SY-KLONE® INTERNATIONAL

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RESPA®-CF Installation Kit

for Hitachi Shovels EX8000, EX5500, EX3600, EX2500 and EX1900.

Sy-Klone part number: REV3K9

Installation Time: 7 to 8 hours

Purpose: RESPA-CF provides precleaned and filtered air through integrated Gideon power precleaning technology. Filtration is provided by a MERV 16/EU P2* filter. The RESPA-CF powered precleaner system provides a positive airflow without adding resistance to the air conditioning system.

The Sy-Klone Pressure Monitor System has been included to alert the operator when it is time for the RESPA filter to be changed. RESPA IS NOT CERTIFIED FOR USE IN EXPLOSION RISK ENVIRONMENTS.

AD0114 – FFX MOUNTING PLATE

AD0111 – RESPA-CF ADAPTER

AD0115 – INLET ADAPTER

AD0112 – OUTLET ADAPTER

AD0113 – OUTLET ADAPTER FLANGE

AD0116 – INLET ADAPTER BRACE

Replaceable Parts:

Stock Code	Description	Quantity
AD0111	RESPA-CF ADAPTER	3
AD0112	OUTLET ADAPTER	3
AD0113	OUTLET ADAPTER FLANGE	6
AD0114	FFX MOUNTING PLATE	1
AD0115	INLET ADAPTER	1
AD0116	INLET ADAPTER BRACE	1
REV0003	RESPA CF	3
REV0005	RESPA FFX	3
KT-CABPRES-EL1-ENG	CAB PRESSURE MONITOR	1
S400X350	4 INCH I.D. STRAIGHT SLEEVE	3
80R70	8-IN TO 7-IN REDUCER	1
40003	4-IN X 3-IN EXTENSION PIPE	3
90CB40	90 DEGREE 4-IN ELBOW	3

Also included in kit:

Description	Quantity
RTV SEALANT	5
3.88-IN T-BOLT CLAMP	2
4.75-IN WORM GEAR CLAMP	28
7.50-IN WORM GEAR CLAMP	2
WIRING KIT	3
3/8-16 x 1 ¼ BOLT	36
WASHER	72
3/8-16 LOCK NUT	36
M10 WASHER	18
M10 X 1.5 X 25 BOLT	18
M10 LOCK WASHER	18
M12 LOCK WASHER	10
M12 WASHER	14
M12 X 1.75 X 25 BOLT	6
M12 NUT	4
M12 X 1.75 X 45 BOLT	4
M8 WASHER	36
M8 LOCK WASHER	18
M8 X 1.25 x 25 BOLT	18
M8 X 1.25 NUT	18
4-IN FLEX HOSE	14 FT

Technical Support
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CAB PRESSURE MONITOR SYSTEM:

Use the Sy-Klone Pressure Monitor to verify cab pressure.

1. Install the Sy-Klone Cab Pressure Monitor per the installation instructions. *See Placement and Mounting.*
2. Start the machine.
3. Set the HVAC system to its lowest fan setting.
4. Set the HVAC system to fresh air by turning off the recirculation feature.
5. Increase HVAC system fan speed. Cabin pressure should increase as fan speed increases.
6. If cabin pressure never increases there may be leaks in cab that need to be sealed.

PLACEMENT AND MOUNTING:

1. The monitor needs to be installed in a location easily visible to the operator. The pressure monitor can be mounted with double sided tape to glass or self-tapping screwed to the panel as shown.

FRESH AIR INSTALLATION:

1. Remove the fresh air filters (3), located towards the front of the machine.
2. Remove the fresh air filter clamping systems from fresh air boxes (3).

3. Use the RESPA-CF adapter to mark the 6-bolt mounting pattern in fresh air boxes (3) and drill with a ½-inch drill bit.

4. Shorten the 4-inch diameter rubber unions (3) to 2 inches of height.

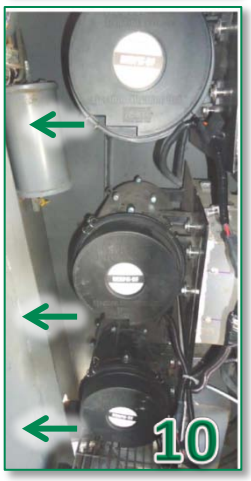
5. Place two worm gear clamps on each rubber union. Leave loose.

