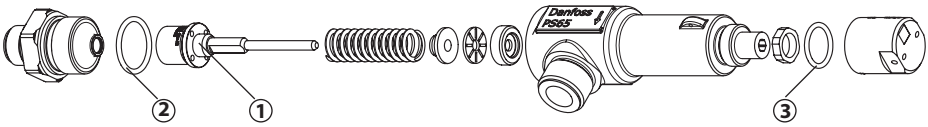
Service guide / Repair kit installation

Safety relief valves

SFA 10, SFA 10H

027R9981



027R9981

Fig. 1. Repair Kit Content

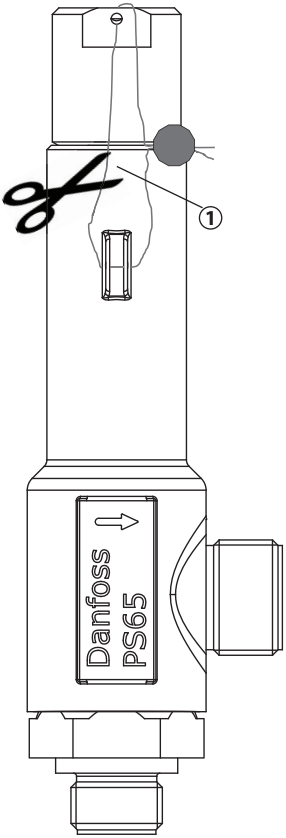


Fig. 2. Unseal SFA

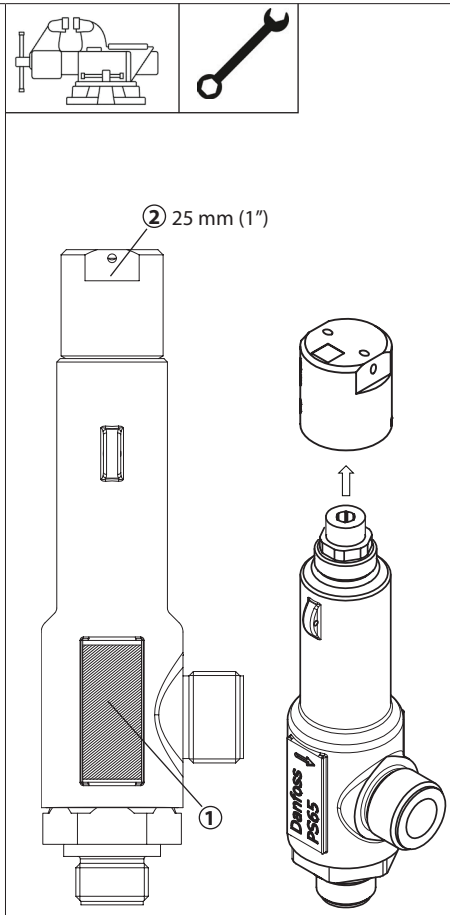


Fig. 3. Fixation/ Cap removal

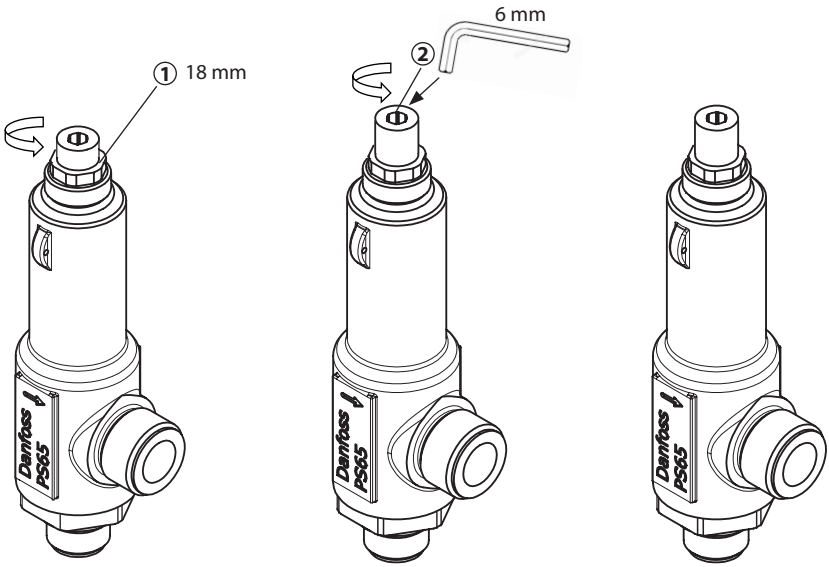


Fig. 4. Loosen locknut/ adjustment screw

