

SAN-O-SUB ITALIA s.r.l.



AZIMUTH

**SEMI-CLOSED CYCLICAL CIRCUIT
NITROX MIXTURE
DIVING UNIT**

CONFORMING TO 89/686/cee

CE 0474

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INTRODUCTION

The semi-closed cyclical circuit oxygen/nitrogen mixture breathing apparatus has been designed only for recreational purposes.

AZIMUTH has gone through many tests before being commercially produced proving to be fully reliable, exceeding all expectations in all working conditions.

The absence of complicated and unreliable moving parts and the ease of maintenance make this breathing apparatus simple, sturdy and reliable in any dive setting.

As it is produced utilising the latest-technology materials, the most innovative working processes and being thoroughly inspected and tested, it represents the state of art in NITROX mixture breathing apparatus.

SPECIFICATIONS

The main features of AZIMUTH model are:

- 1. The shield, which allows a balanced trim in any position, comes from precise studies on the positioning of all the components for an optimum weight distribution*
- 2. Maximum breathing smoothness due to extra wide gas passages and to the optimal volume of the breathing bags;*
- 3. High capacity filter (radial type) in order to ensure the total absorption of carbon dioxide produced by the breathing;*
- 4. Non-magnetic high capacity aluminium alloy cylinders;*
- 5. The multifunction dosing group for distribution of the gas mixture;*
- 6. Ease of maintenance and filling of both filter and cylinders; it will take only few minutes to make the breathing apparatus ready for further use.*
- 7. Emergency demand regulator for effective redundancy.*