6. Install 4-inch union assembles on RESPA-CF adapters (3).

7. Insert RESPA-CF outlet into rubber union and secure unit to the adapter with 3/8 bolts (6), 3/8 washers (12), and 3/8 lock nuts (6). Tighten worm gear clamps. Build three assemblies.

8. Attach RESPA-CF assemblies (3) to filter boxes (3) using M10 bolts (6), M10 washers (6), and M10 lock washers (6). Note: Orient filter towards walkway to allow for filter removal.

9. Seal adapter to filter box with supplied sealant.
10. Orient filter ejection ports as shown.



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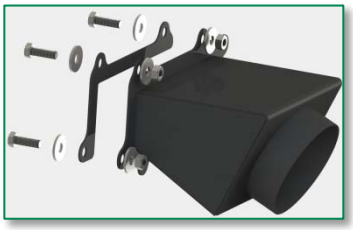
Outlet Adapter Installation:

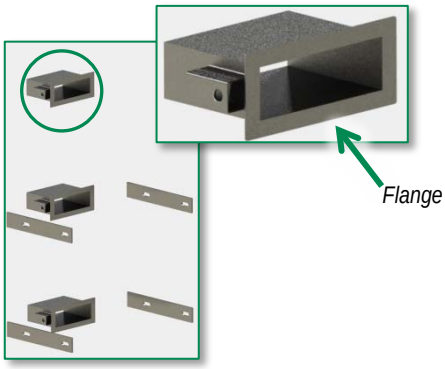
1. Disconnect the recirculation hose from the recirculation filter housing.

2. Unbolt the recirculation filter housing and discard.

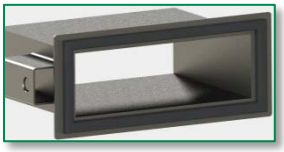
3. Loosely assemble outlet adapters (3) and one outlet adapter flange (3) as shown with M8 bolts (3), M8 washers (6), M8 lock washers (3), and M8 nuts (3)



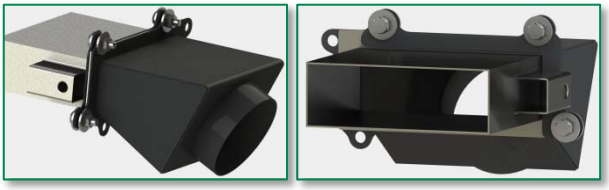
4. Three ducts will be visible after the recirculation filter housing is removed. Clean both sides of all three flanges.



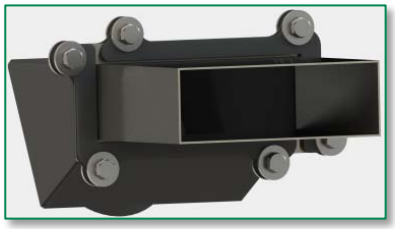
5. Apply sealant to face of duct.



6. Place outlet adapter assembly over duct and finger tighten M8 flange hardware only.



7. Install second outlet adapter flange with M8 bolts (3), M8 washers (6), M8 lock washers (3), and M8 nuts (3). Tighten all M8 hardware.

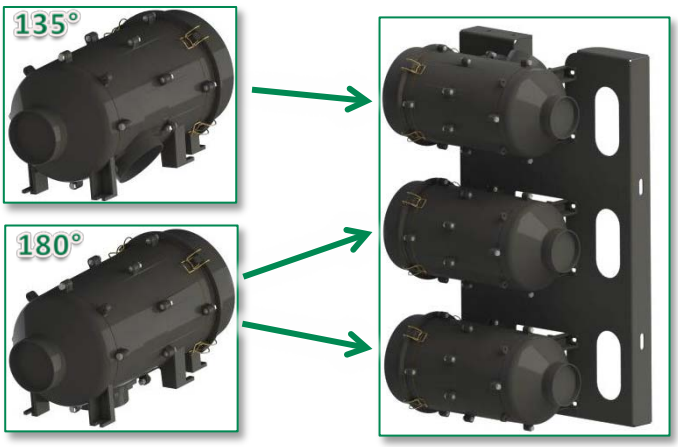


8. Repeat steps 5-7 for the two remaining ducts.

Precleaner Installation:

1. Install 135° RESPA-FFX unit in the top location of mounting plate as shown with 3/8 bolts (6), 3/8 washers (12), and 3/8 lock nuts (6).

