

# Disassembly of the Modulate Action Pilot Valve Diaphragm. Series 820



# Objectives of the presentation. Increase special knowledge.

1. [Objectives](#) | 2. [Seal](#) | 3. [Cap and bug-screen](#) | 4. [Bonnet, spindle, body and Piston unit](#) | 5. [O-rings](#) | 6. [Feeding seat unit](#) | 7. [Manifold block](#)

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Aim of this presentation is to to explain the **disassembly of the Modulate Action Pilot Valve Diaphragm**



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# Disassembly Instructions. Removing the seal.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Cut wire with combination pliers

Remove seal

## 2. Supplies

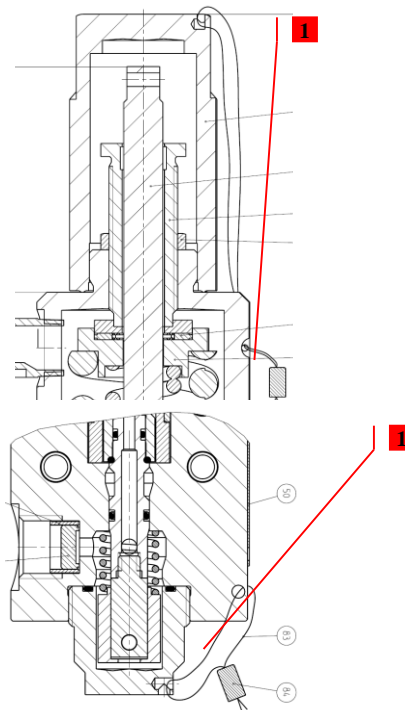
- None

## 3. Tools

- Combination pliers

## 4. Appliance

- None



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# Disassembly Instructions. Disassembly of the cap and bug-screen.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Loosen cap [40] with open-end wrench and remove
- 2 Unscrew and remove bug-screen [64]

Option Test Gag:

Unscrew screw in cap [40]

## 2. Supplies

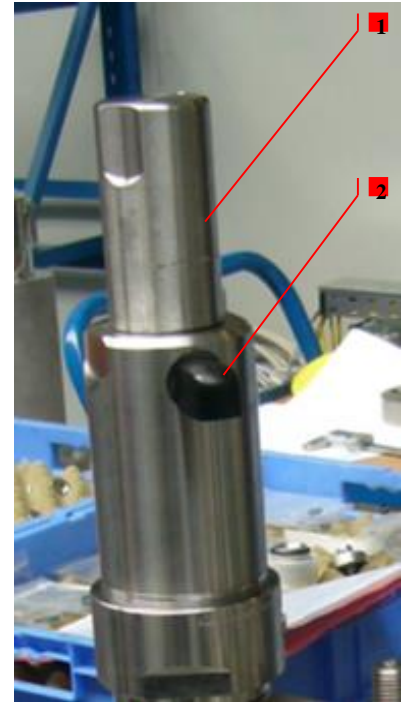
- None

## 3. Tools

- Open-end wrench acc. to LID

## 4. Appliance

- Test bench



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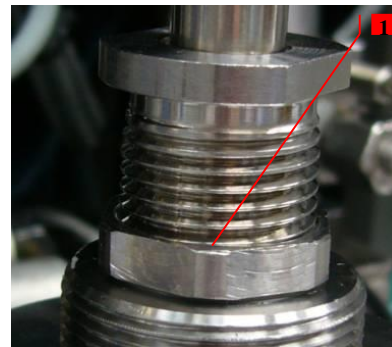
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# Disassembly Instructions. Disassembly of the bonnet and spindle unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Loosen lock nut [19] with open-end wrench
- 2** Apply an open-end wrench in a counterclockwise direction on adjusting screw [18] until no more pressure can be felt from spring.
- 3** Loosen bonnet [9] with open-end wrench



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# Disassembly Instructions. Disassembly of the bonnet and spindle unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

