

WARNINGS, CAUTIONS AND NOTES

Please read all carefully.

Failure to properly use and maintain this product could result in injury or death.

INTENT

This manual is intended to acquaint owners and users with the operation of the VIKING Z SEVEN, CBRN models of Self-Contained Breathing Apparatus, and to provide important safety information and limitations. All information, illustrations and specifications in this manual are based on the latest product information available at the time of printing. The right is reserved to make changes at any time without notice.

IMPORTANT

ALL PERSONNEL USING THIS APPARATUS SHALL BE THOROUGHLY TRAINED BY A QUALIFIED INSTRUCTOR IN DONNING, OPERATION, INSPECTION AND EMERGENCY OPERATION.

Equipment should be thoroughly INSPECTED, FUNCTIONALLY checked and cleaned after EACH exposure to intense heat or harsh chemicals. UNDER A KNOWN CBRN CONTAMINATION EXPOSURE, proper DECONTAMINATION AND DISPOSAL PROCEDURES MUST BE FOLLOWED in accordance with local government instructions and/or procedures. IF CONTAMINATED WITH LIQUID CHEMICAL WARFARE AGENTS, DISPOSE OF THE SCBA AFTER DECONTAMINATION.

The VIKING SCBA is designed to be simple to use and easy to maintain and will operate for many years if properly maintained and cleaned. The instructions for care and use given in this manual must be read, understood and carefully followed before the apparatus is used.

The procedures in this manual DO NOT render AVON-ISI liable for any losses or injury arising from any actions based on use of same.

Spare parts and accessories are available through your local AVON-ISI authorized distributor. Service beyond the scope of this manual is not recommended. If a problem persists, the apparatus should be removed from service, tagged for repair, and forwarded to an AVON-ISI Certified Service Center or to the AVON-ISI factory for evaluation and/or repair. Do not mark the unit with inks or paints, which might be flammable, or cover any approved labels, such as NIOSH labels.

TRAINING

AVON-ISI strongly recommends that the training program used be consistent with NFPA 1500, *Standard on Fire Department Occupational Safety and Health Programs* and NFPA 1852, *Standards on Selection, Care, and Maintenance of Open –Circuit SCBA's*. Training and servicing programs are available upon request. Please contact AVON-ISI or your local distributor for further details.

APPROVALS

All Viking Z SEVEN SCBA are CBRN certified and NIOSH approved, meeting the NFPA 1981 Standard, 2007 Edition and

the NFPA 1982 Standard, 2007 Edition (when equipped with PASS) requirements.

NIOSH/OSHA WARNINGS

The following warnings are given in accordance with accepted safety conventions and/or NIOSH/OSHA requirements, and apply to the use of breathing apparatus in general.

HEALTH LIMITATIONS: Wearers of the SCBA should be certified medically fit prior to use. In addition, there are both physiological and psychological limitations which should be considered before using SCBA. They include, but are not limited to:

- Emphysema
- Chronic obstructive pulmonary disease
- Bronchial asthma
- X-ray evidence of pneumonia
- Evidence of reduced pulmonary function
- Coronary artery disease
- Severe or progressive hypertension
- Epilepsy (grand mal or petit mal)
- Pernicious anemia
- Diabetes (insipidus or mellitus)
- Breathing difficulties when wearing an SCBA
- Claustrophobia or anxiety when wearing an SCBA
- Abnormal EKG results from resting or stress tests
- Punctured or ruptured ear drum

WORKING TEMPERATURES: The VIKING SCBA is approved for respiratory protection during entry into or escape from oxygen deficient atmospheres, gases, and vapors at temperatures above -25°F. When used below freezing, care must be exercised to prevent moisture from entering the demand exhalation valve. The facemask should remain on the docking hook when not in use. On the AirSwitch model, the slide should be stored in the up position when not in use. For the RDV demand valve, the RDV should be stored on the docking station found on the waistbelt. This includes when cylinders are being changed.

DURATION OF USE: Although the VIKING has been approved as either a 30-minute, 45-minute, or 60-minute breathing apparatus, the wearer's varying work rate, physical condition and other factors could substantially shorten the actual usable duration of the unit.

SCBA LIMITATIONS: An SCBA can only protect the wearer's respiratory system. Other protection may be necessary to avoid contamination through skin absorption. If these types of materials are suspected, an effective full-body covering of impermeable material must be worn with the SCBA. A universal Level A HazMat suit is available for the VIKING SCBA from HazMat suit manufacturers.

FACIAL HAIR: Facial hair or any other items which may interfere with the facemask-to-face seal, including the nosecup, or the operation of the exhalation valve, must not be allowed. These include beards, sideburns, mustaches, bangs, head coverings, or anything else that may interfere with the correct seal of the facemask and/or nosecup to the face.

EYE WEAR: Eye glasses shall not be used when the temple bars interfere with the proper seal of the facemask to the face. If a user must wear corrective lenses while wearing the SCBA, they can be mounted in the facemask using a special lens mounting kit (AVON-ISI p/n 136003) available from AVON-ISI or through your local AVON-ISI authorized distributor.

MANUAL BYPASS: In compliance with NIOSH requirements, the Viking SCBA has a manually operated bypass which provides a continuous flow of air to the facemask when required, independent of normal operation of the regulator. The bypass is opened by turning the red knob on the AirSwitch 90 degrees in the direction shown by the knob arrow. The RDV bypass opens by turning towards the user. Use of the bypass will shorten the duration of the SCBA.

CAUTIONS AND LIMITATIONS FOR VIKING Z SEVEN MODEL

- D - Airline respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.
- E - Use only the pressure ranges and hose lengths specified in the User's Instructions.
- I - Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.
- J - Failure to properly use and maintain this product could result in injury or death.
- M - All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O - Refer to User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators.
- S - Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.

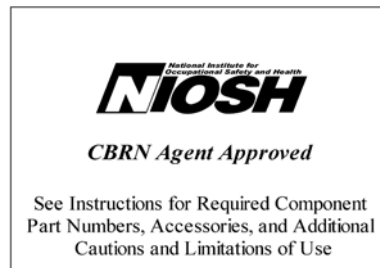
CAUTIONS AND LIMITATIONS FOR VIKING Z SEVEN MODEL WITH CBRN PROTECTION APPROVAL

- I - Contains electrical parts which have not been evaluated as an ignition source in flammable or explosive atmospheres by MSHA/NIOSH.
- J - Failure to properly use and maintain this product could result in injury or death.
- M - All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, OSHA, and other applicable regulations.
- N - Never substitute, modify, add, or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O - Refer to User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators.
- S - Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.
- Q - Use in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards.
- R - Some CBRN agents may not present immediate effects from exposure, but can result in delayed impairment, illness or death.
- T - Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination.

- U - The respirator should not be used beyond 6 hours after initial exposure to chemical warfare agents to avoid possibility of agent permeation.

WARNING

ONLY THOSE SCBA UNITS THAT DISPLAY THE BELOW LABEL ON THE BACKFRAME AT THE ATTACHMENT OF THE CYLINDER SPOON ARE CERTIFIED AS CBRN AGENT APPROVED.



Note: If your department has both CBRN and non-CBRN approved units, be sure to check the backframe for this label prior to donning an SCBA when using in environments where

there is the possibility of cbrn agents being present. **Failure to do so may result in injury or death.**



AVON-ISI ALSO DISPLAYS THIS CBRN LABEL ON THE FACEMASK OF CBRN AGENT APPROVED

UNITS. THE CBRN FACEMASK LABELS ARE LOCATED INSIDE THE VISOR ON BOTH THE RIGHT AND LEFT LOWER CORNERS.

ANY FACEMASK THAT DOES NOT HAVE THIS ABOVE LABEL ON THE INSIDE VISOR SHOULD NOT BE USED IN ENVIRONMENTS WHERE THERE IS THE POSSIBILITY OF CHEMICAL WARFARE AGENTS BEING PRESENT.

FACEMASKS, BACKFRAMES, O-RINGS, AND SEALS ON AN AVON-ISI CBRN APPROVED VIKING SCBA ARE NOT COMPATIBLE WITH NON-CBRN APPROVED UNITS. DO NOT INTERCHANGE PARTS WHEN DOING REPAIRS OR MAINTENANCE. CONSULT AVON-ISI CUSTOMER SERVICE FOR FURTHER DETAILS ON CBRN APPROVED PARTS.

S- SPECIAL OR CRITICAL USER'S INSTRUCTIONS

- Special or critical User's Instructions and/or specific use limitations apply. Refer to User's Instructions before donning.
- Approved for respiratory protection during entry into or escape for oxygen deficient atmospheres, gases and vapors at temperatures above -25°F.
- Approved only when compressed gas container is charged with air meeting the requirements of CGA G-7.1 Grade D or higher quality that has a dew point of -65°F or lower and a maximum particulate level of 5 mg/m³ air.
- The compressed gas container shall meet applicable DOT specifications.
- When used as a combination apparatus, only 20% of the service pressure may be used on entry.

S- SPECIAL OR CRITICAL USER'S INSTRUCTIONS,
CONTINUED

- This approval applies only when the device is supplied with respirable breathing air through 6 to 300 feet of hose at air pressures between 80 to 120 pounds per square inch gauge or from self contained air supply.

Note: Viking CBRN SCBAs are not approved for supplied air use in confirmed or potential CBRN environments.

- If the supplied air fails, open the cylinder valve, unplug supply air and proceed to fresh air immediately.
- Use adequate skin protection when worn in gases and vapors that poison by absorption (example: hydrocyanic-acid gas).

1.0 DESCRIPTION OF VIKING Z SEVEN SCBA

All Viking Z SEVEN SCBA are NIOSH CBRN agent approved, NIOSH approved and NFPA 1981 Standard, 2007 Edition compliant. The Viking Z SEVEN features a heads-up display (HUD) that monitors cylinder pressure and an emergency RIC connector that is used to refill the air of a down fire fighter. The Viking Z SEVEN model has VAS (Voice Amplification System) as a standard feature. Additional options of the Z SEVEN model include radio interface, voice activated communications, integrated PASS with data logging, buddy breather, and airline. All Vikings are available with light weight carbon cylinders in 30, 45 or 60 minute rated durations.

