AIR CONDITIONER

LOBOY 16 MODEL

INSTRUCTION MANUAL

Rev. K

P/N 10-1008-05

87976427

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WARRANTY AND RETURN POLICY

https://hoffman.nvent.com/en/hoffman/warranty-information

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, 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.

Operate the air conditioner for five (5) to ten (10) minutes. No excessive noise or vibration should be evident during this run period. The condenser blower (ambient air), the evaporator blower (enclosure air), and the compressor should be running.

Condenser air temperatures should be warmer than normal room temperatures within a few minutes.

HOW TO READ MODEL NUMBERS

LB16	10	2	6	G015
1	2	3	4	5

1. Identifies the type/family of air conditioner and the approximate height (i.e. LB16 = LOBOY family about 16” high).
2. This is the air conditioner’s listed capacity in BTU/Hr. at rated conditions. (i.e. 10 = 10,000 BTU/Hr. at 125/125 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.

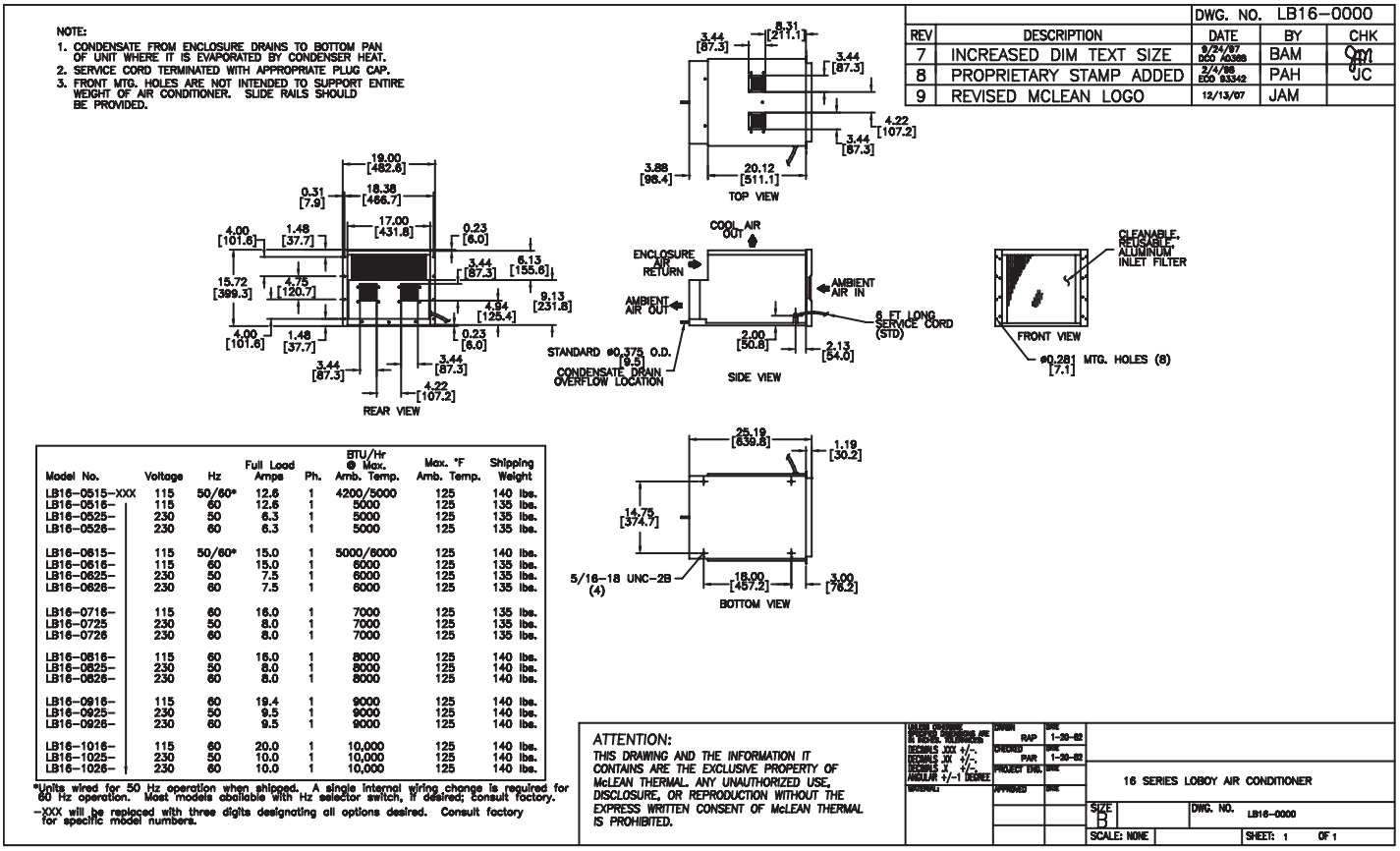
INSTALLATION INSTRUCTIONS

