CLEANCAB
FILTRATION SYSTEMS
"Keeping the operator clean & cool"

INSTALLATION / MAINTENANCE AND OPERATION

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1. PURPOSE

The purpose of this document is to provide general guidance and information on the installation, maintenance, and operation of the Clean Cab filtration system provided.

2. HAZARD RECOGNITION

Personal Protective Equipment required: (including but not limited to)	
Equipment / Tools required:	• Drill •
Energy Sources:	
Hazards: (including but not limited to)	
Permits and/or Isolations required:	

3. PRESSURISER INSTALLATION

NOTE: The below steps are basic generic steps on the install a pressuriser system. Onsite teams will have to complete a detailed risk assessment and work instructions on the specific machine and system to be installed.

1. Isolate machine.
2. Locate an appropriate location to mount the pressuriser unit.
3. Remove filter cover using procedure laid out in Hepa filter replacement guide.
4. Remove filter certificate & warning sticker (located inside the box on top of the Hepa filter)
5. Fit warning stickers to prominent location inside the operator station. Place Certificate in a safe place for commissioning of the system.
6. Drill holes through the base of the pressuriser housing & mount securely with 4 bolts.
    - **NOTE:** If required, make an adapter to mount the pressuriser unit too.
7. Reassemble pressuriser.
8. Locate cabin fresh air filter & remove factory filter.
9. Remove or disconnect fresh air/recirculation flap if fitted.
10. Inspect AC system evaporator box for damage or poor seals. Repair as required.
11. Clean evaporator core if required following safety procedures.
12. Fit adapter to fresh air inlet cover.
    - **NOTE:** Depending on machine make/model an adapter may be supplied.
    - If no adapter is supplied manufacture an adapter with a 75mm outlet.
13. Connect pressuriser to fresh air adapter with 75mm ducting.

14. Fit cabin pressure monitor(s) in a safe appropriate location in the cabin. Wire unit by following wiring diagram.
15. Locate sensor tube (clear tube) at the side of the monitor box & find a place to access outside air.
    - **NOTE:** Ensure this is sealed to minimise the possibility of dust ingress into the operators cabin after system instillation.
16. If Possible, follow wiring harness where it exits the cabin or find an appropriate place to mount bulkhead fitting through the cabin frame (parts are in the kit).
    - **NOTE:** Tube must not be kinked or squashed when passing through the cabin frame.
    - Cut off excess line & fit supplied filter to sensor tube making sure the location is clear from oil or grease.
17. Run system with all doors & windows closed without Airconditioning running.
18. Follow instructions for system setup in the application.
19. Test air conditioning system for performance & repair as necessary.
    - **NOTE:** The cabin pressuriser system adds more load to the air conditioning system. It is best practice to seal the cabin as best as possible to reduce the heat load on the air conditioning system.
20. Complete system commissioning form & keep with Hepa filter certificate with machine records.

CLEANCAB COMMISSIONING FORM CONTACT 0427477740 info@cleancab.au

DATE COMMISSIONED	
INSTALLERS COMPANY	
INSTALLERS EMAIL	
INSTALLERS CONTACT NUMBER	
CUSTOMERS BUSINESS NAME	
CUSTOMERS EMAIL	
CUSTOMERS CONTACT NUMBER	
MACHINE MAKE MODEL	
MACHINE SERIAL NUMBER	
MACHINE FLEET NUMBER	
INSTALLATION DATE	
MACHINE HOURS	
PRESSURE TEST PA	
SET PRESSURE PA	
FAN % @ SET PRESSURE	
ALARM SET PRESSURE PA	20PA low. 200PA high
ALARM DELAY preset to 3 minutes	
FRESH AIR HEPA FILTER SERIAL NUMBER	
RECIRCULATION HEPA FILTER SERIAL NUMBER	
NOTES.	

4. PRESSURISER UNIT SERVICE

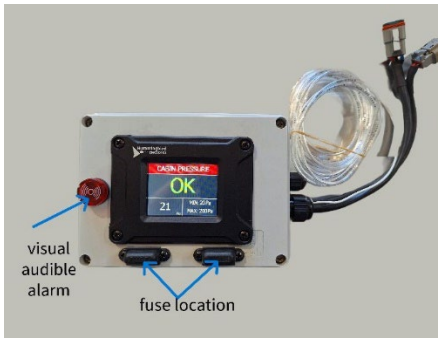
NOTE: This machine is fitted with a Hepa positive pressurisation system.

