LABCONCO

LABCONCO CORPORATION

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User's Manual

Logic® Vue
Class II Enclosure

Register this product

Logic® Vue

2020—Present

33004xx   33006xx

Warranty

Labconco Corporation provides a warranty to the original buyer for the repair or replacement of parts and reasonable labor as a result of normal and proper use of the equipment with compatible chemicals. Broken glassware and maintenance items, such as filters, gaskets, light bulbs, finishes and lubrication are not warranted. Excluded from warranty are products with improper installation, erratic electrical or utility supply, unauthorized repair and products used with incompatible chemicals.

Logic Vue Class II Enclosures carry a one-year warranty from date of installation or two years from date of shipment from Labconco, whichever is sooner. Warranty is non-transferable and only applies to the owner (organization) of record.

Buyer is exclusively responsible for the set-up, installation, verification, decontamination or calibration of equipment. This limited warranty covers parts and labor, but not transportation and insurance charges. If the failure is determined to be covered under this warranty, the dealer or Labconco Corporation will authorize repair or replacement of all defective parts to restore the unit to operation. Repairs may be completed by 3rd party service agents approved by Labconco Corporation. Labconco Corporation reserves the rights to limit this warranty based on a service agent's travel, working hours, the site's entry restrictions and unobstructed access to serviceable components of the product.

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.

Returned or Damaged Goods

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

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

Limitation of Liability

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

For additional questions or support:

Labconco Customer Care +1 (816) 333-8811

Labconco Technical Support (800) 821-5525

Hours 7:30 a.m.-5:30 p.m. CST

Part #3848350 Rev. G
ECO N889

Table of Contents

1: Introduction

Congratulations on the purchase of a Logic Vue Class II Enclosure. The Logic Vue is designed to protect you, the product and the laboratory environment. It is the result of years of experience in manufacturing laboratory equipment, and users like you suggested many of its features to us.

This product offers many unique features. To take full advantage of them, please acquaint yourself with this manual and keep it handy for future reference.

About This Manual

This manual is written for the installer, certifier and user of this product. Electronic copies of this manual are also located on the website labconco.com.

This manual contains important operation and safety information. When you see a symbol, such as the INFO symbol to the left, pay close attention to the information provided. **Before installing or operating this product, you must read** Section 3: Safety Precautions.

Contents Included

The following items are packaged with the product.

- User's manual thumb drive & Factory Test Report
- (4) Levelling Legs with seismic restraint feet
- (4) Lower Sash Restraint Latches
- (2) Work Surface Lift Tools
- (2) Cable Entry 4-5mm inserts
- Additional Hardware

The location of these items and additional details are found in Section 4: Installation.

2: Before You Install

Before you install the product, the site should be prepared 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 sufficient electrical power must be located at the installation site.

Location Requirements

The enclosure should be located away from areas of high foot traffic, doors, fans, ventilation registers or vents, chemical fume hoods or other air-handling devices. Any of these may interfere with the airflow patterns in and around the product, and subsequently diminish product and/or personnel protection. All windows in the room should remain closed. Figure 2-1 shows the preferred and alternate locations for this product.

Figure 2-1

Air register blocked
or redirected

Alternate
location

Preferred
location

24 inches of
Rear Clearance

Room
Door
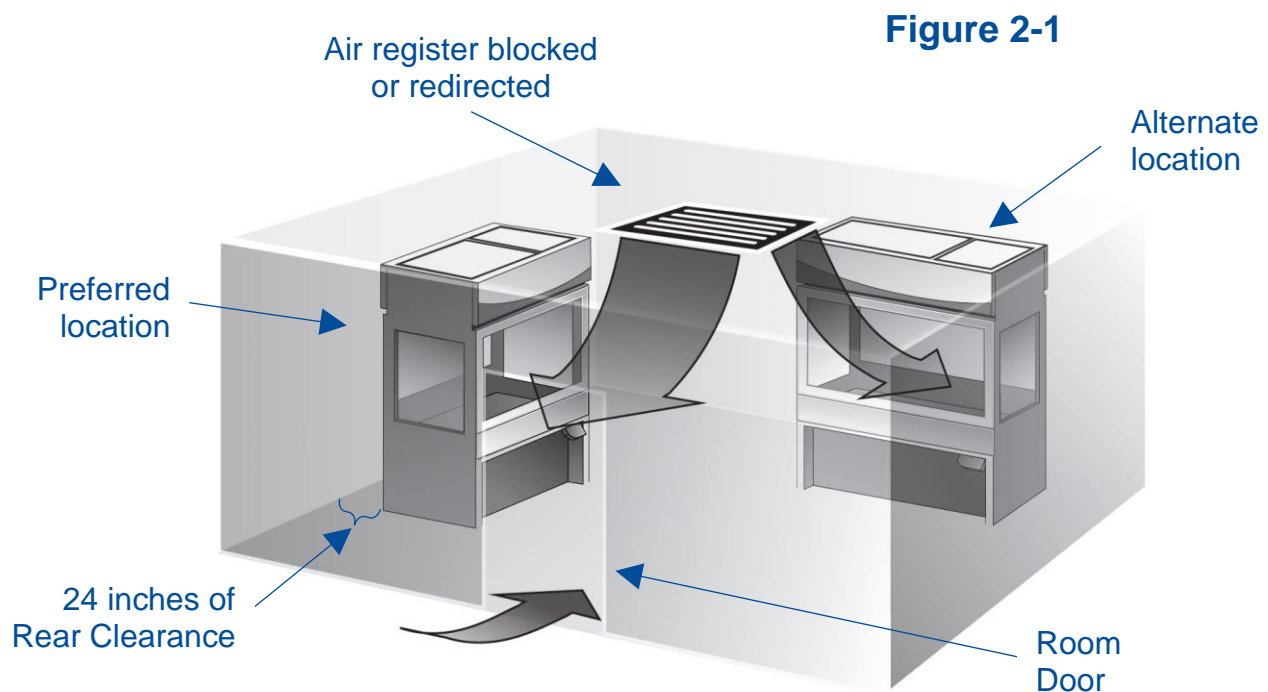
Clearance Requirements

A minimum clearance of at least 6 inches (150 mm) is required above the product for proper airflow. A minimum clearance of at least 24 inches (610 mm) is required on the right side of the product for access to the electrical box. A minimum clearance of at least 36 inches (915 mm) is required on the front and rear side of the product to open the Front and Rear Hatch, and to not restrict the exhaust airflow. **Note**: if opening the Rear Hatch is not required, the rear clearance can be reduced to 24 inches (610 mm).

See Appendix B: Dimensions for overall product dimensions.

Electrical Requirements

The product models have the following electrical requirements.

Catalog Number	Typical Operating Current (Amps)	Electrical Circuit Requirements[1]		Service Wire Gauge
3300400, -10	6 A	115 V, 60 Hz, 30 A	1 Phase	10 AWG (6mm^2)+
3300401, -11	3 A	230 V, 50/60 Hz, 20 A	1 Phase	12 AWG (4mm^2) +
3300600, -10	8 A	115 V, 60 Hz, 30 A	1 Phase	10 AWG (6mm^2) +
3300601, -11	4 A	230 V, 50/60 Hz, 20 A	1 Phase	12 AWG (4mm^2) +

1 Electrical Requirements, 'V' = VAC (Voltage with alternating current), 'A' = Amperes
+ Wire must be rated at 80 ºC minimum

A junction box supported by an appropriate and dedicated circuit breaker should be located as close as possible to the product, but no greater than 10 feet (3 m) away. The circuit breaker must be marked as the main disconnect device for this equipment. For safe operation the dedicated circuit must provide a protective earthing ground connection to the product. This product should be wired by a licensed electrician.

Do not connect a power cord to this product. It must be hard-wired as specified in this manual

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. The accessory service valves are rated for operation at 40 PSI (275 kPa). If the service line pressure exceeds this, 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 enclosure. Open flame in the enclosure will disrupt the laminar airflow in the enclosure and may damage the HEPA filters. If you feel that the procedure requires the use of an open flame or flammable materials, contact your institution's safety office.

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

Exhaust Requirements

If not installing the optional Canopy Connection Kit, skip this section.

⚠️ **Note:** If the enclosure is exhausting back into the laboratory, do not block or restrict the airflow out of the back of the unit. Allow at least 24 inches clearance between the exhaust opening and any large vertical surfaces or walls.

This product may be connected to a remote (building) exhaust system, when the optional Canopy Connection Kit is installed.

⚠️ **Note:** Only connect the enclosure to a suitable exhaust system that is dedicated to the enclosure, or dedicated to exhausting laboratory ventilation equipment. Do NOT connect the enclosure to the building's general HVAC system for room exhaust.

Examine the location to ensure that it accommodates the enclosure's exhaust duct. The area directly above the enclosure'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 12-inch diameter duct. See Figure 2-2. The accessory canopy connection will attach to the rear, lower panel of the enclosure, where the HEPA-filtered exhaust air is discharged.

Figure 2-2

Avoid locations that require an elbow directly above the enclosure's exhaust connection or an excessive number of elbows in the exhaust system. There should be a straight length 10 duct diameters long between the enclosure connection and any elbow, and between subsequent elbows. See Figure 2-3.

Figure 2-3

The Inlet Relief Valve located on the side of the accessory canopy connection is designed to draw a maximum of 200 CFM (340 m^3/hr).

Attempting to draw additional room air through the valve (room air exhaust), can result in unstable enclosure operation. See Figure 2-4.
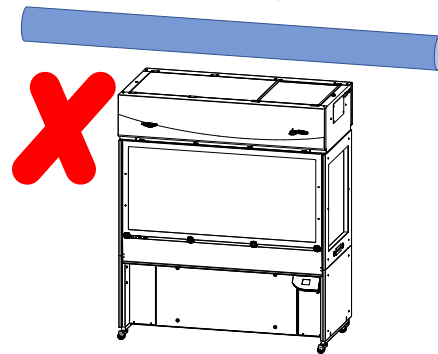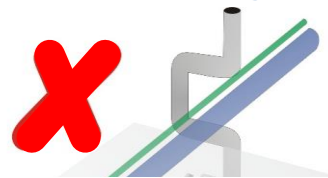
Figure 2-4
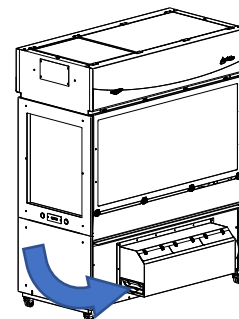
Labconco highly recommends installing an air-tight balancing damper at the canopy's duct collar when connected to a building exhaust system. See Air-Tight Damper information on the following pages. The air-tight damper allows for fine adjustment of the exhaust air volume provided, in order to correctly set the necessary exhaust airflow for each enclosure. It also allows the enclosure to be sealed off from the building exhaust system, should it become necessary to do so.

The use of an exhaust manifolded to other equipment should be avoided when possible. If the Logic Vue is canopy-connected to a manifolded system, a variable air volume valve (preferably one that is fast-acting, such as a venturi valve) should be used. Failure to maintain required exhaust volume on the Logic Vue duct during startup, operation, and shutdown may result in an exhaust alarm condition.

The exhaust system must be capable of moving the following volumes of exhaust air at the negative pressures listed. The **Airflow Volumes** are the values recorded via direct measurement using a flow hood at the duct drop and include 100 CFM for the canopy connection inlet. The **Concurrent Balance Values** are measured in the exhaust duct via traverse methodology, and will always be higher, and may vary, due to differences in volume measurement methodologies and the location of the sample in the exhaust system.

Table 2-1

LogicVue 4-foot Model	Exhaust Volume		Estimated Concurrent Balance Value		Recommended Duct Vacuum[1]	
	ft³/min	m³/hr	ft³/min	m³/hr	WC[2]	Pa
40 FPM downflow/ 105 FPM inflow	1200	2040	1320	2242	0.21	52
45 FPM downflow/ 105 FPM inflow	1260	2140	1385	2353	0.21	52
50 FPM downflow/ 105 FPM inflow	1320	2240	1452	2467	0.21	52
LogicVue 6-foot Model	Exhaust Volume		Estimated Concurrent Balance Value		Recommended Duct Vacuum[1]	
	ft³/min	m³/hr	ft³/min	m³/hr	WC[2]	Pa
40 FPM downflow/ 105 FPM inflow	1575	2675	1733	2944	0.21	52
45 FPM downflow/ 105 FPM inflow	1675	2845	1843	3131	0.21	52
50 FPM downflow/ 105 FPM inflow	1775	3015	1953	3318	0.21	52

1: Unlike Type B biosafety cabinets, the recommended vacuum will remain constant throughout the life of the exhaust HEPA filter. Duct vacuum is measured at the outlet of the Logic Vue Canopy duct stub. Duct vacuums below 0.05 inches H_2O (12 Pa) or above 0.5 inches H_2O (125 Pa) may result in erratic operation and cause an alarm condition from the product.

2: WC = Inches of Water Column, typically expressed in units of *inches H_2O*.

Air-Tight Damper

Figure 2-6

BUILDING
EXHAUST
DUCT (NOT
INCLUDED)

DUCT
COLLAR

CANOPY CONNECTION
(ACCESSORY)

AIRFLOW ADJUSTMENT
HANDLE

AIR-TIGHT DAMPER
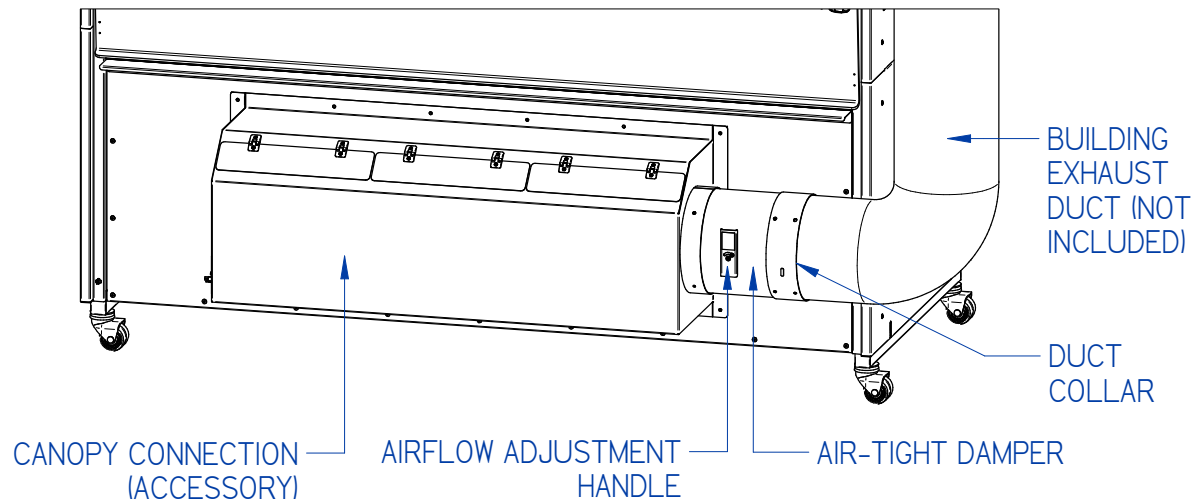
Visual appearance of enclosure and exhaust connection may vary by model.

3: Safety Precautions

Before unpacking, installing, operating, maintaining, or servicing this equipment, read the following safety warnings and precautions.

Avant le déballage, l'installation, le fonctionnement, l'entretien ou la maintenance de cet équipement, lire les avertissements de sécurité et les précautions d'emploi.

CAUTION – See Manual. When this symbol is on the equipment, it indicates a caution that is detailed in this manual.
MISE EN GARDE – Voir le manuel. Lorsque ce symbole est apposé sur l'équipement, il renvoie à une mise en garde détaillée dans ce manuel.

Typographical Conventions

DANGER – An imminently hazardous situation which, if not avoided, will result in death or serious injury.
DANGER – Situation dangereuse imminente qui, si elle n'est pas évitée, peut entraîner la mort ou des blessures graves.

CAUTION – Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to property.
MISE EN GARDE – Signale une situation potentiellement dangereuse qui, si elle n'est pas évitée, peut provoquer des blessures mineures à modérées ou des dommages matériels.

NOTE – Advice or suggestions to help the process.
REMARQUE – Conseils ou suggestions pour le déroulement du processus.

BURN RISK (HIGH TEMPERATURE) – Air or components that will be very hot. Take care not to touch these defined areas. Failure to avoid these areas may result in moderate to severe injury.
RISQUE DE BRÛLURE (TEMPÉRATURE ÉLEVÉE) – Air ambiant ou composant devenant très chaud. Veiller à ne pas toucher ces zones délimitées. L'absence de précaution pour éviter ces zones peut entraîner des blessures modérées, voire graves.

EXTREME COLD (LOW TEMPERATURE) – Air or components that will be very Cold. Take care not to touch these defined areas. Failure to avoid these areas may result in moderate to severe injury.
FROID INTENSE (TEMPÉRATURE BASSE) – Air ambiant ou composant devenant très froid. Veiller à ne pas toucher ces zones délimitées. L'absence de précaution pour éviter ces zones peut entraîner des blessures modérées voire graves.

PINCH POINT – Areas or components that can pinch or cut. Take care not to touch these defined areas.
POINT DE PINCEMENT – Zones ou composants présentant un risque de pincement ou de coupure. Veiller à ne pas toucher ces zones délimitées.

MOVING PARTS – Areas or components that contain moving parts. Take care not to touch these defined areas.
PIÈCES MOBILES – Zones ou composants contenant des pièces mobiles. Veiller à ne pas toucher ces zones délimitées.

RISK OF ELECTRICAL SHOCK – The specified procedure or area poses a risk of electrical shock. ALWAYS disconnect main power cord or electrical supply before proceeding.
RISQUE DE CHOC ÉLECTRIQUE – La procédure ou la zone spécifiée présente un risque de choc électrique. TOUJOURS débrancher le cordon d'alimentation secteur ou l'alimentation électrique avant toute intervention.

FLAMMABLE / NO SOLVENTS – Do not place flammable liquids or solvents in this product.
INFLAMMABLE / PAS DE SOLVANTS – Ne placez aucun liquid inflammable dans cette produit.

LIFTING HAZARD – Do not lift or move this equipment without assistance.
DANGER DE LEVAGE – Ne pas soulever ou déplacer cet équipement sans assistance.

MAGNETIC FIELD IN USE – Magnets or magnetic field present.
CHAMP MAGNETIQUE UTILISE – Présence d'aimants ou de champ magnétique.

DO NOT TOUCH – Components or areas indicated are sensitive and will suffer damage if touched. Take care not to touch these defined components or areas. Failure to avoid these areas will result in damage to the product.
NE PAS TOUCHER – Les composants ou les zones indiquées sont sensibles et subiront des dégâts s'ils sont touchés. Veiller à ne pas toucher ces composants ou zones délimité(e)s. L'absence de précaution pour éviter ces zones endommagera le produit.

TOOL REQUIRED – Tool required to access specified area.
OUTIL NÉCESSAIRE – Outil nécessaire pour accéder à la zone spécifiée.

General Safety Precautions

Follow all the safety precautions described in this section.

Before removing any panels which require a tool for removal, ALWAYS disconnect the main power cord or electrical supply. Failure to remove all electrical power before proceeding will result in moderate to serious injury, death, or damage to property.
Avant le retrait d'un panneau nécessitant l'utilisation d'un outil, TOUJOURS débrancher le cordon d'alimentation secteur ou l'alimentation électrique. Le non-respect de la consigne consistant à couper complètement l'alimentation électrique avant toute intervention peut entraîner des blessures graves, la mort ou des dommages matériels.

Never contact moving parts with your person. Failure to avoid moving parts will result in moderate to serious injury, death, or damage to property.
Ne jamais toucher les parties mobiles. Le non-respect de la consigne consistant à éviter les pièces mobiles peut entraîner des blessures graves, la mort ou des dommages matériels.

Never misuse this product. Never disable, override, or otherwise bypass safety guards, panels, switches, sensors or alarms. Doing so will result in moderate to serious injury, death, or damage to this product or property.
Ne jamais utiliser ce produit à mauvais escient. Ne jamais désactiver, annuler ou contourner les capots, panneaux, interrupteurs, capteurs ou alarmes de sécurité. Ceci entraînerait des blessures graves, la mort ou des dommages matériels à ce produit ou à d'autres biens.

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.

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.

Do not lift or move this equipment without assistance.
Ne pas soulever ou déplacer cet équipement sans assistance.

Safety Precautions for this Product

Do not use a detachable/wired power cord on this product. It must be wired by a certified electrician into an appropriately sized, dedicated service junction box. N'utilisez pas de cordon d'alimentation détachable / filaire sur ce produit. Il doit être câblé par un électricien certifié dans une boîte de jonction de service dédiée de taille appropriée.

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

Some internal components of the enclosure may become contaminated during operation of the unit. Only experienced personnel competent in decontamination procedures should decontaminate the enclosure 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.

DO NOT load more than 250 lbs. (113 Kg) per 2 linear feet (60 cm) of work surface 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 damaging the support structure. Additionally, the included Levelling Feet must be installed to properly support the rated load above. If the shipping casters remain installed, the work surface load rating is reduced to 165 lbs. (75 kg) per 2 linear feet (60 cm).

Avoid the use of flammable gases or solvents in the enclosure. 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 enclosure. 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 enclosure, 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 enclosure; contact a local certification agency or Labconco at 800-821-5525 or 816-333-8811 for re-certification information.

The HEPA filters in the enclosure 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 enclosure. The Filter Gauge accurately displays the amount of filter life remaining.

Proper operation of the enclosure depends largely upon its location and the operator's work habits. Consult Section 4: Installation and Section 7: Using Your Logic Vue for further details.

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

The enclosure should be decontaminated for any of the following reasons:
o Before maintenance work requiring entry into contaminated areas.
o Before contaminated HEPA filter changes.
o Before performing certification tests requiring entry into contaminated areas.
o Before relocating a contaminated enclosure.
o Before changing research programs that used hazardous materials.
o After the gross spill of biohazardous material or toxic chemicals.

Never work with biohazards or hazardous particulate through the rear sash. Opening the rear sash will jeopardize product protection and may jeopardize personnel protection. The rear sash opening and rear hatch must only be opened for maintenance or service access to the equipment inside.

This product must be powered with a dedicated electrical circuit. The dedicated supply electrical circuit must be wired through an appropriately rated circuit breaker suitably located within 10 feet (3m) of the product and easily reachable. The switch must be marked as the disconnecting device for the product.

Le circuit électrique d'alimentation dédié doit être câblé via un interrupteur de calibre approprié situé à moins de 3 m (10 pieds) du produit et facilement accessible. L'interrupteur doit être marqué comme le dispositif de déconnexion du produit.

When this symbol appears on the product, use caution before removing the panels, parts, or pre-filters near this symbol. Before these panels, parts or pre-filters are removed, all electrical power must be removed from the product and wait 1 minute for the motor blowers to stop moving.

4: Installation & Certification

With the installation site properly prepared, you are ready to unpack and install the equipment. This section covers how to:

- Unpack and move the product
- Install the product
- Connect electrical service
- Connect service utilities (if accessory service fixtures are installed)
- Connect to an exhaust system (optional)
- Arrange certification for the product

This product is extremely heavy. Use a forklift or the included scissor jack to raise/lower the product to remove from shipping pallet and/or install levelling feet.

Unpacking

The following tools are required to unpack the equipment:

- Box knife
- Flatblade screwdriver
- #2 Phillips screwdriver (Cordless Drill and Phillips bit recommended)
- 5/16", 7/16", 1/2", 3/4", and 7/8" wrenches (socket set and ratchet recommended)
- Hammer and Crowbar (to remove skeletal crating)
- Carpenter's level

The following safety precautions must be followed by all personnel unpacking the equipment.

- Two (2) persons minimum required for unpacking
- Wear safety glasses and protective gloves
- No loose fitting clothes
- Wear close-toed shoes
- Follow safe-lifting practices (do NOT attempt to lift this product without specialized lifting equipment certified to lift up to 2000 lbs.)

Step 1 – Inspection and Crate Removal

Carefully inspect the product for damage that may have occurred in transit. If the product is damaged, take pictures of the product and the outer packaging, and notify the delivery carrier immediately. Retain the entire shipment, including outer packaging, 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 product 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 packing materials for the product until all of the components have been checked, installed and tested.

The product is skeletal crated for protection. Remove all exterior boards taking care to watch for staples exposed once the boards are removed. See Figure 4-1 below.

Figure 4-1

EXTERIOR BOARDS
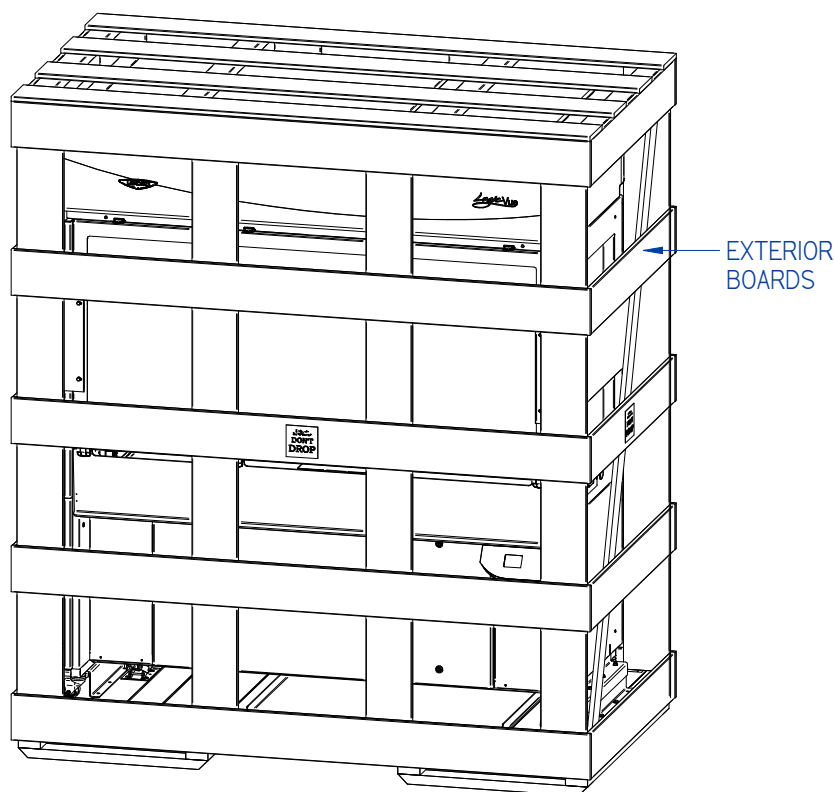
Step 2 – Pallet Removal

Move the enclosure, attached to its pallet, by using a floor jack, or forklift, to an open area with room to remove the enclosure from its pallet. **DO NOT** tilt the enclosure.

See Figure 4-2, and remove the following items:

- Shrink wrap film around the entire product
- Sash Brackets (2) and Foam Pads (support when removing last bolt) – discard
- Scissor Jack (located in box on pallet)
- Levelling Feet (located in separate box on pallet)
- Pallet Ramp (attached to pallet with four (4) phillips screws) – save the screws!

Figure 4-2
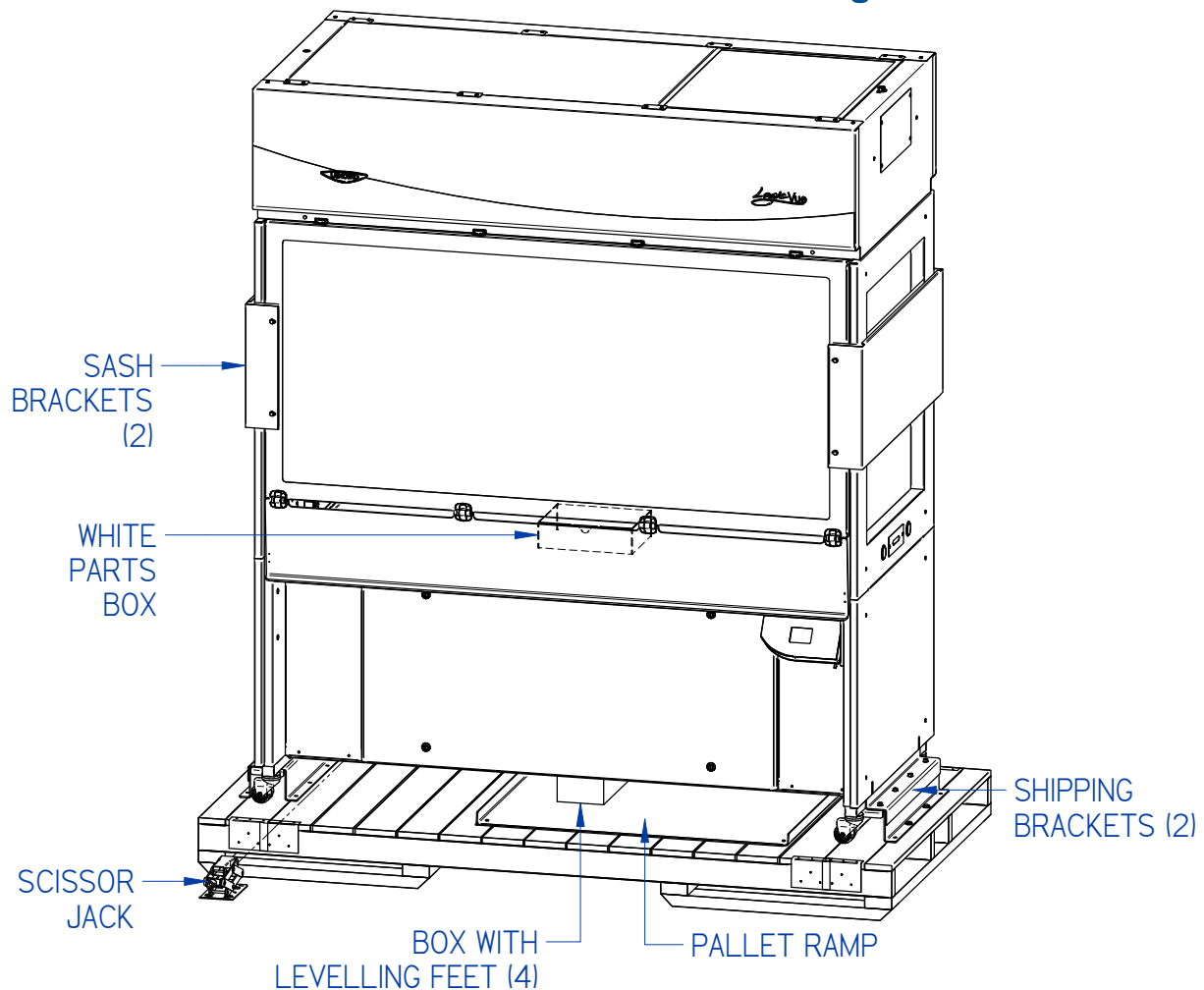
Remove the two (2) Lower End Panels (see Figure 4-3). Remove the two (2) Top Frame Brackets by removing the four (4) Bolts on each Top Frame Bracket. Discard the Top Frame Brackets, protective white Pads, and Bolts. Reinstall the two (2) Lower End Panels.

Figure 4-3

LOWER END PANEL

PHILLIPS SCREWS (4)

HEIGHT ADJUSTMENT BOLTS & NUTS (4 PER END)

BOLTS (4)

WHITE PROTECTIVE PADS (2)

TOP FRAME BRACKET

CASTER/LEVELLING FEET FRAME
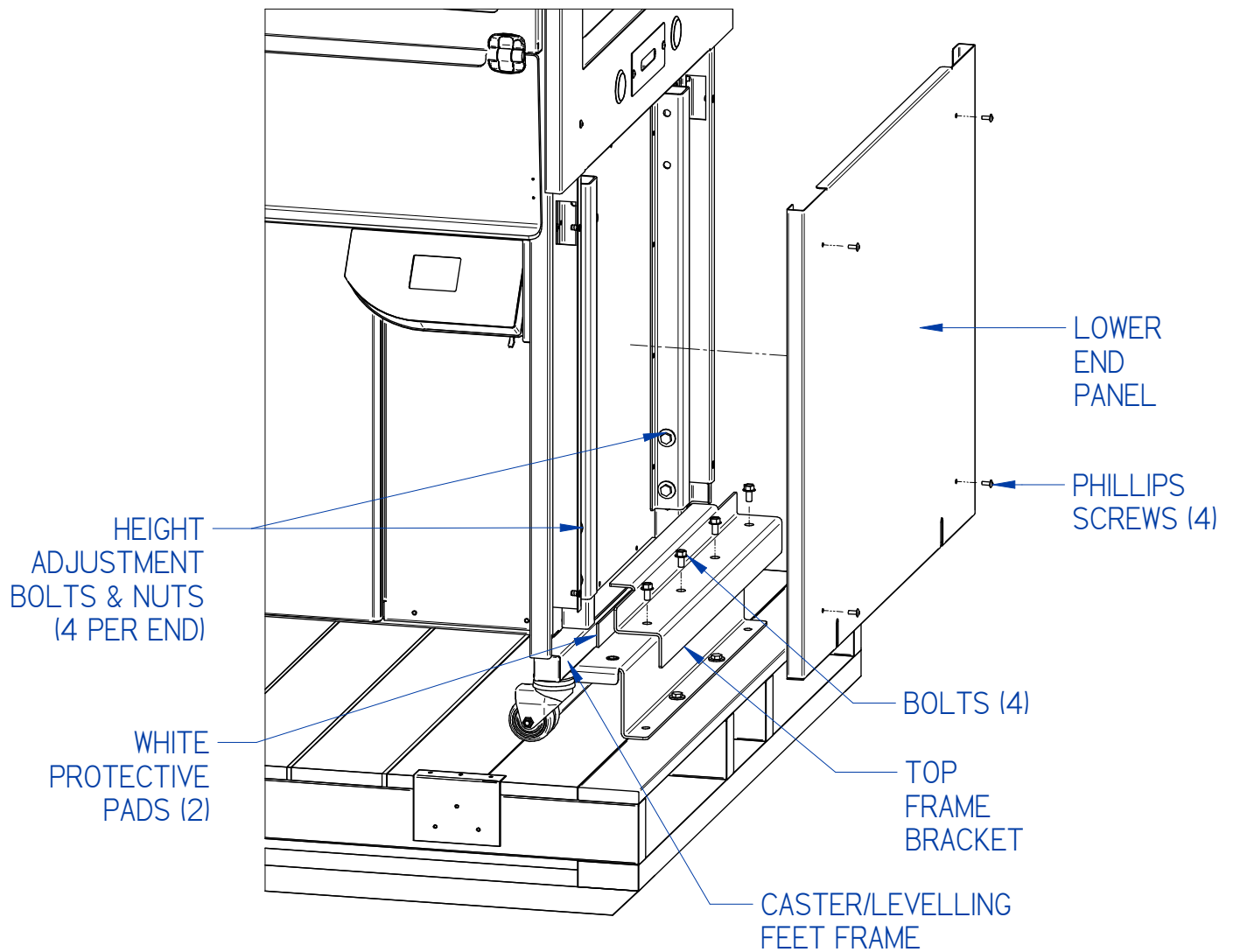
IMPORTANT – while the Scissor Jack is bearing the weight of the enclosure, never place any body part underneath the enclosure casters. Never place your head or other body parts underneath any part of the enclosure.

The casters on the enclosure end NOT being raised must be chocked with a board or otherwise secured BEFORE the Scissor Jack is used to raise one end of the enclosure.

Locate the Scissor Jack near one end. Place jack such that when raised, it contacts fully on the Center Lateral Strut underneath the enclosure. There are three Lateral Struts, be sure to position the Jack on the Center Strut. Reference Figure 4-4 below. Raise the Scissor Jack until it begins to make contact with the Center Strut, then stop raising it.

Remove the two (2) Lag Bolts and Washers from the Bottom Frame Bracket on the end where the Scissor Jack is located. Reference Figure 4-4. Continue raising the Scissor Jack until the weight of the enclosure is off of the Bottom Frame Bracket. Remove the Bracket; discard it and the hardware.

Carefully lower the Scissor Jack until the Casters bear the weight of the enclosure. Repeat this procedure for the opposite end.

Figure 4-4

12 inches (30 cm) maximum

BOTTOM FRAME BRACKET (2)

LAG BOLT & WASHER (2 PER END)

CENTER LATERAL STRUT

SCISSOR JACK
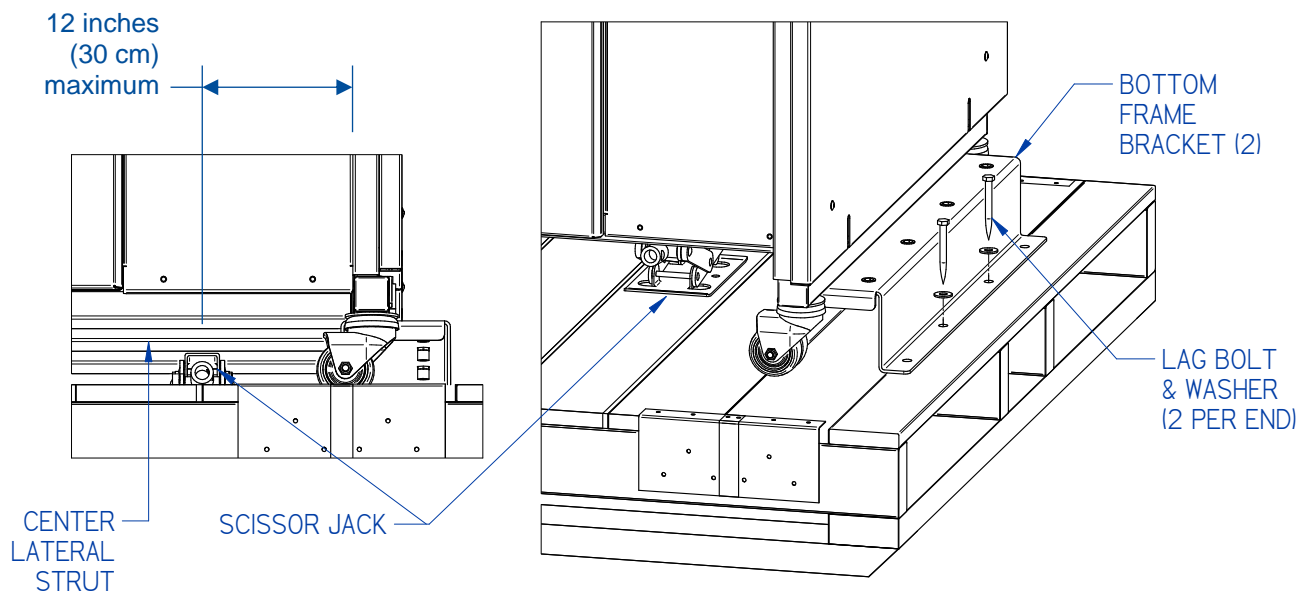
Locate the Pallet Ramp and four (4) Screws removed earlier. Place the Pallet Ramp on one end of the pallet as shown in Figure 4-5. The long chamfer on the Pallet Ramp should rest against the floor. Secure the Ramp to the Pallet by re-using the four (4) Screws that originally secured the Pallet Ramp in place for shipment. Run the four (4) Screws through the provided holes in the Ramp's top flange.

Figure 4-5

SCREWS (4)
INTO PROVIDED
RAMP HOLES
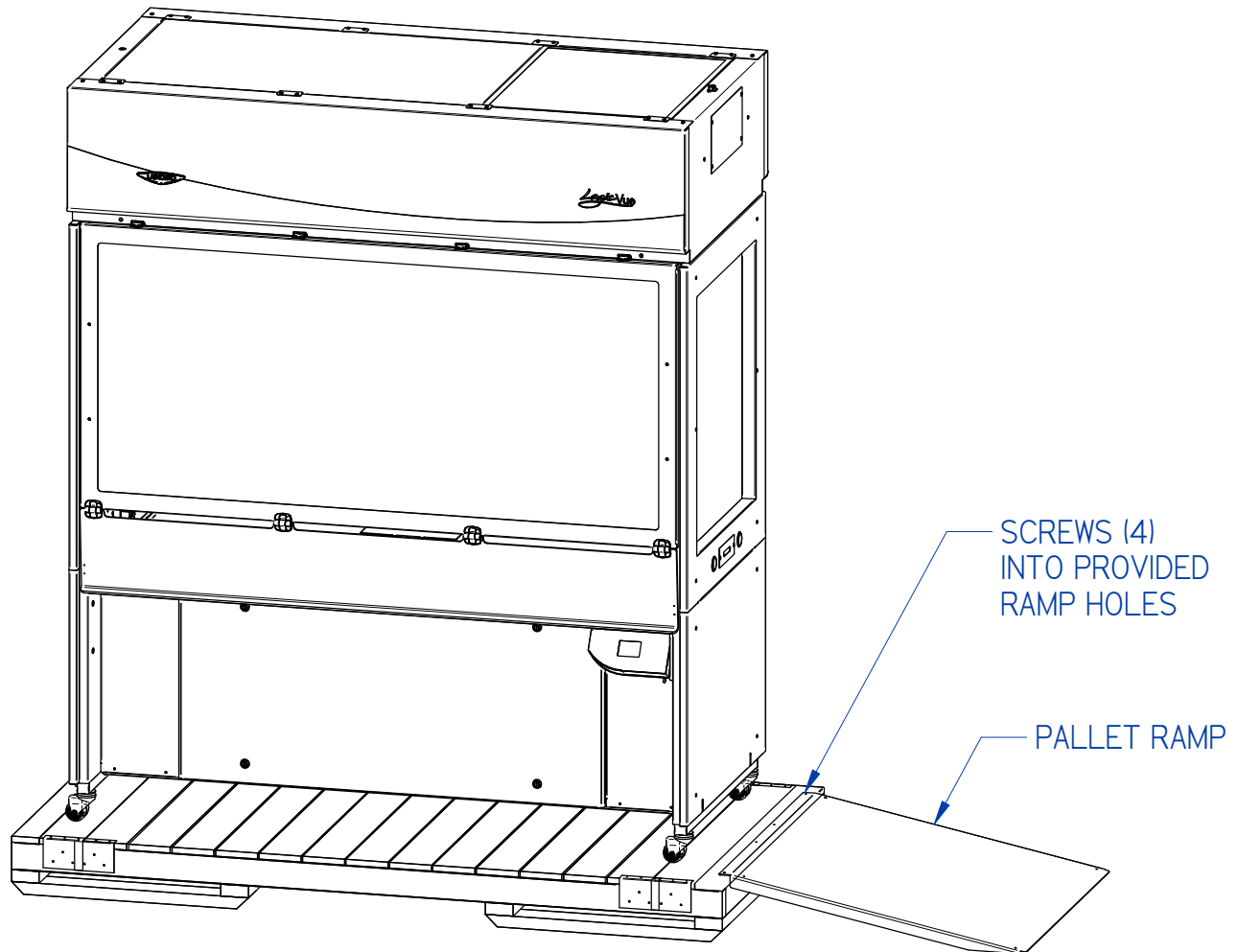
PALLET RAMP

Using at least two (2) persons, carefully and slowly roll the enclosure off the pallet and down the ramp until it rests securely on the floor. Discard the shipping pallet, ramp, and hardware. Keep the Scissor Jack and box with Levelling Feet.

Step 3 – Final Unpacking and Assembly

Once the enclosure has been moved to its final location for use, perform the following steps to finish unpacking and assembling several components.

If proceeding through a low or narrow doorway, see Narrow Door Clearance and/or Low Door Clearance later in this section.

Remove any remaining tape securing the sashes, drip tray and work surfaces. Open the front sash hatch, and retrieve the white parts box (see Figure 4-2) on top of the drip tray. The following parts are located in the white parts box:

- (4) Sash Restraint Latches
- (4) Screws
- (2) Work Surface Lift Tools & 2 Cable Entry Inserts [provide to end user]

Install the Sash Restraint Latches (4) in the lowest set of threaded holes on the far left and right ends of the front and rear sash hatch. Install the Screws (4) in the upper set of threaded holes in the front and rear sash hatch. See Figure 4-6. Place the Work Surface Lift Tools on the lower front panel (they contain a small magnet) as shown in Figure 4-6, so the user can locate them easily.

Figure 4-6

SCREWS (4)
IN UPPER POSITION

SASH LATCH (4)
IN LOWER POSITION

WORK SURFACE
LIFT TOOL (2)
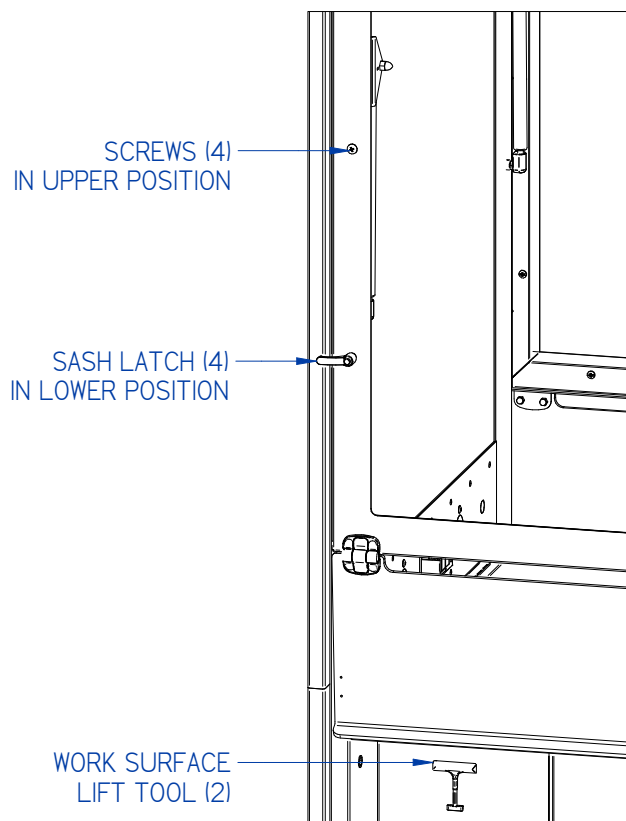
Step 4 – Set Work Surface Height

The enclosure must be in its final location before proceeding with this step.

The enclosure can be set with the Work Surface height from 31.5 inches (80 cm) to 37.5 inches (95 cm); in 1 inch (2.5 cm) increments. Identify the desired Work Surface height, then follow these instructions.

Follow the instructions in Step 2 – Pallet Removal in this section to utilize the included Scissor Jack to raise one end of the enclosure (reference Figure 4-4) for jack placement. Alternatively, a pallet jack can be utilized for this step.

The casters on the enclosure end that is NOT being raised must be chocked with a board or otherwise secured BEFORE the Scissor Jack is used to raise one end of the enclosure.

Remove the Lower End Panel (right and left end) by removing the four (4) Screws per End Panel. Reference Figure 4-3.

Raise the enclosure a maximum of 2 inches (5 cm), then remove the four (4) Height Adjustment Bolts & Nuts (reference Figure 4-3). Slide the Caster/Levelling Feet Frame up/down as desired, then reinstall the Adjustment Bolts & Nuts. Lower the completed end. Repeat this for the opposite end. If raising the enclosure more than 2 inches (5 cm), repeat this step in a maximum of 2 inch (5 cm) increments until the desire height is achieved.

Securely tighten the four (4) Adjustment Bolts and Nuts on EACH end. Replace the Lower End Panel and its screws.

Step 5 – Levelling Feet Installation

The enclosure must be in its final location before proceeding with this step.

The four (4) Levelling Feet provided must be installed for the following reasons:

- To completely level the enclosure's work area
- To allow full work area load capacity (casters have a lower load capacity of 165 lbs. per 2 linear feet of work surface width)
- To comply with seismic restraint regulations

The casters on the end that is NOT being raised must be chocked with a board or otherwise secured BEFORE the Scissor Jack is used to raise one end of the enclosure.

Remove the four (4) Levelling Feet from the box. While holding the Levelling Foot Body, rotate the seismic foot to collapse each Levelling Foot completely. Using the Scissor Jack from Step 2, raise one end of the enclosure approximately 1/4 inch (6 mm) off the floor. Be sure to follow all safety precautions when Scissor Jack is in use.

Remove the End Cap (see Figure 4-7). Hold the Caster Bolt with appropriate socket and ratchet, then loosen and remove the Lock Nut. Remove the Washer, Caster Bolt, Caster Washer, Shipping Caster, and Caster Top Plate – these items can be discarded or stored for future re-use. The End Cap and Lock Nut will be reused when installing the Levelling Feet.

