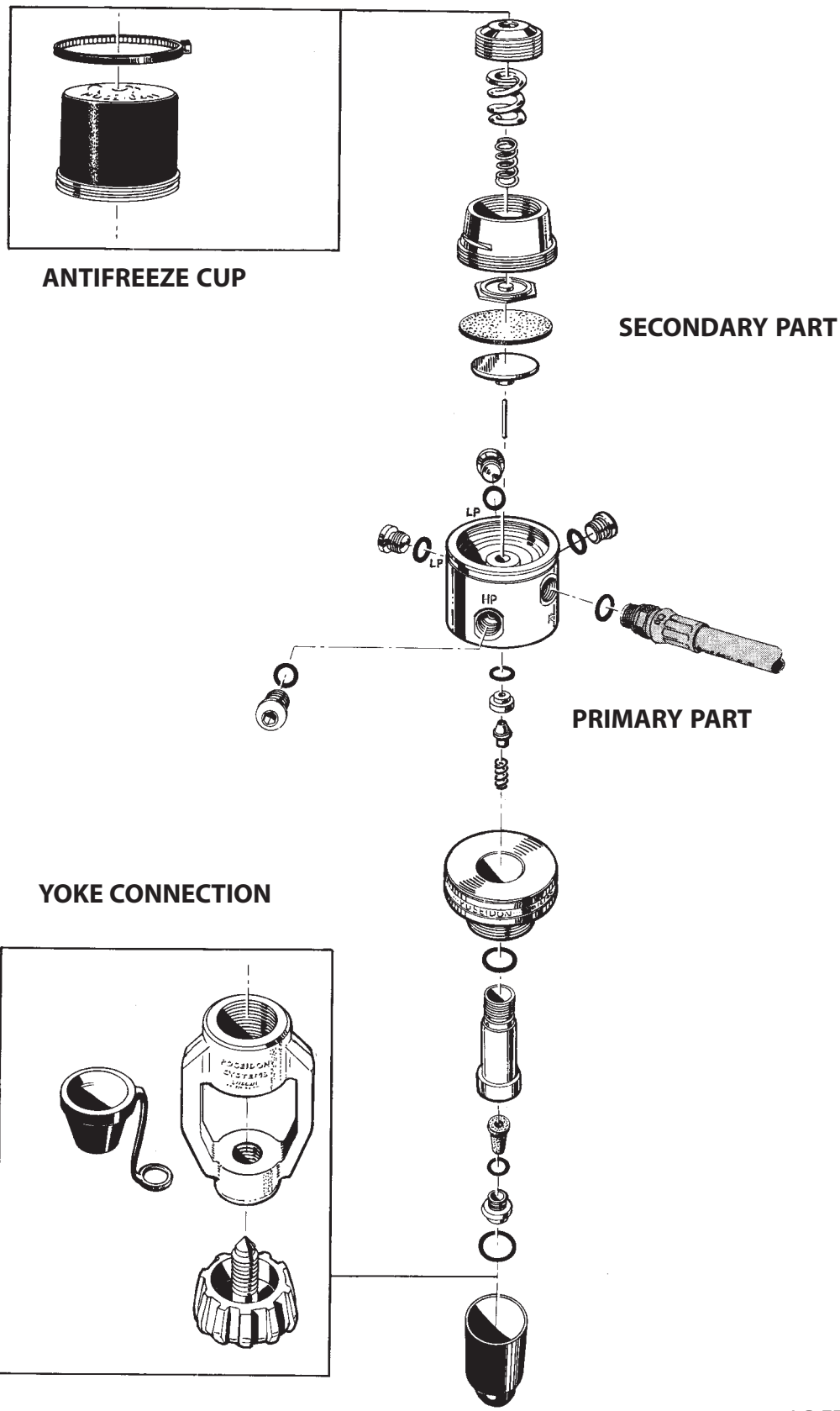
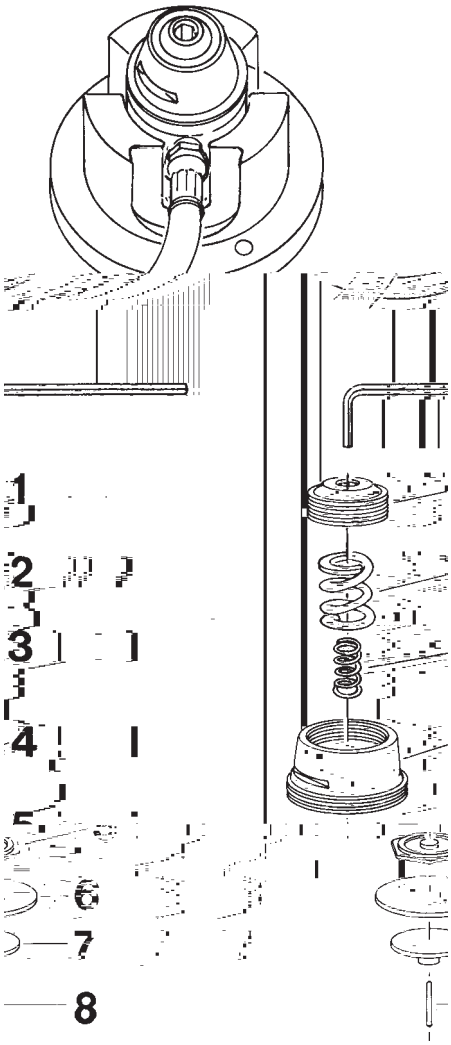
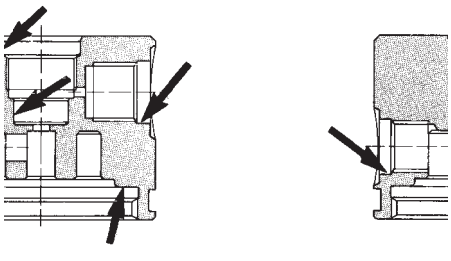
REPAIR INSTRUCTIONS FIRST STAGE REDUCING VALVE

