User's Manual

Purifier® *Logic*™ Series
Biological Safety Cabinets

Models

34300 Series	**34500 Series**
34308 Series	**34508 Series**
34400 Series	**34600 Series**
34408 Series	**34608 Series**

To receive important product updates,
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*Protecting your
laboratory environment*
LABCONCO®

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TYPE

A2

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.

- Purifier® Logic™ 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 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.

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

The Biosafety 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 Chapter 4: Performance Features and Safety Precautions before you begin working in the cabinet. Even if you are an experienced biosafety cabinet user, please review *Chapter 5: Using the Cabinet*; it describes the Biosafety Cabinet's features so that you can use it efficiently.

This manual and other technical information is available in PDF format at our website: www.labconco.com.

Chapter 2: Prerequisites

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

- Location requirements.

- Electrical power requirements.

- Exhaust requirements.

- Service utility requirements.

- Space requirements.

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

Space Requirements

The dimensions for the Logic A2 Biosafety Cabinets are shown in Appendix B: Dimensions.

Clearance

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

Location Requirements

Note: The Biosafety 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 Biosafety Cabinet.

Figure 2-1

Preferred location

Air register blocked or redirected
to prevent cabinet disruption

Alternate location
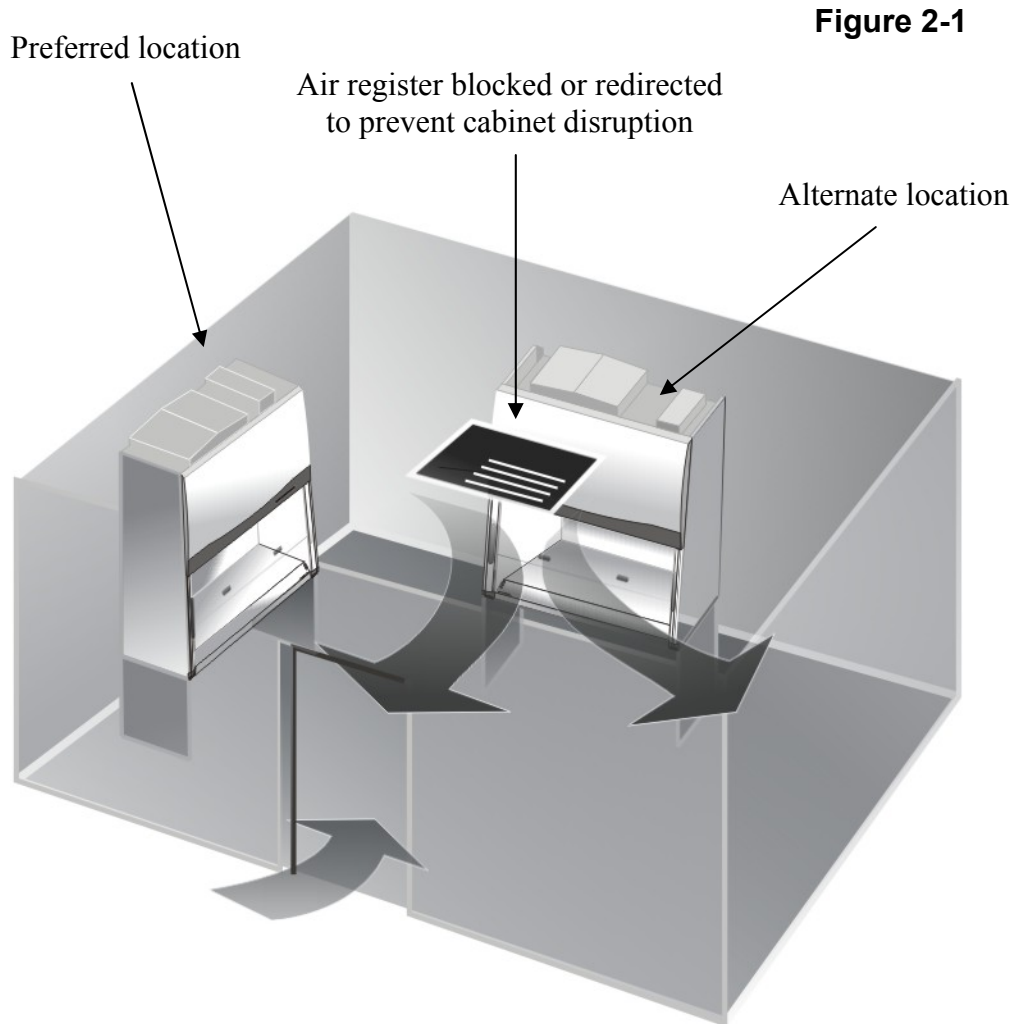
Exhaust Requirements

If you intend to connect the Biosafety Cabinet to the optional Canopy Connection Kit, first examine the location 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 accommodate a 10-inch diameter duct. Avoid cabinet locations that require an elbow directly above the cabinet's exhaust connection or an excessive number of elbows in the exhaust system. For further information about the cabinet's exhaust system requirements, please refer to Chapter 3: Getting Started.

Electrical Requirements

The different Biosafety Cabinet models have the following electrical requirements:

Table 2-1

Model #	Requirements
3430000-3430009	115 VAC, 60 Hz, 12 Amps
3430800-3430809	115 VAC, 60 Hz, 12 Amps
3430820-3430829	230 VAC, 50/60 Hz, 6 Amps
3440000-3440009	115 VAC, 60 Hz, 12 Amps
3440800-3440809	115 VAC, 60 Hz, 12 Amps
3440820-3440829	230 VAC, 50/60 Hz, 6 Amps
3450000-3450009	115 VAC, 60 Hz, 16 Amps
3450800-3450809	115 VAC, 60 Hz, 16 Amps
3450820-3450829	230 VAC, 50/60 Hz, 8 Amps
3460000-3460009	115 VAC, 60 Hz, 16 Amps
3460800-3460809	115 VAC, 60 Hz, 16 Amps
3460820-3460829	230 VAC, 50/60 Hz, 8 Amps

All Biosafety Cabinets with model numbers ending in –00 to –09 are designed for operation at 115 volts 60 Hz, alternating current. Biosafety Cabinets with model numbers ending in –20 to –29 are designed for operation at 230 +/- 20 volts, 50/60 Hz alternating current.

Note: A dedicated outlet with a circuit breaker rated at 20 amps 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.

Note: On 115 VAC models, both electrical outlets are protected by a ground fault interrupter circuit (GFIC). Labconco does not recommend plugging the Biosafety Cabinet into a GFIC outlet.

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 100 PSI, it must be equipped with a pressure regulator to reduce the line pressure.

Note: The use of flammable gases or solvents should be avoided in the Biosafety 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.

Chapter 3:
Getting Started

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

- Unpack and move the Biosafety Cabinet.

- Install the cabinet.

- Connect the electrical supply source.

- Connect the service lines.

- Connect to an exhaust system (optional).

- Arrange certification of the Biosafety Cabinet.

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

Note: The Biosafety 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.

Note: The side panels must be removed to access the fasteners that secure the Biosafety Cabinet to the pallet. **DO NOT ATTEMPT TO LIFT THE BIOSAFETY CABINET BY THE SIDE PANELS; DAMAGE WILL OCCUR.**

Unpacking the Biosafety Cabinet

Carefully remove the outer carton and inspect the cabinet for damage that may have occurred in transit. If the Biosafety 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 Biosafety Cabinet until all of the components have been checked, installed and tested.

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 on both panels. Swing the front of each panel away from the Cabinet, and lift it straight up to remove the panel from the cabinet.

The following are located in a box underneath the work surface:

- User's Manual
- Drain Valve Assembly and fasteners
- Power Cord
- Product Registration Card

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 the Cabinet

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

Preparing the Biosafety Cabinet for Operation

Installation instructions for the cabinet (Labconco P/N 1056801) are attached to the sash of the Biosafety Cabinet. If these instructions are missing or unclear, contact Product Service at 800-821-5525 or 816-333-8811.

Installing the Biosafety Cabinet on an Existing Work Surface

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

When installing the Biosafety 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.

Installing the Cabinet on a Labconco Base Stand

Labconco offers accessory Base Stands in a variety of configurations to suit the particular needs. Stands can be ordered with adjustable telescoping legs or with a manually or electrically adjustable hydraulic lift.

Telescoping Base Stands

These stands are available with either fixed feet or casters. Adjust the leg height before installing the cabinet on top of the stand. The height can be set in 1-inch intervals between 27.5 to 34.5 inches (699 to 876 mm), providing a Cabinet work surface height from 30.0 to 37.0 inches (762 to 940 mm). The Base Stands for each width Cabinet are listed in Table 3-1 below.

Table 3-1

Width	Base Stand w/Feet Model #	Base Stand w/Casters Model #
3'	3730300	3730310
4'	3730400	3730410
5'	3830500	3830510
6'	3730600	3730610

1. Before positioning the Telescoping Base Stand in its final location, adjust the height. A plastic bag containing the mounting bolts for the Biosafety Cabinet is shipped with the base stand. Remove and save it.

2. Select the height of the stand and slide four (4) leg extensions into base stand corner posts and attach with 2 ¼ inch long bolt, flatwasher, lockwasher and nut. Ensure that the same height hole is selected for each leg. Tighten the leg bolts securely. See Figure 3-1.

Figure 3-1

Remove these four nuts and bolts to change the height of the base stand.
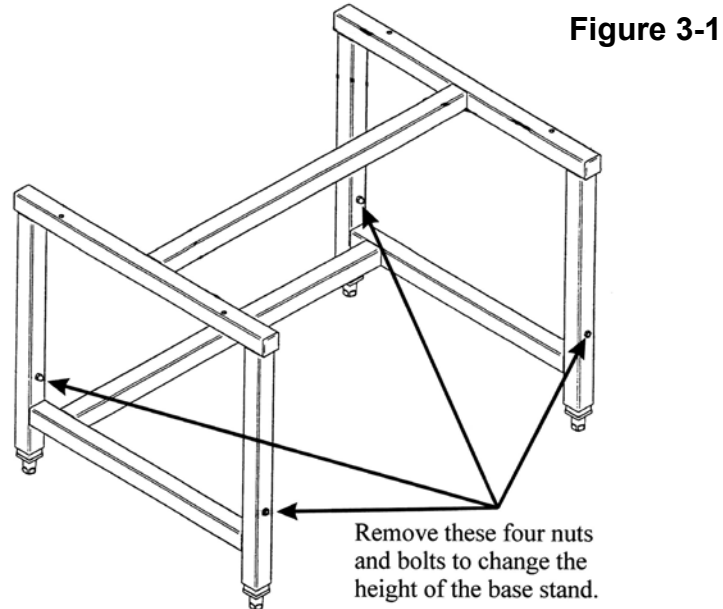
3. **CAUTION:** Only lift and support the weight of the cabinet at the stainless steel sides and back. Damage will occur if lifted or supported on the front edge. Move the base stand into its final location. Using a carpenter's level, adjust each leveling foot until the stand is level in both planes as shown in Figure 3-2. You are now ready to lift the Biosafety Cabinet onto its stand.
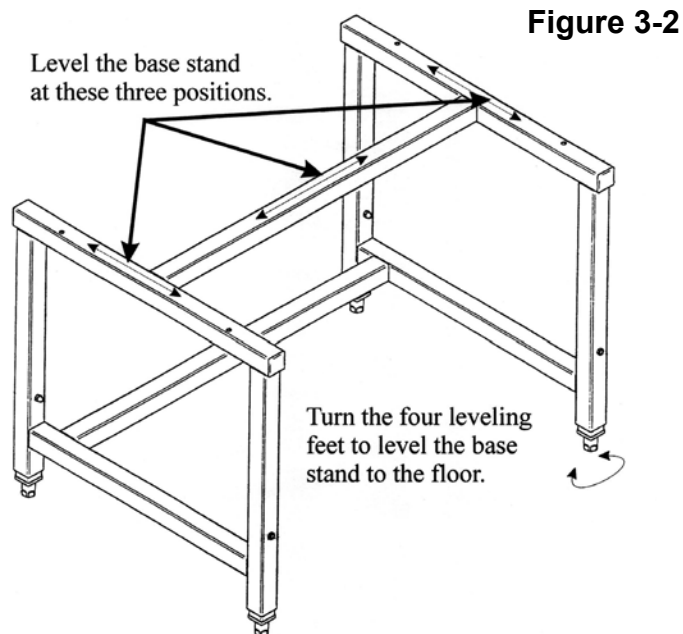
Figure 3-2

Level the base stand at these three positions.

Turn the four leveling feet to level the base stand to the floor.