Figure 4-7

LOCK NUT – REUSE

WASHER

CASTER TOP PLATE

END CAP – REUSE

SHIPPING CASTER

CASTER WASHER

CASTER BOLT
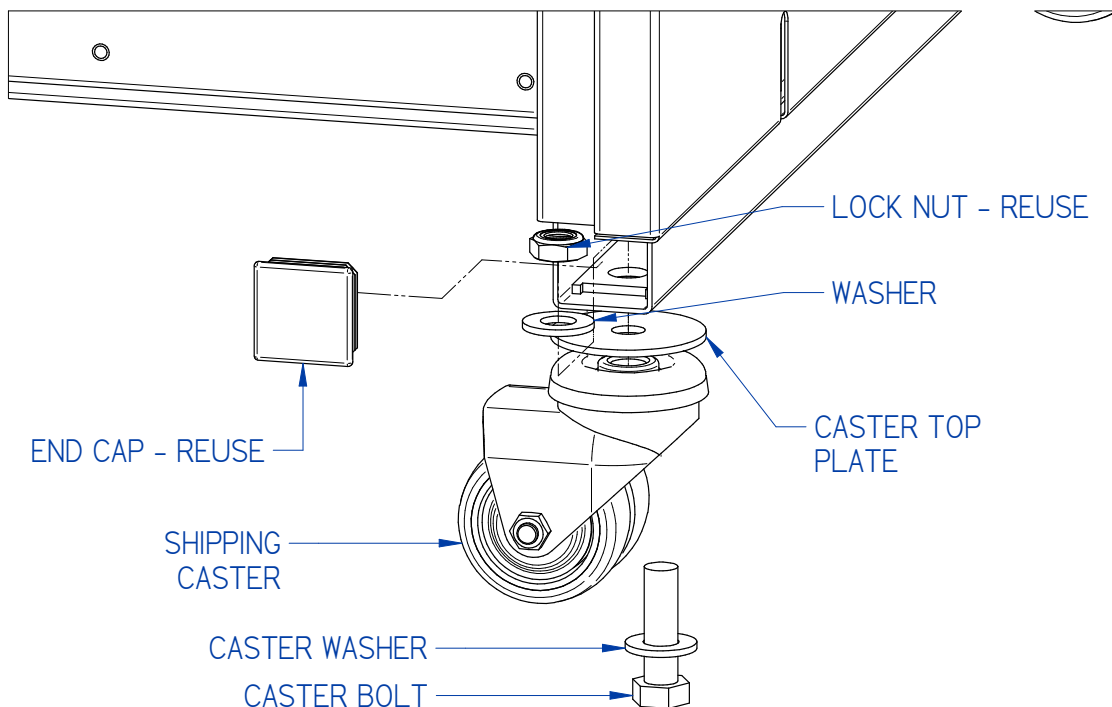
Place the Levelling Foot on the floor near the enclosure's caster support. Examine how far the Scissor Jack must be raised to fit the Levelling Foot and its threaded stem into the now vacant attachment hole. Raise the Scissor Jack enough to install the Levelling Foot's threaded stem into the attachment hole. Install the Lock Nut, tighten fully. Repeat for the other Caster/Foot on the same end. See Figure 4-8.

Lower the enclosure with the Scissor Jack. Reposition the Jack at the far end, and repeat for the two (2) remaining Casters.

Figure 4-8

CASTER SUPPORT

LOCK NUT

LEVELLING FOOT
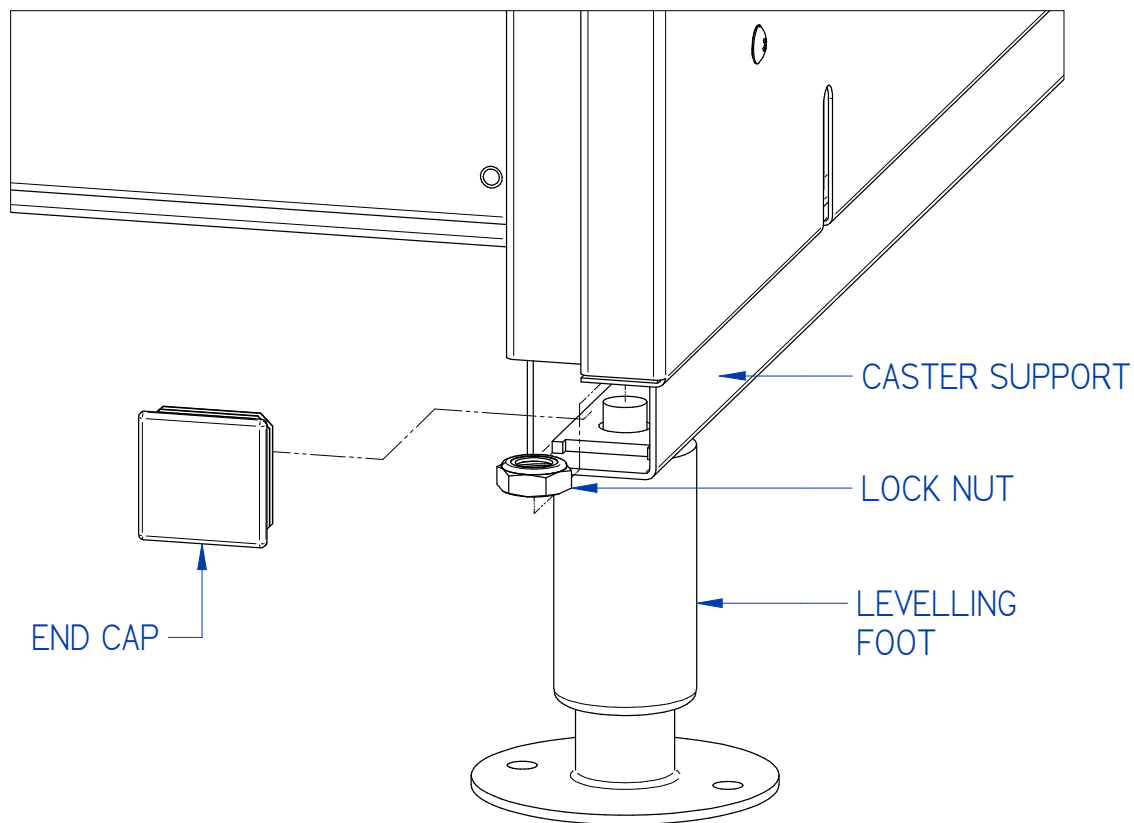
END CAP

Replace the four (4) End Caps. Using a Carpenter's Level on the work surface, level the enclosure from side to side and from front to back by adjusting each Levelling foot as necessary. It may be easier to lift each end of the enclosure with the Scissor Jack to rotate the Levelling Foot up/down as needed.

If seismic restraint is required, use appropriate screws for the flooring substrate and secure each of the four (4) Levelling Feet using the two (2) holes provided per Levelling Foot.

Narrow Door Clearance

Without partial disassembly, the Logic Vue is 39.6 inches (100.7 cm) wide. To fit through a narrow door, the Logic Vue can be partially disassembled to reduce the product width to 35.0 inches (89 cm). Follow the instructions below to partially disassemble the Logic Vue for narrow door clearance.

The following tools are required:

- #2 Phillips screwdriver (Cordless Drill and Phillips bit recommended)
- 5/16" wrench
- 5/16" nut driver (adapter for use with Cordless Drill recommended)
- 1/2" wrench AND 1/2" socket with ratchet
- Step Ladder

Step 1 – Upper Panel Removal

Reference Figure 4-9. Remove the Plate Screws (16) and Cap Plates (8). Lift off the Top Panel and Pre-Filter.

Remove the two (2) Top Screws on the far right and left end of the Upper Front Panel. Remove the three (3) Front Screws on each end of the Upper Front Panel. Tilt the Upper Front Panel away from the enclosure and lift the panel off. Repeat these instructions for the Upper Rear Panel.

Figure 4-9
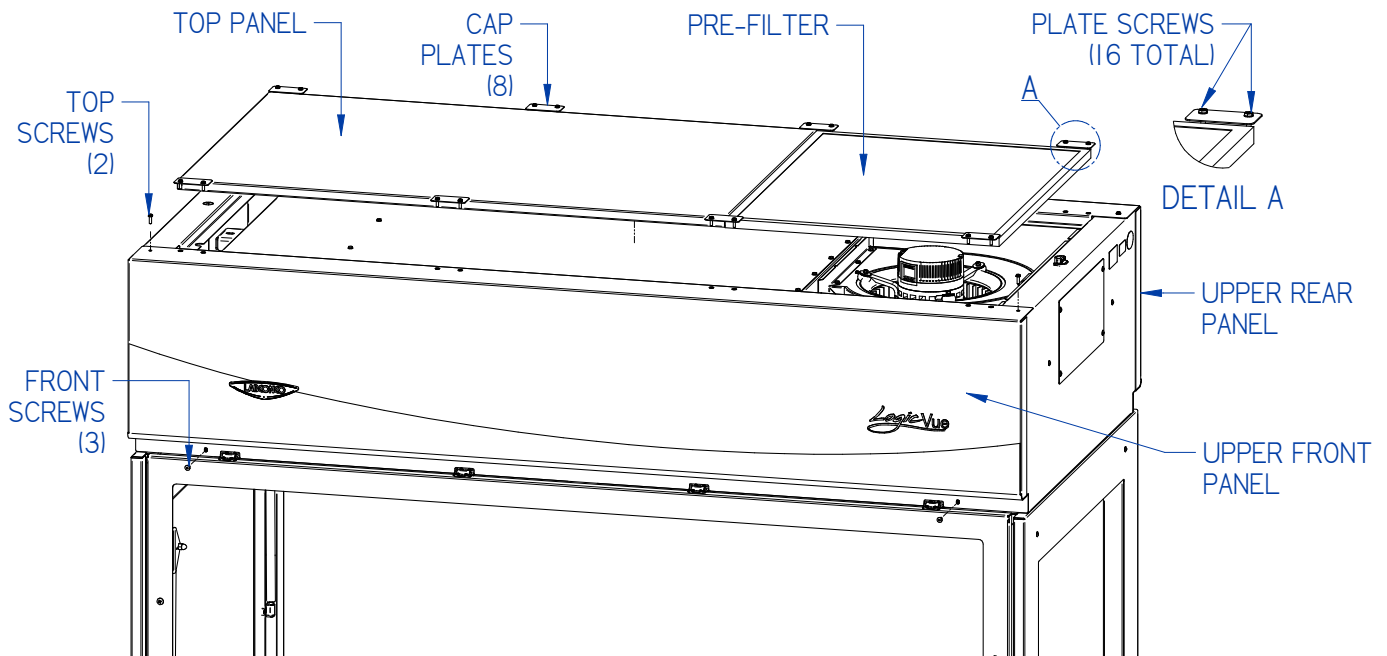
Step 2 – Upper End Panel Removal

Reference Figure 4-10. Remove the two (2) Screws on each End Panel. Rotate the top of each End Panel away from the enclosure, then lift each panel up to completely remove.

Figure 4-10

END PANEL

END PANEL

SCREWS
(2 PER PANEL)

Step 3 – End Panel Removal

Reference Figure 4-11. Remove the eight (8) Screws on the Top End Panel. Note that two (2) Screws hold the Pass Thru Cover in place, and this Cover will come off when removing these screws. Rotate the top of the Top End Panel away from the enclosure, then lift panel up to completely remove. Remove the four (4) Screws on the Bottom End Panel, and remove the Bottom End Panel. Repeat these instructions on the opposite end.

Figure 4-11

TOP END PANEL

SCREWS (12 PER END)

PASS THRU COVER

BOTTOM END PANEL

Step 4 – Sash Removal

Reference Figure 4-12. Rotate the Lower Sash fully open (lock Sash Retainer Latches if desired). Rotate Front Hatch fully open. Use one person to support the Front Hatch, while a second person removes the Gas Spring Nut (see Detail B in Figure 4-12). Hold the Gas Spring Stud stationary using the 1/2" wrench on the inside of the liner, while using the 1/2" socket and ratchet to loosen the Nut. Repeat for Gas Spring Nut on opposite end of Front Hatch. Allow Gas Springs to extend fully, close the Front Hatch slowly.

Remove the eight (8) Keps Nuts and Washers along the top of the Front Hatch (2 Nuts/Washers located near each of the four (4) hinges). Using two persons, lift the Front Hatch up to clear the threaded studs in the top of the liner. Set the Front Hatch aside.

Repeat these instructions for the Rear Hatch.

Figure 4-12

DETAIL C

KEPS NUTS (8 PER HATCH)

WASHERS (8 PER HATCH)

GAS SPRING (2 PER HATCH)

FRONT HATCH

LOWER SASH

C

REAR HATCH

B

LOWER SASH

GAS SPRING STUD

GAS SPRING NUT

DETAIL B
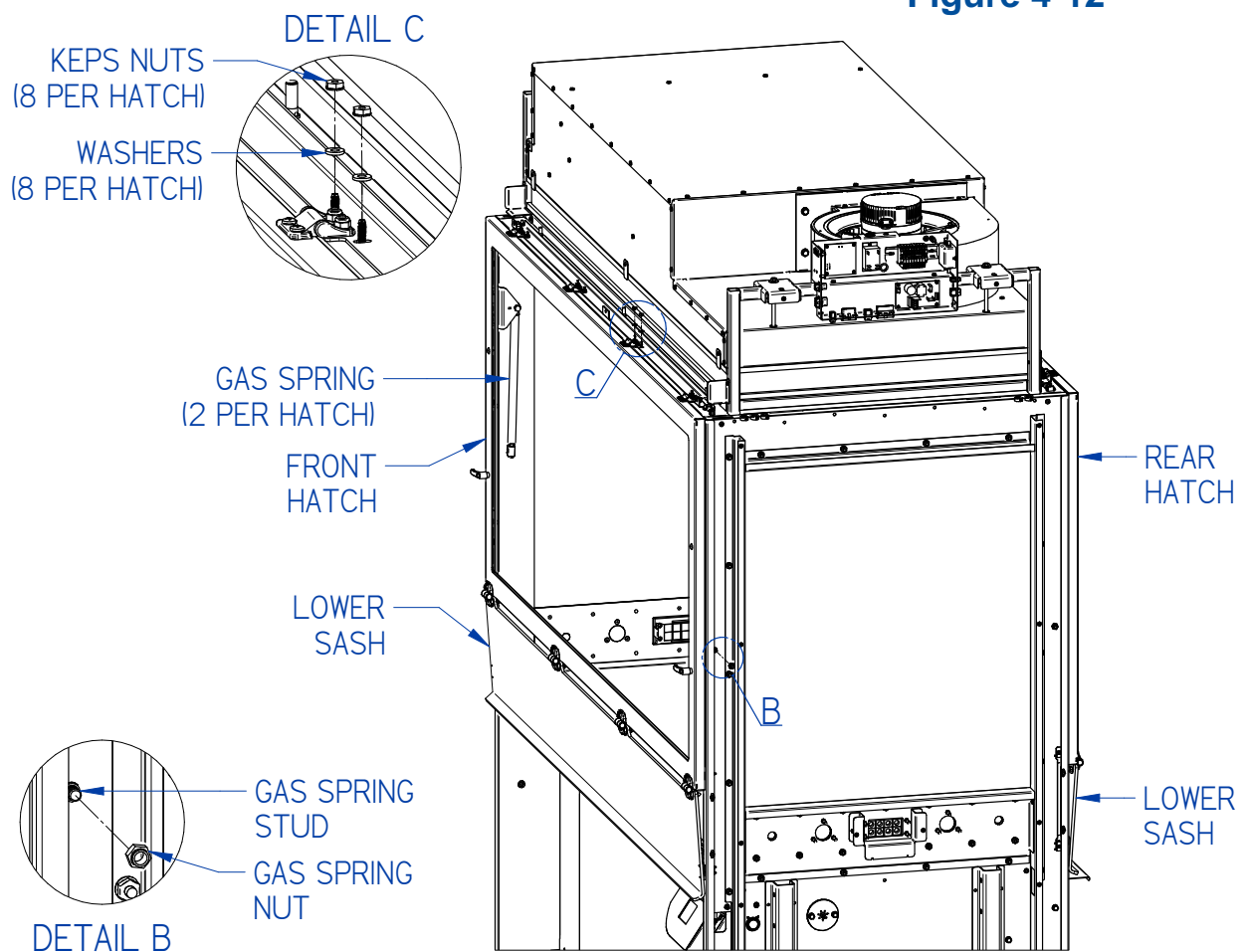
Step 5 – Display Adjustment

Reference Figure 4-13. If the Display is not already positioned vertical, locate the Locking Handle behind the Display. Rotate the handle counter-clockwise until the Display pivots freely. Pivot the Display until it is vertical, then tighten the Locking Handle.

Figure 4-13

DISPLAY

LOCKING HANDLE
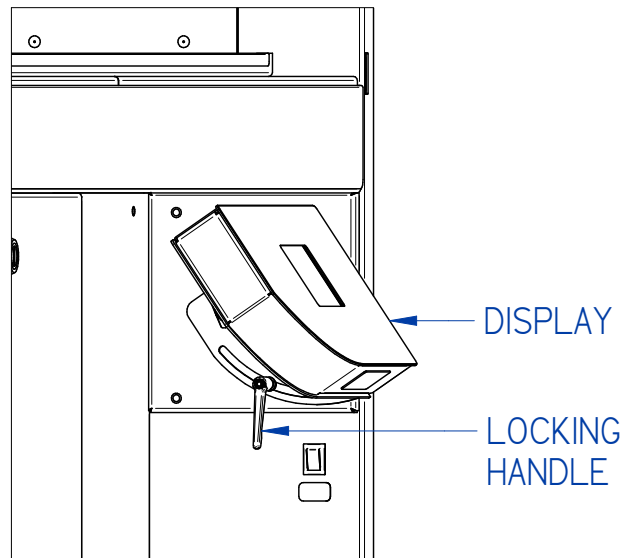
Step 6 – Exhaust Guard Removal

Reference Figure 4-14. Remove the Screws underneath the Exhaust Guard. Remove the Exhaust Guard.

Figure 4-14

EXHAUST GUARD

SCREWS
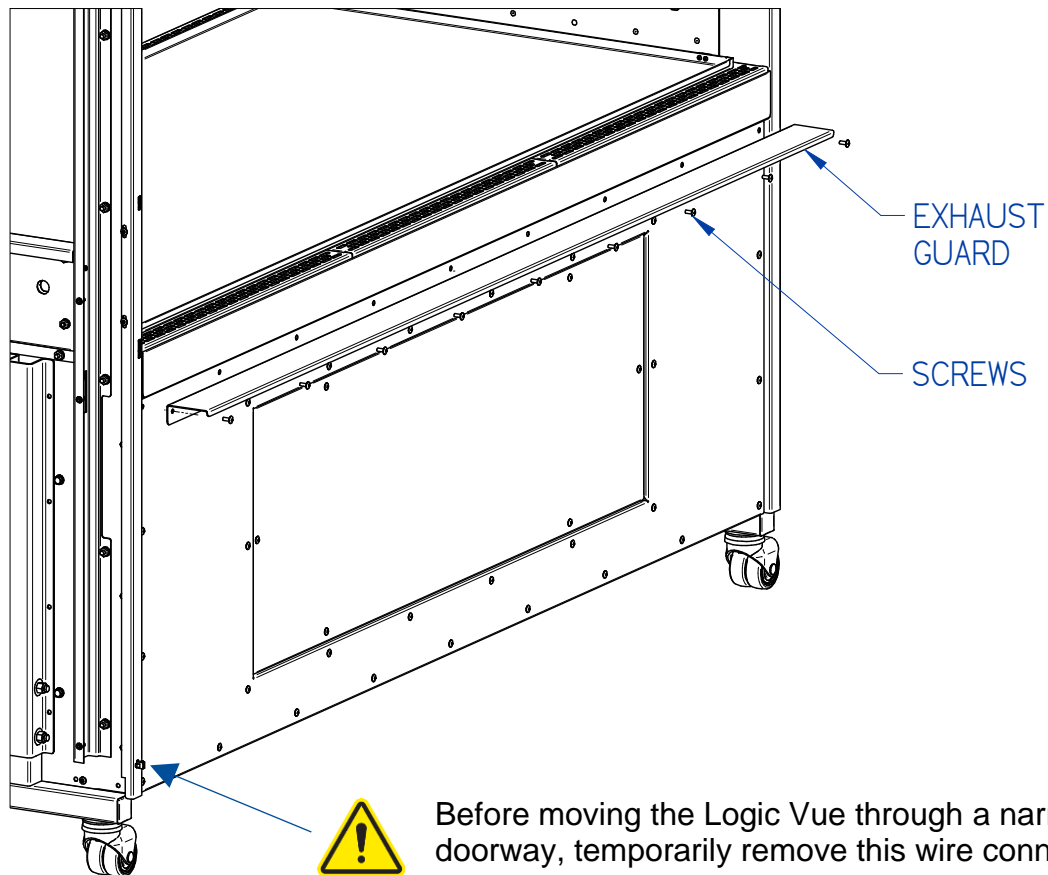
⚠ Before moving the Logic Vue through a narrow doorway, temporarily remove this wire connector by squeezing the two connector tabs and push the connector back through the wall. Reinsert the connector after the product is through the doorway.

The Logic Vue is now prepared to move through a narrow doorway. Once through, reassemble the parts in the reverse order.

Low Door Clearance

Without partial disassembly, the Logic Vue is 94.5 inches (240.0 cm) tall on its shipping casters (as shipped height = 94.5 inches, caster frame can be lowered 1 inch to 93.5 inches). To fit through a low door, the Logic Vue can be partially disassembled to reduce the product height to 77.5 inches (197 cm). Follow the instructions below to partially disassemble the Logic Vue for low door clearance.

The following tools are required:

- #2 Phillips screwdriver (Cordless Drill and Phillips bit recommended)
- 5/16" wrench
- 5/16" nut driver (adapter for use with Cordless Drill recommended)
- 1/2" wrench AND 1/2" socket with ratchet
- Step Ladder

Step 1 – Upper Panel Removal

Reference Figure 4-15. Remove the Plate Screws (16) and Cap Plates (8). Lift off the Top Panel and Pre-Filter.

Remove the two (2) Top Screws on the far right and left end of the Upper Front Panel. Remove the three (3) Front Screws on each end of the Upper Front Panel. Tilt the Upper Front Panel away from the enclosure and lift the panel off. Repeat these instructions for the Upper Rear Panel.
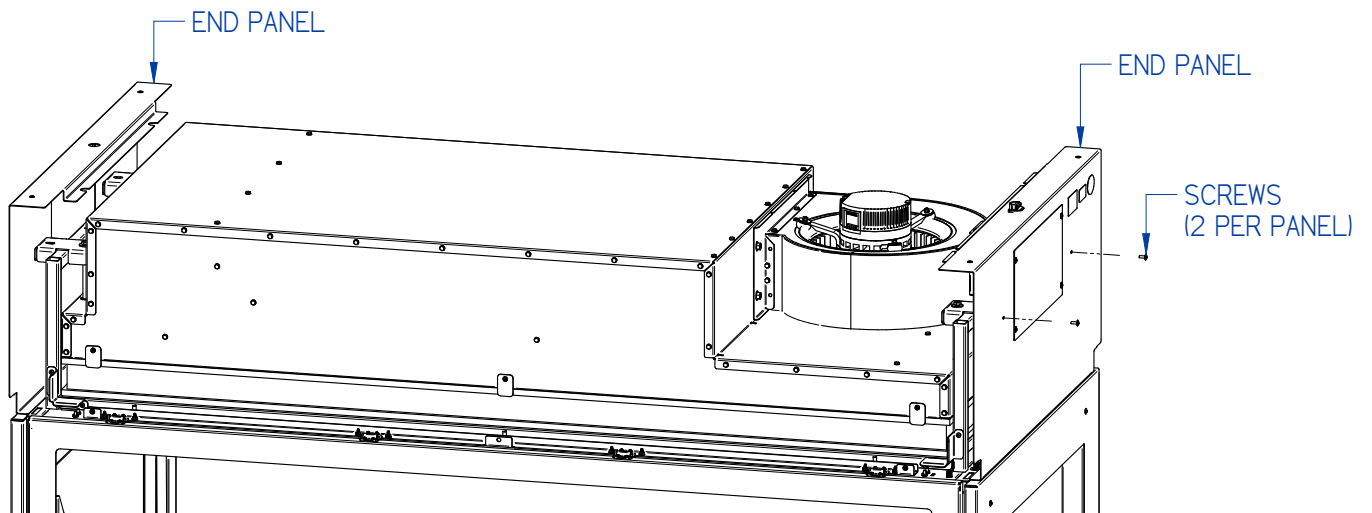
Figure 4-15

39
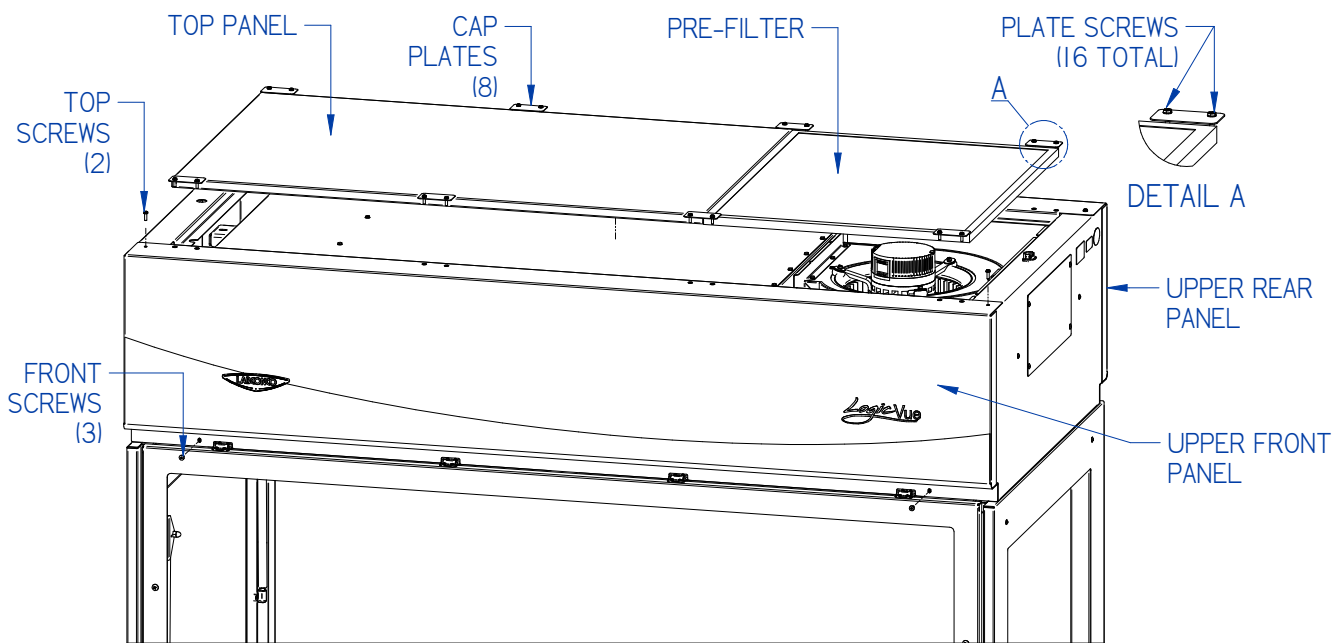
Step 2 – Upper End Panel Removal

Reference Figure 4-16. Remove the two (2) Screws on each End Panel. Rotate the top of each End Panel away from the enclosure, then lift each panel up to completely remove.
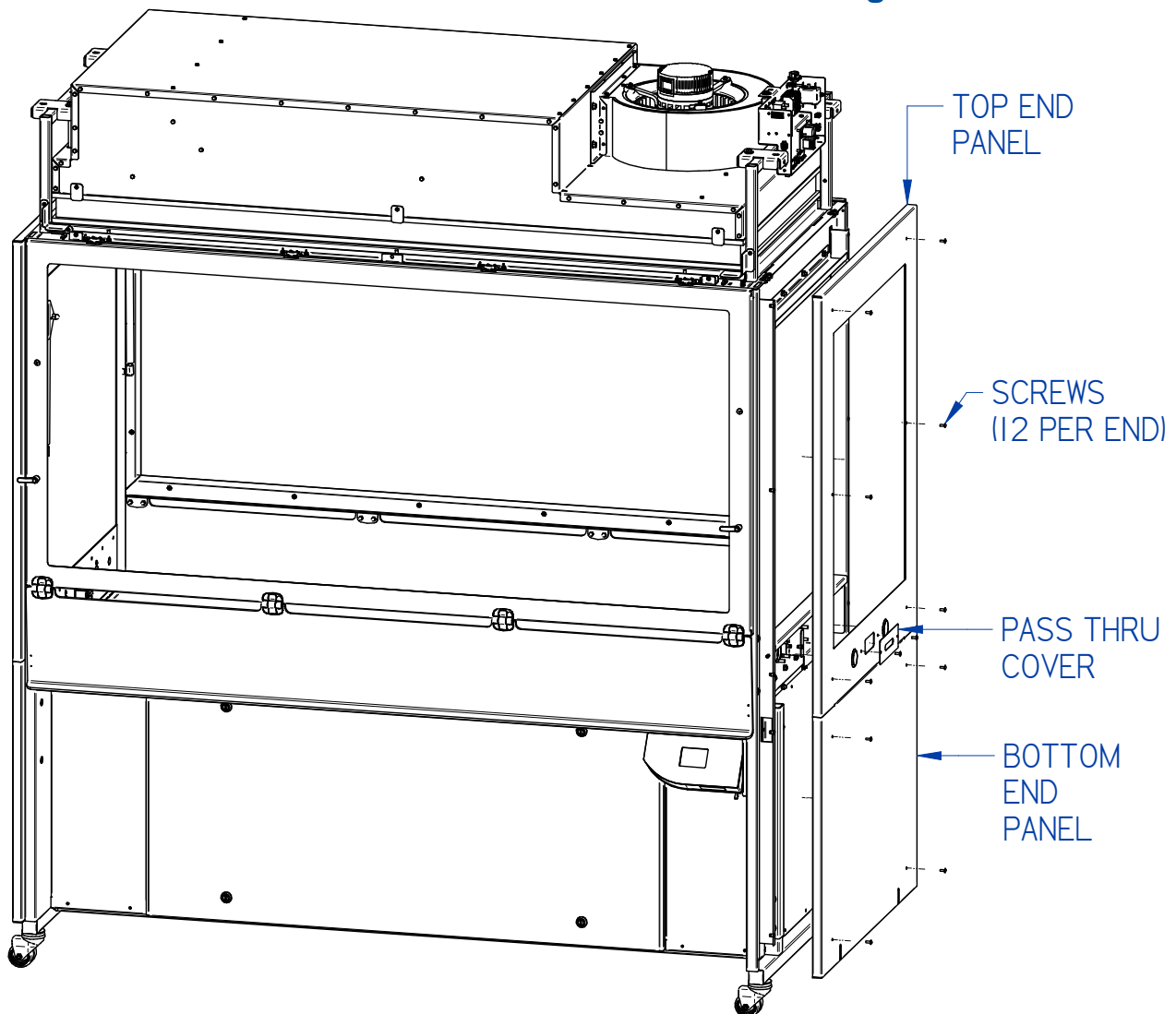
Figure 4-16

END PANEL

END PANEL

SCREWS
(2 PER PANEL)

FRONT VIEW
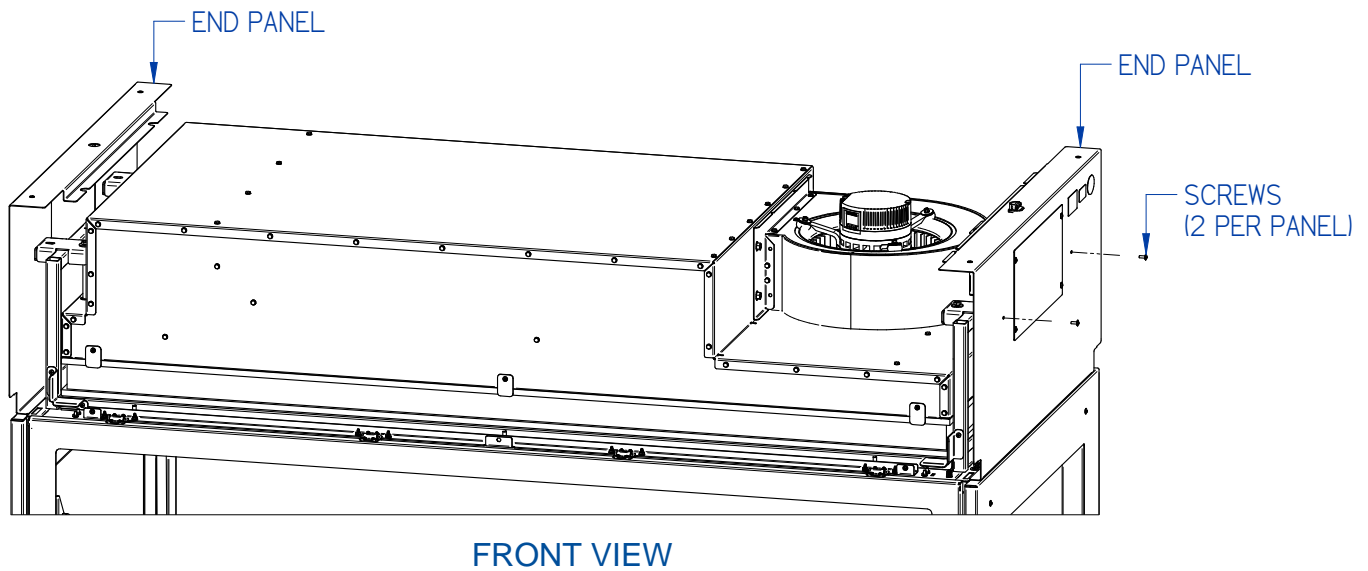
Step 3 – Electrical Box Removal

Reference Figure 4-17. Disconnect all Wiring Connectors from the Electrical Box. Note the two connectors in the rear face of the box – disconnect them as well. Lay all wiring/cables carefully over the end of the enclosure. Remove the two (2) Screws that secure the Electrical Box, and remove the Electrical Box.

Figure 4-17

DETAIL D

SCREWS (2)

ELECTRICAL BOX

WIRING CONNECTORS (2 ON REAR)

D

WIRING CONNECTORS
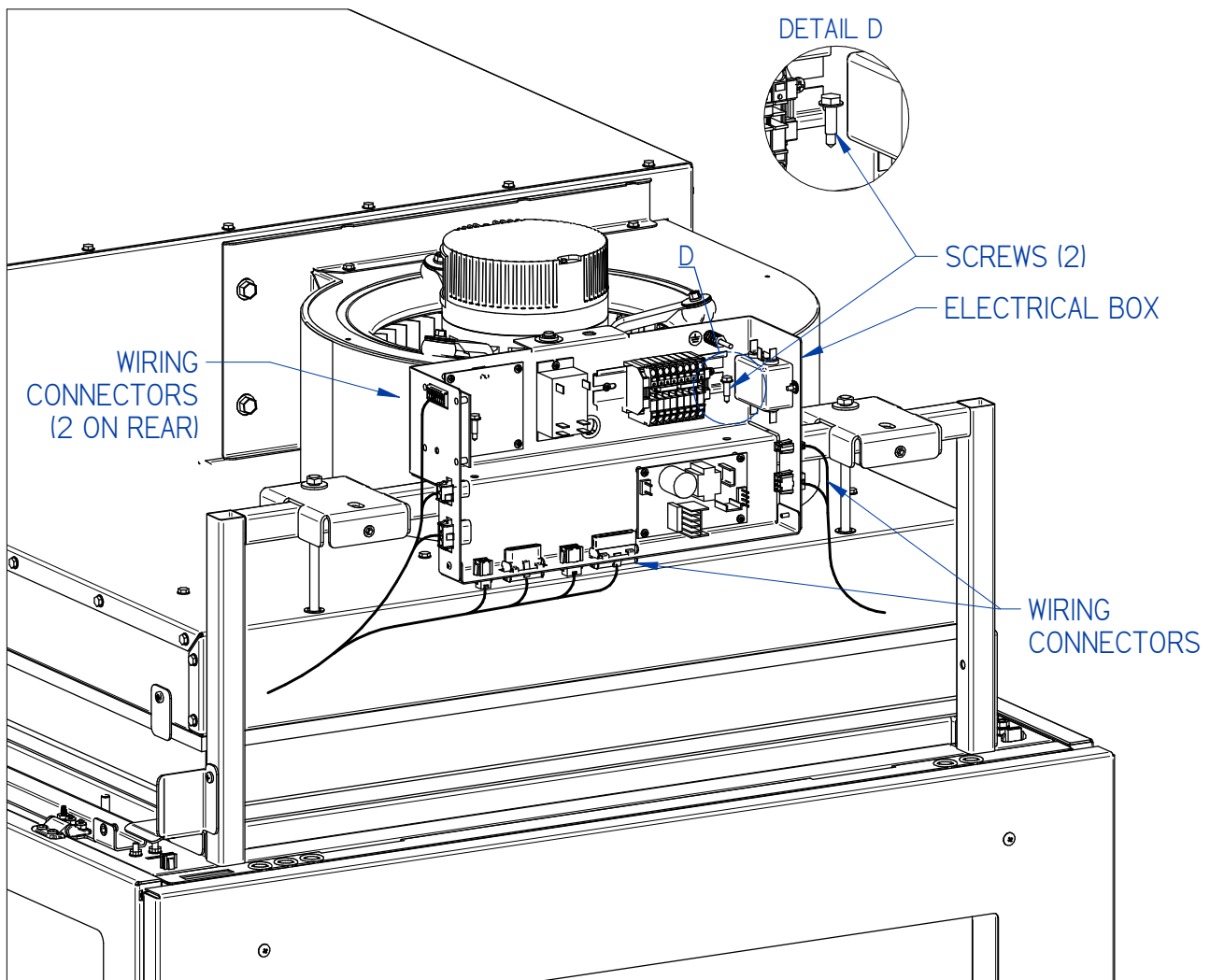
Step 4 – Supply Filter Removal

Reference Figure 4-18. Using the 1/2" socket and ratchet, turn each of the Plenum Lift Bolts CLOCKWISE to raise the Plenum off of the Supply HEPA Filter. Do not attempt to turn each bolt the entire distance, rather work in a pattern turning each bolt no more than 10 revolutions, then move to the next. This will lift the Plenum evenly. Repeat this pattern until the Plenum is high enough to slide the HEPA Filter free.

Using two (2) persons, slide the Supply HEPA Filter out. Be very careful not to touch the media. It WILL damage easily. Set the filter on end (standing up) somewhere that is safe from accidental contact.

Figure 4-18

FRONT VIEW
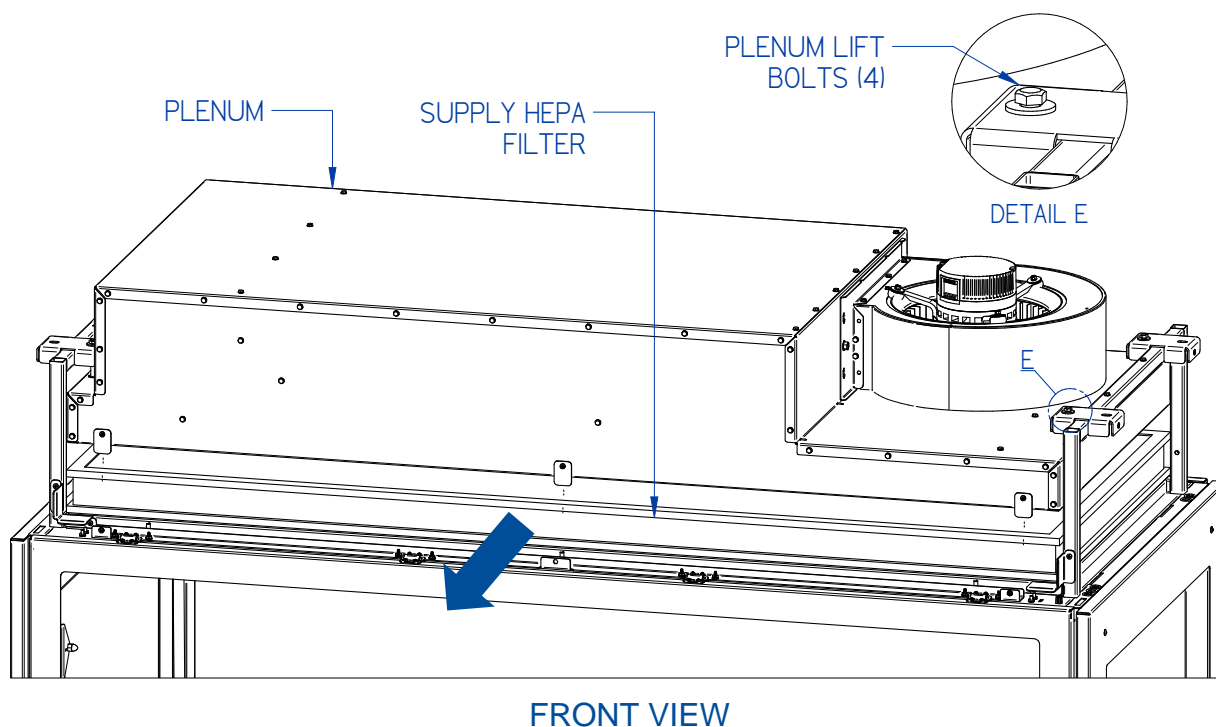
Step 5 – Plenum/Blower Removal

The Plenum/Blower and Upper Frame can be lifted off the top of the enclosure together, if at least four (4) persons or a mechanical lift are available. If those resources are available, this step may be skipped.

Reference Figure 4-19. Remove the three (3) Filter Tabs by removing the single screw on each. Using a 1/2" socket and ratchet, turn the four (4) Plenum Lift Bolts COUNTERCLOCKWISE until the Plenum/Blower Assembly lowers and then is free from each Lift Bolt. Do not attempt to turn each bolt the entire distance, rather work in a pattern turning each bolt no more than 10 revolutions, then move to the next. This will lower the Plenum/Blower evenly.

Placing two (2) boards (one at the right end and one at the left end) underneath the Plenum, such that they sit on the Upper Frame on both ends of the board, before the Plenum is completely released will aid in the removal (and re-installation) of the Plenum/Blower Assembly.

Figure 4-19
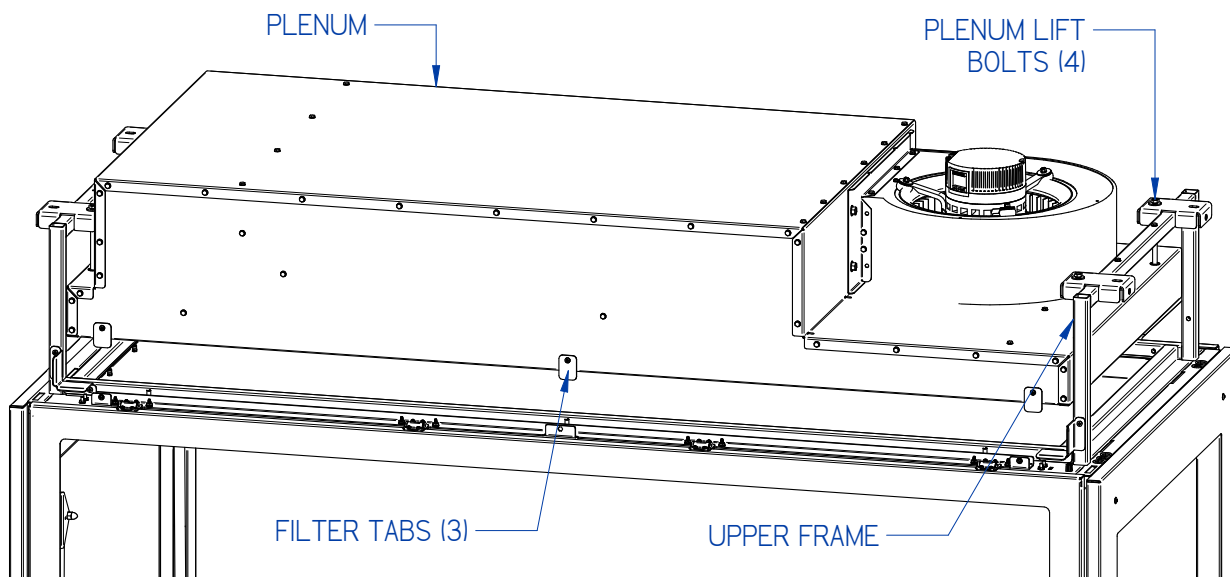
FRONT VIEW

Step 6 – Upper Frame Removal

Reference Figure 4-20. Open the front Sash Hatch, locate the Diffuser, and six (6) Screws that secure the Diffuser. Remove all six (6) Screws and the Diffuser.

Figure 4-20

DIFFUSER — SCREWS (6)
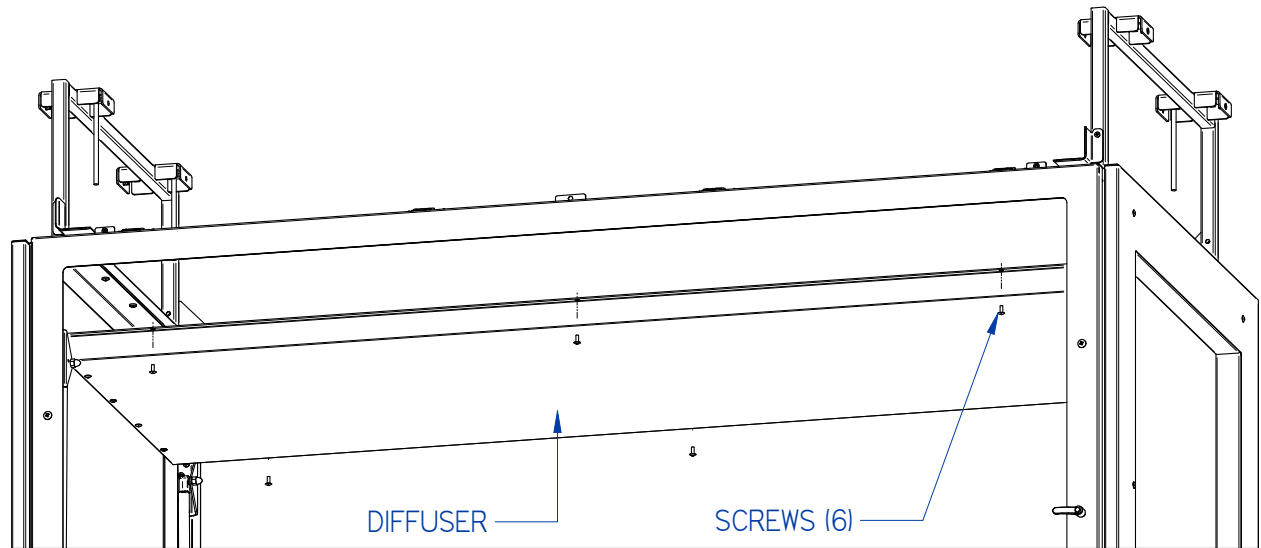
Reference Figure 4-21. Remove the Screws that secure the Upper Frame in place. Using two (2) persons, lift the Upper Frame off of the top of the enclosure.

Figure 4-21

UPPER FRAME

SCREWS
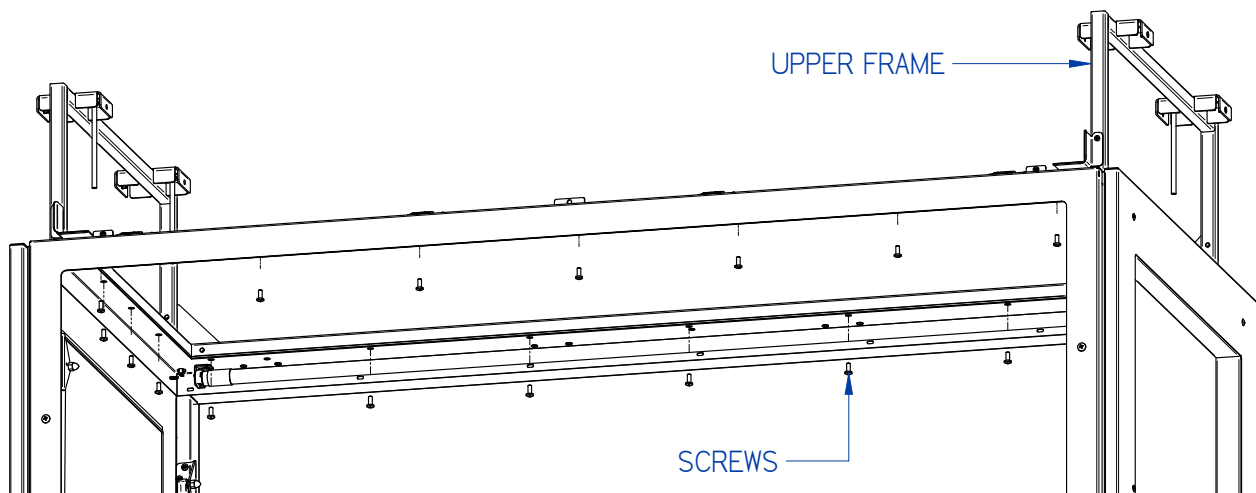
The Logic Vue is now prepared to move through a low doorway. Once through, reassemble the parts in the reverse order.

