HB16 Instruction Manual

nVent
HOFFMAN

GENESIS

TOP-MOUNT AIR CONDITIONER

HB16 MODEL

INSTRUCTION MANUAL

Rev.M

P/N 10-1008-06

87976428

TABLE OF CONTENTS

⚠ WARNING

Read this manual thoroughly before attempting to install or test this HIBOY® air conditioner

UNPACKING AND INSPECTING

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

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

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/hoffman/warranty-information

HANDLING

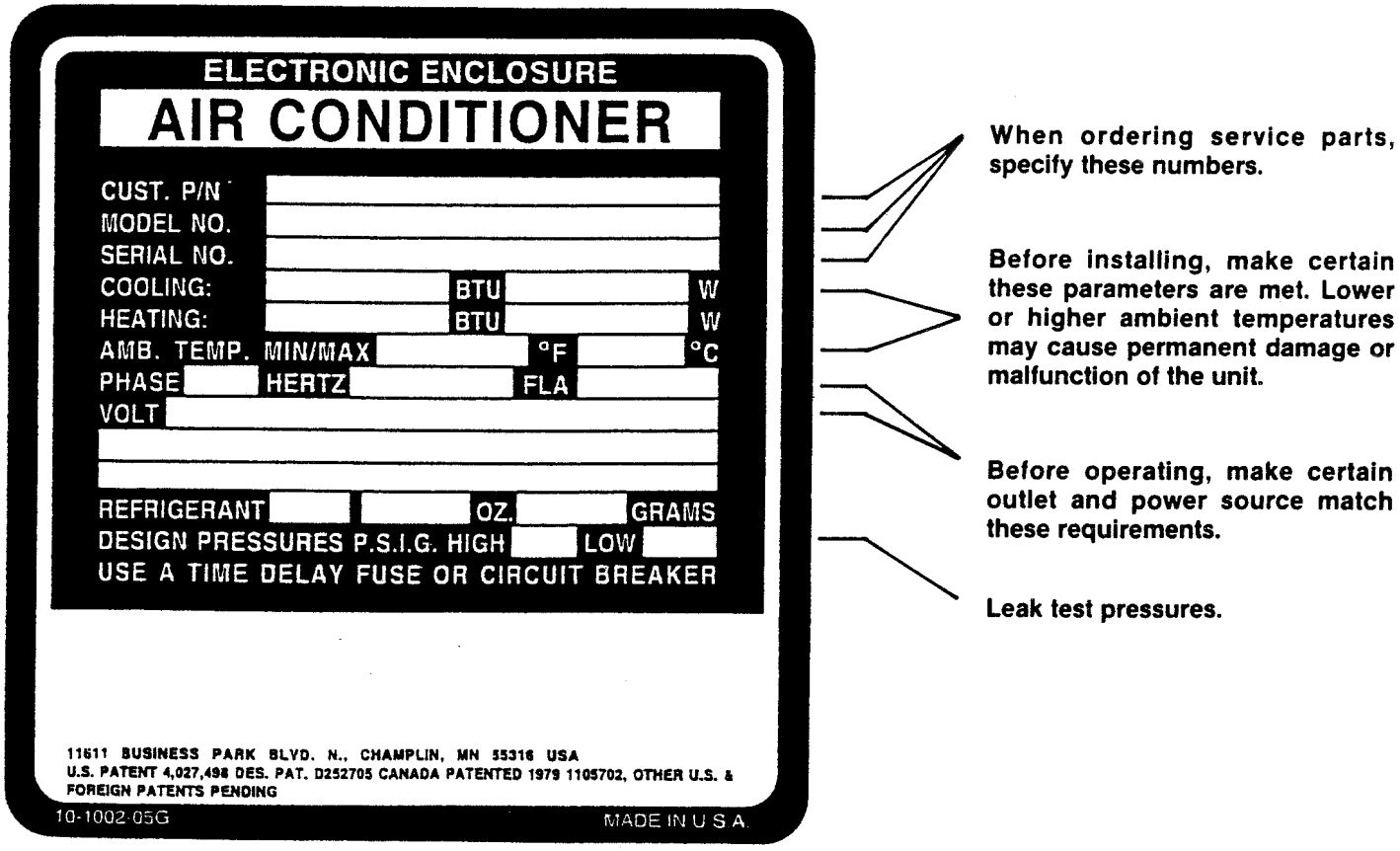
To avoid possible shipping damage and facilitate transportation and storage, the HIBOY® air conditioner was shipped in a freight carrier tested corrugated container in its normal mounting position. After uncartoning, be certain that the air conditioner is placed in its normal upright mounting position for a minimum of e (5) minutes before operating, in order to allow the compressor oil to drain to the compressor sump area.

⚠ CAUTION

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

HOW TO IDENTIFY YOUR HIBOY® AIR CONDITIONER

For installation and maintenance as outlined in this efer to the nameplate on your unit. The nameplate will provide important data regarding capacity of the unit, minimum and maximum ambient operating temperatures, type and amount of refrigerant required for recharging, and most important - electrical power characteristics when making electrical hook-ups or connections.