The AVON-ISI Viking Z SEVEN is a self-contained, open-circuit, compressed-air breathing apparatus, which is approved by the National Institute of Occupational Safety and Health (NIOSH) and certified compliant to *NFPA 1981 Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Service, 2007 Edition*. Positive pressure inside the facemask, both during inhalation and exhalation, ensures that any leakage due to improper fit or component failure will be an outward flow of air.

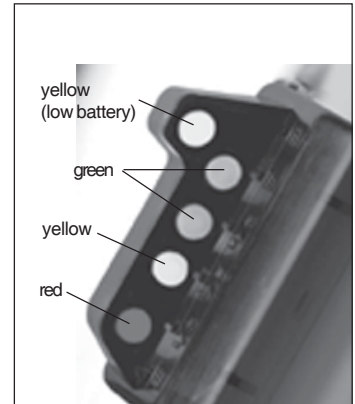
The Viking Z SEVEN SCBA consists of several major components described in the following paragraphs.

1.1 FACEMASK

The AVON-ISI full facemask assembly has a two point pull-forward Nomex net harness with an optically-corrected, double curve high-impact polycarbonate visor. The visor's scratch-resistant coating conforms to NFPA standards. The interior of the visor has a permanent anti-fog coating. The facemask standard seal is high-strength butyl blend and has a patented blended shape which fits the firefighter's helmet without readjustment. A standard black inner-mask nose cup reduces dead-air space and CO₂ buildup. The facemask has CBRN labels affixed at both lower corners of the visor.



An in-mask HUD is mounted to the inner-mask nose cup. The mask display includes five LEDs: red = 1/4 full, yellow = 1/2 full, 1st green = 3/4 full, 2nd green = full, and the last elevated yellow = low battery indicator. The HUD indicates remaining cylinder pressure and provides the primary end-of-service time alarm. The HUD can also provide additional status indicators depending upon the options ordered.



1.2 AIRSWITCH® REGULATOR

The patented AirSwitch second stage regulator is incorporated into the facemask and combines the demand and exhalation valves to greatly reduce breathing resistance. This also allows for a longer duration of cylinder use. A speech diaphragm provides excellent clarity and voice reproduction while incorporating the exhalation valve.

The AirSwitch features a fresh air mode which allows users to go from cylinder air to outside air by depressing the two control slide tabs inward and then raising the slide upwards



UP FOR AMBIENT AIR



DOWN FOR SUPPLIED AIR

fully. Push down for cylinder or supplied air. The AirSwitch should stay open prior to donning and doffing of the VIKING SCBA. The AirSwitch is made of high performance engineered plastics and incorporates a true manual bypass control for emergency use.

1.3 REMOVABLE DEMAND VALVE (RDV) REGULATOR

The Viking RDV regulator is a mask mounted second stage regulator with a 1/8th turn positive locking mechanism, which secures into the facemask. The RDV facemask incorporates a speech diaphragm that provides excellent speech clarity even under heavy breathing. The standard HUD is still inside the facemask with the microphone. Docking the RDV on the facemask also aligns the electronic connection in one simple step. After removing the RDV from the facemask, it should be stored in the docking station on the waistbelt strap to keep free of dirt and debris.



1.4 FIRST STAGE PRESSURE REDUCER

Air leaves the cylinder, passes through a sintered bronze filter in the handwheel elbow assembly, and then continues on through a high pressure flexible hose to the first-stage pressure reducer where it is reduced to approximately 125 psi. The reducer is a simple piston type that requires no adjustment and incorporates an automatic, self-seating pressure relief valve to protect the low-pressure components downstream. It is made of high quality aluminum, and is securely mounted inside the backframe assembly.

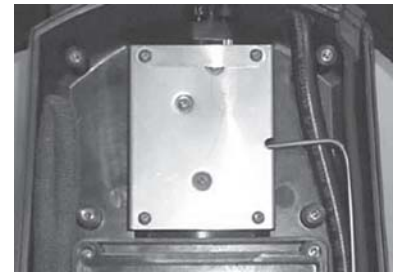


1.5 END-OF-SERVICE INDICATORS

The primary *End-of-Service* indicator is incorporated into the HUD. The display will flash a single red LED at 23% to 27% of rated cylinder pressure per NIOSH requirements. The primary end-of-service alarm meets NFPA 1981, 2007 Edition requirements.



The secondary *End-of-Service* indicator is a bell mounted inside the backframe which is set to activate at 23-27% of rated cylinder pressure per NIOSH and NFPA requirements.



1.6 BACKFRAME AND HARNESS

The backframe and harness assembly utilize ergonomic design principles to produce a comfortable, low profile unit that evenly distributes the SCBA weight between the wearer's hips and shoulders.

The unique double-wall backframe of the Viking protects major airlines, the first stage reducer, bell alarm and digital components. A quick-release cylinder band fits a wide range of cylinders with an infinitely adjustable latch to ensure a tight fitting cylinder.



The harness material is NFPA compliant, custom woven KEVLAR®. The upper harness has very resilient foam rubber padding for added comfort and PBI/KEVLAR cover for maximum durability and protection. There is an optional backframe plate that can be ordered (p/n 099038) to reinforce the upper harness straps for departments that do heavy simulation training of fire fighter rescue operations. A lower lumbar pad is standard for added comfort and support.

1.7 CONTROL CONSOLE

The control console and PASS assembly communicate with each other through a wireless network. The network uses a discreet frequency that eliminates noise and resistance to other radio frequencies. This wireless network joins the Control Console and PASS assembly together, allowing for constant data to be exchanged. There are two motion sensors on the Z SEVEN, one in the Control Console and one in the PASS assembly inside the backframe. When one assembly detects motion, the PASS will reset for 25 seconds.



Note: Only Duracell MN 1500 or Energizer E91 1.5 volt AA batteries are to be used with the battery packs. Be sure to place batteries in the direction as indicated on the battery compartment in order to prolong battery and fuse life.

1.7.1 SERVICING CYLINDER VALVE

After each use, and prior to recharging, the cylinder valve must be inspected for damage. If a new valve is replacing a valve that was damaged in use, it will be necessary to hydrotest the cylinder before installing the new valve.

Note: Any maintenance on the valve that requires disassembly should be conducted by an AVON-ISI Authorized personnel or an AVON-ISI technician who is well trained in the hazards of high pressure equipment. Never attempt to remove the valve from the cylinder while there is any pressure in the cylinder. Open the valve completely to be sure it is empty. If the gauge shows pressure but you think the cylinder is empty, contact the AVON-ISI factory for advice by calling 888-474-7233.

Note: Prior to revalving a cylinder, you must perform the following inspection:

- Remove o-ring from sealing threads on cylinder valve.
- Clean threads to remove any lubricant.
- Inspect the cylinder threads, ensuring the threads are not distorted or cracked.
- Inspect the valve threads, ensuring the threads are not distorted or cracked.

1.8 CYLINDER AND VALVE ASSEMBLY

A range of cylinder types and capacities are available on the VIKING 2216 psi and 4500 psi models. (Please see the table in Section 1.10 for specifics.)

The cylinder valve is of aluminum construction with a permanent teflon coating. The valve outlet is a standard CGA-346 fitting on 2216 psi cylinders, and a standard CGA-347 fitting on 4500 psi cylinders. Each valve has a dual-reading pressure gauge. Valve protection is provided by an elastomeric bumper. See section 2.3.2 for inspection prior to use.

The valve can be used with AVON- ISI cylinder assemblies between 23 cubic feet and 87 cubic feet. The cylinder valve has a burst disc type safety device to protect the cylinder from over pressurization.

The cylinders and valve are matched according to pressure. The maximum pressure on the gauge built into the cylinder valve should match the pressure rating on the cylinder. A 2216 psi valve will not fit into a 4500 psi cylinder and vice versa. For easy recognition AVON- ISI has made 4500 psi handwheels red and a 2216 psi handwheel black. (Exception: all Viking ST models will have black handwheels no matter what the pressure rating of the cylinder.)

The cylinder valve has two sets of male threads - one will screw into the cylinder and the other is used to attach to the pneumatics of the SCBA. The latter threads are referred to as CGA (Compressed Gas Association) threads. It is important to protect the CGA threads so that the pneumatics will always screw onto them without doing damage to the handwheel on the pneumatics.

If any threads are distorted or cracked, the parts should be tagged "Out of Service" and be condemned.

HANDLING PRECAUTIONS:

NEVER LIFT OR CARRY UNIT BY THE HIGH PRESSURE HOSES. IF A HIGH PRESSURE HOSE BECOMES KINKED OR OTHERWISE DAMAGED, IT SHOULD BE REPLACED. CHECK FOR DAMAGE NEXT TO THE METAL ENDS OF THE HOSE.

1.9 RAPID INTERVENTION CREW (RIC) FITTING

Every Viking Z SEVEN has a RIC fitting attached near the handwheel that allows a downed fire fighter to have their cylinder charged from an outside source. NFPA 1981, 2007 Edition requires this fitting on all SCBA's manufactured for fire fighters. The RIC fitting is compatible with other manufacturers and is intended as an emergency refill only. The RIC fitting will not work as a transfill system between two SCBA's. There is a dust cap cover for the fitting to prevent debris on the fitting. See section 4.7 for detailed working instructions.



