N9BO
Global Underwater Services® Ltd


## Gas Blending & Oxygen Systems: Technician-Level Training for Precision Diving

Behind every safe and successful technical dive is a team trained in the science and precision of gas blending and oxygen system management. This month, N9BO focuses on the core technician-level skills that keep divers alive at depth—clean gas handling, proper blending, booster operation, and oxygen system servicing.
Whether you're a diver, a technician, or support crew—this training is your foundation for safe, efficient, and professional dive operations.

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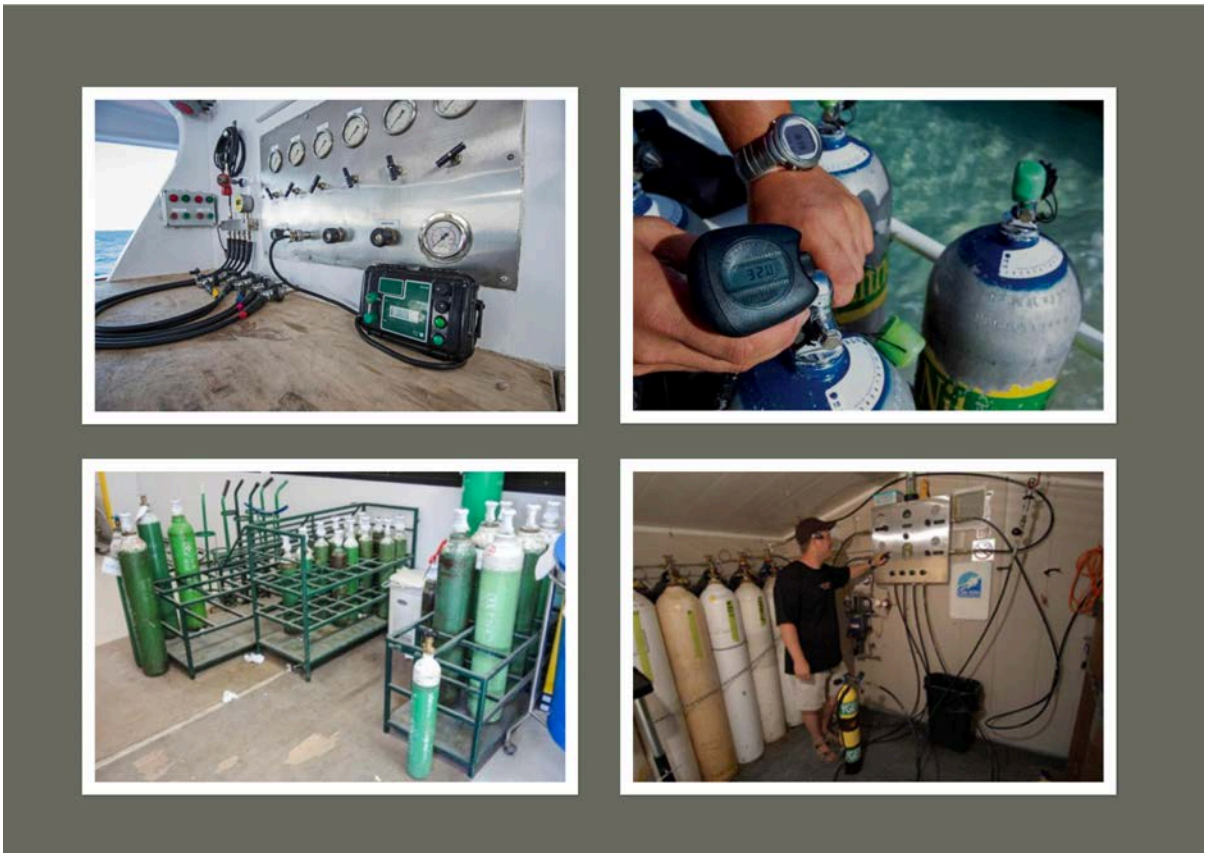
## Oxygen & Mixed Gas Systems: Where Safety Meets Science

Handling high-pressure oxygen and blending breathing gases like Nitrox and Trimix is not just a technical job—it's a *responsibility*. These roles support decompression diving, deep technical operations, and public safety teams.

