Training

X

Dräger

Testor Training Manual

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1.1 Introduction

The Dräger Testor test equipment provides an efficient means of testing the Functional features of the Dräger range of compressed air respiratory protection equipment.

For details of the following reference should be made to the Instructions for Use supplied with the Testor Unit:

- Cleaning and Storage.
- Technical Data.
- Maintenance Intervals.
- Trouble Shooting.

It is recommended that the Testor Instructions for Use and this manual be read and fully understood before proceeding with any Functional Testing of compressed air respiratory protection equipment.

1.2 For Your Safety

Approved Dräger compressed air respiratory protection equipment incorporate a Dräger pre-set and sealed pressure reducer. A range of Lung Demand Valves, Facepieces and associated ancillary units are approved for use with the equipment.

The Dräger guarantee is void should original seal caps of the pressure reducer, or any sealed component assemblies of the ancillary units be tampered with removed or broken.

- Use of compressed air respiratory protection equipment requires wearer and service training, knowledge and observance of the instructions contained in the Training/Service Manual and the Instructions for Use supplied with equipment.
- Use of equipment requires compliance with National Regulations, Laws and Standards governing the use of respiratory equipment in the country of use.
- Use equipment only for the purpose specified in the Instructions for Use supplied with equipment, or as confirmed in writing by Dräger.
- Trained and competent personnel should inspect and service equipment at regular intervals and a record kept of such inspections and servicing.
- Dräger recommends a service contract be obtained from your Dräger Branch or Agent.
- Contact Dräger for details of Service Contracts and Service Training Courses.
- Notify Dräger in the event of component fault or failure.
- Use only original Dräger Spare Parts for service and maintenance.

Section	Description
2	Test Procedures
2.1	Leak Testing - Testor
2.2	Testing - Breathing Equipment
2.3	Testing Equipment – Fault Finding

2 Test procedures

Standard test procedures for compressed air respiratory protection equipment are as follows:

- Cylinder Pressure Check
- High Pressure Leak Test
- Whistle Warning Unit Test e.t.c.

Details of these tests are covered in the Functional Test Procedure Section of the relevant Service/Training Manual for the equipment.

Having completed the Functional Test Procedures as defined in the relevant Service/Training Manual, and if the integrity of the lung demand valve, facepiece or set has been broken due to repair and/or replacement of components, the following additional tests should be carried out using the Testor Test Equipment.

- Full Flow Test
- Medium Pressure Test
- Facepiece Leak Test
- Facepiece Exhalation Valve Lift Off Test
- Balanced Piston Leak Test
- Positive Pressure Switch Over
- Static Pressure Test

Refer to Section 2.2 for detailed instructions for the Functional Tests.

These functional tests should also be carried out in line with the Dräger recommendations as outlined in the Maintenance and Test Interval Chart of the Instructions for Use and the Test Procedure Section of the appropriate Training/Service Manual for the equipment to be tested.

It is recommended that this manual be read and fully understood before proceeding with any Functional Testing of compressed air respiratory protection equipment.

2.1 Leak Testing Testor

Before starting any test or series of tests of compressed air respiratory protection equipment it is recommended that the Testor Unit be leak tested as described in the following instructions.

Tools Required

Adaptor (Rd40 to A)	R50028
Blanking Plug	3335421

Safety Note: Connect only breathing quality air to the Testor Unit from a supply pressure source of maximum pressure 10bar.

1 Disconnect the lung demand valve from the female coupling of the medium pressure hose of the equipment pressure reducer and connect the separate lung demand valve to the female quick release connector located at the left side of the Testor. Refer to Fig. 1

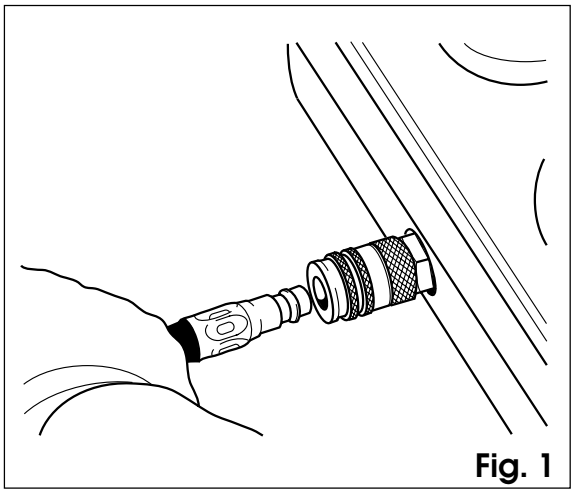

Fig. 1

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Connect the female coupling of the medium pressure hose of the equipment to the male connector located at the right hand side of the Testor Unit. Refer to Fig. 2

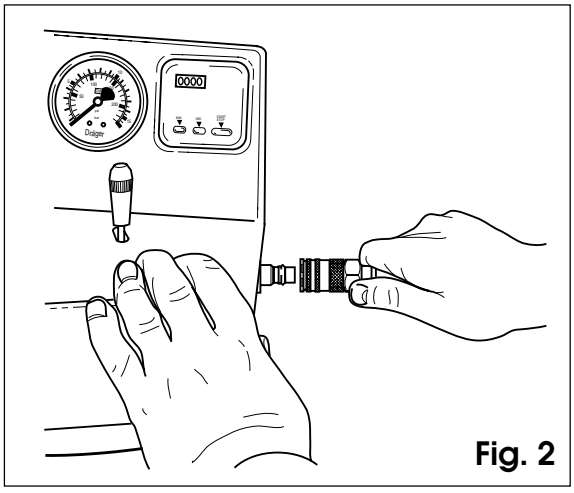

Fig. 2

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Note: *If the equipment to be tested incorporates a lung demand valve that is connected directly to the pressure reducer then it is necessary to assemble the following test hoses as required. Refer to Section 3.*

- PA90 Pressure Reducer 3339620
- Plus Pressure Reducer 3337650

Important Note: If using a test hose (lung demand valve connected) activate the lung demand valve to switch 'Off' the positive pressure.

2 Set the timer to **one minute**. Fully 'open' the cylinder valve (or independent air supply source). Allow the needle of the medium pressure gauge of the Testor to stabilise.

3 'Close' the cylinder valve then 'start' the timer. Observe the high pressure gauge of the equipment – the gauge reading should not drop more than **10bar** in one minute. During the timing of the pressure leak test – check for audible leak.

