



**“A Simplified Study In Filtration” - Part 3 of 10**

Last time we touched on “sources” of contamination, so now let’s look at some “causes” of wear that occur internally.

- 1. Abrasion.** Believe it or not, there are actually solid particles in the hydraulic fluid. These are grinding between moving surfaces and causing wear on the system. Through constant abrasion of these particles more abrasive particles are created.
- 2. Erosion.** This is very much like abrasion. The difference is when all the high speed, abrasive particles attack the surfaces, it causes damage and erosion.
- 3. Adhesion.** When metal moves against metal then adhesion or cohesion can occur. This will cause components to stick.
- 4. Fatigue.** Parts can become stressed, either through age, type of work, or contamination in the system. Fatigue can cause contamination, which, in turn, can cause fatigue. It can be a vicious cycle.
- 5. Cavitation.** If flow to the pump becomes restricted, either by the oil being too thick, a plugged inlet filter, too small of an inlet line, too many elbows in the inlet line, or even mounting the pump too high above the reservoir, then cavitation may occur by causing excessive vacuum. Bubbles in the fluid will form and collapse which will rip away portions of the metal surfaces of the pump.
- 6. Corrosion.** A surface can deteriorate due to corrosion (like rust) due to foreign substances in the fluid, even water, for example.
- 7. Aeration.** If there are particles that are too large to pass through clearances between moving parts, they will sit at the opening to these moving parts and form excessive gas bubbles in the fluid. This will obstruct flow from passing through the moving parts, which will jam components.

These are the major “causes” of internal system wear. Next time, in part 4, we will begin taking a look at filter placement in a typical hydraulic system and what you need to know and where to start. Stay tuned.....

**NEW PRODUCT FROM FLOW EZY**



This is our new **“OIL MIST SEPARATOR.”** An important consideration when designing filtration into a system, is to not only think of the fluid, but the air that enters and leaves the tank as the fluid level rises and falls. Air is a common source of contamination, too. Oil mist can create issues if released into the atmosphere and can render the tank breather useless by saturating the breather element. For these applications, Flow Ezy has designed a device to insure the oil mist doesn’t reach the breather. Costing more than half the price of other oil mist separators claiming to do the same thing, ours has been fully tested. Contact Flow Ezy for more information on how the new **Oil Mist Separator** can be a low cost, high performance benefit for your system and the environment.

*Shown here with Flow Ezy Tank Breather Model BF2043*

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From our house to yours, may you have a blessed and successful New Year. Be well! See you next year!



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