

Maintenance and Operating Instructions

Large area sprinkler

Type: ZN23-3D and ZN23-3W
ZN40-3D and ZN40-3W
ZN45-3D and ZN45-3W

PERROT





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1. General

We presume that you are experienced in the field of irrigation. Therefore we have kept this instruction as briefly as possible, and have included such information only, which you must have for the use of this product.

A guarantee can be accepted only, if the sprinkler has been operated in accordance with these instructions, and if the defect occurs within the guarantee period.

1.1. Application

The sprinkler is used for the uniform distribution of the water. The water should be pre-cleaned, and free of coarse and fibrous impurities.

Max. water temperature will be 50 degree C.

Max. ambient temperature will be 75 degree C.

2. Safety

These operation and safety instructions include basic remarks and hints for the assembly, installation, operation, maintenance, inspection and repair. For this reason these instructions must be read by the fitter, as well as by the customers authorised staff, prior to the installation and commissioning.

Apart from the general safety instructions of this paragraph the special safety instructions include in other paragraphs of these operating instructions have to be observed also.

2.1. Symbols of hints given in these operating instructions

The non-observance of the safety instructions mentioned in these operating instructions can endanger persons, are

marked with the general danger symbol



especially.

Safety instructions which can endanger the sprinkler and its function, if not observed, are specially marked and the word



has been inserted.

2.2. Dangers if the safety instructions are not observed

Non-observance of the safety instructions can endanger person's as well as the environment and the sprinkler. Non-observance of the safety instructions can result in a loss of all claims for indemnity.

3. Description

Recommended operating pressure 5 to 7 bar
Permissible operating pressure 4 to 10 bar

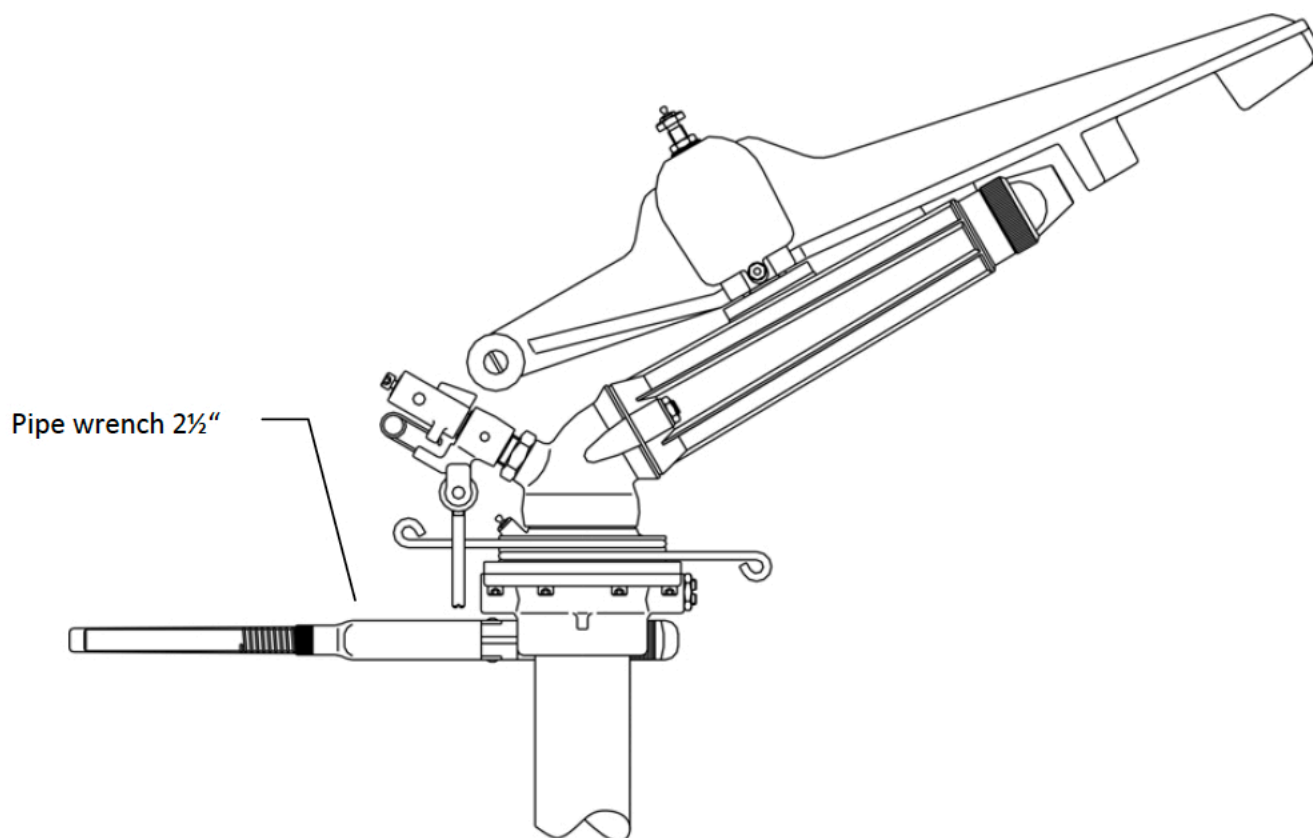
WARNING The pressure at the sprinkler must not exceed 10 bars.

