Operating Instruction

SR 500

Powered Air-Purifying Respirator

PAPR

Introduction

The User Instructions for the SR 500 should be read before use. DO NOT USE the respirator until you completely read and understand the instruction manual.

The SR 500 is a battery powered fan unit that, together with filters/cartridge and an approved respirator inlet covering (facepiece or headgear) is a NIOSH 42CFR84 approved powered air-purifying respirator (PAPR).

The SR 500 is NIOSH Loose and Tight Fit approved with certain components.
Available head tops for the SR 500 are listed in the User Instructions.

When selecting an air-purifying respirator the following are some of the factors that must be considered:

- Possible occurrence of explosive atmosphere.
- Types of pollutants.
- Concentrations.
- Work intensity.
- Protection requirements in addition to respiratory protective device.

The risk analysis should be carried by a person who has suitable training and experience in the area.

IMPORTANT:

THIS RESPIRATOR IS INTENDED TO BE USED ONLY IN CONJUNCTION WITH AN ORGANIZED RESPIRATORY PROTECTION PROGRAM WHICH COMPLIES WITH THE REQUIREMENTS OF “PRACTICES FOR RESPIRATORY PROTECTION”, Z88.2-1992 AVAILABLE FROM AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), 11 WEST 42ND STREET, NEW YORK, N.Y. 10036, OR WITH THE REQUIREMENTS OF OSHA STANDARD 29 CFR 1910.134 AVAILABLE FROM THE US DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND/OR OTHER PERTINENT NATIONALLY RECOGNIZED STANDARDS.
NIOSH approval (USA)

Unpacking the SR 500

Check that the equipment is complete in accordance with the packing list and has not been damaged in transit

Packing list:

- Fan unit SR 500
- Battery, HD
- Battery charger SR 513
- Belt SR 508
- Particulate filter SR 510 P100/HE, 2x
- Filter adapters, SR 511, 2x
- Pre-filter holders, SR 512, 2x
- Flow meter SR 356
- User instructions
- Cleaning Wipe SR 5226
- Plug kit

1. Assembling the fan unit, battery

1.1 On delivery, the battery is fitted to the fan with a protective tape over the battery terminals. Release the battery by placing the fan upside down.
Fold back the cover/lock on the battery a couple of centimetres and then push with the other thumb.

1.2 Remove the protective tape covering the battery terminals.

1.3 Connect the power supply lead to the battery charger. Connect the battery to the battery charger. Connect the power supply lead of the charger to the wall socket.

N.B. Mains voltage of 100-240V.

Charging takes place automatically in 3 steps

1. Orange LED
2. Yellow LED
3. Green LED

Push the battery back into the battery compartment. Check that the battery has been pushed in as far as it will go and that its lock is operative.

2. Assembly belt

2.1 Assemble the belt by pressing together the two halves of the buckle.

2.2 The belt should be mounted so that the belt is pointing upwards.
Insert the three tongues of the belt half into the slot in the fan.
Begin to insert the upper tongue and then turn the belt into the fan.

2.3 Press down the three lips locking the belt half.

2.4 Correctly fitted belt.

3. Particulate filter

3.1 Check that the gaskets in the filter mounting of the fan unit are in place and are in good condition.

3.2 Snap the particulate filter onto the filter adapter.

3.3 Do not press onto the center of the filter - it might damage the filter paper.

3.4 Screw the adapter into the filter mounting so far that the adapter will be in contact with the gasket.

Then turn it about 1/8 turn further in order to ensure a good seal.

3. Particulate filter

3.5 Press the filter holder onto the particulate filter.

3.6 Correctly mounted pre-filter holder with particulate filter.

4. Combined filter/cartridge

4.1 Snap the particulate filter onto the chemical cartridge. The arrows on the particulate filter must point towards the chemical cartridge.

4.2 Do not press onto the centre of the filter it might damage the filter paper.

4.3 Check that the gaskets in the filter mounting of the fan unit are in place and are in good condition.

Combined filter/cartridge

4.4 Screw the filter combination into the filter mounting so far that the filter will be in contact with the gasket. Then turn it about 1/8 turn further in order to ensure a good seal. Press the filter holder onto the particle filter.

4.5 Correctly fitted pre-filter holder.

The filters used must be of the same type,

e.g. SR 532 OV/SD/CL/HC/HF+SR 510 P100/HE.

When changing the filters and cartridges, both filters and cartridges must be changed.

5. Operation/Performance

5.1 Start the fan by pressing the control button.

5.2 After the button has been pressed, a programmed test will be run on the fan and the display will then light up, the sound signal will sound, and the vibrator will vibrate twice.

5.3 If the button is pressed again, the flow will increase to at least 7.9 CFM (225 l/ min), and this is indicated by the large fan symbol lighting up. If the control button is pressed again, the fan flow rate will revert to at least 6.2 CFM (175 l/min) and the small fan symbol will again light up.

Operation/Performance

5.4 The battery symbol on the display indicates the battery capacity.

1. Lights green: > 70 %
2. Flashing green: 50-70 %
3. Lights yellow: 20-50 %
4. Flashing red: < 20 %

5.5 When about 5% of the battery capacity is left, the fan will begin to initiate an alarm and the battery symbol will flash. The battery capacity is sufficient to allow the work to be concluded without undue haste. The work should then be interrupted, and the wearer of the equipment should leave the site.

