

1 Approvals

The European standards, guidelines, and directives according to which this product is approved are specified in the declaration of conformity (see declaration of conformity or www.draeger.com/product-certificates).

2 For Your Safety

This variant of the Dräger PAS Colt Series of equipment incorporates a preset and sealed pressure reducer. The associated integral lung demand valve (LDV) has a preset and sealed balanced piston unit assembly. The Dräger guarantee is void should original sealing caps of these units be tampered with, removed, or broken. Correct operational condition is only valid if Dräger service and re-seals the pressure reducer and balanced piston unit.

- Use of this equipment requires wearer training and observance of these Instructions for Use.
- Use the equipment for the purpose specified in this instruction, or as confirmed in writing by Dräger.
- Use and maintenance of this equipment requires knowledge and compliance with National Regulations, Laws and Standards governing the use of respiratory equipment in the country of use.
- Only trained competent personnel should inspect and service the equipment at regular intervals and a record kept of such inspections and service.
- Only trained and competent personnel should carry out the charging of the compressed air cylinders.
- Dräger recommends a Service Contract be obtained from your Dräger Branch or Agent.
- Contact Dräger for details of Service Contracts and Service Training Courses.
- Use only original Dräger Spare Parts for service and maintenance.
- Use only original Dräger Test Equipment for service and maintenance.
- Notify Dräger if there is a component fault or failure.

3 Liability Statement

Terms and Conditions of warranty for the Dräger PAS Colt Series of equipment can be obtained from Dräger on request. Responsibility for reliable function of the equipment transfers to the owner or operator when serviced or repaired by untrained personnel, (not employed or authorised by Dräger), or when used in a manner not conforming to its intended use.

4 Description and Intended Use

The Dräger PAS Colt Series of Bandolier Airline/Escape equipment consists of:

- Bandolier Shoulder Harness with Waist Belt.
- Pressure Reducer with integral Lung Demand Valve (LDV).
- Hip Mounted Cylinder Carrying Holster.
- Airline Manifold Connection – with or without low pressure whistle warning unit (LPWWU).
- Valved Cylinder Assembly with Contents Indicator.

The equipment is available in either 10 minute, 15 minute or 20 minute nominal escape duration versions.

4.1 Optional Variants

- Pressure Reducer with ChargAir – Direct Filling Assembly.
- Cylinder Carrying Holster – Drop Down. If applicable, refer to additional enclosed Instructions for Use.

Important Note: When using equipment fitted with a ChargAir connection it is necessary to refer to the Use of ChargAir – Direct Filling instructions supplied with the equipment.

4.2 Accessories

- Thigh strap

This series of equipment utilises a high performance first stage pressure reducer in association with an integral lung demand valve. The equipment is compatible with a range of face mask and compressed air cylinders. When used in approved carrying system, valved cylinder assembly, LDV and face mask combinations, the equipment provides the wearer with respiratory protection when working in, or escaping from a contaminated or oxygen deficient gaseous atmosphere.

When the airline manifold coupling of the equipment is connected to a low-pressure independent air supply of breathable air quality, (e.g. Dräger AirPack System or filtered works airline), then the equipment functions as an airline working set. In this configuration the cylinder valve of the equipment is in the closed position. On failure or interruption of the independent air supply the wearer opens the cylinder valve, disconnects the independent air supply from the airline manifold connection and then proceeds to escape to a safe area using the available air supplied from the cylinder.

During escape, the effective duration of the equipment is dependant on the capacity (volume) of the cylinder selected and the breathing rate of the wearer.

Safety Warning: When the equipment is worn as an airline working set then the escape duration starts from the time of opening the cylinder valve and disconnecting the airline supply. The time required to allow the wearer to escape to a safe area must be within the capacity (volume) of the cylinder selected taking into account the breathing rate of the wearer. When selecting the type and duration of escape equipment it is essential to consider the potential hazards, and probable escape routes.

Details of the equipment variants, accessories, and any approved independent air supply source configurations are available from Dräger on request.

