Maintenance Log Entry

- **Date:** December 17, 2024
- **Technician:** Dana K.
- **Machine Type:** CNC Milling Machine (Model: Alpha-300)
- **Failure Type:** Heat Dissipation Issue
- **Error Code:** HDF-015

Symptoms:

- Noticed periodic machine stoppages during high-load operations.
- Spindle and coolant system temperatures spiked well above the normal range.
- Coolant appeared slightly discolored, suggesting possible contamination.

Diagnostic Steps:

1. **Temperature Analysis:** Reviewed logs showing abnormal temperature spikes and compared sensor data with an external thermometer.
2. **Coolant System Inspection:** Examined the coolant pump, lines, and filter; identified reduced flow and signs of debris accumulation.
3. **Sensor Calibration Check:** Verified that temperature sensors were functioning correctly and within calibration tolerance.
4. **Operational Testing:** Conducted controlled test runs to isolate the overheating episodes.

Final Resolution:

- **Component Replacement:** Replaced a worn component in the coolant pump to restore proper flow.
- **System Cleaning:** Cleared coolant lines of debris and replaced the contaminated filter.
- **Coolant Refill:** Refilled the system with fresh coolant and verified consistent flow.
- **Sensor Recalibration:** Recalibrated the temperature sensors to ensure accurate readings.
- **Test Run:** Performed a comprehensive test run, confirming stable operating temperatures and smooth machine performance.

Recommendations:

- **Routine Maintenance:** Schedule coolant system inspections and cleaning every 40 operational hours.
- **Regular Calibration:** Implement periodic recalibration of temperature sensors.
- **Immediate Reporting:** Encourage operators to report any abnormal temperature readings promptly.
- **Data Logging:** Maintain detailed logs to monitor trends in coolant system performance.

End of Log Entry