TECHNICAL INFORMATION

DESIGN DATA

Model	Voltage	Hertz	Full Load Amps	Phase	BTU/Hr. @ Maximum Ambient Temperature	Maximum °F Ambient Temperature	Shipping Weight (lb. / kg)
HB160816GXXX	115	50/60	18.8/20.4	1	7075/8133	131	145/66
HB160826GXXX	230	50/60	9.4/10.2	1	7075/8133	131	145/66
HB160846GXXX	460	50/60	5.2/5.6	1	7075/8133	131	160/73

BENCH TESTING

CAUTION

To avoid possible damage to the air conditioner, it must be in an upright operating e (5) minutes before functional testing is started.

When “bench testing the HIBOY® air conditioner before mounting to the electronic enclosure, follow the procedures outlined in the following paragraphs:

Make sure that the HIBOY® air conditioner is supported in a manner that assures free air out of and back into the openings which are located in the base tray.

Refer to nameplate for proper electrical current requirements, then connect the power cord to a properly grounded electrical outlet.

NOTE: Minimum circuit ampacity should be at least 125% of the amperage shown in the DESIGN DATA table. To prevent overloading, no other equipment should be connected to this circuit.

Make sure the unit has been in the upright operating position for at least e minutes.

Operate the e (5) or ten (10) minutes. No excessive noise or vibration should be evident during this run period. The condenser blower located in the rear section of the air conditioner, the evaporator or cool air blower located in the bottom of the unit, and the compressor should be running. To check cool air output, use a reliable air temperature measuring device. The cool air should be between 50 F (10 C) and 60 F (16 C) when room temperature is between 70 F (21 C) and 80 F (27 C).

You may remove while checking the operation. The discharge line from the compressor (uninsulated line) should become very warm. Carefully touch this line to avoid possible burns. Condenser air temperatures should be warmer than normal room temperatures within a few minutes.

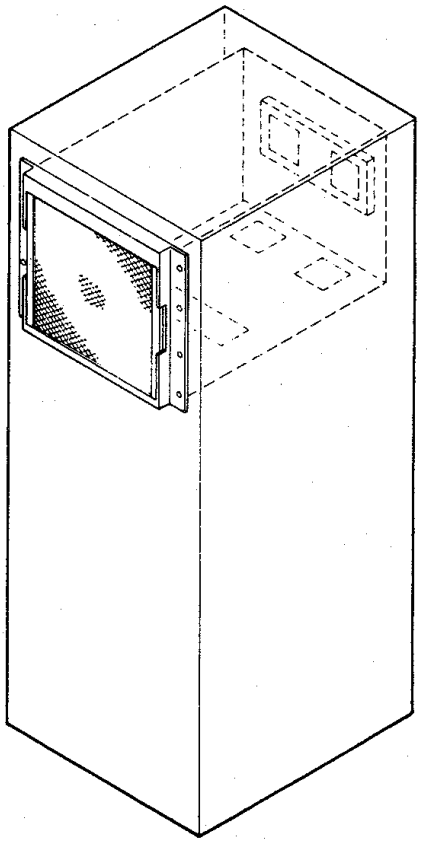
Mounted along the side of the compressor is the suction accumulator which is insulated to help avoid sweating or condensation buildup.

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 only time this switch should operate is when the compressor overheats due to clogged or dir , 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. Blowers will continue to operate, however, and the compressor will not restart until the compressor has cooled to within the thermal overload cut-in temperature setting.

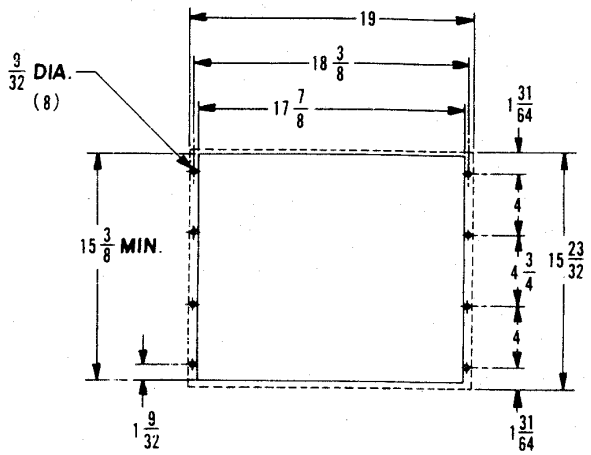
INSTALLATION INSTRUCTIONS

MOUNTING INSIDE OF THE ENCLOSURE

1. Slide rails must be provided for supporting the rear portion of the air conditioner. Do not depend on the units mounting o support the entire weight. For mounting opening cutout dimensions, see Figure 2.
2. To avoid cross-threading mounting inserts, start bolts by hand before tightening with a wrench or ratchet driver.
3. To protect the integrity of the closed-loop design (see PRINCIPLES OF OPERATION, page 8), adhesive backed gasket tape is provided (shipped loose) for sealing around the enclosures air conditioner mounting opening. The gasket tape may be cut to length and either adhered to the air conditioner or to the enclosure as preferred.
4. The hot condenser air from the rear of the air conditioner must be ducted out of the enclosure. Openings and/or ducting must be of cient size to handle the air (25 in.^{2} minimum). Keep in mind that reduction of conditioner performance. Also remember that this air is hot and relatively dirty, therefore cracks and joints must be adequately sealed.
5. The drain tube which exits at the side of the air conditioner must be routed to the exterior of the enclosure. A copper "P" trap has been included in the drain system and must be properly primed and installed to prevent o the drain system. A pressure r also provided to vent any air blockage that may prevent proper drainage. The drain outlet must not be submerged nor any portion of the drain system elevated above the exit point of the air conditioner or ov of the condensate pan may occur.
6. Use of extension cords is not recommended.



