


Throughout this manual, there are a number of HAZARD WARNINGS that must be read and adhered to in order to prevent possible personal injury and/or damage to equipment. Two signal words "WARNING" and "CAUTION" are used to indicate the severity of a hazard and are preceded by the safety alert symbol.

 **WARNING**

Used when serious injury or death MAY result from misuse or failure to follow specific instructions.

 **CAUTION**

Used when minor or moderate injury or product / equipment damage MAY result from misuse or failure to follow specific instructions.

It is the responsibility of all personnel involved in installation, operation and maintenance to fully understand the  Warning and  Caution procedures by which hazards are to be avoided.

Receiving

The HA/HAB ventilator is shipped in two parts:

1. Fan housing assembly complete with fiberglass inlet venturi to the wheel and complete motor and drive assembly.
2. Flanged extruded aluminum louver assembly.

Duct adapter and companion angles are shipped loose if unit is for inline application.

Inspect cartons or crates carefully before signing a delivery receipt for the carrier. If any damage is apparent, note it on the carrier's receipt so that a claim can be filed against the carrier through your usual channels.

Handle the units carefully while delivering to installation location. Use ordinary care in unpacking the units. If the units, when unpacked, appear to be damaged in a way that could not be determined at the time of delivery, notify the carrier that concealed damage has been discovered and insist on inspection by the carrier. Obtain a copy of carrier's inspection report showing the concealed damages so that a claim can be filed through your usual channels.

Study the attached installation prints carefully. Inspect the units carefully for identification marks, fan rotation symbols, etc.

Installation

Wall Application

1. Remove wood shipping supports from fan assembly (see Figure 1).
2. Locate and provide hole in the wall 1/2" larger than the fan housing (see Figure 2). This will provide an opening for the electrical wiring into the unit.
3. Anchor the box in the wall, keeping a minimum of 2 3/8" between the outside wall and any part of the box or the power assembly.
4. Fasten the flanged extruded louver to the exterior wall.

Inline Application

1. Remove wood shipping supports from fan assembly (see Figure 1).
2. Attach duct adapter and companion angles to unit per Figure 3 with fasteners supplied.
3. Before anchoring the unit to the ductwork, check line voltage and current characteristics outlined in previous section.
4. Fasten the flanged extruded louver to the exterior wall wherever the outlet of the ductwork ends.

For easy maintenance of the ventilator inline, provide a drop-out section between ductwork and duct adapter (see Figure 3).

Check, Test & Start Procedure

⚠ WARNING

Electric shock hazard. Could cause severe injury or death. Failure to bond the frame of this equipment to the building electrical ground by use of the grounding terminal provided or other acceptable means may result in electrical shock. Disconnect electric power before servicing equipment. Service to be performed only by qualified personnel.

1. Check to verify that the wheel is free to rotate.
2. Verify that supply voltage on the line side of disconnect agrees with voltage on unit identification plate and is within the utilization voltage range as indicated in Table 1.
3. On three-phase units check and calculate phase unbalance as follows:

$$\% \text{ Voltage Unbalance} = 100 \times \frac{\text{max. voltage deviation}}{\text{avg. voltage} \div \text{avg. voltage}}$$

Given example: With voltage of 220, 216 and 213

How To Use The Formula:

- a. Avg. Voltage = $220 + 216 + 213 = 649 \div 3 = 216$
- b. Max. Voltage Deviation From Avg. Voltage = $220 - 216 = 4$
- c. % Voltage Unbalance = $100 \times (4 \div 216) = 1.8\%$
Voltage unbalance should not exceed 2%.

