User's Manual

Protector® XStream® Laboratory Fume Hoods

Models

9840400, 9840401, 9840402, 9840403,
9840500, 9840501, 9840502, 9840503,
9840600, 9840601, 9840602, 9840603,
9840800, 9840801, 9840802, 9840803

To receive important product updates, complete your product registration card online at **register.labconco.com**

Protecting your laboratory environment
LABCONCO®

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Please read the User's Manual before operating the equipment.

Warranty

Labconco provides a warranty on all parts and factory workmanship. The warranty includes areas of defective material and workmanship, provided such defect results from normal and proper use of the equipment.

The warranty for all Labconco products will expire one year from date of installation or two years from date of shipment from Labconco, whichever is sooner, except the following;

- Purifier® Delta® Series Biological Safety Cabinets and PuriCare® Lab Animal Research Stations carry a three-year warranty from date of installation or four years from date of shipment from Labconco, whichever is sooner.
- SteamScrubber® & FlaskScrubber® Glassware Washers carry a two-year warranty from date of installation or three years from date of shipment from Labconco, whichever is sooner.
- Blood Drawing Chairs carry a ten year warranty.
- Carts carry a lifetime warranty.
- Glassware is not warranted from breakage when dropped or mishandled.

This limited warranty covers parts and labor, but not transportation and insurance charges. In the event of a warranty claim, contact Labconco Corporation or the dealer who sold you the product. If the cause is determined to be a manufacturing fault, the dealer or Labconco Corporation will repair or replace all defective parts to restore the unit to operation. Under no circumstances shall Labconco Corporation be liable for indirect, consequential, or special damages of any kind. This statement may be altered by a specific published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments. Lamps and filters are not covered by this warranty. Damage due to corrosion or accidental breakage is not covered.

Returned or Damaged Goods

Do not return goods without the prior authorization from Labconco. Unauthorized returns will not be accepted. If your shipment was damaged in transit, you must file a claim directly with the freight carrier. Labconco Corporation and its dealers are not responsible for shipping damages.

The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.

Limitation of Liability

The disposal and/or emission of substances used in connection with this equipment may be governed by various federal, state, or local regulations. All users of this equipment are required to become familiar with any regulations that apply in the user's area concerning the dumping of waste materials in or upon water, land, or air and to comply with such regulations. Labconco Corporation is held harmless with respect to user's compliance with such regulations.

Contacting Labconco Corporation

If you have questions that are not addressed in this manual, or if you need technical assistance, contact Labconco's Customer Service Department or Labconco's Product Service Department at 1-800-821-5525 or 1-816-333-8811, between the hours of 7:00 a.m. and 6:00 p.m., Central Standard Time.

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CHAPTER 1
INTRODUCTION

Congratulations on your purchase of a Labconco Protector® XStream® Laboratory Fume Hood. Your Protector XStream Laboratory Fume Hood is designed to protect you by providing superior containment while conserving energy at OSHA approved "low flow" velocities as low as 60 feet per minute. It is the result of Labconco's commitment to developing a high performance fume hood and more than 50 years experience in manufacturing fume hoods.

The Labconco Protector XStream Fume Hood has been engineered to provide maximum containment in a laboratory, and effectively contain toxic, noxious, or other harmful materials when properly installed. The Protector XStream offers many unique features to enhance safety, performance, and energy savings. To take full advantage of them, please acquaint yourself with this manual and keep it handy for future reference. If you are unfamiliar with how high performance fume hoods operate, please review *Chapter 4: High Performance Features and Safety Precautions* before you begin working in the fume hood. Even if you are an experienced fume hood user, please review *Chapter 5: Using Your Fume Hood,* which describes your Protector XStream Hood's features so that you can use the hood efficiently.

About This Manual

This manual is designed to help you learn how to install, use, and maintain your laboratory fume hood. Instructions for installing optional equipment on your hood are also included.

Chapter 1: Introduction provides a brief overview of the laboratory fume hood, explains the organization of the manual, and defines the typographical conventions used in the manual.

Chapter 2: Prerequisites explains what you need to do to prepare your site before you install your laboratory fume hood. Electrical and service requirements are discussed.

Chapter 3: Getting Started contains the information you need to properly unpack, inspect, install, and certify your laboratory fume hood.

Chapter 4: High Performance Features and Safety Precautions explains how the Protector XStream operates and the appropriate precautions you should take when using the fume hood.

Chapter 5: Using Your Protector XStream discusses the basic operation of your fume hood. Information on how to prepare, use and shut down your Protector XStream Hood are included.

Chapter 6: Maintaining Your Protector XStream explains how to perform routine maintenance on your fume hood.

Chapter 7: Modifying Your Protector XStream explains how to modify the fume hood or add accessories.

Chapter 8: Troubleshooting contains a table of problems you may encounter while using your laboratory fume hood including the probable causes of the problems and suggested corrective actions.

Appendix A: Protector XStream Hood Components contains labeled diagrams of all of the components of the fume hoods.

Appendix B: Protector XStream Hood Dimensions contains comprehensive diagrams showing all of the dimensions for the laboratory fume hoods.

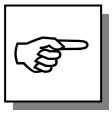
Appendix C: Protector XStream Hood Specifications contains the electrical requirements for laboratory fume hood. Wiring diagrams are also included.

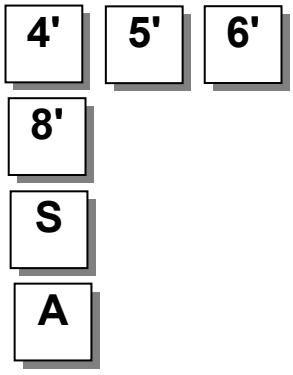
Appendix D: References lists the various resources available that deal with laboratory fume hoods.

Typographical Conventions

Recognizing the following typographical conventions will help you understand and use this manual:

- Book, chapter, and section titles are shown in italic type (e.g., *Chapter 3: Getting Started*).
- Steps required to perform a task are presented in a numbered format.
- Comments located in the margins provide suggestions, reminders, and references.
- Critical information is presented in boldface type in paragraphs that are preceded by the exclamation icon. Failure to comply with the information following an exclamation icon may result in injury to the user or permanent damage to fume hood.
- Critical information is presented in boldface type in paragraphs that are preceded by the wrench icon. These operations should only be performed by a trained certifier or contractor. Failure to comply with the information following a wrench icon may result in injury to the user or permanent damage to your hood.
- Important information is presented in capitalized type in paragraphs that are preceded by the pointer icon. It is imperative that the information contained in these paragraphs be thoroughly read and understood by the user.
- A number icon precedes information that is specific to a particular model of laboratory fume hood. The 4' icon indicates the text is specific to the 4-foot wide model. The 5' icon indicates the text is specific to the 5-foot model, etc.
- The S icon indicates the text is specific to the standard model.
- The A icon indicates the text is specific to the A-Style Combination Sash Model.





Your Next Step

If your Fume Hood needs to be installed, proceed to *Chapter 2: Prerequisites* to ensure your installation site meets all of the requirements. Then, go to *Chapter 3: Getting Started* for

instructions on how to install your laboratory fume hood and make all of the necessary connections.

If you would like to review how Labconco's high performance laboratory fume hoods operate, go to *Chapter 4: High Performance Features and Safety Precautions*.

For information on the operational characteristics of your laboratory fume hood, go to *Chapter 5: Using Your Protector XStream Hood*.

If your laboratory fume hood is installed and you need to perform routine maintenance on the cabinet, proceed to *Chapter 6: Maintaining Your Protector XStream Hood*.

For information on making modifications to the configuration of your fume hood, go to *Chapter 7: Modifying Your Laboratory Fume Hood*.

Refer to *Chapter 8: Troubleshooting* if you are experiencing problems with your fume hood.

CHAPTER 2
PREREQUISITES

Before you install your laboratory fume hood, you need to prepare your site for installation. Carefully examine the location where you intend to install your hood. You must be certain that the area is level and of solid construction. In addition, a dedicated source of electrical power must be located near the installation site.

Carefully read this chapter to learn the requirements for your installation site:

- The location requirements.
- The support requirements.
- The exhaust requirements.
- The electrical power requirements.
- The service line requirements.
- The space requirements.

Refer to *Appendix B: Protector XStream Hood Dimensions* for complete fume hood dimensions.

Refer to *Appendix C: Protector XStream Hood Specifications* for complete laboratory fume hood electrical and environmental conditions, specifications and requirements.

Location Requirements

The fume hood should be located away from traffic patterns, doors, windows, fans, ventilation registers, and any other air-handling device that could disrupt its airflow patterns. All windows in the room should be closed.

Support Requirements

DO NOT install the fume hood on a cart, dolly, or mobile bench. ALL Protector XStream Hood installations must be permanent and stationary. The supporting structure usually consists of a base cabinet and chemically resistant work surface.

Exhaust Requirements

The exhaust duct connection has been designed for 12" nominal duct (12.75" OD) to allow for minimum static pressure loss while operating at 60 to 100 fpm face velocities. The 12" diameter exhaust duct also allows for proper transport velocities away from the hood with minimal static pressure loss. Should higher transport velocities of 1000 fpm to 2500 fpm be required, simply install a reducer after the exhaust outlet. The exhaust volume and fume hood static pressure loss are listed for each hood model at two sash heights and for face velocities of 60, 80 and 100 fpm. When sizing the exhaust requirements, the choice must be made for sash height and face velocity.