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 by a manual (hand crank) or electric pump that drives hydraulic rams in the legs of the stands. All of the hydraulic stands are equipped with fixed feet, but can be converted to caster wheels with the addition of Caster Kit #3784000. The Base Stands for each Cabinet model is listed in Table 3-2 below.

Table 3-2

Width	Manual Lift Stand #	Electric (115V) Lift Stand #	Electric (230V) Lift Stand #
3'	3780200	3780100	3780103
4'	3780201	3780101	3780104
5'	3780203	3780106	3780107
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.

Connecting the Biosafety Cabinet to Utility Service Lines

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

1. Ensure that the tubing is ¼ 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 ¾ to 11 ¼ 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. Look inside the fitting to make sure the tube ferrule is there.

4. Push the tube into the fitting until it is properly seated. The tube will go approximately ¾ inch (19 mm) into the fitting.

5. Tighten the tube fitting nut hand tight and then, using a 7/16-inch wrench, tighten it at least ¾ turn more.

6. Close the service valve in the Biosafety Cabinet and then slowly open the shutoff valve on the service valve. Test all fittings for leakage. Tighten the tube nut slightly if needed.

Figure 3-3

Tube fitting nut

Tube fitting
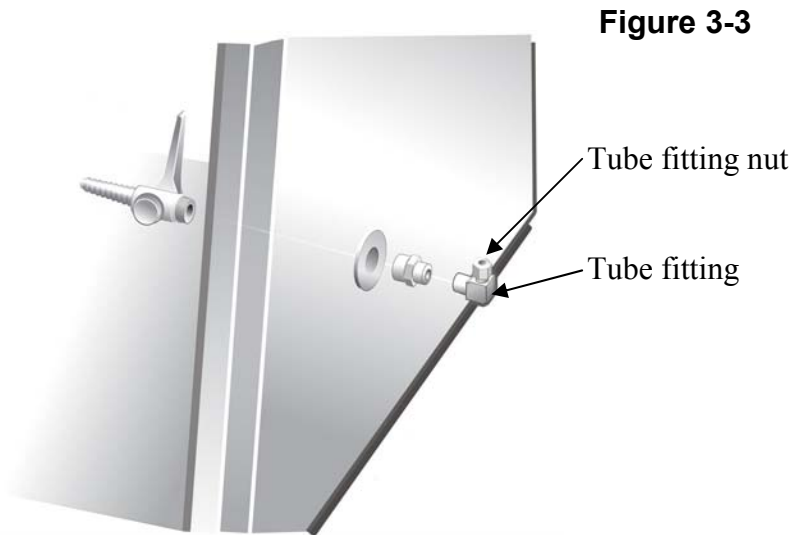
Optional Exhaust System Connections

All Class II, Type A2 Biosafety Cabinets are shipped to recirculate their HEPA filtered exhaust air back into the laboratory.

Certain applications such as working with odorous products or volatile toxic materials will require the connection of the Biosafety Cabinet to an exhaust system.

Note: The canopy connection, also referred to as a thimble or air gap connection, allows single or multiple biohazard cabinets to be connected to an exhaust system. During operation, the exhaust system draws all of the cabinet's exhaust air, plus a volume of room air (through the slots in the canopy) into the exhaust duct. Canopy connections function as a "shock absorber" allowing the system to function properly during changes in room air pressure.

For information on selecting a canopy connection, go to *Chapter 7: Accessorizing the Cabinet.*

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

Drain Valve Installation

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. Lift the work surface out of the Biosafety 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.

2. Using a putty knife, remove and discard the stainless steel cover that is sealed over the drain mounting holes. Scrape out remaining sealant that is around the holes.

3. 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 3-4. Wipe off any excess sealant from the cabinet bottom. Ensure that the center drain hole is unobstructed.

4. Make sure the drain valve is in the closed position.

5. Reinstall the work surface.

6. Allow the silicone sealant to cure for at least eight hours before exposing it to liquid.

Figure 3-4

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 Biosafety Cabinet liner.
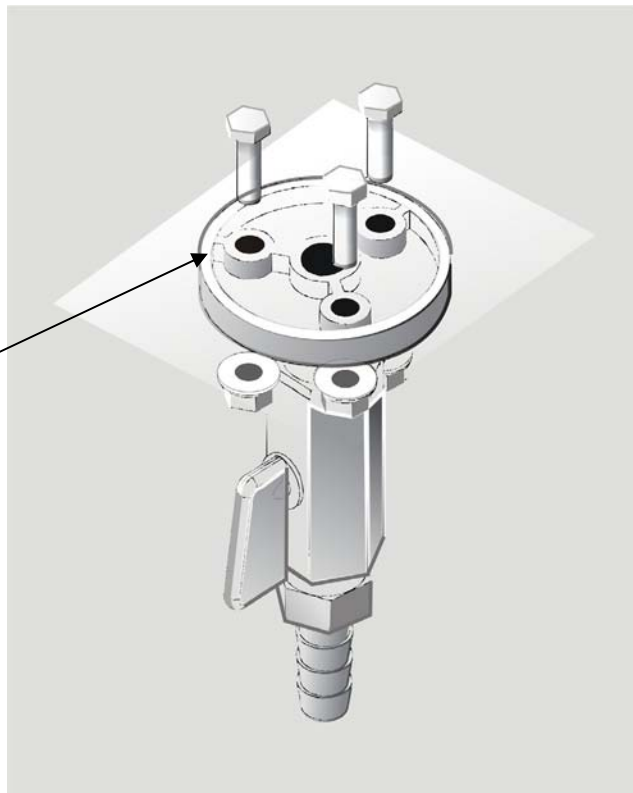
Initial Certification

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

- Downflow Velocity Profile Test

- Inflow Velocity Test

- Airflow Smoke Patterns

- HEPA Filter Leak Test

- 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 need assistance in locating one, contact Labconco's Product Service Department at 1-800-522-7658 or 816-333-8811.

Chapter 4:
Performance Features and Safety Precautions

All Purifier Series Logic Biosafety 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 Biosafety 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 held in place by aluminum diffusers or 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 Logic Series Cabinets are at least 99.99% efficient in removing particles 0.3 micron.

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

Polyurethane seal
Between media pack
and filter frame

Filter frame

Filter media pack –
A continuous sheet
of filter media
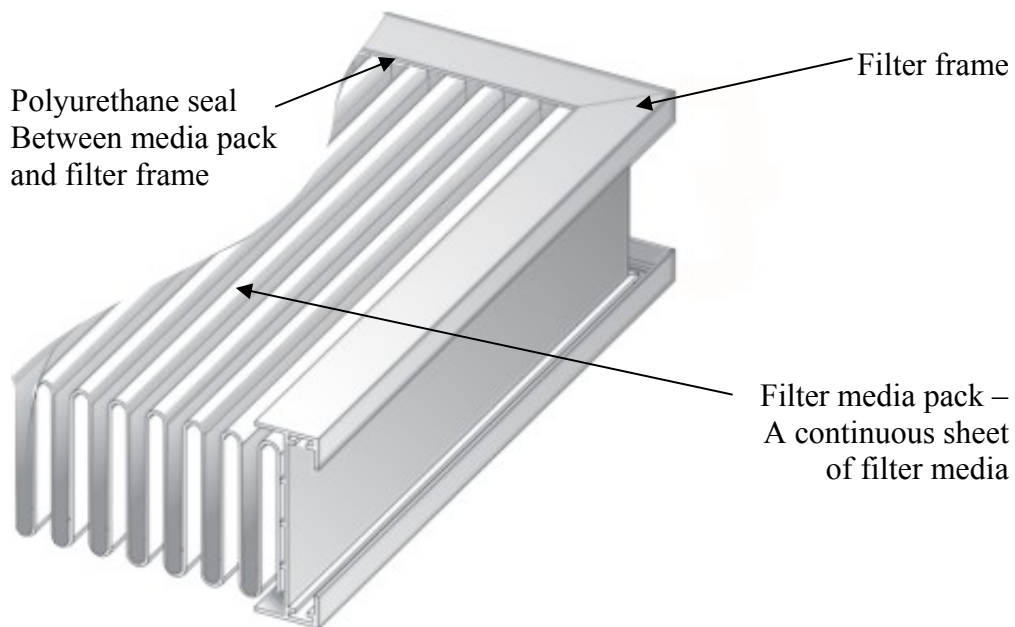
ULPA Filters

Optional ULPA filters may be used to replace the standard HEPA filters in the Purifier Logic Series Biosafety Cabinets. 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 illustrated in Figure 4-2.

Figure 4-2

Directional Airflow

Directional airflow also plays a key role in biosafety 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
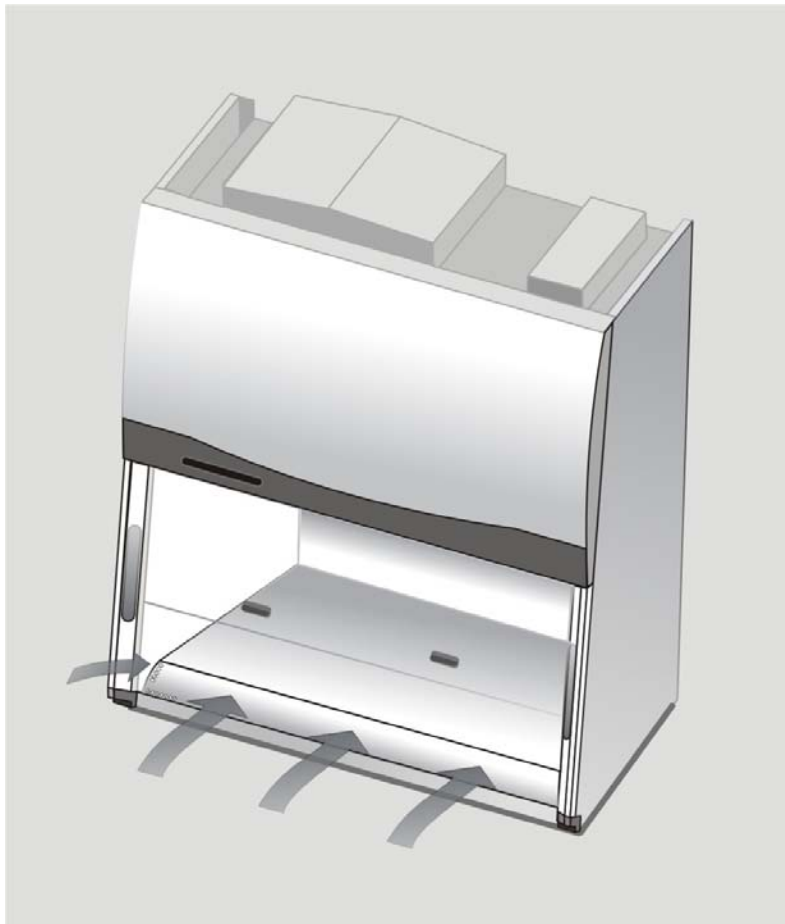
Motor/Blower

The motor/blower assembly pulls room air into the front of the cabinet, and re-circulates 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 Purifier Logic Series 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 is preprogrammed to deliver a consistent volume of air, even as the HEPA filters load over time.

Figure 4-4
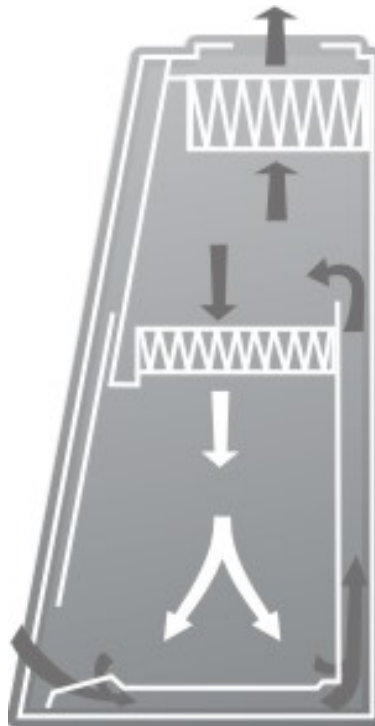
Cabinet Air Intakes (Grilles), Ductwork and Air Balance Controls

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

Note: Never block or obstruct the grilles of the Biosafety Cabinet.

The internal ductwork of the Biosafety 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 Biosafety 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 with a wavelength of 254 nm 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 Logic 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 facilities Health and Safety Officer at your facility for UV light use and recommendations.

Safety Precautions

WARNING: The Biosafety Cabinet Biohazard 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. Do not assume that filter integrity and airflow performance have not been compromised during shipping.

Some internal components of the Biosafety 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 816-333-8811.

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 Biosafety Cabinet from electrical service.