For further data please refer to the separate data leaflet.

4. Assembly

- ☆ Threaded connection on the sprinkler is 2½" female thread.
- ☆ For sealing the thread, hemp and a jointing compound has to be used e.g. Fermit special
- ☆ To screw on the sprinkler, always use a pipe wrench size 2½".

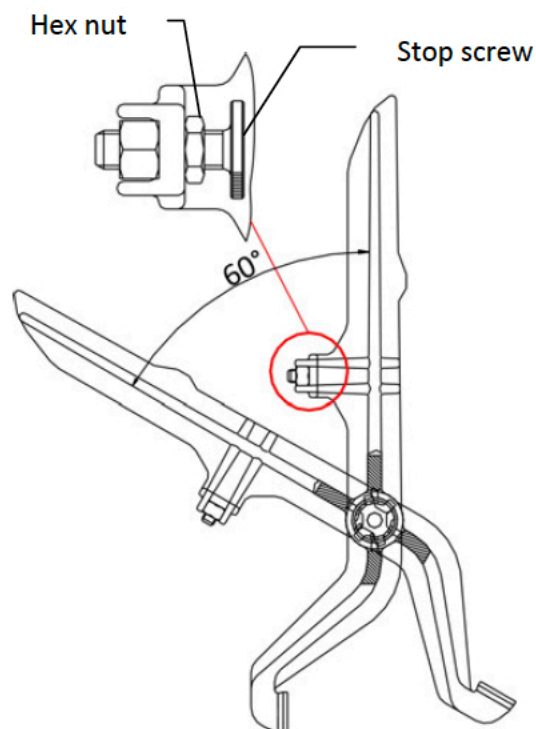
WARNING Do not turn the sprinkler by using the jet pipe.



Screw on the connection socket up to the detent, so that the sprinkler cannot unscrew itself during operation.

5. Commissioning

5.1 Adjustment of the impact lever stops

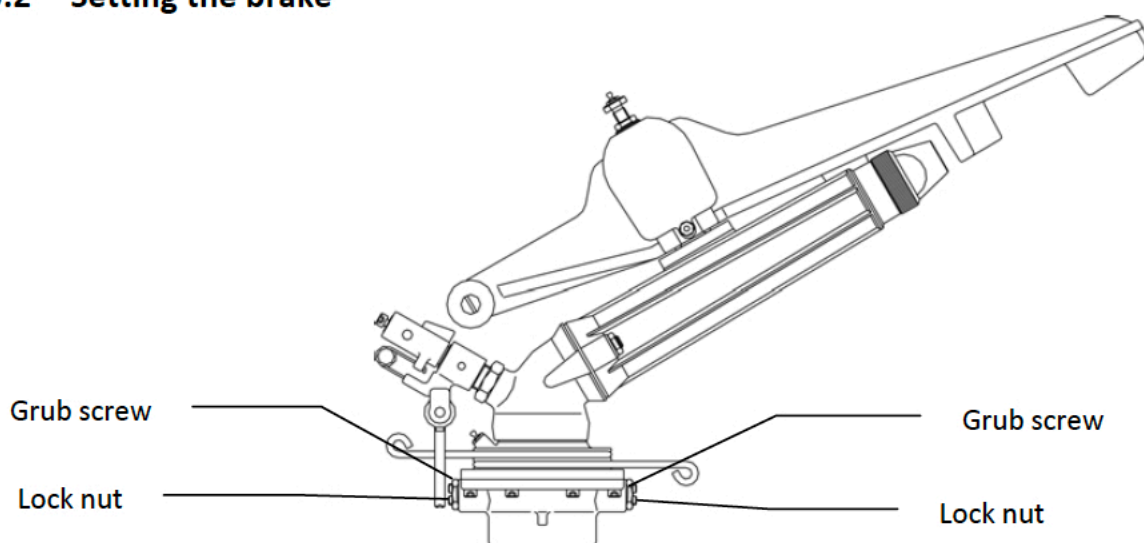


The impact lever has to deflect approx. 60 degrees. The angle of deflection can be regulated at the stop screw, after the hexagon nut has been loosened. The marking is on the inside of the screw (bolt). If the sprinkler is equipped with nozzles that have a smaller diameter, or if the operating pressure is somewhat lower, then the impact lever will have a smaller angle of deflection.

Larger deflection = turn the screw in the direction +.

