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1 General information for assembling of pop action pilot valve

2 Purpose

The documentation describes the assembly of the pop action pilot valve. The description contains the assembly procedure, additional supplies, tools and appliances.

3 Competences

The generation, maintenance and distribution of the documentation take place in the organisation department. The defaults will be generated by the technical department in consultation with the final assembly department and production planning department.

4 Scope

This document must be applied to the assembly of a Pilot Operated Safety Valve in agencies and subsidiaries of LESER GmbH & Co. KG, customers and independent service center.

5 Disclaimer

LESER puts in a great deal of effort into making up-to-date and correct documentation available. Nevertheless, LESER GmbH & Co. KG gives no guarantee that the recommended actions presented here are entirely correct and error free. This document is to be applied exclusively to the specified type. LESER GmbH & Co. KG declines any liability or responsibility for the correctness and completeness of the content. LESER GmbH & Co. KG reserves the right to change the information contained in this document, which is for the products of LESER GmbH & Co. KG and is intended for LESER subsidiaries, at any time and without prior announcement. LESER GmbH & Co. KG is available to the users of this document to provide additional information.

6 Qualified fitting personnel

LESER safety valves may only be assembled by trained or qualified fitters. The qualifications must be obtained through the appropriate training measures.

7 Remarks



Gloves must be worn during the entire assembly procedure

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8 Basic safety guidelines

Dangerous media

Poisoning, caustic burns, burns, injuries

- Use suitable protective devices
- Use suitable collecting tanks.
- Wear suitable protective equipment.

Foreign bodies in the safety valve

Danger from failure of safety valve or leaks

- Flush the system before installation of a safety valve.
- Check the safety valve for foreign objects.
- Remove foreign objects

Bug screen is damaged or missing (B or option)

Dirt, objects or insects get into the safety valve. Danger from malfunction of the safety valve.

- Install the bug screen correctly.
- Check the bug screen regularly.

Ambient temperature is too high

Material expansion. Danger from malfunction of the safety valve.

Ambient temperature is too low

Icing, freezing vapours, reduced flow rate due to congealing media. Danger from functional disruption of the safety valve.

Abrasive or corrosive media

Moving parts jam or become stuck. Danger from functional disruption of the safety valve.

- Service the safety valve after each time it opens.

Media with high proportion of particles (only B)

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Deposits and clogging. Danger from malfunction of the safety valve.

- Use a filter with the correct mesh size.
- Use additional filters to increase the filter capacity.

Residual media in the safety valve

Poisoning, caustic burns, burns, injuries

- Wear suitable protective equipment.
- Remove residual media

WARNING

Leaky safety valve

Danger from leaking media due to damaged gaskets and sealing surfaces.

- Protect the safety valve against vibrations and blows especially during transport and installation.
- Check safety valve regularly for leaks.

Open bonnet or spindle guides

Danger from leaking media

- Make sure that no danger can arise from leaking media.
- Keep a safe distance.
- Wear suitable protective equipment.

CAUTION

Hot medium

Burns or scalding.

- Wear suitable protective equipment.

Hot surfaces

Burns.

- Wear suitable protective equipment.

Aggressive medium

Caustic burns.

- Wear suitable protective equipment.

Open bonnet or spindle guides

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Pinching danger from moving parts.

- Install suitable safeguards.

Sharp edges and burrs

Danger of injury.

- Wear safety gloves.
- Handle the safety valve carefully

High noise emission

Hearing damage.