1.10 VIKING CYLINDER TABLE

Part Number	Pressure PSIG	Material	Free Air Capacity	NIOSH Rated Duration @	Cylinder & Valve Charged	Cylinder Diameter	Hydrostatic Interval	Cylinder Life ^b
024.037.00	2216	Aluminum	1287 liters, 45 cu. ft.	30 min.	20.5 lbs.	6.9 in.	5 years	Life
024.035.00	2216	Hoop-Wrapped Glass	1301 liters, 45.5 cu. ft.	30 min.	16.0 lbs.	6.9 in.	3 years	15 years
124001	2216	Full Wrapped Carbon	1301 liters, 45 cu. ft.	30 min.	10.4 lbs.	6.8 in.	5 years ^a	15 years
024.098.00	4500	Hoop-Wrapped Glass	1287 liters, 45 cu. ft.	30 min	15.9 lbs.	5.5 in.	3 years	15 years
124002	4500	Full Wrapped Carbon	1287 liters, 45 cu. ft.	30 min.	11.0 lbs.	5.4 in.	5 years ^a	15 years
124003	4500	Full Wrapped Carbon	1887 liters, 66 cu. ft.	45 min.	14.8 lbs.	6.8 in.	5 years ^a	15 years
124004	4500	Full Wrapped Carbon	2516 liters, 88 cu. ft.	60 min.	19.2 lbs.	7.1 in.	5 years ^a	15 years
124027	4500	Hoop-Wrapped Glass	1287 liters, 45 cu. ft.	30 min	15.9 lbs.	4.0 in.	3 years	15 years
124028	4500	Full Wrapped Carbon	1287 liters, 45 cu. ft.	30 min	11.0 lbs.	5.4 in.	5 years ^a	15 years
124029	4500	Full Wrapped Carbon	1887 liters, 66 cu. ft.	45 min	14.8 lbs.	56.8 in.	5 years ^a	15 years
124030	4500	Full Wrapped Carbon	2516 liters, 88 cu. ft.	60 min	19.2 lbs.	7.1 in.	5 years ^a	15 years
024.066.00	4500	Full Wrapped Glass	1282 liters, 45.3 cu. ft.	30 min	14.1 lbs.	5.6 in.	3 years	15 years
024.085.00	4500	Full Wrapped Glass	1854 liters, 65.5 cu. ft.	45 min	18.9 lbs.	6.8 in.	3 years	15 years

^aAll Carbon Cylinders have 5 year hydrostatic intervals.

NOTE: BLACK KELAR CYLINDER BAGS (PART #: 138082, 138091, 138092, 138093) ARE OPTIONAL COSMETIC COVERS THAT MAY BE PURCHASED TO COVER CYLINDERS.

2.0 ROUTINE CHECKS

2.1 UNPACKING

Open the storage case or shipping container. Observe the relative position and placement of the various components for future repacking. Remove the SCBA from the container and place on a clean dry surface. Remove the facemask from protective bag. Remove battery pack from protective bag. Install battery pack into backframe according to battery pack installation instruction in section 8.3. Install control console batteries according to installation instructions in section 8.3.

2.2 INVENTORY AND EXAMINATION

Examine unit for physical condition and appearance of all components. Be sure the following major components are included:

- Facemask and regulator assembly in storage bag
- Backframe and harness assembly
- Cylinder and valve assembly
- Batteries for control console
- Backframe battery pack with batteries if equipped with PASS
- Options ordered with unit: buddy breather, airline, etc.

2.3 ROUTINE CHECKS AND INSPECTIONS

The following procedure shall be used for new incoming units and daily inspections of the apparatus. An SCBA not routinely used, but kept for emergency use, shall be inspected at least monthly. All other breathing apparatus shall additionally be inspected after each use.

WARNING

THE APPARATUS MUST NOT BE USED UNTIL THE FOLLOWING TESTS HAVE BEEN SUCCESSFULLY COMPLETED. ANY DISCREPANCY NOTED DURING THE PRE-USE CHECK AND INSPECTION SHALL BE CORRECTED ONLY BY AUTHORIZED PERSONNEL PRIOR TO USE OF THE APPARATUS.

2.3.1 Visually inspect complete apparatus for worn or aged parts and damaged components.

2.3.2 Basic cylinder inspection shall include:

A. Inspect gauge for damage.

B. Inspect cylinder for mechanical damage (cracks, dents, gouges) or signs of heat or chemical damage. (Refer to CGA C-6.2 Guideline for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders for all wrapped cylinders.)

C. Check that hydrostatic test date on cylinder is current.

D. Check that cylinder valve threads are not damaged.

E. Check that the valve body is not bent.

F. Check that the burst disc outlet is clean and free of debris.

G. If any item listed above is noted, depressurize cylinder to a slight positive pressure, tag, and take out of service.

2.3.3 **AirSwitch:** Open control slide on AirSwitch by pressing inward and upward on two protruding tabs on both sides of control slide. Also make sure the red bypass knob is in the closed position (i.e. fully turned clockwise when looking at front of mask). See paragraph 3.1.9 for connection instructions.



There should be a rush of air when the slide is pushed down, and the air flow should stop when the slide is in the UP position.

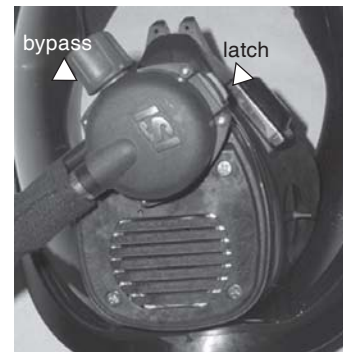
RDV: Push inward on the RDV First Breath Button. Also, make sure the red bypass knob is in



RDV: RDV can be attached from either left or right orientation. Dock RDV into facemask by turning the RDV until the bypass knob is facing either the 1

the closed position.

2.3.4 Ensure high pressure handwheel is tightened completely prior to opening the cylinder valve. Open the cylinder valve slowly by turning the cylinder valve knob counter-clockwise to the fully open position. The console should emit an audible chirp. The bell should activate and then shut off. There should be no air flow from the facemask. If air is flowing, check that the bypass valve is closed.



o'clock or 4 o'clock position depending on user comfort. Place RDV into mask and rotate till latch is in the 12 o'clock position (1/8th turn to lock). Inhale to active airflow. Attempt to rotate RDV to ensure RDV is locked.

WARNING

ENSURE THAT ONLY A 2216 PSI CYLINDER IS USED WITH LOW PRESSURE PNEUMATICS AND A 4500 PSI CYLINDER IS USED WITH HIGH PRESSURE PNEUMATICS.

2.3.5 **CHECK CYLINDER PRESSURE:** The heads-up display will have four lights "on" when the cylinder is full. When the cylinder pressure is between 3/4 and 7/8, the top green light will be flashing and the analog pressure gauge readout should read at or above the 7/8th level. If the top green light is "off" or below the specified levels, refill the cylinder or replace with a fully charged cylinder.



- 2.3.7 Open bypass and check for constant air flow. Close bypass.
- 2.3.8 **BATTERY CHECK:** If the batteries are low, the top yellow LED on the HUD will be "ON". In addition, if equipped with PASS, the control console will make a beeping noise every 15 seconds to alert the status of the PASS battery and the console LED will be red. See paragraph 8.3 to replace the batteries.
- 2.3.9 **LEAK TEST:** For the **Airswitch**, ensure the control slide is in the up position and the bypass is closed. For the **RDV**, push inward on the first breath button to stop airflow and make sure bypass is closed. Using a full cylinder, open the cylinder valve slowly until the pneumatics are completely pressurized. Allow pressure to stabilize for 30 seconds. Close cylinder valve for one minute. Open cylinder valve slowly and observe the analog gauge needle movement. If the needle on the gauge moves more than 1/8th inch, the Viking should be removed from service and tagged for repair.

2.3.6 **AirSwitch:** While holding the facemask, push down on the top of the control slide to close the Air-Switch and QUICKLY push back to the UP position.

2.3.10 **LOW PRESSURE ALARM TEST:** Gradually reduce the system pressure by slightly opening the bypass valve. Verify that the bell sounds and the mask display blinks a single red LED as the needle from the analog gauge is at the 1/4th increment.

2.3.11 Check the RIC fitting to ensure the dust cover is in place.

IMPORTANT

COMPLETE ALL ROUTINE CHECKS AND INSPECTION PROCEDURES OUTLINED IN SECTION 2 BEFORE STARTING DONNING PROCEDURES, SECTION 3.

WARNING

IF ANY OF THE PREVIOUS TESTS FAIL, REMOVE APPARATUS FROM SERVICE, TAG, AND RETURN FOR REPAIR BY AVON-ISI AUTHORIZED PERSONNEL.

TECHNICIAN MAINTENANCE

AT LEAST ONCE PER YEAR, THE ENTIRE SCBA SHOULD BE PLACED OUT OF SERVICE AND TAGGED FOR ANNUAL FLOW TESTING BY AN AVON-ISI AUTHORIZED TRAINED TECHNICIAN.

2.4 SCBA RETIREMENT

Over the course of time, the Viking SCBA needs to be evaluated on its' overall condition. Inspect the Viking's harness assembly for frayed, deteriorating harness', stress cracks in the backframe and in general, it's overall condition. Another consideration is passing the annual dynamic flow testing requirements. Over time components may need to be replaced or consideration must be made to retire the SCBA.

Fire Department that plans on retiring their SCBA's or no longer meet the current NFPA requirements, should review NFPA 1852, 2002 Edition, section 4.3 and 4.6 for guidelines on retiring an SCBA.

3.0 DONNING PROCEDURES AND SAFETY CHECKS

3.1 DONNING PROCEDURES

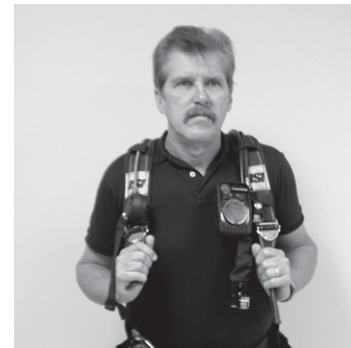
3.1.1 Position the VIKING SCBA on the ground with the cylinder valve facing away from the wearer.



3.1.2 Spread the shoulder straps and fold open the side arms. Ensure all strap assemblies (side and waist) are fully extended and waist belt buckle assembly is not connected. Reach inside the harness assembly and grasp the frame with both hands.



3.1.3 Swing the unit up and over the head, making sure that the elbows extend through the loops formed by the shoulder straps. Allow the unit to slide down the back.



3.1.4 Pull directly down on the shoulder straps to adjust position of unit on back, attach chest strap.



3.1.5 Connect the waistbelt buckle and adjust waistbelt to a comfortable snug fit by pulling simultaneously on both left and right adjustment straps. Tuck the excess waistbelt and shoulder strap pull-downs inside the waistbelt.

