AIRONE C700

FILTRATION FUME CUPBOARD
INSTRUCTION MANUAL



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FOREWORD

This manual has been prepared to give guidance in the use of the following Recirculatory, Filtration Fume Cupboards:

Code: Description.

C700 AIRONE C700

This manual contains the information required to ensure optimum and free operation of the C700 range of Filtration Fume Cupboards.

Service and maintenance operations should only be undertaken by SAFELAB Service Engineers or their authorised agents.

Details of Service Contracts, along with information on these and other products is available on request from:

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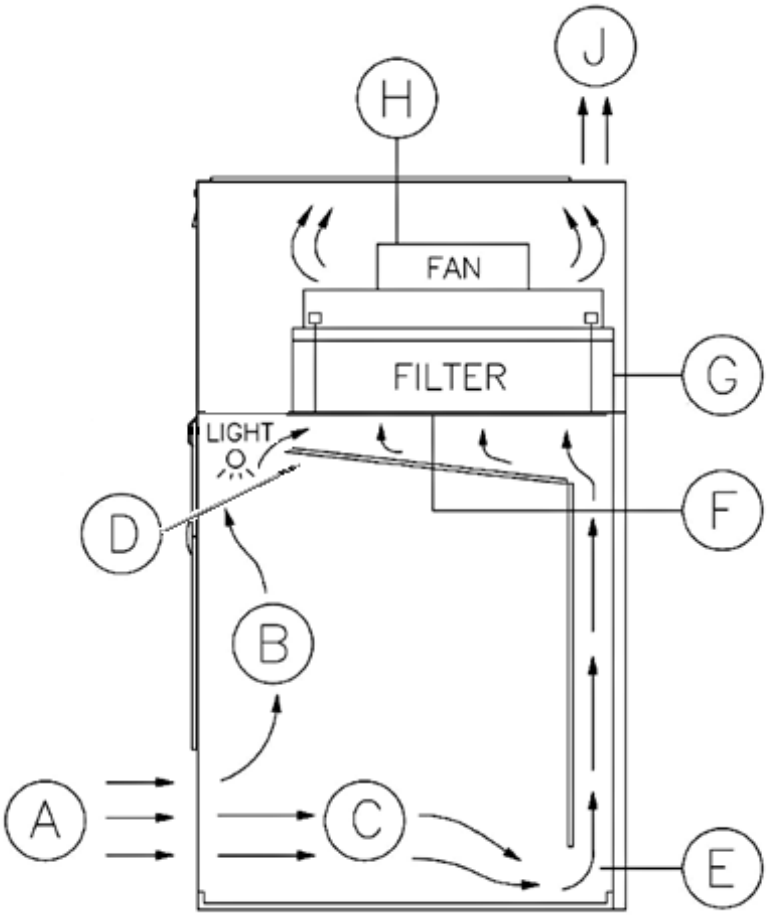
Website: - http://www.safelab.co.uk

Description of Cabinet

The C700 filtration fume cabinet is designed to eliminate fumes from the working area to provide both operator and environmental protection.

This is achieved by using a centrifugal fan (H) to provide an inflow air velocity through the working aperture (A) .This contains the contaminated air within the cabinet. The air moves along the work surface (C) then behind the rear baffle (E) . Air is also pulled up the front of the sash (B) then into the top baffle (D) .The air then passes through an electrostatically charged pre-filter (F) to remove contaminated particles. Then through an activated carbon filter (G) to absorb the fumes. The air can then be exhausted back into the lab.

Note: A combined Activated Carbon-HEPA filter is also available where a greater degree of particulate filtration is required.



Normal Environmental Conditions

INDOOR OR OUTDOOR USE	INDOOR USE
TEMPERATURE	5 °C to 40°C
RELATIVE HUMIDITY	MAX HUMIDITY 80%
OVERVOLTAGE CATEGORY	OVERVOLTAGE CATEGORY II
POLLUTION DEGREE (II)	POLLUTION CATEGORY II
ALTITUDE	UP TO 2000m
MAINS SUPPLY VOLTAGE FLUCTUATION	230V -6% +10%

Technical Details

MODEL No.	C700
POWER REQUIREMENT	230V 50 Hz, 1ph
POWER CONSUMPTION	250 watts
INLET VELOCITY	0.5 m/s
AIRFLOW	297 m3/h
WEIGHT (APPROX)	67 Kg
DIMENSIONS	700mm WIDTH x 1225mm HEIGHT x 668mm DEPTH
CARBON TYPE	B SIZE FILTER
PRE-FILTER TYPE	Size B Pre-filter
AIRFLOW MONITORING	Visual LED indicator with alarm
FILTER CONDITION MONITORING	Visual display indicator with alarm (optional)
NOISE LEVEL	< 50 dB
LIGHT LEVEL	650 LUX
LIGHT COLOUR TEMPERATURE	6000 K
LIGHT COLOUR RENDERING INDEX	>90

Packaged Items

 C700 unit	 Power Cable, C13, IEC country specific (10A, 250 V)	 Filter Boss Jig, PP-07828 (stored in head see **Fig 5.1**)
 C700 User Manual		

SECTION 2

Installation

WARNING

Heavy object.
Ensure the correct lifting equipment, PPE and Manual Handling procedures are used during installation.

