



T-SERIES

AIR CONDITIONER

T62 MODEL

INSTRUCTION MANUAL

TABLE OF CONTENTS

RECEIVING THE AIR CONDITIONER.....	3
HANDLING AND TESTING THE AIR CONDITIONER.....	3
INSTALLATION INSTRUCTIONS.....	4
Design Data.....	4
How to Read Model Numbers.....	4
Dimensional Drawing.....	5
Mounting Cutout Dimensions.....	5
TECHNICAL INFORMATION.....	6
Sequence of Operation.....	6
Heating.....	6
Cooling.....	6
Standard and Optional Component Operation.....	6
Thermostat.....	6
Dual Pressure Control.....	6
Time Delay Relay.....	6
Head Pressure Control.....	6
Contactor.....	7
Transformer.....	7
Refrigerant Properties Chart (R407c).....	7
Unit Characteristics.....	8
Functional Data.....	8
Wire Diagram.....	9
SERVICE DATA.....	10
Component List.....	10
MAINTENANCE.....	11
Compressor.....	11
Condenser and Evaporator Blower Motors.....	11
Refrigerant Loss.....	11
TROUBLE SHOOTING.....	12
Basic Air Conditioning Trouble Shooting Check List.....	12
Symptoms and Possible Causes:.....	13
WARRANTY.....	14
RETURN AND REPAIR POLICY.....	14
LIMITATION OF LIABILITY.....	15

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.

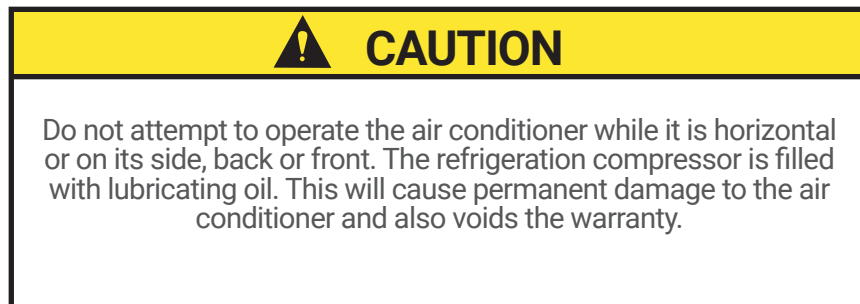
RECEIVING THE AIR CONDITIONER

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.



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

Refer to the nameplate for proper electrical current requirements, and then connect the power cord to a properly grounded power supply. Minimum circuit ampacity should be at least 125% of the amperage shown in the design data section for the appropriate model. 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.

Condenser air temperatures should be warmer than normal room temperatures within a few minutes after the condenser air blower starts.

The compressor is provided with automatic reset thermal overload protection. This thermo-switch is located and mounted inside the plastic enclosure clipped to the compressor. The switch operates when the compressor overheats due to clogged or dirty inlet air filter or if ambient air temperatures exceed nameplate rating or if enclosure dissipated heat loads exceed the rated capacity of the air conditioner. The thermal overload switch will actuate and stop compressor operation. The blowers will continue to operate and the compressor will restart after it has cooled to within the thermal overload cut-in temperature setting.

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 mounting gasket kit provided with the unit, install gaskets to the air conditioner. See Mounting Cutout Dimensions on page 5 of this manual.
3. Mount air conditioner on enclosure taking 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.
4. Allow unit to remain upright for a minimum of five (5) minutes before starting. Caution! Air conditioner must be in upright position during operation.
5. Refer to the nameplate for electrical requirements. Wire the unit to a properly grounded power supply. Electrical circuit should be fused with slow blow or HACR circuit breaker.
6. The air conditioner requires a remote mounted thermostat and has an alarm feature. Wire the thermostat and alarm outputs to the appropriate terminals on the 24VAC terminal strip (note locations on the wiring diagram).
7. Set thermostat for required cabinet temperature. See Standard and Optional Component Operation on page 6.

