

SERVICE MANUAL**SteriIGARD®** **Class II, Type A2
Biological Safety Cabinet****MODELS:****SG304****SG304-INT****SG304-J****SG304-AUS**

This manual includes information for proper service of this cabinet.
We recommend that it be kept near the cabinet for ready reference.



TABLE OF CONTENTS

I - SPECIFICATIONS	4
Exterior Dimensions	4
Unit Weights.....	4
Plumbing Service	4
Electrical Service	5
Exhaust Flow Specifications	6
Exhaust Duct Specifications	6
Environmental Conditions	7
Symbols and Terminology	7
II - INSTALLATION	8
Preparing the SterilGARD®e3 for use	8
Checking the cabinet upon arrival.....	8
Preparing the cabinet for installation.....	8
Location within the laboratory.....	8
Venting into the room.....	8
Venting outside the facility	9
Final Connections and Tests	9
Channel Stand Installation Procedure	10
1. Channel Stand Assembly Procedure:	10
2. Channel Stand Leg Assembly Procedure:.....	14
III - CERTIFICATION	17
Field Certification Procedures	17
Cabinet Airflow Verification	17
HEPA Filter Leak Test Procedure	23
Airflow Smoke Pattern Test	28
Site Installation Assessment Tests	Error! Bookmark not defined.
IV - MAINTENANCE	29
HEPA Filter Replacement Procedure.....	29
Changingthe Cabinet Exhaust HEPA Filter	34
Changingthe Cabinet Supply HEPA Filter	35
View screen Removal Procedure.....	36
Fluorescent Lamp Replacement	39
Ultraviolet Lamp Replacement.....	40
Touchpad Replacement	42
Cabinet Pressure Monitor (Optional).....	43
Replacement Parts List	47
Ladder Schematics	49
Unit Wiring	Error! Bookmark not defined.
Auxiliary Cabinet Monitoring Wiring Option.....	Error! Bookmark not defined.



Environments For Science™

TroubleshootingError! Bookmark not defined.
 Checking Incoming Power: Error! Bookmark not defined.
 Keypad:..... Error! Bookmark not defined.
 Control Board: Error! Bookmark not defined.
 SSR:Error! Bookmark not defined.
 VFD:..... Error! Bookmark not defined.



Environments For Science™

I - SPECIFICATIONS

Exterior Dimensions

	SG304
Foot Print (w x f-b)	35 ⁵ / ₈ x 30 ¹¹ / ₁₆ " [905 x 779 mm]
Height (Without Stand)	61 ³ / ₄ " [1,568 mm]
Min Height (with Channel Stand)	86 ¹ / ₈ " [2,188 mm]
Max Height (with Channel Stand)	98 ³ / ₈ " [2,500 mm]
Ship Height (with Channel Stand) (legs & filter protector removed)	77 ³ / ₁₆ " [1,960 mm]

Unit Weights

Base unit weight	SG304
Bench Top	397 lbs [180 Kg]
With Channel Stand	Need Info
With Channel Stand and Casters	517 lbs [235 Kg]
Base Shipping weight	
Bench Top	534 lbs [242 Kg]
With Channel Stand	
With Channel Stand and Casters	
With Hydraulic Lift Stand	

Plumbing Service

Standard laboratory air, vacuum, gas and water service connections are rated for 75 psig [52 KPa] maximum pressure and connections are provided by 3/8" OD Brass Tube fitting connectors. Optional stainless steel and black iron service connections are rated for 75 psig [52 KPa] maximum pressure



Electrical Service

A single dedicated circuit is required to power this cabinet. This circuit shall provide the protective earth ground for the cabinet.

All electrical wiring to the cabinet should comply with the national electrical code and any applicable local electrical codes at the site of installation.

The power cord is the main disconnect device for the unit. The unit should be positioned in a manner that allows easy access to the power cord connection to the electrical utility.

The cabinet’s operating current (less outlets and options) is listed in the accompanying test report.

The cabinet may be provided with an optional lift that requires 2 Amps intermittent duty.

The lift duty cycle is 1 minute on, 9 minutes off.

The cabinet may be provided with an optional UV lamp.

The cabinet may be provided with an optional 24V DC power supply for low voltage options

Service Requirements	
100V	100 V AC, 20 A, 50/60 Hz, 1Ø 16 A maximum useable current
115V	115 V AC, 20 A, 60 Hz, 1Ø 16 A maximum useable current
220V	220 V AC, 16 A, 50/60 Hz, 1Ø 13 A maximum useable current
Circuit Protection	
100/115 V	Internally protected with a 250 V, 20 A circuit breaker
220 V	Internally protected with a 250 V, 16 A circuit breaker
Power Cord	
100 V/115V	One 14' [4.27 M] power cord with 20A plug, NEMA 5-20P
220 V	One 4 M power cord with listed plug for the destination country
Outlets	
100 V	Two 115 V AC, duplex outlets. The outlets on this circuit are protected by a self-resetting circuit breaker allowing for a total of 5A on all outlets.
115 V	Two GFCI protected, 115 V AC, duplex outlets. The outlets on this circuit are protected by a self-resetting circuit breaker allowing for a total of 5A on all outlets.
220 V	Two 220 V AC, outlets. The outlets on this circuit are protected by self-resetting circuit breakers allowing for a total of 5A on all outlets



Environments For Science™

Exhaust Flow Specifications

Vent to Room	SG304
8" [203 mm] Access Opening Height	162 CFM [77 L/Sec]
ReadySafe™ Mode	81 CFM [38 L/Sec]
Canopy Exhaust Connection (CEC)	SG304
8" [203 mm] Access Opening Height	260/370 CFM7 [123/175 L/Sec] -0.02/-0.08" W.G. [-5.0/- 20.0 Pa]
Exhaust Duct Static Pressure Minimum/Maximum	-0.02/-0.08" W.G. [-5.0/- 20.0 Pa]

Environmental Conditions

The cabinet is designed for use in the following conditions:

- Indoor use
- Altitudes up to 6562 Ft (2000 meters)
- Temperature range from 41° F (5°C) to 104° F (40°C)
- Maximum relative humidity 80% for temperatures up to 88° F (31°C) decreasing linearly to 50% at 104° F (40°C)
- Main supply voltage: Rated voltage stated in cabinet ratings $\pm 10\%$ V AC
- Transient over voltage according to installation category (OVERVOLTAGE CATEGORIES) II per UL/IEC61010-1, 2nd Edition
- Pollution degree 2

Symbols and Terminology



Protective Earth: Any terminal intended for connection to external protective conductor for protection against electric shock in case of a fault.



General Caution: Refer to instruction manual for information regarding personnel and environment protection.

II - INSTALLATION

Preparing the SterilGARD® e³ for use

Checking the cabinet upon arrival

Upon receipt of your new SterilGARD® e³ cabinet, inspect the exterior of the crate, box and/or skid. If there is any visible damage, note it on the receiving slip and immediately report it to the delivering carrier.

Remove the outer packing material and inspect the cabinet itself. If any concealed damage is found please report this to the delivery carrier. **A claim for restitution needs to be filed within 15 days.**

Due to the risk of mishandling by trucking companies, Baker has removed certain parts of the cabinet and has packed them separately. These items are listed on the packing slip, which accompanies the cabinet. Please check the packing slip carefully to be sure that all items have been located.

Preparing the cabinet for installation

Installation of this cabinet should be carried out in accordance with appropriate OSHA regulations and those other regulatory agencies having jurisdiction. Carefully follow the instructions outlined in the shipping change-out document 390D001 which is attached to the view screen.

WARNING

Do not move the view screen prior to removing the shipping hardware from the counterweight box located inside the right side panel

Location within the laboratory

Proper placement within the laboratory is essential. The ideal location for any biological safety cabinet is in a dead-end corner of the laboratory away from personnel traffic, vents, doors, windows, and any other sources of disruptive air currents. Published research from The Baker Company and unpublished tests performed at the National Cancer Institute show that if a draft or other disruptive air current were to exceed the intake velocity of the cabinet, contamination can enter the work area or escape from it (for more information, contact Baker).

Venting into the room

If the cabinet exhausts air into the laboratory, it is important that there is adequate space between the top of the cabinet and the ceiling. A solid ceiling located too close to the exhaust filter will restrict the air and limit the intake velocity. The exhaust filter guard, an inverted "V" shaped perforated steel plate included with your SterilGARD® e³ cabinet, will help protect the exhaust filter from objects being dropped on it and provide the necessary distance between exhaust opening and ceiling to ensure proper operation. If the filter guard is not installed, the cabinet exhaust opening should be no closer than 3" [76.2mm] from the ceiling, to enable proper airflow. In order to conduct proper maintenance a 6" [152 mm] clearance to the ceiling is recommended.

Venting outside the facility

Whenever possible, the cabinet exhaust should be canopy connected to its own separate exhaust system. If it must be ducted into a ganged exhaust system, make sure that the system is not a recirculating type. The building exhaust system should contain provisions to adjust the building system flow and pressure.

The Canopy Exhaust Connection has an 8" [203 mm] diameter connection. Optional reducing collars are available to adapt the Canopy exhaust connection to smaller/larger duct diameters.

Final Connections and Tests

1. The plumbing connection to the service petcocks must be made with great care because the effluent from a safety cabinet may be biologically hazardous. Consult the facility safety officer regarding these connections to assure they are properly connected and filtered if required. When present, petcocks are factory piped within the cabinet. The external connection consists of a 3/8" compression tube fitting at the rear, top, or bottom of the cabinet outer sidewall seal panel. Qualified personnel with proper materials and technique should make connection to plant utilities per NFPA
2. Check that the drain valve is closed or the drain coupling is properly capped.
3. Check for proper installation of the cable port
4. Connect the cabinet to the dedicated power supply circuit as noted in Section I under "Electrical Service"
5. If so equipped, connect the relay(s) of the optional cabinet monitor wiring package to the external HVAC building automation system
6. Position the view screen at the correct access opening height indicated by the arrow labels on each side of the view screen guides.
7. Turn on the blower. The indicator light will illuminate and the running blower will make an audible sound.
8. Turn on the fluorescent light. The indicator light will illuminate along with the interior work area. Check the following conditions:
 - The fluorescent light will not operate unless the blower switch is on.
 - The fluorescent light will not operate when the view screen is closed.
9. If your cabinet has the optional ultraviolet light (UV), lower the view screen to its fully closed position and turn the UV light on to make sure it is operational.

NOTE: The UV light option features an interlock that prohibits its operation unless the view screen is fully closed. The fluorescent lamp and UV lamp will not operate simultaneously.