EXPLODED VIEW
Art. No. 2305, 2422, 3070







FIRST STAGE VALVE 2305, 2422, 3070

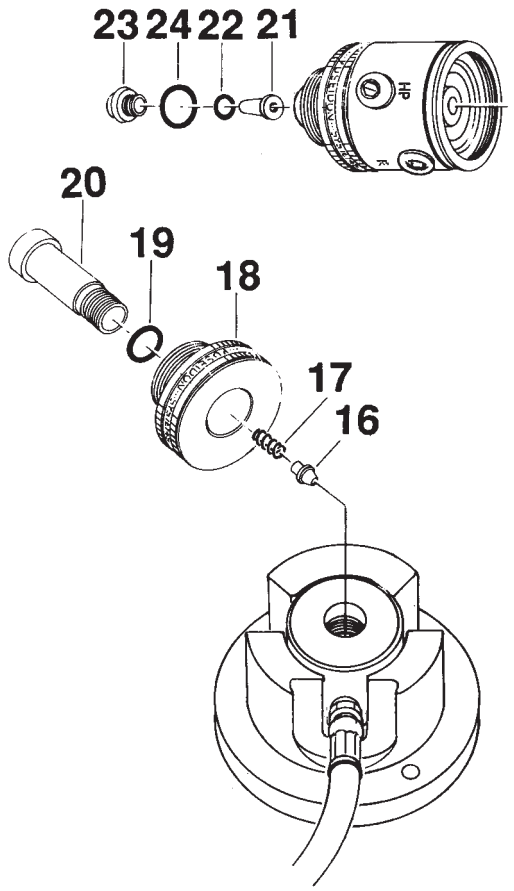
Secondary side:
Removal:

Place the first-stage valve in fixture with the secondary side facing upwards.

1. Remove the pressure adjusting screw (1) with a 6 mm hexagon spanner, and remove the spring (2) and (3).

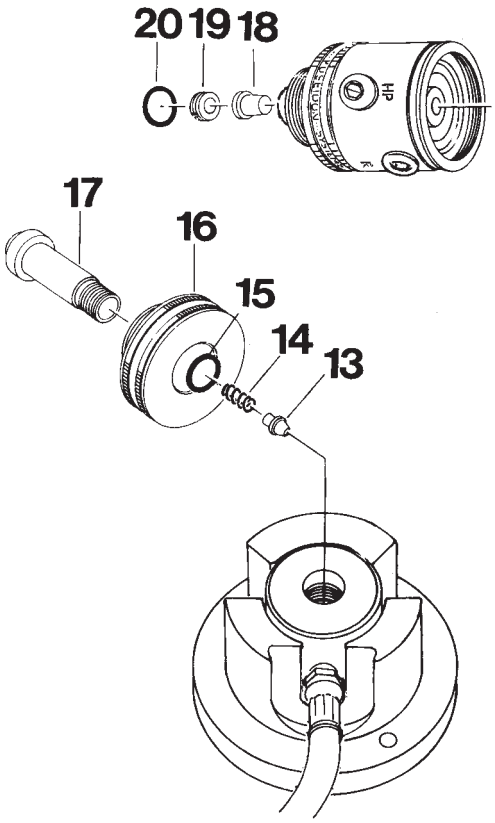
2. Remove the cover (4) using a 27 mm crowsfoot wrench. Remove the upper diaphragm center (5).