		Full Open 28" Sash Opening		
Hood Size	**Standard Model Description**	**Face Velocity**	**Exhaust Volume**	**Static Pressure Loss**
4'	48" Protector XStream Hood	60 fpm	440 CFM	0.08" H_2O
		80 fpm	590 CFM	0.13" H_2O
		100 fpm	730 CFM	0.25" H_2O
5'	60" Protector XStream Hood	60 fpm	580 CFM	0.11" H_2O
		80 fpm	770 CFM	0.19" H_2O
		100 fpm	960 CFM	0.30" H_2O
6'	72" Protector XStream Hood	60 fpm	710 CFM	0.13" H_2O
		80 fpm	940 CFM	0.23" H_2O
		100 fpm	1180 CFM	0.36" H_2O
8'	96" Protector XStream Hood	60 fpm	1000 CFM	0.10" H_2O
		80 fpm	1330 CFM	0.18" H_2O
		100 fpm	1660 CFM	0.28" H_2O
		60% Open 18" Sash Opening (sash stop required)		
Hood Size	**Standard Model Description**	**Face Velocity**	**Exhaust Volume**	**Static Pressure Loss**
4'	48" Protector XStream Hood	60 fpm	280 CFM	0.04" H_2O
		80 fpm	380 CFM	0.07" H_2O
		100 fpm	470 CFM	0.11" H_2O
5'	60" Protector XStream Hood	60 fpm	370 CFM	0.05" H_2O
		80 fpm	490 CFM	0.08" H_2O
		100 fpm	610 CFM	0.13" H_2O
6'	72" Protector XStream Hood	60 fpm	450 CFM	0.06" H_2O
		80 fpm	600 CFM	0.10" H_2O
		100 fpm	750 CFM	0.15" H_2O
8'	96" Protector XStream Hood	60 fpm	640 CFM	0.04" H_2O
		80 fpm	850 CFM	0.08" H_2O
		100 fpm	1060 CFM	0.12" H_2O

Proper blower selection can be determined from these exhaust requirements and the total system static pressure loss. Contact Labconco Customer Service for assistance in sizing a remote blower system.

Electrical Requirements

The Protector XStream Hood models feature internal wiring for the fluorescent light assembly and light switch. All internal wiring is terminated at the single point wiring junction box for hook-up by a qualified electrician. The blower switch, and light switch wires are also terminated at the single point wiring junction box for hook-up

by a qualified electrician. Refer to *Chapter 3: Getting Started* and *Appendix* C*: Protector XStream Specifications* for the wiring diagram for proper electrical installation.

Service Line Requirements

All service lines to the laboratory fume hood should be ¼ inch outside diameter, copper (brass for natural gas), and equipped with an easily accessible shut-off valve, should disconnection be required. If the service line pressure exceeds 40 PSI, it must be equipped with a pressure regulator to reduce the line pressure. Please check with local codes for other requirements.

Space Requirements

The dimensions for the different models are shown in *Appendix B: Protector XStream Dimensions*.

CHAPTER 3
GETTING STARTED

Now that the site for your laboratory fume hood is properly prepared, you are ready to unpack, inspect, install, and certify your unit. Read this chapter to learn how to:

- Unpack and move your Protector XStream Hood.
- Set up the fume hood with the supporting structure and work surface.
- Connect to an exhaust system.
- Connect the electrical supply source.
- Connect the service lines.
- Seal the Protector XStream Hood to the work surface.
- Arrange certification of your Protector XStream Hood.

Depending upon which model you are installing, you may need common plumbing and electrical installation tools in addition to 5/16", 3/8", 7/16", and 1/2" wrenches, ratchets, sockets, a nut driver set, a flat-blade screwdriver, a Phillips screwdriver, and a carpenter level to complete the instructions in the chapter.

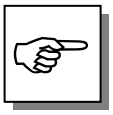
The Protector XStream Hood models weigh between 400 to 800 lbs. (182-363 kg). The shipping skid allows for lifting with a mechanical lift truck or floor jack. If you must lift the fume hood manually, follow safe-lifting guidelines. Normally, the fume hood can be slid off a hydraulic lift table and be placed into position on top of the work surface. Do not lift by the front air foil.

Unpacking Your Laboratory Fume Hood

The United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.

Carefully remove the shrink-wrap or carton on your fume hood and inspect it for damage that may have occurred in transit. If your unit is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.

DO NOT RETURN GOODS WITHOUT THE PRIOR AUTHORIZATION OF LABCONCO. UNAUTHORIZED RETURNS WILL NOT BE ACCEPTED.



IF YOUR HOOD WAS DAMAGED IN TRANSIT, YOU MUST FILE A CLAIM DIRECTLY WITH THE FREIGHT CARRIER. LABCONCO CORPORATION AND ITS DEALERS ARE NOT RESPONSIBLE FOR SHIPPING DAMAGES.

Do not discard the shipping skid or packing material for your fume hood until you have checked all of the components and installed and tested the unit.

Do not remove the fume hood from its shipping skid until it is ready to be placed into its final location. Move the unit by placing a flat, low dolly under the shipping skid, or by using a floor jack.

Do not move the hood by tilting it onto a hand truck.

Removing the Shipping Skid

LEAVE THE FUME HOOD ATTACHED TO ITS SHIPPING SKID UNTIL IT IS AS CLOSE TO ITS FINAL LOCATION AS POSSIBLE. MOVE THE HOOD BY USING A SUITABLE FLOOR JACK, OR BY PLACING A FURNITURE DOLLY UNDERDNEATH THE SKID. DO NOT MOVE THE HOOD BY TILTING IT ONTO A HAND TRUCK.

After you verify the fume hood components, move your hood to the location where you want to install it. Then, follow the steps listed next to remove the shipping skid from your unit.

1. Remove the side panels by unscrewing the Phillips screws.
2. Find the hardware (bolts, washers, nuts) that attach the fume hood to the skid and remove the hardware. Some hardware is on the sides and some is on the back.

Sash Weight Release

To protect the fume hood from damage in shipment, the sash weight has been secured to the back of the fume hood with four (4) screws. Simply remove the screws and make sure the sash cables are on the pulleys before operating the sash. On models with more than one sash, the sash weights have been secured to the shipping skid with lag screws. Remove the weights from the skid and attach them to the respective sash cables using the hooks provided.

NOTE: THE SASH WEIGHT ITSELF WAS INDIVIDUALLY MATCHED FOR THIS SPECIFIC HOOD AND SHOULD NOT BE EXCHANGED ON ANY OTHER UNIT.

Install the Protector XStream Hood on a Supporting Structure and Work Surface

The Protector XStream Hood is heavy! Use caution when lifting or moving the unit.

When installing the Protector XStream Fume Hood onto a chemically-resistant work surface or benchtop, ensure that the structure can safely support the combined weight of the fume hood and any related equipment. The work surface should be at least as wide as the hood to properly support it.

The work surface is aligned flush with the back of the fume hood for good airflow: this will provide the correct spacing under the air foil for proper bypass airflow. The Protector XStream performs best with a work surface having a large

1.0" leading radius to promote aerodynamic airflow at low velocities. The high performance XStream work surface should have a 36" deep dimension.

WARNING: It is important to: 1). Support the rear of the work surface and fume hood. 2). The cross support provides support for the bottom of the work surface. 3). Install the cross support after the base cabinets and work surface are leveled and before installing the hood.

The following are instructions for mounting a cross support:

1. Level the base cabinets and the work surface. Work surface should be placed flush with the back of the fume hood as shown in Figure 3-1.
2. Scribe a line on the wall or back of the base cabinet to locate the support under the work surface.
3. Mount the support by attaching it to the wall or base cabinet.
4. Place the hood on top of the work surface and cross support.

The work surface should be smooth and durable, such as a chemical-resistant epoxy resin. The surface should be nonporous and resistant to the acids, solvents, and chemicals used in conjunction with the Protector XStream Fume Hood. The work surface should also contain a dished recessed area for containing primary spills.

