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SUBJECT **KNF WASH PUMP LACK OF PRIMING**



An error was detected on the KNF pump in some new Best 2000 units with serial numbers from 1DXC1400 to 1DXC1460. This pump failure is caused by an incorrect pressure calibration, and can be faced randomly when doing the initial priming, especially when tubing contains air.

This error can be skipped by recalibrating the pump from the initial value from 3 PSI to $3,9 \pm 0.4$ PSI.

For further information do not hesitate to contact us.

KNF Wash Pump Lack of Priming

Over the last two months we have seen some new KNF wash pump priming problems within the Best 2000. Of course, it wasn't happening with all pumps and reports were sporadic. It reached an unacceptable level of failure reports a month ago and Dynex launched an extensive project to examine each pump they received from their supplier. They discussed the issue extensively with their supplier. There were many variables to sort through - like tubing length, tubing quality, temperature, regulator settings, input/output PSI, shelf life after adjustment, shipment via airlines which affected the diaphragm, etc. Through the data they accumulated, they determined the problems appeared in the last batch of pumps they received.

Dynex specification to KNF for the pump was to deliver 3 PSI. It turns out that KNF only tested under liquid flow conditions and not upon initial startup where only air is flowing. Thus many in the last batch were on the border in order to reach valve closure when only pumping air and were not able to establish a priming condition.

Dynex have followed up with the supplier and modified their specification to include priming conditions. As a side benefit to this investigation, Dynex determined that they could set the pump to 3.9 ± 0.4 PSI which would be even more forgiving for priming conditions and not exceed the liquid flow characteristics necessary for system performance.

To the best of our knowledge, these potentially maladjusted pumps were shipped with Best 2000 serial numbers 1DXC1400 – 1DXC1460.

However, they do not have a good option for field adjustment. Dynex use two digital manometers in order to adjust the pressure regulator. They can't expect field service personnel to carry that equipment. Up until now they have just been replacing the pump. All the pumps are currently being tested to deliver the proper flow.

It is possible to adjust the regulator to the point where it gives a prime. But without the proper monitoring equipment, it could be set to a PSI level that is too high which could affect assay accuracy or precision. Thus Dynex recommend that if you encounter pumps with priming problems in recently placed systems, the pump (part Number T3410-0688) should be replaced under warranty.

Tools/Parts Needed To Modify Pressure Setting

Digital Manometer (measuring PSI)
Adjustable wrench
4mm allen wrench
Silicon tubing (1/8" or 3mm ID), 3 feet (1meter)

Checking the Pressure Setting

1. Remove the KNF Pump Mount with KNF pump from the left side enclosure (see figure 1).
2. Attach the silicon tubing to your digital manometer (this will be used on the pump's outlet barb in a moment).
3. Prime the lines. (To prime the lines if the pump is not working at all, remove the tubing from the wash head. Insert the dispense tubing into the aspirate tubing. In Revelation, go to Manual Control and Purge from one of the bottles WOPURA9999.)
4. Attach the silicon tubing from the manometer to the outlet side of the KNF Pump (see diagram below).

NOTE: we recommend pinching the inlet tubing, until the manometer has been connected, to avoid the line from de-priming.

5. Turn the pump on using Manual Control in Revelation, command WODPCA250.

NOTE: take **caution** as the fluid will want to travel up the tubing to the manometer and this may damage the manometer. You will want to pinch the silicon tubing when the pump is first turned on and then slowly let it go.

6. The PSI reading should be between 3.5 and 4.235. If it needs adjusting, see instructions below on how to change the pressure setting.

Changing the Pressure Setting

7. Using your adjustable wrench, loosen the 13mm silver lock nut at the top (see diagram below).
8. With the 4mm allen wrench, rotate the top screw clockwise until the manometer reads approximately 4PSI.
9. Tighten the lock nut and reinstall the pump mount into the left side enclosure.
10. To turn the pump off, in Manual Control send the comment WODPCA000.

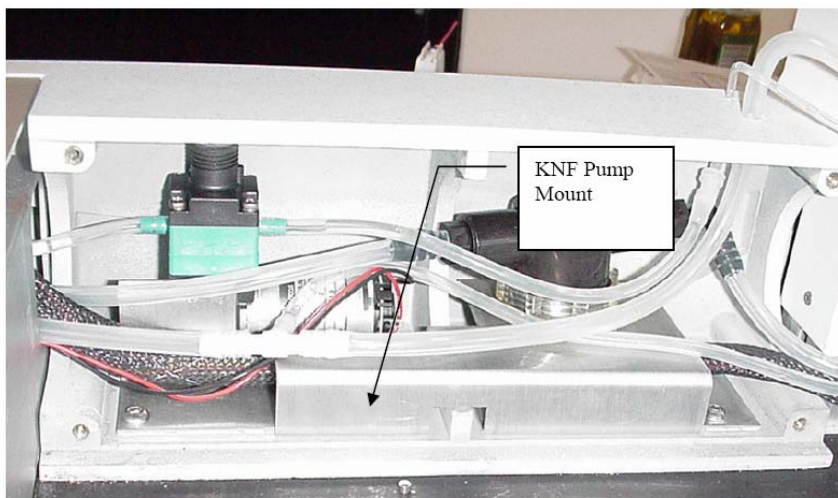


Figure 1 KNF Pump inside left enclosure with pump mount

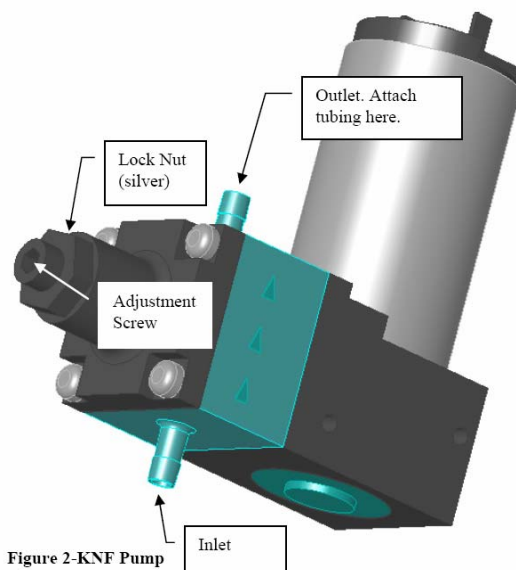


Figure 2-KNF Pump