Avoid the use of flammable gases or solvents in the Biosafety 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 Biosafety 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 Biosafety 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 816-333-8811 for re-certification information.

The HEPA filters in the Biosafety 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.

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 Biosafety 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 Biosafety Cabinet for a long period of time. Free chlorine will corrode stainless steel after extended contact.

The electrical receptacle cover may be removed to facilitate surface decontamination. In the event of gross contamination, the cover should be removed, sterilized and/or decontaminated as required and discarded. Order Replacement Receptacle Cover #1287900. See *Appendix A: Components* for a list of service parts.

Biosafety 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.

Chapter 5:
Using the Cabinet

System Reset Switch

The Biosafety 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

The System Reset
Switch
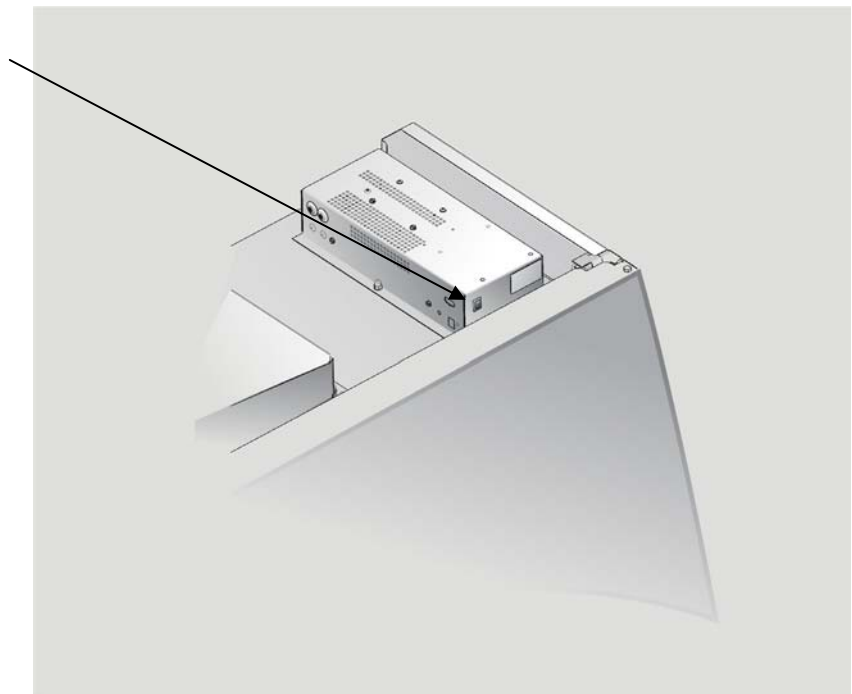
Information Center

The Information Center is an LCD display located on the right side wall at eye level. The center's display is divided into three separate areas, as shown in Figure 5-2, below. The display will turn itself off one minute after the blower is turned off or the sash is closed.

Figure 5-2

Status Area

Data Area

Icon Area

OK

0%   100%

Filter Remaining   90%
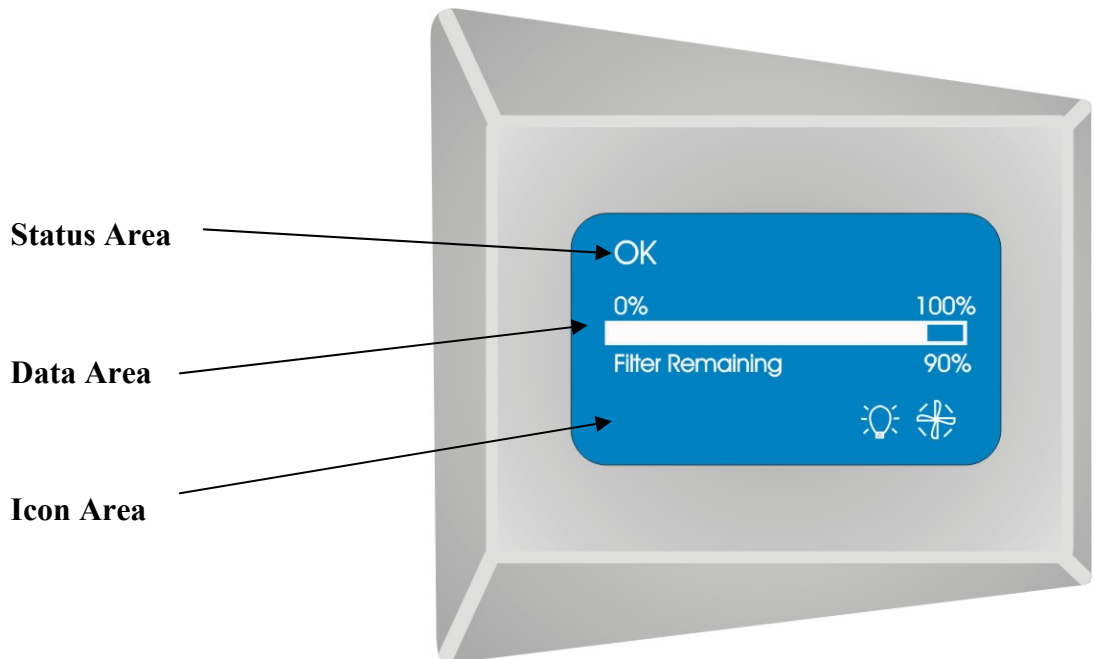
Status Area

The Status Area displays the system's condition during operation. This line can display any of the following messages:

Blower Off
> The cabinet blower is shut off.

Please Wait
> For three minutes after the cabinet blower is turned on, the display will say this, to allow the cabinet to reach proper operating conditions.

OK
> The motor is operating properly, and the sash is not open too far.

Night-Smart™
> If the Night-Smart mode is selected, as outlined later in the chapter, this message will appear for one minute after the sash is closed, and then the display will automatically shut off.

Sash is too high
> The sash is open too far for safe operation.

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.

System Error
> The motor and display circuit board are not communicating properly. DO NOT USE THE CABINET UNTIL THE PROBLEM HAS BEEN CORRECTED.

Data Area

The Data Area displays the Filter Gauge. This bar graph displays the percent of remaining filter life. When the cabinet is new, or after the HEPA filters are replaced, the gauge will be "full", or display approximately 100%. As the filters load, or if the grille or exhaust discharge are blocked, the bar graph will show a reduced filter life.

The graph is user-selectable as a bar graph with percentage displayed, a bar graph only, or a semi-circular graph showing filter life remaining.

Various factors such as temporary obstructions to airflow, temperature and barometric pressure can cause the displayed percentage to vary slightly. Ignore short term changes in the Filer Gauge's value. As the Filter Gauge approaches 20% remaining capacity, consider having the cabinet filter replaced.

When the optional airflow sensor is installed and calibrated, the inflow and calculated downflow velocities are also displayed during operation.

Icon Area

The Icon Area displays icons for those features selected or in operation. The Icons are:

Normal blower operation –
> In this mode the cabinet blower is operating normally.

Night-Smart^{TM} **blower operation**
> When Night-Smart is selected, the blower slows to idle speed when the sash is closed, to maintain the cleanliness of the air in the work area. When the sash is opened, the blower resumes normal operation.

Fluorescent light

> In this mode the fluorescent lights are operating. When the sash is fully closed, the fluorescent lights automatically turn off.

UV light

> In this mode the UV (germicidal) light is operating. When the sash is fully closed, the UV light can be programmed to automatically turn on. When the sash is raised, the light automatically turns off, to protect the laboratory from UV irradiation.

Timer

> When either the interval or stopwatch timer mode is active, this icon appears.

Security Lock

> When the security lock is activated the keypad does not respond to any buttons until the proper sequence of keystrokes is entered.

Mute

> When this icon is on, the audible alarm is muted for approximately 5 minutes.

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 Biosafety Cabinet has been programmed to operate at either an 8- or 10-inch (203-254 mm) sash opening, depending on model. Raising the sash above its operating height will activate the audible and visual alarms. The audible alarm can be temporarily muted (for approximately five minutes) by depressing and releasing the Mute/OK button. Closing the sash back to its operating position will reset the alarm and defeat the muting of 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 Biosafety Cabinet

1. To start the Biosafety 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 5-3.
2. Press the blower button to start the unit. The unit will run a self-test for approximately 15 seconds. Additionally, you will be instructed to "Please Wait" for three minutes to allow the cabinet to reach proper operating conditions. If the alarm sounds, recheck the sash position. If the sash is too high, the sash audible alarm and the LCD display will indicate the sash is too high.
3. To turn the UV light on, the sash must be completely closed to prevent the escape of any UV radiation. Push the UV light button to activate the UV light.

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

Figure 5-3

Sash position label
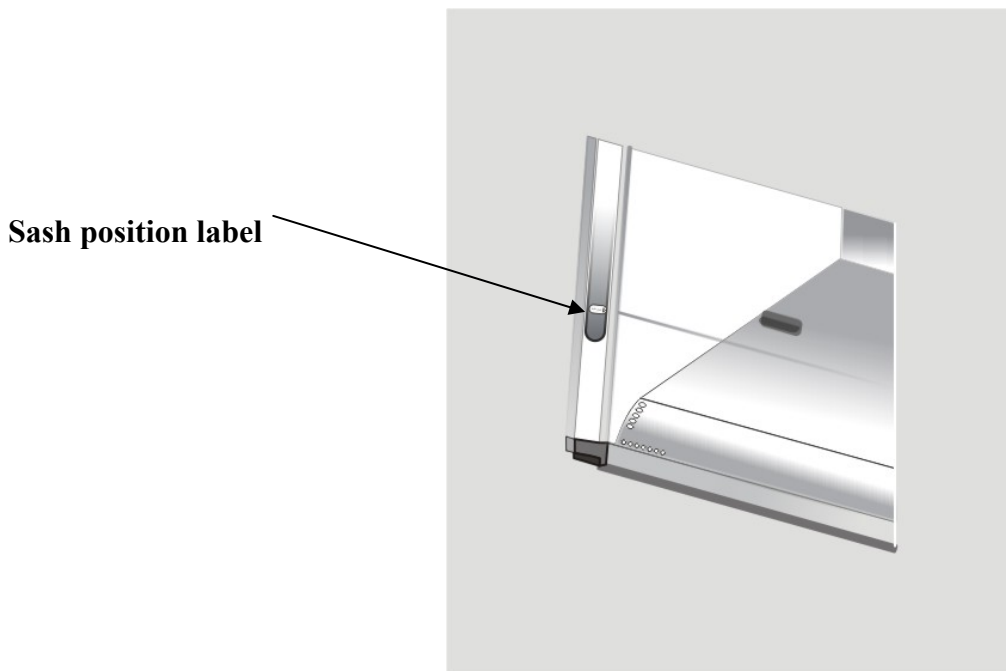
The Logic Touchpad

The touchpad of the Logic Series Cabinet is shown in Figure 5-4. Take a moment to get familiar with the buttons, their location and function. 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 UV light and blower are operational

Figure 5-4

Blower Button – Starts or stops the cabinet blower. When the blower is in Smart-Start^{TM} mode, closing the sash turns the blower off. When the sash is raised, the blower restarts automatically. In Night-Smart^{TM} mode, when the sash is closed, the motor slows to idle to maintain air cleanliness in the work area. When the sash is reopened, the blower resumes normal operation. Pressing this button overrides Smart-Start^{TM} and Night-Smart^{TM} operation.

Light Button – Turns the fluorescent lamps on or off. Closing the sash automatically turns the lights off. When the lights are in Smart-Start^{TM} mode, raising the sash turns the lights on automatically.

UV Light Button – Turns the UV lamp on or off. When the UV lamp is in Smart-Start^{TM} mode, closing the sash turns the light on. When the sash is raised, the light turns off automatically.

Timer Button – Allows you to select either a repeating interval timer, or an elapsed timer (stopwatch).

Mute/OK Button – Mutes all audible alarms for approximately 5 minutes, unless it is a system error alarm. When in the Menu mode, this button is used to select an option.

Menu Button – This button toggles the display between the display and menu modes. When in the menu mode, pressing this button returns you to the previous menu level.

Select Buttons – Allow you to choose different options in the menu mode.

Figure 5-5

Logic Menu Instructions

Press MENU button to access Main Menu…

NOTE: Pressing OK button confirms selection. Pressing MENU button returns to the previous Menu without changing the selection.

Main Menu

▲▼ to choose, OK to select, MENU to escape.

1. UV Lamp Operation → OK →

UV Lamp Operation

▲▼ to choose, OK to select, MENU to escape.
1. SmartStart
2. Manual Touchpad

SmartStart selection activates the UV lamp upon closing the sash.

