Active Seal Wash Option

In this note the use of the new Active Seal Wash option is described in detail.

NOTE Running dry is the worst case for a seal and drastically reduces it's lifetime. Always use the seal wash function when installed.

Features:

The new Active Seal Wash option has the following features:

- fits for 1100 series Isocratic, Quaternary and binary pumps
- Is supported in the Chemstation(from rev. A.10.02) and the Control Module (Firmware revision B.03.21 and greater).

General Information

When to use the Active Seal Wash Option

Highly-concentrated buffer solutions will reduce the lifetime of the seals and plungers in your pump. The seal wash option allows to maintain the seal lifetime by flushing the back side of the seal with a wash solvent.

The seal wash option is strongly recommended when buffer concentrations of 0.1 Molar or higher will be used for long time periods in the pump.

The seal wash option comprises a peristaltic pump, support rings, secondary seals, gaskets and seal keepers for all plungers. A wash bottle filled with water /isopropanol (90/10) should be placed above the pump in the solvent cabinet and the peristaltic pump will maintain a flow through the pump head removing all possible buffer crystals from the back of the pump seal.

NOTE

Running dry is the worst case for a seal and drastically reduces its lifetime.
The seal will build up sticky layers on the surface of the plunger. These sticky layers will also reduce the lifetime of the primary seal. Therefore the tubes of the wash option should always be filled with solvent to prolong the lifetime of the wash seal. Always use a mixture of bidistilled water (90%) and isopropanol (10%) as wash solvent. This mixture prevents bacteria growth in the wash bottle and reduces the surface tension of the water.

Installing the Active Seal Wash option

Tools required	4-mm hexagonal key Screwdriver Pozidrive #1	
Parts required	Active Seal Wash Option kit (Isocratic or Quaternary pump) Active Seal Wash Option kit (Binary pump)	G1311-68711 G1312-68711
Preparations for this procedure	Switch off the pump at the main power switch Remove the front cover Remove the top cover and foam	