If bigger nozzles are used, or if the pressure is high, the angle of deflection will be larger. **Less deflection = turn the screw in the direction -.**

5.2 Setting the brake



The braking effect can be set, after the both lock nuts have been loosened.

More braking effect, tighten the grub screw. Less braking effect, loosen the grub screw. The braking effect should be such that the sprinkler does not turn backwards, during rotation of the impact lever.

Loosen or tighten both grub screws in the same way.

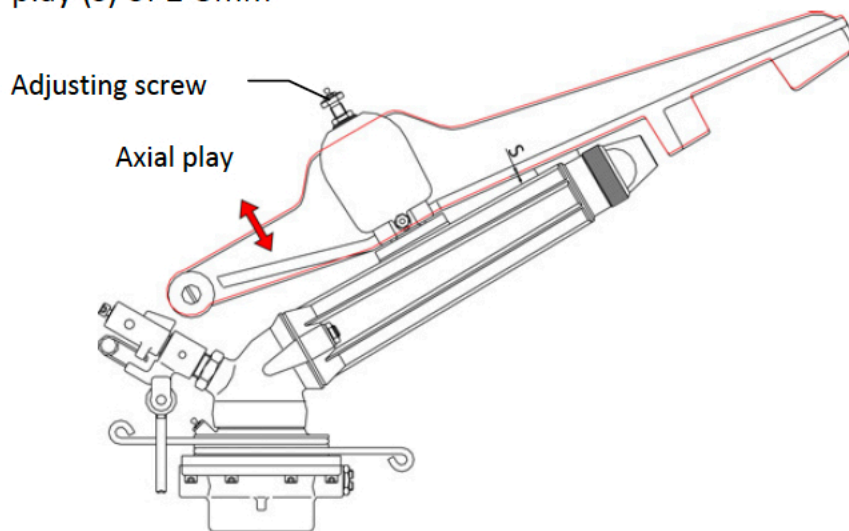
5.3 Tension of the torsion spring



The torsion spring is set at a tension of 410-440 gr. in the factory. This tension is measured at the front end of the impact lever, and must under no circumstances be exceeded. If necessary, tighten the spring by enlarging the hook at the lower part of the impact lever bearing (see sketch under point 6.2.b).

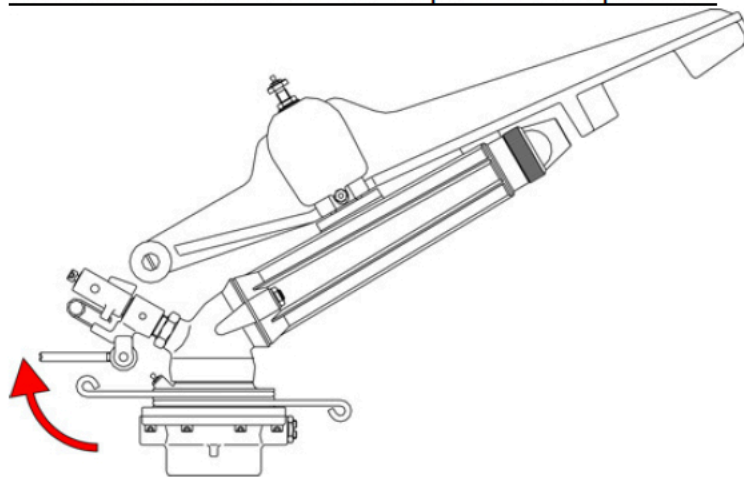
5.4 Setting the axial play of the impact lever

Tighten the adjusting screw to such an extent, that the impact lever has an axial play (s) of 2-3mm