5 Technical Data

5.1 High Pressure Connections

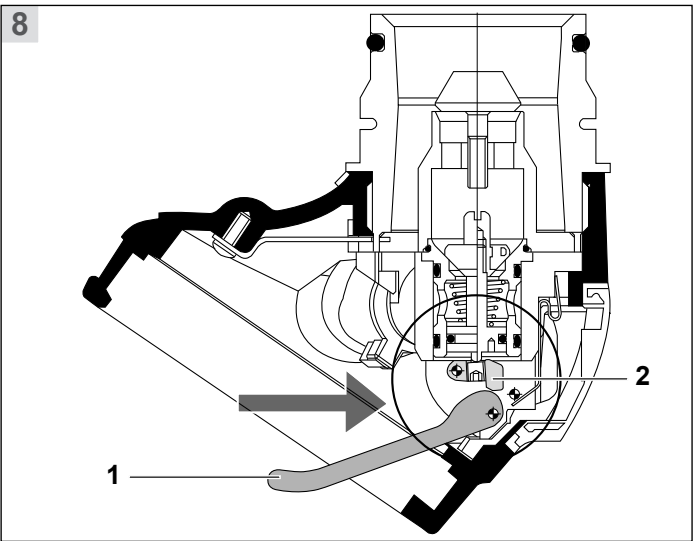
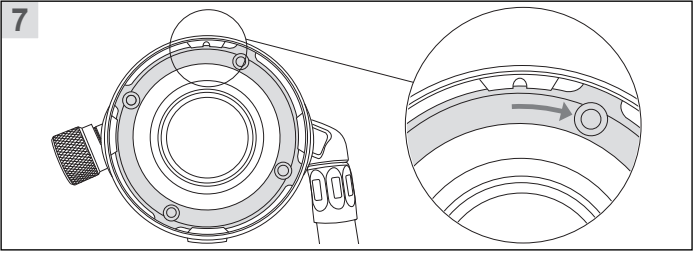
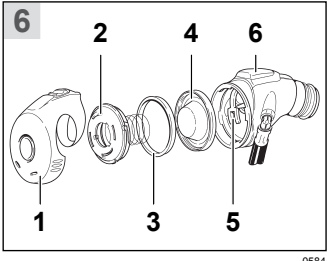
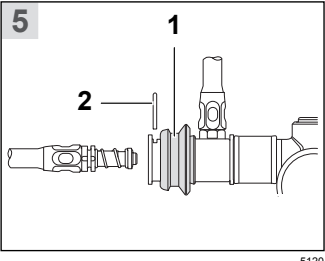
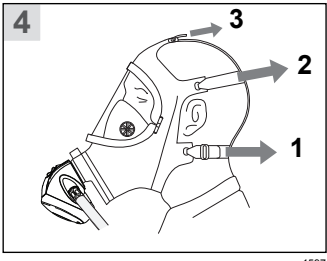
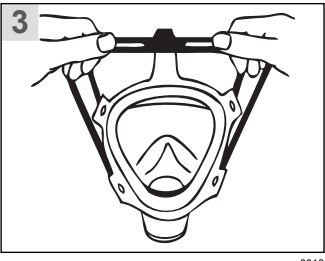
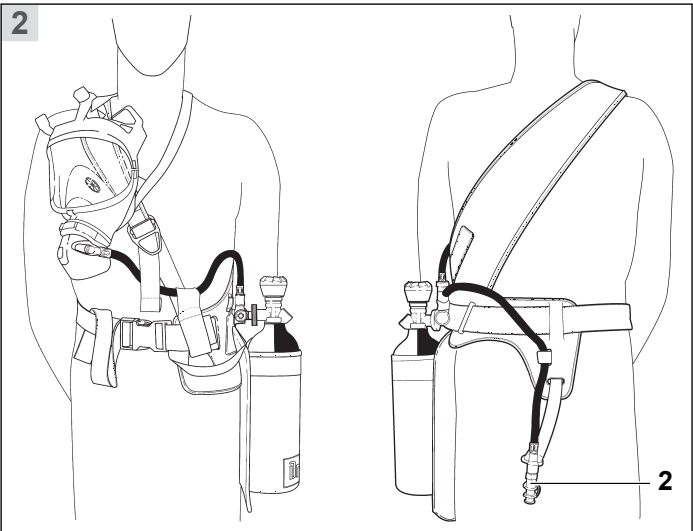
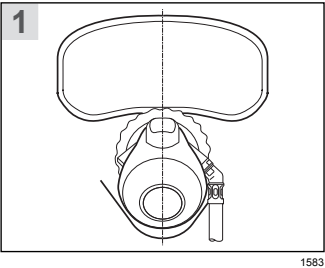
Standard G5/8 as per EN 144-2.
200bar or 300bar

Important Note: For safety – 300bar units fitted with ChargAir incorporate a hand wheel connector that will not accept a 200bar cylinder valve.

