



**BALTIMORE
AIRCOIL AUSTRALIA**



VTL

VFL

VCL

Low Profile Series V

RIGGING & ASSEMBLY INSTRUCTIONS



Low Profile Series VL units should be rigged and installed as outlined in this bulletin. These procedures should be thoroughly reviewed prior to the actual rigging operation to acquaint all personnel with the procedures to be followed and to assure that all necessary equipment will be available at the jobsite.

Locate the unit nameplate on the connection end of the unit and record the model number for reference. Cooling Towers are identified as VTLXXX-X; Evaporative Condensers as VCLXXX-X; and Fluid Coolers as VFLXXX-X.

Be sure to have a copy of the unit certified drawing available for reference. If you do not have a copy of this drawing or if you need additional information about the unit, contact the local B.A.C. Representative. His name and phone number are on a label at the connection end of your unit.



Be sure to have a copy of the submittal drawings available for reference. If you do not have a copy of these drawings, or if you need additional information about this unit, contact your local BAC Representative whose name and telephone number are on the outside of the cold water basin. The model number and serial number of the unit are also located in this area.



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1 Introduction

WARNING: Failure to use designated lifting points can result in a dropped load causing severe injury, death, and/or property damage. Lifts must be performed by qualified riggers following BAC published Rigging Instructions and generally accepted lifting practices. The use of supplemental safety slings may also be required if the lift circumstances warrant its use, as determined by the rigging contractor.



WARNING: Only personnel qualified to do so should undertake the installation, operation, maintenance, and repair of this equipment. Proper care, procedures, and tools must be used in handling, lifting, installing, operating, maintaining, and repairing this equipment to prevent personal injury and/or property damage.



Safety

Adequate precautions appropriate for the installation and location of these products should be taken to safeguard the equipment and the premises from damage and the public from possible injury as appropriate for the installation and location of these products. **The procedures listed in this manual must be thoroughly reviewed prior to rigging and assembly. Read all warnings, cautions, and notes detailed in the margins.**

When the fan speed of the unit is to be changed from the factory set speed, including the use of a variable speed device, steps must be taken to avoid operating at or near the fan's "critical speed" which could result in fan failure and possible injury or damage. Consult with your local BAC Representative on any such applications.

Leveling

The unit must be level for proper operation. This is especially true for Fluid Coolers (VFL units), which should be level to 0,5 mm per m over the length and width. This will help ensure proper coil draining in an emergency freeze situation (See Freeze Protection Note below). Support beams must also be level as shims should not be used between the pan and support beams to level the unit.

Pre-Rigging Checks

When the unit is delivered to the jobsite, it should be checked thoroughly to ensure all required items have been received and are free of any shipping damage prior to signing the bill of lading.

The following parts should be inspected:

- Sheaves and Belts
- Bearings
- Bearing Supports
- Fan Motor(s)
- Fan Guard(s)
- Fan(s) and Fan Shaft(s)
- Float Valve Assembly(s)
- Fill
- Water Distribution System
- Cold Water Basin Accessories
- Interior Surfaces
- Exterior Surfaces
- Louvres
- Mating Surfaces Between Sections/Modules
- Miscellaneous Items: All bolts, nuts, washers, and sealer tape required to assemble sections or component parts are furnished by BAC and shipped with the unit. A checklist inside the envelope marked "Customer Information Packet" indicates what miscellaneous parts are included with the shipment and where they are packed. This envelope will be attached to the side of the unit or located in a box inside the unit.



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Unit Weights

Before rigging any Series VL unit, the weight of each section should be verified from the unit certified drawing.

WARNING: These weights are approximate only and should be confirmed by weighing before lifting when available hoisting capacity provides little margin for safety. In preparing for a lift, individuals responsible for rigging B.A.C. units must inspect the equipment before the lift to make certain that all water or other liquids have been drained from the unit.

During cold weather the pre-lift procedure must include a check for and removal of accumulations of ice and snow which will not naturally drain from the equipment and would add substantially to the loading

Anchoring

CAUTION: Unit must be properly anchored in place before operation begins. Holes suitable for M18 bolts are provided in the bottom of the pan section for bolting the unit to the support beams. Refer to the suggested support details on the certified drawing for locations of the mounting holes. Anchor bolts must be supplied by others.

Cold Weather Operation

These products must be protected by mechanical and operational methods against damage and/or reduced effectiveness during sub-freezing temperatures. Please contact your local BAC Representative for recommended cold weather operation strategies.