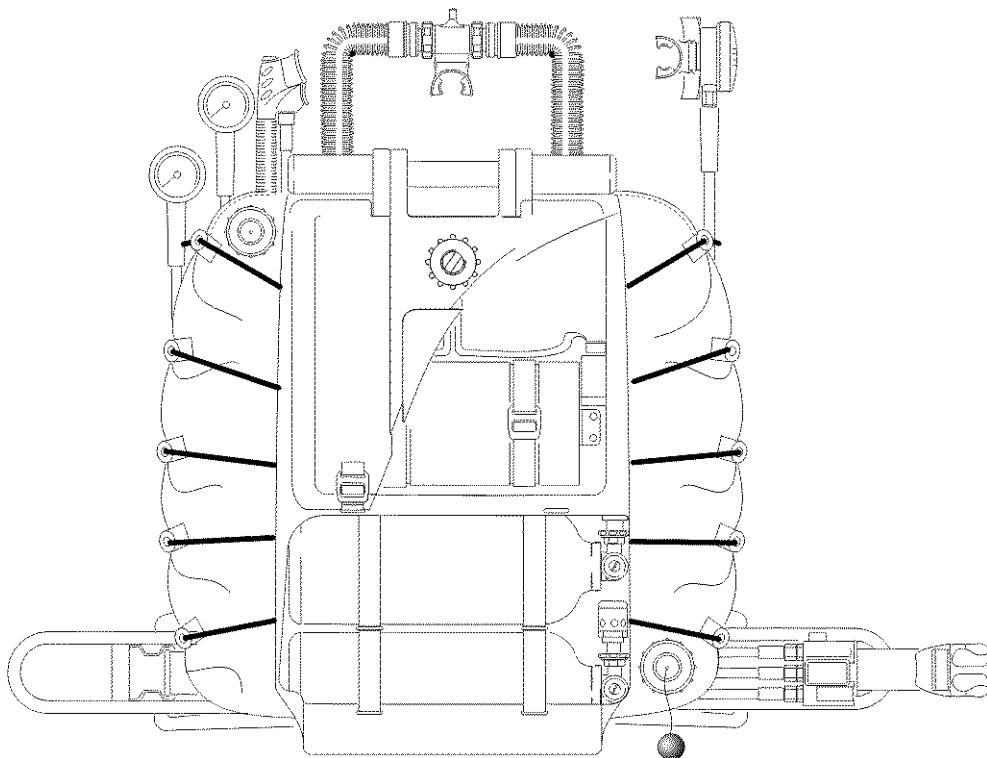


AZIMUTH, Semi-closed Circuit Nitrox Breathing Apparatus



TECHNICAL DATA

Part No.:	200-001.04
Working principles:	semi-closed cyclical circuit (open in emergencies)
Specifications of the Gas:	mixture of oxygen/nitrogen (Nitrox)
Cylinder:	
-capacity	2 x 4 litres
-maximum pressure	200 bar
Breathing bag:	2 x 6.2 litres
Purifying material	soda lime
Soda lime canister capacity:	2.35 Kg
Dive time duration:	about 5 hours
Operating temperature:	-1°C + 35°C
Maximum buoyancy GAV:	30 Kg
Dive time duration	> 2h e 30min (with O ₂ at 40%)
Maximum operating depth:	around 30m with O ₂ at 40%
Weight ready to use:	25 Kg in air, neutral in sea water
Constant flow regulation:	from 5,1 to 15,6 lt/min (from 32% to 60% O ₂) PpO ₂ 1,4



AZIMUTH Overall dimensions



DESCRIPTION

The AZIMUTH breathing apparatus consists of the following main components (see following figures):

Rigid self-supporting shield made of a polyethylene shell which contains all the components of the apparatus and a shutter which protects the components leaving partially uncovered only the cylinders;

The ballast placed in the upper part of the shield in order to counterbalance the positive buoyancy of the breathing bags and to ensure the best trim to the diver;

Pressure relief valve which enables to control the gas flow pressure in excess;

Four way valve equipped with the mouthpiece connected to the filter by means of corrugated hoses;

Two corrugated hoses equipped with attachments connect the hose connectors to the four way valve; in the upper part, they contain a non-return valve which makes the gas to flow, in the corrugated hoses/filter circuit, only in counter-clock wise direction;

Two breathing bags equipped with attachments made up of a shaped semi-transparent polyurethane sheet, high frequency welded and containing an anti-collapse spiral;

Filter made of a metal drum inserted in a metal hollow cylinder, which contains the soda lime necessary to absorb the carbon dioxide produced during the breathing process;

Two cylinders mounted one above the other inside the shell;

Two shut-off valves relevant to the gas flow between the cylinder and the pressure reducer;

Two pressure reducer or 1st stage regulator in order to reduce the pressure level from the cylinder to the emergency regulator and the dosing group;

Dosing group equipped with by-pass valve regulates the quantity and the gas pressure which goes into the inhalation breathing bag;