Other connections are available to national standards.

5.2 LDV to Face Mask Connection

Three variants of the integral LDV's are available:



- Push-In Type A – Positive Pressure (PP).
- Screw-In Type AE – Positive Pressure (PP).
- Screw-In Type N – Normal Demand (ND).

Refer to the Instructions for Use supplied with the face mask.

5.3 Compressed Air Cylinders

Cylinders are available in either steel, aluminium or composite materials. Contact Dräger for details.

Cylinders supplied by Dräger are charged at an ambient temperature of 15 °C and to the nominal cylinder pressure – i.e. contents indicator needle must be aligned with the nominal charged pressure – 200 or 300bar.

5.4 Airline Manifold Connection

A Male Coupling is incorporated on the airline manifold for the connection of a quick release coupling (QRC) from an independent air supply.

5.5 Airline Operating Pressures and Flow

The selected low pressure independent air supply must meet the following parameters.

- One User – 6bar to 10bar – airflow rate of at least 550 Litres/minute.
- Two Users – 7bar to 10bar – airflow rate of at least 550 Litres/minute.

When using an Airline Manifold Connection – with LPWWU, the whistle activation pressure is preset by Dräger to between 5bar – 4bar.

Safety Warning: Air quality for compressed air breathing systems must conform to the requirements of EN12021. Do Not use oxygen or oxygen enriched air.

6 Preparation for Use

A trained and competent person must perform the following checks and preparation procedures before release of the equipment to a potential wearer for operational use.

6.1 Visual Inspection

Check the integrity of,

- Bandolier Shoulder Harness with Waist Belt.
- Cylinder Carrying Holster.
- Pressure Reducer, LDV and Hose Assemblies.
- Airline Manifold Connection and Hose – with or without LPWWU.
- Face mask – refer to the relevant Instructions for Use.
- Valved Cylinder Assembly with Contents Indicator.

Optional Variants

- Cylinder Carrying Holster – Drop Down. Check function of the latching mechanism.

6.2 Fitting Cylinder

- Check the contents indicator ensuring the cylinder is fully charged, i.e. contents indicator needle must be aligned with the nominal charged pressure – 200 or 300 bar.
- Check that the threads of the valve port and the reducer hand wheel are undamaged, connector O-ring is in position, and undamaged. Fully insert the fully charged cylinder into the carrying Holster.

Caution: To prevent damage, ensure that the hand wheel of the pressure reducer remains clear of the cylinder.

- Screw the hand wheel of the pressure reducer (clockwise) to the port of the cylinder valve and tighten the hand wheel – handtight.

Important Note: The following test will verify the integrity of the complete assembly. The pressure leak test described should also be carried out following the reassembly of any of the component parts of the pneumatic assembly (spares etc).

6.3 Pressure Leak Test

- Again check the contents indicator ensuring the cylinder is fully charged, i.e. contents indicator needle must be aligned with the nominal charged pressure – 200 or 300bar.
- Type A and AE – Press the reset button of the LDV to switch 'Off' positive pressure.
- 'Open' the cylinder valve slowly, but fully, to pressurise the system then 'Close' the valve.

Test Parameters – Check for no audible leak. If necessary, use soap and water based solution to locate a suspected leak.

Passed Test – Fold the rubber cover from the front of lung demand valve and press centre of diaphragm to vent pressure from rubber hose and reducer. Refit the rubber cover.

Type A and AE – Press the reset button of the LDV to switch 'Off' positive pressure.

