

RESPA[®]-CF Installation Kit for Komatsu WA500-7 SLAG HANDLER

Sy-Klone part number: REV3K5



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 Cab 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.**



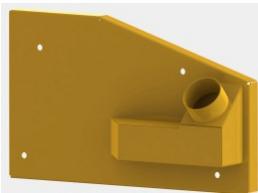
AD0064 – INLET HOUSING ADAPTER PLATE



AD0065 – INLET ADAPTER CLAMP



AD0106 – ANTENNA BRACKET



AD0092 – INLET HOUSING ADAPTER COVER



AD0098 – RESPA-CF ROOF BRACKET



AD0096 – RESPA-CF COVER



AD0095 – RESPA-CF COVER BASE

Replaceable Parts:

Stock code	Quantity	Description
R502131010008	1	RESPA-CF 24 VOLT
KT-CABPRES-EL1	1	CAB PRESSURE MONITOR
AD0027B	2	3-INCH TUBE CLAMP BRACKET
AD0064	1	INLET HOUSING ADAPTER
AD0065	1	INLET ADAPTER CLAMP
AD0092	1	FRESH AIR INLET COVER
AD0093	1	LOWER TUBE BRACKET
AD0094	1	UPPER TUBE BRACKET
AD0095	1	RESPA-CF COVER BASE
AD0096	1	RESPA-CF COVER
AD0098	1	RESPA-CF ROOF BRACKET
AD0106	1	ANTENNA BRACKET
S400X350	1	4-INCH I.D. STRAIGHT SLEEVE
45L30	2	3-INCH 45° ELBOW
90L30	1	3-INCH 90° ELBOW

Also included in kit:

Description	Quantity
RTV SEALANT	1
1-INCH HIGH TEMP SLEEVING	3.5 FEET
4-INCH HIGH TEMP SLEEVING	8 FEET
BLADE FUSE CIRCUIT TAP	1
ELEC KIT - 24V CF & 12V SD	1
3.25-INCH WORM GEAR CLAMP	7
4.75-INCH WORM GEAR CLAMP	6
3.25 TO 4.125-INCH HEAVY DUTY WORM GEAR CLAMP	2
3 TO 4-INCH 90° ELBOW	1
3-INCH DIA. 4-INCH LONG TUBE	1
3-INCH DIA. 7-INCH LONG TUBE	1
3-INCH DIA. 54-INCH LONG TUBE	1
4-INCH DIA. 3-INCH LONG TUBE	1
5/16-18 X 1 BOLT	4
5/16 WASHER	12
5/16 LOCK NUT	6
3/8-16 X 1 BOLT	4
3/8-16 X 1 1/4 BOLT	6
3/8 WASHER	16
3/8 LOCK WASHER	4
M6 X 1.0 X 12 BOLT	2
M6 WASHER	2
M6 LOCK WASHER	2
M8 X 1.25 X 20 BOLT	4
M8 WASHER	4
M8 LOCK WASHER	4
M10 X 1.5 X 25 BOLT	12
M10 X 1.5 NUT	2
M10 WASHER	14
M10 LOCK WASHER	14
M12 X 1.75 X 35 BOLT	1
M12 WASHER	1
M12 LOCK WASHER	1

Installation Time: 3 to 4 hours



AD0093 – LOWER TUBE BRACKET



AD0094 – UPPER TUBE BRACKET



AD0027B – 3 INCH TUBE CLAMP BRACKET

CAB PRESSURE MONITOR SYSTEM:

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

1. Install the Sy-Klone Cab Pressure Monitor per the installation instructions.
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.

7. The cab pressure monitor can be mounted on the recirculation plenum.
8. The ambient air tube can be run through the body bolt plug in the cab floor.



MODIFY RECIRCULATION DOOR:

The recirculation door must be modified to prevent cab pressure loss when the HVAC is set to recirculation.

1. Prior to installation of the RESPA-CF system, the cabin should be cleaned. Follow the manufacturer's suggested practices for cleaning.