Warranties

Please refer to the Limitation of Warranties (located in the submittal package) applicable to and in effect at the time of the sale/purchase of these products.

Connecting Piping

All refrigerant piping external to the evaporative condenser(s) must be supported separately from the equipment. In case the evaporative condenser(s) are installed in vibration rails or springs, the piping must contain compensators to eliminate vibrations carried through the refrigerant piping.

Purge Requirements

The installer of this equipment must ensure proper system purging of air, prior to operation of the installation. Air entrained in the system can obstruct the proper drainage of liquid refrigerant, reduce condensing capacity and result in higher operating pressures than design. To verify absence of non condensable in the system, follow the instructions of the B.A.C. Evaporative Condenser Engineering Manual.

Refrigerant Connections on site

All connections in the external refrigerant pipework (installed by others) must be leak free and tested accordingly.



ATTENTION: Before an actual lift is undertaken, ensure no water, snow, ice, or debris has collected in the basin or elsewhere in the unit. Such accumulations will add substantially to the equipment's lifting weight.

Unit Rigging & Assembly

NOTE: For weight information, refer to the submittal drawing package.



Rigging

For lifts and final positioning, Low Profile Series VL equipment may be hoisted as shown by the lifting devices supplied at the base of the unit. The vertical distance between the base of the unit and the apex of the lifting cables must be no less than “H” dimension given in the following tables. Spreader bars the full width of the unit must be used between the lifting cables to prevent damage to the unit. The use of Safety Slings is recommended for all lifts. After the unit has been set in the final position, bolt it securely to the supporting steel before proceeding any further.

NOTE: Any motors or accessories shipped in the cold water basin must be removed prior to installation.



| COOLING TOWERS | | |
|--------------------|-------------------|---------------------------|
| Model | Minimum “H” in mm | Spreader Bar Length in mm |
| VTL016 thru VTL039 | 2750 | 1250 |
| VTL045 thru VTL079 | 3100 | 1250 |
| VTL082 thru VTL092 | 4300 | 1250 |
| VTL103 thru VTL137 | 5000 | 1250 |
| VTL152 thru VTL227 | 4300 | 2450 |
| VTL245 thru VTL272 | 5000 | 2450 |

Figure 1. Preferred method for rigging all Low Profile Series V Cooling Tower Units.

| FLUID COOLERS / EVAPORATIVE CONDENSERS | | |
|--|-------------------|---------------------------|
| Model | Minimum "H" in mm | Spreader Bar Length in mm |
| VFL016 thru VFL123 VCL016 thru VCL035 | 2750 | 1250 |
| VFL241 thru VFL243 VCL038 thru VCL079 | 3100 | 1250 |
| VFL382 thru VFL383 VCL087 thru VCL120 | 4300 | 1250 |
| VFL483 VCL134 thru VCL155 | 5000 | 1250 |
| VFL722 thru VFL723 VCL167 thru VCL234 | 3100 | 2450 |
| VFL963 VCL257 thru VCL299 | 3700 | 2450 |

Figure 2. Preferred method for rigging all Low Profile Series V Fluid Cooler and Evaporative Condenser Units.

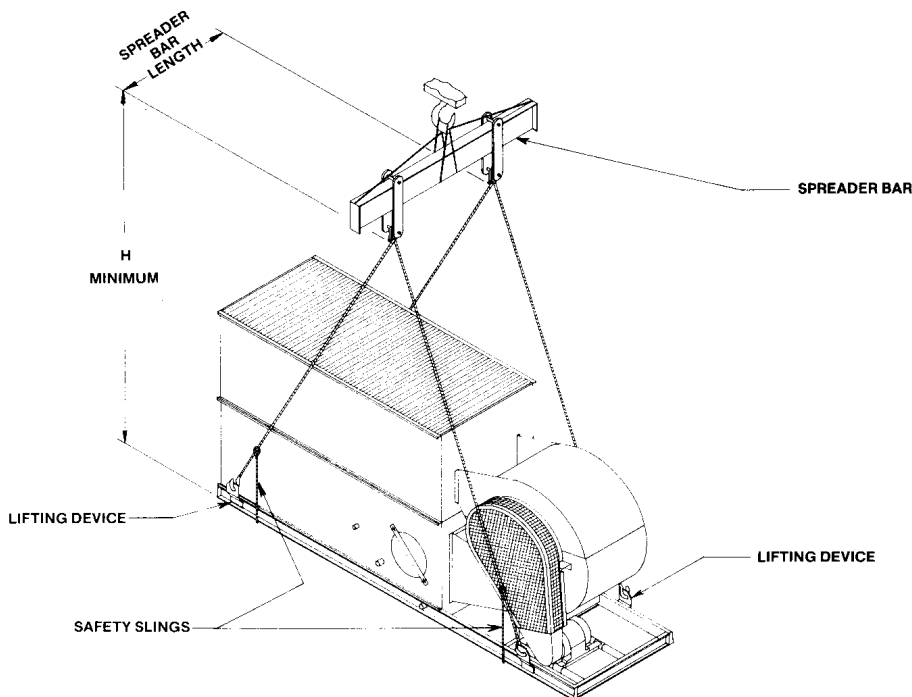


Figure 3.