Failed Test – Fold the rubber cover from the front of lung demand valve and press centre of diaphragm to vent pressure from rubber hose and reducer. Investigate the source of the leak, rectify and repeat the test. Until the leak is rectified Do Not release the equipment for use.

6.4 Leak Test and LP Flow Test – Airline Connection

Refer to Technical Data.

Important Note: If using a works airline to perform the following tests, then connect the isolation valve (3353449) to the female coupling of the airline outlet.

- Connect the male coupling (1) Fig. 2 to the female quick release coupling (QRC) of the independent air supply.
- Type A and AE – Press the reset button of the LDV to switch 'Off' positive pressure.
- 'Open' the valve of the independent air supply to pressurise the system.

Test Parameter – Check for no audible leak.

- 'Open' the cylinder valve of the breathing equipment to pressurise the system, then disconnect the male coupling (1) Fig. 2 from the female QRC of the hose from the independent air supply.

Test Parameter – Non-return valve check – Check for no audible leak from the female QRC.

- 'Close' the cylinder valve of the breathing equipment, then reconnect the male coupling (1) Fig. 2 to the female QRC of the independent air supply.
- Fold the rubber cover from the front of lung demand valve and press centre of diaphragm to activate the airflow from the LDV. Refit the rubber cover. See Safety Warning.

Safety Warning: Do Not direct the airflow onto the face, eyes or skin.

Test Parameters – An unobstructed airflow should vent from the outlet of the LDV. This test should take a minimum of 3 to 5 seconds.

- 'Close' the valve of the independent air supply and observe the low pressure LP gauge, or the high pressure (HP) gauge, if fitted.

Test Parameters

LP Gauge – Indicated pressure should not decrease more than 1bar in 1 minute.

PAS® Colt Series
Bandolier Airline/Escape compressed air respiratory protection equipment



HP Gauge – Indicated pressure should not decrease more than 10bar in 1 minute.

Note: If fitted with LPWWU, proceed to test the LPWWU. See the following section. If not fitted, proceed as follows:

- Disconnect the male coupling (1) Fig. 2 from the female QRC of the independent air supply. Press carefully the centre of the rubber cover of the LDV to vent pressure.
- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure.

6.5 LPWWU Test – if fitted

- Check that the valve of the independent air supply is ‘Closed’.
- Type A and AE – Fold the rubber cover from the front of lung demand valve. Cover and seal the outlet of the LDV with the ball of the hand. Press the centre of diaphragm then lift the hand to slowly vent pressure.
- Type N – Carefully press the centre of the rubber cover to and slowly vent pressure.
- Observe the LP gauge during venting.

Test Parameters – the whistle should sound between 5.0bar and 4.0bar.

- Should the whistle not sound at the preset pressure, refer to Dräger Service.

Note: If the selected independent air supply incorporates a high pressure whistle then the HPWWU will sound first.

- Following venting of the whistle, disconnect the female coupling of the hose from the independent air supply.
- Fold the rubber cover from the front of lung demand valve and press centre of diaphragm to vent pressure. Refit the rubber cover.

6.6 Fitting LDV to face mask

- Inspect the face mask as defined in the relevant Instructions for Use.
- Fully extend (open) the straps of the head harness.

Type A

- Check that the face mask port and the connector O-ring of the LDV are clean and undamaged.
- Push the connector of the LDV into the port of the face mask until it ‘clicks’ in position.
- Check that the attachment is secure by pulling the LDV away from the face mask – there should be no axial movement.

Types AE and N

- Check that the face mask port and sealing ring are clean and undamaged.
- Screw the hand wheel of the LDV into the port of the face mask and align the LDV as shown in Fig. 1 then finally tighten.
- Having ‘passed’ the test, and the LDV fitted to the face mask, the equipment is now available for use.

7 Use

Safety Warning: Before using the airline manifold connection to the equipment, ‘check’ that the independent air supply to be used complies with air quality, pressure and flow requirements (see Technical Data) and that a ‘Permit for Use’ has been issued. The respirable breathable air supply source connection to the wearer must be located in, or positioned in a safe and uncontaminated area. Dräger recommend that a ‘Controller’ must be present at all times at the air source connection to monitor and maintain the air supply to the wearer of the Dräger PAS Colt Series Airline equipment.