Care should be taken to keep dust & debris out of the operator station to help prolong system operation.

- All doors & windows must be securely closed during machine operation.
- Do not place any items in front of the cabin recirculation filter.

4.1 Weekly Inspection

1. Make sure machine is safe to start as per site specific workplace procedures.
2. Turn ignition switch on and start engine.
3. Check the monitor for correct operation and display lights up. (if monitor does not light up check fuses on the front of the monitor)



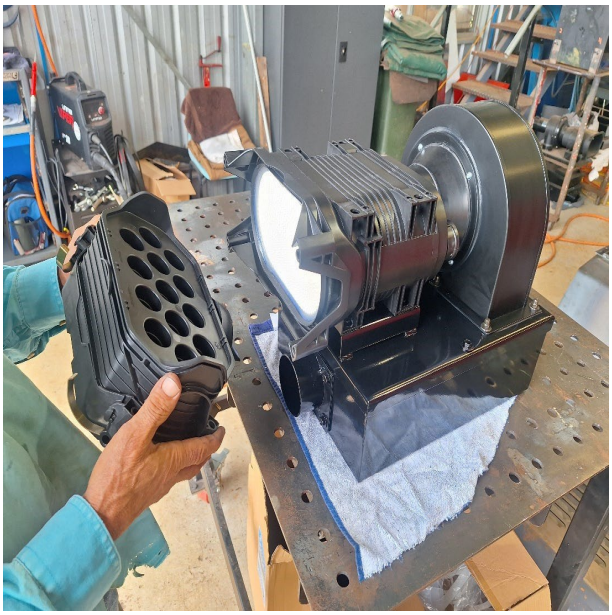
4. Open the door and check that the audible alarm operates after 3 minutes.
5. Close the door check cabin pressure builds up to set pressure.
6. If set pressure is not achieved or is slow to build check the below items.
    - Check door seals & all windows are closed. (check seals for damage) Check pressuriser assembly for damage.
7. Check air filter pre-cleaner vacuator valve for blockage. Remove & clean if needed.
8. Visually inspect main air filter, replace if blocked.
9. Inspect cabin recirculation filter, replace if blocked.
10. Contact service technician if fault persists.
11. Clean cabin with Hepa rated vacuum cleaner.

4.2 CleanCab Pressuriser Servicing Schedule

Main Filter	• Inspect weekly. • Clean actuator valve weekly. • Clean prefilter as required. • Replace main donaldson filter every 500hrs or less depending on environmental conditions.
Fresh Air Hepa Filter	• Replace yearly or as required depending on environmental conditions.
Recirculation Filter	• Replace every 500hrs or as required depending on environmental conditions.
Monitor Fresh Air Tube Filter	• Check monitor tube screen monthly for blockage. Clean or replace as required.
Pressuriser Assembly & Ducting	• Check monthly for damage. • Repair as required.
Machine Operator Station	• Check door & window seals monthly. • Repair as required.

4.3 Cleancab Hepa Filter Replacement

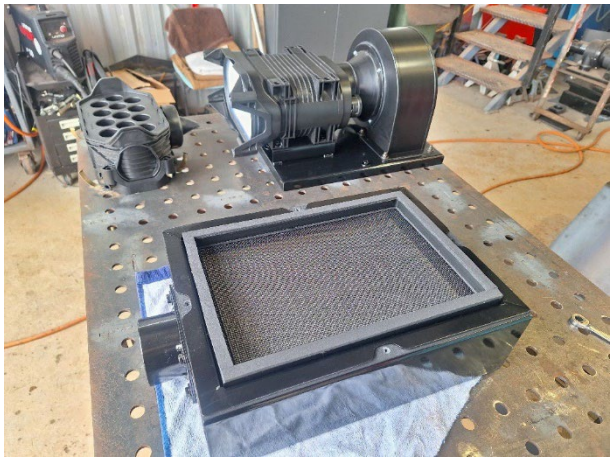
1. Remove main filter pre-cleaner & wiring from filter motor.



2. Remove 4 x 10mm bolts from filter base.

3. Remove filter cover assembly.

4. Remove Hepa filter insert.



5. Remove spacer & inspect seal for damage.

6. Remove Hepa filter by pushing out from the base.

7. Remove mesh diffuser & place components to one side & insect all seals.

8. Unpack new filter from packaging & place certificate to one side for your records.

9. Remove blue film from the base of the filter.

10. Note direction of airflow. Place filter back in the base with the arrow facing down.

Reassemble the filter assembly in the reverse procedure.