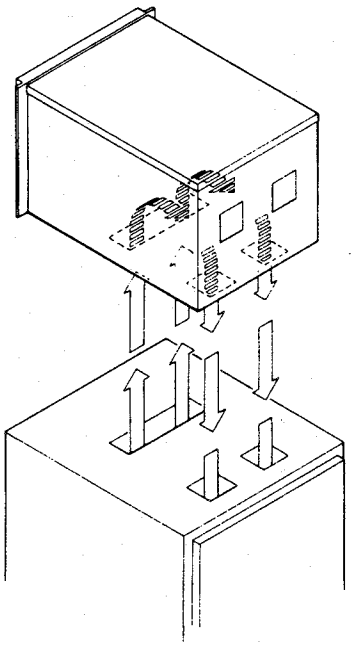
Mounted Inside Enclosure
Figure 1



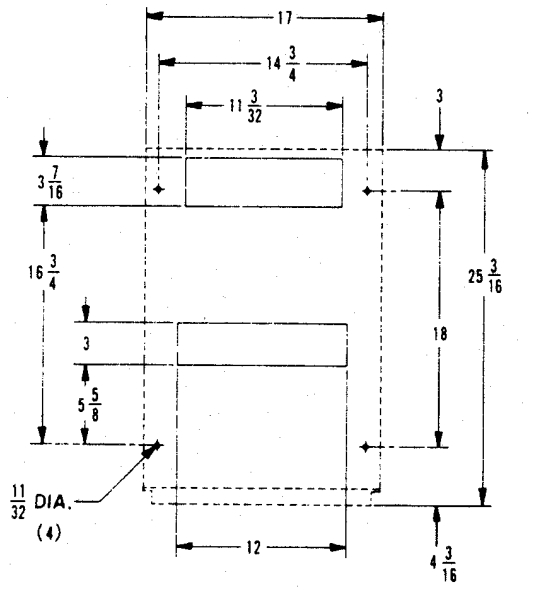
Cutout Dimensions for NEMA 12 Enclosures
Dashed Lines Repersent Air Conditioner
Figure 2

MOUNTING ON TOP OF THE ENCLOSURE

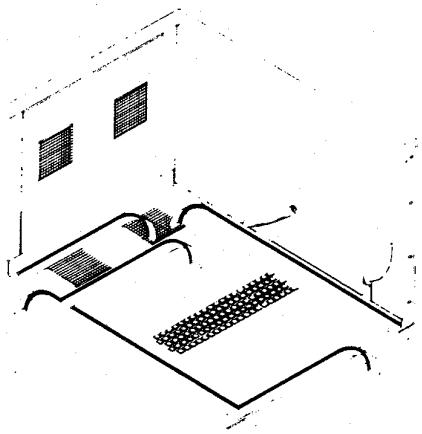
1. Make sure the enclosure design is capable of supporting the air conditioners weight. For interfacing air "IN" and "OUT" openings, refer to Figure 4. Also refer to Dimensional Drawings on page 11.
2. To avoid cross-threading mounting inserts, start bolts by hand before tightening with a wrench or ratchet driver.
3. To protect the integrity of the closed-loop design (see PRINCIPLES OF OPERATION), adhesive backed gasket tape is provided (shipped loose) for sealing around the enclosures cutout openings. The gasket may be cut to length and either adhered to the enclosure or to the air conditioner as shown in Figure 5.
4. A .5 inch (13 mm) inside diameter drain tube exists on the side of the air conditioner and must be routed over the side. A pressure r ovided to assist in venting any air blockage that may prevent proper drainage. A copper "P" trap has also been included in the system and must be properly primed and installed to prevent counter air into the drain system. The drain outlet must not be submerged nor any portion of the drain system elevated above the exit point of the air conditioner or overlapping of the condensate pan may occur.



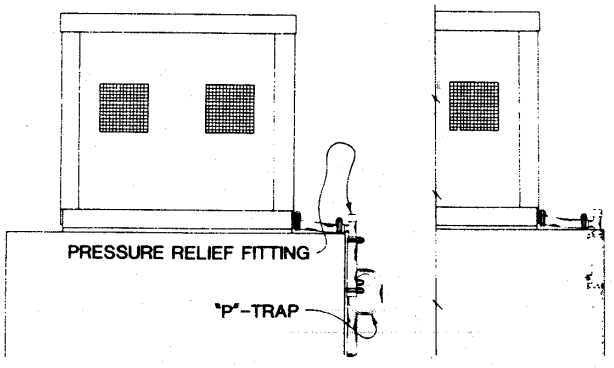
Mounted on Top of Enclosure
Figure 3



Cutout Dimensions for Top Surface Mounting
Dashed Lines Repersent Air Conditioner
Figure 4



Gasket Installation
Figure 5



Outside of Enclosure Through Enclosure
Drain System
Figure 6

PRINCIPLES OF OPERATION

HIBOY® air conditioners are designed to cool and dehumidify the internal environments of cabinets and enclosure which are used to package electronic components, thus assuring a cool, clean atmosphere for reasons of optimum performance and longevity.

