Safekeeper SERIES

Air Science Safekeeper Forensic Evidence Drying Cabinets

Air Science®

USER OPERATION MANUAL

Air Science Manual Revision No.:
SAFEKEEPER-SERIES.V3.2021

pictured: Safekeeper Model FDC-006XT

MADE IN AMERICA BY THE NEW AMERICA

USP 800 COMPLIANT

ISO 9001 ISO 14001 BUREAU VERITAS Certification

Table of Contents

Safety Warnings

- Read all instructions before proceeding and observe the installation procedure and environmental/electrical requirements.
- This cabinet does not offer product and/or sample protection.
- Read all instructions before proceeding and observe the installation procedure and environmental/electrical requirements.
- Anyone working with, on or around this equipment should read this manual. Failure to read, understand and follow the instructions given in this documentation may result in damage to the unit, injury to operating personnel and/or poor equipment performance.
- Any internal adjustment, modification or maintenance to this equipment must be undertaken by qualified service personnel.
- The use of any hazardous material in the cabinet must be monitored by an industrial hygienist, safety officer or some other suitably qualified individual.
- Explosive or inflammable substances should never be used in the cabinet unless a qualified safety professional has evaluated the risk involved.
- If chemical, radiological or other non-microbiological hazards are being used in the cabinet, additional protective measures should be taken. Additionally, the operation should be monitored by a suitably trained individual.
- Before you proceed, you should thoroughly understand the installation procedures and take note of the environmental/electrical requirements of the cabinet.
- If the equipment is used in a manner not specified by this manual, the protection provided by this

equipment may be impaired.

- Even with the benefits they provide, germicidal ultraviolet lamps pose imminent danger if used without taking the proper precautions. You **MUST** avoid exposure to direct or reflected germicidal ultraviolet rays, since they cause painful eye irritation and reddening of the skin. In order to use our direct germicidal UVC products, you **MUST** wear personal protection equipment—gloves, a long sleeve shirt with no gaps between cuffs and gloves and an ultraviolet-blocking face shield to protect eyes and exposed skin. Under no circumstances should any direct germicidal UVC unit be permitted to operate with humans, plants or animals present in the operation area.

Symbols

	Warning of hazardous area or situation

Limitation of Liability

The disposal and/or emission of substances used in connection with this cabinet may be governed by various local regulations. Familiarization and compliance with any such regulations are the sole responsibility of the users of the cabinet. The liability of Air Science® is limited with respect to user compliance with such regulations.

European Directive on Waste Electrical and Electronic Equipment (WEEE)

At the end of your product / accessories life, it must not be discarded as domestic waste. Ref: EU Directive 2012/19/EU on Waste Electrical and Electronic Equipment Directive (WEEE). Please contact your distributor / supplier for further information. For end users outside of the EU consult applicable regulations.

Warranty

Air Science products come with a Legacy Limited Lifetime Warranty™ and can be registered online by visiting our website: www.airscience.com/warranty-registration.

Read more about our Legacy Limited Lifetime Warranty and Damaged Freight Claim Information.

- Legacy Limited Lifetime Warranty: www.airscience.com/warranty.
- Damaged Freight Claim Information: https://www.airscience.com/damage-claims-policy.

Warranty Registration

Register your new Air Science product online by visiting: www.airscience.com/warranty-registration.

Customer Satisfaction Survey

Air Science values your business, so your satisfaction is important to us. To help serve you better, please take a few minutes to complete our Customer Satisfaction Survey.

I. Product Information

The Safekeeper® series of forensic evidence drying cabinets are designed to store, dry or otherwise process forensic evidence in the controlled environment of a tamper resistant compartment to maintain the chain of custody. The innovative Air Science Multiplex™ Filtration Technology combined with professional engineering and construction creates a safe work environment during use, maintenance and decontamination of the cabinets.

Visit our website for Safekeeper forensic evidence drying cabinet:
https://www.airscience.com/safekeeper-forensic-evidence-drying-cabinets.

II. Unpacking Your Cabinet

This chapter aims to provide relevant information on how to handle the cabinet properly upon receipt. Failure to follow these instructions may damage the cabinet. We strongly advise you to read this chapter carefully before proceeding further.

2.1 Step-By-Step Procedure

1. Inspecting the Crate, Pallet, Boxes.

   » Upon receipt of your new cabinet, inspect all cartons. If there is any visible damage to the exterior please refer to the Damaged Freight Claim Information on our website.

2. Moving the Pallet.

   » The pallet is designed to protect the cabinet from any foreseeable circumstances. However, excessive impact on the boxes or pallet may also damage the cabinet. Prevent any direct impact or hitting to the pallet when moving.

