



PUMPS THAT EXPERTS SELECT.

Testing for Air in Centrifugal Pumps

The amount of air that can be handled with reasonable pump life varies from pump to pump. However, in no case is it to be expected that a pump will give better life with air present than it would if the liquid were entirely air-free. The elimination of air has greatly improved the operation and life of many troublesome pumps. When trouble occurs, it is common to suspect everything but air, and to consider air last, if at all.

If air is present, the pump is likely to operate with a certain amount of internal noise. This noise can be described as “gravel noise”- sounds very much as though the pump were handling water full of gravel. This is the same type of noise generally associated with cavitation.

In many cases making a simple test for the presence of air can save a great deal of time, inconvenience, and expense. We will assume that calculations have already been made to assure that the NPSH available is greater than that required by the pump (the noise is not a result of cavitation). The next step should be to check for the presence of entrained air in the suction.

When the source of suction supply is below the centerline of the pump, check for the conditions covered previously in this manual.

When the source of suction supply is above the centerline of the pump, a check for air leaks can be made by collecting a sample in a “bubble bottle” as illustrated in Figure 12. Since the pressure at the suction chamber of the pump is above atmospheric pressure, a valve can be installed in one of the tapped openings at the high point in the chamber and liquid can be fed into the “bubble bottle.” The presence of air or vapor will show itself in the “bubble bottle.”

Obviously the next step is to eliminate the source of air since quantities present in sufficient amount to be audible are almost certain to cause premature mechanical failure.

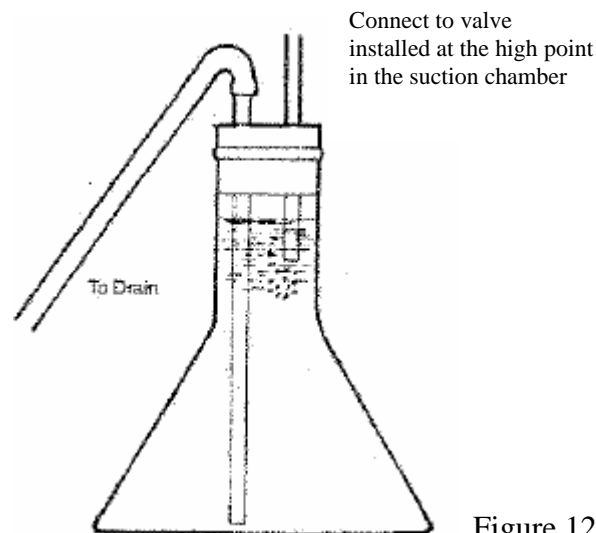


Figure 12

LaBour Pump Company – 901 Ravenwood Drive, Selma, Alabama 36701

Ph: (317) 925-9661 - Fax: (317) 920-6605 - www.labourtaber.com

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