



RESPA®-CF VORTEX HYPERFLOW™ INSTALLATION KIT FOR KOMATSU PC2000-8 EXCAVATOR CAB

Sy-Klone kit part number:

REV3K1

For model number:

PC2000-8

Installation time: 1.5 hours

Purpose:

RESPA®-CF provides precleaned and filtered air through its integrated Gideon® particle-separation technology. The powered precleaner will eject most particulate before it reaches the integrated filter, increase filter life, pressurize the cabin, and maximize HVAC performance. The RESPA-CF powered precleaner system provides a positive airflow without adding resistance. Pressure sensor will alert operator to loss of cabin pressure and when air filter should be replaced. RESPA IS NOT CERTIFIED FOR USE IN EXPLOSION RISK ENVIRONMENTS. **Read ALL instructions before beginning; unit must be installed as specified for optimal performance.**

Filtration:

This unit comes equipped with a MERV 16 ported filter unit. When reordering, select the following:

FEFF008 - RESPA-CF MERV 16* Ejective Filtration Unit; Fresh Air Replacement Filter (Ported)

MERV 16 is recommended for human respiratory environments, especially where airborne particulate places operator at risk.

*SYSTEM RATING: RESPA system with specified filter produces air of rated quality with airflow \leq 100 cfm (2.832 m³/m).



Technical Support:

Contact your Sy-Klone Dealer for technical support.

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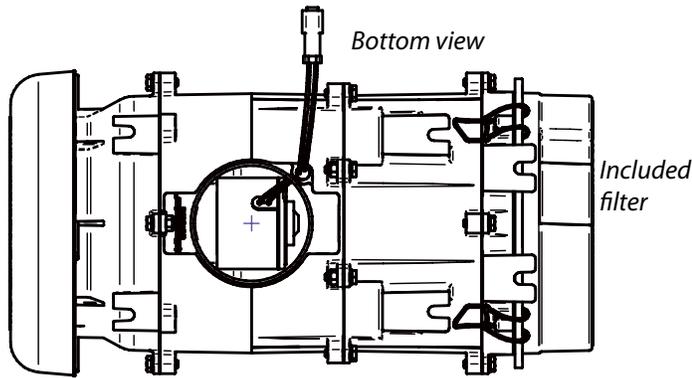
Jacksonville, FL 32255,

USA

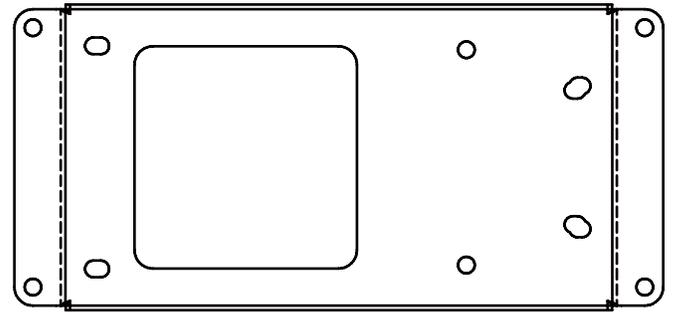
Parts included in Kit

RESPA®-CF Vortex HyperFLOW™ and Mounting Parts

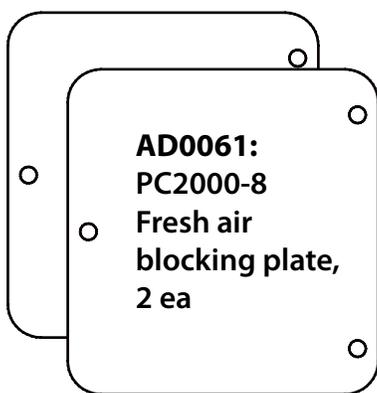
Drawings are not to scale.



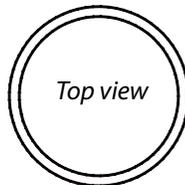
R502151010008: 180° RESPA-CF, 1 ea.



REC0140: RESPA-CF mounting plate, 1 ea.

