BOD. TDI – Basics of DIR Specialty

BOD. Introduction

The purpose of this course is to introduce the student to the holistic DIR philosophy of diving. The course focuses on the fundamental components of the the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; unified team diving strategies and situational awareness; proficiency in critical skill management and fun.

This course hopes to lay the foundation upon which a student can build superior recreational or technical skills and enjoy the aquatic realm as a comfortable, confident and competent diver.

This course is a non-decompression course; students are permitted to use Enriched Air/Nitrox mixes, provided the gas mix within their current level of certification.

BOD.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a recreational or technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI Double Tank Diver Course – provided all student pre-requisites are met
2. TDI Tech 1 DIR Specialty Course – provided all student pre-requisites are met
3. TDI Understanding Nitrox Course- provided all student pre-requisites are met
4. TDI Intro to Tech Course - provided all student pre-requisites are met
5. TDI Advanced Nitrox Course – provided all student pre-requisites are met
6. TDI Decompression Procedures Course – provided all student pre-requisites are met
7. TDI Trimix Diver Course - provided all student pre-requisites are met
8. TDI Advanced Trimix Diver Course - provided all student pre-requisites are met

BOD.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

BOD.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of eight (8) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.
2. The Instructor has the option of adding two (2) more students with the assistance of an active Instructor that has been certified to teach this Specialty.

BOD.5 Student Pre-Requisites

The student must:

1. Be an Open Water Diver or higher.
2. Be a minimum age of eighteen (18).
3. Have a minimum of twenty (20) logged dives not including training dives.
4. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

BOD.6 Course Structure and Duration

This course can be a self-standing specialty, combined with the Intro to Tech Course or incorporated into the following courses: Understanding Nitrox, Advanced Nitrox, Deco Procedures, Trimix Diver and Advanced Trimix Diver, if the instructor chooses to do so.

Note: This course can not be combined with the Extended Range Diver Course due to the fact that said course teaches deep air diving which is contrary to the DIR philosophy.

Academic execution:

1. Approximately one (1) hour are dedicated to the introduction of the DIR philosophy, it's historical background and evolution, main components, associated controversies and training philosophies.

2. Approximately six (6) hours are dedicated to academic classroom session

3. Approximately four (4) hours are dedicated to equipment fitting, dry-land exercises and over-all DIR equipment compliance.

Confined Water execution:

1. Two (2) dives are required with complete brief, debriefs and video analysis by the instructor. Duration is approximately four (4) hours of "in-water-time"

Open Water execution:

1. Four (4) dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. six (6) hours of ”in-water-time”.

2. Dives can be completed from shore or boat.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

BOD.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course he Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

BOD.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project’s Basics of DIR PowerPoint Presentation
2. TDI Understanding Nitrox
3 TDI Advanced Nitrox Diving Manual
4 TDI Decompression Procedures
5. TDI Complete Encyclopedia of Diving Terminology

BOD.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members, environments and education. In order to reap the most benefits from this course, it is advisable that the students complete the program in a DIR compliant equipment system. The students can take the course in either a single tank, double tank or double tank and decompression cylinder configuration.

Single Tank Course

1. Two (2) scuba cylinders with appropriate valves (200bar DIN or 300bar DIN valves are preferable; H-valves and Y-valves are acceptable).
2. The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

Double Tank Course

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN are preferable), isolator manifold and properly sized and positioned tank bands.
2. The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

Double Tank Course and Decompression Cylinder Course

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN are preferable), isolator manifold and properly sized and positioned tank bands.
2. The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.
3. One (1) 40cf aluminum (Al40) decompression cylinder with appropriate valve (200bar DIN or 300bar DIN valves are preferable), a "oxygen-clean" first stage, a second stage with a forty (40) inch low pressure hose, a SPG with a six (6) inch high pressure hose and appropriate DIR compliant stage/deco bottle rigging.

Stage and deco cylinders are outside the scope of this course and will therefore not be needed.

General Equipment Requirements

1. Approx. 5 foot – 7 foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approx. 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator
3. Approx. 24-inch – 26-inch Hose with Brass SPG and permanently attached Stainless Steel Swivel Snap Bolt
4. Non-Split Fins

Recommended Equipment

1. Backplate System with a Continuous 2” Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
2. Back Inflation Style, Non-bungeed Wing (single or double)
3. One (1) Depth Measuring Device
4. One (1) Time Keeping Device
5. One (1) Cutting Device
6. Wet Notes and Writing Instrument
7. Spool with 100-foot – 150 foot Line (knotted every 10 feet preferably)
8. Small (approximately three (3) foot) Surface Marker Buoy
9. Exposure Suit appropriate for the Environment

Suggested Equipment

1. Canister-Style Primary Light with Goodman Handle
2. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt

BOD.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

1. Historical Background of Technical Diving

    A. Early Cave Divers
    B. Early Wreck Divers
    C. Cave Diving Agencies and their Influence on Recreational Diving
    D. Cave Diving Accidents and their Analysis
    E. Pioneers of the DIR Philosophy
    F. Walkulla Exploration
    G. WKPP
    H. North East Wreck Divers and South East Cave Divers
    I. Controversies surrounding the DIR Philosophy and its Protagonists
    J. Evolution and In-Depth Understanding of the Philosophy
    K. DIR Today

2. DIR Learning Philosophy

    A. Paradigm of Primacy
    B. Paradigm of Recency
    C. Paradigm of Repetition
    D. Paradigm of Readiness
    E. Paradigm of Intensity
    F. Paradigm of Effect

3. Stages of Preparedness

    A. Yourself
        I. Physical Fitness
        II. Mental Fitness
        III. Emotional Fitness
    B. Your Team
    C. Your Equipment
    D. Your Environment

4. Team, Team Protocols and Situational Awareness

    A. Dive Planning
    B. Equipment Matching
    C. Pre-Dive Protocols
    D. Role Assignment
    E. Post-Dive Discussion

5. Standard Gases and Decompression Philosophy

    A. Bottom Mixes and Deco Mixes
    B. EADs and ENDs
    C. PO2s and CNS
    D. Deep Stops and Decompression Strategies (Min Deco and Ratio Deco)
    E. Ascent and Decent Rates

