

Timer Calibration For Glue Pot

1.0 Maintenance Objective & Frequency

The objective of this procedure is to calibrate the programmable timer controlling the glue pot's dispense cycle. Accurate timer calibration ensures consistent adhesive bead length and volume, preventing starved joints or excessive glue waste. This PM also verifies the timer's relay output and response time.

Frequency: Every 500 operating hours or quarterly, whichever comes first. Perform immediately if glue bead inconsistencies are observed.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Disconnect the glue pot from its main power supply at the disconnect switch. Apply a personal lock and tag.
- **Pneumatic Isolation:** Close the shut-off valve on the compressed air supply line to the glue pot. Bleed any residual pressure from the system by actuating the dispense valve manually (with power off).
- **Thermal Hazard:** Allow the glue pot to cool to below 40°C (104°F) before performing any hands-on work. Verify temperature with an infrared thermometer.
- **Mandatory PPE:** Safety glasses, heat-resistant gloves, and closed-toe steel-toed boots.

3.0 Required Tools, Parts & Lubricants

- Digital stopwatch with 0.01-second resolution
- Small flathead screwdriver (for potentiometer adjustment, if applicable)
- Multimeter with frequency measurement capability (for verifying timer output)
- Manufacturer's timer calibration specification sheet
- Infrared thermometer
- Replacement timer module (if calibration fails and adjustment is not possible)
- Lint-free wipes and isopropyl alcohol (for cleaning timer contacts)

4.0 Step-by-Step Maintenance Procedure

1. Perform full LOTO as per Section 2.0. Confirm zero energy state by attempting to cycle the dispense valve.
2. Remove the electrical enclosure cover on the glue pot to access the timer module. Use a multimeter to verify no voltage is present at the timer input terminals.
3. Visually inspect the timer module for signs of heat damage, corrosion, or loose wiring. Clean any debris from the terminal block using isopropyl alcohol and a lint-free wipe.
4. Identify the timer adjustment method: either a digital keypad, a potentiometer, or DIP switches. Refer to the manufacturer's specification sheet for the correct adjustment range.

5. Set the timer to a known test value (e.g., 2.00 seconds) using the appropriate adjustment method. For digital timers, enter the value directly. For analog, turn the potentiometer to the approximate position.
6. Re-energize the control circuit only (do not restore full production power). Use the manual test button on the timer to initiate a single cycle.
7. Measure the actual dispense time using the digital stopwatch. Start the stopwatch when the timer output relay closes (audible click) and stop when it opens. Record the measured time.
8. Compare the measured time to the set value. Acceptable tolerance is $\pm 2\%$ of the set value (e.g., $2.00s \pm 0.04s$). If outside tolerance, adjust the timer and repeat steps 6-7 until within spec.
9. If the timer cannot be adjusted to within tolerance, replace the timer module with a new one calibrated to the factory default. Repeat steps 5-8 to verify the replacement.
10. Once calibration is verified, lock the timer adjustment (if a locking mechanism exists) or apply a dab of threadlocker to the potentiometer to prevent drift.
11. Reinstall the electrical enclosure cover and tighten all fasteners to the torque specified in the enclosure manual (typically 2-3 Nm for small covers).
12. Remove LOTO devices and restore full power to the glue pot.

5.0 Verification & Return to Service

1. Perform a dry cycle test (no glue in pot) to confirm the timer operates the dispense valve correctly through a full open/close sequence.
2. Load the glue pot with adhesive and bring it to operating temperature. Run three consecutive dispense cycles on a piece of scrap material.
3. Measure the bead length and width of each dispense. All three should be within $\pm 5\%$ of each other, indicating stable timer performance.
4. If bead consistency is acceptable, sign off on the PM work order in ServiceGrid. Record the final calibrated timer value and the date of calibration.
5. If bead consistency fails, re-check for pneumatic issues (air pressure, valve sticking) or thermal issues (temperature fluctuations) before re-calibrating.

Regulatory Disclaimer: This document is a generic maintenance template provided for educational and informational purposes only. It does not constitute professional engineering or reliability advice. The end-user assumes all liability for validating all step sequences, torque specs, and LOTO protocols against specific machinery OEM manuals before deployment to a live production floor.