

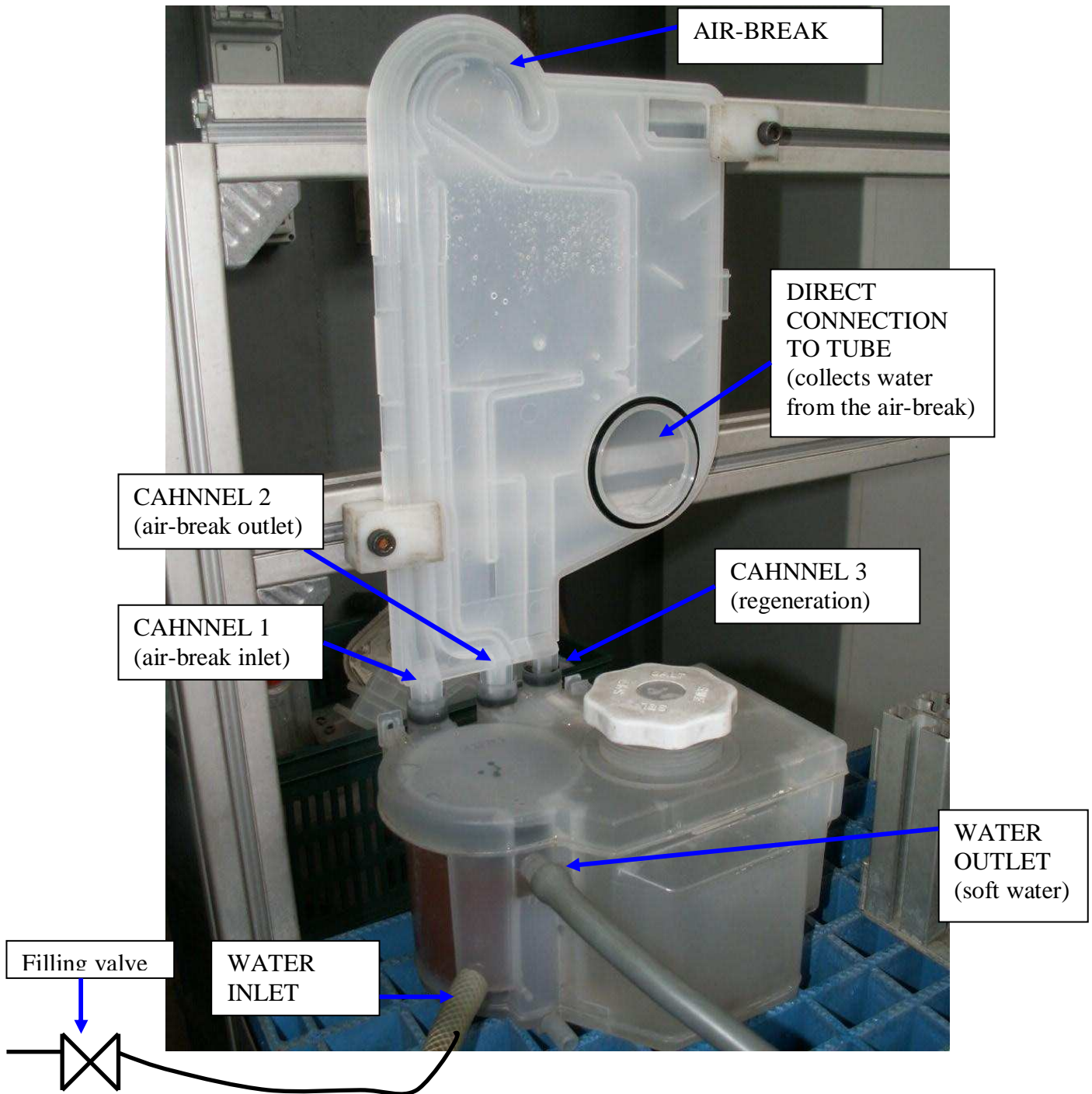


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FUNCTIONAL DESCRIPTION

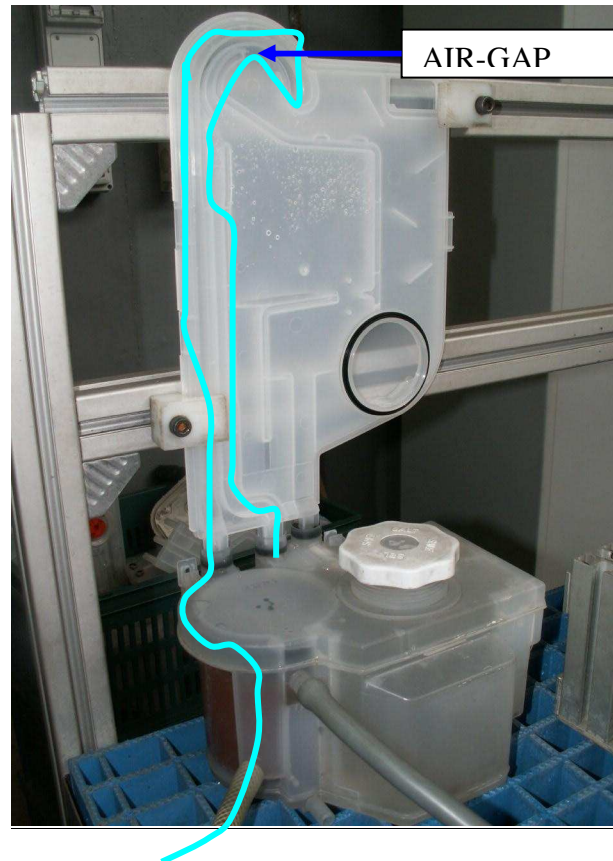
Softener M24 + Air-break AK18



Date: 22/12/2006 - Page 1 - By: C.C.Carli - File: T&P softeners M24+airbreak AK18 Functional Description 060605.DOC