6. Equipment Configuration

    A. Single Tank Configuration
    B. Double Tank Configuration
    C. Stage and Deco Cylinder Rigging

7. In-Water Skills

    A. Balance & Center of Gravity Drill
    B. Buoyancy
    C. Trim
    D. Propulsion
        I. Frog Kick
        II. Modified Frog Kick
        III. Modified Flutter Kick
        IV. Shuffle Kick
        V. Backwards Kick
        VI. Helicopter Turn
    E. Fundamental Skills
        I. Regulator Remove and Replace
        II. Regulator Recovery
        III. Regulator Switch
        IV. Simulated S-Drill
        V. Mask Clearing
        VI. Mask Remove and Replace
        VII. SMB Deployment

F. Critical Skills
    I. Loss of Visibility
    II. Loss of Light
    III. Out of Gas Emergencies
    IV. Valve, Manifold and/or Isolator Failure
    V. Rescue Techniques for Panicked, Unconscious or Convulsing Diver
G. Experience Skills
H. Under Water Communication
    I. Written Communication
    II. Hand Signals
    III. Light Signals
    IV. Touch Contact

BOD.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to DIR specifications.

2. Dry-land drills for propulsion techniques:
    I. Frog Kick
    II. Modified Frog Kick
    III. Modified Flutter Kick
    IV. Shuffle Kick
    V. Backwards Kick

3. Dry-land drills for regulator skills:
    I. Regulator Remove and Replace
    II. Regulator Recovery
    III. Regulator Switch
    IV. Simulated S-Drill

4. Demonstrate sound Pre-Dive planning:
    I. Goals and Activities
    II. Team and Individual Roles
    III. Equipment Needed and Equipment Matching
    IV. Dive Limits: Time, Depth, Distance, Direction
    V. Decompression and Ascent Strategies
    VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check (V-Drill)
4. Testing of both second stage regulators while submersed (“Wet Breathing”)
5. Turn on Canister-Style Primary Light (if applicable)

In-Water Drills:

1. Demonstrate controlled descent to chosen depth without breaking the team formation.

2. Upon arrival at depth hover relatively motionless in place while maintaining proper buoyancy, trim and team formation approximately three (3) feet/one (1) meter off the sea floor.

3. Demonstrate the following propulsion techniques six (6) inches/fifteen (15) centimeters off the sea floor without silting:

    I. Center of Gravity Drill
    II. Frog Kick
    III. Modified Frog Kick
    IV. Modified Flutter Kick
    V. Shuffle Kick
    VI. Backwards Kick
    VII. Helicopter Turn

4. Demonstrate the following fundamental skills hovering relatively motionless approximately three (3) feet/one (1) meter off the sea floor while maintaining trim and positioning within the team and no buoyancy change greater than plus/minus three (3) feet/one (1) meter:

    I. Regulator Remove and Replace
    II. Regulator Recovery
    III. Regulator Switch
    IV. Simulated S-Drill
    V. Mask Clearing
    VI. Mask Remove and Replace
    VII. SMB Deployment

5. Single Tank Course

    Close the tank valve, breathe down the long hose regulator and upon reaching the secession of gas flow, immediately re-open the tank valve one turn. Repeat this exercise known as 'Valve Feathering' three (3) to four (4) time while hovering relatively motionless approximately three (3) feet/one (1) meter off the sea floor, maintain trim and positioning within the team and restrict your buoyancy change to plus/minus three (3) feet/one (1) meter or less.

    Double Tank Course

    Complete an entire valve shut-down sequence while hovering relatively motionless approximately three (3) feet/one (1) meter off the sea floor, maintain trim and positioning within the team and restrict your buoyancy change to plus/minus three (3) feet/one (1) meter or less. Concentrate never to loose direct visual contact with your team mate(s).

6. Demonstrate the ability to deploy a Surface Marker Buoy (SMB) while hovering relatively motionless approximately three (3) feet/one (1) meter off the sea floor, maintain trim and positioning within the team and restrict your buoyancy change to plus/minus three (3) feet/one (1) meter or less.
    Upon complete deployment, ascent along the up-line at a rate of ten (10) feet/ three

(3) meters per minute and perform a brief stop each ten (10) feet/three (3) meters. Do not use the up-line as an aid to achieve proper buoyancy during your ascent.

7. Demonstrate the ability to comfortably share gas with a team mate by donating the long hose and switching to the short hose. Demonstrate the proper post-emergency equipment clean-up, exit/ascent strategy and travel for approximately one (1) minute or fifty (50) feet/fifteen (15) meters. Maintain proper trim and positioning within the team and restrict your buoyancy change to plus/minus three (3) feet/one (1) meter or less. Each student should be donor and recipient at least once during this drill.

8. Upon deployment of a SMB, demonstrate a properly timed ascent along the up-line at a rate of ten (10) feet/ three (3) meter per minute and perform a brief stop each ten (10) feet/three (3) meters while sharing gas for the entire distance. Do not use the line as an aid to achieve proper buoyancy during your ascent.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.

T1. TDI – Tech 1 DIR Specialty

T1.1 Introduction

The purpose of this course is to introduce the student to the entry level of technical diving while adhering to a contemporary approach of the DIR philosophy of diving. The course builds on the fundamental components of the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; cohesive team diving strategies and enhanced over-all situational awareness; proficiency in critical skill management and fun.

This course strengthens the foundation upon which a student can build superior technical skills and enjoy the aquatic realm as a comfortable, confident and competent entry-level technical diver.

This course is an entry-level decompression course; students learn to use Enriched Air/Nitrox mixes and hyperoxic Trimix mixes as bottom gases, and hundred (100) percent Oxygen as a decompression gas.

The bottom gases are not to exceed an average PPO_2 of 1.2 atm for any dive and a PPO_2 of 1.6 atm for the deepest stop during Oxygen decompression. The Equivalent Narcotic Depth of the bottom gases is to be approximately hundred (100) feet/thirty (30) meters and is assuming that Oxygen may be narcotic. The preferred gases are Nitrox 32 (MOD 130ft/39m), Trimix 25/25 (MOD 150ft/45m) and Oxygen (MOD 20ft/6m).

A depth limitation of 130ft/39m should be adhered to. Decompression should not exceed 15minutes on a PPO_2 of 1.6 atm and should not exceed 20 minutes overall. (Note: deep stop and regular decompression stops prior to Oxygen are not included in this limitation.) Only one decompression gas is allowed.