2. UV Lamp Timer → OK →

UV Lamp Timer

▲▼ to choose, OK to select, MENU to escape.
1. Interval
2. Continuous

→ OK →

UV Interval Timer

▲▼ to choose, OK to select, MENU to escape.

00:00:00

When the Interval Timer selection is confirmed the UV Interval Timer window will appear. With the up/down arrows, select the period of time the UV lamp is to remain lit upon closing the sash. The cabinet need not be attended when UV Interval Timer is selected. If the sash is opened, the UV lamp will turn off. Closing the sash will reset the Interval Timer.

WARNING: It is important that all users be aware the SmartStart UV function is active so that samples are not inadvertently left in the cabinet exposed to UV.

3. UV Maintenance → OK →

UV Lamp Maintenance

▲▼ to choose, OK to select, MENU to escape.

1. UV Lamp Hourmeter → OK →

2. Change UV Lamp Life → OK →

3. Reset UV Lamp Clock → OK →

OK →

UV Lamp Hourmeter

The UV lamp has operated 01 Hours, 5999 hrs. left.

Change UV Lamp Life

▲▼ to change, OK to select, MENU to escape. The life of the UV lamp is 6000 hrs.

Reset UV Lamp Clock

The UV lamp has operated 00 hrs.

MENU

The effectiveness of a UV lamp decreases over its life and must be replaced periodically. If your organization does not have established replacement standards, typically it is suggested that UV lamps be replaced within 6,000 hours of use. (Lamp is approximately 80% of original intensity at 6,000 hours.) When the set time for UV lamp life is reached, the user will be alerted with a message Replace UV Lamp.

4. Light Operation OK →

> **Light Operation**
>
> ▲ ▼ to choose, OK to select, MENU to escape.
> 1. SmartStart
> 2. Manual Touchpad

The SmartStart selection turns the light on and off when the sash is opened and closed. Manual selection places the control of the light through the touchpad control panel.

5. Light Timer OK →

> **Light Lamp Timer**
>
> ▲ ▼ to choose, OK to select, MENU to escape.
> 3. Interval
> 4. Continuous

OK →

> **Light Interval Timer**
>
> ▲ ▼ to choose, OK to select, MENU to escape.
>
> **00:00:00**

When the Interval Timer selection is confirmed the Light Interval Timer window will appear. With the up/down arrows, select the period of time the fluorescent lamps are to remain lit. The cabinet need not be attended when Light Interval Timer is selected. If the sash is closed, the fluorescent lamps will turn off. Opening the sash will reset the Interval Timer.

6. Light Maintenance OK →

> **Light Maintenance**
>
> ▲ ▼ to choose, OK to select, MENU to escape.
>
> 1. Light Hourmeter

OK →

OK →

> **Lamp Hourmeter**
>
> The light has operated 1000 hrs., 5000 hrs. left.

> 2. Change Light Life

OK →

> **Change Light Life**
>
> ▲ ▼ to choose, OK to select, MENU to escape. The life of the light is set at 6000 hrs.

> 3. Reset Light Clock

OK →

> **Reset Light Clock**
>
> The light has operated 00 hrs.

MENU

The fluorescent light intensity will wane with time. This maintenance feature is a convenient reminder to replace the light periodically. Reset the clock when the light is replaced. A reminder will appear on the display when the set Light Life is reached.

7. Blower Operation —OK→

Blower Operation

▲▼ to choose, OK to select, MENU to escape.
1. SmartStart
2. Manual Touchpad
3. NightSmart

The SmartStart selection programs the blower to automatically turn on and off when the sash is opened and closed. The manual touchpad selection operates the blower through the control panel switch.

The NightSmart feature programs the blower to slow down to idle when the sash is closed. This selection allows reduced airflow through the unit when it is not being used, maintaining air cleanliness in the work area.

8. Cabinet Set Up —OK→

Cabinet Set Up

1. Units of Measure —OK→

Units of Measure

▲▼ to choose, OK to select, MENU to escape.
1. Metric (MPS)
2. U.S. (FPM)

2. Security Lock —OK→

Change Security

▲▼ to choose, OK to select, MENU to escape.
1. Non-secure
2. Secure

NOTE: Please read section on Security Lock before selecting "Secure". This feature locks all programmed features and requires knowledge of an access code to unlock.

Cabinet Set Up (cont.)

3. Filter Life Display Options

OK →

Display Options

▲ ▼ to choose, OK to select, MENU to escape.
1. Bar graph with %
2. Bar graph
3. Circle gauge

These options allow you to select how the amount of filter life remaining is displayed. The first two options are a horizontal bar graph, with and without a digital display of the percent of filter life remaining. Option 3 is a semi-circular bar graph display.

4. Data Output Rate

OK →

Rate of Data Output

▲ ▼ to choose, OK to select, MENU to escape.
1. Every second
2. Every 10 seconds
3. Every 30 seconds
4. Every 60 seconds

NOTE: Optional RS-232 interface board must be installed for this option. For data logging or monitoring through an RS-232 or RS-485 connection, select the frequency data is downloaded.

5. Restore Defaults

OK →

Restore Defaults

OK to reset, MENU to escape. All data will be reset except calibration if OK is pressed.

See table of default settings if unsure.

6. Calibration

OK →

Certifier Use Only

Enter password

Only qualified certifiers should calibrate the cabinet's controls.

7. Diagnostic Test

OK →

See "Diagnostic Test" section in this manual.
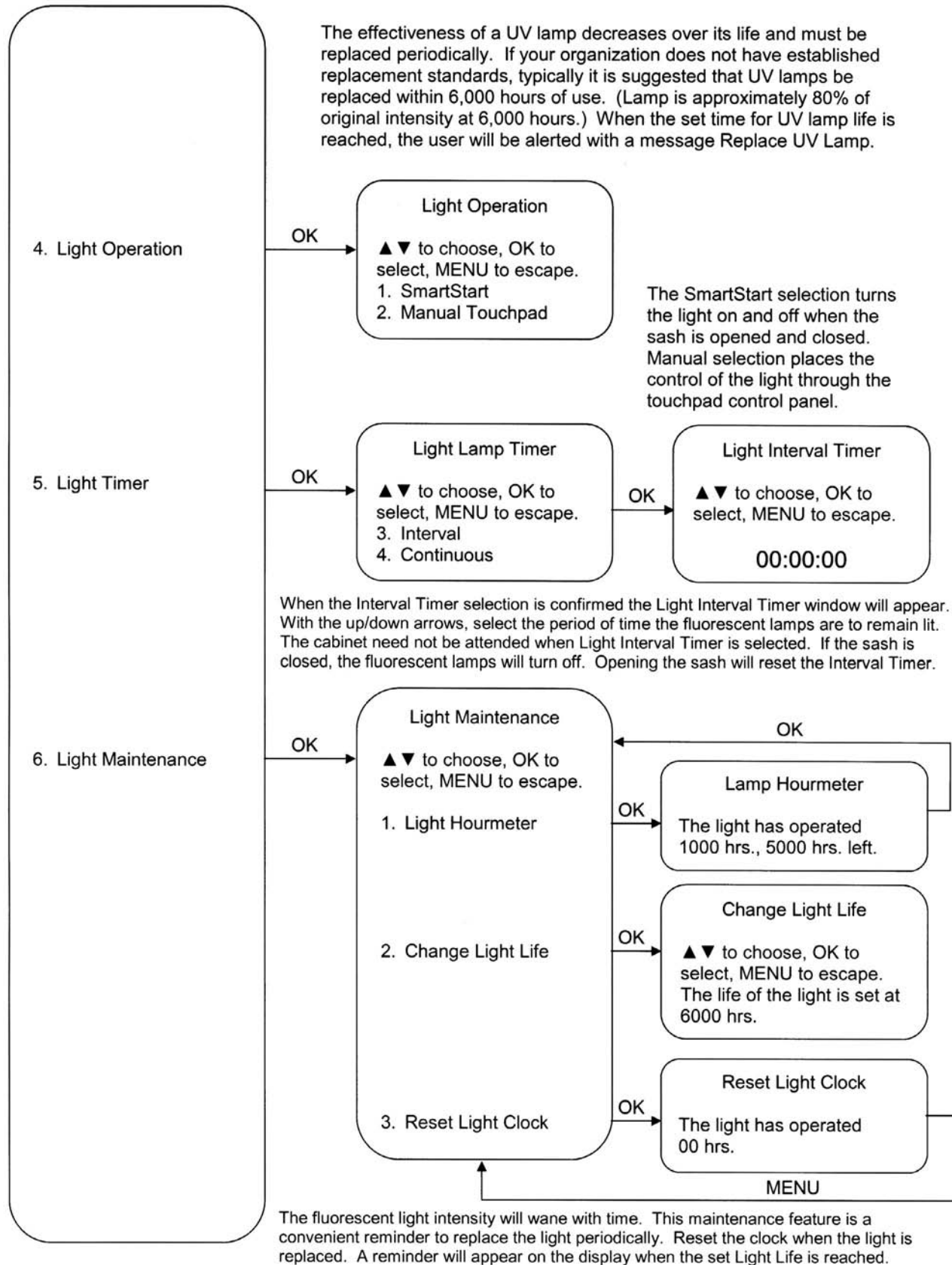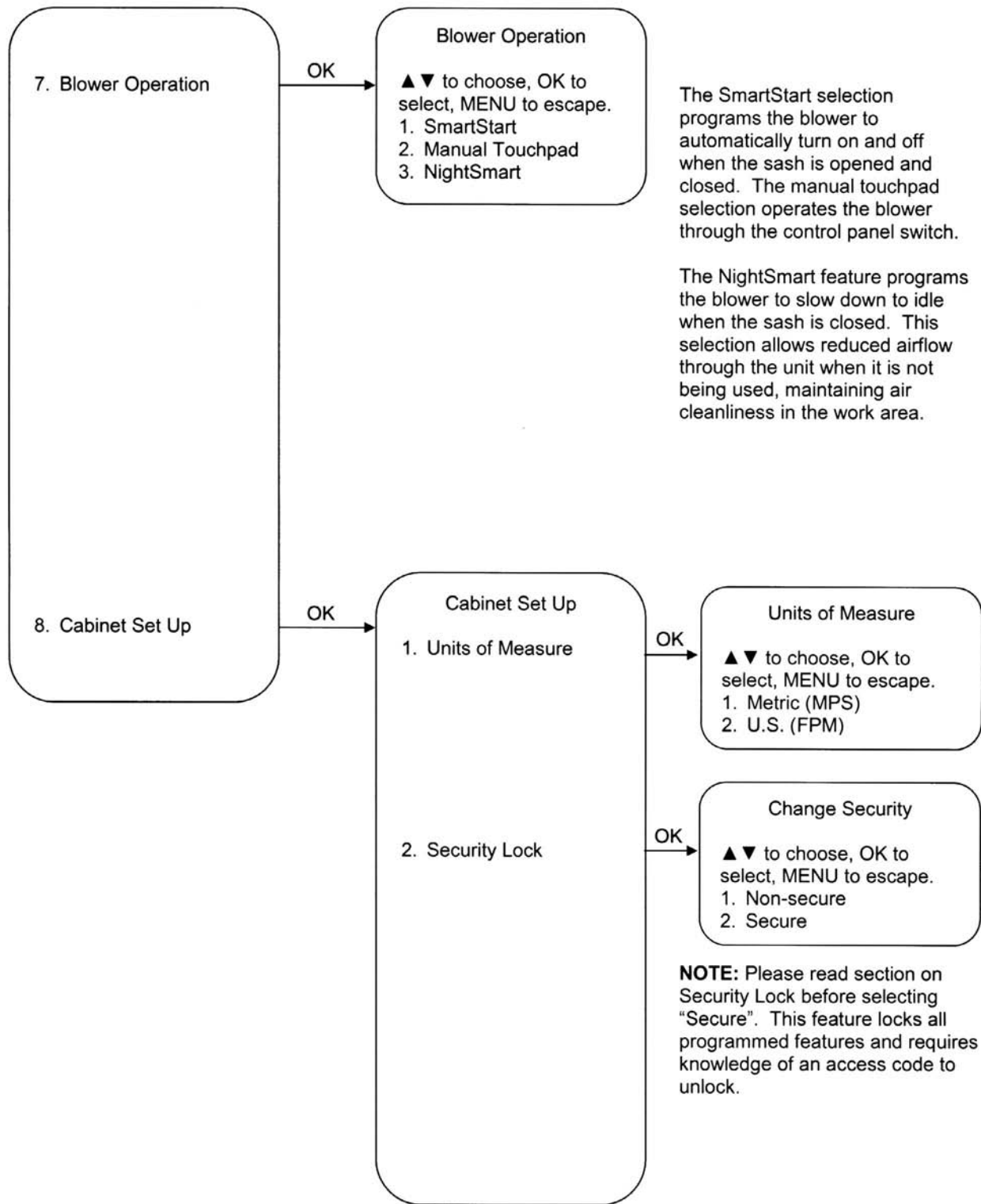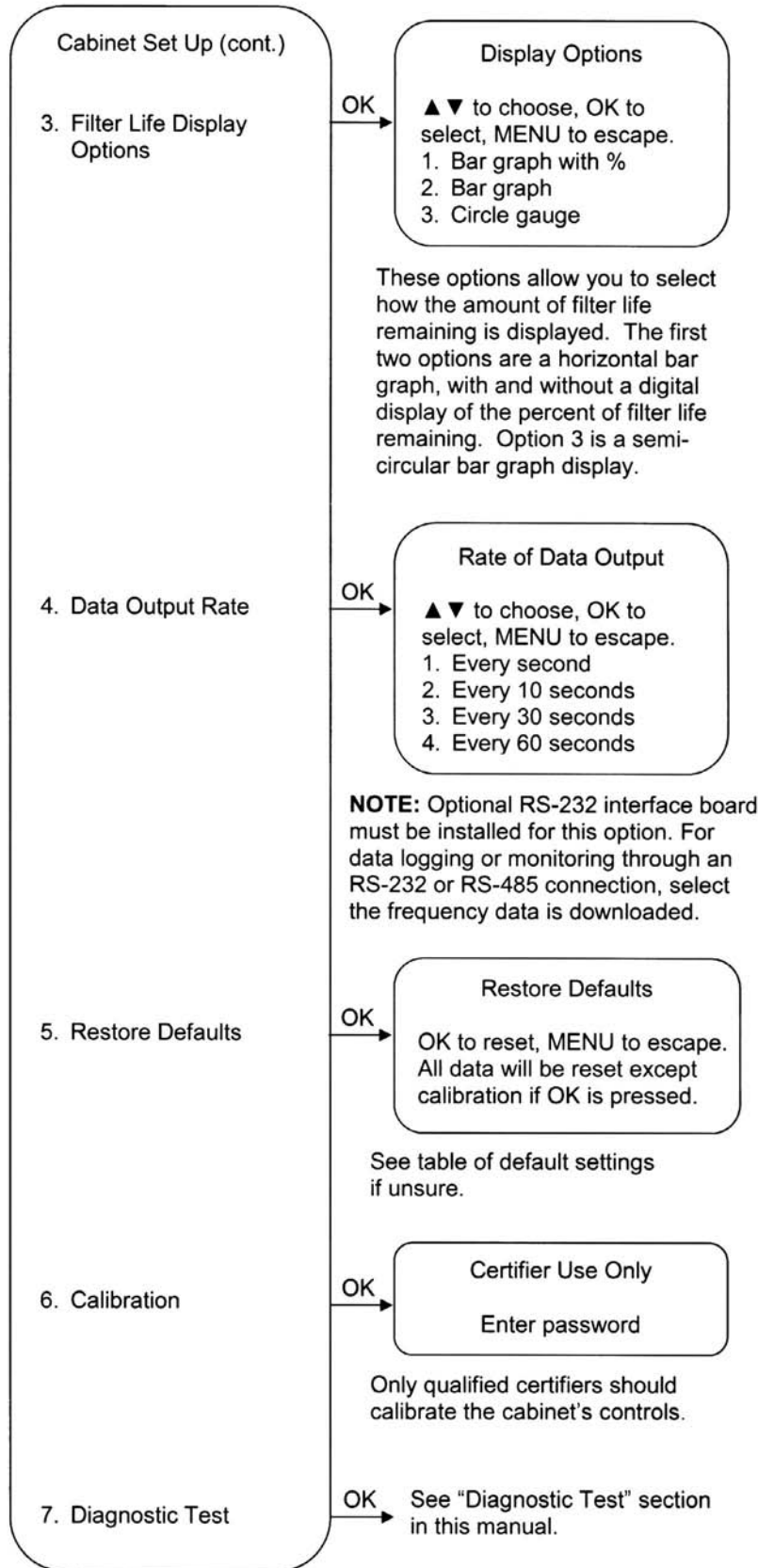
User Selectable Features

