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Please read this manual before
operating equipment

Original Instructions

User's Manual



Logic⁺ Type B2 Biosafety Cabinets

2019—Present (Catalog Numbers Ending in -x1)

30348xxxx 30368xxxx

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Purifier® Logic®+ Biological Safety Cabinets and PuriCare® Procedure Stations carry a five-year warranty from date of installation or six years from date of shipment from Labconco, whichever is sooner. Warranty is non-transferable and only applies to the owner (organization) of record.

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Under no circumstances shall Labconco Corporation be liable for indirect, consequential, or special damages of any kind. This warranty is exclusive and in lieu of all other warranties whether oral, or implied.

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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 (800)-821-5525 or +1-(816)-333-8811, between the hours of 7:30 a.m. and 5:30 p.m., Central Standard Time.

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CAUTION – See Manual. When this symbol is on the unit it indicates a caution that is detailed in this manual.

ATTENTION - Voir manuel. Lorsque ce symbole est allumé l'appareil, il indique une mise en garde qui est indiqué dans ce manuel.

1: Introduction

Congratulations on the purchase of a Labconco® Purifier® Biosafety Cabinet. The cabinet is designed to protect you, the product and the laboratory environment from biohazardous aerosols. It is the result of years of experience in manufacturing biohazard cabinetry, and users like you suggested many of its features to us.

This cabinet offers many unique features to enhance safety, performance and ergonomics. 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 biosafety cabinets operate, please review *Section 4: Performance Features and Safety Precautions* before you begin working in the cabinet. Even if you are an experienced cabinet user, please review *Section 5: Using the Cabinet*; it describes the cabinet's features so that you can use it efficiently.

This manual and other technical documents are available for download at our website: labconco.com.



If the unit is not operated as specified in this manual it may impair the protection provided by the unit.

Si l'unité n'est pas utilisée comme spécifié dans ce manuel il peut diminuer la protection fournie par l'unité.

2: Prerequisites

Before you install the cabinet, you need to prepare the site for installation. Examine the location where you intend to install it. 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.

This section lists all requirements for:

- Clearance
- Location
- Exhaust
- Electrical
- Service Lines

Refer to *Appendix C: Specifications*, for complete cabinet electrical and environmental conditions and specifications.

Clearance Requirements

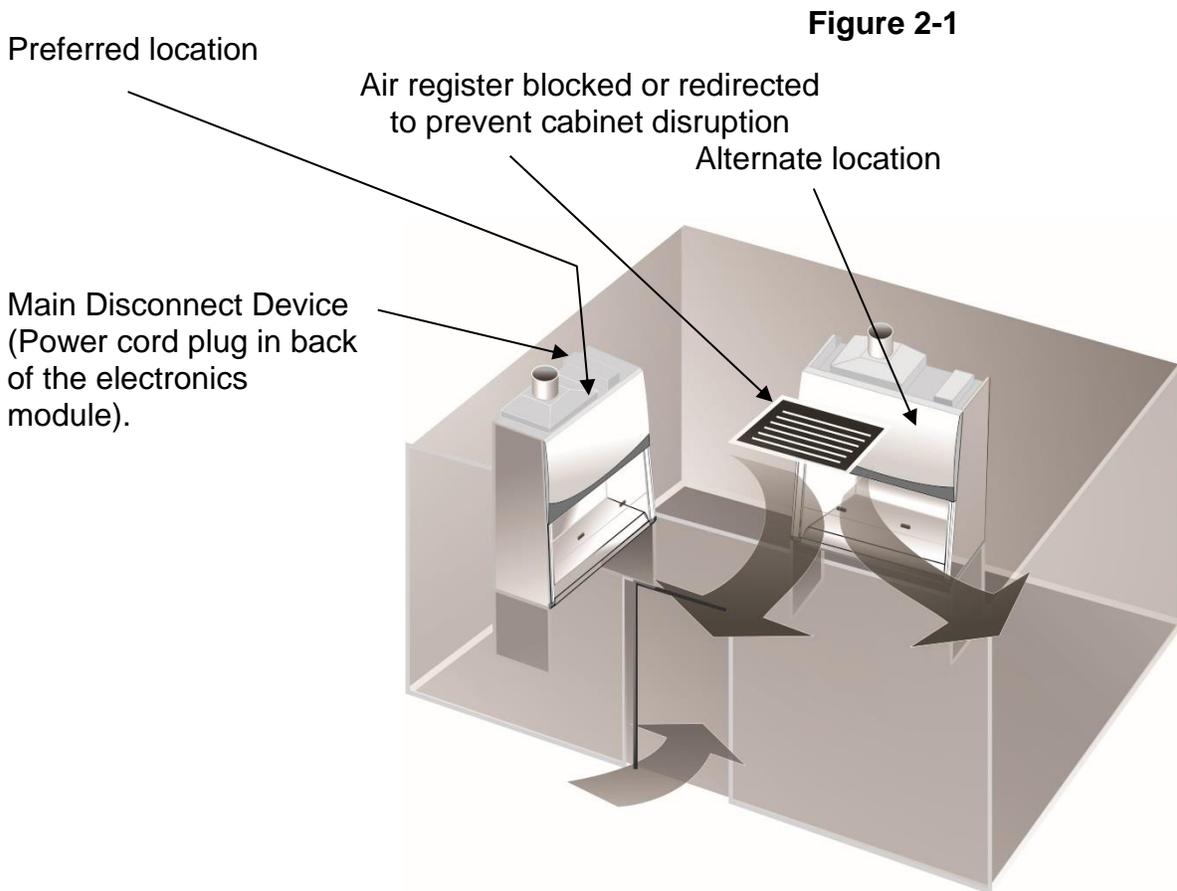
A minimum clearance of at least 6 inches (150 mm) is suggested on the top and both sides of the cabinet for service.

Refer to *Appendix B: Dimensions*, for complete cabinet model dimensions.

2: Prerequisites

Location Requirements

The cabinet should be located away from traffic patterns, doors, fans, ventilation registers, fume hoods and any other air-handling devices that could disrupt its airflow patterns. All windows in the room should remain closed. Figure 2-1 shows the preferred location for the cabinet.



Do not position the unit so that it is difficult to operate the main disconnect device.

Ne placez pas l'appareil de sorte qu'il est difficile de faire fonctionner le dispositif principal de déconnexion.

2: Prerequisites

Exhaust Requirements

NOTE: THE EXHAUST BLOWER CANNOT RUN AT ITS NOMINAL FLOW RATE WITH THE SASH COMPLETELY CLOSED. IF YOU CHOOSE TO CLOSE THE SASH COMPLETELY TO USE THE UV LIGHT FOR SURFACE DISINFECTION, THEN THE EXHAUST BLOWER MUST BE SHUT OFF, OR ITS FLOW RATE REDUCED 90% OR MORE FOR PROPER OPERATION. THE LOGIC+ HAS AN OPTIONAL EN/CONTACT CIRCUIT BOARD THAT HAS DRY CONTACTS THAT CAN BE CONFIGURED TO SIGNAL THE EXHAUST BLOWER TO TURN ON WHEN THE LOGIC+'s BLOWER IS ON. FOR FURTHER INFORMATION, CONTACT LABCONCO'S PRODUCT SERVICE DEPARTMENT. AS AN ALTERNATIVE, A REMOTE ELECTRICAL SWITCH FOR THE EXHAUST BLOWER CAN BE INSTALLED NEAR THE LOGIC+.

Before deciding on a location, examine it carefully to ensure that it accommodates the cabinet's exhaust duct. The area directly above the cabinet's exhaust port should be clear of structural elements, water and utility lines, or other fixed obstructions. There should be enough clearance to allow for the passage of a 10" stainless steel duct. Avoid cabinet locations that require either an elbow directly on top of the cabinet's exhaust connection or an excessive number of elbows to clear other items. For a further discussion of the cabinet's exhaust system requirements, please go to *Section 3: Getting Started*.

Concurrent Balance Volumes (CBV)

NOTE: THE CBV IS ESTABLISHED BY NSF DURING LISTING TESTING. THE STATIC PRESSURE LISTED IS MEASURED AT THE BSC'S CONNECTION TO THE EXHAUST SYSTEM. THE VALUES PUBLISHED INCLUDES 0.7 INCHES OF FILTER LOADING, FROM THE BSC'S ORIGINAL PRESSURE. IN ORDER TO OBTAIN MAXIMUM EXHAUST HEPA FILTER LOADING, THE SYSTEM SHOULD BE CAPABLE OF GENERATING A STATIC PRESSURE 1.3 INCHES HIGHER THAN THOSE NOTED.

Concurrent Balance Values		
Traverse Exhaust Volume (CFM)	734	1191
Differential Pressure (in. H ₂ O)	1.7	2.1

2: Prerequisites

Electrical Requirements

The cabinet models have the following electrical requirements:

Table 2-1

Model Number	Typical Operating Current (Amps)	Electrical Circuit Requirements ¹
3034xxx01	3 A	115 V, 60 Hz, 12 A
3034xxx21	3 A	100 V, 50/60 Hz, 12 A
3034xxx-11, 31, 41, 51, 61, 71	1.5 A	230 V, 50/60 Hz, 6 A
3036xxx01	5 A	115 V, 60 Hz, 12 A
3036xxx21	5 A	100 V, 50/60 Hz, 12 A
3036xxx-11, 31, 41, 51, 61, 71	2.5 A	230 V, 50/60 Hz, 6 A

¹ Electrical Requirements, 'V' = VAC (Voltage with alternating current), 'A' = Amperes

A dedicated outlet with an appropriate circuit breaker should be located as close as possible to the right rear side of the cabinet, at a height even with, or higher than, the top of the bench or stand. Consult your local electrical codes for properly rated circuit breakers. For safe operation the dedicated outlet must provide the protective earthing ground connection to the cabinet.

On 100 and 115 VAC models, both internal electrical outlets are protected by a ground fault interrupter circuit (GFI). Labconco does not recommend plugging the cabinet into a GFI outlet.



Electrical outlets in the cabinet are restricted to 5 amps (115 Volt models) or 2 amps (230 Volt models) maximum current.

Les prises électriques dans l'armoire sont limitées à 5 ampères (modèles 115 volts) ou 2 ampères (modèles 230 volts) courant maximum.



Do not use any detachable power cord that is not adequately rated for the unit.

Ne pas utiliser un fil électrique amovible qui n'est pas du tension nominale de l'appareil.

2: Prerequisites

Service Line Requirements

All utility service lines should be ¼ inch O.D., brass, copper, or stainless steel, and equipped with an easily accessible shut-off valve. If the service line pressure exceeds 40 PSI, it must be equipped with a pressure regulator to reduce the line pressure.

The use of flammable gases or solvents should be avoided in the cabinet. Open flame in the cabinet will disrupt the laminar airflow in the cabinet and may damage the HEPA filters. Flammable gases or solvents may reach explosive concentrations in the cabinet or ductwork. If you feel that the procedure requires the use of an open flame or flammable materials, contact the institution's safety office.

The use of air or gases under high pressure should be avoided as they may seriously disrupt the airflow patterns in the cabinet.

3: Getting Started

Now that the installation is properly prepared, you are ready to inspect, install, and certify the Logic+ Biosafety Cabinet. This Section covers how to:

- Unpack and move the cabinet
- Install the cabinet
- Connect the electrical supply source
- Connect the service lines
- Connect to an exhaust system (optional)
- Arrange certification of the cabinet

Tools required for installation of the cabinet include two 1/2" wrenches, a flat-blade screwdriver, a #2 Phillips screwdriver, and a carpenter's level.

Note: The cabinet models weigh between 400–700 lbs. (182-318 kg). The shipping pallet allows for lifting with a mechanical lift truck or floor jack. If you must lift the product manually, use at least six (6) persons and follow safe-lifting guidelines.

3: Getting Started

Unpacking the Cabinet

1. Carefully remove the outer carton and inspect the cabinet for damage that may have occurred in transit. If the cabinet is damaged, notify the delivery carrier immediately and retain the entire shipment intact for inspection by the carrier.

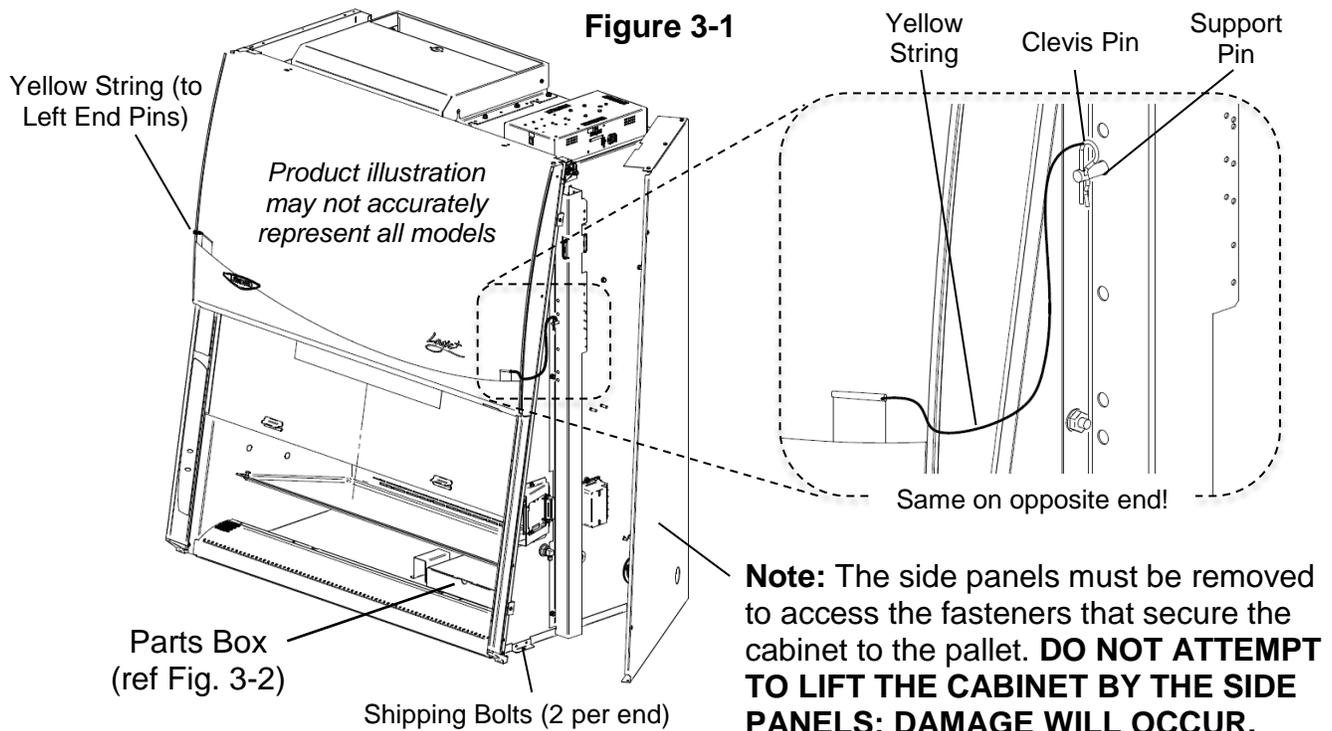
Note: United States Interstate Commerce Commission rules require that claims be filed with the delivery carrier within fifteen (15) days of delivery.