   » When lifting the pallet, always ensure that the floor jack or mechanical lift truck has fully entered under the pallet in order to achieve stability. Failure to do so will increase the risk of the pallet falling off the floor jack or mechanical lift truck during handling. Please use a suitable extension bar when necessary.

3. Opening the Boxes.

   » If you did not receive one or more of the parts listed on the packing checklist, or if any of the items are damaged, please refer to the Damaged Freight Claim Information on our website.

4. Removing the Packaging Material.

   » The cabinet is protected by Styrofoam, cardboard and/or shrink-wrap.

   » If you find any damage during this stage of unpacking please refer to please refer to the Damaged Freight Claim Information on our website.

   » We recommend leaving the cabinet secured with straps to the pallet until the cabinet is located in its approximate final position to facilitate ease and safety in handling.

NOTE: Choosing the best location for your cabinet in order to achieve optimum operating performance is determined by a number of factors. Please refer to the next chapter for some guidelines.

5. Moving the Cabinet.

   » When lifting the pallet with the cabinet, always ensure that the floor jack or mechanical lift truck has fully entered under the pallet. This is to increase the stability of the cabinet and reduce the risk of the cabinet falling down. Please use a suitable extension bar when necessary. During the moving of the cabinet, ensure there is enough distance between the supports of the pallet and the ground. Dragging the pallet against the ground will damage the pallet and possibly your new cabinet.

   » When removing cabinet from pallet or placing cabinet onto pallet, use at least two people.

6. Removing the Strapping.

   » Remove the strapping by cutting it at a safe position to prevent scratching the surface of your new cabinet.

   » Do not discard the packaging material for your cabinet until you have checked all of the components, installed and tested the unit.

NOTE:

   » When installing the cabinet onto an existing work surface, ensure that the structure can safely support the combined weight of the cabinet and any related equipment. Some modifications to the work surface may be necessary.

   » The work surface should be smooth, non-porous and resistant to the disinfectants and chemicals used in conjunction with the cabinet.

2.2 Packaging Contents

Inside the cabinet, you will find the following:

- Installation pack containing power cord, pre-filter, keys for filter door and main chamber door and a USB memory stick containing the manual and test report.
- Shelving (quantity depends upon model ordered)
- Hanging rod (quantity depends upon model ordered)
- Optional accessories ordered (safety filter, hanging clips, etc.)

IIn case this manual and/or test report is lost or misplaced, Air Science retains a copy in our files. A replacement copy can be obtained by contacting Air Science and providing the cabinet model, serial number and a brief description of the information desired.

III. Installing Your Cabinet

3.1 Choosing a Suitable Location

Location impacts the nature and extent of external airflow disturbances, which may affect performance of the cabinet when it is exposed to these disturbances.

When installing the cabinet, it should be located as far away as possible from sources of airflow disturbance and in an orientation which optimally shields the airflow of the cabinet from all external airflow disturbances. Please note that the cabinet should not be placed close to another cabinet.

Please follow these guidelines when choosing a suitable location for your cabinet.

- The location must be far away from:
  - » Personnel traffic flows.
  - » Air vents (in and out).
  - » Doors and windows.
  - » Any other sources of disruptive air currents or air drafts.
- If drafts or other disruptive air currents exceed the face velocity of the filter, the potential exists for contaminated air to enter the work zone of the cabinet.
- A minimum distance of 50 cm (20 in) to the top of the ceiling is recommended for blower changing purposes.
- A clearance of 183 cm (6 ft) in front of the cabinet is strongly advised in order to maintain proper airflow.
- Please permit adequate space for cleaning behind the cabinet.

3.2 Environmental / Electrical Conditions

The equipment is designed to be safe for at least the following conditions:

- » Indoor use.
- » Altitude < 2,000 m (6,562 ft).
- » Temperature range 5°C to 40°C (41°F to 104°F) ambient.
- » Relative humidity <80% up to 31°C (88°F) decreasing to <50% at 40°C (104°F).
- » UL Installation Category II.
- » UL Pollution Degree 2.
- » Continuous operation.
- » Electrical supply tolerance of –10% / +10%.
- » 120VAC, 60Hz, 10A or 230VAC, 50Hz, 5A.
- » Fuse: 250V, 10A, Time Lag for 120VAC or Fuse: 250V, 5A, Time Lag for 230VAC.
- » Always ensure unit is connected to a reliable and properly grounded receptacle.
- » Appliance inlet on this device is disconnect device; appliance should not be positioned so that it is difficult to operate it.

