This manual includes information for installation, operation, maintenance and spare parts. We recommend that it be kept near the cabinet for ready reference.
INTRODUCTION AND WELCOME

It is a pleasure to welcome you to the growing number of customers who own and operate Baker cabinets and glove boxes. As the inventors of the laminar flow biological safety cabinet and the leaders in the field, Baker people take special pride in providing a cabinet that is designed for maximum performance.

Your new SterilchemGARD® cabinet includes many unique features which are included to give you superior performance, simpler maintenance and lower life cycle cost. The SterilchemGARD® is a Class II, Type B2 biosafety cabinet that provides personnel, product, and environmental protection. All exterior cabinet seals are under negative pressure. The SterilchemGARD® is suitable for research and clinical diagnostic work involving tissue culturing of possibly infectious samples, IV drug preparations and other pharmaceuticals that could have adverse health effects on operators and other techniques requiring a contamination-free atmosphere.

In addition to the high quality you expect from all Baker equipment, this model has been ergonomically designed to provide the lab user with many exciting design features. The ergonomic design will help prevent repetitive motion injury, reduce fatigue and lab accidents and enhance productivity.

The adequacy of a cabinet for user safety should be determined on-site by an industrial hygienist, safety officer or other qualified person. Remember that you, the owner and user, are ultimately responsible and that you use your cabinet at your own risk.

We recommend that this manual, along with the factory test report, be kept near the cabinet for convenient reference by operators and qualified maintenance personnel. If you have any questions about the use or care of your new SterilchemGARD® cabinet, please do not hesitate to contact our Customer Service Department at 800-992-2537 for assistance or e-mail us at bakerco@bakerco.com.

Sincerely,

David Eagleson
President
The Baker Company, Inc.

Dennis Eagleson
CEO
The Baker Company, Inc.
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I – FUNCTION OF THE SterilchemGARD® III Advance°

SterilchemGARD® Airflow and Base Features

Room air enters the front access opening of the cabinet at a minimum of 100 FPM then enters the front work surface perforation. The cabinet down flow blower draws room air in at the top of the cabinet and pushes it into the down flow plenum and through the down flow HEPA filter. Most of the HEPA filtered down flow air passes through a diffuser but some of the air is dumped down the back of the viewscreen creating a high velocity air curtain at the front access opening. The HEPA filtered down flow air in the work area splits at the work surface. Some of the air enters the rear work area perforation while the remainder of the air enters the front work surface perforation. The air is pulled through the drain pan area, up the rear and side wall plenums, through an exhaust HEPA filter and out through a 12” exhaust collar at the top of the cabinet. [Reference Figure 1]
## Base Features

- Meets NSF 49 standard for Class II, Type B2
- Biosafety cabinet.
- HEPA filtration of air before it enters the work area.
- Front accessibility to electrical components, lamp, blower, and filters.
- Sliding view screen sloped 10 degrees for worker comfort.
- Removable work surface and supports for easy cleaning of the drain pan area.
- Down flow filter diffuser / protector.
- Membrane switch control pad.
- GFCI protected duplex (2).
- Fluorescent lamp.
- Petcock on left hand wall.
- Padded armrest.
- Low flow exhaust monitor.
Cabinet Pressure Plenums

The cabinets work area is surrounded by negative pressure and all external seals are under negative pressure. All internal positive pressure plenum seals are surrounded by negative pressure plenums.

Design Details

Motor / blower capacity

A motor / blower’s capacity is measured by its ability to provide a nearly constant volume of air as resistance increases because of filter loading. Verification by a simulated filter-loading test has established that your SterilchemGARD® cabinet is capable of automatically handling 60% increase in pressure drop across the filter without reducing total air delivery more than 10%. With the use of the manual speed control, a 200% increase in the pressure drop across the filter can be handled.

Air balance adjustments

Air balancing can be done by either of the following methods. However, only a technician with proper training and equipment should do it.

- The cabinet speed controller adjusts for normal voltage fluctuations and down flow filter loading. It controls the down flow air volume.
- The building exhaust system controls cabinet exhaust/intake air volume.

Tested HEPA filters

All filters in the cabinet are scan-tested HEPA filters. They are 99.99% effective on particles of 0.3 micron size. Each filter is leak checked after installation to assure that there are no leaks greater than 0.01% of the upstream concentration.

Easy filter access

For convenience and ease of service, all filters are front accessible. The down flow and exhaust filters can be removed through an access panel located behind the dress panels in the front of the cabinet. Only qualified technicians should replace filters.

One-piece interior wall construction

The interior side and rear work area walls are constructed from a single piece of 16-gauge stainless steel. It has 7/16” radius (rounded) corners to help prevent buildup of contaminants and aid in cleanup.

Front access high velocity air slots

At the intersection of both sidewalls and front access opening there are high velocity air slots. The purpose of the slots is to capture any particulate traveling near the sidewalls and access opening.
Towel guard

The towel guards are located under the work surface at the bottom rear and sides of the return-air plenums. Acting as a protective screen, integral to the interior walls, they help prevent wipes and other paper materials from being drawn into the blower system. They need to be kept clean at all times.

All-metal plenums

The plenums are constructed entirely of carbon and stainless steel in order to provide strength, durability, airtightness and resistance to deterioration.

Removable recessed stainless steel work surface

The work surface is constructed of corrosion resistant 16-gauge type 304 stainless steel, with a satin finish that diminishes light reflection. It is recessed to retain spills and can be removed along with its supports to gain access to the drain pan.

Drain pan

The drain pan is designed with 7/16” radius in all four bottom corners to facilitate cleaning and disinfection. Drainage is provided by a 1/2” diameter stainless steel ball valve located at the bottom of the drain pan.

Viewscreen

The cabinet’s 1/4” [6.35mm] safety plate glass sliding viewscreen may be opened to 20” [508.0 mm] (without armrest) for placing of large items in the work area, and maybe fully closed for system shutdown or UV light operation. Note: the armrest must be properly re-installed prior to working in the cabinet.

Work area lighting

The work area is illuminated by two external fluorescent lamps which provide a minimum of 100 foot-candles of light at the work surface.

Electronic Ballast

The SterilchemGARD ® features solid-state electronic ballasts for the fluorescent and UV (optional) lights. These ballasts increase reliability, efficiency, and service life with lower heat output.

UniPressure plenum

A telescoping all steel positive pressure plenum provides a more even clamping force on the HEPA filter frames and helps deliver the down flow air more uniformly. The plenum can be easily telescoped for quick filter changing.

Sponge armrest pad

The armrest pad is made out of EPDM sponge material and is resistant to most chemicals and UV exposure. It is held in place with a low tack adhesive so the pad can be easily removed for cleaning. It also can be autoclaved.
Ground Fault Circuit Interrupter

The outlets on the cabinet are protected by a ground fault circuit interrupter (GFCI). The GFCI is designed to protect the operator from some electrical hazards. If the GFCI detects a hazardous condition, it will automatically cut off electricity to all the outlets. The button in the center of the GFCI (typically the left hand) outlet will pop out. To reset the GFCI, correct the cause of the problem, and then press the reset button on the GFCI.

Cable ports (Optional)

A cable port is located in the cabinet’s left and right side walls. It provides a way of introducing power and data cables, or siphoning tubes into the work area of the cabinet without having to go through the front view screen access opening. A plug is provided for each port, when the port is not being used or the cabinet is being decontaminated.

UV light (Optional)

The ultraviolet (germicidal) lamp is permanently installed in the work area for. (See UV light warning in sect. III “Proper Cabinet Use”)

Adjustable Cabinet Height (Optional)

The optional Channel Stand has adjustable legs and leg levelers. The legs provide 6” [152.4mm] of height adjustment and the leg leveler provides an additional 2.5” [63.5mm] of height adjustment.

Specifications

Weight

The weight of the SterilchemGARD®, Model SG403A-TX / SG603A-TX cabinet (With channel Stand) is 668/893 pounds with a shipping weight of 798/1063 pounds.

Electrical Specifications

All electrical wiring to the cabinet should comply with the National Electrical Code and any applicable Local Electrical Codes at the site of installation.

A single 115V AC, 20A, 60 Hz, Single Phase dedicated circuit is required to power this unit. This circuit shall provide the protective earth ground for the cabinet.

The cabinet is internally protected with a 250V, 20A Circuit breaker.

Cabinet Ratings:

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>115V AC, 60Hz, Single Phase</td>
<td>7.0 Amps</td>
</tr>
<tr>
<td>Typical current less outlets for SG403A-TX</td>
<td>7.0 Amps</td>
</tr>
<tr>
<td>Typical current less outlets for SG603A-TX</td>
<td>9.0 Amps</td>
</tr>
</tbody>
</table>

The unit is furnished with one 14’ power cord with 20-amp plug, type NEMA 5-20P.

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 is provided with Fluorescent lighting.

The cabinet is provided with two GFCI protected, 115V AC, Duplex outlets. The outlet(s) on this circuit are protected by a self-resetting circuit breaker. This breaker allows 5A total on all outlets.

The cabinet incorporates the Baker StediVOLT® blower motor speed control. This compensates for normal variations in incoming line voltage.

The cabinet may be provided with an optional UV lamp. The UV lamp and Fluorescent lamp are interlocked to prevent simultaneous operation.

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

**Environmental Conditions**

The cabinet is designed for use in the following conditions:

- Indoor use
- Altitudes up to 2000 meters
- Temperature range from 5°C to 40°C
- Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% at 40°C
- Main Supply voltage 115V ±10%V AC
- Transient over voltage according to Installation Category (OVERVOLTAGE CATEGORIES) II per UL 61010-1, 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 - PREPARING THE SterilchemGARD®III Advance® FOR USE

Checking the Cabinet Upon Arrival

Upon receipt of your new SterilchemGARD® cabinet, first inspect the exterior of the crate, box and/or skid. If there is any visible damage, that fact should be noted on the receiving slip and immediately reported to the delivering carrier.