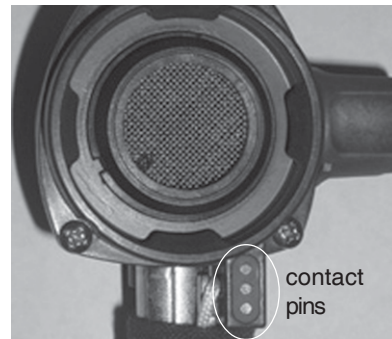


Pull straps
FORWARD
on net
harness



3.1.8 To connect the facemask to the Viking unit, connect electronics plug partially into socket, then connect facemask plug into connector. Press firmly in to lock both fittings into each socket. A click should be heard when it is locked in place securely.

Note: When connecting the facemask hose to the connector, make sure both hoses are connected and the socket sleeve has moved forward. If socket sleeve has moved forward without the facemask hose connected, air will leak out of the socket connector.



contact
pins

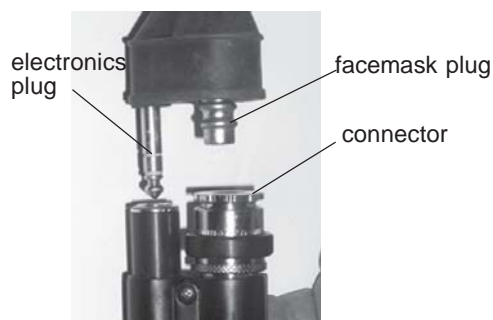
3.1.6 **Don AirSwitch mask:** With the control slide in the "up" position and with one hand on the head harness straps, put chin into facemask first and then pull harness straps over head. Position facemask so that chin fits snugly into chin cup and pull the two harness adjusters forward evenly. Pull net toward base of the skull to ensure it is seated fully.

Don RDV mask: Do not dock the RDV regulator until after the mask is donned. With one hand on the head harness straps, place chin into facemask and then pull harness strap over users head. Position facemask so the chin fits securely in the chin cup and pull the two harness adjusters forward evenly. Pull net toward base of the skull to ensure it is seated fully.

For the RDV mask, the HUD electronic connection is made when the RDV is docked into the facemask. Prior to donning the RDV, ensure that the contact pins are free of any debris.

Note: In an IDLH atmosphere, such as a CBRN response, ensure that the facemask is connected to the pneumatic connection prior to entering the hazardous area to prevent contamination.

IMPORTANT
DO NOT OVERTIGHTEN THE FACEMASK. DOING SO MAY CAUSE DISCOMFORT OR FACEMASK DEFORMATION AND LEAKAGE.



3.1.7 Ensure the AirSwitch control slide is in the UP (open) position, and the bypass valve is closed.

WARNING

BE SURE TO ALIGN THE CONNECTOR AND FACEMASK PLUG CORRECTLY AS SHOWN ABOVE. DAMAGE WILL RESULT TO THE PIN IN THE CONNECTOR IF THE ELECTRONICS PLUG IS MISTAKENLY PUSHED INTO IT.



Note: Prior to docking the RDV, the user can perform a negative pressure check on the AVON-ISI mask. Place your hand to block off the RDV opening in the facemask. Inhale slightly and hold your breath. Facemask should move inward slightly and stay in that position unit user exhales. It may be difficult to perform this with a gloved hand. Annual fit testing is required to ensure proper fit.

Note: It is not necessary to perform a negative pressure check on the AirSwitch because it is designed as a positive pressure facemask. AVON-ISI recommends annual fit testing to ensure a proper fitting facemask.

AVON-ISI offers facemasks in three different sizes to ensure a proper fit. Refer to the AVON-ISI Instruction Sheet for the Viking Facemask (p/n 084022, a/w A49022) for proper sizing of the facemask.

3.1.9 Ensure high pressure handwheel is tightened completely prior to opening the cylinder valve. Open the cylinder valve slowly by turning the cylinder valve counterclockwise to the fully OPEN position. The control console should emit an audible chirp. If equipped with PASS, the PASS should emit an audible chirp. The bell should activate and then shut off and the HUD should be "on", showing quarter increments of cylinder pressure. The yellow "low battery" LED will light and then turn off.

Note: On the RDV, the HUD will activate AFTER the RDV is docked into the facemask.



3.1.10 **AirSwitch:** To activate cylinder airflow push down on the control slide.



RDV: To activate air flow, remove RDV from docking station on waistbelt and dock the RDV on the facemask by orientating the bypass valve in the 1 o'clock or 4 o'clock position, push RDV into the front opening, and rotate 1/8th turn. Inhale to activate airflow.

WARNING

IF USER IS UNABLE TO ACTIVATE THE "FIRST BREATH" OPEN BYPASS IMMEDIATELY, REMOVE RDV, CLOSE CYLINDER VALVE AND TAG "OUT OF SERVICE".

3.2 SAFETY CHECKS

WARNING

THESE SAFETY CHECKS MUST BE PERFORMED BEFORE ENTERING A HAZARDOUS AREA. FAILURE TO PERFORM THESE CHECKS MAY RESULT IN RESPIRATORY INJURY OR DEATH.

3.2.1 **AirSwitch positive pressure fit check:** With cylinder valve open, push down on the control slide to activate air

supply and breathe normally.

RDV positive pressure fit check: With the mask donned and the RDV docked, inhale to activate airflow.

Insert two fingers between the facemask and face. Gently lift the facemask seal away from the face and ensure a good outward flow of air, showing that the facemask pressure is positive. Reseal facemask and stop breathing for 3 seconds. There should be no sound of air leaking from the regulator, and there should be no airflow sensed in the eye region of the mask.

3.2.2 **ALARM CHECK:** Close the cylinder valve and continue to breathe normally. As the air reaches the ¼ full level the red LED light should flash rapidly and all other lights should be out. The secondary bell alarm should also activate.

3.2.3 Open cylinder valve. Take two to three deep breaths



to ensure you are getting adequate air into the facemask. The facemask should not move towards your face.

3.2.4 **AIRSWITCH BYPASS CHECK:** The red bypass knob is located in the center of the AirSwitch. Turn the by-



pass knob clockwise as viewed inside the mask (the direction shown by the knob arrow) to open the bypass valve. A constant flow of air should pass into the facemask. Turn the knob in the opposite direction to turn the bypass valve off.

RDV BYPASS CHECK: The bypass knob on the RDV is located on the right side (from the wearer view). To open, rotate knob towards the user fully. A constant flow of air should pass into the facemask. Turn the knob in the opposite direction to close.

3.2.5 **RECHECK CYLINDER PRESSURE:** Check the heads-up display. Four lights should be "on". The top green light may be flashing, indicating at least 7/8th full.

Verify the analog gauge is at or above the 7/8th level.



3.2.6 **BATTERY CHECK:** The top yellow LED will be "ON" when the control console batteries are low. If the pass batteries are low, displays red LED on console and the pass alarm will chirp every 15 seconds. The LED on the console will be red. If the SCBA shows a low battery warning, replace batteries in accordance with section 8.3.

3.2.7 VAS CHECK

3.2.7.1 Turn SCBA on by either opening cylinder valve or by manually depressing on buttons.

3.2.7.2 Hold mask up to face and speak into mask.

3.2.7.3 Listen to speech emanating from VAS speaker and ensure its intelligibility and function.

WARNINGS

IF ANY OF THE ABOVE CHECKS FAIL, DO NOT PROCEED. REMOVE THE APPARATUS FROM SERVICE, TAG, AND RETURN FOR REPAIR BY AVON-ISI AUTHORIZED PERSONNEL.

USE OF THE BYPASS IN NON-EMERGENCY SITUATIONS WILL SUBSTANTIALLY REDUCE DURATION OF THE APPARATUS.

THE BYPASS WILL NOT FUNCTION IF THE CYLINDER IS OUT OF AIR.

4.0 DURING USE

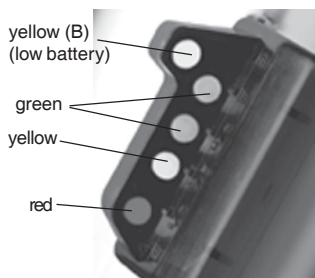
IMPORTANT

THE USER SHOULD BE TRAINED ON HOW TO HANDLE A POSSIBLE EMERGENCY BEFORE ENTERING A HAZARDOUS AREA.

The Viking SCBA can be equipped with a variety of fully-integrated solid state features that offer safety and communication advantages for the user. Review section 9 for detailed instructions of available options.

4.1 READING THE HEADS-UP DISPLAY (HUD)

4.1.1 The HUD includes five LED lights: two green, two yellow and one red. Each of the 4 LEDs in a row represents a quarter increment of the rated service pressure. As cylinder pressure decreases, the LEDs change status. At full rated service pressure, all four LEDs are on. As cylinder pressure



drops below full, the top green LED begins blinking. At 3/4 rated service pressure, the top green LED turns off and the next green LED begins blinking. At 1/2 rated service pressure, the second green LED turns off and the yellow LED begins blinking. At 1/4 rated service pressure, the yellow LED turns off, and the red LED blinks at a fast rate. The top offset yellow light is a low battery indicator. Refer to the following table for more information regarding mask pressure display interpretation.

Remaining Cylinder Pressure	RED	YEL-LOW	GREEN	GREEN	YEL-LOW
Full	●	●	●	●	○
Full → 3/4	●	●	●	★	○
3/4 → 1/2	●	●	★	○	○
1/2 → 1/4	●	★	○	○	○
Below 1/4	★	○	○	○	○
Low battery: console					●

● = On ★ = Blinking ○ = Off

4.2 NORMAL USE

4.2.1 Monitor cylinder pressure for remaining air supply using the HUD. Cylinder pressure can also be monitored with the analog pressure gauge. Refer to chart in paragraph 4.1.1 for the LED light sequence.

4.2.2 The *end-of-service-time* alarms (mask display and bell) activate when there is approximately 25% of the full air supply remaining. Egress when alarms activate. **WARNING: 25% OF A FULL CYLINDER MAY BE INSUFFICIENT IN SOME CIRCUMSTANCES TO SAFELY EXIT FROM AN IDLH ATMOSPHERE.** One example would be a long-distance ingress through a continuous IDLH atmosphere. In such situations, begin egress prior to activation of the *end-of-service-time* indicator.

