

Trimix Closed Circuit Rebreather Diver

A. Purpose

1. This Program is designed to train divers in the safer use and technology of Rebreathers for deep diving to depths in excess of 200 fsw (60 msw).
2. This program qualify divers to perform Trimix Dives outside of training up to 330 fsw (100 msw)

B. Prerequisites

1. Must be qualified as an IANTD Rebreather Diver, or if entering the Program based on equivalent experience, must be qualified as either Normoxic Trimix Diver or Trimix Diver (OC) or must be taking the Normoxic Trimix Diver and Trimix Diver course on an approved Rebreather for mixed gas diving, with all dives other than confined water made on Trimix or Heliox.
2. Must provide proof of a minimum of 200 logged dives or sufficient experience doing technical dives to satisfy the instructor that the student has the ability and knowledge to continue into this level of training.
3. At least 50 of which were on the specific Rebreather to be trained for.
4. Must be a minimum of 18 years of age.

C. Texts

1. *IANTD CCR Trimix Diver Student Manual and Workbook.*
2. IANTD-approved text(s) for the particular Rebreather the training is taking place on.

Additionally, if Normoxic Trimix and Trimix Programs are taken concurrently:

1. *IANTD CCR Normoxic Trimix Student Manual and Workbook.*
2. *IANTD Technical Encyclopedia.*

D. Program Content

1. Perform two skills-training dives following completion of the confined water session(s) in which two stage cylinders are used, to a depth between 60 fsw (18 msw) and 200 fsw (60 msw). These dives may be on air, EANx or Trimix provided the depths are acceptable for the gas used, and two gas switches are practiced during ascent. All dives deeper than 130 fsw (39 msw) will be on trimix.
2. This Program must include a minimum of 260 minutes of open-water run time, and in addition to item 1, two Trimix dives to depths between 165 fsw (50 msw) and 300 fsw (91 msw), for a total of 4 course dives. All depths must be worked up to incrementally with no increase greater than 40 fsw (12 msw) from one dive to the next (the first dive in the course on mix must not be more than 33 fsw (10 msw) deeper than the student's previous experience in deep diving). One dive must be to at least 200fsw (60 msw) or deeper.
3. All confined water sessions and dives must include the use of two stages and all dives must utilize simulation of two bailout gas switches.
4. Lecture material adequate to cover the needs of the specific Rebreather and the IANTD CCR Trimix Student Manual and Workbook
5. For those who are already OC Trimix Divers this Program must include a confined water session and a minimum of 150 minutes of run time, using Trimix or Heliox, completed within at least 2 open-water or overhead-environment dives.
6. If the Program includes the combination of Normoxic Trimix Diver and Trimix Diver, all dives must be performed on the Rebreather for a minimum of 500 minutes of run time completed within at least 7 open-water or overhead-environment dives. One dive must be to at least 200fsw (60 msw) or deeper.

E. Equipment Requirements

1. Must own or have direct access to the specific Rebreather model being taught.

F. Program Limits

1. There may be no more than 4 students per Instructor.
2. All dives must be conducted to depths between 130 fsw (39 msw) and 300 fsw (91 msw).
3. Inspired oxygen partial pressure may not exceed 1.30 ATA on a CCR or 1.4 ATA
4. All dives must be completed within the IANTD oxygen CNS% limits.
5. All appropriate safety or required decompression stops must be performed.
6. Each team must carry stages or adequate bailout gas or bailout rebreathers to get 1 ½ divers to the surface on CCR

G. Water Skills Development

1. A confined water session demonstrating all skills must be completed to the instructor's satisfaction prior to conducting any open water dives.
2. Complete all Water skills listed under the Rebreather Diver Standards in Sport Diver Programs.
3. Perform one manual operation dives, which will also have emergency drills incorporated into them.
4. Perform at least a 33-foot (10 meter) vertical ascent on bailout gas from a depth greater than 200 fsw (59 msw). Record the amount of gas used during this period and calculate how much gas would be needed to reach the surface
5. On a dive do a SCR bailout for at least 10 minutes
6. If the diver has a bailout rebreather do a complete ascent on the unit.
7. React to simulation of oxygen by pass due to faulty manual addition valves or switching assemblies
8. Practice plugging off board gas into the CCR (if compatible)
9. Connect buddies stage into the unit (if compatible) and add gas to simulate loss of gas supply
10. At least once simulate the oxygen supply has been lost. Go to low a set point lower than the off board stage capability, connect the off board stage to the manual oxygen fitting (if compatible) (note! The off board should have a higher FO₂ than the diluent cylinder) and maintain a safe PO₂ by manual addition of the gas for at least 10 minutes
11. At 20 fsw (6 msw) simulate a loss of oxygen supply and take a breath of OC oxygen and exhale it into the counterlung and note the PO₂ increase. Repeat at least twice. Note how long it takes to breathe the PO₂ down by two tenths (example 1.4 to 1.2)
12. Practice removing and replacing both stage cylinders, both at rest and while swimming.
13. Have 2 divers swim side-by-side, in full equipment, simulating an out-of-gas situation (without breathing, and exhaling slowly), for a distance of 60 feet (18 meters), then stop and switch to bailout stage (or rebreather). Divers should remain a rest for 3 breaths, then swim for 3 minutes and then switch stages and continue breathing from the stages just switched to at an average pace for at least 3 additional minutes then switch stages back to the original ones and go back on the loop. .
14. Practice system monitoring.
15. Swim 60 feet (18 meters) without breathing, and exhaling slowly, and then perform bailout procedure
16. Deploy and use a lift bag or up line at least once in OW.
17. While swimming, demonstrate efficient bailout to stage cylinder regulators.
18. Following a means of reference (pool wall, guide line, ship railing, etc.) with eyes closed, remove stage cylinders and swim a distance of at least 15 feet (4.5 meters). Reverse direction, return to stage cylinders and replace them on correct sides, identifying each cylinder by feel.
19. Simulate the rescue of a diver. Tow the diver on the surface for a distance of at least 40 feet (12 meters) while simulating mouth-to-mouth resuscitation. Go through EMS procedures and remove equipment from victim in the water (equipment removal must be accomplished in less than 1½ minutes, students in continuous webbing who cannot have their equipment removed within the time limit must add a quick release to their harness). Repeat until proficient.