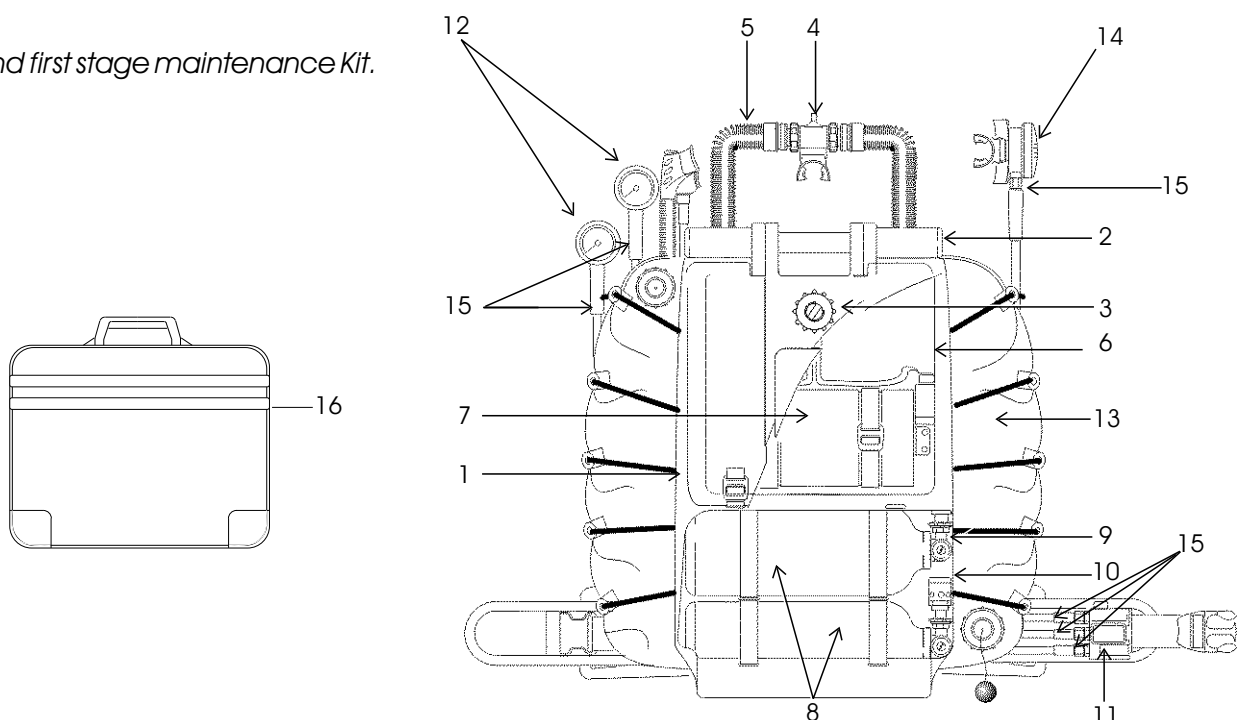
Two pressure gauges one for each cylinder in order to control the gas pressure inside the cylinders.

The jacket equipped with buoyancy compensator enable the diver to keep the apparatus tight to the body and change the trim in water;

Emergency regulator used in case of emergency when the semi-closed circuit is malfunctioning;

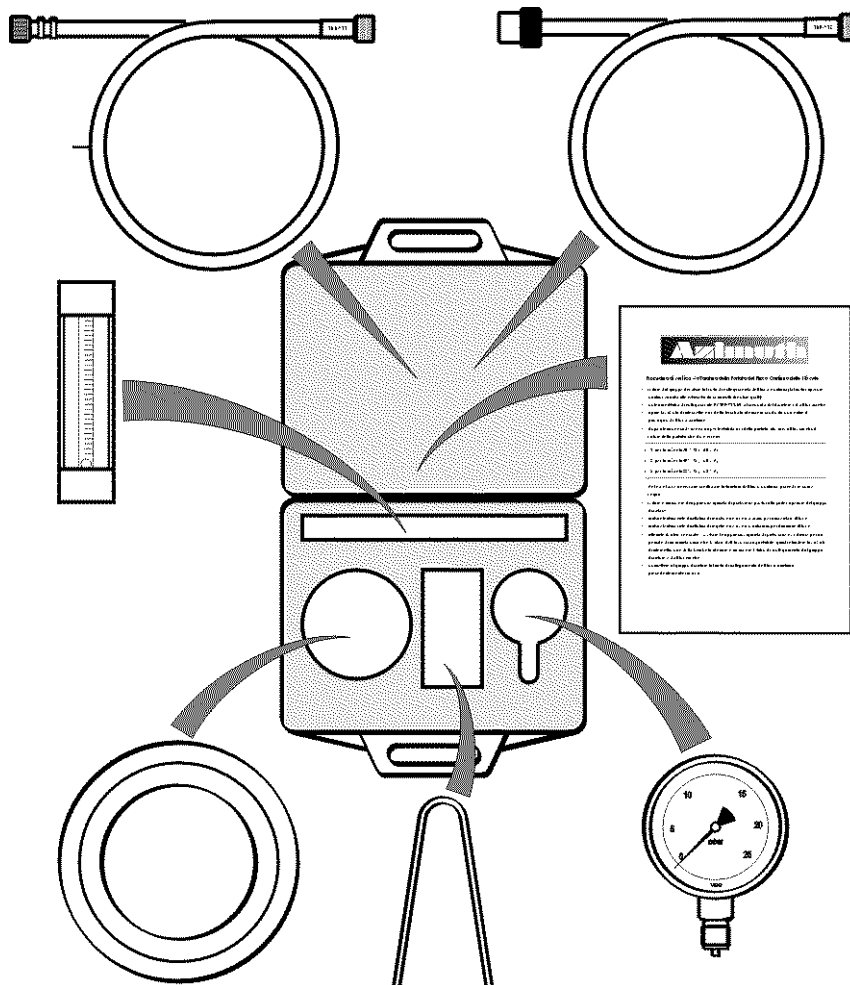
Hoses relevant to low pressure for the outler mixture of the pressure reducers and high pressure for the gauges.