1 By using a screwdriver remove the metal plug in the z-panel.

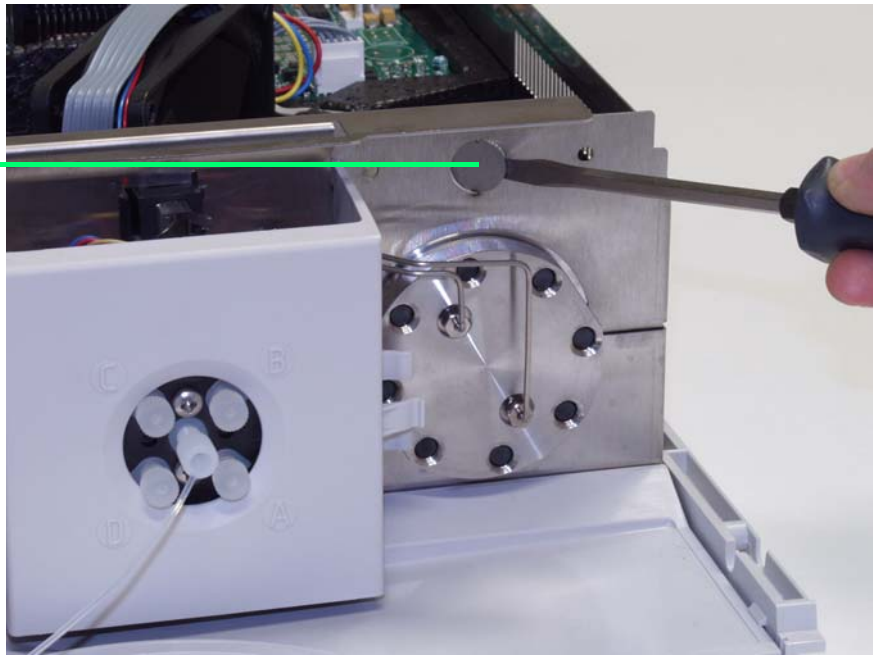

Figure 1 Removing the metal plug from the z-panel

2 Insert the socket, delivered with the Seal Wash pump assembly, into the hole on the z-panel.

3 Guide the wire of the active seal wash assembly through the hole and screw it onto the z-panel.

4 Guide the wire over the fan and plug the connector onto the mainboard connector P7.

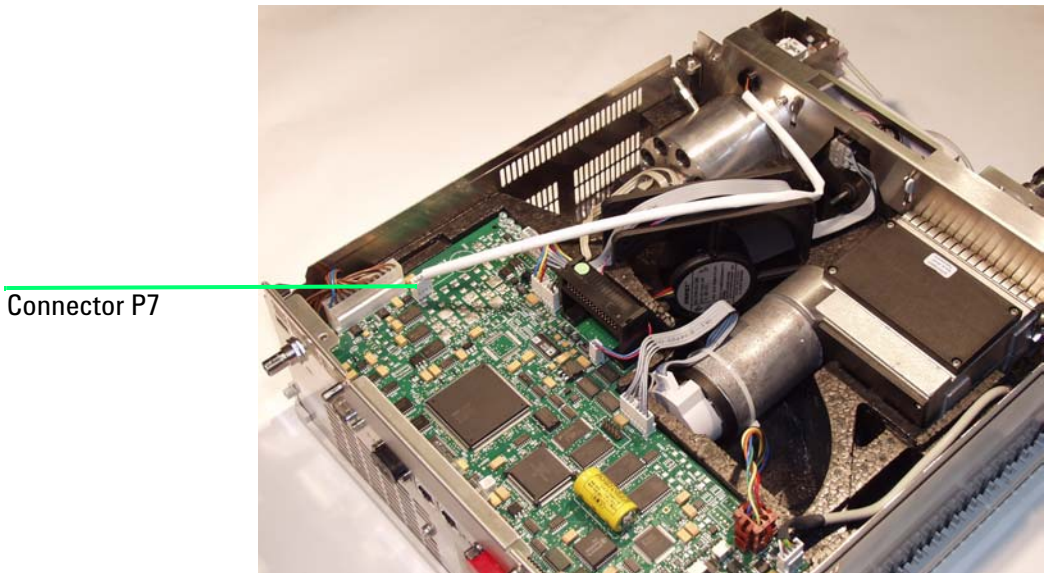

Figure 2 Wire connected to the mainboard.

5 Replace the foam and top cover.

6 Disconnect all capillaries and tubes from the pump head and disconnect the active inlet valve cable.

7 Using a 4-mm hexagonal key stepwise loosen and remove the two pump head screws and remove the pump head from the pump drive

8 Place the pump head, on the backside of the plungerhousing, on a flat surface. Loosen the lock screw (two revolutions) and while holding the lower half of the assembly carefully pull the pump head away from the plunger housing.

9 Remove the support rings from the plunger housing and lift the housing away from the plungers.

10 Install the support ring assembly from the active seal wash option kit into the plunger housing.

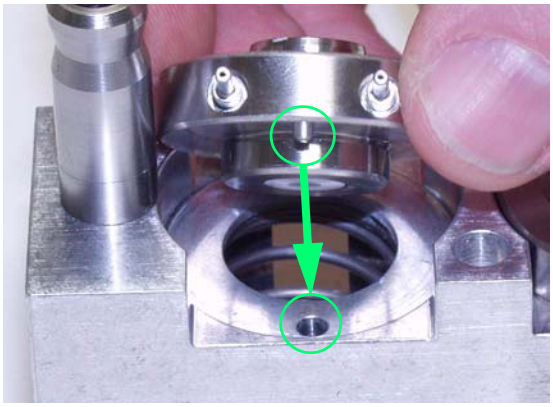

Figure 3 Inserting the active seal wash support rings.

11 Place the support rings on the plunger housing (plungers not installed) and snap the pump head and plunger housing together.

12 Insert the plungers and carefully press them into the seal.

13 Tighten the lock screw.

14 Slide the pump head assembly onto the metering drive. Apply a small amount of pump head grease (part number 79846-65501) to the pumphead screws and the balls of the spindle drive. Tighten the pumphead screws stepwise with increasing torque

15 Reconnect all capillaries, tubes and the active inlet valve cable to its connector

16 Route the wash inlet tube into a bottle filled with a mixture of distilled water and isopropanol (90/10) and place the bottle above the pump in the solvent cabinet.