7.1 Putting on equipment

- Check content indicator of the cylinder assembly ensuring a fully pressurised cylinder, i.e. contents indicator needle must be aligned with the nominal charged pressure – 200 or 300bar.
- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure.
- Extend the shoulder strap. Open the buckle of the waist belt and extend the strap at the male buckle end of the strap. Leave the female buckle in position.
- While supporting the face mask, place the left arm through the shoulder harness, taking the harness over the head and onto the right shoulder, positioning the strap diagonally across the body with the cylinder/carrying Holster positioned against the left hip. Loop the waist belt around the waist and fasten the buckle – Do Not tighten. Put the neck strap of the face mask over the neck then insert the neck strap stud into the hole in the centre strap of the head harness. Face mask is now in the ready position.
- Grip the cylinder valve with the left hand and lift until the waist belt is in line with the waist then pull the free end of the waist belt strap, through the male buckle, until the equipment is secure and comfortable on the waist. Pull down and adjust the shoulder strap.

Figure 2 shows the correct wearing position.

- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure.

8 Pre Operational Checks

The Controller

- ‘Close’ any relief valves that may be fitted to the independent air supply and then slowly, but fully, ‘Open’ the valve of the independent air supply to pressurise the system.

The Wearer

- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure mechanism.
- Connect the male coupling (1) Fig. 2 to the female QRC of the supply hose of the independent air supply.

Safety Warning: Facial hair, beard stubble, side-whiskers, and the wearing of spectacles will adversely affect and interfere with face mask seal. Correct fit of face mask only ensured if face mask seal makes close contact with skin.

- Spread the head harness (Fig. 3). Drop the head forward and place chin into the chin cup of the face mask, position harness over the head locating harness centre plate with back of the head.
- Refer to Fig. 4. Tighten both lower (1), then upper straps (2) evenly towards back of the head. Check and if necessary, tighten the centre strap (3).
- On achieving a face seal and on taking first breath inhalation the Type P and PE LDV’s will automatically switch to positive pressure starting the air supply to the face mask.

- Check that the head has a full range of movement without pulling against the LDV hose. If any resistance to movement is felt, re-adjust the hose routing and then recheck. If resistance is still felt, Do Not use the breathing apparatus and contact Dräger.
- Breathe normally, and before use perform Function Check.

8.1 Function Check

The Controller

- ‘Close’ the valve of the independent air supply.

The Wearer

- Breathe normally to vent air from the system. During venting the whistle (if fitted) will alarm at the preset pressure. When fully vented, hold breath. The face mask should hold onto the face indicating a positive seal.
- Immediately indicate to the ‘Controller’ of a positive face seal and request to immediately ‘open’ the valve of the independent air supply.

The Controller

- When ‘Wearer’ indicates to the ‘Controller’ of a positive face seal – the ‘Controller’ should immediately ‘Open’ the valve of the independent air supply to pressurise system.

The Wearer – In Use

- Inhale and hold breath. Unit must balance, i.e. no audible leak.
- Continue breathing normally. The expired air should flow easily out of the exhalation valve.
- Continue breathing normally and proceed to the working area.

The Wearer – Evacuation

- Breathe normally.
- When the task is completed, or when advised by the ‘Controller’ – proceed to the safe area (Controller). During evacuation take care to hold and carefully withdraw the airline supply hose. See After Use.

IN AN EMERGENCY

- ‘Open’ the cylinder valve of the equipment (anticlockwise) slowly, but fully. Breathe normally.
- Disconnect the male coupling (1) Fig. 2 from the female QRC of the hose from the independent air supply. Breathe normally and immediately leave the hazardous area by the shortest and safest escape route.

Safety Warning: When in an escape scenario Dräger strongly advise that the supplementary supply facility is not used.

9 After Use

Safety Warning: Do Not remove equipment until in safe area, clear of hazard.

Airline Mode – The Wearer

- Release the side straps of the head harness.
- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure then remove the face mask.

Airline Mode – The Controller

- Following removal of the face mask by the wearer, ‘Close’ the valve of the independent air supply.