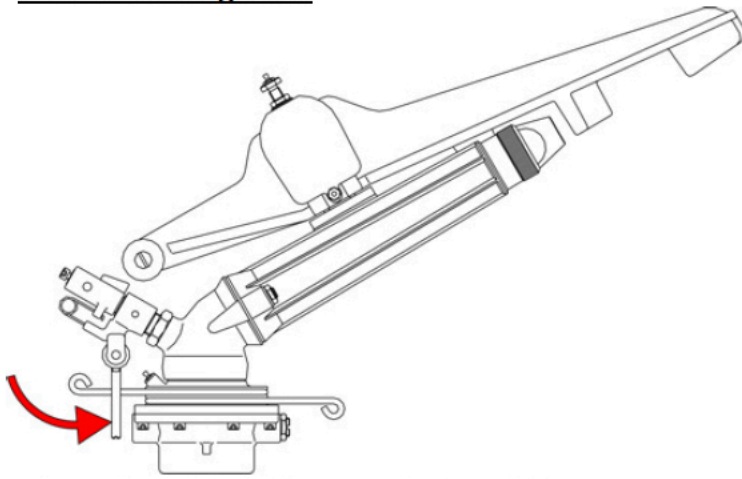
5.5 Setting the part circle angle

a) Full circle movement with a part circle sprinkler



Flip-up the pin to a horizontal position

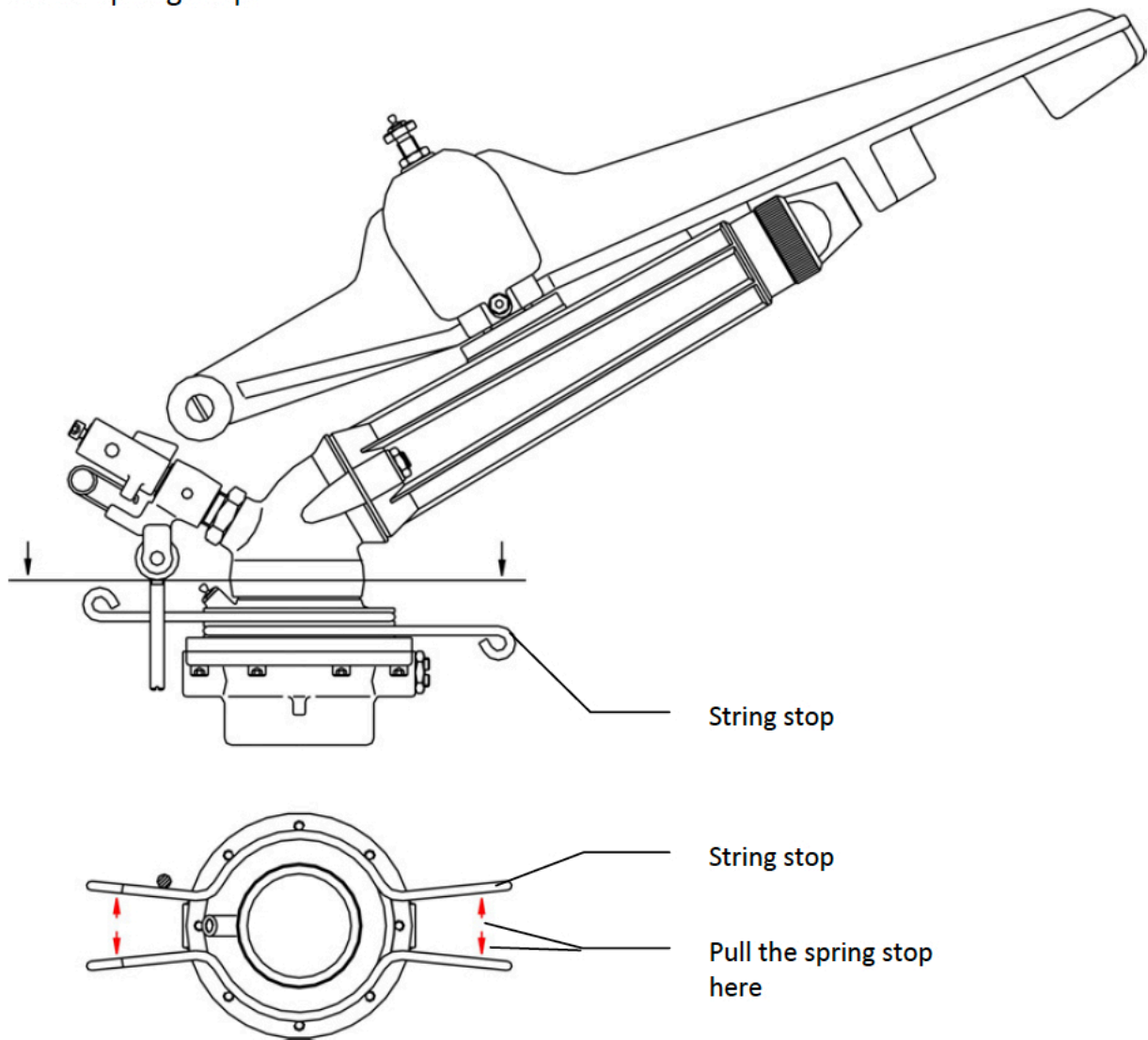
b) Part circle irrigation



Place the trip pin in a vertical position.

