

AFC Finishing Systems

Blast Booth Operation & Maintenance Manual



*Built in America,
Supported with Integrity*

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AFC Finishing Systems has used its best efforts in preparing this manual and the information contained within. These efforts include testing, checking, and reviewing the functionality of the information. Because of the diversity and special individual customization of our blast booths and blast equipment, we cannot guarantee full agreement. However, the data contain within this manual are reviewed on a regular basis and any necessary correction will be included in subsequent editions. Any suggestions for improvement are welcome.

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Introduction

This manual is intended for the initial setup of the electrical and control systems of blast booths and how to operate and maintain blast booths only. Please refer to the booth installation instruction that comes with your blast booth for sheet metal installation. Electrical power to each system, fire suppression system and gas plumbing are also required and must be installed by qualified local contractor(s) prior to doing initial setup.

AFC Finishing Systems offer free telephone support eight hours a day, five days a week from 8:00 A.M to 5:00 P.M. PST, Monday through Friday. We could be reached at our toll-free number: (800) 331-7744. Supports and General information are also available online at our web site, <http://www.afc-ca.com>.

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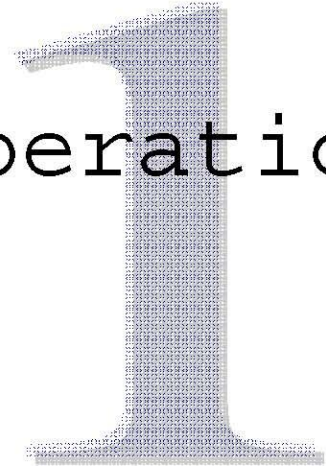
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START-UP & Operation



Start-up & Operation

1.0 Safety Precautions

1.0.1 Fire Safety

The interior of the blast booth is a rated Class 1, Division 1 hazardous area. Except for vehicles or parts to be blasted, no sparks, spark generating equipment, or open flame inside the blast booth at any time. Three feet around any opening into the booth is a rated Class 1, Division 2 hazardous area. Caution should be taken not to place or have any flammable or flame causing equipment within three feet of any booth openings.



WARNING Fire or explosion hazard! Can cause property damage, severe injury, or death. Verify safety requirements whenever installing a spray booth control system

1.0.2 Tampering with Safety Equipment

All AFC spray booths are designed and built to the standard of the National Fire Protection Agency (NFPA 33, NFPA 86, NFPA 91, NFPA 101, NFPA 70), the Occupational Safety and Health Act (OSHA), BOCA (National Fire Prevention, National Building Code, & National Mechanical Code), the Uniform Fire Code (UFC), Uniform Building Code (UBC), and the Uniform Mechanical Code (UMC). All safety equipment, limit switches, air solenoid valve, etc., must not be tampered with. If the particular piece of equipment does not operate correctly, please have a qualified technician fix the problem immediately.



CAUTION Electrical shock hazard or equipment/control damage. Can cause electrical shock, or equipment damage. Disconnect power supply before beginning installation

1.0.3 Installation

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage. Refer to this manual and the Power Flame burner manual. For additional assistance or additional information, consult a qualified installer, service agency, or call AFC at our toll-free number, (800) 331-7744.



Safety Equipment Required

1.1 Initial Start-up procedure

1.1.1 Initial start-up

- 1 Turn off all power to control panel.
- 2 Tighten all electrical connections (field and factory).
- 3 Turn on power to booth.
- 4 Check for proper air flow.

1.2 Operator Pre-start

1.2.1 Safety Equipment Operator must use proper clothing and equipment when operating a blast booth. All blast booths are designed to draw air and fumes away from the operator, but it is possible for hazardous fumes to be within breathing space of the operator.

1.2.2 Air Moving Equipment

Air moving devices such as the exhaust fans must be in good operating status and running prior to any spray operation. Check for belt tensions, cracks, and other signs of wears and tears on a regular basis.