Metering and first stage maintenance Kit.



Metering and First Stage Maintenance Kit

The AZIMUTH breathing apparatus comes complete with a case which contains all the necessary to carry out the metering operations before to the dive and the material for the first stage maintenance.



AZIMUTH Metering and First Stage Maintenance Kit



FUNCTIONAL DESCRIPTION

AZIMUTH is a semi-closed cyclical circuit breathing apparatus, giving constant and controlled flow.

The gas mixture follows a single direction circular path (see figure 1) utilizing two different separated ways of circulation, to and from the breathing bag.

Utilizing this type of circulation the maximum purification of the breathed gas is obtained, because the gases go through the soda-lime canister and once it is fully purified from the carbon dioxide the oxygen passes in the breathing bag and the cycle starts again.

Especially, the constant flow of gas mixture coming from the NITROX cylinders (Fig1, pos.9) by means of the dosing group (Fig.1, pos.10) goes into the inhalation breathing bag (Fig.1, pos.3) and reaches the corresponding pressure to the diving depth.

The diver breathes the gas mixture contained in the inhalation breathing bag through the corrugated hose connected to it, via the mouthpiece assembled on the four-way valve (fig.1, pos.5) and exhales the gases produced by the breathing process into the exhalation hose connected to the exhalation breathing bag (Fig.1, pos.7).

The excess pressure generated by the constant flow (Fig.1, pos.2) is vented from the relief valve connected to the bag itself by means of a short flexible hose.

Gases from the exhalation breathing bag go into the filter (fig.1, pos.1) and once purified from the carbon dioxide enter into the inhalation breathing bag (see fig.2)

The quantity of oxygen metabolised during the breathing process (about 4%) is reintegrated by the oxygen in the gas mixture flow continuously conducted into the inhalation breathing bag.

In case of failure of the semi-closed cyclical circuit the diver can abandon the mounthpiece assembled on the four-way valve and start to breathe in an open circuit by means of a demand regulator (fig.1, pos.12).