3. Remove the diaphragm (6) with an o-ring remover. Make sure the sealing surface is not damaged. Remove the lower diaphragm center (7) and the valve needle (8).



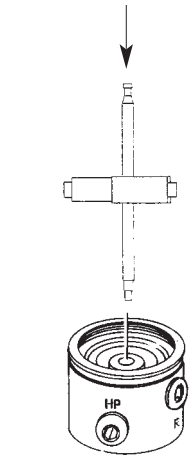
FIRST STAGE
3070 (2422)

1. Remove the locking screw (23) with a 6 mm Allen wrench. 20 Remove the o-ring (24), cup filter (21) and o-ring (22).
2. Place the first stage in the fixture. Remove the connection (20) with 6 mm Allen wrench.
3. Remove the wheel (18) and the o-ring (19) with an o-ring remover. Make sure the sealing surfaces are not damaged.
4. Remove the spring (17) and the valve piston (16).
5. Disconnect the low pressure hose from the first-stage valve with a 13 mm open-end wrench.
6. Remove the o-ring from the low pressure hose. Make sure the sealing surfaces are not damaged.



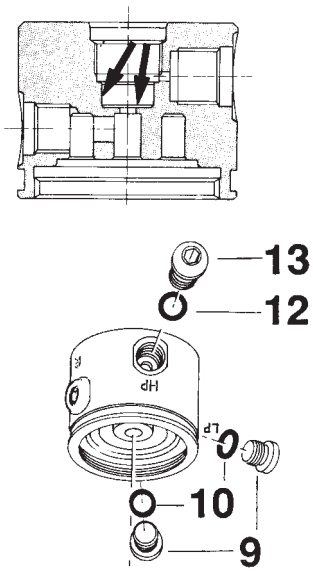
FIRST STAGE
2305

1. Remove the o-ring (20) with an o-ring remover. Make sure the sealing surfaces are not damaged.
2. Remove the locking screw (19) with a 8.5 mm screwdriver. Remove the cup type filter (18).
3. Place the first stage housing in the fixture. Remove the connection (17) using a 6 mm Allen wrench.
4. Remove the o-ring (15) with an o-remover. Make sure the sealing surfaces are not damaged.
5. Remove the wheel (16).
6. Remove the spring (14) and the valve piston (13).
7. Disconnect the low pressure hose from the first stage valve with a 13 mm openend wrench.
8. Remove the o-ring from the low pressure hose. Make sure the sealing surfaces are not damaged.



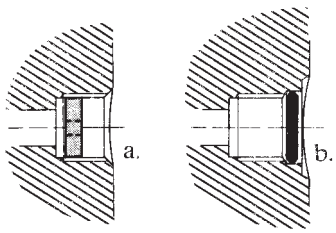
1. Remove the valve seat (15) with the valve seat remover.