c) Setting the part circle angle

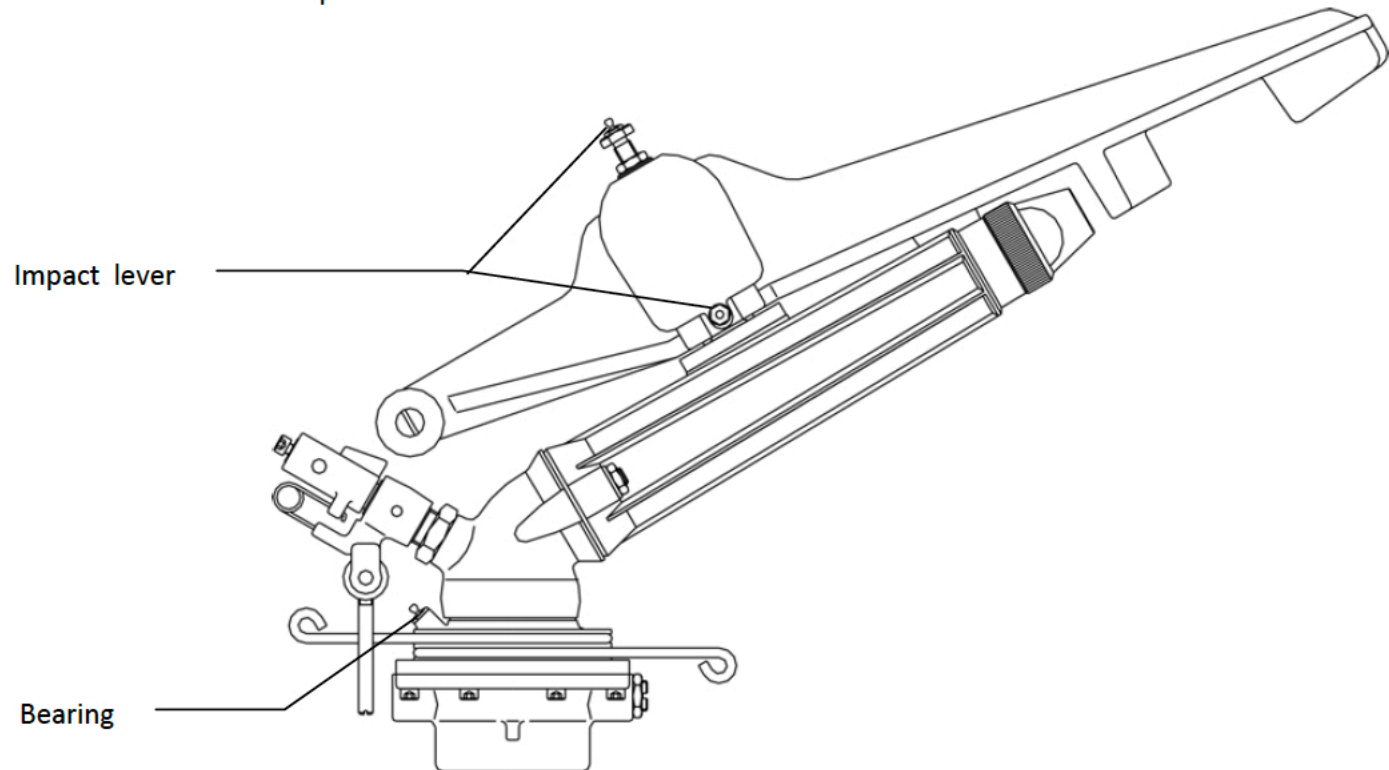
Infinitely variable by pulling (not pressing) the relevant end of the upper or lower spring stop.



6. Maintenance

6.1 Lubrication

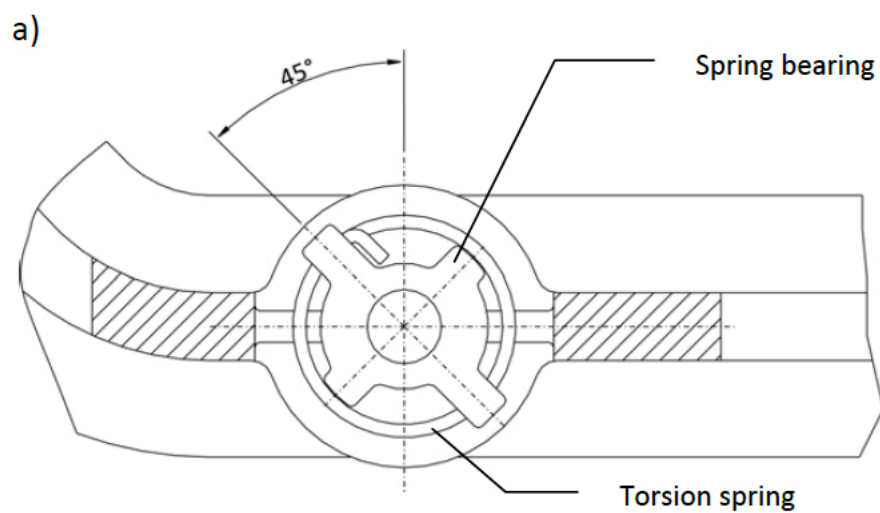
Lubrication points



The lubrication points at the impact lever should be lubricated with little quantities of grease.