Do not return goods without the prior authorization of Labconco. Unauthorized returns will not be accepted.

If the cabinet 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.

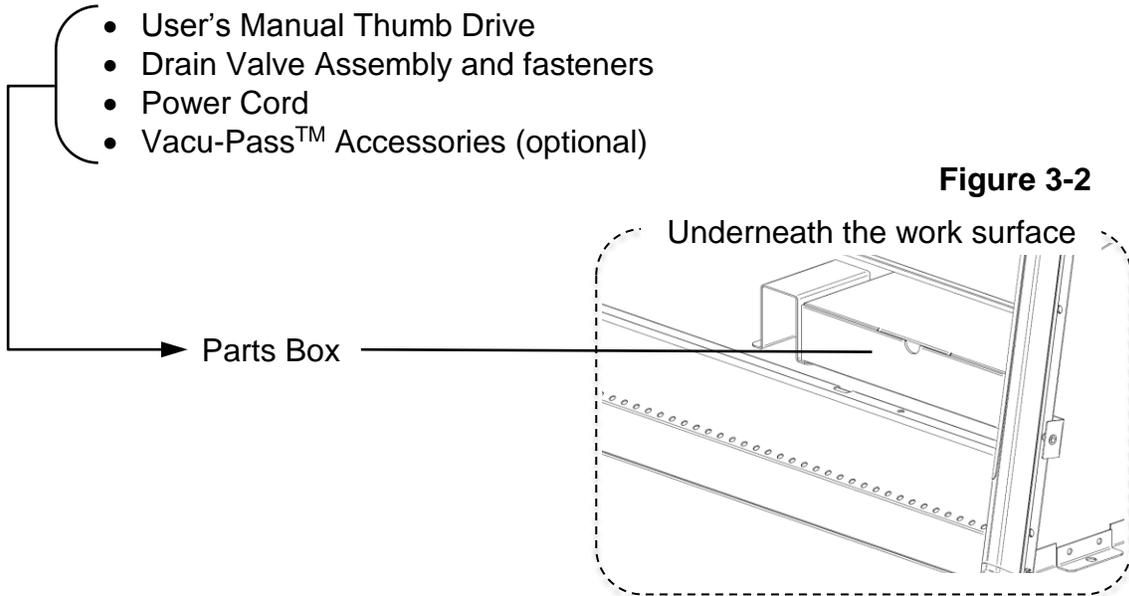
Do not discard the carton or packing material for the cabinet until all of the components have been checked, installed and tested.

2. The cabinet is secured to the pallet in two places on each side. To access the nuts and bolts, remove the side panels by removing and keeping the two Phillips screws from both panels. Swing the front of each panel away from the cabinet, and lift it straight up to remove the panel from the cabinet.
3. While the side panels are off, the sash weight support pins must be removed. Follow the two yellow strings to the support pin and its clevis pin. Remove the clevis pins, and pull the support pins straight back. Discard the pins and yellow string. See Fig. 3-1 below.



Preparing the Cabinet for Operation

Installation instructions (Labconco P/N 1056801) are attached to the sash of the cabinet. If these instructions are missing or unclear, contact Product Service at (800) 821-5525 or +1 (816) 333-8811. The following are located in a box (see Fig. 3-1 on previous page and Fig. 3-2 below) underneath the work surface:



If you did not receive one or more of the components listed for the cabinet, or if any of the components are damaged, contact Labconco Corporation immediately for further instructions.

Moving and Lifting the Cabinet

Move the cabinet, attached to its pallet, by using a floor jack, or a furniture dolly underneath the unit. **DO NOT** move the cabinet by tilting it onto a hand truck.

When lifting the cabinet **DO NOT** lift the cabinet in the middle front area of the hull. Lifting here may bend or distort the bottom of the cabinet, causing damage to the unit.

Installing the Cabinet on an Existing Work Surface

Note: The cabinet is very top heavy. Use caution when lifting or moving it.

When installing the cabinet onto an existing work surface or benchtop, ensure that the structure can safely support the combined weight of the cabinet and any related equipment. The work surface should be at least as wide as the cabinet and 31 inches (787 mm) deep to properly support the unit. A hole or notch may be cut in the supporting surface in the right front corner to accommodate the optional drain valve.

3: Getting Started

Installing the Cabinet on a Labconco Base Stand

Labconco offers accessory base stands in a variety of configurations to suit your particular needs. If assembly of the base stand is required, the assembly instructions are packaged with the base stand.

Telescoping Base Stands

These stands are included with some cabinet models, or available separately. The base stands are listed in Table 3-1 below. An optional caster wheel kit is available (catalog number 3730500).

Note: B2 biosafety cabinets MUST be connected to an exhaust system, if ordering the caster wheel kit, the duct connection MUST be of flexible construction.

Table 3-1

Cabinet Width (Feet)	Base Stand Catalog Number
4'	3401004
6'	3401006

Manual or Electric Hydraulic Lift Base Stands

These base stands offer infinitely adjustable height between 25.5 and 33.5 inches (648 to 851 mm), giving a cabinet work surface height of 28.0 to 36.0 inches. The height is adjusted either manually (hand crank) or electric pump that drives the hydraulic legs of the stands. All of the hydraulic stands are equipped with fixed feet, but can be converted to caster wheels with the Caster Kit (catalog number 3784000). The base stands for each cabinet size are listed in Table 3-2 below.

Table 3-2

Cabinet Width (Feet)	Manual Lift Stand Catalog Number	Electric (100-115V) Lift Stand Catalog Number	Electric (230V) Lift Stand Catalog Number
4'	3780201	3780101	3780104
6'	3780202	3780102	3780105

Note: When installing the cabinet on the hydraulic lift base stand, ensure that the hydraulic lines and the electrical cord are clear of any obstructions before installing the cabinet on the stand or operating the lift system.

Note: B2 biosafety cabinets MUST be connected to an exhaust system, if ordering an adjustable height stand, the duct connection MUST be of flexible construction.

Exhaust System Connections

The Purifier Logic Series Total Exhaust Biosafety Cabinets are a “Type B2 biosafety cabinet,” meaning they direct their HEPA filtered exhaust air out of the laboratory.



WARNING: The Logic Total Exhaust Biosafety Cabinet is designed to be connected to an appropriate exhaust system. Without verified inflow velocity, the cabinet may NOT contain hazardous particulate or gasses. Do not attempt to operate it when it is not connected to an appropriate exhaust system that has been inspected by a qualified certifier.



WARNING: Type B2 Biosafety Cabinets rely on external blowers (usually on the roof of a building) to exhaust 100% of the air entering the cabinet. If the building exhaust blower fails or is mistakenly turned OFF, the cabinet will become pressurized, resulting in a flow from the work area into the laboratory. It is imperative that the following be considered in a risk assessment:

- Justify the type of work is appropriate for the cabinet Type B2.
- Exhaust system must be reliable, maintained, frequently inspected and preferably redundant.
- Exhaust termination must be distant from other building air intake systems to prevent the reintraintment of volatile chemicals.

NOTE: THE EXHAUST BLOWER CANNOT RUN AT ITS NOMINAL FLOW RATE WITH THE SASH COMPLETELY CLOSED. IF YOU CHOOSE TO CLOSE THE SASH COMPLETELY TO USE THE UV LIGHT FOR SURFACE DISINFECTION, THEN THE EXHAUST BLOWER MUST BE SHUT OFF, OR ITS FLOW RATE REDUCED 90% OR MORE FOR PROPER OPERATION. THE LOGIC CONTROL BOARD HAS DRY CONTACTS THAT CAN BE CONFIGURED TO SIGNAL THE EXHAUST BLOWER TO TURN ON WHEN THE LOGIC BLOWER IS ON. FOR FURTHER INFORMATION, CONTACT LABCONCO'S PRODUCT SERVICE DEPARTMENT. AS AN ALTERNATIVE, A REMOTE ELECTRICAL SWITCH FOR THE EXHAUST BLOWER CAN BE INSTALLED NEAR THE LOGIC.

THE EXHAUST CONNECTION IS A SEALED EXHAUST SYSTEM FROM THE TOP OF THE CABINET TO THE REMOTE BLOWER. THE EXHAUST SYSTEMS SHOULD BE DEDICATED TO A SINGLE CABINET. THE CABINET IS EQUIPPED WITH AN EXHAUST FLOW ALARM, SUCH THAT AN ALARM SOUNDS, AND THE CABINET BLOWER SHUTS OFF IN THE EVENT OF INSUFFICIENT EXHAUST FLOW.

3: Getting Started

If your research involves the use of toxic compounds or volatile materials, contact your facility's safety officer or Labconco to ensure that your Purifier and its exhaust system are compatible with the materials you will be working with.

Exhaust System Requirements

The cabinet exhaust stack is sized to accept 10-inch (254 mm) stainless steel ductwork. The exhaust system's blower should be sized to handle the exhaust volume of each cabinet, as shown in the QuickChart (Appendix E). The exhaust system must maintain a static pressure equal to or greater than the system pressure, plus a pressure of 1.5 inches (38 mm) water for the Logic cabinet. In order to get the maximum life out of the cabinet's exhaust filter, the system needs to be able to operate at an additional 2.0 inches (51 mm) of vacuum, compared to the initial total system pressure.

NOTE: The exhaust system should be fitted with a backdraft damper (Catalog Number 3858800) to prevent the reversing of airflow in the system.

LABCONCO MANUFACTURES EXHAUST BLOWERS AND A BACKDRAFT DAMPER, WHICH ARE SUITABLE FOR MOST SINGLE CABINET INSTALLATIONS. SEE APPENDIX D.

Connecting the Cabinet to Utility Service Lines

Note: Some models have a solenoid valve connected to the service valve on the right side, rear position. The solenoid prevents gas from flowing to the service valve when the unit blower is off, or there is a loss of electrical power. It is the only service valve position that can be fitted with a solenoid valve. Connect the gas service to the solenoid valve.

The service lines (if any) should be connected to the tube fitting(s) on the outside of the liner wall as shown in Figure 3-1. To install the tubing, follow these steps:

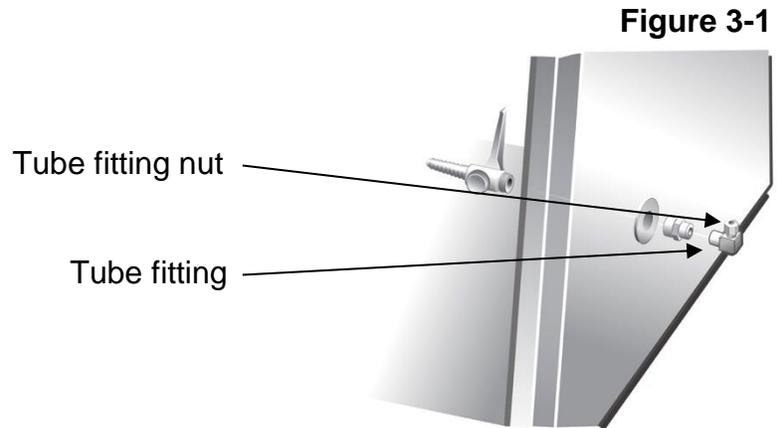
1. Ensure that the tubing is $\frac{1}{4}$ inch O.D., soft metal, and that the end has been completely deburred.
2. Route the tubing from the rear of the cabinet, ensuring that it will line up with the slot in the back of the side panel. The slot is located from $8\frac{3}{4}$ to $11\frac{1}{4}$ inches (222 to 288 mm) from the bottom of the cabinet.

Note: Make sure that the tube routing will not contact any electrical wires. DO NOT loop service line tubing within the side panels of the cabinet.

3. Make sure that the nut on the tube fitting is loose, but do not remove it. Make sure the tube ferrule is in the fitting.

3: Getting Started

4. Push the tube into the fitting until it is properly seated. The tube will go approximately $\frac{3}{4}$ inch (19 mm) into the fitting.
5. Tighten the tube fitting nut hand tight and then, using a $\frac{7}{16}$ -inch wrench, tighten it at least $\frac{3}{4}$ turn more.
6. Close the service valve in the cabinet and then slowly open the shutoff valve on the service valve. Test all fittings for leakage. Tighten the tube nut slightly if needed.