4.3 CBRN SPECIFIC ACTIONS

Hazardous materials, such as **CBRN agents**, may not present immediate effects from exposure, but can result in delayed impairment, illness, or death.

Use the AVON-ISI Viking with CBRN agent approval in conjunction with personal protective ensembles that provide appropriate levels of protection against dermal hazards. Refer to page 2 of this manual,

Cautions and Limitations for CBRN Protection Approval.

4.4 INSTRUCTIONS FOR CHANGING CYLINDERS

- 4.4.1 Make sure cylinder valve is closed and all air is released from the pneumatic system.



- 4.4.2 Pull outward on the upper portion of the locking latch to release tension.



- 4.4.3 Disconnect handwheel from cylinder valve and remove cylinder by sliding cylinder upward through cylinder band.
- 4.4.4 Insert new full cylinder by sliding down through cylinder band until cylinder rests against bottom retainer. Connect handwheel to cylinder valve and position cylinder.
- 4.4.5 Close the locking latch.
- #### 4.5 CYLINDER BAND ADJUSTMENT
- 4.5.1 Pull outward on the upper portion of the locking latch to release tension.



- 4.5.2 To loosen the cylinder band, grab the inner cylinder band strap and pull out/away from the adjustment latch.



- To tighten the cylinder band, grab the outer cylinder band strap and pull up/away from the adjustment latch. Slide the slack across the inner strap.
- 4.5.3 Further adjust cylinder band length until tight. Make sure that the locking latch is in the open position.
- Slide the slack across the lower strap.
- 4.5.4 Close the locking latch.

Note: Over tightening latch can break the latch. Cylinder band should hold cylinder firmly.

4.6 EMERGENCY EGRESS INDICATORS

If any of the following situations occur, egress immediately:

- A. Exposure to flashover
- B. Exposure to high temperature
- C. Harness failure
- D. Chattering or unusual noises from SCBA
- E. Submersion in water (Note: In this situation the VIKING will continue to supply air on demand to a depth of at least 3 meters.)
- F. SCBA subjected to high impact such as a fall
- G. Air flow decreases such that the facemask moves inward toward the face during inhalation (Note: In this situation, open bypass to provide extra, constant flow.)
- H. Air flows constantly at a high rate (Note: In this situation, adjust the flow rate by slowly closing the cylinder valve until a comfortable flow rate is established. The flow rate should match the bypass flow rate during normal operation.)

- II. Digital pressure gauge, mask pressure display, or other digital options cease to function properly.
- J. End-of-service indicators activate.
- K. Chemical agent egress indicators:
 1. Dizziness
 2. Partial loss of vision
 3. Shortness of breath
 4. Restricted breathing
 5. Localized pain
 6. Redness of skin

4.7 RIC FITTING PROCEDURES

The RIC fitting is designed as an emergency refill only and has specific uses and functions per NFPA 1981, 2007



Edition. The system can only be used to fill approved SCBA cylinders. The RIC fitting has an internal balanced piston that prevents over pressurization of a cylinder. A check valve prevents fire fighters from transfilling SCBA's, or any other unapproved use on AVON-ISI products. Users will be able to have a 4500 psi cylinder as a supplied air system and connect to a 2216 psi SCBA RIC connector. Air will stop flowing automatically from the high-pressure cylinder when the correct pressure (2216 or 4500) is achieved.

To recharge a cylinder on a downed fire fighter, an approved charging hose must be used. The AVON-ISI Rescuer uses the following approved hoses: a 3 foot RIC Charging Hose (p/n 162051), a 6 foot RIC Charging Hose (p/n 162052), or a 10 foot RIC Charging Hose (p/n 162053) for filling the cylinder in IDLH atmospheres.

- 4.7.1 Open cylinder valve of supplied air and remove the dust cap from the RIC charging hose. Inspect the fire fighters cylinder for damage and ensure that the cylinder valve is fully opened.

WARNING

CYLINDERS THAT ARE DAMAGED MAY SUDDENLY RUPTURE IF CHARGED.

- 4.7.2 Remove dust cap from the RIC fitting on the SCBA and attach the RIC charging hose to it. Listen for leaks on the SCBA that is being filled. Recharging will take between 2-4 minutes, depending on the cylinder duration and pressure. When the pressures equalize, unplug the charging hose from the

SCBA and replace dust covers and exit. During a prolonged rescue, users can leave the supplied air cylinder plugged into the downed fire fighter's SCBA, adding additional duration to the cylinder.

Note: If any time during charging, a leak is detected; discontinue charging and exit IDLH atmosphere immediately.

Note: In a non-emergency situation, cylinders shall not be refilled through the RIC.



bottom of RIC charging hose

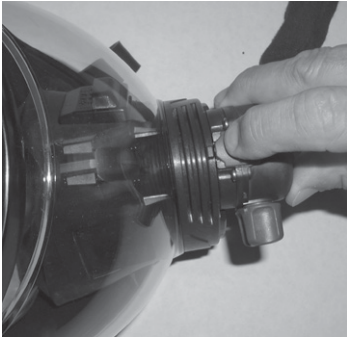
- 4.7.3 Once clear of an IDLH atmosphere, close the cylinder valve on the RIC charging hose. Ensure there is no debris in the dust cap prior to pushing on the dust cap. The bottom of the dust cap reads "press to relieve". With dust cap in place, push down on dust cap on a hard surface to bleed pressure.
- 4.7.4 Top off cylinder attached to charging hose before next use to ensure proper service time.

IMPORTANT

DO NOT REMOVE ANY EQUIPMENT UNTIL YOU ARE CLEAR OF AN IDLH ATMOSPHERE.

5.0 AFTER USE PROCEDURES

5.1 DOFFING



- 5.1.1 **AirSwitch:** Push the control slide UP on the Air-Switch.
- 5.1.2 **RDV:** Push first breath button inward to stop airflow. Push locking latch outward and rotate 1/8th turn to remove RDV.



RDV: Dock on RDV docking station on waistbelt.

- 5.1.3 Loosen head harness straps fully and remove facemask.



- 5.1.4 Close the cylinder valve by turning it fully clockwise.
- 5.1.5 Release air pressure in the system by opening the bypass until the air flow stops, then closing it.
- 5.1.6 Turn off all the electronics on the Z SEVEN model by simultaneously depressing the buttons on both side of the control console.
- 5.1.7 Place facemask on the shoulder harness clip.

- 5.1.8 Unfasten the waistbelt and loosen shoulder straps. Extend shoulder straps and waistbelt fully. Unhook chest strap.
- 5.1.9 Remove the apparatus.

WARNING

DURING COLD WEATHER OPERATIONS, THE AIR-SWITCH REGULATOR SHOULD BE STORED IN THE CLOSED POSITION (CONTROL SLIDE DOWN) TO PREVENT ICE BUILDUP INSIDE THE REGULATOR. THIS PRACTICE IS NECESSARY AS ICE MAY INTERFERE WITH THE SEALS OF THE AIRSWITCH REGULATOR WHILE IN USE.

- 5.1.10 Remove the cylinder and tag it for refilling. See Section 8.2 for instructions.
- 5.1.11 Do not store or place apparatus in ready position until after performing "After Use Cleaning" Section 6.

WARNING

SCBA USED IN A HAZMAT OR CBRN ENVIRONMENTS MUST GO THROUGH DECONTAMINATION PROCEDURES. IF THE SCBA IS CONTAMINATED WITH CBRN AGENTS, DISPOSE OF THE SCBA AFTER DECONTAMINATION, IN ACCORDANCE WITH LOCAL GOVERNMENT INSTRUCTIONS OR PROCEDURES.

USE IN CONJUNCTION WITH PERSONAL PROTECTIVE ENSEMBLES THAT PROVIDE APPROPRIATE LEVELS OF PROTECTION AGAINST DERMAL HAZARDS.

SOME CBRN AGENTS MAY NOT PRESENT IMMEDIATE EFFECTS FROM EXPOSURE, BUT CAN RESULT IN DELAYED IMPAIRMENT, ILLNESS, OR DEATH. DIRECT CONTACT WITH CBRN AGENTS REQUIRES PROPER HANDLING OF THE SCBA AFTER EACH USE AND BETWEEN MULTIPLE ENTRIES DURING THE SAME USE. DECONTAMINATION AND DISPOSAL PROCEDURES MUST BE FOLLOWED. IF CONTAMINATED WITH LIQUID CHEMICAL WARFARE AGENTS, DISPOSE OF THE SCBA AFTER DECONTAMINATION IN ACCORDANCE WITH LOCAL GOVERNMENT INSTRUCTIONS OR PROCEDURES.

THE RESPIRATOR SHOULD NOT BE USED BEYOND 6 HOURS AFTER INITIAL EXPOSURE TO

6.0 AFTER USE CLEANING

CHEMICAL WARFARE AGENTS TO AVOID POSSIBILITY OF AGENT PERMEATION.

ready for use.

IMPORTANT

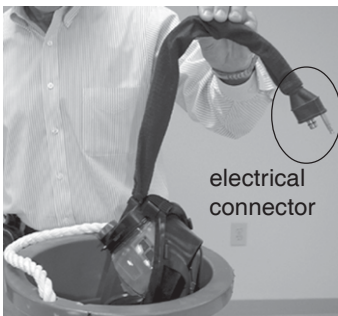
Direct contact with CBRN agents requires proper handling of the SCBA after each use and between multiple entries during the same use. Decontamination and disposal procedures must be followed. If contaminated with liquid chemical warfare agents, dispose of the SCBA after decontamination. For complete instructions on decontamination procedures for a chemical environment, please reference *National Institute Standard Technology (NIST) Special Publication 981* at www.counterterrorism.org/pdf/nistspecialpub981.pdf.

WARNING

TO AVOID DAMAGE TO THE VISOR, DO NOT PLACE THE FACEMASK DOWN ON ROUGH SURFACES.