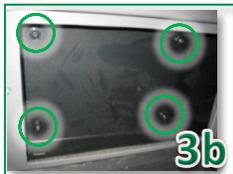
2. Remove the in-cab recirculation filter by removing the two thumb screws from the recirculation air duct. **Note:** The recirculation filter, if clean, can be reinstated later in the RESPA-CF installation. If the filter shows signs of debris, it should be discarded appropriately and replaced with a new filter.



3. Remove the 6 bolts that retain the recirculation air duct.
 - a. Two bolts are located in the face of the duct under the dash panel.



- b. Four bolts are located inside the duct.



4. Carefully remove the thermal sensor from rear of duct. **Note:** Sensor can be removed from clip.

5. Remove the air duct panel and place to the side.

6. The recirculation door will now be visible.



9. Drill eight to ten 1/2 inch holes in the recirculation door. Avoiding the area near the pivot and connecting rod mount. Remove any loose material. **Note:** The recirculation door can be placed in the recirculate position as shown or angled up in the fresh air position, see step 11.

10. Remove any loose debris using a suitable vacuum cleaner and clean rags.

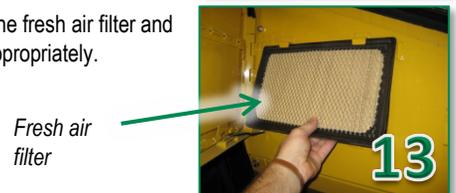


11. Set the HVAC system to fresh air. If already in this open position, move on to the next step.
 - a. Turn the machine on.
 - b. Set the HVAC system to fresh air. **Note:** Fan speed should still be set to setting 1.
 - c. Turn the machine off.

12. Open the fresh air door outside of the cab.



13. Remove the fresh air filter and discard appropriately.



14. Use compressed air to blow any remaining debris from the air duct by blowing from the recirculation door port out the fresh air inlet.

15. Reinstall the recirculation air duct and recirculation filter.

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INSTALL THE FRESH AIR INLET:

1. Remove the two 8mm bolts that secure fresh air filter door to the cab. **Retain the two bolts** and discard the fresh air door.
2. Clean the cab sheet metal around the fresh air inlet. **Note:** Perform a dry fit of steps 4 and 5 to ensure proper installation of components.
3. Apply approximately a ¼ inch bead of RTV silicone (supplied) around the fresh air opening.
4. Install the inlet housing adapter over the fresh air opening. Secure the left side of the inlet adapter with the M8 bolts removed earlier. **Note:** Upper edge of the adapter plate must be placed under the two upper fresh air filter tabs first.



5. Position the inlet adapter clamp on the backside of the inlet adapter on the two studs as shown below. Secure inlet clamp with M10 washers (2), M10 lock washers (2), and M10 nuts (2). **Note:** The inlet clamp holes are offset. The clamp bracket should not extend into the inlet opening of adapter. One edge will rest against the backside of the inlet adapter. The other edge will rest on the backside of the cab sheet metal.

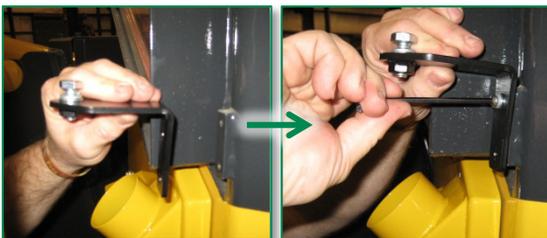


6. Apply approximately a ¼ inch bead of RTV silicone around the mating face of the inlet housing adapter cover as shown below.
7. Attach the inlet housing adapter cover to the inlet adapter plate with four 3/8 inch washers, lock washers, and bolts.

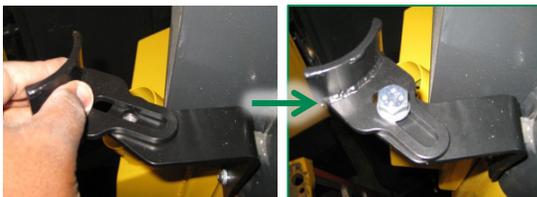


LOWER PLUMBING MOUNT:

1. Install lower tube bracket on unused lower window glass bracket. Secure with M6 washers (2), M6 lock washers (2), and M6 bolts (2).