Using the Optional Vacu-Pass™ Cord & Cable Portal

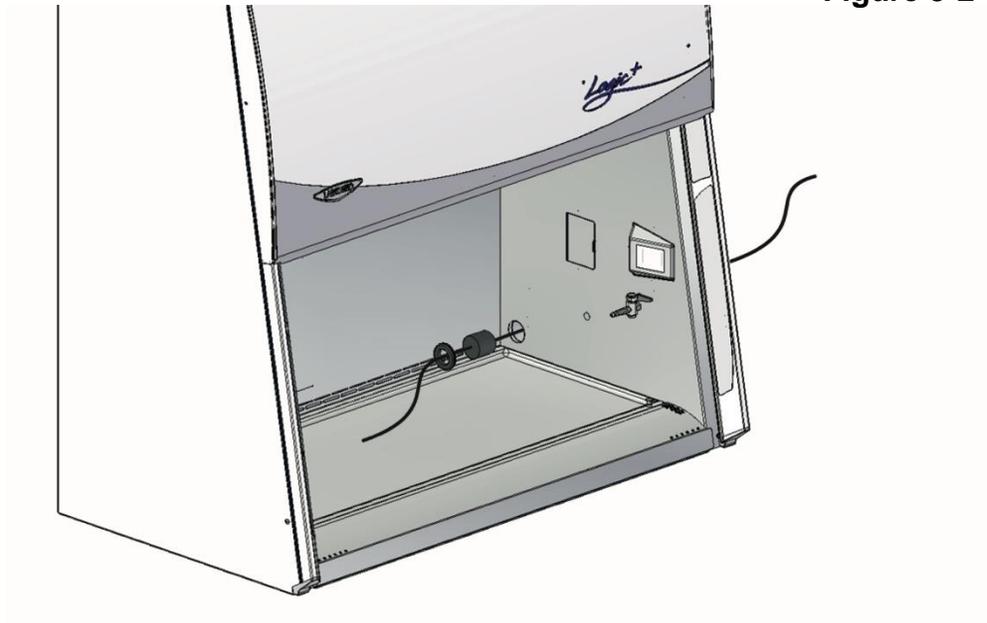
There must be enough clearance to pass the cord or cable between the cabinet's exterior dress panel and any obstruction.

Note: Some Vacu-Pass components and the cord or cable passing through it may become contaminated during use of the cabinet. Ensure all potentially contaminated components are surface decontaminated before handling or removal from the cabinet.

1. Remove the grommet from the liner sidewall. Remove the solid sealing plug from the body of the portal by either pressing it through from the outside, or by carefully inserting a spatula or similar device between the sealing plug and the body of the portal, and prying the plug out.
2. Locate the pass-thru universal sealing plug, which is included in the parts box located underneath the work surface during shipment.
3. Pass the cord or cable through the body of the portal, and then through one of the holes in the pass-thru universal sealing plug, then through the grommet, as shown in Figure 3-2.

Note: select a hole in the sealing plug that is slightly smaller than the cord or cable, to create a proper seal. This will also help minimize movement of the cord or cable if it is accidentally pulled during use.

Figure 3-2



4. Position the cord or cable as it will be used in the cabinet, and then push the plug back into the body of the portal until it seats in the portal. Reinstall the grommet.

3: Getting Started

Installing the Drain Valve

In order to prevent damage during shipping, the drain valve assembly has not been installed. If desired, the valve should be installed after the cabinet is in its final location.

To install the valve assembly, follow these steps:

Note: The work surface is heavy. Use caution when handling it.

1. Locate the Drain Valve components and installation hardware. The components and hardware are shipped in a single bag inside the parts box, underneath the work surface.
2. Lift the work surface out of the cabinet by lifting on the knobs at the front of the work surface. Steady the work surface while pulling it straight out the front of the cabinet.
3. Using a putty knife, remove and discard the stainless steel cover that is sealed over the drain mounting holes. Scrape off remaining sealant that is around the holes.
4. Apply a light coating of silicone sealant (user supplied) to the mounting surface of the drain assembly. Attach the drain assembly under the bottom of the cabinet as shown in Figure 3-3. Wipe off any excess sealant from the cabinet bottom. Ensure that the center drain hole is unobstructed.
5. Make sure the drain valve is in the closed position.
6. Reinstall the work surface.
7. Allow the silicone sealant to cure for at least eight hours before exposing it to liquid.

Note: The drain valve assembly attaches to the underside of the cabinet bottom.

Apply a light coat of silicone sealant to this surface of the connector, aligning the three holes in the connector with the three holes in the cabinet liner.

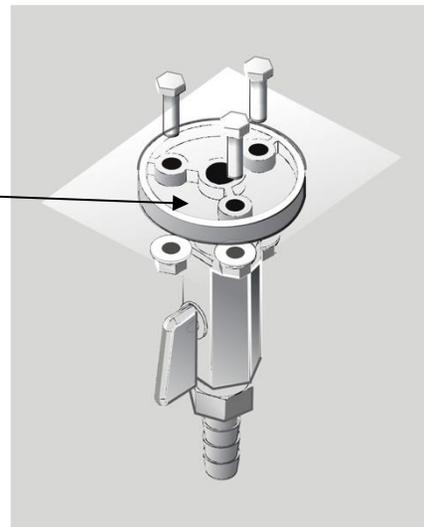


Figure 3-3

Initial Certification

Prior to use, a qualified certifier should certify all cabinets. Under normal operating conditions, the cabinet should be recertified at least annually and when relocated or serviced. The certifier should perform the following tests, as recommended in NSF/ANSI Standard Number 49 in effect when the cabinet was manufactured:

- Downflow Velocity Profile Test
- Inflow Velocity Test
- Airflow Smoke Patterns
- HEPA Filter Leak Test
- Optional Canopy Alarm Test and Operation
- Vibration Test *
- Noise Level Test *
- Lighting Intensity Test *

*These tests are user comfort related tests and may be omitted at the user's or certifier's discretion.

If you have any questions regarding certification agencies or help locating one, contact Labconco's Product Service Department at (800) 821-5525 or +1 816-333-8811.

4: Performance Features and Safety Precautions

All Cabinets operate using the following principles:

- Filtration and retention of particulates by High Efficiency Particulate Air (HEPA) filter(s)
- Laminar airflow
- Directional airflow

The major components in a cabinet are:

- The HEPA filter(s) or optional ULPA filters
- The motor/blower to force air through the cabinet
- Cabinet air intakes (grilles), ductwork and air balance controls

HEPA Filters

HEPA filters are disposable, dry-type particulate filters. The filter material or media is typically made of borosilicate microfibers formed into a thin sheet, in a process similar to the production of paper. This sheet is folded, or pleated to increase its surface area. The pleats are typically held in place by beads of glue that add rigidity to the media pack. The pack is then set into a frame, and sealed as shown in Figure 4-1.

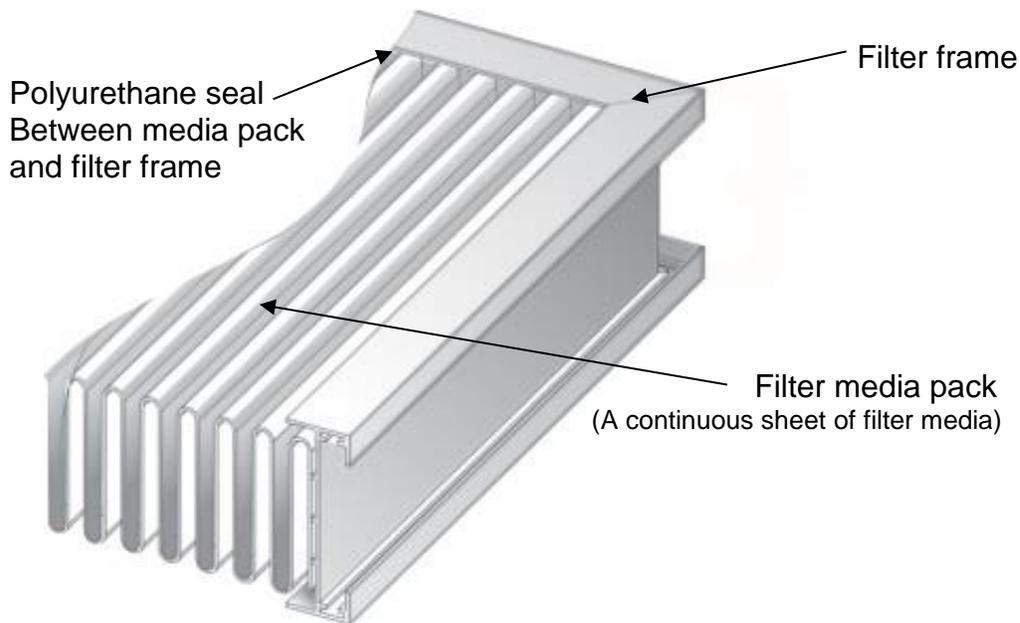
The HEPA filter manufacturer establishes the efficiency of the filter by challenging it with an aerosol of known particle size. The number of particles that penetrate the filter are quantified, and this establishes the efficiency of the filter. Thus, the filters used in the cabinet are at least 99.99% efficient in removing particles 0.3 micron.

4: Performance Features and Safety Precautions

Note: The HEPA filter media is very fragile. DO NOT touch the media. If you think the media of a HEPA filter is damaged, DO NOT USE THE CABINET. Have the HEPA filter integrity tested by a certifier before using the cabinet.

Note: HEPA Filters are only effective against particulate material. Gases will pass through the filter.

Figure 4-1



ULPA Filters

Optional ULPA filters may be used to replace the standard HEPA filters in the cabinet. ULPA filters have the same properties as described above except they are rated at least 99.999% efficient in removing particles 0.1-0.2 or 0.2-0.3 micron.

Laminar Airflow

Laminar airflow is defined as the movement of a body of air in a single direction, with a uniform velocity. In practice, the laminar downflow of air in the cabinet captures any aerosol generated in the work area of the cabinet, and directs it to the HEPA filters. In order to be true laminar downflow, a number of individual downflow velocity test points (The Downflow Velocity Profile) must be ± 16 feet per minute (0.08 m/s) of the average of all the test points. This is shown in Figure 4-2.

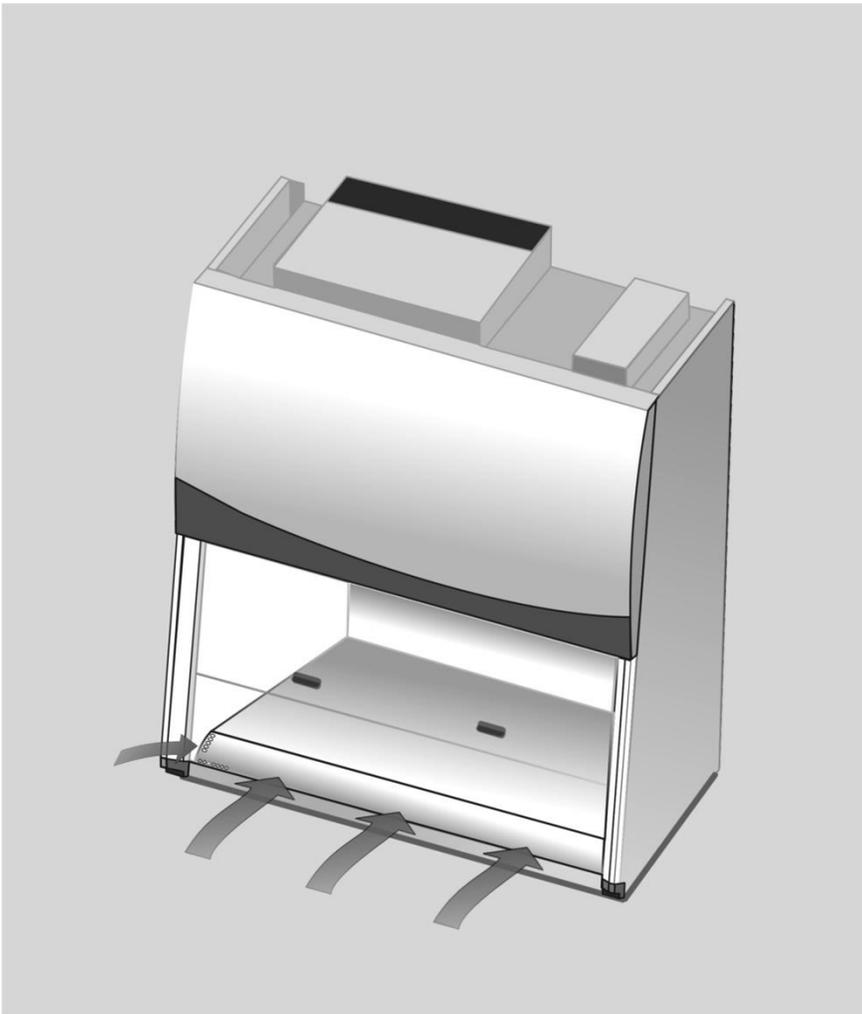
Figure 4-2



Directional Airflow

Directional airflow also plays a key role in cabinet performance. Air is drawn into the front of the cabinet at the front grille. This “curtain” of air makes it more difficult for aerosols to escape out of the work area of the cabinet and into the outside environment. This airflow is often calculated and referred to as the **Inflow Volume** or **Average Inflow Velocity**. This is illustrated in Figure 4-3.

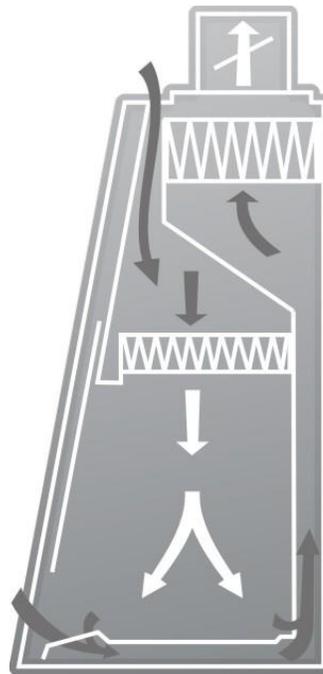
Figure 4-3



Motor/Blower

The motor/blower assembly pulls room air into the front of the cabinet, and recirculates it internally. During its recirculation, the air is split into two separate streams. One path leads through the exhaust HEPA filter and out of the unit. The second path flows through the supply HEPA filter, which then flows down through the work area, as shown in Figure 4-4. The motor in the cabinet is an electronically commutated motor (ECM). The ECM is a brushless DC motor that includes its own power supply to convert the incoming alternating current to direct current, as well as its own microprocessor to control and measure the motor's operation. The motor utilizes Labconco's exclusive Constant Airflow Profile™ (CAP) program to deliver a consistent volume of air, throughout the life of the cabinet.

Figure 4-4



Airflow Sensor

An airflow sensor, located above the Exhaust HEPA filter, constantly monitors the flow of exhaust air out of the cabinet. If the exhaust falls below a safe level, the control board turns off the cabinet blower, and sounds an audible and visual alarm. This prevents the escape of hazardous material from the front of the cabinet, in the event of an exhaust system failure. The airflow sensor reading is shown on the display as Inflow in feet per minute (FPM) or meters per second (M/S).