The Purifier Logic Series Biosafety Cabinet offers the user unparalleled flexibility and convenience. The operation of the blower, fluorescent and UV lights can either be operated manually, or you may choose to use the Smart-Start™ or Night-Smart™ features that activate functions automatically when the sash is opened or closed.

The UV lamp can be programmed to operate for a given time interval when the sash is closed, before it shuts off.

NOTE: During the first fifteen seconds of operation, the Cabinet performs an auto-diagnostic routine to check the operation of the microprocessor. You cannot access the menu during this time.

NOTE: When you are in the menu mode, if a selection is not made within 30 seconds, the display will reset back to display mode.

NOTE: Pressing the appropriate touchpad button will override Smart-Start™ or Night-Smart™ selections.

To access the menu, press the "MENU" button. The display panel will show the first level menu. To select from the various menu options press the "▲" or "▼" buttons until the selected option is displayed. Press "OK" to accept that option, or press "MENU" to return to the previous menu level.

For further explanation of the menu and its options, please refer to figure 5-4.

Timer Operation

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

To access the main timer menu, press the "Timer" button anytime during normal operation. The main timer menu is shown on the LCD display. Use the "▲" and "▼" buttons to highlight the Interval or Stopwatch Timer. Press the "OK" button to select the highlighted timer function.

Interval Timer Operation

1. When selected, the Interval Timer menu is displayed on the LCD. The timer defaults to 0:00:00 (hours:minutes:seconds).
2. Press and hold the "▲" or "▼" buttons to increase or decrease the timer interval.
3. When the proper interval is entered on the display, press the "OK" button to start the timer.
4. When the timer reaches 0:00:00, an audible alarm will sound, and the timer will reset itself and repeat the countdown .
5. Press the "OK" button to pause the timer.
6. Press the "Menu" button to clear the interval timer and return to the main timer menu.

Stopwatch Timer Operation

1. When selected, the Stopwatch Timer menu is displayed on the LCD. The timer defaults to 0:00:00.
2. Press the "OK" button to start the timer.
3. Press the "OK" button again to zero the timer.
4. Press the "Menu" button to clear the stopwatch timer and return to the main timer menu.

Menu Options

UV Lamp Operation

This menu option allows you to select whether the UV light will turn on automatically every time the sash is completely closed.

Smart-Start

When the "Smart-Start" option is selected, the UV light will turn on every time the sash is closed.

Manual

When the "manual touchpad" option is selected, the UV light must be turned on and off at the touchpad.

UV Lamp Timer

The UV Lamp Timer allows you to decide whether the UV lamp will operate continuously or for a time period that you select.

Interval

When the "Interval" option is selected, the UV Interval Timer menu is displayed.

UV Interval Timer

This window lets you set the amount of time the UV lamp stays lit when activated. Use the "▲" and "▼" buttons to select the amount of time you need, then press the "OK" button to set the interval.

NOTE: Raising the sash will reset the timer to its original setting. Pressing "UV Light" will turn the light off, pressing "Mute/OK" will pause the timer.

Continuous

In the continuous mode, the UV light will remain lit until the "UV Light" button is pressed, or the sash is raised.

UV Lamp Maintenance

This selection allows you to check how many hours the UV lamp has burned. It also allows you to set the number of hours you want the lamp to last, and to reset the UV lamp hourmeter.

UV Lamp Hourmeter

This display only shows how many hours the UV lamp has been lit, and how many hours remain until you will receive a warning to replace the lamp.

Change UV Lamp Life

In this option, you can set the number of operating hours before receiving the replace UV lamp warning. For most UV lamps, the output of UV light decreases at a constant rate. Typically, after 6,000 hours of operation the lamp will output 80% of the UV light it did when it was new. This option allows you to set the warning at a life you prefer, in 100 hour increments.

Reset UV Lamp Clock

This option lets you reset the UV hourmeter to 0 whenever the lamp has been replaced.

Light Operation

This menu option allows you to select whether the fluorescent lights will turn on automatically every time the sash is opened.

NOTE: The fluorescent lights will automatically turn off when the sash is closed, no matter what its setting is.

Smart-Start

When the "Smart-Start" option is selected, the fluorescent lights will turn on every time the sash is opened.

Manual

When the "manual touchpad" option is selected, the fluorescent lights must be turned on and off at the touchpad.

Light Timer

The fluorescent Lamp timer allows you to decide whether the fluorescent lamps will operate continuously or for a limited time period that you select. This may be desired for energy-savings as well as a safeguard for light-sensitive materials or animals.

Interval

When the "interval" option is selected, the Light Interval Timer menu is displayed.

Light Interval Timer

This window lets you set the amount of time for the fluorescent lamps to stay lit once activated. Use the "▲" and "▼" buttons to select the amount of time, then press the "OK" button to set the interval.

NOTE: Closing the sash will reset the timer to its original setting. Pressing "Light" will turn the lights off, pressing "Mute/OK" will pause the timer.

Continuous

In the continuous mode, the fluorescent lights will remain lit until the "light" button is pressed, or the sash is closed.

Light Maintenance

This selection allows you to check how many hours the fluorescent lamps have burned. It also allows you to set the number of hours before replacement and to reset the light hourmeter.

Light Hourmeter

This display only shows the hours the fluorescent lamps have been lit and how many hours remain until you receive a warning to replace the lamps.

Change Light Life

In this option, you can set the hourmeter before you get the replace light warning. For most fluorescent lamps, the output of light decreases at a constant rate. Typically, after 6,000 hours of operation the lamp will output less light than it did when it was new. This option allows you to set the warning at what ever level you prefer, in 100 hour increments.

Reset Light Clock

This option resets the light hourmeter to 0 after the fluorescent lamps have been replaced.

Blower Operation

This selection allows you to choose to operate the blower in Smart-Start, Manual Touchpad, or in Night-Smart modes.

Smart-Start

When the "Smart-Start" option is selected, the blower will turn on every time the sash is opened. When the sash is closed, the blower will shut off.

Manual Touchpad

When the "Manual Touchpad" option is selected, the blower must be turned on and off at the touchpad.

Night-Smart

When the "Night-Smart" option is selected, the blower will turn on every time the sash is opened. When the sash is closed, the blower speed will decrease, to deliver 20-30% of the volume of air during normal operation.

Cabinet Set Up

These selections allow for the customization of the display and the cabinet operation.

Units of Measure

When equipped with the optional airflow sensor, this option allows you to select the air velocity units of measure. When "Metric" is selected, the air velocities will be displayed in meters-per-second. When "US" is selected, the velocities will be displayed in feet-per-second.

Security Lock

NOTE: The security lock automatically reactivates and locks out the keypad every time the blower is shut off, by the keypad or by closing the sash. After the initial auto diagnostic screen is cleared, the security lock reactivates.

The security lock feature prevents operation of the Biosafety Cabinet by unauthorized users. To engage the security lock, access the Security Lock submenu, as described in Figure 5-4. Select the "secure" option, and press the "OK" button. A 'lock' icon appears on the LCD display. Once engaged, the operator must enter the proper sequence of keystrokes to operate the cabinet. The proper sequence to unlock the Security Lock is:

Press the "▼" keypad 3 times within 2 seconds.

After successful entry of the unlock code, the lock icon disappears from the display, and the user has full access to the keypad functions.

To disable the Security Lock, enter the Security Lock submenu and select the non-secure mode. The lock is completely disabled.

Filter Life Display Options

This menu selection determines how the filter life remaining gauge is displayed. When "Bar Graph with %" is selected, the gauge will be displayed as a horizontal bar graph with the filter life remaining shown graphically and digitally. When "Circle Graph" is selected, the gauge is displayed as a semicircular bar graph, including a digital display.

Data Output Rate

Note: This selection will only work if the optional RS-232 board is installed.

This menu option selects the rate that the RS-232 board outputs data. Data can be output at a rate of once per second, once every 10 seconds, once every 30 seconds, or once per minute.

Restoring Software Default Settings

To restore the default settings to their original configuration:

1. Access the Menu, and select "Cabinet Set Up". Press "Mute/OK"
2. In the Cabinet Set Up submenu, select "Restore Defaults". Press "Mute/OK"
3. Press "Mute/OK" again to restore the software defaults. Pressing "Menu" will escape this submenu without restoring the defaults.

