 BY JOHNSON CONTROLS	CUSTOM AIR HANDLERS	
INSTALLATION AND START-UP	Supersedes: 100.31-NOM1 (208)	Form 100.31-NOM1 (1014)



LD13282

Users and Installers of this equipment should be aware of all recommended safety procedures and information such as AMCA Publication 410-90 - Safety Practices.

For Product Warranty Support and Parts call 814-479-4005.

Issue Date:
October 31, 2014



IMPORTANT!

READ BEFORE PROCEEDING!

GENERAL SAFETY GUIDELINES

This equipment is a relatively complicated apparatus. During installation, operation maintenance or service, individuals may be exposed to certain components or conditions including, but not limited to: refrigerants, materials under pressure, rotating components, and both high and low voltage. Each of these items has the potential, if misused or handled improperly, to cause bodily injury or death. It is the obligation and responsibility of operating/service personnel to identify and recognize these inherent hazards, protect themselves, and proceed safely in completing their tasks. Failure to comply with any of these requirements could result in serious damage to the equipment and the property in

which it is situated, as well as severe personal injury or death to themselves and people at the site.

This document is intended for use by owner-authorized operating/service personnel. It is expected that these individuals possess independent training that will enable them to perform their assigned tasks properly and safely. It is essential that, prior to performing any task on this equipment, this individual shall have read and understood this document and any referenced materials. This individual shall also be familiar with and comply with all applicable governmental standards and regulations pertaining to the task in question.

SAFETY SYMBOLS

The following symbols are used in this document to alert the reader to specific situations:



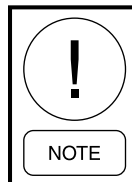
Indicates a possible hazardous situation which will result in death or serious injury if proper care is not taken.



Identifies a hazard which could lead to damage to the machine, damage to other equipment and/or environmental pollution if proper care is not taken or instructions are not followed.



Indicates a potentially hazardous situation which will result in possible injuries or damage to equipment if proper care is not taken.



Highlights additional information useful to the technician in completing the work being performed properly.



External wiring, unless specified as an optional connection in the manufacturer's product line, is not to be connected inside the control cabinet. Devices such as relays, switches, transducers and controls and any external wiring must not be installed inside the micro panel. All wiring must be in accordance with Johnson Controls' published specifications and must be performed only by a qualified electrician. Johnson Controls will NOT be responsible for damage/problems resulting from improper connections to the controls or application of improper control signals. Failure to follow this warning will void the manufacturer's warranty and cause serious damage to property or personal injury.

CHANGEABILITY OF THIS DOCUMENT

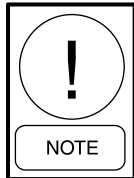
In complying with Johnson Controls' policy for continuous product improvement, the information contained in this document is subject to change without notice. Johnson Controls makes no commitment to update or provide current information automatically to the manual owner. Updated manuals, if applicable, can be obtained by contacting the nearest Johnson Controls Service office or accessing the Johnson Controls QuickLIT website at <http://cgproducts.johnsoncontrols.com>.

Operating/service personnel maintain responsibility for the applicability of these documents to the equipment. If there is any question regarding the applicability of

these documents, the technician should verify whether the equipment has been modified and if current literature is available from the owner of the equipment prior to performing any work on the chiller.

CHANGE BARS

Revisions made to this document are indicated with a line along the left or right hand column in the area the revision was made. These revisions are to technical information and any other changes in spelling, grammar or formatting are not included.



For Product Warranty Support and Parts call 814-479-4005

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SECTION 1 – INTRODUCTION

This manual provides the information necessary to safely install and startup Johnson Controls Custom equipment. Due to the custom nature of Johnson Controls Custom products there may be areas beyond the scope of this manual. If there are any questions about a special application lacking coverage, please contact your local Johnson Controls Sales Representative or the YORK factory.

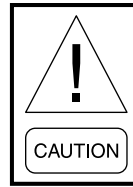
SAFETY

The customer is responsible for providing qualified and trained personnel to install and operate the equipment. Consult all local building, occupational safety, electrical, gas, and other codes applicable to the installation.

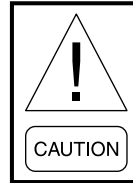
A variety of optional safety features are available from the manufacturer; it is the responsibility of the owner to determine if the unit is equipped with all of the safety devices required for the particular application.

Safety considerations include:

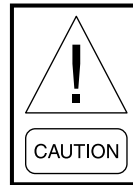
1. The accessibility of the equipment to non-service personnel.
2. The provision of electrical lockout switches.
3. Maintenance procedures.
4. Automatic control sequences.



Users and installers of this equipment should be aware of all recommended safety procedures and information such as AMCA publication 410-90-Safety Practices.



Never open an access door while air handling unit is in operation.



A fan, even though locked out electrically, can rotate in a seemingly insignificant air flow. During maintenance the impeller should be secured to restrict rotation, making sure that the restrictive device is removed before putting the fan back into service.

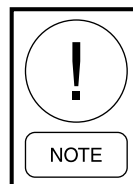


Equipment wired to automatic control devices may start without warning, resulting in personal injury or property damage. In many instances, a unit will have multiple electrical and compressed-air connection points. To prevent unforeseen startup, prior to beginning work on an air-handler always lockout all power supplies.



Always replace any protective covers removed for servicing.

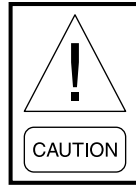
WARRANTY



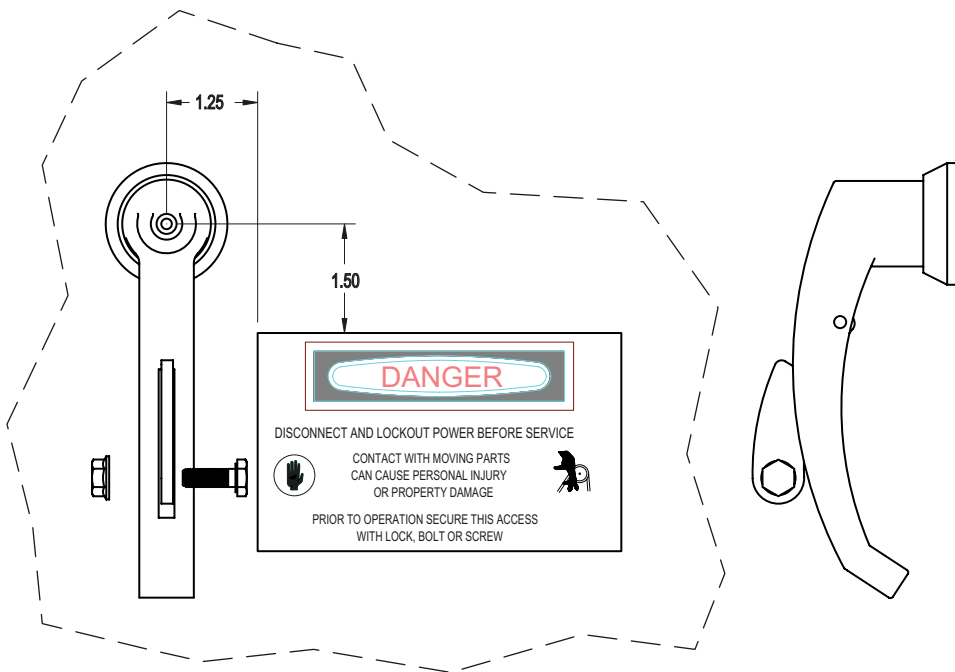
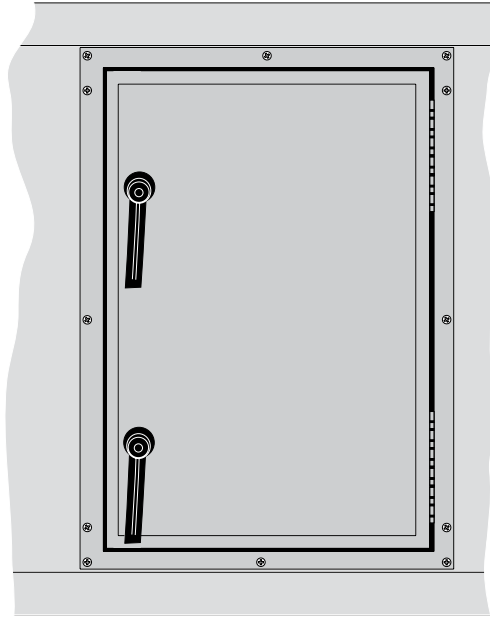
For Warranty Support With Johnson Controls Custom Air-handlers contact Product Service at 814-479-4005.



Always replace bolt or lock on access door latch for doors that provide access to moving parts. This mechanical protection from moving parts is required by UL 1995 (See Figure 1).



A number of additional safety issues are discussed throughout the manual. Please read the complete manual prior to installing, operating, or servicing the equipment.



LATCH FRONT VIEW

LATCH SIDE VIEW

FIGURE 1 - ACCESS DOOR LATCH

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SECTION 2 – INSTALLATION

RECEIVING AND INSPECTION

Johnson Controls Custom units are inspected and tested prior to shipment, ensuring a high quality product. Upon receipt of the unit(s), inspect for any damage that may have occurred during shipment.

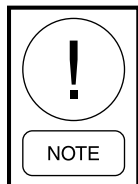
Upon delivery, compare items on the bill of lading with the items on the shipment to verify all parts have been received.

Any shortage, breakage or damage noticed at time of delivery should be indicated on the carrier's freight bill and signed by the driver or carrier's representative. Damage, noticed after delivery, should be reported to the carrier at once. Request their inspection of the shipment and fill out a concealed damage inspection report.

Located on the inside of fan section access door is a handwritten list of field install items shipped with the unit. Items typically shipped loose include:

FAN SECTION
Accu-Shield Roof Coating (see Figure 11 on page 18) (optional)
Thermal Break Gasketing (see Figure 14 on page 20)
Split Re-Assembly Hardware (Nuts, bolts, polyurethane caulking)
Filter Clips (Usually Shipped Separately)
Extra Fan Belts (If Ordered)
Installation and Start-Up Manual
Lifting Lugs*
Filters and Filter Clips (Typically Shipped Separately)
FILTER SECTION
HEPA Filter Latches ship loose and/or attached to HEPA filter frames

*Lifting Lugs are attached to unit base when shipping section is ordered with "fully wrap" shipping cover.



Shortage of field installed items must be reported within ten (10) days after receipt of order.

CLEARANCE REQUIREMENTS

Particular attention should be paid to the location and clearances between the air-handling unit and adjacent objects.

The national electrical code (NEC or CEC) requires a minimum of at least 36 inches of service space be-

tween the face of any electrical enclosure and any wall or obstruction.

Sufficient clearance needs to be provided to open doors and install piping and ducting. There must be no obstructions to prevent airflow through the hoods or louvers. Allow a distance equal to the horizontal width of the louver between the louver and any wall facing the louver.

Allow sufficient space around the unit for removing the access panels and various parts of the unit such as the belt guard. A minimum clearance equal to the width of the unit should be provided on one side of the unit for removing coils, fan shaft, and fan wheel.

STORAGE

Short term storage is considered six (6) months or less from date of shipment. Storage maintenance during this time period is usually limited to the following:

1. Store units in dry, indoor protected area on a firm flat surface to prevent unit distortion.
2. Protect units from excessive vibration and accidental impact.
3. Do not store other equipment on top of or inside unit.
4. When unit is stored outdoors, prior to installation within building, special care should be taken to cover and protect the unit from dust, rain, snow and rodents. The units should be protected from constant exposure to rain and snow.
5. Outdoor storage period shall not exceed 1 week unless the outdoor storage guidelines are followed.

Outdoor Storage

Whenever possible, unit should be stored indoors or under cover. If unit must be stored more than 1 week outdoors, Johnson Controls recommends the following guidelines:

1. Cover all floor openings and secure all doors.
2. Tarp unit to protect unit from dust, rain, snow and rodents. (Tarp over the roof and down the side to the base channel and secure.)
3. Store on level surface. If unit must be raised off ground, supports under base channel and base channel cross supports at maximum interval of 5 feet.

4. Fan wheels should be rotated by hand 90° every month. Lightly lubricate bearings every two (2) months.
5. A 200-watt light bulb needs to burn continually in each section to prevent water condensation inside unit.
6. Inspect and ventilate each section every 2 weeks to prevent them from getting musty and to ensure that unexpected problems are addressed immediately. Special care may be required for electrical or electronic components.

Long-term Storage

Long-term storage is considered to be any period beyond six (6) months from date of shipment. If long-term storage is anticipated, contact Johnson Controls Sales Representative at time of order entry for the proper instructions and requirements for long-term storage. Refer to Form 50.20-NM3 on page 47.

Lifting and Handling

The unit will ship (as specified on unit submittal) either assembled, as a subassembly (collection of parts), or as individual sections.

To prepare for safely lifting the air-handling unit, estimate the approximate center of gravity. Internal placement of components may cause the weight to be unevenly distributed, with more weight in the coil and fan areas.

Removable lifting lugs are provided to raise the unit. (Lifting lugs are typically shipped in fan section and must be installed before lifting. *Lifting lugs are attached to unit base when shipping section is ordered with “fully wrap” shipping cover.) Spreader bars are required to prevent damage to the cabinet and protruding components during a lift. Use all lifting lugs provided. Adjust the tension in each line for proper load distribution, (See *Figure 2 on page 11* and *Figure 3 on page 11* for recommended lifting).

BOLTED LOOSELY / SHIPPED IN ONE PIECE

Split units may be shipped “loosely” assembled to reduce freight costs. The split sections are fastened together using a minimum number of bolts for transit and can be removed off the truck to the ground. Disassembly is required before lifting to the roof. Each section must be lifted individually to the roof.



Remember - when lifting; use all lifting lugs to avoid damage and/or personal injury. Lifting lugs are shown in Figure 4 on page 12.

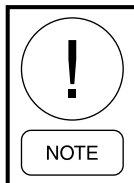
If there are no lifting lugs, a belt type sling should be used to raise the unit. Be cautious in avoiding protrusions such as electrical boxes, coil connections, and door handles.

Do not lift non-base units or subassemblies by attaching clevis, hooks, pins, bolts, etc. to casing, casing hardware, angles, tabs or flanges.

Lift the air-handling unit only in an upright position. Never lift or move a unit on its side or upside-down.



If you do not rig or lift the unit carefully, you could damage the unit, hurt yourself or others. Use Caution!

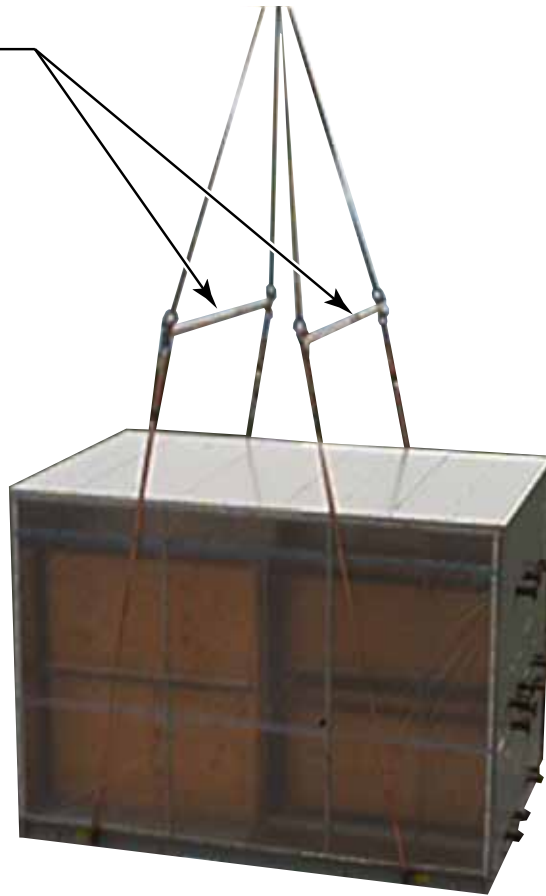


Outdoor Custom units have an optional roof coating applied where light foot traffic is permitted, but storage of materials typically found on construction sites are not permitted to be placed on roofs. Care must be taken not to damage the roof coating. If other than light foot traffic or storage of materials becomes necessary, plywood may be placed on the roof provided the weight applied does not exceed 50lbs. per sq. ft.

WARNING:

UNIT SECTIONS ARE BOLTED TOGETHER FOR SHIPPING PURPOSES. SECTIONS MUST BE SEPARATED AND SEALED PRIOR TO FINAL INSTALLATION AND OPERATION.

SPREADER BARS MUST BE WIDER THAN THE UNIT WIDTH TO PREVENT DAMAGE TO THE HOUSING.



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FIGURE 2 - RECOMMENDED LIFTING WITH FOUR LIFTING POINTS

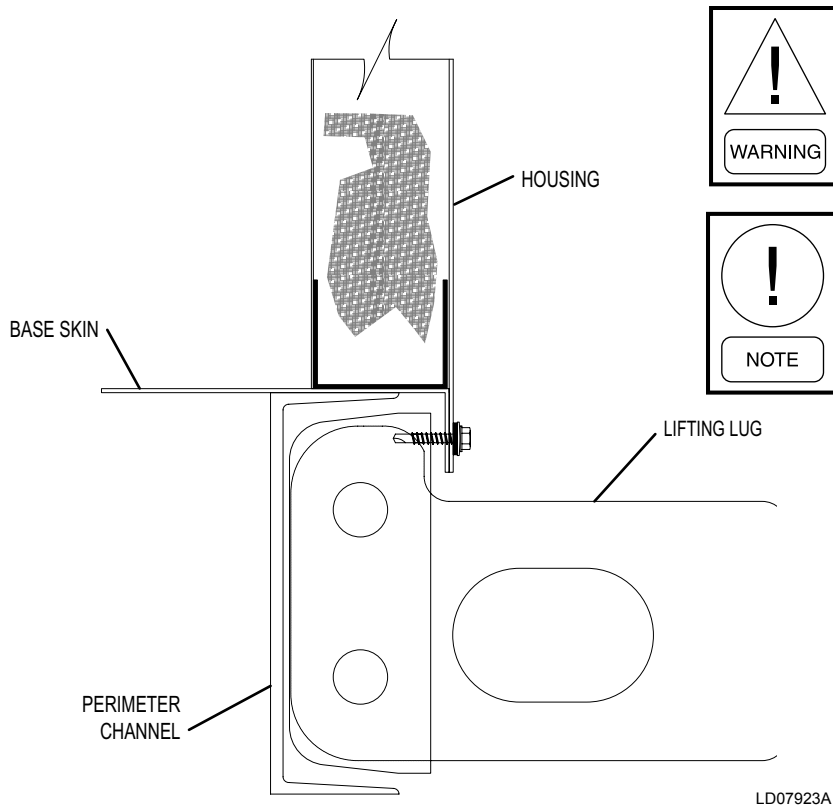
SPREADER BARS MUST BE WIDER THAN THE UNIT WIDTH TO PREVENT DAMAGE TO THE HOUSING.