DESIGN DATA

Model	Voltage	Hz	Full Load Amps	Phase	BTU/Hr. @ Max Ambient Temperature	Max Ambient Temperature (°F/°C)	Shipping Weight (lb./kg)
T6222263XXX	230	50/60	15.4/17.0	1	20,500/23,500	131/55	218/99.1

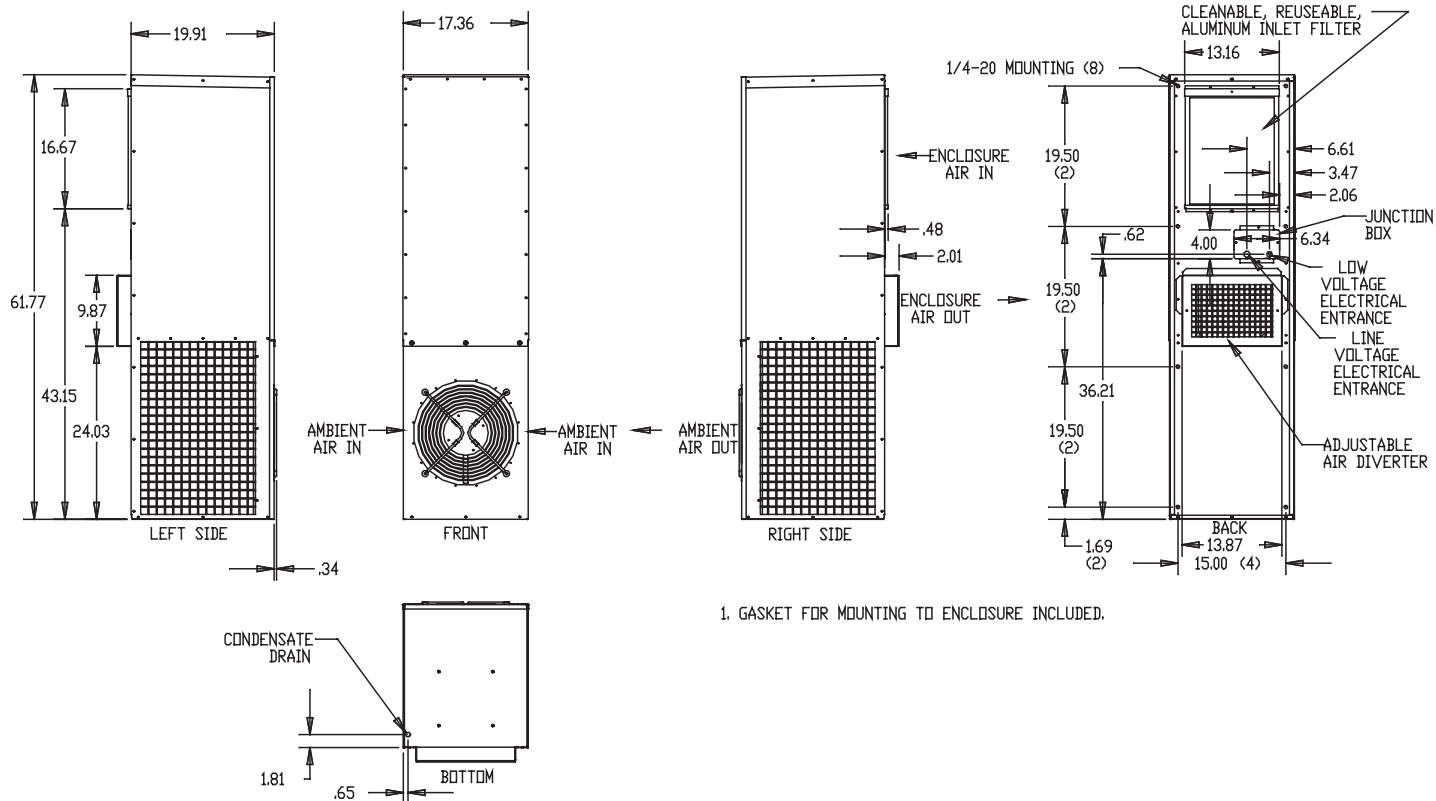
-XXX will be replaced with a three-digit number designating all desired options. Consult the factory for specific model numbers.