Environments For Science™

Channel Stand Installation Procedure

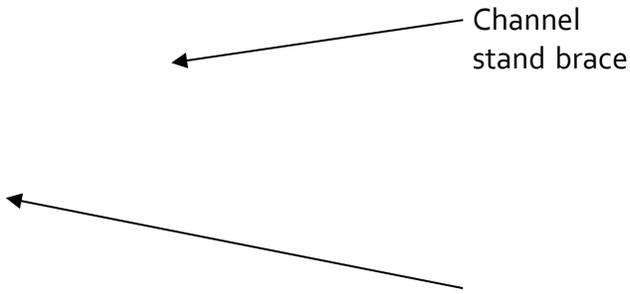
This procedure describes the proper assembly of the SGXo4 basic channel stand and the correct installation underneath the cabinet. It provides step by step instructions for the channel stand installation in two instances:

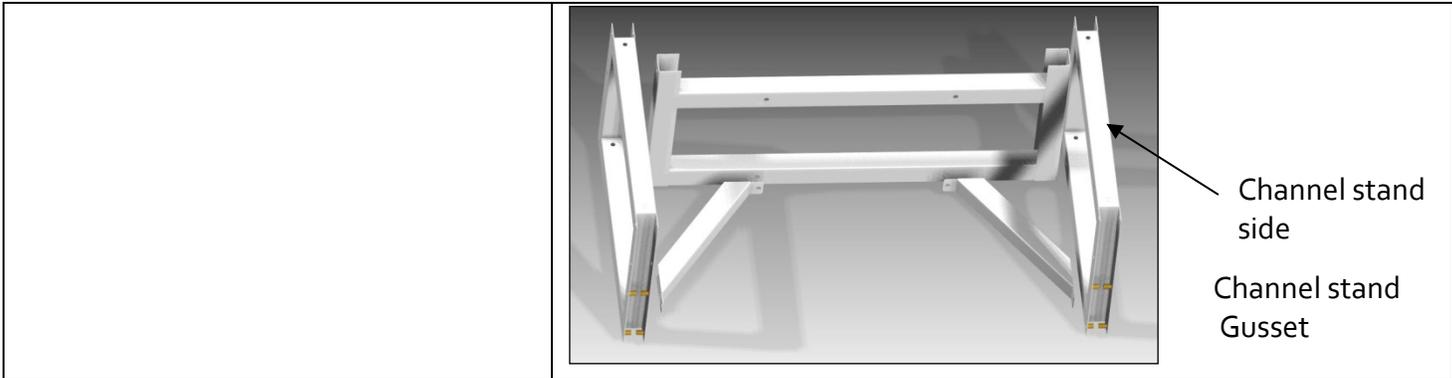
1. **The Channel Stand Assembly Procedure** when the stand ships from the factory separately from the cabinet
2. **The Channel Stand Leg Assembly Procedure** when the channels stand is factory attached to the bottom of the cabinet

Tools required: $\frac{7}{16}$ " deep socket, $\frac{9}{16}$ " wrench or socket, level

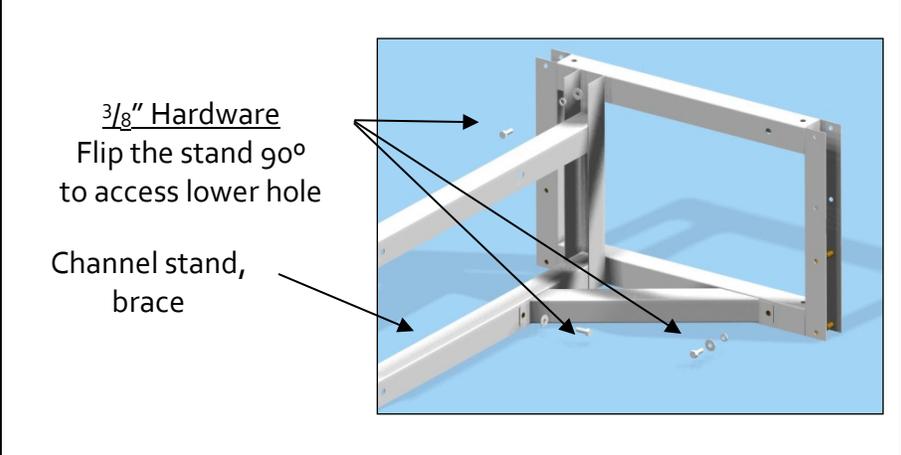
NOTE: Caster stand option requires four modified leg assemblies (Not shown).

1. Channel Stand Assembly Procedure:

<p>Step 1: Remove stand components from rear of cabinet skid if shipped as shown. Remove items 4-11 from the separate box shipped with the cabinet.</p> <p>If cabinet is factory shipped on channel stand please see channels stand leg assembly procedure</p>	
<p>Step 2: Gather all stand components, hardware, and tools.</p>	
<p>Step 3: Place stand sides on a flat floor surface. Place the stand back between the sides so that the open part of the channel is facing down towards the floor. Place the braces as shown.</p>	



Step 4:
Using the 3/8" x 1" hex head bolt with lock and flat washers [Items 5, 7, & 8], attach the sides and back by inserting the bolts thru the (4) holes located in the channel stand back into the already installed rivnuts in the two sides. (2) bolts per side. Do not tighten any of these bolts until you have all (4) threaded in slightly. Tighten bolts after this is done.

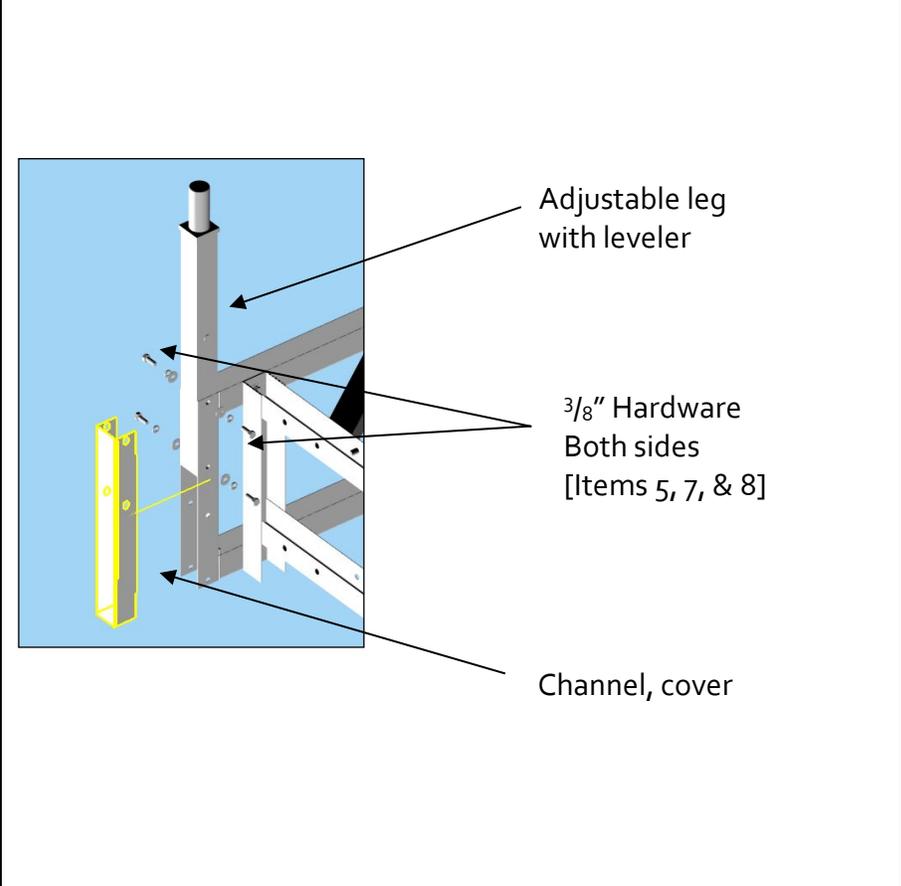


Step 5:
With stand assembly complete, rotate stand upside down. Attach the legs by inserting them into the channels from the front.

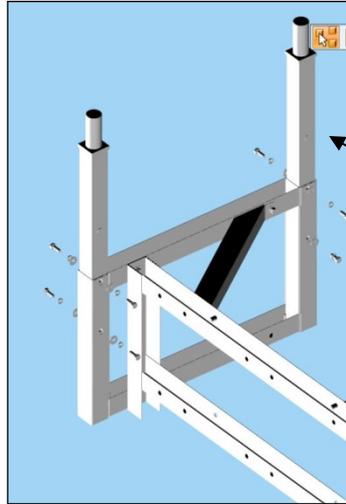
The telescoping legs can now be adjusted to the desired height requirement. This is done by aligning the stand holes with the holes in each leg, then sliding the leg cover over the channel. Secure the leg assembly with 3/8" hardware on both sides.

Do not tighten bolts yet, so the cover can slide up and down in the slots. Cover the exposed threaded holes in the legs with plug.

NOTE: If the cabinet is not in its final room location you may want to perform the leg adjustment after assembling the cabinet to the stand and moving it to the room (see step



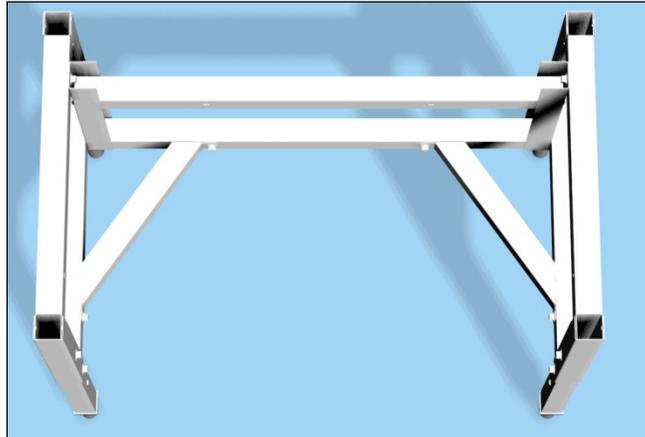
11).



Exposed unused hole;
Plug with item 12

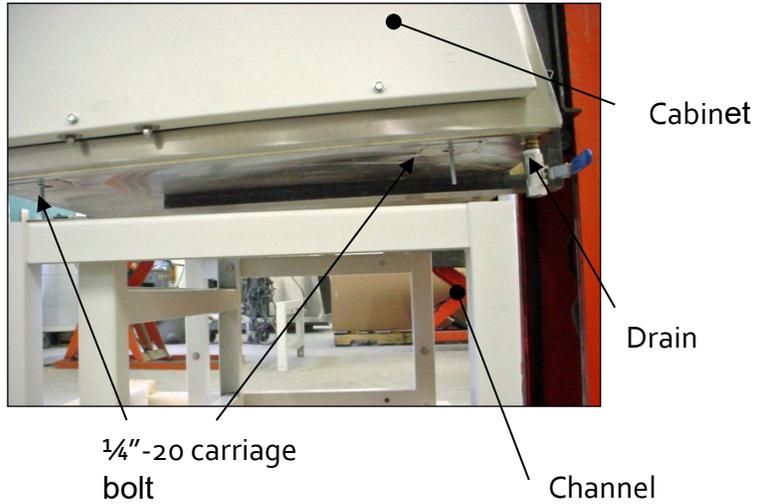
Step 6:

Rotate the stand assembly to the upright position so that the leg levelers are now resting on the floor.

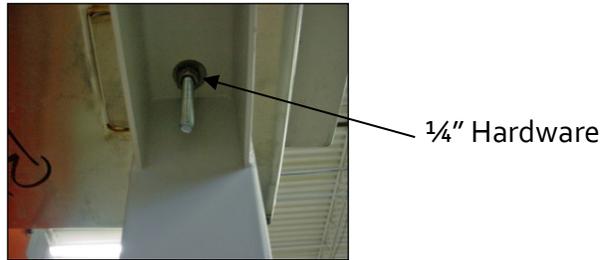


Step 7:
Lift the cabinet off the skid and high enough to allow clearance for the stand assembly to be positioned under it.

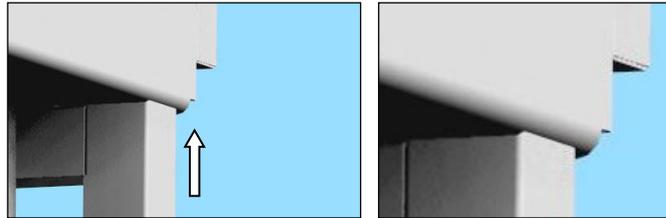
Once the stand is positioned under the cabinet, install (4) 1/4" x 2" carriage bolts into the key way slots located under the cabinet in each of the (4) corners. The cabinet is now ready to be lowered onto the stand. There are (4) holes on the top of the stand which the bolts must be guided through. Be careful not to let the bolts drag on the edge of the holes while lowering as burrs may occur on the bolts and cause threading problems.



Step 8:
With the cabinet resting on top of the stand assembly, place a 1/4" flat washer, and hex lock nut onto each of the bolts. **Push the stand as far forward as possible**, then tighten all 1/4" hex lock nuts. A 7/16" deep socket is required for this.