1.2.3 Door Limit Switches If exist, door limit switches are there to prevent dangerous fumes from leaking out of the blast booth. Make sure that by opening any of the doors, the spray gun is disabled. Note that some booths may have a time delay on the doors.

1.2.4 Air Compressors blast booths contain equipment that run on compressed air. Verify that air compressors are running prior to starting any blast booth.

1.3 Operating Procedure

1.3.1 Normal Operation

- 1 Turn on and verify that there's power to the control panel.
- 2 Turn the system on (turn system switch to the ON position). All exhaust fans should turn on.
- 3 To shut down the system, turn the system switch to OFF.

1.4 Emergency Operation



1.4.1 Safety Equipment Failure

Non-life Threatening blast booth safety equipment, like all other mechanical equipment, will eventually fail due to wears and tears.

The safety device on blast booths that may be safely bypass for short, emergency operations are:

Door limit switch. The door limit switch may be temporary bypass by tying the two wires on terminal 5 and terminal 6 inside the switch together. Be sure to disable all power sources to the control panel prior to bypassing to prevent electrical shocks.

1.4.2 Safety Equipment Failure, Life Threatening

In case of life threatening equipment failure, immediately exit blast booth and if possible, shut down all control systems. Call service and maintenance and have the particular equipment fix prior to the next operation.

1.4.3 Air Moving Device Failure Air moving device (fans and fan motors) failure must be fixed before the blast booth can be put into operation mode again. There is no temporary fix to have the booth running in an emergency status. Forcing and bypassing safety protective devices for air moving devices can lead to serious health hazard, injuries or even death.

1.4.4 Lightings In case of complete lighting failure, the power source for all lighting fixtures may be re-routed temporary for emergency operation. If lighting is provided by AFC, then there is a lighting circuit breaker and a lighting contactor relay inside the control panel. Note that all electrical must be done outside of the blast booth unless the equipment are rated for NFPA class 1 division 1 hazardous location operation.

1.4.5 Compressed Air

The compressed air for blasting inside the blast booth is controlled by an electrically controlled solenoid valve on the air line immediately outside of the booth. If this device fails, compressed air for blasting may be brought into the booth via a flexible air line from a source outside of the booth.



Maintenance

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Maintenance

2.0 Operator Service Requirement

The operator is required to make the following services and maintenance.

2.0.1 General Service

Booth operator should practice good basic housekeeping.

There should be no prepping in the booth unless the system is design specifically for prepping and not for painting (i.e. Work Station, Prep Benches, or non-enclosed systems like the Exhaust Benches, Bench Filter Booths, or Floor Filter Booths).

When exist, doors should be kept shut at all times to minimize the amount of dirt carried into the booth. For enclosed systems, the interior should be vacuumed regularly, and the wall wiped down to prevent the accumulation of combustible residues.

Check the door, tie-bar, and light frame gaskets for damage and replace as needed.

Check and replace light tubes as needed.

For enclosed systems, check all joints on interior of booth and re-caulk any air leaks. Keep blasting air system clean and dry.

2.0.2 Filters

Although the filters are regularly reverse pulse-clean, they should be regularly inspected for wears and tears.

Manually pulse-clean the filters after every shift will make them work more efficiently.

2.0.3 Mechanical

Routine checks and proper servicing contribute to minimal down time. AFC recommends that the operator:

Keep door latches adjusted to maintain seal of access and drive-in doors.

Drain filter/regulator on air actuated damper system. Sediment bowl should be kept clean of water and dirt.

Check damper linkages on combustion air blower for the burner to insure proper movement and free travel.

Check for belt wear and tension on all motors.

Re-tighten pulley set screws and motor mount bolts.

Lubricate motor bearings if bearings are not of the sealed type.

Lubricate fan bearings every six months.

Keep electrical equipment clear from clutter and debris at all times.

2.1 Preventive Maintenance

2.1.1

Fans & Motors Routine checks will ensure maximum life of the fan and motors.

Belts should be check for tightness and wear every three months and replace as necessary.