Hot air inside the electronic enclosure or rack is removed and cooled by means of refrigeration. The hot air is drained from the enclosure interior through the evaporator air return opening in the bottom middle of the air conditioner. The air is drawn through the evaporator coil where it is cooled and discharged back to the enclosure interior through two evaporator outlet openings in the bottom rear of the unit. Any moisture in this air condenses on the evaporator coil and ultimately collects in the condensate tray where it is then discharged from the air conditioner via the condensate drain tube.

The closed-loop designof the air conditioner assures that this clean, cooled air never mixes with the hot, dirty ambient air that is used only for cooling the compressor and accomplish the heat exchange through the condenser coil. Generally the cabinet or enclosure air which is being cooled and recirculated over and over again does not requir

Room or ambient air drawn into the air conditioner through the inlet , across the compressor and through the condenser coil is usually dirty, dusty and/or humid air depending upon environment in which the air conditioner is required to operate. This ambient air is discharged by the condenser duplex blower back to the ambient environment. The temperature of this discharged air will be quite warm or actually hot depending on the ambient temperature and the work load imposed on the air conditioner.

Provided is properly maintained by frequent cleaning and/or replacement, the inlet e relatively clean air to pass through the condenser coil. Dir will hamper the optimum oper ciency of the air conditioner.

> **NOTE: The condenser filter will require periodic maintenance, see MAINTENANCE on page 9.**

When the HIBOY® air conditioner is mounted in the enclosure or rack, it is recommended that an electrical lockout or safety switch be installed to interrupt operation of the unit while the enclosure door is opened.

If electrical power is momentarily interrupted to the air conditioner and reapplied immediately (within 3 to 5 seconds)., the compressor may not restart due to the high back pressure of the compressor.

> **DO NOT attempt to restart the air conditioner for at least one minute after the unit has been shut off either accidentally or intentionally.**

It takes at least one minute after shut-down forthe compressor suction and discharge pressure to equalize in order to restart the air conditioner.

> **Operating the HIBOY® air conditioner at ambient temperatures below the minimum or above maximum temperatures indicated on the nameplate will void all warranties.**
>
> **It is recommended that the warranty section of this manual be read in order to familiarize yourself with parameters of restricted operation.**

It is very important to install the drain system in accordance with the installation instructionson page 7.
By elevating the drain tube above the exit point on the air conditioner, you will cause the collected condensate or water to back up the drain tube and the condensate tray. This v could be transmitted into the electronic cabinet or enclosure by the air exhausted from the evaporator blower, thus causing damage to the expensive electronic components.

The moisture that the enclosure air can contain is limited. If moistur om the drain tube continuously, this can only mean ambient air is entering the enclosure. Remember frequent opening of the enclosures door admits humid air which the air conditioner mustthen dehumidify.

MAINTENANCE

COMPRESSOR

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

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

Under no circumstance should the access fitting covers be loosened, removed or tampered with.

Recharging ports are provided for the ease and convenience of reputable refrigeration repair service personnel for recharging the air conditioner, see Refrigerant Loss.

INLET FILTER

Proper maintenance of the inlet e normal operation of your HIBOY® air conditioner. If maintenance is delayed or ignored, the maximum ambient temperatures under which the unit is designed to operate will be decreased.

As the compressor operating temperature increases above normal due to dirty or clogged (or plugged condenser coil), the air conditioners compressor will stop operating due to actuation of the thermal overload cutout switch located on the compressor housing. As soon as the compressor temperature has dropped to within the switches cut-insetting, the compressor will restart automatically. However the above condition will continue to take place until has been cleaned or replaced.

It is recommended that power to the air conditioner be interrupted intentionallywhen abnormally high compressor operating temperatures cause automatic shut-downof the unit. The above described shut-down is symptomatic of a clogged or dir , thus causing a reduction in cooling oss the surface of the compressor and condenser coil.

Continued operation under the above conditions will damage and shorten the compressor life. The air conditioner features an easily removable inlet filter to facilitate necessary cleaning. There should be no reason to neglect this necessary maintenance.

CONDENSER AND EVAPORATOR BLOWERS

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

⚠ CAUTION

Operation of the HIBOY® air conditioners in areas containing airborne caustics or chemicalscan rapidly deterior condenser coils, blowers and motors, etc. Contact nVent Equipment Protection for special recommendations.