**4** Lift up bonnet [9] along with spindle unit

**5** Take spindle unit out of bonnet [9]

## 2. Supplies

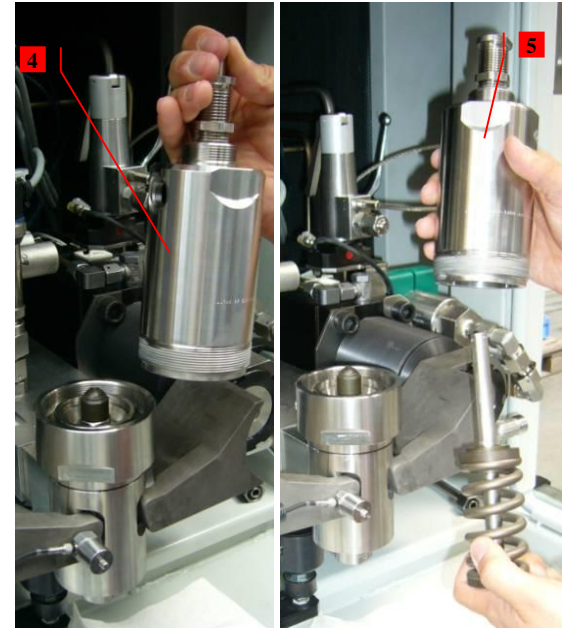
- None

## 3. Tools

- Open-end wrench acc. to LID

## 4. Appliance

- Test bench



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# Disassembly Instructions. Disassembly of the spindle unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Remove successively bushing; bearing [69]; (upper) spring plate [16] and spring [54] of spindle [12]
- 2** Screw off (lower) spring plate [17] of spindle [12]

## 2. Supplies

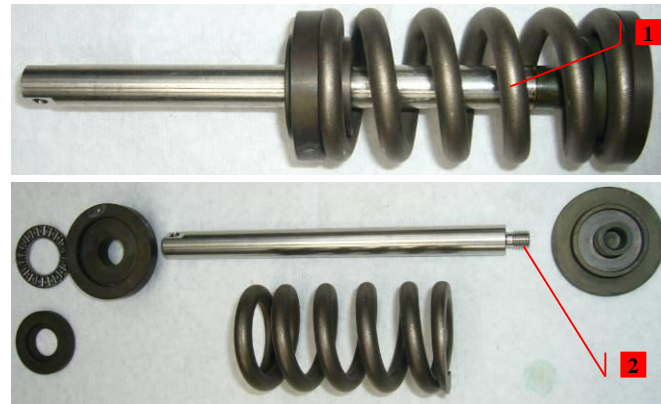
- None

## 3. Tools

- Drift pin

## 4. Appliance

- Parallel vice with aluminium jaws



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# Disassembly Instructions. Disassembly of the bonnet.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Loosen lock nut [19] of adjusting screw [18]
- 2** Screw adjusting screw [18] out of bonnet [9]
- 3** Completely unscrew lock nut [19] of adjusting screw [18]
- 4** Remove guide ring [80]