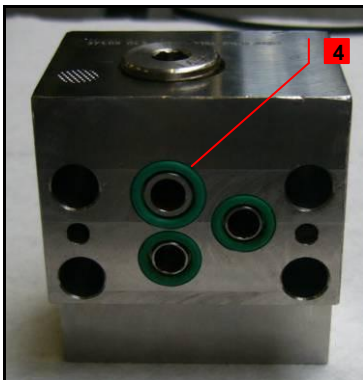
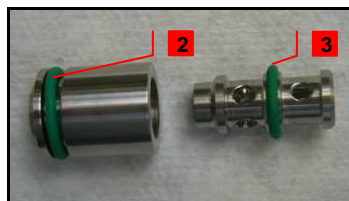
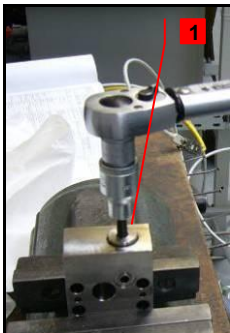
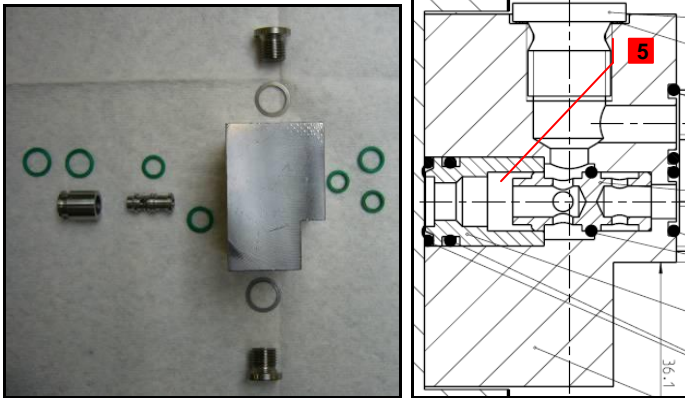
Wear ear protection.

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9 Assembly instructions

9.1 Assembly of the manifold block



1. Steps – Descriptions

1 Screw in lock screw [24.7] with gasket [24.8] into manifold block [24.1] Tightening torque acc. to LID

2 Complete bushing [24.2] with O-ring [24.5] (O-ring is 10,82 x 1,78)

3 Complete piston [24.3] with O-ring [24.4] **without soapy water** (O-ring is 7,65 x 1,78)

4 Complete manifold block [24.1] with piston [24.3], bushing [24.2] and O-rings
2 x 7,65 x 1,78;
2 x 9,25 x 1,78;
1 x10,82 x 1,78;

! Check the correct orientation of the piston using the diagram **5**

! Check the ease of movement of piston by rotating the manifold block

2. Supplies

Use soapy water for easy assembly of O-rings
Lubricant acc. to LID

3. Tools

Allen key acc. to LID
Hook tool for O-rings
Torque wrench (Tightening torques acc. to LID)

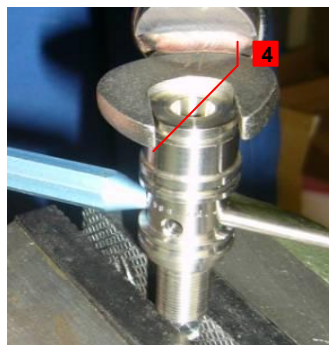
4. Appliances

Parallel vice with aluminium jaws
Test bench

protected

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9.2 Assembly of the adjusting screw



1. Steps – Descriptions

- 1** Pull O-ring [30] on (upper) feeding disc [7] (O-ring is 6,07x1,78)
Make sure that O-ring is twist free
- 2** Stick (upper) feeding disc into the (lower) feeding disc [8]
- 3** Insert unit (from **2**) into adjusting screw [12]
- 4** Place adjusting screw into assembling aid (Use parallel vice as an alternative).
Screw in feeding seat (5) into adjusting screw unit while securing adjusting screw with a drift pin. Tightening torque acc. to LID
- 5** Pull both O-rings [32] on adjusting screw [12] (O-rings are 17,17x1,78)
Make sure that O-rings are twist free
- 6** Lubricate thread M12x1 of adjusting screw [12]. Screw on nut [20] as far as it will go

2. Supplies

Halocarbon 56 S
Lubricant acc. to LID

3. Tools

Open-end wrench acc. to LID
Hook tool for O-rings
Drift pin
Torque wrench (Tightening torques acc. to LID)