Airline Mode – The Wearer

- Firmly press the centre of the rubber cover of the LDV to activate the airflow from the LDV to vent pressure from the system.

Safety Warning: Do Not direct the airflow onto the face, eyes or skin.

- Following venting, disconnect the male coupling (1) Fig. 2 from the female QRC of the hose from the independent air supply.

Airline Mode – The Controller

- Refer to the After Use section of the Instructions for Use relevant to the independent air supply

9.1 Escape Mode

- Release the side straps of the head harness.
- Remove the face mask then ‘Close’ the cylinder valve.
- Type A and AE – The system will vent from the lung demand valve. Type N – Fold rubber cover from the front of lung demand valve and press centre of diaphragm to vent pressure. Refit rubber cover.

9.2 Airline Mode and Escape Mode

- Following venting of the equipment, unbuckle the waist belt, lift the shoulder strap buckle to loosen the harness then remove the equipment.

Note: Do Not drop or throw down equipment as damage could occur.

- Type A and AE – Press the reset button of the LDV to switch ‘Off’ positive pressure.
- Pass equipment to Service Department.

10 Routine Maintenance

To be performed after use of equipment.

See also Maintenance and Test Intervals Chart.

10.1 Removal of Cylinder

Safety Warning: Cylinder valve should be closed and system vented.

- Unscrew the hand wheel of the reducer from the cylinder valve and carefully remove the valved cylinder assembly from the carrying Holster. To prevent damage, ensure that the hand wheel of the pressure reducer remains clear of the cylinder.
- Recharge the cylinder.

10.2 Charging Cylinders

Refer to ‘For Your Safety’

Safety Warning: Air quality for compressed air breathing systems must conform to the requirements of EN12021.

Only charge compressed air cylinders which:

- Conform to National Standards.
- Feature the original manufacturers test date and test mark.
- Have not exceeded the test date indicated on the cylinder by the last testing station.
- Do Not used damaged cylinders.

Recharge to the rated pressure indicated on the label or stamped on the neck or shoulder of cylinder. Dräger recommend a charge rate of 27bar/ minute. Rapid charging will induce an increase in temperature resulting in an incomplete charge – check pressure at ambient and if required ‘Top Up’ charge.

To prevent overcharging of the selected cylinder Dräger recommend that a pressure-limiting device is fitted to the charging compressor.

10.3 Visual Inspection

Check the integrity of,

- Bandolier Shoulder Harness with Waist belt.
- Cylinder Carrying Holster – Fixed.
- Pressure Reducer, LDV and Hose Assemblies.
- Airline Manifold Connection and Hose – with or without LP whistle.
- Face mask – refer to relevant Instructions for Use.
- Valved Cylinder Assembly with Contents Indicator.
- Damaged cylinders must not be used.
- Optional Variants
- Pressure Reducer with ChargAir – Direct Filling Assembly.
- Cylinder Carrying Holster – Drop Down. Check function of the latching mechanism.

11 Cleaning, Disinfecting, Drying

Safety note: Do not exceed 60 °C for drying, and remove components from the drying facility immediately when dry. Drying time in a heated dryer must not exceed 30 minutes.

Safety note: Do not immerse pneumatic or electronic components in cleaning solutions or water.

Safety note: If water is trapped and then freezes inside the pneumatic system of the breathing apparatus (such as the lung demand valve), operation will be impaired. Prevent any liquid from entering, and thoroughly dry the breathing apparatus after cleaning to prevent this from occurring.



For information about suitable cleaning and disinfecting agents and their specifications refer to document 9100081 on www.draeger.com/IFU.

Refer also to the Instructions for Use for the lung demand valve, face mask and other associated equipment.

- Use only clean lint-free cloths

- Clean the breathing apparatus manually using a cloth moistened with cleaning solution to remove excess dirt.
- Apply disinfecting solution to all internal and external surfaces.
- Rinse all components thoroughly with clean water to remove all cleaning and disinfecting agents.
- Dry all components using a dry cloth, in a heated dryer or in air.
- Contact service personnel or Dräger if disassembly of pneumatic or electronic components is required.