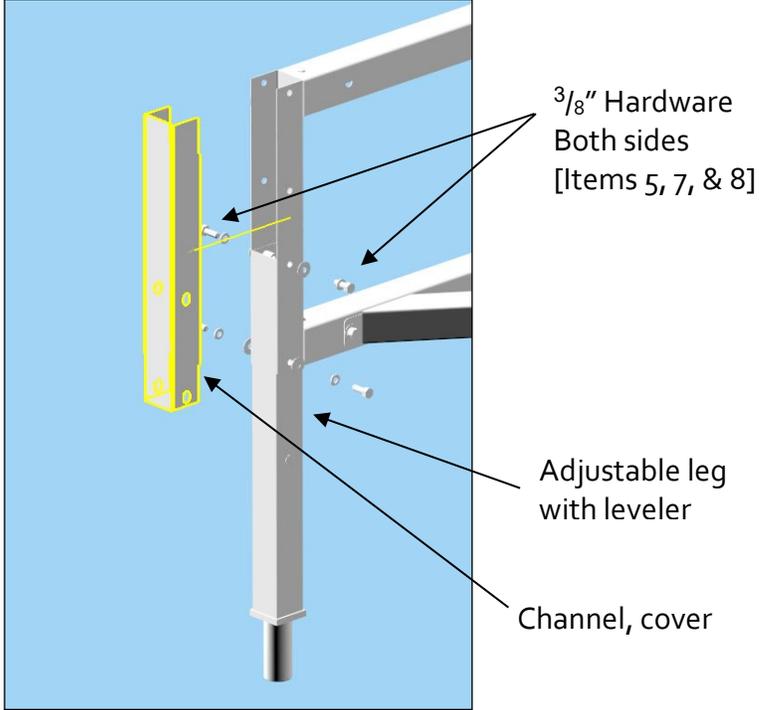
Step 9:
With the cabinet secured on top of the stand and at the correct height, slide the leg covers up so the top edge will touch the drain pan. Tighten all 3/8" hex bolts on both sides.



Step 10: if not already installed, attached the drain valve to the bottom of the drain pan by removing the handle and threading into the nipple using thread seal tape. Position the valve such that the handle will be facing the front of the cabinet (see picture in step 7. Attach the handle and secure with screw.

Step 11:
The lift device should be removed if not being used to move cabinet into position within the room. If the lift device is mobile it may be used to maneuver cabinet into the desired location. A blanket could also be placed under the leg levelers while sliding the cabinet to avoid scuffing the flooring.

2. Channel Stand Leg Assembly Procedure:

<p>Step 1: If cabinet is factory shipped on channel stand remove components 4 -11 that are separately shipped with cabinet.</p>	
<p>Step 2: Lift cabinet off the skid and high enough to allow clearance for the adjustable legs to be assembled to the front and rear of the channel stand sides. For a 26¹/₈" to 28³/₈" [664 mm-714 mm] work surface height align the upper two holes in the leg with the upper two holes in the stand. For a 30⁵/₈" to 32⁵/₈" [778mm-829 mm] work surface height align the upper two holes in the leg with the middle two holes in the stand. For a 36⁵/₈" to 38⁵/₈" [931 mm-981 mm] work surface height align the upper two holes in the leg with the lower two holes in the stand. Attach channel cover, align slots with holes and use 3/8" hardware on both sides to secure legs. Skip to Step 7</p>	
<p>Step 3: If lifting of the complete cabinet is not possible, carefully slide the cabinet off the skid onto a moving blanket or similar protective material in order to protect floor finish. Slide the cabinet into its final destination prior to assembly of the adjustable legs.</p>	



Step 4:

Carefully lift up one end of the cabinet by at least 6" [150 mm] and block into position using a safe and secure method. Insert adjustable leg into channel on front and rear side of cabinet and secure it as described in **Step 2**.

Repeat this step at the other side of the cabinet

Warning: if caster option is provided make sure to chock the wheels before lifting the other side.



Step 5:

If the work surface height needs to be raised to 30⁵/₈" [778 mm] height, lift up one end of the cabinet again by another 6" [150 mm] and unscrew the 3/8" leg bolts on both sides of each leg and slide down the leg until the lower holes in the leg are aligned with the lower two holes in the channel. Secure legs with the hardware. Repeat this step at the other side of the cabinet.



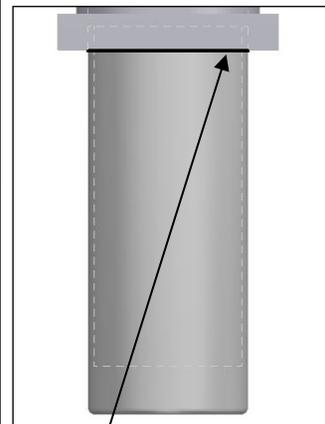
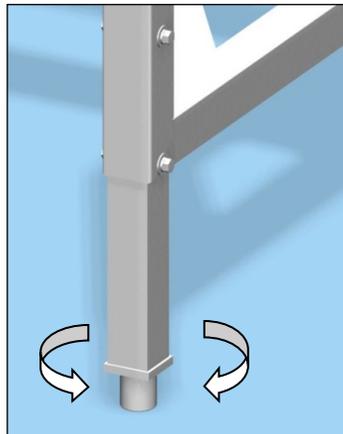
Step 6:

If the work surface height needs to be raised to 38⁵/₈" [981 mm] height, repeat **Step 5**.

Step 7: Use a level and level the cabinet by turning the leg leveler feet on each adjustable leg.

Warning: do not extend the leveler feet beyond the marked groove.

Insert plugs to all exposed threaded holes in the legs.



Groove at maximum extension



Environments For Science™

--	--

III - CERTIFICATION

Field Certification Procedures

To meet manufacturer's specifications, all methods and acceptance criteria must be followed. No alternative or secondary methods for measuring cabinet airflow other than what is stated in this service manual and the cabinet data plate shall be used to validate the performance of this biosafety cabinet.

The following Field Certification Procedures shall be conducted by a trained biosafety cabinet technician.

Cabinet Airflow Verification

The following calibrated test instruments and tools are required to perform this field certification.

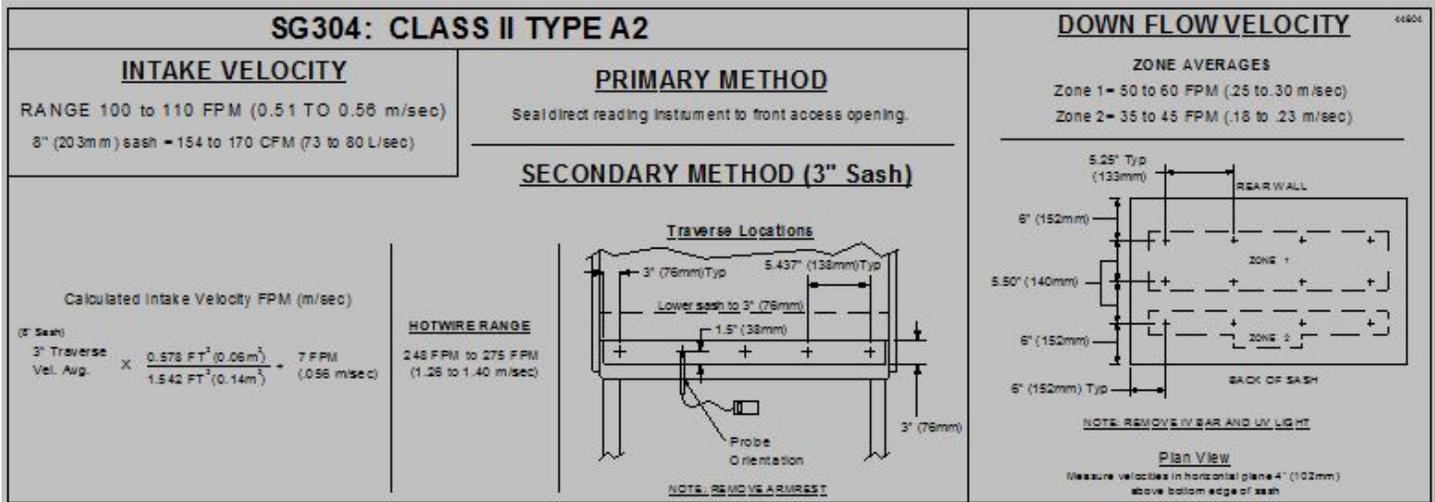
- Direct Inflow Measurement Device (For Primary Inflow Method) (optional)
- Thermal Anemometer (For Secondary Inflow Method and Downflow air velocity measurement)
- Aerosol Photometer and Laskin Nozzle Generator
- Smoke Visualization Device (Smoke tubes)
- Amperage meter
- 1/4" to 7/16" Standard (English) ratchet or socket style tools. All bolts are Imperial, not Metric
- Adjustable Wrench
- Good quality adhesive tape
- Step ladder
- Tape measure with Imperial measurements
- Pocket calculator
- Flat head and cross head screwdrivers

The SterilGARD Biosafety Cabinet is shipped with a protective laminate sheet covering the exhaust HEPA filter. Removal of this sheet shall be done by the certifier, **NOT THE INSTALLER**, because of potential damage during installation. If this protective sheet is not present after installation, inspection of the exhaust HEPA filters is strongly recommended. Filter replacement maybe necessary if damage found cannot be repaired.



Step 1: If equipped with Canopy Exhaust Connection, be sure to have the exhaust air turned on and at the specified exhaust flow range before beginning the cabinet airflow validation procedure. (See Baker Document BAKDo66 for exhaust airflow requirements)

Step 2: With the cabinet sash at the correct operating height indicated by the red/white arrows, measure the downflow velocities with a thermal anemometer and fixed ring stand. Refer to the data plate label on front of cabinet for downflow locations and velocities. Below is a sample of the data plate label.



Before making any required cabinet damper and/or fan speed adjustments, measuring the inflow velocity is strongly advised.

Step 3: Two methods are available for verifying the cabinet intake velocity of the SterilGARD biosafety cabinet;

Option 1: Primary Method using Direct Inflow Measurement Device (DIM)

Option 2: Secondary Method using Thermal Anemometer (Constricted Method)

NOTE: No other method to verify the cabinet intake velocity is allowed.



Option 1: Primary Method using Direct Inflow Measurement Device (DIM)

Directions:

Leaving the armrest in place, attach and seal the perimeter of a **Direct Instrument Measurement (DIM)** device to the front access opening of the biosafety cabinet. Be sure to seal off the slots below the padded armrest. Take a minimum of 5 consecutive inflow readings in cubic feet per minute (CFM) or in liters per second (L/S) for the inflow average. The average intake velocity (V) is then calculated by dividing average inflow (Q) by the area (A) of the front access opening. $V=Q/A$



Option 2: Secondary Method using Thermal Anemometer (Constricted Method)

Remove the armrest and lower the cabinet sash to an access opening height of 3 inches (76 mm). Using a thermal anemometer with or without Bakers' secondary method fixture (#333A714), orient the probe tip facing upward at the center of the vertical access opening (1.5" or 38 mm). Starting 3 inches from the left or right of the opening, measure the intake velocity across the sash at the locations specified on the cabinet data plate. Refer to data label affixed to the cabinet fascia panel for more information.



Free hand Procedure



3 Inch Method Template



(NOTE: If the INTAKE velocity average is out of range, use the chart below to determine what balancing adjustments are required to meet the airflow specification. If an adjustment is necessary, the downflow and inflow values must be measured and recorded again.

APPROACHES TO BALANCING THE STERILGARD CABINET

IF		THEN
<u>INTAKE</u> <u>Velocity</u>	<u>DOWNFLOW</u> <u>Velocity</u>	
Low	Low	Turn up the speed control
High	High	Turn down the speed control
Low	High	Open cabinet exhaust damper
High	Low	Close cabinet exhaust damper
Low / High	Ok	Adjust both speed control and cabinet exhaust damper
Ok	Low / High	Adjust both speed control and cabinet exhaust damper
Ok	Ok	No adjustment Needed

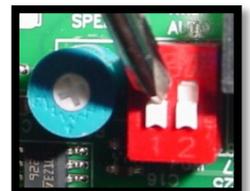
SPEED CONTROLLER ADJUSTMENTS:

If a speed controller adjustment is necessary;

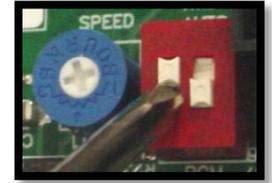
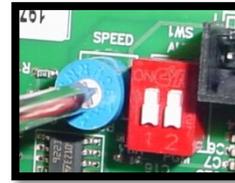
Step 1: Remove thumbscrews or shipping bolts from front fascia panel and raise, engaging the left and right panel supports.



Step 1: Using a 1/4" nut driver or ratchet wrench, remove the aluminum cover from the electrical mounting board located on the left hand side. Set the left DIP switch down to take out of Automatic mode. A green LED will 'flash' indicating this manual setting.