2. Remove the o-ring (14) with an o-ring remover. Make sure that the sealing surfaces are not damaged.

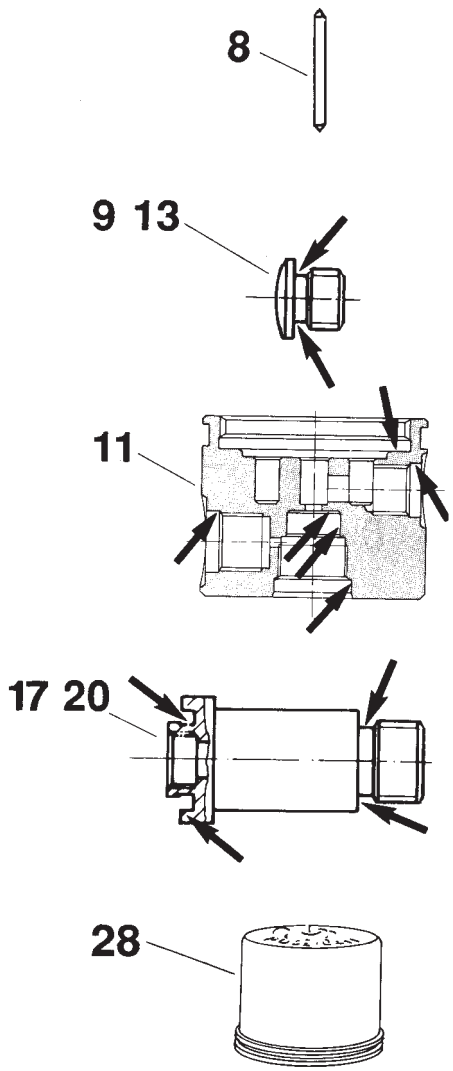


3. Remove the blind screws (9) and (13) with a 5 mm Allen wrench. Remove the o-rings with an o-ring remover. Make sure that the sealing surfaces are not damaged.

Old-type fist stage valve housings with (G 1/8") threads are equipped with nylon gaskets seats.
It is not normally necessary to change these seats during service. However, if the seats are subjected to a great deal of over-tightening, the interior orfices can be reduced in diameter, significantly reducing flow and performance. Compare installed gasket orifices with a new gasket, and replace as necessary. Gaskets must also be replaced after a long time acid-bath.



a. G1/8"-port with gasket.
b. UNF 3/8"-port with o-ring



When servicing the regulator following parts should be replaced:

See chapter Servicekit.

1. All o-rings
2. Diaphragm
3. Cup filter
4. Valve seat

Cleaning:

If corrosion or salt deposits are in evidence, place all metal parts in 15 percent hydro-chloric acid. They should be left in the acid for about 10-15 minutes. Then, rinse the parts thoroughly and blow dry with air.

SERVICE INSTRUCTIONS

Checking:

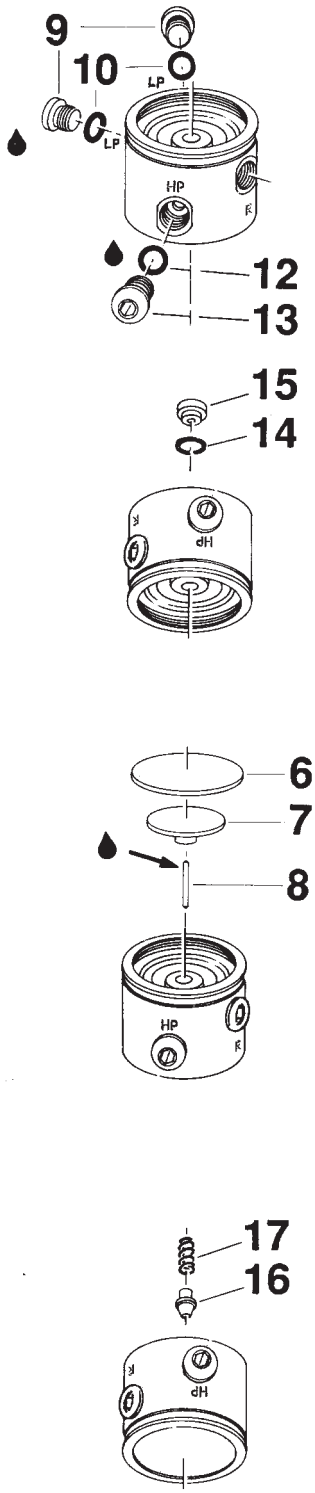
Check the following parts very carefully. Replace even if only slightly damaged.

Valve needle (8). Check to make sure that the needle is straight.

The blind screws (9) and (13), check to make sure the sealing surfaces are undamaged. Also check that the threads are not damaged.

The valve housing (11), check to make sure the threads and also the sealing surfaces for the o-rings are undamaged.

The connections (17) or (20), check to make sure the sealing surfaces for the o-rings are undamaged.



Assembly

Lubricant:

Grease:

1. Install the o-ring (10) on the blind screws (9), low pressure supply and the o-ring (12) on the blind screw (13), high pressure supply. Lubricate the blind screws and the o-rings.