12 Lung Demand Valve (LDV)

12.1 Internal cleaning and disinfecting

Safety note: Internal cleaning and disinfecting may only be carried out by properly trained personnel. Disassembly of the lung demand valve by untrained personnel is not permitted and may damage the equipment.

Safety note: Ultrasonic cleaning will damage the diaphragm. Dräger recommend that ultrasonic cleaning methods are not used for any part of the lung demand valve.

Safety note: Cleaning solutions will eventually remove lubricants from moving parts. Carry out functional tests following cleaning, disinfecting and drying. Re-lubricate moving parts as required.

- Roll back the rubber sleeve (Fig. 5, Item 1) to access the retention staple (2). Insert a flat blade screwdriver under the staple and while pressing the end of the hose into the hose connection of the reducer – remove the retention staple. Remove hose from the reducer.
- Remove component parts of the relief valve, i.e. the spring, O-ring retainer and O-ring from the nozzle of the medium pressure hose. If required, remove the lung demand valve from the front port of the face mask.
- Disassemble the lung demand valve as follows:
 - Remove the rubber cover (Fig 6, Item 1) from the front of the lung demand valve housing. Twist the bayonet cap (2) anticlockwise to remove it (a plate spanner is available from Dräger for this task – see Section 17). Do not attempt to remove the spring from the bayonet cap, and do not stretch, compress or damage the spring during cleaning and disinfecting (note that the spring is not fitted on N-type lung demand valves).
 - Carefully grip the slip ring (Fig 6, Item 3). If required, rotate the slip until the external lugs are free from the retaining lugs of the housing (Fig 7). Remove the slip ring from the housing.
 - Carefully grip the centre of the diaphragm (Fig 6, Item 4) between the thumb and forefinger. Tilt and remove the diaphragm from the housing.
 - Replace the rubber cover on the front of the lung demand valve to protect the balanced piston lever (6).
- Immerse and manually agitate the lung demand valve, diaphragm, slip ring and bayonet cap in a cleaning solution.
- Rinse all parts in clean water.
- Immerse and manually agitate all parts in a recommended disinfecting solution.
- Remove the rubber cover from the front of the lung demand valve and rinse all parts in clean water, taking care not to damage the balanced piston lever.
- Press the reset button (5) to switch off the lung demand valve and then connect the demand valve hose to a medium-pressure breathing air supply (minimum of 4 bar).

Safety Warning: Do not direct the airflow on to the face, eyes or skin.

- Lightly press the balanced piston lever to blow away any moisture.
- Disconnect the air supply and dry all parts using a clean lint-free cloth or a dedicated drying facility.
- If re-lubrication of the moving parts is required, position the main lever (Fig 8, Item 1) and secondary lever (2) as shown. Apply two short squirts of lubricant (Silkospray silicone lubricant) to the circled area in the direction indicated by the arrow.
- Reassemble the lung demand valve as follows:
 - Carefully install the diaphragm into the lung demand valve housing.
 - Carefully insert the profiled side of the slip ring into the housing, ensuring that it sits inside the exterior bead of the diaphragm.

- Position the bayonet cap spring in the middle of the diaphragm. Twist the bayonet cap clockwise to fit it to the lung demand valve housing.
- Replace the rubber cover on the front of the lung demand valve.
- Press the reset button to switch off the valve.
- Reassemble the LDV to the equipment and perform Pre Operational Checks as detailed in Instructions for Use for equipment.

12.2 Replacing the Diaphragm

- Remove the defective diaphragm and install the replacement. Instructions for replacing the diaphragm are contained in the internal cleaning procedure (see Section 12.1).
- Carry out a full functional test of the lung demand valve (see Section 8).

13 Face mask

Refer to Instructions for Use provided with Face mask.

14 Testing Equipment and Test Intervals

In addition to work outlined in Routine Maintenance it is important to comply with the following test and test intervals. This instruction applies to non-used in storage 'Ready for Use' equipment. Refer also to the appropriate Service Training Manual.

Contact Dräger for details of Service Training Courses or Service Contracts.

14.1 Daily

Check the contents indicator ensuring the cylinder is fully charged, i.e. contents indicator needle must be aligned with the nominal charged pressure – 200 or 300bar.