Cabinet Grilles, Ductwork and Air Balance Controls

The location, size, and pattern of the grilles at the front and rear of the work area affect cabinet containment and performance.

Note: Do not block or obstruct the grilles of the cabinet.

The internal ductwork of the cabinet conveys the air from the work area to the blower, and then from the blower to the filters. The positive pressure rigid plenum of the cabinet is designed to deliver a more uniform airflow to both HEPA filters, optimizing filter loading and operational life.

Ultraviolet (UV) Lamp

The optional UV lamp generates a primary wavelength of light of 254nm. A secondary emission is in the visible (blue) wavelength, resulting in the characteristic blue color while operating. UV light at this wavelength is biocidal, primarily by creating thymine dimers in DNA. These dimers prevent the correct transcription of the DNA into RNA, resulting in cellular death or viral inactivation. In order to be effective, the UV light must directly strike the nucleic acid, and its effectiveness can be diminished or negated by dissolved proteins or metals, or by other UV-opaque substances protecting the target nucleic acid.

Because of its limitations, UV light should be used as an adjunct to good surface disinfection practices. In order to get optimum performance from the UV light, it should be replaced after 6,000 hours of operation or less, and the exterior surface of the lamp should be kept clean and free of dust.

Note: The cabinet records the number of hours of operation of the UV light. You can program in the number of hours (in 100-hour increments) it will operate before a replacement message is displayed.

Note: UV irradiation is absorbed by the tempered safety glass of the sash. Independent research has shown that the level of UV irradiation on the outside of the cabinet's sash is equal to background radiation levels.

Note: The UV sensitivity of a target organism varies, depending on the UV output of the lamp, the genus and species of the organism, the medium the agent is suspended in, etc. Contact the Health and Safety Officer at your facility for UV light use and recommendations.

Safety Precautions

Note: The cabinet should be certified by a certification technician before its initial use. The cabinet should be recertified whenever it is relocated, serviced or at least annually thereafter. Filter integrity and airflow performance should be verified before using the cabinet.

Some internal components of the cabinet may become contaminated during operation of the unit. Only experienced personnel competent in decontamination procedures should decontaminate the cabinet before servicing these components. If you have any questions regarding certification agencies, or need assistance in locating one, contact Labconco's Product Service Department at (800) 821-5525 or +1 (816) 333-8811.

DO NOT load more than 50 lbs. (23 Kg) in the work area. Exceeding this limit may damage the work surface and its supports. Excessive weight in the cabinet may increase the risk of it overturning, or failure of hydraulic lift stands, resulting in the cabinet and stand overturning. If your application requires loading more than 50 lbs., contact Labconco's Product Service Department at (800) 821-5525 or +1 (816) 333-8811 for assistance.

Ensure that the cabinet 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 cabinet from electrical service.

Avoid the use of flammable gases or solvents in the cabinet. Care must be taken to ensure against the concentration of flammable or explosive gases or vapors. An open flame should NOT be used in the cabinet. Open flames will disrupt airflow patterns, burn the HEPA filter and/or damage the filter's adhesive. Gases under high pressure should not be used in the cabinet, as they may disrupt its airflow patterns.

HEPA filters only remove particulate matter. Operations generating volatile toxic chemicals or radionuclides must be evaluated carefully.

The media of HEPA filters is fragile and should not be touched. Avoid puncturing either HEPA filter during installation or normal operation. If you suspect that a HEPA filter has been damaged, DO NOT use the cabinet; contact a local certification agency or Labconco at (800) 821-5525 or +1 (816) 333-8811 for re-certification information.

The HEPA filters in the cabinet will gradually accumulate airborne particulate matter from the room and from work performed in the cabinet. The rate of accumulation will depend upon the cleanliness of the room air, operating time and the nature of work being done in the cabinet. The Filter Gauge accurately displays the amount of filter life remaining.

4: Performance Features and Safety Precautions

Proper operation of the cabinet depends largely upon its location and the operator's work habits. Consult the Installation and Normal Operation sections of this manual for further details.

Avoid direct exposure of plastic or coated materials to ultraviolet (UV) radiation. Never bypass the UV safety interlock that only allows the UV light to work when the sash is closed. When surface disinfecting the cabinet:

- Avoid splashing the disinfecting solution on skin or clothing
- Ensure adequate ventilation
- Carefully follow the disinfectant's safety instructions
- Always dispose of disinfecting solutions in accordance with local and national laws
- DO NOT allow disinfectants with high concentrations of free chlorine to contact the stainless steel components of the cabinet for a long period of time. Free chlorine will corrode stainless steel after extended contact

Cabinets should be decontaminated for any of the following reasons:

- Before maintenance work requiring entry into contaminated areas
- Before HEPA filter changes
- Before performing certification tests requiring entry into contaminated areas
- Before relocating the cabinet
- Before changing research programs
- After the gross spill of biohazardous material or toxic chemicals

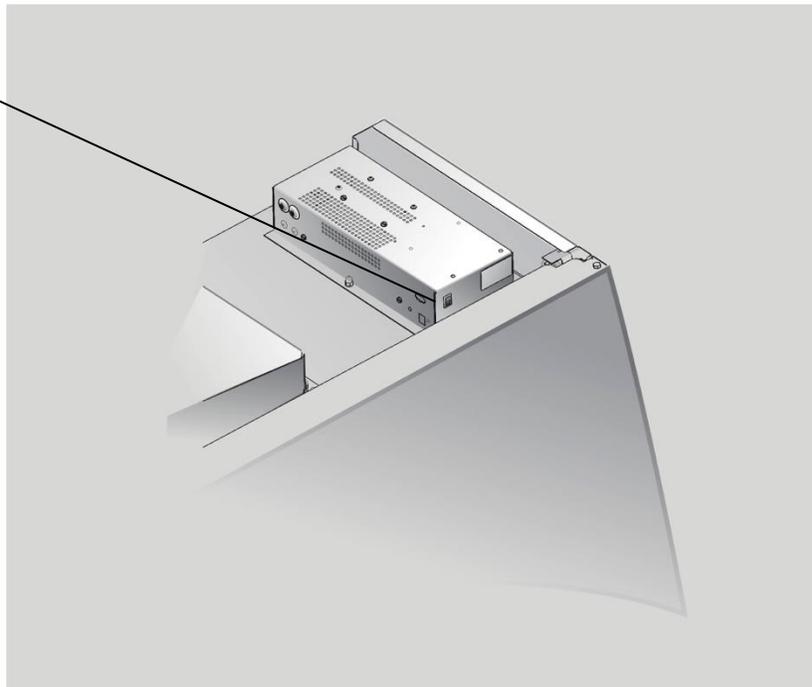
5: Using the Cabinet

System Reset Switch

The cabinet has a system reset switch for resetting its microprocessors. The switch is located on the front of the electronics module, on top of the cabinet, as shown in Figure 5-1. Ensure that the switch is in the “ON” (up) position before attempting to operate the cabinet.

Figure 5-1

System Reset Switch



Information Center

The Information Center is an LCD display located on the right side wall at eye level. When the blower is started, the “Blower Starting” screen will be displayed, as shown in Figure 5-2. After approximately 30 seconds, the display will switch to normal operation.

The display provides a clock, the remaining filter life, the cabinet’s current status, and inflow velocity, as shown in Figure 5-3. In the event of an alarm, the Information Center will immediately display a context sensitive message indicating the cause of the alarm, and possible solutions, as shown in Figures 5-4.

The display will enter sleep mode, turning itself off, five minutes after the blower is turned off.

Figure 5-2

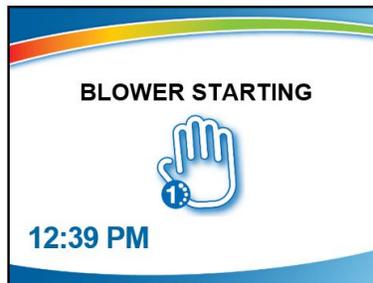
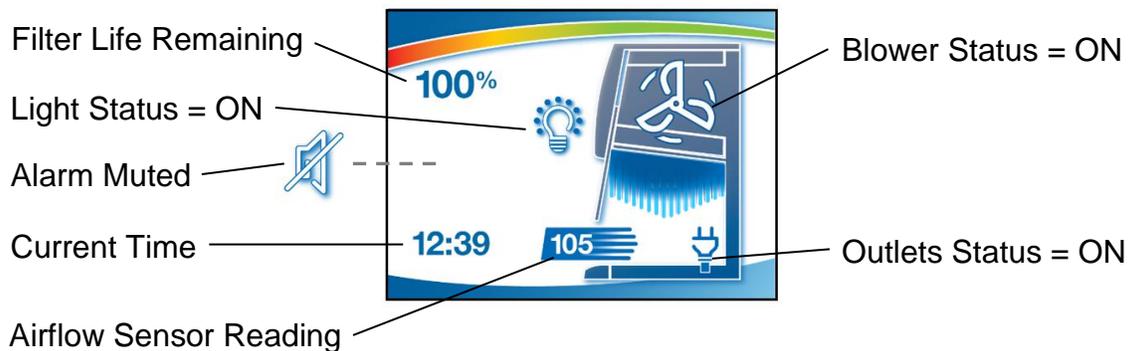


Figure 5-3



Blower Status = Reduced Speed
(NightSmart Enabled)



Light Status = UV Light ON

27 — UV Countdown Timer (minutes)

Alarm Screens

Power Loss Alarm

The cabinet has lost power. Press **[OK]** on the Keypad to acknowledge that a power loss occurred.

Figure 5-4a



Sash Height Alarm

The sash is not in the proper operating height. Return sash to proper working height.

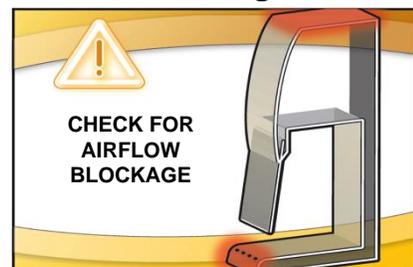
Figure 5-4b



Airflow Alert

The airflow patterns in the cabinet have changed, resulting in a sudden change in the motor speed. This is most likely due to a blockage of the grille or the exhaust filter outlet. It may also be caused by removal of the work surface while the cabinet is in operation. Remove or replace objects as necessary.

Figure 5-4c

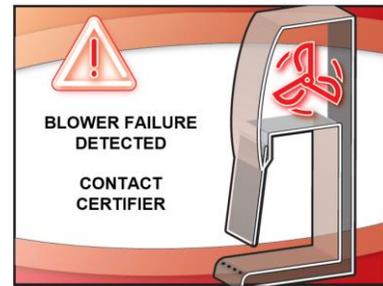


5: Using The Cabinet

Blower Failure Alarm

Either the motor has failed, or the motor and display circuit board are not communicating properly. DO NOT USE THE CABINET UNTIL THE PROBLEM HAS BEEN CORRECTED.

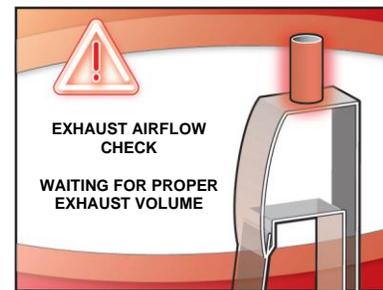
Figure 5-4d



Exhaust Airflow Check

If there is insufficient exhaust system airflow for a proper startup, this alarm will be displayed for 60 seconds to allow the exhaust system to begin operation. If there is insufficient airflow after 60 seconds, the exhaust alarm will be activated.

Figure 5-4e



Exhaust Alarm

If the facility's exhaust system does not achieve proper exhaust airflow volume within the 60 second start-up window, or the facility's exhaust system fails during normal operation, this alarm will be displayed. If this alarm is displayed, the cabinet blower will automatically turn off if in normal operation, press **[BLOWER]** to reset the alarm.

Figure 5-4f



Operating the Sliding Sash

The counterbalanced, anti-racking sash mechanism requires only a few pounds of force to move the sash up or down. You can open or close the sash smoothly with one or two hands positioned on either handle.

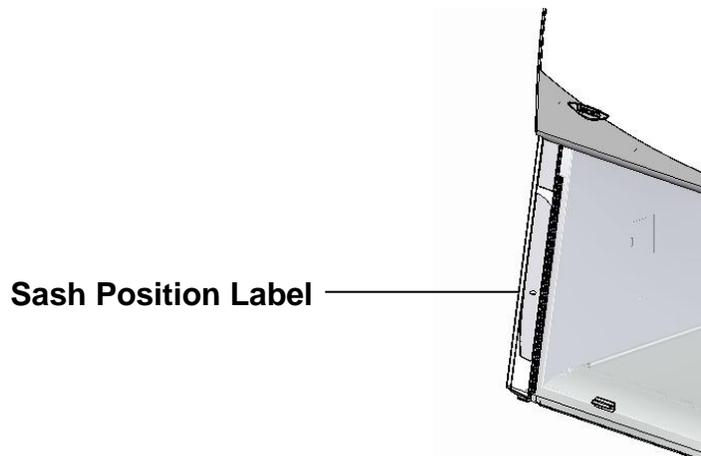
The sash position alarm and safety interlock system senses the sash position and acts appropriately. The cabinet has been programmed to operate at either an 8- or 10-inch (203-254 mm) sash opening, depending on the model. Raising the sash above or below its operating height will activate the audible and visual alarms. The audible alarm can be temporarily muted for approximately five minutes by pressing the **[OK/MUTE]** button on the Keypad. Moving the sash back to its operating position will reset the alarm. The safety interlock system senses when the sash is closed and allows the optional ultraviolet (UV) lamp to operate only when the sash is closed, to protect the operator from irradiation.

Starting the Cabinet

1. To start the cabinet, raise the sash until its bottom edge aligns with the sash position label on the left corner post. The decal is shown in Figure 5-5.
2. Press **[BLOWER]** on the Keypad (see Fig. 5-6 on the following page) to start the cabinet. The unit will display a standby screen for approximately 30 seconds to allow the cabinet to reach proper operating conditions. If the alarm sounds, recheck the sash position. If the sash is too high or low, the sash audible alarm and the LCD display will indicate the sash is in an incorrect position.
3. To turn the UV light on, the sash must be completely closed to prevent the escape of any UV radiation. Press **[UV LIGHT]** on the Keypad to activate the UV light.