T1.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI - Tech 2 DIR Specialty - provided all student pre-requisites are met
2. TDI - Line Management Protocols - provided all student pre-requisites are met
3. TDI - DPV 1 - provided all student pre-requisites are met

T1.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

T1.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

Open Water:

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

T1.5 Student Pre-Requisites

The student must:

1. Be a certified Enriched Air/Nitrox Diver or higher.
2. Be a Drysuit Diver.
3. Be a certified TDI Introduction to DIR Specialty Diver or equivalent.
4. Be a certified TDI Double Tank Diver or equivalent.
5. Be a minimum age of eighteen (18).
6. Have a minimum of fifty (50) logged dives in a drysuit not including training dives.
7. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

Note: The student and instructor may agree to perform an evaluation dive to establish the student's skill level and readiness to enroll in the TDI Line Management Protocols course in the absence of (a) required prerequisite rating(s) listed above but has similar or comparable ratings obtained by another accredited dive agency.

T1.6 Course Structure and Duration

This course can be a self-standing specialty or be combined with the TDI Tech 2 DIR Specialty if the instructor chooses to do so.

Note: This course cannot be combined with the Extended Range Diver Course due to the fact that said course teaches deep air diving which is contrary to the DIR philosophy.

Academic execution:

1. Approximately twelve (12) hours are dedicated to academic topics such as gas laws, gas properties and gas selection; decompression history, models and maladies; dive planning and gas management; equipment selection and configuration and skills protocols development and team protocols, communication and situational awareness.

2. Approximately two (2) hours are dedicated to dry-land exercises, skills development and critical skills management protocols.

Confined Water execution:

1. Two (2) dives are strongly recommended with complete brief, debriefs and video analysis by the instructor. If the situation or conditions do not permit confined water dives, 2 dives can be executed in a calm, shallow and clear-ish environment. Duration is approximately four (4) hours of in-water-time.

Open Water execution:

1. Four (4) skills development dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

2. Four (4) critical skills dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

3. Two (2) experience dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. three (3) hours of in-water-time.

4. Dives can be completed from shore or boat.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

T1.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course the Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

T1.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project's Tech 1 PowerPoint Presentation
2. TDI Understanding Nitrox Manual
3. TDI Advanced Nitrox Diving Manual
4 TDI Decompression Procedures Manual
5. TDI Complete Encyclopedia of Diving Terminology

T1.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members. In order to reap the most benefits from this course the students have complete the program in a DIR compliant equipment system.

Cylinders

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN), isolator manifold and properly sized and positioned tank bands. Minimum combined volume of both tanks is 160 cubic feet/4400 liters.

   The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

2. One (1) forty (40) cubic foot aluminum cylinder with appropriate valve (200bar DIN or 300bar DIN), proper deco cylinder rigging and DIR compliant labeling.

General Equipment Requirements

1. Approximately 7-foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approximately 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator
3. Approximately 24-inch High Pressure Hose with Brass and Glass SPG and permanently attached Stainless Steel Swivel Snap Bolt
4. Non-Split Fins
5. Backplate System with a Continuous Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
6. Back Inflation Style, Non-bungeed Wing with approx. 50 lbs of Lift
7. One (1) Depth Measuring Device
8. One (1) Time Keeping Device
9. One (1) Cutting Device
10. Wet Notes and Writing Instrument
11. Spool with 100 foot – 150-foot Line (knotted every 10 feet)

12. Small (approximately three (3) foot) Surface Marker Buoy
13. One (1) approximately 400-foot Sidewinder Style Primary Reel (knotted every 10 feet)
14. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt
15. Canister-Style Primary Light with Goodman Handle
16. One (1) Oxygen clean Decompression Regulator with an approximately 40 (forty) inch Regulator Hose and an approximately six (6) inch High Pressure Hose with Brass and Glass SPG

Exposure suit appropriate for the environment but a drysuit is strongly recommended.

T1.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

Academic:

1. Decompression History, Models and Maladies
2. Gas Laws, Properties and Selection
3. Gas Management and Dive Planning
4. Equipment Selection and Configuration
5. Team Protocols, Communication and Situational Awareness

Basic Skills:

1. Buoyancy, Balance, Trim and Positioning
2. Propulsion Techniques
3. Valve Drill
4. Liftbag/SMB Deployment
5. Out of Gas (OOG) Drills
6. Gas Switching Protocols
7. Cylinder Manipulation

Critical Skills:

1. Loss of Gas
    - I. Back Gas
    - II. Decompression Gas
    - III. Compounded with other Failures

2. Loss of Vision
    - I. At the Bottom
    - II. In Mid-Water
    - III. During Ascent
    - IV. Compounded with other Failures

3. Equipment Failures
    - I. Valve, Manifold and/or Isolator Failure
    - II. Roll-Offs/Roll-Ons
    - III. Wing and/or Drysuit Failure (Run-Away Ascents & Punctures)
    - VI. Light Failure
    - VI. Compounded with other Failures

4. Team Emergencies
    - I. Rescue Panicked, Unconscious or Convulsing Diver
    - II. Loss of Team Member
    - III. Loss of Ascent Line
    - IV. Compounded with other Failures

5. Experience Skills
    - I. Successful Pre-dive, Dive and Post-Execution

T1.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to contemporary DIR specifications.

2. Demonstrate sound Pre-Dive planning:
    - I. Goals and Activities
    - II. Team and Individual Roles
    - III. Equipment Needed and Equipment Matching
    - IV. Dive Limits: Time, Depth, Distance, Direction
    - V. Decompression and Ascent Strategies
    - VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check
4. Testing of both second stage regulators while submersed
5. Turn on Canister-Style Primary Light

In-Water Drills:

1. Demonstrate the ability to execute all skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

2. Demonstrate the ability to manage all critical skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

3. Demonstrate the ability to manage compound failures while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.

T2. TDI – Tech 2 DIR Specialty

T2.1 Introduction

The purpose of this course is to build on the TDI Tech 1 DIR Specialty course and expand the range of entry level technical diving while continuing to adhere to a contemporary approach of the DIR philosophy of diving. This course again builds on the fundamental components of the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; cohesive team diving strategies and enhanced over-all situational awareness; proficiency in critical skill management and fun.