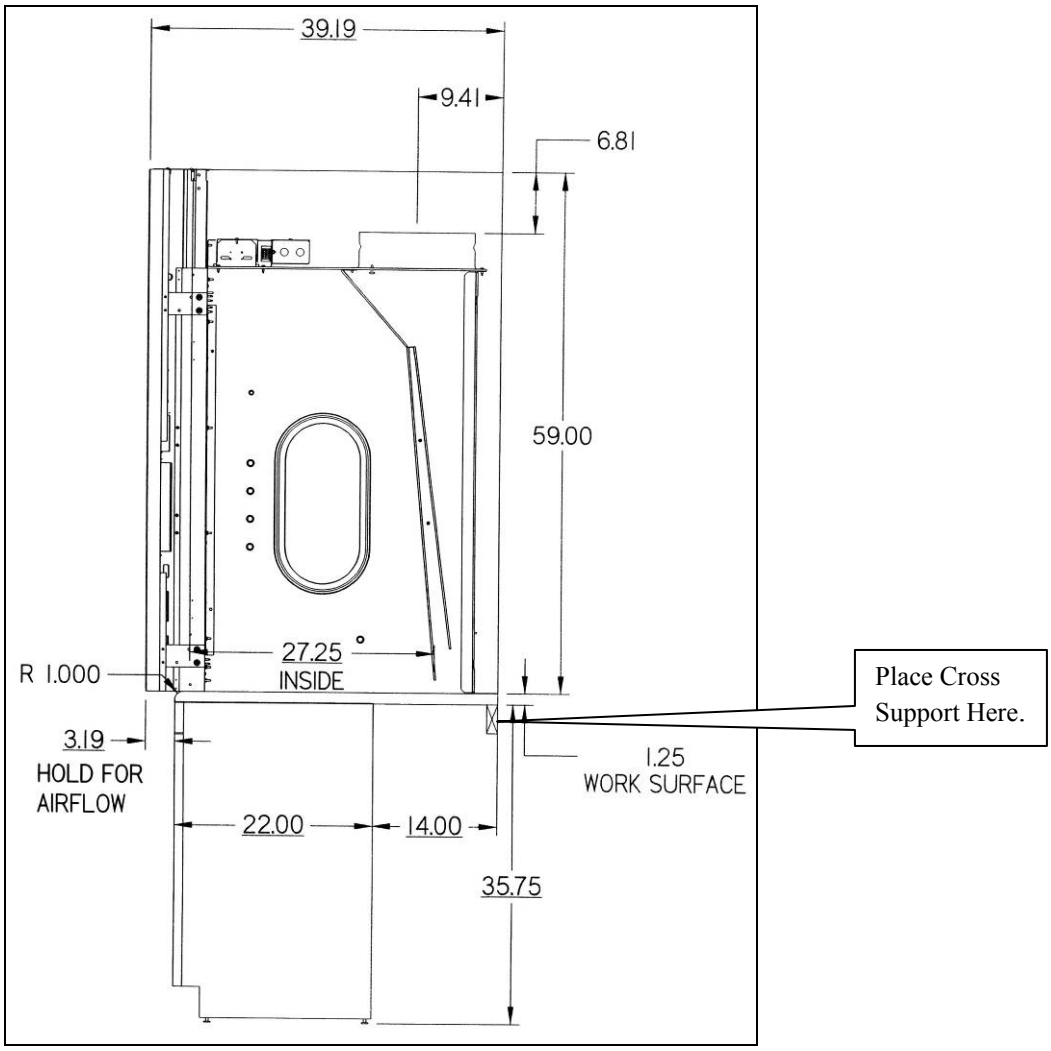


Figure 3-1

Connecting to the Protector XStream Hood Exhaust System

WARNING: The weight of the exhaust ductwork system must be supported independently of the hood superstructure. Do not allow this weight to be supported by the hood structure as damage to the hood may occur.

The exhaust connection should be installed by a qualified HVAC contractor.

The exhaust connection on your hood has been designed for 12" nominal pipe (12.75" OD) to allow

for minimum static pressure loss with proper transport velocities away from the hood. Should higher transport velocities be required, simply install a reducer after the hood exhaust outlet. Consult Labconco Customer Service should you require help sizing your blower for the exhaust volume and total system static pressure loss.

The selected exhaust duct material should match the hood procedures and chemicals used to ensure compatibility.

Connecting the Electrical Supply Source to the Protector XStream Fume Hood

Prior to connecting the Protector XStream to any electrical wiring to the fume hood structure, refer to the hood identification plate for the proper electrical requirements of your specific model.

WARNING: **The building electrical supply system for Protector XStream Hoods should include overload protection. A switch or circuit breaker should be in close proximity to the equipment and within easy reach of the operator. The switch or circuit breaker is to be marked as the disconnecting device for the equipment. Consult the NEC-2002 for proper installation.**

The identification plate, model number, serial number, and electrical connection boxes are accessible from the front of the fume hood by removing the front panel.

The Protector XStream Hood is wired for 115 Volt, 60 Hz, 20 Amp or 230Volt, 50 Hz, 10 Amp electrical service. Check the I.D. plate behind the front panel for voltage verification. The number of circuits varies depending on the model. All of the electrical connections are terminated at the single point internal junction box for hook-up by a qualified electrician. The single point internal junction box is used for the connection of the lights, blower, and duplex outlets. Refer to the wiring diagram for your Protector XStream in *Appendix C: Protector XStream Fume Hood Specifications.*

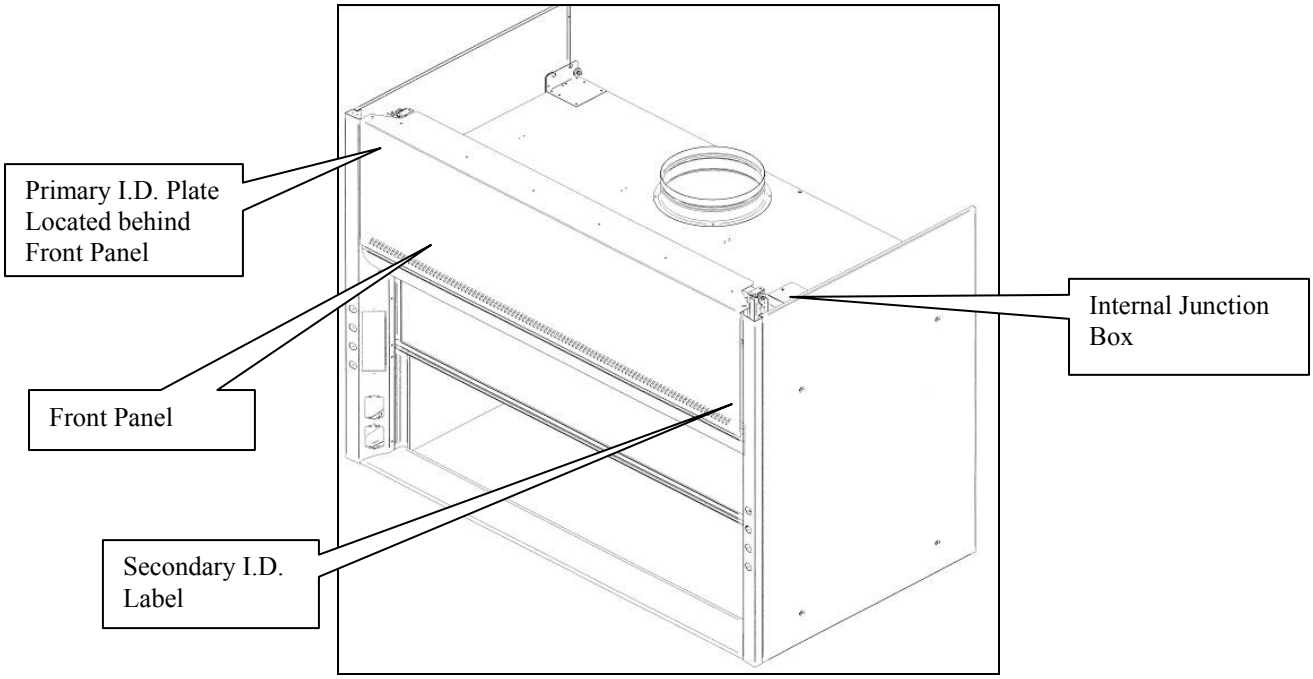


Figure 3-2

All wiring for the fume hood SHOULD be performed by a licensed electrician and conform to all local codes. In most cases, the hood will require the use of shielded conduit to protect the wiring into the hood. The grounding connection shall not be made to the terminal box cover.

The fluorescent light has been mounted outside the top liner panel and is sealed from vapors inside the hood structure. To change the fluorescent light bulbs in your hood, you must first remove the front panel from the hood. Next remove the knock out plugs holding the light fixture in place. Lift fixture up and replace any defective bulbs. Reverse order to reassemble.

Connecting the Service Lines to the Protector XStream Fume Hood

The hoods with service fixtures have been plumbed from the valve to the hose connector or gooseneck for your installation convenience. A qualified installer shall provide the tubing. Tubing can enter the hood from above, through the back, or through the work surface to make these connections to the service fixtures.

NOTE: Inspect all fittings for leakage. Tighten the fittings slightly if needed.

CAUTION: **Do not use oxygen with any standard service fixture. Contact Labconco Customer Service for oxygen fixture information.**

Should access to the hood plumbing fixture bodies be required, remove the service access plate on the hood front corner posts by loosening their individual screws. (See item 11 Figure A-1, page 50 and 51) The valve body will now be fully exposed for any service work that may be necessary. The service fixtures supplied on your laboratory hood are designed for use with the following services:

- Air
- Cold Water
- Hot Water
- Natural Gas – See Caution Below
- Vacuum

WARNING: **Contact Labconco Customer Service directly before using any service other than those listed above in these valves to assure full compatibility.**

CAUTION: Natural gas should be used only in the service fixture that has been pre-plumbed with brass tubing. Sulfur content of the gas could cause deterioration of standard copper supply lines.

Sealing the Protector XStream Hood to the Work Surface

When the hood has been set in place, ducted, wired, and plumbed, it should be sealed at the work surface to prevent spilled materials from collecting under the walls of the hood. Materials such as silicone sealants are recommended to seal the hood structure.

Certifying the Protector XStream Fume Hood

The combination of your laboratory hood, exhaust ductwork, and exhaust blower gives you the flexibility to change the airflow at the sash opening of your hood. To determine the actual face velocity at the sash opening, airflow velocity readings will need to be taken. This should be done across the sash opening of the hood in accordance with the *Industrial Ventilation Manual* section on laboratory hoods. (See Appendix D – Reference) Labconco recommends an average face velocity at the sash opening of 60 to 100 feet per minute for Protector XStream high performance fume hoods. To ensure the performance at 60 feet per minute, Labconco researchers successfully challenged the Protector XStream at face velocities lower than 60 feet per minute, with 30 feet per minute cross drafts, and various mannequin sensor positions. Refer to pages 8 and 9 for proper airflow volumes for your particular model.

Your Protector XStream Fume Hood has been tested at the factory per ASHRAE 110-1995. All hoods achieve an "as manufactured rating" of less than 0.10 part per million (ppm) at 4 liters per minute (lpm); AM <0.10 (Consult Labconco for individual fume hood ratings). For "field use" ASHRAE testing contact Labconco Ventilation Ventures Team or Customer Service for a certified on-site contractor.

NOTE: Face velocity profiles and smoke testing should be done periodically to ensure safe performance.

