Surface Supplied Air

(SSA)

Distinctive Specialty Course

Instructor Outline

This course provides the training required to allow the candidates to competently and safely configure and utilise surface supplied air equipment.

A. Course Overview

The goals of the SSA course are:

a) To review the advantages and limitations of SSA diving.

b) To introduce the student to high-pressure portable and stationary compressors, filtration devices, air storage cylinders, umbilical hoses and regulators used in SSBA diving.

c) To develop the students' knowledge of high-pressure air transmission and the safety precautions that must be observed during that transmission.

d) To develop the students' knowledge of diving physics particularly with regard to the effects of pressure and gas toxicities.

e) To develop the students' knowledge of dive planning procedures, underwater communications and first aid procedures

f) To enable the student to perform pre-start up checks, supervision as top-side attendant, removal of contamination from non-automatic filtration devices, to ensure continuous air supply and communication with SSBA divers.

g) To demonstrate proficiency in successful recovery from out-of-air and other related emergency situations including rescues of another (both conscious and unconscious) diver using SSBA equipment.

h) To recommend effective and safe harvesting protocols

B. SSA Course Requirements

1. Prerequisite certification: minimum of PADI Advanced Open Water diver or equivalent; SROOPS002B (Plan for minimal environmental impact); SROODR002A (Plan outdoor recreation activities).

2. Logged at least 20 dives indicating experience in both navigation and deep diving

3. Minimum age of 15

4. Student to Instructor ratio: Class 8:1, Open Water 2:1

5. Minimum course duration dependent on class size. For a class size of eight (8) students: nominal duration 12 hours.

6. Confined water session

7. Minimum of four open water dives over two days

8. Minimum Instructor rating: Open Water Scuba Instructor and Specialty Instructor in the distinctive specialty of SSBA Diving; this unit SROSCB027A (Dive in open water using hookah), SRXRIK001A (undertake risk analysis of activities), SRXEMR001A (respond to emergency situations), BSZ401A (Plan assessment), BSZ402A (Conduct assessment) and BSZ403A (Review assessment).
9.
10. Maximum depth 18 metres and range of 30 metres.

C. Student and Instructor Equipment Requirements

1. Student equipment

a. All standard SCUBA equipment including spare mask, bottom timer and depth gauge and/or computer.
b. Harness/BCD attached to umbilical with non-return valve on the block.
c. Redundant air source.
d. Spare mask
e. SMB
f. If a drysuit is to be used the student must have a PADI Drysuit specialty certification or equivalent
g. Appropriate warm clothing for post dive

2. Instructor equipment

a. Portable oil-less HP air compressor.
b. Demand regulators set to operate within pressure ranges of the compressor used, strapped to secure regulator in the mouth.
c. 2 x 30 metres hose rated to no less than 15 bars working pressure.
d. Redundant air source; either pony bottle or Spare Air™.
e. SMBs
f. Communication systems; e.g. Aquacom unit and Line system
g. Accessory equipment

i. Spare parts kit including O-rings.
ii. Standard SCUBA set and computer.

iii. Spare mask/s.

i. General materials and teaching aids:

- Operation & servicing manual for the compressor being used.
- Data sheets on the umbilical (30metre hose) and second stage regulators being used.
- Student Record File
- Class Roster

ii. Reference materials

- Supplied compressor/driver/panel/umbilical data sheets
- PADI Rescue Diver manual
- PADI Encyclopaedia of Recreational Diving [digital version preferred]

iii. Recognition materials

- PIC envelopes
- Specialty Diver Certificates

D. Academic Topics

The following is an actual presentation outline. Directions to, or comments for, the instructor are enclosed in [brackets]

1. Introductions, course overview and welcome to the course:

- Introduce yourself and your assistants.
- Student introductions

- Course goals:

a. To review the advantages and limitations of SSBA diving.

b. To review and describe breathing grade air and the general importance of filtration and equipment maintenance;

c. To recognise and describe the specialist equipment necessary for production of clean high pressure for use in SSBA diving including high-pressure portable compressors, filtration devices, communication options, control panels and umbilical hoses and regulators used.

d. To develop and/or review the students' knowledge of diving physics, physiology, dive planning procedures, line communications and appropriate first aid

e. To enable the student to perform pre-start up checks, supervision as top-side attendant, removal of contamination from non-automatic filtration devices, and to ensure continuous air supply and communication with SSBA divers.

f. Demonstrate proficiency in out-of-air and entanglement/snagging emergencies.