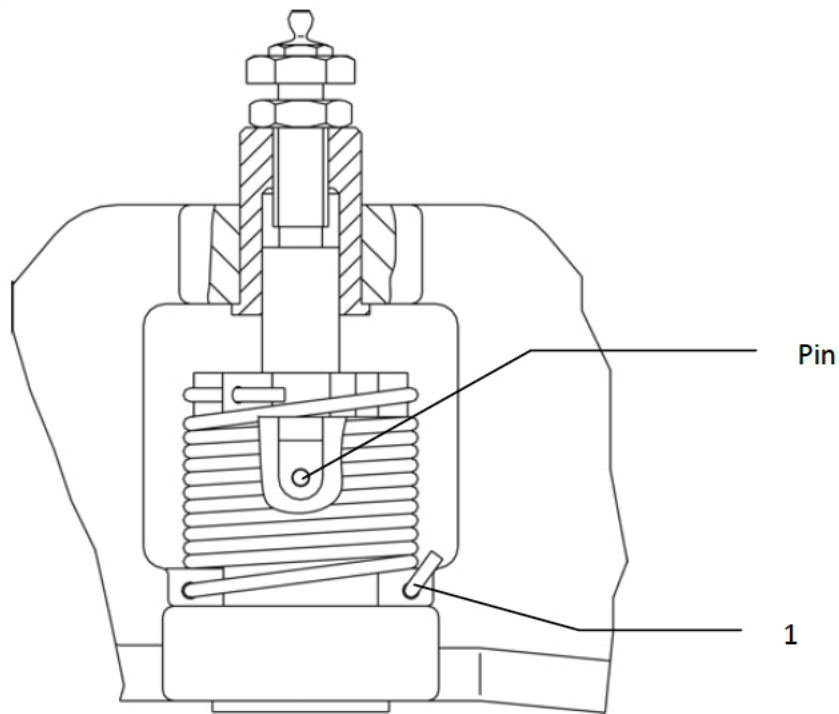
The lubrication point at the bearing should be lubricated once a year. The grease may be pressed in only at a very low pressure, in order not to damage the cover of the ball bearing.

6.2 Fitting a spring bearing with torsion spring



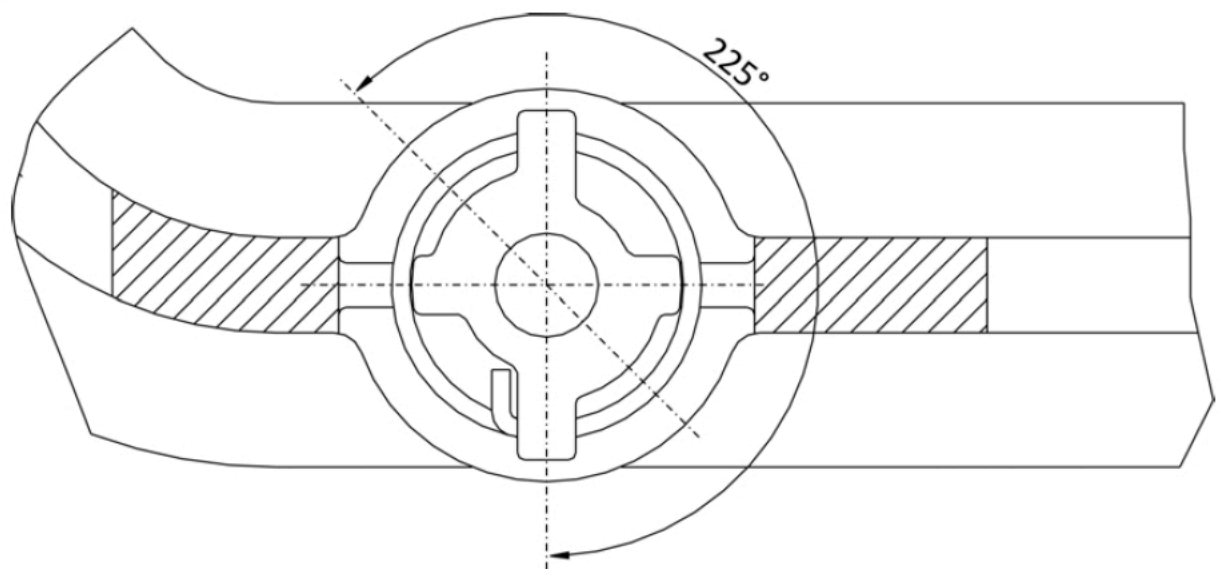
Set torsion spring bearing acc. to sketch with an angle of 45 degree.

b)



Place the end of the spring (1) into the drilled hole on the impact lever and bent over the end of the spring. See sketch