Table of Default Settings

UV Lamp:	**Smart-Start, Continuous, Reset UV Lamp Hourmeter, Set UV Lamp Life to 6000 hours.**
Fluorescent Lamp:	**Smart-Start, Reset Lamp Hourmeter, Set Fluorescent Lamp Life to 6000 hours.**
Blower:	**Smart-Start**
Units of Measure:	**Ft / Min**
Security Lock:	**Non-secure**
Data Output Rate:	**Every second via optional RS-232 Board**

Calibration

This selection is for the use of qualified certifiers only to adjust the blower speed, or the display of the filter life remaining gauge.

Diagnostic Test Operation

When the "Diagnostic Test" menu is selected, the LCD allows keypad/hardware testing to help troubleshoot any malfunction.

Keypad Testing

When keypad testing is selected, the LCD shows when each key is pressed, to confirm the touchpad is working. In addition, when the "Light" and "UV Light" keys are pressed, the associated relays are energized, so the lamps should work. The Timer button energizes an auxiliary relay. When "Mute/OK" is pressed, the audio alarm should work. When the "▲" key is pressed, the Airflow Alarm relay is energized. When the "▼" key is pressed, the Blower On relay will be energized. Finally, the sash position switches can be checked in this mode as the LCD displays the sash position information that the controller is receiving.

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 Biosafety Cabinet

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.

- 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.

- Turn on the fluorescent light and cabinet blower if the Smart-Start features have not been activated.

- Check the air grilles for obstructions, and note the filter gauge reading.

- Allow the cabinet to operate unobstructed for 5 minutes.

- Wash hands and arms thoroughly with germicidal soap.

- Wear a long sleeved lab coat with knit cuffs and over-the-cuff rubber gloves. Use protective eyewear. Wear a protective mask if appropriate.

Wipe-Down

- Raise the sash to its full open position (approximately 21.75 inches or 552 mm). Mute the alarm by depressing the "Alarm Silence" switch.

- Wipe down the interior surfaces of the cabinet with 70% ethanol, or a suitable disinfectant, and allow 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 lab ware 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.

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 70% ethanol, or a suitable disinfectant, and allow 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 pan.

- 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 fluorescent light and cabinet blower and activate the UV light if appropriate.

Chapter 6: Maintaining the Cabinet

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

Note: This manual covers operation and maintenance operations for the owners/users of the Logic Biosafety Cabinets. Complete certification procedures, service operations and specifications are published in a separate publication *Technical Manual: Purifier® Logic^{TM} Biosafety Cabinets and PuriCare® Procedure Stations*. This manual is available from Labconco's website: www.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 816-333-8811.

Routine Maintenance Schedule

Weekly

- Using 70% ethanol, or a suitable disinfectant, surface disinfect the inside of the cabinet and the work surface.

- Using an appropriate glass cleaner, or LabSolutions Glass & Surface Wipes, Labconco part # 1570000; clean the sash and the surface of the UV lamp, if so equipped.

- Operate the cabinet blower, noting the percent filter life remaining in an operational log.

Monthly (or more often as required)

- Using a damp cloth, or LabSolutions Glass & Surface Wipes, Labconco part # 1570000; clean the exterior surfaces of the cabinet, particularly the front and top of the cabinet, to remove any accumulated dust.

- Disinfect and lift the work surface. Surface disinfect the lower plenum with a solution of 70% ethanol, or a suitable disinfectant. Check the towel catch for retained materials.

- Check all service valves, if so equipped, for proper operation.

- Check the UV and fluorescent light hourmeters, and record their readings in an operational log.
- All weekly activities.

Semiannually or Annually

- Have the cabinet re-certified by a qualified certification technician.
- All monthly activities.

Service Operations

Work Surface Removal:

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

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:

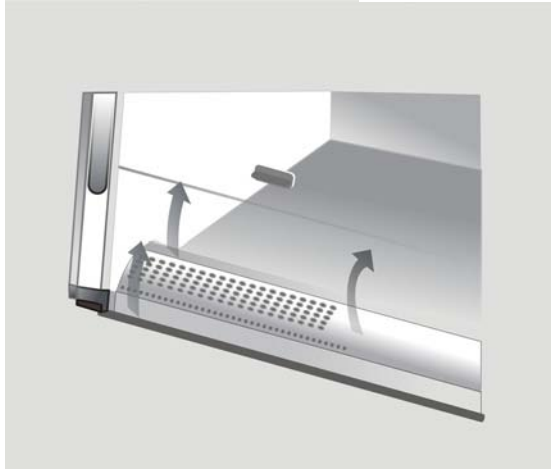**Note:** The grille must be thoroughly decontaminated before removing it.

1. Remove the work surface as described earlier.

2. At one end of the grille, grip the front of 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 sash 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.
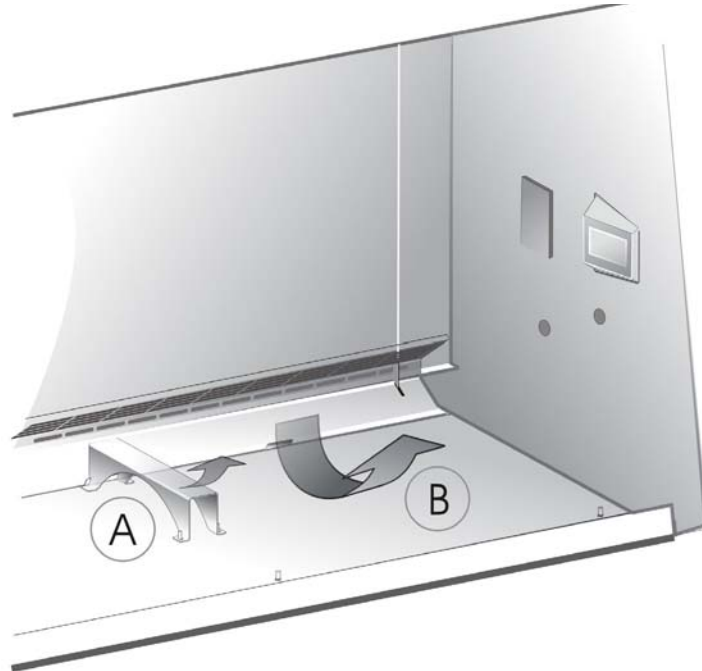
Figure 6-1

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. Lift the front end of the center support straight up to release it from the locating pins (A). Set the support aside in the work area.

3. Remove the towel catch by pivoting the bottom out toward you (B).

4. Surface decontaminate the towel catch before removing it.

5. Reinstall the towel catch by sliding it back into position, ensuring that the two slots on either end of the towel catch properly engage the rails on the rear of the duct, as shown in Figure 6-2. Also ensure that the DOP Sampling Line (the clear tube with a black cap) either passes through a hole in the towel catch, or passes along the outside edge of the catch without being kinked.

Figure 6-2

Front Panel Removal and Installation:

Figure 6-3

1. Locate and remove the two Phillips screws that secure the front panel as shown in Figure 6-3. They are located on the bottom corners of the front dress panel.

2. Swing the bottom of the dress panel out to clear the fluorescent light and then lift the front dress panel straight up and away from the cabinet.
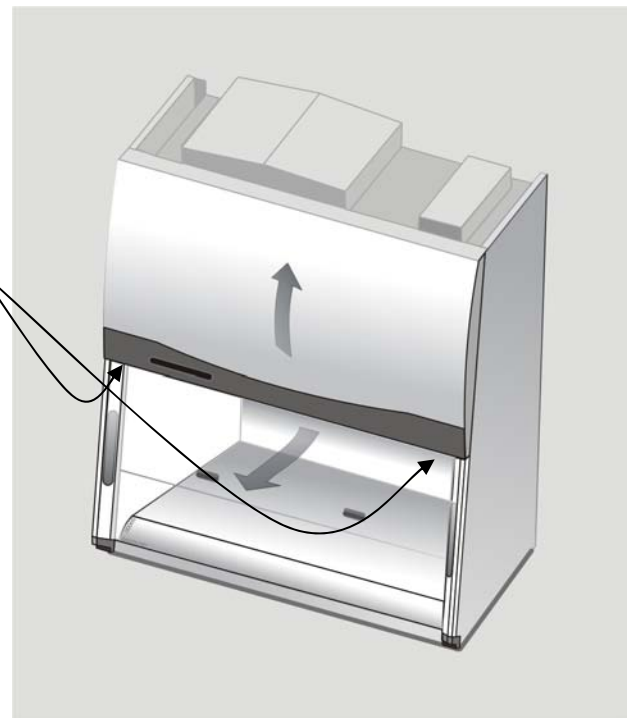
Figure 6-4

1. 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.
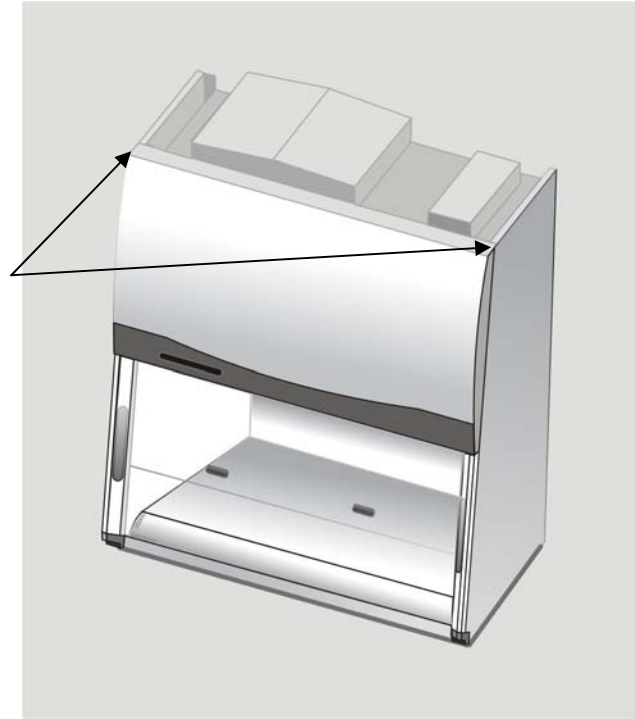
Changing the Fluorescent Lamps:

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. Remove the fluorescent lamps by pulling the lamp sockets straight off each end of the lamp, and releasing both lamps from the spring clips that secure them in place.

4. Install the new lamps by reversing the removal procedure.

Changing the Optional UV Lamp:

Note: For optimum performance, the UV lamp should be changed on an annual basis.

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

1. Start the cabinet 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 6-5

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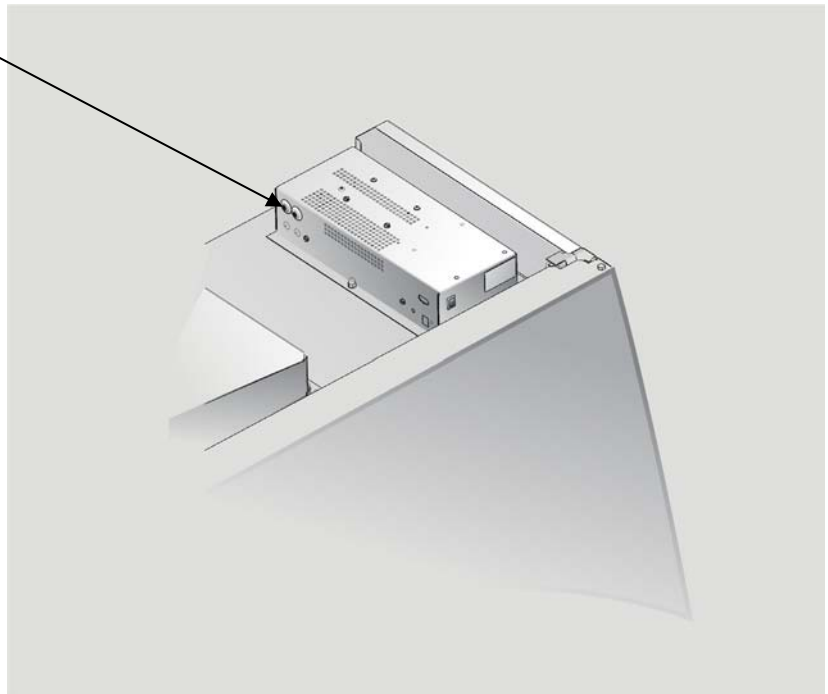
Storage

If the Biosafety 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 and the exhaust outlet with plastic sheeting.

2. Unplug the cabinet.

3. Ensure that the cabinet will not be moved or disturbed while being stored.

Chapter 7: Troubleshooting

Refer to the following table if the Biosafety 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 won't turn on	Unit not plugged into outlet	Plug the Biosafety 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 won't turn on but lights work	Sash closed	Raise sash.
	Blower wiring is disconnected	Inspect blower wiring.
	Blower motor is defective	Replace blower motor.
	Keypad disconnected or defective	Run keypad diagnostics and check connections.