6.1 CLEANING AIRSWITCH REGULATOR AND FACEMASK

- 6.1.1 Disconnect facemask hose by pushing connector into socket and pulling back on the socket sleeve.



The electronics will unplug with the facemask hose. Open the AirSwitch.

- 6.1.2 Wash the facemask in cool to warm soapy water. Use a mild, non-detergent, dish washing soap (e.g. Ivory). The heads-up display is completely submersible.

Note: Do not immerse the hose end and electrical connector in water.

- 6.1.3 After rinsing, shake to remove excess water, plug into low pressure line and close AirSwitch to allow free-flow for a few seconds. Repeat process several times.

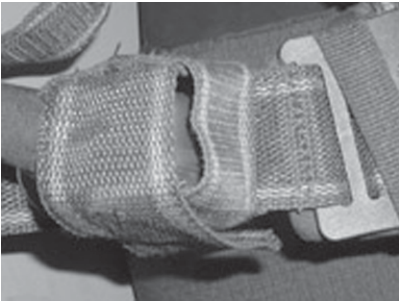
NOTE: Where further cleaning due to heavy contamination is required, clean with AVON-ISI recommended disinfectant/cleaner (p/n 013004) after rinsing the facemask. Use of other disinfectants may cause damage to SCBA components.

- 6.1.4 When dry, polish the visor inside and out with a soft clean, lint-free cloth.
- 6.1.5 Ensure all head harness straps are fully extended,

7.0 SCBA STORAGE

7.1 SCBA STORAGE

- 7.1.1 Complete routine checks and inspection procedures outlined in Section 2.3 of this manual.
- 7.1.2 Ensure complete apparatus is clean and dry.
- 7.1.3 Ensure AirSwitch is in the UP position, and the bypass knob is in the CLOSED position.



- 7.1.4 Ensure RDV is stored in RDV docking station.

- 7.1.5 Ensure facemask and head harness straps are fully extended. Unplug facemask assembly and store in case, positioned to avoid distortion.
- 7.1.6 Ensure shoulder and waistbelt straps are fully extended.
- 7.1.7 Place the complete apparatus in the storage case or suitable storage place so it can be easily reached for emergency use.
- 7.1.8 Mounting SCBA in vehicle: When storing the SCBA using mounting brackets, ensure that brackets are secure and that no sharp objects will come in contact with the SCBA. Ensure that the brackets do not interfere with the backframe components.
- 7.1.9 Ensure control console is turned off and is clean and dry.

8.0 USER MAINTENANCE

NOTE: The Viking SCBA facemask and elastomers should be inspected periodically for cracks, abrasions, cuts and signs of heat or chemical damage. If detected, the unit should be taken out of service until repaired.

8.1 MAINTENANCE INTERVALS

- 8.1.1 Perform annual dynamic flow test using Posichek III with AVON-ISI software as outlined in NFPA 1852.
- 8.1.2 Every three years disassemble, clean and inspect o-rings on major components.

8.2 CYLINDER FILLING PROCEDURES

- 8.2.1 Basic cylinder inspection shall include:
 - A. Inspect gauge for damage.
 - B. Inspect cylinder for mechanical damage (cracks, dents, gouges) or signs of heat or chemical damage. (Refer to CGA C-6.2 "Guideline for Visual Inspection and Requalification of Fiber Reinforced High Pressure Cylinders" for all wrapped cylinders.)
 - C. Check that hydrostatic test date on cylinder is current.
 - D. Check that cylinder valve threads are not damaged.
 - E. Check that the valve body is not bent.
 - F. Check that the burst disc outlet is clean and free of debris.
 - G. If any item listed above is noted, depressurize cylinder to a slight positive pressure, tag, and take out of service.

NOTE: Cylinders that are tagged for repair should always be stored empty with the cylinder valve closed to prevent contamination or condensation inside the cylinder.

- 8.2.2 Prior to filling cylinder, follow the basic inspection procedures outlined in paragraph 8.1.1
- 8.2.3 Cylinder air shall meet or exceed the standards in NFPA 1500, paragraph 7.9.1.
- 8.2.4 Fill cylinder to maximum rated pressure (FULL). Wait at least 30 minutes to allow cylinder to cool, then add extra air to return to full at room temperature. (Note: pressure drops when cylinder temperature drops.)

8.3 BATTERY PACKS

BATTERIES FOR CONTROL CONSOLE: The control console battery pack powers the HUD, VAS and radio interface. The battery pack accommodates six alkaline batteries. The low battery indicator is the in-mask HUD offset top yellow light, displaying a solid yellow light. The LED light on the console will be red.

BATTERIES FOR PASS: The PASS battery pack within the backframe powers only the PASS option. It accommodates two sets of four AA alkaline batteries. Each set of four is independent of the other in case of a battery failure. As battery voltage drops, each set of four batteries switch to the highest voltage side available until the HUD low battery indicator shows that all eight batteries need replacing. The low battery indicator is the in-mask HUD offset top yellow light, displaying a solid yellow light. The control console will also emit an audible

chirp every 12 seconds and the console LED pass light will be red.

Note: Electronics will operate at least two hours in low battery mode.

Battery life depends on many variables. Some fire departments may use the Viking once every day for six months before they have to change batteries. Another fire department may only use the Viking once a month. Both batteries may have to be replaced within six months. The difference is the amount of power loss from using the electronic options. The Viking Z SEVEN has several options that can increase battery consumption. The VAS draws about 700 ma. and radio communications draws about 250 ma. The rest of the lights that use LED's draw very little power. Heat and cold also affect battery life. During internal heat tests (160 °F) and cold tests (-25° F) battery life dropped by 50%.

WARNING

WHEN REPLACING THE AA BATTERIES, ENSURE THAT THE BATTERIES ARE NOT INSTALLED BACKWARDS WITHIN THE BATTERY PACK. REVERSING THE POLARITY OF THE BATTERY FOR EVEN ONE SECOND CAN CAUSE THE BATTERY TO LEAK OVER TIME. IF A BATTERY IS INSTALLED BACKWARDS, DO NOT USE THIS BATTERY BUT DISPOSE OF THIS BATTERY. FAILURE TO REPLACE THIS BATTERY WILL CAUSE CORROSION OVER TIME AND CAUSE A COMPLETE BATTERY FAILURE.

Note: Only Duracell MN 1500 or Energizer E91 AA batteries are approved for use through intrinsic safety standards for use on the Viking SCBA.

8.3.1 **CONTROL CONSOLE BATTERY PACK REMOVAL:** Remove the two screws on the back cover of the console. Separate the cover from the console base. It may be necessary to carefully pry the cover off. The batteries are in pairs of two.

8.3.2 **CONTROL CONSOLE BATTERY REPLACEMENT:** Remove old batteries, observe the polarity. Install new batteries using new alkaline MN 1500 or E 91 AA batteries. Ensure that each battery touches each contact point. Tighten screws to secure back console cover. Do NOT over-tighten.

8.3.3 **PASS BATTERY PACK INSTALLATION:** Ensure battery pack seal is in place, free from debris, and that the "T" guard between the battery clips is in place, protecting against shorting out the battery fuse. Push battery pack into battery compartment such that the clips snap over the two brass contact pins. The control console will turn on, emit an audible chirp, and then turn off. Secure battery pack to backframe with four Torx screws.

8.3.4 **PASS BATTERY PACK REMOVAL:** Completely loosen four Torx screws which secure the battery pack to the backframe. Begin lifting battery pack out of the battery compartment by prying with a coin or flat-head screwdriver under the battery pack recess.

8.3.5 **PASS BATTERY REPLACEMENT:** With the battery pack removed from the backframe, remove old batteries from battery pack and replace with new AA alkaline batteries. Ensure that each battery is properly installed, noting polarity as shown in battery compartment and battery compartment tray. Ensure that each battery touches both battery pack contacts. Ensure battery pack seal is in place, free from debris. Prior to placing the battery pack within the backframe, ensure that the "T" guard between the battery posts is in place, protecting against shorting out the battery fuse. Push battery pack into battery compartment such that the clips snap over the two brass contact pins. The control console will turn on, emit an audible chirp, and then turn off. Secure battery pack to backframe with four Torx screws.



8.4 NET HEAD HARNESS REPLACEMENT

Tools Required: Harness tool

8.4.1 Pull up on top retaining clip that holds head harness in place. Slide harness through the clip and pull through bracket. Repeat on other side. Remove lower strap from adjuster.

8.4.2 Position new head harness to match up with face-mask.

8.4.3 Slide head harness through the two top visor brackets using harness tool or jeweller screwdriver to pull harness through opening.

8.4.4 Slide retaining clip through head harness and lock in place.

8.4.5 Attach lower straps through adjuster rollers.

8.5 BACKFRAME HARNESS REMOVAL FOR CLEANING AND DECONTAMINATION

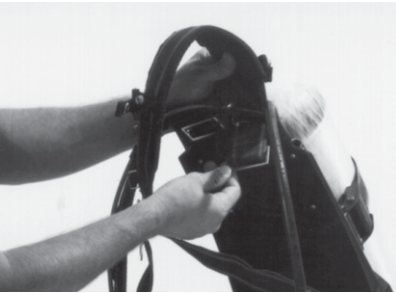
8.5.1 Upper Shoulder Strap Removal/Installation

8.5.1.1 Separate lower shoulder straps from upper shoulder straps by passing straps through buckles.

8.5.1.2 Pull z-fold through plastic tabs on left shoulder strap.



- 5.1.3 Pull comm cable through Kevlar loops.
- 5.1.4 Slide backframe cap up to provide access to upper shoulder strap brackets.

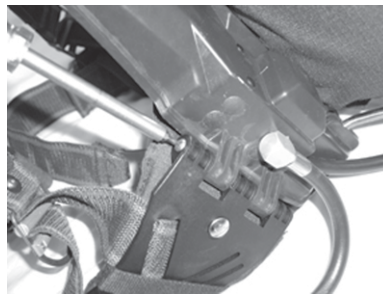


- 5.1.5 Push upper shoulder straps into backframe approximately one inch. Turn brackets upright and pull out of backframe.
- 5.1.6 Pass upper shoulder straps through backframe cap slots to remove backframe cap.
- 5.1.7 For installation, reverse the above steps.