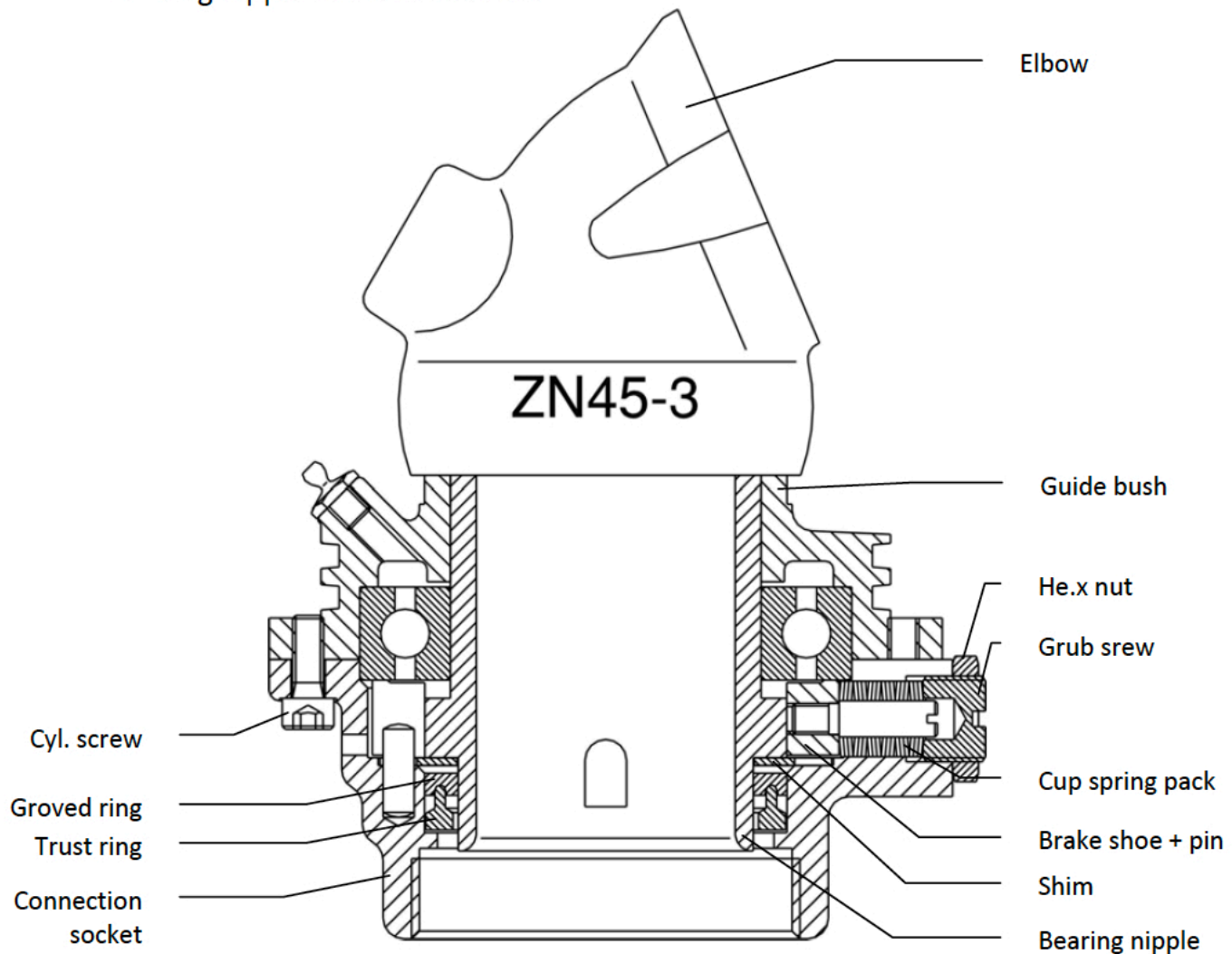
c)



Turn the spring bearing with the torsion spring by 225 degree and drive-in the cylindrical notched pin. If necessary re-tighten spring, until you got the correct tension (see item 5.3).

6.3 Exchanging the grooved ring

Should there be a leakage at the guide bush, then the grooved ring is defect or the bearing nipple has run-in marks.