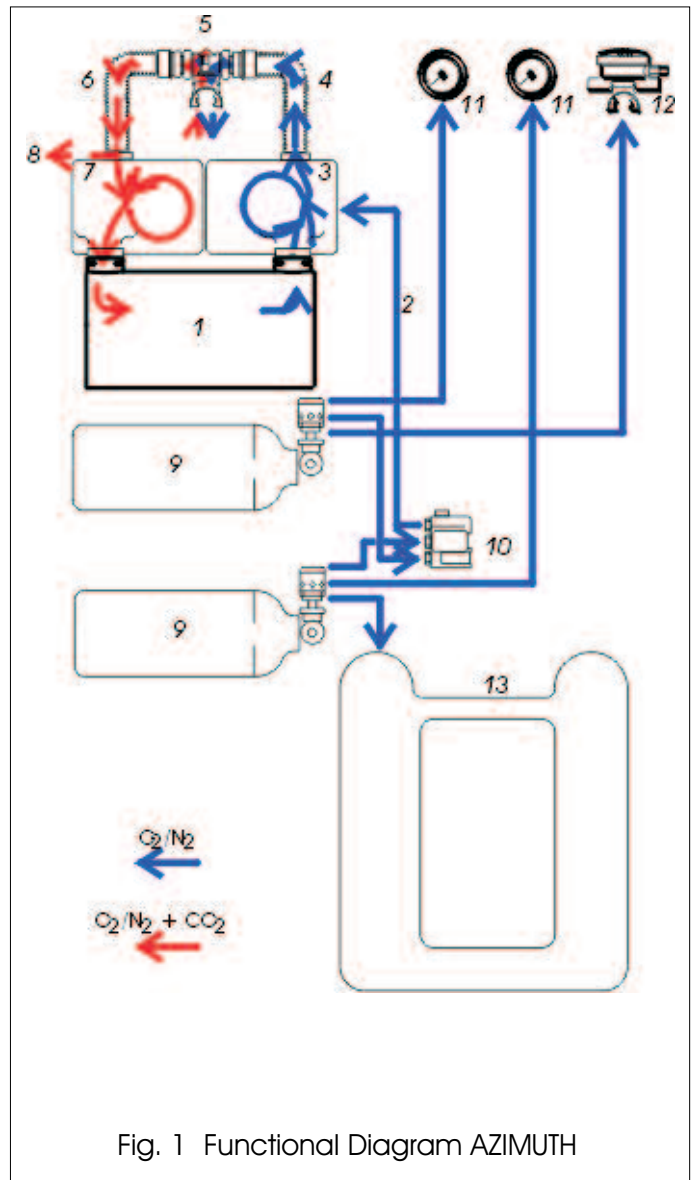


Fig. 1 Functional Diagram AZIMUTH



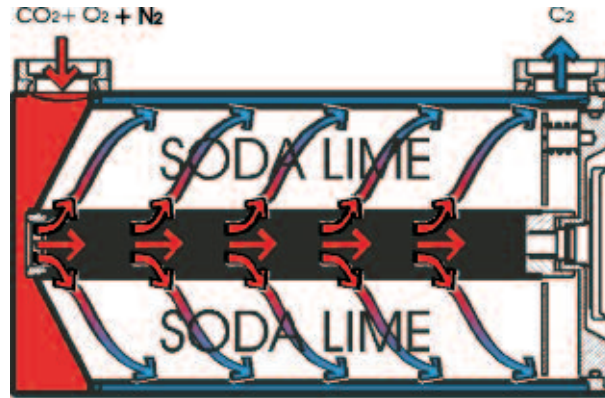


Fig.2 - RDN 2000, Filter, Functional Diagram

Differently from other models, the AZIMUTH breathing apparatus, does allow to use all types of NITROX mixtures if required because the dosing group does allow a continuous metering of the flow.

Depending on the mixture available it is possible to calculate the maximum operating diving depth and its relative autonomy.

MIXTURE	l/min	MAX DEPTH (1,4 ATA)	MAX DEPTH ATTAINABLE (1,6 ATA)
Nitrox 32	15,6	33m	40m
Nitrox 33	14,5	32m	38m
Nitrox 34	13,5	31m	37m
Nitrox 35	12,7	30m	35m
Nitrox 36	11,9	28m	34m
Nitrox 37	11,3	27m	33m
Nitrox 38	10,7	26m	32m
Nitrox 39	10,1	25m	31m
Nitrox 40	9,6	25m	30m
Nitrox 41	9,2	24m	29m
Nitrox 42	8,8	23m	28m
Nitrox 43	8,4	22m	27m
Nitrox 44	8,1	21m	26m
Nitrox 45	7,8	21m	25m
Nitrox 46	7,5	20m	24m
Nitrox 47	7,2	19m	24m
Nitrox 48	7,0	19m	23m
Nitrox 49	6,8	18m	22m
Nitrox 50	6,6	18m	22m
Nitrox 51	6,4	17m	21m
Nitrox 52	6,2	16m	20m
Nitrox 53	6,0	16m	20m
Nitrox 54	5,8	15m	19m
Nitrox 55	5,6	15m	19m
Nitrox 56	5,5	15m	18m
Nitrox 57	5,3	14m	18m
Nitrox 58	5,2	14m	17m
Nitrox 59	5,1	13m	17m
Nitrox 60	5,1	13m	16m





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