The TDI Tech 2 DIR Specialty course is an advanced-beginner decompression course. Perspective students learn to use normoxic Trimix as bottom gas and Nitrox 50 as a decompression gas as well as superior technical skill sets to enjoy the aquatic realm as comfortable, competent and confident technical divers.

This course also introduces the use of a stage bottle. The use of a stage bottler offers the student an alternative to bringing two sets of doubles in situations where space is limited.
NOTE: The stage bottle is NOT to be treated as a bottom gas extender but only as an alternative to carrying two sets of doubles when impractical.

The bottom gas is not to exceed an average PPO_2 of 1.2 atm for any dive and a PPO_2 of 1.6 atm for the deepest stop during Nitrox 50 decompression. The Equivalent Narcotic Depth of the bottom gas is to be approximately hundred (100) feet/thirty (30) meters and is assuming that Oxygen may be narcotic. The preferred gas is Trimix 21/35 (MOD 190ft/57m) as bottom gas and Nitrox 50 (MOD 70ft/21m) for decompression.

At depth limitation of 165ft/50m should be adhered to. Decompression should not exceed 30 minutes total. (Note: deeps stops are not included in this time limitations.) Only one decompression gas is allowed.

T2.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI - Tech 2 Pro DIR Specialty- provided all student pre-requisites are met
2. TDI - Trimix 1 DIR Specialty - provided all student pre-requisites are met
3. TDI - Line Management Protocols - provided all student pre-requisites are met
4. TDI - DPV 1 - provided all student pre-requisites are met

T2.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

T2.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

Open Water:

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

T2.5 Student Pre-Requisites

The student must:

1. Be a certified TDI Tech 1 DIR Specialty Diver or equivalent.
2. Be a Drysuit Diver.
3. Be a minimum age of eighteen (18).
4. Have a minimum of fifty (50) logged dives in a drysuit not including training dives.
5. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

Note: The student and instructor may agree to perform an evaluation dive to establish the student's skill level and readiness to enroll in the TDI Line Management Protocols course in the absence of (a) required prerequisite rating(s) listed above but has similar or comparable ratings obtained by another accredited dive agency.

T2.6 Course Structure and Duration

This course can be a self-standing specialty or be combined with the TDI Tech 1 DIR Specialty if the instructor chooses to do so.

Note: This course cannot be combined with the Extended Range Diver Course due to the fact that said course teaches deep air diving which is contrary to the DIR philosophy.

Academic execution:

1. Approximately twelve (12) hours are dedicated to academic topics such as gas laws, gas properties and gas selection; decompression history, models and maladies; dive planning and gas management; equipment selection and configuration and skills protocols development and team protocols, communication and situational awareness.

2. Approximately two (2) hours are dedicated dry-land exercises, skills development and critical skills management protocols.

Confined Water execution:

N/A

Open Water execution:

1. Four (4) skills development dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

2. Four (4) critical skills dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

3. Two (2) experience dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. three (3) hours of in-water-time.

4. Dives can be completed from boat or shore as long as conditions permit staging of equipment in the water before final entry from shore.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

T2.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course the Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

T2.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project's Tech 2 PowerPoint Presentation
2. TDI Understanding Nitrox Manual
3. TDI Advanced Nitrox Diving Manual
4 TDI Decompression Procedures Manual
5. TDI Complete Encyclopedia of Diving Terminology

T2.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members. In order to reap the most benefits from this course the students have complete the program in a DIR compliant equipment system.

Cylinders

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN), isolator manifold and properly sized and positioned tank bands. Minimum combined volume of both tanks is 160 cubic feet/4400 liters.

   The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

2. One (1) eighty (80) cubic foot stage cylinder with appropriate valve (200bar DIN or 300bar DIN), proper stage cylinder rigging and NO MOD cylinder labeling.

3. One (1) forty (40) cubic foot aluminum cylinder with appropriate valve (200bar DIN or 300bar DIN), proper deco cylinder rigging and DIR compliant labeling.

General Equipment Requirements

1. Approximately 7-foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approximately 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator

3. Approximately 24-inch High Pressure Hose with Brass and Glass SPG and permanently attached Stainless Steel Swivel Snap Bolt
4. Non-Split Fins
5. Backplate System with a Continuous Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
6. Back Inflation Style, Non-bungeed Wing with approx. 50 lbs. of Lift
7. One (1) Depth Measuring Device
8. One (1) Time Keeping Device
9. One (1) Cutting Device
10. Wet Notes and Writing Instrument
11. Spool with 100 foot – 150-foot Line (knotted every 10 feet)
12. Small (approximately three (3) foot) Surface Marker Buoy
13. One (1) approximately 400-foot Sidewinder Style Primary Reel (knotted every 10 feet)
14. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt
15. Canister-Style Primary Light with Goodman Handle
16. Two (2) Oxygen clean Decompression Regulators with an approximately 40 (forty) inch Regulator Hoses and an approximately six (6) inch High Pressure Hoses with Brass and Glass SPGs

Exposure suit appropriate for the environment but a drysuit is strongly recommended.

T2.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

Academic:

1. Decompression History, Models and Maladies
2. Gas Laws, Properties and Selection
3. Gas Management and Dive Planning
4. Equipment Selection and Configuration
5. Team Protocols, Communication and Situational Awareness

Basic Skills:

1. Buoyancy, Balance, Trim and Positioning
2. Propulsion Techniques
3. Valve Drill
4. Liftbag/SMB Deployment
5. Out of Gas (OOG) Drills
6. Gas Switching Protocols

7. Cylinder Manipulation

Critical Skills:

1. Loss of Gas
    - I. Back Gas
    - II. Decompression Gas
    - III. Compounded with other Failures

2. Loss of Vision
    - I. At the Bottom
    - II. In Mid-Water
    - III. During Ascent
    - IV. Compounded with other Failures

3. Equipment Failures
    - I. Valve, Manifold and/or Isolator Failure
    - II. Roll-Offs/Roll-Ons
    - III. Wing and/or Drysuit Failure (Run-Away Ascents & Punctures)
    - VI. Light Failure
    - VI. Compounded with other Failures

4. Team Emergencies
    - I. Rescue Panicked, Unconscious or Convulsing Diver
    - II. Loss of Team Member
    - III. Loss of Ascent Line
    - IV. Compounded with other Failures

5. Experience Skills
    - I. Successful Pre-dive, Dive and Post-Execution

T2.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to contemporary DIR specifications.