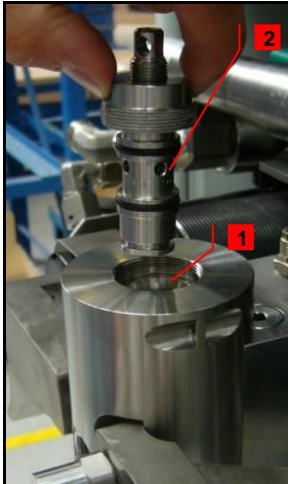
4. Appliances

Parallel vice with aluminium jaws
Assembling aid (60S.2512.4012)

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9.3 Insertion of adjusting screw into body



1. Steps – Descriptions

- 1** Lubricate slide face for O-ring of body [1] with Halocarbon 56S
- 2** Insert adjusting screw unit from 9.2 into body [1]
- 3** Screw in nut [20] together with adjusting screw unit and tighten nut [20]
- 4** Establish previous adjustment of adjusting screw [12] – measured before the disassembly process



- 5** Tighten counter nut [21]

2. Supplies

Halocarbon 56S
Lubricant acc. to LID

3. Tools

Open-end wrench acc. to LID
Torque wrench (Tightening torques acc. to LID)

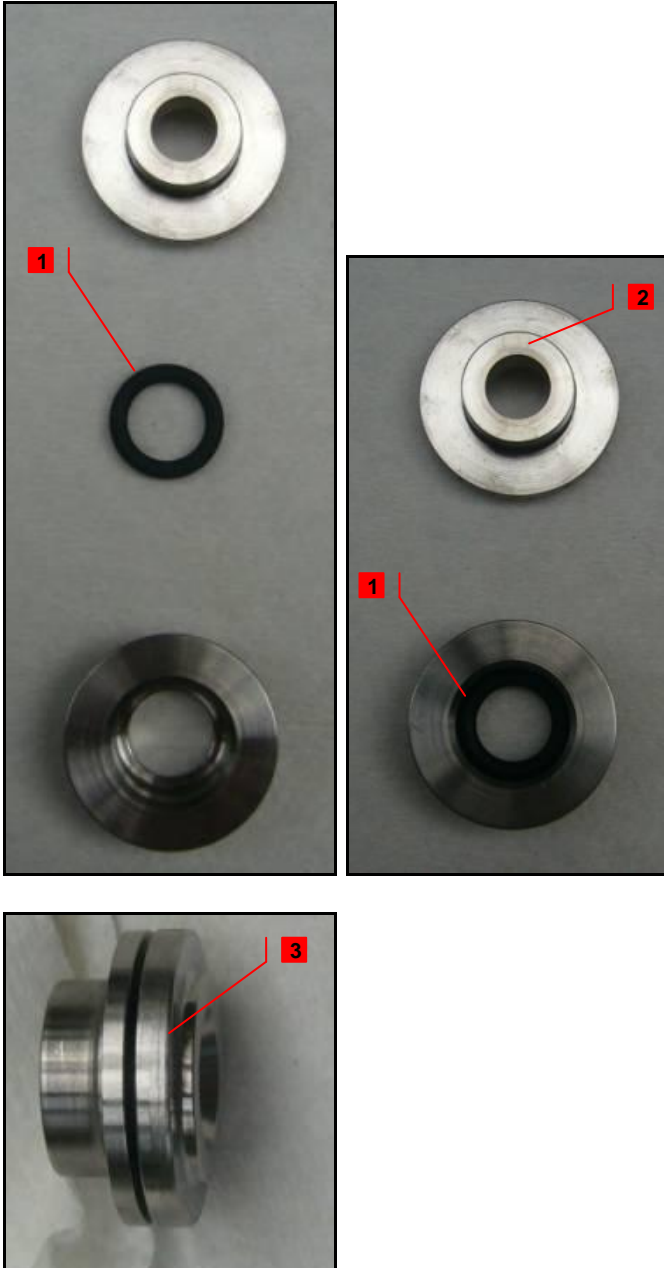
4. Appliances

Test bench

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9.4 Assembly of exhaust seat



1. Steps – Descriptions

- 1** Place O-ring [31] into (upper) exhaust seat [13].
- 2** Insert (lower) exhaust seat [14] into (upper) exhaust seat [13] (O-ring is 7,65x1,78)
- 3** Assembled exhaust seat