CHAPTER 4
HIGH PERFORMANCE FEATURES AND SAFETY PRECAUTIONS

High Performance Features:

The Protector XStream High Performance Laboratory Hood is designed to meet the needs of the laboratory scientist, and provide superior containment while conserving energy at OSHA approved "low flow" velocities as low as 60 feet per minute. The Protector XStream laboratory fume hood has been designed to effectively contain toxic, noxious, or other harmful materials when properly installed. What makes the Protector XStream so unique is the revolutionary way it directs air into and through the contaminated air chamber. Labconco engineered the Protector XStream to minimize the effects of turbulence. The innovative and aerodynamic designs of the sash handle, air foil, upper dilution air supply, and rear downflow baffle all work in concert to produce horizontal airflow patterns that significantly reduce chemical concentrations through the work area. Depending on sash position, air turbulence, vortexing and "the roll" frequently observed during fume hood smoke tests are virtually eliminated by the Protector XStream high performance system. Optional A-Style Combination Sash models are also available upon request. The hood features a by-pass airflow design that allows the hood face velocity to remain relatively stable as the sash is closed. Airflow is diverted behind the front panel and under

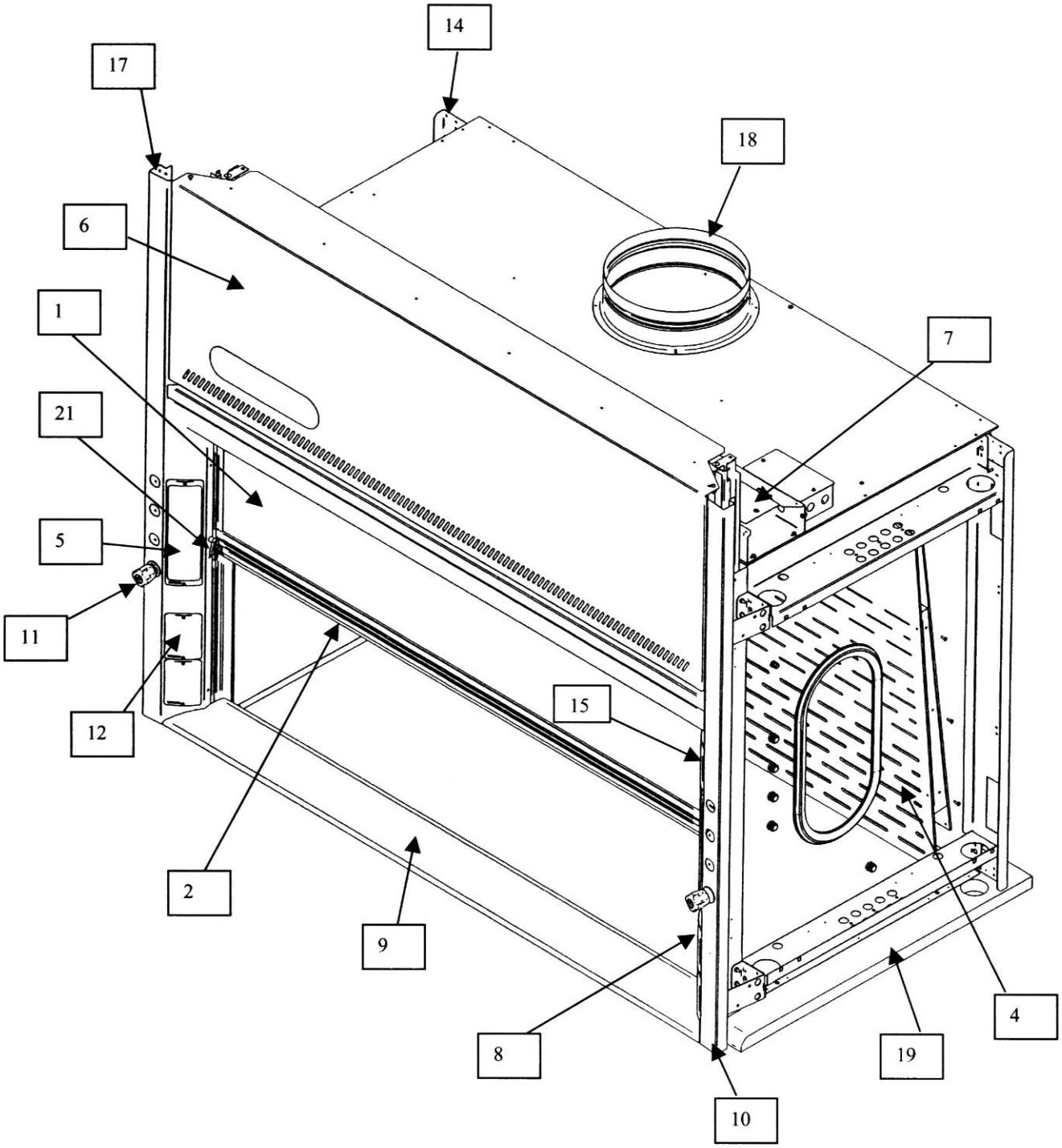
the air foil to help control fluctuations in face velocity, which occur as the sash is closed.

1. **Unique sash provides maximum visibility of 32.15" high while conserving energy by limiting sash travel to 28"**. Vertical-rising sash may be raised from a closed to 28" operating height. Exhaust volume, and blower sizing is based on the 18" height to maximize energy usage. Sash stops are included to limit sash height to 18" and reduce energy usage.
2. **Containment-Enhancing Sash Handle** includes a perforated air passage directly atop the handle to bleed air into the hood chamber and direct chemical fume concentrations away from the user breathing zone. The large radiused handle sweeps airflow into the hood with minimal turbulence.
3. **Large usable interior work depth and interior height of 48"** provides ample working space and directs contaminants away from the operator.
4. **Rear Downflow Dual Baffle System** directs horizontal streams of airflow to the rear slots of the primary baffle in a single pass. The secondary baffle, located between the primary baffle and the back wall, counteracts the upward air streams that create roll in traditional hoods.
5. **Exterior access cover plates** are removable for easy access to plumbing valves when servicing through the sides is not possible.
6. **Lift-Away™ front panel** provides easy access to electrical wiring, sash weights, and lighting fixtures.
7. **Energy efficient fluorescent lighting** is located behind a laminated safety glass shield mounted to the top of the hood. The factory-wired instant start T8 lighting is serviceable from outside the hood cavity.
8. **Low mounted, factory-wired light and blower switches** are ADA compliant.
9. **Aerodynamic Clean-Sweep™ Air Foil** has a unique curve that allows air to sweep the work surface for maximum containment. The Clean-Sweep™ openings create a constant protective barrier from contaminants. In addition, should the operator inadvertently block the airflow entering

over the air foil, air continues to enter from under the air foil and through the Clean-Sweep openings.

10. **Streamlined corner posts** provide maximum visibility and the flexibility to add services after installation.
11. **All hoods are factory prepared for up to 8 service fixtures**.
12. **Duplex electrical receptacles** are mounted on the right and left corner posts as requested. Receptacles are factory-wired to hood single point junction box.
13. **Upper Dilution Air Supply** (not shown) provides bypass air from above the work area. This feature constantly bathes the sash interior with clean air and reduces chemical fumes along the sash plane, near the critical breathing zone. Five to ten percent of the required air volume is introduced through the upper dilution air supply to ensure maximum containment. The upper dilution air supply perforations sweep the upper interior to reduce stagnant pockets of air in the upper interior.
14. **Shipped fully assembled** and eliminates the need for costly onsite assembly.
15. **Accessory Guardian™ Digital Airflow Monitor or Guardian Jr. Monitor** continuously monitors face velocity. An audio/visual alarm alerts the user to low airflow conditions. The right corner post is factory prepared to accommodate the Guardian Monitor (sold separately).
16. **Optional Energy Reducing A-Style Combination Sash Models.** These combination sashes allow the operator to use the hood with sashes either half open vertically or horizontally to conserve energy. Optional sash stops prevent raising the vertical sash above the half-open and fully-closed positions unless manually defeated by the operator.
17. **Frame of Epoxy-Coated Steel and Aluminum** is durable and corrosion resistant.
18. **Exhaust Connection**. The hood features 12" (12.75" OD pipe) exhaust connections sized to allow for a minimum static pressure loss through the hood structure while providing a good transport velocity through the exhaust system.

19. **Spillstopper™ Solid Epoxy Work Surface** is dished to contain spills, and provides a large 1.0" radiused leading edge to promote aerodynamic airflow. (Work surface is sold separately).
20. **Optional Ceiling Enclosure Kits** are available for a decorative facade between the hood and the ceiling.
21. **Sash Stops** located 18" off the work surface provide a means of controlling the operating height of the sash, and further reducing energy requirements if so desired.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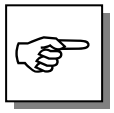
Safety Precautions

Although the laboratory hood has been engineered to maintain optimum operator safety, caution should always be used while working in the hood. Prior to using the hood, check to make sure that the exhaust blower is operating and that air is entering the hood at its specified face velocity.



USE GOOD HOUSEKEEPING IN THE HOOD AT ALL TIMES. CLEAN UP SPILLS IMMEDIATELY WITH A MILD DETERGENT. PERIODICALLY CLEAN HOOD INTERIOR, INCLUDING FLUORESCENT LIGHT GLASS PANEL. REPLACE BURNED OUT LIGHT BULBS TO MAINTAIN MAXIMUM ILLUMINATION.

DO NOT OVERLOAD THE WORK SURFACE WITH APPARATUS OR WORK MATERIAL. THE SAFE OPERATION OF THE LABORATORY HOOD IS BASED UPON HAVING PROPER AIRFLOW THROUGH THE STRUCTURE. DO NOT PLACE LARGE, BULKY OBJECTS SUCH AS BLOCK HEATERS, DIRECTLY ON THE HOOD WORK SURFACE. INSTEAD, ELEVATE THE OBJECT 2" TO 3" ON BLOCKS TO ALLOW A FLOW OF AIR UNDER THE OBJECT AND INTO THE LOWER REAR BAFFLE EXHAUST SLOT. ENSURE BLOCKS ARE LEVEL AND SECURED IN PLACE.

Blocking the bottom of the baffle at rear of hood will change the airflow pattern in the hood causing turbulence and possible leakage at the face of the hood. (Don't store containers or supplies against baffles, as this will affect airflow through the hood).

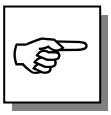
Avoid placing your head inside hood. Keep hands out of hood as much as possible.