2. Demonstrate sound Pre-Dive planning:
    - I. Goals and Activities
    - II. Team and Individual Roles
    - III. Equipment Needed and Equipment Matching
    - IV. Dive Limits: Time, Depth, Distance, Direction
    - V. Decompression and Ascent Strategies
    - VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check
4. Testing of both second stage regulators while submersed
5. Turn on Canister-Style Primary Light

In-Water Drills:

1. Demonstrate the ability to execute all skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

2. Demonstrate the ability to manage all critical skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

3. Demonstrate the ability to manage compound failures while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.

T2PRO. TDI – Tech 2 Pro DIR Specialty

T2PRO.1 Introduction

The TDI Tech 2 Pro DIR Specialty is an up-grade course to the TDI Tech 2 Specialty course. Perspective students learn to use a second decompression cylinder without the mandatory decompression obligations associated with a TDI Trimix 1 dive profile.
This course again adheres to the fundamental components of the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; cohesive team diving strategies and enhanced over-all situational awareness; proficiency in critical skill management and fun.

The purpose of this additional decompression cylinder is neither to abbreviate decompression nor to extend bottom times; its use is designed as a “clean-up bottle” after the second of two consecutive technical dives. A normal TDI Tech 2 DIR Specialty decompression schedule has to be adhered to but the 20ft/6m to the surface segment can be spent decompressing on Oxygen **WITHOUT** any decompression time credit.

Additionally, this additional “clean-up” decompression cylinder can and should be used while diving TDI Tech 2 dives at altitude as long as proper training has been completed and all pre-requisites have been met.

NOTE: At no time is the perspective student to carry more than two cylinders besides the backgas cylinders; a stage bottle and one (1) decompression cylinder OR two (2) decompression cylinders can be used on dive 1 and dive 2 respectively.

The bottom gas is not to exceed an average PPO2 of 1.2 atm for any dive and a PPO2 of 1.6 atm for the deepest stop during Nitrox 50 decompression. The Equivalent Narcotic Depth of the bottom gas is to be approximately hundred (100) feet/thirty (30) meters and is assuming that Oxygen may be narcotic. The preferred gas is Trimix 21/35 (MOD 190ft/57m) as bottom gas as well as 100% Oxygen (MOD 20ft/6m) and Nitrox 50 (MOD 70ft/21m) for decompression.

A depth limitation of 165ft/50m should be adhered to. Decompression should not exceed 30 minutes total. (Note: deeps stops are not included in this time limitations.) Two decompression gases are allowed. However, the decompression schedule cannot take the second decompression gas into account; no time credit can be given.

T2PRO.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI - Trimix 1 DIR Specialty - provided all student pre-requisites are met
2. TDI - Line Management Protocols - provided all student pre-requisites are met
3. TDI - DPV 1 - provided all student pre-requisites are met

T2PRO.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

T2PRO.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

Open Water:

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

T2PRO.5 Student Pre-Requisites

The student must:

1. Be a certified TDI Tech 2 DIR Specialty Diver or equivalent with 25 non-training dives.
2. Be a Drysuit Diver.
3. Be a minimum age of eighteen (18).
4. Have a minimum of fifty (50) logged dives in a drysuit not including training dives.
5. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

Note: The student and instructor may agree to perform an evaluation dive to establish the student's skill level and readiness to enroll in the TDI Line Management Protocols course in the absence of (a) required prerequisite rating(s) listed above but has similar or comparable ratings obtained by another accredited dive agency.

T2PRO.6 Course Structure and Duration

This course an up-grade to the TDI Tech 2 DIR Specialty and as such is a self-standing course.

Academic execution:

1. N/A

2. Approximately two (2) hours are dedicated dry-land exercises and skills development.

Confined Water execution:

N/A

Open Water execution:

1. One (1) skills development dive is required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. two (2) hours of in-water-time.

2. One (1) critical skills dive is required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. two (2) hours of in-water-time.

3. Two (2) experience dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. three (3) hours of in-water-time.

4. Dives can be completed from boat or shore as long as conditions permit staging of equipment in the water before final entry from shore.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

T2PRO.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course the Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

T2PRO.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project's Tech 2 PowerPoint Presentation
2. TDI Understanding Nitrox Manual
3. TDI Advanced Nitrox Diving Manual
4 TDI Decompression Procedures Manual
5. TDI Complete Encyclopedia of Diving Terminology

T2PRO.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members. In order to reap the most benefits from this course the students have complete the program in a DIR compliant equipment system.

Cylinders

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN), isolator manifold and properly sized and positioned tank bands. Minimum combined volume of both tanks is 160 cubic feet/4400 liters.

   The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

2. One (1) eighty (80) cubic foot stage cylinder with appropriate valve (200bar DIN or 300bar DIN), proper stage cylinder rigging and NO MOD cylinder labeling.

3. Two (2) forty (40) cubic foot aluminum cylinder with appropriate valve (200bar DIN or 300bar DIN), proper deco cylinder rigging and DIR compliant labeling.

General Equipment Requirements

1. Approximately 7-foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approximately 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator
3. Approximately 24-inch High Pressure Hose with Brass and Glass SPG and permanently attached
   Stainless Steel Swivel Snap Bolt
4. Non-Split Fins
5. Backplate System with a Continuous Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
6. Back Inflation Style, Non-bungeed Wing with approximately 50 lbs. of Lift
7. One (1) Depth Measuring Device

8. One (1) Time Keeping Device
9. One (1) Cutting Device
10. Wet Notes and Writing Instrument
11. Spool with 100-foot – 150-foot Line (knotted every 10 feet)
12. Small (approximately three (3) foot) Surface Marker Buoy
13. One (1) approximately 400-foot Sidewinder Style Primary Reel (knotted every 10 feet)
14. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt
15. Canister-Style Primary Light with Goodman Handle
16. Two (2) Oxygen clean Decompression Regulators with a 40 (forty) inch Regulator Hoses and a six (6) inch High Pressure Hoses with Brass and Glass SPGs

Exposure suit appropriate for the environment but a drysuit is strongly recommended.