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2. Supplies

None

3. Tools

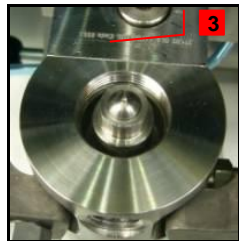
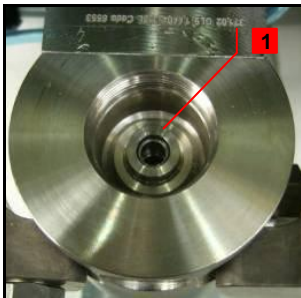
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4. Appliances

None

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9.5 Insertion of the outlet valve into the body



1. Steps – Descriptions

- 1** Insert flat gasket [35] and unit from 9.4 into body [1]
- 2** Insert plunger [15]
- 3** Insert outlet disc [11] into guide bushing [2] and place both into body
- 4** Insert, screw in and tighten bonnet (base part) [10]

2. Supplies

Halocarbon 56S
Lubricant acc. to LID

3. Tools

Open-end wrench acc. to LID
Torque wrench (Tightening torques acc. to LID)

4. Appliances

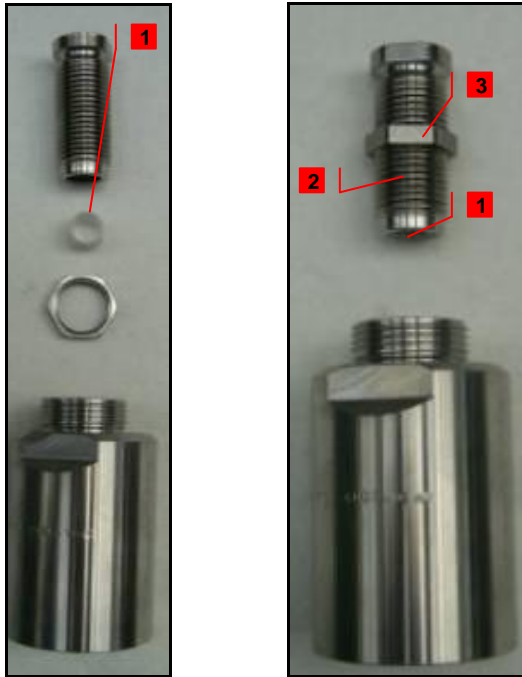
Test bench

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9.6 Preassembly of bonnet

1. Steps – Descriptions



1 Insert PTFE-bushing into adjusting screw [18]

2 Lubricate thread of adjusting screw [18] with Molykote D paste

3 Screw lock nut [19] on adjusting screw [18]

4 Screw in adjusting screw unit into bonnet [9]

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2. Supplies

Molykote D paste (Halocarbon 56S as an alternative)
Lubricant acc. to LID

3. Tools

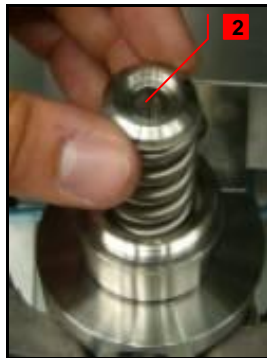
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4. Appliances

None

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9.7 Assembly of bonnet and spring



1. Steps – Descriptions

! Make sure that spring is selected in accordance with spring chart LGS 3632

1 Place (lower) spring plate [17] and spring [54] onto outlet disc [11]
Note: If a pilot lifting device is applied follow 9.8 for spindle assembly.

2 Place (upper) spring plate [16] into spring [54]

3 Screw on bonnet [9] on base part [10] by hand

! Make sure that upper spring plate [16] is vertically aligned to adjusting screw [18] by screwing in adjusting screw as far as possible until spring force is felt. If necessary use a drift pin to align

4 Tighten bonnet [9] while securing base part [10] with an open-end wrench

! Follow test procedure instructions acc. to LIDxxx

2. Supplies

Lubricant acc. to LID

3. Tools

Open-end wrench acc. to LID
Drift pin
Torque wrench (Tightening torques acc. to LID)