- 10mm bolts to be tensioned to 2nm in a diagonal direction starting at the side first. Repeat procedure to final tension of 4nm.
- Refit all components & test run system to test for system pressurisation.

4.4 Recirculation Filter Service

1. Vacuum clean around filter & cabin floor with Hepa filter vacuum cleaner Milwaukee or similar.
2. Remove recirculation filter following OEM guidelines. Dispose of filter using site safety procedures.
3. Check filter sealing surface & clean if needed.
4. Fit new Hepa recirculation filter following OEM guidelines.

5. FAULT DIAGNOSTICS

FAULT	POSSIBLE CAUSE	SOLUTION
Monitor not lighting up	• Power supply fault	• Check fuse in monitor. 7.5a screen fuse. • Check power supply & earth to monitor.
	• Faulty monitor	• Replace.
Monitor pressure not changing	• Blower motor not running.	• Check fuse at monitor. 10a motor fuse • Check wiring to motor. Check system operation using application.
	• Ducting damaged	• Check ducting for damage. Split pipe or disconnected.
	• Blocked air filters	• Check filters & replace if necessary.
	• Sense tube or sense filter damaged or blocked.	• Check sense tube & filter repair as required.
	• Faulty monitor.	• Replace.
System pressure Low or slow to Build up	• Cabin air leak	• Check doors & windows are closed. Check seals for damage. • Check cabin seals. • Check air filters for blockage.
	• Fan speed not increasing.	• Check system operation using application.
	• Door switch faulty (if used) • **NOTE:** Door switch slows fan to 20% fixed speed when door is open.	• Check switch visually or use application.
Fan running full speed all the time	• Air leak	• Check cabin seals. Check door & window seals.
	• Blocked filters	• Check & replace as required

6. CABIN PRESSURE MONITOR

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Panel Mount Cabin Pressure Monitor

Looking after our operators

Hummingbird Electronics' Cab Pressure Monitors provide a visual display to operators, letting them know when positive pressure in the cab is too low or too high. Low pressure in the cab can result in dust and other harmful materials entering the cab. High pressure can result in fatigue and headaches. The cab pressure monitor has been engineered for simple installation and operation.

Powerful Performance

The Cab Pressure Monitor measures pressure in the cab and compares it with atmospheric pressure. When the pressure in the cab drops to a level that is not high enough to prevent dust and other materials entering the cab, the display turns orange to alert the operator. After a user configurable number of seconds of the pressure being low or high, the display turns red, a warning is shown and the external outputs are triggered.

Three outputs are provided as follows:

Orange: Open collector, switches to ground after a user configurable number of seconds of the pressure being low or high This output is internally fused to 200mA with a self-resetting fuse.

Blue: Voltage output; configurable via the menu to be normally-high (9V) or normally-low (0V). The output will switch after a user configurable number of seconds of the pressure being low.

White: Analogue voltage representing pressure. Voltage scaling can be changed via the menu.

The pressure measurement units and thresholds can be configured via a touch-screen. The touch-screen must be accessed within 10 seconds of power being applied after which it is disabled. The touch-screen also allows other features such as screen brightness, password and outputs to be configured.

A precision sensor allows pressure to measured to a resolution of 0.1mm H_20. Measured pressure is temperature compensated to allow operation over a wide range of temperatures. An extremely high sensor burst pressure of 5000Pa means that door slams will not affect the sensor.

Normal operation

Push fittings allow for quick installation of the tube to the outside. A spare bulkhead push fitting is provided to enable sealed entry through the vehicle fire-wall if required. A filter is supplied to keep the air provided to the sensor as clean as possible.