Refer to Fig 3

4 Reset the timer to **one minute**. Fully 'open' the cylinder valve. Carefully push the centre lever forward towards the **'+'** sign and very carefully inflate the rubber head to approximately average head size.

Safety Note: Do Not over inflate test head.

5 'Start' the timer. At the end of the timing sequence the test head should show no signs of reduction in size (deflation).

6 Reset the timer to **30 seconds**. With the test head still inflated, moisten the end of the finger or thumb with water and place and **hold** over the hole in the mouth fitting of the test head. Carefully push the RH lever forward towards the **'+'** sign until the mbar gauge indicates **+20mbar.** If an over pressure reading occurs when pushing lever forward then pull carefully on the LH lever away from the **'-'** sign until the pressure reading reduces to **+20mbar.**

'Start' the timer. The gauge reading should remain at **+20mbar** for 30 seconds. After 30 seconds remove thumb from mouth fitting of test head – the needle of the mbar gauge should return to **'0'**. Press the timer 'Stop' button.

7 Pull and **hold** the centre lever towards the **'-'** sign to deflate the rubber test head to approximately average head size.

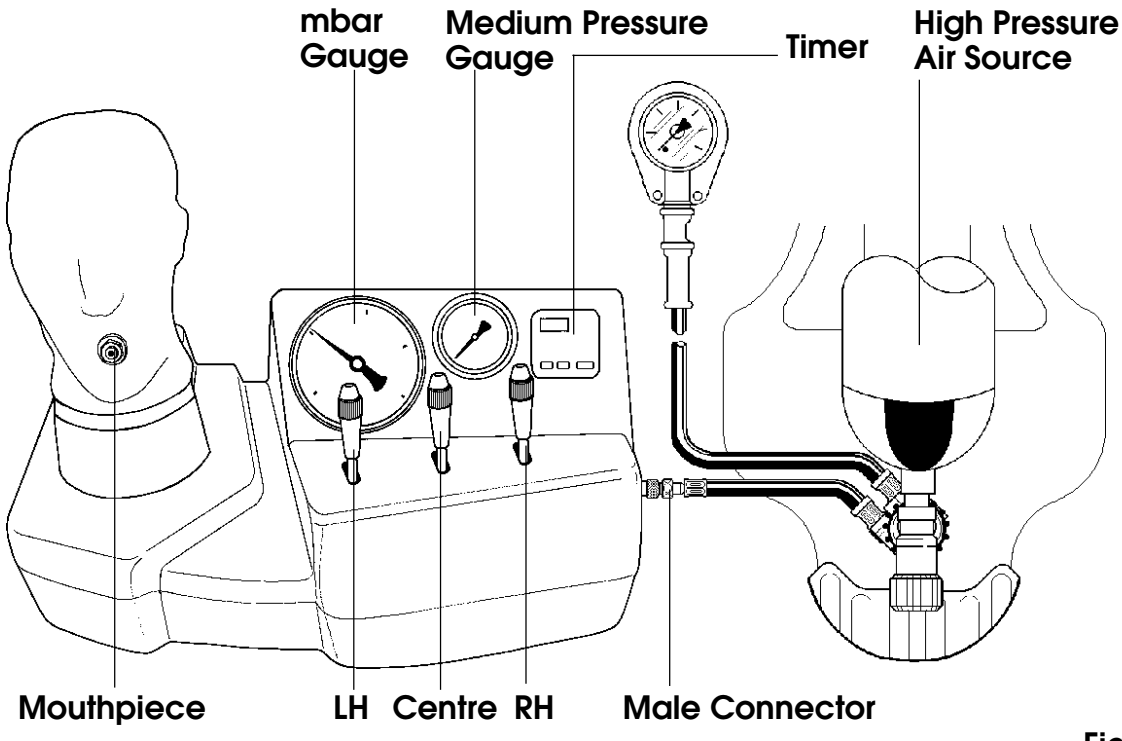

Fig. 3

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8 Pull and **hold** the RH lever back away from **'+'** sign and insert male blanking plug into port at rear of test head. Release the RH lever.

Note: **Do Not** *insert the blanking plug into port unless RH lever is held back - otherwise a positive overpressure will be shown on the mbar gauge.*

9 Carefully push LH lever forward towards the **'-'** sign until the needle of the mbar gauge rotates anti-clockwise and indicates a negative pressure of **-10mbar.** Release the LH lever then 'Start' the timer – the gauge reading should remain at **-10mbar** for 30 seconds.

Note: *If an under pressure occurs when pushing the lever forward then carefully pull the lever away from the* **'-'** *sign until* **-10mbar** *is achieved, then start leak test as above.*

10 Pull and **hold** the RH lever away from the **'+'** sign and remove the blanking plug from the port at rear of the test head. Release the RH lever. The needle of the mbar gauge should return to **'0'**.

11 'Close' the cylinder valve then press and **hold** the LH lever towards the **'-'** sign to vent pressure from system. When vented activate the lung demand valve to switch off positive pressure. Leak testing of the Testor now completed.