2. Install two 180° RESPA-FFX units in the middle and bottom locations of mounting plate as shown with 3/8 bolts (6), 3/8 washers (12), and 3/8 lock nuts (6) each.



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Recirculation Installation:

1. Install two worm gear clamps on rubber elbow. Leave clamps loose.

2. Insert 4-inch x 3-inch pipe into rubber elbow as shown.

3. Install elbow/pipe assembly on RESPA-FFX unit as shown.

4. Repeat steps 1 through 3 for remaining RESPA-FFX units.

5. Install inlet adapter brace on top of RESPA-FFX mounting plate with M12x25 bolts (2), M12 washers (2), and M12 lock washers (2). Leave loose.

6. Using the existing recirculation box mounts, install the RESPA-FFX mounting plate as shown with M12x35 bolts (4), M12 washers (8), M12 lock washers (4), and M12 nuts (4).

7. Connect outlet adapters to RESPA-FFX outlets using the supplied 4-inch hose and secure with worm gear clamps.

8. Install the inlet adapter using M12x25 bolts (4), M12 washers (4), and M12 lock washers (4).

9. Tighten M12 hardware securing inlet adapter brace to RESPA-FFX mounting plate.

10. Connect inlet adapter to RESPA-FFX inlets using the supplied 4-inch hose and secure with worm gear clamps. Tighten all adapter clamps. Note: Secure hose with pull-ties.

11. Connect the recirculation hose to the inlet adapter and secure with worm gear clamps. Note: The recirculation hose size may vary. Use the supplied 7-inch to 8-inch rubber adapter as necessary

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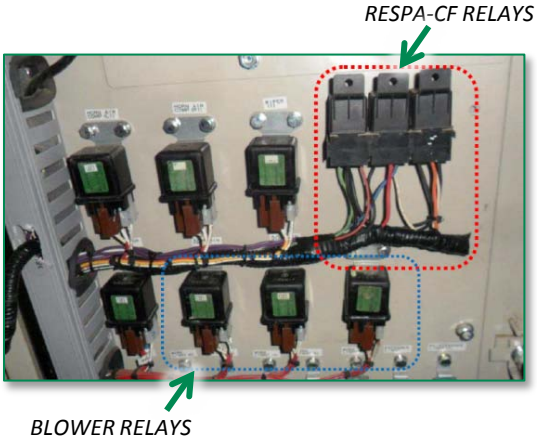
WIRING:

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-CF 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: A wiring harness is 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. Note: Seal any holes for wiring with RTV silicon.

HITACHI WIRING:

There are 3 separate A/C systems. Each A/C system has an independent control relay. The RESPA-CF's need to be wired to the corresponding A/C blower relay signal line.

1. Locate the 3 relays marked with the letters F, S and R. Identify which relay corresponds to each A/C system. Note: These relays control the blowers for each of the A/C systems.
2. Install a relay for each RESPA-CF unit.
3. Identify the line marked S1, this is a 75 amp power source and can be used to power the relays.
4. Use the on/off signal from the A/C blower relays to switch the corresponding RESPA-CF relays.



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INSPECTING RESPA-CF UNIT:

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:
        a. Check proper wiring polarity.
        b. Check that the power source is not variable voltage.

VERIFY CAB PRESSURE:

1. With HVAC system to OFF and RESPA-CF operating, cabin pressure should be greater than 0.00 inches of water column (0 pascal).
2. Increase HVAC system fan speed. Cabin pressure should increase as fan speed increases.
3. 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.

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