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RIGGING INSTRUCTIONS
FOR LIFTING AIR HANDLERS WITH LIFTING LUGS, USE SPREADER BARS AND CABLES AS INDICATED. DO NOT USE A FORKLIFT. ALL LIFTING LUGS MUST BE USED TO AVOID DAMAGE.

FIGURE 3 - RECOMMENDED LIFTING WITH MULTIPLE POINTS



Do not lift non-base units or subassembly by attaching clevis hooks, pins or bolts to casing, casing hardware, angles, tabs or flanges.



Save bolts when removing lifting lugs. Bolts will be used for assembly of split units.

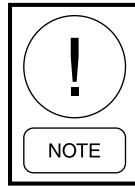


FIGURE 4 - LIFTING LUGS

LOCATION CONSIDERATIONS

Housekeeping Pad

The floor and foundation on which the units are to be located should be rigid and level (shim if required).

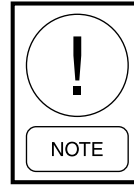
Shims should be placed at intervals no longer than 5 feet apart. On units longer than 8 feet wide, foundation shall support not only perimeter base channel, but also “interval cross supports.” Consult factory if housekeeping pad is not continuous.

The structure should be capable of supporting the weight of the unit, including the fan motor and the water or refrigerant within the coils, plus the load imposed by the rotating centrifugal fans.

Secure the unit to the housekeeping pad. The installer is responsible to secure the unit to the housekeeping pad in accordance with applicable building and earthquake codes.

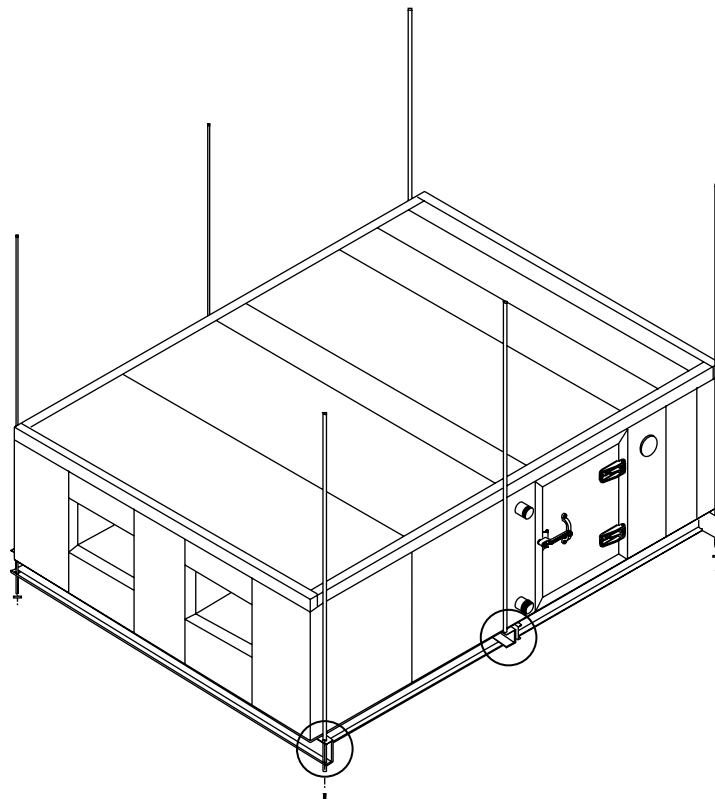
Ceiling Suspended Units

Ceiling suspended units are designed to be supported from the welded base (see *Figure 5 on page 13*). Four or more suspension points are required to support the unit. On ceiling suspended units with splits, suspension rod is required on only 1 side of split (once split base is bolted together.) (Number of support points depends on unit length and weight and is shown on submittal.)



The casing is not intended to support the unit.

The installer is responsible to make the hanging installation in accordance with applicable building and earthquake codes.



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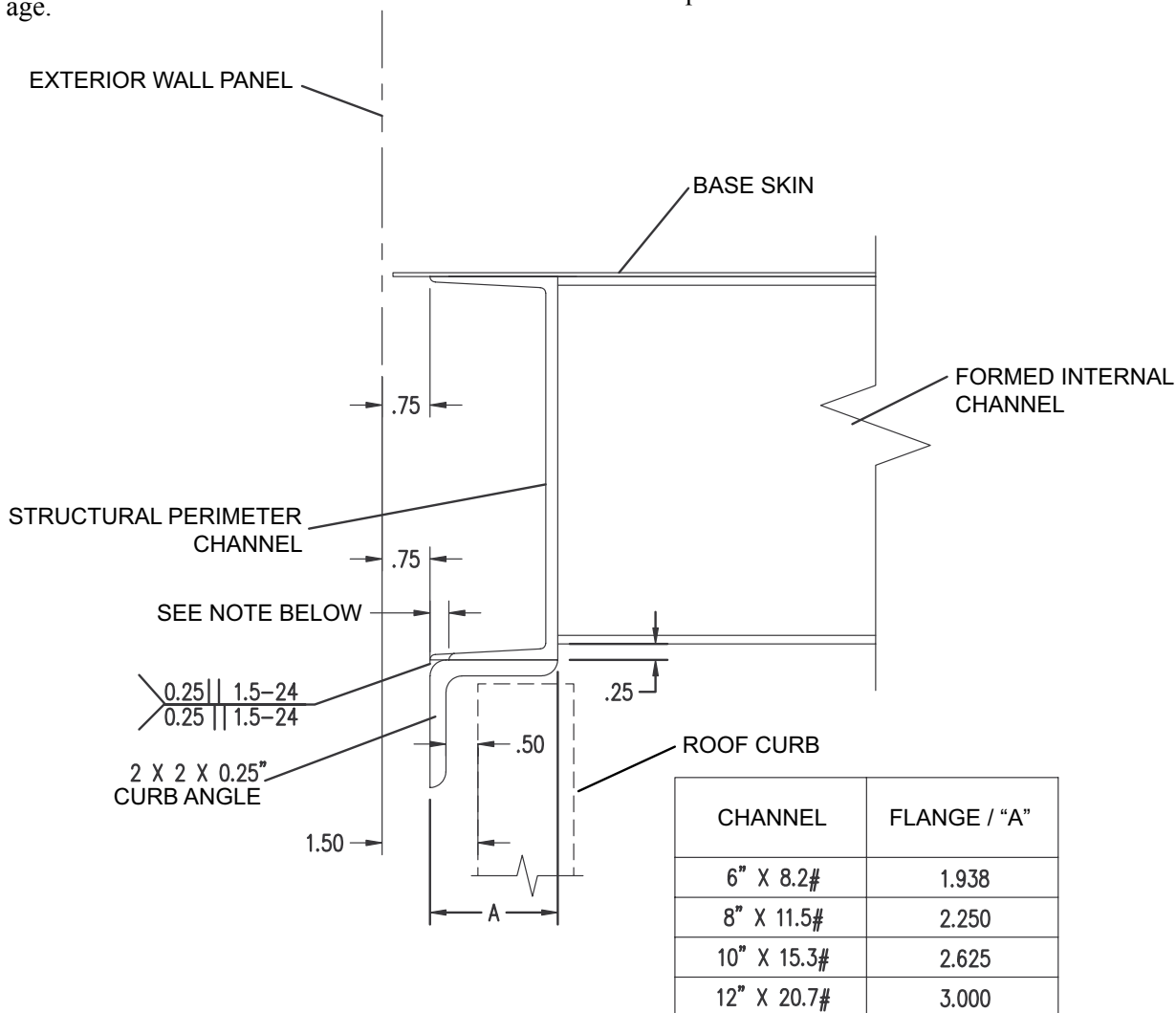
FIGURE 5 - CEILING SUSPENDED UNIT

Roof Curb Assembly (Optional)

1. When supplied by Johnson Controls, roof curbs ship either fully welded or in pieces. If bolted curb construction, bolt together.
2. Curb must be level (shim if required). Shims should be placed at intervals no larger than 5 feet apart. On large units with splits, remember to shim at the split's mid-span (see *Figure 7 on page 15*).
3. The installer is responsible to secure roof curb to the building structural support in accordance with local building and earthquake codes.
4. Seal all roof curb joints and seams with suitable sealer/polyurethane caulk to prevent water leakage.

Roof Curb Installation

1. Check that the curb is level and secured to the roof.
2. Check that there is adequate height between the base of the unit and the roof to allow for drain trapping.
3. Install 1/8" thick neoprene gasket, on the top of the curb to provide a seal between the unit and the roof curb. If units must be slid into place, a polyurethane sealant may be used in lieu of the gasket.
4. Lift the unit in place.
5. The installer is responsible to secure installation in accordance with the local building and earthquake codes.



NOTE:
Flange width can vary. Locate outside edge of curb angle using "A" dimension from the back side of the perimeter channel.

FIGURE 6 - ROOF CURB DETAIL

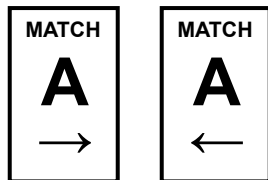
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SPLIT UNIT REASSEMBLY

General

Units which are shipped in sections, must be installed on a proper foundation and carefully assembled to provide the required unit performance.

- Johnson Controls Custom units are assembled in one piece in our factory, and then, split prior to shipping.
- Johnson Controls Custom units must be level for reassembly.
- All bolts, nuts, washers, split covers and polyurethane caulking (if required) can be found in supply fan section.
- All splits are labeled with letters (A-A, B-B, for example) to indicate which sections are to match up for reassembly.

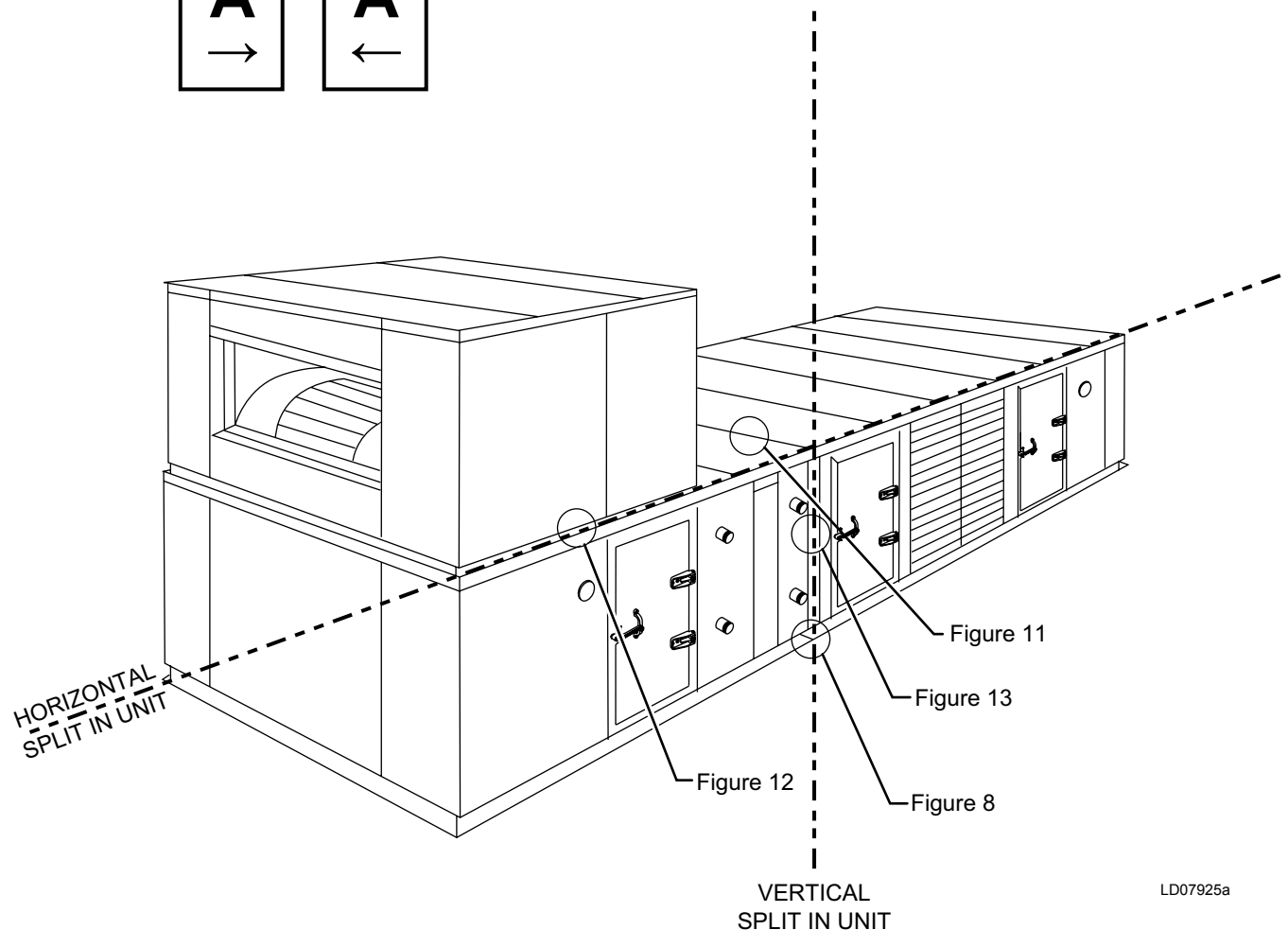


REMOVABLE LIFTING LUGS

If your unit is wider than any split section's airway length, you will be provided with removable lifting lugs along the width of unit. Once the splits have been placed as close as possible to each other, remove the inner lifting lugs. A hand-actuated winch, or come-along, can be used to bring the unit sections closer together for final bolting. Attach hand winch or come-along to base "tie down tubes" to bring unit together.

ELECTRICAL WIRING/PIPING

It is the installer's responsibility to reconnect all internal and external electrical or piping splits. All wires are colored and/or numbered to designate which wires should be joined at each split. Before turning on power, check all electrical circuits for continuity!

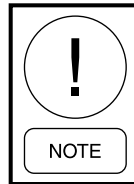


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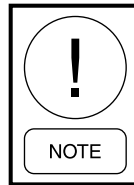
FIGURE 7 - TYPICAL CABINET SPLIT

REASSEMBLY PROCEDURE FOR VERTICAL SPLIT UNIT

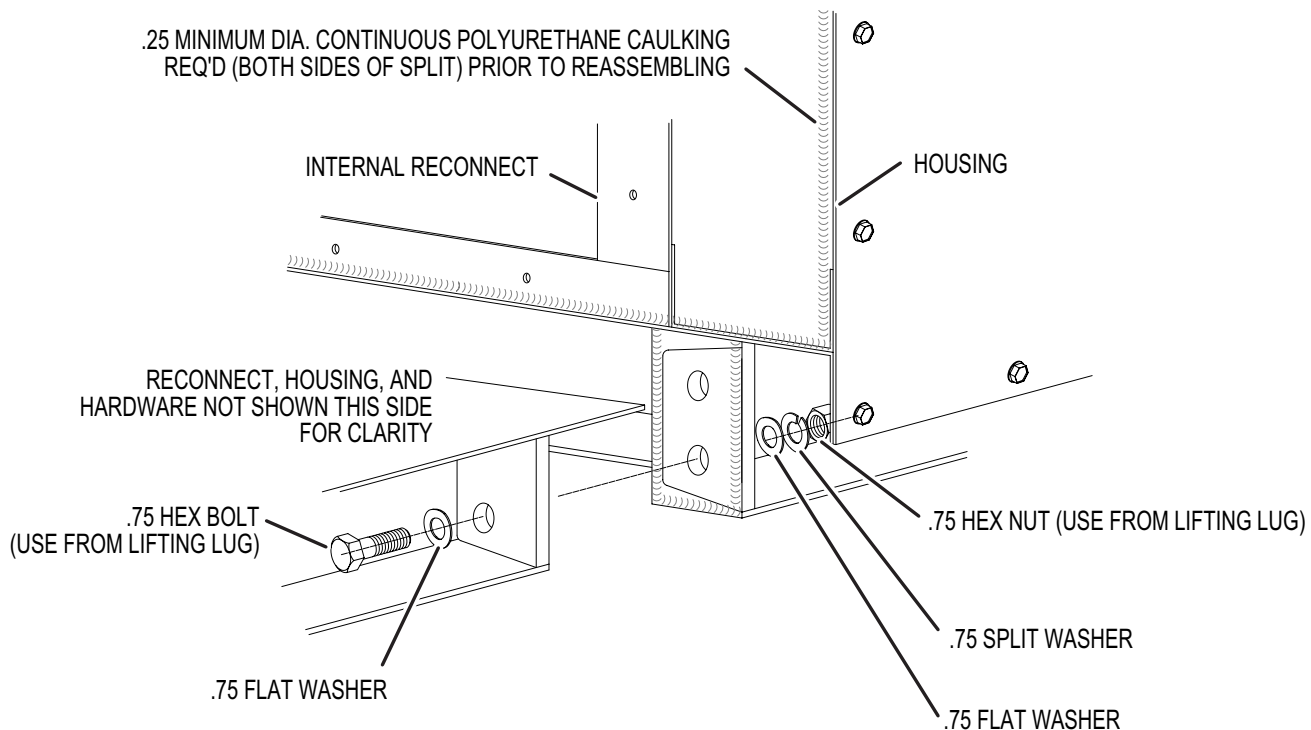
1. Position sections on level surface.
2. Apply polyurethane caulk where shown on both sides of split and bolt base together.
3. Attach hand winch to base “hold down tubes” and pull split section together. Bolt base per *Figure 8 on page 16*.
4. Split seams that have internal access to both sides of split will be reattached with bolts and nuts. Split seams with internal access to only one side of split will have cage nuts on the blind side and bolts installed from accessible side. All bolt holes require a bolt.
5. If bolt holes do not align, it may be due to racking during transit to job site. Use jack to lift one side until holes on the wall of the opposite side align. Bolt this wall together and then remove jack from opposite side. As the unit settles, the out-of-square racking caused during transit should realign. Continue assembly with bolting other side, base, floor and roof, making use of a drift pin to align the holes. Bar clamps may be needed to align the roofs together. If bar clamps are needed use wood for protection in between the bar clamp and unit.
6. Check to see if all bolts are secured properly, and apply polyurethane caulk to all exterior seams per *Figure 8 on page 16*.
7. Drive screw or bolt floor flange together.
8. CHECK all splits to see if polyurethane caulk was applied and split was bolted properly.
9. CHECK all splits to see if all electrical and piping connections are complete and correct.