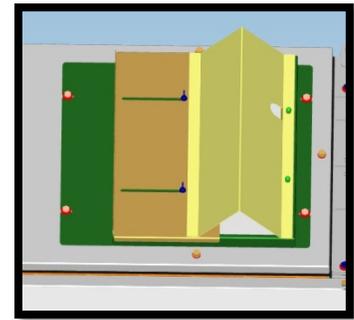
Step 2: Slowly trim the pot to achieve the necessary airflow; Clockwise to increase speed and counter clockwise to decrease speed. After fan speed adjustment, wait a total of one minute before switching the motor controller back to 'automatic mode'. The green LED on motor controller will be 'solid green' indicating this automatic setting.



Step 3:

DAMPER ADJUSTMENTS:

If an internal damper adjustment is necessary, loosen the damper locking nut on top of the cabinet then open or close. Tighten locking nut when desired adjustment is complete. If no other adjustments are necessary to obtain airflow balance, retake inflow and downflow readings verifying range acceptance.



HEPA Filter Leak Test Procedure

CAUTION!
POTENTIALLY CONTAMINATED AREA!
BEFORE PROCEEDING, A RISK ASSESSEMENT SHALL BE PERFORMED TO IDENTIFY POTENTIAL HAZARDS WITHIN THE BIOSAFETY CABINET. IF REQUIRED A SURFACE DECONTAMINATION OR SPACE DECONTAMINATION MAY BE NECESSARY BEFORE PERFORMING THIS PROCEDURE. PROPER PPE SHALL BE USED AS INSTRUCTED BY LAB SAFETY OFFICER.

NOTE 1:

The Primary Method for the scanning the HEPA Filters in the SterilGARD is using an aerosol photometer and Laskin nozzle generator. As an alternative, a discrete particle counter may be used in accordance with appropriate standards i.e. IEST-RP-CC034.3, ISO 14664-3.

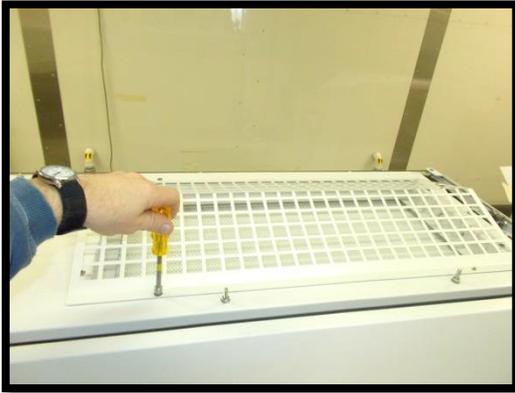
CAUTION! THIS TEST REQUIRES THE USE OF AN AEROSOL GENERATING DEVICE WHICH MAY SET OFF LABORATORY SMOKE DETECTORS IF USED CARELESSLY. SPECIAL PRECAUTIONS SHOULD BE TAKEN TO AVOID AN ACCIDENTAL FIRE ALARM CONDITION.

Step 1: Verify that the biosafety cabinet is at the proper airflow set point using the procedure outlined in this Service Manual.

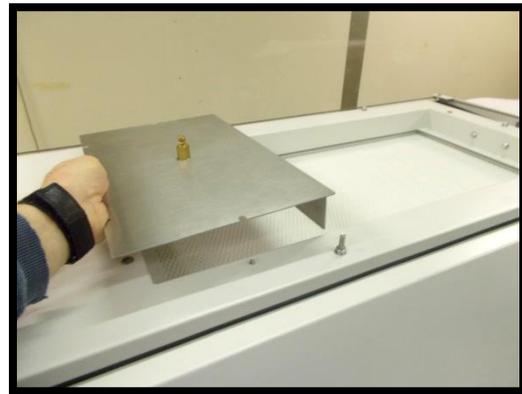
Step 2: If equipped, remove the germicidal light and IV Bar. Next remove the supply diffuser above the cabinet work area by first removing two 11/32" lock nuts. Lower the front of the supply diffuser and carefully slide it off of the rear locating pins and remove from the cabinet. **Caution: Avoid hitting the delicate supply filter media.**



Step 3: For a vent to room cabinet configuration, remove the exhaust filter protector by removing the two cap nut hardware assemblies using a 5/16" nut driver or ratchet. If equipped with a FlexAIR™ canopy exhaust connection, access to the HEPA filter for leak scanning can be performed by lifting the front bypass flap open and taping it to the exhaust ductwork. **Caution: Do not damage front FlexAir flap.**



Step 4: If the cabinet is equipped with an airflow pressure monitoring system, remove the exhaust filter pressure plate from the cabinet by disconnecting the pressure tubing, and removing all mounting hardware. This will provide full access to the exhaust filter media.



AEROSOL CHALLENGE AND INTRODUCTION LOCATION

Option 1: Measuring the Filters Upstream Challenge.

1. Place a tee fitting on the end of the aerosol generator hose and position the tee in the middle of the rear work surface perforation. [See Figure 1]

IMPORTANT
Decontaminate the cabinet before removing the port plug in Figure 2.

2. Measure the filters upstream challenge concentration of aerosol through the port shown in Figure 2. (Note: NSF/ANSI Standard 49 requires a minimum upstream concentration of 10 micro grams per liter.) Set upstream challenge value on photometer per manufacturer's instructions.
3. Scan cabinet filter(s) for leaks per NSF 49 guidelines.
4. Sustained aerosol penetrations shall not exceed 0.01% of the upstream concentration.

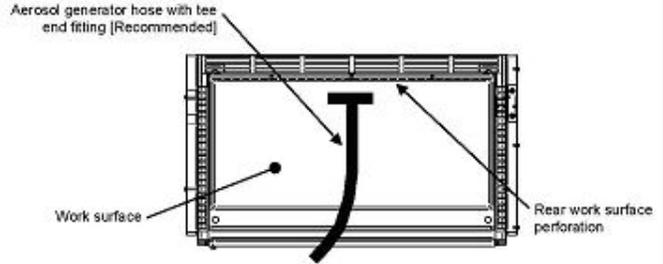


Figure 1: Section view of cabinet at work surface elevation

Option 2: Calculating the Filters Upstream Challenge.

1. Calculate the filters upstream challenge by using the following formula;
Number of Laskin Nozzles x 13,500/ Cabinet Total Airflow
Once the number of Laskin nozzle(s) producing ≥ 10 micro grams per liter of aerosol concentration is determined, set the internal reference on the Photometer per manufacturer's instructions. [Reference Table 1 below]

Table 1: Calculated Concentrations

Model	SG403A HE	SG503A HE	SG603A HE
Total Airflow (CFM)	750	900	1100
Laskin Nozzles needed	2	2	3
Calculated aerosol concentration (ug/L)	36	30	37

2. Place a tee fitting on the end of the aerosol generator hose and position the tee in the middle of the rear work surface perforation. [See Figure 1]
3. Scan cabinet filter(s) for leaks per NSF 49 guidelines.
4. Sustained aerosol penetrations shall not exceed 0.01% of the upstream concentration.

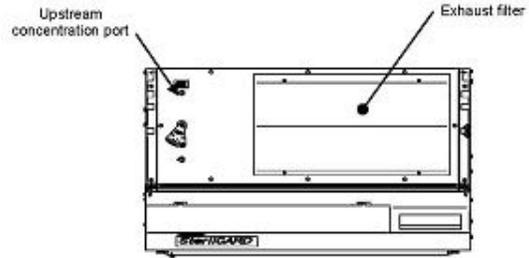


Figure 2: Top view of cabinet

41650

Step 5: Locate the 'Aerosol Challenge and Introduction Location' label behind the front Fascia panel for information on the Primary and Secondary methods for HEPA leak testing.

Primary Method: *Calculating the Filters Upstream Challenge.*

Refer to **Table 1: Calculated Concentrations** for total airflow, Laskin nozzles and calculated aerosol concentration. Upstream concentration must be a minimum of 10 micrograms per liter (µg/L). The following formula was used to determine calculated aerosol concentration values.

#Laskin Nozzles x 13,500 / Cabinets Total Airflow

CAUTION!
POTENTIALLY CONTAMINATED AREA!
BEFORE PROCEEDING, A RISK ASSESSEMENT SHALL BE PERFORMED TO IDENTIFY POTENTIAL HAZARDS WITHIN THE BIOSAFETY CABINET. IF REQUIRED A SURFACE DECONTAMINATION OR SPACE DECONTAMINATION MAY BE NECESSARY BEFORE PERFORMING THIS PROCEDURE. PROPER PPE SHALL BE USED AS INSTRUCTED BY LAB SAFETY OFFICER.

Secondary Method: Locate the cabinets' upstream concentration tube' located under the worksurface. Connect the upstream hose to a photometer to measure the upstream aerosol concentration for the supply and exhaust HEPA filters.



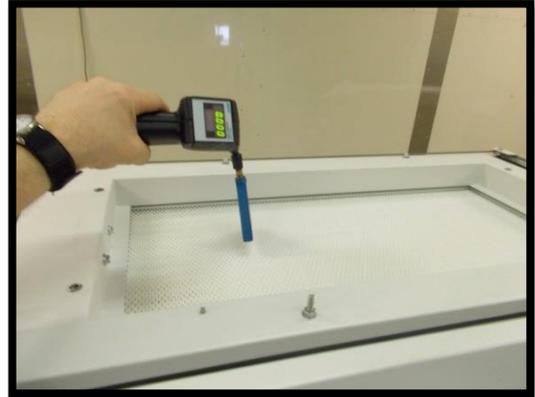
Step 6: Place a tee fitting on the end of the aerosol generator hose and secure to the worksurface.



Step 7: Turn on the aerosol photometer and perform all manufacturers' setup instructions.

Step 8: Verify that the cabinets' motor blower is on prior to starting aerosol generation. Perform previously determined upstream aerosol concentration (Primary or Secondary Method) and set photometer accordingly.

Step 9: Scan the supply and exhaust HEPA filter media including the perimeter gasket using the photometer nozzle at a distance no greater than one inch (25.4 mm) away and at a rate of no more than two inches per second (51 mm/sec).



Canopy Option: Scan test the exhaust filter as shown with Canopy connection front cover off using the same procedure



Acceptance: NSF/ANSI Standard 49, IEST-RP-0034 - Sustained aerosol penetration shall not exceed 0.01% of the upstream concentration at any point. Repair any detected leaks using customer/certifier accepted patching materials. Filter patch size shall not exceed 3% of the effective filter area of the side being patched. The maximum width of any one patch shall not exceed 1.5 inches (38 mm). If filter patching is not acceptable, replace HEPA Filter(s) referencing the procedures found in this service manual.



Environments For Science™

Airflow Smoke Pattern Test

WARNING!

THIS TEST REQUIRES THE USE OF A SMOKE TUBE OR SIMILAR DEVICE WHICH MAY SET OFF LABORATORY SMOKE DETECTORS IF USED CARELESSLY.

SPECIAL PRECAUTIONS SHOULD BE TAKEN TO AVOID AN ACCIDENTAL FIRE ALARM CONDITION.

1. **Down flow test:** Smoke shall be passed from one end of the cabinet to the other, along the centerline of the worksurface, at a height of 4 inches (100mm) above the access opening height. **The smoke shall show smooth downward flow with no dead spots or reflux (upward flow).**
2. **View screen retention test:** Smoke shall be passed from one end of the cabinet to the other, 1 inch (25.4mm) behind the view screen, at a height 6.0 inches (152mm) above the access opening height. **The smoke shall show smooth downward flow with no dead spots or reflux. No smoke shall escape from the cabinet.**
3. **Work opening edge retention test:** Smoke shall be passed along the entire perimeter of the work opening edges, approximately 1.5 inches (38mm) outside the cabinet. Particular attention should be paid to corners and vertical edges. **No smoke shall be refluxed out of the cabinet once drawn in, nor shall smoke billow over on to the work surface or penetrate onto it.**
4. **Sash/window seal test:** Smoke shall be passed up the inside of the sash 2 in (51mm) from the sides and along the top of the work area. **There shall be no escape of smoke from the cabinet.**



IV - MAINTENANCE

HEPA Filter Replacement Procedure

WARNING

This procedure must be performed by a qualified and trained biosafety cabinet professional. A risk assessment shall be conducted to identify biological hazards within the cabinet and if required a space decontamination must be performed. Additional Personal Protective Equipment (PPE) such as gloves and gowning may be required. See the facility lab safety officer for this information

WARNING

When a HEPA filter replacement is required, it is recommended that both supply and exhaust filters be changed out as a set.