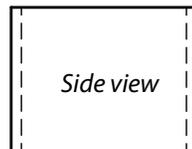


AD0061:
PC2000-8
Fresh air
blocking plate,
2 ea

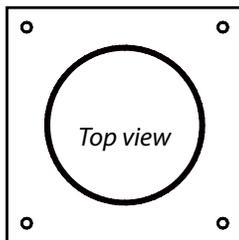


Top view

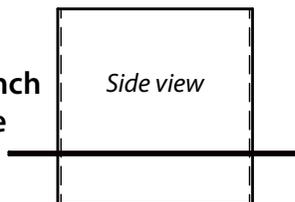
S400X350:
EPDM
straight
sleeve, 4
inch inner
diameter,
3.5 inches in
length, 1 ea.



Side view



GA002: RESPA/
Gideon Flange
Adapter with 4-inch
Pipe to penetrate
HVAC Fresh-Air
Plenum, 1 ea.



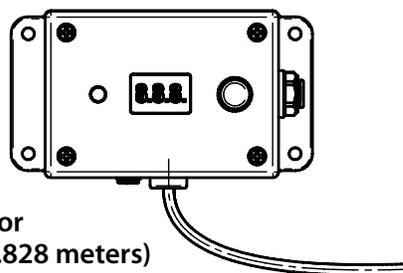
Side view

Hardware

- Wiring harness with loom, connector, and fuse: 20ft
- Insulation clip: 3 ea.
- 1/2" x 1 1/16" grommet: 1 ea.
- 1/4" heat shrink tubing: 5 ea.
- Crimp-on butt splice: 4 ea.
- 5/16" ring terminal: 2 ea.
- #12x1 self-tapping screw: 7 ea.
- RTV black with tip: 1 tube
- 3/8" washers: 20 ea.
- 3/8" lock nut: 10 ea.
- 3/8" x 1 1/4" bolt: 10 ea.
- 4.75 inch worm-gear clamp: 2 ea.

Electronic Cab Pressure Monitor

KT-CABPRES-EL1-ENG: Electronic Pressure Monitor System for RESPA/Gideon, 1 ea.



- Instructions
- Electronic Pressure Monitor
- Attached Wiring (6 feet, 1.828 meters)
- Black Nylon Air Line (6 feet, 1.828 meters)
- Small Plastic Screwdriver

Included Filter

FEFF008: MERV 16*
Ported Filter



* SYSTEM RATING:

RESPA system with specified filter produces air of rated quality with airflow ≤ 100 cfm (2.832 m3/m). System rating does not apply when filter is used in a recirculation system.

Function of the Powered Precleaner

Creating the Vortex

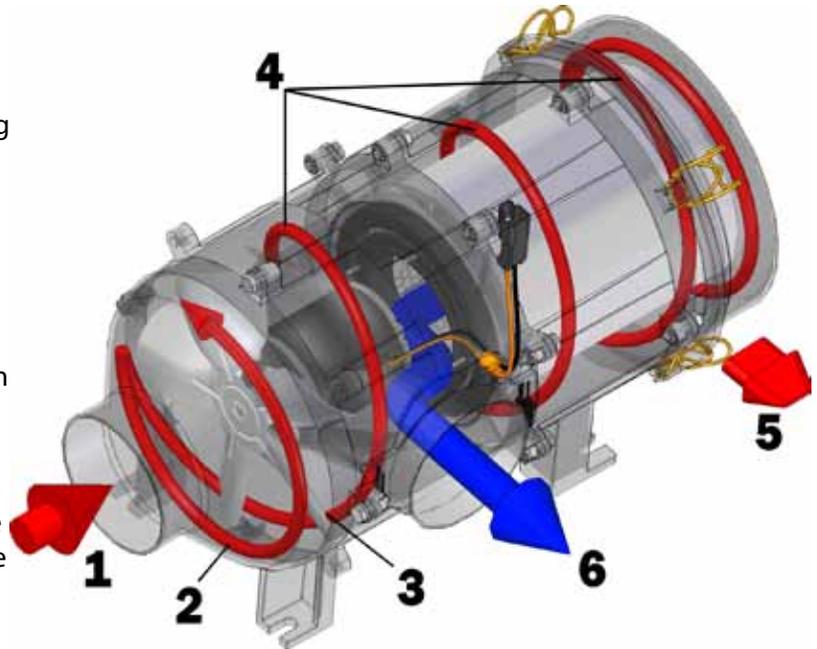
1. Particulate-laden air enters the precleaner inlet. (Inlets vary: ducted, screened, or rain cap)
2. The fan creates a VORTEX, a tornado-like spinning motion, whipping the air and particulate to the outside wall as it approaches the fan blades.

