



Australian Government

**DEFDV005B Dive using closed-circuit
breathing apparatus (N₂O₂) in open water
to a maximum depth of 40 metres**

Release: 2

DEFDV005B Dive using closed-circuit breathing apparatus (N2O2) in open water to a maximum depth of 40 metres

Modification History

Release	TP Version	Comments
2	DEF12 V2	Layout adjusted. No changes to content.
1	DEF12 V1	Primary release.

Unit Descriptor

This unit covers the competency required to dive using closed-circuit breathing apparatus (CCBA) (N2O2) in an *open water environment* to a maximum depth of 40 metres.

This unit specifically covers those aspects of performance unique to CCBA (N2O2), such as operating the N2O2 compressor/hand-booster pump, inspecting and operating CCBA (N2O2) equipment, and conducting CCBA (N2O2) specific contingency drills.

Application of the Unit

As agreed in the creation of this Training Package, applications for units transferred from the PUA00 Public Safety Training Package will be developed as part of continuous improvement plans, and taking into account the change in Unit of Competency format as detailed in templates for Streamlined Training Packages.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

DEFDV001B Dive using self contained underwater breathing apparatus in open water to 30 metres.

SISOSCB307A Inspect and fill SCUBA cylinders.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a Unit of Competency.

Performance Criteria describe the required performance needed to demonstrate achievement of the element. Where ***bold italicised*** text is used, further information is detailed in the Range Statement. Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Operate an N₂O₂ compressor/ hand-booster pump	<p>1.1 Compressor and <i>associated equipment</i> are inspected for serviceability.</p> <p>1.2 <i>Protective equipment</i> is fitted.</p> <p>1.3 Leads and hoses are connected to the compressor.</p> <p>1.4 Gas cylinders are charged to maximum working pressure and details are recorded in relevant logs.</p> <p>1.5 <i>Operator level maintenance</i> is performed on the compressor.</p> <p>1.6 Compressor is de-serviced after use.</p>
2. Conduct dive operations	<p>2.1 <i>CCBA (N₂O₂)</i> is selected, inspected for serviceability, and fitted and tested (both out of water and in-water).</p> <p>2.2 Dives are conducted using CCBA (N₂O₂) and <i>dive contingencies</i> are demonstrated.</p> <p>2.3 CCBA (N₂O₂) is de-serviced and defects are reported in accordance with organisational procedures.</p>

Required Skills and Knowledge

This describes the essential skills and knowledge and their level, required for this unit.

Required Skills

- conduct buddy breathing
- conduct ditching drills
- conduct lost buddy drills
- conduct unconscious companion diver drills
- fit and check CCBA (N₂O₂)
- identify distress and illness in others at depth
- inspect and prepare CCBA (N₂O₂)
- monitor CCBA (N₂O₂) equipment and gauges
- recover and clear mask and mouthpiece
- refurbish CCBA (N₂O₂) post-dive

Required Knowledge

- CCBA (N₂O₂) dive equipment characteristics and limitations
- CCBA (N₂O₂) characteristics and limitations
- dive physics
- dive physiology and medicine
- general occupational/diving safety awareness
- hazards of nitrox
- marine animal threats
- marine hazards
- oceanography
- relevant references and Australian Standards
- safe operating ranges for air-supplies

Evidence Guide

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessment must confirm the ability to:

- arrange for others to check equipment
- conduct in-water checks
- handle non-functional equipment items
- implement contingency and emergency drills such as:
 - buddy breathing
 - ditching drills
 - unconscious companion diver drills
- maintain equipment during the dive
- prepare equipment for the dive including charging of cylinders
- recover and clear mask and mouthpiece
- refurbish equipment post-dive
- safely enter and exit the water appropriate to the launch platform, equipment and conditions
- switch from primary to the reserve air system.

Consistency in performance

Competency will be demonstrated over a minimum of 15 dives with the diver diving to a depth not greater than 40 m using CCBA (N₂O₂) in open water that includes the following requirements:

- day and night
- oceans
- seas, lakes and rivers
- sub-surface conditions:
 - a range of surface and sub-surface hazards
 - current (0–2 knots)
 - temperature (0 degrees +)
 - visibility (0 metre +).

Table 1 (below) outlines the minimum dives required by this Unit of Competency.

Table 1

Condition	No of Dives	In-water time	Remarks
Between	15	600 min	Total accrued

0-40m			sub-surface time (0-10m)
Special Qualifiers (included within above)			

Context of and specific resources for assessment

Context of assessment

Competency will be assessed in the ocean over a range of oceanic, diurnal and nocturnal environments, supported by questioning on shore or aboard vessels.

When practicable, assessment should relate to the diver's vocational focus.

Specific resources for assessment

Access to a complete range of CCBA (N₂O₂) diving, safety and accessory equipment.

Range Statement

The Range Statement relates to the Unit of Competency as a whole. It allows for different work environments and situations that may affect performance. ***Bold italicised*** wording in the Performance Criteria is detailed below.

<p><i>Open water environment</i> may include:</p>	<ul style="list-style-type: none"> • day or night • oceans, seas, lakes and rivers • sub-surface conditions: <ul style="list-style-type: none"> • current (0–2 knots) • visibility (0 metre +) • temperature (0 degrees +) • surface and sub-surface hazards such as: <ul style="list-style-type: none"> • anchor drop zones • cathodic protection devices • electrical cabling • inlets and sonar/radio frequency hazards • marine animals • piers and jetties • pipelines • pollutants • propellers/thrusters • trapping hazards: <ul style="list-style-type: none"> • beams • culverts • gates • grottoes and caves • intakes and out-falls • nets • safety, anchor and communications lines • sewers • submerged ships, vehicles and structures • sluices • vessel rocking and associated movement
<p><i>Associated equipment</i> includes:</p>	<ul style="list-style-type: none"> • hoses • pumps
<p><i>Protective equipment</i> may include:</p>	<ul style="list-style-type: none"> • boots • gloves • goggles
<p><i>CCBA (N₂O₂)</i> includes:</p>	<ul style="list-style-type: none"> • N₂O₂ cylinder • counter-lung

	<ul style="list-style-type: none">• emergency cylinder• facemask/mouthpiece• scrubber material
<i>Operator level maintenance</i> may include:	<ul style="list-style-type: none">• checking existing pressure in cylinders with pressure gauge• conducting charging in (N₂O₂) clean environment• following correct charging procedure and charging rate• operating high pressure charging panels
<i>Dive contingencies</i> may include:	<ul style="list-style-type: none">• buddy breathing• companion diver• flooded mask• fouled supply• hose blockage/choking• hose rupture• partial pressure anomalies• set to 40 bar• trouble drill

Unit Sector(s)

Not applicable.