HOW TO READ MODEL NUMBERS

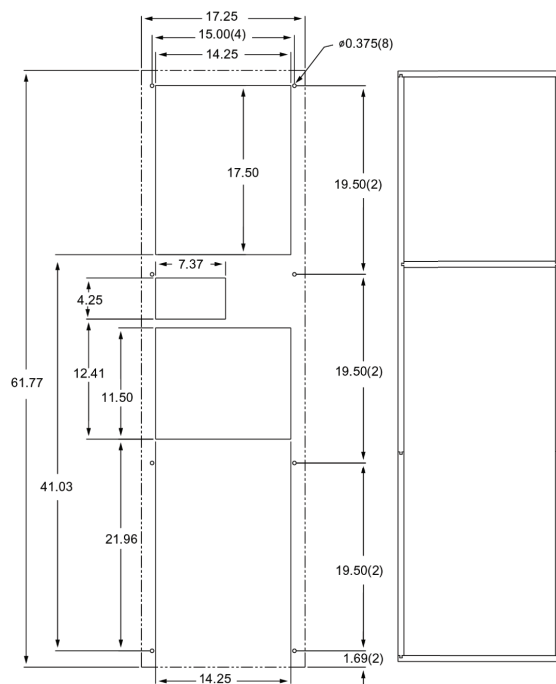
T62	-	22	2	6	-	G150
1	-	2	3	4	-	5

1. Identifies the type/family of air conditioner and the approximate height (i.e. T62 = Outdoor family about 62" high).
2. This is the air conditioner's listed capacity in Btu/hr at rated conditions. (i.e. 22 = 22,000 BTU/Hr. at 131/131 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.

DIMENSIONAL DRAWING



MOUNTING CUTOUT DIMENSIONS



NOTE: Dashed lines represent air conditioner

Mounting Gasket kit, 62-1000-50 included.
Apply gasket to back of air conditioner before mounting to enclosure.

CUTOUT INSTRUCTIONS
(As viewed from outside of enclosure)

TECHNICAL INFORMATION

SEQUENCE OF OPERATION

The air conditioner comes standard with two internally mounted thermostats. There are two modes of operation; heating and cooling. During heating and cooling modes the evaporator fan will be running.

HEATING

When the enclosure temperature is below the heating thermostat setpoint, power is applied to the heaters. When the enclosure temperature is 10 degrees above the setpoint the heater is powered off.

COOLING

When the enclosure temperature is above the cooling thermostat setpoint, power is applied through the dual pressure control, then to the time delay relay. After the delay time the contactor is energized and the compressor starts. The condenser fan will start once the condenser discharge air temperature gets above 70 F. 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.

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 T62 air conditioner uses a 10-1061-16 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 or heating. An example of operation is shown below.

For cooling (75-100 F range):
Tstat setpoint = 75 F
Cooling turns on at 85
Cooling turns off at 75 F

For heating (55-65 F range):
Tstat setpoint = 55 F
Heating turns on at 55 F
Heating turns off at 65 F

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.

DUAL PRESSURE CONTROL

LP cutout 30 psi, HP cutout 520 psi

The dual pressure control will prevent the compressor from operating when the system experiences low pressure (i.e. loss of charge) or high pressure (i.e. a blocked condenser coil). The low pressure cutout is an automatic reset and the high pressure cutout is a manual reset. An optional alarm relay will be activated if this event occurs.

TIME DELAY RELAY

- Factory set for 3 minutes (top dial at 1-10 minutes, bottom dial at 3).
- The purpose of the time delay relay is to prevent short cycling of the compressor.

HEAD PRESSURE CONTROL

- Unit is set at the factory, no adjustment necessary.
- At condenser discharge temperatures below 70 F, the condenser fan is not powered and the LED's are not lit.
- At temperatures between 70-100 F the yellow LED is lit and the fan is being regulated under full speed.
- At temperatures above 100 F the green LED is lit and the fan is operating at full speed.

CONTACTOR

The contactor on this model uses a 230V coil.

TRANSFORMER

The transformer is 24V and is used to power the fan speed control and time delay circuit.

REFRIGERANT PROPERTIES CHART (R407C)

°F	°C	Bubble Pt	Dew Point		°F	°C	Bubble Pt	Dew Point
-40	-40	2.9	4.5		60	15.6	117.7	96.8
-35	-37.2	5.2	0.7		65	18.3	128.7	106.7
-30	-34.4	7.9	1.7		70	21.1	140.2	117.2
-25	-31.7	10.7	4		75	23.9	152.5	128.4
-20	-28.9	13.9	6.5		80	26.7	165.5	140.4
-15	-26.1	17.3	9.3		85	29.4	179.2	153.1
-10	-23.3	21.1	12.4		90	32.2	193.6	166.5
-5	-20.6	25.2	15.8		95	35	208.8	180.8
0	-17.8	29.6	19.5		100	37.8	224.9	195.8
5	-15	34.4	23.6		105	40.6	241.8	211.8
10	-12.2	39.6	28		110	43.3	259.6	228.7
15	-9.4	45.2	32.7		115	46.1	278.2	246.5
20	-6.7	51.3	37.9		120	48.9	297.8	265.3
25	-3.9	57.8	43.6		125	51.7	318.3	285.2
30	-1.1	64.7	49.6		130	54.4	339.9	306.1
35	1.7	72.2	56.2		135	57.2	362.4	328.2
40	4.4	80.2	63.2		140	60	386	351.4
45	7.2	88.7	70.7		145	62.8	410.7	375.9
50	10	97.8	78.8		150	65.6	436.5	401.7
55	12.8	107.5	87.5					