FRONT DRESS PANEL REMOVAL

Step 1: Disconnect the cabinet power cord from the wall outlet to avoid a potential electrical hazard.

Step 2: Remove the two thumbscrews or 3/8" hex head bolts from the lower left and right side of the front dress panel.



Step 3: Raise the front fascia panel and engage the left and right panel supports



Step 4: Detach the blue electrical connector on the far left side of the cabinet.



Step 5: Cut all plastic tie wraps on the right side of the cabinet that secure the front fascia panel wiring. USE CAUTION NOT TO CUT ELECTRICAL WIRING!



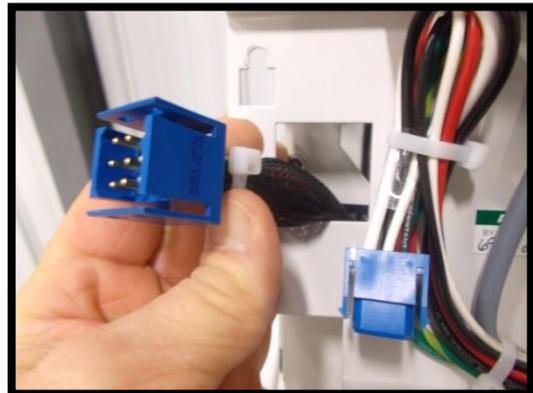
Step 6: Loosen the (4) 5/16" hex nuts, (2 on each side) of the electrical board. Do not completely remove these.



Step 7: Create some slack in the black supply power cable by pulling down. (A ladder may be required to disconnect cable ties on top of the cabinet).



Step 8: Lower the electrical mounting onto the lower two studs by lifting up and out. You must also move the female end of the blower electrical plug (left side) disconnected earlier and insert in the cutout provided on electrical board.



Step 9: Remove the sash alarm sensor mounting bracket using a ¼" nut driver or ratchet wrench. Set aside for re-assembly later.



Accessing the Cabinets Internal Plenums

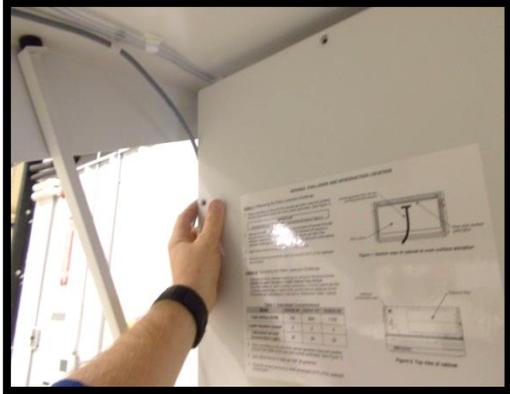
CAUTION –
Potentially contaminated plenum area

As indicted at the beginning of this procedure, a risk assessment shall be performed to determine whether or not a space bio-decontamination is necessary.

Step 10: Lower the sash to its full closed position. Next using a 3/8" nut driver or battery operated drill remove all (10) bolts and seal washers from the front seal panel.



Step 11: Once all 3/8" bolts and seal washers have been removed from front seal panel, carefully remove panel by leaning the top away from the cabinet face taking care to clear all electrical wires. Prying the seal panel away from the cabinet may be required to break the gasket seal- Use caution as not to damage the gasket.



Changing the Cabinet Exhaust HEPA Filter

Step 12: Using a 3/4" ratchet wrench or similar tool, loosen the left and right exhaust filter clamps to provide a 1" (25.4mm) minimum gap below or above the exhaust filter. The filter may need to be pried off to break the gasket seal using a screwdriver or putty knife.



Step 13: Remove the exhaust filter from the cabinet by pulling it outward. Dispose of the HEPA filter properly following customer facility requirements. Refer to NSF/ANSI Standard 49 guidelines for recommended disposal process.

For new exhaust filter installation, clean all gasket sealing surfaces first then insert the filter with flow directional label facing upward and tighten. Exercise caution to avoid contacting the delicate filter media.



Changing the Cabinet Supply HEPA Filter

Step 14: Using a 3/4" ratchet or socket wrench, loosen the supply HEPA filter clamps to raise the steel plenum. Provide a 1" (25.4mm) minimum gap below or above the supply filter. The supply filter may need to be pried off to break gasket seal using a screwdriver or putty knife.



Step 15: Remove the supply filter from the cabinet by pulling it outward.

Dispose of the HEPA filter properly following customer facility requirements. Refer to NSF/ANSI Standard 49 guidelines for recommended disposal process.

For new supply filter installation, clean all gasket sealing surfaces first then insert the filter with flow directional label facing downward and tighten. Exercise caution to avoid contacting the delicate filter media.



Step 16: Reassemble cabinet in reverse order and follow the **HEPA Filter Leak Procedure**.

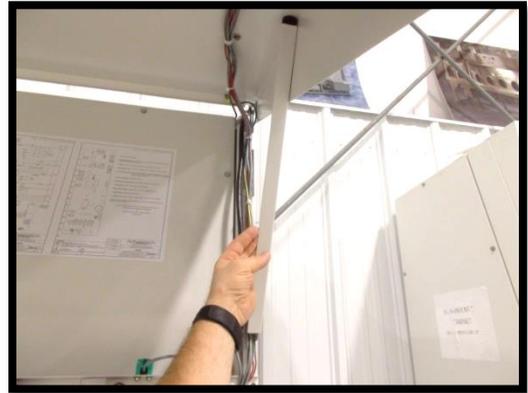
View screen Removal Procedure

CAUTION

Potentially contaminated area

As indicted at the beginning of this procedure, a risk assessment shall be performed to determine whether or not space decontamination is necessary.

Step 1: Raise front dress panel and extend left and right side dress panel supports.



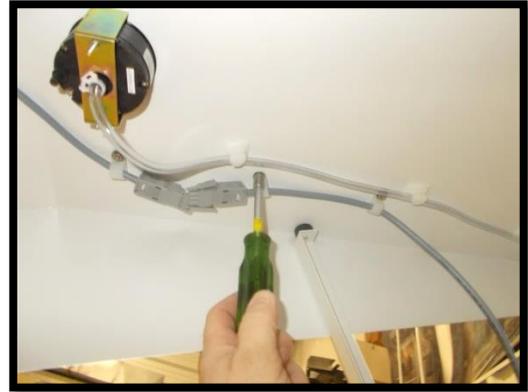
Step 2: Loosen the four 5/16" hex nuts, (2 each side) from the electrical board. Do not completely remove these.



Step 3: Detach the blue electrical connector on the far left side of the cabinet.



Step 4: Unplug the grey fluorescent light connector located on the left side of the fascia panel and remove (2) 11/32" nuts from the cable holders.



Step 5: Cut all plastic tie wraps on the left side of the cabinet that secure the fluorescent light wiring. USE CAUTION NOT TO CUT THE ELECTRICAL WIRING!



Step 6: Remove the electrical mounting board from the cabinet by lifting up and out. Stand the electrical board on the floor resting one end on right side of cabinet to allow room to access viewscreen.



Step 7: Raise the viewscreen completely and install an 8/32" x 1" long threaded bolt into the tapped holes provided on left and right viewscreen guide brackets. You may need to raise the viewscreen an additional 1/2" (13mm) to install bolts. Allow viewscreen to now rest on the 8/32" bolts.



Step 8: Remove thumbscrews or 3/8" bolts from both left and right side viewscreen guides.



Step 9: Remove the two bolt assemblies used to secure the viewscreen cables using a 1/4" spin wrench. Viewscreen will now be free from cabinet. (Note which bolt hole was used on each side of the viewscreen so that when replacement is installed viewscreen will hang level.)



Step 10: Carefully remove the viewscreen from the cabinet by lifting up and off.

For viewscreen installation, reverse the process. Special care should be taken when installing and leveling the viewscreen. Once installed, lower the viewscreen and verify that the bottom of the sash is level.





Environments For Science™

Fluorescent Lamp Replacement

Step 1: Turn off the fluorescent lamp by depressing the light on/off switch located on the touchpad .

Step 2: Unscrew panel fastener on each side.

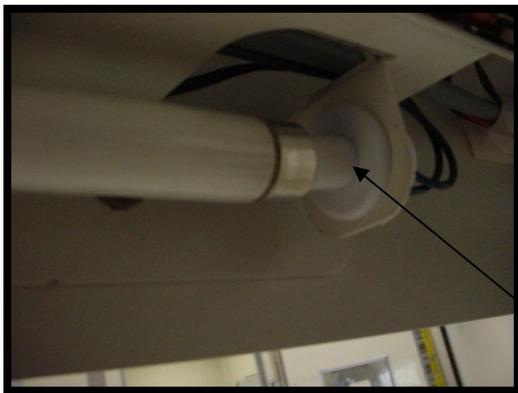
Raise front dress panel and extend left and right side dress panel supports.



Step 3: Using both hands, grasp the lamp carefully near each end. Slide the lamp sideways into the plunger

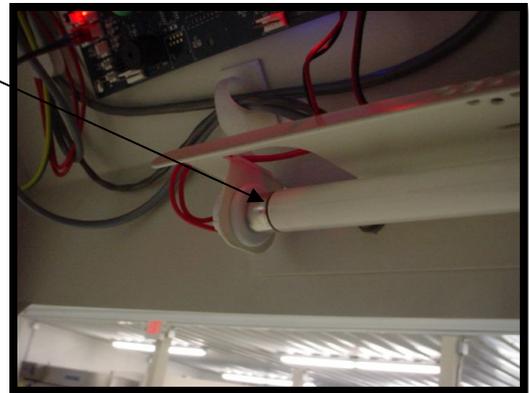
socket until the other end of the lamp comes out of the fixed socket.

Swing the lamp toward you and remove. Properly dispose of the lamp.



Fixed socket

Plunger socket



Step 4: Install a new lamp by doing step #3 in reverse order.

Step 5: Lower front dress panel to closed position. Press the light on/off switch to verify that the lamp is working. The cabinet blower must be on in order for the light to function.



Step 6: Insert and tighten the panel fasteners on each side.

Ultraviolet Lamp Replacement

UV germicidal lamps lose their effectiveness over time and should be replaced when the intensity at the work surface drops below 40 microwatts per square centimeter at a wavelength of 253.5×10^{-9} meters.

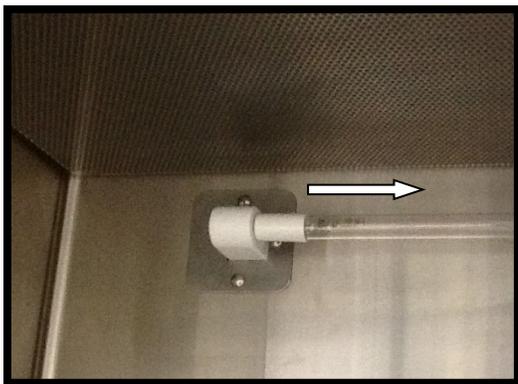
IMPORTANT

Before replacing a UV germicidal lamp it might be necessary to check with an industrial hygienist, safety officer or other qualified person in the lab to make sure that there is nothing stored in the cabinet that could potentially be a hazard to you or could be contaminated by room air.

Step 1: Raise the viewscreen to its maximum open position. The audible & visible alarm will activate.



Step 2: Using both hands, grasp the UV lamp carefully near each end and move it approximately ½ inch [13 mm] to the right side of the cabinet until the UV lamp is released from the lamp socket on the left side. Carefully remove lamp from cabinet and dispose of it properly



Step 3: Install a new lamp by doing step #2 in reverse order. Ensure that the lamp is held securely in place.

Step 4: Lower the viewscreen to full closed. This will cancel the audible alarm and flashing indicator light.
Turn on the UV light momentarily to verify that it comes on.
Immediately turn the UV off again.