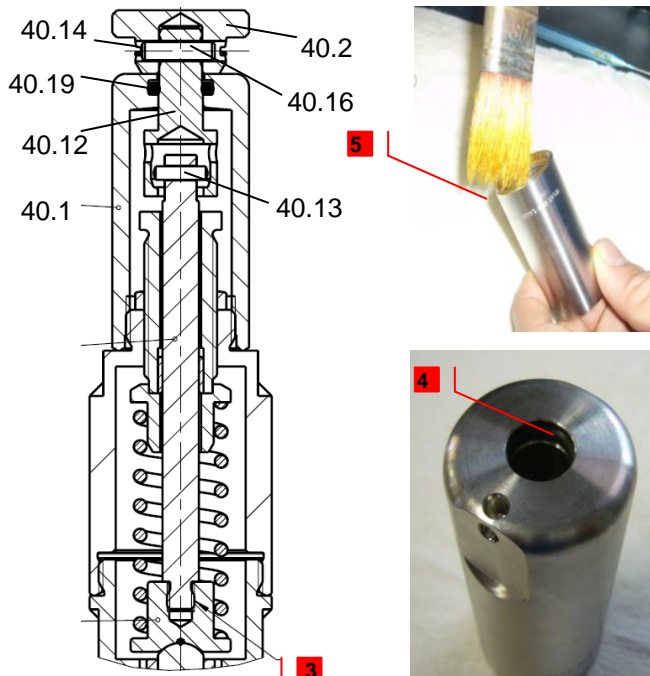
4. Appliances

Test bench

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9.8 Assembly of Pilot Lifting Device



1. Steps – Descriptions

- 1** Cover thread of spindle [12] with adhesive liquid Delo ML 5449
- 2** Screw in spindle [12] into (lower) spring plate [17] hand-tight

Follow 9.7 for assembling of bonnet and spring

- 3** Place coupling [40.12] on the end of spindle [12] and insert parallel pin [40.13]
- 4** Put o-ring [40.19] in groove of cap [40.1]
- 5** Lubricate thread of cap [40.1] with Molykote D paste
- 6** Tighten cap [40.1]. Put lifting button [40.2] and roll pin [40.16] on coupling [40.12]. Secure roll pin [40.16] with securing ring [40.14]

2. Supplies

Molykote D paste (Halocarbon 56S as an alternative)
Adhesive liquid Delo ML 5449
Lubricant acc. to LID

3. Tools

Open-end wrench acc. to LID
Drift pin
Torque wrench (Tightening torques acc. to LID)