Always work as far back in hood as possible. It is best to keep all chemicals and apparatus 6" inside the front of the hood. This hood does not feature explosion-proof electrical components, unless ordered separately. Therefore, use of flammable or explosive materials in quantities above the explosive limit are not recommended.

Do not work with chemicals in this hood without the exhaust system running. Do not store chemicals in a fume hood.

Perchloric acid use in this hood is prohibited.

High level radioisotope materials are prohibited for usage in this hood.



AVOID CROSS DRAFTS AND LIMIT TRAFFIC IN FRONT OF THE HOOD. AIR DISTURBANCES CREATED MAY DRAW FUMES OUT OF THE HOOD.

The use of heat-generating equipment in this hood without the exhaust system operating properly can cause damage to the hood.

The Protector XStream Laboratory Hood should be certified by a qualified certification technician before it is initially used. The hood should be re-certified whenever it is relocated, serviced or at least annually thereafter.

Ensure that the unit is connected to electrical service in accordance with local and national electrical codes. Failure to do so may create a fire or electrical hazard. Do not remove or service any electrical components without first disconnecting the hood from electrical service.

Proper operation of the fume hood depends largely upon the hood's location and the operator's work habits. Consult the *Reference Manual in Appendix D.*

CHAPTER 5
USING YOUR PROTECTOR XSTREAM FUME HOOD

Operating the Vertical-Rising Sash

S

Because of the Protector XStream Hood counterbalanced sash mechanism, it will take only a few pounds of force to move the sash up or down, and you can operate the sash smoothly with one or two hands positioned any where along the handle. The vertical-rising sash may be raised to a maximum 28" operating height. The airflow requirements should be sized for the 28" operating height; if using sash stops provided at 18", then the airflow requirements can be reduced by approximately 40%.

Operating the A-Style Combination Sash

A

Optional hood models have sashes called A-Style Combination Sashes in place of vertical-rising sashes. These combination sashes allow the operator to use the hood with sashes either half open horizontally or vertically to conserve energy. The horizontal sashes are used in normal operating mode. Optional sets of sash stops can be installed to prevent raising the vertical sash above the half-open and fully closed positions unless manually defeated by the operator. The airflow requirements are sized for the 50% open sash condition.

S A

Operating the Blower

Your Protector XStream Fume Hood utilizes a remote style blower, which can be activated by turning the blower switch to "ON." You can validate the hood performance by watching smoke drawn into the hood face opening.

S A

Operating the Lights

Your Protector XStream Fume Hood utilizes a factory-wired fluorescent light to illuminate the hood interior. Simply turn the light switch to "ON" to operate.

Working in your Protector XStream Fume Hood

Planning

- Thoroughly understand procedures and equipment required before beginning work.
- Arrange for minimal disruptions, such as room traffic or entry into the room while the hood is in use.

Start-up

- Turn on fluorescent light and hood blower.
- Slowly raise the sash.
- Check the baffle air slots for obstructions.
- Allow the hood to operate unobstructed for 5 minutes.
- Wear a long sleeved lab coat and rubber gloves. Use protective eyewear. Wear a protective mask if appropriate.

Loading Materials and Equipment

- Only load the materials required for the procedure. Do not overload the hood.
- Do not obstruct the front air foil, or rear baffle slots.
- Large objects should not be placed close together and spaced above the work surface to permit airflow to sweep under the equipment.
- After loading the hood, wait one minute to purge airborne contaminants from the work area.

Work Techniques

- Keep all materials at least 6 inches inside of the sash, and perform all contaminated operations as far to the rear of the work area as possible.
- Segregate all clean and contaminated materials in the work area.
- Avoid using techniques or procedures that disrupt the airflow patterns of the hood.

Final Purging

- Upon completion of work, the hood should be allowed to operate for two to three minutes undisturbed, to purge airborne contaminants from the work area before shutting down blower.

Unloading Materials and Equipment

- Objects in contact with contaminated material should be surface decontaminated before removal from the hood.
- All open trays or containers should be covered before being removed from the hood.

Shutdown

- Turn off the fluorescent light and hood blower, then close the sash.

CHAPTER 6 MAINTAINING YOUR PROTECTOR XSTREAM FUME HOOD

Now that you have an understanding of how to work in the fume hood, we will review the suggested maintenance schedule and the common service operations necessary to maintain your fume hood for peak performance.

Only trained and experienced certification technicians should perform some of the service operations after the fume hood has been properly decontaminated. DO NOT attempt to perform these operations if you are not properly trained. The wrench icon precedes the service operations that require qualified technicians.

Routine Maintenance Schedule

Weekly

- Using ordinary dish soap to clean the surface inside of the fume hood, and the work surface.
- Using an appropriate glass cleaner, clean the sash and all glass surfaces.
- Operate the fume hood blower, noting the airflow velocity through the hood using a source of visible smoke.

Monthly (or more often as required)

- Determine the actual face velocity through the sash opening of the hood where the average reading should be at the specified velocity. (Use calibrated thermal anemometer or other approved apparatus).
- Using a damp cloth, clean the exterior surfaces of the hood, particularly the front of the hood, to remove any accumulated dust.
- Check all service valves, if so equipped, for proper operation.
- The hood baffles should be checked for blockages behind them to ensure that the hood is maintaining proper airflow.
- All weekly activities.

Annually

- Replace the fluorescent lamps.
- Have the fume hood recertified by a qualified certification technician. See *Certifying the Protector XStream Fume Hood in Chapter 3*.
- All monthly activities.

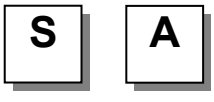
Biannually

- The sash assembly should be checked to ensure proper operation and to make sure there are no signs of abnormal wear on the sash pulleys, cables and clamps.

Routine Service Operations

Front Panel Removal:

1. Simply lift the front panel up and then away from the hood to provide access to the top.



Changing the Fluorescent Lamp:

1. Turn light switch to “OFF”.
2. Remove the front panel as noted earlier.
3. Reach over the front header of the hood and remove the knock out plugs at both ends of fixture. Lift fixture up.
4. Remove the fluorescent lamp by pushing it out of the spring-loaded lamp socket and swinging it out of the other lamp socket.
5. Install the new lamp by reversing the removal procedure.

CHAPTER 7
MODIFYING YOUR PROTECTOR XSTREAM FUME HOOD

There are several ways to modify the fume hood for your individual requirements. These include the addition of work surfaces, service fixtures, air monitor, distillation grids, electrical duplex outlets, ceiling enclosures, and rear panels.

Installing Work Surfaces

Your Protector XStream Fume Hood requires a large 1.0" leading edge radiused work surface to work properly, and achieve high performance. Contact Labconco Customer Service for ordering information.

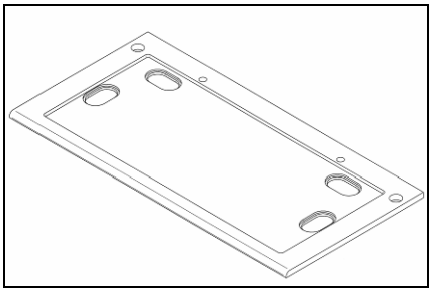


Figure 7-1

Installing Ceiling Enclosures above the Fume Hood

Your Protector XStream Fume Hood has mounting holes to accept a ceiling enclosure to close off the area between the top of the hood and the ceiling. Contact Labconco Customer Service for ordering information.

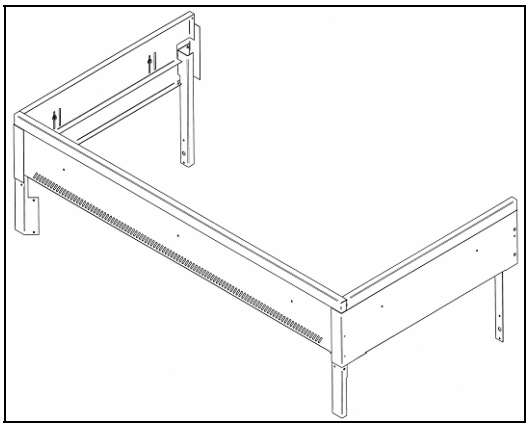


Figure 7-2

Installing Rear Panels Behind the Fume Hood

Your Protector XStream Fume Hood can be modified to add a rear panel behind the fume hood when the fume hood is placed on an island. Contact Labconco Customer Service for ordering information.

Installing Additional Service Fixtures

Additional service fixtures can be installed in the available service fixture holes in both sidewalls and corner posts. The fume hood is factory set to accept up to four valves per side. Contact Labconco Customer Service for information.

Figure 7-3 Knob

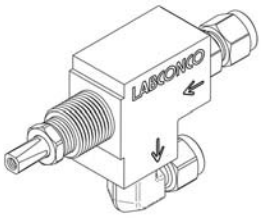


Figure 7-4 Valve

Figure 7-5 Hose Connector

Installing Guardian™ Digital Airflow Monitor or Guardian™ Jr. Airflow Monitor

The Guardian Digital Airflow Monitor P/N 9743211 continuously monitors face velocity through the fume hood opening. The Guardian Jr. Airflow Monitor P/N 9743202 continuously monitors airflow through the exhaust. The fume hood right corner post is factory prepared to mount either monitor. Contact Labconco Customer Service to order.

Figure 7-6

Figure 7-7

Distillation Grids – Field Installation

The distillation grid P/N's 9725200 thru 9725206, have been strategically placed with the vertical rod center lines in front of the lower baffle and middle baffle. The distillation grids allow the hood user to mount glassware, motors, stirrers, and other apparatus. Contact Labconco Customer Service for ordering information.

