SET-UP, OPERATING and MAINTENANCE INSTRUCTIONS

For

SAFE Systems, Inc.

TRAILER MOUNTED DUST COLLECTOR

MODEL

DC 14,000-D

SET-UP PROCEEDURE

1. Ask the driver for the **Packing Slip** from the shipper. Keep this paperwork with the equipment so that when the unit is returned there is a list of the components that came with the unit. The person loading the equipment for its return can check this list to insure that all the components are present. This will help to avoid additional charges for missing components.
2. Disconnect the trailer from the towing vehicle.
3. Locate the equipment on a level surface where it is to be operated.
4. Do not locate the equipment in a building or structure with LOW overhead clearance. The discharge from the fan can be very powerful and it may damage items above it.
5. Block the wheels and use the front trailer jack to level the trailer.
6. Remove the inlet cover from one (or more) of the duct inlets.
7. Connect the ducting to the unit using the duct adapter(s) provided. Install the duct covers on any duct inlet that does not have a duct connected to it.
8. Connect a ¾" air-line to the air regulator/filter for the pulse air cleaning system and set the line pressure at 95 PSI. It is very important to have DRY air for the pulsing system. Wet air will damage the filter media and drastically reduce the life of the filters and could possibly cause damage to the pulse system or even the fan itself.
9. Position a 55-gallon drum or other collection device (provided by the customer) under the slide gate of the duct collector's hopper. Put the drum cover on the drum and connect the hose from the drum cover to the slide gate. Close the slide gate.
10. Make sure to position the duct inside the containment area where it is not too close to working personnel or to the dust generating operation. Do not position the inlet ducts too close to the ground where it might pick up water or piled up abrasive. (**Warning**: Recovering abrasive media from the containment area through the ventilation ducting can damage the filters).
11. Do not allow rope, rags or other debris to get sucked up into the ducting and dust collector. This debris can clog the ducting, inlet screens inside the collector or the dust discharge at the bottom of the dust hopper. This type of blockage may cause the equipment to shut down and it may cause damage to the filters or the unit itself.
12. The fan is equipped with a "Damper" to adjust the air flow through the system. The damper adjustment handle is located on the inlet side of the fan. The recommended damper setting for new filters is 40% open.

OPERATING PROCEDURE (Diesel Drive)

1. Open the air supply of dry air to the filter/regulator on the pulse cleaning system. Set pressure at 95 psi. (See #1 in the SET-UP Procedure section (above) for more information)
2. On the main electrical panel located on the opposite side of the dust collector from the diesel control panel there is a selector switch. Turn this switch to the "DC" position.
3. Check the fan damper setting. With new filters it should be approximately 40% open.
4. Close the dust discharge slide gate over the waste drum.
5. Insure that the filter access door in closed and latched.
6. Open the diesel access doors on the front and side of the dust collector and check the oil and coolant levels. Additional fluids are in the on-board toolbox if needed. Add fluids as needed.
7. Check the condition and tightness of the "V" belts.
8. Close and latch all the access doors. **NOTE**: The diesel will not start if the doors are open and the diesel will shut down if the doors are opened while the engine is running.
9. Make sure the PTO clutch lever is in the disengaged position (down position).
10. Turn the diesel start switch to the ON position. The digital panel will tell you to push the "Enter" button to start the engine. Push the "Enter" button and start the engine.
11. Let the engine run at idle speed for a few minutes to warm up.
12. Listen to insure that the filter pulse cleaning system is pulsing properly. There should be an air pulse every 20 seconds.
13. After the engine has warmed up, slowly increase the engine speed with the throttle knob next to the clutch lever. Bring the engine speed up to 1800 RPM. (The RPM reading is shown on the digital readout on the diesel control panel.)
14. **SLOWLY** engage the clutch by lifting the clutch lever up until it "clicks" into the engaged position. **NOTE**: engaging the clutch too quickly will damage the clutch.
15. Once the clutch is engaged slowly bring the RPM up to between 2200 and 2400 RPM. Try to find a spot where the "V" Belt "SLAP" is minimized. Too much belt slap can damage the belts and the clutch.
16. Check and record the reading of the magnehelic gauge reading on a Daily Log Sheet. This reading indicates the condition of the filters. (See #18 below for more information.)
17. The filters (PN 1000 0300) in this equipment are rated at 99.9% at .5 microns. Refer to the attached **Filter Performance Specifications** for more information.
18. The normal operating range of this equipment is between .05" to 10" of differential pressure as indicated on the magnehelic gauge. If the reading is above or below this range the equipment should be shut down and the cause for the high or low reading determined.
19. Shut the system down every 2 hours of operation and dump the dust from the hopper. This time frame can be adjusted to more often or less often depending on the dust amount being collected. Do not use the dust hopper as a collection device. This will cause the dust collected inside the hopper to be re-entrained back onto the filters, thus shortening the life of the filters. Do not assume that the dust hopper is empty just because the dust auger is operating freely or that it is not dumping any dust out of the chute. The rear filter doors should be opened periodically to visually inspect the dust level. Dust can form a bridge over the auger when there are high moisture levels in the air.
20. Do not open the dust discharge slide gate while the fan is running (unless the lid is clamped to the drum top providing an air tight seal). This will re-entrain the dust that has been collected in the hopper back onto the filters.
21. Drain the moisture from the air filter/regulator and the air manifold daily or as needed to insure that the filters are not being pulsed with wet or damp air.

