

Troubleshooting

Cellwasher not decanting

Cellwasher 2+ /Centra W
Revision Date: January 6, 15
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DECANT-Low Speed The rotor holds the tubes at a slight negative angle and spent saline is expelled from the test tubes by low centrifugal force. This action retains virtually all cells in the tubes while removing almost all residual saline. Decanted waste solution is directed, by the splash guard in the cover, into the drain-hole in the chamber and into the drain tubing which carries the waste out of the cell washer and into a waste container or drain.

Decant Problems in Centra W or CW2 Plus Cell Washer

Models:

Centra W Cell Washer (IEC, Thermo Scientific)

CW2 Plus Cell Washer (Sorvall)

Symptoms: Cell washer is not properly decanting. Some or all of the tubes remain full at the end of a wash cycle

Possible causes include:

- Saline deposits on the rotor or plunger can interfere with proper operation. Clean both thoroughly.
- Saline deposits in the motor well, where the plunger sits, can interfere with proper operation. Clean area thoroughly.
- Older style (black rotors) models –the plunger metal band may be corroded. Polish.
- Newer style (white rotor) models –tubeholder tabs broken. Replace tubeholders.
- Loose drive pin on motor shaft. Inspect and replace if needed.
- Solenoid coil may not be operating. Refer to service instructions.
- Motor brake may not be working (if rotor is turning when decant cycle begins, the plunger will not function properly). Refer to service instructions.

Decant Solenoid

The decant function of the Centra-W Cell Washer involves three elements, the rotor, solenoid plunger and solenoid coil. The solenoid plunger (located beneath the rotor) has a metal band on it which, when the solenoid coil is energized, is pushed upward, locking the bottom tabs of the tube holders at a negative angle. Then, when the rotor is spun at low speed, the saline is forced up the sides of the tubes and out.

The decant solenoid has electrical characteristics that can be checked with the unit unplugged. First, remove the cabinet and disconnect the solenoid coil connector (J8). Measure the resistance across the two leads. It should be 645 ± 15 ohms . If it is outside this range or reads open, replace the coil.

Note: The resistance may vary on cell washers below the serial no's 23920499 & 24970094.

To verify power is being applied to the coil, use the following procedure. It requires operation of the unit with power applied and the cabinet removed.

Use caution to avoid electric shock

Use a voltmeter to measure the DC voltage to the coil at connector J8. Place probes in the back of the connector shell. Plug the unit in and verify that a properly loaded rotor is installed. Select one WASH cycle, and press the START key. Approximately 147 VDC should be present for the third step (DECANT) of the wash cycle. If power is not present, replace the PC board. If power is present, but decanting still does not occur, check the other possible causes listed earlier in this section.

Brake

The brake in the Centra-W Cell Washer is an electric brake. The PC board, first, powers the low speed winding to bring the speed down and then applies a DC voltage to the high speed winding to stop the motor. The brake is used after the third (DECANT) step of each WASH cycle and during the agitate step. It is also used in the SPIN MODE at the end of a spin, and any time the STOP key is pressed.

To verify power is being applied to the motor for braking, use the following procedure. It requires operation of the unit with power applied and the cabinet removed (see cabinet removal instructions). Use caution to avoid electric shock

Use a voltmeter to measure the DC voltage to the high speed winding of the motor.

At connector J4 (labeled POWER OUT) of the PCB, place a multimeter probe in the back of the connector shell at pin 6 (WHT) and pin 1 (BLU).

Plug the unit in and verify that a properly loaded rotor is installed.

Select a SPIN of five seconds, and press the START key.

At the end of the spin, approximately 26 VDC should be present.

If voltage is not present replace the PC board.

Cabinet Removal

Cabinet removal is required to gain access to the following components: latch assembly, drive assembly, control PCB, pump motor, and electrical components.

To remove the cabinet, first, open the cover, remove the rotor and plunger, remove the guard bowl, and unplug the unit (do not close cover).

Remove the four Phillips head screws at the rear of the cell washer, and the two on the front control panel. The cover and cabinet assembly slide forward and can be lifted up for removal. The wiring harness to the latch assembly and the tubing from the cover to the flow switch must both be disconnected before complete removal is possible (reach in between the cabinet and inner splash guard to gain access to the latch harness).

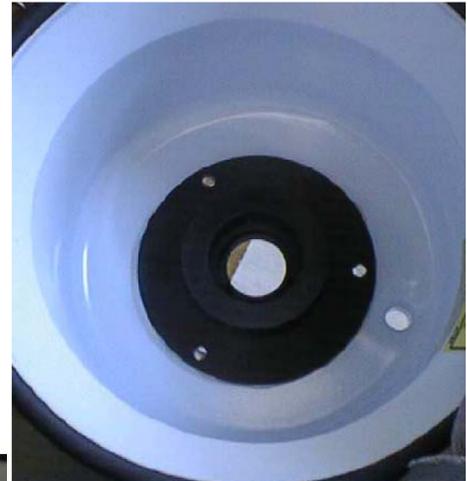
When installing the cabinet use the same method (only backwards) being careful so that when the cabinet is placed on the base, no wires are pinched between them.

Control Panel Removal

To remove the control panel, first, remove the cabinet. Disconnect the three wiring harness connectors to the PCB. Remove the four nuts (in corners) securing the control panel assembly. The entire assembly can now be removed from the base. To separate the PCB from the control panel, disconnect the ribbon cable between the PCB and control panel. Remove the five nuts (one in each corner and one in center) securing the PCB to the control panel. Take care not to lose the standoffs when lifting the PCB off.