REFRIGERANT LOSS

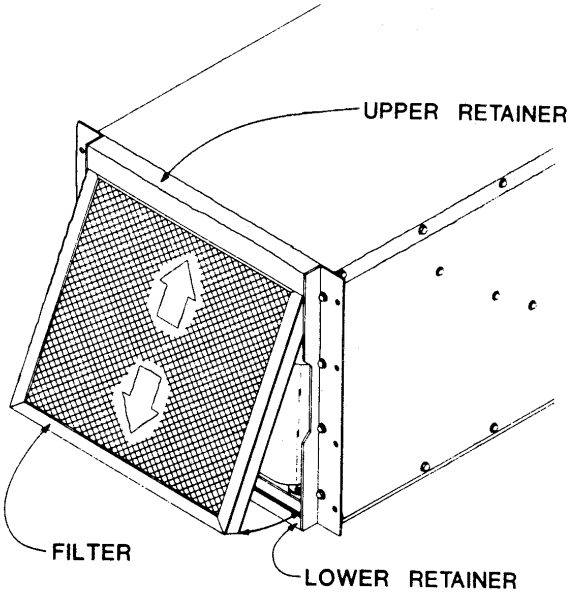
Your HIBOY® air conditioner was thoroughly tested before leaving the factory to insure against refrigeration leaks. Shipping damage or microscopic leaks not found with sensitive electronic freon leak detection equipment during manufacture may require repair and recharging of the system. This work should be performed b professional only, generally available in any reputable air conditioning repair or service company in your local area.

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

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

HOW TO REMOVE, CLEAN OR INSTALL A NEW FILTER

1. Lift up so the bottm clears the etainer.
2. Pull the bott pushing down until the top of the clears the upper retainer. If the unit is operating, carefully remove it assuring no dirt from enter the air intake opening.
3. Follow the cleaning instructions shown in the graphic below.
4. Look at the air arrows on the for correct installation direction. Reinstall a new y sliding the top of up into the upper retainer while pushing it against the unit. Finally, down into the lower retainer.

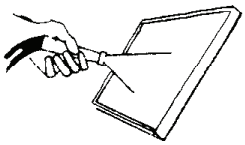


For replacement filter, disposable filters and filter adhesive, see parts list in Table 1 on page 12

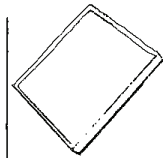
SERVICING AND CLEANING INSTRUCTIONS FOR RP® AIR FILTERS

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. Because they are constructed entirely of aluminum, they are light weight 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 equiment, the air filter should be cleaned on a regular basis.

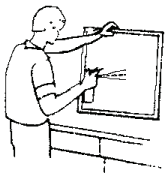
CLEANING INSTRUCTIONS



1. Flush the filter with warm water from the exhaust side to the intake side. DO NOT use caustics.



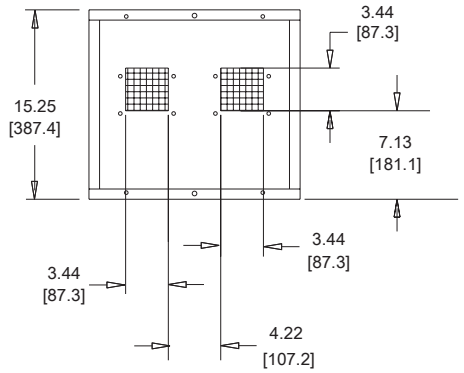
2. After flushing, allow filter to drain. Placing it with a corner down will assure complete drainage.



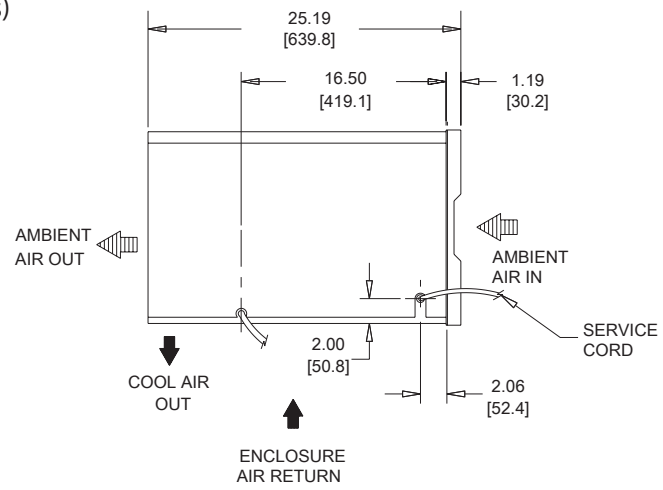
3. Recoat the filters with RP Super Filter Coat adhesive by dipping or spraying. If the filter is sprayed, do so from both sides for maximum concentration of adhesive.

DIMENSIONAL DRAWINGS

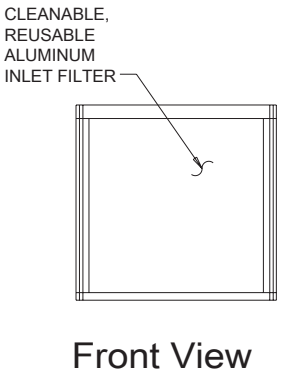
HB16 Models 8000 BTUs/Hr. (2051 Watts)