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. Refer to Mounting Cutout Dimensions on page 5 for proper openings of the air conditioner. Using the mounting gasket kit provided with the unit, install gaskets to the air conditioner.
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. To avoid cross-threading mounting inserts, start bolts by hand before tightening with a wrench or ratchet driver.
5. 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 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.
7. Some air conditioners require a remote mounted thermostat. Wire the thermostat outputs to the appropriate terminals on the 24 VAC terminal strip (note locations on the Wire Diagrams on page 7).
8. Set thermostat for required cabinet temperature. Refer to Sequence of Operation on page 6 for thermostat adjustment and operation.

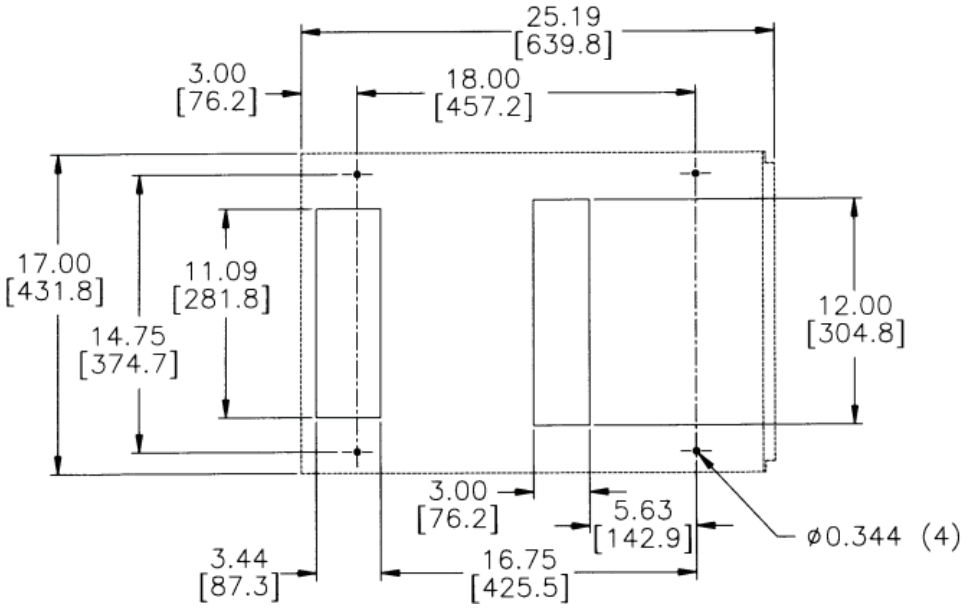
DESIGN DATA

Model	Evaporator Air In (°F)	Condenser Air In (°F)	Unit Amps	Evaporator Pressure (psi)	Condenser Pressure (psi)	Evaporator Delta (°F)	Condenser Delta (°F)	Condenser Subcooling (°F)
LB16-1026-GXXX	65-95	65-95	7.0-8.0	---	---	18-25	---	---

DIMENSIONAL DRAWING



MOUNTING CUTOUT DIMENSIONS



CUTOUT INSTRUCTIONS (5 Ton)

NOTE: Dashed lines represent air conditioner.