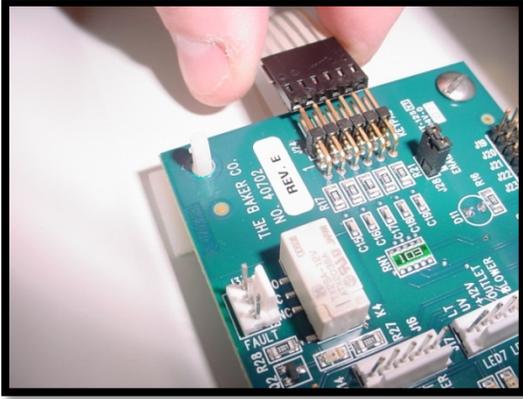
Environments For Science™

Step 5: Raise the viewscreen to the proper sash opening height.

Touchpad Replacement

Step 1: Unscrew and raise the front dress panel as previously described

Step 2: Carefully remove the touchpad ribbon cable from the Membrane Switch Controller (MSC) board located on the inside of the dress panel



Step 3: Close the front dress panel again and pry at one side of the membrane touchpad using your fingers until it releases from the painted surface. Slowly pull it away from the panel until removed and slide ribbon cable through the slot for complete removal



Start peeling off here

Step 4: If needed, remove any residual adhesive from the painted surface by applying adhesive remover to a clean cloth or towel.

NOTE: Do not spray any remover directly onto painted surface as this may damage the electronic control board mounted on the opposite side.

Step 5: Remove protective backing material from replacement touchpad and insert ribbon cable into rectangular cutout. The connection to the electronic control board will be completed in the next step.

NOTE: Be careful not to contact the exposed adhesive backing as this can affect its adhesion.

Step 6: Grasp the touchpad at both ends, and carefully position onto the front dress panel making sure of correct alignment before applying pressure that will activate adhesion.

Step 7: Reconnect the ribbon cable to the electronic circuit board

Step 8: Close the front dress panel and reconnect power to the cabinet; activate all push button switches to verify proper operation of controlled components.



Environments For Science™

Cabinet Pressure Monitor (Optional)



The Cabinet Pressure Monitor is measuring differential pressure across the exhaust and negative side of supply blower. This is set-up for Sensoccon pressure monitors with the Normally Open (NO) contacts wired in series for more fail safe operation.

- It provides Normally Closed (NC) condition when the device is powered and the pressure is between the programmed high and low limits.
- This provides a Normally Open condition when the pressure is beyond the programmed high or low limits.
- This configuration causes a fault (Normally Open) condition if there is a broken connection.
- This configuration also causes a fault (Normally Open) condition when the device is not powered.

WARNING

The values described in this document are pre-set at The Baker Company. These values should only be changed upon cabinet re-balancing / certifying in the field.

The 'High' port on the Sensoccon is connected to a positive pressure plate above the main exhaust filter. The 'Low' port on the Sensoccon is connected to a right angled barb fitting on the top of the cabinet, which connects to the negative side of the supply blower

Programming the Sensoccon:

Apply power to the device

Press & Hold the Up arrow pushbutton until the "Main" menu is displayed ~3 seconds

Press & Hold the Up arrow pushbutton until the "Setup" menu is displayed ~1 second

The Control [Ctrl] parameter should be highlighted

Control Type:

- Press the Right arrow pushbutton to access the Control setting list 1SP/2SP/SPAL/AL



Environments For Science™

- Use the Up and/or Down arrow pushbuttons to highlight "2SP"
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting

Press & Hold the Up arrow pushbutton until the "Setup" menu is displayed ~ 3 seconds

Set Point One Configuration:

- Press the Down arrow pushbutton to highlight [Set 1]
- Press the Right arrow pushbutton to access the Set 1 setting list
- Use the UP and Down arrow pushbuttons to highlight "db"
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight [1 act]
- Press the Right arrow pushbutton to access the 1 act setting list
- Use the Up and Down arrow pushbuttons to highlight "dir".
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight [SP1 D]
- If this is not at 'o' press the Right arrow pushbutton to access the SP1 D setting list
- Set the delay to 'o' using Right and Left pushbuttons to select the digit and Up and Down pushbuttons increase/decrease the value.
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting

Set Point Two Configuration:

- Press the Down arrow pushbutton to highlight [Set 2]
- Press the Right arrow pushbutton to access the Set 2 setting list
- Use the UP and Down arrow pushbuttons to highlight "db"
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight [2 act]
- Press the Right arrow pushbutton to access the 2 act setting list
- Use the Up and Down arrow pushbuttons to highlight "rev".
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight [SP2 D]
- If this is not at 'o' press the Right arrow pushbutton to access the SP2 D setting list
- Set the delay to 'o' using Right and Left pushbuttons to select the digit and Up and Down pushbuttons to increase/decrease the value.
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting

Set Point One Value and Deadband settings:

- Press & Hold the Up arrow pushbutton until the "Main" menu is displayed
- Press the Up and/or Down arrow pushbuttons to highlight "SP1"
- Press the Right arrow pushbutton to access SP1 value setting
- Use the Right and Left pushbuttons to select the digit and Up and Down pushbuttons increase/decrease the value.
This is the "high" or "upper" setpoint. Set value to +0.10 above cabinet set point pressure
- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight "SP 1 db"



Environments For Science™

- Press the Right arrow pushbutton to access the SP1 db value setting
- Use the Right and Left pushbuttons to select the digit and Up and Down pushbuttons increase/decrease the value.

This is the "high" or "upper" setpoint deadband. Set to 0.01

- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting

Set Point Two Value and Deadband settings:

- Press the Down arrow pushbutton to highlight "SP2"
- Press the Right arrow pushbutton to access SP2 value setting
- Use the Right and Left pushbuttons to select the digit and Up and Down pushbuttons increase/decrease the value.

This is the "low" or "lower" setpoint. Set value to -0.10 below cabinet set point pressure

- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting
- Press the Down arrow pushbutton to highlight "SP 2 db"
- Press the Right arrow pushbutton to access the SP2 db value setting
- Use the Right and Left pushbuttons to select the digit and Up and Down pushbuttons increase/decrease the value.

This is the "low" or "lower" setpoint deadband. Set to 0.01

- Press & Hold the Right arrow pushbutton ~ 1 second then release to accept this setting

Other Settings:

- Check the rest of the Setup Menu values. These are noted in the Menu Settings chart on the last page. The display resolution should be set at 3 digits using the same setting procedure described above.

Menu Settings:

Main Menu:

SETTINGS

Setpoint 1	SP 1	TBD at Test
Setpoint 1 Deadband	SP 1 db	0.01
Setpoint 2	SP 2	TBD at Test
Setpoint 2 Deadband	SP 2 db	0.01

Set-Up Menu: **Should not need adjustment**

Control	Ctrl	2SP
Set Point 1 Setting	Set 1	db
Actuation 1	1 act	dir
Set Point 1 Delay	SP1 D	o
Set Point 2 Setting	Set 2	db
Actuation 2	2 act	rev
Set Point 2 Delay	SP2 D	o
Peak	Peak	Varies, Read Only
Alarm Low	Al	N/A
Alarm Reset	AL RS	N/A



Environments For Science™

Alarm Inhibit	AL Ih	N/A
Alarm Delay	ALD	N/A
Peak	Peak	Varies, Read Only
Valley	Valy	Varies, Read Only
Mode	Mode	Pres
Units	Units	inWC



Environments For Science™

Replacement Parts List

Electrical Items	SG304
Fluorescent lamp	38684
Ultraviolet lamp	18022
Fluorescent lamp holders – plunger end / fixed end	35072
Ultraviolet lamp holders – plunger end / fixed end	18088
Fluorescent ballast	40093
Ultraviolet ballast	31354
VFD Motor drive	41780
Transformer	34327
Relay, solid state	42574
Terminal block	40450
Lower Proximity switch with connector	40671
Upper Proximity switch	40671
Membrane Switch Controller (MSC) board	40702
Membrane switch / Overlay	43441
Plug / Power cord, NEMA 5-20P	32897
Circuit breaker [Main]	41975
Self-resetting breaker [Outlets]	34331
Ground fault interrupter outlet with indicator light	34921
Mini Analog Pressure Gauge 0 - 0.5 “ WC	43330



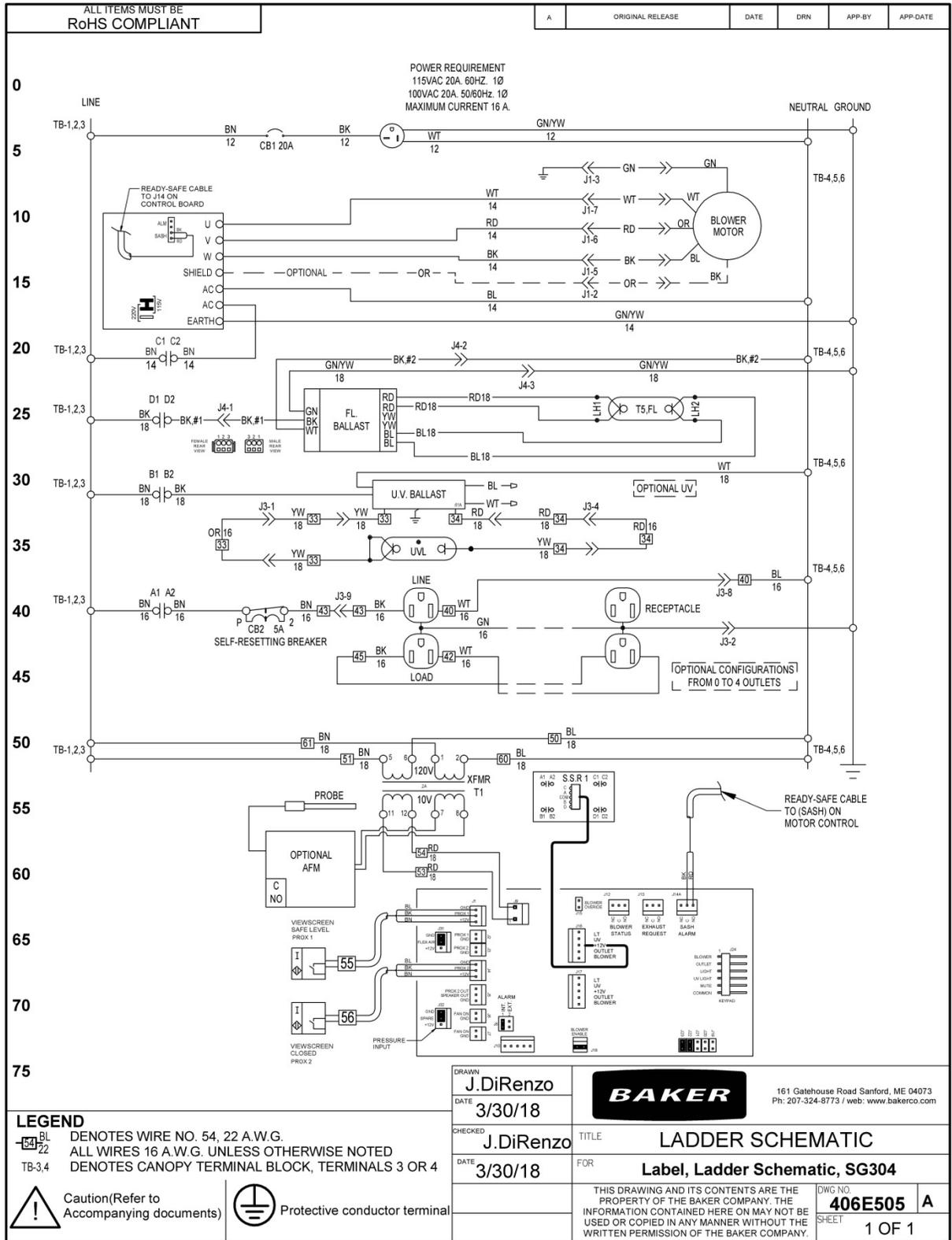
Environments For Science™

Mechanical Items	SG404
Down flow HEPA filter	39861
Exhaust HEPA filter	39447
Exhaust Damper	332A206
Motor/Blower Assy.	406A200
Armrest pad	406A702
Armrest Assembly	406A701
Work surface	406X100
Work surface support	406P111
Down flow diffuser	406P112
View screen	406A302
View screen track, right hand	355A305
View screen track, left hand	355A304
Cable, right side, view screen	41455
Cable, left side, view screen	44437
Pulley, 1.062" OD	41454
Cable Port Gasket	41126
Cable Port Plug Assembly – Left side	335A700
Cable Port Plug Assembly – Right side	335A704
Cable Port clip	366P700



