
Paint Booth Exhaust Filter Replacement and Draft Gauge Reading

1.0 Maintenance Objective & Frequency

The objective of this procedure is to replace the paint booth exhaust filters and record the draft gauge reading to maintain proper airflow, ensure paint finish quality, and reduce fire risk from oversaturated filters. This PM is to be performed every 200 operating hours or weekly, whichever comes first, or immediately if the draft gauge indicates a static pressure drop exceeding 0.5 inches of water column (in. w.c.) above the baseline reading for a clean filter.

2.0 Lockout/Tagout (LOTO) & Safety

- **Electrical Isolation:** Lock out and tag out the main disconnect for the paint booth exhaust fan motor. Verify zero energy state with a voltmeter.
- **Pneumatic Isolation:** Close the compressed air supply valve to any booth pneumatic controls (e.g., dampers, door seals). Bleed residual air.
- **Hazardous Atmosphere:** Ensure the booth is purged of all paint fumes. Use a combustible gas detector to confirm LEL is below 10% before entering.
- **PPE:** Wear safety glasses, cut-resistant gloves, N95 respirator (or half-face respirator with organic vapour cartridges if residual fumes present), and flame-resistant coveralls.

3.0 Required Tools, Parts & Lubricants

- Replacement exhaust filter set (OEM specified, e.g., 24x24x2 inch pleated or roll media)
- Draft gauge (Magnehelic or digital manometer, 0-2 in. w.c. range)
- 5mm Allen key or socket set for filter frame fasteners
- Flathead screwdriver for gauge zero adjustment
- Shop vacuum with HEPA filter for debris cleanup
- Disposable plastic bags for used filters
- Combustible gas detector (calibrated)
- Voltmeter (CAT III rated)

4.0 Step-by-Step Maintenance Procedure

1. Perform LOTO on the exhaust fan disconnect and pneumatic supply. Confirm zero energy with voltmeter and bleed air.
2. Use combustible gas detector to verify the booth interior is safe (LEL < 10%). If unsafe, ventilate with purge cycle before proceeding.
3. Record the current draft gauge reading (static pressure) on the PM work order. Note if it exceeds 0.5 in. w.c. above the clean filter baseline.
4. Open the exhaust filter access door or remove the retaining panel using a 5mm Allen key. Set hardware aside in a clean container.

5. Carefully slide out the used exhaust filters. Place them directly into a disposable plastic bag to contain overspray dust. Seal and dispose per local hazardous waste regulations.
6. Vacuum the filter housing and any debris from the plenum area using a HEPA-filtered shop vacuum. Inspect for damage or corrosion.
7. Install the new filters with the airflow direction arrows pointing toward the exhaust fan. Ensure a tight seal against the frame—no gaps.
8. Reinstall the access panel or door. Torque fasteners to 8 Nm (or hand-tight if no spec) to avoid distorting the frame.
9. Remove LOTO tags and locks. Restore power to the exhaust fan and pneumatic supply.
10. Start the exhaust fan and allow it to run for 2 minutes to stabilize airflow.
11. Read the draft gauge. Record the new static pressure reading on the PM work order. If the reading is not within 0.1 in. w.c. of the clean filter baseline, check for air leaks or blocked intake.
12. Zero the draft gauge if necessary using the adjustment screw (for Magnehelic) or auto-zero function (digital). Verify zero with fan off.

5.0 Verification & Return to Service

1. Perform a visual inspection of the booth interior for any tools or debris left behind.
2. Run a 5-minute test cycle with the booth in normal operation (lights on, fan on, no spraying). Confirm draft gauge reading is stable and within acceptable range.
3. Verify that the booth door seals are intact and no air leaks are audible.
4. Sign off on the PM work order in ServiceGrid, including the before and after draft gauge readings and filter part numbers.
5. Return the booth to production status. Notify the shift supervisor that the PM is complete.

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.