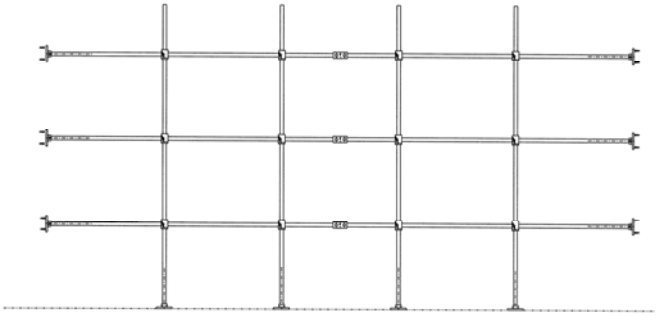


Figure 7-8

Installing an Electrical Duplex Outlet

Your Protector XStream Fume Hood can be ordered with duplex outlets, however, if you ordered a model without an electrical duplex outlet you can have one installed in the field by a qualified electrician. Contact Labconco Customer Service for ordering information. (Not acceptable on explosion-proof hoods).

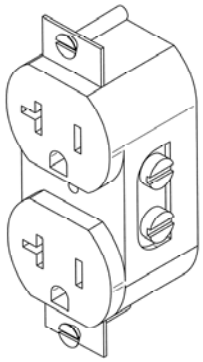


Figure 7-9

CHAPTER 8
TROUBLESHOOTING

Refer to the following table if your fume hood fails to operate properly. If the suggested corrective actions do not solve your problem, contact Labconco for additional assistance.

PROBLEM	CAUSE	CORRECTIVE ACTION
Remote blower and lights won't operate	Wires not connected at junction boxes or switches.	Check connection of switches.
		Check connection to control box on top of unit.
	Circuit breakers tripped in building electrical supply.	Reset circuit breakers.
Remote blower won't operate, but lights work	Blower wiring is disconnected.	Inspect blower wiring and switch.
	Belt broken.	Replace belt.
	Blower motor is defective.	Replace blower motor.
Fume hood blower operates but lights will not operate	Lamp not installed correctly.	Inspect lamp installation.
	Lamp is defective.	Replace lamp.
	Lamp circuit breaker in building is tripped.	Reset the lamp circuit breaker.

PROBLEM	CAUSE	CORRECTIVE ACTION
Fume hood blower operates, but lights will not operate	Lamp wiring is disconnected.	Inspect lamp wiring.
	Defective lamp ballasts.	Replace lamp ballasts.
Contaminants outside of fume hood	Improper user techniques for the fume hood.	See "Certifying the Hood" Chapter 3 and "Safety Precautions" Chapter 4 sections in the manual. (Ref. Appendix D)
	Restriction of the baffle air slots or – blockage of the exhaust outlet.	Remove baffles to ensure that all air slots, and the exhaust outlet are unobstructed.
	External factors are disrupting the fume hood airflow patterns or acting as a source of contamination.	See "Location Requirements" Chapter 2, "Certifying the Hood" Chapter 3, and "Safety Precautions" Chapter 4 sections of this manual. (Ref. Appendix D)
	XStream Fume hood has improper face velocity.	Have fume hood re-certified and check remote blower exhaust system. XStream Hood should have average face velocity of 60-100 fpm.
Vertical sash no longer operates smoothly	Cable is frayed or plastic protection is damaged.	Inspect cable and replace cable if worn or damaged immediately; otherwise injury could result.
	Pulley bearing is damaged.	Replace pulley, bearing or add grease.
	Cable has slipped off the pulleys.	Re-install, cable must be replaced immediately if damaged.
	Weight has broken pulleys.	Replace weight pulleys.
Combination A-Style Sash no longer operates smoothly	Horizontal glass panels have come off the tracks.	Re-install horizontal glass on tracks.

PROBLEM	CAUSE	CORRECTIVE ACTION
	Vertical sash frame is distorted.	Place horizontal glass symmetrically and pull sash down to air foil. Straighten damaged frame.
	Cable is frayed or has slipped off the pulleys.	Re-install, cable must be replaced immediately if damaged.
Electrical duplex outlets no longer have power	Wires not connected or faulty duplex.	Check wire connection or replace duplex.
	Circuit breakers tripped in building electrical supply.	Reset circuit breakers.
Service valves no longer operate	Faulty building supply.	Inspect building supply shut off valves and appropriate pressures below 40 PSI.
	Valve no longer operates.	Replace valve and check for leaks.
	Supply line or outlet line has leaks.	Inspect line for leaks and fix any leaking plumbing connections.

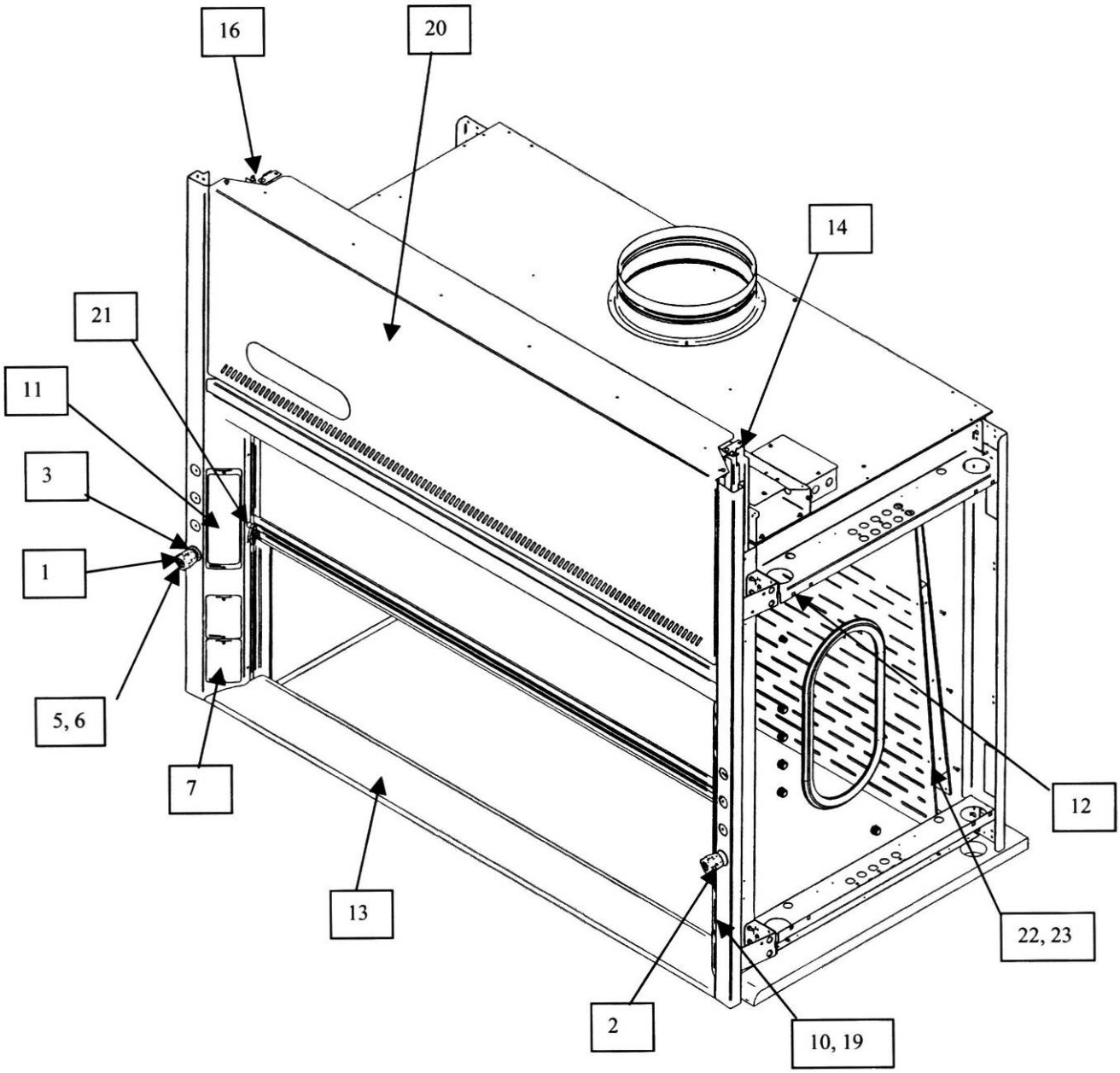
APPENDIX A
PROTECTOR XSTREAM
COMPONENTS

Illustration A-1 indicate the location of the following service parts:

Protector XStream Replacement Parts

Item	Quantity	Part No.	Description
1A	1	9823700	Valve, Labconco (Water) 1/4" Compression Fitting
1B	1	9823701	Valve, Labconco (Water) 3/8" Compression Fitting
1C	1	9817000	Valve, Labconco 1/4" Compression Fitting (AIR, GAS, VAC, NIT, etc.)
1D	1	9817001	Valve, Labconco 3/8" Compression Fitting (AIR, GAS, VAC, NIT, etc.)
1E	1	9823702	Valve, Labconco Deionized 1/4" Compression Fitting
1F	1	9823703	Valve, Labconco Deionized 3/8" Compression Fitting
1G	1	9818000	Nut, Valve Mtg. (Labconco)
2A	1	9826800	WaterSaver Valve/Gooseneck -GRN
2B	1	9826801	WaterSaver Valve/Connector (VAC) – YEL
2C	1	9826802	WaterSaver Valve/Connector (AIR) – ORG
2D	1	9826803	WaterSaver Valve/Connector (GAS) – BLU
2E	1	9826805	WaterSaver Valve/Connector (HOT WATER) – RED
2F	1	9826806	WaterSaver Valve/Connector (CW) – GRN
2G	1	9826807	WaterSaver Valve/Connector (STEAM) – BLK
2H	1	9826808	WaterSaver Valve/Connector (NITROGEN) – BRN
2I	1	9826809	WaterSaver Valve/Connector (OXYGEN) – LIGHT GREEN
2J	1	9826810	Swivel Gooseneck only – GRN
2K	1	9826812	Swivel Gooseneck only – WHITE
3	1	9818700 thru 08	Knobs (GRAY, GRN, BLU, ORG, YEL, RED, WHT, BLK, BRN)
4A	1	9818800	Hose Barb, GRAY – (NEUTRAL OR ARGON)-NOT SHOWN
4B	1	9818801	Hose Barb, GREEN - (COLD WATER)-NOT SHOWN
4C	1	9818802	Hose Barb, BLUE – (GAS)-NOT SHOWN
4D	1	9818803	Hose Barb, ORANGE – (AIR)-NOT SHOWN
4E	1	9818804	Hose Barb, YELLOW – (VACUUM)-NOT SHOWN
4F	1	9818805	Hose Barb, RED – (HOT WATER)-NOT SHOWN
4G	1	9818806	Hose Barb, WHITE – (DEIONIZED WATER) NOT SHOWN
4H	1	9818807	Hose Barb, BLACK–(NEUTRAL OR STEAM) NOT SHOWN
4I	1	9818808	Hose Barb, BROWN – (NITROGEN) NOT SHOWN