UNIT CHARACTERISTICS

Part Description	Model
	LB16-1026-GXXX
Dimensional Data	
Height (in./mm)	15.75 / 400
Width (in./mm)	19.00 / 483
Depth (in./mm)	25.20 / 640
Unit Weight (lb./kg)	140 / 64
Unit Protection Rating	Type 12, 4
Cooling Data	
Refrigerant	R-407c
Refrigerant Charge	25 oz. / 709 g
Cooling Capacity at 95 F enclosure 95 F ambient (Btu/hr / W)	8343 / 2445
Cooling Capacity at Max Conditions (Btu/hr / W)	9038 / 2649
Maximum Ambient Temp	125 F / 52 C
Minimum Ambient Temp	-40 F / -40 C
Condensate Management	Hose discharge
Electrical Data	
Rated Voltage (50/60 Hz)	230 V
Rated Frequency	50 / 60 Hz
Voltage Range	+/- 10% of rated
Cooling Amps at Max Conditions (50/60 Hz)	12.4 / 11.0

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

TECHNICAL INFORMATION

SEQUENCE OF OPERATION

The air conditioner comes standard with one internally mounted thermostat. When the unit is plugged in, the evaporator fan will be running.

COOLING

When the enclosure temperature is above the cooling thermostat setpoint, power is applied through the time delay relay. After the delay time, the contactor is energized and the compressor starts. The condenser fan will start once the compressor starts. 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 LB16 air conditioner uses our standard 52-6155-02 thermostat. The thermostat setpoint equals the temperature when the air conditioner turns off. The thermostat has an adjustable differential from setpoint until it calls for cooling; the typical differential is 5 F. An example of operation is shown below.

For cooling (75-100 F range):
Thermostat setpoint = 80 F
Cooling turns on at 85 F
Cooling turns off at 80 F