12 Proceed to test the compressed air respiratory protection equipment – see Section 2.2.

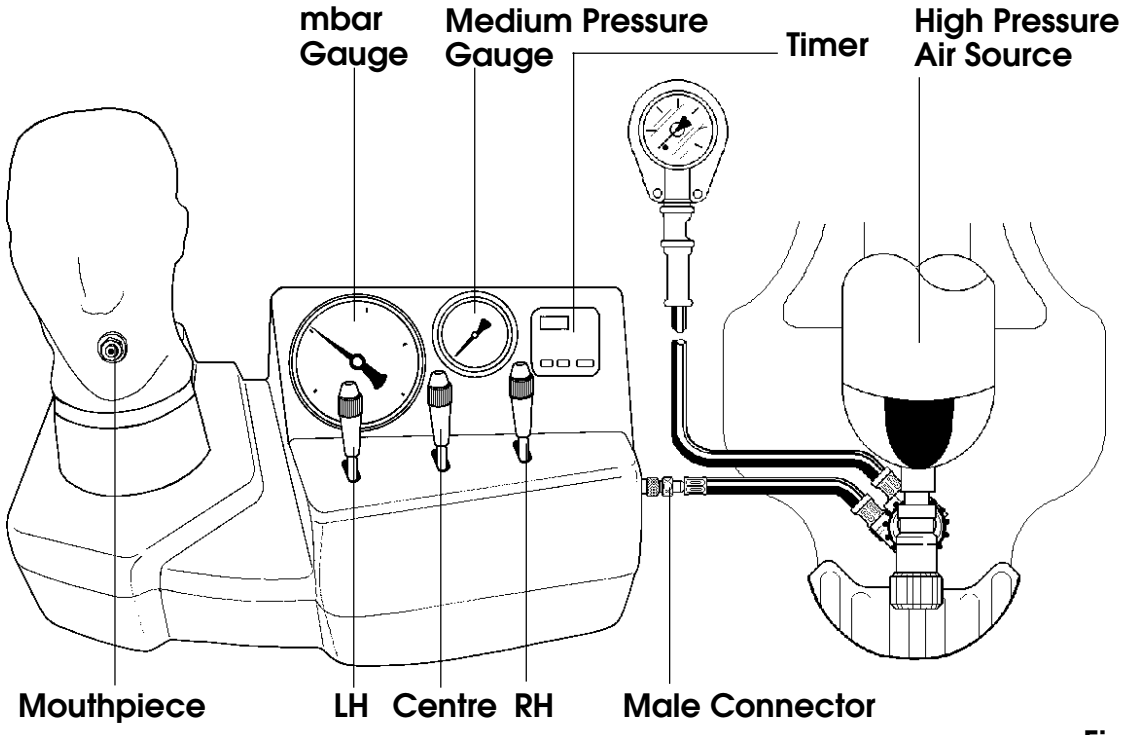

Fig. 3

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2.2 Testing the Breathing Apparatus

This procedure covers the functional testing requirement of the complete assembly of the compressed air respiratory protection equipment, i.e. pressure reducer, lung demand valve and facepiece.

2.2.1 High Pressure Leak and Whistle Warning Unit Test

Important Note:

The following is a general procedural sequence – reference must be made to the appropriate Pre-Operational Checks section of the Instructions for Use or the Test Procedure section of the Training/Service Manual for the equipment.

Note: *If equipment has a quick release coupling on medium pressure hose then attach the lung demand valve to the coupling.*

1 **A and AE -** Activate the lung demand valve to switch 'Off' positive pressure.

2 Open cylinder valve slowly but fully to pressurise the pneumatic system. Check the pressure reading of the high pressure gauge. Close the cylinder valve and observe high pressure gauge.

Cylinder content should be at least 80% of maximum charge, i.e. **160bar** for 200 units or **240bar** for 300 units.

3 **High Pressure Leak Test -** The high pressure gauge reading should not drop more than **10bar** in one minute. During the timing of the high pressure leak test check for audible leak(s).

If the equipment fails to conform to test parameters, vent the pressure from the system, investigate source of the leak, rectify and repeat test. Until the leak is rectified, **Do Not** carry out any further test. If test is satisfactory proceed to Instruction 4.

4 **Whistle Warning Unit Test -** While **slowly** venting pressure from the system observe the high pressure gauge. As the pressure decreases check that the whistle activates an audible alarm signal at between **60bar** to **50bar.**

Vent pressure from system as follows:

A and AE - Cover the outlet port of the lung demand valve with palm of the hand then press the centre of the rubber cover of the demand valve to switch 'On' positive pressure. Slowly vent pressure by carefully lifting palm of hand to maintain a **slow** steady decrease in pressure.

N - Slowly vent equipment by carefully pressing centre of the rubber cover of the demand valve maintaining a **slow** steady decrease in pressure.

Note: *Before proceeding to test the equipment with the Testor ensure that the Testor Unit is satisfactory and has 'Passed' the leak test as described in Section 2.1.*

Tools Required

Adaptor (Rd40 to A)	R50028
Blanking Plug	3335421

Important Note: If the equipment to be tested incorporates a lung demand valve that is connected directly to the pressure reducer then remove the demand valve from the reducer and assemble the following test hose as required. Refer to Section 3.

5 Connect the pressure reducer to a fully charged cylinder assembly (or an independent high pressure air source) then connect the female coupling of the medium pressure hose of the equipment to the male connector located at the right hand side of the Testor.

6 Remove the lung demand valve from the inhalation port of the facepiece. Activate the lung demand valve to switch 'Off' positive pressure. Connect the male coupling of the hose of separate lung demand valve units to the female quick release connector located at the left side of the Testor.

7 'Open' the valve of the high-pressure air source.