NOTICE

For best performance, the unit should be positioned away from human traffic, opening doorways, ventilation and air-conditioning systems and opening windows. See **Fig 2**

- The cabinet must be mounted on a solid and level surface.
- The unit should be sited in a draught free position, see **Fig 2**.
- The cabinet is re-circulating and requires no connection to ductwork however a clearance of 200mm from the top of the unit to the ceiling is recommended to allow exhaust air outlet and service access.
- The cabinet will be supplied with the carbon filter installed. To identify the carbon filter type look through the small window on the left side of the controls label to view the filter label, see **Fig 3**. Ensure the correct carbon filter has been installed for the intended use.
- Check the pre-filter is in-place. Open the sash fully, then firmly pull on the front edge of the top baffle and let it hinge down. This will allow you to view the pre filter element. Ensure the pre-filter has been correctly installed. *See Section 3 for more details.*
- Connect the cabinet to a 13A outlet socket using the supplied cable.

CAUTION

Only the supplied mains cable must be used to connect the unit to the power supply. Damaged cables must be replaced.

Dimensions / Part Identification

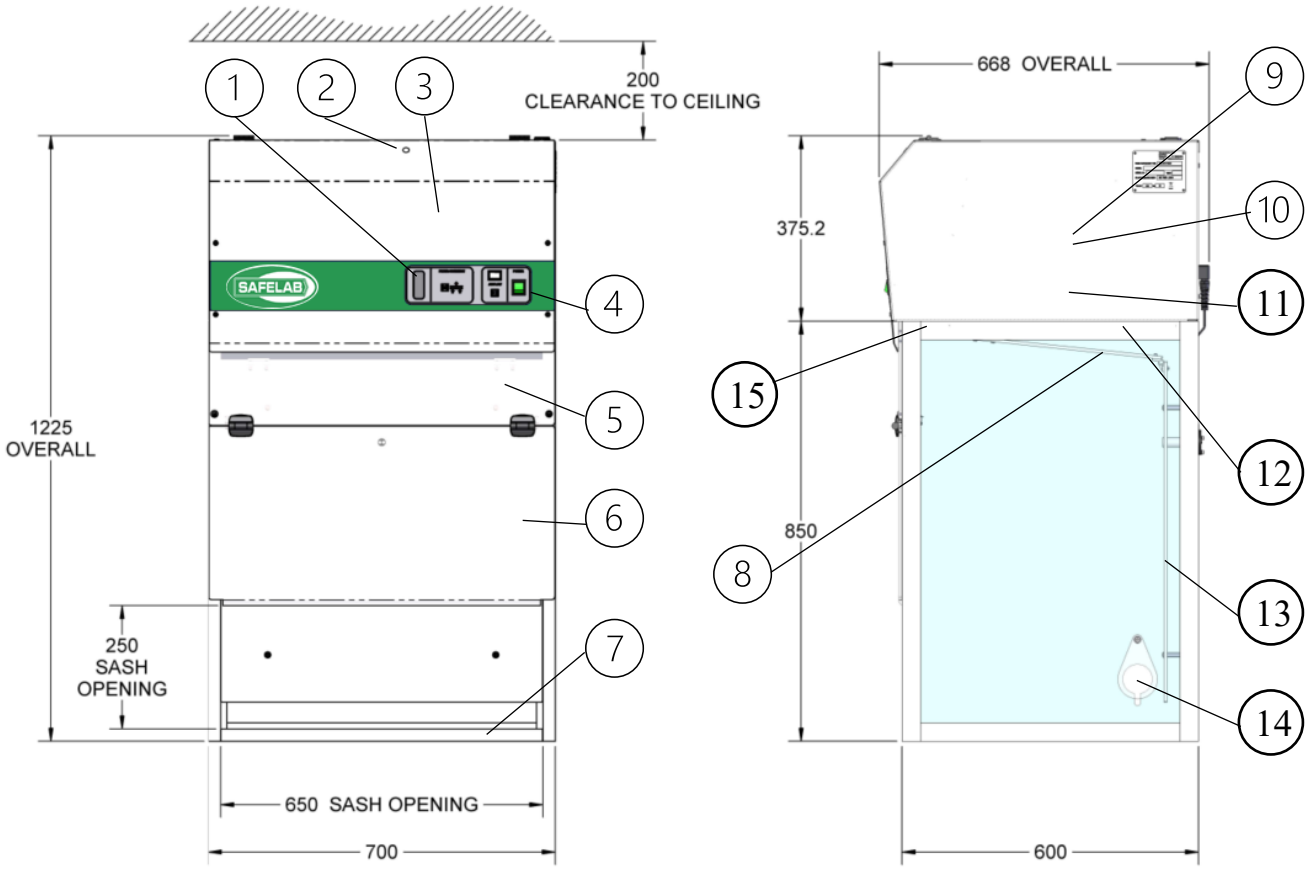


Figure 1

1) Filter viewing window
2) Fan speed adjust hole cap
3) Front cover
4) Control panel (see **Fig 3**)
5) Upper glazing panel
6) Hinged sash panel
7) Work tray
8) Upper baffle
9) Fan
10) Fan plenum
11) Main filter
12) Pre-filter (see **Fig 4**)
13) Rear baffle
14) Cable flap
15) Interior light (see **Fig 8**)

Testing & Commissioning

An airflow test certificate will be supplied for conformity to CE marking, and electrical test.

The Cabinet MUST be Tested Every 14 Months to Comply With C.O.S.H.H Regulations.

