Please read user's manual before operating equipment

Original Instructions

**LABCONCO CORPORATION**
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**labconco.com**

# User's Manual

## Nexus™ Horizontal Clean Benches


Register this product

# **Nexus™** Horizontal Clean Bench

**2023—Present**

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## 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, use with incompatible chemicals, or non-factory modifications to the original product.

Nexus™ Horizontal Clean Benches carry a five-year warranty from date of installation or six years from date of shipment from Labconco, whichever is sooner. Consumable items noted in Appendix A are not included in the warranty. 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 #3876801 Rev. D**
**ECO 15512**

# Table of Contents

# 1: Introduction

Congratulations on the purchase of a Labconco Nexus™ Horizontal Clean Bench. The clean bench is designed to protect work from particulate contamination. It is the result of Labconco's many years of experience in manufacturing laminar flow equipment, and features suggested to Labconco from users like yourself.

This clean bench offers many unique features. To take full advantage of them, please acquaint yourself with this manual and keep it stored 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
- Power cord
- Cable Pass-Thru Grommet (4-5 mm), qty. 2
- Flat-packed Base Stand (optional – not present on all models)

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

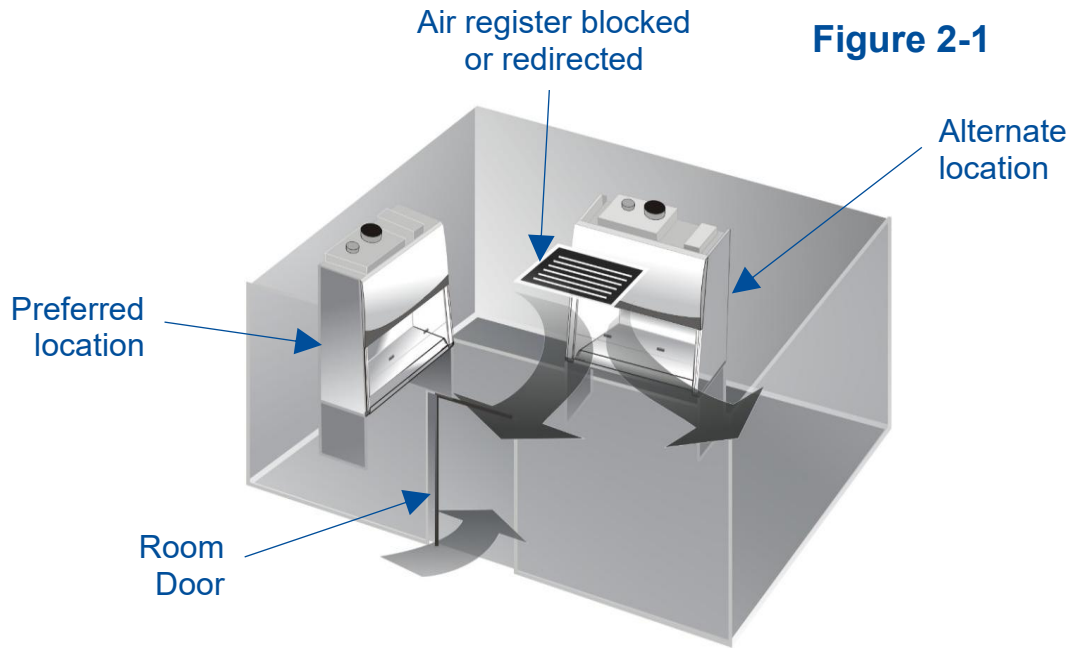
# 2: Before You Install

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 electrical power must be located within 10 feet (3 m) of the installation site.

## Location Requirements

A laminar flow clean bench 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 protection. All windows in the room should remain closed. Figure 2-1 shows the preferred and alternate locations for this product.

**Figure 2-1**



## Clearance Requirements

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

See Appendix B: Dimensions for overall product dimensions.

## Electrical Requirements

The product models have the following electrical requirements.

| Catalog Number | Typical Operating Current (Amps) [1] | Electrical Circuit Requirements [2] | |
|---|---|---|---|
| 533xx00, 534xx00 | 4.0 A | 115 V ±10%, 60 Hz, 12 A | 1 Phase |
| 533xx10, 30, 40, 50, 70<br>534xx10, 30, 40, 50, 70 | 2.5 A | 230 V ±10%, 50/60 Hz, 6 A | 1 Phase |
| 535xx00, 536xx00 | 5.5 A | 115 V ±10%, 60 Hz, 16 A | 1 Phase |
| 535xx10, 30, 40, 50, 70<br>536xx10, 30, 40, 50, 70 | 3.2 A | 230 V ±10%, 50/60 Hz, 8 A | 1 Phase |
| 538xx00 | 7.0 A | 115 V ±10%, 60 Hz, 16 A | 1 Phase |
| 538xx10, 30, 40, 50, 70 | 4.0 A | 230 V ±10%, 50/60 Hz, 8 A | 1 Phase |

1 Does not include amperage draw from device connected to the provided internal outlet(s).
2 Electrical Requirements, 'V' = VAC (Voltage with alternating current), 'A' = Amperes

A dedicated outlet with an appropriate circuit breaker should be located as close as possible to the product, but no greater than 10 feet (3 m). Consult your local electrical codes for properly rated circuit breakers. For safe operation the dedicated outlet must provide a protective earthing ground connection to the product.

On 115V models, all internal electrical outlets are protected by a ground fault interrupter circuit (GFCI). Labconco does NOT recommend connecting the product's power cord into a GFCI outlet. GFCI outlets can nuisance trip, resulting in complete removal of power to the product. Such a scenario would result in complete loss of product protection.

## 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 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 clean bench. Open flame in the clean bench will disrupt the laminar airflow and may damage the HEPA filter. Flammable gases or solvents may reach explosive concentrations in the clean bench. 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 significantly disrupt the airflow patterns in the clean bench.

# 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

Follow all the safety precautions described in this section.

Because air from the work area is dispersed directly into the laboratory, the clean bench should never be used in conjunction with biohazardous material, toxins, or radionuclides. The operator and qualified safety officer(s) must carefully assess the risk associated with any operation performed in a clean bench.
Étant donné que l'air de la zone de travail est dispersé directement dans le laboratoire, clean bench ne doit jamais être utilisé en conjonction avec des matières présentant un danger biologique, des toxines ou des radionucléides. L'opérateur et le(s) responsable(s) de la sécurité qualifié(s) doivent soigneusement évaluer le risque associé à toute opération effectuée dans un clean bench.

The clean bench should be certified by a qualified certification technician before its initial use. The clean bench should be recertified whenever it is relocated, serviced, or at least annually thereafter.
*Le clean bench doit être certifié par un technician de certification qualifié avant la première utilization. L'hotte doit être certifié à nouveau chaque fois qu'il est déplacé, reparé ou au moins une fois par an par la suite.*

Some components of the Nexus clean bench should only be serviced by a qualified certification technician. Ensure that the unit is connected to electrical service in accordance with local and national electrical codes. Failure to do so may create a fire or electrical hazard. Do not remove or service any electrical components without first disconnecting the clean bench from electrical service.
*Certains composants de la Nexus clean bench ne doit être réparé que par un technician de certification qualifié. Assurez-vous que l'appareil est connecté à un service électrique qui est en conformité avec les règlements de sécurité locaux et nationaux. Non-respect des règlements peut causer un incendie ou autre danger électrique. Ne pas enlever ou réparer des compasants électriques sans débrancher l'hotte du service électrique*.

Electrical outlets in the clean bench are restricted to 5 amps (100-115v) or 3 amps (230v) maximum current.
Prises électriques dans l'armoire sont limitées à 5 (100-115v) o 3 (230v) courant maximum ampères.

Do not use any detachable power cord that is not adequately rated for the unit.
Ne pas utliser un fil électrique amovible qui n'est pas du tension nominale de l'appareil.

DO NOT load more than 40 lbs. (18 Kg) per one (1) linear foot (12 inches or 305 mm) in the work area. Exceeding this limit may damage the work surface and its supports. Excessive weight in the clean bench may increase the risk of it overturning, or failure of hydraulic lift stands, resulting in the clean bench and stand overturning. If your application requires loading more than this limit, contact Labconco's Product Service Department at 800-821-5525 or 816-333-8811 for assistance.

Avoid the use of flammable gases or solvents in the clean bench. 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 clean bench. 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 clean bench, as they may disrupt its airflow patterns.

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

The HEPA filter in the Nexus clean bench will gradually accumulate airborne particulate matter from the room. The rate of accumulation will depend upon the cleanliness of the room air, and the amount of time the clean bench is operating. In typical installations and usage, the HEPA filters will last two to five years before requiring replacement.
*Le filtre HEPA du Nexus clean bench accumulera progressivement les particules en suspension dans l'air de la pièce. Le taux d'accumulation dépendra de la propreté de l'air ambiant, de la durée de fonctionnement du clean bench et de la nature du travail effectué dans le clean bench. Dans les installations et l'utilisation typiques, les filtres HEPA dureront de deux à cinq ans avant de devoir être remplacés.*

Proper operation of the clean bench depends largely upon the clean bench's location and the operator's work habits. Consult Section 4: Installation and Section 7: Using Your Nexus™ Clean Bench further details.
*Le bon fonctionnement du clean bench dépend en grande partie de l'emplacement du clean bench et des habitudes de travail de l'opérateur.*

*Consultez les sections d'installation et de fonctionnement normal de ce manuel pour plus de détails.*

Wipe the interior surfaces of the clean bench with 70% ethanol. Prior to use, do not use abrasive cleaners, bleach, or solvents, as they may damage the work surface or other interior surfaces.
*Essuyez les surfaces intérieures du banc propre avec 70 % d'éthanol. Avant utilisation, n'utilisez pas de nettoyants abrasifs, d'eau de javel ou de solvants, car ils pourraient endommager la surface de travail ou d'autres surfaces intérieures.*

When surface disinfecting the clean bench:

- Avoid splashing the disinfecting solution on skin or clothing.
- Ensure adequate ventilation.
- Carefully follow the disinfectant's safety instructions.
- Always dispose of disinfecting solutions in accordance with local and national laws.

DO NOT allow disinfectants with high concentrations of free chlorine to contact stainless steel components of the clean bench for a long period of time. Free chlorine will corrode stainless steel after extended contact.

Avoid direct exposure of plastic or coated materials to ultraviolet (UV) radiation. Never bypass the UV safety interlock that only allows the UV light to operate when the protective UV Shade is closed.

# 4: Installation

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 (optional)
- Arrange certification for the product

Inspect the product's outer carton upon receipt. If damage is present, take photographs of the carton damage. These photographs may be required when filing a freight claim and may also be requested by Labconco Corporation or its dealers.

## Unpacking

The following tools are required to unpack the equipment:

- Box Knife
- 7/16" Socket and Ratchet
- 7/16" Wrench
- 5/16" Nut Driver
- Carpenter's Level

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

- Wear safety glasses
- Wear 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 1000 lbs. or 454 kg)

### Step 1 – Inspect and Remove Carton

Using the Box Knife, cut the carton along the very bottom on all four sides, then lift the carton off the product.

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.

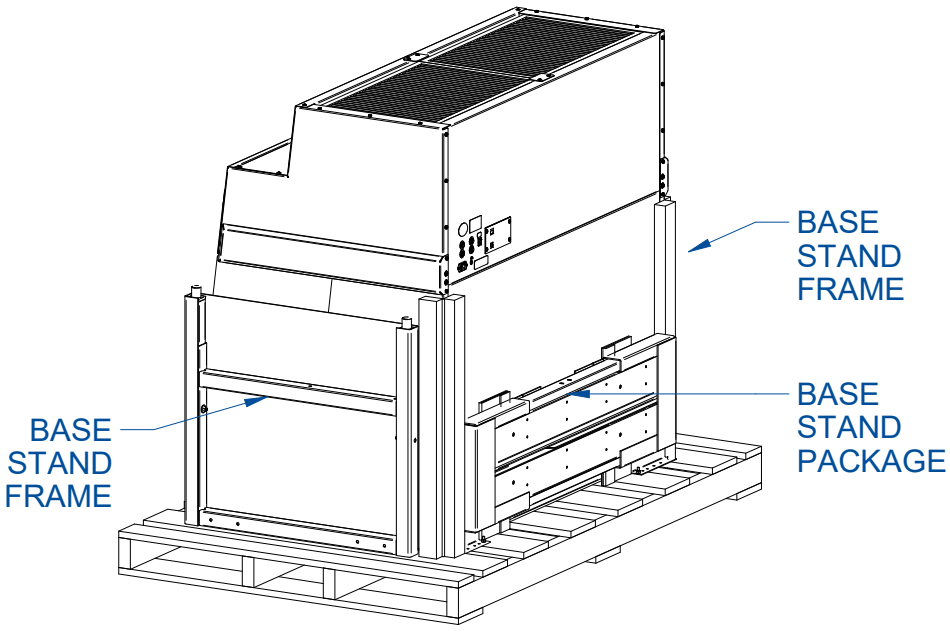
Do not return goods without the prior authorization of Labconco. Unauthorized returns will not be accepted.

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 carton or packing material for the product until all of the components have been checked, installed and tested.

If the model includes a flat packed base stand, carefully cut off the outer wrap of clear film and remove the two (2) Base Stand Frames and one (1) Base Stand Package as shown in Figure 4-1. Assembly instructions for the base stand are located inside the Base Stand Package.

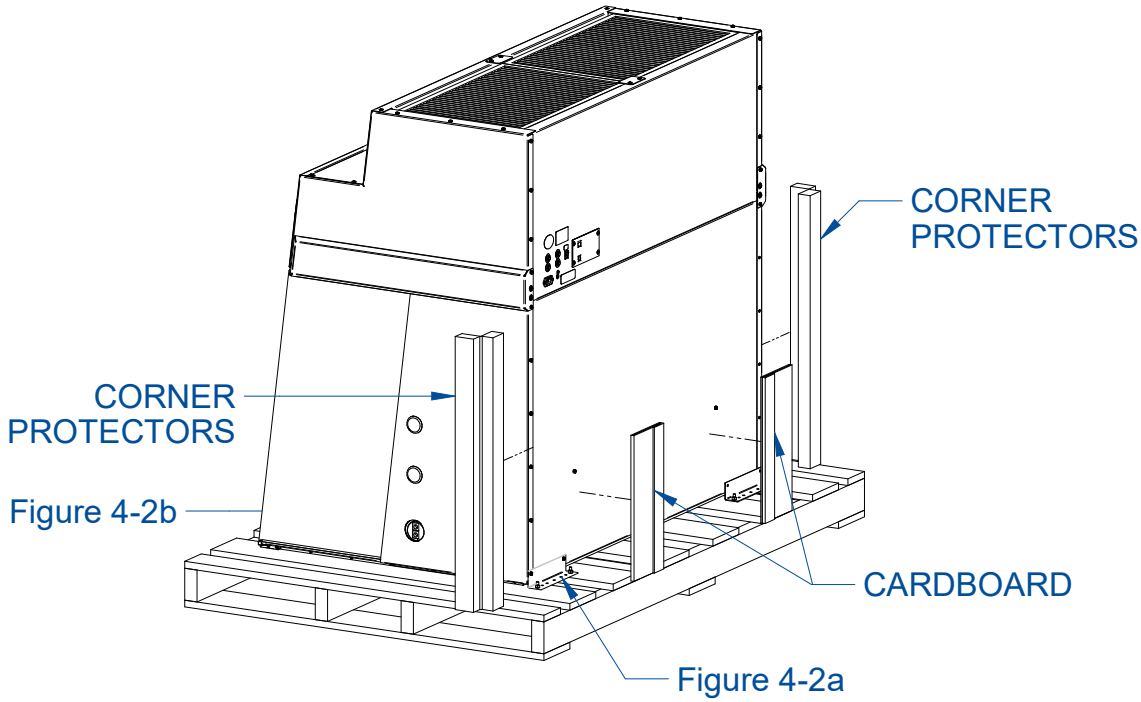
**Figure 4-1**



### Step 2 – Remove Wrap and Corner Protectors

Using the Box Knife, remove any remaining clear wrap around the product. Remove the Corner Protectors and Cardboard as shown in Figure 4-2. Discard all clear wrap, Corner Protectors and Cardboard.

**Figure 4-2**



### Step 3 – Remove Shipping Brackets

Using the 7/16” Socket and Ratchet and 7/16” Wrench, remove the Bracket Bolts and Nuts that secure the Shipping Brackets to the Pallet. Figure 4-2a shows the rear Shipping Brackets and Figure 4-2b shows the front Shipping Brackets. Using a 5/16” Nut Driver remove the Hex Head Screws on the rear Shipping Brackets (Fig. 4-2a). Discard the Shipping Brackets and Bolts, replace the Hex Head Screws in the rear.

**Figure 4-2a**

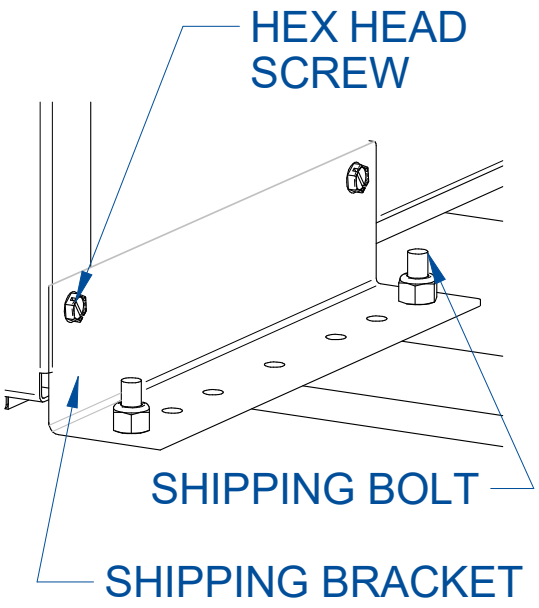
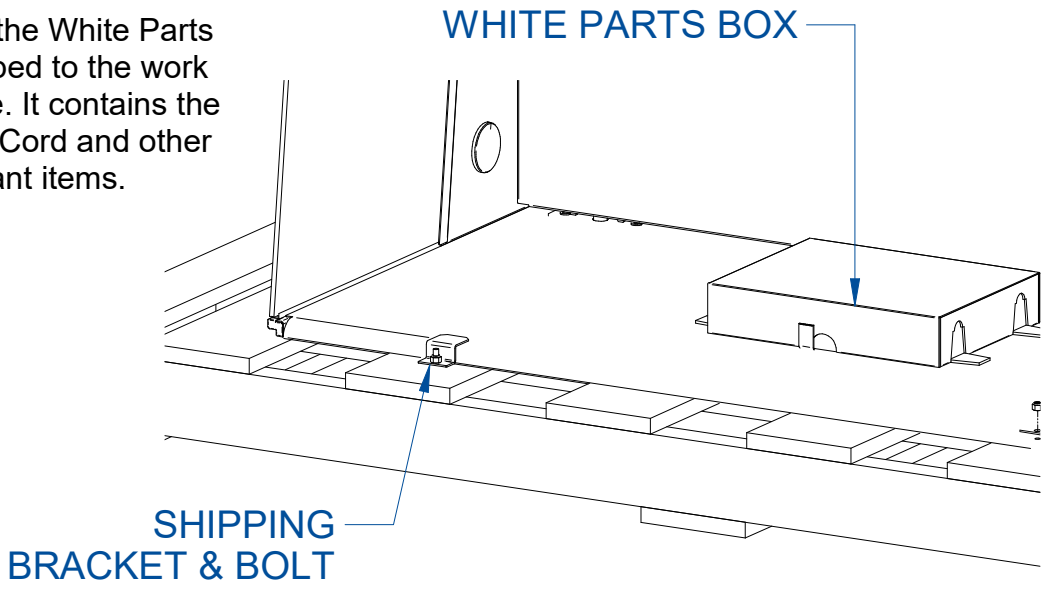



**Figure 4-2b**

Leave the White Parts Box taped to the work surface. It contains the Power Cord and other important items.



### Step 4 – Lifting and Transporting the clean bench

The product is top heavy. Use caution when lifting or moving it.

Do not attempt to lift this product without assistance. Use a mechanical lift certified to 1000 lbs. (454 kg) lifting capacity to lift this product.

Labconco offers accessory base stands in a variety of configurations to suit your particular needs. If the optional flat pack base stand was ordered, assemble the base stand and locate it in the final installation location before moving the CLEAN BENCH. Assembly instructions for the base stand are packaged with the base stand.

Slide or otherwise transfer the clean bench to a wheeled transport device, such as a furniture dolly. Transport the clean bench to the final installation location.

Using a mechanical lift, raise the clean bench and place it on the customer-specified location. This is typically the base stand.

### Step 5 – Securing the clean bench to the Base Stand

This step instructs the attachment of the clean bench to the flat pack base stand, once it is fully assembled. If mounting the clean bench to a Labconco electric hydraulic base stand, see the installation instructions included with the electric hydraulic base stand. If mounting the clean bench to a customer-supplied surface/stand, consult the customer or instructions provided by the alternate manufacturer for safe attachment.

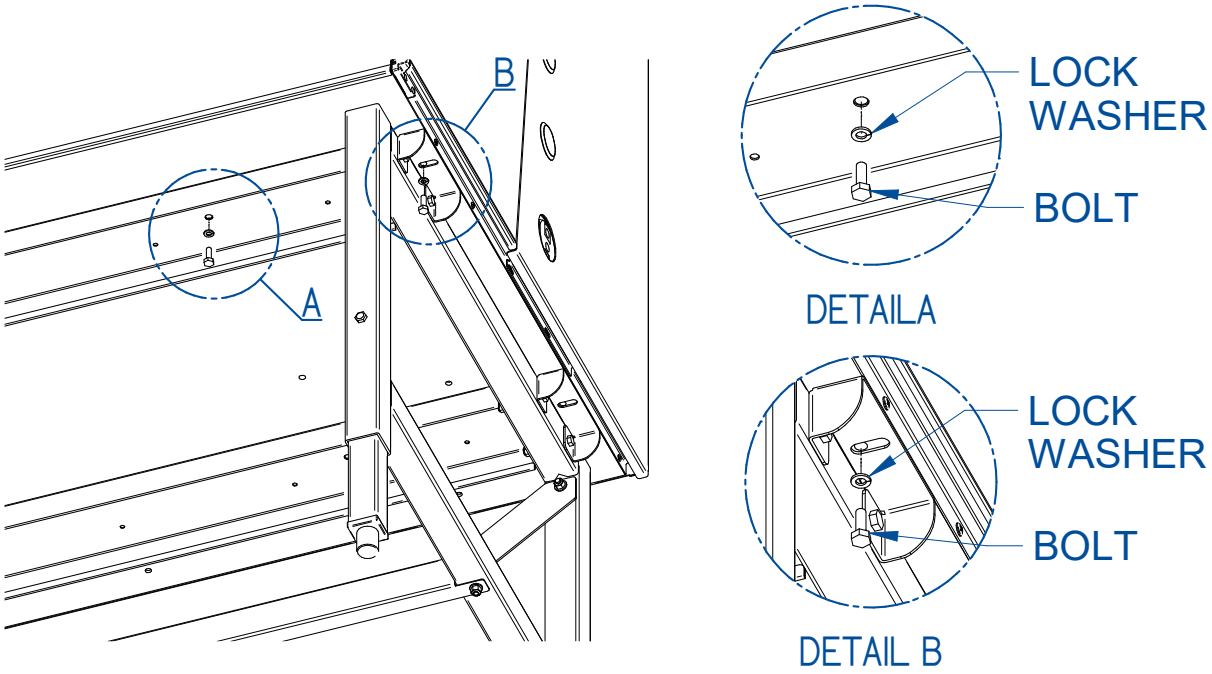
All hardware for mounting the clean bench to the flat pack (knock down) base stand or an electric hydraulic base stand is included with the stand. Flat pack (knock down) base stand hardware is located in the Base Stand Package (reference Figure 4-1).

Refer to Figure 4-3 on the following page.

Align the ¼”-20 threaded holes in the underneath side of the clean bench work surface with the holes provided in the stand.

Insert the ¼”-20 Bolts and Lock Washers through the Base Stand holes (or slots) and into the threaded holes in the underneath side of the clean bench work surface. Do not tighten Bolts until all are installed. Tighten all Bolts using the 7/16” Socket and Ratchet.

**Figure 4-3**

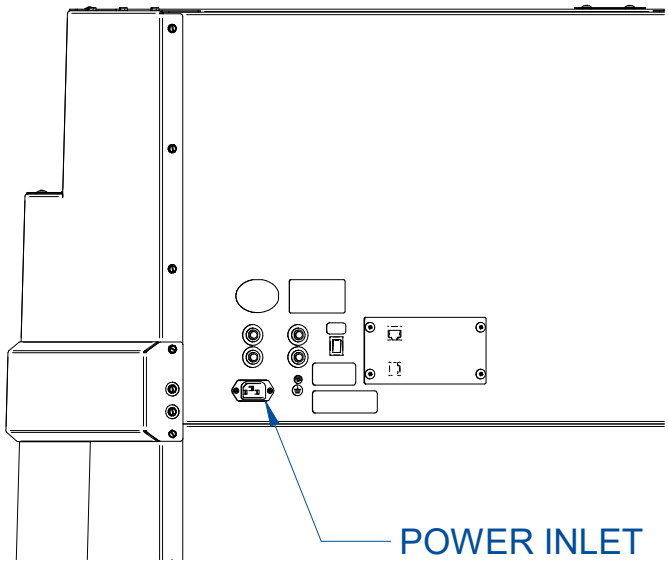



NOTE: On 8ft units, the threaded inserts shown in Detail B of Figure 4-3 will not be usable. Use the threaded inserts along the top members (see Detail A) instead.

### Step 6 – Connect the Power Cord

Locate the White Parts Box (Figure 4-2b), open the box and remove the Power Cord. Connect the IEC end of the Power Cord into the Power Inlet on the rear of the product (Figure 4-4). Connect the plug end of the Power Cord into an appropriately rated, dedicated outlet.

**Figure 4-4**



## Certification

Prior to use, all clean benches should be certified by a qualified certifier. Under normal operating conditions, the clean bench should be recertified at least annually and when moved or serviced. The certifier should perform the following tests, as recommended in Institute of Environmental Sciences and Technology IEST RP-CC002.4 and the Controlled Environment Testing Association CAG-003 and CAG-014.

- Airflow Velocity Test
- HEPA Filter Leak Test
- Backstreaming/Induction Leak Test
- Work Area Air Cleanliness Test (when appropriate)
- Light Intensity Test (when appropriate)

In addition, the following tests should also be performed at the user's discretion:

- Electrical Leakage and Ground Circuit Resistance Test
- Airflow Visualization Study to determine airflow patterns

If you have any questions regarding certification agencies or need assistance in locating one, contact Labconco's Product Service Department at 1-800-522-7658 or 816-333-8811.

### Certifier Password

Never enter the password-protected area of the clean bench 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.

The certifier password is: **1 9 2 5**

Use this password for all normal calibration and certification activities.

### Airflow Velocity Test

Velocity Profile shall establish laminar airflow of the clean bench.

