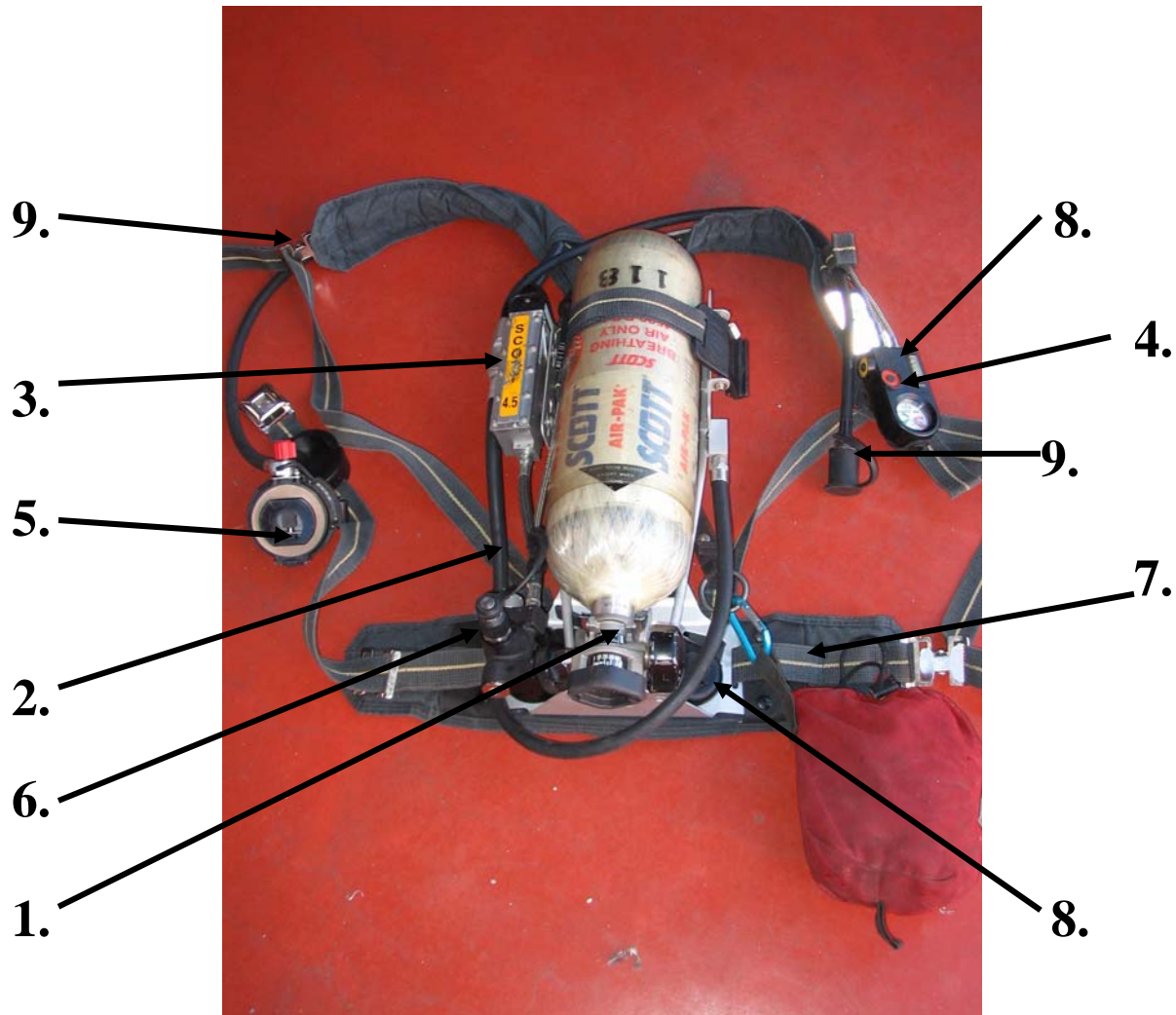


# Equipment Identification



# Scott *Fifty* SCBA Components



1. Bottle and Valve Assembly
2. High Pressure Hose and Coupling Assembly
3. Two Stage Pressure Reducer Assembly
4. Remote Mounted Gauge Assembly
5. Face Mounted Regulator Assembly/ Heads Up Display System
6. RIC Universal Air Connection
7. Back frame and Harness Assembly
8. Pak Alert 1000
9. Emergency Breathing Support System

