0.11 Tons	0.08 Tons	0.09 Tons	0.09 Tons
CO ₂ Equivalent	0,11 Tonnen	0,08 Tonnen	0,09 Tonnen	0,09 Tonnen
CO ₂ Ekwilalent	0,11 Tony	0,08 Tony	0,09 Tony	0,09 Tony







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