

News FILTERS meet New Downsides

by Richard Ries

A FIRESTORM OF CHANGE IS affecting equipment manufacturers and owners. Caught in the middle are filter engineers.

Many changes are fundamental, such as the decision to filter case drain lines in hydraulic systems. Albert Cella, chief engineer of the hydraulics filter division at Parker-Hannifin, says there's never before been filters in that location.

Case drain filters don't normally filter hydraulic oil. They come into play at pump failure, trapping large chunks of debris that otherwise circulates through the system before being filtered.

"The pump will fail," says Cella. "That's a given." Controlling gross debris is damage control. "How long can you be out of service with the equipment after the pump fails?"

When a pump fails in a system with case drain filtering, repairs

are faster and less costly. There's a longer-term benefit, too. "You can always expect to replace a hydraulic motor after a pump failure," Cella says. Keeping pump parts out of the oil eliminates this.

Designers had to overcome the pressure differential between the case and the reservoir. By using a coarse medium, case drain filters don't affect flow characteristics.

Some filtration changes don't involve filters. Cella points to onboard particle counting. He says a stripped-down particle counter could perform continuous onboard sampling and trigger a warning when a threshold is reached.

You don't need to have the memory to process this data. Take the features out of a \$12,000 particle counter, Cella says, and you have an onboard unit that costs "a few hundred dollars."

Some new products add to existing filters. The Halex Coil from Halex Development is one example. The magnetic coil slips over the outside of a lube filter and pulls ferrous particles out of the oil stream, increasing the effective capacity of the filter medium.

WaterGuard Filters uses a molecular-bonding polymer to capture free, vaporized and emulsified water. The polymer removes free water up to 1,500 times more efficiently than the silica-based desiccant used in other dryer systems. Unlike silica gel, it removes water present in vapor form.

Dave Facker, marketing manager for the preventive maintenance products group at Caterpillar, points out a new air filter design offered by Caterpillar. It has polyurethane ends, which provide better sealing and reduce service time. The big news is a finer filter medium, increasing effective efficiency and capacity by stopping particles before they reach the conventional material.

Because equipment is constantly vibrating, particles fall off before they become a problem, says Facker.

Filter media debate

The Great Filter Debate this year surrounds filter media, especially cellulose versus synthetic. Synthetic media are all the rage because they are

Caterpillar uses beads for pleat spacing and a fiberglass roving wrapped around the filter to hold the pleats in place to reduce particle desorption.