Table 1. Utilization Voltages

| SYSTEM VOLTAGE/ UNIT NAMEPLATE | UTILIZATION VOLTAGE | |
|-----------------------------------|---------------------|------|
| | MIN. | MAX. |
| 115/60/1 | 104 | 127 |
| 208-230/60/1 or 208- 230/60/3 | 187 | 253 |
| 230/60/1 or 230/60/3 | 207 | 253 |
| 277/60/1 | 249 | 305 |
| 200/60/3 | 180 | 220 |
| 380/60/3 | 342 | 418 |
| 460/60/3 | 414 | 506 |
| 575/60/3 | 517 | 633 |
| 110/50/1 | 99 | 121 |
| 220/50/1 | 198 | 242 |
| 380-415/50/3 | 342 | 456 |
| 440/50/3 | 396 | 484 |

4. Apply power to unit and check rotation of wheel with the directional arrow on the unit.

⚠ WARNING

Especially check three-phase units for rotation. For three-phase, rotation can be changed by interchanging any two of the three line leads. If the unit is checked on temporary wiring, it should be rechecked when permanently installed. Motor burn-out or tripped overload protection devices are usually the result of wrong rotation.

5. **Electrical Input Check:** Perform check of fan ampere draw and verify that motor nameplate amps are not exceeded. Take account of the service factory range if motor is nameplated above a 1.0 service factor.
6. **Fan RPM Check:** Fan RPM should be checked and verified with a tachometer. Refer to Table 2 for maximum fan RPM values.

⚠ WARNING

Running fan at an RPM greater than the maximum RPM value in Table 2 will overload the fan motor and lead to premature motor failure.

Table 2. Maximum Fan RPM (Belt Driven Units)

| MODEL HAB | MOTOR HP | MAXIMUM FAN RPM |
|----------------|-------------|--------------------|
| 12HA1B, 2B, 3B | 1/4 | 1738 |
| 14HA1B, 2B, 3B | 1/4 | 1468 |
| 14HA4B | 1/3 | 1615 |
| 14HA5B | 1/2 | 1849 |
| 18HA1B, 2B | 1/4 | 945 |
| 18HA3B | 1/3 | 1040 |
| 18HA4B | 1/2 | 1191 |
| 18HA5B | 3/4 | 1363 |
| 24HA1B | 1/4 | 575 |
| 24HA2B | 1/3 | 633 |
| 24HA3B | 1/2 | 725 |
| 24HA4B | 3/4 | 830 |
| 24HA5B | 1 | 913 |
| 30HA1B | 1/3 | 436 |
| 30HA2B | 1/2 | 500 |
| 30HA3B | 3/4 | 572 |
| 30HA4B | 1 | 630 |
| 30HA5B | 1 1/2 | 721 |
| 30HA5B | 2 | 793 |

Maintenance

General

Fan shaft bearings on belt drive units are factory lubricated and require no lubrication for the first 3-6 months of operation. Lubricate at intervals shown in Table 3 thereafter. With fan running and with a low pressure grease gun, add grease slowly until a slight bead forms between the seals. Use Sinclair Litholene, Shell Gadus S2 V100 2, Socony Vacuum Armvac 781, Sinclair Oil Stranolith 57 or equal.

Table 3. Bearing Lubrication Interval
(Belt Drive Model HAB Only)

| OPERATING CONDITION | GREASING INTERVAL |
|--------------------------------|-------------------|
| FAIRLY CLEAN | 6 to 12 Months |
| MODERATE TO EXTREMELY DIRTY | 1 Month |

1. Frequency or regreasing will vary, depending on the hours of operation, temperature and surrounding conditions.
2. Bearings have been prelubricated from factory with NLGI Grade No. 2 lithium-12 hydroxysterate base grease.

Belts on belt-drive units should be readjusted after 24 hours of operation. Loosen motor base bolts and apply 15 lbs. pull per belt for proper belt tensions. Tighten motor base bolts.

Check contact surfaces of belt for excessive wear. If belts have a slick, glazed look or are cracked, belts are slipping. Replace belts as required.

Motors require no lubrication for 10 years of normal operation.

The inlet venturi is molded shock-resistant, bonded, reinforced fiberglass and will require no maintenance.

Wall Application

1. Servicing or inspecting the unit can be accomplished from the exterior by removing the flanged extruded louver and from the interior of the building by removing the fiberglass inlet (see Figure 2).
2. To remove the motor assembly for servicing, unplug the motor from the provided outlet and unfasten the four vibro-isolator bolts. The entire motor assembly, including the wheel and bearing (belt drive units), will slide out of the housing.

Inline Application

For easy maintenance of the inlet unit, provide a dropout section between the ductwork and duct adapter (see Figure 3).