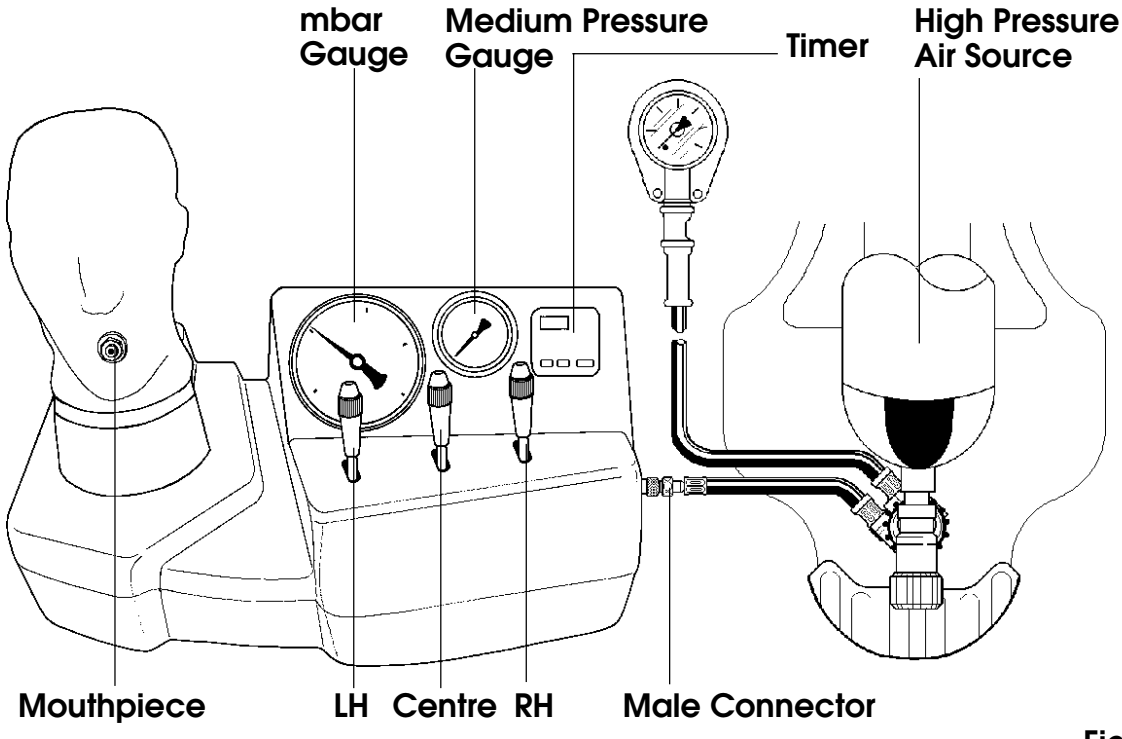

Fig. 3

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8 **Full Flow Test -** Press the centre of the rubber cover of the lung demand valve. A and AE types will switch 'On' to positive pressure. Check that an unobstructed airflow vents from the lung demand valve. See **Safety Note**.

Safety Note: During the full flow test Do Not direct the outlet of the lung demand valve onto the face or skin.

This test should take a minimum of 3 – 5 seconds. Following the test re-activate the lung demand valve (A and AE) to switch 'Off' positive pressure then immediately observe the medium pressure gauge.

Medium Pressure Test - At an inlet pressure of **>100bar,** the medium pressure gauge should indicate a pressure of between **6bar** to **9bar** after 5 seconds. After one minute it is acceptable for the medium pressure to rise to **9.7bar.**

During the timing of the medium pressure test - check for audible leak(s). If a fault is highlighted refer to Section 4.

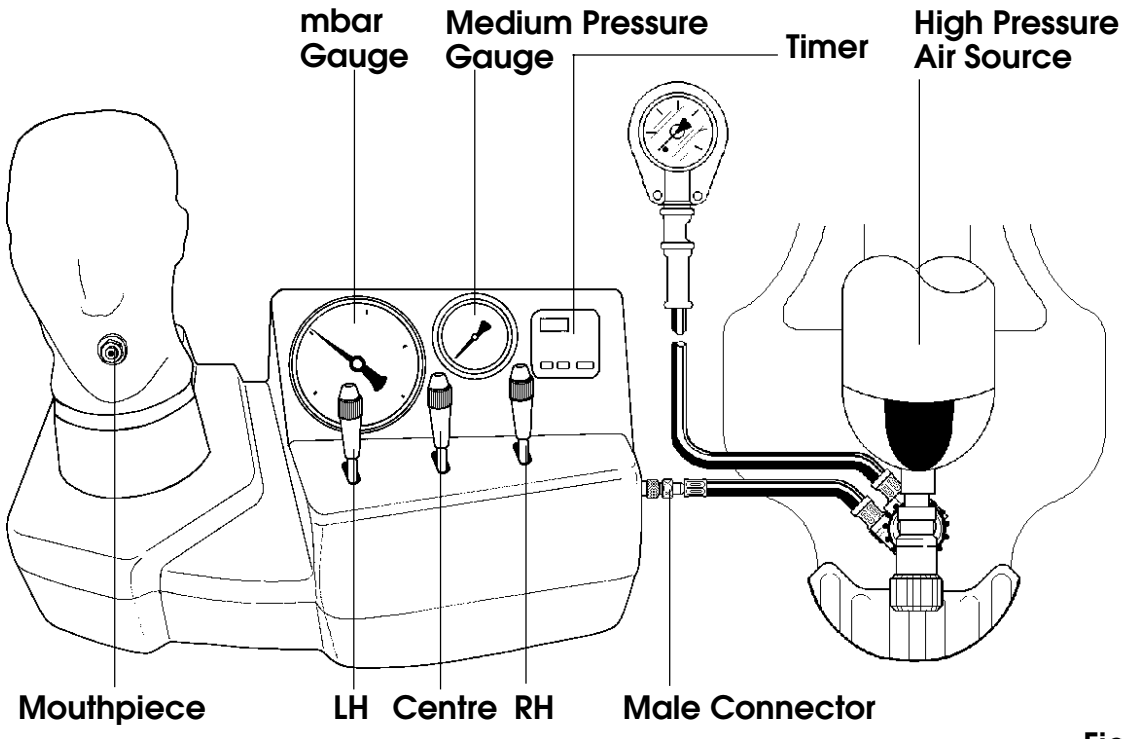

Fig. 3

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10 Fully extend the straps of the head harness of the facepiece. Moisten the inner face sealing lip and exhalation valve of the facepiece with clean water. Place facepiece over rubber test head – pulling the harness down the back of the head and positioning the head harness centrally with back of the head. While holding down the harness towards the back of the head, tighten each of the lower straps evenly towards back of head and repeat with the upper side straps. See Fig. 4. If necessary adjust the centre strap as required.

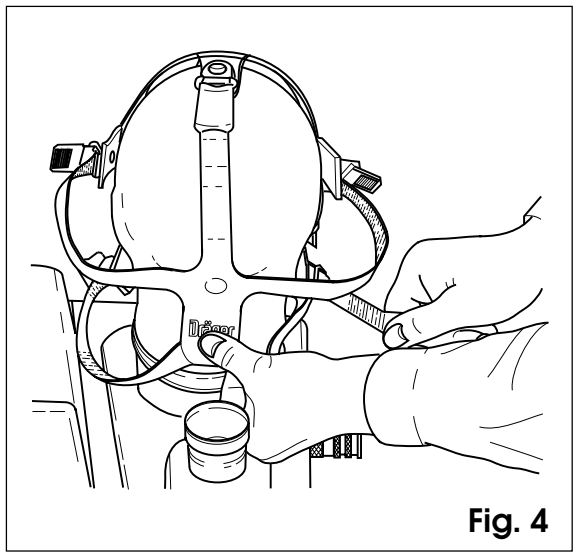

Fig. 4

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11 Carefully push the centre lever forward towards the **'+'** sign to very carefully inflate the rubber head to achieve complete contact around the face seal of the facepiece.

Safety Note: Do Not over inflate test head.