- Course overview:

a. Classroom presentations. [Note to instructor: Academic information will be presented on-site at filling station/s. Give the dates and locations of venue.] There may be more than one presentation during this course dependent on class numbers and equipment availability.

b. Confined open water dive/s; One or Two dives required dependent on class size.

c. Open water training dives; Four dives required to no deeper than 18 metres.

d. Performance assessment. [Note to instructor: You are to ensure that all performance requirements have been met. Skills performed on-site are to be

directly observed. Academic assessment may be accomplished through discussions with students and oral quizzes. Tell the class how their performance will be evaluated.]

e. Certification: Upon successful completion of the course, you will be awarded the PADI Distinctive Specialty Diver Certification in Surface Supplied Air diving.

f. Class requirements: Course costs [Explain all course costs], Equipment needs, and materials used during the course and attendance requirements.

g. Administration: Collect course fees, enrolment forms, [Standard Safe Diving Practices Statement of Understanding, PADI Medical Statement—questionable need?], Liability Release and Express Assumption of Risk.

2. Why SSBA Diving and what are some of its limitations?

Learning Objectives.

By the end of this session, you will be able to:

- ***To review and describe breathing grade air and the importance of filtration and equipment maintenance.***
- ***Explain why a formal SSBA qualification?***
- ***Describe basic physical and physiological concerns that may affect the scuba diver resulting from increased pressure***
- ***Describe appropriate risk management and dive planning procedures***

- SCUBA provides limited underwater time and a greater encumbrance compared to what can be supplied via SSBA systems. This allows for considerable times underwater for a variety of activities such as research or shellfish gathering.
- Knowledge of limitations resulting from long underwater duration with regards to gas absorption, elimination and heat loss is essential for the diver's well being.
- Physics review: Pressure, buoyancy, pressure/volume relationships, air consumption (SAC rates), densities, and indirect effects of pressure.
- Physiology review: On-gassing/Off-gassing, DCS, Narcosis, Gas Toxicity (O2, CO, CO2, nitrous oxides, hypothermia and appropriate first aid procedures.
- Risks with respect to assembly and utilisation of SSBA equipment and its associated activities must be managed to minimise possible consequences owing to poor filtration and resultant gas toxicity.

- Risk management is becoming more of an issue with the conduct of everyday business. One of the steps taken to indicate competent staff training in any activity is to show tangible proof and documentation that this has been performed. This qualification offers such proof. It is recommended that the PADI Distinctive specialties in Air Fill Station Operation and Self-Reliant diving be performed in conjunction with this program.

3. Dive Theory & Planning

Learning Objectives.

By the end of this session, you will be able to:

- ***To describe relevant theoretical knowledge required with regard to physics and physiology; decompression illness (DCI); and environmental conditions***
- ***Describe steps taken to plan for safe diving in remote areas***
- ***List and describe relevant legislation***

A. Physics, physiology and dive tables

Physics and physiology

- Pressure
- Buoyancy
- Pressure/volume relationships
- Air consumption
- How pressure affects density
- How pressure affects air spaces
- Indirect effects of pressure
- On gassing and off gassing
- Decompression sickness
- Nitrogen narcosis
- Oxygen toxicity
- Carbon monoxide toxicity
- Hypo/hyperthermia

Decompression Illness (DCI)

- Ongassing/offgassing nitrogen
- residual nitrogen
- dive planning to avoid DCI
- signs and symptoms of DCI

Dive Tables

- RDP
- DCIEM

B. Dive conditions

• Determining "acceptable" conditions may depend partly on the skill and experience level of the divers. It is important for divers to pay attention to dive briefings and recommendations, as this will help divers determine whether the conditions are acceptable for them now and in the future

• Helps divers plan their own dives when you tell them your observations and conclusions regarding the conditions. It also teaches them about evaluating conditions

• There is a broad range of acceptable conditions. PADI Professionals advise divers of the conditions, but divers must accept the responsibility of assessing their own skills and deciding whether or not to dive

C. Weather assessment:

a. Information sources include:

• TV, radio and newspaper

• World Wide Web, e.g. www.bom.gov.au/weather-services/

• Are there Governments Radio broadcasts in your area?