Servicing or inspection can then be accomplished by removing the dropout section, then removing the fiberglass inlet. The motor assembly can then be removed by disconnecting the motor from the provided outlet and unfastening the four vibro-isolator bolts. Periodic inspection and cleaning of the fan will insure smooth operation.

Figure 1. Removal of Wood Shipping Supports

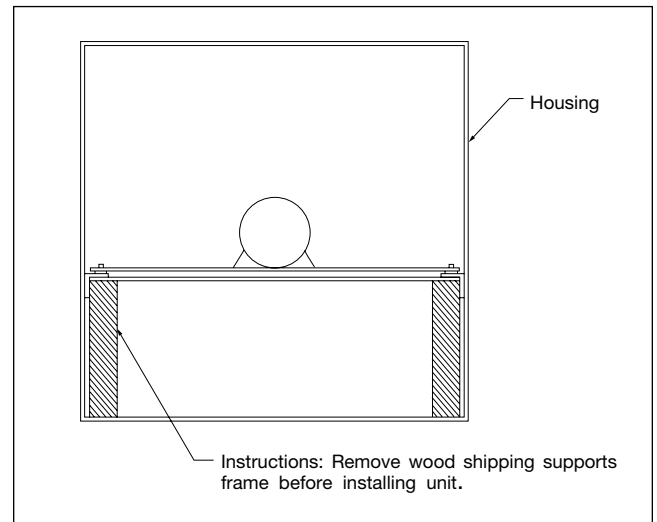


Figure 2. Wall Application

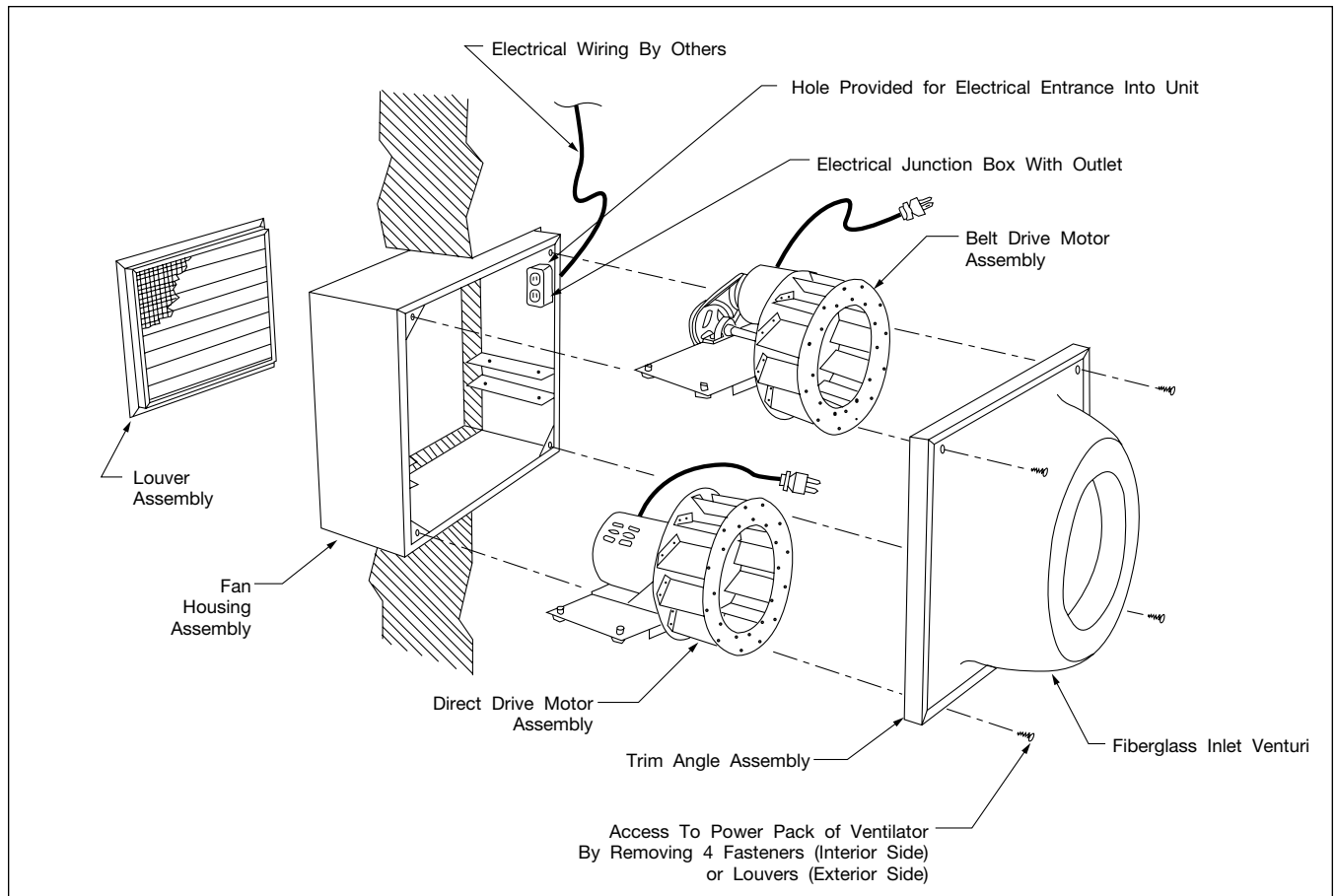
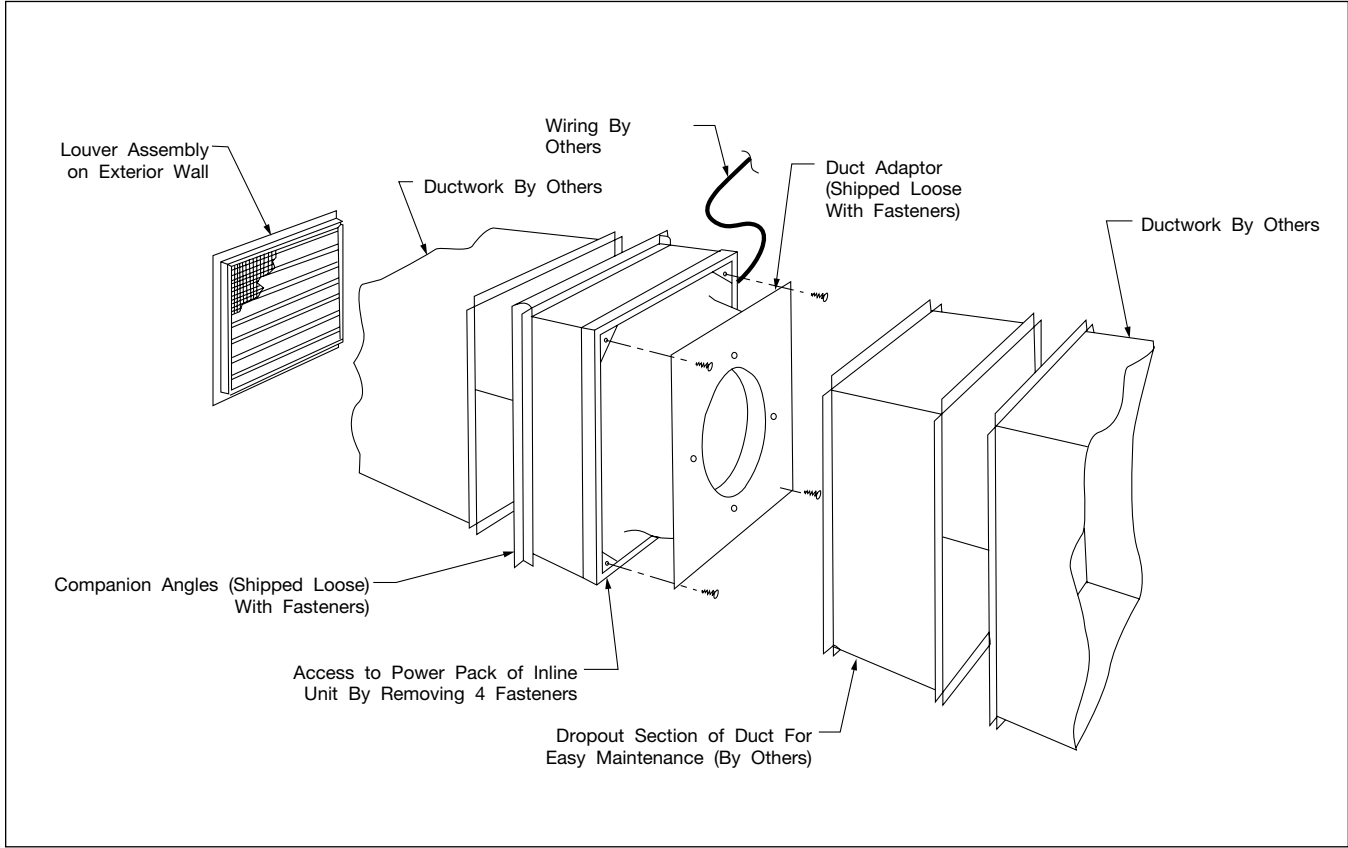