12 Insert the blanking plug into the inlet (inhalation) port of the facepiece. Ensure a secure assembly.

13 **Facepiece Negative Pressure Leak Test** - Set the timer to **one minute**. Carefully push the LH lever forward towards the **'-'** sign until the needle of the mbar gauge rotates anti-clockwise and indicates a negative pressure of (minus) **-6mbar.** Release the LH lever.

Immediately 'Start' the timer. The needle of the mbar gauge should not move from (minus) **-6mbar** to **-3mbar** in less than one minute. If a fault is highlighted refer to Section 2.3.1.1.

14 **Exhalation Valve Lift Off Test** - Push and **hold** the RH lever forward towards the **'+'** sign. The needle of the mbar gauge rotates clockwise and will stop when the exhalation valve, in the front port of the facepiece, lifts from its sealing rim. Keep the RH lever pushed forward - the needle of the gauge should remain stable between the following values,

Front Port Facepiece - **+4.5mbar** and **+5.7mbar.**
Side Port Facepiece – **+5.8mbar** and **+7.0mbar**

Release the RH lever. If a fault is highlighted then refer to Section 2.3.1.2.

15 Remove the blanking plug from the inhalation port of the facepiece then connect the lung demand valve to the inhalation port ensuring a secure connection.

16 **Balanced Piston Leak Test** – Pull the RH lever away from the **'+'** sign to zero **('0')** the mbar gauge. Release the RH lever. The needle of the mbar gauge should not move from **'0'** to **+4mbar** in less than 5 seconds.

Note: *If a fault is highlighted this indicates a faulty Balanced Piston Unit – stop the test – service lung demand valve then re-test.*

17 **Static Pressure Test** - Push and **hold** the LH lever forward towards the **'-'** sign. The lung demand valve should activate to positive pressure mode (audible activation). Release the LH lever. The mbar gauge should indicate a positive pressure reading of between **+1mbar** to **+3.9mbar.** No audible leak.

Note: *If a fault is highlighted activate the lung demand valve to switch 'Off' positive pressure – remove the lung demand valve from the facepiece. Proceed to Section 2.3.2.*

18 If test satisfactory - 'Close' the valve of the high pressure air source.

Whistle Warning Unit Test - Carefully push the LH lever towards the **'-'** sign to **slowly** vent pressure from the system. During slow venting observe the high pressure gauge of the equipment and check that the whistle activates an audible signal at between **60bar to 50bar**.

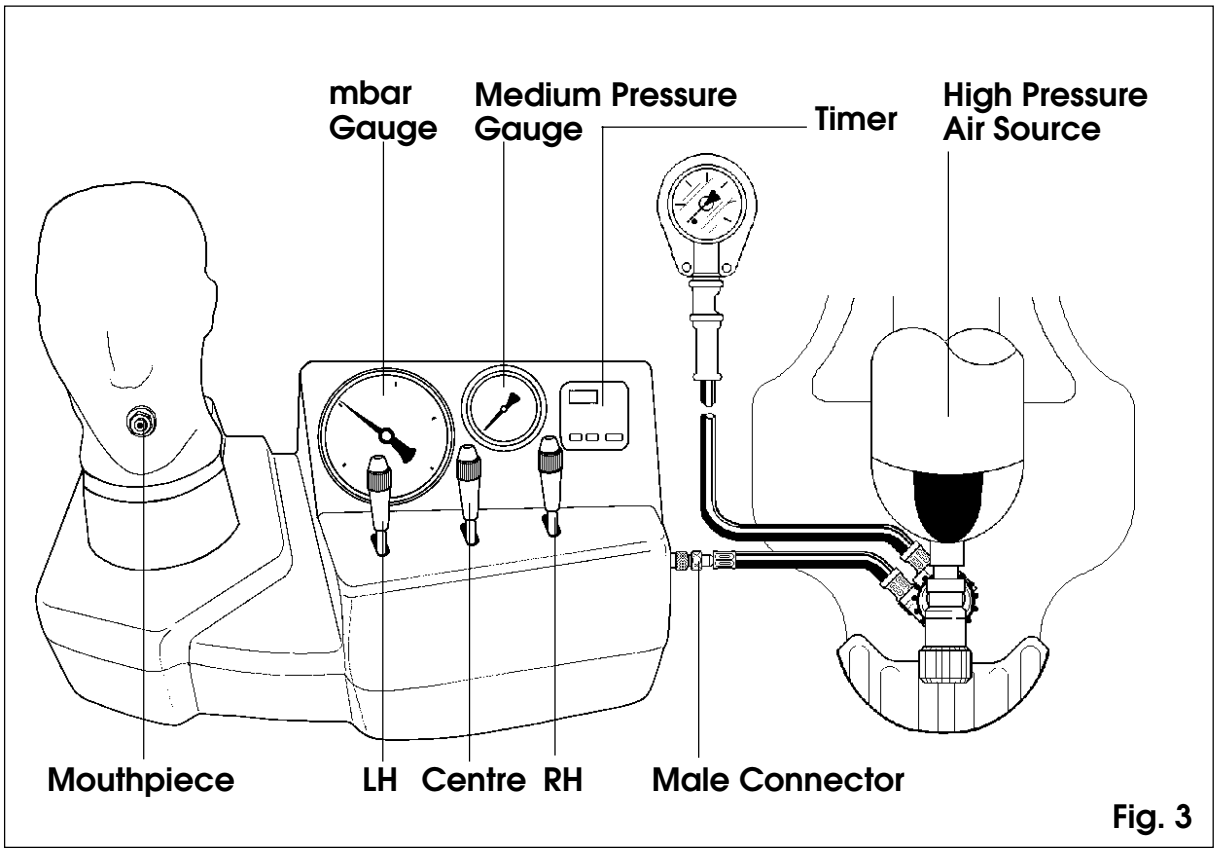

Fig. 3

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Note: *As soon as the whistle activates an audible signal – release the LH lever to allow the whistle to vent the air.*

19 Remove the lung demand valve from the facepiece. Pull and **hold** the centre lever towards the **'-'** sign to deflate the test head to average size and until the mbar and medium pressure gauges indicates **'0'**.

20 Release and extend the side straps of the head harness of the facepiece and remove the facepiece from the rubber test head. If necessary reset the centre strap as shown in Fig. 5.