Guide to Positioning

Minimum recommended distances shown (in millimetres) to avoid air disturbances in the C700 fume cupboard. The unit should also have an undisturbed zone of at least 1000mm in front of the unit from human traffic routes. Use barriers if possible to prevent human traffic from entering the undisturbed zone.

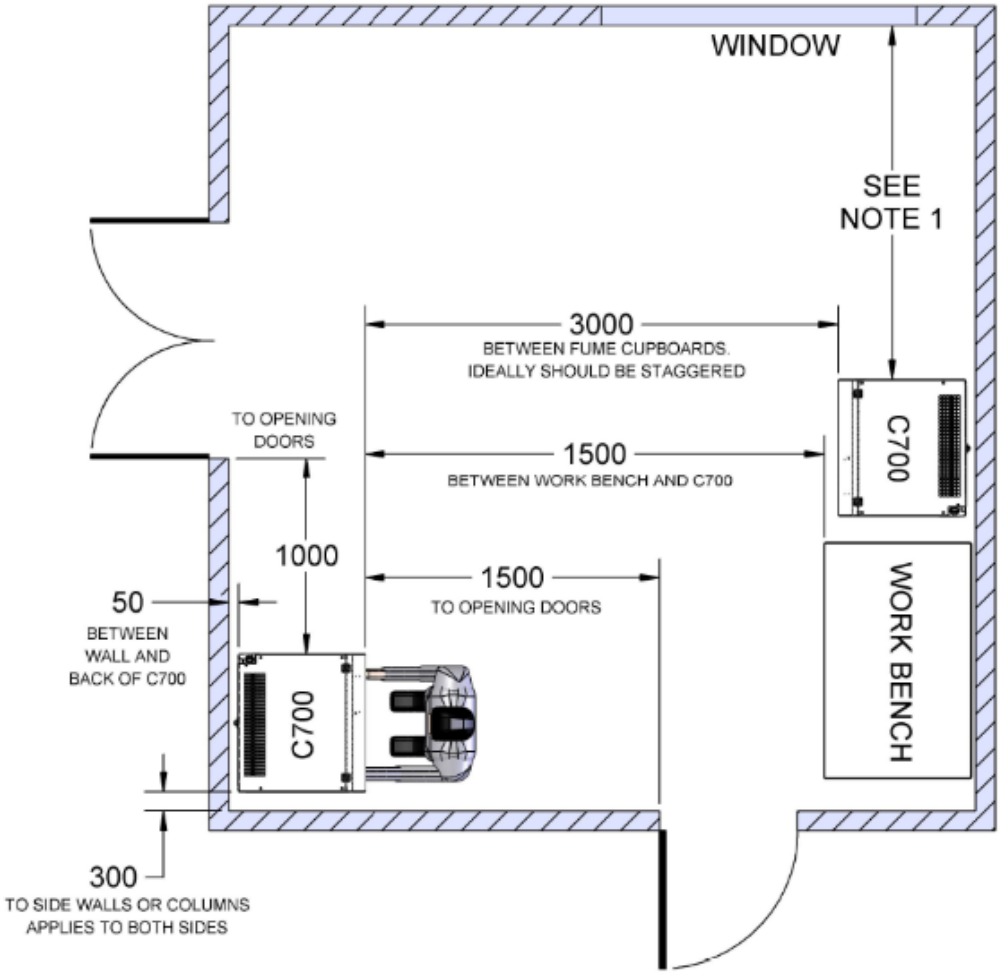


Figure 2

Note:

The C700 must be located as far away from opening windows as possible. The minimum distance should be determined during the pre-installation site visit. If the windows are never opened then the minimum 300mm applies.

Operation

To turn on the fume cabinet press the green rocker switch on the right of the control panel. At startup 'Low Airflow' will be displayed on the LCD window and the alarm will sound. Once the airflow has stabilised the alarm will turn off and a set of scrolling arrows with 'Airflow OK' will appear on the LCD screen. This indicates that the correct airflow has been achieved and the unit can be used.

The inflow air velocity at the working aperture is continuously monitored by an airflow monitoring system. If the airflow drops below a safe level, there will be an audible alarm and the LCD screen will display 'Low Airflow'. The airflow alarm will also be triggered if the sash is fully opened. This does NOT indicate an error and the alarm should stop once the sash is closed.

If the unit is fitted with a Filter Monitoring system, as shown in **Fig 3** below, an additional alarm with LED status will be provided. This system will indicate when the carbon filter needs to be changed by activating an alarm and illuminating a red LED warning light. When this occurs, you must change the carbon filter as soon as possible.

Note, the Filter Condition alarm and the red LED warning light will also come on at startup until the airflow has stabilised. This can take up to 60 seconds to clear.