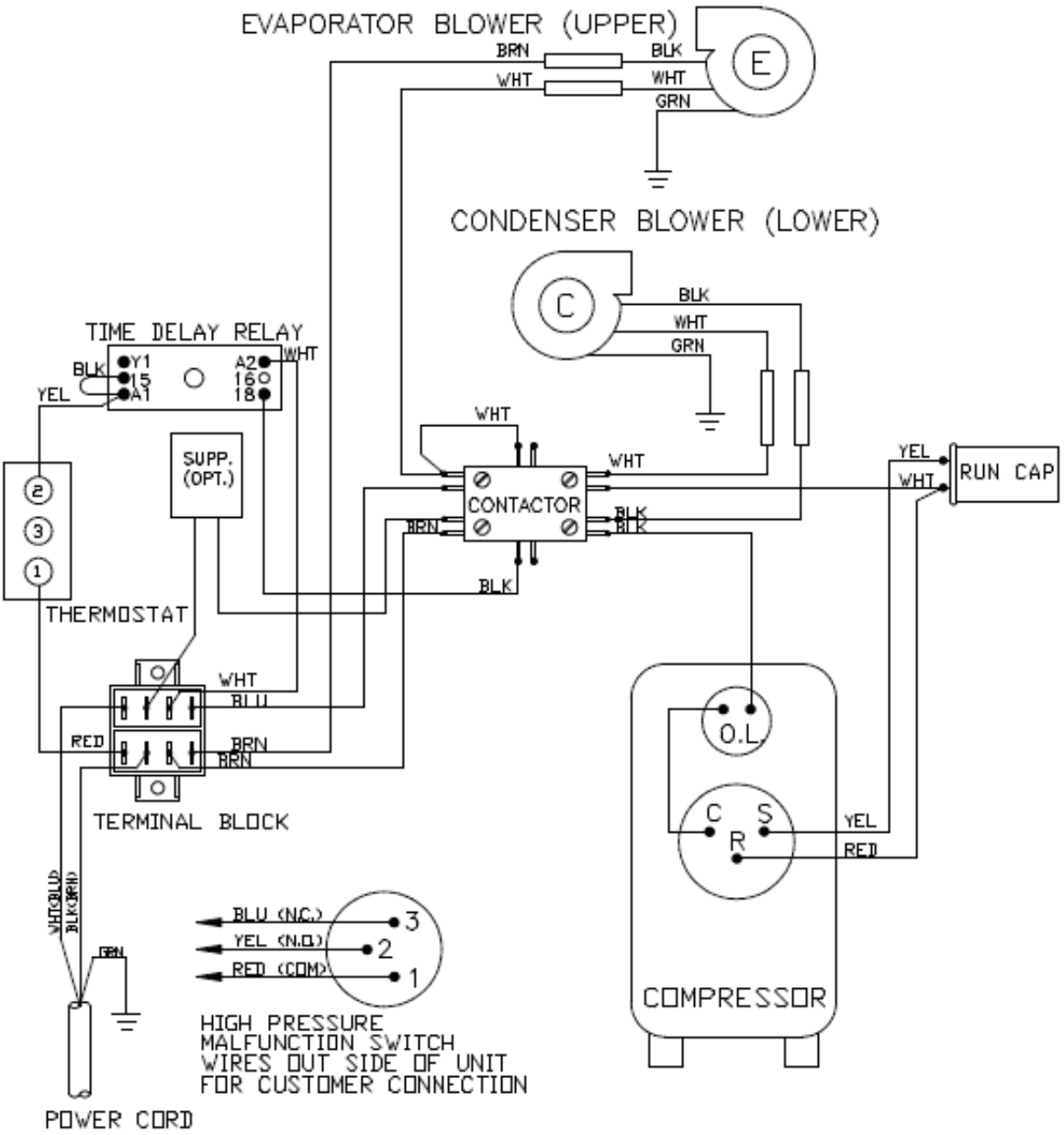
TIME DELAY RELAY

Factory set for 6 minutes (top dial at 1-10 minutes, bottom dial at 6). The purpose of the time delay relay is to prevent short cycling of the compressor.

CONTACTOR

The contactor uses a 230V coil.

WIRE DIAGRAMS



WIRING DIAGRAM 04-2001-694 REV. 0

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 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.

Should the refrigerant charge be lost, access ports 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.

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.

SERVICE DATA

LB16 SERIES COMPONENT LIST

Part Description	Part Number
Blower Motor, Condenser	10-1020-04
Blower Motor, Evaporator	10-1020-10
Capacitor, Condenser Blower	52-6083-00
Capacitor, Evaporator Blower	52-6084-05
Capacitor, Compressor, Run	52-6031-01
Time Delay Relay	10-1005-71
Coil, Condenser	16-7001-00
Coil, Evaporator	52-6121-01
Compressor	10-1026-115
Contactor, Compressor	10-1005-42
Evaporator Inlet Filter	10-1000-08
Filter/Dryer	52-6028-00
Capillary Tube	99-0640-35
Thermostat	52-6155-02

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					

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: • Open motor winding • Stuck fan motor • Obstructed blades	**Repair or Replace defective part**

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

YES, proceed to step 4.	
NO, possible problem: • 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: • Defective thermostat • Open motor winding • Stuck impeller motor • Obstructed wheels/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: • 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:

• 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.

F-GAS INFORMATION

	LB161026GXXX
Refrigerant Kühlmittel Chłodziwo	R407C
GWP	1774
Factory Charge Füllmenge durch Hersteller Opłata Fabryczna	709 Grams 709 Gramm 709 Gramów
CO_2 Equivalent CO_2 Equivalent CO_2 Ekwilalent	1.26 Tons 1,26 Tonnen 1,26 Tony

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