Electrical Connection

The enclosure requires a dedicated, hard-wired power source appropriately rated per Section 2: Electrical Requirements. To make the supply electrical connection, follow these steps.

Using a step ladder and #2 Phillips screwdriver, remove the four (4) Screws and Electrical Box Cover (see Figure 4-22).

Figure 4-22
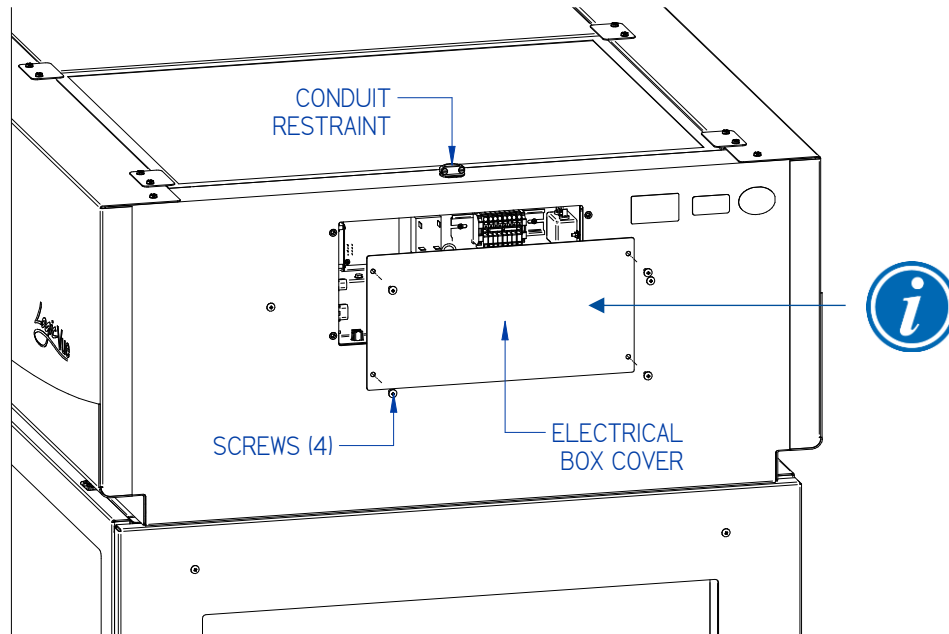
Run the supply electrical flexible conduit through the strain relief fitting (labeled Conduit Restraint in Figure 4-22) and into the Electrical Box. Wire stripping/finishing work can be done once the flexible conduit is through the fitting and excess wire available in the box.

A copy of the Wiring Diagram is located on the inside of the Electrical Box Cover.

Verify the supply electrical source is single phase.

Locate the DIN Rail in the upper right corner of the Electrical Box. Using the illustrations on the following page, strip the outer insulation and connect L1, L2 and earth ground to the appropriate DIN Rail terminals.

Pull excess flexible conduit back out of the Electrical Box, then secure the Conduit Restraint on the outer conduit jacket by tightening the two (2) screws on the clamp.

100-120V 50/60Hz

208-240V 50/60Hz

EARTH GROUND

L1 SUPPLY   L2 SUPPLY

EARTH GROUND

L1 SUPPLY   L2 SUPPLY
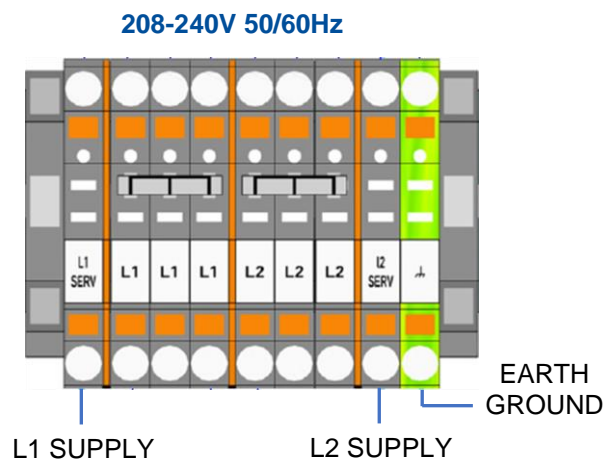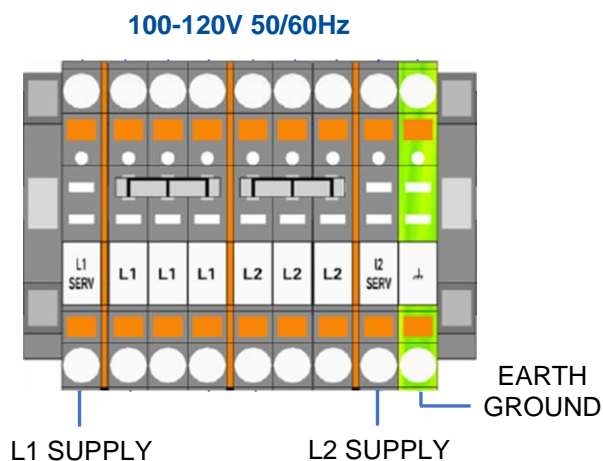
To open the appropriate DIN terminal, use a flat blade screwdriver to press on the orange contact, this will lever the catch open and the stripped wire can be inserted. Release pressure on the orange contact, and the catch will close on the wire.

Once all wiring is complete, verify the supply wires are not resting on any components within the Electrical Box. Replace the Electrical Box Cover and the four (4) Screws.

Service Line Connection

Service fixtures are not pre-installed on all models. If your model does not include a service fixture, this step may be skipped. A service fixture can be field installed at any time, the service fixture kit will contain instructions for installing the fixture. Follow the instructions below to make the plumbing connection to the service fixture.

The incoming service line(s) should be connected to the tube compression fitting(s) on the outside of the liner wall as shown in Figure 4-23b. Open the Upper End Panel, then:

1. Ensure that the tubing is ¼ inch O.D., soft metal, and that the end has been completely deburred.

2. Route the tubing through one of the two (2) slots on either Lower End Panel (see Figure 4-23a).

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 enclosure.

3. Make sure that the nut on the 90 degree tube fitting is loose, but do not remove it. Make sure the tube ferrule is in the fitting.

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 enclosure and then slowly open the shutoff valve on the service line. Test all fittings for leakage. Tighten the tube nut slightly if needed.

Figure 4-23a
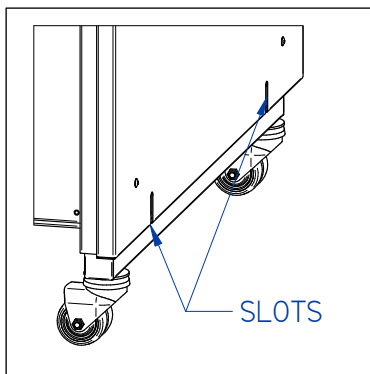
Figure 4-23b
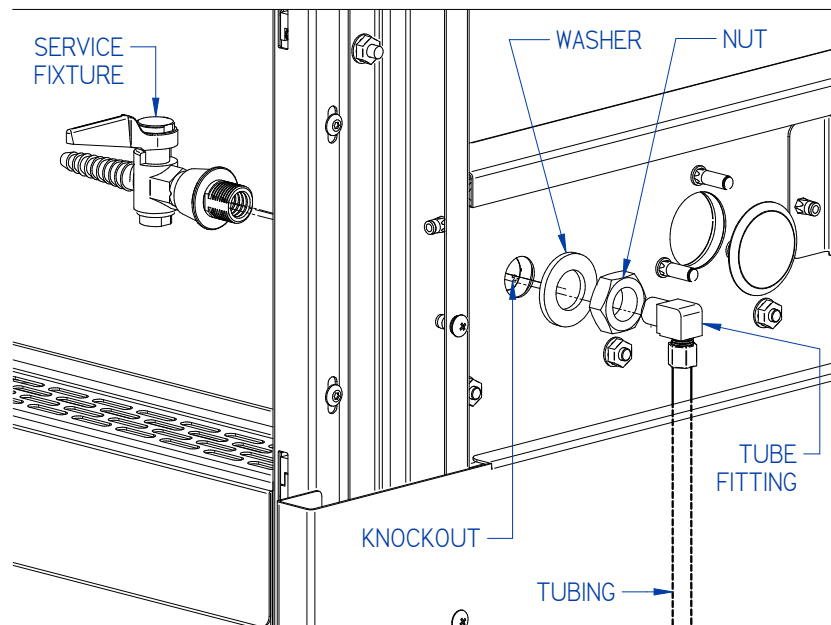
Exhaust Connection

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

Note: The canopy connection, also referred to as a thimble or air gap connection, allows single or multiple enclosures to be connected to an exhaust system. During operation, the exhaust system draws all of the enclosure's exhaust air, plus a volume of room air (through the vent 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 installing a canopy connection, go to Section 9: Accessories.

Note: If the research involves the use of toxic compounds or volatile materials, contact the facility's EH&S team or Labconco to ensure that the enclosure and its exhaust system are compatible with the materials you will be working with.

Certification

Prior to use, a qualified certifier should certify the enclosure.   Under normal operating conditions, the enclosure should be recertified at least annually and when relocated or serviced. The certifier should perform the following tests:

- Downflow Velocity Profile Test

- Inflow Volume Test

- Airflow Patterns

- HEPA Filter Leak Test

- Work Area Cleanliness Test *

- Lighting Intensity Test *

- Noise Level Test *

   *These tests are optional 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.

Certifier Password

The certifier password is: **[LIGHT] [UP] [TIMER] [TIMER] [OK/MUTE]**.

Use this password for all normal calibration and certification activities.

If installing or replacing an Airflow Sensor, the sensor will need a zero point calibration. In order to access the zero-point calibration screen, a different password is required. This password is: **[LIGHT] [UP] [TIMER] [DOWN] [OK/MUTE]**.

Downflow Velocity Profile Test

The downflow velocity profile shall establish laminar downflow and the average downflow velocity.

The following tools are required:

- Tape Measure
- Felt-tipped Marker
- Thermal Anemometer and stand (stand height must place probe 12 inches or 30.5 cm above the work surface)
- Calculator (to calculate the average of the downflow data points)

Establish the downflow velocity test points on the work surface as shown in Figure 4-24. Dimensions shown are in inches. It is recommended to number each point for reference.

Figure 4-24

Front of LogicVue
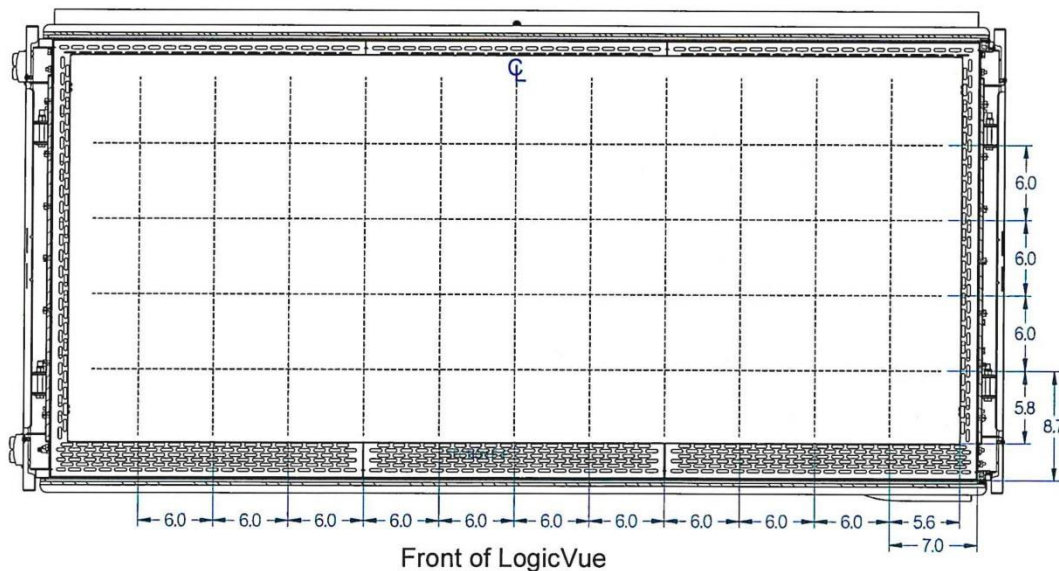
The test points are geometrically centered on the work surface. For reference, the front, right most test point will be located 8.7 inches (221 mm) in from the front edge, and 7.0 inches (178 mm) from the right inner side wall. The distance between all rows and columns of test points shall be 6.0 inches (152 mm).

Place the thermal anemometer in its stand. Verify the probe's directional mark is directed correctly. Most anemometer tips have a small circle, which should be facing the oncoming airflow (facing up in this test).

Locate the height of anemometer probe 12 inches (30.5 cm) above the work surface. Verify the enclosure's blowers are on, and have reached a stable level (generally when the *Please Wait* notification is dismissed from the display, which is about 90 seconds).

The lower sash on the rear of the enclosure must be closed. The lower sash on the front of the enclosure must be open. Verify no alarms are active on the display.

Place the anemometer stand and anemometer on the first test point. Verify the anemometer's time constant is set to 10 seconds or higher.

Take a velocity reading with the anemometer at each test point. Reference Table 4-1 to verify the total number of test points sampled is correct for the model under test.

Average all velocity readings. The average shall be one of the Average Downflow options listed in Table 4-1.

Table 4-1

Cabinet Width (Feet)	Catalog Number	Test Points	Average Downflow (+/- 3 fpm or 0.015 m/s)
4'	33004xx	28	40, 45, or 50 fpm (0.20, 0.23, or 0.25 m/s)
6'	33006xx	44	40, 45, or 50 fpm (0.20, 0.23, or 0.25 m/s)

If large equipment is placed inside the enclosure, and the equipment cannot have its outer panels removed to allow downflow air to flow through the equipment, it is recommended to set the average downflow velocity no higher than 40 fpm (0.20 m/s) to reduce high velocity zones between the equipment and the Front and Rear Hatch walls. See Equipment Placement later in this section for more details.

In some cases, an instrument may not be easily removable from the enclosure for each certification. In such cases, Labconco recommends collecting downflow measurement points in accordance with the IEST-RP-CC002.4 methodology, with measurements occurring 6 inches (150 mm) downward from the HEPA filter diffuser.

Should the instrument obstruct any given point, the certifier should at minimum establish safe downflow values at the front and to the sides of the instrument. An airflow visualization study (AVS) can assist with validation of containment and personnel protection after setting the enclosure's airflows.

If the Average Downflow needs to be adjusted, see Section 8: Calibration to adjust the Supply Blower speed.

Remove the tools and anemometer, along with any downflow test point markings on the work surface.

Inflow Volume Test

The test shall establish the volume of air entering the enclosure through the sash opening(s).

The following tools are required:

- Duct tape or equivalent
- 3mm PVC board, or equivalent
- Direct Inflow Meter (Shortridge™ or equivalent)
- Step Ladder or ring stand to support the Direct Inflow Meter (recommended)

If the Inflow Volume Test is not performed immediately after the Downflow Velocity Profile Test, check the following enclosure conditions:

1. Verify the enclosure's blowers are on, and have reached a stable level (generally when the *Please Wait* notification is dismissed from the display, which is about 90 seconds).
2. The lower sash on the rear of the enclosure must be closed. The lower sash on the front of the enclosure must be open. Verify no alarms are active on the display.

Figure 4-25

G

BLOCK FRONT OPENING
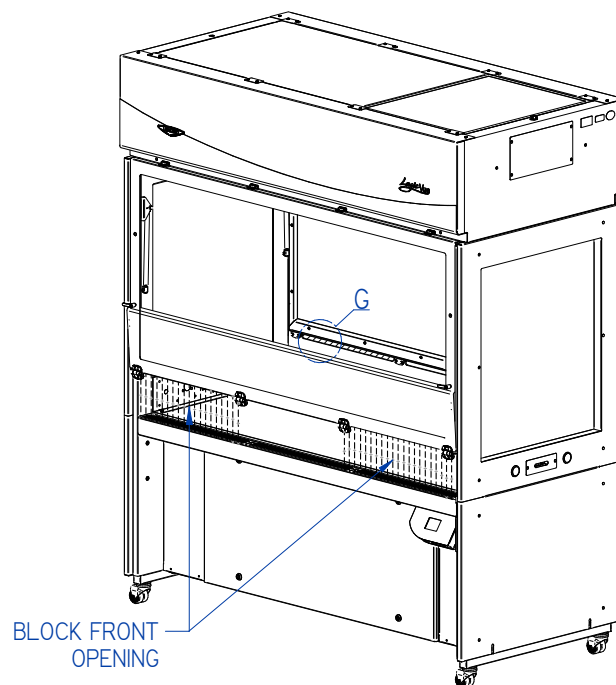
Cut or trim 2 pieces of the PVC board (or equivalent) as needed to block the front opening on either side of the Direct Inflow Meter's skirt. Both pieces of PVC board must be the same length such that the open area between the board is in the center of the enclosure (left-to-right). Tape both pieces to the front sash opening, leaving the appropriate remaining open portion for the Direct Inflow Meter. Be sure to tape all edges of the boards.

Before placing the Direct Inflow Meter onto the enclosure, note that outward pressure at the lower edge of the Front Hatch may open the Hatch inadvertently. The Direct Inflow Meter may exert slight outward pressure on the Front Hatch. To avoid the Hatch opening accidentally, tape the Front Hatch securely to the end panel.

Place the Direct Inflow Meter's skirt onto the remaining front sash opening, and tape it securely to the perimeter of the opening. Use a step ladder or ring stand to support the far end of the Direct Inflow Meter to prevent it from accidentally falling.

Take five (5) readings for the inflow volume. Average the readings. The inflow volume to be within the range listed on Table 4-2.

Table 4-2

Cabinet Width (Feet)	Catalog Number	Inflow Volume	Avg. Inflow Velocity
4'	33004xx	278-306 cfm (472 – 520 m³/hr)	100-110 fpm (0.51 - 0.56 m/s)
6'	33006xx	411-452 cfm (698 – 768 m³/hr)	100-110 fpm (0.51 - 0.56 m/s)

If the Inflow Volume needs to be adjusted, see Section 8: Calibration to adjust the Exhaust Blower speed.

Remove the test equipment, boards, and tape.

Airflow Pattern Test

Utilize a non-thermal smoke source to visually check airflow patterns in and around the enclosure.

The following tools are required:

- Smoke Stick(s), or
- Smoke Generator

If the Airflow Smoke Pattern Test is not performed immediately after the Inflow Volume Test, check the following enclosure conditions:

1. Verify the enclosure's blowers are on, and have reached a stable level (generally when the *Please Wait* notification is dismissed from the display, which is about 90 seconds).
2. The lower sash on the rear of the enclosure must be closed. The lower sash on the front of the enclosure must be open. Verify no alarms are active on the display.

Personnel Protection – Front Sash

Place the Smoke source inside the enclosure. Starting at the far left end, approximately 4 inches (100 mm) behind the Front Hatch at a height 8 inches (200 mm) above the work surface, begin generating smoke. Slowly move the smoke source from the far left end to the far right end, maintaining the vertical position 4 inches (100 mm) inside the Front Hatch.

All smoke released during this portion of the test should be drawn into the slots along the front edge of the work surface.

Product Protection – Front Sash

Place the Smoke source outside the enclosure. Starting at the far left end, approximately 4 inches (100 mm) in front of (outside) the Front Hatch and a height of 8 inches (200 mm) above the work surface, begin generating smoke. Slowly move the smoke source from the far left end to the far right end, maintaining the vertical position 4 inches (100 mm) outside the Front Hatch.

All smoke released during this portion of the test should be drawn into the slots along the front edge of the work surface, or a portion of the smoke drawn into the slots along the front edge of the work surface and the remainder never entering the front opening. Smoke shall not breach past the slots in the front edge of the work surface and travel across the work surface.

HEPA Filter Leak Test Preparation & Safety Precautions

Before initial use, or after a HEPA filter change, it is recommended to verify the integrity of the supply and exhaust HEPA filters. This test will check for leaks in each HEPA filter. This test should only be conducted by a trained certifier, preferably one who is NSF accredited.

This section describes the preparation, tools, and safety precautions required to challenge each HEPA filter in the enclosure.

The following tools are required:

- Aerosol Generator
- Photometer
- Ladder (6-ft tall minimum)
- Phillips Screwdriver
- 5/16" Wrench

During this test, the blowers must be on and running at a stable level (generally when the *Please Wait* notification is dismissed from the display, which is about 90 seconds).

While scanning the supply HEPA filter, the Front Hatch will be open. When the blowers are on, this will generate a Sash Alarm. Press **[OK/MUTE]** on the display keypad to mute the audible alarm tone for 5 minutes. If the audible alarm returns, simply press the button again to mute for another 5 minutes.

You never know what a HEPA-filtered enclosure has been exposed to, so it is always recommended to surface decontaminate any components prior to working inside the enclosure and/or removing components from the enclosure.

Supply HEPA Filter Leak Test

This section provides the test method and instructions to challenge the supply HEPA filter in the enclosure.

1. Open the Front Hatch.
2. Remove the Supply Diffuser by removing the Phillips Screws securing the Diffuser.
3. Using a ladder, remove the Pre-Filter atop the enclosure (far right end). This will require a 5/16" wrench to remove several Screws on the two Pre-Filter Brackets.
4. Place the aerosol generator next to the supply blower (or if insufficient clearance between the top of the enclosure and the ceiling, a 2 inch (50 mm) or greater diameter tube can be used to deliver the aerosol to the supply blower; and the generator can remain on the ladder. The generator's output must be directed into the blower intake.
5. Ensure that the generator is level, and the oil level is within 1/8 inch (3 mm) of the level line.
6. Turn on the photometer and allow it to operate for a minimum of 5 minutes. Leave the valve in the "CLEAR" setting for this 5 minute period.
7. Set the upstream concentration on the photometer based on the model under test. See Table D-1, find the "Theoretical Aerosol Conc. (ug/L)" under the section Supply HEPA Filter Leak Test Data. Upstream Sampling is not available on the enclosure. Use the values provided in Table D-1.
8. If the aerosol generator requires pressurized air, connect the air line. Turn on the appropriate number of Laskin nozzles for the model under test based on Table D-1. Verify each nozzle is working properly.
9. Verify the generator's air pressure is 23 psi.
10. At this point, aerosol is being dispensed from the generator. Do not let the generator operate in this configuration for an extended period.
11. Set the photometer sampling valve to "DOWNSTREAM". Verify proper vacuum at the sampling nozzle of the photometer.
12. Scan the downstream side of the supply HEPA filter by passing the sampling nozzle in slightly overlapping strokes over the entire surface of the filter. The sampling nozzle must be no more than 1 inch from the surface of the filter media. Scan at a traverse rate of not more than 2 inches per second.
13. Scan the entire periphery of the supply HEPA filter, including the gasket between the filter frame and the enclosure structure.

Note: When scanning the front edge of the supply HEPA filter, photometer operation may become erratic due to the aspiration of room air into the front of the work area. This problem can be minimized or eliminated by placing the edge of a sheet of rigid plastic or metal just outside the edge of the HEPA filter when scanning the front edge. See Figure 4-26 for reference.

Figure 4-26

Acceptance Criteria
Aerosol penetration shall not exceed 0.01%.

⚠ Reinstall the diffuser. Make sure the slots in the diffuser flange are oriented to the front of the Logic Vue.

Reinstall the pre-filter and pre-filter brackets. Close the Front Hatch.

Exhaust HEPA Filter Leak Test

This section provides the test method and instructions to challenge the exhaust HEPA filter in the enclosure.

1. Open the Front Hatch.
2. Remove the Drip Tray. Set it aside in a safe location so it cannot fall over.
3. Using the Work Surface Lift Tools, remove the center Work Surface.
4. Place the aerosol generator next to the screened opening in the Drip Tray, which was exposed when removing the center Work Surface. Direct the output nozzle of the generator into the screened opening.
5. Ensure that the generator is level, and the oil level is within 1/8 inch (3 mm) of the level line.
6. On the lower rear of the enclosure, remove the Exhaust Filter Screen. See Figure 4-27.

Figure 4-27

EXHAUST HEPA FILTER — SCREWS (6) — EXHAUST COVER
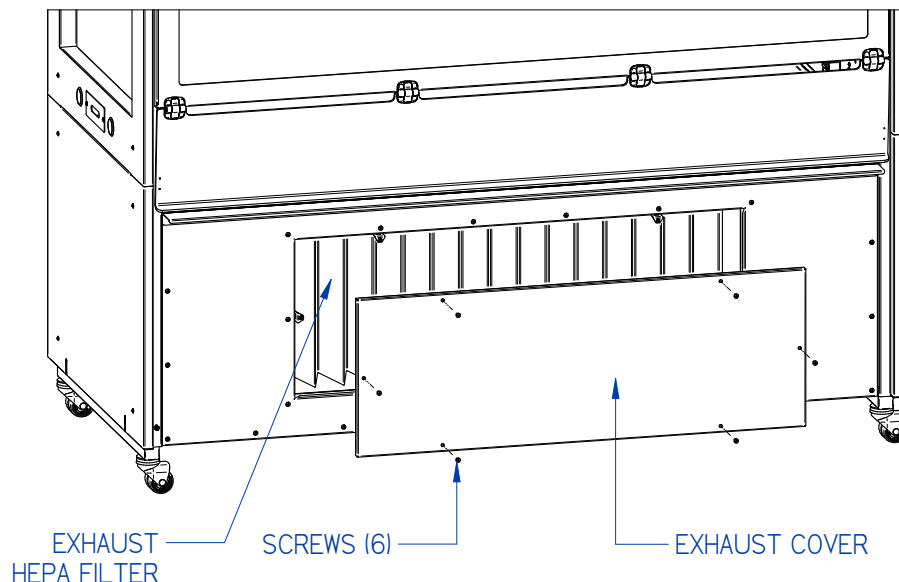
7. Turn on the photometer and allow it to operate for a minimum of 5 minutes. Leave the valve in the "CLEAR" setting for this 5 minute period.
8. Set the upstream concentration on the photometer based on the model under test. See Table D-1, find the "Theoretical Aerosol Conc. (ug/L)" under the section Exhaust HEPA Filter Leak Test Data. Upstream Sampling is not available on the enclosure. Use the values provided in Table D-1.
9. If the aerosol generator requires pressurized air, connect the air line. Turn on the appropriate number of Laskin nozzles for the model under test based on Table D-1. Verify each nozzle is working properly.
10. Verify the generator's air pressure is 23 psi.

11. At this point, aerosol is being dispensed from the generator. Do not let the generator operate in this configuration for an extended period.
12. Set the photometer sampling valve to "DOWNSTREAM". Verify proper vacuum at the sampling nozzle of the photometer.
13. Scan the downstream side of the exhaust HEPA filter by passing the sampling nozzle in slightly overlapping strokes over the entire surface of the filter. The sampling nozzle must be no more than 1 inch from the surface of the filter media. Scan at a traverse rate of not more than 2 inches per second.
14. Scan the entire periphery of the exhaust HEPA filter.

Note: When scanning the edges of the exhaust HEPA filter, photometer operation may become erratic due to the aspiration of room air into the HEPA-filtered exhaust airflow. This problem can be minimized or eliminated by placing the edge of a sheet of rigid plastic or metal just outside the edge of the HEPA filter when scanning the perimeter edges. See Figure 4-28 as reference.

Figure 4-28

Acceptance Criteria
Aerosol penetration shall not exceed 0.01%.

Reinstall the Exhaust Screen, center Work Surface, and Drip Tray. Close the Front Hatch.

Work Area Air Cleanliness Test (optional)

Air cleanliness is a measurement of all particles (greater than or equal to 0.5 micron in size) in the air. This is not a standard test. However, if the end user would like to verify air cleanliness in the work area, follow these instructions:

1. Mark test points at the geometric center of the work surface, and midway between the center test point and each side wall.

2. Place a particle counter pickup at a height of 16 inches (410 mm) above the work surface, pointing up into the airflow. Place the particle counter pickup at each of the three marked test points, and take one sample at each test point of 1.0 ft^3 of air. See Figure 4-29 for reference.

    Note: if sampling 1.0 m^3 instead of 1.0 ft^3, see Acceptance Criteria below for passing threshold.

3. Average the particle count results from each of the three test points.

Figure 4-29

Particle Counter Pickup
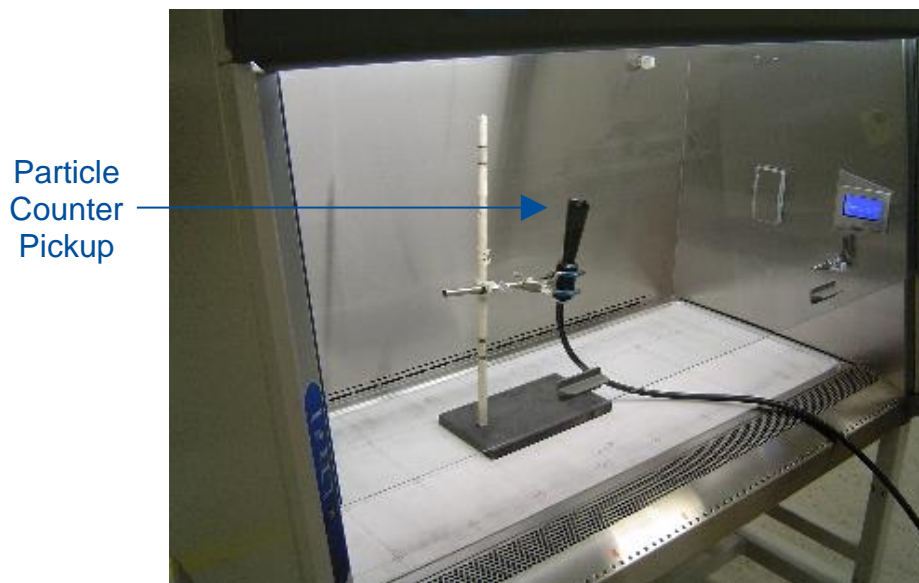
Acceptance Criteria

The average particle count is less than 100 particles 0.5 micron and larger per cubic foot, or less than 3,520 particles 0.5 micron and larger per cubic meter.

Lighting Test (optional)

The light intensity should be measured with a light meter that is color- and cosign-corrected for accurate results. To test the light intensity at the enclosure's work surface, follow these instructions:

1. Mark test points on the work surface as follows:
   a. Mark the front-to-back centerline of the work surface
   b. Starting 7 inches (178 mm) from the left side wall, mark a test point on the front-to-back centerline.
   c. Continue marking additional test points along the centerline at 12 inch (305 mm) increments until the last test point is 7 inches (178 mm) from the right side wall. A 4-ft model should yield 4 test points; and a 6-ft model 6 test points.
   d. All test points are now marked.

The Front and Rear Hatch should be closed when taking light intensity readings.

2. With the enclosure's lights off, take a background reading with the light meter. It should be 15 foot-candles (161 lux) or less.

3. Turn on the lights of the enclosure. Wait 1 minute.

4. Place the light meter sensor at each of the marked test points and take a reading.

5. Average all test point readings.

Acceptance Criteria

The average light level shall be no less than 60 foot-candles (650 lux) greater than the background light level reading.

Final Location Installation

This section provides important information on the final location of the enclosure. Please follow these instructions carefully.

The Logic Vue exhausts its HEPA-filtered air out of the lower, rear of the enclosure. If the enclosure is placed directly against a wall or obstruction, this will reduce the life of the exhaust HEPA filter. 24 inches (610 mm) of clearance between the rear of the enclosure and the nearest obstruction (wall, casework, etc) is recommended. See Figure 4-30.

To prevent a complete blockage of exhaust air, the enclosure includes an Exhaust Guard (or spacer) on the rear side. This spacer has two functions:

1. If the enclosure is pushed against a wall, this spacer will contact before any other surface, preventing damage.

2. If the enclosure is pushed against a wall and operated in this location, it will direct the exhaust air (which is now at a high velocity) to the sides and down. This prevents the exhaust air from traveling up, which could otherwise negatively impact the protection provided by the enclosure.

Figure 4-30
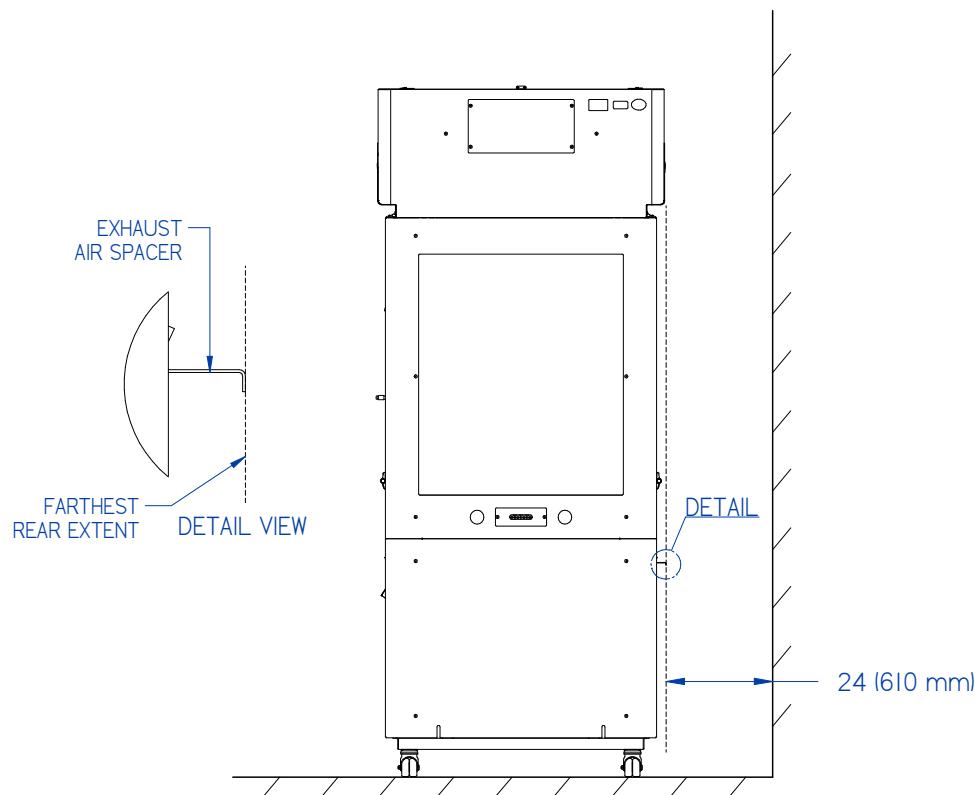
Equipment Placement & Set-up

When placing large equipment inside the Logic Vue enclosure, make certain it is centered in the work area (as close as reasonably possible). This allows the downflow air to pass by all sides, and improves product and personnel protection.

In addition, if the equipment is an automated system with guard panels on the top/sides, remove these panels (if possible) to allow the HEPA-filtered downflow air to pass through the equipment. This will reduce high velocity air patterns within the enclosure as the downflow air accelerates between the large equipment and the Front and Rear Hatch walls. See Figure 4-31.

The Logic Vue provides a switched safety interlock that closes a single contact when all sashes are closed. This interlock can be connected to a safety interlock on the automated equipment, such that the equipment will operate safely. If any of the Logic Vue sashes (or optional Access Doors) are opened, the Logic Vue will open the interlock contact, which signals the automated equipment to pause operations.

Figure 4-31

High Velocity Regions
(if equipment cover
panels are not removed)

Room Air

HEPA-filtered Air

Contaminated Air

Large Object
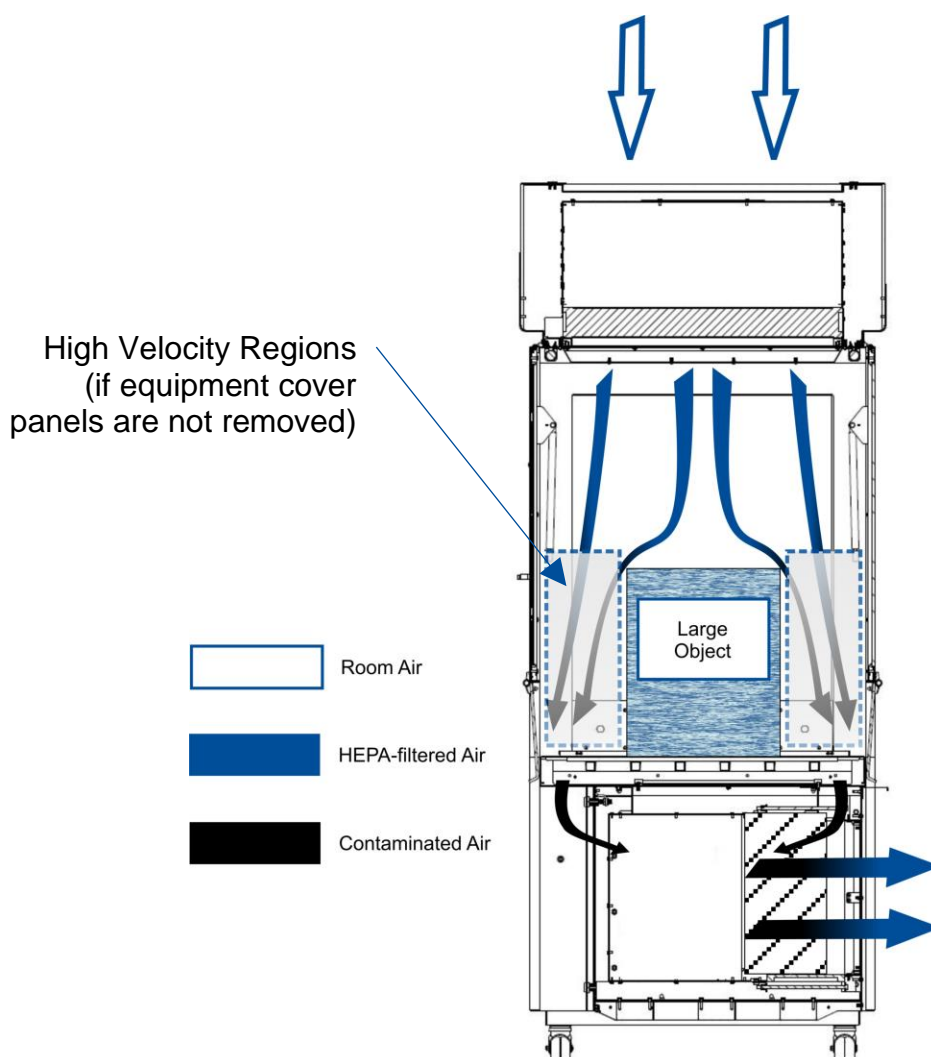
Leveling of Instrumentation

Ensure your instrument is level after being placed inside the Logic Vue. Each section of work surface within the Logic Vue is designed to support up to 250 lbs. (114 kg). If your instrument does not include leveling feet, an anti-deflection bar located underneath the multi-piece work surface may be adjusted in the event that your instrument has caused the Logic Vue work surface to deflect.

To adjust this bar, remove the spill pan and multi-piece work surface to access the anti-deflection bar. Raise or lower the built-in screws until the Logic Vue's work surface becomes level.

Vibration

Some instruments may require a nearly vibration-free environment. The Logic Vue's blowers are isolated to prevent the transition of a majority of vibration to the enclosure's work surface. Should your device have extreme sensitivity to vibration, a solid epoxy work surface can be placed into the Logic Vue to eliminate vibration. Contact Labconco for more information.

Serial Tag Location

Two Serials Tags are provided on the product. The primary Serial Tag is located on the top, right end near the service panel for the electrical box. The primary Serial Tag contains the following information:

- Catalog (Model) Number

- Serial Number

- Electrical Information (Voltage, Amperage, Frequency, Phase)

The secondary Serial Tag is located on the front (or bottom) edge of the Display Housing. The secondary Serial Tag contains only the Catalog Number and Serial Number for quick reference.

See Figure 4-32 to identify the location of each Serial Tag.

Figure 4-32

PRIMARY
SERIAL TAG

SECONDARY
SERIAL TAG
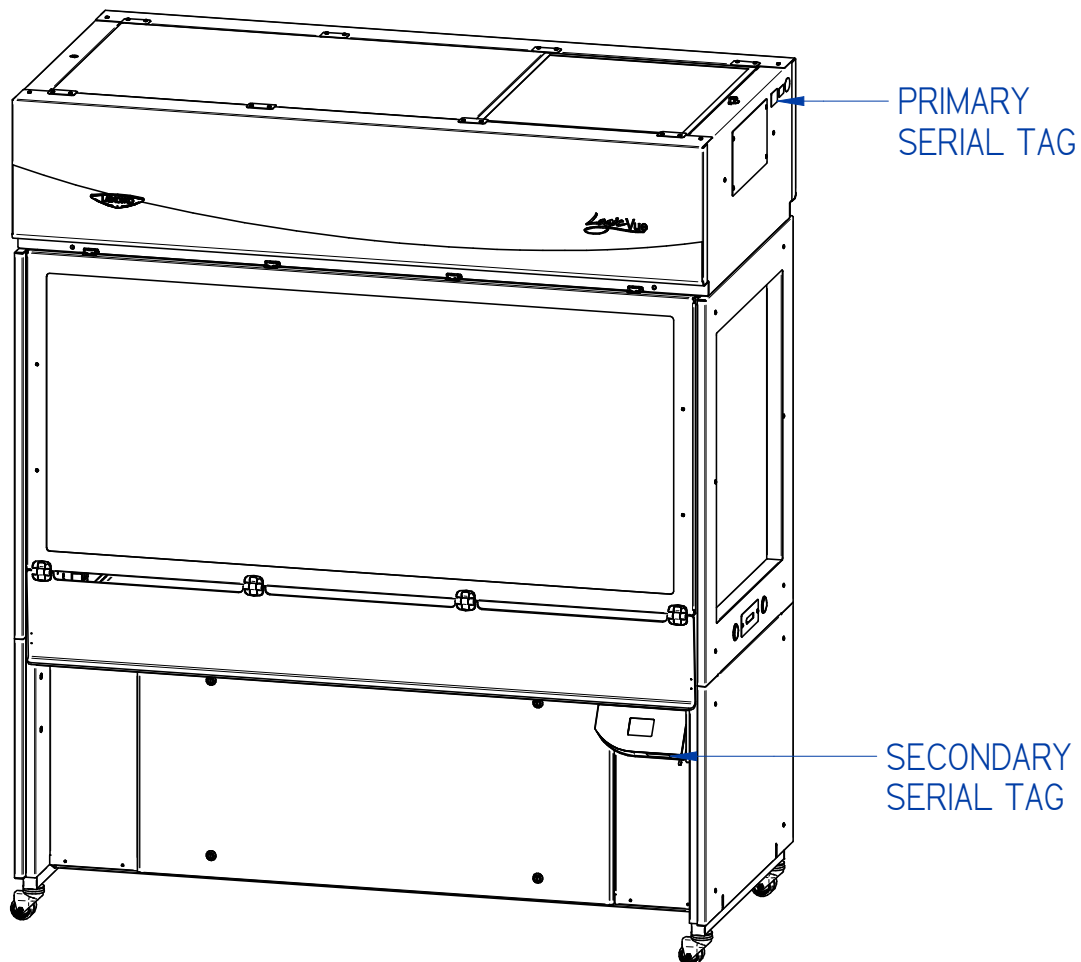
Container Height Reassembly (-10 & -11 Models)

The following model numbers ship with several upper panels removed and a reduced shipping (packaged) height:

- 3300410, 3300411, 3300610 & 3300611

To assemble the upper panels, refer to Figures 4-33 & 4-34 and follow these instructions.

Figure 4-33
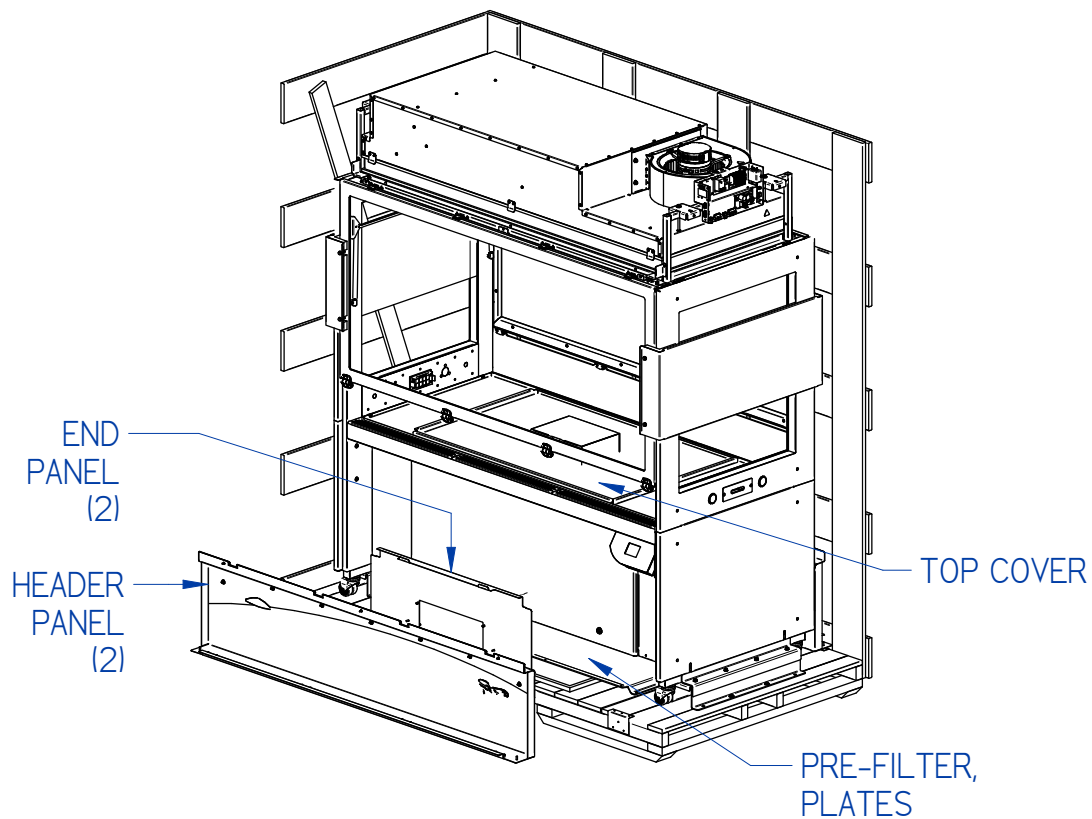
1. After removing the external crating and packaging, locate the Panels and Plates as shown in Figure 4-33.

2. Unwrap each Panel. The Plates and/or hardware to attach each Panel will be located in a small bag taped to each Panel. The hardware for attaching each Panel will be located in the bag secured to each respective Panel.

3. Place each End Panel on first. Note: the End Panel with Electrical Schematic adhered to the inside goes on the right end when facing the front of the unit. The End Panel has two tabs that will locate in slots atop the unit. Once the tabs are inserted, rotate each End Panel toward the frame, and secure each End Panel with two (2) Screws.

4. Place each Header Panel atop the unit. A Hex Head Screw will secure the top right, and top left corners of each Header Panel to the End Panel. The Hex Head Screws come down from the top flange through the holes in the Header Panel and secure into the End Panel. Three remaining Phillips Screws secure the bottom flange of each Header Panel (one Screw on each end, and one in the center).

5. Place the Top Cover in the lip created by the Header Panels and left End Panel. Slide the Top Cover all the way to the left when facing the front of the unit.