Note: The sash must be completely closed for the UV light to activate.

Figure 5-5



Using the Cabinet Keypad

The keypad of the cabinet is shown in Figure 5-6. Take a moment to familiarize yourself with the buttons, their locations and functions. Also familiarize yourself with the display located on the right side wall. The display will report system functions, such as filter capacity, timer displays, alarm or error messages, as well as icons that illuminate when cabinet functions such as the light and blower are operational.

[BLOWER] – Starts or stops the cabinet blower. When the blower is in automatic (SmartStart) mode, opening the sash from the closed position turns the blower on automatically. The cabinet can also be configured so that when the sash is closed, the motor slows to maintain air cleanliness in the work area (NightSmart). When the sash is reopened, the blower resumes normal operation. Pressing the blower button at any time overrides the automatic operation.

[LIGHT] – Turns the LED lamps on or off. Closing the sash automatically turns the lights off. When the lights are in automatic (SmartStart) mode, raising the sash turns the lights on automatically. Pressing the light button at any time overrides the automatic operation.

[OUTLETS] – Turns on/off electrical outlets in the work area.

[UV LIGHT] – Turns on/off the UV lamp (when installed). When the UV lamp is in automatic mode, closing the sash turns the UV light on automatically. When the sash is raised, the UV light turns off automatically.

[TIMER] – Allows you to select either a repeating interval timer, or an elapsed timer (stopwatch).

[OK/MUTE] – Mutes all audible alarms for approximately 5 minutes, unless there is a system error alarm. When in any Menu, this button is used to select an option.

[MENU] – From the Home Screen, this button accesses the Main Menu. When in any menu screen, pressing this button returns you to the previous menu level.

[UP] and **[DOWN]** – Moves between selectable options or chan in menu screens.

Figure 5-6

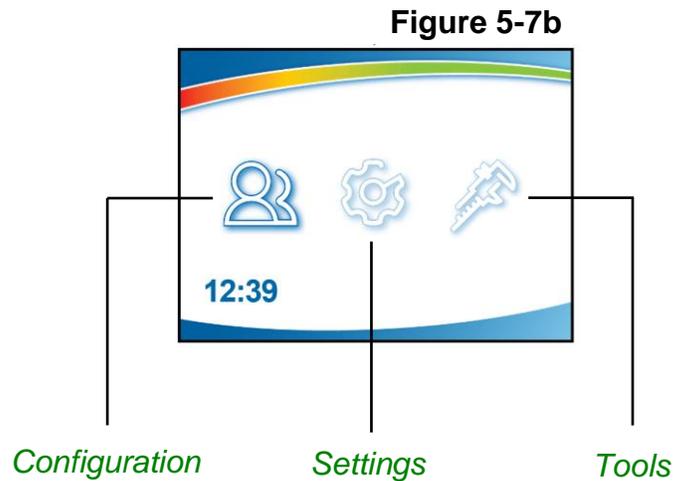
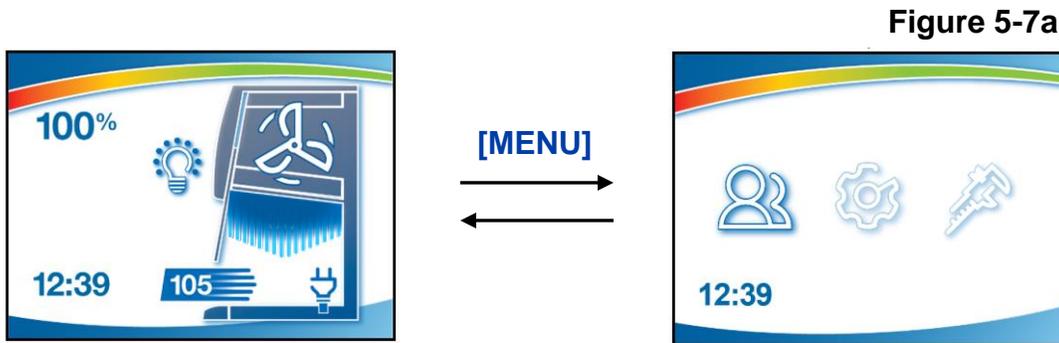


Navigating the Cabinet Menu Screens

Keypad button presses are shown as **[blue with brackets]**. Menu screen selections are shown as *green italics*.

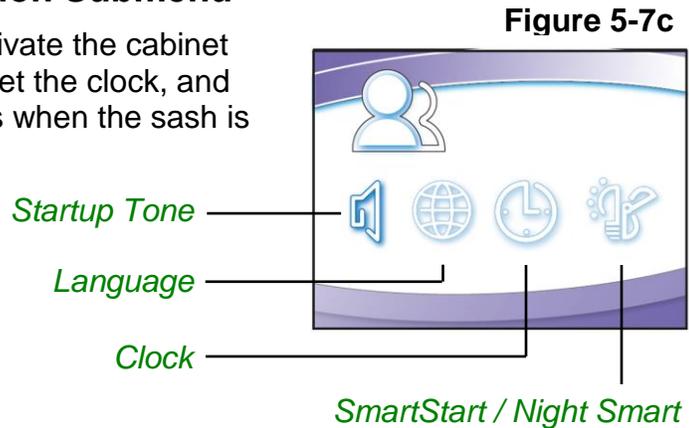
NOTE: Pressing the appropriate keypad button will override Automatic Operation mode functions (such as SmartStart and NightSmart).

To access the main menu, press the **[MENU]** button. The display panel will change to the main menu. To select from the various menu options press the **[UP]** or **[DOWN]** buttons until the selected option is highlighted. Press **[OK/MUTE]** to accept that option, or press **[MENU]** to return to the previous menu level.



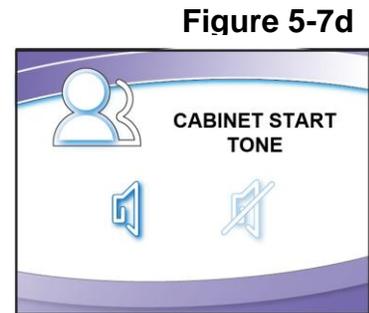
Navigating the Configuration Submenu

This submenu allows you to activate the cabinet startup tone, set the language, set the clock, and configures how the unit operates when the sash is opened or closed.



Activating a *Startup Tone*

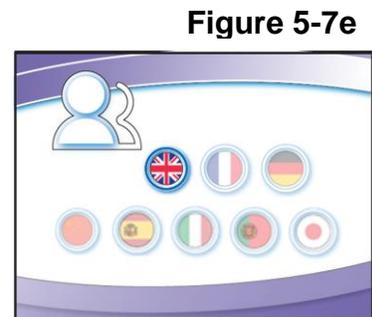
When enabled, an audible tone will sound during cabinet power up. This also enables or disables audible tones from the keypad (any button press).



Selecting a Language

[UP] and [DOWN] will move among the selectable language options. When the desired language is highlighted, press [OK/MUTE]. Language options:

- | | |
|----------------|-------------------|
| <i>English</i> | <i>Spanish</i> |
| <i>French</i> | <i>Italian</i> |
| <i>German</i> | <i>Portuguese</i> |
| <i>Chinese</i> | <i>Japanese</i> |



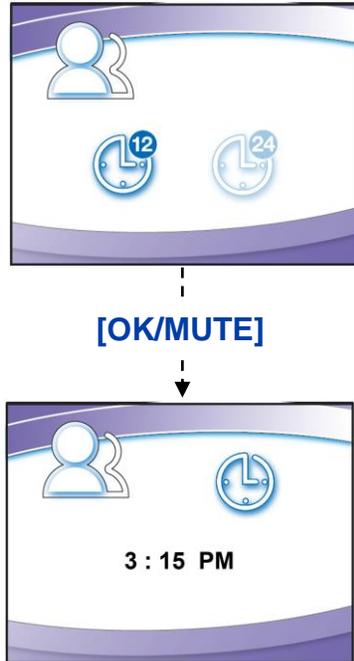
Setting the Clock

Select either *12 Hour* (AM/PM) format or *24 Hour* format.

The selected field (*Hours* or *Minutes*) will flash, set the current time using **[UP]** and **[DOWN]**. *Hours* will flash first, once correct, use **[OK/MUTE]** to switch to *Minutes*.

Note: AM or PM will not show if *24 Hour* format selected.

Figure 5-7f

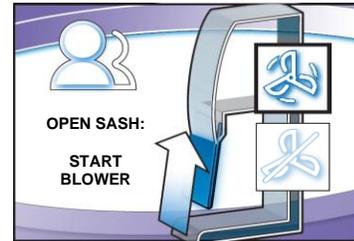


Setting Automatic Operation Options

The cabinet allows you to configure it to activate functions automatically when the sash is opened or closed.

The first screen gives you the option of activating the blower; if you want the cabinet blower to start every time you raise the sash, select *Blower On*, and then **[OK/Mute]**. If *Blower Off* is selected, the blower must be manually started from the keypad. When **[OK/Mute]** is pressed, the next configuration screen will appear.

Figure 5-7g



If you want the cabinet lights to turn on every time you raise the sash, select *Light On*, and then **[OK/Mute]**. If *Light Off* is selected, the lights must be manually turned on from the keypad. When **[OK/Mute]** is pressed, the next configuration screen will appear if your cabinet is configured for a UV lamp.

Figure 5-7i



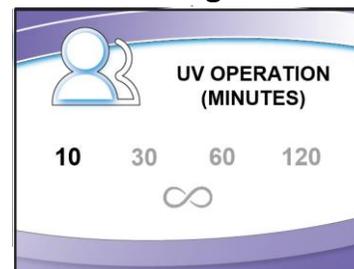
If your Cabinet is configured for a UV light, you will see Fig. 5-7j and 5-7k. If you want the UV lamp to turn on every time the sash is closed, select *UV Light On*, and press **[OK/Mute]**. If *UV Light Off* is selected, the UV light will not turn on when the sash is closed. When **[OK/Mute]** is pressed, the final configuration screen will appear.

Figure 5-7j



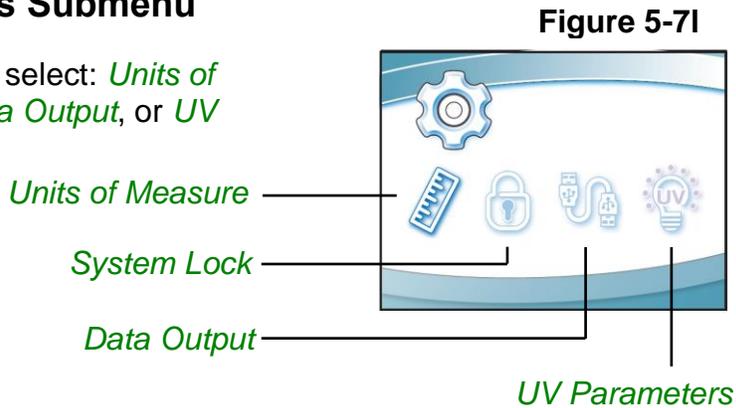
Whether the UV Light is initiated from the **[UV Light]** button on the keypad, or automatically initiated upon closing of the sash, this screen controls the time the UV lamp will remain on. Select the length of time desired, press **[OK/Mute]**.

Figure 5-7k



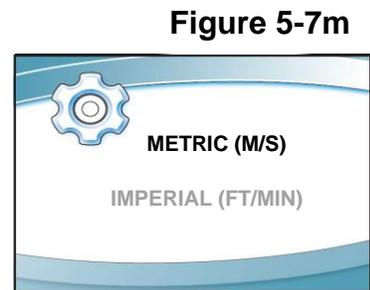
Navigating the Settings Submenu

This submenu allows you to select: *Units of Measure*, *System Lock*, *Data Output*, or *UV Parameters*.



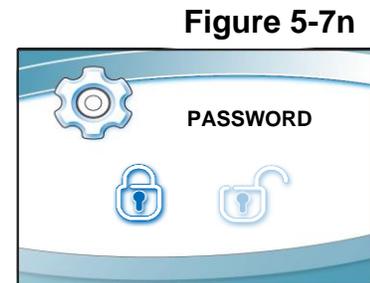
Selecting the Units of Measure

If your cabinet is equipped with an airflow sensor, the units of measure can be set for *FT/MIN* (feet per minute) or *M/S* (meters per second). Select the appropriate units of measure, then **[OK/Mute]**.



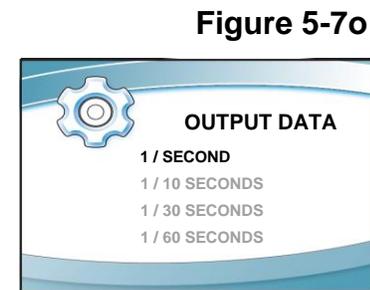
Activating the Security Lock

The Security Lock “locks” the keypad to prevent unauthorized use of the cabinet. To enable / disable select *Protected / Unprotected*, then **[OK/MUTE]**. When enabled, the keypad is locked immediately after the blower is turned off. The security lock is deactivated by holding **[DOWN]** for three seconds. If blower is not turned on within 5 minutes of unlocking, the keypad will relock. The feature remains enabled until it is disabled in this screen.



Setting the USB Output Rate

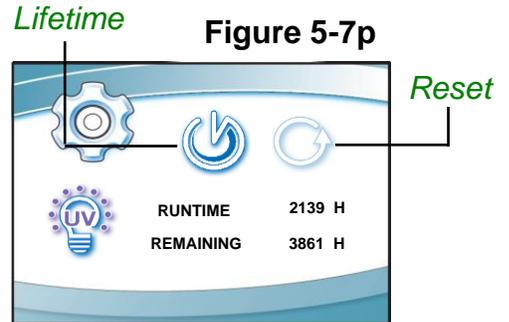
This menu option selects the rate that cabinet status data is exported out of the mini USB port on the side of the top electrical box. Data can output at a rate of *once per second*, *once per 10 seconds*, *once per 30 seconds*, or *once per 60 seconds*. Make the appropriate selection, then **[OK/MUTE]**.