Discharge Hood Installation

If the unit has been furnished with a discharge hood, discharge sound attenuation and vertical intake duct or attenuator, a separate lift is required. Sealing and rigging instructions are outlined below.

- 1) Be sure all mating surfaces are clean and free of dust, dirt and moisture.
- 2) Apply the 25mm flat (trapezoidal cross section) tape sealer around the periphery of the top flange of the casing section (See Figure 4). Apply tape with the wide side down over the centreline of the taper holes and the centreline of the taper holes and the centreline of the end flanges where there are no taper holes. The sealer should only be spliced along the flanges with the taper holes.

¹ Apply 25mm flat tape sealer over centerline of screw hole.

² Apply 25mm flat tape sealer over centerline of cross flanges.

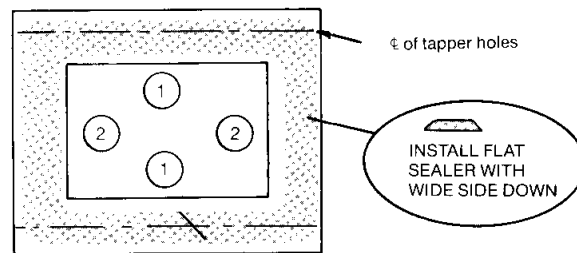


Figure 4.

Splice

- 3) After applying sealer to the unit flanges, lift the hood (using the lifting method outlined on page 4) and position it over the unit so that the hood's flanges are about 50mm above the casing flanges. Do not let the hood swing and damage the sealer.

- 4) Insert drift pins downward through the four corner screw holes in the hood (See Figure 5). Continue to lower the hood slowly, maintaining alignment with the drift pins until it rests on the unit.

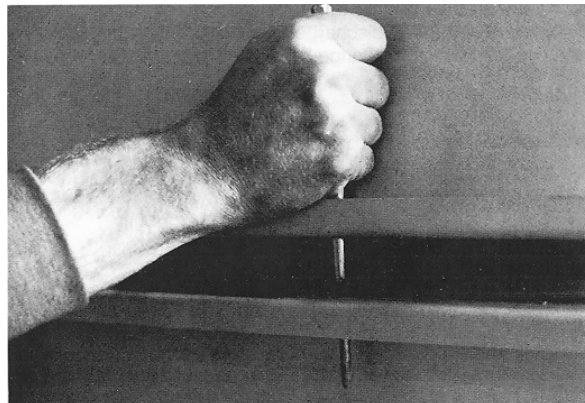


Figure 5.



5) Using the 10mm self-tapping screws, drive the corner screws down through the hood and into the unit. Working from the corners toward the center, continue to install the screws using the screw holes.

Bleed Line Installation

On VFL and VCL units operating with a remote sump tank and all VTL units, install a bleed line with valve between the system circulating pump discharge riser and a convenient drain. Locate the bleed line in a portion of the riser piping that drains when the pump is off. VFL and VCL units that are furnished with a factory-installed circulating pump include a belled line with valve.

The bleed valve should always be open when the unit is in operation, unless the bleed rate is automatically controlled by a water treatment system. Refer to the Operating and Maintenance Manual for circulating water quality guidelines and suggested bleed rate determination.



Final Assembly Details

Inspection

Prior to start-up, the following services, which are described in detail in the Operating and Maintenance Manual, must be performed.

Inspect general condition of unit.

Inspect fans and air inlet screens for obstructions.

Check make-up valve and sump water level.

Inspect spray nozzles and heat transfer section.

Lubricate all bearings and purge them of old grease.

Proper start-up procedures and scheduled periodic maintenance will prolong the life of the equipment and ensure trouble-free performance for which the unit is designed.



COOLING TOWERS

CLOSED CIRCUIT COOLING TOWERS

ICE THERMAL STORAGE

EVAPORATIVE CONDENSERS

HYBRID PRODUCTS

PARTS & SERVICES



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