5.2 Side Arm Removal/Installation

Tools required: two T-25 torx, Loctite 222

- 5.2.1 Remove any accessory that is attached to waist belt strap.
- 5.2.2 Remove side arms by using two torx drivers to unscrew the bottom screw.

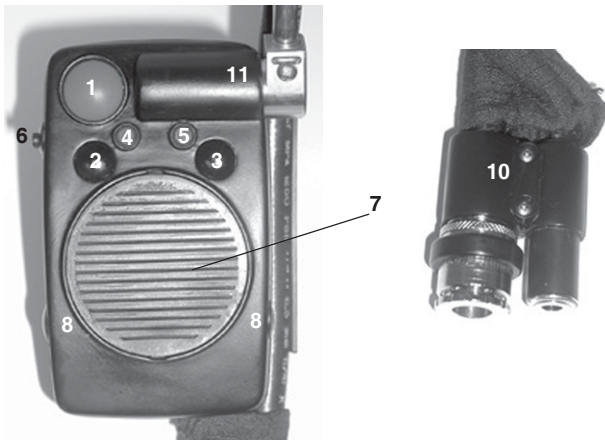


- 8.5.2.3 To install, reverse the above steps and use Loctite 222 on the lower sidearm screws before tightening.
- 8.5.3 Lower Shoulder and Waistbelt Strap Removal and Installation
 - 8.5.3.1 Separate lower shoulder straps from upper shoulder straps by passing straps through buckles.
 - 8.5.3.2 Remove waistbelt straps by passing waistbelt straps through lower shoulder strap buckles.
 - 8.5.3.3 The male belt buckle is attached to the left side of the backframe. The female belt buckle is attached to the right side of the backframe (from the user's perspective).
 - 8.5.3.4 Pass right lower shoulder strap through right side arm. Starting on the outside, pass strap through side arm until buckle is positioned 3" from side arm. Pass back to the outside, then inside, then outside, and then inside. Pass right lower shoulder strap through right upper shoulder strap buckle. Do not pass strap through two slots at bottom of side arm. Repeat instructions for left lower shoulder strap.

9.0 VIKING Z SEVEN OPTIONS

9.1 CONTROL CONSOLE KEYS & FUNCTIONS

9.1.1 The control console is mounted on the upper left shoulder strap. As with the HUD, the console turns on automatically when the cylinder valve is opened. The control console has several function buttons. Please review the following diagram for locations and the chart for function. **All locations are from the user's perspective.**



(not pictured)
9

Chart for Control Console Keys and Description

#	Description
1	PASS Panic button
2	Shift key: select voice level activation
3	Function key: select On/Off for VAS
4	Right LED: green = console power on red = low battery indicator
5	Left LED: green = PASS on flashing red = PASS pre or full alarm
6	PTT - push to talk button for radio com
7	Center speaker for VAS and radio com
8	PASS reset buttons power on/off buttons
9	Radio interface connection
10	Facemask interface power cable
11	Pressure transducer connection

Note: At 3.8V, low battery indicators will display <120 psi = HUD will not display any lights
Auto off delay - after cylinder is closed, console will turn off automatically after 2 minutes on non-pass units.

9.1.2 COMMUNICATIONS

The Viking Z SEVEN is available with several communication options. The microphone is a standard feature and is mounted inside the facemask on the nosecup. It offers excellent speech clarity. All communications have a noise suppressor to reduce exhaled breathing air noise.

Note: The Viking Z SEVEN electronics and pneumatics turn on automatically when the cylinder valve is opened. The SCBA electronics can be turned on manually by depressing the lower two ON/OFF buttons on the console.

9.1.2.1 VOICE AMPLIFICATION SYSTEM (VAS)

The VAS uses a sealed, in-mask microphone to capture the user's voice, amplifies it, and then broadcasts it from the speaker on the console. This is particularly useful in communicating with other people nearby when the SCBA is in the positive pressure mode. VAS is preset to be voice activated. You must speak slightly louder than normal to activate VAS.

The VAS is on standby mode whenever the SCBA cylinder is opened. When speech is sensed, it turns on the amplifier and sends it to the console. Shortly after speech ends, the amplifier goes back into standby mode.

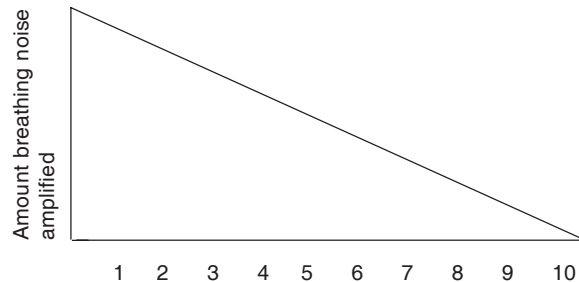
VAS can be turned off if the user desires. To turn off the VAS, the cylinder valve must be opened and power activated to the control console. To disable the VAS, push inward on the Function key and push the PTT button. An audible chirp should be heard. VAS is now in the off setting. To turn VAS back on, repeat the above function. When the Viking SCBA is powered down, the system will default to VAS "on" when the electronics are activated.

9.1.2.2 VOICE ACTIVATION LEVELS

The microphone activation level is adjustable for individual preference. Push the Shift button on the front of the console inward and hold. The HUD facemask display will flash the preset point of the voice activation level. To change the settings, while holding the Shift key, push the PTT button once. This will raise the activation point. Continue to push the PTT to your personal preference. Release the Shift key to set activation level. To go from Level 4 to Level 1, hold the Shift key inward and push the PTT button again.

There are four set points for the voice activation level. Level 1 is the most sensitive activation point up to a Level 4 being the least sensitive activation point. Each level will be displayed a specific number of HUD light(s) that activate. With each increased level, less inhalation breathing noise is heard, but voice must be raised higher to begin amplification in order for the microphone to detect speech. The settings are as follows:

Level	HUD LED Pattern
1	Flashing Red
2	Red, Flashing Yellow
3	Red, Yellow, Flashing Green
4	Red, Yellow, Green, Flashing Green
5	Red, Yellow, Green, Green
6	Flashing Red, Low bat
7	Red, Flashing Yellow, Low Bat
8	Red, Yellow, Flashing Green, Low Bat
9	Red, Yellow, Green, Flashing Green, Low Bat
10	Red, Yellow, Green, Green, Low Bat



9.1.2.3 RADIO INTERFACE

When the Z SEVEN is equipped with radio interface, it has the ability to significantly decrease the background noise of outgoing transmissions. This is due to the placement of the sealed microphone inside the nosecup, which is well insulated from ambient noise. Incoming transmissions are broadcast from the console speaker. On units designed for use by law enforcement, incoming transmissions are received through an optional ear speaker.

A separate radio lead is required to integrate the console to the radio. The radio connects to the interface cable on the lower control console.

There are two ways to key the radio and transmit: in the manual mode, press and hold the Push-To-Talk button (PTT) on the side of the console. As an indication that the PTT button has been pressed, the right LED indicator light turns green on in the console display and a solid green light on the HUD. If VAS is installed with Radio Interface, the VAS is disabled whenever the radio is keyed.

To activate the hands free VOX mode, press and release the PTT button twice within one second (double click). A flashing red light will illuminate on the control console display. In this mode, the radio is keyed automatically whenever the SCBA senses user speech. The HUD will illuminate only the top green (full) light whenever user speech has keyed the radio. When speech has ended, the unit automatically turns off the amplifier to conserve the battery and the HUD again monitors cylinder pressure. To end the hands free mode, double click the PTT button again.

9.1.3 VIKING Z SEVEN PASS

The PASS on the Viking Z Seven is an NFPA 1982 compliant Personal Alert Safety System (PASS) that is integrated with the SCBA and with the other electronic systems. It requires no adjustments.

The PASS is automatically activated when the cylinder is opened or may be manually turned on by pushing both "ON/OFF" side buttons on the console simultaneously. Once turned on, it normally operates in the "sensing" mode where it looks for motion at the console.

9.1.3.1 PASS Operating Instructions

WARNING

ALWAYS TEST THE PASS PRIOR TO ENTRY INTO A HAZARDOUS ATMOSPHERE. IF THE LOW BATTERY WARNING SIGNAL ACTIVATES, INSTALL NEW BATTERIES AFTER USE OR PRIOR TO USING THE VIKING Z SEVEN. THE CONTROL CONSOLE WITH PASS SHOULD BE POSITIONED FLAT AGAINST THE SHOULDER STRAP.

When the PASS is turned on, a chirp will be heard on the control console speaker, followed by a chirp from the PASS alarm on the backpack. Additionally, the left LED users prospective on the console display will slowly flash green when PASS is on. When there is a lack of motion sensed at the control console or PASS device in backframe for over 25 seconds, the PASS will go into pre-alarm and sound an audible warning that will progressively get louder until the PASS goes into full alarm. While in pre-alarm, the red (¼ full) and top green (full) lights on the HUD will flash and the PASS LED light on the console will change to rapidly flashing red. In pre-alarm, motion to the control console or pushing the side buttons on the console will return the PASS to the sensing mode.

If no motion is sensed for a full 35 seconds (including the pre-alarm warning), the PASS will go into full alarm and can only be reset by pushing in on the two side ON/OFF buttons on the console.

9.1.3.2 PASS Safety Certification and Approval

- The Viking Z SEVEN with PASS is Certified Intrinsically Safe for use in Class 1, Division 1, Group A, B, C and D Hazardous Locations.
- NFPA Specification: Meets the current NFPA 1981, 2007 edition specifications and NFPA 1982, 2007 edition.
- NIOSH Specification: Meets the standards of 42CFR, Part 84

9.1.3.3 PASS Specifications

Alarm level: greater than 95 dbA @ 3 m (approximately 10 ft)

Visual / Audio Indicators:

Turn ON Chirp from Console speaker, then chirp from PASS alarm, and flashing green PASS light.

