

South Carolina Aquarium Dive Operations

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It is the mission of the South Carolina Aquarium (SCA) Dive Team to provide excellence in animal care and husbandry, to actively support both the educational and conservation endeavors of the SCA, and to provide a memorable, positive guest experience to all those who visit our facility.



Training Schedule

- PowerPoint Presentation
 - Statement of Understanding and Quiz required before inwater use
- GOT: 2 dives minimum
 - > Dive One: RASS use
 - > Dive Two: RASS use w/ ascent





"You might want to make yourself comfortable. I may be down there for awhile."



Reserve Air Supply System (RASS)

- The purpose of redundant Reserve Air Supply
 Systems is to allow the diver a sufficient air supply to
 safely ascend to the surface in case a diver runs out
 of air in the primary air source or there is an
 equipment malfunction.
- By definition of redundant this configuration is independent of your primary gas source and has its own air supply, regulator and pressure gauge



Basic Reminders

All Divers must surface with a minimum primary air source of:

- 1000 PSI in the GOT
- 500 PSI in Open Water
- 500 PSI in Surface Supply



Dive Planning

<u>Depth</u>	Volume	Pressure	Density
0'	1	1 ATM	1
33'	1/2	2 ATM	2
66'	1/3	3 ATM	3
99'	1/4	4 ATM	4
132'	1/5	5 ATM	5

 A scuba tank that lasts 60 minutes on the surface will last 30 minutes at 33 feet. (1/2 volume)



Air Volume of RASS cylinder

The volume of air needed will be determined by depth and calculated based on a normal SAC (breathing) rate

For Example:

13 cu ft tank
3000 PSI
Assent Rate of 30' /minute from 130'
At surface cylinder should still have 500psi



RASS Cylinders at the aquarium

Open Water
 13 cu ft. cylinder

GOT
 6 cu ft. cylinder

Surface Supplied 1.7 cu ft. cylinder



2 styles

- "Pony Bottle" (Open Water and GOT)
 - Traditional looking cylinder, 1st stage, second stage, and button pressure gauge
- Spare Air (Surface Supplied)
 - Cylinder with 1st and second stages built into the valve, and a button gauge



Pony Bottle Assembly

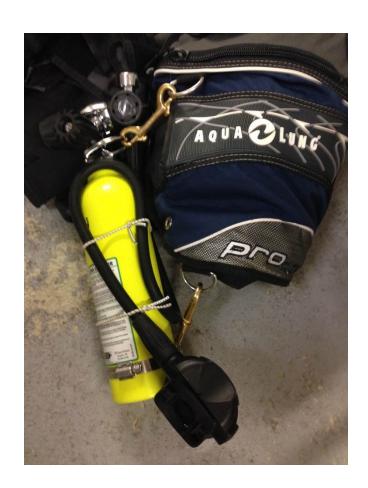
- The traditional pony bottle is assembled just like normal scuba with 1st stage secured to cylinder valve.
- Turn cylinder on and check psi
 - 3000 is a "full cylinder"
- Turn cylinder off before your dive per commercial regulations
- Don't depressurize after you turn cylinder off
- The pony cylinder will be clipped to the left side of the BCD as shown in the photo





Pony Attachment







Pony Bottle Use

- Turn Cylinder on
- Pull second stage free from bungee
- Watch orientation of second stage
- Purge or exhale into second stage to remove any water

^{**}Remember to blow bubbles (do not hold your breath) when swapping regulators





Pony Bottles add weight

- Pony bottles add ~ 3 lbs of weight to you and all on the left side.
- Divers should consider possibly reducing their normal dive weight use
- Divers should also consider rearranging their weights more to the right side to balance the extra 3 lbs from the pony bottle
- *Spare Air do not add any significant weight to the diver



Spare Air Assemble

- Spare Airs are Always Onready for use
- Confirm PSI in cylinder
 - > 3000 PSI is a full cylinder

Attach the unit to the left side of the diver on the harness as indicated by the arrows in the photo





Spare Air Use

- Cylinder is always on
- Remove cylinder from carrier pouch
- Purge or exhale into second stage to remove any water

**Remember to blow bubbles (do not hold your breath) when swapping regulators





Bail Out – RASS Ascents

- Emergency use of an RASS (Bail Out)
 - Diver should do a slow ascent
 - > Skip Safety Stop
- Incidents involving use of RASS MUST be reported to Dive Ops
 - Unintentional depletion of any significant amount of air in RASS must also be reported to Dive Ops



Disinfect

 Pony bottles and Spare Air are to be disinfected like normal cylinder and regulator guidelines



Filling RASS

- Pony bottles are filled just like traditional cylinders
- Use care lowering the cylinder into the fill station

- Spare Air systems require a special adaptor.
- Only Dive Ops is authorized to fill Spare Air's

*Special hands on instruction is required for filling both types of RASS

*Cylinders must have 2500 PSI minimum for a dive



Dive 1

Pre-dive buddy check
Descend to Shallow Ledge of exhibit
Switch from primary air system to RASS.
Switch from RASS back to primary air system

Dive 2

Pre-dive buddy check
Descend to bottom of the exhibit
Switch from primary air system to RASS.
Complete a slow ascent on the RASS