Creating the Hyper spin

3. Spinning air HYPER-accelerates as it passes through louvers, further enhancing centrifugal forces powerful enough to affect particle separation down to 5 μ .

Creating the continuous FLOW

4. Particulate is spun against the outside wall of the device and propelled rapidly around the filter to the rear of the device in one continuous FLOW of air.
5. Particulate is ejected back into the environment through two ejection slots located at the rear of the device.
6. Precleaned air passes through the filter. Filtered air continues to the outlet.



Harnessing the Pressure Surge:

The RESPA-CF with Sy-Klone's unique MERV 16/EU P2* filter harnesses the pressure surge that occurs whenever the door of the cabin is slammed closed. The RESPA-CF is designed to act as a pressure release valve that converts vibrations and pressure fluctuations into filter cleaning events by allowing the filter to flex, thereby releasing arrested particulate back into the filter housing to be ejected, thus lowering filter restriction and extending filter life.

Self-cleaning Filter:

Vortex HyperFLOW hyper accelerates particulate-laden airflow around the filter and ejects particulate out of the filter housing. Unlike any previous technology, the entire filter housing remains essentially particulate-free.

1. CLEAN the Cabin and HVAC Filter Housing

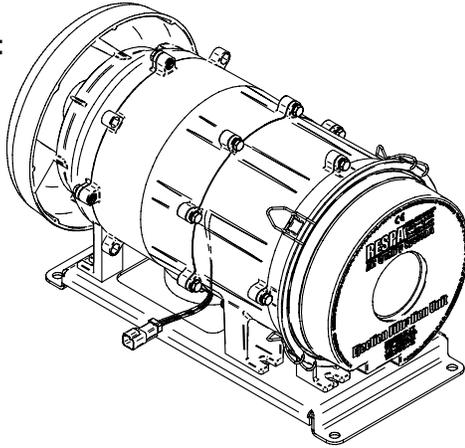
1. The machine should be off.
2. Prior to installation of the RESPA CF system, the cabin and A/C housing should be cleaned. Follow the manufacturer's suggested practices for cleaning.
NOTE: The top access panel to the A/C housing will be modified and should not be reinstalled.
3. Both recirculation filters should be replaced with new filters after the cleaning is complete.
4. The fresh-air filters, located behind the external access door, will be discarded and disposed of appropriately.



2. MOUNTING the RESPA®-CF Vortex HyperFLOW™

1. The machine should be off.
2. Remove the top access panel from the A/C filter housing.
3. Attach the RESPA CF to the supplied mounting plate with 6 – 3/8x1 1/4" bolts, 6 – 3/8" locknuts, and 12 – 3/8" washers. Tighten bolts to 20-25 ft. lbs. or 27.2-33.9 N-m.

NOTE: Do not use power tools; tighten bolts by hand ONLY!!



4. Place the RESPA CF and mounting plate on top of the A/C top access panel as shown below. Center the mounting plate lengthwise on the panel ensuring that the rain cap does not extend past the panel's edge.

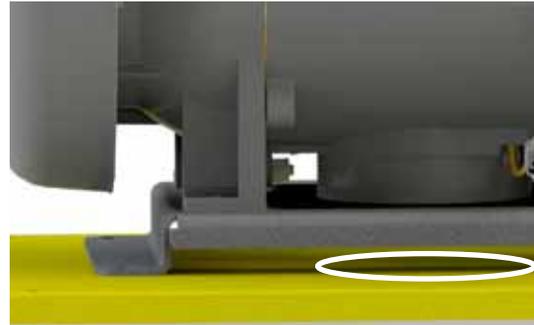


Center on panel lengthwise.

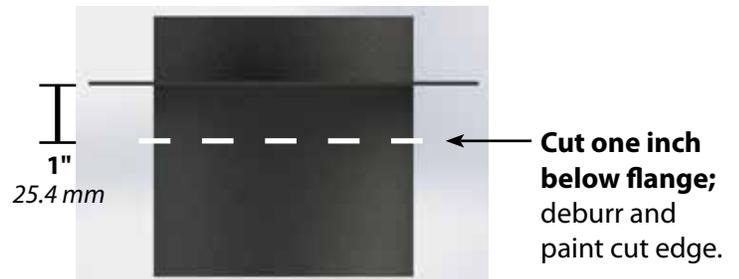
Space mounting plate 2 inches (50.8mm) from edge of panel.