Power Cord:

» 1) For units intended to be operated at 120 volts (North America): Use a UL-listed and CSA-certified cord set consisting of a minimum 18 AWG, Type SVT or SJT, three-conductor cord, a maximum of 15 feet in length and a parallel blade, grounding-type attachment plug rated 15 amperes, 125 volts.

» 2) For units intended to be operated at 230 volts: Use a cord set with a grounding-type attachment plug. The cord set should have the appropriate safety approvals for the country in which the equipment will be installed.

3.3 Installing Your Cabinet

1. Please refer to Unpacking Your Cabinet - page 4.
2. Inspect your cabinet carefully. Should you find any defect please refer to the our Legacy Warranty.
3. Peel off any protective masking that was left on the cabinet during manufacturing.
4. Wipe down the interior and exterior of the cabinet with water or a mild household detergent.
5. Connect cabinet to the main power supply and turn on the blower. Each cabinet requires its own dedicated 13A (230V) or 15A (115V) power outlet which should not be shared with other appliances.

WARNING! Do not move the cabinet without observing the following precautions:

- Observe the necessary precautions when relocating the cabinet, as it is heavy.
- Warning - Tipping Hazard. Pushing high up on the unit may cause system to tip over. Be careful when moving. Move with assistance only.

3.4 Set Up

Your Air Science Safekeeper product is shipped in one piece.
The following instructions and photos (shown is model FDC-006XT) explain how to:

- Set up the main unit.
- Fit the main filters and pre-filter.
- Operate the controls.

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1. Unpack the unit.

a. Place the unit in the desired location (near main power, water supply and drainage). Allow sufficient space to connect and disconnect the power cord from the wall outlet.

b. Remove protective film from the unit panels.

c. Ensure that the main power cord is disconnected from the wall outlet before carrying out and filter installation operations.

Warning – TIPPING HAZARD. Pushing high up on the unit may cause system to tip over. Be careful when moving. Move with assistance. Do not lift unit by the handle.

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2. Add main filters.

a. Using the key supplied, unlock the blue filter cover door to access the filter compartment.

b. Turn the filter cams up to release clamps.

c. Unpack and remove the HEPA and carbon filters.

d. Slide the HEPA filter in place first, ensuring that the side with the foam rubber gasket is facing down. Push it all the way in until it stops. Use caution not to tear gasket.

e. Slide the carbon filter in on top of the HELP filter, gasket side down. Use caution not to tear the gasket.

f. Twist the cam levers down to closed position to secure the filter. This should partially compress the filter gasket.

g. Note filter details on Filter Maintenance sticker for easy reference and place sticker in convenient location on the outside of the unit. Install date may also be written on the filter itself.

h. Replace the front blue cover door to the filter compartment. Turn locking key until dots align indicating that lock is engaged. PLEASE KEEP THIS KEY IN A SAFE PLACE.

3. Add pre-filters.

To add the pre-filter located inside the cabinet on the underside of the main filter chamber: (image 7)

a. Unpack pre-filter from installation pack.
b. Undo the clips keeping pre-filter tray in place. It should hang down.
c. Place the pre-filter on the retaining tray and refasten the clips ensuring the whole tray is covered.
d. Close the retaining tray and refasten the clips.

To add the pre-filter to the door: (image 8)

e. Unpack pre-filter from installation pack.
f. Unclip the blue filter retaining tray on the outside of the cabinet door and let it swing open.
g. Place the pre-filter on the retaining tray, ensuring the entire tray is covered.
h. Close the retaining tray and refasten the clips.

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4. Add optional safety filter to top of cabinet.

a. Unscrew and remove the exhaust grate to reveal blower housing.
b. Place the safety filter into the recess, ensuring that the side with the foam rubber gasket is facing down.
c. Reinstall the exhaust grate to secure the filter in place.

5. Plumbing

a. Attach the main supply hose to a suitable water supply less than or equal to 35 psi. All connections must conform to applicable local codes and be done under the direction of a licensed plumber. (image 11)

b. The drain pump is factory installed with a threaded outlet for the drain hose. Attach the drain hose to a suitable drain. All connections must conform to local codes and be done under the supervision of a licensed plumber.

c. Turn the blue main water valve to turn the water supply on or off.

d. Press and hold the pressure switch to activate the drain pump. Your foot may be used to activate the switch. Do not run the pump when it is dry.

e. The hose can be attached to the side of the cabinet when not in use.

f. Disconnect from main water supply when not in use.

6. Shelves and Hanging Rail

a. These may be fitted by just pushing into place; no other fixings are required.

b. If not required, they may be easily lifted out of the cabinet and stored.

c. The hanging rod drops into the holder located on the side walls.