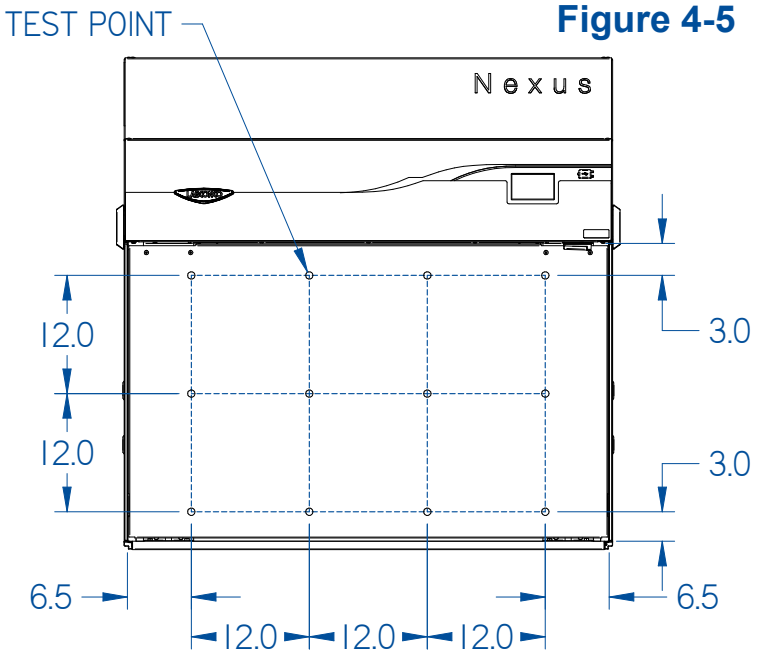
The following tools are required:

- Tape measure
- Felt-tipped marker and tape (to mark test points on work surface)
- Thermal Anemometer and stand (stand height must place probe at a minimum of 3" and maximum of 27")
- Calculator

1. The blower(s) must be operating at a stable level for the airflow velocity test.

2. Establish the airflow velocity test points within the work area of the clean bench. Reference the “Air Velocity Data” section of Appendix D: Quick Chart Reference for the airflow grid dimensions required for the clean bench being tested.
   Test points will always be taken 6” back from the diffuser. Use tape and marker to layout test points on the work surface (do not mark directly on the work surface). The test points will be approximately 12” x 12” grids starting 6.5” from the side wall, and 3” up off the work surface. Reference Figure 4-5 for an example of a 4 foot unit.

**Figure 4-5**




3. 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 towards the diffuser).

4. 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 the “Air Velocity Data” section of Appendix D: Quick Chart Reference to verify the total number of test points sampled is correct for the model under test.

### Acceptance Criteria

Average all velocity readings. The average shall be one of the Nominal Average options listed in the “Air Velocity Data” section of Appendix D: Quick Chart Reference. If the airflow is out of laminarity, contact a certifier to recertify the clean bench.

## HEPA Filter Leak Test

Before initial use, or after a HEPA filter change, it is recommended to verify the integrity of the HEPA filter(s). This test will check for leaks in the HEPA filter(s). This test should only be conducted by a trained certifier.

The following tools are required:

- Aerosol Generator
- Photometer
- Ladder (6-ft tall minimum)
- Phillips Screwdriver

1. If in place, remove the diffuser to expose the filter. Locate and remove the QTY 4 screws (QTY 8 screws for the 8FT units) as shown in Figure 8-3 using a phillips screwdriver. Save this hardware. Tilt the top of the diffuser down (see Figure 8-3) and pull straight out of the clean bench. Service fixtures installed along the side wall(s) may need to be removed prior to removing the diffuser.

2. Move the pre-filter(s) aside on the top of the unit. To do that, use a phillips screwdriver and remove the 2 screws holding the retainer bracket in place as shown in Figure 8-2. Repeat as needed until the desired pre-filter(s) can be slid out of place. Store all removed hardware safely.

3. Place the aerosol generator near the top of the clean bench and run a 2 inch (50 mm) or greater diameter tube to deliver the aerosol to the blower(s). The generator's output must be directed into the blower intake(s).

For models with two blowers, use a Tee Fitting to deliver aerosol to the inlet of each blower.

4. Ensure that the generator is level, and the oil level is within 1/8 inch (3 mm) of the level line.

5. Verify the clean bench's blower(s) are on and have reached a stable level.

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 *HEPA Filter Leak Test* section of Appendix D: Quick Chart Reference. 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 20 ± 1 psig.

10. At this point, aerosol is being dispensed from the generator. Do not let the generator operate in this configuration for an extended period. Allow the generator to operate for at least 15 seconds.

11. Set the photometer sampling valve to "DOWNSTREAM". Verify proper vacuum at the sampling nozzle of the photometer.

12. Scan the HEPA filter(s) 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 HEPA filter(s), including the gaskets between the filter frame and the clean bench structure.

### Acceptance Criteria

Aerosol penetration shall not exceed 0.01%.

14. Reinstall the diffuser, pre-filter(s) and retainer bracket(s).

### Backstreaming/Induction Leak Test

To verify air from the surrounding environment is not entering the work area, follow these instructions:

The following tools are required:

- Non-thermal smoke source
- Particle counter pickup (for Induction Leak Test)

1. All equipment and materials used in the work area on a regular basis must be present for test.

2. Verify the clean bench's blower(s) are on and have reached a stable level.

3. Using an airflow visualization tool (smoke stick or smoke generator) of choice, scan the smoke outlet along the edges of the work area opening 2 inches back from the clean bench. Visible smoke should not enter the work area. If it does, see Step 4.

4. If penetration(s) present on the clean bench, hold a particle counter 1 inch from the side wall and 1 inch downstream from the penetration. With the probe of the counter facing into the airstream (or towards the diffuser), sample continuously.

5. If penetration(s) present, use an aerosol generator outside of the penetration while sampling. Pass the smoke over the penetration area without aiming at it directly. The particle counter sampling must be monitored, the 0.5 micron particle count should not be increasing.

6. Repeat Steps 4 and 5 for all penetrations.

### Acceptance Criteria

No visible smoke shall enter the work area from the perimeter scan. If penetration(s) present, the 0.5 micron particle count should not continuously increase.

## Work Area Air Cleanliness Test

Air cleanliness is a measurement of all particles (greater than or equal to 0.5 micron in size) in the air.

The following tools are required:

- Particle counter
- Tape measure
- Tape and marker

1. Verify the clean bench's blower(s) are on and have reached a stable level.

2. Use the tape measure to mark the three test points needed; 8 inches back from the diffuser at center (left to right) of the work surface and midway between center and the side walls on either side.

3. Using the particle counter with the probe pointed into the airstream (towards the diffuser) and take one sample at each marked test point of 1.0$ft^3$ (or 1.0$m^3$) of air.

4. Average the particle count results of the three test points.

### 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.

### Light Intensity Test

To test the light intensity at the clean bench's work surface, follow these instructions:

The following tools are required:

- Light meter (must be color- and cosign-corrected for accurate results)
- Tape measure
- Tape and marker

1. Use tape, marker and measuring tape to mark test points on the work surface as follows:
   a. Mark the front-to-back centerline of the work surface.
   b. Starting 6 inches (15.2 cm) 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 (30.5 cm) increments until the left-to-right center of the work surface is reached.
   d. Repeat Steps b and c starting from the right-side wall.
   e. All test points are now marked.

2. With the clean bench 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 clean bench. 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 45 foot-candles (484 lux) greater than the background light level reading.

## Service Line Connection

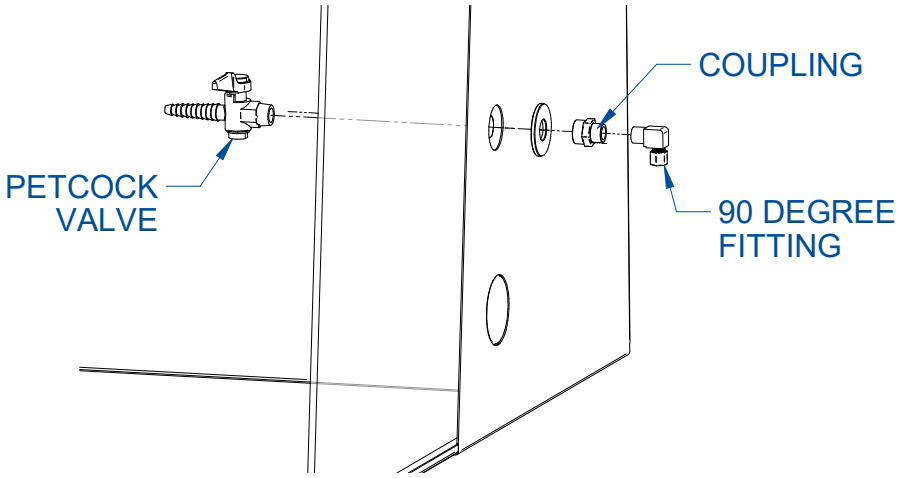
Service fixtures are not pre-installed on standard models. If your model does not include a service fixture, this step may be skipped. A service fixture can be field installed at any time, the service fixture kit will contain instructions for installing the fixture. Follow the instructions below to make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

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

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 4-7.

1. Ensure that the tubing is ¼ inch O.D., soft metal, and that the end has been completely deburred.
2. Route the tubing from the source.
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 product and then slowly open the shutoff valve on the service valve. Test all fittings for leakage. Tighten the tube nut slightly if needed.

**Figure 4-7**




If the clean bench is mounted on an adjustable height stand, take precautions (such as flexible supply lines) to ensure movement of the clean bench stand does not damage the supply lines and/or clean bench.

### Ground Fault Circuit Interrupter (GFCI) Test

This test may only be applied on 100-115V models. 208-230V models do not contain GFCI outlets internal to the clean bench. To test the clean bench's internal GFCI outlet(s), follow these instructions:

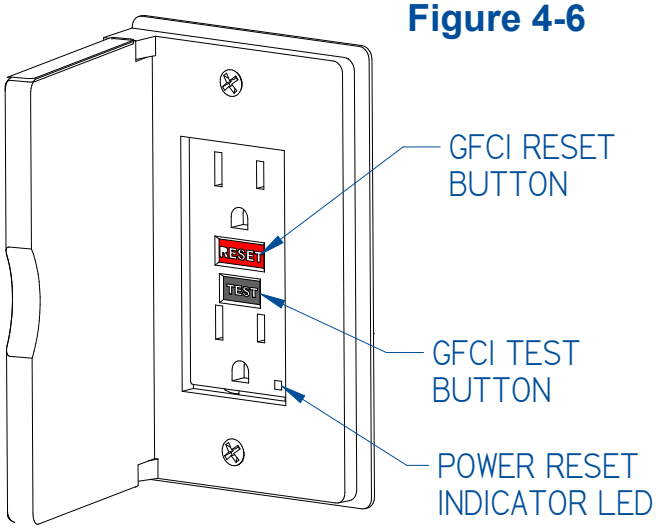
The following tools are required:

- GFCI tester (must be capable of simulating a fault of 3mA or greater)

1. Place the tester into the clean bench outlet (if the unit has two GFCIs, use the right-side).

2. Press the test button on the GFCI tester. The indicator lights on the tester should indicate the outlet is inactive, and the GFCI outlet's power indicator LED should be off. See Figure 4-6 for reference.

**Figure 4-6**




3. Reset the GFCI by pressing the RESET button on the right-side outlet. The tester should indicate power is correctly present at the outlet, and the GFCI outlet's power indicator LED should be on.

### Acceptance Criteria

The GFCI tester and GFCI outlet(s) in the clean bench respond as indicated in Steps 2 and 3.

## Airflow Visualization Study

Utilize a non-thermal smoke source to visually check airflow patterns in the clean bench.

The following tools are required:

- Smoke Stick(s), or
- Smoke Generator

If the Airflow Visualization Study is not performed immediately after the Airflow Velocity Test, check the following enclosure conditions:

1. Verify the clean bench's blower(s) are on and have reached a stable level.

2. Within the work area of the clean bench, start at the far-left end, approximately 6 inches away from the diffuser, at a varying height above the work surface, begin generating smoke.

3. Slowly move the smoke source from the far-left end to the far-right end, maintaining the smoke source 6 in back from the diffuser.

4. All smoke released during this portion of the test should move away from the diffuser without much left to right movement.

# 5: Performance Features

The Nexus Horizontal Clean Bench protects items placed on the work surface, when operated to manufacturer's specifications and proper aseptic techniques are employed.

During operation, room air is drawn through a pre-filter in the top of the product to trap large particles. After the pre-filter air flows through a 99.99% (at 0.3 micron) efficient HEPA filter and is projected horizontally across the entire work area. This HEPA-filtered air minimizes cross contamination in the work area and provides a HEPA-filterered work environment.

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

This product does not protect the operator or laboratory environment.

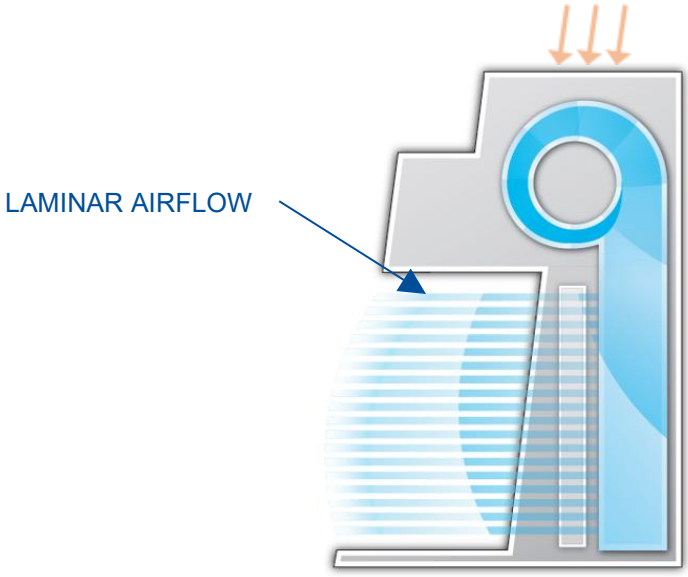
## Laminar Airflow

Laminar airflow is defined as the movement of a body of air in a single direction, with a uniform velocity. In order to be true laminar flow, a number of individual face velocity test points, commonly referred to as the Face Velocity Profile, must be +/- 22 feet per minute (0.11 m/s) of the average of all the test points.

See Figure 5-1 on the following page for a side cross section view of the airflow within the Nexus Horizontal Clean Bench.

**Note:** Do not block or obstruct the pre-filters or pre-filter opening on top of the product.

**Figure 5-1**

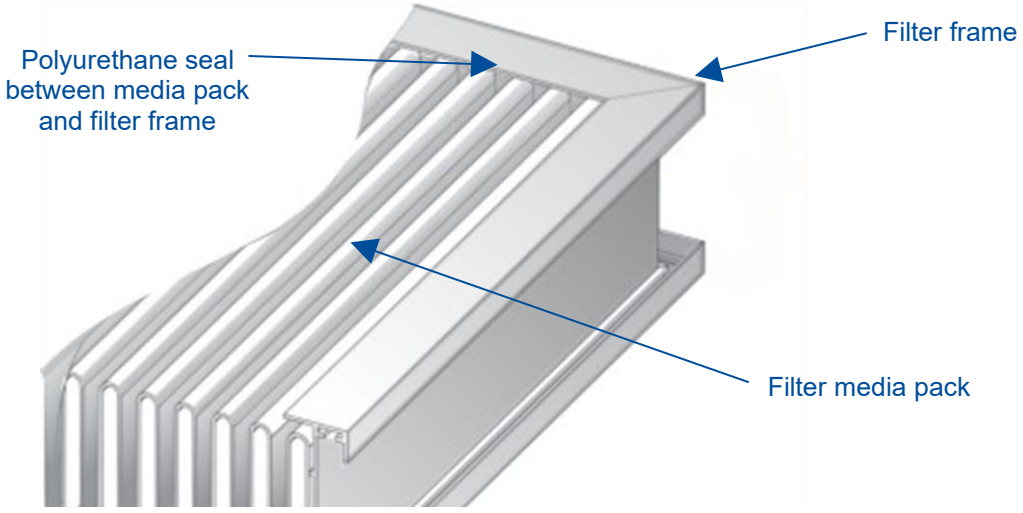



## HEPA Filters

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 5-2.

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

**Figure 5-2**



quantified, and this establishes the efficiency of the filter. The HEPA filters used in the clean bench are at least 99.99% efficient in removing particles 0.3 micron in size.

**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 PRODUCT. Have the HEPA filter integrity tested by a certifier before using the clean bench.

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

## ULPA Filters

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

## Motor/Blower

The motor/blower assembly pulls room air into the top of the clean bench and pushes the air through the HEPA Filter(s). The motor in the clean bench is an electronically commutated motor (ECM). The ECM is a brushless DC motor that includes its own power supply to convert the incoming alternating current to direct current, as well as its own microprocessor to control and measure the motor's operation. The motor utilizes Labconco's exclusive Constant Airflow Profile™ (CAP) program to deliver a consistent volume of air, throughout the life of the HEPA Filter(s).

## Pre-filters

Pre-filters are installed on the top of the clean bench to trap large particles, extending the life of the HEPA filter(s).

## UV Lamp (optional)

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

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

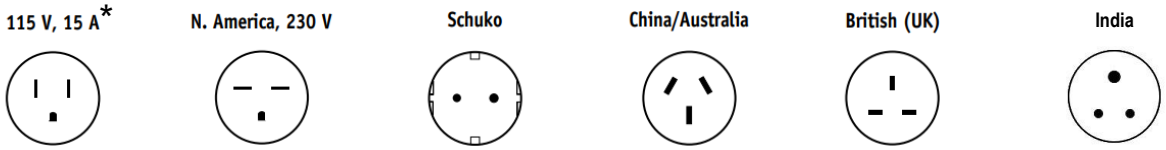
**Note:** The product records the number of hours of operation of the UV light. You can program in the number of hours it will operate before a replacement message is displayed.

**Note:** UV irradiation is absorbed by the tempered safety side glass of the clean bench and the UV Shade that must be lowered before the UV Light will illuminate.

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

## Internal Outlet(s)

To provide power to items used inside the clean bench, an outlet is provided on the interior ceiling of the work area. For the 3-ft and 4-ft models one outlet is provided. For the 5-ft, 6-ft, and 8-ft models two outlets are provided. The following are available:




*115V US is the only duplex receptacle type. 115V US is the only GCFI receptacle.

All other options (230V US, SCHUKO, China/AUS, UK, & India) are single receptacles.

# 6: Nexus™ Operating System

The Nexus Horizontal Clean Bench features clear status information and user control with the touchscreen display. Read this section along with Section 7: Using Your Nexus™ Clean Bench to fully understand the features and controls of this product.

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

## Home Screen

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

**Figure 6-1**


## Menu Tabs

Along the top of the display is a bar containing the menu tabs as shown in Figure 6-1. To move between menu screens, touch the desired tab. The menu options are as follows: Home, Data Logs, Settings, Sensors, and Help.

### Filter Life Remaining Bar

Along the bottom of the home screen, the filter life bar shows both a visual and a numeric percentage of life remaining. When life remaining is less than 20%, the bar will turn from blue to red. Reference Figure 6-1.

### Operating controls

The operating control functions are explained in detail in Section 7: Using Your Nexus™ Clean Bench, under the subsection *Controls*. A summary description is provided here with Figure 6-2.

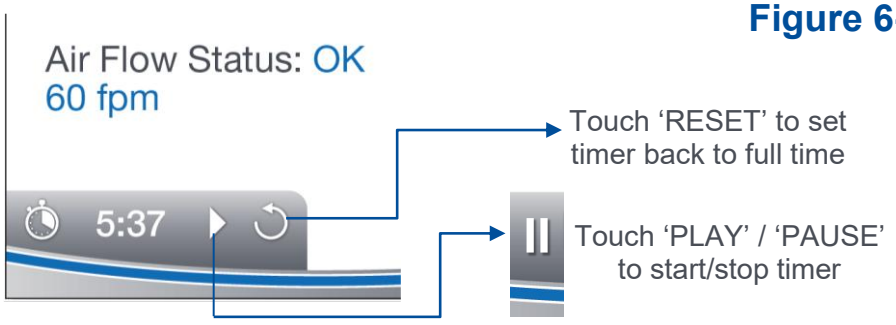
**Figure 6-2**


### Timer (Optional)

There is a timer option that can be enabled and disabled by a setting in the Configuration Menu. The timer counts down from the set point selected and chimes once the time is zero. To adjust the status of the timer, see the *Settings>Configuration Menu* of this section and Figure 6-3. To change the timer chime, see Settings>Display of this section for more information.

If enabled, the timer can be found in the bottom left corner of the *Home Screen* as shown in Figure 6-3.

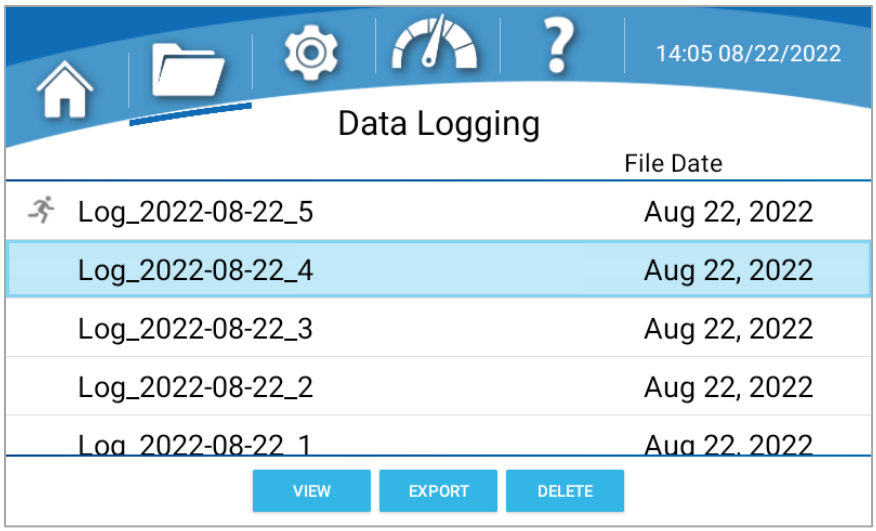
**Figure 6-3**



## Navigating the Data Logs Menu

This section will cover in detail the different options available in the *Data Log Screen*. See Figure 6-4 for the *Data Log Screen*.

**Figure 6-4**




Each file will be named as follows "Log_YYYY-MM-DD_XX", where YYYY = Year, MM = Month, DD = Day, and XX = 01 to 99 for the first through 99th log of that specific day as shown in Figure 6-4. The data log default rate is 10 seconds. The default data rate can be adjusted in the *Settings Screen* (instructions detailed later in section). The data logs are automatically deleted at a default rate of 1 year. The default deletion rate can be adjusted in the *Settings Screen* by following the instructions later in this section.

A data log can be selected from the list by touching the data log file name. When a data log has been selected, the row will be highlighted as shown in Figure 6-4. To select multiple log files, hold down a single log until the multiple select checkboxes are visible and select all the log files desired. When selected, the buttons along the bottom of the screen will activate (**[VIEW]**, **[EXPORT]**, **[DELETE]**). Only one log file can be viewed at a time, but multiple log files can be exported or deleted. Log files can be exported to a flash drive in two different file types: CSV and PDF. If a data log is currently running (collecting data), the *Running Man* icon will appear to the left of data log file name.

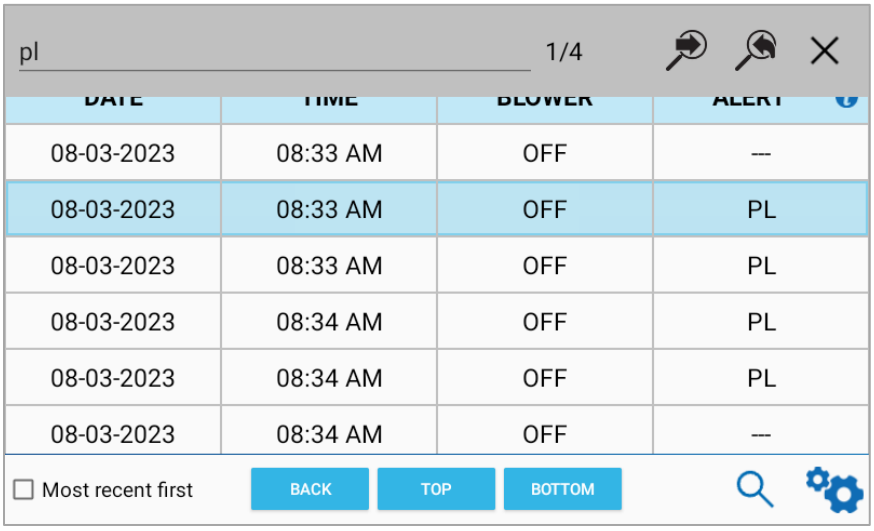
Depending on the model, the data log will collect up to 13 parameters for each program at a user-selected data rate. The parameters are as follows:

- Date
- Time
- Blower
- AFS (Right & Left for 5', 6' or 8')
- Alert
- Light
- UV Light (UV models only)
- Outlet
- Blower RPM (Right & Left for 5', 6' or 8')
- Blower PWM (Right & Left for 5', 6' or 8')

Although the log file only allows viewing of up to 5 parameters (as shown in Figure 6-5), all parameters are stored with the Data Log, and will be viewable when the log file is downloaded and viewed on a computer.

To change what parameters are visible in the individual log files, select the *Gears icon* (shown in the bottom right-hand corner of Figure 6-5).

**Figure 6-5**




All alerts/alarms will be recorded and represented with a code. The alert code descriptions can be seen by touching the *'i' icon* in the ALERT column heading (as shown in Figure 6-5) and are as follows:

**Table 6-1**

| Alert Codes | Descriptions |
|---|---|
| AD | Airflow Disruption |
| BF | Blower Failure |
| BFL | Blower Failure Left* |
| BFR | Blower Failure Right* |
| FL | Filter Life at 0% |
| UL | UV Life Expired** |
| UV | UV Shade Opened** |
| PL | Power Loss |

*Dual motor models only **UV models only

To search through individual logs by a phrase or numerical value, use the *Search Function* by touching the *magnifying glass icon* shown in Figure 6-5. Type the desired search phrase into the bar. To move through the found matches the of the search phrase, touch the *forward and backwards magnifying glass icons*. Touch the *'x' icon* to exit the *Search Function*.

## Navigating the Settings Menu

This section will cover in detail the different options available in the *Settings Menu*. See Figure 6-6 for the *Settings Menu* screen.

