



👉 Advanced Nitrox + Decompression Procedures

📖 COMBINED COURSE MANUAL / TDI Advanced Nitrox + Decompression Procedures Diver

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1. Introduction

This combined training program integrates:

- TDI Advanced Nitrox Diver
- TDI Decompression Procedures Diver

The objective is to train divers to:

- Safely use enriched air nitrox and oxygen
- Plan and conduct staged decompression dives
- Apply technical diving procedures in real environments

All training is conducted in accordance with TDI Standards and Procedures.

2. Prerequisites

Students must meet the requirements of both courses:

- Minimum age: 18
- Certification:
 - Nitrox Diver (or equivalent)
 - Advanced Diver (or equivalent)
- Minimum logged dives:
 - 25 dives

Students must demonstrate:

- Good buoyancy control
- Basic dive planning ability
- Comfort in open water environments

3. Course Structure

According to TDI standards:

- Combined Advanced Nitrox + Decompression Procedures:

👉 Total: 6 dives

Recommended schedule:

- 3–4 days
- 2 dives per day

Minimum classroom time:

- 6 hours (minimum standard requirement)

4. Depth Limits

Training dives must not exceed:

- 40 meters (Advanced Nitrox limit)
- 45 meters (Decompression Procedures limit)

👉 Operational maximum: 45 meters

Minimum requirement:

- At least 2 dives deeper than 30 meters

5. Equipment Requirements

Students must use a technical diving configuration including:

Core Equipment

- Primary cylinder(s) (twinset or equivalent)
- Stage/decompression cylinder(s)
- Regulators (primary + redundant)
- Submersible pressure gauges
- Multi-gas dive computer

Safety Equipment

- SMB / lift bag with reel
- Line cutting device
- Backup mask
- Slate

Gas Equipment

- Oxygen analyzer
- Proper gas labeling

6. Theory (Combined)

6.1 Physics

- Pressure and gas behavior
- Effects of depth

6.2 Physiology

- Oxygen toxicity (CNS / OTU)
- Hypoxia
- Nitrogen narcosis
- Gas absorption and elimination
- Carbon dioxide toxicity

6.3 Decompression Theory

- Bubble formation
- Decompression models
- Safety stops vs required stops

6.4 Gas Planning

- Best mix calculations
- MOD
- Oxygen exposure limits
- Gas consumption

6.5 Equipment Concepts

- Redundancy
- Stage cylinder handling
- Gas switching

7. Dive Planning

Each dive must include:

- Gas planning (bottom + deco)
- Oxygen exposure tracking
- Nitrogen limits
- Run time planning
- Contingency planning

Emergency scenarios:

- Gas loss
- Missed decompression
- Equipment failure

8. Standard Procedures

8.1 Pre-Dive (START)

- S-Drill
- Team check
- Air matching
- Route
- Tables / schedule

8.2 In-Water

- Buoyancy control
- Trim
- Team awareness

8.3 Gas Management

- Gas tracking
- Gas switching procedures
- Team verification

8.4 Decompression Procedures

- Controlled ascent
- Stop discipline
- Monitoring runtime

9. Skill Development

Students must demonstrate:

Core Skills

- Buoyancy and trim
- Team communication
- Air sharing

Technical Skills

- Stage handling
- Gas switching
- Lift bag deployment

Decompression Skills

- Maintaining stop depth
- Executing decompression schedule
- Problem solving

10. Dive Program (6 Dives)

Day 1 – Fundamentals + Nitrox (No Decompression)

Dive 1

- Buoyancy and trim
- Equipment setup
- Nitrox analysis

Dive 2

- Gas planning
- Basic drills
- Team procedures

Day 2 – Nitrox + Decompression Introduction

Dive 3 (Decompression Dive >30 m)

- Location: Primary deep site (e.g. wreck)
- Stage cylinder use
- Gas switching
- Planned decompression execution

Dive 4 (No Decompression / Skill Dive)

- Location: Secondary or shallow site
- Focus:
- Controlled ascent
- Buoyancy refinement
- Team coordination

Day 3 – Decompression Procedures

Dive 5 (Decompression Dive >30 m)

- Location: Primary deep site
- Full decompression profile
- Gas management
- Run time discipline

Dive 6 (No Decompression / Final Skill Dive)

- Location: Shallow or moderate site
- Focus:
- Problem solving
- Scenario-based exercises
- Final skill refinement

11. Emergency Procedures

Students must demonstrate correct response to:

- Gas loss
- Free flow
- Missed decompression
- Equipment failure

12. Graduation Requirements

Students must:

- Complete all 6 dives
- Complete written exams
- Demonstrate all required skills
- Show safe and sound judgment

13. Certification

Upon successful completion, students **may** receive:

- TDI Advanced Nitrox Diver
- TDI Decompression Procedures Diver



BOAT PLAN TABLE OF CONTENTS

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5. Key Operational Considerations
6. Advantages of This Plan
7. Limitations

1. Objective

The purpose of this boat plan is to:

- Integrate Advanced Nitrox and Decompression Procedures training
- Introduce decompression diving progressively
- Maintain safe and controlled training conditions

2. General Concept

- Early dives are conducted without decompression to build foundational skills
- Decompression dives are introduced gradually
- Only the required dives include decompression exposure
- Surface intervals are structured to support repetitive technical diving

3. Daily Dive Structure

3.1 Day 1 – Fundamentals (No Decompression)

Dive 1

- Location: Easy / controlled site
- Focus:
- Buoyancy and trim
- Equipment setup
- Nitrox analysis

Dive 2

- Focus:
- Gas planning
- Basic team procedures
- Introduction to stage handling

👉 Both dives are conducted without decompression obligation

3.2 Day 2 – First Decompression Exposure

Dive 3 (Decompression Dive – Primary Site, e.g. HTMS Chang)

- Depth: >30 meters
- Runtime: max. 60 minutes
- Focus:
- Planned decompression
- Gas switching
- Run time discipline

Surface Interval

- Minimum: 2 to 2.5 hours
- Achieved by:
- Boat transit
- Recreational dive for other guests (optional)
- Preparation time

Dive 4 (No Decompression / Light Profile)

- Location: Secondary / shallow site
- Focus:
- Skill refinement
- Buoyancy
- Controlled ascent

👉 This dive is conducted without mandatory decompression

3.3 Day 3 – Second Decompression Dive

Dive 5 (Decompression Dive – Primary Site)

- Depth: >30 meters
- Runtime: max. 60 minutes
- Focus:
- Full decompression profile
- Gas management
- Problem solving

Surface Interval

- Minimum: 2 to 2.5 hours

Dive 6 (No Decompression / Skill Dive)

- Location: Shallow or moderate site
- Focus:
- Skill consolidation
- Scenario-based exercises
- Final adjustments

👉 Conducted without mandatory decompression

4. Surface Interval Management

Surface intervals are created through:

- Boat transit time
- Dive rotation
- Preparation time

👉 Target surface interval for deco days:

2 to 2.5 hours

5. Key Operational Considerations

Dive Planning

- Only 2 dives require decompression
- Remaining dives are used for skill development

Gas Management

- All gases must be analyzed and labeled
- Deco gases must be verified before each dive

Dive Timing

- Maximum runtime: 60 minutes
- Actual runtime based on training needs

Safety

- Strict supervision of all technical dives
- Clear separation of dive profiles

6. Advantages of This Plan

- Fully compliant with TDI standards
- Reduced workload on students
- Progressive learning structure
- Easy integration into daily boat operations

7. Limitations

- Dependent on weather and conditions
- Requires stable logistics for repeated deep dives
- Instructor must adapt plan if necessary