## **Scott SCBA Has 7 Assemblies**

1. Bottle and Valve Assembly
2. High Pressure hose and Coupling Assembly
3. Two Stage Pressure Reducer Assembly
4. Remote Mounted Gauge Assembly
5. Masked Mounted Regulator Assembly
6. Scott-O-Vista Face Piece Assembly (AV-3000)
7. Back Frame and Harness Assembly

## **The Scott *Fifty* SCBA has 3 Additional Systems**

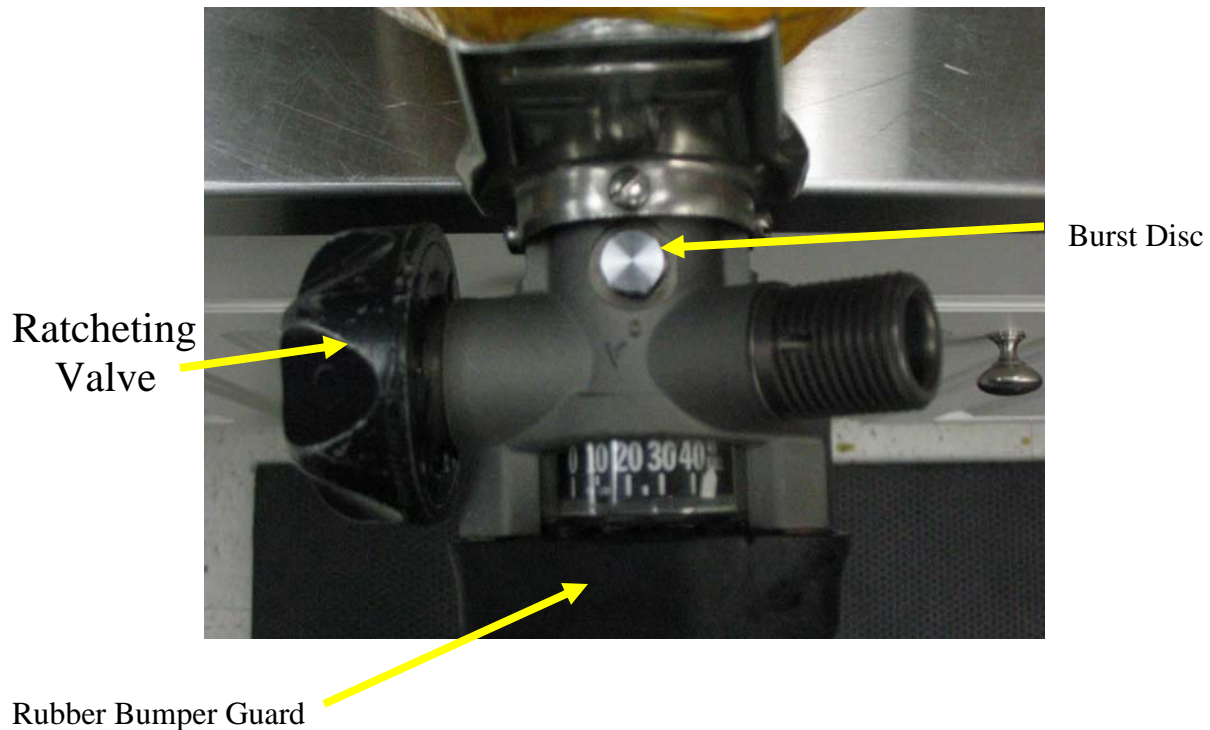
1. Emergency Breathing Support System (EBSS)
2. Pak Alert System
3. Heads Up Display System (HUD)



## High Pressure Bottle and Valve Assembly

The valve is of the ratcheting type to avoid accidental closure. There is a six-sided burst disc to relieve pressure in the event of over pressurization. The burst disc has three holes on opposite sides to equally displace air upon release. The burst disc goes off at  $\frac{5}{3}$  the bottles capacity or 7,200 psi. There is also a hole through the threads of the high-pressure bottles to prevent them from being attached to a low-pressure system.