Next, remove the outer packing material and inspect the cabinet itself. If any concealed damage is found it should be reported to the delivery carrier. A claim for restitution should 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.

The Uses of a Biological Safety Cabinet

The SterilchemGARD®III Advance® has been designed to provide a work area which protects the experiment from the environment, and the environment and operator from the experiment. The laminar flow biological safety cabinet is designed for work with Biosafety Levels 1, 2 and 3 (low to moderate risk) agents as listed in The Center for Disease Control's "Biosafety in Microbiological and Biomedical Laboratories" (U.S. Department of Health and Human Services, Public Health Service, Centers for Disease Control and National Institutes of Health, U.S. Government Printing Office, Washington, D.C. 20402. (HHS publication number CDC 93-8395).

Biosafety level 4 or extremely high risk agents should never be used in this cabinet, except in conjunction with a one-piece positive pressure personnel suit ventilated by a life support system within a high containment facility. Please consult your safety professional for a proper risk assessment.

CAUTIONS

* The use of any hazardous material in the cabinet requires that it be monitored by an industrial hygienist, safety officer, or other qualified individual.

* Explosive or flammable substances should never be used in the cabinet unless a qualified safety professional has evaluated the risk.

* If hazardous biological work is to be performed, apply the enclosed biohazard decal. This is in accord with OSHA regulations (volume 39, number 125, Part II).

* If chemical, radiological or other non-microbiological hazards are present, be sure to employ appropriate protective measures. Call upon a suitably trained individual to monitor the operation.

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).
Installing the Cabinet

Installation of this cabinet should be carried out in accordance with appropriate OSHA regulations and those other regulatory agencies having jurisdiction.

To insure operator safety the cabinet must be installed and operated per the manufacturer’s instructions.

1. Remove the strapping that holds the cabinet to the pallet.
2. Remove the cabinet from the skid with a forklift or other available equipment.
3. Move the cabinet into the laboratory room. Remove all tape, plastic wrap and other packaging materials on the cabinet.
4. Remove the ¼-20 hex head screws that attach the weight box closure panel located on the right side of the cabinet. The counterweight is located inside the right side panel of the cabinet. Remove all tape, plastic wrap, and other packaging materials inside the panel. Remove two ¼-20 hex head shipping screws that hold the viewscreen counterweight from moving. The counterweight is located inside the right side panel of the cabinet. Verify that the viewscreen moves freely, and re-install the right side end panel.
5. Change out shipping hardware with ¼-20 thumb screws provided. A drawing showing the location of the shipping hardware on the cabinet is provided.
6. The cabinet drain valve, stand adjustable leg levelers, and exhaust filter guard are shipped with the unit in a small cardboard box.
7. Install the drain valve to the threaded pipe nipple. The nipple is located on the left underside of the cabinet drain pan.
8. Be sure to remove the protective material covering the cabinet exhaust opening.
9. If the cabinet vents its air directly into the laboratory room instead of ducting it outside, install the exhaust filter guard on top of the cabinet exhaust opening using the hardware provided.
10. Follow the base stand assembly and adjustment instructions provided in the appendix of this manual to set the cabinet to the worksurface height desired.
11. Position the cabinet in its desired location within the laboratory room.

Connecting the Cabinet Exhaust Transition.

1. Remove the cabinet exhaust transition from the shipping container.
2. Remove the protective material covering the exhaust filter opening.
3. Remove the exhaust filter access panel from the front of the transition by removing bolts with seal washers.
4. Place the exhaust transition over the exhaust filter opening. Align the holes on the transition with the ¼” male and female threaded fasteners that are located around the exhaust filter opening.
5. Install the transition mounting hardware along with transition mounting clip and hardware on the double ended mounting bolt. Tighten all hardware until the transition gasket is compressed between 25 to 50%.
6. Reinstall the exhaust filter access cover.
7. Locate the Air Flow Monitor (AFM) probe taped to the unit. Insert the probe its full length, with the scratch line on the probe facing the filter. Keep the glass beads on the tip of the probe in a horizontal plane as it is inserted into the gland fitting located on the transition cover. Hold the probe firmly while tightening the gland fitting to keep it from rotating.
Connecting the Exhaust for Ducting Outdoors.

The SterilchemGARD® cabinet operates with filtered exhaust ducted to the outdoors. Whenever possible, the cabinet exhaust should be 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 one. The cabinet has a low flow alarm (AFM) that provides audible and visual indication if the cabinets exhaust volume drops too low. The building exhaust system should contain provisions to adjust the building system flow and pressure. The connection between the cabinet and the building exhaust duct is a 12” diameter Hard Exhaust Connection (HEC).

Exhaust Requirements

<table>
<thead>
<tr>
<th>Cabinet Model</th>
<th>Sash Height (Inches)</th>
<th>Exhaust Flow Range (Approximate) (CFM)</th>
<th>Cabinet Pressure Loss Clean exhaust filter / 55% loaded filter (Inches W.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SG403A-TX</td>
<td>8</td>
<td>700 - 800</td>
<td>12”= 1.0 / 1.7 (Optional 10” =1.2 / 1.9)</td>
</tr>
<tr>
<td>SG603A-TX</td>
<td>8</td>
<td>1000 - 1150</td>
<td>12”= 1.3 / 2.0 (Optional 10” =1.5 / 2.2)</td>
</tr>
</tbody>
</table>

NOTE: Water column suction is measured two duct diameters directly above the cabinet exhaust outlet before any dampers, elbows or other restrictions. An added value of 0.7 “W.C.(174Pa) is applied to the clean exhaust filter per NSF/ANSI STANDARD 49 2008. This value compensates for an approximate 55% filter loaded condition on the SG403A-TX / SG603A-TX. With the optional air tight damper add 0.1”W.C. (25 Pa) to the above static pressure requirements.

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. When present, petcocks are piped within the cabinet. The external connection uses 3/8” compression 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. **Flammable gas should not be piped into any cabinet.** However, if the risk is professionally evaluated and a decision is made to install a flammable gas petcock, then an emergency shut-off valve should be situated in an accessible location outside the cabinet.

2. A 20 amp power cord with a NEMA 5-20P plug is furnished with the cabinet. It should be plugged into a 115V AC, 60 Hz, 20 amp dedicated utility outlet.

3. Thoroughly clean the interior of the cabinet. Locate the viewscreen at the correct opening height (8”).

NOTE: See Section III - PROPER CABINET USE “Operator Controls” for information regarding steps 4, 5, & 6 below.

4. Turn on the Blower. The indicator light will illuminate and the running blower will make an audible sound. **Note: Building exhaust system must be on for cabinet blower to operate.**

5. Turn on the Fluorescent Light. The indicator light will illuminate along with the interior work area. (**NOTE: The Fluorescent Light will not come on unless the blower switch is on. The Fluorescent Light and UV Light are interlocked so they cannot operate simultaneously.**)

- 12 -
6. If your cabinet has been purchased with the optional Ultraviolet Light (UV), lower the viewscreen 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 viewscreen is fully closed. The Fluorescent Light and UV Light are interlocked so they cannot operate simultaneously.)

7. Although all units are carefully tested at the factory, it is advisable that certain other checks are made on-site by a qualified technician after installation. These include testing the filters for leaks and checking the air balance of the cabinet, especially if it is connected to an exhaust system. A description of these tests can be found in Section IV, “On-site Checks and Maintenance”.

8. It is recommended that all personnel who will be using the cabinet study this manual to learn how to use it effectively. For additional start up and use procedures, reference Section III, Proper Cabinet Use

FOR MORE INFORMATION
For a complete listing of articles, papers, and reports related to containment, clean air products and safety, contact The Baker Company for our complete Bibliography or visit our website at www.bakerco.com

Airflow Monitor (AFM) Operation & Calibration

The AFM is an audible and visual alarm system consisting of solid state flow measuring and alarm circuitry in a small enclosure. The AFM has a Hot wire anemometer probe that is installed in the cabinet exhaust duct. The measuring circuit and probe are calibrated as a system so both must be replaced if problems occur. The AFM is equipped with an Alarm Relay that is connected to the cabinet Control Board to shut down the cabinet blower if the system airflow is not adequate.

The AFM visual indicators are Green (Power), Yellow (Caution), and Red (Warning) LEDs. The Green indicator is ON when the AFM is properly powered. If the Yellow and Red indicators are NOT ON the system has airflow that is above the calibrated setpoint. The Alarm Relay is energized when airflow is above setpoint. The normally open (NO) contact is closed. The Yellow indicator will turn ON when the airflow drops below the AFM setpoint. If the airflow remains below the setpoint for more than six (6) seconds the Red indicator turns ON (flashing) and the audible alarm turns ON. The Alarm Relay is deenergized when an alarm condition exists. The NO contact is open. There is an Audio ON-OFF switch to disable the audible alarm. If an alarm condition exists the Red indicator will continue to flash when the audible alarm is OFF.

When the Audio ON-OFF switch is in the OFF position alarm conditions may not be obvious to the operator. The Operator should return the switch to the ON position as soon as the current alarm condition is corrected.

The AFM alarm setpoint is calibrated at our factory after it is installed in the cabinet.

AFM recalibration should only be performed by a qualified certification company or biosafety professional.
Calibration for low airflow alarm condition

1. Check to make sure that the AFM probe is installed correctly.

2. Set the exhaust system 20% below the cabinet’s rated exhaust flow.

3. At this reduced airflow, the AFM’s yellow light should come on, followed by the flashing red light and audible alarm (if the slide switch for the audible alarm is in the ON position) and the supply blower will shut off.