• National Weather Service broadcasts on VHF-FM (marine) radio

• Telephone services

• Your experience with local weather behavior

b. Effect of weather on dive conditions:

• Wind – can cause waves, surf and surge, plus poor visibility. Offshore wind can calm surf and cause an upwelling and good visibility

• Rain – runoff can cause poor visibility or poor water quality. Prolonged rain can cause rivers to back up into lakes and springs

• Temperature – can cause discomfort before or after dive. Air temperature can sometimes change water temperature in a couple of days

D. Tide and currents

a. Information sources include:

• Tide charts

• Local weather reports may provide tide and current information

• Local dive reports may provide tide and current information

• Your experience with local conditions – you can often observe tides and currents from an elevated vantage point – watch boats at anchor and drifting flotsam (note that wind and current may be from different directions, affecting where a boat sits at anchor)

b. Effect of tides and currents on dive conditions:

• Major currents may have eddies that run counter to the main current direction

• Long shore currents – caused by eddies or waves striking shore at an angle – creates water flow down the coast

• Tidal currents flow in and out of restricted areas (bays, etc.) – strength depends on time during tidal cycle, how restricted the flow, and the amount of water entering or exiting the area

• Ideal dive time is usually slack tide when high tide peaks

E. Visibility

• Weather – rain runoff and surge due to wind or waves can stir up sediment

• Season – warm temperature can cause plankton blooms. Some seasons associated with more wind and rain

• Bottom composition – the finer the bottom, such as mud or silt, the easier it is disturbed

• Waves – can reduce light that penetrates the surface, and stir up sediment

• Time of day – affects the amount of light. Proportionately more reflects off surface when sun is low in sky

• Oceanic currents – can affect the amount of nutrients in water and therefore, plankton blooms

• Tides – incoming (rising) tides usually bring in clear water; outgoing tides (falling) tides usually pick up sediment and have poorer visibility

• Location – determines the prevailing nature of the aquatic environment (e.g. warm clear current, silty lake, clear spring water, etc.)

F. Aspects of planning dives and in particular for remote areas (e.g. those dives

conducted hours away from dive services, emergency medical personnel, etc.)

- Plans need to cover more logistics – food, water, sleeping arrangements, compressors for filling tanks, etc.
- Emergency procedures – may need to plan for complex evacuations, having appropriate medical supplies available and people who can use them (e.g. several hours worth of emergency oxygen)
- Think in terms of self-sufficiency (e.g. what would you do if the boat engine broke down?)

G. Legislation

• Marine Parks and Wildlife legislation

• Maritime rules and regulations

• Discuss accessing and interpreting meteorological data from local newspapers; radio stations and the Australian Government Bureau of Meteorology such as:

www.bom.gov.au/weather-services/ as well as tide tables for the diving environment.

4. The air we breathe

Learning Objectives.

By the end of this session, you will be able to:

- ***Describe the air we breathe and describe common problems with its acquisition***
- ***Describe common filtration methods and maintenance***

- Review: The air we breathe and its normal constituents
- Contamination review – CO, CO2, Nitrous oxides, Oil and water vapour
- Review of first aid and treatment of CO poisoning Air intake/exhaust placement
- Filtration traps, manual and automatic
- Filter materials

5. Compressors, ancillary equipment assembly and use

Learning Objectives.

By the end of this session, you will be able to:

- ***Review SSBA equipment components***
- ***Assemble the SSBA equipment for use for both one and two divers.***
- ***Assembly of umbilical/s to compressor outlet and regulator/s***

- Discuss the umbilical assembly for surface supplied lightweight helmets and free flow/demand masks including gas supply hose, pneumofathometer hose, communications wire and strengthening members.
  - ***a)*** Continuous versus connected section umbilicals and construction: 9.5mm internal diameter, synthetic rubber, braid reinforced and heavy duty (abrasion and snag resistant). Working pressure of no less than 15 bars (must be greater than diver's required supply pressure). Non-toxic internal hose impervious to gas contaminants. Flexible, easy to handle. Tagged with serial numbers.
  - ***b)*** Communication devices: Standard two-wire "push-to-talk", quick connectors, waterproofed.
  - ***c)*** Pneumofathometer hose: a precision pressure gauge used to determine depth of diver.
  - ***d)*** Strength member: 8mm nylon braided line/synthetic polyolefin braided or strand twisted line/manila line
- Assemble the SSA equipment
- Avoidance of hose kinking

Typical small SSA units

6. Planning the dive and preparing for emergencies

Learning Objectives.