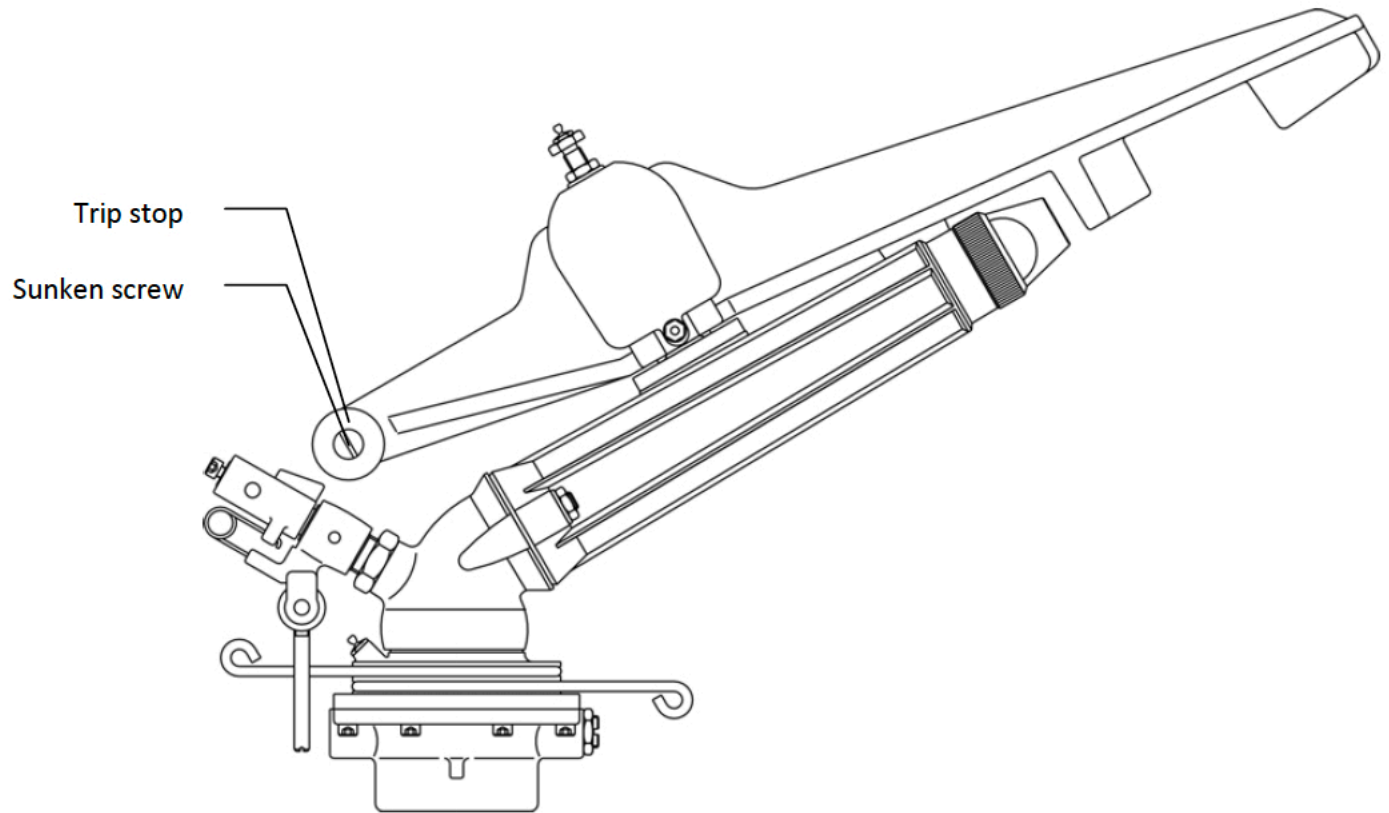
- a) Loosen hex. nut and unscrew the grub screw
- b) Pull out the cup spring pack
- c) Loosen all cylindrical screws, and pull off the connecting socket.
- d) Test :

- ☆ If bearing nipple has run-in marks
- ☆ If grooved ring is worn.

Replace the defective parts

- e) Unscrew the bearing nipple, by warming up the elbow at the connection thread to the bearing nipple right round, by using a blowpipe flame (soldering torch).
- f) Prior to screwing in the bearing nipple into the elbow, the thread has to be cleaned.
 - ☆ Put a few drops of Loctite on the thread of the elbow
- g) Replace the grooved ring and the thrust ring on the bearing nipple.
- h) Re-fit the connecting socket in such a way, that the grooved ring is not damaged.
- i) Screw in all cylindrical screws
- j) Reassemble the cup spring pack and the grub screw
(See adjustment of brake point 5.2)

6.4 Adjustment of the trip stops



If the trip stop is worn, the sunken screw must be loosened and the trip stop has to be rotated by approx. 45 degree.
Re-tighten the trip bolt.

7. Break-down and elimination of the defects

Faults	Cause	Elimination
Sprinkler turns slowly, it almost stops	The brake shoes have a too little or too strong a brake power	Adjust brake (see point 5.2)
The impact lever does not enter the jet stream anymore	Torsion spring is broken	Replace torsion spring Observe the pre-tension of the torsion spring (see point 5.3)
Bad water jet	The stream straightener is blocked by stones or fibrous impurities	Loosen hex. nut Take off the jet pipe with the nozzle, take out the stream straightener and clean it.
The sprinkler does not switch over the reverse direction in the part circle range	Trip spring is broken Trip roller is worn	Replace the trip spring Fit new trip roller
The part circle angle is larger than set originally.	Spring stop is broken	Replace spring stop
Metallic noise when the impact lever hits the jet pipe	The rubber buffer is worn	Replace rubber buffer
Water leaks at the connection socket	The grooved ring is worn	Replace grooved ring. Perhaps the bearing nipple has to be replaced too, (see point 6.3)

Subject to change without prior notice.