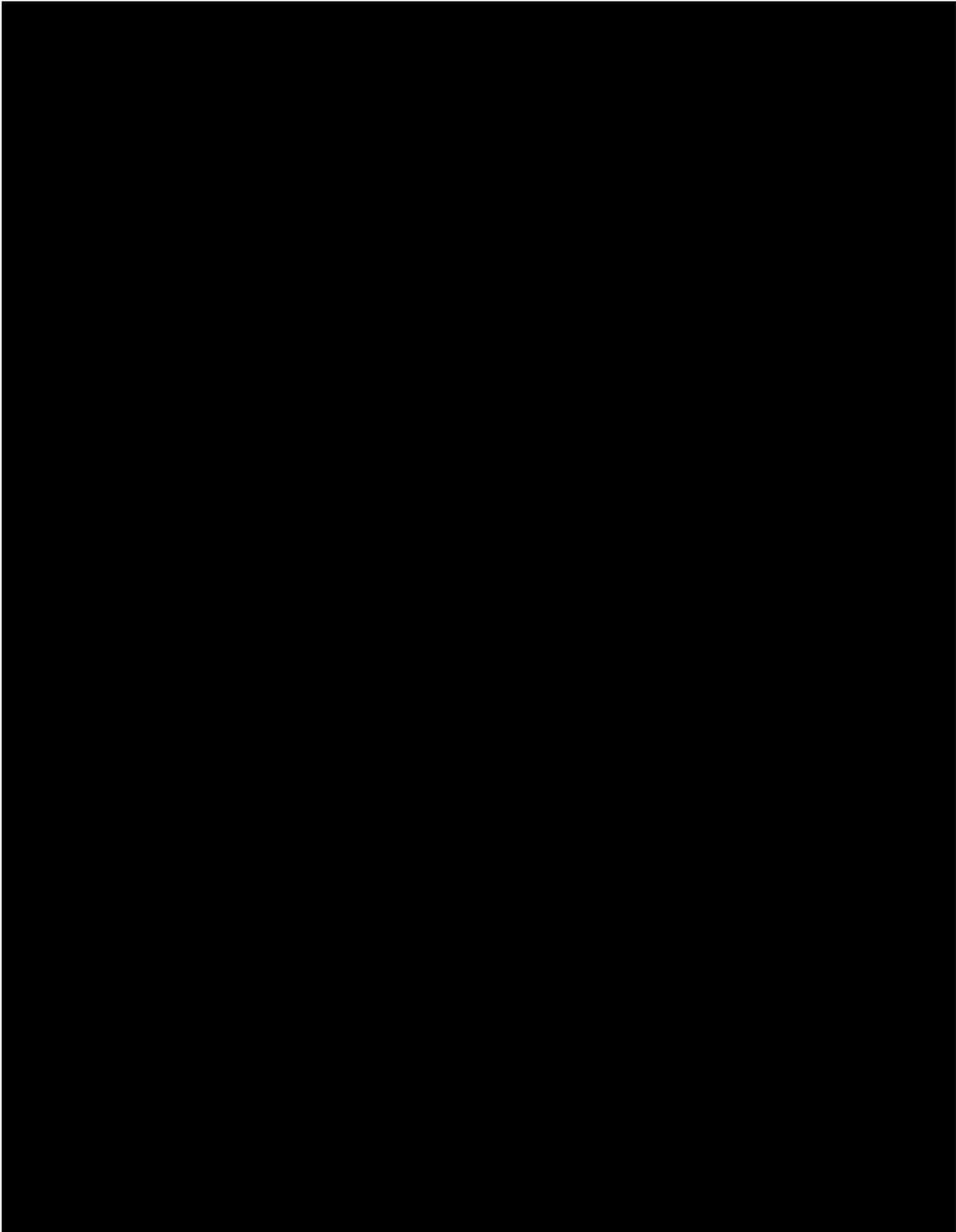
Environments For Science™

Ladder Schematics



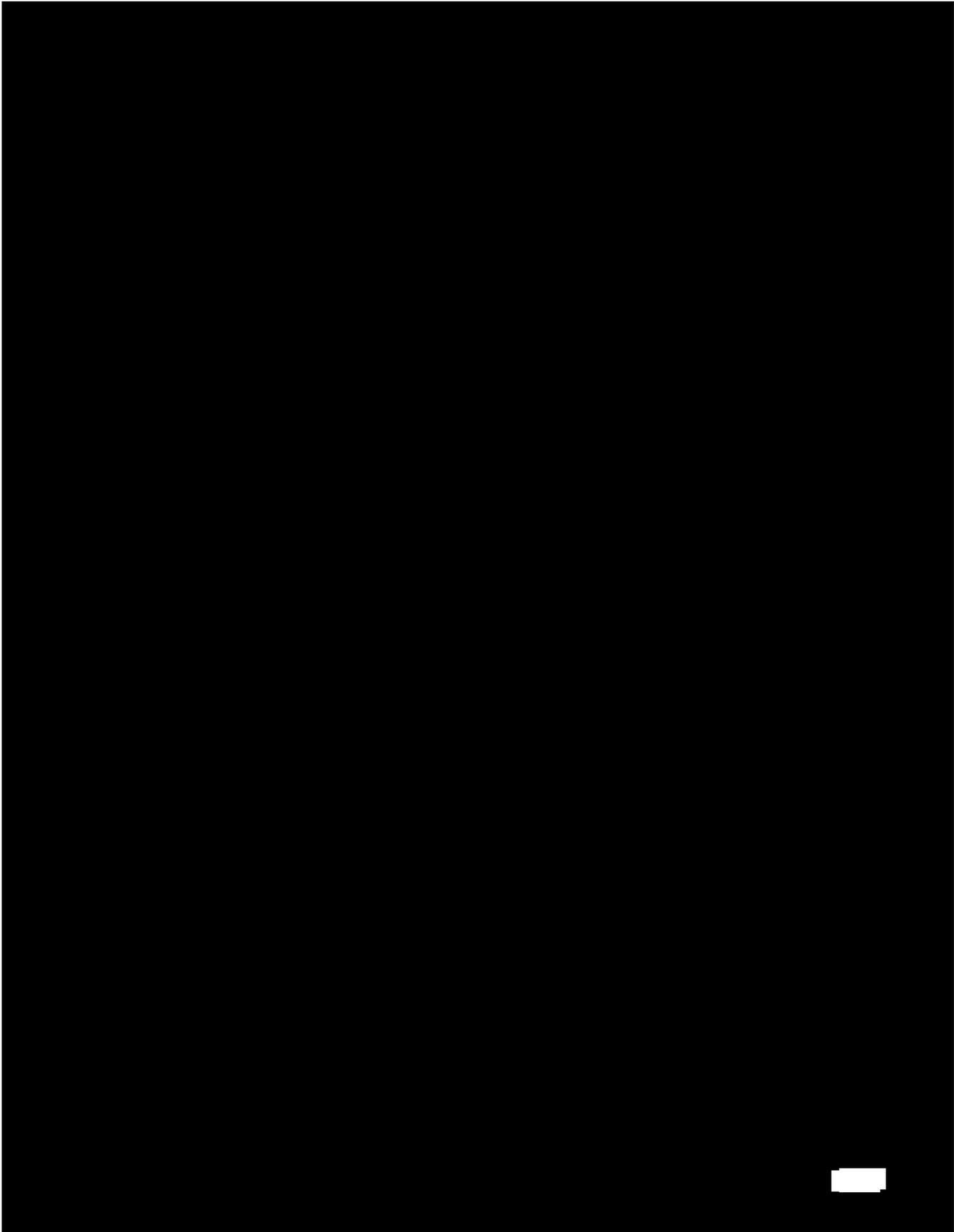


Environments For Science™



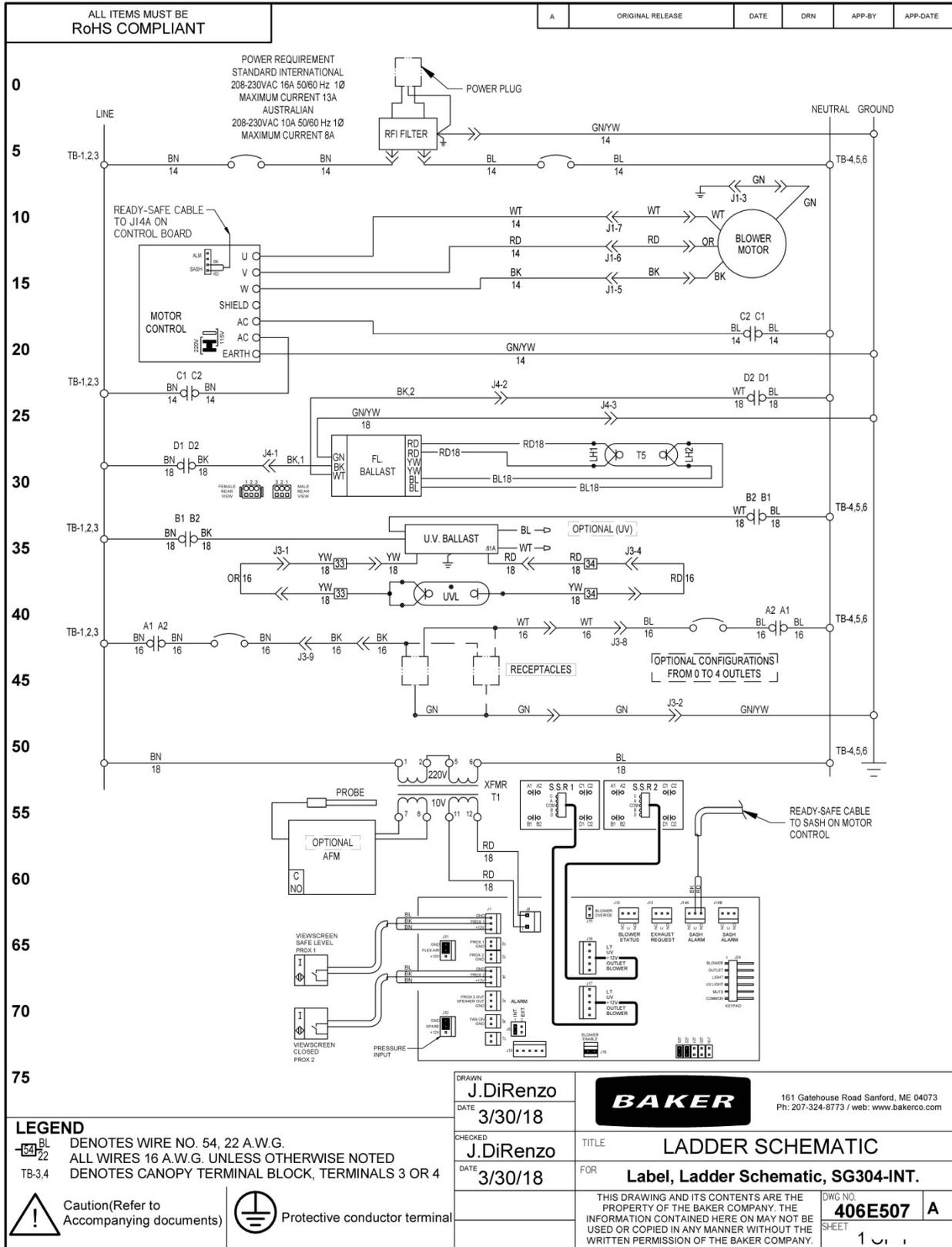


Environments For Science™



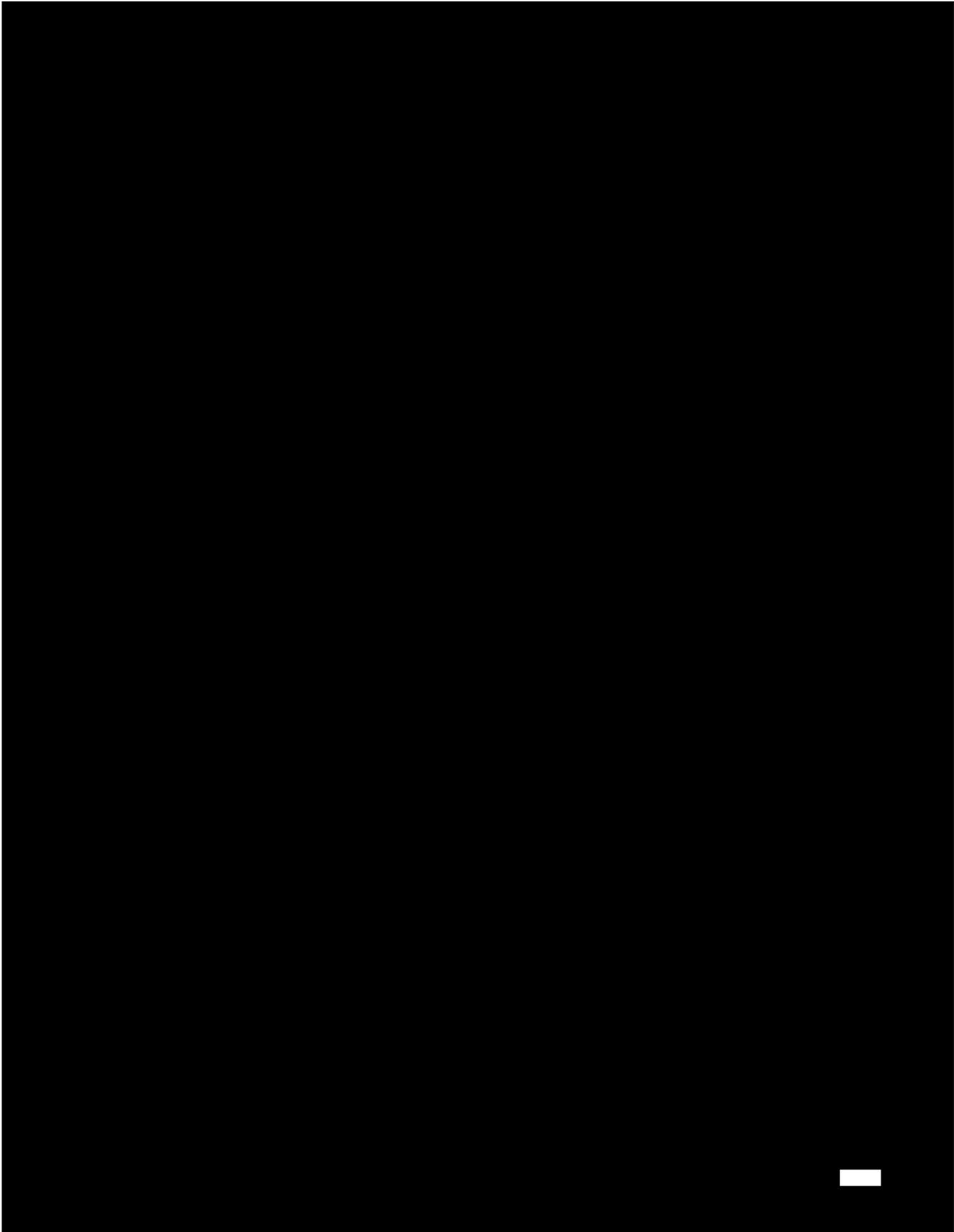


Environments For Science™





Environments For Science™





Troubleshooting Quick reference			
	Problem	Possible Problem	Diagnose
Motor	Motor will not start	<ul style="list-style-type: none">• Facility Power• Circuit Breaker• Keypad• Control Board• Solid State Relay (SSR)• Speed Control (VFD)	<ul style="list-style-type: none">• Check Incoming Power• Check Circuit Breaker• Troubleshoot Keypad• Troubleshoot Control Board• Troubleshoot SSR• Troubleshoot VFD
Fluorescent Light	Fluorescent Light Will not turn on	<ul style="list-style-type: none">• Blower not running• Sash closed• Bulb(s)• Control Board• Solid State Relay (SSR)• Ballast	<ul style="list-style-type: none">• Turn Blower On• Raise sash to operating height• Replace bulb(s)• Troubleshoot Control Board• Troubleshoot SSR• Troubleshoot Ballast
UV Light	UV Light Will not turn on (Optional)	<ul style="list-style-type: none">• Sash open• Bulb(s)• Control Board• Solid State Relay (SSR)• Ballast	<ul style="list-style-type: none">• Close sash• Replace bulb(s)• Troubleshoot Control Board• Troubleshoot SSR• Troubleshoot Ballast
Outlets	Interior Outlets Will not turn on	<ul style="list-style-type: none">• Facility Power• Circuit Breaker• Control Board• Solid State Relay (SSR)• GFCI tripped (Work area wall)• Device being plugged in, amperage too high	<ul style="list-style-type: none">• Check Incoming Power• Circuit Breaker• Troubleshoot Control Board• Troubleshoot SSR• Push Reset button• Resetting breaker tripped. (Resets when cool.)

Checking Incoming Power:

<p>Tools needed:</p> <ul style="list-style-type: none"> • Voltage meter 	
<ul style="list-style-type: none"> • Insert leads in wall socket: • Reading should be within 10% of unit rating. • See Serial tag on front face of unit for proper unit voltage. • 100/115V • (220V - International) 	
<p>If 0 Volts (or less than rated voltage)</p> <ul style="list-style-type: none"> • Alert Facility of power issue to the unit. <p>If: 100/115V 220V (International)</p> <ul style="list-style-type: none"> • Proceed to Trouble shooting quick reference or Trouble Resource guide. 	

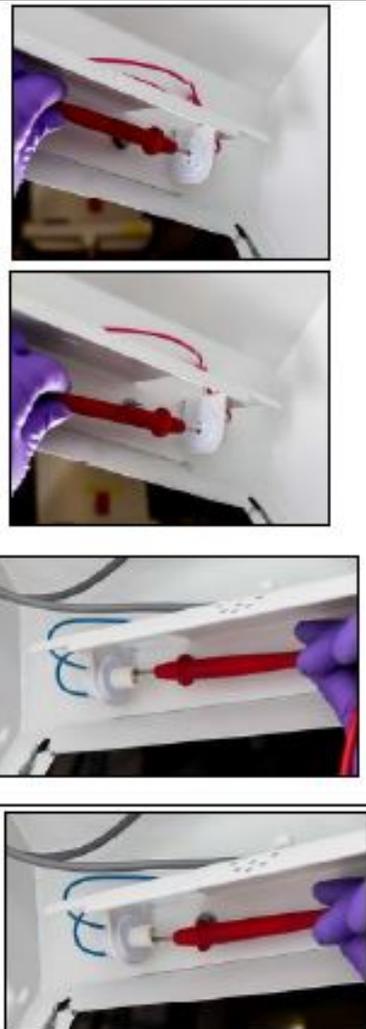
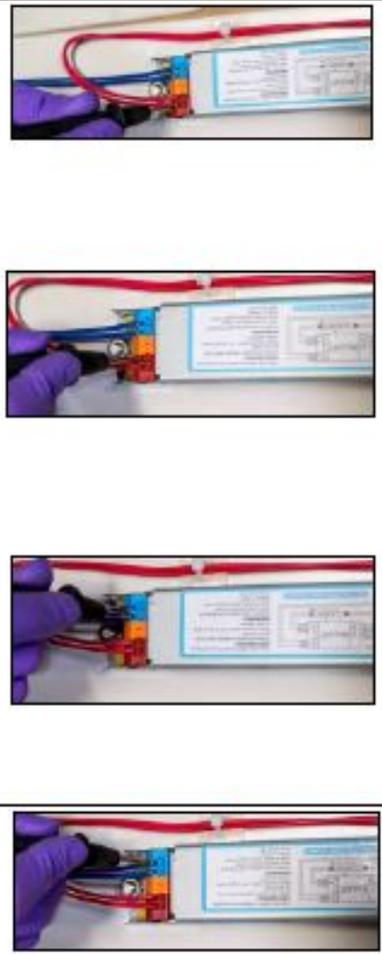
Circuit Breaker

<p>Tools needed:</p> <ul style="list-style-type: none"> • 3/8" socket/spin wrench may be needed if shipping hardware is still installed for front panel access. 	
<p>Open Dress Panel, extend supports to hold panel open.</p>	

<p>Locate Main circuit Breaker on electrical panel.</p> <p>The circuit breaker works similar to a light switch. When the lever is in the down position, there is no power to the unit, when up power is applied to the unit.</p> <p>If the lever is partially down, contact a service technician or electrician before resetting.</p> <p>If down, push the lever to the up ("On") position.</p>	