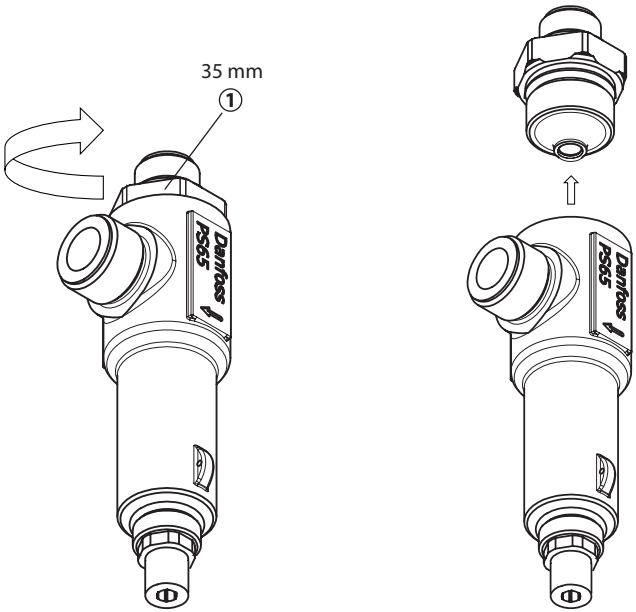


Fig. 5. Unscrew inlet connector

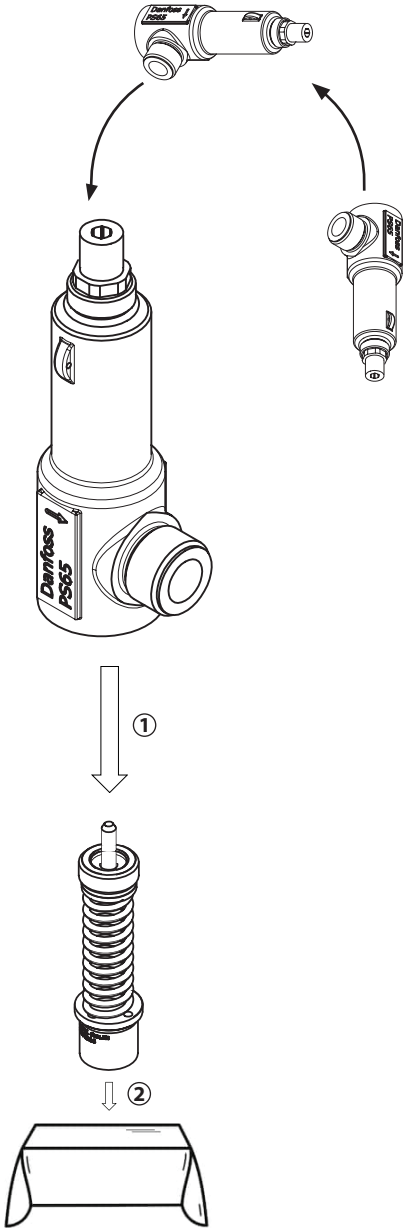


Fig. 6. Cone-spindle removal

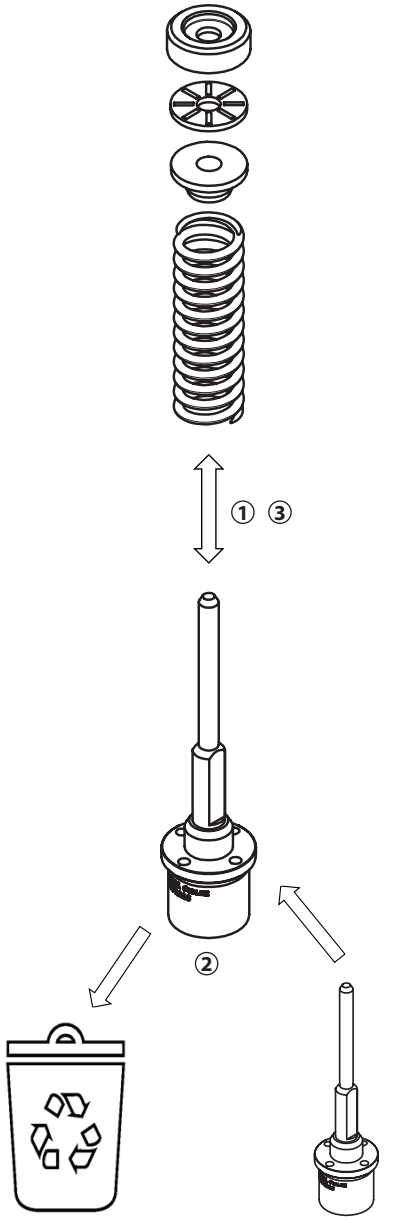


Fig. 7. Cone-spindle replacement

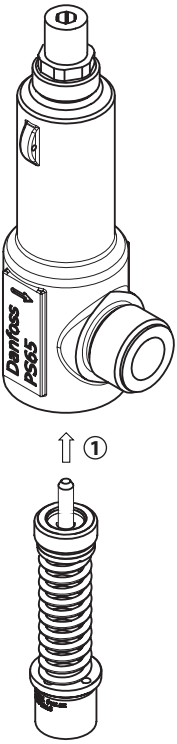


Fig. 8. Insert Cone-spindle assembly

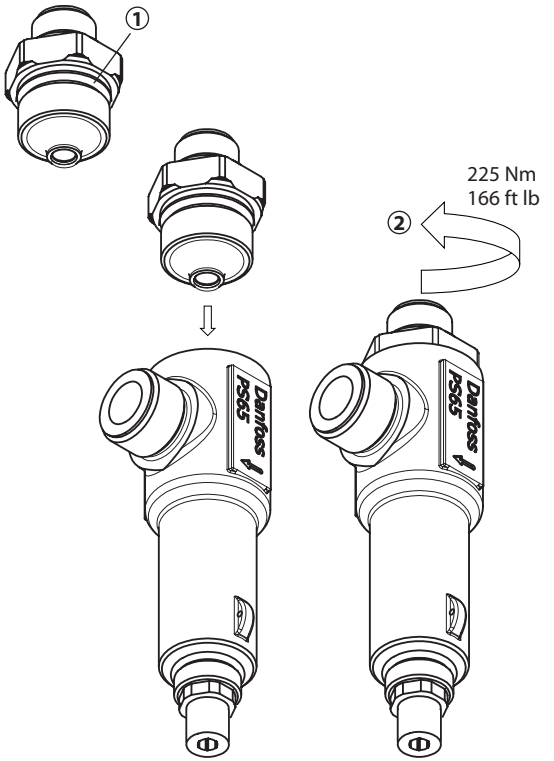


Fig. 9. Reinstall inlet connector

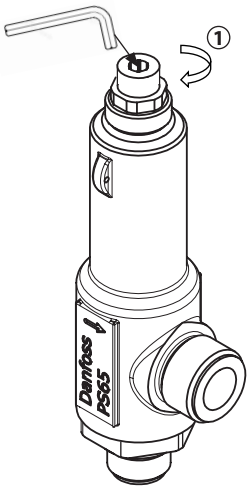


