

SCOTT AP50 AIRPACK

NFPA 1981 (2002 Edition)
COMPLIANT

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NIOSH REPORT

- July 4, 1997 @ 2240 – Residential Fire
- On arrival – Heavy smoke and fire along front edge of roof
- 1 $\frac{3}{4}$ “ to attic
- Communications between firefighters
- Firefighter #2 experienced air supply problem
- MAYDAY called
- Firefighter #2 rescued
- Firefighter #1 found later

DISCUSSION

- Do you think this could happen here?
- Do you think this can happen to you?

TERMINAL LEARNING OBJECTIVES

- After lecture, discussion, demonstration and practice, given a specific situation, the student shall mitigate a SCBA/air supply emergency with 100% accuracy
- After lecture discussion, demonstration and practice, acting as part of a RIT/RIC and given a specific situation, the student shall mitigate a downed firefighter SCBA/air supply emergency with 100% accuracy

ENABLING LEARNING OBJECTIVES

- After lecture, discussion, demonstration and practice the student shall identify the components of the Scott AP50 with 100% accuracy.
- After lecture, discussion, demonstration and practice the student shall identify the components of the Scott RIT PAK 1 with 100% accuracy.

ENABLING LEARNING OBJECTIVES

- After lecture, discussion, demonstration and practice the student shall identify 5 possible solutions for a low air emergency with a crewmember with 100% accuracy.
- After lecture, discussion, demonstration and practice the student shall identify 3 possible uses of the EBSS Dual-Manifold with 100% accuracy.

SCOTT AP50 4.5

- Carbon fiber 4500 PSI cylinder
- Kevlar and Nomex straps and waistband
- Tri-slide buckle w/cylinder latch
- Pressure reducer block
- RIC/UAC connection



SCOTT AP50 4.5

- Integrated PASS with pressure gauge
- EBSS dual-manifold buddy breather
- PASS sensor module
- Quick connect regulator
- Face piece with Kevlar head-net



SCOTT AP50 4.5

- Regulator with purge valve
- HUD
- Quick connect coupling
- Air saver / Donning switch
- Voice amplifier
- Intrinsically safe



CYLINDER

- Carbon fiber
- 4500 PSI
 - Refill at 4000 PSI
- 45 Minute (66 cu ft)
- Inspection
 - Gouges
 - Cuts
 - Burns
 - Severe discoloration



BACKPACK AND STRAPS

- Tri-slide cylinder buckle
- Cylinder latch
- Kevlar straps
- Quick-release parachute buckles
- Regulator holder
- Inspection
 - Tears and burns
 - Chemical exposure



INTEGRATED PASS

- “PAK-ALERT SE”
- Air activated
 - Opening cylinder
 - 3 audible chirps
 - Green light
- Requires 2 9V batteries
 - Low battery – single audible chirp every 2 seconds / no green light



INTEGRATED PASS

- Manual alarm
 - Front of PASS
 - Red button
 - Full alarm on depression
- Auto alarm
 - Motionless for 20 seconds
 - Pre-alarm
 - Ascending / Descending tone
 - 1 Red light flash /second
 - Full-alarm
 - 12 Seconds after pre-alarm
 - Continuous tones w/ red lights



INTEGRATED PASS

- Reset button
 - Yellow button
 - Side of PASS
- De-activation of full-alarm
 - Press reset button twice slowly
- De-activation of PASS
 - Turn off cylinder
 - Vent residual pressure from regulator
 - Press reset button twice slowly
 - Two tone chirp



EZ-FLO II REGULATOR

- VIBRALERT alarm
 - 25% of cylinder pressure
 - Air actuated vibration
 - Re-circulates into mask
- Air saver/Donning switch
- Purge Valve
- Integrated HUD



EZ-FLO II REGULATOR

- Inspection
 - Hose and rubber
 - Cuts
 - Tears
 - Cracking
 - Quick connect
 - Dirt
 - Debris
 - Cleanliness
 - Purge valve
 - Smooth ½ turn



HEADS-UP DISPLAY (HUD)

- Visual display of SCBA air status
- Series of lights indicate pressure
 - Full - 2 green
 - 75% - 1 green
 - 50% - 1 yellow slow flashing
 - 25% - 1 red rapid flashing
- Mounted on regulator
- Requires 2 AA batteries
 - Low battery indicator
 - Far right red light slow flash



EBSS – DUAL MANIFOLD

- EBSS – Emergency Breathing Support System
- Introduction of air from outside source
 - Ladder air system
 - RIT Bag
 - Another SCBA (buddy breathing)
- On left side waist belt
 - In snap pouch



EBSS – DUAL MANIFOLD

- Male and Female coupling
 - Quick disconnect
 - Supply or receive
- 3 foot hose
- Dual protective cover



EBSS – DUAL MANIFOLD

- Extended Duration air supply (aerial ops)
 - Use male coupling
 - Operates as open-circuit, pressure demand
- Emergency Breathing (Buddy breathing)
 - Used for escape only
 - Utilizes highest pressure bottle
 - One bottle can be turned off to conserve air
 - Can “Daisy-Chain” up to 3 users
 - Will not provide enough air for >3

RIC UAC – RAPID INTERVENTION UNIVERSAL AIR CONNECTION

- FOR EMERGENCY
USE ONLY!
- Permits emergency
replenishment of air
 - Not a quick charge
- Within 6" of neck of
bottle on all NFPA
1981 (2002)
compliant SCBA's



RIC UAC – RAPID INTERVENTION UNIVERSAL AIR CONNECTION

- Before use ensure
 - No compromise of cylinder or air system
 - Dents
 - Gouges
 - Other significant damage
 - Any other air system/UAC damage
 - Respirator/Regulator compatibility
 - 2216 PSI RIT Pack w/ 2216 PSI SCBA
 - 4500 PSI RIT Pack w/ 4500 PSI SCBA
 - Receiving cylinder is fully open

WARNING!!!