5. Mark the four mounting holes and locate the position of the supplied 4" pipe adapter.



6. Remove the RESPA CF and mounting plate.
7. Drill mounting holes with a 29/64" to 1/2" drill bit.
8. Cut a 4 1/4" to 4 1/2" hole for the pipe adapter in the A/C top access panel aligning as located in step 5.
9. The extended side of the supplied pipe adapter must be shortened to 1" of length from the flange. **NOTE: Deburr and paint cut edge to prevent rust.**



10. The 4" rubber sleeve supplied must be shortened to 1 3/4" to 1 7/8" in height.
11. Install the 4" sleeve onto the RESPA CF outlet. **NOTE:** This is for alignment purposes only and clamping is unnecessary.
12. Install RESPA CF, mounting plate, and sleeve on A/C access panel with two 3/8" bolts and two 3/8" nuts in diagonal corners to temporarily hold in place.
13. Insert pipe adapter into the 4" sleeve from the bottom of the access panel. Rotate flange until its edges are parallel with the sides of the panel.
14. Mark the four mounting holes for the pipe adapter.

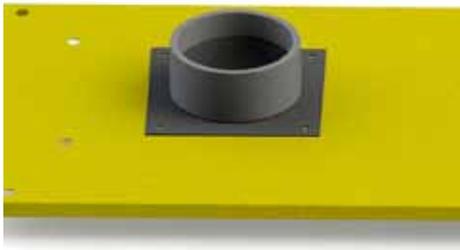


2. MOUNTING the RESPA-CF, continued

15. Remove all of the items from A/C access panel.
16. Drill 1/16" pilot holes for the supplied self-taping screws.
17. Apply a bead of RTV sealant to the top side of the A/C access panel around the 4" hole.
18. Insert the pipe adapter, weld side up, on the top side of the A/C access panel into the 4" hole.
19. Align the pipe adapter mounting holes with the pilot holes drilled in step 16.



20. Attach the pipe adapter with four self-taping screws.
21. Install the 4" sleeve onto the pipe adapter and secure with the supplied worm-gear clamp.
22. Place second worm-gear clamp on 4" sleeve and leave loose.



23. Install RESPA CF and mounting plate on the A/C access panel with 4 – 3/8x1 1/4" bolts, 4 – 3/8" locknuts, and 8 – 3/8" washers.
24. Position second worm-gear clamp around RESPA CF outlet and tighten. **NOTE: Do not use power tools – hand tighten clamp ONLY!!**
25. Reinstall the RESPA CF/top access panel assembly on A/C filter housing to manufacturer's specifications.
26. Orient the eject ports down towards the access panel by releasing the 4 filter latches that retain the filter element.



3. MOUNTING the Fresh Air Plates

1. Open the external access door to gain access to the fresh air filter mounting area. Note: If fresh air filters are still in place, remove and disposed of appropriately.
2. Remove and retain the three M10 bolts and washers that are immediately next to the upper fresh air filter mounting area.
3. Clean the surface around the fresh air filter mounting area that will be covered by the blocking plate.
4. Apply a bead of RTV sealant to the surface around the fresh air opening. Note: The current foam seal can be removed or left in place. The RTV can be applied on top of the foam seal.
5. Install the supplied fresh air blocking plate with the M10 bolts and washers removed in step 2.
6. Repeat steps 2-4 for the lower fresh air filter mounting area.



4. WIRING the RESPA-CF

1. The machine should be off.
2. Finding proper power is critical for system performance.
 - a. The unit must always receive power when the ignition key is in the ON position.
 - b. The power must terminate when the ignition key is in the OFF position.
 - c. Do not wire the unit to a variable voltage source.
 - d. A master system relay or main fuse box can be a good source of constant power when the ignition key is in the ON position.
 - e. The current requirement for the 24 volt system is 12 amps maximum initial draw with 6 amps constant.
 - f. An appropriate relay can be used to provide suitable power from a non-terminating constant source.
3. Ensure the input voltage is 24 volts.
4. The RESPA system must be fused inline to at least twice the constant current requirements. Note: A fuse holder and 15 amp fuse is included.
5. 16 GA or larger wire should be used for the system
Note: Wiring extension harness included.
 - a. System black wire = negative (ground)
 - b. System red or orange wire = positive
 - c. Incorrect electrical connection will reverse the fan direction causing the RESPA to function improperly.
6. Finding a good ground is also critical to system performance. Use an existing grounding point if possible. If not, grind a small area to bare metal and use a self-tapping screw to ground the system.
7. The master power switch should be set to the OFF position after appropriate power is located and ignition key removed.
8. Make connections and route the wiring:
 - a. Avoid high heat areas, routing across walkways, and reducing operator visibility.
9. Use wire loom and grommets as necessary to protect wiring.
10. Secure wiring as routed.