PROBLEM	CAUSE	CORRECTIVE ACTION
Fluorescent light not working	Sash is closed	Open sash – Fluorescent lights will not work with the sash closed.
	Lamp(s) are defective	Replace defective lamp(s)
	Lamp wiring is disconnected	Inspect lamp wiring.
	Defective lamp ballasts	Replace lamp ballasts.
	Keypad disconnected or defective	Run keypad diagnostics and check connections.
Fluorescent light is dim or flickering	Lamp(s) are defective	Replace defective lamp(s)
	Lamp wiring is disconnected	Inspect lamp wiring.
	Defective lamp ballast	Replace lamp ballast.
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.

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.
	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.
Contamination of work in the cabinet	Improper technique or procedure for the Biosafety Cabinet	See "Use of the Cabinet" section in the 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 "Installation" section of this manual.
	Cabinet is out of adjustment/HEPA filter(s) are defective	Have cabinet recertified.

Appendix A: Components

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

Biosafety Cabinet Replacement Parts

Item	Quantity	Part No.	Description
1	1	3837201	Postfilter for 4-foot models (optional)
1A	2	3837202	Postfilters for 5-foot models (optional)
1B	2	3837203	Postfilters for 6-foot models (optional)
2	1	3838500	Exhaust HEPA Filter 3-ft
2A	1	3838501	Exhaust HEPA Filter 4-ft
2B	1	3838502	Exhaust HEPA Filter 5-ft
2C	1	3838503	Exhaust HEPA Filter 6-ft
3	1	3838400	Supply HEPA Filter 3-ft
3A	1	3838401	Supply HEPA Filter 4-ft
3B	1	3838402	Supply HEPA Filter 5-ft
3C	1	3838403	Supply HEPA Filter 6-ft
4	2	9721901	Lamp, Fluorescent, 3-ft
4A	2	9721900	Lamp, Fluorescent, 4-ft
4B	2	9721903	Lamp, Fluorescent, 5- & 6-ft
5	1	1271300	Lamp, UV (models with UV light only)
6	2	1287900	Receptacle Cover
7	1	3858900	Prefilter for 3-foot models (optional)
7A	1	3858901	Prefilter for 4-foot models (optional)
7B	1	3858902	Prefilter for 5-foot models (optional)
7C	1	3858903	Prefilter for 6-foot models (optional)

A-1
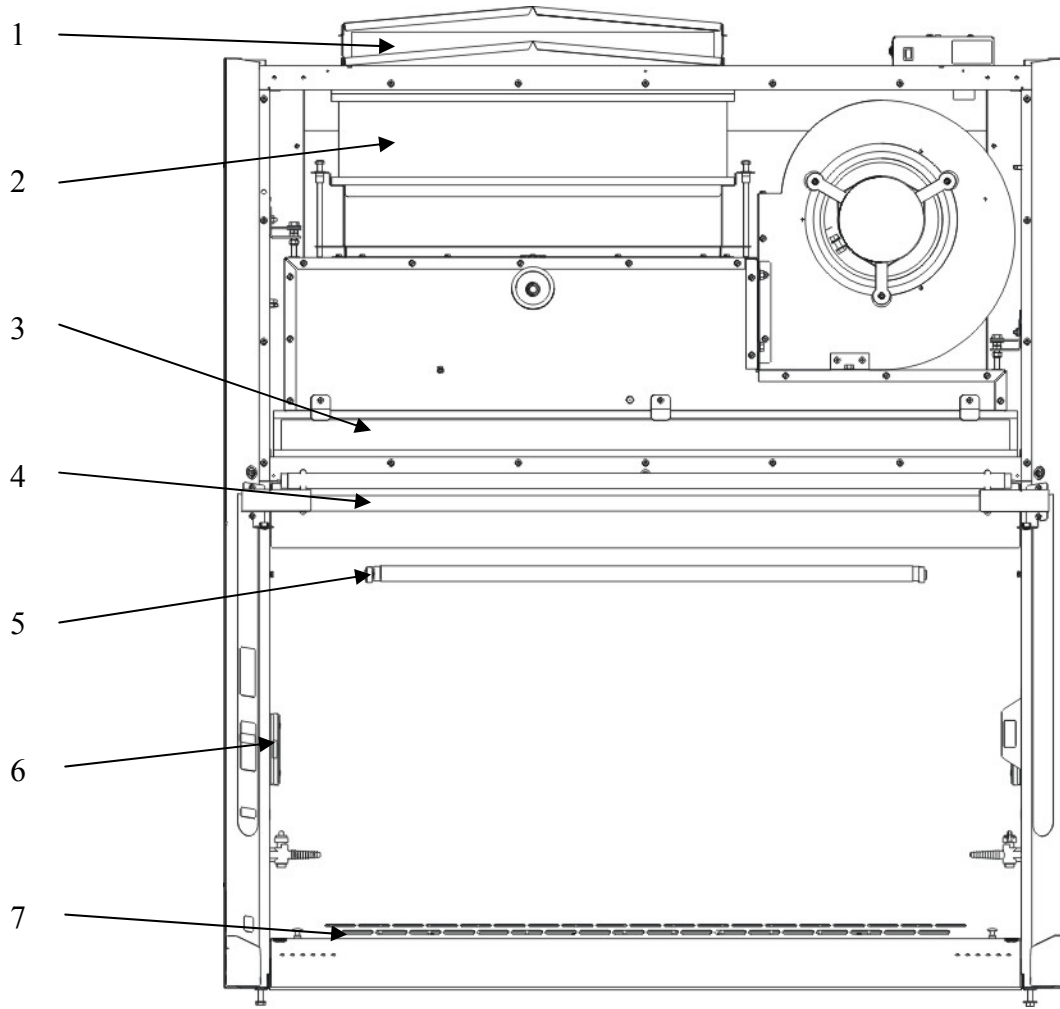
Appendix B: Dimensions

All dimensions in inches.
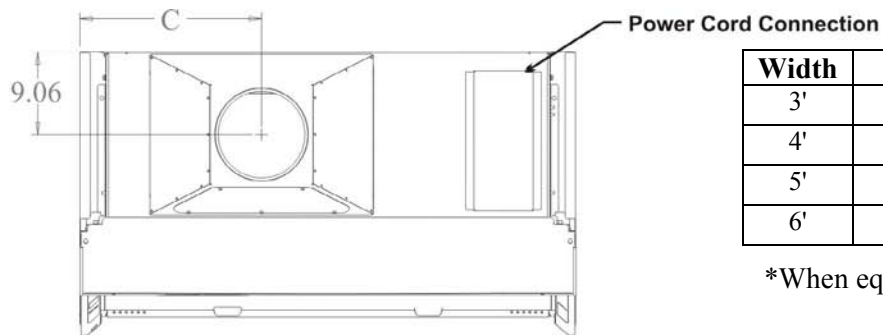
Width	"A"	"B"	"C"
3'	42.3	36.5	13.6
4'	54.3	48.5	19.9
5'	66.3	60.5	26.9
6'	78.3	72.5	32.9

*When equipped with Postfilter
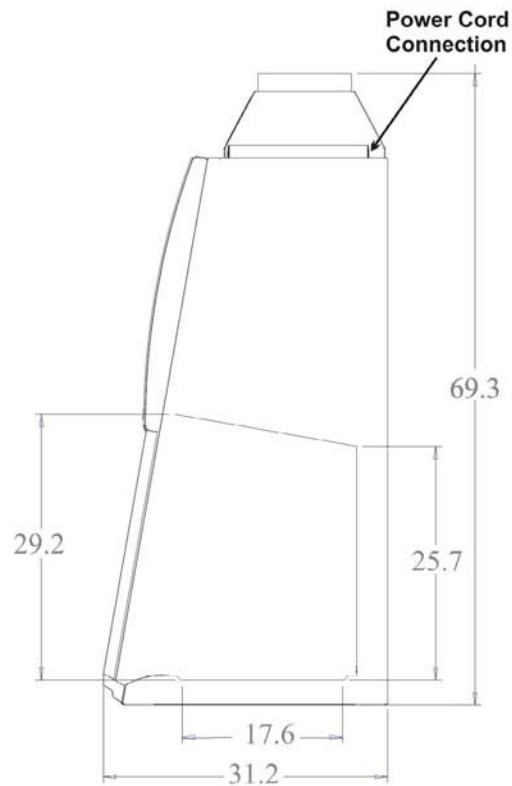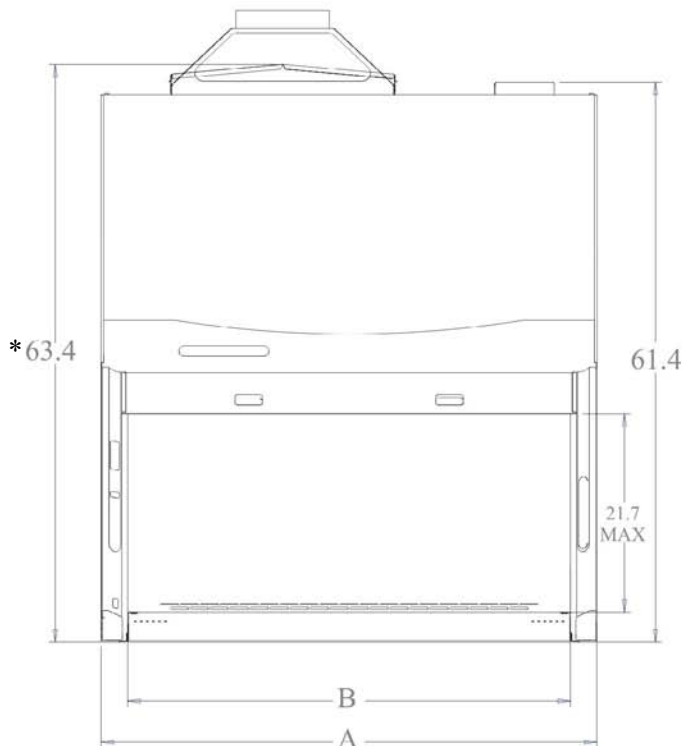
Appendix C: Specifications

Electrical Data

Cabinet Model	Electrical Requirements
3430000 - 3430009	115 VAC – 60 Hz, 1 Phase – 12 Amps
3430800 - 3430809	115 VAC – 60 Hz, 1 Phase – 12 Amps
3440000 - 3440009	115 VAC – 60 Hz, 1 Phase – 12 Amps
3440800 - 3440809	115 VAC – 60 Hz, 1 Phase – 12 Amps
3450000 - 3450009	115 VAC – 60 Hz, 1 Phase – 16 Amps
3450800 - 3450809	115 VAC – 60 Hz, 1 Phase – 16 Amps
3460000 - 3460009	115 VAC – 60 Hz, 1 Phase – 16 Amps
3460800 - 3460809	115 VAC – 60 Hz, 1 Phase – 16 Amps

Cabinet Model	Electrical Requirements
3430020 to 3430829	230 VAC – 50/60 Hz, 1 Phase – 7 Amps
3440020 to 3440829	230 VAC – 50/60 Hz, 1 Phase – 7 Amps
3450020 to 3450829	230 VAC – 50/60 Hz, 1 Phase – 7 Amps
3460020 to 3460829	230 VAC – 50/60 Hz, 1 Phase – 8 Amps

Motor Specifications

Cabinet Model	Electrical Requirements
All 3- and 4-foot Cabinets, all Voltages	Electronically Commutated Motor (ECM) 120-277 VAC – 50/60 Hz, 7.7 Full Load Amps @115VAC 4.3 Full Load Amps @230VAC 1/2 H.P. 1500 RPM maximum Automatic Thermal Protection

Cabinet Model	Electrical Requirements
All 5- and 6-foot Cabinets, all Voltages	Electronically Commutated Motor 120-277 VAC – 50/60 Hz, 9.6 Full Load Amps @115VAC 6.8 Full Load Amps @230VAC 3/4 H.P. 1500 RPM maximum Automatic Thermal Protection

Environmental Conditions

- Indoor use only.

- Maximum altitude: 6562 feet (2000 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 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

Note: Accessories marked with an asterisk (*) require a qualified certifier to install and/or calibrate before use.

Telescoping Base Stands

These stands are available with either fixed feet or caster wheels. The user sets the height of these stands before installation. The height can be set from 27.5 to 33.5 inches in 1-inch intervals, providing a cabinet work surface height of 30.0 to 36.0 inches. The Base Stands for each Purifier Logic Series model are listed below.

