

# QUICK REFERENCE

## Maintenance Check List



COOLING TOWERS  
EVAPORATIVE CONDENSERS  
INDUSTRIAL FLUID COOLERS

Once Every Month:	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.
1. Check fan and motor bearings and lubricate, if necessary.												
2. Check tightness and adjustment of thrust collars on sleeve bearing units and locking collars on ball bearing units.												
3. Check belt tension and adjust if necessary.												
4. Clean strainer (if atmosphere is extremely dirty, it may be necessary to clean strainer weekly).												
5. Check for biological growth in sump. Consult water treatment specialist if such growth is not under control.												
6. Clean and flush sump.												
7. Check spray distribution system. Check and re-orientate nozzles, if necessary. On evaporative condensers and industrial fluid coolers, with trough type distribution systems, adjust and flush out troughs, if necessary.												
8. Check operating water level in the pan and adjust float valve, if required.												
9. Check bleed-off rate and adjust if necessary.												
10. Check fans and air inlet screens and remove any dirt or debris.												

**Once a Year:** Inspect and clean protective finish inside and out. Look particularly for any signs of spot corrosion. Clean and refinish any damaged protective coating.

For factory-authorized B.A.C. parts, contact:



Representing:

**Baltimore Aircoil**

BALTIMORE AIRCOIL COMPANY  
P.O. Box 7322, Baltimore, MD 21227

Before undertaking start-up procedures or performing inspection or maintenance of B.A.C. equipment, make certain the power has been disconnected. Refer to appropriate operating and maintenance manuals and comply with all caution label instructions.

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## Suggestions for Spring Start-Up of Your Evaporative Cooling Equipment

1. Inspect the Unit.
  - a. Check eliminators for proper position.
  - b. Check position of strainer screens and air inlet screens to be sure screens have not shifted during shutdown.
  - c. Check fan wheels, bearings, fan motors, and pumps (if applicable) for lubrication. See item 5.
  - d. Rotate all fan shafts by hand to make sure they turn freely.
  - e. Check fan motors for proper rotation. Directional arrows on fan housing sides indicate correct rotation.
  - f. Clear fans of any trash or debris that may have accumulated during shutdown.
  - g. Check make-up valve for shut-off ability. Check float ball for buoyancy.
  - h. Check spray nozzles/troughs for proper distribution.
  - i. Check surface for scale, sludge or debris and clean if necessary.
  - j. Check access door gaskets and replace, if necessary.
  - k. Check the condition of the cooling tower fill. If it is clogged or deteriorated, replace it with Factory Authorized Replacement Fill.
2. Inspection of Casing.
  - a. While the unit is still drained, thoroughly inspect the unit casing. Clean and touch-up any areas showing signs of deterioration. Any damaged area should be cleaned to bare metal and refinished with Zinc-Rich Compound (ZRC). This is also the time when any casing joint leaks can be easily repaired.
  - b. Remove any deposits that have built up and were not cleared by flushing the sump. Touch up the area beneath deposits as required.
3. Fill the Cold Water Sump with Fresh Water to the Overflow Level.
  - a. At *initial start-up* or before restart-up where the sump was completely drained; the initial biocide treatment should be applied at this time (see Water Treatment section of the appropriate maintenance manual).
  - b. *Following a shut-down period*, where the sump was *not* completely drained: it is recommended that an initial shock treatment of appropriate biocides be administered at restart-up to eliminate accumulated biological contaminants.
4. Fill Pan with Water and Check Float Valve Level.

After the unit has been in operation under load for several days, operating water level should be checked. The operating water level should be approximately five (5) inches below the center line of the overflow connection.
5. Adjust Belt Tension of Fan Motors.

Proper belt tension is determined by pressing against a single belt midway between sheaves with one finger, which should deflect the belt 1/2" with moderate pressure. To adjust belts, loosen locknut on the inside of the frame angle and rotate the exterior nut as necessary. Re-tighten locknut and recheck tension.
6. Lubricate Bearings.
  - a. *Sleeve Bearings*: Use the B.A.C. oil that was shipped with the unit. During the first week of operation, refill each bearing cup several times to saturate the felt wick in the bearing cartridge. **DO NOT USE OILS CONTAINING DETERGENTS FOR LUBRICATION.**
  - b. *Ball Bearings*: Purge bearings with new grease.
  - c. *Fan Motors, Pumps* (if applicable): Lubrication should be in accordance with motor manufacturer's recommendations.
7. Check and Adjust Accessories.
  - a. *Capacity Control Dampers*: Using the crank arm, rotate damper shaft through the full range (open to closed positions) to make sure there is no binding.
  - b. *Electric Damper Controls*: Verify wiring is correct and end switch setting is correct. Refer to suggested wiring diagrams supplied with the submittal data.

## Suggestions for Winterizing Your Evaporative Cooling Equipment

### For All Cooling Towers, Closed Circuit Coolers and Evaporative Condensers

1. Provision must be made to protect the water in the basin from freezing when the unit is idle. This can be accomplished by using a remote sump installed in a heated space or installing steam/hot water coils or electric immersion heaters in the tower basin.
2. All outdoor water lines, including the make-up water line to the unit and drain lines from the unit should be traced with heater cable and insulated.
3. During operation, frequent visual inspections of the unit must be performed regularly to:
  - a. Insure all operating controls are properly set and functioning normally.
  - b. Insure the method of freeze prevention is effective.
  - c. Discover any icing conditions before they develop to the point where the unit is damaged or system performance is impaired.
4. A regular preventive maintenance program must be established and carried out despite adverse weather conditions. Items covered should include:
  - a. Regular lubrication of moving parts.
  - b. Regular checking of the make-up valve and cleaning of strainers to prevent high water levels in basin.
  - c. Regular checking and cleaning of hot water distribution system to assure uniform flow over unit.
5. All outdoor water lines should be insulated and traced with heating cable.

### Coil Protection for Closed Circuit Industrial Coolers

1. Charge the coil with ethylene glycol to prevent the system fluid from freezing. The percentage of ethylene glycol should be determined based upon the conditions in your area.
2. If no ethylene glycol is used, adequate\* flow through the coil must be maintained so that the temperature of the circulating fluid is never less than 50°F.
3. During light load periods, artificial heat should be applied directly to the circulating fluid.
4. A vacuum breaker or air vent should be installed at the high point of the system and an adequately sized drain should be installed at the low point to permit emergency drainage of the coil.
5. All outdoor water lines and the spray pump body should be traced with heating cable and insulated.

\*See appropriate Bulletin for details.

We would like to emphasize again the importance of frequent, regular visual inspection of the units while in operation during the winter months. Early detection of a potential cold weather problem can often result in a simple, inexpensive remedy now, rather than a major repair and inconvenience later.

**PROPER MAINTENANCE** — Proper winterizing, Spring start-up procedures, and scheduled periodic maintenance will prolong the life of the equipment, and ensure the trouble-free performance for which the unit was designed. Detailed instructions for maintenance are given in the B.A.C. Operating and Maintenance Manual, which is included with every unit shipped. This manual should be read and kept in a safe place. Additional copies are available from your local B.A.C. Representative.