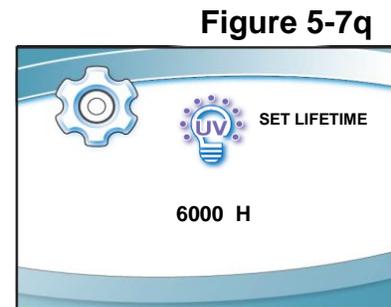
Navigating UV Parameters

For models equipped with the optional UV light, the cabinet has an integral UV light maintenance system. It allows you to monitor how many hours the lamp has been on, to reset the UV lamp hourmeter, and to define how many hours you want the UV lamp to operate before receiving a reminder to replace it.

This screen displays the hours of UV lamp operation (Runtime), and how many hours remain (Remaining) until you receive a warning to replace the lamp. To reset the Runtime hourmeter to zero (after replacing the UV lamp), select *Reset*, then **[OK/MUTE]**. The hour text will begin to flash, if you entered this condition by mistake, press **[MENU]**. If you want to reset the hourmeter, hold **[OK/MUTE]** for 3 seconds.



To change the desired UV lamp lifetime, select *Lifetime* as seen in Fig. 5-7p, then **[OK/MUTE]**. The screen shown in Fig. 5-7q will display. To change the UV lamp lifetime (number of operating hours before receiving the warning), change the *Hour* field accordingly using **[UP]** or **[DOWN]**, then **[OK/MUTE]**.



For most UV lamps, the output of UV light decreases at a constant rate. Typically, after 6,000 hours of operation the lamp's output intensity will reduce to 80% of when it was new. This option allows you to set operational life of the UV lamp, in 100 hour increments. 6,000 hours is the default.

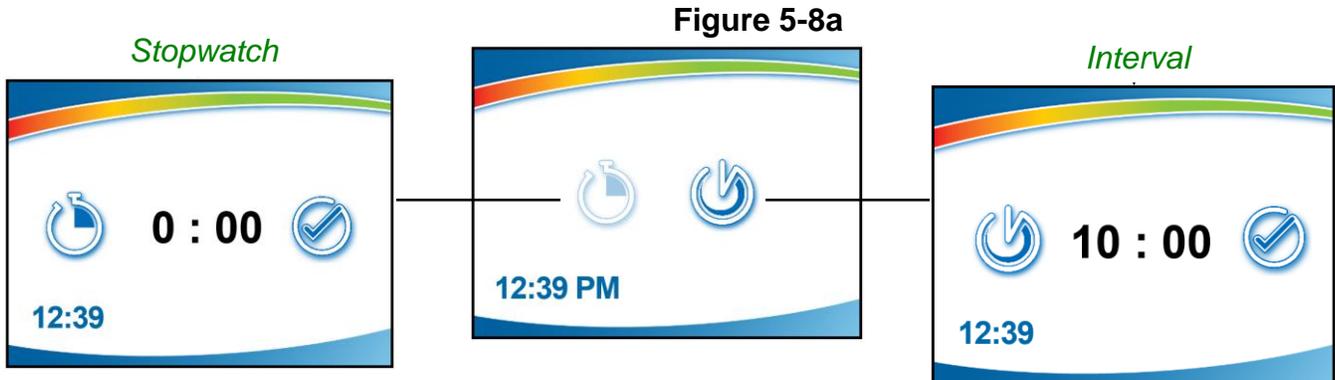
The Tools Submenu

This submenu is reserved for use by certifiers, during certification or service procedures. **CAUTION!** - Entering this submenu will disable some alarms and functionality so that diagnostic and certification procedures can be performed.

Timer Operation

The timer button allows activation of an interval (countdown) or elapsed (stopwatch) timer. The timers cannot be operated simultaneously.

To access the timer menu, press **[Timer]** anytime during normal operation (from the Home Screen). The main timer menu is displayed (Fig. 5-8a). Select *Interval* or *Stopwatch* Timer, then **[OK/MUTE]**.



Interval Timer Operation

1. The interval timer defaults to 05:00 (minutes:seconds).
2. Press **[UP]** or **[DOWN]** to increase or decrease the timer interval.
3. When the proper interval is selected, press **[OK/Mute]** to start the timer.
4. When the timer reaches 00:00, an audible alarm will sound, and the timer will reset itself and repeat the countdown.
5. Press **[OK/Mute]** to pause the timer. Press **[OK/Mute]** while paused, and the timer will reset to the previously selected interval.
6. Press **[Menu]** to clear the interval timer and return to the main timer menu.

Stopwatch Timer Operation

1. The stopwatch timer defaults to 00:00.
2. Press **[OK/Mute]** to start the timer.
3. Press **[OK/Mute]** again to pause the timer. Press **[OK/Mute]** while paused, and the timer will reset to 00:00.
4. Press **[Menu]** to return to the main timer menu.

5: Using The Cabinet

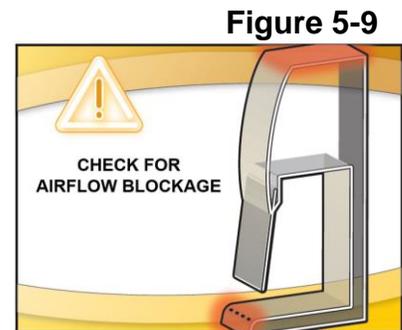
If An Airflow Alert Activates

The most common causes of an Airflow Alert are:

- Blockage of the inlet grilles or exhaust outlet
- Removal of the work surface or grille during operation

Resetting the Airflow Alert System

The Airflow Alert automatically resets to normal operation once the motor speed has stabilized.



Working In the Cabinet

A more thorough review of using a biosafety cabinet can be found in: *Biosafety in Microbiological and Biomedical Laboratories (BMBL)*, published by the Centers for Disease Control and Prevention (cdc.gov/biosafety/publications).

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 cabinet is in use

Start-up

- Turn off UV light (if included on your cabinet)
- Slowly raise the sash until the bottom of the sash aligns with the sash indicator decal located on the left side of the work area (Fig. 5-5)
- Turn on the light and cabinet blower if the automatic features have not been enabled
- Check the air grilles for obstructions
- Allow the cabinet to operate until the Home Screen is shown



Warm up Screen



Home Screen

5: Using The Cabinet

- Wash hands and arms thoroughly with germicidal soap
- Wear appropriate personnel protective equipment (PPE)

Wipe-Down

- Raise the sash to its full open position (approximately 21.75 inches or 552 mm). Mute the alarm by pressing [OK/MUTE]
- Wipe down the interior surfaces of the cabinet with 70% ethanol, or a suitable disinfectant, and allowed to dry

Loading Materials and Equipment

- Only load the materials required for the procedure. Do not overload the cabinet
- Do not obstruct the front, side, or rear return air grilles
- Large objects should not be placed close together
- Slowly close the sash until it is in the correct operating position
- After loading the cabinet, wait two to three minutes to purge airborne contaminants from the work area

Work Techniques

- Keep all materials at least 4 inches (100 mm) inside from 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
- Arrange materials to minimize the movement of contaminated materials into clean areas
- Keep all discarded contaminated material to the rear of the work area
- Avoid moving materials or the operator's hands and arms through the front access opening during use
- Avoid the use of an open flame. Use disposable labware or an electric incinerator as alternatives
- Use proper aseptic technique
- Avoid using techniques or procedures that disrupt the airflow patterns of the cabinet
- If there is a spill or splatter during use, all objects in the cabinet should be surface decontaminated before removal. Thoroughly disinfect the working area of the cabinet WHILE IT IS STILL IN OPERATION, to prevent the release of contaminants from the cabinet

5: Using The Cabinet

Final Purging

- Upon completion of work, the cabinet should be allowed to operate for two to three minutes undisturbed, to purge airborne contaminants from the work area

Unloading Materials and Equipment

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

Wipe-Down

- Wipe down the interior surfaces of the cabinet with a suitable disinfectant, or 70% ethanol, and allowed to dry
- Periodically lift the work surface and wipe down the area beneath it
- Inspect and clean the towel catch located at the rear of the work area, beneath the work surface
- Dispose of rubber gloves appropriately, and have lab coat laundered properly
- Wash hands and arms thoroughly with germicidal soap

Shutdown

- Lower the sash to turn off the light and cabinet blower and activate the UV light if appropriate

6: Maintaining the Cabinet

The common service operations necessary to maintain the cabinet for peak performance are listed below.

This manual covers operation and maintenance operations for the owners/users of the Cabinets. Complete certification procedures, service operations and specifications are published in a separate publication *Technical Manual: Purifier® Logic®+ Cabinets Second Generation*. This manual is available from Labconco's website labconco.com. A complete certifier service kit is available to qualified certifiers from Labconco. Call Labconco's Product Service Department at (800) 821-5525 or +1 (816) 333-8811.



Do NOT contact blower wheel while still in motion.

NE PAS être en contact avec la roué du ventilateur tant qu'il est en marche.

6: Maintaining The Cabinet

Suggested Maintenance Schedule

Activity	Maintenance Frequency		
	Weekly	Monthly	Annually
Disinfect interior surfaces (with suitable chemical disinfectant)	✓	✓	✓
Wipe down interior surfaces after contact time elapsed with 70% alcohol solution	✓	✓	✓
Clean sash glass and UV lamp with suitable glass cleaner	✓	✓	✓
Operate cabinet blower, noting Filter Life percentage in log	✓	✓	✓
Using 70% alcohol solution, wipe down cabinet exterior		✓	✓
Disinfect and lift work surface. Surface disinfect the area beneath with suitable chemical disinfectant		✓	✓
Wipe down area beneath work surface after contact time elapsed with 70% alcohol solution		✓	✓
Check all service valves (if equipped) for proper operation		✓	✓
Check the UV Lamp Hourmeter, noting in log		✓	✓
Check prefilter on top of unit; replace if necessary		✓	✓
Have the cabinet re-certified by a qualified technician			✓

Service Operations

Work Surface Removal:

Note: The work surface must be thoroughly decontaminated before removing it from the cabinet.

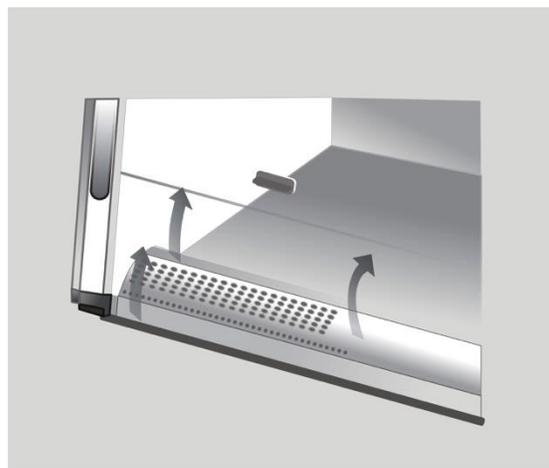
1. Lift the front edge of the work surface straight up by grasping the knob handles at either front corner.
2. Pull the work surface straight out, letting its rear edge rest on the center support underneath.
3. Reinstall the work surface by resting the bottom on the center rail while pushing it back into the cabinet. Be sure to engage the tabs on the back corners of the work surface with the slots on the rear wall of the work area.

Front Grille Removal:

Note: The grille must be thoroughly decontaminated before removing it.

1. Remove the work surface as described earlier.
2. At one end of the grille, grip the front of the grille with one hand, and the back with the other hand. Pivot that end of the grille upward and inward, paralleling the angle of the sash, as shown in Figure 6-1.
3. Pull the other end of the grille up and away from the bottom edge of the cabinet.
4. Reinstall the grille by reversing the above sequence, ensuring that the grille properly engages the bottom edge of the cabinet.

Figure 6-1



6: Maintaining The Cabinet

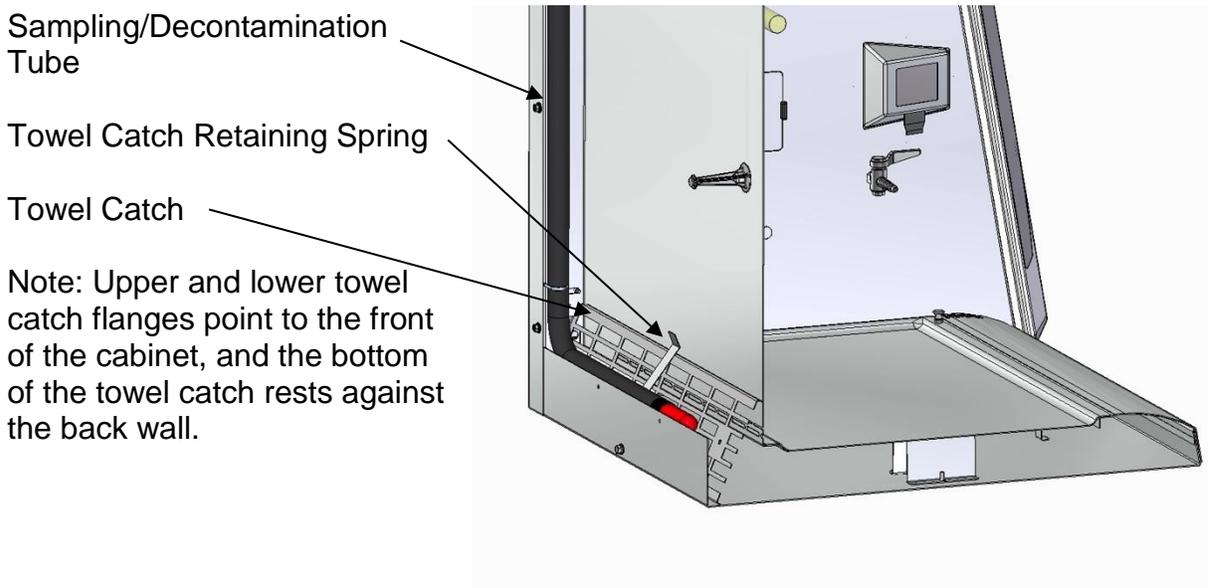
Towel Catch Removal:

Although not normally required, the towel catch can be removed for cleaning, inspection, etc.

Note: The work surface of the cabinet and the towel catch must be thoroughly decontaminated before removing either.

