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Cooling Tower Bulletin

A Guide for the Service Repair Industry

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U.S. Motors has been manufacturing motors for cooling tower applications for many decades. Our experience over that time has led to the development of our new Cooling Tower Duty Motor. This new motor is enhanced with many features specifically designed to address the rigors of the cooling tower environment, including high moisture.

This guide will help you identify the motors, determine type and warranty terms, process warranty claims and conduct repairs to maintain features, both for OEM and replacement markets.

Identifying Cooling Tower Motors

The motor has a catalog number prefix beginning with ”HW”, ”HVW” or ”MK” followed by a letter and numbers. Cooling Tower Duty will be indicated on the Motor Nameplate or on a Special Features plate on the motor. A “Customer Part Number” may also be stamped on either plate.

Types of Cooling Tower Duty Motors and the Standard Warranty Terms **

Motor Type Months from shipment	Months from installation	Months from shipment
CTI - Inverter Duty, NEMA Premium Eff., TEFC	36	42
CTNI - Inverter Duty, NEMA Premium Eff., TEAO	36	42
CTE - Premium Efficient, 2 Speed, TEFC	24	30
CTEN - Premium Efficient, 2 Speed, TEAO	24	30
FCT - Epact, Energy Efficient, TEFC	12	18
FCTN - Epact, Energy Efficient, TEAO	12	18

**** Note! Special warranty terms apply to OEM’s Motors: contact Product Service**

Warranty Claim Processing

When a customer claims warranty on this type of motor, it is critical we obtain the following information from the customer or the OEM Representative. This information should be noted on the Warranty Claim form submitted to U.S. Motors:

Continued on reverse side

Ask the experts

Q: What is a cooling tower?

A: A cooling tower is a heat rejection device, which extracts waste heat to the atmosphere through the cooling of a water stream to a lower temperature. Common applications for cooling towers are providing cooled water for air-conditioning, manufacturing and electric power generation.

EMERSON Motor Technologies

- Name of Cooling Tower Manufacturer (brand of tower).
- Name of Cooling Tower Representative and End User.
- Has the OEM already provided a new replacement motor to the customer?
- How was the motor mounted in the application: horizontal, shaft up / down?
- Are the condensate drain holes configured correctly for this application?
- Is the application direct-connected or belted to the load?
- Note OEM's Warranty RMA # or Claim # on Warranty Report.
- Is motor date code within the warranty terms, contact Product Service?
- Is failure mode covered under manufacturers warranty? See below.

Many applications for the Cooling Tower Duty Motor are in 100% relative humidity. Therefore, it is normal to see some evidence of corrosion inside the motor. This should not be a reason to immediately deny warranty coverage. Each service shop must determine if the moisture was a major contributor to the failure or the result of normal operation in a cooling tower environment. Testing should include surge and megger tests of the winding and evaluation of the bearing system. Did the bearing failure result in a winding failure? If so, this fact should be noted on the warranty form. The shop should provide as much detail as possible on the failure mode and the location in the motor where the fault occurred.

Important Note: *The Cooling Tower Duty Motor is equipped with a multi-position condensate drain system. Drain holes are drilled and plugged in various positions on the motor and activated by removing the appropriate plugs at the lowest position upon installation in the tower. This allows condensation to drain from the motors. The service shop should verify and note the drain hole configuration based on the motor mounting arrangement in the tower.*

Follow the normal Warranty Processing Procedure when filing a claim. You must submit a Warranty Report and Invoice for all repaired or inspected motors. Product Service should be consulted if additional information is needed.

When repairing the Cooling Tower Duty Motor maintain the following features:

- Rewind must include Inverter Grade Wire, F Insulation, and Double Dip & Bake.
- Rotor core and shaft surface must be painted for corrosion resistance.
- Use double sealed, ball type "2RS" bearing on both ends.
- Fill bracket grease cavity with Polyrex EM grease to prevent moisture formation.
- Use Forsheda style V-ring and umbrella-type water deflector on shaft.
- End bracket to frame registers are sealed with RTV or silicone sealant.
- Motor leads are sealed at the motor frame in the outlet box and gasketed.
- Confirm mounting position in the application and the configuration of drain openings and plugs are correctly located as noted previously.

U.S. Motors is working closely with cooling tower manufacturers to meet the needs and expectations of their industry. The Cooling Tower Duty Motor incorporates features that have been deemed critical for this application. Additional application and failure mode information gathered by our Authorized Service Centers will assist us in better understanding the application extremes and in planning future enhancements to the Cooling Tower Duty Motor. Your involvement and support in gathering the appropriate information is critical to this effort.

Thank you for all your support,
Product Service Department