T2PRO.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

Academic:

1. Decompression History, Models and Maladies

2. Gas Management and Dive Planning

3. Team Protocols, Communication and Situational Awareness

Basic Skills:

1. Out of Gas (OOG) Drills

2. Gas Switching Protocols

3. Cylinder Manipulation

Critical Skills:

1. Loss of Gas
    - I. Back Gas
    - II. Decompression Gas
    - III. Compounded with other Failures

2. Experience Skills
    - I. Successful Pre-dive, Dive and Post-Execution

T2PRO.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to contemporary DIR specifications.

2. Demonstrate sound Pre-Dive planning:
    I. Goals and Activities
    II. Team and Individual Roles
    III. Equipment Needed and Equipment Matching
    IV. Dive Limits: Time, Depth, Distance, Direction
    V. Decompression and Ascent Strategies
    VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check
4. Testing of both second stage regulators while submersed
5. Turn on Canister-Style Primary Light

In-Water Drills:

1. Demonstrate the ability to execute all skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

2. Demonstrate the ability to manage all critical skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

3. Demonstrate the ability to manage compound failures while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.

TX1. TDI – Trimix 1 DIR Specialty

TX1.1 Introduction

The purpose of this course is to build on the TDI Tech 2 DIR Specialty course and expand the range of technical diving deeper while continuing to adhere to a contemporary approach of the DIR philosophy of diving. This course again builds on the fundamental components of the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; cohesive team diving strategies and enhanced over-all situational awareness; proficiency in critical skill management and fun.

The TDI Trimix 1 DIR Specialty course is designed to prepare the skilled technical diver for the rigors of deeper Trimix diving. Students learn to use normoxic and hypoxic Trimix as bottom gases as well as Oxygen and Nitrox 50 as decompression gases. The skills sets acquired in this course help the student enjoy the aquatic realm as a comfortable, competent and confident Trimix diver.

The bottom gases are not to exceed an average PPO_2 of 1.2 atm for any dive and a PPO_2 of 1.6 atm for the deepest stop during Oxygen and Nitrox 50 decompression. The Equivalent Narcotic Depth of the bottom gas is to be approximately hundred (100) feet/thirty (30) meters and is assuming that Oxygen may be narcotic. The preferred gases are Trimix 18/45 (MOD 220ft/66m) and Trimix 15/55 (MOD 275ft/73m) as bottom gases and 100% Oxygen (MOD 20ft/6m) and Nitrox 50 (MOD 70ft/21m) for decompression.

At depth limitation of 220ft/66m should be adhered to. Decompression should not exceed 60 minutes total. (Note: deeps stops are not included in this time limitations.) Two (2) decompression gases are required.

TX1.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI - Trimix 2 DIR Specialty - provided all student pre-requisites are met
2. TDI - Line Management Protocols - provided all student pre-requisites are met
   (Note: At this level of diving line skills should be very well established.)
3. TDI - DPV 1 - provided all student pre-requisites are met.
   (Note: At this level of diving line skills should be very well established.)

TX1.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

TX1.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

Open Water:

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

TX1.5 Student Pre-Requisites

The student must:

1. Be a certified TDI Tech 2 or Tech 2 Pro DIR Specialty Diver or equivalent.
2. Be a Drysuit Diver.
3. Be a minimum age of eighteen (18).
4. Have a minimum of fifty (50) logged dives in a drysuit not including training dives.
5. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

Note: The student and instructor may agree to perform an evaluation dive to establish the student's skill level and readiness to enroll in the TDI Line Management Protocols course in the absence of (a) required prerequisite rating(s) listed above but has similar or comparable ratings obtained by another accredited dive agency.

TX1.6 Course Structure and Duration

This course is a self-standing specialty and should not be combined with any other courses. If the student does not have any overhead environment

Academic execution:

1. Approximately twelve (12) hours are dedicated to academic topics such as gas laws, gas properties and gas selection; decompression history, models and maladies; dive planning and gas management; equipment selection and configuration and skills protocols development and team protocols, communication and situational awareness.

2. Approximately two (2) hours are dedicated dry-land exercises, skills development and critical skills management protocols.

Confined Water execution:

N/A

Open Water execution:

1. Four (4) skills development dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

2. Four (4) critical skills dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

3. Two (2) experience dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. four (4) hours of in-water-time.

4. Dives can be completed from shore or boat as long as conditions permit staging of equipment in the water before final entry from shore.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

TX1.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course the Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

TX1.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project's Trimix 1 PowerPoint Presentation
2. TDI Extended Range/Trimix Manual
3. TDI Complete Encyclopedia of Diving Terminology

TX1.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members. In order to reap the most benefits from this course the students have complete the program in a DIR compliant equipment system.

Cylinders

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN), isolator manifold and properly sized and positioned tank bands. Minimum combined volume of both tanks is 160 cubic feet/4400 liters.

   The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

2. Two (2) forty (40) cubic foot aluminum cylinder with appropriate valve (200bar DIN or 300bar DIN), proper deco cylinder rigging and DIR compliant labeling.

General Equipment Requirements

1. Approximately 7-foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approximately 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator
3. Approximately 24-inch High Pressure Hose with Brass and Glass SPG and permanently attached Stainless Steel Swivel Snap Bolt
4. Non-Split Fins
5. Backplate System with a Continuous Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
6. Back Inflation Style, Non-bungeed Wing with approximately 50 lbs. of Lift
7. One (1) Depth Measuring Device
8. One (1) Time Keeping Device
9. One (1) Cutting Device
10. Wet Notes and Writing Instrument
11. Spool with 100-foot – 150-foot Line (knotted every 10 feet)
12. Small (approximately three (3) foot) Surface Marker Buoy

13. One (1) approximately 400-foot Sidewinder Style Primary Reel (knotted every 10 feet)
14. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt
15. Canister-Style Primary Light with Goodman Handle
16. Two (2) Oxygen clean Decompression Regulators with an approximately 40 (forty) inch Regulator Hoses and an approximately six (6) inch High Pressure Hoses with Brass and Glass SPGs

Exposure suit appropriate for the environment but a drysuit is strongly recommended.