1. Remove the work surface as described above.
2. Remove the towel catch by pivoting the bottom out toward you, as shown in Figure 6-2; it is spring loaded, and you will feel some resistance. Note the orientation of the towel catch.
3. Surface decontaminate the towel catch before removing it.
4. Reinstall the towel catch by sliding it back into position, in the correct orientation. Also ensure that the Sampling/Decontamination Tube (the black tube with an orange cap) rests behind the towel catch, allowing the catch to contact the rear wall of the cabinet.

Figure 6-2



6: Maintaining The Cabinet

Front Panel Removal and Installation:

Figure 6-3

1. Locate and remove the two Phillips screws that secure the front panel as shown. They are located on the bottom corners of the dress panel.
2. Swing the bottom of the dress panel out to clear the LED lamps and then lift the dress panel straight up and away from the cabinet.

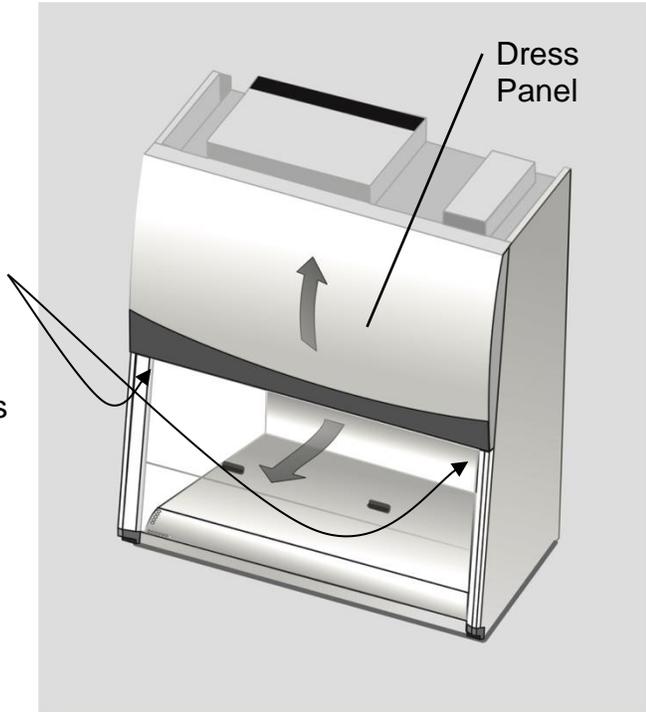
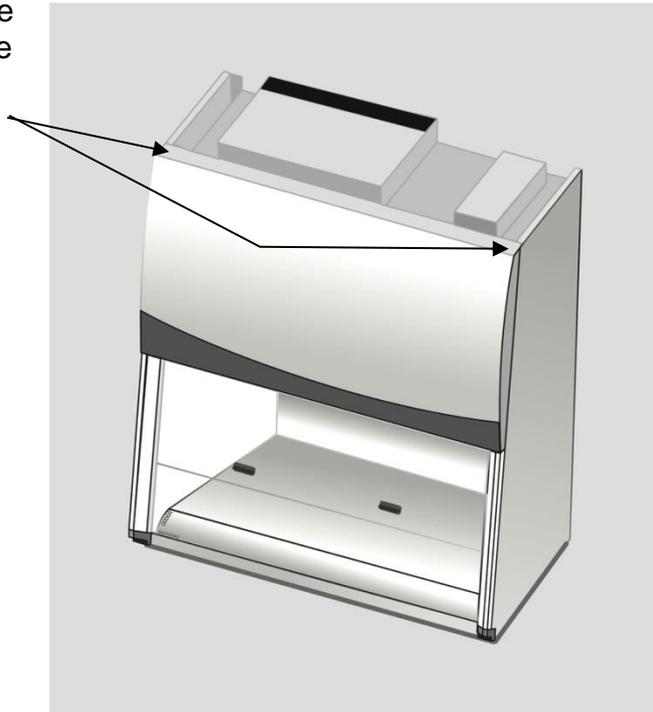


Figure 6-4

3. To reinstall the panel, reverse these steps, ensuring that the plastic pin in the top corners of the dress panel properly engage the corner posts.

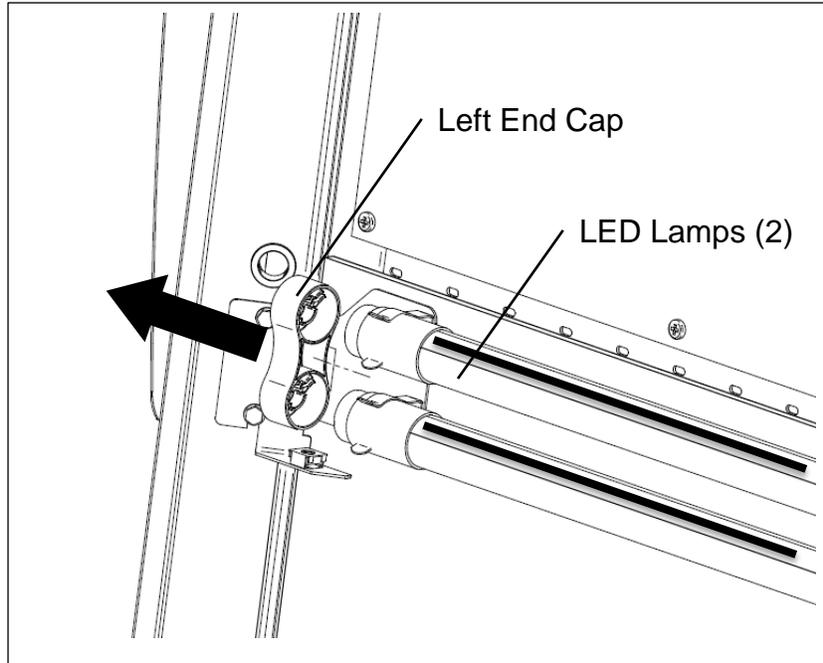


6: Maintaining The Cabinet

Changing the LED Lamps:

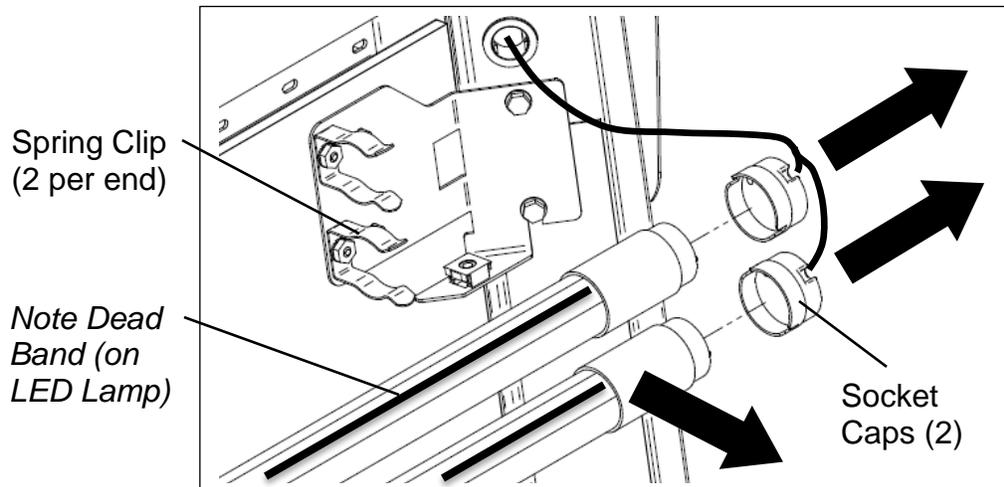
1. Unplug the cabinet or turn off the System Reset Switch located on the top of the cabinet.
2. Remove the front dress panel as noted in Figure 6-3.
3. Locate the Left End Cap that aligns both LED lamps (Fig. 6-5a), remove the Left End Cap by pulling it away from the lamp ends.

Figure 6-5a



4. Remove both Socket Caps (on the right end of each LED lamp) by pulling each Socket Cap straight off the right end of the lamp one at a time (Fig. 6-5b).

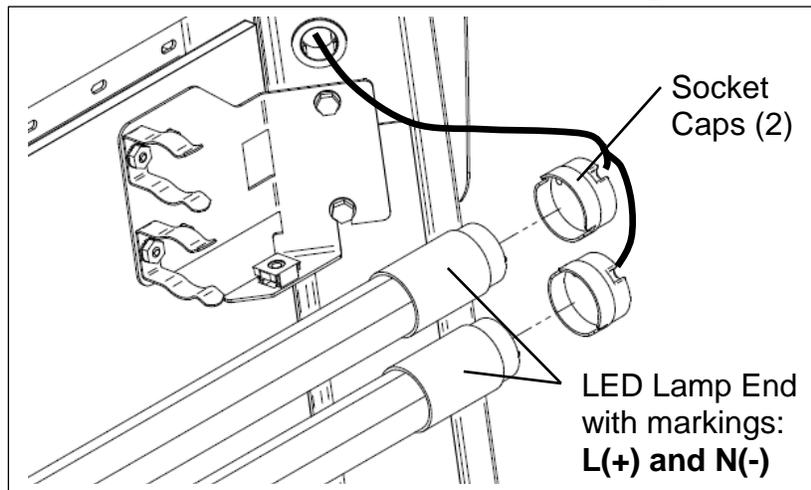
Figure 6-5b



6: Maintaining The Cabinet

5. Pull each LED Lamp straight toward you to release the lamp from the two Spring Clips holding it in place (Fig. 6-5b). Note the rotational position of the old LED lamps (there is a dead band stripe that will need to be oriented the same when reinstalling the new LED Lamps).
6. Install the new LED Lamps by reversing the removal procedure. Take care to look at both ends of the new LED Lamps. One end is labeled with a '+' and '-' and 'L' and 'N' (Fig. 6-5c). This end of the new LED Lamp must go to the right, and is inserted into the Socket Cap.

Figure 6-5c



7. When reinstalling the Left End Cap, the pins on each LED Lamp must align rotationally with the Left End Cap. This ensures the dead band stripe is positioned correctly for maximum cabinet lighting.

Changing the Optional UV Lamp:



THE UV LAMP IN THIS PRODUCT CONTAINS MERCURY

Manage in accordance with local disposal laws. DO NOT place lamps in trash. Dispose as a hazardous waste. For information regarding safe handling, recycling and disposal, consult www.lamprecycle.org

CETTE LAMPE (UV) DANS CE PRODUIT CONTIENT DU MERCURE

Éliminez ou recyclez conformément aux lois applicables. Pour de l'information concernant des pratiques de manipulation sécuritaires et l'élimination sécuritaire et le recyclage, veuillez consulter www.lamprecycle.org

Note: For optimum performance, the UV lamp should be changed as indicated by the UV lamp hourmeter.

6: Maintaining The Cabinet

The UV lamp and the work area of the cabinet must be thoroughly decontaminated before removing the lamp.

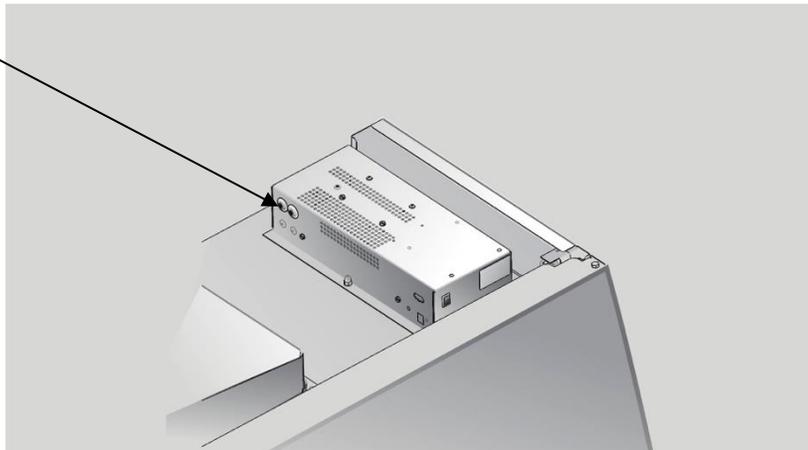
1. Start the cabinet's blower and let it operate for 5 minutes.
2. Raise the sash to its full open position.
3. Thoroughly surface decontaminate the UV lamp and the work area of the cabinet.
4. Unplug the cabinet or turn off the System Reset Switch, located on the top of the cabinet.
5. Remove the UV lamp by rotating it 90 degrees and lifting it straight up and out of its sockets.
6. Install new lamp by reversing the removal procedure.

Resetting a Circuit Breaker:

To reset any of the circuit breakers located on the left side of the electronics module, depress the white button until it sets.

Figure 6-6

Circuit Breakers-
The front breaker
protects the
electrical outlets, the
rear breaker protects
the motor and lights.



Storage

If the cabinet is to be left unused for more than one month, it should be prepared for storage.

Note: The cabinet should not be stored in areas of excess humidity or temperature extremes. If the cabinet is moved during storage, it must be recertified before use.

1. Close the sash completely and seal the bottom edge with plastic sheeting.
2. Seal the exhaust outlet with plastic sheeting.
3. Unplug the cabinet.
4. Ensure that the cabinet will not be moved or disturbed while being stored.