**Figure 6-6**

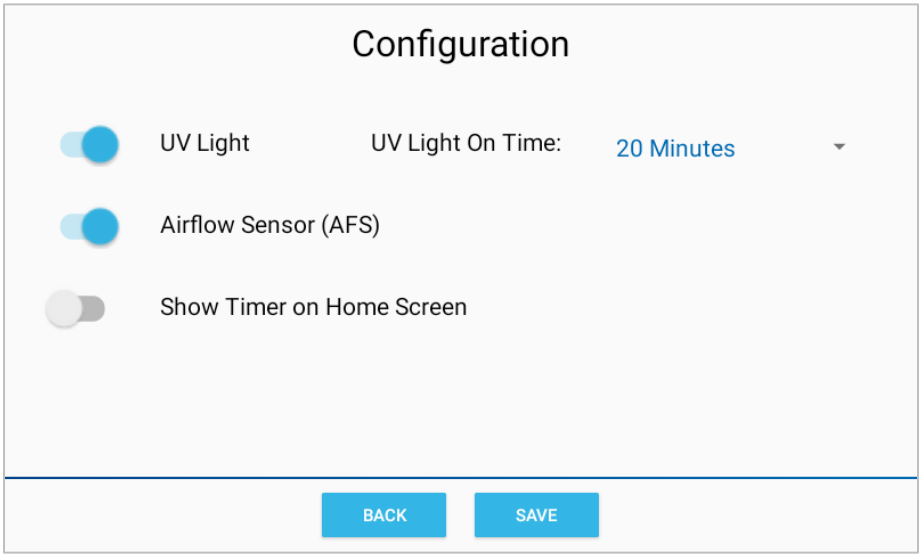

### Configuration Submenu

This screen configures optional features. Reference Figure 6-7.

- *UV Light* – Touching the toggle between ON & OFF will enable or disable the UV Light features. If the UV package is factory installed, this toggle will be enabled. If removed or field installed, adjust the toggle accordingly.
- *UV Light On Time* – The time that the UV light remains on before auto shutting off can be set using the scroll down menu. The options are 10 minutes through 120 minutes in increments of 10 minutes with an option for infinity. The default for the UV Light On Time is 30 minutes.
- *Airflow Sensor (AFS)* – Touching the toggle between ON & OFF will enable or disable the AFS features. See Section 9: Accessories for more information.
- *Show Timer on Home Screen* – Touching the toggle between ON & OFF will enable or disable the timer on the *Home Screen* (shown in Figure 6-1 of this section).

To save any changed settings, touch **[SAVE]**.

**Figure 6-7**

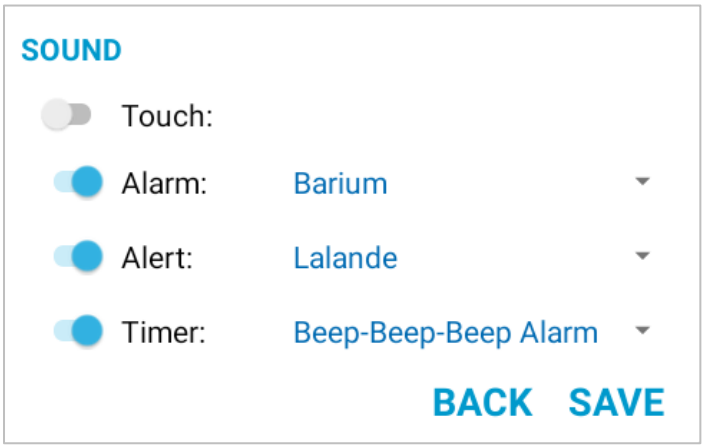



## Adjusting the Sound

Provides settings for the sound functionality of the clean bench. Reference Figure 6-8.

- *Touch Sounds* – The ON/OFF toggle enables or disables audible touch of the screen.
- *Alarm Sounds* – The ON/OFF toggle enables or disables audible alarm. Audio tones can be chosen from the drop-down menu.
- *Alert Sounds* – The ON/OFF toggle enables or disables audible alert. Audio options can be chosen from the drop-down menu.
- *Timer Sounds* – The ON/ OFF toggle enables or disables audible timer. Audio options can be chosen from the drop-down menu.

**Figure 6-8**

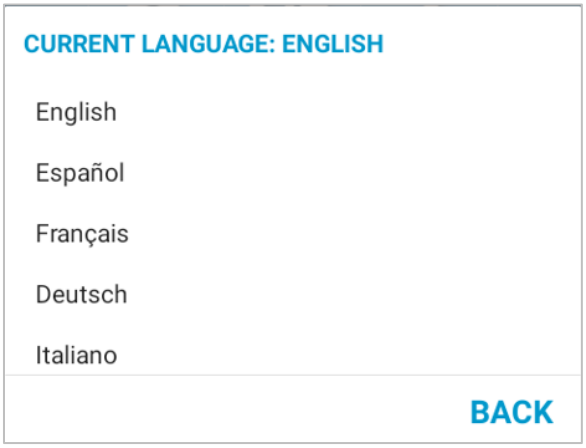


## Selecting a Language

Choose from eight languages:

- English
- Spanish
- French
- German
- Italian
- Chinese
- Japanese
- Portuguese

**Figure 6-9**

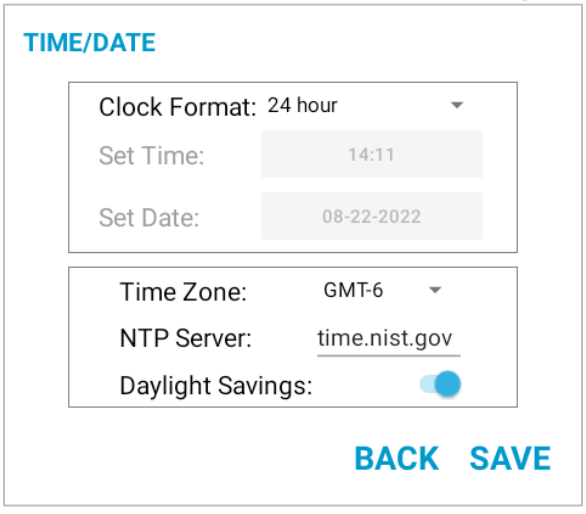



## Adjusting Time & Date

Reference Figure 6-10. Use the *Time and Date* screen to choose Clock Format (12 or 24 hour), and then either manually set the Time and Date, or enable Auto Update, which (if the clean bench is connected to a valid Ethernet port) will auto update the time and date. With Auto Update the following settings need to be entered:

- *Time Zone* – Enter the Greenwich Mean Time (GMT) offset value for your location (integer value between -12 & +12).
- *NTP server* – Enter the "web address" (URL) of the NTP server (of your choice) that will provide clock synchronization data to the clean bench via the Ethernet connection. A common site is: time.nist.gov
- Finally, Daylight Savings (ON/OFF) can be enabled/disabled for areas observing Daylight Savings Time (DST).

**Figure 6-10**



### Selecting the Units of Measure

This screen allows the user to change the units of measure for various sensors. Touch the desired drop-down field, and make selection:

- *Length* – Select the desired units of measure: inches or centimeters
- *Velocity* – Select the desired units of measure: fpm or m/s

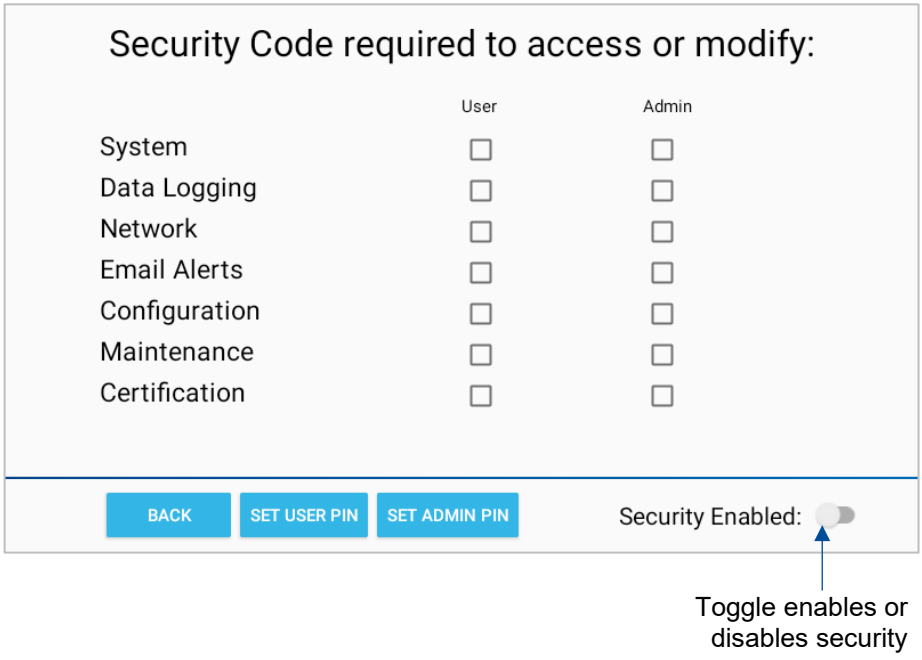
Once the selection is made, touch **[OK]**.

### Activating the Security Lock

Security codes can be set to limit access or prevent modification to certain fields of the clean bench. Supports two PINs (User and Admin), that can be set in this menu. Select the features of the clean bench that are desired to be password protected. If User is selected, Admin is automatically selected as well. If '*System*' is selected to require a security code, the applicable PIN is needed upon wake from sleep screen and the Display Screen Timeout cannot be '*Never*'. After any features are selected to be password protected, the *Security Enabled* toggle must be set to enable.

The Default PIN is '1 2 3 4' for User and Admin. The PIN can be changed by pressing **[SET USER PIN]** or **[SET ADMIN PIN]** as shown in Figure 6-12.

**Figure 6-12**

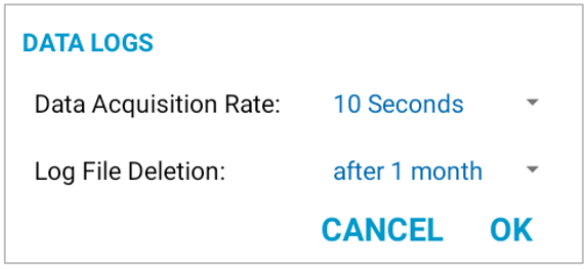


### Setting the Data Acquisition Rate

This screen provides settings for the data log functionality. Reference Figure 6-13.

- *Data Acquisition Rate* – The available rates are 10s, 30s, 1min, 2min, 3min, 5min & 10min.
- *Log File Deletion* – Saved data logs delete after this time. Deletion rate options are 1, 3, 6, or 12 months with 12 months being the default value.

**Figure 6-13**

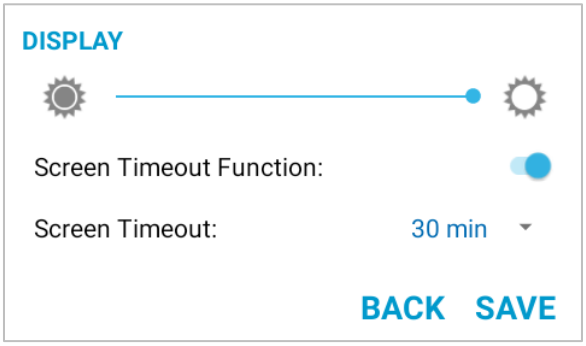



### Adjusting the Display

Provides settings for the display screen functionality. Reference Figure 6-14.

- *Brightness Slider* – Adjust the display brightness by dragging the bar *left/right*.
- *Screen Timeout Function* – If enabled, the screen will go to sleep (low power mode) when no screen touches have been detected for the allotted time (defined in the *Screen Timeout* dropdown menu). If the blower is ON, the screen will dim. If the Blower is OFF or in ECO Mode, the screen will go off. Touching the Screen Timeout Function toggle changes between ON & OFF.
- *Screen Timeout* – This value can be set to 5, 10, 15, 30 min, and 1, 2, 3 hours or Never.

**Figure 6-14**




Turning off the *Screen Timeout Function* can decrease the screen life.

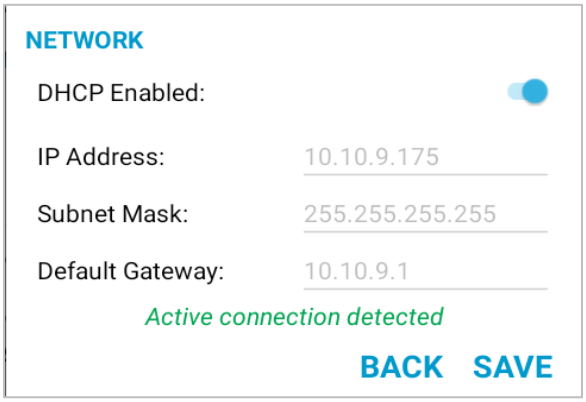
## Utilizing Network Connection

Modify Network connection specifications, if an active ethernet connection has been established.

The most common setting for network connectivity via an Ethernet port is *DHCP Enabled*. This setting allows the facility's network to dynamically assign an IP address. Reference Figure 6-15. Touch the toggle next to DHCP Enabled to change between enable / disable. When enabled, the remaining fields will be grayed out, as these will be assigned by the facility's network. If the field next to *IP Address* is populated with four sets of numbers (each separated by a period), and a green "Active connection detected" is displayed the clean bench has successfully received an IP address from the network. A red "No active connection detected" will be displayed if no connection is found. Please consult your IT department for additional assistance.

If a static IP address must be assigned by your facility's IT department, set the DHCP Enabled toggle to Disable. Contact your IT department for the appropriate information to enter in the remaining fields.

**Figure 6-15**




## Activating Email Alerts

If a valid network connection has been established and Network settings have been properly configured, (via the *Network screen*) alerts can be emailed to selected users, by entering the appropriate email address(es) and selecting the type of alerts to be sent to each email address. To enable e-mail alerts, follow these instructions, and reference Figure 6-16.

Each clean bench requires its own email address. Before proceeding, set up an email address for each clean bench. The e-mail account can be any free service (i.e. gmail.com, hotmail.com, etc.) or a company's hosted domain (i.e. xyzlabs.com).

Once the e-mail account(s) are set up, obtain the following information for each account (e-mail address):

- SMTP Server
- SMTP Username
- SMTP Password
- SMTP Port Number
- Encrypted Connection

Here is an example (this information will not be correct for your e-mail account) set-up for fake e-mail account: nexus123@gmail.com

- smtp.gmail.com
- nexus123
- cat@ndmouse457
- 587
- Enable

Select the *Gears icon* (shown in Figure 6-16) and a settings pop-up will display. After entering the appropriate information in all fields, touch **[SAVE]**. The system will check valid formatting only. If one or more invalid entries are found the following message will appear: *Email Settings Error*. Correct the error and retry.

If all the SMTP fields entered are valid, but the network connection is not working (or Ethernet cable is not connected) the message *Email Settings Error – Network connection is not active"* will appear. Resolve the connectivity problem and retry.

To add a user's email to receive e-mail alerts from the clean bench:

- Touch the *Plus* icon at the lower right corner of Figure 6-16 to add an email address.
- Enter your e-mail address, touch **[DONE]**.

To test the user's email:

- Touch **[TEST]** next to the desired e-mail address. (If all information is correctly entered, a test email from the clean bench will be sent.)

Once the SMTP Settings (for the clean bench's e-mail address) have been correctly entered, and the notification e-mail address (e-mail address for who is receiving the notifcations) has been correctly entered and tested, the final step is to select the alerts to send to each e-mail address. Follow these instructions to select alerts:

1. Touch **[ALERTS]** next to the email address. The Alert options are the same as detailed in Table 6-1 of this section. A pop-up displays the alert options:
   - Airflow Disruption

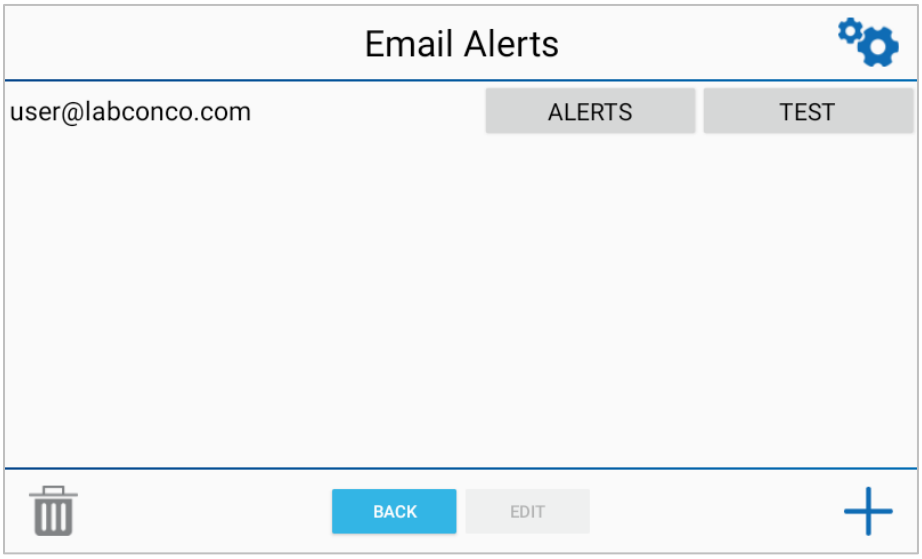
- UV Light Life Low *(UV models only)*
- Blower Failure *(3FT & 4FT models only)*
- Left Blower Failure *(5FT, 6FT, & 8FT models only)*
- Right Blower Failure *(5FT, 6FT, & 8FT models only)*
- UV Light has Expired *(UV models only)*
- UV Shade Open *(UV models only)*

2. Select the desired alerts. Touch **[OK]**.

To delete a user's email:

- Touch the e-mail address to delete, it will highlight.
- Touch the **[DELETE]** icon shaped like a trash can in the bottom left corner of the screen (reference Figure 6-16).

**Figure 6-16**



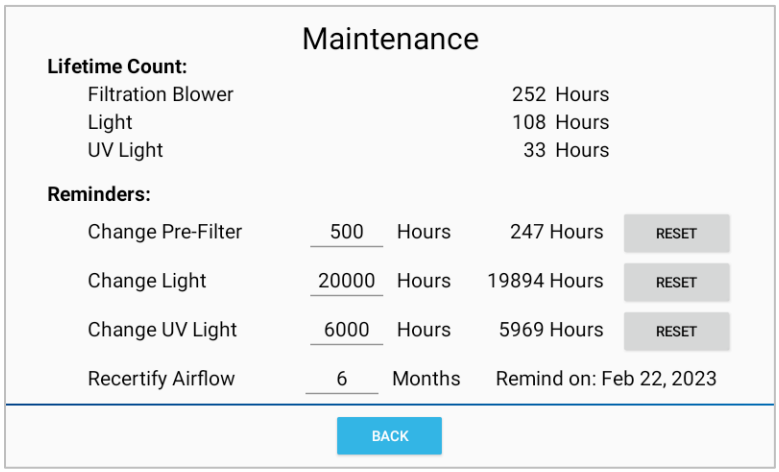

## Adjusting Maintenance Reminders

The clean bench records the time the pre-filters, LED light and UV light (if applicable) is in use. These timers are used to automate reminders for the users to replace the consumable component at the intervals set by the user. The default values for each reminder are shown in Figure 6-17 under '*Reminders:*'. The value next to each adjustable time is the time remaining before a reminder alert.

Once the component time remaining reaches 0, a pop-up to replace that component will appear. If the user selects **[REMIND ME LATER]** on the pop-up, the user will be prompted to replace the component after an additional 4 hours of use. If the component

is replaced, select **[SERVICE COMPLETE]** and input the name of the servicer, date and event in the *Certifications Records* pop-up The reminder time will start over. If **[RESET]** is selected from the maintenance menu, the user will still have to input their name, date, and event into the *Certifications Records* pop-up before the reminder timer will start over.

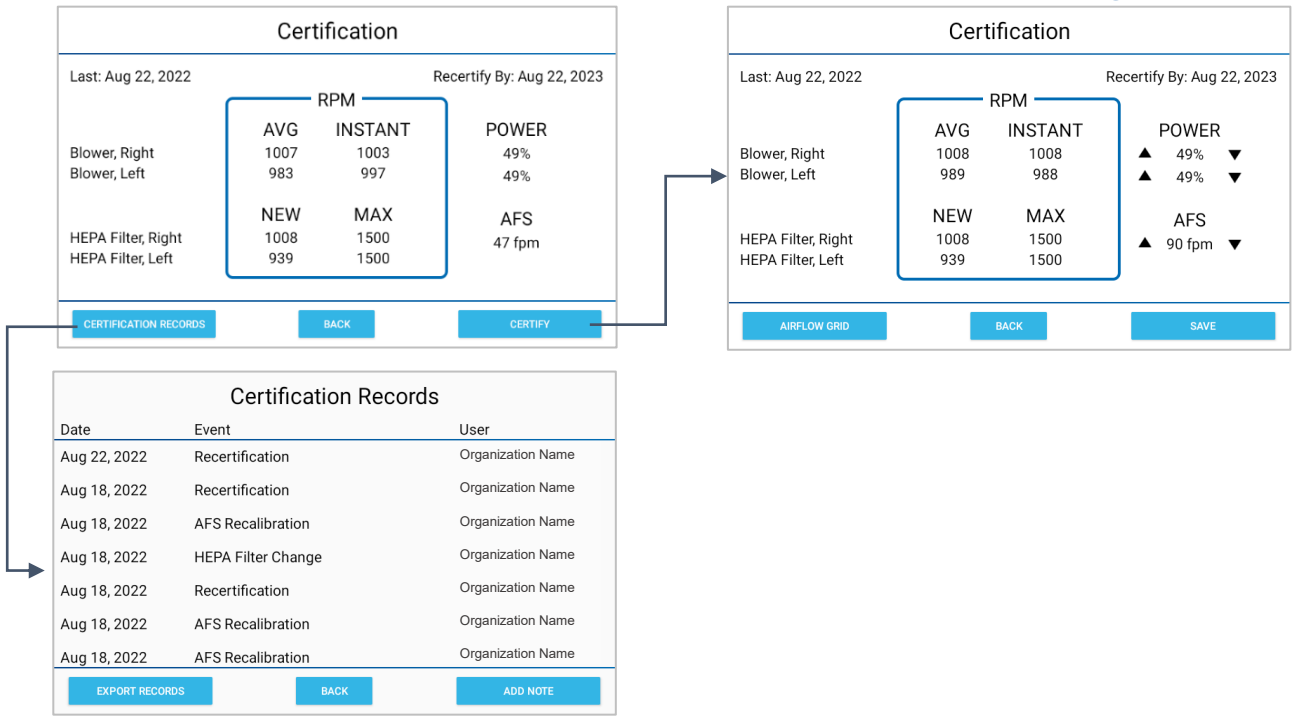
**Figure 6-17**




## Certification

After selecting **[CERTIFICATION]** in the Settings menu, there will be a warning page stating this area is for technician use only. Touch **[CONTINUE]** and enter the certifier PIN when prompted to access the certification page as shown in Figure 6-18.

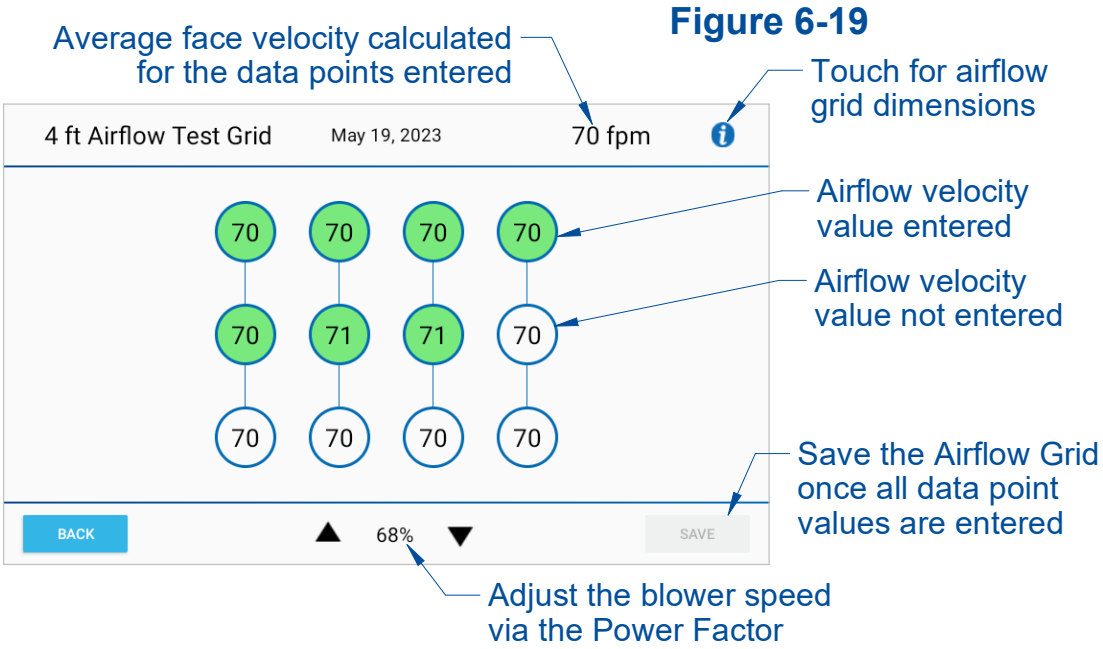
**Figure 6-18**



Touch **[CERTIFICATION RECORDS]** to display a log of all service or certification records. The person/entity performing the operation is saved along with the event. Notes can also be added manually for record keeping purposes. To export the certification data, insert a flash drive (formatted to FAT32) into the USB port on the front of the clean bench and select **[EXPORT RECORDS]** and follow the procedure on the screen.

Touch **[CERTIFY]** to adjust the airflow of the clean bench. Change the Power Factor of the blower(s) using the up and down arrows. Touch **[AIRFLOW GRID]** to track data point values and calculate the average face velocity. Each velocity test point on the airflow grid turns green after selecting and entering a value. The Power Factor of the blowers can be adjusted on this screen as well, with the left-hand percentage being the left blower and the right being the right blower (only one is shown on single blower models, reference Figure 6-19). Touch **[SAVE]** when finished, to save the grid. **[SAVE]** will not be active until all velocity points are entered.

**Figure 6-19**

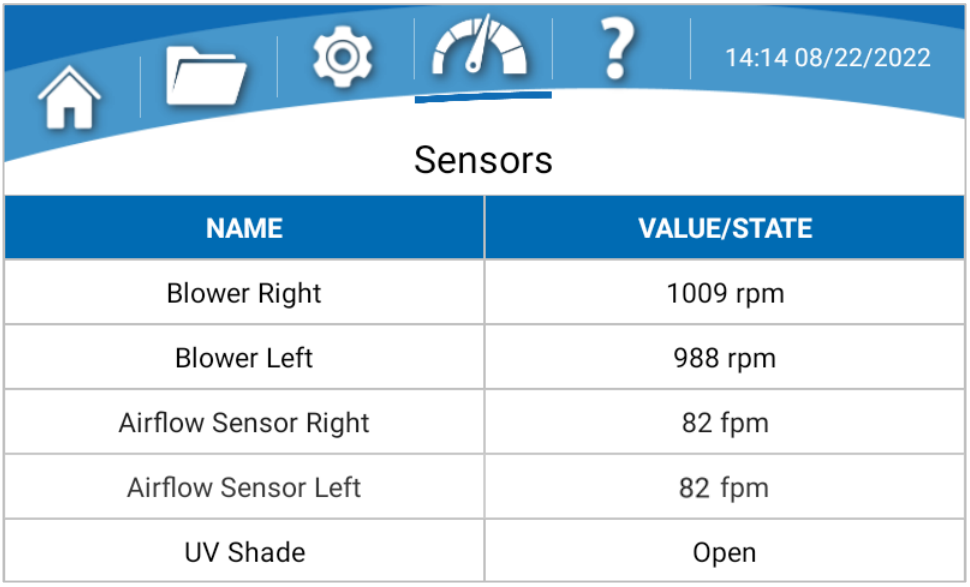



Previous saved Airflow Grids can be viewed by scrolling/swiping to the left. If using an airflow sensor, the average face velocity calculated on this screen will be utilized to calibrate the airflow sensor automatically when **[SAVE]** is touched. To save all settings adjusted during certification, touch **[SAVE]**. Use the prompt after touching save to include any important information like changing the HEPA filters, pre-filters, etc.