4. If the red light is off, turn the ADJUST screw very, very slowly in a counterclockwise direction until the yellow light appears, followed in six (6) seconds by the red light.

5. Next, turn the ADJUST screw very slowly clockwise until the red light goes off. Wait 30 seconds and turn the screw counterclockwise again until the yellow light appears, followed by the red light. This sets the low airflow alarm point for the AFM.

6. Readjust the exhaust airflow in the building ductwork back to the proper set point. The AFM’s green light will come on.

Auxiliary Wiring Options

All SG403TX/603TX units will have the Blower Switch Status Wiring Package (333E548) installed as a standard configuration. This package includes wiring and a junction box that connects to the Blower Switch Status relay. (See General Arrangement Drawings for locations) This wiring allows the customer to connect the unit to a system to monitor the switch status or to connect to a control circuit for an external blower or damper in their exhaust system.

When the customer wants to monitor additional conditions in the unit, they can order the optional Cabinet Monitor Wiring Package (333E549). This option will include the wiring and hardware for the Blower Switch Status Wiring Package (333E548) plus wiring for connection to the Blower Operational Status relay and the Sash Alarm Status relay. They can choose to connect to one or more of these relays for monitoring or control of external systems.
Auxiliary Cabinet Monitoring Wiring Option
III - PROPER CABINET USE

A biological safety cabinet is a valuable supplement to good sterile technique, but is not a replacement for it.

If the cabinet is not understood and operated correctly it will not provide an adequate protective barrier. To insure operator safety the cabinet must be installed and operated per the manufacturer’s instructions.

All activities that are to be performed in your cabinet should first be approved by a competent professional, such as an industrial hygienist or safety officer, to make sure that the cabinet is appropriate for the work it will be required to do. This person should monitor the cabinet and its operating personnel at regular intervals to see that it is being used correctly.

In order to keep the interior work area clean and free of particulates, all Baker biosafety cabinets are designed for continuous operation. If the blower is turned off, the work area will become contaminated with room air. Therefore it is recommended that the blower be left on at all times.

Operator Controls

The operator controls with indicators are arranged on the front electrical panel of the cabinet. A number of switches are arranged in a single membrane switch assembly. [Reference Figure 2]
- Ultraviolet (UV) Light On / Off [Optional] – A bulb, which produces light in the ultraviolet range, may be used to help disinfect the work area. This switch controls the UV Light inside the work area if the UV Light option is installed. **The viewscreen must be fully closed before the UV light will turn on.** The Fluorescent Light and the UV Light are interlocked. When the viewscreen is closed, turning the UV Light On will automatically turn the Fluorescent Light Off. Turning the Fluorescent Light On will automatically turn the UV Light Off. The UV light will automatically shut off if the viewscreen is opened. A yellow indicator light located below the switch will illuminate when the switch is on.

- Fluorescent Light On / Off – This switch controls operation of the Fluorescent Light. **The cabinet blower must be on for the Fluorescent Light to operate.** The Fluorescent Light and the UV Light are interlocked. When the viewscreen is closed, turning the UV Light On will automatically turn the Fluorescent Light Off. Turning the Fluorescent Light On will automatically turn the UV Light Off. A Blue indicator light located below the switch will illuminate when the switch is on.

- Duplex Outlets On / Off – This switch controls the duplex outlets in the work area. A Blue indicator light located below the switch will illuminate when the switch is on.

- Blower On / Off – This switch controls the power to the cabinet blower. A Green indicator light located below the switch will illuminate when the switch is on.

- Alarm reset / Sash level alarm – For normal operation, the viewscreen must be placed at the allowable opening of 8”. The sash alarm will be activated whenever the viewscreen is positioned at an unsafe level. To mute the audible alarm, press the alarm reset button. The indicator light located below the switch will continue to flash. After five minutes, the alarm will sound again to remind you to reposition the viewscreen to its proper level. You may press the alarm reset switch again to mute the audible alarm for an additional five minutes.

**Programmable Delay Off Time Function**

The following procedure can be used to program a Delay Off time for UV, outlets, or fluorescent lights:

**NOTE** - The device to be programmed should be in the OFF condition before you start programming.

**15 minute increment programming:**

1. Press and hold the pushbutton of the device you want to program.
2. In about 3 seconds you will hear a short ‘beep’. This indicates that you have turned the device ON, are in the programming mode for the device, and have programmed it to turn OFF in 15 minutes. Release the pushbutton.
3. Each subsequent press of the device pushbutton while in the programming mode will add 15 minutes to the Delay Off time. (e.g. pressing the pushbutton 3 additional times would set the delay to 60 minutes, 15 min. initially plus 3 x 15 minutes additional delay times).
4. The device control will remain in the programming mode for about 4 seconds if the pushbutton is not pressed.
5. Once the programming mode for the device has ended the device can be turned OFF normally, if desired, by pressing the device pushbutton.
6. The programmed device will turn OFF automatically at the end of the Delay Time.
7. Each time a programmed device is turned off manually or automatically the programming is cleared and must be reentered, if desired.

**1 hour increment programming:**
1. Press and hold the pushbutton of the device you want to program.
2. In about 3 seconds you will hear a short ‘beep’. Continue to hold the pushbutton. In about an additional 3 seconds you will hear a longer ‘beep’. This indicates that you have turned the device ON, are in the programming mode for the device, and have programmed it to turn OFF in 1 hour. Release the pushbutton.
3. Each subsequent press of the device pushbutton while in the programming mode will add 1 hour to the Delay Off time. (e.g. pressing the pushbutton 3 additional times would set the delay to 4 hours, 1 hour initially plus 3 x 1 hour additional delay times).
4. The device control will remain in the programming mode for about 4 seconds if the pushbutton is not pressed.
5. Once the programming mode for the device has ended the device can be turned OFF normally, if desired, by pressing the device pushbutton.
6. The programmed device will turn OFF automatically at the end of the Delay Time.
7. Each time a programmed device is turned off manually or automatically the programming is cleared and must be reentered, if desired.

**Alarm Conditions**

Standard cabinets utilize the sash alarm; however three more alarms are also indicated. Below are brief descriptions of each of the alarm conditions that may be present on your cabinet. Additional information can be found by referencing the Standard Electrical Board Troubleshooting Guide (Dwg-503E500) in the appendix of this manual.

The sash alarm occurs when the view screen is not at a safe operating position, and alerts the user with a visual and audible alarm once per second. There is a 3 second delay before the alarm activates, to allow the end user time to move between safe operating positions. Pressing the mute button on the keypad will stop the audible alarm, however the visual alarm will continue until the view screen is placed at an appropriate level. If the sash position is not corrected, the audible alarm will return.

The FlexAIR alarm, (optional components required) occurs when the front flap on the CEC opens due to low exhaust air flow. A visual and audible alarm, twice per second, will alert users of this undesirable operating condition. The FlexAIR alarm can be muted, however a visual alarm will remain until the problem is resolved. If the flex air exhaust system has not been corrected, the audible alarm will return. Placing a jumper on J21 on the board causes the FlexAIR alarm to latch until it is acknowledged by an operator pressing the mute button. If no jumper is placed on J21, the alarm will clear once proper exhaust flow resumes.

The Power / Processor Fault, occurs when the system experiences a power outage or the processor has a
fault. This alarm is enabled by placing a jumper on J22 of the control board. An indication of this fault is a visual and audible alarm of three 1 second alarms followed by a two second delay. This cycle is repeated until the alarm condition is cleared by pressing the mute key. Relay K4 will be inactive with LED 14 OFF when in alarm, and energized with LED 14 ON when no alarm is present.

The Double Proximity Fault alarm occurs when both proximity sensors are activated. A visual and audible alarm four times per second indicates this fault condition. Below is a table which will help you to determine which proximity switch is at fault:

<table>
<thead>
<tr>
<th>Condition</th>
<th>Faulty Proximity Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>View Screen Closed</td>
<td></td>
</tr>
<tr>
<td>LED 2 On (Normal)</td>
<td>Upper Limit Prox Switch</td>
</tr>
<tr>
<td>LED 1 On</td>
<td></td>
</tr>
<tr>
<td>View Screen Open @ Safe operating position</td>
<td></td>
</tr>
<tr>
<td>LED 1 On (Normal)</td>
<td>Lower Limit Prox Switch</td>
</tr>
<tr>
<td>LED 2 On</td>
<td></td>
</tr>
<tr>
<td>View Screen Open (Not in safe operating position)</td>
<td></td>
</tr>
<tr>
<td>LED 1 On</td>
<td>Both Prox Switches</td>
</tr>
<tr>
<td>LED 2 On</td>
<td></td>
</tr>
</tbody>
</table>
Start-up Procedure

1. Make sure that the building exhaust system is operating, and the cabinet AFM is not in alarm. If the cabinet has not been left running continuously, then turn on the cabinet blower. An indicator light located below the switch will illuminate when the switch is on. Listen for the sound of the cabinet blower running. If equipped with an optional magnehelic gauge, check the readings on it, it should have a pressure reading consistent with the last time the cabinet was on.

2. Turn on the fluorescent light. (NOTE: The Fluorescent Light will not come on unless the blower switch is on. The Fluorescent Light and UV Light are interlocked so they cannot operate simultaneously.)

3. Check to determine that the drain valve is in the closed position or the drain coupling is capped.

4. If your cabinet has been purchased with the optional Ultraviolet Light (UV), lower the viewscreen 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 viewscreen is fully closed. The Fluorescent Light and UV Light are also interlocked so they cannot operate simultaneously.)

5. Wipe down the interior area of the cabinet with surface disinfectant. NOTE: Some disinfectants, such as bleach or iodine, may corrode or stain the steel surfaces. Good practice is to thoroughly clean the surface afterward with a detergent and rinse with sterile water to prevent corrosion.