- Gas mixing procedures and safety standards
  Oxygen-cleaning of regulators, valves, and cylinders
  Booster pump operation and pressure management
- Real-world use in tech dives, surface support, and commercial ops



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## Mastering the Mechanics Behind Every Dive

Every successful dive—especially those in technical, public safety, or expedition settings—relies on precise gas handling, clean oxygen systems, and well-serviced equipment. Whether you're blending Nitrox or Trimix, operating a booster, or preparing oxygen-ready tanks and regulators, technician-level training ensures your gear is safe, your gas is accurate, and your team is ready. In the sections below, we break down the essential skills and certifications every serious diver or dive operation needs to support advanced underwater missions.

### 1️⃣ Equipment & Cylinder $O_2$ Service: No Room for Error

Oxygen-rich environments introduce serious fire and contamination risks. That’s why all components—from tanks to O-rings—must be 'oxygen-clean' and properly serviced.

**🔧 In the TDI Equipment $O_2$ Service Technician and TDI Cylinder $O_2$ Service Technician programmes, you'll learn:**

✔️ How to inspect and clean scuba cylinders for oxygen service
Disassemble, clean, and rebuild valves and regulators
Identify incompatible lubricants and materials
✔️ Establish maintenance records and service logs

💡 Remember: a single contaminant or bad connection can lead to combustion under pressure. This training ensures you're always operating within oxygen-safe standards.

## 2️⃣ Booster Operation: Powering Safe Gas Fills

Oxygen boosters are used to transfer gas into high-pressure cylinders when standard compressors can't. It's a critical role in gas logistics—especially for deco bottles and advanced tech setups.

- 🔹 Safety protocols for high-pressure oxygen transfer
  System configuration, pressure management, and control
  Leak checking, gas analysis, and troubleshooting
- 🔹 Booster types and appropriate use cases

Used incorrectly, boosters can cause injury or equipment damage. With training, they become a safe, efficient part of your dive centre or expedition setup.

## 3️⃣ Gas Blending: Precision Mixing for Nitrox and Trimix

Diving with Nitrox and Trimix offers major benefits—but blending those gases requires skill, math, and safety. Our hands-on courses teach the physics, calculations, and procedures behind accurate gas mixing.

🧪 **You'll learn to:**

✔️ Use partial pressure and continuous blending methods
Calculate MODs, EADs, and CNS exposure limits
Mix and analyse Nitrox and Trimix blends with accuracy
✔️ Understand helium cost-efficiency and logistics

Whether you're supporting a dive centre, expedition, or your own dives, proper blending training is non-negotiable.

## 4️⃣ Real-World Relevance: Supporting Deep & Technical Ops

From 30m Nitrox reef dives to 100+m Trimix wreck penetrations, gas logistics are the backbone of extended dive operations. Poor blending, contaminated cylinders, or unserviced gear can cancel a dive—or compromise safety.

At N9BO, our instructor team trains you using live gear, real scenarios, and operational standards used in working dive centres, tech expeditions, and public safety units.

📍 You'll work with real boosters
You'll blend and analyse actual mixes
📍 You'll perform strip-downs on live-use equipment

This isn’t just classroom learning: it’s technician-level performance for field-ready divers.

## 5️⃣ Courses to Elevate Your Operational Capability:

🔹 **TDI Equipment $O_2$ Service Technician** – Disassemble, clean, and rebuild oxygen-rated scuba equipment

**TDI Cylinder $O_2$ Service Technician** – Service, inspect, and oxygen-clean tanks for high-pressure fills

**TDI Booster Operator Training** – Learn safe and efficient oxygen transfer techniques using mechanical boosters

**TDI Nitrox Gas Blender** / **PADI TEC Gas Blender** – Understand and apply correct procedures for mixing enriched air

🔹 **TDI Advanced Gas Blender** / **PADI TEC Trimix Blender** – Master complex helium-based gas blending for deep tech and decompression diving

Whether you're running a dive centre, supporting expeditions, or gearing up for advanced trimix training—this is the professional-level training that ensures safety and success.

**Check out our TDI and PADI training programmes at N9BO**

Yours in diving,
**The N9BO Team**

💙 Explore. Protect. Dive with Purpose.