TX1.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

Academic:

1. Decompression History, Models and Maladies
2. Gas Laws, Properties and Selection
3. Gas Management and Dive Planning
4. Equipment Selection and Configuration
5. Team Protocols, Communication and Situational Awareness

Basic Skills:

1. Buoyancy, Balance, Trim and Positioning
2. Propulsion Techniques
3. Valve Drill
4. Liftbag/SMB Deployment
5. Out of Gas (OOG) Drills
6. Gas Switching Protocols
7. Cylinder Manipulation

Critical Skills:

1. Loss of Gas
    - I. Back Gas
    - II. Decompression Gas
    - III. Compounded with other Failures

2. Loss of Vision
    - I. At the Bottom
    - II. In Mid-Water
    - III. During Ascent
    - IV. Compounded with other Failures

3. Equipment Failures
    - I. Valve, Manifold and/or Isolator Failure
    - II. Roll-Offs/Roll-Ons
    - III. Wing and/or Drysuit Failure (Run-Away Ascents & Punctures)
    - VI. Light Failure
    - VI. Compounded with other Failures

4. Team Emergencies
    - I. Rescue Panicked, Unconscious or Convulsing Diver
    - II. Loss of Team Member
    - III. Loss of Ascent Line
    - IV. Compounded with other Failures

5. Experience Skills
    - I. Successful Pre-dive, Dive and Post-Execution

TX.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to contemporary DIR specifications.

2. Demonstrate sound Pre-Dive planning:
    - I. Goals and Activities
    - II. Team and Individual Roles
    - III. Equipment Needed and Equipment Matching
    - IV. Dive Limits: Time, Depth, Distance, Direction
    - V. Decompression and Ascent Strategies
    - VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check
4. Testing of both second stage regulators while submersed
5. Turn on Canister-Style Primary Light

In-Water Drills:

1. Demonstrate the ability to execute all skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

2. Demonstrate the ability to manage all critical skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

3. Demonstrate the ability to manage compound failures while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.

TX2. TDI – Trimix 2 DIR Specialty

TX2.1 Introduction

This course is the pinnacle of the TDI DIR Open Circuit Specialty course series. The TDI Trimix 2 DIR Specialty prepares the student for the final level of deep diving and empowers him/her with the knowledge and skills set to make educated and prudent choices while expanding the range of technical diving gradually deeper. This course again adheres to a contemporary approach of the DIR philosophy and builds on the fundamental components of the DIR approach, namely a simple, streamlined and efficient equipment configuration; proper pre-dive planning and preparation; proper buoyancy, balance and trim; efficient propulsion techniques; cohesive team diving strategies and enhanced over-all situational awareness; proficiency in critical skill management and fun.

The TDI Trimix 2 DIR Specialty course is designed to prepare the competent Trimix diver for the rigors of deep Trimix diving. Students learn to use hypoxic Trimix as bottom gases as well as Oxygen, Nitrox 50 and Trimix 35/25 as decompression gases. The skills sets acquired in this course help the perspective student enjoy the aquatic realm as expert Trimix diver.

The bottom gases are not to exceed an average PPO_2 of 1.2 atm for any dive and a PPO_2 of 1.6 atm for the deepest stop during Oxygen and Nitrox 50 decompression. The Equivalent Narcotic Depth of the bottom gas is to be approximately hundred (100) feet/thirty (30) meters and is assuming that Oxygen may be narcotic. The preferred gases are Trimix 15/55 (MOD 275ft/73m), Trimix 12/65 (MOD 400ft/120m) and Trimix 10/70 (MOD 490ft/150m) as bottom gases and 100% Oxygen (MOD 20ft/6m), Nitrox 50 (MOD 70ft/21m), Trimix 35/25 (MOD 120ft/36m) and Trimix 21/35 (MOD 190ft/57m) for decompression.

At depth limitation of 330ft/100m should be adhered to. Decompression should not exceed 90 minutes total. (Note: deeps stops are not included in this time limitations.) One (1) stage bottle and three (3) decompression gases are required.

TX2.2 Qualifications of Graduates

Upon successful completion of this course, graduates may engage in diving activities using a technical DIR-compliant equipment configuration without direct supervision so long as:

1. The diving activities approximate those of training.
2. The areas of activities and environmental conditions approximate those of training.

Graduates may enroll in:

1. TDI – MCRR 1 DIR Specialty - provided all student pre-requisites are met

TX2.3 Who May Teach

Who may teach this course?

1. An active TDI Instructor that has been certified to teach this Specialty.

TX2.4 Student – Instructor Ratio

Academic:

1. Unlimited, so long as adequate facility, supplies and time are provided to insure comprehensive and complete training.

Confined Water (Swimming pool-like condition):

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

Open Water:

1. A maximum of three (3) students per Instructor. However, it is the instructor's discretion to reduce this number as conditions dictate.

TX2.5 Student Pre-Requisites

The student must:

1. Be a certified TDI Trimix 1 DIR Specialty Diver or equivalent.
2. Be a Drysuit Diver.
3. Be a minimum age of eighteen (18).
4. Have a minimum of fifty (50) logged dives in a drysuit not including training dives.
5. Be certified in the TDI Line Management Protocol course or equivalent.
6. Be certified in the TDI DPV 1 course or equivalent.
7. Show proof of current Divers Alert Network Master or Preferred Insurance Plan.

Note: The student and instructor may agree to perform an evaluation dive to establish the student's skill level and readiness to enroll in the TDI Line Management Protocols course in the absence of (a) required prerequisite rating(s) listed above but has similar or comparable ratings obtained by another accredited dive agency.

TX2.6 Course Structure and Duration

This course is a self-standing specialty and should not be combined with any other courses. If the student does not have any overhead environment

Academic execution:

1. Approximately twelve (12) hours are dedicated to academic topics such as gas laws, gas properties and gas selection; decompression history, models and maladies; dive planning and gas management; equipment selection and configuration and skills protocols development and team protocols, communication and situational awareness.

2. Approximately two (2) hours are dedicated dry-land exercises, skills development and critical skills management protocols.

Confined Water execution:

N/A but a session introducing multiple bottle rotation may be very beneficial.

Open Water execution:

1. Four (4) skills development dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

2. Four (4) critical skills dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. twelve (12) hours of in-water-time.

3. Two (2) experience dives are required with complete brief, debriefs and video analysis (visibility permitting) by the instructor. Duration is approx. five (5) hours of in-water-time.