Figure 3. Inline Application



MAINTENANCE

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>Location</i></p> <p>Job Name: _____ Address: _____ City / State / Zip: _____ Telephone: () _____ Contact: _____</p> <p>Fan Nameplate Information</p> <p>Model: _____ Serial #: _____ Tag/Mark: _____ Location: _____ Date Installed: _____ Air Volume: Design CFM _____ Fan Rpm: _____ Actual CFM _____ (actual) Drives: Motor Sheave _____ Bushing _____ Turns Open _____ Fan Sheave _____ Bushing _____ Belt _____ Qty _____</p> | <p><i>Serviced by</i></p> <p>Organization: _____ Address: _____ City / State / Zip: _____ Telephone: () _____ Contact: _____</p> <p>Motor Nameplate Information</p> <p>HP _____ Rpm _____ Volts _____ Phase _____ Hz _____ Amps _____ (FLA) Mfr: _____ Model: _____ Frame _____ Enclosure _____ Thermal Protection: Yes ___ No ___ Power Supply _____ Volts _____</p> |
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MAINTENANCE RECORD

| Date | Done By | Notes |
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Refer to page 2 for recommended maintenance.

Limited Warranty

Seller warrants to the original purchaser that the goods sold hereunder shall be free from defects in workmanship and material under normal use and service (except in those cases where the materials are supplied by the buyer) for a period of one year from the date of original installation or eighteen (18) months from the date of shipment, whichever occurs first. The liability of seller under this warranty is limited to replacing, repairing, or issuing credit (at cost, F.O.B. factory and at seller's discretion) for any part or parts which are returned by buyer during such period provided that:

- a. seller is notified in writing within ten (10) days following discovery of such defects by buyer, or within ten (10) days after such defects should reasonably have been discovered, whichever is less;
- b. the defective unit is returned to seller, transportation charges prepaid by buyer.
- c. payment in full has been received by seller or said products; and
- d. seller's examination of such unit shall disclose to its satisfaction that such defects have not been caused by misuse, neglect, improper installation, repair, alteration, act of God, or accident.

No warranty made hereunder shall extend to any seller product whose serial number is altered, effaced or removed. Seller makes no warranty, express or implied, with respect to motors, switches, controls, or other components of seller's product, where such components are warranted separately by their respective manufacturers. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, WHETHER STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. In no event shall seller be liable to buyer for indirect, incidental collateral, or consequential damages of any kind. (BUYER'S FAILURE TO PAY THE FULL AMOUNT DUE WITHIN SIXTY (60) DAYS OF DATE OF INVOICE SHALL OPERATE TO RELEASE SELLER FROM ANY AND ALL LIABILITY OR OBLIGATION ARISING PURSUANT TO ANY WARRANTY, EXPRESS OR IMPLIED, WHETHER STATUTORY OR OTHERWISE, INCLUDING ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, MADE IN CONNECTION WITH ANY CONTRACT FORMED HEREUNDER. BUYER AGREES THAT SUCH FAILURE TO PAY SHALL CONSTITUTE A VOLUNTARY WAIVER OF ANY AND ALL SUCH WARRANTIES ARISING PURSUANT TO SUCH CONTACT.)



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