7: Troubleshooting

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

PROBLEM	CAUSE	CORRECTIVE ACTION
Cabinet blower and lights will not start	Unit not plugged into outlet	Plug the cabinet into appropriate electrical service Check connection to control box on top of cabinet
	System Reset Switch is Off	Turn on the System Reset Switch
	Circuit breaker(s) tripped	Reset circuit breakers
	Keypad disconnected or defective	Run keypad diagnostics and check connections
Blower will not start	Sash closed	Raise sash
	Keypad disconnected or defective	Run keypad diagnostics and check connections
	Blower wiring is disconnected	Inspect blower wiring
	Blower motor is defective	Replace blower motor

7: Troubleshooting

PROBLEM	CAUSE	CORRECTIVE ACTION
Light not working	Sash is closed	Open sash – Lights will not work with the sash closed
	Lamp(s) are defective	Replace defective lamp(s)
	Lamp wiring is disconnected	Inspect lamp wiring
	Keypad disconnected or defective	Run keypad diagnostics and check connections
Light is dim or flickering	Fluorescent Lamps installed by mistake	Install LED Lamps
	Lamp(s) are defective	Replace defective lamp(s)
	Lamp wiring is disconnected	Inspect lamp wiring
UV light not working	Sash is open	Close sash – UV light will not work with the sash open
	Lamp is defective	Replace defective lamp
	Lamp wiring is disconnected	Inspect lamp wiring
	Defective lamp ballast	Replace lamp ballast
	Keypad disconnected or defective	Run keypad diagnostics and check connections
UV light is dim or flickering	Lamp is defective or is at end of operating lifetime.	Replace defective or worn out lamp
	Lamp wiring is disconnected	Inspect lamp wiring
	Defective lamp ballast	Replace lamp ballast

7: Troubleshooting

PROBLEM	CAUSE	CORRECTIVE ACTION
Airflow Alert goes off and/or there is a slight decrease in filter life remaining gauge	HEPA filter loading	The gauge reading steadily decreases as the cabinet is used. A very slow decrease (over months) is normal
	Blockage of the return air slots or grille	Check all return air slots and grilles to ensure that they are not blocked or restricted
	Blockage of the exhaust outlet	Ensure that the exhaust outlet is not blocked or restricted
	Blockage or restriction under the work surface	Ensure that the towel catch and plenum beneath the work surface are unobstructed
Exhaust Airflow Check goes off and alarm sounds 30 seconds after the blower is started	Roof blower is off	Ensure that roof blower is working
	Exhaust damper is improperly set.	Ensure that the exhaust damper is properly set by a qualified certifier
	Remote blower is improperly sized	Confirm that the roof mounted blower meets the volume and pressure requirements of the cabinet
	Mechanical failure of the exhaust system	Inspect the exhaust system.
	Obstruction in the exhaust system	Inspect the exhaust system
	Leak or additional 'load' on the exhaust system	Inspect the exhaust system
	Loading of the exhaust HEPA filter Airflow Sensor out of calibration	Replace the Exhaust HEPA filter Have qualified certifier recertify airflows and recalibrate the sensor

7: Troubleshooting

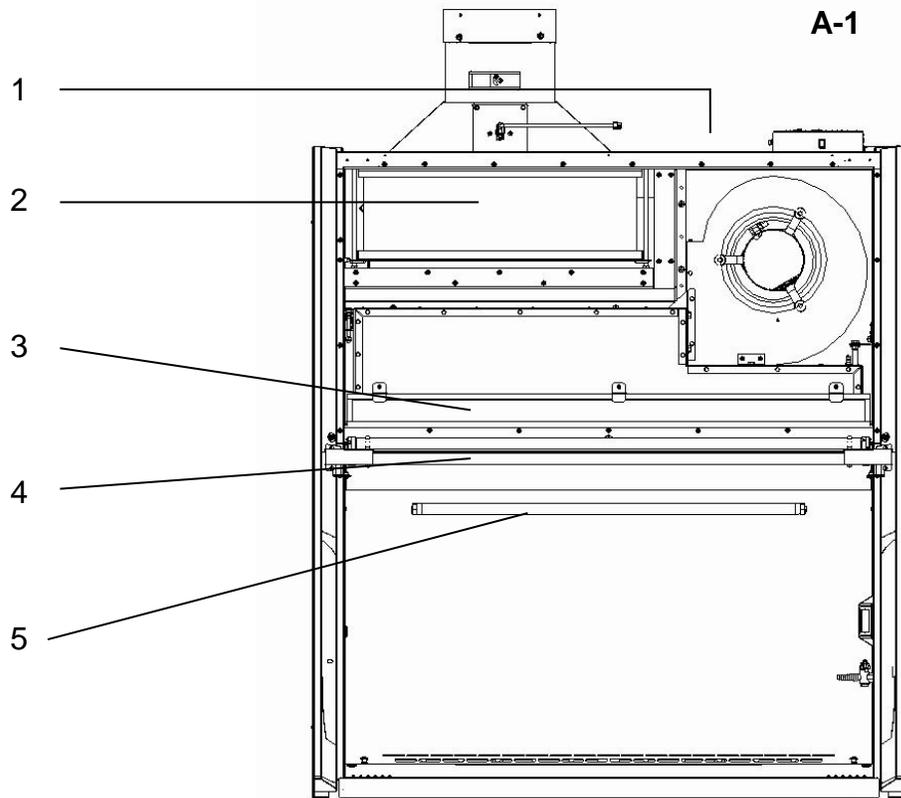
PROBLEM	CAUSE	CORRECTIVE ACTION
Contamination of work in the cabinet	Improper technique or procedure for the cabinet	See <i>Working In the Cabinet</i> section at the end of Section 5 in this manual
	Restriction of the return air slots or grille – blockage of the exhaust outlet	Ensure that all return air slots, grilles and the exhaust outlet are unobstructed
	External factors are disrupting the cabinet airflow patterns or acting as a source of contamination	See <i>Working In the Cabinet</i> section at the end of Section 5 in this manual
	Cabinet is out of adjustment/HEPA filter(s) are defective	Have cabinet recertified. If HEPA filters are defective or damaged, replace them

Appendix A: Components

Illustration A-1 indicates the location of the following service parts, and replacement accessory parts:

Cabinet Replacement Parts

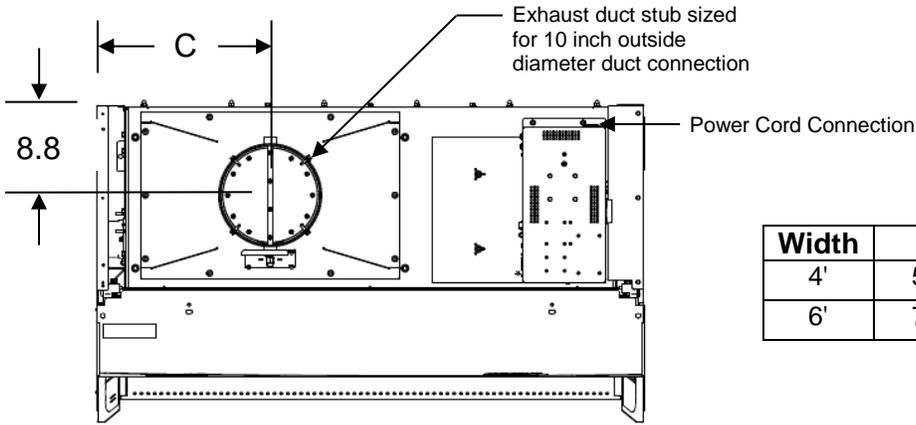
Item	Quantity Required	Catalog Number	Description
1	1	3850500	Pre-Filter for 4 Foot B2 Model
	1	3850501	Pre-Filter for 6 Foot B2 Model
2	1	3438501	Exhaust HEPA Filter 4 Foot B2 Model
	1	3438503	Exhaust HEPA Filter 6 Foot B2 Model
3	1	3838401	Supply HEPA Filter 4 Foot Model
	1	3838403	Supply HEPA Filter 6 Foot Model
4	2	1297504	Lamp, LED, 4 Foot Model
	2	1297506	Lamp, LED, 6 Foot Model
5	1	1271300	Lamp, UV (models with UV light only)



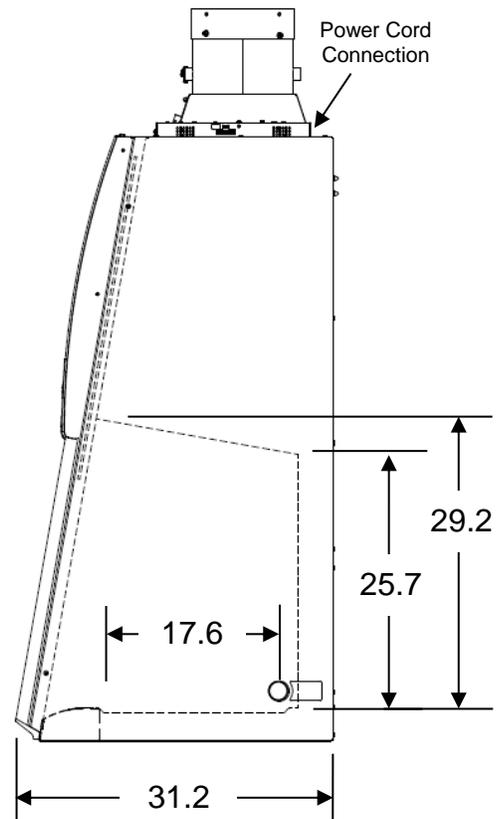
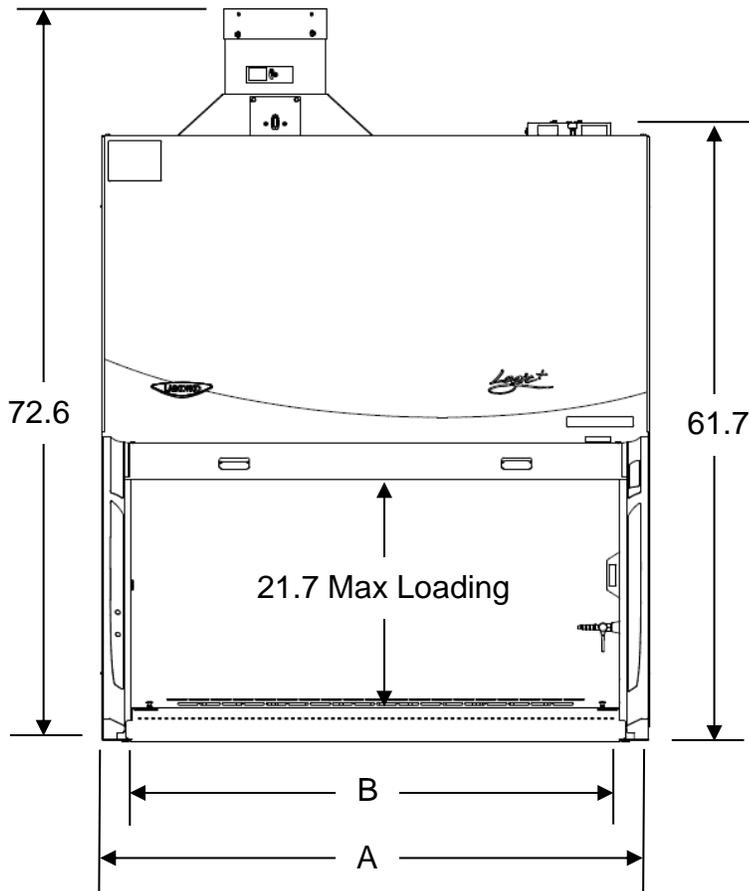
Appendix B: Dimensions

All dimensions are shown in inches.

B-1



Width	A	B	C
4'	54.3	48.5	17.2
6'	78.3	72.5	28.9



Appendix C: Specifications

Electrical Data

Catalog Number	Typical Startup - Operating Current	Electrical Circuit Requirements ¹
3034xxx01	3 A	115 V, 60 Hz, 12 A
3034xxx21	3 A	100 V, 50/60 Hz, 12 A
3034xxx-11, 31, 41, 51, 61, 71	1.5 A	230 V, 50/60 Hz, 6 A
3036xxx01	5 A	115 V, 60 Hz, 12 A
3036xxx21	5 A	100 V, 50/60 Hz, 12 A
3036xxx-11, 31, 41, 51, 61, 71	2.5 A	230 V, 50/60 Hz, 6 A

¹ Electrical Requirements, 'V' = VAC (Voltage with alternating current), 'A' = Amperes

Motor Specifications

Cabinet	Electrical Requirements
All Cabinets, all Voltages	1/2 H.P. Electronically Commutated Motor (ECM) 120-277 VAC – 50/60 Hz, Full Torque – 42 Oz.-Ft (3.56 N-M) 7.7 Full Load Amps @115VAC 4.3 Full Load Amps @230VAC Automatic Thermal Protection

Appendix C: Specifications

Environmental Conditions

- Indoor use only
- 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 $\pm 10\%$ of the nominal voltage
- Transient overvoltages according to Installation Categories II (Overvoltage 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

Appendix D: Accessories

Labconco offers a full line of accessories to enhance your cabinet's operation and usability. For a complete list visit labconco.com.

Appendix E: Quick Chart

Model	30348	30368
Type	B2	B2
Cabinet Size (Feet)	4'	6'
Sash Opening (inches)	8	8
Starting Serial Number ¹	1905	1905
Nominal Avg. Downflow (FPM)	55+/-5	55+/-5
Nominal Average Inflow (FPM)	105+/-5	105+/-5
Supply HEPA Data		
Labconco Catalog Number	3838401	3838403
Exhaust HEPA Data		
Labconco Catalog Number	3438501	3438503
Concurrent Balance Values²		
Traverse Exhaust Volume (CFM)	852	1265
Differential Pressure (in. H ₂ O)	1.8	2.2
Motor/Blower Data		
Labconco Catalog Number ³	3331104	3331105
Motor HP	1/2	1/2
LED Lamp/UV Lamp Data		
LED Lamps (2 each) ⁴	KT-LED 15T8-48GC-840-D	KT-LED 32T8-72GC-840-D
Color (°K)	4000	4000
Lumens	1850	3200
Glass Type	Frosted	Frosted
UV Lamp	G30T8	G30T8

1. The primary serial tag is on the lower right edge of the front dress panel. The secondary serial tag is located on the front of the electronics module on the top right side of the cabinet. The first two digits of the serial number are the year of production; the next two are the month. The next 5 digits are the sequence of production, and the letter following the serial number is the revision level of the cabinet.
2. These values equal the Concurrent Balance Values (CVB) published by National Sanitation Foundation International (NSF).
3. Each motor must be programmed by Labconco for the appropriate width cabinet.
4. THIS PRODUCT USES DIRECT DRIVE T8 LED LAMPS INSTEAD OF FLUORESCENT LAMPS. THERE IS NO BALLAST; LINE VOLTAGE IS SUPPLIED TO THE LAMP SOCKETS.



DO NOT INSTALL FLUORESCENT LAMPS!

FOR REPLACEMENT LED LAMPS, CONTACT THE PRODUCT SERVICE DEPARTMENT AT (800) 821-5525 or +1 (816) 333-8811.