## Navigating the Sensors Menu

This screen contains a list of all sensors installed on the clean bench. The *Sensors Screen* displays the current sensor reading in the selected unit of measure. If the clean bench is a width of 3’ or 4', there will be one blower (and one airflow sensor reading if installed). If the clean bench is a width of 5', 6', or 8', there will be readings for two blowers (and two airflow sensor readings if installed) as shown in Figure 6-20. UV Shade and airflow sensor are both optional sensors that need to be activated in the *Settings>Configuration Menu*. This screen is for viewing only (there are no selectable fields).

**Figure 6-20**



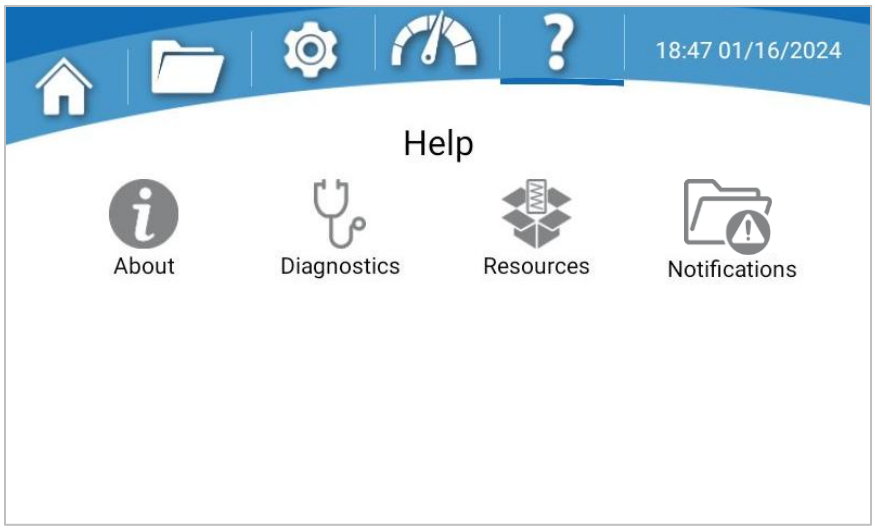

| NAME | VALUE/STATE |
|---|---|
| Blower Right | 1009 rpm |
| Blower Left | 988 rpm |
| Airflow Sensor Right | 82 fpm |
| Airflow Sensor Left | 82 fpm |
| UV Shade | Open |

## Navigating the Help Menu

The Help screen contains several useful submenu icons. The sub-menus are described briefly below. Reference Figure 6-21.

- *About* – Provides unit specific information (Catalog Number, Serial Number, Software Version). Software updates via USB or Ethernet can be performed from the About page.
- *Diagnostics* – Used to test the clean bench operation/components after installation or should a problem occur.
- *Resources* – Provides consumable information.

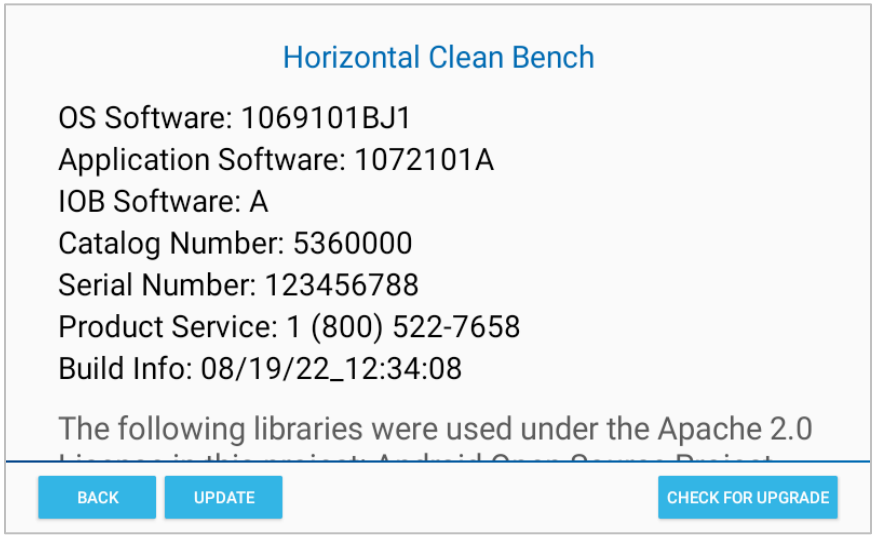
**Figure 6-21**




## About

Displays Operating System information such as the software version, the Catalog Number and Serial Number. System updates via USB or an ethernet connection can be performed from the *About* screen. Reference Figure 6-22.

**Figure 6-22**




### Software Update via USB Thumbdrive

To update the software via USB, you must first download the latest version, available at Labconco.com to a USB thumbdrive.

- The blower must be shut off prior to updating.
- With the proper software file on a thumbdrive, insert it into the USB Port on the front of the clean bench to the right of the Display.

- A pop-up will prompt you to allow the software to access the files on the thumbdrive. This is a security feature of the Android-based software. You must touch **[OK]** to continue.

The thumbdrive must be properly formatted as FAT32. If it is not, the update process will not proceed, and you will receive a pop-up instructing you that the drive is not properly formatted. If this occurs, you must reformat the thumbdrive using a PC or laptop to FAT32. For Windows users, you must select "FAT32" when formatting the thumbdrive, and not "FAT32 (default)".

- Touch the **[UPDATE]** button on the *About* screen. Select the software file on the pop-up that appears; touch **[OK]**.
- The update will begin, and the screen will not allow interaction until the process is complete.
- The system will notify you when the upload is complete and successful. Remove the thumbdrive from the USB port.

Do not remove power during the update process. If power is lost, the software may be corrupted, and the clean bench will be inoperable.

### Software Update via the Ethernet

To update the software via the ethernet, you must first have an active connection.

- From the *About* screen, touch **[CHECK FOR UPGRADE]**.
- If available, the *Upgrade Available* screen will display and allow you to ignore, postpone or update now.
- Pressing the **[RELEASE NOTES]** will allow you to review the changes.
- If available and you would like to update, select **[UPDATE NOW]**.

### Automatic Update Notification

To Program the clean bench to notify you if upgrades are available, the system must have a valid ethernet connection.

- From the *About* screen, touch **[CHECK FOR UPDATES]**.
- At the *Upgrade* screen touch **[CONFIGURE]** and select *Automatically check for updates* and **[OK]**.

Once enabled, the *Upgrade Available* screen will popup when new software becomes available.

## Diagnostics

The *Diagnostics* screen is used to test clean bench operation/components after installation or should a problem occur. Once the screen is accessed, all clean bench components will power off (blower will stop, etc.). There are two methods of testing:

1. *Manual Tests*: Turn on Light, Outlet and UV Light* for 7 sec. Blower Test(s) should run for 12 seconds.
    a. UV Shade Test* – prompt user to open UV Shade (if closed), then to close the UV Shade (user has 7 seconds to close UV Shade).

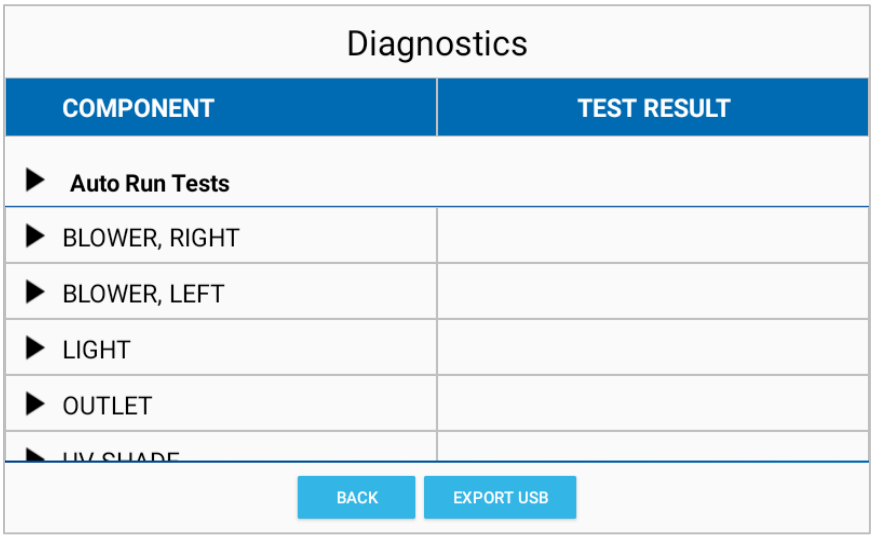
    *UV Light Test must verify UV Shade closed before running.

2. *Auto Run Test*: Sequentially proceed through Manual Tests but requires Pop-Up Acceptance to move to next. If Pop-Up not accepted, or requested user action not performed (or performed, but component malfunctioning), the component is failed after 30 seconds and the diagnostics will move to the next test.

To export diagnostic test results, insert a flash drive (formatted to FAT32) in the port on the front of the clean bench, touch **[OK]** to allow the clean bench access to the flash drive and touch **[EXPORT USB]** (reference Figure 6-23) to generate a file that contains the following information:

- *Diagnostics* – Results of the last Diagnostics test(s) run
- *Certification Records* – All
- *Airflow Test Grid Data* – All data including date
- *Lifetime Counts* – All
- *Reminder Hours (Set Point and Current)* – All

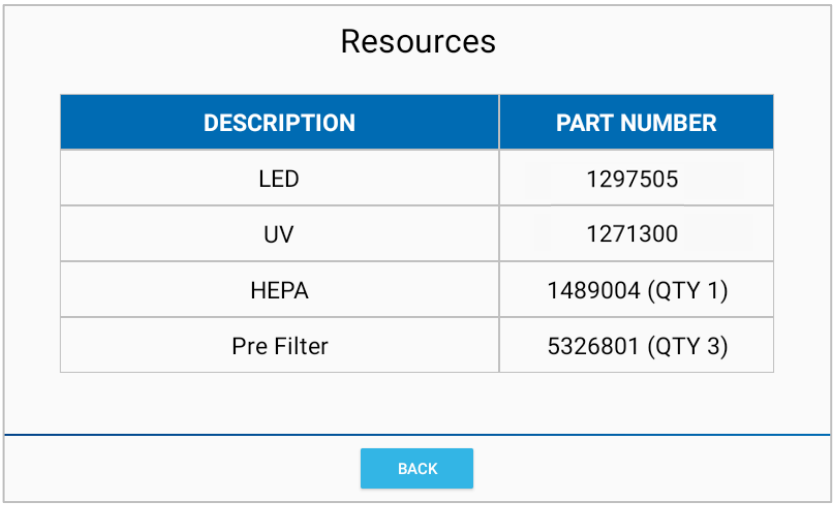
**Figure 6-23**



## Resources

The *Resources* Screen provides consumable part number information. Reference Figure 6-24.

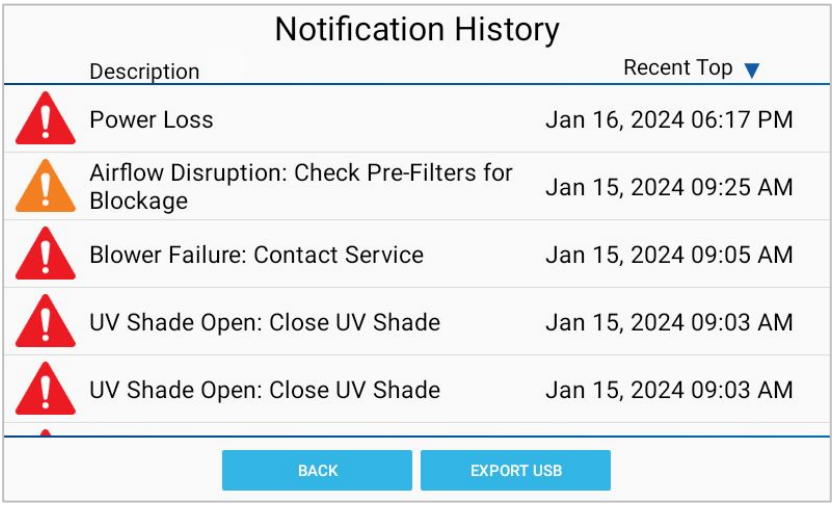
**Figure 6-24**




## Notifications

The *Notification* Screen provides a history, similar to the *Data Log*, excluding the routine operation data (i.e., Light status, Blower in Night-Smart, etc.). Notifications descriptions are listed with the date and time of the event's occurrence and can include alarms, alerts, reminders, and other serviceable information. The history can be sorted for the user's convenience by most recent first, most recent last, and alphabetically by touching the drop-down arrow above the occurrence column. All Notification History can be exported to a flash drive by touching **[Export USB]**.

**Figure 6-25**



## Alerts and Alarms

Any alarm that activates requires the user's immediate attention, and some form of actionable response to clear the alarm. For more information see Section 10: Troubleshooting.

### Airflow Alert

While the blower is on, any sudden disruption to the airflow within the clean bench will trigger an Airflow Alert. When an Airflow Alert activates, the display will automatically change (Figure 6-26), and the audible alert tone will sound. Look to identify the cause of the airflow disruption and remove the blockage. After the blockage is cleared, the Airflow Alert may reactivate while the blower restabilizes.

**Figure 6-26**


When a blockage of the airflow occurs, the clean bench's blower automatically increases its speed to maintain constant volume airflow. This is a protective feature; however, if the disruption is significant (for example blocking all pre-filters) it will not guarantee product protection remains during the significant blockage event.

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

**Note:** Once the blockage or disruption has been resolved, the Airflow Alert may reactivate while the blower returns to correct operating speed. It will dismiss automatically once the blower reaches correct operating speed.

### Blower Failure Alarm

The blower motor has failed, or the motor and display circuit board are not communicating properly. Touch **[BLOWER]** on the display (reference operating controls in Figure 6-2) to clear the alarm.

For a 3FT or 4FT model, there is only a single blower.

**Figure 6-27**


For the 5FT, 6FT & 8FT models, there are two blowers. The alarm screen informs which blower (Right or Left) is failing.

**Figure 6-28**



**DO NOT USE THE CLEAN BENCH UNTIL THE BLOWER FAILURE ALARM PROBLEM HAS BEEN CORRECTED.**

### UV Shade Open

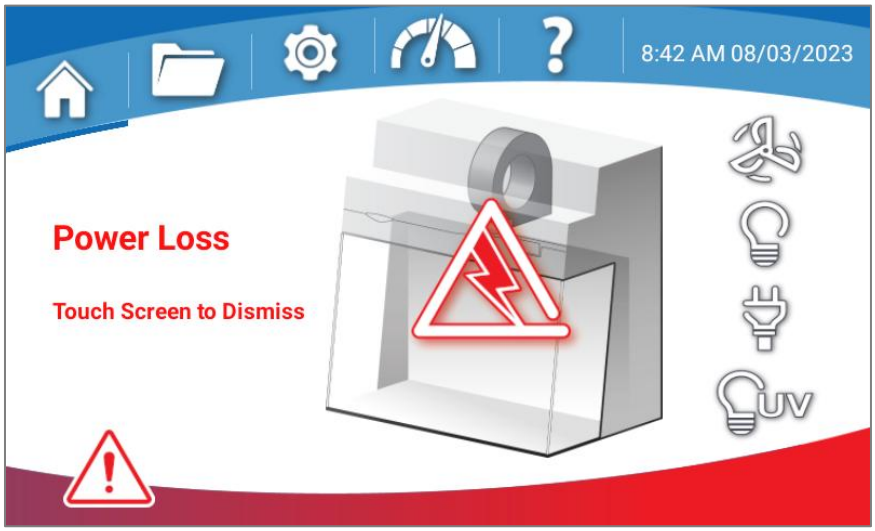
The UV Shade is not closed, or the UV Shade and display circuit board are not communicating properly. Close the UV Shade properly or touch **[UV LIGHT]** (reference the operating controls in Figure 6-2) to clear the alarm.

**Figure 6-29**


### Power Loss Alarm

A power loss to the unit occurred. Alarm (see Figure 6-30) is present after restarting the clean bench when power is returned. Touch anywhere on the display screen to clear the alarm.

**Figure 6-30**



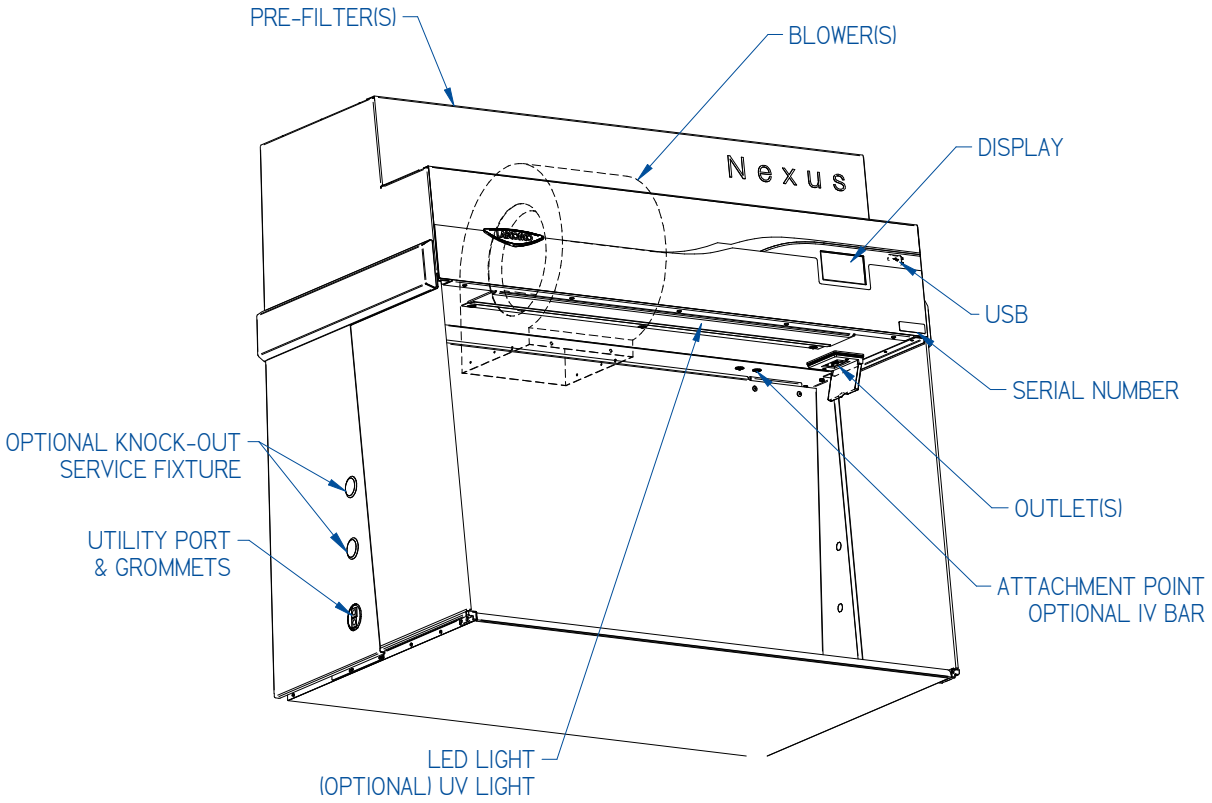
# 7: Using Your Nexus™ Clean Bench

This section details the functional features and proper techniques for safely and efficiently using the Nexus Horizontal Clean Bench.

## Feature Overview

Figure 7-1 illustrates key features and components of the product.

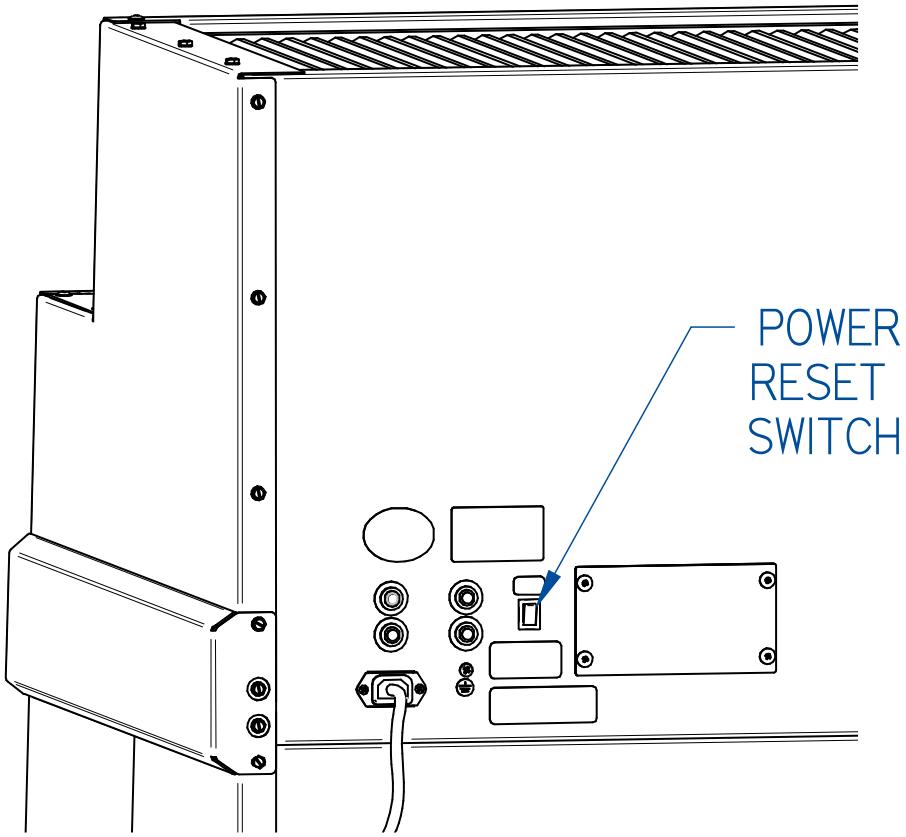
**Figure 7-1**



## System Reset Switch

The system reset switch removes power from the control board and microprocessor. It is located on the rear of the product. See Figure 7-2. 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.

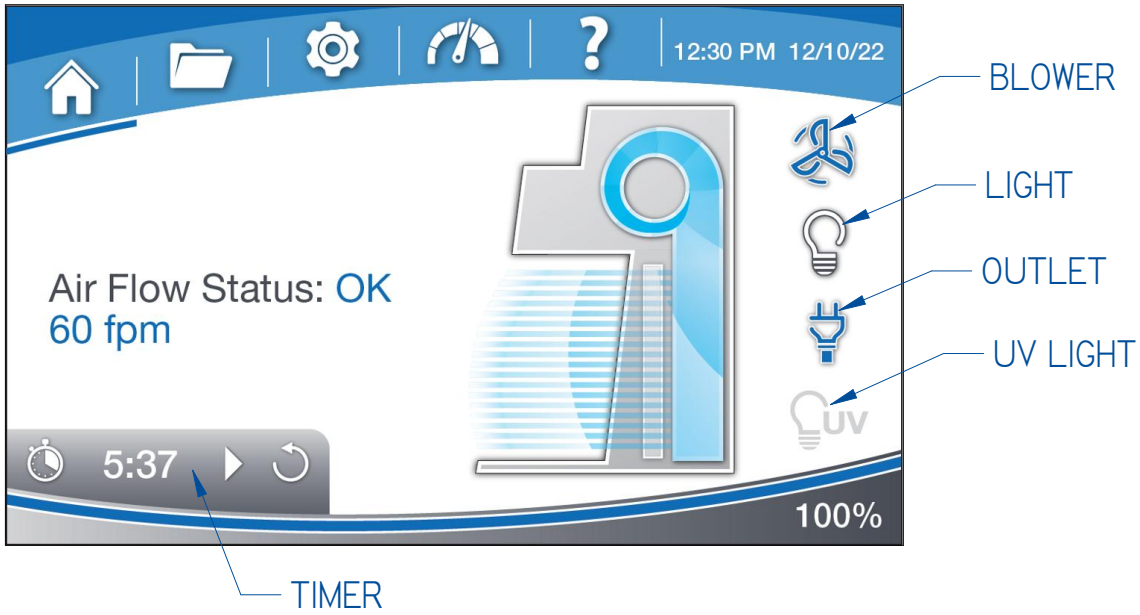
**Figure 7-2**



## Controls

The touchscreen display of the clean bench is shown in Figure 7-3. Take a moment to familiarize yourself with the controls, their locations, and functions. The display will report system functions, such as filter capacity, timer displays, alarm or error messages, as well as icons that illuminate when clean bench functions such as the light and blower are operational.

**Figure 7-3**




**[BLOWER]** – Changes the state of the blower between ON, OFF, and Night-Smart. If the UV Shade is lowered into the closed position, the blower will automatically shut off.

**[LIGHT]** – Turns the LED light(s) on or off. Closing the UV Shade automatically turns the lights off. LED light will not operate simultaneously with optional UV light.

**[OUTLETS]** – Turns on/off electrical outlet(s) in the work area.

**[UV LIGHT]** –Turns on/off the UV Light(s) (when installed). When the UV Shade is raised, the UV light turns off automatically.

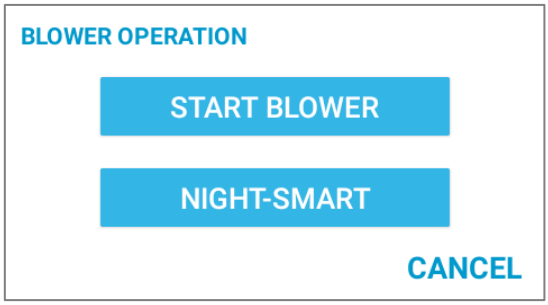
**[TIMER]** – The time can be adjusted by touching the time and scrolling through the menu until the desired time is displayed and touch **[SET]**.

To start the timer, touch **[PLAY]**. The time counts down from the selected time. To stop the timer, touch **[PAUSE]** in the same location. Touch **[RESET]** to return the timer to the set value previously selected. The Set Timer value is remembered to make repeated work easier.

## Blower Operation

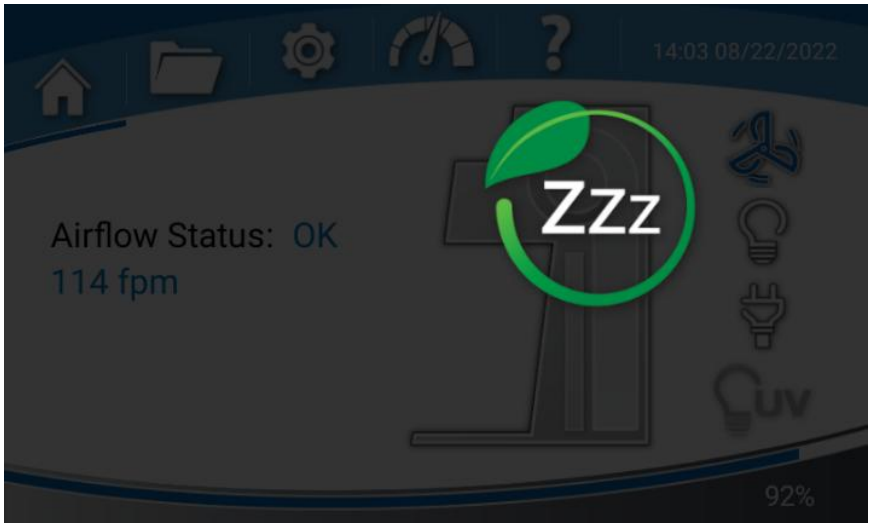
To start the blower, touch **[BLOWER]** and a pop-up will appear (see Figure 7-4). Through the pop-up, touch the desired option to start, stop or enter Night-Smart with the blower. Touch **[START BLOWER]** to start the blower at the certified speed and the display will show the icon as dark blue when the blower is powered. The display will also show 'airflow' coming out the clean bench via the indication graphic as shown in Figure 7-3.