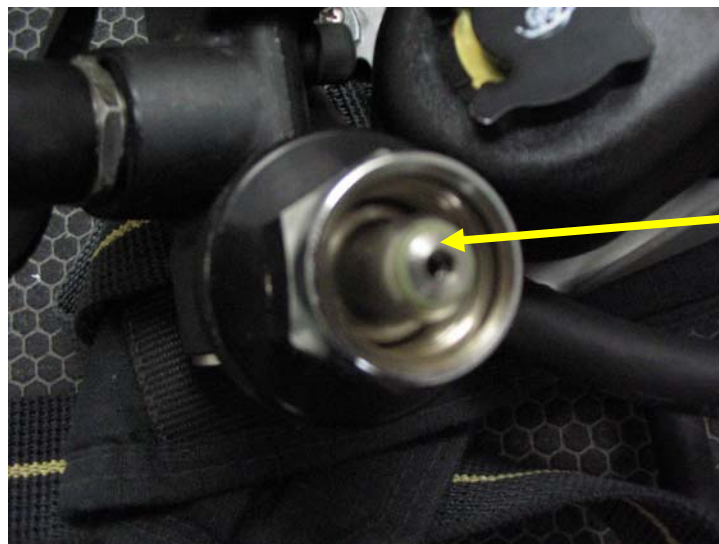
The valve has a rubber bumper guard to protect the assembly. The valve displays the total pressure in the bottle (x100). Bottles should be refilled if they drop to 90% of their total capacity (4050 psi).



## High Pressure Hose and Coupling Assembly



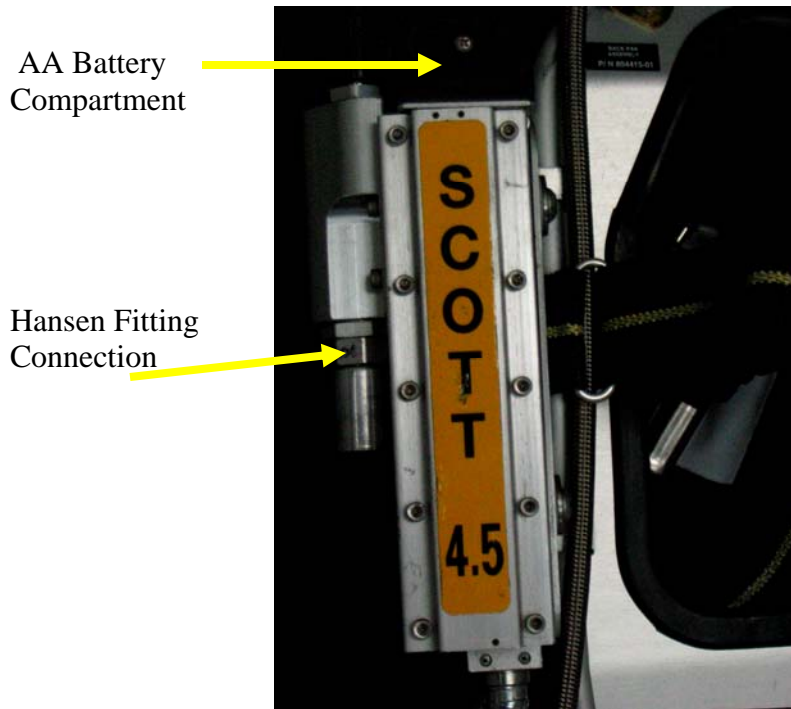
Connects to the bottle with a knurled fitting which means hand tight. The six-sided wrench fitting is for manufacturing and maintenance purposes only. The high-pressure hose and coupling assembly contains the RIC Universal Air Connection (UAC). This fitting is to be placed on all fire department SCBA's, no matter who the manufacturer is. This way all fire departments can connect to each other's packs in the event of an emergency. This fitting allows for the replenishment of a down firefighter's SCBA by another air source.