17 Route the outlet of the wash tube into a waste container.

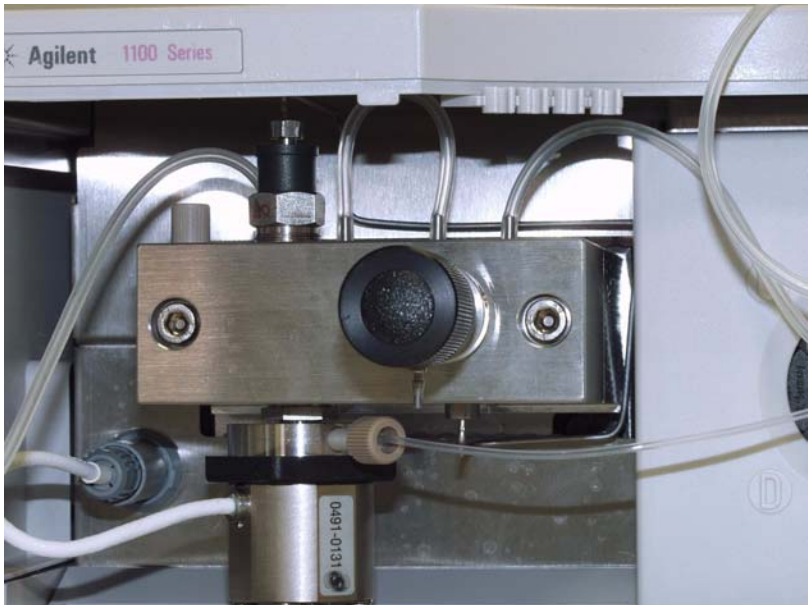

Figure 4 Pumphead after completed installation

How to configure the Active Seal Wash option

Always use the seal wash function which is delivered with your pump.

Water or Aqueous Buffer Solutions

We recommend a composition of 10% Isopropanol in HPLC grade water for water or aqueous buffer solutions. With buffer solutions, the seal wash pump should be configured such, that it is turned on for a duration of 30 s every 30 minutes (with a maximum of 30% cycle time). Shorten the intervals between the pump turn-ons for highly concentrated buffer solutions (>0.1 M buffer solutions).

Organic Solvents

For all organic non buffered solutions, we recommend to use the same solvent for the seal wash as the one that is currently pumped by your pump. In this case, the seal wash pump has to be operated in large intervals, only. Basically it is enough to keep the back of seals wet with the help of the seal wash option.

NOTE Beware that the seal wash tubing is made of silicone. Never use any solvents for the seal wash, that are not compatible with silicone.

Configuring the Active Seal Wash option in ChemStation

The configuration screen for the Active Seal Wash option is accessible over the menu bar and the configure pump sub menu. It is possible to setup either a single wash for a certain period of time or it can be setup to periodic do a wash. At the time of installation the pump should be purged until the wash solvent is flowing through the pump.

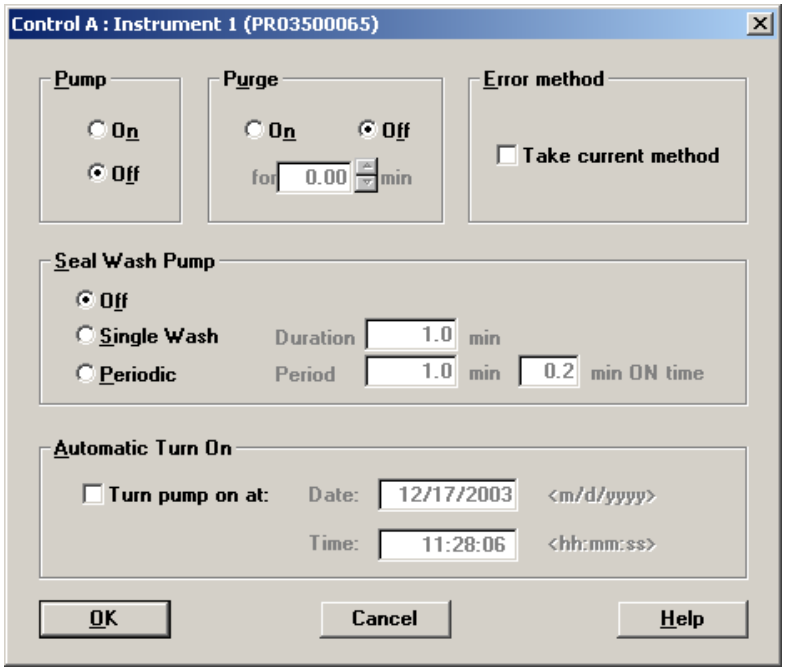

Figure 5 Example of configuration screen from ChemStation

Configuring the Active Seal Wash option in the Control Module

The setup of the Active seal wash is available over the Control screen and then the Seal wash button in the Control module. It is possible to setup either a single wash for a certain period of time or it can be setup to periodic do a wash. At the time of installation the pump should be purged until the wash solvent is flowing through the pump.