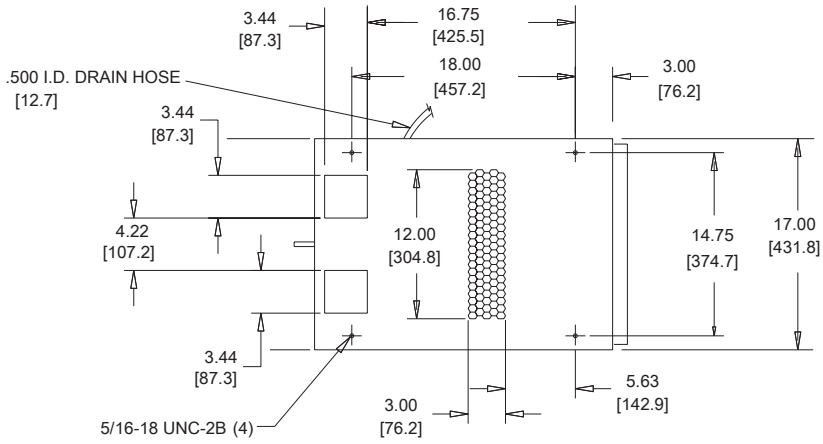
Rear View



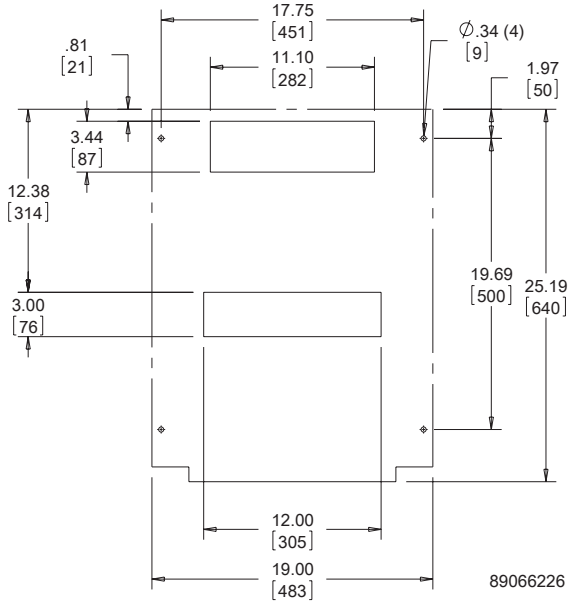
Side View



Front View



Bottom View



Cutout

PARTS LIST
(Specify model and serial numbers when ordering parts)

Item Number	Part Number	Quantity	Description
1	10-1000-08	1	Inlet Filter, Reusable Aluminum
9	16-7001-00	1	Coil, Condenser
16	52-6034-10M	1	Blower, Condenser (115 V)
	52-6025-10M	1	Blower, Condenser (230 V)
23	52-6075-00	1	Blower, Evaporator (115 V)
	52-6076-00	1	Blower, Evaporator (230 V)
26	52-6121-01	1	Coil, Evaporator (8000-9000 BTU/Hr.)
30	52-6058-05	1	Accumulator (230V Only)
35	See Table 1	1	Switch, Compressor Thermal Overload
38	See Table 1	1	Compressor
39	See Table 1	1	Power Cord
47	52-6028-00	1	Filter/Dryer, Refrigerant
48	52-6027-00	1	Valve, Hot Gas By-Pass (230V Only)
49	See Table 1	1	Capacitor, Compressor
N/A	10-1040-47	1	RFG, TXV (115V Only)

ACCESSORIES

Part Number	Description
23512	Filter Coat - 1 pint Spray Dispenser

TABLE 1

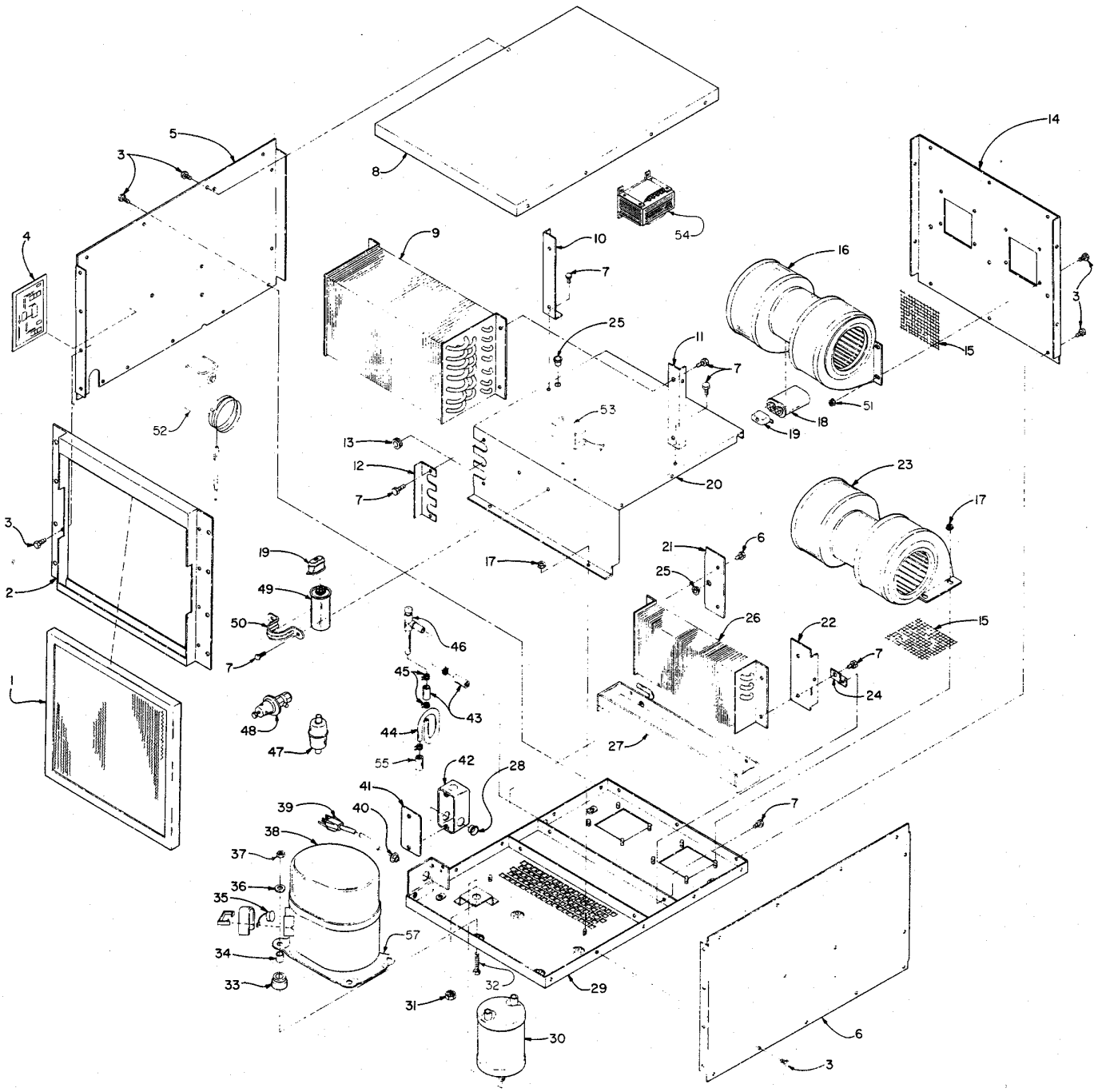
Model	Item 35 Overload	Item 38 Compressor	Item 39 Power Cord	Item 49 Capacitor
HB160816GXXX	89097975	89043892	52-6035-85	52-6032-01
HB160826GXXX	10-1007-13	10-1026-115	52-6035-141	52-6031-01
HB160846GXXX	10-1007-13	10-1026-115	52-6035-135	52-6031-01