2. Screw in the blind screws in the LP-HP outlets. Use a 5 mm Allen wrench an tighten hard.

3. Install the o-ring (14) on the valve seat (15) and then install the valve seat with a seat drift.

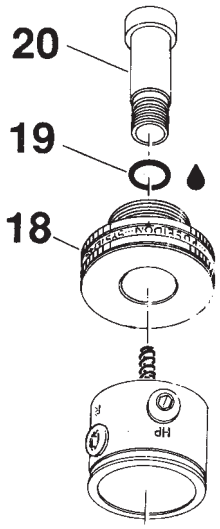
4. Lubricate the point of the valve needle (8) and install it in the lower diaphragm center (7). (The grease will help retain the needle on the lower diaphragm center during the assembly process).

5. Install needle (8) and center (7) in the valve housing.

6. Press the diaphragm (6) into the groove of the valve housing. Use a blunt-pointed instrument to set it firmly in place.

NOTE:
The diaphragm (6) must be replaced on every removal.

7. Reverse the valve housing.
8. Install the valve piston (16) on the valve needle.
9. Install the spring (17) on the valve piston.

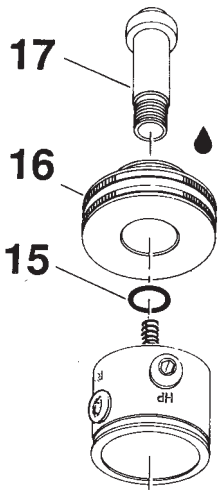


FIRST STAGE
3070, 2422

1. Install the o-ring (19) on the connection housing (20). Lubricate the o-ring and the thread

2. Install the wheel (18) on the con nection (20).

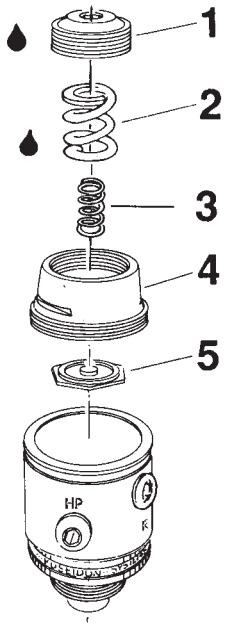
3. Screw the wheel connection assembly into the valve housing assembly with a 6 mm Allen wrench. Reverse the valve housing. Check the movement of the valve piston by pressing hard on the diaphragm. The movement should be about 1.5 mm (1/16″).



FIRST STAGE
2305

1. Install the wheel (16) on the connection (17). Install the o-ring (15) on the connection (17). Lubricate the o-ring and the thread

2. Screw the wheel connection assembly into the valve housing assembly with a 6 mm Allen wrench. Reverse the valve housing. Check the movement of the valve piston by pressing hard on the diaphragm. The movement should be about 1.5 mm (1/16″).