By the end of this session, you will be able to:

- ***Organise adequate supervision [standby divers] and review of responsibilities***
- ***Review pre-dive routine inspection***
- ***Describe correct line signalling use between diver and supervisor***
- ***Review emergency drills***
- ***Post dive care and maintenance***

- Surface standby diver: duties and responsibilities; availability, positioning to supply device, fully equipped, prompt ability to deal with: diver loss of air, lost communication, entanglement and injured or unconscious diver
- Most SSBA diving operations incorporate the use of a control panel enabling the diving supervisor to monitor the diver's air, depth, and actions using radio communications. Any panel designed and used in Australia must conform to AS2299; section 5 – "Procedures for SSBA diving operations". The main functions of the panel are to provide: air control systems, secondary air supply, radio communications (optional) and depth control.

Typical control panel

- Ensure plenty of fuel, filters cleaned and all other required compressor and primary mover checks are completed.

Air filtration

- Review pre-dive inspection routine: as well as standard dive gear [BCD, weights etc.] includes panel status checklist to ensure: whips blown through, primary, secondary and emergency air supplies connected, pressures regulated,

panel/umbilical secure, no leaks and supervisor notified and communications system/s available.

- Review communication systems and familiarisation with line signalling:

One pull = I need to communicate

Two pulls = I have an equipment problem and need to end the dive and surface

Three pulls = Emergency. I need assistance

- Emergency drills

Review diver first aid and missing diver procedures including natural and compass navigation, tired diver assists, air sharing and out-of-air drills: alternate air use, controlled emergency swimming ascent, buddy breathing and unconscious diver rescue

- Post dive cleaning and storage

Check and clean or replace filters on compressor as per manufacturers recommendations

Check V-belt for signs of deterioration and tension

Run out the diver air hose to remove twists from the hose and check for cuts and abrasions

Check bail out cylinder and regulator, and ensure cylinder is filled prior to each dive

7. Harvesting

Learning Objectives.

By the end of this session, you will be able to:

- ***Describe several harvesting activities (e.g collection live aquarium species)***

- *Describe preparation and organisation of equipment for the particular harvesting methods to be used*
- *Describe underwater collecting procedures*
- *Describe retrieval and transportation of harvested items*

- **Need to complete this section with appropriate stuff!**
- **&^$&(^^0**
- **&%**)&***

E. Confined open water session/s

The confined session can be broken down into two or three sessions dependant on class size.

Learning Objectives.

By the end of this session, you will be able to:

- ***Prepare the SSBA unit for use***
- ***Review basic SCUBA skills including all out-of-air emergency drills.***
- ***Swim at least 100metres on the surface wearing full dive equipment***
- ***Simulate an interruption of air supply to umbilical and perform a controlled emergency ascent using a redundant compressed air supply.***
- ***Perform the rescue of a simulated entanglement situation.***
- ***Recovery of another SSBA diver (both conscious and unconscious) from the bottom.***
- ***Tow a buddy simulating unconsciousness for a distance of no less than 50 metres.***
- ***Review and demonstrate proficiency in all line signals.***

F. Open Water Dives

1. Open Water Training Dive One

Learning Objectives.

By the end of this dive, you will be able to:

- ***Prepare SSBA unit for use and select, check, assemble and don equipment***
- ***Pre-dive gear check for self and buddy***
- ***Perform a correct entry appropriate to the dive site***
- ***Remove and replace weight belt at the surface***
- ***Demonstrate appropriate streamlining of all dive equipment***
- ***Swim a distance of at least 25 metres underwater on SSBA ensuring no kinking or entanglement***
- ***Correct weighting and adjust buoyancy as required at depth***
- ***Mask and regulator removal, recovery and replacement***
- ***Demonstrate procedures for dealing with a flooded/broken mask/strap, regulator recovery and clearing and hovering***
- ***Give, recognise and respond to underwater signals***
- ***Demonstrate line communications procedures***
- ***Dive with minimal impact on the environment***
- ***Perform an ascent rate of no more than 18 metres/minute or as indicated by the divers' computer***
- ***Perform a 3-minute safety stop at 5 metres and make an appropriate exit***

a. Briefing

- Evaluate conditions
- Facilities at dive site
- Entry technique to be used-location
- Exit technique to be used-location
- Bottom composition, expected features and points of interest
- Depth range
- Planned dive time limit
- Review communication
- What to do if an emergency arises

b. Plan Dive

- Assign depth; have students determine theoretical depth and no-decompression limit (you should check these)
- Record no-decompression limit, maximum actual depth and maximum theoretical depth on slates
- Review depth gauges and instrumentation; each student should know how to account for behaviour of his/her instrument while diving
- Review line communications
- Assign maximum planned dive time

c. Predive

- Prepare personal equipment including all extra emergency equipment
- Don equipment