Fan bearings should be lubricated every six months with #2 Lithium-base grease.

Note: DO NOT OVER-GREASE AS DAMAGE TO BEARINGS WILL RESULT.

Maintenance (continued)

- **Exhaust fan(s)** should be cleaned annually.

2.1.2 Exhaust System The exhaust ducts, exhaust fan blades, and exhaust discharge point(s) should be inspect annually for residue build-up and clean as necessary.

2.1.3 Fire Suppression System All fire sprinkler heads should be inspect and clean on a regular basis to prevent residue build-up, thus ensuring proper performance.

2.1.4 Controls & Heat Systems Electrical connections and motor load currents should be checked annually.

2.2 Troubleshooting Guides

SYMPTON	PROBABLE CAUSE	REMEDY
Blast booth will not operate	<ol style="list-style-type: none"> 1. Circuit breaker at main panel is tripped 2. Circuit breaker inside AFC control panel is tripped 3. Faulty fuses 4. Motor overload(s) tripped 	<ol style="list-style-type: none"> 1. Reset the circuit breaker 2. Reset the circuit breaker 3. Replace faulty fuses 4. Reset overload(s)
No (or not enough) exhaust air	<ol style="list-style-type: none"> 1. One or more booth doors are open 2. Faulty fuses 3. Motor overload(s) tripped 4. Broken fan belt(s) 5. Faulty door limit switch 6. Dirty exhaust filters 7. Snow or other debris on up-flow canopy dampers 8. Incorrect sheave on motor 	<ol style="list-style-type: none"> 1. Close all doors 2. Replace faulty fuses 3. Reset overload(s) 4. Replace fan belt(s) 5. Repair or replace switch 6. Replace filters 7. Remove debris or melt the snow 8. Replace with proper sheave. <p>See notes on <i>booth too negative or too positive</i></p>
Booth too negative or too positive. Also see <i>no (or not enough) exhaust air and/or no (or not enough) make-up air</i> Note: Only with enclosed system that have both intake and exhaust systems.	<ol style="list-style-type: none"> 1. Incorrect sheave(s) on motors <p><i>Note1: Slow down make-up fan and/or speed up exhaust fan(s) if booth is too positive. Speed up make-up fan and/or slow down exhaust fan(s) if booth is too negative.</i></p>	<ol style="list-style-type: none"> 1. Replace with proper sheave(s). <p><i>Note2: A smaller motor sheave (pulley) will slow the fan down, decreasing air flow. A larger motor sheave will speed up the fan, increasing air flow. Before increasing motor sheave, check load current to determine if it is possible to speed up the motor without causing an over-current. The motor load current should be at or below the full load amps (FLA) stamped on the motor rating plate.</i></p>



Appendices

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Appendices

3.0 Spare Parts and Supply Lists

Note that the list below only shows supplies that are needed or may be needed on a regular basis. Please contact AFC for all other parts at (800) 331-7744.

DESCRIPTION	COMPANY	PART NUMBER
Belts	AFC (800) 331-7744	Please check number on belts or specify fan and motor sizes when ordering
Door gasket	AFC (800) 331-7744	
Filters	Air Filtration Co., inc (Iowa) (800) 848-5859	
Light Ballast	AFC (800) 331-7744	
Manometer fluid	AFC (800) 331-7744	18065
Extraction Filters	Air Filtration Co., inc (Iowa) (800) 848-5859	

3.1 Warranty Information

AFC has a parts warranty on all new blast booths and blast booth equipment of one year. This means that, within reasonable means, AFC will replace any parts found to be bad due to manufacturing or transporting, free of charge. Because AFC does not always have control over the installation process, parts found to be bad due to the installation process are evaluated on a case-to-case basis.

AFC will provide free telephone support on all blast booths and blast booth equipment for the life of the equipment, whether you bought it new or used. On-site services are only available in certain area of the United States. However, AFC blast booths are simple systems and can be troubleshoot by any local heating and air condition companies.



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