NOTE: For items listed but not shown, contact the factory..

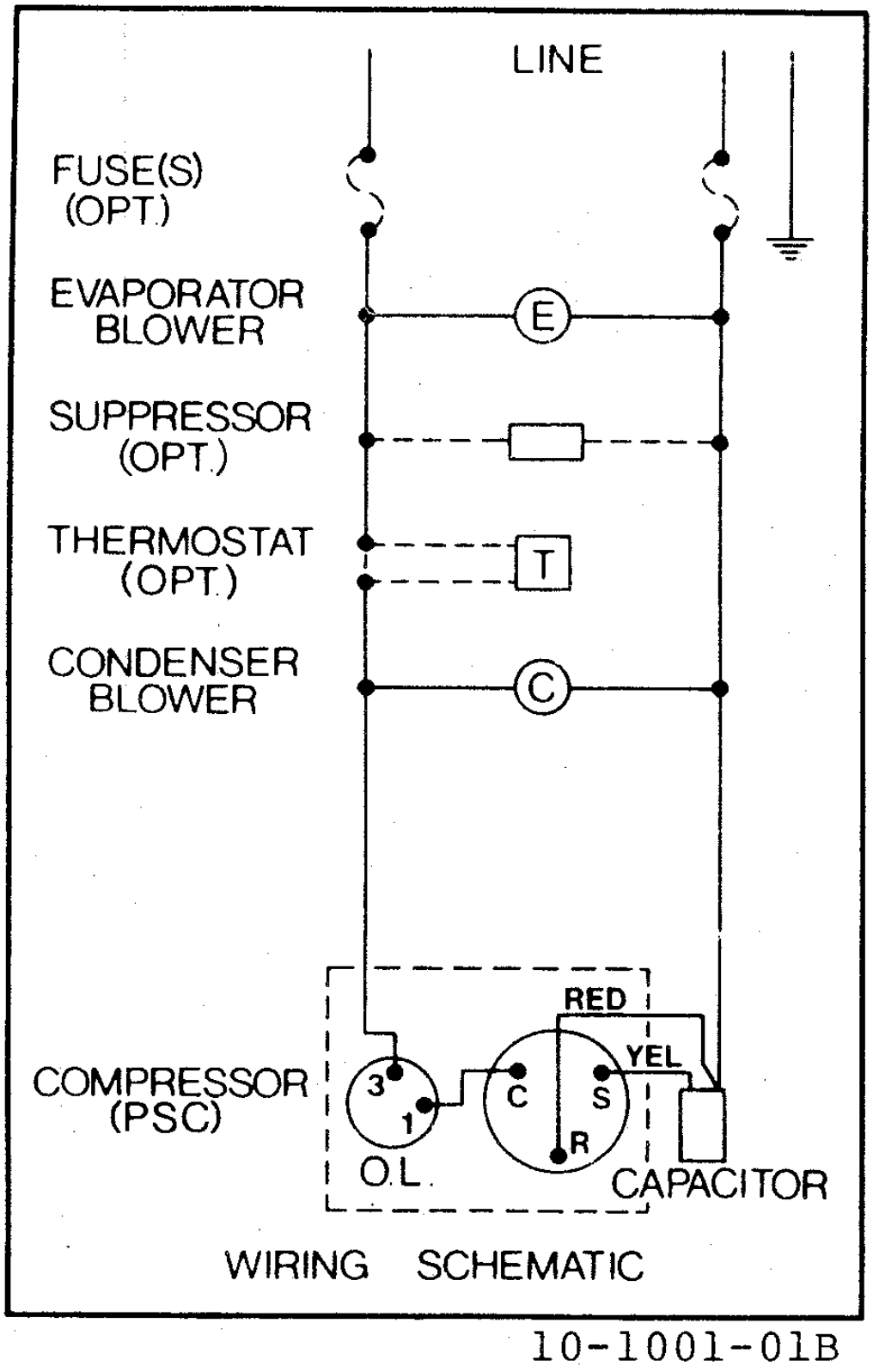
F-GAS INFORMATION

	HB160816GXXX	HB160826GXXX HB160846GXXX
Refrigerant Kühlmittel Chłodziwo	R407C	R407C
GWP	1774	1774
Factory Charge Füllmenge durch Hersteller Opłata Fabryczna	681 Grams 681 Gramm 681 Gramów	709 Grams 709 Gramm 709 Gramów