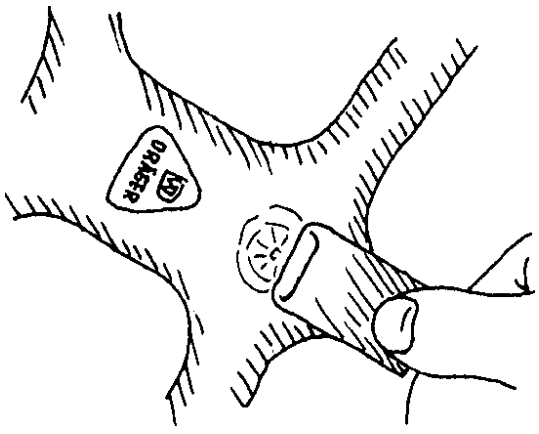

Fig. 5

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21 If the equipment 'Passes' the tests - disconnect female coupling of the medium pressure hose from the coupling of the Testor. If the reducer is fitted to an independent air source grip firmly the outer diameter of the handwheel of the pressure reducer and unscrew (anti-clockwise) from the high pressure air source.

22 Disconnect the hose coupling of the separate lung demand valve hose from the left hand female coupling of the Testor and connect to the female coupling of the medium pressure hose of the pressure reducer. Activate the lung demand valve to switch 'Off' positive pressure then refit the lung demand valve to the facepiece ensuring a secure connection.

Note: *If the equipment tested has a continuous hose from the lung demand valve to the pressure reducer, remove the test hoses as required. Refer to Section 3. Carry out a high pressure leak test of the equipment.*

23 Following satisfactory Tests, complete the test details in the Log Book for the compressed air respiratory equipment. Store the equipment in designated area, 'Ready for Use'.

2.3 Testing Equipment – Fault Finding

The following test sequence should be carried out following any 'Failure' identified during Functional Tests as described in Section 2.2. Reference should be also made to the Fault Location Section 4 and the appropriate Training/Service Manual.

2.3.1 Facepiece

This fault analysis is for guidance – reference must be made to the Fault Location Section 4 and the appropriate Training/Service Manual for the facepiece.

2.3.1.1 Facepiece Negative Pressure Leak Test

This fault analysis is for guidance – reference must be made to the Fault Location Section 4 and the appropriate Training/Service Manual for the facepiece.

- Check integrity of fit of facepiece to rubber test head.
  Re-fit facepiece and re-test.
- Damage O ring on blanking plug. Inspect.
  Fit new O ring and re-test.
- Check exhalation valve rubber disc is clean and not damaged. Inspect.
  Wash and clean - Re-fit and re-test.
- Check sealing rim for exhalation valve rubber disc is clean and not damaged. Inspect.
  Wash and clean - re-test. If damaged – replace port assembly – re-test.
- Speech diaphragm locking ring not tight. Inspect.
  Tighten/replace as necessary and re-test.
- Speech diaphragm and/or sealing ring damaged. Inspect.
  Replace as necessary and re-test.

2.3.1.2 Exhalation Valve Lift Off Test

- High or Low 'Lift Off' value.
  High value - Strong spring.
  Low value - Weak spring.
  Inspect and fit new spring.

If an initial high reading is indicated, but then settles to within the test parameter, this indicates a 'sticky' exhalation valve disc and/or sealing rim. Remove – clean – rinse in clean water – re-fit and re-test.

2.3.2 Lung Demand Valve

1 Pull the centre lever of the Testor towards the **'-'** sign to reset the internal shuttle valve of the Testor Unit then release the lever. Pull and **hold** the RH lever away from **'+'** sign then insert the lung demand valve into the adaptor port at the rear of the test head. Release the RH lever. The needle of the mbar gauge should return to **'0'**.

2 **Leak Test Lung Demand Valve** – Carefully push the RH lever forward towards **'+'** sign. The needle of the mbar gauge rotates clockwise. Set the needle of the gauge to **+7mbar.** Release the RH lever.

Note: *If an over pressure occurs when pushing the RH lever forward then carefully pull the LH lever away from the* **'-'** *sign until* **+7mbar** *is achieved, then start leak test as follows.*

Needle of the mbar gauge should not move from **+7mbar** to **+6mbar** in less than one minute. If a failure occurs refer to Section 4. Following the test pull the RH lever back away from **'+'** sign until the needle of the mbar gauge indicates **'0'**. Release the RH lever.

4 **Static Pressure Test** - Push and **hold** the LH lever forward towards the **'-'** sign. The lung demand valve should activate to positive pressure mode (audible activation). Release the LH lever. The mbar gauge should indicate a positive pressure reading of between **+1mbar** to **+3.9mbar.** If a failure occurs refer to Section 4. Vent pressure from system.

Important Note: If any failures occur during these tests – service the equipment as necessary. Refer to the appropriate Training/Service Manual. Retest equipment with the facepiece.