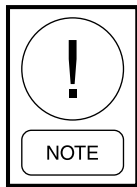
Temporary roof supports and diagonal (shipping) supports should not be removed until the split sections are completely reassembled.



Outdoor Custom units that have an SQ for roof coating applied where light foot traffic is permitted, but storage of materials typically found on construction sites are not permitted to be placed on roofs. Care must be taken not to damage the roof coating. If other than light foot traffic or storage of materials becomes necessary, plywood may be placed on the roof provided the weight applied does not exceed 50lbs. per sq. ft.

**FIGURE 8 - BASE ASSEMBLY ATTACHMENT**

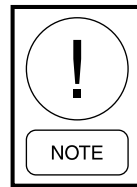
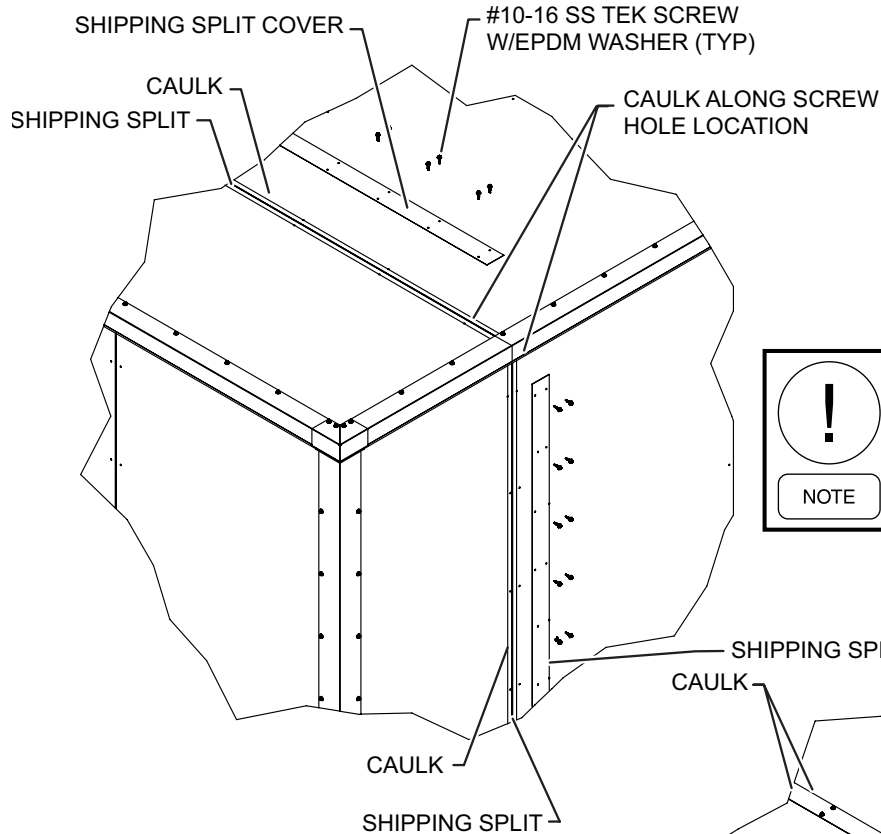
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Only use caulking shipped with unit.

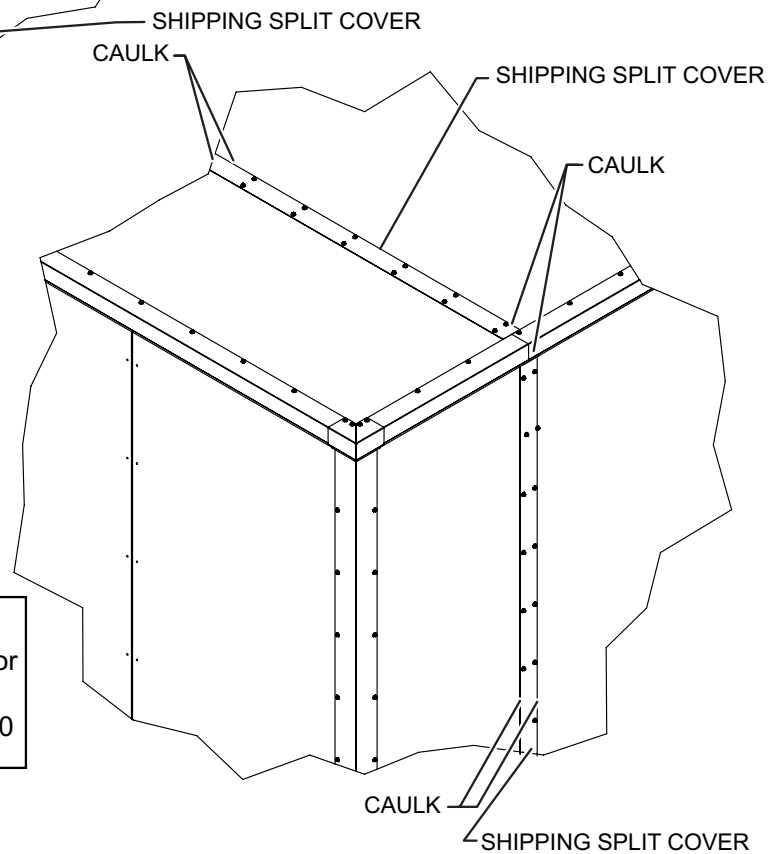


Do not use silicone caulking on field re-connects or on shipping split covers.



Shipping split covers ship with the air handler installed to one side of the reconnect. Remove cover and install across the split as shown on Detail A and B.

DETAIL A



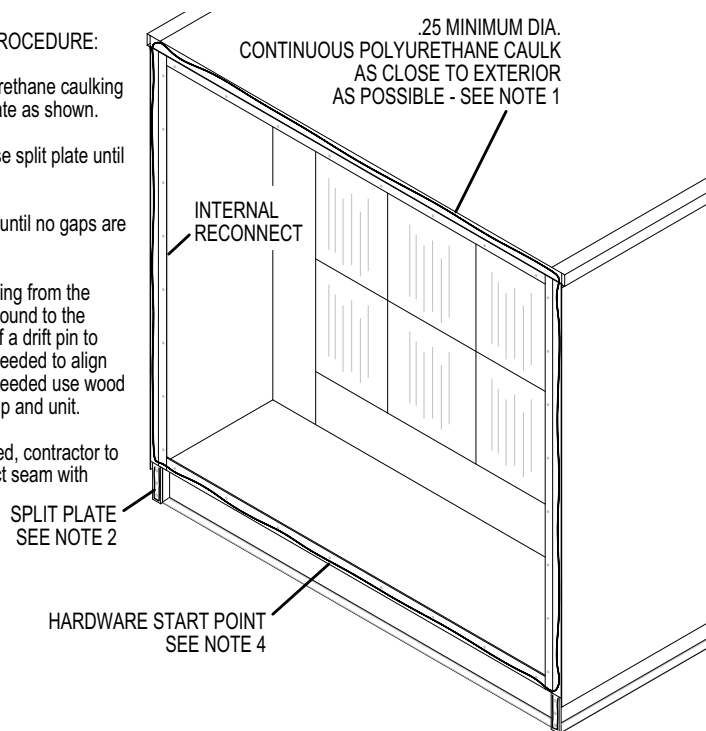
Acceptable Polyurethane Caulking:
Manus-bond, Gray, P/N 013-02966-001 or
Sikaflex, Gray, P/N 013-03317-050 or
Sikaflex, Champagne P/N 013-03317-040

FIGURE 9 - SPLIT REASSEMBLY PROCEDURE FOR OUTDOOR UNITS ONLY

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RECONNECTION INSTALLATION PROCEDURE:

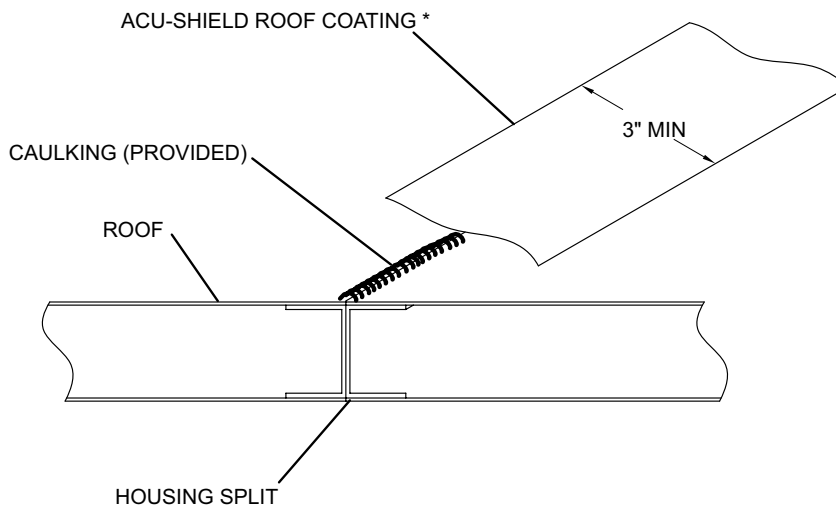
1. Apply a generous amount of polyurethane caulking to the face of the housing and split plate as shown.
2. Pull sections together from the base split plate until they meet.
3. Clamp off bottom leg of reconnect until no gaps are visible.
4. Install reconnection hardware starting from the middle of the bottom angle working around to the middle of the top angle, making use of a drift pin to align the holes. Bar clamps may be needed to align the roofs together. If bar clamps are needed use wood for protection in between the bar clamp and unit.
5. Once unit sections have been joined, contractor to seal the exterior and interior reconnect seam with polyurethane caulk.



LD07932A

FIGURE 10 - SPLIT REASSEMBLY PROCEDURE**OUTDOOR SPLIT ROOF SEALANT PROCEDURE**

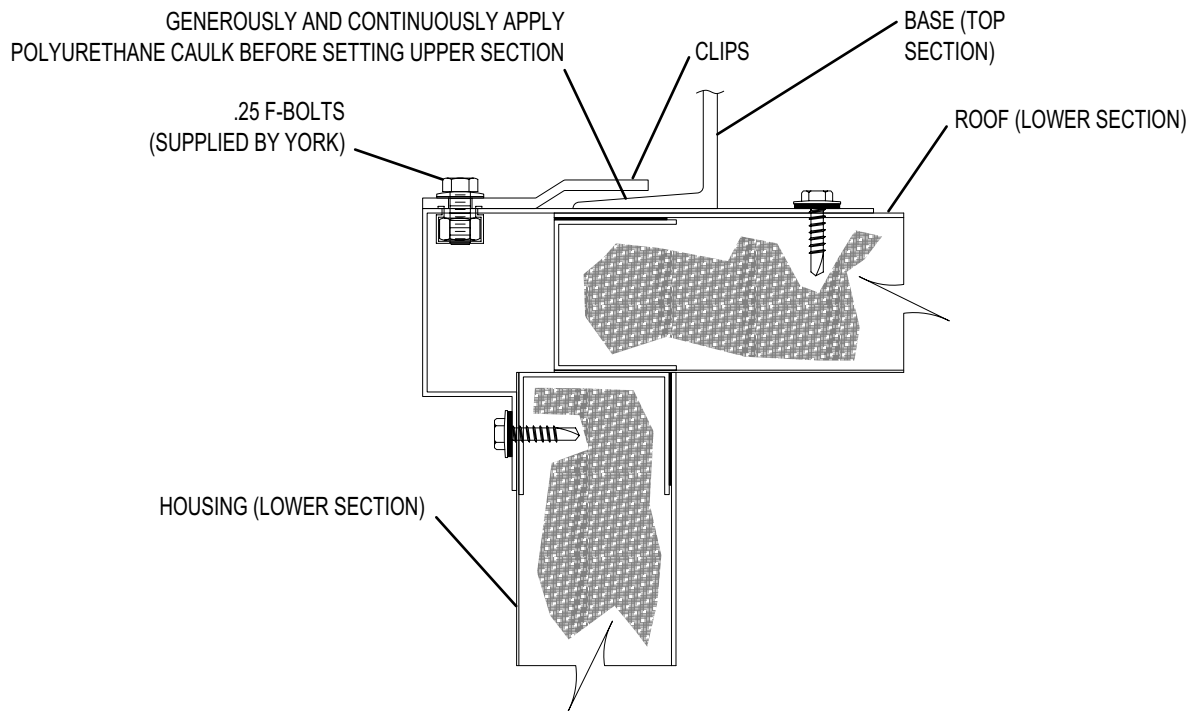
1. The mechanical joint between sections must be bolted and sealed with polyurethane caulking.
2. Acu-Shield Roof Coating can be applied after polyurethane caulking is dry and when surface temperature is between 45 and 108 degrees. Below 45 degrees, extra steps must be taken to keep the polyurethane caulking, acu-shield, and metal reconnect surfaces heated for proper application during installation. Contact Product Service for further direction.
3. Do not apply when inclement weather is imminent within a 24 hr. period.
4. Do not apply to wet, ice, or snow covered surfaces.
5. Before applying, clean surface with wire brush or solvent wipe (not provided).
6. Apply Acu-Shield Roof Coating with 3" wide roller or 3" wide paintbrush (not provided).
7. One quart applied at 45 mils is equal to a 3 inch wide X 33 ft. long section.
8. Cure time will vary with temperature and humidity. Under normal conditions, a rubber coating can be expected within a 24 hr. period.



* Provided with ship loose items in fan section (see table in Section 2 "Receiving & Inspection").

LD07933B

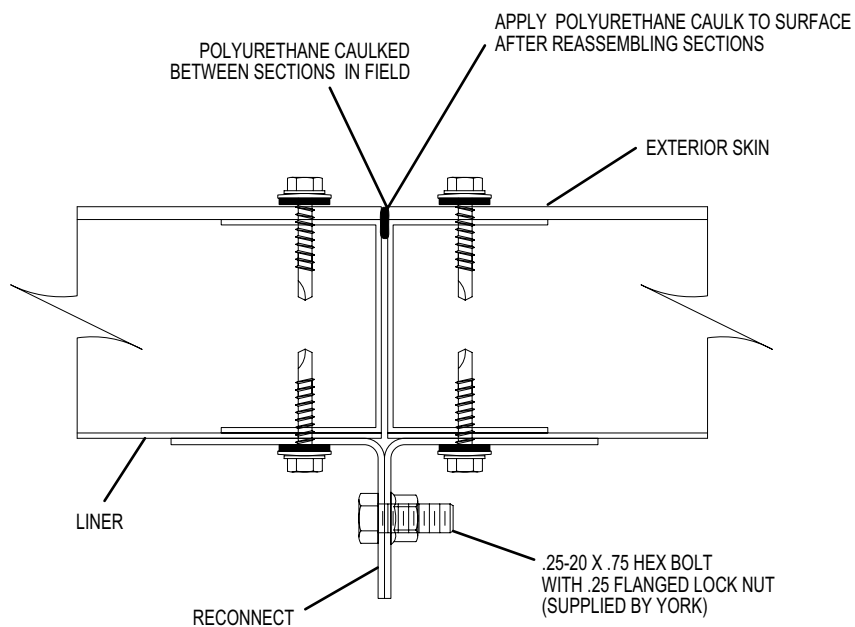
FIGURE 11 - OUTDOOR SPLIT ROOF SEALANT PROCEDURE ON ROOFS W/ACU-SHIELD OPTION



STACKED UNIT CROSS SECTION

LD010140

FIGURE 12 - HORIZONTAL SPLIT

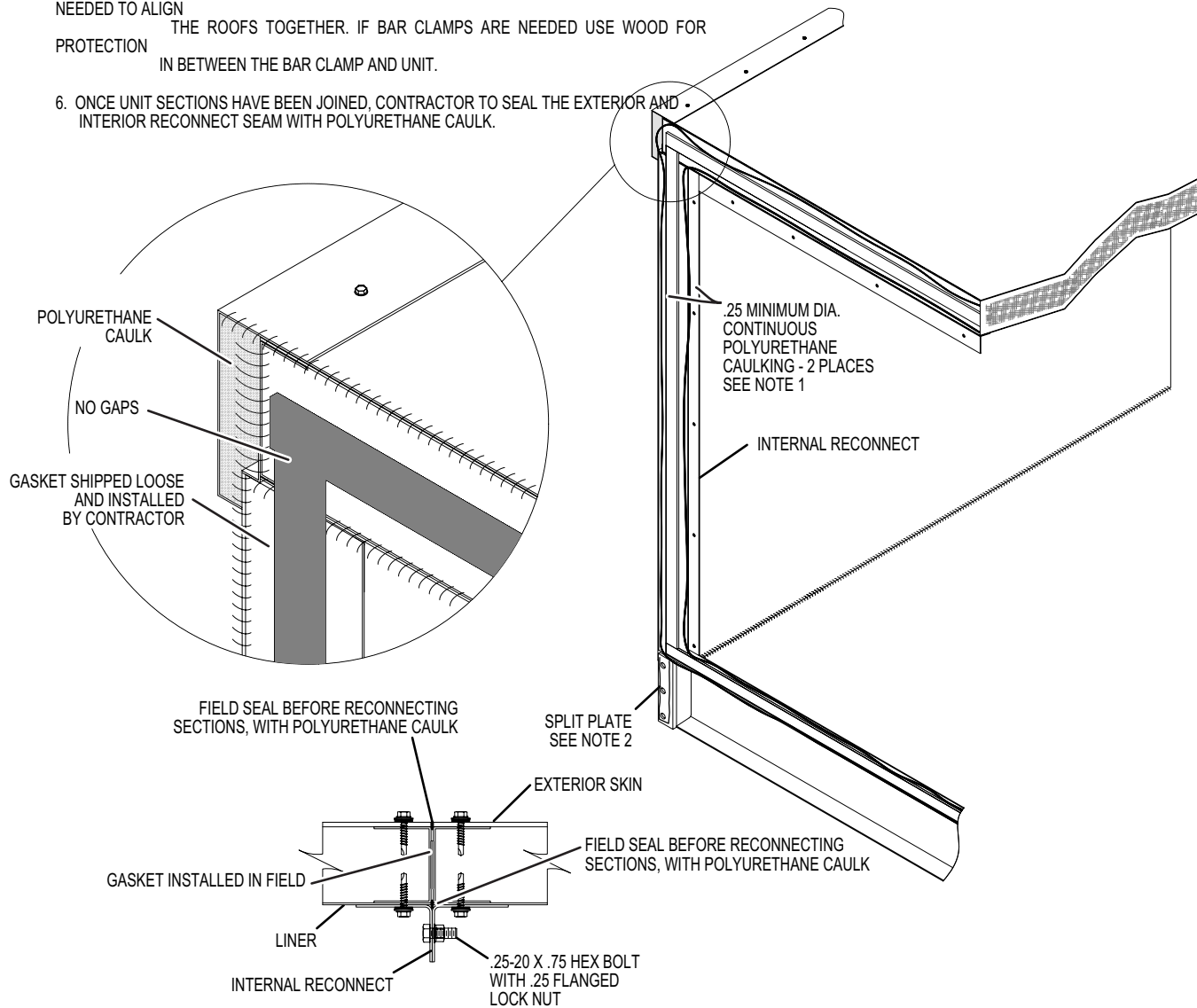


LD010141

FIGURE 13 - CROSS SECTION OF SPLIT WALL ASSEMBLY

THERMAL BREAK RECONNECTION INSTALLATION PROCEDURE:

1. APPLY A GENEROUS AMOUNT OF POLYURETHANE CAULKING TO THE FACE OF THE RECONNECTION FLANGE AND SPLIT PLATE AS SHOWN.
2. CONTRACTOR TO INSTALL GASKET BEFORE JOINING SECTIONS. GASKET TO BE SHIPPED LOOSE.
3. PULL SECTIONS TOGETHER FROM THE BASE SPLIT PLATE UNTIL THEY MEET.
4. CLAMP OFF BOTTOM LEG OF RECONNECT UNTIL NO GAPS ARE VISIBLE.
5. INSTALL RECONNECTION HARDWARE STARTING FROM THE MIDDLE OF THE BOTTOM ANGLE WORKING AROUND TO THE MIDDLE OF THE TOP ANGLE, MAKING USE OF A DRIFT PIN TO ALIGN THE HOLES. BAR CLAMPS MAY BE NEEDED TO ALIGN THE ROOFS TOGETHER. IF BAR CLAMPS ARE NEEDED USE WOOD FOR PROTECTION IN BETWEEN THE BAR CLAMP AND UNIT.
6. ONCE UNIT SECTIONS HAVE BEEN JOINED, CONTRACTOR TO SEAL THE EXTERIOR AND INTERIOR RECONNECT SEAM WITH POLYURETHANE CAULK.