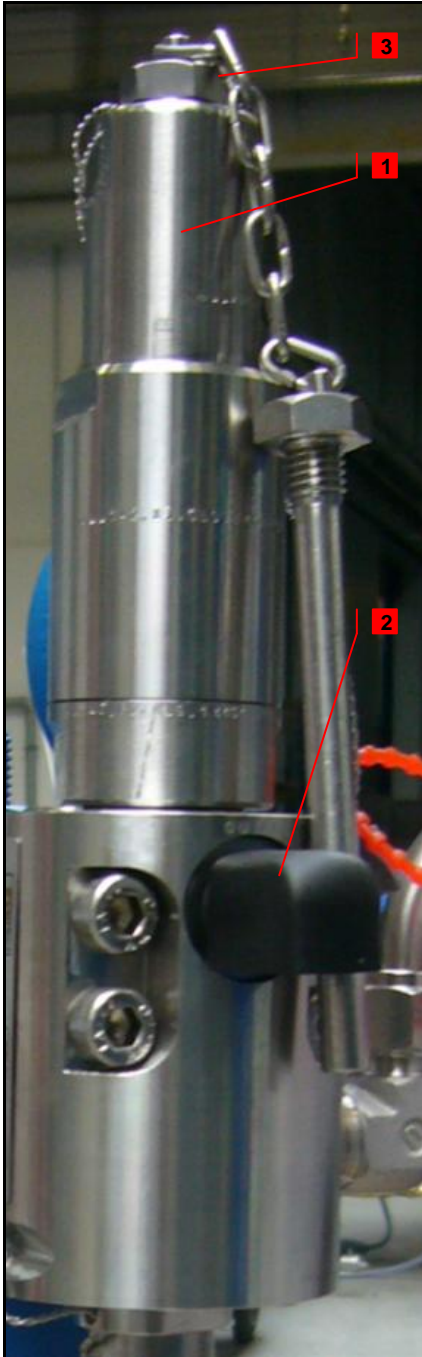
4. Appliances

Test bench

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9.9 Completion



1. Steps – Descriptions

! Conduct completion of valve after test procedure

1 Tighten cap [40]

2 Screw in bug-screen [64]

In case of test gag:

3 Screw in short hexagon bolt [TG.5] into cap [40] and tighten cap

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2. Supplies

None

3. Tools

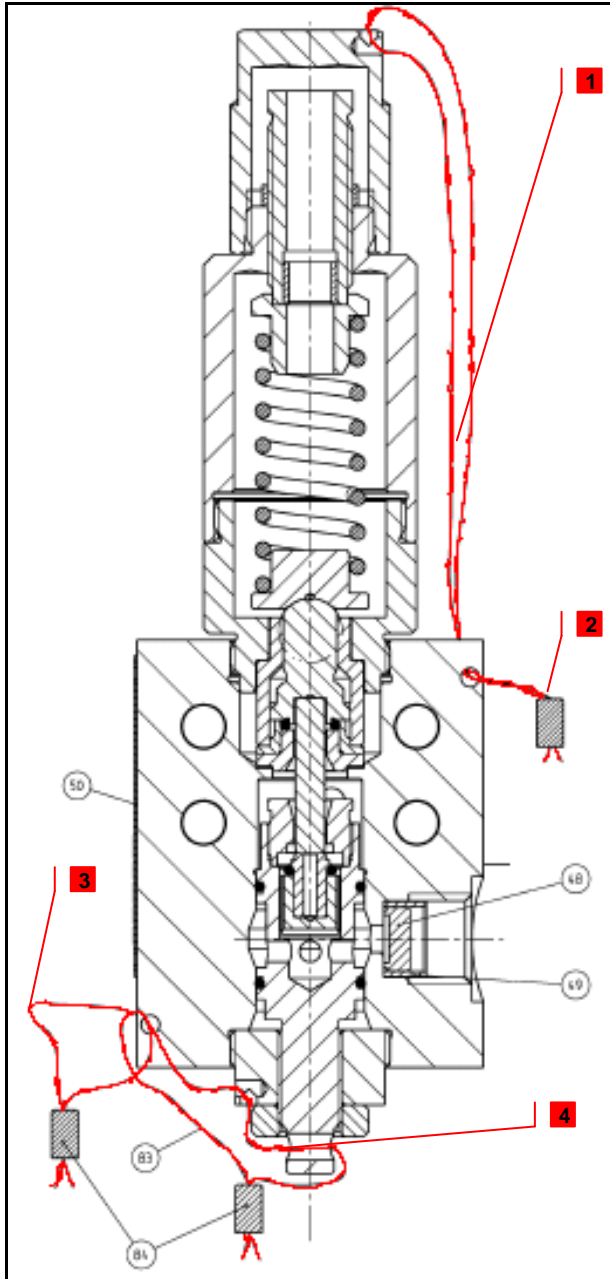
Open-end wrench acc. to LID
Torque wrench (Tightening torques acc. to LID)

4. Appliances

Test bench

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9.10 Sealing the valve



1. Steps – Descriptions

! Seal valve after all assembly and test procedures

Note: Sealing prevents unauthorized appliance of set pressure, blowdown adjustment and separation of pilot and main valve

1 Pass wire through hole in cap [40]. Wind wire tight around bonnet [9] in clockwise direction. Pass ends of wire through hole in body [1]

2 Close the wire ends with seal

! In case of inspection, sealing is done by a regulatory body e.g. TÜV, NBBI

3 Seal body [1] with main valve body separately

4 Seal adjusting screw [12] with body [1] separately

2. Supplies

None

3. Tools

Sealing pliers

4. Appliances

None

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