**Figure 7-4**




Touch **[NIGHT-SMART]** to run the blower at a reduced speed. This mode can be entered from Blower OFF and Blower ON. When in Night-Smart, the Home Screen controls (light(s), outlet(s), etc.) will not be operational. Other screens (Logfiles, settings menus, etc.) cannot be accessed. After the blower warm-up period, the display will show only the Night-Smart screen shown in Figure 7-5 and the LED Light(s) will turn off automatically. To exit, touch anywhere on the screen and select **[START BLOWER]** or **[STOP BLOWER]** from the pop-up.

**Figure 7-5**




## Light Operation

The Nexus clean bench provides LED lamp(s) for illuminating the work area. Touch **[LIGHT]** to illuminate the LED lighting.

## Outlet Operation

The Nexus Horizontal Clean Bench provides at least one outlet along the top surface of the work area. Power to the outlets can be activated or deactivated from the display controls. To activate or deactivate power to the outlets, touch **[OUTLET]**.

## Downloading Data Logs

Data logs for the clean bench are stored for a finite length of time. After the time period set in *Settings>Data Logs*, the oldest data log will automatically be deleted.
If the user desires to store and examine data logs on a computer, the following steps must be taken:

1. Insert a flash drive (formatted to FA32) into the USB port on the front of the clean bench, to the right of the display (reference Figure 7-1). You will be prompted to give the clean bench access to the flash drive; touch **[OK]**.
2. Select the desired log file(s). A data log can be selected from the list by touching the data log file name. When a data log has been selected, the row will be highlighted. To select multiple log files, hold down a single log until the multiple select checkboxes are visible and select all the log files desired.
3. The icons along the bottom of the screen will activate. Select **[Export]**.
4. A pop-up to select the desired format of the exported log(s) will show. Choose between PDF and CSV format and touch **[OK]**.
5. Display will show a progress bar with the message '*Exporting. Please wait*'.
6. Once finished, a pop-up states the export was successful. Touch **[OK]**.
7. If more data needs exporting, repeat the above Steps. If finished exporting data, remove flash drive.

**Note:** The exported data logs will contain all data fields available not just the fields viewable in the clean bench display.

## Utility Ports for Cables and Cords

The Utility Port allows for passage of a cord, cable, or tube from within the product. The port holds grommet inserts that provides a safe seal around the cord as it passes through the exterior side wall of the product. Each standard clean bench comes with a Utility Port on each side wall. Each Utility Port comes with two grommet inserts.

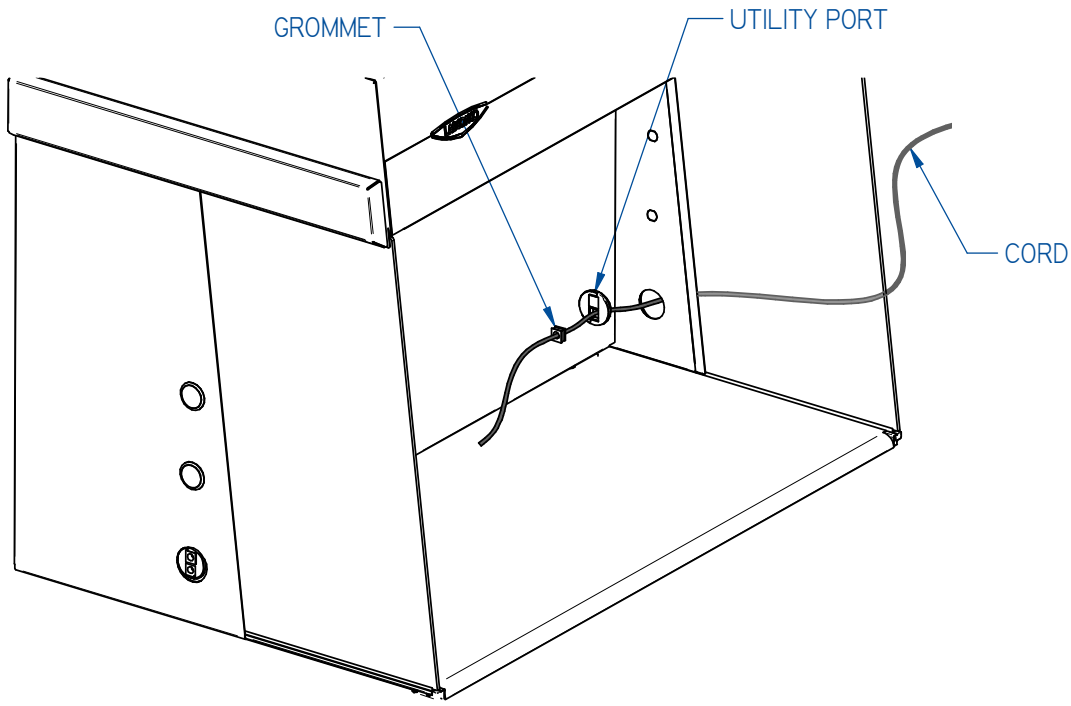
**Note:** There must be enough clearance to pass the cord between the product's exterior side panel and any obstruction such as a wall or other device. Locate the Utility Port on the side wall and remove the grommet(s) and port as needed.

1. Pass the desired cord(s) through the grommet and the opening in the Utility Port where the grommet was removed from, as shown in Figure 7-4. Cut the grommet as needed to fit the cable or cord.

**Note:** The pre-cut grommet hole should be slightly smaller than the cord or cable, to create a proper seal. The grommet should be removed before inserting the cord.

2. Position the cord or cable as it will be used in the clean bench, and then reinstall the grommet into the opening of the Utility Port.

**Figure 7-4**




## Working in the Clean Bench

Working in the clean bench 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 a clean bench. Consult your Environmental Health & Safety department 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 clean bench is in use.

### Clean Bench Start-up

1. Turn off UV light (if included on your clean bench) and raise the UV Shade.
2. Turn on the light(s) and blower(s).
3. Check the pre-filters for obstructions.
4. Stand by until the blower(s) stabilizes, and the *Air Flow Status* on the *Home Screen* says ‘OK’ (reference Figure 7-3).
5. Wash hands and arms thoroughly with germicidal soap.
6. Wear appropriate personnel protective equipment (PPE).

### Wipe Down

1. Wipe down the interior surfaces of the clean bench with 70% ethanol, or a suitable disinfectant, and allow to dry.

Ensure cleaning products and disinfectants are compatible with your clean bench's interior materials. Corrosion can occur if improper solutions are used.

### Loading Materials and Equipment

1. Only load the materials required for the procedure. Do not overload the clean bench.
2. Do not obstruct the diffuser(s) or pre-filters.
3. Large objects should not be placed close together.
4. After loading the clean bench, 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 front of the clean bench, and perform all sensitive operations as far to the rear of the work area as possible.
- Avoid moving materials or the operator's hands and arms quickly 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 clean bench.

### Final Purging

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

### Wipe Down

1. Wipe down the interior surfaces of the clean bench with or 70% ethanol, or a suitable disinfectant for your application and allowed to dry.

Ensure cleaning products and disinfectants are compatible with your clean bench's interior materials. Corrosion can occur if improper solutions are used.

### Shutdown

- Follow recommended protocol, approved by your institution's safety officer, for shut down. Night-Smart may be used (after UV if applicable) to help keep the work area clean.

# 8: Maintaining Your Nexus™ Clean Bench

This section details normal maintenance required for optimal operation of the Nexus Horizontal Clean Bench.

## Maintenance Safety Precautions

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

- #2 Phillips Screwdriver
- 70% alcohol solution (or other approved surface disinfectant)
- Suitable cleaning cloth

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 Environmental 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 Environmental 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:
  - Disconnect main power cord or electrical service connection
  - 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 8-1**

| Activity | Maintenance Frequency | | |
|---|---|---|---|
| | Weekly | Monthly | Annually |
| Operate clean bench blower, noting Filter Life percentage in log | • | • | • |
| Using 70% alcohol solution, wipe down clean bench exterior | | • | • |
| Check all service valves (if equipped) for proper operation | | • | • |
| Check the UV Lamp Hourmeter, noting in log (if equipped) | | • | • |
| Have the clean bench recertified by a qualified technician | | | • |
| Replace Pre-filters (as required) | | | • |

**Note:** Table outlines minimum maintenance frequency. Some applications may require more frequent maintenance.

## Service Operations

The operations in this section provide instructions to maintain the Nexus clean bench for normal consumable replacement, and access to parts in accordance with the Recommended Maintenance Schedule.

### Resetting a Circuit Breaker

Should an over current situation arise during normal operation, the circuit breakers located on the rear exterior face of the clean bench will trip, protecting the clean bench from damage.

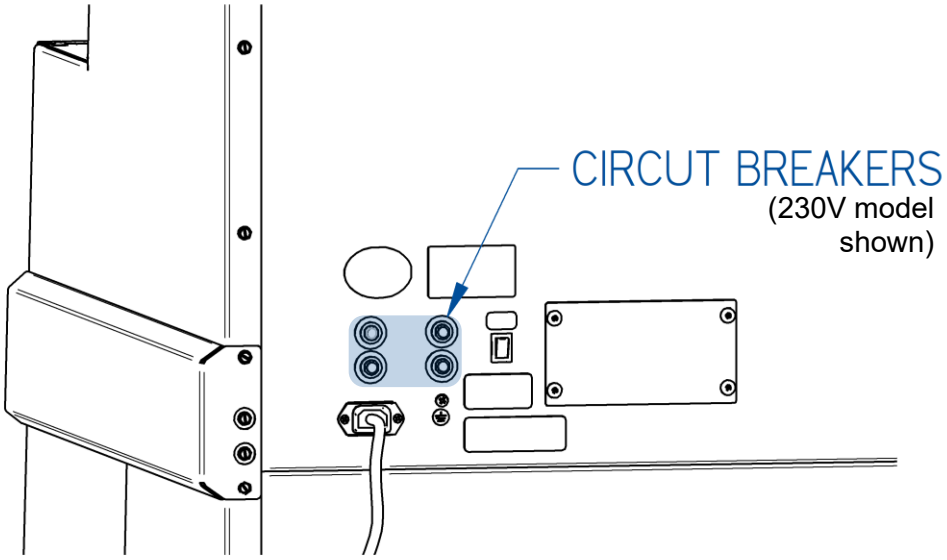
The clean bench offers internal outlet(s) to power small devices inside the work area. The internal outlet(s) are protected by one circuit breaker (two circuit breakers on 230v models), and the clean bench electronics are protected by a separate circuit breaker(s). This allows the clean bench to continue to operate, providing protection to the product, should a device connected to an internal outlet experience an over current situation.

If the internal outlets do not have power when the Outlet icon is enabled on the Home Screen, reset the appropriate circuit breaker(s) as shown in Figure 8-1.

If the clean bench does not have power when the System Reset Switch (Figure 7-2) is on, reset the appropriate circuit breaker(s) as shown in Figure 8-1.

**Note:** The thrown circuit breaker will be easy to identify, as the white barrel will be extended further than the other circuit breaker(s). To reset, simply push it in.

**Figure 8-1**




## Pre-filter Replacement

Before proceeding, make sure all electrical power has been removed from the clean bench by disconnecting the main electrical connection, which is the power cord.

Pre-filters should be replaced at least annually, or more often as conditions require. See *Appendix A: Parts List* for replacement pre-filter ordering information.

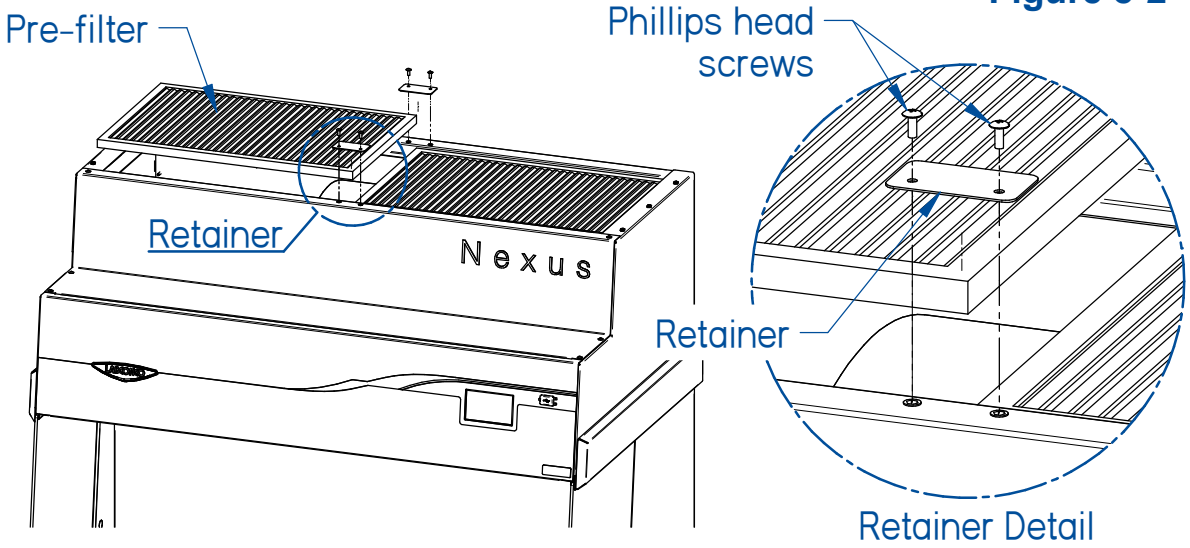
The following tools are required to unpack the equipment:

- Phillips screwdriver

1. Using a Phillips screwdriver, remove the pre-filter retainer(s) located on the front edge of the pre-filters, as shown on Figure 8-2. Save the retainers and screws.

2. Remove the center pre-filter by lifting the front edge straight up and forward, if applicable.

**Figure 8-2**




3. Remove the remaining pre-filters by sliding them towards the center of the clean bench, then lifting the front edges straight up and forward.

4. Install new pre-filters by reversing the above Steps.

5. Using the display go to Settings>Maintenance and find the '*Reminders*'. Select **[RESET]** by the '*Change Pre-filter*' option to reset the service reminder timer. If replacing the pre-filters based on a service reminder, select **[SERVICE COMPLETE]** on the pop-up to reset the reminder timer. Do not mark the action as complete prior to replacing the pre-filters.

### Replacing the HEPA Filter(s)

Before proceeding, make sure all electrical power has been removed from the clean bench by disconnecting the main electrical connection, which is the power cord.

HEPA filters should be replaced when loaded or damaged. The filter life gauge will indicate to the user when the HEPA needs replacement. If you suspect the HEPA is damaged, do not use the clean bench. See Appendix A: Parts List for replacement HEPA filter ordering information.

The HEPA filter should only be serviced by a qualified certification technician. Following replacement of the HEPA filter, a qualified certification technician MUST recertify the clean bench.

The following tools are required to change the HEPA filter:

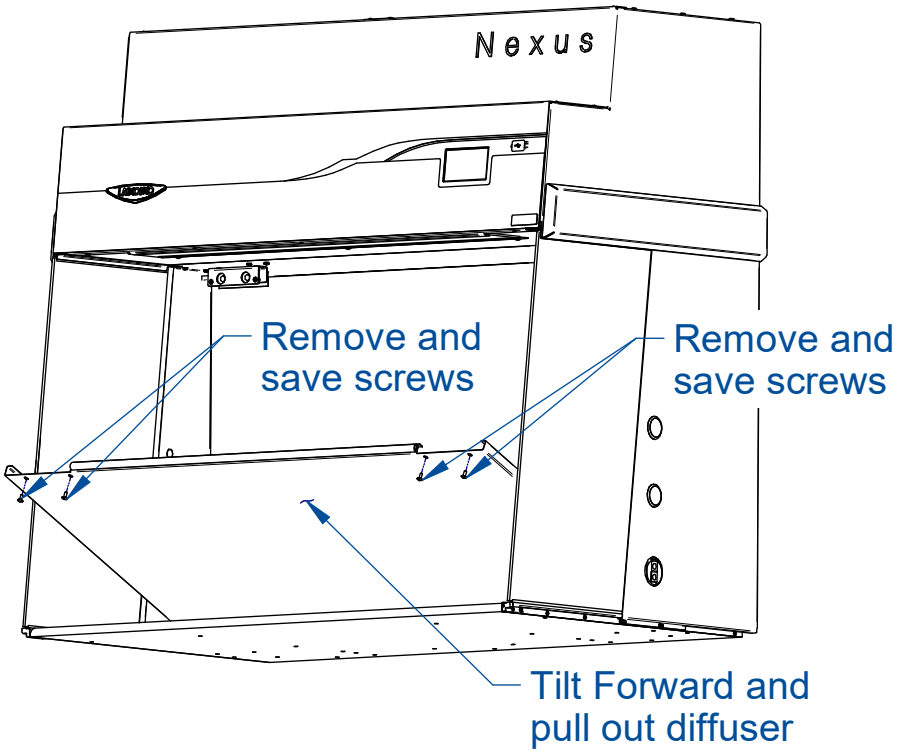
- Phillips screwdriver
- 7/16" nut driver or socket and ratchet

1. The diffuser(s) must be removed. Locate and remove the 4 screws (8 screws for the 8FT units) as shown in Figure 8-3 using a phillips screwdriver. Save this hardware.

2. Tilt the top of the diffuser down (see Figure 8-3) and pull straight out of the clean bench. Service fixtures installed along the side wall(s) may need to be removed prior to removing the diffuser and HEPA filter.

3. Using a 7/16" nut driver or socket and ratchet, *loosen* the bolts trapping the HEPA filter as shown in Figure 8-4. Do this on all clamps on both ends of the clean bench.

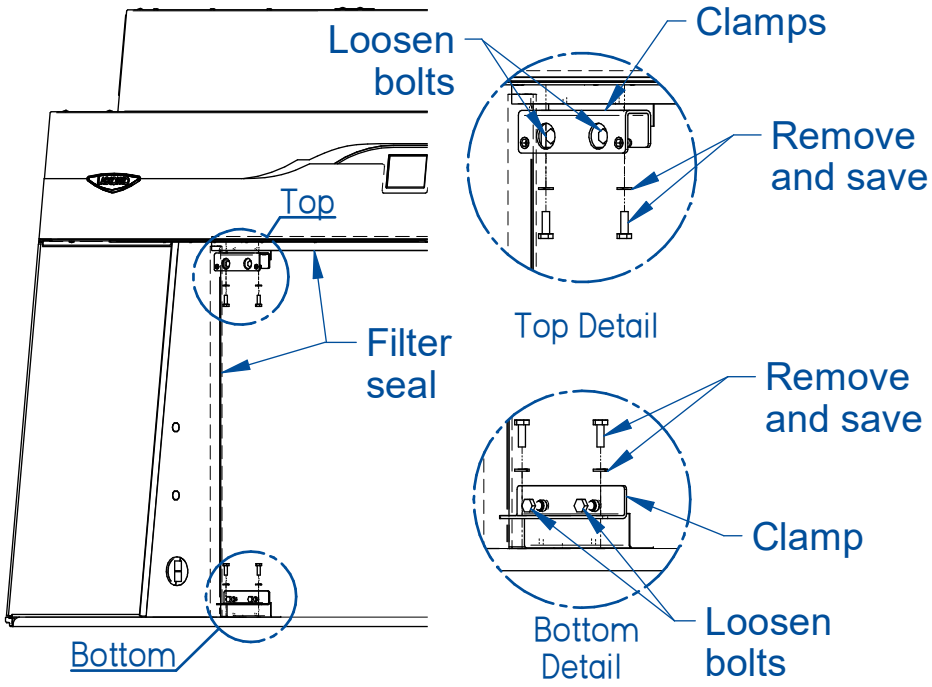
**Figure 8-3**




4. Using a 7/16" nut driver or socket and ratchet, remove the bolts and washers holding the clamps in place. The left-hand clamps are shown in Top and Bottom Detail of Figure 8-4. Be careful the filter does not tip towards the servicer when the top clamps are removed. Save clamps and all removed hardware as it will be reinstalled later.

5. Gently pull out the HEPA filter seal on the top and both sides of the HEPA filter as shown in Figure 8-4. Save the seal for reinstallation. Remove the stainless-steel clamp angle placed between each clamp and the frame of the HEPA filter. Be careful the filter does not tip toward.

**Figure 8-4**




6. Remove the filter by carefully pulling it straight out of the clean bench.

7. Install the new HEPA filter with the gasketed side away from the front of the clean bench and reinstall all removed clamp angles, seals, clamps, and hardware by reversing Steps 3 through 6. Install the HEPA filter seals, ensuring each seal is in place completely around the sides and top of the filter frame. Tighten the clamp bolt until the filter gasket is compressed approximately 50% or 1/8 of an inch.

8. Test the filter for leakage as described in IEST recommended practice #IEST-RP-CC0002:4. Reference the *Certification* heading of Section 4: Installation.

9. Reinstall the diffuser by reversing Steps 1 & 2.

10. Recertify the clean bench. Reference the *Certification* heading of Section 4: Installation.

### Front Panel Removal

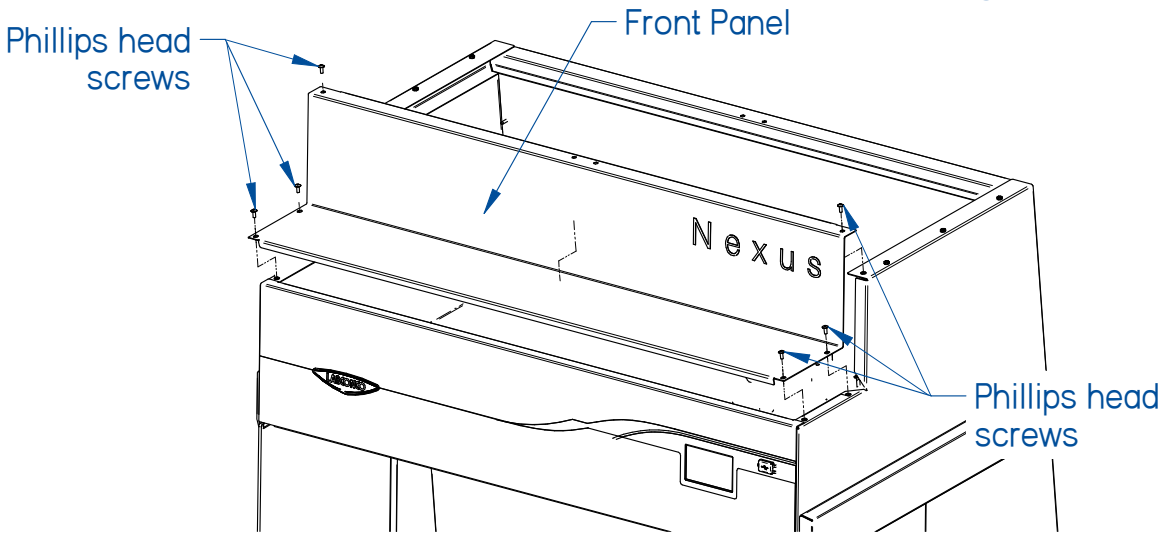
Before proceeding, make sure all electrical power has been removed from the clean bench by disconnecting the main electrical connection, which is the power cord.

The following tools are required to remove the front panel:

- Phillips screwdriver

1. Follow Steps 1 through 3 of *Pre-filter Replacement* in this section. Save the pre-filters in a safe place.
2. Locate and remove the 6 screws (see Figure 8-5) holding the Front Panel in place using a phillips screwdriver. Save this hardware.
3. Using safe lifting practices, lift the front panel straight up and away from the clean bench. Save this panel.
4. To reinstall the panel, reverse the above Steps.

**Figure 8-5**




## Replacing the Blower(s)

Before proceeding, make sure all electrical power has been removed from the clean bench by disconnecting the main electrical connection, which is the power cord.

The motor bearings are permanently lubricated and sealed. No further lubrication is needed.

A qualified certification technician should service the motor/blower. Following replacement of a motor/blower, a qualified certification technician must recertify the clean bench.

Do NOT contact blower wheel while still in motion.
*NE PAS être en contact avec la roué du ventilateur tant qu'il est en marche.*

The following tools are required to replace the blower(s):

- Phillips screwdriver
- 7/16" wrench
- Pliers

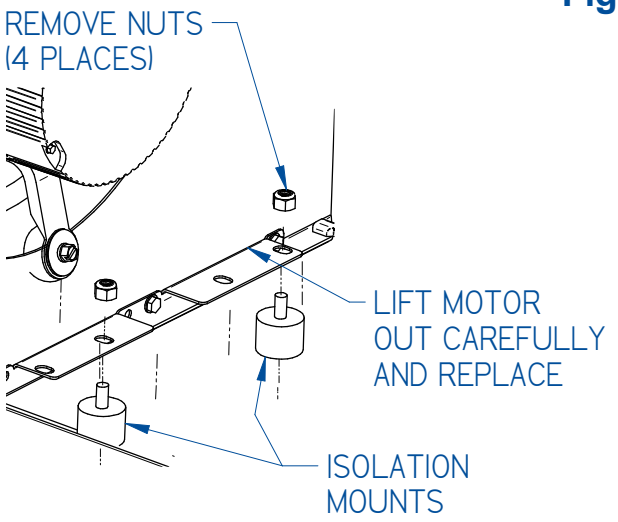
1. Follow Steps 1 through 3 of *Pre-filter Replacement* in this section. Save the pre-filters in a safe place. If needed, follow all steps of *Front Panel Removal* of this section. Save the Front panel in a safe place.

2. Locate the blower(s) in need of replacement. Disconnect the motor wiring harnesses (two) from the motor.

3. Using a 7/16" wrench, remove the four nuts (shown in Figure 8-6) that secure the blower to its isolation mounts. Lift out of the unit. If the isolation mounts spin while removing the nuts, use pliers to hold them in place.

The motor/blower assembly is heavy. Lift & handle with care.