7. Key Lock

The cabinet door T-handle has a key lock. Additionally, a hasp may be added to the key lock when using tamper proof tags/seals to prevent unauthorized entry to the cabinet.

3.5 Performance Validation / Certification

After installation and prior to use, cabinet performance must be validated and certified to factory standards. The following test should be performed:

Airflow Velocity

The testing methods and equipment required are specified on the test report. It is recommended that these tests be performed only by a qualified technician who is familiar with the methods and procedures for certifying these types of cabinets.

3.6 Importance of Performance Validation / Certification

An airflow velocity value that falls below the value specified inside the test report will not provide adequate operator protection.

3.7 Disclaimer

The performance of the cabinet, while rigorously evaluated at the factory, cannot be guaranteed after transit and installation. Therefore on-site testing is always recommended.

IV. Operating Your Cabinet

4.1 Control System

Advanced Control Panel (Standard)

The **advanced control panel** is standard and includes an On/Off switch, Hour Counter with preset alarm intervals for pre-filter and main filter change out and Filter Blockage alarm. If the indicator lamp starts to flash intermittently or stays illuminated, the filters are beginning to become blocked and airflow may be reduced to unsafe levels. Check airflow and/or replace filters as needed. Alarm may be reset and tested.

FSA / Autocal Control Panel (Optional)

The **optional FSA/Autocal controller** displays the airflow and offers limited detection of low concentrations of hydrocarbon, some gases and organic acids. Audio and visual alarms alert users to filter saturation and if the airflow reaches preset thresholds. An Hour Counter with preset alarm intervals for pre-filter and main filter change out is also included.

Calibration Procedure

CUSTOMER:	Triangle Electronic Controls Ltd	**PRODUCT:**	Autocal Led Airflow Alarm
DATE:	03/05/12	**ISSUE:**	2
PROCEDURE NUMBER:	CL00037	**APPROVED:**	DJP

1. Power up unit.
2. To set nominal run point, press and hold the mute key for 4 seconds; when an audio beep is observed, release the mute switch.
3. Using a calibrated anemometer, set the airflow to the desired velocity.
4. Using the up and down arrows, set the display to read that reading.
5. Press the mute switch once to store calibration point.
6. To set an alarm point, press and hold the mute switch then press and hold the up arrow key for 4 seconds; after audio beep release both switches.
7. Set the display using the up and down arrows to the desired alarm point, in 0.05 m/s increments.
8. Press the mute switch once to store the alarm point.
9. To display in FPM remove LK1, to display in m/s fit LK1.

CONNECTIONS	**PL2**
PL2 ANEMOMETER	PIN 1 RED
PL1 POWER	PIN 2 BLUE
PL3 VOLTFREE CONTACT	PIN 3 YELLOW
PL3 PINS 1 & 2 N/O	
CLOSED ON ALARM	

Monitair Control Panel (Optional)

The **optional Monitair microprocessor controller** monitors and displays cabinet operating parameters, airflow, containment and offers limited detection of low concentrations of hydrocarbon, some gases and organic acids. Emits audio and visual alerts if conditions become unsafe. All displayed on a LCD screen.

Note: The unit is calibrated at the factory.

- A set face velocity is maintained on sash opening and closing using the incorporated Variable Air Volume System. (The system can also operate on fixed drive.)
- On initial power up, the system auto detects the main AC supply frequency and sets the triac drive accordingly (230 Vac or 115 Vac).
- On system start, three (3) screens are displayed in turn:
  Screen 1: Can display company logos, text or both for a preset time.

  Screen 2: Displays the data screen with details of elapsed time, alarm set time and filter ID for a preset period of time.

  Screen 3: If an elapsed time alarm is present, the alarm screen will be displayed; on acknowledgement the NORMAL RUN screen will be displayed.

Monitair Control Panel Operation:

- The systems calibration of airflow and organic filter saturation alarm are all carried out from the front membrane (no potentiometers) using easy to follow on screen instructions.
- The target face velocity is variable on calibration from 0.25 m/s to 0.80 m/s.
- The alarm point is software set and adjusted incrementally from the target face velocity set point.
- The display PCB auto detects if a sensor has been fitted; if not, the organic saturation is disabled.
- The filter ID are identified and displayed on the DATA screen (maximum 6 characters per ID) which can be customized as required.
- Any filter ID can be tagged in firmware so if an acid composite carbon or HEPA filter is fitted, the organic filter alarm is disabled.
- An elapsed time display and alarm is incorporated in the MENU section; the user select alarm point is in hours.
- The menu access is code protected. To access, press and hold the MENU OPTIONS button for 4 seconds or a coded button sequence.