SHUT DOWN PROCEDURE (Diesel Drive)

1. Stop the dust generating operation inside the contained area being ventilated and let the dust collector run for about 5 minutes or until the containment area is cleared of all air-born dust and the filters have a chance to pulse down during a non-dust generating period.
2. Record the magnehelic gauge reading on a Daily Log Sheet.
3. Slowly reduce the RPM on the diesel to about 1800 RPM.
4. Disengage the clutch by quickly pushing the clutch lever down.
5. Once the clutch is disengaged, reduce the RPM down to below idle and let the diesel run for another 5 minutes to cool down.
6. After the diesel is cooled down turn the key to the off position.
7. Turn the air pressure off to the pulse cleaning system and drain any moisture from the filter regulator and the air manifold.
8. Open the dust discharge slide gate and drain the dust residue from the hopper into the waste drum.
9. Close the slide gate.
10. Insure that all openings on the dust collector are closed so no moisture enters the equipment while it is shut down.

OPERATIONAL TIPS

1. We recommend the application of “Precoat Dust” to new filters prior to putting the dust collector into use. This precoat dust will help extend the life of the filters especially if the dust being collected is very fine.
2. Never open the fan damper past **40% Open** on new filters. This will cause premature failure (blinding) of the filters. Opening the damper will greatly increase the air-flow (CFM) through the new filters and will drive the dust particles so deep into the filter media that it cannot be dislodged by the compressed air back-pulse cleaning system.
3. As the filters form a “Dust Cake” they actually become more efficient and remove more and finer dust particles. Never open the fan damper on the fan until the “Dust Cake” has formed on the filters and the magnehelic gauge has a reading of at least 4” of differential pressure between the clean side of the filters and the dirty side of the filters. At this point the damper can be opened slightly to lower the differential pressure reading. As the reading continues to climb the damper can be gradually opened more.
4. The compressed air used to clean the filters must be **DRY**. Wet or damp air will greatly reduce the life and efficiency of the filters. The filter media is basically made from a paper and polyester blend material, which can be damaged by water or high moisture.
5. The pulse air pressure can be increased gradually from the initial setting of 95 PSI to a maximum of 105 PSI after the filters have formed the dust cake and the differential pressure reading on the magnehelic gauge has started to climb. Back pulsing the filters with air pressure higher than 105 PSI will damage the filter media and may allow dust particles to get through the filter media. High pulse pressure can also cause the filter to “Blow-out” which actually forms a hole in the filter and allows dust to by-pass the filter altogether. This can cause damage to the fan impeller and housing and will allow fugitive dust to escape into the environment.
6. The “JOG” button on the electrical control box allows the filters to be pulsed manually without the fan operating. This allows the operator to back pulse the filters with no airflow through the filters. If the differential pressure reading on the magnehelic gauge is high, this is a good way of cleaning the filters and lowering the reading. Be aware that with no airflow being provided by the fan the dust can migrate back through the ventilation hose into the containment area. The Jog button must be pushed and held in manually to allow the pulse cleaning cycle to operate. When the button is released the cleaning cycle will stop.
7. When planning your ventilation try to position the air inlet and air exhaust at opposite ends of the containment area so there is good cross-flow ventilation. Try to keep the cross-sectional area as small as possible which will limit the CFM required to ventilate the area. (i.e. Ventilating an area 10’ high x 20’ wide x 60’ long. Try to put the exhaust at one end of the 60’ and the inlet air opening at the other end of the 60‘. This provides the smallest cross-sectional area [10’ x 20’] and it provides good cross through ventilation).
8. Do not position the exhaust duct too close to the floor or too close to the proximity of the work being performed. The dust collector is designed to remove air-born dust, not large abrasive particles. These abrasive particles can cause damage the filter media and the equipment.
9. A daily log recording the reading of the magnehelic gauge and the air pressure gauge is recommended to help track how the equipment is operating and it gives the operator a chance to address issues before they become problems.
10. **WARNING**: This equipment is not designed or intended for the use of ventilation during the PAINTING process. Contact the equipment supplier for more information.

