
Compressor Condensate Management System Test

1.0 Maintenance Objective & Frequency

The objective of this procedure is to test the condensate management system on an industrial air compressor to ensure proper drainage of accumulated moisture, prevent water carryover into downstream equipment, and maintain system efficiency. This PM is performed weekly or every 40 operating hours, whichever comes first.

2.0 Lockout/Tagout (LOTO) & Safety

- Electrical Isolation: Disconnect and lock out the main compressor power supply at the disconnect switch.
- Pneumatic Isolation: Close the isolation valve on the compressed air outlet line and bleed any residual pressure from the system.
- Condensate Drain Isolation: Ensure the manual drain valve is closed before proceeding.
- PPE: Safety glasses, steel-toed boots, and chemical-resistant gloves (due to potential oil/water mixture).

3.0 Required Tools, Parts & Lubricants

- Condensate collection container (5-gallon pail or approved waste drum)
- Adjustable wrench or 10mm socket and ratchet
- Digital multimeter (for solenoid valve testing)
- Replacement condensate drain valve (if defective)
- Shop rags or absorbent pads
- Compressed air blow gun (for cleaning)

4.0 Step-by-Step Maintenance Procedure

1. Verify LOTO is applied: confirm compressor is isolated from electrical and pneumatic sources.
2. Place the collection container under the condensate drain line to capture any discharge.
3. Locate the condensate management system (typically an electronic or pneumatic drain valve at the bottom of the separator tank).
4. Manually actuate the drain valve using the test button (if equipped) or by opening the manual bypass valve for 2-3 seconds to confirm flow.
5. Observe the discharge: it should be a steady stream of water/oil mixture. If no flow or only air is expelled, the valve or timer may be blocked or failed.
6. Inspect the drain valve for visible debris or scale buildup. Clean the valve seat and orifice using compressed air or a small brush if necessary.
7. If the valve is solenoid-operated, use a multimeter to check for 24V DC (or specified voltage) at the solenoid coil when the timer calls for drain. Replace solenoid if no voltage is present.

8. Check the timer settings (if adjustable): typical cycle is 10-15 seconds open every 30-60 minutes. Adjust per OEM specifications.
9. Inspect the condensate line and fittings for leaks or corrosion. Tighten any loose connections with an adjustable wrench.
10. Close the manual bypass valve and remove the collection container. Dispose of captured condensate in accordance with local environmental regulations.
11. Wipe down the area with shop rags and ensure no tools or debris remain inside the compressor enclosure.

5.0 Verification & Return to Service

1. Remove LOTO tags and locks, then restore electrical power to the compressor.
2. Open the compressed air outlet isolation valve and allow the compressor to build pressure to normal operating range.
3. Observe one full drain cycle (if automatic) or manually trigger a test cycle to confirm proper operation.
4. Verify no air leaks at the drain valve or fittings using a soap-and-water solution or ultrasonic leak detector.
5. Record the PM completion in ServiceGrid, noting any replaced parts or adjustments made.
6. Return the compressor to production service.

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.