

A large sea turtle, likely a hawksbill, is swimming in clear blue water above a vibrant coral reef. The turtle's shell is dark with light-colored patterns, and its flippers are visible. The coral reef below is colorful with various species of coral and sponges.

The Villages Scuba Club

Scuba Tank Visual Inspection Process (VIP)

WARREN GROSS, 03 JULY 2024

The Making of Nitrox

- Two methods for filling tanks with Nitrox -
 - Pre-blended Nitrox (also known as Premix Nitrox)
 - Membrane System separates Nitrogen from the Air to create an Oxygen-rich mix, or
 - Continuous Flow Mixing (or Continuous Gas Blending) continually blends Oxygen from O₂ Cylinder and Air - often called Nitrox Stik
 - Gases are blended upstream of compressor, resultant Nitrox is typically stored in cylinder bank.
 - Scuba tank is filled with premix Nitrox.
 - Scuba tanks need to be clean for up to 40% Oxygen
 - Partial Pressure Blending
 - Scuba Tank is first filled with Oxygen.
 - Scuba Tank is then topped off with Oxygen Compatible Air to achieve desired Nitrox mix.
 - Example - I want a tank filled to 3500 PSI with 36% Nitrox:
 - Fill with 665 PSI of 100% Oxygen
 - Fill to 3500 PSI with Air.
 - Scuba tanks need to be clean for Oxygen service (100% Oxygen)

Visual Inspection Process (VIP)

- Dive industry standard annual inspection - not a federal mandate
 - Visual inspection of exterior, interior and tank threads for damage and corrosion.
 - Inspection of valve threads
 - Replacement of Valve O-ring recommended
- Cleaned for Oxygen Service vs. Cleaned for Premix Nitrox
 - Cleaned for Oxygen Service is performed in accordance with Industry Standards from the Compressed Gas Association (CGA G-4.1)
 - Cylinder is initially washed
 - Valve is rebuilt with non-flammable o-rings and lubricants (Viton o-rings)
 - Annual re-inspections typically maintain Cleaned for Oxygen Service until Hydrostatic Testing due (every 5 years).
 - There are no industry standards for Cleaned for Premix Nitrox
 - Cylinder may be inspected via UV light or sniff testing for hydrocarbon.s
 - Valve may have rubber o-rings and silicone lubricants.

Visual Inspection Process (VIP)

JA FB MA AP MY JN JL AU SP OC NV DC

REFILL ONLY WITH APPROVED GRADE OF GAS

THIS TANK AND VALVE HAVE BEEN CLEANED FOR PREMIX OXYGEN CONTENT 22 TO 40%.

VALID ONE YEAR FROM PUNCH DATE

PREMIX PUNCH HERE

THIS TANK AND VALVE HAVE BEEN CLEANED IN ACCORDANCE WITH OXYGEN SERVICE.

OXYGEN PUNCH HERE

VISUAL CYLINDER INSPECTION: This tank has been internally and externally inspected and found free of any significant rust or corrosion at this time.

2009

23 24 25 26 27 28 29

23 24 25 26 27 28 29

JA FB MA AP MY JN JL AU SP OC NV DC

**NITROX
VIP STICKERS**

JAN 2010

FEB 2011

MAR 2012

APR 2013

MAY 2014

JUN 2015

JUL 2016

AUG 2017

SEP 2018

OCT 2019

NOV 2020

DEC 2021

Tank & Valve Have Been Cleaned for Nitrox, Oxygen Content 22 to 40%

PUNCH OUT FOR ★

Oxygen Enriched Air

Tank & Valve Have Been Cleaned for O₂ Service

PUNCH OUT FOR ★

Oxygen Service

Refill Only With Approved Grade of Gas

JAN 2010

FEB 2011

MAR 2012

APR 2013

MAY 2014

JUN 2015

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DEC 2021

VISUAL CYLINDER INSPECTION

XSSCUBA[®]

www.xsscuba.com

This cylinder has been visually inspected to all applicable CGA publications

**AIR
VIP STICKER**

Visual Inspection Process (VIP)

- From DAN:

Oxygen cleaning: All cylinders used for breathing gases containing more than 23.5 percent oxygen (nitrox, decompression gases or pure oxygen) must be oxygen-cleaned according to CGA G-4.1 requirements. If you suspect that the breathing gas contains any oil, hydrocarbon or aromatic substances, the cylinder must be cleaned again for oxygen. Operators who fill with oxygen-enriched gases should require cylinders to be oxygen-clean.

The Rub

- Many (but not all) local shops use Partial Pressure Blending to fill tanks with Nitrox, requiring tanks to be Cleaned for Oxygen Service.
- Some shops that use Premix Nitrox also require tanks to be Cleaned for Oxygen Service.
- Cost to get tank and valve Cleaned for Oxygen Service ~\$50.
- Tank annual VIP for Nitrox is same cost whether Cleaned for Oxygen Service or Cleaned for Premix Nitrox.
- Once a tank Cleaned for Oxygen Service is visually inspected as Cleaned for Premix Nitrox, it needs to be re-cleaned.
- If your tank is Cleaned for Oxygen Service, insist that the shop performing the VIP inspects for Cleaned for Oxygen Service.