UNIT CHARACTERISTICS

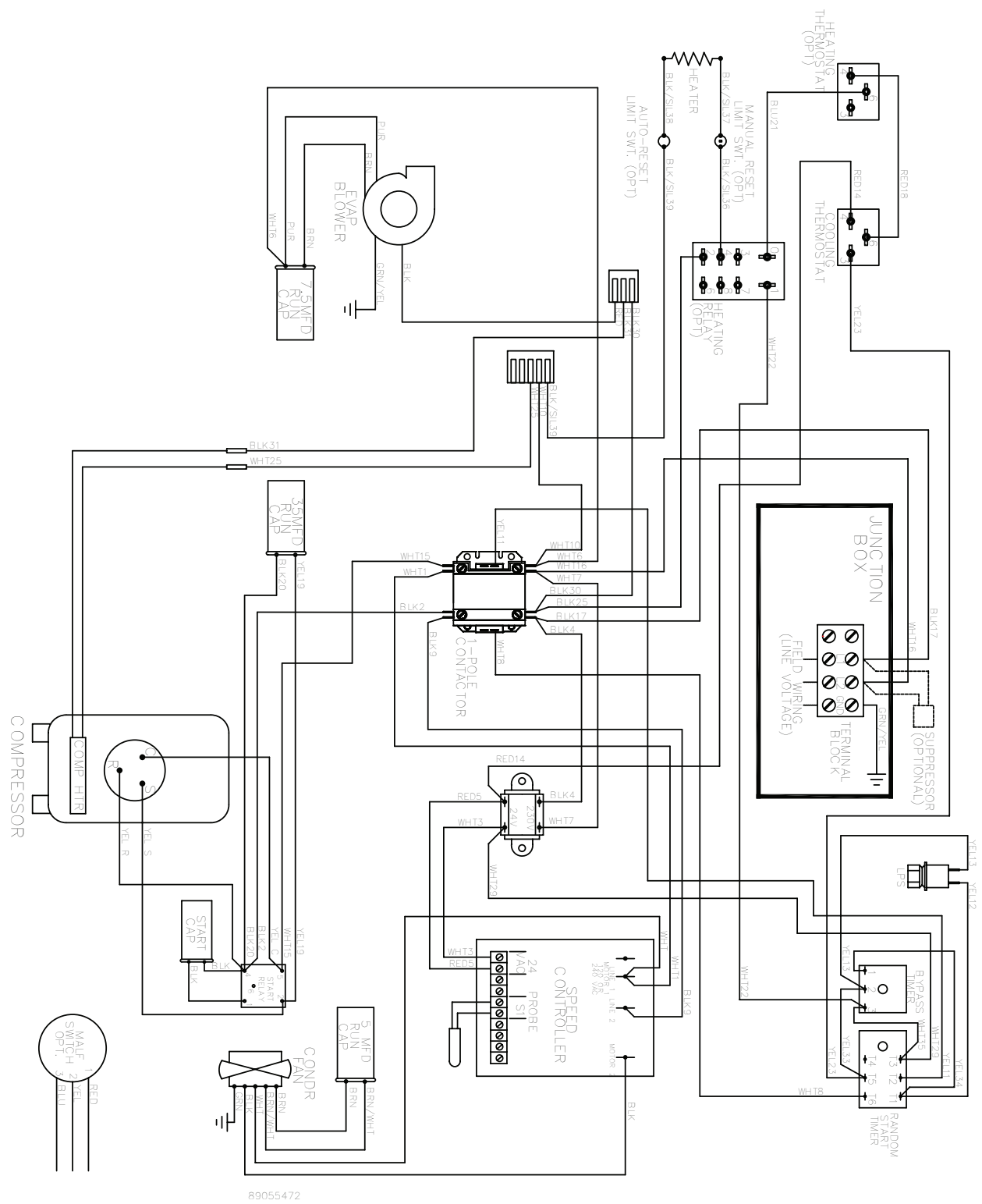
Model	T62-2226-GXXX
Dimensional Data	
Height	61.8 in / 1570 mm
Width	17.4 in / 442 mm
Depth	19.9 in / 505 mm
Unit Weight	218 lbs / 99 kg
Unit Protection Rating	Type 12, 4
Cooling Data	
Refrigerant	R-407c
Refrigerant Charge	42 oz / 1306 g
Cooling Capacity at 95 F enclosure 95 F ambient (Btu/hr / W)	18,550 / 5,432
Cooling Capacity at Max Conditions (Btu/hr / W)	23,930 / 7,007
Maximum Ambient Temp	131 F / 55 C
Minimum Ambient Temp	-40 F / -40 C
Enclosure Airflow	673 cfm
External Airflow	1,797 cfm
Condensate Management	Hose discharge
Heating Data	
Capacity	2,000 W
Electrical Data	
Rated Voltage (50/60 Hz)	200 V / 230 V
Rated Frequency	50 / 60 Hz
Voltage Range	+/-10% of rated
Cooling Amps at Max Conditions (50/60 Hz)	19.0 / 22.0 A
Heating Amps	8.7 A
Compressor RLA / LRA	10.8 / 56 A
Evaporator Fan RLA	1.3 A
Condenser Fan RLA	1.7 A