Inputs

1 X1 Anemometer

X1 Organic alarm sensor

X1 Data connect cable

X1 Interlock (sash high or door position)

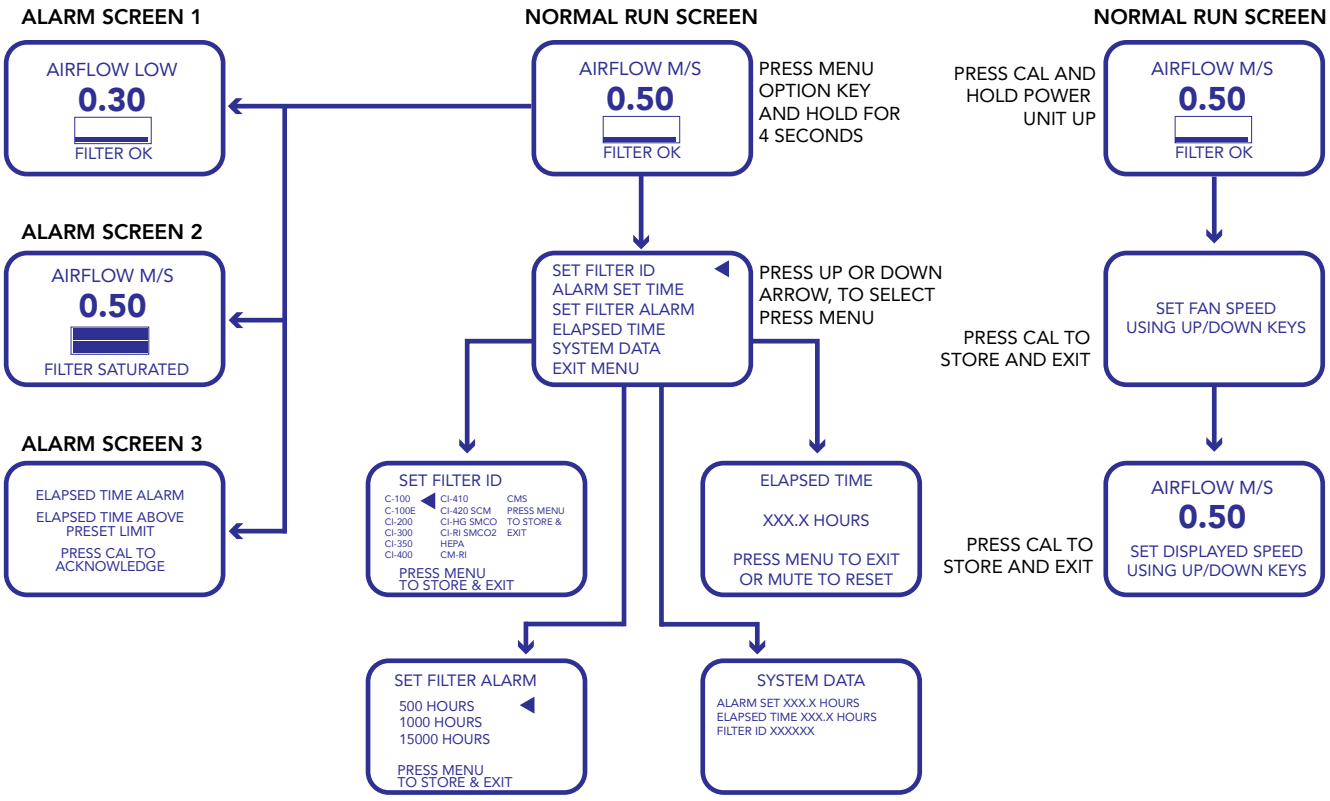
Outputs

2 X1 White light 2.5 amp max 230 Vac or 115 Vac

X1 Spare or UV toggle

X1 Variable ac output 6 amp max

For units equipped with this option, please follow the online screens below for set up.



Monitair Control Panel Calibration

» Hold in CAL button while applying main power to the cabinet.

» Release the CAL button when two beeps sound.

» After the second audio beep, the message SET FAN SPEED will appear on the LCD display.

» Allow the system to run for a minimum of 15 minutes to stabilize and permit the gas sensor to reach its running temperature.

» Using a calibrated handheld anemometer, set the average face velocity to the required setting 0.5 m/sec by using the ▼▲ keys.

» When the required velocity has been set and allowed to stabilize, press the CAL button and the display will show airflow in m/sec (0.00).