Low pressure alert

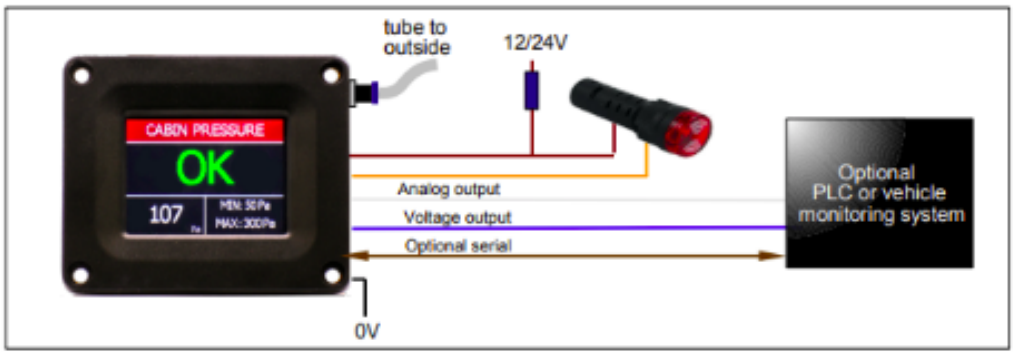
Included accessories

Tel: 1300 155541 www.hmbe.com.au

Panel Mount Cabin Pressure Monitor

Looking after our Operators

Technical Specifications		
Part number	HMPS3000KIT	Panel Mount Cabin Air Pressure Monitor Kit
	HMPS3000-NAV	HMPS3000KIT with serial interface
Device type	Configurable Cab Pressure Monitor	
Operating pressure range	0-500Pa (0-50mm H_2O)	
Sensor resolution	1Pa (0.1mm H_2O)	
Sensor burst pressure	5000Pa	
Temperature range	-10°C to 55°C	
Input voltage	Minimum: 9V, Maximum: 36V	
Current consumption	Less than 2W (100mA at 12V, 50mA at 24V)	
External OC output	Normally open collector, switches to ground if under or over pressure, 200mA limit	
Analog output	Range 0-10V, maximum 10mA output current	
Voltage output	Low value 0V, High value 9V, maximum output current 10mA	
Dimensions	90mm(w) x 76mm(h) x 33mm(d). Panel cutout 77mm(w) x 57mm (h)	



Typical installation

Optional Serial Commands

Where a vehicle tracking system has an available serial port, the Panel Mount Cabin Pressure Monitor can be configured remotely without having to visit the vehicle. Below are a list of commands that can be sent to configure the unit. Please contact us before purchase if this option is required.

$PLT50* - set lower pressure level to 50Pa; any value between 10 and 90 is acceptable
$PLS30* - set the time that pressure needs to be low before an alert to 30 seconds; any value between 10 and 600 (10 minutes) is acceptable
$PLC* -confirm lower limit settings
$PUT300* - set upper pressure level to 300Pa; any value between 100 and 500 is acceptable
$PUS100* - set the time that pressure needs to be high before an alert to 100 seconds; any value between 10 and 600 is acceptable
$PUC* -confirm upper limit settings
$PPS120* - set the interval between alerts once an alarm level has been reached
$PPC* - confirm the interval between alerts once the alarm level has been detected
$PUR* - trigger an upper limit alarm (mostly used in test)

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Panel Mount Cabin Pressure Monitor

Looking after our Operators

Change between measurement units (available units are Pascals, Millimeters H20, Micometers Hg, .001 Pounds per square Inch, 0.000001 Atmospheres)

Set maximum and minimum pressure limits. A keypad will appear when you select the minimum or maximum pressure box.

Set screen brightness

Configure touch-screen. Only do this if you are finding that the touch-screen does not line up with the icons. To configure, press the screen where the lines intersect.

Set the voltage output to normally high (9V) or normally low (0V).

Set the time-delay before the outputs switch

Set the output voltage scaling. The maximum voltage achievable is 10V.

Enable or disable the touch-screen password. A keypad will allow you to set a password. The default password is 24687.

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7. DONALDSON FILTER SERVICING INFORMATION

POWERCORE® AIR CLEANERS

PowerCore® Edge Air Cleaners

Donaldson. FILTRATION SOLUTIONS

This servicing information is provided as a best practices guide. It is not intended to replace or supersede the service instructions supplied by your engine or vehicle manufacturer. Note: Your air cleaner service cover may be in a different position than shown.

1 Check the filter housing for damage

2 Check Vacuator™ Valve

Inspect the Vacuator™ Valve for damage and release any remaining dust. If damaged, replace.

3

Unlock the pre-cleaner cover by pressing the side clips. Open the pre-cleaner cover to clean the chamber.

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4 Replace the primary filter

Remove the primary filter by pulling on the handles. Replace the primary filter with a new Donaldson PowerCore® Edge primary filter.

5 Close pre-cleaner and housing

Put the pre-cleaner back onto the filter housing. Close the main housing using the four metal latches. Ensure that all four latches are properly closed for optimal performance.

10 Inspect the Entire Air Cleaner System

Make sure that inlet and outlet connections are in good condition. Torque to and do not exceed 40 in-lb. Replace rubber connectors if necessary.