Turn OFF	Low beep from console speaker
Pre-alarm	(No motion sensed for 25 seconds): PASS light turns from green to red and flash rate increases End lights on mask display flash alternately Pre-alarm warning with increasing sound level
Alarm	(No motion sensed for 35 seconds): PASS alarm sounds PASS LED light on console flashes red Mask display shows cylinder pressure
Maintenance	After each use, clean the control console with a damp cloth and warm water. Do not use cleaning solvents. Inspect each unit for signs of physical damage.
Life	Depending on the frequency of use, the PASS may have to be retired from service if severely damaged.

9.1.3.4 PASS Limitations

The VIKING Z SEVEN is designed to meet the design and performance requirements for Personal Alert Safety Systems (PASS) to be used by firefighters engaged in rescue, fire fighting, and other hazardous duties defined in the NFPA 1982 Standard on PASS, 2007 edition. Failure to ensure that the Viking Z SEVEN PASS is fully operational prior to use may expose the user to serious injury or death. Although the Viking Z SEVEN PASS meets the current standards, there is no guarantee against PASS failure. Most performance properties of the PASS cannot be tested by users in the field.

9.1.3.5 PASS Warranty

AVON-ISI warrants the Viking Z SEVEN PASS to be free from defects in workmanship and materials for a period of one year from date of purchase. AVON-ISI will not repair or replace any merchandise that has been damaged from accident, misuse, or abuse while in the possession of the end-user. AVON-ISI shall not be liable for any direct, incidental or other consequential loss or damage arising out of the failure of the device to operate. PASS issues may be reported to AVON-ISI Customer Service at (888) 474-7233. After working with the manufacturer to resolve any issues, they may be reported to SEI at (703) 525-2354.

9.2 VIKING STEALTH MODE

The Viking Z-ST model designed for law enforcement has the capability of turning off the control console. The Stealth Mode is a standard feature of the Viking Z-ST.

On units with the stealth mode option, depress the function key and the PPT button on the control console for one second to turn off VAS. The HUD will still display cylinder pressure and acknowledge radio transmissions. All communications will be received through the optional ear piece interface cable. To reset to normal mode, depress the function key and PTT button on the control console for one second.

Viking SCBA.

9.3 ADDITIONAL OPTIONS

9.3.1 AIRLINE DESCRIPTION, LIMITATIONS & OPERATION

Note: Airline options are available on all models of the Viking SCBA.

9.3.1.1 The Airline Attachment is located on the left waist-



belt strap. It is approved with Hansen HK. Hansen HK couplings include locking devices.

IMPORTANT

Only Hansen HK airline fittings are offered on CBRN certified units.

The use of airline attachments on CBRN approved units are not NIOSH CBRN approved for use in confirmed or potential CBRN environments.

9.3.1.2 When using supplied air, the user must ensure that the cylinder valve is closed. Failure to do so may result in reduced cylinder duration.

9.3.1.3 Airline respirators can be used only when the respirators are supplied with respirable air meeting the requirements of CGA G-7.1 Grade D or higher quality.

9.3.1.4 When used as a combination apparatus, only 20% of the service pressure may be used on entry.

9.3.1.5 This approval applies only when the device is supplied with respirable breathing air through 6 to 300 feet of hose at air pressures between 80 to 120 pounds per square inch gauge or from self contained air supply.

9.3.1.6 Follow Donning Procedures located in Section 3.0 and Safety Checks in Section 3.2.

9.3.1.7 Plug airline hose from Viking into supplied airline hose. Supplied air pressure shall be between 80 to 120 psi. Close cylinder valve and continue to breathe normally. If supplied air is interrupted, open cylinder valve fully, unplug airline hose and then egress to a safe area.

9.3.1.8 Take necessary actions to monitor the supplied air source pressure while operating with supplied air.

9.3.1.9 To transfer from supplied air to cylinder air, open cylinder valve first. Disconnect supplied air hose by retracting coupling sleeve.

9.3.2 ESCAPES AIR SYSTEM (EAS) DESCRIPTION, LIMITATIONS & OPERATION

Note: The EAS option is available on all models of the

9.3.2.1 The EAS tether is designed so you do not have to



unplug the regulator hose from the facemask in an IDLH atmosphere. The EAS tether includes two feet of retractable hose stored within the backframe. The end of the hose includes two couplings, one male and one female, and a combination handle/dust cap. When stored, the EAS handle is located on the lower right side of the backframe (from the user's perspective). In an emergency, the EAS tether is pulled out of the backframe and connected to another EAS tether forming a four foot long combined tether hose.

9.3.2.2 If the EAS is used, egress immediately to a safe, respirable atmosphere. The rescuer must monitor their cylinder air closely due to increased air consumption.

9.3.2.3 Although the EAS is a NIOSH accepted SCBA accessory, NIOSH does not approve the use of EAS devices. Use of the EAS voids NIOSH approvals while in use.

9.3.2.4 REMOVE THE EAS TETHER: Using your right



hand, reach back above the cylinder valve knob and locate the buddy breather handle. Pull down on the handle and completely pull out the hose. The tether is approximately two feet long.

9.3.2.5 CONNECT TO ANOTHER EAS TETHER: Each EAS tether includes both male and female quick connect couplings. Connect one coupling, either male or female, to the opposite coupling on the other EAS tether. Air will start to flow immediately.

9.3.2.6 Egress to a safe, respirable atmosphere and then disconnect EAS tethers.

9.3.2.7 To store EAS tether, while the SCBA pneumatics are pressurized, push the hose length back into the backframe. Snap the handle into the backframe and replace dust caps.



10.0 VIKING SCBA WARRANTY

International Safety Instruments, Inc. (AVON-ISI) warrants the VIKING SCBA to the original owner to be free from defects in materials and workmanship from the date of shipment from AVON-ISI's factory for 15 years of this product. To maintain this warranty, the purchaser must perform maintenance and inspections as prescribed in the owner's instruction manual, which shall include prompt replacement or repair of defective parts, and replacement of parts per the maintenance schedule as prescribed in the owner's instruction manual. This warranty does not apply to expendable or consumable parts whose normal life expectancy is less than one (1) year.

AVON-ISI's obligation under this warranty is limited to replacing or repairing, at AVON-ISI's option, any defective part if returned to AVON-ISI in Lawrenceville, GA, or an AVON-ISI authorized service center. Shipping charges are to be prepaid by the buyer. Upon inspection, AVON-ISI will repair all products that prove to have been defective due to defects in materials and/or workmanship. AVON-ISI shall be released from all obligations under this warranty in the event repairs or modifications are made by persons other than its own or authorized service personnel, or if the warranty claim results from misuse of the product.

AVON-ISI warrants the Viking Digital's solid-state components to be free from defects in workmanship and materials for a period of one (1) year from the date of purchase.

In addition, this warranty does not apply to elastomer or rubber components since they can be adversely affected by undue exposure to heat, sun, water, chemicals, ozone, or other deteriorating elements. Also excluded from this warranty are facemask lenses, compressed-air cylinders and parts that become defective through normal use. The decision as to what constitutes normal use shall be made solely by AVON-ISI.

AVON-ISI will not repair or replace under warranty any merchandise that has been damaged from accident, alteration, misuse, or abuse while in the possession of the end-user. AVON-ISI shall not be liable for any direct, incidental or other consequential loss or damage arising out of the failure of the device to operate.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, OR STATUTORY, AND IS STRICTLY LIMITED TO THE TERMS HEREOF. AVON-ISI SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. AVON-ISI neither assumes nor authorizes any other person or firm to assume on AVON-ISI's behalf any liability in any way connected with the sale of AVON-ISI products.

To validate this warranty, the Warranty & Registration Card supplied with the apparatus **MUST** be detached, completed, and returned to AVON-ISI **WITHIN 30 DAYS** of purchase.

11.0 TROUBLESHOOTING GUIDE

Note: Only AVON-ISI trained technicians are qualified to perform repairs that require any adjustments or replacement of parts. This troubleshooting guide is to help aid the user in determining the cause of the problem and not meant to be a quick guide in doing repairs.

PROBLEM	POSSIBLE CAUSE	CORRECTION
Two lights "on" with full cylinder	Pressure Display on wrong setting. May be on 2216 (low pressure) when 4500 (high pressure) unit.	Turn on Control Console and check pressure: should read "22" for low pressure and "45" for high pressure. If on wrong setting, remove battery pack, push and hold in PTT button and install battery pack. Cycle back and forth using PTT button
Cylinder pressure, slow reacting	Lights in the facemask turn on slowly as cylinder is opened. Bad transducer	Tag for repair
Radio interface interference	<ol style="list-style-type: none"> 1. Radio 2. Interface lead 	<ol style="list-style-type: none"> 1. Check radio on another Viking 2. Check interface lead on another Viking. If background noise, touch lead at Viking connection to ground connection. If noise stops, need new interface lead.
VAS not working	<ol style="list-style-type: none"> 1. Facemask board 2. Bad speaker or speaker wire 3. Control Console 4. Turn VAS "on" 	<ol style="list-style-type: none"> 1. Tag for repair 2. Tag for repair 3. Tag for repair 4. Tag for repair
VAS with static noise	Poor facemask electronics contact	Lubricate facemask electronics plug with dielectric grease.

If corrections by a Certified AVON-ISI Service Technician DO NOT resolve the problem, tag the unit "Out of Service" and have the SCBA serviced by an AVON-ISI Certified Service Center.

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AVON - ISI

Viking Z SEVEN SCBA

User's Manual

VIKING Z SEVEN CBRN MODELS

***VIKING Z SEVEN 2216 PSI, 30 MINUTE
NIOSH APPROVAL TC-13F-XXX***

***VIKING Z SEVEN 4500 PSI, 30 MINUTE
NIOSH APPROVAL TC-13F-XXX***

***VIKING Z SEVEN, 4500 PSI, 45 MINUTE
NIOSH APPROVAL TC-13F-XXX***

***VIKING Z SEVEN, 4500 PSI, 60 MINUTE
NIOSH APPROVAL TC-13F-XXX***

WARNING

Disassembly of the components beyond the procedures described herein shall not be performed. Additional disassembly may cause component damage and shall only be performed by ISI authorized personnel or the factory.

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