6. Place all materials to be used for the next procedure inside the cabinet on the solid work surface. Disinfect the exterior of these materials prior to placing them on the work surface. Everything required (and nothing more) should be placed in the cabinet before beginning your work so that nothing passes in or out through the air barrier, until the procedure is completed. Implements should be arranged in the cabinet’s work area in logical order so that clean and dirty materials are segregated, preferably on opposite sides of the work area. Blocking the front and rear perforated grilles must be avoided. If wipes or absorbent towels are used on the work surface, be sure to keep them away from the grilles.

7. After your equipment is in place inside the cabinet, adjust the sliding viewscreen so it is open to the correct opening height (8”). An alarm will signal if you are not at the proper opening. This is important to maintain proper cabinet airflow.

8. You can begin working in the cabinet after it has run for at least three minutes with the viewscreen in the proper position.

Working in the Cabinet

1. Hands and arms should be washed thoroughly with germicidal soap both before and after work in the cabinet. Operators are encouraged to wear long-sleeved gowns or lab coats with tight-fitting cuffs and sterile gloves. This minimizes the shedding of skin flora into the work area and protects hands and arms from contamination.

2. Perform all work on the depressed area of the solid work surface. Work with a limited number of slow movements. Since all of the equipment you need is already in the cabinet, it will not be necessary to move your arms in and out through the air barrier.

3. Because opening and closing doors in the laboratory causes air disturbance which might interfere with cabinet airflow, this kind of activity should be kept to a minimum while the cabinet is in use. Personnel should also avoid walking by the front of the cabinet while it is in use.

4. Avoid using floor-type pipette discard canisters. It is important that your used pipettes be discarded into a
tray or other suitable container inside the cabinet. This reduces the temptation to move in and out of the work area unnecessarily.

5. Because of the restricted access, pipetting within the cabinet will require the use of pipetting aids.

6. Use good aseptic technique. Procedures done with good technique and proper cabinet methods will not require the use of a flame. If, however, a safety officer approves the use of flame after evaluating the circumstances, then a burner with a pilot light such as the "Touch-O-Matic" should be used. Place it at the rear of the work area where the air turbulence caused by the flame will have the least possible effect. Flame disturbs the unidirectional airstream and also contributes to the heat load. If the cabinet blower is unintentionally turned off, the flame could also damage a filter.

7. Tubing for a burner within the cabinet should be resistant to cracking or puncture. Material such as Tygon tubing is not acceptable for this use.

8. **Never operate your cabinet while the viewscreen alarm indicator is on.** The operating position of the sash provides an 8” access opening. This restricted opening permits optimum operating conditions for the cabinet. Because operators will not all be the same height, it is suggested that the operator use a chair that may be adjusted for height.

9. After a procedure has been completed, all equipment that has been in contact with the research agent should be enclosed, and the entire surface decontaminated. Trays of discarded pipettes and glassware should be covered. The cabinet should then be allowed to run for at least three minutes with no activity so that the airborne contaminants will be purged from the work area. Next, make sure that all equipment is removed from the cabinet.

10. After you have removed all materials, culture apparatus, etc., decontamination of the interior surfaces should be repeated. Check the work area carefully for spilled or splashed nutrient that might support bacterial growth. **Never use the cabinet to store supplies or laboratory equipment.**

11. We recommend that the cabinet be left running continuously to ensure containment and cleanliness. If the user elects to turn the cabinet off at the end of a work session, the window should be closed completely. The sash alarm will be silenced when the window is in the fully closed position.
Reacting to Spills

Spills should be cleaned immediately to prevent cross contamination to the work and to avoid any damage to the stainless steel surfaces.

It is recommended that the researcher, in coordination with their consulting safety professional, have a written plan available in case of an accidental exposure or spill. The safety plan should include all of the emergency procedures to be followed in the event of an accident. All employees who use the cabinet should be familiar with the safety plan.

Cable Ports (Optional)

Cable ports can be located in the cabinet’s left and right side walls. They provide a way of introducing power and data cables, or siphoning tubes into the work area of the cabinet without having to go through the front viewscreen access opening. A plug is provided for each port, when the port is not being used, or for when the cabinet is being decontaminated.

It is important not to overload the port with too many cables/tubing (Approx a bundle 1 1/8” in dia. Max.). Cables/tubing in the work area need to be suspended on cable hooks provided. The hooks are located along the interior rear wall. This keeps the cables/tubing from affecting the airflow in the work area and placing unwanted stress on the cable port gaskets. [Reference Cable Port Illustration in appendix]

Ultraviolet Germicidal Lamp (optional)

Ultraviolet lamps lose their effectiveness over time and should be replaced when intensity drops below 40 microwatts per cm² at the work surface. Check regularly.

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**WARNING**

- UV light is hazardous, DO NOT defeat interlock!
- Eyes and skin should not be exposed to direct ultraviolet light.
- Ultraviolet light should not be relied upon as the sole decontaminating agent. Additional surface disinfection should be performed both before and after every cabinet use.
- A biological safety cabinet acts as a supplement to good aseptic practices, not as a replacement.

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Decontamination

Whenever maintenance, service or repairs are needed in a contaminated area of your cabinet, the cabinet must first be decontaminated with an appropriate agent. The National Institute of Health, National Cancer Institute and the Centers for Disease Control have all recommended the use of formaldehyde gas for most microbiological agents. Its application requires individuals who are experienced in the decontamination of cabinets, since the gas itself is toxic. A good reference for this procedure is NSF/ANSI Standard 49-2007 ANNEX G “Recommended Microbiological decontamination Procedure”, NSF International, 789 North Dixboro Road, P.O. Box 130140, Ann Arbor, Michigan 48113-0140.

Have the proper safety equipment (gas masks, protective clothing, etc.) within easy reach for whatever gas you choose. In addition, you will want to be sure that the gas you are using will be effective against all of the biological agents within the cabinet. When you have decided which gas to use, post the antidote to it in a visible and nearby location. The volumes of the SG403A-TX & SG603A-TX cabinets are 49 and 78 cubic feet respectively. Provide the correct amount of decontaminating gas for this volume.

Carcinogens and other toxins present a unique chemical deactivation problem and the standard biological decontamination will not, of course, be effective against chemicals or other non-biological materials. With materials of this kind, consult a qualified safety professional.
Decontamination procedure

WARNING
Only qualified technicians should perform this procedure.

1. Surface-disinfect the inside of the window and all other surfaces on the view screen assembly.

2. Multiply the total volume of the cabinet (49 or 78 ft³) by .3 gram/ft³ of space to determine the amount of paraformaldehyde required to decontaminate the cabinet. If the cabinet is vented to the outside you must consider the volume of the duct work in the paraformaldehyde calculation.

3. Prior to sealing up the cabinet make sure all gas or flammable petcocks are closed and pressure tight. Use a soap bubble solution to make sure there is no leakage. Note: You are creating a confined space.

4. The inside cabinet work space should be at room temperature with 60% to 85% relative humidity. If relative humidity is low (10 to 30%) add a pan of boiling water on the work surface. If it is (40% to 55%) add a pan of hot tap water on the work surface. Relative humidity above 85% will require extra clean up which will be covered in step 15. Note: Without the proper relative humidity the formaldehyde gas will not be effective. The mode of entry of formaldehyde into the living organisms is through the cell wall by the absorption of water.

5. Place a heating mantle with paraformaldehyde in the work space. The heating mantle must be able to reach 450 degrees F and must have a grounded plug that should be plugged in to an outlet outside the cabinet.

6. This step is optional. Place a second heating mantle in the cabinet with 10% more by weight of ammonium bicarbonate than paraformaldehyde. This will be used later in step 13 to neutralize the formaldehyde gas.

7. This step is recommended. Place spore strips inside the cabinet to confirm that the decontamination process has been successful.

8. If the cabinet is vented to the room, use a sheet of plastic and seal the front access and exhaust port openings. These openings should be sealed such that the exhaust airflow recirculates back to the front access opening. This will promote the even distribution of formaldehyde gas throughout the cabinet.

9. If the cabinet is vented to the outside, then the exhaust transition should have a means to recirculate the exhaust airflow back to the cabinet blower. This will promote the even distribution of formaldehyde gas through the exhaust filter. Seal the front access opening.

10. Turn on the heating mantle containing the paraformaldehyde flakes.

11. After 25% of the paraformaldehyde has depolymerized, turn on the cabinet blower for 10 to 15 seconds. Repeat after 50%, 75% and 100% of the paraformaldehyde has depolymerized.

12. Allow the formaldehyde gas a minimum residence time of 12 hours, preferably over night.

13. Turn on the heating mantle containing NH4HCO3 and the cabinet blower and allow the two gases to circulate for at least one hour. Then vent the cabinet to the outside.

14. Aseptically remove spore strip and place in Trypticase-soy broth and incubate for 7 days. No growth will verify the decontamination process.

15. When cleaning up, you may find residual paraformaldehyde (white powder) on the metal or glass surfaces. To remove this, use ammonia in warm water, wear gloves and wipe down the affected surfaces. The paraformaldehyde will dissolve in water and be neutralized by the ammonia.
Cleaning and Disinfecting Stainless Steel

Simple Cleaning

**IMPORTANT**
Do not use steel wool or steel pads when cleaning stainless steel.

Dirt deposits on stainless steel (dust, dirt and finger marks) can easily be removed. Frequently, warm water, with or without detergent, is sufficient. If this does not remove the deposits, mild, non-abrasive household cleaners can be used with warm water and bristle brushes, sponges or clean cloths.

Iron rust discoloration can be treated by rubbing the surface with a solution of 15% to 20% by volume of Nitric Acid and water and letting it stand for one to two minutes to loosen the rust.