Utilizing RIC UAC for emergency air replenishment of a structurally compromised cylinder will result in an over pressurization explosion.

SCOTT RIT PAK 1

SCOTT RIT PAK 1

- Carbon Fiber 4500 PSI / 60 Min. Cylinder
- Cylinder caddy w/ carrying handle
- Av-3000 Face piece
- Regulator w/ quick disconnect



SCOTT RIT PAK 1

- High Pressure hose w/ UAC connection
- Pressure reducer block
- 5' low pressure hose and fittings



CYLINDER CADDY

- Divided bag
 - Cylinder storage
 - Low pressure hose and mask/regulator
- Exterior pouch
 - High pressure UAC



HIGH PRESSURE UAC

**FOR
EMERGENCY
USE ONLY!!!**



HIGH PRESSURE UAC

- 5' high pressure hose
 - Side Pocket of Pack
- Air directly from bottle
- UAC – Universal Air Connection w/ cap



RIC UAC – RAPID INTERVENTION UNIVERSAL AIR CONNECTION

- Permits emergency replenishment of air
 - Not a quick charge
- Within 6" of neck of bottle on all NFPA 1981 (2002) compliant SCBA's



OPERATION OF UAC

- Ensure RIT cylinder valve is fully open
- Extend high pressure UAC hose
- Remove protective cap
- Ensure SCBA cylinder valve is fully open



OPERATION OF UAC

- Locate UAC on receiving SCBA
- Remove protective cap
- Align and push – UAC will self-lock
- Connection will self lock
- Cylinder pressures will equalize



OPERATION OF UAC

- BEFORE USE ENSURE

- No compromise of cylinder or air system
 - Dents
 - Gouges
 - Other significant damage
 - Any other air system/UAC damage
- Respirator compatibility
 - 2216 PSI RIT Pack w/ 2216 PSI SCBA
 - 4500 PSI RIT Pack w/ 4500 PSI SCBA

TERMINATION OF UAC

- Pull back UAC collar and pull UAC from SCBA
- Turn off RIT cylinder
- Replace protective cap
- Press center of cap to vent residual pressure



TERMINATION OF UAC

WARNING!!!

DO NOT attempt to vent pressure without cap on.

This will inject high pressure air into skin.



LOW PRESSURE HOSE

- 5' HOSE
- 2 Connections
 - EBSS – Air from highest pressure cylinder
 - Schrader
 - Double male adapter for female EBSS
- AV-3000 face piece
 - Same mask as issue
- EZ-Flo II Regulator
 - Quick disconnect
 - No electrical connection
 - No HUD



OPERATION OF LOW PRESSURE HOSE

- Examples of when RIT low pressure hose should be used
 - FF low on air
 - Failure of mask
 - Failure of regulator
 - Failure of SCBA
 - Structural compromise of cylinder

OPERATION OF LOW PRESSURE HOSE

- Multiple Options
 - EBSS to EBSS
 - EBSS to regulator
 - EBSS and regulator to mask
 - EBSS, regulator and mask
 - Rescue operations



OPERATION OF LOW PRESSURE HOSE

- EBSS to EBSS
 - Align EBSS and push
 - Coupling self locks
 - Air from highest pressure cylinder
 - Can turn off SCBA cylinder to conserve air
 - Will not hot charge SCBA



OPERATION OF LOW PRESSURE HOSE

- EBSS to regulator
 - Turn on RIT cylinder
 - Disconnect coupling from SCBA
 - Align coupling with EBSS and push
 - No electrical connection
 - No HUD



OPERATION OF LOW PRESSURE HOSE

- EBSS and regulator to mask
 - Align coupling with EBSS and push
 - No electrical connection
 - No HUD
 - Turn on RIT cylinder
 - Remove regulator from SCBA
 - Replace with RIT regulator



OPERATION OF LOW PRESSURE HOSE

- EBSS, regulator and mask
 - Align coupling with EBSS and push
 - No electrical connection
 - No HUD
 - Turn on RIT cylinder
 - Remove regulator and mask from FF
 - Replace with RIT regulator and mask



OPERATION OF LOW PRESSURE HOSE

- Rescue operations
 - Align coupling with EBSS and push
 - No electrical connection
 - No HUD
 - Turn on RIT cylinder
 - Place mask on civilian



OPERATION OF LOW PRESSURE HOSE

NOTICE:

RIT PAK(s) are for OUR Safety

RIT PAKs should only be used for civilian rescue if a RIT teams have been established with dedicated RIT PAK(s).

SUMMARY

- Components of Scott AP50 Air pack
- Operation of Scott AP50 Air pack
- Operation of EBSS – Dual Manifold

- Components of Scott RIT-PAK 1
- Operation of Scott RIT-PAK 1
 - Low pressure (supply)
 - High pressure (fill)

REFERENCE

- National Institute for Occupational Safety and Health, NIOSH, Fatality Assessment and Control Evaluation (FACE) 97-16, Atlanta, GA
- National Fire Protection Association, NFPA 1981 (2002 edition) Standard on Self-Open Circuit Self-Contained Breathing Apparatus, NFPA , Quincy, MA
- SCOTT Health and Safety, Operation and Maintenance Instructions, SCOTT AP50 SCBA