» Use the fan ▼▲ to set the display to read the same as the measured VELOCITY (0.50).

» When the desired reading has been achieved, press the CAL button again to store the setting.

» The system will now return to the main display screen.

» To enter the main menu, hold the menu option switch for more than 4 seconds and the following submenu will appear:

AIRFLOW UNITS

SET FILTER ID

ALARM SET TIME

ELAPSED TIME

VIEW SYSTEM DATA

EXIT

» To view or change any of the parameters above, select and follow the onscreen instructions.

» LCD backlight contrast can be adjusted by turning VR1 on the display PCB.

» The airflow unit can be changed from m/sec to FPM via the airflow units in the menu section.

» When in normal running mode, the airflow can be altered; one press of ▼▲ will decrease or increase the set point by 0.05 m/sec.

4.2 Cabinet Operating Procedure

HEALTH & SAFETY WARNING!

Extreme caution should be used to minimize the risks involved in the handling and drying of blood-stained items. Consult your Health & Safety Officer for proper handing protocols. Operators should wear personal protection equipment (PPE) to avoid coming directly into contact with blood/body fluids. At a minimum:

- Items should only be handled with protective gloves, avoiding obvious blood-stained areas.
- Goggles and facemasks ensure that in the unlikely event of splashing, the face and eyes will be protected.
- Coveralls/lab coats must be worn to protect the operator's clothing from contamination.
- Disinfectant wipes (or similar) should be available should any blood come into contact with the skin.
- Any accidents involving blood contacting the skin should be reported and medical advice should be sought.

Cleaning Instructions
NOTE: This must be done before loading evidence.

1. Use personal protective equipment including goggles, mask and gloves.
2. For heavy contamination, use water hose to wash interior of cabinet.

(NOTE: Do not spray water into any filters located at ceiling and door(s) of cabinet).

3. Activate drain pump to remove excess water. PRESS and HOLD the pressure switch with your foot (located front, bottom of cabinet). RELEASE pressure switch once drying is complete. Do not run pump dry without running water.
4. Spray interior of cabinet with disinfectant and wipe down with paper towels. Clean any hangers, if present.
5. Discard personal protective equipment and paper towels as biohazard waste.
6. Install new ceiling pre-filter.
7. Update any log in use.

Loading Evidence

1. Ensure cabinet is cleaned as per instructions above.
2. Put on NEW personal protective equipment including goggles, mask and gloves.
3. Line bottom of cabinet with brown Kraft paper to collect trace evidence that may fall off evidence.
4. To avoid cross contamination, exhibit(s) from multiple sources (i.e. victim/suspect) should NOT be placed in the same cabinet concurrently.
   - Place exhibit(s) in cabinet with associated empty/used exhibit bag(s).
   - Items can be placed on cabinet shelves or attached to hanging rod.
   - NOTE: Only use cleaned or NEW disposable hangers, if required.
5. Close door and seal by fully turning each black handle.
   - Use cabinet key lock and/or seal with security zip tag.
   - Wrap zip tag around door lock and metal loop attached to cabinet frame.
   - Record tag number as required by your procedures.

6. Press green button to turn on cabinet and commence drying.
7. Update any logs in use.

Removing Evidence

1. Press green button to turn cabinet off.
2. Put on NEW personal protective equipment including goggles, mask, and gloves.
3. Cut and remove security tag(s) from cabinet door. Record tag number and indicate in your notes if tag was tampered with. For homicides and other serious offenses, retain tag(s) as an exhibit.
4. Ensure exhibit(s) are completely dried. If not dry, reseal cabinet and record new tag number.
   - » If dry, remove exhibit(s) from cabinet and put item(s) back into original exhibit bag.
   - » Discard disposable hangers, if used.
   - » Retain Kraft paper liner and ceiling pre-filter and place in exhibit bag (fold carefully, as hair/fibers may be present).
   - » If original exhibit bag is too damaged, use new bag.
   - » Staple old exhibit bag outside new bag so seizure info is retained,
   - » Place "BIOHAZARD" orange/red sticker outside all bags that contain contaminated exhibits.
5. Update any logs in use.

WARNING!

- The drying cabinet should only be operated with the correct filters installed for the application. Refer to Filter Information – page 26. The cabinet must not be used for laboratory work in which chemicals of different types are used that do not match the filter type; or that the primary chemicals or their by-products are not known. The ductless fume cabinet should not be used for different chemical processes where chemicals from the different processes could react in the filter.
- Check the airflows and the filter condition of the cabinet on a regular basis. This is covered in Maintenance –- page 20.
- The equipment should not be used in a flammable room atmosphere.
- Do not use a gas flame (Bunsen burner) whenever possible, as it interferes with airflow.
- Minimize arm movement. Move arms in and out of the cabinet slowly to avoid disrupting cabinet airflow.
- Use absorbent pads on the work surface where appropriate to minimize splatter and aerosol generation in case of spillage.
- Operators should avoid sudden movements within the cabinet, as this may cause temporary reversal of the airflow.
- Operators should maintain the normal safety equipment and procedures for dealing with hazardous substances.