**Figure 8-6**




4. To replace the motor, reverse the above Steps. Reinstall the previously removed pre-filters and front panel.

5. Apply power to the unit and test motor operation.

6. Recertify the unit before use.

## Changing the LED Lamps

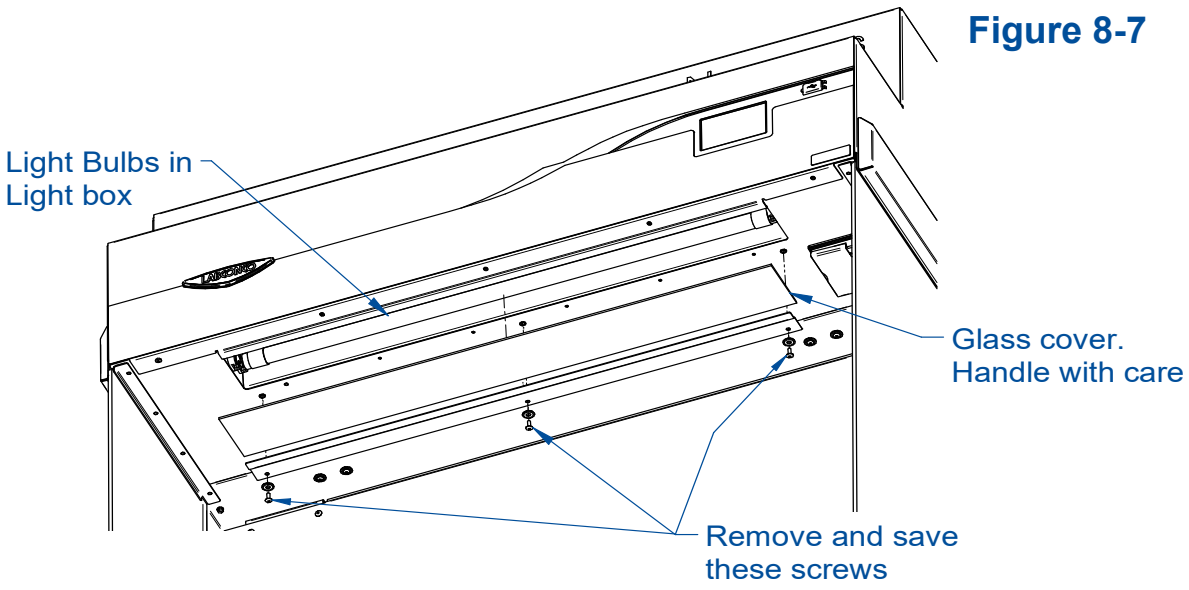
Before proceeding, make sure all electrical power has been removed from the clean bench by disconnecting the main electrical connection, which is the power cord.

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

1. If your unit has a UV light, skip this step. If needed, use a #2 Phillips screwdriver, remove the screws holding the glass and bracket in place as shown in Figure 8-7. Save this hardware. **Be careful to hold the glass and bracket in place so it does not fall.**

2. If your unit is a UV Option, skip this step. Place the bracket holding the glass in place somewhere safe and remove the glass. To remove the glass, slide it away from the front of the clean bench to release it from the front bracket, and place somewhere safe. These two items will be reinstalled.

**Figure 8-7**




3. To remove the old LED, twist the bulb and then pull down until it releases. Dispose of this bulb in an appropriate manner. If needed, the UV Lamp may need to be temporarily removed to get the LED bulb out. Be careful handling the UV Lamp.

4. Looking at the new LED bulb, locate and orient the end with “+” and “-” on the left side of the clean bench (if installing on an 8ft Nexus, orient the “+” & “-” towards center). Install the new bulb by lining up the prongs with the connectors, pushing up and twisting the place. Make sure the white bar running the length of the bulb is

facing up and not visible once installed. DO NOT install the LED bulb in the connectors with the “UV Bulb Here” label as shown in Figure 8-8.

5. Reinstall the removed glass, bracket, and screws by reversing Steps 2 through 3 from above.

## Changing the Optional UV Lamp

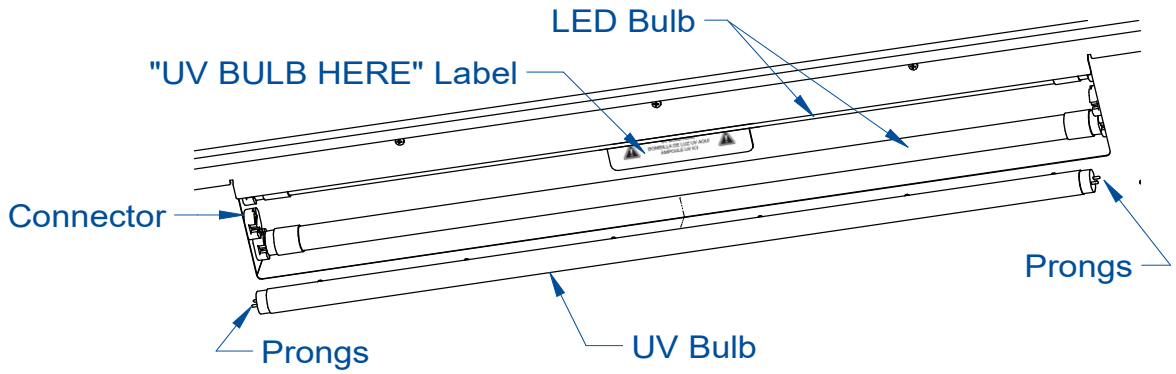
The UV Lamp is an optional feature and may not be found on all models.

> Hg
>
> THE UV LAMP IN THIS PRODUCT CONTAINS MERCURY
>
> Manage in accordance with local disposal laws. DO NOT place lamps in trash. Dispose as a hazardous waste. For information regarding safe handling, recycling and disposal, consult www.lamprecycle.org
>
> CETTE LAMPE (UV) DANS CE PRODUIT CONTIENT DU MERCUE
>
> Éliminez ou recyclez conformément aux lois applicables. Pour de l‘information concernant des pratiques de manipulation sécuritaires et l’élimination sécuritaire et le recyclage, veuillez consulter www.lamprecycle.org

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

1. Unplug the clean bench or turn off the System Reset Switch, located on the back of the clean bench.
2. Remove the UV lamp by rotating it 90 degrees and pulling it straight down and out of its sockets. Dispose of this bulb in an appropriate manner.
3. Install new lamp by reversing the removal procedure. Only install the UV bulb in the connectors with the “UV Bulb Here” Label, as shown in Figure 8-8.

**Figure 8-8**



## Replacing the Optional UV Shade

In the event the UV Shade gets damaged and needs replacing, see *Appendix A: Parts List* for replacement UV Shade and follow the steps below.

The following tools are required to install the equipment:

- Phillips screwdriver
- Pliers
- 5/16” nutdriver or socket and rachet
- 3/8” nutdriver or socket and rachet

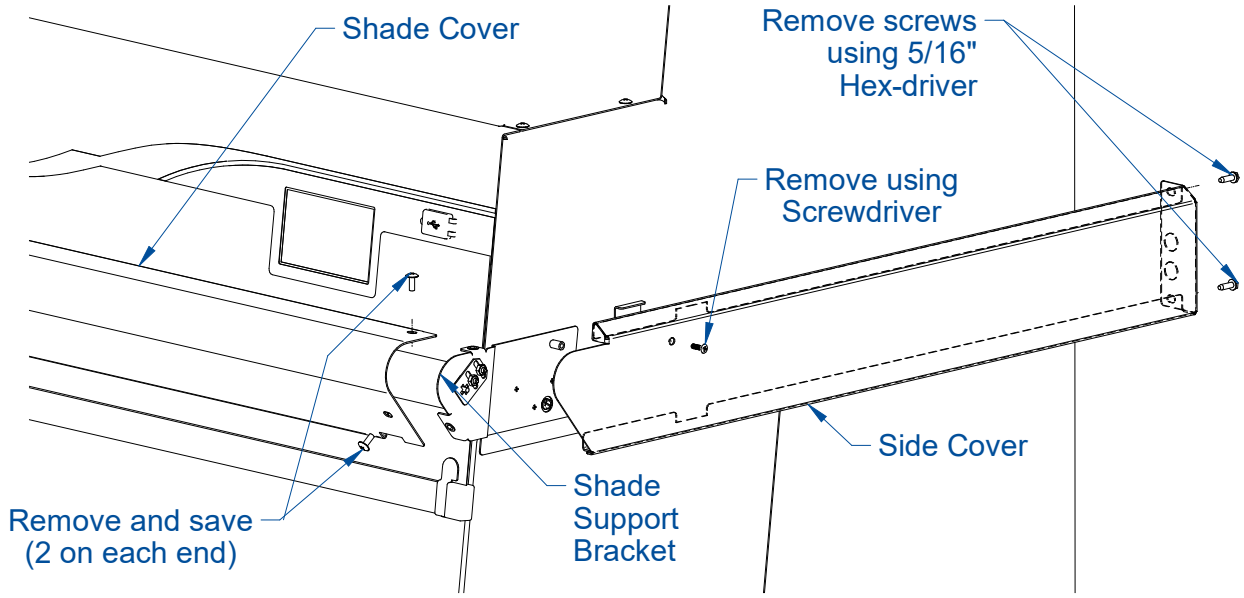
Prior to replacing the UV Shade, turn the Blower(s), LED Light(s), and UV Light(s) off completely.

1. Locate the Side Cover (see Figure 8-9 for reference of the right-hand side cover). Remove 2 hex head screws along the back of the Side Cover with a 5/16” hex driver. Remove the single phillips screw on the side with a phillips screwdriver. Save this hardware.

2. Carefully slide the Side Cover back and pull it away from the clean bench. Store the cover in a safe place nearby, the side covers will be reinstalled in a later step.

3. Repeat Steps 1 and 2 on the opposite side.

**Figure 8-9**

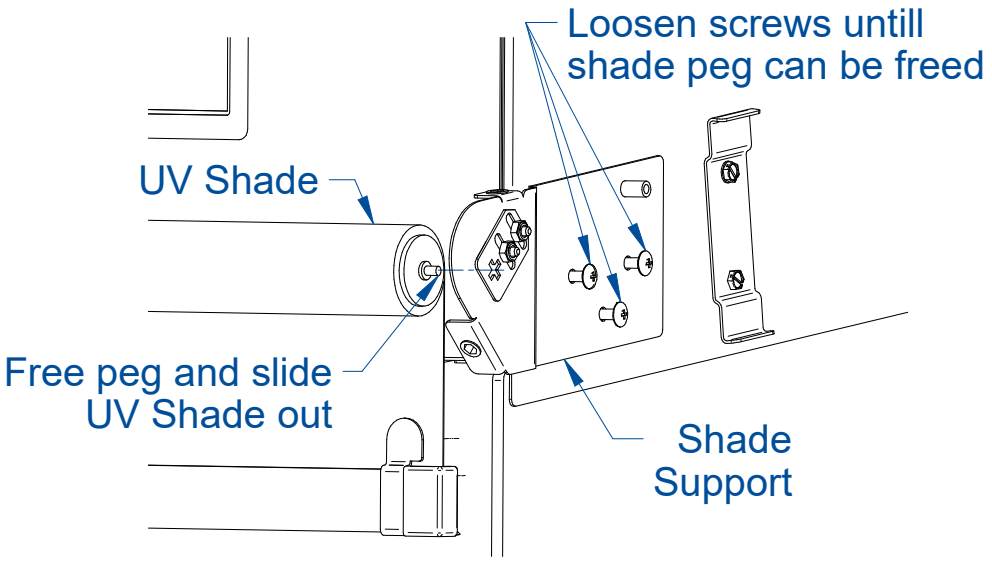



4. Locate and remove the QTY 4 phillips head screws securing the Shade Cover in place (see Figure 8-9) and be careful not to drop the cover. Save this hardware.

5. Lift and pull away the Shade Cover and keep in a secure place. The Shade cover will be reinstalled in a later step.

6. Remove the old UV Shade by loosening the three screws on the Shade Support bracket. With the Shade Support bracket loose, pull the UV Shade away from the Shade Support bracket. Slide the peg of the UV Shade free. Discard of the old UV Shade in an appropriate manner.

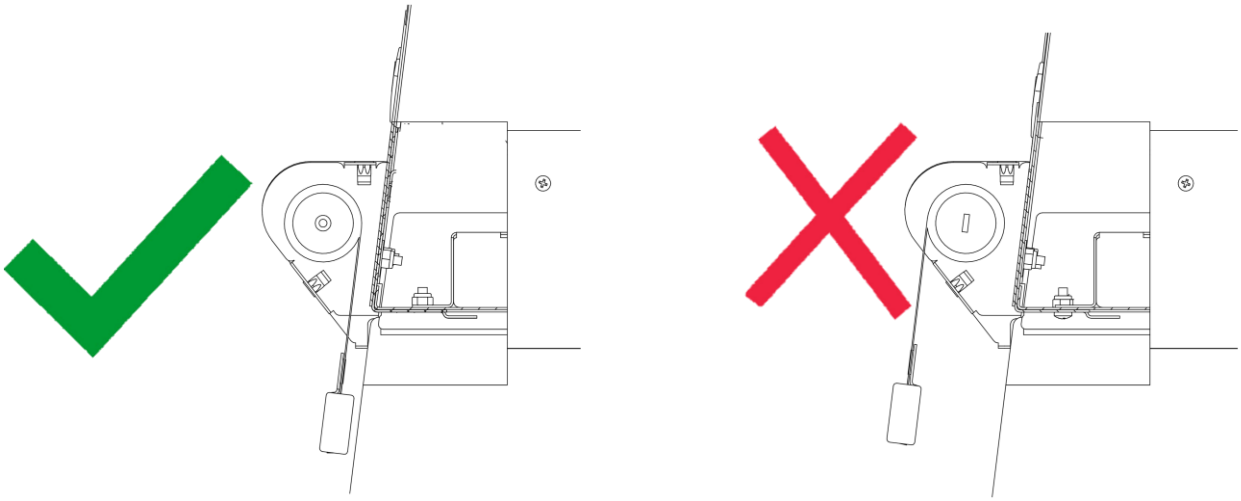
**Figure 8-10**




7. Install the new UV Shade by reversing Step 6. Do not forget to tighten the screws holding the Shade Support bracket.

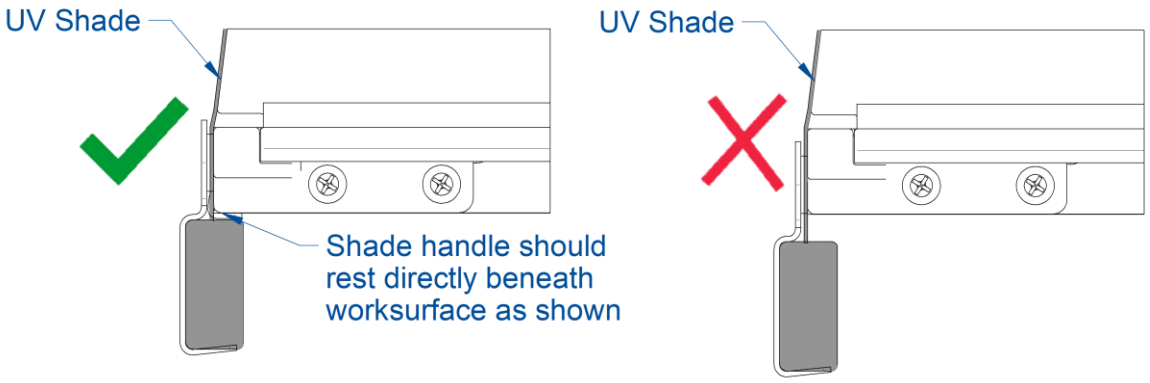
The roll of the UV Shade must come out with the film towards the clean bench as shown in Figure 8-11. If the roll comes out away from the clean bench, remove and reinstall.

**Figure 8-11**



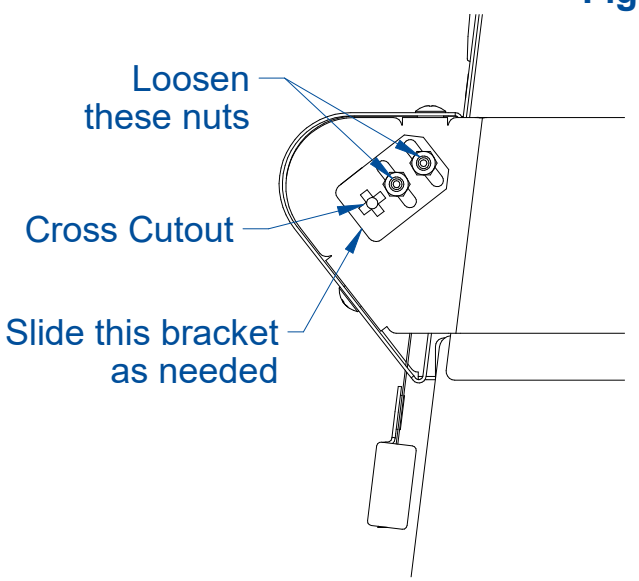
8. Pull the UV Shade down all the way until the magnet bracket lines up with the clean bench as shown in Figure 8-12. If the UV Shade matches Figure 8-12, move on to Step 11. If the UV Shade does not line up, proceed to Step 9.

**Figure 8-12**




9. If a large adjustment is needed, remove the UV Shade's rectangular peg from the cross cutout, rotate the UV Shade 90 deg in the desired direction and reinstall the peg. If only a small adjustment is needed, use the 3/8" nutdriver or socket and rachet to loosen the two nuts shown in Figure 8-13. Only loosen enough to slide slotted bracket up and down. Position the sliding bracket until the UV Shade handle matches the desired height of Figure 8-12 and tighten down the nuts. Ensure nuts are tightened down completely and the bracket cannot move once in desired position. Repeat the same actions on the other side.

**Figure 8-13**




10. Check position of magnet bracket to ensure it consistently engages the sensor to allow the UV light to come on. To check, the blower(s) and LED Light(s) must be OFF, pull the UV Shade down until the black bar rests right beneath the work

surface. Select **[UV LIGHT]** and the UV light should come on. If the light does not come on, Repeat Step 9.

11. Replace the UV Shade cover and side covers removed in Steps 1 through 5 by following those steps backwards. Used saved hardware to reinstall.

## Storage

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

The clean bench should not be stored in areas of excess humidity or temperature extremes (see Appendix C: Environmental Conditions for more information). If the clean bench is moved during storage, it must be recertified before use.

1. Unplug the clean bench including cables, cords, or services.
2. Cover the clean bench completely.
3. Ensure that the clean bench will not be moved or disturbed while being stored.

# 9: Accessories

This section details the available field-installable accessories and approved modifications for your Nexus™ Horizontal Clean Bench.

## Universal Knock Down Base Stand

Epoxy-coated steel, height can be set at 27.5 to 34.5 inches in 1-inch intervals, giving a work surface height of 28.75 to 35.75 inches. A Caster wheel kit (catalog number 5190100) can also be ordered and added to this stand. Catalog numbers are listed in Table 9-1 below.

**Table 9-1**

| clean bench Width (Feet) | Base Stand |
|---|---|
| 3’ | 5170300 |
| 4’ | 5170400 |
| 5’ | 5170500 |
| 6’ | 5170600 |
| 8’ | 5170800 |

## Service Fixture

A Service Fixture Kit can be installed on the clean bench 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 Instructions are provided with the Kit. More installation details are found in Section 4: Service Line Connection.

## Universal Electric Hydraulic Base Stand (without Casters)

These base stands offer infinitely adjustable height between 27.7 and 39.4 inches (702 – 1000 mm), providing a clean bench work surface height of 28.5 to 40.2 inches (721 – 1019 mm). The height is adjusted by an electric pump that drives the hydraulic legs of the stand. The hydraulic stands are equipped with fixed levelling feet. Stand is not available in an 8-Foot version. Catalog numbers are listed in Table 9-2 below.

**Table 9-2**

| Clean bench Width (Feet) | Stand (115v) | Stand (230v) | | | | |
|---|---|---|---|---|---|---|
| | North America | North America | Europe (Schuko) | China / Australia | UK | India |
| 3’ | 5180300 | 5180310 | 5180330 | 5180340 | 5180350 | 5180370 |
| 4’ | 5180400 | 5180410 | 5180430 | 5180440 | 5180450 | 5180470 |
| 5’ | 5180500 | 5180510 | 5180530 | 5180540 | 5180550 | 5180570 |
| 6’ | 5180600 | 5180610 | 5180630 | 5180640 | 5180650 | 5180670 |

Note – Make sure service connections to the product are properly prepared to allow for the raising or lowering of the product with these stands.

## Universal Electric Hydraulic Base Stand (with Casters)

These base stands offer infinitely adjustable height between 28.2 and 39.9 inches (715 – 1012 mm), providing a clean bench work surface height of 29.0 to 40.7 inches (734–1031 mm). The height is adjusted by an electric pump that drives the hydraulic legs of the stand. The hydraulic stands are equipped with caster feet. Stand is not available in an 8-Foot version. Catalog numbers are listed in Table 9-3 below.

**Table 9-3**

| Clean bench Width (Feet) | Stand (115v) | Stand (230v) | | | | |
|---|---|---|---|---|---|---|
| | North America | North America | Europe (Schuko) | China / Australia | UK | India |
| 3’ | 5181300 | 5181310 | 5181330 | 5181340 | 5181350 | 5181370 |
| 4’ | 5181400 | 5181410 | 5181430 | 5181440 | 5181450 | 5181470 |
| 5’ | 5181500 | 5181510 | 5181530 | 5181540 | 5181550 | 5181570 |
| 6’ | 5181600 | 5181610 | 5181630 | 5181640 | 5181650 | 5181670 |

Note – Make sure service connections to the product are properly prepared to allow for the raising or lowering of the product with these stands.

## IV Bar

The IV Bar is stainless steel and can be field installed on any size clean bench. The bar allows for easy hanging of IV bags used inside the clean bench. Catalog numbers are listed in Table 9-4 below.

**Figure 9-1**

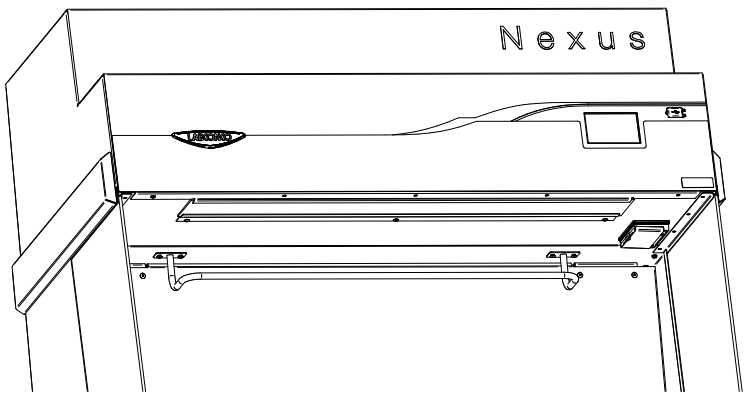



**Table 9-4**

| Clean bench Width (Feet) | Catalog Number | QTY Needed |
|---|---|---|
| 3’ | 3697500 | 1 |
| 4’ | 3697500 | 1 |
| 5’ | 3697501 | 1 |
| 6’ | 3697500 | 2 |
| 8’ | 3697500 | 2 |

## Airflow Sensor

The Airflow Sensor can be field installed on any size clean bench. The sensor monitors the average face velocity, and provides the average velocity on the display, as shown in Figure 9-2. The quantity of catalog number 5322300 required per clean bench width is listed in Table 9-5.

**Figure 9-2**

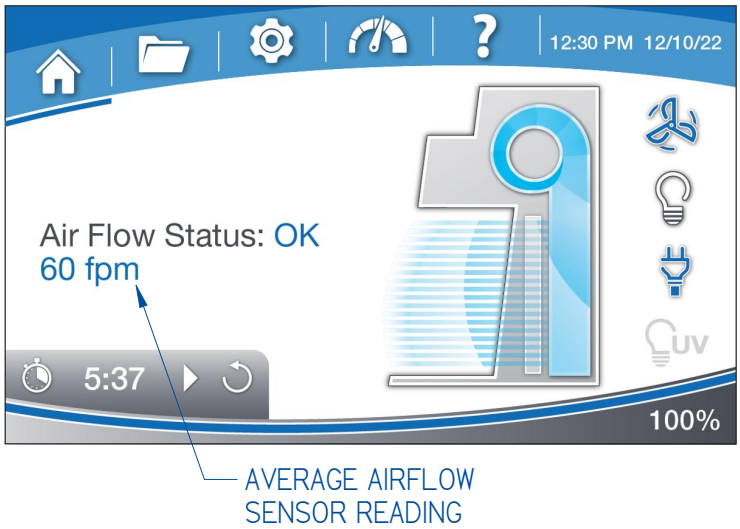



**Table 9-5**

| Clean bench Width (Feet) | QTY Needed |
|---|---|
| 3’ & 4’ | 1 |
| 5’, 6’, & 8’ | 2 |

## Remote Communication Board

Easy to add in the field, the Remote Communication accessory kit has the following features:

- Dry Contacts (3 Available). Represents:
  - Blower ON
  - Blower Night-Smart
  - Alarm Active
- Live stream the recorded internal data log:
  - USB Data Output
  - RS-232 Data output
- Ethernet pass-thru for Automatic date/time, email alerts, and automatically updating firmware

Access to the back of the clean bench and a Phillips screwdriver will be needed. Installation instructions provided with the kit. The catalog number is 5321400.

## PC Mount Kit

A clamp-style monitor/keyboard arms can be installed on the Universal Knock Down Base Stand or Electric Hydraulic Base Stand with the PC Mount kit. The kit can be installed on either the right-hand or left-hand side of the stand. One kit will work for the standard and the deep model of clean bench. Kit allows opening and closing of the UV Shade on UV models. The catalog number is 5315000.

## Bin Kit

Allows a storage bin to be mounted underneath the work surface of a standard Horizontal Clean Bench. Compatible with Universal Knock Down Base Stand. Catalog numbers are listed in Table 9-6 below.