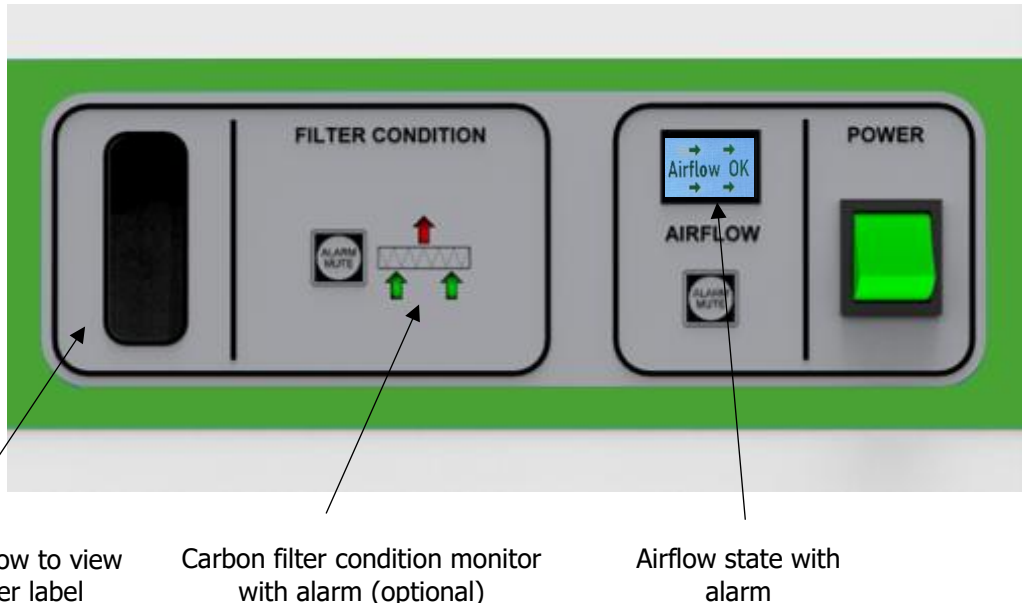


Figure 3
Control Panel
(Shown with Optional Filter Condition Monitor)

SECTION 3

Filters

The C700 fume cabinet is fitted with a carbon filter or a HEPA/carbon hybrid filter where additional particulate air filtration is required. All units are fitted with a pre-filter.

	**WARNING** **Shock Hazard** The unit MUST be isolated from the electrical supply prior to opening the front cover to access the carbon filter.

	**CAUTION** **Heavy Object** Take care when handling carbon filters as they are heavy objects. The filter is located at head height so an appropriate step must be used to allow removal at chest height.

	**CAUTION** **Contamination Risk** Personal Protective equipment must be worn when handling used filters as dust and contaminates may inadvertently be released from the filter. Wear gloves and a face mask to avoid inhalation or contact with the filter.

Pre-Filter – Changing

This may be carried out with the cabinet running to provide additional protection to the operator. See **Figure 4** for details

- Open the front sash fully.
- Pull the top baffle down by holding the front edge and pulling down firmly. Allow the baffle to hinge down fully.
- Loosen and remove the black thumb screws either side of the pre-filter frame and allow it to hinge down.
- Carefully pull the pre-filter media out and bag it for disposal.
- Insert the new pre-filter media, hinge up the pre-filter frame and replace and tighten the black thumb screws.
- Hinge up the top baffle and firmly clip it into place.
- Pre-filter installation is complete.