O-Ring



## Two Stage Pressure Reducer Assembly



This assembly is responsible for regulating the air pressure between the SCBA High Pressure Bottle and the Mask Mounted Regulator Assembly. The reducer utilizes two stages and is critical in helping to alert the wearer of problems with SCBA due to malfunction or low air through the Vibra-Alert system.

First Stage (Normal Operation) - Operates between 85 and 110 psi.

(This will be the pressure in the low-pressure hose)

Second Stage (Low Pressure/ Vibra-alert) - Operates between 135 and 165 psi.

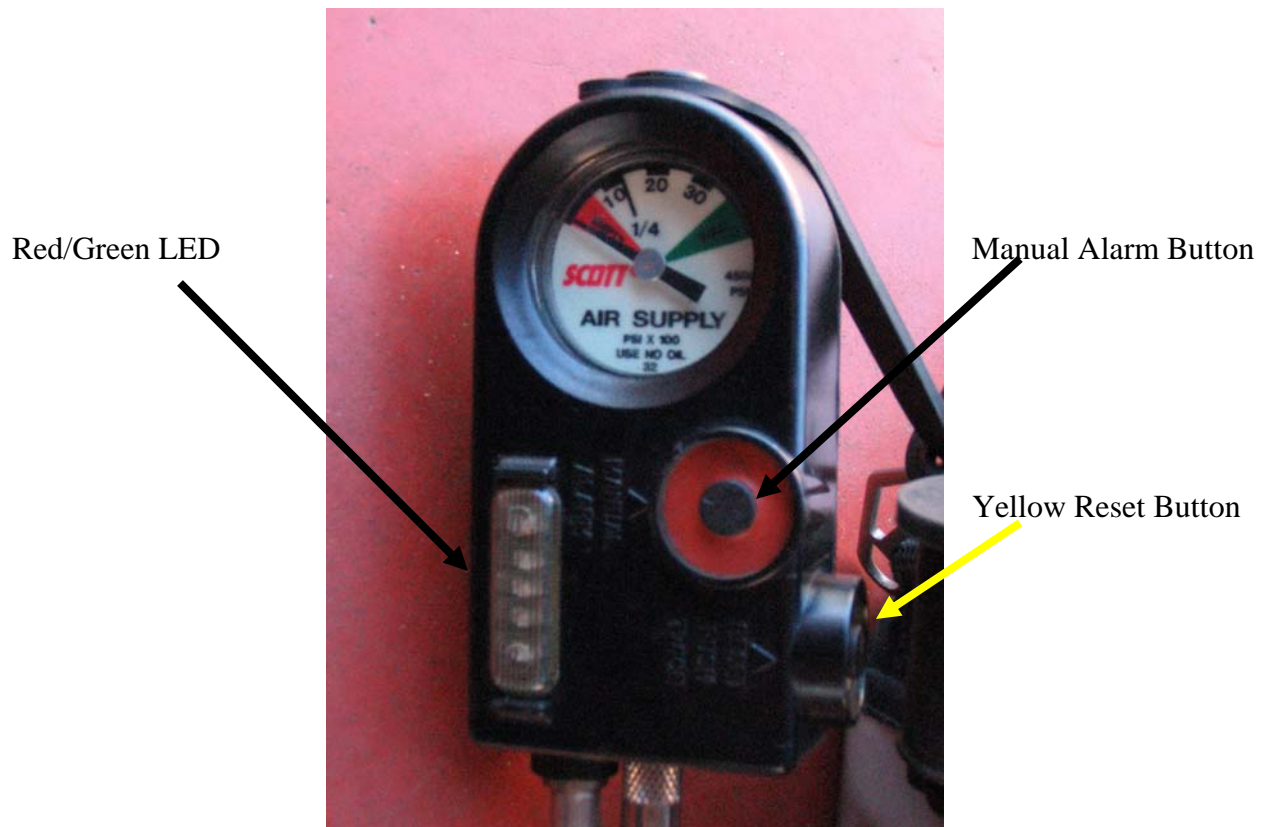
(This will be the pressure in the low-pressure hose)