Disinfection

The purpose of disinfection is to destroy particular organisms that could pose a potential hazard to humans or compromise the integrity of the experiment. It is important to use a suitable disinfectant in the concentration appropriate to the organism being killed. Standard disinfectants include: Hypochloride (chlorine bleach), Iodophor-Detergent, Ethanol, Phenol and Alcohol.

**IMPORTANT**
Rinsing in sterile hot water and wiping the surface completely dry should always follow disinfection and cleaning.

Disinfect the work surface before and after every procedure.

1. Disinfect surfaces of all equipment used.
2. Remove all items from the inside of the cabinet.
3. Place all items that may have come in contact with the agent(s), such as used pipettes, in a plastic bag or other suitable container.
4. Disinfect the entire inside surface of the cabinet.


Using Ancillary Equipment

The rule to keep in mind is that the more equipment placed in the cabinet, the greater the air turbulence it causes. The turbulence resulting from equipment and materials can disrupt the designed airflow and reduce the effectiveness of the cabinet. When you use equipment which rotates, vibrates or heats, be sure to place it at the rear of the work area if possible. This will help minimize the turbulence at the access opening.
About the HEPA Filters

CAUTION

- The HEPA filter consists of continuous sheet of glass fibers pleated and mounted in a rigid frame. It is very delicate and the filter media should never be touched.
- HEPA filters are not intended to filter gasses or vapors.
- Misuse of chemicals, Bunsen burners, or a heavy dust load will shorten the filter’s life.

The High Efficiency Particulate Air (HEPA) filter is one of the essential components of a clean air cabinet. It is the shield, which stands between the product and the environment.

The HEPA filter consists of a continuous sheet of glass fibers pleated and mounted in a rigid frame. It is very delicate and the filter media should never be touched.

Proven efficiency in all HEPA filters used in Baker cabinets are 99.99% for particles 0.3 microns in diameter. The 0.3 micron particle is used as the basis for filter definition because theoretical studies have shown that filtration efficiency should be at a minimum for particles of this diameter, with efficiency increasing for particles either larger or smaller. Experiments with various viruses and microbial agents have proven the effectiveness of HEPA filters. (Contact The Baker Company for more information).

It must be pointed out that the HEPA filter is not intended to filter gases or vapors, nor are they 100% efficient on particulates.

The room and cabinet particulate levels along with the capacity of the building exhaust fan determines the life of a filter. Under most laboratory conditions, you should expect a long filter life. However, misuse or a heavy particulate load within the cabinet will shorten any filter's life.

Check the HEPA Filters Regularly (Recommended on an Annual Basis)

Over time as the cabinet operates, the filters will collect particulate. When the cabinet can no longer maintain proper airflow balance due to the loading of the filters, they will need to be replaced. Only qualified technicians should check the cabinet filters to verify that they have not loaded with particulate to the extent that airflow balance is compromised.

If any filter has visible signs of damage or leaks it should be fixed or replaced immediately.
IV - ONSITE CHECKS AND MAINTENANCE PROCEDURES

We recommend that the following checks be performed before initial use, after relocation, and after each filter change. They should also be carried out at regular intervals, usually six months or one year, as specified by an industrial hygienist, safety officer or other qualified person. The tests described below meet recommended minimum requirements and only experienced technicians using proper procedures and instruments must perform them. Our representatives can tell you about other tests, which you may consider desirable.

As reported earlier in this manual, each individual cabinet made by The Baker Company is carefully tested before it leaves the factory. Your copy of the test report, which you will find at the back of this manual, gives the factory test results for your own SterilchemGARD® cabinet. Use it as your record of the original testing, and as your guide to testing in the future. To gain many years of satisfactory service, please be sure that your maintenance personnel come as close as possible to duplicating these original test figures.

Your test procedures should be identical to ours so that achieving similar test results and comparison of data will be possible. Please correspond directly with us to request detailed procedures for your particular cabinet model. Alternate testing procedures can be found in the NSF/ANSI Standard 49.

The Airflow Balance

WARNING
Only qualified technicians should perform this procedure.

The airflow balance, which is set at the factory, provides your cabinet with the proper air volume and velocity control to minimize leakage of airborne contamination either into or out of the work area.

In order to duplicate as closely as possible the airflow characteristics described in the original factory test report, please follow these steps:

1. Adjust the window to its designed opening height.

2. Perform inflow velocity test per NSF/ANSI 49. Specific details are on the cabinet instruction label and in the factory test report.

3. Perform down flow velocity test per NSF/ANSI 49. Specific details are on the cabinet instruction label and in the factory test report. NOTE: The IV bar and UV light bulb need to be removed while performing down flow readings.

4. Compare your results with those originally recorded at the factory.

5. Make adjustments to the cabinet blower speed controller and the building exhaust system as necessary. The blower speed controller is located inside the light canopy. Turn the screw clockwise/ counterclockwise to increase/ decrease down flow. Changing the building exhaust will change the cabinet exhaust/intake flow. [Reference Chart# 1: “General cabinet air balancing guidelines” on next page.]
Condition | Adjustment | Building exhaust flow
--- | --- | ---
Down flow | Inflow | Speed control | Decrease | Increase
--- | --- | --- | --- |
High | High | Decrease | Decrease
Low | Low | Increase | Increase
Low | High | Increase | Increase
High | Low | Decrease | Decrease
OK | Low | Increase | Increase
OK | High | Decrease | Decrease
Low | OK | Increase | Increase
High | OK | Decrease | Decrease

Chart# 1: Type B2 Air Balancing Guidelines

NOTE: Increasing cabinet blower speed will decrease the intake flow, and vise versa, if the building exhaust is constant.

As the HEPA filters load up with particulates, down flow air will be maintained automatically, at least until the down flow filter resistance increases 50% or more. When down flow air eventually diminishes, you will have to increase the blower speed in order to maintain the original volume of down flow air. If the airflow cannot be maintained, it will be necessary to replace the HEPA filters.

The building exhaust system needs to be designed to deliver the exhaust flow at the required static pressure for a loaded exhaust filter condition. If, as the exhaust filter loads, the building exhaust system is unable to deliver the airflow then the filter will need to be replaced. (See "Procedure for HEPA Filter Replacement" later in this section).

Filter Leak & Smoke Testing

The filters in your cabinet were tested at our factory before shipment to ensure that the media, gasket, and frame were not exceeding NSF/ANSI Standard 49 allowable leak rates. Since filters may become damaged in transport, we recommend that the filters be re-tested by qualified technicians before the cabinet is used. The filters should also be leak tested at prescribed intervals as specified by an industrial hygienist, safety officer or other qualified person. NSF/ANSI Standard 49 details the steps for performing the filter leak test.

Filter leak test procedure – Down flow filter

1. Turn on cabinet blower. Leave the exhaust system running.
2. Raise the viewscreen to the full open position.
3. Remove the diffuser under the down flow filter to access filter media and frame by removing two cap nuts at the front, lowering the front and sliding the diffuser forward off rear wall mounting studs.
4. To calculate the upstream concentration, use the overall average downflow velocity multiplied by the area at the plane where the readings are taken (4 inches above sash at 8 inch opening) to determine total CFM through the filter.
5. Introduce the aerosol challenge to the cabinet blower.
6. Ports for measuring upstream concentration are located on the top rear left hand side of the cabinet. Use the left hand port.
WARNING
If the cabinet has been in use then it must be decontaminated before removing the plug.

7. Introduce the aerosol challenge to the cabinet blower at the front work surface perforation.

8. Perform filter leak test per NSF/ANSI 49.

9. Repair any discovered leaks.

**Filter leak test procedure – Exhaust filter**

1. Remove exhaust transition filter access panel.

2. An auxiliary blower with plenum is needed to achieve even upstream challenge across the filter. The auxiliary blower should be able to provide up to 750 CFM for a SG403A-TX and 1150 CFM for a SG603A-TX.

3. Mount the auxiliary blower to the front access opening. Use tape to seal around the viewscreen perimeter and blower. Make sure the auxiliary blower is properly supported. Attach the aerosol generator hose to the auxiliary blower inlet.

4. Seal off the down flow blower inlet opening located at the top right side of the cabinet.

5. To calculate the upstream concentration, use the average exhaust CFM of the cabinet.

6. Ports for measuring upstream concentration are located on the top rear left hand side of the cabinet. Use the right hand port.

**WARNING**
If the cabinet has been in use then it must be decontaminated before removing the plug.

7. Introduce the aerosol challenge to the auxiliary blower and measure for upstream concentration.

8. Perform filter leak test per NSF/ANSI 49.

9. Repair any discovered leaks.

**Airflow smoke pattern test**

We recommend that qualified technicians verify the direction of airflow within your cabinet before the cabinet is used. The direction of airflow should also be verified at prescribed intervals as specified by an industrial hygienist, safety officer or other qualified person. NSF/ANSI Standard 49 details the steps for performing the airflow smoke pattern test in their Standard 49.
Electrical safety tests

Since electrical components may become damaged in transport, we recommend qualified technicians retest them, before the cabinet is used. Note: Gasketed panels may not provide a good electrical ground.

The electrical leakage, ground circuit resistance, and polarity were tested at our factory before shipment to ensure that there is no risk of electrical shock present in your cabinet. Since electrical components may become damaged in transport, we recommend qualified technicians retest them, before the cabinet is used. The electrical safety tests should also be performed at prescribed intervals as specified by an industrial hygienist, safety officer or other qualified person. See cabinet test report for tests performed.

Note: While performing the electrical safety tests, ensure that the connections with the test leads are solid, as poor connections will increase the resistance reading. Also, ensure that the exposed metal being touched is solidly connected to the cabinet frame. Gasketed panels may not provide a reliable measurement.