MAINTENANCE

The DC 14,000-D has an on-board toolbox, which contains items needed for maintenance of the equipment. This box contains:

Extra engine oil
Extra engine coolant
Grease gun with grease
New oil filter
New air filter
New fuel filter
Crank handle for emptying the auger on the dust hopper
Hose to connect drum cover to dust chute
Rags

The following maintenance is the responsibility of the operator:

1. Daily check fuel level and keep tank full. Tank holds 100 gallons of diesel fuel. The diesel burns 3.4 gallon per hour. Do not let the fuel level get below ¼ tank. If the diesel runs out of fuel it is a big problem to get it primed again and get the air out of the fuel system.
2. Daily check and record the oil and coolant levels **BEFORE** starting the equipment. Extra fluids are in the on-board toolbox in the tongue on the trailer along with a grease gun.
3. Every 24 hours of operation, apply ½ pump of grease to the clutch throw-out bearing.
4. Every 24 hours of operation, apply ½ pump of grease to the rear bearing in the clutch, located closest to the belt sheave on the clutch shaft.
5. Every 40 hours of operation, apply ½ pump of grease to each side of the clutch lever.
6. Every 40 hours of operation, apply 1 pump of grease to the main bearings on the fan located on the top of the engine enclosure.
7. Every 40 hours of operation, apply ½ pump of grease to the belt take-up assembly located between the fan and the diesel engine.
8. Daily check belt condition and tightness and make sure the sheaves are not loose on the shafts. There is a belt take-up ratchet assembly located in the engine compartment for adjusting the belt tension. Do not over-tighten the belts. This will cause damage to the clutch.
9. Watch for any change in how the equipment is operating such as increased vibration or noises that are not normal. Investigate all changes in normal operation.
10. If the equipment is being rented for long periods of time SRS should be notified so we can track the periodic maintenance needed such as oil & filter changes.
11. If there are any questions call SRS, Inc @ 425-251-8545.

PREPARATION OF EQUIPMENT FOR RETURN FROM RENTAL

1. Remove as much dust residue as possible with the hand auger system. Dust may build up around the auger especially if the humidity is high. With the fan tuned off, open the filter door and push as much of the residual dust down to the auger to be transported out of the hopper via the auger.
2. Secure and disconnect the compressed air from the equipment.
3. Disconnect all vent hoses and remove Inlet Hose Adapters from the vent hoses.
4. Remove the filters from the equipment. **NOTE**: These filters are the property of the renter and they should **NOT BE RETURNED** with the equipment. It is the renter's responsibility to properly store or dispose of these filters.
5. Open all the dust inlets (even the ones that were not being used) and remove any dust residue or trash from the inlet area.
6. Remove the remaining dust residue in the filter/hopper area by vacuuming or washing the interior of the unit.
7. Wash the exterior of the unit if it is dirty or muddy beyond normal conditions.
8. Re-install the Inlet Cover(s) and secure the Inlet Clamp Ring(s) for shipment.
9. Close the dust discharge valve at the bottom of the hopper.
10. Close and secure the filter access door for shipment.
11. Gather and secure for transport all the accessories sent with the equipment (Inlet Hose Adapter(s), Drum Cover, Duct Splice Ring(s), Ducting section(s), etc). Refer to your packing slip.
12. Properly secure the equipment on the truck or trailer using proper tie-down procedures. Use the lifting eyes for attachment of the chains or straps. This will minimize the risk of causing damage to the unit during transport.
13. Make a note of any problems experienced during the operation of this equipment and a contact name and phone number so our technician can contact this person. Give this note to the delivery person returning the equipment.
14. We hope this equipment rental went well for you and we look forward to assisting your company in future projects. Thank you for your business.