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The welcoming of a brand-new year means most of us will have pledged to change our ways—*hopefully for the better.*
I've always found the celebration of this holiday paradoxical: We lament our poor decisions and regrets of the past year, while hoping for transformation and a fresh start promised by the mere changing of date!

This year's celebratory toasting with friends prompted a lively discussion over how all those "tiny bubbles" got into our sparkling drinks. With a little on-the-spot, online research, we were shocked to learn the British—*of all people*—are credited with discovering that the presence of sugar causes wine to naturally carbonate during fermentation. This discovery, along with improved glass manufacturing and the use of cork bottle stoppers (an old Roman trick), allowed the Brits to enjoy "bubbly" wine (including that imported from the Champagne region of France) as early as the 17th century, well in advance of Dom Perignon and his band of merry monks.

Reflecting on these details, my thoughts turned to how the effervescence of aerated fluid can be so delightful and benign with regard to "open systems" like the human tongue and digestive track, yet so dangerous in "closed-loop" arrangements like our blood's circulatory system or a machine's hydraulic/lubrication workings.

In closed systems, tiny bubbles work in destructive ways, manifesting many types of damage. These include: 1) pump cavitation that rapidly erodes impellers and their seals, and leads to restricted fluid movement and poor component response; 2) shortened lube life, as additive packages are rapidly depleted fighting the foam and oxidization caused by excess air in the fluid, leading to the lubricant attacking the very bearings it's supposed to protect; 3) excess working of the fluid, creating internal friction that heats the lubricant and reduces its working life; 4) line hammer or "banging" of lubricant lines caused as air compresses and decompresses when it changes direction in the system, leading to leaking joints and additional air-entry points; and 5) air entrapment in hydraulic fluid that results in "spongy" and less-positive cylinder movements.

If you've noticed such symptoms in your equipment, maybe you should start 2012 in a different way: Open your PM cupboard and review how to better combat the evils of tiny bubbles.

For example, checking for correct reservoir fluid levels will ensure that air isn't pulled into the pump suction through lack of fluid coverage or that air isn't produced through "churning" of fluid when the reservoir is overfilled. Fluid-temperature checks will ensure that hydraulic fluids don't exceed 180 F, burning seals to failure and opening up air-entry points. Check for compromised seals, as well as the condition of all pump suction lines, clamps and hoses to ensure system integrity and absence of air-entry points. Check, too, for poor system component response and banging noises—*ask the operator to help with this one*. These are all easy checks that can be performed by maintainers and/or operators.

Keeping tiny bubbles at bay in your lubrication systems will pay dividends with the life of both fluids and components—*not to mention the overall efficiency of your equipment systems.* How resolute do you feel? Good luck and best wishes for a prosperous 2012!
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