Fig. 10. Reset adjustment screw

Calibration by authorized personel

Fig. 11. Calibration

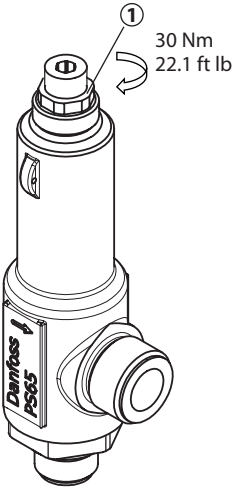


Fig. 12. Fasten lock nut

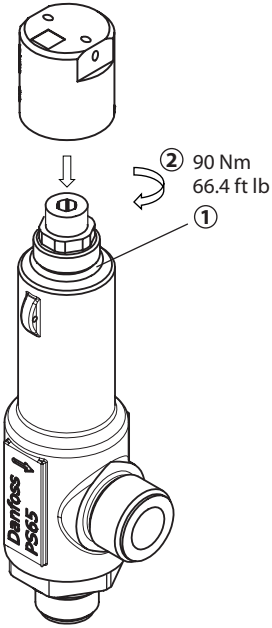


Fig. 13. Fasten cap

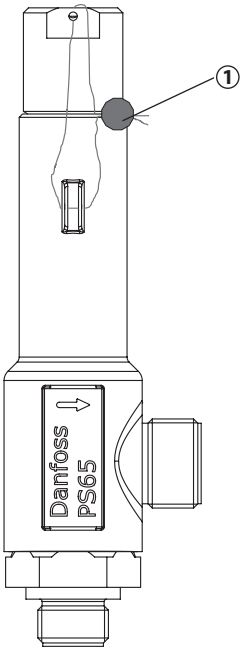


Fig. 14. Reseal SFA

In addition to the instructions below, all inspection, repair and recalibration must comply with all local laws and requirements.