- Predive safety check
- Proper entry
- Weight adjustment for neutral buoyancy
- Maintain buddy contact

d. Open Water Training Dive One

- Descend as a buddy team and/or with trainer on standby
- Perform required objectives.
- Ascent not to exceed 18 metres/minute with a three-minute safety stop at depth of 5 metres.

e. Postdive

- Proper exit
- Remove and stow equipment

f. Debrief

- Assess performance, make suggestions, give positive reinforcement
- Students calculate their ending pressure groups—review for correct calculation
- Log dive (Instructor signs log)

2. Open Water Training Dive Two

Learning Objectives.

By the end of this dive, you will be able to:

- ***Prepare SSBA unit for use and select, check, assemble and don equipment***
- ***Pre-dive gear check for self and buddy***
- ***Perform a deep water entry***
- ***Demonstrate appropriate streamlining of standard and additional safety and dive equipment***
- ***Correct weighting and adjust buoyancy as required at depth***
- ***Demonstrate procedures for an out of air emergency with no buddy assistance and use of a redundant air source***
- ***Demonstrate deployment of an SMB using a safety reel from a depth of no less than 10 metres***
- ***Demonstrate line communications procedures***
- ***Perform an ascent rate of no more than 18 metres/minute or as indicated by the divers' computer***
- ***Perform a 3-minute safety stop at 5 metres***
- ***Perform a deep water exit***

a. Briefing

- Evaluate conditions
- Facilities at dive site

- Entry technique to be used-location
- Exit technique to be used-location
- Bottom composition, expected features and points of interest
- Depth range
- Planned air supply limit
- Review communication
- What to do if an emergency arises
- Buddy assignments

b. Plan Dive

Have students plan this dive in buddy teams for your assessment and approval

- Ensure that students record no-decompression limit, maximum actual depth and maximum theoretical depth on slates

c. Predive

- Prepare personal equipment
- Don equipment
- Predive safety check
- Proper entry
- Weight adjustment for neutral buoyancy
- Maintain buddy/trainer contact

d. Open Water Training Dive Two

- Descend as a buddy team and/or with trainer on standby
- Perform required objectives

e. Postdive

- Proper exit
- Remove and stow equipment

f. Debrief

- Assess performance, make suggestions, give positive reinforcement
- Students calculate their ending pressure groups—review for correct calculation
- Log dive (Instructor signs log)
- Complete certification paperwork

3. Open Water Training Dive Three

Learning Objectives.

By the end of this dive, you will be able to:

- ***Prepare SSBA unit for use and select, check, assemble and don equipment***
- ***Demonstrate appropriate streamlining of standard and additional safety and [selective] harvesting dive equipment.***
- ***Correct weighting and adjust buoyancy as required at depth.***
- ***Demonstrate correct line signals.***
- ***Demonstrate proficiency in dealing with a simulated entanglement.***
- ***Demonstrate procedures for an out of air emergency with no buddy assistance and use of a redundant air source whilst removing and replacing the SSBA hose and harness.***
- ***Perform an ascent rate of no more than 18 metres/minute or as indicated by the divers' computer.***
- ***Remove and replace dive equipment at the surface***

a. Briefing

- Evaluate conditions
- Facilities at dive site
- Entry technique to be used-location
- Exit technique to be used-location
- Bottom composition, expected features and points of interest

- Depth range
- Planned air supply limit
- Review communication
- What to do if an emergency arises
- Buddy assignments

b. Plan Dive

- Assign depth; have students determine theoretical depth and no-decompression limit (you should check these)
- Record no-decompression limit, maximum actual depth and maximum theoretical depth on slates
- Review depth gauges and instrumentation; each student should know how to account for behaviour of his/her instrument while diving
- Assign maximum planned dive time

c. Predive

- Prepare personal equipment including all extra emergency equipment
- Don equipment
- Predive safety check
- Proper entry
- Weight adjustment for neutral buoyancy
- Maintain buddy contact

d. Open Water Training Dive Three

- Descend as a buddy team and/or with trainer on standby
- Perform required objectives

e. Postdive

- Proper exit
- Remove and stow equipment

f. Debrief

- Assess performance, make suggestions, give positive reinforcement
- Students calculate their ending pressure groups—review for correct calculation
- Log dive (Instructor signs log)

4. Open Water Training Dive Four

Learning Objectives.