LD07931A

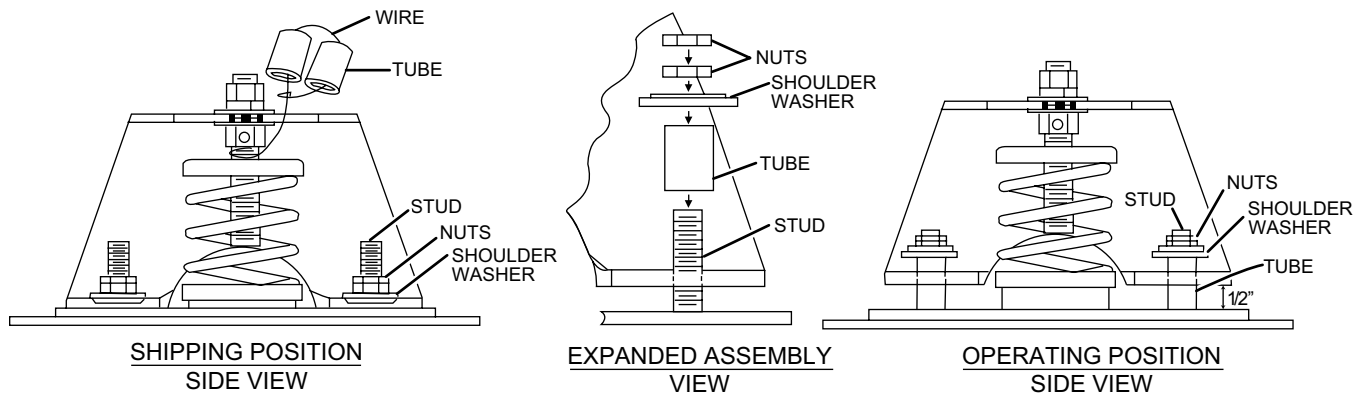
FIGURE 14 - MULTI-SECTION GASKET INSTALLATION ON THERMAL BREAK UNITS

FAN HOLD-DOWN/SPRING ISOLATOR SET-UP

All fans are internally spring isolated and will be bolted down (see *Figure 15 on page 21*) for unit shipping. After unit is in place, assembled and leveled, Fan Hold-Down can be disassembled by removing two (2) nuts and one (1) washer from each side. Remove tubes from wire and discard wire.

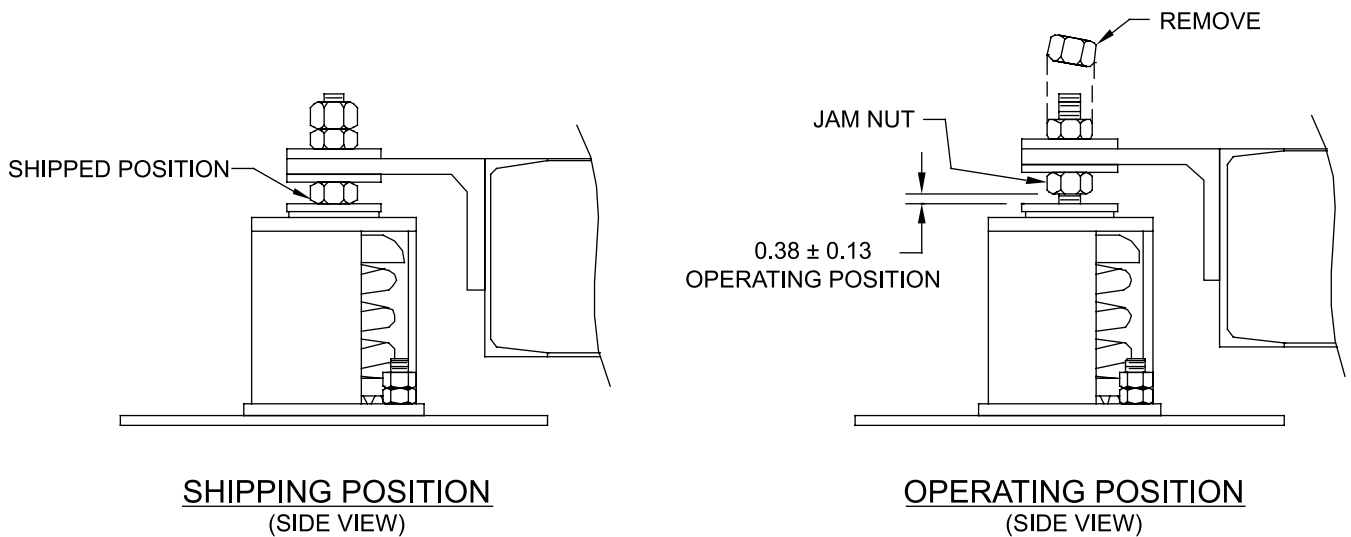
Place tubes on studs and place shoulder washer (shoulder up) on studs. Place one (1) nut on each stud and tighten it on shoulder washer.

Place remaining nuts on studs and tighten to lower nut to lock in place.



P-STYLE PLUG FAN

LD05617



BUY-OUT ISOLATORS

1. Remove the 7/8 nut as shown in the operating position view.
2. Loosen the 7/8 jam nut between the isolator housing and the fan base support angle until the desired level is achieved.

3. Repeat step two until all isolators are set at the proper elevation and the fan base is level.

LD07934

FIGURE 15 - SPRING ISOLATOR SET-UP

CONDENSATE DRAIN TRAP SIZING

All condensate drain connections and floor drains must be trapped at the job site location. Failure to properly trap a drain will result in flooding of the drain pan and potential water damage to the air-handling unit and other building facilities.

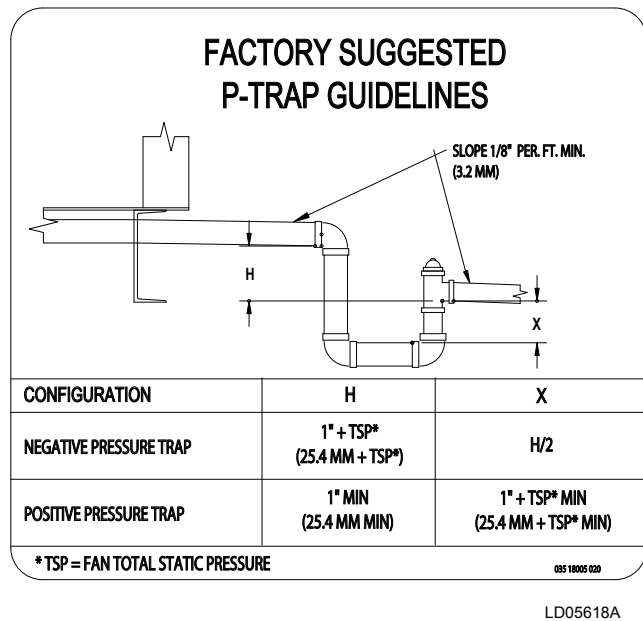


FIGURE 16 - CONDENSATE DRAIN TRAP SIZING

IAQ DRAIN PAN CONSTRUCTION

IAQ drain pan slopes in two (2) planes, is a minimum of 3" deep at drain connection and is available in galvanized or 304 stainless steel. Drain pan connection, condensate tray, and coil supports are manufactured with same material as drain pan unless otherwise specified.

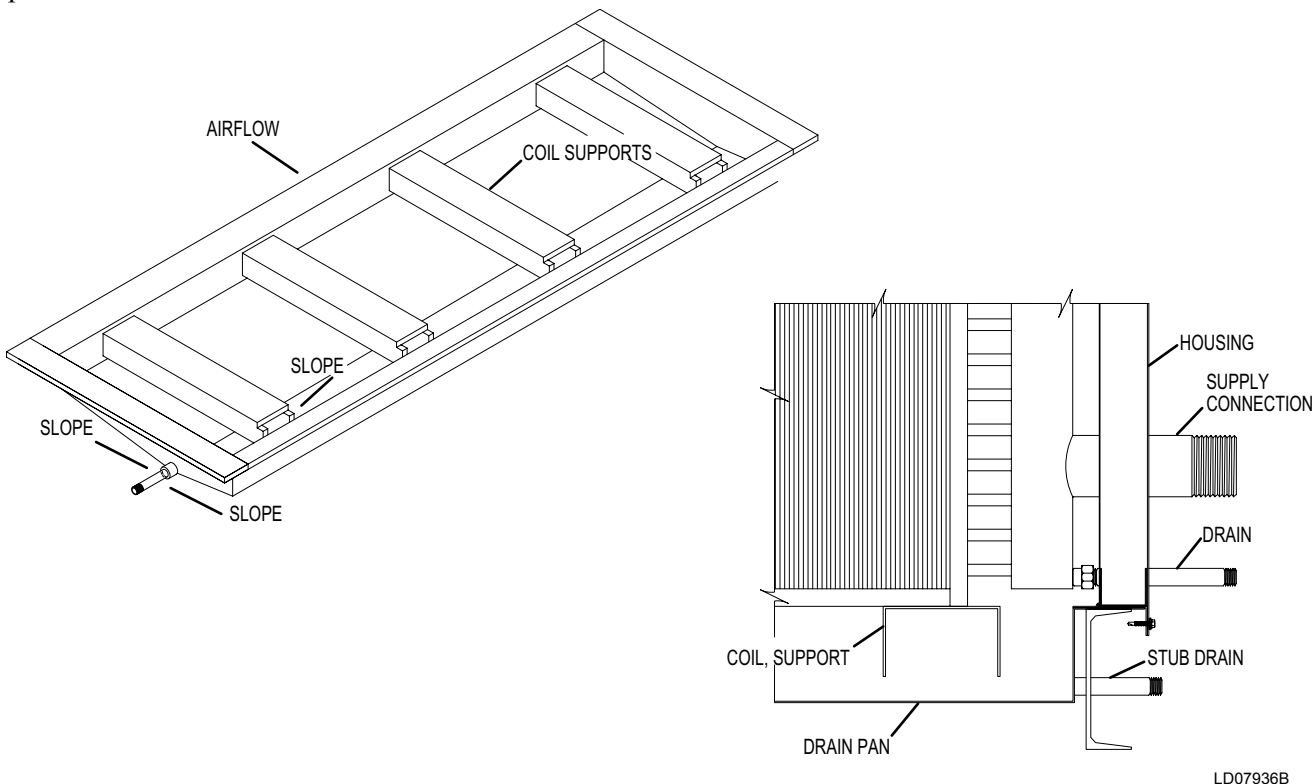


FIGURE 17 - IAQ DRAIN PAN DETAIL

DUCT CONNECTIONS

Make duct connections to the casing by screwing flanged ducts directly to the casing with self-tapping sheet metal screws.

Duct connections to collar-type openings can be made with s-cleats or overlapping joints.

Apply polyurethane caulking around the duct connection. It is important to seal all duct connections to prevent air-leakage and system performance problems.

All duct connections are to be insulated (as required) by the installing contractor.

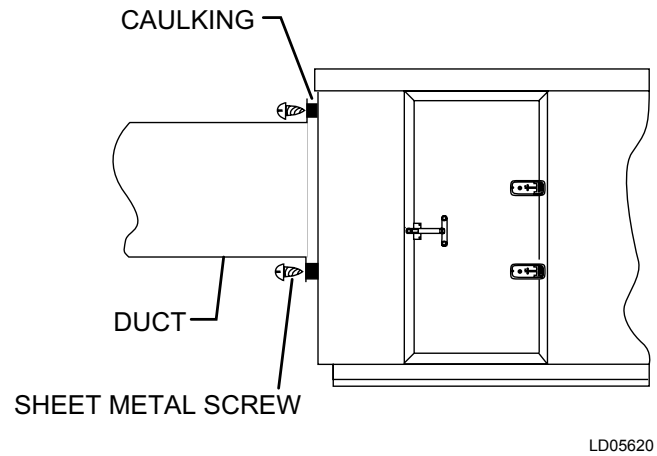


FIGURE 18 - DETAIL OF DUCT CONNECTION

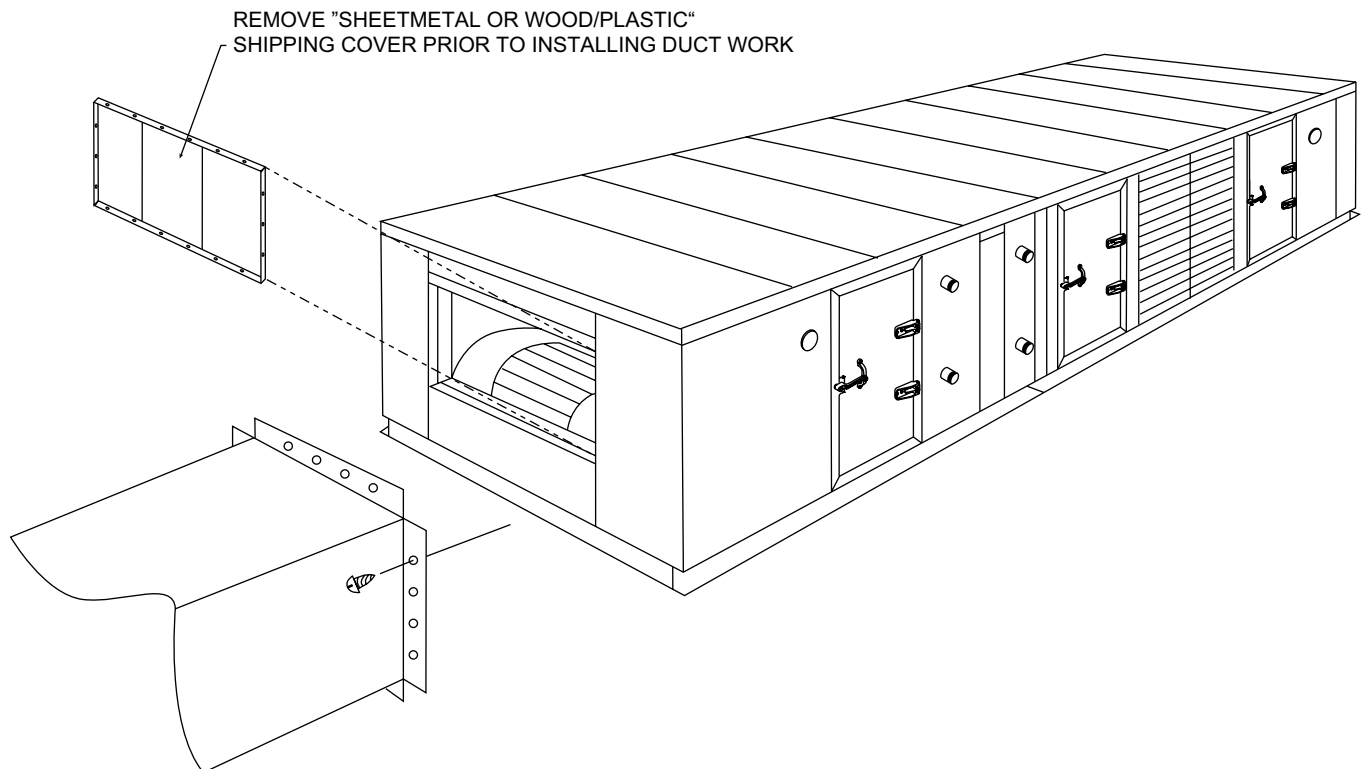
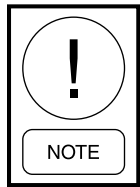


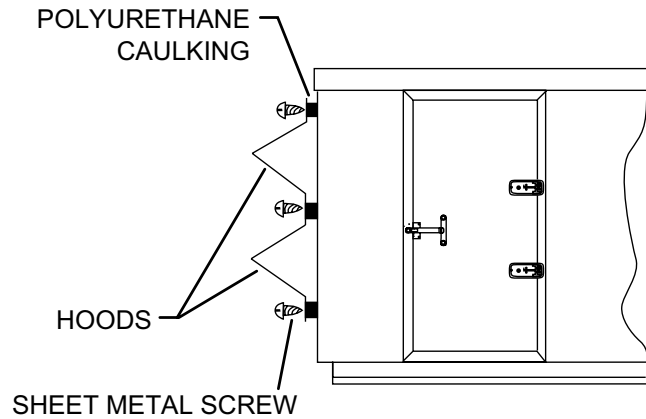
FIGURE 19 - CONNECTION OF DUCT

WEATHER HOOD CONNECTION

1. Apply polyurethane caulking to the flange of the hood.
2. Align the hood over the opening. Check for adequate clearance to doors and other openings on the air-handling unit.
3. Install the hood onto the unit using sheet metal screws through the unit casing. On openings requiring multiple hoods, repeat this procedure for each of the hoods.
4. Carefully, remove excess polyurethane caulking from around the flange of the hood.