Inspection

When due for service or after the safety valve has been activated it is recommended to disassemble and clean the valve seat for dirt and particles. The valve must not be disassembled while installed/in operation. Servicing of the valve is only allowed when valve is dismantled. Apply torque to the inlet body hexagon only and not on the valve body when dismantling the safety valve from the changeover valve or pipe fitting. All external sealings must be changed during service using the 148F3068 SFA 10(H) / DSV 10 inspection kit.

Corrosion

Dust, dirt, corrosion or sticky medias on moving and guiding parts may influence the valve function negatively. If any part (including the spring) inside the valve are corroded, the valve should be fully replaced. Dirt and particles must be fully removed. In extreme environments it is recommended to use a valve with bellow instead. This will protect the valve from refrigerant contaminated with dirt and particles.

Springs

Observe! When cleaning or replacing the spring, it is very important that the exact same spring type is being used. The spring type can be identified by the color of first windings. Even though it may be possible to set the correct pressure with a wrong spring, the opening and closing characteristics may be compromised and may lead to reduced lift, leading to lack of valve capacity and increased system pressure, increased blowdown, leading to extraordinary loss of charge

Temperature ageing

The O-ring material ages when exposed to atmosphere and/or long-term high temperatures. Max. temperature is 100 °C (212 °F) during activation. If this temperature is exceeded the valve may not reseat perfectly leading to loss of refrigerant. At static temperatures above 60 °C (140 °F) the lifetime of the O-ring will be gradually reduced, and the valve should be serviced more frequently, using Danfoss SFA 10(H) repair kit.

Repairing the SFA 10(H)

The Cone and O-ring can be replaced using one the Danfoss SFA 10(H) repair kits. Observe that the repair kits are covering different set pressure ranges and that purchased repair kit matches the set pressure of the valve to be repaired.

Recalibration and leak test

To verify the valve function after service or inspection following tests should be done by authorized personnel. Danfoss cannot be held responsible for correct function / set pressure after recalibration.

Fig. 1: Repair Kit content 1. Cone-spindle 2. O-ring inlet connector 3. O-ring cap
Fig. 2: Unseal SFA 1. Cut wire to unseal SFA **Note:** Cutting the wire will make any warranty void
Fig. 3: Fixation/ Cap removal 1. Fix the SFA in a vice at this area 2. Unscrew the cap (25 mm or adjustable wrench)
Fig. 4: Loosen locknut/ adjustment screw 1. Loosen locknut 1/2 turn counterclockwise (18 mm socket wrench) 2. Loosen adjustment screw 15-20 turns counterclockwise (Allen key 6 mm)
Fig. 5: Unscrew inlet connector 1. Unscrew inlet connector (35 mm – 6 edge socket wrench or 36 mm – 12 edge socket wrench)
Fig. 6: Cone-spindle removal 1. Carefully take out the insert 2. Place on soft and clean surface **Note:** Inspect and clean the valve seat and spring for dirt and particles. Replace the valve if the spring is corroded.
Fig. 7: Cone-spindle replacement 1. Remove loose parts 2. Replace the Cone-spindle 3. Re-assemble loose parts
Fig. 8: Insert Cone-spindle assembly 1. Carefully insert new Cone-spindle assembly
Fig. 9: Reinstall inlet connector 1. Replace O-ring 2. Tighten inlet connector to torque 225 Nm (166 ft lb)
Fig. 10: Reset adjustment screw 1. Fasten adjustment screw 15-20 turns clockwise
Fig, 11: Calibration **Calibration by authorized personel. The following steps (fig.12 to fig.14) must be done by authorized personel only**
Fig. 12: Fasten lock nut 1. Fasten lock nut to torque 30 Nm (22.1 ft lb)
Fig. 13: Fasten cap 1. Replace O-ring 2. Fasten cap to torque 90 Nm (66.4 ft lb)
Fig. 14: Reseal SFA 1. Reseal SFA