6. Place the Pre-Filter in the lip created by the Header Panels and the left End Panel.

7. Place the Plates at each junction point as shown in Figure 4-34, and secure with two (2) Hex Head Screws per Plate.

Figure 4-34
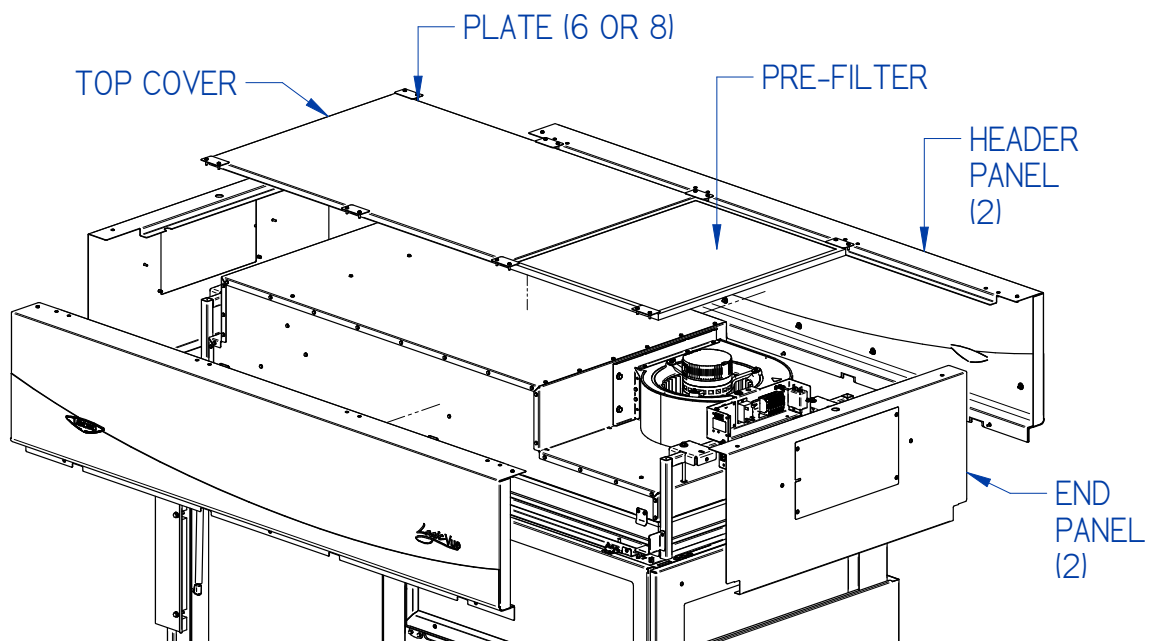
5: Performance Features

The Logic Vue enclosure protects items placed on the work surface, the personnel working with material inside the enclosure, and the lab environment, when operated to manufacturer's specifications and proper aseptic techniques are employed.

This protection is provided through the use of laminar airflow, HEPA filtration, careful enclosure construction, and Constant Airflow Profile™ (CAP) ECM motors. Each of the key performance features are detailed in this section.

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 enclosure captures any aerosol generated in the work area, and directs it to the HEPA filters. In order to be true laminar downflow, a number of individual downflow velocity test points, commonly referred to as the Downflow Velocity Profile, must be +/- 16 feet per minute (0.08 m/s) of the average of all the test points. See Figure 5-1.

Figure 5-1
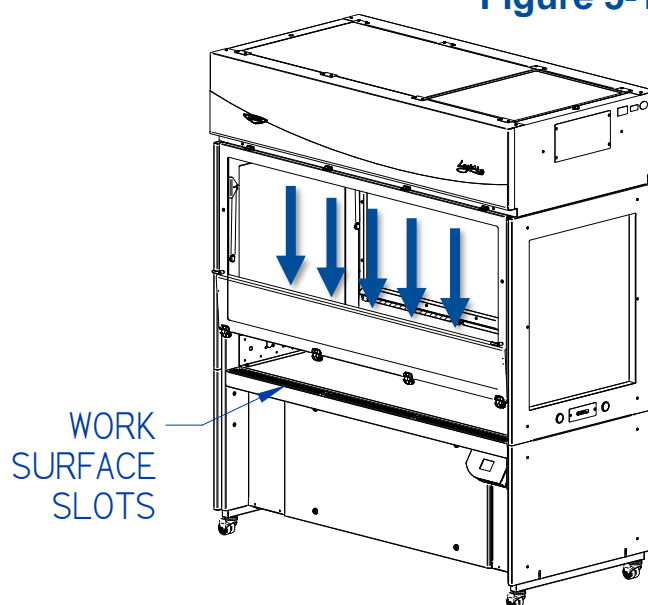
WORK
SURFACE
SLOTS

Directional Airflow

Directional airflow also plays a key role in the enclosure's performance. Air is drawn into the front of the enclosure at the front work surface slots. This "curtain" of air makes it more difficult for aerosols to escape out of the work area 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 5-2.

Figure 5-2
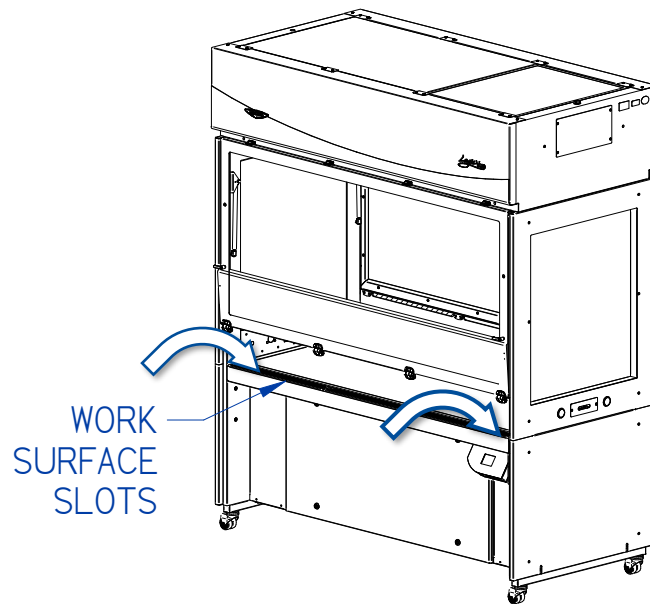
WORK SURFACE SLOTS

Cabinet Air Intake (Work Surface Slots)

The location, size, and pattern of the Work Surface openings around the perimeter of the work area affect the enclosure's containment and performance, and play an important role in establishing Directional Airflow, as described previously. See Figure 5-2.

⚠️ **Note:** Do not block or obstruct the slots around the entire perimeter of the Work Area.

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 5-3.

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. The HEPA filters used in the enclosure are at least 99.99% efficient in removing particles 0.3 micron.

Figure 5-3

Polyurethane seal between media pack and filter frame

Filter frame
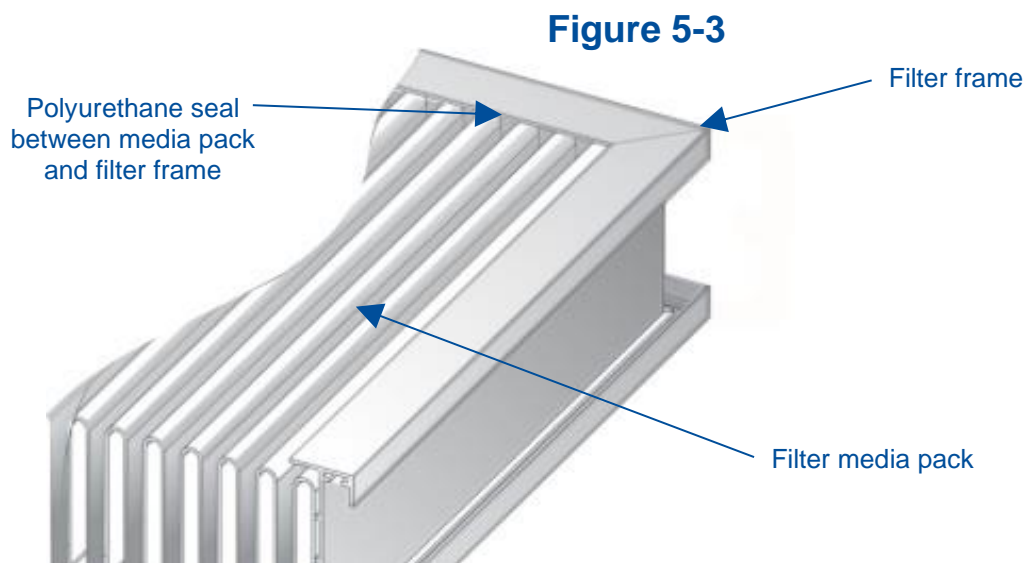
Filter media pack

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 ENCLOSURE. Have the HEPA filter integrity tested by a certifier before using the enclosure.

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

Motor/Blower

The motor/blower assemblies pull room air into the top of the enclosure, and into the slots along the work surface perimeter. The air entering the top of the enclosure passes through a HEPA filter, and then over the work area to create the downflow air. All the downflow air, plus a portion of room air is drawn into the slots along the work surface perimeter, and sent through a second HEPA filter before exhausting out the rear of the enclosure. See Figure 5-4. The motors in the enclosure are 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 motors utilize Labconco's exclusive Constant Airflow Profile^{TM} (CAP) program to deliver a consistent volume of air, throughout the life of the cabinet. This ensures that as the HEPA filters load with particulate, constant and safe volumes of air are maintained without the need to adjust the blower speeds.

Figure 5-4

Room Air

HEPA-filtered Air

Contaminated Air
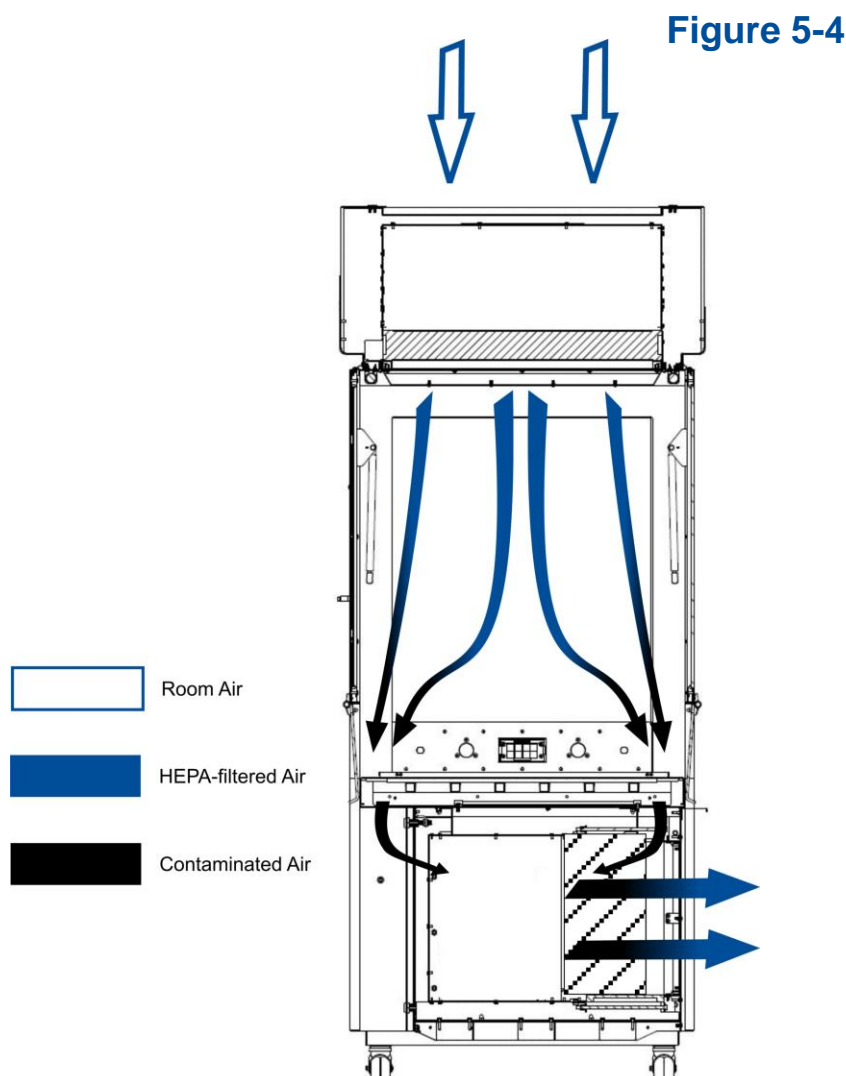
6: MyLogic^{TM} Operating System

The Logic Vue enclosure features the MyLogic operating system, which provides clear status information on the LCD display and user control with the keypad (Figure 6-3). Read this section along with Section 10: Using Your Logic Vue to fully understand the features and controls of this product.

Home Screen
The Home Screen will display the following information (Figure 6-1).

Figure 6-1

Filter Life Bar

Filter Life Remaining

Blower Status

Light Status

50

100%

80

Current Time

12:39 PM

Airflow Sensor Current Reading (optional)
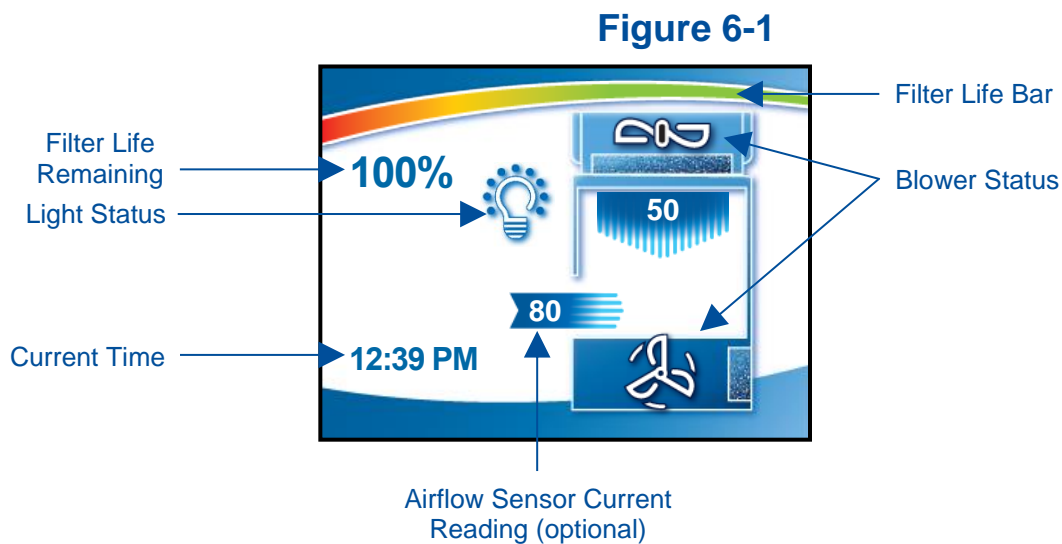
When the sashes are closed, the blower icon may change as follows:

Blower Status = Reduced Speed
(NightSmart Enabled)

Display Sleep Mode

The LCD display will enter sleep mode when the blowers are off (Figure 6-2). If the blowers are off, and no keys are pressed on the keypad, after 5 minutes the screen will automatically turn off to relax the LCD display, which extends its life. When the display transitions from sleep mode to off, the screen will appear black. Any key press will wake the screen and return to the Home Screen.

Figure 6-2

Keypad

The Keypad button functions are explained in detail in Section 9: Using Your Logic Vue, under the subsection Keypad. A summary description is provided here with Figure 6-3.

Figure 6-3
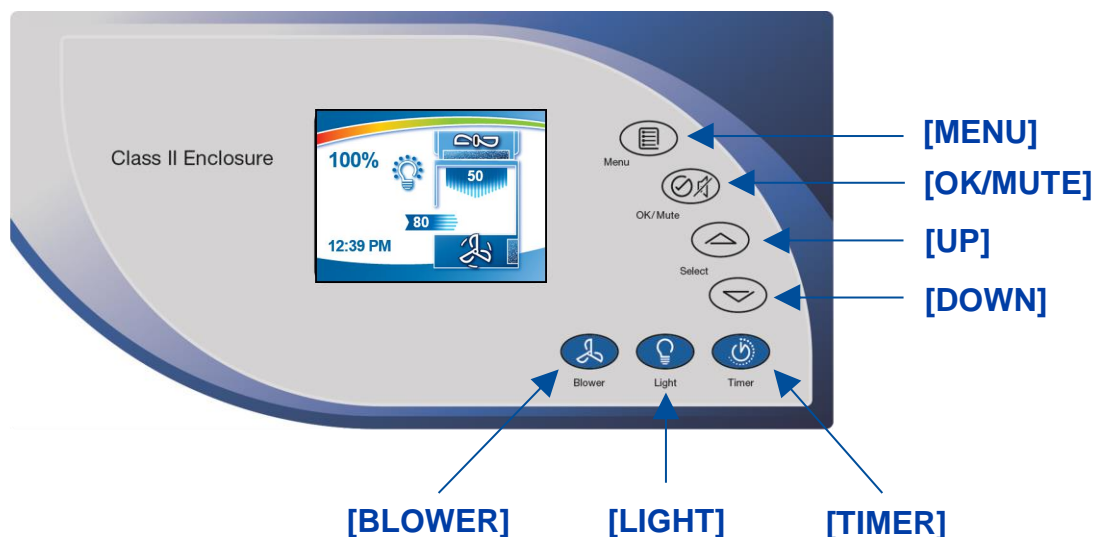
Main Menu

Keypad button presses are shown as **[BLUE WITH BRACKETS]**. Menu screen selections are shown as *green italics*.

To access the Main Menu from the Home Screen, press **[MENU]** on the keypad. See Figure 6-4. The display will change to the Main Menu. To return to the Home Screen, press **[MENU]**.

Figure 6-4

[MENU]

The Main Menu displays three submenu options, as shown in Figure 6-5. To select from the various submenu 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 Home Screen.

Figure 6-5

Configuration   *Settings*   *Tools*

Navigating the Configuration Submenu

Keypad button presses are shown as **[BLUE WITH BRACKETS]**. Menu screen selections are shown as *green italics*.

This submenu allows you to set preferences for audible tones, set the language, set the clock, and configure how the unit operates when the sash is opened or closed (SmartStart™ / Nightsmart™).

Figure 6-6

Audible Tone

Language

Clock

SmartStart / Night Smart
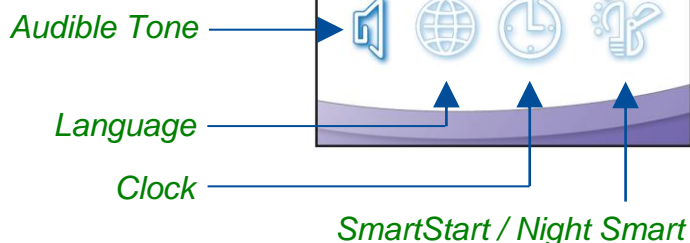
Audible Tones

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

Audible tones associated with alarms cannot be muted.

Figure 6-7

CABINET START TONE
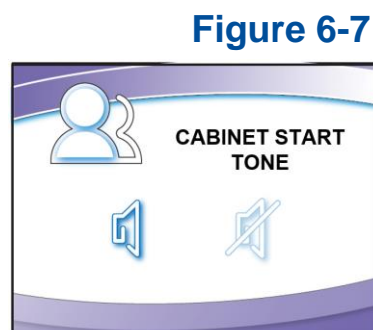
Selecting a Language

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

English   *Spanish*
French   *Italian*
German   *Portuguese*
Chinese   *Japanese*
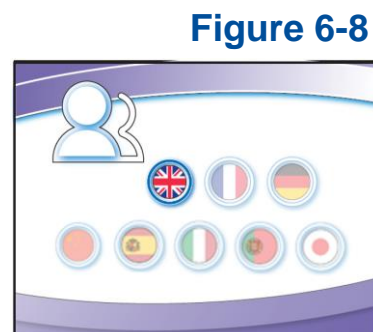
Figure 6-8

Setting the Clock

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

Figure 6-9

[OK/MUTE]

Figure 6-10
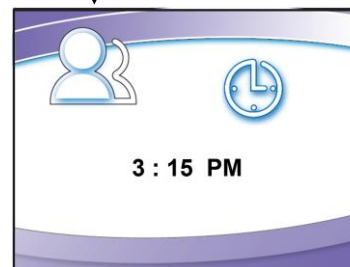
The selected field (*Hours* or *Minutes)* flashes, set the current time using **[UP]** and **[DOWN]**. *Hours* will flash first, once correct, use **[OK/MUTE]** to switch to *Minutes*. Holding **[UP]** and **[DOWN]** in the *Minutes* field will fast scroll.

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

Setting Automatic Operation Options (Nightsmart™ / SmartStart™)
The cabinet allows configuration to activate functions automatically when the sash is opened or closed. The following screens will display sequentially with **[OK/Mute]**.

Figure 6-11

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

OPEN SASH:
START BLOWER

Figure 6-12
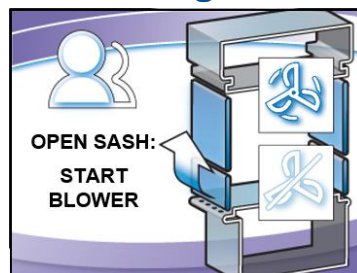
If you want the blowers to run slowly, maintaining reduced airflows every time you close both sashes, select *Reduced Speed* and then **[OK/Mute]**. If *Blower Off* is selected, the blowers will stop when the sashes are closed. When **[OK/Mute]** is pressed, you will return to the Configuration Submenu.
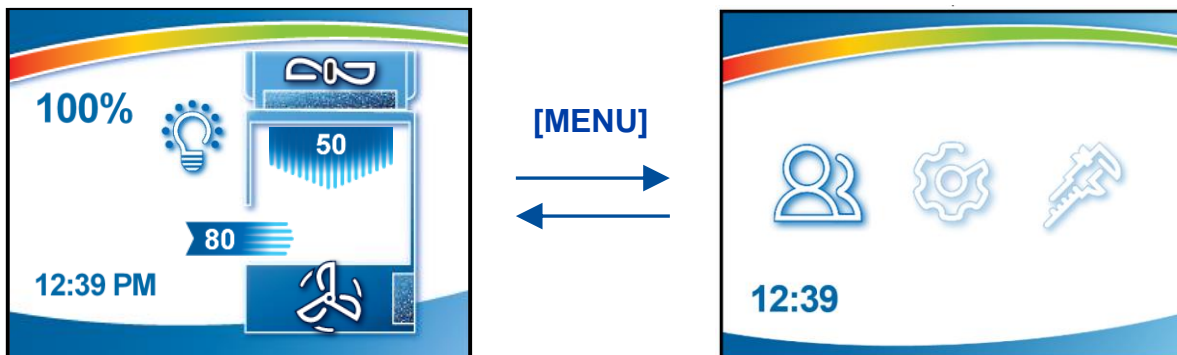

CLOSE SASH:
BLOWER REDUCED
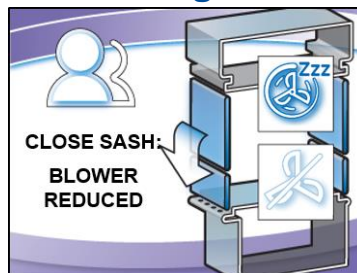
Navigating the Settings Submenu

Keypad button presses are shown as **[BLUE WITH BRACKETS]**. Menu screen selections are shown as *green italics*.

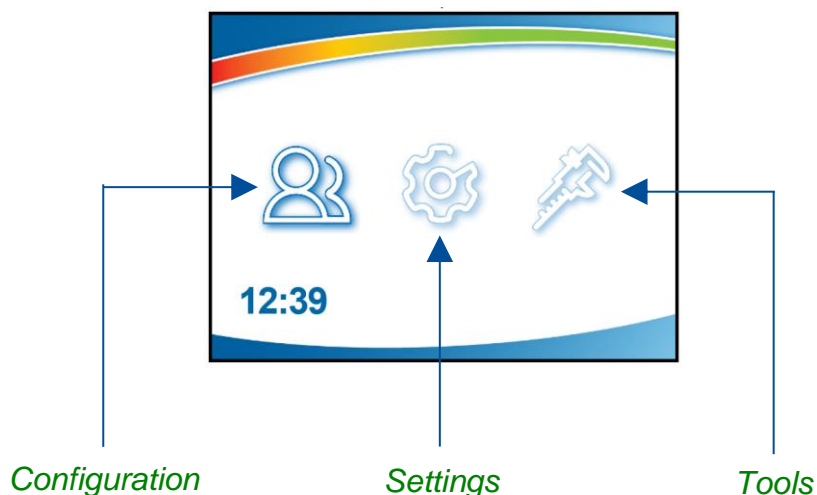This submenu allows you to select: *Units of Measure*, *System Lock*, or *Data Output*.

Figure 6-13

Units of Measure ⟶

System Lock ⟶

Data Output ⟶
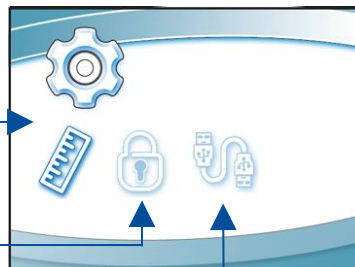
Selecting the Units of Measure

If your enclosure 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]**.

Figure 6-14

METRIC (M/S)

IMPERIAL (FT/MIN)
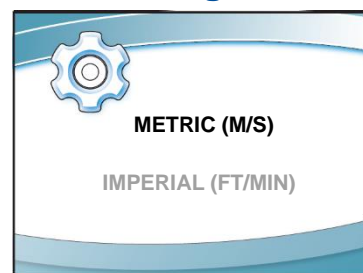
Activating the Security Lock

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

Figure 6-15

PASSWORD
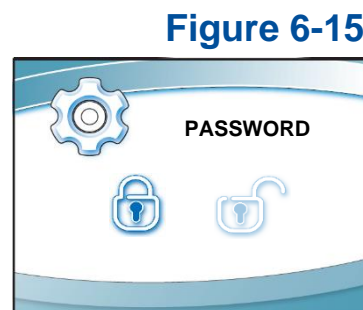
Setting the USB Output Rate

This menu option selects the rate that enclosure 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]**.

Figure 6-16

OUTPUT DATA

1 / SECOND
1 / 10 SECONDS
1 / 30 SECONDS
1 / 60 SECONDS
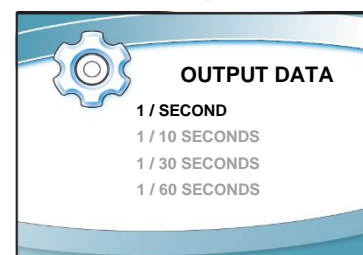
The Tools Submenu
This submenu is reserved for use by certifiers, during certification or service procedures. **CAUTION!** - Entering this submenu will disable some alarms and functionality so that diagnostic and certification procedures can be performed.

Additional details on the Tools Submenu are found in Section 7: Configuration, Section 8: Calibration, and Section 9: Diagnostics.

Timer Operation
The timer 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 Timer Menu is displayed (Figure 6-17). Select *Interval* or *Stopwatch* Timer, then **[OK/MUTE]**.

Figure 6-17

Stopwatch   *Interval*
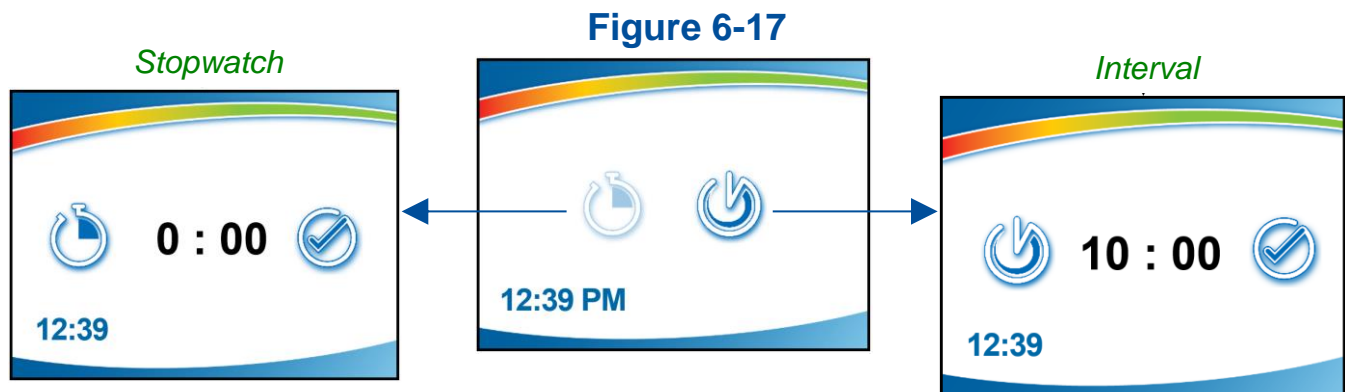
Interval Timer Operation
1. The interval timer defaults to 05:00 (minutes:seconds).
2. Press **[UP]** or **[DOWN]** to increase or decrease the timer interval.
3. When the proper interval is selected, press **[OK/Mute]** to start the timer.
4. When the timer reaches 00:00, an audible alarm will sound.
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.

Airflow Alert

While the blowers are on, any sudden disruption to the airflow within the enclosure will trigger an Airflow Alert. When an Airflow Alert activates, the display will automatically change (Figure 6-18), and the audible alert tone will sound.

Figure 6-18

The most common causes of an Airflow Alert are:

- Blockage of the inlet slots, top pre-filter, or exhaust outlet

- Removal of the work surface(s) during operation

Look to identify the cause of the airflow disruption, and remove the blockage or return the work surface(s) to its proper position.

When a blockage of the airflow occurs, the enclosure's blower(s) automatically increase speed to maintain constant volume airflow. This is a protective feature; however, if the disruption is significant (for example blocking the majority of the front or rear work surface slots) it will not guarantee product or personnel protection remains during the significant blockage event.
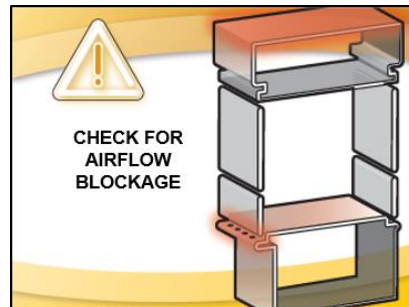
Resetting the Airflow Alert System

The Airflow Alert automatically dismisses once the motor(s) speed has stabilized.

Note: Once the blockage or disruption has been resolved, the Airflow Alert may reactivate while the blower(s) return to correct operating speed. It will dismiss automatically once the blower(s) reach correct operating speed.

Alarms

Any alarm that activates requires the user's immediate attention, and some form of actionable response to clear the alarm.

Power Loss Alarm

Press **[OK]** on the keypad to acknowledge that a power loss occurred.

Note: This alarm will activate any time power is cycled, including turning the System Reset Switch (see Figure 9-2) off and back on.

Figure 6-19

Sash Alarm

Both Sashes or one Hatch is not at the proper operating position. Return the Hatch or one Sash to proper working height.

Figure 6-20

Blower Failure Alarm

A blower motor has failed, or the motor and display circuit board are not communicating properly. Press **[BLOWER]** on the keypad to clear the alarm.

Figure 6-21
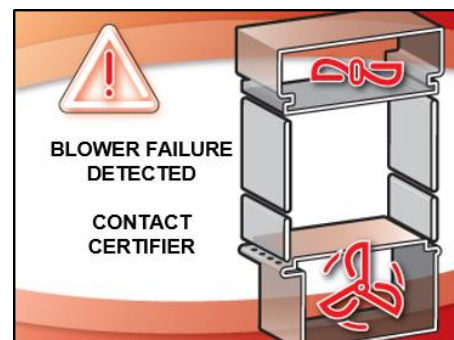
DO NOT USE THE ENCLOSURE UNTIL THE PROBLEM HAS BEEN CORRECTED.

The previous Alarms (Power Loss, Sash Height, and Blower Failure) can occur on any Logic Vue enclosure whether it is operating with or without an exhaust connection.

The following Alarm will only occur on the Logic Vue when operating with the optional Ventus™ canopy connection, as this alarm is only related to build exhaust problems.

Running Exhaust Alarm
When operating with an optional canopy connection, after the blowers are successfully started, and the building exhaust airflow drops below the minimum safe level, this alarm will be displayed. Figure 6-22.

Once this alarm activates, the enclosure's exhaust blower will ramp to maximum speed to attempt to maintain safe inflow for the enclosure.

Press **[BLOWER]** on the keypad to clear the alarm.

EXHAUST FAILURE DETECTED

CONTACT CERTIFIER TO CHECK EXHAUST AIRFLOW

When operating with an optional canopy connection, after the blowers are successfully started, or upon initial blower start, and the building exhaust airflow exceeds the maximum safe level, this alarm will be displayed. See Figure 6-23.

Once this alarm activates, the enclosure's blowers will shut off to protect themselves from harm.

Press **[BLOWER]** on the keypad to clear the alarm.

BUILDING EXHAUST AIRFLOW TOO HIGH

CONTACT CERTIFIER

7: Configuration

This section provides instructions to access and understand the current configuration of the enclosure, and make changes to the configuration. This area should only be accessed by a certifier or installer.

Keypad button presses are shown as **[BLUE WITH BRACKETS]**. Menu screen selections are shown as *green italics*.

Current Configuration

It is important to understand the current configuration of the enclosure for many reasons, some of which include:

- Verify accessories installed
- Troubleshooting

The Info Screen provides information on the current configuration of the enclosure, and details the current blower speed(s). The Info Screen is not password protected. To access this screen, follow these steps:

1. From the Main Menu, press **[MENU]**, using **[UP]** or **[DOWN]** select the *Tools* icon. Press **[OK/MUTE]**.
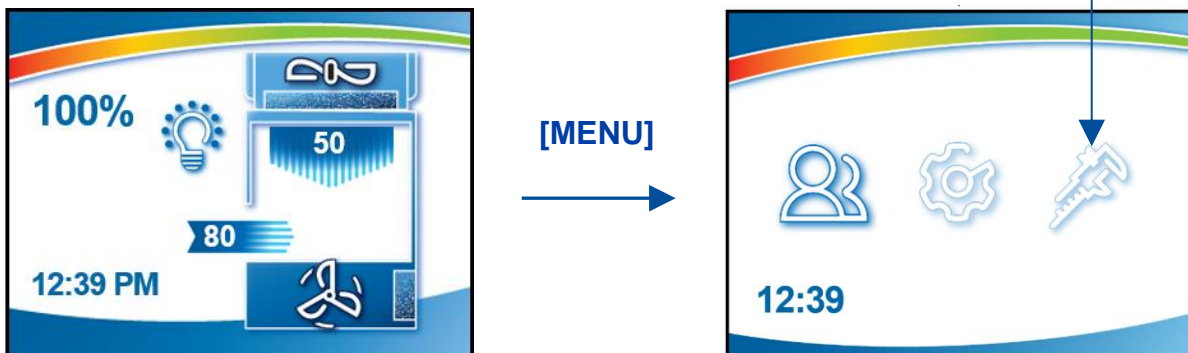
2. The *Info* icon should be highlighted, if not select *Info*, press **[OK/MUTE]**.

Info

Sash Height

[OK/MUTE]

A2
8 INCH

~~AFS~~

~~CANOPY~~

Option(s) Installed *

Software Version

REV. D

[UP] **[DOWN]**

Motor details for the Supply (Top) Blower

58

Blower PWM

SUPPLY

Instantaneous Blower RPM / Time dampened average Blower RPM

CURRENT / AVG   = 1217 / 1219
NEW FILTER / MAX = 1074 / 1800

Blower RPM with new HEPA filters / Maximum Blower RPM

REV. D

[UP] **[DOWN]**

Motor details for the Exhaust (Btm) Blower

51

EXHAUST

CURRENT / AVG   = 1103 / 1104
NEW FILTER / MAX = 994 / 1800

REV. D

*Option(s) not installed are shown with a strikethrough. To activate options (after field installation), see Change Configuration later in Section 7. To change the blower speed(s), see Section 8: Calibration.

Change Configuration

Changes to the enclosure's configuration can be made in the field. This typically occurs after an accessory is field installed.

These parameters cannot be changed:

- Enclosure Type
- Sash Height

The following instructions detail all screens in the Configuration menu, which is password protected. The password is **[LIGHT] [UP] [TIMER] [TIMER] [OK/MUTE]**.

1. From the Main Menu, press **[MENU]**, using **[UP]** or **[DOWN]** select the *Tools* icon. Press **[OK/MUTE]**.

[MENU]

Tools

2. Use **[UP]** or **[DOWN]** to select the *Password* icon, press **[OK/MUTE]**.

Password

[OK/MUTE]

WARNING !
RESTRICTED AREA
FOR TECHNICIAN
USE ONLY
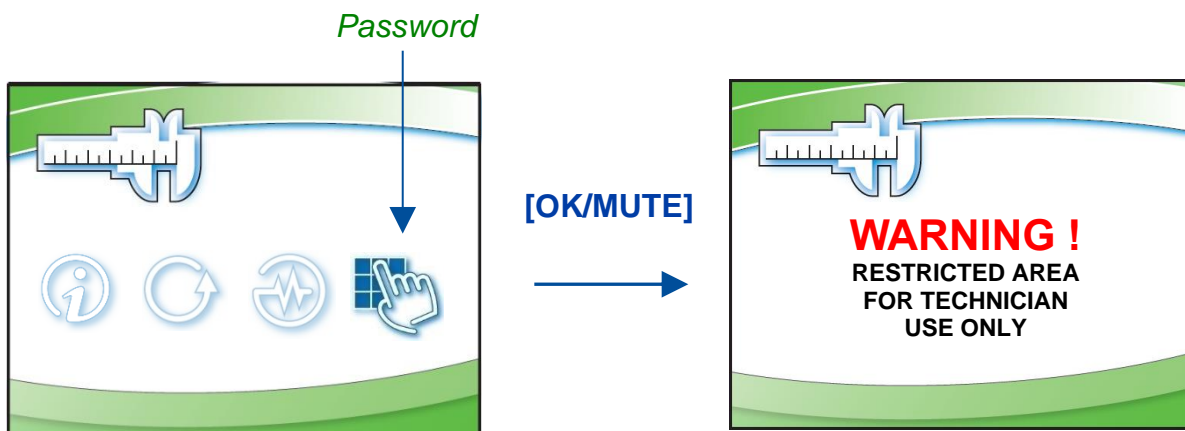
3. From the *Warning* Screen, press **[OK/MUTE]** to acknowledge the warning that the following screens are restricted.

4. On the *Password* Screen, enter the password: **[LIGHT] [UP] [TIMER] [TIMER] [OK/MUTE]**.
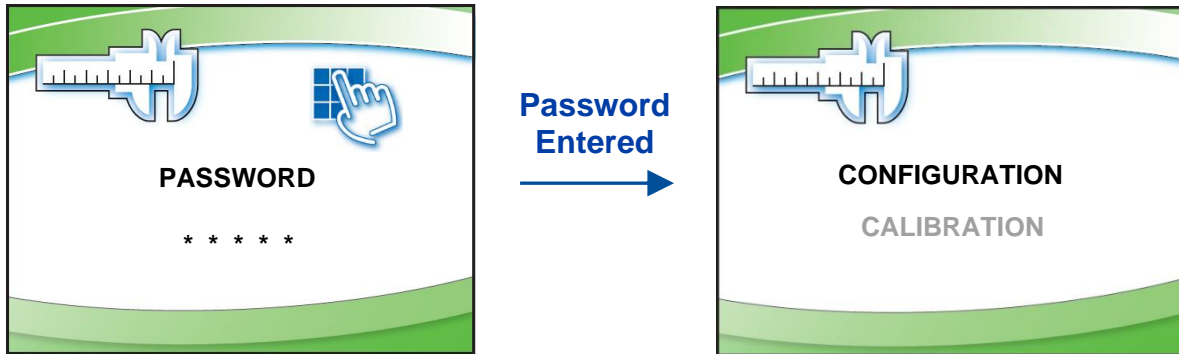
5. *Configuration* should be highlighted, if not, select it, press **[OK/MUTE]**. The first screen will display the enclosure type. This selection cannot be changed. Press **[OK/MUTE]**.
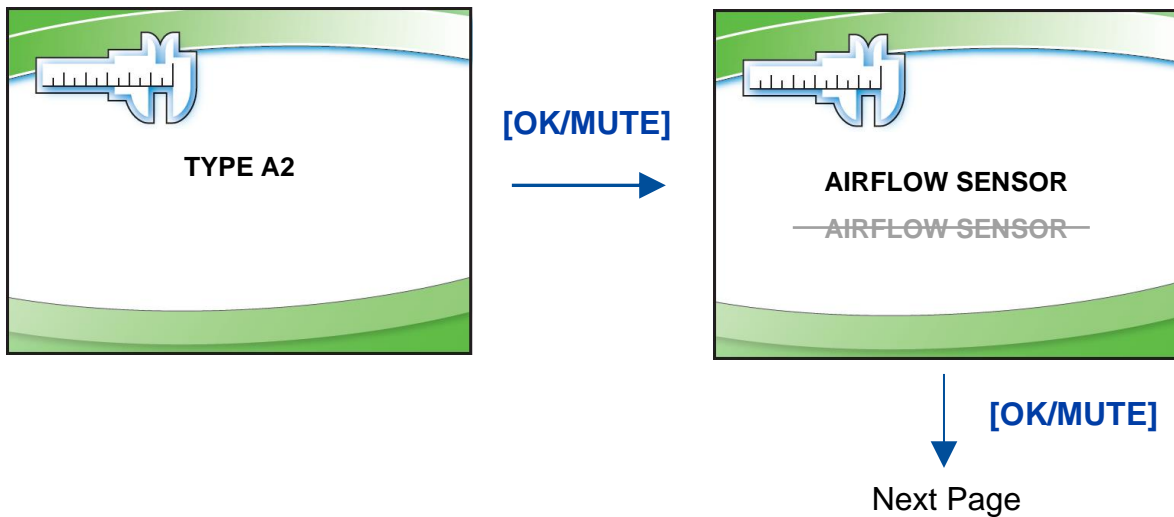
6. If field installing, or removing the Airflow Sensor, change the selection accordingly, press **[OK/MUTE]**.

[OK/MUTE]

AIRFLOW SENSOR

~~AIRFLOW SENSOR~~

CANOPY

~~CANOPY~~

7. If field installing, or removing the Canopy connection, change the selection accordingly, press **[OK/MUTE]**.
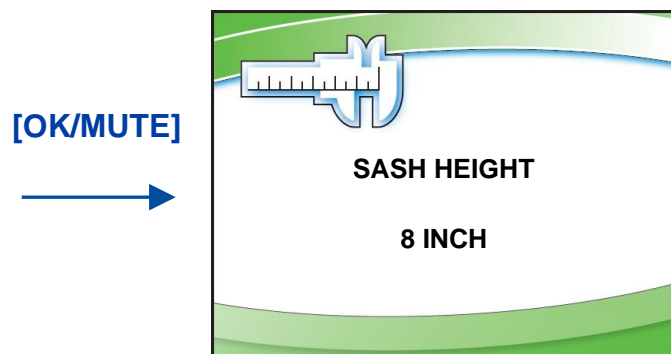
[OK/MUTE]

SASH HEIGHT

8 INCH

8. The *Sash Height* selection will display next, and should **NOT** be changed. Press **[OK/MUTE]**. You will return to the Configuration / Calibration submenu within the password protected area.

8: Calibration

This section provides instructions to access and understand the procedures to calibrate the enclosure. Use this section in conjunction with Section 4: Certification when performing initial or annual certification.

⚠ Never enter the password-protected area, or change settings of the enclosure if you are not a trained and qualified certifier or technician. Changing parameters in the password-protected area may impair the product's performance and result in loss of protection and/or harm or death to personnel in the laboratory.

Certifier Password
The certifier password is: **[LIGHT] [UP] [TIMER] [TIMER] [OK/MUTE]**.

Use this password for all normal calibration and certification activities.

If installing or replacing an Airflow Sensor, the sensor will need a zero point calibration. In order to access the zero-point calibration screen, a different password is required. This password is: **[LIGHT] [UP] [TIMER] [DOWN] [OK/MUTE]**.

Adjusting Blower Speed

During initial or annual certification of the enclosure, the blower speed(s) may need to be adjusted. Blower speed(s) must only be adjusted by a trained, qualified certifier. To adjust the blower speed(s), following these instructions.

1. From the Main Menu, press **[MENU]**, using **[UP]** or **[DOWN]** select the *Tools* icon. Press **[OK/MUTE]**.
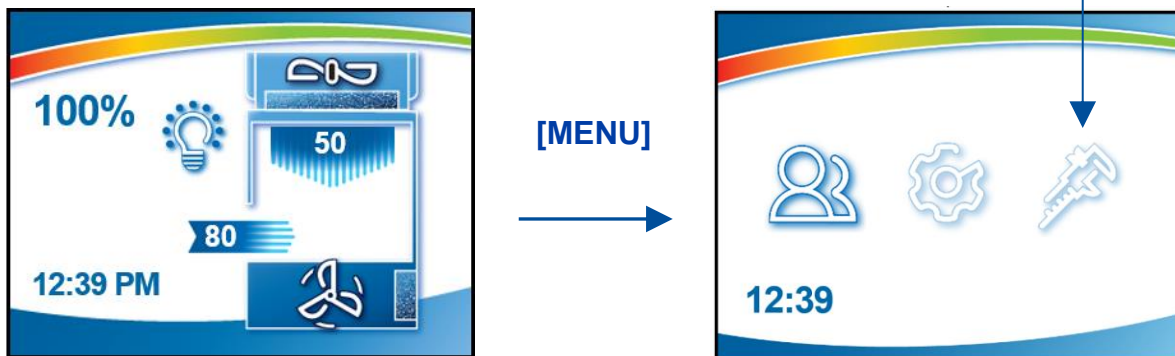
Tools

[MENU]

2. Use **[UP]** or **[DOWN]** to select the *Password* icon, press **[OK/MUTE]**.

Password

[OK/MUTE]

WARNING !
RESTRICTED AREA
FOR TECHNICIAN
USE ONLY
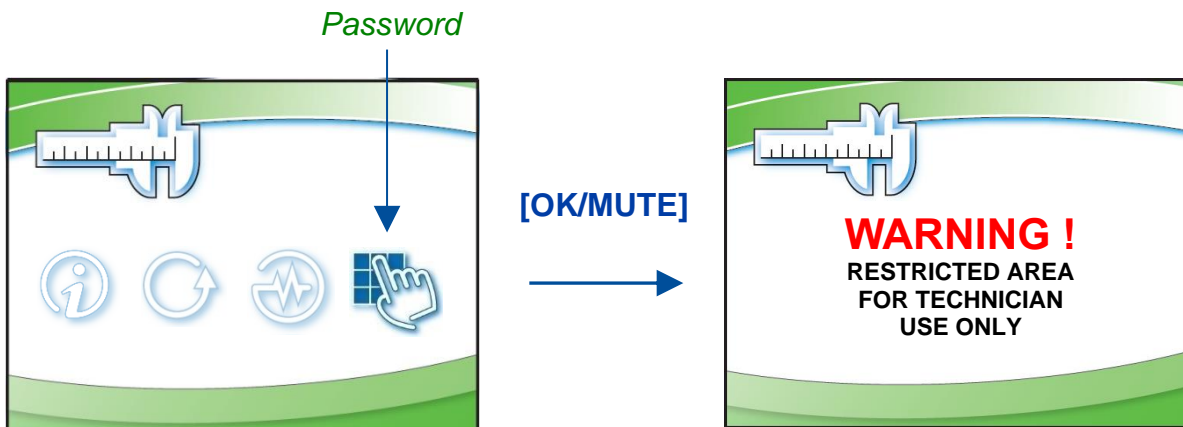
3. From the *Warning* Screen, press **[OK/MUTE]** to acknowledge the warning that the following screens are restricted.

4. On the *Password* Screen, enter the password: **[LIGHT] [UP] [TIMER] [TIMER] [OK/MUTE]**. If also installing a new airflow sensor, see *Certifier Password* earlier in this section to enter the correct password to allow for zero-point calibration of the airflow sensor.