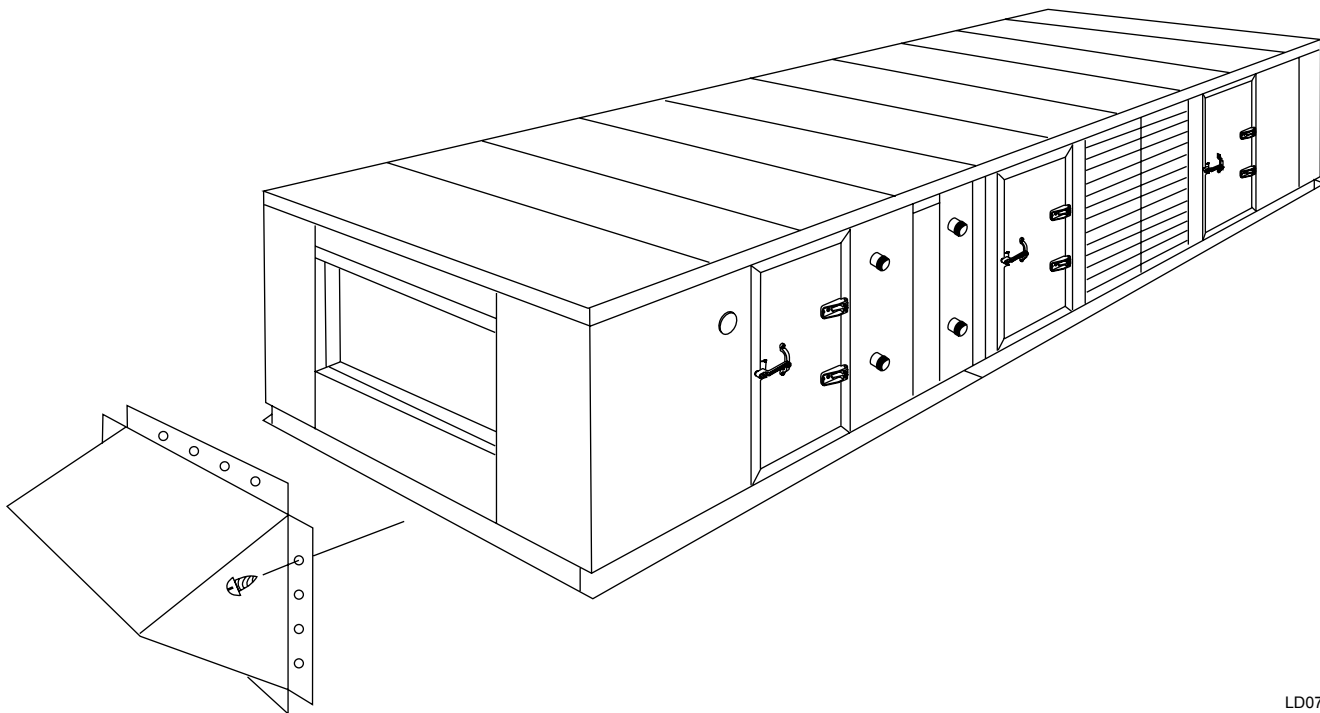


Any penetration of cabinet skin will cause water and air leakage. Thoroughly seal any screw, piping or electrical holes with appropriate sealant. Self tapping screws are not weather tight.



LD05622a

FIGURE 20 - CONNECTION OF WEATHER HOOD(S)



LD07943

FIGURE 21 - WEATHER HOOD INSTALLATION

FAN BEARING LUBRICATION

Standard fan configurations ship with fan bearings factory lubricated (ready for start-up). The fan should be turned off and locked out to prevent accidental start-up of the fan during lubrication procedures. Also, secure sheaves before servicing the unit to insure that the fan cannot free-wheel. Failure to do so may result in severe personal injury.

Proper lubrication of bearings helps to assure maximum bearing life. Generally, lubricate bearings every 1000 hours of operation or more frequently when exposed to wet location, wide temperature variety or severe atmospheric conditions.

Add grease with manual grease gun until a light bead of grease appears at the bearing grease seal or refer to lubrication frequency in the *Tables 1, 2 and 3*. Observation of the condition of the grease expelled from the bearings at the time of re-lubrication is the best guide

as to whether lubrication intervals and the amount of grease added should be altered. Always lubricate bearings prior to extended shut-down or storage and rotate shaft monthly.

Recommended Lubricant for Fan Bearings

A Lithium / Petroleum base grease conforming to an NLGI Grade II consistency is normally used. Lubricant must be free of any chemical impurities such as free acid or free alkali, dust, rust, metal particles or abrasives. This light viscosity, low torque grease is rust inhibited and water resistant, has a temperature range of -30°F to +200°F with intermittent highs of +250°F. Lubricate bearings as required by the severity of required duty.

Proper Interval and Quantity

See *Tables 1, 2 and 3*.

TABLE 1 - FAN BEARING – LUBRICATION INTERVALS - BALL BEARING PILLOW BLOCKS

RE-LUBRICATION SCHEDULE (MONTHS)									
SPEED (RPM)	500	1000	1500	2000	2500	3000	3500	4000	4500
SHAFT DIA.									
1/2" thru 1-11/16"	6	6	5	3	3	2	2	2	1
1-15/16" thru 2-7/16"	6	5	4	2	2	1	1	1	1
2-11/16" thru 2-15/16"	5	4	3	2	1	1	1		
3-7/16" thru 3-15/16"	4	3	2	1	1	1			

TABLE 2 - FAN BEARING – LUBRICATION INTERVALS - SPHERICAL ROLLER BEARING SOLID PILLOW BLOCKS

RE-LUBRICATION SCHEDULE (MONTHS)									
SPEED (RPM)	500	1000	1500	2000	2500	3000	3500	4000	4500
SHAFT DIA									
1-3/16" thru 1-7/16"	6	4	4	2	1	1	1	1	½
1-11/16" thru 2-3/16"	4	2	1½	1	½	½	½	½	½
2-7/16" thru 3-7/16"	3	1½	1	½	½	½	½		
3-15/16" thru 4-15/16"	2½	1	½	¼					

TABLE 3 - FAN BEARING – LUBRICATION INTERVALS - SPHERICAL ROLLER BEARING-SPLIT PILLOW BLOCKS

RE-LUBRICATION SCHEDULE (MONTHS)										Grease to be added at each interval
SPEED (RPM)	500	750	1000	1500	2000	2500	3000	3500	4000	
SHAFT DIA										
1-7/16" thru 1-15/16"	6	4½	4	4	3½	2½	2½	1	1	0.50 oz.
2-3/16" thru 2-11/16"	5	4½	4	2½	2½	1½	½	¼	¼	0.75 oz.
2-15/16" thru 3-15/16"	4½	4	3½	2½	1½	1	½			2.00 oz.
4-7/16" thru 4-15/16"	4	4	2½	1	½					4.00 oz.
5-7/16" thru 5-15/16"	4	2½	1½	1						7.00 oz.

FAN SEGMENT-FAN MOTOR

Keep the motor clean, dry and properly lubricated at all times. Blow dust and dirt out of windings periodically using low-pressure (50 psig) air.

Mounting Hardware and Adjustable Motor Base

- Check for loose parts.
- Check for damage.

Motor Condition (visual)

- Check for leaky bearing seals.
- Check for damage.
- Check for dirt, dust and debris in air vents on motor housing.



LDO9635

FIGURE 23 - ODP (OPEN DRIP PROOF)



LDO9639

FIGURE 22 - TEFC (TOTALLY ENCLOSED FAN COOLED)

Electrical Checks

- Check all electrical terminations.
- Check conduit fittings and clamps for damage or looseness.
- Check operating amperage and compare to nameplate.

Lubrication

Motor Bearing Lubricant

Bearing grease will lose its lubricating ability over time, not suddenly. The lubricating ability of grease (over time) depends primarily on the type of grease, the size of the bearing, the speed at which the bearing operates and the severity of the operating conditions. Good results can be obtained if the following recommendations are used in your maintenance program:

- A high-grade ball or roller bearing grease should be used. Recommended grease for standard service conditions is Polyrex EM (Exxon Mobil).

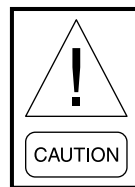
Maximum operating temperature for standard motors = 110°C.

Shutdown temperature in case of a malfunction = 115°C.

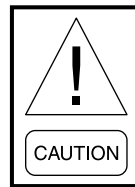
• Proper Interval

Lubrication Intervals – Recommended lubrication intervals are shown in *Table 4*. It is important to realize that the recommended intervals of *Table 4* are based on average use. Refer to additional information contained in *Tables 5* and *6*.

• Motor Lubrication Procedure



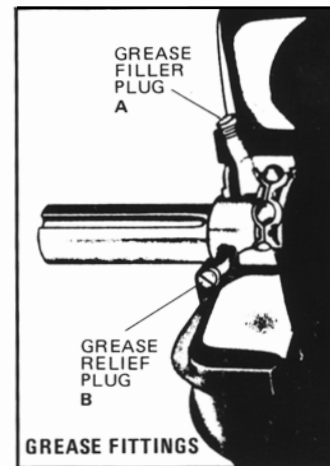
Be sure that the grease you are adding to the motor is compatible with the grease already in the motor. Consult your distributor or an authorized service center if grease other than the recommended type is to be used.



To avoid damage to motor bearings, grease must be kept free of dirt. For an extremely dirty environment, contact your distributor or an authorized Service Center for additional information.

• **With Grease Relief Plug**

1. Clean all grease fittings.
2. Remove grease relief plug.
3. If motor is stopped, add the recommended amount of grease.
4. If motor is to be greased while running, a slightly greater quantity of grease will have to be added. Add grease slowly until new grease appears at shaft hole in the end plate for purge relief plug.
5. Re-install grease relief plug



LD06352

FIGURE 24 - GREASE FITTINGS

TABLE 4 - MOTOR BEARING – LUBRICATION INTERVALS

NEMA / (IEC) FRAM SIZE	RATED SPEED - RPM					
	10000	6000	3600	1800	1200	900
Up to 210 incl. (132)	**	2700 HRS.	5500 HRS.	12000 HRS.	18000 HRS.	22000 HRS.
Over 210 to 280 incl. (180)			3600 HRS.	9500 HRS.	15000 HRS.	18000 HRS.
Over 280 to 360 incl. (180)			*2200 HRS.	7400 HRS.	12000 HRS.	15000 HRS.
Over 360 to 5800 incl. (180)			*2200 HRS.	3500 HRS.	7400 HRS.	10500 HRS.

* Lubrication intervals are for ball bearings. For roller bearings, divide the listed lubrication interval by 2.

** For 6205 and 6806 bearings. For 6807 bearings, consult oil mist lubrication (MN410).

Re lubrication interval for 6205 bearing is 1550 HRS. (Using grease lubrication).

Re lubrication interval for 6806 bearing is 720 HRS. (Using grease lubrication).

TABLE 5 - MOTOR BEARING – SERVICE CONDITIONS

SEVERITY OF SERVICE	AMBIENT TEMPERATURE MAXIMUM	ATMOSPHERIC CONTAMINATION	TYPE OF BEARING
Standard	40°C	Clean, Little corrosion	Deep groove Ball bearing
Severe	50°C	Moderate dirt, Corrosion	Ball thrust, roller
Extreme	>50°C* or Class h insulation	Severe dirt, Abrasive dust	All bearings
Low temperature	<-30°C**	Corrosion	

* Special high temperature grease is recommended. Note that high temperature grease may not mix with other grease types. Thoroughly clean bearing and cavity before adding grease.

** Special low temperature grease is recommended.

TABLE 6 - MOTOR BEARING – LUBRICATION INTERVAL MULTIPLIER

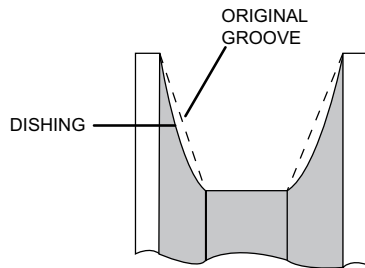
SEVERITY OF SERVICE	MULTIPLIER
Standard	1.0
Severe	0.5
Extreme	0.1
Low Temperature	1.0

INSPECTING V-BELTS AND SHEAVES

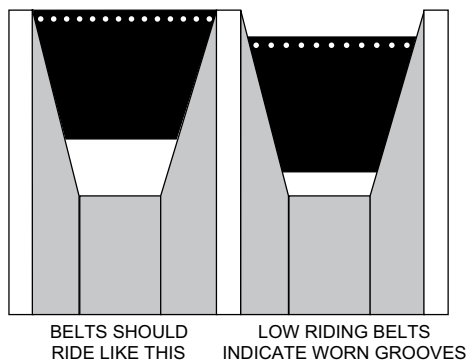
Before a new set of V-belts are installed, check the condition of the sheaves. Dirty or rusty sheaves impair the drive's efficiency and abrade the belts, which result in premature failure.

Inspect and clean sheaves; replace worn or damaged sheaves- Worn sheave grooves are one of the principal causes of premature belt failure. Get your money's worth from a new set of belts by inspecting the sheaves carefully!

- Clean dirty, dusty, or rusty sheaves. They will impair the drive's efficiency and wear out the belt. Feel sheave grooves (wear gloves or use a rag) for nicks or burrs, and file them smooth.
- Belts should ride in sheave grooves so that the top of the belt is just above the highest point of the sheave. If the grooves are worn to the point where the belt bottoms out (a clue: check for shiny groove bottoms), the belts will slip and burn.
- If the groove walls are “dished out,” the bottom corners of the belt will quickly wear off and cause rapid failure. Check groove wear by sight, touch, or with a groove gauge. If grooves are “dished out” 1/32" or more - replace the sheaves!



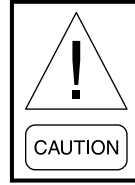
“DISHING” OF GROOVE SIDEWALLS SHORTENS BELT LIFE



LD05624a

FIGURE 25 - SHEAVE INSPECTION

Check Sheave Alignment



An incorrectly aligned sheave can substantially shorten belt life or overload blower and motor bearings, shortening their life expectancy. A belt tensioned too tightly can overload the motor electrically, causing nuisance tripping of the motor overloads and/or motor failure and/or shaft failure.

Sheave adjustment should be checked by placing a straight edge across the sheave faces so that it touches all four points of contact. Ordinarily, a misalignment of more than one-half of one degree (one-eighth inch in one foot) will adversely affect belt life. Improper sheave alignment produces uneven wear on one side of the belt, causes the belt to roll over in the sheave or throws all the load on one side of the belt, stretching or breaking the cords on that side.

After the proper operating tension has been applied to the belts, a double-check should be made of the following:

- Parallel position of the sheave shafts.
- Correct alignment of sheave grooves.

Sheave alignment and parallelism of shafts is very important. Proper alignment helps equalize the load across the entire belt width, thereby reducing wear and extending belt life. *Figure 26 on page 29* shows how to align a synchronous drive properly using a straight-edge (A) or a piece of string (B).

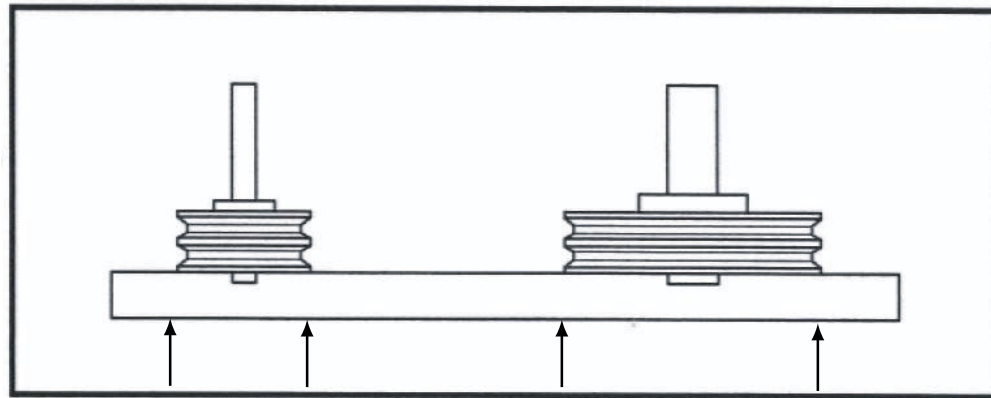
After aligning the sheaves, check the rigidity of the supporting framework. Shafts should be well supported to prevent distortion and a resulting change in the center distance under load. Do not use spring-loaded or weighted idlers.

Alignment Using A Straightedge (Preferred)

Place a straightedge against the outer edge of the sheaves. *Figure 26 on page 29* (A) shows the four points where the straight edge should touch the sheaves. The straight edge should cross the sheaves at the widest possible part of the sheave.

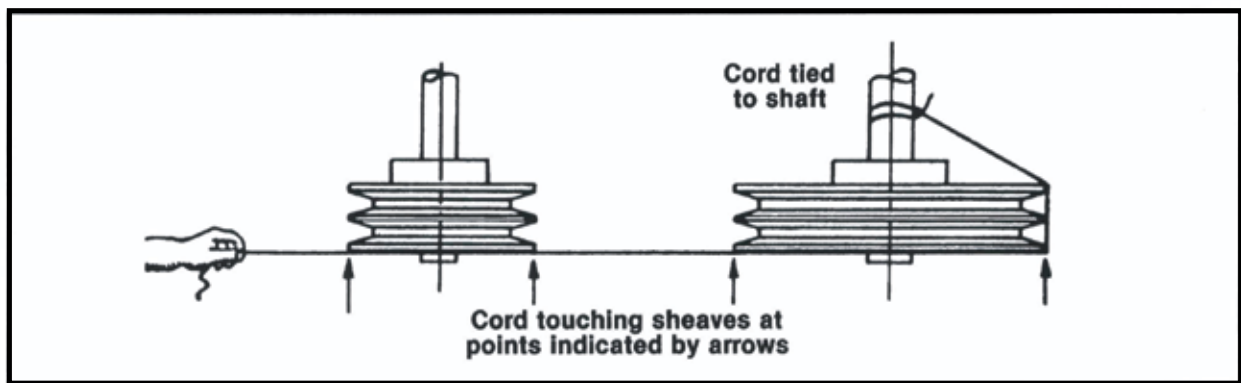
Alignment Using A String

Tie a string around either shaft and pull it around and across the outer edge of both sheaves. *Figure 26 on page 29* (B) shows how the string should touch four points when the drive is properly aligned.