# Disassembly Instructions. Disassembly of the bonnet.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

**5** Remove (upper) piston [47]

## 2. Supplies

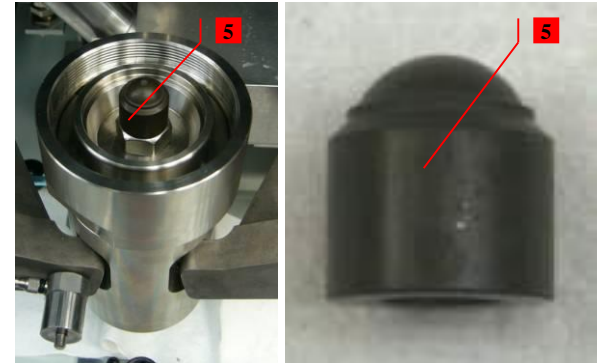
- None

## 3. Tools

- Open-end wrench acc. to LID

## 4. Appliance

- None

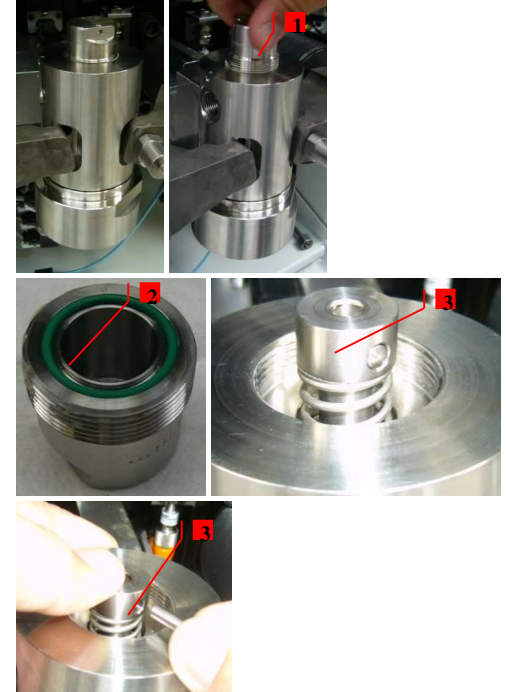


# Disassembly Instructions. Disassembly of the body's bottom side.

1. [Objectives](#) | 2. [Seal](#) | 3. [Cap and bug-screen](#) | 4. [Bonnet, spindle, body and Piston unit](#) | 5. [O-rings](#) | 6. [Feeding seat unit](#) | 7. [Manifold block](#)

## 1. Steps – Descriptions

- 1** Loosen plug [20] with open-end wrench and remove
- 2** Take out O-ring
- 3** Remove parallel pin [44] with drift pin



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# Disassembly Instructions. Disassembly of the body's bottom side.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

- 5 Loosen screw [58] with socket wrench and remove it.

## 2. Supplies

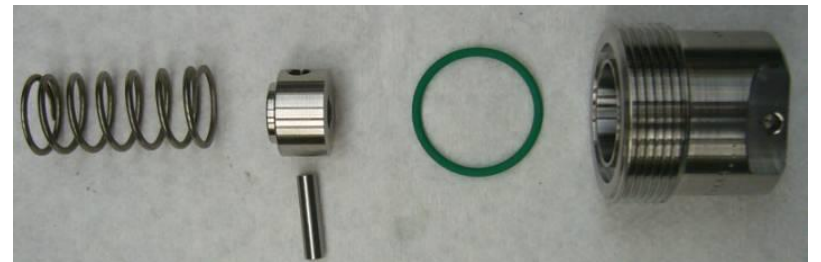
- None

## 3. Tools

- Open-end wrench acc. to LID
- Drift pin
- Hook tool for O-rings

## 4. Appliance

- Test bench



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# Disassembly Instructions. Disassembly of the diaphragm.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Loosen nut [70] with cranked ring wrench, while loosening nut [70] counter piston [41]
- 2** Remove diaphragm washer [71]
- 3** Remove ring [76]



# Disassembly Instructions. Disassembly: Luproseal OC R20 (optional only).

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 4 Remove diaphragm [72]

If implemented: Remove FEP protective foil

## 5 Remove O-ring

## 6 Remove diaphragm retainer [78]

### 2. Supplies

■ None

### 3. Tools

- Deep cranked ring wrench and Open-end wrench acc. to LID
- Hook tool for O-rings

### 4. Appliance

■ None



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# Disassembly Instructions. Disassembly of the spacer and body.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Loosen lock screw [77] with open-end wrench
- 2** Unscrew spacer [75] with open-end wrench
- 3** Remove O-ring

## 2. Supplies

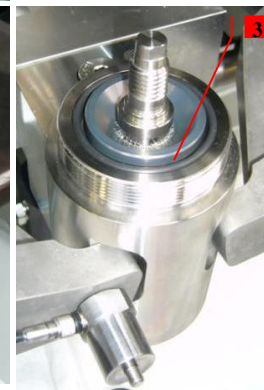
- None

## 3. Tools

- Ring wrench, open-end wrench and cranked wrench acc. to LID
- Hook tool for O-rings

## 4. Appliance

- Test bench



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# Disassembly Instructions. Removing the piston unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Pull out piston unit

## 2. Supplies

- None

## 3. Tools

- None

## 4. Appliance

- Test bench



# Disassembly Instructions. Removing the guide bush from the piston.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Pull guide bush [2] off piston unit
- 2 Remove O-rings