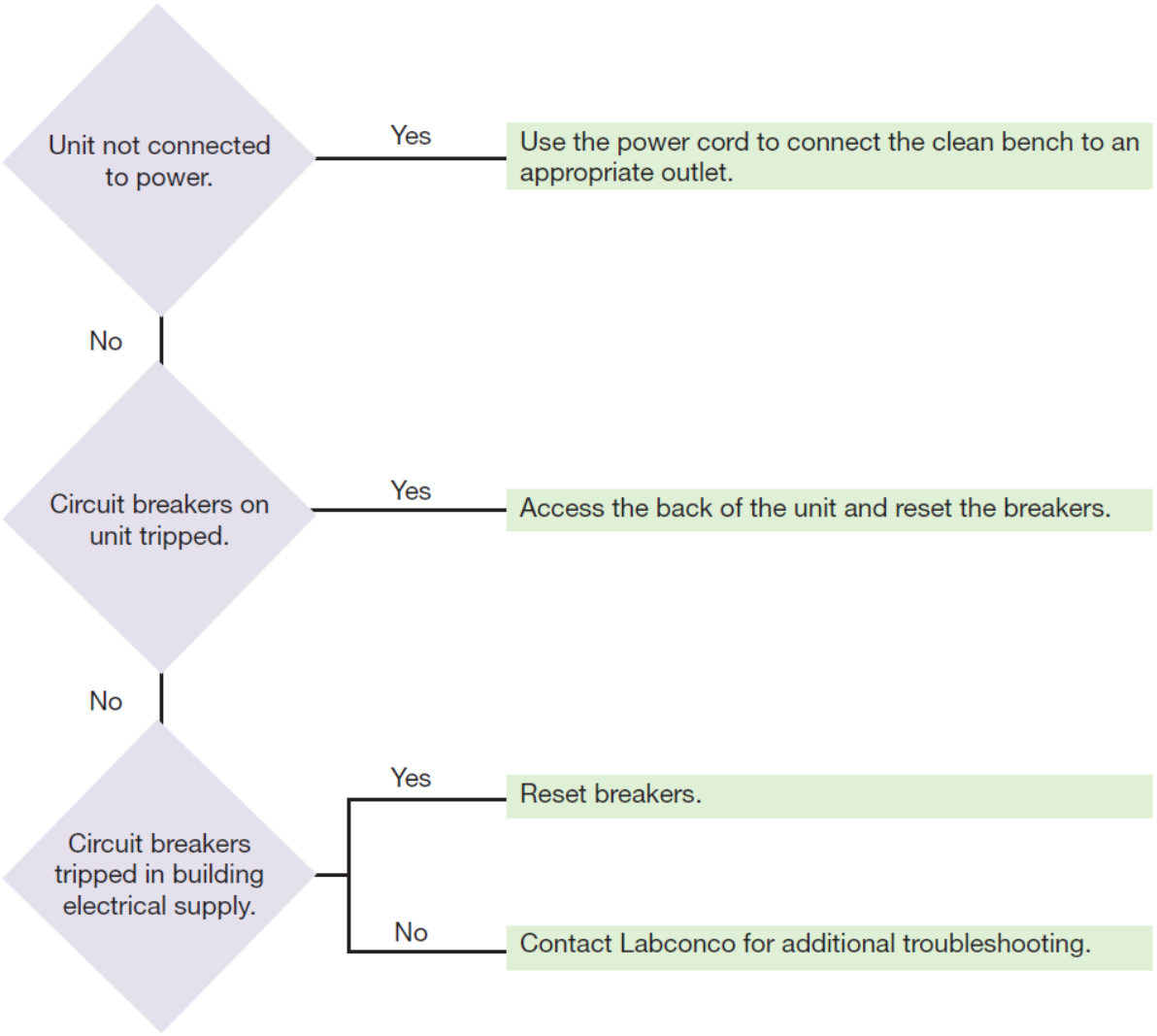
**Table 9-6**

| Clean bench Width (Feet) | Catalog Number | Maximum Installable Kits |
|---|---|---|
| 3’ | 5328800 | 2 |
| 4’ | 5328800 | 3 |
| 5’ | 5328800 | 4 |
| 6’ | 5328800 | 5 |
| 8’ | 5328800 | 7 |

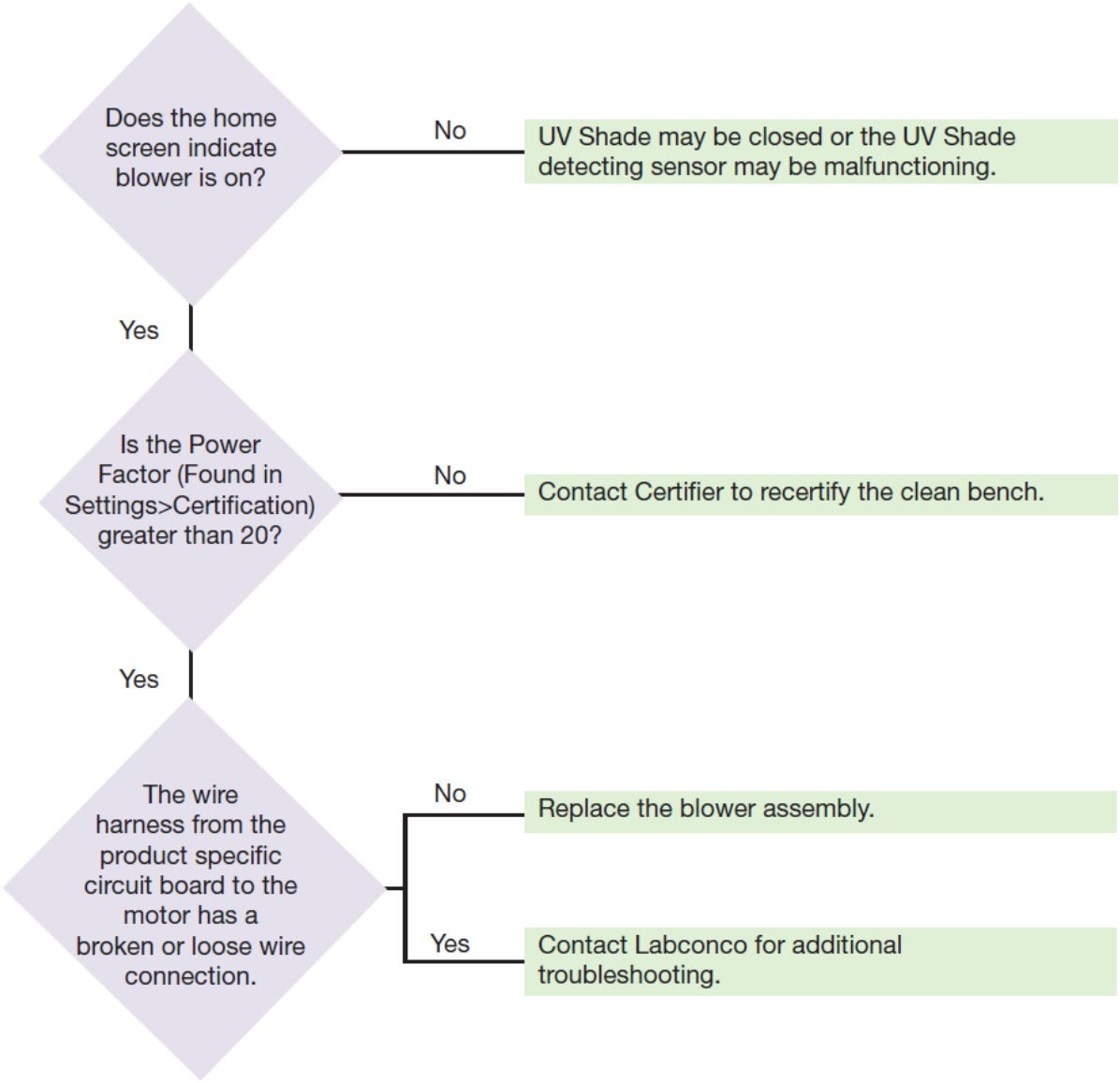
# 10: Troubleshooting

This section details common troubleshooting for your clean bench.

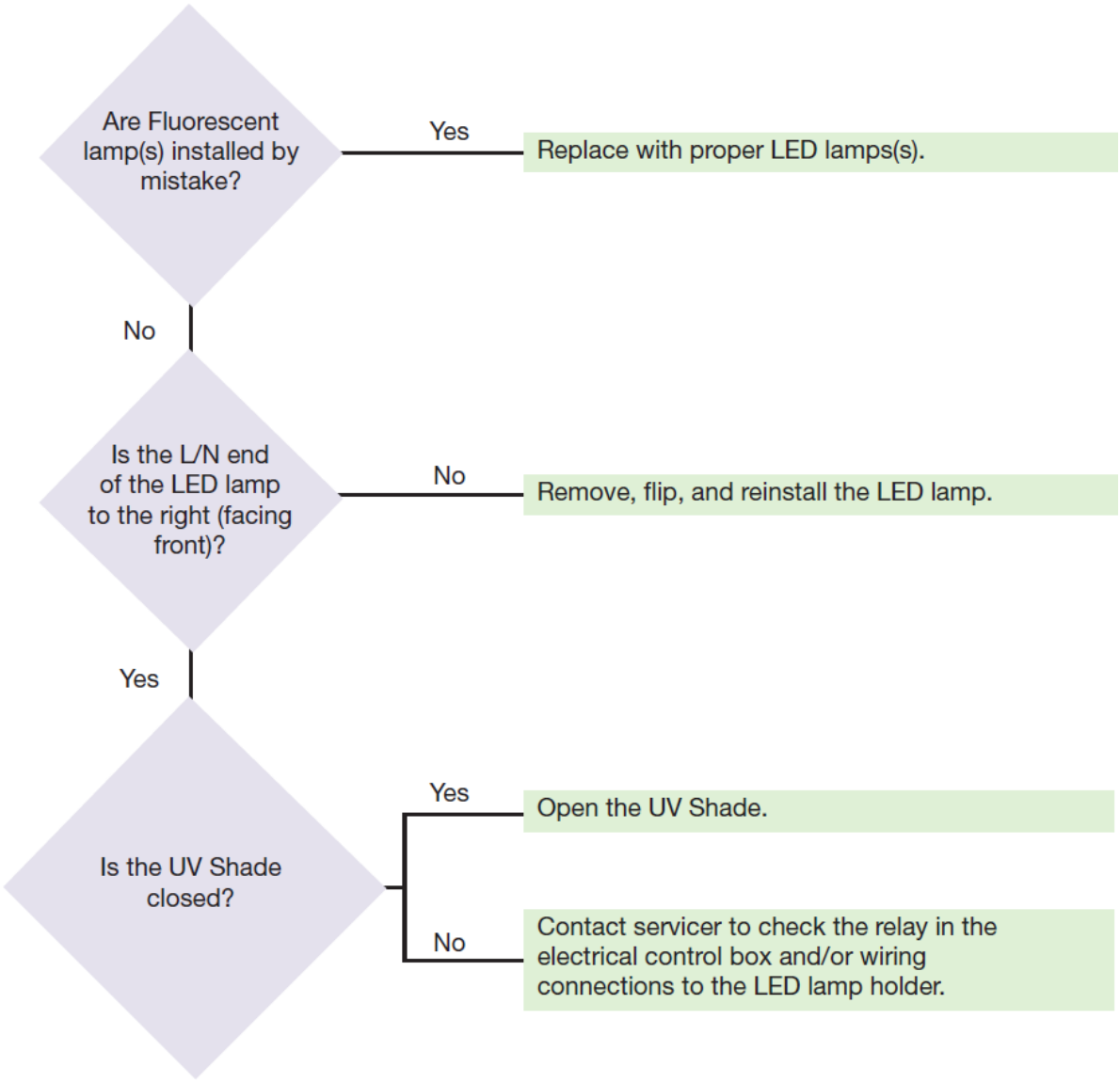
## Blower and Lights not working



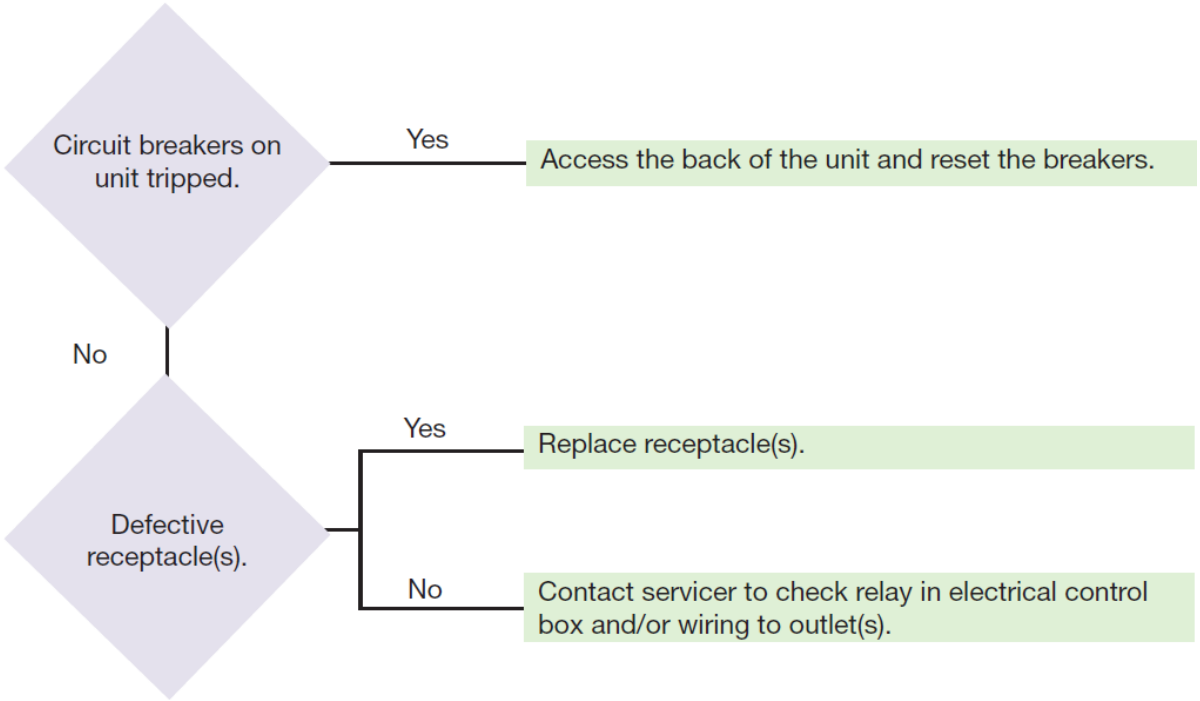
## Blower only will not start



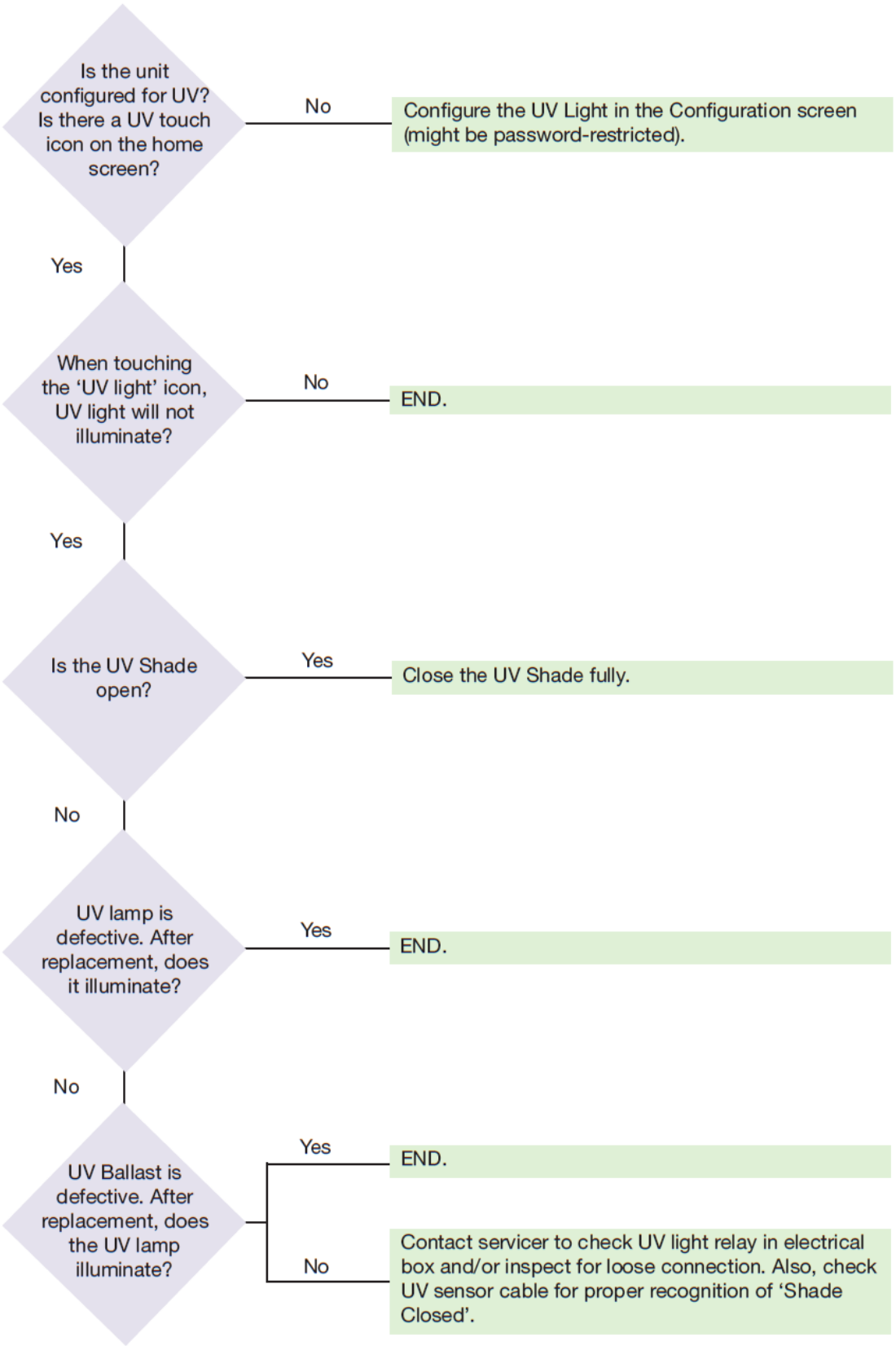
## Lights only will not illuminate



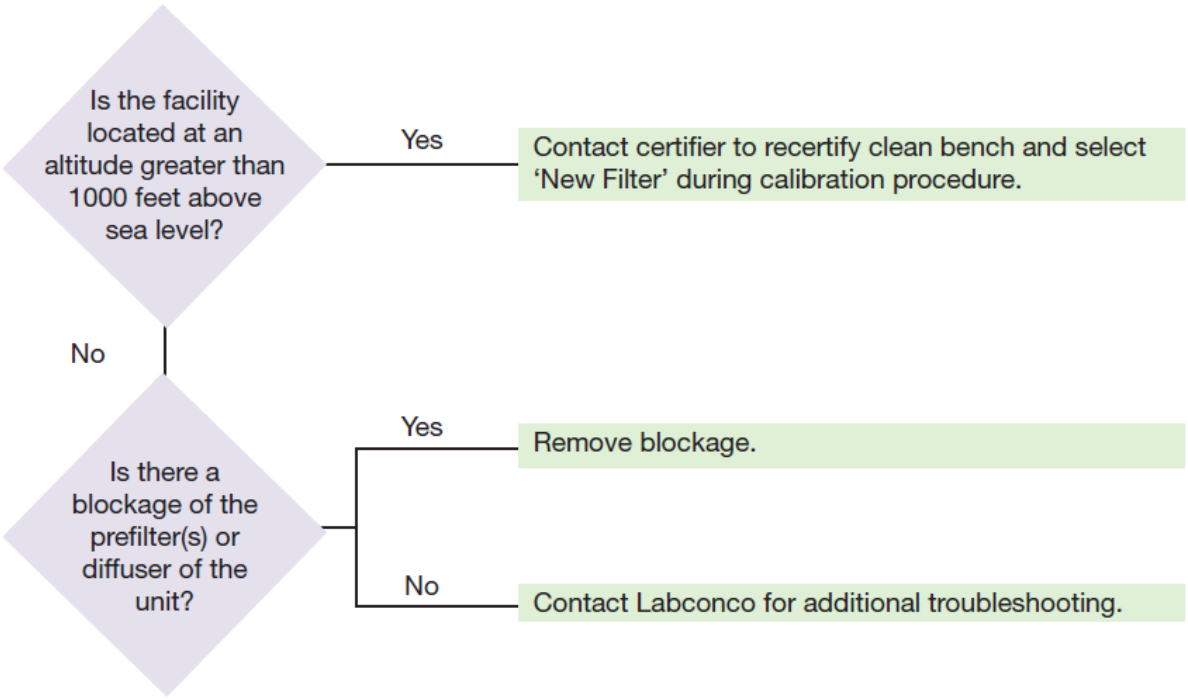
## Internal Outlet(s) not working



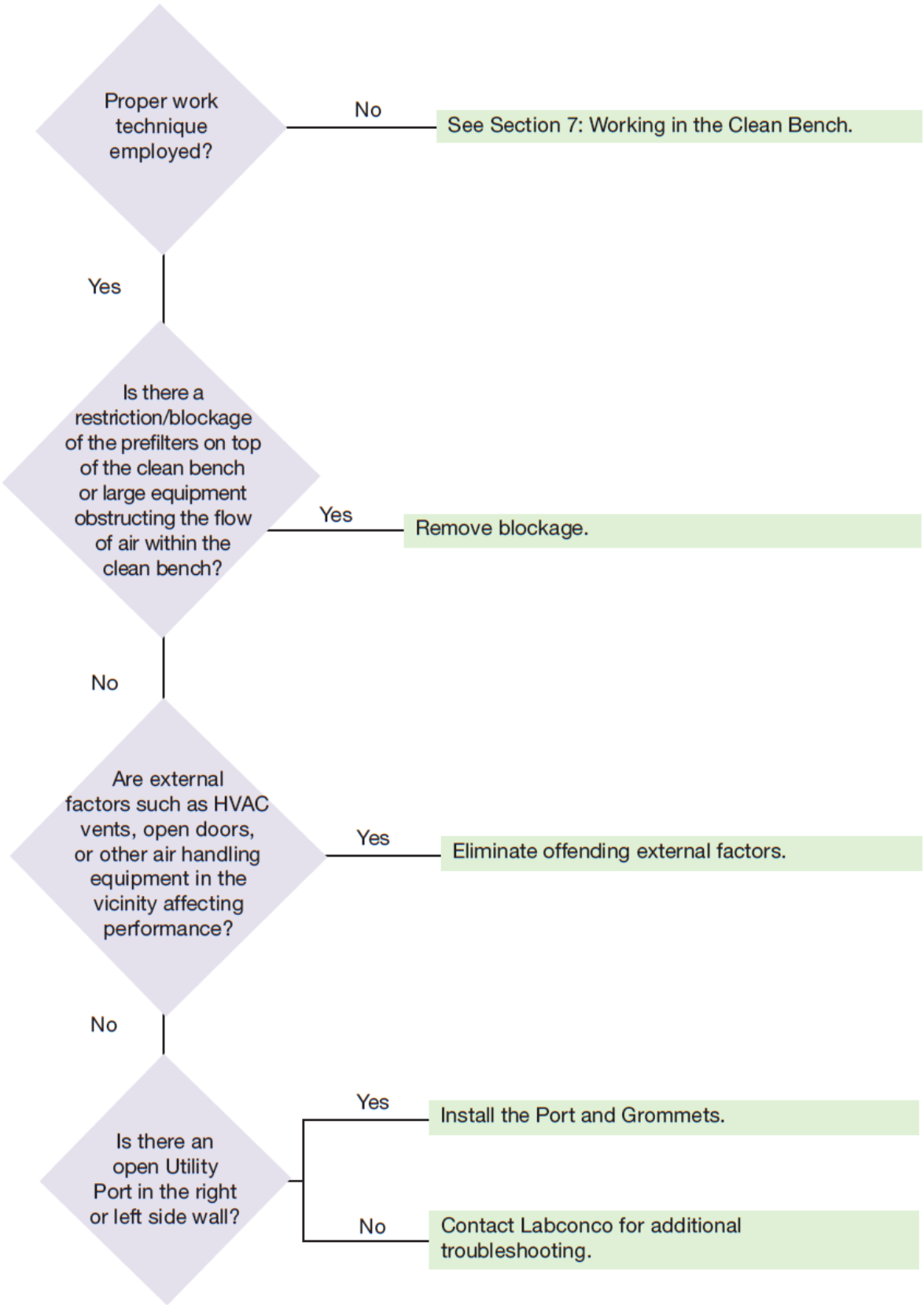
## UV Light will not illuminate



## Filter Life Remaining not at 100% when new



## Contamination in the work area



# 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.

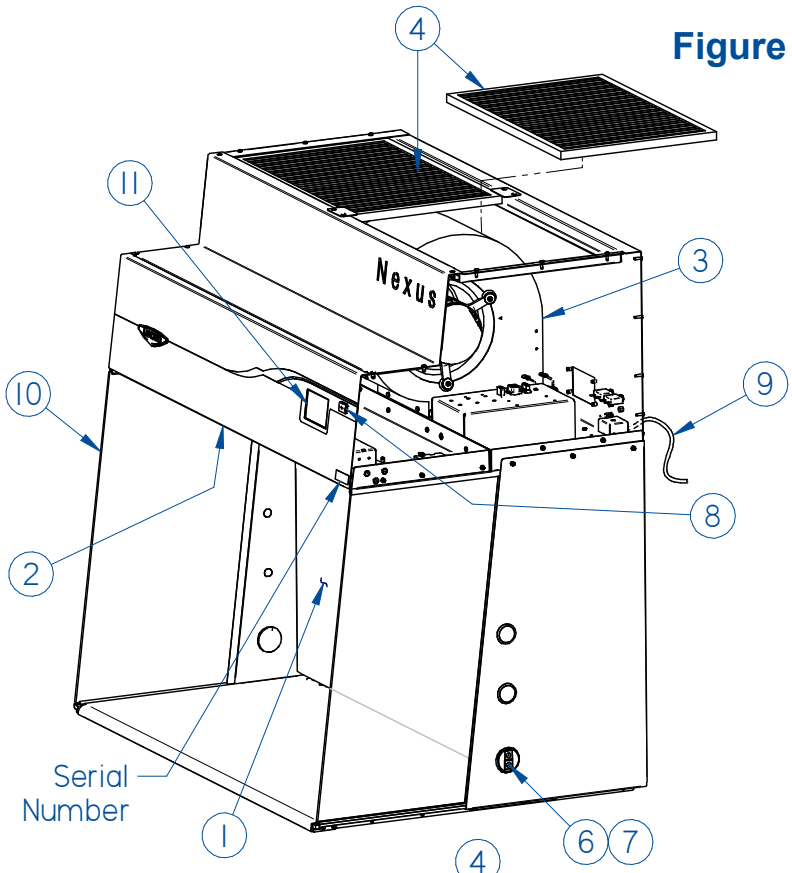
**Table A-1**

| Item | Quantity Required | Catalog Number | Description |
|---|---|---|---|
| 1 | 1 | 1489003 * | HEPA Filter, 3’ |
| | 1 or 2 | 1489005 * | HEPA Filter, 4’ (for 4’ or 8’) |
| | 1 | 1489006 * | HEPA Filter, 5’ |
| | 1 | 1489004 * | HEPA Filter, 6’ |
| 2 | Generation Dependent | 1297502 * | Lamp, LED 3’ |
| | | 1297503 * | Lamp, LED 4’ (for 4’ or 8’) |
| | | 1297504 * | Lamp, LED 5’ |
| | | 1297505 * | Lamp, LED 6’ |
| | 1 | 1270100 * | Lamp, UV 3’ |
| | 1 | 1271300 * | Lamp, UV 4’ (for 4’, 5’, 6’, or 8’) |
| 3 | 1 or 2 | 5326000P | ½ HP ECM Motor (for 3’& 4’ or 5’, 6’ & 8’) |
| 4 | 2 | 5326800 * | Pre-filter, nominal size 18 X 16 X 1 (for 3’ & 5’) |
| | 2 or 1 or 3 or 2 | 5326801 * | Pre-filter, nominal size 24 X 16 X 1 (for 4’ or 5’ or 6’ or 8) |
| | 2 | 5326802 * | Pre-filter, nominal size 25 X 16 X 1 (for 8’) |
| 5 | 1 | 5328700P * | UV Shade Assembly, 3’ |
| | 1 | 5328701P * | UV Shade Assembly, 4’ |
| | 1 | 5328702P * | UV Shade Assembly, 5’ |
| | 1 | 5328703P * | UV Shade Assembly, 6’ |
| | 1 | 5328704P * | UV Shade Assembly, 8’ |
| 6 | 2 | 5324000 | Utility port, 2 place iris opening |
| 7 | 4 | 3889310 | Blind insert, grommet |
| 8 | 4 | 3271700 | USB port, Snap-in |
| 9 | 1 | 1337100 | Power Cord, 115V US |
| | 1 | 1338000 | Power Cord, 230V US |
| | 1 | 1336100 | Power Cord, 230V SCHUKO |
| | 1 | 1332700 | Power Cord, 230V China / AUS |
| | 1 | 1332600 | Power Cord, 230V UK |
| | 1 | 1345700 | Power Cord, 230V India |
| 10 | 2 | 5323600 | Side glass, panel |
| 11 | 1 | 5324405 | Replacement Display/Controller Assembly |