CO_2 Equivalent CO_2 Equivalent CO_2 Ekwilalent	1.21 Tons 1,21 Tonnen 1,21 Tony	1.26 Tons 1,26 Tonnen 1,26 Tony

PARTS EXPLODED VIEW

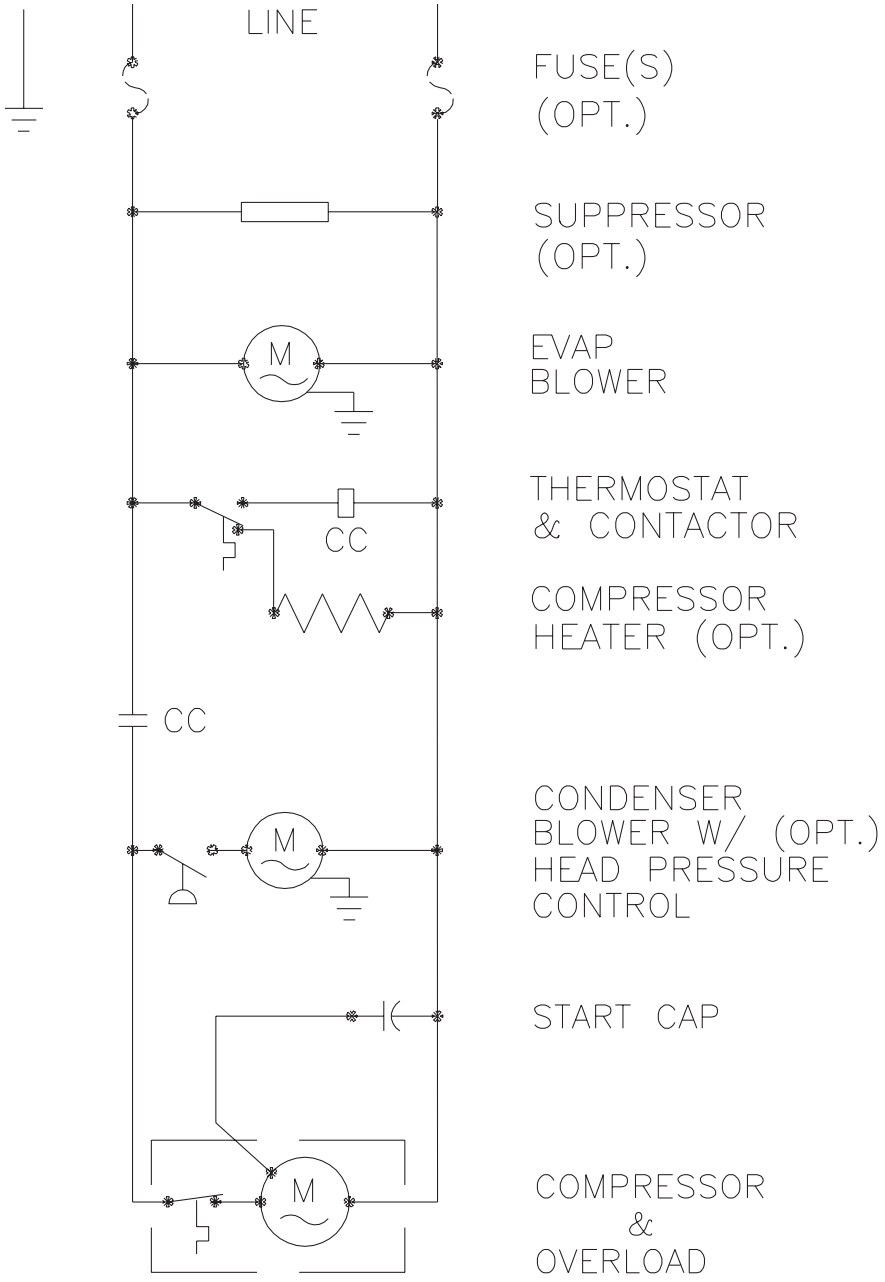


WIRING SCHEMATIC



STANDARD
230V

ELECTRICAL SCHEMATIC



ELECTRICAL SCHEMATIC

10–1001–667

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