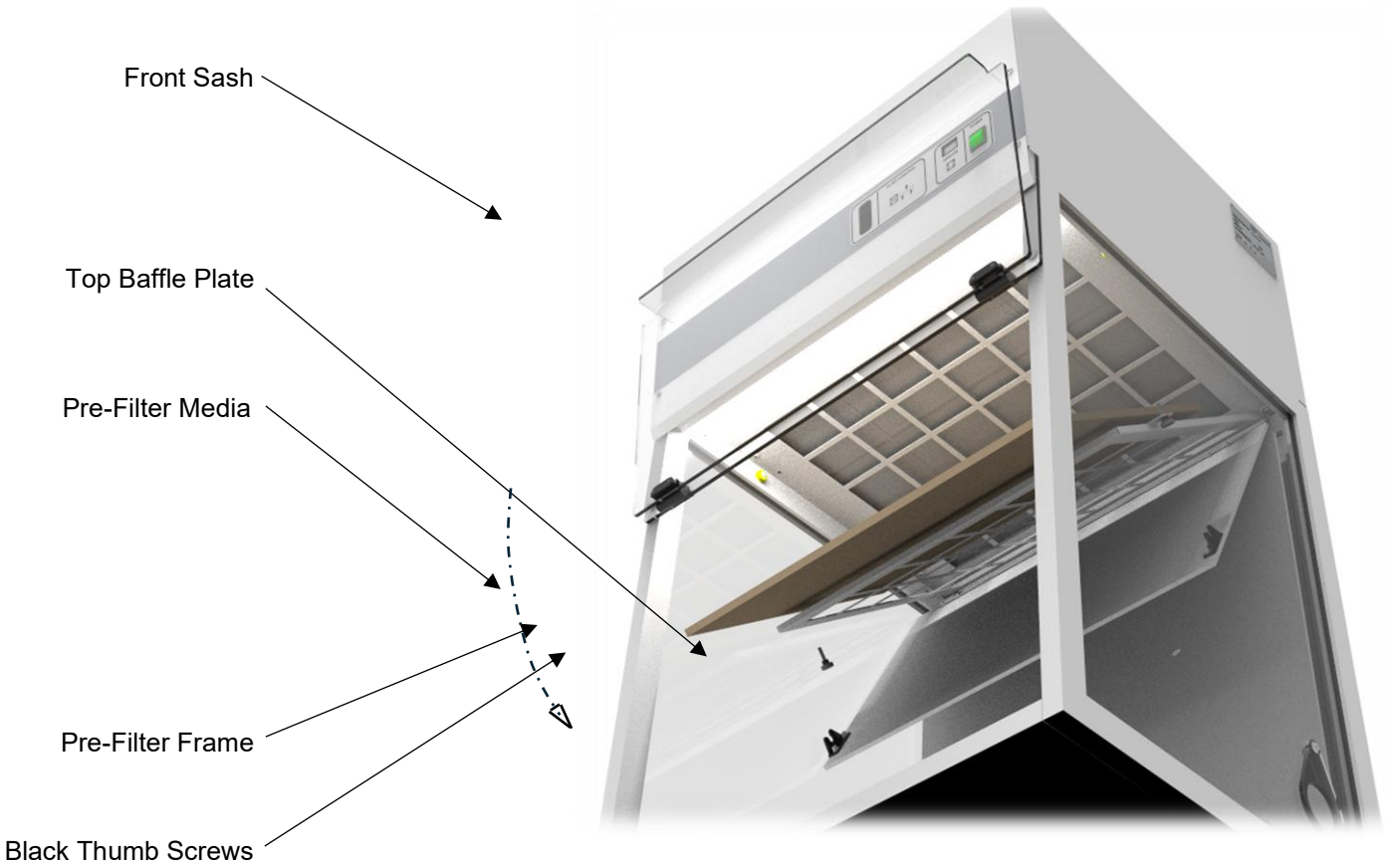


Figure 4
Pre-Filter Removal / Installation

Main Carbon Filter – Changing

Check carbon filter to be fitted is the correct grade for the intended use. If in doubt Contact Safelab Systems for assistance.

- Turn off the unit and isolate it from the mains supply by unplugging the mains lead from the outlet socket.
- Open the front cover by removing the 4 x M5 button head screws. Use a No.3 Allen key. See **Figure 5.1**

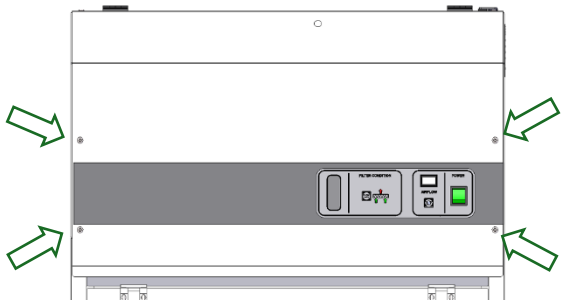


Figure 5.1
Front Cover Screws Locations

- There is a stay either side of the front cover to hold it in the up position. Press both stays, as shown in **Figure 5.2**, to lock them in position.

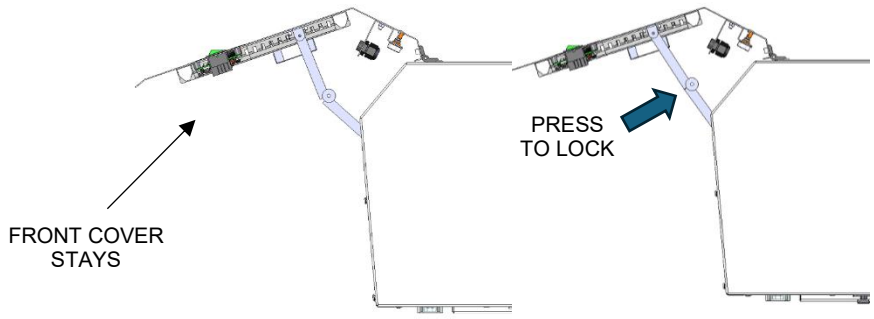


Figure 5.2
Front Cover Stays

- Locate the 4 clamping thumb screws as shown in **Figure 5.3**. You will need to reach into the unit (behind the fan) to access the rear thumb screws. The springs under the thumb screws will push the fan plenum up, unscrew the thumb screws until the fan plenum is no longer being pushed up by the springs.

  Note: the carbon filter weighs approximately 15 Kg's so take care during this next step.

- To remove the carbon filter hold the sides and firmly pull it towards you. The carbon filter may stick in-place so this may require some force. As you pull it out the filter will move up slightly onto the slide rails, once this happens the filter should slide out easily.

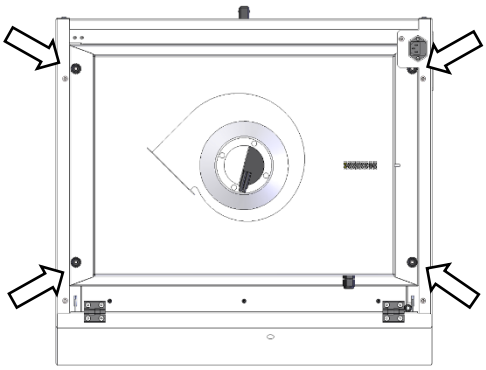


Figure 5.3
Top view of unit with top cover removed to
shown location of Filter clamping thumb screws

- DO NOT DISPOSE OF FILTER YET. Once the filter has been removed unscrew the bosses from the sides and retain the bosses and screws for the replacement carbon filter.

- Bag the old carbon filter and dispose of it in accordance with local regulations. It is recommended to double bag the filter using a medium to heavy duty bag which is suitable for incineration.

Carbon Filter Installation

- Place the new carbon filter on a suitable bench and fit the bosses to the new filter using the jig provided. The jig is located inside the head next to the filter slides as shown in **Figure 6.1**. Ensure the bosses are fitted to the short sides of the filter at the back as shown in **Figure 6.2** and **Figure 6.3**. Follow the steps in **Figure 6.2** and **Figure 6.3** to fit the bosses.