PASSWORD

* * * * *

Password Entered →

CONFIGURATION
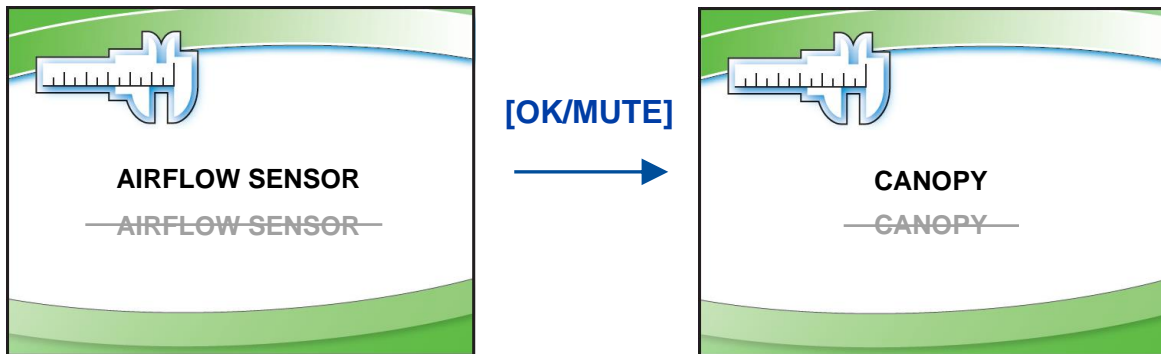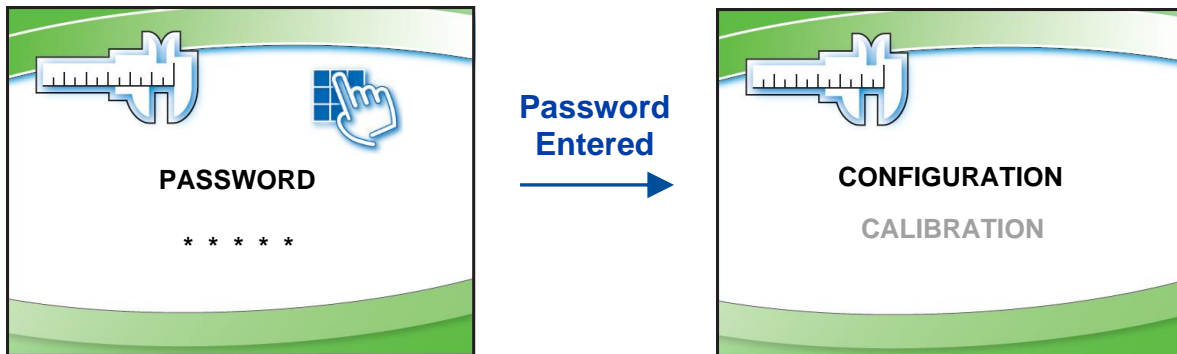
CALIBRATION

5. Use **[UP]** or **[DOWN]** to select *Calibration*. Press **[OK/MUTE]**.

Note: The sashes must not be closed when pressing **[OK/MUTE]**. Access will not be granted if both Sashes are closed.

51

SUPPLY

Blower PWM

CURRENT RPM = 1217

AVERAGE RPM = 1219

Instantaneous Blower RPM

'OK' TO CONTINUE

'OK' displayed when blower speed stabilizes

Motor control for the Supply (Top) Blower

Use **[UP]** or **[DOWN]** to adjust the blower speed. Each single press of **[UP]** or **[DOWN]** increments the PWM signal sent to the blower by 0.5. It may take two presses of the button to see the displayed PWM value change; however the blower speed will adjust with each button press.

When the Instantaneous Blower rpm is within 15 rpm of the Average Blower rpm, the blower speed has stabilized, and **[OK/MUTE]** can be pressed to move to the next screen to set the Filter Life Gauge. See Setting the Filter Life Gauge after

this section. After setting the Supply Filter Life Gauge, the Exhaust Blower speed can be adjusted.
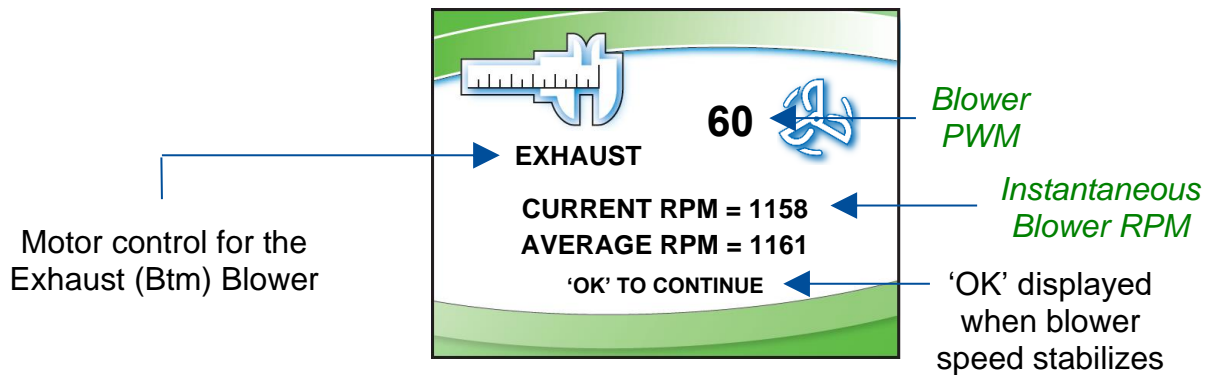
Motor control for the Exhaust (Btm) Blower

Blower PWM

Instantaneous Blower RPM

'OK' displayed when blower speed stabilizes

Use **[UP]** or **[DOWN]** to adjust the blower speed. Each single press of **[UP]** or **[DOWN]** increments the PWM signal sent to the blower by 0.5. It may take two presses of the button to see the displayed PWM value change; however the blower speed will adjust with each button press.

When the Instantaneous Blower rpm is within 15 rpm of the Average Blower rpm, the blower speed has stabilized, and **[OK/MUTE]** can be pressed to move to the next screen to set the Filter Life Gauge.

Setting the Filter Life Gauge

During initial or annual certification of the enclosure, and after the HEPA filters are changed, the Filter Life Gauge may need to be reset. There are three options to choose from when resetting the Filter Life Gauge. Below are the three options, and an explanation on which to select.

1. *New Filter* – Select this option when the HEPA filters are new. This occurs during initial certification of a new enclosure, or after new HEPA filters are installed and the enclosure's Inflow and Downflow have been verified by a trained and qualified certifier.
2. *Same Filter* – Select this option when passing through this screen in the Calibration submenu to reach the sensor calibrations, or when the blower speed(s) have been adjusted slightly (but the HEPA filters have not been replaced) during an annual certification.
3. *Set Filter Life* – This option is seldom selected. It may be used to set the Filter Life Gauge to a specific percentage, for example, after the display circuit board is replaced, and the settings from the previous display board need to be programmed into the new display board.

To access the Filter Life Gauge screen(s), follow the steps in Adjusting the Blower Speed previously shown in this section, until on the *Blower Speed* screen. Then follow these instructions:

1. On the *Supply Blower Speed* screen, press **[OK/MUTE]**.

SUPPLY
58
CURRENT RPM = 1217
AVERAGE RPM = 1219
'OK' TO CONTINUE

[OK/MUTE]

SUPPLY
NEW FILTER
SAME FILTER
SET FILTER LIFE
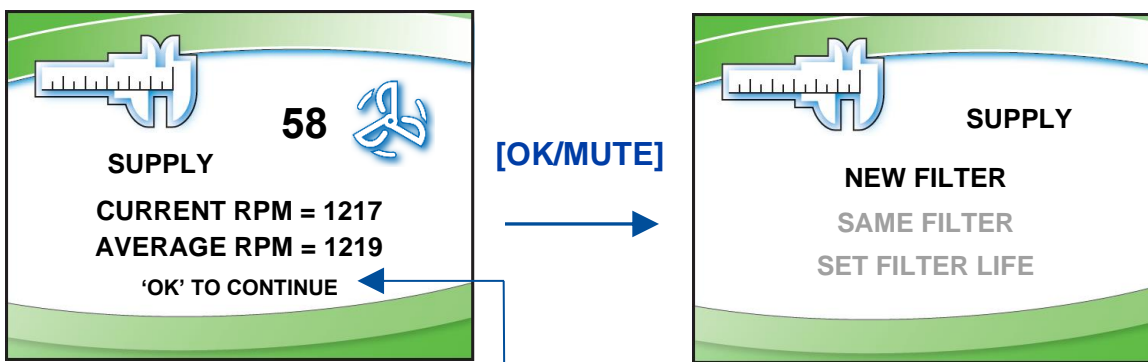
'OK' displayed when blower speed stabilizes

2. Use **[UP]** or **[DOWN]** to select one of the three Filter Life options displayed, press **[OK/MUTE]**.

3. On the *Exhaust Blower Speed* screen, press **[OK/MUTE]**.

EXHAUST
51
CURRENT RPM = 1193
AVERAGE RPM = 1075
'OK' TO CONTINUE

[OK/MUTE]

EXHAUST
NEW FILTER
SAME FILTER
SET FILTER LIFE
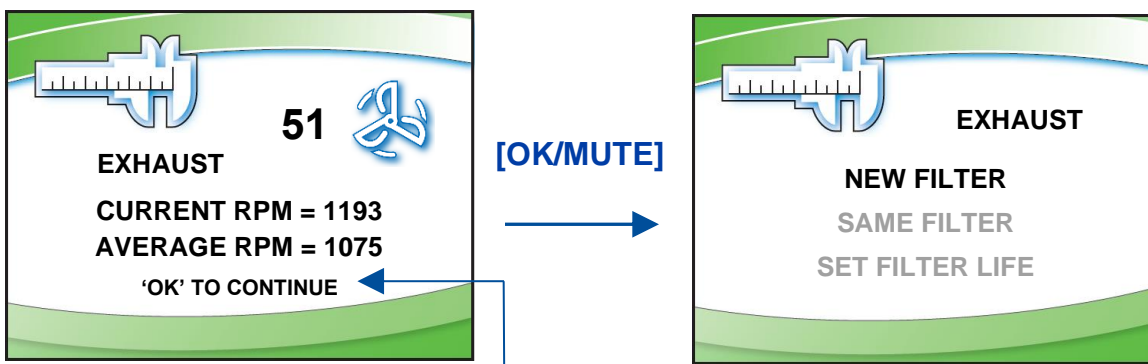
'OK' displayed when blower speed stabilizes

4. Use **[UP]** or **[DOWN]** to select one of the three Filter Life options displayed, press **[OK/MUTE]**.

Note: Each filter has a separate Life Gauge for percentage of filter remaining. The lower of the two Filter Life percentages is displayed on the Home Screen.

Airflow Sensor Calibration

The Logic Vue may have an airflow sensor as an optional accessory.

Unless installing or replacing the airflow sensor, the zero point should be correctly set from the factory (see Zero Point Calibration later in this section). Once proper airflows have been set by a trained and qualified certifier, the nominal set point should be calibrated after setting the Filter Life Gauge in the Calibration menu.

Note: If installing an airflow sensor on an enclosure in the field, which did not previously have this accessory installed, first enable the Airflow Sensor in *Configuration*, as described in Change Configuration in Section 7: Configuration.

To access the Airflow Sensor Calibration screen(s), follow the steps in Adjusting the Blower Speed and Setting the Filter Life Gauge previously shown in this section, until at the *Filter Life Selection* screen. Then follow these instructions:
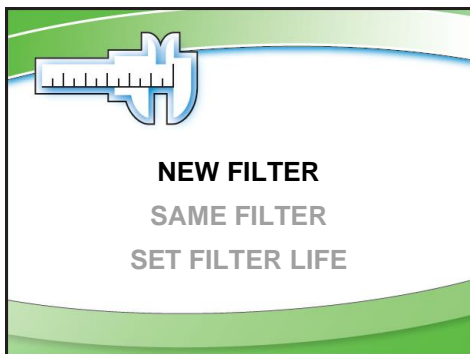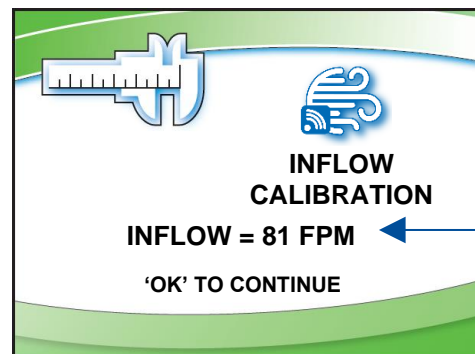
1. On the Exhaust *Filter Life Selection* screen, make the appropriate selection, then press **[OK/MUTE]**.

2. Using the average inflow velocity measured during airflow certification, use **[UP]** or **[DOWN]** to adjust the *Nominal Inflow Value* to match this measured velocity. The *Nominal Inflow Value* will flash, and it will be displayed in feet per minute (FPM) or meters per second (M/S) based on the desired units selected in the *Settings* submenu. Once set, press **[OK/MUTE]**.

3. Using the average downflow velocity measured during airflow certification, use **[UP]** or **[DOWN]** to adjust the *Nominal Downflow Value* to match this measured velocity. The *Nominal Downflow Value* will flash, and it will be displayed in feet per minute (FPM) or meters per second (M/S) based on the desired units selected in the *Settings* submenu. Once set, press **[OK/MUTE]**.

```
   DOWNFLOW
   CALIBRATION                        [OK/MUTE]

DOWNFLOW = 56 FPM    ◄────   ────────────────►  Returns to Main Menu
                              Nominal
  'OK' TO CONTINUE            Downflow
                              Value
```
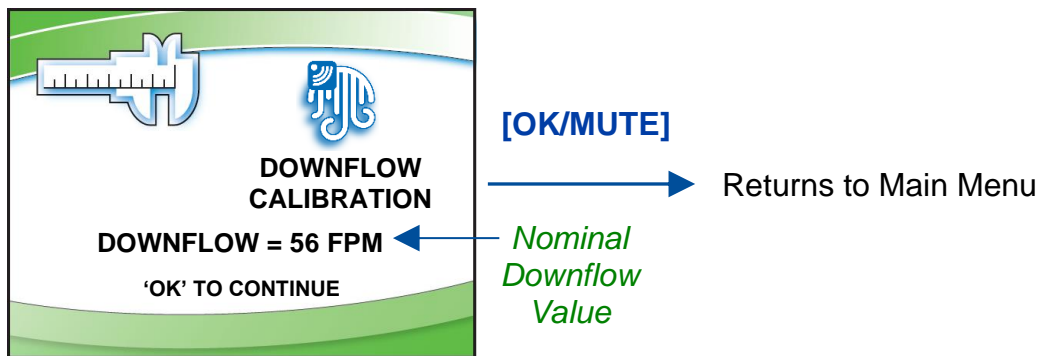
The standard Airflow Sensor Calibration procedure is complete.

Zero Point Calibration

If a new airflow sensor is being calibrated (field installation or replacement), a zero point calibration will be performed. To gain access to the *Zero Point Calibration* screens, a different password must be entered on the *Password* Screen. This password is:
[LIGHT] [UP] [TIMER] [DOWN] [OK/MUTE]

Upon entering this password successfully, select *Calibration* on the first screen shown. Press **[OK/MUTE]**. Follow these instructions:

1. Before entering the *Blower Speed* screen(s), the *Zero Point Warning* screen is shown (below). The enclosure's internal blower(s) will automatically shut off. If the enclosure is connected to a remote exhaust system, stop all exhaust airflow before proceeding. Once all airflow is removed, press **[OK/MUTE]**.

```
   AFS ZERO POINT                              AFS ZERO POINT

 INTERNAL BLOWER WILL      [OK/MUTE]
   SHUT OFF NOW.  IF
 CONNECTED TO EXHAUST    ──────────►
  SYSTEM, STOP ALL                                 WAIT
 EXHAUST AIR FOR PROPER
 ZERO POINT CALIBRATION

'OK' ONCE EXHAUST AIR REMOVED
```

2. The enclosure will display *Wait* for approximately 15 seconds while it samples the airflow sensor readings. When complete, the screen below is shown. At this time, if the enclosure is connected to a remote exhaust system, restart the remote exhaust now. Press **[OK/MUTE]**.

```
AFS ZERO POINT

IF CABINET CONNECTED TO
EXHAUST SYSTEM,
RESTART EXHAUST
SYSTEM NOW



'OK' WHEN EXHAUST AIR ON
```
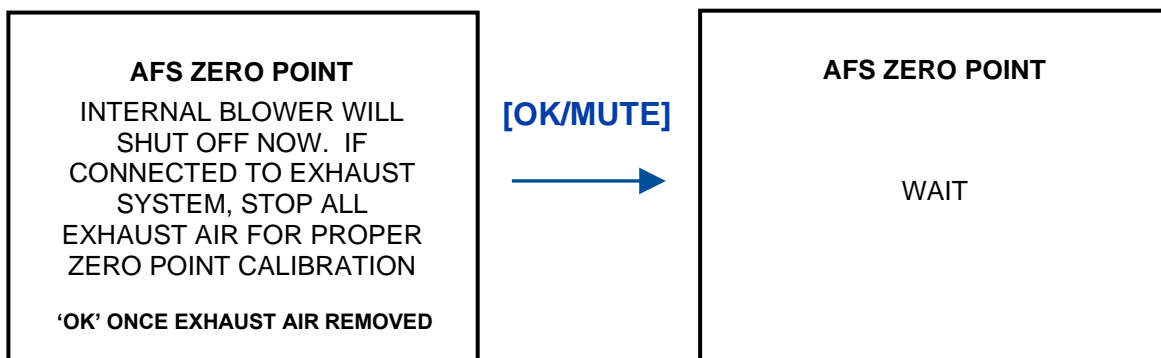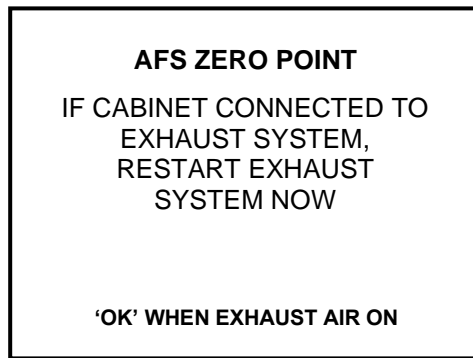
3. Zero point calibration is now complete. The follow screens will proceed through setting the blower speed(s) as would normally be done if the standard password had been entered.

9: Using Your Logic Vue

This section details the functional features and proper techniques for safely and efficiently using the Logic Vue enclosure.

Feature Overview

Figure 9-1 illustrates key features and components of the product.

Figure 9-1

Figure 9-2

DISPLAY

LOCKING HANDLE
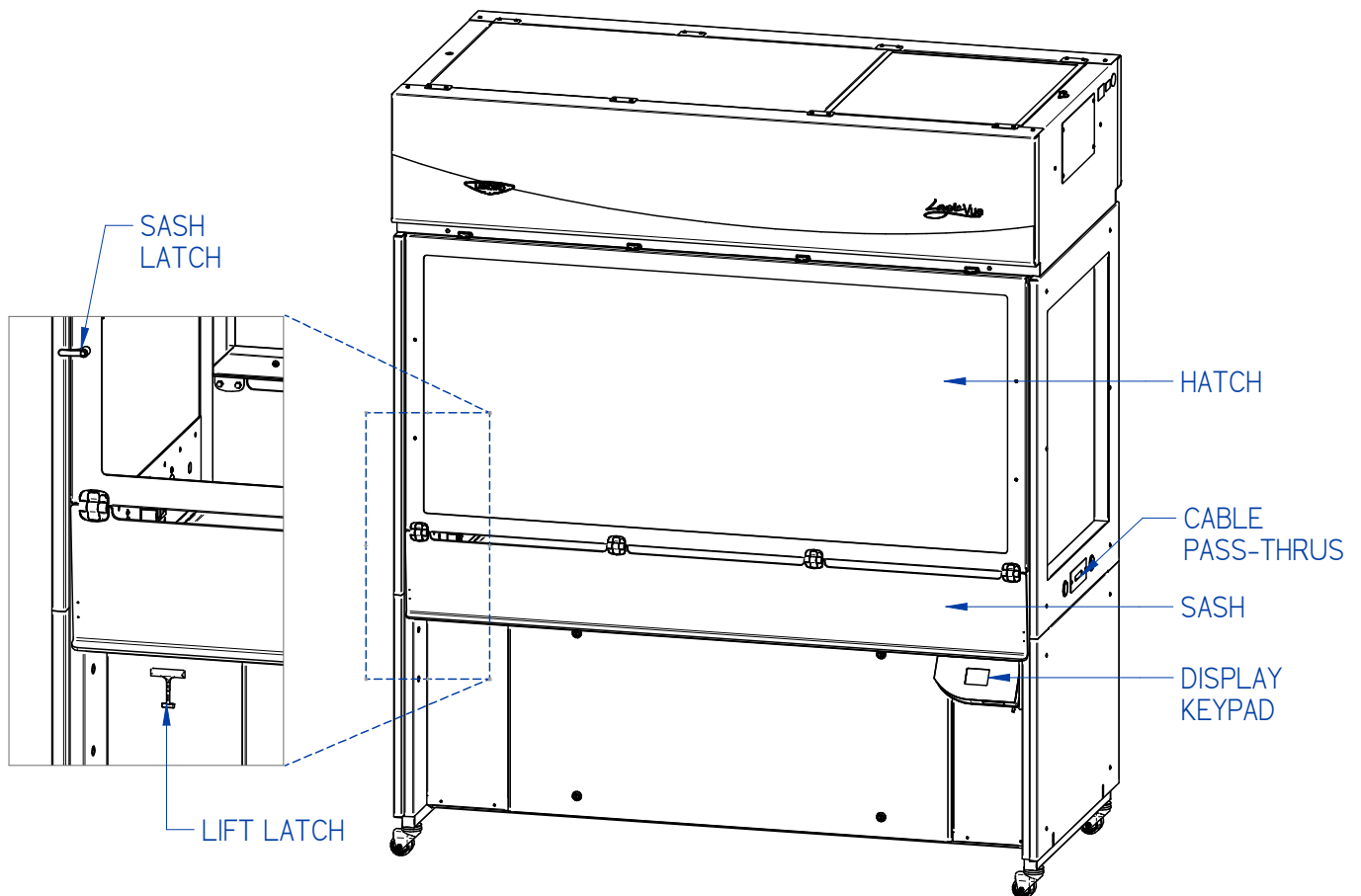
SYSTEM RESET SWITCH
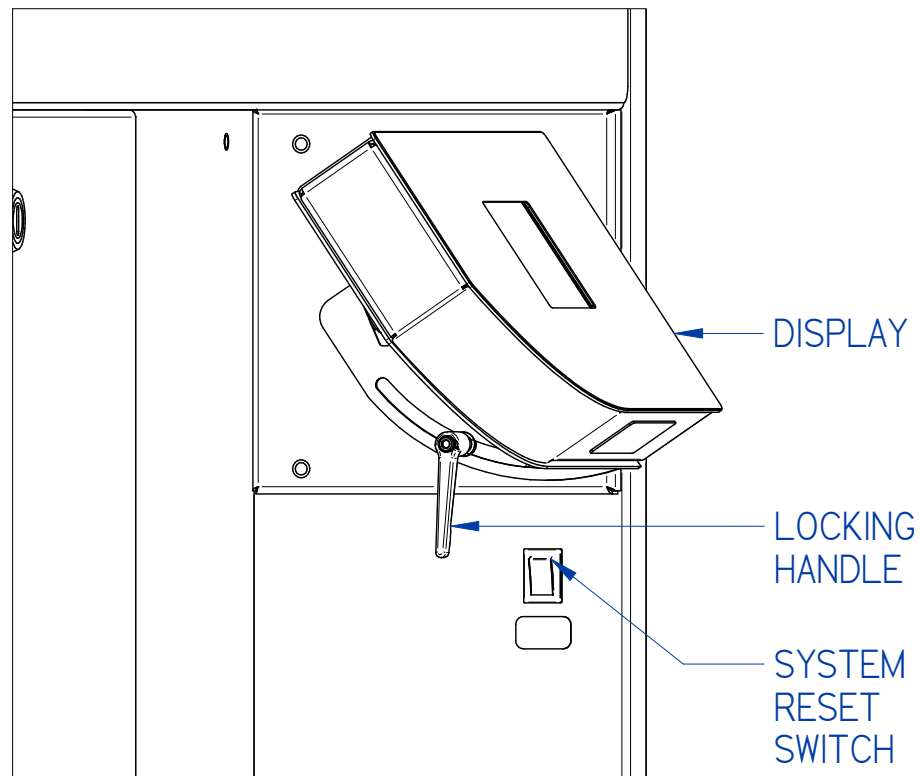
System Reset Switch

The System Reset Switch removes power from the control board and microprocessor. See Figure 9-2. This switch will NOT remove all electrical power from the product. For service operations, always disconnect the main electrical connection prior to removing service panels.

Hatch

The Front and Rear Hatch are identical and utilize gas springs to allow each Hatch to open fully for loading/unloading equipment and cleaning or maintenance.

Sash

The Front and Rear Sash open along the bottom edge of each Hatch. The front opening allows access to the work area to load, prepare, or manipulate samples and material. Do not open the Rear Sash when samples are present. The Rear Sash is for service access only. Each Sash should remain open by the hinges, which include a detent stop when fully open. For additional safety, when a Sash is open, it is recommended to engage the two Sash Latches at either end to prevent accidental closure of the Sash. When the blowers are on, only one Sash can be open at a time.

Sash Latch

Two Sash Latches are located on each Hatch. They should be used to secure each Sash when open. When a Sash is fully open, engage the Sash Latches by pulling each spring-loaded latch away from the Hatch and rotate 90 degrees down. The Sash Latches should be positioned the Sash cannot close.

Rear Sash Catch

The Rear Sash is held closed with a single Catch in the center of the Sash, which is located in the Exhaust Guard. The Catch is spring-loaded and must be pulled down to allow the Rear Sash to open. The Rear Sash is only to be opened for service or maintenance of the equipment inside, and should not be opened when hazardous or sensitive samples are inside the enclosure. To open the Rear Sash, pull down on the Lever located on the underneath side of the Exhaust Guard, reference Figure 9-2b.

Figure 9-2b

A

REAR SASH

CATCH

EXHAUST GUARD

DETAIL A
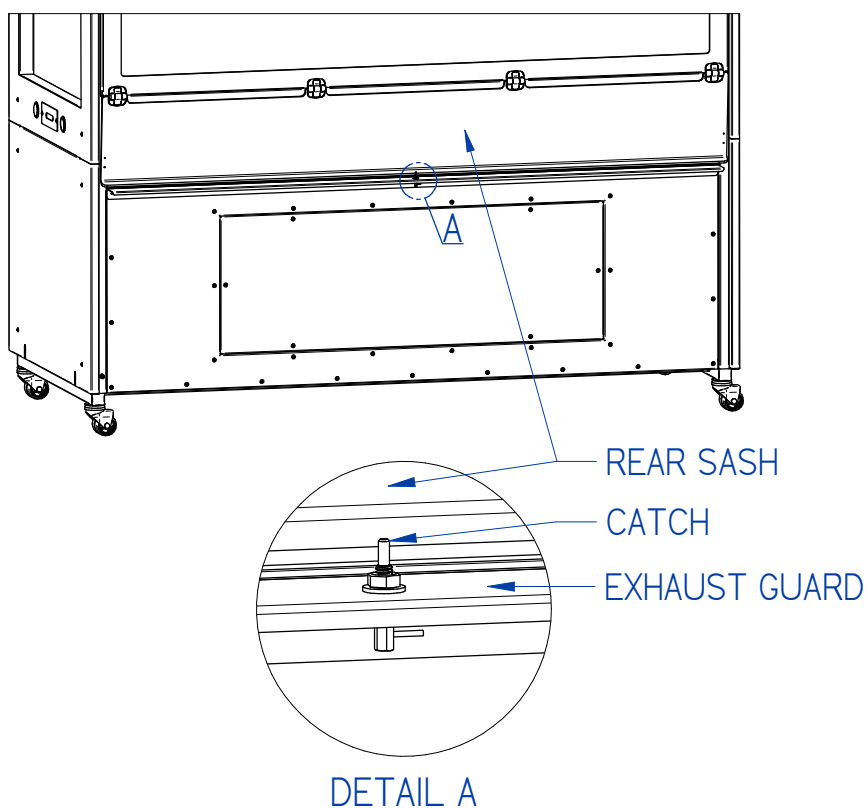
Display and Keypad

The display and keypad allow the user to interact with the enclosure's controls and settings. See Figure 9-3 and Section 6: MyLogic Operating System for additional information.

Figure 9-3
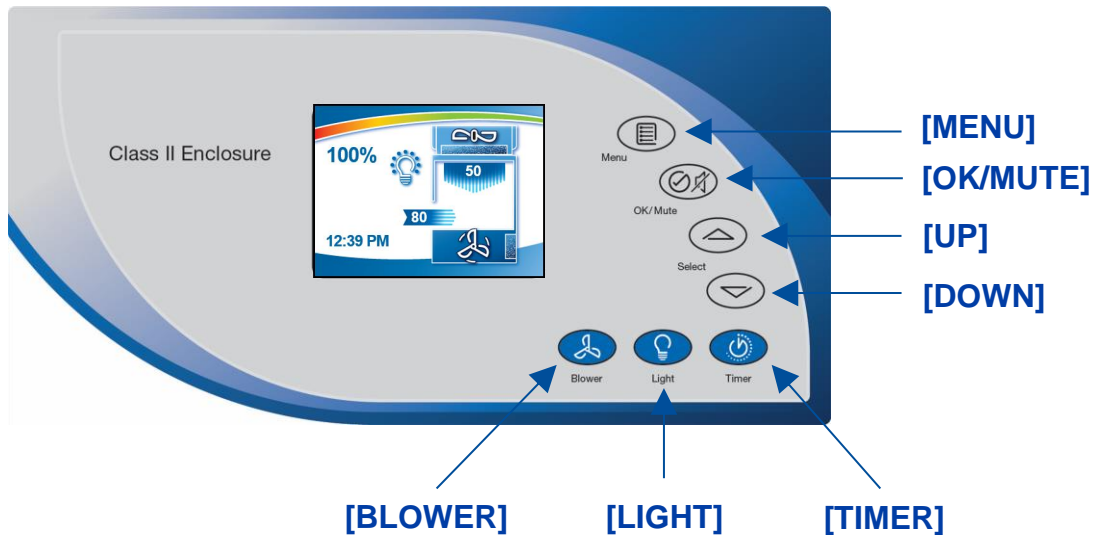
Take a moment to familiarize yourself with the buttons, their locations and functions. Also familiarize yourself with the display. The display will report system functions, such as filter capacity, timer displays, alarm or error messages, as well as icons that illuminate when enclosure functions such as the light and blower are operational.

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

[LIGHT] – Turns the LED lamps on or off.

[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 change numerical fields in menu screens.

Blower Operation

The Logic Vue enclosure can be configured to automatically turn on the blowers. If this feature is enabled, opening either sash from closed to operating height will automatically turn on the blowers (or change back to nominal speed). If this feature is not enabled, raise the sash to operating height, and press **[BLOWER]**. Either method will start the blowers, and the *Blower Starting* screen will appear for approximately 1 minute.

If the enclosure is configured to operate with an optional canopy connection, and the building's exhaust system is not pulling the required volume of exhaust air through the canopy, the internal blower will still start while *Blower Starting* appears on the display. If the building exhaust system does not reach the required minimum volume of airflow within 90 seconds, an alarm will occur.

Light Operation

The Logic Vue enclosure provides dual LED lamps for illuminating the work surface. To operate the lights, press **[LIGHT]**.

Cable Pass Thru

The Cable Pass Thru allows for passage of a cord, cable, or tube from within the product. A Cable Pass Thru is located on each end. Each pass thru contains eight (8) pass thru ports, which are factory populated with solid plugs. Pass Thru Plugs are available in 1 mm diameter increments from 1 mm to 17 mm.

The pass thru is a cable entry system from Icotek (icotek.com); frame series KEL-QTA. Two 4-5mm size inserts (Labconco Catalog Number 3889311), which is Icotek Part Number 42504, are supplied in the Parts Box.

Additional inserts for items 1 through 17 mm in diameter are available from Icotek.

Note: There must be enough clearance to pass the cord between the product's exterior side panel and any obstruction such as a wall or other device.

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

To pass a cable, cord, or tube through the cable entry system, follow these instructions and reference Figure 9-4.

Figure 9-4
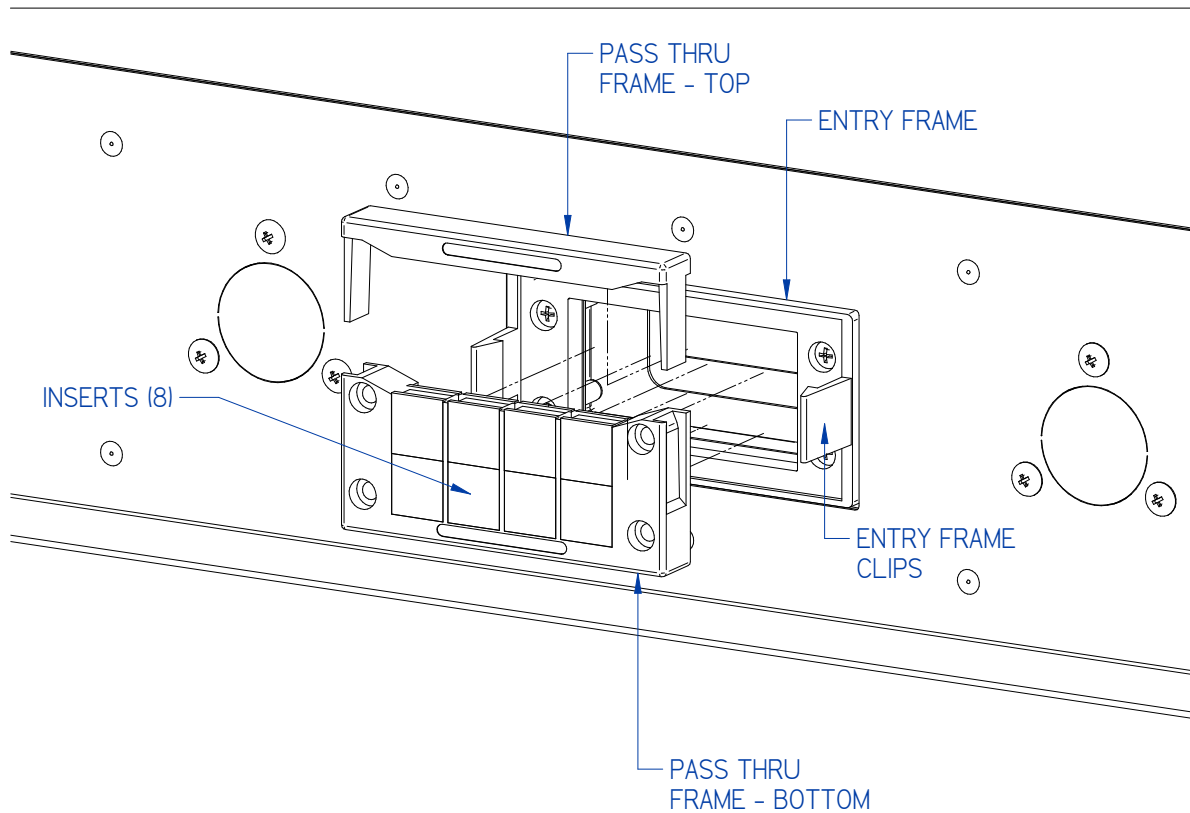
1. Flex the two (2) Entry Frame Clips outward while pulling the Pass Thru Frame out of the Entry Frame.

2. Separate Pass Thru Frame Top from the Pass Thru Frame Bottom by sliding the Top off of the Bottom Frame.

3. Select the solid plug insert(s) to run a cable through. The solid plug has a thin center section, which can be carefully cut to accept the cable, or the solid plug can be replaced with an insert with a hole specifically sized for the cable. For convenience two (2) 4-5 mm inserts are provided in the Parts Box.

4. If replacing one or more solid plugs with specific inserts, remove the solid plug(s).

5. The new insert contains a slit. Fit the insert over the cable by pressing the cable through the slit until it is seated in the insert's hole.

6. Slide the insert on the cable to the location where it will reside once installed in the Pass Thru in the end wall. For example, if the cable will extend into the enclosure 3 feet from the Pass Thru, locate the insert 3 feet from the end that will reside inside the enclosure.

7. Run the end of the cable through the opening in the outer End Panel, then through the opening in the Entry Frame.

Note: The opening in the End Panel is through a plate with a smaller slot. This plate is decorative, and can be left off if the cable end (for example a power cord plug) is too large to fit through the smaller slot in the plate. If the plate is removed, replace the two (2) screws that secured the plate into the End Panel.

8. Position the new insert into the Pass Thru Frame Bottom where the solid plug was removed. Add any other cables and their required insert at this time.

9. Replace the Pass Thru Frame Top onto the inserts in the Pass Thru Frame Bottom.

10. Snap the Pass Thru Frame with all inserts now in place back into the Entry Frame.

11. Lightly pull the cable(s) to make sure they do not slide in the insert(s).

Working in the Logic Vue

Working in the Logic Vue enclosure requires preparation, planning, and an understanding of aseptic technique to work safely. The steps below represent the minimum requirements before, during, and after working in the enclosure. Consult your EH&S team for additional SOP requirements.

Planning

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

Equipment Placement

When placing large equipment inside the Logic Vue enclosure, make certain it is centered in the work area (as close as reasonably possible). Remove any safety covers to allow HEPA-filtered air to flow through the equipment. If the covers are not removed, high velocity regions can develop which impairs product and/or personnel protection. See Figure 9-5. For additional details, see Equipment Placement in Section 4.

Figure 9-5

High Velocity Regions
(if equipment cover
panels are not removed)

Large Object

Room Air

HEPA-filtered Air

Contaminated Air
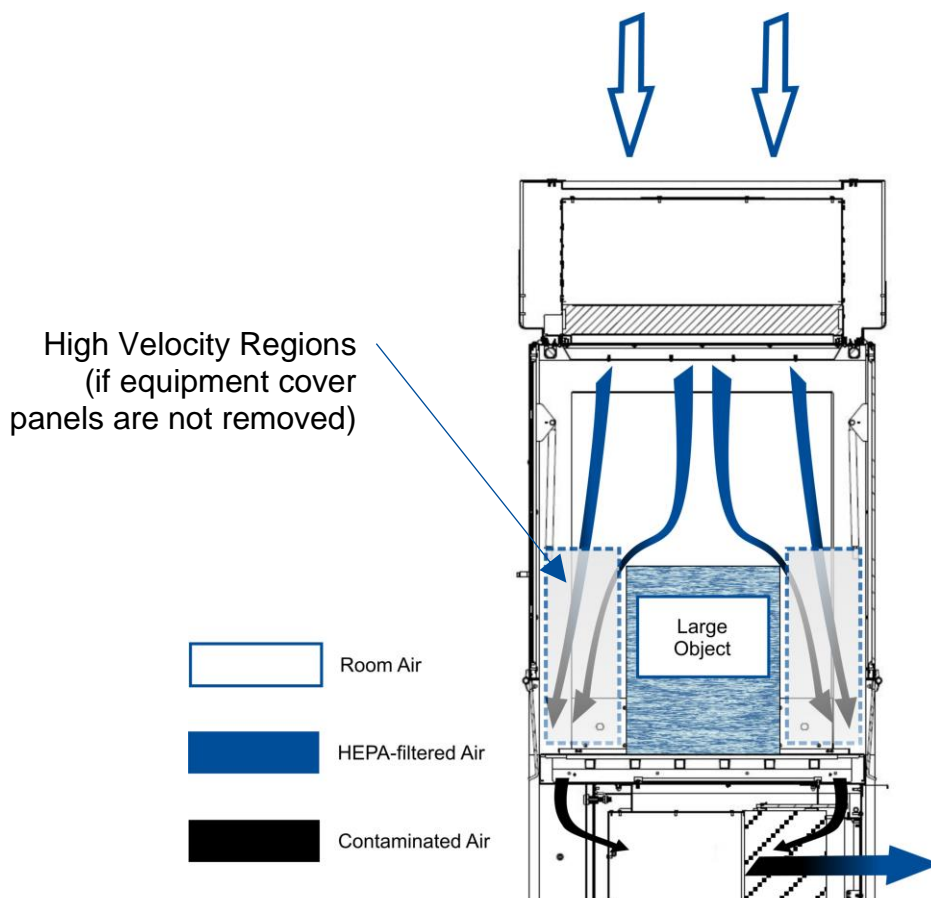
Cabinet Start-up
1. Open the Front Sash.
2. Turn on the light and enclosure blowers.
3. Check the air slots around the perimeter of the work surface for obstructions.
4. Allow the enclosure to operate until the Home Screen is shown (Figure 9-6).

Figure 9-6
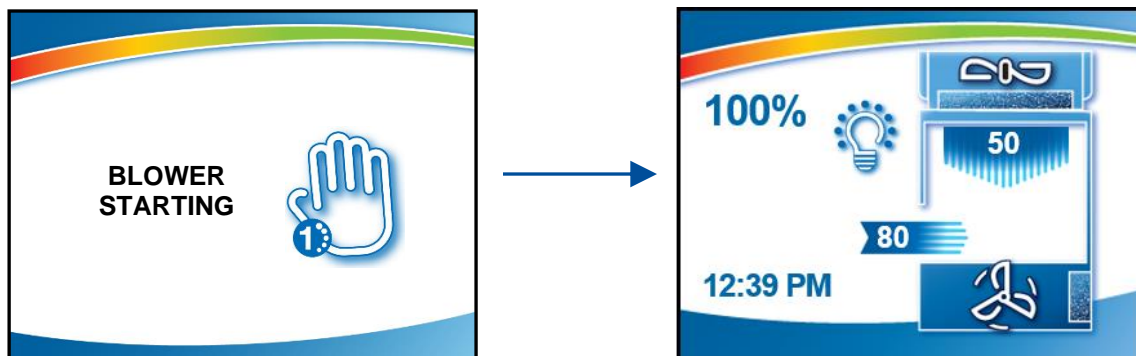
5. Wash hands and arms thoroughly with germicidal soap.
6. Wear appropriate personnel protective equipment (PPE).

Wipe Down
1. Raise the Front Hatch to its full open position. Mute the alarm by pressing **[OK/MUTE].**
2. Wipe down the interior surfaces of the cabinet with 70% ethanol, or a suitable disinfectant, and allowed to dry.

Loading Materials and Equipment
1. Only load the materials required for the procedure. Do not overload the enclosure.
2. Do not obstruct the front, side, or rear return air slots.
3. Large objects should not be placed close together.
4. Close Front Hatch.
5. After loading the enclosure, 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 close to the center of the work area as possible.
- Segregate clean materials from contaminated materials in the work area.
- Arrange items to minimize 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 techniques or procedures that disrupt the airflow patterns of the enclosure.
- If there is a spill or splatter during use, all objects in the enclosure should be surface decontaminated before removal. Thoroughly disinfect the working area of the enclosure WHILE IT IS STILL IN OPERATION, to prevent the release of contaminants from the enclosure.
- Do not work through the Rear Sash opening. The Rear Sash opening is for service or maintenance access only. Product protection will be in jeopardy when the Rear Sash is open.

Final Purging
- Upon completion of work, the enclosure 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 enclosure.
- All open trays or containers should be covered prior to removal from the enclosure.

Wipe Down
1. If the enclosure was operated with the Sashes closed (for example with use of an automated machine or equipment), soak a clean cloth in 70% ethanol or equivalent, and open the Front Sash a small amount, then wipe the inside of the Front Sash. Allow proper contact time for decontamination.
2. Open the Front Sash, then wipe down the interior surfaces of the cabinet with a suitable disinfectant, or 70% ethanol, and allow proper contact time.
3. Dispose of rubber gloves appropriately, and have lab coat laundered properly.
4. Wash hands and arms thoroughly with germicidal soap.

Shutdown
- Close the Sash(es) and turn off the light and enclosure blowers.

BMS Data Output Connection

The Logic Vue enclosure offers a mini-USB connection for output of enclosure operating parameters in RS-232 protocol. Follow these instructions to connect and receive data via the available RS-232 USB data output port.

USB Cable Connection

Tools

- #2 Phillips screwdriver or #2 Phillips bit (4 inches long minimum)
- 5/16" Wrench

A USB Cable with a mini-USB connector (see Figure 9-9) is required (user-supplied).

Remove all electrical power.

Reference Figures 9-7 and 9-8. Remove the Electrical Service Panel by removing the four (4) Screws shown in Figure 9-7. Set the Screws and Plate aside. Run the mini-USB end of the customer-supplied cable into around the left end of the electrical box behind the opening exposed by the Panel's removal.

Figure 9-7

USB CABLE

ELECTRICAL
SERVICE PANEL

SLOT IN
SERVICE
PANEL
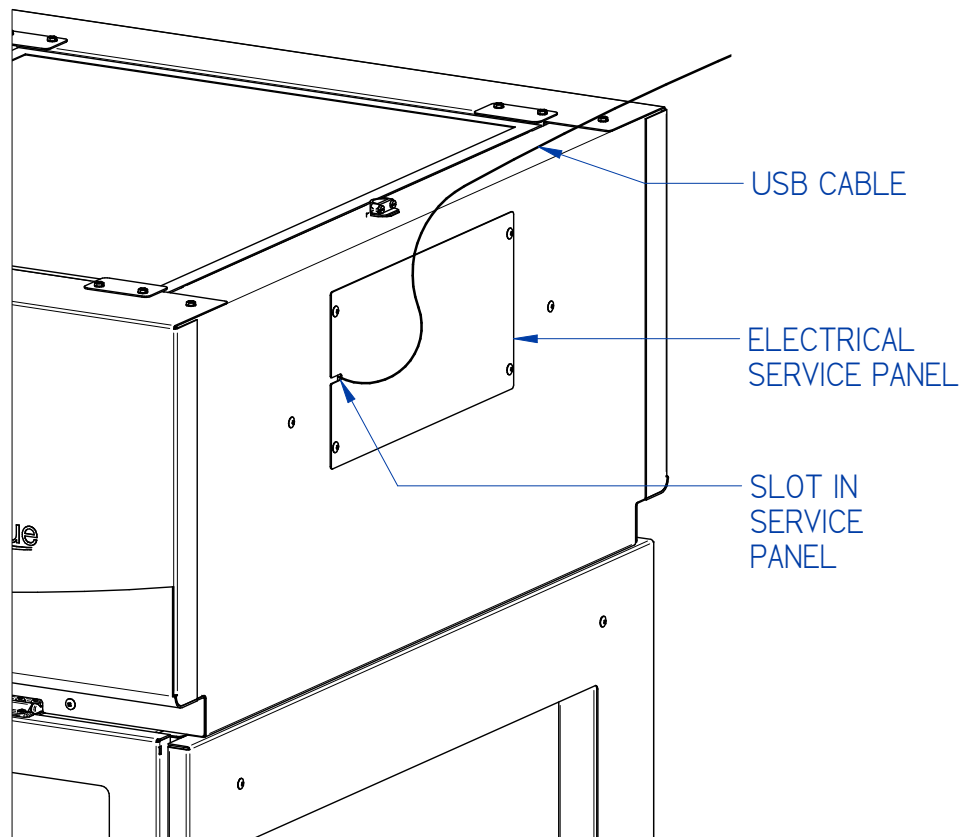
As shown in Figure 9-8, remove the two (2) Screws on each of the two (2) Pre-Filter Plates, then pull the front edge of the Pre-Filter up and slide it towards you. Set the Pre-Filter, Plates, and Screws aside. Pull the USB cable further into the upper blower/plenum area, and locate the USB Data label (see Figure 9-8). Connect the mini-USB end of the cable into this port.

Replace the Electrical Service Panel, being sure to route the USB cable through the provided slot in the Panel. Replace all four (4) Screws to secure the Panel.

Verify the USB cable is still connected firmly in the USB Data port. The use of zip ties as a strain relief on the USB cable is acceptable, provided the zip ties and cable are not near the Supply Blower.

Replace the Pre-Filter, two (2) Pre-Filter Plates, and all Screws.

Figure 9-8
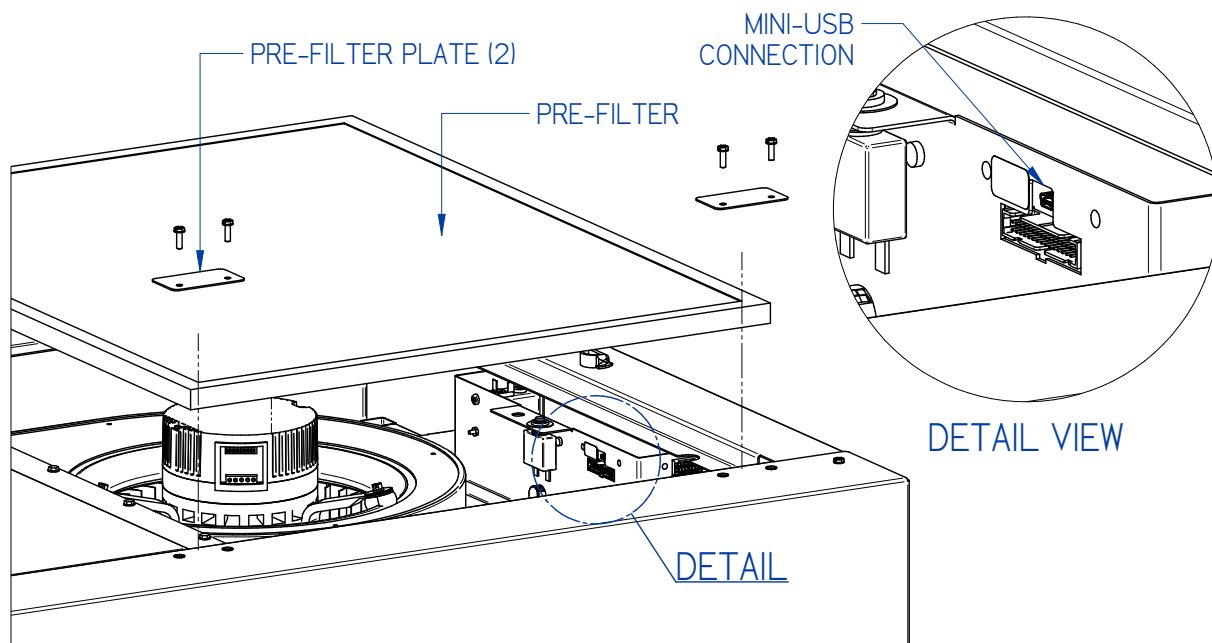
Once the USB Cable is connected, the operation of the Logic Vue enclosure can be monitored using a computer connected to the end opposite the mini USB connector. The remotely connected computer can monitor the cabinet, but not control the enclosure.