2. Install tube clamp bracket. Secure with M10 bolt (1), M10 nut (1), and M10 washer (1). Leave loose.



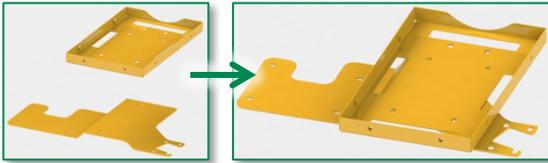
3. Install the rubber elbow on the inlet housing adapter cover tube with open end pointing up.
4. Secure the rubber elbow to the adapter inlet tube with one worm gear clamp.
5. Place second worm gear clamp on rubber elbow. Leave loose.



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INSTALL RESPA-CF:

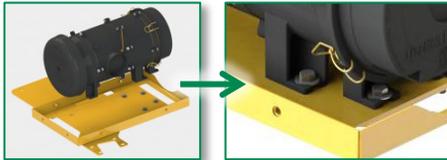
1. Place cover base on roof bracket. Align with RESPA-CF mounting holes.



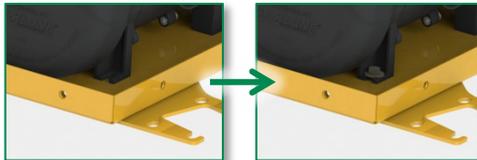
2. Assemble 3/8 bolts (4), 3/8 lock nuts (4), and 3/8 washers (8) through the cover base and RESPA-CF roof bracket as shown below. Leave loose do not tighten. **Note:** Orient bolts threads down.



3. Insert 3/8 hardware into the four corresponding mounting feet. **Note:** Ensure that the washers are above the mounting feet.



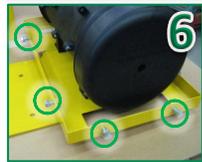
4. Secure the remaining two RESPA-CF mounting feet with 3/8 bolts (2), 3/8 lock nuts (2), and 3/8 washers (4). **Note:** Orient bolts threads down.



5. Align cover base with roof bracket and tighten mounting hardware to 20-25 ft. lbs. or 27.2-33.9 N-m. **Note:** Do not use power tools – tighten bolts by hand ONLY!



6. Assemble M10 bolts (6), M10 lock nuts (6), and M10 washers (6). Insert M10 hardware into the six cover mounts. Leave loose.



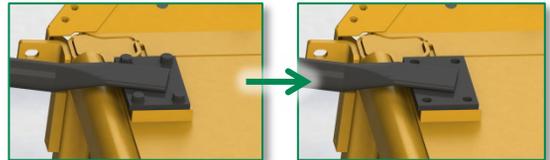
7. Verify that the RESPA-CF ejection ports are pointed down. **Note:** The ejection ports can be rotated by releasing the 4 filter latches that retain the filter element.



8. Remove the four plugs from the cab roof.



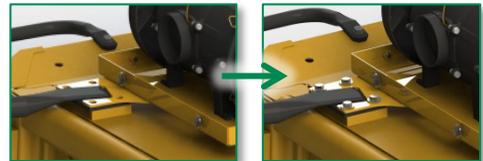
9. Remove bolts (4) and washers (4) from mirror mount as shown.



10. Align the four roof bracket mounting holes with roof bolt pattern. Start M8 bolts (4), M8 lock washers (4), and M8 washers (4). Leave loose.



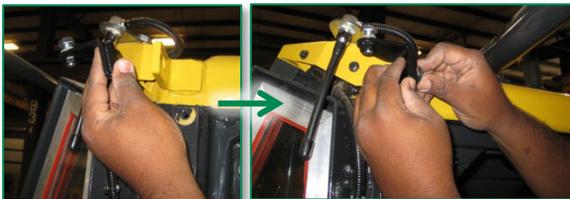
11. Align the four mirror mount holes with roof bolt pattern. Secure with M10 bolts (4), M10 lock washers (4), and M10 washers (4).