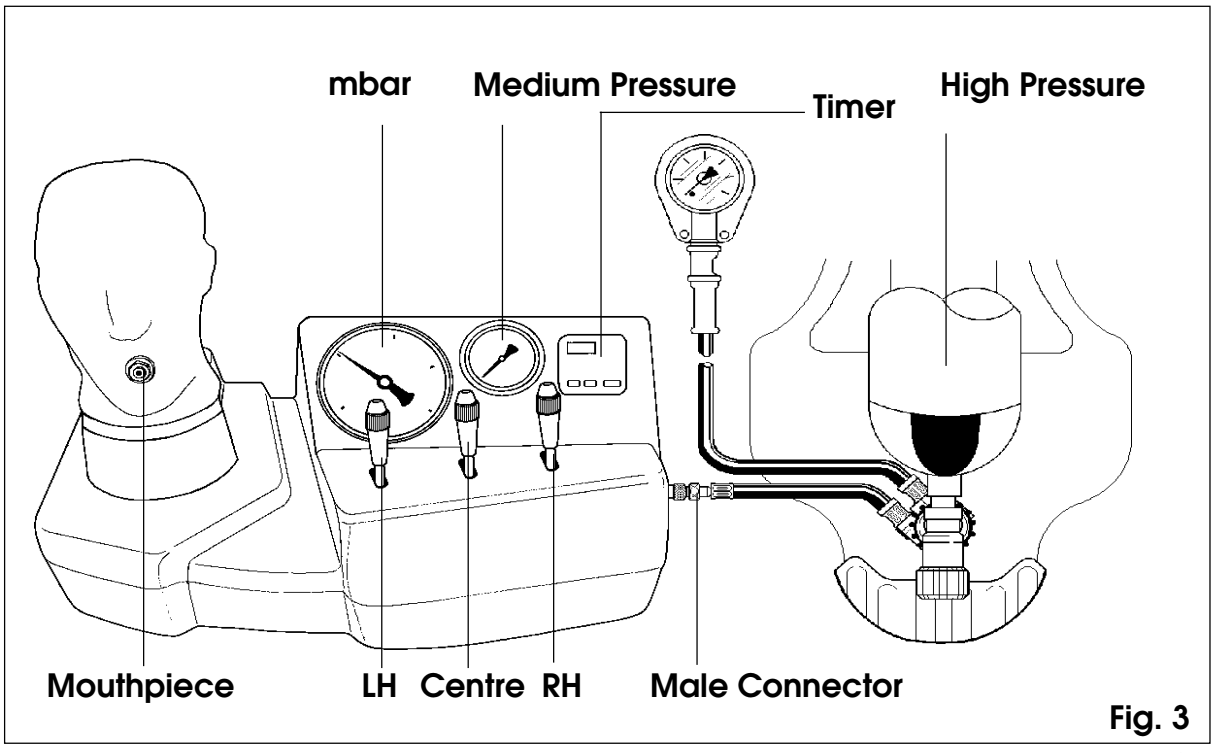

Fig. 3

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Section	Contents
3	Test Hoses
3.1	PA90 Series Pressure Reducer
3.2	PA90Plus Series Pressure Reducer

3 Test Hoses

If the equipment to be tested has a continuous hose from the pressure reducer to the lung demand valve then to perform full functional testing using the Testor the hose must be disassemble from the reducer and replaced with the following test hoses as required.

- PA90 Pressure Reducer 3339620
- Plus Pressure Reducer 3337650

3.1 PA90 Series Pressure Reducer

Tools Required:

5mm AF Hexagon Socket Key 3335738
Medium Pressure Test Hose 3339620

1 Ensure the cylinder valve is 'Closed' and the pressure vented from the system.

2 Using the socket key unscrew and remove the blanking plug from the secondary medium pressure port in the end face of the pressure reducer.

3 Inspect test hose and ensure that the O ring is fitted to the end fitting and is not damaged. Screw the end fitting of the hose into the secondary medium pressure port in the end face of the pressure reducer – hand tight.

4 Proceed to either Section 2.1 – Leak Testing Testor, or Section 2.2 – Testing the Breathing Apparatus.

5 Following satisfactory testing of the equipment, remove the test hose, inspect O ring of the blanking plug and re-fit plug to secondary port. Tighten using socket key. Carry out a high pressure leak test of the equipment.

3.2 Plus Series Pressure Reducer

Tools Required

2mm AF Socket Key 3337900
Medium Pressure Test Hose 3337650

1 'Close' the cylinder valve of the equipment and ensure the system is vented. Unscrew reducer handwheel from cylinder valve. Loosen cylinder strap, slide cylinder away from reducer and remove cylinder from equipment.

Refer to Figure 1.

2 Using 2mm socket key unscrew (anti-clockwise) and remove two screws (1) from reducer body, remove retaining cap (2) and retention staple (3). Grip and pull the lung demand valve hose (4) to remove the hose from the outlet port of the reducer.

Note: *Component parts of relief valve, i.e. spring, O ring retainer and O ring, remain attached to nozzle of the lung demand valve hose.* **Do Not** *remove components.*

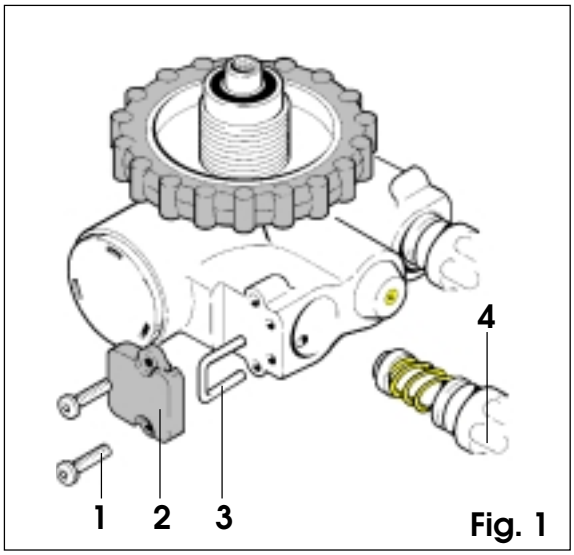

Fig. 1

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Refer to Figure 2.

3 Using 2mm socket key, unscrew (anti-clockwise) and remove two screws (1) from the manifold block of the test hose, remove retaining cap (2) and retention staple (3). Insert the end fitting of the lung demand valve hose into manifold port - push and hold against the compression spring - insert retention staple (3) through holes in manifold. Fully insert retention staple ensuring correct location into groove in hose end fitting.

Note: *Check hose securely retained by pulling hose away from manifold.*

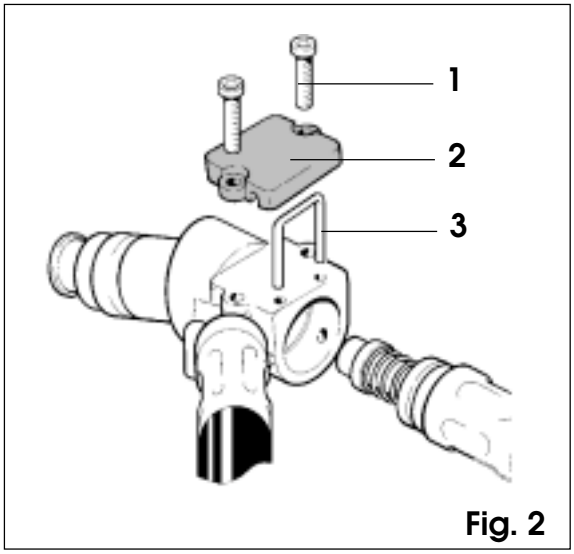

Fig. 2

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4 Locate groove of retaining cap over protruding portion of retention staple - align holes - insert screws and using 2mm socket key, tighten screws.

Refer to Fig. 3

5 Ensuring O ring is fitted then insert the connector of the manifold into the outlet port of the reducer. Insert retention staple into holes in reducer body. Fully insert retention staple ensuring correct location into groove of manifold connector.