Straightedge touching sheaves at points indicated by arrows

(A) ALIGNMENT USING STRAIGHT EDGE



Cord touching sheaves at points indicated by arrows

(B) ALIGNMENT USING STRING

LDO9646

FIGURE 26 - SHEAVE ALIGNMENT

Belt Replacement

Always replace belts as a matched set. Used belts will always be longer because of stretching and new belts should never be installed singly on a matched drive.

Follow the steps below to replace belts:

1. Release the tension on the belts by loosening the adjusting nuts on the fan motor.
2. Remove old belts and recheck the sheave alignment with a straight edge.
3. Install the new belts on the sheave.



Never place the belts on the sheaves by using a screwdriver to pry the belt over the rim of the sheave.

TENSIONING V-BELTS AND SHEAVES

General Rules Of Tensioning

1. Correct belt tensioning data is located on “V-belt Drive Kit Label”, which is mounted on inside of fan access door.
2. Adjust the belt tension using the adjusting nuts on the motor mount.
3. Ideal tension is the lowest tension at which the belt will not slip during start-up.
4. Check tension after:
 - The first 24 hours of operation.
 - One week of operation.

New belt tension will drop rapidly during the first few hours of operation.

5. Over tensioning shortens belt and bearing life.
6. Keep belts free from foreign material, which may cause slip.
7. Make V-drive inspection on a periodic basis. Tension when slipping. Never apply belt dressing, as this will damage the belt and cause early failure.

Simple Tensioning Procedure

1. Measure the span length, K.
2. At the center of the span (K), apply a force (perpendicular to the span) large enough to deflect the belt $1/64$ " for every inch of span length. For example, the deflection of a 100-inch span would be $100/64$ or $1-9/16$ inches.

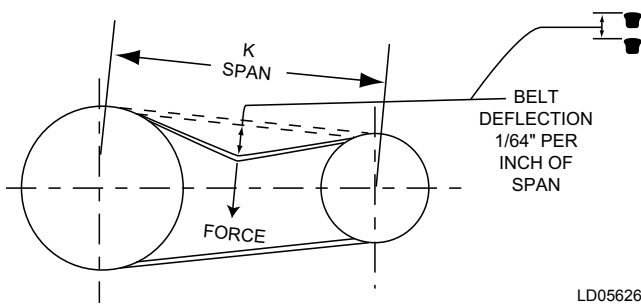


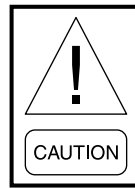
FIGURE 27 - SIMPLE TENSIONING PROCEDURE

ECONO-DISK® OPERATING AND MAINTENANCE INSTRUCTIONS

Before close inspection or servicing of the fan, or ECONO-DISK®, normal safety precautions must be observed, i.e. power to the fan must be locked out, and red tagged. By design the ECONO-DISK® is inherently maintenance free.

The mechanism has an integral mechanical stop to prevent over travel of the disk at both extremes. The disk is supported by a solid type 416 ground stainless steel shaft and two permanently lubricated bronze bearings. The operating linkage is permanently lubricated and requires no more than occasional routine inspection.

ECONO - DISK® fans sizes 33 through 73 incorporate one or more gas charged springs as part of the diminishing effect balance system. These springs have an estimated life cycle of 5 plus years. Replacement springs may be ordered from YORK INTERNATIONAL by referring to the part number shown on the individual spring. Modification to the existing linkage geometry will affect the proper functioning of this device and will void the warranty.

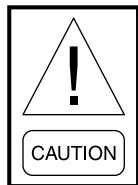


Do not operate ECONO-DISK® without airflow. It is recommended that the fan be running first for smooth travel and correct operation of ECONO-DISK®. Operation of ECONO-DISK® without airflow may result in damage.



FIGURE 28 - ECONO-DISK®

OPERATING AND MAINTENANCE INSTRUCTIONS FOR P-CONE®



DO NOT PERFORM MAINTENANCE ON THE P-CONE® WHEN FAN IS ROTATING.

Operation of the P-Cone®

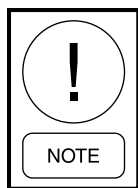
The P-Cone® has no moving parts; it cannot be turned on or off or adjusted. Each of the two piezometer rings on the exterior side of the inlet cone are fitted with a 0.25 union brass tee. The two tees are the connection points for running pneumatic tubing from the P-Cone® to an air pressure gauge/switch/readout. This P-Cone® will automatically produce a pressure differential signal whenever the fan is moving air.

Maintenance of P-Cone®

Basic P-Cone® maintenance involves keeping the eight tiny pressure pickup holes, in the flange and throat of the inlet cone, free from blockage or debris buildup and periodically checking the tubing and fittings attached outside the P-Cone® for wear or damage.

In addition, periodically back-flushing each line gently with compressed air may help to blowout debris in the line and pressure pickup holes. It is helpful to keep the inside surface of the cone clean; especially in a one inch radius immediately around the pressure pick-up holes.

In the unlikely event that the pneumatic tubing on the P-Cone® is damaged, simply remove the damaged section and replace with comparable type of tubing.



Pressure differential on tubing is less than 1 psig.

In the unlikely event that one of the brass fittings which is sweated to the P-Cone®, breaks loose from the P-Cone®, then simply remove that fitting and replace it with a straight coupling fitting of similar and common sort. In this event, do not attempt to re-solder the fitting to the P-Cone®.

There are four pickup holes on each piezometer ring. Elimination of one of them will not adversely affect the performance of most P-Cone®.

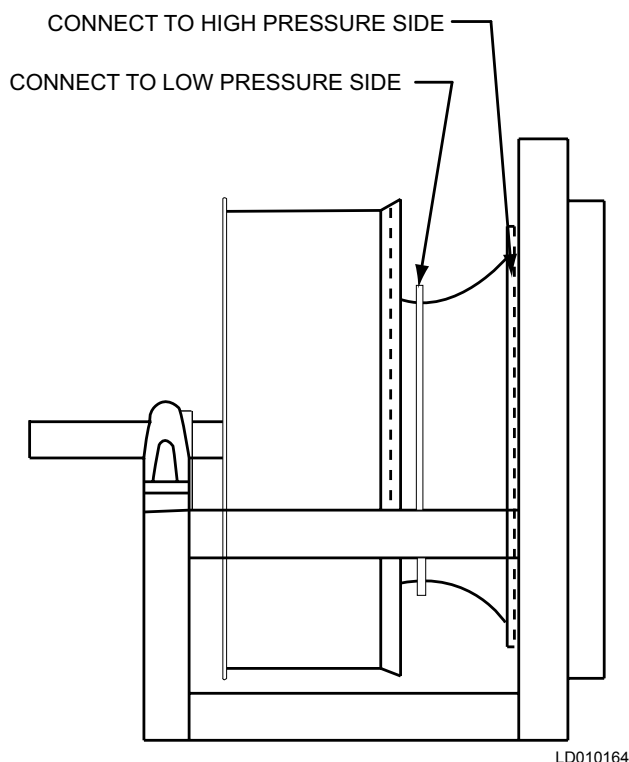
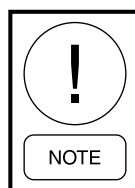


FIGURE 29 - PLENUM FAN TAP LOCATION AND CONNECTION ILLUSTRATION

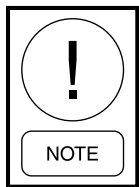


For help with set-up and calibration of Econo-Disks, P-Cones and Transducers contact Product Service 814-479-4005.



FIGURE 31 - INTEGRAL FACE AND BYPASS COIL (HORIZONTAL TUBES, STEAM SHOWN)

VIFB AND IFB



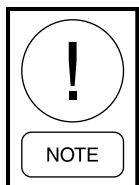
A complete IOM is provided with each IFB or VIFB coil unit.



VIFB lower header must be free to float. After coil has been piped, remove yellow colored bolts to allow header to float. Always “back up” on the coil connections when installing fittings.



VIFB Warranty will be voided should return piping on lower header (inlet and return on two-row header) not include flexible connector(s) and if lower header(s) bolts are not removed prior to use.



See IFB/VIFB manufacturer's IOM for additional piping details.

Below 35°, the Vertical Tube Integral Face and Bypass (VIFB) or Integral Face and Bypass (IFB) operates with full steam pressure or full water flow at all times. This prevents freeze-up and temperature stratification.

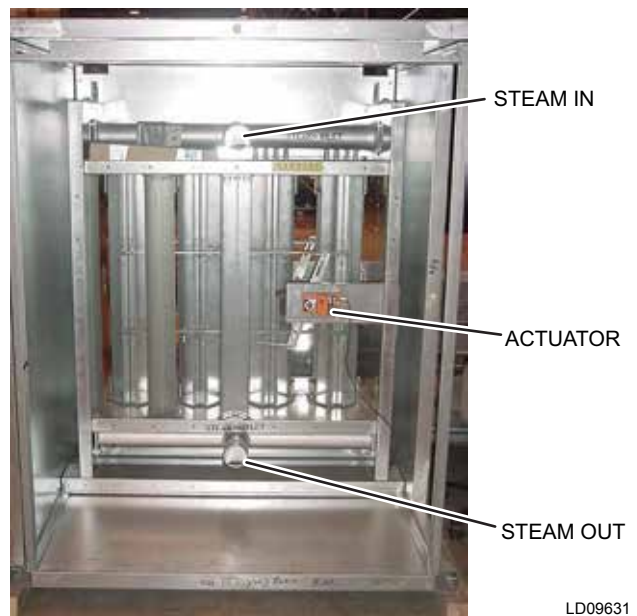
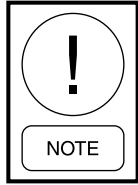


FIGURE 30 - VERTICAL INTEGRAL FACE AND BYPASS COIL (FACE MOUNTED ACTUATOR SHOWN)

Shipping Bolts (VIFB Only)

Return steam condensate headers or hot water supply and return headers are securely bolted to lower mounting brackets to prevent damage to header and tubes during shipment and piping of the coils. These bolts **MUST** be removed before applying steam or hot water but after all piping connections are made.

Piping Suggestions (VIFB and IFB)



See “Field Penetrations for Piping and Electrical Connections”.

Steam and hot water field piping must be supported separately after the flexible connector to isolate piping strains and additional expansion from the coils.

Internal steam manifolds and piping should be insulated.

Steam traps should be sized for three times the calculated condensate loading at the coil design conditions, based on the pressure differential across the trap, not the boiler pressure. Traps should be of types that pass condensate and air at saturated steam temperature. Inverted bucket traps should incorporate thermostatic air vents.

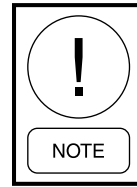
Make return connection full size as required and reduce only at trap. Do not use reducing bushing on coil return connection.

Flexible Connectors (VIFB Only)

Return steam condensate headers, hot water supply, and return headers must be free to float. A flexible connector **MUST** be installed as close as possible to the coil to accommodate a minimum of 1/2” expansion movement of the headers.

Failure to install connectors will restrict expansion of the headers. This can result in bowing of tubes, bending of fins, interference with damper operation, or eventually tube breakage.

Freezing Conditions



Anti-stratification baffles are standard on all IFB and VIFB coils mounted in units.

The outside air and return air must be thoroughly mixed before passing over the coil. When freezing air enters only part of the coil, it creates a greater hazard than when the airflow entering the coil is of a uniform temperature.

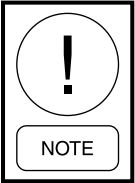
Coils used in series with respect to the airflow must have individual controls with ample space between the coils for sensing devices, when required. Coils with two or more rows are more sensitive to freezing than single row coils.

On 100% O.A. capable applications, locate low limit at least 24" downstream of leaving edge of VIFB/IFB casing. Low limit element must cross both face and by-pass areas, parallel to headers.

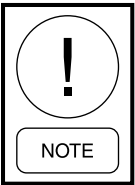
FIELD PENETRATIONS FOR PIPING AND ELECTRICAL CONNECTIONS



Use only metal cutting hole saws and/or blades to make penetrations thru panels. Never use a cutting torch due to foam insulation.



For small sizes such as 1/2" iron pipe, 1/2" conduit or 5/8" O.D. copper and smaller; it is acceptable to use caulk instead of a grommet.



Electrical conduits must be sealed internally to prevent airflow and moisture condensation.

Tools Required

- Drill motor.
- Pilot starter bit.
- Hole saws-approximately 2-1/2", 3-1/4" and 4-1/2" diameter for holes.
- Power cords as required.

Material Required

- Neoprene grommet, 2-1/2", 3-1/4", 4-1/2" or 5-1/2" as required.
- Cold galvanized paint.
- Touchup spray paint, champagne, P/N 044-03504-000 (for outdoor unit exterior only).
- Caulk, YORK P/N 013-03317-050 aluminum gray or 013-03317-040 for outdoor units with champagne paint.
- Exacto knife.
- Clean up supplies.

Procedure

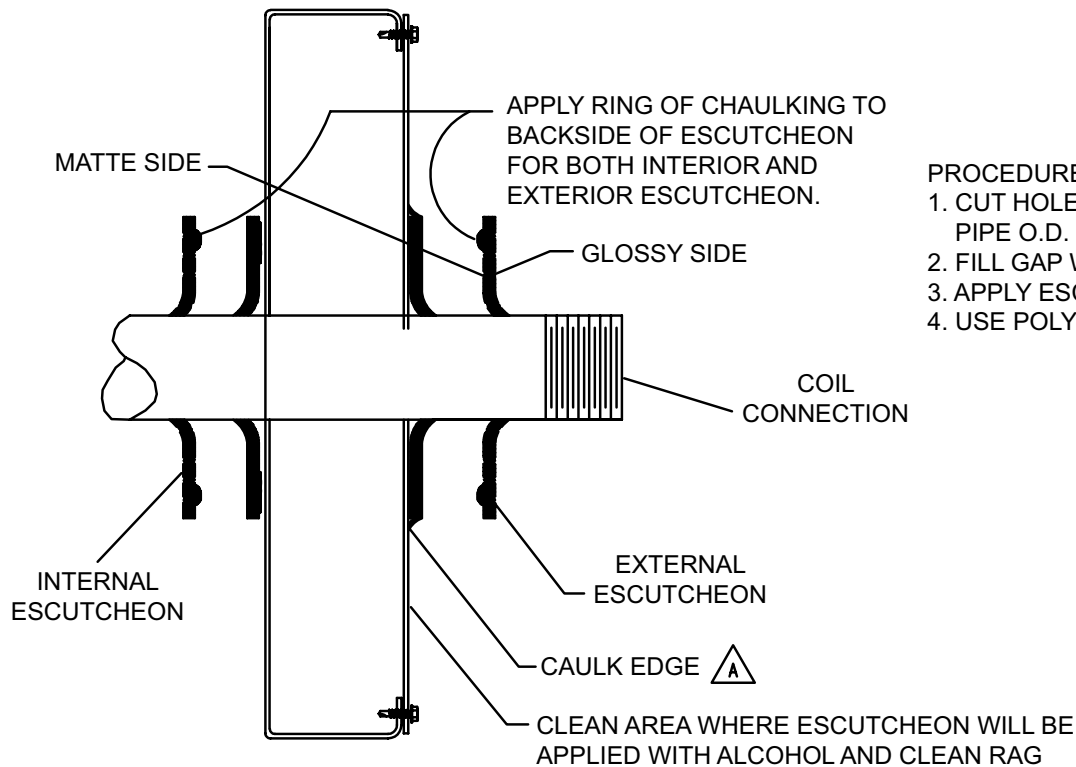
See *Figure 32* on page 35.

1. Make sure any components; bulkheads or other obstructions are disconnected from panel inside and out.
2. Layout location and dimensions of hole opening to be cut. Do this on both sides of double wall panels.
3. Carefully cut correct hole size for the application in panel, insuring cuts on both sides line up and a smooth clean cut is made.
4. Paint raw edges of sheet metal with cold galvanized paint.
5. Select appropriate grommet for new panel hole and cut out appropriate hole diameter for penetration with an exacto knife.
6. After paint dries, Install grommet into panel hole opening.
7. Apply sealant all around new hole opening behind lip of grommet, on both sides of panel.
8. Run pipe or conduit through grommet and make appropriate connections.
9. All modified panels must provide integrity equal to original equipment specifications.
10. Reconnect any components, bulkheads or other fixtures that were disconnected from panel in step # 1.
11. Thoroughly clean up inside and outside air unit.

WATER AND STEAM COILS		
NOMINAL PIPE SIZE	ESCUTCHEON DIMENSIONS	
	O.D.	I.D.
.500	3.00	.550
.750	3.00	.815
1.000	3.00	.815
1.500	6.00	1.400
2.000	6.00	1.875
2.500	6.00	2.375
3.000	6.00	3.000
4.000	7.00	4.000

DX / REFRIGERANT COILS		
CONNECTION SIZE	ESCUTCHEON DIMENSIONS	
	O.D.	I.D.
.500	3.00	.175
.625	3.00	.550
.875	3.00	.550
1.125	3.00	.815
1.375	3.00	1.000
1.625	6.00	1.315
2.125	6.00	1.875
2.625	6.00	2.375
3.125	6.00	2.875

ESCUTCHEON			
YORK PART NUMBER	O.D.	I.D.	THICKNESS
028 14910 001	3.00	.175	.125
028 14910 002	3.00	.550	.125
028 14910 003	3.00	.815	.125
028 14910 004	3.00	1.000	.125
028 14910 005	6.00	1.315	.125
028 14910 006	6.00	blank	.125
028 14910 007	6.00	1.400	.125
028 14910 008	6.00	1.875	.125
028 14910 009	6.00	2.375	.125
028 14910 010	6.00	2.875	.125
028 14910 011	6.00	3.000	.125
028 14910 012	7.00	4.000	.125



- PROCEDURE:
1. CUT HOLE 1/2" LARGER THAN PIPE O.D. WITH HOLE SAW
 2. FILL GAP WITH FOAM
 3. APPLY ESCUTCHEON AS SHOWN
 4. USE POLYURETHANE CAULK

PART	PART NUMBER
Caulking Gray	013-03317-050
Champagne	013-03317-040
Champagne Touch-up Spray Paint	044-03504-000

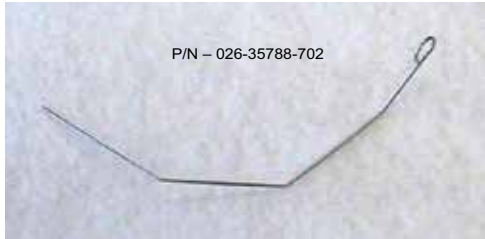


Use only metal cutting hole saws and/or blades to make penetrations thru panels. Never use a cutting torch due to foam insulation.

For these and all other parts contact York Product Service at 814-479-4005

FIGURE 32 - PENETRATIONS DETAILS

FILTER INSTALLATION



NOTE: Typically when filters are by others, so are the filter clips.