By the end of this dive, you will be able to:

- ***Prepare SSBA unit for use and select, check, assemble and don equipment***
- ***Demonstrate appropriate streamlining of standard and additional safety dive equipment***
- ***Correct weighting and adjust buoyancy as required at depth***
- ***Perform a simulated rescue of an entangled/unconscious SSBA diver.***
- ***Perform a tow of a simulated unconscious diver at the surface for no less than 50 metres***

a. Briefing

- Evaluate conditions
- Facilities at dive site
- Entry technique to be used-location
- Exit technique to be used-location
- Bottom composition, expected features and points of interest
- Depth range
- Planned air supply limit
- Review communication
- What to do if separated from class/buddy
- What to do if an emergency arises

- Buddy assignments

b. Plan Dive

Have students plan this dive in buddy teams for your assessment and approval

- Ensure that students record no-decompression limit, maximum actual depth and maximum theoretical depth on slates

c. Predive

- Prepare personal equipment
- Don equipment
- Predive safety check
- Proper entry
- Weight adjustment for neutral buoyancy
- Maintain buddy contact

d. Open Water Training Dive Four

- Descend as a buddy team and/or with trainer on standby
- Perform all required objectives.

e. Postdive

- Proper exit
- Remove and stow equipment

f. Debrief

- Assess performance, make suggestions, give positive reinforcement
- Students calculate their ending pressure groups—review for correct calculation
- Log dive (Instructor signs log)
- Complete certification paperwork

KNOWLEDGE REVIEW

1. Explain the necessity for this course

2. The air we breathe consists of a mixture of gases. List two contaminants that must be filtered out during the air filling procedure.

3. List two advantages and two limitations of SSBA diving

4. List three parts of a typical umbilical hose and why they are necessary.

5. The ideal tide to dive is: (circle your answer)

i. High
ii. Low
iii. Slack
iv. Neap

6. What Australian Standard should Air Control Panels conform to?

7. The final responsibility for choosing to dive or not lies with: (circle your answer)

i. The PADI professional
ii. The boat captain
iii. The diver
iv. None of the above

8. List two possible underwater emergencies and how to deal with them.

9. What line signals would you give for the following situations?

OK:

Pull me up:

Snagged:

10. Why should you consider attending an Air Fill Station Operator course?

KNOWLEDGE REVIEW - MODEL ANSWERS

1. Explain the necessity for this course

To ensure safe and efficient diving procedures while using SSBA

2. The air we breathe consists of a mixture of gases. List two contaminants that must be filtered out during the air filling procedure.

Oil vapour

Carbon Monoxide

3. List two advantages and two limitations of SSBA diving

Longer duration dives (not limited by SCUBA)
Simpler equipment
Greater chance of exceeding NDLs
Gas toxicity from poor filtration

4. List three parts of a typical umbilical hose and why they are necessary.

Lightweight helmets – full face mask – can communicate to surface Umbilical – attached to air source Filters – clean air

5. The ideal tide to dive is: (circle your answer)

- **High**
- Low
- Slack
- Neap

6. What Australian Standard should Air Control Panels conform to?

AS2299; section 5 – "Procedures for SSBA diving operations".

7. The final responsibility for choosing to dive or not lies with: (circle your answer)

- The PADI professional
- The boat captain
- **The diver**
- None of the above

8.List two possible underwater emergencies and how to deal with them.

Entanglement – slowly and carefully release self from this and/or use knife or cutting tool
Out-of-air emergency – use redundant air source and make a hasty exit!

9. What line signals would you give for the following situations?

OK: one pull

Pull me up: two pulls

Snagged: three pulls

10. Why should you consider attending an Air Fill Station Operator course?

Legislation will soon require this
So you can be fully aware of what safety measures must be taken when filling and using compressed air systems