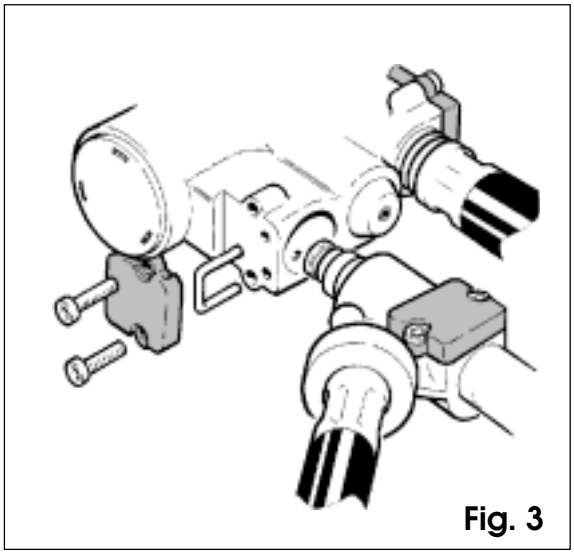
Fig. 3

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Note: *Check manifold securely retained by pulling manifold away from reducer body.*

6 Locate groove of the retaining cap over the protruding portion of retention staple - align screw holes - insert screws and using 2mm socket key, tighten screws.

7 Proceed to either Section 2.1 – Leak Testing Testor, or Section 2.2 – Testing the Breathing Apparatus.

8 Following satisfactory testing of the equipment, remove the test hose from the reducer. Remove the lung demand valve from the manifold of the test hose and re-assemble to the pressure reducer. Carry out a high pressure leak test of the equipment.

Section	Contents
4.1	Pressure Reducer
4.2	Lung Demand Valve
4.3	Facepiece
4.4	Whistle Warning Unit

4.1 Pressure Reducer

Compressed air respiratory protection equipment manufactured by Dräger incorporate a pre-set and sealed pressure reducer assembly. The Dräger warranty conditions and guarantee is void should original seal caps be tampered with or removed. Correct operational condition of the pressure reducer is guaranteed only if the unit is serviced and re-sealed by Dräger.

Return faulty units (less hoses and any accessories) to Dräger Service.

Refer to the relevant Training/Service Manual, for full details of Service/ Maintenance recommendations with regard to the product in use.

Important Note: This table is for guidance only – reference must be made to the Fault Location section of the appropriate Training/Service Manual.

Fault		Cause	Remedy
High Pressure Leak Valve	1 2	Damaged valve plunger/seat Gauge Seal	Overhaul Valve - Return to Dräger Service Replace O-Ring
Leak from pressure relief valve	1 2 3	Damaged O-Ring Weak Spring Damaged O-Ring Retainer	Replace O-Ring Replace Spring Replace Retainer
Leak from pressure relief valve - components o.k.		Reducer Failure	Remove hose and replace reducer Return suspect reducer to Dräger Service
High or Low Medium Pressure		Reducer out of specification	Remove hose and replace reducer Return suspect reducer to Dräger Service
High Pressure Leak at connection		Damaged HP O-Ring Damaged Metal Components	Replace O-Ring Refer to Dräger Service

4.2 Lung Demand Valve

It is important to refer to the relevant Training/Service Manual, for full details of Service/Maintenance recommendations with regard to the product in use.

Important Note: This table is for guidance only – reference must be made to the Fault Location section of the appropriate Training/Service Manual.

FAULT		CAUSE	REMEDY
Inward/outward leak when in facepiece port	1	Damaged/faulty connection O-ring	Replace O-ring
	2	Damaged bore in front port of facepiece	Replace Front Port
Leak Test - Positive pressure 'off'	1	Banjo Seals Leaking	Replace Seals
	2	Balanced Piston Unit Leaking	Replace Balanced Piston Unit
High Static pressure		Balanced piston lever springs too strong	Replace Springs
Low Static pressure		Balanced piston lever springs too weak	Replace Springs
Demand Valve fails to switch automatically to positive pressure mode	1	Bent/damaged Balanced Piston Lever	Replace Balanced Piston Unit
	2	Bent/damaged retaining spring plate	Replace Balanced Piston Unit

4.3 Facepiece

It is important to refer to the relevant Training/Service Manual, for full details of Service/Maintenance recommendations with regard to the product in use.

Important Note: This table is for guidance only – reference must be made to the Fault Location section of the appropriate Training/Service Manual.

FAULT	CAUSE		REMEDY
Inward Leak	1	Exhalation valve leaking	Clean and/or replace silicone disc. Inspect exhalation valve seat in front port for damage. Clean and/or replace.
	2	Loose connections	Tighten connections
	3	Face seals leaking	Inspect for damage
	4	Facepiece rubber body perforated (pin holes, cracking)	Replace facepiece rubber body
Will not hold/maintain positive pressure		Weak exhalation valve spring	Replace exhalation valve spring assembly.
Unable to maintain headstrap adjustment	1	Strap ratchets worn	Replace headstrap
	2	Buckle rollers incorrectly fitted	Assemble correctly

4.4 Whistle Warning Unit

It is important to refer to the relevant Training/Service Manual, for full details of Service/Maintenance recommendations with regard to the product in use.

Important Note: This table is for guidance only – reference must be made to the Fault Location section of the appropriate Training/Service Manual.

FAULT		CAUSE	REMEDY
Whistle sounds at wrong pressure		Incorrect whistle setting	Reset whistle
Whistle sounds continuously	1 2 3	Damaged H.P. piston seat Piston seal leak (H.P.) Plunger housing seal leak (M.P.)	1,2 or 3 - Remove hoses from reducer and return reducer to Dräger. (REX)
Poor sounding whistle	1 2 3 4	Blocked whistle tube flute and/or jet Blocked Filter Split or perforated rubber hose of dual pressure hose leaking Faulty activation	Clean or replace whistle tube. Replace filter/filters. Replace hose Remove hoses from reducer and return reducer to Dräger. (REX)
Whistle does not sound	1 2 3 4	Blocked whistle tube flute and/or jet Blocked Filter Split or perforated rubber hose of dual pressure hose (leaking) Faulty Activation	Clean or replace whistle tube Replace filter/filters. Replace hose Remove hoses from reducer and return reducer to Dräger. (REX)