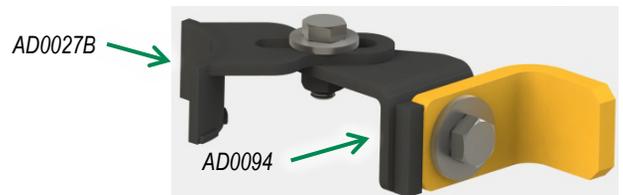
12. Tighten M8 hardware.

UPPER PLUMBING MOUNT:

1. Install upper tube bracket on left front cab lift bracket. Secure with M12 washer (1), M12 lock washer (1), and M12 bolt (1).



2. Install tube clamp bracket. Secure with M10 bolt (1), M10 nut (1), and M10 washer (1). Leave loose.



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INLET PLUMBING:

1. Insert the 3-inch by 54-inch inlet tube into the 45° rubber elbow. Secure with worm gear clamp.



2. Install 90° elbow on inlet tube. Place two worm gear clamps over elbow. Leave loose.



3. Insert 4 inch tube, approximately halfway, into 3 inch to 4 inch elbow. Secure with worm gear clamp.



4. Install 4 inch rubber sleeve over exposed end of 4 inch tube. Secure with worm gear clamp. Place a second worm gear clamp on rubber sleeve. Leave loose.



7. Position elbow sleeve assembly on RESPA-CF outlet. Place a second worm gear clamp on 3 inch to 4 inch elbow. Leave loose.



8. Insert 4-inch and 7-inch inlet tubes into 45° elbow. Place two worm gear clamps on elbow. Leave loose.



9. Insert 4-inch inlet tube into 3 to 4-inch 90° elbow. Insert 4-inch inlet tube into 3-inch 90° elbow.



10. Align plumbing and tighten all loose clamps.



11. Remove plumbing assembly from inlet housing adapter and RESPA-CF.

ROUTE WIRING:

1. Remove front left A-pillar panel and retain panel and hardware.



2. Remove external wiring cover plate and retain cover and hardware.



3. Connect supplied wiring harness to RESPA-CF and route through wire grommet in cab corner.



4. Cover exposed wire harness with 1-inch high heat sleeving.



5. Reinstall wiring cover plate.

6. Remove antenna from bracket.

7. Remove the two bolts that secure the antenna bracket. **Retain the two bolts** and discard the bracket.



8. Install new antenna bracket and secure with original hardware.



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INLET PLUMBING, continued:

1. Cover plumbing assembly with 4-inch high heat sleeving.



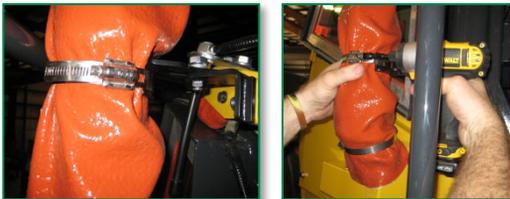
2. Cut off excess sleeving.



3. Reinstall plumbing assembly, secure with worm gear clamps, and pull sleeve over.



4. Secure plumbing assembly to tube clamp brackets with heavy duty worm gear clamp.



5. Tighten tube clamp bracket hardware.



6. Secure lower end of sleeving with a worm gear clamp.



7. Install RESPA-CF cover and secure with M10 hardware already installed.



8. Fold loose sleeve material over long inlet tube. Hold in place with 2 worm gear clamps.



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.

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WIRING, continued:

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.

10. Use the supplied blade fuse tap to create an electrical connection for the RESPA-CF.



11. The radio main 30 amp fuse is can be tested for switchable constant power.
12. Remove the 30 amp fuse and insert it into the first tap port.
13. Reinsert blade fuse tap into radio main fuse port.
14. Insert 15 amp fuse into the second port to provide power for RESPA-CF.



COMPLETE THE INSTALLATION:

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, check proper wiring polarity or 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.

TECHNICAL SUPPORT:

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