5.6 To switch off the fan, keep the control button depressed for about 2 seconds.

6. Performance check, minimum flow

6.1 Check that the fan is complete with filters, is correctly fitted, cleaned and undamaged.

Start the fan unit.

Connect the hose from the head top to the fan and turn it about 1/8 of a turn clockwise.

6.2 Turn the flow meter bag inside out so that the transparent measuring tube is on the outside.

Note. If the bag is turned with the measuring tube inwards, it can be used as a storage bag.

6.3 Place facepiece or headgear in the flow meter bag and start the fan unit.

Grip the lower part of the bag in order to seal around the hose.
Grip around the measuring tube and hold the tube vertical.

The ball should now float level with or just over the 6.2CFM (175 l/min) marking.

If the minimum flow is not achieved, check that:

-The flow meter held upright,
-The ball moves freely
-The bag seals well around the hose.

7. Performance check, alarms

The fan unit is designed to provide a warning if the air flow is obstructed. This alarm function should be checked in conjunction with the flow check before the equipment is used.

N.B. If the minimum flow is not achieved or if the alarm signals do not operate as intended, the fan must not be used.

7.1 Provoke an air flow stoppage by gripping the top part of the bag or by shutting off the flow meter outlet.

7.2 The fan will now initiate an alarm by sound and light signals and vibrations.

7.3 If the air is again allowed to flow, the alarm signals will automatically cease after 10 to 15 seconds.

Switch off the fan unit and remove the flow meter.

8. Donning

Before putting it on, read the user instructions for the head top.

After the filters /cartridges have been fitted, a performance check has been carried out and the respiratory inlet covering has been connected, the SR 500 can be put on.

8.1 Take the fan unit on and adjust the belt so that the fan unit is firmly and comfortably secured at the back of your waist.

8.2 The fan should be firmly in contact with the wearer's back in order to ensure optimum comfort and ergonomic benefits.

8.3 Put the belt ends in the clips on each side of the belt.

Leave the polluted area before removing the respiratory inlet covering and fan unit

9. Change particulate filter

9.1 Change particulate filter by bending the pre-filter holder from the filter adapter.

Bear in mind that both filters must be changed at the same time.

9.2 Grip the filter with one hand.

Place the thumb of the other hand on the underside of the adapter at the semicircular gap. Then prise out the filter.

Change the particle filters at the latest when they are clogged. The fan senses when this has occurred and provides a warning.

To change the combined filter/cartridge

9.4 To change the gas filter: Unscrew the filter/combined filter. To change the gas filter, prise the particle filter off the gas filter.

9.5 Grip the gas filter with one hand.
Insert a coin or some other flat object, e.g. the filter adapter, in the joint between the particulate filter and chemical cartridge.

Then prise out the filter.

Bear in mind that both filters/combined filters must be changed at the same time and must be of the same type and class.

The gas cartridges should preferably be changed in accordance with a predetermined schedule. If no measurements are made on site, the gas cartridges should be changed once a week or more frequently if the pollutants can be smelt or tasted in the head top.

10. Cleaning/Disinfection

10.1 The plug kit is used for cleaning or decontamination of the fan unit and prevents dirt and water from entering the fan housing.

Disconnect the breathing hose and the filters and install the plugs.

10.2 In the event of heavy fouling, a soft brush or sponge wetted with a solution of water and dishwashing detergent can be used.

10.3 An SR 5226 cleaning wipe should be used for daily cleaning.

Wipe the outside of the fan.

If necessary, spray the product with 70 % ethanol or isopropanol solution for disinfection.

WARNING: Never use a solvent for cleaning.

10. Cleaning/Disinfection

10.4 Clean the pre-filter holders inside and out.

10.5 Wipe the filter adapter clean.

Check that the sealing ridge for the particle filter is undamaged.

10.6 Wipe the belt clean.

11. Maintenance schedule

	Before use	After use	Annually
Visual inspection	O	O	
Performance check	O		O
Cleaning		O	
Change of fan gaskets			O

The following schedule shows the recommended minimum maintenance procedures required in order to ensure that the equipment is always in functional condition.

11.1 The gasket has a groove all round and is fitted on a flange below the threads in the filter mounting.

Remove the old gasket.

11.2 Fit the new gasket onto the flange. Check that the gasket is in place all round.

Troubleshooting schedule

Fault	Reason	Action
The fan fails to start	Battery discharged	Recharge the battery
	Fan-battery contact problems	Bend/adjust/clean the battery terminals. Check that there are two terminals. Check the contact rivets on the fan.
	Battery faulty	New battery, test another battery Measure the voltage which should be 13 – 17 V
	Charger faulty, fails to charge the battery.	Make a visual check and make sure that there is no dirt on the contacts to the charger or battery. A new battery charger.
	Fan motor/electronic fault	Send the fan away for repair
Yellow rectangular battery symbol flashes	Battery discharged	Recharge the battery

Troubleshooting schedule

Fault	Reason	Action
Red triangle flashes on the display and the fan sounds and vibrates	Filters clogged	Change the pre-filters Change the particulate filters
	Hose damaged	Check that the air flowes freely through the hose and that the hose is in good contition
	Valves	Check that the exhalation valves with membranes are fitted to your human interface.
The fan does not run smoothly	Filter clogged Incorrect combination No filters mounted	Check that there are filters in the fan unit and that they are of the same type. e.g. SR 532 OV/SD/CL/HC/HF + SR 510 P100/HE