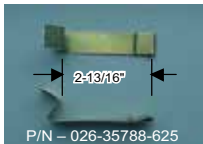
Used with 2 in. pre-filter and SH Single Header Final Filters.



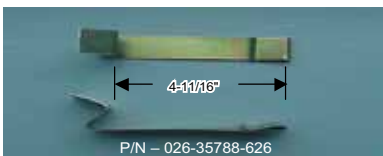
Used with 2 in. (C86) and 4 in. (C89) pre-filter combined with a Single Header Final Filter.



Used with 2 in. and 4 in. pre-filter combined with a double header (DH) final filter.



Used with 2" Prefilter in combination with a Double Header Final Filter.



Used with 4" Prefilter in combination with a Double Header Final Filter.



Used to attach HEPA Filters to Holding Frame.

LD13303b

FIGURE 33 - FILTER LATCHES

KOCH FILTER CLIPS

2

TABLE 7 - KOCH FILTER CLIPS - SINGLE FILTER APPLICATION

	2 IN MICROMAX	4 IN MICROMAX	MULTI-CELL FM SINGLE HEADER (SH) OR MULTI-SAK	MULTI-CELL SBM DOUBLE HEADER (DH)
P/N 026-35778-702	X		X	
P/N 026-35778-604		X		
P/N 026-35778-612				X

TABLE 8 - KOCH FILTER CLIPS - PRE-FILTER / FINAL FILTER APPLICATION

	2 IN MULTI-PLEAT ELITE OR CLEANABLE OR THROWAWAY AND MULTI-CELL FM SINGLE HEADER (SH) OR MULTI-SAK	2 IN MULTI-PLEAT ELITE OR CLEANABLE OR THROWAWAY AND MULTI-CELL SBM DOUBE HEADER	4 IN MULTI-PLEAT XL8 AND MULTI-CELL FM SINGLE HEADER (SH) OR MULTI-SAK	4 IN MULTI-PLEAT ELITE AND MULTI-CELL SBM DOUBLE HEADER
P/N 026-35778-702 and 026-35778-604	X			
P/N 026-35778-612 and 026-35778-625		X		
P/N 026-35778-702 and 026-35778-605			X	
P/N 026-35778-612 and 026-35778-626				X

Note: When filters are supplied by other companies, the filter clips are supplied as well.

YORK MATRIX: AAF FILTERS AND AAF FRAMES / LATCHES**TABLE 9 - YORK MATRIX: AAF FILTERS AND AAF FRAMES / LATCHES**

SINGLE FILTER APPLICATION				
	2" AAF PERFECTPLEAT, PREMIUM OR PREMIUM HM	4" AAF AMAIR 300X	AAF VARICEL SH OR AAF DRIPAK 2000	AAF VARICEL DH
AAF FRAME - 312-300-000 12X24 - 16 GA. GALVANIZED				
AAF 315-004-003 (C70) YORK 026-35778-000	X		X	
AAF 315-004-000 (C86) YORK 026-35778-007		X		
AAF 315-004-001 (C80) YORK 026-35778-006				X
AAF FRAME - 312-300-006 24X24 - 16 ga. Galvanized				
AAF 315-004-003 (C70) YORK 026-35778-000	X		X	
AAF 315-004-000 (C86) YORK 026-35778-007		X		
AAF 315-004-001 (C80) YORK 026-35778-006				X
PREFILTER / FINAL FILTER APPLICATION				
	AAF PERFECTPLEAT, PREMIUM OR HM AND AAF VARICEL SH OR DRIPAK 2000	AAF PERFECTPLEAT, PREMIUM OR HM AND AAF VARICEL DH	AAF 4" AMAIR 300X AND VARICEL SH OR DRIPAK 2000	AAF 4" AMAIR 300X AND VARICEL DH
AAF FRAME - 312-300-000 12X24 - 16 GA. GALVANIZED				
AAF 315-004-000 (C86) YORK 026-35778-007 & AAF 315-004-003 (C70) YORK 026-35778-000	X			
AAF 315-004-001 (C80) YORK 026-35778-006 & AAF 315-003-002 VP2 - YORK 026-36339-001		X		
AAF 315-004-000 (C86 & C89) YORK 026-35778-007 & 026-35778-008 & AAF 315-004-003 (C70) YORK 026-35778-000			X	
AAF 315-004-001 (C80) YORK 026-35778-006 & AAF 315-003-004 VP4 - YORK 026-36339-000				X
AAF FRAME - 312-300-006 24X24 - 16 GA. GALVANIZED				
AAF 315-004-000 (C86) YORK 026-35778-007 & AAF 315-004-003 (C70) YORK 026-35778-000	X			
AAF 315-004-001 (C80) YORK 026-35778-006 & AAF 315-003-002 VP2 - YORK 026-36339-001		X		
AAF 315-004-000 (C86 & C89) YORK 026-35778-007 & 026-35778-008 & AAF 315-004-003 (C70) YORK 026-35778-000			X	
AAF 315-004-001 (C80) YORK 026-35778-006 & AAF 315-003-004 VP4 YORK 026-36339-000				X

NOTE: Typically when filters are by others, so are the filter clips.

INSTALLING A 2 IN. PLEATED FILTER

These instructions are for installing a 2” filter (Typically Koch Multi-Pleat Elite) into 16 ga. galvanized holding frames.

- Latches needed for these applications are four (4) P/N 026-35788-702, as shown in *Figure 33 on page 36*.
- A single latch should be installed at each of the four (4) corners of the frame.
- The latch fits into the set of knockouts, which consists of two (2) rows of three (3) knockouts. The row of knockouts closest to the gasketing should be used for nominal 1” filters or filters with a 13/16” single header. The second set of knockouts should be used for nominal 2” filters.

Installation of Spring Latches

1. Insert the straight end of the latch between the two (2) knockouts furthest from the corner.
2. Using a moderate amount of pressure, force the latch over the third knockout.
3. The latch installation should now be complete. The latch should now be “trapped” within the three (3) knockouts, but should be able to freely rotate (*see Figure 34 on page 39*).



LD010171

FIGURE 34 - CORRECTLY INSTALLED LATCH P/N 026-35788-702.

Repeat the installation process with the remaining latches in the other three corners.

4. Rotate all of the latches outward, and insert the filter into the frame.
5. After the filter has been placed into the frame, grasp the circular end of the latch and rotate it across the corner of the filter.

Push the end of the latch towards the filter, until the latch catches beneath the knockout on the frame.

Repeat for the remaining latches.

6. The filter should now be securely installed into the frame (*see Figure 35 on page 39*).



LD010174

FIGURE 35 - FULLY INSTALLED FILTER

INSTALLING A 4 IN. PLEATED FILTER

These instructions are for installing a four (4)” filter (Typically Koch MicroMax pleated filter) into 16 ga. galvanized holding frames.

- Latches needed for these applications are four (4) P/N 026-35788-604, as shown in *Figure 33 on page 36*.
- A single latch should be installed at each of the four (4) corners of the frame.
- The latch fits into the set of knockouts, which consists of two (2) rows of three (3) knockouts. The row of knockouts closest to the gasketing should be used for filters with a 13/16” single header in combination with a nominal 2” prefilter. The second set of knockouts should be used for nominal 4” filters.

Installation of Spring Latches

1. Insert the straight end of the latch between the two (2) knockouts furthest from the corner.
2. Using a moderate amount of pressure, force the latch over the third knockout.
3. The latch installation is now complete. The latch should now be “trapped” within the three (3) knockouts (*see Figure 36 on page 40*).

Repeat the installation process with the remaining latches.



LD010177

FIGURE 36 - CORRECTLY INSTALLED LATCH P/N 026-35788-604

4. Insert the filter into the frame.
5. After the filter has been placed into the frame, grasp the loose end of the latch and place it over the filter frame, so that the latch secures the filter into the frame (*see Figure 37 on page 40*).

Repeat for the remaining latches.



LD010179

FIGURE 37 - PLACE THE END OF THE LATCH OVER THE FILTER FRAME, SECURING THE FILTER TO THE FRAME

6. The filter should now be securely installed into the frame.

INSTALLATION OF SH SINGLE HEADERED FILTERS

These instructions are for installing single header filter (Typically Koch Multi-Cell FM Single Header or Multi-Sak filter) into 16 ga. galvanized holding frames

- Latches needed for these applications are four (4) P/N 026-35788-702, *Figure 33 on page 36*.
- A single latch should be installed at each of the four (4) corners of the frame.
- The latch fits into the set of knockouts, which consists of two (2) rows of three (3) knockouts. The row of knockouts closest to the gasketing should be used for nominal 1” filters or filters with a 13/16” single header. The second set of knockouts should be used for nominal 2” filters.

Installation of Latches

1. Insert the straight end of the latch between the two (2) knockouts furthest from the corner.
2. Using a moderate amount of pressure, force the latch over the third knockout.
3. The latch installation should now be complete. The latch should now be “trapped” within the three (3) knockouts, but should be able to freely rotate. Repeat the installation process with the remaining latches.
4. Rotate all of the latches outward, and insert the SH filter into the frame. The bulk of the filter should be inserted through the frame, protruding out the backside. Only the header of the filter should be contacting the flange of the frame.
5. After the filter has been placed into the frame, grasp the circular end of the latch and rotate it across the corner of the filter.

Push the end of the latch towards the filter, until the latch catches beneath the knockout on the frame. Repeat for the remaining latches.



LD010148

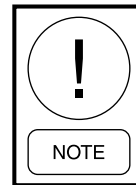
FIGURE 38 - FULLY INSTALLED FILTER

6. The filter should now be securely installed into the frame (*see Figure 38 on page 41*).

INSTALLATION OF A 2” PREFILTER IN COMBINATION WITH A SINGLE HEADER FINAL FILTER

These instructions are for installing a 2” prefilter, (typically Koch Multi-Pleat Elite pleated filter) used in combination with a single header final filter (typically Koch Multi-Cell FM Single Header or Multi-Sak) into 16 ga. galvanized holding frames.

- Latches needed for this application are four (4) P/N 026-35788-702 and four (4) 026-35788-604 as shown in *Figure 33 on page 36*.



Follow instructions for Single Headered (SH) filters then proceed with this procedure for 2” Pre-filters.

Installation of Latches

1. Insert the straight end of the latch (P/N 026-35788-604) between the two (2) knockouts furthest from the corner.



LD010496

FIGURE 39 - INSTALL LATCH P/N 026-35788-604

2. Using a moderate amount of pressure, force the latch over the third knockout (*See Figure 34 on page 39*).
3. After both filters have been placed into the frame, grasp the loose end of the latch and place it over the prefilter frame, so that the latch secures the prefilter to the SH filter. Repeat for the remaining latches.
4. The filters should now be securely installed into the frame, as shown in *Figure 40 on page 41*.



LD010160

FIGURE 40 - FULLY INSTALLED FILTERS

INSTALLATION OF A MULTI-CELL SBM DOUBLE HEADERED (DH) FILTER

These instructions are for the installation of an Koch Multi-Cell SBM DH filter (nominal 12” deep double header) into 16 ga. galvanized holding frames.

- The latches needed for this application are four (4) spring latches, P/N 026-35788-612 (as shown in *Figure 33 on page 36*).
- Two latches should be attached on each side of the filter frame.
- The latches should only be installed, two (2) per side of the frame. There should be no latches used on the top or bottom. This is done to match the holes in the filter frame, used to secure the latch to the filter. See *Figure 41 on page 42* for the sets of knockouts that should be used for the latches.

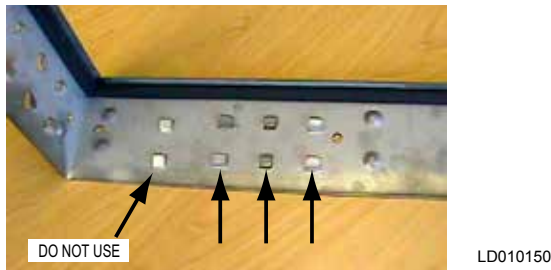


FIGURE 41 - CORRECT USE OF KNOCKOUTS

Installation of Spring Latches

1. Insert the straight end of the latch between the knockouts furthest from the corner.
2. Using a moderate amount of pressure, force the latch over the third knockout.
3. The latch installation should now be complete. The latch should now be “trapped” within the three (3) knockouts.



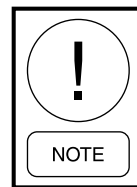
FIGURE 42 - CORRECT LATCH/KNOCKOUT CONFIGURATION

4. Repeat the latch installation with the remaining latches. Note the orientation of the latch to the knockouts in *Figure 42 on page 42*.

After the latches have been installed, the frame should be configured like that shown in *Figure 43 on page 42*.



FIGURE 43 - FRAME WITH 4 LATCHES INSTALLED



The frame contains 2 latches per side, none on the top or bottom.

5. Insert the Multi-Cell SBM DH filter into the frame. While holding the filter in the frame, grasp the loop on the end of the latch and pull it until it stretches over the header and rests into the pre-drilled hole in the header of the filter (see *Figure 44 on page 42*). Repeat this with the remaining latches.
6. The filter should now be securely installed into the frame.



FIGURE 44 - SPRING LATCH SHOULD BE PULLED AND FASTENED IN HOLE IN THE HEADER OF THE FILTER

INSTALLATION OF A 2" AND 4" PREFILTER IN COMBINATION WITH A DOUBLE HEADER

FINAL FILTER

These instructions are for installing either a 2" or 4" prefilter (typically Koch Multi-Pleat Elite or Micro-MAX pleated filters) used in combination with an Koch Multi-Cell SBM DH (nominal 12" deep) final filter into 16 ga. galvanized holding frames.

- Two sets of latches are needed for these applications. Four (4) spring latches, P/N 026-35788-612 are used to hold the Multi-Cell SBM DH into the frame. In addition, four (4) prefilter latches, P/N 026-35788-625 are used to hold the 2" and P/N 026-35788-626 are used to hold the 4" prefilter onto the face of the Multi-Cell SBM DH filter.
- For the spring latches, two (2) latches should be attached on each side of the filter frame.
- The latches should only be installed, two (2) per side of the frame. There should be no latches used on the top or bottom. This is done to match the holes in the filter frame, used to secure the latch to the filter.

Installation of Spring Latches

1. Insert the straight end of the latch between the knockouts furthest from the corner.
2. Using a moderate amount of pressure, force the latch over the third knockout.
3. The latch installation should now be complete. The latch should now be "trapped" within the 3 knockouts (see *Figure 45 on page 43*).



LD010154

**FIGURE 45 - CORRECT LATCH/KNOCKOUT
CONFIGURATION P/N 026-35788-612**

4. Repeat the latch installation with the remaining latches; note the orientation of the latch to the knockouts on *Figure 45 on page 43*.
5. Insert the Multi-Cell SBM DH filter into the frame. While holding the filter in the frame, grasp the loop on the end of the latch and pull it until it stretches over the header and rests into the pre-drilled hole in the header of the filter (see *Figure 46 on page 43*). Repeat this with the remaining latches.



LD010156

FIGURE 46 - FRAME WITH 4 LATCHES INSTALLED

Installation of Prefilter Latches

6. To install the prefilter latches, slide the end of the latch with the 180° turn, over the edge of the header, as shown in *Figure 47 on page 43*. The latch should be installed at the approximate mid-point of the filter leg.

The prefilter latch should be slid over the header as shown in *Figure 47 on page 43*.



LD010163

**FIGURE 47 - PREFILTER LATCH AFTER
INSTALLATION ONTO FILTER HEADER**

7. Repeat the installation for the remaining prefilter latches.
8. Place the prefilter against the face of the Multi-Cell SBM DH filter. The prefilter latches may have to be re-positioned as shown in *Figure 48 on page 44*, to allow the proper placement of the prefilter.

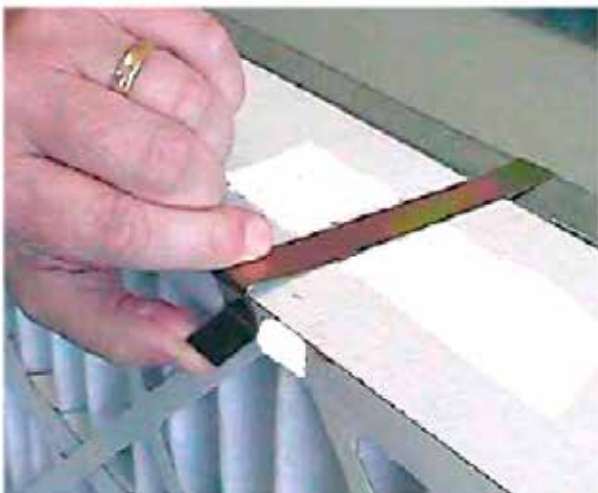


LD010165

FIGURE 48 - POSITION PREFILTER IN FRONT OF THE FINAL FILTER (2" W/026-35788-625 LATCH SHOWN)

9. Grasp the end of the prefilter latch and “spring” it so that it fits over the edge of the prefilter. Repeat with the remaining latches.

After all remaining prefilter latches have been placed around the prefilter, the finished assembly should look like that in *Figure 50 on page 44*.