Width	Logic Series #	Base Stand w/Feet #	Base Stand w/wheels #
3'	34300-xx, 34308-xx	3730300	3730310
4'	34400-xx, 34408-xx	3730400	3730410
5'	34500-xx, 34508-xx	3830500	3830510
6'	34600-xx, 34608-xx	3730600	3730610

Telescoping Base Stand Shelf Kit (# 3850100)

This 20 x 8-inch long shelf is specifically designed to hold the Aspirator Pump or other small accessories, and attaches to the lower right side of the base stand. The kit includes shelf, braces and self-drilling fasteners. **NOTE: A power drill with a 5/16-inch socket is needed to attach the fasteners to the base stand.**

Manual or Electric Hydraulic Lift Base Stands

These base stands offer infinitely adjustable height between 25.5 and 33.5 inches, giving a cabinet work surface height of 28.0 to 36.0 inches. The height is adjusted either by a manual (hand crank) or electric pump that drives hydraulic rams in the legs of the stands. All of the hydraulic stands are equipped with fixed feet, but can be converted to caster wheels with the addition of Caster Kit #3784000. The Base Stands for each Purifier Logic series model is listed below.

Width	Logic Series #	Manual Lift Stand #	Electric (115V) Lift Stand #	Electric (230V) Lift Stand #
3'	34300-xx, 34308-xx	3780200	3780100	3780103
4'	34400-xx, 34408-xx	3780201	3780101	3780104
5'	34500-xx, 34508-xx	3780203	3780106	3780107
6'	34600-xx, 34608-xx	3780202	3780102	3780105

Hydraulic Base Stand Shelf Kit (# 3850200)

This 22 ¼ x 11 ¼-inch long shelf is specifically designed to hold the Aspirator Pump or other small accessories, and attaches to the lower left side of the base stand. The kit includes shelf and self-drilling fasteners. **NOTE: A power drill with a 5/16-inch socket is needed to attach the fasteners to the base stand.**

SoLo Electric Hydraulic Lift Base Stands

These base stands permit the Logic to be lowered enough to be transferred through a standard doorway as low as 78 inches. Casters provide mobility and lock in place. The SoLo Stands for each Purifier Logic series model is listed below.

Width	Logic Series #	115V SoLo Stand #	230V SoLo Stand #
3'	34300-xx, 34308-xx	3780310	3780314
4'	34400-xx, 34408-xx	3780311	3780315
5'	34500-xx, 34508-xx	3780312	3780316
6'	34600-xx, 34608-xx	3780313	3780317

*Seismic Bracket Kit (# 3857000)

Stainless steel brackets and attaching hardware to secure Telescoping Base Stands in areas of seismic activity (does not include fasteners to attach to floor).

*Service Valve Kit (# 3747500)

Includes serrated hose tip ball valve with quarter turn handle, hardware and instructions for plumbing to services mounts on left or right side interior. All cabinets are factory prepared to accept up to 4 fixtures. Shipping weight 4 lbs. (2 kg).

Ultraviolet Lamp Kits

Includes a 254 nm UV lamp and ballast.

Catalog #	For use with	Shipping Weight
3858500	All 115 VAC models	5 lbs. (2.3 kg)
3858501	All 100 VAC models	5 lbs. (2.3 kg)
3858502	All 230 VAC models	5 lbs. (2.3 kg)

IV Bar Kits

Bar supports intravenous solution bottles and bags. Kits include IV bar, mounting hardware, and four hangers.

Catalog #	For use with	Shipping Weight
3858600	3-foot Purifier Logic Series	3 lbs. (1.4 kg)
3858601	4-foot Purifier Logic Series	4 lbs. (1.8 kg)
3858602	5-foot Purifier Logic Series	5 lbs. (2.3 kg)
3858603	6-foot Purifier Logic Series	6 lbs. (2.7 kg)

Shelf (# 3859000)

The wire shelf measures 8 inches wide by 5 inches deep, with a weight capacity of 2.2 lbs. (1 kg) and mounts to the rear grille. Shipping weight 5.0 lbs. (2.3 kg).

Cord/Tubing Management System (# 3859100)

The kit includes three cord hooks and carabineers. The hooks mount to the rear grille, and the carabineers secure power cords and/or tubing along the rear wall of the work area. Shipping weight 5.0 lbs. (2.3 kg).

Prefilter

The prefilter is a sponge-type, adhesive-backed element that attaches to the towel catch, to prevent objects from being drawn into the blower or onto the HEPA filters.

Catalog #	For use with	Shipping Weight
3859200	All 3-foot Purifier Logic Series	1 lbs. (0.5 kg)
3859201	All 4-foot Purifier Logic Series	1 lbs. (0.5 kg)
3859202	All 5-foot Purifier Logic Series	1 lbs. (0.5 kg)
3859203	All 6-foot Purifier Logic Series	1 lbs. (0.5 kg)

Postfilter

The postfilter is a carbon-impregnated, cardboard-framed disposable filter. These filters require either a factory-installed postfilter kit, or installation of a Postfilter Conversion Kit, shown below.

Catalog #	For use with	Shipping Weight
3837201	All 4-foot Purifier Logic Series	5 lbs. (2.3 kg)
3837202	All 5-foot Purifier Logic Series	7 lbs. (3.2 kg)
3837203	All 6-foot Purifier Logic Series	10 lbs. (4.6 kg)

Not available for 3-foot models

*Postfilter Conversion Kit

These kits allow the retrofitting of carbon postfilters in Logic cabinets that originally did not have this option.

Catalog #	For use with	Shipping Weight
3859301	All 4-foot Purifier Logic Series	5 lbs. (2.3 kg)
3859302	All 5-foot Purifier Logic Series	5 lbs. (2.3 kg)
3859303	All 6-foot Purifier Logic Series	5 lbs. (2.3 kg)

*Canopy Connection Kit

Contains the transition for thimble ducting the Biosafety Cabinet Logic Series Cabinets to a 10-inch diameter stainless steel duct.

Catalog #	For use with	Duct Dia.	Shipping Weight
3858700	3-foot Purifier Logic Series	10"	15 lbs. (7 kg)
3858701	4-foot Purifier Logic Series	10"	15 lbs. (7 kg)
3858702	5-foot Purifier Logic Series	10"	15 lbs. (7 kg)
3858703	6-foot Purifier Logic Series	10"	15 lbs. (7 kg)

*Air-Tight Damper (# 3776800)

The 10-inch diameter stainless steel damper mounts atop the Canopy Connection Kit to adjust exhaust airflow. Shipping weight 13.0 lbs. (5.9 kg). **NOTE: This damper IS NOT prepared for the installation of the canopy alarm sensor. If you want a canopy airflow sensor, order #3859700, listed below.**

*Air-Tight Damper with Canopy Alarm Sensor (# 3859700)

This damper with integral canopy airflow sensor mounts atop the Canopy Connection Kit to adjust exhaust airflow. Includes wiring harness to connect with the Logic Control board. Shipping weight 13.0 lbs. (5.9 kg).

*Backdraft Damper (# 3858800)

The backdraft damper mounts in a vertical run of duct to prevent the reverse pressurization of the exhaust system. Sized for 10-inch diameter ductwork. Shipping weight 5.0 lbs. (2.3 kg).

*Remote Blowers

Labconco offers a full line of epoxy-coated steel remote exhaust blowers for use with its Biosafety Cabinets. Please contact Labconco's Customer Service Department at 800-821-5525 for assistance with blower selection and sizing.

Ergonomic Chair with Armrests (# 3744000)

Lab chair has 6-way articulating seat and back control for personalized adjustment. Pneumatic mechanism adjusts seat height from 18 1/4" to 25 3/4". Five-leg black reinforced composite base rests on 2" ball bearing casters. Aluminum support ring. Removable arm rests. Black vinyl upholstery. Shipping weight 35 lbs. (15.9 kg).

Adjustable Footrest (# 3746000)

Elevates feet and permits angle repositioning while in use. 18 1/2"w x 11 1/2"d x 8"h. Shipping weight 6 lbs. (2.7 kg).

*Inflow/Downflow Sensor Kit

Includes airflow sensor, hardware and wiring needed to display inflow and downflow on the Information Center LCD.

Catalog #	For use with	Shipping Weight
3859400	3-foot Purifier Logic Series	3 lbs. (1.4 kg)
3859401	4-foot Purifier Logic Series	4 lbs. (1.8 kg)
3859402	5-foot Purifier Logic Series	5 lbs. (2.3 kg)
3859403	6-foot Purifier Logic Series	6 lbs. (2.7 kg)

Aspirator Pump Kit (# 3850300 or 3850301)

Kit includes components required to outfit the cabinet with a system to safely aspirate fluids. The pump has an integrated 2L glass jar with fill limiter that seals to contain fluids. The chemically resistant diaphragm pump can be switched with the foot pedal provided. 10-ft. of clear tubing, filter as well as a sealed grommet for the cabinet wall is in the kit.

- 3850300   Vacuum Aspiration Kit (Logic) 110V
- 3850301   Vacuum Aspiration Kit (Logic) 220V

Turntable (# 3852000)

The 12-inch diameter Turntable is intended to be utilized in the rear corners of the biosafety cabinet work area to provide quick access to supplies. Ball bearing hub and stainless steel upper and lower surfaces are autoclaveable.

*ULPA Supply Filters (# 3859500, 01, 02, 03)

Rated at 99.999% efficiency with particles 0.12 microns.

*ULPA Exhaust Filters (# 3859600, 01, 02, 03)

Rated at 99.999% efficiency with particles 0.12 microns.

Appendix E:
Quick Chart

Model	34308	34300	34408	34400	34508	34500	34608	34600
Cabinet Size (in feet)	3	3	4	4	5	5	6	6
Sash Opening (inches)	8	10	8	10	8	10	8	10
Starting Serial #[1]	0705_	0705_	0705_	0705_	0705_	0705_	0705_	0705_
Nominal Avg. Downflow (FPM)	55+/-5	55+/-5	55+/-5	55+/-5	55+/-5	55+/-5	55+/-5	55+/-5
Nominal Average Inflow (FPM)	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5
Supply HEPA Data								
Labconco P/N	3838400	3838400	3838401	3838401	3838402	3838402	3838403	3838403
Exhaust HEPA Data								
Labconco P/N	3838500	3838500	3838501	3838501	3838502	3838502	3838503	3838503
Motor/Blower Data								
Labconco P/N[2]	3832200	3832200	3832201	3832201	3832202	3832202	3832203	3832203
Motor HP	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4
Blower Size (inches)	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8	10 x 8
Fluorescent/UV Lamp Data								
Fluorescent Lamps (2 each)	F25T8 TL741	F25T8 TL741	F32T8 TL741	F32T8 TL741	F40T8 SP41	F40T8 SP41	F40T8 SP41	F40T8 SP41
Light intensity (ft-candles)[3]	90-100	90-100	90-100	90-100	90-100	90-100	90-100	90-100
UV Lamp	G30T8	G30T8	G30T8	G30T8	G30T8	G30T8	G30T8	G30T8
UV energy(uW-cm^2)[4]	240	240	240	240	240	240	240	240
Prefilter Data								
Labconco P/N	3858900	3858900	3858901	3858901	3858902	3858902	3858903	3858903
Postfilter Data								
Labconco P/N	NA	NA	3837201	3837201	3837202	3837202	3837203	3837203
Canopy Data								
Avg. Exhaust Vol. Range (CFM)	203-223	253-278	269-296	337-371	336-370	420-462	403-443	503-553
Canopy Alarm Setpoint Vol. (CFM)[5]	203-223	253-278	269-296	337-370	336-370	420-462	403-443	503-554
Nominal Canopy Vol. (CFM)	236	327	339	424	459	574	555	687
Canopy Vol. Range (CFM)	244-268	304-334	323-355	404-444	437-481	546-601	534-576	654-720
Labconco Canopy P/N	3858700	3858700	3858701	3858701	3858702	3858702	3858703	3858703

1. The primary serial tag is on the lower outside edge of the right corner post. 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. Each motor must be programmed by Labconco for the appropriate width cabinet.
3. As per ANSI/NSF Std. 49 with a background of 15 ft-candles.
4. Measured in the geometric center of the work surface.
5. If the optional Canopy Alarm is installed

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, EN55022, EN61000-3-2/3,
                                      EN61326-1

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

Model No.:   Purifier Logic Series Biological Safety Cabinets
              34308-2X   3' Wide, 8" Sash
              34408-2X, -3X   4' Wide, 8" Sash
              34508-2X   5' Wide, 8" Sash
              34608-2X, -3X   6' Wide, 8" Sash
              34410-2X   4' Wide, 8" Sash, Total Exhaust
              34610-2X   6' Wide, 8" Sash, Total Exhaust

Serial No.:   Various – See Individual Declaration

Year of Manufacture: 2007 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 36960-62, Rev. A, E546