Item	Quantity	Part No.	Description
4J	1	9819000	Nut, Hose Barb - NOT SHOWN
5	1	9825500	Label, Knob (contains all the labels)
6	1	9818900	Lens, Knob
7A	1	9947100, 01, 02	115V Duplex Receptacle (GRAY) Right, Left 4' - 6', Left 8' w/ wires
7B	1	9818200	Cover Plate 115V Duplex
7C	1	9947103, 04, 05	115V GFCI Duplex Receptacle (GRAY) Right, 4' - 6', Left 8' w/ wires
7D	1	9818100	Cover Plate, 115V GFCI
7E	1	9818300	Cover Plate, Blank
8A	1	9721901	Lamp, Fluorescent (T8 x 3') – use on 4' & 8' Hoods-NOT SHOWN
8B	1	9721900	Lamp, Fluorescent (T8 x 4') – use on 5' & 6' Hoods-NOT SHOWN
10A	1	1302300	Switch, Rocker
10B	1	1327500	Switch, Plug (Fills cutout when switch is not used)
11A	1	9818400	Access Cover
11B	1	9825100	Label, Access Cover (includes all three corner labels)
12A	1	9810801	Side Panel, 30" internal deep hoods (NOT SHOWN)
12B	4	1916400	Nut, Retainer #10-24
12C	4	1885512	Screw, Machine #10-24 x .75 Truss Head Stainless
13A	1	9813800	Air Foil 4'
13B	1	9813801	Air Foil 5'
13C	1	9813802	Air Foil 6'
13D	1	9813803	Air Foil 8'
14	4	1861400	Pulley, Front or Rear, 1-3/16 Dia.
15	2	4949902	Cable, Sash 130" – NOT SHOWN
16	2	1663200	Bumper, Rubber – (upper sash bumper)
17	4	1920100	Clamp, Cable Replacement – NOT SHOWN
18	2	1972100	S-Hook – NOT SHOWN (to attach weight to cable)
19A	1	99463XX	Wiring Harness, Main
20	1	9807600, 01, 02, 03	Front Panel, 4', 5', 6', 8'
21	1	9724501	Sash Stop Kit (XStream)
22	1	1886908	Screw, #10-32 x .50 Phillips Stainless
23	1	1598500	Hinged Screw Cap Cover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APPENDIX B
PROTECTOR XSTREAM
DIMENSIONS

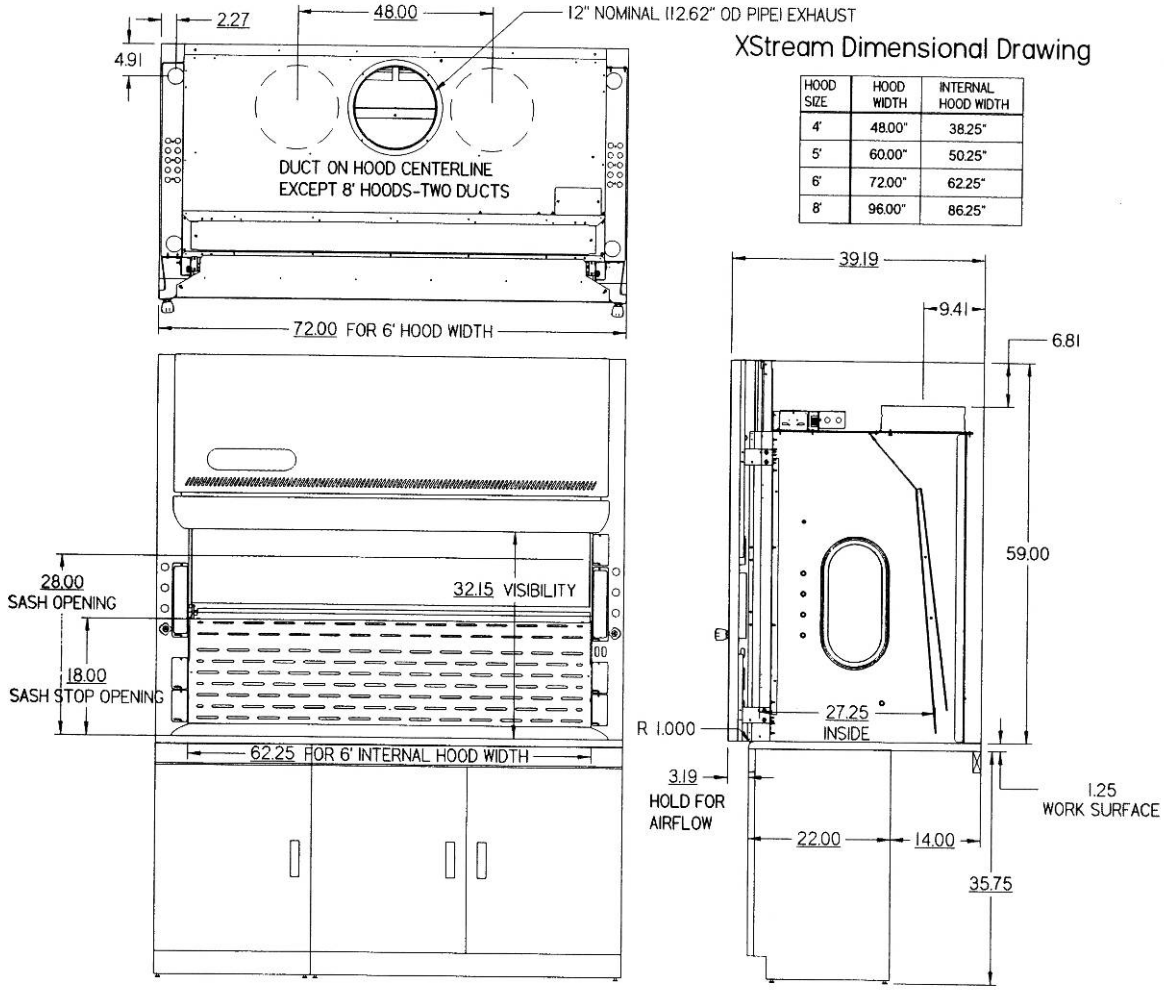
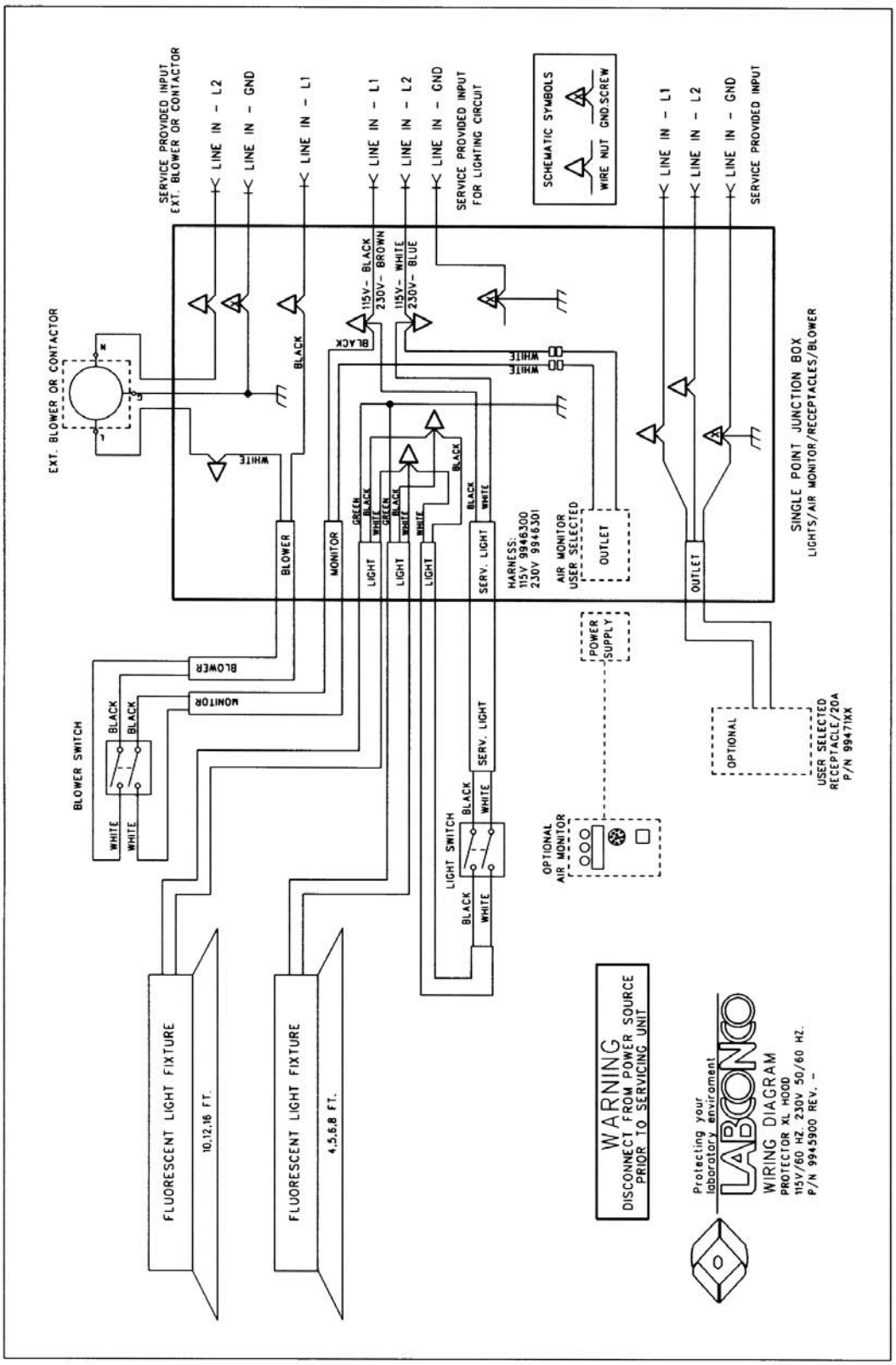