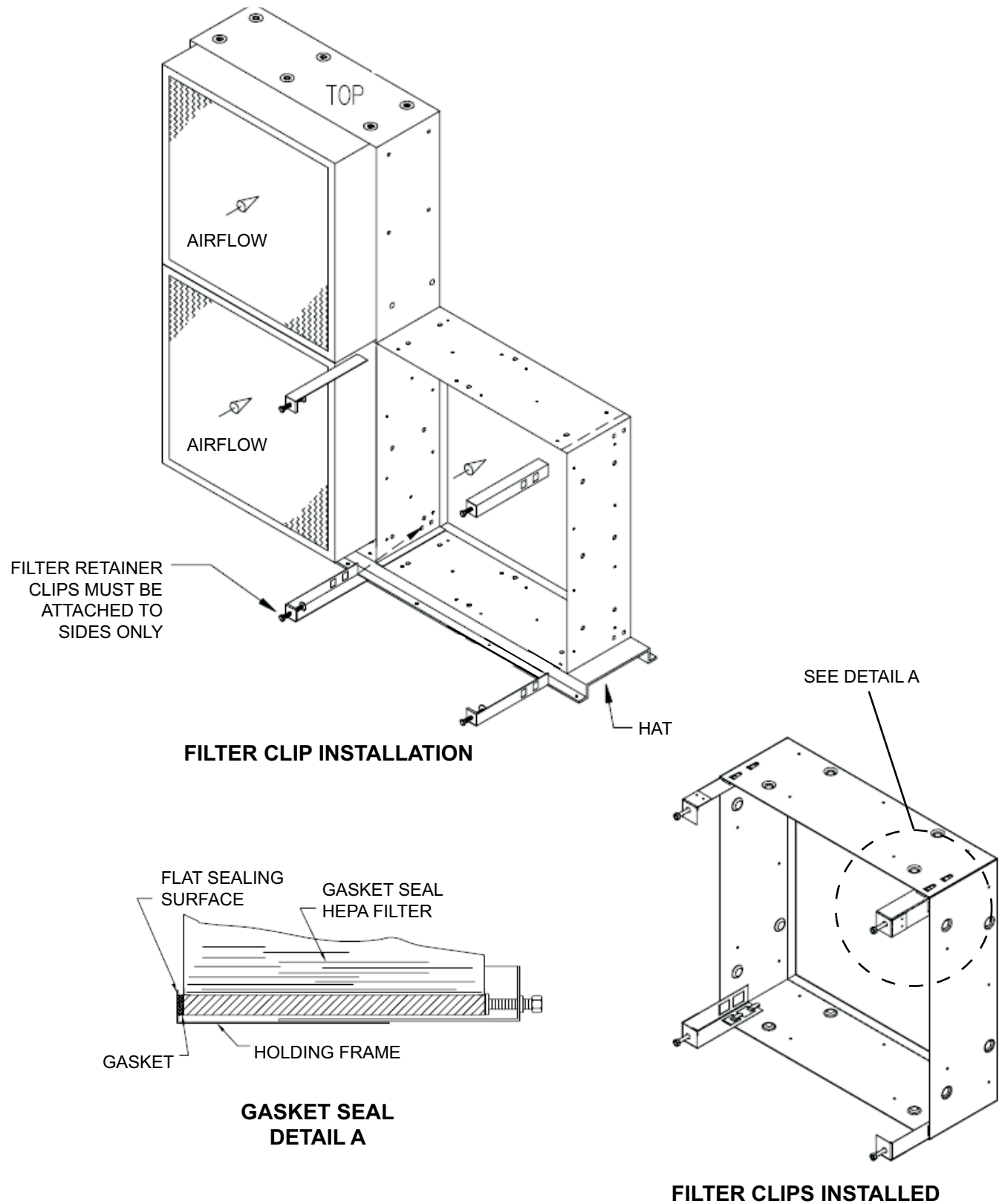
LD10190

FIGURE 49 - SPRING THE END OF THE LATCH SO THAT IT FITS OVER THE EDGE OF THE PREFILTER (4" W/026-35788-626 LATCH SHOWN)




LD10187

FIGURE 50 - COMPLETED ASSEMBLY



LD13302

FIGURE 51 - INSTALLATION OF HEPA FILTERS

 BY JOHNSON CONTROLS	AIR HANDLING UNITS	
START-UP CHECKLIST	Supersedes: 100.00-CL1 (303)	Form 100.00-CL1 (1007)

AIR HANDLER START-UP CHECKLIST

OFFICE LOCATION _____	UNIT TAG # _____
Qualified TECHNICIAN's Name: _____	UNIT MODEL # _____
JOB NAME _____	UNIT SERIAL # _____
YORK JOB OR CONTRACT # _____	START DATE _____
JOB SITE LOCATION _____	
JOB SITE CONTACT AND PHONE # _____	
NON-STANDARD SPECIFIED COMPONENTS _____	

PRE START-UP

GENERAL UNIT INSPECTION

Identify and perform appropriate “lock out/tag out” and safety rules. For details on points below see appropriate section of Installation, Operation, Maintenance manual provided with each air handler.

For VFD equipped air handlers, refer to the VFD forms for additional start-up requirements.

AMI Belt Drive	AH Units	Air Mod	VI	VFD	Form 100.40-NO3
Custom	AH Units	Air Modulator		VFD	Form 100.41-NO1
	Form 100.31-NOM1	Solution (Table 3-2)		AH Units	Form 102.20-NOM1

<input type="checkbox"/> Equipment received as ordered.	<input type="checkbox"/> Make sure all ductwork is complete and available for full air flow.
<input type="checkbox"/> Unit checked for damage interior and exterior.	<input type="checkbox"/> Unit installed with proper clearances.
<input type="checkbox"/> Unit installed on flat and level surface. Outdoor unit mounted within roof slope limitations where applicable.	<input type="checkbox"/> Visually inspect roof curb for tight seal around unit.
<input type="checkbox"/> Terminal screws and wiring connections secure in control, electric and Air Modulator panels.	<input type="checkbox"/> Clean air filters installed properly and secured.
<input type="checkbox"/> Air hoods installed properly.	<input type="checkbox"/> Filter gauge set to zero
<input type="checkbox"/> Condensate drain properly trapped.	<input type="checkbox"/> All field wiring complete and inspected.
<input type="checkbox"/> All wiring and tubing connections made at shipping splits.	<input type="checkbox"/> All shipping splits sealed and secured properly.
<input type="checkbox"/> All field piping connections complete.	<input type="checkbox"/> Pipe chase floor sealed at penetrations.
<input type="checkbox"/> All shipped loose parts installed.	<input type="checkbox"/> All shipping bolts and other material have been removed. (Fan, VIFB, Energy Recovery Wheel, Damper)
<input type="checkbox"/> Installer has cleaned out interior.	<input type="checkbox"/> Damper linkage is tight and in correct "power off" position.
<input type="checkbox"/> Verify all plastic spacers have been removed between door and door frame.	<input type="checkbox"/> Controls installation complete.
<input type="checkbox"/> Verify Energy Recovery Wheel turns freely and wheel segments are fully engaged.	

Fan INSPECTION	
<input type="checkbox"/> Check bearings and locking collars for properly tightened setscrews, bolts and nuts.	<input type="checkbox"/> Fan wheel properly aligned, tight on shaft and freely moving.
<input type="checkbox"/> Sheaves properly aligned and tight on shaft.	<input type="checkbox"/> Check fan base isolators and thrust restraints for proper adjustment. Note: Do not remove functional bolts from seismic isolators.
<input type="checkbox"/> Belt tension adjusted properly per drive pkg. label on fan.	<input type="checkbox"/> Fan bearings properly lubricated.
<input type="checkbox"/> Check fan alignment with unit discharge. Adjust with isolation.	

START-UP

PERFORM THE FOLLOWING STEPS IN ORDER:

Refer to safety standards. Ensure all door latches are secured before starting.

- | | |
|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> 1. Energize power to the unit disconnect switch. <input type="checkbox"/> 2. Verify correct voltage, phase and cycles. <input type="checkbox"/> 3. Energize fan motor(s) briefly (bump) and check for correct fan rotation. <input type="checkbox"/> 4. Check operation of dampers. Insure unit will not operate with all dampers closed. <input type="checkbox"/> 5. Energize fan motor(s). Observe fan(s) for smooth operation. | <ul style="list-style-type: none"> <input type="checkbox"/> 6. Check motor nameplate Full Load Amp rating. <input type="checkbox"/> 7. Immediately check current draw of each leg of each motor. <input type="checkbox"/> 8. VFD, refer to manufactures start up guide. <input type="checkbox"/> 9. Check doors and latches for air leaks. <input type="checkbox"/> 10. Check for obvious audible leaks. <input type="checkbox"/> 11. Apply steam to cold coils slowly to prevent damage. |
|--|---|

RECORD DATA

POWER SUPPLY: Unit Nameplate V___ PH___ CYC, ___ Verify V _____/_____/_____

DATA	<p>SUPPLY FAN MOTOR</p> <p>Nameplate Volts _____ Amps _____</p> <p>Run Amps _____ / _____ / _____</p> <p>Catalog Number _____</p> <p>Spec Number _____</p> <p>Horse Power _____</p> <p>RPM Nameplate _____ Actual _____</p> <p>Frame size _____</p> <p>Service Factor _____</p> <p>Jump (Skip) Frequencies _____ / _____ / _____</p>	<p>RETURN FAN MOTOR</p> <p>Volts _____ Amps _____</p> <p>_____ / _____ / _____</p> <p>_____</p> <p>_____</p> <p>Nameplate _____ Actual _____</p> <p>_____</p> <p>_____</p>
	<p>SUPPLY FAN</p> <p>Manufacture Name _____</p> <p>Type or Model Number _____</p> <p>Code or Shop Order Number _____</p> <p>Serial Number _____</p>	<p>RETURN FAN</p> <p>_____</p> <p>_____</p> <p>_____</p>
	<p>SUPPLY FAN DRIVE KIT</p> <p>Belts (Quantity and ID Number) _____</p> <p>Belt Tension Tag _____ Actual _____</p> <p>Fan RPM (DN) Tag _____ Actual _____</p>	<p>RETURN FAN DRIVE KIT</p> <p>_____</p> <p>Tag _____ Actual _____</p> <p>Tag _____ Actual _____</p>

other utilities

Steam Pressure	Heating Coils ___ PSI,	Humidifier ___ PSI
Hot Water Pressure/Temp.	Supply ___ PSI, ___ °F,	Return ___ PSI, ___ °F
Chilled Water Pressure/Temp.	Supply ___ PSI, ___ °F,	Return ___ PSI, ___ °F
Potable Water Pressure	___ PSI,	Pneumatic Air Pressure ___ PSI

MAINTENANCE

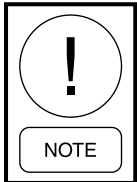
Upon completion of start-up the customer assumes responsibility for periodic maintenance of this equipment in order to continue warranty. Refer to the Installation Operation and Maintenance Manual provided with this equipment.

Customer's agent signature: _____, **Date:** _____

APPENDIX 1 – LONG-TERM STORAGE

	LONG-TERM STORAGE REQUIREMENT - FIELD PREPARATION AIR HANDLING UNITS	
SERVICE POLICY AND PROCEDURES	New Release	Form 50.20-NM3 (307)

**FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL RENDER
ANY WRITTEN OR IMPLIED YORK WARRANTY NULL AND VOID.**



Upon completion of the long-term storage period, the warranty commences:

Solution - 12 months labor, 18 months parts

(not to exceed 36 months from ship date with delayed start up).

Custom - 18 months parts (not to exceed 18 months from ship date).

Labor 12 months only w/ delayed start up.

I. Supplementary Documentation

The following documentation is required to FULLY COMPLY with the Long-Term Storage requirements.

- A. Long-Term Storage Requirements – GENERAL (refer to Form 50.20-NM1)
- B. Long-Term Storage Requirements – PERIODIC CHECK LIST AND LOGS, AIR HANDLING UNITS (refer to Form 50.20-CL3).

II. Field Preparation For Long-Term Storage

A. GENERAL

1. Remove and dispose of shipping materials.
2. Perform a visual inspection of the equipment.

Indoor Units

“It is JCI’s intention that a shipping wrapper be applied to unpainted indoor units for protection from weather, road dirt, etc. during inland transit and that the wrapper be removed at the time of delivery to allow for a thorough inspection, both inside and out. Visible damage should be noted on the signed and dated bill of lading with a request that the carrier inspect the damage within 72 hrs of notification. The shipping wrapper must be removed and replaced with a tarp or similar protective covering. Any concealed damaged reported after 15 days will compromise a claim settlement. Inspection requests may be done by telephone or in person, but should be confirmed in writing. If assistance is needed with the claim process, contact your JCI Sales person.”

Outdoor Units

Outdoor units are not fully wrapped. Exposed openings are covered for protection from weather, road dirt, etc. during inland transit. A thorough inspection, both inside and out, should be done at the time of delivery. Visible damage should be noted on the signed and dated bill of lading with a request that the carrier inspect the damage within 72 hrs of notification. Concealed damage must be reported within 15 days of delivery with a request that the carrier inspect the damage within 72 hrs of notification. Any concealed damaged reported after 15 days will compromise a claim settlement. Inspection requests may be done by telephone or in person, but should be confirmed in writing. If assistance is needed with the claim process, contact your JCI Sales person.”

3. Touch up any paint that has worn or chipped off using paint supplied in ship loose items. Prepare the surface as required using a wire brush.
4. Verify that all ship loose items are present. Note any missing items on the Periodic Check List and Log Sheet (50.20-CL3).
5. Locate unit(s) so that passing traffic will not damage shafts, coil connections, damper linkages or unit panels.
6. Refrigerant coils must be evacuated and pre-charged with 5 PSI holding charge of nitrogen. DO NOT damage or disturb these coils and connections.
7. Water coils must have all inlet and outlet connections capped or closed tight to prevent foreign materials and liquids from gaining entrance during the storage period.


B. ELECTRICAL EQUIPMENT AND COMPONENTS

(Control Panels, Power Panels, Option Panels, Motors, etc.)

1. Electrical Equipment and Components shall not be stored or left in an outdoor environment.
2. Electrical Equipment and Components shall not be stored or left in a wet or damp environment. Components sealed in plastic shrink-wrap do not exempt this requirement. Moisture will collect inside the plastic, resulting in corrosion of the cabinet, the electronic components and/or copper bus bars.
3. Cortec® spray, Part VpCL-248, shall be applied to all components in the motor terminal box. The spray shall be applied to all exposed areas of concern.
4. YORK Vapor Emitter(s) shall be installed inside each electrical and electronic components cabinet(s) to protect against corrosion. Openings in cabinets shall be taped closed to minimize air infiltration during the storage period. The quantity of emitters is determined by measuring the gross volume of the component space occupied. YORK Part Number 026-37705-000 will protect a volume up to 5 cubic feet. YORK Part Number 026-37706-000 will protect a volume up to 11 cubic ft. Both emitters have a service life of 12 months.
5. A Vapor Type Corrosion inhibitor must be installed in the following equipment and components:
 - a. Place one corrosion inhibitor, YORK part number 026-37706-000, inside the power panel.
 - b. Place one corrosion inhibitor, YORK part number 026-37705-000, inside the control panel.
 - c. Place one corrosion inhibitor, YORK part number 026-37705-000, inside each VFD panel.

C. MECHANICAL

1. Spray all exposed shafts and sheaves with anti-corrosion spray, YORK part number 026-37707-007.
2. Disconnect belts and wrap all motors, sheaves in plastic with a YORK vapor emitter, part number 026-37705-000.

 BY JOHNSON CONTROLS	LONG-TERM STORAGE PERIODIC CHECKLIST AND LOGS AIR HANDLING UNITS	
SERVICE POLICY & PROCEDURES	Supersedes: Nothing	Form 50.20-CL3 (107)

Contract No.	_____	Date Delivered	_____
Job Name	_____	Date of Storage Prep.	_____
Serial No	_____	Condition of Unit Delivered	_____
Unit Model No	_____	Explain:	_____
	_____		_____
	_____		_____
	_____		_____

**FAILURE TO COMPLY WITH THESE REQUIREMENTS WILL RENDER
ANY WRITTEN OR IMPLIED YORK WARRANTY NULL AND VOID.**

I. Supplementary Documentation

The following documentation is required to FULLY COMPLY with the long-term storage requirements.

- A. Long-term Storage Requirements - GENERAL (refer to Form 50.20-NM1).
- B. Long-term Storage Requirements - LONG -TERM STORAGE FIELD PREPARATION, AIR HANDLING UNITS (refer to Form 50.20-NM3).

II. Checks

1.0 Monthly Checks

1.1 Visually inspect Air Handler for damage.

1.1.1 Motors, Drives - The motors and sheaves should be inspected externally for evidence of damage to the protective covering. An inspection is necessary only if it is apparent that the control protection has been disturbed. If this is found, the motor should be re-protected by wrapping and tightly sealing the control with plastic and inserting a desiccant to absorb moisture.

1.2 Refrigerant Coils - Check holding charge pressure monthly to be sure that the pressure has not dropped. If pressure has dropped, the unit should be inspected for signs of visible damage which may have caused loss of pressure. If pressure drops more than 2 psi, the unit should be pressure tested to locate the leak; the leak should be repaired and the unit recharged with nitrogen to 5 psig pressure. Note this in the comments section of the monthly log sheet (see page 2 of this document).

1.3 Rotate fan shaft several revolutions by hand every month.

2.0 Quarterly Checks

2.1 Complete Assembly - The unit should be checked quarterly to see that no damage has occurred to the protective covering. Any apparent damage to the covering or units should be noted in the comments section of the quarterly log sheet (see page 3 of this document).

2.2 Grease bearings every three months. The greasing procedure is explained in the product service manual.

3.0 Semi Annual Checks

3.1 None

4.0 Annual Checks

4.1 Unwrap all electrical cabinets and install new Vapor Emitters (YORK P/N 026-37705-000); reseal.

4.2 Re-spray all exposed shafts and sheaves with anti-corrosion spray, YORK P/N 026-37707-007.

1.0 MONTHLY				
	ROTATE SHAFTS	5 PSI COIL PRESSURE	MOTOR BELTS AND DRIVES PROTECTED AND DRY	COMMENTS
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				
Date				
Initial				

2.0 QUARTERLY			
	GREASE BEARINGS	INSPECT PROTECTIVE COVERING	COMMENTS
Date			
Initial			
Date			
Initial			
Date			
Initial			
Date			
Initial			

4.0 ANNUAL			
	INSTALL NEW VAPOR EMITTERS	RE-SPRAY EXPOSED SHAFTS AND SHEAVES	COMMENTS
Date			
Initial			

The following factors can be used to convert from English to the most common SI Metric values.

TABLE 10 - SI METRIC CONVERSION

MEASUREMENT	MULTIPLY ENGLISH UNIT	BY FACTOR	TO OBTAIN METRIC UNIT
Capacity	Tons Refrigerant Effect (ton)	3.516	Kilowatts (kW)
Power	Horsepower	0.7457	Kilowatts (kW)
Flow Rate	Gallons / Minute (gpm)	0.0631	Liters / Second (l/s)
Length	Feet (ft)	0.3048	Meters (m)
	Inches (in)	25.4	Millimeters (mm)
Weight	Pounds (lbs)	0.4538	Kilograms (kg)
Velocity	Feet / Second (fps)	0.3048	Meters / Second (m/s)
Pressure Drop	Feet of Water (ft)	2.989	Kilopascals (kPa)
	Pounds / Square Inch (psi)	6.895	Kilopascals (kPa)

TEMPERATURE

To convert degrees Fahrenheit (°F) to degrees Celsius (°C), subtract 32° and multiply by 5/9 or 0.5556.

Example: $(45.0^{\circ}\text{F} - 32^{\circ}) \times 0.5556 = 27.2^{\circ}\text{C}$

To convert a temperature range (i.e., a range of 10°F) from Fahrenheit to Celsius, multiply by 5/9 or 0.5556.

Example: $10.0^{\circ}\text{F range} \times 0.5556 = 5.6^{\circ}\text{C range}$



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