Fig 6.1 - Boss Alignment Jig Location

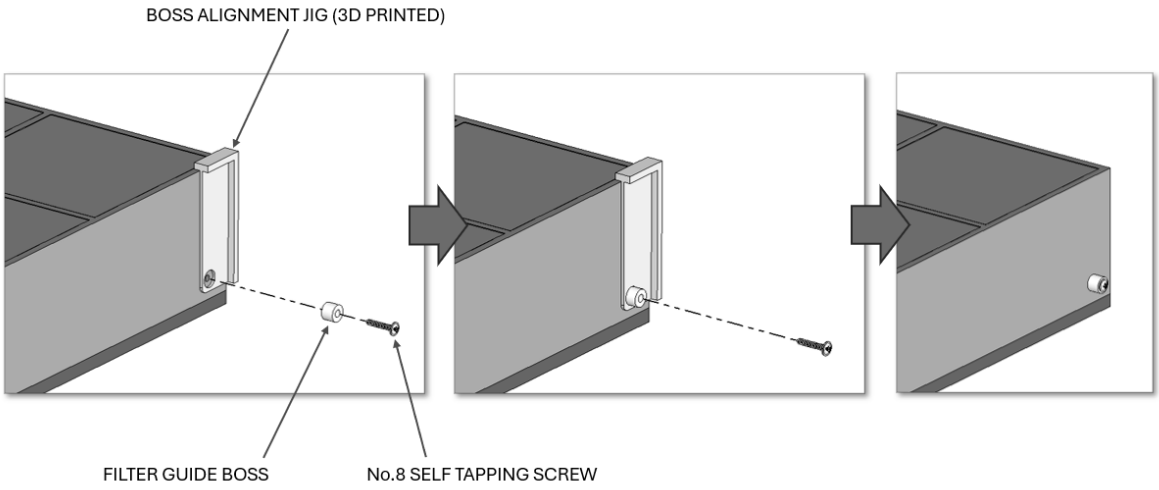


Fig 6.2 - Boss Installation



Fig 6.3 - Boss Positions

	**CAUTION** **Risk of Trapped Fingers** Take care when installing the carbon filter as there is a risk of fingers being trapped under or on the sides of the filter. Wear protective gloves to avoid injury.

- Once the bosses are fitted lift the carbon filter, seal facing down, and position it between the rails in the head. Lower the filter bosses onto the rails. Support the front of the filter, tilting it up slightly, whilst pushing it back. NOTE: take care not to damage the seal during installation. The filter will drop down at the rear then hit the stopper when it is in the correct position. Ensure the front of the plenum is flush with the front of the carbon filter.
- Tighten all 4 thumb screws shown in **Figure 5.3** until the carbon filter seal is lightly compressed all around. DO NOT OVER TIGHTEN!
- Close the front cover by releasing both stays and replace all 4 screws.

Hybrid Carbon HEPA Filter Installation

The hybrid filter is 30mm deeper than a standard carbon filter so special spring spacers are used to accommodate the additional filter depth. The spacers will be supplied with the hybrid filter. Once these spacers are fitted the removal and installation of the filter is the same as for a standard carbon filter.

- To install the spacers unscrew the 4-off thumb screws (ref **Figure 5.3**) all the way to the top of the thread.
- Lift the fan plenum up then push the spacer onto the exposed part of the thread between the bottom of the plenum and the top of the spring. Push the spacer firmly into-place until it clicks into position. Repeat this in all 4 positions.