V. Maintaining Your Cabinet

5.1 General

In some countries it is mandatory to maintain written records of checks, tests and repairs carried out on safety equipment. These records must be kept for 5 years. A full list of Occupational Exposure Limits should be obtained from your safety officer.

Regular preventative maintenance on the cabinet will reduce the possibility of hazard to the operator and ensure reliable performance from the cabinet.

WARNING! Before attempting inspection and repairs to the cabinet, please ensure main power to the system has been disconnected and that the power lead has been removed. It should also be noted that fume cabinets are sometimes used to contain and protect users of the cabinet from hazardous or harmful substances. Before commencing this schedule it is important to ensure the cabinet is safe to work on.

5.2 General Cleaning

Wipe down the unit with only soapy water.

5.3 Pre-Filters

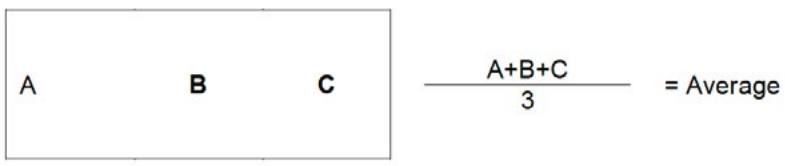
Check condition and replace if required.

5.4 Airflow Measurements

The inflow velocity of the cabinet should be checked with the doors closed using an anemometer such as a hot wire, vane anemometer or propeller type. Depending on the size of the cabinet, a series of readings are to be taken at the front opening; these are to be recorded on a service sheet or system log sheet.

Airflow

Check and record the inflow air velocity at the pre-filter intake/cabinet air intake at the front of the cabinet aperture as follows: Using a calibrated hot wire or vane anemometer or similar approved airflow meter, take a minimum of 3 readings across the opening as shown below. The readings should be recorded on a service sheet or system log sheet.



5.5 Calibration Instructions

Testing the Filter Blockage Alarm

- Ensure the fitted pre-filters are new. Switch on the cabinet; the red/amber neon should not be illuminated.
- Switch the unit off. Block the pre-filter using paper or cardboard to permit airflow of <0.3m/sec or 60 fpm.
- Switch the unit on. The red/amber neon should illuminate. If not, the calibration will need to be reset.

Calibration

The filter blockage alarm operates using a differential pressure switch to detect a “high vacuum” situation when the pre-filter is blocked or blocking up. The pressure switch is calibrated and tested prior to leaving our factory and under normal circumstances will not require any adjustment.

- With the cabinet running and the pre-filter blocked as described above, locate the grey pressure switch through the hole in the right hand sidewall. Adjustment is made by turning the small screw in the end of the switch.
- Adjust the screw to make the alarm show. You may have to repeat these steps to ensure an accurate setting has been achieved.
- Remove the blockage and restart the machine. The red/amber neon should not be illuminated.

5.6 Changing Out Filters

WARNING! Ensure persons removing filters are made aware of any potential hazards and that they are provided with any necessary protective clothing and equipment.

Hazards associated with the removal and disposal of used filters will depend on the application of the hood. If an activated carbon filter is used with hydrocarbon solvents, the filter will retain the solvents without loss, and can be removed in the laboratory. The used filter should be sealed into a plastic bag prior to disposal, preferably by incineration.

If the filter has contained any dangerous materials such as asbestos dust or radioactive chemicals, operator protection is advised, including the use of a respirator. The used filters may require disposal by a specialist company.

NOTE: CONSULT YOUR SAFETY OFFICER OR INDUSTRIAL HYGIENIST BEFORE REMOVING OR DISPOSING ANY FILTERS.

Pre-Filters
There are two pre-filters:

» One is located on the ceiling inside the cabinet (behind the white tray); and

» The second is located on the outside surface of the cabinet door (behind the blue tray).

Unclip the perforated pre-filter tray and let it swing open. Remove the old filter, place it into a bag, which is then sealed and ready for disposal. Refit the new filter and refit the filter trays.

Main Carbon / HEPA Filter

WARNING! Disconnect the power supply before removing filter access cover.