Connection Type

To connect to the mini USB port on the cabinet, a **mini USB A** connector is required (see Figure 9-9).

Figure 9-9

Data Output Format

To correctly receive data output from the Logic Vue enclosure, set the following communication configurations on the receiving computer:

1. Data Rate = 9600 Baud
2. Word Length = 8-Bit
3. 1 Start Bit, 1 Stop Bit
4. No parity is transmitted
5. Standard ASCII character set

Note: The mini USB port on the enclosure does not supply power, it only transmits data.

Data Output Rate

Status data is broadcast whether a recepient is receiving or not. The rate at which status data is broadcast is variable through the *Settings* submenu of the enclosre display (see Figure 9-10).

Figure 9-10

OUTPUT DATA

1 / SECOND
1 / 10 SECONDS
1 / 30 SECONDS
1 / 60 SECONDS
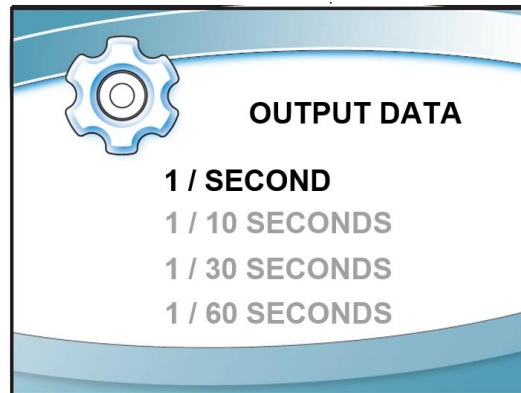
Output rate options are:

- Once per second
- Once every 10 seconds
- Once every 30 seconds
- Once every 60 seconds

Data Output String Definition

The data string is limited to 80 characters, including spaces and commas. Use Figure 9-11 to understand the character signficance.
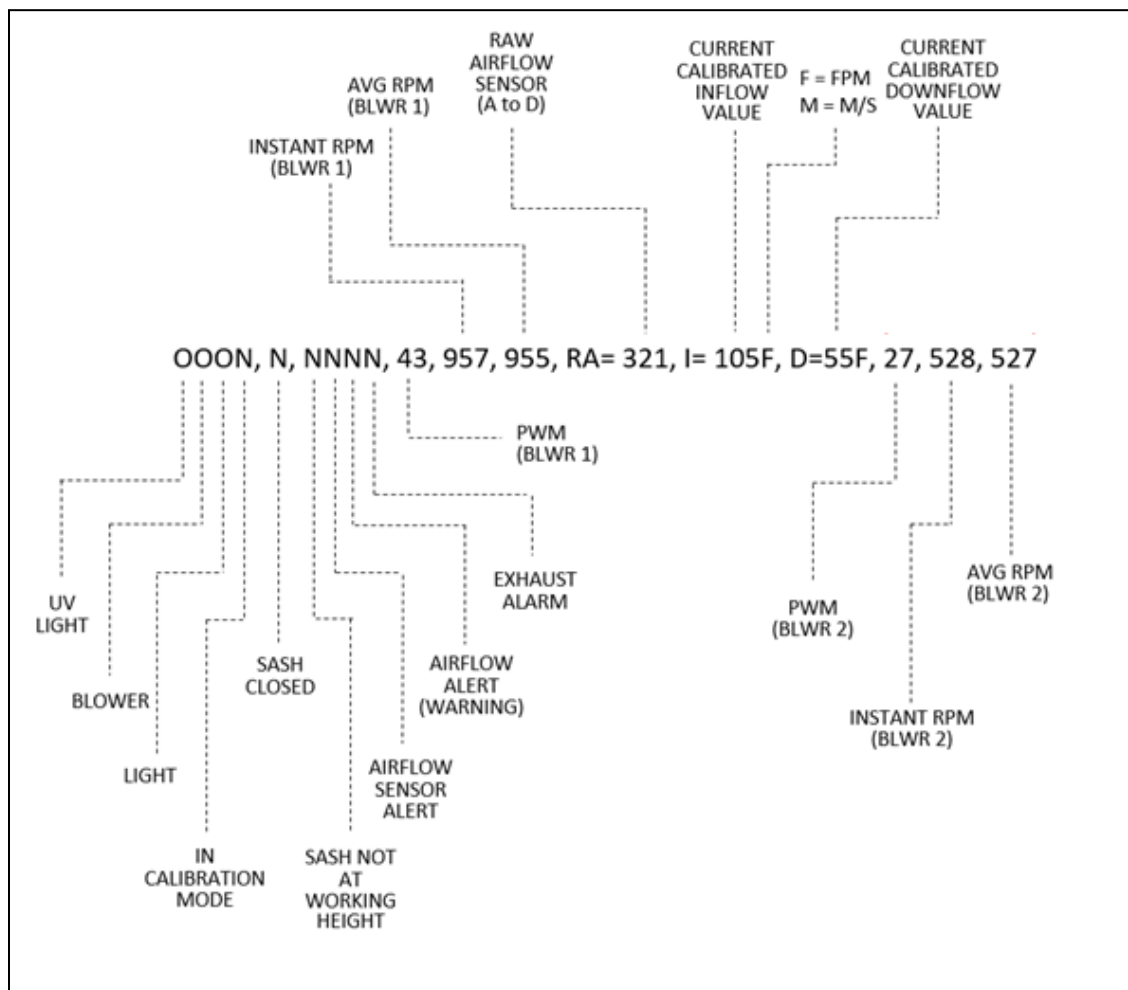
See Figure 9-12 on the following page for each character field's value range.

Figure 9-12

Figure 9-12

OOON, N, NNNN, 43, 957, 955, RA= 249, I= 105F, D=55F, 27, 528, 527
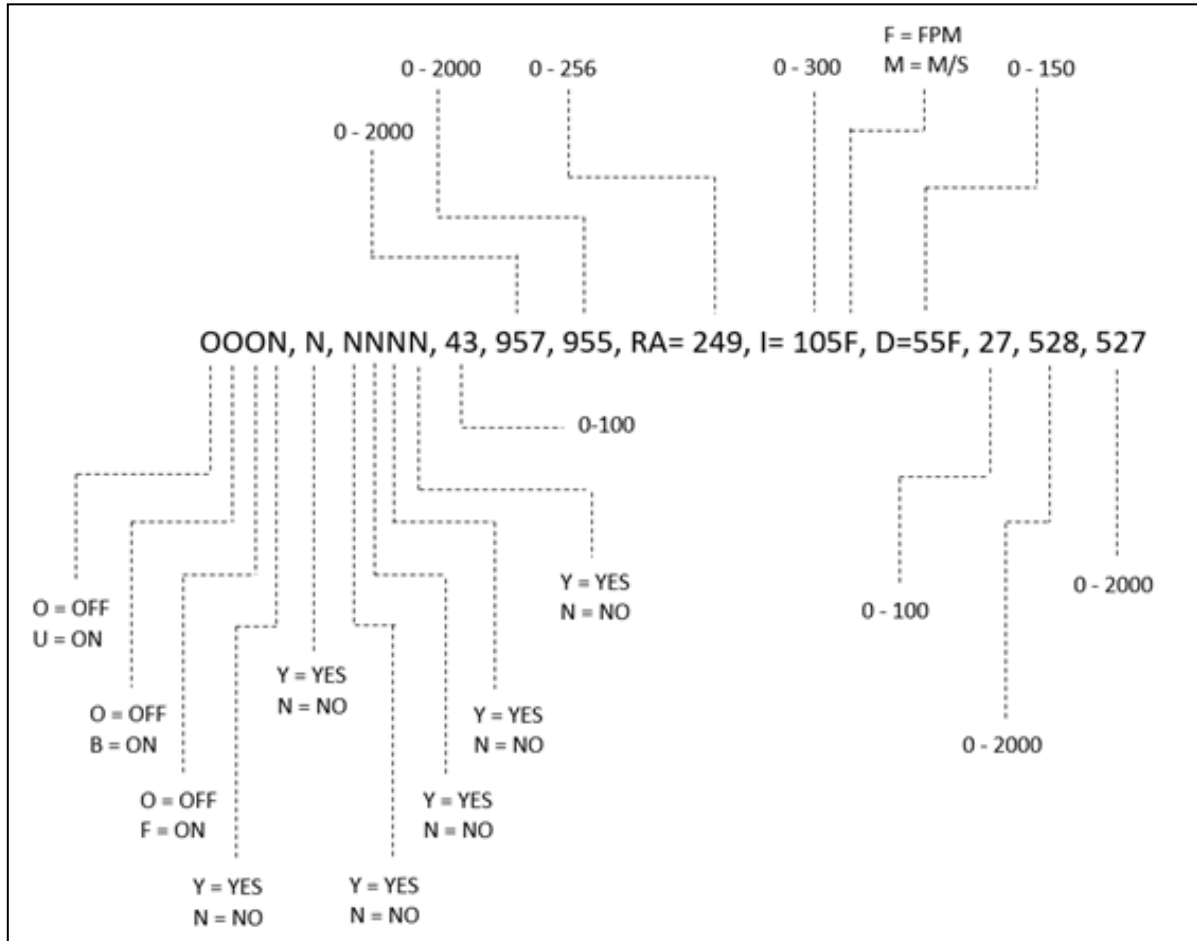
Data Output Software Requirements

There are several commercially available software packages, which can read RS232-type data and enter the data into a computer program such as a word processor (to create a text file) or spreadsheet (to tabulate and plot the data). Consult your IT department regarding the latest software available.

Safety Interlock Cable

Some types of automated equipment placed inside the Logic Vue enclosure contain safety panels with a safety interlock to prevent movement of the equipment when the safety interlock is open. The safety panels around the equipment prevent HEPA-filtered downflow air from flowing through the equipment. With the safety panels in place, the downflow air is directed around the equipment, and for large items can create high velocity airflow and/or unstable airflow between the equipment and the enclosure's Hatch and Sash. To resolve this issue, it is recommended to remove any safety panels on the automated equipment. When these panels are removed, if a safety interlock is present on the equipment, it may not operate. To overcome this issue, the Logic Vue can function as the removed safety panel(s).

The Logic Vue enclosure offers a switched contact that closes when all sashes (and Access Doors) are closed and the Blowers are running at a reduced rate. To connect to the enclosure's switched interlock, a Safety Interlock Cable is offered (Labconco Catalog Number 3349700). This Cable connects to the enclosure's switched contact (a wire connector in the top, right-rear corner of the interior). See Figure 9-13. The opposite end of the cable provides two stripped wires to connect to the equipment. Wiring this end of the Cable to the safety interlock wires on the automated equipment allows the Logic Vue to provide the same level of physical protection and safety, as the original safety guards on the equipment. The Cable is 10 feet (3 m) long, but can be cut down to length as desired.

The switched contact is fused at 1 Amp maximum. Making the connection to the automated equipment should be done in communication with the equipment manufacturer.

Figure 9-13

CONNECTION FOR SAFETY INTERLOCK
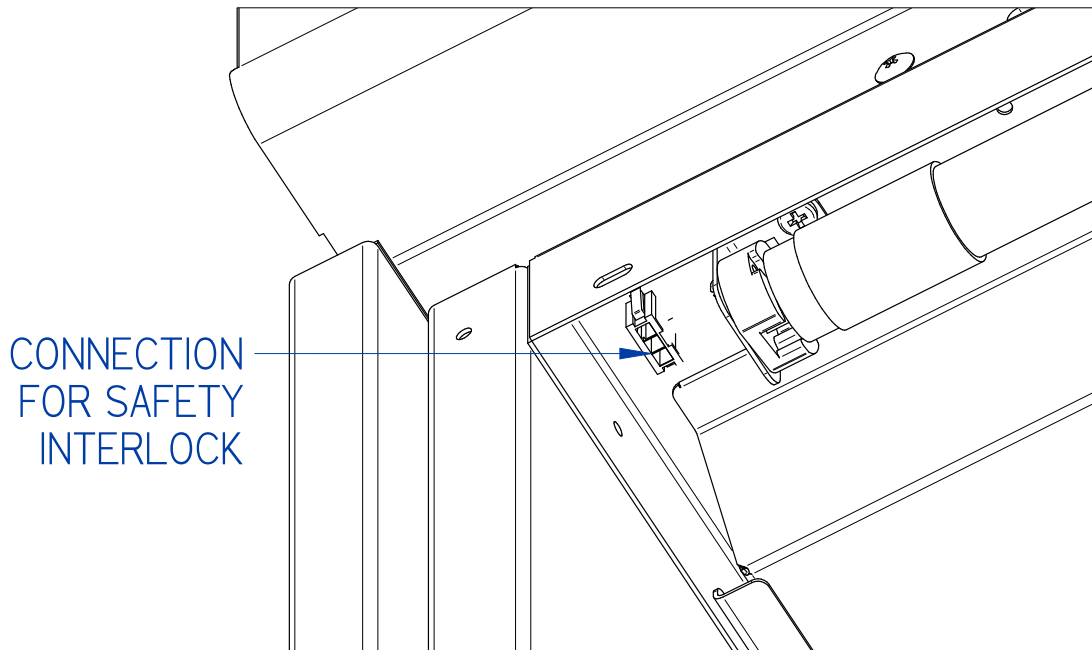
10: Maintaining Your Logic Vue

This section details normal maintenance required for optimal operation of the Logic Vue enclosure. This section does not cover service operations beyond normal maintenance (see Section 11: Advanced Service Procedures), nor does it cover annual airflow certification procedures (see Section 4: Certification).

Maintenance Safety Precautions

The following tools and supplies are required to maintain the equipment:

- 5/16" Wrench or Socket and Ratchet
- 70% alcohol solution (or other approved surface disinfectant)
- Paper Towels
- Ladder for Pre-Filter access

The following safety precautions must be followed by all personnel maintaining the equipment.

- Wear safety glasses, and/or additional eye and face protection as required by your Health & Safety Department.
- Wear gloves, and/or additional skin protection as required by the safety instructions for the specific cleaning/disinfecting chemicals used. Consult your Health & Safety Department for additional skin protection requirements.
- No loose fitting clothes
- Wear close-toed shoes
- Although the service operations detailed in this section do not involve access to areas of the product with moving or electrical parts, should you remove any panels that expose moving or electrical parts, you must follow these instructions before doing so:
  - o Disconnect main power cord or electrical service connection
  - o Never touch moving parts such as fan blades or blower wheels.
- Never touch the HEPA (or ULPA) filter media. Touching the media will damage it, and result in a failure of the filter to function properly and maintain safe conditions.

Recommended Maintenance Schedule

Table 10-1

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 Hatch, Sash, and End Window polycarbonate with suitable cleaner**	•	•	•
Operate enclosure blower, noting Filter Life percentage in log	•	•	•
Using 70% alcohol solution, wipe down exterior surfaces		•	•
Check Sash function and Sash Latch function, noting in log		•	•
Check all service valves (if equipped) for proper operation		•	•
Verify operation of front and rear LED light, noting in log		•	•
Visually examine and (if necessary) replace the Pre-Filter on top		•	•
Have the cabinet recertified by a qualified technician			•

** **It is recommended to AVOID the use of cleaning materials that contain Chlorine, Quaternary Ammoniums and Phenols.**

Service Operations

The operations in this section provide instructions to maintain the Logic Vue enclosure for normal consumable replacement, and access to parts in accordance with the Recommended Maintenance Schedule. This section does not cover service operations beyond normal maintenance, nor does it cover annual airflow certification procedures. These advanced sections are found elsewhere in this User's Manual.

Resetting a Circuit Breaker

Should an over current situation arise during normal operation, the circuit breaker(s) located just beneath the Pre-Filter (atop the enclosure) will trip.

If the enclosure does not have power when the System Reset Switch (Figure 9-2) is on, reset the appropriate circuit breaker(s) as shown in Figure 10-1. 115v models have one (1) circuit breaker; 230v models have two (2) circuit breakers.

The thrown circuit breaker will be easy to identify, as the white barrel will be extended. To reset, simply push it in. To access the circuit breaker(s), reference Figure 10-1 and follow these instructions:

1. Using a ladder and following all facility safety guidelines, locate the Pre-Filter Plates that hold the Pre-Filter in place.
2. Remove the two Screws on the Plates that hold the front two Pre-Filter corners.
3. Remove the two Pre-Filter Plates.
4. Pull the front edge of the Pre-Filter up and slide the Pre-Filter forward. Set the Pre-Filter to the side.
5. Locate the Circuit Breaker(s) tripped, and push the white barrel back in.
6. Replace all parts.

Figure 10-1

PRE-FILTER

PRE-FILTER PLATE (2)

CIRCUIT BREAKER

DETAIL

DETAIL VIEW
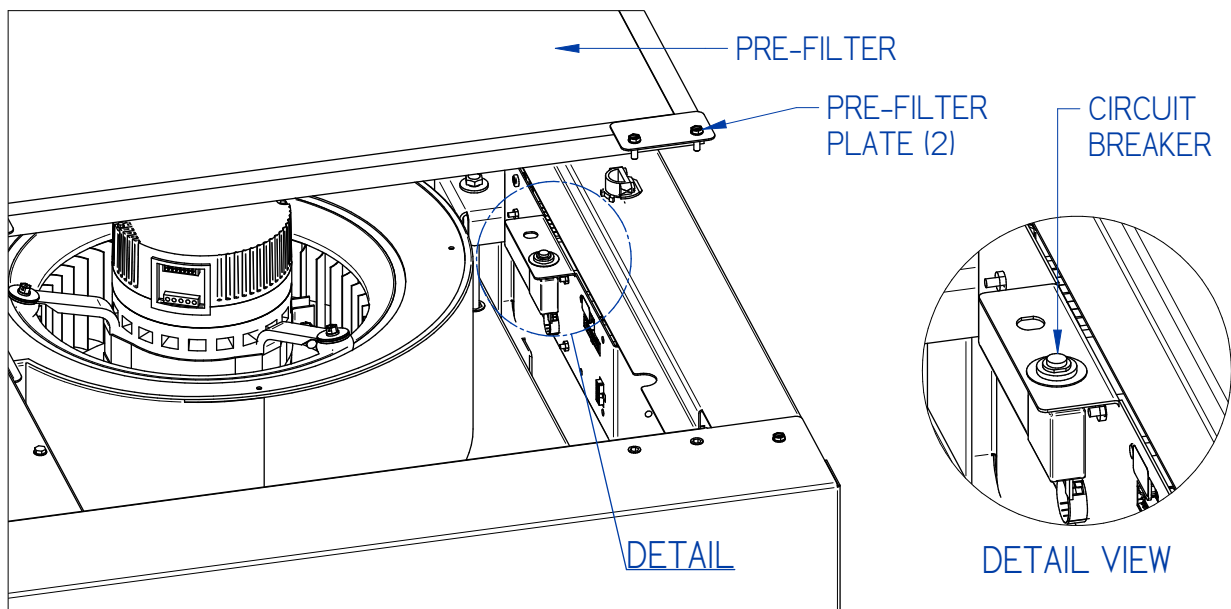
Drip Tray Removal

To lift or remove the Drip Tray, reference Figure 10-2 and follow these steps.

1. Turn the enclosure blowers on.
2. Take note of the air slots that house each Drip Tray Tab. Lift the Drip Tray to clear each Tab from the air slot.

⚠️ If removing the Drip Tray from the enclosure, the Drip Tray must be thoroughly decontaminated before removing it from the enclosure.

To reinstall the Drip Tray, carefully set and/or slide the Drip Tray onto the Work Surface. Locate the four (4) Tabs on each corner of the Drip Tray into the farthest outward front and rear air slot on the innermost row of slots.

Figure 10-2

DRIP TRAY TABS (4)

DRIP TRAY

WORK SURFACES
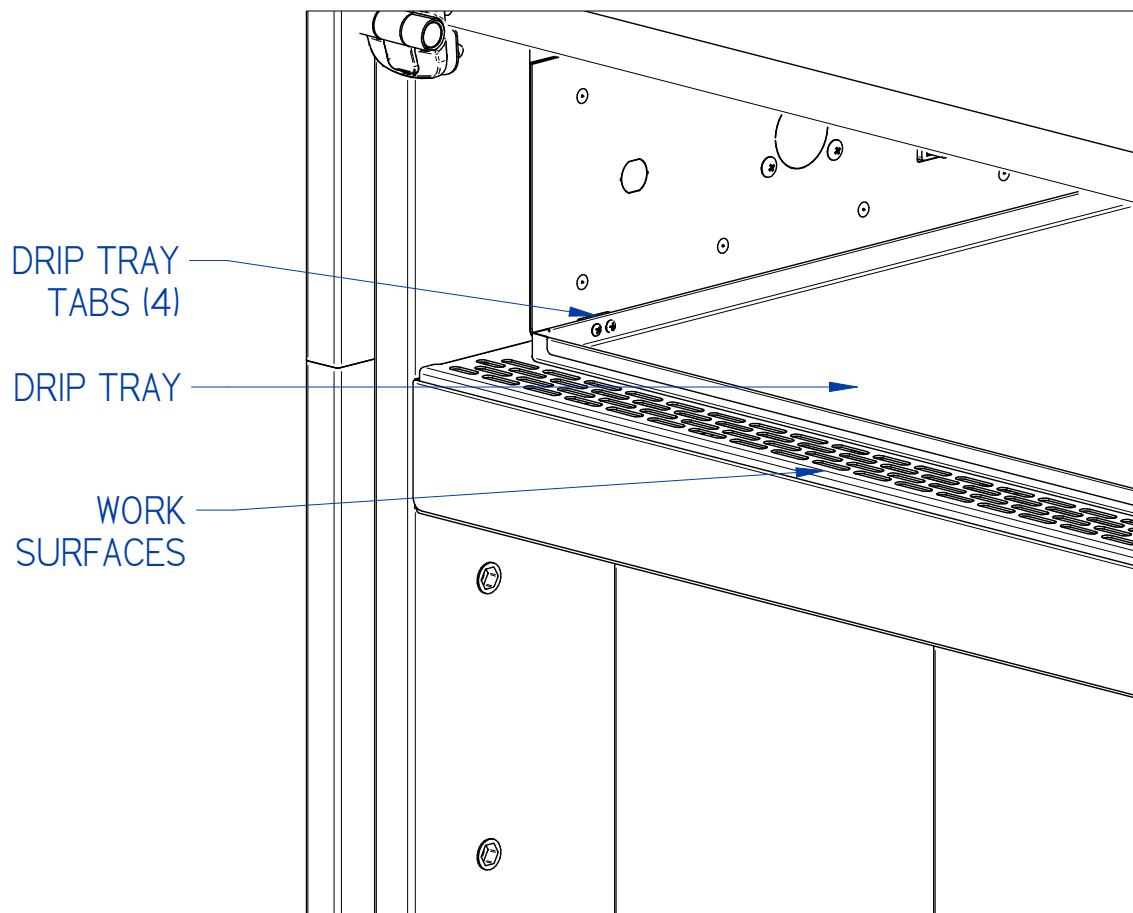
Changing the Pre-Filter

Over time the top Pre-Filter will accumulate dust and particulate from the room air drawn through it. To change the Pre-Filter reference Figure 10-3 and follow these instructions.

1. Using a ladder and following all facility safety guidelines, locate the Pre-Filter Plates that hold the Pre-Filter in place.
2. Remove the two Screws on the Plates that hold the front two Pre-Filter corners.
3. Remove the two Pre-Filter Plates.
4. Pull the front edge of the Pre-Filter up and slide the Pre-Filter forward.
5. Remove the old Pre-Filter and replace it with the new Pre-Filter.
6. Replace all parts.

Figure 10-3

PRE-FILTER

PRE-FILTER
PLATE (2)
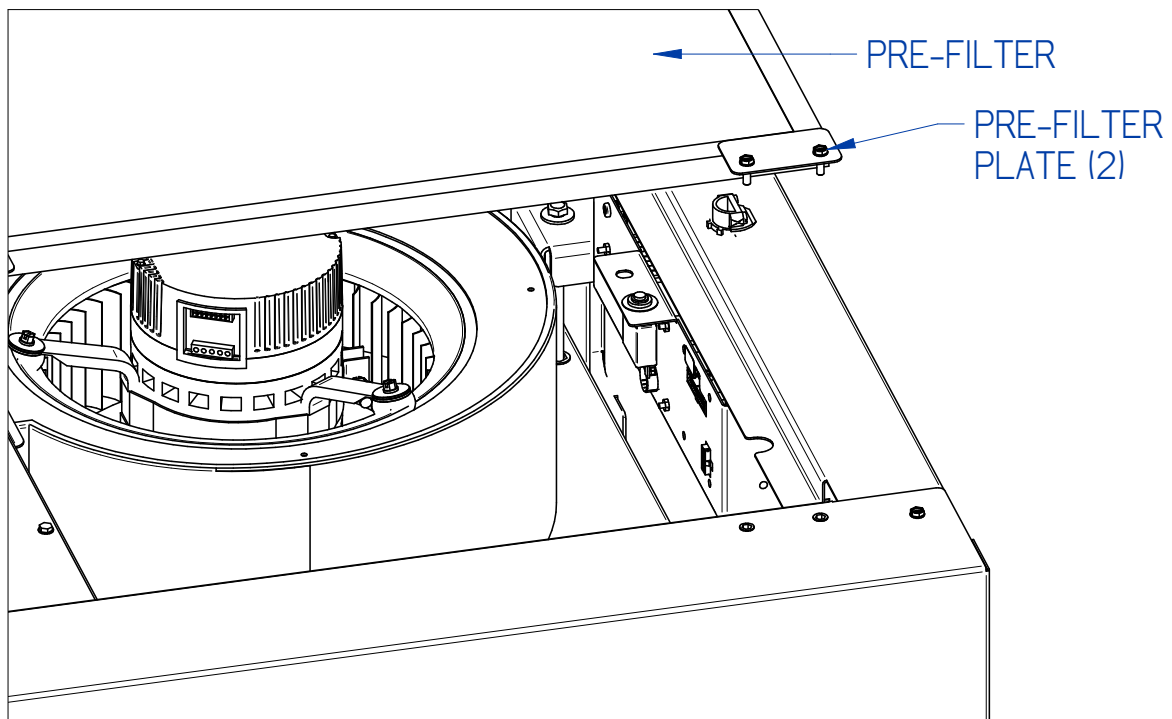
Changing the LED Lamps

Should a LED lamp need replacement, reference Figure 10-4 and follow these insturctions.

⚠ Before proceeding, make sure all electrical power has been removed from the enclosure by disconnecting the main electrical connection, which is the supply power disconnect switch.

⚠ This product uses only LED direct drive lighting. Do NOT install fluorescent bulbs.

1. Open the Front and Rear Sash, then open the Front and Rear Hatch.

2. Locate both LED lamps (Figure 10-4) between the Hatch hinges and the Diffuser

3. Grasp each lamp firmly and rotate it 90 degrees.

4. Pull each lamp straight down.

Figure 10-4
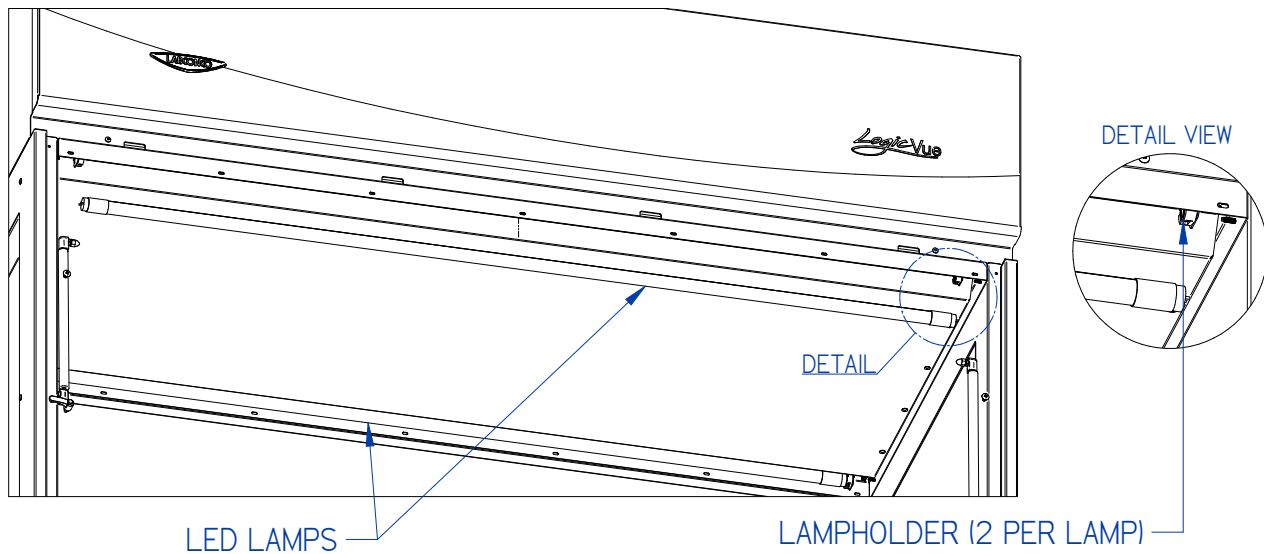
5. When installing the new lamp, position the two pins vertically, slide the pins into the Lampholder at one end, then into the opposite Lampholder. Push up and then rotate 90 degrees. Verify the lamp is secure.

ⓘ Note the darker stripe running the entire length of the lamp. This darker stripe should be oriented up when the lamp is installed.

Storage

If the enclosure is to be left unused for more than one month, it should be prepared for storage. Follow the instructions below.

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

1. Close the Hatches and Sashes completely and seal the edge gaps with plastic sheeting.

2. Seal the exhaust outlet with plastic sheeting.

3. Disconnect the enclosure from electrical power.

4. Ensure that the enclosure will not be moved or disturbed while being stored.

11: Advanced Service Procedures

This section provides instructions to perform advanced service procedures on the enclosure. Such procedures include changing HEPA filters, adjusting the sash position sensors, and more.

Tools

Required
- #2 Phillips screwdriver or #2 Phillips bit (4 inches long minimum)
- Ratchet with extension
- Sockets
  - 5/16-inch
  - 3/8-inch
  - 7/16-inch
  - 1/2-inch
- 3/8-inch nut driver
- 1/2-inch nut driver
- T20 Torx Driver

Optional
- Cordless screwdriver/drill
- Cordless ratchet (low profile right angle impact driver)
- Pliers (standard and needle nose)
- #10-24 Tap
- 5/16-18 Tap

If a cordless screwdriver or drill is used to drive screws, reduce the torque setting to a minimum to avoid stripping the screw head.

Removal of External Dress Panels

Instructions to remove external dress panels are provided in this section. Subsequent sections will reference these instructions. For example, when changing the Supply HEPA filter, the Upper Front Panel needs to be removed.

Upper Panel Removal

Reference Figure 11-1. Remove the Plate Screws (16) and Cap Plates (8). Lift off the Top Panel and Pre-Filter.

Remove the two (2) Top Screws on the far right and left end of the Upper Front Panel. Remove the three (3) Front Screws on each end of the Upper Front Panel. Tilt the Upper Front Panel away from the enclosure and lift the panel off. Repeat these instructions for the Upper Rear Panel.

Figure 11-1

TOP PANEL   CAP PLATES (8)   PRE-FILTER   PLATE SCREWS (16 TOTAL)

A

TOP SCREWS (2)

DETAIL A

UPPER REAR PANEL

FRONT SCREWS (3)

UPPER FRONT PANEL
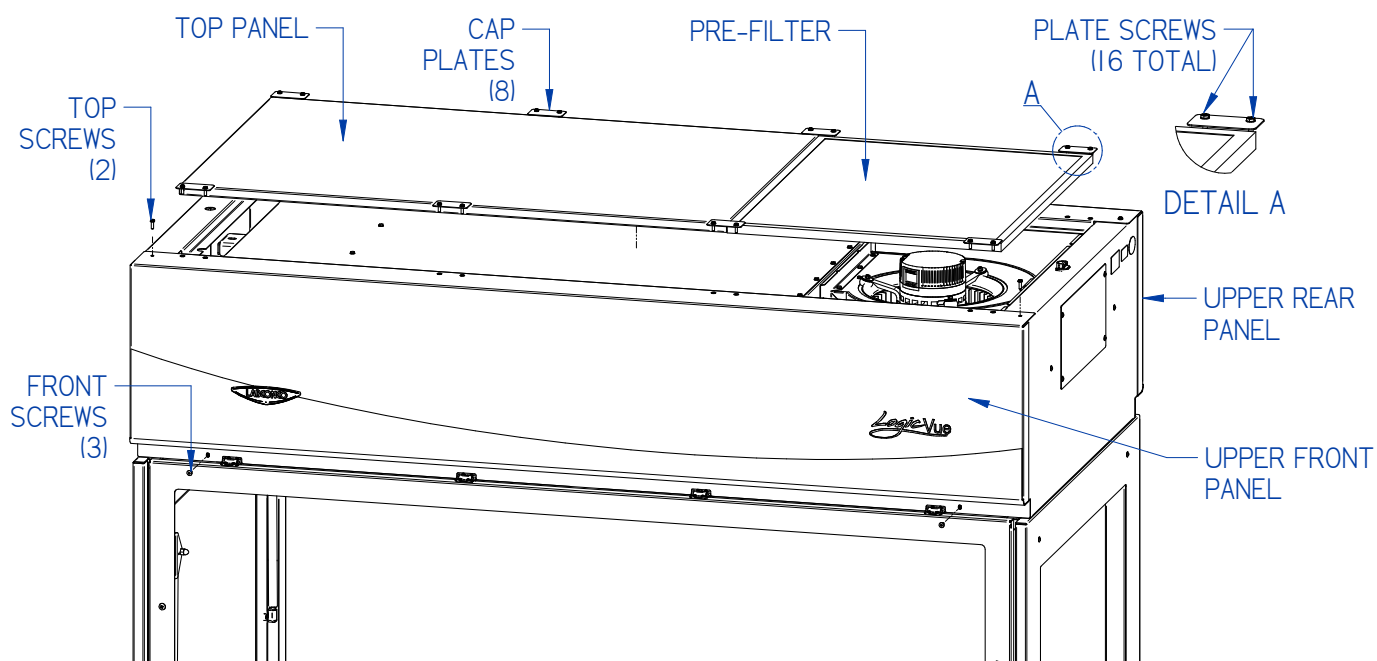
Upper End Panel Removal

Reference Figure 11-2. Remove the two (2) Screws on each End Panel. Rotate the top of each End Panel away from the enclosure, then lift each panel up to completely remove.

Figure 11-2

END PANEL

END PANEL
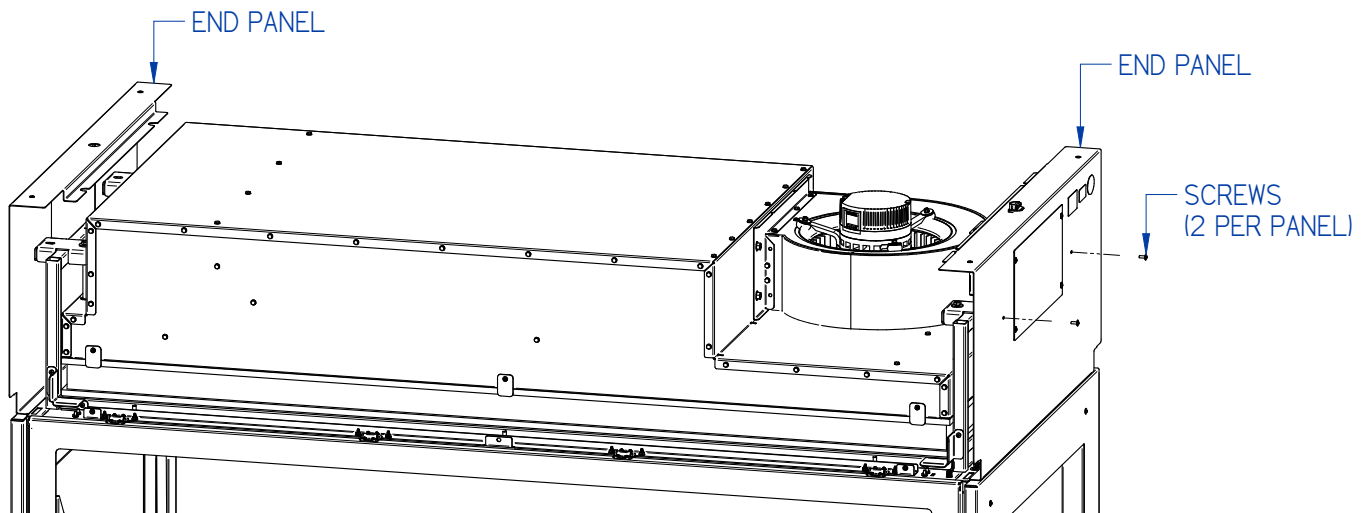
SCREWS
(2 PER PANEL)

End Panels Removal

Reference Figure 11-3. Remove the eight (8) Screws on the Top End Panel. Note that two (2) Screws hold the Pass Thru Cover in place, and this Cover will come off when removing these screws. Rotate the top of the Top End Panel away from the enclosure, then lift panel up to completely remove. Remove the four (4) Screws on the Bottom End Panel, and remove the Bottom End Panel. Repeat these instructions on the opposite end.

Figure 11-3

TOP END PANEL

SCREWS (12 PER END)

PASS THRU COVER

BOTTOM END PANEL

Sash Sensor Adjustments or Replacement

The enclosure uses four (4) magnetic switches to sense the position of both Hatches and Sashes. When either of the Sashes are opened, the blower speeds will increase to nominal to allow proper containment while a user is working in the enclosure. With both Sashes closed, the enclosure can be set to run at a reduced airflow rate. Additionally, if either Hatch or BOTH Sashes are open and the blowers are on, a Sash Alarm will occur. The Sash Sensors and their respective magnets must be working correctly to provide correct feedback. If the enclosure is not responding as described, adjust or replace a Sash Sensor(s) by following these instructions.

1. Facing the front of the enclosure, remove the right side End Panels (both upper and lower) as described earlier.

2. Locate the Sash Sensors along the front and rear face. Figure 11-4 identifies the location of the Sensors (for orientation, the picture is the Front Sash Sensors).

Figure 11-4

HATCH SENSOR
SWITCH POSITION:
CLOSED WHEN
HATCH CLOSED

LOWER SASH SENSOR
SWITCH 1 & 2 POSITION:
CLOSED WHEN
HATCH CLOSED
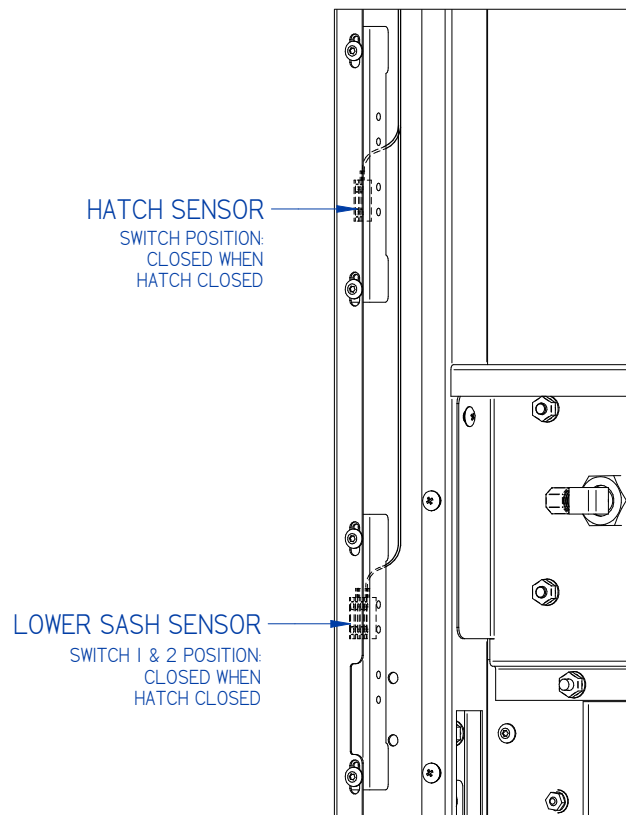
3. Switch position (open or closed) can be confirmed with a continuity meter by disconnecting the switch to be tested from the wiring harness. With the sash fully closed, both switches should be closed. If the circuit is open, ensure the Hatch/Sash is fully closed against the enclosure, then:

a. Check to ensure that the magnet is still attached to the inside edge of the Hatch/Sash.
b. Reposition the Sensor to align with the magnet on the inside surface of the Hatch/Sash. Reference Figure 11-5. Loosen the two (2) Screws with a T20 Torx Driver. Slide the Sash Sensor Bracket up or down as needed to better align the Sash Sensors with the magnets on the Hatch and/or Sash.

4. If the switch position does not respond as described, replace it with a new Sensor.

Figure 11-5

SCREWS (2)
T20 TORX DRIVE

SASH SENSOR (1)

SASH SENSOR
BRACKET

SCREWS (2)
T20 TORX DRIVE

SASH SENSORS (2)
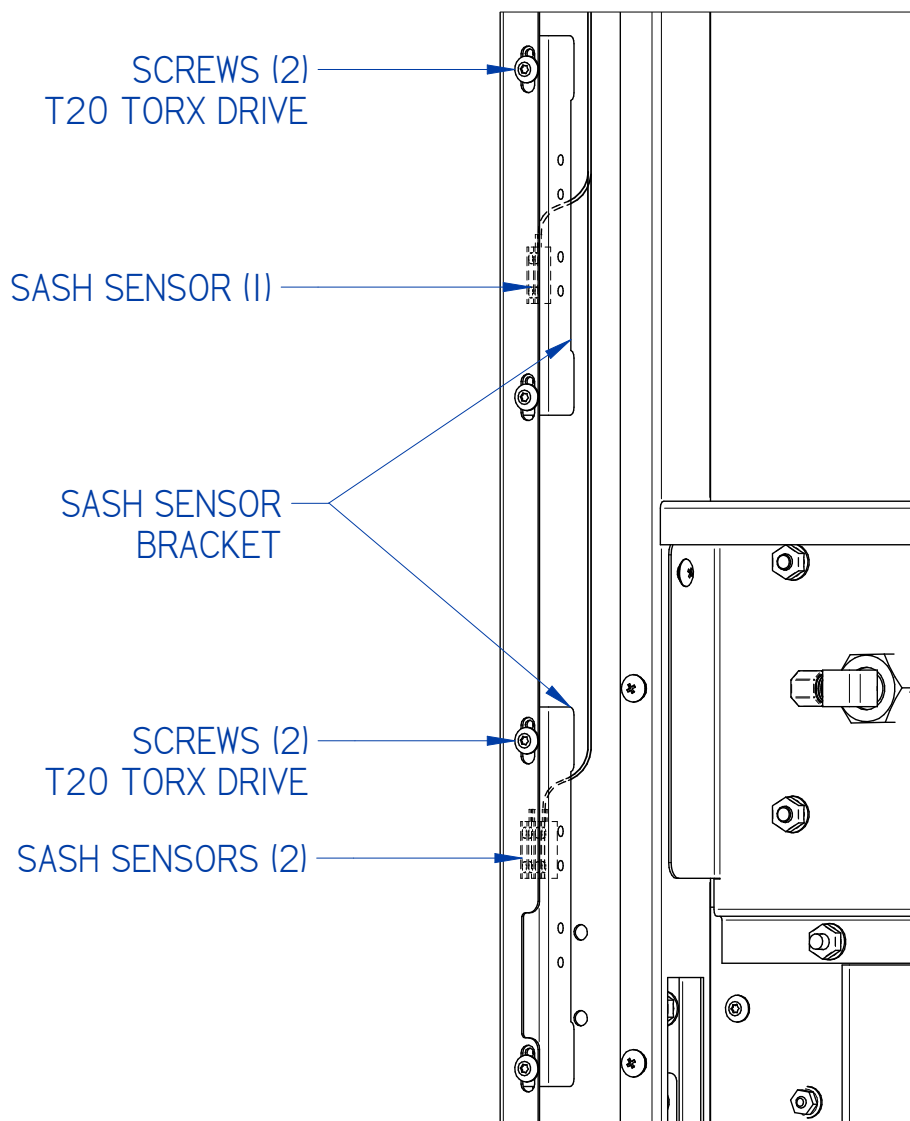
HEPA Filter Replacement

The HEPA filters load with particulate as the enclosure operates. Eventually, the filters will need to be replaced. Only replace a HEPA filter if you are a qualified and trained certifier or technician.

The HEPA filters on a Logic Vue enclosure may be contaminated with biohazardous material. Always assume the HEPA filter is contaminated, even if you are told the enclosure has not been used. For your safety, take all necessary precautions before opening the filter cover(s), including: gaseous decontamination of the enclosure, proper breathing, eye, and skin protection from biohazards.

Follow these instructions carefully, and in the order documented. HEPA filters can be awkward to handle, and quite heavy for larger models. Use safe lifting techniques when removing and replacing the filters. Always use two persons to remove and replace each HEPA filter.

Supply HEPA Filter Replacement

1. Thoroughly and properly decontaminate the enclosure as required.

2. Disconnect electrical power from the enclosure. Remove the Front Upper Panel as described earlier in this section under Removal of External Dress Panels. Removal of the Rear Upper Panel is recommended as it provides more clearance to access the Plenum Lift Bolts. See Figure 11-6.

Figure 11-6

LIFT BOLTS (2 – LEFT)   SUPPLY PLENUM   FILTER TABS (3)   LIFT BOLTS (2 – RIGHT)

SUPPLY HEPA FILTER – GASKET DOWN
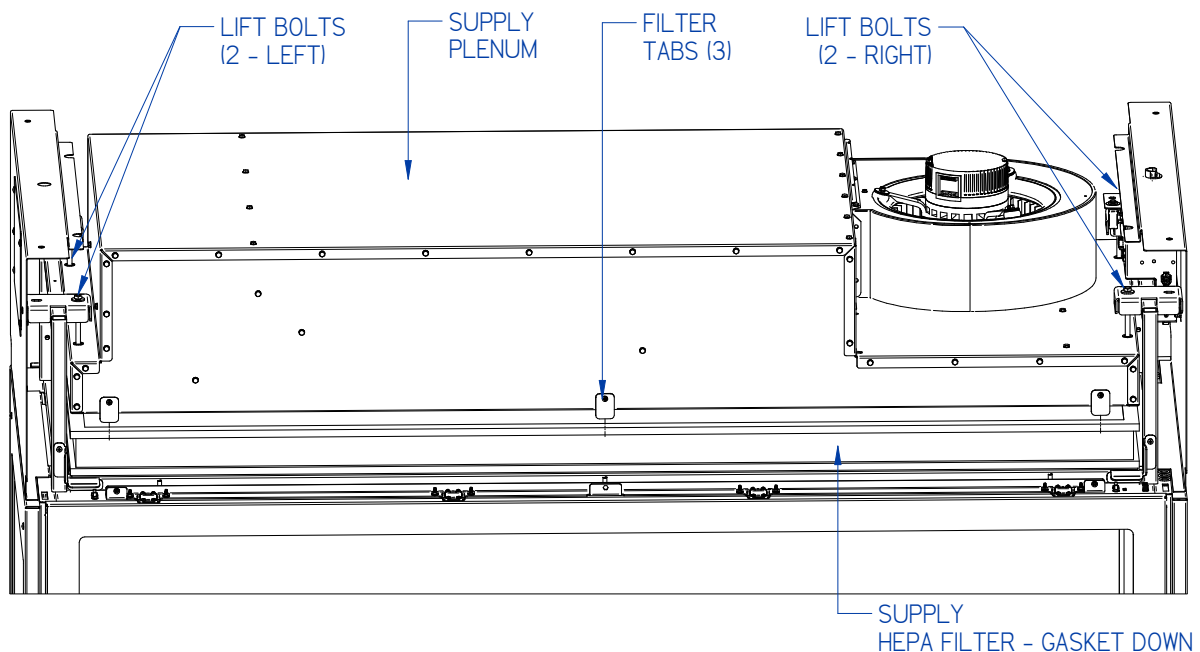
3. Using a 1/2-inch socket, tighten the 4 Plenum Lift Bolts (turning each bolt clockwise will raise the plenum) until the plenum raises 1/2-inch (13 mm). See Figure 11-6 for reference.