<p>If blower does not turn on, contact authorized service technician.</p>	

Fluorescent Light Troubleshooting

<p>DISCONNECT SUPPLY POWER BEFORE PERFORMING STEPS 1-3</p>	
<p>Step 1: Set multimeter to ohms, resistance or continuity.</p> <p>Figure 1 depicts a typical "OPEN" or faulty condition when checking continuity.</p> <p>Figure 2 depicts a typical "CLOSED" or good condition when checking continuity.</p>	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Figure 1</p> </div> <div style="text-align: center;">  <p>Figure.2</p> </div> </div>

<p>Step 2: Measure continuity between the sockets and the output of the ballast.</p> <p>The multimeter should indicate a 'CLOSED' condition.</p>		
<p>Step 3: Set multimeter to AC volts.</p> <p>If necessary, measure the voltage at the outlet the cabinet is plugged into to determine the supply power to the cabinet.</p>		
<p>CAUTION</p>		

HIGH VOLTAGE PRESENT CABINET SHOULD BE PLUGGED IN FOR STEPS 4 THROUGH 9	
<p>Step 4: Turn on the fluorescent light switch.</p> <p>Step 5: Verify the LED on the touch pad is illuminated.</p> <p>Step 6: Measure the voltage between pins 1 and 2 on the connector feeding the input voltage to the ballast.</p> <p>Step 7: Measure the voltage across the 'BLACK' and 'WHITE' terminals on the ballast.</p>	
<p>Step 8: Measure the voltage from terminal 'D1' to the terminal block neutral, #4, 5 or 6 typically.</p> <p>Step 9: Measure the voltage from terminal 'D2' to the terminal block neutral, #4, 5 or 6 typically.</p> <p>There should be approximately 115 VAC present at 'D1' and 'D2'.</p>	

The logo for Baker, featuring the word "BAKER" in white, bold, sans-serif capital letters inside a blue rounded rectangle.

Environments For Science™

Warranty

The Baker Company, Inc., expressly represents and warrants all goods (a) to be as specified (and described) in The Baker Company catalogues and literature, and (b) to be free under normal use, service and testing (all as described in The Baker Company, Inc., catalogues and literature) from defects in material and workmanship from a period of seventy-two (72) months from the invoice date [US/Canada only] and Twelve (12) month warranty for international.

The exclusive remedy for any breach or violation of this warranty is as follows: The Baker Company, Inc., will F.O.B. Sanford, Maine, furnish without charge repairs to or replacement parts or equipment which proved defective in material or workmanship. No claim may be made for any incidental or consequential damages.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE UNLESS OTHERWISE AGREED IN WRITING SIGNED BY THE BAKER COMPANY. THE BAKER COMPANY SHALL NOT BE RESPONSIBLE FOR ANY IMPROPER USE, INSTALLATION, SERVICE OR TESTING OF GOODS

The logo for Baker, featuring the word "BAKER" in white, bold, sans-serif capital letters inside a blue rounded rectangle.

Environments For Science™

The Baker Company, Inc.
175 Gatehouse Rd.
Sanford, Maine 04073
Tel: (207) 324-8773 / (800) 992-2537
Fax: (207) 324-3869
Email: bakerco@bakerco.com
www.bakerco.com

Patent pending – Air Bypass Armrest, Cable Port