

COVER STORY

New, 'dirty' oil

► Doug Mickelson's entire Oil Transfer System involves two color-coded translucent tanks.

Each 27-gallon system is provided with an internal lighting system for easy viewing of oil levels in night or low-light conditions. Each system includes two, three or four filters that can be interchanged to switch to as many oil types as desired. In the foreground is a round, waste oil pan. The "pan-within-a-pan" holds 12 gallons below a stainless-steel wire cloth, which reduces splashing, filters and sand and debris. It allows the operator to know whether metal filings are coming from the engine or hydraulic system.

The pan is used for waste oil or recycling hydraulic fluid.



■ Man has proof that 'new' oil needs a scrub

HORACE, N.D. -- Until lately, Doug Mickelson thought he was the only one in the ag market talking about the need to clean "new" oil.

"I call it a necessity. People are very suspicious that new oil needs to be scrubbed, or cleaned," says Mickelson, who for the past eight

□ ON THE WEB: -

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years has been inventing and marketing a machine that cleans new crankcase and hydraulic oil, as well as recycling hydraulic oil, for farmers and others.

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Story and photos by Mikkell Pates, Agweek Staff

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But major manufacturers are cleaning oil for in-house use and are recommending it. As proof, Mickelson hauls out his sales binder that includes a letter from a Caterpillar oil testing laboratory in Bismarck, N.D., that describes the need for this kind of cleaning.

"This isn't hearsay anymore," Mickelson says.

Important words

In January, Mickelson sold one of his machines to the Minnesota Department of Transportation shop in Crookston, Minn. Bill Cassavant, northwest district shop supervisor, had heard Mickelson's sales pitch and applied for maintenance research dollars for the purpose. The agency spent \$3,400 for a machine and a case of filters.

Cassavant took samples of the hydraulic oil three times - when it was dirty, when it was filtered once and when it's filtered the second time. He sent samples to the Butler Caterpillar laboratory in Bismarck for an analysis and commentary.

Mark Mathys, lab manager for Butler Machinery Co. in Bismarck, had written to Cassavant. In the letter, Mathys comments on oil samples from the MNDOT and tells the MNDOT official that the new and recycled oil, cleaned by Mickelson's machine, will extend his oil change period by two to four times - and more. He says the filter cart is removing particles "much smaller than similar units I have seen."

"We have several mining customers who are filtering their systems and have over 10,000 hours on their hydraulic oil with no ill effect," Mathys writes.

Using the filtering machine on hydraulic oil could extend life expectancy of bearings and components by "two to seven times or even more," Mathys writes.

"Most new oil has high particle counts," Mathys adds. "Even our Caterpillar oil is filtered before we put it into the machines and engines in our shop because it does not meet Cat's cleanliness recommendations" of a 16/13 particle count.

The letter states that "any new" hydraulic oil or crankcase oil probably doesn't

meet exact minimum recommendations.

Mathys tells Cassavant to contact him with questions. "In the meantime, keep filtering that oil!" Mathys concludes.

In fact, Caterpillar recommends a 16/13 rating for new fill oils and 18/15 particle count for used hydraulic oil, Mickelson says.

Hard to swallow?

Cassavant says the whole concept of having to clean new oil was "hard to swallow" at first, but now his eyes are opened to the potential benefits. His primary interest is in eliminating hydraulic valve problems.

The MNDOT snowplow fleet has gone to electrically operated hydraulic spool valves, which take less room than older mechanical-style systems in the cab, but take dirt into the spools and jams or score the spool, causing sticking and leaking.

"I don't have enough experience with this machine to know if it's going to solve our problem, but I think it' the way to go because it removes that dirt in the oil," Cassavant says.

He says he'll be more willing to evaluate the results after a year of service in trucks.

Mathys says farmers' handling systems can contaminate oil. Whether they should clean oils depends on how they buy it. Quart containers generally are OK. Five-gallon buckets can be contaminated. Drums and bulk oils can be a problem. Sometimes a high particle count can be caused by additives, but a high count usually indicates dirty oil.

In the past five years, the Bismarck lab has handled some 3,300 samples, and 2,593 samples or 78 percent of the new oils were dirtier than 18/15 in particle counts. On hydraulic oil, there were 450 samples and 258, or 57 percent, were worse than 18/15 and 72, or 16 percent, were 21/13 or worse. Only 20 samples out of 450 were 16/13, or meeting Caterpillar's recommendations for new hydraulic oil.

On engine oil, there were 2,053 samples, and 1,970, or 96 percent, were 18/17 or dirtier. Most of the few that met a 16/13 level came from quart containers, he says.

"Caterpillar's recommendation has