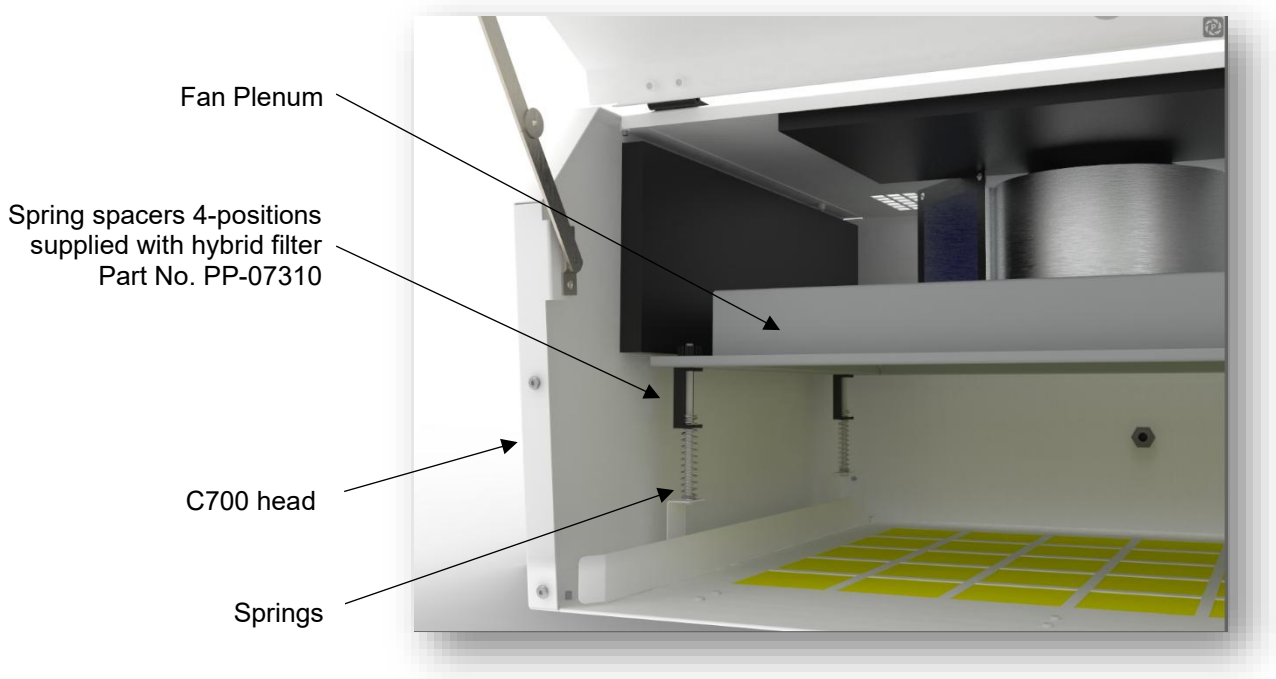


Figure 7
Hybrid Filter Spacer Installation

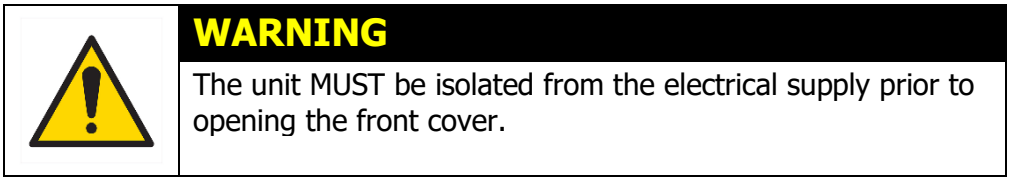
Maximising Carbon Filter Life

Simple steps can be taken to optimise the life of your carbon filters including:

- Handling the minimum volumes of chemicals within the cabinet
- Covering chemical containers when not in use
- Turning off the unit when not in use
- Heated chemicals evaporate at a faster rate so this should be avoided where possible.
- Acids should be at room temperature and covered as far as practical

SECTION 4

Maintenance



Fuses

The cabinet is fitted with two T3.15A (20x5) main fuses. These are located in the mains inlet socket on the top of the cabinet. To replace the fuses remove the mains lead then gently pry off the fuse cap using a small flat screwdriver.

NOTE: Always replace fuses with the correct type and rating.

Cleaning

The materials used to construct the C700 Fume Cupboard have been selected to give maximum durability and a long life. It is however beneficial to regularly clean and decontaminate the internal and external surfaces.

It is recommended that the cabinet is switched on during any cleaning procedure and that suitable protective clothing (face mask, gloves and safety glasses) are worn. All surfaces should be cleaned with a mild detergent solution then finished off with a damp cloth and wiped dry.

If necessary the rear and upper baffles can be removed for cleaning. To remove the baffles start by removing the 2 top screws from the rear baffle. Then hinge down the top baffle, as shown in Fig 4, and let it rest against the rear baffle. Finally remove the 2 bottom screws from the rear baffle whilst supporting it from underneath.

Calibration of The Low Airflow Alarm

NOTICE

This procedure requires the use of a calibrated vane anemometer and must be carried out by a person familiar with air measurement equipment and its proper use.

1) Turn the unit on and close the sash
2) Place the vane of the anemometer in the centre of the aperture with the head of the anemometer flush with the outside of the cabinet as shown below in **Figure 9**. Use a laboratory stand to support the anemometer.

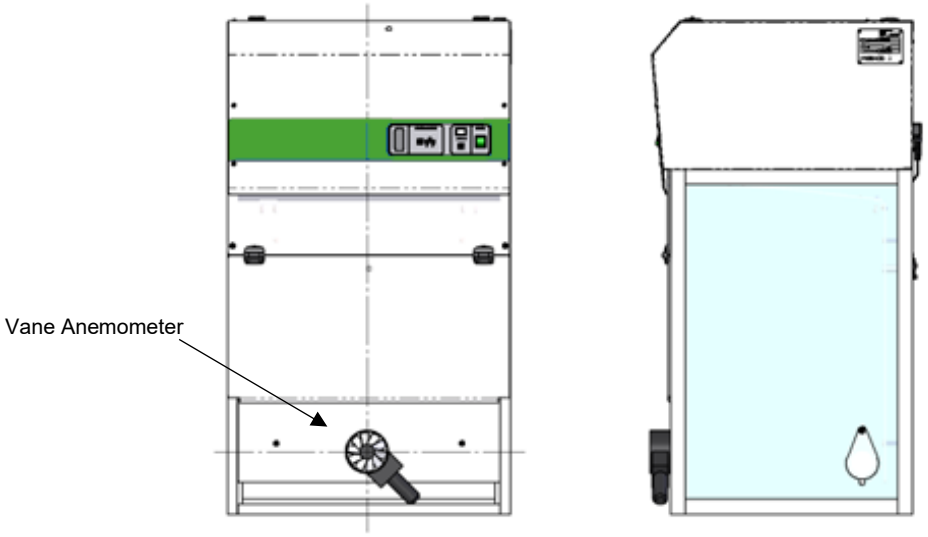


Figure 9
Vane Anemometer positioning

3) Remove the white plastic hole-plug, located on top of the front cover, to gain access to the speed controller (potentiometer). Use a small flat screwdriver and turn the potentiometer until you achieve a face velocity of 0.35m/sec.
4) Turn off the cabinet and restart whilst pressing the ALARM MUTE key for about 5 seconds.
5) The LCD will display "SET LOW AIR SPEED AND PRESS MUTE" showing the alarm is in calibration mode. When the airflow has stabilised check that the inflow is still reading 0.35m/sec, adjust if necessary. Press the ALARM MUTE key to store the set point.
6) Reset the fan speed to achieve a face velocity of 0.5m/sec.
7) Check operation of the low airflow alarm by raising the sash fully. The alarm should sound when the panel is raised and stop when the panel is lowered.