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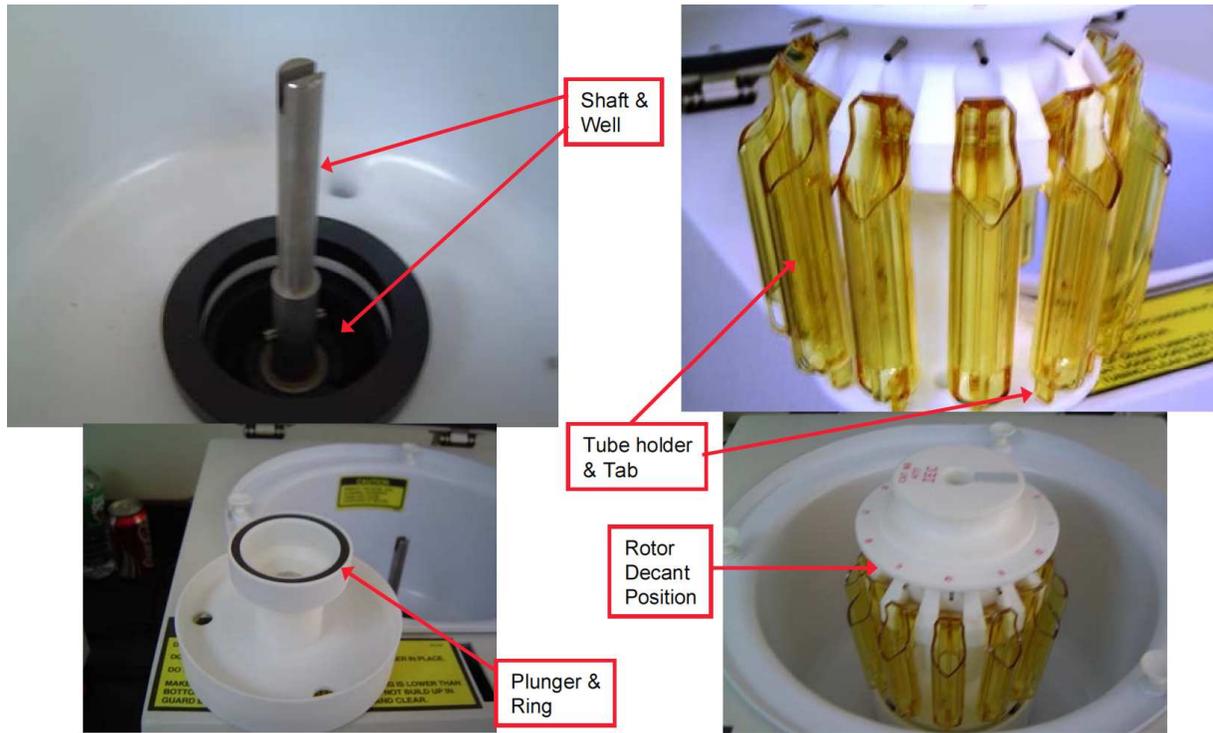
There are several factors which can prevent proper decanting.

1. Saline build up in the solenoid plunger well and/or on the motor shaft
2. Corroded or dirty solenoid plunger.
3. Broken tube holder tabs on rotor.
4. Defective solenoid coil.
5. PC board.

The #1 cause of Decant problems is cleanliness

If there are any signs of salt build-up on the rotor and or plunger, soak in warm water and a mild detergent (paying particular attention to the inside of the plunger and the metal band). Rinse thoroughly under warm water. Take a damp cloth and wipe any saline residue from the well that the plunger sits in.

If there are any signs of salt build-up on the motor shaft, clean it with warm water and a mild detergent. If the shaft is corroded or rusted, stuff the plunger well with a cloth, use steel wool or an Emory cloth to clean the shaft smooth and coat with a thin layer of petroleum jelly.

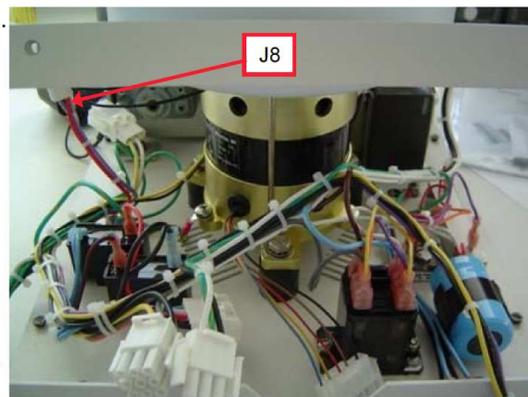
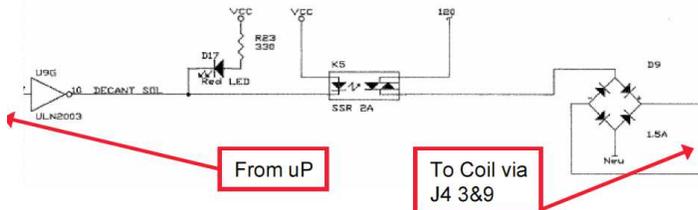


To verify the Decant coil and PCB, use the following procedure:

1. Remove the cabinet.
2. Disconnect the solenoid coil at connector J8.
3. Connect DVM between the 2 black leads, coil resistance should be 645 ohms

To check power to the Decant coil

1. Re-connect the Latch harness (The harness can be connected by placing the cabinet on its side with the control panel opening towards the base. Feed the harness through the control panel opening to reach the latch assembly for connection.)
2. Place probes in the back of the J8 connector shell.
3. Power up, select 1 Wash cycle
4. At Decant (3rd step) voltage to the coil should be appx 140 VDC (SOL LED on). If voltage present check coil resistance and cleanliness, if voltage not present, replace the PCB.



DEC: This red LED Indicates the decant coil circuit is activated.