-XXX will be replaced with a three-digit number designating all desired options. Consult the factory for specific model numbers.

FUNCTIONAL DATA

Evaporator Air In (°F)	Unit Amps	Evaporator Pressure (psi)	Condenser Pressure (psi)	Evaporator Delta (°F)	Condenser Delta (°F)
65-80	10-12	45-75	175-225	15-25	18-28
80-100	11.5-15	60-100	210-320	15-25	18-28

WIRE DIAGRAM



SERVICE DATA

COMPONENT LIST

Part Description	Part Number
Blower Motor, Condenser	10-1020-14
Blower Motor, Evaporator	10-1020-15
Capacitor, Condenser Blower	52-6084-05
Capacitor, Evaporator Blower	52-6084-00
Capacitor, Compressor, Run	52-6032-06
Capacitor, Compressor Start	10-1032-08
Time Delay Relay	10-1005-71
Coil, Condenser	62-1001-00
Coil, Evaporator	62-1001-03
Compressor	89073502
Contact, Compressor	89088986
Controller, Head Pressure	10-1106-108
Evaporator Outlet Filter (Optional)	10-1000-01
Filter/Dryer	52-6028-09
Grille, Condenser fan	13-1014-03
Switch, Dual Pressure	52-6104-59
Thermal Expansion Valve	10-1040-46
Transformer	10-1006-143
Thermostat	10-1061-16

MAINTENANCE

COMPRESSOR

The compressor requires no maintenance. It is hermetically sealed, properly lubricated at the factory and should provide years of satisfactory operating service.

CONDENSER AND EVAPORATOR BLOWER MOTORS

Blower 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 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.

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. 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 reputable refrigeration repair service personnel for recharging the air conditioner.

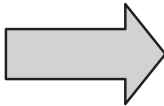
Refer to the data on the nameplate that specifies the type of refrigerant and the charge size in ounces.

NOTE: Before recharging, make sure there are no leaks and that the system has been properly evacuated into a deep vacuum. Technician must weigh in charge according to the nameplate specifications.

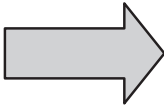
TROUBLE SHOOTING

BASIC AIR CONDITIONING TROUBLE SHOOTING CHECK LIST

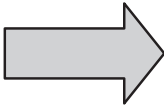
1. Check manufacturer's nameplate located on the unit for correct power supply.
2. Turn on power to the unit. The evaporator (Enclosure or "COLD" air) fan should come on. Is there airflow?

YES, proceed to step 3.		
NO, possible problem:		
<ul style="list-style-type: none">• Open motor winding• Stuck fan motor• Obstructed wheel/blades		Repair or Replace defective part

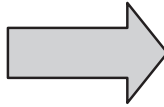
3. Check thermostat setting and adjust thermostat to the lowest setting. This should turn the condenser fan and the compressor on. Did condenser fan and compressor come on when the thermostat was turned on?