Figure B-1

APPENDIX C
PROTECTOR XSTREAM FUME HOOD SPECIFICATIONS

Environmental Conditions

- Indoor use only.
- Maximum altitude: 10,000 feet (3,048 meters).
- Ambient temperature range: 41° to 104°F (5° to 40°C).
- Maximum relative humidity: 80% for temperatures up to 88°F (31°C), decreasing linearly to 50% relative humidity at 104°F (40°C).
- Main supply voltage fluctuations not to exceed ±10% of the nominal voltage.
- Transient over-voltages according to Installation Categories II (Over-voltage Categories per IEC 1010). Temporary voltage spikes on the AC input line that may be as high as 1500V for 115V models and 2500V for 230V models are allowed.
- Used in an environment of Pollution degrees 2 (i.e., where normally only non-conductive atmospheres are present). Occasionally, however, a temporary conductivity caused by condensation must be expected, in accordance with IEC 664.


SERVICE PROVIDED INPUT
EXT. BLOWER OR CONTACTOR
LINE IN - L2
LINE IN - GND
LINE IN - L1
LINE IN - L1
LINE IN - L2
LINE IN - GND
SERVICE PROVIDED INPUT
FOR LIGHTING CIRCUIT
SCHEMATIC SYMBOLS
WIRE NUT
GND.SCREW
LINE IN - L1
LINE IN - L2
LINE IN - GND
SERVICE PROVIDED INPUT
EXT. BLOWER OR CONTACTOR
115V- BLACK
230V- BROWN
115V- WHITE
230V- BLUE
BLACK
WHITE
WHITE
BLACK
BLOWER
MONITOR
GREEN
BLACK
WHITE
LIGHT
GREEN
BLACK
WHITE
LIGHT
WHITE
LIGHT
BLACK
WHITE
SERV. LIGHT
HARNESS:
115V 9946300
230V 9946301
AIR MONITOR
USER SELECTED
OUTLET
OUTLET
SINGLE POINT JUNCTION BOX
LIGHTS/AIR MONITOR/RECEPTACLES/BLOWER
POWER
SUPPLY
BLOWER SWITCH
BLACK
BLACK
WHITE
WHITE
BLOWER
MONITOR
OPTIONAL
USER SELECTED
RECEPTACLE/20A
P/N 99471XX
LIGHT SWITCH
BLACK
WHITE
BLACK
WHITE
SERV. LIGHT
OPTIONAL
AIR MONITOR
FLUORESCENT LIGHT FIXTURE
10,12,16 FT.
FLUORESCENT LIGHT FIXTURE
4,5,6,8 FT.
WARNING
DISCONNECT FROM POWER SOURCE
PRIOR TO SERVICING UNIT
Protecting your laboratory enviroment
LABCONCO
WIRING DIAGRAM
PROTECTOR XL HOOD
115V/60 HZ. 230V 50/60 HZ.
P/N 9945900 REV. -

APPENDIX D
REFERENCES

Many excellent reference texts and booklets are currently available. The following is a brief listing:

Laboratory Ventilation Standards

Federal Register 29 CFR Part 1910
Non-mandatory recommendations from "Prudent Practices".

- Fume hoods should have a continuous monitoring device
- Face velocities should be between 60-100 linear feet per minute (lfpm)
- Average 2.5 linear feet of hood space per person

Occupational Health and Safety
U.S. Department of Labor
200 Constitution Avenue N.W.
Washington, DC 20210
(202) 523-1452

Industrial Ventilation-ACGIH

- Fume hood face velocities between 60-100 lfpm
- Maximum of 125 lfpm for radioisotope hoods
- Duct velocities of 1000-2000 fpm for vapors, gasses and smoke
- Stack discharge height 1.3-2.0 x building height
- Well designed fume hood containment loss, <0.10 ppm

Industrial Ventilation, A Manual of Recommended Practice.
24th Edition, 2001
American Conference of Governmental Industrial Hygienists
1330 Kemper Meadow drive
Cincinnati, OH 45240-1634
(513) 742-2020

ASHRAE 110-1995 Method of Testing Performance of Fume Hoods
Evaluates fume hood's containment characteristics
- Three part test: Smoke generation, Face velocity profile, Tracer gas release @ 4 liters per minute
- Rated As Manufactured (AM), As Installed (AI) and As Used (AU)

American Society of Heating, Refrigerating, and Air Conditioning Engineers
1791 Tullie Circle N.E.
Atlanta, GA 30329
(404) 636-8400

ANSI Z9.5-1993 Laboratory Standard
Covers entire laboratory ventilation system.
- Vertical stack discharge @ 2000-3000 fpm
- New and remodeled hoods shall have a monitoring device
- Ductless hoods should only be used with non-hazardous materials
- Fume hood face velocities between 80 – 120 fpm

American Industrial Hygiene Association
2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031
(703) 849-8888

SEFA 1-2002
- Fume hood face velocities based on toxicity levels of chemicals
  Class A – 125 to 150 fpm
  Class B – 80 to100 fpm
  Class C – 75-to 80 fpm
- Test method – face velocity profile and smoke generation

Scientific Equipment & Furniture Association
1028 Duchess Drive
McLean, VA 22102
(703) 538-6007

NFPA 45 – 2002 Fire Protection for Laboratories Using Chemicals
- Laboratory hoods should not be relied on for explosion protection
- Exhaust air from fume hoods should not be recirculated
- Services should be external to the hood
- Canopy hoods only for non-hazardous applications
- Materials of construction should have flame spread of 25 or less
- 80 to 120 fpm to prevent escape

NFPA 30 – 2000 Flammable and Combustible Liquids Code
- Approved cabinets may be metal or wood
- Vent location on cabinets are required
- Venting of cabinets not a requirement

National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101
(800) 344-3555

General References

American Conference of Governmental Industrial Hygienists. *Industrial Ventilation, A Manual of Recommended Practice,* Cincinnati, OH

ASHRAE Standard Committee. *ASHRAE Standard* Atlanta: ASHRAE Publications Sales Department, 1995

British Standards Institution, *Laboratory Fume Cupboards*. Parts 1, 2 and 3, London: 1990

Department of Labor, Occupational Safety and Health Administration, *29 CFR Part 1910, Occupational Exposures to Hazardous Chemicals in Laboratories, Final Rule*. Vol. 55, No. 21. Washington D.C.:1990

DiBerardinis. L. et al. *Guides for Laboratory Design, Health and Safety Considerations*. Wiley & Sons, 1987

McDermott, Henry, *Handbook of Ventilation for Contaminant Control*, *2nd Edition*. Butterworth Publishers, 1985.

Miller, Brinton M. et al. *Laboratory Safety: Principles and Practices.* American Society for Microbiology, Washington, D.C.: 1986

NIH Guidelines for the Laboratory Use of Chemical Carcinogens. NIH Publication No. 81-2385.

Rayburn, Stephen R. *The Foundation of Laboratory Safety, A Guide for the Biomedical Laboratory*. Springer-Verlag, New York: 1990

Sax, N. Irving and Lewis, JR., Richard J. *Rapid Guide to Hazardous Chemicals in the Workplace*. Van Nostrand Reinhold, 1987.

Schilt, Alfred A. *Perchloric Acid and Perchlorates*. The G. Frederick Smith Chemical Company, Columbus, OH: 1979.

Steere, Norman. *CRC Handbook of Laboratory Safety, 2nd Edition*. CRC Press, 1971.

DECLARATION OF CONFORMITY

Application Council Directive(s): 73/23/EEC, 89/336/EEC, 2002/95/EC (ROHS), 2002/96/EC (WEEE), 2004/108/EC

Standard(s) to which conformity is declared: EN61010-1, EN61326-1, EN55022, EN61000-3-2/3

Manufacturer's Name: Labconco Corporation

Manufacturer's Address: 8811 Prospect Avenue
Kansas City, MO 64132 USA

Importer's Name: See Shipping/Customs Documents

Importer's Address: See Shipping/Customs Documents for your equipment

Type of Equipment: Laboratory Equipment Protector XStream Fume Hoods

XStream Model No.:

4' Protector XStream Laboratory Hood	9840400 through 9840403
5' Protector XStream Laboratory Hood	9840500 through 9840503
6' Protector XStream Laboratory Hood	9840600 through 9840603
8' Protector XStream Laboratory Hood	9840800 through 9840803

Serial No.: Various – See Individual Declaration

Year of Manufacture: 2002 and subsequent

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

See individual Declaration of Conformity which will be signed by the importer for your country.

Place: _____
(Signature)

Date: _____
(Full Name)

_____
(Position)

Labconco P/N 36960-26, Rev. B, ECO E344