- Remove the front cover to gain access to the filter. Loosen the filter clamps. Lift the filter slightly to break the seal and then withdraw the filter. Place the filter in a plastic bag. Seal the bag for disposal.
- Slide the new filter into position by pushing the filter fully into the module. Refit the front cover and lock it in position.
- Please note, sometimes after new filters are fitted, it may be necessary to recalibrate the airflow system. This procedure can be found in the Maintenance – page 21.

SAFETY FILTER (OPTIONAL)

- Unscrew the safety filter retaining plate. Place the safety filter into the recess, ensuring that the side with the foam rubber gasket is facing down. Re-attach the safety filter retaining plate.

5.7 Maintenance Schedule

Please follow the suggested maintenance schedule in order to maintain your Air Science cabinet at its optimum performance.

Monthly

1. Using a damp cloth, clean the exterior surfaces of the cabinet, particularly the front and top of the cabinet, to remove any accumulated dust. When needed use soap or other mild household detergent.

Quarterly

1. Replace pre-filters.
2. All monthly activities.

Semiannually

1. Replace all HEPA filters.
2. All quarterly activities.

Annually

1. Replace all main carbon filters.
2. All semiannual activities.

5.8 User Monthly Maintenance Schedule

Model:	**Year:**
Serial Number:	**Responsible Person:**

Month	Clean Exterior Surface	Notes	By Who
Jan			
Feb			
Mar			
Apr			
May			
Jun			
Jul			
Aug			
Sep			
Oct			
Nov			
Dec			

5.9 Fault Finding

WARNING! Before attempting any inspection or replacement of electrical components, always isolate the cabinet from the main power supply and remove the power supply cable.

Fault	Check
Filter Blockage Alarm	» Check airflow at aperture » Check pre-filter is not blocked » Check fan is running » Recalibrate
Filter Saturated (Optional)	» Check filter condition with Gastec or Draeger test kit » Check filter seal » Check filter is correct for application » Check date on filter » Replace all filters
Fan Not Working	» Check inlet fuse » Check any loose wires to terminal blocks » Bypass speed controller; if fan works, replace speed controller » Replace fan capacitor » Replace fan
Water Pump Blocked	» Push red tab on pump cover and turn to release cover; remove material blocking pump operation » Push and turn pump cover to lock back into place

5.10 Component Changing

SHOULD ONLY BE CARRIED OUT BY TRAINED PERSONNEL

WARNING! Ensure main power supply has been removed prior to any work being initiated.

5.11 Replacement Parts List

Replacement Parts List

Part Description	Part Number
Fuse for Pump, 2.5A	021802.5HXP
Main Power Fuse, 5A	0218005.HXP
Main On/Off Switch	WRG32F2FBGLN
Power Inlet	719W-00/04
Power Cord (specify plug type)	PCORD230
Pressure Switch for Low Airflow Indication	6753-AEJA-U0000
Pump for Drain Line	4640-1
Monitair Kit (screen and board)	MON-P
Hanging Rod (specify cabinet model)	HANGR-FDC
Switch for Pump	8440K3
Fan Motor, 230v	R2E160-230V
Fan Capacitor	EN60252-1
Fan Motor, 115v	R2E160-115V

VI. Filter Information

For detailed information on filtration types and how to customize your application, visit the Filtration Guide on our website: www.airscience.com/filtration-guide.

Filter Types
Air Science offers over 12 types of activated carbon and particulate filter media. These formulas can be customized or layered into nearly limitless combinations to best suit your specific application. HEPA filters are available for applications involving particulates and can be combined together with any of our activated carbon filters.

7.1 Filter Descriptions

Formula	Description
GP Plus!	The most widely used filter in the range, primarily for solvent, organic and alcohol removal.
ACI Plus!	Neutralizes volatile inorganic acid vapors.
ACR	Iodine and methyl iodide vapors as well as low level radioactive iodine.
ACM	Mercury vapor.
AMM	Removes vapors from dilute ammonia solutions; removes low molecular weight amines.
SUL	Designed to remove hydrogen sulphide and low molecular weight mercaptans.
CYN	Removal of hydrogen cyanide. Many cyanide compounds will evolve HCN gas if acidified, so this filter is normally specified if working with any cyanide compound.
FOR	Designed to oxidize formaldehyde and glutaraldehyde fumes; widely used in hospital pathology laboratories.
EDU	Designed to handle chemicals normally used in a university level chemistry curriculum.
MIL	Designed for military applications involving war gasses.
HEPA/UPLA	Powders, particulates and biologicals.
EFT	Universal filtration.

VII. Product Specifications

For additional product information, drawings, dimensions and specifications:

Safekeeper

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