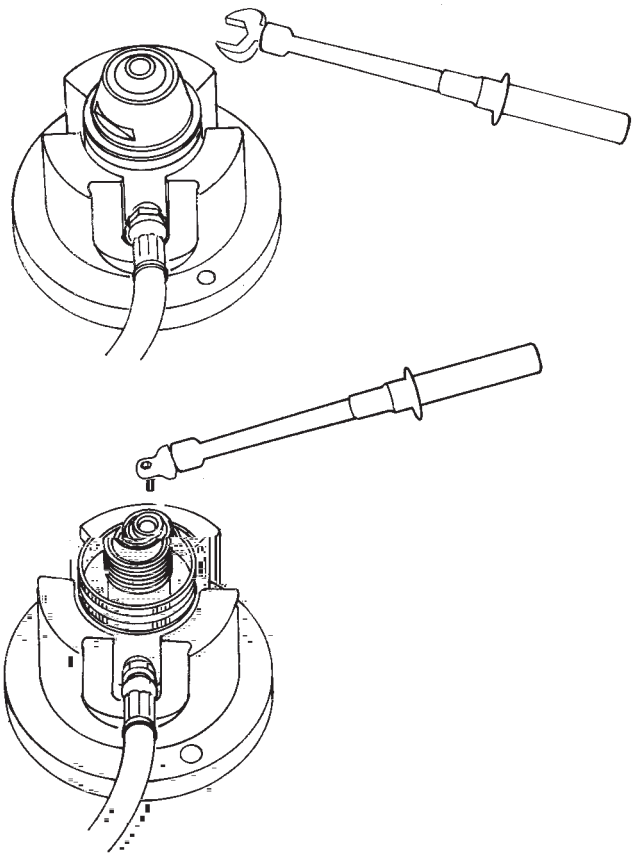


1. Place the upper diaphragm center (5) on the diaphragm in the valve housing.

2. Screw the cover (4) into the valve housing.

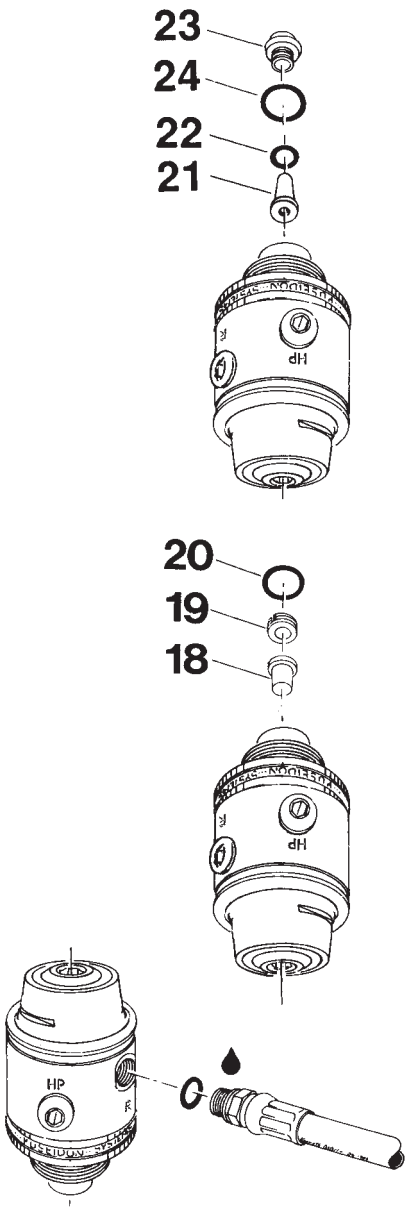
3. Lubricate both ends of the spring (2) and (3). Lubricate the threads on the pressure adjusting screw(1).

4. Tighten the pressure adjusting screw about 5 turns with a 6 mm Allen wrench.



Place the stage assembly in the fixture. Tighten the valve housing cover with a 27 mm crowsfoot and the connection with a 6 mm Allen wrench. use a torque wrench to achieve 28-30 Nrn (20-22 lbf.ft) of torsion.

IMPORTANT NOTE: Use the right bits: To all first stages with wheel connection, bits No. 3119 (length 40 mm) should be used.



FIRST STAGE 3070, 2422

1. Install the o-ring (22) on the cup type 21), then install the locking screw and o-ring (23). Tighten with a 6 mm Allen wrench.

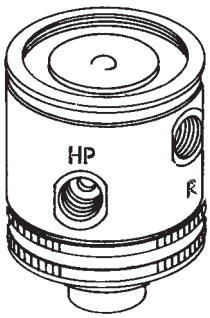
FIRST STAGE 2305

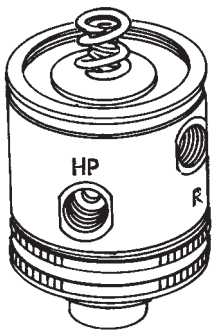
1. Install the cup filter (18) and the locking screw (19) with a 8.5 mm screwdriver.
   Install the o-ring (20).

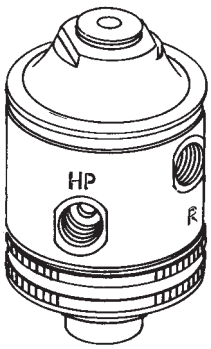
2. Install the o-ring (9) on the LP hose. Lubricate the o-ring and the thread. Tighten the hose nipple with a 13 mm openend wrench.

INSTALLMENT OF ANTIFREEZE CAP

1. Check valve cover for correct tightness - 28-30 Nm.(20-22 lbf.ft)
2. Blow the inside of the valve cover clean and dry.
3. Then fill the valve cover and the rubber with pure spirit (alcohol, vodka) or water/glycol mixture. 3/4 fill.
4. Install the anti-freeze cap and fasten it with the locking band.







OLD TYPE

For assembly of old-type spring housing, please note the following:

1. The upper diaphragm centre must be centered in the mid part.

2. The inner and outer secondary springs shall be set in the middle.

3. Screw carefully on the cover with assembly screw.

4. Tighten the valve housing cover with a special tool No. 2318. Use a torque wrench to achieve 28 Nm (20 lbf.ft).