The second stage is entered when 25% of the bottle remains (1125 psi). At 25% the pressure reducer assembly actually boosts pressure in the low-pressure hose, triggering the vibra-alert. There is a test switch at the bottom of the reducer. By depressing the switch with a pen or similar object, the vibra-alert will sound. This is a test of the vibra-alert system.

The two-stage pressure reducer assembly contains the batteries and computer components for the Heads Up Display in the newer Scott *Fifty* Air Packs. The Heads Up Display utilizes either 1 9-volt or 2 AA batteries located at the top of the Two Stage Pressure Reducer Assembly.

This Assembly also holds the Hansen fitting. A high-pressure hose and fitting for connection into a remote air source such as the Air Source Cart.

## Remote Mounted Gauge line Assembly



The remote mounted gauge assembly displays the working pressure in the bottle (x100). The gauge should read within 100 psi of the pressure displayed on the bottle gauge. The gauge also has a Uridium dial so it glows in the dark. There are two buttons to control the Pak Alert 1000 on the remote mounted gauge assembly. The yellow reset button and the red manual button. Both will be discussed later in the Pak Alert System section.

**(Please note air must be bled to turn off Pak Alert, if not a twenty second series of chirps will sound, indicating that air is not bled from the system)**



## Masked Mounted Regulator Assembly



Nine holes deliver air upward into the face piece (spray bar). A locking tab holds the regulator in place in the face piece. This tab must be released prior to removal of the regulator from the mask. Doffing switch shuts off the airflow to the regulator for removal.

The positive pressure regulator works on a demand principle. The demand lever inside the regulator releases air into the face piece when a negative pressure is created on inhalation. The positive pressure system, instantly allows air in to fill this pressure difference and keep the air within the face piece slightly above atmospheric pressure. The purge valve acts as a bypass valve in case of regulator failure, and can also be used if additional air is needed, or to help clear a fogged mask. The first breath on feature can be activated in the newer regulators by pushing the center of the front of the regulator. This simulates taking the first breath and will open the regulator.



Some regulators are rated for CBRN (**orange** writing)

C= Chemical Weapons

B= Biological Weapons

R = Radiological Weapons

N = Nuclear Weapons

The rated regulators are designed to not deteriorate under the above conditions. The normal regulators will give limited protection.

## Scott-O-Vista Face piece Assembly



The lens is Lexan and the straps are Kevlar. The seal is made of Butyl Rubber. The Integrated nose cup allows for better airflow into the wearers nose and keeps the face piece from fogging. There are two inhalation valves, dual voicemitters, and an electronic amplifier. The amplifier utilizes 1 9-volt battery. The face piece comes in three color coded sizes. Small is green, medium is black, and large is red. The color code is found on dots in the seal where the Kevlar straps meet the seal.

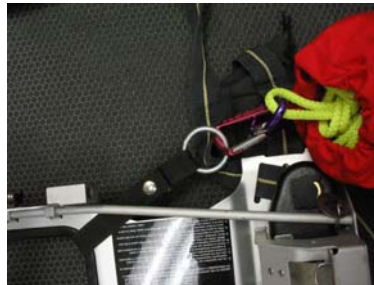
## Back frame and Harness Assembly

Contains a toggle switch with white tab to hold bottle. Always release the white tab before opening the toggle switch. A locking tab holds the SCBA bottle into the back frame and harness assembly.

Can carry 30, 45, or 60 min bottles with one simple adjustment. Made of aluminum alloy (Scott Fifty) Weighs 11 lbs. Straps are Kevlar with tri slide buckles or alligator clips.