Important Note: Refer to Maintenance and Test Interval Chart.

15 Storage

15.1 Storage preparation

- Extend the shoulder straps, waist belt and the straps of the face mask.
- For storage, place the face mask in a protective bag (contact Dräger for supply of a suitable bag).
- Route rubber hoses in such a way that the bend radius is not too acute and the hose is not stretched, compressed or twisted.

15.2 Storage conditions

- Store the equipment between -15 °C and +25 °C. Ensure that the environment is dry, free from dust and dirt, and does not subject the equipment to wear or damage due to abrasion. Do not store the equipment in direct sunlight.
- Fix the breathing apparatus securely to any raised mounting point to prevent it from falling.

16 Fault, Cause, Remedy

Refer to any associated Instructions for Use supplied with this product, e.g. face mask.

Fault	Possible Cause	Remedy
High pressure leak	Check security of all connections/seals	Tighten or replace seals as necessary
Leak from pressure relief valve of MP hose	1 Damaged O-ring 2 Weak Spring 3 Damaged O-ring retainer	Replace O-ring Replace spring Replace retainer
Leak from pressure relief valve of MP hose Relief valve component satisfactory	Reducer failure	Contact Dräger Service
High or Low medium pressure	Reducer out of specification	Contact Dräger Service
Poor sounding whistle (if fitted)	Dirt	Clean and retest
Whistle not functioning correctly	Defective activation mechanism	Contact Dräger Service

17 Miscellaneous

Description	Order Code
Dow Corning® Molykote® 111	3331247
Plate spanner	R26817
Silicone lubricant (500 ml)	1563343

18 Maintenance and Test Intervals

Service and test the breathing apparatus, including out-of-use apparatus, in accordance with the maintenance table. Record all service details and testing. Refer also to the Instructions for Use for the lung demand valve, face mask and other associated equipment.

Additional inspection and testing may be required in the country of use to ensure compliance with national regulations.

	Description	Before Use	After Use	Every Month	Every Year	Every 6 Years
Complete Equipment	Visual inspection (see Note 1)	○	○	○		
	Functional testing	○	○	○		
	Breathing cycle and static tests (see Note 2)				○	
Demand Valve	Check push-in type connectors for lubricant (see Note 3)	○				
Pressure Reducer	Medium-pressure check (see Note 2)	○			○	
	Inspect the sintered filter (see Note 2 and Note 4)				○	
	Inspect the high-pressure connector O-ring (see Note 2 and Note 5)				○	
	Overhaul. Contact Dräger for the Repair Exchange (REX) service (see Note 6)					○
Cylinder	Charge cylinder to correct working pressure	○	○			
	Check charged pressure (stored cylinders only)			○		
	Check test date of cylinder			○		
	Recertification	According to national regulations in the country of use				
Cylinder Valve	Overhaul	At the time of cylinder recertification				

○ Dräger recommendations

1. Clean the equipment if it is dirty. If it the equipment has been exposed to contaminants, disinfect any components that come into direct and prolonged contact with the skin.
2. These maintenance tasks may only be carried out by Dräger or trained service personnel. Details of the tests are contained in the Technical Manual which is issued to service personnel that have attended a relevant Dräger maintenance course.
3. For type A check the O-ring on the lung demand valve; and for type ESA check the outer surface of the male part of the push-in connector on the lung demand valve. As a guide, lubricant should be felt on the fingers but not seen. If relubrication is required, lightly apply Dow Corning® Molykote® 111 (other lubricants are not tested and may damage the equipment).
4. Replace the sintered filter if a drop in reducer performance is observed during a flow check or if it is visibly damaged.
5. Replace the high-pressure connector O-ring if it is found to leak during functional testing or if the O-ring is visibly damaged.
6. Where the breathing apparatus is subjected to a high level of use (in training establishments etc.), reduce the overhaul period for the pressure reducer. In these circumstances, Dräger recommend that the overhaul frequency should be less than 5,000 applications of use. An application of use is defined as a single use of the fully assembled breathing apparatus, where the user breathes from the air cylinder. It does not include system pressurization for pre-operational checks.