4. Remove the 3 supply HEPA Filter Tabs (see Figure 11-6).

5. Lift up on one corner of the supply HEPA Filter to break the seal between the filter gasket and the filter shelf. Once the filter is free, slide it straight out.

Reinstallation Notes:

1. When reinstalling the supply HEPA filter, to lower the plenum onto the supply HEPA, turn the 4 plenum lift bolts counter-clockwise. Turn each bolt part way, working in a pattern amongst the 4 bolts to lower the plenum evenly.
2. When downward pressure begins to be applied onto the supply HEPA, the brackets holding the bolts you are tightening will flex slightly. Only tighten until the filter is secure and the filter gasket has no more than 50% compression. Do not overtighten the bolts. Verify the HEPA filter's gasket is down.
3. Replace the 3 Filter Tabs, then reinstall all Dress Panels removed.

Exhaust HEPA Filter Replacement

1. Thoroughly and properly decontaminate the enclosure as required.

2. Disconnect electrical power from the enclosure. On the Lower, Rear side of the enclosure, remove Exhaust Cover. See Figure 11-7.

Figure 11-7

EXHAUST HEPA FILTER — SCREWS (6) — EXHAUST COVER
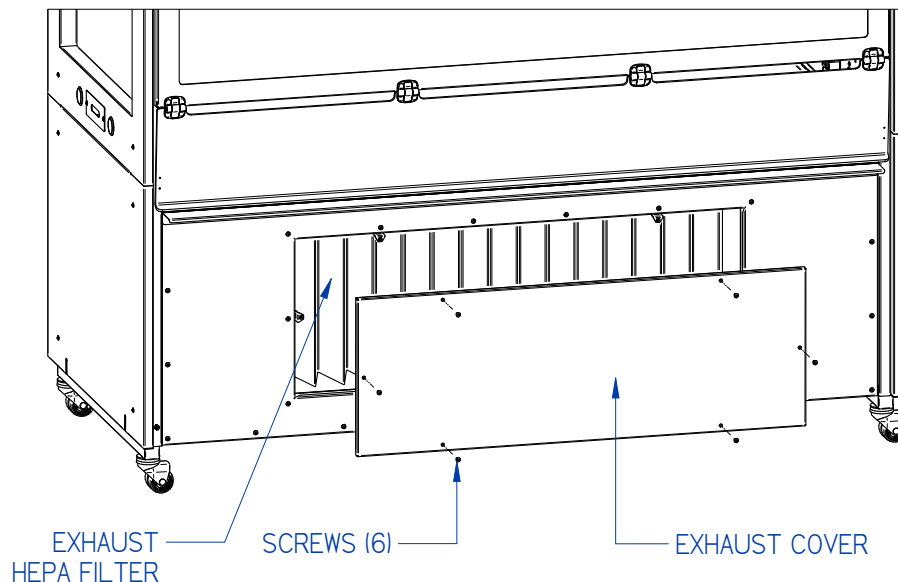
3. Remove the Rear Cover Panel by removing the Screws around the perimeter of the Panel and the inner perimeter around the Exhaust HEPA Filter. Note: If the Exhaust Guard is installed, it will come free when the top Screws on the Rear Cover Panel are removed. It is recommended to remove the Exhaust Guard (if installed) first. See Figure 11-8.

Figure 11-8
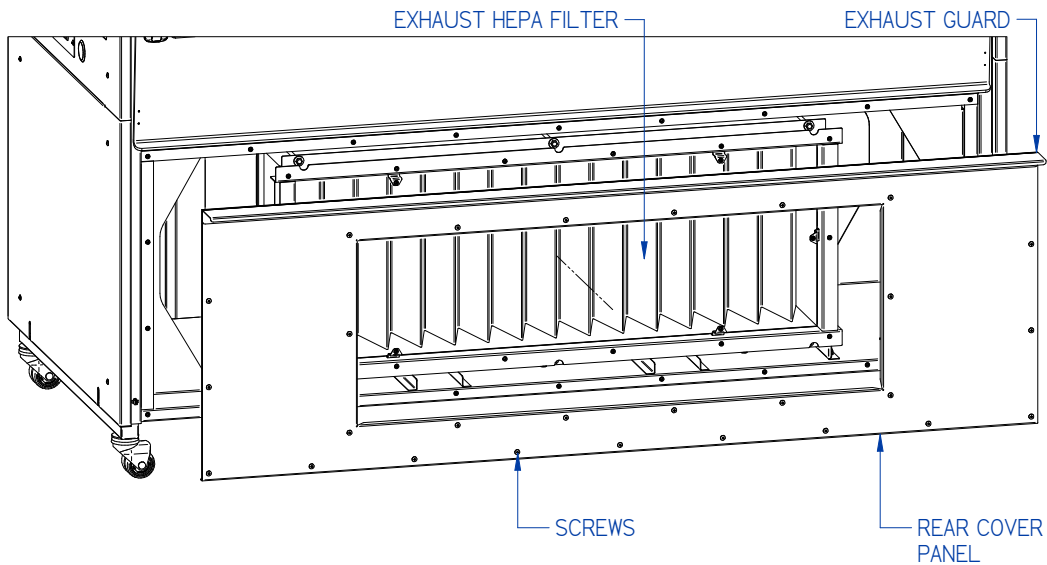
4. Loosen and remove the six (6) Frame Bolts securing the Filter Frame. Carefully slide the Filter Frame away from the Exhaust HEPA Filter. See Figure 11-9.

Figure 11-9
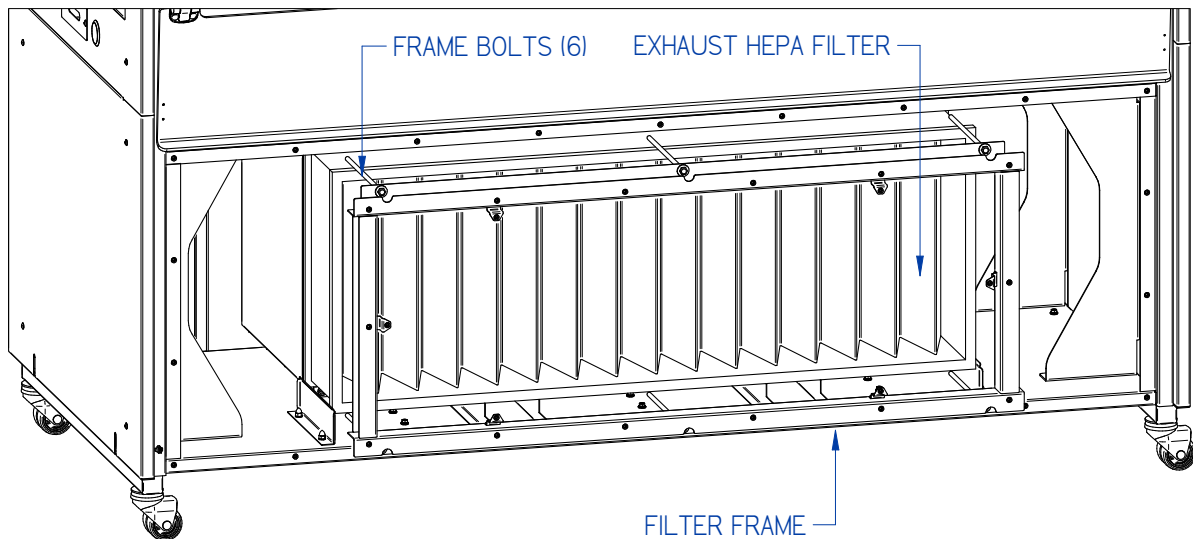
5. Slide the Exhaust HEPA Filter straight out. If the Filter's gasket sticks to the Exhaust Plenum, gently pull on the filter frame at one corner until the gasket releases from the Exhaust Plenum.

Figure 11-10
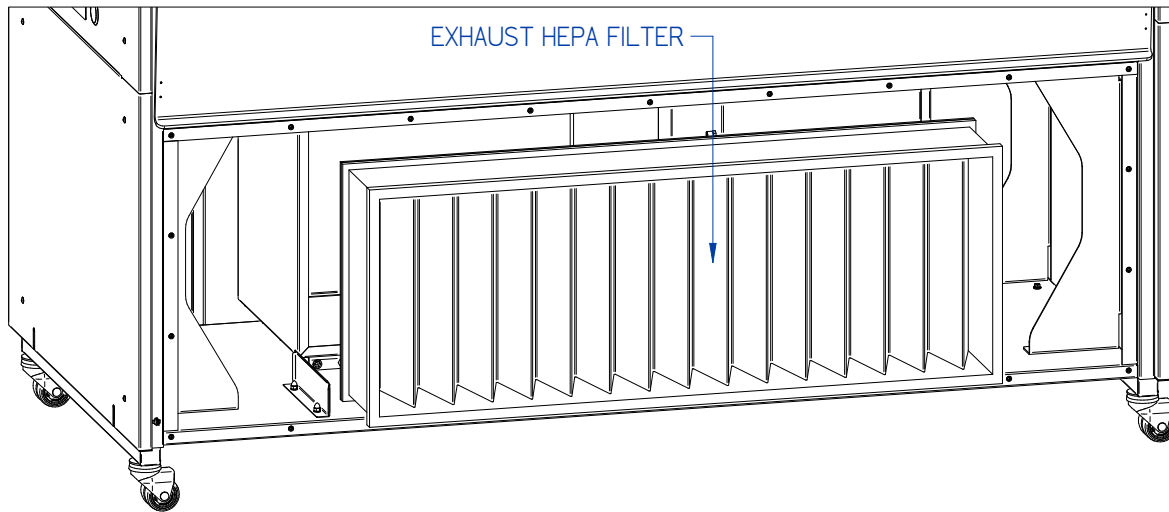
Reinstallation Notes:

1. When reinstalling the Exhaust HEPA filter, verify the filter's gasket is facing INWARD. Set the new filter in place against the Exhaust Plenum, and verify the filter frame is even with the Exhaust Plenum (left-to-right).
2. Reinstall the Filter Frame and the six (6) Frame Bolts, then turn each bolt clockwise, tightening the bolts gradually working in a pattern amongst all six bolts until they are tight.
3. Replace the remaining components in reverse order.

Blower/Motor Replacement

The motors in the Logic Vue enclosure are ECM, brushless DC motors with extremely high reliability. It is rare for the motor to fail. If the blower(s) fail to start, check all possible causes first. The most likely cause for blower failure is a loose wire connection. Another reason for accessing the blower/motor is a foreign object caught in the blower wheel, or the blower wheel is out of balance.

The exhaust blower/motor assembly may be contaminated with biohazardous material. Always assume the exhaust blower/motor is contaminated, even if you are told the enclosure has not been used. For your safety, take all necessary precautions before opening the exhaust blower/plenum cover, including: gaseous decontamination of the enclosure, and/or proper breathing, eye, and skin protection from biohazards.

If replacing a blower/motor assembly, the motor must be programmed at Labconco. The blower/motor assembly must also be balanced by Labconco, and therefore it is strongly recommended to replace the blower/motor assembly, never the motor or blower individually. Failure to replace the blower/motor with a genuine Labconco assembly will result in failed or incorrect operation, which can jeopardize the protection the enclosure provides the operator, product, and lab environment.

Blower/motors can be awkward to handle, and the blower wheel may contain sharp edges. Use safe lifting techniques when removing and replacing the blower/motor. Always wear gloves and eye protection when handling a blower/motor assembly.

Supply Blower/Motor Replacement

1. Disconnect electrical power from the enclosure. Remove the Upper Front Panel as described earlier in this section under Removal of External Dress Panels. Note: removing the Upper Rear Panel may provide additional clearance for this operation.
2. Locate the two (2) Wire Harness connections on the right side of the motor. Depress the latch on each connector and pull the connector out.
3. Remove the two (2) Bolts (see Figure 11-11), then lift the Blower/Motor Assembly approximately 3 inches and bring it forward.
4. The Supply Blower contains a Connection Plate secured with Screws. Remove these Screws using a 5/16" Wrench or Socket and Ratchet.
5. Replace the Connection Plate onto the new Supply Blower/Motor Assembly.
6. Replace all parts in reverse order, verifying the two (2) Wire Harness connections are remade correctly to the motor.

Figure 11-11

BLOWER CONNECTION PLATE

SUPPLY BLOWER/MOTOR

BOLTS (2)
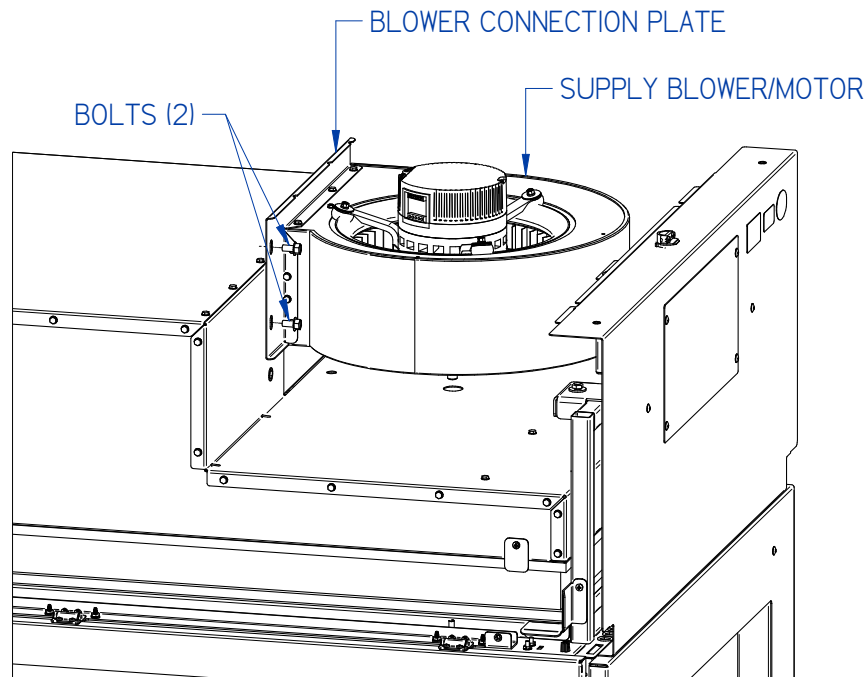
Exhaust Blower/Motor Replacement

1. Disconnect electrical power from the enclosure. Remove the Lower Front Service Panel by rotating each of the four (4) Panel Latches 90 degrees with a flatblade screwdriver. Reference Figure 11-12.
2. Locate the two (2) Wire Harness connections on the inner side of the Exhaust Blower's motor. Note: the entry of wires to the motor is difficult to see and reach. Trace the wire harness from the motor approximately 12 inches (300 mm). Another set of two Connectors will be located here. On these two Connectors, depress the latch on each connector and pull the connectors apart. The short "tail" wire harness will remain connected to the motor. This short tail harness is provided because access to the motor wire connections is difficult.
3. Remove the five (5) Bolts securing the Exhaust Blower/Motor assembly. Note that one Bolt is on the far side of the Blower.
4. Rotate the discharge end of the Blower towards you about 10 degrees, then slide the Blower towards you. Using a 5/16" Wrench, remove the two Blower Connection Plates (one on each side of the Blower).
5. Move the short "tail" wire harness and the Blower Connection Plates to the new Exhaust Blower/Motor and replace all parts in reverse order.

Figure 11-12
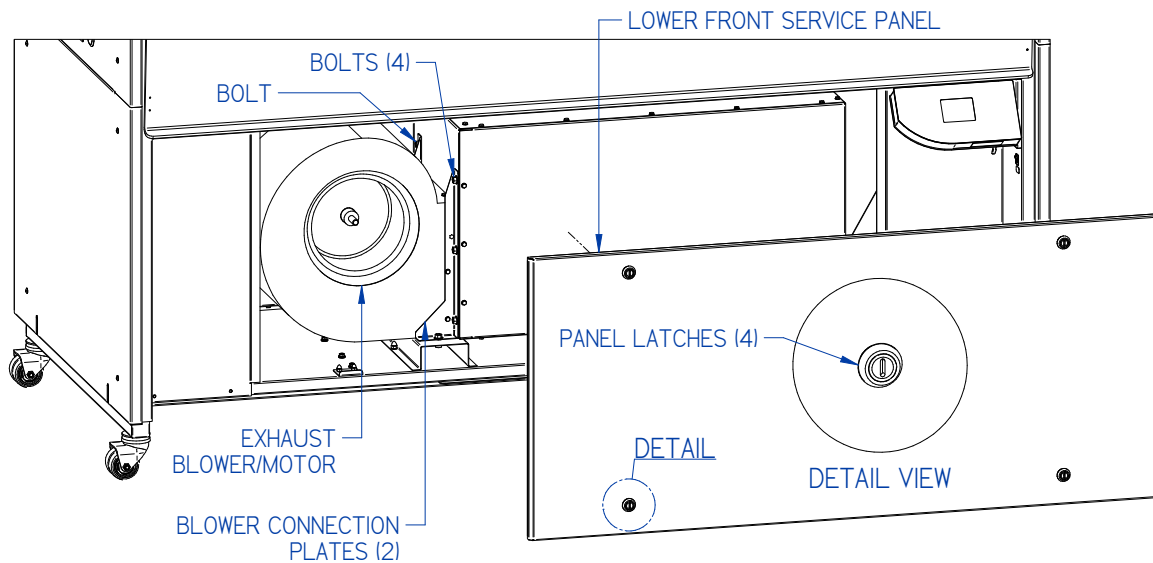
Display Board Replacement

Should the Display need replacement, follow these instructions.

1. Disconnect electrical power from the enclosure. Make sure you use a Static Dissipative wristband grounded to the enclosure's chassis when handling the Display Board. Rotate the Locking Handle (Figure 11-13) counter-clockwise approximately 120 to 180 degrees to free the Display so it can be rotated.
2. Rotate the Display Housing to the outer-most position. See Figure 11-13.

Figure 11-13
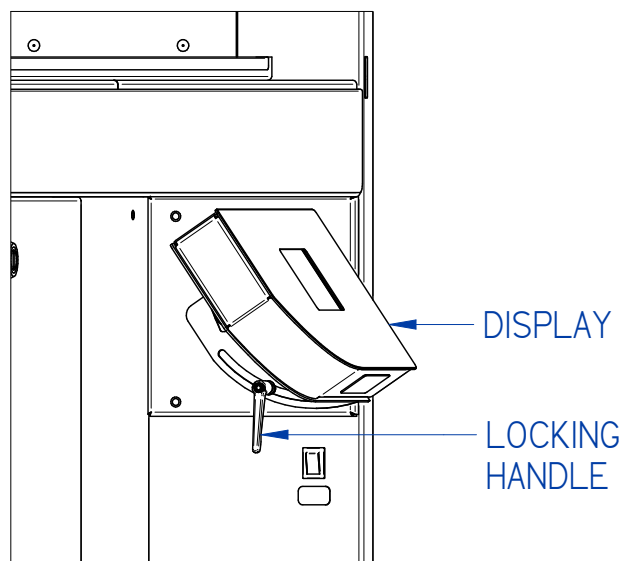
3. Locate and remove the six (6) Screws on the back of the Display Housing. See Figure 11-14.

DISPLAY HOUSING

SCREWS (6)
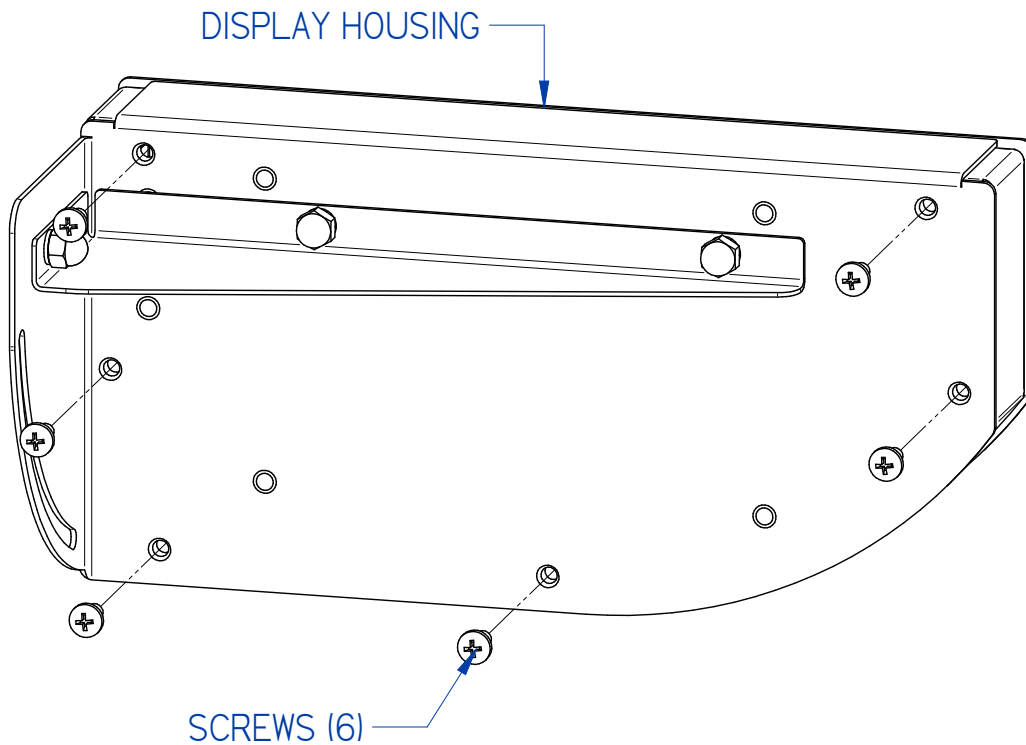
4. Remove the Display Housing Cover. See Figure 11-15. The Keypad tail connector will still be attached to the Display Board. Do NOT remove the Display Housing Cover completely, only far enough to reach the Keypad tail connector and disconnect it. Set the Display Cover aside.
5. Locate the EMI Filter Clamp, press down on the tab at the bottom of the Clamp to release it.
6. Remove the four (4) Screws and Lockwashers securing the Display Board.
7. Holding the Display Board carefully in one hand, disconnect the Ribbon Cable from the back side (Ribbon Cable travels through the EMI Filter Clamp). Then disconnect the Speaker wire connection. Reference Figure 11-15.
8. Replace all connections to new Display Board. Replace all parts in reverse order.
9. Re-enter all Configuration and Calibration data on the new Display Board.

Figure 11-15

SPEAKER
CONNECTOR

DISPLAY BOARD

EMI FILTER
CLAMP

KEYPAD TAIL
CONNECTOR

SCREWS &
LOCKWASHERS (4)

DISPLAY COVER
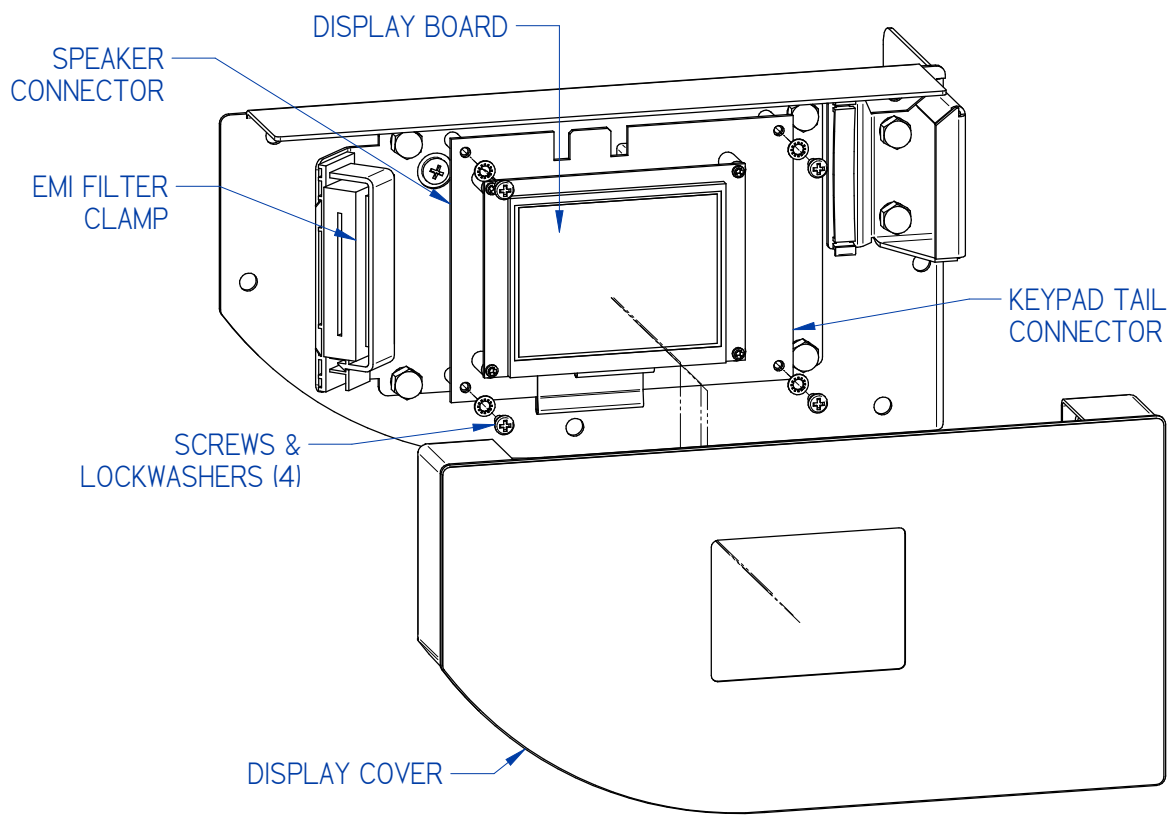
Preparing the Logic Vue for Gaseous Sterilization

Note: This section only reviews the steps required for preparing the enclosure for gas sterilization. Thoroughly understand the sterilization procedures and protocols supplied by the manufacturer of the sterilizing system before attempting this operation.

1. Using flexible plastic sheet 5-8 mil thick and duct tape, seal the enclosure to the floor.

2. Attach the supply and return tubing from the sterilization system to appropriate cutouts in the flexible plastic sheet.

3. The enclosure is now prepared for gaseous decontamination.

Service Fixture Installation & Service Connection

Service fixtures are not pre-installed. If connecting a service line to a pre-installed fixture, or installing a service fixture on the enclosure, follow these instructions. The field install service fixture kit contains additional installation instructions.

If service fixture is already installed, proceed to Step 9. Reference Figure 11-17 for the procedure below.

1. Remove the right or left side panel(s) based on which side the service fixture is to be located, as described in External Dress Panel Removal earlier in this section.

2. Identify the appropriate knockout plug on the enclosure (2 per side are provided on standard models). Using a large, flat blade screwdriver and hammer, remove the knockout by placing the screwdriver on the top or bottom of the plug, strike the screwdriver with the hammer. Repeat alternating between the top and bottom until the plug is loose enough to remove with pliers.

3. Using PTFE pipe thread tape on the male threads of the petcock valve, install the coupling onto the male threads of the petcock valve. Tighten fully.

4. Apply a thin coat of silicone around the knockout opening on the OUTSIDE of the liner wall. Apply PTFE pipe thread tape on the male threads of the coupling.

5. Insert the male threads of the coupling though the knockout opening, slide the washer (from the OUTSIDE) over the male threads of the coupling. Install the coupling nut hand-tight.

6. Rotate the petcock valve to position the handle as desired for user operation of the valve. Fully tighten the coupling nut.

7. Apply PTFE pipe thread tape on the male threads of the 90 degree fitting. Install the male threads of the 90 degree fitting into the female threads of the coupling. Tighten fully, taking care to position the compression end of the 90 degree fitting in the proper position to accept the customer-supplied tubing.

8. Close the petcock valve and leak check all connections with an inert gas and appropriate detector. If a leak is found, tighten the appropriate fitting connection further.

Figure 11-17
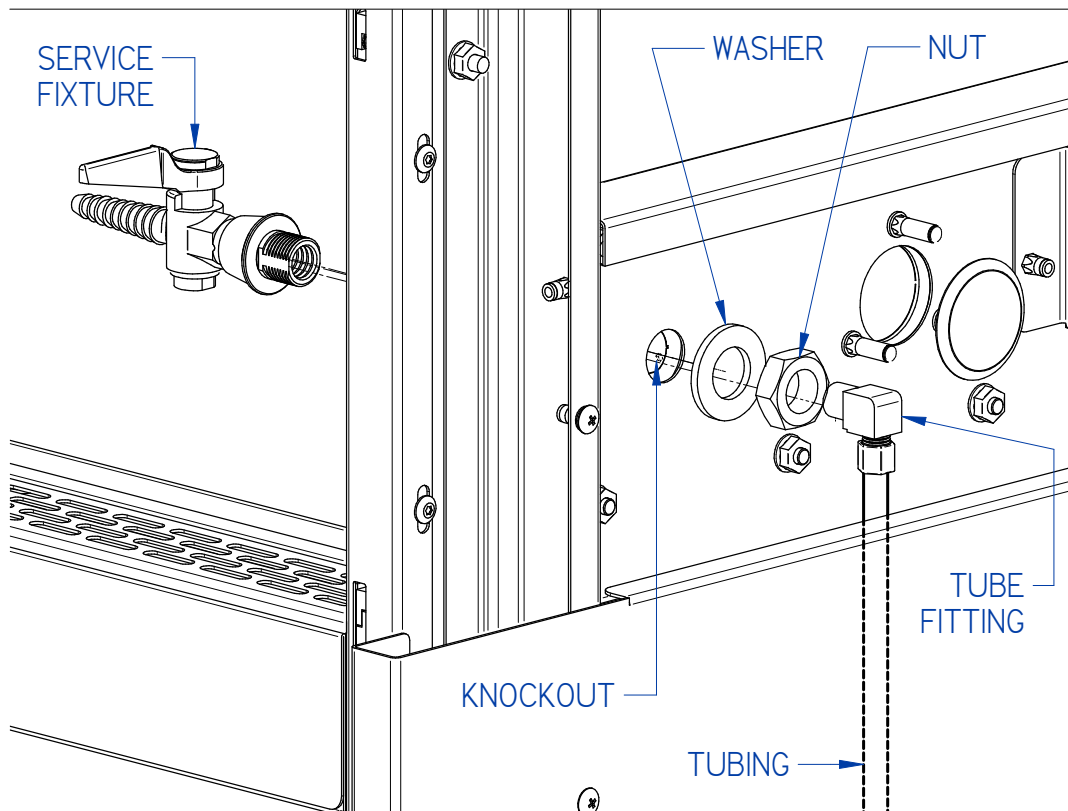
9. Ensure the customer-supplied service line tubing is ¼ inch O.D., soft metal, and that the end has been completely deburred.

10. Route the tubing through one of the two (2) slots on either Lower End Panel (see Figure 4-23a).

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.

11. Make sure that the nut on the 90 degree tube fitting is loose, but do not remove it. Make sure the tube ferrule is in the fitting.

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

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

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

Wiring Diagram (100-120V)

Wiring Diagram (208-240V)

12: Accessories

This section details the available factory or field-installable accessories and approved modifications for your Logic Vue enclosure.

Canopy Connection

The Canopy Connection Kit allows for external exhausting of the enclosure's exhaust airflow. The Kit catalog numbers are listed in Table 12-1 below. To field install the Canopy Connection Kit, follow the instructions below.

Table 12-1

Cabinet Width (Feet)	Canopy Kit
4'	3347811
6'	3347813

The following tools and supplies are required to install the Canopy Connection Kit:

- #2 Phillips Screwdriver

To install a 12-inch diameter Balancing Damper (recommended, purchased separately):

- 5/16" and 3/8" Socket and Ratchet
- RTV Silicone Tube (optional)

Step #1

Remove the Screws around the perimeter of the Exhaust Diffuser, see Figure 1.

Figure 1

EXHAUST COVER
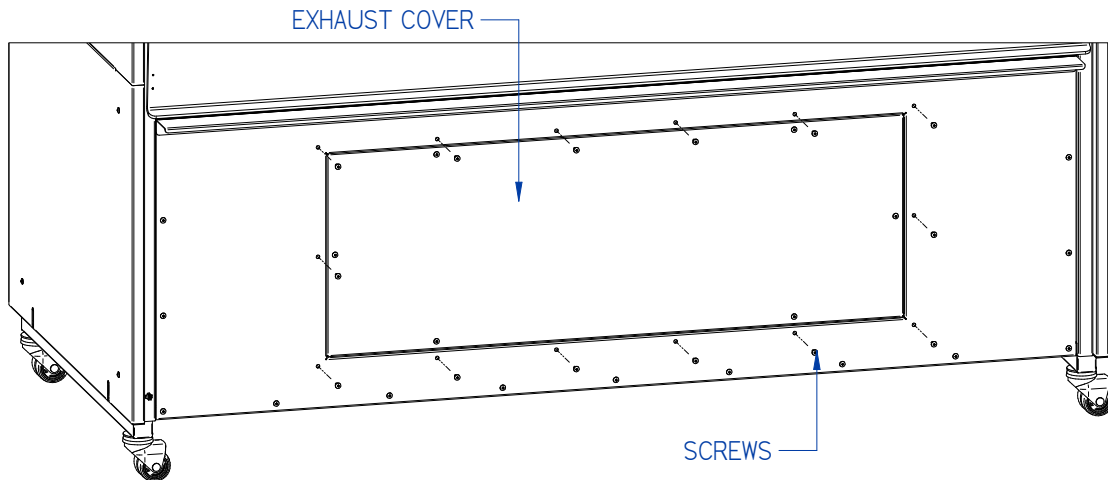
SCREWS

Step #2

Place the Canopy Connection over the Exhaust Cover and re-install the Screws removed in Step #1 through the holes around the perimeter flange of the Canopy Connection. See Figure 2.

Figure 2

CANOPY CONNECTION   SCREWS

CABLE CONNECTOR   INLET RELIEF VALVE
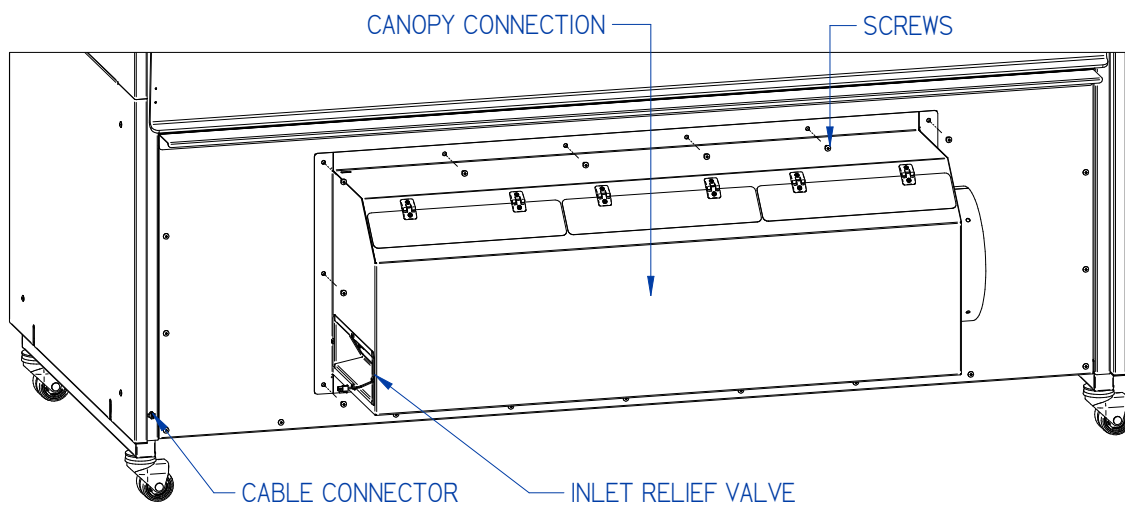
Step #3

Run the Wire Harness from the Inlet Relief Valve on the Canopy to the Cable Connector and plug it in. Secure the Wire Harness to the back of the enclosure.

Step #4

It is recommended to install a 12-inch Balancing Damper (purchased separately) on the remote exhaust connection to the Canopy. Reference Figure 3 for the proper installation orientation of a 12-inch Balancing Damper. The customer-supplied exhaust duct will connect into the customer-supplied 12-inch Balancing Damper. Reference any additional installation instructions included with the Balancing Damper.

Figure 3
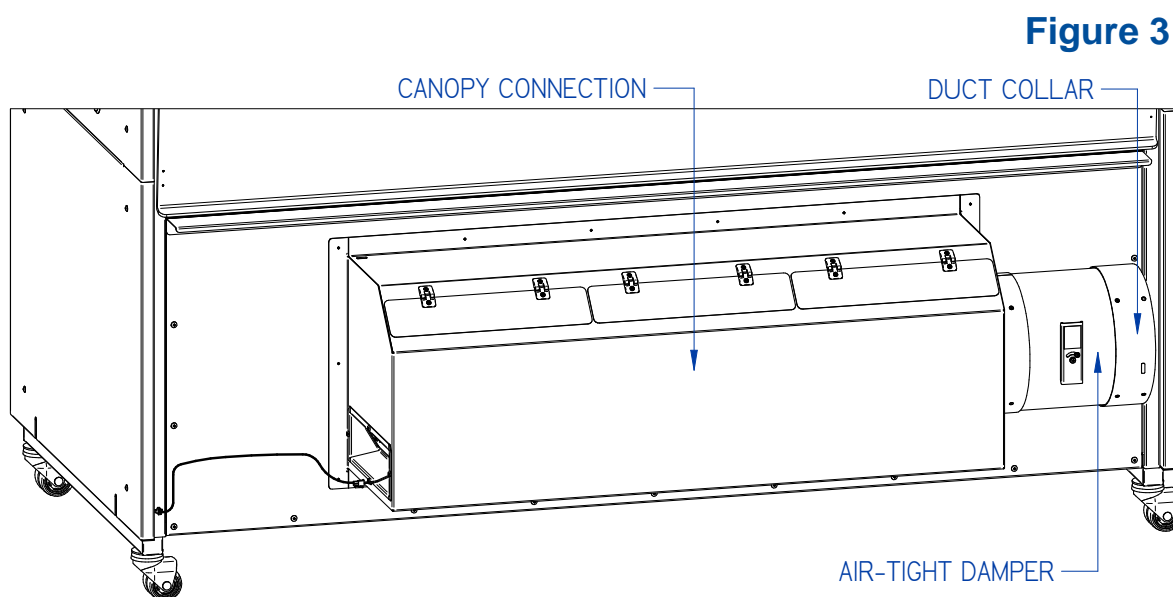
Once the Balancing Damper is installed, a bead of RTV silicone may be run on the outside joint between the Duct Collar and the Balancing Damper. This step is not required, but may be completed for aesthetic concerns or to address a whistle that develops from a small gap that allows high velocity air to rush INTO the exhaust stream. The exhaust stream should always be under negative pressure, which is a fail-to-safe design that ensures only additional room air is drawn into a small gap.

After installation is complete, the Logic Vue must be configured to operate with a Canopy Connection. See Section 7: Configuration to enable the Canopy functionality within the software.

Large Tube Pass-Thru Kit

The Logic Vue enclosure offers 16 total Cable Pass Thru ports for passing cords up to 17 mm in diameter through the end walls. However, some applications may require passing a larger diameter tube out of the enclosure. Two sizes of Large Tube Pass-Thru Kits are offered: 3/4 inch (19 mm) and 1-1/4 inch (31 mm). The kits are 304 stainless steel tubes, and allow a more rigid connection for larger tubing. Four (4) total can be installed (2 per end) on the Logic Vue. The Catalog Numbers of each diameter Large Tube Pass-Thru Kit are shown in Table 12-2.

Table 12-2

Kit Tube Diameter	Catalog Number
3/4 inch (19 mm)	3349200
1-1/4 inch (31 mm)	3349201

Note: If kit is installed and later removed, order Blocking Plate (P/N 3351000) to fill the resulting hole.

The following tools and supplies are required to install the Large Tube Pass-Thru Kit:

- #2 Phillips Screwdriver
- Large Flatblade Screwdriver
- Hammer
- Pliers

Step #1

Remove the Cap on the outside of the corresponding Knockout where the Large Tube Pass-Thru is to be installed. Reference Figure 12-4.

Figure 12-4
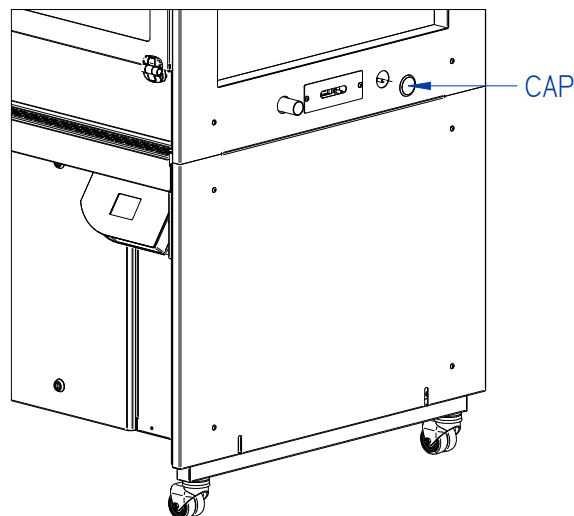
Step #2

Using the large flatblade screwdriver and hammer, remove the Knockout of the location to install the Large Tube Pass-Thru. Start on the top, and once the Knockout is opened slightly, use pliers to work it repeatedly until it comes free. Remove the three (3) Screws around the open Knockout. Insert the Tube Pass-Thru into the hole left by the Knockout. Place the supplied Gasket between the Pass-Thru flange and the inner wall. Secure the Pass-Thru with the three (3) Screws removed earlier. See Figure 12-5.

Figure 12-5
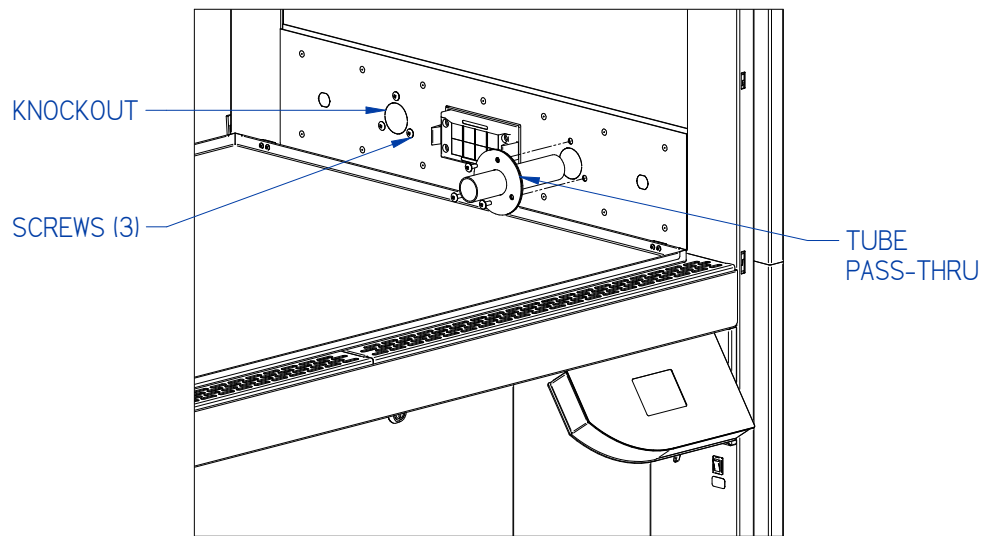
Step #3

Connect the desired tubing to the either side of the Pass-Thru, secure as desired.

Figure 12-6
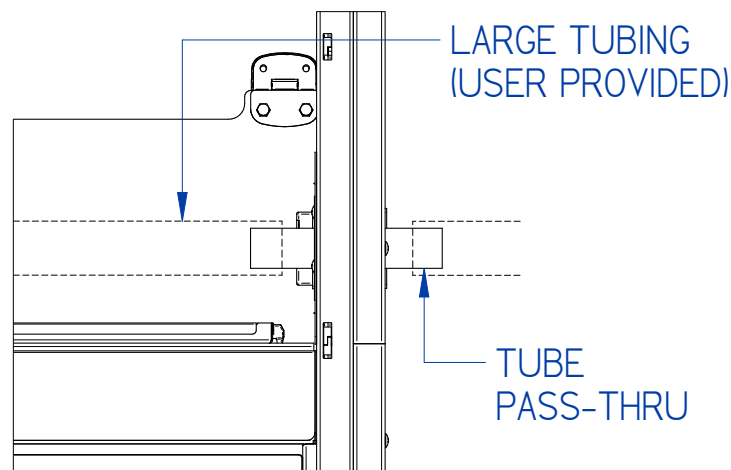
Service Fixture

A Service Fixture Kit can be installed on the Logic Vue enclosure to allow the use of non-flammable gases inside the enclosure.

Safe for use with vacuum, air, carbon dioxide, nitrogen, and argon. Not for use with water, steam or high purity gasses like oxygen and hydrogen. Contact Labconco for additional valve options.

Up to four (4) Service Fixtures (2 per end) can be installed. Labconco Catalog Number 3747500. Installation Insructions are provided with the Kit. More installation details are found in Section 4: Service Line Connection.

Airflow Sensor

An Airflow Sensor Kit can be installed on the Logic Vue enclosure to allow the visual display of airflow conditions on the Display. Labconco Catalog Number 3349800. Installation Instructions are provided with the Kit.

The following tools and supplies are required to install the Airflow Sensor Kit:

- 5/16" Wrench
- 5/16" Nut Driver (or socket and ratchet)

Step #1

1. Using a ladder and following all facility safety guidelines, locate the Pre-Filter Plates that hold the Pre-Filter in place. Reference Figure 12-7.
2. Remove the two Screws on the Plates that hold the front two Pre-Filter corners.
3. Remove the two Pre-Filter Plates.
4. Pull the front edge of the Pre-Filter up, slide the Pre-Filter forward and remove it.

Figure 12-7

PRE-FILTER

PRE-FILTER PLATE (2)
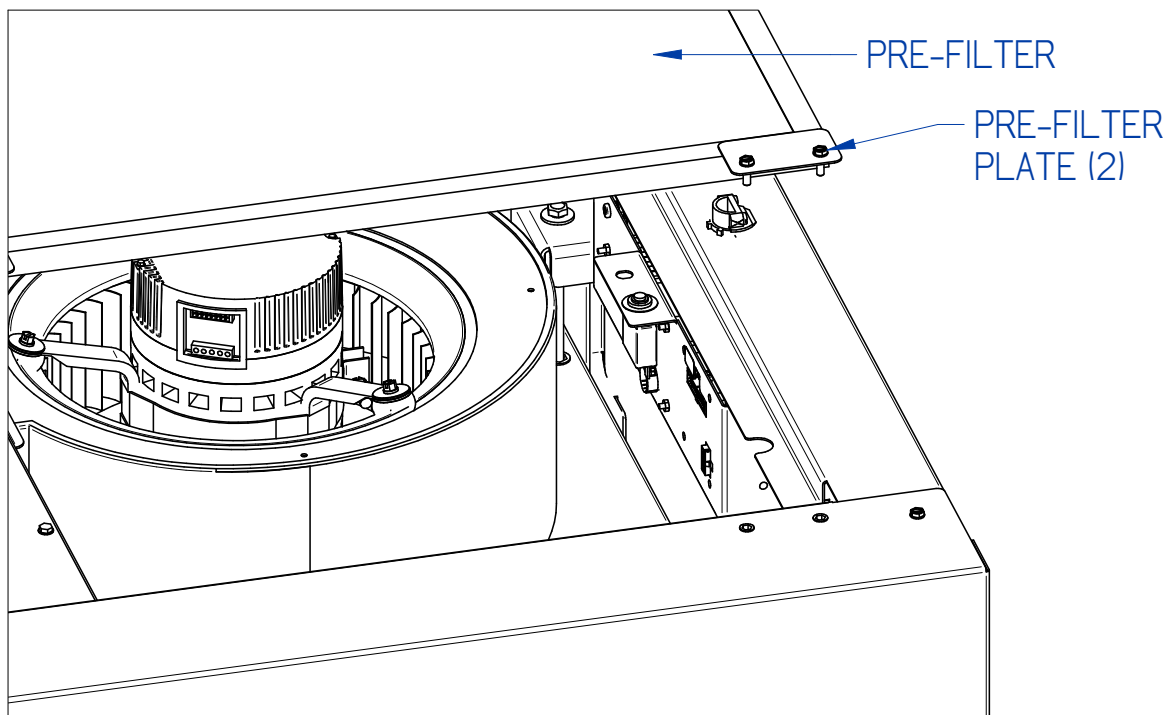
Step #2

1. Locate the two Screws as shown in Figure 12-8.
2. Remove these two Screws and place the Airflow Sensor Assembly as shown in Figure 12-8. The two holes in the Assembly Bracket should line up with the two holes where the Screws were removed.
3. Replace the two Screws removed previously, inserting them both through the holes in the Assembly Bracket. Tighten the two Screws snugly. Do not overtighten.