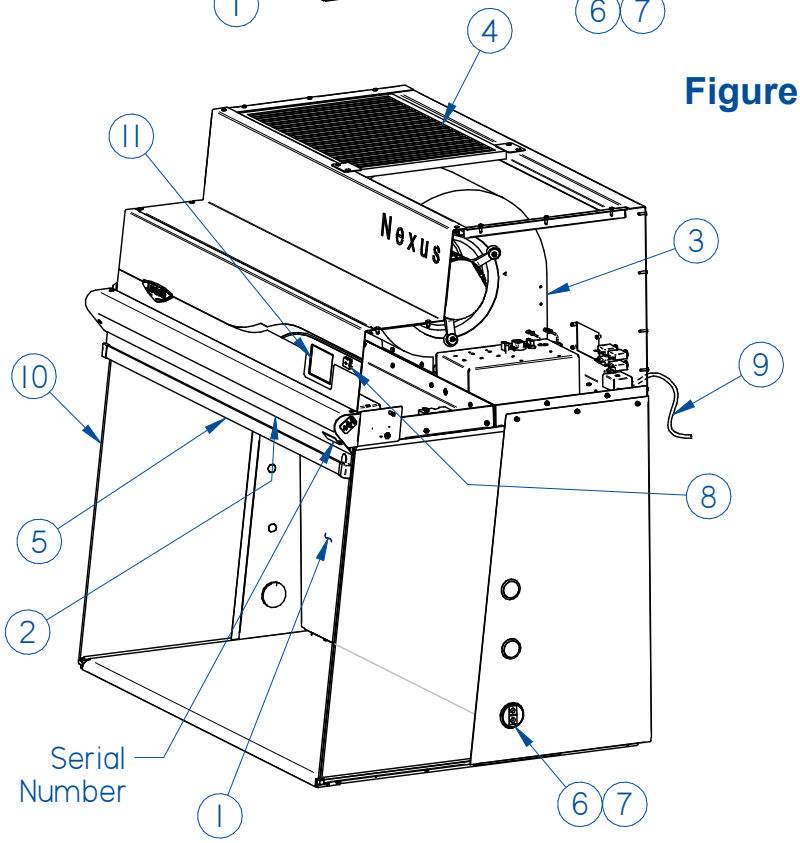
*** Denotes consumable items. Normal consumption of these items is not covered under the product’s warranty. UV Shade Assembly (on models with this feature) may require adjustment to align with closure sensor over time and can be damaged if shade is not used with care.**

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

## Figure A-1




## Figure A-2



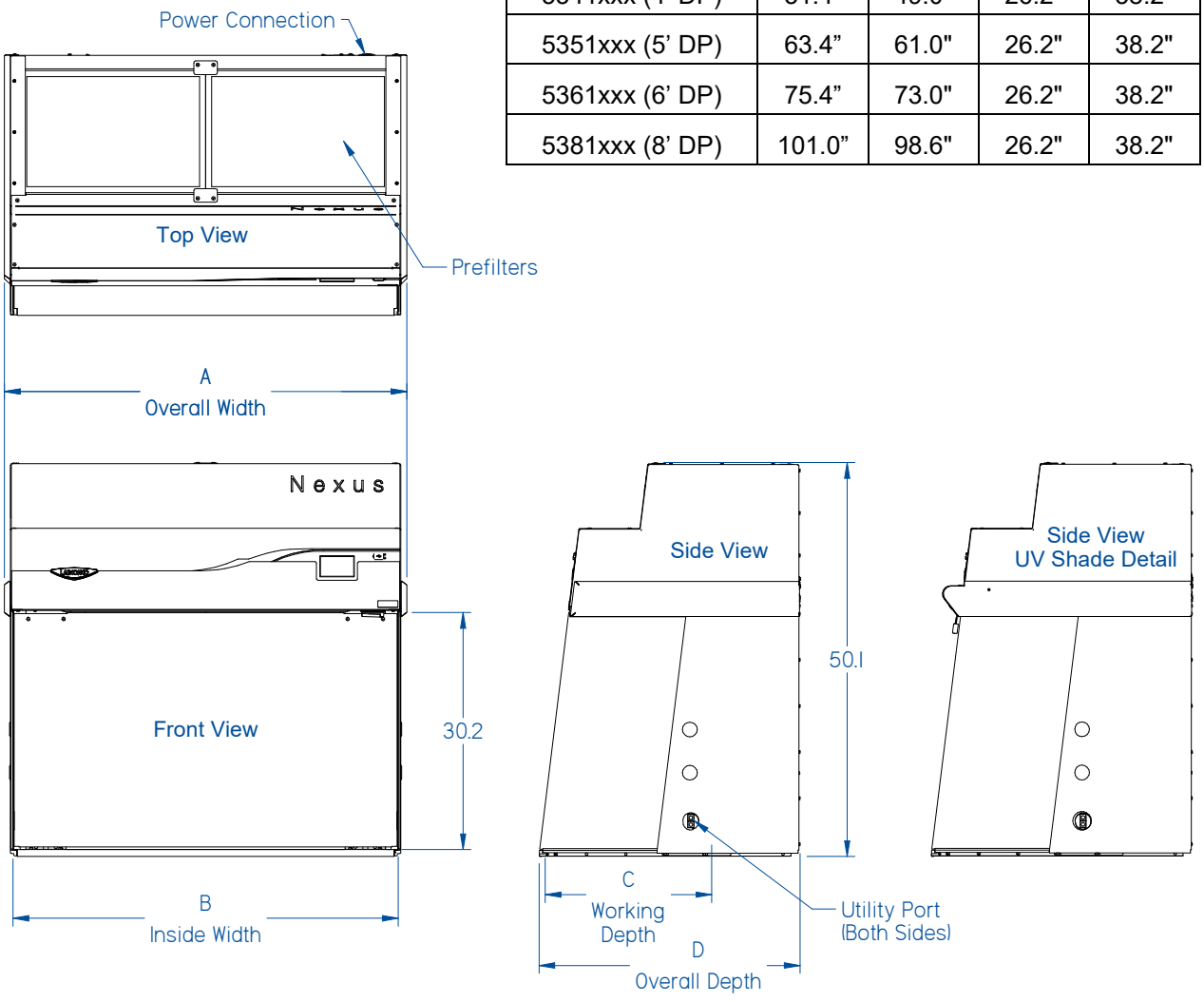
# Appendix B: Dimensions

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

**Table B-1**

| Catalog Number | A | B | C | D |
|---|---|---|---|---|
| 5330xxx (3’) | 39.4” | 37.0" | 21.2" | 33.2" |
| 5340xxx (4’) | 51.4” | 49.0" | 21.2" | 33.2" |
| 5350Xxx (5’) | 63.4” | 61.0" | 21.2" | 33.2" |
| 5360xxx (6’) | 75.4” | 73.0" | 21.2" | 33.2" |
| 5380xxx (8’) | 101.0” | 98.6" | 21.2" | 33.2" |
| 5331xxx (3’ DP) | 39.4” | 37.0" | 26.2" | 38.2" |
| 5341xxx (4’ DP) | 51.4” | 49.0" | 26.2" | 38.2" |
| 5351xxx (5’ DP) | 63.4” | 61.0" | 26.2" | 38.2" |
| 5361xxx (6’ DP) | 75.4” | 73.0" | 26.2" | 38.2" |
| 5381xxx (8’ DP) | 101.0” | 98.6" | 26.2" | 38.2" |

**Figure B-1**

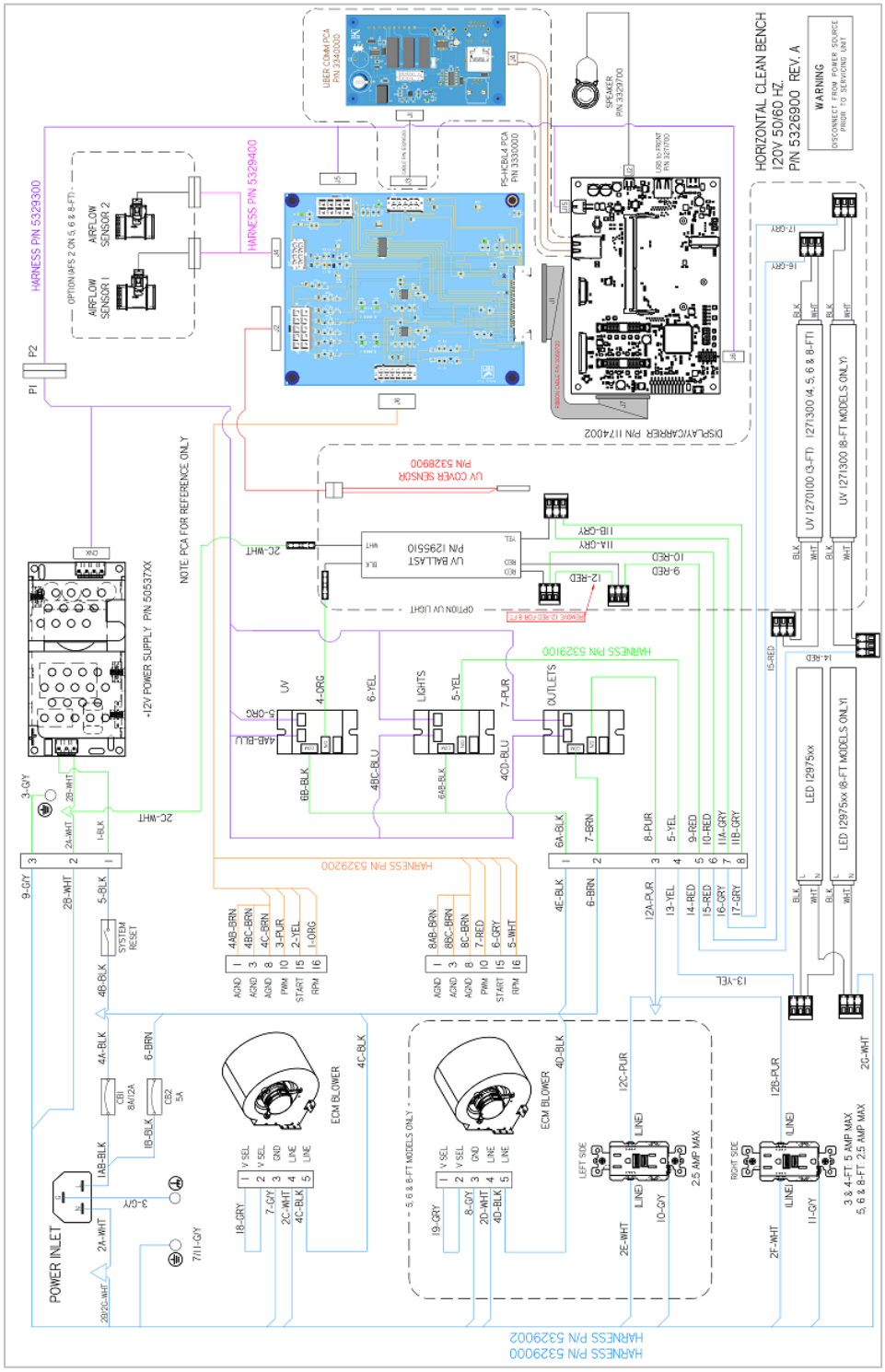


# Appendix C: Specifications

## Wiring Diagrams

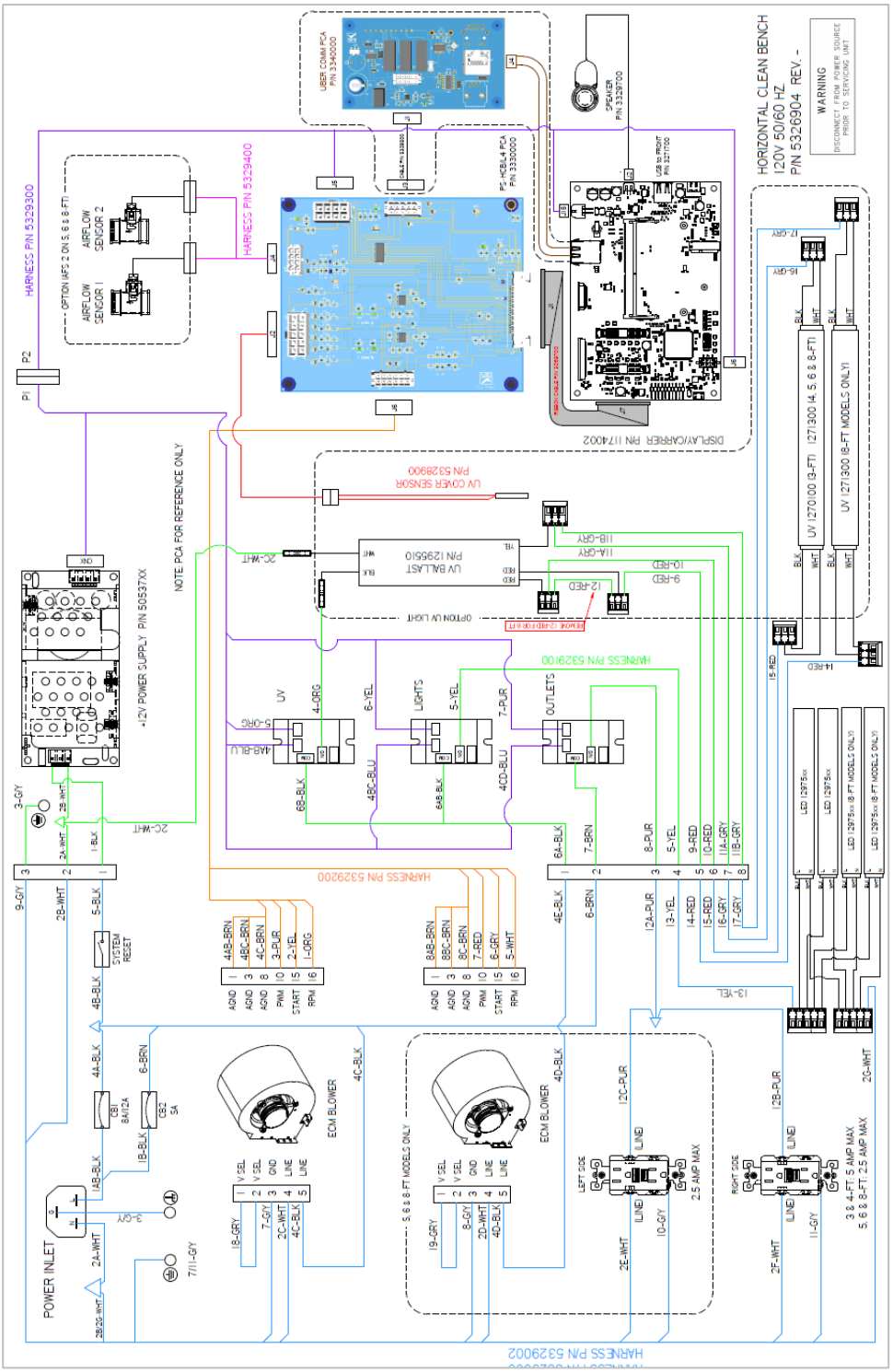
115v:

**Figure C-1a**



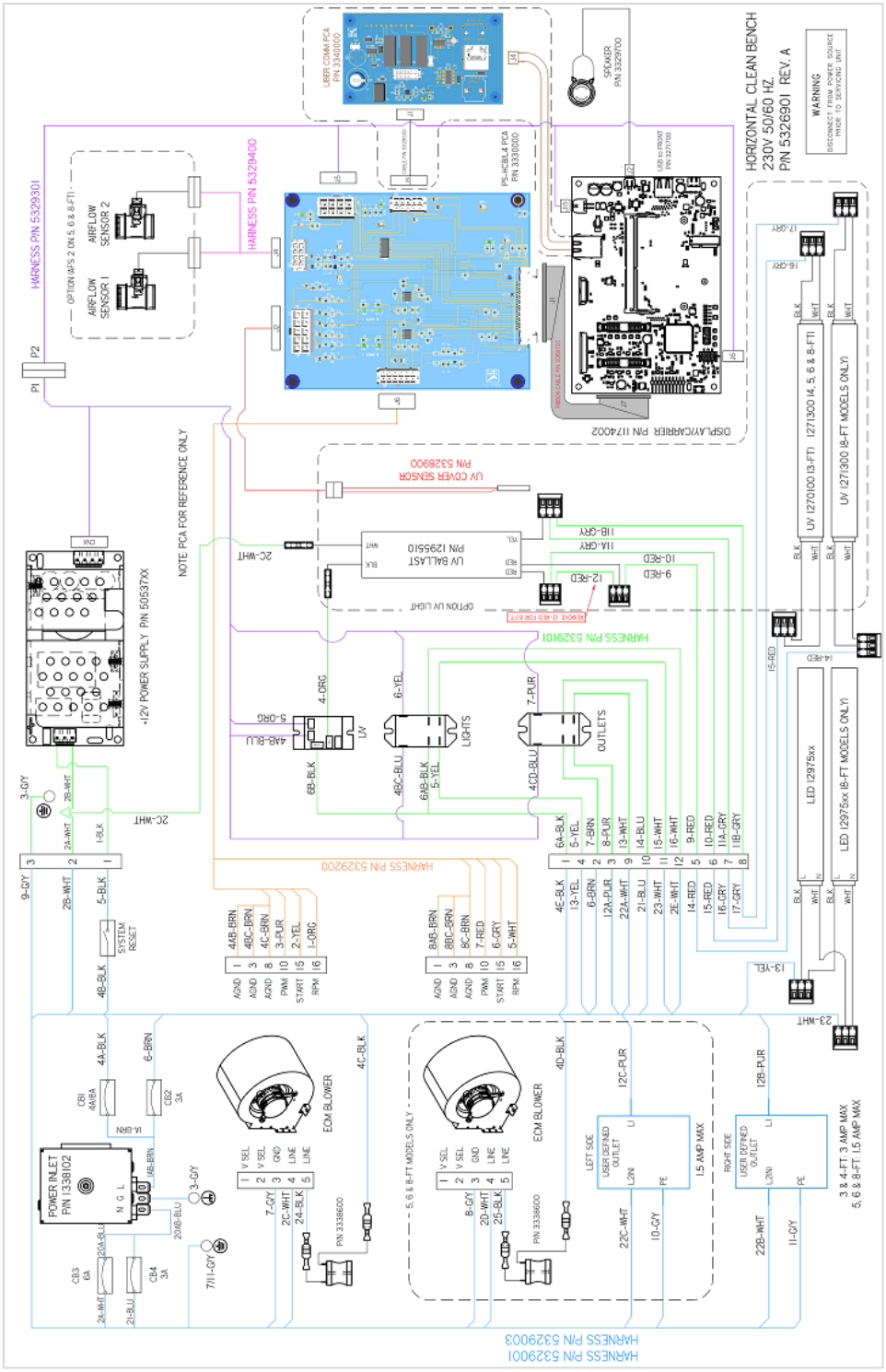
115v:

**Figure C-1b**



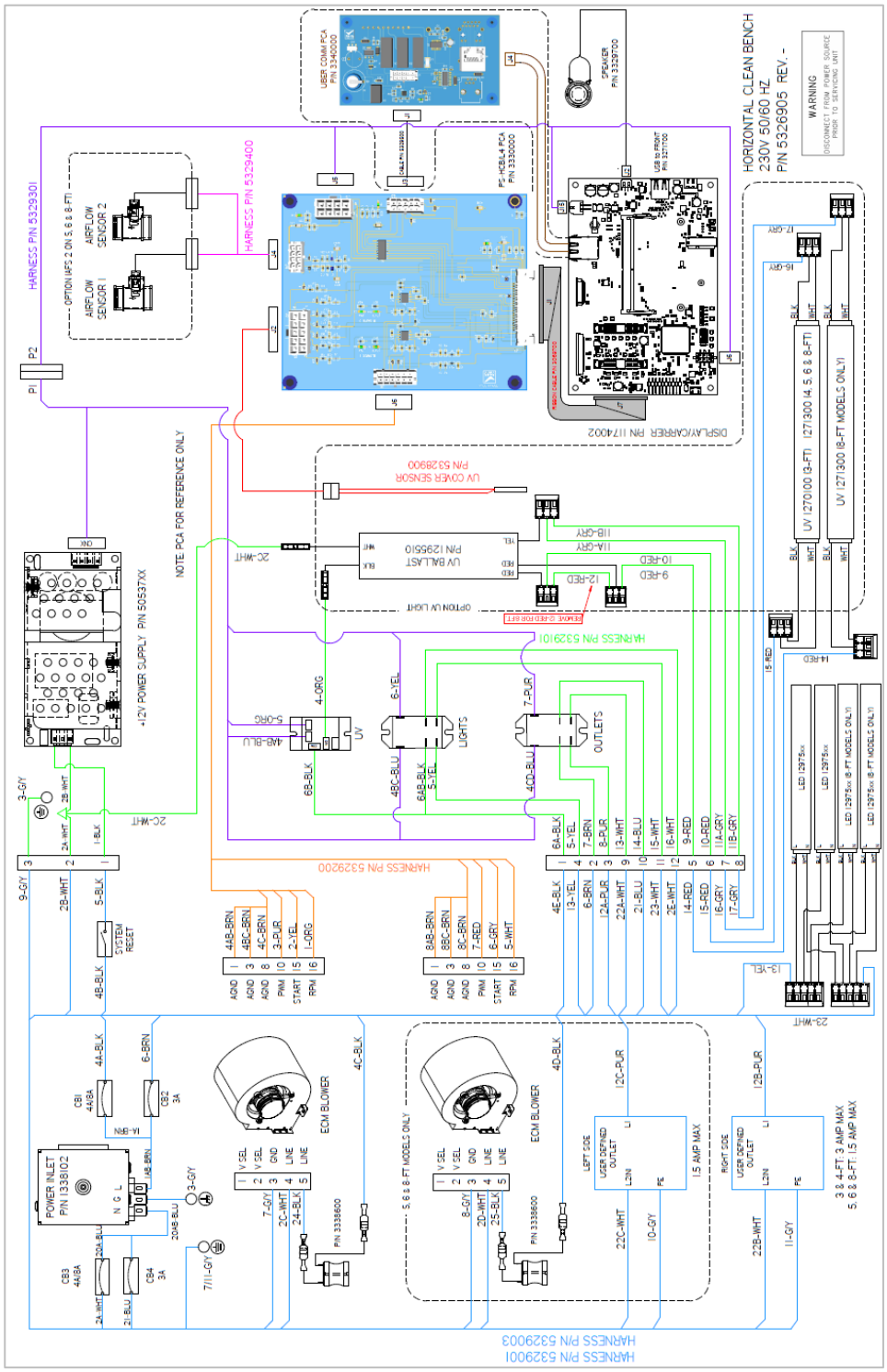
230v:

## Figure C-2a



230v:

**Figure C-2b**



## Motor Specifications

**Table C-1**

| Product Size | Electrical Requirements |
|---|---|
| All Widths, All Voltages | 1/2 H.P. Electronically Commutated Motor (ECM)<br>120-277 VAC – 50/60 Hz<br>Full Torque – 42 Oz.-Ft (3.56 N-M)<br>7.7 Full Load Amps @115VAC<br>4.3 Full Load Amps @230VAC<br>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

**Table D-1**

| Model | 5330_ | 5331_ | 5340_ | 5341_ | 5350_ | 5351_ | 5360_ | 5361_ | 5380_ | 5381_ |
|---|---|---|---|---|---|---|---|---|---|---|
| Clean bench Width (Feet) | 3’ | 3’ | 4’ | 4’ | 5’ | 5’ | 6’ | 6’ | 8’ | 8’ |
| Clean bench depth (Inches) | 21” | 26” | 21” | 26” | 21” | 26” | 21” | 26” | 21” | 26” |
| Starting Serial Number* | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ | 2307_ |
| **Air Velocity Data** | | | | | | | | | | |
| Nominal Average (fpm) | 85 +/-5 | | 85 +/-5 | | 85 +/-5 | | 85 +/-5 | | 85 +/-5 | |
| Approx. 12” x 12” Grid Points (Rows x Columns) | 9 (3 x 3) | | 12 (3 x 4) | | 15 (3 x 5) | | 18 (3 x 6) | | 24 (3 x 8) | |
| Grid Distance from Diffuser | 6 inches | | 6 inches | | 6 inches | | 6 inches | | 6 inches | |
| Grid Distance from Sides | 6.5 inches | | 6.5 inches | | 6.5 inches | | 6.5 inches | | 6.5 inches | |
| Grid Distance from Work surface | 3 inches | | 3 inches | | 3 inches | | 3 inches | | 3 inches | |
| Grid Distance from Top Interior of Unit | 3 inches | | 3 inches | | 3 inches | | 3 inches | | 3 inches | |
| Velocity Test Points | +/-22 fpm of average | | | | | | | | | |
| **HEPA Filter Leak Test** | | | | | | | | | | |
| Air Displacement (CFM) | 666 | | 882 | | 1098 | | 1314 | | 1775 | |
| Laskin Nozzles needed | 1 | | 2 | | 2 | | 2 | | 2 | |
| Theoretical Aerosol Concentration (ug/l) | 20 | | 31 | | 25 | | 21 | | 15 | |
| **HEPA Data** | | | | | | | | | | |
| Catalog Number | 1489003 | | 1489005 | | 1489006 | | 1489004 | | 1489005 (Qty 2) | |
| Width x Depth x Height (in.) | 36 x 30 x 3.06 | | 48 x 30 x 3.06 | | 60 x 30 x 3.06 | | 72 x 30 x 3.06 | | 48 x 30 x 3.06 | |
| Performance @ 1” Water | 1135 CFM | | 1525 CFM | | 1900 CFM | | 2300 CFM | | 1525 CFM | |
| **Motor/Blower Data** | | | | | | | | | | |
| Motor HP | ½ HP | | ½ HP | | ½ HP | | ½ HP | | ½ HP | |
| QTY/Model | 1 | | 1 | | 2 | | 2 | | 2 | |
| **LED Lamp/UV Lamp** | | | | | | | | | | |
| LED Lamps | 7T8-24 | | 12T8-36 | | 15T8-48 | | 24T8-60 | | 12T8-36 | |
| Color (°K) | 4000 | | 4000 | | 4000 | | 4000 | | 4000 | |
| Lumens | 900 | | 1200 | | 1850 | | 2400 | | 1200 | |
| UV Lamp (Optional) | G15T8 | | G30T8 | | G30T8 | | G30T8 | | G30T8 | |

*The primary serial tag is on the lower right corner front panel (on the right side of the UV Shade Cover on UV-models). The secondary serial tag is located on the rear of the clean bench near the power inlet and breakers. 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 clean bench.

**Each motor must be programmed by Labconco for the Horizontal Clean Bench.

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