YES, proceed to step 4.		
NO, possible problem:		
<ul style="list-style-type: none">• Defective thermostat		Replace Part


4. Are both fans and the compressor running? If not the unit will not cool properly.
5. Check condenser (Ambient or "HOT" air) fan for airflow. Is there airflow?

YES, proceed to step 6.		
NO, possible problem:		
<ul style="list-style-type: none">• Defective thermostat• Open motor winding• Stuck impeller motor• Obstructed wheel/blades		Repair or Replace defective part

6. Carefully check the compressor for operation - motor should cause slight vibration, and the outer case of the compressor should be warm. Is the compressor showing signs of this?

YES, wait 5 minutes, then proceed to step 7.		
NO, possible problem:		
<ul style="list-style-type: none">• Defective thermostat• Defective capacitor• Defective overload• Defective relay		Repair or Replace defective part

7. Make sure the coils are clean. Then check evaporator "air in" and "air out" temperatures. If the temperatures are the same:

<ul style="list-style-type: none">• Possible loss of refrigerant• Possible bad valves in the compressor		Repair or Replace defective part
--	--	---

8. To check for a bad thermostat, turn power to the unit off. Remove the control box cover and place both thermostat wires onto one terminal (replace control box cover for safety). This will activate the switch in the thermostat. Turn the power on and if both fans and the compressor come on, the thermostat needs to be replaced.

SYMPTOMS AND POSSIBLE CAUSES:

SYMPTOM	POSSIBLE CAUSE
Unit won't cool	Clogged fins on coil(s)
	Dirty filter
	Impellers/fans not running
	Compressor not running
	Compressor runs, but has bad valves
	Loss of refrigerant
Compressor tries to start but won't run	Low line voltage at start. Should be +/-10% rated voltage.
	Compressor motor stuck
	Bad contactor
	Bad overload switch
	Bad run/start capacitor
Unit blows breakers	Undersized breaker/fuse or not time delayed
	Short in system
Getting water in enclosure	Drain plugged
	Drain tube kinked
	Enclosure not sealed (allowing humidity in)
	Mounting gasket damaged

For additional technical information (i.e., amp draw, pressures, temperatures) , contact nVent Equipment Protection at 800-896-2665.

WARRANTY

nVent Equipment Protection warrants that the Goods manufactured by nVent Equipment Protection will be free from defects in material and workmanship for a period of one (1) year from the date of shipment by nVent Equipment Protection, subject to the following conditions and exclusions:

- A. Conditions. All Goods must be installed and operated according to the following specifications:
1. Maximum voltage variation no greater than plus or minus 10% of nameplate nominal rating;
 2. Maximum frequency variation no greater than plus or minus 3 Hz. of nameplate nominal rating;
 3. Must not exceed minimum and maximum stated temperatures on the nameplate;
 4. Must not exceed (BTU/Hr) rating, including any heat sink as indicated on the nameplate;
 5. Refrigerant bearing Goods must not be restarted for a period of one (1) minute after intentional or accidental shut-off;
 6. The filters (if applicable) must be cleaned regularly;
 7. The Goods and any parts thereof must not be modified, unless prior written authorization is received from nVent Equipment Protection; and
 8. All Goods must be installed and grounded in accordance with all relevant electrical and safety codes, as well as the National Electric Code and OSHA rules and regulations.
 9. All Goods must be installed in a stationery application, free of vibration.

A violation of any one of these conditions shall render the warranty hereunder void and of no effect.

- B. Exclusions. This warranty shall be void if product is misapplied in any way or:
1. Buyer specified product is inappropriate for system or environment in which it is operating.
 2. nVent Equipment Protection product modified in any way without prior written authorization from nVent Equipment Protection.
 3. Removal or modification of nVent Equipment Protection label affixed to product without written nVent Equipment Protection approval.

nVent Equipment Protection must be notified of a claim in writing not later than fourteen (14) days from the date when Buyer has become aware of such occurrence, or where the defect is such that it may cause damage, immediately, such notice containing a description of how the defect manifests itself. Failure to provide such prompt notice to nVent Equipment Protection shall result in forfeiture of Buyer's rights under this warranty.

In the event of a warranty claim, Buyer is to return defective goods to nVent Equipment Protection in accordance with nVent Equipment Protection Return Policy. Warranty period for repaired goods remains at 1 year from shipment of original goods. nVent Equipment Protection sole obligation to Buyer under this warranty will be, at nVent Equipment Protection option:

- A. Repair or replace nVent Equipment Protection products or parts found to be defective in material or workmanship.
- B. Issue credit for the purchase price paid by Buyer relating to such defective Goods or part.