Maintenance Notes

Cleaning the Work Area

Spills that fall through the perforated grilles can be removed through the drain valve after proper decontamination. To wash the drain pan under the work surface, lift up, surface decontaminate and remove the solid work surface and work surface supports. This provides unobstructed access to the drain pan for easy cleaning. Remember that this area must be assumed to have contamination, so use caution in the way you approach the task. Make sure you close the drain valve when you are finished cleaning the drain pan.

Ultraviolet Germicidal Lamp (optional)

As reported in other sections of this manual, UV germicidal lamps lose their effectiveness over time and should be replaced when their intensity at the work surface drops below 40 microwatts per square centimeter at a wavelength of 253.5 $\times 10^{-9}$ meters.

If your cabinet has a germicidal lamp, frequently measure its intensity at the geometric center of the work surface with an ultraviolet light meter. The visual appearance does not indicate UV effectiveness.

Checking the Optional Magnehelic Gauge and Air Flow Monitor (AFM)

Changes in areas surrounding the laboratory may produce unexpected dust or other conditions that affect the filters. To maintain filter integrity and good cabinet operation, check the Magnehelic Gauge (if equipped) and AFM periodically.

Replacing the HEPA Filters

When the certifier can no longer set the cabinet air flows to within ±5% FPM of the nominal set point by adjusting the speed control or building exhaust may mean the filters are loaded with particles and must be replaced. If the filters are damaged, they will also need to be replaced.

Before any seal panels are removed, the cabinet should be decontaminated. The filters are sure to have collected microorganisms and other potentially harmful particles generated in the work area during their lifetime, and maintenance personnel should not allow themselves to be exposed. It should also be remembered that a specific gaseous decontamination might work against microorganisms, but not against chemical agents. Where chemicals are present, consult an industrial hygienist or other qualified person.
A chemically contaminated filter must be handled with caution. Clothing and/or breathing apparatus should be used to protect personnel as necessary to reduce the hazard. It is advisable to seal the contaminated side of the filter by taping a plastic sheet or cardboard over the face before removal. This should minimize the number of particles shaken loose from the filter. Once removed, the filter should immediately be sealed in a chemical hazard bag and then disposed of safely in accordance with environmental regulations.

After filter replacement has been completed, the cabinet and the room should be cleaned and decontaminated in a manner consistent with the nature of the hazardous material. The cleaning materials, along with the protective gear and clothing should be properly disposed.

HEPA filters are very easily damaged, and you will want to use great care in handling so as to avoid injury to the filter media and gasket surfaces. When installing the new filters, it is a good idea to tape a piece of cardboard over the filter media to give protection against dropped wrenches or misdirected fingers. Of course, you'll need to make sure that the cardboard is removed before the access panels are re-installed. Inspect the filters carefully before and after installation. A broken or damaged filter is worthless.

For detailed instructions on changing the filters, see the following two sections.

**Accessing the down flow and exhaust filters**

**WARNING**

Only qualified technicians should perform this procedure. Decontaminate the cabinet before changing the filters.

1. Decontaminate the cabinet and disconnect power.
2. Close the viewscreen.
3. Pull the bottom edge of the vertical dress panel out away from the cabinet. Hinge the dress panel standoff down and lower the vertical panel on it. Unplug all wiring from the AFM box. Firmly grip the bottom edge of the vertical dress panel with both hands, slide the panel to the right and lift the panel off the cabinet.
4. Remove the light canopy locking fasteners inside the sloped dress panel and lower the canopy. Make sure the canopy support cables on each end are secured.
5. Loosen the four lock nuts holding the electrical mounting board and carefully lift the board off. Lay it face down inside the light canopy. (No electrical connections should need to be disconnected)
6. Remove the two bolts at the top holding the sloped dress panel. Lift the panel off the cabinet.
7. Loosen each of eight (8) 3/8” hex head bolts holding the front seal panel. Be careful not to damage or loose the seal washer on each bolt when removing them. Remove the seal panel. Be careful not to damage the panel gasket.
8. Remove the 3/8” hex head bolt that secures the blower box to the down flow plenum.
9. Remove the two (2) #8 hardware holding the blower inlet protector and the protector. Also remove the blower inlet prefiler.
10. Remove the four (4) ¼” hex head bolts in the base of the blower inlet that secure it to the blower box.
11. Unplug the power cord leads to the blower motor.
12. Grip the front of the blower box and slide it forward out of the cabinet.
13. You now have direct access to change the down flow and exhaust filters.
Changing the down flow filter

1. Loosen the two (2) ½” hex head bolts located on either side of the down flow filter plenum, alternating two or three revolutions at a time. This will lift the plenum up off the filter. If the filter gasket sticks to the cabinet, use a putty knife to break it free.
2. Slide the filter out towards you, making sure not to contact the filter media.

WARNING
Once removed, the filter should immediately be sealed in a chemical hazard bag appropriately marked for the type of hazard and then disposed of safely in accordance with environmental regulations.

If you also need to change the exhaust filter, go directly to “Changing the exhaust filter” steps now.

3. Slide the new down flow filter in all the way in until it stops against the rear filter stop. Be careful not to contact the filter media with your fingers. Align the filter frame, left to right, so it is positioned directly under the down flow plenum.
   Note: Make sure that the arrow on the filter is correctly oriented with the air flow of the cabinet.
4. Tighten the two (2) ½” hex head bolts, alternating two or three revolutions at a time until the filter gasket is compressed approximately 1/8”.
5. Reassemble the cabinet following the previous instructions in reverse order.
6. Reconnect the power.
7. Check the filter and gasket for leaks.
8. Check the cabinet air flow velocities.

Changing the exhaust filter

1. Loosen the two (2) ½” hex head bolts located on either side of the exhaust filter, alternating two or three revolutions at a time. This will allow the filter to drop down and slide out the front along the filter clamp rails. If the filter gasket sticks to the cabinet, use a putty knife to break it free.
2. Once the exhaust filter is lowered enough, slide it out the front towards you. Be careful not to contact the filter media.

WARNING
Once removed, the filter should immediately be sealed in a chemical hazard bag appropriately marked for the type of hazard and then disposed of safely in accordance with environmental regulations.

3. Slide the new exhaust filter in place, gasket side facing up. Be careful not to contact the filter media with your fingers. Position the filter so its frame is aligned with the cabinet frame.
   Note: Make sure that the arrow on the filter is correctly oriented with the air flow of the cabinet.
4. Tighten the two (2) ½” hex head bolts, alternating two or three revolutions at a time until the filter gasket is compressed approximately 1/8”.
5. Reassemble the cabinet following the previous instructions in reverse order.

If you need to change the down flow filter, go directly to “Changing the down flow filter” steps now.
IMPORTANT
When reinstalling the front seal panel, first tighten each ¼-20 hex cap screw until the bolt seal washer is engaged with the panel. **Next turn each bolt 1 ¼ to 2 ½ revolutions until the panel gasket is evenly compressed approximately half way. Do not over tighten. Use caution if using a power driven tool.**

6. Reconnect power.
7. Check the filter and gasket for leaks.
8. Check the cabinet air flow velocities.
Troubleshooting

IMPORTANT
Always check for proper airflow balance first.

Here are some suggestions based on our experience with the use and misuse of biological safety cabinets.

When a smoke test indicates that there is air flowing from the interior of your cabinet into the surrounding room:

1. Make sure that the building exhaust connection is operating at the proper static pressure and exhaust flow.
2. Verify that cabinet down flow is within specification.
3. Check to see if anything is blocking part of the intake or rear wall perforated.
4. Check for room cross drafts caused by vents, open windows, and high traffic through doorways. Eliminate the source of the cross draft.
5. The exhaust filter maybe loaded with particulate if the cabinet has been in service for some time. Decontaminate the cabinet and replace the filter.

When there is low down flow within the work area:

1. Check the incoming line voltage. Low voltage may cause the blower to operate at a slower-than-designed speed. You may be able to compensate by adjusting the blower speed control clockwise until proper velocity is reached. The control is located inside the light canopy.
2. The down flow filters maybe loaded with particulate if the cabinet has been in service for some time. If the blower speed control is turned up to maximum voltage and the down flow is still low, decontaminate the cabinet and replace the down flow filter.

If there is no down flow within the work area:

1. Make sure the cabinet is plugged in and the blower switch is turned on. The Green indicator below the button should be lighted.
2. Check the AFM alarm and exhaust flow
3. Check the wiring connections between the electrical panel and the cabinet to see if they are connected properly.
4. See if the light is working. If it is, then turn the blower switch off and let the cabinet set for ten minutes. This allows the motor time to reset itself, if it had overheated. NOTE: If the motor restarts and there is a whining sound, the motor bearing maybe causing the motor to overheat.
5. If these solutions do not correct the problem, or if the blower failed to start after the rest period, then the speed control, blower motor, or capacitor is defective. A qualified electrician, using the wiring diagram in the Appendix of this manual, can by-pass the speed control to determine if it is defective.

If one (or both) of the electrical outlets does not function:

1. Make sure the outlet switch is in the on position. The Blue indicator below the button should be lighted.
2. Check the reset button on the Ground Fault Circuit Interrupter outlet. If the GFCI has tripped out, press the reset button. The outlets are also protected by a self-resetting thermal circuit breaker. A qualified electrician, using the wiring diagram in the Appendix of this manual, can check this breaker.
If the Ultraviolet (UV) Light doesn’t work-
1. Make sure the window is completely closed.
2. The Yellow indicator below the switch should be On and the Fluorescent Light should turn Off automatically.
3. Check for proper installation of the bulb in the lamp sockets.
4. Inspect the UV bulb; replace if necessary.
5. Have a qualified electrician check the power supply to the UV Lamp ballast.
6. If none of the above corrects the problem, the ballast may need replacing.