4. Dives can be completed from shore or boat as long as conditions permit staging of equipment in the water before final entry from shore.

Course Structure:

1. TDI allows instructors to structure courses according to the number of participants and their skill level.

TX2.7 Administrative Requirements

Administrative Tasks:

1. Collect the course fees from all the students.
2. Ensure that the students have the required equipment.
3. Communicate the schedule to the students.
4. Have the students complete the Liability Release and Medical History forms.
5. The Instructor must review the Liability Release and Medical Forms before starting on the course.
6. The Instructor must verify that the students have current DAN Master or Preferred Insurance plans.

Upon successful completion of this specialty course the Instructor must:

1. Issue a TDI temporary certification card. Complete and submit the Registration Form to TDI.
2. Award card.

TX2.8 Training Material

Required Material;

1. N/A

Optional Material;

1. Tam Ha Project's Trimix 2 PowerPoint Presentation
2. TDI Advanced Trimix Manual
3. TDI Complete Encyclopedia of Diving Terminology

TX2.9 Required Equipment

The DIR equipment configuration is designed to be simple, streamlined, efficient and consistent amongst all team members. In order to reap the most benefits from this course the students have complete the program in a DIR compliant equipment system.

Cylinders

1. One (1) set of double tanks with appropriate valves (200bar DIN or 300bar DIN), isolator manifold and properly sized and positioned tank bands. Minimum combined volume of both tanks is 160 cubic feet/4400 liters.

   The composition of the cylinder is to be in accordance with the students' exposure protections, i.e. no heavy steel tank in conjunction with wetsuits. Aluminum tanks are acceptable for wetsuits and drysuits.

2. One (1) or two (2) eighty (80) cubic foot stage cylinder with appropriate valve (200bar DIN or 300bar DIN), proper stage cylinder rigging and NO MOD cylinder labeling.

3. Three (3) forty (40) cubic foot aluminum cylinder with appropriate valve (200bar DIN or 300bar DIN), proper deco cylinder rigging and DIR compliant labeling.

General Equipment Requirements

1. Approximately 7-foot Primary Regulator Hose with a permanently attached Stainless Steel Swivel Snap Bolt
2. Approximately 22-inch – 24-inch Secondary Regulator Hose with a Bungee Necklace permanently attached to the Regulator
3. Approximately 24-inch High Pressure Hose with Brass and Glass SPG and permanently attached Stainless Steel Swivel Snap Bolt
4. Non-Split Fins
5. Backplate System with a Continuous Webbing Harness (Stainless Steel, Aluminum or Composites are acceptable)
6. Back Inflation Style, Non-bungeed Wing with approximately 50 lbs. of Lift
7. One (1) Depth Measuring Device
8. One (1) Time Keeping Device
9. One (1) Cutting Device

10. Wet Notes and Writing Instrument
11. Spool with 100-foot – 150-foot Line (knotted every 10 feet)
12. Small (approximately three (3) foot) Surface Marker Buoy
13. One (1) approximately 400-foot Sidewinder Style Primary Reel (knotted every 10 feet)
14. One (1) Back-Up Light with permanently attached Stainless Steel Swivel Snap Bolt
15. Canister-Style Primary Light with Goodman Handle
16. Three (3) or four (4) Oxygen clean Decompression Regulators with an approximately 40 (forty) inch Regulator Hoses and an approximately six (6) inch High Pressure Hoses with Brass and Glass SPGs

Exposure suit appropriate for the environment but a drysuit is strongly recommended.

TX2.10 Required Subject Areas

Instructors may use any text or materials that they feel help present these topics. The following topics must be covered during this course:

Academic:

1. Decompression History, Models and Maladies
2. Gas Laws, Properties and Selection
3. Gas Management and Dive Planning
4. Equipment Selection and Configuration
5. Team Protocols, Communication and Situational Awareness

Basic Skills:

1. Buoyancy, Balance, Trim and Positioning
2. Propulsion Techniques
3. Valve Drill
4. Liftbag/SMB Deployment
5. Out of Gas (OOG) Drills
6. Gas Switching Protocols
7. Cylinder Manipulation
8. Cylinder Rotation

Critical Skills:

1. Loss of Gas
    - I. Back Gas
    - II. Decompression Gas
    - III. Compounded with other Failures

2. Loss of Vision
    - I. At the Bottom
    - II. In Mid-Water
    - III. During Ascent
    - IV. Compounded with other Failures

3. Equipment Failures
    - I. Valve, Manifold and/or Isolator Failure
    - II. Roll-Offs/Roll-Ons
    - III. Wing and/or Drysuit Failure (Run-Away Ascents & Punctures)
    - VI. Light Failure
    - VI. Compounded with other Failures

4. Team Emergencies
    - I. Rescue Panicked, Unconscious or Convulsing Diver
    - II. Loss of Team Member
    - III. Loss of Ascent Line
    - IV. Compounded with other Failures

5. Experience Skills
    - I. Successful Pre-dive, Dive and Post-Execution

TX2.11 Required Skill Performance and Graduation Requirements

Students are required to successfully complete the following skills:

Land Drills:

1. Demonstrate competency assembling equipment to contemporary DIR specifications.

2. Demonstrate sound Pre-Dive planning:
    - I. Goals and Activities
    - II. Team and Individual Roles
    - III. Equipment Needed and Equipment Matching
    - IV. Dive Limits: Time, Depth, Distance, Direction
    - V. Decompression and Ascent Strategies
    - VI. Gas Planing, Gas Management, Minimum Gas

Pre-Dive Drills:

1. Bubble Check
2. Simulated S-Drill
3. Flow Check
4. Testing of both second stage regulators while submersed
5. Turn on Canister-Style Primary Light

In-Water Drills:

1. Demonstrate the ability to execute all skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

2. Demonstrate the ability to manage all critical skills while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

3. Demonstrate the ability to manage compound failures while maintaining proper buoyancy, trim, in-water position and team formation with a maximum of buoyancy change of plus/minus three (3) feet/one (1) meter or less.

In order to complete this course, students must:

1. Complete all land drills, pre-dive drills and in-water drill safely and efficiently.
2. Demonstrate a competent, confident and comfortable attitude towards dive planning, dive execution, teamwork and situational awareness.
3. Analyze and constructively discuss their in-water performance together with the instructor and teammates during the video debriefing.