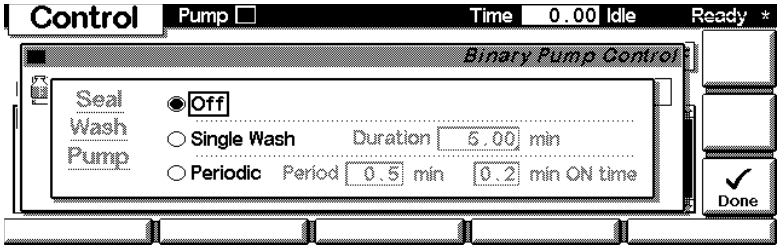

Figure 6 Example of configuration screen from the Control Module

Parts and Materials

Active Seal Wash Option Kit G1311-68711 (G1312-68711 for binary pump)

Table 1 Active Seal Wash Option kit for Isocratic, Quaternary and Binary pumps

	Description	Part Number
1	Seal wash pump assembly (includes pump casette and pump motor)	5065-9953
*	Pump casette (Silicone)	5042-8507
2	Support ring, seal wash (2 EA) (4 EA for Binary pump)	5062-2465
3	Secondary seal (pre-installed in support rings)	0905-1175
4	Gasket, wash seal (2 EA) (4 EA for binary pump) (for re-order pack of 6)	5062-2484
5	Seal keeper (2 EA) (4 EA for binary pump)	5001-3743
6	Silicone rubber tubing 1mm I.D. (3m)	0890-1764
7	Seal (pack of 2) (2 packs of 2 for binary pump)	5063-6589
*	Seals insert tool	01018-2370

* not shown in graphic

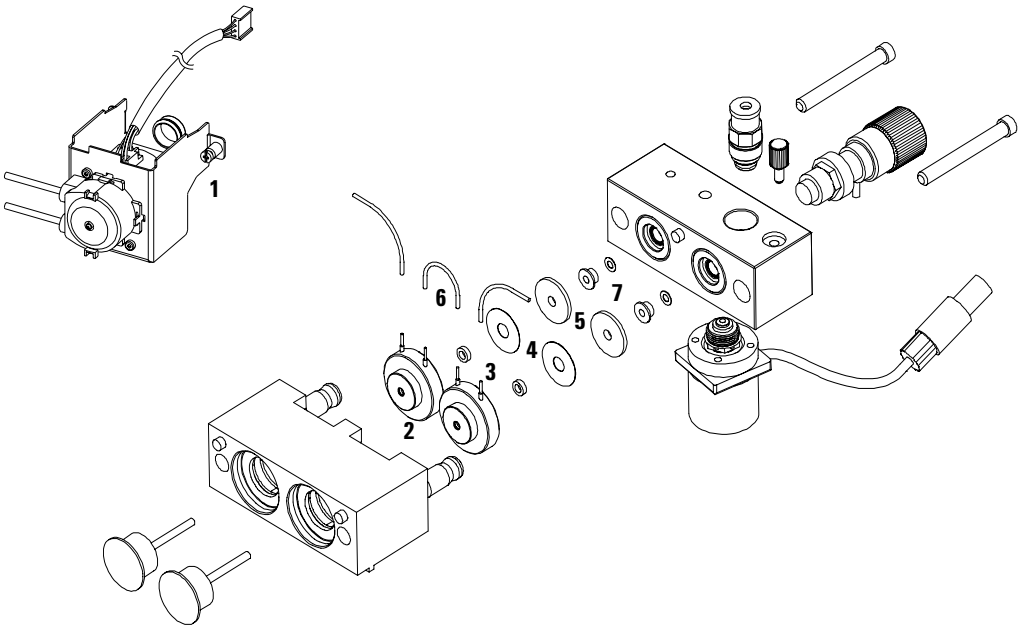

Figure 7 Pumphead with seal wash option

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