## 2. Supplies

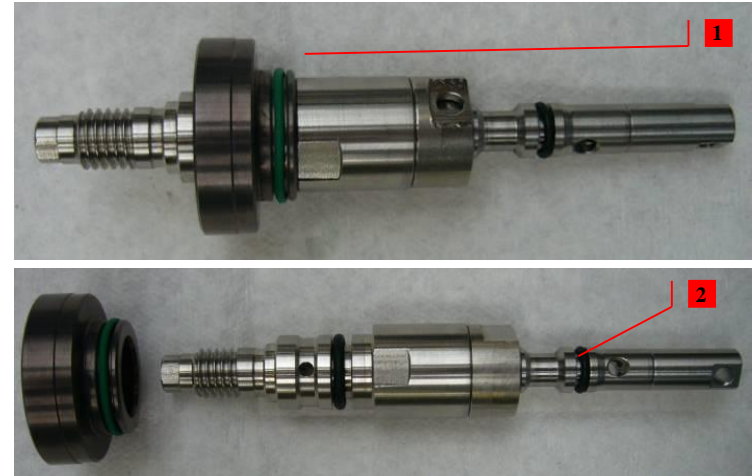
- None

## 3. Tools

- Hook tool for O-rings

## 4. Appliance

- None





# Disassembly Instructions. Disassembly of the piston and feed seat unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

Place piston unit in parallel vice with aluminium jaws

- 1 Loosen and remove piston [41] with open-end wrench

## 2. Supplies

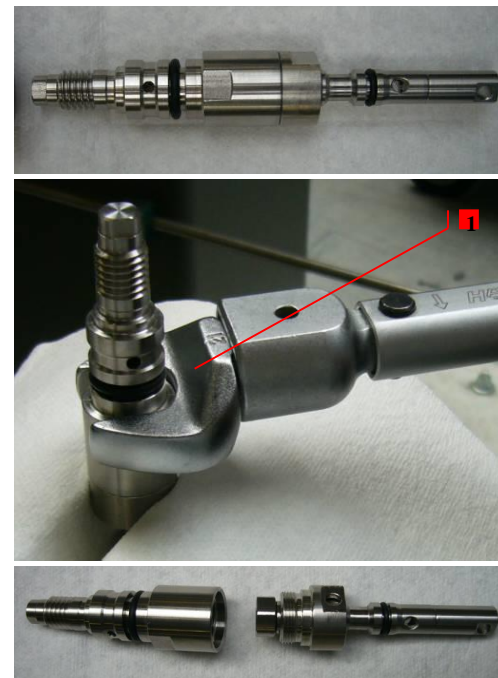
- None

## 3. Tools

- Open-end wrench acc. to LID

## 4. Appliance

- Parallel vice with aluminium jaws



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# Disassembly Instructions. Remove the O-rings.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Remove O-rings

## 2. Supplies

- None

## 3. Tools

- Hook tool for O-rings

## 4. Appliance

- None



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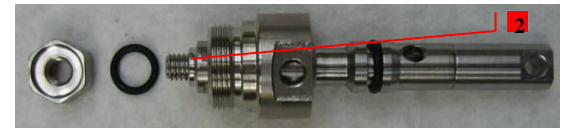
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# Disassembly Instructions. Disassembly of the feeding seat unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1** Loosen and unscrew (upper) disc feeding [7] of (lower) disc exhaust [11]
- 2** Remove O-ring
- 3** Pull (lower) disc feeding [8] and seat feeding [5] off (lower) disc exhaust [11]



# Disassembly Instructions. Disassembly of the feeding seat unit.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. **Feeding seat unit** | 7. Manifold block