Figure 12-8
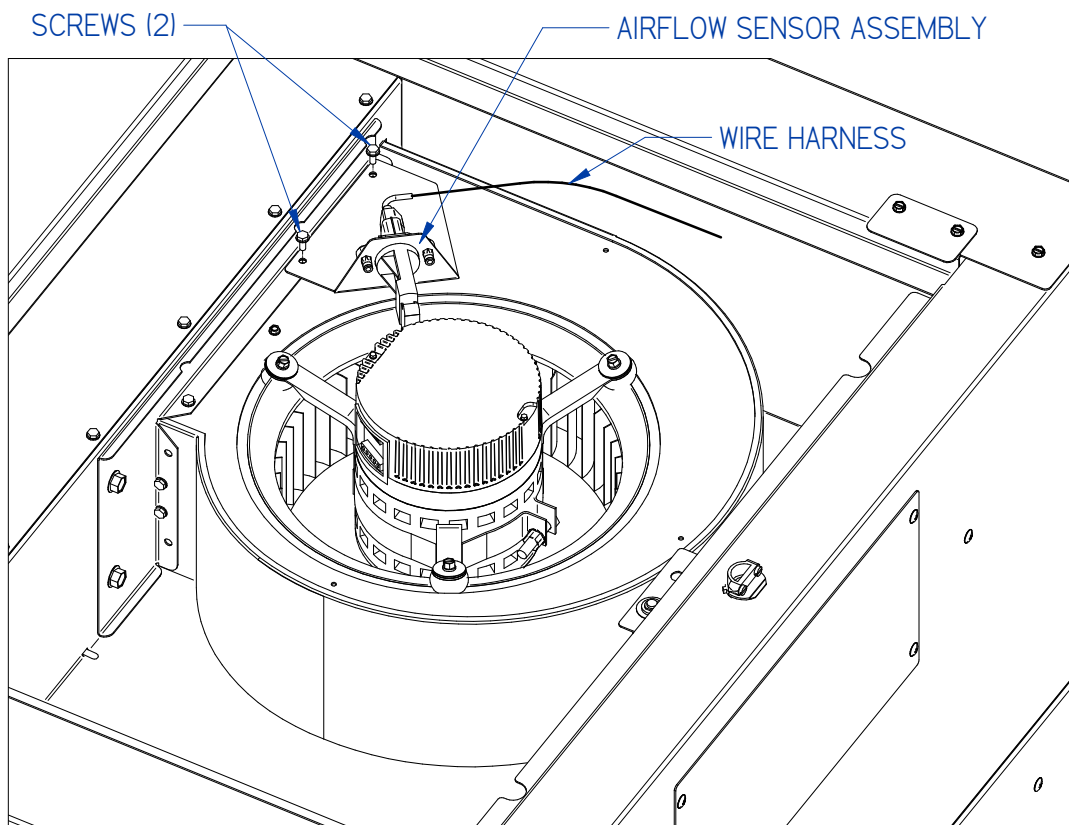
Step #3

1. Locate the free end of the Wire Harness (reference Figure 12-8) supplied with the Airflow Sensor Kit.
    Note: If the Wire Harness is not connected to the Airflow Sensor, please connect it now. The two connectors on either end of the Wire Harness are different, and therefore it is not possible to install the Wire Harness backwards.
2. Run the free end of the Wire Harness to the right, rear corner of the Logic Vue. Locate the open 6-pin connector on the side of the Electrical Box. Reference Figure 12-9.
    Note: This 6-pin connector is difficult to reach, and the Electrical Box may need to be removed slightly to make the connection.
3. Connect the free end of the Wire Harness to the 6-pin connector on the side of the Electrical Box. It should snap or click in place.
4. Neatly coil excess cable from the Wire Harness and zip-tie (not supplied) or otherwise secure it in place.

Figure 12-9

6-PIN CONNECTOR
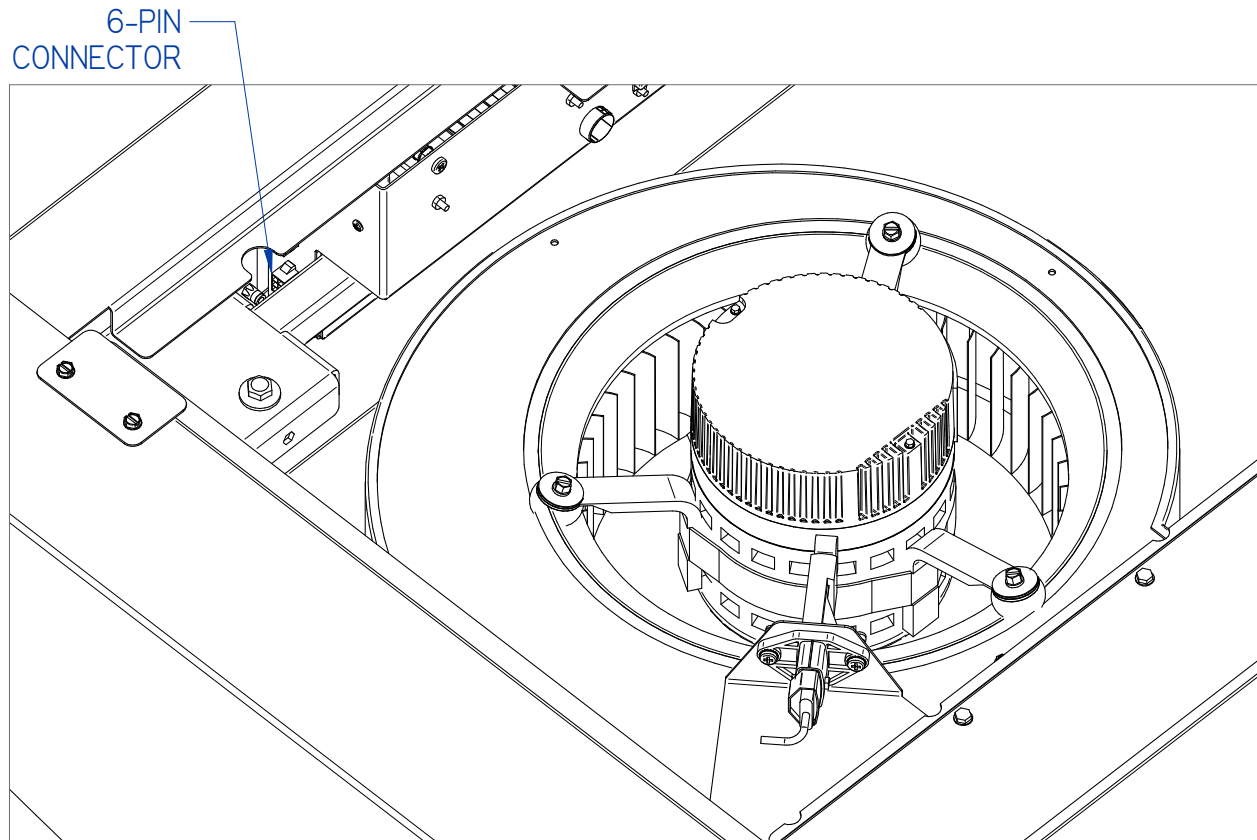
After installation is complete, the Logic Vue must be configured to operate with an Airflow Sensor. See Section 7: Configuration of the User's Manual to enable the Airflow Sensor functionality within the software. After configuration, the Airflow Sensor must be calibrated. See Section 8: Calibration of the User's Manual. A condensed version of the configuration and calibration steps are provided below for convenience.

1. From the Main Menu, press **[MENU]**, using **[UP]** or **[DOWN]** select the *Tools* icon. Press **[OK/MUTE]**.
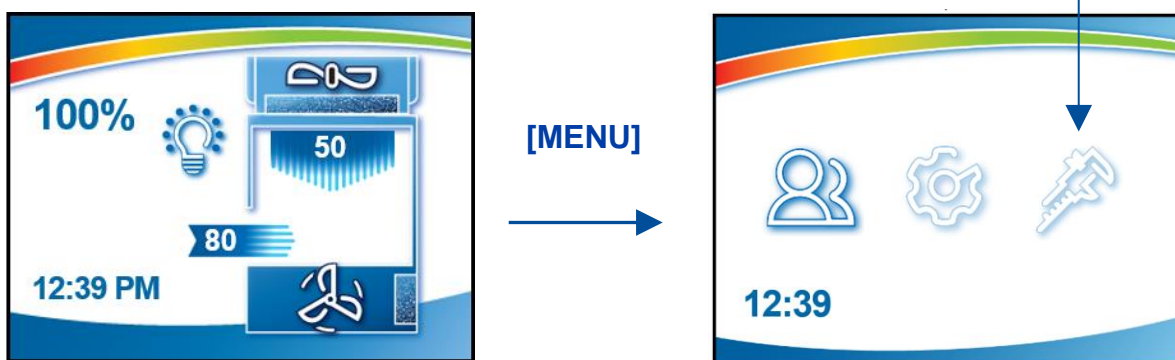
Tools

[MENU]

2. Use **[UP]** or **[DOWN]** to select the *Password* icon, press **[OK/MUTE]**.

Password

[OK/MUTE]

WARNING !
RESTRICTED AREA
FOR TECHNICIAN
USE ONLY

3. From the *Warning* Screen, press **[OK/MUTE]** to acknowledge the warning that the following screens are restricted.

4. On the *Password* Screen, enter the password: **[LIGHT] [UP] [TIMER] [DOWN] [OK/MUTE]**.

PASSWORD

* * * * *

Password Entered →

CONFIGURATION

CALIBRATION

5. *Configuration* should be highlighted, if not, select it, press **[OK/MUTE]**. The first screen will display the enclosure type. This selection cannot be changed. Press **[OK/MUTE]**.

TYPE A2
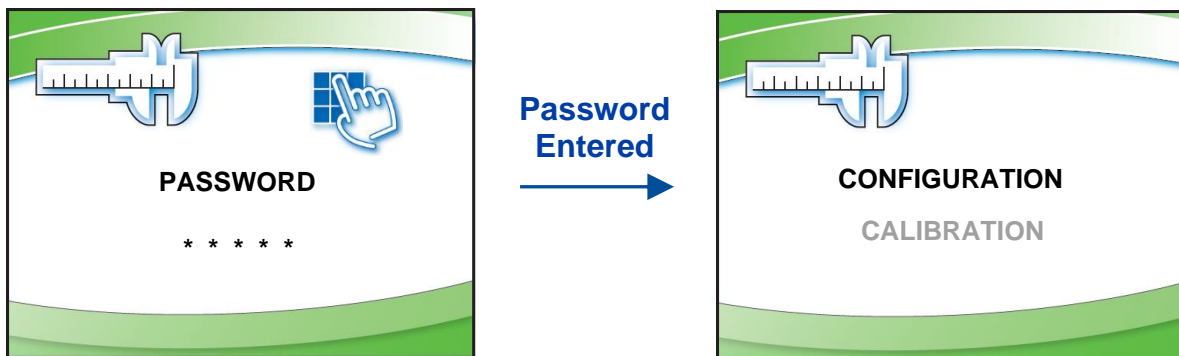
[OK/MUTE] →

AIRFLOW SENSOR

~~AIRFLOW SENSOR~~
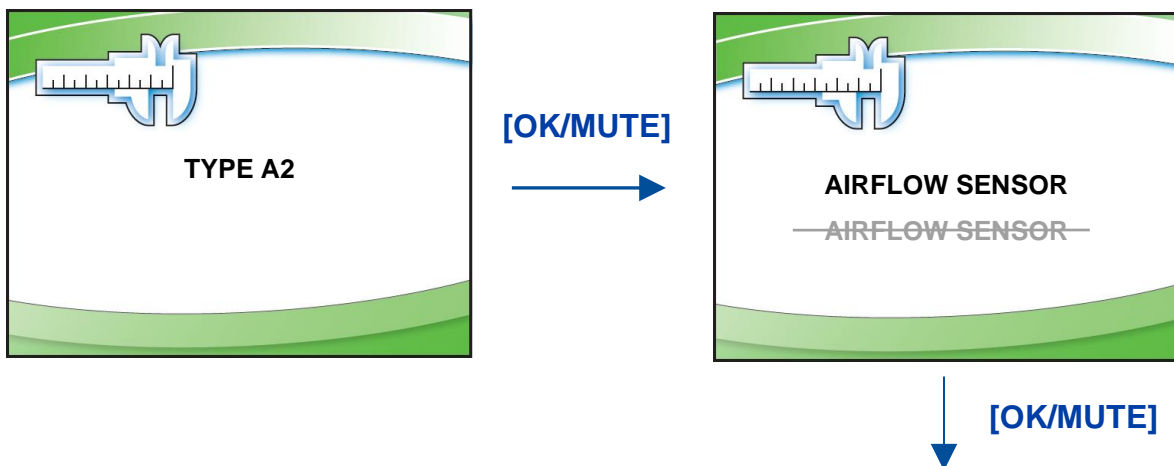
[OK/MUTE] ↓

6. Change the selection using **[UP]** to select *Airflow Sensor*, press **[OK/MUTE]**.
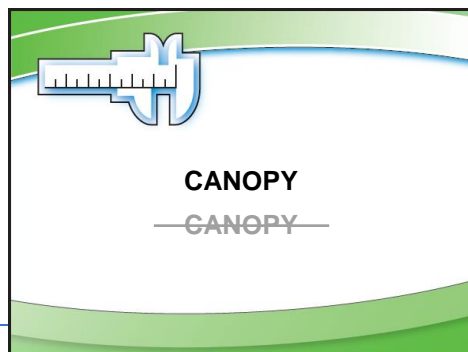
CANOPY

~~CANOPY~~

7. Do not change the *Canopy* selection, press **[OK/MUTE]**.
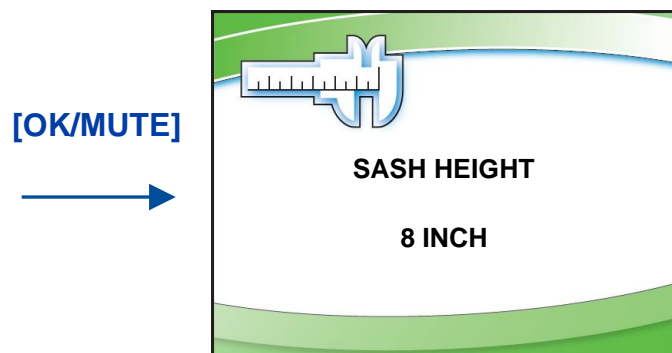
[OK/MUTE]

→

SASH HEIGHT

8 INCH

8. The *Sash Height* selection will display next, and should **NOT** be changed. Press **[OK/MUTE]**. You will return to the Configuration / Calibration submenu within the password protected area.

Once the Airflow Sensor is configured, it can now be calibrated, follow this procedure:

If you left the password-protected screens, re-enter the correct password: **[LIGHT] [UP] [TIMER] [DOWN] [OK/MUTE]**. Select *Calibration*, press **[OK/MUTE]**.
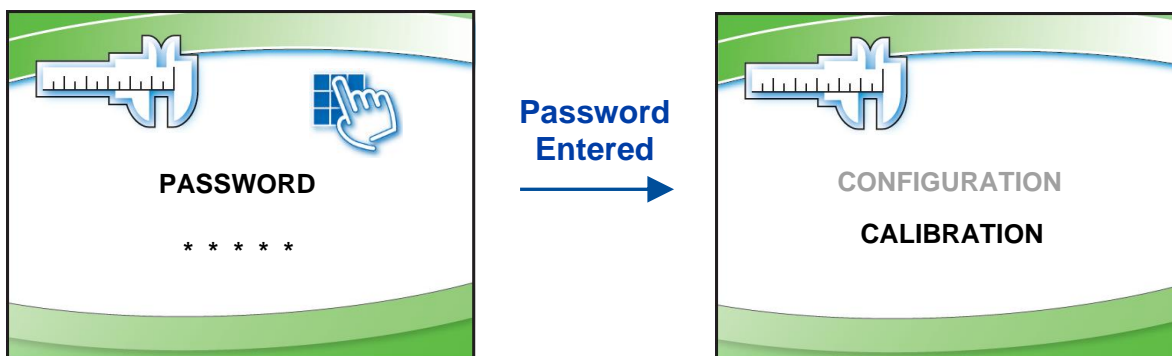
PASSWORD

* * * * *

Password Entered

→

CONFIGURATION

CALIBRATION

i **Note:** The sashes must not be closed when pressing **[OK/MUTE]**. Access will not be granted if both Sashes are closed.

Proceed to the following page.

1. Before entering the *Blower Speed* screen(s), the *Zero Point Warning* screen is shown (below). The enclosure's internal blower(s) will automatically shut off. If the enclosure is connected to a remote exhaust system, stop all exhaust airflow before proceeding. Once all airflow is removed, press **[OK/MUTE]**.

AFS ZERO POINT		**AFS ZERO POINT**
INTERNAL BLOWER WILL SHUT OFF NOW. IF CONNECTED TO EXHAUST SYSTEM, STOP ALL EXHAUST AIR FOR PROPER ZERO POINT CALIBRATION	**[OK/MUTE]** →	WAIT
'OK' ONCE EXHAUST AIR REMOVED		

2. The enclosure will display *Wait* for approximately 15 seconds while it samples the airflow sensor readings. When complete, the screen below is shown. At this time, if the enclosure is connected to a remote exhaust system, restart the remote exhaust now. Press **[OK/MUTE]**.

AFS ZERO POINT

IF CABINET CONNECTED TO
EXHAUST SYSTEM,
RESTART EXHAUST
SYSTEM NOW

'OK' WHEN EXHAUST AIR ON
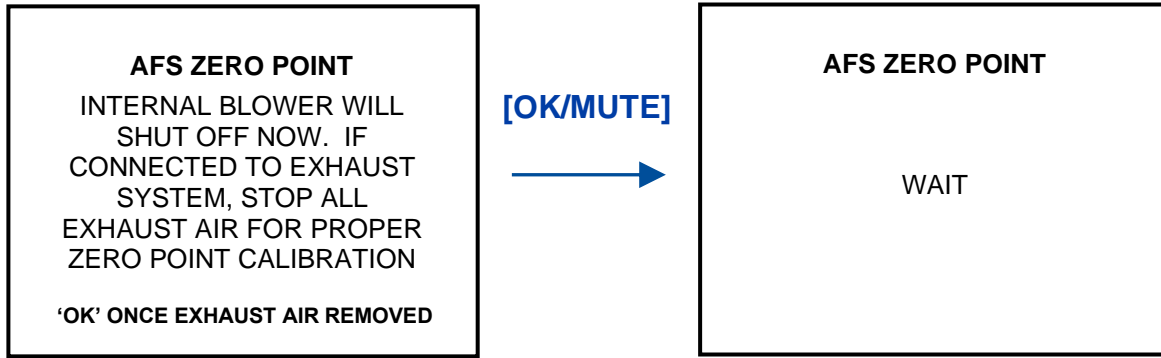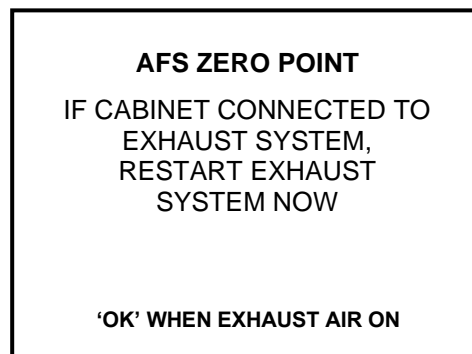
3. Zero point calibration is now complete. The following screens will proceed through setting the blower speed(s) as would normally be done if the standard password had been entered (recalibration without resetting the zero point).

4. On the Exhaust *Filter Life Selection* screen, make the appropriate selection, then press **[OK/MUTE]**.

   See screen images on the following page.

[OK/MUTE]

NEW FILTER
SAME FILTER
SET FILTER LIFE

INFLOW CALIBRATION

INFLOW = 81 FPM

'OK' TO CONTINUE

Nominal Inflow Value
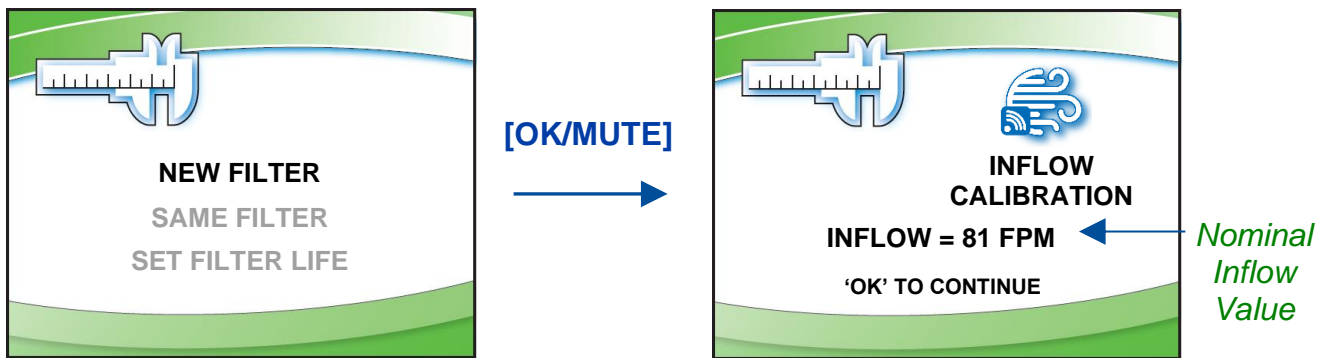
5. Using the average inflow velocity measured during airflow certification, use **[UP]** or **[DOWN]** to adjust the *Nominal Inflow Value* to match this measured velocity. The *Nominal Inflow Value* will flash, and it will be displayed in feet per minute (FPM) or meters per second (M/S) based on the desired units selected in the *Settings* submenu. Once set, press **[OK/MUTE]**.

6. Using the average downflow velocity measured during airflow certification, use **[UP]** or **[DOWN]** to adjust the *Nominal Downflow Value* to match this measured velocity. The *Nominal Downflow Value* will flash, and it will be displayed in feet per minute (FPM) or meters per second (M/S) based on the desired units selected in the *Settings* submenu. Once set, press **[OK/MUTE]**.

[OK/MUTE]

DOWNFLOW CALIBRATION

DOWNFLOW = 56 FPM

'OK' TO CONTINUE

Nominal Downflow Value

Returns to Main Menu
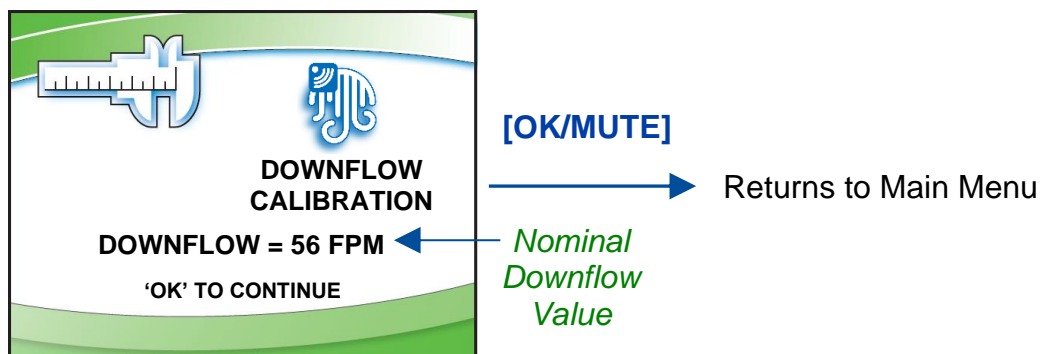
The Airflow Sensor Calibration procedure is complete.

Access Door

The Logic Vue enclosure can be FACTORY configured with an Access Door on either Front or Rear Hatch or Left or Right End Window. The Access Door allows for easy access to add/remove consumables for an automated system operating inside the enclosure. Up to two (2) Access Doors can be fitted to the enclosure. The Access Doors must be factory installed, and the product must be ordered as a custom through Labconco Corporation. Standard location is centered (left-to-right), see Figure 12-10.

While an Access Door is open, there may be a loss of product and/or personnel protection. Perform a risk assessment with your EH&S team to understand and implement procedures as to when it is acceptable to open an Access Door, and what additional safety measures may be required.

When the enclosure is operating in normal mode, which is one Sash open and blowers on, if any Access Door is opened a Sash Alarm will occur. When the enclosure is operating in NightSmart mode, which is both Sashes closed and blowers running at a reduced speed, opening any Access Door will not trigger a Sash Alarm.

To operate the Access Door, rotate the handle approximately 30 degrees counterclockwise and pull the door open. Open the door only as far as required to gain access to the item(s) needed when the enclosure is in operation. To close the Access Door, hinge it closed and rotate the handle clockwise until it is in a horizontal position. The opening is 16" (406mm) in diameter. See Figure 12-10 below for reference.

Figure 12-10
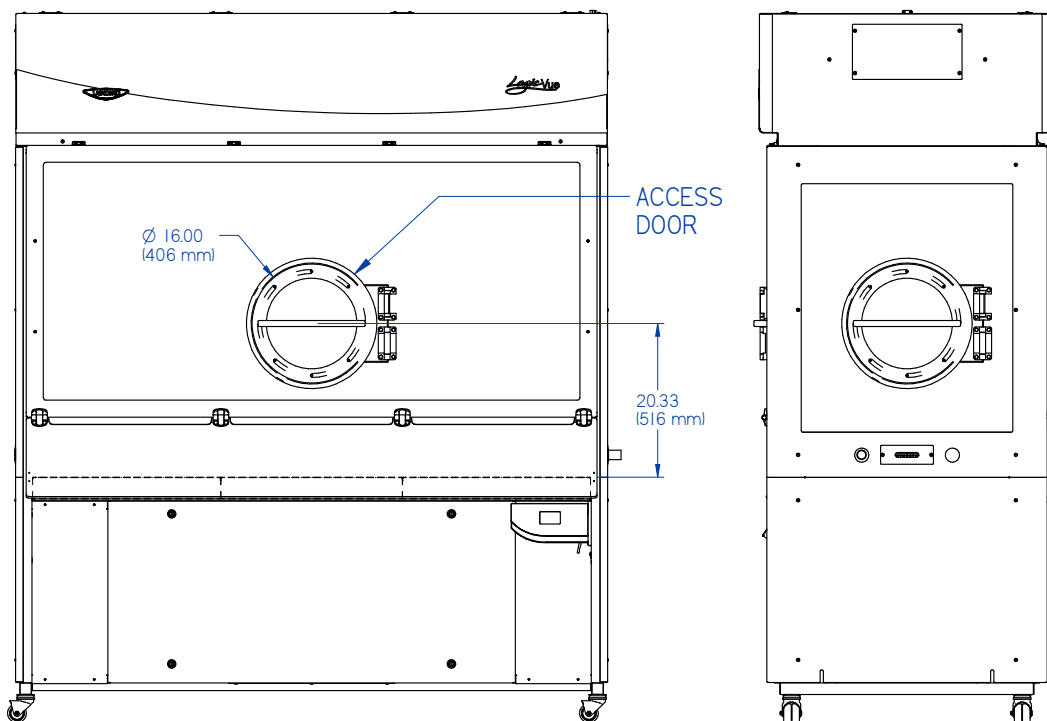
Computer Mount

All Logic Vue models include a mounting point for a computer arm to support computer-driven automated instruments. The mounting point is designed to accept most Ergotron™ wall-mount arms.

Table 12-3

Kit	Catalog Number
Ergotron™ PC Mount	3339000

The following tools and supplies are required to install the Airflow Sensor Kit:

- 3/16" Allen Wrench

Figure 12-11

Hex Head Mounting Bolts
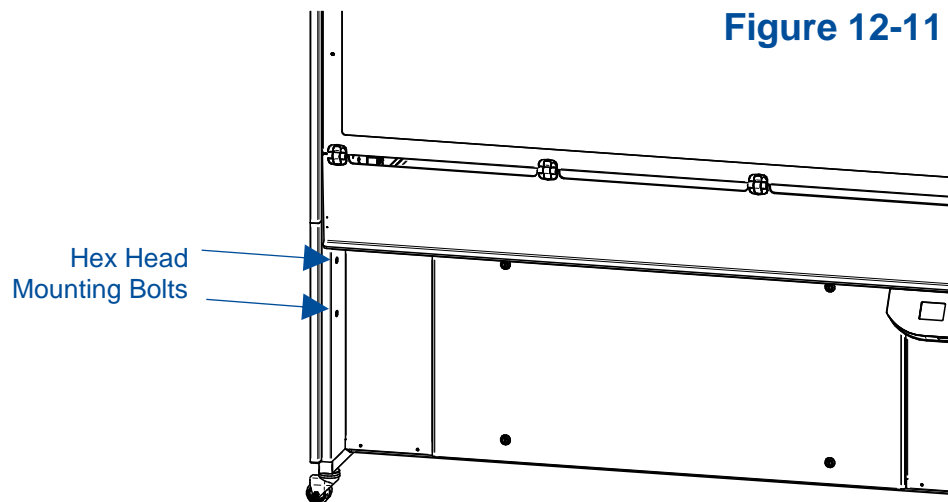
Step #1

To attach an arm, remove the (2) hex-head bolts from the inside lower left of the Logic Vue's front side (reference Figure 12-11 above).

Step #2

Attach the computer arm (supplied in kit 3339000 or other customer-supplied Ergotron™ product) and secure to the Logic Vue with the provided fasteners before attaching peripherals (monitors, keyboards, etc.). For more information about compatible arms, contact Labconco.

13: Troubleshooting

This section details common troubleshooting for your Logic Vue enclosure.

Blower and Lights not working

```
Is power connected        No      Connect to appropriate
and verified live?  ───────────►  electrical service.

        │
       Yes
        │

Is enclosure reset        No      Flip reset switch by display to
switch in "On"      ───────────►  "On" (the "I" will be depressed).
position?

        │
       Yes
        │

Are circuit               Yes     Reset breakers beneath top pre-filter
breakers tripped?   ───────────►  by pushing white button in.

        │
        No
        │
        └──────────────────────►  Contact servicer for additional troubleshooting.
```

Blower only will not start

Press "Blower" on keypad. Does "blower starting" appear on screen? (If screen asleep, first key press only wakes display.)

Yes → END.

No

Is sash closed?

Yes → Raise sash to operating height. Press "Blower" on keypad.

No

Go to "Tools" menu, then Diagnostics, select keypad. Run full diagnostics. Is Blower key responsive in Diagnostics?

No → Check keypad flat connector. If plugged in, replace keypad.

Yes → Contact servicer to investigate blower wiring for a bad connection.

Lights only will not illuminate

When "Light" pressed, light does not illuminate. Is sash closed? — **Yes** → Open sash to operating height.

No ↓

Replace LED lamps. After replacement, are they responsive? — **Yes** → END.

No ↓

Run keypad diagnostics. In "Tools" menu, does Diagnostics show response when "Light" key is pressed? — **No** → Check keypad flat connector. If plugged in, replace keypad.

Yes ↓

Are fluorescent lamps installed by mistake?
- **Yes** → Change fluorescent lamps to proper LED lamps.
- **No** → Contact servicer to check light relay in top electrical control box and/or wiring connections that may be loose.

Airflow Alert activating

Has a blockage of the exhaust opening recently occurred? Could also be a room supply/exhaust register in close proximity to top of enclosure?

Yes → Remove blockage/deflect room vent airflow.

No ↓

Has a blockage of the airfoil holes occurred?

Yes → Remove blockage.

No ↓

Is a device operating in the enclosure that moves significant air and/or heat?

Yes → Contact Labconco to discuss options.

No → Contact Labconco to troubleshoot further and/or reduce airflow alert sensitivity.

Filter Life Gauge not at 100% when new

Is the facility located at an altitude greater than 1000 feet above sea level?

Yes → Contact certifier to rebalance enclosure and select "New Filter" during calibration procedure.

No

Is there a blockage of the airfoil holes, pre-filter atop enclosure or exhaust on rear of the enclosure?

Yes → Remove blockage.

No → Contact certifier to reset Filter Life Gauge to 100%.

Contamination in the work area

Proper work technique employed?

No → See section 9; sub-section "Working in the LogicVue."

Yes ↓

Is there a large piece of equipment in the enclosure that is within 6 inches of either hatch wall, or contains a fan that disrupts airflow?

Yes → Remove blockage.

No ↓

Are external factors such as HVAC vents, open doors, or other air handling equipment in the vicinity affecting performance?

Yes → Eliminate offending external factors.

No → Enclosure may be out of balance. Contact servicer to rebalance.

Appendix A: Parts List

Table A-1 and Figure A-1 indicate the location and catalog numbers for the following service, and replacement accessory components.

Item	Quantity Required	Catalog Number	Description
1	1	3438501	Exhaust HEPA Filter 4 Foot Model
	1	3438503	Exhaust HEPA Filter 6 Foot Model
2	1	1489005	Supply HEPA Filter 4 Foot Model
	1	1489004	Supply HEPA Filter 6 Foot Model
3	2	1297504	Lamp, LED, 4 Foot Model
	2	1297506	Lamp, LED, 6 Foot Model
4	1	3768906	Pre-filter, Supply

⚠ This product uses only LED direct drive lighting. Do NOT install fluorescent bulbs.
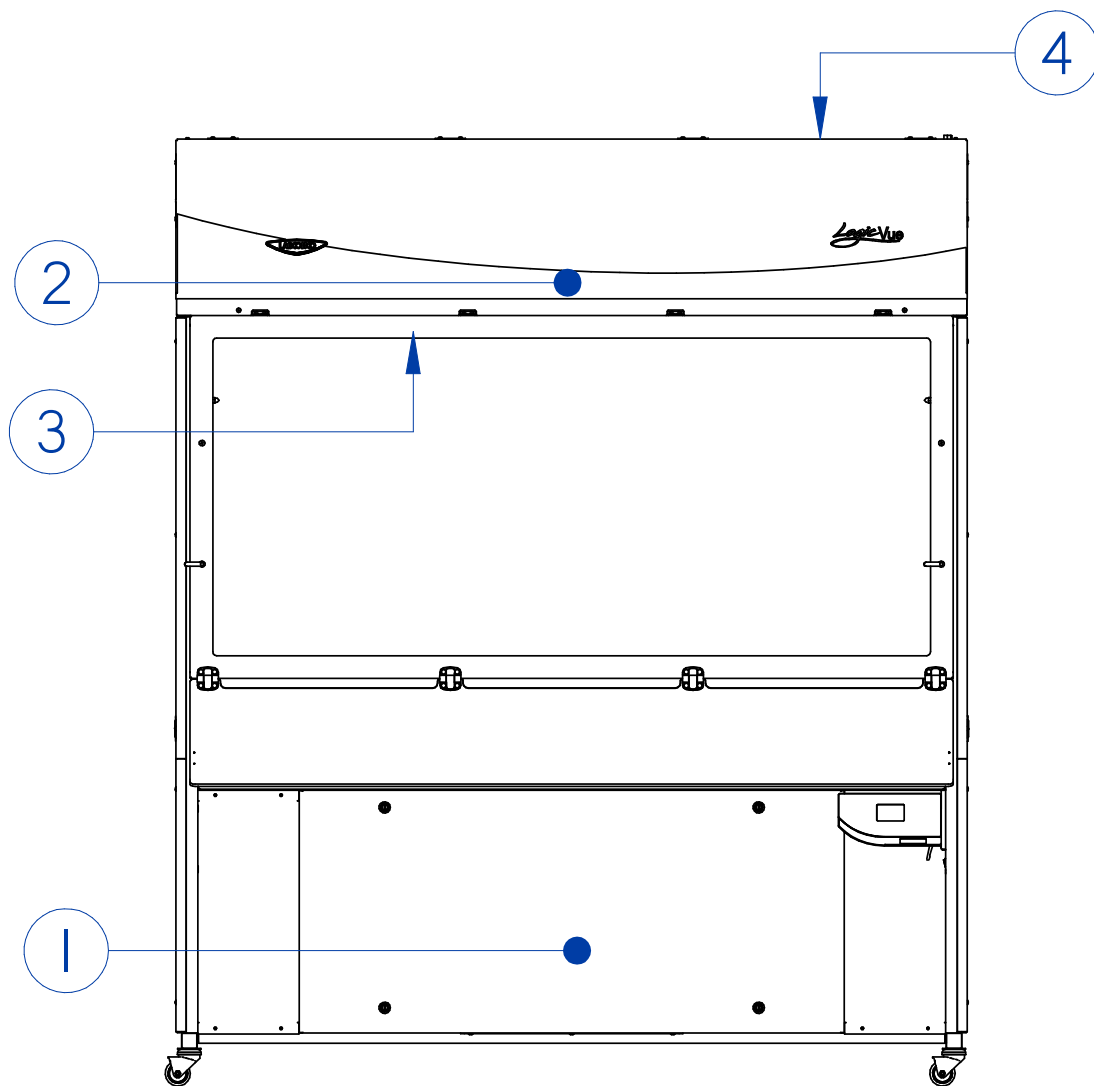
Appendix B: Dimensions

Table B-1 and Figure B-1 indicate the product dimensions. All dimensions shown in inches (centimeters).

Table B-1

Width	A	B	C
4'	54.2 (138)	49.8 (127)	47.2 (120)
6'	78.2 (199)	73.8 (188)	71.2 (181)

Figure B-1
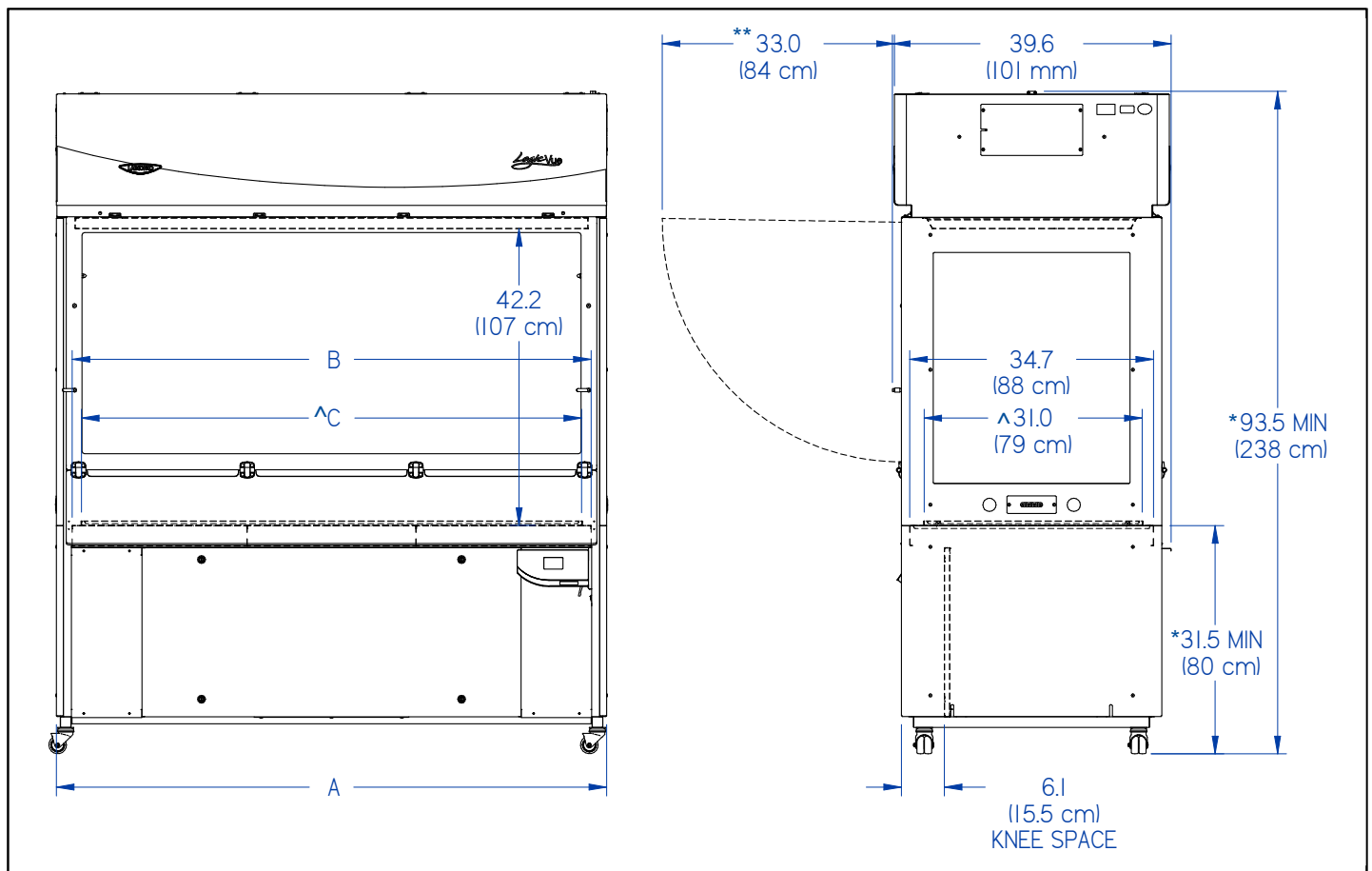
* Minimum height of Work Surface and Overall can be adjusted up 1 inch (2.54 cm) increments to gain an additional 6 inches (15.2 cm) to achieve a standing height position for the Work Surface.

** Swing clearance for Front Hatch. Same for Rear Hatch.

^ Work Surface Drip Tray dimensions. Footing of automated equipment cannot exceed these dimensions from the Work Surface up 1.0 inch (2.5 cm). The 34.7 (88 cm) and "B" Dimensions represent the maximum interior dimensions between end walls and the Front and Rear Hatch inner surfaces.

Appendix C: Specifications

Power Data

Table C-1

Width	Catalog Number	Normal Operating Power (Watts)[1]	
		Nominal	NightSmart
4'	33004xx	800 W	525 W
6'	33006xx	980 W	600 W

1 Values are for new product with clean filters (light and blowers on), and may vary +/- 10%

Motor Specifications

Table C-2

Product Size	Electrical Requirements
All Cabinets, all Voltages	Two (2) 3/4 H.P. Electronically Commutated Motors (ECM) 120-277 VAC – 50/60 Hz, Full Torque – 66 Oz.-Ft (5.59 N-M) 9.6 Full Load Amps @115VAC 6.8 Full Load Amps @230VAC Automatic Thermal Protection

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 ±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

- Maximum installation altitude: 10,000 ft (3,048 meters)

Appendix D: Quick Chart Reference

Model	33004_	33004_	33004_	33006_	33006_	33006_
Cabinet Size (Feet)	4'	4'	4'	6'	6'	6''
Sash Opening (Inches)	8	8	8	8	8	8
Starting Serial Number	2100-_	2100-_	2100-_	2100-_	2100-_	2100-_
Downflow Data						
Nominal Avg. Downflow (FPM)	**40+/-5**	**45+/-5**	**50+/-5**	**40+/-5**	**45+/-5**	**50+/-5**
Grid points (rows x columns)	4 x 7	4 x 7	4 x 7	4 x 11	4 x 11	4 x 11
Grid distance from sides	7.0	7.0	7.0	7.0	7.0	7.0
Grid distance from front & back	8.7	8.7	8.7	8.7	8.7	8.7
Distance between rows	6.0	6.0	6.0	6.0	6.0	6.0
Distance between columns	6.0	6.0	6.0	6.0	6.0	6.0
Inflow/Exhaust Data						
Nominal Average Inflow (FPM)	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5	105+/-5
Sash Open Area (Sq. Ft)	2.74	2.74	2.74	4.11	4.11	4.11
Nominal Avg. Inflow Vol. (CFM)	291	291	291	432	432	432
Avg. Inflow Vol. Range (CFM)	278-306	278-306	278-306	411-452	411-452	411-452
Supply HEPA Filter Leak Test Data						
Air Displacement (CFM)	590	650	710	875	975	1075
Laskin Nozzles needed	1	1	1	2	2	2
Theoretical Aerosol conc. (ug/l)	23	21	19	31	28	25
Supply HEPA Data						
Labconco Catalog Number	1489005	1489005	1489005	1489004	1489004	1489004
Width x Depth x Height (in.)	48x30x3.06	48x30x3.06	48x30x3.06	72x30x3.06	72x30x3.06	72x30x3.06
Performance (CFM)	1525	1525	1525	2300	2300	2300
Pressure Drop (in. H_2O)	1.0	1.0	1.0	1.0	1.0	1.0
Exhaust HEPA Filter Leak Test Data						
Air Displacement (CFM)	1100	1160	1220	1400	1500	1600
Laskin Nozzles needed	2	2	2	3	3	3
Theoretical Aerosol conc. (ug/l)	25	23	22	29	27	25
Exhaust HEPA Data						
Labconco Catalog Number	3438501	3438501	3438501	3438503	3438503	3438503
Width x Depth x Height (in.)	26x18x8.08	26x18x8.08	26x18x8.08	48x18x8.08	48x18x8.08	48x18x8.08
Performance (CFM)	720	720	720	1100	1100	1100
Pressure Drop (in. H_2O)	.48+/-.07"	.48+/-.07"	.48+/-.07"	.37+/-.07"	.37+/-.07"	.37+/-.07"
LED Lamp Data (2 each)						
Labconco P/N	1297504	1297504	1297504	1297506	1297506	1297506
LED Lamps (Direct Drive)	15T8-48	15T8-48	15T8-48	32T8-72	32T8-72	32T8-72
Color (^{o}K)	4000	4000	4000	4000	4000	4000
Lumens	1850	1850	1850	3200	3200	3200
Glass Type	Frosted	Frosted	Frosted	Frosted	Frosted	Frosted
Canopy Data						
Labconco Canopy P/N	3347811	3347811	3347811	3347813	3347813	3347813
Canopy Inflow Slot Area (ft^2)	0.12	0.12	0.12	0.12	0.12	0.12
Nominal Canopy Inflow (CFM)	100	100	100	100	100	100
Nominal Canopy Slot Velocity (FPM)	250-350	250-350	250-350	250-350	250-350	250-350
Canopy Vacuum (in. H_2O)	0.1-0.35	0.1-0.35	0.1-0.35	0.1-0.35	0.1-0.35	0.1-0.35
DIM Total Exhaust Volume Cabinet + Canopy (CFM)	1200	1260	1320	1575	1675	1775
Traverse Total Exhaust Vol. (Cabinet + Canopy) (CFM)	1320	1385	1452	1733	1843	1953

Logic Vue Footnotes

Type and Model Identification
- ✓ The primary Serial Tag is located on the top, right end near the service panel for the electrical box. The primary Serial Tag contains the following information:
  - Catalog (Model) Number
  - Serial Number
  - Electrical Information (Voltage, Amperage, Frequency, Phase)
- ✓ The secondary Serial Tag is located on the front (or bottom) edge of the Display Housing.
- ✓ 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.

Downflow Test Specifications
- ✓ All objects must be removed from the work surface before measuring downflow.

Inflow Test Specifications
- ✓ All tests performed as described in the current NSF/ANSI Standard 49.

HEPA Filter Leak Test Specifications
- ✓ Based on mineral oil.
- ✓ For The Supply HEPA Filter:
  - ○ Remove the prefilter, and place the generator on top of the unit, near the air intake.
- ✓ For The Supply HEPA Filter:
  - ○ Place aerosol generator in the center of the work surface, pointing towards the front grille.

LED Lamp Specifications
- ✓ 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 LABCONCO PRODUCT SERVICE DEPARTMENT.

Canopy Data
- ✓ Canopy vacuum is measured at the exhaust transition sampling point, relative to atmosphere.
- ✓ DIM = Direct Inflow Meter
- ✓ Total Exhaust Volume required from remote (building) exhaust system.
- ✓ Measured as per ASHRAE methodology for measuring air volume in round ducts. These values are approximations, as the calculated traverse volume value may vary depending on sampling location, exhaust system, and methodology.