When there is uneven fan operation, or noise from the motor/blower assembly-
1. Open the electrical panel and check the multi-pin connectors to be sure they are securely engaged.
2. Check the speed controller for proper input power and output voltage consistent with the Test Report.
3. Remove the blower access panel and inspect the blower wheel for contact with the blower housing.
4. Check the blower for loose objects.

When the Viewscreen Sash Alarm is sounding-
*NOTE: The indicator below the alarm-reset button will flash.*
1. Make sure the window is at the correct position. The alarm should be silent when the window is at the proper design opening or fully closed. You can silence the audible alarm for five (5) minutes by pressing the Alarm-Mute button. The indicator will continue to flash until the window is set in the correct position. After five (5) minutes, the alarm will sound again. You may press the Alarm-Mute button again.
2. Open the electrical panel and check to see if the proximity sensor cables are connected.

If the Fluorescent Light doesn’t work-
1. The blower switch should be turned on, and the Blue indicator below the Fluorescent Light switch should be lit.
2. Open the electrical panel and check that the bulb is properly installed in the lamp sockets. If the lamp flickers and can be corrected by vigorous rubbing of the bulb, there is probably an improper ground.
3. Have a qualified electrician check the wiring and ballast for continuity. The wiring can be traced to the source of a break. If none of the above corrects the problem, the ballast may need replacing.

If the (optional) magnehelic gauge has high or low readings-
*NOTE: Always check for correct airflow balance first.*
A higher reading than what was originally recorded on the cabinets test report could be an indication of the following:
1. Blocked or partially obstructed work surface perforation (front and/or rear).
2. Towels or wipes are blocked the towel guards in the drain pan area.
3. The viewscreen is in the closed position and the in-house exhaust fan is still pulling air through the cabinet.
4. Incorrect airflow balancing.
A lower reading than what was originally recorded on the cabinets test report could be an indication of the following:

1. Blocked or partially obstructed filters.
2. Work surface has been removed.
3. Incorrect airflow balancing.

**Main Circuit Board L.E.D. Troubleshooting**

A Troubleshooting guide for the control board is provided at the end of the appendix section.
V – DISASSEMBLY INSTRUCTIONS

IMPORTANT
Only qualified technicians should perform this procedure.

1. Unplug cabinet from power source. Lower viewscreen.

2. Removal of the vertical dress panel:
   A. Pull the bottom edge of the vertical dress panel out away from the cabinet. Hinge the dress panel standoff down
      and lower the vertical panel on it.
   B. Unplug all wiring from the AFM box.
   C. Firmly grip the bottom edge of the vertical dress panel with both hands, slide the panel to the right and lift the
      panel off the cabinet.

3. Removal of the light canopy:
   A. Remove the light canopy fasteners inside the sloped dress panel and lower the canopy.
   B. Unplug the wires going from the light canopy to the electrical mounting board.
   C. Disconnect the canopy support cables from the electrical mounting board.
   D. Lift the canopy off the cabinet.

Removal of the sloped dress panel:
   E. Remove the two screws at the top, and loosen the lower (4) lower lock nuts holding the electrical mounting
      board.
   F. Disconnect the sash level sensor.
   G. Lift the panel off the cabinet.

4. Removal of the electrical mounting board:
   A. Disconnect the power cord assembly at the top of the cabinet that goes up from the electrical mounting board.
   B. Disconnect plug on the left side.
   C. Carefully lift the electrical mounting board with the power cord assembly attached off the cabinet. Store in a
      safe place.

5. Removal of sliding viewscreen:
   A. Lift the viewscreen up to its maximum height.
   B. Place #8-32x 3/4” long truss head screw in tapped hole at top of sash brackets under each viewscreen cable
      tab. Leave the screws out approximately 3/8” to 1/2”. This will support the viewscreen while the cables are
      being disconnected.
   C. Remove the #8-32 hex head screw that holds the cable to the viewscreen cable tab. Repeat the process for other
      side of the viewscreen.
   D. Remove lower left and right hand viewscreen tracks.
   E. Carefully lift the viewscreen up and off of the cabinet. This should be done with two people.

6. Remove armrest, work surface, and work surface supports.

7. Removal of the blower:
   A. Remove the blower access panel that is held on by four (4) #8 truss head screws.
   B. Remove two (2) #8 screws that hold the blower to the blower box. Slide the blower toward you.

8. Removal of the left side panels:
   A. Disconnect viewscreen cables from bearings on top of the panels.
   B. Remove the ¾” brass nuts from each plumbing connection.
   C. Remove retaining bolts. Disconnect any wiring in the left side panel. Remove panels.

9. Removal of right side panel:
   A. Remove outer right side panel cover (9 bolts).
   B. Disconnect view screen counter weight cables from view screen counter weight. Reinstall cable
      attachment bolt to prevent the weight box from opening during removal.
   C. Remove the counter weight box by sliding it up and out the top of its tracks.
   D. If optional side wall plumbing is installed, disconnect the tubing at both ends and remove. Unthread
      the upper elbows and remove.
   E. Remove the sash cables from the pulley assemblies.
   F. Remove the hex head bolts (7 with seal washers) and remove the panel using caution not to damage
      the gasket if side wall plumbing is installed. Note the arrangement of the rubber washer on the side
wall plumbing for reassembly. Clean and apply new Teflon tape during the reassembly of the plumbing elbow. These fittings have to seal to the side panel.

10. See “Replacing the HEPA Filters” for instructions on how to remove the front seal panel, blower box, and filters.

Use these instructions in reverse order to reassemble the cabinet.
Appendix
Replacement Parts List:

<table>
<thead>
<tr>
<th><strong>Electrical Items</strong></th>
<th>SG403A-TX</th>
<th>SG603A-TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorescent lamp</td>
<td>41387</td>
<td>41386</td>
</tr>
<tr>
<td>Ultraviolet lamp</td>
<td>18024</td>
<td>18025</td>
</tr>
<tr>
<td>Fluorescent lamp holders</td>
<td>41438/41439</td>
<td>41438/41439</td>
</tr>
<tr>
<td>Ultraviolet lamp holders – plunger end / fixed end</td>
<td>20281 / 20283</td>
<td>20281 / 20283</td>
</tr>
<tr>
<td>Fluorescent ballast</td>
<td>41385</td>
<td>39391</td>
</tr>
<tr>
<td>Ultraviolet ballast</td>
<td>40899</td>
<td>40899</td>
</tr>
<tr>
<td>Circuit breaker [outlets]</td>
<td>34331</td>
<td>34331</td>
</tr>
<tr>
<td>Stedivolt speed control</td>
<td>39658</td>
<td>39658</td>
</tr>
<tr>
<td>Transformer</td>
<td>34327</td>
<td>34327</td>
</tr>
<tr>
<td>Relay, solid state</td>
<td>1855167</td>
<td>1855167</td>
</tr>
<tr>
<td>Terminal block</td>
<td>40450</td>
<td>40450</td>
</tr>
<tr>
<td>Proximity switch – Fixed wire / Quick disconnect</td>
<td>40647 / 40671</td>
<td>40647 / 40671</td>
</tr>
<tr>
<td>Membrane switch controller (MSC) board</td>
<td>40702</td>
<td>40702</td>
</tr>
<tr>
<td>Membrane switch</td>
<td>42301</td>
<td>42301</td>
</tr>
<tr>
<td>Airflow monitor, AFM – low range</td>
<td>38678</td>
<td>38678</td>
</tr>
<tr>
<td>Ground fault interrupter outlet with indicator light</td>
<td>34921</td>
<td>34921</td>
</tr>
<tr>
<td>Receptacle, duplex</td>
<td>18231</td>
<td>18231</td>
</tr>
<tr>
<td>Motor, Baldor</td>
<td>42321</td>
<td>40931</td>
</tr>
<tr>
<td>Capacitor</td>
<td>42313</td>
<td>11558</td>
</tr>
</tbody>
</table>
## Baker Part Number

<table>
<thead>
<tr>
<th><strong>Mechanical Items</strong></th>
<th><strong>SG403A-TX</strong></th>
<th><strong>SG603A-TX</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Down flow HEPA filter</td>
<td>40597 (18”x48”x3”)</td>
<td>40598 (18”x72”x3”)</td>
</tr>
<tr>
<td>Exhaust HEPA filter</td>
<td>38582 (16”x30”x6”)</td>
<td>38583 (16”x42”x6”)</td>
</tr>
<tr>
<td>Blower</td>
<td>11428</td>
<td>11430</td>
</tr>
<tr>
<td>Armrest pad</td>
<td>40481</td>
<td>40482</td>
</tr>
<tr>
<td>Work surface</td>
<td>355X104</td>
<td>356X100</td>
</tr>
<tr>
<td>Work surface support</td>
<td>355P706</td>
<td>355P706</td>
</tr>
<tr>
<td>Down flow diffuser</td>
<td>195P121</td>
<td>359P205</td>
</tr>
<tr>
<td>View screen Assembly</td>
<td>355A302</td>
<td>356A301</td>
</tr>
<tr>
<td>View screen track, right hand</td>
<td>355A306</td>
<td>355A305</td>
</tr>
<tr>
<td>View screen track, left hand</td>
<td>355A304</td>
<td>355A304</td>
</tr>
<tr>
<td>Cable, right side, view screen</td>
<td>41455</td>
<td>41455</td>
</tr>
<tr>
<td>Cable, left side, view screen</td>
<td>41461</td>
<td>41462</td>
</tr>
<tr>
<td>Pulley, 1.062”OD</td>
<td>41454</td>
<td>41454</td>
</tr>
</tbody>
</table>
General Arrangement Drawings:

SG403A-TX (Base unit)
SG603A-TX (Base unit)
Cable Port Illustration

- INTERIOR WALL
- CABLE PORT GASKET
  PART# 41126
- CABLE PORT RING
  PART# 190P728
- 4 #8-32 X 5/16" WELD STUD WITH HEX CAP NUT/ LOCK WASHER / FLAT WASHER
  PART'S 10758 / 10553 / 11307 / 11279
- CABLE PORT GASKET
  PART# 41126
- CABLE PORT PLUG
  ASSEMBLY# 335A700
- CABLE PORT RING
  PART# 190P728
- 4 #8-32 X 5/16" WELD STUD WITH HEX CAP NUT/ LOCK WASHER / FLAT WASHER
  PART'S 10758 / 10553 / 11307 / 11279
- EXTERIOR SEAL PANEL

Interior View

Exterior View

[Cable port plug not shown]
Ladder Schematic: SGX03A-TX
Jumper Wiring Combinations:

1. **Ready Safe Operation**: Jumper on J23, connector on J14A or J14B (NO & C) to CON 2 on motor controller

2. **Flex Air**: Remove jumper on J31 and plug in 3 wire connector in its place

3. **Flex Air Alarm Latch**: Jumper J21 to require user to acknowledge alarm with mute key

4. **Flex Air & Ready Safe**: Jumper on J23, connector on J14A or J14B (NO & C) to CON 2 on motor controller & remove jumper on J31 and plug in 3 wire connector in its place

5. **Flex Air Not Installed**: Jumper J31 as shown

6. **Blower/Light Interlock Override**: Adding jumper to J20 removes safety feature

7. **Power/Processor Fault**: Jumper J22 to enable fault alarm

8. **Blower Delay On/Off**: Jumper J29 left for OFF, Jumper J29 right for ON

9. **Blower Enable**: Jumper J18 for normal use

10. **Optional APM**: Remove Jumper on J18 and plug in 2 wire APM cable in its place

Reference drawings 333E548 or 333E540 for SG-TX jumper requirements

Reference Alarm Conditions section in operation manual and troubleshooting guide for more information: dwg (333E500)

If you are in need of a manual for your cabinet they are available online at:

http://www.bakerco.com/resources/manuals.php

OR

Call Customer Service at The Baker Company
1-(800)-992-2537
Stand Assembly Leg Extension Procedure

The cabinet is shipped with the legs bolted in the shipping position and has two work surface height settings per option:

<table>
<thead>
<tr>
<th>Stand Option</th>
<th>Work surface Elevation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjustable leg leveler</td>
<td>30 1/8&quot; [765mm] and 38 5/8&quot; [981mm]</td>
</tr>
<tr>
<td>* Caster</td>
<td>30&quot; [762mm] and 36&quot; [914mm]</td>
</tr>
</tbody>
</table>

* - Caster option not available for EN listed cabinets

NOTE: Castor stand option has four modified leg assemblies and two 45° stand supports (Not shown)

Remove the following parts from the hardware box shipped with the cabinet. Check the quantities with the parts list below.

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Part Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adjustable leg leveler (or Caster, if applicable)</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Hex head bolt, 3/8&quot;-16 x 1&quot; long</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>Lock Washer, 3/8&quot;</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>Flat Washer, 3/8&quot;</td>
<td>8</td>
</tr>
</tbody>
</table>

Adjustable leg leveler  
Caster  
Hex head bolt  
Lock & flat washer
Getting the cabinet off the pallet

1) To protect the floor finish, use a moving blanket. Carefully slide the cabinet off the pallet onto the moving blanket.

2) Slide the cabinet into its destination room before going further with the assembly/installation.

Installing the Adjustable Leg Leveler or Caster Option

3) Lift one end of the cabinet / stand assembly up a minimum of 7” [178mm] and block in position. See illustration below.

4) Screw in two of the Adjustable Leg Leveler or Castors (Item# 1). Screw in by hand as tight as you can then remove the blocking.
5) Repeat steps 3 & 4 on the other end of the cabinet.

**IMPORTANT**
If the caster option is provided be sure to chock the previously installed casters [to prevent cabinet movement] before repeating steps 3 & 4.

Raising the Unit to 30 1/8” [765mm] Work Surface Height: Adjustable Leg Leveler Option
Raising the Unit to 30” [762mm] Work Surface Height: Caster Option

6) Lift one end of the cabinet up a minimum of 5” [127mm] and block in position.

7) Unscrew the bolts (One per leg) that hold the legs in the shipping position.

8) Slide the leg out of the stand until the holes line up at the next position.
9) Bolt the leg in position with items 2, 3, and 4. (Two bolts per leg)

10) Repeat steps 7 through 9 for the other leg then remove the blocking.

11) Repeat steps 6 through 10 for the other end of the cabinet.

Raising the Unit to the 38 5/8” [981mm] Work Surface Height: Adjustable Leg Leveler Option
Raising the Unit to the 36” [914mm] Work Surface Height: Caster Option

12) Lift one end of the cabinet up a minimum of 7” [178mm] and block in position.

13) Unscrew the bolts (Two per leg) that hold the legs in the current work surface height position.

14) Slide the leg out of the stand until the holes line up at the next position.

15) Bolt the leg in position with items 2, 3, and 4. (Two bolts per leg)

16) Repeat steps 14 through 16 for the other leg then remove the blocking.

17) Repeat steps 13 through 17 for the other end of the cabinet.

Rotate foot for fine adjustment to aid in leveling of cabinet
Channel Stand Installation or Removal Procedure

Tools required: \( \frac{7}{16} \)” deep socket, \( \frac{9}{16} \)” wrench or socket

Parts List:

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Channel stand, back</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Channel stand, side</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Bolt, carriage, ( \frac{1}{4} )&quot;-20 x 2&quot; long</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Bolt, hex head, ( \frac{3}{8} )&quot;-16 x 1&quot; long</td>
<td>8</td>
</tr>
<tr>
<td>5</td>
<td>Flat washer, ( \frac{1}{4} )&quot;</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>Lock washer, ( \frac{1}{4} )&quot;</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Flat washer, ( \frac{3}{8} )&quot;</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>Lock washer, ( \frac{3}{8} )&quot;</td>
<td>8</td>
</tr>
<tr>
<td>9</td>
<td>Hex nut, ( \frac{1}{4} )&quot;</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Adjustable leg leveler (or optional castor)</td>
<td>4</td>
</tr>
</tbody>
</table>

NOTE: Caster stand option requires four modified leg assemblies and two 45° stand supports (Not shown).

Procedure:

**Step 1:** Remove stand components from rear of cabinet skid.

**Step 2:** Gather all stand components, hardware, and tools.
**Step 3:** Place stand sides on a flat floor so that the stainless steel legs are setting on the floor. Next place the stand back between the sides so that the open part of the channel is facing towards the floor.

**Step 4:** Using the $\frac{3}{8}\text{"} \times 1\text{"}$ hex head bolt with lock and flat washers [Items 4, 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 leg levelers by screwing them into the bottom of the telescoping legs.

The telescoping legs can now be adjusted to the desired height requirement. This is done by removing the $\frac{3}{8}\text{"}$ bolts in each leg, extending the leg and reinstalling the bolts at the new hole location (2 bolts per leg).

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.

**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 high enough to allow clearance for the stand assembly to be positioned under it.

Once the stand is positioned under the cabinet, install (4) $\frac{1}{4}$"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 (1) $\frac{1}{4}$" flat washer, lock washer, and hex nut onto each of the bolts. Tighten after all (4) nuts are threaded on.

**Step 9:** 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.
# Replacing Fluorescent Lamps

1. Turn off the fluorescent lamps by depressing the light on/off switch located on the right side of the light canopy.

2. Pull the vertical panel out enough at the bottom so that the thumbscrews can be accessed. Hinge the dress panel standoff (located on the left side of the sloped dress panel) down and lower the vertical panel on it. While removing the thumbscrews, support the light canopy with the other hand. Lower the canopy until the restraint cables hold it in place.

3. Disconnect the restraint cables from the face of the electrical mounting board at both ends of the light canopy. Gently hinge the canopy down until it rests on the front of the unit.

4. Using both hands, grasp one 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. Repeat the process for removing the second lamp and dispose of them properly.

5. Install new lamps by doing step# 4 in reverse order.
6. Hinge light canopy up temporarily and press the light on/off switch to verify that both lamps are working. The cabinet blower must be on in order for the light to function.

7. Lower canopy halfway and re-insert restraint cables on either end of electrical mounting board. Close the canopy and install the thumbscrews finger tight.

8. While lifting the vertical dress panel up slightly, hinge the dress panel standoff up against the sloped dress panel. Gently lower the vertical dress panel down until it rests against the cabinet.

**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 x 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.

1. Raise the viewscreen to its maximum open position. The audible alarm should activate and the indicator on the light canopy will flash.

2. Using both hands, grasp the UV lamp carefully near each end and move it approximately 13mm [½”] 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.

3. Install new lamp by following step 2 in reverse order. Making sure that the lamp is held securely in place.

4. Lower the viewscreen to full closed and turn on the UV light momentarily to verify that it comes on. Immediately turn the UV off again.

5. Raise the viewscreen to the proper sash opening height. This will cancel the audible alarm and flashing indicator light.
NOTICE – O.S.H.A. Federal Regulation

The following in an excerpt form the O.S.H.A. Federal Register Page 22240 and Figure J-9.

*Biological hazard signs. The biological hazard warning shall be used to signify the actual or potential presence of a biohazard and to identify equipment, containers, rooms, materials, experimental animals or combinations thereof, which contains, or are contaminated with, viable hazardous agents. For the purpose of this subparagraph the term “biological hazard”, or “biohazard,” shall include only those infectious agents presenting a risk or potential risk to the well-being of man.

We have enclosed a sign featuring the Biohazard Symbol.

We recommend that you attach this sign to the unit in a prominent location if you plan to perform any work in the hood with agents that present a risk or potential risk to the well-being of man.
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 thirty-six months from the invoice date.

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