**4** Remove O-rings of (lower) disc exhaust [11]

**5** Unscrew (lower) disc exhaust [11] and (lower) disc exhaust extension [45]

## 2. Supplies

■ None

## 3. Tools

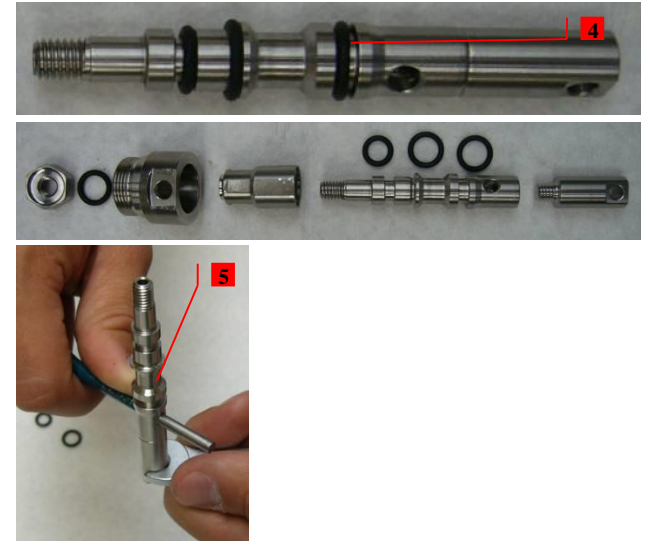
■ Hook tool for O-rings

■ Drift pin

■ Open-end wrench acc. to LID

## 4. Appliance

■ None

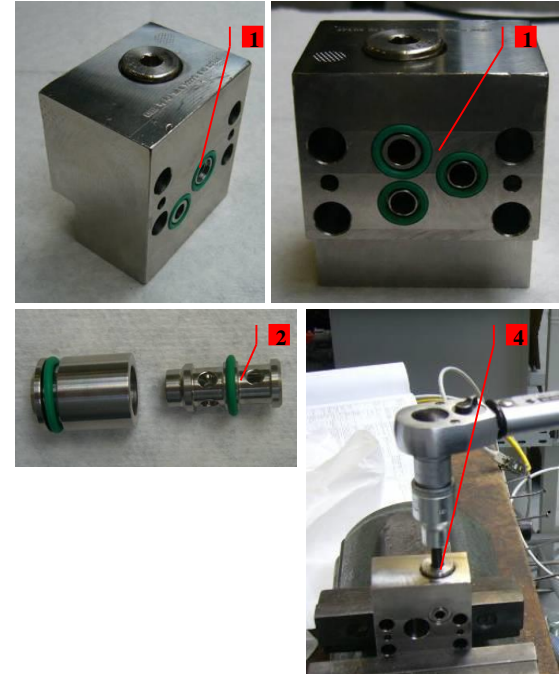


# Disassembly Instructions. Disassembly of the manifold block.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. Manifold block

## 1. Steps – Descriptions

- 1 Remove piston [24.3], bushing[24.2] and O-rings
- 2 Remove O-rings of piston [24.3]
- 3 Remove O-rings of bushing [24.2]
- 4 Screw off lock screw [24.7] and remove gasket [24.8]



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# Disassembly Instructions. Disassembly of the manifold block.

1. Objectives | 2. Seal | 3. Cap and bug-screen | 4. Bonnet, spindle, body and Piston unit | 5. O-rings | 6. Feeding seat unit | 7. **Manifold block**

## 2. Supplies

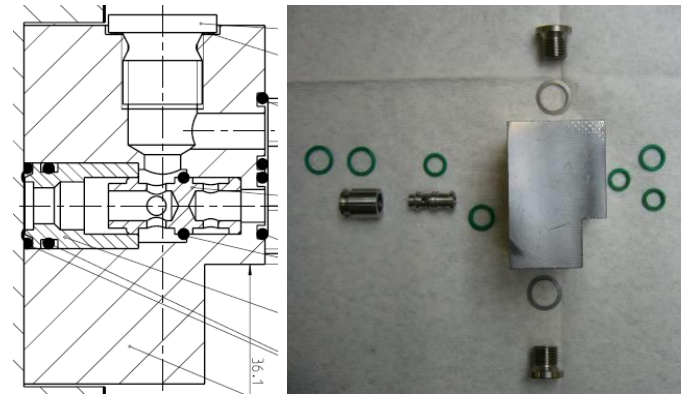
- None

## 3. Tools

- Allen key acc. to LID
- Hook tool for O-rings

## 4. Appliance

- Parallel vice with aluminium jaws
- Test bench



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Thank you.



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