4. INSPECTING the RESPA-CF

1. Turn the master power switch ON to inspect the RESPA system. Note: If the system powers on while the ignition key is off, an alternate power source must be located.
2. Turn the ignition key to the ON position and inspect the following:
 - a. System is running. If not, an alternate power source must be located.
 - b. Airflow out of RESPA-CF ejection slots is strong. If not, check proper wiring polarity or that the power source is not variable voltage.

5. INSTALL the Cab Pressure Monitor

1. Install the Sy-Klone Cab Pressure Monitor per the installation instructions included in the KT-CABPRES-EL1-ENG kit.
USE THE PRESSURE MONITOR SYSTEM TO INSPECT THE RESPA-CF INSTALLATION.
NOTE: Initial pressure readings should be taken with new fresh/make-up and recirculation filters.
2. With HVAC system to OFF and RESPA-CF operating, cabin pressure should be greater than 0.00 inches of water column (0 pascal).
3. Increase HVAC system fan speed. Cabin pressure should increase as fan speed increases.
4. If cabin pressure never reaches 0.20 inches of water column (49 pascal), check for leaks, improve sealing of cabin, and test again.
Note:
Ideal pressure, with new filters and a sealed cab, is 0.50 inches of water column (125 pascal).

WHEN to Replace Filter

Replace the filter when the cab pressure drops below the minimum pressure threshold when cab is sealed. (Refer to Pressure Monitor Installation Manual)

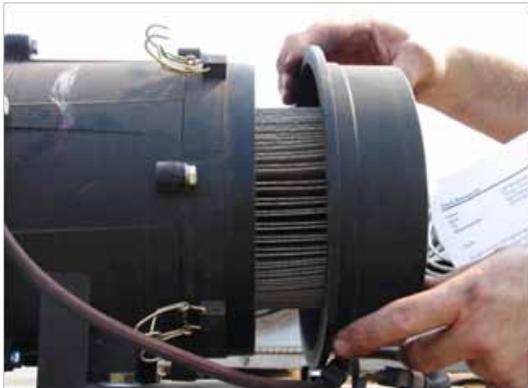
*Change the RESPA filter after every 1000 hours of operation time, even if the pressure is within tolerance and there are no noticeable performance changes.

Maintenance: HOW TO Replace Filter and Clean System

1. Work in a clean covered area to reduce operator and HVAC exposure to harmful particles.
2. Wear appropriate personal protection equipment such as gloves, mask, and coverall to protect against contaminants.
3. The machine should be off.
4. Remove any loose debris from the RESPA housing before removing any components.
5. Inspect the RESPA system for any damage.
6. Release the 4 filter latches that retain the filter element.
7. Once the filter latches are released remove the filter element.
8. Bag and seal used filter element and dispose of according to local regulation.
9. Plug or cover the internal filter manifold to prevent contaminants from entering the HVAC system.
10. Inspect and remove any loose debris using a suitable vacuum unit and clean rags – never use compressed air.
Note: The rain cap and inlet screen should be checked regularly for debris.
11. Before installing the new filter, the RESPA-CF should be inspected for proper operation.
 - a. Turn on the RESPA system staying clear of the open end of filter housing.
 - b. Ensure that air is blowing out of the empty filter housing cavity.
 - c. Turn off the RESPA system.
12. Remove the plug or cover from the internal filter manifold.
13. Install new filter element ensuring the ejection port orientation is down and that the filter element end cap seats properly on the filter housing.



Note: Place thumbs on RESPA's exterior hardware for additional leverage when removing filter element.



14. Restrain the filter element by reattaching the 4 filter latches.

IMPORTANT CONSIDERATIONS

The RESPA-CF unit ejects debris at a high rate. Make sure the ejection slots are pointed away from any surface and away from the operator's field of vision.

Care should be taken to prevent water from entering RESPA or ejection slots during cleaning.

See maintenance section (above) for special instructions regarding filter changes.