Calibration of Filter Condition Alarm (if fitted)

	**NOTICE** This procedure should only be carried out after installing in new carbon filter

1) Whilst pressing and holding the filter condition 'Mute' button, turn on the cabinet. When an audio beep is heard release the button.
2) The red and green indicators will flash alternately showing that the alarm is in calibration mode.
3) Leave the cabinet running for at least 15 minutes to allow the sensor to stabilise.
4) Press the 'Mute' button once. The indicators will stop flashing with the green remaining on.
5) The filter condition alarm is now calibrated.

SECTION 5

Servicing

An annual service is recommended and testing is mandatory under C.O.S.H.H regulations. This service will include:

- Check / replace pre-filter
- Check and record face velocity readings
- Check airflow monitor and re-calibrate if necessary
- Check condition of glazing, hinges etc.
- Inspect electrical components, lighting, cables etc.
- Issue test report and airflow certificate.

Trouble Shooting

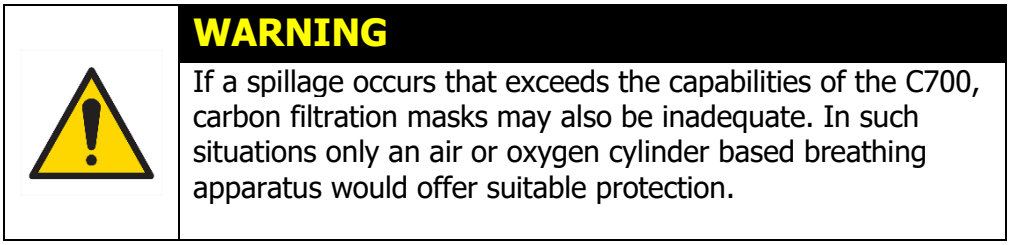
1. **I can smell the vapours or gases being used in the procedure, but I have checked the filter performance and it is satisfactory?**

   If you can smell vapours or gases during a procedure, it's important to understand that this doesn't necessarily indicate a hazardous situation. Filters, particularly those used in air purification systems, have high efficiency but may not completely eliminate all odours. The human nose is extremely sensitive and can detect even trace amounts of gases that pass through the filter, which may be well below hazardous levels.

   Make sure that the unit is positioned as shown in the Positioning Guide in Section 2, Fig 2. Drafts from doors and windows can pull air out of the cabinet leading to a loss of containment.

2. **There is a chemical release that the filters of the C700 cannot contain?**

   COSHH (Control of Substances Hazardous to Health) stipulates the appropriate types of carbon filters, weekly air sampling and filter monitoring checks required. If these steps are taken it is unlikely for non-containment hazards to occur. However if such a hazard does present itself, leave the fan running and evacuate the area. Subject to the hazard assessment and local considerations, it may be necessary for personnel to use breathing apparatus when returning to the area to open windows and/or use ventilation systems. Ensure that all hazardous vapours or gases have been dispersed.



3. **The LOW AIRFLOW alarm is sounding even though I have replaced the carbon filter and pre-filter.**

   Ensure the sash is closed. If the alarm is still sounding check for obstructions covering the exhaust outlet grille. If the alarm continues to sound, recalibrate the airflow sensor as shown in Section 4.

4. The FILTER CONDITION alarm is sounding even though I have replaced the carbon filter.

The alarm will sound when the machine starts up and only turns off after 60 seconds which is normal. If the alarm continues to sound after this time recalibrate the filter condition sensor as shown in Section 4.

5. SENSOR FAULT appears on the LCD screen.

This will appear if there is a fault with the airflow sensor. To resolve this issue first replace the airflow sensor located on the back of the unit. If fault still appears change the airflow sensor board. A Safelab Service Engineer should perform this task.

6. Unit does not power up and fan is not running.

Make sure the power cable is connected and the unit is switched on at the plug socket. If there is still no power replace the 2 fuses. Refer to Section 4.

7. The controls LED's, LCD screen and interior light not working or flashing.

This indicates an issue with the power supply requiring replacement. A Safelab Service Engineer should perform this task.

SECTION 6

Certificate of Conformity

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CE

E.C. DECLARATION OF CONFORMITY

Safelab Systems Ltd

hereby certify that the

Airone C700
Filtration Fume Cupboard

Conforms to the requirements of the
Low Voltage Directive #73/23/EEC and the
Electromagnetic Compatibility Directives # 89/336/EEC and #92/31/EEC

Complying with the conformity criteria of European Standards:

EN 61010-1: 1993 safety requirements for electrical equipment for measurement, control and laboratory use Part 1 : General requirements
EN 50081-1, EN 50082-1 : Emission Limits to Reference Standards:
EN 60555-2 & 3, EN 55022/B, EN 55014

Signed: .....

Jemma Acharya, General Manager
Safelab Systems Ltd

Dated: 15th October 2025

The single source for the complete clean air solution

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Registered Office: Airone Building, 8 Beaufighter Road, Weston-Super-Mare BS24 8EE

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