Rope bags are attached with a break away strap.



Old Scott 4.5 packs are made of steel wire frame which is designed to break away if the person was to fall with significant force onto his back. This pack also utilizes alligator clips in place of tri slide buckle.

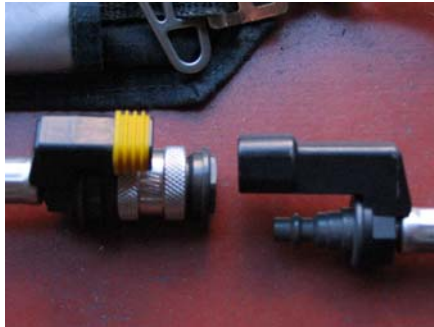


## Emergency Breathing Support System

The Scott Air Pack *Fifty* comes with an Emergency Breathing Support System (EBSS), commonly referred to as a Buddy Breather. The EBSS Consists of one “Air Out” Hose with a quick connect fitting coming off of the top of the Two Stage Pressure Reducer Assembly and snapping to the right shoulder near the Remote Mounted Gauge Assembly.



The Scott Air Pack *Fifty* also has a “low pressure in” quick connect coupling in the middle of the low-pressure hose. You can disconnect this coupling and connect into the “air out” of another pack to breathe off of the second pack. This coupling also houses the wiring connection for the HUD.





## Pak Alert 1000 System



Shoulder Module



Backframe Module

The Pak Alert 1000 is controlled with two buttons; the yellow reset button and the red manual alarm button. Both buttons are located on the Remote Mounted Gauge Assembly. As a safety feature, the Pak Alert 1000 turns on automatically when air enters the system. The Pak Alert is powered by two 9-volt batteries located in a housing in the bottom of the Back frame and Harness Assembly. This housing also holds the two speakers which sound with the alarm. The pre alarm emits a 70-105 decibel tone, and the full alarm emits a 95-100 decibel tone. The alarm goes into pre alarm after the wearer remains motionless for 20 seconds. At this point an ascending descending series of tones known as the pre alarm sounds. After 10 seconds of pre alarm (30 seconds of wearer remaining motionless) the full alarm will sound.

The Pak Alert Operates in the following manner:

### Yellow reset button

Press once: Green light will flash if batteries are good

Press twice to turn pack off. You will here two chirps, light will stop flashing.

**(Air must be bled, if not a fifteen second series of chirps will sound, indicating that air is not bled from the system)**

With PASS in full alarm:

Pressing 1 time will cause the Pack Alert 1000 to reset.

### Red Manual Alarm Button

Can be pressed at any time to turn on full alarm.

Once activated and reset, the Pak Alert 1000 will be in the normal operating mode.



Mid generation SCBA packs are also equipped with a “cricket” low air pressure warning bell. This bell is located on the left shoulder, is air actuated, and begins sounding at  $\frac{1}{4}$  the bottles capacity (1125 psi.) Since the “cricket is air driven, the frequency of rings decreases as the air pressure in the bottle drops.



## Heads Up Display System



NFPA now recommends that all SCBA's have a visual alert system. To meet these requirements, Scott developed the Heads Up Display (HUD) built into the mask-mounted regulator. The HUD is set up with 5 LED lights as follows:

- 2 Green=full
- 1 Green=  $\frac{3}{4}$
- 1 Flashing Yellow =  $\frac{1}{2}$
- 1 Rapidly Flashing Red =  $\frac{1}{4}$
- Steady Red in corner means low battery

All lights are illuminated at start up for approximately 20 seconds in order to demonstrate that they are functioning properly. The wiring for the heads up display travels down the low-pressure hose, is connected via a plug at the EBSS fitting, and is controlled with circuits found in the Two Stage Pressure Reducer Assembly. The Heads Up Display is powered by either 1 9-volt or 2-AA batteries, depending on model. The battery is located at the top of the Two Stage Pressure Reducer Assembly.