THIS WARRANTY CONSTITUTES THE ENTIRE WARRANTY WITH RESPECT TO THE GOODS AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY AND IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE.

RETURN AND REPAIR POLICY

nVent Equipment Protection products that: (i) are made to order, (ii) have been modified by Buyer, (iii) have special finishes, or (iv) are determined by nVent Equipment Protection to constitute "custom" products that cannot be returned to stock or resold to other Buyers, will not be accepted for return by nVent Equipment Protection.

All returns require a Return Material Authorization number (RMA #), regardless of reason for return, whether it be for warranty or out of warranty repair. Returns without an RMA # will be refused by our Receiving Department. An RMA # is valid for 60 days.

- A. An RMA # will be issued by our Repair Department in Anoka, MN at 866-545-5252. Buyer should have following information available at time of RMA request:
1. Complete Model Number, Serial Number and description of damaged unit being returned.
 2. Original Buyer Purchase Order number and date product was received by Buyer.
 3. Quantity to be returned and a brief description of failure for each unit, if different.

4. Contact information of Buyer that must include: name of company, billing and shipping address, phone, number, fax number, freight carrier and the name and phone number of a Buyer contact who can elaborate on the claimed defect in detail.
 5. Buyer must provide a Repair Purchase Order number for both warranty and out of warranty repairs. The PO will not exceed 50% of a new unit. Buyer will be notified of repair charges that exceed approved PO amount.
- B. All returns to nVent Equipment Protection must be securely packed, using original cartons if possible. All returns must have the RMA number visible on the outside of the carton. nVent Equipment Protection is not responsible for material damaged in transit. Any refrigerant-bearing Goods must be shipped upright for return.
 - C. Shipping cost for all non-warranty repairs is the responsibility of the sender and must be shipped prepaid. Shipping costs for all warranty related repairs will be covered by nVent Equipment Protection provided the goods are returned using a nVent Equipment Protection approved carrier. If after diagnoses the product is determined by nVent Equipment Protection not be covered under warranty, Buyer will be responsible for all shipping charges and will be billed accordingly.
 - D. Non-warranty repairs are subject to a \$75 minimum analysis fee. Analysis fee will be waived if Buyer approves repair work. If approval is not received within 30 days, material will be scrapped and all shipping expenses and corresponding analysis fees will be billed to Buyer.
 - E. At Buyer's request, Failure Analysis can be provided by nVent Equipment Protection for warrantable goods at no charge. Failure analysis for non-warranty repairs are subject to a \$100 per hour Engineering charge plus any other incurred testing costs.
 - F. All returned merchandise must be sent to the following address: nVent Equipment Protection, 2100 Hoffman Way, Anoka, MN 55303-1745.
 - G. Credit for accepted returns shall be at the original selling price or the current selling price, whichever is lower, less the restocking charge indicated as follows:
 1. Within 60 days of invoice date - 20% of applicable selling price.
 2. Within 61-120 days of invoice date - 30% of applicable selling price.
 3. Within 121-180 days of invoice date - 40% of applicable selling price.
 4. Beyond 180 days - subject to individual review by nVent Equipment Protection.
- If product being returned for credit requires repair or modification, the cost of any labor or material necessary to bring product into saleable condition will be deducted from credit. Buyer may not take credit against returns without prior written nVent Equipment Protection approval.

LIMITATION OF LIABILITY

NVENT EQUIPMENT PROTECTION WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LOST PROFITS OR LABOR COSTS, ARISING FROM THE SALE, USE OR INSTALLATION OF THE GOODS, FROM THE GOODS BEING INCORPORATED INTO OR BECOMING A COMPONENT OF ANOTHER PRODUCT, FROM ANY BREACH OF THIS AGREEMENT OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON WARRANTY (EXPRESSED OR IMPLIED) OR OTHERWISE BASED ON CONTRACT, OR ON TORT OR OTHER THEORY OF LIABILITY, AND REGARDLESS OF ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY NVENT EQUIPMENT PROTECTION CONCERNING THE SALE, USE OR INSTALLATION OF THE GOODS



nVent
2100 Hoffman Way
Anoka, MN 55303 USA
☎ +1.763.422.2211
📠 +1.763.576.3200

nVent.com