PHASE 1: Water filling and treatment of water

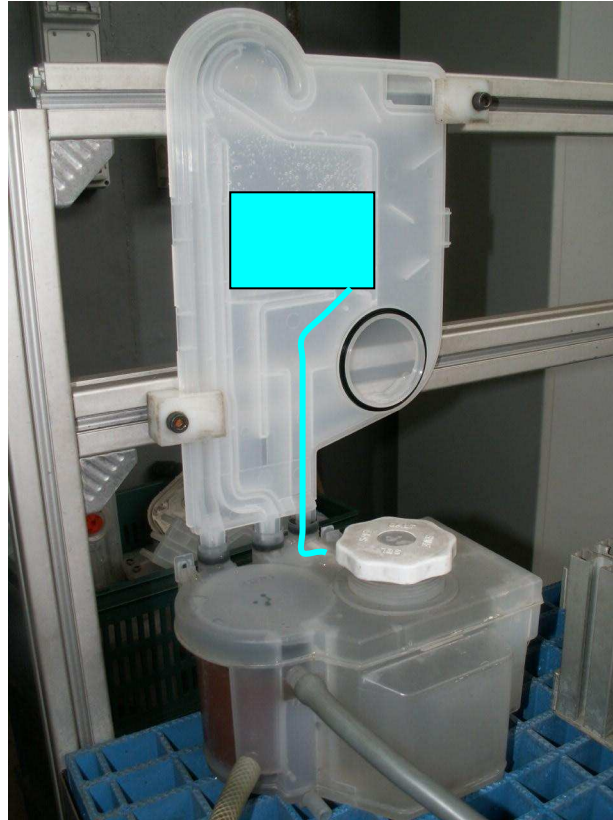


Filling valve is energized, and water flows into the system, passing in series:

- the hose between filling valve and water softener inlet
- a first channel (in pressure) inside the softener
- the connection (with o-ring) between softener and air-breaker
- a second channel inside the air-breaker
- the air gap, prescribed by EN 61770 against backsiphonage in the main water supply
- a direct entrance into the collecting chamber for regeneration water
- an overflow outlet, once the chamber for regeneration water is full
- a third channel, into air-breaker
- the connection (with o-ring) between air-breaker and resin tank
- the channel taking to bottom of resin cylinder
- the bottom filter
- the ion exchange resins
- the top filter
- the outlet to sump
- the hose between softener outlet and sump
- the sump.



PHASE 2: Resins' regeneration

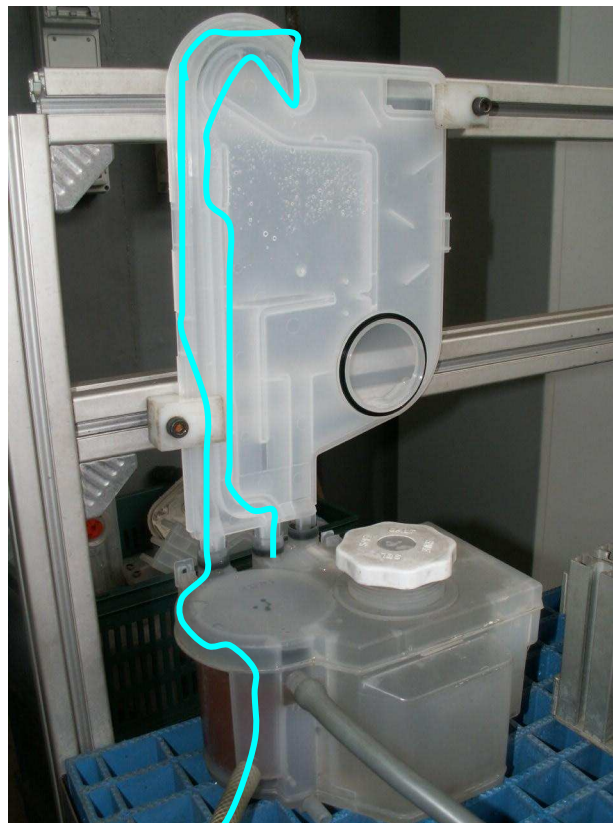


Regeneration valve is energized, so to release the potential energy of the water amount above, in the air-breaker, and allow a movement of water:

- the water amount in the air-breaker drops, and pushes forward the same amount contained into the salt tank;
- the brine amount is pushed ahead into the resin tank, where comes in contact with the resins and activates the ion exchange Ca-Na;
- the fresh water contained in the resin tank, replaced by the brine, moves forward into the sump.



PHASE 3: Resins' rinse



After regeneration has occurred, Resin Rinse Phase will start.

In order to execute the resins' rinse, the filling valve is energized, on a time base, until the requested amount – let's say 3 liters – have flow through the ion exchange resins.

The passages into the hydraulic circuit are the same as for Phase1: water filling.



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What is the function of an AIR-BREAK?

The air-break is made for two main purposes:

1. **PREVENT BACK SIPHONAGE** into the main Net: this is request by European Standard EN 61770. The air break gives a complete separation from the net, avoiding dirty water or salt solution to go back inside the net.
2. **PREVENT SYSTEM FROM PRESSURE RISING**: to avoid any rising pressure inside the softener, the air break generate a leakage any time water finds some obstructs on the way to outlet. This can be due to dirty filters for example. This leakage is directly convey inside the tube of the machine.

Note that this is hard water, because it has not passed through resins. Because of this, the maximum leakage from the air-break is the 3% of the water charged in the machine (this is the maximum value accepted from our customers). For example, in a standard dishwasher, when you charge 4 liter, the maximum leakage can be 120 cc.